

*FCC PART 15, SUBPART B and C
TEST REPORT*

for

TRANSCEIVER MOBI2

MODEL: VIRTUAL CABLE MOBI 2

Prepared for

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MOORPARK, CALIFORNIA 93021

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DATE: MARCH 31, 2008

	REPORT BODY	APPENDICES					TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: Transceiver Mobi2
Model: Virtual Cable Mobi 2
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: Pentair Water Pool and Spa
10951 West Los Angeles Avenue
Moorpark, California 93021

Test Dates: March 12 and 27, 2008

Test Specifications: EMI requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247

Test Procedure: ANSI C63.4: 2003

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	Complies with the Class B limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.209
3	Spurious Radiated RF Emissions, 10 kHz – 30 MHz and 1000 MHz – 25000 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
5	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
6	20 dB Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(1) and (a)(1)(i)
7	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(2)
8	RF Conducted Antenna Test	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d)
9	Carrier Frequency Separation	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1) and 15.247 (a)(1)(i)
10	Average Time of Occupancy	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
11	Peak Power Spectral Density from the Intentional Radiator to the Antenna	This test was not performed because the EUT is a frequency hopper.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Transceiver Mobi2 Model: Virtual Cable Mobi 2. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2003. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Pentair Water Pool and Spa

Kevin Murphy	Senior Electronic Engineer
Darrin Swanson	NPD Engineer

Compatible Electronics, Inc.

Kyle Fujimoto	Test Engineer
Michael Christensen	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on March 12, 2008.

2.5 Disposition of the Test Sample

The sample has not been returned to Pentair Water Pool and Spa as of March 31, 2008.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2003	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The Transceiver Mobi2 Model: Virtual Cable Mobi 2 (EUT) was connected to an IntelliTouch Demo Controller via its IO port. The IntelliTouch Demo Controller was also connected to an AC/DC adapter via its power port. The EUT was continuously transmitting or receiving to a Transceiver Mobi2 Model: Mobi 2. The EUT was tested in three orthogonal axis. The EUT received its power via the IO port from the IntelliTouch Demo Controller.

The final radiated data as well as conducted data was taken in the mode described above. The conducted data was taken using the AC/DC adapter from the IntelliTouch Demo Controller. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 This is a 2-meter unshielded cable connecting the EUT to the IntelliTouch Demo Controller. The cable has a 4 pin terminal block at each end. The cable was bundled to a length of 1 meter.

Cable 2 This is a 2-meter unshielded cable connecting the AC/DC Adapter to the IntelliTouch Demo Controller. The cable is hard wired at each end.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
TRANSCIVER MOBI2 (EUT)	PENTAIR WATER POOL AND SPA	VIRTUAL CABLE MOBI 2	N/A	P4HVRTCBLMOBI2
AC/DC ADAPTER	PENTAIR WATER POOL AND SPA	520191	N/A	N/A
IntelliTouch DEMO CONTROLLER	PENTAIR WATER POOL AND SPA	P/N: 520297	CTS0806PC3261	N/A
TRANSCIVER MOBI2 (EUT)	PENTAIR WATER POOL AND SPA	MOBI 2	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 4, 2007	June 4, 2008
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	June 4, 2007	June 4, 2008
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	June 4, 2007	June 4, 2008
EMI Receiver	Rohde & Schwarz	ESIB40	100172	November 27, 2006	November 27, 2008
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Preamplifier	Com Power	PA-102	1017	January 11, 2008	January 11, 2009
Microwave Preamplifier	Com Power	PA-122	181921	March 3, 2008	March 3, 2009
Biconical Antenna	Com Power	AB-900	15226	February 28, 2008	February 28, 2009
Log Periodic Antenna	Com Power	AL-100	16060	July 9, 2007	July 9, 2008
Horn Antenna	Com Power	AH-118	10073	July 17, 2006	July 17, 2008
Biconical Antenna	Com Power	AB-900	15227	February 28, 2008	February 28, 2009
Log Periodic Antenna	Com Power	AL-100	16241	July 9, 2007	July 9, 2008
Preamplifier	Com-Power	PA-103	1582	January 11, 2008	January 11, 2009
Turntable	Com Power	TT-100	N/A	N/A	N/A
Loop Antenna	Com Power	AL-130	17089	September 24, 2007	Sept. 24, 2008
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Transient Limiter	Com Power	252A910	K39-0220	September 19, 2007	September 19, 2008
LISN	Com Power	LI-215	12076	September 6, 2007	September 6, 2008
LISN	Com Power	LI-215	12090	September 6, 2007	September 6, 2008

6. TEST SITE DESCRIPTION

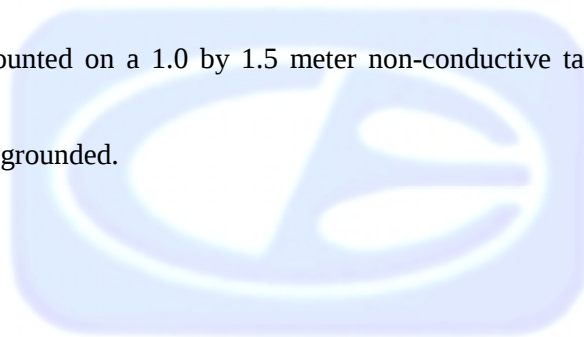
6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.



7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2003. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Section 15.207 for conducted emissions.

7.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, the Com Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

After the readings above 1 GHz were average manually, the reading was further adjusted by a "duty cycle correction factor", derived from $20 \log (\text{dwell time} / 100 \text{ ms})$. Since the duty cycle was below 10%, the maximum allowed 20 dB was subtracted from the peak reading. The duty cycle correction factor is explained in Appendix E.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

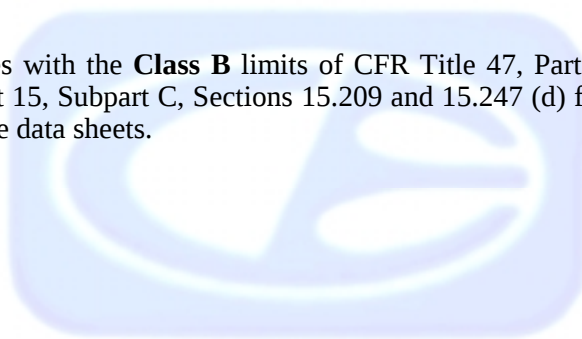
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2003. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.



7.2 20 dB Bandwidth

The 20 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 50 kHz and the video bandwidth was 200 kHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and (a)(1)(i). The 20 dB bandwidth is less than the separation between channels. Please see the data sheets located in Appendix E.

7.3 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The peak output power was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 10 MHz and the video bandwidth was 10 MHz. The cable loss was also added back into the reading using the reference level offset.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(2). The maximum peak output power is less than 250 mW. Please see the data sheets located in Appendix E.

7.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. Please see the radiated emission data sheets located in Appendix E.

7.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the EMI Receiver. The band edges were measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the band edges at 902 MHz and 928 MHz meet the requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

7.6 Carrier Frequency Separation

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth 1 MHz. The frequency span was wide enough to include the peaks of two adjacent channels.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix D.

7.7 Number of Hopping Frequencies

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth was 1 MHz. The frequency span was wide enough to include all of the peaks in the frequency band of operation.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The number of hopping frequencies is 26. Please see the data sheets located in Appendix E.

7.8 Average Time of Occupancy Test

The Average Time of Occupancy Test was measured using the EMI Receiver. The EUT was operating in normal operating mode. The frequency span was taken to 0 Hz with a sweep time of 100 milliseconds to determine the time for each transmission.

The EUT was put into its normal transmitting mode. The EUT frequency hops between 26 different channels during normal operation.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 10 seconds.

The sweep time was then changed to 10 seconds and the number of pulses taken. The number of pulses in a 10 second period was then used to determine the average time of occupancy.

Test Results:

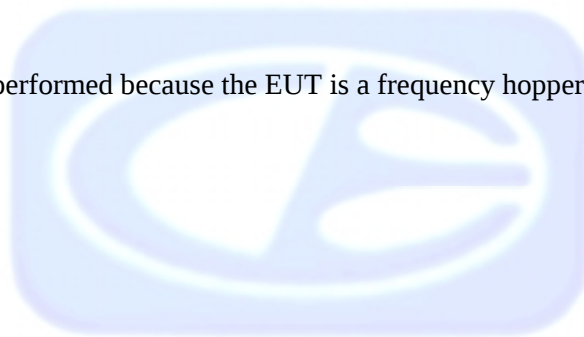
The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The EUT does not transmit for more than 400 milliseconds in a 10 second period on any frequency. Please see the data sheets located in Appendix E.

7.9 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

This test was not performed because the EUT is a frequency hopper.



8. CONCLUSIONS

The Transceiver Mobi2 Model: Virtual Cable Mobi 2, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.



APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

APPENDIX B

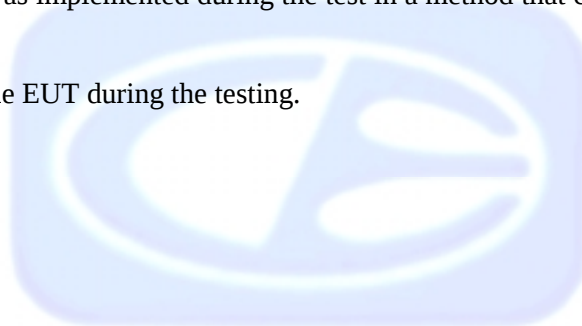
MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.



APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Transceiver Mobi2
Model: Virtual Cable Mobi 2
S/N: N/A

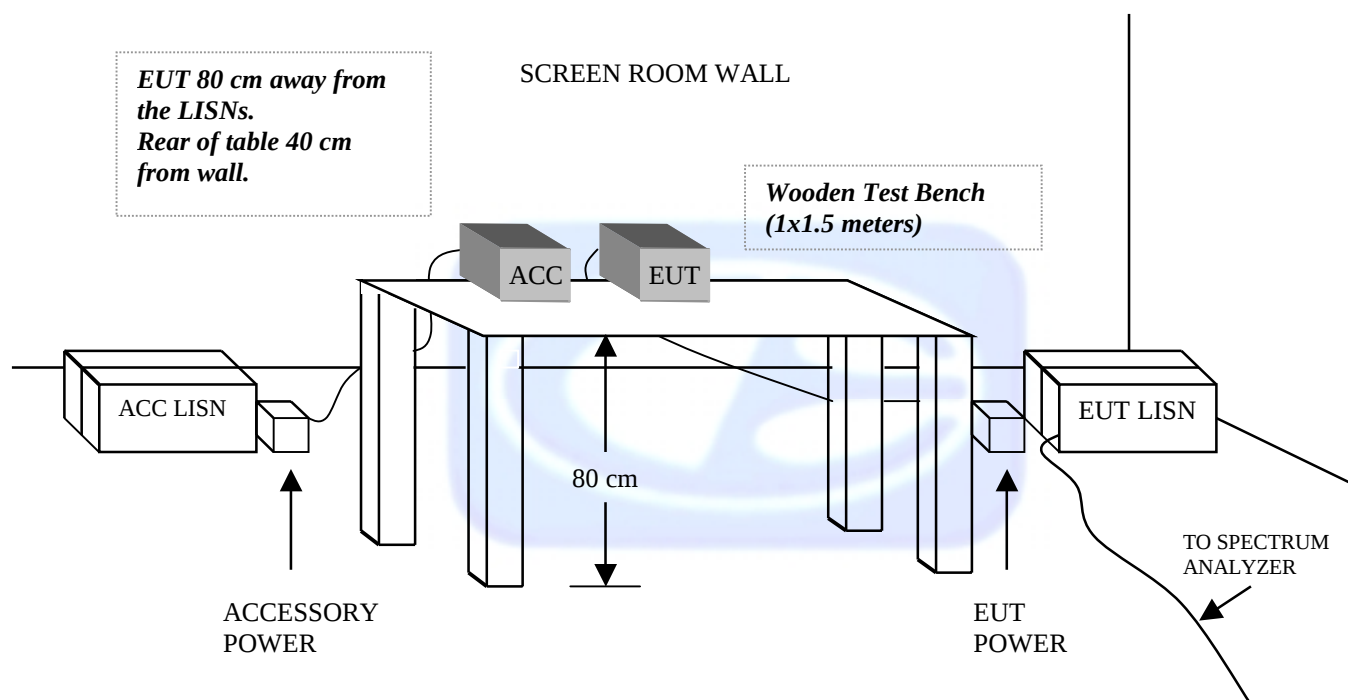
There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP



COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15226

CALIBRATION DATE: FEBRUARY 28, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.1	100	10.7
35	12.2	120	13.6
40	11.7	140	12.1
45	9.9	160	12.2
50	11.3	180	15.2
60	9.4	200	16.5
70	7.6	250	16.5
80	6.0	275	18.1
90	6.8	300	21.5

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15227

CALIBRATION DATE: FEBRUARY 28, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.3	100	10.6
35	9.4	120	13.6
40	9.0	140	11.8
45	9.9	160	12.3
50	11.3	180	15.7
60	9.4	200	16.8
70	7.4	250	14.5
80	6.2	275	18.7
90	6.8	300	21.4

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16060

CALIBRATION DATE: JULY 9, 2007

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.5	700	20.5
400	15.8	800	21.6
500	17.0	900	21.3
600	19.2	1000	22.2

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16241

CALIBRATION DATE: JULY 9, 2007

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	15.2	700	19.9
400	15.4	800	22.3
500	17.0	900	22.3
600	19.1	1000	24.2

COM-POWER PA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 11, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.2	300	38.3
40	38.0	350	38.0
50	38.3	400	38.1
60	38.6	450	37.5
70	38.4	500	37.9
80	38.4	550	37.9
90	38.3	600	37.8
100	38.1	650	37.5
125	38.5	700	38.0
150	38.2	750	37.7
175	38.1	800	37.1
200	38.4	850	37.1
225	38.2	900	37.1
250	38.2	950	37.0
275	38.0	1000	36.5

COM-POWER PA-103**PREAMPLIFIER**

S/N: 1582

CALIBRATION DATE: JANUARY 11, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	32.9	300	32.4
40	32.7	350	32.4
50	32.8	400	32.2
60	32.9	450	31.7
70	32.9	500	32.1
80	32.9	550	31.8
90	32.7	600	32.0
100	32.8	650	32.0
125	32.9	700	32.1
150	32.6	750	32.0
175	32.7	800	31.6
200	32.7	850	31.6
225	32.5	900	31.5
250	32.7	950	31.7
275	32.5	1000	31.3

COM-POWER PA-122**PREAMPLIFIER****S/N: 181921****CALIBRATION DATE: MARCH 3, 2008**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	36.32	10.0	35.47
1.5	35.40	10.5	35.05
2.0	34.77	11.0	34.16
2.5	35.07	11.5	33.75
3.0	34.86	12.0	34.65
3.5	34.48	12.5	34.41
4.0	34.30	13.0	35.36
4.5	33.96	13.5	35.30
5.0	34.06	14.0	35.87
5.5	34.54	14.5	36.44
6.0	35.90	15.0	36.24
6.5	36.85	15.5	35.92
7.0	36.55	16.0	35.53
7.5	35.31	16.5	35.29
8.0	33.57	17.0	34.96
8.5	33.36	17.5	34.02
9.0	35.01	18.0	33.39
9.5	35.97	18.5	32.70

COM-POWER AH-118**HORN ANTENNA**

S/N: 10073

CALIBRATION DATE: JULY 17, 2006

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	25.331	10.0	42.391
1.5	27.507	10.5	39.194
2.0	31.581	11.0	38.504
2.5	30.906	11.5	40.724
3.0	30.276	12.0	41.079
3.5	30.396	12.5	41.014
4.0	30.881	13.0	41.201
4.5	32.77	13.5	42.335
5.0	34.067	14.0	43.248
5.5	33.914	14.5	45.639
6.0	34.028	15.0	43.197
6.5	35.779	15.5	41.751
7.0	38.347	16.0	42.462
7.5	39.096	16.5	41.908
8.0	39.377	17.0	40.277
8.5	38.646	17.5	48.117
9.0	37.438	18.0	54.113
9.5	38.403		

COM-POWER AL-130**LOOP ANTENNA****S/N: 17089****CALIBRATION DATE: SEPTEMBER 24, 2007**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.27	10.23
0.01	-41.96	9.54
0.02	-41.73	9.77
0.03	-40.46	11.04
0.04	-40.56	10.94
0.05	-42.00	9.50
0.06	-41.30	10.20
0.1	-41.43	10.07
0.2	-43.90	7.60
0.3	-41.43	10.07
0.4	-41.40	10.10
0.5	-41.40	10.10
0.6	-40.93	10.57
1	-40.83	10.67
2	-40.3	11.20
5	-40.2	11.30
8	-40.6	10.90
9	-40.1	11.40
10	-40.4	11.10
15	-41.67	9.83
20	-41.10	10.40
25	-42.8	8.70
30	-42.8	8.70



FRONT VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB B

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB B

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB D

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB D

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB A

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – RADIATED EMISSIONS – LAB A

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – CONDUCTED EMISSIONS – LAB A

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



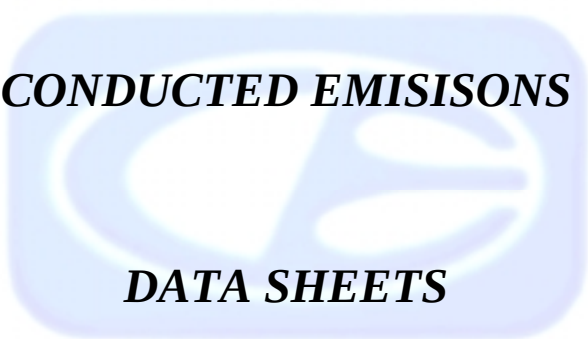
REAR VIEW

PENTAIR WATER POOL AND SPA
TRANSCIVER MOBI2
MODEL: VIRTUAL CABLE MOBI 2
FCC SUBPART B AND C – CONDUCTED EMISSIONS – LAB A

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E

DATA SHEETS

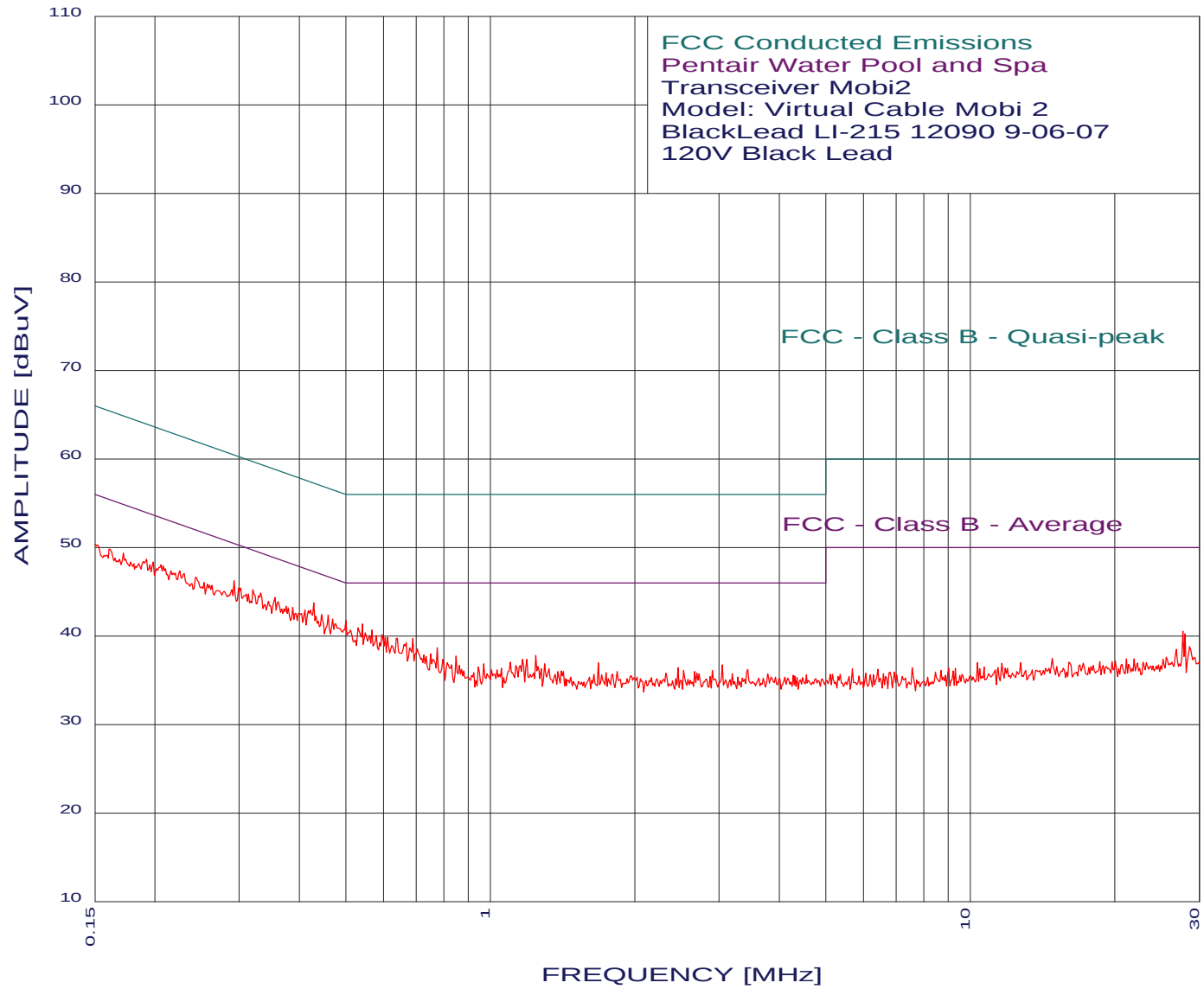


CONDUCTED EMISIONS

DATA SHEETS

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

3/14/2008 15:22:24



3/14/2008 15:22:24

Pentair Water Pool and Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2
 120V Black Lead
 TEST ENGINEER : Brandon Taylor

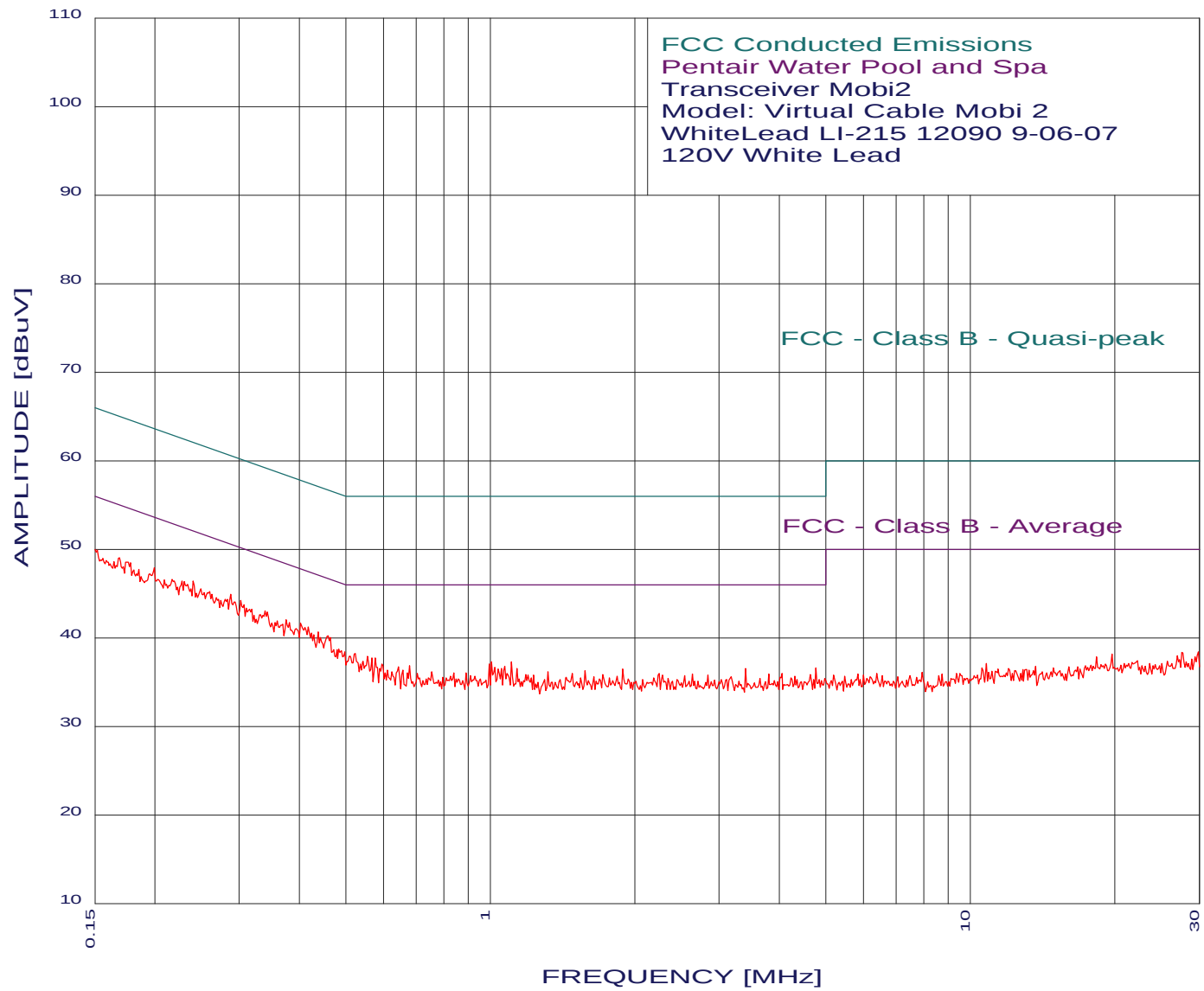
 50 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.428	43.73	47.28	-3.56
2	0.293	46.22	50.45	-4.23
3	0.500	41.73	46.01	-4.28
4	0.459	42.33	46.71	-4.38
5	0.320	45.22	49.71	-4.48
6	0.356	44.33	48.82	-4.50
7	0.445	42.43	46.98	-4.55
8	0.332	44.82	49.39	-4.57
9	0.469	41.93	46.53	-4.60
10	0.541	41.33	46.00	-4.67
11	0.411	42.93	47.63	-4.71
12	0.302	45.42	50.19	-4.77
13	0.387	43.23	48.12	-4.89
14	0.530	40.93	46.00	-5.07
15	0.345	43.92	49.09	-5.16
16	0.226	47.32	52.61	-5.29
17	0.193	48.63	53.93	-5.30
18	0.244	46.62	51.95	-5.33
19	0.206	48.02	53.35	-5.33
20	0.199	48.32	53.67	-5.34
21	0.567	40.63	46.00	-5.37
22	0.172	49.35	54.86	-5.50
23	0.550	40.33	46.00	-5.67
24	0.258	45.82	51.51	-5.69
25	0.595	40.13	46.00	-5.87
26	0.580	40.03	46.00	-5.97
27	0.611	39.83	46.00	-6.17
28	0.605	39.83	46.00	-6.17
29	0.690	39.74	46.00	-6.26
30	0.641	39.74	46.00	-6.26
31	0.669	39.24	46.00	-6.76
32	0.775	38.64	46.00	-7.36
33	0.705	38.54	46.00	-7.46
34	0.751	37.94	46.00	-8.06
35	1.243	37.75	46.00	-8.25
36	0.849	37.74	46.00	-8.26
37	1.191	37.35	46.00	-8.65
38	1.166	37.35	46.00	-8.65
39	0.796	37.34	46.00	-8.66
40	1.100	37.05	46.00	-8.95
41	1.680	36.96	46.00	-9.04
42	0.814	36.94	46.00	-9.06
43	1.297	36.86	46.00	-9.14
44	0.969	36.85	46.00	-9.15
45	3.043	36.71	46.00	-9.29
46	1.130	36.65	46.00	-9.35
47	27.720	40.53	50.00	-9.47
48	0.944	36.45	46.00	-9.55
49	2.462	36.39	46.00	-9.61
50	1.055	36.35	46.00	-9.65

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

3/14/2008 15:26:51



3/14/2008 15:26:51

Pentair Water Pool and Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2
 120V White Lead
 TEST ENGINEER : Brandon Tylor

 50 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.288	44.92	50.58	-5.66
2	0.240	46.42	52.08	-5.66
3	0.200	47.92	53.62	-5.70
4	0.302	44.22	50.19	-5.97
5	0.169	49.06	55.03	-5.97
6	0.228	46.42	52.52	-6.10
7	0.230	46.32	52.43	-6.11
8	0.402	41.63	47.81	-6.18
9	0.339	43.02	49.22	-6.20
10	0.174	48.55	54.77	-6.21
11	0.250	45.52	51.77	-6.25
12	0.217	46.62	52.91	-6.29
13	0.375	42.03	48.38	-6.36
14	0.438	40.63	47.11	-6.48
15	0.459	40.23	46.71	-6.48
16	0.360	41.93	48.73	-6.81
17	0.484	38.73	46.27	-7.55
18	0.524	38.23	46.00	-7.77
19	0.555	37.93	46.00	-8.07
20	0.577	37.73	46.00	-8.27
21	0.567	37.73	46.00	-8.27
22	1.106	37.25	46.00	-8.75
23	1.006	37.25	46.00	-8.75
24	0.995	37.05	46.00	-8.95
25	0.595	37.03	46.00	-8.97
26	0.679	36.84	46.00	-9.16
27	1.072	36.75	46.00	-9.25
28	0.644	36.74	46.00	-9.26
29	4.774	36.57	46.00	-9.43
30	1.136	36.55	46.00	-9.45
31	1.055	36.55	46.00	-9.45
32	3.401	36.52	46.00	-9.48
33	1.889	36.47	46.00	-9.53
34	1.038	36.45	46.00	-9.55
35	0.658	36.34	46.00	-9.66
36	0.611	36.33	46.00	-9.67
37	1.577	36.26	46.00	-9.74
38	1.318	36.16	46.00	-9.84
39	0.755	36.14	46.00	-9.86
40	0.890	36.05	46.00	-9.95
41	0.839	36.04	46.00	-9.96
42	2.250	35.98	46.00	-10.02
43	1.480	35.96	46.00	-10.04
44	4.050	35.95	46.00	-10.05
45	0.705	35.94	46.00	-10.06
46	3.800	35.94	46.00	-10.06
47	2.637	35.89	46.00	-10.11
48	4.648	35.87	46.00	-10.13
49	1.717	35.86	46.00	-10.14
50	1.184	35.85	46.00	-10.15

RADIATED EMISSIONS

DATA SHEETS

Pentair Water Pool & Spa
Transceiver Mobi2
Model: Virtual Cable Mobi 2

Date: 03/10/08
Labs: B and D
Tested By: Kyle Fujimoto

Low Channel - Fundamental

[illegible]

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Low Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.62	77.15	V	--	--	Peak	1.42	180	Not in Restricted Band
1804.62	67	V	--	--	Avg	1.42	180	Not in Restricted Band
2706.95	60.93	V	74	-13.07	Peak	1.39	180	
2706.95	50.78	V	54	-3.22	Avg	1.39	180	
3609.2	47.91	V	74	-26.09	Peak	1.02	180	
3690.2	37.76	V	54	-16.24	Avg	1.02	180	
4511.5	55.77	V	74	-18.23	Peak	1.86	225	
4511.5	45.62	V	54	-8.38	Avg	1.86	225	
5413.8	57.92	V	74	-16.08	Peak	1.65	225	
5413.8	47.77	V	54	-6.23	Avg	1.65	225	
6316.2	50.74	V	--	--	Peak	1.67	225	Not in Restricted Band
6316.2	40.59	V	--	--	Avg	1.67	225	Not in Restricted Band
7218.5	49.11	V	74	-24.89	Peak	1.67	180	
7218.5	38.96	V	54	-15.04	Avg	1.67	180	
8120.8								No Emission Detected
8120.8								No Emission Detected
9023.1								No Emission Detected
9023.1								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Low Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.62	68.84	H	--	--	Peak	1.68	225	Not in Restricted Band
1804.62	58.69	H	--	--	Avg	1.67	225	Not in Restricted Band
2706.95	60.89	H	74	-13.11	Peak	1.31	180	
2706.95	50.74	H	54	-3.26	Avg	1.31	180	
3609.2	49.05	H	74	-24.95	Peak	1.27	135	
3690.2	38.9	H	54	-15.1	Avg	1.27	135	
4511.5	55.79	H	74	-18.21	Peak	1.44	125	
4511.5	45.64	H	54	-8.36	Avg	1.44	125	
5413.8	53.14	H	74	-20.86	Peak	1.62	180	
5413.8	42.99	H	54	-11.01	Avg	1.62	180	
6316.2	47.39	H	--	--	Peak	1.66	125	Not in Restricted Band
6316.2	37.24	H	--	--	Avg	1.66	125	Not in Restricted Band
7218.5	46.08	H	74	-27.92	Peak	1.67	180	
7218.5	35.93	H	54	-18.07	Avg	1.67	180	
8120.8								No Emission Detected
8120.8								No Emission Detected
9023.1								No Emission Detected
9023.1								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Low Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.62	79.54	V	--	--	Peak	1.74	225	Not in Restricted Band
1804.62	69.39	V	--	--	Avg	1.74	225	Not in Restricted Band
2706.95	60.36	V	74	-13.64	Peak	1.81	125	
2706.95	50.21	V	54	-3.79	Avg	1.81	125	
3609.2	50.44	V	74	-23.56	Peak	1.76	180	
3690.2	40.29	V	54	-13.71	Avg	1.76	180	
4511.5	60.58	V	74	-13.42	Peak	1.82	180	
4511.5	50.43	V	54	-3.57	Avg	1.82	180	
5413.8	55.96	V	74	-18.04	Peak	1.81	135	
5413.8	45.81	V	54	-8.19	Avg	1.81	135	
6316.2	51.43	V	--	--	Peak	1.77	150	Not in Restricted Band
6316.2	41.28	V	--	--	Avg	1.77	150	Not in Restricted Band
7218.5	49.49	V	74	-24.51	Peak	1.64	125	
7218.5	39.34	V	54	-14.66	Avg	1.64	125	
8120.8								No Emission Detected
8120.8								No Emission Detected
9023.1								No Emission Detected
9023.1								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Low Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.62	82.53	H	--	--	Peak	1.24	225	Not in Restricted Band
1804.62	72.38	H	--	--	Avg	1.24	225	Not in Restricted Band
2706.95	62.14	H	74	-11.86	Peak	1.33	225	
2706.95	51.99	H	54	-2.01	Avg	1.33	225	
3609.2	56.73	H	74	-17.27	Peak	1.24	225	
3690.2	46.58	H	54	-7.42	Avg	1.24	225	
4511.5	60.54	H	74	-13.46	Peak	1.39	225	
4511.5	50.39	H	54	-3.61	Avg	1.39	225	
5413.8	61.58	H	74	-12.42	Peak	1.41	225	
5413.8	51.43	H	54	-2.57	Avg	1.41	225	
6316.2	54.37	H	--	--	Peak	1.65	225	Not in Restricted Band
6316.2	44.22	H	--	--	Avg	1.65	225	Not in Restricted Band
7218.5	48.52	H	74	-25.48	Peak	1.39	180	
7218.5	38.37	H	54	-15.63	Avg	1.39	180	
8120.8								No Emission Detected
8120.8								No Emission Detected
9023.1								No Emission Detected
9023.1								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Low Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.62	79.07	V	--	--	Peak	1.16	225	Not in Restricted Band
1804.62	68.92	V	--	--	Avg	1.16	225	Not in Restricted Band
2706.95	59.83	V	74	-14.17	Peak	1.16	225	
2706.95	49.68	V	54	-4.32	Avg	1.16	225	
3609.2	49.71	V	74	-24.29	Peak	2.24	150	
3690.2	39.56	V	54	-14.44	Avg	2.24	150	
4511.5	54.82	V	74	-19.18	Peak	1.75	180	
4511.5	44.67	V	54	-9.33	Avg	1.75	180	
5413.8	54.97	V	74	-19.03	Peak	2.06	225	
5413.8	44.82	V	54	-9.18	Avg	2.06	225	
6316.2	49.9	V	--	--	Peak	1.97	180	Not in Restricted Band
6316.2	39.75	V	--	--	Avg	1.97	180	Not in Restricted Band
7218.5	47.93	V	74	-26.07	Peak	1.75	180	
7218.5	37.78	V	54	-16.22	Avg	1.75	180	
8120.8								No Emission Detected
8120.8								No Emission Detected
9023.1								No Emission Detected
9023.1								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Low Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.62	77.68	H	--	--	Peak	1.97	225	Not in Restricted Band
1804.62	67.53	H	--	--	Avg	1.97	225	Not in Restricted Band
2706.95	58.36	H	74	-15.64	Peak	2.04	150	
2706.95	48.21	H	54	-5.79	Avg	2.04	150	
3609.2	51.35	H	74	-22.65	Peak	2.15	90	
3690.2	41.2	H	54	-12.8	Avg	2.15	90	
4511.5	53.74	H	74	-20.26	Peak	1.15	125	
4511.5	43.59	H	54	-10.41	Avg	1.15	125	
5413.8	55.23	H	74	-18.77	Peak	1.32	135	
5413.8	45.08	H	54	-8.92	Avg	1.32	135	
6316.2	50.44	H	--	--	Peak	1.21	150	Not in Restricted Band
6316.2	40.29	H	--	--	Avg	1.21	150	Not in Restricted Band
7218.5	48.08	H	74	-25.92	Peak	1.21	150	
7218.5	37.93	H	54	-16.07	Avg	1.21	150	
8120.8								No Emission Detected
8120.8								No Emission Detected
9023.1								No Emission Detected
9023.1								No Emission Detected

Pentair Water Pool & Spa
Transceiver Mobi2
Model: Virtual Cable Mobi 2

Date: 03/10/08
Labs: B and D
Tested By: Kyle Fujimoto

Middle Channel

[illegible]

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Middle Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1817.1	82.36	V	--	--	Peak	1.12	180	Not in Restricted Band
1817.1	72.21	V	--	--	Avg	1.12	180	Not in Restricted Band
2725.65	61.24	V	74	-12.76	Peak	1.17	180	
2725.65	51.09	V	54	-2.91	Avg	1.17	180	
3634.21	56.82	V	74	-17.18	Peak	1.12	150	
3634.21	46.67	V	54	-7.33	Avg	1.12	150	
4542.75	56.48	V	74	-17.52	Peak	1.28	225	
4242.75	46.33	V	54	-7.67	Avg	1.28	225	
5451.31	53.64	V	74	-20.36	Peak	1.52	135	
5451.31	43.49	V	54	-10.51	Avg	1.52	135	
6359.85	48.56	V	--	--	Peak	1.15	90	Not in Restricted Band
6359.85	38.41	V	--	--	Avg	1.15	90	Not in Restricted Band
7268.41	51.93	V	74	-22.07	Peak	1.51	180	
7268.41	41.78	V	54	-12.22	Avg	1.51	180	
8176.9								No Emission Detected
8176.9								No Emission Detected
9085.5								No Emission Detected
9085.5								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Middle Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1817.1	81.64	H	--	--	Peak	1.25	150	Not in Restricted Band
1817.1	71.49	H	--	--	Avg	1.25	150	Not in Restricted Band
2725.65	59.65	H	74	-14.35	Peak	1.28	150	
2725.65	49.5	H	54	-4.5	Avg	1.28	150	
3634.21	55.25	H	74	-18.75	Peak	1.07	150	
3634.21	45.1	H	54	-8.9	Avg	1.07	150	
4542.75	55.71	H	74	-18.29	Peak	1.53	225	
4242.75	45.56	H	54	-8.44	Avg	1.53	225	
5451.31	54.66	H	74	-19.34	Peak	1.52	135	
5451.31	44.51	H	54	-9.49	Avg	1.52	135	
6359.85	48.56	H	--	--	Peak	1.52	180	Not in Restricted Band
6359.85	38.41	H	--	--	Avg	1.52	180	Not in Restricted Band
7268.41	52.12	H	74	-21.88	Peak	1.53	150	
7268.41	41.97	H	54	-12.03	Avg	1.53	150	
8176.9								No Emission Detected
8176.9								No Emission Detected
9085.5								No Emission Detected
9085.5								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Middle Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1817.1	60.29	V	--	--	Peak	1.25	180	Not in Restricted Band
1817.1	50.14	V	--	--	Avg	1.25	180	Not in Restricted Band
2725.65	61.58	V	74	-12.42	Peak	1.36	225	
2725.65	51.43	V	54	-2.57	Avg	1.36	225	
3634.21	61.5	V	74	-12.5	Peak	1.34	225	
3634.21	51.35	V	54	-2.65	Avg	1.34	225	
4542.75	60.25	V	74	-13.75	Peak	1.34	225	
4242.75	50.1	V	54	-3.9	Avg	1.34	225	
5451.31	59.13	V	74	-14.87	Peak	1.35	180	
5451.31	48.98	V	54	-5.02	Avg	1.35	180	
6359.85	54.86	V	--	--	Peak	1.36	225	Not in Restricted Band
6359.85	44.71	V	--	--	Avg	1.36	225	Not in Restricted Band
7268.41	51.16	V	74	-22.84	Peak	1.27	150	
7268.41	41.01	V	54	-12.99	Avg	1.27	150	
8176.9								No Emission Detected
8176.9								No Emission Detected
9085.5								No Emission Detected
9085.5								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Middle Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1817.1	56.77	H	--	--	Peak	1.91	180	Not in Restricted Band
1817.1	46.62	H	--	--	Avg	1.91	180	Not in Restricted Band
2725.65	59.52	H	74	-14.48	Peak	1.92	150	
2725.65	49.37	H	54	-4.63	Avg	1.92	150	
3634.21	60.99	H	74	-13.01	Peak	1.93	180	
3634.21	50.84	H	54	-3.16	Avg	1.93	180	
4542.75	59.75	H	74	-14.25	Peak	1.98	90	
4242.75	49.6	H	54	-4.4	Avg	1.98	90	
5451.31	51.89	H	74	-22.11	Peak	1.94	315	
5451.31	41.74	H	54	-12.26	Avg	1.94	315	
6359.85	51.82	H	--	--	Peak	1.43	135	Not in Restricted Band
6359.85	41.67	H	--	--	Avg	1.43	135	Not in Restricted Band
7268.41	48.17	H	74	-25.83	Peak	1.43	225	
7268.41	38.02	H	54	-15.98	Avg	1.43	225	
8176.9								No Emission Detected
8176.9								No Emission Detected
9085.5								No Emission Detected
9085.5								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Middle Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1817.1	77.89	V	--	--	Peak	1.18	125	Not in Restricted Band
1817.1	67.74	V	--	--	Avg	1.18	125	Not in Restricted Band
2725.65	58.64	V	74	-15.36	Peak	1.1	225	
2725.65	48.49	V	54	-5.51	Avg	1.1	225	
3634.21	54.76	V	74	-19.24	Peak	1.07	225	
3634.21	44.61	V	54	-9.39	Avg	1.07	225	
4542.75	51.31	V	74	-22.69	Peak	2.17	180	
4242.75	41.16	V	54	-12.84	Avg	2.17	180	
5451.31	52.54	V	74	-21.46	Peak	1.58	135	
5451.31	42.39	V	54	-11.61	Avg	1.58	135	
6359.85	48.48	V	--	--	Peak	1.89	180	Not in Restricted Band
6359.85	38.33	V	--	--	Avg	1.89	180	Not in Restricted Band
7268.41	49.08	V	74	-24.92	Peak	1.51	180	
7268.41	38.93	V	54	-15.07	Avg	1.51	180	
8176.9								No Emission Detected
8176.9								No Emission Detected
9085.5								No Emission Detected
9085.5								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

Middle Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1817.1	74.17	H	--	--	Peak	1.89	90	Not in Restricted Band
1817.1	64.02	H	--	--	Avg	1.89	90	Not in Restricted Band
2725.65	61.58	H	74	-12.42	Peak	1.25	150	
2725.65	51.43	H	54	-2.57	Avg	1.25	150	
3634.21	54.42	H	74	-19.58	Peak	2.23	150	
3634.21	44.27	H	54	-9.73	Avg	2.23	150	
4542.75	54.08	H	74	-19.92	Peak	1.71	150	
4242.75	43.93	H	54	-10.07	Avg	1.71	150	
5451.31	52.92	H	74	-21.08	Peak	1.14	180	
5451.31	42.77	H	54	-11.23	Avg	1.14	180	
6359.85	48.01	H	--	--	Peak	1.92	135	Not in Restricted Band
6359.85	37.86	H	--	--	Avg	1.92	135	Not in Restricted Band
7268.41	49.47	H	74	-24.53	Peak	1.92	225	
7268.41	39.32	H	54	-14.68	Avg	1.92	225	
8176.9								No Emission Detected
8176.9								No Emission Detected
9085.5								No Emission Detected
9085.5								No Emission Detected

Pentair Water Pool & Spa
Transceiver Mobi2
Model: Virtual Cable Mobi 2

Date: 03/10/08
Labs: B and D
Tested By: Kyle Fujimoto

High Channel

[illegible]

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

High Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.94	80.79	V	--	--	Peak	1.06	135	Not in Restricted Band
1830.94	70.64	V	--	--	Avg	1.06	135	Not in Restricted Band
2746.41	60.14	V	74	-13.86	Peak	1	135	
2746.41	49.99	V	54	-4.01	Avg	1	135	
3661.88	53.91	V	74	-20.09	Peak	1.04	125	
3661.88	43.76	V	54	-10.24	Avg	1.04	125	
4577.35	58.99	V	74	-15.01	Peak	1.52	225	
4577.35	48.84	V	54	-5.16	Avg	1.52	225	
5492.82	55.86	V	74	-18.14	Peak	1.92	225	
5492.82	45.71	V	54	-8.29	Avg	1.92	225	
6408.29	47.52	V	--	--	Peak	1.21	180	Not in Restricted Band
6408.29	37.37	V	--	--	Avg	1.21	180	Not in Restricted Band
7323.76	48.12	V	74	-25.88	Peak	1.23	150	
7323.76	37.97	V	54	-16.03	Avg	1.23	150	
8239.23								No Emission Detected
8239.23								No Emission Detected
9154.7								No Emission Detected
9154.7								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

High Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.94	80.92	H	--	--	Peak	1.21	135	Not in Restricted Band
1830.94	70.77	H	--	--	Avg	1.21	135	Not in Restricted Band
2746.41	61.54	H	74	-12.46	Peak	1.25	150	
2746.41	51.39	H	54	-2.61	Avg	1.25	150	
3661.88	53.78	H	74	-20.22	Peak	1.32	180	
3661.88	43.63	H	54	-10.37	Avg	1.32	180	
4577.35	55.81	H	74	-18.19	Peak	1.15	150	
4577.35	45.66	H	54	-8.34	Avg	1.15	150	
5492.82	54.89	H	74	-19.11	Peak	1.91	180	
5492.82	44.74	H	54	-9.26	Avg	1.91	180	
6408.29	49.45	H	--	--	Peak	1.54	180	Not in Restricted Band
6408.29	39.3	H	--	--	Avg	1.54	180	Not in Restricted Band
7323.76	49.52	H	74	-24.48	Peak	1.55	125	
7323.76	39.37	H	54	-14.63	Avg	1.55	125	
8239.23								No Emission Detected
8239.23								No Emission Detected
9154.7								No Emission Detected
9154.7								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

High Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.94	81.61	V	--	--	Peak	1.59	90	Not in Restricted Band
1830.94	71.46	V	--	--	Avg	1.59	90	Not in Restricted Band
2746.41	60.36	V	74	-13.64	Peak	1.38	180	
2746.41	50.21	V	54	-3.79	Avg	1.38	180	
3661.88	53.96	V	74	-20.04	Peak	1.47	180	
3661.88	43.81	V	54	-10.19	Avg	1.47	180	
4577.35	54.52	V	74	-19.48	Peak	1.43	150	
4577.35	44.37	V	54	-9.63	Avg	1.43	150	
5492.82	53.19	V	74	-20.81	Peak	1.43	180	
5492.82	43.04	V	54	-10.96	Avg	1.43	180	
6408.29	52.36	V	--	--	Peak	1.31	135	Not in Restricted Band
6408.29	42.21	V	--	--	Avg	1.31	135	Not in Restricted Band
7323.76	52.44	V	74	-21.56	Peak	1.32	225	
7323.76	42.29	V	54	-11.71	Avg	1.32	225	
8239.23								No Emission Detected
8239.23								No Emission Detected
9154.7								No Emission Detected
9154.7								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

High Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.94	78.26	H	--	--	Peak	1.55	90	Not in Restricted Band
1830.94	68.11	H	--	--	Avg	1.55	90	Not in Restricted Band
2746.41	58.05	H	74	-15.95	Peak	1.12	135	
2746.41	47.9	H	54	-6.1	Avg	1.12	135	
3661.88	54.52	H	74	-19.48	Peak	1.69	150	
3661.88	44.37	H	54	-9.63	Avg	1.69	150	
4577.35	53.25	H	74	-20.75	Peak	1.26	135	
4577.35	43.1	H	54	-10.9	Avg	1.26	135	
5492.82	57.82	H	74	-16.18	Peak	1.56	90	
5492.82	47.67	H	54	-6.33	Avg	1.56	90	
6408.29	45.26	H	--	--	Peak	1.25	150	Not in Restricted Band
6408.29	35.11	H	--	--	Avg	1.25	150	Not in Restricted Band
7323.76	46.26	H	74	-27.74	Peak	1.58	150	
7323.76	36.11	H	54	-17.89	Avg	1.58	150	
8239.23								No Emission Detected
8239.23								No Emission Detected
9154.7								No Emission Detected
9154.7								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

High Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.94	70.86	V	--	--	Peak	1.93	180	Not in Restricted Band
1830.94	60.71	V	--	--	Avg	1.93	180	Not in Restricted Band
2746.41	54.65	V	74	-19.35	Peak	1.25	150	
2746.41	44.5	V	54	-9.5	Avg	1.25	150	
3661.88	49.89	V	74	-24.11	Peak	1.92	135	
3661.88	39.74	V	54	-14.26	Avg	1.92	135	
4577.35	58.02	V	74	-15.98	Peak	1.65	225	
4577.35	47.87	V	54	-6.13	Avg	1.65	225	
5492.82	57.45	V	74	-16.55	Peak	1.89	315	
5492.82	47.3	V	54	-6.7	Avg	1.89	315	
6408.29	48.75	V	--	--	Peak	1.43	180	Not in Restricted Band
6408.29	38.6	V	--	--	Avg	1.43	180	Not in Restricted Band
7323.76	52.23	V	74	-21.77	Peak	1.78	180	
7323.76	42.08	V	54	-11.92	Avg	1.78	180	
8239.23								No Emission Detected
8239.23								No Emission Detected
9154.7								No Emission Detected
9154.7								No Emission Detected

FCC 15.247

Pentair Water Pool & Spa
 Transceiver Mobi2
 Model: Virtual Cable Mobi 2

Date: 03/10/08
 Labs: B and D
 Tested By: Kyle Fujimoto

High Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.94	73.21	H	--	--	Peak	1.25	150	Not in Restricted Band
1830.94	63.06	H	--	--	Avg	1.25	150	Not in Restricted Band
2746.41	52.35	H	74	-21.65	Peak	1.91	180	
2746.41	42.2	H	54	-11.8	Avg	1.91	180	
3661.88	50.94	H	74	-23.06	Peak	1.36	150	
3661.88	40.79	H	54	-13.21	Avg	1.36	150	
4577.35	56.38	H	74	-17.62	Peak	1.21	150	
4577.35	46.23	H	54	-7.77	Avg	1.21	150	
5492.82	55.22	H	74	-18.78	Peak	1.49	90	
5492.82	45.07	H	54	-8.93	Avg	1.49	90	
6408.29	49.21	H	--	--	Peak	1.49	150	Not in Restricted Band
6408.29	39.06	H	--	--	Avg	1.49	150	Not in Restricted Band
7323.76	49.71	H	74	-24.29	Peak	1.49	150	
7323.76	39.56	H	54	-14.44	Avg	1.49	150	
8239.23								No Emission Detected
8239.23								No Emission Detected
9154.7								No Emission Detected
9154.7								No Emission Detected

Pentair Water Pool & Spa
Transceiver Mobi2
Model: Virtual Cable Mobi 2

Date: 03/10/08
Labs: B and D
Tested By: Kyle Fujimoto

Digital Portion - 1 GHz to 9300 MHz - Vertical and Horizontal Polarizations
Non-Harmonic Emissions from the Tx - 1 GHz to 9300 MHz - Vertical and Horizontal Polarizations
Receiver Portion - 1 GHz to 9300 MHz - Vertical and Horizontal Polarizations

Worse Case Axis: Z-Axis

[illegible]



Test Location : Compatible Electronics
Customer : Pentair Water
Manufacturer : Pentari Water
Eut name : Virtual Cable
Model : Mobi 2
Serial # : N/A
Specification : FCC B
Distance correction factor ($20 * \log(\text{test}/\text{spec})$) : 0.00
Test Mode : Radiated Emissions Test - Receive Mode (Worst Case)
Test Range: 10 kHz to 1 GHZ - Vertical and Horizontal Polar.
Test Technician: Brandon Taylor

Page : 1/1
Date : 3/14/2008
Time : 7:35:38
Lab : A
Test Distance : 3 Meters

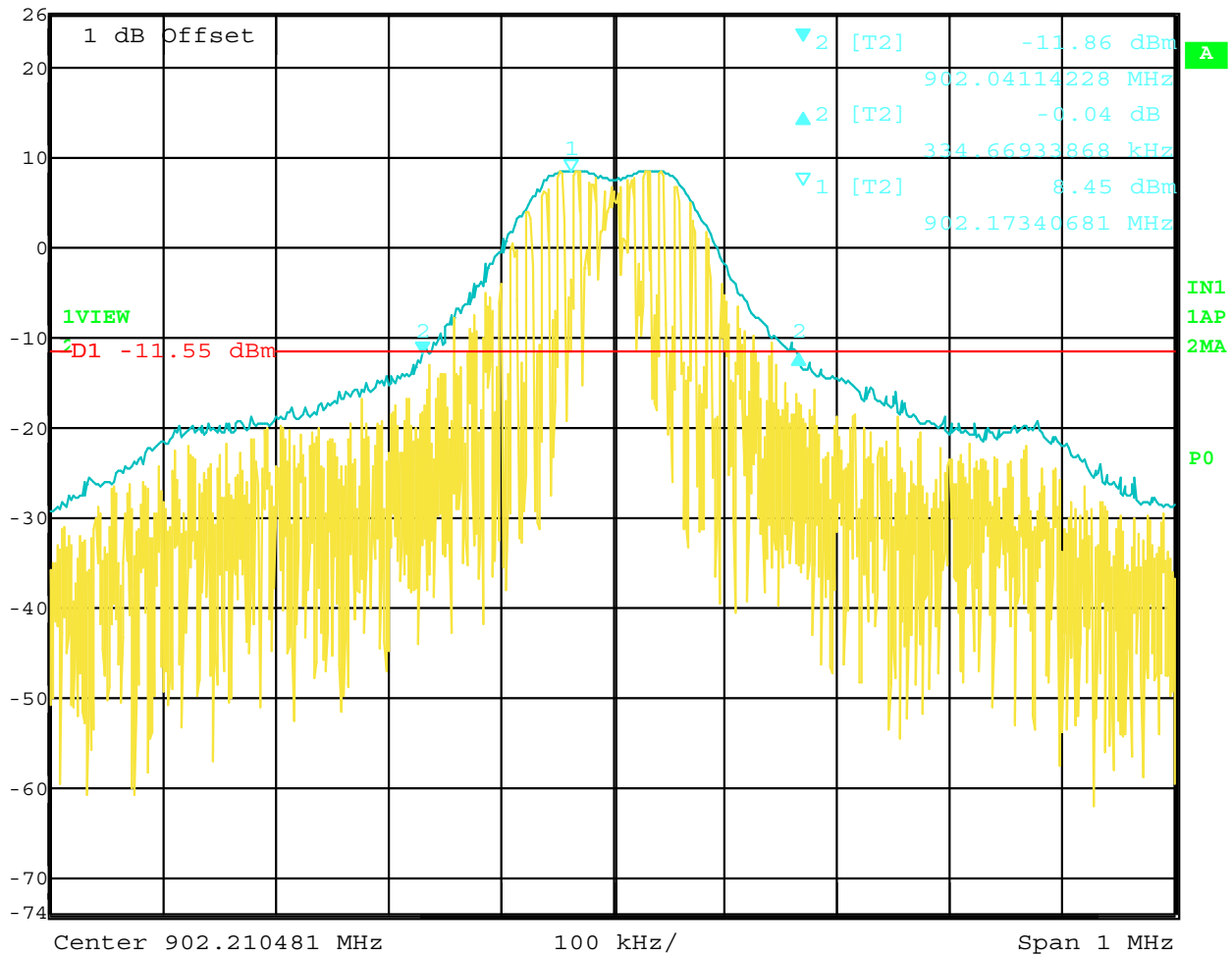
Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
1V	112.049	44.80	1.70	12.47	32.85	26.12	43.50	-17.38
2V	239.686	38.60	2.80	14.93	32.62	23.71	46.00	-22.29
3V	302.597	43.50	3.22	15.21	32.40	29.53	46.00	-16.47
4V	307.603	42.80	3.26	15.22	32.40	28.88	46.00	-17.12
5V	347.592	41.60	3.58	15.30	32.40	28.08	46.00	-17.92
6V	560.405	44.30	5.11	18.31	31.84	35.88	46.00	-10.12
7H	312.588	43.90	3.31	15.23	32.40	30.04	46.00	-15.96
8H	317.581	47.70	3.35	15.24	32.40	33.89	46.00	-12.11
9H	387.586	45.20	3.83	15.38	32.25	32.16	46.00	-13.84

-20 dB BANDWIDTH

DATA SHEETS



Delta 2 [T2] RBW 50 kHz RF Att 40 dB
Ref Lvl -0.04 dB VBW 200 kHz
26 dBm 334.66933868 kHz SWT 5 ms Unit dBm

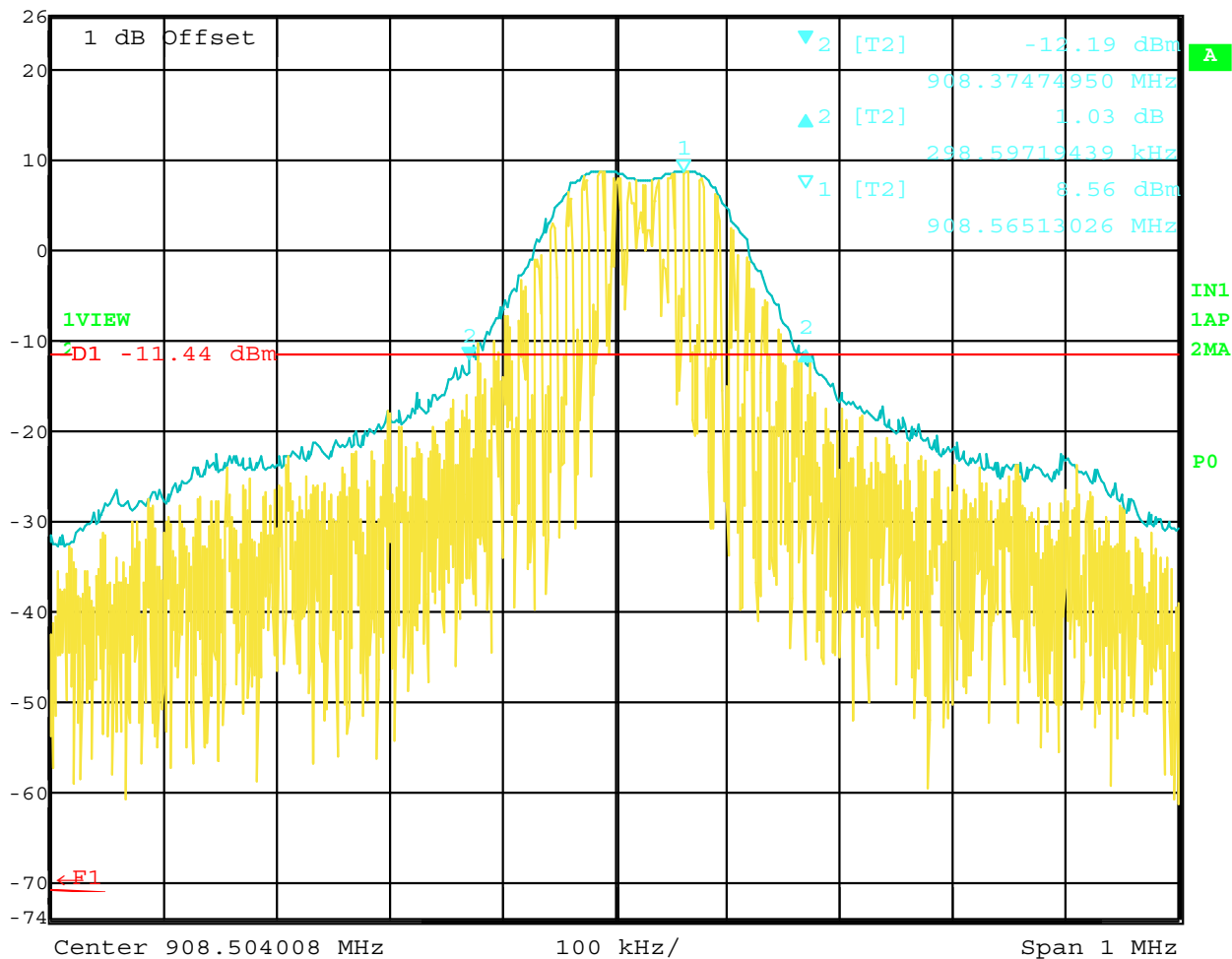


Date: 12.MAR.2008 14:34:31

20 dB Bandwidth of the Fundamental – Low Channel



Delta 2 [T2] RBW 50 kHz RF Att 40 dB
Ref Lvl 1.03 dB VBW 200 kHz
26 dBm 298.59719439 kHz SWT 5 ms Unit dBm

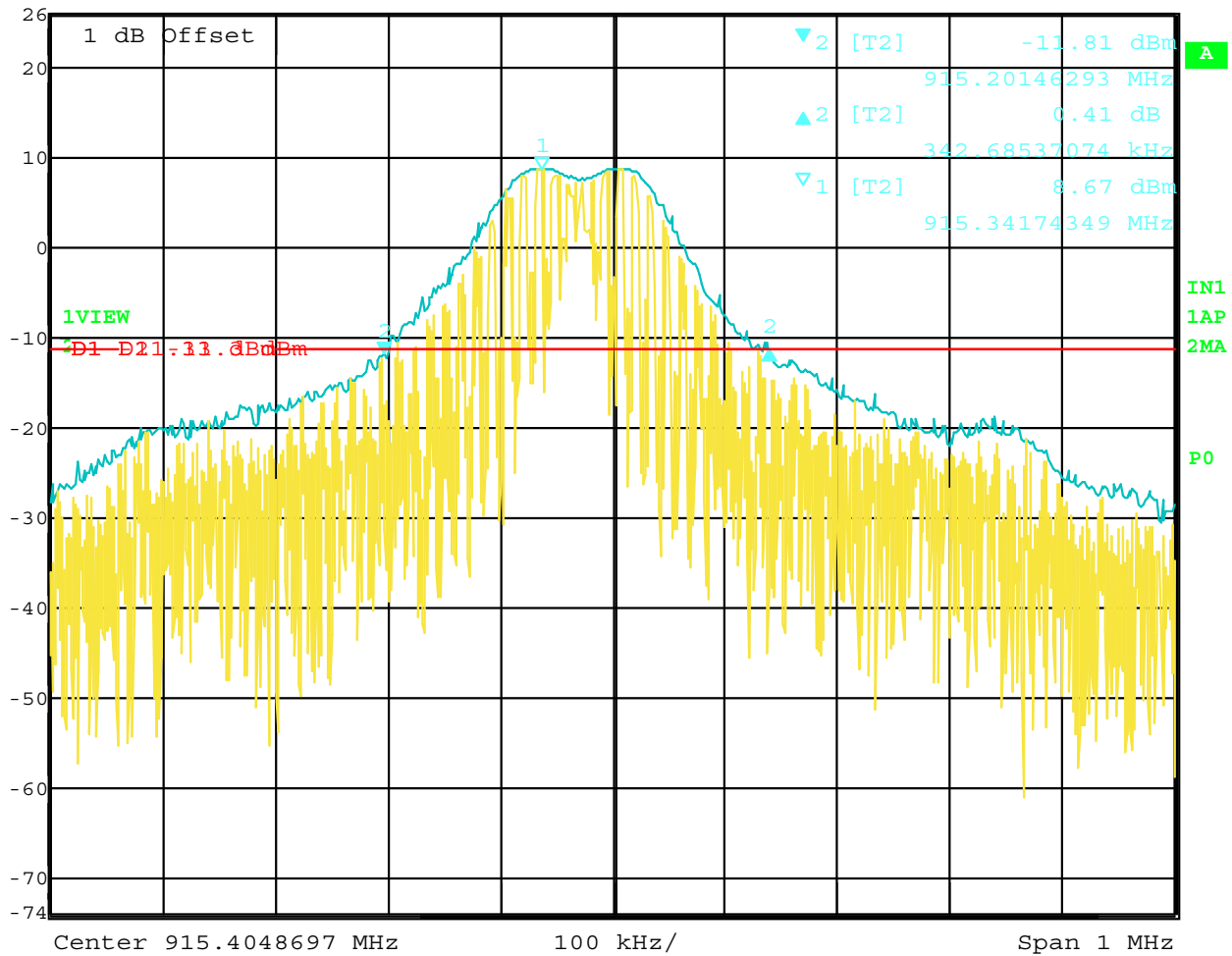


Date: 12.MAR.2008 14:51:59

20 dB Bandwidth of the Fundamental – Middle Channel



Ref Lvl 26 dBm
Delta 2 [T2] 0.41 dB
342.68537074 kHz
RBW 50 kHz
VF 200 kHz
SWT 5 ms
RF Att 40 dB
Unit dBm



Date: 12.MAR.2008 15:06:35

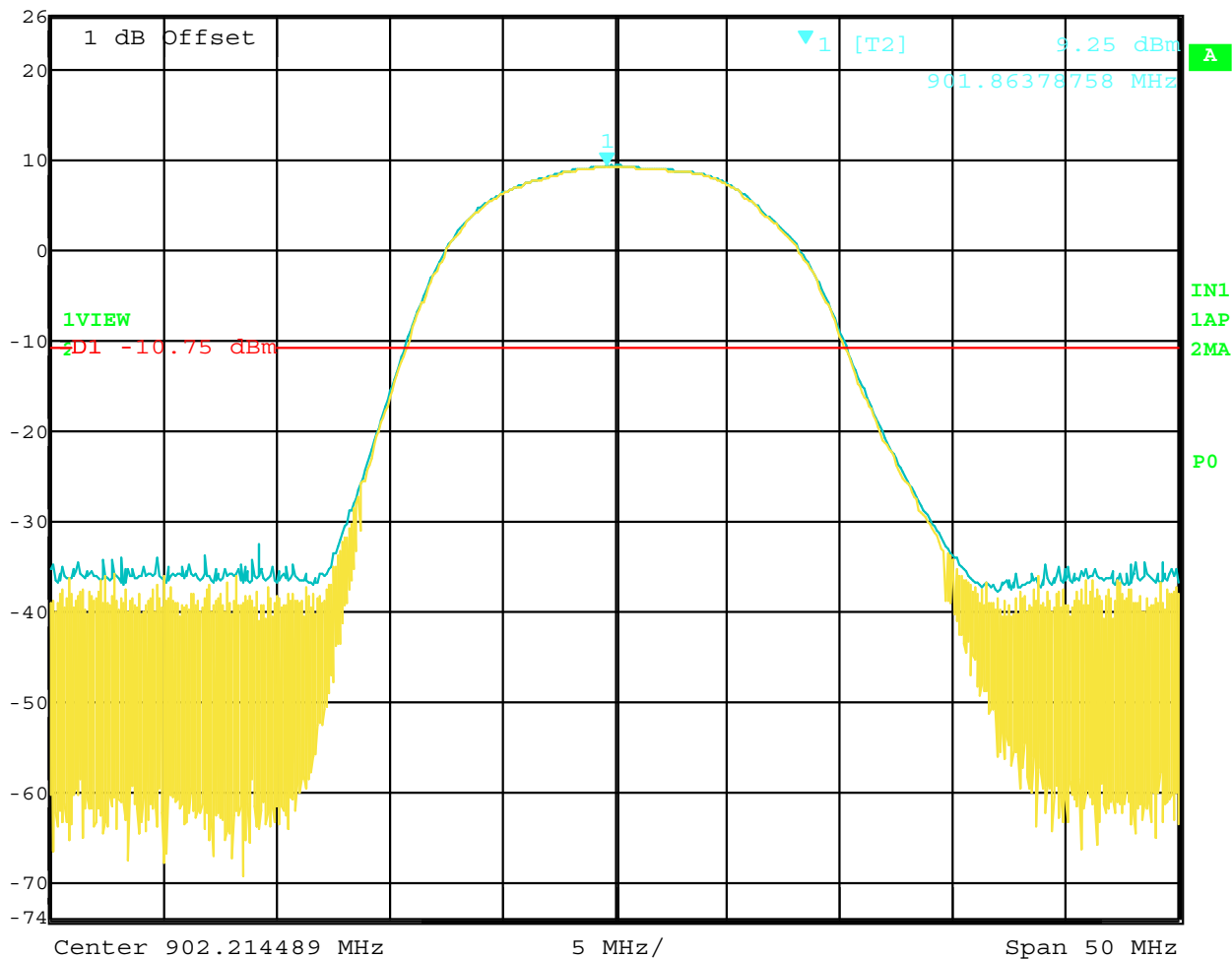
20 dB Bandwidth of the Fundamental – High Channel

PEAK POWER OUTPUT

DATA SHEETS



Ref Lvl 26 dBm
Marker 1 [T2] 9.25 dBm
901.86378758 MHz
RBW 10 MHz RF Att 40 dB
VBW 10 MHz
SWT 5 ms Unit dBm

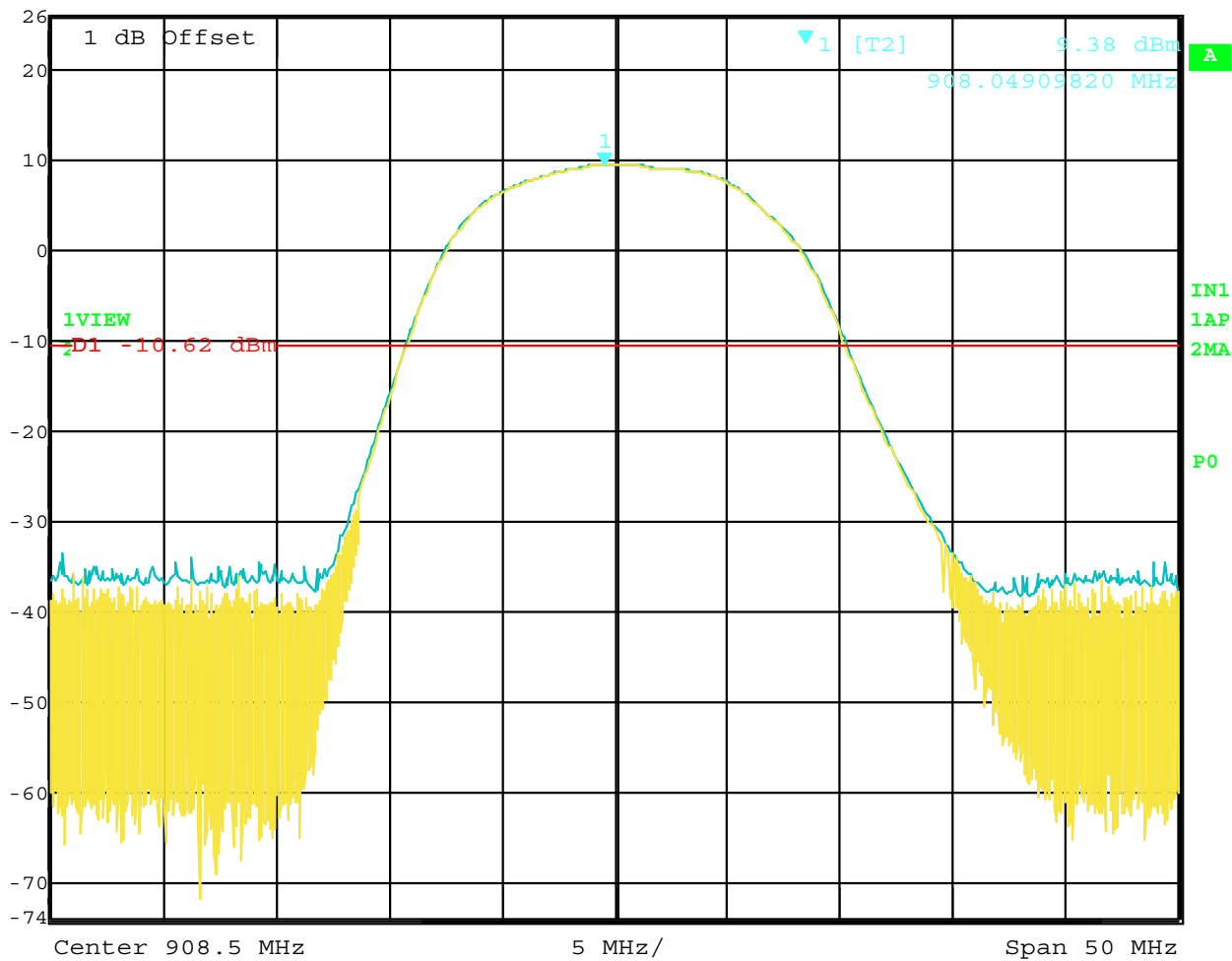


Date: 12.MAR.2008 14:30:55

Peak Power Output – Low Channel



Ref Lvl 26 dBm
Marker 1 [T2] 9.38 dBm
908.04909820 MHz
RBW 10 MHz
VBW 10 MHz
SWT 5 ms
RF Att 40 dB
Unit dBm

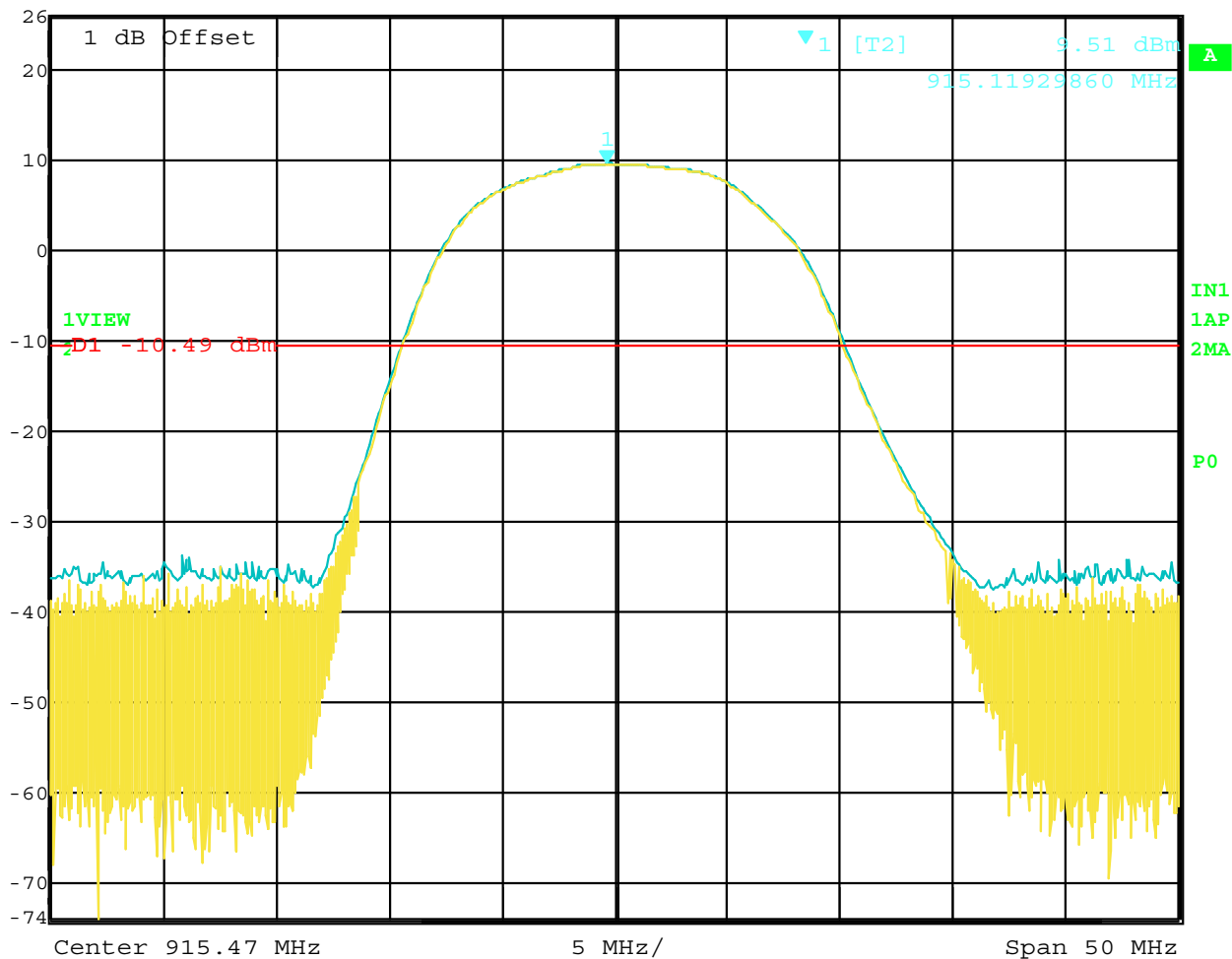


Date: 12.MAR.2008 14:48:01

Peak Power Output – Middle Channel



Ref Lvl 26 dBm
Marker 1 [T2] 9.51 dBm
915.11929860 MHz
RBW 10 MHz
VBW 10 MHz
SWT 5 ms
RF Att 40 dB
Unit dBm



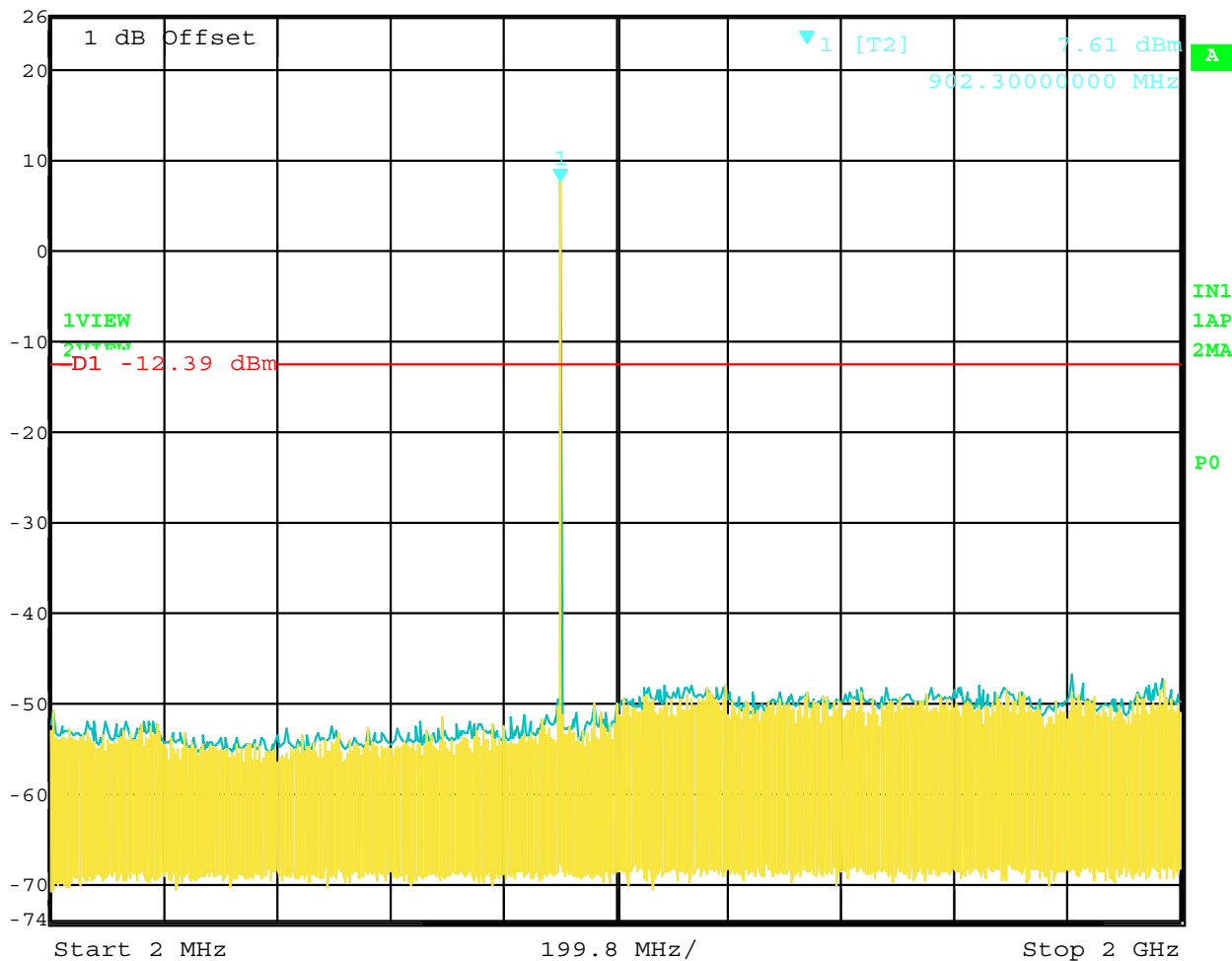
Date: 12.MAR.2008 14:59:31

Peak Power Output – High Channel

RF CONDUCTED ANTENNA TEST
DATA SHEETS

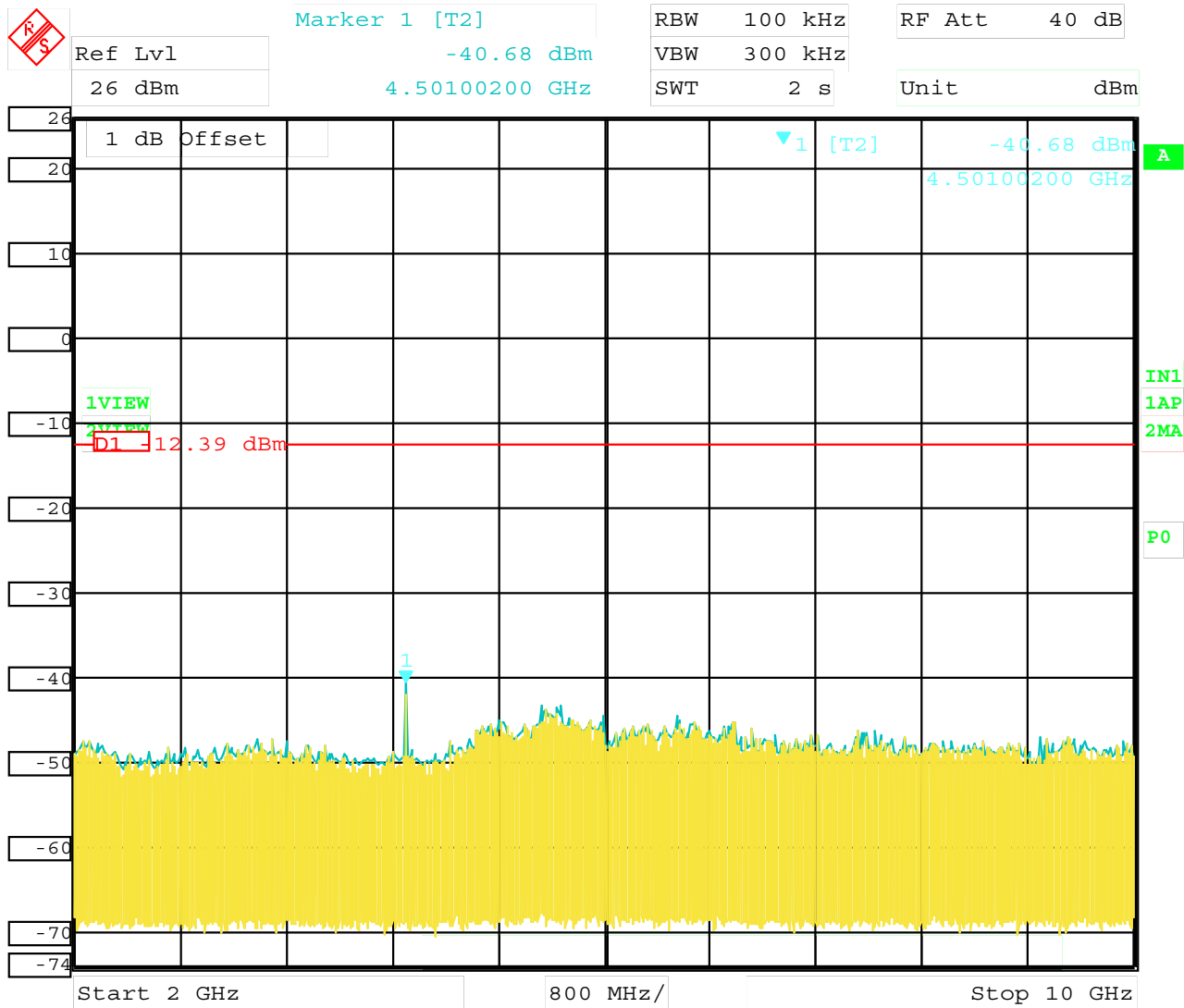


Ref Lvl 26 dBm
Marker 1 [T2] 7.61 dBm
902.30000000 MHz
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 1.15 s Unit dBm



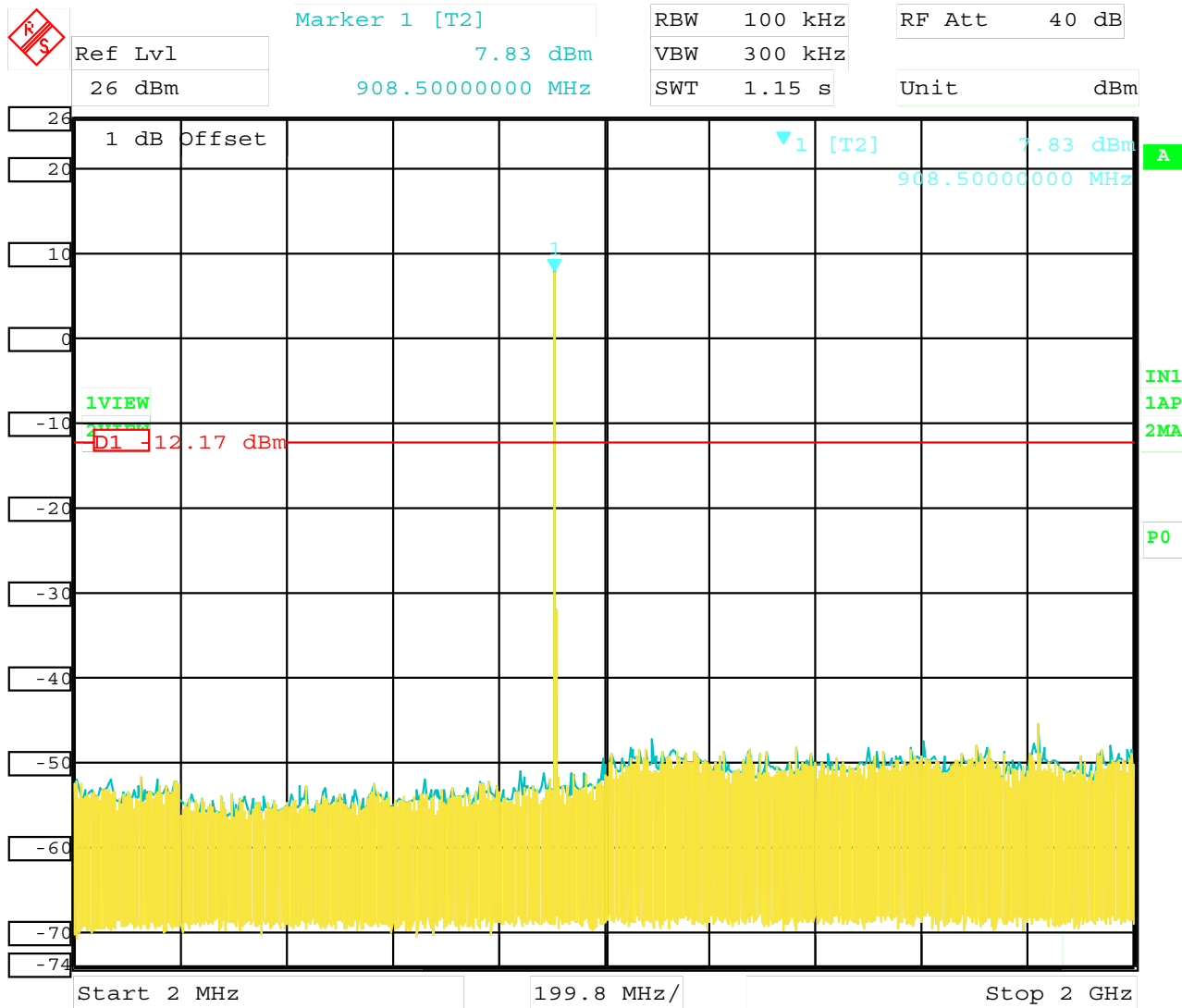
Date: 12.MAR.2008 14:42:18

RF Antenna Conducted Test – Low Channel – 2 MHz to 2 GHz



Date: 12.MAR.2008 14:43:16

RF Antenna Conducted Test – Low Channel – 2 GHz to 10 GHz

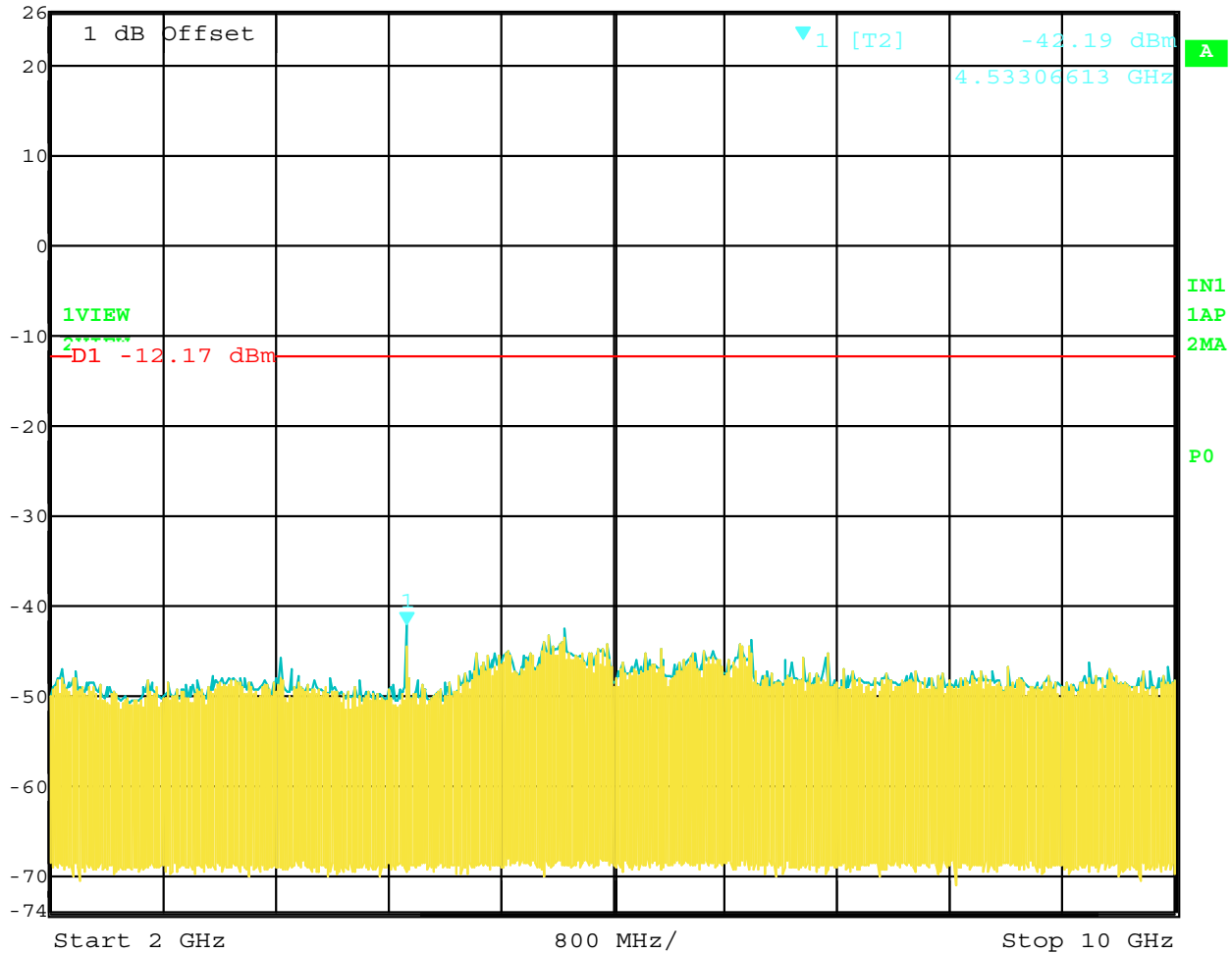


Date: 12.MAR.2008 14:45:14

RF Antenna Conducted Test – Middle Channel – 2 MHz to 2 GHz

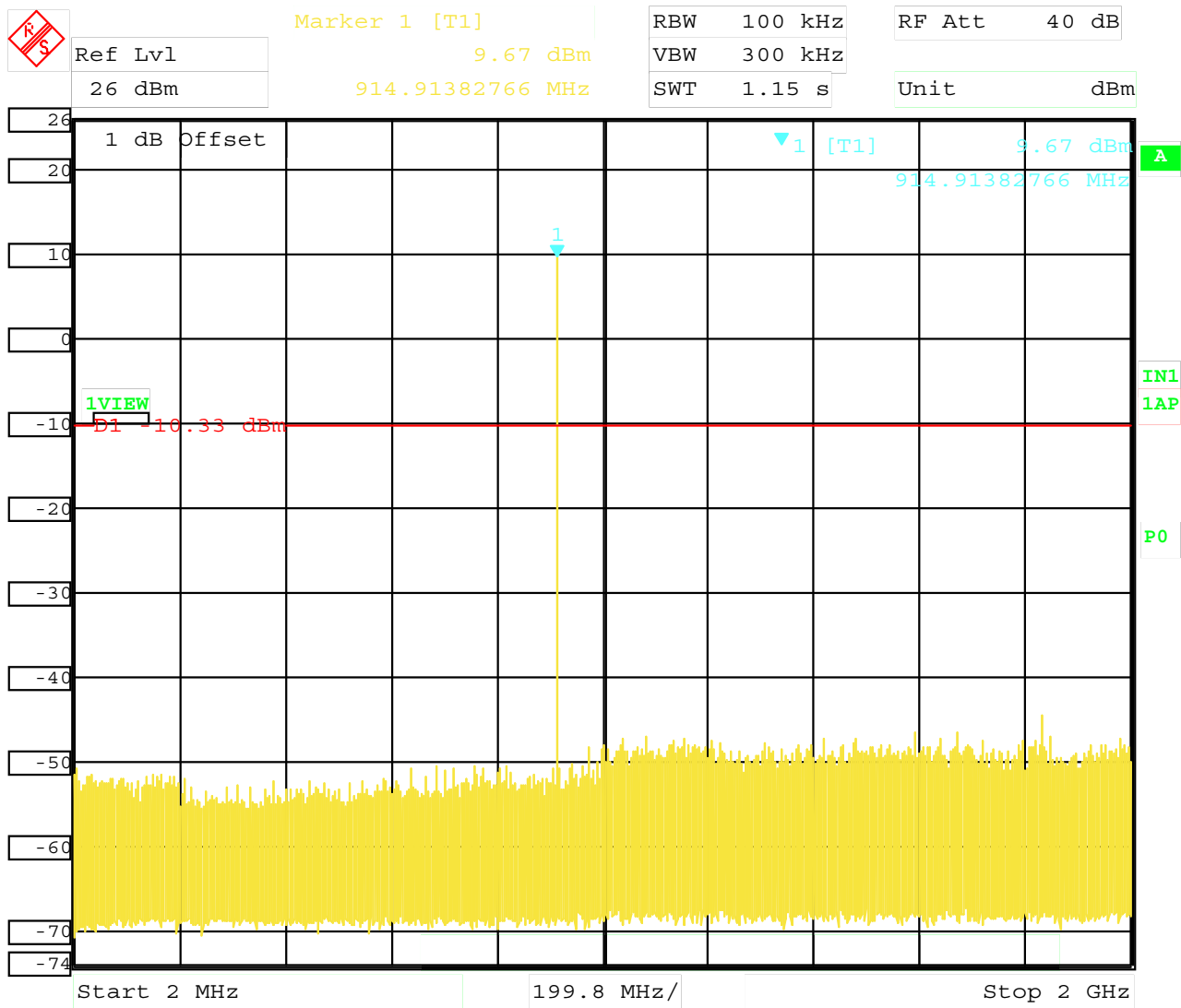


Ref Lvl 26 dBm
Marker 1 [T2] -42.19 dBm
4.53306613 GHz
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 2 s Unit dBm



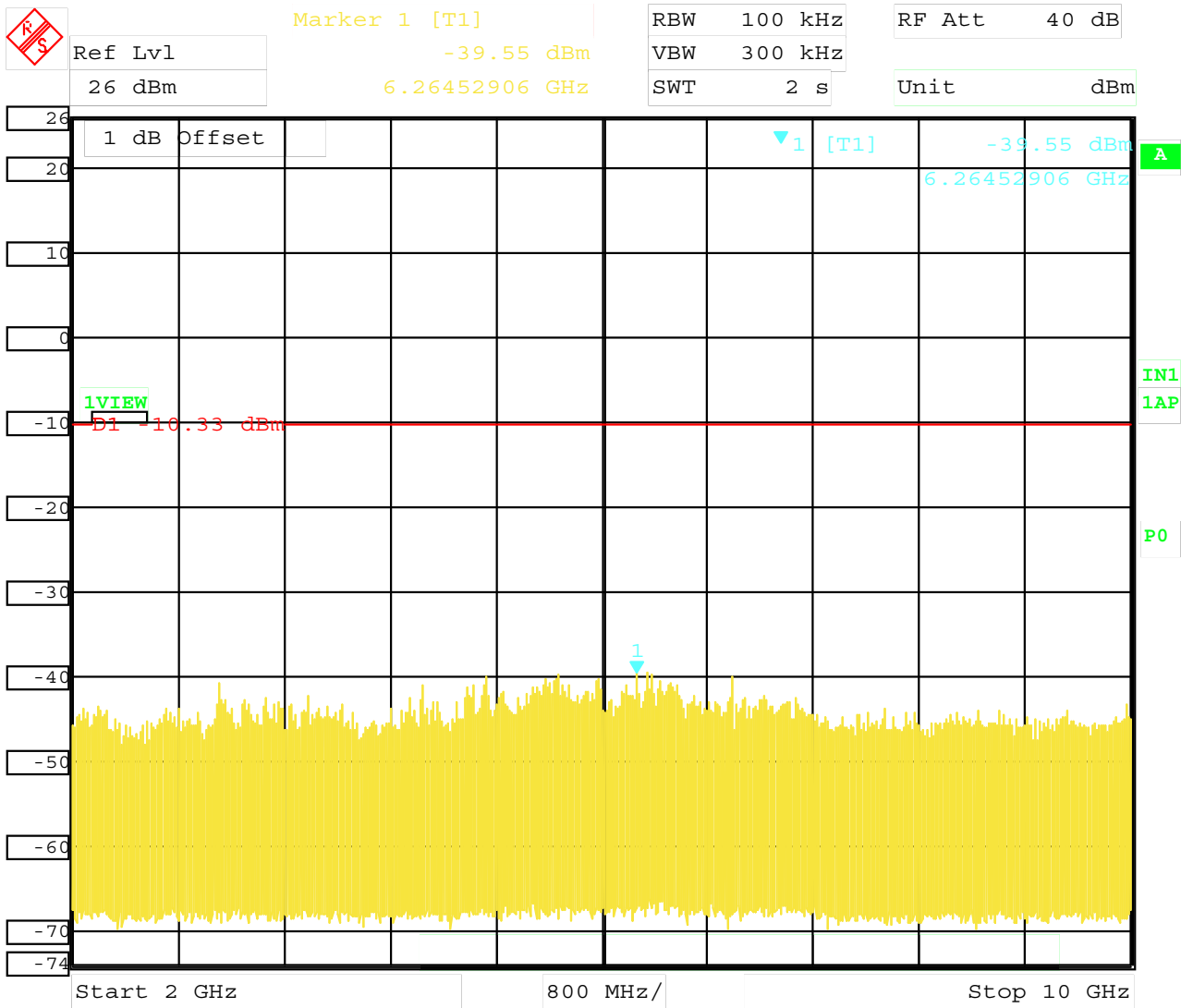
Date: 12.MAR.2008 14:45:37

RF Antenna Conducted Test – Middle Channel – 2 GHz to 10 GHz



Date: 13.MAR.2008 10:23:32

RF Antenna Conducted Test – High Channel – 2 MHz to 2 GHz



Date: 13.MAR.2008 10:24:11

RF Antenna Conducted Test – High Channel – 2 GHz to 10 GHz

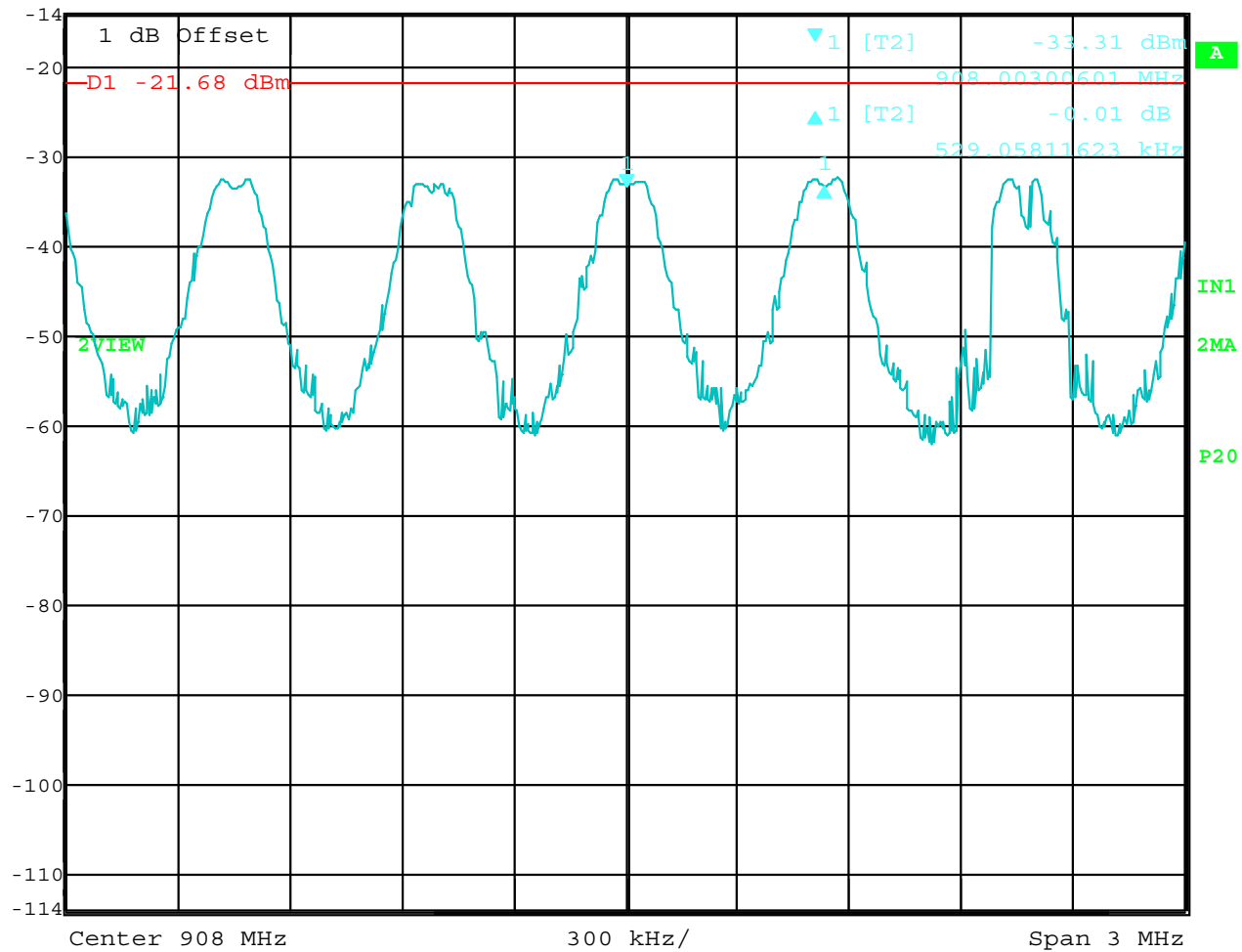


CHANNEL HOPPING SEPARATION

DATA SHEET



Ref Lvl	Delta 1 [T2]	RBW	100 kHz	RF Att	40 dB
-14 dBm	-0.01 dB	VBW	1 MHz		
	529.05811623 kHz	SWT	5 ms	Unit	dBm



Date: 12.MAR.2008 13:29:13

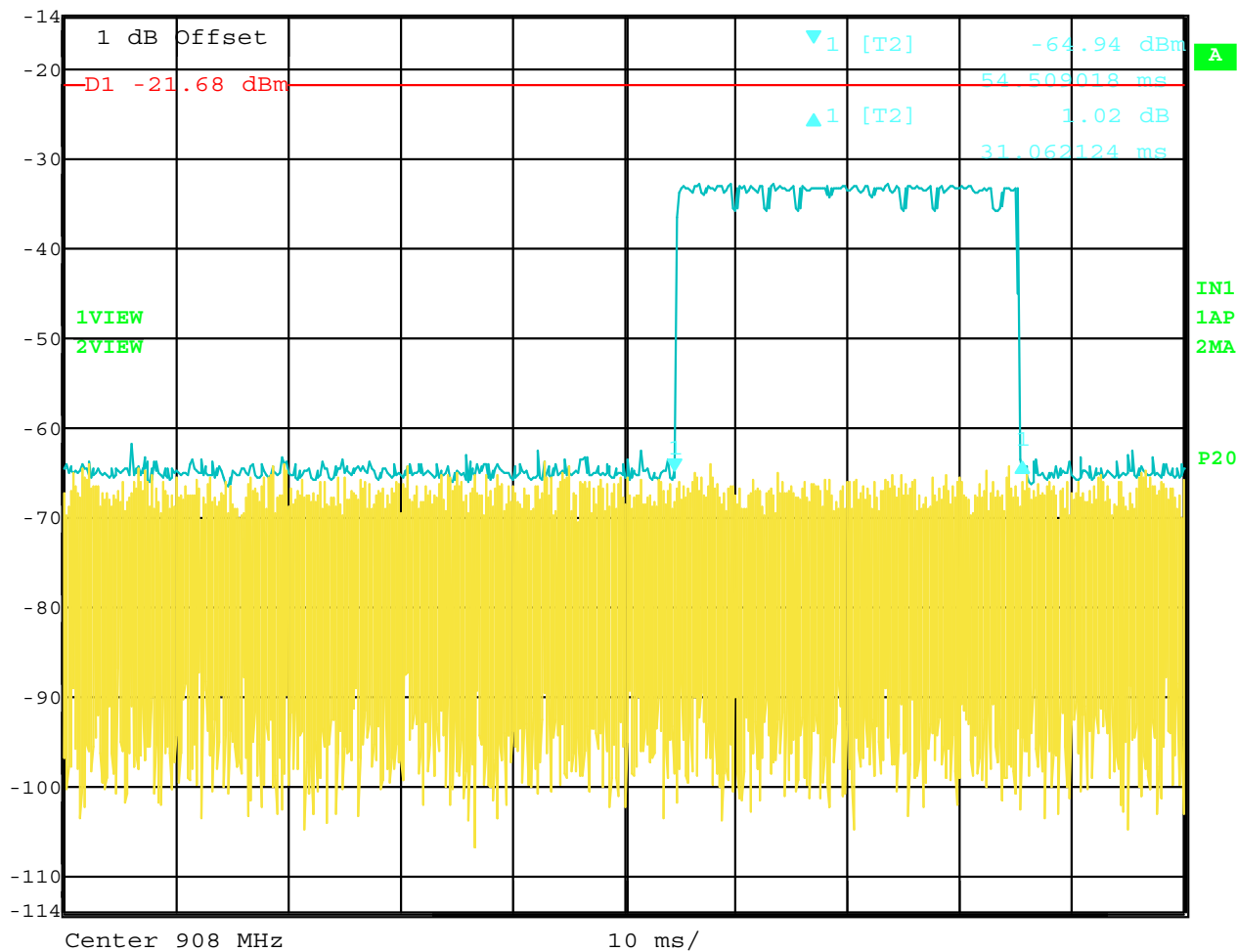
Channel Frequency Separation Test

AVERAGE TIME OF OCCUPANCY

DATA SHEETS



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 1.02 dB VBW 300 kHz
-14 dBm 31.062124 ms SWT 100 ms Unit dBm



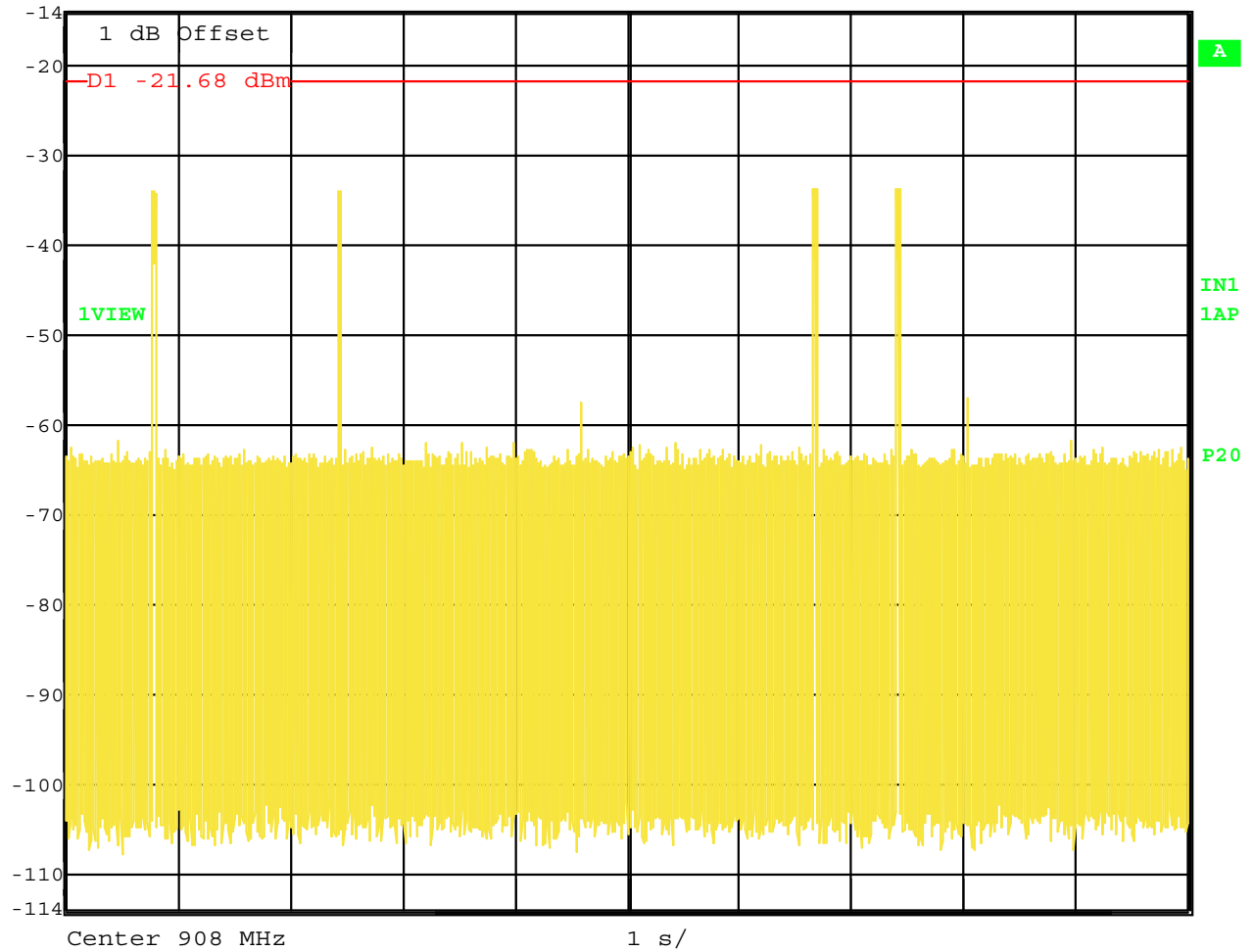
Date: 12.MAR.2008 13:18:45

Time of One Pulse = 31.062124 mS



Ref Lvl
-14 dBm

RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 10 s Unit dBm



Date: 12.MAR.2008 13:00:29

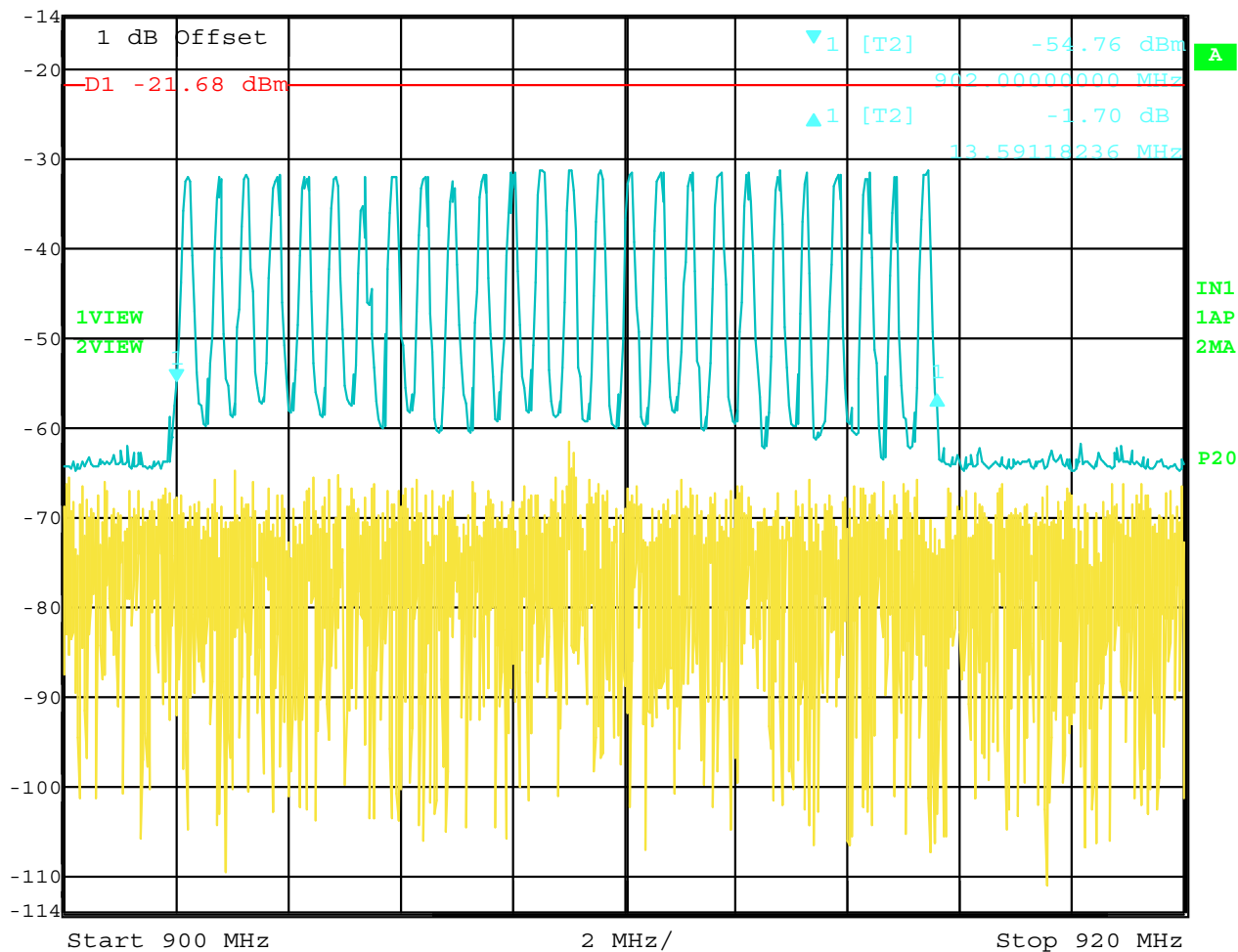
Number of Pulses in 10 seconds = 4
Time of One Pulse = 31.062124 mS
Total Dwell time in 10 seconds = 124.248496 mS
Limit = 400 mS / 10 second period

NUMBER OF HOPPING FREQUENCIES

DATA SHEET

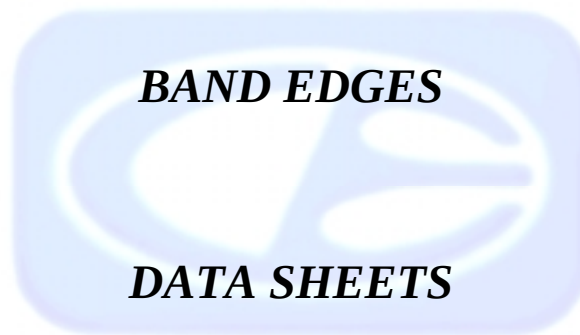


Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -1.70 dB VBW 1 MHz
-14 dBm 13.59118236 MHz SWT 5 ms Unit dBm



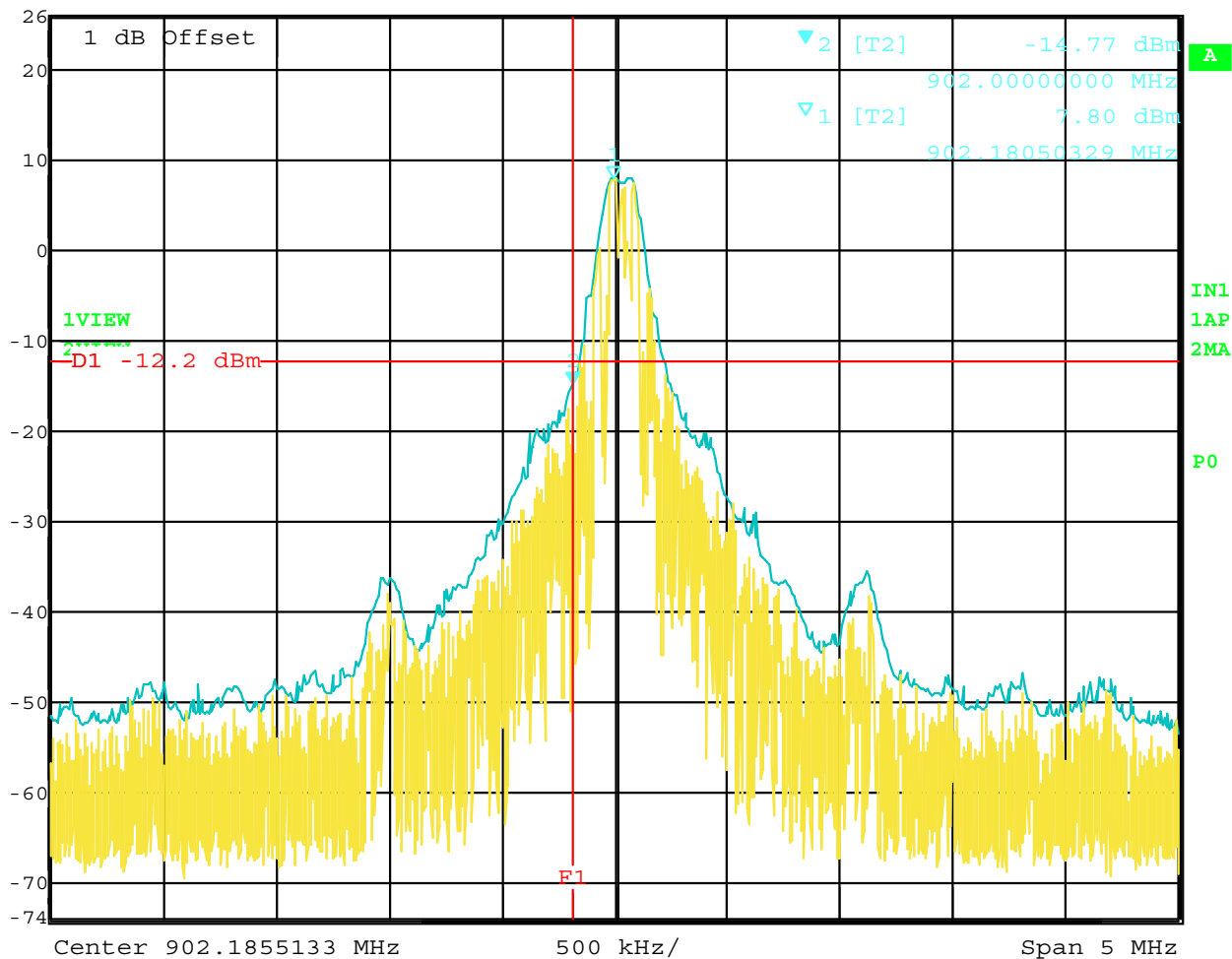
Date: 12.MAR.2008 13:25:18

Number of Channels – 26





Ref Lvl 26 dBm
Marker 2 [T2] -14.77 dBm
902.00000000 MHz
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 5 ms Unit dBm

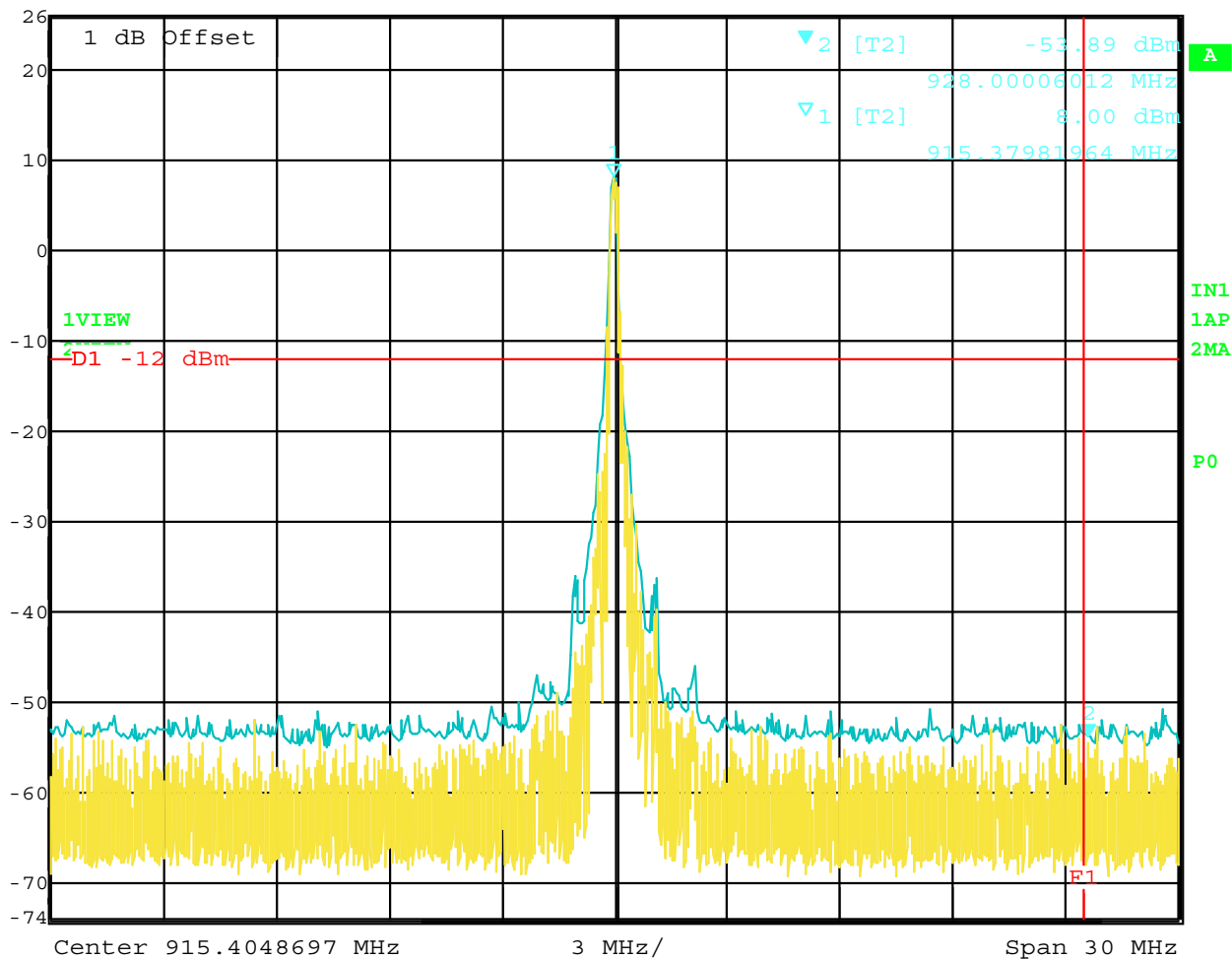


Date: 12.MAR.2008 14:40:04

Band Edge – Low Channel



Ref Lvl 26 dBm
Marker 2 [T2] -53.89 dBm
928.00006012 MHz
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 7.5 ms Unit dBm



Date: 12.MAR.2008 15:16:02

Band Edge – High Channel