

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

AirCast Auto

MODEL: F4U037

Prepared for

BELKIN INTERNATIONAL, INC.
12045 EAST WATERFRONT DRIVE
PLAYA VISTA, CA 90094

Prepared by: _____

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DATE: September 29, 2010

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
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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: AirCast Auto
Model: F4U037
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified.

Manufacturer: BELKIN INTERNATIONAL, INC.
12045 East Waterfront Drive
Playa Vista, CA 90094

Test Dates: September 15th, 16th, 20th 2010

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

Test Procedure: ANSI C63.10: 2009

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

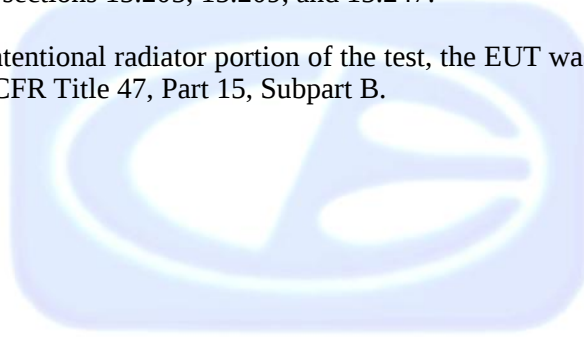
SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	The EUT is battery powered; therefore this test was not preformed.
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)(iii)
7	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(1)
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)
10	Average Time of Occupancy	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(iii)
11	Peak Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (f)

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the AirCast Auto, Model: F4U037. The EMI measurements were performed according to the measurement procedure described in ANSI C63.10: 2009. 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, 15.209, 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, 20621 Pascal Way, Lake Forest, California 92630.

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

Belkin International, Inc.

Daniel Wesey EMC Regulatory Compliance Engineer

Compatible Electronics Inc.

Matt Harrison Test Technician
Josh Hansen Lab Manager, Lake Forest Division
Jeff Klinger Director of Engineering

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample was returned to Belkin Inc.

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 B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.10 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The AirCast Auto, Model: F4U037 (EUT) was connected to a battery via a CLA recipical, speakers via its 3.5mm male audio jack and a charging iPod via a iPod charge/sync cable. The EUT was continuously transmitting during the test.

Operation of the EUT during the testing:

For the intentional radiator portion of the test: The EUT used a program that locked one channel at a time so that the low, middle, and high channels could be tested. This allowed the EUT to be in a no hopping mode. The EUT was tested in two orthogonal axis. The carrier was modulated in the same way it would be when the EUT was in its normal frequency hopping mode.

For the unintentional radiator and conducted emission portion of the test: The EUT used a program that allowed the EUT to function as normal (the channels frequency hopping) on a continuous basis.

The final radiated as well as the conducted data was taken in the modes above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 1.55-meter unshielded cable connecting the EUT CLA with the EUT Button. The cable is hardwired at both ends.
- Cable 2** This is a 1.3-meter unshielded cable connecting the EUT with the speakers. The cable has a 3.5mm audio jack connector at the EUT side and is hardwired at the speaker side.
- Cable 3** This is a 1.15-meter unshielded cable connecting the Channel 1 speaker with the Channel 2 speaker. The cable is hardwired at both ends.
- Cable 4** This is a 1.2-meter braid and foil shielded cable connecting the EUT with the iPod. The cable has a USB connector at the EUT side and a proprietary connector at the iPod end.

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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
AIRCAST AUTO (EUT)	Belkin International, Inc.	F4U037	N/A	K7SF4U037
MP3 Player	Apple, Inc.	iPod (A1236)	7N742NBPY0P	N/A
Speakers	Inland	Pro Sound 1000	N/A	N/A
12V battery	N/A	N/A	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	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100172	1/07/2009	1/07/2011
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com Power	AC-220	001	5/06/2010	5/06/2011
Loop Antenna	Com-Power	AL-130	17085	8/01/2008	8/01/2011
Horn Antenna	Com-Power	AH-118	071225	11/24/2009	11/24/2011
Horn Antenna	Com-Power	AH-826	081033	11/8/2005	N.C.R.
Pre Amplifier	Com-Power	PA-122	01321	2/1/2010	2/1/2011
Pre Amplifier	Com-Power	PA-840	181289	2/1/2010	2/1/2011
RF RADIATED EMISSIONS TEST EQUIPMENT					
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A

6. TEST SITE DESCRIPTION1**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. CHARACTERISTICS OF THE TRANSMITTER

7.1 Transmitter Power

Transmit power is herein defined as the power delivered to a 50 ohm load at the RF output of the EUT.

Power	Channel
6.79 dBm	LOW
6.12 dBm	MIDDLE
5.48 dBm	HIGH

7.2 Channel Number and Frequencies

There are a total of 79 channels. The low channel is at 2402.0 MHz and the high channel is at 2480.0 MHz. There is a 1 MHz separation between channels.

Channel 1: 2402 MHz
Channel 2: 2403 MHz
(Etc.)

7.3 Antenna Gain

The antenna has a gain of 2 dBi.

8. TEST PROCEDURES

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

8.1 RF Emissions

8.1.1 Conducted Emissions Test

(This test was not performed)

The receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. The quasi-peak detector was used only where indicated in the data sheets. An attenuator was used for the protection of the receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the receiver. 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 C63.10: 2009. 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 receiver at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT is battery powered therefore this test was not performed.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies above 18 GHz.

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 receiver 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 1000 MHz	120 kHz	CombiLog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The Semi-Anechoic test site of Compatible Electronics, Inc, Lab P (Lake Forest) was used for radiated emission testing. This test site is set up according to ANSI C63.10: 2009. 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. 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 gun sight method was used when measuring with the horn antenna in order to ensure accurate results. The EUT was tested at a 3 meter test distance from 10 kHz to 25 GHz to obtain the final test data.

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. There were no emissions found below 30MHz or above 1GHz. Please see Appendix E for the data sheets.

8.2 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 30 kHz and the video bandwidth was 100 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)(iii). The 20 dB bandwidth is less than the separation between channels. Please see the data sheets located in Appendix E.

8.3 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 3 MHz and the video bandwidth was 10 MHz. The cable loss was added back into the reading using an internal factor feature.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(1). The maximum peak output power is less than 1 watt. Please see the data sheets located in Appendix E.

8.4 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 MHz. 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.

8.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (2400 MHz when the EUT was on the low channel and 2483.5 MHz when the EUT was on the high channel) using the EMI Receiver. A preamplifier was used to boost the signal level, with the plots being taken at a 3 meter test distance. The radiated emissions test procedure as describe in section 8.2 of this test report was used to maximize the emission.

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 2400 MHz and 2483.5 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.

8.6 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 1 MHz, 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)(iii). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix D.

8.7 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 1 MHz, 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)(iii). The number of hopping frequencies is 79. Please see the data sheets located in Appendix E.

8.8 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 5 msec to determine the time for each transmission.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. This means the time of occupancy of any one channel cannot be greater than 0.4 seconds in a 31.6 second period (0.4 seconds * 79 channels).

The sweep time was then changed to 2 seconds and the number of pulses taken. The number of pulses was then multiplied by 15.8 to determine the number of pulses in a 31.6 second period. The number of pulses in a 31.6 second period was then multiplied by the time for each pulse 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)(iii). The EUT does not transmit for more than 400 msec in a 31.6 second period on any frequency. Please see the data sheets located in Appendix E.

8.9 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.

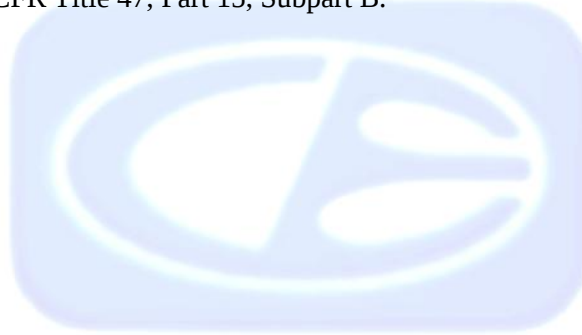
Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (f).

9. CONCLUSIONS

The AirCast Auto Model: F4U037 meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 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: 200527-0

Voluntary Control Council for Interference - Registration Numbers: R-3276, C-3645, T-11758

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:

Industry Canada
Site Number: 2154C-1



APPENDIX B

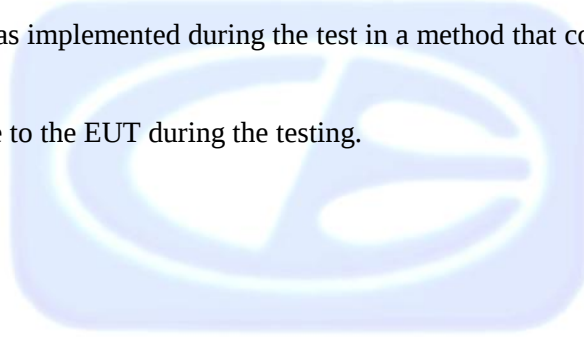
MODIFICATIONS TO THE EUT

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.

There were no modifications made to the EUT during the testing.





APPENDIX C

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

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

AirCast Auto
Model: F4U037
S/N: N/A

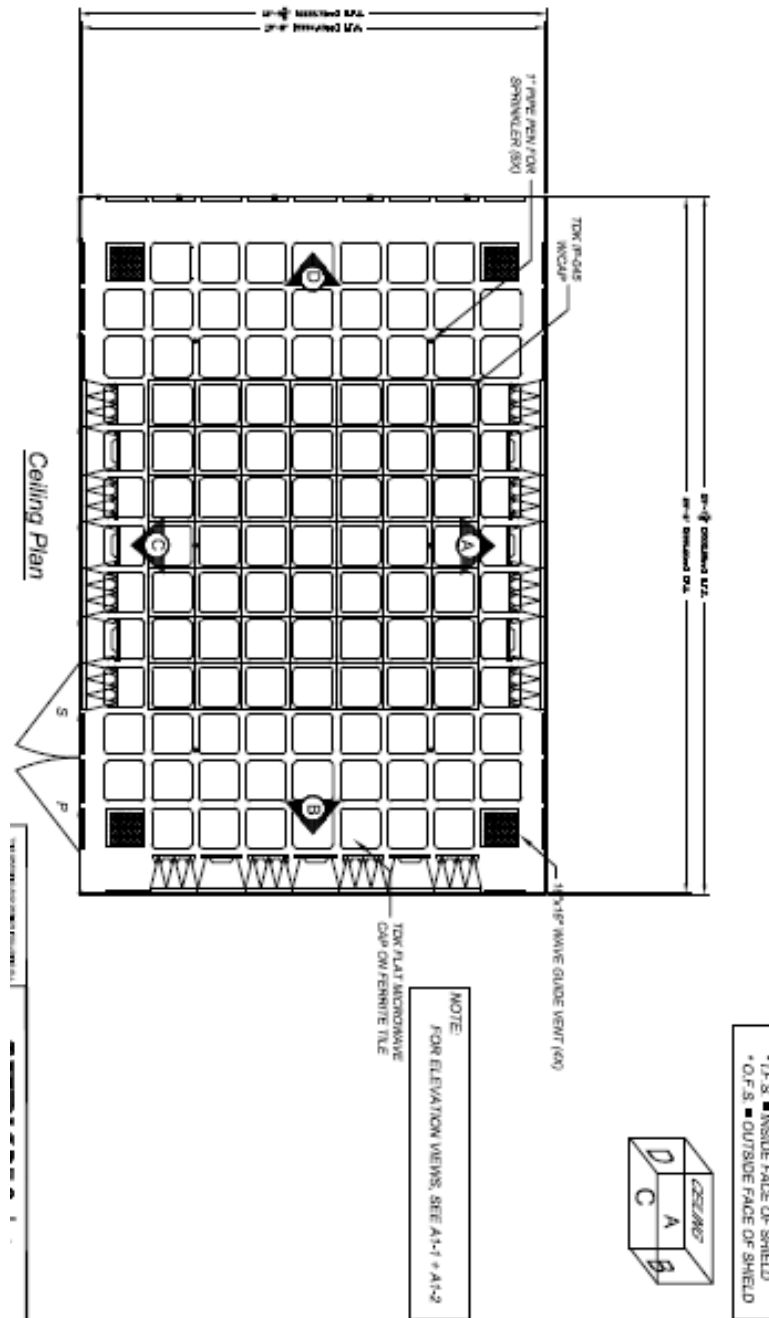
There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE



TDK FAC-3 test chamber

COM-POWER AL-130**LOOP ANTENNA****S/N: 17085****CALIBRATION DATE: August 1, 2008**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-43	8.5	0.8	-41.53	9.97
0.01	-41.93	9.57	0.9	-41.46	10.04
0.02	-41.29	10.21	1	-41.29	10.21
0.03	-40.73	10.77	2	-40.97	10.53
0.04	-41.03	10.47	3	-41.1	10.4
0.05	-42.37	9.13	4	-41.36	10.14
0.06	-41.6	9.9	5	-40.93	10.57
0.07	-41.96	9.54	6	-40.67	10.83
0.08	-42.1	9.4	7	-41.07	10.43
0.09	-41.83	9.67	8	-40.9	10.6
0.1	-41.83	9.67	9	-40.1	11.4
0.2	-44.46	7.04	10	-41.16	10.34
0.3	-41.73	9.77	15	-47.97	3.53
0.4	-41.8	9.7	20	-40.77	10.73
0.5	-41.8	9.7	25	-44.37	7.13
0.6	-41.33	10.17	30	-43.1	8.4
0.7	-41.36	10.14			

COM-POWER AC-220**COMBYLOG ANTENNA****S/N: 001****CALIBRATION DATE: *May 6, 2010***

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
20.0	22.1	300.0	14.9
25.0	21.1	400.0	16.5
30.0	20.6	500.0	18.5
40.0	19.8	700.0	21.1
50.0	19.0	900.0	23.2
60.0	13.8	1000.0	24.6
70.0	9.6	1100.0	24.8
80.0	8.7	1300.0	24.9
100.0	11.6	1500.0	27.2
150.0	9.4	1700.0	27.2
200.0	10.8	2000.0	29.0
250.0	14.9	2100.0	29.0

COM POWER AH-118**HORN ANTENNA**

S/N: 071225

CALIBRATION DATE: *November 24, 2009*

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1000	25	9500	37.7
1500	25.4	10000	39.4
2000	28.5	10500	39.4
2500	28.5	11000	39.2
3000	30.1	11500	40.3
3500	30.6	12000	39
4000	30.4	12500	40.7
4500	32.1	13000	39.8
5000	33.3	13500	40.1
5500	33.4	14000	43
6000	34.6	14500	43.8
6500	35.1	15000	41.5
7000	37.2	15500	38.9
7500	37.8	16000	39.8
8000	37.5	16500	40
8500	37.4	17000	41.7
9000	38	17500	46.1
		18000	46.4

COM-POWER PA-122**PREAMPLIFIER**

S/N: 01321

CALIBRATION DATE: *February 1, 2010*

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
500	31.52	13500	30.13
1000	31.53	14000	30.58
1500	31.24	14500	30.58
2000	30.99	15000	29.12
2500	30.66	15500	28.92
3000	30.44	16000	29.7
3500	29.9	16500	29.65
4000	29.27	17000	28.64
4500	28.63	17500	28.26
5000	28.2	18000	27.76
5500	28.13	18500	27.29
6000	28.4	19000	27.11
6500	28.29	19500	26.99
7000	28.19	20000	26.92
7500	28.72	20500	24.87
8000	29.22	21000	25.17
8500	29.05	21500	26.97
9000	28.71	22000	25.73
9500	28.5	22500	23.43
10000	29.13	23000	20.9
10500	29.92	23500	15.81
11000	29.96	24000	9.12
11500	29.55	24500	4.18
12000	30.03	25000	-0.41
12500	30.43	25500	-3.32
13000	30.02	26000	-7.42
		26500	-6.73

COM-POWER AH826**HORN ANTENNA****S/N: 081033****CALIBRATION DATE: *November 28, 2005***

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	32.8	22.5	32.7
18.5	32.2	23.0	32.7
19.0	31.9	23.5	32.0
19.5	31.5	24.0	32.9
20.0	33.3	24.5	33.7
20.5	33.7	25.0	34.1
21.0	32.6	25.5	33.6
21.5	33.2	26.0	35.1
22.0	33.0	26.5	33.6

COM-POWER PA-840**MICROWAVE PREAMPLIFIER**

S/N: 181289

CALIBRATION DATE: February 1, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18000	30.78	31000	30.71
19000	27.79	31500	29.83
20000	28.36	32000	29.2
21000	26.71	32500	30.06
22000	28.05	33000	31.15
23000	26.76	33500	29.18
24000	28.66	34000	28.28
25000	30.72	34500	27.82
26000	32.25	35000	29.9
26500	31.19	35500	28.58
27000	31.79	36000	27.71
27500	32.1	36500	27.97
28000	32.31	37000	30.82
28500	29.5	37500	25.92
29000	30.31	38000	28.08
29500	29.29	38500	30.06
30000	30.74	39000	31.08
30500	29.88	39500	25.67
		39999	31.67



FRONT VIEW

BELKIN INTERNATIONAL, INC.
AIRCAST AUTO
MODEL: F4U037
FCC SUBPART B AND C – RADIATED EMISSIONS

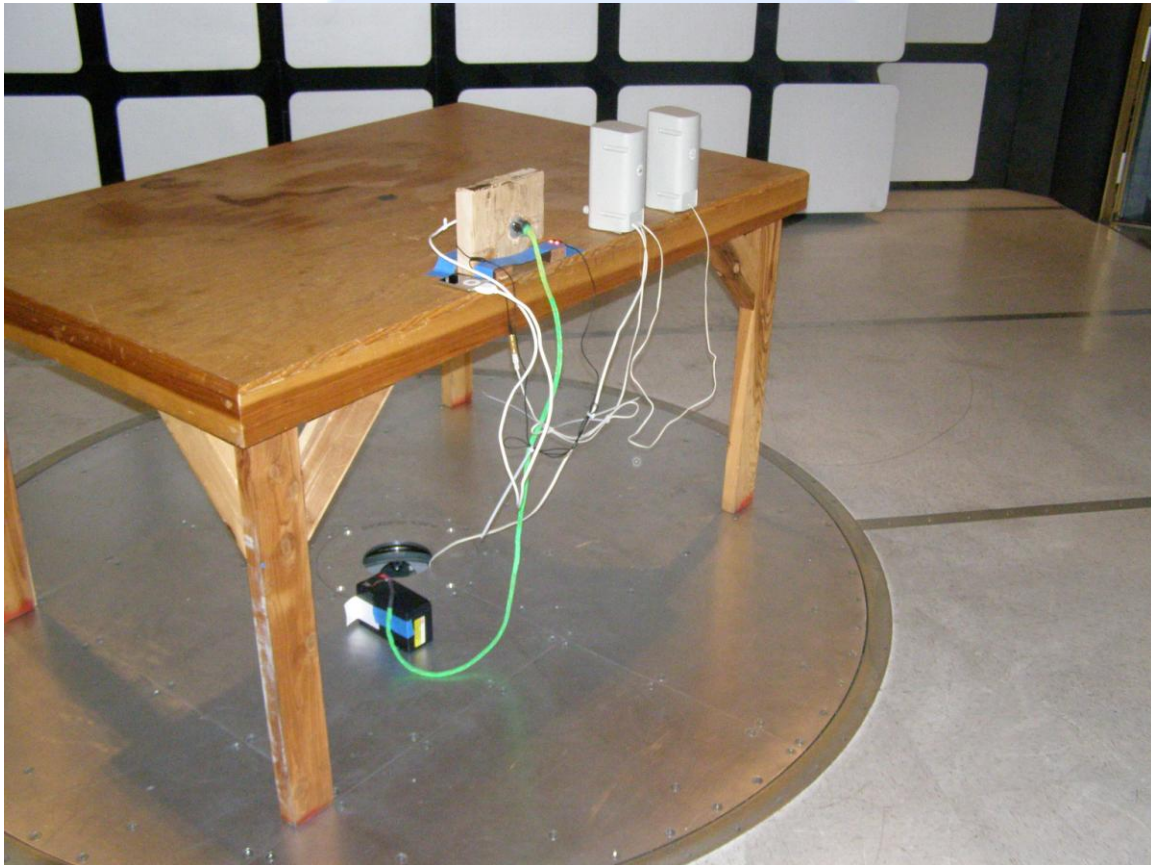
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

BELKIN INTERNATIONAL, INC.

AIRCAST AUTO

MODEL: F4U037

FCC SUBPART B AND C – RADIATED EMISSIONS

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



APPENDIX E

DATA SHEETS

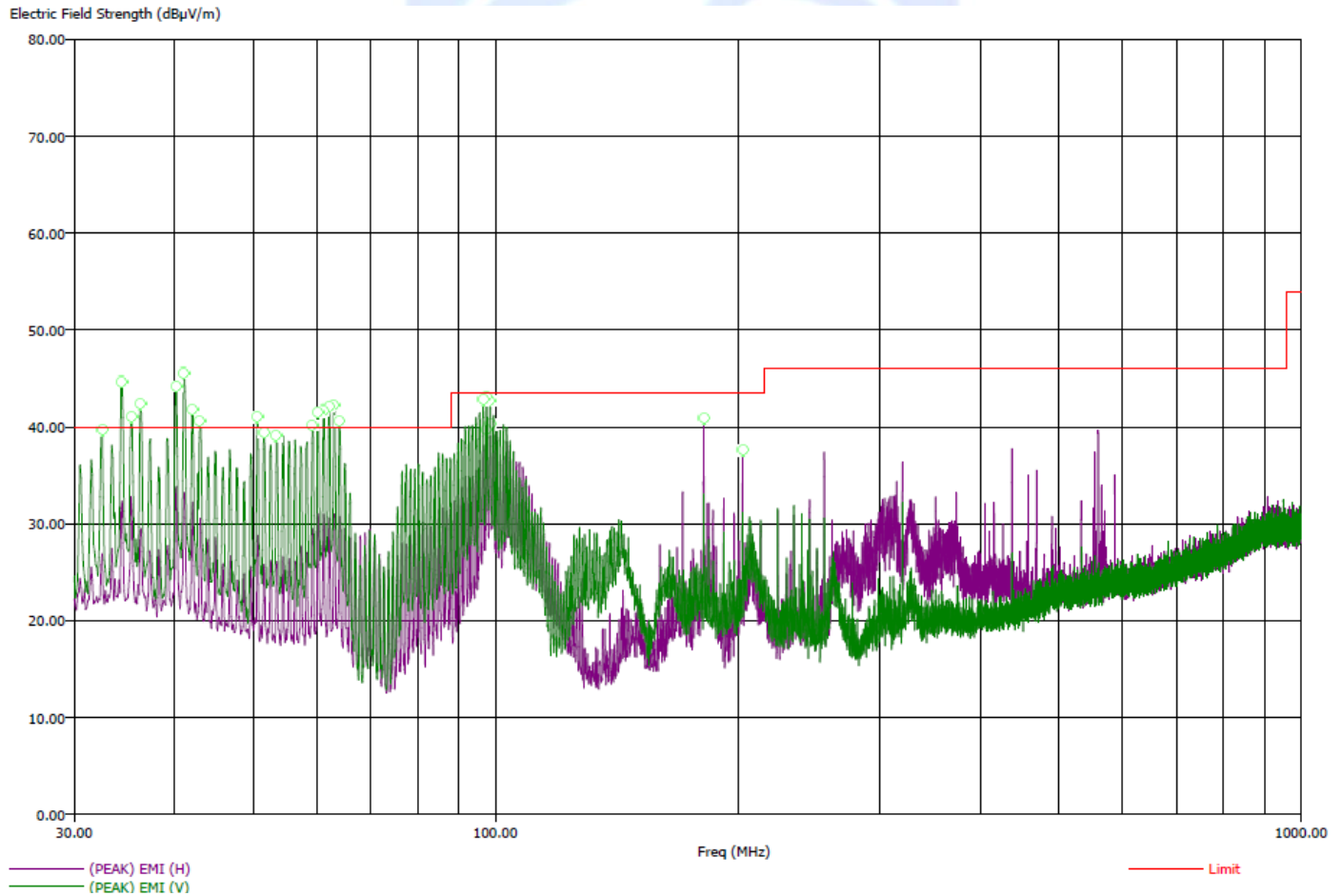


RADIATED EMISSIONS

DATA SHEETS

Title: FCC 15.209B
File: Radiated Pre-Scan 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: In Car Bluetooth (F4U037)
EUT Condition: Data Mode, Connected Speakers.
Comments: Connected to iPod by F8Z635-04 Cable, and to External Speakers by 3.5mm.
Witness: Daniel
Temp: 65f
Hum: 55%

9/15/2010 11:48:45 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB P)

Title: FCC 15.209B
File: Radiated Final 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: In Car Bluetooth (F4U037)
EUT Condition: Data Mode, Connected Speakers.
Comments: Connected to iPod by F8Z635-04 Cable, and to External Speakers by 3.5mm.
Witness: Daniel
Temp: 65f
Hum: 55%

9/15/2010 12:21:55 PM
Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (LAB P)

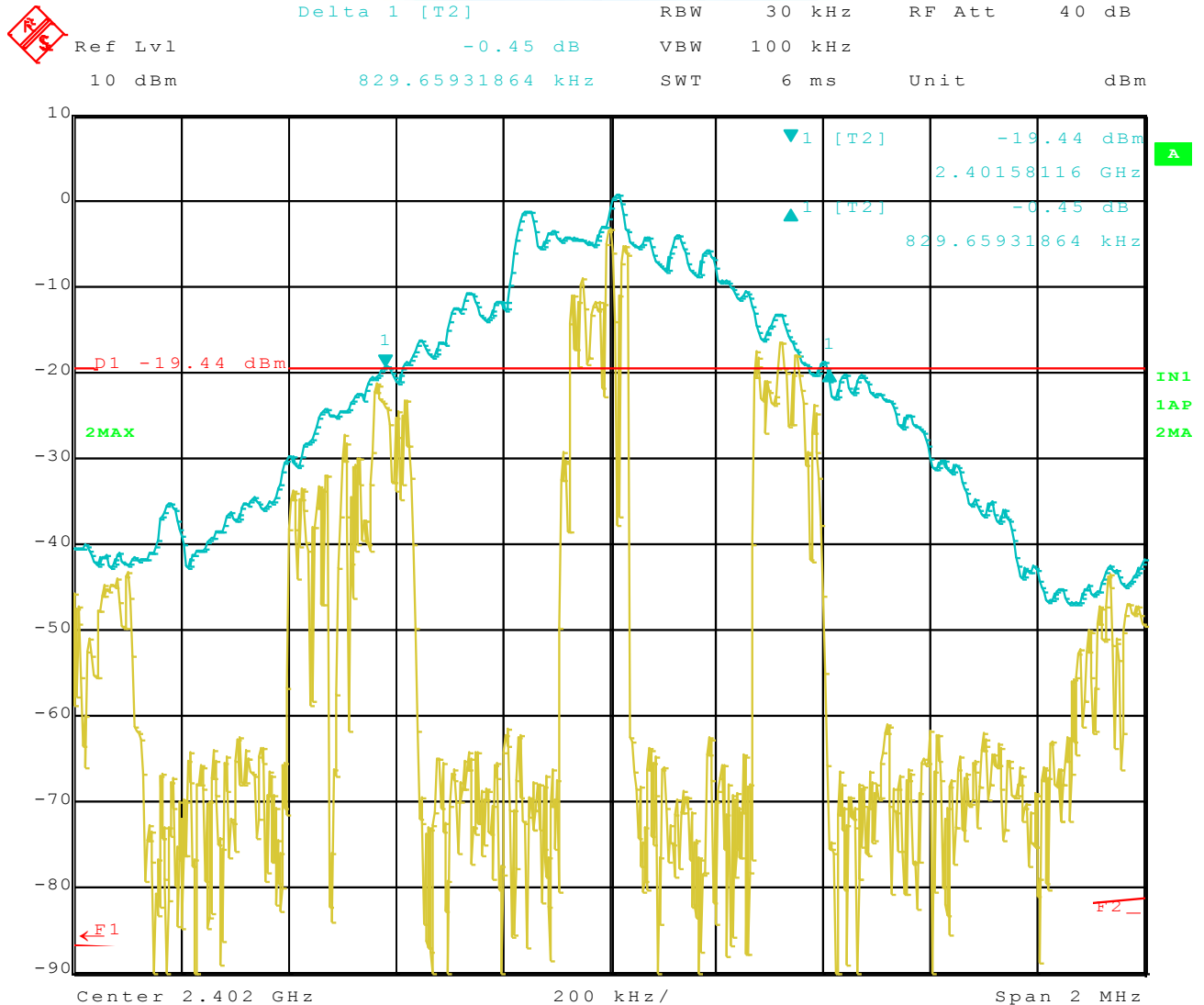
Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable (dB)
32.50	-6.46	33.54	39.03	40.00	V	141.00	104.23	20.50	0.57
34.40	-4.67	35.33	38.03	40.00	V	22.50	125.41	20.43	0.58
35.40	-6.76	33.24	40.00	40.00	V	0.00	99.29	20.34	0.59
36.30	-8.65	31.35	37.75	40.00	V	146.75	151.00	20.12	0.60
40.20	-9.35	30.65	41.20	40.00	V	6.75	109.41	19.30	0.62
41.10	-6.11	33.89	42.25	40.00	V	-0.75	136.88	19.01	0.63
42.10	-13.40	26.60	38.45	40.00	V	58.00	107.11	18.71	0.65
43.00	-11.26	28.74	30.83	40.00	V	6.00	163.94	18.44	0.66
50.70	-25.51	14.49	19.63	40.00	V	291.50	323.52	16.39	0.75
51.60	-12.58	27.42	33.78	40.00	V	359.00	99.94	16.29	0.75
53.50	-13.45	26.55	34.60	40.00	V	122.50	166.41	16.01	0.77
59.30	-18.30	21.70	27.54	40.00	V	359.00	108.17	15.22	0.82
60.30	-23.51	16.49	23.98	40.00	V	313.50	218.58	14.78	0.83
61.20	-20.45	19.55	25.50	40.00	V	124.00	132.47	14.23	0.83
62.10	-14.44	25.56	34.27	40.00	V	265.00	107.94	13.55	0.83
63.10	-22.47	17.53	23.92	40.00	V	152.25	104.35	12.49	0.83
64.00	-17.59	22.41	28.77	40.00	V	119.50	128.41	12.05	0.83
96.50	-34.88	8.64	13.15	43.52	V	41.25	203.23	9.64	1.05
97.50	-35.12	8.40	13.87	43.52	H	5.25	373.17	9.69	1.05
97.50	-35.19	8.33	14.22	43.52	V	320.75	285.17	9.68	1.05
98.50	-34.90	8.62	13.35	43.52	V	360.00	260.88	9.72	1.05
98.60	-34.90	8.62	13.79	43.52	H	5.00	151.00	9.73	1.05
181.40	-30.19	13.33	35.25	43.52	H	157.50	139.29	9.84	1.38
202.70	-31.71	11.81	32.23	43.52	H	305.00	200.05	10.56	1.51



-20 dB BANDWIDTH

DATA SHEETS

Low Channel -20 dB Bandwidth



Date: 20.SEP.2010 14:42:51

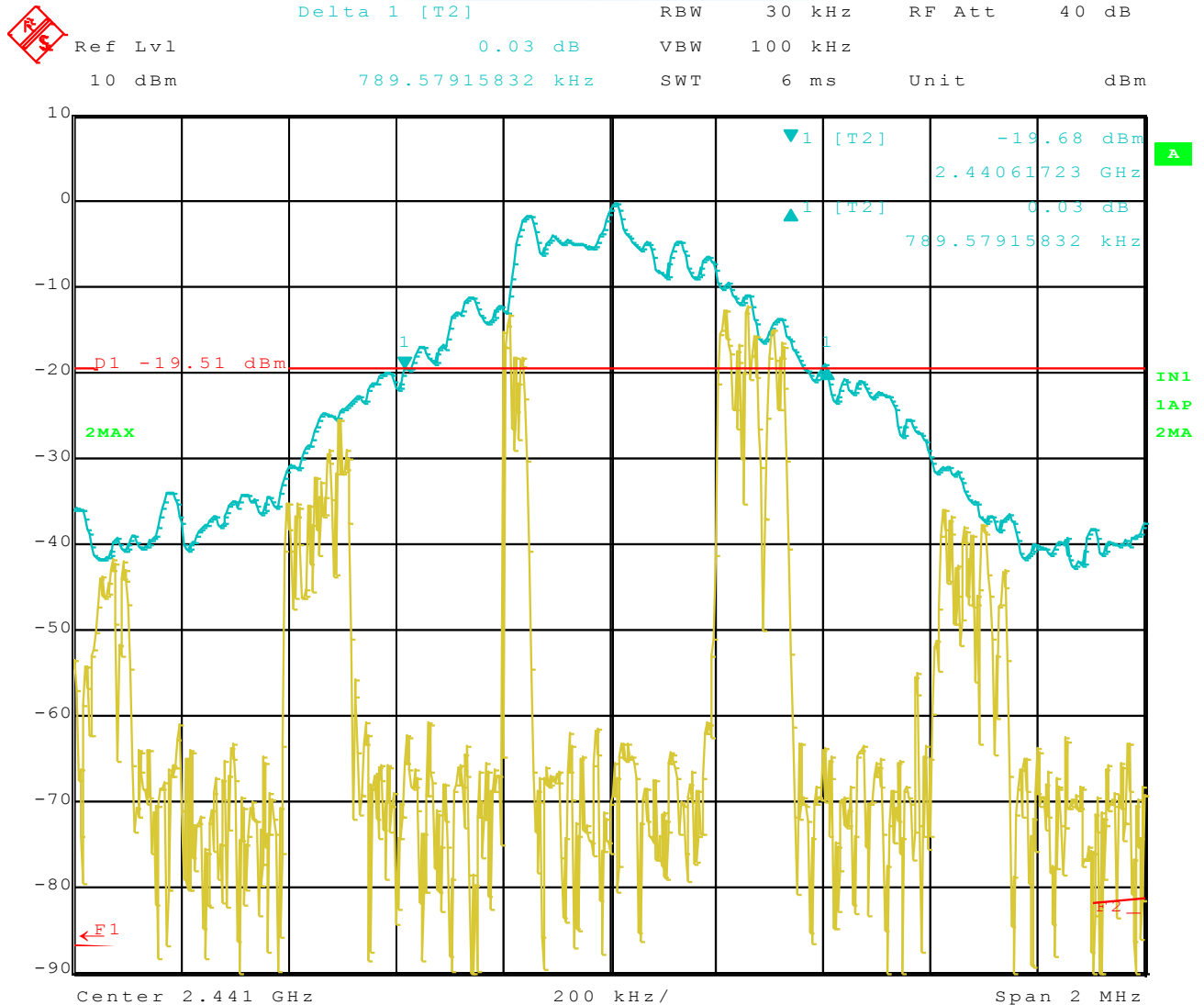
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

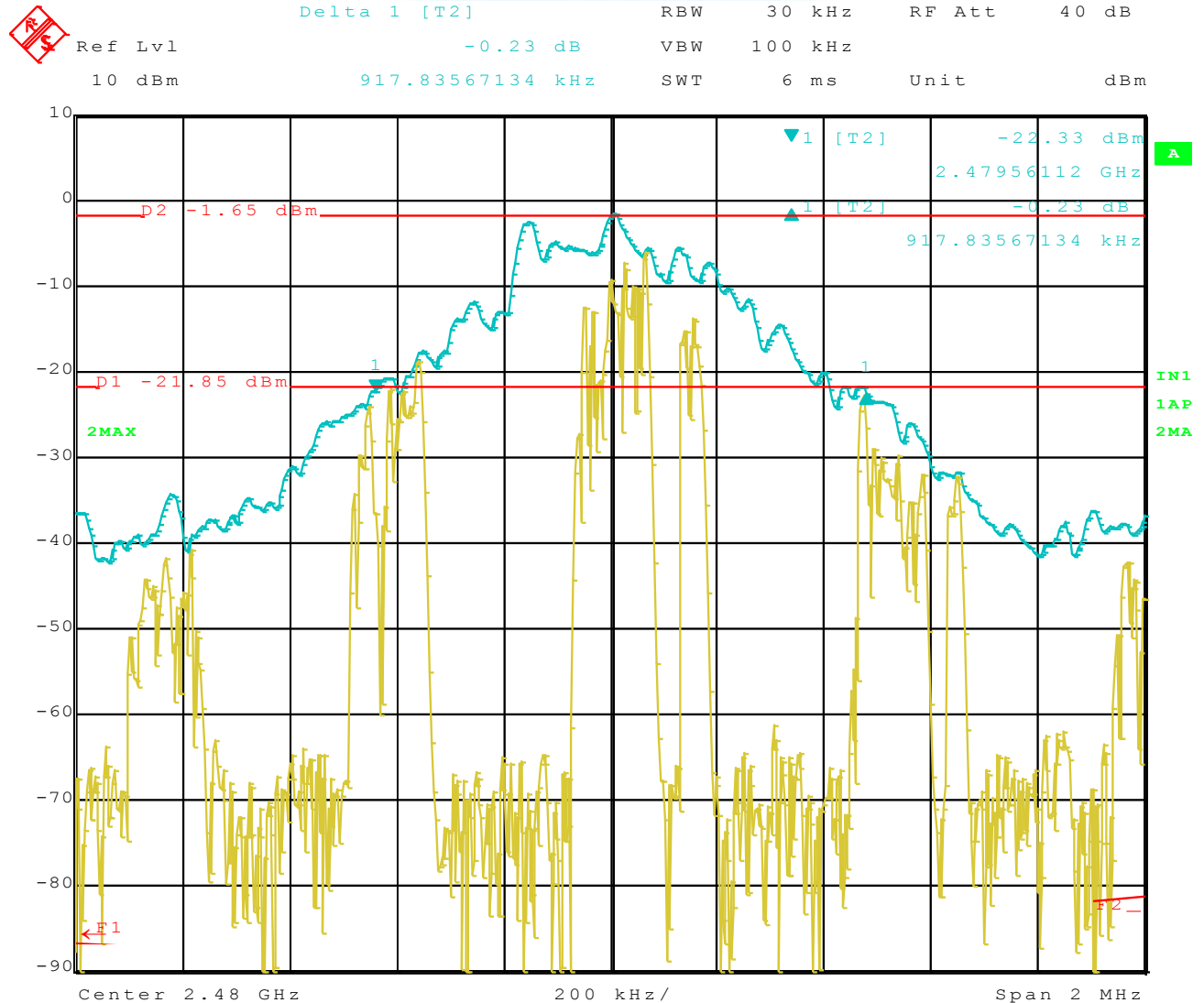
Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Middle Channel -20 dB Bandwidth



Date: 20.SEP.2010 14:47:11

High Channel -20 dB Bandwidth



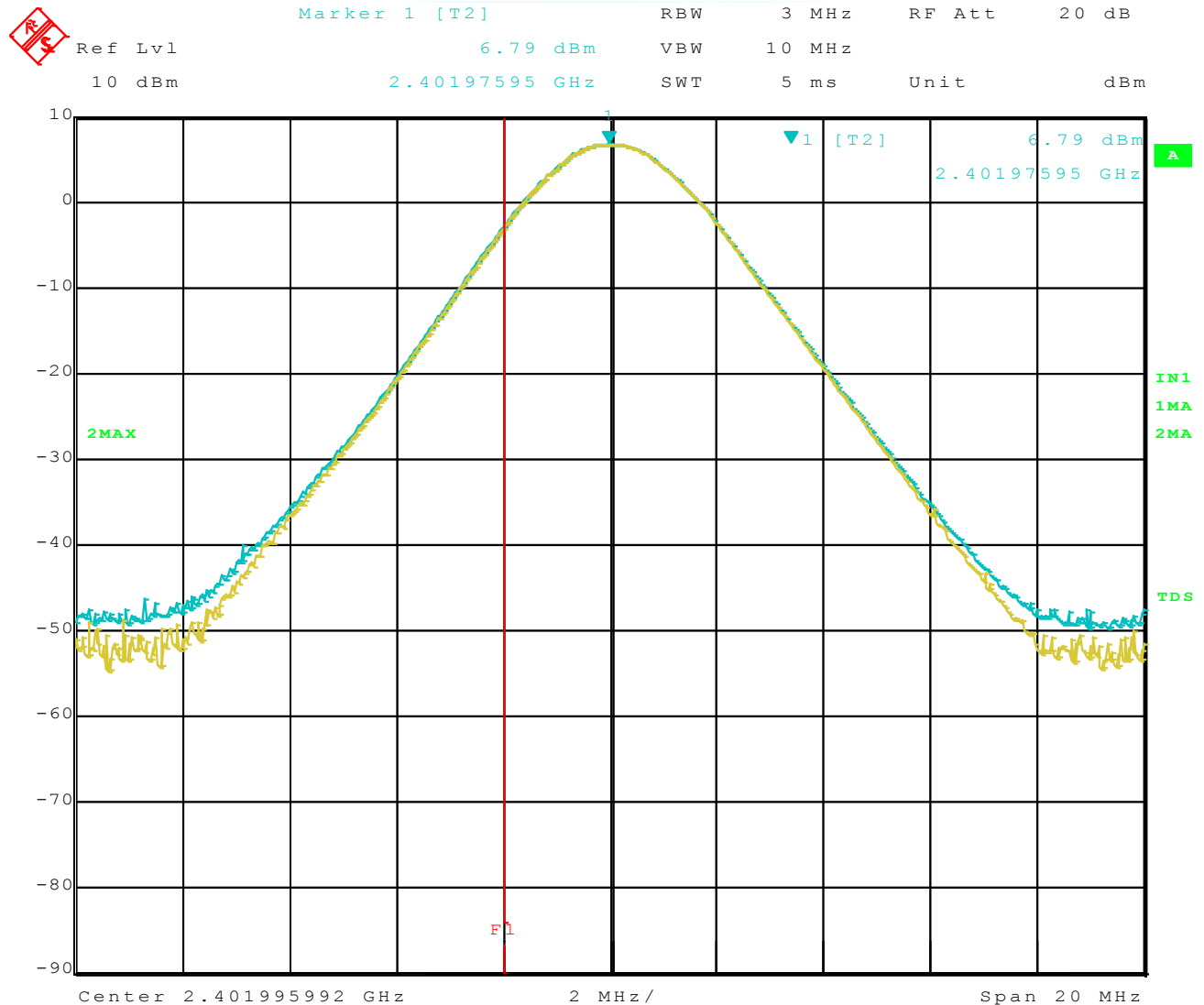
Date: 20.SEP.2010 14:56:47



PEAK POWER OUTPUT

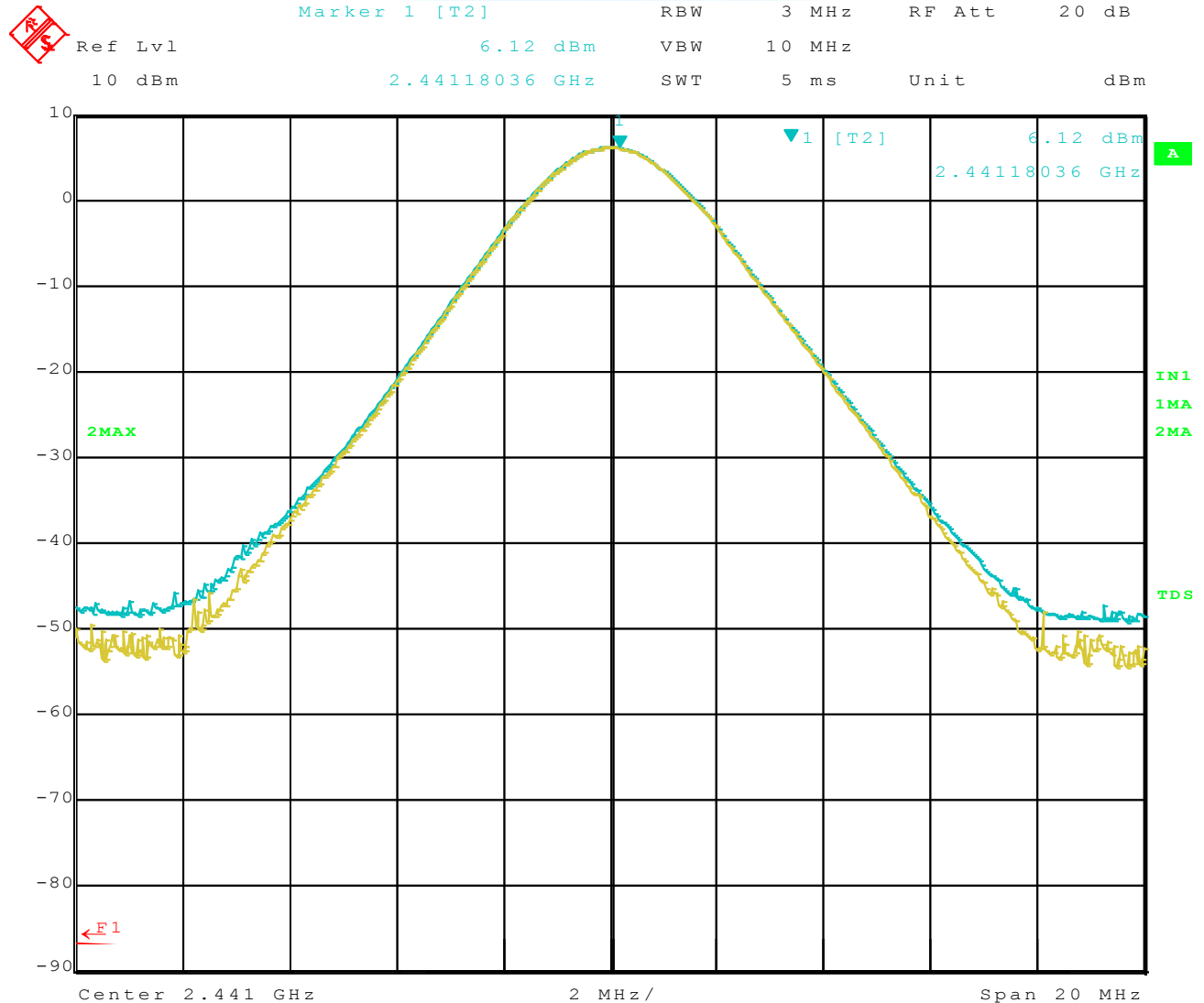
DATA SHEETS

Low Channel Peak Power Output



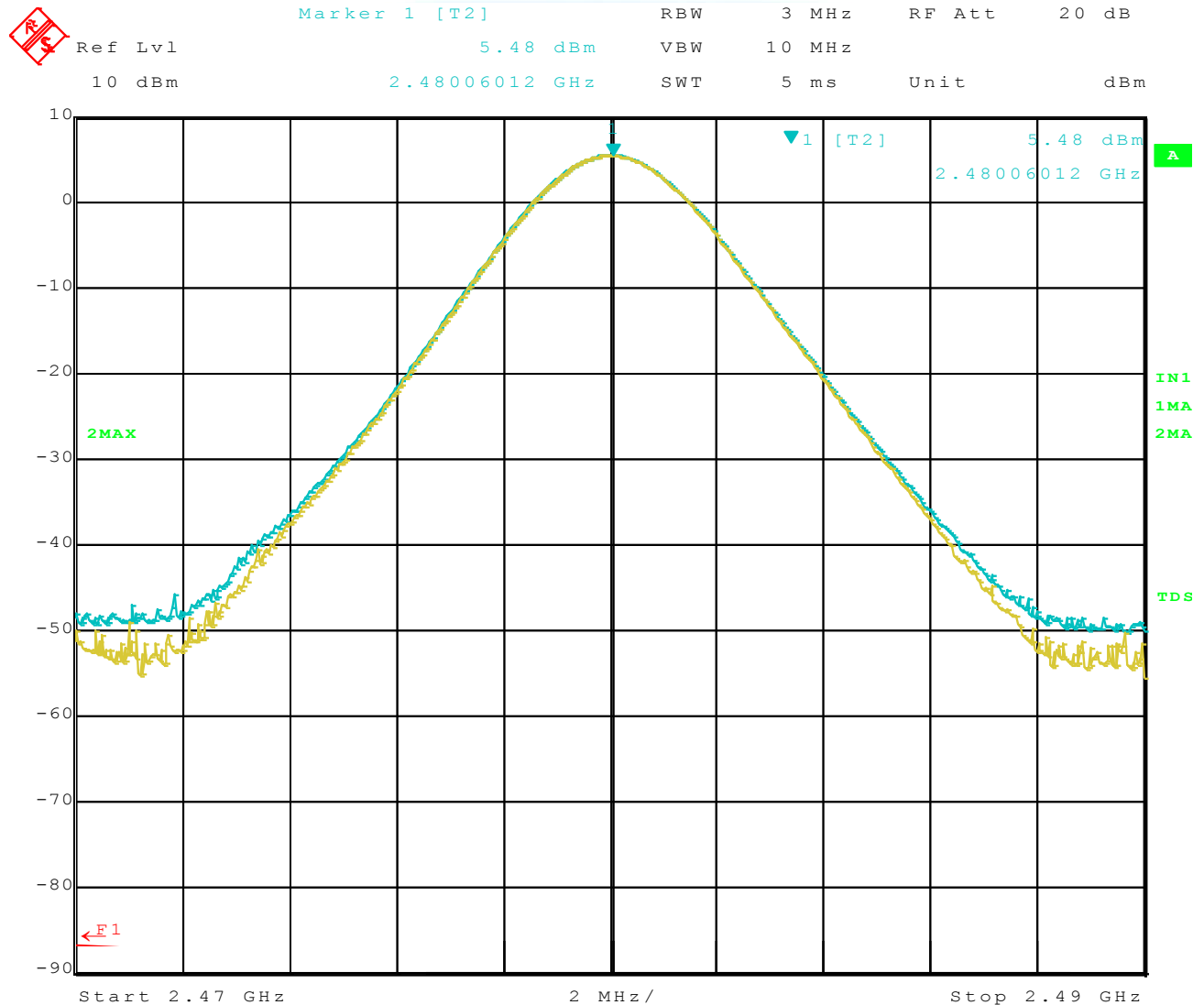
Date: 16.SEP.2010 15:30:39

Middle Channel Peak Power Output



Date: 16.SEP.2010 15:38:54

High Channel Peak Power Output



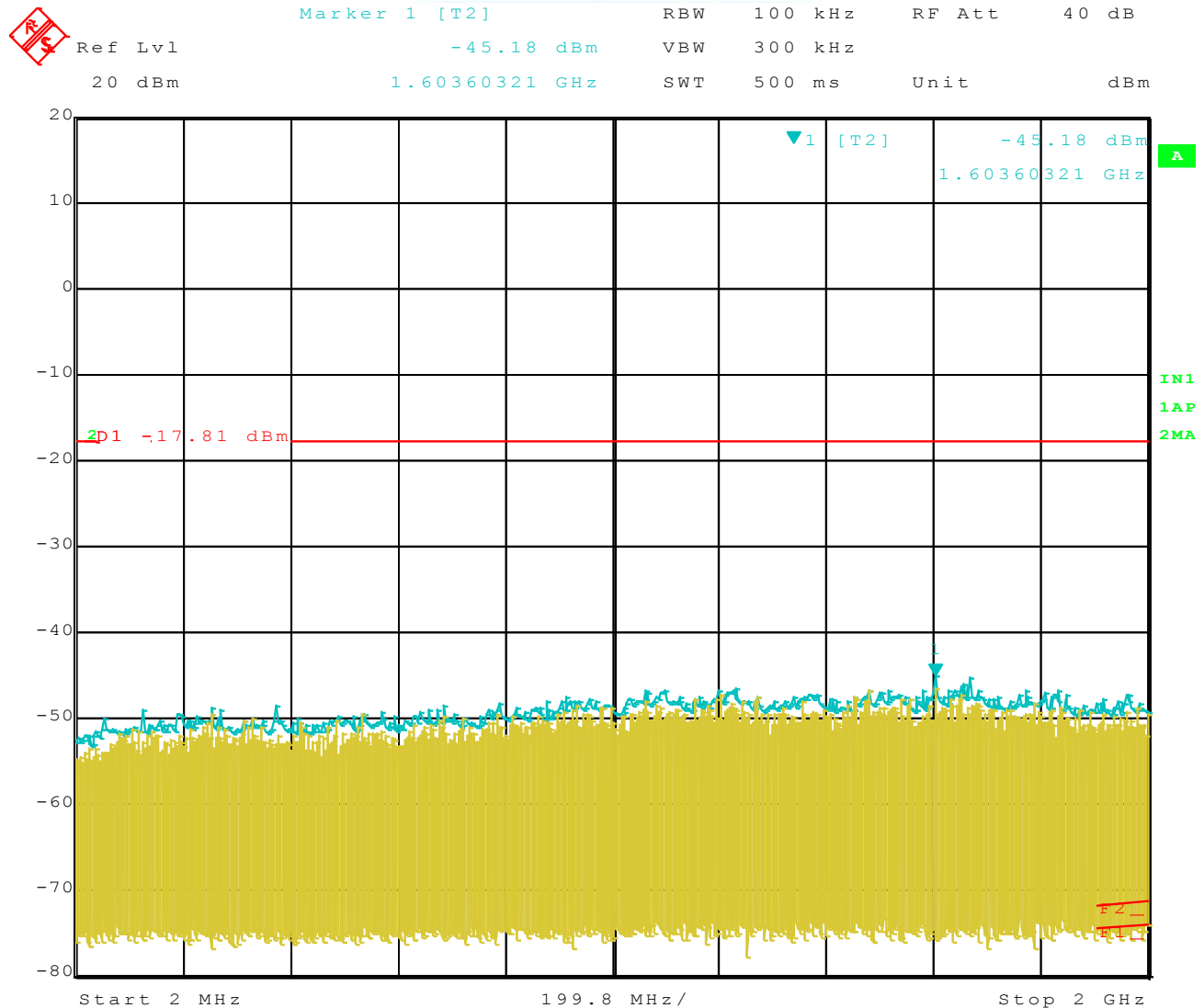
Date: 16.SEP.2010 15:36:15



RF CONDUCTED ANTENNA TEST

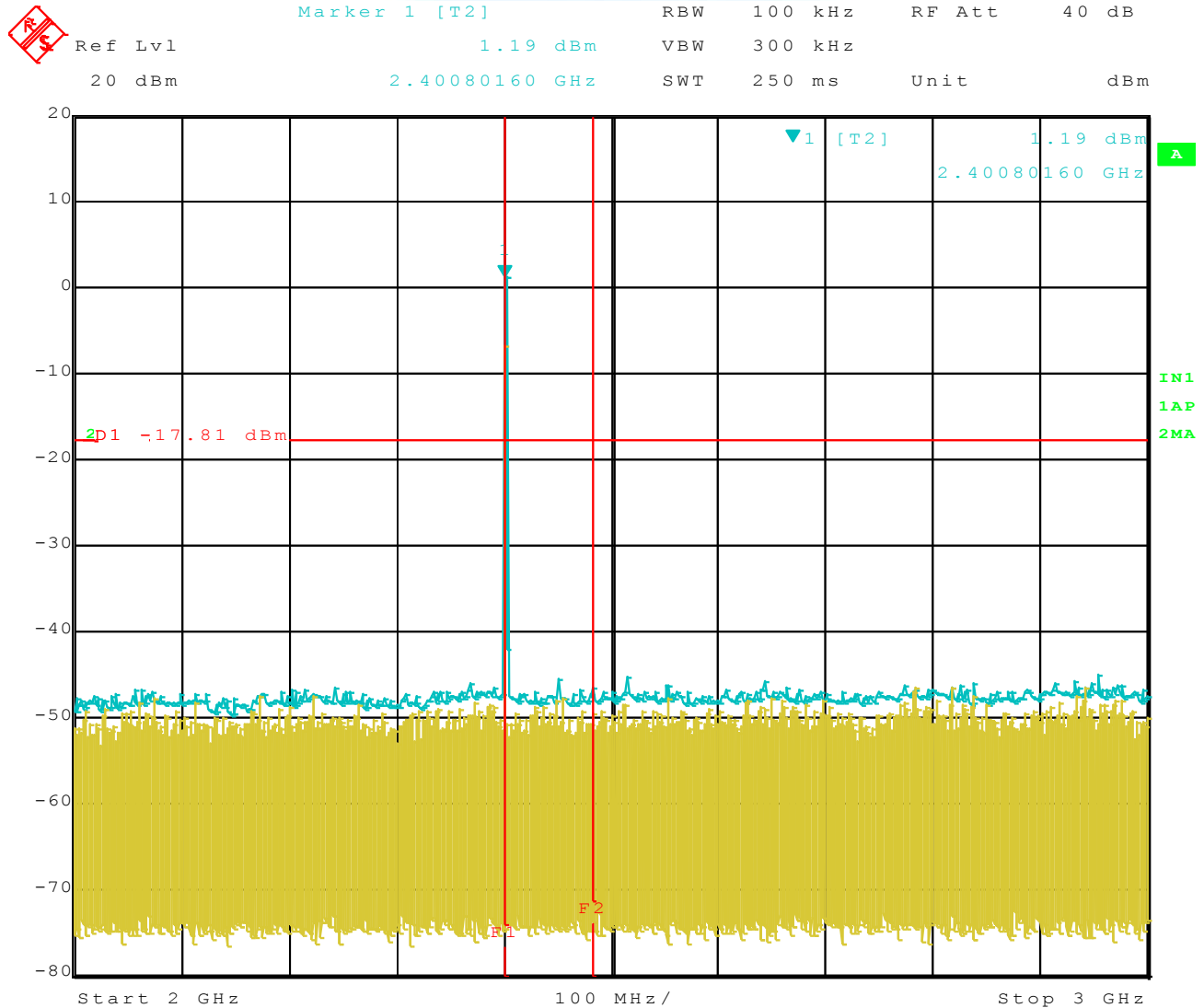
DATA SHEETS

Low Channel RF Antenna Conducted 2 – 2000MHz



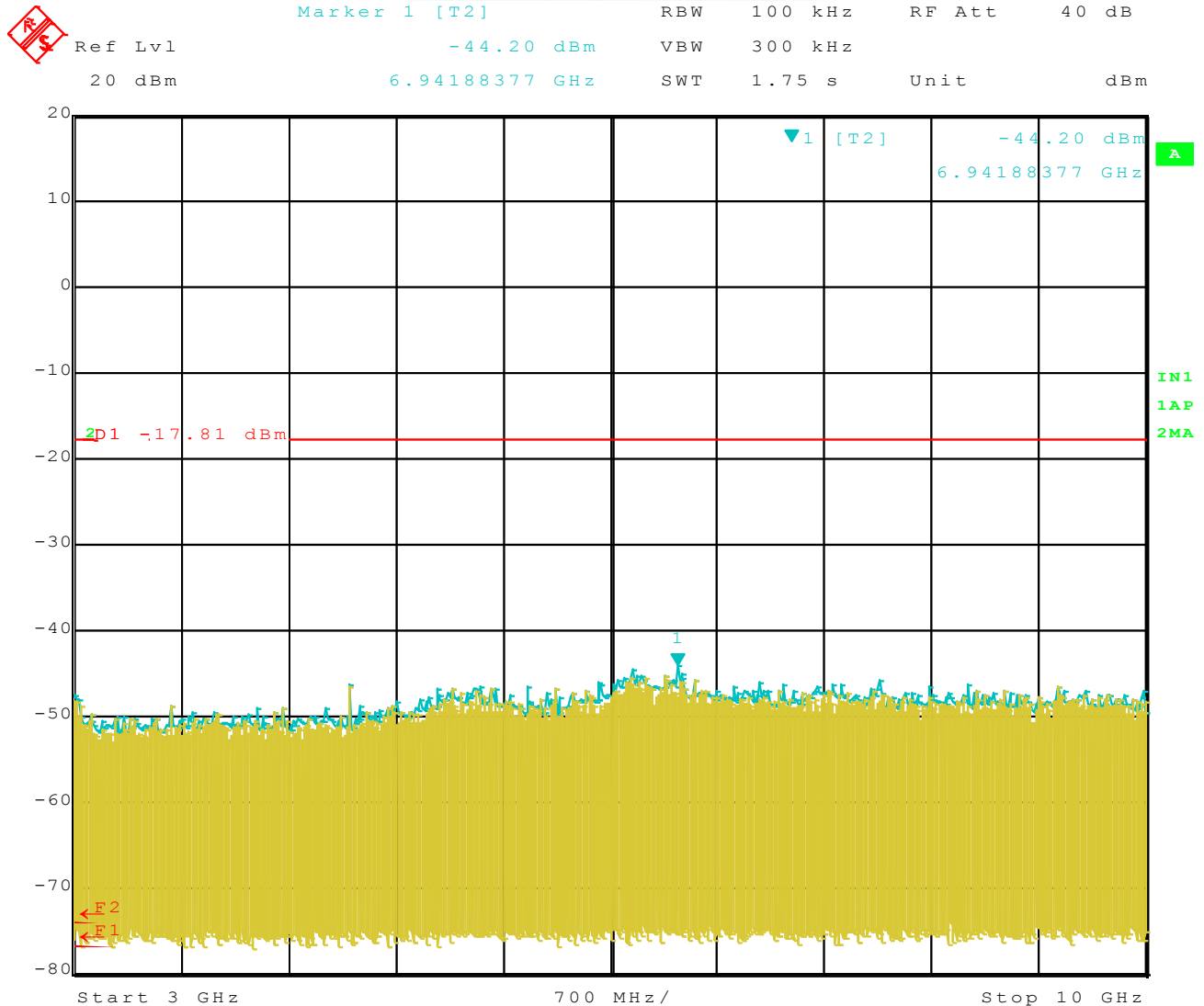
Date: 20.SEP.2010 14:02:51

Low Channel RF Antenna Conducted 2 – 3 GHz



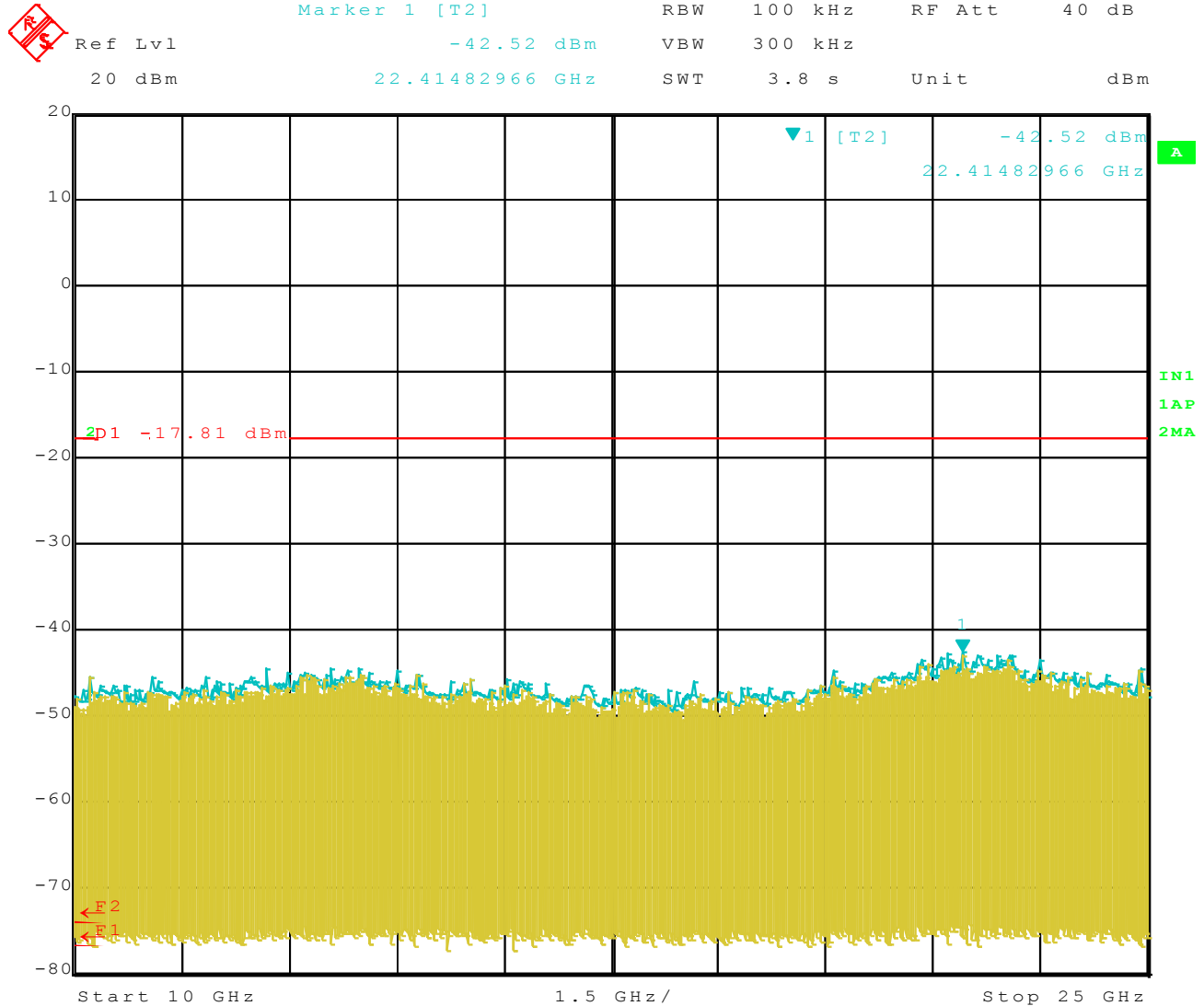
Date: 20.SEP.2010 14:03:41

Low Channel RF Antenna Conducted 3 – 10 GHz



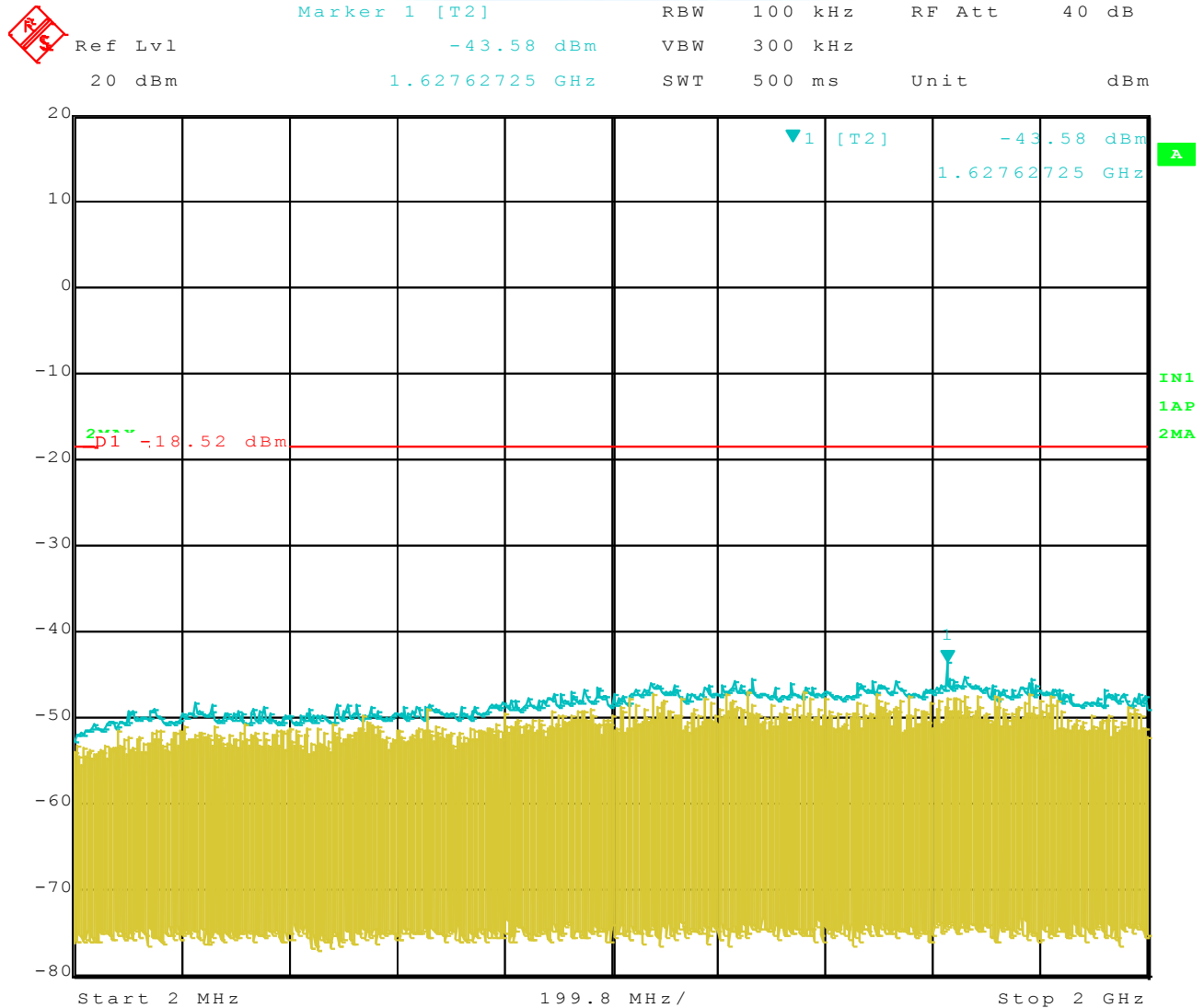
Date: 20.SEP.2010 14:04:12

Low Channel RF Antenna Conducted 10 – 25GHz



Date: 20.SEP.2010 14:05:00

Middle Channel RF Antenna Conducted 2 – 2000MHz



Date: 20.SEP.2010 13:55:20

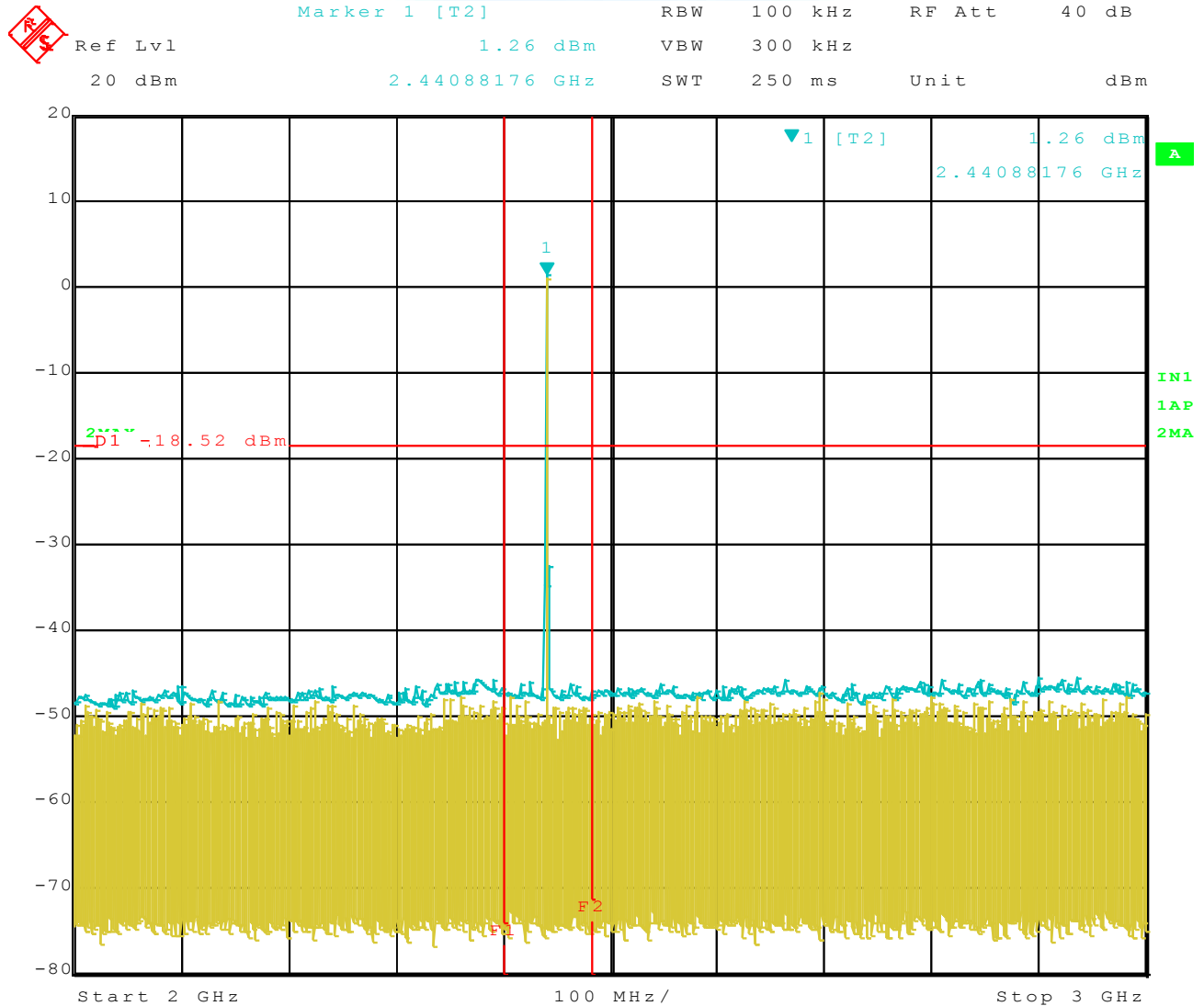
Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Agoura Division
 2337 Troutdale Drive
 Agoura, CA 91301
 (818) 597-0600

Silverado Division
 19121 El Toro Road
 Silverado, CA 92676
 (949) 589-0700

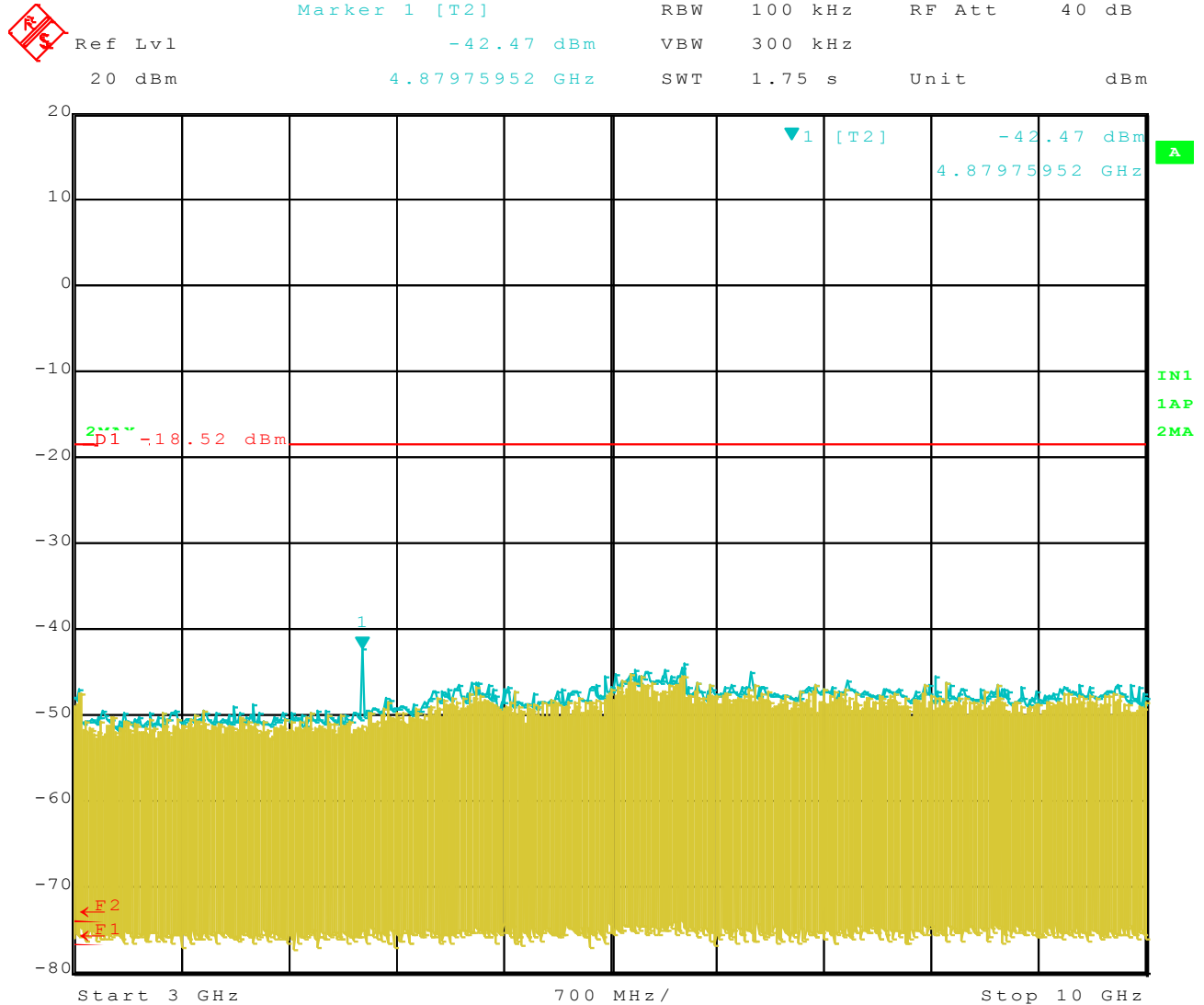
Lake Forest Division
 20621 Pascal Way
 Lake Forest, CA 92630
 (949) 587-0400

Middle Channel RF Antenna Conducted 2 – 3 GHz



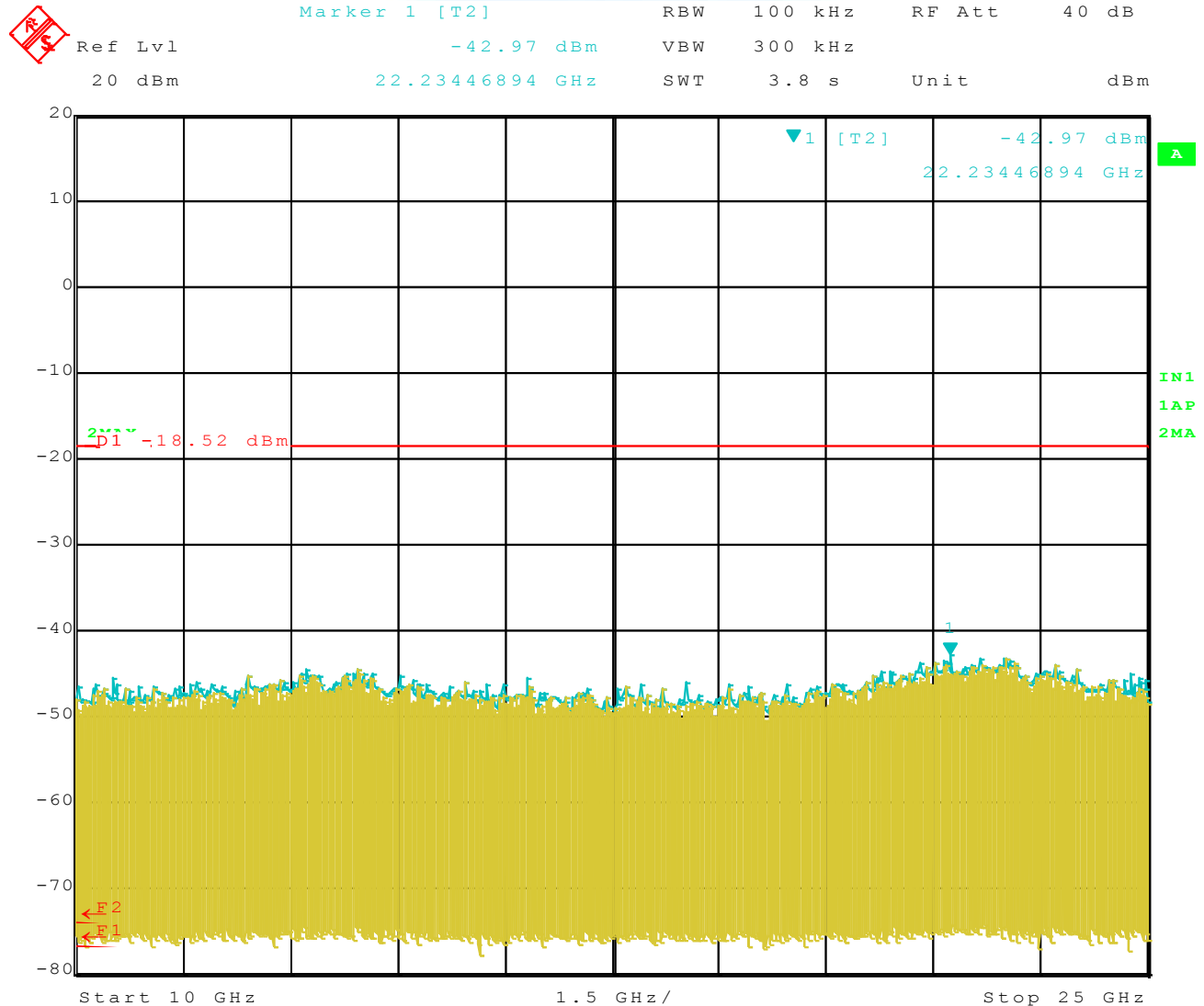
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Middle Channel RF Antenna Conducted 3 – 10 GHz



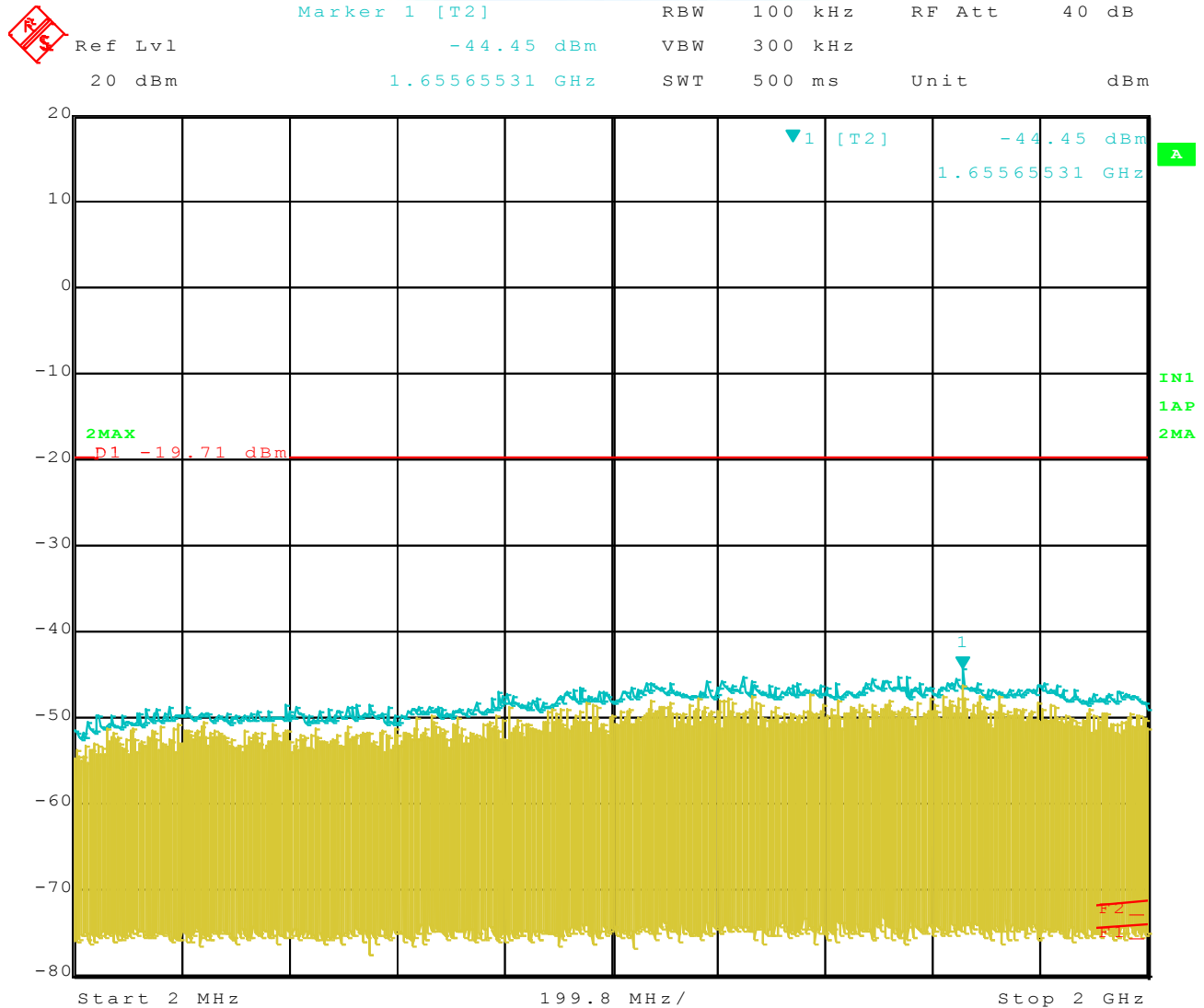
Date: 20.SEP.2010 13:57:50

Middle Channel RF Antenna Conducted 10 – 25GHz



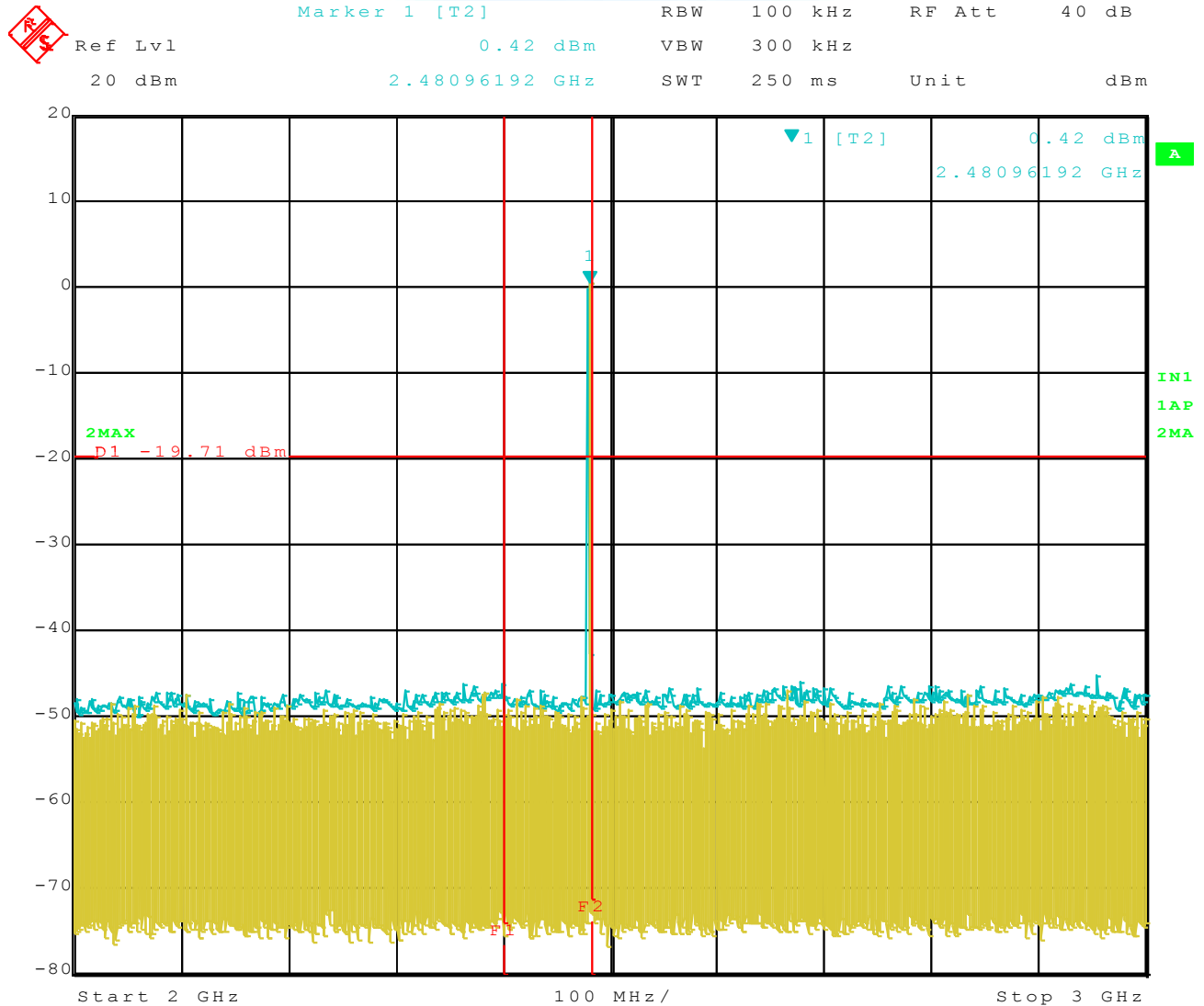
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High Channel RF Antenna Conducted 2 – 2000MHz



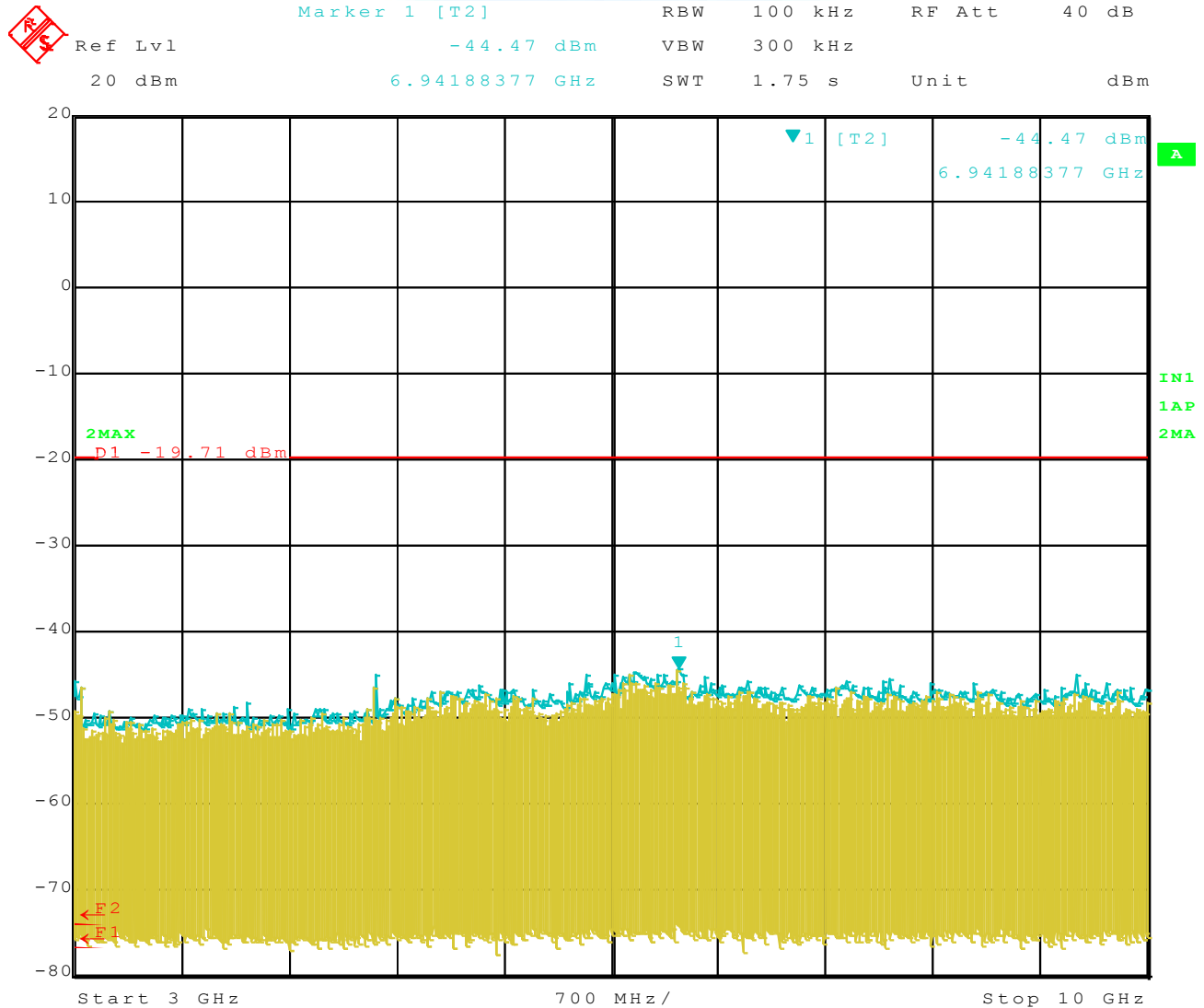
Date: 20.SEP.2010 14:10:02

High Channel RF Antenna Conducted 2 – 3 GHz



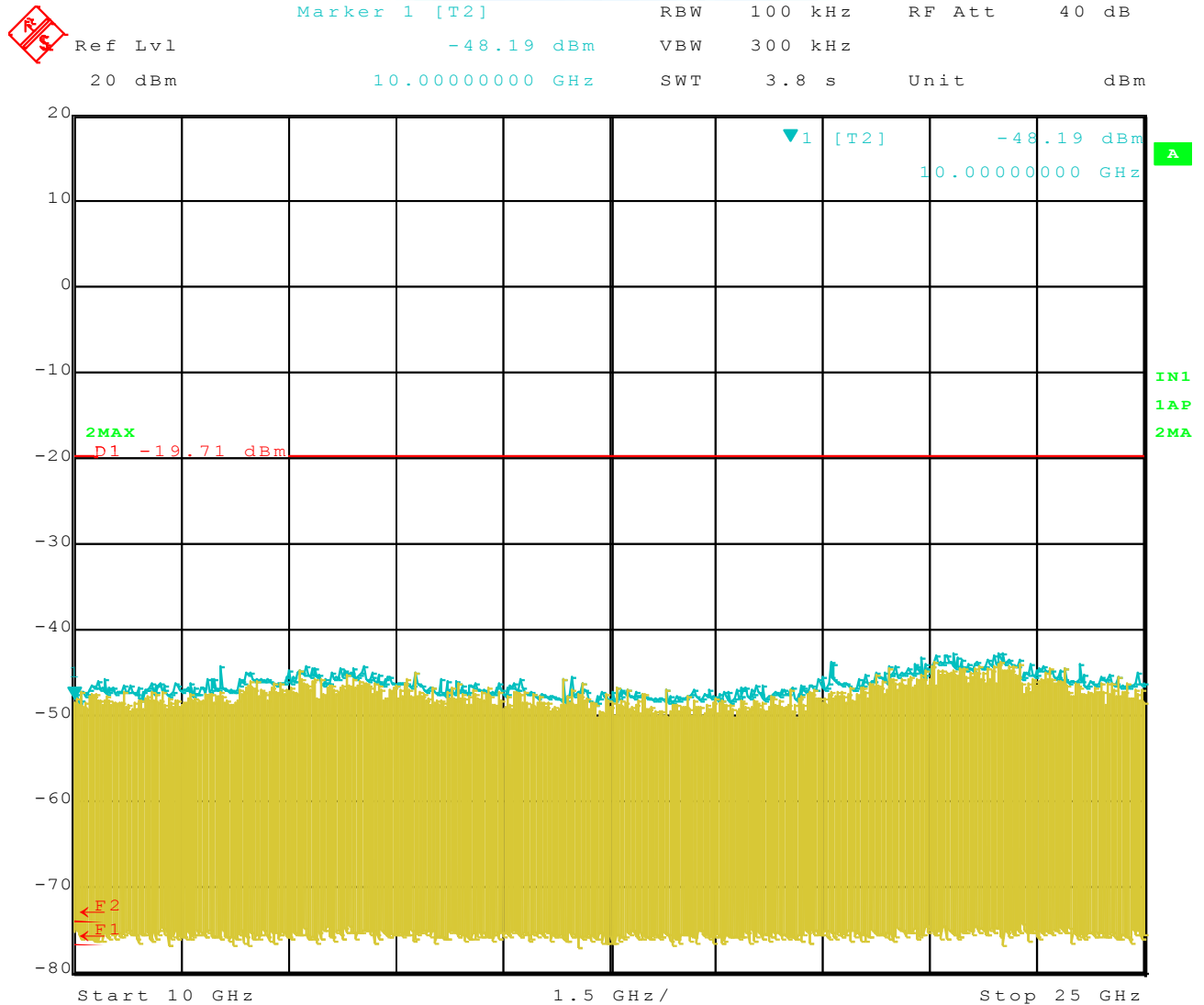
Date: 20.SEP.2010 14:10:30

High Channel RF Antenna Conducted 3 – 10 GHz



Date: 20.SEP.2010 14:11:34

High Channel RF Antenna Conducted 10 – 25GHz



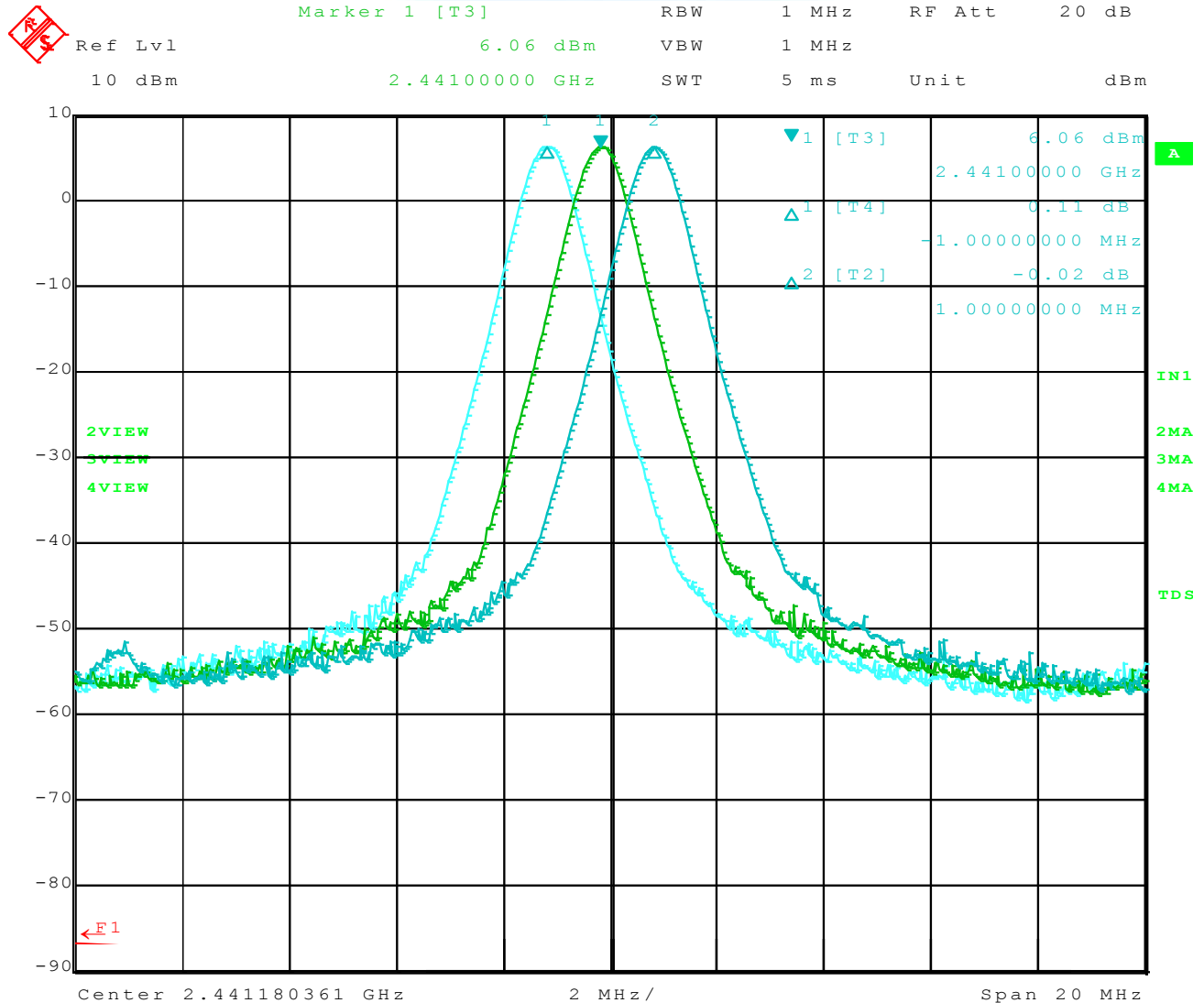
Date: 20.SEP.2010 14:12:50



CHANNEL HOPPING SEPARATION

DATA SHEET

Channel Hopping Separation



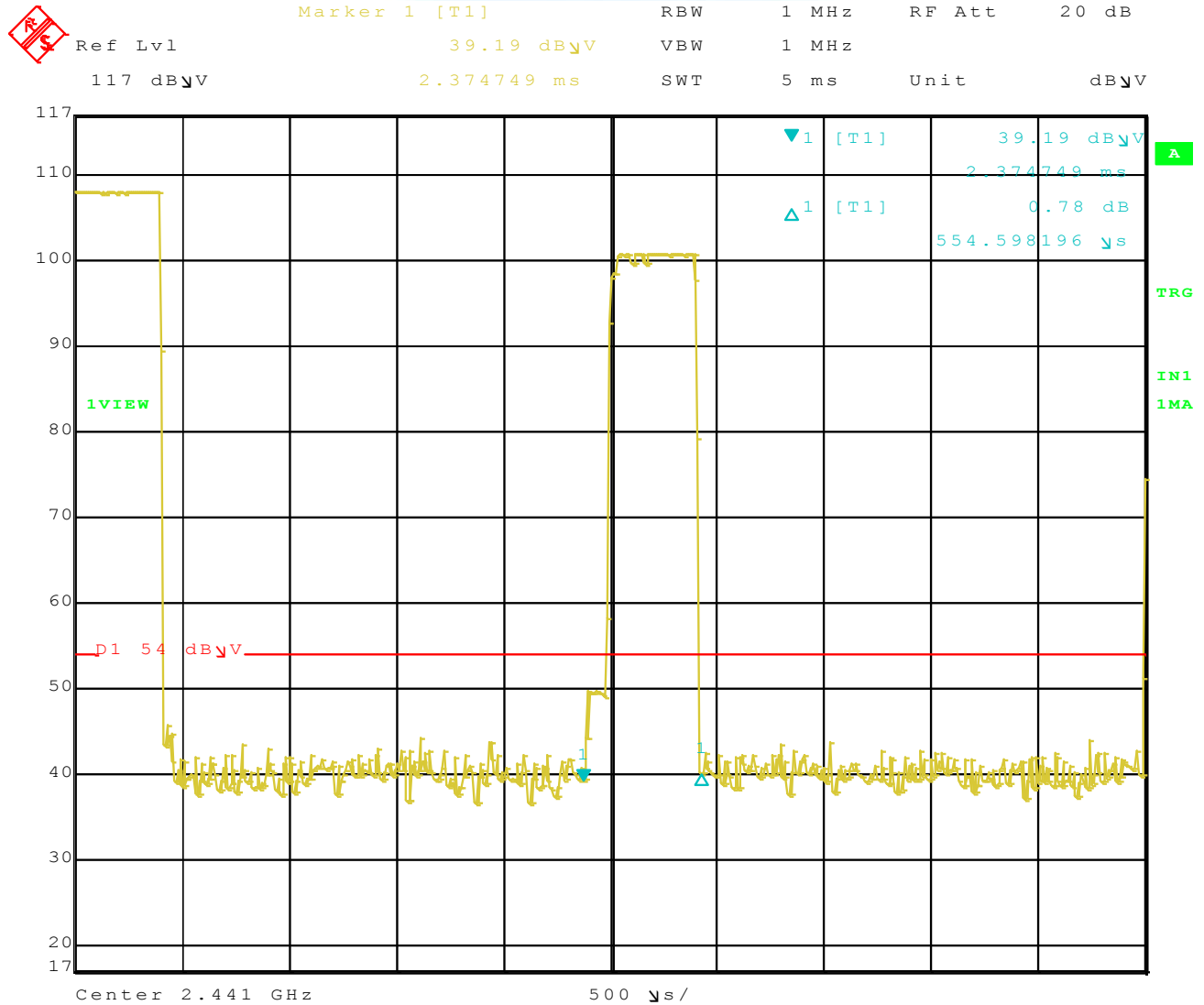
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AVERAGE TIME OF OCCUPANCY

DATA SHEETS

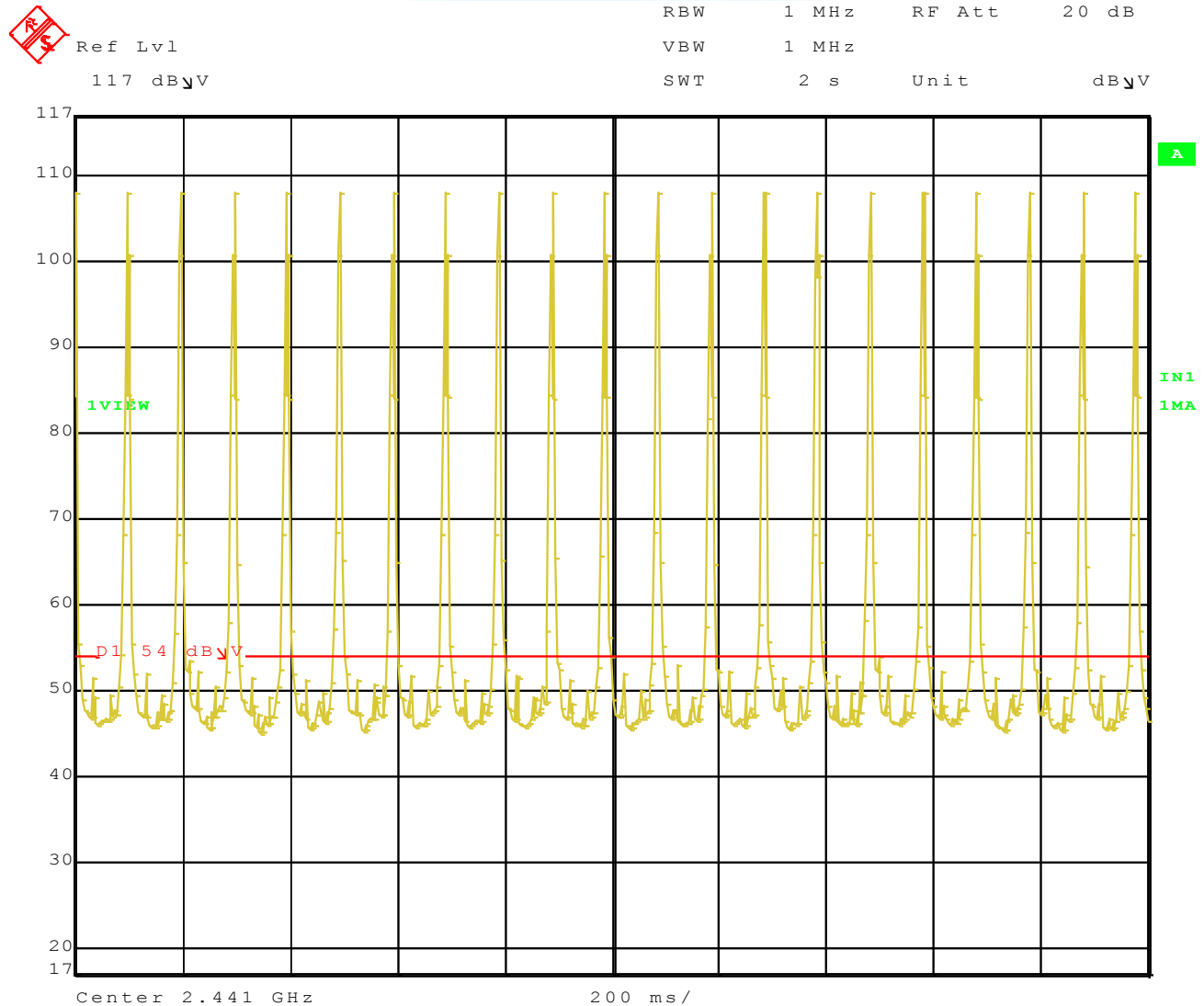
Average Time of Occupancy



Date: 20.SEP.2010 15:16:28

Time of 1 Pulse = 554.598196 μs

Average Time of Occupancy



Date: 20.SEP.2010 15:25:09

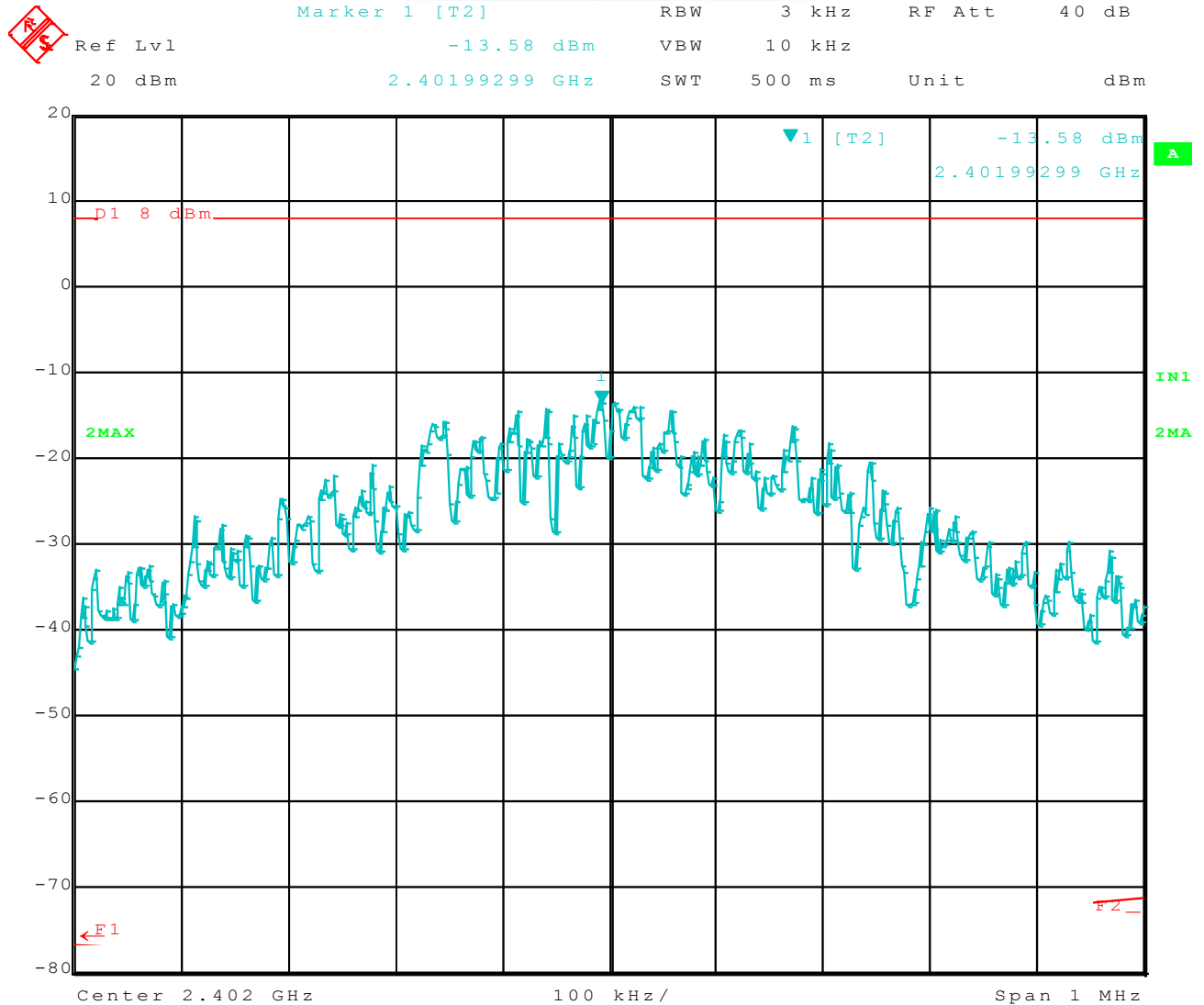
Number of Pulses in 2 Seconds = 21
Number of Pulses in 31.6 Seconds = $21 \times 15.8 = 331.8$ Pulses in a 31.6 Second Period
Time of Occupancy = $331.8 \times 554.598196 \text{ uS} = 184.01 \text{ mS}$ per 31.6 Second Period
Limit = 400 mS per 31.6 Second Period (79 Channel * 400 mS)



SPECTRAL DENSITY OUTPUT

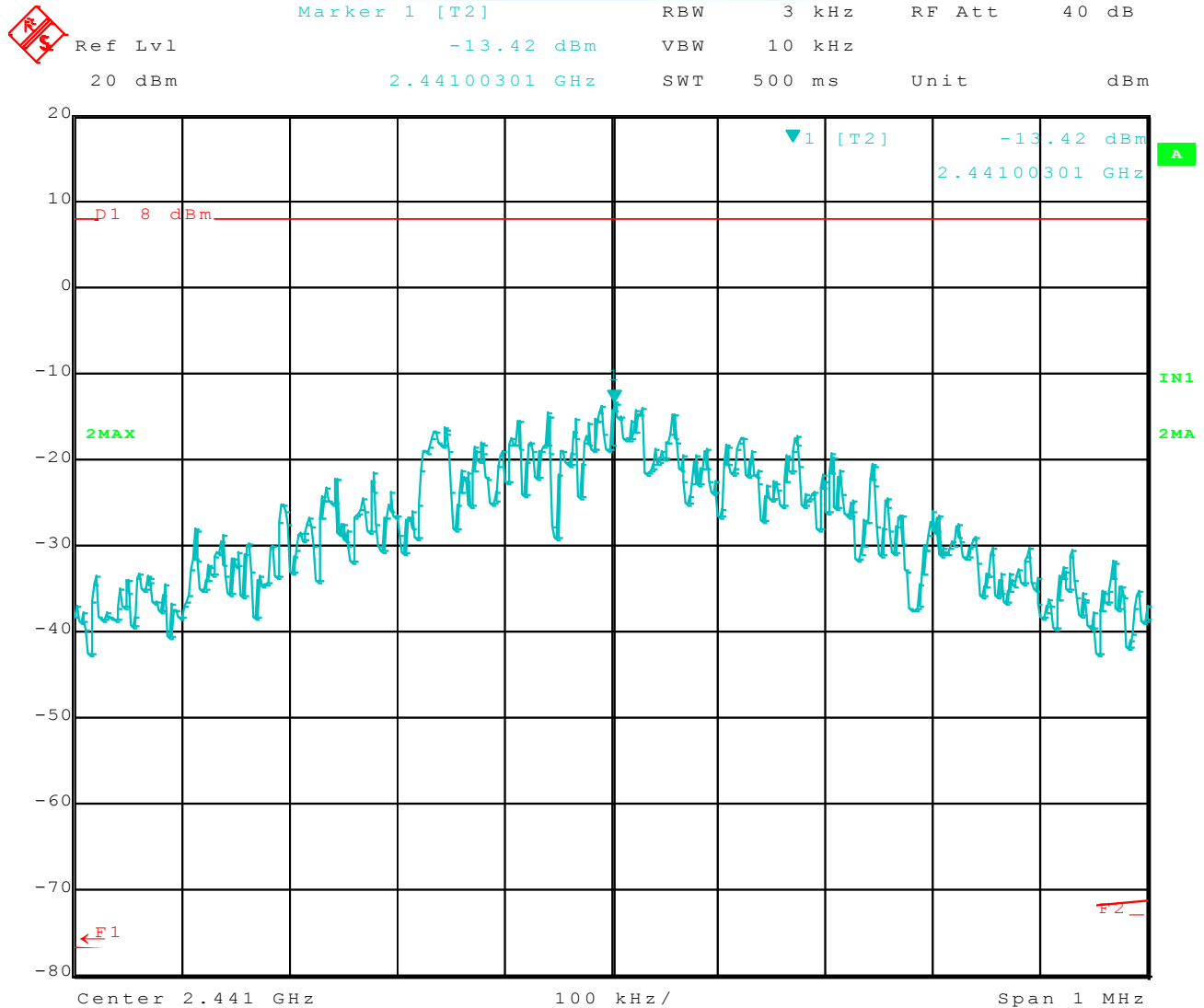
DATA SHEETS

Low Channel Spectral Density Output



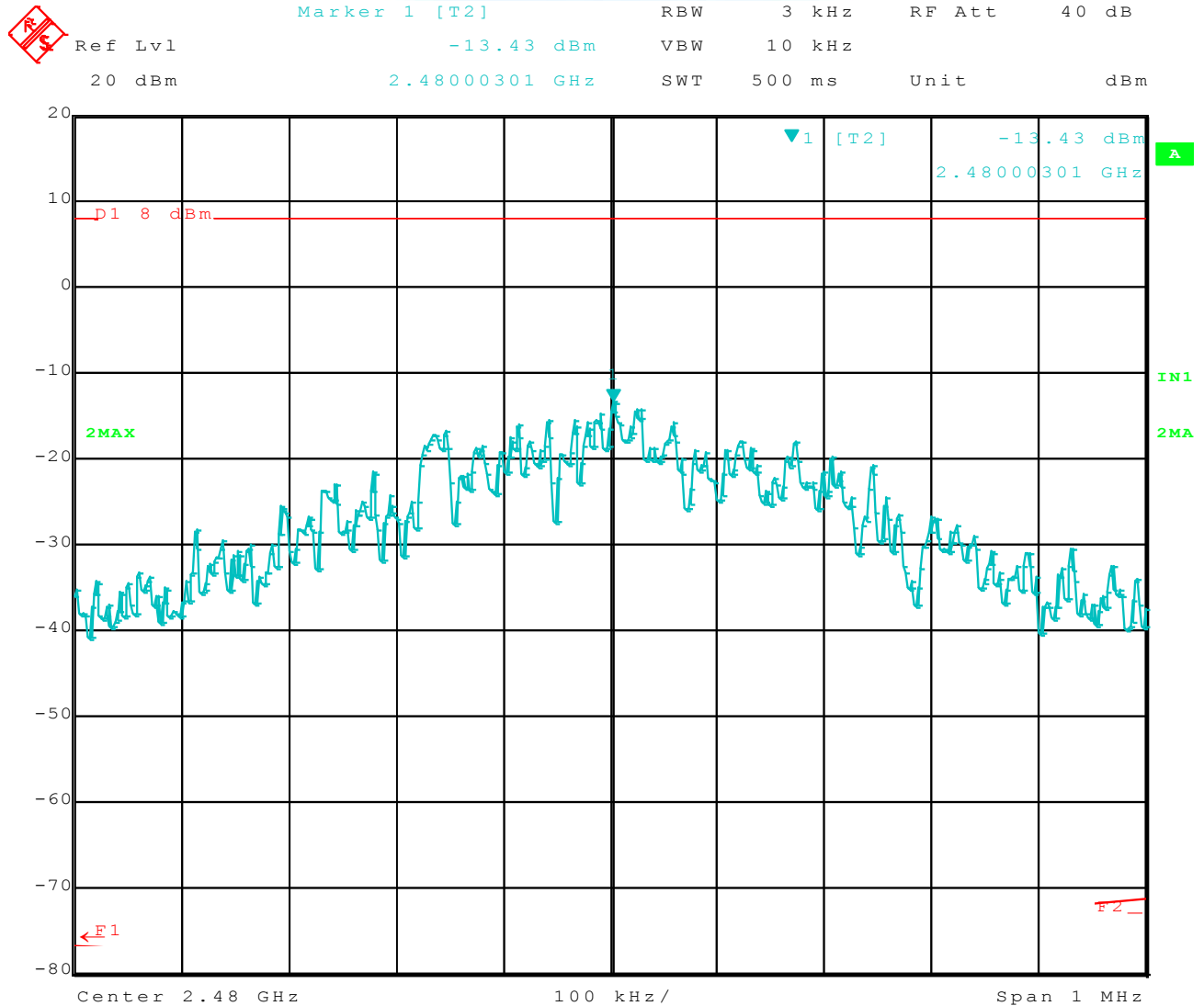
Date: 20.SEP.2010 14:29:30

Middle Channel Spectral Density Output



Date: 20.SEP.2010 14:28:09

High Channel Spectral Density Output



Date: 20.SEP.2010 14:25:07



NUMBER OF HOPPING FREQUENCIES

DATA SHEET

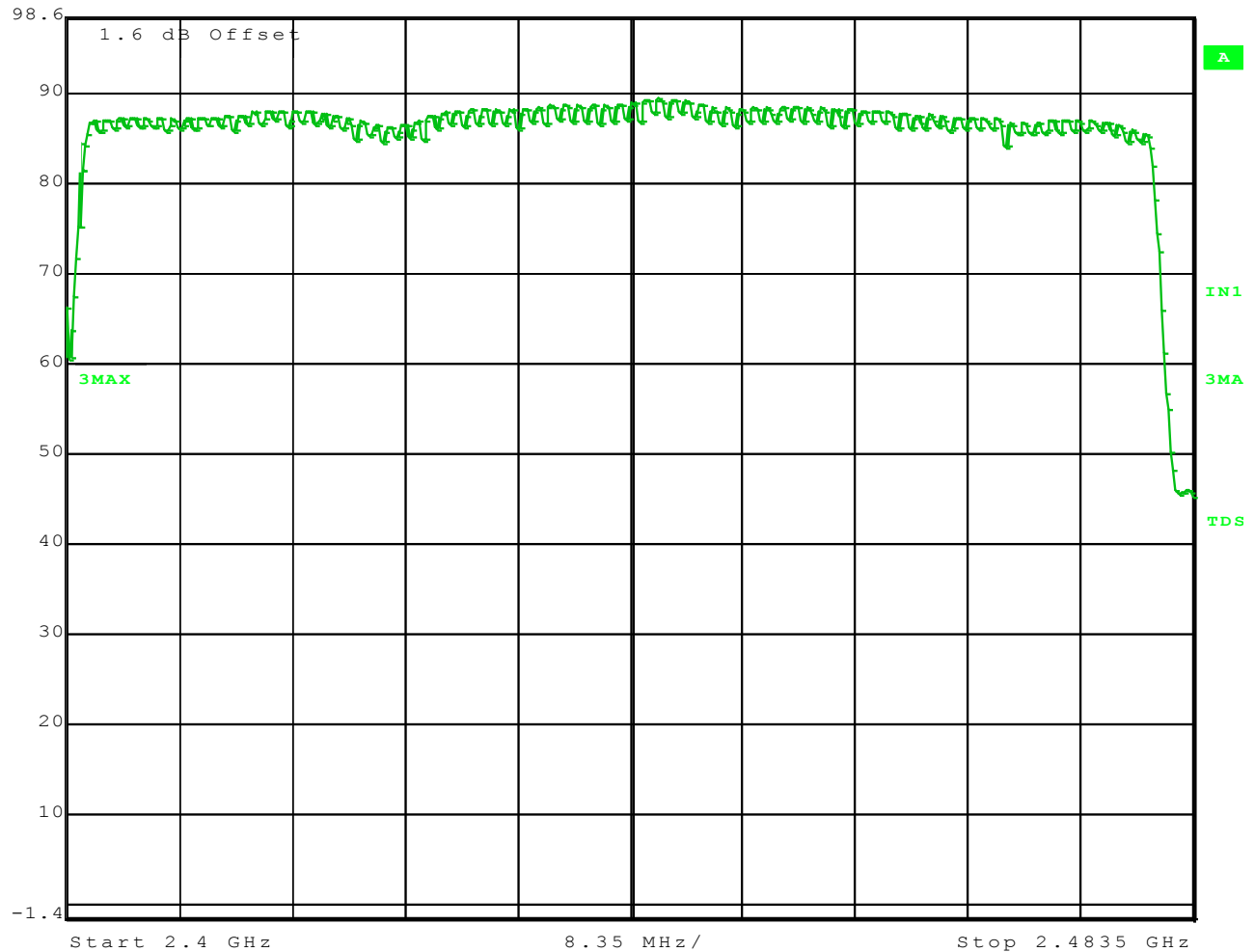
NUMBER OF HOPPING FREQUENCIES



Ref Lvl

98.6 dBμV

RBW 1 MHz RF Att 0 dB
VBW 1 MHz
SWT 20 ms Unit dBμV



Date: 15.SEP.2010 18:28:25

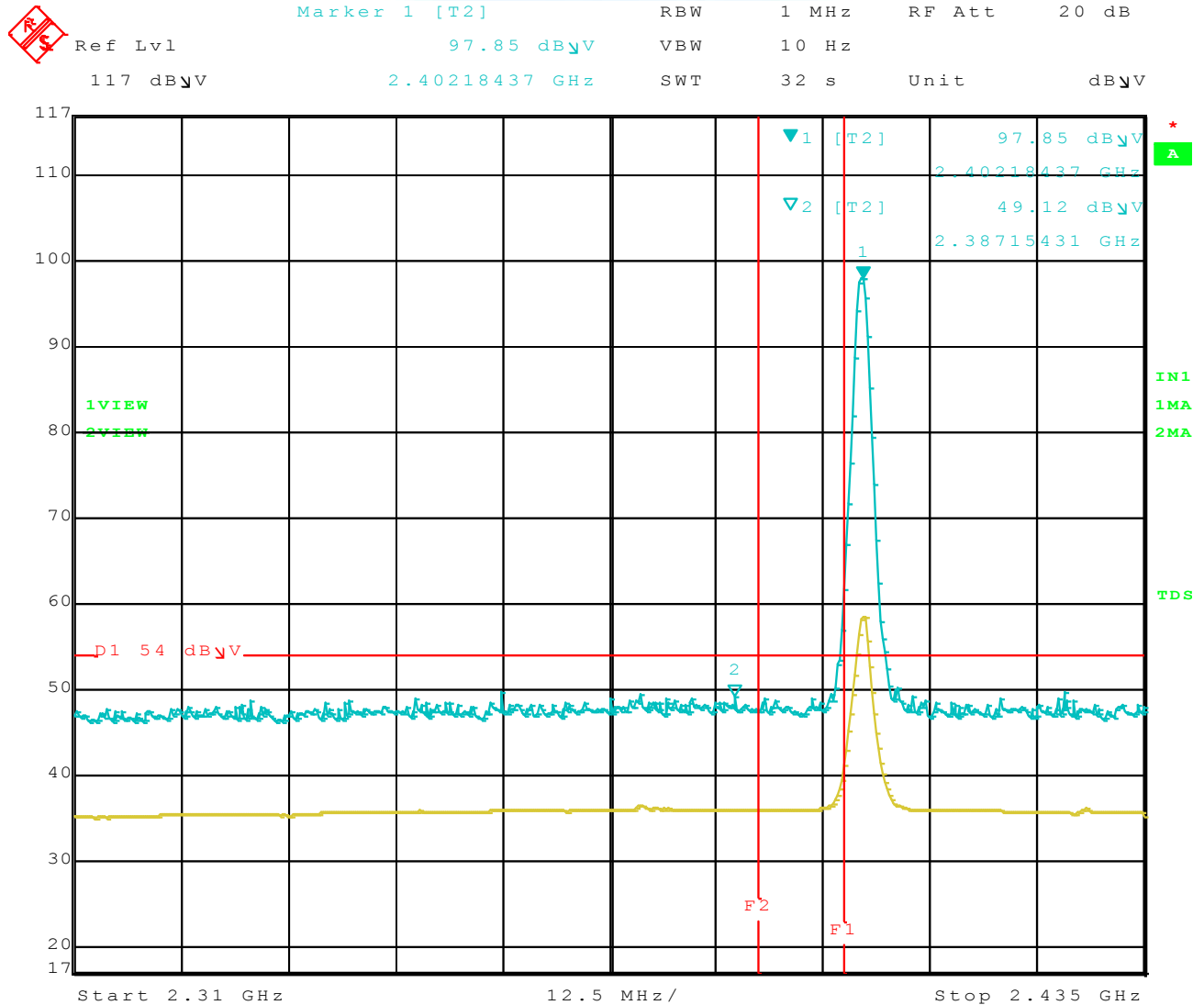
Total Number of Channels = 79



BAND EDGES

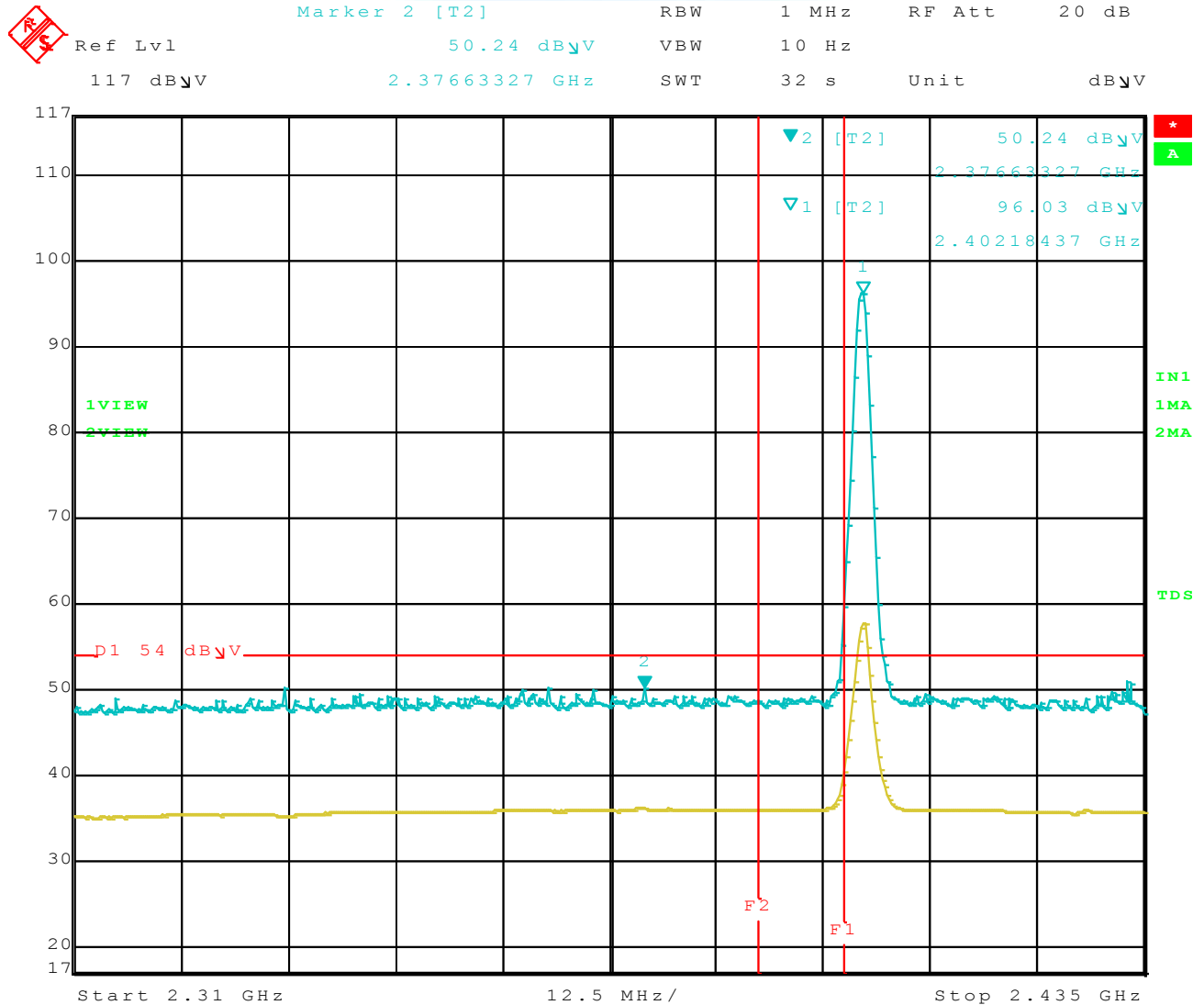
DATA SHEETS

Low Channel Horizontal Band Edge



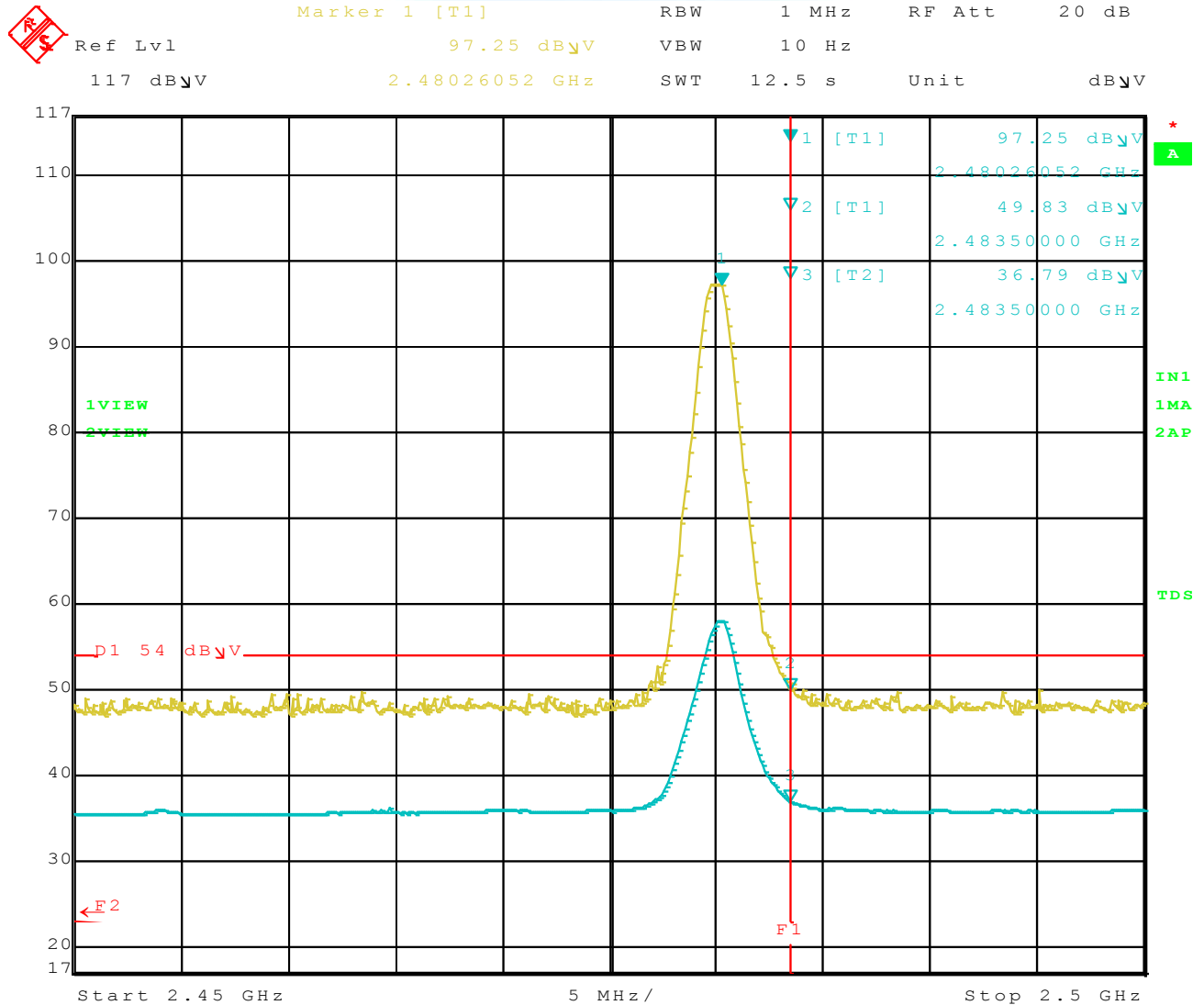
Date: 20.SEP.2010 16:26:19

Low Channel Vertical Band Edge



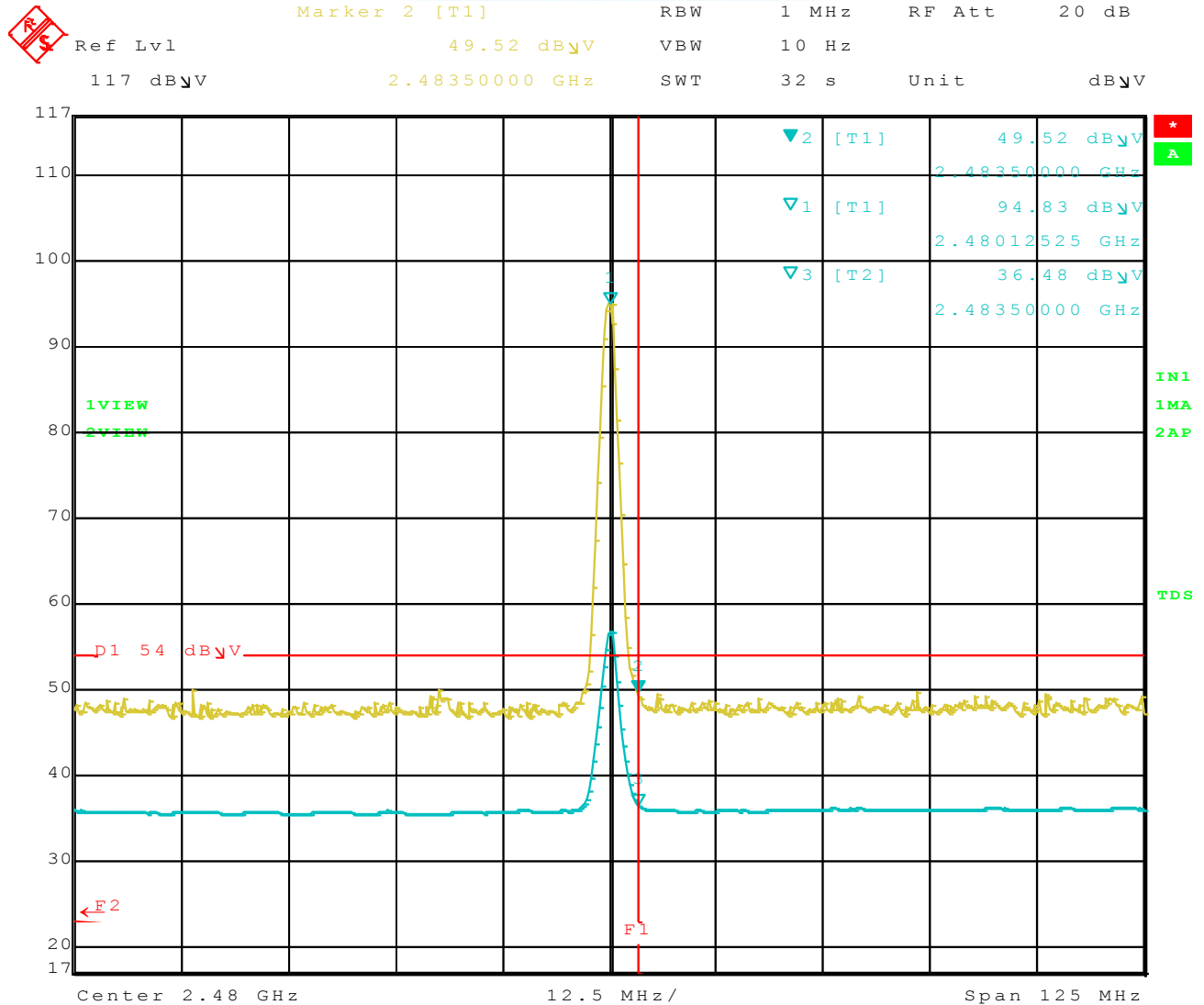
Date: 20.SEP.2010 16:35:45

High Channel Horizontal Band Edge



Date: 20.SEP.2010 16:50:50

High Channel Vertical Band Edge



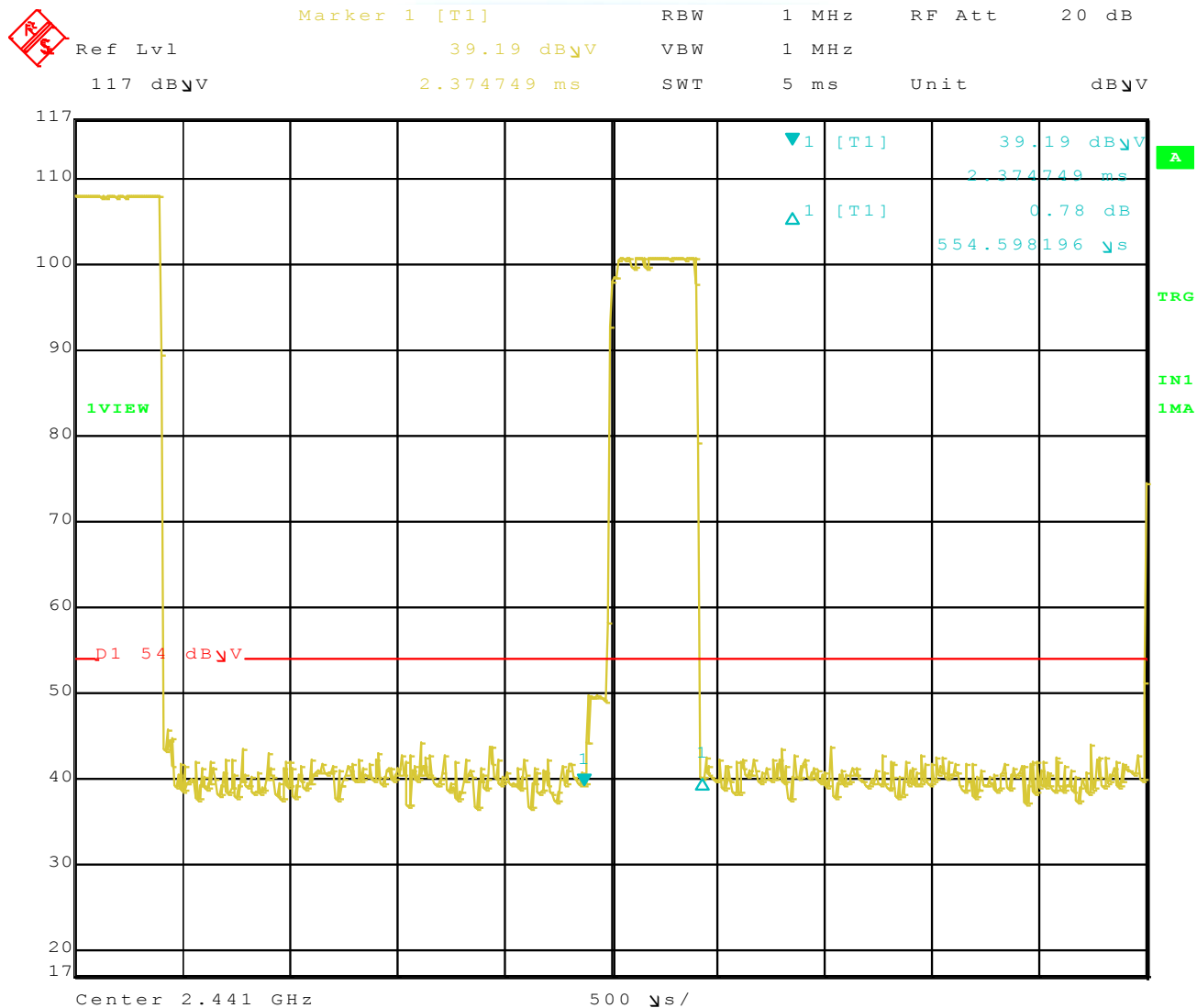
Date: 20.SEP.2010 16:45:22



DUTY CYCLE

DATA SHEETS

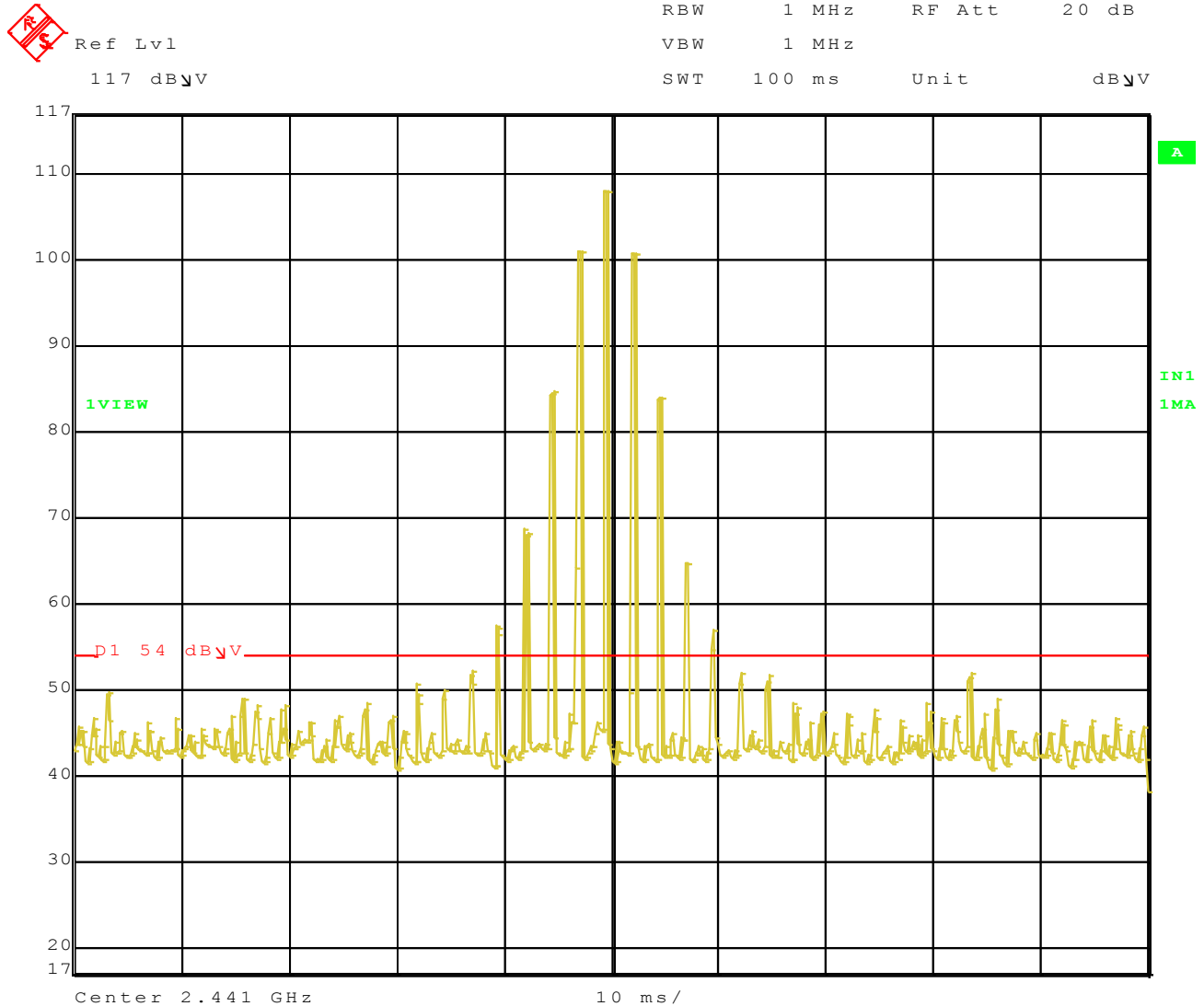
Average Time of Occupancy



Date: 20.SEP.2010 15:16:28

Time of 1 Pulse = 554.598196 μs

Average Time of Occupancy



Date: 20.SEP.2010 15:38:23

Number of Pulses in Worst Case 100 mS = 9
Duty Cycle = $554.598196 \mu\text{S} \times 2 = 4991.383764 \mu\text{S}$ per 100 mS = 4.991383764%
The Maximum of 20 dB Peak to Average can be taken since the Duty Cycle is less than 10%