

PROJECT ADMINISTRATION DATA SHEET

ORIGINAL REVISION NO. _____

Project No. A-3745 GTRI/~~GTR~~ DATE 1 / 26 / 84

Project Director: C. P. Burns ~~School~~/Lab STL/MS

Sponsor: Metric Systems
Ft. Walton Beach, FL

Type Agreement: Purchase Order 106286 dated 1/10/84

Award Period: From 1/10/84 To 1/23/84 (Performance) _____ (Reports)

Sponsor Amount:	<u>This Change</u>	<u>Total to Date</u>
Estimated: \$	_____	\$ <u>3,000</u>
Funded: \$	_____	\$ <u>3,000</u>

Cost Sharing Amount: \$ _____ Cost Sharing No: _____

Title: "Antenna Measurements for T9 Feed"

ADMINISTRATIVE DATA

OCA Contact John W. Burdette X4820

1) Sponsor Technical Contact:

2) Sponsor Admin/Contractual Matters:

_____	<u>Paul Hennelly</u>
_____	<u>Metric Systems Corporation</u>
_____	<u>645 Anchors Avenue</u>
_____	<u>Fort Walton Beach, FL 32548-9990</u>
_____	_____
_____	_____

Defense Priority Rating: N/A Military Security Classification: N/A
(or) Company/Industrial Proprietary: N/A

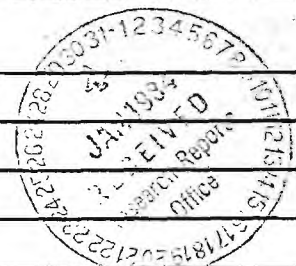
RESTRICTIONS

See Attached -- Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with none proposed

COMMENTS:



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SPONSORED PROJECT TERMINATION/CLOSEOUT SHEET

N-13
2-
JR 357

Date February 24, 1984

Project No. A-3745 ~~SCS~~ Lab STL

Includes Subproject No.(s) _____

Project Director(s) C.P. Burns GTRI / ~~GTR~~

Sponsor Metric Systems

Title Antenna Measurements for T9 Feed

Effective Completion Date: 1/23/84 (Performance) _____ (Reports) _____

Grant/Contract Closeout Actions Remaining:

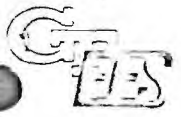
- None
- Final Invoice or Final Fiscal Report
- Closing Documents
- Final Report of Inventions
- Govt. Property Inventory & Related Certificate
- Classified Material Certificate
- Other _____

Continues Project No. _____ Continued by Project No. _____

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ENGINEERING EXPERIMENT STATION
Georgia Institute of Technology
A Unit of the University System of Georgia
Atlanta, Georgia 30332

9 January 1983

Mr. William Walker
Metric Systems Corporation
736 N. Beal Street
Ft. Walton Beach, FL 32548

Subject: Initial Measurements with T-9 Feed

Dear Bill:

Far-field pattern measurements with the T-9 dipole-array feed have been completed. The measurements were performed on the 1,000 foot antenna range here at Georgia Tech. During the E-plane cuts, absorbing material was used to isolate the T-9 test feed from the antenna positioner and tower.

Figures 1-3 were made with the frequency at 2830 MHz. Figure 1 illustrates the E-plane patterns without radome (solid) and with radome (dashed). Figure 2 illustrates H-plane patterns without radome (dashed) and with radome (solid). Figure 3 illustrates a 360-degree E-plane pattern without radome. Unfortunately, the range operator was not consistent in his choice of solid or dashed patterns to indicate whether or not the radome was on the feed.

Similar data for 2820 MHz and 2840 MHz are shown in Figures 4-6 and 7-9, respectively.

The main beam from the feed is squinted about 10° from the array normal in the direction away from the flanged end. In the E-plane patterns, the side lobes shown on the right side of the main beam are at angles towards the flanged end while side lobes shown on the left side of the beam are at angles away from the flanged end.

The presence of the radome had only a small effect on the patterns. The fact that the patterns are not symmetric indicates that there is not a simple linear phase progression from one dipole to the next. Evidently, the internal VSWR's are creating a non-linear phase variation along the line source. As you know, there are no adjustments for the phase of each dipole, so one must accept what he gets.

If you have any further questions about these patterns, please contact us. The T-9 feed has been crated and shipped today via UPS.

Very truly yours,



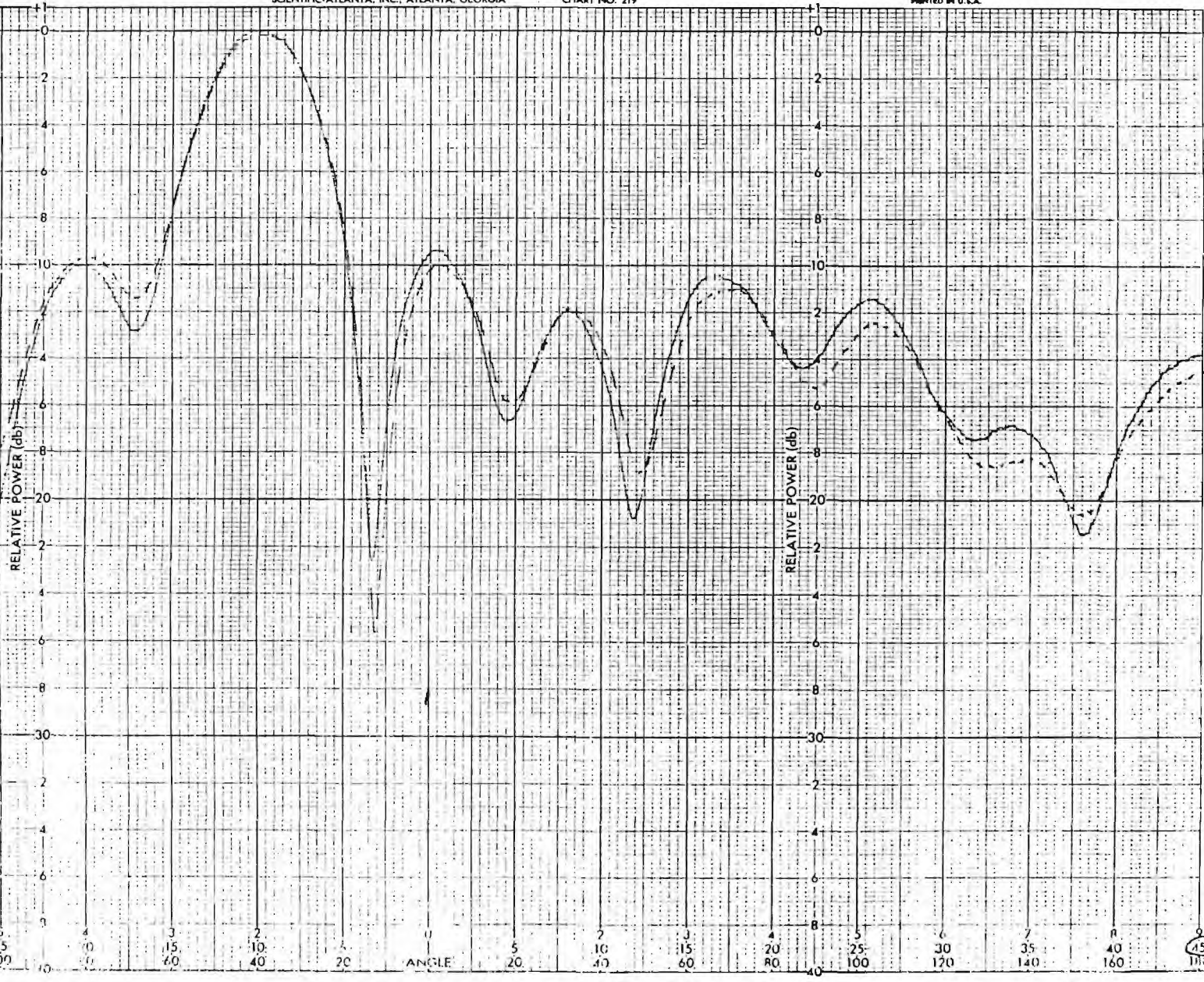
R. C. Johnson
Principal Research Engineer

FIG 1

SCIENTIFIC-ATLANTA, INC., ATLANTA, GEORGIA

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ENGR

PROJECT REMARKS f: 2830 GHz E-Plane Cut

Solid w/o Radome Dashed with Radome

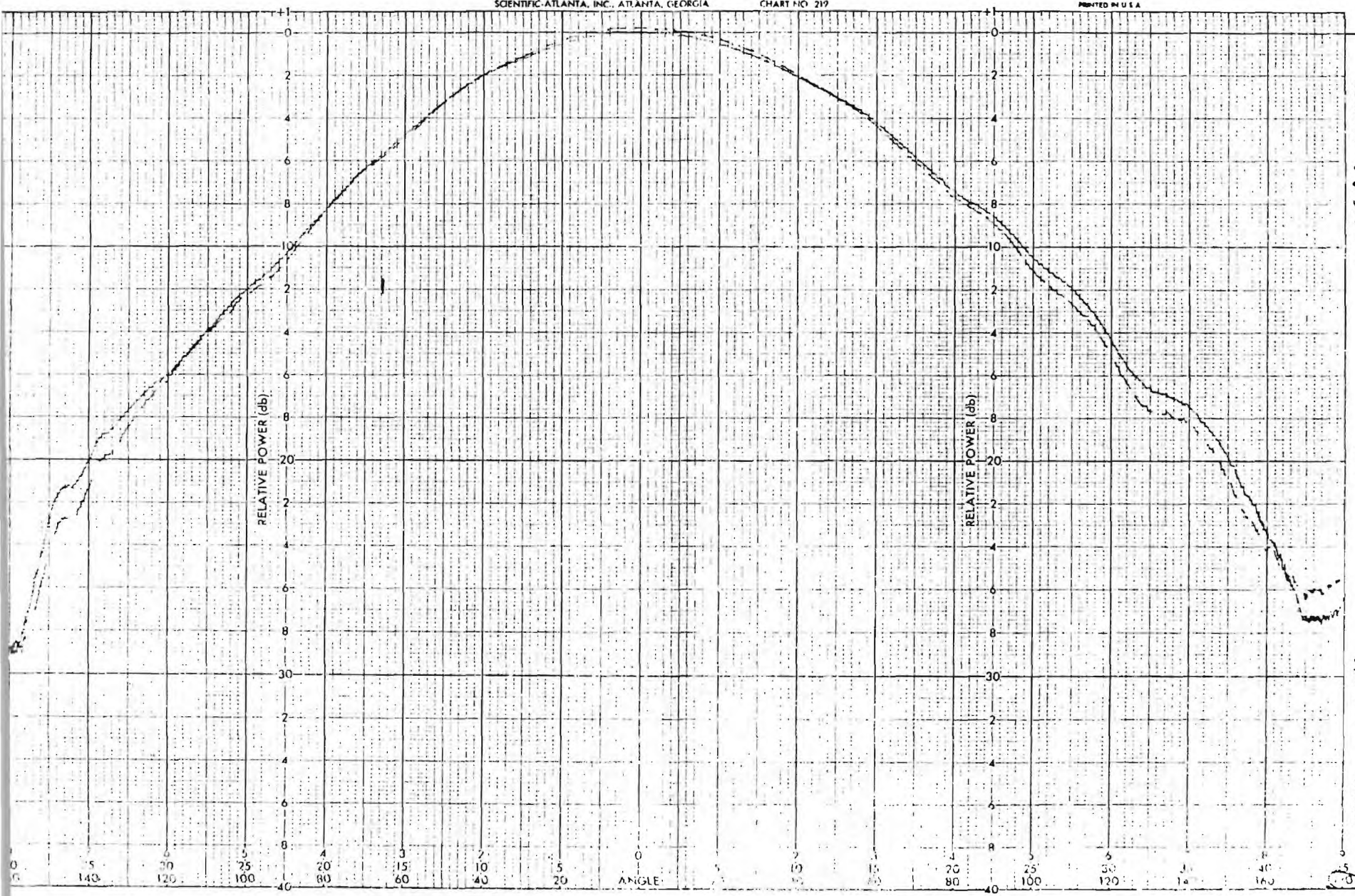
180

FIG 2

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PROJECT R-283CHE

REMARKS H-plane cut Solid with End-lobe
Boreas w/o R boom

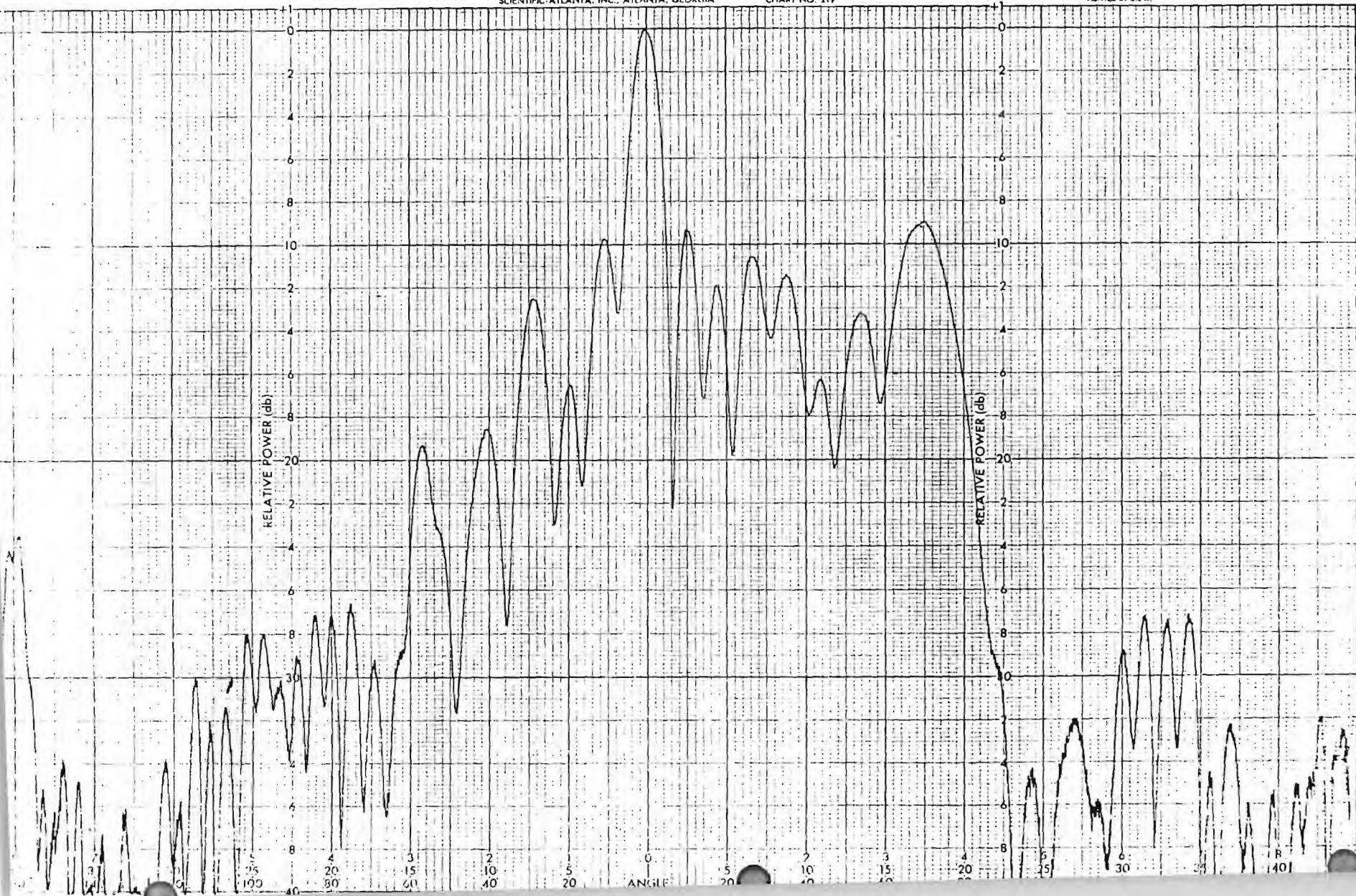
FIG 3

35

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PROJECT REMARKS 9-2-53

36-PATT

E. P. ... Cur w/o ...

#3

FIG 4



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PROJECT FOR DBZ G12

REMARKS E-plane cut

Solid w/o Resome Cutted with Resome

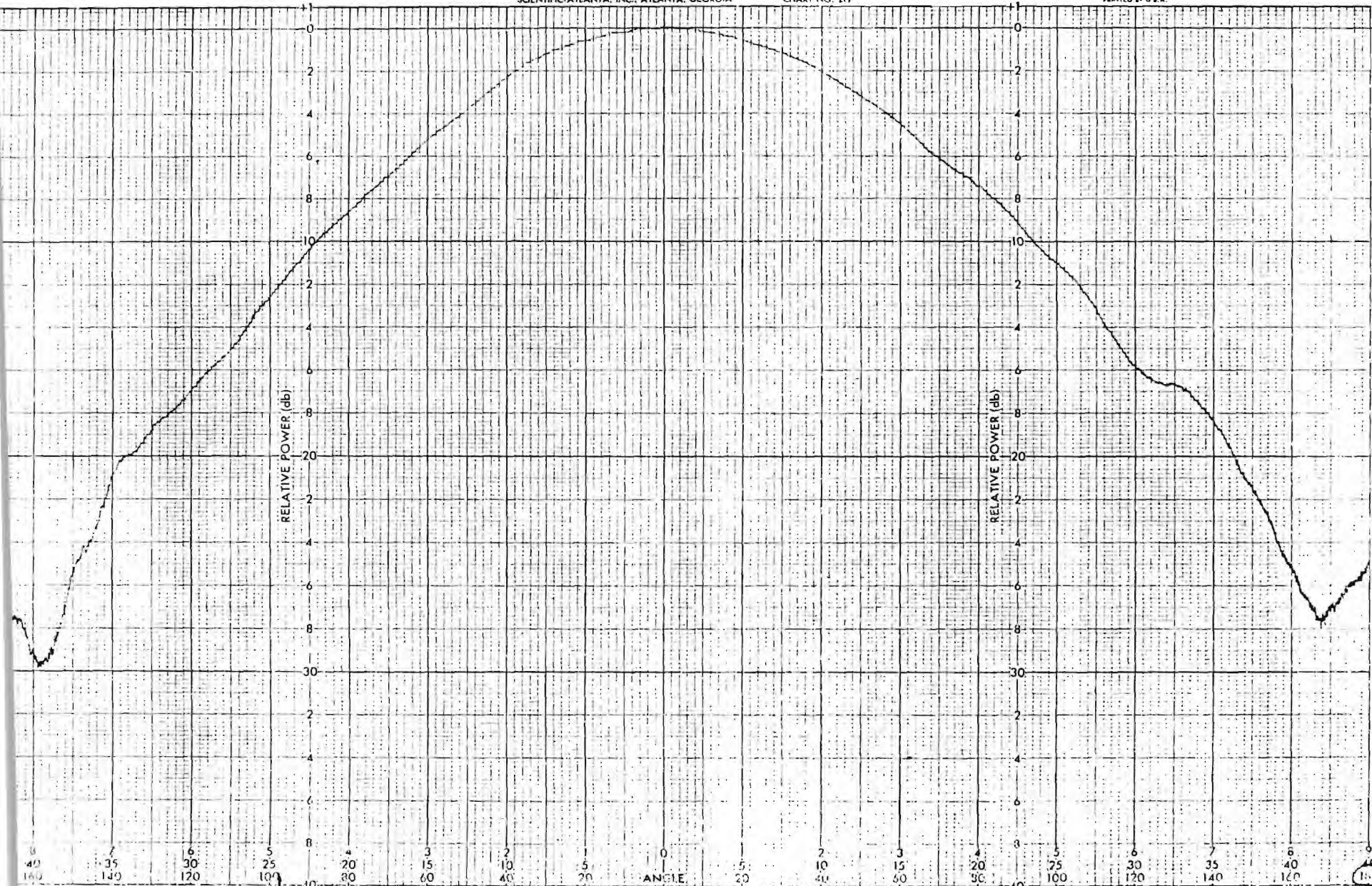
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FIG 5

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PROJECT 105766

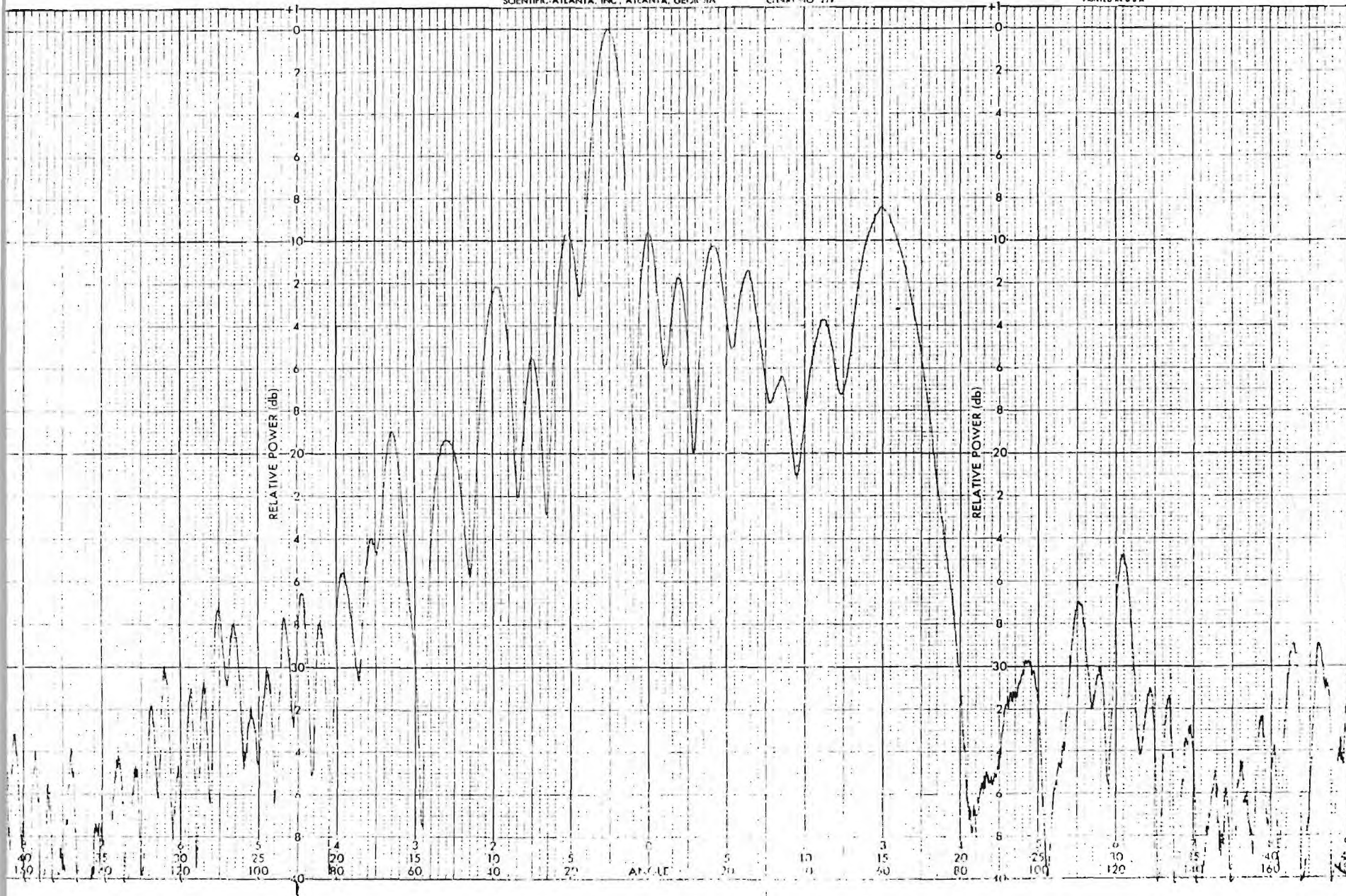
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REMARKS f = 2690 MHz
H-Plane Cut W/2 RACOM & 36° Elevation

11

180



ENGR ABC, RCJ, RJB DATE 1-5-24 105762

#8

T-9 Feed

PROJECT T-9 E-142

REMARKS E-Plane Cut

w/3 Radiator 360° Pat

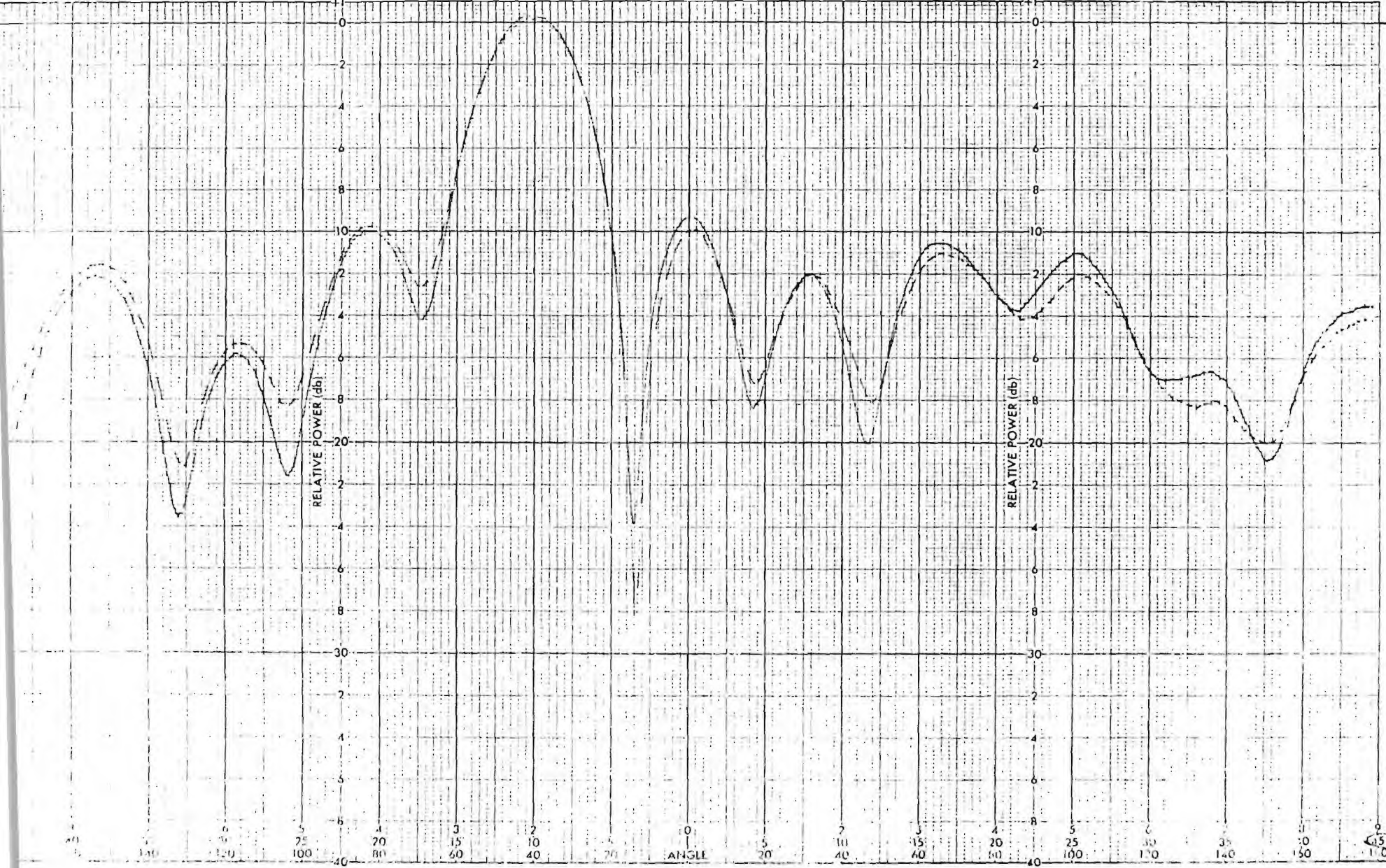
FIG 7

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PROJECT
REMARKS

F = 2840 MHz

E-Plane slit with frame between waveguide

#6

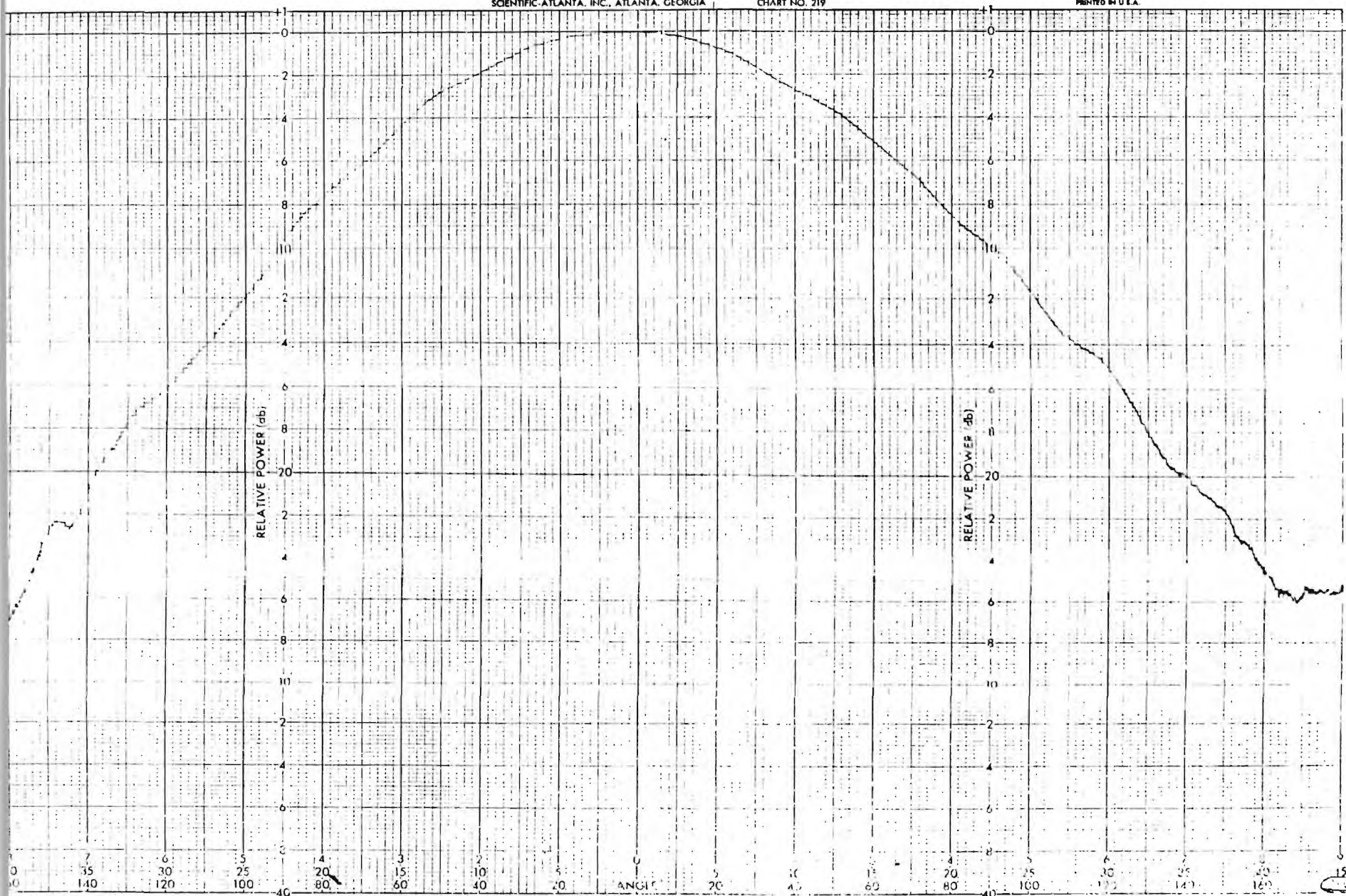
100

FIG 8

SCIENTIFIC-ATLANTA, INC., ATLANTA, GEORGIA

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PROJECT: H. P. Plans
 REMARKS: P. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 908. 909. 910. 911. 912. 913. 914. 915. 916. 917. 918. 919. 920. 921. 922. 923. 924. 925. 926. 927. 928. 929. 930. 931. 932. 933. 934. 935. 936. 937. 938. 939. 940. 941. 942. 943. 944. 945. 946. 947. 948. 949. 950. 951. 952. 953. 954. 955. 956. 957. 958. 959. 960. 961. 962. 963. 964. 965. 966. 967. 968. 969. 970. 971. 972. 973. 974. 975. 976. 977. 978. 979. 980. 981. 982. 983. 984. 985. 986. 987. 988. 989. 990. 991. 992. 993. 994. 995. 996. 997. 998. 999. 1000.

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W: RADONE 2

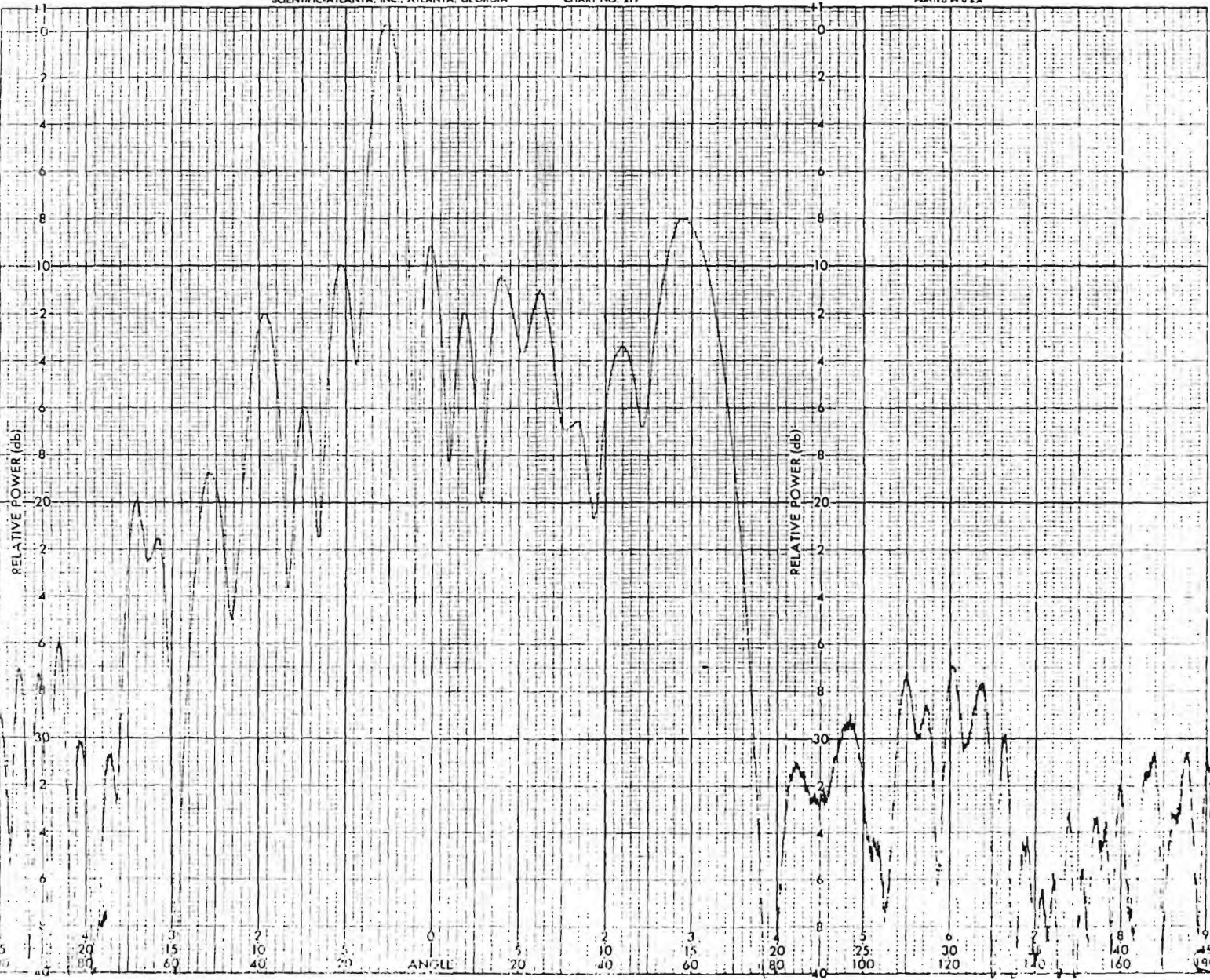
180

FIG 9

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#7

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PROJECT 340 PATRICK

REMARKS

f-2 PACHE w/d RACONS E-plane cut

15

100