

J-PARC Hadron Hall : EXPERIMENTAL REPORT on RUN#40

Group	K1.8	Date (Submitted)	2011/2/23
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Summary and Results			
<ul style="list-style-type: none"> • Install and check all detectors • Calibration run : <ul style="list-style-type: none"> ➤ Sigma+- production in p(pi+-,K+)Sigma+- reaction at beam momentum of +-1.37GeV/c, -1.45 GeV/c ➤ Beam Through run at p=+-0.90, +-1.10, +-1.37 GeV/c ➤ Empty target run at p=-2.00 GeV/c • E19 Production run : p(pi-,K-) reaction at beam momentum of -2.00 GeV/c <ul style="list-style-type: none"> ➤ Accumulate statistics for 8.7x10¹⁰ pions in total. (112% increasing from the 1st step run data) using 1.7 M/spill pion beam • K-tuning at beam momentum of -1.80 GeV/c <ul style="list-style-type: none"> ➤ K beam intensity was 50 k/spill at primary beam intensity of 3.3 kW. ➤ K/all was 16% by using ESS1 +-250kV and ESS2 +-200kV. • E27 trigger rate and range counter study • High rate study using up to 5 M/spill beam • Spill structure study with the accelerator group (attached from page2) <ul style="list-style-type: none"> ➤ Duty factor was improved to be 18% (10% of Run#36). 			
SCHEDULED and EXECUTED MACHINE TIME, BEAM CONDITION, DOWN TIME, Priority etc.			
Beam schedule: 2012/2/1 9:00 – 2012/2/19 13:00			
<ul style="list-style-type: none"> • Total assigned beam time: 18.5 days <ul style="list-style-type: none"> ➤ E19 production run (including user and accelerator down time) 2012/2/13 6:00 – 2012/2/18 21:00 : 135 hours *Total data taking time (just DAQ running time): 100 hours *Down time including wire chamber repair and MPS: 35 hours • Total down time during assigned beam time (including accelerator MPS and Facility Inspection): 39 hours 			
Comments/Requests			

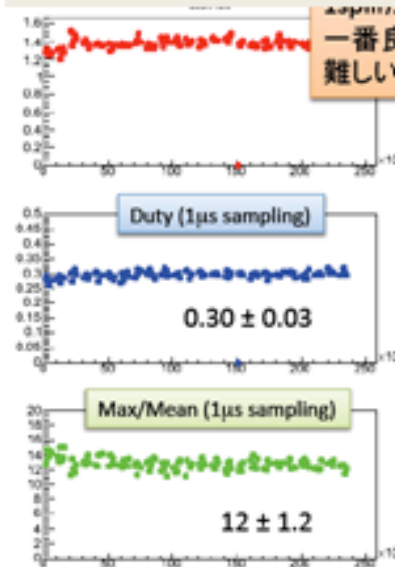
Spill Structure Study (1)

Measured D.F. and Peak/Ave. BH_{1OR} = 1.5M/spillで測定

Condition	shot#	Acc. Coin	WF (1 μ s)	WF (10 μ s)	Minim.	peak/av (1 μ s)	peak/av (10 μ s)
noise 2kHz (1.3kW) 1.6-1.8s	96142	0.139	0.30	0.42	0.254	36.1	9.0
RF off (1.3kW) 1.6-1.8s	96198	0.087	0.23	0.28	0.161	38.0	13.5
noise 2kHz (3.3kW) 1.4-1.6s	122044	0.176	0.25	0.32	(0.31)	17.2	12.8
20MHz-RF (3.3kW) 1.5-1.7s	122093	0.189	0.25	0.32	0.334	17.3	12.3
50MHz + 2kHz noise R&D P.S 1.5-1.7s							
EQ/RQ off	122111	0.069	0.10	0.11		28.1	24.4
Gain=5.0 w/ V Limit	122105	0.148	-	-	0.273	-	-
Gain=6 w/o V Limit	122112	0.165	0.24	0.30	0.293	36.2	13.3
Gain=10	122114	0.191	0.24	0.30	0.342	38.7	14.1
Gain=15	122116	0.211	0.30	0.39	0.394	36.8	11.6
Gain=20	122118	0.211(OV)					
Gain=15, 0.6-0.8s	122121	0.213(OC)	0.21	0.32	0.401	25.0	16.0
Gain=15, 1.0-1.2s	122122	0.176(OC)	0.30	0.42		38.1	12.1
Gain=15, 1.4-1.6s	122123	0.211	0.29	0.39	0.410	35.4	11.9
Gain=15, 1.8-2.0s	122124	0.199	0.27	0.35	0.385	36.1	12.4
Gain=15, 2.2-2.4s	122126	0.206	0.36	0.48	0.403	31.4	7.7
50MHz (5.2kW)	168403	0.208	0.26	0.34		39.0	12.8

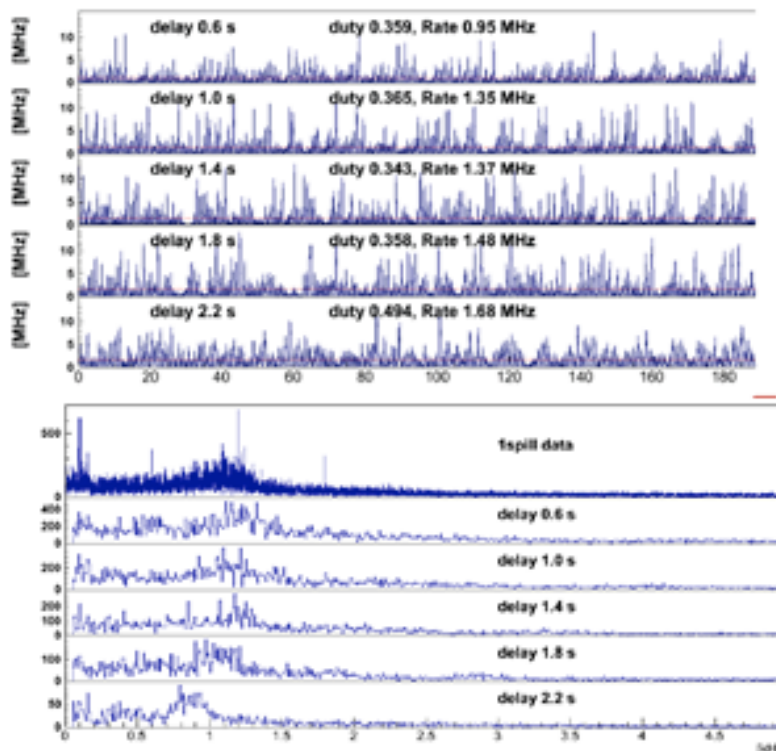
10%程度 (2010年のRUN)
→ 18% に向上

波形データ解析(Acc. Coin.より
良い値を示す)による変動



Spill Structure Study (2)

Count rate

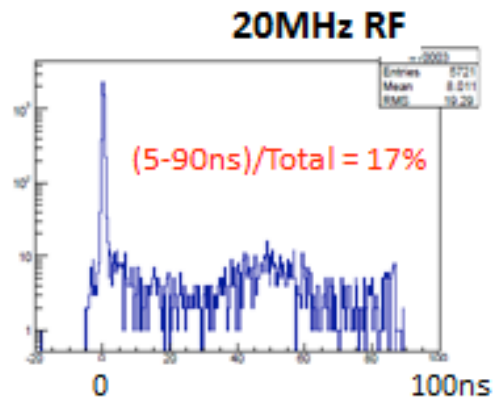
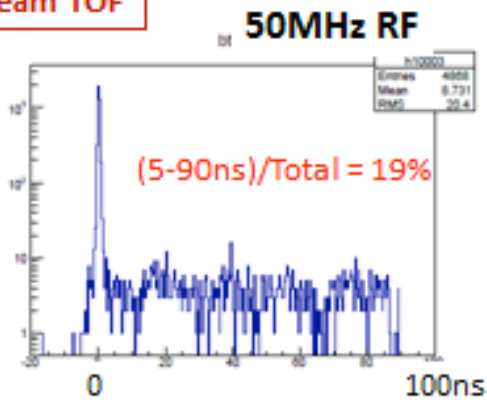


1.0s, 2.2sでDutyがよくなる。

FFT解析でも
2.2sでは、変化がみられる。

Transverse-RF 50MHz or 20MHz ?

Beam TOF



	50MHz	20MHz	@BH1=1.5M/spill
D.F. (Acc. Coin)	18%	19%	
D.F. (1us, 1.4-1.6s)	25%	26%	
Peak/Ave.(1us, 1.4-1.6s)	17.2	14.9	

20MHz-RF is better than 50MHz-RF.