

Electronic Phuture

by

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Abstract

The present Master's thesis analyzes a series of five compositions based on early forms of house and techno music. Music scores and audio recordings are included as a reference for the analysis of each composition. To establish the relationship between the compositions and those of their stylistic origins, the first chapter begins with a brief overview of the history of electronic music in the second half of the 20th century. Ultimately, it elucidates the creative process of early house and techno producers. The second chapter describes all of the instruments and equipment that were used in the audio recordings of the five compositions. The functions of the audio effects used in the recordings are detailed and high profile uses of famous instruments are referred to with specific recordings and notable users. The five compositions are then analyzed sequentially from chapter three to seven. Insights are drawn through an examination of the musical form, harmony and melody of the works in addition to what influenced the creative process.

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Introduction

In the beginning there was Jack, and Jack had a groove.
And from this groove came the groove of all grooves.
And while one day viciously throwing down on his box,
Jack boldly declared, “Let there be house!”
And house music was born.

Chuck Robert’s seminal lyrics, originally sung on Rhythm Control’s *My House* (1987) and further sampled on *Can You Feel It?* (1988) by Fingers Inc., continue to reverberate in the underground world of dance music. As a playful ode to the Gospel of John these lyrics evoke the spiritual and transcendental nature of the house music experience. There are five compositions that accompany this thesis. Each one of these compositions is inspired by early electronic dance music styles such as Chicago house and Detroit techno. To imitate these musical styles the instrumentation of each composition is built around electronic instruments of the era. Not only does this include software emulations of common instruments of the 80s, but it also includes hardware synthesizers and drum machines. Today, the most commonly used instruments and effects for the creation of electronic music are software applications. The instrument or effect could be something novel or an emulation of a piece of hardware. I began composing electronic music exclusively with software applications but gradually acquired a vast range of hardware electronic instruments and other pieces of equipment.

The musical material for this thesis was recorded and created in three ways. A Digital Audio Workstation (DAW) was employed on four out of the five recordings. The DAW was used in either one of two methods. The first method, which is true of three works in this thesis, was to compose entirely within the DAW with virtual instruments and then to further shape and design the sounds using digital audio effects processors. The second method, utilized for one composition, followed a system of recording hardware instrument performances executed live and then to process, edit, and master the audio within the DAW. Outside of these four recordings, another composition was created and recorded without the use of a DAW. This is the third and final way in which the music was created and recorded. The composition was conceived on hardware equipment and instruments alone and then recorded directly from a sound mixing board from a live performance that I executed. As a listening guide for the reader this thesis includes two separate forms of music notation to accompany the compositions. In the appendices, there are three musical scores that are included as a reference for the recordings composed entirely within the DAW *Logic Express 8*. The musical patterns and sequences that were created on hardware instruments are also included for reference in a basic type of notation that I extracted from step-sequencer information and then plotted into a custom table.

Through my research I now understand that early forms of electronic dance music have made a tremendous impact on the world of pop music. While many of today's pop hits carry a dance floor appeal to popular music consumers,

they lack the underground essence that would captivate a hardcore house or techno enthusiast. Now more than ever, the *Billboard Hot 100* is full of content based on electronic instrumentation. Electronically generated sounds are extremely popular among mass music consumers. In the last decade, hip hop has slowly begun to become increasingly more electronic with the rise of “trap” beats. Even an underground sound like that of Roland’s TB-303, most notably used in acid house, has occasionally resurfaced since its first use on a record in the 80s. This sound was recently exploited by LMFAO in their smash hit *Sexy And I Know It* (2011). Furthermore, despite a rather commercial pop music market the highly popular crossover act Disclosure have found success with their 2015 album *Caracal*. The album reached the ninth spot in the *US Top 200 Albums* chart and features predominantly house inspired music. *Latch*, Disclosure’s 2013 single featuring Sam Smith, reached number seven on the *Billboard Hot 100*. *Latch* is so appealing that it can easily be played in an underground or a commercial club or festival setting. The numerous instances where something popular in the underground has crossed over into the mainstream has always intrigued me. Out of my curiosity arose a need to trace back the steps of electronic music and to its roots and influences.

As my research continued and I discovered Chicago house and Detroit techno, I was drawn in deeper as a listener because of the raw energy in the music. My interest grew fanatically and my attention was temporarily diverted away from my practice of guitar in the realms of punk, ska, and reggae. Here, I

began to explore the world of synthesizers and drum machines. This continued and I expanded my collection of instruments and knowledge of sound synthesis and audio design. The relationship between the simple punk, ska and reggae grooves to that of house and techno eagerly attracted my ears. Whether it is a masterfully produced or simply lo-fi recording has never made a difference to me. I enjoy a multitude of electronic releases and I have collected hundreds of 12” vinyl records. While it is amazing to sit and listen to a technically proficient band, I prefer to get up and dance to simple, energetic, and raw music which suits my sprightly personality. Simple repetitive music has always had a place in my heart. Early rock and roll music, from the likes of Chuck Berry or Little Richard, encompasses the feeling that I seek out when I want to listen to music created for dancing or social gatherings. House, techno, and the derivative forms of these styles that are further explored in this thesis compliment my tastes and preferences.

This thesis begins with a brief history of electronic music in chapter one. Notable recordings, bands, DJs and producers are discussed in addition to the types of equipment that were available in the early development of underground electronic dance music styles. In chapter two all of the instruments, audio effects, hardware equipment and software applications that were used to produce the audio CD that accompanies this thesis are briefly described. Notable users of some classic hardware electronic instruments are provided as well as specific recordings that feature these instruments. Following this, the compositions that I

produced for this thesis are then discussed between chapters three and seven.

Each of these chapters follows the same format: 1) a description of the equipment and instrumentation, 2) an explanation of the audio effects setup, and 3) a

musical analysis regarding the form, melody and harmony of the composition.

The last chapter will conclude with some final thoughts about the creation, development and submission of this thesis.

Chapter 1: Musical Styles and Influences

The five compositions discussed between the third and seventh chapter of this thesis were inspired by late 80s and early 90s underground dance music such as house and techno. The history of what led up to the emergence of these styles will be described first and then to the styles themselves will be described.

The composers of early house and techno were influenced by a broad array of genres including disco, funk, electro, and synthpop (Snoman 2009, 233). The punk rock ethos of Do It Yourself (DIY) was a necessity for these emerging artists as major labels were not interested in dance music following the popular demise of disco which started in 1979. Although the anti-establishment attitude of punk rock was not adopted by every electronic dance artist, Paul Hartnoll, of the influential UK act Orbital, acknowledges that:

Punk influenced me in terms of my attitude rather than any specific musical references, and we certainly sampled a lot of that music and brought that attitude to house at a time when it was in no way regarded as the way forward. You were supposed to be on drugs and hedonistic, whereas we like to sample people who were talking about 'smashing the system'! That always seemed like the obvious route to me. (Buskin 2006)

Many of the original house and techno records were recorded in bedroom studios by young amateur producers in Chicago and Detroit including: Marshall Jefferson, Armando, Phuture, Cybotron, and Rhythim Rhythim. As electronic instruments became more affordable and accessible in the 1980s a new generation of musicians gained their own artistic voices and these new genres

were formed (Columbo 2010, 1). While punk rockers only needed three chords to create music, early house and techno producers created music with a single bass line from a synthesizer, a few drum patterns from a drum machine, and harmony from another synthesizer or sampler. *Go Wild Rhythm Trax* by Virgo (1985) was composed entirely with a Roland TR-808 drum machine. As a result of the raw simplicity and sometimes rather amateur studio production (Bainbridge 2013, 26) quality of the music, house and techno remained underground for many years before breaking into the mainstream.

The techno-rebels contend that technology need not be big, costly, or complex in order to be “sophisticated” [...] Some reach out for the latest materials and scientific tools and combine them in new ways with old techniques. (Toffler 1980, 168)

Rather than shy away from electronic instruments that were quickly discarded in second hand stores — most notably some of the programmable drum machines and synthesizers produced by Roland — music creators in Chicago and Detroit embraced the technology and pioneered innovative means of exploring the full potential of the instruments. These very same instruments laid the foundation of what would define house and techno records, not to mention the countless derivative styles that emerged following the dissemination of house and techno around the globe.

Early Electronic Pioneers

The roots of electronic music and electronic soundscapes are found in a variety of sources — from the work of musicians and audio engineers at the BBC

Radiophonic Workshop; synthesizer inventors Bob Moog and Dave Smith; composers Karlheinz Stockhausen and Wendy Carlos; or bands and artists such as Kraftwerk, Jean Michel-Jarre, Tangerine Dream, Yellow Magic Orchestra, Brian Eno, Giorgio Moroder, Parliament Funkadelic, and Gary Numan. These are but only a few of the many pioneering users of electronic instruments and innovators of sound editing techniques.

Due to the steep and extravagant prices of first generation synthesizers, manufactured by Moog Music, Arp Odessey, and Electronic Music Studios in the 70s; and programmable sample based drum machines, manufactured by Linn Electronics and Oberheim Electronics in the early 80s; these types of instruments remained out of reach for the budding musician with little disposable income. The early users of synthesizers and drum machines were generally artists or bands who had signed contracts with major or established independent recording labels. The high cost of these instruments created an environment where only these record labels had access to the recording studios that possessed this expensive gear. The respective artists who had a chance to work with these novel instruments were able to experiment with them and see what they could achieve musically. A few examples of this are: Pink Floyd, Moody Blues, Yes, The Who, King Crimson, The Human League, Prince, New Order, Michael Jackson, and Giorgio Moroder. Each one of these bands or artists is known for their early use of electronic instruments like the synthesizer or the drum machine.

Kraftwerk, a German band formed in 1970, is by far one of the most influential groups on musicians and composers who create electronic music. As the Ramones are to punk rock and its derivatives; Kraftwerk is to house, techno and their derivatives. Kraftwerk is one of the first bands that performed and recorded with an instrumentation made up entirely of electronic instruments. Synthesizers were complemented with synthetic drums and processed vocals. The drums consisted of multiple pads that triggered the synthetic percussion sounds of a Farfisa Rhythm Unit 10 when they were hit (KraftwerkFAQ 2016). Interestingly enough, the band had to engineer this instrument themselves in true DIY fashion. This arose out of necessity rather than want because instruments like this weren't yet commercially available. For example, their fourth album *Autobahn* (1974) predates the commercial release of the first playable electronic drum — the Pollard Syndrum — which was launched two years later in 1976. *Autobahn* became the album that defined the electronic sound of Kraftwerk. Prior to this album the band used traditional rock instruments and performed improvisatory avant-garde music.

Kraftwerk is a notable influence on numerous musical styles. This ranges from industrial, synthpop, avant-garde, techno, house, acid house, electro and hip hop (Bussy 2001, 174; Rogers 2013). *The Mix* (1990), a compilation album which features reworks of Kraftwerk's most popular compositions, revamped the group's sound with a more up-tempo dance oriented feeling (Bussy 2001, 154). The influence of techno and house is evident as Kraftwerk employed the use of a

TR-909 drum machine throughout *The Mix* (Brocker 2010, 113). Previously, the group had never used the instrument on any of their albums. The catalogue of pioneering techno record labels such as Metroplex, Transmat, +8, Warp, Outer Rhythm, Network, Tresor and R&S is littered with the influence of Kraftwerk's music. Kraftwerk's sonic influence can be heard on releases such as *The True Techno* (1992) by Model 500, *Join The Future* (1991) by Tuff Little Unit, *Steel City E.P.* (1990) by FXU, *Testone* (1990) by Sweet Exocist, *Easy Life* (1990) by Cabaret Voltaire, *Man Machine* (1989) by Man Machine — *Man Machine* is also the title of a Kraftwerk album from 1978 — and *Nude Photo* (1987) by Rhythim Is Rhythim.

Death of Disco

Disco emerged as a form of underground dance music in the early to mid 1970s. The birth of modern club culture accompanied disco's emergence (*The Joy of Disco* 2012). It was a form of music originally played at clubs frequented by gays and minorities (Bidder 1999, 282; Dalphond 2014, 56; Snoman 2009, 232; *The Joy of Disco* 2012). The music was fueled by DJs and independent record labels (*The Joy of Disco* 2012; Columbo 2010, 10). This meant that what became popular on the dance floor then exploded on the pop charts rather than the other way around. Prior to the stylistic classification of disco, it incubated in the American DJ culture of late 1960s and early 1970s New York. Most notably, it was through David Mancuso's private parties where this culture began. DJs in the pre-disco scene would play R&B records and extend their breaks with the use of

two turntables and two copies of the same record. DJs of the early 70s pioneered the technique of beat-matching two records together to create seamless mixes (Colombo 2010, 5). Earl Young, a Philadelphia based drummer, is known to have invented the four-on-the-floor beat that disco became known for (*The Joy of Disco* 2012; Colombo 2010, 10). This genre defining beat that Young pioneered is first heard on *The Love I Lost* (1973) by Harold Melvins and the Blue Notes.

I Feel Love (1977), by Donna Summers, was a game changing record in the disco scene. The backing track, created by Giorgio Moroder, was composed entirely of synthesized sounds. This was an uncommon practice at the time as the extravagantly produced sound of disco generally featured rich string and brass arrangements and state of the art audio engineering. Although the kick drum was recorded from a drum set, Moroder states that he created all of the other parts of the instrumental track with a Moog Modular (McConville, 2014). The other percussive tones that were created for the drum track are deceptively realistic. The synthesized hi-hats are especially impressive. In the liner notes of his five CD box set, *Sound + Vision* (1989), David Bowie asserts that Brian Eno was extremely impressed with the electronic sound of *I Feel Love* (Swanson, 2012).

One day in Berlin ... Eno came running in and said, "I have heard the sound of the future." ... he puts on "I Feel Love," by Donna Summer ... He said, "This is it, look no further. This single is going to change the sound of club music for the next fifteen years."

Giorgio Moroder would go on to become an extremely influential producer for future EDM artists. *The Chase* (1978), an instrumental track he composed as

part of the soundtrack for the film *Midnight Express* (1978), reached number 33 on the *Billboard* Hot 100. Due to the futuristic sound of the synthesizers, *The Chase* and others tracks like it were characterized as space disco. The rising popularity of science fiction in the late 70s and the release of *Star Wars* (1977) may have also contributed to this style branding as interest in fantasy and space themes in popular literature and film grew and then spilled over into popular music (Kantonen, 2006).

While the surge in popularity of disco in the late 70s produced hit-making artists like the Bee Gees and Donna Summers, this type of dance oriented music was pushed back to the underground after a backlash that followed its commercial success between 1977 and 1979. During this time disco songs pervaded the top 100 of the US Billboard Chart. For example, the soundtrack for the film *Saturday Night Fever* (1977) — which sold 40 million copies worldwide — is still among the top ten bestselling albums of all time (Anderson 2010) highlighting the popular appeal of disco. The backlash hit a height with the “Disco Demolition Night” on July 12, 1979 (Reynolds 2013, 18; Sicko 2010, 23). This event took place at Comiskey Park in Chicago, Illinois during a baseball game between the Chicago White Sox and the Detroit Tigers. It drew nearly 60,000 participants who rioted after a pile of disco records were blown up during the game (Mastropolo, 2015). Soon after the summer of 1979, major recording labels backed away from disco acts and the flood of new material began to dwindle (Rule 1997, 46).

Post-Disco to Proto-House

Clubs that played disco music did not go out of business despite the commercial backlash and supposed “death of disco”. The Paradise Garage opened in New York during the disco boom. It remained in business from 1977 until 1987 after the arrival of house and techno. In Chicago, the Warehouse opened in 1977 but was renamed the Music Box in 1983 after its resident DJ Frankie Knuckles left to open the Power Plant (Bidder 1999, 190; Reynolds 2013, 21). Larry Levan was the superstar DJ at the Paradise Garage; Knuckles carved out his mythology at the Warehouse; and Ron Hardy — replacing Knuckles — was a legend at the Music Box.

Hardy, Knuckles and Levan were seminal DJs in the club culture of the early 80s. They each had their own distinct style of music selections and mixing techniques that had a huge influence on the budding house and techno scenes. Tracks that were played at the Warehouse were gradually referred to as “house” records. Customers of Imports Etc., a record store in Chicago, requested “house music” in hopes of finding a record that was being played by Knuckles at the Warehouse (Bainbridge 2013, 24; *Pump Up The Volume* 2001). This period of music filled in the gap between disco and what would soon become known as house and techno. As the supply of fresh disco and other groove based music began to dry up, Knuckles started to incorporate innovative techniques in his DJ sets (Reynolds 2013, 22). He developed a skill to creatively cut and splice bits of records together on reel to reel tape machines (Bidder 1999, 189; Rule 1997, 46;

Snoman 2009, 233). Rather than simply waiting for the market to return so that he could purchase new records, Knuckles began re-editing old hits to create new music that worked in the club.

What we see is a pattern that cuts across many industries—increasing externalization, increasing involvement of the consumer in tasks once done for her or him by others. (Toffler 1980, 288)

Knuckles was also was one of the first to use a drum machine, the Roland TR-909, live as a rhythmic accompaniment in his DJ performances (Reynolds 2013, 22). He acquired the TR-909 sometime in 84' or 85' after Derrick May showed up at the Power Plant and sold it to him. Prior to this he had used the preset rhythms of the Nomad Rhythm Maker, a rhythm box that was built into some organs of the late 60s, to layer under his DJ mixes at the Warehouse (Broughton 1995; Computer Music Specials 2012).

On And On (1984) by Jesse Saunders, marked the first house record. Prior to this record, there hadn't been a distinct Chicago house single that had been officially released. Some of the house music that was played at the Warehouse, the Power Plant and the Music Box in Chicago prior to 1984 was recorded onto cassettes or edited on reel to reel tape machines by locals who were inspired by Knuckles (Reynolds 2009, 22). This house music was mostly made up of beats and bass. It featured the new synthesizers and drums machines that were finally affordable for young producers to purchase (Colombo 2010, 1). *On And On* was created from a re-interpretation of the bootleg *On And On* (1980), a DJ remix

record by Mach. Saunders often played the record in his DJ sets but the record was unfortunately stolen. He took the bass line, which was sampled from *Space Invaders* (1979) by Player, and created his version with *On And On* (1984). Then, Saunders approached Larry Sherman, who owned the only pressing plant in Chicago, to print a thousand copies of the single. When Saunders came back to print up more copies, Sherman was so impressed with the response that he founded Trax Records with Vince Lawrence, co-writer of *On And On* (1984), and started to release some of the earliest house records (Reynolds 2013, 22).

Rejected Roland Instruments

In the early to mid 1980s Roland Corporation of Japan released many instruments that became quintessential pieces of studio gear for musicians who created electronic music in the 80s, 90s, and beyond. Famous synthesizers that were produced by the company during this period include: Juno-106, Jupiter-8, TB-303 and SH-101. The company also produced numerous drum machines in the TR-XoX series ranging from: TR-808, TR-909, TR-606, TR-707, TR-727 and TR-505. The history of these instruments is interesting and will be briefly discussed in the following pages.

In 1980, Roland released the “Rhythm Composer” TR-808, an analog drum machine with programmable patterns. It was soon followed by the TB-303 bass line sequencer in 1982. The TB-303 and the TR-XoX instruments were marketed towards musicians looking for drum and bass backing tracks to record demos. At the time of its initial release the TR-808 was sold for US\$1,195. This

was a much more affordable price than the 1980 popular sample based Linn Electronics LM-1 which retailed for US\$4,995. The TR-808 and TB-303 were promptly rejected by consumers and both discontinued in 1984. The TR-909, a hybrid analog/sample based drum machine, followed in 1983. It was also priced at US\$1,995 but was discontinued by 1985. Linn Electronics followed the LM-1 with the LinnDrum in 1982 which, although was cheaper than the LM-1, was still rather expensive with a list price of US\$2,995 (*Attack Magazine* 2012).

The commercial failure of the TB-303 resulted from its synthesized sound and fickle programmability (Owen 2013). It was notoriously difficult to program as a bass instrument and a complete flop for those who wanted to use it for bass accompaniment. The learning curve, programming difficulty, and lack of flexibility for improvisation or articulations led those who had purchased it to quickly abandon it (Hammill 2014). The drum sounds of the TR-808 and all but three of those of the TR-909 were created with analog circuitry. The popular drum machines of the time were all based on digital sampling. The synthetic sounds of the TR-808 and the TR-909 were deemed to be too phony by many artists of the time (*Attack Magazine* 2012; Lockwood 2014). During the two year production run of the TB-303 Roland produced 10,000 units (Owen 2013). A similar number of TR-909's were manufactured in its one year of production (Rule 1999, 81), while 12,000 units of the TR-808 were produced during its three years of production (95). These instruments, along with the other TR-XOX's,

were all commonly found in second hand stores and pawn shops after production ceased (Annis 2016).

Although the TR-808 is prominently featured on Marvin Gaye's *Sexual Healing* (1982), it was quickly considered an instrument for a studio on a budget along with the TB-303 and other TR-XOX's. This perception led to the ultimate experimentation and usage which culminated in urban areas of the US like Chicago and Detroit. Many house and techno pioneers purchased the rejected Roland instruments in second hand shops for a fraction of their original retail prices and created genre defining tracks (Annis 2016). The legacy of these instruments is set in stone. They have had an undeniable influence on the evolution of electronic music and have formed the basis of multiple dance styles that emerged in the 80s and 90s. These Roland instruments became the foundation of early house and techno and not to mention electro and hip-hop. For example, while a TB-303 and TR-808 were both used on Jesse Saunders' *On and On* (Rule 1997, 49), they were also used on the record *Jam On It* (1984) by Newcleus. Newcleus was a hip-hop group that rapped over an electro sound inspired by New York's Afrika Bambaataa. Afrika Bambaataa famously recorded the TR-808 on their underground hit *Planet Rock* (1982) in addition to featuring a sample of Kraftwerk's *Trans Europe Express* (1977).

Chicago House

The DJs of Chicago had created a new dance music from the ashes of disco. (*Pump Up The Volume* 2001)

As previously stated house emerged out of Chicago in clubs like the Warehouse and the Music Box at the helm of DJs like Frankie Knuckles and Ron Hardy. Record labels like Trax Records and DJ International Records not only fueled the house movement in Chicago but helped to eventually get the records distributed to other US cities and to Europe (Reynolds 2013, 23). Unfortunately, the legacy of Trax Records and DJ International Records are both tarnished by a poor reputation with respect to fairly compensating their artists. Many records are tainted by much discussion of artists being ripped off by their labels (Reynolds 2013, 22-23; Bainbridge 2013, 26). Seminal tracks that exploded in the house scene like *Can You Feel It* (1986) by Mr. Fingers and *No Way Back* (1986) by Adonis set the tone for the type of stripped down driving dance music that would follow and influence American and European producers. *Can You Feel It* is considered by many to be the first “deep” house record ever produced. *No Way Back* can be regarded as a precursor to “acid” house due to its minimal instrumentation and use of a TB-303. The record simply consists of a vocal track, a TR-808 and an un-modulated TB-303.

Marshall Jefferson is the first Chicago house producer to make use of a piano (*Pump Up The Volume* 2001) in his song *Move Your Body (The House Music Anthem)* (1986). Prior to this, Chicago house was mostly based around drum machines, heavy bass and samples. This is illustrated by Frankie Knuckles description of the type of music Jesse Saunders was playing in his DJ sets.

They started putting together their own beat tracks [...] they were into playing a lot of beat tracks all night long. (Broughton 1995)

In an interview with Doran (2013) Jefferson provides insight into how he was drawn into dance music. During his time working the night shift at a post office, he would listen to the *Hot Mix 5* radio program. The show was founded by Farley “Jackmaster” Funk, Mickey “Mixin” Oliver, Ralphie Rosario, Kenny “Jammin” Jason, and Scott “Smokin” Silz in 1981 for WBXM’s *Saturday Night Ain’t No Jive* mix show. Jefferson states he was truly inspired by the show because the DJs would mix up to 40 songs per hour with their creative turntable techniques. Jefferson further elaborates that he started to make music in 1984 after purchasing a variety of equipment from a music store that gave him a ten thousand dollar line of credit. He purchased a sequencer, a drum machine, a TB-303, two keyboards, a mixer and stereo equipment. He would go on to compose *Move Your Body* two years later on the same equipment (Doran 2013).

Jefferson released his first record *Go Wild Rhythm Trax* (1985) on his own Other Side Records with the help of Vince Lawrence. He pressed up 1000 copies for \$1500 at the pressing plant that was owned by Larry Sherman (Simpson 2012). As previously stated, Sherman started Trax Records, in consultation with Vince Lawrence, to capitalize on the emerging house scene that was flourishing. Jefferson admits that Sherman made a lot of money from *Go Wild Rhythm Trax* because he didn’t make any (Doran 2013). The record is notable for the extremely stripped down compositions made almost exclusively with a TR-808. *Move Your*

Body on the other hand is known as the first house track to prominently feature a piano. Sherman originally refused to release the recording on Trax Records because he didn't think a house song could have a piano. Ron Hardy was playing a version at the Music Box that Jefferson had given to him on cassette in August of 85'. Even though it was a big hit in the Chicago clubs, *Move Your Body (The House Music Anthem)* wasn't officially released on Trax Records until June of 86'. Jefferson's musical style was so influential that DJs would hire keyboard players to "play keyboards like Marshall Jefferson" (Simpson 2012). The style that he developed would be highly influential and create a blueprint for the aesthetic and emotion of the newer house releases that followed (Bidder 1999, 177).

Detroit Techno

Sonically, Detroit techno is quite different from Chicago House despite the mild overlap and dance floor sensibility. Its producers drew from the sound of American funk and European electronic music from groups like Parliament Funkadelic and Kraftwerk. This is in contrast to the heavy influence of R&B, disco and soul found within Chicago house. Almost no vocals were sung on Detroit techno releases. If there were any vocals, the audio was drastically processed to achieve a mechanized robotic timbre much like Kraftwerk's vocal tracks.

Furthermore, techno was distinctly much more developed by 1985 over many house records in terms of the song arrangements or concepts. This is obvious when the Trax and DJ International record catalogues are compared to that of

some of the record labels discussed below. While the catalogue of music coming out of Chicago was perfect for the club environment and for DJs to chop up and mix, the techno tracks that came out of Detroit stand out as much more listenable outside of the club environment.

The scene that arrived in Chicago in the late 70s did not arrive in Detroit. There were no lavish nightclubs. There was a very different nightlife among the youth of Detroit. The scene was built around social parties in the early 80s rather than specific clubs (Sicko 2001, 18-22). However, those who were interested in a proper nightclub experience would travel to the Warehouse and Music Box (*Pump Up The Volume* 2001). Techno developed among a group of individuals who were in fact influenced by the emerging house scene less than 300 miles away in Chicago (Sicko 2011, 49-51).

Aware of both the city's former glory and its future possibilities, these artists found hope in a decaying infrastructure where none apparently existed. This optimism and empathy would run deep in techno music, even as early as Cybotron's 1984 classic "Techno City," on which Juan Atkins's vocals are processed to sound ancient and mysterious, echoing the old soul of Detroit, while his lyrics welcome visitors to the city. (Sicko 2001, 36)

It's not like any other major metropolitan city; it's not shiny and new. It's decaying like an ancient city in Europe.

- Juan Atkins (Ferguson 2010)

Detroit's desolate atmosphere helped shape the sound of techno in a different direction than house. Juan Atkins, Derrick May, and Kevin Saunderson — collectively referred to as the *Belleville Three* — pioneered the sound that would eventually be referred to as Detroit techno. Atkins founded Metroplex

Recordings 1985; May founded Transmat in 1986; and Saunderson founded KSM in 1987. Some of the most quintessential Detroit techno singles were penned and released by these label owners. Influential tracks include *No UFOs* (1985) by Atkins as Model 500 (Metroplex), *Strings Of Life* (1988) by May as Rhythim is Rhythim (Transmat) and *Big Fun* (1988) by Saunderson as Inner City (KMS). The release of *Techno! The New Dance Sound Of Detroit* (1988) marked the official birth of the name associated with Detroit made dance music (Sicko 2010, 68). This compilation would officially distinguish the sound of Detroit techno apart from that of Chicago house once it was distributed throughout the US, Europe and the UK.

While the Belleville three would tune into the Hot Mix 5, like so many other house enthusiasts, it was a radio program developed by Charles Johnson — known as the “Electrifying Mojo” — that really grabbed their attention. On his program, Johnson played a mixture of European instrumentals, new wave, funk, rock, and soul. He had a mysterious and eclectic on-air personality influenced by futurism and spiritualism which resonated with techno producers in Detroit (Sicko 2010, 37).

When I first heard synthesizers dropped on records it was great... like UFOs landing on records, so I got one.

- Juan Atkins (Reynolds 2013, 4)

Along with Rick Davis, Atkins formed Cybotron and released *Alleys Of Your Mind* (1981). Then, *Cosmic Cars* (1982) followed and *Clear* (1983) succeeded that. Although not yet considered techno, these early Cybotron

releases laid the foundation from which techno could be built. The early techno releases from Detroit were much more complex and thoughtful than the minimal sound of early house beat tracks that were recorded in Chicago. The drum patterns were rooted in funk rather than disco. Instead of the four-on-the-four kick drum rhythm typical of disco, the drum programming of Cybotron's music emulated the break beat drumming rhythm of funk and soul music. While the music of Cybotron has techno elements in it, it's considered electro or proto-techno. Electro was a term derived from electronic-funk (Sicko 2001, 45).

Due to creative differences between Atkins and Davis the group broke up in 1984. In 1985, Atkins formed Metroplex and began to release music as Model 500. Model 500's first release, *No UFOs*, is considered the first techno track to come out of Detroit. The sound of the record was geared much more towards a dance floor in contrast to the earlier works of Cybotron but still maintained a sense of musicality for pure listeners. In *No UFOs*, Atkins incorporates a four-on-the-four drum pattern but retains the funky melody and timbre of the bass he developed with Davis in Cybotron. At 3:14 the track cuts to a break down that is centered on the beats of the drum machine — a clear linkage to what was happening in Chicago clubs. Halfway through this, a heavily delayed vocal of non-sensible syllables is sung atop of the drum beats perhaps influenced by Ron Hardy's abrasive style heard at the Music Box. Hardy was known to add his own sound effects on top of records during his DJ sets.

Charanjit Singh

One of the earliest albums to feature acid house — before it supposedly even existed — was *Ten Ragas To A Disco Beat* (1982) by Indian musician Charanjit Singh (*The Quietus* 2013a). In 2010, a renewed interest in the album began. As a result, Singh started touring with the album’s material and performing it live on hardware instruments at electronic music events around the world. He passed away in July 2015 at the age of 75.

Ten Ragas To A Disco Beat was created using three Roland instruments: the TR-808, the Jupiter-8 and a TB-303 (Pattison 2010). This album is one of the earliest records to feature the TB-303 (Aitken 2011). Although there were other records that utilized the TB-303 prior to the house movement in Chicago, *Ten Ragas To A Disco Beat* presents a unique example of the TB-303 used as part of an instrumental album based around disco beats — a novel feat in 1982. While the TB-303 was used rudimentarily as an accompanying bass instrument to the drum and synthesizer in *Ten Ragas To A Disco Beat*, resonant filter sweeps — that characterize the sound of acid house — can be heard from the Jupiter-8. These sweeps and sequences bear a very similar resemblance to the “acid” bass lines of the TB-303.

The album features music that was inspired by disco. It combined disco with several Indian Raga’s in 10 different tracks. Singh explains:

There was lots of disco music in films back in 1982. So I thought why not do something different using disco music only. I got an idea to play all the Indian ragas and give the beat a disco beat –

and turn off the tabla. And I did it. And it turned out good.
(Aitken 2011)

Unfortunately, at the time of the release of the record, it was a commercial failure. More recently, it has gained a renewed interest among electronic music fans and the album was even re-released in 2010. The production quality and engineering of the album is quite incredible and features a hypnotic rhythm section backing up Singh's technically proficient synth solos.

Acid House

Essentially, the acid house style can be created solely using Roland sequencing box instruments and synthesizers with on-board arpeggiators. Acid house's proliferation emerged out of Chicago house from producers who used the TB-303 in an innovative way. The innovation came about from tweaking the cutoff of the TB-303 with the resonance knob fully applied. This technique produced the other worldly "acid" sound.

Acid Tracks (1987) by Phuture is arguably the first acid house track that was created in Chicago. It was conceived in 1985 and circulated on copies of cassettes. Prior to its official release it was referred to as Ron Hardy's "Acid Track". One night, Hardy received a copy from Phuture and played it at the Music Box up to four times that same night. The crowd had a mixed reaction the first time they heard it but started getting wilder each time it was repeated. The sound of the record was unlike anything else that preceded it in Chicago. The funky TB-303 sequence of the *Acid Tracks* bass line and hypnotic drum programming

influenced many records that succeeded it like *Flow Coma* (1988)¹ by the British group 808 State.

Armando was another influential Chicago acid house producer. He is well known for *Land Of Confusion* (1987) and *Downfall* (1988)². While each of these records is driven by the TB-303, *Land Of Confusion* utilizes a TR-707 for percussion while *Downfall* utilizes a TR-505. Armando's approach to composing was very simplistic in these early recordings. He composed one pattern on the TB-303 and one pattern on a drum machine. While playing these two patterns simultaneously from the instruments' sequencers, Armando built up and broke down the energy of the tracks live in the recording studio by tweaking the parameters of the TB-303 while adding and removing individual drum sounds.

Chicago acid house exploded as numerous records came out on Trax and DJ International with a tweaked out TB-303. *I've Lost Control* (1985) by Sleazy D is another track released in the year of the birth of acid house. Marshall Jefferson created the track drawing on the inspiration of rock groups like Black Sabbath and Led Zeppelin. As Reynolds (2013, 32-33) points out, the track bears similarities with the mid section of *Whole Lotta Love* on Led Zeppelin's second album *Led Zeppelin II* (1969), as well as the vocal processing in *Iron Man* by Black Sabbath from their album *Paranoid* (1970). Other popular acid house tracks from Chicago include: *Acid Over* (1987) by Tyree, *Acid Thunder* (1988) by

¹ *Flow Coma* is found on the album *Newbuild* (1988).

² *Downfall* is found on the compilation album *Acid Trax* (1988).

Fast Eddie, *Machines* (1988) by Laurent X, *Box Energy* (1988)³ by DJ Pierre, *Acid Poke* (1988) by Adonis, *Where's Your Child* (1988) by Bam Bam, and *The Acid Life* by Farley "Jackmaster" Funk⁴.

Acid house exploded in England around 1988 in tandem with massive illegal raves of more than 10,000 people which captured the youth of the nation by storm. Acid house's popularity in England created a degree of tension between the youth, the media and the politicians. The BBC all but banned any records that referenced acid house (Aitken 2013). The fervor was reminiscent of the British punk movement of the 70s when the Sex Pistols made national headlines and were banned from many venues and radio stations. The proliferation of Chicago house, acid house and Detroit techno in England and Europe ignited numerous off-shoots like new beat, acid techno, break-beat acid, and trance.

Beyond Chicago and Detroit

An explosion of popularity in house, techno, and acid house emerged in the late 80s in the UK. In 1987, *Jack Your Body* by Steve "Silk" Hurley reached the No. 1 spot in the UK Singles Chart (Reynolds 2013, 23). Acid house took the UK by storm and out of this explosion emerged artists such as 808 State, A Guy Called Gerald, Future Sound Of London, Orbital, Underworld and Aphex Twin.

The seminal British acid house album *Newbuild* (1988) by 808 State pushed the envelope of the genre with completely unique and complex tracks like

³ *Box Energy* is found on the compilation *Acid Trax Volume 2* (1988).

⁴ *The Acid Life* is on *No Vocals Necessary* (1988) by Farley "Jackmaster" Funk.

Flow Coma. *Flow Coma*'s influence is extremely discernible on Hardfloor's album *TB Resuscitation* (1993). This album includes tracks such as *Lost In The Silver Box*, *Trascript*, *Teebeestroica* and *Acperience 1*. *Newbuild* was built around improvisations performed on hardware electronic equipment according to founding member Graham Massey, which he stated in an interview regarding the 2013 REBUILD tour he embarked upon with A Guy Called Gerald. Along with Massey, A Guy Called Gerald worked with 808 State on the *Newbuild* album prior to embarking on his own solo career.

It's a system for improvising, as it was when we did *Newbuild* back in 1988.

- Graham Massey (*The Quietus* 2013b)

REBUILD is a live music show based on performances and improvisation on Roland's TR-XoX instruments, the TB-303 and other analog synthesizers. According Massey and A Guy Called Gerald, the early 808 State recordings were made with a TR-808, TR-909, TB-303 and SH-101 (*Attack Magazine* 2016). *Prebuild* (2004), an album of material recorded during the *Newbuild* period from 1987-1988, displays the feeling that was achieved during 808 State's live concert performances. As most of the recordings were recorded out of A Guy Called Gerald's home studio, the audio fidelity of the album is extremely low. With the exception of *Massagerama* and *Sex Machanic*, which were recorded at Spirit Studios on a 16 track mixer to 1/4 inch analog tape, the *Prebuild* tracks are quite raw. These raw recordings feature 808 State's Roland gear running through a mixer in an amateur studio and were primarily recorded onto cassettes.

Trance

With its pulsing 8th note and 16th note bass lines and four-on-the-floor kick drum rhythm, trance music is made for listeners to reach altered “trance” like states. Trance can be described as a successor of space disco. It features similar melodies and rhythms and maintains a long drawn out format which progressively changes over time. The roots of modern trance sprung up in Germany in 1990 with the release of *Dance2Trance* (1990) by Dance2Trance and the track called *We Came In Peace For All Mankind* (Snoman 2009, 251). Although initially achieving success with Dance2Trance, Rolf Ellmer would go on to form Jam and Spoon in 1992, a group which would eventually eclipse Dance2Trance’s success with the seminal track *Stella* (1992).

Early trance music is strongly tied to the TB-303. As the style emerged in the early 90s in Germany, this offshoot of house and techno took the use of TB-303 to greater lengths. *Acperience 1*, by the German group Hardfloor, is an excellent example of the lineage of the TB-303 as its use moved from Chicago and made its way to Europe. Categorized as an acid trance track, *Acperience 1* is notable for the use of three separate and distinct acid bass lines that continuously build up throughout the track. While acid trance is a separate genre in itself, the squelching hypnotic sound of the TB-303 cannot be separated from early trance.

Eye Q records, formed in 1990, is a notable label that helped to define the sound of trance in Germany. It was founded by Sven Vath, Matthias Hoffmann and Heinz Roth. Sven Vath’s debut album, *Accidents In Paradise* (1992), which

was subsequently distributed internationally by Warner Music Group, was one of the first full length albums released by Eye Q Records. Another seminal trance recording label that emerged out of Germany was MFS — Masterminded For Success — founded in 1990 by Mark Reeder. Cosmic Baby's *Stellar Supreme*, released in 1992 on MFS, is an album which draws on house, techno, and ambient electronic music. Furthermore, the classical training of Comic Baby's Harald Blüchel is displayed on *Stellar Supreme* with its complex string arrangements, harmonic progressions, and a proficient demonstration of song form and instrumentation. This album went much further beyond the minimal style of Chicago house and acid house.

Chapter 2: Instruments and Equipment

Along with the scores that follow this thesis in the appendices, this thesis also includes five audio recordings. These recordings were produced with various pieces of computer software, instruments and equipment.⁵ They were created with the DIY ethos of an early house or techno production where the music was made in the basement studio of a producer (Bidder 2001, 32). The production quality is not as professional as it could be if the recordings were treated with studio grade mastering equipment. Nevertheless, the energy and spirit of the music is emulated. This section will provide a brief overview of all of the equipment used in the production of the five recordings. Should a greater amount of detail be required about any piece of equipment for the reader, please refer to the owner's manuals of any of the products described. Video demonstrations can also be found online.

Computer Software and Hardware

Between the five compositions, two Digital Audio Workstations (DAW) — Logic Express 8 and Ableton Live 9 — and a portable stereo recorder were used to create the digital music files. Beyond the DAWs, two pieces of equipment were used to mix the instrument tracks: a Phonic Helix Board 18 FireWire mixer and an Akai Professional APC-40 Ableton Controller.

⁵ The pictures of all the hardware and software used in the creation of the recordings are found in Appendix D from Figure 47 to Figure 95.

Logic Express 8

This software application is a product of Apple and was used to create *Moonlight Horizon*, *Straight to the Moon*, and *Children of the Z-Sky*. The application allows users to record audio in addition to its MIDI sequencing capabilities. Audio effects and virtual instruments are included in the program and Audio Units (AUs) can be used.⁶ AUs can range from synthesizers, samplers, and audio effects.

Ableton Live 9

This software application was used to record and edit *Space Cowboy*. It was used along with the Akai Professional APC-40 Ableton Controller for the performance and creation of the music. It differs from Logic Express 8 in that it is setup to seamlessly record loops of musical information which can be easily mixed and matched before a final arrangement of the music is executed. The workflow is quite unique among DAWs and gives users the ability to quickly generate divergent ideas in the clip view window. These ideas can be arranged in the session window later on once the creator is ready to consolidate the MIDI or audio clips into a final musical arrangement. Ableton also supports the ability to use the clip view window to trigger clips in a live performance for an audience. This versatility lends itself to an entirely different way to compose. It encourages greater improvisation and a focus on live performance.

⁶ The PC counter-part to AUs are Virtual Studio Technology (VST) plug-ins.

Phonic Helix Board 18 FireWire Mixer

This is a 16 channel hybrid hardware sound mixing board that doubles as an audio interface to record multiple channels of audio into a DAW. It was used to record all of the instruments and samples used in *Space Cowboy* as well as the live take of *Phuture Heat*. It has 100 on-board effects. A single effect can be sent to any audio channel one at a time. It also supports the send/receive of two additional stereo effects.

Zoom H2n Portable Recorder

This handheld audio recorder has four built in microphones. These microphones are independently adjustable by volume and there are four microphone settings: X/Y, mixed, 2 CH, and 4 CH. In addition to recording from its on board microphones, it can also be used to record stereo audio directly via a 1/8" input. The audio quality ranges from 48-320kbps MP3 to 44.1kHz/16bit-96kHz/24bit WAV files. It was used to record the live take of *Phuture Heat* from the Phonic Helix Board 18 FireWire mixer. This device was also used to create the original demos of *Space Cowboy*, *Phuture Heat* and other compositional experiments I created during my research.

Akai Professional APC-40

The APC-40 is a MIDI controller developed by Akai Professional to be used in conjunction with the Ableton Live 9 software. It was used to facilitate the recording and editing of *Space Cowboy*. First, audio clips were recorded into the pads of the APC-40. Then, a live mix-down of track automation was performed

with these audio clips. Using the APC-40's various faders and knobs, volume and effects changes were performed and recorded into Ableton.

Hardware Instruments

In *Phuture Heat* and *Space Cowboy*, hardware electronic instruments were utilized to create the rhythms and melodies of the compositions. These instruments include a Roland TB-3, Roland TR-8, Korg Volca Bass, and a Technics SL-1200 turntable.

TB-3

The TB-3 is a monophonic bass line sequencer. Its production began in 2014 when the Roland Corporation released the AIRA line of instruments.⁷ This instrument is based on the TB-303 which was popularized in dance music by the producers of acid house. The TB-303 currently fetches prices upwards of \$2500 USD because of its short two year production run and popularity among electronic music creators (Hamill 2014). It features a single oscillator which can be switched between a saw wave and a square wave.

The TB-3 has a much more powerful sound engine than the TB-303. It uses Roland's Analog Circuit Behaviour Modelling (ABC), designed to imitate analog signal paths for oscillators, filters, and beyond. Beyond just the saw and square wave, the TB-3 has 134 patch settings. Presets AO1 and AO2 are the classic TB-303 saw and square wave oscillators. From then on, many patches include

⁷ The AIRA line of instruments and equipment include the VT-3 Voice Transformer, System 1 Plug-Out Synthesizer, TR-8 Rhythm Performer, the TB-3 Touch Bassline and the MX-1 Mix Performer.

stereo reverb and delay effects, overdrive, stacked/unison and detuned oscillators, and other sounds which aren't even possible on the TB-303.

The on-board controls of the TB-3 are fairly straight forward. It features volume, filter, resonance, accent, and effect knobs. The filter envelop is altered via the X/Y screen. The Scatter effect is also triggered in the X/Y screen. This effect enables the player to manipulate the sequence to create rhythmic fills and variations. There are stutter, truncate, gate, ring mod, glitch, and backwards Scatter effects.

The TB-3 features a 32 step-sequencer which can be adjusted from 1-32 notes. It also supports 64 patterns over eight banks. Transposing sequences is possible of up to +12 semitones. These patterns can be programmed in real-time recording or by entering in each note step by step. Up to eight patterns can be strung together and played at a time. Finally, it has MIDI in/out and a tempo knob.

TR-8

The TR-8 is another instrument of the Aira series by Roland. It is a drum machines which features TR-808 and TR-909 sounds recreated using the ABC technology. Sounds can be mixed and matched to create custom kits. The on-board sequencer supports 16 (A or B) or 32 step (A+B) patterns of various scales. The last note of the sequence can be modified from 1-16. 16 patterns can be stored at a time. It has MIDI in/out, a tempo knob, a shuffle knob, and a fine tempo

knob for adjusting the tempo by increments of 0.1 BPM. Patterns can be entered in step mode or recorded by playing them via INST REC mode.

Each of the drum sounds features a tuning knob, a decay knob and a volume fader. The BD has an attack knob while the SN has a snappy knob. The BD and SN are also each fitted with a compression knob. Reverb and delay can be added to any of the 16 individual steps of a pattern and to any drum sound. Each sound can also be panned left or right. A Scatter effect is also adjustable on the TR-8 with slightly different manipulations than the TB-3. It also supports a mono or stereo external instrument input. A side chain compression effect can be applied to this external instrument any on the desired steps of the sequence and a knob is available to subtly apply the side chain or to fully engage it 100 percent.

Korg Volca Bass

The Volca Bass is a monophonic analog bass line synthesizer with an on-board sequencer produced by Korg. The 16 step-sequencer can save eight patterns and the Active Step feature can shorten the sequence from 1-16 steps. It features three separate oscillators which can each be programmed to either a saw or square wave much like the TB-303. These can be played in unison or have entirely separate sequences looping. Each oscillator can be tuned +/-12 semitones and they have a range of eight octaves. Adjustable knobs are available for Cutoff, Peak (resonance), LFO rate, LFO intensity, Tempo, Amp attack, Amp Decay/Release, and Cutoff Envelop Intensity. The LFO can be applied to either

the filter or the pitch of the oscillators. The sequencer is also designed to handle slides between two or more notes.

Technics SL-1200

The Technics SL-1200 is a turntable produced by Technics Japan. It has been used for DJing since the 1970s. It was produced for over 30 years between 1972 and 2010. The history of this product is revered and it has made a huge impact on the culture of turntablism, DJing and electronic music.

Virtual Instruments

This subsection will cover the AU plug-ins that were used in the productions made in Logic Express 8. These are all software instruments that imitate analog or digital synthesizers as well as some well known drum machines.

D16 Group Phoscyon Bassline

Phoscyon is an emulation of the TB-303. It replicates this sound quite well and has additional features to manipulate the basic saw and square wave. The user can alter the slide time as well as the filter envelope's attack and decay. The unit also packs in a distortion section which includes a pre/post switch and knobs to alter the preamp, size, density, clip, wetness, and brightness of the distortion.

D16 Group Nepheton

Nepheton is an emulation of the TR-808. It features knobs for each drum sound for tone/tuning and decay. The snare and toms also carry a snappy knob. All of the sounds can be processed separately on individual channels.

Korg M1

The Korg M1 is synonymous with house music. It was produced in 1988 and was so popular that production continued until 1995. It was the first music workstation of its kind and allowed its users to create full musical arrangement with up to eight tracks entirely within the keyboard. The software AU/VST of the M1 was released in Korg's Legacy Collection. It delivers all of the expansion card patches ever released by Korg. Countless house and techno artists have used this keyboard including: 808 State, Banco De Gaia, Ken Ishii, The Orb, The KLF, Plastikman, and Robert Miles (*Vintage Synth Explorer*, n.d.).

Some of the M1's presets can be heard in notable songs of the 90s. Robin S's classic house record *Show Me Love* (1993) has a prominent bass line that utilizes the "Organ 2" preset while "Piano 8" is heard on Madonna's *Vogue* (1990). "Piano 16" rings out in *Dreams Of Reality* by State of Mind of their album *State Of Mind* (1992). The "Universe" preset is heard clearly on *Experience* (1991) by The True Underground Sound of Rome.

Korg MS-20

The MS-20 is another soft synth of Korg's Legacy Collection.⁸ The original instrument was produced between 1978 and 1983. It is an analog monophonic synthesizer with two oscillators and features a patch bay for modular routing of synth parameters. Furthermore, it possesses two Voltage Controlled Filters (VCFs), two Voltage Controlled Amplifiers (VCAs), a noise generator, and an

⁸ "Soft synth" is another term for VST.

assignable mod-wheel. It is a widely popular synth and has been used by electronic music artists such as: Aphex Twin, Hardfloor, William Orbit, Daft Punk, The Prodigy, and The Shamen (*Vintage Synth Explorer*, n.d.).

Korg MonoPoly

The MonoPoly, the last soft synth from Korg's Legacy Collection that appears in this section, is an emulation of the analog monophonic/polyphonic synthesizer that was produced from 1981-1984. It has four separate voltage controlled oscillators (VCOs) which can be mixed together and played polyphonically. Within these oscillators a sawtooth, triangle, or variable pulse waveform can be selected. It also possesses a VCF and an envelope generator for the amp and filter. Two LFOs can be separately routed to modulate the Pulse Width, envelope and the on-board arpeggiator. It has been used by the likes of: 808 State, Hardfloor, The Orb, Chemical Brothers, and countless other techno and house artists (*Vintage Synth Explorer*, n.d.). It can be used to create highly resonant monophonic bass lines in the same vein as the TB-303, or high pitched out-of-this world soaring pads and sound effects.

Synapse Dune CM

Synapse Dune CM is a subtractive synthesizer. It has three oscillators. Oscillator 1 and 2 are the same and feature a saw, square, and sine waveform. They also feature 69 different wavetables. Oscillator 3 has a saw, square and triangle. A noise oscillator is also available to mix into oscillator 3.

There are 18 different filter modes in the filter section including: Low Pass, High Pass and Band Pass along with many other variations and combinations. Like an analog synthesizer there is an amplifier and also a filter envelop to shape the sound. There are also three separate Low Frequency Oscillators (LFOs) that can be routed to anything in the synthesizer using the modulation matrix found within the soft synth. In fact, any parameter can be used as a source and be applied to any other parameter on the synth to create increasingly complex sounds.

CM-505 Powered by LinPlug.

This is a 12 pad drum synth engine with one stereo and six mono outputs. It generates its own waveforms and has a range of drum patches to choose from. This drum machine can replicate electronic percussion sounds and retro drum boxes of the 70s and 80s by Linn Electronics. It features tuning, panning and volume adjustment for each drum sound as well as solo and mute buttons.

AudioRealism ADM

The AudioRealism ADM is a virtual instrument that emulates the TR-808, TR-909 and the TR-606. Every single drum sound can be routed independently and sound designed on individual channels.

Rob Papen Predator

Predator features three oscillators with 128 waves covering Analog, Additive and Spectral type of waveforms and pink and white noise generators. It is a complex soft synth with numerous customizable features for each oscillator

ranging from tuning/fine tuning, PWM modulation, and volume. It has 16 voice polyphony and internal effects such as: Mono Delay, Stereo Delay, Chorus, Flanger, Phaser, Distortion and others. The filter section offers 27 filter types including all standard filters at 6dB, 12dB, and 24dB.

Rob Papen Blue

Blue is highly customizable. It has six oscillators, two analog Multimode filters, four Multi-envelopes, ten LFOs, three modulation step-sequencers, a 32 step-sequencer with various parameters, a 32 step arpeggiator and more. It is the most complex soft synth that was used in the accompanying recordings of this thesis.

Virtual Mixer and Effects

The virtual mixer and effects have allowed sound engineers and producers the ability to automate mixing changes with unlimited permutations. It is of course dependent on the power of the computer but theoretically an unlimited number of effects can be layered onto an unlimited number of channel strips.

Channel Strip

The channel strip, whether it is in Logic Express 8 or Ableton Live 9, supports one instrument insert and unlimited effects plug-ins which is of course dependent on the power of the computer running the DAW. Any number of effect sends can also be applied. This is in the form of a Bus in Logic Express 8 and a

Send in Ableton Live 9. Ableton generally has a standard reverb on Send 1 and a delay on Send 2.

Volume

Each channel has its own independent volume fader to adjust the amplitude of the channel's instrument signal in order to mix multiple instruments together.

Equalizer

An equalizer, whether in Logic Express 8 or Ableton Live 9, can alter the amplitude of a range of frequencies for an individual channel or the master output channel. The compositions that accompany this thesis utilize the Logic Express 9 Channel EQ and the Ableton Live 9 EQ.

Panning

This parameter alters the placement of the sound source in the stereo field. Sounds can be placed anywhere between the left and right output of the channel.

Auxiliary Send/Receive

Individual tracks of effects which receive audio output from instrument channels are referred to differently in Logic Express 8 and Ableton Live 9. In Logic, these effect channels are referred to as Bus 1, Bus 2, Bus 3, etc. In Ableton, these channels are referred to as Insert 1, Insert 2, Insert 3, etc.

Instrument Insert

On each channel a single soft synth can be inserted and played via a MIDI keyboard or through a DAW's MIDI sequencer.

Automation

Automation refers to the manipulation of any synth, channel, or effect parameters in time. For instance, the cut-off of a synthesizer's low-pass filter can be automated to change from 0-100 over any number of bars.

Reverb

Reverb is an effect that produces the ambient sound of a "room". When applied to an instrument it stretches out a sound and takes up more space in a mix than the dry source of the sound alone (Gibson 1997, 16). Some common parameters are: pre-delay, early reflections, decay time, and diffusion.

Ableton Reverb

There are five sections to alter the reverb on this Ableton effect. The input processing section provides a Lo Cut and Hi cut option as well as a Pre-delay setting. In the Early Reflections section there is Spin and Shape. While Spin modulates the early reflections of the sound, Shape controls the amount of early reflections that are blended together. The Global section controls the Quality (Eco, Mid, and High), Size, and Stereo width of the reverb. The Diffusion Network section controls the tail end of the reverb after the early reflections. It also includes a high/low shelf filter for the decay as well as Decay Time, Freeze

(an interesting feature which freezes the decay of a sound indefinitely), Density and Scale (the amount of reflections that happen).

Audio Damage Ratshack Reverb 2

This unit is a model of the classic Realistic Electronic Reverb pedal. This was an analog delay unit. It can produce a slap-back reverb or a whirling self oscillating feedback delay. The controls range from Microphone (input gain/overdrive), Delay Time, Repeat (Feedback), and Depth (Output gain).

PlatinumVerb

Logic's PlatinumVerb has the most parameters of any reverb unit in Logic Express 8. It has Early Reflections parameters (Predelay, Room Shape, and Stereo Base), Reverb parameters (Initial Delay, Spread, Crossover, Low Ratio, Low Freq Level, High Cut, Density, Diffusion, and Reverb Time), a Balance ER/Reverb slider, and Output sliders (Dry/Wet).

Liquid Sonics Reverberate CM

This is a convolution reverb plug-in. It features a collection of numerous impulse responses. These impulse responses add reverb by combining the audio of a sound with the impulse response of a real room's reverb characteristics which were originally recorded with microphones. The impulse response can be modified with an envelope to shape the timing and a 10 band equalizer can further modify the tone of the reverb.

Korg MDE-X

The MDE-X is a multi effects processor. It has numerous effects including: Dyna Compressor, Compressor, Multi Band Limiter, Mastering Limiter, OverDrive/Hi.Gain+Wah, 4 Band Eq, Exciter/Enhancer, Talking Modulator, Decimator, Flanger, Phaser, Polysix Ensembler, Multi-Tap Chorus/Delay, Stereo/Cross Delay, LCR BPM, Delay, Reverb Hall, Reverb Smooth Hall, Reverb Wet Plat, and Reverb Dry Plater.

Delay

A delay effect adds an echo to a sound source. The rate and frequency of this echo can be altered. Some delay effects are in stereo where the left and right channel delay rate and feedback can be controlled independently with different settings. The rate can also be synchronised to the tempo of a composition and be set to any division of a beat up to a 64th note.

K Research KR-Delay

This delay plug-in is a stereo effect with independently controllable pre-delay, delay, feedback and Low Pass/Band Pass/High Pass resonant filters. It has three modes: Stereo, Link and Ping-Pong. Delay can be synced from 1/64 to 1/1 including Triplet and Dot modes.

Tape Delay

Tape delay is an analog type of delay often used in dub reggae music. The most famous tape delay unit is the Roland RE-201 Space Echo which has been used by artists across many genres of electronic music. Logic's Tape Delay has a

Feedback slider (fit with a Freeze button like Ableton's Reverb), a Delay field where the delay can be set by milliseconds or synchronized to the tempo of a project, a Low/High Cut field (a parameter to select the frequency range that passes through the delayed signal), a section to apply an LFO and automatically modulate the delay time and an Output section to mix the Dry and Wet signal of the effect.

Echo

The most rudimentary of Logic's delay effects is Echo. There are five settings to choose from: Time, Repeat slider, Color slider, Dry slider, and Wet slider. The resolution of the Time setting is fixed to divisions of the tempo of a project (1/16, 1/8, 1/4, etc). The Repeat slider alters the feedback of the echo, while the Colour slider modifies the quality of the tone that is echoed — from bright to dull.

Audio Damage DubStation 1.5

This simple delay plug-in is modelled on vintage delay units. It has an Input section (Drive, Hi-Cut, and Lo-Cut), Delay section (Time, Multi, and Sync On/Off), Regen section (Feedback amount, Loop On/Off, and Reverse On/Off), and an Output section (Mix Dry/Wet and Output gain). The Loop On/Off parameter of the Regen section freezes the delay indefinitely until it is turned off.

Ableton Filter Delay

The Filter Delay in Ableton is a stereo delay that can control multiple delays on an audio signal. There are three delays in this effect that can each be

panned separately: one can be panned all the way to the left, another can be panned all the way to the right and the last can be panned dead centre. Each delay is also equipped with a one band shelf EQ, Delay Time setting, Feedback knob, Panning knob, and Volume knob.

Chorus

Chorus is an effect that delays the original sound at a rate than is not perceptible by the human ear. The rate of delay has to be less than 30ms in order for our ears not to perceive the difference (Gibson 1997, 15). This delay time is modulated with an LFO. It enriches the incoming sound by appearing to widen the spread of the original sound. The Logic Chorus effect features an Intensity slider, Rate knob, and Mix slider.

Flanger

Flanger is another type of delay effect like chorus but it uses a much shorter delay time. This delay can also be fed back into the input of the delay signal. It creates an underwater type of effect. The Logic Flanger features a Feedback slider, Rate Knob, Intensity slider and Mix slider.

Phaser

Phasing is an effect which uses the original signal, processes it, and mixes it back into the output slightly out of phase with the original source. It is the delay effect with the shortest timing of less than 1ms. The amplitude of the two signals reach their highest and lowest points at exactly the same time. The Logic

Microphaser is a simple phaser which features an LFO Rate slider, Feedback slider and Intensity slider.

Tremolo

Tremolo produces a wavering volume effect. The source signal is modulated by applying an LFO to the signal's amplitude. With Logic's Tremolo, the shape of the LFO is highly customizable. The effect features a Rate which can be altered freely by milliseconds or synced to the tempo of a project and altered by various divisions up to a 64th note.

EVOC 20 Filterbank

Logic's EVOC 20 Filterbank is a mixture of two different formant filter banks. They can each be sculpted with a graphic equalizer, Formant Shift (from -2 to +2), Resonance, and A/B mix slider. Two separate LFOs can also be applied to filter a sound with numerous modulation settings like Intensity, Rate (Sync or Free), and various waveform choices.

Overdrive

Logic's overdrive is an emulation of distortion produced by solid state amplifiers and distortion pedals. It adds harmonic contents and produces a "crunchy" sound. It includes a Drive slider, Tone knob, and Output slider.

Kuassa Amplifikation CM

This guitar amp simulator has six knobs: Gain, Bass, Mid, Treble, Presence and Master. The channel can be switched between Clean and Lead. This sound is

sent through two separate amp cabinets and then two microphones which have various different types and positions to select from.

Ableton DJ Tools

This effect is used solely for the hi-pass filter that is easily accessible from the APC-40. It is used on the master output channel of *Space Cowboy*.

Mastering

These tools help with volume related adjustments. They range from: compressors, limiters, maximizers and expanders.

Compression

Compression proportionately reduces the volume of an incoming signal at a set decibel threshold, attack and release. The compressors used in this project include: Waves C1 compressor, Waves c4 Multiband Parametric Compressor, Logic Compressor, and Ableton Compressor. General settings include: Makeup, Threshold, Ratio, Attack, Release, and Output.

Logic's Expander, which was also used in this project, is similar to compressor except that it has the opposite effect on the signal. It increases the signal of a set threshold, attack and release.

Limiter

Limiting reduces the amplitude of an incoming signal once it exceeds the threshold setting. Generally a limiter features a Gain, Lookahead, Release, and Output. The limiters used in this project include: Logic Limiter, Waves L3 Multimaximizer, and the Waves L316 Multimaximizer.

Imaging

Imaging plug-ins alter an audio signal to become wider or narrower — either more stereo or more mono depending on the settings. The following imaging plug-ins were used: Waves S1 Imager, Waves Center, and Logic Spreader.

Chapter 3: Moonlight Horizon

This series of compositions begins with *Moonlight Horizon*. It is in the key of F minor, 120 BPM and runs at a length of 5:28. The form of the song is ABCA2. Section A and Section B are both distinct where Section C is a combination of musical elements of A and B. It has an ethereal atmosphere intertwined with a squelching 303 bass line. The score can be found in Appendix A. An extended presentation of screenshots of the DAW (arrangement of MIDI clips, view of mixer, etc.), instrument settings and effect parameters can be found in Appendix E.

The inspiration for this composition came from a summer weekend trip to the Muskoka region of Ontario. Muskoka is a cottage destination for southern Ontario residents. My parents own a one acre island on a small lake in Bala, Ontario. It was a clear night and the moon was full. I was up late while my parents had gone to bed and I was outside looking up at the sky. The light emanating from the moon was very bright. My imagination took a hold of my mind and I began to imagine a story of a man who lived in the middle of the wilderness in solitude. His surrounding was similar to mine but this narrative is driven by a theme of science fiction. The sound of *Moonlight Horizon* evokes mystery and adventure. I imagined the man began to see a UFO flying down from the sky right out of the middle of the full moon. As his heart started to race and the scene continues to play out in my mind, the energy of the music becomes

more exciting. It eventually builds up to a release where the UFO sends out a beam of magnificent light that paralyzes the man but provides him with a divine spiritual experience. Slowly this light retreats back to the UFO and the man is left alone again with the bright light of the moon and his thoughts about the experience.

Equipment and Instrumentation

The composition was formulated in Logic with software synthesizers and drum machines. The virtual instruments employed are: Korg Polysix, Korg M1, Korg MS-20, Synapse Dune CM, Phoscyon, AudioRealism ADM, and CM-505.

While Polysix 1 is used as a melodic instrument in Section B and Section C, Polysix 2 is used for a sweeping pad effect. M1 is used for the main melody in Section A. MS-20 is programmed to create a unique stereo instrument with bouncing clicks and pops panning left to right heard in Section A and Section C. While the slap bass sound is created with Dune-CM 2, this same synth was used to create the pad sound of Section B for Dune CM 1. The Phoscyon is employed in the style of an acid house TB-303 sequence. The ADM drum sounds are set to a kit that emulates the TR-808.

Effects Setup

The most important part of the entire effects setup, which goes for most of the other compositions that were created, are routed from the auxiliary channels inserts. Bus 1 is a Logic Stereo Delay while Bus 2 is a Logic SilverVerb. The stereo

delay is setup for a quarter note delay in the left channel and an eighth note delay in the right channel. Feedback for the left channel is 48 percent while it is slightly more in the right channel at 54 percent. This is to compensate for the fact that an eighth note delay would end slightly earlier than a quarter note delay if the feedback is set to the same percentage on both delay rates. The SilverVerb insert has the following settings: 17 ms predelay, 0 percent reflectivity, 114 room size, 100 percent density/time and 0 percent mod intensity. The low cut is set very high to 2900Hz while the high cut is set to 3300Hz leaving 400Hz of reverb frequencies.

Each of the synthesized sounds, excluding the slap bass, are sent to the Stereo Delay on auxiliary channel 1 by varying degrees. The drum sounds that are sent to this auxiliary delay insert include: the snare, rim shot, clap and hi hats. The M1, Dune CM 1, the CM-505, and the snare/clap of the ADM are all sent to the SilverVerb insert on auxiliary channel 2. Routing multiple sound sources to the same auxiliary channels effect inserts creates the impression of a space in which the sounds are heard together rather than a mishmash of spaces that can be created and mixed on different tracks with multiple delays and reverb settings. This technique is very effective to place the sounds in a realistic way in which the listener's ear can more easily understand. Generally, a live performance will be in a room where all of the instruments are affected by the natural reverb and echo of a particular venue. Therefore, this concept is applied in all of the recordings accompanying this thesis except *Straight To The Moon*. Outside of the slap bass

of Dune CM 2 and drums of ADM and CM-505, all of the channels include a Logic Channel EQ and a KR-Delay. The slap bass is the most uniquely effected instrument with an AudioDamage DubStation and a Ratshack Reverb both inserted directly into the channel.

Musical Analysis

The MS-20 sound represents the distant sound of the UFO ship hovering high up in the sky out of sight and about to descend into the man's view. It sets the mood of what the man in the story feels. Some foreign sounding clicks and bleeps permeate the texture of the first 32 bars in the left and right channel of the stereo mix. The descending line of the M1 evokes the real descent of the UFO from the depths of the bright moon. Slowly the ship comes into sight for the man and curiosity turns into panic at the sight of something so alien. The music in Section B is darker than Section A for this fear of the unknown. Section C and D represent the calm serenity that sweeps over the man following the divine experience and as he begins to ponder over the unusual experience.

Section A

Measures 1-48 outline Section A. The first 16 measures of the section serve to set the otherworldly atmosphere of the music shown in Figure 1.

The musical score for measures 1-16 of *Moonlight Horizon* is presented in four systems. Each system consists of two staves: MS-20 (top) and ADM (bottom). The key signature is three flats (Bb, Eb, Ab) and the time signature is 4/4. A box labeled 'A' is placed above the first measure of the MS-20 staff. The MS-20 staff contains a sequence of notes: a dotted quarter note followed by an eighth note, with the notes being Bb, Eb, Ab, and Bb across the four measures of each system. The ADM staff contains a sequence of eighth notes: C, F, C, F, Bb, F, Bb, F, repeated in each measure. Measure numbers 1 through 16 are indicated above the MS-20 staff.

Figure 1: Measure 1-16 of *Moonlight Horizon*

The clicks and pops heard in the left and right channel as well as the repetitive C, F, C, F, Bb, F, Bb, F eight bar sequence is created with the MS-20 through a complex routing matrix within the virtual instrument (see Appendix E: *Moonlight Horizon* - Channel 4: MS-20 Instrument and Effect Settings). This is accompanied by a sequence of the hi-hats from the ADM. The decay of the open and closed hi hats are each automated to open up and close from measure 1-8 and repeated from 9-16.

Measures 17-32 introduce the slap bass of the Dune CM 2 and the secondary synthesizer pad of the Polysix 2. The clap and the snare drum also enters during these measures. The Dune CM 2 repeats the same sequence, seen in Figure 2, throughout measures 17-32.

The image shows a musical score for four instruments: Polysix 2, MS-20, Dune CM 2, and ADM, across measures 17, 18, 19, and 20. The key signature is three flats (B-flat, E-flat, A-flat) and the time signature is 4/4. Polysix 2 has a treble clef and a long slur over measures 17-19. MS-20 has a treble clef and plays a sequence of notes: a dotted quarter note followed by an eighth note in each measure. Dune CM 2 has a bass clef and plays a sequence of notes: a quarter note followed by an eighth note in each measure. ADM has a bass clef and plays a sequence of notes: a quarter note followed by an eighth note in each measure.

Figure 2: Measure 17-20 of Moonlight Horizon

Rather than striking on the 2nd and 4th beat of each measure the clap is struck on beat one of every other measure (18, 20, etc) to give the rhythm a half time feeling. The automatic filter modulation of the Polysix 2 is achieved by routing an LFO to the low pass filter. The modulation that the LFO applies to the filter is one that descends over two measures in a saw wave form each time a note is depressed.

Figure 3 demonstrates the double half time feeling of the ADM. While a two measure pattern repeats throughout measure 17-32 a variation is added at measure 24 and 32. In the second variation, the hi-hat is silent on the fourth beat while the snare is hit twice. A cymbal is hit on the first beat of measure 25 while the same sequence of the Polysix 2 shown in Figure 2 repeats.



Figure 3: Measure 17-32 of the ADM in *Moonlight Horizon*

A variation of the Dune CM 2 sequence is played at measure 32 in anticipation of the next instrumental layers that arrive at measure 33 shown in Figure 4.

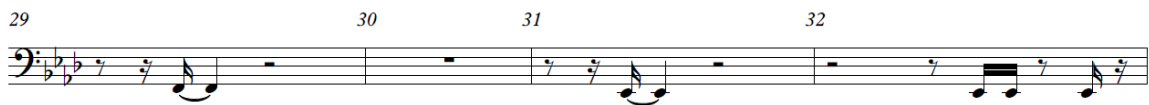


Figure 4: Measure 29-32 of the Dune CM 2 in *Moonlight Horizon*

The main melody of Section A, played by the M1, is introduced in measure 33 and continues until measure 48. This melody descends from a ninth (G) to the root of the key in the first two measures of the sequence, and then a ninth to the flat seventh (Eb) below the root in the second half of the sequence. Excluding the ninth, this sequence outlines an F minor pentatonic scale shown in Figure 5.

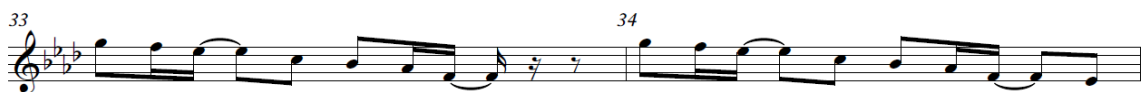


Figure 5: Measure 33-34 of M1 in *Moonlight Horizon*

At measure 33, a kick drum is added to the drum sequence shown in Figure 3 and rhythmic variations are introduced between measure 33 and 48.



Figure 6: Measure 33-48 of ADM in *Moonlight Horizon*

In measure 48, one measure before Section B commences, there is a one bar pickup by the Polysix 1 where the low pass filter is automated to open up while the dotted 8th and 16th note rhythm on the F is repeated for four beats as shown in Figure 7.

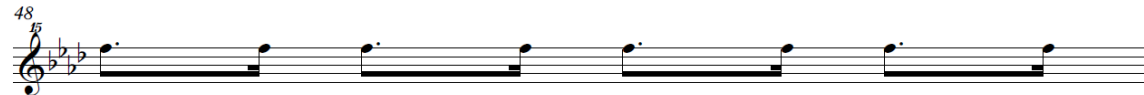


Figure 7: Measure 48 of Polysix 1 in *Moonlight Horizon*

Section B

Section B is from measure 49-80 and is centered on the sequence of the Phoscyon. The sequence of the Phoscyon is based on the root, flat seventh and flat third of the F minor scale and for the most part remains within a range of five semitones as shown in Figure 8. This sequence is continuously varied during this section as shown in measure 52, 56, 60, 62, 64, 66, 70, 72 and 80.

The image displays a musical score for Section B, spanning measures 49 to 80. The score is written in bass clef with a key signature of two flats (B-flat and E-flat). A box labeled 'B' is placed above measure 49. The music consists of a single melodic line in the bass register, characterized by a rhythmic pattern of eighth notes and quarter notes. The notes are grouped into measures, with measure numbers 49 through 80 labeled above the staff. The sequence of notes in each measure is based on the Phoscyon sequence, which is a variation of the root, flat seventh, and flat third of the F minor scale. The sequence is continuously varied throughout the section, as indicated by the text. The score is presented on eight staves, with measures 49-52 on the first staff, 53-56 on the second, 57-60 on the third, 61-64 on the fourth, 65-68 on the fifth, 69-72 on the sixth, 73-76 on the seventh, and 77-80 on the eighth.

Figure 8: Measure 49-80 of Phoscyon in *Moonlight Horizon*

A new pad, played by Dune CM1 is introduced along with the Phoscyon at measure 49. This pad has a rising quality that was achieved by routing an LFO

with a saw wave to the low pass filter. The pad alternates between an F note for two measures and an Eb note for two measures as shown in Figure 9.

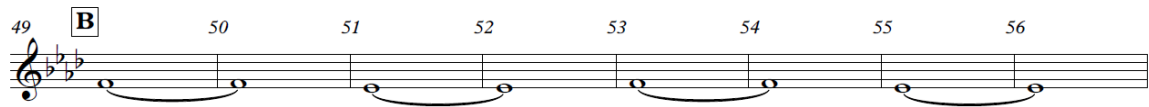


Figure 9: Measure 49-56 of Dune CM 1 in *Moonlight Horizon*

This repeats until measure 77 where it is played one octave above in anticipation of Section C.

The sequence of the ADM changes from double half time to half time during Section B. As shown in Figure 10, the clap is now played on the third beat of every measure while the hi-hat rhythm has changed from quarter notes to 8th notes. In measure 57 the clap is replaced by the snare drum. A two bar break down is heard from measure 63-64.



Figure 10: Measure 49-64 of ADM in *Moonlight Horizon*

At measure 63, a snare roll of 16th notes played by the CM-505, shown in Figure 11, enters during the two bar break down of the ADM in anticipation of the

melody of the Polysix 1 that begins at measure 65. The velocities of these 16th notes were programmed as a crescendo and the sound is gradually louder over two measures.



Figure 11: Measure 63-64 of CM-505 in *Moonlight Horizon*

Measure 65 marks the height of the musical energy of *Moonlight Horizon*. The drum rhythms of the ADM reach their greatest density as measured by the rhythmic interplay between the kick and the snare drum/clap. The snare is now heard every second and fourth beat of each measure as the rhythm of the ADM has progressed from double-half time to half-time and into regular-time. Figure 12 demonstrates this increase of energy. The drum beat is based on the funk influenced break-beat rhythm. As the energy builds up, a closed hi-hat enters at measure 65 in a 16th note rhythm and then an open hi-hat plays on the “and” of every beat beginning at measure 73.

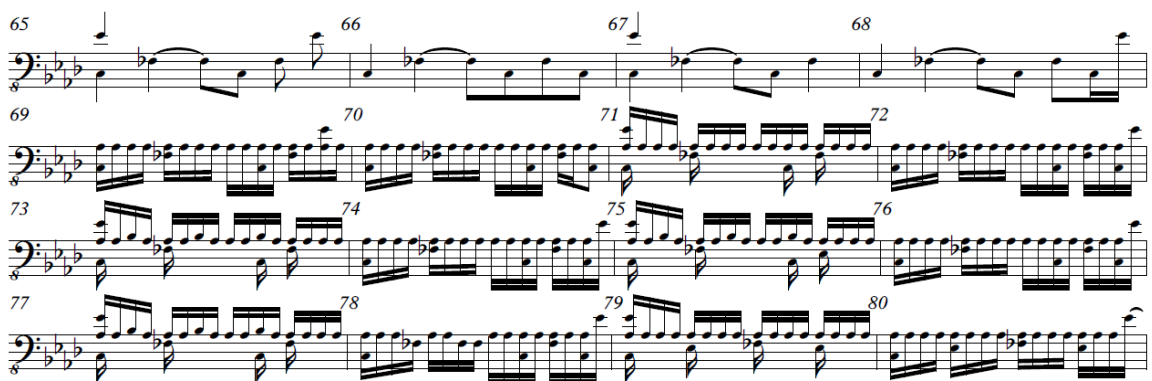


Figure 12: Measure 65-80 of ADM in *Moonlight Horizon*

The sequence of the Polysix 1 is eight measures in length and shown in Figure 13. The sequence stretches across three octaves ending with a high F note in the first four measures of the sequence, and then up to a G note in the last four measures of the sequence. It follows the same one bar rhythmic motif each measure. This whole sequence repeats at measure 73 with a slight rhythmic variation.

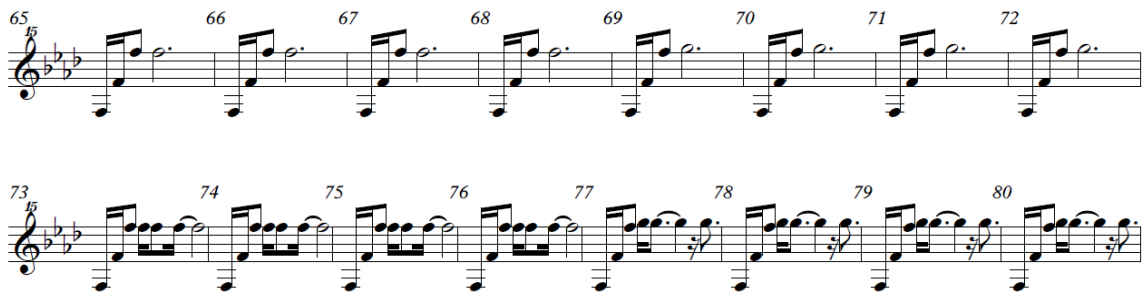


Figure 13: Measure 65-72 of Polysix 1 in *Moonlight Horizon*

As previously stated, the end of this section is signalled in measure 73 when the Dune CM 1 jumps up an octave to a high F. This is supported by the same snare roll of 16th notes from the CM-505 in Figure 11 over measures 79 and 80.

Section C

Section C is from measure 81-112. At the beginning of this section the drums of the ADM are removed. The sequence of the Phoscyon and the Polysix 1 continue into this section. These two instruments are supported by the sequence of the Korg MS-20, shown in Figure 1, which is reintroduced. At measure 89 the ADM enters with a new drum sequence that features a rim shot, snare, ride, and

hi-hats show in Figure 14. The new sequence is two measures long and repeats unvaried until measure 104. At measure 105, 107, 109 and 111, a kick is added on beat one. In measure 111, the hi-hat is removed from the sequence before Section A2 begins.



Figure 14: Measure 89-90 of ADM in *Twilight Moonlight*

The main melody from the M1 in Section A, shown in Figure 5, enters at measure 97 while the sequence of the Polysix 1 ends. The sequence of the Phoscyon remains but changes and becomes very sparse. An F is played a 16th note ahead of the beginning of each measure and is held over for an 8th note as shown in Figure 15. The sequence of the MS-20, shown in Figure 1, repeats behind all of this until measure 112.

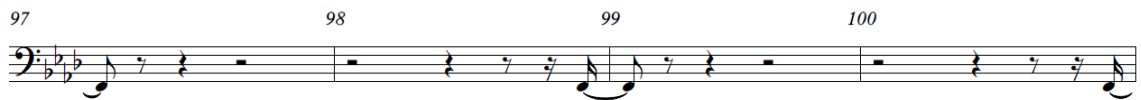


Figure 15: Measure 97-100 of Phoscyon in *Moonlight Horizon*

Section A2

The final repeat of Section A, albeit with a slight variation, takes place from measure 113-160. This section begins with the Polysix 2, the Dune CM 1, the Dune CM 2 and the ADM as shown in Figure 16 which repeats four times until measure 128. A sequence variation is added to the ADM at measure 120 and 128. At measure 129, an 8th note rhythm is introduced by the hi-hat of the ADM.

The musical score for measures 113-116 of *Moonlight Horizon* is presented in five staves. The key signature is three flats (B-flat, E-flat, A-flat) and the time signature is 4/4. Measure 113 is marked with a box containing 'A2'. The staves are labeled as follows: Polysix 2 (treble clef), Dune CM 1 (treble clef), Dune CM 2 (bass clef), Phoscyon (bass clef), and ADM (bass clef). Polysix 2 and Dune CM 1 play a melodic line consisting of a half note G4, a half note A4, and a half note B4, with a fermata over the final note. Dune CM 2 plays a rhythmic pattern of eighth notes: G4, A4, B4, G4, A4, B4, G4, A4, B4, G4, A4, B4. Phoscyon plays a single eighth note G4 in measure 113, followed by rests. The ADM plays a bass line of quarter notes: G3, A3, B3, G3, A3, B3, G3, A3, B3, G3, A3, B3.

Figure 16: Measures 113-116 of *Moonlight Horizon*

All of the sequences played from measure 113 to 128 repeat at measure 128 until 144. The hi-hat rhythm is reduced from 8th notes to quarter notes for two bars between measure 134 and 135 as well as 138 and 139. The hi-hat rhythm remains quarter notes from measure 141 until measure 144. At measure 142, the feedback of the DubStation delay of the Dune CM 2 is increased via automation. This automation extends the last F note played by the Dune CM 2 until measure 150. In measure 145, the sequence of the MS-20, shown in Figure 1, begins again while the sequence of the Polysix 2, shown in Figure 16, drops out. The

composition then continues with the Dune CM 1, MS-20 and ADM from measure 145 until the end of the composition at measure 160 as show in Figure 17.

The figure displays a musical score for measures 145 through 160 of the piece 'Moonlight Horizon'. The score is organized into four systems, each containing two staves: MS-20 (Melody) and ADM (Drum). The key signature is three flats (B-flat, E-flat, A-flat), and the time signature is 12/8. In the first system (measures 145-148), the MS-20 staff features a melodic line of quarter notes with a dotted half note on the first beat of each measure. The ADM staff shows a consistent drum pattern of eighth notes. The second system (measures 149-152) continues the MS-20 melody and the ADM drum pattern. The third system (measures 153-156) maintains the same musical elements. The fourth system (measures 157-160) concludes the sequence, with the MS-20 staff ending on a whole note in the final measure and the ADM staff continuing its eighth-note pattern.

Figure 17: Measures 145-160 of *Moonlight Horizon*

Compositional Process

The compositional process of *Moonlight Horizon* began first with selecting the instruments. Once this was completed, a creative decision was made about how to build up the energy of the song. Instead of the clap entering and accenting beat two and four of each bar, the rhythm is stretched out over four bars and a clap is heard on the first beat of the second and fourth bar measure of this sequence. Essentially, the drum rhythm is in double half-time. This is shortened to half time at measure 53, where the accent of the clap (and then the snare) shifts to beat three of every bar. It is once again shortened to the regular beat two

and four accent at bar 65 where, as previously stated, the most rhythmic energy of the composition is created. This technique is then repeated in reverse during the latter half of the composition.

The first instrument that I began to compose with, after this creative decision was made about the drum programming, was the MS-20. With this instrument, I laid down the ambient back drop that would support the other melodic instruments. Then, I composed Section B building around the sequence I composed for the Phoscyon. At first, the Phoscyon was just a four bar sequence, but then I copied it over several bars and added several minor variations. As soon as this was complete, I went back to Section A and began to work on the melody of the M1. Then, I began to work on the sound design and the sequences of the Polysix 1/2 and the Dune CM 1. Once the slap bass of the Dune CM 2 was added, all of the other melodic instruments were composed. Once all of the pitched instrument sequences were in place and the arrangement was complete, I composed all of the rhythmic variations that would occur in the drum track of the ADM and I also created the CM-505. I used the CM-505 for an alternate snare tone that produced the 16th note roll in Figure 11. Once all of the sequences were arranged, I automated the parameter changes I desired and mixed the track.

Chapter 4: Straight To The Moon

Written in the key of C minor, *Straight To The Moon* is 6:36 in length, 200 measures long and performed at 123 BPM. The song form follows an ABA'BA" format. Section A and Section B differ quite significantly. While Section A features a build-up or break-down of the sequences and parts, Section B is comprised of two sub-sections which contrast one another.

The title of this composition is inspired by the Apollo 11 space mission. This was the first space craft to land on the moon with human astronauts on July 20th, 1969. The musical themes in the composition relate to two separate feelings: uncertainty and elation. The former is the feeling of Section A while the latter represents the feeling in Section B. The score can be found in Appendix B. An extended presentation of screenshots of the DAW (arrangement of MIDI clips, view of mixer, etc.), instrument settings and effect parameters can be found in Appendix F. It is also one of the first compositions that I created during my research. The original date of preliminary creation was in December 2014. It was ultimately one of three compositions that were created during this time. I choose to include it in this thesis because it was one of the most diverse electronic pieces I have composed.

Equipment and Instrumentation

The music was created and sequenced in Logic Express 8. The following virtual instruments were used to create this recording: Rob Papen Blue, Rob

Papen Predator, a CM-505 and D16 Group Nepheton. Additionally, some audio from individual tracks were exported into audio clips to be processed and played back in reverse. The basic instrumentation follows three different melodic synthesizers (Blue1, Predator 1 and Blue 4), a keyboard (Blue 2), a pad (Blue 3), two separate basses (Predator 2 and 3) and two drum machines (Nepheton and CM-505). *Straight To The Moon* is the only composition which lacks any 303 emulation.

Effects Setup

Blue 1 is treated with Logic Microphaser, PlatinumVerb, Tremolo and Channel EQ which is set to cutoff frequencies below 200Hz; Blue 2 is treated with Logic Tremolo and two Logic Spreaders; Blue 3 is un-effected; Blue 4 has a Logic Spreader. Predator 1 has a Logic Flanger, Chorus and Spreader; Predator 2 is un-effected; Predator 3 has a Logic Spreader. CM-505 is the most heavily effected instrument channel with Logic EVOC 20 Filterbank Overdrive, PlatinumVerb, Spreader and a Channel EQ on with a low shelf applied to remove frequencies below 500Hz. The kick of the Nepheton is treated with Logic Limiter and Channel EQ with a low cut at below 50Hz. Reverse audio tracks are processed with different delay and filter effects.

Musical Analysis

Section A

Section A is from measure 1-64. Measure 1-32 features Blue 1, Blue 2, CM-505, Nepheton, and Predator 3. Blue 3, Blue 4, and Predator 3 enter at measure 33. CM-505 begins with a typical four-on-the-floor house rhythm of one bar with a hi-hat on the “and” of every beat and a snare connecting with beat three and four. It drops out at measure seven while an audio sample of the same one bar loop is played in reverse from measure 7-9. This is all illustrated in Figure 18. While the reversed audio is played, a hi-hat from Nepheton is played on the “and” of every beat of measure seven and eighth.



Figure 18: Measures 1-5 of CM-505 in *Straight To The Moon*

Blue 1 features a one measure ostinato that outlines a C minor 7 arpeggio shown in Figure 19. This is common in many of the electronic music styles described in chapter 1. For instance, in *Freedom* (1990) by A Homeboy, A Hippie & A Funki Dredd a one bar ostinato comprised of a straight 16th note pattern is played up a scale between beat one and two and back down on beat three and four. Figure 19 repeats throughout the build up of Section A from measure 1-48

and then again from measure 57-64. The low pass filter is automated on this sequence and frequencies are added and taken away in the mix.



Figure 19: Measure 1 of Blue 1 in *Straight To The Moon*

At measure 9, Nepheton plays a similar drum loop to that of CM-505 in Figure 18. However, it continuously builds up greater rhythmic density until measure 32. This is shown below in Figure 20.

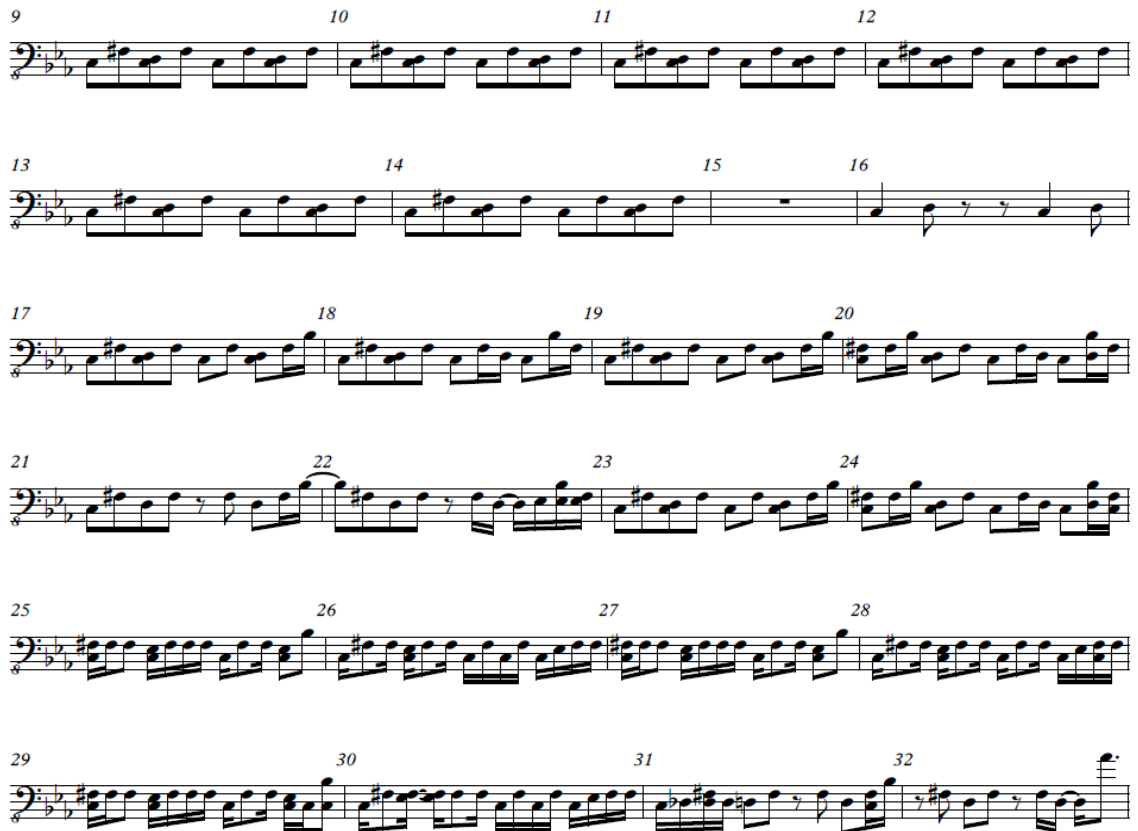


Figure 20: Measures 9-32 of Nepheton in *Straight To The Moon*

The bass instrument, Predator 2, enters at measure 17 with a one measure ostinato that repeats until measure 64. This syncopated rhythm is comprised of three notes: C, C and Eb as shown in Figure 21.

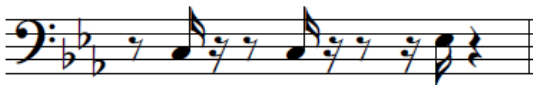


Figure 21: Measure 17 of Predator 2 in *Straight To The Moon*

From measure 1 to 32, Blue 2 alternates between a Csus4 in third inversion (G, C, F) to another Csus4 in third inversion with the G doubled on top of the chord as a cluster with F (G, C, F, G). A rhythmic variation is added in measures 4, 8, 12, and 16. In measure 20, a harmonic variation is added as the G, C, F, G chord ascends up to Bb, Eb, Ab, Bb in the fourth beat of the measure. Another chord is introduced in measure 24 and constructed as: G, C, F, and Bb. In measure 25, the chord progression alters. A Csus4 (G, C, F, G) is played in measure 25, a Csus4 (G, C, F) in measure 26 and a Csus4 (G, C, F, G) in measure 26 and 27. Then, a Csus4 (G, C, F) is played from measure 28-32. All of this is shown below in Figure 22.

A

Figure 22: Measure 1-32 of Blue 2 in *Straight To The Moon*

In measure 33, parallel sus4 chords are introduced around the rhythmic structure of Blue 2 laid out over measures 1-32 as passing chords. As a result a non-diatonic Db appears in measure 34, 36, 38, 40, etc. The first parallel chord is an Absus4 in third inversion (Eb, Ab, Db, Eb) in measure 34, an Bbsus4 in third inversion (F, Bb, Eb, F) in measure 36 followed by an Fsus4 in third inversion (C, F, Bb, F) in the same measure. This variations repeat five more times and end at after measure 56 where an eight bar silence begins. This is shown in Figure 23. The use of parallel chords as a harmonic device is common in house and techno.

A producer with a sampler could take a sample of a chord “stab” and play the same chord up or down in pitch which results in a parallel chord of the same interval construction.

The image displays a musical score for six staves of music. Each staff contains a sequence of chords, with the chord symbols written below the notes. The chords are: 9♯5, 5♯, 4♯, 8♯, 2♯, 5♯, 6♯, 2♯, 5♯, 0♯, 6♯, 8♯, 4♯, 5♯, 2♯, 1♯, 0♯, 6♯, 8♯, 4♯, 5♯, 2♯, 1♯, 0♯, 6♯, 8♯, 4♯, 5♯, 2♯, 1♯. The notation includes treble clefs, 4/4 time signatures, and various rhythmic values such as quarter notes, eighth notes, and sixteenth notes. The music is a sequence of chords, likely representing a chord progression or a series of stabs.

Figure 23: Measure 33-64 of Blue 2 in *Straight To The Moon*

The sequence of Nepheton is reduced to a four-on-the-floor kick drum at measure 33 and continues until measure 40. An off-beat hi-hat is added to this sequence at measure 41 and the kick drops out from measure 47 to 48 while the sequence of the CM-505 from Figure 18 plays in the background. The four-on-the-floor kick drum rhythm along with an off-beat hi-hat pattern begin to play together again at measure 49 and continue until measure 56. At measure 47, a reversed audio sample of the same one bar sequence of the CM-505, shown in Figure 18, repeats. At measure 57, a new syncopated rhythm begins to play from

the CM-505. It is a two bar sequence and is shown in Figure 24. This repeats until the end of the section.



Figure 24: Measures 57-60 of CM-505 in *Straight To The Moon*

Blue 3 enters at measure 33 and is comprised of an eight measure sequence. This is shown in Figure 25. A whole-note on D is held over three measures and ascends a minor third to an F dotted half note in measure 36. Then, a C whole note is held for four measures (37-40). This eight measure sequence is repeated at measure 41 at measure 48.

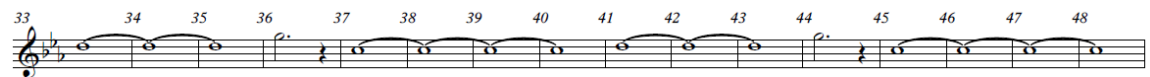


Figure 25: Measure 33-40 of Blue 3 in *Straight To The Moon*

In measure 41, Blue 4 enters with an ostinato that repeats every four measures. This is the first lead melody that enters the composition. It is a melody that outlines a C minor scale. It ascends to G from C and then descends from C an octave above the starting note of the sequence down to an Eb. This sequence is shown in Figure 26. This repeats three more times until measure 56.



Figure 26: Measures 41-48 of Blue 4 in *Straight To The Moon*

The peak density of melodic and rhythmic content of Section A occurs at measure 41 when Predator 1 enters with a syncopated melody that contrasts the melody of Blue 4. This melody features a three note rhythmic and melodic motif. This motif is based on a 16th note rest followed by three 16th notes. The melodic motif places a neighbour note below the starting note. In measure 41, this motif ascends from C to Eb and then to F. The motif is repeated on the first beat of measures 42, 43, 44 and played from a C. This four measure ostinato is repeated until the end of Section A at measure 64 and is shown in Figure 27.

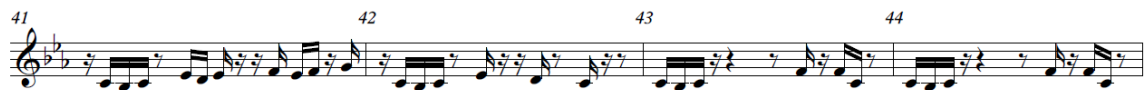


Figure 27: Measures 41-44 of Predator 1 in *Straight To The Moon*

Section B

As previously stated, Section B is comprised of two sub sections. Sub section one will be referred to as Section B1 and sub section two will be referred to as Section B2. Section B1 and B2 are each eight measures long for a total of 16 measures. Both of the sections then repeat sequentially to create a 32 measure section. The Nepheton plays a simple rhythm throughout the section consisting of a four-on-the-floor kick drum and a consistent 16th note rhythm on the hi-hat. The CM-505 plays a two bar rhythmic loop with a syncopated snare drum rhythm.

Blue 1 repeats a C on the “and” of beat one of each measure. In anticipation of Section B2, a 16th note run over beats three and four of measure 72

is played from G up two octaves to another G. All of this is shown in Figure 28. This run outlines a C minor 7 chord as it ascends: G, Bb, C, Eb, G, Bb, C, and G.

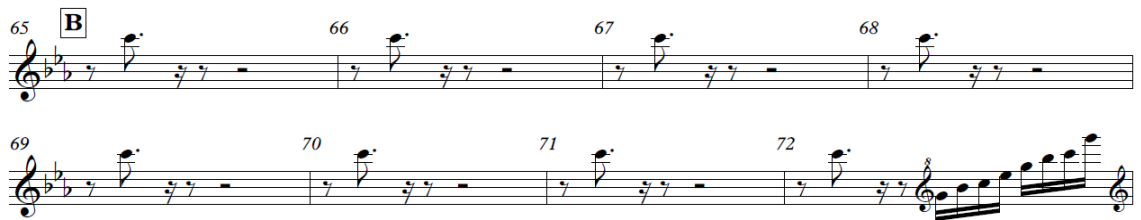


Figure 28: Measures 65-72 of Blue 1 in *Straight To The Moon*

Blue 2 plays a chord one octave above of the range of the chords it plays in Section A. It repeats a quartal chord built up from fourths off of an A natural. The notes of the chord are A, D, G, C, F. This same chord shape is moved in parallel down to a G in the second half of measure 66, and then up to a C in the second half of measure 68. This is all repeated over measures 69-72 as shown in Figure 29.

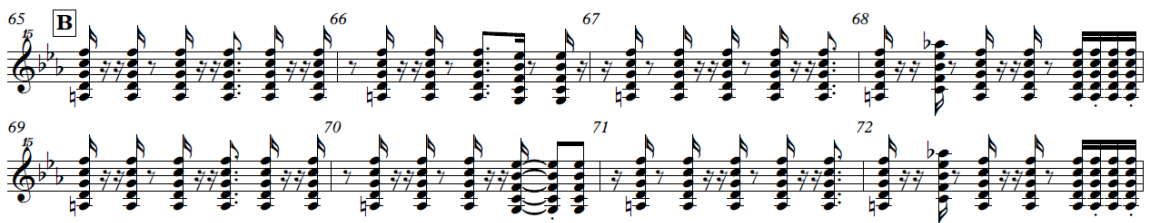


Figure 29: Measures 65-72 of Blue 2 in *Straight To The Moon*

Predator 3 accompanies the chords of Blue 2 with a syncopated two measure rhythm built on a C that jumps up an octave and then back down an octave shown below in Figure 30.



Figure 30: Measures 65-72 of Predator 2 in *Straight To The Moon*

Blue 4 holds a whole-note on D that is tied over to measure 68 and then this repeats at measure 69.

Section B2 starts at measure 73 and continues to measure 80. Blue 1 plays 16th notes that alternate between three notes: C, Bb, G. Because there are four 16th notes in a beat, but only three notes that repeat, the sequence of 16th notes continually shifts in relation to the beginning of each measure. For instance, in beat one the sequence is C, Bb, G, and C; beat two is Bb, G, C, and Bb; beat three is G, C, Bb, and G; and beat four is C, Bb, G, and C. Essentially, this pattern repeats every three beats. On a larger scale it repeats every three measures. This gives the sequence more movement against the rhythmic and melodic content of the other instruments. Figure 31 demonstrates all of this fluctuation.

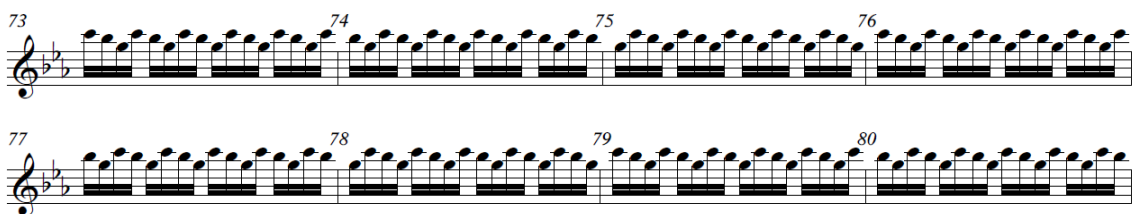


Figure 31: Measures 73-80 of Blue 1 in *Straight To The Moon*

The chord that Blue 2 plays shifts to a wider chord over three octaves with the root of the chord a fifth down from the second note: C, G, C, F, Bb. This is altered in the second half of measure 76 and stretched across three and a half octaves: Eb, Bb, Eb, Ab, and Bb. It is altered again in measure 80 but maintains the same shape on two of the three other chords. It descends from C to A natural to F to Eb. The respective chords would be: A, E, A, D, G; F, C, F, Bb, Eb, Ab; and Eb, Bb, Eb, Ab, Eb. All of this is shown in Figure 32.



Figure 32: Measures 73-80 of Blue 2 in *Straight To The Moon*

Predator 3 plays a similar sequence to that of Predator 2 in Figure 30; however, while it maintains the same rhythmic motif, the octave jumps are in reverse order, from high to low. Furthermore, an A natural is added into the sequence. Figure 33 outlines the variations described above. Section B concludes at measure 96.



Figure 33: Measures 74-80 of Predator 3 in *Straight To The Moon*

Section A'

Section A' begins with the original chord sequence of Blue 2, from Figure 22; in conjunction with the bass ostinato of Predator 2, from Figure 21. Both of these continue until measure 104. At measure 105, the ostinato that outlines a C minor arpeggio of the Blue 1, shown in Figure 19, re-enters. At measure 113, the tied whole-note sequence of Blue 3, shown in Figure 25, begins again. The drum sequence of the Nepheton drops out at measure 121 as the melodic sequence of Blue 4, shown in Figure 26, starts again. This is all against the contrasting percussion sequence of the CM-505 first shown in Figure 24. The C minor 7 arpeggio of Blue 1 ends at measure 126 when a rhythmic sequence of Nepheton enters at measure 127. The Nepheton begins to play a four-on-the-floor kick drum accompanied by an off-beat hi-hat from measure 129-136. The chord sequence of Blue 2 ends at measure 128. Over measures 129-136, the bass of Predator 2 continues to play along with the whole note sequence of Blue 3 as well as the melodic sequence of Blue 4.

Section B2

At measure 137, Section B repeats relatively unaltered in terms of melodic and harmonic content. However, the low pass filter of Predator 2 is modulated during Section B1. Richer frequency content is heard as the resonance is set to a relatively high setting while the filter sweeps across the low pass filter's frequency range.

Section A”

Section A” begins at measure 169, and features the C minor arpeggio ostinato of Blue 1; the chordal sequence of Blue 2 shown in Figure 22; the bass line of Predator 2 shown in Figure 21; and the sequence of the CM-505 shown in Figure 18. The content of measures 169-176 is the same as measures 1-8 with the exception of a reversed crash cymbal that is played on beat one of measures 169, 171, and 173. This is repeated again from measures 177-184 with a slightly different sequence played by the Nepheton and CM-505. At measure 185 the C minor 7 arpeggio continues to play with the bass sequence of the Predator 3 while all other instrument sequences end. This continues until the end of the composition at measure 200.

Chapter 5: Phuture Heat

The concept of *Phuture Heat* was conceived around March 2015. The original takes and demo recordings were recorded shortly thereafter. The recording that is included along with this thesis is a version that is based on the best performance from that session and was re-recorded in June 2016. The title is inspired by the acid house pioneering group Phuture from Chicago. Appendix G features the TR-8 settings and drum sequence performance. The key of the song is somewhat atonal and features C#, D, E, F, F#, A and A#. This is somewhat similar to the atonal TB-303 sequence of *Land Of Confusion* (1988) by Armando.

Equipment and Instrumentation

The TR-8 and the TB-3 are the only instruments used in this composition. This is the most stripped down composition of the series with the least amount of melodic and rhythmic patterns. It was recorded with the Zoom H2n directly from the record out RCA connection of the Phonic Helix Board 18 FireWire Mixer. Only sounds of the 808 are used within the TR-8. The only drum sounds not step-sequenced or played are the three tom drums. Therefore, the drum instrumentation is: kick drum, snare, rim shot, clap, closed hi-hat, open hi-hat, crash, and cowbell. The oscillator of the TB-3 is made from a sawtooth waveform generated in patch A25.

Effects Setup

The effects setup is quite simple for this composition. The onboard reverb and delay of the TR-8 are employed playfully in the performance while the effect on patch A25 of the TB-3 is engaged in the second half of the recording. Reverb mode #1 and delay mode #1 are selected for the TR-8. The drum pattern that was composed for this piece is four measures long. The drum effects are only applied to the clap of the TR-8. Reverb is applied to beats two and four of pattern 1A and 2A while delay is applied to beats two and four of pattern 1B and 2B. The TB-3 has a subtle delay heard throughout the song which is fixed on patch A25. It also bears a fixed type of highly overdriven screaming distortion reminiscent of the Ibanez Tube Screamer guitar pedal. Turning the effect knob on this patch applies a highly resonant phaser to the oscillator. The recording was processed in Logic Express 8 with compression and reverb.

Musical Analysis

This piece of music is most directly influenced by early acid-house producer Armando. *Land of Confusion*, released in 1987, was a landmark acid house record for the Chicago native. Another pioneering work by Armando, *Downfall*, was released on a 1988 acid house compilation with other minimal tracks composed with the TB-303 and accompanied by various Roland drum machines of the TR-XoX family. Many elements of these compositions are emulated in *Phuture Heat*.

Land of Confusion and *Downfall* are each driven by their own distinct 16 step TB-303 pattern. These squelching bass lines are supported by a 16 step pattern which is modified every four, eighth, or 16 measures by adding or subtracting individual drum sounds via a volume fader. The cutoff, resonance, and envelop knobs of the TB-303 are twisted throughout each of these works. Similarly, *Phuture Heat* is based around a single step pattern that was step-programmed into the TB-3. Although the same pattern is continuously run on the TR-8 in *Phuture Heat*, it was composed as a 64 step pattern. This was achieved by tying together two of the 16 patterns available to program on the TR-8. A series of tables are included in Appendix C which illustrate the performance of the drum parts over the course of the recording. In these tables, “X” marks an unmuted drum sound and a blank box marks a muted drum sound. This table can guide the listener to anticipate the changes in texture of the drum pattern throughout the performance. It should be noted that the performance of these changes was improvised first and then documented. However, during the performance my aim was to consciously make changes every four or eight measures.

TB-3

The 16 step pattern that was composed in *Phuture Heat* is detailed below in Table 1.

TB3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Notes	F#1	F#1	A3	A#3	A#3	F#3	D3	E3	C#3	A3	A3	A3	A3	A3	F#3	F3
Accent	x								x	x		x		x	x	
Slide	x	x	x	x	x	x	x	x		x	x		x			x

Table 1: 16 step TB-3 pattern for *Phuture Heat*.

It begins in the lowest octave register for steps 1-2 and then jumps up to the highest octave register for steps 3-16. The only steps which omit the application of a slide are steps 9, 12, 14 and 15 lending the pattern a pronounced legato feel. Accents are applied to steps 1, 9, 10, 12, 14 and 15 where the notes in the second half of the pattern are emphasized. Patch A25 carries some effects within the TB-3 with an internal compression that allows the notes between steps 1-8 to be heard clearly even though there is a tie in between each of those steps. This compression allows these notes to sustain a louder amplitude over time. This is apparent when the same pattern is played through patch A01 or A02 where steps 2-8 are almost inaudible.⁹

TR-8

The 64 step pattern that was composed for *Phuture Heat* is made up by tying together two of the programmable patterns together of the TR-8. Within these two patterns the [A] and [B] variations are also tied together.. Since each pattern can be 32 steps long, and two full patterns are tied together, the drum pattern sequence for *Phuture Heat* is 64 steps long. This is not typical in *Land of*

⁹ As discussed in the section which described the TB-3, patch A01 and A02 are the basic emulations of the saw tooth and the square wave oscillators of the TB-303 without any added effects.

Confusion or *Downfall*, but the idea was derived out of a creative choice to extend the rhythmic complexity slightly further in *Phuture Heat*, but retain the style of performance centered on one TB-303 pattern and one TR-XoX pattern. This pattern is illustrated in two ways. The first is with a table which can be used to copy the rhythms into the TR-8 drum machine. It is easy to understand and features pattern 1A/1B and 2A/2B. The second is formal music notation. Pattern 1 is shown in Table 2, pattern 2 is shown in Table 3 and the music notation is given in Figure 34.

Pattern 1: A													B			
TR8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BD	x				x				x				x			
SN			x							x					x	
LT																
MT																
HT																
RS	x	x			x	x			x	x					x	
CL					x									x		
CH	x	x			x	x			x	x				x	x	
OH																
C	x															
CB																
Delay																
Reverb					x									x		

Table 2: Pattern 1 for the TR-8 in *Phuture Heat*.

Pattern 2: A		B		
TR8	1 2 3 4	5 6 7 8	9 10 11 12	13 14 15 16
BD	x	x	x	x
SN		x	x	x
LT				
MT				
HT				
RS	x x	x x	x x	x
CL		x		x
CH	x x	x x	x x	x x
OH				
C				
CB				
Delay				
Reverb		x		x

TR8	1 2 3 4	5 6 7 8	9 10 11 12	13 14 15 16
BD	x	x	x	x x
SN	x	x	x	x x
LT				
MT				
HT				
RS				
CL		x		x
CH	x x	x x x	x x	x x x
OH			x x	
C				
CB	x x	x	x x	
Delay		x		x
Reverb				

Table 3: Pattern 2 for the TR-8 in *Phuture Heat*.

Phuture Heat TR-8 Drum Pattern

The musical score displays the rhythmic isolation for each drum part in 4/4 time. The pattern is divided into four measures, labeled 1 through 4. The parts are: Kick Drum, Rim Shot, Snare, Clap, Hi-Hats, Cowbell, and Crash. Measure 1 shows the initial setup with a Kick Drum on 1, Snare on 2, and Hi-Hats on 2. Measure 2 continues the pattern with a Kick Drum on 3, Snare on 4, and Hi-Hats on 4. Measure 3 shows a Kick Drum on 1, Snare on 2, and Hi-Hats on 2. Measure 4 concludes the pattern with a Kick Drum on 3, Snare on 4, and Hi-Hats on 4. The Cowbell and Crash parts are also shown, with the Cowbell playing on 1 and 3, and the Crash playing on 2 and 4.

Figure 34: Rhythmic isolation of each drum part for *Phuture Heat*.

Figure 34 presents the traditional music notation of the same drum sequence. The kick, clap, hi-hats and crash all play straight rhythms. A crash hit is placed on beat one of the first measure to mark the beginning of the 64 step sequence. The clap maintains a steady rhythm on beat two and four of every measure. The booming 808 kick follows a four-on-the-floor pattern that is varied on beat four of measures two and four. The variation in measure two is a dotted eighth followed by a sixteenth note while the variation in measure four is two eighth notes.

The rim shot, snare and cowbell all play syncopated rhythms. The snare pattern of measures one and three are identical. A 16th note is placed on the “ah” (one+ee+and+ah) of beat one while an 8th notes is placed on the “and” (one+and) of beats three and four. Syncopation is maintained in measures two and four where there are two contrasting variations. In measure 2, beginning on the “ee” of beat one, two dotted 8th notes are played consecutively, followed by the same rhythm occurring over beats two and three notated by a 16th note tied to an 8th note. This measure concludes with two 8th notes on the “and” of beats three and four. In measure four, a dotted 8th is notated as an 8th note tied to a 16th note between beats 1 and 2, which is followed by the same rhythm notated as a 16th note tied to an 8th note. The final two beats of the snare sequence conclude with an 8th note rest, then a 16th note rest, followed by a 16th note tied to a 16th note over beats three and four of measure four, and concluding with a 16th note succeeded by an 8th note.

The rim shot plays an identical rhythmic motif in measure one and three of the sequence. Measures two and four are each silent with a whole rest. The rhythmic shots occur on the “ee” and the “ah” of each beat. This means that this rhythm never connects with the pulse of the beat, nor does it connect with any straight 8th note division of the pulse. It is notated as a 16th note rest followed by an 8th note and a 16th note which is then repeated two more times and finishes off with a 16th note rest followed by a dotted 8th note. This drum sound is contrasted by the cowbell rhythms which are silent in measures one and three, but then fill in the silence of the rim shot during measure two and four. Once again, some dotted 8th note rhythms are triggered. In measure two, a dotted 8th note is followed by a 16th note tied to an 8th note over beats one and two. Two 8th notes succeed those notes and then these are followed by an 8th note tied to a 16th note tied over beats three and four which concludes with a dotted 8th note. In measure four, the rhythm begins with a dotted 8th note; then a 16th note tied to an 8th note over beats one and two; the last rhythm is repeated over beats two and three; then two 16th notes on the “and” of beat three; concluding with a quarter note rest.

Chapter 6: Space Cowboy

Drawing on hardware instruments, this composition arose out of a series of audio editing experiments. It became the most frenetic and highly energetic of all three of the compositional ideas that arose out of this period of experimentation. The title evokes the imagery of a Wild West cowboy travelling through space. It blends the futuristic sci-fi themes most prominent in early techno with the American Old West. This thematic blend has been noted in a couple sci-fi/western Hollywood films such as *Back to the Future III* (1990) and *Wild Wild West* (1999). It is based around a sample of President John F. Kennedy's proclamation that "I believe we should go to the moon". It is followed by another sound byte that describes the ambition of the United States Government to land astronauts on the moon as "the greatest scientific technological effort, ever undertaken, by any nation in time of peace" (Philips RCA record 1969). It is in the key of C minor and played at 128 BPM. The screenshots of Ableton Live 9 where *Space Cowboy* was mixed is found in Appendix H. This includes the arrangement view with channel volume changes, a view of the channel delay changes and all of the effect settings applied to each audio channel.

Equipment and Instrumentation

The equipment that was used to record the audio tracks song includes: a TB-3, TR-8, Korg Volca Bass, Technics SL-1200, the Phonic Helix Board 18

FireWire Mixer, Ableton Live 9 and the Akai APC-40. The song was originally composed on the first three instruments and worked out as a live performance before being edited within Ableton. This concept was rendered into a 12 minute demo recording out of the mixer and recorded into the Zoom H2n. These practice performances primed the creative flow of the music that would come to be once the recording of separate audio tracks was undertaken. The tracks were then processed and edited within Ableton Live 9. The recording captures the improvised nature of parameter automation that is achieved by performing on the hardware instruments, but also goes further by blending, mixing, and automating effects on the audio tracks with a performance on the APC-40, which in turn enhances the forward motion of the music. Post-editing was completed to achieve the desired aesthetic of a balanced mix.

Effects Setup

The audio tracks that were recorded in *Space Cowboy* were all recorded without any effects. All of the effects applied in this recording were done so within Ableton. Each instrument track has its own unique EQ, reverb and delay setup. On the master channel an EQ and compressor are used for mastering. A separate reverb and delay send/receive were created to apply a uniform reverb and delay to any track throughout the composition. This is most prominently heard on the spoken word samples as the send/receive reverb and delay is automated in and out of the track. Finally, an Ableton effect entitled DJ Tools was used on the master channel. This was only used for the hi-pass filter that can be

automated onto the master channel and used to cut out the bottom-end frequencies of the master channel during build-ups and break downs.

Musical Analysis

The musical motif that inspired the title of *Space Cowboy* is recorded from the Korg Volca Bass. The syncopated single note sequence was saved to the instrument’s 16-step on-board sequencer. It begins on C3 on the “and” of beat one or step three of the sequence; is three consecutive dotted eighth notes followed by an eighth note on the “and” of beat four (steps 6, 9, 12 and 15); and maintains the same rhythm throughout the performance. At the 3:11 marking, to provide a variation of pitch into the sequence a C2 is played on beat three. It returns to the original sequence patten at 3:56. The fundamental sequence is shown in Table 4.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Notes	C3				C3				C3				C3			

Table 4: Korg Volca Bass sequence for *Space Cowboy*

The inspiration of the title did not come from the rhythm itself. It arose out of an association that developed when the resonance of the Volca Bass was applied at a great enough intensity that it became self oscillating. This is heard in the middle body of the recording between the 1:47 and 2:20 minute markings. It is reminiscent of the sound that may come from a futuristic gun. The rhythm accentuates this further by giving the track a sense of galloping through space.

The process of recording this music was sequential. It began with a live six minute performance on the TB-3 and TR-8 which were both recorded simultaneously into Ableton. Next, the performance of the Volca Bass was recorded on-top of the other two instruments. The frequency and resonance of the Volca Bass was modulated based on how the feel of the TB-3 and the TR-8 progressed in the recording. At 2:10, the resonance was heavily applied to the Volca Bass momentarily and an underwater sound is produced where the filter has gone into self oscillation. This was not conceived beforehand but happened during the improvisation of the performance. Finally, the samples of the spoken word were recorded. Because the original concept was for instruments and didn't have any samples previously prepared these were chosen in the moment. A 1969 recording of John F. Kennedy about space exploration was cued on the Technics SL-1200 and as the recorded music played in a loop the appropriate sound bytes were chosen and recorded in separate clips of Ableton. Once all of this was complete the next step was to edit, add effects and perform another performance on the APC-40. The spoken word of Kennedy was lowered in pitch. The spoken word was triggered in the arrangement with the style of a "stab". This is demonstrated first at 1:37 and heard again throughout the piece. This is done in the style of early house tracks such as Steve Silk Hurley's *Jack Your Body* (1986). This style of playing the sample was heavily influential and utilized in numerous house recordings of the late 80s and early 90s.

The TR-8 is cycling over a four beat sequence of BD, SN, RS, CL, CHH, OHH, and RD shown in Table 5. The sounds are added and removed with the volume faders while the tone is modified with alterations to the decay of the sounds. The rhythm is manipulated with the scatter effect. Scatter effect six is used at various rates. The pattern of the TB-3, shown in Table 6, and the pattern of the TR-8 are both 16 steps in length. The first three steps of the TB-3 are echoed by the snare of TR-8 in steps 2, 3, 4 of the drum sequence. The patterns of the TB-3 and the TR-8 complement each other.

TR8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BD	x				x				x				x			
SN		x	x	x	x						x				x	
LT																
MT																
HT																
RS		x	x	x	x	x				x		x	x	x	x	x
CL					x								x			
CH	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
OH			x				x				x				x	
C																
R	x				x				x				x			x

Table 5: TR-8 drum pattern for *Space Cowboy*

TB3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Notes	Eb2	Eb2	C2					C1		Eb2	C1	C2		Eb2	Eb1	
Accent																
Slide										x						

Table 6: TB-3 bass line sequence for *Space Cowboy*

When the TR-8 and TB-3 were recorded, many real time changes were made to the timbre of the instruments. The cutoff and resonance of the TB-3 are

heavily modulated throughout the recording while the decay of the snare, hi hats and ride are also modulated in real time as previously mentioned.

I automated volume and effects changes into the recordings of the TB-3, TR-8, and Volca Bass by triggering the clips at the same time as performing a live mix on the Akai APC-40. Once I completed the mix and effect changes of the audio recordings, I recorded myself triggering the vocal samples into the arrangement and added reverb and delay automation with the APC-40. The recording maintains the feeling of a live performance and is influenced by the DJ techniques of Frankie Knuckles and Ron Hardy who mixed audio sound effects and vocal tracks on top of early house records and even live drum machines.

Chapter 7: Sacred Pasture In The Z-Sky

The longest composition, at 224 measures, is *Sacred Pasture In The Z-Sky*. It is written in the key of C minor and is 120 BPM. The form of the song is ABA'B'B". The concept of this music draws upon a pious theme. It blends an earthly element, in terms of a sacred pasture, with an unworldly one, the Z-Sky, a fictitious utopia in the atmosphere of an alien planet. The feeling of this music is meant to be meditative. It is soothing, calming and peaceful. It represents a heavenly place beyond the earth's galaxy; a place of serenity, relaxation, and retreat. The score can be found in Appendix C. An extended presentation of screenshots of the DAW (arrangement of MIDI clips, view of mixer, etc.), instrument settings and effect parameters can be found in Appendix I.

Equipment and Instrumentation

This composition was composed and sequenced in Logic Express 8. The instruments that were used to make this composition include: Korg MonoPoly, Synapse Dune CM, Korg M1, D16 Group Phoscyon, Rob Papen Predator, Nepheton, and some samples of "crackle" I recorded off of a vinyl record playing at the end of various records. It has electric keys (Mono Poly 1), three ethereal synthesized pads (MonoPoly 2, 3, 4), a triangle lead (Mono Poly 5), synthesized ocean wave sounds (Dune CM), symphonic strings (M1 (1)), a piano (M1 (2)), a 303 (Phoscyon), a round bass tone (Predator), an 808 drum kit sound (Nepheton), and reversed audio.

Effects Setup

To boost the signal of the kick drum and the synth bass, I exported individual wav files of each of these tracks in isolation. These audio tracks were exported with the master channel mastering effects, such as compression and limiting/maximizing, applied to the audio. As a result the apparent volume of the kick and the synth bass became much louder than they were simply played back from the AUs by the DAW. I came by this technique by accident when I was exporting an audio track of a kick to be processed and reversed. I noted that the volume was much louder so I decided to perform it for the entire kick drum and bass tracks.

Four bus effects are setup in this recording. KR-Delay is used for auxiliary channel 1 and auxiliary channel 2. C1 Compressor is used for auxiliary channel 3 and on auxiliary channel 4 Amplifikation is inserted. MonoPoly 2, Phoscyon and the ride drum sound of Nepheton are sent to Bus 1; the snare and closed hi hat are sent to Bus 2; M1 (2), Phoscyon as well and the snare and closed hi hat of Nepheton are sent to Bus 3; MonoPoly 1 and MonoPoly 2 are sent to Bus 4.

Musical Analysis

Throughout the entire recording, I layered different samples of vinyl “crackle” — the hiss and pops present on used pieces of vinyl — merely for the sonic effect that the listener is hearing a vinyl record rather than an MP3. This was chosen artistically to represent the past and a reference to Plato’s idea of the Golden Age. Several different short samples of this crackle/hiss are then put

together, like a collage, throughout the piece. This can be seen in audio track 16 of the arrangement view of Logic Express 8 in Appendix I.

The composition is divided into two sections, A and B, which are varied as they re-emerge. The song form is ABA'B'B". It begins with a calm introduction. The sample of vinyl crackled begins prior to what is marked as measure one in the score that accompanies this thesis. Every eight bars between measure 1 and 32 another instrument — or instruments, as is the case in measure 25 — is added to the foundation of the preceding eight bars.

Section A

At measure 1, the MonoPoly 2 plays a series of perfect intervals played over two measures at a time. The intervals follow this order: Bb, Eb (perfect fourth); G, C (perfect fourth); Eb, Bb (perfect fifth); and C, G (perfect fifth). When this repeats at measure 9, the MonoPoly 3 is the second instrument to join in and plays a half note on beat three of the measure. This is tied to a whole note of measure 10 and followed by two whole note rests. All of this is shown in Figure 35.

Figure 35: Measures 1-17 of *Scared Pasture In The Z-Sky*

At measure 17, the Nepheton enters and plays a straight rhythm on the hi-hats accompanied by a snare on beat two and four of each bar. The melody of MonoPoly 5 begins at measure 25, along with MonoPoly 4 that plays a C on beat one of measure 27 as shown in Figure 36. In a manner, MonoPoly 3 and MonoPoly 4 engage in a call and response. Furthermore, each is panned in opposing channels. The melody of MonoPoly 5 is simple and sparse. It follows a motif that is applied in variation. The motif is illustrated between measure 25 and 29 of Figure 36. Then, between measure 29 and 32 the motif is varied.

Figure 36: Measures 25-32 of *Sacred Pasture In The Z-Sky*

Rather than changing to Section B following measure 32, a four bar drum break is played. The kick drum enters over the straight 8th notes of the hi-hat and snare sequence previously played from measure 29 to 32.

Section B

Section B starts at measure 37 and reflects a change in mood of the atmosphere of sounds. The chord progression of M1 (1) retains the descending whole note motific character of the MonoPoly 2 in Figure 35, but features a C minor 7 in second inversion (G, Bb, Eb); moving to a D minor 9 in first inversion (F, D, Eb); then an Ab major in second (Eb, Ab, C); and finally a G minor in second inversion (D, Bb, G). These chord changes are shown in Figure 37.

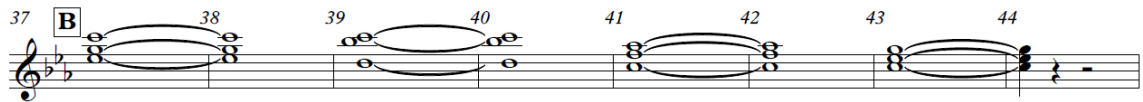


Figure 37: Measure 37-44 of M1 (1) in *Sacred Pasture In The Z-Sky*

The bass line of the Predator that accompanies these chords is based on a two measure rhythmic motif. This motif can be broken down into motif *a*, in measure 37, and motif *b* in measure 38. This motif is then repeated in reverse over measures 38 and 39. The order is *abba* and this forms the four bar ostinato that the bass repeats throughout Section B shown in Figure 38. The melodic movement is from the root C and up an octave to another C with the fifth (G) as the passing tone.

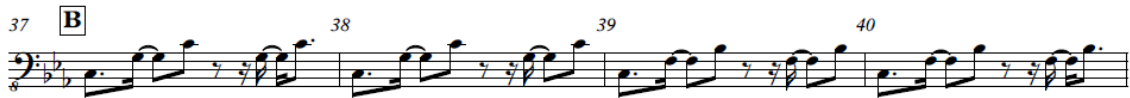


Figure 38: Measures 37-40 of Predator in *Sacred Pasture In The Z-Sky*

The ocean wave sound effect, generated by Dune CM, is played once every four bars between measure 37 and 57. Following the same build up pattern established in section A, after eight bars another instrumental sequence enters Section B. This happens at measure 45 when the MonoPoly 1 begins to play the chordal accompaniment with a C pedal tone as shown in Figure 39. The sequence maintains a one bar rhythmic motif. The chord alternates between a Cm7 (C, Bb, C, Eb) and a Csus4 (C, C, F). This repeats once again for eight bars as the clap of the Nepheton enters the percussion sequence of Section B.



Figure 39: Measures 45-48 of Monopoly 1 in *Sacred Pasture In The Z-Sky*

At measure 61 the bass sequences stops. The kick drum and clap are also removed. The MonoPoly 1 continues to play chord extensions over a C pedal tone while the M1 (1) continues to play the descending harmonic progression shown in Figure 37. Section B ends with an eight bar part built around a drum breakdown and accompanied by an audio sample of the MonoPoly 1. A sample of the MonoPoly 1 was exported as an audio file twice the sample rate of the project file of *Sacred Pasture In The Z-Sky*. This resulted in audio that was much lower in pitch than the original sequence of the MonoPoly 1 once imported back into the Logic Express 8 project. While the ride cymbal plays a sequence on the Nepheton, an audio sample of the four on the floor kick drum rhythm is extracted, reversed and then layered under the ride cymbal. This marks the end of Section B.

Section A'

At measure 77, Section A' begins with the previous sequences of Monopoly 2, MonoPoly 3, and Monopoly 5 of Section A. These sequences are supported by a new drum rhythm that did not occur in Section A which is shown in Figure 40. The rhythmic sequence of the Nepheton begins with a four on the floor kick drum and a clap on the third beat of each measure. Then, a syncopated hi hat rhythm

on each off-beat enters four bars later at measure 81. A snare enters at measure 85 and rhythmic variations are added in measure 86 and 88. At measure 89, a ride cymbal rhythm is added to the drum sequence. The kick drum stops briefly for two bars at measure 93 when a new bass sequence of the Predator, shown in Figure 41, enters. The two bar sequence of the Predator repeats from measure 93 until 108. The sequence of the MonoPoly 4, shown in Figure 36, enters at measure 94. Then, all of the sequences of these six instruments repeat from measure 97 to measure 108. Section A' completes with the same drum break from measure 33-36. Measure 112 marks the end of Section A'.

The image shows a musical score for measures 77-112. The score is written in bass clef with a key signature of one flat (Bb) and a 4/4 time signature. It consists of 12 staves of music, each labeled with its corresponding measure number from 77 to 112. The notation includes various rhythmic patterns, rests, and dynamic markings. A box labeled 'A'' is placed above the first staff (measure 77).

Figure 40: Measures 77-112 of Nepheton in *Sacred Pasture In The Z-Sky*

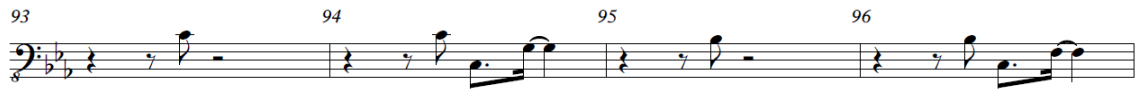


Figure 41: Measures 93-96 of Predator in *Sacred Pasture In The Z-Sky*

Section B'

Section B' differs from Section B in terms of its arrangement. The bass sequence of the Predator is omitted at the beginning of the section at measure 113. Rather, it features the ocean wave sound of the Dune CM, the descending chords of the M1 (1), shown in Figure 37, and the 16th note groove of the Nepheton over measures 113-120. The MonoPoly 1 keyboard sequence, shown in Figure 39, enters at measure 121. The Predator sequence, from Figure 38, enters eight bars later at measure 129. The ocean wave sound of the Dune CM is then removed from the arrangement at measure 137. At measure 145, all other instrument, except the M1 (1), end and the reversed audio samples originally featured in measures 69-76 remain as Section B' concludes. This section ends at measure 160.

Section B''

At measure 161 Section B'' begins. It features a Dune CM ocean wave sequence that begins on beat four of measure 161 and repeats every four bars; the previous Predator bass line sequence from Figure 38 — but this time with a greater amount of resonance applied to the low pass filter of the synthesizer, in addition to a filter sweep that is automated behind the sequence; and a sparse sequence of kick drum hits accompanied by a repetitive rhythm on the rim shot

drum sound of the Nepheton as shown in Figure 42. The sequence of the M1 (1) from Figure 37 is then copied over to the M1 (2) which begins at measure 169. Although the sequence that was stored in the MIDI sequencer of Logic Express 8 is tied whole notes, the amplifier envelop of the piano patch of the M1 (2) has very little sustain and as such does not hold the notes for as long as they are noted in the score. Instead a delay is added to the M1 (2) instrument channel to extend the short stabs.

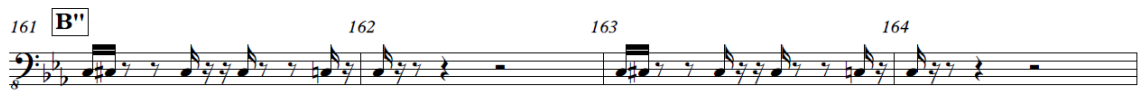


Figure 42: Measures 161-164 of Nepheton in *Sacred Pasture In The Z-Sky*

At measure 177, the acid bass line sequence of the Phoscyon begins and as the energy of the composition picks up. It follows a simple melodic outline around the root (C), the minor 7th (Bb) and the minor third (Eb) all within the range of five semitones as shown in Figure 43. The filter and cutoff of the Phoscyon are automated throughout Section B''.

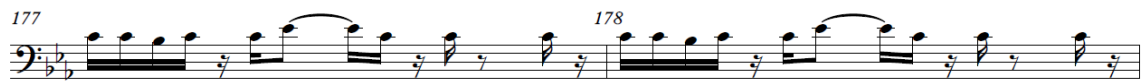


Figure 43: Measure 177-178 of Phoscyon in *Sacred Pasture In The Z-Sky*

The drum sequence varies over measures 185-192 and again over measures 193-200 and measures 201-208. At measure 209 the energy of the composition winds down as the bass sequence of the Predator is taken out and the busy hi hat, snare and clap sequence of the Nepheton ends. The Nepheton

sequence reduces to just a kick drum that accents the first beat of every other measure while the sequence of the Phoscyon and M1 (2) continue to play. This repeats once more and the composition ends at measure 224 on the accompanying score. Although this is the case, the recording continues and features the samples of the vinyl noise for a couple extra bars before officially ending.

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Appendices

Appendix A: *Moonlight Horizon* Music Score

Ethereal sounds and pads: <ul style="list-style-type: none">• MS-20, Dune CM 2, PolySix 1
Resonant Synth: <ul style="list-style-type: none">• Polysix 2
Bell: <ul style="list-style-type: none">• Korg M1
Slap Bass: <ul style="list-style-type: none">• Dune CM 1 using a periodic waveform
TB-303: <ul style="list-style-type: none">• Phoscyon w/Sawtooth Oscillator
Drums <ul style="list-style-type: none">• Audio Realism ADM (808), CM-505

Figure 44: Instrumentation of *Moonlight Horizon*

Moonlight Horizon

$\text{♩} = 120$
A

Polysix 1
Polysix 2
M1
MS-20
Dune CM 1
Dune CM 2
Phoscyon
ADM
CM-505

||

3

Polysix 1
Polysix 2
M1
MS-20
Dune CM 1
Dune CM 2
Phoscyon
ADM
CM-505

5

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



7

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

9

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



11

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

13

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



15

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

17

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



19

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

21

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



23

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

25

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Detailed description: This block contains the musical notation for measures 25 and 26. It features nine staves. Polysix 1 and Polysix 2 are in treble clef with a key signature of three flats. Polysix 2 has a long slur over its two measures. M1 is in treble clef and is silent. MS-20 is in treble clef and plays a melody of quarter notes. Dune CM 1 is in treble clef and is silent. Dune CM 2 is in bass clef and plays a bass line with eighth notes and rests. Phoscyon is in bass clef and is silent. ADM is in bass clef and plays a bass line with eighth notes. CM-505 is in bass clef and is silent.



27

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Detailed description: This block contains the musical notation for measures 27 and 28. It features nine staves. Polysix 1 and Polysix 2 are in treble clef with a key signature of three flats. Polysix 2 has a slur over its two measures. M1 is in treble clef and is silent. MS-20 is in treble clef and plays a melody of quarter notes. Dune CM 1 is in treble clef and is silent. Dune CM 2 is in bass clef and plays a bass line with eighth notes and rests. Phoscyon is in bass clef and is silent. ADM is in bass clef and plays a bass line with eighth notes. CM-505 is in bass clef and is silent.

29

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



31

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

33

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



35

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

37

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



39

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

41

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Detailed description: This block contains the musical notation for measures 41 and 42. It features nine staves. Polysix 1 and Polysix 2 are in treble clef with a key signature of three flats. M1 is in treble clef with a key signature of three flats. MS-20 is in treble clef with a key signature of three flats. Dune CM 1 is in treble clef with a key signature of three flats. Dune CM 2 is in bass clef with a key signature of three flats. Phoscyon is in bass clef with a key signature of three flats. ADM is in bass clef with a key signature of three flats. CM-505 is in bass clef with a key signature of three flats. A slur connects the notes in M1 across both measures. The ADM part has a consistent rhythmic pattern of eighth notes.



43

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Detailed description: This block contains the musical notation for measures 43 and 44. It features nine staves. Polysix 1 and Polysix 2 are in treble clef with a key signature of three flats. M1 is in treble clef with a key signature of three flats. MS-20 is in treble clef with a key signature of three flats. Dune CM 1 is in treble clef with a key signature of three flats. Dune CM 2 is in bass clef with a key signature of three flats. Phoscyon is in bass clef with a key signature of three flats. ADM is in bass clef with a key signature of three flats. CM-505 is in bass clef with a key signature of three flats. A slur connects the notes in M1 across both measures. The ADM part has a consistent rhythmic pattern of eighth notes.

45

Polysix 1
Polysix 2
M1
MS-20
Dune CM 1
Dune CM 2
Phoscyon
ADM
CM-505

Detailed description: This system contains measures 45 and 46. The key signature has three flats (B-flat, E-flat, A-flat). Polysix 1 and Polysix 2 are silent. M1 plays a melodic line with eighth notes and rests. MS-20 plays a line with dotted half notes. Dune CM 1 is silent. Dune CM 2 plays a bass line with eighth notes and rests. Phoscyon is silent. ADM plays a bass line with eighth notes. CM-505 is silent.



47

Polysix 1
Polysix 2
M1
MS-20
Dune CM 1
Dune CM 2
Phoscyon
ADM
CM-505

Detailed description: This system contains measures 47 and 48. The key signature has three flats. Polysix 1 plays a line of eighth notes. Polysix 2 is silent. M1 plays a melodic line with eighth notes and rests. MS-20 plays a line with dotted half notes. Dune CM 1 is silent. Dune CM 2 plays a bass line with eighth notes and rests. Phoscyon is silent. ADM plays a bass line with eighth notes. CM-505 is silent.

49 **B**

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



51

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

53

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



55

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

57

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



59

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

61

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



63

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

65

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



67

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

69

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



71

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

73

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



75

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

77

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



79

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

81 **C**

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



83

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

85

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



87

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

89

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



91

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

93

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



95

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

97

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



99

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

101

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



103

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

105

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Detailed description: This block contains the musical score for measures 105 and 106. It features nine staves. Polysix 1 and Polysix 2 are silent. M1 plays a melodic line with eighth notes and rests. MS-20 plays a simple harmonic line with quarter notes. Dune CM 1 and Dune CM 2 are silent. Phoscyon plays a bass line with quarter notes and rests. ADM plays a complex bass line with sixteenth-note chords. CM-505 is silent.



107

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Detailed description: This block contains the musical score for measures 107 and 108. It features nine staves. Polysix 1 and Polysix 2 are silent. M1 plays a melodic line with eighth notes and rests. MS-20 plays a simple harmonic line with quarter notes. Dune CM 1 and Dune CM 2 are silent. Phoscyon plays a bass line with quarter notes and rests. ADM plays a complex bass line with sixteenth-note chords. CM-505 is silent.

109

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



111

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

113 **A2**

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



115

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

117

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



119

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

121

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



123

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

125

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



127

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

129

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



131

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

133

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



135

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

137

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



139

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

141

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



143

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

145

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



147

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

149

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



151

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

153

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



155

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

157

Musical score for measures 157-158. The score consists of nine staves. The top five staves (Polysix 1, Polysix 2, M1, MS-20, Dune CM 1) are in treble clef. The bottom four staves (Dune CM 2, Phoscyon, ADM, CM-505) are in bass clef. The key signature has three flats (B-flat, E-flat, A-flat). The time signature is 12/8. Measures 157 and 158 are marked with a *f* dynamic. The ADM staff shows a rhythmic pattern of eighth notes: quarter, quarter, eighth, eighth, quarter, quarter, eighth, eighth, quarter, quarter, eighth, eighth.

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505



159

Musical score for measures 159-160. The score consists of nine staves. The top five staves (Polysix 1, Polysix 2, M1, MS-20, Dune CM 1) are in treble clef. The bottom four staves (Dune CM 2, Phoscyon, ADM, CM-505) are in bass clef. The key signature has three flats (B-flat, E-flat, A-flat). The time signature is 12/8. Measures 159 and 160 are marked with a *f* dynamic. The ADM staff shows a rhythmic pattern of eighth notes: quarter, quarter, eighth, eighth, quarter, quarter, eighth, eighth, quarter, quarter, eighth, eighth.

Polysix 1

Polysix 2

M1

MS-20

Dune CM 1

Dune CM 2

Phoscyon

ADM

CM-505

Appendix B: *Straight To The Moon* Music Score

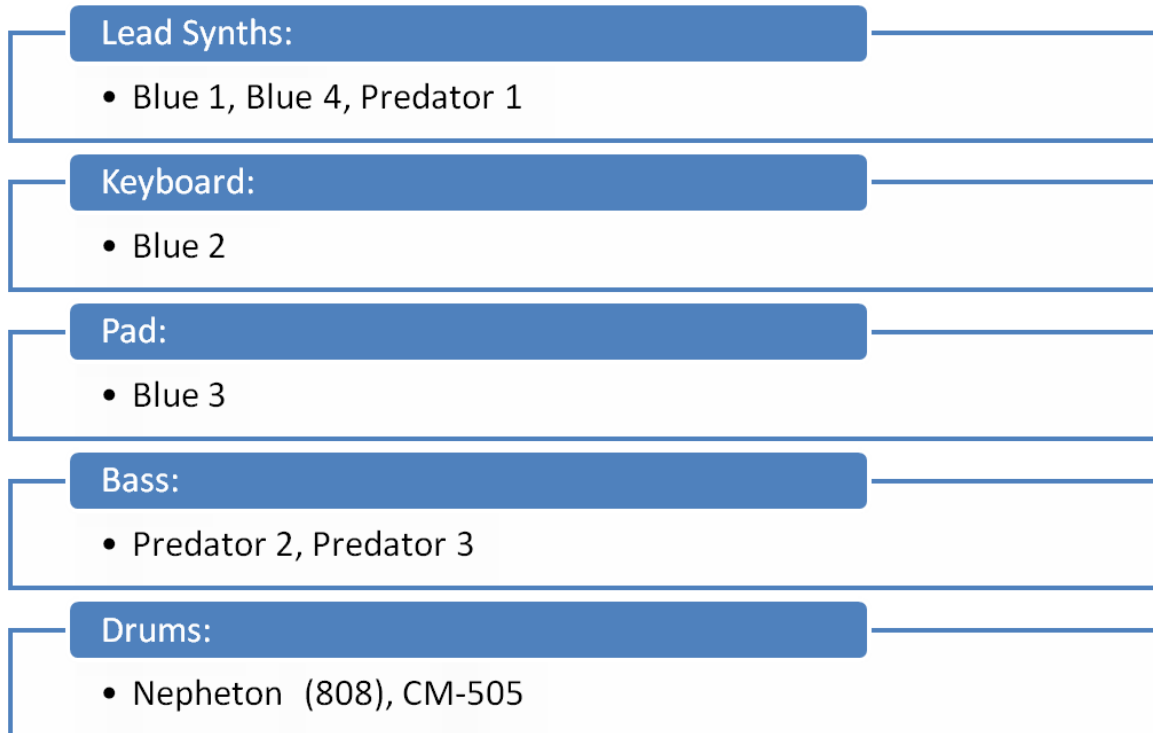


Figure 45: Instrumentation of *Straight To The Moon*

Straight To The Moon

♩ = 123

A

Blue 1
Blue 2
Blue 3
Blue 4
Predator 1
Predator 2
Predator 3
CM-505
Nephton

This system contains the first two measures of the piece. Blue 1 plays a melodic line in the treble clef. Blue 2 plays a rhythmic accompaniment in the treble clef. Blue 3, Blue 4, Predator 1, Predator 2, and Predator 3 are silent. CM-505 plays a bass line in the bass clef. Nephton is silent.



3

Blue 1
Blue 2
Blue 3
Blue 4
Predator 1
Predator 2
Predator 3
CM-505
Nephton

This system contains measures 3 and 4. Blue 1 continues the melodic line. Blue 2 continues the rhythmic accompaniment. Blue 3, Blue 4, Predator 1, Predator 2, and Predator 3 are silent. CM-505 continues the bass line. Nephton is silent.

5

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



7

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

9

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



11

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

13

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



15

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

17

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



19

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

21

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



23

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

25

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



27

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

29

Blue 1 

Blue 2 

Blue 3 

Blue 4 

Predator 1 

Predator 2 

Predator 3 

CM-505 

Nepheton 



31

Blue 1 

Blue 2 

Blue 3 

Blue 4 

Predator 1 

Predator 2 

Predator 3 

CM-505 

Nepheton 

33

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



35

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

37

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



39

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

41

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



43

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

45

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



47

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

49

Musical score for measures 49-50. The score is for a band with the following parts: Blue 1, Blue 2, Blue 3, Blue 4, Predator 1, Predator 2, Predator 3, CM-505, and Nepheton. The key signature is B-flat major (two flats). Blue 1 and Blue 3 are silent. Blue 2 plays a rhythmic accompaniment of eighth notes. Blue 4 plays a simple melody. Predator 1 and Predator 2 play a rhythmic accompaniment of eighth notes. Predator 3, CM-505, and Nepheton are silent.



51

Musical score for measures 51-52. The score is for a band with the following parts: Blue 1, Blue 2, Blue 3, Blue 4, Predator 1, Predator 2, Predator 3, CM-505, and Nepheton. The key signature is B-flat major (two flats). Blue 1 and Blue 3 are silent. Blue 2 plays a rhythmic accompaniment of eighth notes. Blue 4 plays a simple melody. Predator 1 and Predator 2 play a rhythmic accompaniment of eighth notes. Predator 3, CM-505, and Nepheton are silent.

53

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



55

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

57

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



59

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

61

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



63

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

65 **B**

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

67

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

69

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



71

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

73

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



75

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

77

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



79

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

81

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



83

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

85

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

Detailed description: This block contains the musical score for measures 85 and 86. It features eight staves. Blue 1 has a melodic line with a dotted quarter note and an eighth rest. Blue 2 has a complex rhythmic accompaniment with eighth and sixteenth notes. Blue 3 is silent. Blue 4 has a long, sustained note with a slur. Predator 1 is silent. Predator 2 has a rhythmic line with eighth notes and rests. Predator 3 is silent. CM-505 has a melodic line with eighth notes and a sharp sign. Nepheton has a rhythmic line with eighth notes and a sharp sign.



87

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

Detailed description: This block contains the musical score for measures 87 and 88. It features eight staves. Blue 1 has a melodic line that ends with a double bar line and a repeat sign. Blue 2 has a complex rhythmic accompaniment. Blue 3 is silent. Blue 4 has a long, sustained note with a slur. Predator 1 is silent. Predator 2 has a rhythmic line with eighth notes and rests. Predator 3 is silent. CM-505 has a melodic line with eighth notes and a sharp sign. Nepheton has a rhythmic line with eighth notes and a sharp sign.

89

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



91

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

93

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

95

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

97 **A'**

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



99

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

101

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



103

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

105

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



107

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

109

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

111

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

113

Blue 1 

Blue 2 

Blue 3 

Blue 4 

Predator 1 

Predator 2 

Predator 3 

CM-505 

Nepheton 



115

Blue 1 

Blue 2 

Blue 3 

Blue 4 

Predator 1 

Predator 2 

Predator 3 

CM-505 

Nepheton 

117

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



119

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

121

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



123

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

125

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



127

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

129

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



131

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

133

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



135

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

137 **B'**

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

Detailed description: This block contains the musical score for measures 137 and 138, labeled as section B'. It features eight staves. Blue 1 has a melodic line with a dotted quarter note and an eighth rest. Blue 2 plays a rhythmic accompaniment of eighth notes. Blue 3 is silent. Blue 4 has a long, sustained note. Predator 1 is silent. Predator 2 has a melodic line with eighth notes and rests. Predator 3 is silent. CM-505 has a melodic line with eighth notes and rests. Nepheton has a rhythmic accompaniment of eighth notes.

139

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

Detailed description: This block contains the musical score for measures 139 and 140. It features the same eight staves as the previous block. Blue 1 has a melodic line with a dotted quarter note and an eighth rest. Blue 2 plays a rhythmic accompaniment of eighth notes. Blue 3 is silent. Blue 4 has a long, sustained note. Predator 1 is silent. Predator 2 has a melodic line with eighth notes and rests. Predator 3 is silent. CM-505 has a melodic line with eighth notes and rests. Nepheton has a rhythmic accompaniment of eighth notes.

141

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



143

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

145

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

147

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

149

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

151

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

153

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



155

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

157

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



159

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

161

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

163

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

165

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

167

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

169

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



171

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

173

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



175

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

177

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



179

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

181

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



183

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

185

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



187

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

189

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



191

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

193

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



195

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

197

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton



199

Blue 1

Blue 2

Blue 3

Blue 4

Predator 1

Predator 2

Predator 3

CM-505

Nepheton

Appendix C: *Sacred Pasture In The Z-Sky Music Score*

Synthesized Bell: <ul style="list-style-type: none">• MonoPoly 5
Keys: <ul style="list-style-type: none">• MonoPoly 1
Strings and Pads: <ul style="list-style-type: none">• Korg M1 (1), MonoPoly 2, MonoPoly 3, MonoPoly 4
Piano: <ul style="list-style-type: none">• Korg M1 (2)
Sound FX: <ul style="list-style-type: none">• Synapse Dune CM
Bass: <ul style="list-style-type: none">• Predator
TB-303: <ul style="list-style-type: none">• Phoscyon w/ squarewave oscillator
Drums: <ul style="list-style-type: none">• Nepheton (808)

Figure 46: Instrumentation of *Sacred Pasture In The Z-Sky*

Sacred Pasture In The Z-Sky

♩ = 120

A

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

||

3

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

5

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



7

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

9

Musical score for measures 9-10. The score consists of ten staves. MonoPoly 1 is in treble clef, while MonoPoly 2 through Nepheton are in bass clef. MonoPoly 2 has a long note with a slur. MonoPoly 3 has a note with a slur.

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



11

Musical score for measures 11-12. The score consists of ten staves. MonoPoly 1 is in treble clef, while MonoPoly 2 through Nepheton are in bass clef. MonoPoly 2 has a long note with a slur.

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

13

Musical score for measures 13-14. The score consists of 12 staves. The instruments are MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). In measure 13, MonoPoly 2 has a whole note chord (F2, C3, G2) and MonoPoly 3 has a whole note chord (F2, C3). In measure 14, MonoPoly 2 has a whole note chord (F2, C3, G2) and MonoPoly 3 has a whole note chord (F2, C3). All other staves are silent.



15

Musical score for measures 15-16. The score consists of 12 staves. The instruments are MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). In measure 15, MonoPoly 2 has a whole note chord (F2, C3, G2) and MonoPoly 3 has a whole note chord (F2, C3). In measure 16, MonoPoly 2 has a whole note chord (F2, C3, G2) and MonoPoly 3 has a whole note chord (F2, C3). All other staves are silent.

17

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



19

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

21

Musical score for measures 21-22. The score consists of 12 staves. The instruments are MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). MonoPoly 2 has a long note with a slur and a fermata. MonoPoly 3 has a long note with a slur and a fermata. Nepheton has a rhythmic pattern of eighth notes.



23

Musical score for measures 23-24. The score consists of 12 staves. The instruments are MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). MonoPoly 2 has a long note with a slur and a fermata. MonoPoly 3 has a long note with a slur and a fermata. Nepheton has a rhythmic pattern of eighth notes.

25

Musical score for measures 25-26. The score includes staves for MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. MonoPoly 2 has a long note with a slur. MonoPoly 5 has a note with a slur. Nepheton has a rhythmic pattern of eighth notes.



27

Musical score for measures 27-28. The score includes staves for MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. MonoPoly 2 has a long note with a slur. MonoPoly 4 has a note with a slur. Nepheton has a rhythmic pattern of eighth notes.

29

Musical score for measures 29-30. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). Nepheton is a separate staff at the bottom with a bass clef. The key signature is two flats (B-flat and E-flat). MonoPoly 2 has a long note with a slur and a fermata. MonoPoly 4 and 5 have notes with slurs. Nepheton has a complex rhythmic pattern of eighth and sixteenth notes.



31

Musical score for measures 31-32. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). Nepheton is a separate staff at the bottom with a bass clef. The key signature is two flats (B-flat and E-flat). MonoPoly 2 has a long note with a slur and a fermata. MonoPoly 4 has a long note with a slur. MonoPoly 5 has notes with slurs. Nepheton has a complex rhythmic pattern of eighth and sixteenth notes.

33

Musical score for measures 33-34. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). The Nepheton staff (bass clef) contains a complex rhythmic pattern of eighth and sixteenth notes. MonoPoly 4 has a few notes at the start of measure 33. All other staves are mostly empty with some rests.



35

Musical score for measures 35-36. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). The Nepheton staff (bass clef) contains a complex rhythmic pattern of eighth and sixteenth notes. MonoPoly 4 has a few notes at the start of measure 35. Dune CM has a note in measure 36. All other staves are mostly empty with some rests.

37 **B**

Musical score for measures 37-38. The score includes staves for MonoPoly 1-5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major. MonoPoly 1-5 are silent. Dune CM has a melodic line in measure 37. M1 (1) has a long note in measure 37. M1 (2) is silent. Phoscyon is silent. Predator has a rhythmic pattern. Nepheton has a rhythmic pattern.



39

Musical score for measures 39-40. The score includes staves for MonoPoly 1-5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major. MonoPoly 1-5 are silent. Dune CM has a melodic line in measure 39. M1 (1) has a long note in measure 39. M1 (2) is silent. Phoscyon is silent. Predator has a rhythmic pattern. Nepheton has a rhythmic pattern.

C

41

Musical score for measures 41-42. The score consists of ten staves. The top five staves are labeled MonoPoly 1 through MonoPoly 5, and the bottom five are labeled Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature has two flats (B-flat and E-flat). The time signature is 4/4. MonoPoly 1-5 and M1 (2) are silent. Dune CM has a whole note chord in measure 41. M1 (1) has a whole note chord in measure 41. Phoscyon is silent. Predator has a melodic line with eighth notes and rests. Nepheton has a rhythmic accompaniment of eighth notes.



43

Musical score for measures 43-44. The score consists of ten staves. The top five staves are labeled MonoPoly 1 through MonoPoly 5, and the bottom five are labeled Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature has two flats (B-flat and E-flat). The time signature is 4/4. MonoPoly 1-5 and M1 (2) are silent. Dune CM has a whole note chord in measure 43. M1 (1) has a whole note chord in measure 43. Phoscyon is silent. Predator has a melodic line with eighth notes and rests. Nepheton has a rhythmic accompaniment of eighth notes.

45

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



47

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

49

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



51

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

53

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



55

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

57

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



59

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

61

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



63

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

65

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



67

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

69

Musical score for measures 69-70. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). All staves are in a key signature of two flats (B-flat and E-flat). Measures 69 and 70 are mostly empty, with only the Nepheton staff containing rhythmic notation consisting of eighth and sixteenth notes.



71

Musical score for measures 71-72. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). All staves are in a key signature of two flats (B-flat and E-flat). Measures 71 and 72 are mostly empty, with only the Nepheton staff containing rhythmic notation consisting of eighth and sixteenth notes.

73

Musical score for measures 73-74. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). All staves from MonoPoly 1 to M1 (2) contain whole rests. The Phoscyon, Predator, and Nepheton staves contain whole rests. The Nepheton staff (bottom) contains a rhythmic pattern of eighth notes and sixteenth notes in a bass clef, with a key signature of two flats (B-flat and E-flat).



75

Musical score for measures 75-76. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). All staves from MonoPoly 1 to M1 (2) contain whole rests. The Phoscyon, Predator, and Nepheton staves contain whole rests. The Nepheton staff (bottom) contains a rhythmic pattern of eighth notes and sixteenth notes in a bass clef, with a key signature of two flats (B-flat and E-flat).

77 **A'**

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



79

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

81

Musical score for measures 81-82. The score consists of ten staves. MonoPoly 1 is in treble clef, while MonoPoly 2-5, Dune CM, Phoscyon, and Predator are in bass clef. M1 (1) and M1 (2) are in treble clef. Nepheton is in bass clef. MonoPoly 2 has a long note with a slur extending across measures 81 and 82. MonoPoly 3 has a note in measure 82. MonoPoly 5 has notes in measures 81 and 82. Nepheton has a rhythmic pattern of eighth notes in both measures.



83

Musical score for measures 83-84. The score consists of ten staves. MonoPoly 1 is in treble clef, while MonoPoly 2-5, Dune CM, Phoscyon, and Predator are in bass clef. M1 (1) and M1 (2) are in treble clef. Nepheton is in bass clef. MonoPoly 2 has a long note with a slur extending across measures 83 and 84. MonoPoly 5 has notes in measures 83 and 84. Nepheton has a rhythmic pattern of eighth notes in both measures.

85

Musical score for measures 85-86. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). The bottom staff, Nepheton (bass clef), contains a complex rhythmic pattern of eighth and sixteenth notes. MonoPoly 2 has a long note with a slur. MonoPoly 3 has a note with a slur. MonoPoly 5 has a note with a slur. All other staves are empty.



87

Musical score for measures 87-88. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). The bottom staff, Nepheton (bass clef), contains a complex rhythmic pattern of eighth and sixteenth notes. MonoPoly 2 has a long note with a slur. MonoPoly 5 has a note with a slur. All other staves are empty.

89

Musical score for measures 89-90. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). MonoPoly 1 is a treble clef staff with a whole rest. MonoPoly 2 is a bass clef staff with a whole note chord (F2, B-flat2, E-flat3) tied to the next measure. MonoPoly 3 is a bass clef staff with a whole note chord (F2, B-flat2, E-flat3) tied to the next measure. MonoPoly 4 is a bass clef staff with a whole rest. MonoPoly 5 is a bass clef staff with a whole note chord (F2, B-flat2, E-flat3) tied to the next measure. Dune CM is a bass clef staff with a whole rest. M1 (1) and M1 (2) are treble clef staves with whole rests. Phoscyon is a bass clef staff with a whole rest. Predator is a bass clef staff with a whole rest. Nepheton is a bass clef staff with a rhythmic pattern of eighth notes and sixteenth notes.



91

Musical score for measures 91-92. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). MonoPoly 1 is a treble clef staff with a whole rest. MonoPoly 2 is a bass clef staff with a whole note chord (F2, B-flat2, E-flat3) tied to the next measure. MonoPoly 3 is a bass clef staff with a whole rest. MonoPoly 4 is a bass clef staff with a whole rest. MonoPoly 5 is a bass clef staff with a whole note chord (F2, B-flat2, E-flat3) tied to the next measure. Dune CM is a bass clef staff with a whole rest. M1 (1) and M1 (2) are treble clef staves with whole rests. Phoscyon is a bass clef staff with a whole rest. Predator is a bass clef staff with a whole rest. Nepheton is a bass clef staff with a rhythmic pattern of eighth notes and sixteenth notes.

93

Musical score for measures 93-94. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). The bottom staff is Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). MonoPoly 2 has a long note with a slur. MonoPoly 3 has a note with a slur. MonoPoly 4 has a long note with a slur. MonoPoly 5 has a note with a slur. Predator has a note with a slur. Nepheton has a complex rhythmic pattern with many sixteenth notes.



95

Musical score for measures 95-96. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). The bottom staff is Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). MonoPoly 2 has a long note with a slur. MonoPoly 4 has a note with a slur. MonoPoly 5 has a note with a slur. Predator has a note with a slur. Nepheton has a complex rhythmic pattern with many sixteenth notes.

97

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



99

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

101

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



103

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

105

Musical score for measures 105-106. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). MonoPoly 2 has a long note with a slur over it. MonoPoly 5 has a note with a slur over it. Predator and Nepheton have rhythmic patterns.



107

Musical score for measures 107-108. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). MonoPoly 2 has a long note with a slur over it. Predator and Nepheton have rhythmic patterns.

109

Musical score for measures 109-110. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). All staves are mostly empty, indicating rests. The Nepheton staff (bass clef) contains a complex rhythmic pattern of eighth and sixteenth notes with stems pointing up and down.



111

Musical score for measures 111-112. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). All staves are mostly empty, indicating rests. The Nepheton staff (bass clef) contains a complex rhythmic pattern of eighth and sixteenth notes with stems pointing up and down. The Dune CM staff (bass clef) has a single note with a long horizontal line above it, indicating a sustained note.

113 **B'**

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



115

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

117

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



119

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

121

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



123

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

125

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



127

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

129

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



131

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

133

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



135

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

137

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



139

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

141

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



143

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

145

Musical score for measures 145-146. The score consists of ten staves. The first six staves are labeled MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, and Dune CM. The last four staves are labeled M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). The time signature is 4/4. The M1 (1) staff features a long, horizontal oval shape spanning across the two measures, with a circled '8' at the beginning and end of the oval. All other staves contain a single horizontal line with a bar line, indicating a whole rest.



147

Musical score for measures 147-148. The score consists of ten staves. The first six staves are labeled MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, and Dune CM. The last four staves are labeled M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). The time signature is 4/4. The M1 (1) staff features a long, horizontal oval shape spanning across the two measures, with a circled '8' at the beginning and end of the oval. All other staves contain a single horizontal line with a bar line, indicating a whole rest.

149

Musical score for measures 149-150. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). The time signature is 6/8. All staves contain a whole rest. The M1 (1) staff has a double bar line with repeat dots at both ends, indicating a repeat of the measure.



151

Musical score for measures 151-152. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The key signature is two flats (B-flat and E-flat). The time signature is 6/8. All staves contain a whole rest. The M1 (1) staff has a double bar line with repeat dots at both ends, indicating a repeat of the measure.

153

Musical score for measures 153-154. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). The time signature is 6/8. The M1 (1) staff features a circled melodic line with a fermata over the first measure and a repeat sign at the end of the second measure. All other staves contain rests.



155

Musical score for measures 155-156. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). The time signature is 6/8. The M1 (1) staff features a circled melodic line with a fermata over the first measure and a repeat sign at the end of the second measure. All other staves contain rests.

157

Musical score for measures 157-158. The score consists of ten staves. The first six staves are labeled MonoPoly 1 through MonoPoly 5, and Dune CM. The last four staves are labeled M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). The time signature is 6/8. The music is mostly silent, with a double bar line in the middle of each measure. A large oval is drawn around the M1 (1) staff, spanning across the two measures, with a circled '8' at the beginning and end of the oval.



159

Musical score for measures 159-160. The score consists of ten staves. The first six staves are labeled MonoPoly 1 through MonoPoly 5, and Dune CM. The last four staves are labeled M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). The time signature is 6/8. The music is mostly silent, with a double bar line in the middle of each measure. A large oval is drawn around the M1 (1) staff, spanning across the two measures, with a circled '8' at the beginning and end of the oval.

161 **B''**

Musical score for measures 161-162. The score is in 6/8 time and B-flat major. It features ten staves: MonoPoly 1-5 (all bass clef), Dune CM (bass clef), M1 (1) and M1 (2) (both treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The Predator and Nepheton parts have active melodic lines, while the other parts are mostly rests. A double bar line is present at the end of measure 162.



163

Musical score for measures 163-164. The score is in 6/8 time and B-flat major. It features ten staves: MonoPoly 1-5 (all bass clef), Dune CM (bass clef), M1 (1) and M1 (2) (both treble clef), Phoscyon (bass clef), Predator (bass clef), and Nepheton (bass clef). The Predator and Nepheton parts have active melodic lines, while the other parts are mostly rests. A double bar line is present at the end of measure 164.

165

Musical score for measures 165-166. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). Nepheton (bass clef) is also present. The key signature is B-flat major (two flats). The time signature is 6/8. The Predator and Nepheton parts have rhythmic notation, while the other parts are mostly rests. A double bar line is present at the end of measure 166.



167

Musical score for measures 167-168. The score consists of ten staves: MonoPoly 1 (treble clef), MonoPoly 2 (bass clef), MonoPoly 3 (bass clef), MonoPoly 4 (bass clef), MonoPoly 5 (bass clef), Dune CM (bass clef), M1 (1) (treble clef), M1 (2) (treble clef), Phoscyon (bass clef), and Predator (bass clef). Nepheton (bass clef) is also present. The key signature is B-flat major (two flats). The time signature is 6/8. The Predator and Nepheton parts have rhythmic notation, while the other parts are mostly rests.

169

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



171

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

173

Musical score for measures 173-174. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). MonoPoly 1-5 and Phoscyon are silent. Dune CM has a whole note chord in measure 174. M1 (1) is silent, and M1 (2) has a whole note chord in measure 174. Predator and Nepheton have rhythmic patterns in both measures.



175

Musical score for measures 175-176. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). MonoPoly 1-5 and Phoscyon are silent. Dune CM is silent. M1 (1) is silent, and M1 (2) has a whole note chord in measure 176. Predator and Nepheton have rhythmic patterns in both measures.

177

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



179

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

181

Musical score for measures 181-182. The score consists of ten staves. The first five staves are labeled MonoPoly 1 through MonoPoly 5 and contain whole rests. The sixth staff, Dune CM, has a whole rest followed by a half note G2 and a whole note G2. The seventh staff, M1 (1), has a whole rest. The eighth staff, M1 (2), has a whole note G2. The ninth staff, Phoscyon, has a rhythmic pattern of eighth notes. The tenth staff, Nepheton, has a rhythmic pattern of eighth notes.



183

Musical score for measures 183-184. The score consists of ten staves. The first five staves are labeled MonoPoly 1 through MonoPoly 5 and contain whole rests. The sixth staff, Dune CM, has a whole rest. The seventh staff, M1 (1), has a whole rest. The eighth staff, M1 (2), has a whole note G2. The ninth staff, Phoscyon, has a rhythmic pattern of eighth notes. The tenth staff, Nepheton, has a rhythmic pattern of eighth notes.

185

Musical score for measures 185-186. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). MonoPoly 1-5 and M1 (1) are silent. M1 (2) has a long note with a fermata. Phoscyon, Predator, and Nepheton have active parts with various rhythmic patterns and articulations.



187

Musical score for measures 187-188. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). MonoPoly 1-5 and Dune CM are silent. M1 (1) is silent. M1 (2) has a long note with a fermata. Phoscyon, Predator, and Nepheton have active parts with various rhythmic patterns and articulations.

189

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



191

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

193

Musical score for measures 193-194. The score includes staves for MonoPoly 1-5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). MonoPoly 1-5 are silent. Dune CM has a melodic line starting in measure 194. M1 (1) is silent. M1 (2) has a long sustained note. Phoscyon, Predator, and Nepheton have active rhythmic parts.



195

Musical score for measures 195-196. The score includes staves for MonoPoly 1-5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats. MonoPoly 1-5 are silent. Dune CM is silent. M1 (1) is silent. M1 (2) has a long sustained note. Phoscyon, Predator, and Nepheton have active rhythmic parts.

197

Musical score for measures 197-200. The score includes staves for MonoPoly 1-5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). MonoPoly 1-5 and M1 (1) are silent. M1 (2) has a long note with a fermata. Phoscyon, Predator, and Nepheton have active parts.



199

Musical score for measures 199-202. The score includes staves for MonoPoly 1-5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). MonoPoly 1-5 and Dune CM are silent. M1 (1) is silent. M1 (2) has a long note with a fermata. Phoscyon, Predator, and Nepheton have active parts.

201

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



203

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

205

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton



207

MonoPoly 1

MonoPoly 2

MonoPoly 3

MonoPoly 4

MonoPoly 5

Dune CM

M1 (1)

M1 (2)

Phoscyon

Predator

Nepheton

209

Musical score for measures 209-210. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). The time signature is 4/4. MonoPoly 1-5, Dune CM, M1 (1), Predator, and Nepheton are mostly silent, with some rhythmic patterns in Nepheton. M1 (2) features a long, sustained chord across both measures. Phoscyon has a complex rhythmic pattern with eighth and sixteenth notes.



211

Musical score for measures 211-212. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). The time signature is 4/4. MonoPoly 1-5, Dune CM, M1 (1), Predator, and Nepheton are mostly silent, with some rhythmic patterns in Nepheton. M1 (2) features a long, sustained chord across both measures. Phoscyon has a complex rhythmic pattern with eighth and sixteenth notes.

213

Musical score for measures 213-214. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). M1 (2) features a long melodic line with a slur and a fermata. Phoscyon has a complex rhythmic pattern with slurs and accents. Nepheton has a simple bass line with slurs and accents.



215

Musical score for measures 215-216. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). M1 (2) features a long melodic line with a slur and a fermata. Phoscyon has a complex rhythmic pattern with slurs and accents. Nepheton has a simple bass line with slurs and accents.

217

Musical score for measures 217-218. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). M1 (2) features a long melodic line with a slur and a fermata. Phoscyon and Nepheton have rhythmic patterns with slurs and accents.



219

Musical score for measures 219-220. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is two flats (B-flat and E-flat). M1 (2) features a long melodic line with a slur and a fermata. Phoscyon and Nepheton have rhythmic patterns with slurs and accents.

221

Musical score for measures 221-222. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). M1 (2) features a long melodic line with a slur and a fermata. Phoscyon and Nepheton have rhythmic patterns with slurs and accents.



223

Musical score for measures 223-224. The score consists of ten staves: MonoPoly 1, MonoPoly 2, MonoPoly 3, MonoPoly 4, MonoPoly 5, Dune CM, M1 (1), M1 (2), Phoscyon, Predator, and Nepheton. The key signature is B-flat major (two flats). M1 (2) features a long melodic line with a slur and a fermata. Phoscyon and Nepheton have rhythmic patterns with slurs and accents.

Appendix D: Images of Instruments and Equipment

Phonic Helix Board 18 FireWire Mixer

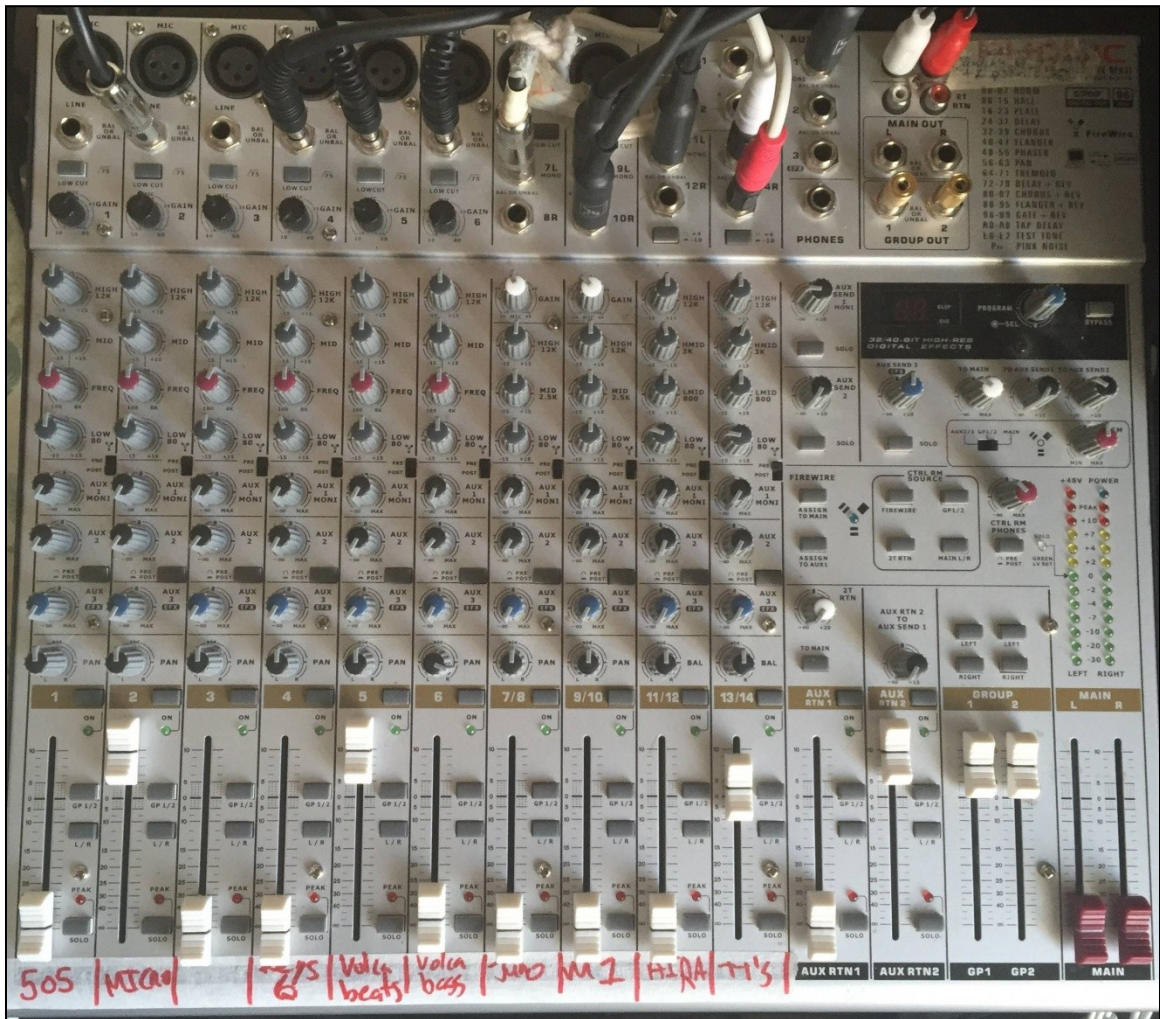


Figure 47: Phonic Helix Board 18 FireWire Mixer

Zoom H2n Portable Recorder



Figure 48: Zoom H2n Portable Recorder

Akai Professional APC-40



Figure 49: Akai Professional APC-40

TB-3



Figure 50: Roland Aira TB-3

TR-8



Figure 51: Roland Aira TR-8

Volca Bass



Figure 52: Korg Volca Bass

Technics SL-1200



Figure 53: Technics SL-1200 Direct Drive Turntable

D16 Group Phoscyon Bassline



Figure 54: D16 Group Phoscyon VST

Korg Polysix



Figure 55: Korg Polysix VST

Korg M1



Figure 56: Korg M1 VST

Korg MS-20



Figure 57: Korg MS-20 VST

Synapse Dune CM



Figure 58: Synapse Dune CM VST

Computer Music CM-505



Figure 59: Computer Music CM-505 VST Powered by LinPlug.

Audio Realism ADM



Figure 60: Audio Realism ADM VST

Rob Papen Predator



Figure 61: Rob Papen Predator VST

Korg MonoPoly



Figure 62: Korg MonoPoly VST

D16 Group Nepheton



Figure 63: D16 Group Nepheton VST

Rob Papen Blue



Figure 64: Rob Papen Blue VST

Logic Channel EQ and Ableton 8 Band Equalizer

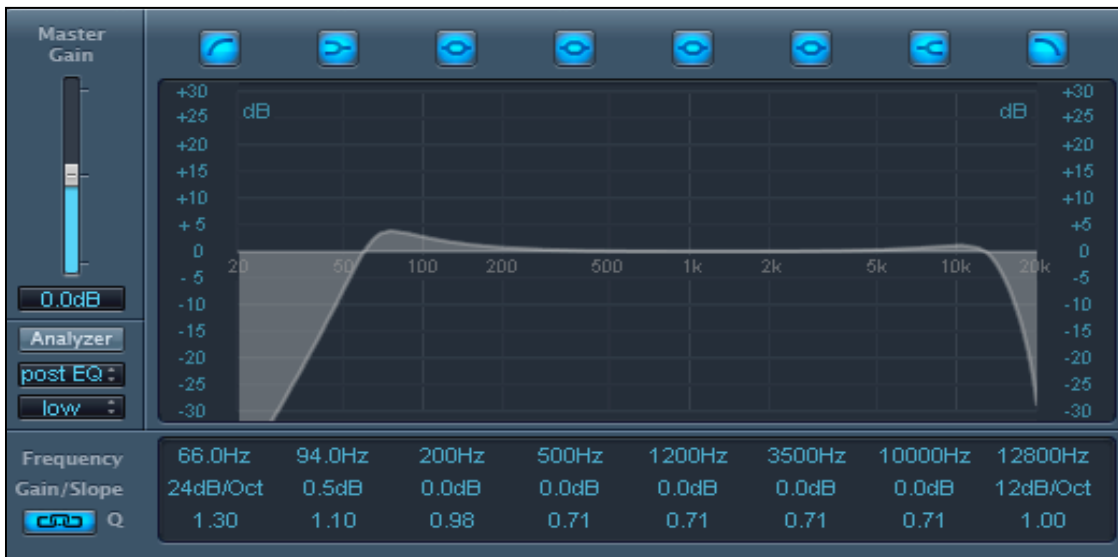


Figure 65: Logic Channel EQ

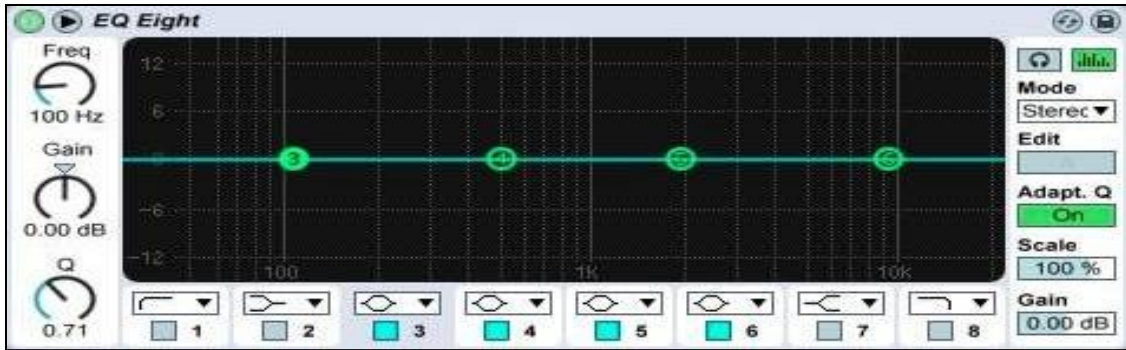


Figure 66: Ableton 8 Band Equalizer

Ableton Reverb

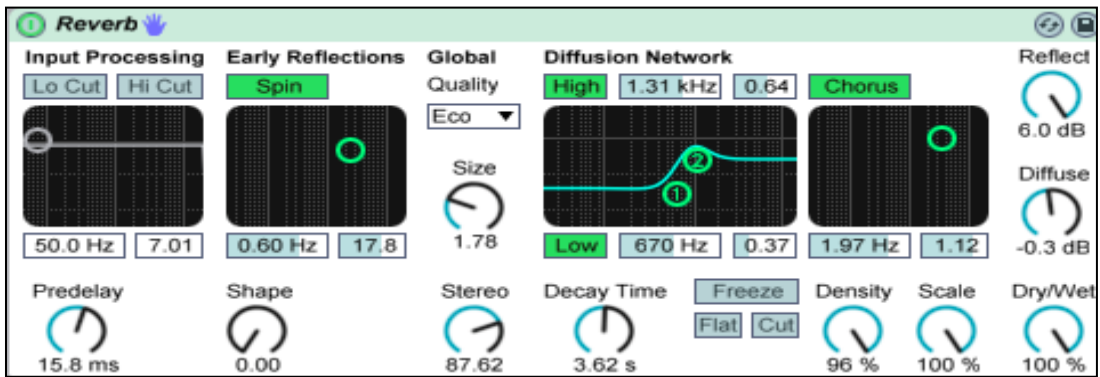


Figure 67: Ableton Reverb

Logic PlatinumVerb

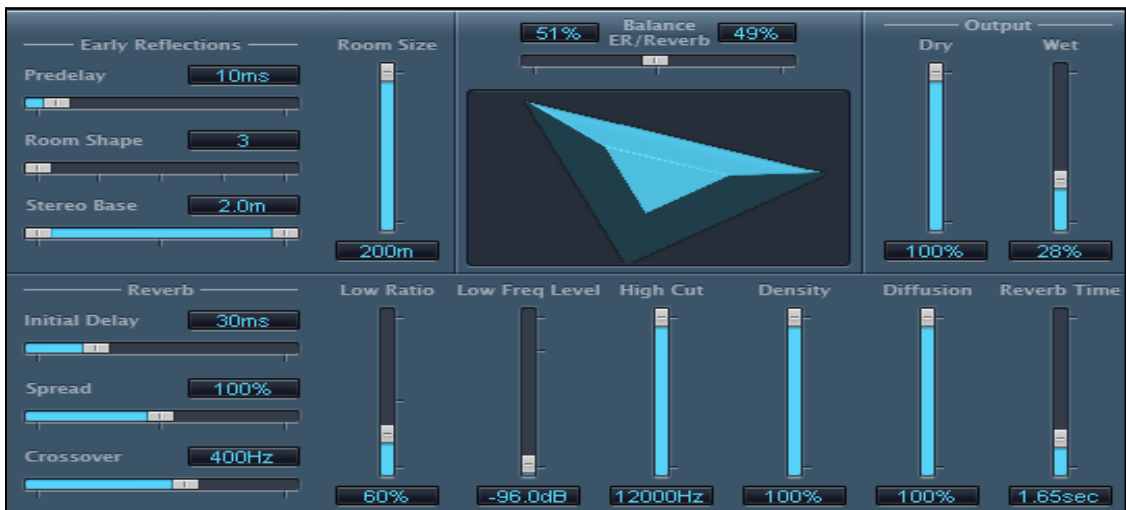


Figure 68: Logic PlatinumVerb

Liquid Sonics Reverberate CM

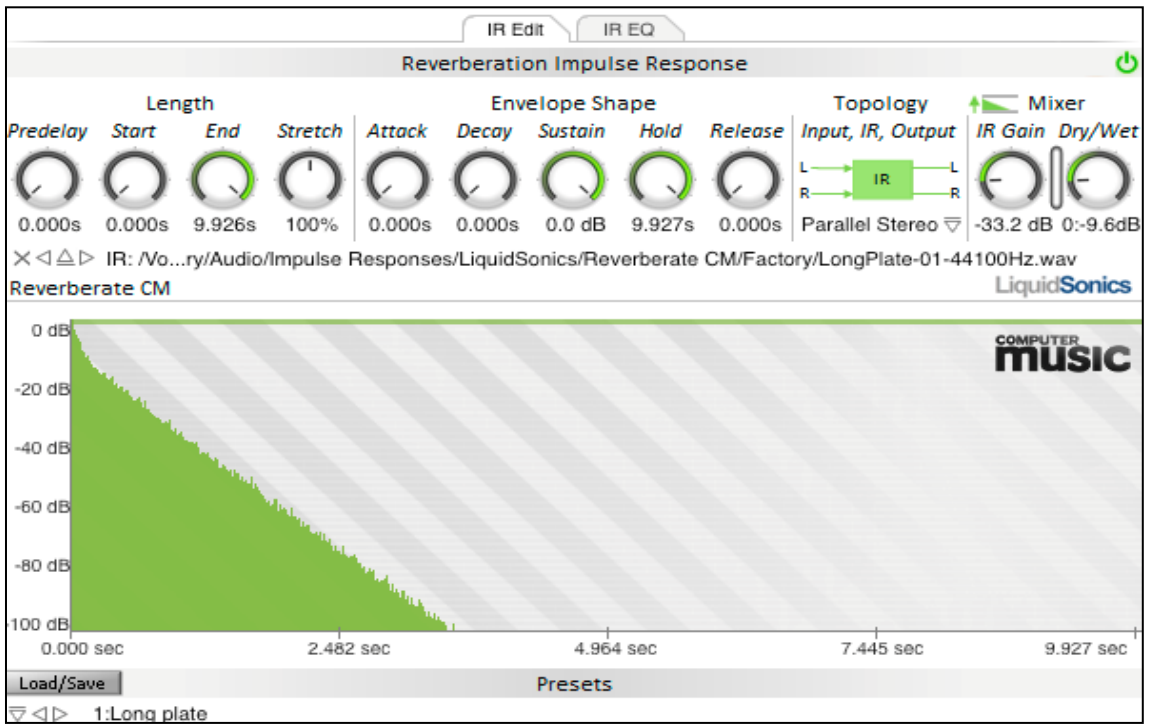


Figure 69: Liquid Sonics Reverberate CM

Korg MDE-X



Figure 70: Korg MDE-X

K Research KR-Delay

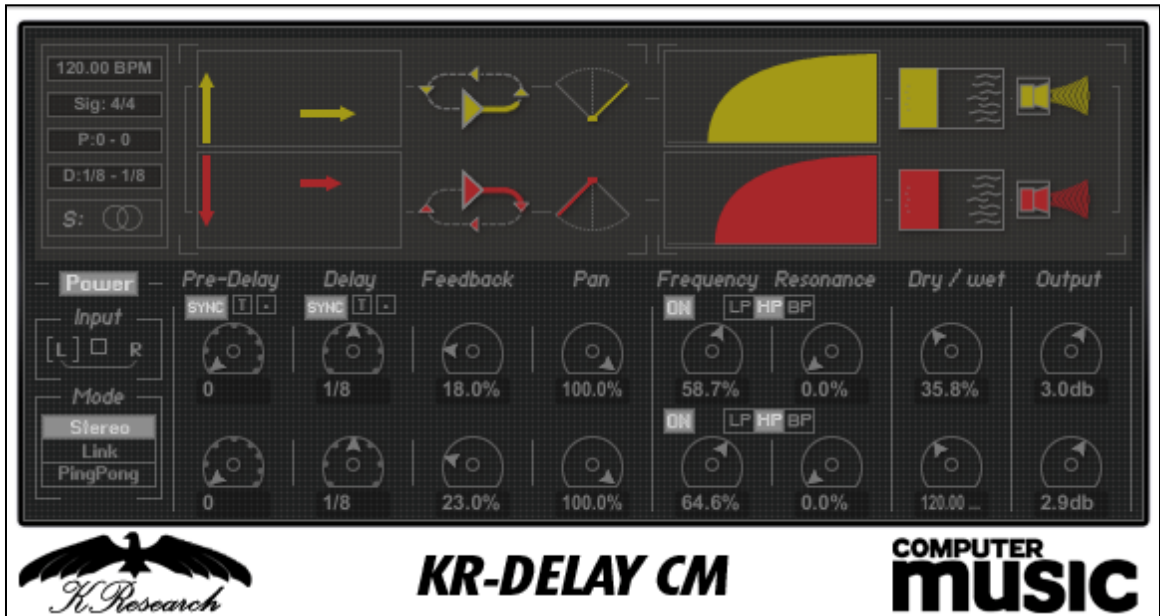


Figure 71: K Research KR-Delay

Audio Damage DubStation 1.5



Figure 72: Audio Damage DubStation 1.5

Audio Damage Ratshack Reverb



Figure 73: Audio Damage Ratshack Reverb

Logic Tape Delay



Figure 74: Logic Tape Delay

Logic Echo



Figure 75: Logic Echo

Ableton Moving 3-5-6 Delay

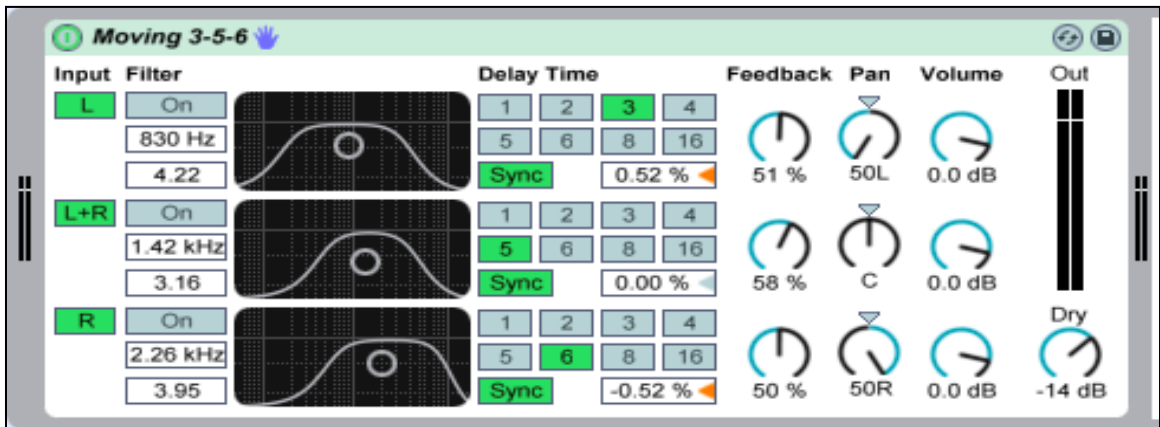


Figure 76: Ableton Moving 3-5-6 Delay

Logic Chorus



Figure 77: Logic Chorus

Logic Flanger



Figure 78: Logic Flanger

Logic Microphaser

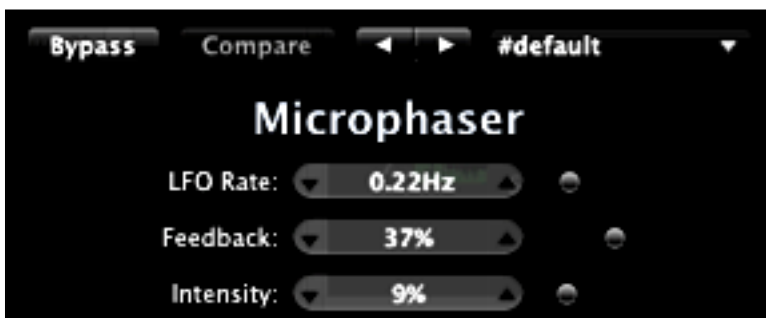


Figure 79: Logic Microphaser

Waves S1-Imager

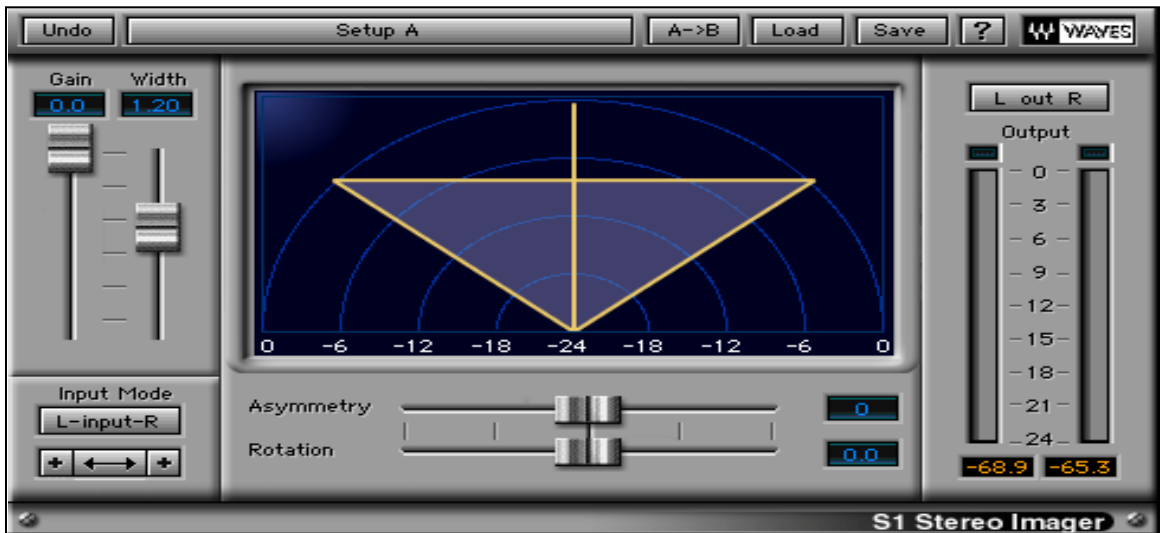


Figure 80: Waves S1-Imager

Waves Center



Figure 81: Waves Center

Logic Spreader



Figure 82: Logic Spreader

Waves C1 Compressor

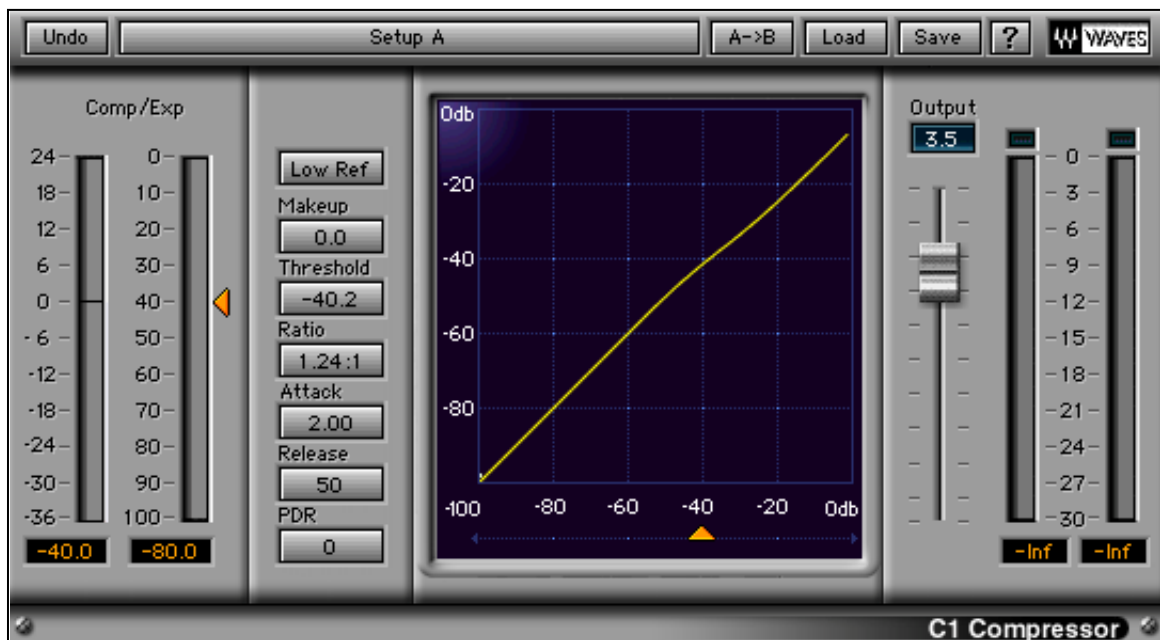


Figure 83: Waves C1 Compressor

Waves L3 Multimaximizer

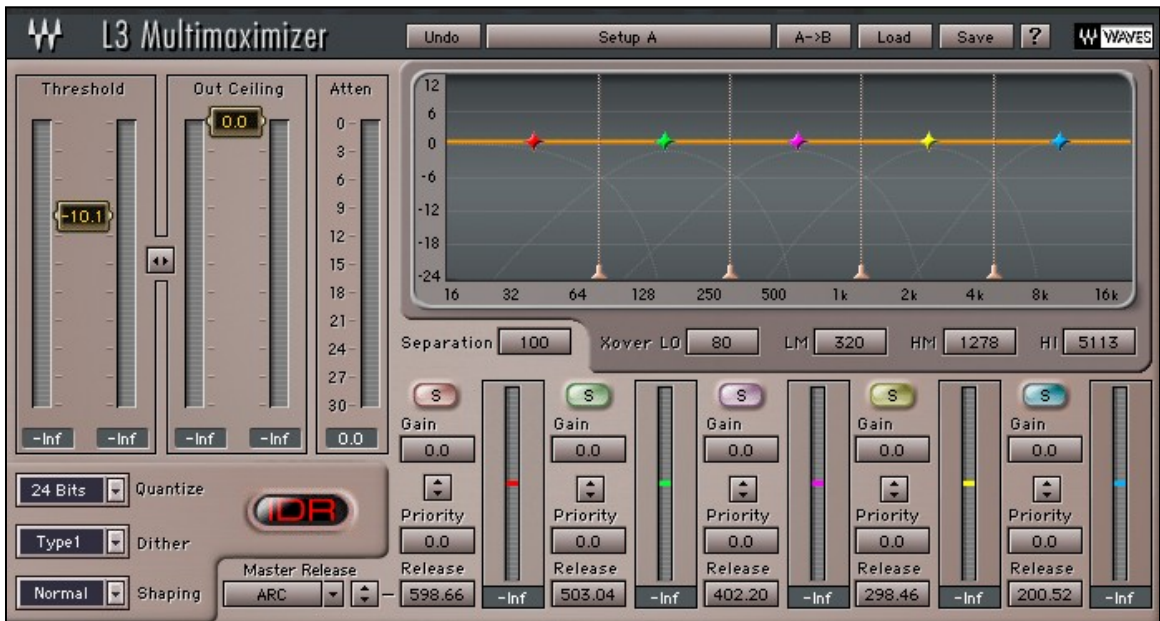


Figure 84: Waves L3 Multimaximizer

Waves C4 Multiband Parametric Compressor



Figure 85: Waves C4 Multiband Parametric Compressor

Waves L316 Multimaximizer

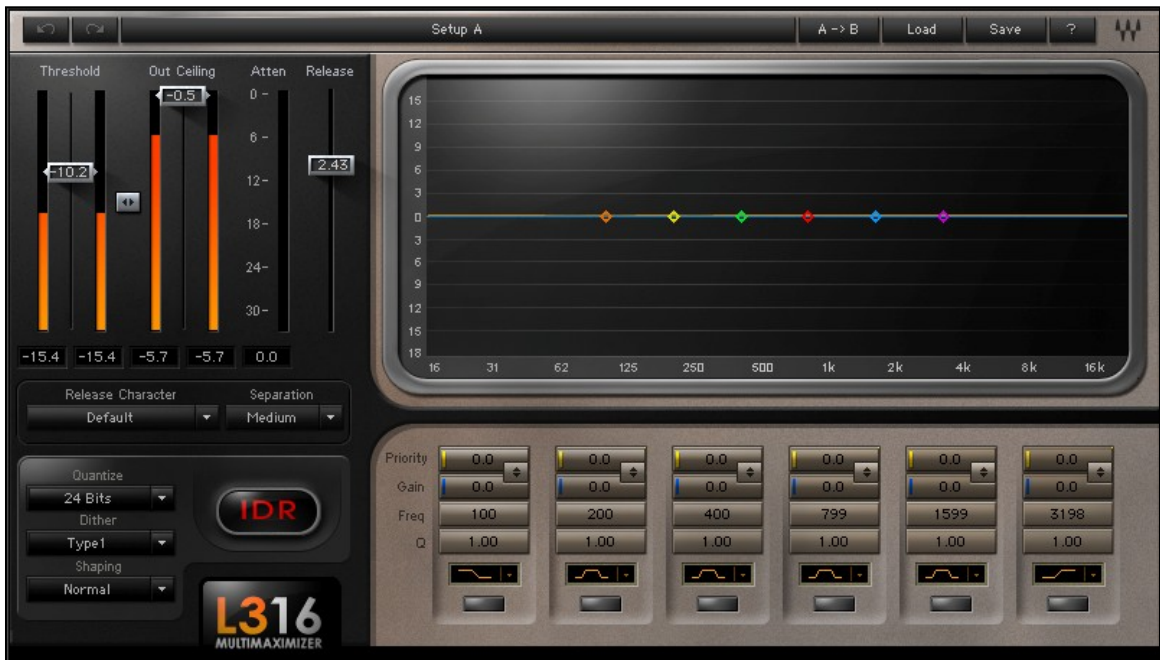


Figure 86: Waves L316 Multimaximizer

Logic Limiter

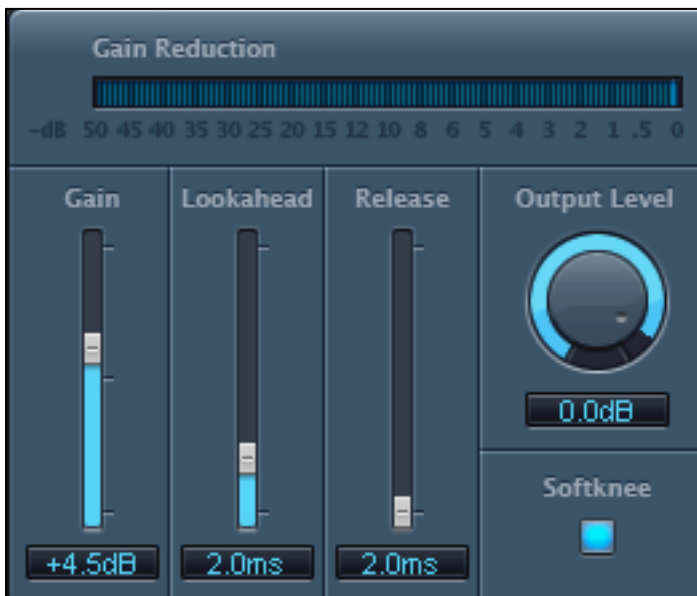


Figure 87: Logic Limiter

Ableton/Logic Compressor

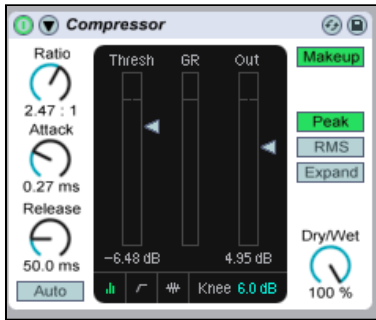


Figure 88: Ableton Compressor

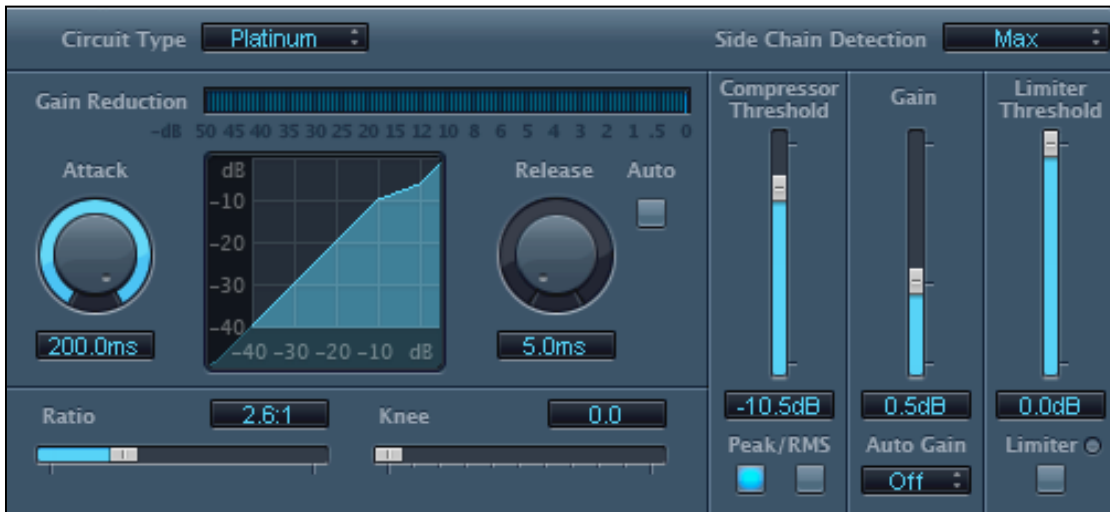


Figure 89: Logic Compressor

Logic Expander



Figure 90: Logic Expander

Kuassa Amplifikation CM



Figure 91: Kuassa Amplifikation CM

Logic Tremolo



Figure 92: Logic Tremolo

Logic EVOC 20 Filterbank



Figure 93: Logic EVOC 20 Filterbank

Logic Overdrive



Figure 94: Logic Overdrive

Ableton DJ Tools Effect

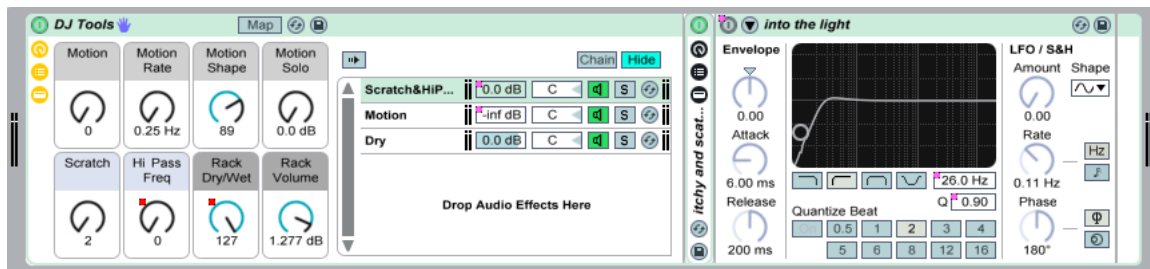


Figure 95: Ableton DJ Tools Effect

Appendix E: *Moonlight Horizon* DAW Screenshots

View of Mixer



Figure 96: *Moonlight Horizon* Main Mixer View

View of Drum Machine Channel Inserts in the Mixer



Figure 97: Moonlight Horizon Drum Channels in the Mixer

Arrangement View

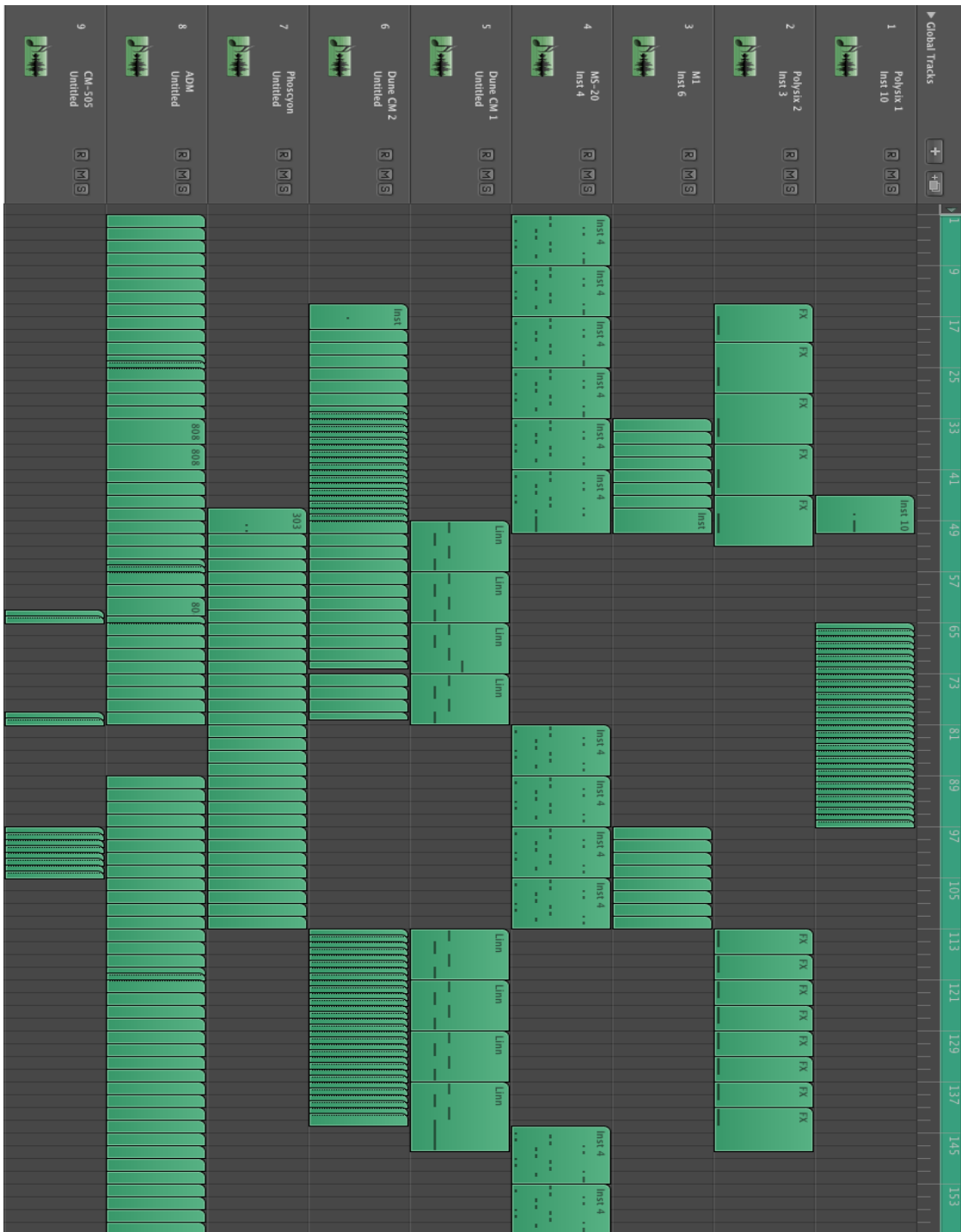


Figure 98: Arrangement view of *Moonlight Horizon*

Main Output Limiter Settings



Figure 99: Moonlight Horizon Main Output Limiter Settings

Stereo Delay Aux Send Settings

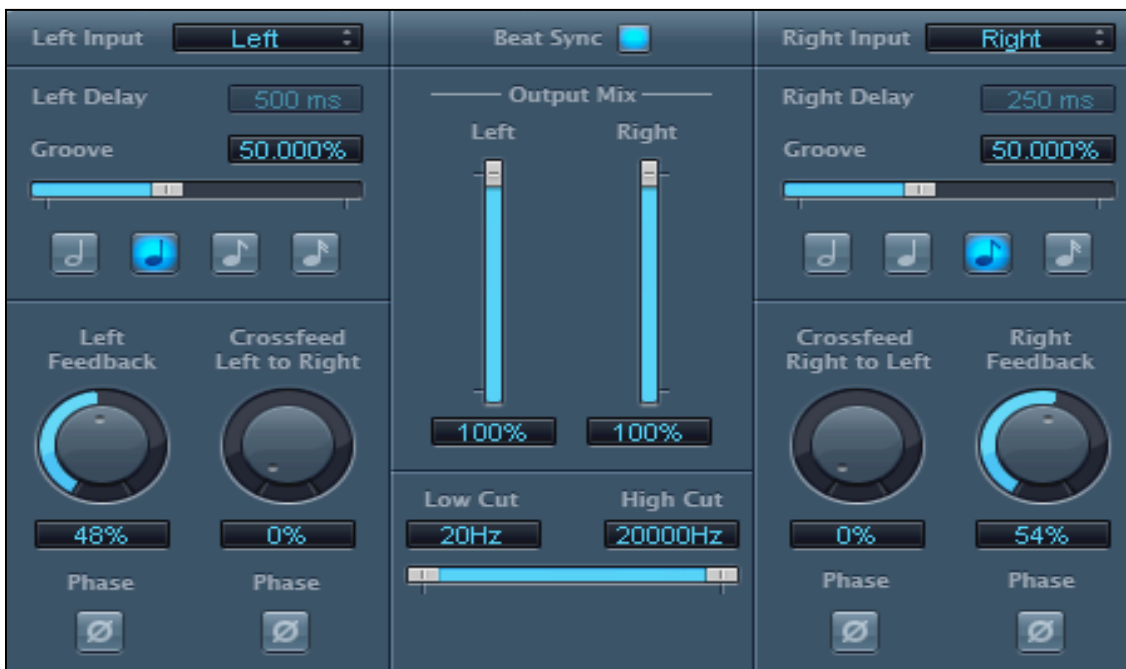


Figure 100: Moonlight Horizon Stereo Delay Aux Send Setting

Aux Sends and Main Output



Figure 101: Moonlight Horizon Bus 1/ Bus 2 and Main Output Channel

Main Output EQ

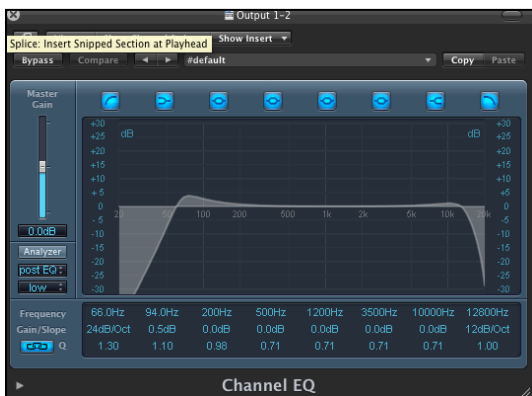


Figure 102: Moonlight Horizon Main Output EQ Settings

Reverb Aux Send Settings



Figure 103: Moonlight Horizon SilverVerb Send Settings

Channel 1 Instrument and Effect Settings



Figure 104: Moonlight Horizon Channel 1 Korg Polysix Settings

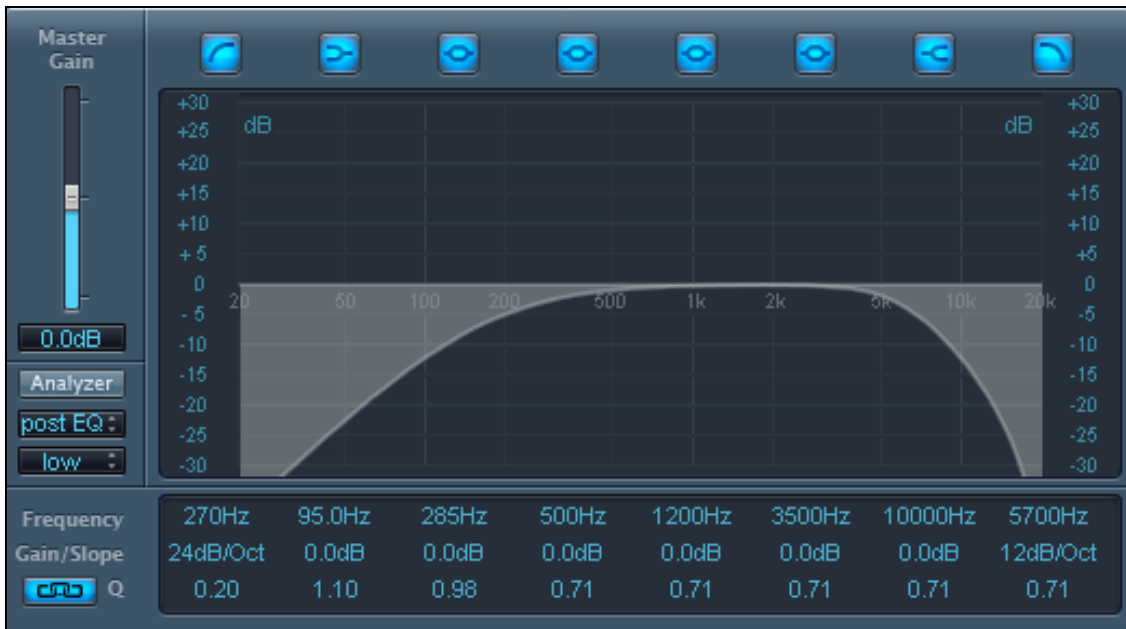
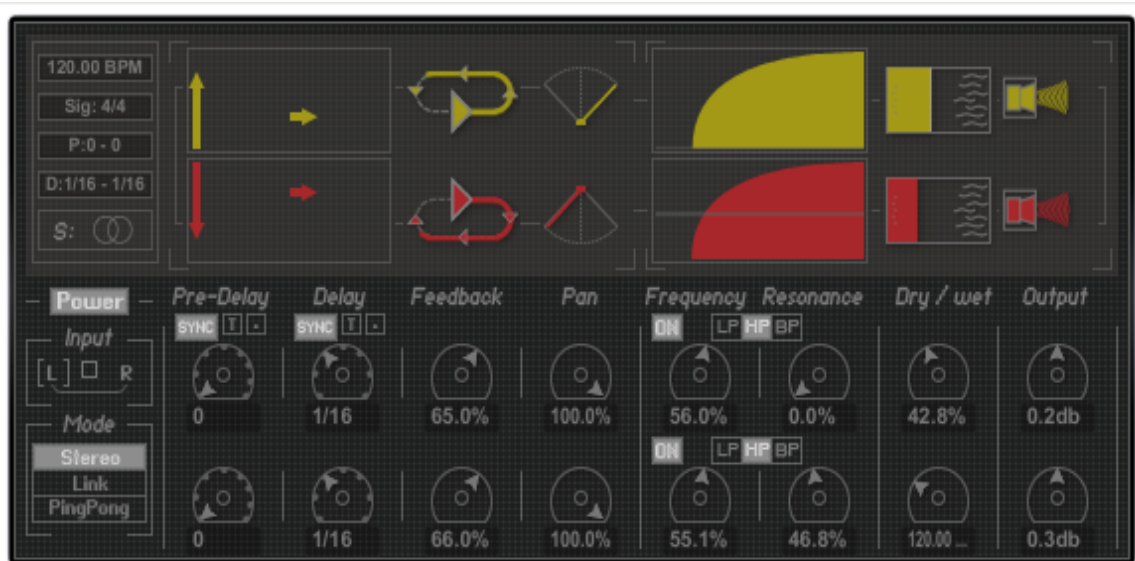


Figure 105: Moonlight Horizon Channel 1 EQ Settings



KR-DELAY CM

**COMPUTER
music**

Figure 106: Moonlight Horizon Channel 1 KR Delay Settings

Channel 2 Instrument and Effect Settings



Figure 107: *Moonlight Horizon* Channel 2 Korg Polysix Settings

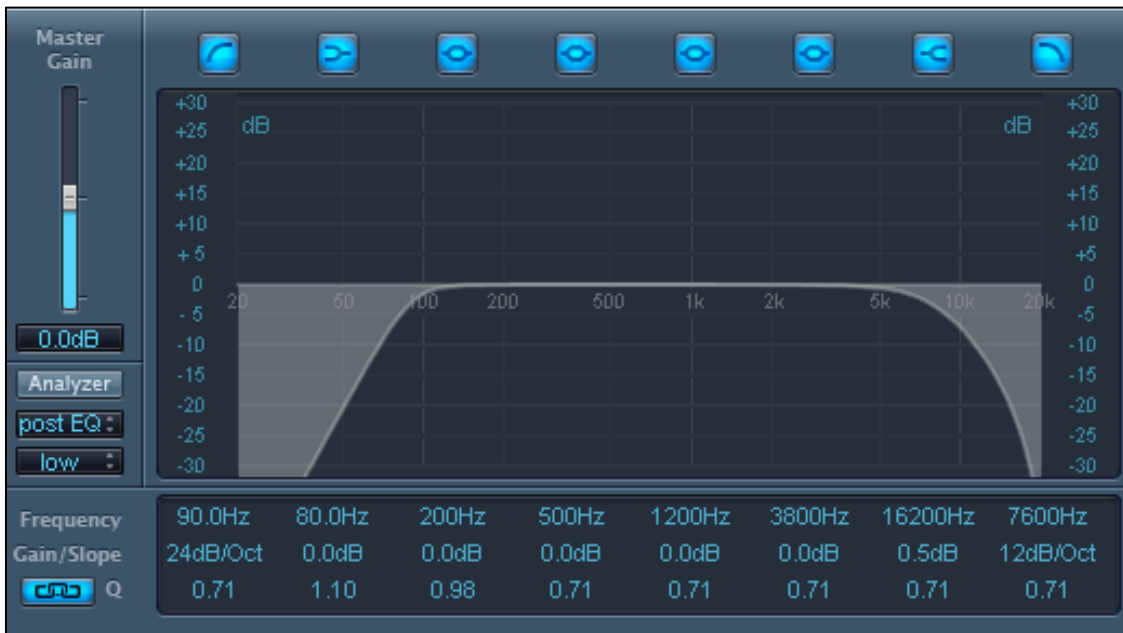


Figure 108: *Moonlight Horizon* Channel 2 EQ Settings

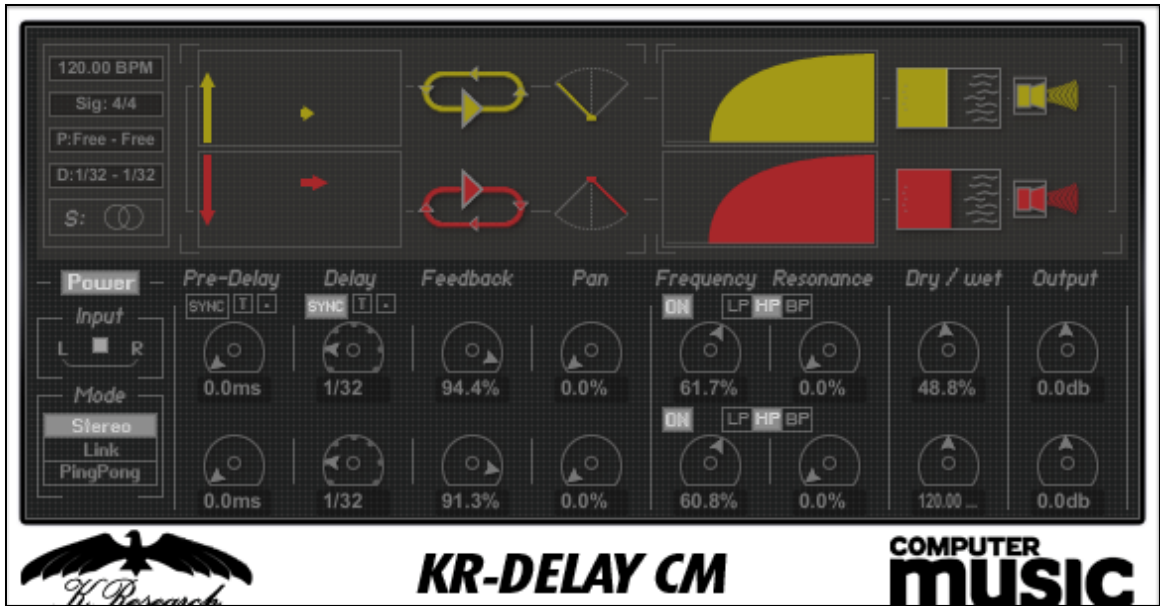


Figure 109: Moonlight Horizon Channel 2 KR Delay Settings



Figure 110: Moonlight Horizon Channel 2 Korg MDE-X Settings

Channel 3 Instrument and Effect Settings



Figure 111: Moonlight Horizon Channel 3 Korg M1 Settings

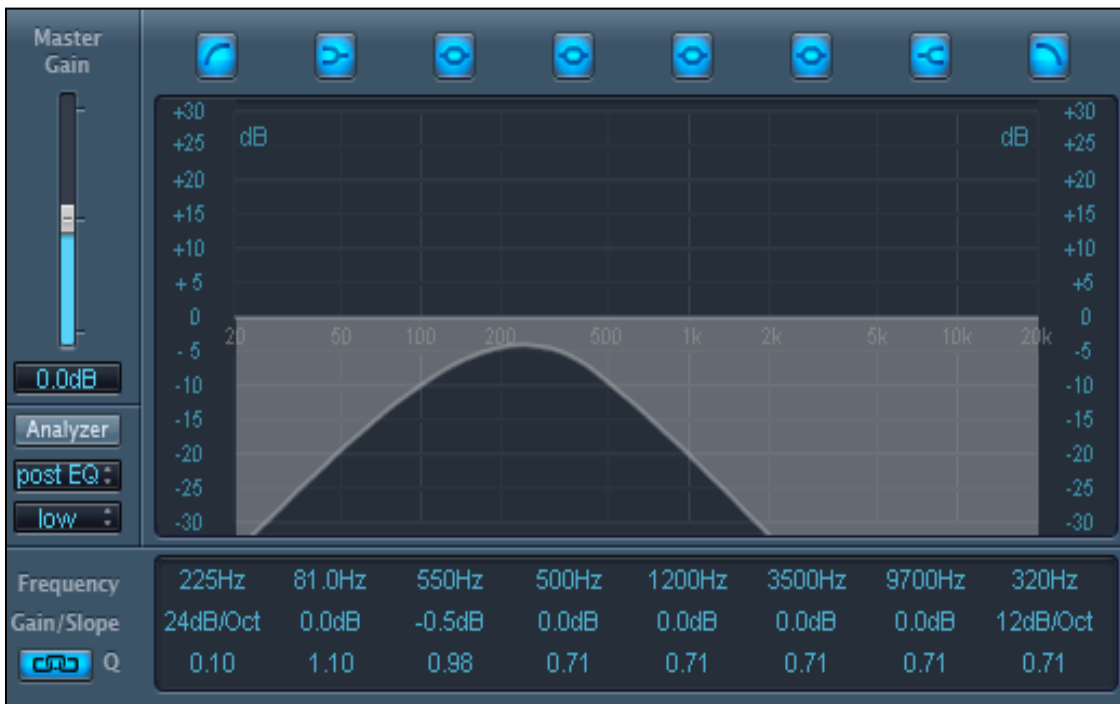


Figure 112: Moonlight Horizon Channel 3 EQ Settings

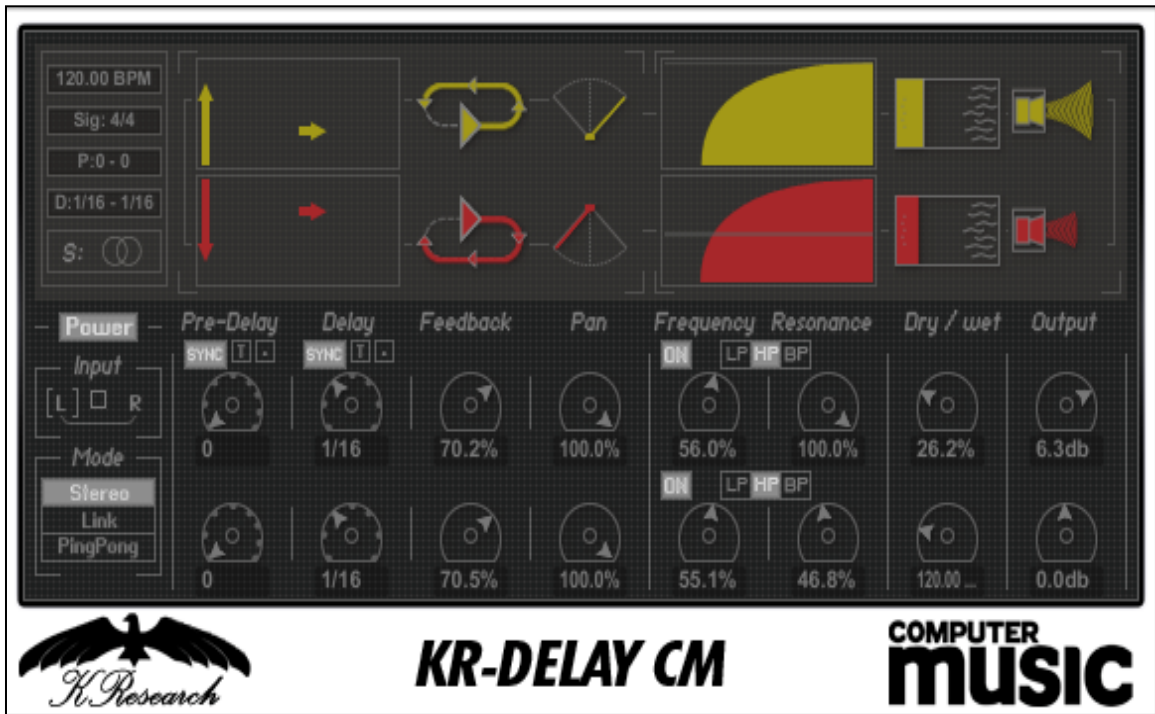


Figure 113: Moonlight Horizon Channel 3 KR Delay Settings

Channel 4 Instrument and Effect Settings



Figure 114: Moonlight Horizon Channel 4 Korg MS-20 Settings Pt. 1

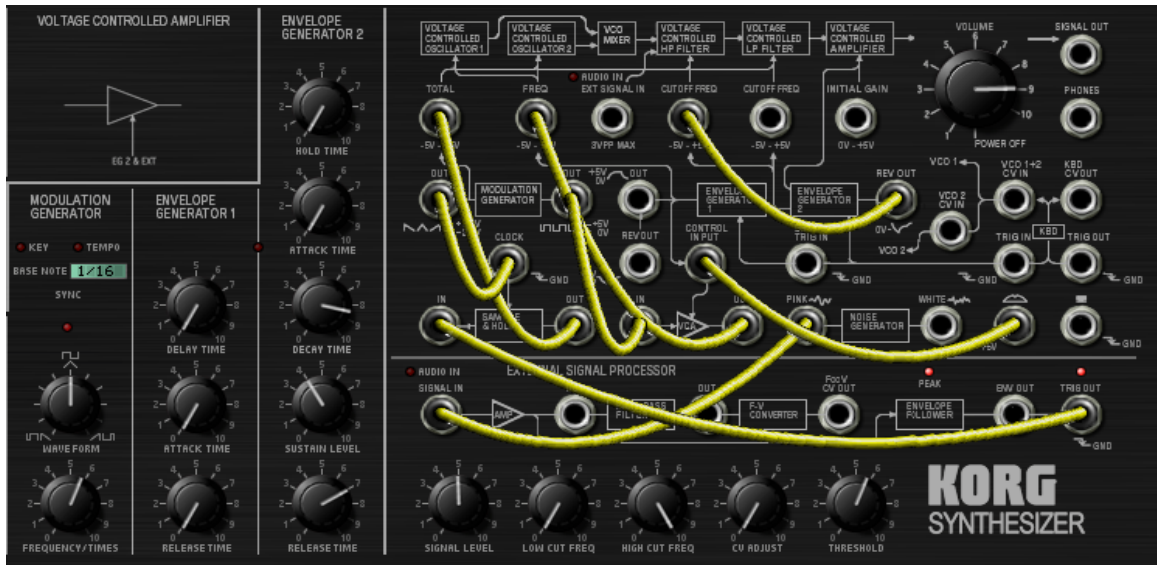


Figure 115: Moonlight Horizon Channel 4 Korg MS-20 Settings Pt. 2

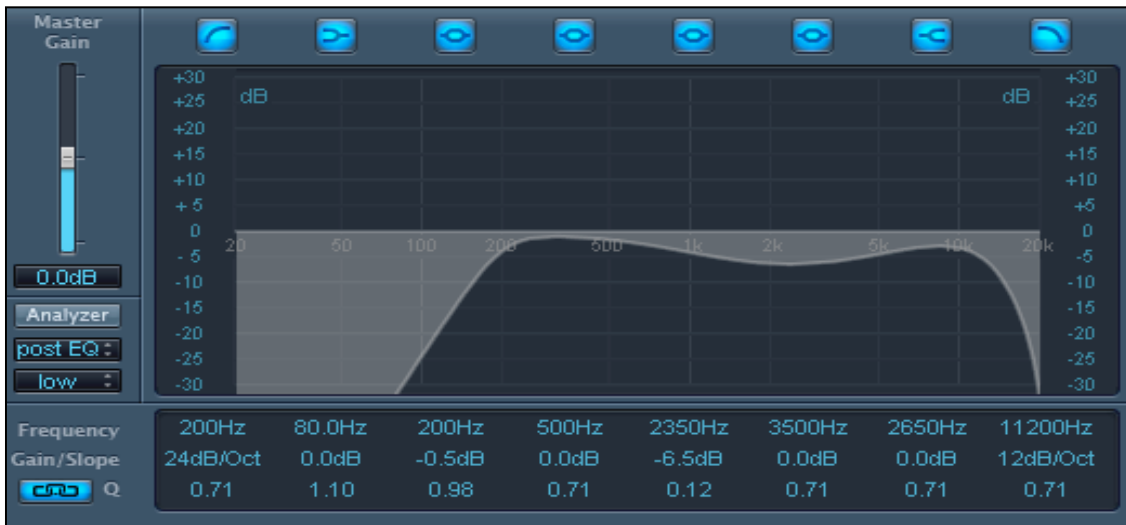


Figure 116: Moonlight Horizon Channel 4 EQ Settings



Figure 117: *Moonlight Horizon* Channel 4 S1 Stereo Imager Settings

Channel 5 Instrument and Effect Settings



Figure 118: *Moonlight Horizon* Channel 5 Synapse Dune Settings

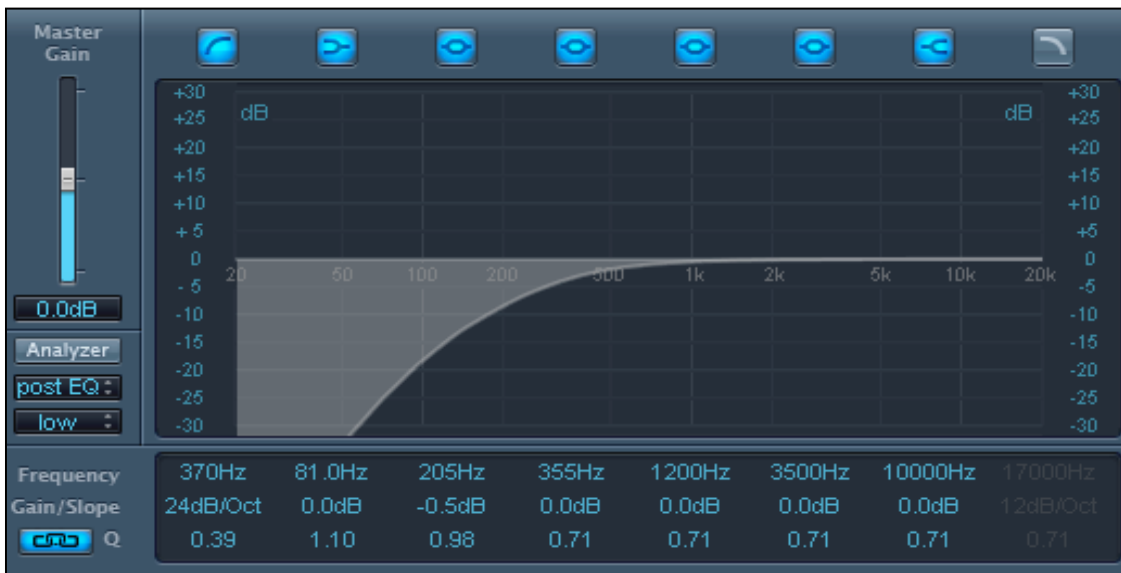


Figure 119: *Moonlight Horizon* Channel 5 EQ Settings

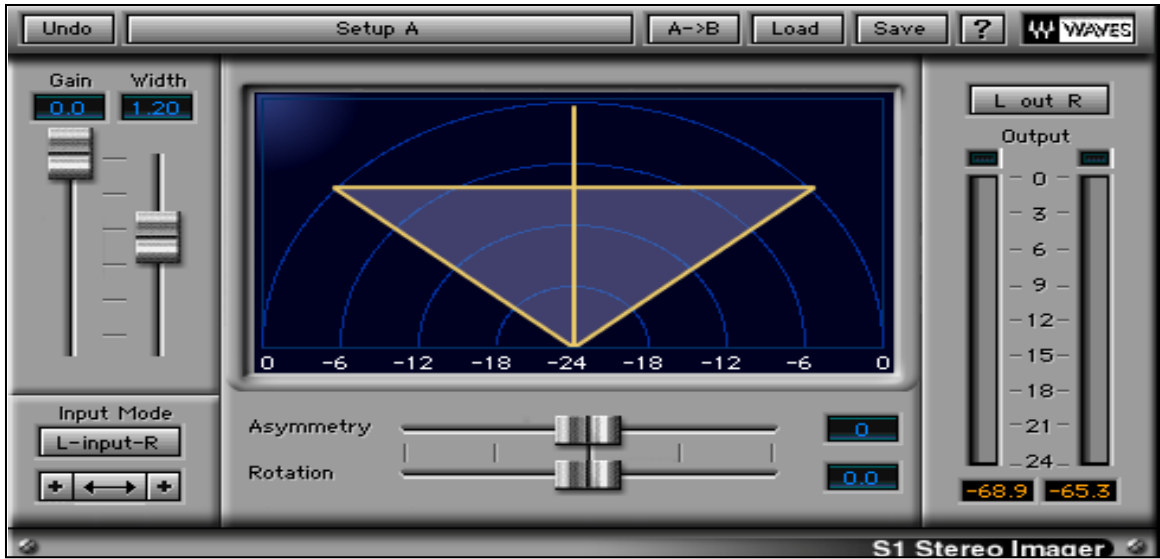


Figure 120: Moonlight Horizon Channel 5 S1 Stereo Imager Settings

Channel 6 Instrument and Effect Settings



Figure 121: Moonlight Horizon Channel 6 Synapse Dune Settings

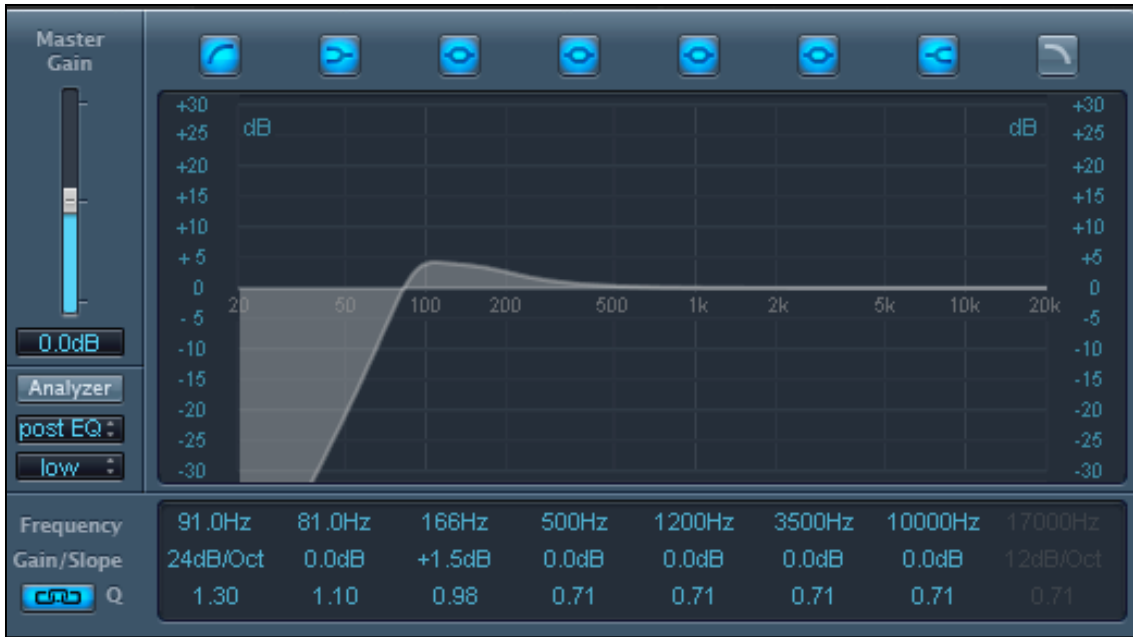


Figure 122: Moonlight Horizon Channel 6 EQ Settings



Figure 123: Moonlight Horizon Channel 6 DubStation 1.5 Settings



Figure 124: Moonlight Horizon Channel 6 Ratshack Reverb Settings

Channel 7 Instrument and Effect Settings



Figure 125: Moonlight Horizon Channel 7 Phoscyon Settings



Figure 126: Moonlight Horizon Channel 7 EQ Settings

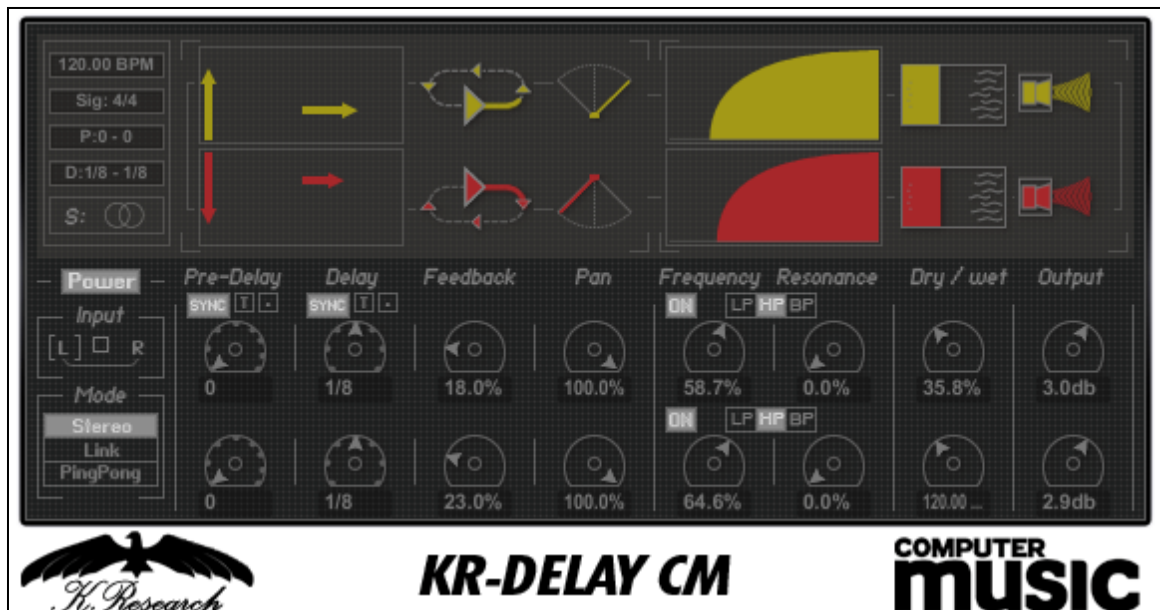


Figure 127: Moonlight Horizon Channel 7 KR Delay Settings

Channel 8 Instrument and Effect Settings



Figure 128: Moonlight Horizon Channel 8 ADM Settings

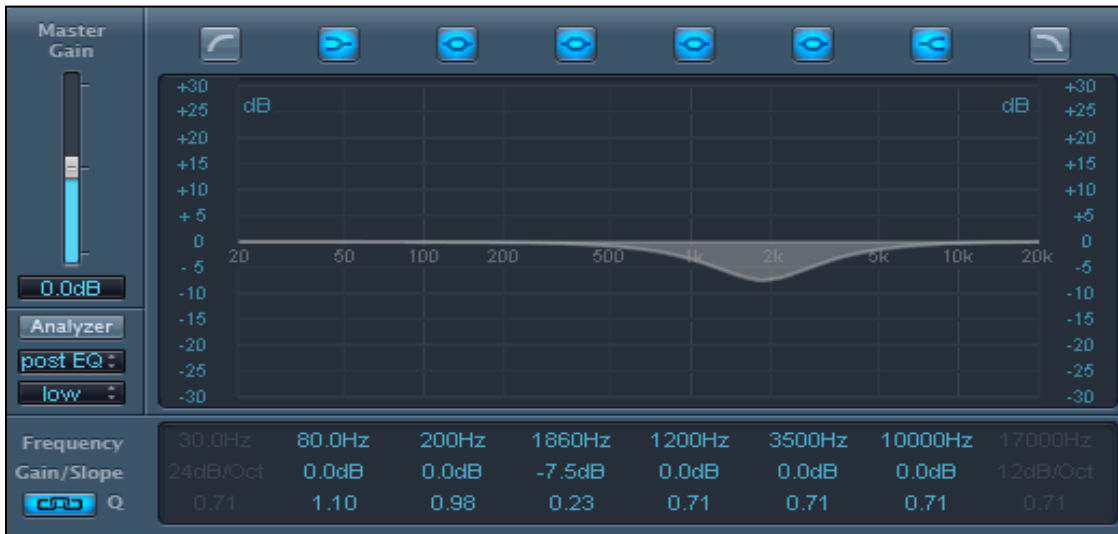


Figure 129: Moonlight Horizon ADM Clap EQ Settings

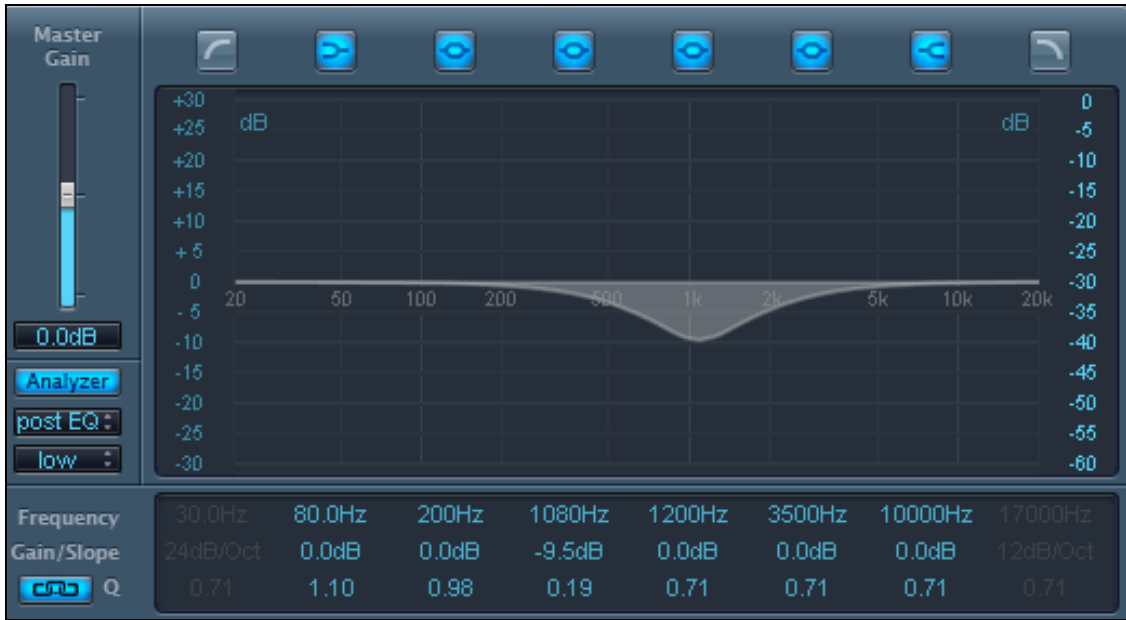


Figure 130: Moonlight Horizon ADM Snare EQ Settings

Channel 9 Instrument Settings



Figure 131: Moonlight Horizon Channel 9 CM-505 Settings

Appendix F: *Straight To The Moon* DAW Screenshots

Mixer View



Figure 132: *Straight to the Moon* Main Mixer View

Arrangement View

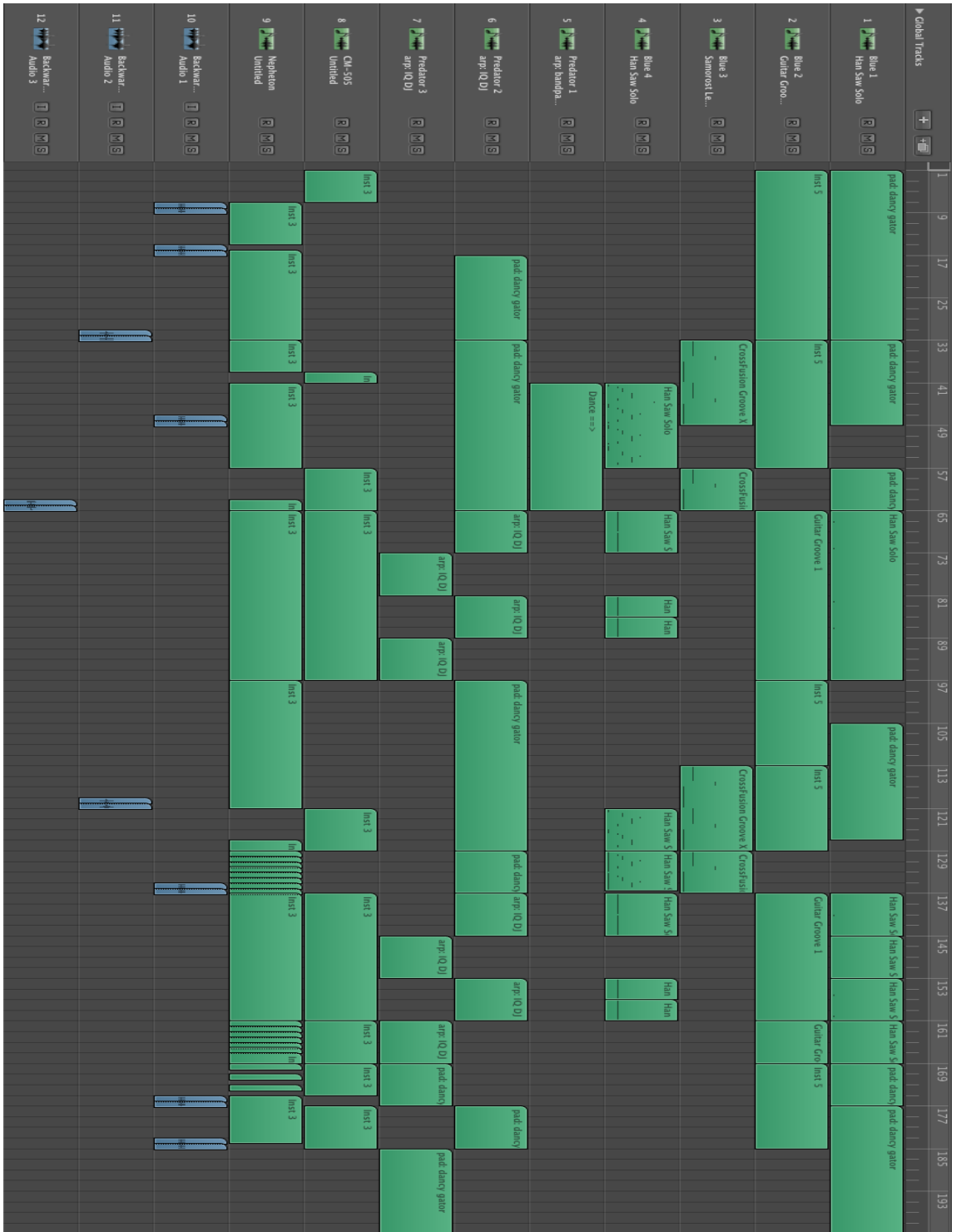


Figure 133: Straight to the Moon Arrangement View

Main Channel Effect Settings

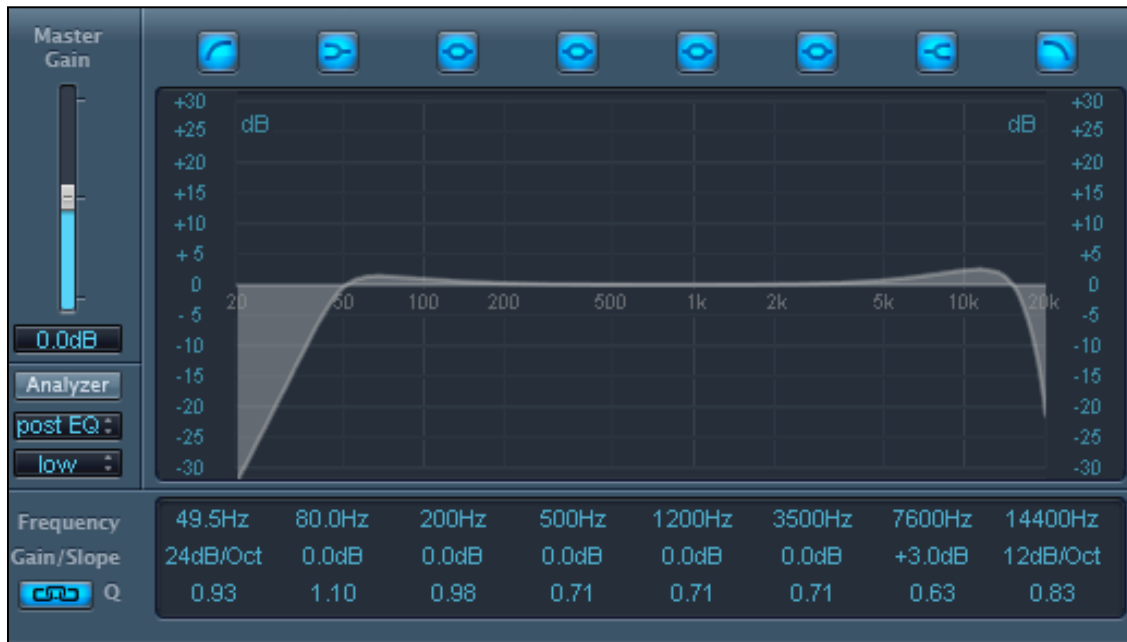


Figure 134: *Straight to the Moon* Main Channel EQ Settings

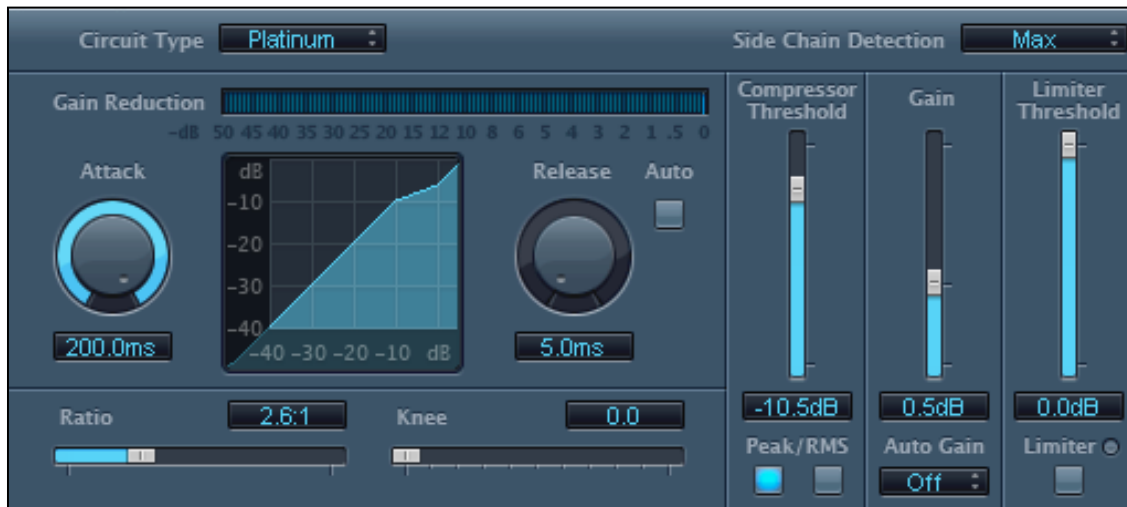


Figure 135: *Straight to the Moon* Main Channel Compressor Settings



Figure 136: *Straight to the Moon* Main Channel Expander Settings

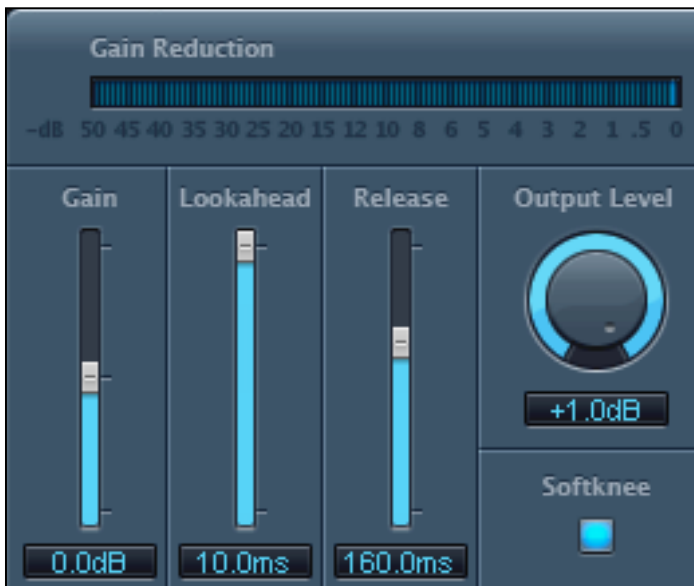


Figure 137: *Straight to the Moon* Main Channel Limiter Settings

Channel 1 Instrument and Effect Settings



Figure 138: Straight to the Moon Channel 1 Rob Papen Blue Settings



Figure 139: Straight to the Moon Channel 1 EQ Settings

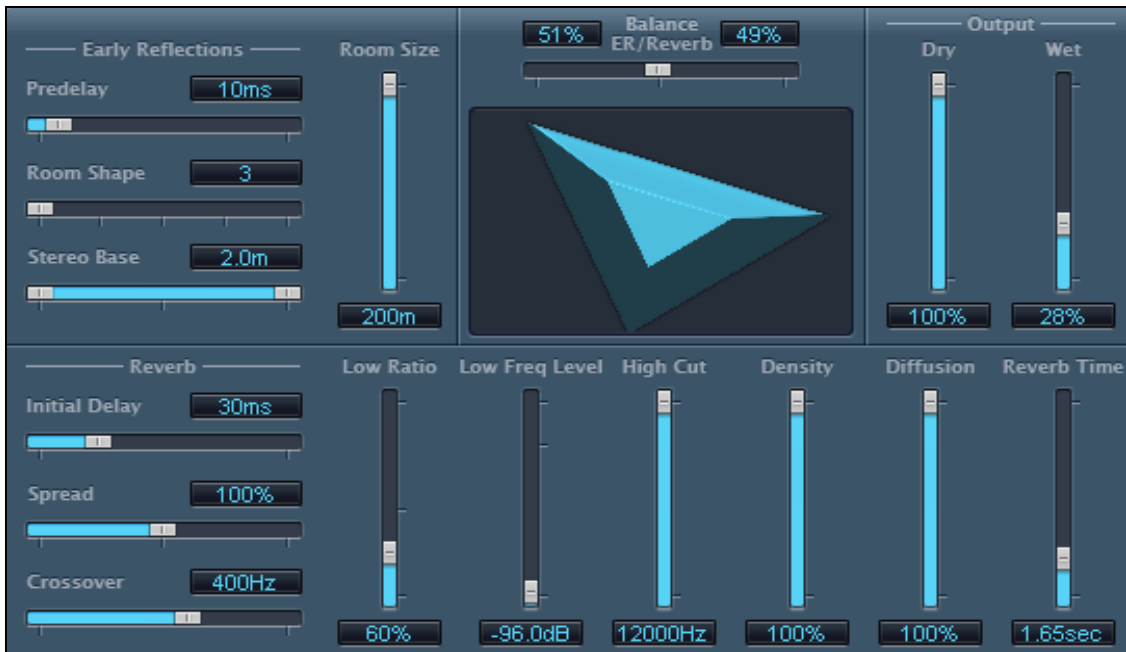


Figure 140: *Straight to the Moon* Channel 1 PlatinumVerb

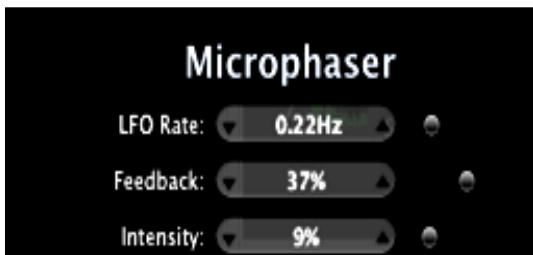


Figure 141: *Straight to the Moon* Channel 1 Microphaser Settings



Figure 142: *Straight to the Moon* Channel 1 Tremolo Settings

Channel 2 Instrument and Effect Settings

Rob Papen powered by RPPCX

Master Vol

BLUE

Presets Easy Align PDWS Env Multi-Env LFO Mods Step Seq Arp/Seq FX Global

Presets		Banks /Applications/Rob Papen/Blue/Sine Banks/	
Coldmachine	DJ-1Q Arp 1	01 Diverse 01	01 Diverse 11
Dominion Bass	CrossFusion Bass	01 Diverse 02	02 Pads 01
HCollenus Perc	Suburban Gullia	01 Diverse 03	02 Pads 02
SynDiene	WaveShape Seq	01 Diverse 04	02 Pads 03
Electro Tec	Blue to FX 1	01 Diverse 05	03 Analog Bass 01
Guitar Groove 1	Eat this...	01 Diverse 06	03 Analog Bass 02
Keewwy Lead	Hype	01 Diverse 07	03 Analog Bass 03
Ah Ooh We Ah Arp	Padricular	01 Diverse 08	04 Digital Bass 01
Info: hold chord longer	CrossFusion Groove X	01 Diverse 09	04 Digital Bass 02
	Basland!	01 Diverse 10	04 Digital Bass 03

Rename Copy Paste Clear Load Save Compare

Filter B Resonance: 0%
Guitar Groove 1

FILTER

A Type 12dB LP
FX A Dest Freq Q Dist Env Vel KeyTrk Mod/Whl Vol Pan

B Type Bypass
FX A Dest Freq Q Dist Env Vel KeyTrk Mod/Whl Vol Pan

OSC

A Sine Invt Trk
PD Shape →Osc B Dest
Ratio 13.00
Semi Fine Vel
Shape Feed Vol
Pwm Sym

B Sine Invt Trk
FM Mode Shape →Osc C Dest
Ratio 1.00
Semi Fine Vel
Shape Feed Vol
Pwm Sym

C Sine Invt Trk
FM Mode Shape Filter A Dest
Ratio 1.00
Semi Fine Vel
Shape Feed Vol

D Sine Invt Trk
Normal Mode Shape →Osc E Dest
Ratio 7.00
Semi Fine Vel
Shape Feed Vol

E Sine Invt Trk
FM Mode Shape →Osc F Dest
Ratio 1.00
Semi Fine Vel
Shape Feed Vol

F Sine Invt Trk
FM Mode Shape FX A Dest
Ratio 1.00
Semi Fine Vel
Shape Feed Vol

Figure 143: Straight to the Moon Channel 2 Rob Papen Blue Settings



Figure 144: *Straight to the Moon* Channel 2 Tremolo Settings



Figure 145: *Straight to the Moon* Channel 2 Spreader 1 Settings

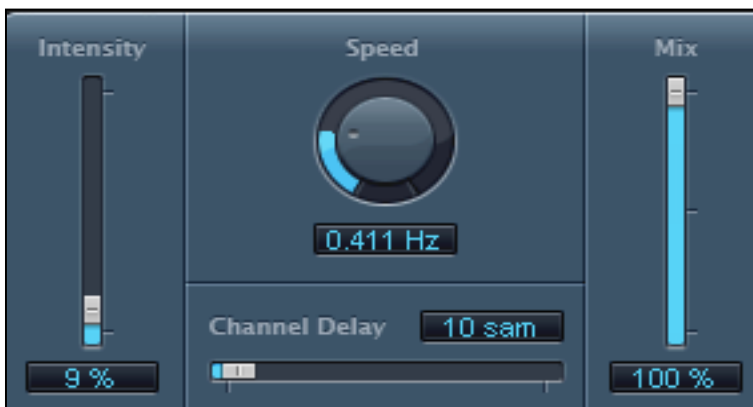


Figure 146: *Straight to the Moon* Channel 2 Spreader 2 Settings

Channel 3 Instrument Settings

OSC

A Sine [Inv] [TK] [TRK] PD Shape Filter A 1.00 Ratio Dest

B Square [Inv] [TK] [TRK] PD Shape Filter A 1.00 Ratio Dest

C Saw [Inv] [TK] [TRK] PD Shape Filter A 1.00 Ratio Dest

D Sine [Inv] [TK] [TRK] PD Shape FX A 1.00 Ratio Dest

E Sine [Inv] [TK] [TRK] PD Shape FX A 1.00 Ratio Dest

F Sine [Inv] [TK] [TRK] PD Shape FX A 1.00 Ratio Dest

FILTER

A Type 12dB LP FX A Dest Freq Q Dist Env Vel KeyTrk ModWhl Vol Pan

B Type Bypass FX A Dest Freq Q Dist Env Vel KeyTrk ModWhl Vol Pan

Presets

Coldmachine	DJ-10 Arp 1	Dutch Sequence	Wide Bass
Dominion Bass	Cross-Fusion Bass	Rhythm Strat II	Gatorlized Sweep
HColletius Perc	Suburban Grilla	Maul Sunset	Smogmark
Syndrome	WaveShape Seq	DayBass	Samroost Lead
Electro Tec	Blue to FX 1	Han Saw Solo	Slab so Hard-Phaso
Guitar Groove 1	Eat this....	Filh Element	Satsuma Bass
Kewww Lead	Hype	W Piano	The color of BLUE
Ah Oh We Ah Arp	Padracular	Cross-Fusion Groove X	Bastard!

Info: with velocity you can control the attack

Rename Copy Paste Clear Load Save Compare

Banks Applications/Rob Papen/Blue/Banks/

01 Diverse 01	01 Diverse 11
01 Diverse 02	02 Pads 01
01 Diverse 03	02 Pads 02
01 Diverse 04	02 Pads 03
01 Diverse 05	03 Analog Bass 01
01 Diverse 06	03 Analog Bass 02
01 Diverse 07	03 Analog Bass 03
01 Diverse 08	04 Digital Bass 01
01 Diverse 09	04 Digital Bass 02
01 Diverse 10	04 Digital Bass 03

Volume: -21.6 dB
Samroost Lead
Master Vol

BLUe

Figure 147: Straight to the Moon Channel 3 Rob Papen Blue Settings

Channel 4 Instrument and Effect Settings

Rob Papen
powered by RPCX

Osc B Vol: -2.0 dB
Hsn Saw Solo

Master Vol

BLUE

Presets

Presets	Easy	Alg	PWMs	Env	Mult-Env	LFO	Mods	Step Seq	Arp/Seq	FX	Global
Coldmachine											
Dominion Bass											
HCollenus Perc											
Syndrone											
Electro Tec											
Gular Groove 1											
Kawww Lead											
An Oon We An Arp											
Info: use aftertouch and Mod Wheel											
DU-10 Arp 1											
CrossFusion Bass											
Subarban Grilla											
WaveShape Seq											
Blue to FX 1											
Eat this...											
Hype											
Padtaclar											
Cross-Fusion Groove X											
Baslandi											
Dutch Sequence											
Rythm Strat II											
Mau Sunsel											
DayBass											
Hsn Saw Solo											
Fifth Element											
W Piano											
Cross-Fusion Groove X											
Baslandi											
Wide Bass											
Gatorized Sweep											
Smegmatik											
Sarnorost Lead											
Slab so Hard-Phaso											
Satsuma Bass											
The color of BLUE											
01 Diverse 01											
01 Diverse 02											
01 Diverse 03											
01 Diverse 04											
01 Diverse 05											
01 Diverse 06											
01 Diverse 07											
01 Diverse 08											
01 Diverse 09											
01 Diverse 10											
01 Diverse 11											
02 Pads 01											
02 Pads 02											
02 Pads 03											
03 Analog Bass 01											
03 Analog Bass 02											
03 Analog Bass 03											
04 Digital Bass 01											
04 Digital Bass 02											
04 Digital Bass 03											

OSC

A Sine **Inv** **Trk**
 PD **Inv**
 Shape **→ Osc B**
 Ratio 1.00
 Dest
 Semi Fine
 Shape Feed Vel
 PWM Sym

B Saw **Inv** **Trk**
 PD **Inv**
 Shape **Filter A**
 Ratio 1.00
 Dest
 Semi Fine
 Shape Feed Vel
 PWM Sym

C Saw **Inv** **Trk**
 PD **Inv**
 Shape **Filter A**
 Ratio 1.00
 Dest
 Semi Fine
 Shape Feed Vel

D Sine **Inv** **Trk**
 PD **Inv**
 Shape **FX A**
 Ratio 1.00
 Dest
 Semi Fine
 Shape Feed Vel

E Sine **Inv** **Trk**
 PD **Inv**
 Shape **FX A**
 Ratio 1.00
 Dest
 Semi Fine
 Shape Feed Vel

F Sine **Inv** **Trk**
 PD **Inv**
 Shape **FX A**
 Ratio 1.00
 Dest
 Semi Fine
 Shape Feed Vel

FILTER

A Type **24dB LP**
 Dest **FX A**
 Mode **Parallel**
 Freq Q Dist Env Vel KeyTrk Mod/Whtl Pan

B Type **Bypass**
 Dest **FX A**
 Freq Q Dist Env Vel KeyTrk Mod/Whtl Pan

Presets

Go Del Set Del Load Save

Figure 148: Straight to the Moon Channel 4 Rob Papen Blue Settings



Figure 149: *Straight to the Moon* Channel 4 Spreader Settings

Channel 5 Instrument and Effect Settings



Figure 150: Straight to the Moon Channel 5 Rob Papen Predator Settings



Figure 151: *Straight to the Moon* Channel 5 Flanger Settings



Figure 152: *Straight to the Moon* Channel 5 Chorus Settings



Figure 153: *Straight to the Moon* Channel 5 Spreader Settings

Channel 6 Instrument Settings



Figure 154: Straight to the Moon Channel 6 Rob Papen Predator Settings

Channel 7 Instrument and Effect Settings



Figure 155: Straight to the Moon Channel 7 Rob Papen Predator Settings



Figure 156: *Straight to the Moon* Channel 7 Spreader Settings

Channel 8 Instrument and Effect Settings



Figure 157: *Straight to the Moon* Channel 8 CM-505 Settings

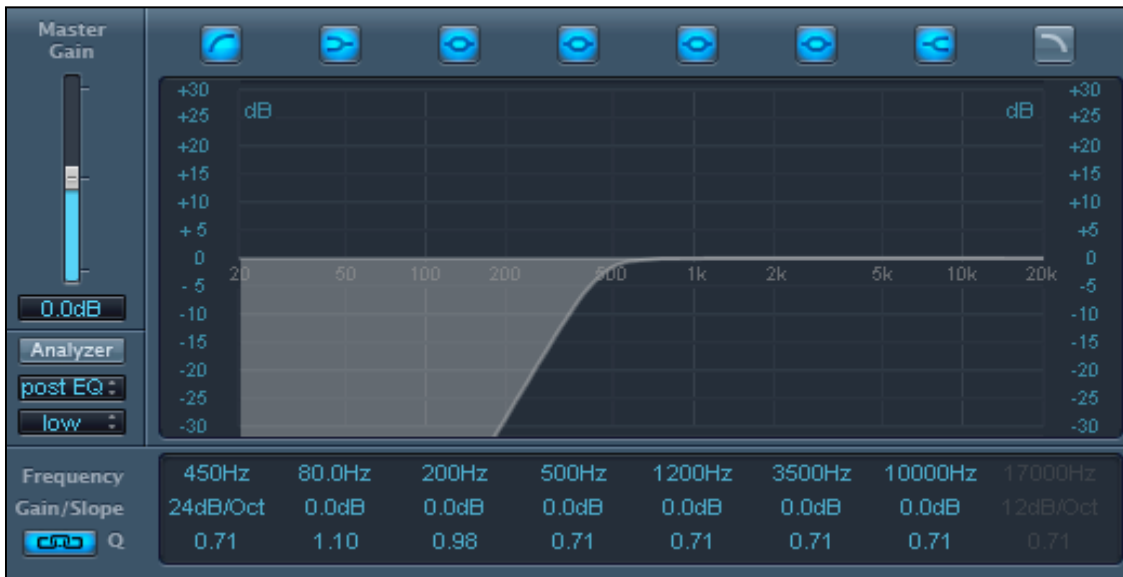


Figure 158: *Straight to the Moon* Channel 8 EQ Settings



Figure 159: *Straight to the Moon* Channel 8 EVOC 20 Filterbank Settings



Figure 160: *Straight to the Moon* Channel 8 Overdrive Settings



Figure 161: *Straight to the Moon* Channel 8 Spreader Settings



Figure 162: *Straight to the Moon* Channel 8 PlatinumVerb Settings

Channel 9 Instrument and Effect Settings



Figure 163: *Straight to the Moon* Channel 9 Nepheton Settings

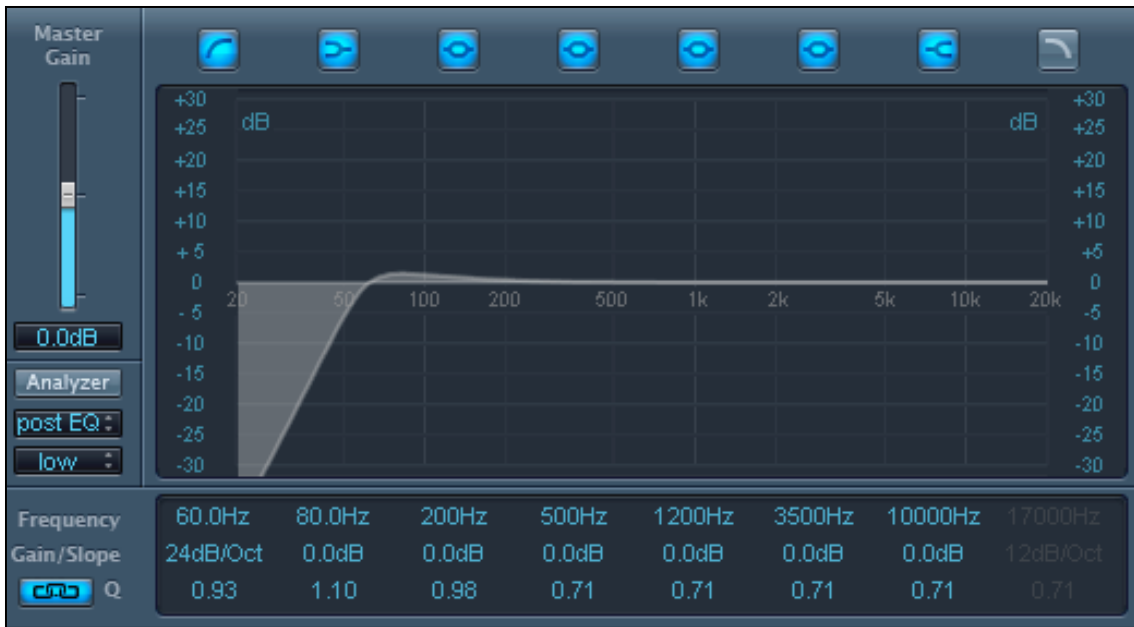


Figure 164: *Straight to the Moon* BD Drum EQ Settings



Figure 165: *Straight to the Moon* BD Drum Limiter Settings

Channel 10 Effect Settings



Figure 166: *Straight to the Moon* Channel 10 Echo Settings



Figure 167: *Straight to the Moon* Channel 10 Overdrive Settings



Figure 168: *Straight to the Moon* Channel 10 Spreader Settings

Channel 11 Effect Settings



Figure 169: *Straight to the Moon* Channel 11 EQ Settings



Figure 170: *Straight to the Moon* Channel 11 EVOC 20 Filterbank Settings



Figure 171: *Straight to the Moon* Channel 11 Tape Delay Settings

Channel 12 Effects Settings



Figure 172: *Straight to the Moon* Channel 12 EQ Settings



Figure 173: *Straight to the Moon* Channel 12 EVOC 20 Filterbank Settings



Figure 174: *Straight to the Moon* Channel 12 Tape Delay Settings



Figure 175: *Straight to the Moon* Channel 12 Spreader Settings

Appendix G: *Phuture Heat* Drum Settings and Arrangement

TR-8 Drum Settings



Figure 176: *Phuture Heat* TR-8 Settings

Drum Arrangement

Minute	0:00		0:17		0:33		0:49	
Measure	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32
BD			X	X	X	X	X	X
SN								
LT								
MT								
HT								
RS								
CL					X	X	X	X
CHH							X	X
OHH								
CR					X	X	X	X
CB								
CL Reverb								
CL Delay								

Table 7: *Phuture Heat* drum performance (measures 1-32)

Minute	1:06		1:21		1:37		1:53	
Measure	33-36	37-40	41-44	45-48	49-52	53-56	57-60	61-64
BD	x	x	x	x		x	x	x
SN	x	x	x	x	x			
LT								
MT								
HT								
RS						x	x	x
CL						x	x	x
CHH	x	x	x	x	x	x	x	x
OHH		x	x	x	x	x	x	x
CR			x	x	x	x		x
CB								
CL Reverb								
CL Delay								

Table 8: Phuture Heat drum performance (measures 33-64)

Minute	3:05		3:21		3:37		3:54	
Measure	97-100	101-104	105-108	109-112	113-116	117-120	121-124	125-128
BD	x	x			x	x	x	x
SN					x	x	x	x
LT								
MT								
HT								
RS	x	x	x	x			x	x
CL	x	x	x	x			x	x
CHH	x	x			x	x	x	x
OHH	x	x						
CR				x	x	x	x	x
CB								
CL Reverb	x	x					x	x
CL Delay	x	x					x	x

Table 9: Phuture Heat drum performance (measures 97-128)

Minute	4:09		4:25		4:41		4:57	
Measure	129-132	133-136	137-140	141-144	145-158	149-152	153-156	157-160
BD	x	x					x	x
SN	x	x	x					
LT								
MT								
HT								
RS	x	x	x					
CL	x	x	x	x	x	x	x	x
CHH	x	x	x	x	x	x	x	x
OHH					x	x	x	x
CR	x	x	x					
CB							x	x
CL Reverb	x	x	x	x	x	x	x	x
CL Delay	x							

Table 10: Phuture Heat drum performance (measures 129-160)

Minute	5:13		5:29		5:45		6:01	
Measure	161-164	165-168	169-172	173-176	177-180	181-184	185-188	189-192
BD	x	x						
SN								
LT								
MT								
HT								
RS	x	x	x					
CL	x	x	x					
CHH	x	x						
OHH	x	x						
CR				x	x	x	x	x
CB	x	x						
CL Reverb	x	x						
CL Delay								

Table 11: Phuture Heat drum performance (measures 161-164)

Minute	6:17
Measure	193-196
BD	
SN	
LT	
MT	
HT	
RS	
CL	
CHH	
OHH	
CR	
CB	
CL Reverb	
CL Delay	

Table 12: *Phuture Heat* drum performance (measures 193-196)

Appendix H: *Space Cowboy* DAW Screenshots

Arrangement Views

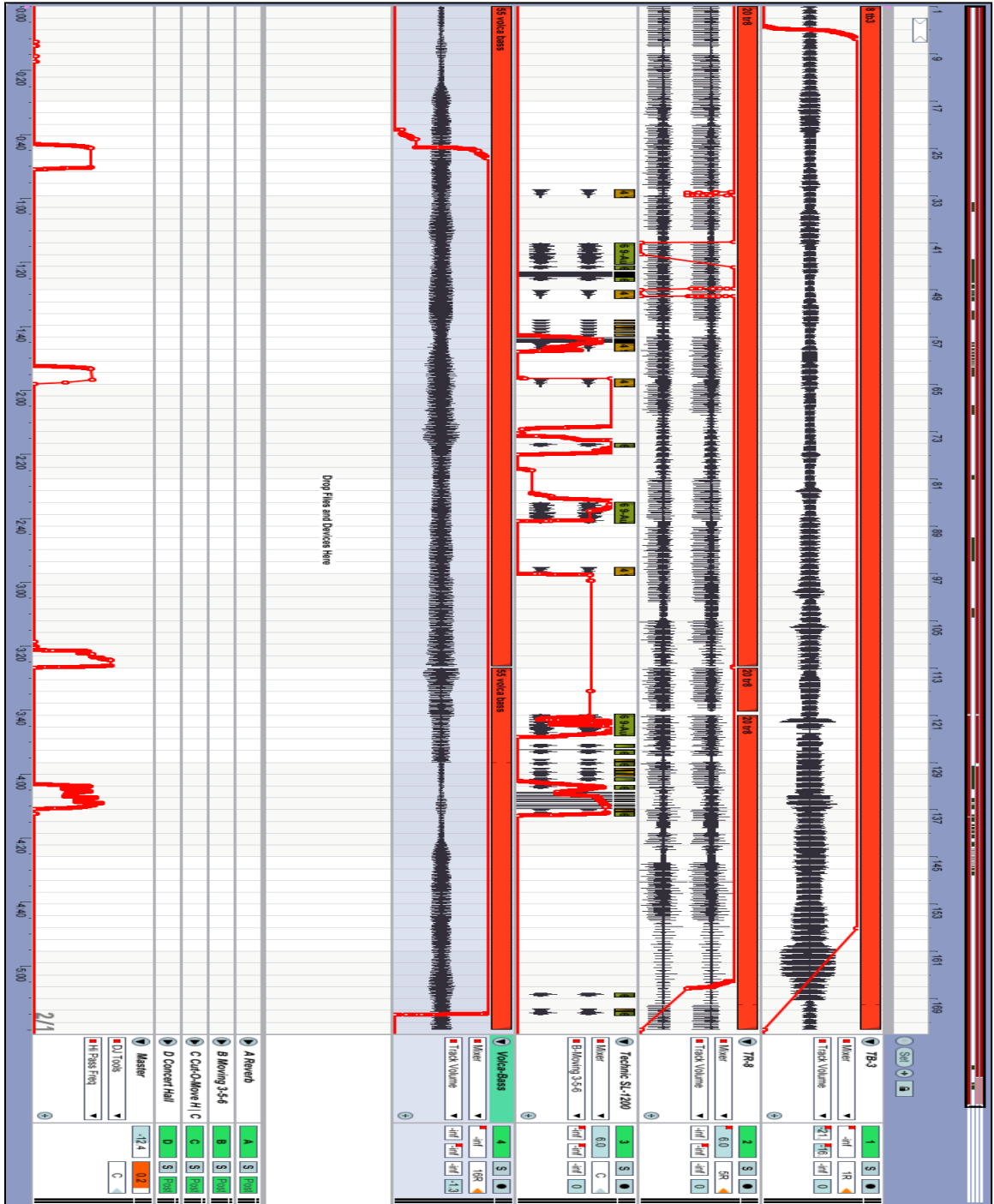


Figure 177: *Space Cowboy* Arrangement View

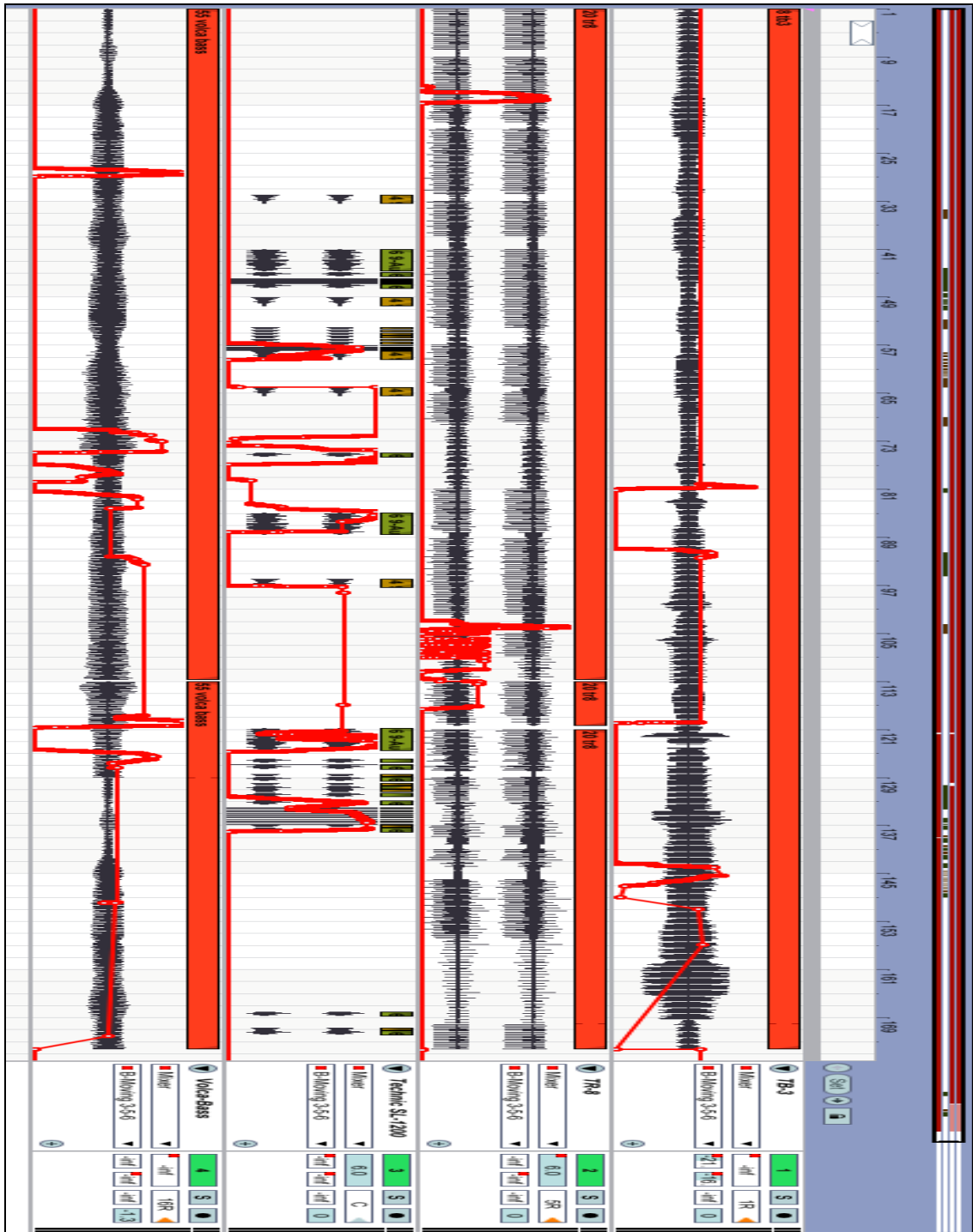


Figure 178: *Space Cowboy* Delay Automation in the Arrangement Window

Main Channel Effect Settings

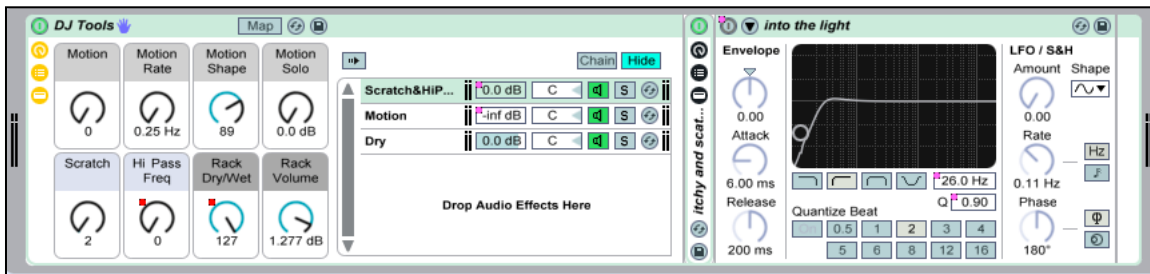


Figure 180: *Straight to the Moon* Main Channel DJ Tools Settings

Reverb and Delay Channel Send/Receive Settings

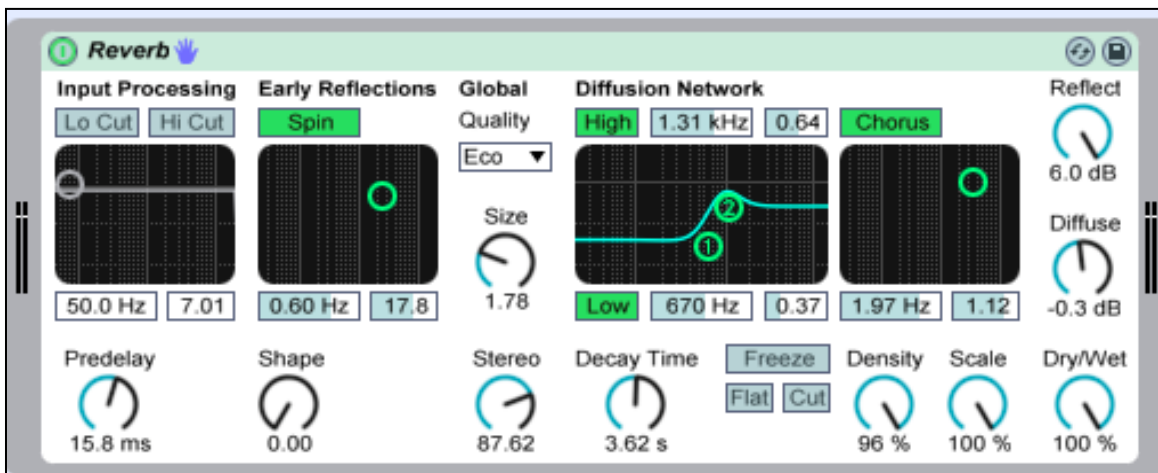


Figure 181: *Space Cowboy* Reverb Insert Settings

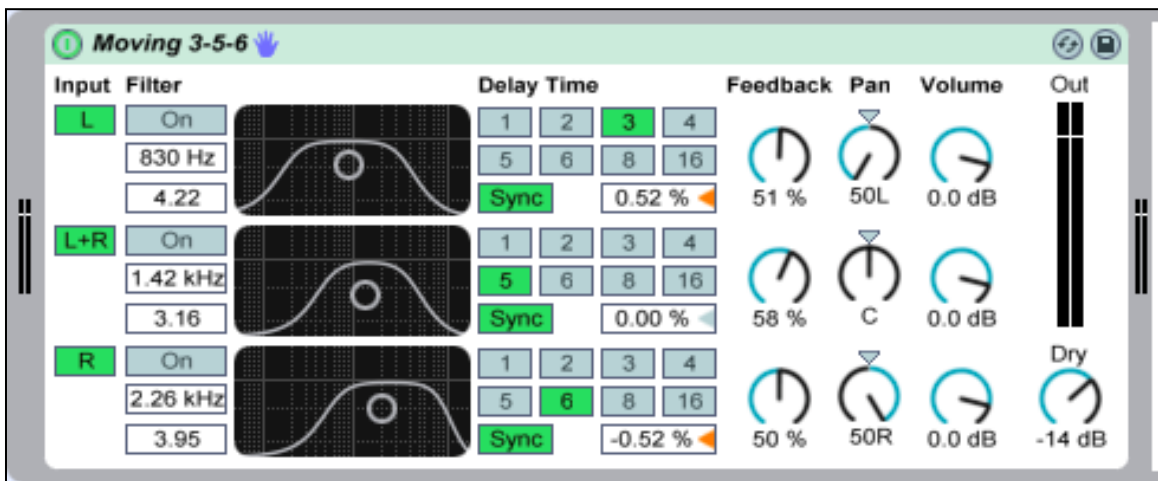


Figure 182: *Space Cowboy* Delay Insert Settings

TB-3 Effect Settings

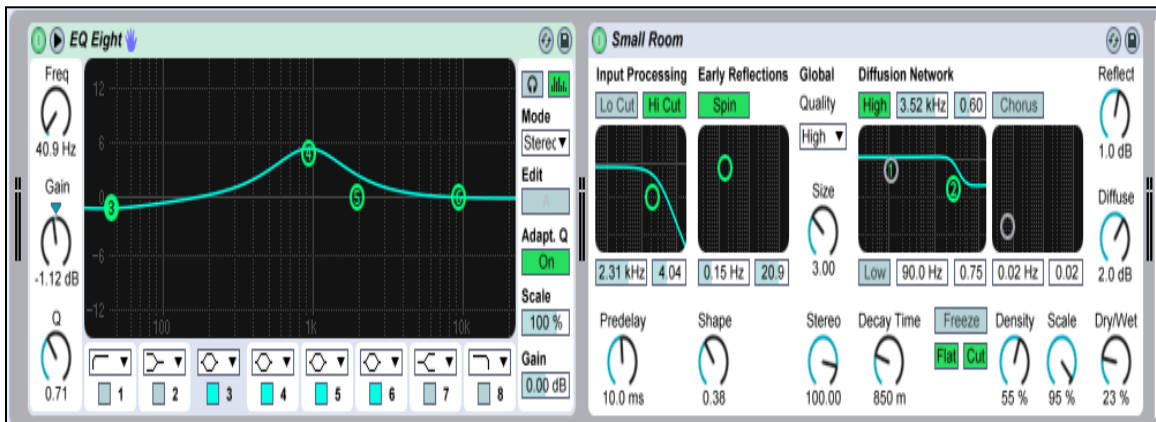


Figure 183: Space Cowboy TB-3 Effect Settings

TR-8 Effect Settings

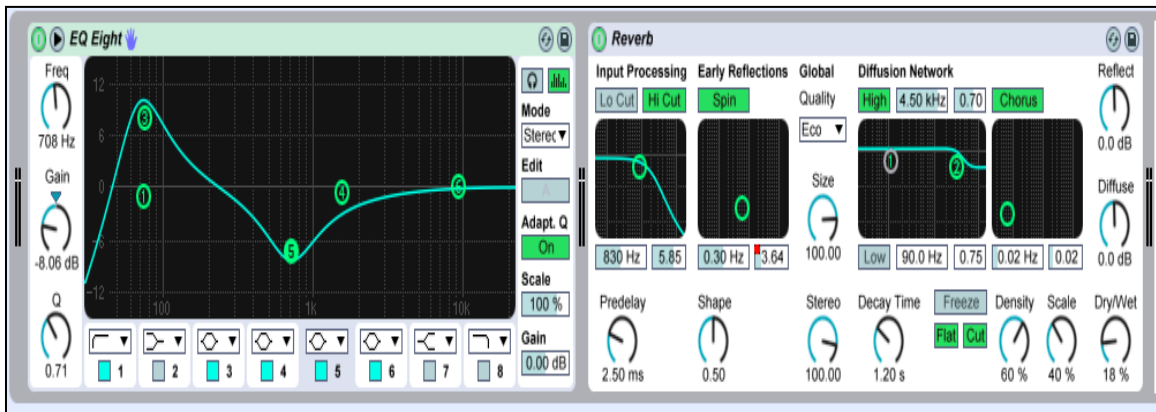


Figure 184: Space Cowboy TR-8 Effect Settings

Korg Volca Bass Effect Settings

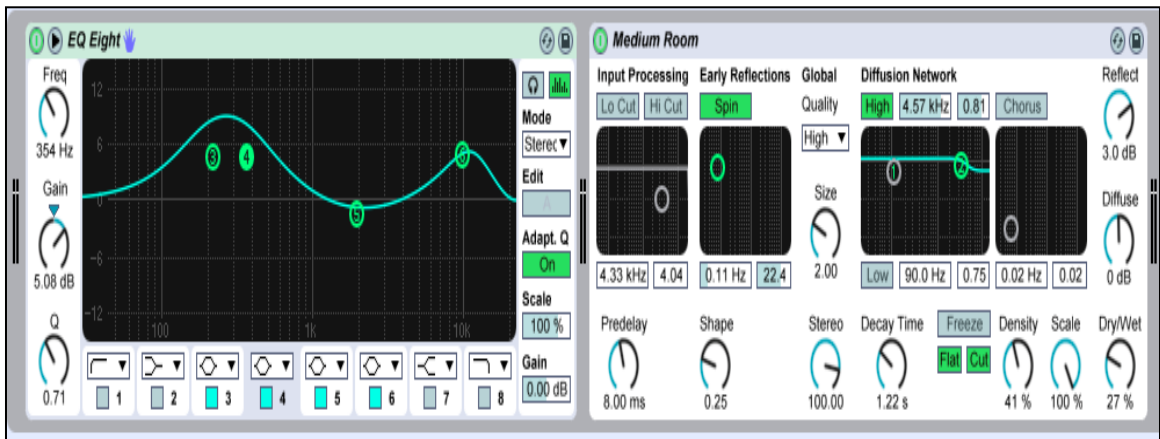


Figure 185: Space Cowboy Korg Volca Bass Effect Settings

Appendix I: *Sacred Pasture* in the Z-Sky DAW Screenshots

Mixer View



Figure 186: *Sacred Pasture* in the Z-Sky Mixer View

Mixer View for Nepheton



Figure 187: *Sacred Pasture* in the Z-Sky Mixer View of Nepheton

Main Channel View and Bus 1-4 on Mixer

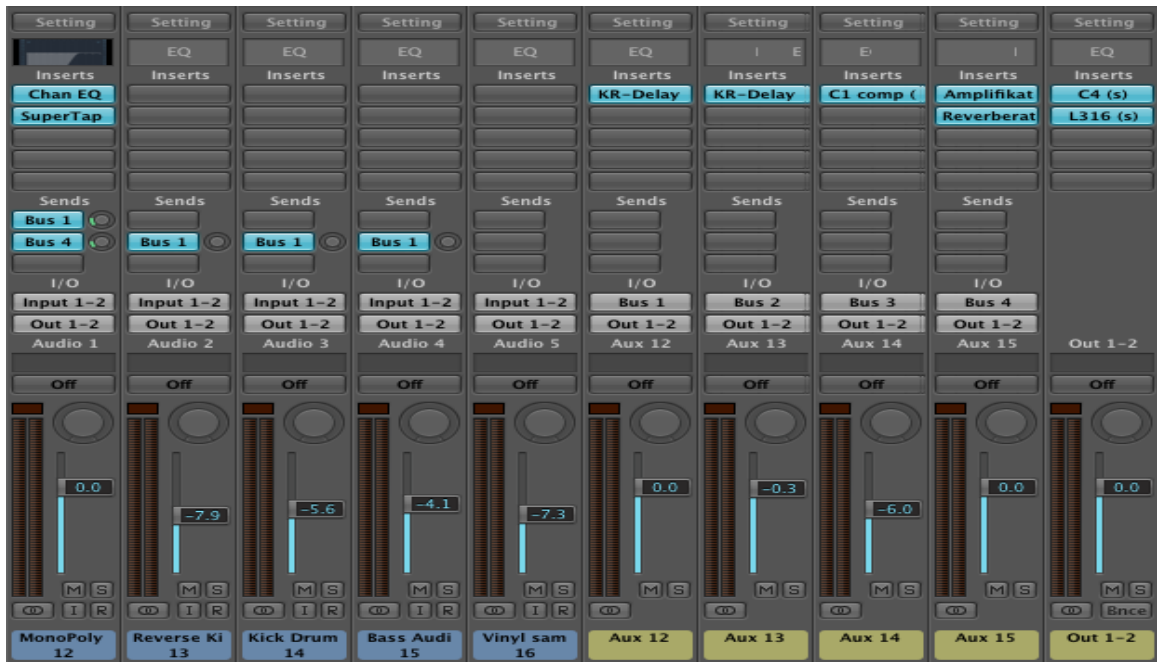


Figure 188: Sacred Pasture in the Z-Sky Bus 1-4, Aux 12-15 and Main

Arrangement View

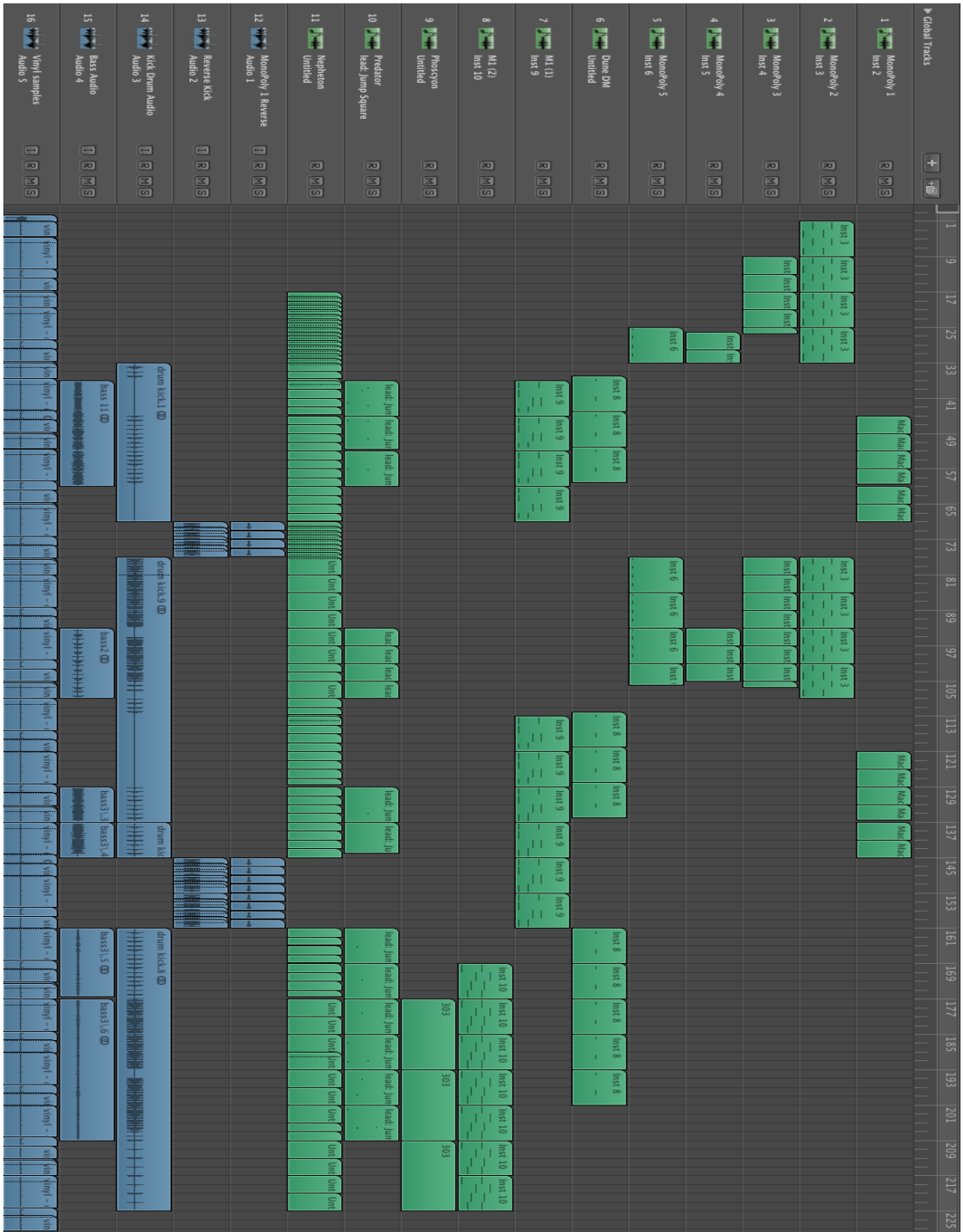


Figure 189: Sacred Pasture In The Z-Sky Arrangement View

Main Channel Effect Settings



Figure 190: Scared Pasture in the Z-Sky Main Channel C4 Settings

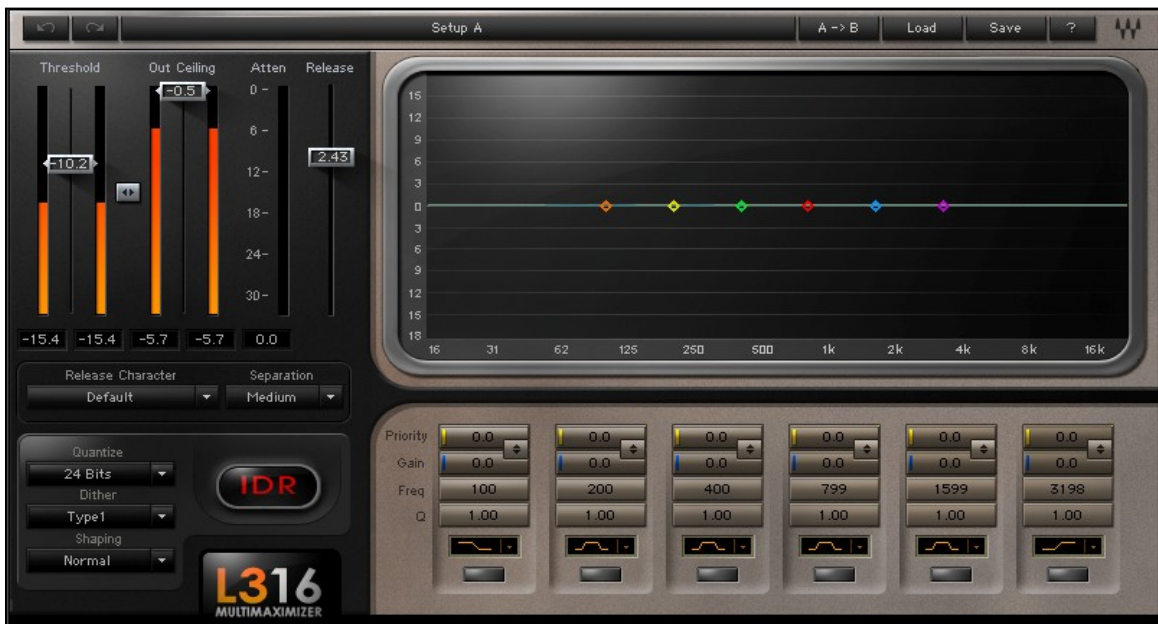


Figure 191: Sacred Pasture in the Z-Sky L316 Multimaximizer Settings

Bus Send Settings

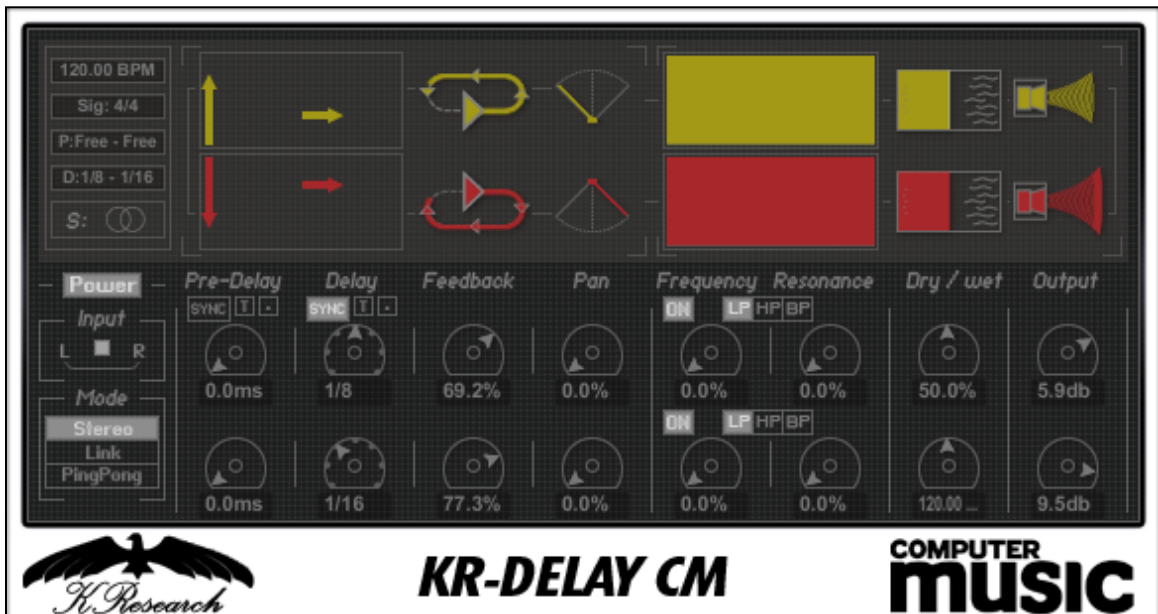


Figure 192: Sacred Pasture in the Z-Sky Bus 1 KR Delay Settings

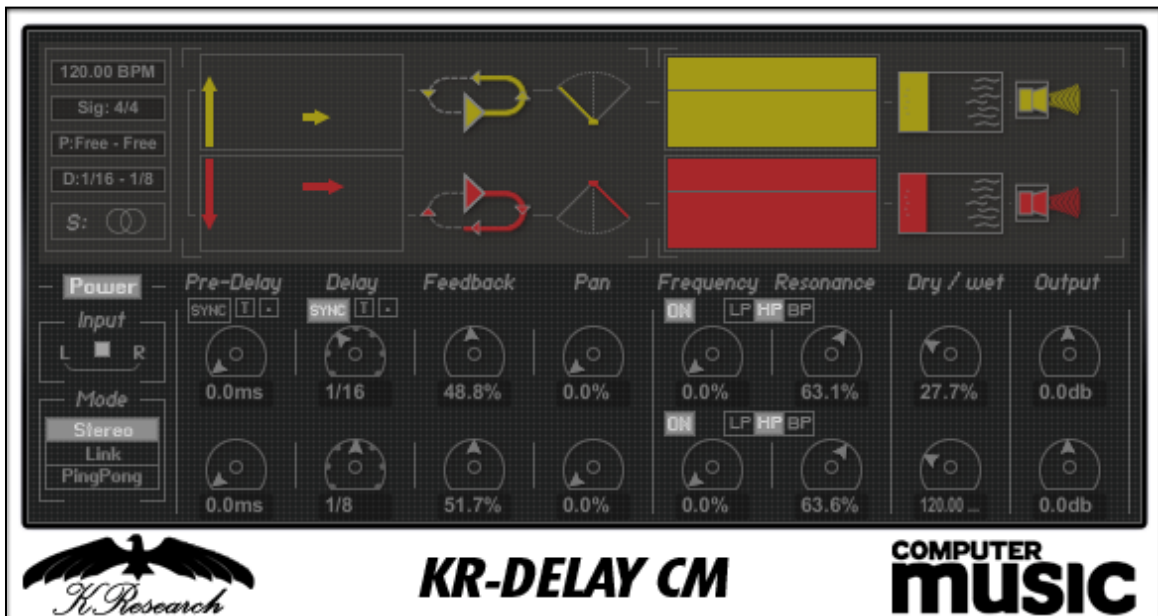


Figure 193: Sacred Pasture in the Z-Sky Bus 2 KR Delay Settings

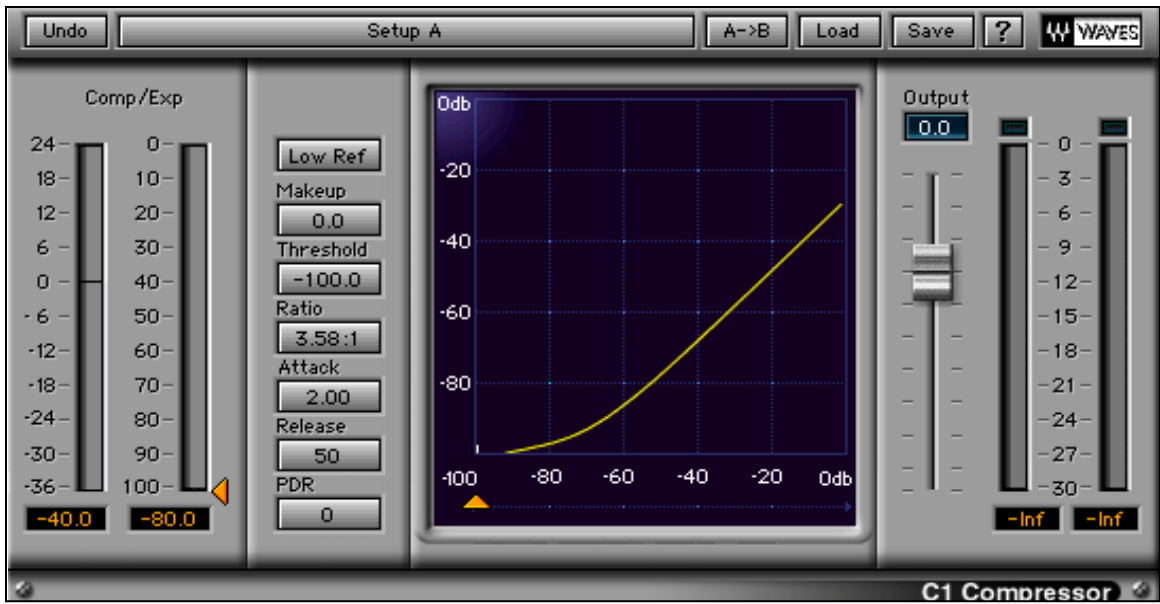


Figure 194: Sacred Pasture in the Z-Sky Bus 3 C1 Compressor Settings



Figure 195: Sacred Pasture in the Z-Sky Bus 4 Kuassa Amp. Setting

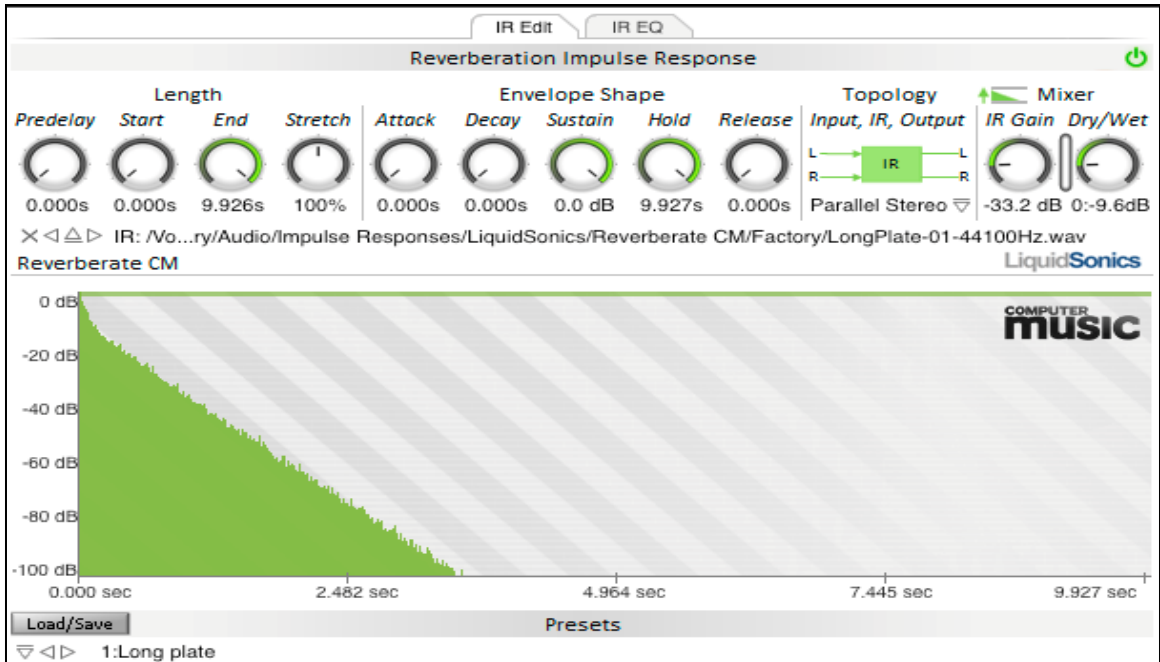


Figure 196: Sacred Pasture in the Z-Sky Bus 4 LS Reverberate Settings

Channel 1 Instrument Settings

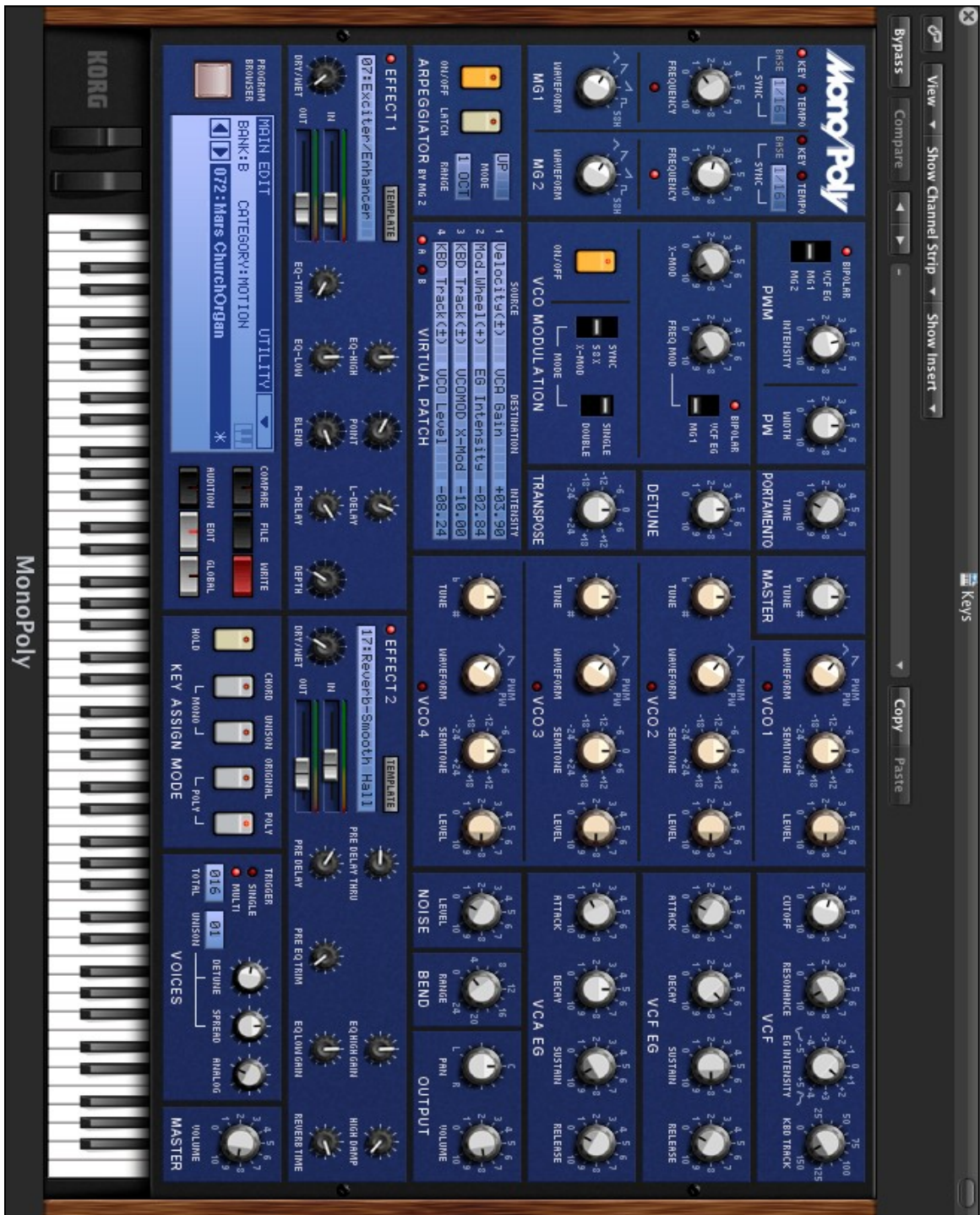


Figure 197: Sacred Pasture in the Z-Sky Channel 1 MonoPoly Settings

Channel 2 Instrument and Effect Settings

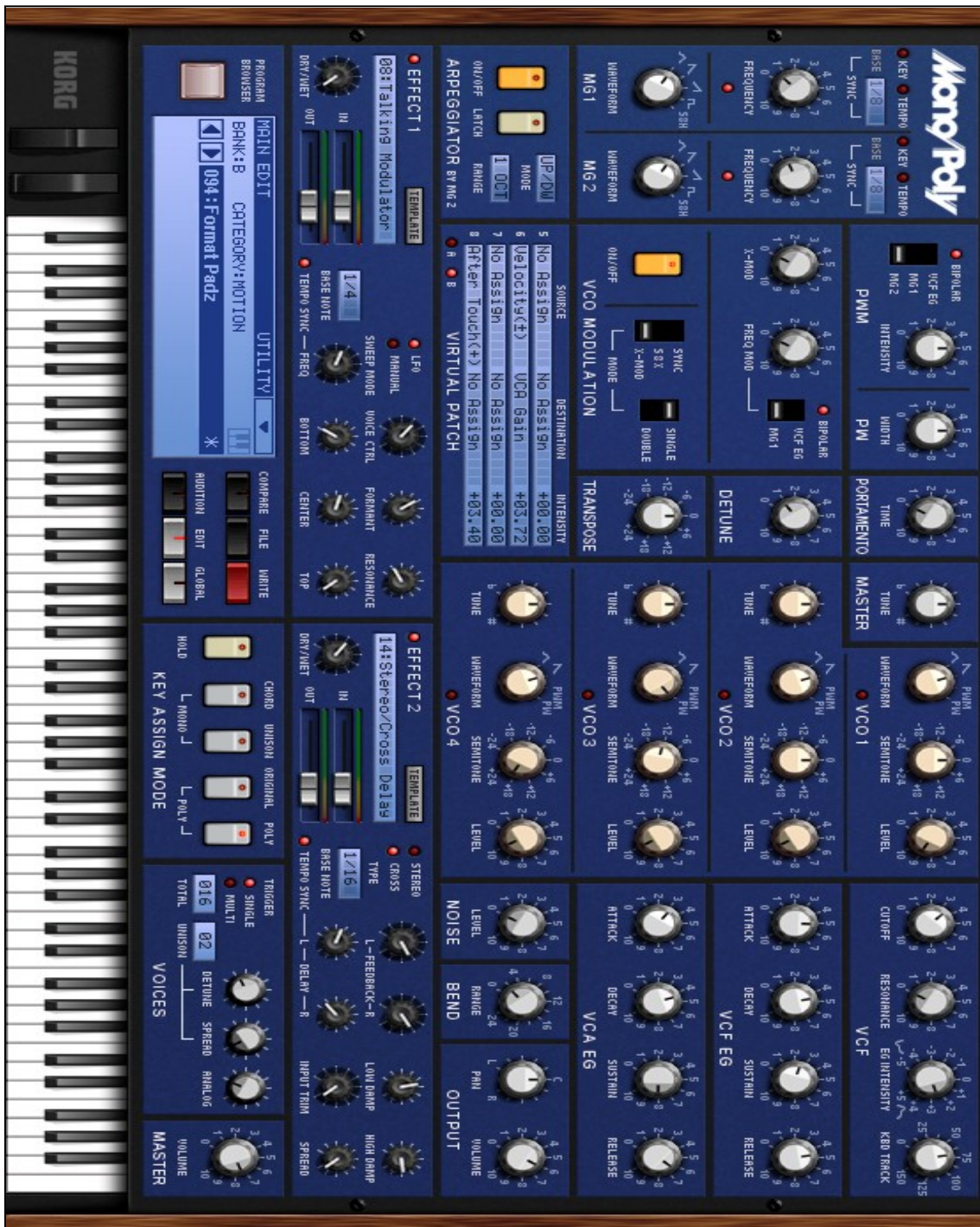


Figure 198: Sacred Pasture in the Z-Sky Channel 2 MonoPoly Setting

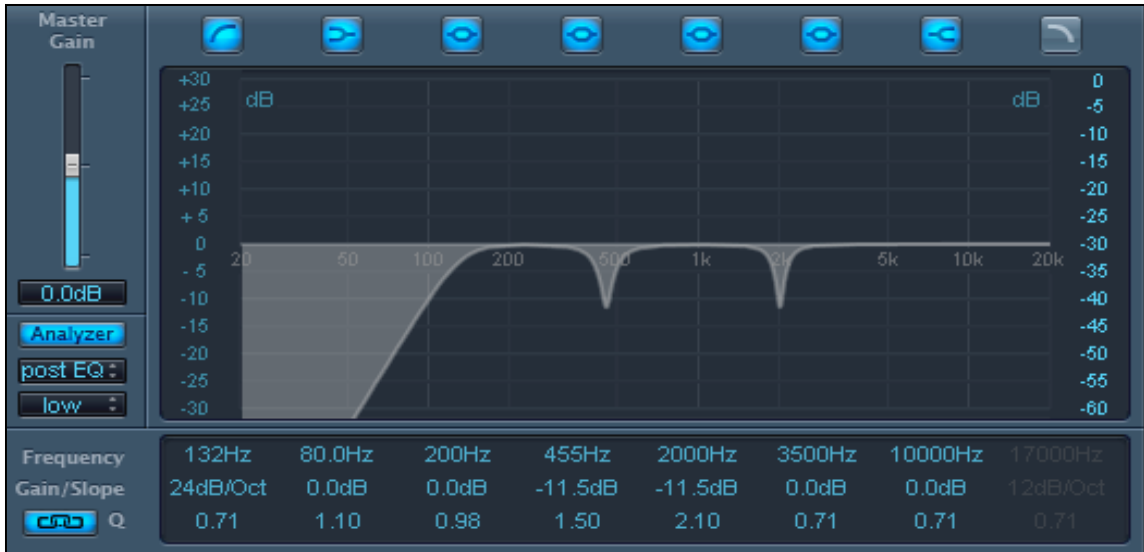


Figure 199: Sacred Pasture in the Z-Sky Channel 2 EQ Settings



Figure 200: Sacred Pasture in the Z-Sky Channel 2 Center Settings

Channel 3 Instrument and Effect Settings

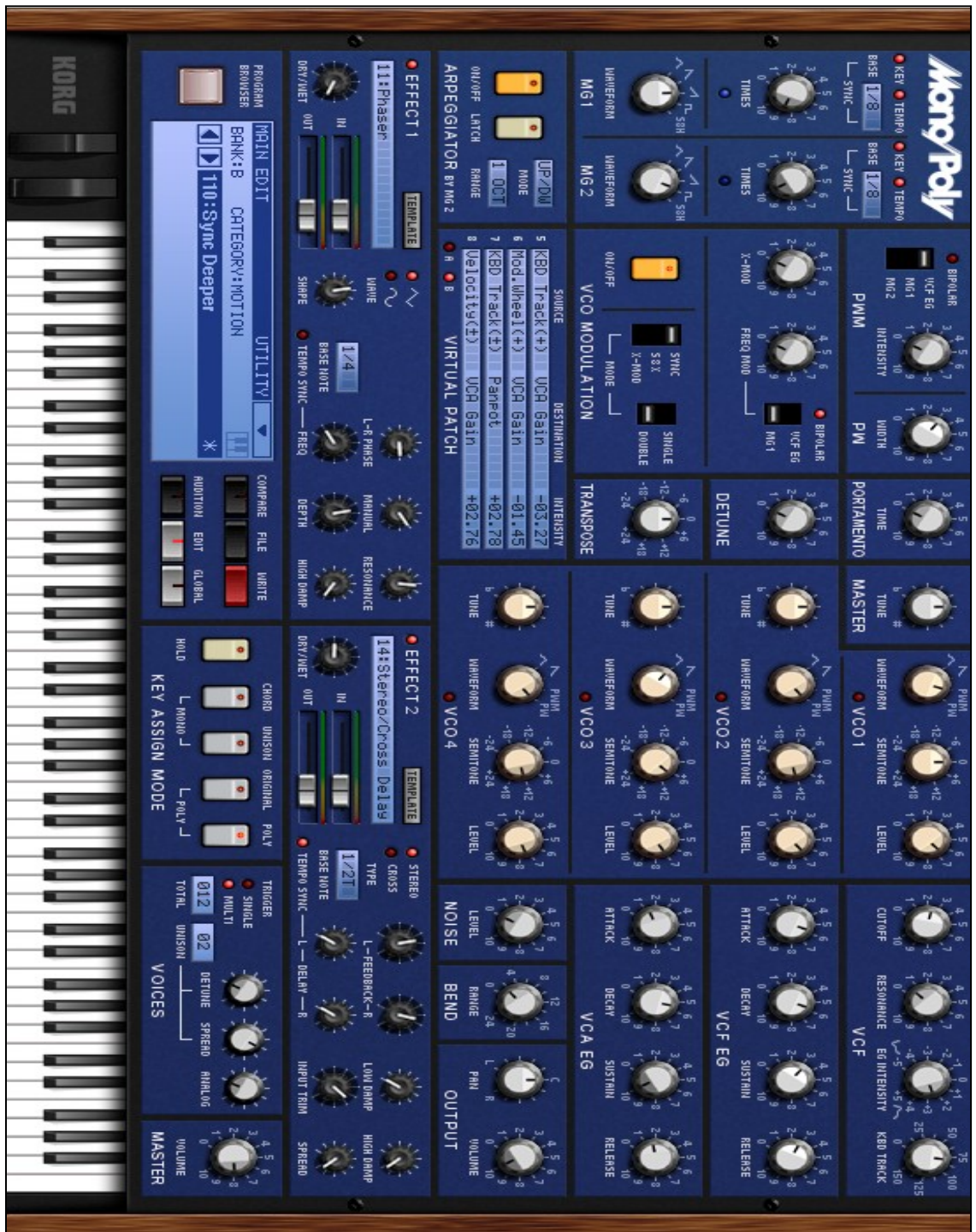


Figure 201: Sacred Pasture in the Z-Sky Channel 3 MonoPoly Settings

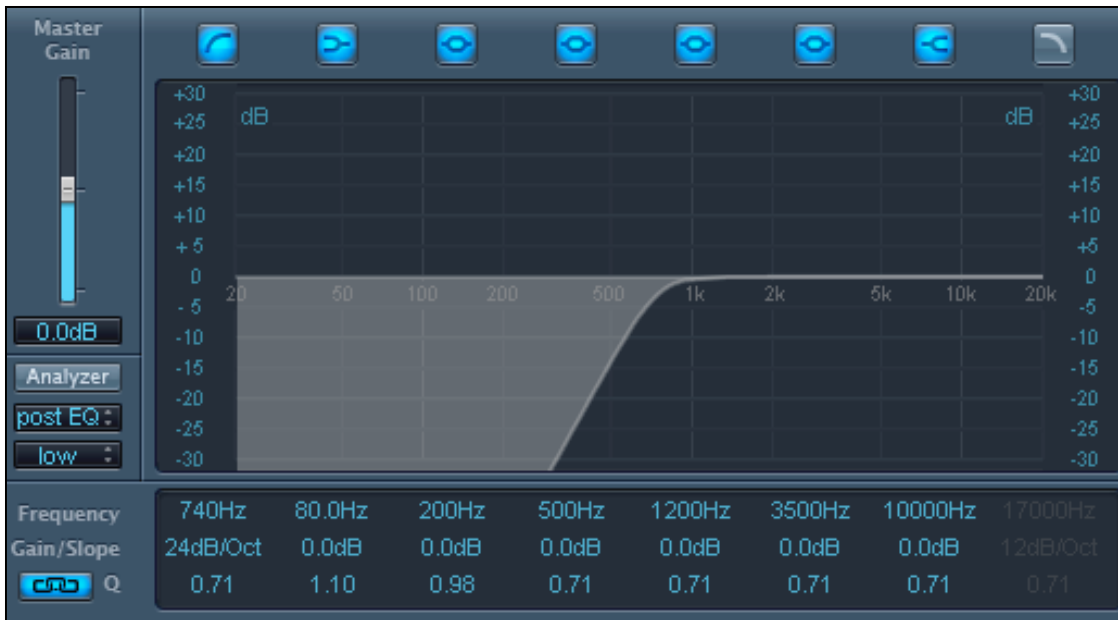


Figure 202: Sacred Pasture in the Z-Sky Channel 3 EQ Settings

Channel 4 Instrument and Effect Settings

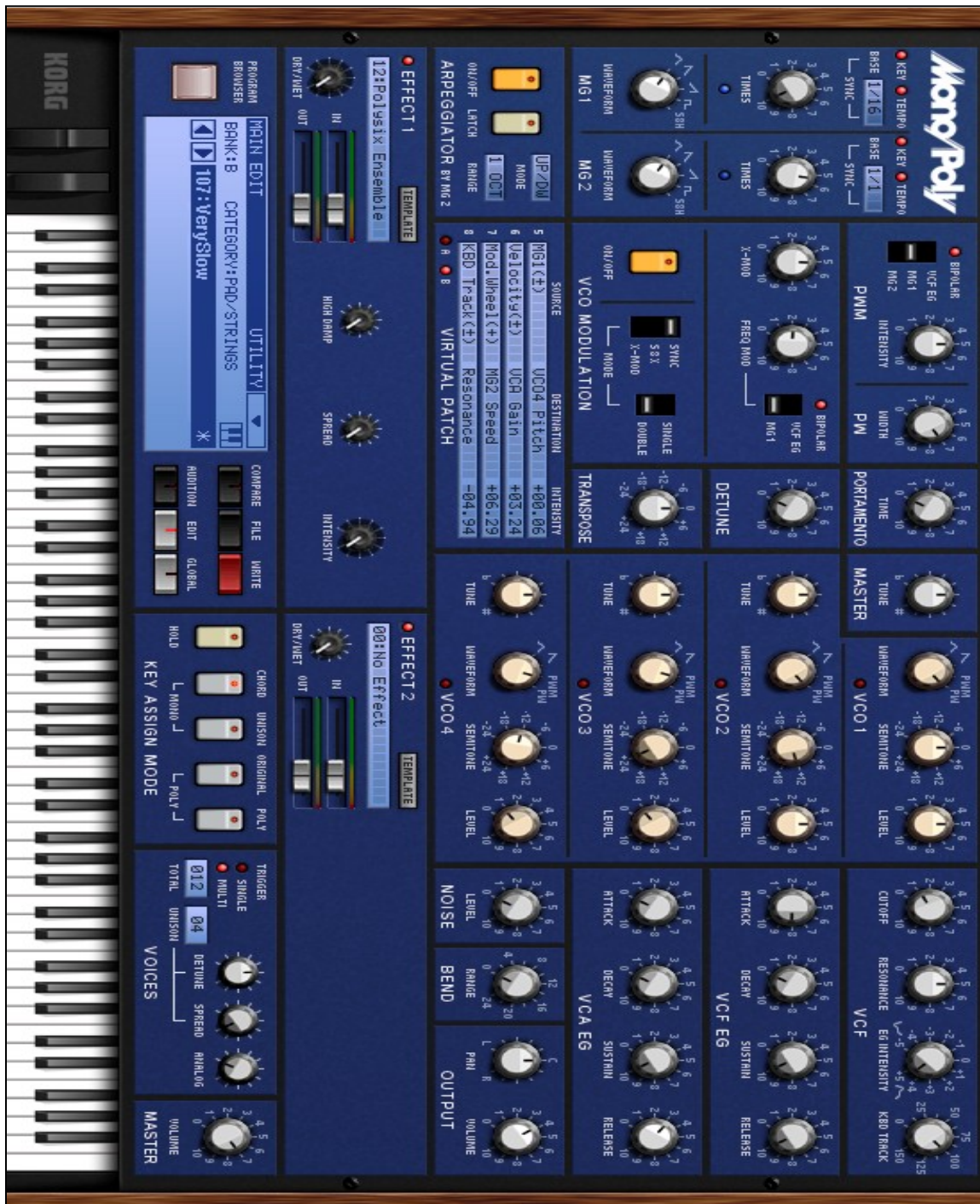


Figure 203: Sacred Pasture in the Z-Sky Channel 4 MonoPoly Settings

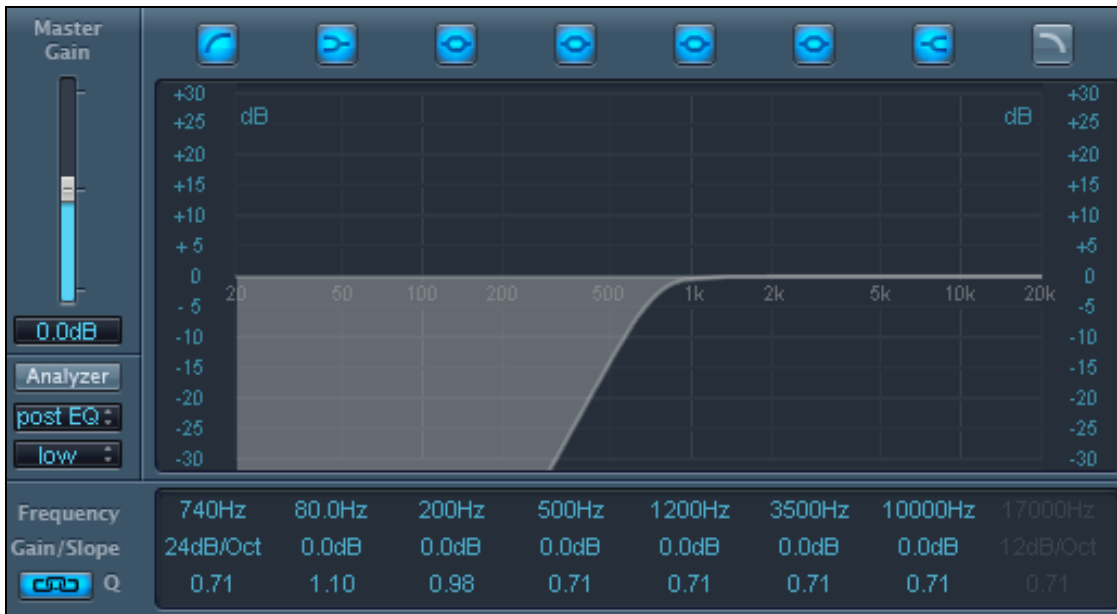


Figure 204: Sacred Pasture in the Z-Sky Channel 4 EQ Settings

Channel 5 Instrument and Effects Settings

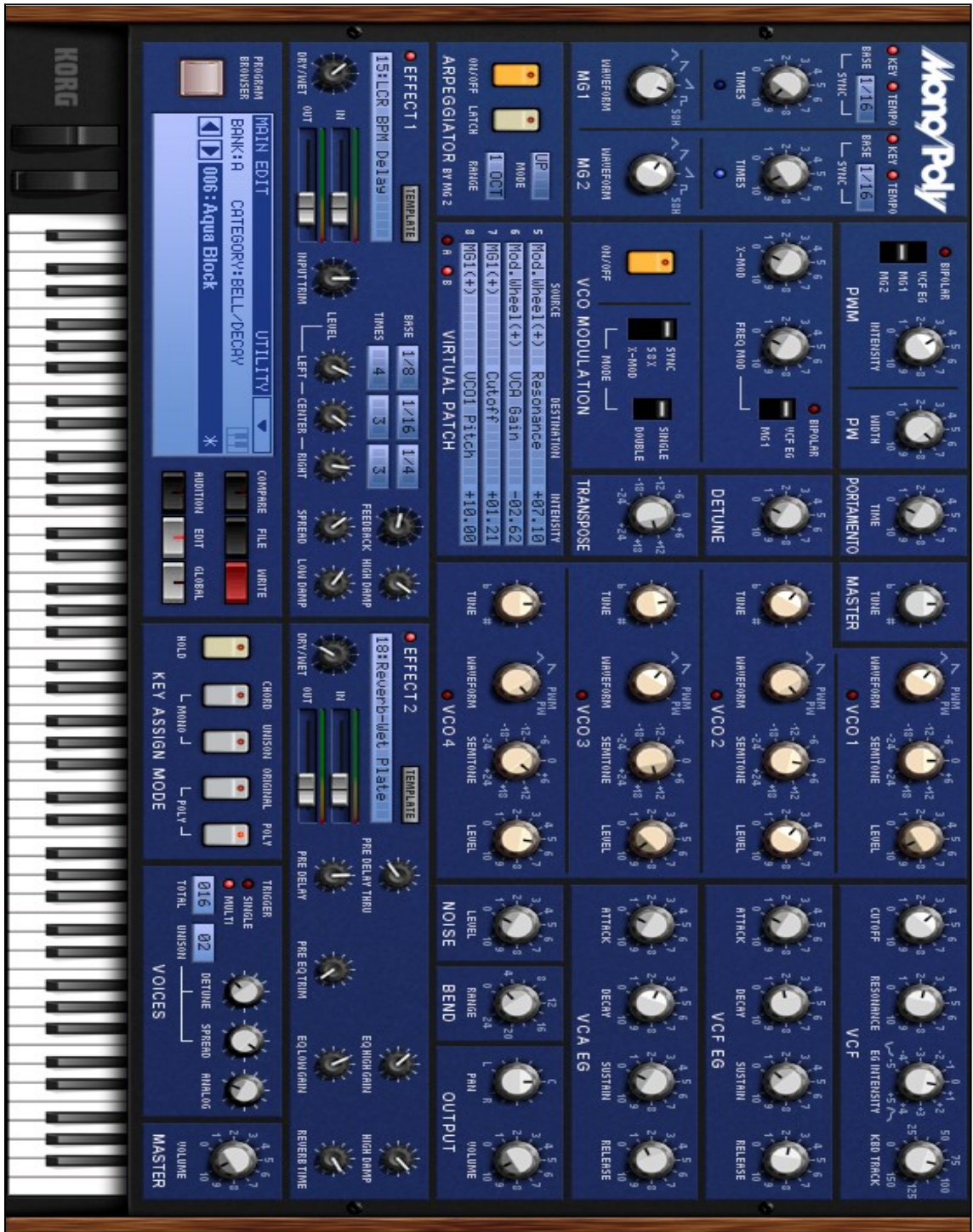


Figure 205: Sacred Pasture in the Z-Sky Channel 5 MonoPoly Settings

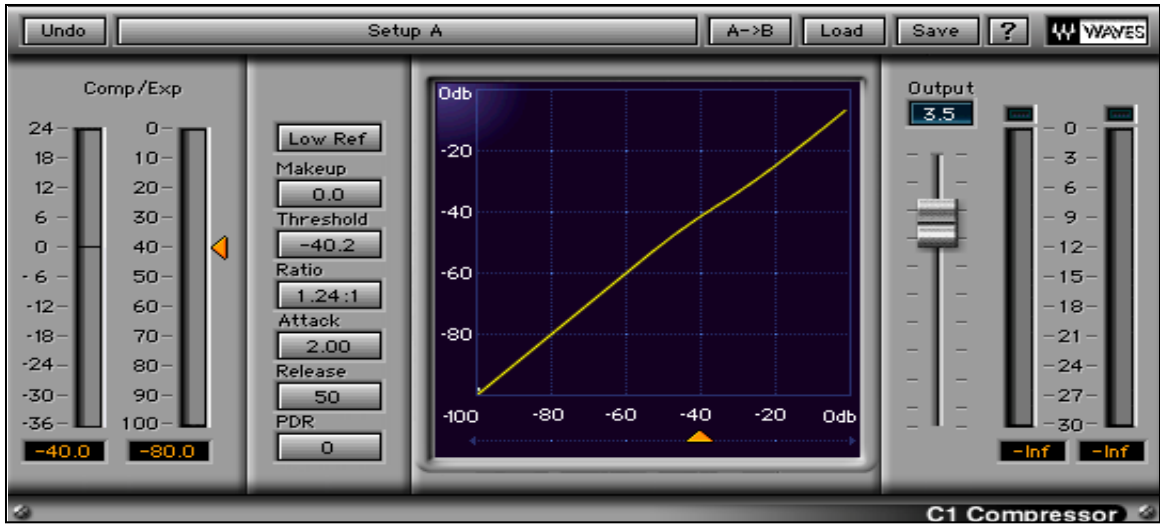


Figure 206: Sacred Pasture in the Z-Sky Channel 5 C1 Settings



Figure 207: Sacred Pasture in the Z-Sky Channel 5 Center Settings

Channel 6 Instrument Settings



Figure 208: Sacred Pasture in the Z-Sky Channel 6 Synapse Dune Settings

Channel 7 Instrument Settings



Figure 209: Sacred Pasture in the Z-Sky Channel 7 Korg M1 Settings

Channel 8 Instrument Settings



Figure 210: Sacred Pasture in the Z-Sky Channel 8 Korg M1 Settings

Channel 9 Instrument and Effect Settings



Figure 211: Sacred Pasture in the Z-Sky Channel 9 Phoscyon Settings

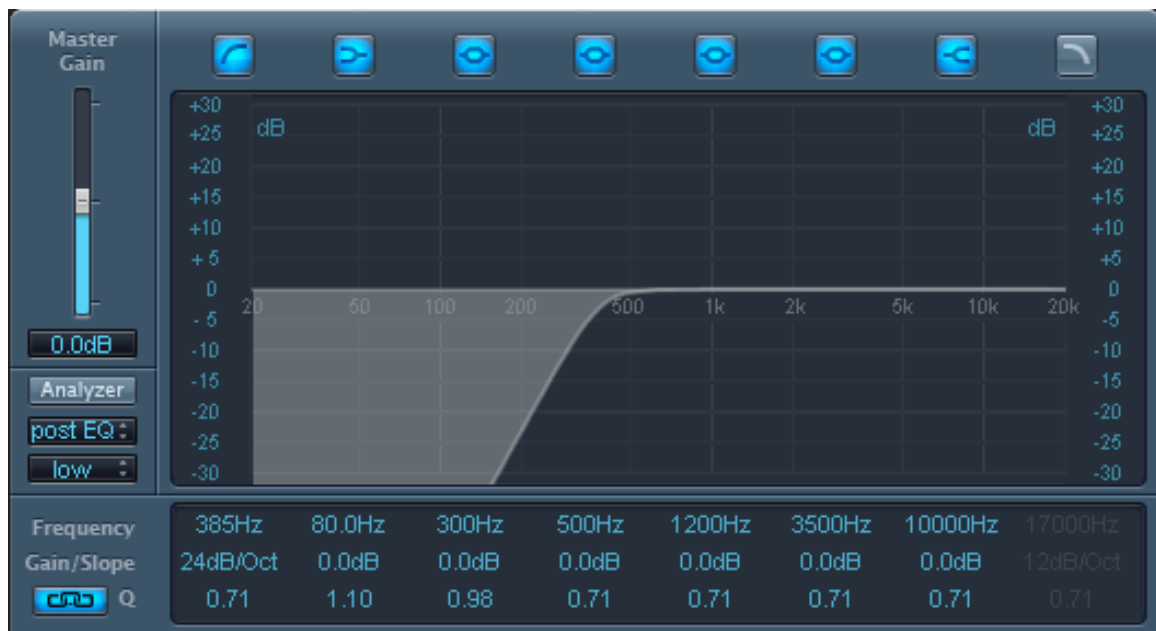


Figure 212: Sacred Pasture in the Z-Sky Channel 9 EQ Settings

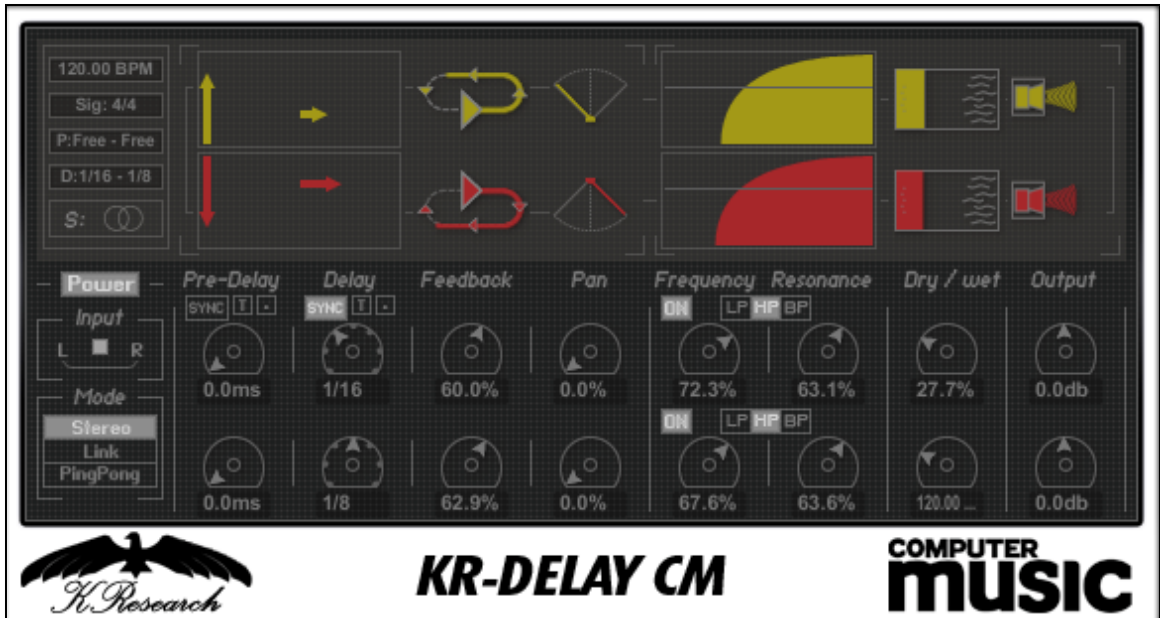


Figure 213: Sacred Pasture in the Z-Sky Channel 9 KR Delay Settings

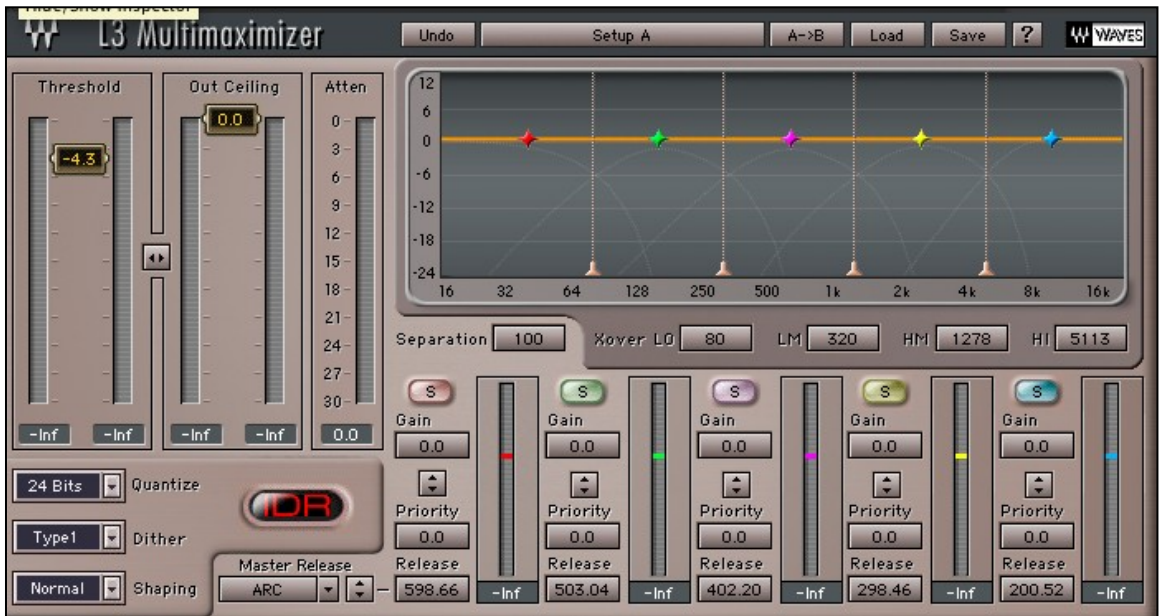


Figure 214: Sacred Pasture in the Z-Sky Channel 9 L3 Settings

Channel 10 Instrument and Effects Settings



Figure 215: Sacred Pasture in the Z-Sky Channel 10 Predator Settings



Figure 216: Sacred Pasture in the Z-Sky Channel 10 Tape Delay Settings

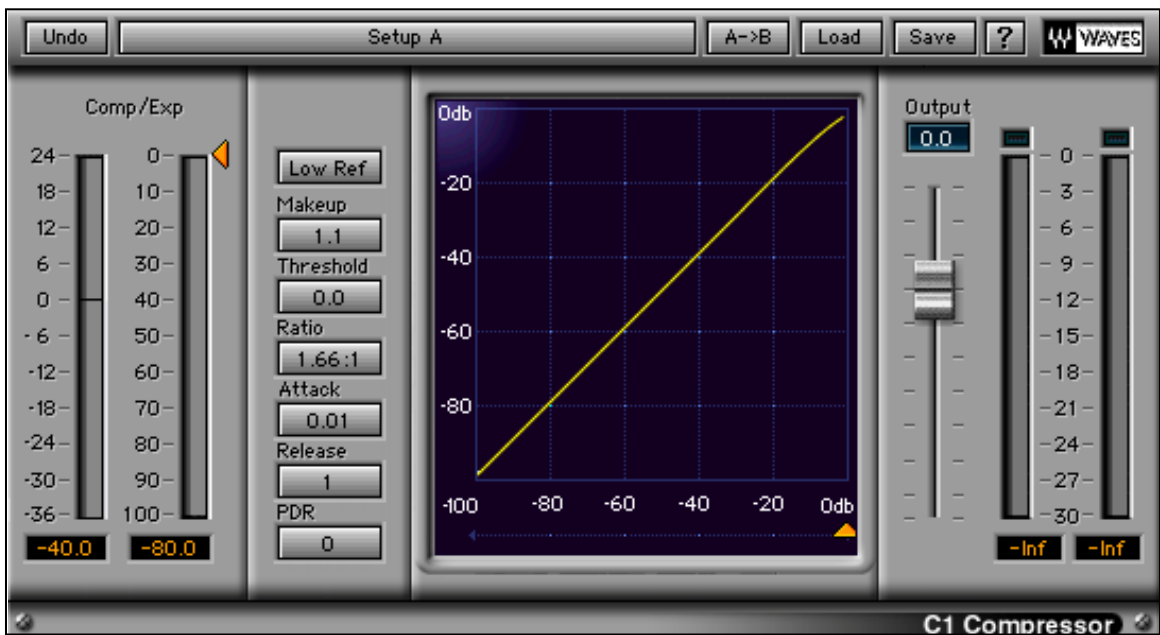


Figure 217: Sacred Pasture in the Z-Sky Channel 10 C1 Settings



Figure 218: Sacred Pasture in the Z-Sky Channel 10 Center Settings

Channel 11 Instrument and Effect Settings



Figure 219: Sacred Pasture in the Z-Sky Channel 11 Nepheton Settings

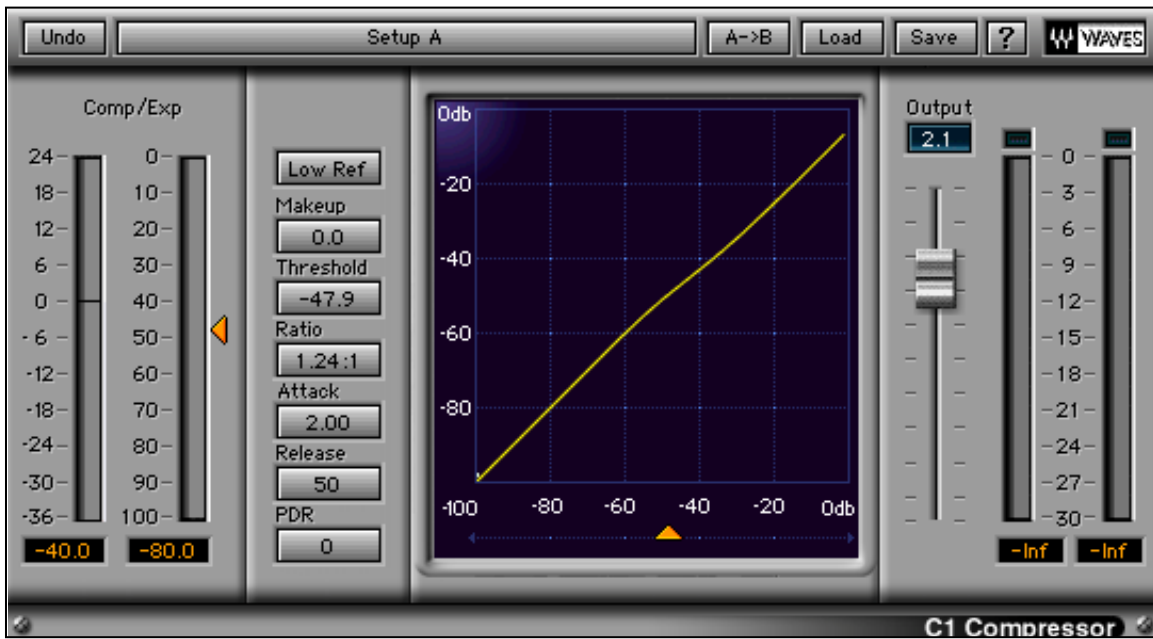


Figure 220: Sacred Pasture in the Z-Sky Channel 11 C1 Compressor Settings

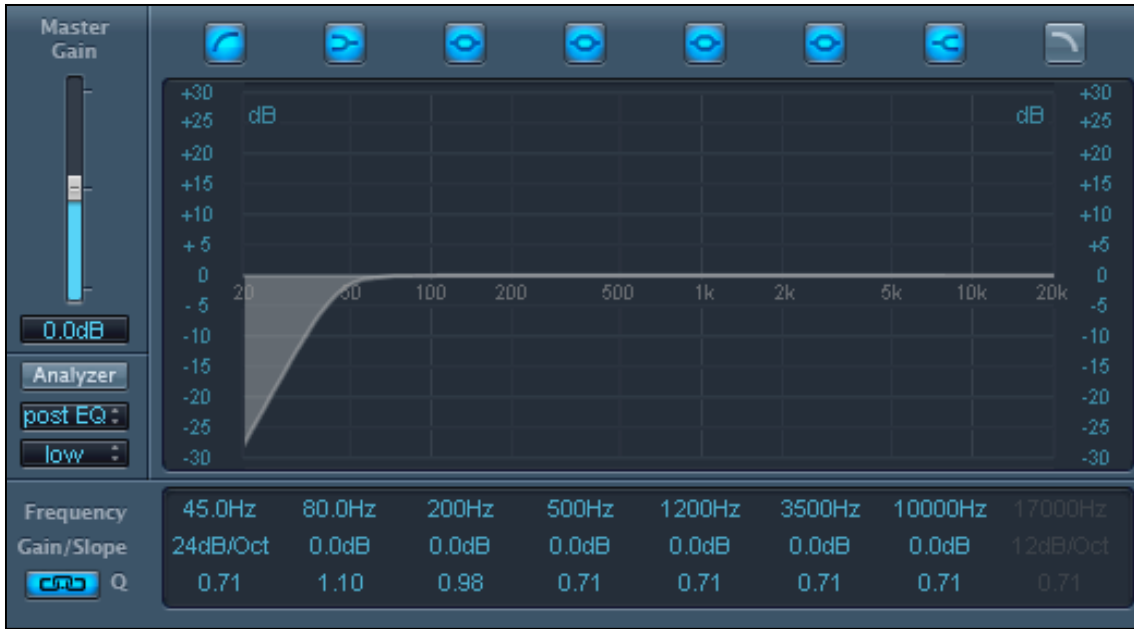


Figure 221: Sacred Pasture in the Z-Sky Channel 11 EQ Settings



Figure 222: Sacred Pasture in the Z-Sky Channel 11 L3 Maximizer Settings



Figure 223: Sacred Pasture in the Z-Sky Channel 11 Center Settings