Q-Borehole Survey Report

Schlumberger

Survey Set-up & Observer's Note

Survey type:	Zero-Offset VSP survey
Company:	CO2CRC
Well:	CRC-1
Field:	Naylor
Location:	Brumby's Lane, Nirrandah
Country:	Australia
Run:	Suite 2 Run1
Date:	04 Dec 2007

Recorded by: S. Nakanisi / A. Dandi / D. Shin

Borehole Seismic Source Information - Source 1

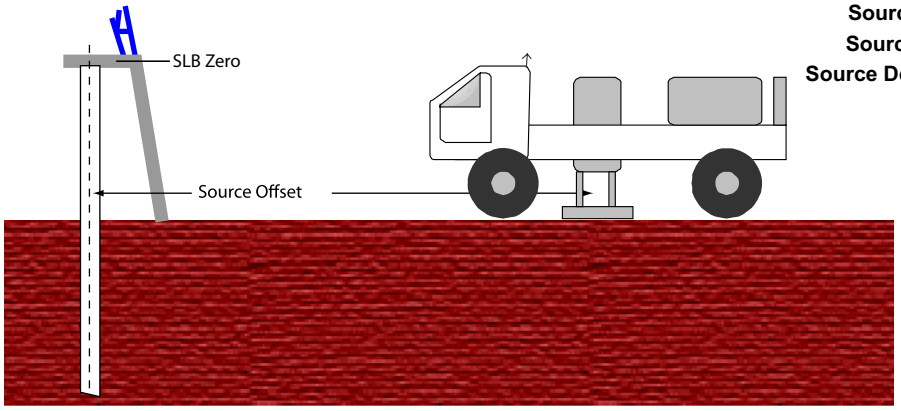
Engineer: S. Nakanishi / A. Dandi / D. Shin
Well Name: CRC-1 **Date:** 04-Dec-2007
Rig: Rig-less

Geometrical Coordinates **Longitude:** 142 48' 41.44" E **Latitude:** 38 31' 50.06" S
UTM Coordinates **Easting:** 657899.1 m E **Northing:** 5733759.0 m N

Permanent Datum: MSL
Log Measured From: DF **Elev.** 51.1 Unit: m
Ground Elev. at Well Head 45.9

SRD (Seismic Reference Datum): MSL **Elev.** 0.0 **from SLB zero:** 51.1 (SRDS)

Source UTM Coordinates **Easting:** 657985.5 **mE** **Northing:** 5733735 **mN** Ground Elev. at VP : 45.5

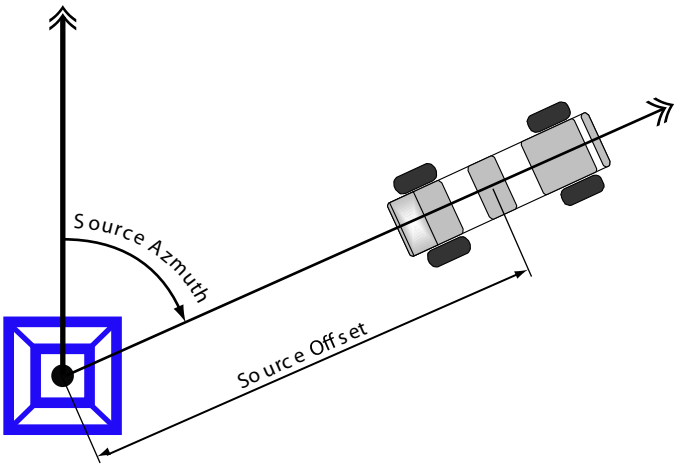


Source Depth from SLB : 5.6 (GDSZ)
Source Depth from SRD : -45.5
Source Depth from GL (WH) : 0.4

Ground Condition: Clay soil
Flat terrain
Ground Water Level from GL : 1.0

Gun Azimuth (Grid North): 105.5 deg (GAZI) **Gun Offset:** 89.7 (GOFF)

W. Drop: Hurricane Force 9 **Controller -** XMIT: G-ST-10 RECV: G-ST-10 N/A
SN : NA GISCO GISCO
Impact Energy (Nm) : 4490
Operating Weight : 720 kg
Total system delay of trigger (ms) : 4



Surface Velocity Survey (Rig Source only)

Tool Measured Depth :
Measured Transit Time : ms ☐ **Reliable TT**
Measured Surface Velocity : **NA**
Provided Surface Velocity by Client : 1,880.0 m/sec

Borehole Seismic Source QC Information

Surface reference channels

WSAM sn: AB 838

		SSPS
S 1 (WSI -SS2)	Trigger Pulse	☐
S 2 (WSI -SS3)		☐
S 3 (WSI -SS4)		☐
S 4 (WSI -SS5)		☐
S 5 (WSI -SS6)		☐
S 6 (WSI -SS7)		☐

Surface Listening Time : 1000 msec
Donwhole Listening Time : 3000 msec
TOFS : 0 msec

Other Logs Information

Sonic Log: Interval: from to Date:
Density Log: Interval: from to Date:

Remarks

HURRICANE Concrete breaker / RockTec < www.rocktec.co.nz >

The Roctec Hurricane has been designed to provide high impact concrete breaking.
The impact is used for mobile seismic source in this survey.

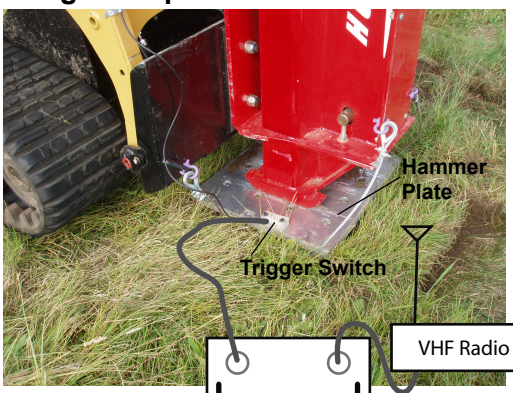
Force 9
Impact Energy 4490 Nm

Interface set-up with Weight Drop source (HURRICANE CONCRETE BREAKER)

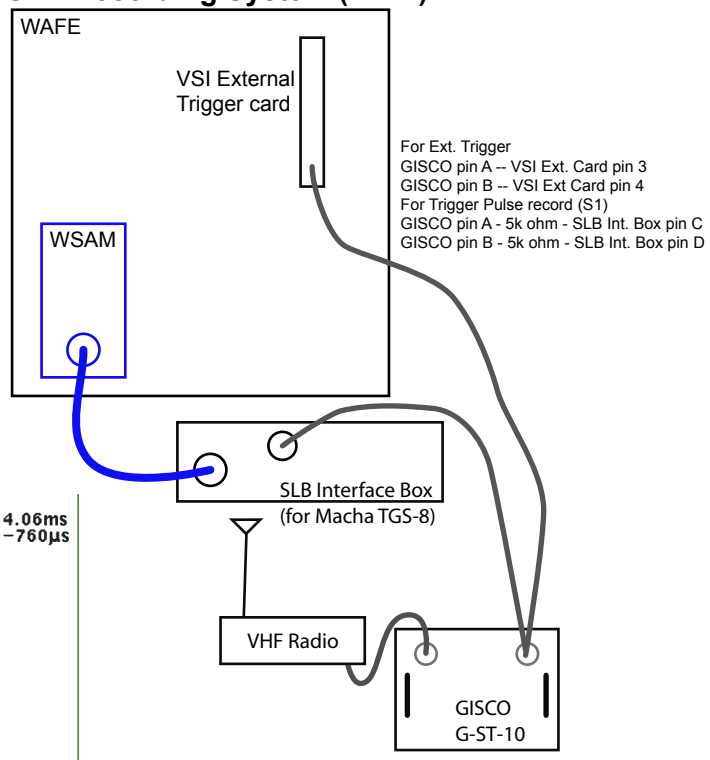
MAXIS Recording system is configured as Slave mode using VSI Trigger Card.
GISCO Radio Trigger G-ST-10 senes impact of the hammer to the plate and provides closure to MAXIS Recoridng start.

3D Seimsic Recording system by Curtin Uni shares same trigger pulse to achieve simultaneous 3D seismic and 3D VSP survey.

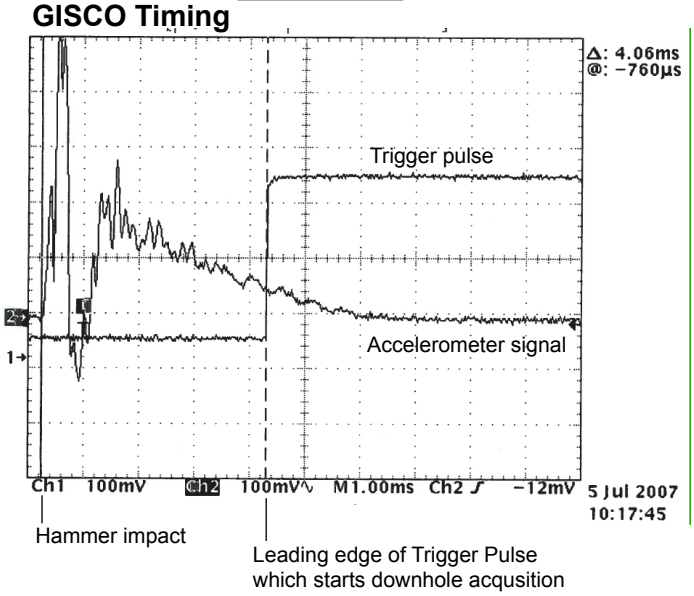
Weight Drop Source



SLB Recording System (MCM)



GISCO Timing



Info at www.giscogeo.com

GISCO Total system delay of trigger: 4 msec
Jitter variation from trigger to trigger is less than 0.05 msec.

Latency is at least 1 msec at VSI external Trigger (downhole sampling 1 msec).

Surface Refrence signal (S1) recorded Trigger pulse.
First 4 msec of the leading edge of the pulse missed due to system delay.
No Accelerometer signal is recorded.

Downhole record requires to shift + 4msec to compensate GISCO delay.

Dec 2007 by S. Nakanishi / SLB

Schlumberger

Observer's Note (1/5)

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
155.8	10:28:36	SHAK	1			
155.8	10:29:08	BKGD	2			
155.8	10:30:17	ENLO	3			
155.8	10:30:42	ENHI	4			
155.8	10:30:52	ETHD	5			
155.8	10:31:08	DRNG	6			
155.8	10:31:24	GA02	7			
155.8	10:31:35	GA04	8			
155.8	10:31:46	GA08	9			
155.8	10:31:57	GA16	10			
155.8	10:32:08	GA32	11			
155.8	10:32:25	XTLK	12			
155.8	10:32:47	XTLK	13			
155.8	10:33:09	XTLK	14			
155.8	10:33:29	EIMP	15			
155.8	10:37:05	SHOT	16	1	Zero	Test Shot
155.8	10:52:09	SHOT	19	1	Zero	Test Shot
155.8	12:24:45	SHOT	20	2	Zero	SP 1109
155.8	12:25:43	SHOT	21	2	Zero	
155.8	12:27:20	SHOT	22	2	Zero	
155.8	12:27:33	SHOT	23	2	Zero	
155.8	12:27:44	SHOT	24	2	Zero	
155.8	12:28:07	SHOT	25	2	Zero	
155.8	12:28:56	SHOT	26	2	Zero	
155.8	12:29:10	SHOT	27	2	Zero	
1606.2	13:51:52	SHAK	28			Shaker Test @ 1455.99m
1606.2	13:57:51	SHOT	30	3	Zero	SP 1109 Repeat Test
1606.2	13:58:51	SHOT	31	3	Zero	
1606.2	13:59:34	SHOT	32	3	Zero	
1606.2	13:59:51	SHOT	33	3	Zero	
1606.2	14:01:50	SHOT	34	3	Zero	
1606.2	14:06:07	SHOT	35	4	Zero	SP 1108 Test 4Dec07
1606.2	14:06:34	SHOT	36	4	Zero	
1606.2	14:06:47	SHOT	37	4	Zero	
1606.2	14:06:58	SHOT	38	4	Zero	
1606.2	14:07:13	SHOT	39	4	Zero	
2059.8	14:41:13	SHOT	40	5	Zero	SP 1109 Test 4Dec07
2059.8	14:41:31	SHOT	41	5	Zero	
2059.8	14:41:45	SHOT	42	5	Zero	
2059.8	14:41:59	SHOT	43	5	Zero	
2059.8	14:42:12	SHOT	44	5	Zero	
2059.8	14:42:32	SHOT	45	5	Zero	
2059.8	14:44:55	SHOT	46	6	Zero	SP 1112 Test 4Dec07
2059.8	14:45:09	SHOT	47	6	Zero	
2059.8	14:45:22	SHOT	48	6	Zero	
2059.8	14:45:34	SHOT	49	6	Zero	
2059.8	14:45:59	SHOT	50	6	Zero	
2059.8	14:46:11	SHOT	51	6	Zero	
2059.8	14:52:42	SHOT	52	7	Zero	SP 1114 Test 4Dec07
2059.8	14:52:59	SHOT	53	7	Zero	
2059.8	14:53:21	SHOT	54	7	Zero	
2059.8	14:53:32	SHOT	55	7	Zero	
2059.8	14:53:44	SHOT	56	7	Zero	
2059.8	14:53:58	SHOT	57	7	Zero	
2059.8	15:04:46	ENLO	58			
2059.8	15:05:11	ENHI	59			
2059.8	15:05:20	ETHD	60			
2059.8	15:05:36	DRNG	61			
2059.8	15:05:52	GA02	62			

Observer's Note (2/5)

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
2059.8	15:06:03	GA04	63			
2059.8	15:06:14	GA08	64			
2059.8	15:06:25	GA16	65			
2059.8	15:06:37	GA32	66			
2059.8	15:06:54	XTLK	67			
2059.8	15:07:15	XTLK	68			
2059.8	15:07:37	XTLK	69			
2059.8	15:07:57	EIMP	70			
2211.0	15:38:19	SHOT	71	9	Zero	Main survey use SP 1114
2211.0	15:38:52	SHOT	72	9	Zero	
2211.0	15:39:40	SHOT	73	9	Zero	
2211.0	15:40:21	SHOT	74	9	Zero	
2211.0	15:40:48	SHOT	75	9	Zero	
2211.0	15:52:50	SHAK	76			
2211.0	15:53:52	BKGD	77			
2203.4	16:00:23	SHOT	78	10	Zero	SP 1114
2203.4	16:00:44	SHOT	79	10	Zero	
2203.4	16:01:01	SHOT	80	10	Zero	
2203.4	16:01:15	SHOT	81	10	Zero	
2203.4	16:01:30	SHOT	82	10	Zero	
2203.4	16:01:44	SHOT	83	10	Zero	
2074.9	16:13:18	SHOT	84	11	Zero	
2074.9	16:13:31	SHOT	85	11	Zero	
2074.9	16:13:45	SHOT	86	11	Zero	
2074.9	16:14:00	SHOT	87	11	Zero	
2074.9	16:14:14	SHOT	88	11	Zero	
2074.9	16:14:27	SHOT	89	11	Zero	
2074.9	16:14:40	SHOT	90	11	Zero	
2067.4	16:21:20	SHOT	91	12	Zero	
2067.4	16:21:46	SHOT	92	12	Zero	
2067.4	16:21:55	SHOT	93	12	Zero	
2067.4	16:22:14	SHOT	94	12	Zero	
2067.4	16:22:55	SHOT	95	12	Zero	
2067.4	16:23:08	SHOT	96	12	Zero	
2067.4	16:23:21	SHOT	97	12	Zero	
2067.4	16:23:35	SHOT	98	12	Zero	
1938.8	16:34:37	SHOT	99	14	Zero	
1938.8	16:35:02	SHOT	100	14	Zero	
1938.8	16:35:24	SHOT	101	14	Zero	
1938.8	16:35:36	SHOT	102	14	Zero	
1938.8	16:35:48	SHOT	103	14	Zero	
1938.8	16:36:10	SHOT	104	14	Zero	
1938.8	16:36:22	SHOT	105	14	Zero	
1931.3	16:43:13	SHOT	106	15	Zero	
1931.3	16:43:56	SHOT	107	15	Zero	
1931.3	16:44:08	SHOT	108	15	Zero	
1931.3	16:44:20	SHOT	109	15	Zero	
1931.3	16:44:31	SHOT	110	15	Zero	
1931.3	16:44:39	SHOT	111	15	Zero	
1931.3	16:45:03	SHOT	112	15	Zero	
1931.3	16:45:15	SHOT	113	15	Zero	
1802.7	16:57:10	SHOT	114	16	Zero	Relocate plate signature changed
1802.7	17:00:26	SHOT	115	16	Zero	Use Station 17 to get consistent Signature
1802.7	17:00:55	SHOT	116	16	Zero	
1802.7	17:01:16	SHOT	117	16	Zero	
1802.7	17:05:50	SHOT	119	16	Zero	
1802.7	17:07:30	SHOT	120	16	Zero	
1802.7	17:09:10	SHOT	121	16	Zero	
1802.7	17:10:34	SHOT	122	16	Zero	

Observer's Note (3/5)

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
1802.7	17:16:22	SHOT	123	16	Zero	
1802.7	17:16:45	SHOT	124	16	Zero	
1802.7	17:17:23	SHOT	125	16	Zero	
1802.7	17:18:07	SHOT	126	16	Zero	
1802.7	17:18:20	SHOT	127	16	Zero	
1802.7	17:19:09	SHOT	128	16	Zero	
1802.7	17:19:39	SHOT	129	16	Zero	
1802.7	17:20:11	SHOT	130	16	Zero	
1802.7	17:26:56	SHOT	131	17	Zero	relocated plate 0.3 m off
1802.7	17:27:12	SHOT	132	17	Zero	
1802.7	17:27:25	SHOT	133	17	Zero	
1802.7	17:27:38	SHOT	134	17	Zero	
1802.7	17:27:50	SHOT	135	17	Zero	
1802.7	17:28:04	SHOT	136	17	Zero	
1802.7	17:28:30	SHOT	137	17	Zero	
1795.2	17:35:50	SHOT	138	18	Zero	
1795.2	17:37:01	SHOT	139	18	Zero	
1795.2	17:37:45	SHOT	140	18	Zero	
1795.2	17:37:57	SHOT	141	18	Zero	
1795.2	17:38:09	SHOT	142	18	Zero	
1795.2	17:38:20	SHOT	143	18	Zero	
1795.2	17:38:31	SHOT	144	18	Zero	
1666.7	17:50:14	SHOT	145	19	Zero	
1666.7	17:50:33	SHOT	146	19	Zero	
1666.7	17:50:46	SHOT	147	19	Zero	
1666.7	17:51:02	SHOT	148	19	Zero	
1666.7	17:51:16	SHOT	149	19	Zero	
1666.7	17:51:29	SHOT	150	19	Zero	
1666.7	17:52:00	SHOT	151	19	Zero	
1666.7	17:52:21	SHOT	152	19	Zero	
1530.6	18:05:43	SHOT	153	20	Zero	Relocated plate by 0.3m
1530.6	18:05:53	SHOT	154	20	Zero	
1530.6	18:06:05	SHOT	155	20	Zero	
1530.6	18:06:16	SHOT	156	20	Zero	
1530.6	18:06:30	SHOT	157	20	Zero	
1530.6	18:06:41	SHOT	158	20	Zero	
1530.6	18:06:52	SHOT	159	20	Zero	
1394.5	18:18:32	SHOT	160	21	Zero	
1394.5	18:18:55	SHOT	161	21	Zero	
1394.5	18:19:06	SHOT	162	21	Zero	
1394.5	18:19:17	SHOT	163	21	Zero	
1394.5	18:19:28	SHOT	164	21	Zero	
1394.5	18:19:39	SHOT	165	21	Zero	
1394.5	18:19:51	SHOT	166	21	Zero	
1258.4	18:30:01	SHOT	167	22	Zero	
1258.4	18:30:36	SHOT	168	22	Zero	
1258.4	18:30:52	SHOT	169	22	Zero	
1258.4	18:31:04	SHOT	170	22	Zero	
1258.4	18:31:18	SHOT	171	22	Zero	
1258.4	18:31:31	SHOT	172	22	Zero	
1258.4	18:31:44	SHOT	173	22	Zero	
1122.4	18:41:19	SHOT	174	23	Zero	
1122.4	18:41:37	SHOT	175	23	Zero	
1122.4	18:41:45	SHOT	176	23	Zero	
1122.4	18:42:10	SHOT	177	23	Zero	
1122.4	18:42:21	SHOT	178	23	Zero	
1122.4	18:42:33	SHOT	179	23	Zero	
1122.4	18:42:45	SHOT	180	23	Zero	
986.3	18:54:30	SHOT	181	24	Zero	

Observer's Note (4/5)

Well depth[m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
986.3	18:54:56	SHOT	182	24	Zero	
986.3	18:55:10	SHOT	183	24	Zero	
986.3	18:55:24	SHOT	184	24	Zero	
986.3	18:55:34	SHOT	185	24	Zero	
986.3	18:55:45	SHOT	186	24	Zero	
986.3	18:55:57	SHOT	187	24	Zero	
850.2	19:06:46	SHOT	188	25	Zero	
850.2	19:07:05	SHOT	189	25	Zero	
850.2	19:07:21	SHOT	190	25	Zero	
850.2	19:07:33	SHOT	191	25	Zero	
850.2	19:07:46	SHOT	192	25	Zero	
850.2	19:07:58	SHOT	193	25	Zero	
850.2	19:08:11	SHOT	194	25	Zero	
714.1	19:18:23	SHOT	195	26	Zero	
714.1	19:18:39	SHOT	196	26	Zero	
714.1	19:18:52	SHOT	197	26	Zero	
714.1	19:19:05	SHOT	198	26	Zero	
714.1	19:19:15	SHOT	199	26	Zero	
714.1	19:19:28	SHOT	200	26	Zero	
714.1	19:19:42	SHOT	201	26	Zero	
578.1	19:32:35	SHOT	202	27	Zero	SP1114
578.1	19:33:11	SHOT	203	27	Zero	
578.1	19:33:23	SHOT	204	27	Zero	
578.1	19:33:34	SHOT	205	27	Zero	
578.1	19:33:46	SHOT	206	27	Zero	
578.1	19:34:22	SHOT	207	27	Zero	
578.1	19:35:20	SHOT	208	27	Zero	
578.1	19:38:27	SHOT	209	28	Zero	Change Source position at SP 1107
578.1	19:38:41	SHOT	210	28	Zero	
578.1	19:38:55	SHOT	211	28	Zero	
578.1	19:39:08	SHOT	212	28	Zero	
578.1	19:39:27	SHOT	213	28	Zero	
442.0	19:49:16	SHOT	214	29	Zero	SP1107
442.0	19:49:41	SHOT	215	29	Zero	
442.0	19:49:56	SHOT	216	29	Zero	
442.0	19:50:07	SHOT	217	29	Zero	
442.0	19:50:19	SHOT	218	29	Zero	
305.9	20:00:47	SHOT	219	30	Zero	SP1107
305.9	20:01:02	SHOT	220	30	Zero	
305.9	20:01:32	SHOT	221	30	Zero	
305.9	20:01:48	SHOT	222	30	Zero	
305.9	20:02:05	SHOT	223	30	Zero	
169.8	20:15:53	SHOT	224	31	Zero	SP1107
169.8	20:16:08	SHOT	225	31	Zero	
169.8	20:16:59	SHOT	226	31	Zero	
169.8	20:18:36	SHOT	227	31	Zero	
169.8	20:19:08	SHOT	228	31	Zero	
169.8	20:19:24	SHOT	229	31	Zero	
155.8	20:25:56	SHOT	230	32	Zero	Change Source position at SP 1109
155.8	20:26:43	SHOT	231	32	Zero	
155.8	20:27:02	SHOT	232	32	Zero	
155.8	20:28:59	SHOT	233	33	Zero	Change Source position at SP 1108
155.8	20:29:13	SHOT	234	33	Zero	
155.8	20:29:26	SHOT	235	33	Zero	
155.8	20:31:00	SHOT	236	34	Zero	Change Source position at SP 1107
155.8	20:31:12	SHOT	237	34	Zero	
155.8	20:31:25	SHOT	238	34	Zero	
155.8	20:32:47	SHOT	239	35	Zero	Change Source position at SP 1106
155.8	20:33:00	SHOT	240	35	Zero	

Observer's Note (5/5)

Well depth[m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
155.8	20:33:18	SHOT	241	35	Zero	
155.8	20:34:20	ENLO	242			
155.8	20:34:44	ENHI	243			
155.8	20:34:54	ETHD	244			
155.8	20:35:09	DRNG	245			
155.8	20:35:24	GA02	246			
155.8	20:35:35	GA04	247			
155.8	20:35:46	GA08	248			
155.8	20:35:57	GA16	249			
155.8	20:36:08	GA32	250			
155.8	20:36:25	XTLK	251			
155.8	20:36:45	XTLK	252			
155.8	20:37:05	XTLK	253			
155.8	20:37:24	EIMP	254			