

E05-102 Shift Check List

Date: June 6, 2009

	Owl	Day	Swing
Time (hh/mm,24:00)	04:00	13-30	22:30
Your Name	Ibrahim	JOHN ANNAND.	S. Sirca
Visual Hall Inspection	OK	OK.	OK
Beam Energy (MeV)	2425.3	2425.5	2425.5
Beam Current (uA)	9	9.2	9 uA
# beam trips last hour	4	~4	6
SPOT++ size X/Y (mm)	4x4	4.4	4x4
SPOT++ saved in Halog ?	✓	✓	✓
Beam Position at 1H04A X/Y (mm)	-0.5/2	-0.5/2.0	-0.5/2.0
Beam Position at 1H04B X/Y (mm)	-0.5/2	-0.5/2.0	-0.5/2.0
Hall A beam position feedback	ON	ON.	ON
Alarm Handler running ?	✓	YES	✓
Saved Hall A tools screen into Halog ?	✓	AUTO.	✓
Wien angle	66.9		66.9
Beam half-wave plate IN/OUT ?	OUT	OUT	OUT
Most recent Hall A Moller date/result		-	✓
Target position	He3	³ He.	³ He
Pol. ³ He optical pumping direction	Long.	Transverse	Trans. -
Pumping laser on ?	Yes	Yes.	YES
Temperature in laser optics enclosure	✓		
Pol. ³ He oven heater ON ?	Yes.	Yes.	YES
³ He cell oven temperature (RTDs)	230.	~230	~230
³ He cell temperature (RTDs)	42/45/52/79	0-78/1-46/2-40/3-42/4-53/5-44	76/52/49/42
³ He cell polarization, recent NMR	62.5%	56.5	57.36
³ He cell polarization, recent EPR	✓	-	✓
Spin-flip ON ?	off	OFF	off
Target cooling jet flow	42.4	43.0	42.5
Ref. cell gas type	Vacuum	2H.	2H
Ref. cell low pressure gauge (left)	001 Torr	1 Torr	1 Torr
Ref. cell high pressure gauge (right)	-0.4 psig	135 psig.	134
Ref. cell tempreture (RTDs)	✓	-20/-20	-20/20
Left Arm Angle	12.5	12.5	12.5
Left Arm Momentum (GeV/c)	2.32	2.32	2.320
Left Arm NMR locked ?	✓	✓	✓
Left Arm Helium flow OK ?	✓	OK	✓
Left Arm liquid level OK ?	✓	OK	✓
Left Arm Quad #1 (A)	1745	1745	1745.487
Left Arm Quad #2 (A)	998	999	998.85
Left Arm Dipole (A)	792	792	792.30
Left Arm Quad #3 (A)	923	924	923.72

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Date: June 6th 2009.

	Owl	Day	Swing
Right Arm Angle	18	18.0	18.0
Right Arm Momentum (GeV/c)	2.175	2.175	2.175
Right Arm NMR locked ?	✓	✓	✓
Right Arm Helium flow OK ?	✓	OK	✓
Right Arm liquid level OK ?	✓	OK	✓
Right Arm Quad #1 (A)	1635	1635	1635.309
Right Arm Quad #2 (A)	936	936	936.04
Right Arm Dipole (A)	758	759	758.66
Right Arm Quad #3 (A)	865	865	865.34
Argon pressure (PSI)	1443	1419	1343
Ethane pressure (PSI)	469	507	491
CO2 pressure (PSI)	732	765	755
Left VDC gas flow (top/bottom)	5.1/5.8	OK/OK	5.1/5.9
Left Cerenkov pressure (PSI)			✓
Left VDC HV on (top/bottom) ?	3.990/3.999	3.995/4.001	4.0/4.0
Left VDC threshold on (top/bot.) ?	3.90/3.97	3.90/3.96	4.0/4.0
Left S1/S2 HV on ?	✓	✓	✓
Left Cerenkov HV on ?	✓	✓	✓
Right VDC gas flow (top/bottom)	5.8/5.6	5.96/5.70	6.0/5.8
Right Cerenkov pressure (PSI)			✓
Right VDC HV on (top/bottom) ?	4.0/4.007	4.00/4.01 KV	4.0/4.0
Right VDC threshold on (top/bot.) ?	3.87/3.84	3.87/3.84	4.0/4.0
Right S1/S2 HV on ?	✓	✓	✓
Right Cerenkov HV on ?	✓	✓	✓
Happex-run started/run-# ?	✓ 3148 E	31486	31488
Last-Left-HRS run number	3269	3266	3283
Left-HRS-DAQ deadtime	8%	8%	8%
Left-HRS-DAQ CODA rate	5600 KB/S	5550 KB/S	2.4 kHz
Left-HRS-prescale PS3/PS4	200/40	200/40	200/40
Left-HRS-rates T3/T4	22 kHz/40 Hz	22 kHz/425	22 k/450
Last Left-HRS run replayed	OK	OK	3283
Left VDC eff./wiremap OK ?	Yes	OK	✓
Last-Right-HRS run number	22122	22139	22156
Right-DAQ deadtime	10%	10%	11%
Right-DAQ CODA rate	1527 KB/S	1514 KB/S	1.8 kHz
Right-prescale PS1/PS2	1/1	1/1	1/1
Right-rates T1/T2	1.8 kHz/50 Hz	1.8 kHz/55 Hz	1.8 k/59
Last Right-HRS run replayed	OK	OK	22156
Right VDC eff./wiremap OK ?	Yes	OK	✓

E05-102 Shift Check List

Date: June 7th 2009.

	Owl	Day	Swing
Time (hh/mm,24:00)	5:00.	12:00	19:30
Your Name	Kai Pan.	John Annand.	Haijiang Lu
Visual Hall Inspection	OK	OK	OK
Beam Energy (MeV)	2425.5	2425.5	2425.5
Beam Current (uA)	9.3	9.1	9
# beam trips last hour	11	10	
SPOT++ size X/Y (mm)	4x4	4x4	4x4
SPOT++ saved in Halog ?	✓	✓	✓
Beam Position at 1H04A X/Y (mm)	-0.51/2.1	-0.51/2.1	-0.505/2.095
Beam Position at 1H04B X/Y (mm)	-0.49/2.0	-0.5/2.0	-0.51/2.012
Hall A beam position feedback	OK	OK	OK
Alarm Handler running ?	OK	YES	OK
Saved Hall A tools screen into Halog ?	Yes	Yes - auto	Yes
Wien angle	66.9%		66.9
Beam half-wave plate IN/OUT ?	OUT	OUT.	IN
Most recent Hall A Moller date/result	5/27/09	6/27/09.	5/27/09
Target position	³ He.	³ He	³ He
Pol. ³ He optical pumping direction	Transverse	Transverse	Trans
Pumping laser on ?	Yes.	Yes	✓
Temperature in laser optics enclosure	✓		✓
Pol. ³ He oven heater ON ?	Yes.	YES	Yes
³ He cell oven temperature (RTDs)	230.	230.	230
³ He cell temperature (RTDs)	42/46/52/78	42/46/52/78	75/48/40/20/52
³ He cell polarization, recent NMR	57.5%.	57.1%	57.43%
³ He cell polarization, recent EPR	✓	-	✓
Spin-flip ON ?	Yes.		Yes
Target cooling jet flow	42.8.	43.0	42.7
Ref. cell gas type	H ₂	H ₂	H ₂
Ref. cell low pressure gauge (left)	1 Torr	1 Torr	1 Torr
Ref. cell high pressure gauge (right)	134 Psi	134 Psi	133 Psi
Ref. cell temperture (RTDs)	-25.		25
Left Arm Angle	12.5	12.5	12.5
Left Arm Momentum (GeV/c)	2.32.	2.32	2.32
Left Arm NMR locked ?	✓	Yes	✓
Left Arm Helium flow OK ?	✓	OK	✓
Left Arm liquid level OK ?	✓	OK	✓
Left Arm Quad #1 (A)	1745	1745.5	1745.5
Left Arm Quad #2 (A)	998	998.9	998.9
Left Arm Dipole (A)	792	792.3	792.3
Left Arm Quad #3 (A)	923	923.7	923.7

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Date: June 7th 2009.

	Owl	Day	Swing
Right Arm Angle	18	18°	18
Right Arm Momentum (GeV/c)	2.175	2.175	2.175
Right Arm NMR locked ?	✓	YES	✓
Right Arm Helium flow OK ?	✓	OK	✓
Right Arm liquid level OK ?	✓	OK	✓
Right Arm Quad #1 (A)	1635	1635.3	1635.3
Right Arm Quad #2 (A)	936	936.0	936
Right Arm Dipole (A)	758	758.7	758.7
Right Arm Quad #3 (A)	865	865.3	865.5
Argon pressure (PSI)	1273	1309	1245
Ethane pressure (PSI)	450	581	559.6
CO2 pressure (PSI)	698	849	844.6
Left VDC gas flow (top/bottom)	5.29/5.68	5.1/5.9	5.3/5.9
Left Cerenkov pressure (PSI)			
Left VDC HV on (top/bottom) ?	3.995/3.999	3.99/4.00	3.99/4.0
Left VDC threshold on (top/bot.) ?	3.9/3.96	3.89/3.96	4.0/4.0
Left S1/S2 HV on ?	OK	OK	OK
Left Cerenkov HV on ?	OK	OK	OK
Right VDC gas flow (top/bottom)	6.227/6.031	5.7/5.8	6.09/5.78
Right Cerenkov pressure (PSI)			
Right VDC HV on (top/bottom) ?	4000/4.009	4.0/4.0 kV	-0.013/4.009
Right VDC threshold on (top/bot.) ?	3.87/3.89	3.87/3.84	0/4.0
Right S1/S2 HV on ?	OK	OK	OK
Right Cerenkov HV on ?	OK	OK	OK
Happex-run started/run-# ?	31490	3491	31494
Last-Left-HRS run number	3297	3311	3324
Left-HRS-DAQ deadtime	7%	8%	8%
Left-HRS-DAQ CODA rate	5.407 KB/s	5.5 KB/s	5.7 KB/s
Left-HRS-prescale PS3/PS4	200/40	200/40	200/40
Left-HRS-rates T3/T4	2.2 x 10 ⁴ / 423	232 / 430	22K / 0.4K
Last Left-HRS run replayed	OK	OK	✓
Left VDC eff./wiremap OK ?	OK	OK	✓
Last-Right-HRS run number	22170	22183	22196
Right-DAQ deadtime	10	10	10
Right-DAQ CODA rate	1433	~1200	1590
Right-prescale PS1/PS2	1/1	1/1	1/1
Right-rates T1/T2	1.8 x 10 ³ / 52	1.8K / 55	1.8K / 49
Last Right-HRS run replayed	OK	OK	✓
Right VDC eff./wiremap OK ?	OK	OK	✓

E05-102 Shift Check List

Date: June 8, 2009

	Owl	Day	Swing
Time (hh/mm,24:00)	05:15	12-30	23:00
Your Name	MARKOWITZ	Tom ANAND.	Xinyan Deng
Visual Hall Inspection	OK	OK.	ok.
Beam Energy (MeV)	2425.5	2425.5	2.425
Beam Current (uA)	9.3	9.3	9.0
# beam trips last hour	8	10	8
SPOT++ size X/Y (mm)	4x4	4x4.	4x4
SPOT++ saved in Halog ?	Yes	YES	yes
Beam Position at 1H04A X/Y (mm)	-0.51 / 2.1	-0.5/2.1	-0.5/2.2
Beam Position at 1H04B X/Y (mm)	-0.497 / 1.99	-0.5/2.0.	-0.5/2.1
Hall A beam position feedback	OK	ON	off
Alarm Handler running ?	OK	YES	yes
Saved Hall A tools screen into Halog ?	Yes	Yes - auto	yes
Wien angle	66.9	66.9	66.9
Beam half-wave plate IN/OUT ?	IN	IN	in
Most recent Hall A Moller date/result	5/27/09	5/27/09.	5/27/09
Target position	³ He	³ He	³ He
Pol. ³ He optical pumping direction	TRANSVERSE	TRANSVERSE	Transverse -
Pumping laser on ?	Yes	YES.	yes
Temperature in laser optics enclosure			52.2 / 51.8 / 51.9 / 52.1 / 51.9
Pol. ³ He oven heater ON ?	YES	YES	yes
³ He cell oven temperature (RTDs)	230	230	230
³ He cell temperature (RTDs)	75 / 46 / 42 / 42	77 / 46 / 42 / 42 / 52	77 / 46 / 40 / 42 / 52
³ He cell polarization, recent NMR	57.55%	57.9%	56.98
³ He cell polarization, recent EPR	✓	—	—
Spin-flip ON ?	YES	yes.	yes
Target cooling jet flow	43	42.9.	42.5
Ref. cell gas type	H ₂	H ₂	H ₂
Ref. cell low pressure gauge (left)	1 torr	1 torr	880 torr
Ref. cell high pressure gauge (right)	133 psi	133 psi	20 psi
Ref. cell temperature (RTDs)	25	-25	-25
Left Arm Angle	12.5	12.5°	12.5°
Left Arm Momentum (GeV/c)	2.32	2.32	2.32
Left Arm NMR locked ?	Yes	YES	yes
Left Arm Helium flow OK ?	✓	OK	OK
Left Arm liquid level OK ?	✓	OK	OK
Left Arm Quad #1 (A)	1745.5	1745.5	1745.5
Left Arm Quad #2 (A)	998.7	998.9	998.7
Left Arm Dipole (A)	792.31	792.3	792.3
Left Arm Quad #3 (A)	923.7	923.7	923.7

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Date: June 8th 2009.

	Owl	Day	Swing
Right Arm Angle	17.998	18°	18°
Right Arm Momentum (GeV/c)	2.175	2.175	2.175
Right Arm NMR locked ?	✓	yes	✓
Right Arm Helium flow OK ?	✓	OK	OK
Right Arm liquid level OK ?	✓	OK	OK
Right Arm Quad #1 (A)	1635.3	1625.3	1635.3
Right Arm Quad #2 (A)	936.05	936.1	936.05
Right Arm Dipole (A)	758.66	758.7	756.66
Right Arm Quad #3 (A)	665.35	865.4	865.45
Argon pressure (PSI)	1152	1164	1081
Ethane pressure (PSI)	497	590	582
CO2 pressure (PSI)	770	875	871
Left VDC gas flow (top/bottom)	5.16 / 5.87	4.9 / 5.9	5.23 / 5.87
Left Cerenkov pressure (PSI)			4.0 / 4.0
Left VDC HV on (top/bottom) ?	✓ / ✓	3.99 / 3.99 kV	3.99 / 3.99 4.0 / 4.0
Left VDC threshold on (top/bot.) ?	4 / 4	3.90 / 3.97	3.89 / 3.96 kV
Left S1/S2 HV on ?	OK	OK	OK
Left Cerenkov HV on ?	OK	OK	OK
Right VDC gas flow (top/bottom)	6.1 / 5.9	6.9 / 5.8	6.6 / 5.8
Right Cerenkov pressure (PSI)			
Right VDC HV on (top/bottom) ?	✓ / ✓	4.0 / 4.0 kV	3.87 / 3.84 4.0 / 4.0
Right VDC threshold on (top/bot.) ?	0 / 4	3.87 / 3.84	3.87 / 3.84
Right S1/S2 HV on ?	✓ / ✓	yes	yes
Right Cerenkov HV on ?			
Happex-run started/run-# ?	31496	31498	31500
Last-Left-HRS run number	3344	3358-9	3380
Left-HRS-DAQ deadtime	8%	8%	8%
Left-HRS-DAQ CODA rate	5.7 kB	5-6 kB/s	5.8 kB
Left-HRS-prescale PS3/PS4	200/40	200/40	200/40
Left-HRS-rates T3/T4	22k/4k	22.6k/430 Hz	23kHz/440Hz
Last Left-HRS run replayed	22217 OK	OK	OK
Left VDC eff./wiremap OK ?	OK	OK	OK
Last-Right-HRS run number	22217	22231-2	22252
Right-DAQ deadtime	10%	11%	11%
Right-DAQ CODA rate	1500	~1800	1.5 kHz
Right-prescale PS1/PS2	1 / 1	1 / 1	1 / 1
Right-rates T1/T2	1.8k / 50	1.8k / 54	1.8 kHz / 51 Hz
Last Right-HRS run replayed	✓	OK	OK
Right VDC eff./wiremap OK ?	✓	OK	OK

E05-102 Shift Check List

Date: 6/9/09

Beam Studies
MCC

	Owl	Day	Swing
Time (hh/mm,24:00)	02:30	14-15	
Your Name	Eric Jensen	TODD ANNAWD.	
Visual Hall Inspection	✓	✓	
Beam Energy (MeV)	2427.20	NO BEAM.	
Beam Current (uA)	9	0	
# beam trips last hour	5	—	
SPOT++ size X/Y (mm)	4x4	—	
SPOT++ saved in Halog ?	✓	—	
Beam Position at 1H04A X/Y (mm)	-511/2.102	—	
Beam Position at 1H04B X/Y (mm)	-507/2.013	—	
Hall A beam position feedback	✓	—	
Alarm Handler running ?	✓	—	
Saved Hall A tools screen into Halog ?	auto ✓	Auto -	
Wien angle	66.92		
Beam half-wave plate IN/OUT ?	in	in	
Most recent Hall A Moller date/result	5/27/09	5/27/09.	
Target position	³ He		
Pol. ³ He optical pumping direction	Transverse	TRANSVERSE.	
Pumping laser on ?	✓	YES	
Temperature in laser optics enclosure			
Pol. ³ He oven heater ON ?	✓	YES	
³ He cell oven temperature (RTDs)	230	230	
³ He cell temperature (RTDs)	78/47/40/42/53	78/48/40/42/53	
³ He cell polarization, recent NMR	58.5%	48.9 (After Calib).	
³ He cell polarization, recent EPR	—	—	
Spin-flip ON ?	✓ yes	YES	
Target cooling jet flow	43.0	42.5	
Ref. cell gas type	N ₂	He —	
Ref. cell low pressure gauge (left)	880 torr	—	
Ref. cell high pressure gauge (right)	21 PSI	—	
Ref. cell tempreture (RTDs)	-25	-25	
Left Arm Angle	12.5°	12.5	
Left Arm Momentum (GeV/c)	2.320	2.32	
Left Arm NMR locked ?	✓	YES	
Left Arm Helium flow OK ?	✓	OK	
Left Arm liquid level OK ?	✓	OK	
Left Arm Quad #1 (A)	1745.487	1745.5	
Left Arm Quad #2 (A)	998.87	998.9	
Left Arm Dipole (A)	792.31	792.3	
Left Arm Quad #3 (A)	923.73	923.7	

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Date: 6/9/09

	Owl	Day	Swing
Right Arm Angle	18.0°	18.0	
Right Arm Momentum (GeV/c)	2.175	2.175	
Right Arm NMR locked ?	✓	yes	
Right Arm Helium flow OK ?	✓	OK	
Right Arm liquid level OK ?	✓	OK	
Right Arm Quad #1 (A)	1635.309	1635.3	
Right Arm Quad #2 (A)	936.06	936.1	
Right Arm Dipole (A)	758.66	758.7	
Right Arm Quad #3 (A)	865.46	865.7	
Argon pressure (PSI)	1040.332	1001	
Ethane pressure (PSI)	555.469	653	
CO2 pressure (PSI)	843.457	960	
Left VDC gas flow (top/bottom)	5.20/5.87	5.1/5.1	
Left Cerenkov pressure (PSI)	—	—	
Left VDC HV on (top/bottom) ?	3.999/4.000	4.0/6.0	
Left VDC threshold on (top/bot.) ?	3.90/3.96	3.87/3.96	
Left S1/S2 HV on ?	✓	yes	
Left Cerenkov HV on ?	✓	yes	
Right VDC gas flow (top/bottom)	6.055/5.893	6.3/6.0	
Right Cerenkov pressure (PSI)	—	—	
Right VDC HV on (top/bottom) ?	4.000/4.008	4.0/4.0	
Right VDC threshold on (top/bot.) ?	3.87/3.84	3.87/3.84	
Right S1/S2 HV on ?	✓	yes	
Right Cerenkov HV on ?	✓	yes	
Happex-run started/run-# ?	31501	—	
Last-Left-HRS run number	3388	—	
Left-HRS-DAQ deadtime	7.75%	—	
Left-HRS-DAQ CODA rate	2165.68	—	
Left-HRS-prescale PS3/PS4	200/40	—	
Left-HRS-rates T3/T4	17.7k/341.3	—	
Last Left-HRS run replayed	3388	—	
Left VDC eff./wiremap OK ?	✓	—	
Last-Right-HRS run number	22260	—	
Right-DAQ deadtime	10.9%	—	
Right-DAQ CODA rate	1335.78	—	
Right-prescale PS1/PS2	1/1	—	
Right-rates T1/T2	1446/44	—	
Last Right-HRS run replayed	22260	—	
Right VDC eff./wiremap OK ?	✓	—	

E05-102 Shift Check List

Date: 6/9/09

Swing

	Owl	Day	Swing
Time (hh/mm,24:00)	23:30.		
Your Name	Kai Pan.		
Visual Hall Inspection	OK.		
Beam Energy (MeV)	2425.5.		
Beam Current (uA)	9		
# beam trips last hour	10.		
SPOT++ size X/Y (mm)	4x4		
SPOT++ saved in Halog ?	Yes.		
Beam Position at 1H04A X/Y (mm)	-0.5/2.17		
Beam Position at 1H04B X/Y (mm)	-0.496/1.988		
Hall A beam position feedback	Yes.		
Alarm Handler running ?	Yes		
Saved Hall A tools screen into Halog ?	✓		
Wien angle	66.92°		
Beam half-wave plate IN/OUT ?	IN		
Most recent Hall A Moller date/result	5/27/09		
Target position	No ref ref call		
Pol. ³ He optical pumping direction	Transverse in plane		
Pumping laser on ?	✓		
Temperature in laser optics enclosure	✓		
Pol. ³ He oven heater ON ?	✓		
³ He cell oven temperature (RTDs)	230.		
³ He cell temperature (RTDs)	42(44.51/77)		
³ He cell polarization, recent NMR	57.1%		
³ He cell polarization, recent EPR	✓		
Spin-flip ON ?	Yes.		
Target cooling jet flow	43.0		
Ref. cell gas type	D ₂		
Ref. cell low pressure gauge (left)	909 Torr		
Ref. cell high pressure gauge (right)	203 psig		
Ref. cell temperture (RTDs)	-25.		
Left Arm Angle	12.5.		
Left Arm Momentum (GeV/c)	2.320.		
Left Arm NMR locked ?	✓		
Left Arm Helium flow OK ?	✓		
Left Arm liquid level OK ?	✓		
Left Arm Quad #1 (A)	1745.54		
Left Arm Quad #2 (A)	998.879		
Left Arm Dipole (A)	792.313.		
Left Arm Quad #3 (A)	923.717		

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Date: 6/9/09

Swing

	<u>Owl</u>	Day	Swing
Right Arm Angle	18.0°		
Right Arm Momentum (GeV/c)	2.05		
Right Arm NMR locked ?	✓		
Right Arm Helium flow OK ?	✓		
Right Arm liquid level OK ?	✓		
Right Arm Quad #1 (A)	1635.31		
Right Arm Quad #2 (A)	936.134		
Right Arm Dipole (A)	758.665		
Right Arm Quad #3 (A)	865.659		
Argon pressure (PSI)	870.332		
Ethane pressure (PSI)	510.645		
CO2 pressure (PSI)	791.602		
Left VDC gas flow (top/bottom)	5.28/5.86		
Left Cerenkov pressure (PSI)	✓		
Left VDC HV on (top/bottom) ?	3.996/3.955		
Left VDC threshold on (top/bot.) ?	3.89/3.96		
Left S1/S2 HV on ?	✓		
Left Cerenkov HV on ?	✓		
Right VDC gas flow (top/bottom)	6.136/5.908		
Right Cerenkov pressure (PSI)	✓		
Right VDC HV on (top/bottom) ?	4.009/4.008		
Right VDC threshold on (top/bot.) ?	3.887/3.89		
Right S1/S2 HV on ?	✓		
Right Cerenkov HV on ?	✓		
Happex-run started/run-# ?	31503		
Last-Left-HRS run number	3423		
Left-HRS-DAQ deadtime	17.		
Left-HRS-DAQ CODA rate	1774 ev/sec		
Left-HRS-prescale PS3/PS4	200/40		
Left-HRS-rates T3/T4	226 kHz / 460 Hz		
Last Left-HRS run replayed	3409		
Left VDC eff./wiremap OK ?	✓		
Last-Right-HRS run number	22281 22294		
Right-DAQ deadtime	117.		
Right-DAQ CODA rate	1.9 k ev/sec		
Right-prescale PS1/PS2	1/1		
Right-rates T1/T2	350 kHz / 290 kHz		
Last Right-HRS run replayed	22281		
Right VDC eff./wiremap OK ?	✓		