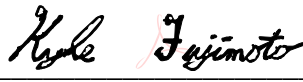



**FCC PART 15, SUBPART B and C
TEST REPORT***for***2 INCH THERMAL PRINTER****MODEL: MF2Te**

Prepared for

O'NEIL PRODUCT DEVELOPMENT
8 MASON
IRVINE, CALIFORNIA 92618-2705Prepared by: 

KYLE FUJIMOTO

Approved by: 

MICHAEL CHRISTENSEN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: APRIL 21, 2008

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	23	2	2	2	17	74	120

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LIST OF APPENDICES

APPENDIX	TITLE
A	Laboratory Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams, Charts, and Photos <ul style="list-style-type: none">• Test Setup Diagrams• Radiated and Conducted Emissions Photos• Antenna and Effective Gain Factors
E	Data Sheets

LIST OF FIGURES

FIGURE	TITLE
1	Conducted Emissions Test Setup
2	Plot Map And Layout of Test Site

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: 2 Inch Thermal Printer
Model: MF2Te
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: O'Neil Product Development
8 Mason
Irvine, California 92618-2705

Test Dates: March 17 and 18, 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.

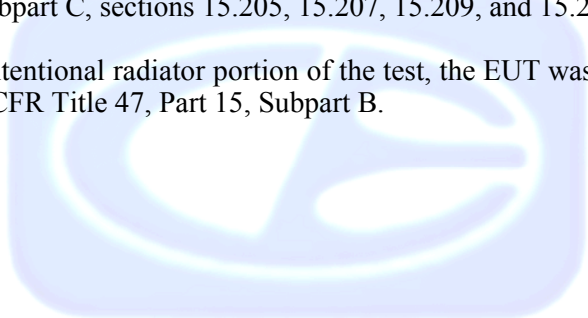
SUMMARY OF TEST RESULTS

<i>TEST</i>	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)(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) and 15.247 (a)(1)(iii)
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 2 Inch Thermal Printer Model: MF2Te. 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

O'Neil Product Development

Ken Carlson Director of Electrical Engineering
Jonathan Mack Electrical Design 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 17, 2008.

2.5 Disposition of the Test Sample

The sample was returned to O'Neil Product Development on March 18, 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 2 Inch Thermal Printer Model: MF2Te (EUT) was connected to an AC Adapter and laptop via its power and serial ports, respectively. The laptop was also connected to an AC Adapter and printer via its power and parallel ports, respectively.

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 three 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 receiver 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 receive at the same frequency on a continuous basis. The EUT was tested in three orthogonal axis.

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 EUT was also printing out "H's" via the serial connection.

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 2-meter unshielded cable connecting the EUT to the AC Adapter. It has a 1/8 inch power connector at the EUT end and is hard wired into the AC Adapter. The cable was bundled to a length of 1 meter.
- Cable 2** This is a 2-meter unshielded cable connecting the laptop to the AC Adapter. The cable has a 1/8 inch power connector at the laptop end and is hard wired into the AC Adapter. The cable was bundled to a length of 1 meter.
- Cable 3** This is a 6 foot braid and foil shielded cable connecting the printer to the laptop. The cable has a metallic Centronics type connector at the printer end and a D-25 pin metallic connector at the laptop end. The shield of the cable was grounded to the chassis via the connectors. The cable was bundled to a length of 1 meter.
- Cable 4** This is a 2-meter foil shielded cable connecting the EUT to the laptop. The cable has a D-9 pin metallic connector at the laptop end and an RJ-11 connector at the EUT end. The shield of the cable was grounded to the chassis via the connectors. The cable was bundled to a length of 1 meter.

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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
2 INCH THERMAL PRINTER (EUT)	O'NEIL PRODUCT DEVELOPMENT	MF2Te	N/A	LGYBT261203
AC ADAPTER FOR EUT	FAIRWAY ELECTRONICS COMPANY LIMITED	VEG20C-120F	N/A	N/A
AC ADAPTER FOR LAPTOP	SONY	PCGA-AC19V1	N/A	N/A
LAPTOP	SONY	PCG-9G1L	28105030 3114329	DoC
PRINTER	CITIZEN	LSP-10	1184398-7Z	DLK66TLSP-10

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					
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08768	August 14, 2007	Aug. 14, 2008
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	August 14, 2007	Aug. 14, 2008
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	August 14, 2007	Aug. 14, 2008
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100172	November 27, 2006	Nov. 27, 2008
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Biconical Antenna	Com Power	AB-900	15227	February 28, 2008	Feb. 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	Jan. 11, 2009
Loop Antenna	Com Power	AL-130	17089	September 24, 2007	Sept. 24, 2009
Horn Antenna	Com Power	AH-118	10073	July 17, 2006	July 17, 2008
Microwave Preamplifier	Com Power	PA-122	181921	March 3, 2008	March 3, 2009
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Microwave Preamplifier	Com Power	PA-840	711013	March 3, 2008	March 3, 2009
Horn Antenna	Com-Power	AH826	71957	December 12, 2007	Dec. 12, 2009
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12076	September 6, 2007	Sept. 6, 2008
LISN	Com Power	LI-215	12090	September 6, 2007	Sept. 6, 2008
Transient Limiter	Com Power	252A910	1	September 19, 2007	Sept. 19, 2008

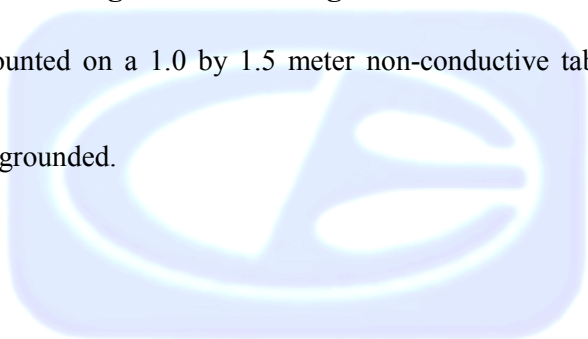
6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

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. 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
-------	---------

1.39 dBm	LOW
----------	-----

1.60 dBm	MIDDLE
----------	--------

1.60 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 -0.6 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

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.

8.1.2 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, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies above 18 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 25 GHz	1 MHz	Horn Antenna

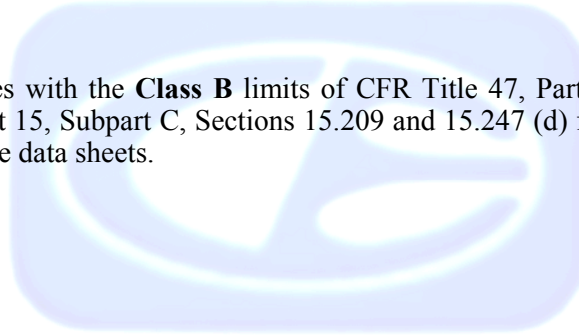
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2003. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a 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 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. Please see Appendix E for the data sheets.

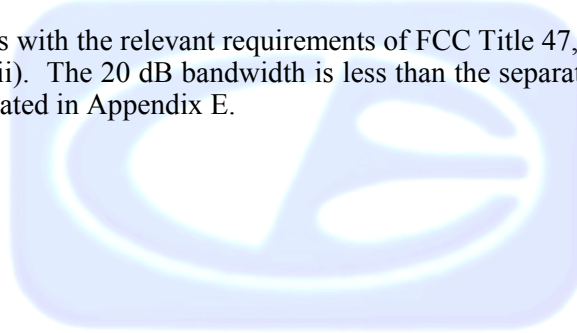


8.3 20 dB Bandwidth

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.



8.4 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 3 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)(1). The maximum peak output power is less than 1 watt. Please see the data sheets located in Appendix E.

8.5 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.

8.6 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.

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

8.8 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:

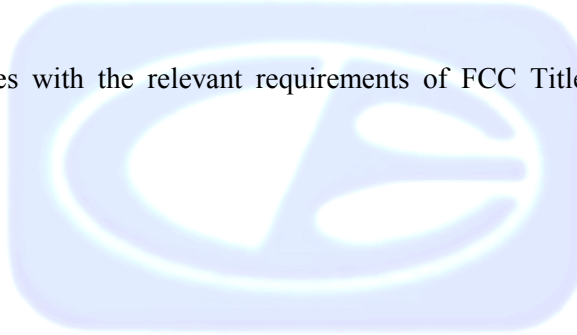
The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(iii). The EUT does not transmit for more than 400 msec in a 31.6 second period on any frequency. Please see the data sheets located in Appendix E.

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 2 Inch Thermal Printer Model: MF2Te 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

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

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

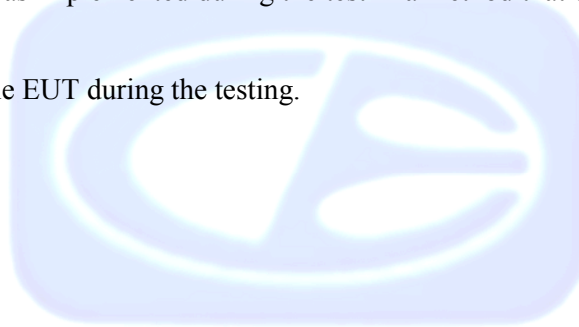
MODIFICATIONS TO THE EUT

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***

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

2 Inch Thermal Printer
Model: MF2Te
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

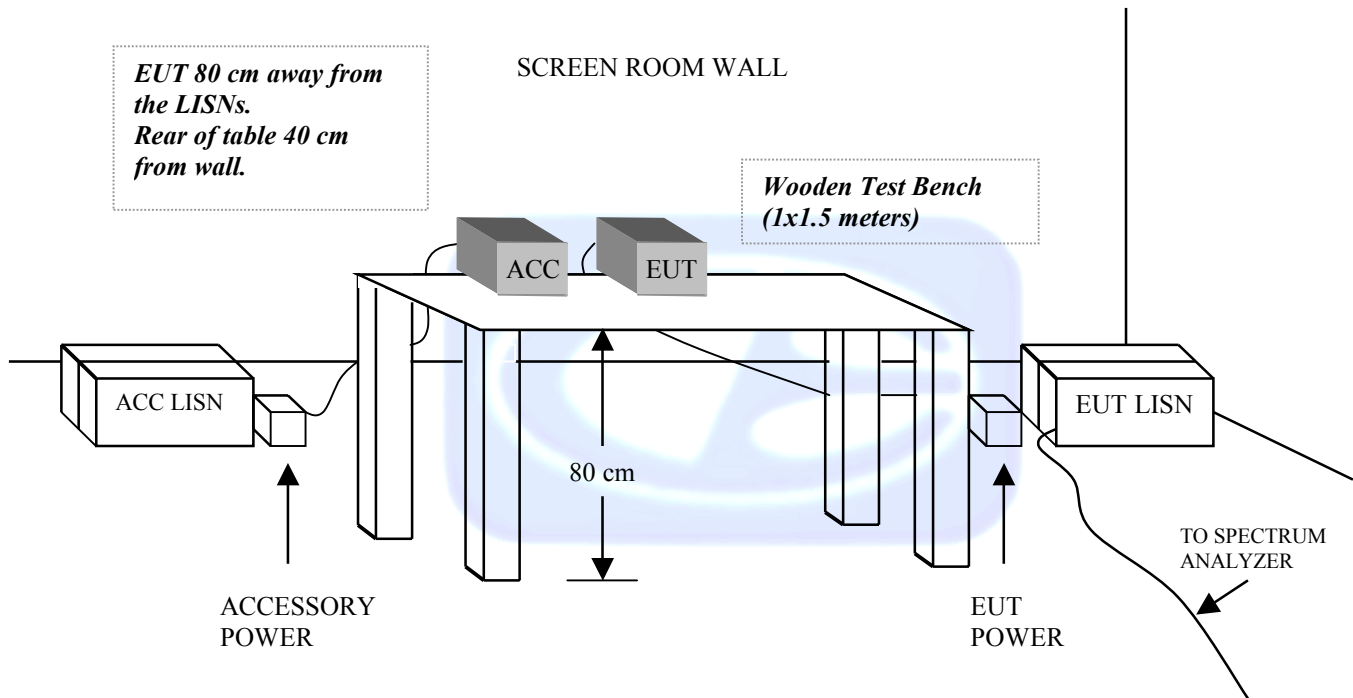
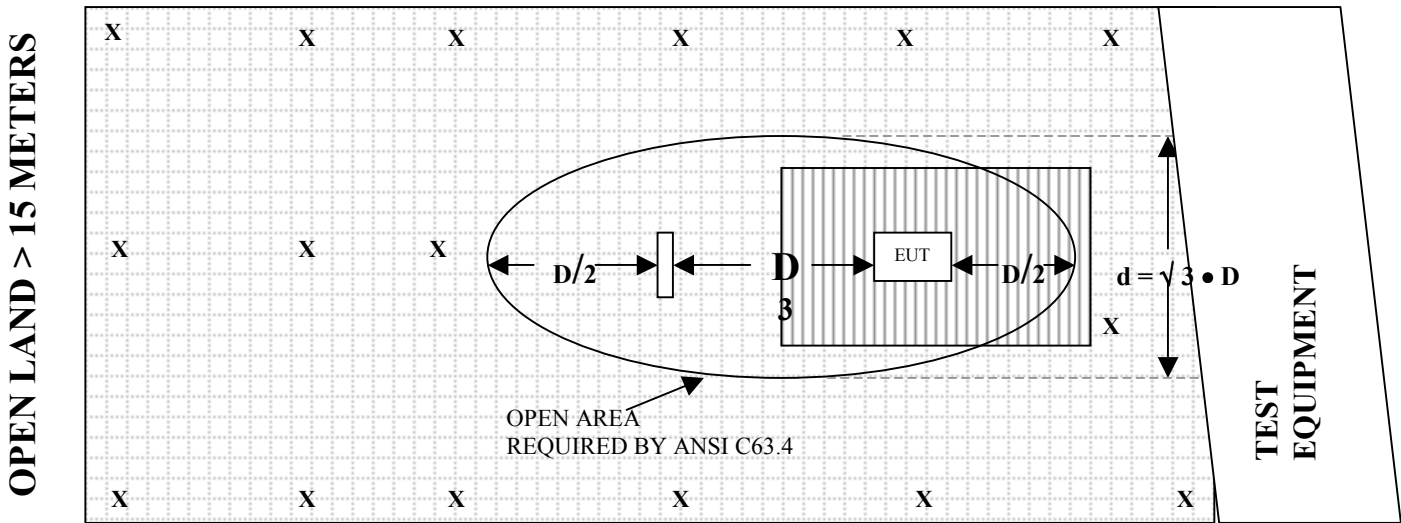


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

- X** = GROUND RODS
- = GROUND SCREEN
- D** = TEST DISTANCE (meters)
- = WOOD COVER

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: 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-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		

COM-POWER AH-118**DOUBLE RIDGE 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

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

S/N: 711013

CALIBRATION DATE: MARCH 3, 2008

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	27.49	29.5	26.44
18.5	28.46	30.0	26.95
19.0	28.98	30.5	26.42
19.5	28.46	31.0	27.11
20.0	28.23	31.5	27.27
20.5	27.44	32.0	26.76
21.0	26.91	32.5	24.49
21.5	26.65	33.0	23.19
22.0	26.50	33.5	22.57
22.5	27.15	34.0	22.11
23.0	27.36	34.5	23.52
23.5	27.08	35.0	24.86
24.0	26.36	35.5	25.52
24.5	24.95	36.0	25.81
25.0	26.83	36.5	22.08
25.5	27.00	37.0	23.31
26.0	27.58	37.5	26.91
26.5	26.02	38.0	25.89
27.0	24.20	38.5	24.75
27.5	23.64	39.0	25.77
28.0	26.39	39.5	25.83
28.5	26.66	40.0	27.62
29.0	26.40		

COM-POWER AH826**HORN ANTENNA**

S/N: 71957

CALIBRATION DATE: DECEMBER 12, 2007

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7



FRONT VIEW

O'NEIL PRODUCT DEVELOPMENT
2 INCH THERMAL PRINTER
MODEL: MF2Te

FCC SUBPART B AND C – RADIATED EMISSIONS – LAB B

**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

O'NEIL PRODUCT DEVELOPMENT
2 INCH THERMAL PRINTER
MODEL: MF2Te

FCC SUBPART B AND C – RADIATED EMISSIONS – LAB B

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



FRONT VIEW

O'NEIL PRODUCT DEVELOPMENT
2 INCH THERMAL PRINTER
MODEL: MF2Te

FCC SUBPART B AND C – RADIATED EMISSIONS – LAB A

**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

O'NEIL PRODUCT DEVELOPMENT
2 INCH THERMAL PRINTER
MODEL: MF2Te

FCC SUBPART B AND C – RADIATED EMISSIONS – LAB A

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



FRONT VIEW

O'NEIL PRODUCT DEVELOPMENT
2 INCH THERMAL PRINTER
MODEL: MF2Te

FCC SUBPART B AND C – CONDUCTED EMISSIONS – LAB A

**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

O'NEIL PRODUCT DEVELOPMENT
2 INCH THERMAL PRINTER
MODEL: MF2Te

FCC SUBPART B AND C – CONDUCTED EMISSIONS – LAB A

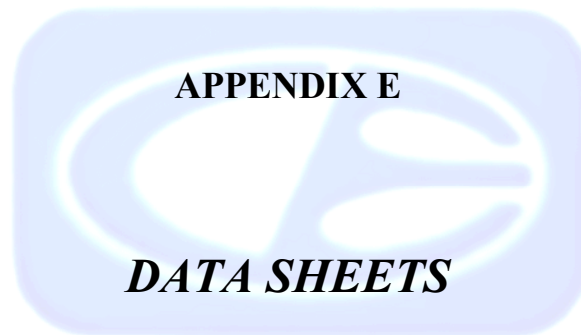
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
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Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



RADIATED EMISSIONS

DATA SHEETS

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	42.82	V	74	-31.18	Peak	2.23	180	
4804	22.82	V	54	-31.18	Avg	2.23	180	
7206	47.27	V	74	-26.73	Peak	1.25	180	
7206	27.27	V	54	-26.73	Avg	1.25	180	
9608		V	--	--	Peak			No Emission
9608		V	--	--	Avg			Detected
12010		V	74	-74	Peak			No Emission
12010		V	54	-54	Avg			Detected
14412		V	74	-74	Peak			No Emission
14412		V	54	-54	Avg			Detected
16814		V	--	--	Peak			No Emission
16814		V	--	--	Avg			Detected
19216		V	74	-74	Peak			No Emission
19216		V	54	-54	Avg			Detected
21618		V	--	--	Peak			No Emission
21618		V	--	--	Avg			Detected
24020		V	--	--	Peak			No Emission
24020		V	--	--	Avg			Detected

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	43.77	V	74	-30.23	Peak	2.31	250	
4804	23.77	V	54	-30.23	Avg	2.31	250	
7206	47.95	V	74	-26.05	Peak	2.35	225	
7206	27.95	V	54	-26.05	Avg	2.35	225	
9608		V	--	--	Peak			No Emission
9608		V	--	--	Avg			Detected
12010		V	74	-74	Peak			No Emission
12010		V	54	-54	Avg			Detected
14412		V	74	-74	Peak			No Emission
14412		V	54	-54	Avg			Detected
16814		V	--	--	Peak			No Emission
16814		V	--	--	Avg			Detected
19216		V	74	-74	Peak			No Emission
19216		V	54	-54	Avg			Detected
21618		V	--	--	Peak			No Emission
21618		V	--	--	Avg			Detected
24020		V	--	--	Peak			No Emission
24020		V	--	--	Avg			Detected

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	43.16	V	74	-30.84	Peak	2.29	225	
4804	23.16	V	54	-30.84	Avg	2.29	225	
7206	47.83	V	74	-26.17	Peak	2.29	180	
7206	27.83	V	54	-26.17	Avg	2.29	180	
9608		V	--	--	Peak			No Emission Detected
9608		V	--	--	Avg			
12010		V	74	-74	Peak			No Emission Detected
12010		V	54	-54	Avg			
14412		V	74	-74	Peak			No Emission Detected
14412		V	54	-54	Avg			
16814		V	--	--	Peak			No Emission Detected
16814		V	--	--	Avg			
19216		V	74	-74	Peak			No Emission Detected
19216		V	54	-54	Avg			
21618		V	--	--	Peak			No Emission Detected
21618		V	--	--	Avg			
24020		V	--	--	Peak			No Emission Detected
24020		V	--	--	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	41.89	H	74	-32.11	Peak	1.99	225	
4804	21.89	H	54	-32.11	Avg	1.99	225	
7206	46.77	H	74	-27.23	Peak	1.99	315	
7206	26.77	H	54	-27.23	Avg	1.99	315	
9608		H	--	--	Peak			No Emission
9608		H	--	--	Avg			Detected
12010		H	74	-74	Peak			No Emission
12010		H	54	-54	Avg			Detected
14412		H	74	-74	Peak			No Emission
14412		H	54	-54	Avg			Detected
16814		H	--	--	Peak			No Emission
16814		H	--	--	Avg			Detected
19216		H	74	-74	Peak			No Emission
19216		H	54	-54	Avg			Detected
21618		H	--	--	Peak			No Emission
21618		H	--	--	Avg			Detected
24020		H	--	--	Peak			No Emission
24020		H	--	--	Avg			Detected

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	42.26	H	74	-31.74	Peak	2.26	135	
4804	22.26	H	54	-31.74	Avg	2.26	135	
7206	48.38	H	74	-25.62	Peak	2.26	45	
7206	28.38	H	54	-25.62	Avg	2.26	45	
9608		H	--	--	Peak			No Emission
9608		H	--	--	Avg			Detected
12010		H	74	-74	Peak			No Emission
12010		H	54	-54	Avg			Detected
14412		H	74	-74	Peak			No Emission
14412		H	54	-54	Avg			Detected
16814		H	--	--	Peak			No Emission
16814		H	--	--	Avg			Detected
19216		H	74	-74	Peak			No Emission
19216		H	54	-54	Avg			Detected
21618		H	--	--	Peak			No Emission
21618		H	--	--	Avg			Detected
24020		H	--	--	Peak			No Emission
24020		H	--	--	Avg			Detected

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	41.95	H	74	-32.05	Peak	2.61	150	
4804	21.95	H	54	-32.05	Avg	2.61	150	
7206	47.21	H	74	-26.79	Peak	2.61	225	
7206	27.21	H	54	-26.79	Avg	2.61	225	
9608		H	--	--	Peak			No Emission
9608		H	--	--	Avg			Detected
12010		H	74	-74	Peak			No Emission
12010		H	54	-54	Avg			Detected
14412		H	74	-74	Peak			No Emission
14412		H	54	-54	Avg			Detected
16814		H	--	--	Peak			No Emission
16814		H	--	--	Avg			Detected
19216		H	74	-74	Peak			No Emission
19216		H	54	-54	Avg			Detected
21618		H	--	--	Peak			No Emission
21618		H	--	--	Avg			Detected
24020		H	--	--	Peak			No Emission
24020		H	--	--	Avg			Detected

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4882	42.67	V	74	-31.33	Peak	2.41	225	
4882	22.67	V	54	-31.33	Avg	2.41	225	
7323	48.69	V	74	-25.31	Peak	1.93	180	
7323	28.69	V	54	-25.31	Avg	1.93	180	
9764		V	--	--	Peak			No Emission Detected
9764		V	--	--	Avg			
12205		V	74	-74	Peak			No Emission Detected
12205		V	54	-54	Avg			
14646		V	--	--	Peak			No Emission Detected
14646		V	--	--	Avg			
17087		V	--	--	Peak			No Emission Detected
17087		V	--	--	Avg			
19528		V	74	-74	Peak			No Emission Detected
19528		V	54	-54	Avg			
21969		V	--	--	Peak			No Emission Detected
21969		V	--	--	Avg			
24410		V	74	-74	Peak			No Emission Detected
24410		V	54	-54	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4882	46.21	V	74	-27.79	Peak	1.89	150	
4882	26.21	V	54	-27.79	Avg	1.89	150	
7323	49.62	V	74	-24.38	Peak	1.99	225	
7323	29.62	V	54	-24.38	Avg	1.99	225	
9764		V	--	--	Peak			No Emission Detected
9764		V	--	--	Avg			
12205		V	74	-74	Peak			No Emission Detected
12205		V	54	-54	Avg			
14646		V	--	--	Peak			No Emission Detected
14646		V	--	--	Avg			
17087		V	--	--	Peak			No Emission Detected
17087		V	--	--	Avg			
19528		V	74	-74	Peak			No Emission Detected
19528		V	54	-54	Avg			
21969		V	--	--	Peak			No Emission Detected
21969		V	--	--	Avg			
24410		V	74	-74	Peak			No Emission Detected
24410		V	54	-54	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4882	42.48	V	74	-31.52	Peak	1.82	135	
4882	22.48	V	54	-31.52	Avg	1.82	135	
7323	47.75	V	74	-26.25	Peak	1.83	90	
7323	27.75	V	54	-26.25	Avg	1.83	90	
9764		V	--	--	Peak			No Emission Detected
9764		V	--	--	Avg			
12205		V	74	-74	Peak			No Emission Detected
12205		V	54	-54	Avg			
14646		V	--	--	Peak			No Emission Detected
14646		V	--	--	Avg			
17087		V	--	--	Peak			No Emission Detected
17087		V	--	--	Avg			
19528		V	74	-74	Peak			No Emission Detected
19528		V	54	-54	Avg			
21969		V	--	--	Peak			No Emission Detected
21969		V	--	--	Avg			
24410		V	74	-74	Peak			No Emission Detected
24410		V	54	-54	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4882	45.21	H	74	-28.79	Peak	3.08	150	
4882	25.21	H	54	-28.79	Avg	3.08	150	
7323	48.51	H	74	-25.49	Peak	3.08	225	
7323	28.51	H	54	-25.49	Avg	3.08	225	
9764		H	--	--	Peak			No Emission Detected
9764		H	--	--	Avg			
12205		H	74	-74	Peak			No Emission Detected
12205		H	54	-54	Avg			
14646		H	--	--	Peak			No Emission Detected
14646		H	--	--	Avg			
17087		H	--	--	Peak			No Emission Detected
17087		H	--	--	Avg			
19528		H	74	-74	Peak			No Emission Detected
19528		H	54	-54	Avg			
21969		H	--	--	Peak			No Emission Detected
21969		H	--	--	Avg			
24410		H	74	-74	Peak			No Emission Detected
24410		H	54	-54	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4882	43.52	H	74	-30.48	Peak	1.88	150	
4882	23.52	H	54	-30.48	Avg	1.88	150	
7323	48.84	H	74	-25.16	Peak	1.89	225	
7323	28.84	H	54	-25.16	Avg	1.89	225	
9764		H	--	--	Peak			No Emission Detected
9764		H	--	--	Avg			
12205		H	74	-74	Peak			No Emission Detected
12205		H	54	-54	Avg			
14646		H	--	--	Peak			No Emission Detected
14646		H	--	--	Avg			
17087		H	--	--	Peak			No Emission Detected
17087		H	--	--	Avg			
19528		H	74	-74	Peak			No Emission Detected
19528		H	54	-54	Avg			
21969		H	--	--	Peak			No Emission Detected
21969		H	--	--	Avg			
24410		H	74	-74	Peak			No Emission Detected
24410		H	54	-54	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4882	47.22	H	74	-26.78	Peak	1.76	225	
4882	27.22	H	54	-26.78	Avg	1.76	225	
7323	48.97	H	74	-25.03	Peak	1.68	135	
7323	28.97	H	54	-25.03	Avg	1.68	135	
9764		H	--	--	Peak			No Emission Detected
9764		H	--	--	Avg			
12205		H	74	-74	Peak			No Emission Detected
12205		H	54	-54	Avg			
14646		H	--	--	Peak			No Emission Detected
14646		H	--	--	Avg			
17087		H	--	--	Peak			No Emission Detected
17087		H	--	--	Avg			
19528		H	74	-74	Peak			No Emission Detected
19528		H	54	-54	Avg			
21969		H	--	--	Peak			No Emission Detected
21969		H	--	--	Avg			
24410		H	74	-74	Peak			No Emission Detected
24410		H	54	-54	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960	52.07	V	74	-21.93	Peak	2.61	45	
4960	32.07	V	54	-21.93	Avg	2.61	45	
7440	47.94	V	74	-26.06	Peak	1.54	180	
7440	27.94	V	54	-26.06	Avg	1.54	180	
9920		V	--	--	Peak			No Emission Detected
9920		V	--	--	Avg			
12400		V	74	-74	Peak			No Emission Detected
12400		V	54	-54	Avg			
14880		V	--	--	Peak			No Emission Detected
14880		V	--	--	Avg			
17360		V	--	--	Peak			No Emission Detected
17360		V	--	--	Avg			
19840		V	74	-74	Peak			No Emission Detected
19840		V	54	-54	Avg			
22320		V	74	-74	Peak			No Emission Detected
22320		V	54	-54	Avg			
24800		V	--	--	Peak			No Emission Detected
24800		V	--	--	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960	56.53	V	74	-17.47	Peak	2.79	45	
4960	36.53	V	54	-17.47	Avg	2.79	45	
7440	49.17	V	74	-24.83	Peak	1.91	315	
7440	29.17	V	54	-24.83	Avg	1.91	315	
9920		V	--	--	Peak			Not in Restricted Band
9920		V	--	--	Avg			Not in Restricted Band
12400		V	74	-74	Peak			No Emission Detected
12400		V	54	-54	Avg			
14880		V	--	--	Peak			No Emission Detected
14880		V	--	--	Avg			
17360		V	--	--	Peak			No Emission Detected
17360		V	--	--	Avg			
19840		V	74	-74	Peak			No Emission Detected
19840		V	54	-54	Avg			
22320		V	74	-74	Peak			No Emission Detected
22320		V	54	-54	Avg			
24800		V	--	--	Peak			No Emission Detected
24800		V	--	--	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960	48.99	V	74	-25.01	Peak	1.99	150	
4960	28.99	V	54	-25.01	Avg	1.99	150	
7440	47.71	V	74	-26.29	Peak	1.95	180	
7440	27.71	V	54	-26.29	Avg	1.95	180	
9920		V	--	--	Peak			No Emission Detected
9920		V	--	--	Avg			
12400		V	74	-74	Peak			No Emission Detected
12400		V	54	-54	Avg			
14880		V	--	--	Peak			No Emission Detected
14880		V	--	--	Avg			
17360		V	--	--	Peak			No Emission Detected
17360		V	--	--	Avg			
19840		V	74	-74	Peak			No Emission Detected
19840		V	54	-54	Avg			
22320		V	74	-74	Peak			No Emission Detected
22320		V	54	-54	Avg			
24800		V	--	--	Peak			No Emission Detected
24800		V	--	--	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960	58.34	H	74	-15.66	Peak	1.85	135	
4960	38.34	H	54	-15.66	Avg	1.85	135	
7440	47.31	H	74	-26.69	Peak	1.76	225	
7440	27.31	H	54	-26.69	Avg	1.76	225	
9920		H	--	--	Peak			No Emission Detected
9920		H	--	--	Avg			
12400		H	74	-74	Peak			No Emission Detected
12400		H	54	-54	Avg			
14880		H	--	--	Peak			No Emission Detected
14880		H	--	--	Avg			
17360		H	--	--	Peak			No Emission Detected
17360		H	--	--	Avg			
19840		H	74	-74	Peak			No Emission Detected
19840		H	54	-54	Avg			
22320		H	74	-74	Peak			No Emission Detected
22320		H	54	-54	Avg			
24800		H	--	--	Peak			No Emission Detected
24800		H	--	--	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960	53.75	H	74	-20.25	Peak	1.92	45	
4960	33.75	H	54	-20.25	Avg	1.92	45	
7440	48.41	H	74	-25.59	Peak	1.93	90	
7440	28.41	H	54	-25.59	Avg	1.93	90	
9920		H	--	--	Peak			No Emission Detected
9920		H	--	--	Avg			
12400		H	74	-74	Peak			No Emission Detected
12400		H	54	-54	Avg			
14880		H	--	--	Peak			No Emission Detected
14880		H	--	--	Avg			
17360		H	--	--	Peak			No Emission Detected
17360		H	--	--	Avg			
19840		H	74	-74	Peak			No Emission Detected
19840		H	54	-54	Avg			
22320		H	74	-74	Peak			No Emission Detected
22320		H	54	-54	Avg			
24800		H	--	--	Peak			No Emission Detected
24800		H	--	--	Avg			

FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960	50.96	H	74	-23.04	Peak	1.71	225	
4960	30.96	H	54	-23.04	Avg	1.71	225	
7440	47.42	H	74	-26.58	Peak	1.72	135	
7440	27.42	H	54	-26.58	Avg	1.72	135	
9920		H	--	--	Peak			No Emission Detected
9920		H	--	--	Avg			
12400		H	74	-74	Peak			No Emission Detected
12400		H	54	-54	Avg			
14880		H	--	--	Peak			No Emission Detected
14880		H	--	--	Avg			
17360		H	--	--	Peak			No Emission Detected
17360		H	--	--	Avg			
19840		H	74	-74	Peak			No Emission Detected
19840		H	54	-54	Avg			
22320		H	74	-74	Peak			No Emission Detected
22320		H	54	-54	Avg			
24800		H	--	--	Peak			No Emission Detected
24800		H	--	--	Avg			

Test Location	: Compatible Electronics	Page	: 1/1
Customer	: O'Neil Product Development, Inc.	Date	: 3/19/2008
Manufacturer	: O'Neil Product Development, Inc.	Time	: 10:56:45
Eut name	: 2 Inch Thermal Printer	Lab	: A
Model	: MF2TE	Test Distance	: 3.0
Serial #	: N/A		
Specification	: FCC B		
Distance correction factor	(20 * log(test/spec))		: 0.00
EUT Operating Mode:	Serial (Print) - Bluetooth in Rx Mode		
Test Type:	Radiated Emissions Qualification		
Test Range:	10 kHz to 1 GHz (Vertical and Horizontal)		
Test Engineer:	James Ross		

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Li mit = L dBuV/m	Delta R-L dB
V	112.229	55.80	2.20	12.50	32.85	37.65	43.50	-5.85
V	120.223	52.30	2.27	13.58	32.88	35.26	43.50	-8.24
V	128.223	50.00	2.33	12.83	32.86	32.30	43.50	-11.20
V	136.219	46.60	2.39	12.12	32.76	28.36	43.50	-15.14
V	184.362	48.30	2.90	15.95	32.70	34.45	43.50	-9.05
V	192.541	44.50	2.90	16.40	32.70	31.10	43.50	-12.40
V	195.492	48.60	2.90	16.56	32.70	35.36	43.50	-8.14
V	200.292	45.90	2.90	16.78	32.70	32.89	43.50	-10.61
V	247.986	48.40	3.48	14.58	32.68	33.78	46.00	-12.22
V	248.972	48.50	3.49	14.54	32.69	33.84	46.00	-12.16
H	80.175	44.80	1.80	6.21	32.90	19.92	40.00	-20.08
H	112.230	47.60	2.20	12.50	32.85	29.45	43.50	-14.05
H	120.230	45.70	2.27	13.58	32.88	28.66	43.50	-14.84
H	128.230	45.60	2.33	12.83	32.86	27.90	43.50	-15.60
H	176.303	50.50	2.90	15.10	32.70	35.80	43.50	-7.70
H	184.392	52.30	2.90	15.95	32.70	38.45	43.50	-5.05
H	192.324	50.50	2.90	16.39	32.70	37.09	43.50	-6.41
H	200.324	52.60	2.90	16.78	32.70	39.59	43.50	-3.91
H	208.262	45.30	3.00	16.38	32.63	32.05	43.50	-11.45
H	216.202	44.60	3.10	16.00	32.57	31.13	46.00	-14.87
H	247.968	51.50	3.48	14.58	32.68	36.88	46.00	-9.12
H	248.954	52.40	3.49	14.54	32.69	37.74	46.00	-8.26
H	249.951	50.90	3.50	14.50	32.70	36.20	46.00	-9.80
H	250.948	47.80	3.50	14.67	32.69	33.28	46.00	-12.72

Test Location : Compatible Electronics Page : 1/1
 Customer : O'Neil Product Development, Inc. Date : 3/19/2008
 Manufacturer : O'Neil Product Development, Inc. Time : 9:02:05
 Eut name : 2 Inch Thermal Printer Lab : A
 Model : MF2TE Test Distance : 3.0
 Serial # : N/A
 Specification : FCC B
 Distance correction factor (20 * log(test/spec) : 0.00

EUT Operating Mode: Transmit
 Test Type: Radiated Emissions Qualification
 Test Range: 10 kHz to 1 GHz (Vertical and Horizontal)
 Test Engineer: James Ross

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Li mi t = L dBuV/m	Delta R-L dB
V	112.276	53.70	2.20	12.51	32.85	35.56	43.50	-7.94
V	120.212	52.60	2.26	13.58	32.88	35.56	43.50	-7.94
V	128.211	53.70	2.33	12.83	32.86	36.00	43.50	-7.50
V	136.241	46.80	2.39	12.12	32.76	28.55	43.50	-14.95
V	138.722	52.40	2.41	11.91	32.73	33.99	43.50	-9.51
V	176.322	43.20	2.90	15.10	32.70	28.50	43.50	-15.00
V	184.386	48.20	2.90	15.95	32.70	34.35	43.50	-9.15
V	192.353	44.20	2.90	16.39	32.70	30.79	43.50	-12.71
H	112.231	49.60	2.20	12.50	32.85	31.45	43.50	-12.05
H	128.246	42.80	2.33	12.82	32.86	25.09	43.50	-18.41
H	136.246	45.50	2.39	12.12	32.76	27.25	43.50	-16.25
H	138.728	43.60	2.41	11.91	32.73	25.19	43.50	-18.31
H	144.246	46.20	2.46	11.91	32.66	27.90	43.50	-15.60
H	160.246	45.60	2.67	12.34	32.64	27.97	43.50	-15.53
H	176.308	49.10	2.90	15.10	32.70	34.40	43.50	-9.10
H	184.402	50.30	2.90	15.95	32.70	36.45	43.50	-7.05
H	192.359	48.00	2.90	16.39	32.70	34.59	43.50	-8.91
H	200.299	48.80	2.90	16.78	32.70	35.79	43.50	-7.71
H	208.349	42.60	3.00	16.38	32.63	29.35	43.50	-14.15
H	216.362	43.70	3.10	15.99	32.57	30.22	46.00	-15.78
H	243.284	47.60	3.42	14.78	32.65	33.15	46.00	-12.85

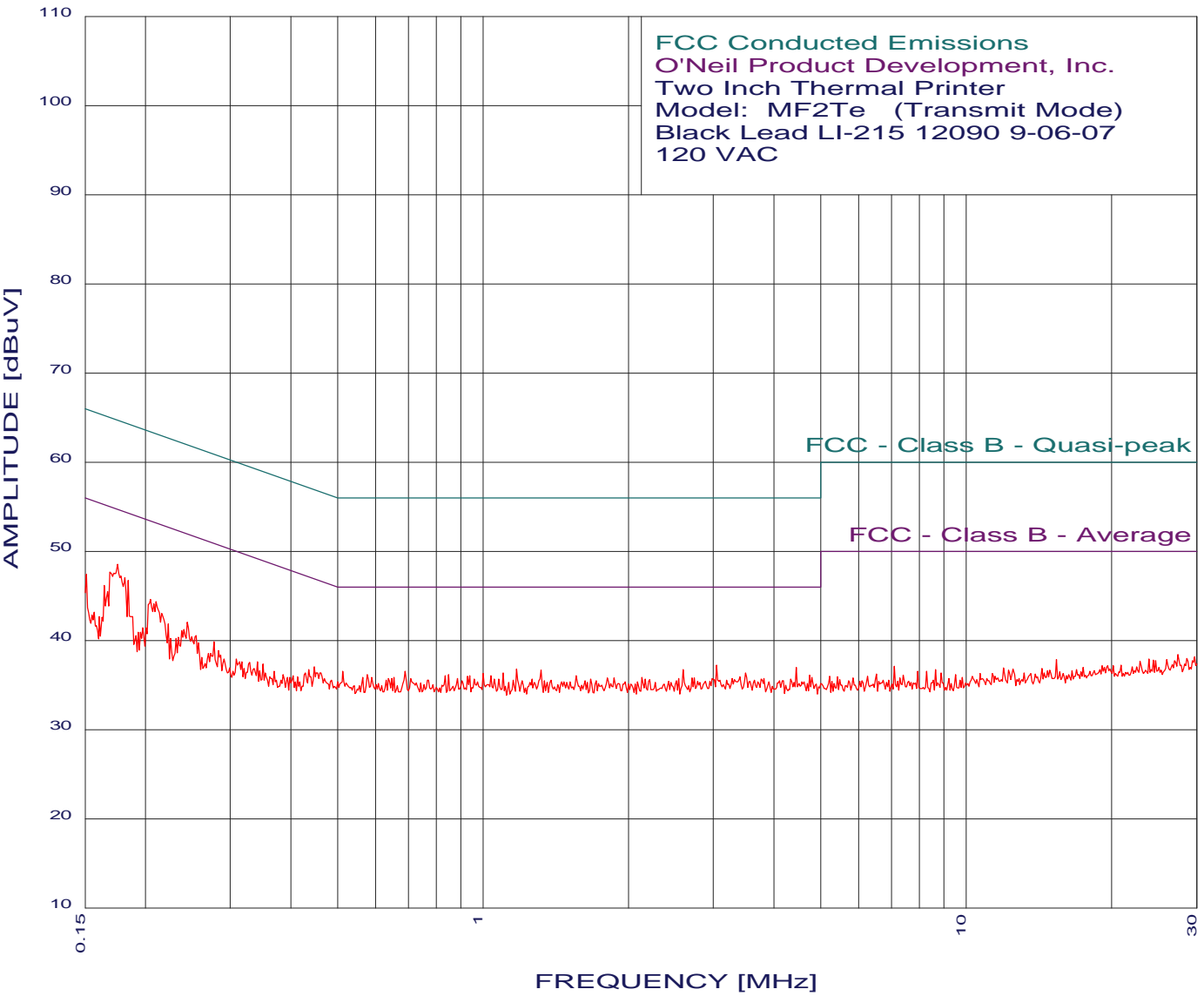
CONDUCTED EMISSIONS

DATA SHEETS



3/19/2008 14:55:00

EMISSION LEVEL [dBuV] PEAK
Graph for **Peak**



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

O'Neil Product Development, Inc.
Two Inch Thermal Printer
Model: MF2Te (Transmit Mode)
Black Lead - 120 VAC
Test Engineer: James Ross

3/19/2008 14:55:00

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

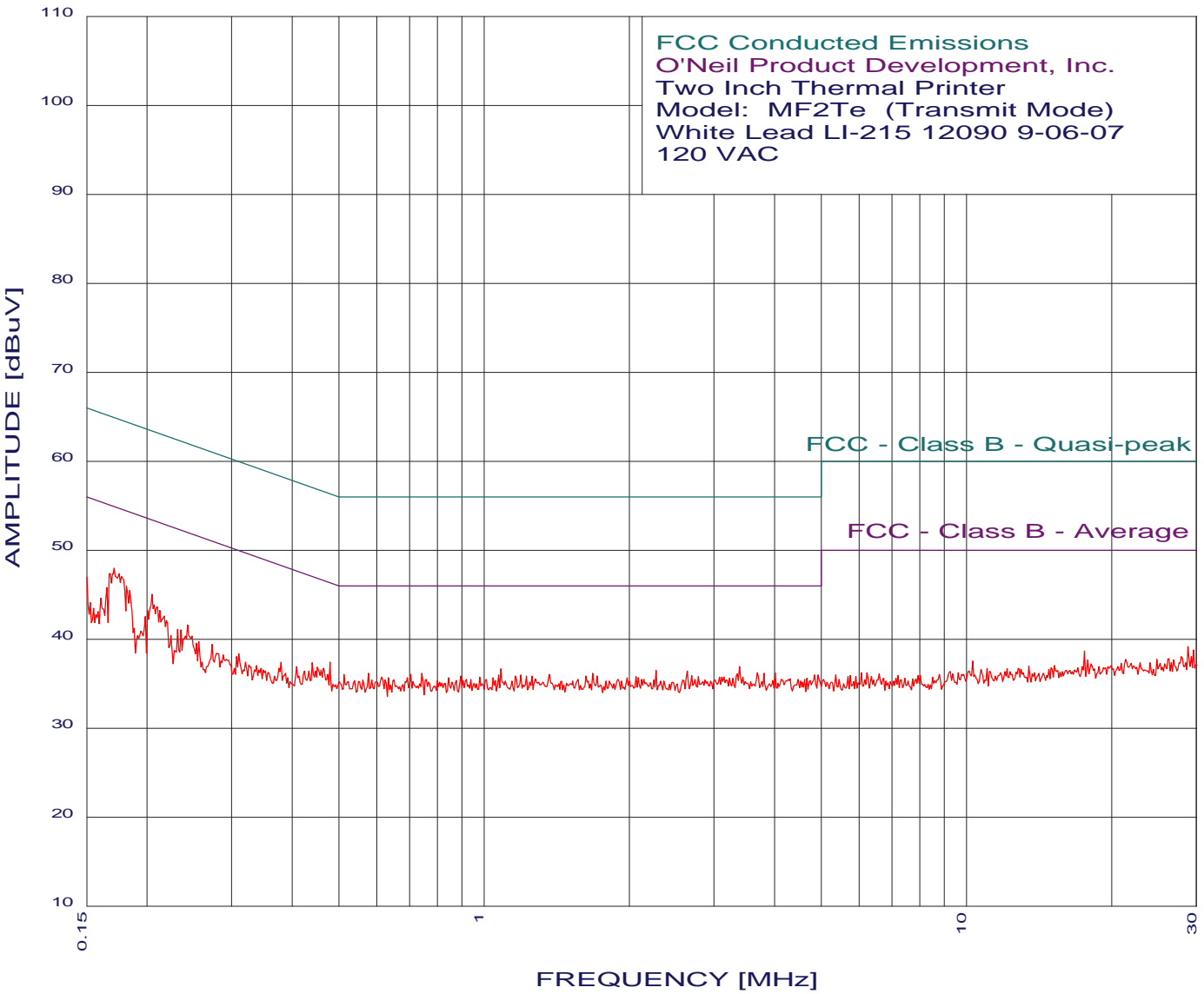
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.175	48.55	54.72	-6.17
2	0.184	46.74	54.28	-7.55
3	0.151	47.43	55.95	-8.52
4	0.205	44.62	53.40	-8.78
5	3.043	37.21	46.00	-8.79
6	0.211	44.32	53.18	-8.86
7	4.456	36.96	46.00	-9.04
8	0.164	46.16	55.25	-9.08
9	1.172	36.75	46.00	-9.25
10	2.596	36.69	46.00	-9.31
11	1.318	36.66	46.00	-9.34
12	0.690	36.54	46.00	-9.46
13	0.513	36.53	46.00	-9.47
14	1.100	36.35	46.00	-9.65
15	0.167	45.46	55.11	-9.66
16	3.492	36.32	46.00	-9.68
17	1.000	36.25	46.00	-9.75
18	0.849	36.14	46.00	-9.86
19	0.577	36.13	46.00	-9.87
20	0.447	37.03	46.93	-9.90
21	0.244	42.02	51.95	-9.93
22	4.748	36.07	46.00	-9.93
23	0.216	43.02	52.96	-9.94
24	1.560	36.06	46.00	-9.94
25	1.038	36.05	46.00	-9.95
26	0.939	36.05	46.00	-9.95
27	0.835	36.04	46.00	-9.96
28	3.401	35.92	46.00	-10.08
29	2.134	35.87	46.00	-10.13
30	4.799	35.87	46.00	-10.13
31	0.655	35.84	46.00	-10.16
32	0.589	35.83	46.00	-10.17
33	0.564	35.83	46.00	-10.17
34	2.736	35.80	46.00	-10.20
35	1.869	35.77	46.00	-10.23
36	1.810	35.77	46.00	-10.23
37	0.885	35.75	46.00	-10.25
38	0.709	35.74	46.00	-10.26
39	3.820	35.74	46.00	-10.26
40	0.648	35.74	46.00	-10.26
41	0.637	35.74	46.00	-10.26
42	2.540	35.69	46.00	-10.31
43	2.168	35.68	46.00	-10.32
44	1.671	35.66	46.00	-10.34
45	1.262	35.66	46.00	-10.34
46	1.077	35.65	46.00	-10.35
47	1.055	35.65	46.00	-10.35
48	0.958	35.65	46.00	-10.35
49	0.150	45.37	56.00	-10.63



3/19/2008 15:04:27

EMISSION LEVEL [dBuV] PEAK
Graph for Peak



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

O'Neil Product Development, Inc.
Two Inch Thermal Printer
Model: MF2Te (Transmit Mode)
White Lead - 120 VAC
Test Engineer: James Ross

3/19/2008 15:04:27

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

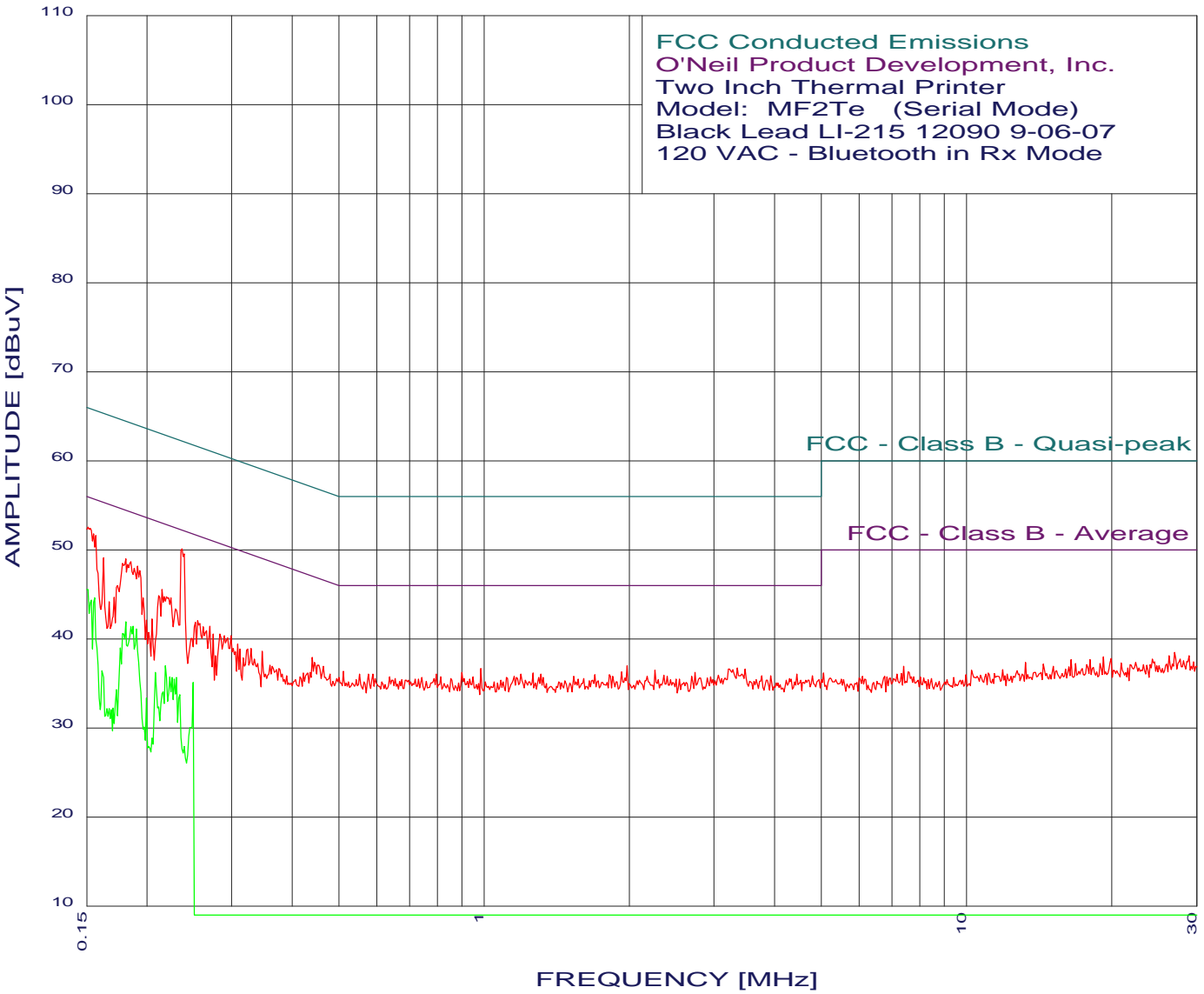
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.171	47.95	54.90	-6.94
2	0.167	47.36	55.11	-7.76
3	0.205	45.02	53.40	-8.38
4	0.182	45.94	54.41	-8.47
5	0.184	45.44	54.28	-8.85
6	0.479	37.43	46.36	-8.93
7	0.150	46.99	56.00	-9.01
8	3.383	36.92	46.00	-9.08
9	1.083	36.65	46.00	-9.35
10	0.165	45.76	55.20	-9.44
11	2.274	36.48	46.00	-9.52
12	2.637	36.39	46.00	-9.61
13	0.440	37.33	47.06	-9.73
14	4.008	36.24	46.00	-9.76
15	3.683	36.23	46.00	-9.77
16	1.680	36.16	46.00	-9.84
17	0.743	36.14	46.00	-9.86
18	3.800	36.14	46.00	-9.86
19	0.577	36.13	46.00	-9.87
20	0.213	43.22	53.09	-9.87
21	0.464	36.73	46.62	-9.89
22	1.367	36.06	46.00	-9.94
23	0.705	36.04	46.00	-9.96
24	0.513	36.03	46.00	-9.97
25	0.452	36.83	46.85	-10.02
26	4.928	35.98	46.00	-10.02
27	4.851	35.97	46.00	-10.03
28	1.191	35.95	46.00	-10.05
29	1.072	35.95	46.00	-10.05
30	2.693	35.90	46.00	-10.10
31	1.717	35.86	46.00	-10.14
32	1.629	35.86	46.00	-10.14
33	1.256	35.86	46.00	-10.14
34	1.223	35.85	46.00	-10.15
35	1.160	35.85	46.00	-10.15
36	0.895	35.85	46.00	-10.15
37	2.781	35.80	46.00	-10.20
38	2.066	35.77	46.00	-10.23
39	0.979	35.75	46.00	-10.25
40	0.614	35.73	46.00	-10.27
41	3.141	35.71	46.00	-10.29
42	2.089	35.67	46.00	-10.33
43	1.981	35.67	46.00	-10.33
44	1.043	35.65	46.00	-10.35
45	0.844	35.64	46.00	-10.36
46	0.694	35.64	46.00	-10.36
47	0.634	35.64	46.00	-10.36
48	0.243	41.62	52.00	-10.37
49	4.672	35.57	46.00	-10.43



3/19/2008 14:28:49

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average



Brea Division
114 Olinda Drive
Brea, CA 92823
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Silverado Division
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Lake Forest Division
20621 Pascal Way
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O'Neil Product Development, Inc.
Two Inch Thermal Printer
Model: MF2Te (Serial Mode)
Black Lead - 120 VAC - Bluetooth in Rx Mode
Test Engineer: James Ross

3/19/2008 14:28:49

49 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	0.237	50.12	52.21	-2.09**
2	0.150	52.27	56.00	-3.73**
3	0.157	51.57	55.64	-4.07**
4	0.181	48.94	54.46	-5.51**
5	0.185	48.64	54.24	-5.60**
6	0.192	48.13	53.97	-5.84**
7	0.162	49.07	55.34	-6.27**
8	0.215	45.52	53.00	-7.48**
9	0.212	44.82	53.14	-8.32**
10	1.981	36.97	46.00	-9.03
11	0.197	44.62	53.75	-9.13**
12	0.440	37.93	47.06	-9.13
13	0.229	43.32	52.48	-9.16**
14	3.346	36.72	46.00	-9.28
15	0.984	36.65	46.00	-9.35
16	3.474	36.62	46.00	-9.38
17	3.226	36.61	46.00	-9.39
18	2.262	36.48	46.00	-9.52
19	0.255	42.02	51.60	-9.57**
20	0.445	37.33	46.98	-9.65
21	0.510	36.33	46.00	-9.67
22	0.270	41.42	51.11	-9.69
23	0.464	36.93	46.62	-9.69
24	1.929	36.27	46.00	-9.73
25	0.899	36.25	46.00	-9.75
26	0.454	37.03	46.80	-9.77
27	2.736	36.20	46.00	-9.80
28	1.262	36.16	46.00	-9.84
29	0.252	41.82	51.68	-9.86
30	4.456	36.06	46.00	-9.94
31	1.311	36.06	46.00	-9.94
32	1.191	36.05	46.00	-9.95
33	0.299	40.32	50.28	-9.96
34	0.796	36.04	46.00	-9.96
35	0.589	36.03	46.00	-9.97
36	0.577	36.03	46.00	-9.97
37	0.552	36.03	46.00	-9.97
38	1.820	35.97	46.00	-10.03
39	1.699	35.96	46.00	-10.04
40	0.262	41.32	51.38	-10.06
41	2.358	35.88	46.00	-10.12
42	4.799	35.87	46.00	-10.13
43	3.924	35.84	46.00	-10.16
44	3.761	35.83	46.00	-10.17
45	0.283	40.52	50.72	-10.19
46	2.693	35.80	46.00	-10.20
47	0.290	40.32	50.54	-10.22
48	2.179	35.78	46.00	-10.22
49	1.849	35.77	46.00	-10.23

O'Neil Product Development, Inc.
Two Inch Thermal Printer
Model: MF2Te (Serial Mode)
Black Lead - 120 VAC - Bluetooth in Rx Mode
Test Engineer: James Ross

3/19/2008 14:28:49

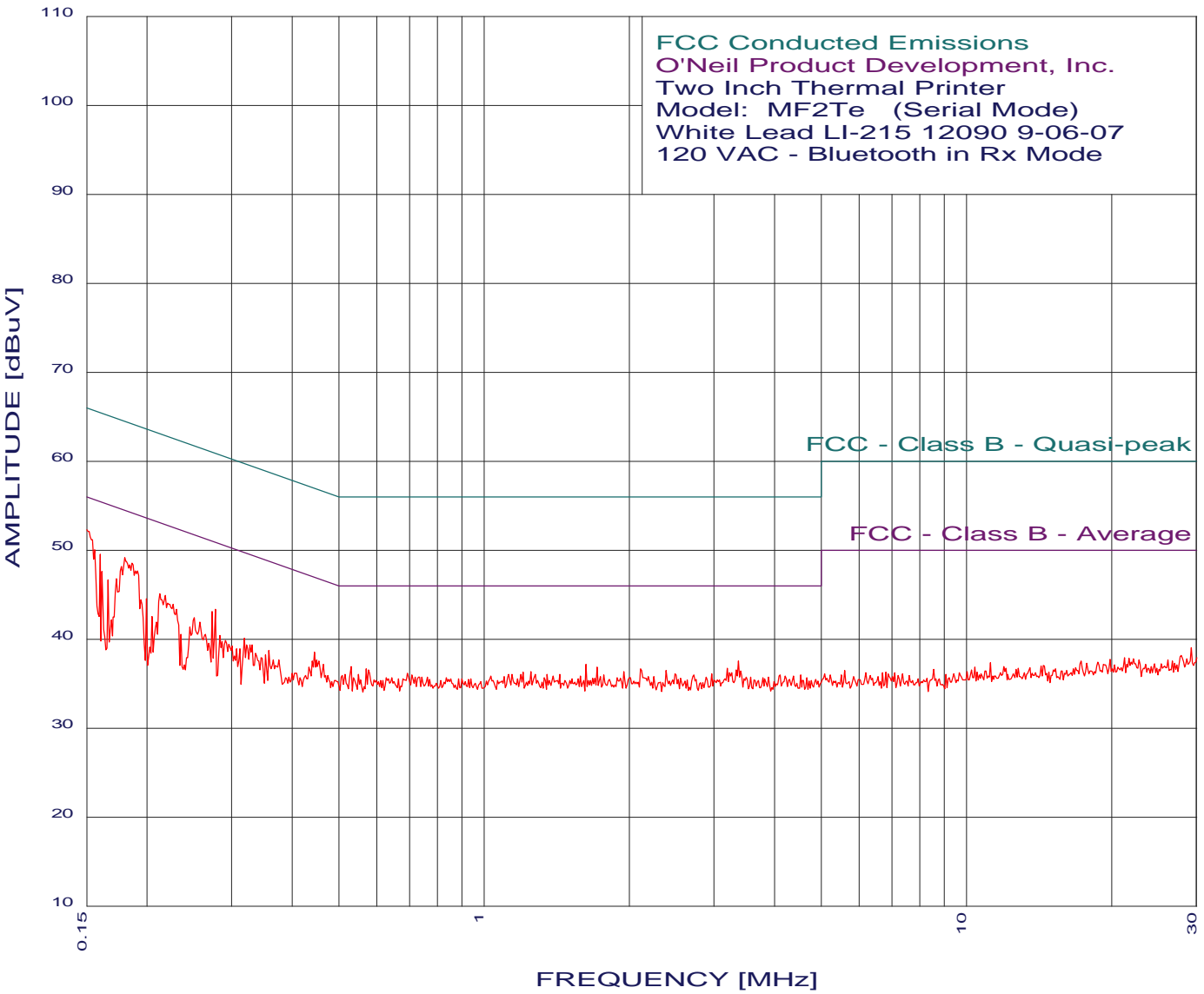
21 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.150	45.51	56.00	-10.49
2	0.156	44.57	55.69	-11.11
3	0.153	44.34	55.82	-11.48
4	0.181	41.91	54.46	-12.54
5	0.187	41.41	54.15	-12.74
6	0.190	41.12	54.01	-12.89
7	0.176	38.95	54.68	-15.73
8	0.219	36.96	52.87	-15.91
9	0.250	35.11	51.77	-16.66
10	0.230	35.63	52.43	-16.80
11	0.223	35.74	52.70	-16.96
12	0.226	35.65	52.61	-16.96
13	0.208	36.23	53.27	-17.04
14	0.228	35.45	52.52	-17.07
15	0.234	33.71	52.30	-18.59
16	0.216	34.01	52.96	-18.95
17	0.162	36.40	55.38	-18.99
18	0.200	33.37	53.62	-20.25
19	0.173	34.29	54.81	-20.52
20	0.170	32.25	54.94	-22.70
21	0.169	32.05	55.03	-22.98



3/19/2008 14:40:05

EMISSION LEVEL [dBuV] PEAK
Graph for Peak



Brea Division
114 Olinda Drive
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Agoura Division
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O'Neil Product Development, Inc.
Two Inch Thermal Printer
Model: MF2Te (Serial Mode)
White Lead - 120 VAC - Bluetooth in Rx Mode
Test Engineer: James Ross

3/19/2008 14:40:05

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

Peak criteria : 1.00 dB, Curve : Peak

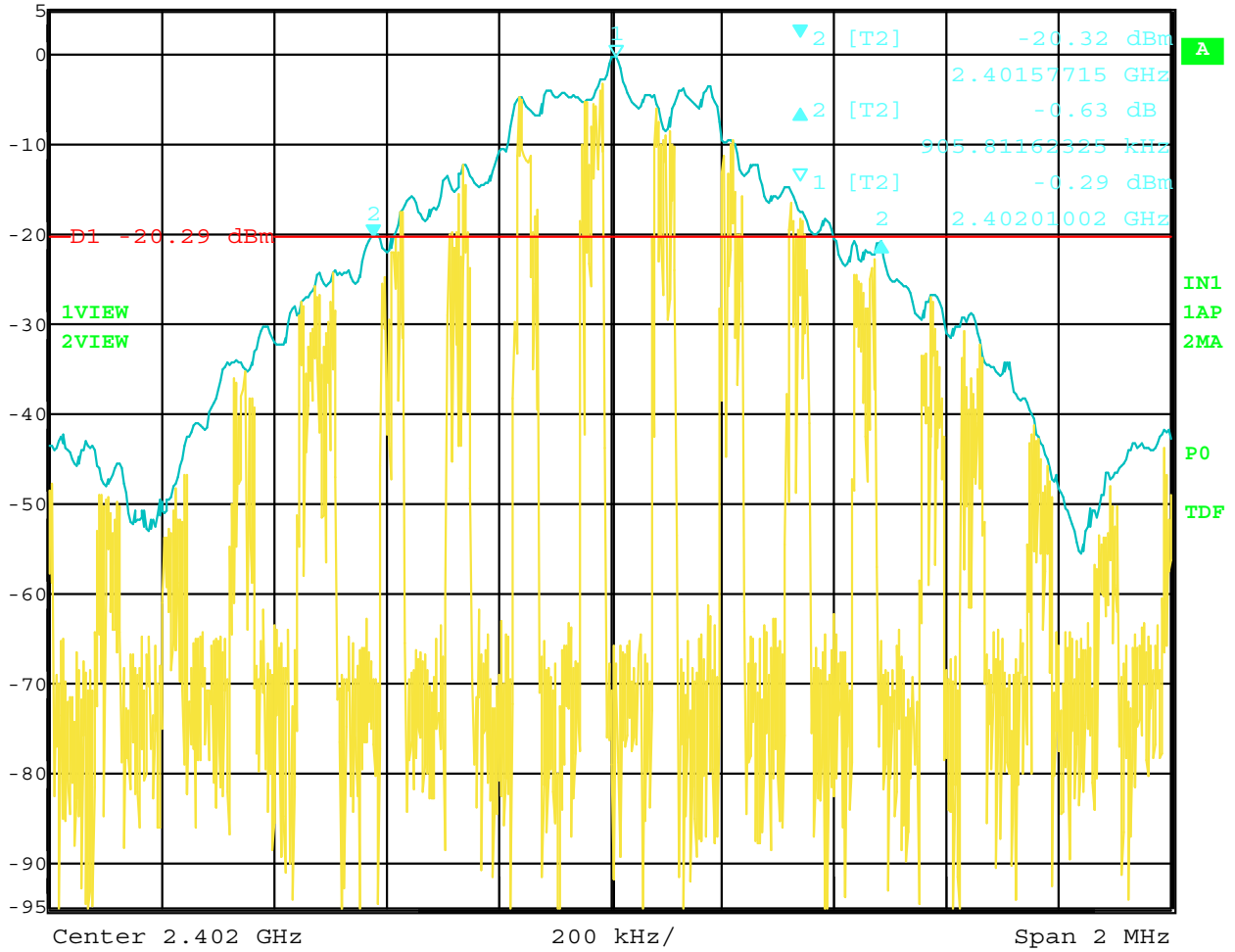
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.150	52.29	56.00	-3.71
2	0.180	49.14	54.50	-5.35
3	0.156	50.04	55.69	-5.64
4	0.160	49.51	55.47	-5.96
5	0.277	43.32	50.89	-7.57
6	0.162	47.57	55.38	-7.82
7	0.273	43.12	51.02	-7.90
8	0.219	44.92	52.87	-7.95
9	0.213	45.12	53.09	-7.97
10	0.173	46.75	54.81	-8.06
11	0.445	38.53	46.98	-8.45
12	3.365	37.52	46.00	-8.48
13	0.166	46.66	55.16	-8.50
14	1.629	37.16	46.00	-8.84
15	0.530	36.93	46.00	-9.07
16	0.200	44.52	53.62	-9.10
17	1.717	36.86	46.00	-9.14
18	3.192	36.71	46.00	-9.29
19	0.251	42.42	51.73	-9.30
20	2.111	36.67	46.00	-9.33
21	0.570	36.63	46.00	-9.37
22	0.577	36.53	46.00	-9.47
23	0.464	37.13	46.62	-9.49
24	2.384	36.48	46.00	-9.52
25	0.258	41.92	51.51	-9.59
26	0.318	40.12	49.75	-9.63
27	1.950	36.37	46.00	-9.63
28	1.249	36.35	46.00	-9.65
29	1.204	36.25	46.00	-9.75
30	3.260	36.22	46.00	-9.78
31	0.694	36.14	46.00	-9.86
32	2.963	36.11	46.00	-9.89
33	2.488	36.09	46.00	-9.91
34	1.434	36.06	46.00	-9.94
35	1.352	36.06	46.00	-9.94
36	1.276	36.06	46.00	-9.94
37	1.142	36.05	46.00	-9.95
38	1.124	36.05	46.00	-9.95
39	0.550	36.03	46.00	-9.97
40	0.516	36.03	46.00	-9.97
41	2.722	36.00	46.00	-10.00
42	1.772	35.97	46.00	-10.03
43	4.528	35.96	46.00	-10.04
44	4.114	35.95	46.00	-10.05
45	0.358	38.73	48.78	-10.05
46	0.709	35.94	46.00	-10.06
47	0.331	39.32	49.44	-10.11
48	1.586	35.86	46.00	-10.14
49	4.384	35.86	46.00	-10.14

-20 dB BANDWIDTH

DATA SHEETS



Delta 2 [T2] RBW 30 kHz RF Att 40 dB
Ref Lvl -0.63 dB VBW 100 kHz
5 dBm 905.81162325 kHz SWT 6 ms Unit dBm

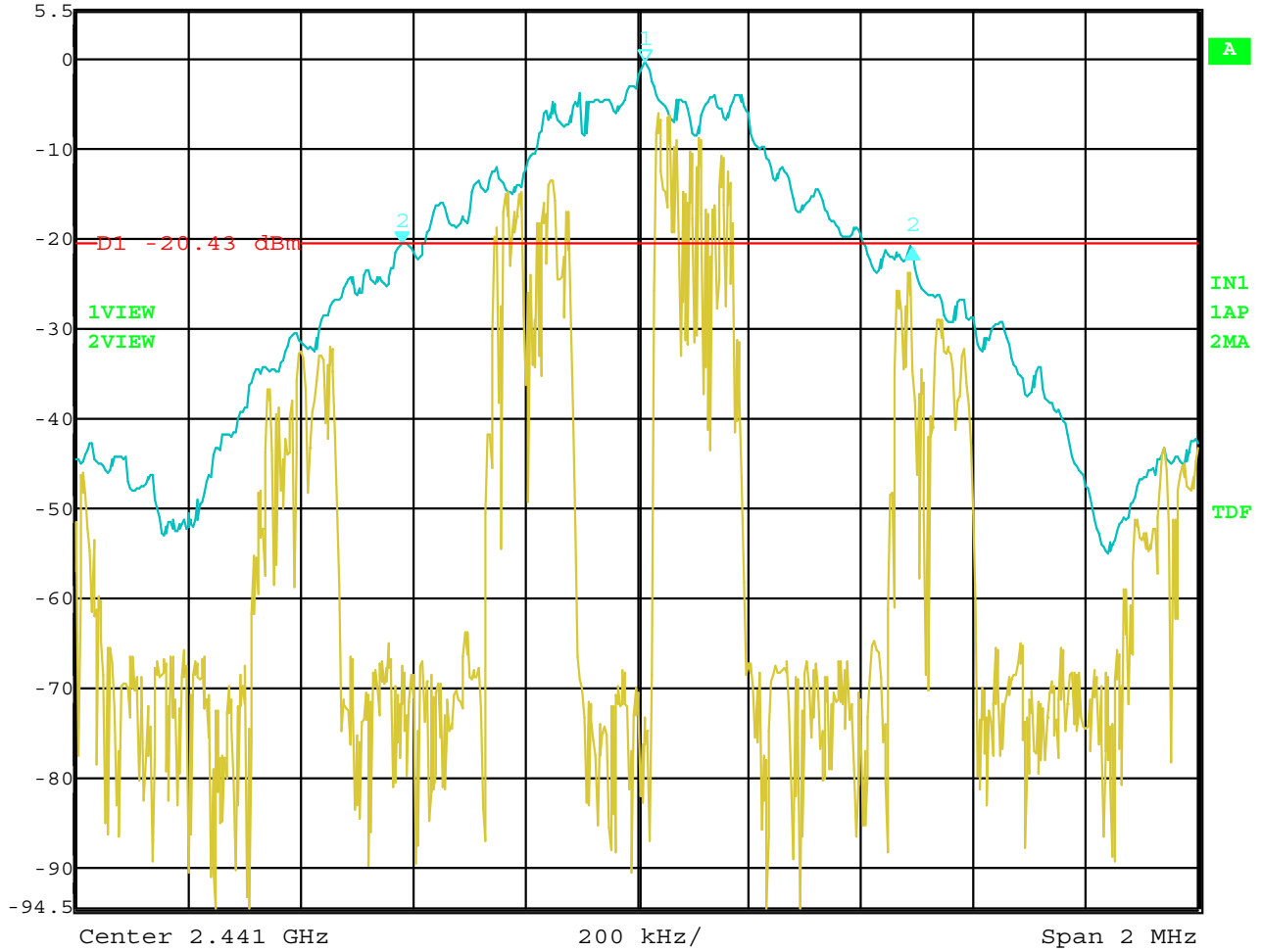


Date: 18.MAR.2008 08:07:17

20 dB Bandwidth of Fundamental – Low Channel



Delta 2 [T2] RBW 30 kHz RF Att 40 dB
Ref Lvl -0.43 dB VBW 100 kHz
5.5 dBm 909.81963928 kHz SWT 6 ms Unit dBm

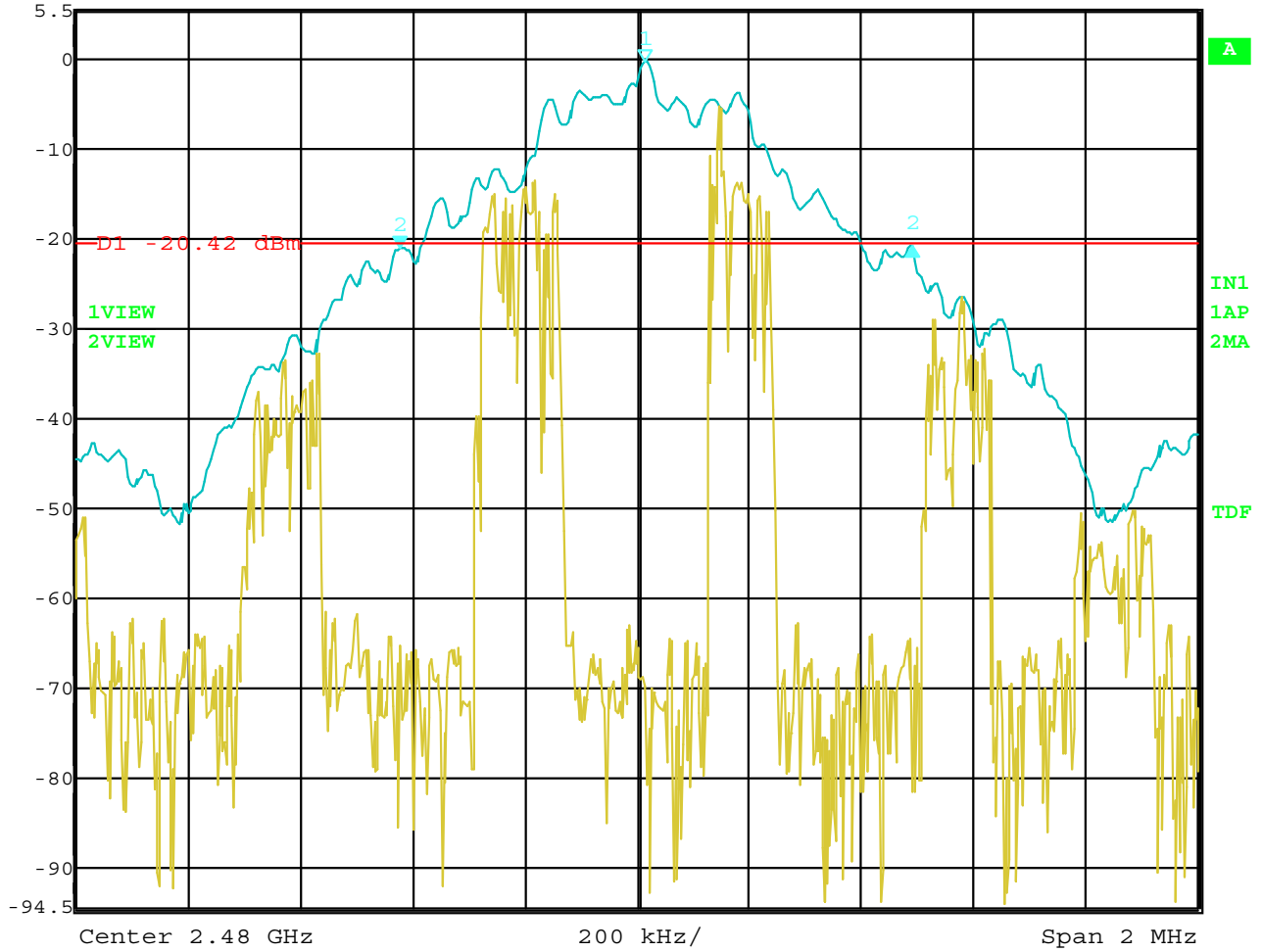


Date: 18.MAR.2008 08:22:30

20 dB Bandwidth of Fundamental – Middle Channel



Delta 2 [T2] RBW 30 kHz RF Att 40 dB
Ref Lvl 0.13 dB VBW 100 kHz
5.5 dBm 913.82765531 kHz SWT 6 ms Unit dBm



Date: 18.MAR.2008 08:25:35

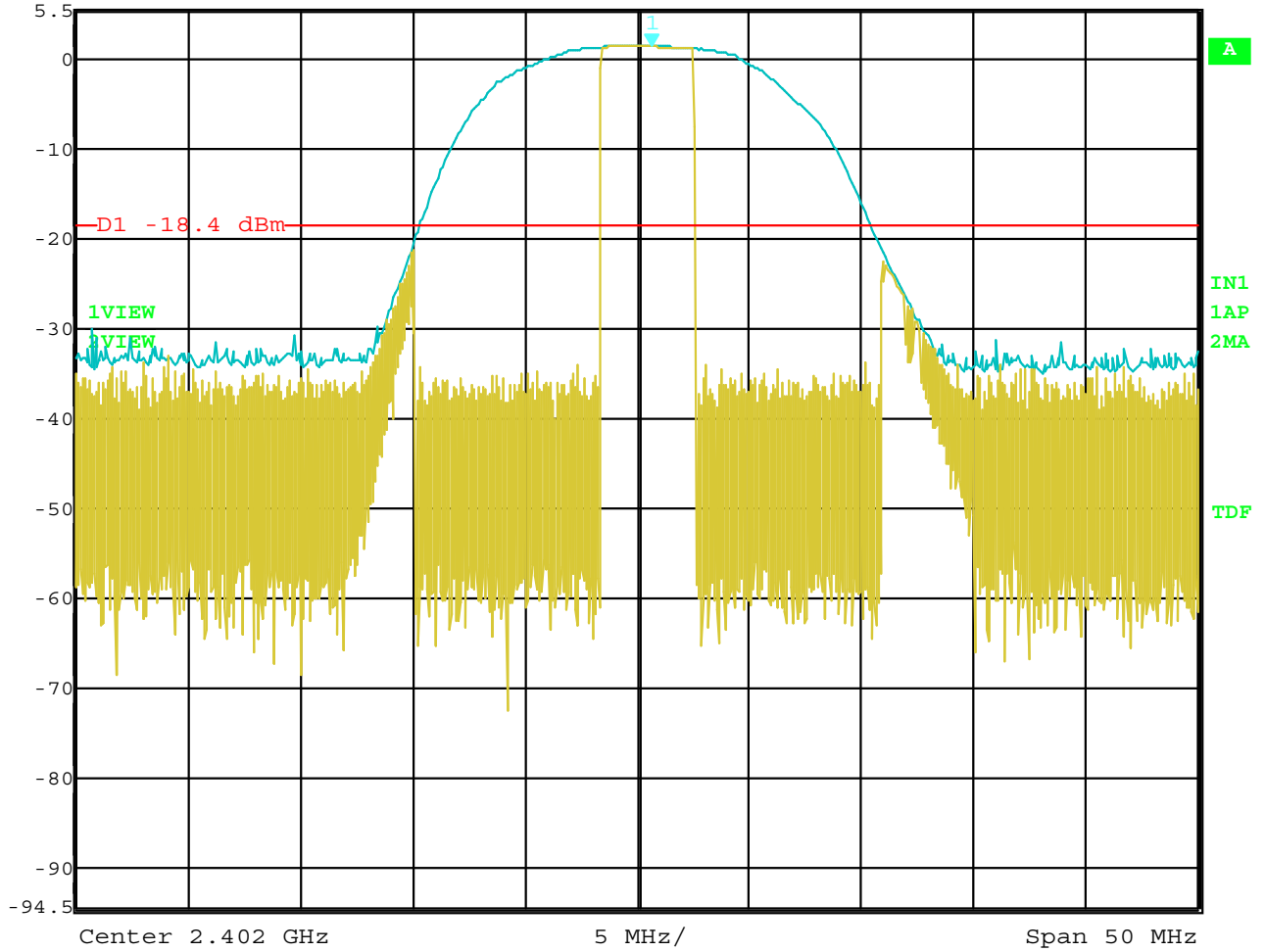
20 dB Bandwidth of Fundamental – High Channel

PEAK POWER OUTPUT

DATA SHEETS



Marker 1 [T2] RBW 10 MHz RF Att 40 dB
Ref Lvl 1.39 dBm VBW 10 MHz
5.5 dBm 2.40265130 GHz SWT 5 ms Unit dBm

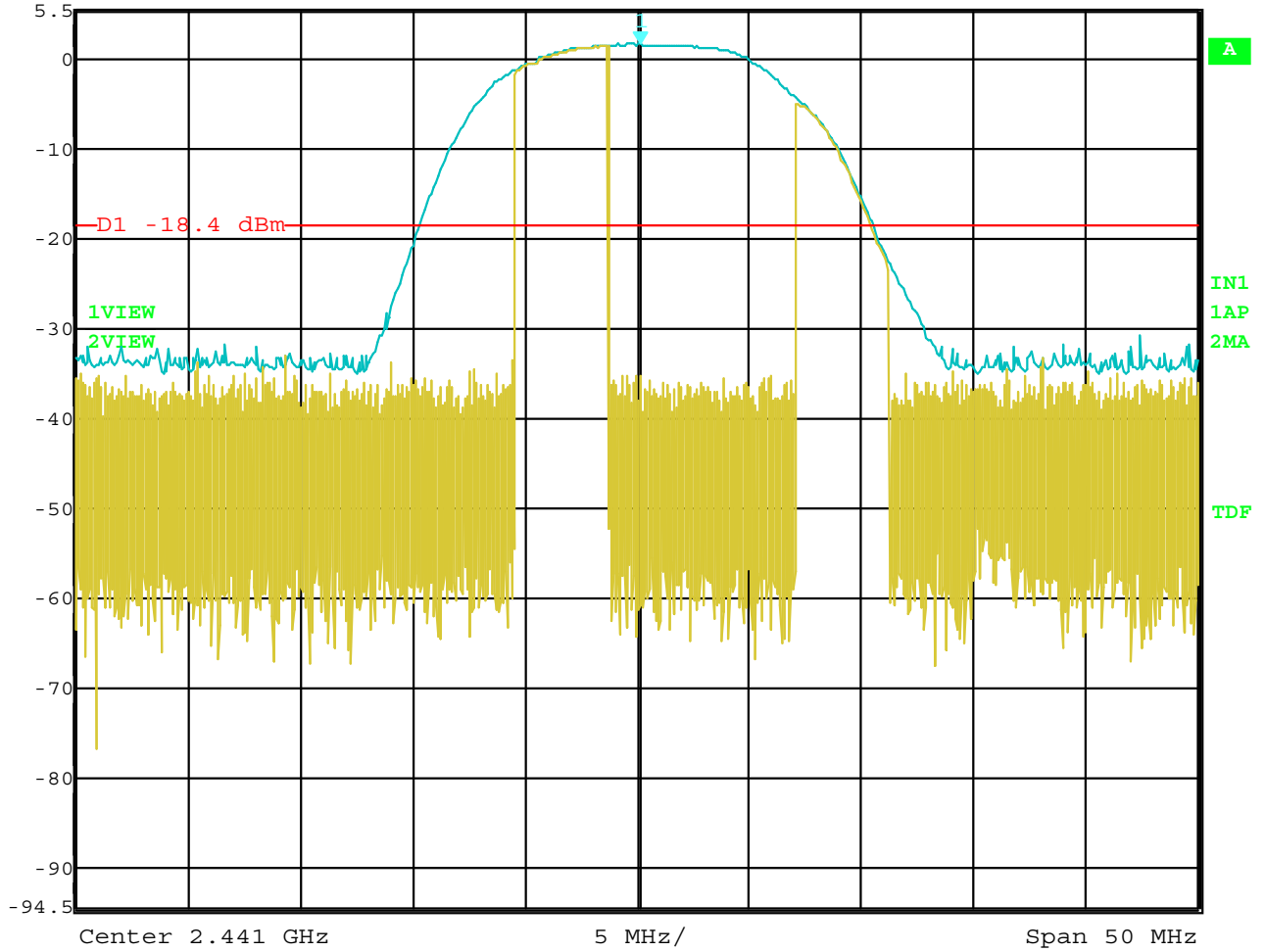


Date: 18.MAR.2008 08:38:53

Peak Power Output – Low Channel



Marker 1 [T2] RBW 10 MHz RF Att 40 dB
Ref Lvl 1.60 dBm VBW 10 MHz
5.5 dBm 2.44115030 GHz SWT 5 ms Unit dBm

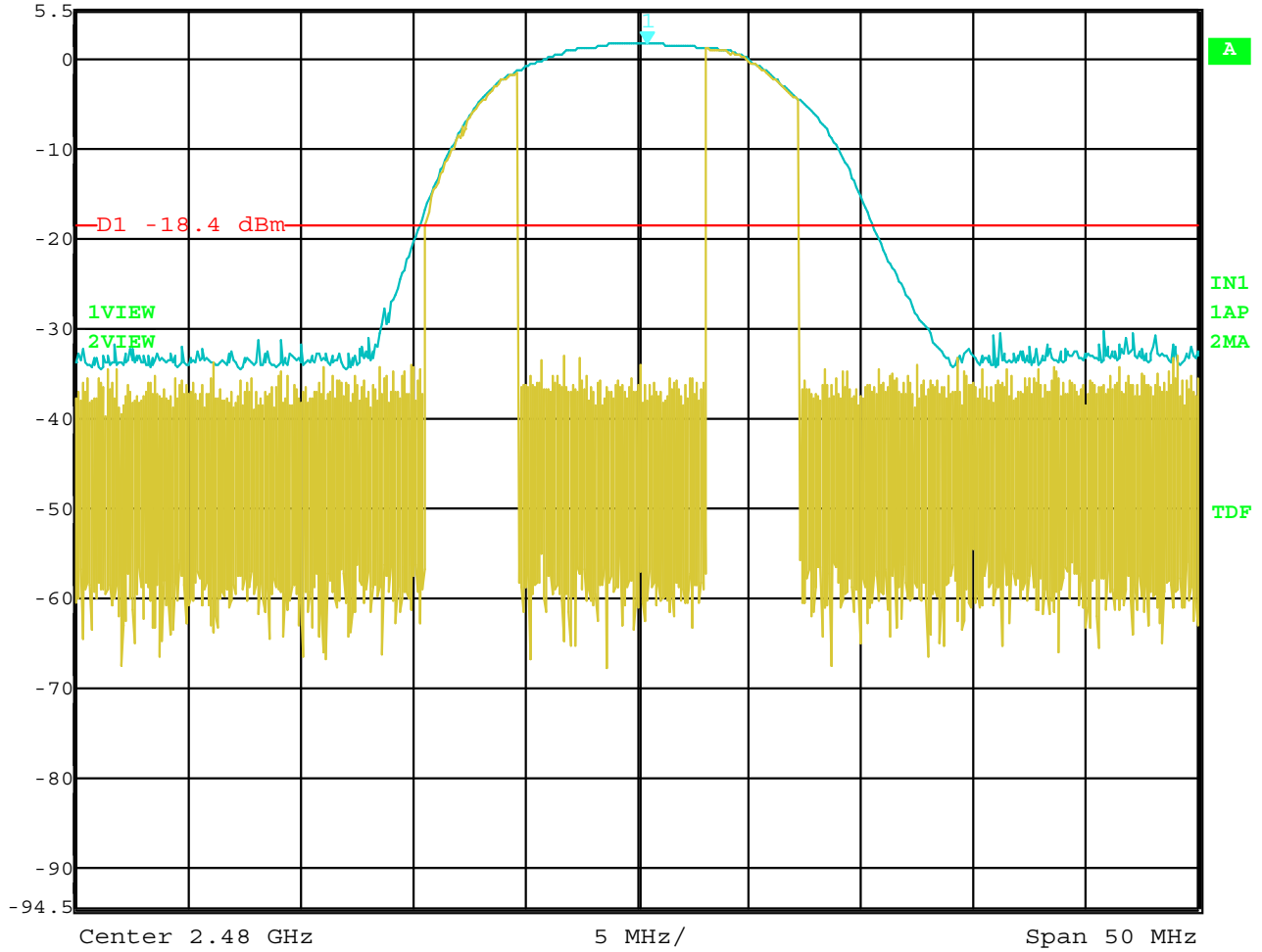


Date: 18.MAR.2008 08:39:26

Peak Power Output -Middle Channel



Marker 1 [T2] RBW 10 MHz RF Att 40 dB
Ref Lvl 1.60 dBm VBW 10 MHz
5.5 dBm 2.48045090 GHz SWT 5 ms Unit dBm



Date: 18.MAR.2008 08:40:13

Peak Power Output – High Channel

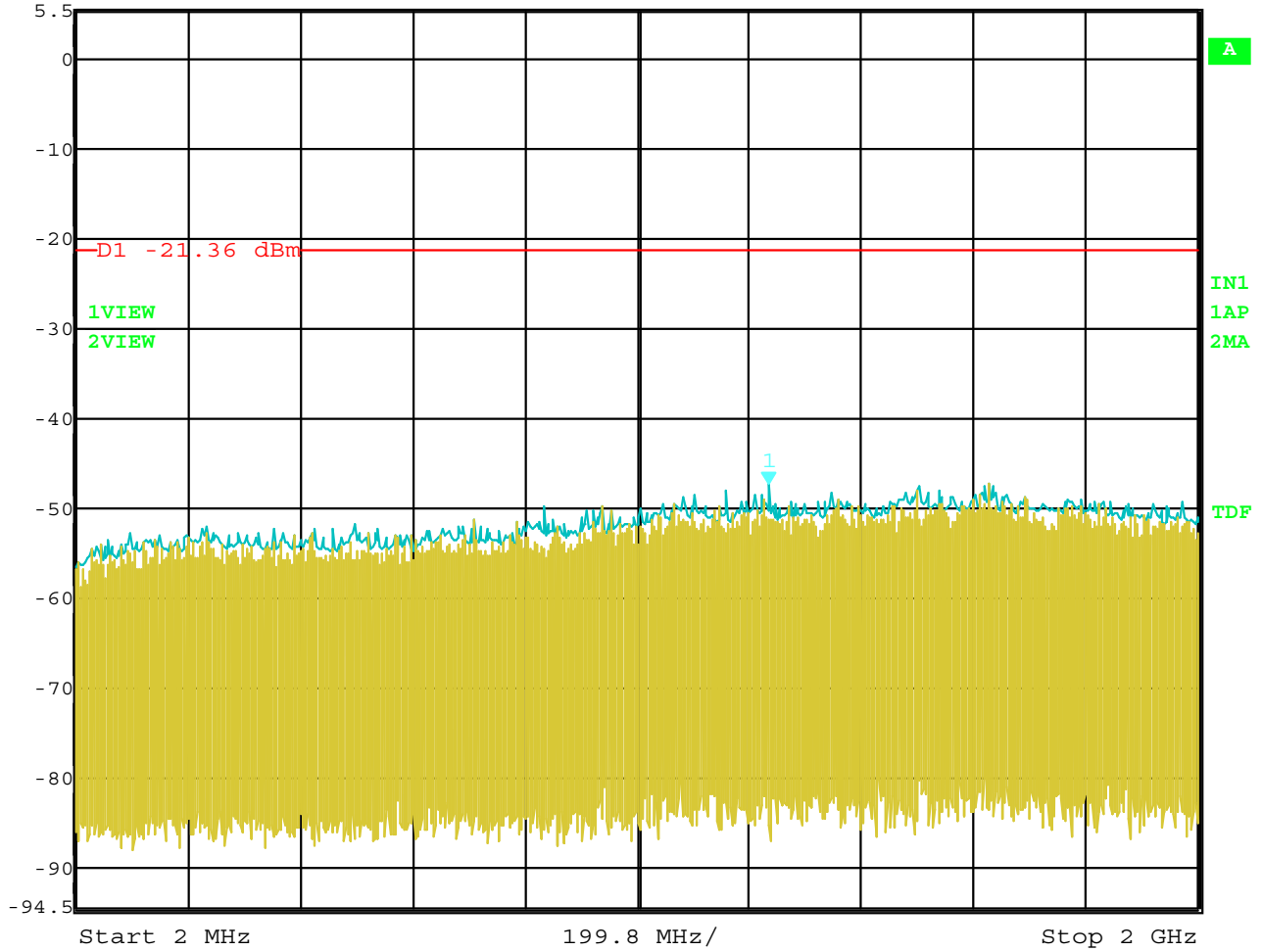
RF CONDUCTED ANTENNA TEST



DATA SHEETS



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -47.36 dBm VBW 300 kHz
5.5 dBm 1.23523447 GHz SWT 500 ms Unit dBm

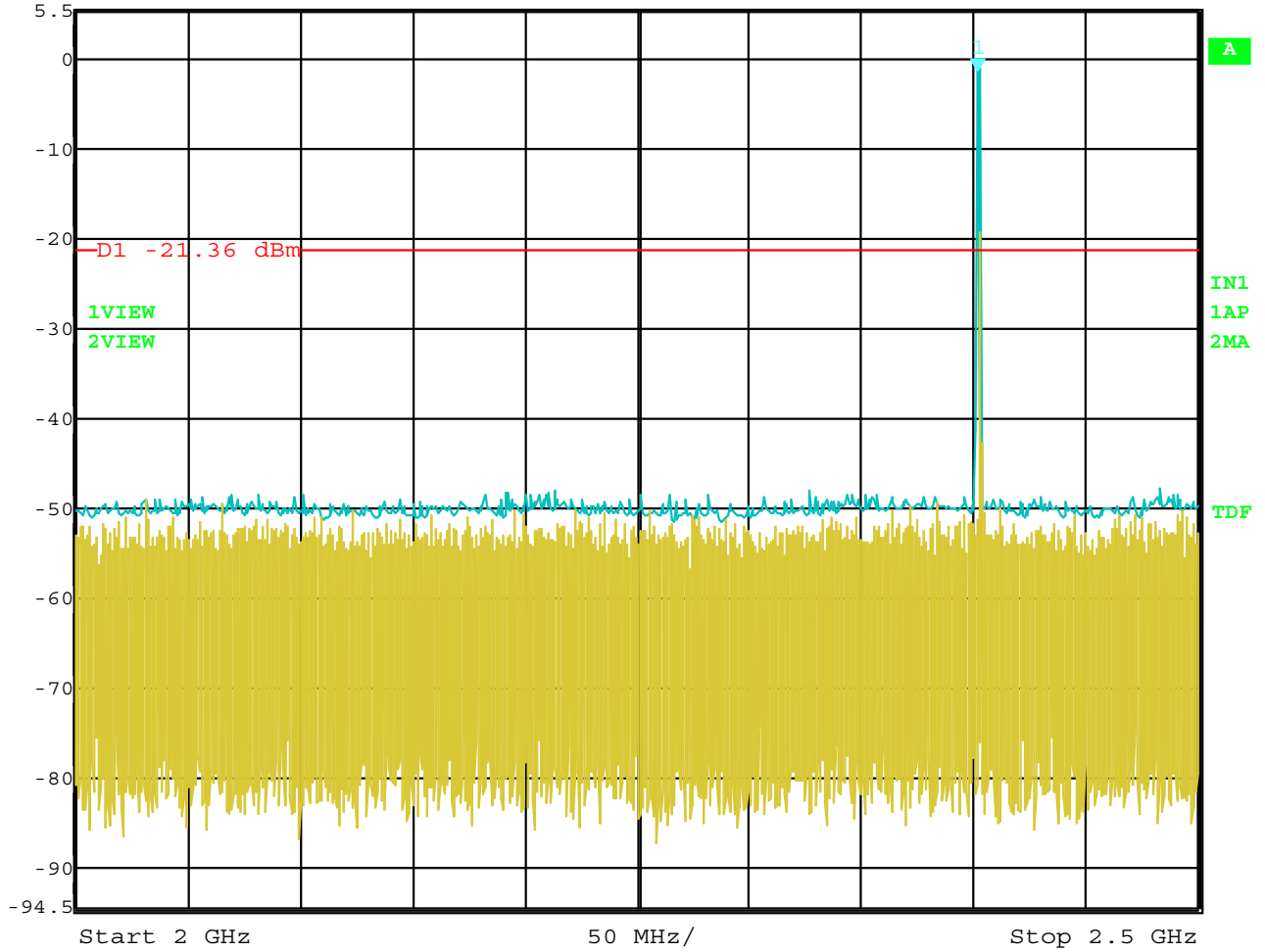


Date: 18.MAR.2008 09:25:21

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



Ref Lvl 5.5 dBm
Marker 1 [T2] 2.40200000 GHz -1.36 dBm
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 125 ms Unit dBm

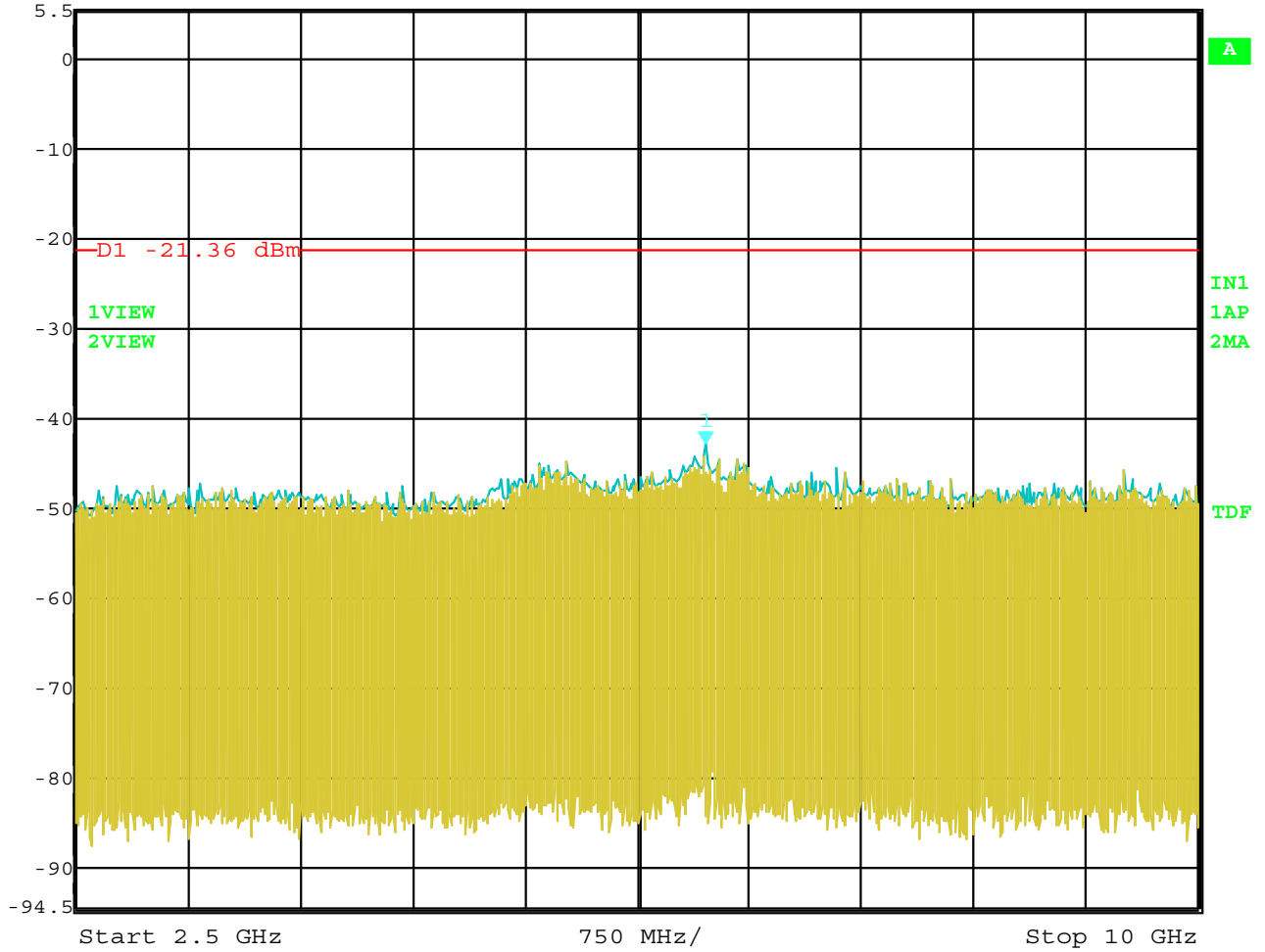


Date: 18.MAR.2008 09:24:55

RF Antenna Conducted Test – Low Channel – 2 GHz to 2.5 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -42.97 dBm VBW 300 kHz
5.5 dBm 6.70841683 GHz SWT 1.9 s Unit dBm

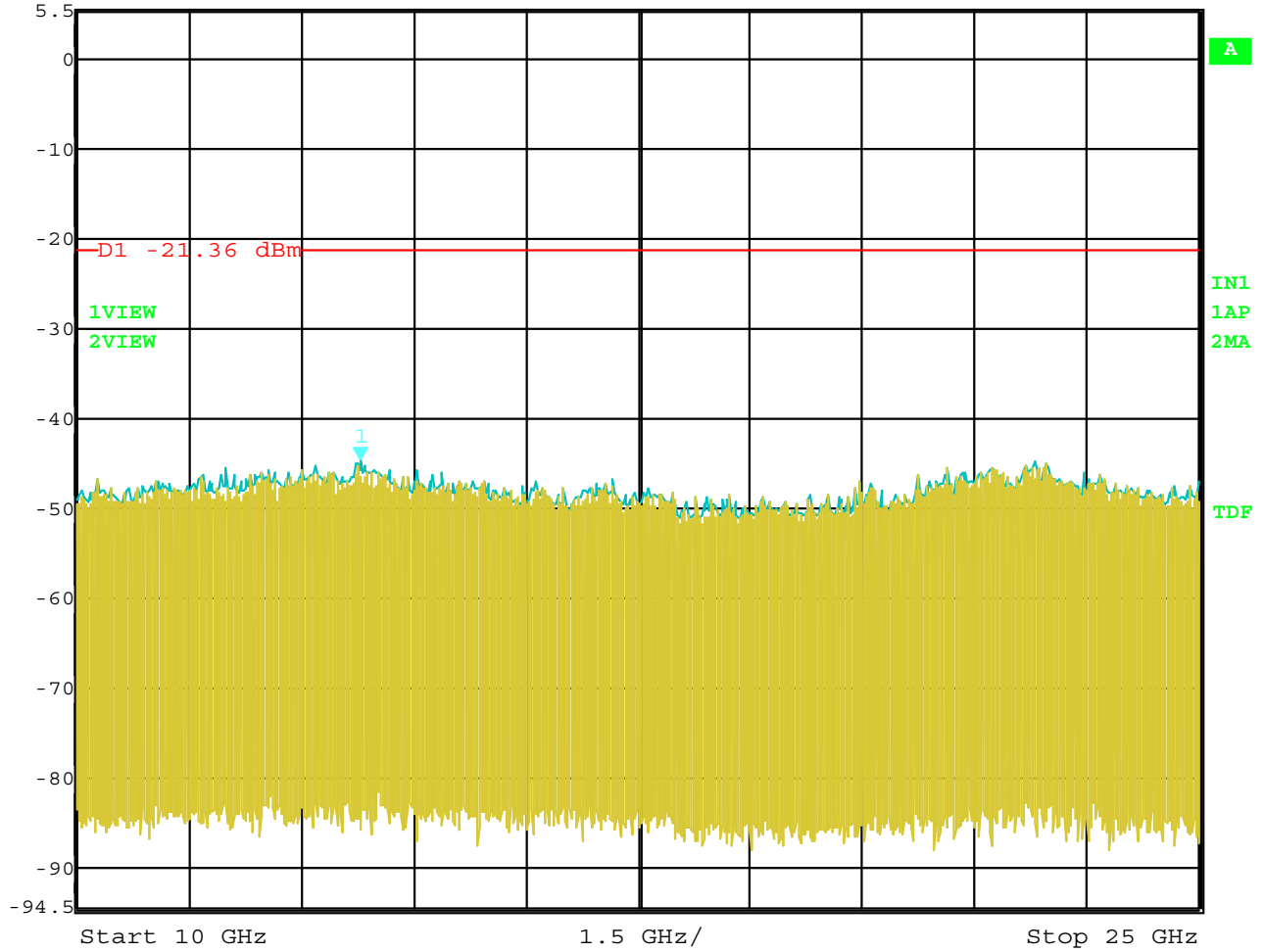


Date: 18.MAR.2008 09:25:52

RF Antenna Conducted Test – Low Channel – 2.5 GHz to 10 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -44.55 dBm VBW 300 kHz
5.5 dBm 13.78757515 GHz SWT 3.8 s Unit dBm

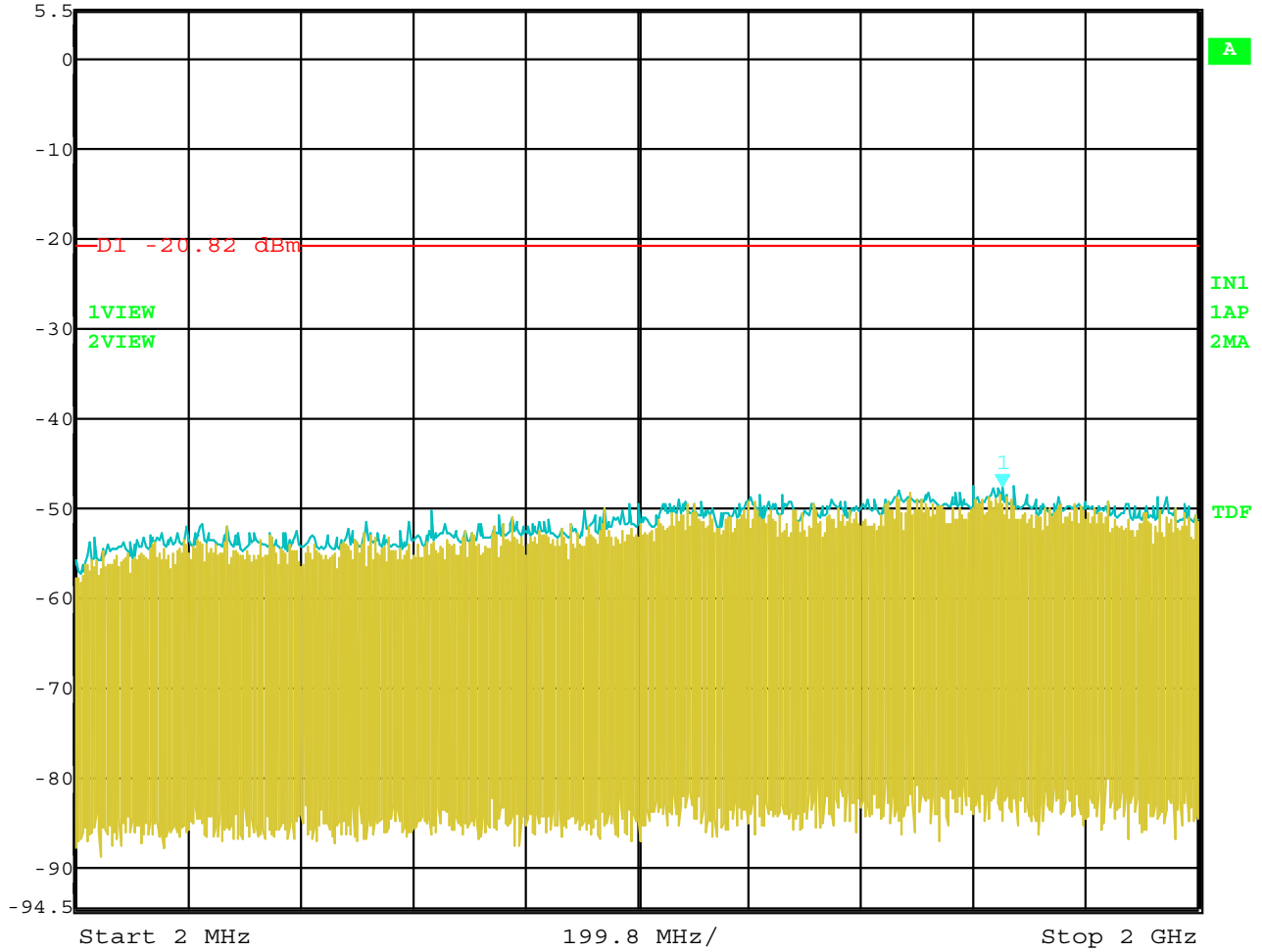


Date: 18.MAR.2008 09:26:48

RF Antenna Conducted Test – Low Channel – 10 GHz to 25 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -47.54 dBm VBW 300 kHz
5.5 dBm 1.65165130 GHz SWT 500 ms Unit dBm

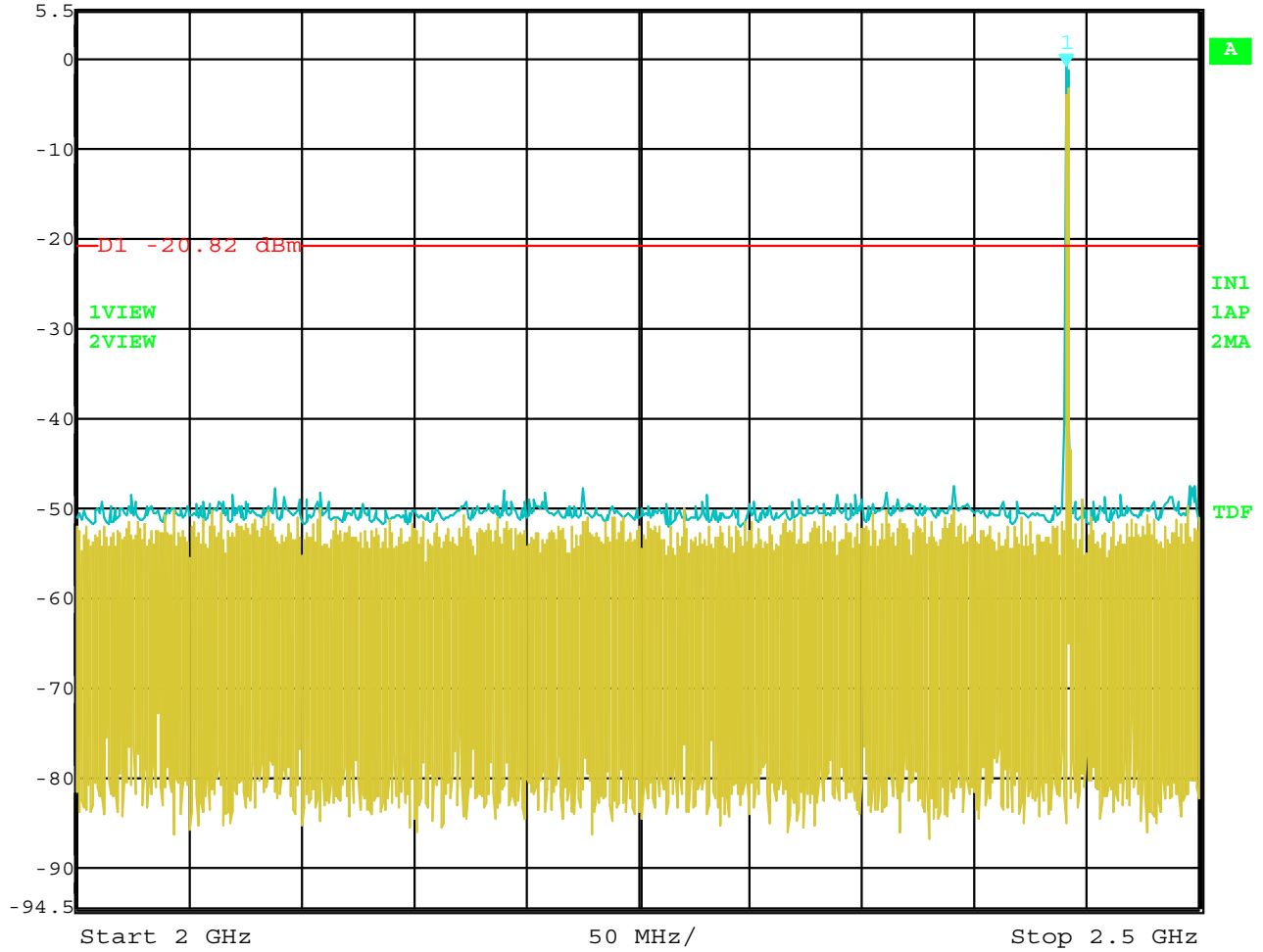


Date: 18.MAR.2008 09:30:41

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



Ref Lvl 5.5 dBm
Marker 1 [T2] 2.44100000 GHz -0.82 dBm
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 125 ms Unit dBm

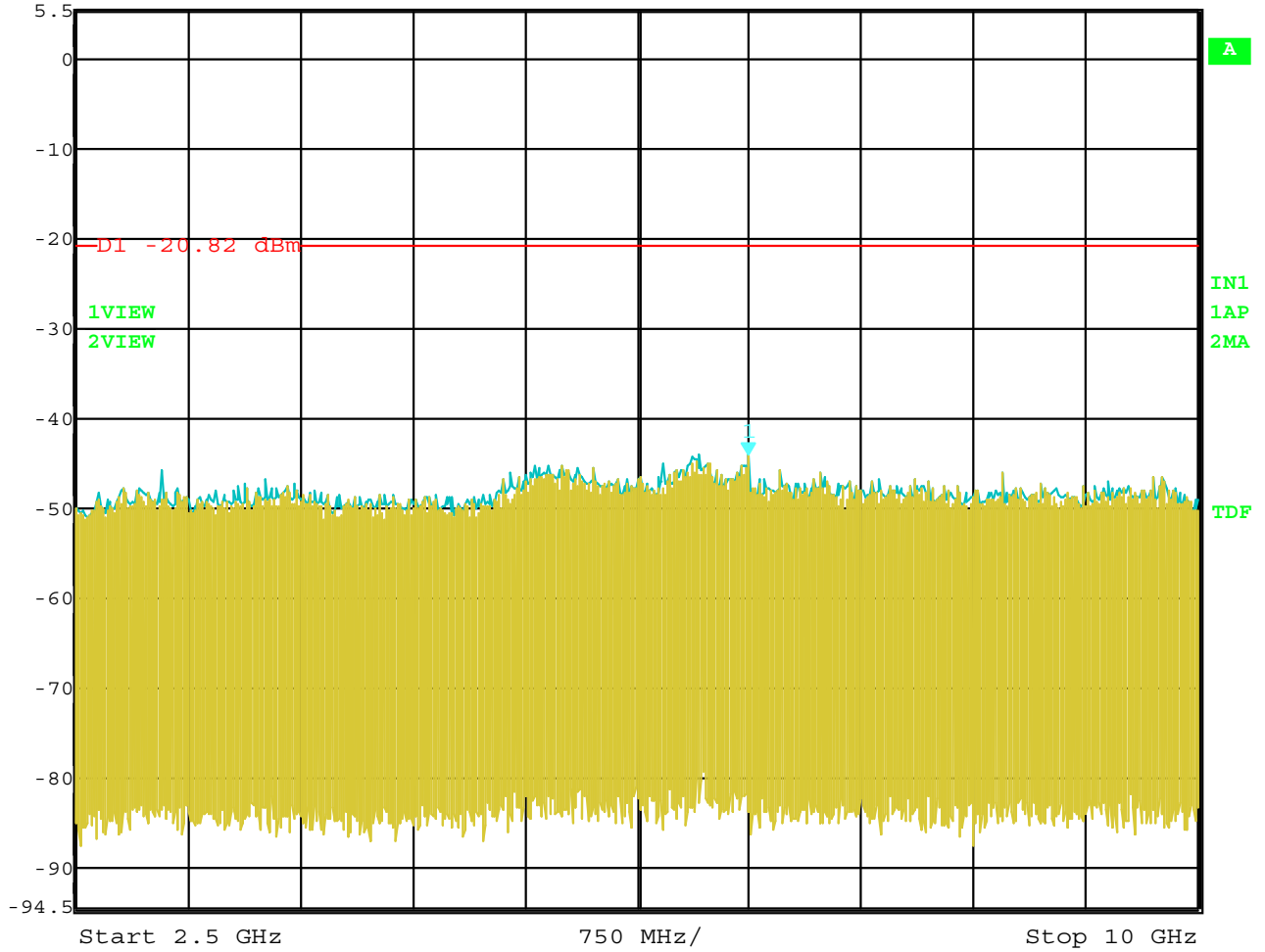


Date: 18.MAR.2008 09:30:18

RF Antenna Conducted Test - Middle Channel - 2 GHz to 2.5 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -44.07 dBm VBW 300 kHz
5.5 dBm 6.99398798 GHz SWT 1.9 s Unit dBm

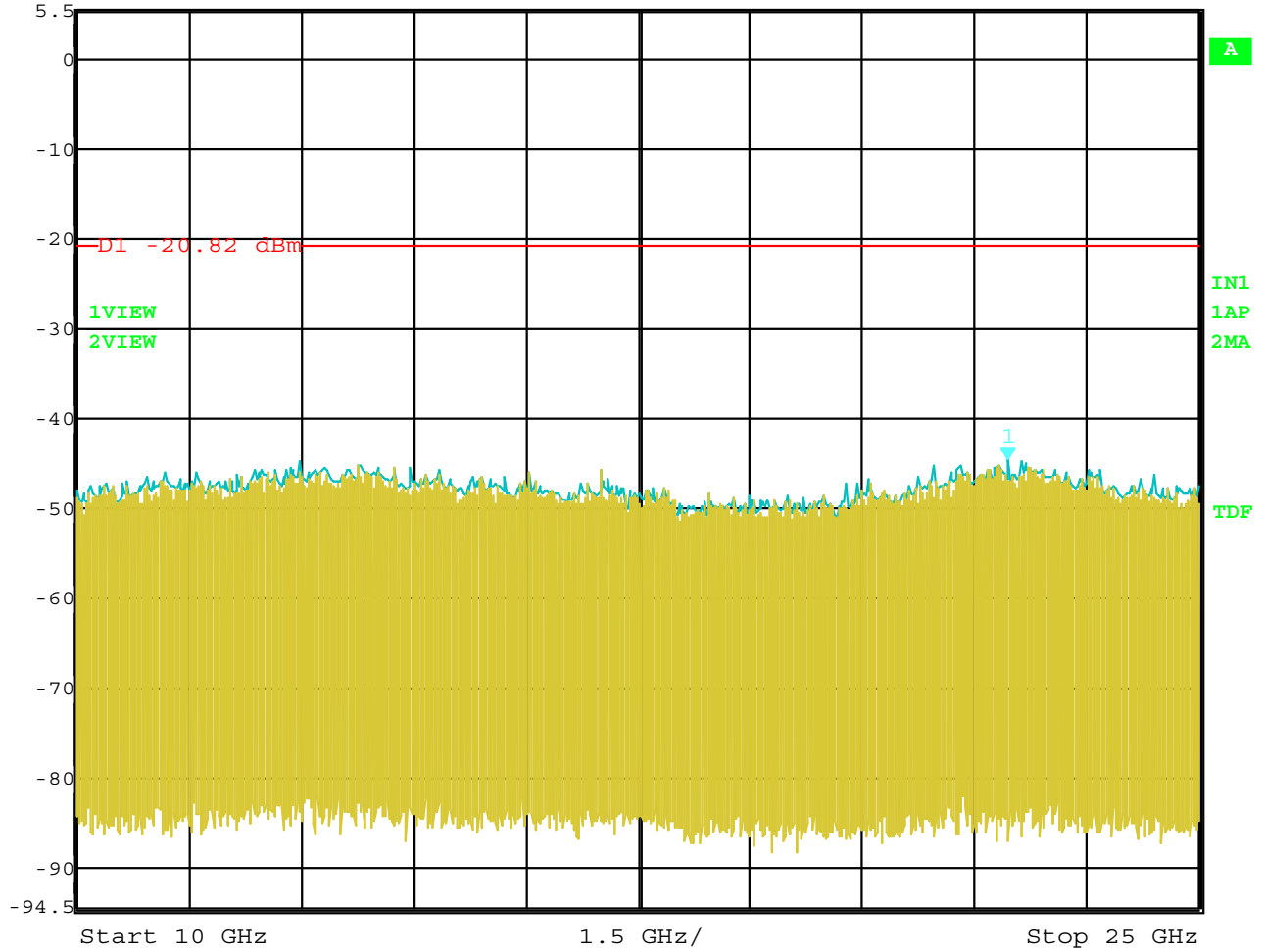


Date: 18.MAR.2008 09:33:58

RF Antenna Conducted Test – Middle Channel – 2.5 GHz to 10 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -44.56 dBm VBW 300 kHz
5.5 dBm 22.44488978 GHz SWT 3.8 s Unit dBm

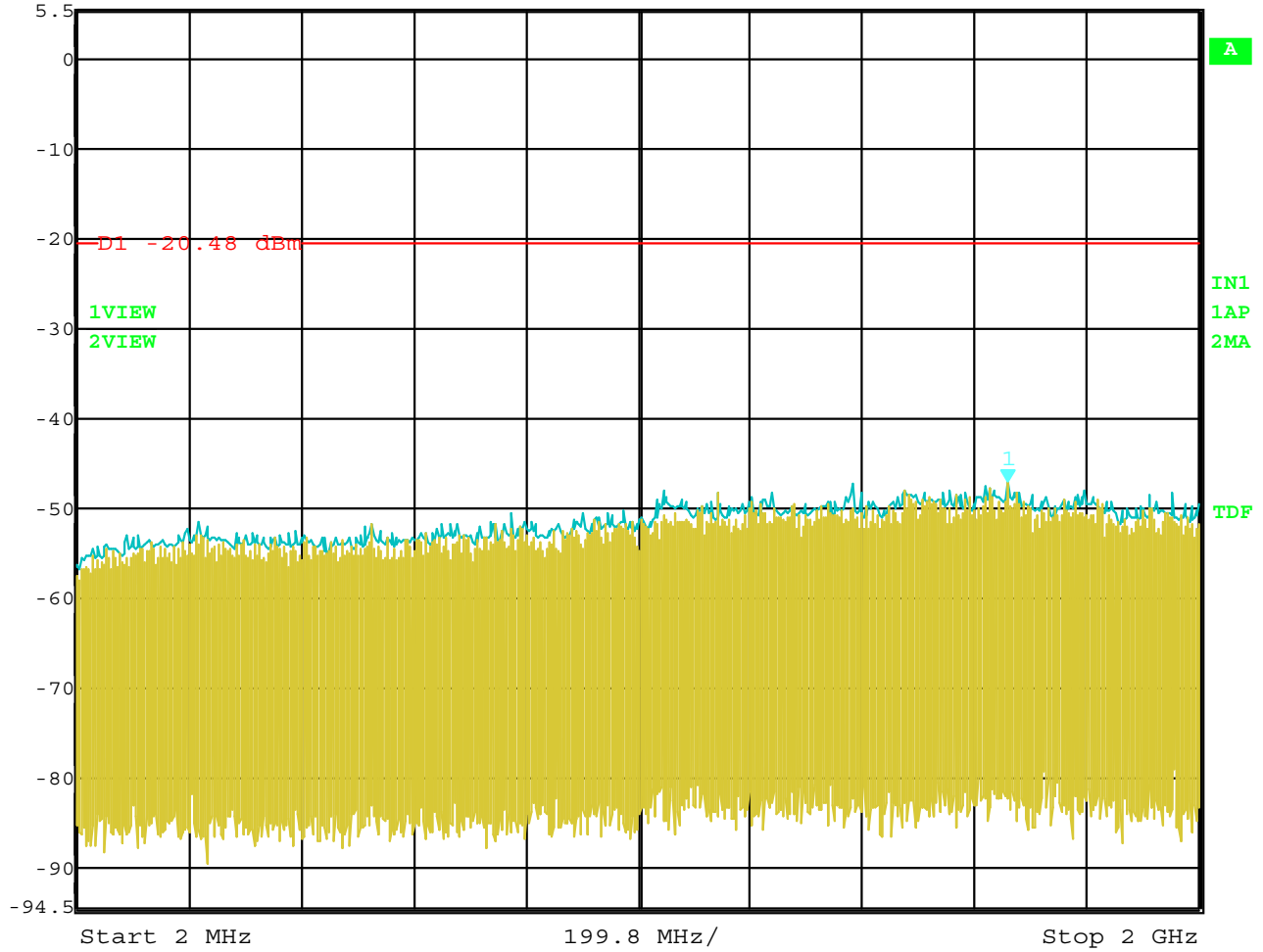


Date: 18.MAR.2008 09:34:32

RF Antenna Conducted Test – Middle Channel – 10 GHz to 25 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -47.16 dBm VBW 300 kHz
5.5 dBm 1.65965932 GHz SWT 500 ms Unit dBm

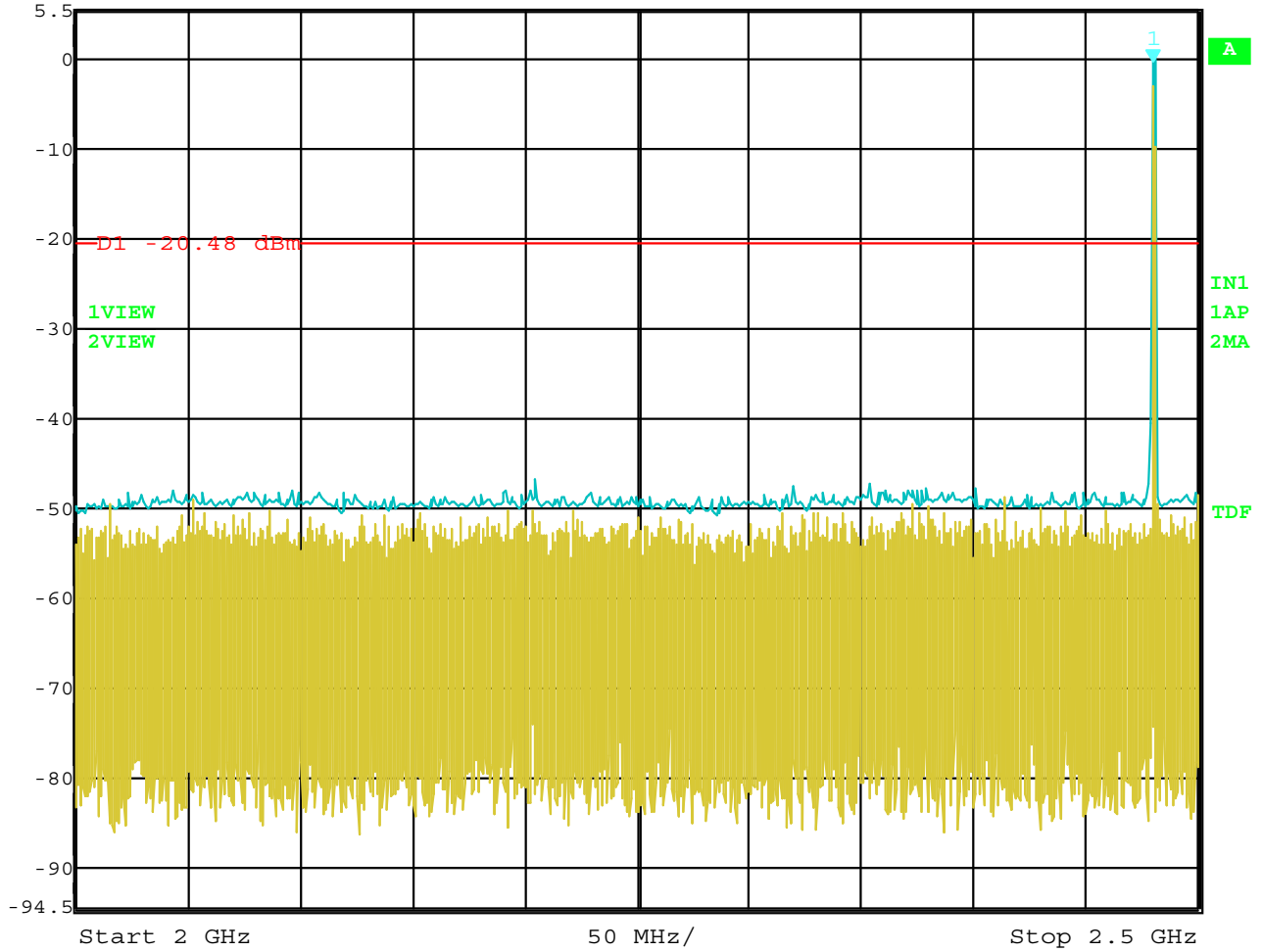


Date: 18.MAR.2008 09:40:48

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



Ref Lvl 5.5 dBm
Marker 1 [T2] 2.4800000 GHz -0.48 dBm
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 125 ms Unit dBm

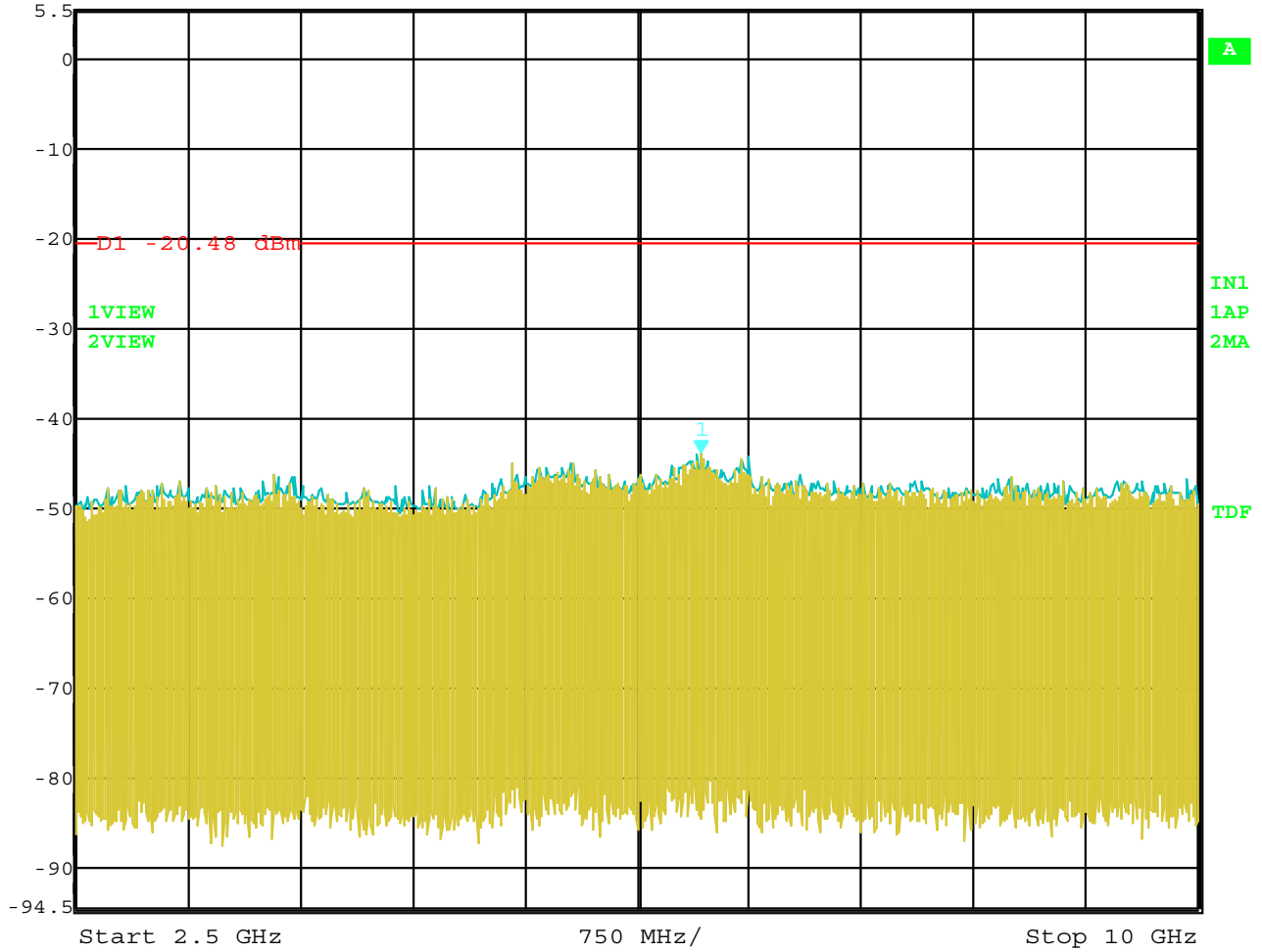


Date: 18.MAR.2008 09:40:25

RF Antenna Conducted Test – High Channel – 2 GHz to 2.5 GHz



Ref Lvl	5.5 dBm	Marker 1 [T2]	-43.94 dBm	RBW	100 kHz	RF Att	40 dB
			6.67835671 GHz	VBW	300 kHz	Unit	dBm
				SWT	1.9 s		

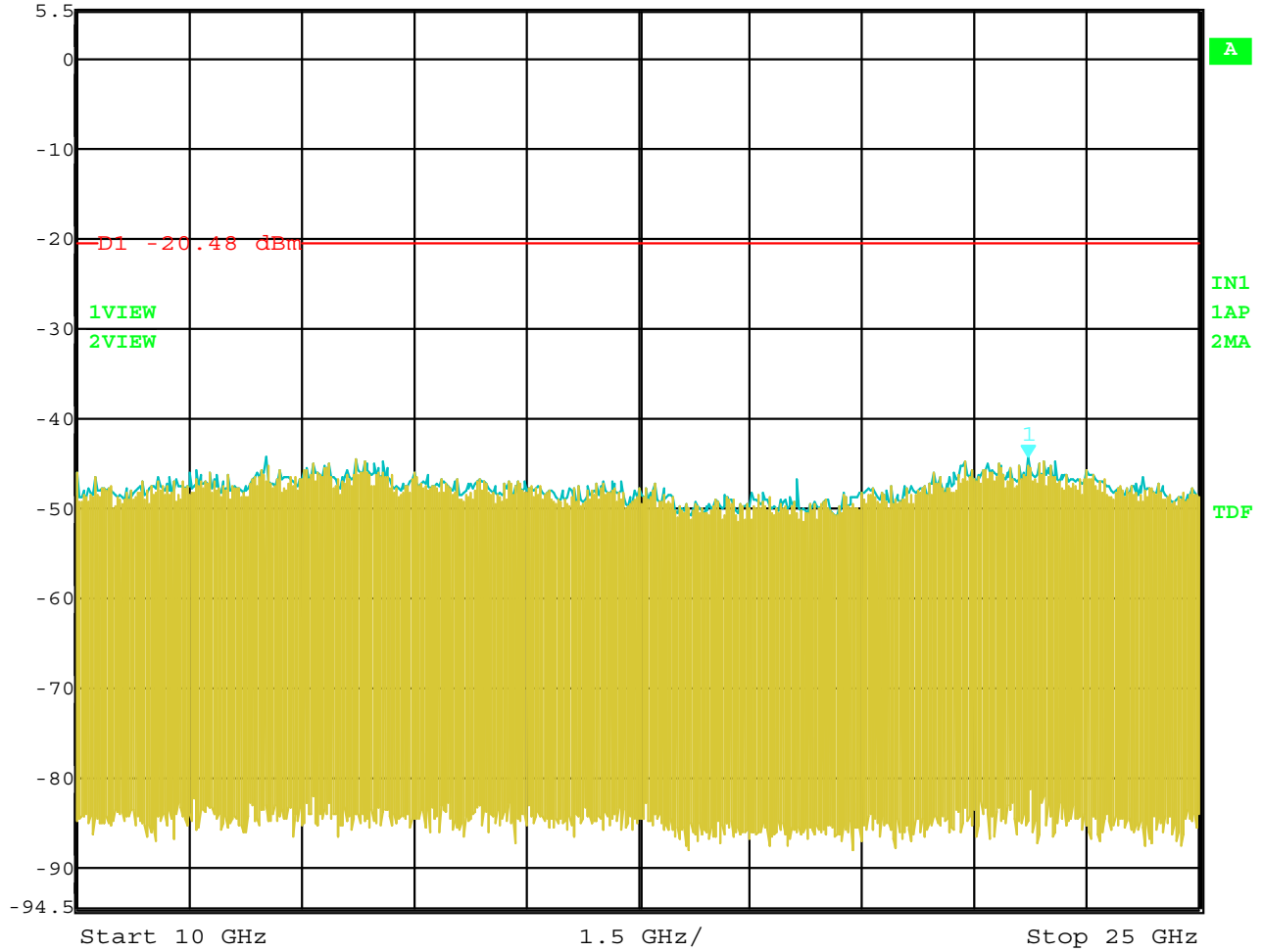


Date: 18.MAR.2008 09:41:16

RF Antenna Conducted Test – High Channel – 2.5 GHz to 10 GHz



Ref Lvl 5.5 dBm
Marker 1 [T2] 22.71543086 GHz -44.41 dBm
RBW 100 kHz RF Att 40 dB
VBW 300 kHz
SWT 3.8 s Unit dBm



Date: 18.MAR.2008 09:41:47

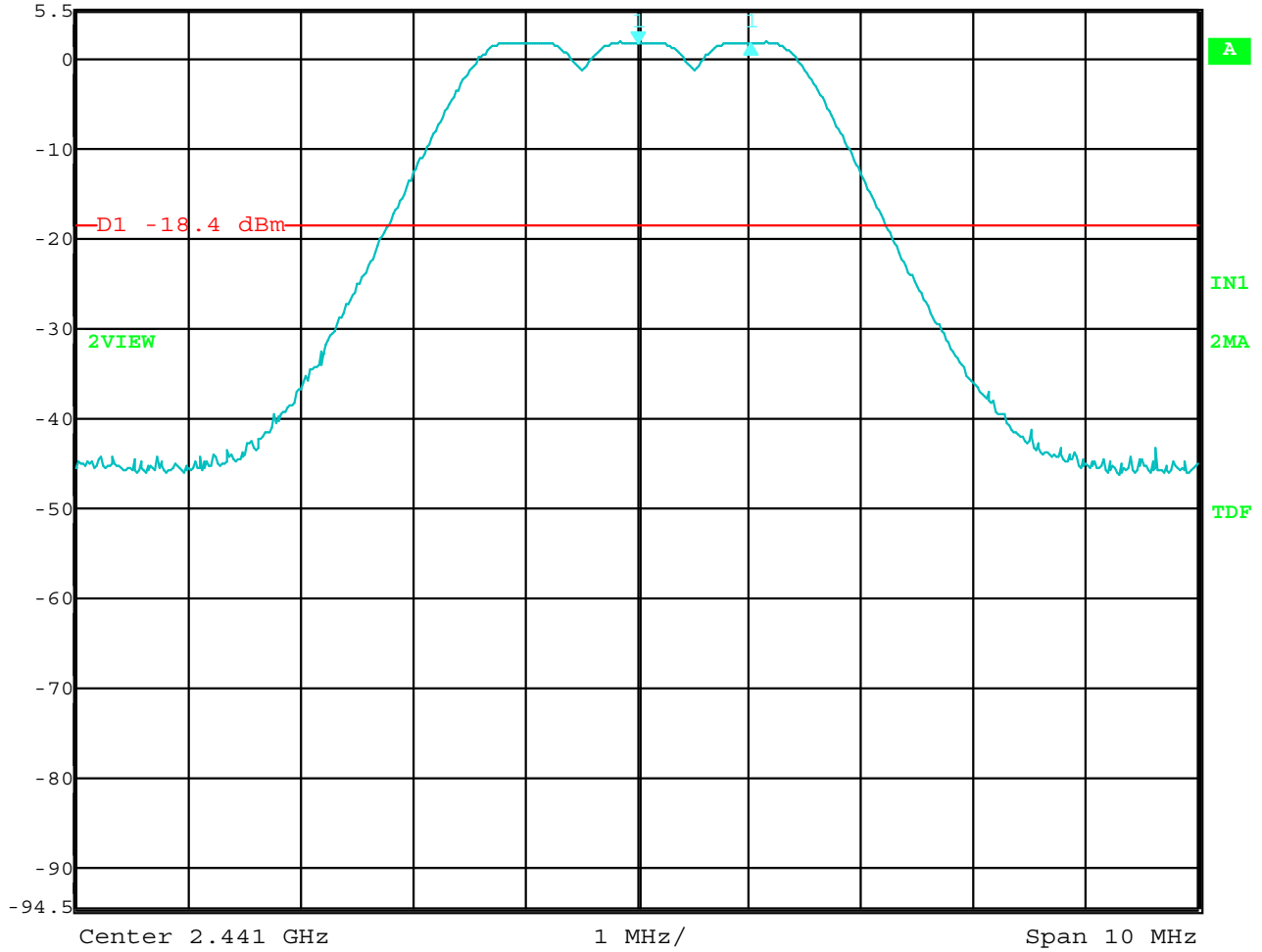
RF Antenna Conducted Test – High Channel – 10 GHz to 25 GHz

CHANNEL HOPPING SEPARATION

DATA SHEET



Delta 1 [T2] RBW 1 MHz RF Att 40 dB
Ref Lvl 0.01 dB VBW 3 MHz
5.5 dBm 1.00200401 MHz SWT 5 ms Unit dBm

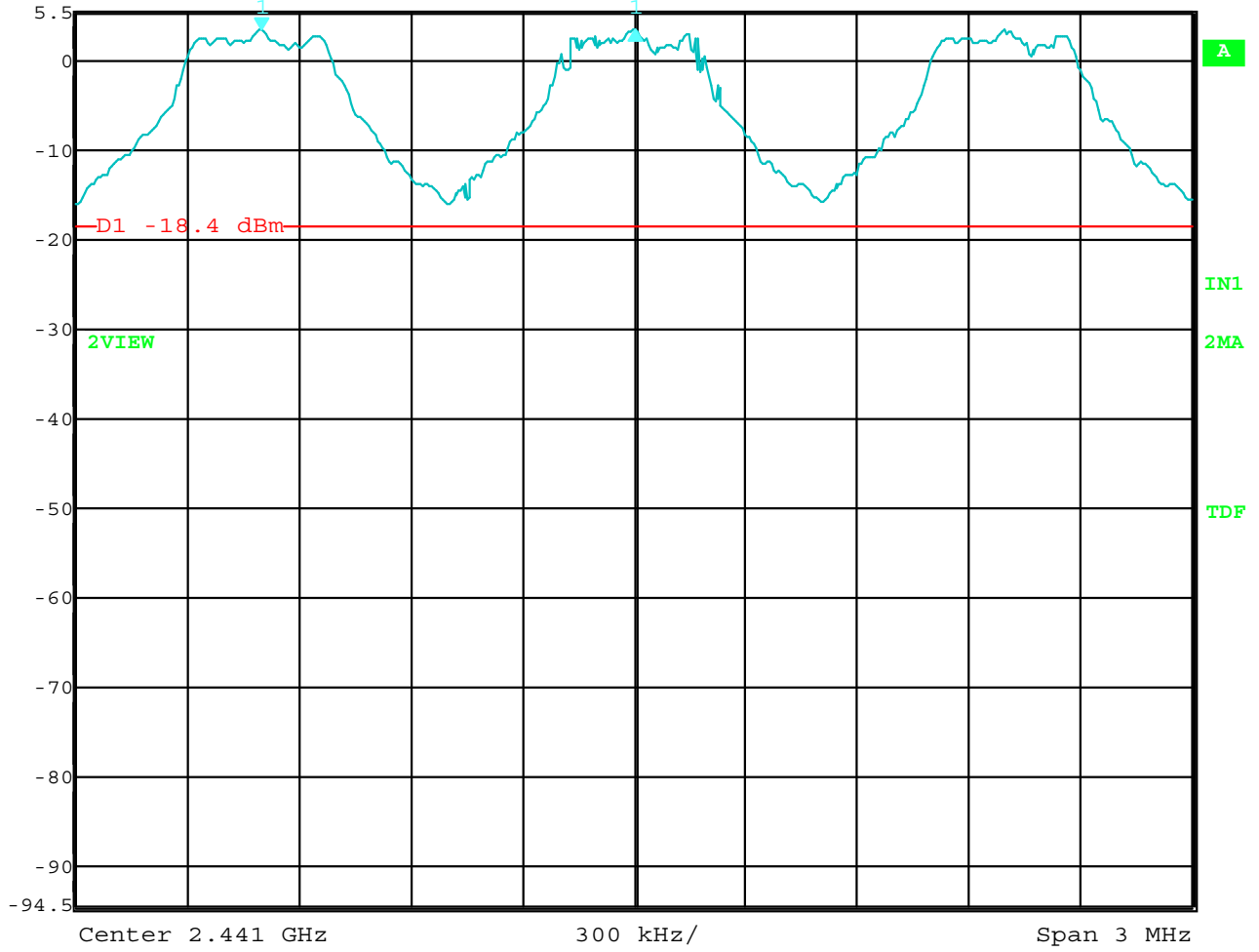


Date: 18.MAR.2008 08:48:40

Channel Frequency Separation Test



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 0.07 dB VBW 300 kHz
5.5 dBm 1.00400802 MHz SWT 5 ms Unit dBm



Date: 18.MAR.2008 08:50:14

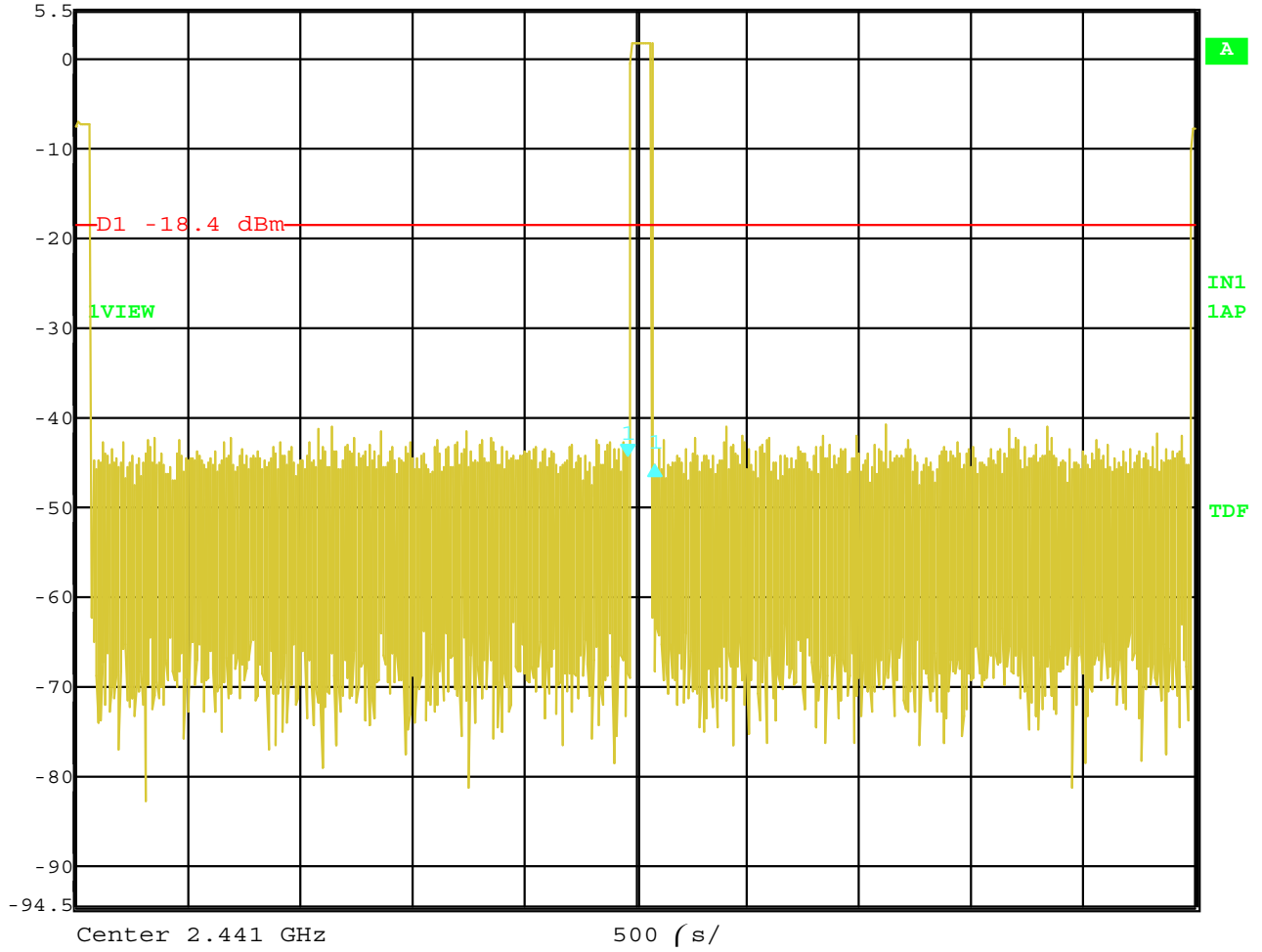
Channel Frequency Separation Test

AVERAGE TIME OF OCCUPANCY

DATA SHEETS



Delta 1 [T1] RBW 3 MHz RF Att 40 dB
Ref Lvl -0.87 dB VBW 3 MHz
5.5 dBm 120.240481 μ s SWT 5 ms Unit dBm

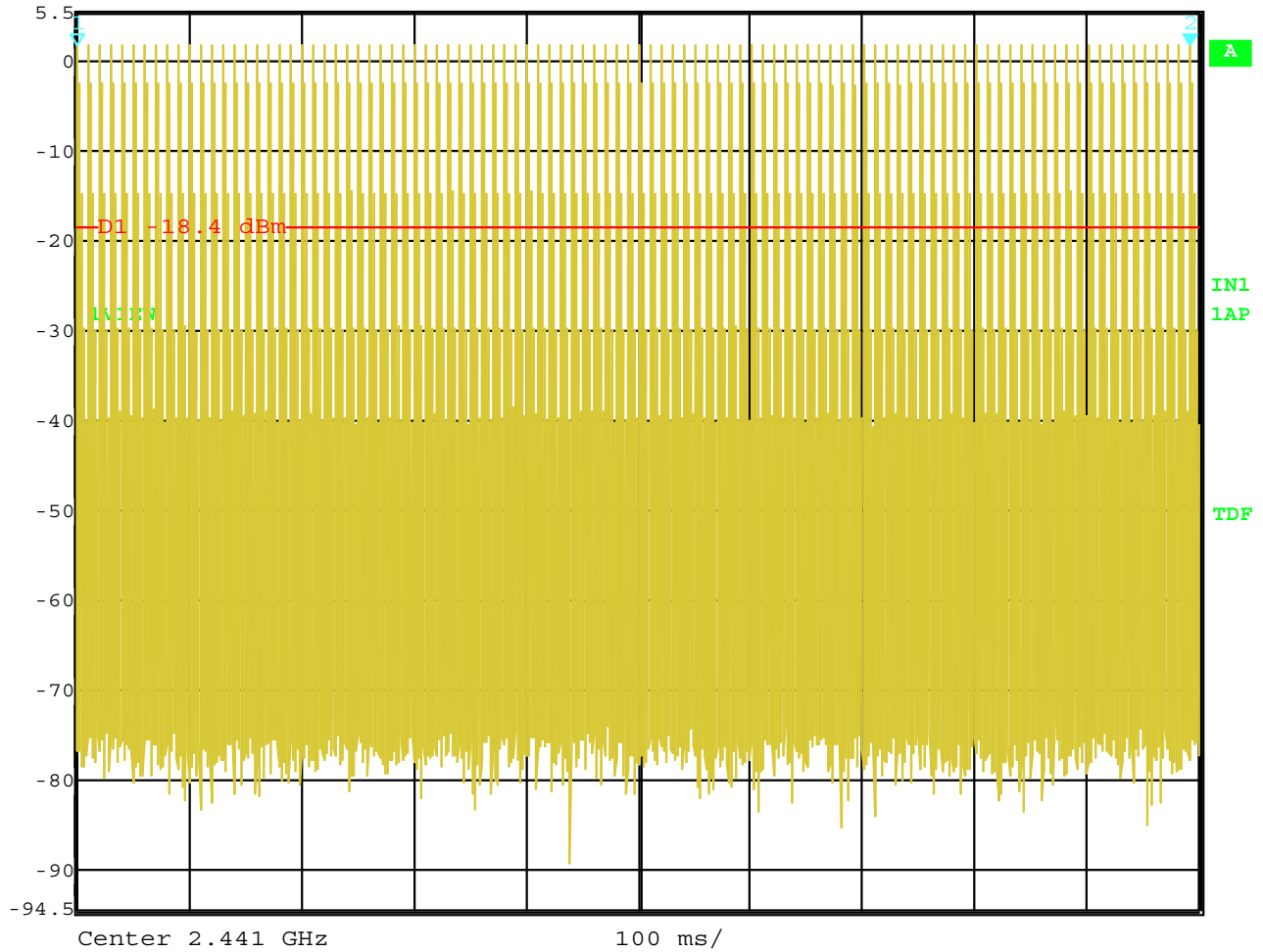


Date: 18.MAR.2008 08:57:30

Time of 1 Pulse = 120.240481 μ s



Marker 2 [T1] RBW 3 MHz RF Att 40 dB
Ref Lvl 1.58 dBm VBW 3 MHz
5.5 dBm 991.983968 ms SWT 1 s Unit dBm



Date: 18.MAR.2008 08:54:56

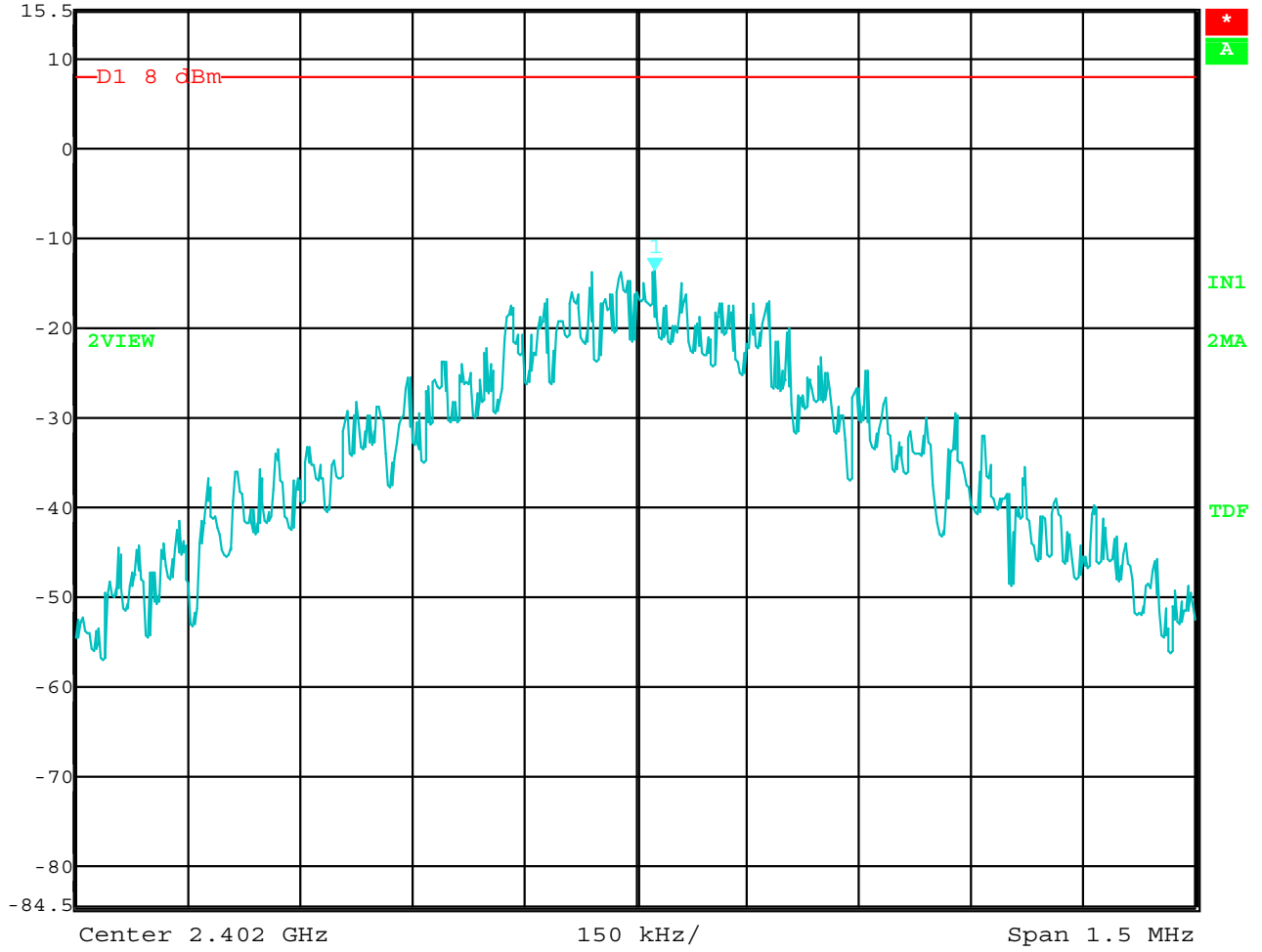
Number of Pulses in 1 Second = 100
Number of Pulses in 31.6 Seconds = $100 \times 31.6 = 3160$ Pulses in a 31.6 Second Period
Time of Occupancy = $3160 \times 120.240481 \text{ uS} = 379.96 \text{ mS}$ per 31.6 Second Period
Limit = 400 mS per 31.6 Second Period (79 Channel * 400 mS)

SPECTRAL DENSITY OUTPUT

DATA SHEETS



Marker 1 [T2] RBW 3 kHz RF Att 40 dB
Ref Lvl -13.68 dBm VBW 10 kHz
15.5 dBm 2.40202555 GHz SWT 500 s Unit dBm

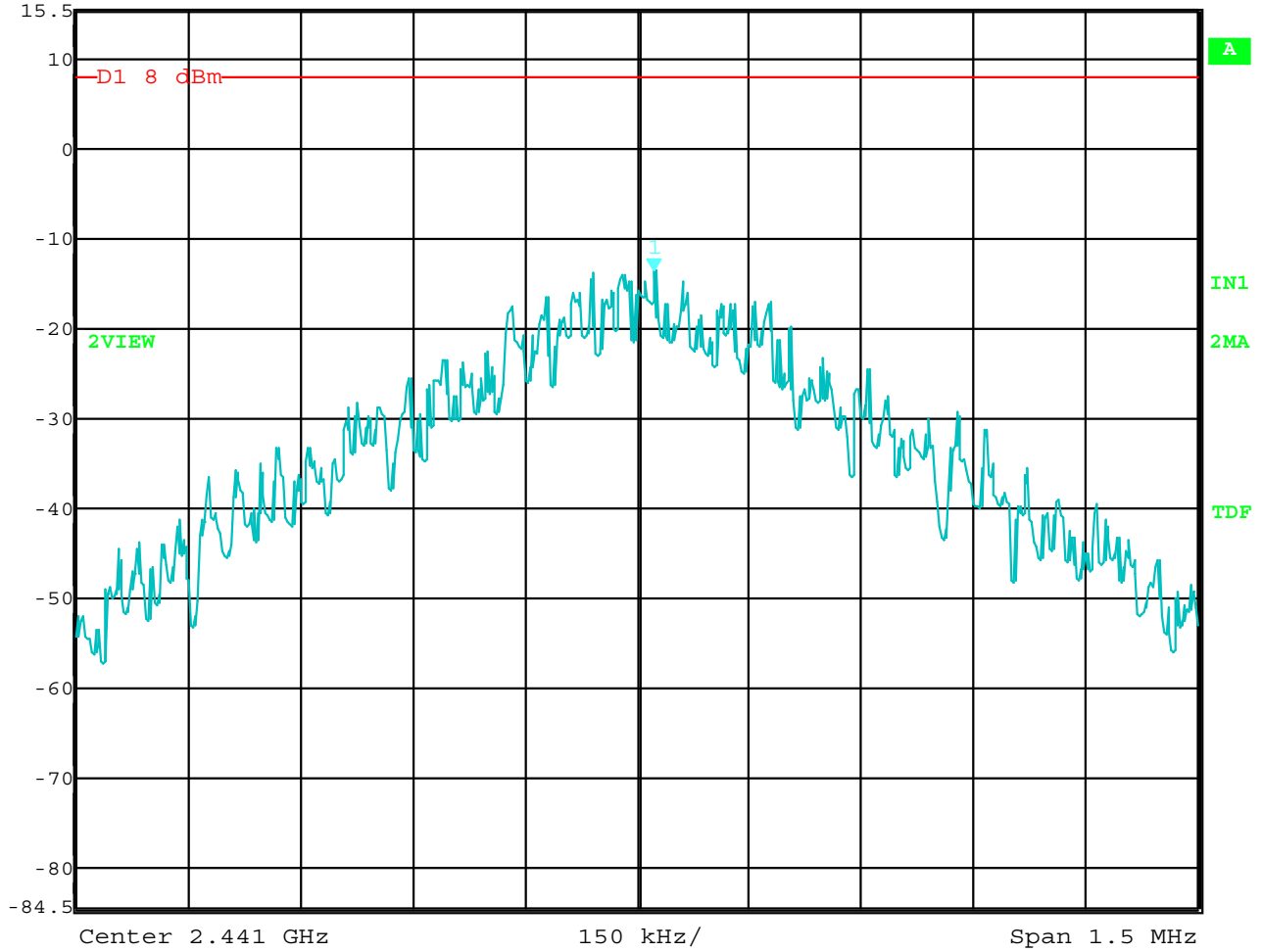


Date: 18.MAR.2008 10:02:03

Spectral Density Output – Low Channel



Ref Lvl	Marker 1 [T2]	RBW	3 kHz	RF Att	40 dB
15.5 dBm	-13.69 dBm	VBW	10 kHz		
	2.44102255 GHz	SWT	500 s	Unit	dBm

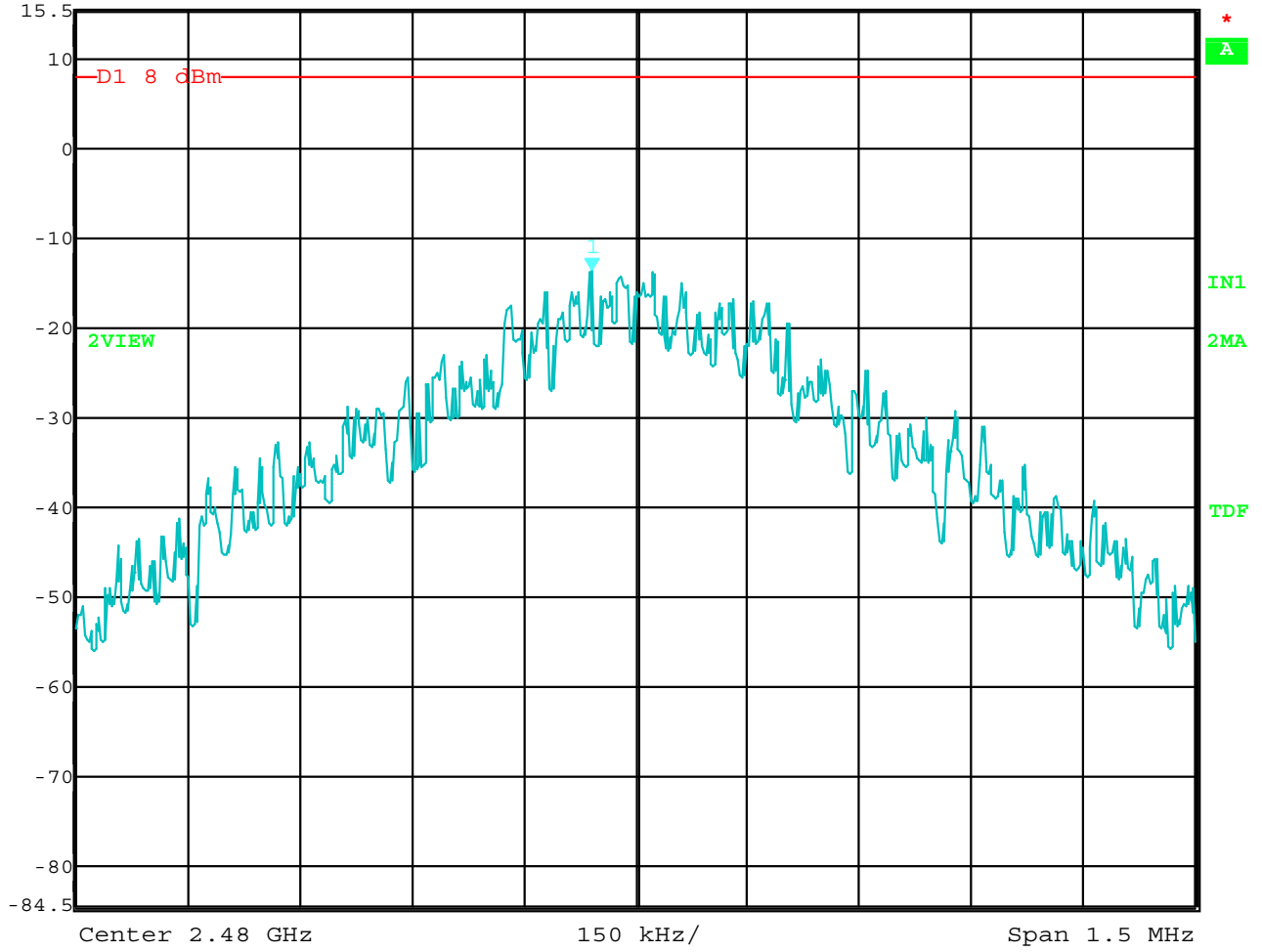


Date: 18.MAR.2008 10:11:26

Spectral Density Output – Middle Channel



Marker 1 [T2] RBW 3 kHz RF Att 40 dB
Ref Lvl -13.59 dBm VBW 10 kHz
15.5 dBm 2.47994138 GHz SWT 500 s Unit dBm



Date: 18.MAR.2008 10:21:32

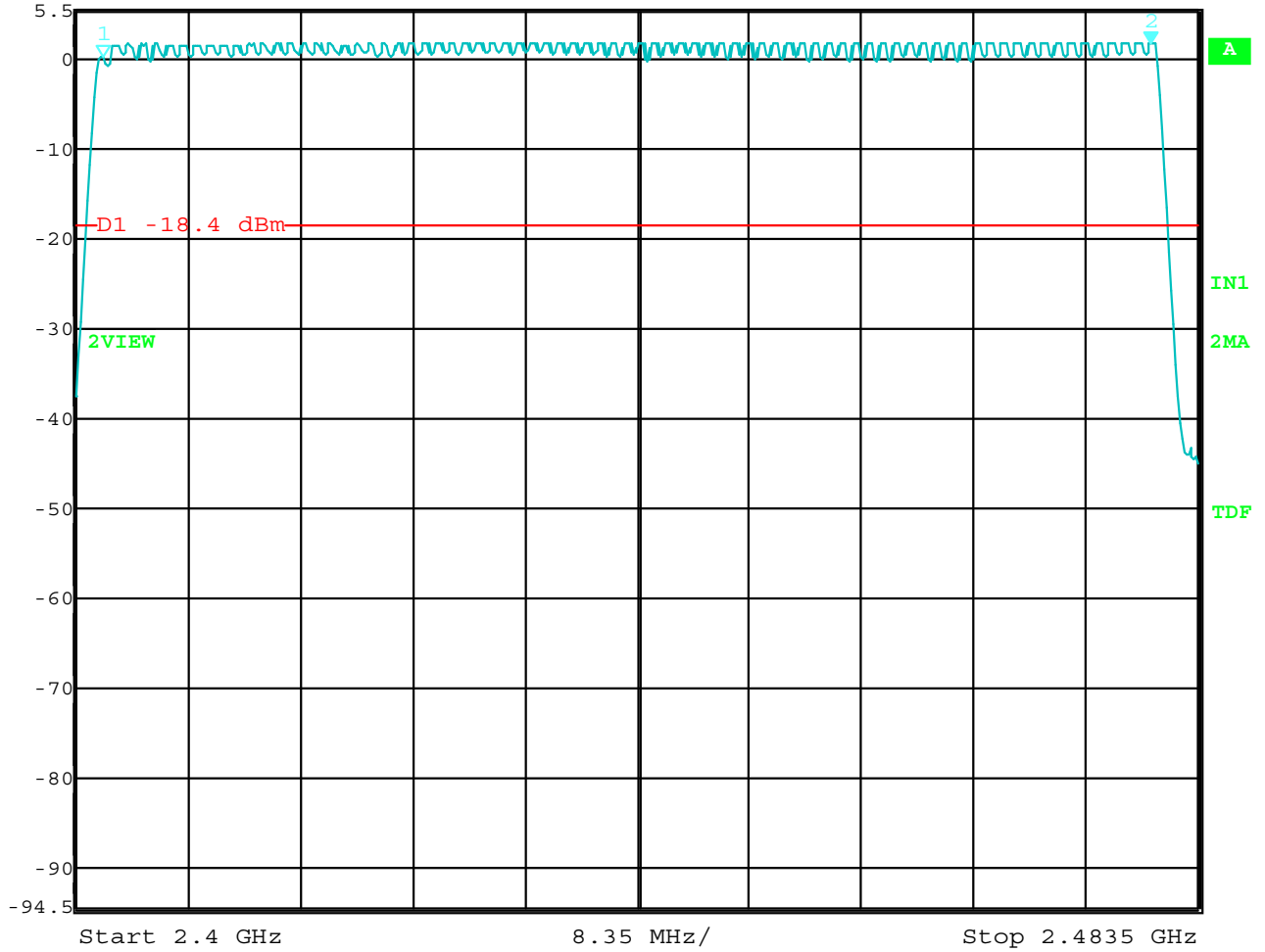
Spectral Density Output – High Channel

NUMBER OF HOPPING FREQUENCIES

DATA SHEET

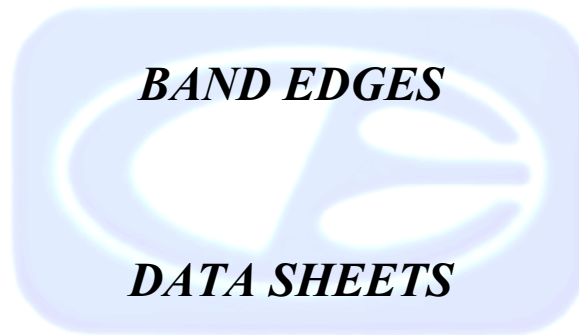


Ref Lvl 5.5 dBm
Marker 2 [T2] 1.72 dBm
2.48000000 GHz
RBW 1 MHz RF Att 40 dB
VBW 1 MHz
SWT 5 ms Unit dBm



Date: 18.MAR.2008 09:18:29

Number of Frequencies (79 Total)



FCC 15.247

O'Neil Product Development, Inc.
 2 Inch Thermal Printer
 Model: MF2Te

Date: 3/17/08
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel - 2402 MHz
Middle Channel - 2441 MHz
High Channel - 2480 MHz

Freq. (MHz)	Level (dBUV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	92.61	V	--	--	Peak	2.13	135	Fundamental of Low Channel @ 3 meters - Y-Axis (Worst Case)
2390	40.86	V	54	-13.14	Peak	2.13	135	No Marker Delta Method Method Used
2441	94.14	V	--	--	Peak	2.18	135	Fundamental of Middle Channel @ 3 meters - Z-Axis (Worst Case)
2480	97.26	V	--	--	Peak	2.06	225	Fundamental of High Channel @ 3 Meters - Z-Axis (Worst Case)
2483.5	41.93	V	54	-12.07	Peak	2.06	225	No Marker Delta Method Method Used

FCC 15.247

O'Neil Product Development, Inc.
2 Inch Thermal Printer
Model: MF2Te

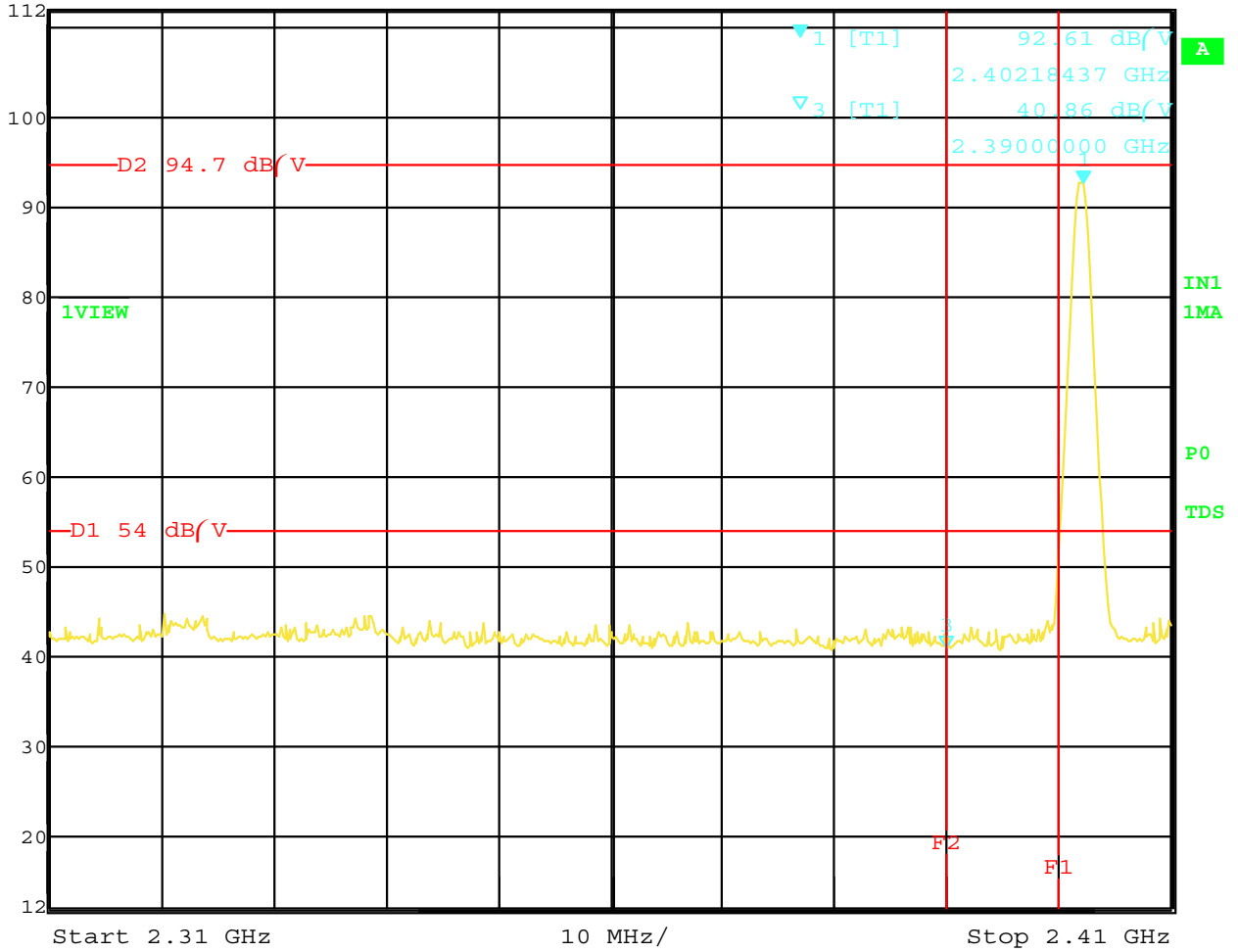
Date: 3/17/08
Lab: B
Tested By: Kyle Fujimoto

Low Channel - 2402 MHz
Middle Channel - 2441 MHz
High Channel - 2480 MHz

Freq. (MHz)	Level (dBUV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	93.91	H	--	--	Peak	1.59	45	Fundamental of Low Channel @ 3 meters - Z-Axis (Worst Case)
2390	40.94	H	54	-13.06	Peak	1.59	45	No Marker Delta Method Method Used
2441	94.19	H	--	--	Peak	2.21	315	Fundamental of Middle Channel @ 3 meters - Z-Axis (Worst Case)
2480	97.41	H	--	--	Peak	2.05	90	Fundamental of High Channel @ 3 Meters - X-Axis (Worst Case)
2483.5	40.12	H	54	-13.88	Peak	2.05	90	No Marker Delta Method Method Used



Marker 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl 92.61 dB/V VBW 1 MHz
112 dB/V 2.40218437 GHz SWT 5 ms Unit dB/V

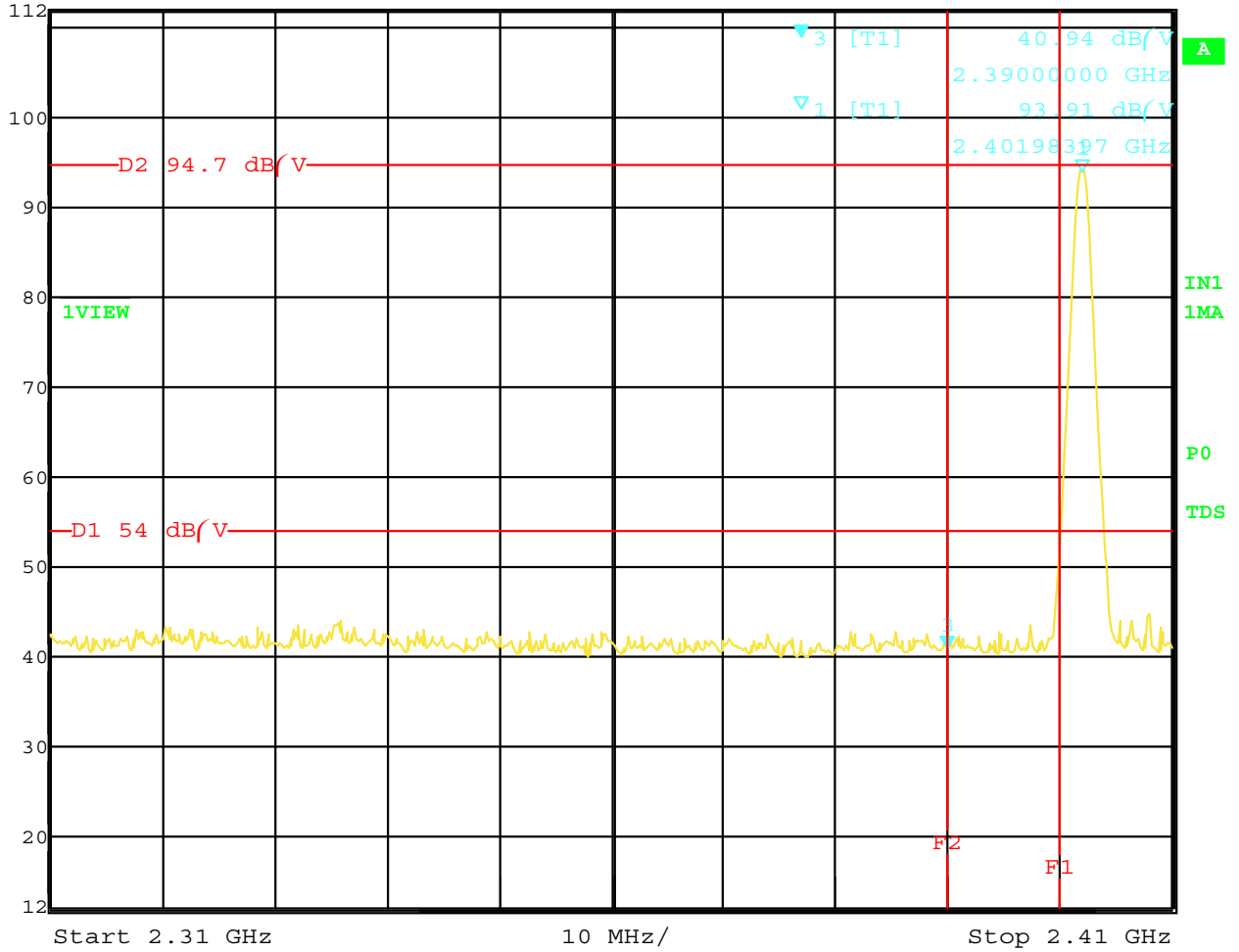


Date: 17.MAR.2008 11:14:53

Band Edge – Low Channel – Vertical Polarization – Y-Axis (Worst Case)



Ref Lvl 112 dB/V
Marker 3 [T1] 40.94 dB/V
2.39000000 GHz
RBW 1 MHz RF Att 20 dB
VBW 1 MHz
SWT 5 ms Unit dB/V

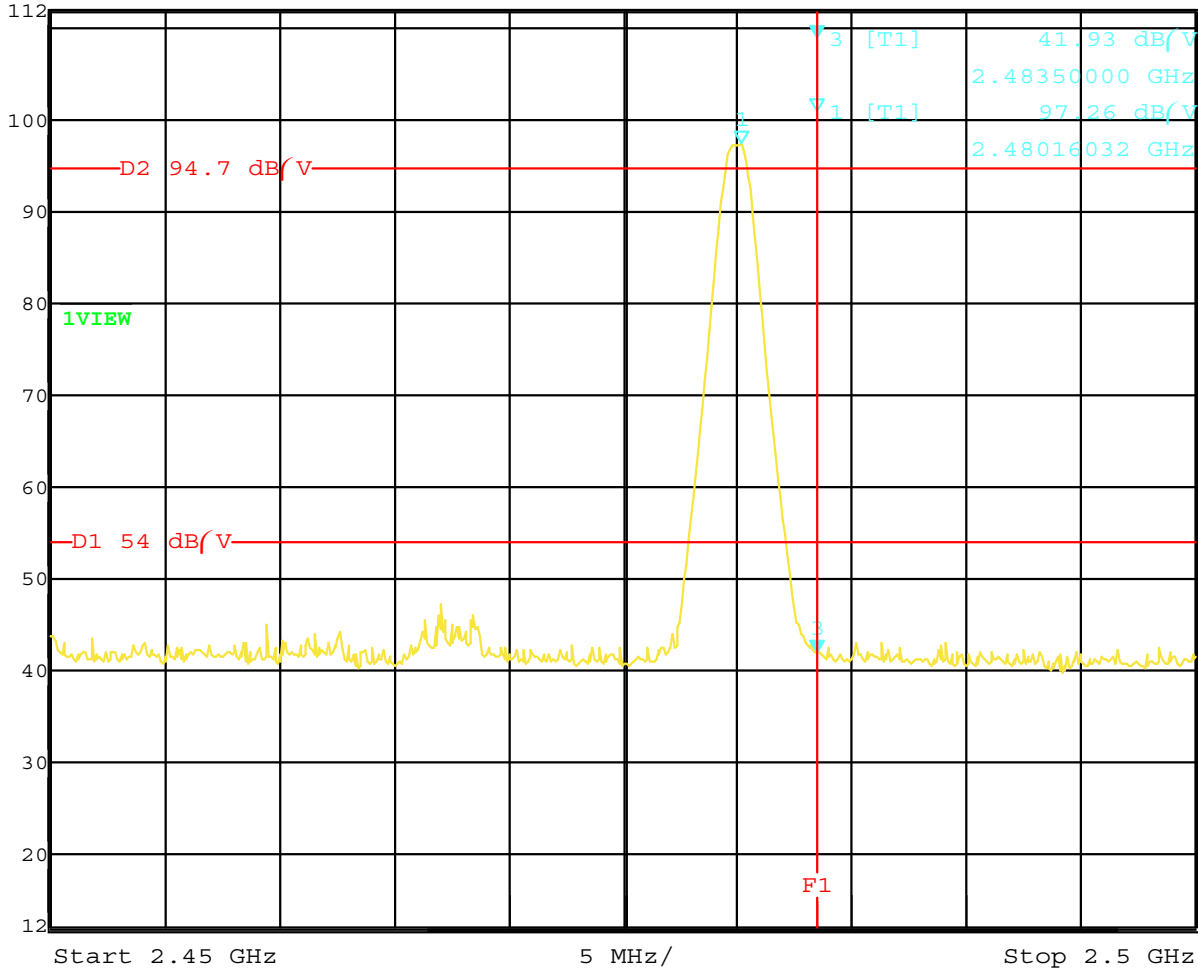


Date: 17.MAR.2008 12:56:04

Band Edge – Low Channel – Horizontal Polarization – Z-Axis (Worst Case)



Ref Lvl 112 dB/V
Marker 3 [T1] 41.93 dB/V
2.48350000 GHz
RBW 1 MHz RF Att 20 dB
VBW 1 MHz
SWT 5 ms Unit dB/V

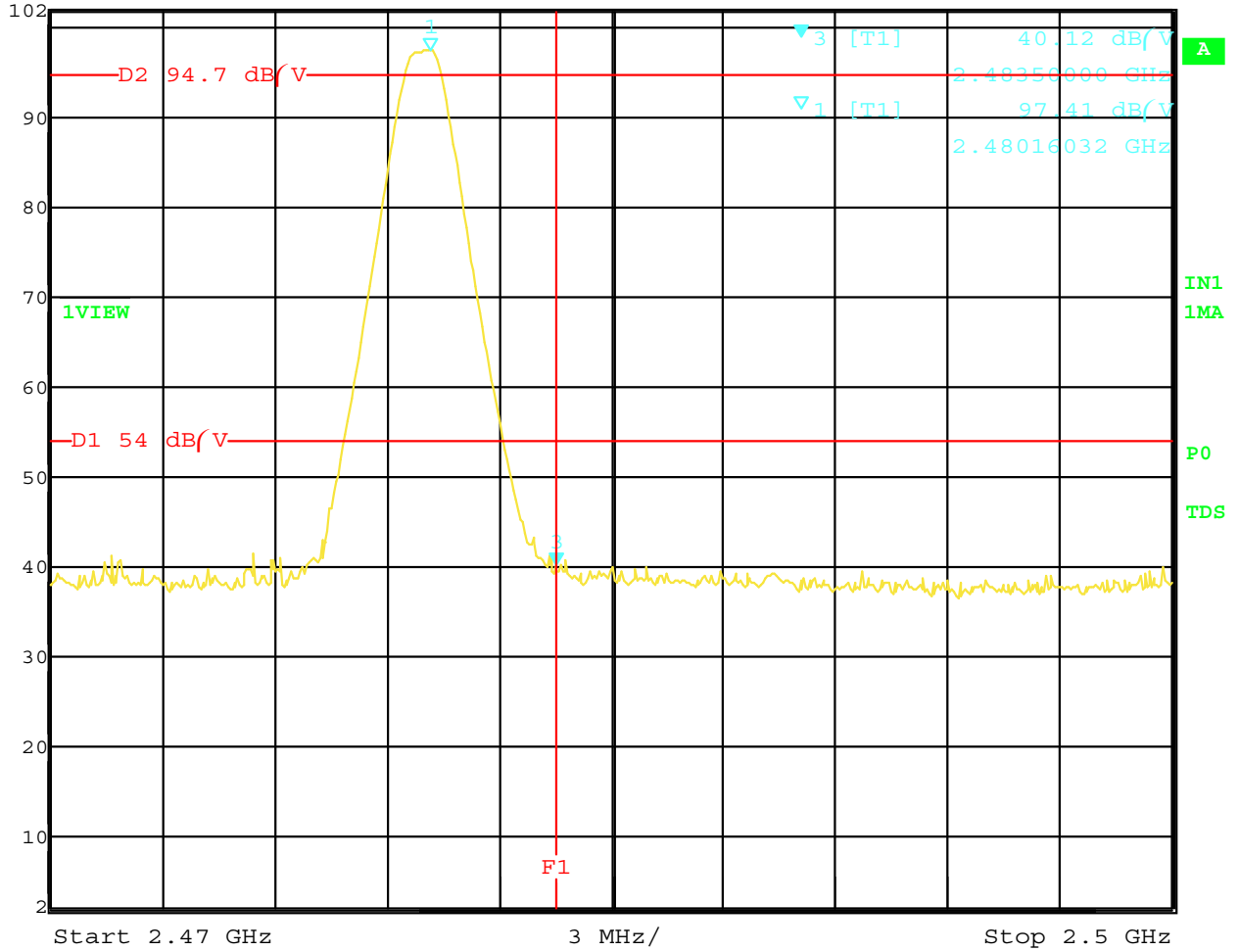


Date: 17.MAR.2008 13:08:53

Band Edge – High Channel – Vertical Polarization – Z-Axis (Worst Case)



Ref Lvl 102 dB/V
Marker 3 [T1] 40.12 dB/V
RBW 1 MHz RF Att 10 dB
VBW 1 MHz
SWT 5 ms Unit dB/V



Date: 17.MAR.2008 14:38:59
Band Edge – High Channel – Horizontal Polarization – X-Axis (Worst Case)