Chasing cosmic tau neutrinos in the abyss

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APPENDIX

Table 4: PMT numbering scheme for a DOM

DAQ ID	PMT ID	Theta [rad]	Phi [rad]
22	A1	3.142	0
14	B1	2.582	0
19	B2	2.582	1.047
25	B3	2.582	2.094
24	B4	2.582	3.142
26	B5	2.582	4.189
18	B6	2.582	5.236
13	C1	2.162	0.524
21	C2	2.162	1.571
29	C3	2.162	2.618
28	C4	2.162	3.665
20	C5	2.162	4.712
17	C6	2.162	5.76
12	D1	1.872	0
15	D2	1.872	1.047
23	D3	1.872	2.094
30	D4	1.872	3.142
27	D5	1.872	4.189
16	D6	1.872	5.236
10	E1	1.27	0.524
6	E2	1.27	1.571
3	E3	1.27	2.618
2	E4	1.27	3.665
1	E5	1.27	4.712
11	E6	1.27	5.76
9	F1	0.98	0
8	F2	0.98	1.047
4	F3	0.98	2.094
0	F4	0.98	3.142
5	F5	0.98	4.189
7	F6	0.98	5.236

Table 5: ^{40}K parameters.

run	time offset [ns]
p1	-1.0383
p2	2.4347
p3	-0.68884
p4	1.3911

Table 6: DOM 3 time offsets using beacon 1 or 2 for calibration.

run	beacon 1 time offset [ns]	beacon 2 time offset [ns]
127	396.7	407.7
130	394.7	403.5
196	395.2	407.6
203	395	404.4

Table 7: Time offsets as determined with the muon calibration for the different periods in the data taking phase 2.

Time period	Run number	ended by	Hours	Time offset DOM 2 [ns]	Time offset DOM 3 [ns]
2014-09-16 to 2014-10-06	$475 < \text{run} < 963$	repower DOM 1	158.7	13.3±0.4	-21.1±0.4
2014-10-07 to 2014-10-13	$964 < \text{run} < 1107$	repower DOM 2	68.8	12.9±0.6	-20.5±0.6
2014-10-15 to 2014-10-17	$1108 < \text{run} < 1158$	repower DOM 2	25.3	12.8±0.9	-24.2±0.9
2014-10-20 to 2014-10-20	$1159 < \text{run} < 1177$	repower DOM 2	9.3	11.0±1.6	-25.7±1.6
2014-10-21 to 2014-10-27	$1178 < \text{run} < 1339$	power cut shore	77.8	10.4±0.6	-24.6±0.6
2014-12-01 to 2014-12-01	$1440 < \text{run} < 1466$	repower DOM 2	6.6	-1.4±2.3	-13.9±2.3
2014-12-03 to 2014-12-06	$1467 < \text{run} < 1566$	repower all DOMs	48.9	2.9±0.7	-12.0±0.7
2014-12-11 to 2014-12-13	$1567 < \text{run} < 1664$	repower all DOMs	45.0	2.4±0.7	-13.3±0.7
2014-12-14 to 2014-12-15	$1665 < \text{run} < 1685$	repower all DOMs	10.8	1.7±1.7	-8.1±1.7
2014-12-15 to 2014-12-15	$1686 < \text{run} < 1695$	repower all DOMs	6.0	1.6±2.9	-13.7±2.9

Table 8: Selection efficiencies error estimates.

	energy	position	npeaks	P(bkg)	length
	$\Delta\epsilon^{trig}$				
atm muon	0.0002	0.0002	0.0001	0.0002	0.0002
nueCC	0.0004	0.001	0.0002	0.001	0.001
nueNC	0.0004	0.001	0.0002	0.001	0.001
numuCC	0.001	0.001	0.0001	0.002	0.001
tau signal	0.007	0.007	0.007	0.005	0.006
tauCCshow	0.001	0.002	0.000	0.003	0.002
	$\Delta\epsilon^{selec}$				
atm muon	0.003	0.007	0.151	0.0002	0.0000
nueCC	0.044	0.020	0.019	0.039	0.001
nueNC	0.069	0.029	0.031	0.042	0.003
numuCC	0.096	0.073	0.059	0.016	0.035
tau signal 5m	0.004	0.010	0.013	0.004	0.011
tauCCshow	0.014	0.009	0.014	0.004	0.007

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