

## EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

## APPROVED EXPERIMENTS CERN PROTON SYNCHROTRON

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JANUARY 1969

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PS COUNTER EXPERIMENTS APPROVED BY NPRC

Table 1A

Area Tgt.	Expt. Code	B e a m		Description of Experiment	Authors	Date of Approval by NPRC	Conditions of Approval or time allocated	Status or approx. start.date
		Code	Description					
	S81		Inside PS ring	Background measurement at the PS, study of the ISR background problems. Scintillators, optical spark chamber	Hyams, Agoritsas	25.9.68	1 shift/week for 9 months	In production
Tgt.8 S	S70	a <sub>8</sub>	Unseparated $\pi$ , K, p < 5 GeV/c	A study of the modes $K^{\pm} \rightarrow \pi^{\pm} \pi^0 \gamma$ $\pi^{\pm} \pi^0 \pi^0$ . Spectrometer magnet and wire chambers. Honeywell DDP 516 computer.	GLASGOW-LIVERPOOL-OXFORD-RHEL: Booth, Duke, Evans, Hill, Holley, D. Jones, P. Jones, Morris, Salmon, Smith, Thomas, Thresher, Williams	4.10.67 3.4.68	8 weeks	End of Tests
Tgt.8 S	S86	a <sub>8</sub>	Unseparated $\pi$ , K, p < 5 GeV/c	$\bar{p}p \rightarrow \pi^+ \pi^-$ at 4 GeV/c. Differential cross section at small values of t and u. Magnet, Scintillators, Optical Spark chambers, Cerenkov counter	PADOVA: Bettini, Brabson, Calvelli, Cittolini, Gasparini, Limentani, Peruzzo, Salandin, Ventura, Voci	11.12.68	Time not yet allocated	Not before completion of S70
Tgt.8 S	S76	a <sub>7</sub>	Unseparated $\pi$ , K, p < 3.5 GeV/c	$K^{\pm}$ , $\bar{p}$ scattering on polarized protons. Polarized target and counters. IBM TRUO.	Anderson, Ern�, Daum, Lagnaux, Sens, Udo	3.4.68	5 weeks	In Prod.
Tgt.1 S	S72	b <sub>16</sub>	Neutral beam at 0 <sup>0</sup>	Elastic np charge exchange scattering above 6 GeV/c. Wire Spark chambers and counters	Engler, Horn, K�nig, M�nnig, Runge, Schl�decker, Schmidt-Parzefall, Schopper, Sievers, Ullrich	3.4.68	4 weeks	Jan.1969
Tgt.1 S	S77	d <sub>29</sub>	Unseparated $\pi^{\pm}$ , $K^{\pm}$ , p <sup>±</sup> < 16 GeV/c	$\pi$ , d elastic scattering. Wire spark chambers.	CERN-TRIEST: Bradamante, G.Fidecaro, M. Fidecaro, Giorgi, Penzo, Piemontese, Sauli, Palazzi, Schiavon, Vascotto	3.4.68	5 weeks	Jan.1969
Tgt.1 S	S73	d <sub>29a</sub>	Unseparated $\pi^{\pm}$ , $K^{\pm}$ , p <sup>±</sup> < 16 GeV/c	Coherent production by $\pi$ and Coulomb dissociation by Kaons. Magn. spark chambers Charpak chambers. SDS 920 computer	CERN-ETH-I.C.: Astbury, Bemporad, Beusch, Dufey, Codling, Frosch, Lee, Letheren, M�hleemann, Melissinos, Polgar, Pepin, Mittner, Websdale, Michelini	3.4.68	4 weeks	Jan.1969

PS COUNTER EXPERIMENTS APPROVED BY NPROC  
Table 1A (cont'd)

Area Tgt.	Expt. Code	B e a m		Description of Experiment	Authors	Date of Approval by NPROC	Conditions of Approval or time allocated	Status or approx. start.date
		Code	Description					
Igt. 1 S	S65	d <sub>29a</sub>	Unseparated $\pi^{\pm}, K^{\pm}, p^{\pm}$ < 16 GeV/c	Neutral final states in $\pi^- p$ interactions. Optical spark chambers in magnet. Charpak chambers. SDS 920 computer	CERN-ETH-I.C.: Astbury, Michelini, Websdale, Beusch, Mühlemann, Pepin	10.5.67 11.12.68	3 weeks	Continuation May 1969
Igt. 1 S	S84	d <sub>29</sub>	Unseparated $\pi^{\pm}, K^{\pm}, p^{\pm}$ < 16 GeV/c	Neutral mesonic resonances in $\pi^- p$ at high energies and of their neutral decay modes. Liq. H <sup>2</sup> target with localization of interact. $\gamma$ ray. Sp. ch. neutron spectrometer	PISA-KARLSRUHE: Bartolucci, Manelli, Pierazzini, Scribano, Sergiampietri, Vincelli; Deinet, Menzione, Müller, Schmitt, Staudenmaier	6.11.68 11.12.68	Time not yet allocated, beam suitability to be investigated	Not before Sept. '69 shut-down
Igt. 1 S	S68	m <sub>7</sub>	Separated counter beam $\pi, K, \bar{p}$ ; $K \leq 2.2$ GeV/c $\bar{p} \leq 3$ GeV/c	K <sub>0</sub> decay. Cerenkov counter and magn. analysis of the 3 charged decay particles IBM 1800	GENEVA-SACLAY: Bourquin, Boymon, Extermann, Mermod, Suter; Basile, Bréhin, Diamant-Berger, Kunz, Lemoine, Turley, Zylinderstein	16.8.67 3.4.68	8 weeks	Jan. 1969
Igt. 1 S	S74	m <sub>7a</sub>	Separated counter beam $\pi, K, \bar{p}$ ; $K \leq 2.2$ GeV/c $\bar{p} \leq 3$ GeV/c	High precision measurement on $\Delta S/\Delta Q$ rule Counters and wire chambers. Varian 620 i.	CERN-ORSAY-VIENNA: Aubert, Bartl, de Bouard, Lepeltier, Massonnet, Niebergall, Regler, Steuer, Vivargent, Willitts, Winter	3.4.68	8 weeks	Testing
Igt. 1 S	S79	q <sub>6</sub>	Unseparated $\pi, K, p$ < 3.5 GeV/c	$\Delta - \beta$ decay. Spark chambers and Cerenkov counters	HEIDELBERG: Heintze, Heard, Mundhenke, Soergel, Wagner, R.M. Brown, Freytag, Rieseberg	8.5.68 25.9.68	4 weeks + 4 weeks	In Prod.
Igt. 1 S	S83	q <sub>6</sub>	Unseparated $\pi, K, p$ < 3.5 GeV/c	Study of neutral resonances decaying into neutral modes in low mass region. Neutral miss. mass spectrom, spark ch. and scintil. shower detectors, neutron detectors	CERN-BOLOGNA: Buhler-Broglin, Dalpiaz, Navach, Massam, Mavarria, Schneegans, Zichichi	6.11.68	8 weeks	After completion of S79
Igt. 1 S	S87	t <sub>1</sub>	Unseparated $\pi, K, p$ , test counter beam $\leq 1$ GeV/c	$\pi^- p \rightarrow \pi^+ \pi^- n, K^+ K^- n$ , effective mass measurement. Large magnet, wire chambers, PDP9 computer	CERN-MUNICH: Hyams, Koch, Lütjens, Männer, Mittner, Stierlin	8.5.68	Tests	Jan. 1969

PS COUNTER EXPERIMENTS APPROVED BY NPROC  
Table 1A (cont'd)

Area Tgt.	Expt. Code	B e a m		Description of Experiment	Authors	Date of Approval by NPROC	Conditions of Approval or time allocated	Status or approx. start.date
		Code	Description					
East	S54	p <sub>3</sub>	Unseparated $\pi^{\pm}, K^{\pm}, p^{\pm}$ < 18 GeV/c, prod. from slow ej.proton beam e <sub>5</sub>	Measurements of parameters A and R in $\pi^- p$ scattering, using a polarized target and a spark chamber	SACLAY: Amblard, Cozzika, Deregél, Ducros, Fontaine, Hansroul, Autones, Lehar, de Lesquen, Merlo, Movchet, Rieubland, van Rossum	11.5.66 8.3.67 3.4.68	8 weeks	In Prod.
East	S80	b <sub>14</sub>	Neutral K beam derived from e <sub>5</sub>	Rate of $K_{L,S}^0 \rightarrow 2\pi^0$ . Heavy plate spark chambers	J.M.Gaillard, Cholley, Jane, Repellin, Ratcliffe, Schubert, Wolff	8.5.68 11.12.68	4 weeks + 2 weeks	In Prod.
East	S59	p <sub>4</sub>	Unseparated $\pi^{\pm}, K^{\pm}, p^{\pm}$ < 18 GeV/c, prod. from slow ej.proton beam e <sub>5</sub>	Measurement on the parameter P <sub>0</sub> in $\pi^{\pm} p, K^{\pm} p, p^{\pm} p$ scattering, using a transversally polarized target and counter hodoscopes	CERN-DRSAY-PISA: Borghini, Dick, Grégoire, Olivier, Poulet; Cronenberger, Kuroda, Michalowicz; Belletini, Braccini, Del Prete, Foà, Valdata, Sanguinetti, Coignet, Reibel	8.12.66 3.4.68	8 weeks	In Prod.
East	S78	p <sub>5</sub>	Unseparated $\pi^{\pm}, K^{\pm}, p^{\pm}$ < 18 GeV/c, produced from slow ej.proton beam e <sub>5</sub>	Magnetic boson spectrometer for masses from 2 - 5 GeV. Wide gap magnet and wire chambers. IBM 1800	Benz, Baud, Bosnjakovic, Botterill, Damgaard, Nef, Focacci, Kienzle, Klanner, Lechanoine, Martin, Schubelin, Weitsch	3.4.68 8.5.68	8 weeks	In Prod.
East	S85	p <sub>5</sub>	Unseparated $\pi^{\pm}, K^{\pm}, p^{\pm}$ < 18 GeV/c, produced from slow ej.proton beam e <sub>5</sub>	Study of spin and parity of A2 (low and high). Wide gap magnet and wire chambers IBM 1800	Benz, Baud, Bosnjakovic, Botterill, Damgaard, Nef, Focacci, Kienzle, Klanner, Lechanoine, Martin, Schubelin, Weitsch	11.12.68	4 weeks	After completion of S78
East	S71	b <sub>13</sub>	Neutral beam derived from e <sub>5</sub>	$K_2^0$ Leptonic and $3\pi$ decays. Wire spark chamber and Cerenkov counter IBM 1800	CERN-AACHEN-TURINO: Bisi, Cavallarin, Deutsch, Foeth, Darriulat, Ferrero, Germak, Grosso, Kleinknecht, Rubbia, Staude, Tittel	7.2.68 3.7.68	2 weeks	In Prod.
East	S82	b <sub>13</sub>	Neutral beam derived from e <sub>5</sub>	Accurate determination of ratio $\eta_{00} / \eta_{+-}$ . Wire spark chambers and lead glass Cerenkov counters. IBM 1800 computer	CERN-AACHEN-TURINO: Bisi, Cavallarin, Deutsch, Foeth, Darriulat, Ferrero, Germak, Grosso, Kleinknecht, Rubbia, Staude, Tittel	6.11.68	Time not yet allocated	After Easter 1969

PS COUNTER EXPERIMENTS APPROVED BY NPRC  
Table 1B  
EXPERIMENTS FINISHED IN THE PERIOD 3.10 TO 31.12.1968

Area	Expt. Code	B e a m		Description of experiment	Authors	Date of Approval	Date of Completion	Total Nr. of wks.	Status
		Code	Description						
South, Target 1	S62	$d_{28}$	Unseparated negative beam, 30 GeV/c	Search for charge- $1/3$ e particles, produced from an internal target. Method: Counters and large gap spark chambers	Allaby, Diddens, Dobinson, Gygi, Klovning, Sacharidis, Schneider, Schlüpmann, Wetherell	8.2.67	Dec. 1968	6 weeks	Analysis
	S75	$m_7$	Separated counter beam $\pi$ , K, $\bar{p}$ : $K < 2.2$ GeV/c $\bar{p} < 3$ GeV/c	$K^- p \rightarrow \bar{K}^0 n$ total cross sections. Detectors: Scintillation counters and lead sandwiches	CERN-CAEN-SACLAY: Bricman, Ferro-Luzzi, Seguinot, Declais, Perreau, Valladas, Bizard, Duchon	3.4.68 6.11.68	Dec. 1968	4 weeks + 2 weeks	Analysis

BUBBLE CHAMBER EXPERIMENTS APPROVED BY NPRC  
Table 2  
AND EXPOSURES MADE IN THE PERIOD 3.10 TO 31.12.1968

Expt. Code	Beam and chamber	Expt. beam	Summary	Groups	Approved	Taken	Additional	Taken in
					Date; kpx.	before	approval	period
						1.10.68	Date; kpx.	kpx.
T158 T159	u <sub>5</sub> RF separated beam, K <sup>±</sup> > 8 GeV/c, HBC 200, H <sub>2</sub>	p, 12-24 GeV/c	Complete study of pp collisions at 12 GeV/c and 24 GeV/c with a statistical accuracy of about 5 events/μb at each energy	Bonn, Hamburg, Munich	6.12.67:250	0		122 (52 bad)
T106		π <sup>+</sup> , 16 GeV/c	High energy interactions, quasi two-body processes, study of resonances, comparison w. 8 GeV/c π <sup>±</sup> results	Aachen, Berlin, Bonn, CERN, Heidelberg, Krakow, Warsaw	7. 6. 67:100	0		130 (70 bad)
T143		π <sup>-</sup> , 9 GeV/c	Study of dipion and three-pion system. To complement π <sup>+</sup> d experiment at same incident momentum	Bari, Bologna, Florence	3.4.68:100	0		
T 82		p, 19 GeV/c	A) General structure of the frequent topologies; in particular their content of quasi 2-body reactions. B) Reaction channels with strange particles or Baryon pair production	Copenhagen, Helsinki, Oslo, Stockholm	12.1.66:100	100	3.4.68:100	
T109		K <sup>-</sup> , 14 GeV/c	High mass resonances, resonance production mechanisms and high multiplicity events	Ec. Pol, Rutherford Lab., Saclay	3.4.68:100	0		
T148		K <sup>+</sup> , 16 GeV/c	Étude des mécanismes de prod. des résonances à hte énergie, des résonances mésoniques à masse élevée, des événements à multiplicité moyenne et haute	Birmingham, Brussels, CERN, JPN Paris, Saclay	3.4.68:100	0		
T164		K <sup>-</sup> , 10 GeV/c	Production, decay + quantum numb. of resonances (esp. Kππ), react. mechanisms at high energy, Ω <sup>-</sup> , Ξ <sup>-</sup> prod.	Aachen, Berlin, CERN, Imp. Coll., Vienna	5.6.68:100	0		
T139		K <sup>-</sup> , 8.25 GeV/c	Study of poss. bosonic and baryonic resonances, mainly w. S/O. Elastic scatt. differential cross. sect.	Athen, Bologna	5.6.68:100	0		
T107		π <sup>-</sup> , 16 GeV/c	High energy interact. quasi 2-body processes, study of resonances comparison with 8 GeV/c π <sup>±</sup> results	Aachen, Berlin, Bonn, CERN, Heidelberg, Krakow, Warsaw	11.5.66:100	187	5.6.68:60	
T155		k <sub>8</sub> Electrostat. separated beam K <sup>±</sup> 1.2-2 GeV/c, HBC 200, H <sub>2</sub>	K <sup>+</sup> , 1.2 - 1.8 GeV/c	Prod. of 300.000 K <sup>0</sup> of well-known momentum to study ΔG/ΔS, using lept. decay; K <sub>1</sub> <sup>0</sup> → π <sup>+</sup> π <sup>-</sup> /K <sub>2</sub> <sup>0</sup> → π <sup>0</sup> π <sup>0</sup> ; K <sup>0</sup> lifetime; secondary interact. of K <sub>1</sub> <sup>0</sup> ; the 3-body reaction K <sup>+</sup> p → K <sup>0</sup> pπ <sup>+</sup> (100.000 events) and the decay of K <sup>+</sup> → π <sup>+</sup> π <sup>0</sup> π <sup>0</sup> (100.000 events)	CERN, Saclay	6.12.67:500	428 (70 bad)	

EAST AREA

BUBBLE CHAMBER EXPERIMENTS APPROVED BY MPRC  
Table 2 (cont'd)  
AND EXPOSURES MADE IN THE PERIOD 3.10 TO 31.12.1968

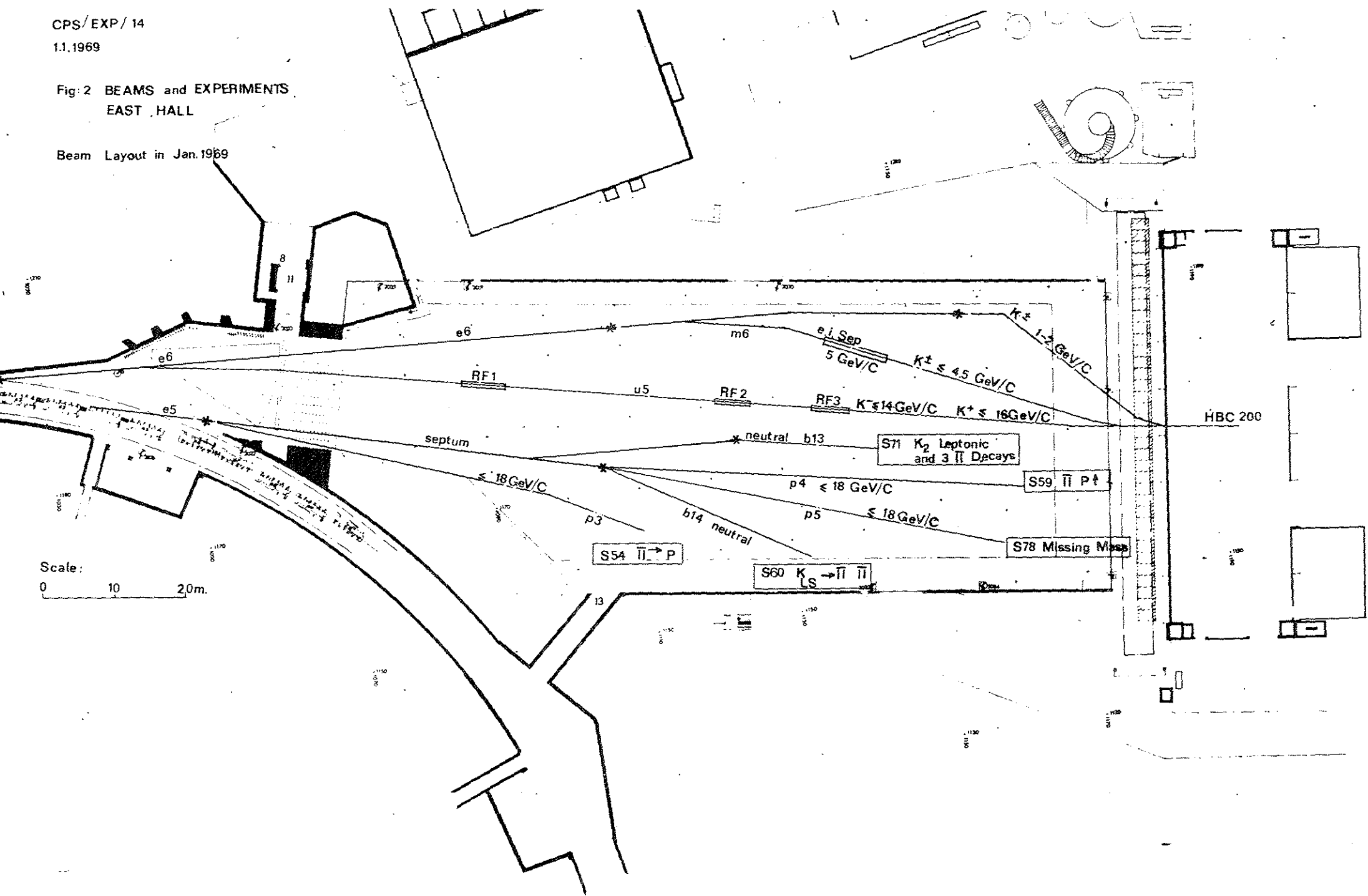
	Expt. Code	Beam and chamber	Expt. beam	Summary	Groups	Approved		Taken		Additional		Taken in	
						Date	kpx.	before 1.10.68	kpx.	Date	kpx.	period	kpx.
NORTH AREA	T154	$k_{10}$ Electrostatic separated beam $K^+$ .8 - 1.8 GeV/c HBC 81	$\bar{p}$ , 0.7 GeV/c	Investigation of $\bar{p}p$ annihilation at an intermediate energy because of striking differences betw. meson resonances produced in annihilations at rest and at 1.2 GeV/c. Attempt to understand both the new resonances observed and the $\bar{p}p$ annihilation mechanism	Collège de France	8.11.67	50			3.7.68	200		170
	T147	$k_{10}$ Electrostatic sep. beam $K^+$ .8 - 1.8 GeV/c DBC 81	$\bar{p}$ , 1.2 - 1.4 GeV/c	Study in low-energy $\bar{p}n$ and $\bar{p}d$ react. of final state interact. already observed in $2\pi^+ 3\pi^-, \pi^+ 2\pi^-, \bar{p}n$ annihilations at rest. Investigation of the nature of the $l=1$ struct. seen in $\bar{p}$ -Nucleon total cross section at lab. momentum 1.3 GeV/c	Bologna, Padua, Pisa, Turin	8.11.67	100	186	3.7.68	200			
	T137	DBC 81	$K^+$ , 0.9 - 1.4 GeV/c	Investigation of the nature of the structures seen in $K^+$ Nucleon total cross sections in $l=0$ via a formation experiment	Bologna, Glasgow, Rome Triest	8.11.67	150	224	3.7.68	75			
SOUTH-EAST AREA	T133	$k_{11}$ Electrostat. sep. beam $K^+$ 0.8-1.2 GeV/c HLBC 120	$K^+$ 0.8 - 1.2 GeV/c	Systematic research of $Y_0^*$ using $\Sigma^0 \pi^0$ and $\Lambda^0 \pi^0 \pi^0$ channels. Study of $\Delta^0 \eta^0$ and $\Sigma^0 \eta^0$ systems. Study of radiative decay of $Y^* \rightarrow \Lambda^0 \gamma$	CERN, Bergen, Ec. Pol., Orsay, Turin	5.0.68	625	0					
	T132	Idem	$\pi^-$ 1.7 GeV/c	Etude des modes de désintégration du $X^0$ . Etude du spectre de masse et des nombres quantiques du système $\pi^0 \pi^0$ de 270 à 1000 MeV/c dans la réaction $\pi^- p \rightarrow \pi^0 \pi^0 n$	Ecole Poly., Orsay	3.7.68	500	0					
	T134		$K^+$ stopped	Precise study of the $K_{e3}$ branching ratio and energy dependence of the form factor $f^+$ in the $K_{e3}$ decay mode. Furthermore, additional data will be obtained on the $K_{\mu 2}^+$ mode	Aachen, Bari, Brussels,	3.7.68	500	0					

CPS/EXP/14

1.1.1969

Fig:2 BEAMS and EXPERIMENTS  
EAST HALL

Beam Layout in Jan. 1969





CPS/EXP/14

1. 1. 1969

Fig.3 BEAMS and EXPERIMENTS

SOUTH - EAST HALL

BEAM LAYOUT in January 1969

