FCC PART 15, SUBPART B and C
TEST REPORT

for

2.4 GHz TRANSCEIVER MODULE

MODEL: TR41

Prepared for

PRESTON CINEMA SYSTEMS
1659 ELEVENTH STREET
SANTA MONICA, CALIFORNIA 90404

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

MICHAEL CHRISTENSEN

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

DATE: FEBRUARY 9, 2010

	REPORT	APPENDICES					TOTAL
	BODY	***A***	***B***	***C***	***D***	***E***	
PAGES	23	2	2	2	18	99	**146**

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

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:	2.4 GHz Transceiver Module Model: TR41 S/N: N/A
Product Description:	See Expository Statement.
Modifications:	There were no modifications made to the EUT during the testing.
Manufacturer:	Preston Cinema Systems 1659 Eleventh Street Santa Monica, California 90404
Test Dates:	January 25, 26, 28; and February 8, 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 C63.4: 2003
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.207. Highest reading in relation to spec limit: 42.32 dBuV @ 0.826 MHz (*U = 1.68 dB)
2	Spurious Radiated RF Emissions, 10 kHz – 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) Highest reading in relation to spec limit: 33.58 dBuV @ 255.085 MHz (*U = 4.80 dB)
3	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25000 MHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25000 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209(a), and section 15.247 (d)
5	6 dB Bandwidth	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(a)(2)
6	Peak Power Output	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(b)(3)
7	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
8	Peak Power Spectral Density Conducted from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

*U = Expanded Uncertainty with a coverage factor of k=2

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the 2.4 GHz Transceiver Module, Model: TR41. 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, 15.209, 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

Howard Preston	President

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
Michael Christensen	Lab Manager, Brea Division

2.4 Date Test Sample was Received

The EUT was received on January 25, 2010.

2.5 Disposition of the Test Sample

The EUT has not been returned to Preston Cinema Systems as of February 9, 2010.

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

Tyco Antenna: The 2.4 GHz Transceiver Module, Model: TR41 (EUT) was connected to a Conan Connector, power supply, and Tyco antenna with reverse polarity UFL connector via its J6, J7, and antenna ports, respectively. The EUT was continuously transmitting and receiving. The channel was set via special channel switches on the PCB board.

Monopole Antenna: The 2.4 GHz Transceiver Module, Model: TR41 (EUT) was connected to a Conan Connector, power supply, and a monopole antenna with reverse polarity SMA connector via its J6, J7, and antenna ports, respectively. The EUT was continuously transmitting and receiving. The channel was set via special channel switches on the PCB board.

Note: For the conducted emissions and spurious emissions, an initial investigation was done in both maximum power and minimum power. The final data was taken at the maximum power for both antennas, which was the worst case mode for each antenna.

It was determined that the emissions were at their highest level when the EUT was operating in the above configurations. The final emissions data was taken in both mode of operations mentioned above and any cables were maximized. All initial investigations were performed with the EMI Receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

Cable 1 This is a 20-centimeter cable connecting the EUT to the Conan Connector. The cable has an 11-pin Conan Connector at each end.

Cable 2 This is a 25-centimeter cable connecting the EUT to cable #3. The cable has a 5-pin connector at the EUT end and a 1/8 inch jack at the cable #3 end.

Cable 3 This is a 2 meter cable connecting cable #2 to the power supply. The cable has a 1/8 inch power connector at the cable #2 end and is hard wired into the power supply.

Cable 4 **(For the Tyco Antenna Only)**
This is a 10-centimeter cable connecting the EUT to the Tyco Antenna. The cable has a reverse polarity UFL connector at each end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
2.4 GHz TRANSCEIVER MODULE (EUT)	PRESTON CINEMA SYSTEMS	TR41	N/A	NMRTR41
(2) CONAN CONNECTOR BOARDS	PRESTON CINEMA SYSTEMS	N/A	N/A	N/A
POWER SUPPLY	CUI, INC.	35-5-300R	N/A	N/A
BLUETOOTH 802.11 b/g ANTENNA	TYCO ELECTRONCIS	P/N: 1513504-1	N/A	N/A
MONOPOLE ANTENNA	LINX TECHNOLOGIES	ANT-2.4-CW-RCS	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	September 17, 2008	Sept. 17, 2010
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 29, 2009	May 29, 2010
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 29, 2009	May 29, 2010
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 29, 2009	May 29, 2010
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com Power	AC-220	61027	June 12, 2009	June 12, 2010
Preamplifier	Com-Power	PA-103	1582	January 6, 2010	January 6, 2011
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	Sept. 29, 2010
Horn Antenna	Com-Power	AH-118	071175	June 27, 2008	June 27, 2010
Microwave Preamplifier	Com-Power	PA-122	181921	March 12, 2009	March 12, 2010
Microwave Preamplifier	Com-Power	PA-840	711013	March 12, 2009	March 12, 2010
Horn Antenna	Com-Power	AH826	71957	N.C.R.	N.C.R.
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12076	September 28, 2009	Sept. 28, 2010
LISN	Com Power	LI-215	12090	September 28, 2009	Sept. 28, 2010
Transient Limiter	Com Power	252A910	1	September 28, 2009	Sept. 28, 2010

5.3 EMI Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
RF POWER OUPUT TEST EQUIPMENT					
Power Measuring Analyzer	Boonton Electronics	4500A-01	1282	June 20, 2008	June 20, 2010
Peak Power Sensor	Boonton Electronics	57318	3723	June 25, 2008	June 25, 2010

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 Channel Number and Frequencies

Please see the theory of operation exhibit for the list of channels and their frequencies.

7.2 Antenna Gain

The antenna gain of the Tyco antenna is 4 dBi.
The antenna gain for the monopole antenna is -0.75 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 EMI Receiver 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 EMI Receiver at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.207.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver and Spectrum Analyzer were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The EMI Receiver and Spectrum Analyzer were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver and Spectrum Analyzer record 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 readings above 1 GHz were averaged using a "duty cycle correction factor", derived from 20 log (dwell time / 100 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 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.

8.2 6 dB Bandwidth

The 6 dB bandwidth was measured using the EMI Receiver. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (a)(2).

8.3 Peak Output Power

The Peak Output Power was taken using the power meter and power sensor. The EUT was directly connected to the power sensor, which was directly connected to the power meter. The Peak Output Power was then taken.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (b)(3).

8.4 RF Antenna Conducted Test

The RF antenna conducted test was taken using the EMI Receiver. The RF antenna conducted test was 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 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

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

7.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (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 Spectral Density Test

The spectral 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 was 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (e).

8. CONCLUSIONS

The 2.4 GHz Transceiver Module Model: TR41 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: 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

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

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

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

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	2.4 GHz Transceiver Module Model: TR41 S/N: N/A

There were no additional models covered under this test report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

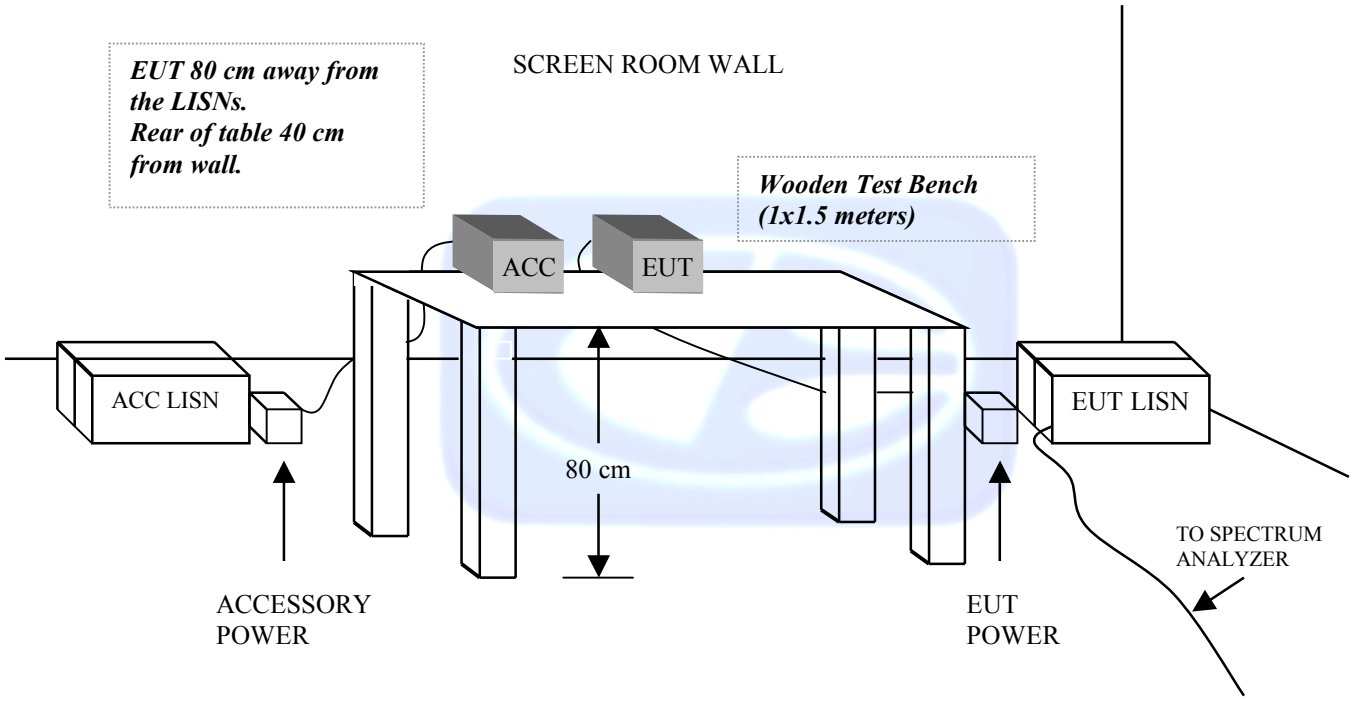
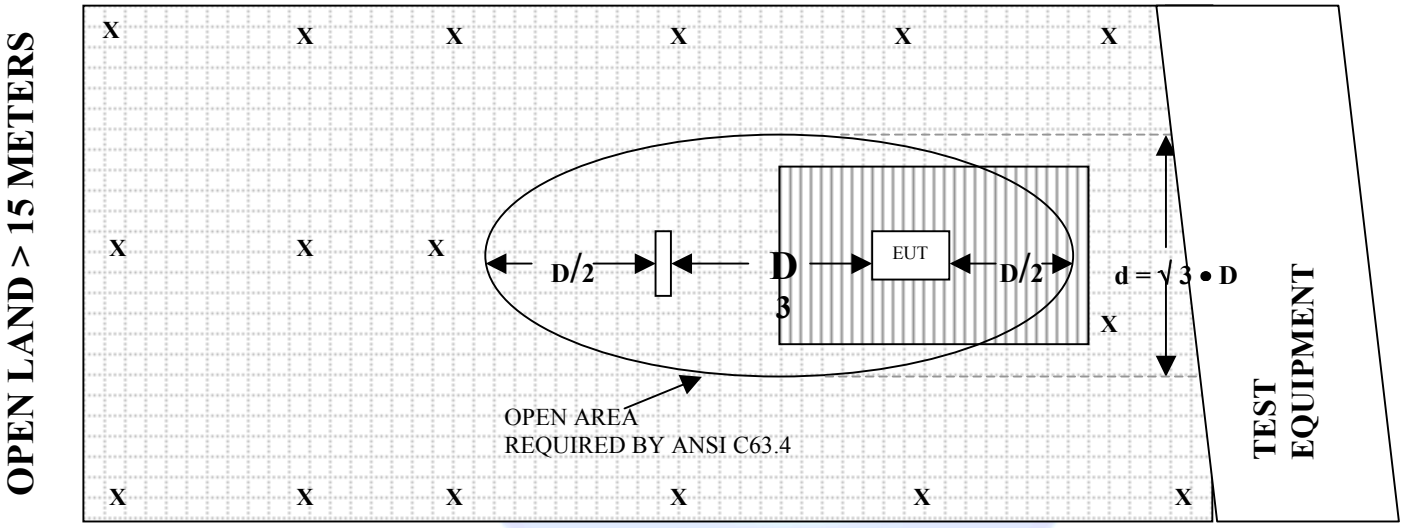


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE – 3 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

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

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61027

CALIBRATION DATE: JUNE 12, 2009

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
25	17.7	180	10.0
30	18.1	200	10.2
35	17.4	250	11.7
40	16.8	275	13.3
45	16.1	300	13.9
50	16.3	400	15.8
60	14.0	500	17.3
70	8.1	600	18.7
80	7.5	700	19.6
90	8.5	800	20.9
100	9.9	900	21.5
120	9.9	1000	22.3
125	10.4	1200	18.1
140	10.1	1400	17.9
150	8.9	1600	20.1
160	8.9	1800	18.8
175	10.2	2000	20.0

COM-POWER PA-103

PREAMPLIFIER

S/N: 1582

CALIBRATION DATE: JANUARY 6, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	33.1	300	32.7
40	33.0	350	32.6
50	32.9	400	33.0
60	33.1	450	32.3
70	33.1	500	32.1
80	32.9	550	32.5
90	32.9	600	32.3
100	32.9	650	32.0
125	33.0	700	32.6
150	32.9	750	32.5
175	32.9	800	31.8
200	32.7	850	31.9
225	32.8	900	32.2
250	32.8	950	32.1
275	32.8	1000	32.1

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: JUNE 27, 2008

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.5	10.0	39.4
1.5	25.4	10.5	39.7
2.0	28.3	11.0	39.0
2.5	28.9	11.5	40.0
3.0	29.7	12.0	39.7
3.5	30.8	12.5	41.7
4.0	31.4	13.0	42.7
4.5	32.6	13.5	41.2
5.0	33.7	14.0	41.6
5.5	34.4	14.5	43.2
6.0	34.7	15.0	42.3
6.5	35.4	15.5	39.3
7.0	37.0	16.0	41.7
7.5	37.4	16.5	39.6
8.0	37.6	17.0	43.0
8.5	37.6	17.5	47.1
9.0	38.5	18.0	46.2
9.5	38.6		

COM-POWER PA-122

PREAMPLIFIER

S/N: 181921

CALIBRATION DATE: MARCH 12, 2009

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	36.46	10.0	35.06
1.5	35.36	10.5	34.82
2.0	34.76	11.0	33.12
2.5	34.94	11.5	34.33
3.0	34.59	12.0	34.75
3.5	34.55	12.5	33.94
4.0	34.25	13.0	35.50
4.5	33.89	13.5	34.89
5.0	34.22	14.0	36.56
5.5	34.81	14.5	36.06
6.0	35.74	15.0	36.67
6.5	36.51	15.5	36.84
7.0	36.66	16.0	34.31
7.5	35.72	16.5	35.11
8.0	33.28	17.0	35.35
8.5	33.11	17.5	34.11
9.0	34.71	18.0	33.88
9.5	35.50	18.5	32.20

COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40

COM-POWER PA-840

PREAMPLIFIER-MICROWAVE

S/N: 711013

CALIBRATION DATE: MARCH 12, 2009

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.72	29.0	26.72
18.5	25.46	29.5	27.11
19.0	25.19	30.0	27.19
19.5	24.58	30.5	27.12
20.0	23.94	31.0	26.76
20.5	23.48	31.5	26.52
21.0	23.22	32.0	26.11
21.5	23.34	32.5	26.35
22.0	23.62	33.0	26.15
22.5	23.74	33.5	26.14
23.0	24.40	34.0	25.47
23.5	24.60	34.5	25.39
24.0	25.15	35.0	25.05
24.5	25.38	35.5	25.18
25.0	26.00	36.0	24.63
25.5	25.92	36.5	25.22
26.0	26.47	37.0	26.20
26.5	27.19	37.5	26.46
27.0	27.60	38.0	25.44
27.5	26.51	38.5	24.71
28.0	26.46	39.0	23.50
28.5	26.36	39.5	23.46

COM-POWER AH826

HORN ANTENNA

S/N: 71957

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

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – RADAITED EMISSIONS – TYCO ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – RADAITED EMISSIONS – TYCO ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – RADAITED EMISSIONS – MONOPOLE ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – RADAITED EMISSIONS – MONOPOLE ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – CONDUCTED EMISSIONS – TYCO ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – CONDUCTED EMISSIONS – TYCO ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – CONDUCTED EMISSIONS – MONOPOLE ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER MODULE
MODEL: TR41
FCC SUBPART B AND C – CONDUCTED EMISSIONS – MONOPOLE ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISISONS

DATA SHEETS

FCC 15.247

Preston Cinema Systems
2.4 GHz RF Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	48.47	V	74	-25.53	Peak	1.25	135	
4804	28.47	V	54	-25.53	Avg	1.25	135	
7206	69.77	V	--	--	Peak	1.25	225	Not in
7206	49.77	V	--	--	Avg	1.25	225	Restricted Band
9608	56.81	V	--	--	Peak	1.35	155	Not in
9608	36.81	V	--	--	Avg	1.35	155	Restricted Band
12010	61.04	V	74	-12.96	Peak	1.25	135	
12010	41.04	V	54	-12.96	Avg	1.25	135	
14412	55.47	V	--	--	Peak	1.25	135	Not in
14412	35.47	V	--	--	Avg	1.25	135	Restricted Band
16814	56.13	V	--	--	Peak	1.25	155	Not in
16814	36.13	V	--	--	Avg	1.25	155	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	49.12	H	74	-24.88	Peak	1.25	135	
4804	29.12	H	54	-24.88	Avg	1.25	135	
7206	63.46	H	--	--	Peak	1.25	115	Not in
7206	43.46	H	--	--	Avg	1.25	115	Restricted Band
9608	56.65	H	--	--	Peak	1.35	125	Not in
9608	36.65	H	--	--	Avg	1.35	125	Restricted Band
12010	57.84	H	74	-16.16	Peak	1.25	165	
12010	37.84	H	54	-16.16	Avg	1.25	165	
14412	55.08	H	--	--	Peak	1.25	135	Not in
14412	35.08	H	--	--	Avg	1.25	135	Restricted Band
16814	53.91	H	--	--	Peak	1.25	135	Not in
16814	33.91	H	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	50.5	V	74	-23.5	Peak	1.25	225	
4804	30.5	V	54	-23.5	Avg	1.25	225	
7206	67.47	V	--	--	Peak	1.35	155	Not in
7206	47.47	V	--	--	Avg	1.35	155	Restricted Band
9608	54.32	V	--	--	Peak	1.26	225	Not in
9608	34.32	V	--	--	Avg	1.26	225	Restricted Band
12010	63.87	V	74	-10.13	Peak	1.25	135	
12010	43.87	V	54	-10.13	Avg	1.25	135	
14412	60.88	V	--	--	Peak	1.25	155	Not in
14412	40.88	V	--	--	Avg	1.25	155	Restricted Band
16814	54.58	V	--	--	Peak	1.35	155	Not in
16814	34.58	V	--	--	Avg	1.35	155	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	52.17	H	74	-21.83	Peak	1.25	155	
4804	32.17	H	54	-21.83	Avg	1.25	155	
7206	66.44	H	--	--	Peak	1.25	155	Not in
7206	46.44	H	--	--	Avg	1.25	155	Restricted Band
9608	55.21	H	--	--	Peak	1.25	175	Not in
9608	35.21	H	--	--	Avg	1.25	175	Restricted Band
12010	63.51	H	74	-10.49	Peak	1.25	155	
12010	43.51	H	54	-10.49	Avg	1.25	155	
14412	58.92	H	--	--	Peak	1.26	175	Not in
14412	38.92	H	--	--	Avg	1.26	175	Restricted Band
16814	59.38	H	--	--	Peak	1.25	135	Not in
16814	39.38	H	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	49.98	V	74	-24.02	Peak	1.25	135	
4804	29.98	V	54	-24.02	Avg	1.25	135	
7206	68.16	V	74	-5.84	Peak	2.25	225	
7206	48.16	V	54	-5.84	Avg	2.25	225	
9608	57.51	V	--	--	Peak	1.25	135	Not in
9608	37.51	V	--	--	Avg	1.25	135	Restricted Band
12010	62.53	V	74	-11.47	Peak	1.25	180	
12010	42.53	V	54	-11.47	Avg	1.25	180	
14412	57.02	V	--	--	Peak	1.35	155	Not in
14412	37.02	V	--	--	Avg	1.35	155	Restricted Band
16814	55.46	V	--	--	Peak	1.25	135	Not in
16814	35.46	V	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	49.77	H	74	-24.23	Peak	1.25	135	
4804	29.77	H	54	-24.23	Avg	1.25	135	
7206	65.78	H	--	--	Peak	1.25	135	Not in
7206	45.78	H	--	--	Avg	125	135	Restricted Band
9608	60.91	H	--	--	Peak	1.25	135	Not in
9608	40.91	H	--	--	Avg	1.25	135	Restricted Band
12010	58.07	H	74	-15.93	Peak	1.35	165	
12010	38.07	H	54	-15.93	Avg	1.35	165	
14412	60.17	H	--	--	Peak	1.25	158	Not in
14412	40.17	H	--	--	Avg	1.25	158	Restricted Band
16814	58.73	H	--	--	Peak	1.35	155	Not in
16814	38.73	H	--	--	Avg	1.35	155	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	51.44	V	74	-22.56	Peak	1.25	135	
4880	31.44	V	54	-22.56	Avg	1.25	135	
7320	69.57	V	74	-4.43	Peak	1.25	225	
7320	49.57	V	54	-4.43	Avg	1.25	225	
9760	67.35	V	--	--	Peak	1.35	275	Not in
9760	47.35	V	--	--	Avg	1.35	275	Restricted Band
12200	60.57	V	74	-13.43	Peak	1.25	155	
12200	40.57	V	54	-13.43	Avg	1.25	155	
14640	63.59	V	--	--	Peak	1.58	175	Not in
14640	43.59	V	--	--	Avg	1.58	175	Restricted Band
17080	61.64	V	--	--	Peak	1.25	135	Not in
17080	41.64	V	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	50.72	H	74	-23.28	Peak	1.25	135	
4880	30.72	H	54	-23.28	Avg	1.25	135	
7320	67.45	H	74	-6.55	Peak	1.25	135	
7320	47.45	H	54	-6.55	Avg	1.25	135	
9760	64.27	H	--	--	Peak	1.25	125	Not in
9760	44.27	H	--	--	Avg	1.25	125	Restricted Band
12200	57.75	H	74	-16.25	Peak	1.35	158	
12200	37.75	H	54	-16.25	Avg	1.35	158	
14640	56.55	H	--	--	Peak	1.25	175	Not in
14640	36.55	H	--	--	Avg	1.25	175	Restricted Band
17080	54.06	H	--	--	Peak	1.35	185	Not in
17080	34.06	H	--	--	Avg	1.35	185	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	51.01	V	74	-22.99	Peak	1.25	135	
4880	31.01	V	54	-22.99	Avg	1.25	135	
7320	66.46	V	74	-7.54	Peak	1.25	155	
7320	46.46	V	54	-7.54	Avg	1.25	155	
9760	63.49	V	--	--	Peak	1.25	135	Not in
9760	43.49	V	--	--	Avg	1.25	135	Restricted Band
12200	61.59	V	74	-12.41	Peak	1.35	180	
12200	41.59	V	54	-12.41	Avg	1.35	180	
14640	62.26	V	--	--	Peak	1.25	135	Not in
14640	42.26	V	--	--	Avg	1.25	135	Restricted Band
17080	62.61	V	--	--	Peak	1.25	135	Not in
17080	42.61	V	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	51.15	H	74	-22.85	Peak	1.25	135	
4880	31.15	H	54	-22.85	Avg	1.25	135	
7320	70.49	H	74	-3.51	Peak	1.25	155	
7320	50.49	H	54	-3.51	Avg	1.25	155	
9760	69.09	H	--	--	Peak	1.35	125	Not in
9760	49.09	H	--	--	Avg	1.35	125	Restricted Band
12200	62.39	H	74	-11.61	Peak	1.25	115	
12200	42.39	H	54	-11.61	Avg	1.25	115	
14640	64.68	H	--	--	Peak	1.35	125	Not in
14640	44.68	H	--	--	Avg	1.35	125	Restricted Band
17080	61.32	H	--	--	Peak	1.25	135	Not in
17080	41.32	H	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	53.27	V	74	-20.73	Peak	1.25	135	
4880	33.27	V	54	-20.73	Avg	1.25	135	
7320	67.73	V	74	-6.27	Peak	1.35	135	
7320	47.73	V	54	-6.27	Avg	1.35	135	
9760	66.72	V	--	--	Peak	1.25	155	Not in
9760	46.72	V	--	--	Avg	1.25	155	Restricted Band
12200	61.18	V	74	-12.82	Peak	1.25	155	
12200	41.18	V	54	-12.82	Avg	1.25	155	
14640	65.13	V	--	--	Peak	1.35	155	Not in
14640	45.13	V	--	--	Avg	1.35	155	Restricted Band
17080	60.85	V	--	--	Peak	1.25	135	Not in
17080	40.85	V	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	56.59	H	74	-17.41	Peak	1.25	135	
4880	36.59	H	54	-17.41	Avg	1.25	135	
7320	67.13	H	74	-6.87	Peak	1.25	155	
7320	47.13	H	54	-6.87	Avg	1.25	155	
9760	61.82	H	--	--	Peak	1.25	135	Not in
9760	41.82	H	--	--	Avg	1.25	135	Restricted Band
12200	59.71	H	74	-14.29	Peak	1.15	125	
12200	39.71	H	54	-14.29	Avg	1.15	125	
14640	64.41	H	--	--	Peak	1.25	135	Not in
14640	44.41	H	--	--	Avg	1.25	135	Restricted Band
17080	60.96	H	--	--	Peak	1.25	135	Not in
17080	40.96	H	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	49.15	V	74	-24.85	Peak	1.25	135	
4952	29.15	V	54	-24.85	Avg	1.25	135	
7428	63.74	V	74	-10.26	Peak	1.25	135	
7428	43.74	V	54	-10.26	Avg	1.25	135	
9904	61.48	V	--	--	Peak	1.25	135	Not in
9904	41.48	V	--	--	Avg	1.25	135	Restricted Band
12380	56.01	V	74	-17.99	Peak	1.25	135	
12380	36.01	V	54	-17.99	Avg	1.25	135	
14856	55.94	V	--	--	Peak	1.35	155	Not in
14856	35.94	V	--	--	Avg	1.35	155	Restricted Band
17332	57.51	V	--	--	Peak	1.25	155	Not in
17332	37.51	V	--	--	Avg	1.25	155	Restricted Band
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	47.62	H	74	-26.38	Peak	1.25	135	
4952	27.62	H	54	-26.38	Avg	1.25	135	
7428	62.01	H	74	-11.99	Peak	1.35	125	
7428	42.01	H	54	-11.99	Avg	1.35	125	
9904	52.67	H	--	--	Peak	1.25	125	Not in
9904	32.67	H	--	--	Avg	1.25	125	Restricted Band
12380	56.62	H	74	-17.38	Peak	1.25	135	
12380	36.62	H	54	-17.38	Avg	1.25	135	
14856	55.74	H	--	--	Peak	1.35	155	Not in
14856	35.74	H	--	--	Avg	1.35	155	Restricted Band
17332	58.19	H	--	--	Peak	1.25	135	Not in
17332	38.19	H	--	--	Avg	1.25	135	Restricted Band
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	52.53	V	74	-21.47	Peak	1.25	180	
4952	32.53	V	54	-21.47	Avg	1.25	180	
7428	64.52	V	74	-9.48	Peak	1.25	135	
7428	44.52	V	54	-9.48	Avg	1.25	135	
9904	64.96	V	--	--	Peak	1.25	155	Not in
9904	44.96	V	--	--	Avg	1.25	155	Restricted Band
12380	55.51	V	74	-18.49	Peak	1.25	135	
12380	35.51	V	54	-18.49	Avg	1.25	135	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	51.02	H	74	-22.98	Peak	1.25	135	
4952	31.02	H	54	-22.98	Avg	1.25	135	
7428	62.98	H	74	-11.02	Peak	2.25	225	
7428	42.98	H	54	-11.02	Avg	2.25	225	
9904	60.29	H	--	--	Peak	1.25	135	Not in
9904	40.29	H	--	--	Avg	1.25	135	Restricted Band
12380	55.81	H	74	-18.19	Peak	1.25	135	
12380	35.81	H	54	-18.19	Avg	1.25	135	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	50.52	V	74	-23.48	Peak	1.25	225	
4952	30.52	V	54	-23.48	Avg	1.25	225	
7428	63.46	V	74	-10.54	Peak	1.35	150	
7428	43.46	V	54	-10.54	Avg	1.35	150	
9904	58.02	V	--	--	Peak	1.25	135	Not in
9904	38.02	V	--	--	Avg	1.25	135	Restricted Band
12380	57.98	V	74	-16.02	Peak	1.25	155	
12380	37.98	V	54	-16.02	Avg	1.25	155	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	51.31	H	74	-22.69	Peak	1.25	225	
4952	31.31	H	54	-22.69	Avg	1.25	225	
7428	64.86	H	74	-9.14	Peak	1.35	180	
7428	44.86	H	54	-9.14	Avg	1.35	180	
9904	65.87	H	--	--	Peak	1.25	135	Not in
9904	45.87	H	--	--	Avg	1.25	135	Restricted Band
12380	60.18	H	74	-13.82	Peak	1.25	135	
12380	40.18	H	54	-13.82	Avg	1.25	135	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC Class B

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel
Monopole Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receive Mode
								from 10 kHz to 25000 MHz
								for both Vertical and Horizontal
								Polarizations
								Investigated in the
								X, Y, and Z-Axis

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/26/10
Lab: B
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 1 GHz to 25 GHz
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Digital Portion
								from 1 GHz to 25 GHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 1 GHz to 25 GHz
								for both Vertical and Horizontal
								Polarizations
								Investigated in the
								X, Y, and Z-Axis

Test Location	: Compatible Electronics	Page	: 1/1
Customer	: Preston Cinema Systems	Date	: 1/28/2010
Manufacturer	: Preston Cinema Systems	Time	: 8:57:38
Eut name	: 2.4 GHz Transceiver Module	Lab	: A
Model	: TR41	Test Distance	: 3 Meters
Serial #	: N/A		
Specification	: FCC B		

Distance correction factor (20 * log(test/spec) : 0.00

Test Type: Rdiated Emissions Qualification
Test Range: 10 kHz to 1 GHz (Vertical and Horizontal)
EUT Mode: Transmit/Receive - Monopole Antenna
Test Engineer: James Ross

Pol	Freq	Rdng	Cable loss	Ant factor	Amp gain	Cor'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV	dBuV/m	dB
V	264.061	45.40	3.81	12.61	32.80	29.03	46.00	-16.97
V	288.078	42.70	3.95	13.07	32.75	26.98	46.00	-19.02
V	336.078	40.10	4.44	14.23	32.63	26.14	46.00	-19.86
V	360.078	37.00	4.64	14.73	32.69	23.69	46.00	-22.31
V	432.078	37.70	5.06	16.12	32.54	26.34	46.00	-19.66
H	264.073	48.70	3.81	12.61	32.80	32.33	46.00	-13.67
H	288.085	49.30	3.95	13.07	32.75	33.58	46.00	-12.42
H	312.073	44.90	4.15	13.69	32.67	30.07	46.00	-15.93
H	336.073	45.20	4.44	14.23	32.63	31.24	46.00	-14.76
H	360.073	44.00	4.64	14.73	32.68	30.69	46.00	-15.31
H	384.073	42.70	4.74	15.20	32.88	29.76	46.00	-16.24
H	432.073	41.50	5.06	16.12	32.54	30.14	46.00	-15.86

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	51.12	V	74	-22.88	Peak	1.25	135	
4804	31.12	V	54	-22.88	Avg	1.25	135	
7206	66.49	V	--	--	Peak	1.25	135	Not in
7206	46.49	V	--	--	Avg	1.25	135	Restricted Band
9608	69.09	V	--	--	Peak	1.25	225	Not in
9608	49.09	V	--	--	Avg	1.25	225	Restricted Band
12010	61.41	V	74	-12.59	Peak	1.35	155	
12010	41.41	V	54	-12.59	Avg	1.35	155	
14412	71.95	V	--	--	Peak	1.35	225	Not in
14412	51.95	V	--	--	Avg	1.35	225	Restricted Band
16814	60.77	V	--	--	Peak	1.25	150	Not in
16814	40.77	V	--	--	Avg	1.25	150	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	51.07	H	74	-22.93	Peak	1.25	135	
4804	31.07	H	54	-22.93	Avg	1.25	135	
7206	71.3	H	--	--	Peak	1.25	135	Not in
7206	51.3	H	--	--	Avg	1.25	135	Restricted Band
9608	56.98	H	--	--	Peak	1.25	135	Not in
9608	36.98	H	--	--	Avg	1.25	135	Restricted Band
12010	58.68	H	74	-15.32	Peak	1.25	135	
12010	38.68	H	54	-15.32	Avg	1.25	135	
14412	64.7	H	--	--	Peak	1.25	135	Not in
14412	44.7	H	--	--	Avg	1.25	135	Restricted Band
16814	58.56	H	--	--	Peak	1.25	135	Not in
16814	38.36	H	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	44.84	V	74	-29.16	Peak	1.25	135	
4804	24.84	V	54	-29.16	Avg	1.25	135	
7206	62.37	V	--	--	Peak	1.25	115	Not in
7206	42.37	V	--	--	Avg	1.25	115	Restricted Band
9608	50.03	V	--	--	Peak	1.35	125	Not in
9608	30.03	V	--	--	Avg	1.35	125	Restricted Band
12010	58.51	V	74	-15.49	Peak	1.25	155	
12010	38.51	V	54	-15.49	Avg	1.25	155	
14412	59.43	V	--	--	Peak	1.35	155	Not in
14412	39.43	V	--	--	Avg	1.35	155	Restricted Band
16814	54.25	V	--	--	Peak	1.25	135	Not in
16814	24.25	V	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	45.21	H	74	-28.79	Peak	1.25	135	
4804	25.21	H	54	-28.79	Avg	1.25	135	
7206	62.74	H	--	--	Peak	1.35	155	Not in
7206	42.74	H	--	--	Avg	1.35	155	Restricted Band
9608	49.43	H	--	--	Peak	1.25	135	Not in
9608	29.43	H	--	--	Avg	1.25	135	Restricted Band
12010	57.63	H	74	-16.37	Peak	1.35	155	
12010	37.63	H	54	-16.37	Avg	1.35	155	
14412	59.45	H	--	--	Peak	1.45	165	Not in
14412	39.45	H	--	--	Avg	1.45	165	Restricted Band
16814	53.28	H	--	--	Peak	1.25	135	Not in
16814	33.28	H	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	47.27	V	74	-26.73	Peak	1.25	135	
4804	27.27	V	54	-26.73	Avg	1.25	135	
7206	64.92	V	--	--	Peak	1.25	135	Not in
7206	44.92	V	--	--	Avg	1.25	135	Restricted Band
9608	51.71	V	--	--	Peak	1.25	155	Not in
9608	31.71	V	--	--	Avg	1.25	155	Restricted Band
12010	57.93	V	74	-16.07	Peak	1.35	155	
12010	37.93	V	54	-16.07	Avg	1.35	155	
14412	55.36	V	--	--	Peak	1.25	165	Not in
14412	35.36	V	--	--	Avg	1.25	165	Restricted Band
16814	55.94	V	--	--	Peak	1.25	135	Not in
16814	35.94	V	--	--	Avg	1.25	135	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804	50.56	H	74	-23.44	Peak	1.25	135	
4804	30.56	H	54	-23.44	Avg	1.25	135	
7206	62.38	H	--	--	Peak	1.35	155	Not in
7206	42.38	H	--	--	Avg	1.35	155	Restricted Band
9608	51.56	H	--	--	Peak	1.25	135	Not in
9608	31.56	H	--	--	Avg	1.25	135	Restricted Band
12010	61.39	H	74	-12.61	Peak	1.25	155	
12010	41.39	H	54	-12.61	Avg	1.25	155	
14412	59.09	H	--	--	Peak	1.25	155	Not in
14412	39.09	H	--	--	Avg	1.25	155	Restricted Band
16814	53.49	H	--	--	Peak	1.35	155	Not in
16814	33.49	H	--	--	Avg	1.35	155	Restricted Band
19216								**No Emission**
19216								**Detected**
21618								**No Emission**
21618								**Detected**
24020								**No Emission**
24020								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	48.51	V	74	-25.49	Peak	1.25	135	
4880	28.51	V	54	-25.49	Avg	1.25	135	
7320	65.46	V	74	-8.54	Peak	1.25	135	
7320	45.46	V	54	-8.54	Avg	1.25	135	
9760	65.23	V	--	--	Peak	1.35	125	Not in
9760	45.23	V	--	--	Avg	1.35	125	Restricted Band
12200	65.41	V	74	-8.59	Peak	1.25	155	
12200	45.41	V	54	-8.59	Avg	1.25	155	
14640	70.51	V	--	--	Peak	1.25	135	Not in
14640	50.51	V	--	--	Avg	1.25	135	Restricted Band
17080	63.17	V	--	--	Peak	1.25	135	Not in
17080	43.17	V	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Tyco Anenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	54.61	H	74	-19.39	Peak	1	135	
4880	34.61	H	54	-19.39	Avg	1	135	
7320	65.81	H	74	-8.19	Peak	1.25	225	
7320	45.81	H	54	-8.19	Avg	1.25	225	
9760	63.36	H	--	--	Peak	1.25	135	Not in
9760	43.36	H	--	--	Avg	1.25	135	Restricted Band
12200	60.27	H	74	-13.73	Peak	1.25	135	
12200	40.27	H	54	-13.73	Avg	1.25	135	
14640	62.42	H	--	--	Peak	1.25	135	Not in
14640	42.42	H	--	--	Avg	1.25	135	Restricted Band
17080	56.58	H	--	--	Peak	1.25	135	Not in
17080	36.58	H	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	53.05	V	74	-20.95	Peak	1.25	135	
4880	33.05	V	54	-20.95	Avg	1.25	135	
7320	70.42	V	74	-3.58	Peak	1.35	155	
7320	50.42	V	54	-3.58	Avg	1.35	155	
9760	65.35	V	--	--	Peak	1.58	125	Not in
9760	35.35	V	--	--	Avg	1.58	125	Restricted Band
12200	67.53	V	74	-6.47	Peak	1.59	135	
12200	47.53	V	54	-6.47	Avg	1.59	135	
14640	69.59	V	--	--	Peak	1.61	155	Not in
14640	49.59	V	--	--	Avg	1.61	155	Restricted Band
17080	59.95	V	--	--	Peak	1.25	135	Not in
17080	39.95	V	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	52.39	H	74	-21.61	Peak	1.25	135	
4880	32.39	H	54	-21.61	Avg	1.25	135	
7320	66.91	H	74	-7.09	Peak	1.35	155	
7320	46.91	H	54	-7.09	Avg	1.35	155	
9760	63.89	H	--	--	Peak	1.25	135	Not in
9760	43.89	H	--	--	Avg	1.25	135	Restricted Band
12200	62.48	H	74	-11.52	Peak	1.25	135	
12200	42.48	H	54	-11.52	Avg	1.25	135	
14640	66.73	H	--	--	Peak	1.05	180	Not in
14640	46.73	H	--	--	Avg	1.05	180	Restricted Band
17080	71.82	H	--	--	Peak	1.05	180	Not in
17080	51.82	H	--	--	Avg	1.05	180	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	49.52	V	74	-24.48	Peak	1.25	135	
4880	29.52	V	54	-24.48	Avg	1.25	135	
7320	70.82	V	74	-3.18	Peak	1.25	180	
7320	50.82	V	54	-3.18	Avg	1.25	180	
9760	66.11	V	--	--	Peak	1.25	135	Not in
9760	46.11	V	--	--	Avg	1.25	135	Restricted Band
12200	68.93	V	74	-5.07	Peak	1.35	155	
12200	48.93	V	54	-5.07	Avg	1.35	155	
14640	71.82	V	--	--	Peak	1.25	175	Not in
14640	51.82	V	--	--	Avg	1.25	175	Restricted Band
17080	67.34	V	--	--	Peak	1.05	180	Not in
17080	47.64	V	--	--	Avg	1.05	180	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880	50.96	H	74	-23.04	Peak	1.25	135	
4880	30.96	H	54	-23.04	Avg	1.25	135	
7320	67.32	H	74	-6.68	Peak	1.35	155	
7320	47.32	H	54	-6.68	Avg	1.35	155	
9760	61.05	H	--	--	Peak	1.25	135	Not in
9760	41.05	H	--	--	Avg	1.25	135	Restricted Band
12200	70.73	H	74	-3.27	Peak	1.25	135	
12200	50.73	H	54	-3.27	Avg	1.25	135	
14640	72.37	H	--	--	Peak	1.25	135	Not in
14640	52.37	H	--	--	Avg	1.25	135	Restricted Band
17080	62.44	H	--	--	Peak	1.25	135	Not in
17080	42.44	H	--	--	Avg	1.25	135	Restricted Band
19520								**No Emission**
19520								**Detected**
21960								**No Emission**
21960								**Detected**
24400								**No Emission**
24400								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	46.75	V	74	-27.25	Peak	1.25	135	
4952	26.75	V	54	-27.25	Avg	1.25	135	
7428	57.11	V	74	-16.89	Peak	1.25	135	
7428	37.11	V	54	-16.89	Avg	1.25	135	
9904	58.03	V	--	--	Peak	1.25	135	Not in
9904	38.03	V	--	--	Avg	1.25	135	Restricted Band
12380	53.67	V	74	-20.33	Peak	1.25	135	
12380	33.67	V	54	-20.33	Avg	1.25	135	
14856	59.23	V	--	--	Peak	1.25	155	Not in
14856	39.23	V	--	--	Avg	1.25	155	Restricted Band
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	43.12	H	74	-30.88	Peak	1.25	125	
4952	23.12	H	54	-30.88	Avg	1.25	125	
7428	55.53	H	74	-18.47	Peak	1	90	
7428	35.53	H	54	-18.47	Avg	1	90	
9904	55.51	H	--	--	Peak	1.25	135	Not in
9904	35.51	H	--	--	Avg	1.25	135	Restricted Band
12380	54.95	H	74	-19.05	Peak	1.35	155	
12380	34.95	H	54	-19.05	Avg	1.35	155	
14856	54.55	H	--	--	Peak	1.58	155	Not in
14856	34.55	H	--	--	Avg	1.58	155	Restricted Band
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	48.11	V	74	-25.89	Peak	1.25	135	
4952	28.11	V	54	-25.89	Avg	1.25	135	
7428	56.71	V	74	-17.29	Peak	1.25	135	
7428	36.71	V	54	-17.29	Avg	1.25	135	
9904	55.41	V	--	--	Peak	1.25	135	Not in
9904	35.41	V	--	--	Avg	1.25	135	Restricted Band
12380	54.31	V	74	-19.69	Peak	1.25	135	
12380	34.31	V	54	-19.69	Avg	1.25	135	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	50.52	H	74	-23.48	Peak	1.25	135	
4952	30.52	H	54	-23.48	Avg	1.25	135	
7428	61.16	H	74	-12.84	Peak	1.25	135	
7428	41.16	H	54	-12.84	Avg	1.25	135	
9904	61.66	H	--	--	Peak	1.25	135	Not in
9904	41.66	H	--	--	Avg	1.25	135	Restricted Band
12380	55.3	H	74	-18.7	Peak	1.25	135	
12380	35.3	H	54	-18.7	Avg	1.25	135	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	50.74	V	74	-23.26	Peak	1.25	135	
4952	30.74	V	54	-23.26	Avg	1.25	135	
7428	61.71	V	74	-12.29	Peak	1.35	155	
7428	41.71	V	54	-12.29	Avg	1.35	155	
9904	59.22	V	--	--	Peak	1.25	135	Not in
9904	39.22	V	--	--	Avg	1.25	135	Restricted Band
12380	54.34	V	74	-19.66	Peak	1.45	225	
12380	34.34	V	54	-19.66	Avg	1.45	225	
14856	60.17	V	74	-13.83	Peak	1.45	225	**No Emission**
14856	40.1	V	54	-13.9	Avg	1.45	225	**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4952	51.59	H	74	-22.41	Peak	1.25	135	
4952	31.59	H	54	-22.41	Avg	1.25	135	
7428	59.93	H	74	-14.07	Peak	1.25	155	
7428	39.93	H	54	-14.07	Avg	1.25	155	
9904	57.73	H	--	--	Peak	1.25	155	Not in
9904	37.73	H	--	--	Avg	1.25	155	Restricted Band
12380	57.57	H	74	-16.43	Peak	1.25	135	
12380	37.57	H	54	-16.43	Avg	1.25	135	
14856								**No Emission**
14856								**Detected**
17332								**No Emission**
17332								**Detected**
19808								**No Emission**
19808								**Detected**
22284								**No Emission**
22284								**Detected**
24760								**No Emission**
24760								**Detected**

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Middle Channel
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receive Mode
								from 10 kHz to 25000 MHz
								for both Vertical and Horizontal
								Polarizations
								Investigated in the
								X, Y, and Z-Axis

FCC 15.247

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

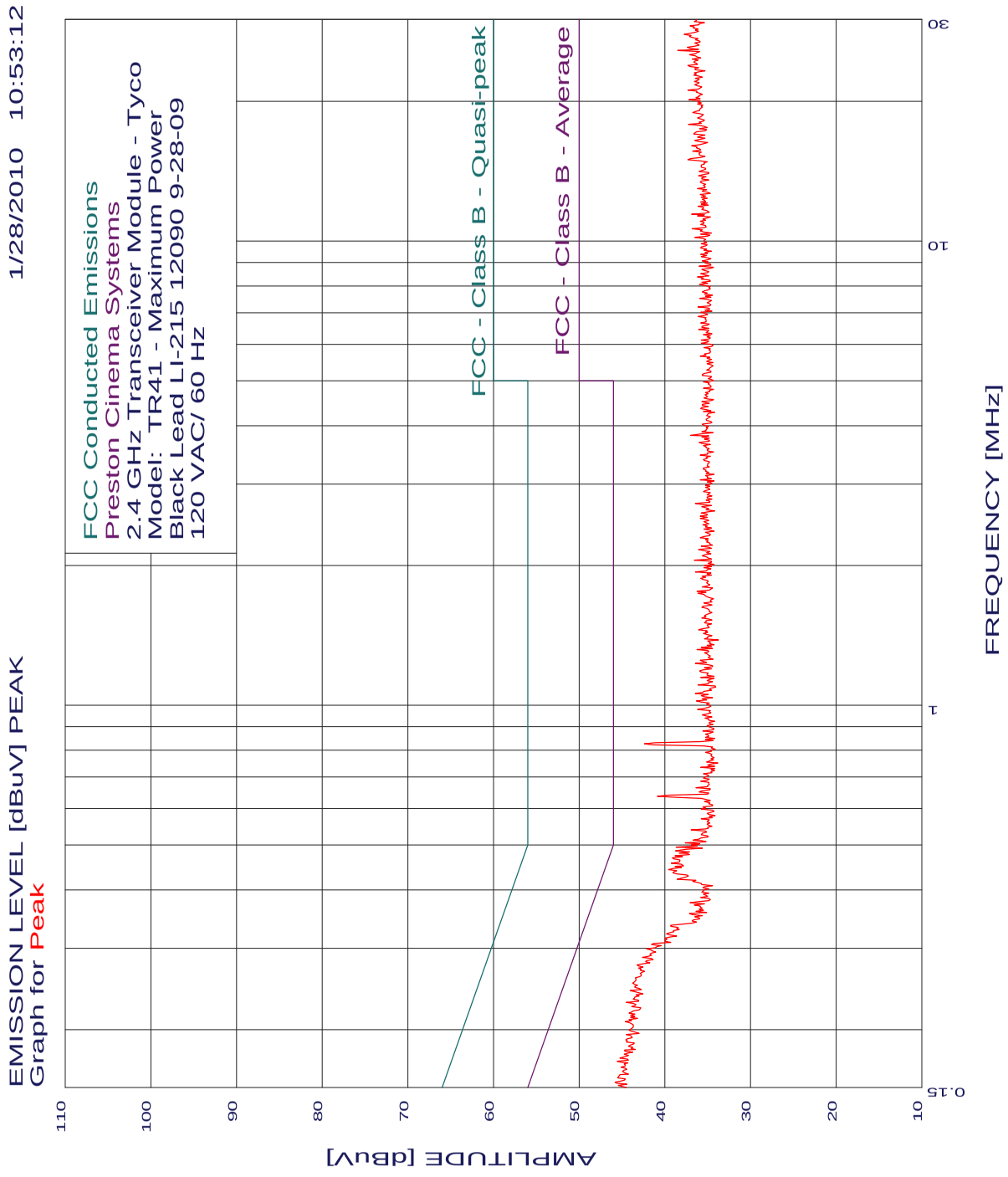
Non Harmonic Emissions from the Tx and Digital Portion 1 GHz to 25 GHz
Tyco Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Digital Portion
								from 1 GHz to 25 GHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 1 GHz to 25 GHz
								for both Vertical and Horizontal
								Polarizations
								Investigated in the
								X, Y, and Z-Axis

Test Location : Compatible Electronics Page : 1/1
Customer : Preston Cinema Systems Date : 1/28/2010
Manufacturer : Preston Cinema Systems Time : 13:51:47
Eut name : 2.4 GHz Transceiver Module Lab : A
Model : TR41 Test Distance : 3 Meters
Serial # : N/A
Specification : FCC B
Distance correction factor (20 * log(test/spec) : 0.00

Test Type: Radiated Emissions Qualification
Test Range: 10 kHz to 1 GHz (Vertical and Horizontal)
EUT Mode: Transmit/Receive - Tyco Antenna
Test Engineer: James Ross

Pol	Freq	Rdng	Cable loss	Ant factor	Amp gain	Cor'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV	dBuV/m	dB
V	240.089	41.80	3.58	11.97	32.80	24.56	46.00	-21.44
V	287.559	44.10	3.95	13.06	32.75	28.36	46.00	-17.64
V	312.087	41.70	4.15	13.69	32.67	26.87	46.00	-19.13
V	336.087	38.30	4.44	14.23	32.63	24.34	46.00	-21.66
V	360.072	37.00	4.64	14.73	32.68	23.69	46.00	-22.31
V	231.764	42.40	3.48	11.52	32.80	24.60	46.00	-21.40
V	264.090	43.20	3.82	12.62	32.80	26.83	46.00	-19.17
H	231.994	48.70	3.49	11.53	32.80	30.92	46.00	-15.08
H	263.602	44.80	3.81	12.61	32.80	28.42	46.00	-17.58
H	287.568	45.00	3.95	13.06	32.75	29.26	46.00	-16.74
H	335.592	40.90	4.44	14.22	32.63	26.93	46.00	-19.07

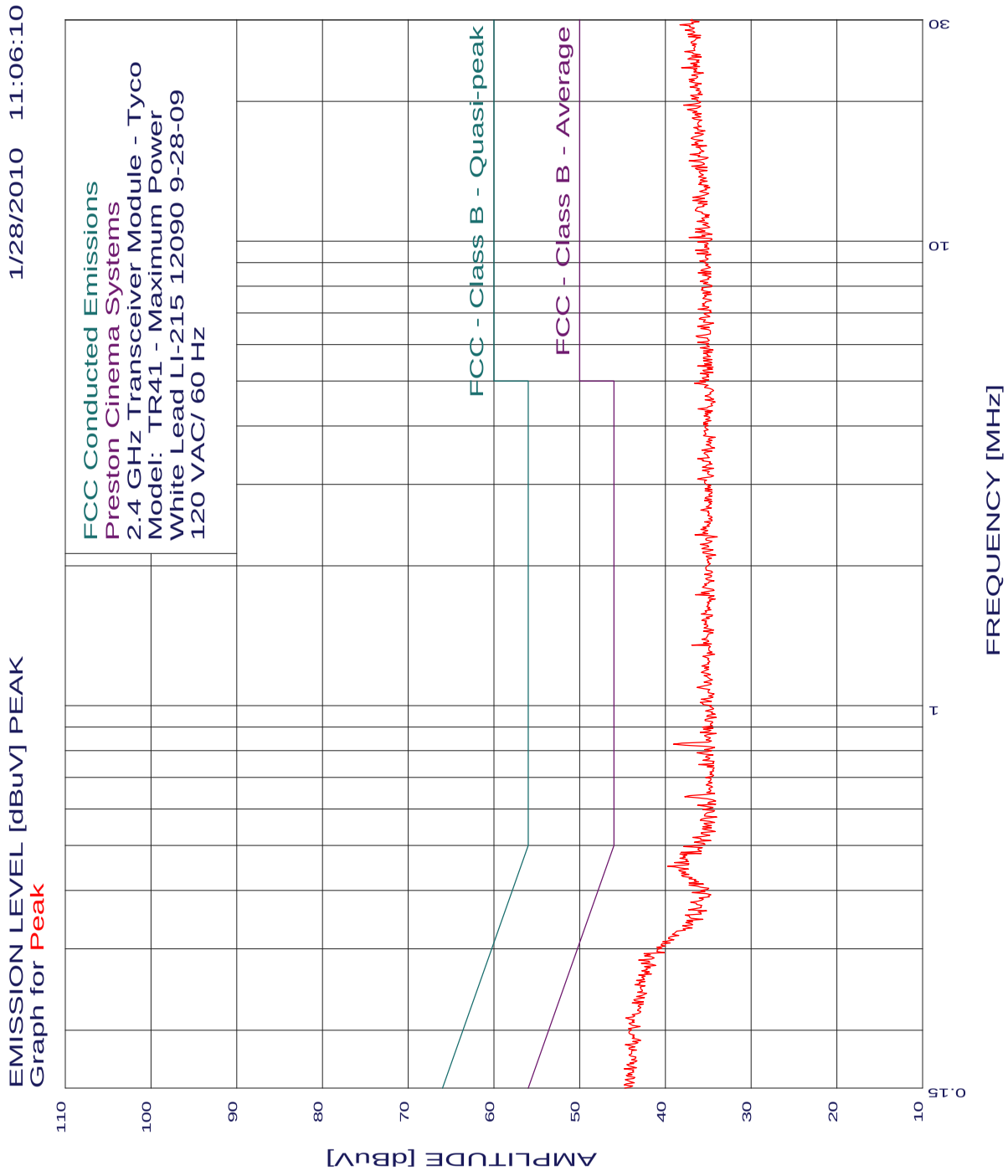

1/28/2010 10:53:12
FCC Conducted Emissions
Preston Cinema Systems
2.4 GHz Transceiver Module - Tyco
Model: TR41 - Maximum Power
Black Lead LI-215 12090 9-28-09
120 VAC/ 60 Hz
FCC - Class B - Quasi-peak
FCC - Class B - Average
EMISSION LEVEL [dBuV] PEAK
Graph for Peak
AMPLITUDE [dBuV]
FREQUENCY [MHz]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30

Preston Cinema Systems
2.4 GHz Transceiver Module - Tyco Antenna
Model: TR41 - Maximum Power (Worst Case)
Black Lead - 120 VAC/ 60 Hz
Test Engineer: James Ross

---

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	0.826	42.32	46.00	-3.68
2	0.637	40.84	46.00	-5.16
3	0.494	38.68	46.09	-7.41
4	0.442	39.52	47.02	-7.50
5	0.486	38.69	46.23	-7.54
6	0.457	39.21	46.76	-7.55
7	0.243	44.04	52.00	-7.95
8	0.286	42.62	50.63	-8.01
9	0.229	44.45	52.48	-8.02
10	0.481	38.29	46.32	-8.03
11	0.299	42.11	50.28	-8.17
12	0.505	37.58	46.00	-8.42
13	0.305	41.50	50.10	-8.60
14	0.208	44.57	53.27	-8.70
15	0.421	38.53	47.42	-8.89
16	3.820	36.96	46.00	-9.04
17	0.538	36.90	46.00	-9.10
18	0.513	36.68	46.00	-9.32
19	0.171	45.51	54.90	-9.39
20	0.190	44.55	54.01	-9.46
21	2.055	36.52	46.00	-9.48
22	0.174	45.22	54.77	-9.55
23	2.722	36.44	46.00	-9.56
24	1.230	36.42	46.00	-9.58
25	1.939	36.41	46.00	-9.59
26	1.060	36.40	46.00	-9.60
27	0.665	36.35	46.00	-9.65
28	1.021	36.29	46.00	-9.71
29	1.318	36.23	46.00	-9.77
30	1.763	36.19	46.00	-9.81
31	0.979	36.18	46.00	-9.82
32	0.322	39.79	49.66	-9.87
33	1.106	36.10	46.00	-9.90
34	1.456	36.05	46.00	-9.95
35	2.168	36.02	46.00	-9.98
36	0.154	45.78	55.78	-9.99
37	3.683	35.96	46.00	-10.04
38	0.651	35.94	46.00	-10.06
39	1.184	35.91	46.00	-10.09
40	3.456	35.86	46.00	-10.14
41	3.059	35.84	46.00	-10.16
42	2.554	35.83	46.00	-10.17
43	2.298	35.83	46.00	-10.17
44	1.148	35.81	46.00	-10.19
45	1.879	35.80	46.00	-10.20
46	0.735	35.78	46.00	-10.22
47	4.361	35.78	46.00	-10.22
48	0.686	35.76	46.00	-10.24
49	1.331	35.73	46.00	-10.27

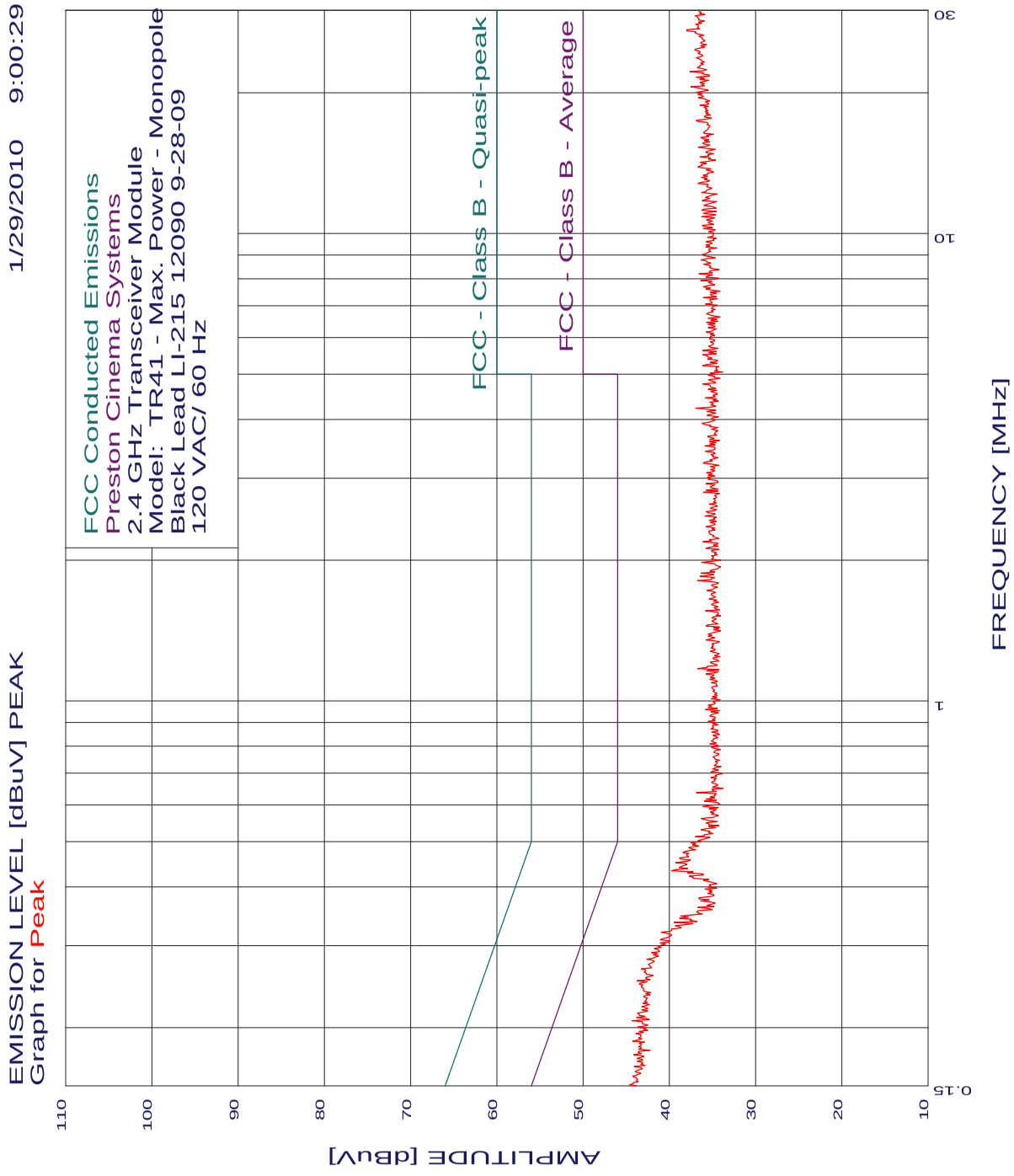

1/28/2010 11:06:10
FCC Conducted Emissions
Preston Cinema Systems
2.4 GHz Transceiver Module - Tyco
Model: TR41 - Maximum Power
White Lead LI-215 12090 9-28-09
120 VAC/ 60 Hz
FCC - Class B - Quasi-peak
FCC - Class B - Average
EMISSION LEVEL [dBuV] PEAK
Graph for Peak
AMPLITUDE [dBuV]
FREQUENCY [MHz]
110
100
90
80
70
60
50
40
30
20
10
30
10
1
0.15

Preston Cinema System
2.4 GHz Transceiver Module - Tyco Antenna
Model: TR41 - Maximum Power - Worst Case
White Lead - 120 VAC/ 60 Hz
Test Engineer: James Ross

---

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	0.826	39.01	46.00	-6.99
2	0.452	39.70	46.85	-7.15
3	0.283	43.11	50.72	-7.61
4	0.459	38.89	46.71	-7.82
5	0.293	42.50	50.45	-7.95
6	0.279	42.81	50.85	-8.04
7	0.484	38.18	46.27	-8.10
8	0.497	37.87	46.05	-8.18
9	0.251	43.53	51.73	-8.20
10	0.637	37.73	46.00	-8.27
11	0.269	42.72	51.15	-8.44
12	0.213	44.62	53.09	-8.48
13	0.442	38.40	47.02	-8.61
14	0.229	43.84	52.48	-8.64
15	0.233	43.64	52.34	-8.70
16	1.352	36.92	46.00	-9.08
17	0.521	36.78	46.00	-9.22
18	0.202	44.30	53.53	-9.23
19	4.954	36.58	46.00	-9.42
20	0.508	36.57	46.00	-9.43
21	2.334	36.51	46.00	-9.49
22	1.735	36.47	46.00	-9.53
23	0.186	44.65	54.19	-9.55
24	1.094	36.29	46.00	-9.71
25	0.792	36.29	46.00	-9.71
26	3.401	36.24	46.00	-9.76
27	3.075	36.23	46.00	-9.77
28	0.611	36.21	46.00	-9.79
29	4.361	36.16	46.00	-9.84
30	0.747	36.07	46.00	-9.93
31	0.876	35.93	46.00	-10.07
32	2.226	35.91	46.00	-10.09
33	0.567	35.90	46.00	-10.10
34	1.016	35.88	46.00	-10.12
35	2.637	35.82	46.00	-10.18
36	1.178	35.80	46.00	-10.20
37	1.032	35.78	46.00	-10.22
38	0.532	35.78	46.00	-10.22
39	1.577	35.75	46.00	-10.25
40	1.528	35.75	46.00	-10.25
41	3.547	35.74	46.00	-10.26
42	1.389	35.73	46.00	-10.27
43	0.544	35.69	46.00	-10.31
44	1.800	35.68	46.00	-10.32
45	0.415	37.22	47.55	-10.33
46	0.899	35.64	46.00	-10.36
47	3.260	35.64	46.00	-10.36
48	3.209	35.63	46.00	-10.37
49	0.598	35.61	46.00	-10.39

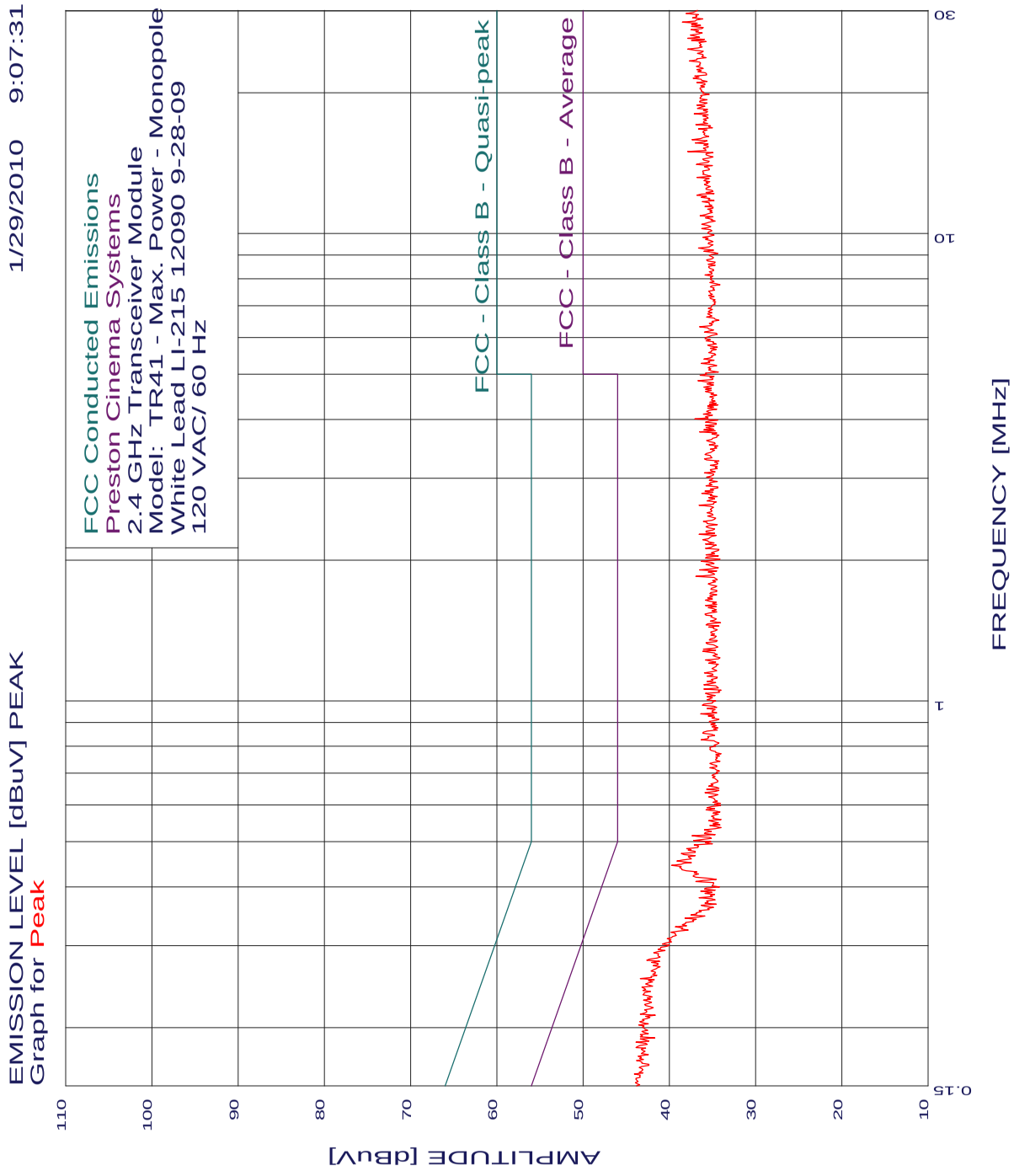

1/29/2010 9:00:29
FCC Conducted Emissions
Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41 - Max. Power - Monopole
Black Lead LI-215 12090 9-28-09
120 VAC/ 60 Hz
FCC - Class B - Quasi-peak
FCC - Class B - Average
EMISSION LEVEL [dBuV] PEAK
Graph for Peak
AMPLITUDE [dBuV]
FREQUENCY [MHz]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41 - Maximum Power - Monopole - Worst Case
Black Lead - 120 VAC/ 60 Hz
Test Engineer: James Ross

---

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	0.433	39.72	47.19	-7.47
2	0.452	39.21	46.85	-7.64
3	0.461	38.80	46.67	-7.86
4	0.252	43.74	51.68	-7.94
5	0.267	43.23	51.20	-7.97
6	0.320	40.89	49.71	-8.81
7	0.309	41.00	50.01	-9.01
8	0.513	36.98	46.00	-9.02
9	0.207	44.27	53.31	-9.05
10	4.227	36.88	46.00	-9.12
11	0.637	36.84	46.00	-9.16
12	1.172	36.71	46.00	-9.29
13	1.810	36.69	46.00	-9.31
14	0.211	43.76	53.18	-9.42
15	1.849	36.40	46.00	-9.60
16	0.561	36.30	46.00	-9.70
17	1.879	36.30	46.00	-9.70
18	0.530	36.29	46.00	-9.71
19	1.981	36.22	46.00	-9.78
20	0.421	37.63	47.42	-9.79
21	3.924	36.17	46.00	-9.83
22	2.190	36.12	46.00	-9.88
23	0.595	36.12	46.00	-9.88
24	0.187	44.25	54.15	-9.90
25	0.201	43.67	53.58	-9.91
26	4.774	36.09	46.00	-9.91
27	0.336	39.38	49.31	-9.92
28	3.226	36.05	46.00	-9.95
29	2.796	36.04	46.00	-9.96
30	0.611	35.93	46.00	-10.07
31	3.511	35.86	46.00	-10.14
32	2.488	35.83	46.00	-10.17
33	4.456	35.78	46.00	-10.22
34	0.958	35.77	46.00	-10.23
35	1.560	35.76	46.00	-10.24
36	3.419	35.75	46.00	-10.25
37	1.449	35.75	46.00	-10.25
38	2.916	35.74	46.00	-10.26
39	2.826	35.74	46.00	-10.26
40	1.352	35.74	46.00	-10.26
41	2.540	35.73	46.00	-10.27
42	0.618	35.73	46.00	-10.27
43	2.358	35.73	46.00	-10.27
44	2.123	35.72	46.00	-10.28
45	1.142	35.71	46.00	-10.29
46	0.550	35.70	46.00	-10.30
47	3.075	35.65	46.00	-10.35
48	0.343	38.78	49.13	-10.36
49	1.160	35.61	46.00	-10.39


1/29/2010 9:07:31
FCC Conducted Emissions
Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41 - Max. Power - Monopole
White Lead LI-215 12090 9-28-09
120 VAC/ 60 Hz
FCC - Class B - Quasi-peak
FCC - Class B - Average
EMISSION LEVEL [dBuV] PEAK
Graph for Peak
AMPLITUDE [dBuV]
FREQUENCY [MHz]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30

Preston Cinema Systems
2.4 GHz Transceiver Module
Model: TR41 - Maximum Power - Monopole - Worst Case
White Lead - 120 VAC/ 60 Hz
Test Engineer: James Ross

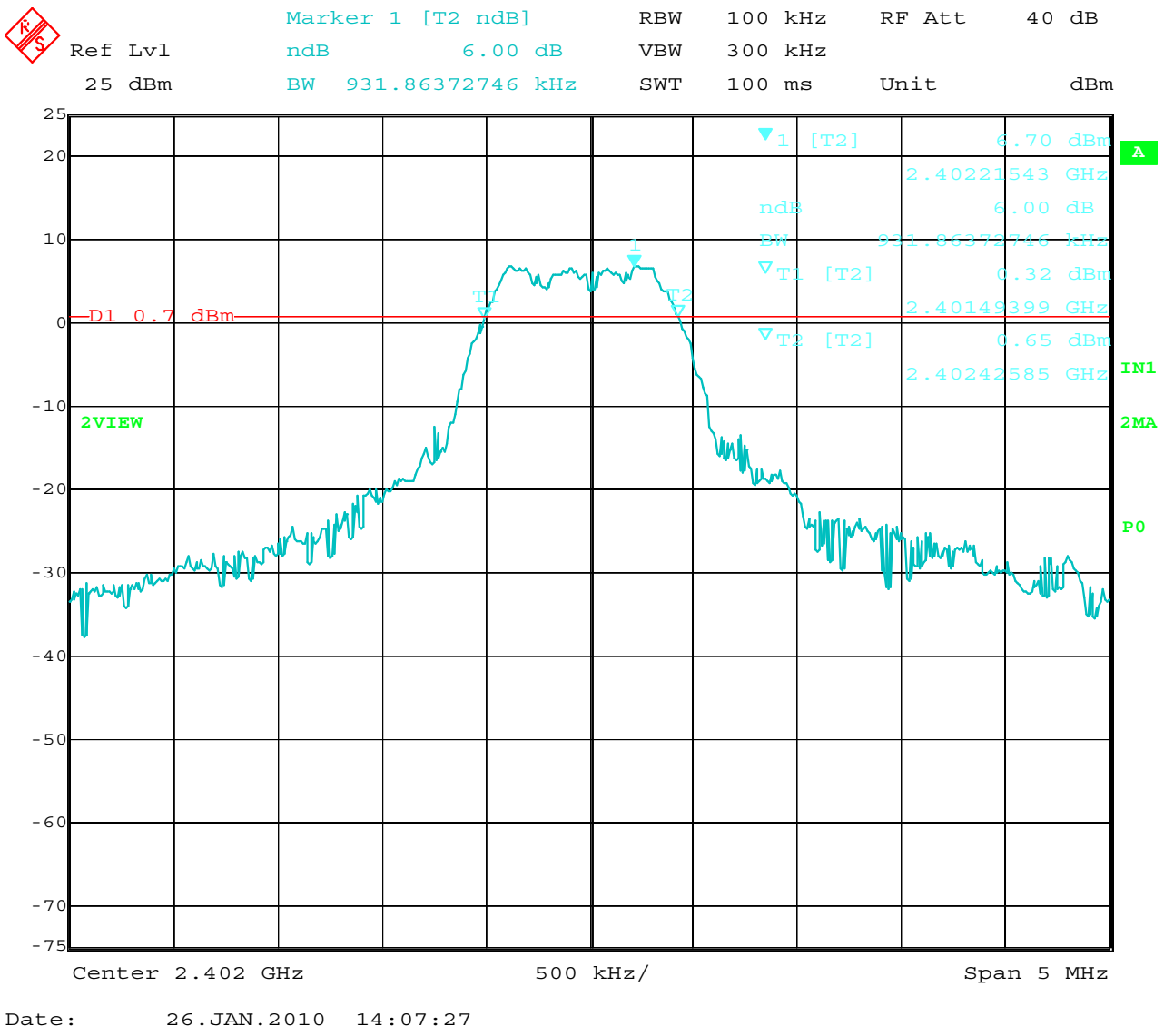
---

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

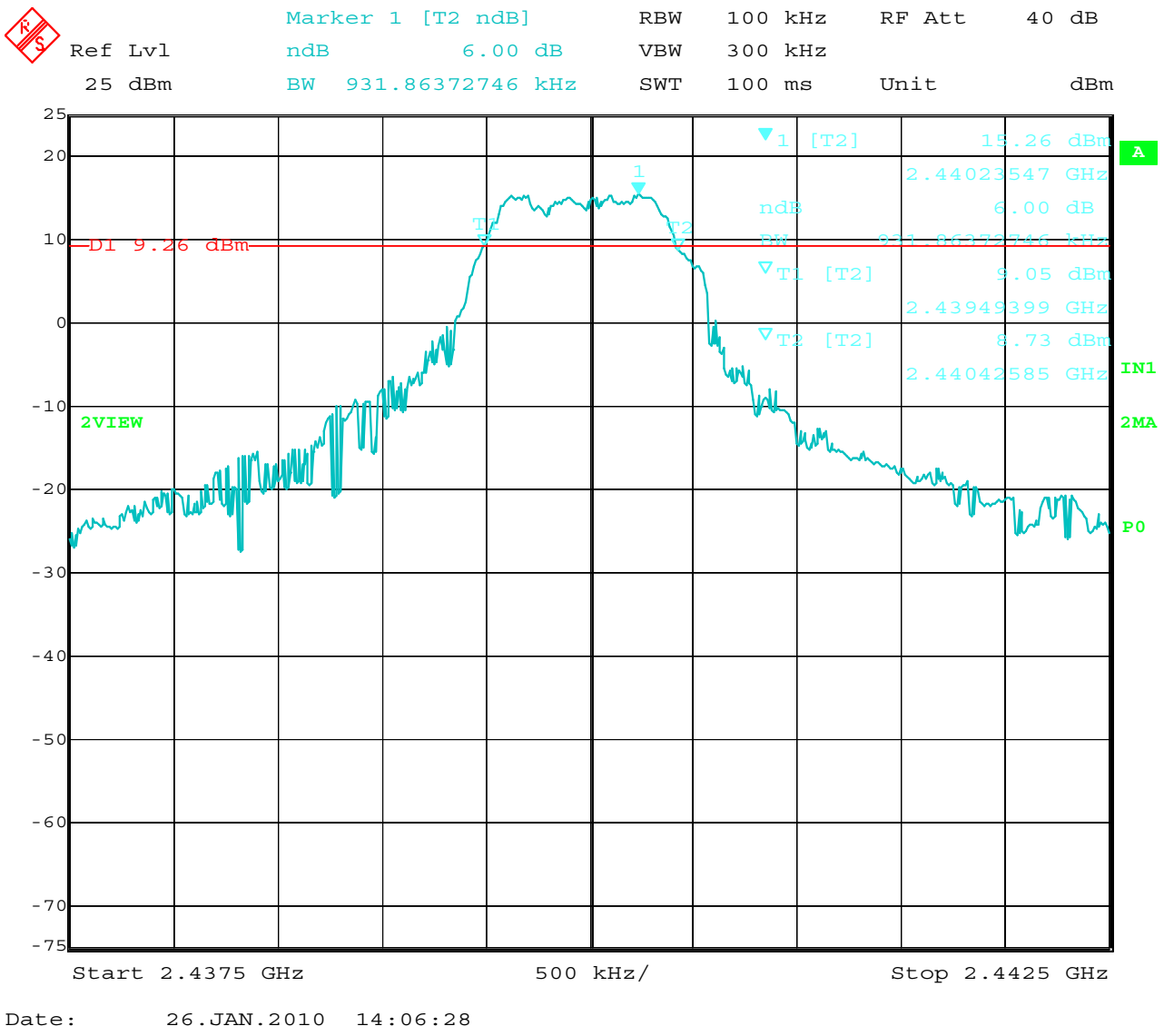
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.445	39.70	46.98	-7.27
2	0.454	39.10	46.80	-7.70
3	0.471	38.59	46.49	-7.90
4	0.279	42.61	50.85	-8.24
5	0.255	43.32	51.60	-8.27
6	0.516	37.37	46.00	-8.63
7	0.244	43.13	51.95	-8.82
8	0.502	37.17	46.00	-8.83
9	4.008	37.05	46.00	-8.95
10	1.849	36.89	46.00	-9.11
11	4.851	36.68	46.00	-9.32
12	2.624	36.52	46.00	-9.48
13	2.274	36.51	46.00	-9.49
14	1.908	36.49	46.00	-9.51
15	0.229	42.94	52.48	-9.54
16	3.761	36.45	46.00	-9.55
17	4.980	36.38	46.00	-9.62
18	0.939	36.35	46.00	-9.65
19	0.826	36.31	46.00	-9.69
20	1.992	36.30	46.00	-9.70
21	0.214	43.32	53.05	-9.73
22	2.781	36.22	46.00	-9.78
23	0.979	36.17	46.00	-9.83
24	0.853	36.12	46.00	-9.88
25	1.276	36.11	46.00	-9.89
26	2.214	36.11	46.00	-9.89
27	4.114	36.06	46.00	-9.94
28	0.206	43.41	53.35	-9.95
29	0.203	43.50	53.49	-9.98
30	1.290	36.02	46.00	-9.98
31	2.423	36.01	46.00	-9.99
32	1.083	35.99	46.00	-10.01
33	1.060	35.99	46.00	-10.01
34	4.696	35.97	46.00	-10.03
35	3.800	35.95	46.00	-10.05
36	3.294	35.94	46.00	-10.06
37	3.075	35.93	46.00	-10.07
38	1.148	35.90	46.00	-10.10
39	0.530	35.88	46.00	-10.12
40	1.536	35.85	46.00	-10.15
41	0.637	35.83	46.00	-10.17
42	2.123	35.81	46.00	-10.19
43	1.223	35.81	46.00	-10.19
44	2.023	35.80	46.00	-10.20
45	0.329	39.28	49.48	-10.21
46	1.038	35.78	46.00	-10.22
47	1.646	35.76	46.00	-10.24
48	1.603	35.75	46.00	-10.25
49	3.945	35.75	46.00	-10.25

-6 dB BANDWIDTH

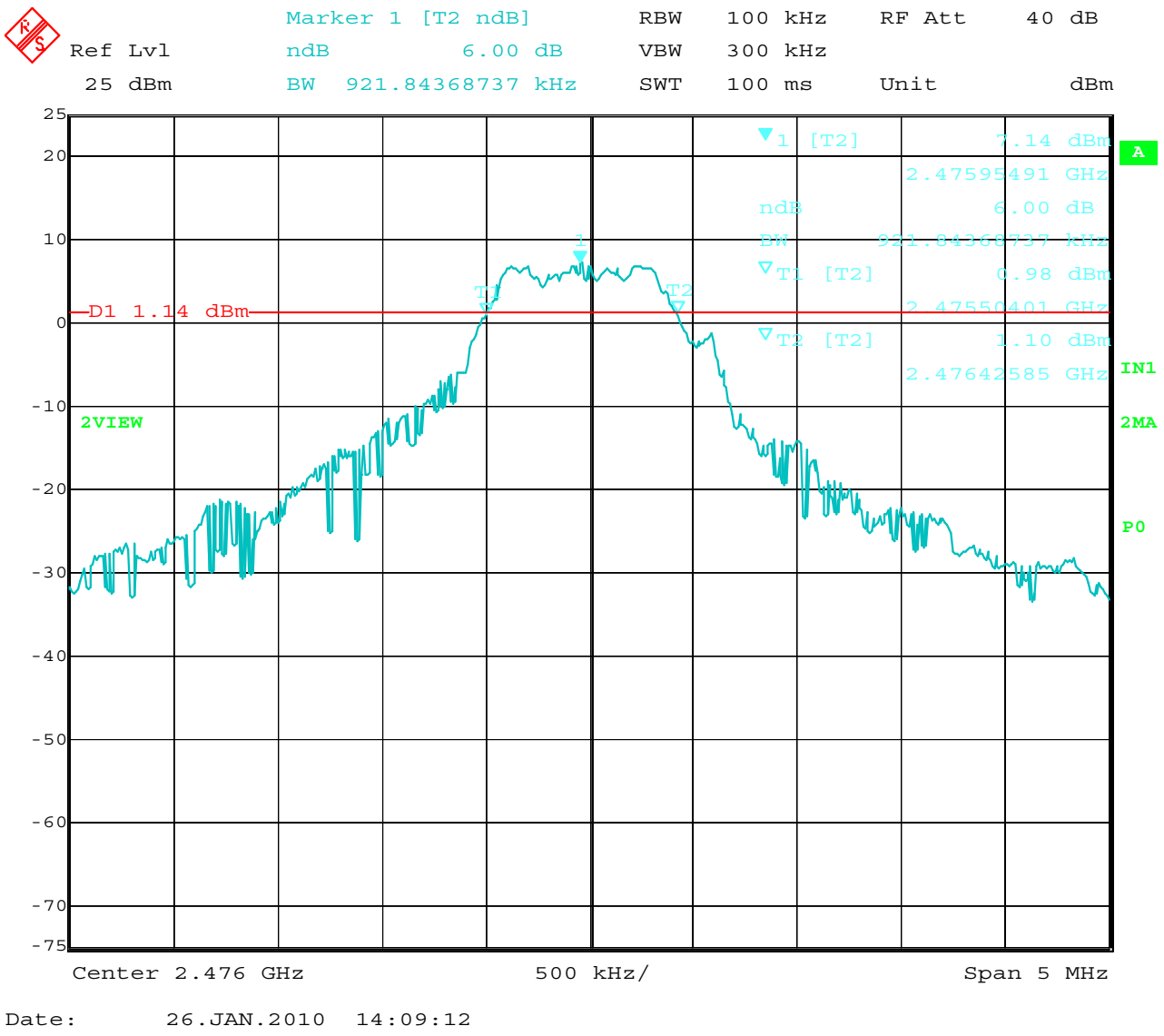
DATA SHEETS



6 dB Bandwidth of Fundamental – Low Channel



6 dB Bandwidth of Fundamental – Middle Channel



6 dB Bandwidth of Fundamental – High Channel

PEAK POWER OUTPUT

DATA SHEETS

PEAK OUTPUT POWER

Preston Cinema Systems

2.4 GHz Transceiver RF Module

Model: TR41

Test Date: January 26, 2010

TYCO ANTENNA PCB

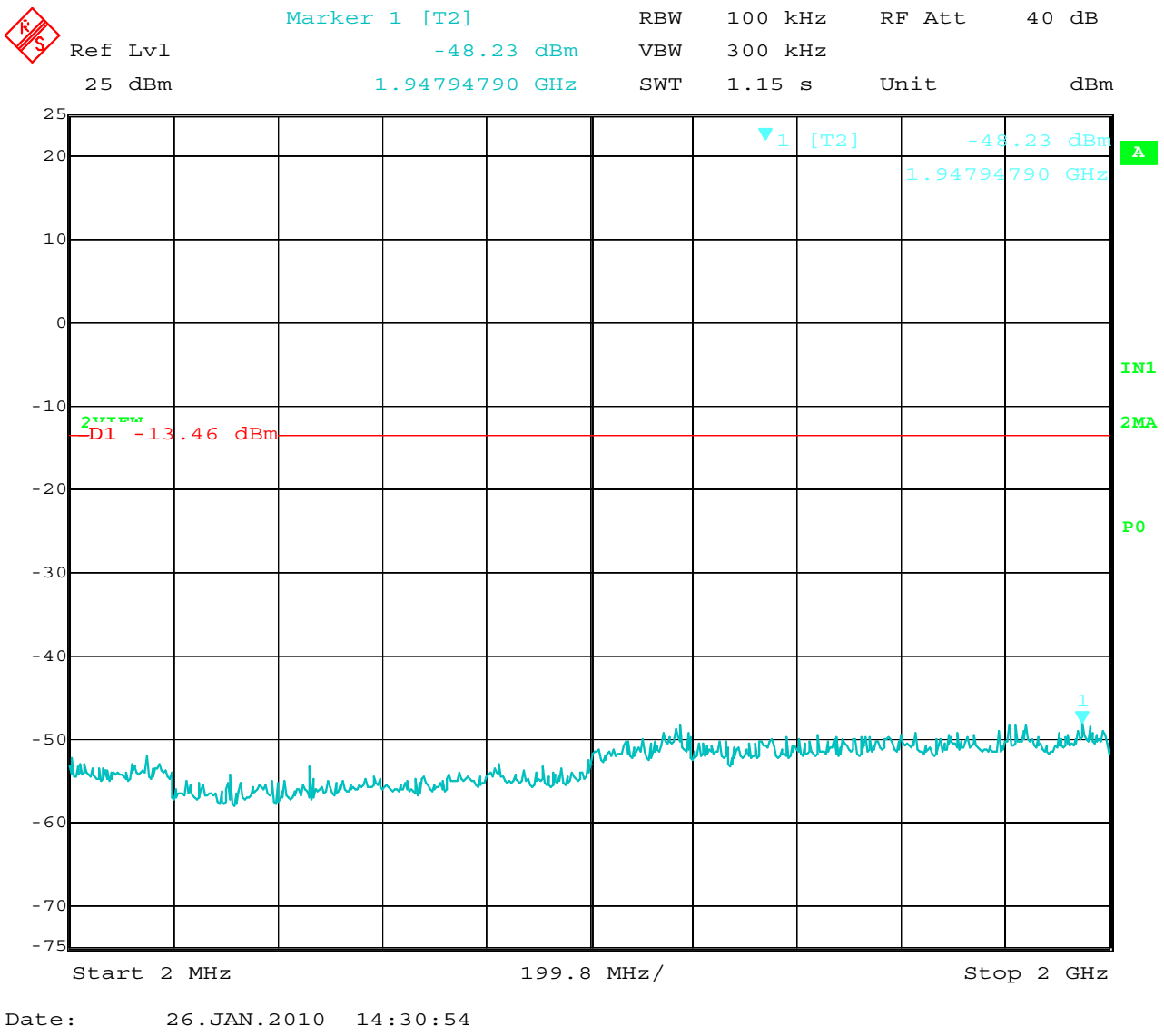
CHANNEL	FREQUENCY	100% PEAK POWER OUTPUT (dBm)
00	2402 MHz	11.69
14	2440 MHz	21.26
29	2476 MHz	11.80

MONOPOLE ANTENNA PCB

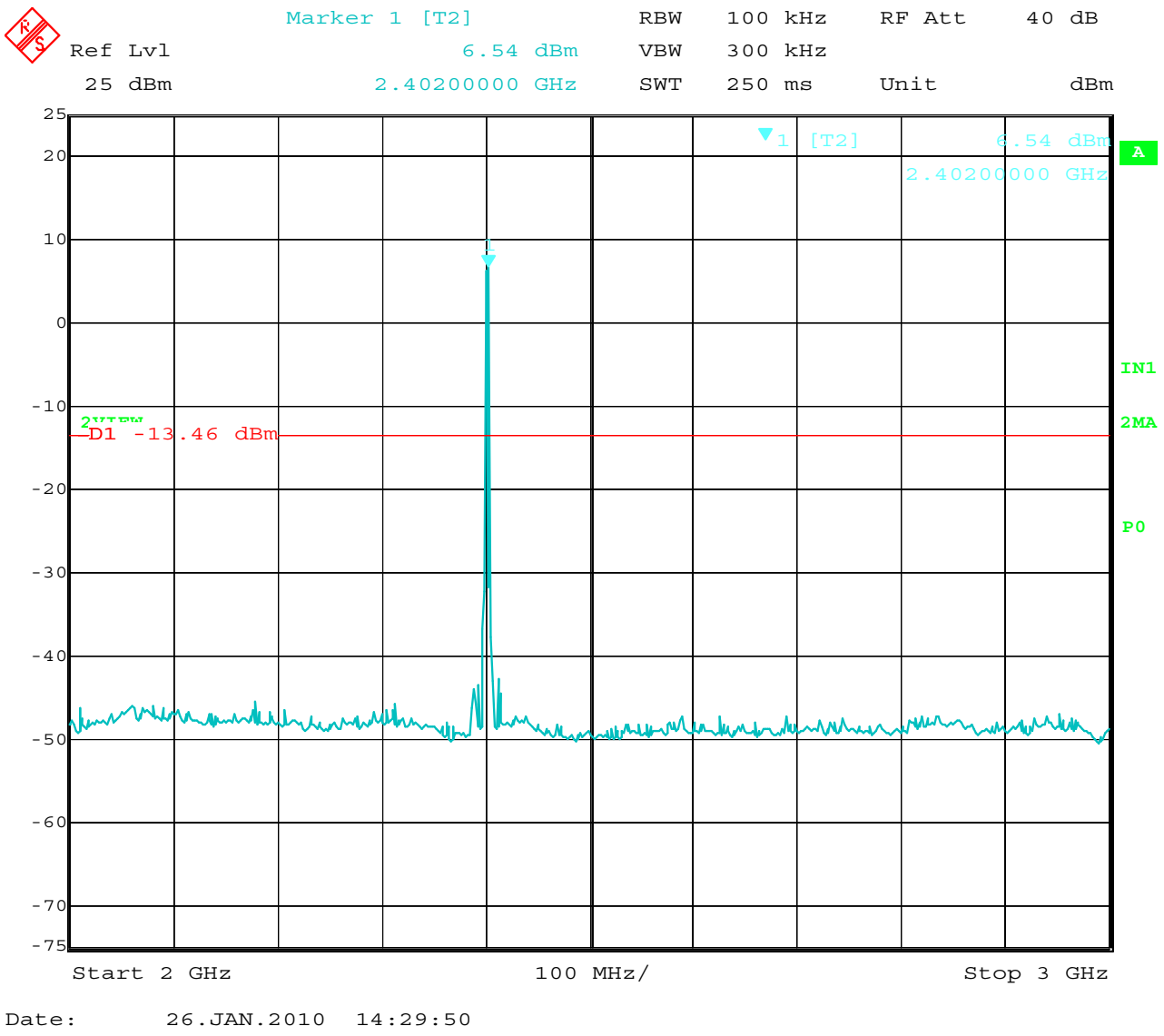
CHANNEL	FREQUENCY	100% PEAK POWER OUTPUT (dBm)
00	2402 MHz	11.48
14	2440 MHz	20.91
29	2476 MHz	10.68

RF CONDUCTED ANTENNA TEST

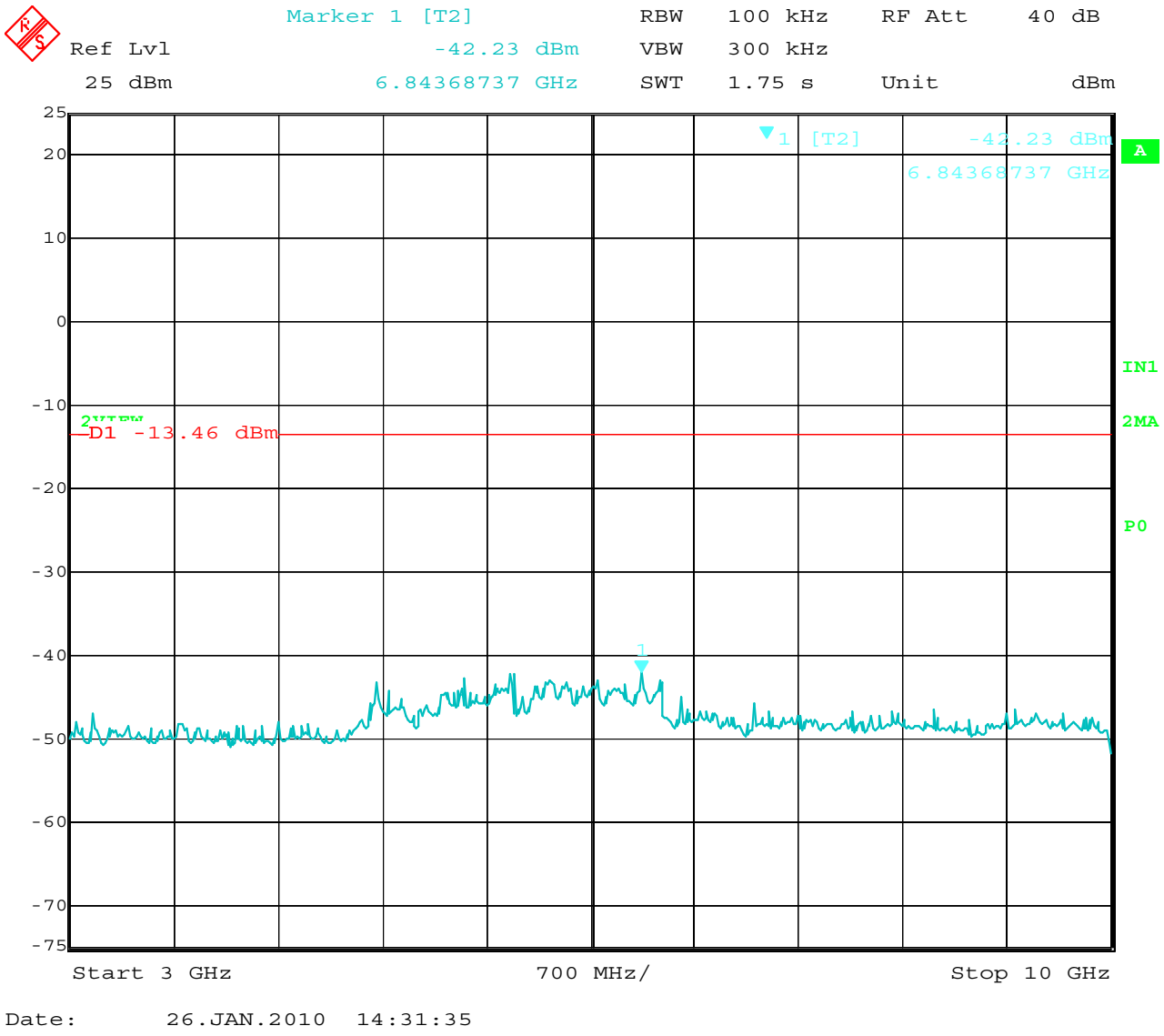
DATA SHEETS



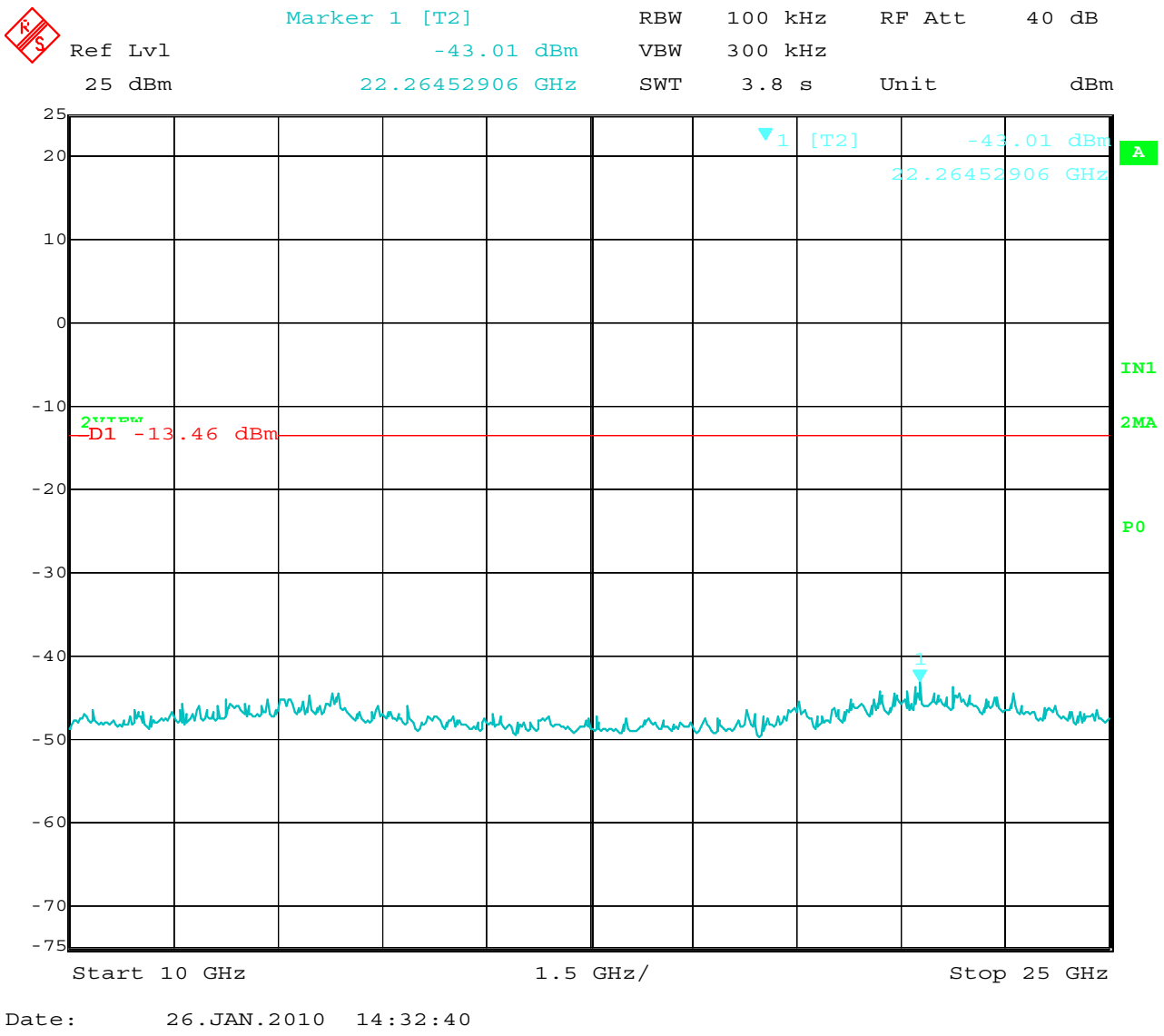
RF Antenna Conducted Test – Low Channel – 2 MHz to 2 GHz



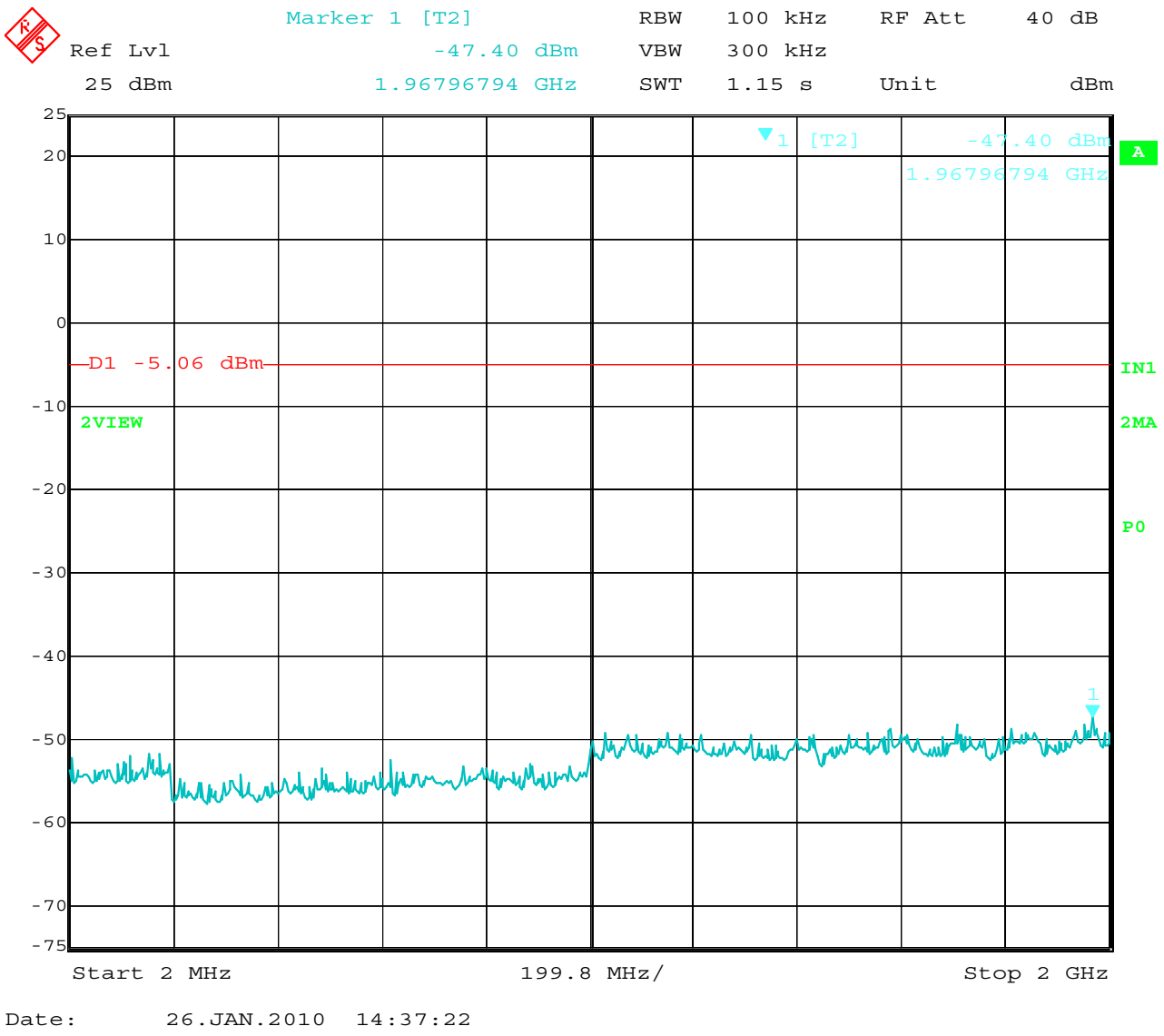
RF Antenna Conducted Test – Low Channel – 2 GHz to 3 GHz



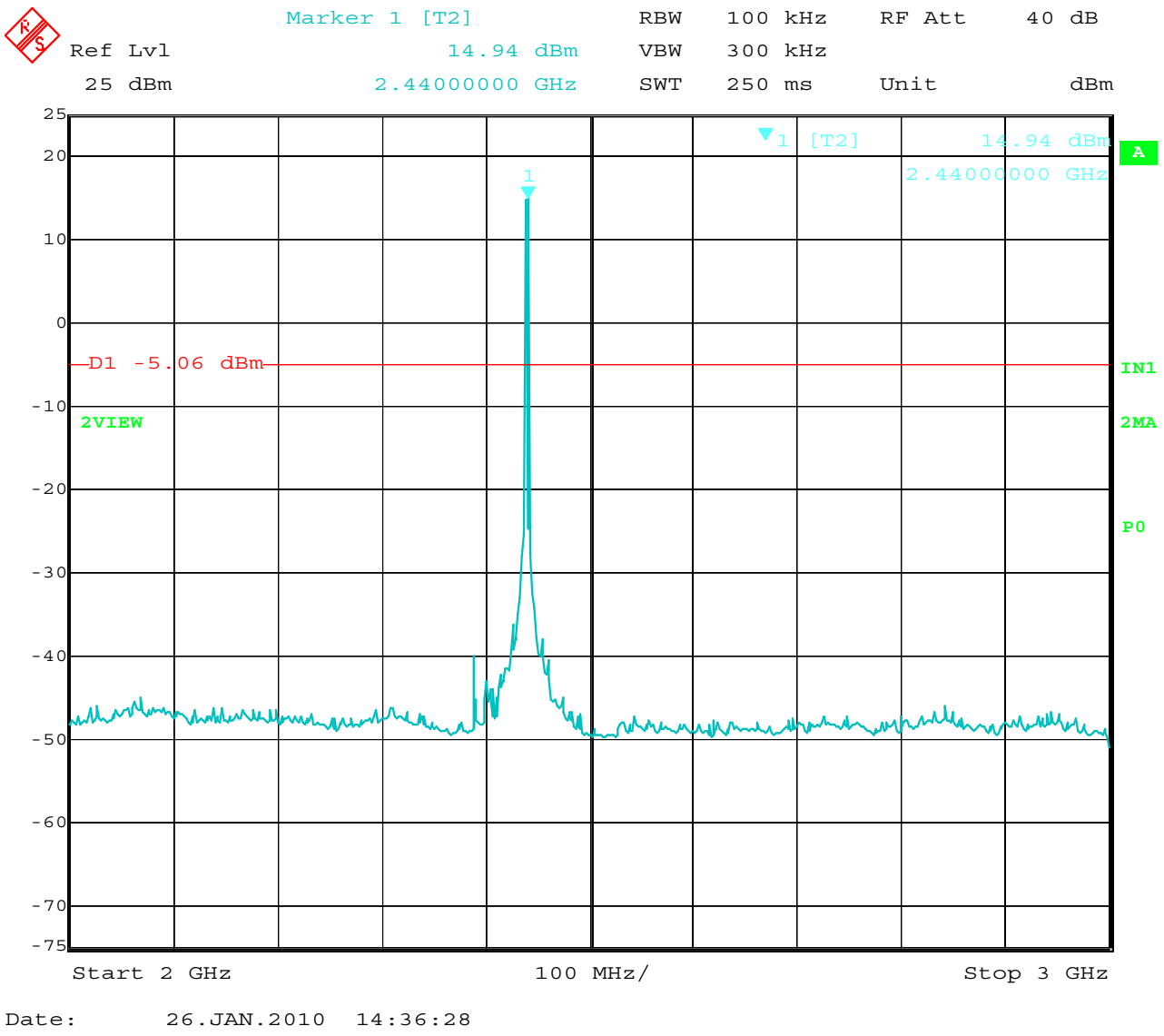
RF Antenna Conducted Test – Low Channel – 3 GHz to 10 GHz



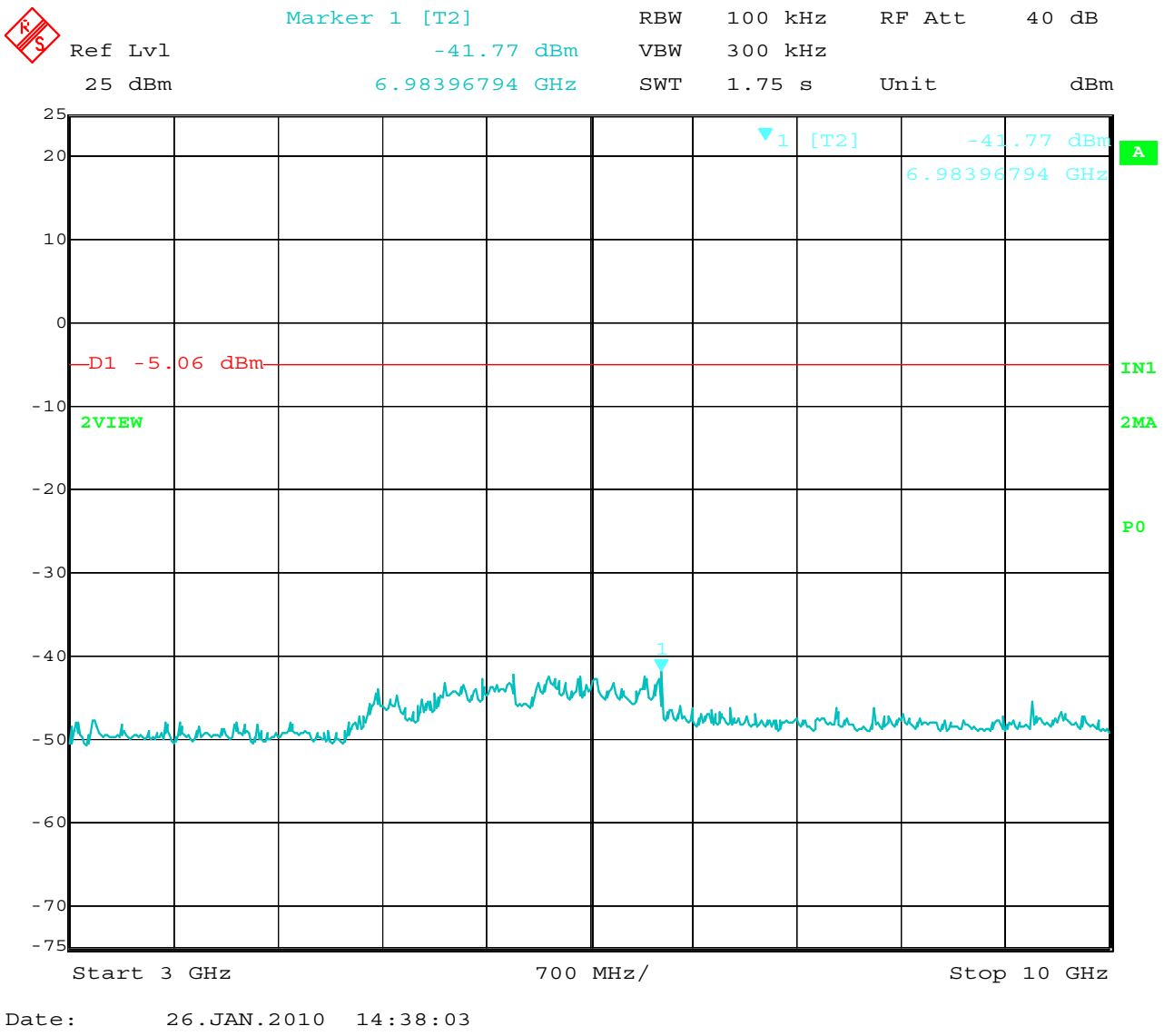
RF Antenna Conducted Test – Low Channel – 10 GHz to 25 GHz



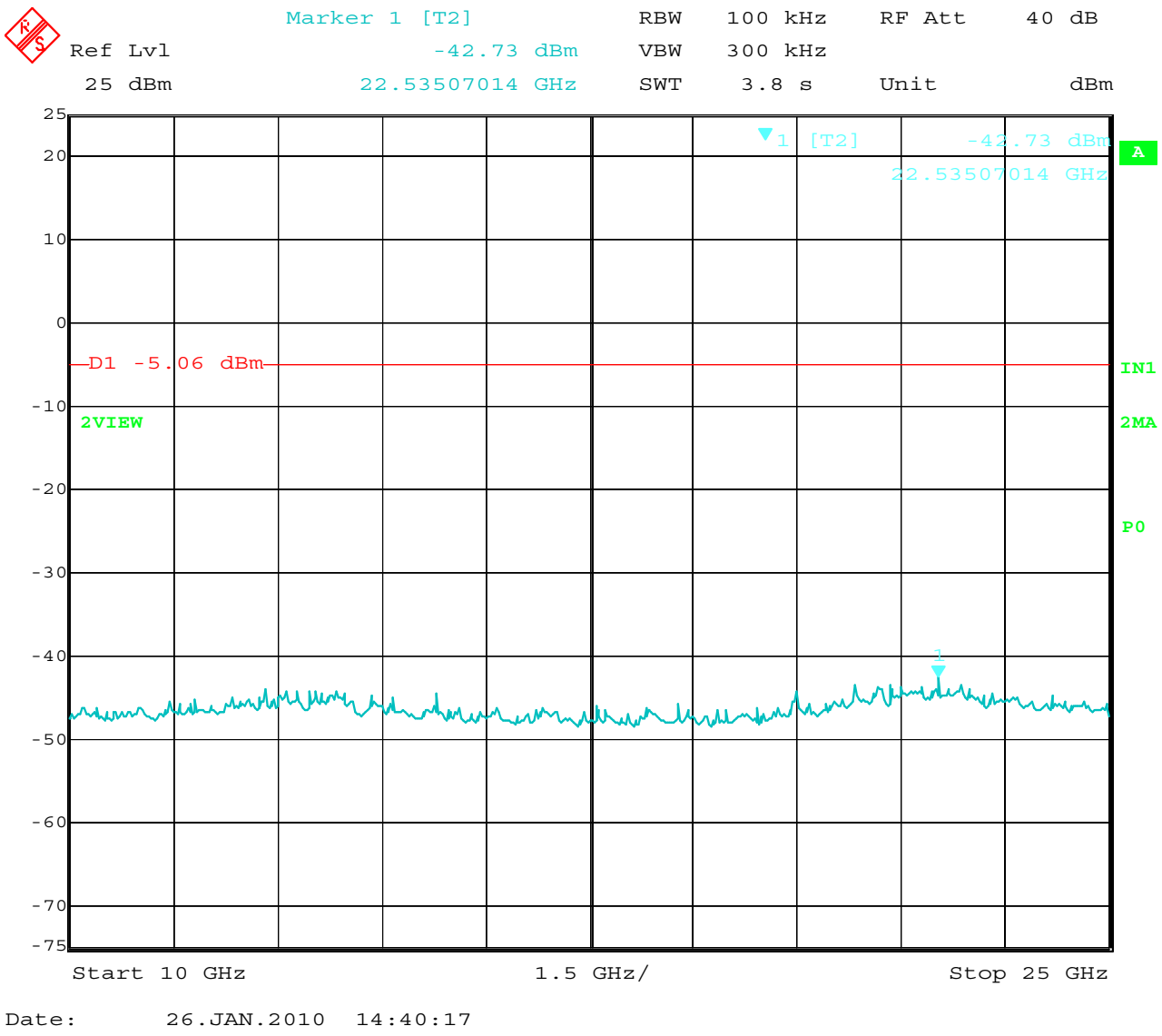
RF Antenna Conducted Test – Middle Channel – 2 MHz to 2 GHz



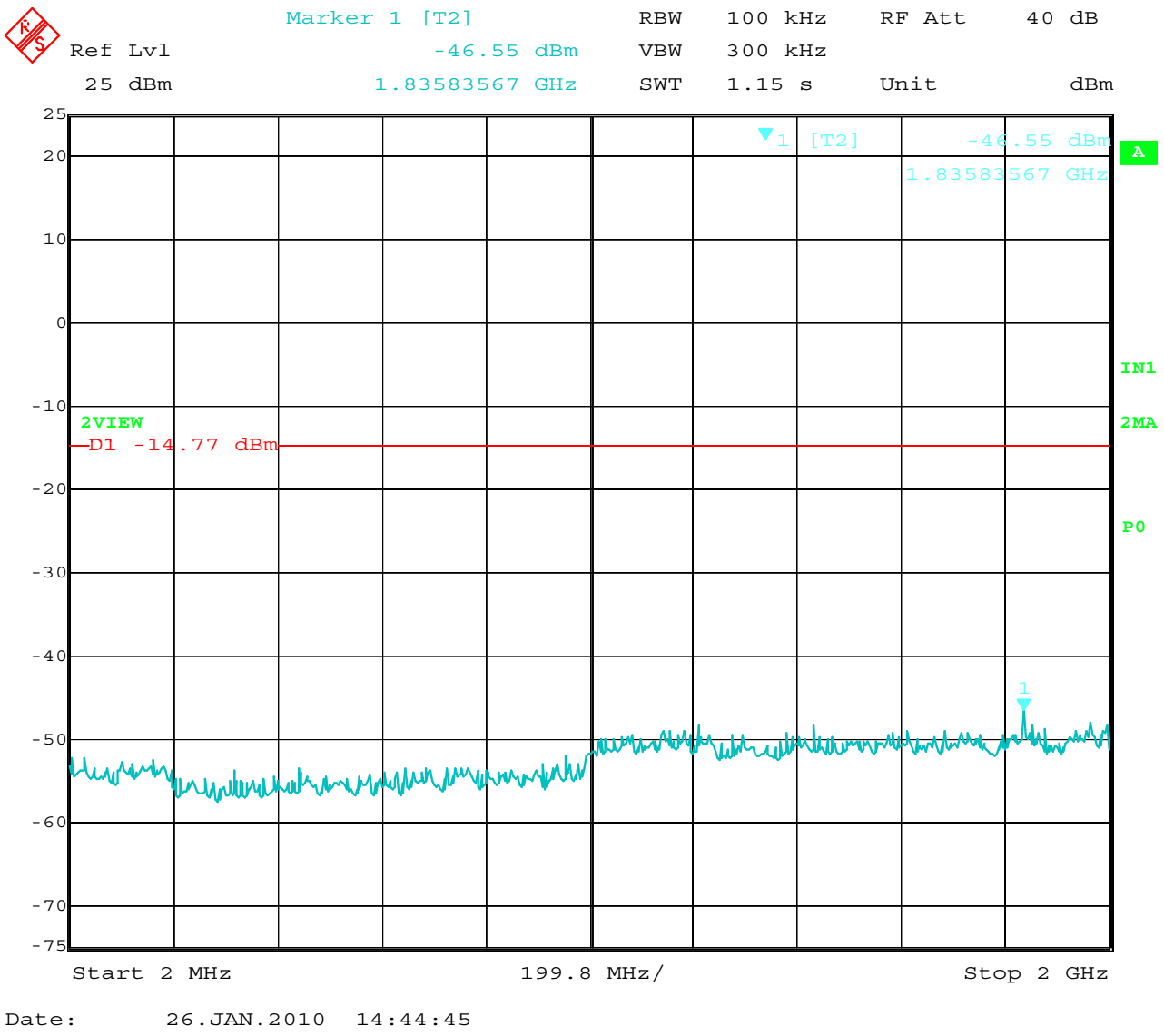
RF Antenna Conducted Test – Middle Channel – 2 GHz to 3 GHz



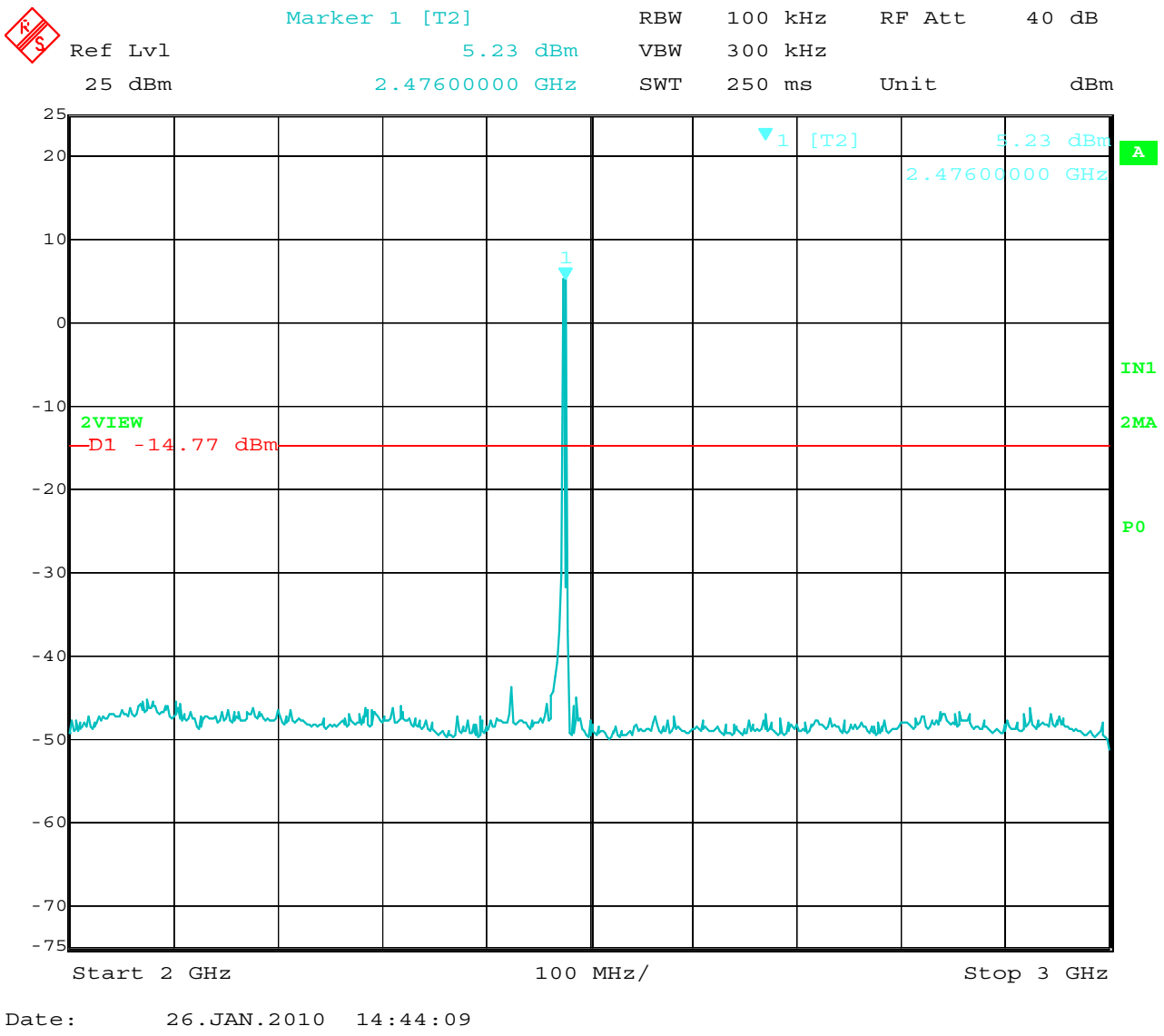
RF Antenna Conducted Test – Middle Channel – 3 GHz to 10 GHz



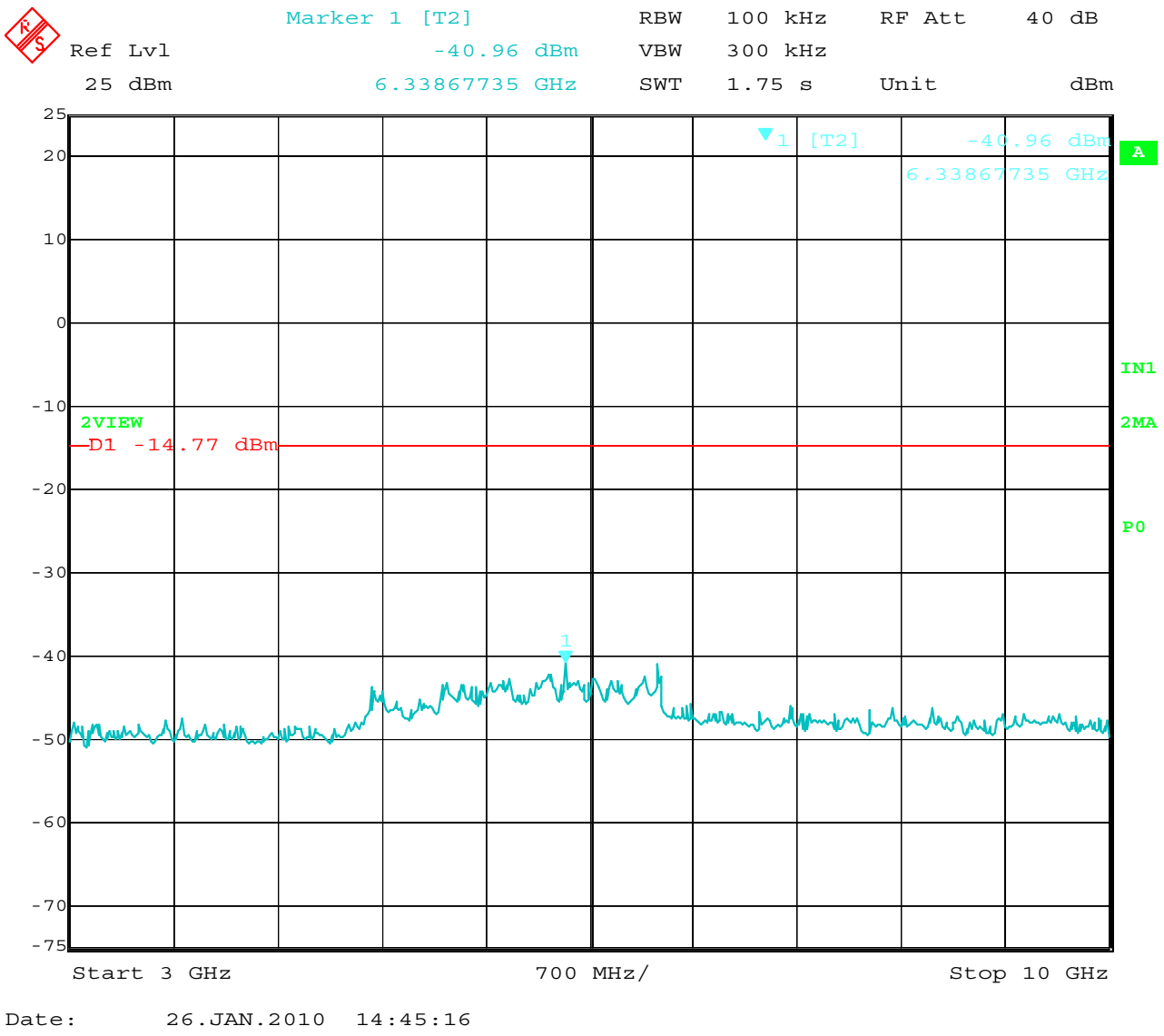
RF Antenna Conducted Test – Middle Channel – 10 GHz to 25 GHz



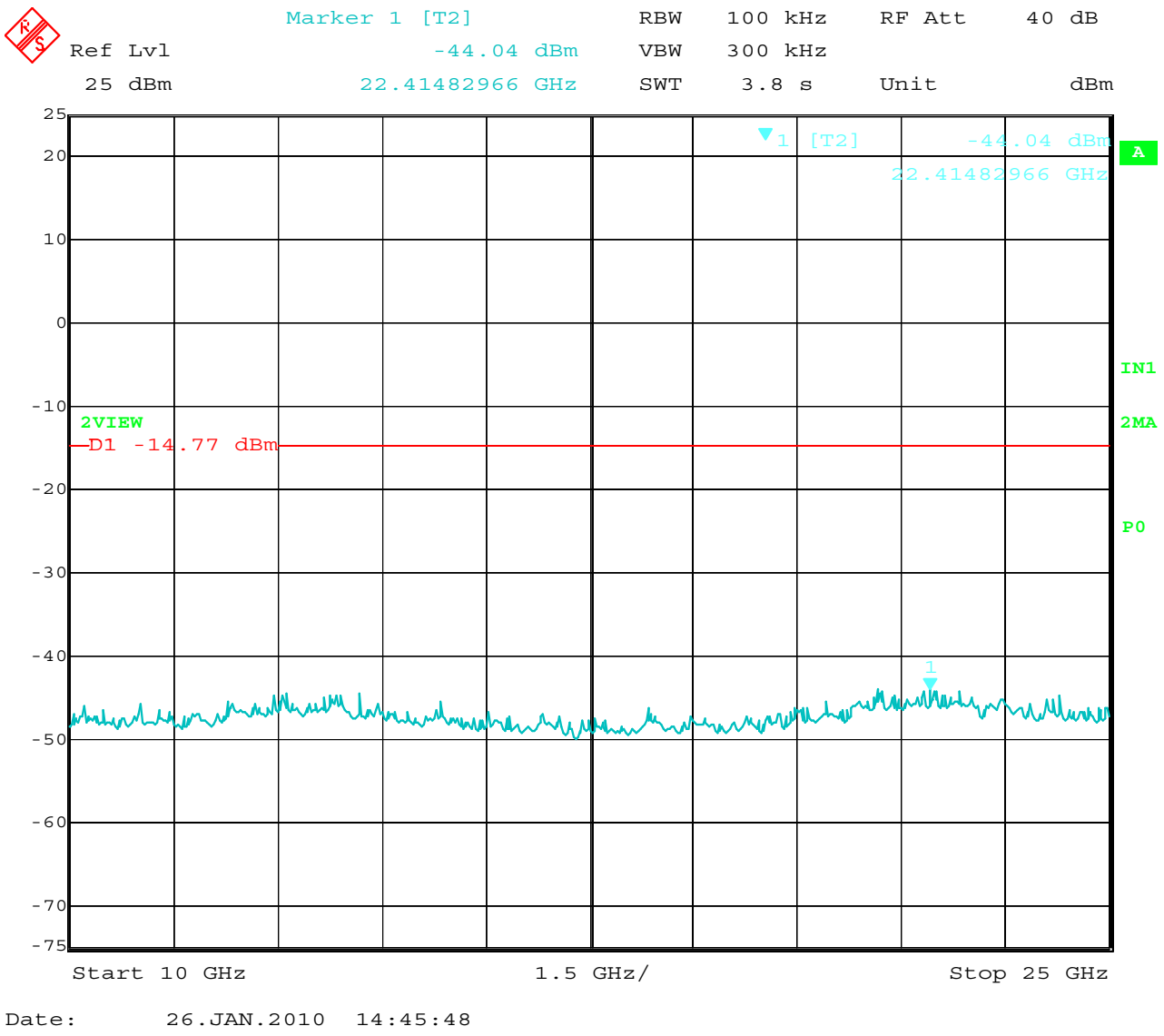
RF Antenna Conducted Test – High Channel – 2 MHz to 2 GHz



RF Antenna Conducted Test – High Channel – 2 GHz to 3 GHz



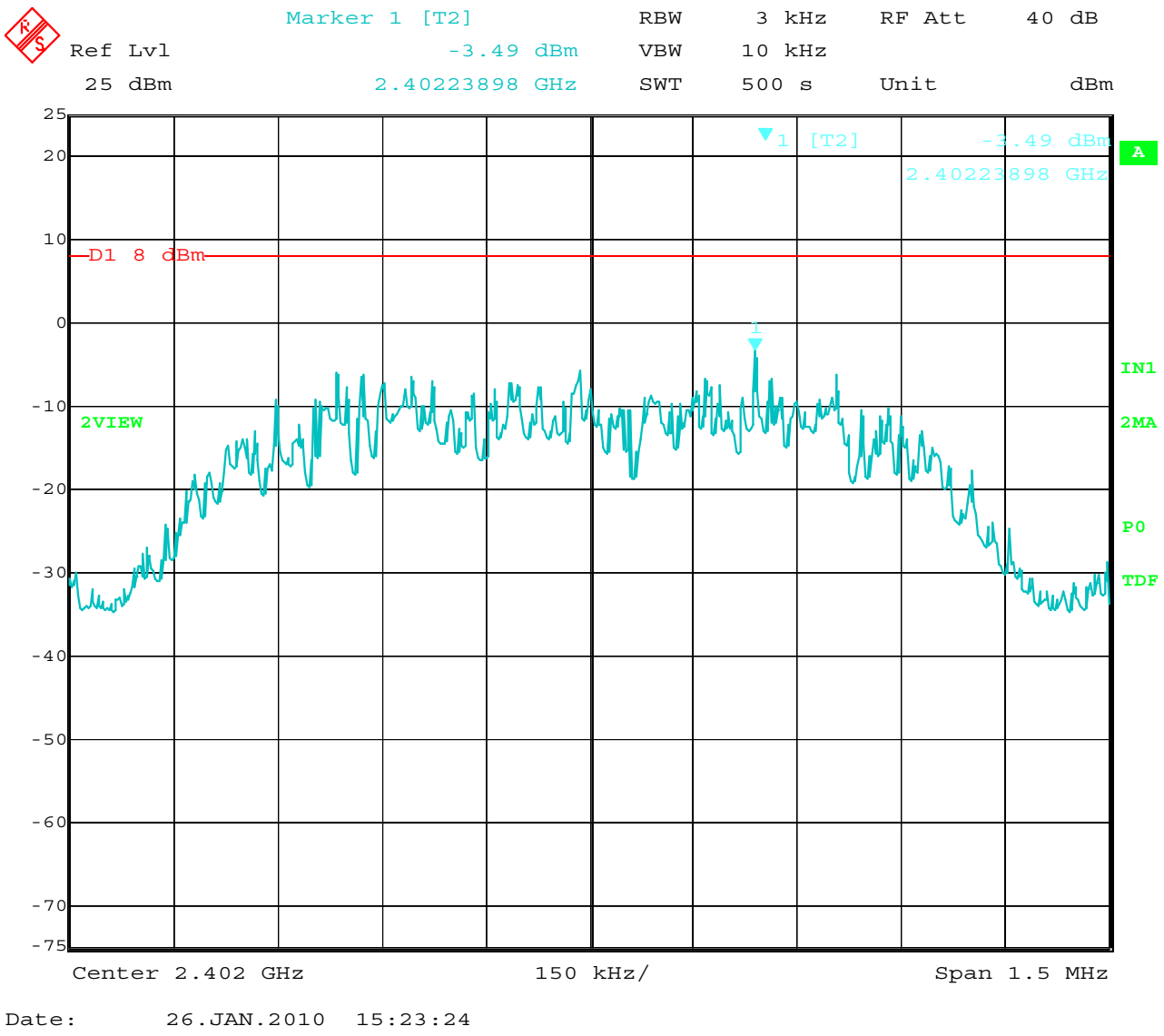
RF Antenna Conducted Test – High Channel – 3 GHz to 10 GHz



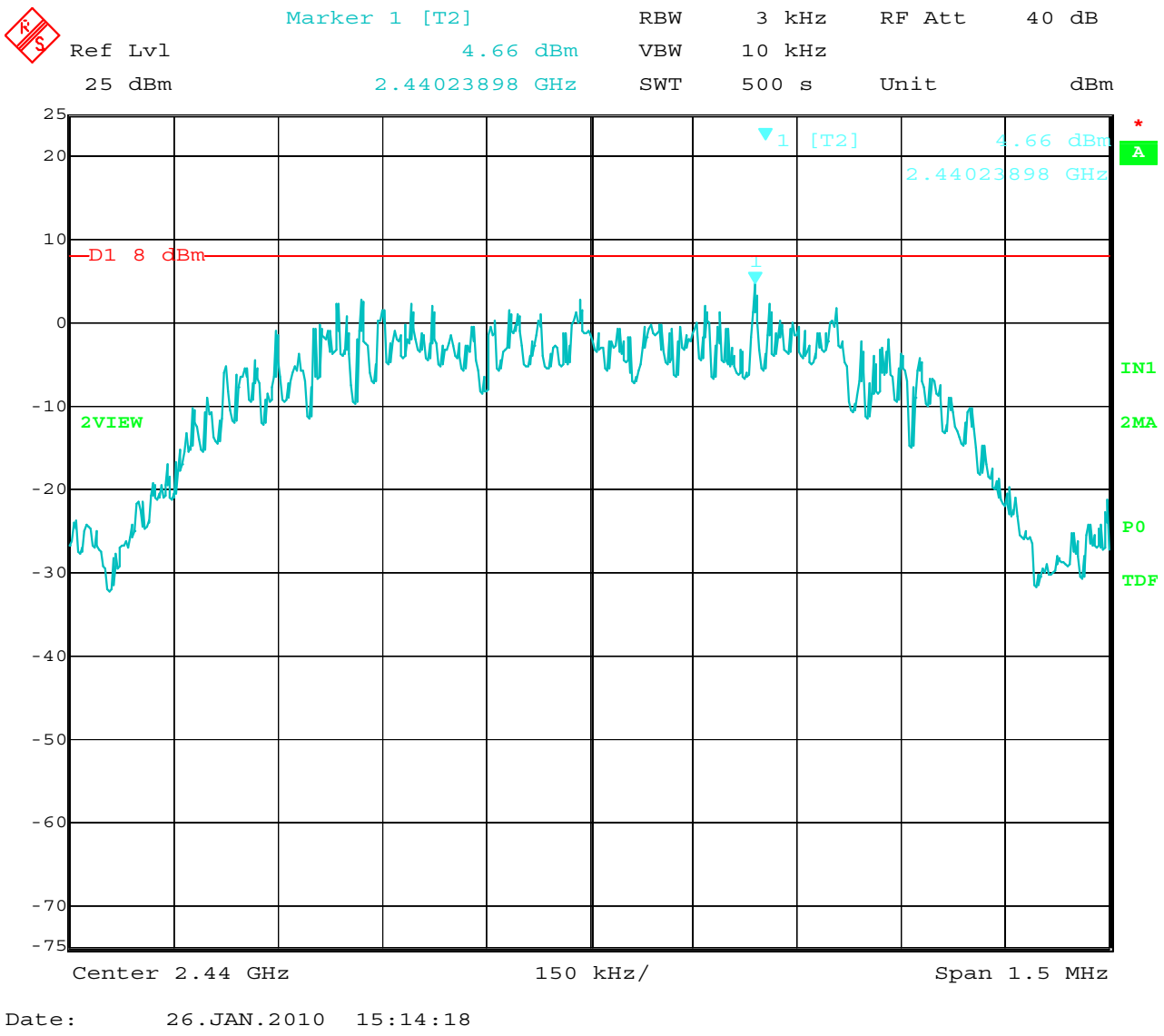
RF Antenna Conducted Test – High Channel – 10 GHz to 25 GHz

SPECTRAL DENSITY OUTPUT

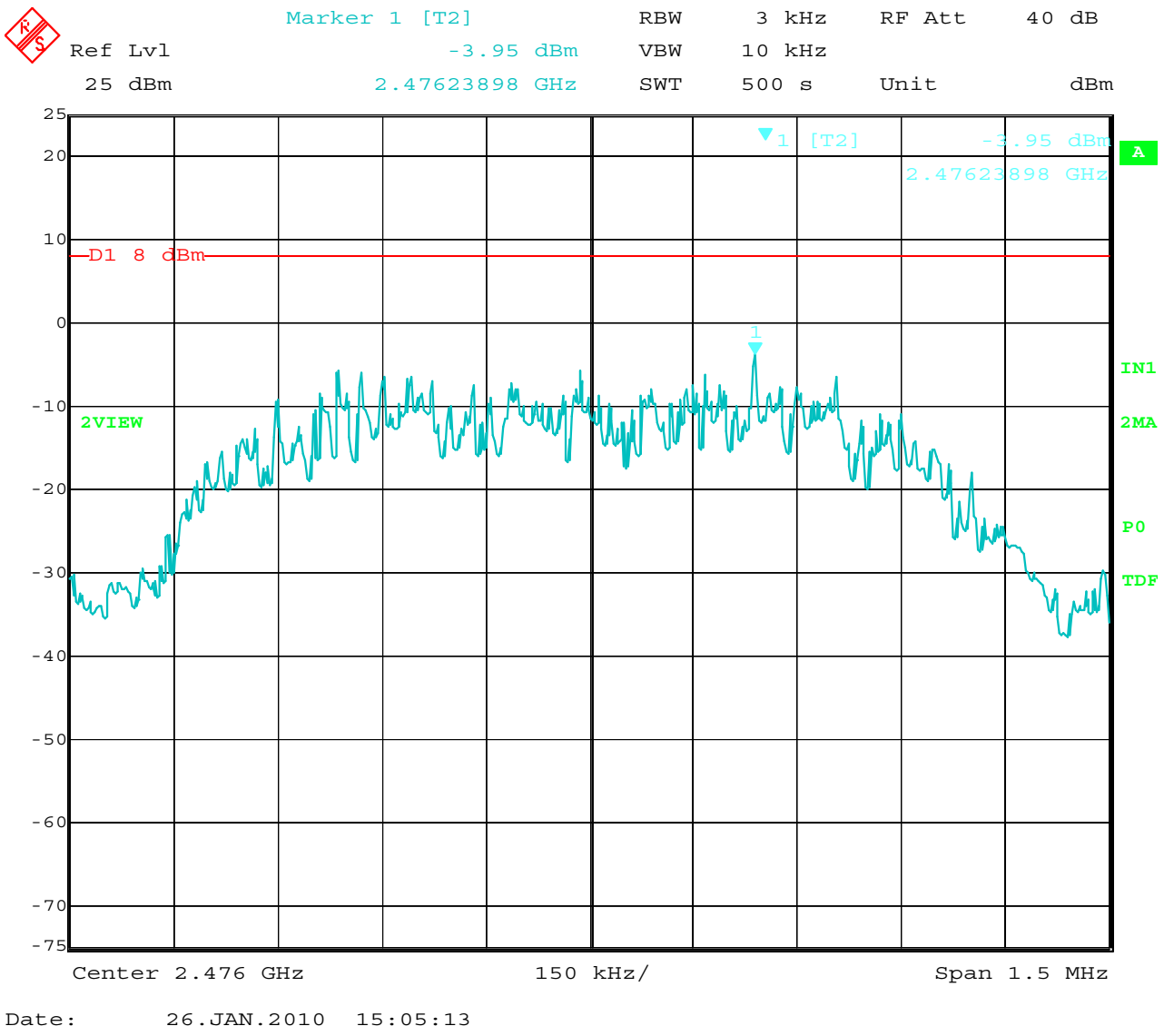
DATA SHEETS



Spectral Density Output – Low Channel



Spectral Density Output – Middle Channel



Spectral Density Output – High Channel

BAND EDGES

DATA SHEETS

FCC 15.247
Preston Cinema Systems
2.4 GHz RF Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Band Edges - Low Channel - Worst Case Axis
Tyco Antenna

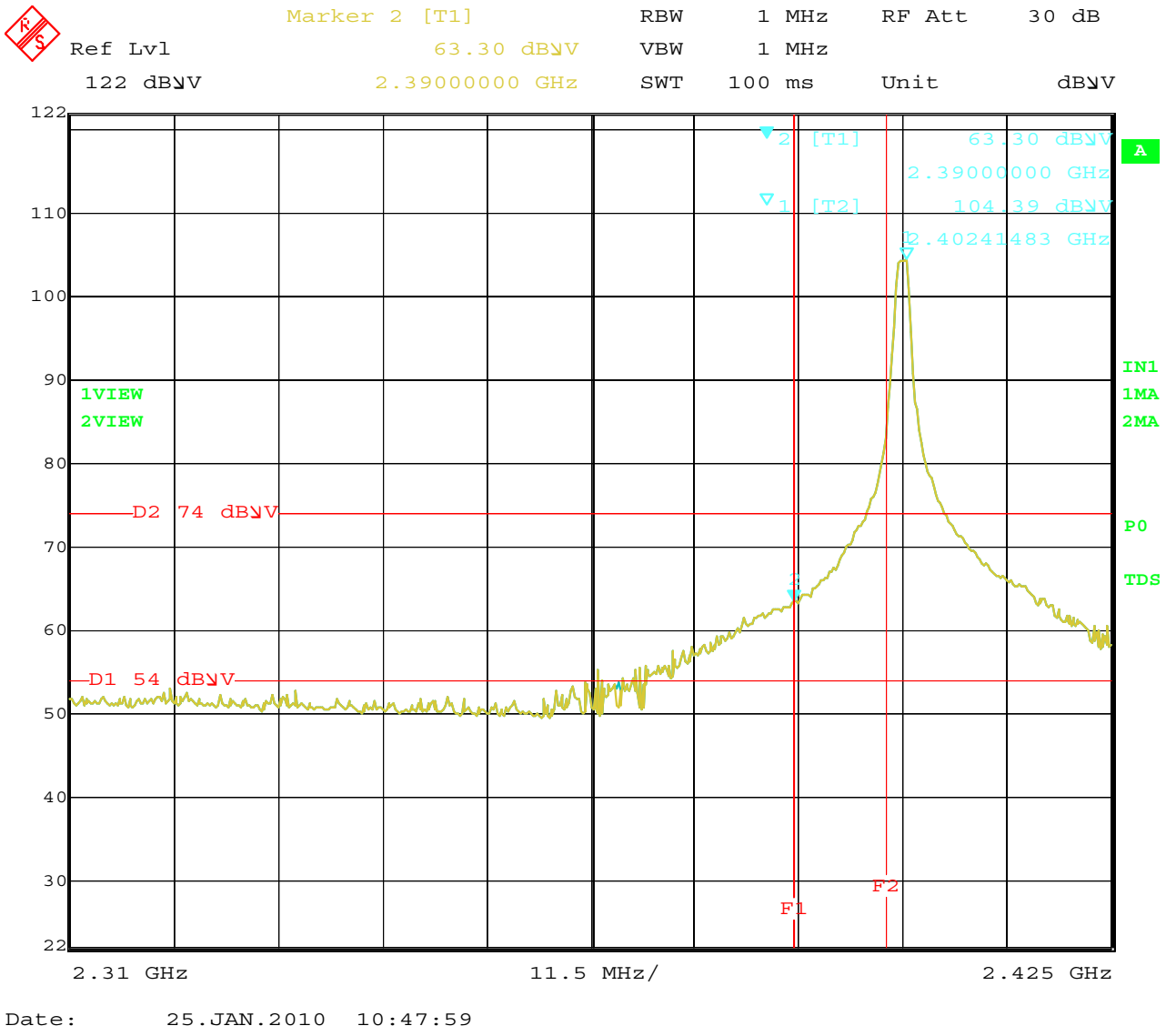
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	109.05	V	--	--	Peak	1.25	180	**Fund. Of Low Channel**
								Power Level 2 - X-Axis
2390	64.62	V	74	-9.38	Peak	1.25	180	**Band Edge - Low Channel**
2390	44.62	V	54	-9.38	Avg	1.25	180	**Power Level 2 - X-Axis**
2402	104.39	V	--	--	Peak	2.25	135	**Fund. Of Low Channel**
								Power Level 1 - X-Axis
2390	63.3	V	74	-10.7	Peak	2.25	135	**Band Edge - Low Channel**
2390	43.3	V	54	-10.7	Avg	2.25	135	**Power Level 1 - X-Axis**
2410	111.77	H	--	--	Peak	2.25	135	**Fund. Of Low Channel**
								Power Level 2 - X-Axis
2390	65.91	H	74	-8.09	Peak	2.25	135	**Band Edge - Low Channel**
2390	45.91	H	54	-8.09	Avg	2.25	135	**Power Level 2 - X-Axis**
2402	104.52	H	--	--	Peak	2.25	135	**Fund. Of Low Channel**
								Power Level 1 - X-Axis
2390	64.51	H	74	-9.49	Peak	2.25	135	**Band Edge - Low Channel**
2390	44.51	H	54	-9.49	Avg	2.25	135	**Power Level 1 - X-Axis**

FCC 15.247
Preston Cinema Systems
2.4 GHz RF Module
Model: TR41

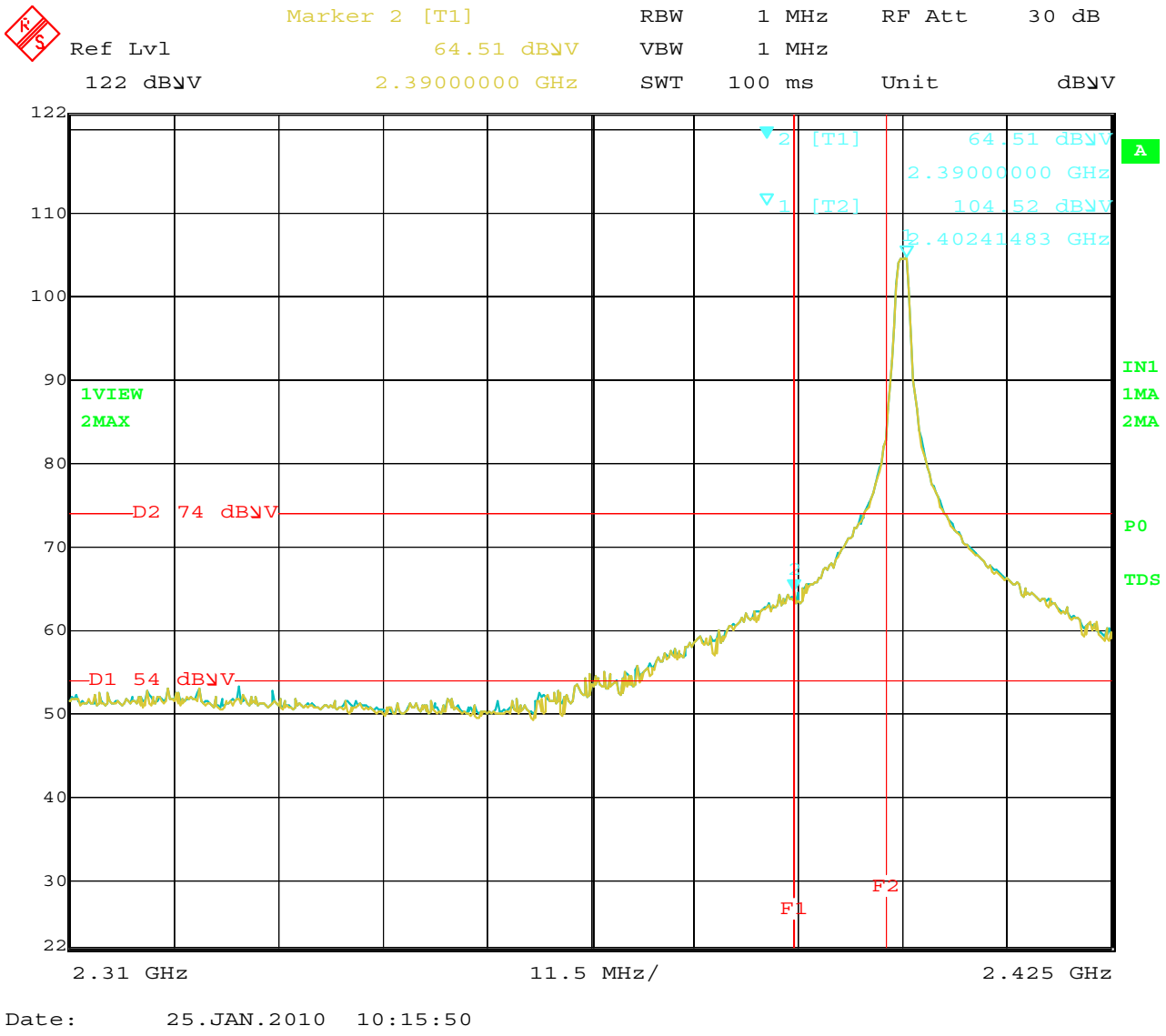
Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Band Edges - High Channel - Worst Case Axis
Tyco Antenna

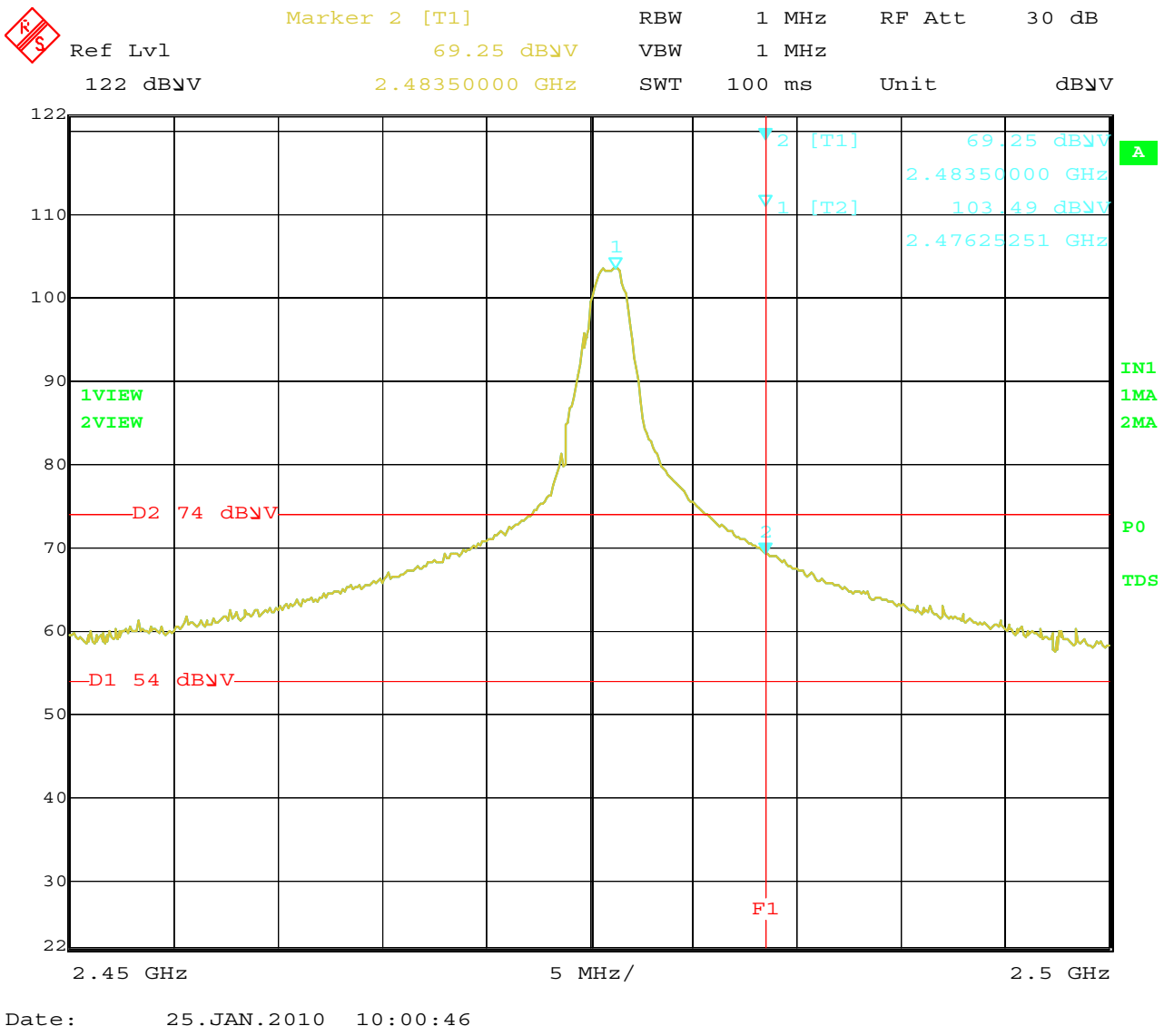
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2466	112.59	V	--	--	Peak	1.25	180	**Fund. of High Channel**
								Power Level 2 - X-Axis
2483.5	69.35	V	74	-4.65	Peak	1.25	180	**Band Edge - Low Channel**
2483.5	49.35	V	54	-4.65	Avg	1.25	180	**Power Level 2 - X-Axis**
2476	103.49	V	--	--	Peak	2.25	135	**Fund. of High Channel**
								Power Level 1 - X-Axis
2483.5	69.25	V	74	-4.75	Peak	2.25	135	**Band Edge - Low Channel**
2483.5	49.25	V	54	-4.75	Avg	2.25	135	**Power Level 1 - X-Axis**
2466	113.18	H	--	--	Peak	2.25	45	**Fund. of High Channel**
								Power Level 2 - X-Axis
2483.5	70.55	H	74	-3.45	Peak	2.25	45	**Band Edge - Low Channel**
2483.5	50.55	H	54	-3.45	Avg	2.25	45	**Power Level 2 - X-Axis**
2476	108.34	H	--	--	Peak	1.25	135	**Fund. of High Channel**
								Power Level 1 - X-Axis
2483.5	73.85	H	74	-0.15	Peak	1.25	135	**Band Edge - Low Channel**
2483.5	53.85	H	54	-0.15	Avg	1.25	135	**Power Level 1 - X-Axis**



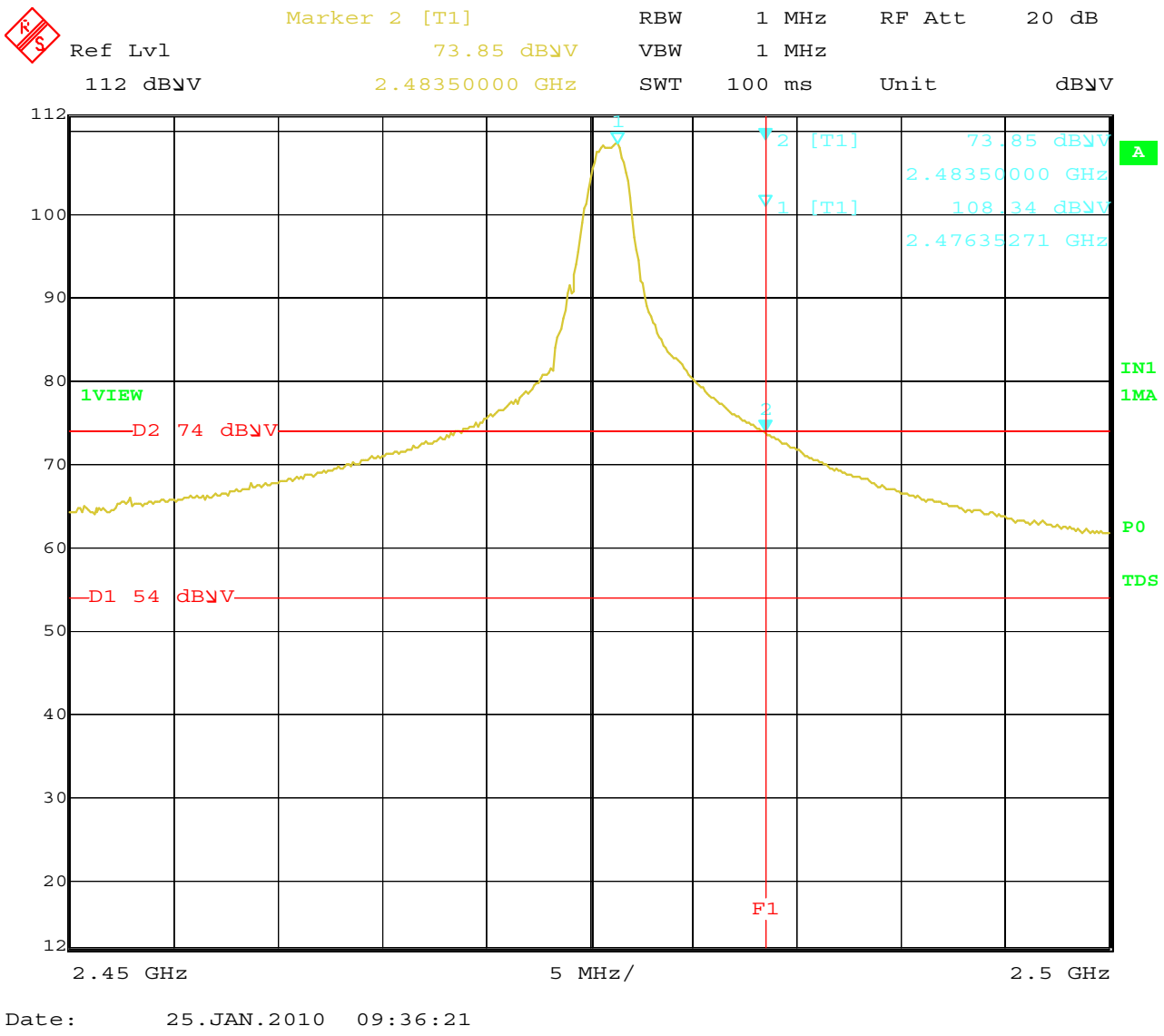
Band Edge – Tyco Antenna – Low Channel – Vertical Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



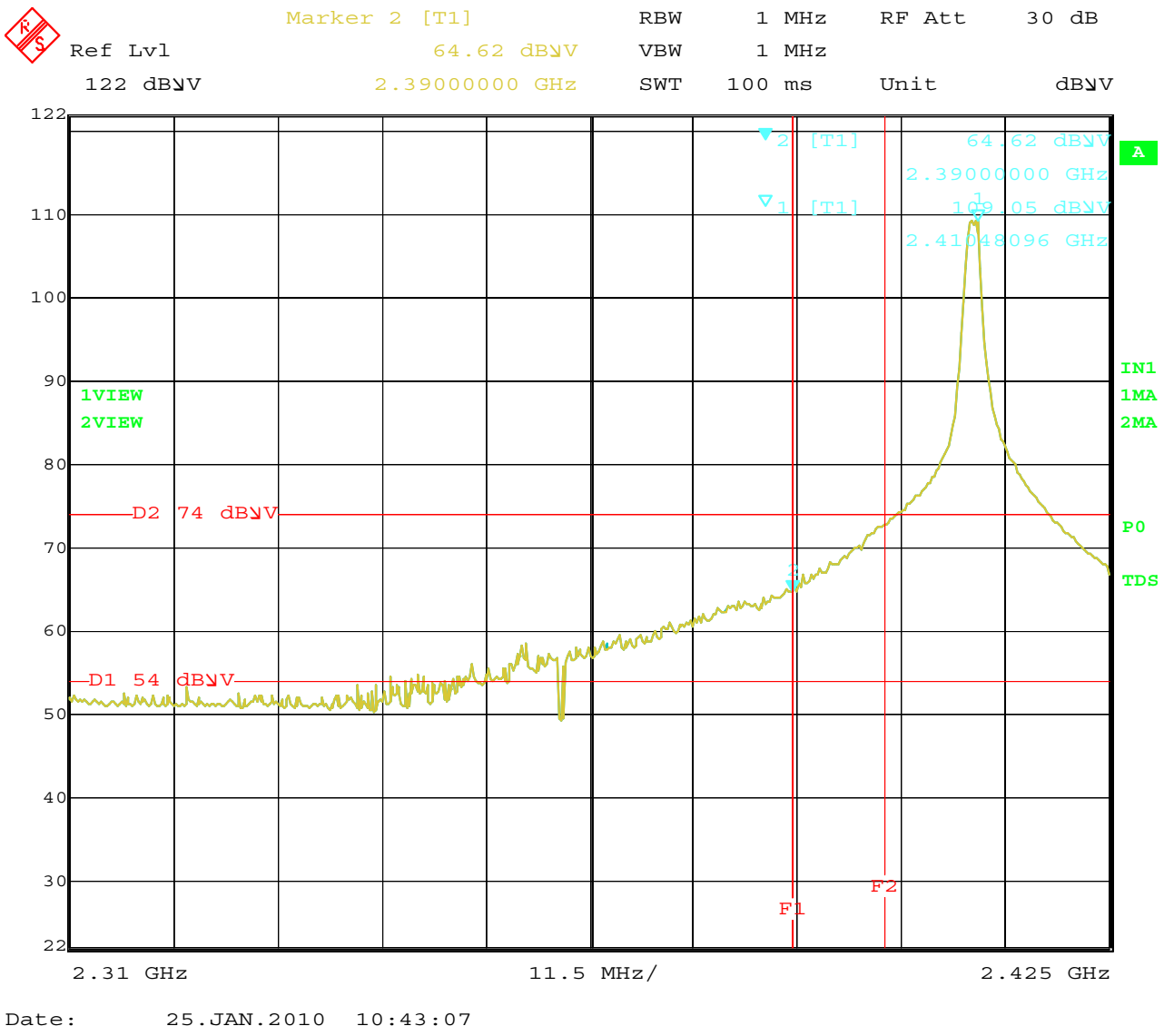
Band Edge – Tyco Antenna – Low Channel – Horizontal Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



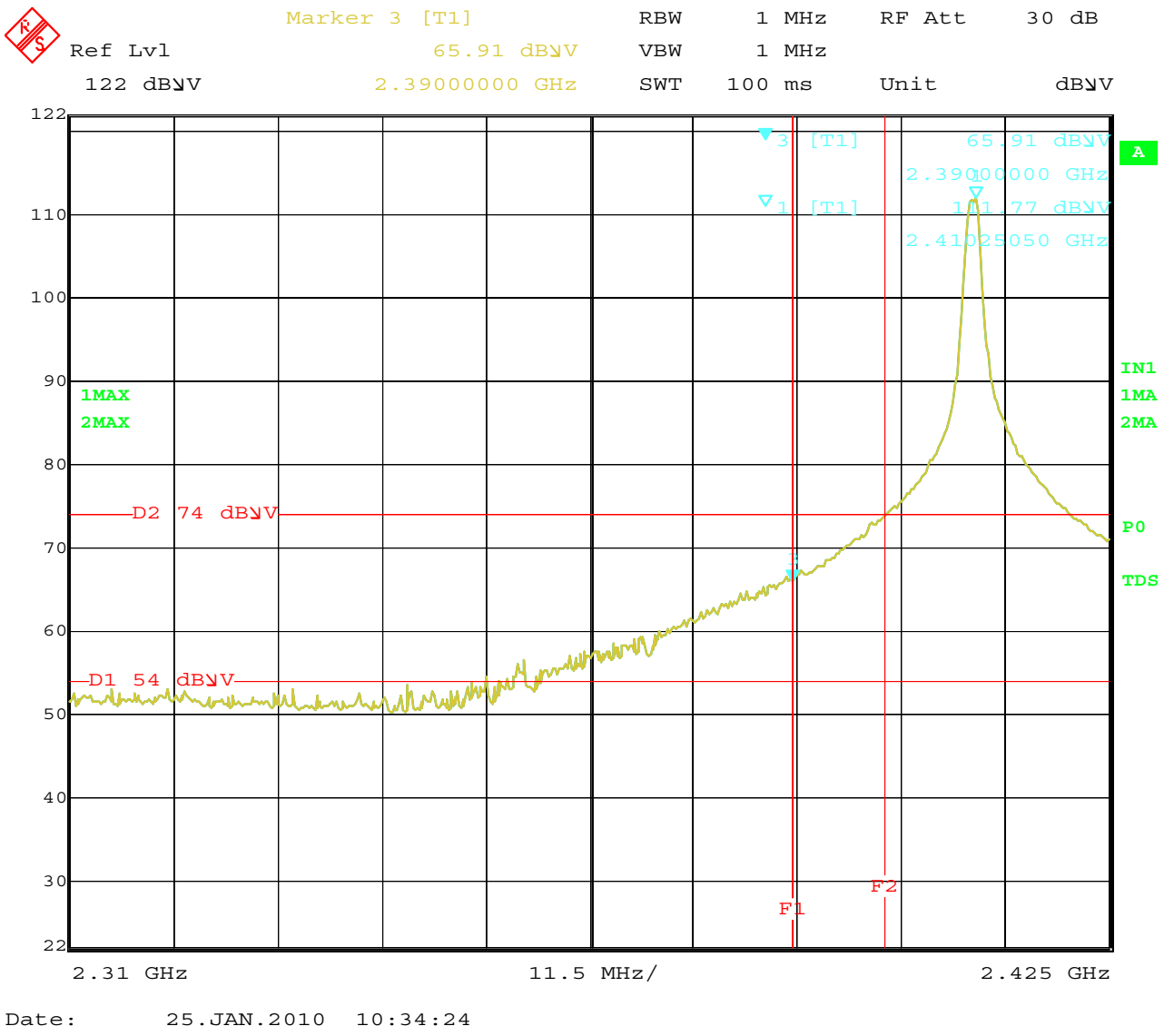
Band Edge – Tyco Antenna – High Channel – Vertical Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



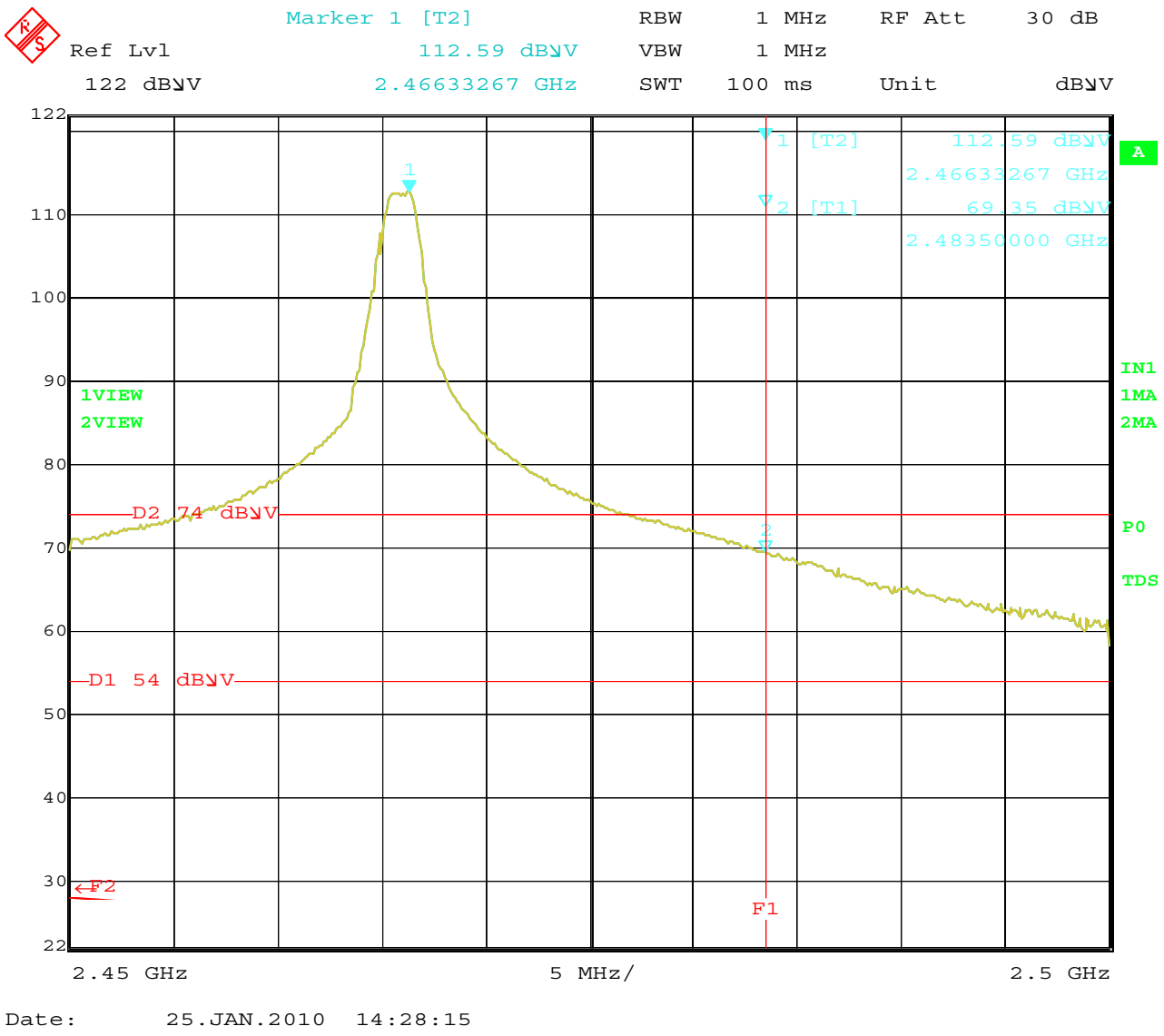
Band Edge – Tyco Antenna – High Channel – Horizontal Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



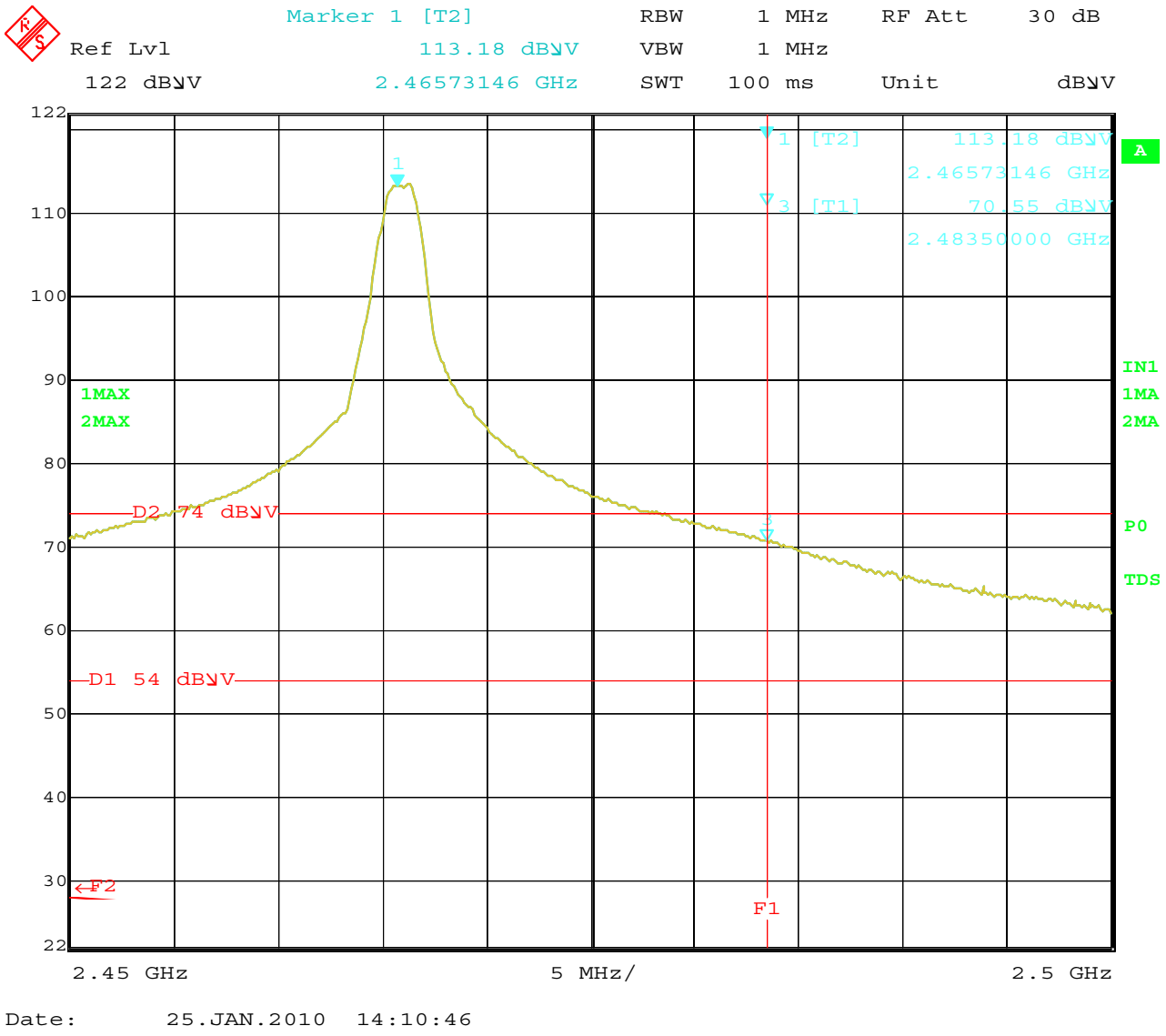
Band Edge – Tyco Antenna – Channel 4 – Vertical Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



Band Edge – Tyco Antenna – Channel 4 – Horizontal Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



Band Edge – Tyco Antenna – Channel 24 – Vertical Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



Band Edge – Tyco Antenna – Channel 24 – Horizontal Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%

FCC 15.247
Preston Cinema Systems
2.4 GHz RF Module
Model: TR41

Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Band Edges - Low Channel - Worst Case Axis
Monopole Antenna

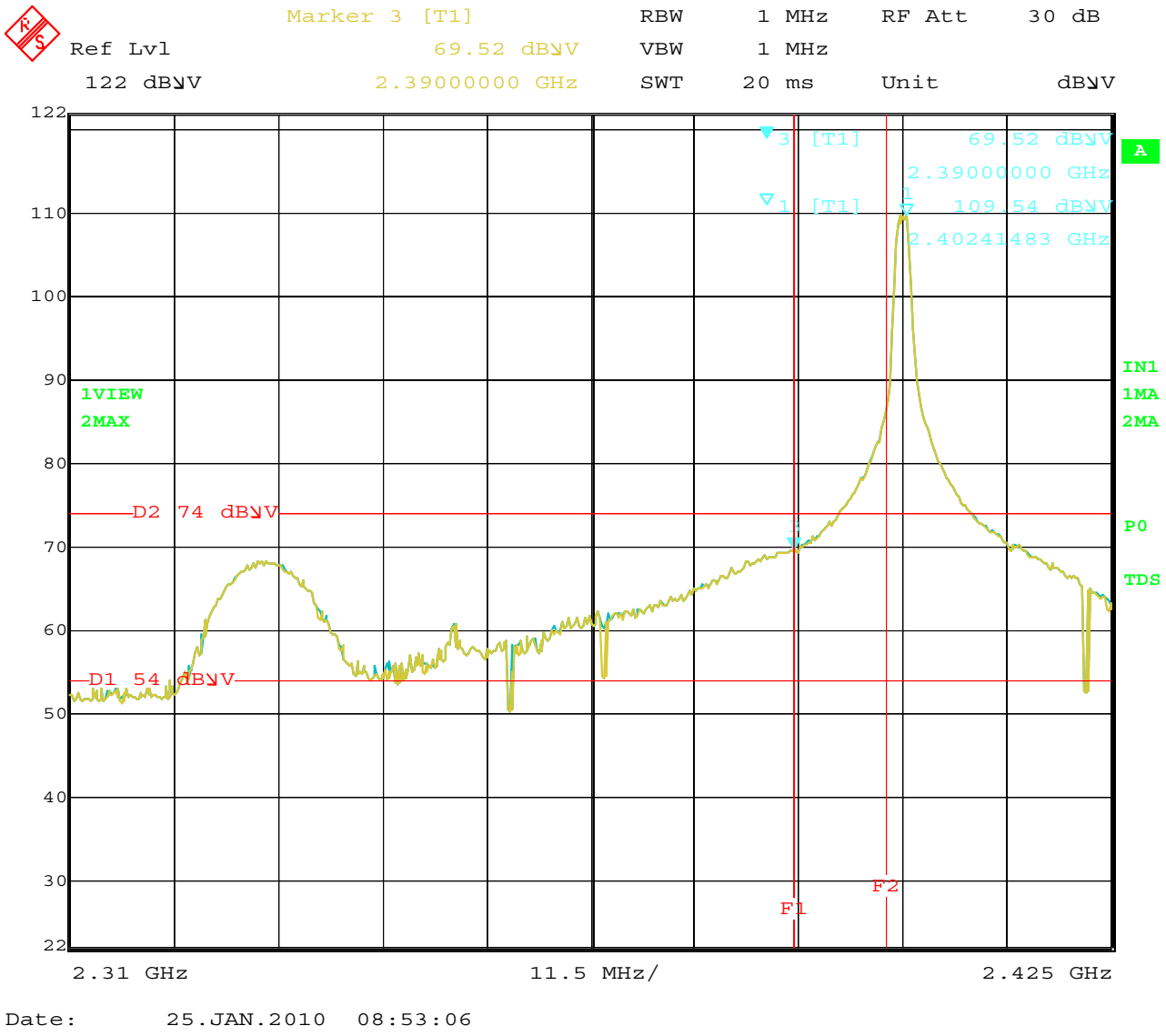
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	117.6	V	--	--	Peak	1.25	225	**Fund. of Low Channel**
								Power Level 2 - X-Axis
2390	73.21	V	74	-0.79	Peak	1.25	180	**Band Edge - Low Channel**
2390	53.21	V	54	-0.79	Avg	1.25	180	**Power Level 2 - X-Axis**
2402	109.54	V	--	--	Peak	1.25	225	**Fund. of Low Channel**
								Power Level 1 - X-Axis
2390	69.52	V	74	-4.48	Peak	1.25	225	**Band Edge - Low Channel**
2390	49.52	V	54	-4.48	Avg	1.25	225	**Power Level 1 - X-Axis**
2410	115.81	H	--	--	Peak	1.25	225	**Fund. of Low Channel**
								Power Level 2 - X-Axis
2390	71.81	H	74	-2.19	Peak	1.25	180	**Band Edge - Low Channel**
2390	51.81	H	54	-2.19	Avg	1.25	180	**Power Level 2 - X-Axis**
2402	107.59	H	--	--	Peak	1.25	225	**Fund. of Low Channel**
								Power Level 1 - X-Axis
2390	68.59	H	74	-5.41	Peak	1.25	225	**Band Edge - Low Channel**
2390	48.59	H	54	-5.41	Avg	1.25	225	**Power Level 1 - X-Axis**

FCC 15.247
Preston Cinema Systems
2.4 GHz RF Module
Model: TR41

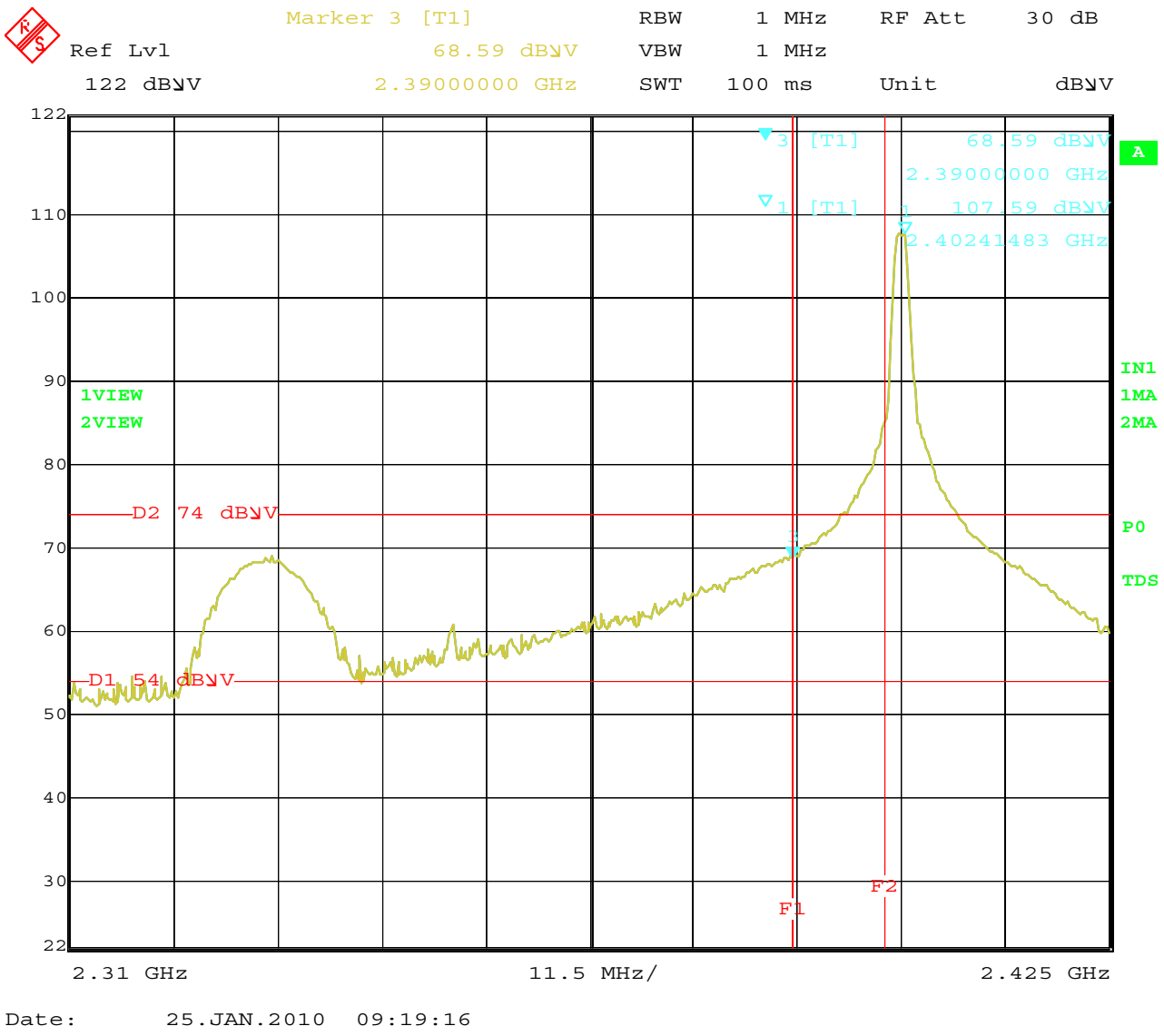
Date: 01/25/10
Lab: B
Tested By: Kyle Fujimoto

Band Edges - High Channel - Worst Case Axis
Monopole Antenna

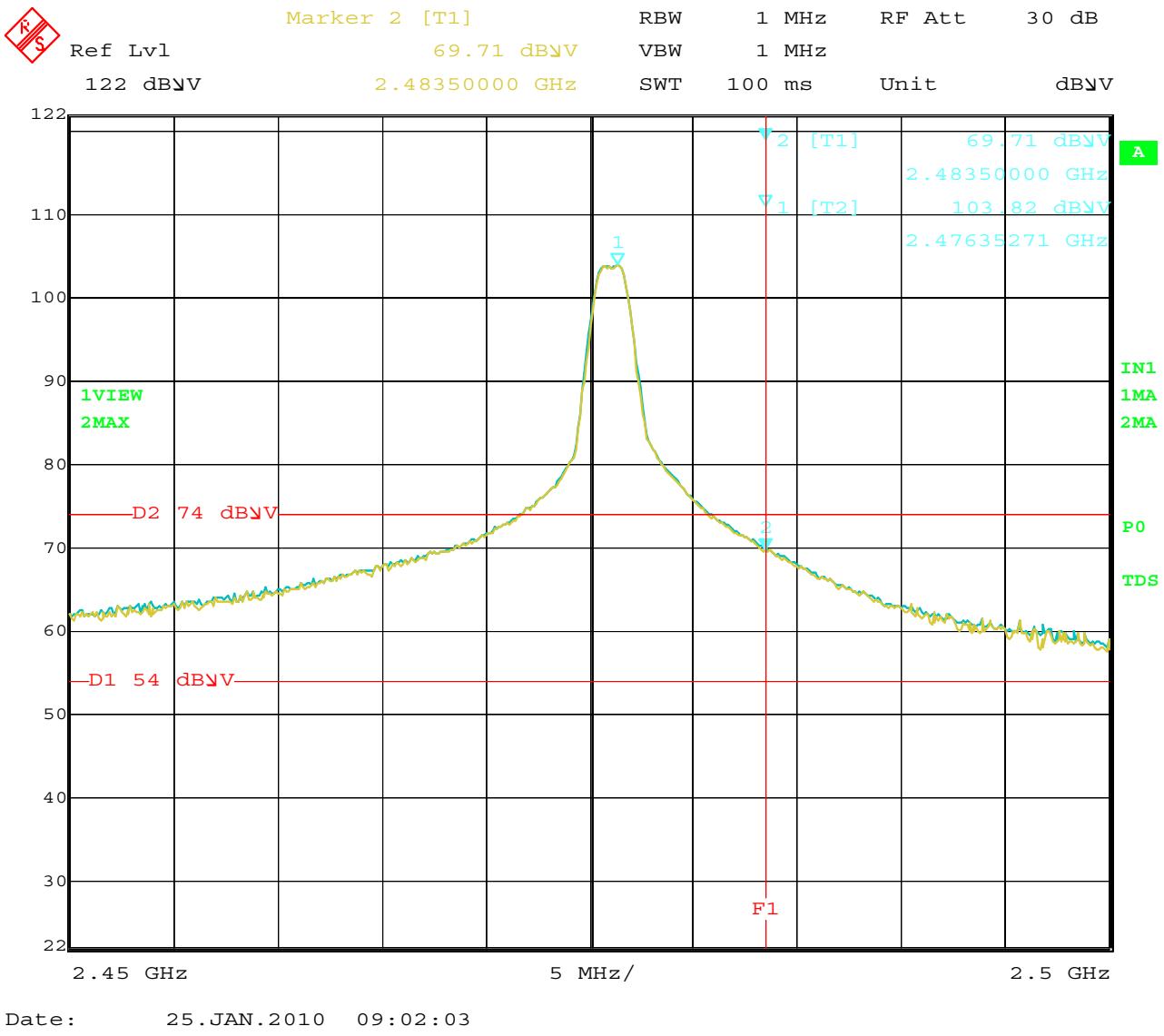
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2476	103.82	V	--	--	Peak	1.25	180	**Fund. of High Channel**
								Power Level 1 - X-Axis
2483.5	69.71	V	74	-4.29	Peak	1.25	180	**Band Edge - Low Channel**
2483.5	49.71	V	54	-4.29	Peak	1.25	180	**Power Level 1 - X-Axis**
2466	113	V	--	--	Peak	1.25	225	**Fund. of High Channel**
								Power Level 2 - X-Axis
2483.5	69.52	V	74	-4.48	Peak	1.25	225	**Band Edge - Low Channel**
2483.5	49.52	V	54	-4.48	Avg	1.25	225	**Power Level 2 - X-Axis**
2476	98.94	H	--	--	Peak	1.25	225	**Fund. of High Channel**
								Power Level 1 - X-Axis
2483.5	65.35	H	74	-8.65	Peak	1.25	180	**Band Edge - Low Channel**
2483.5	45.35	H	54	-8.65	Peak	1.25	180	**Power Level 1 - X-Axis**
2466	106.94	H	--	--	Peak	1.25	225	**Fund. of High Channel**
								Power Level 2 - X-Axis
2483.5	63.81	H	74	-10.19	Peak	1.25	225	**Band Edge - Low Channel**
2483.5	43.81	H	54	-10.19	Avg	1.25	225	**Power Level 2 - X-Axis**



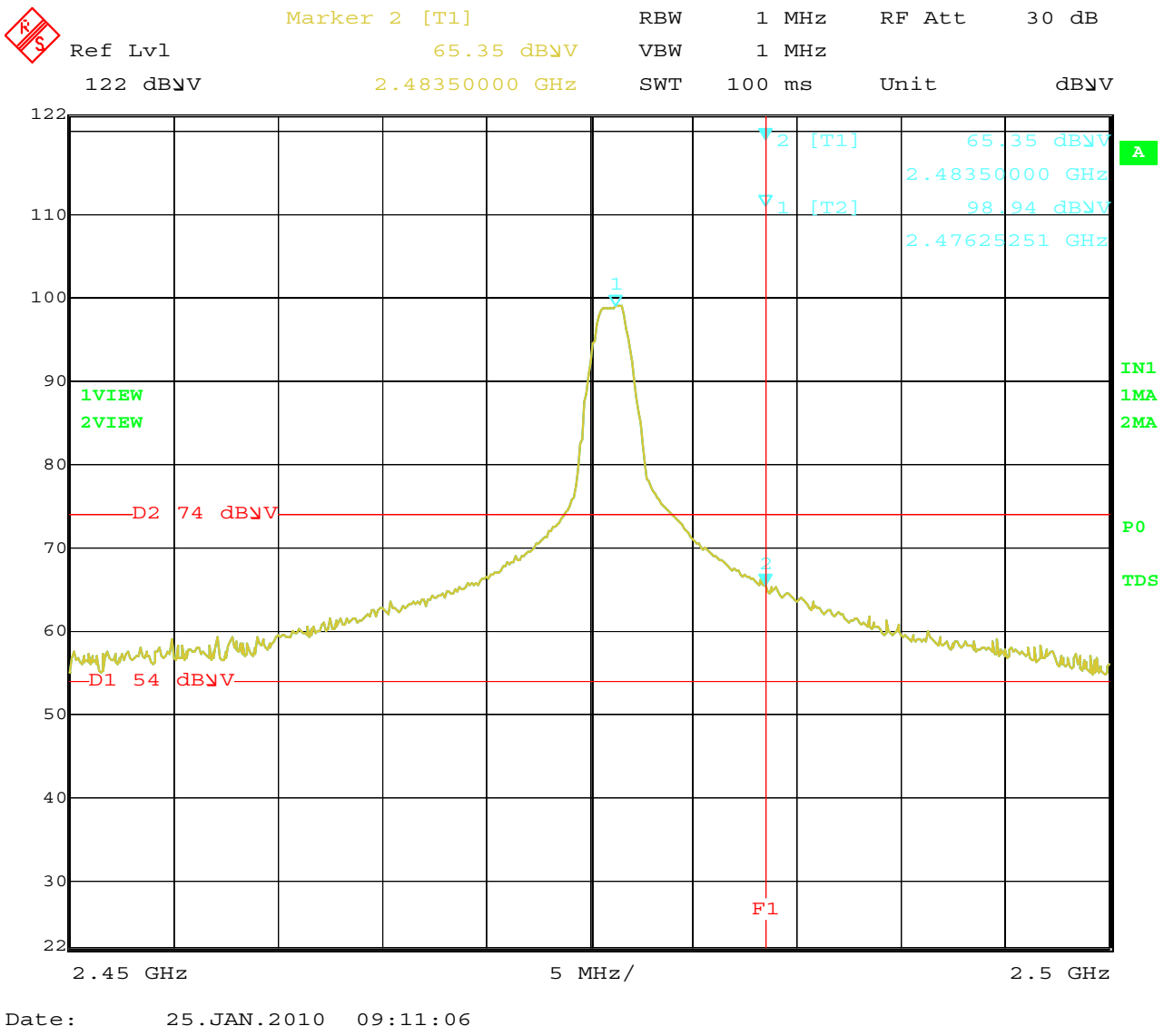
Band Edge – Monopole Antenna – Low Channel – Vertical Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



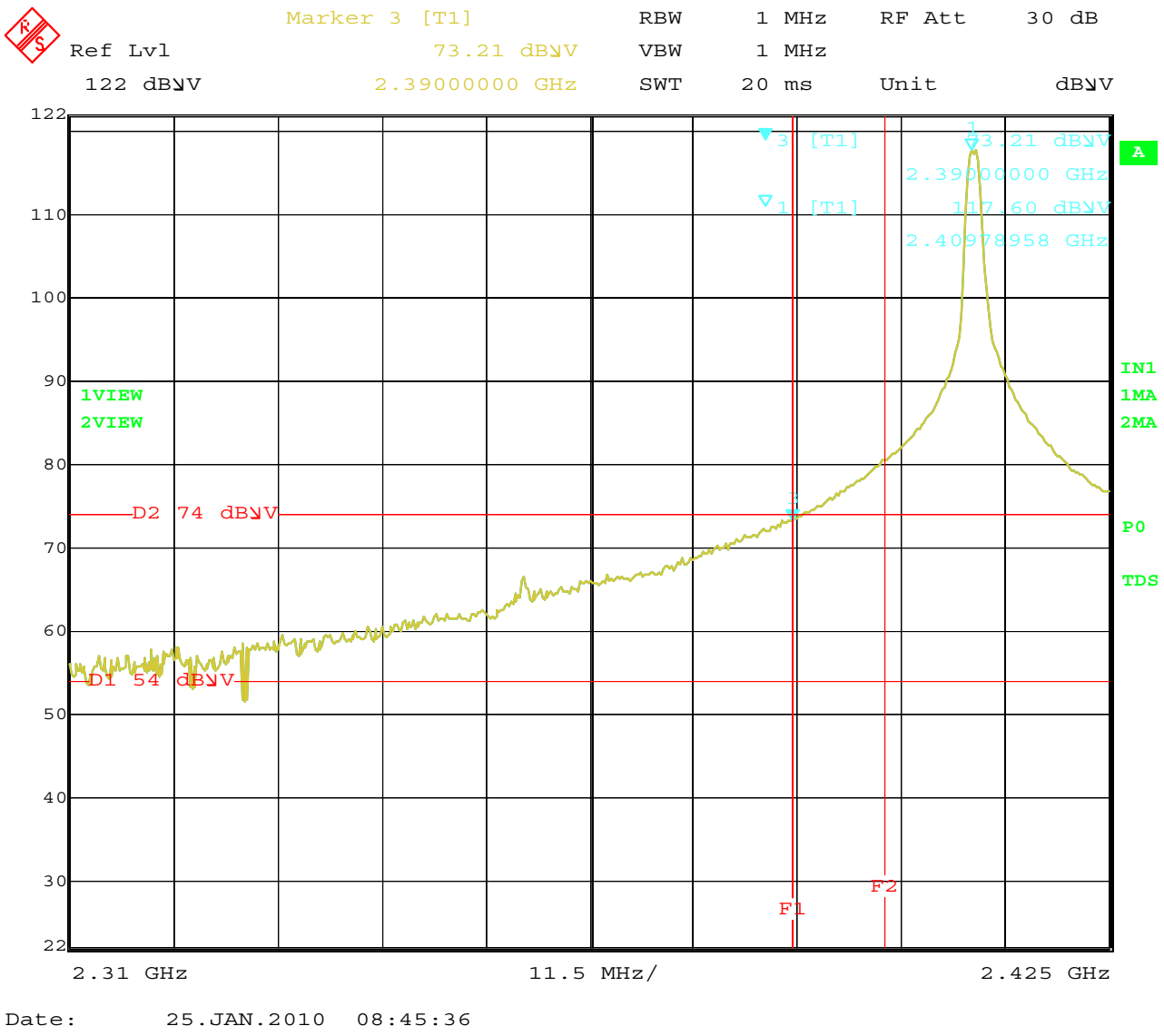
Band Edge – Monopole Antenna – Low Channel – Horizontal Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



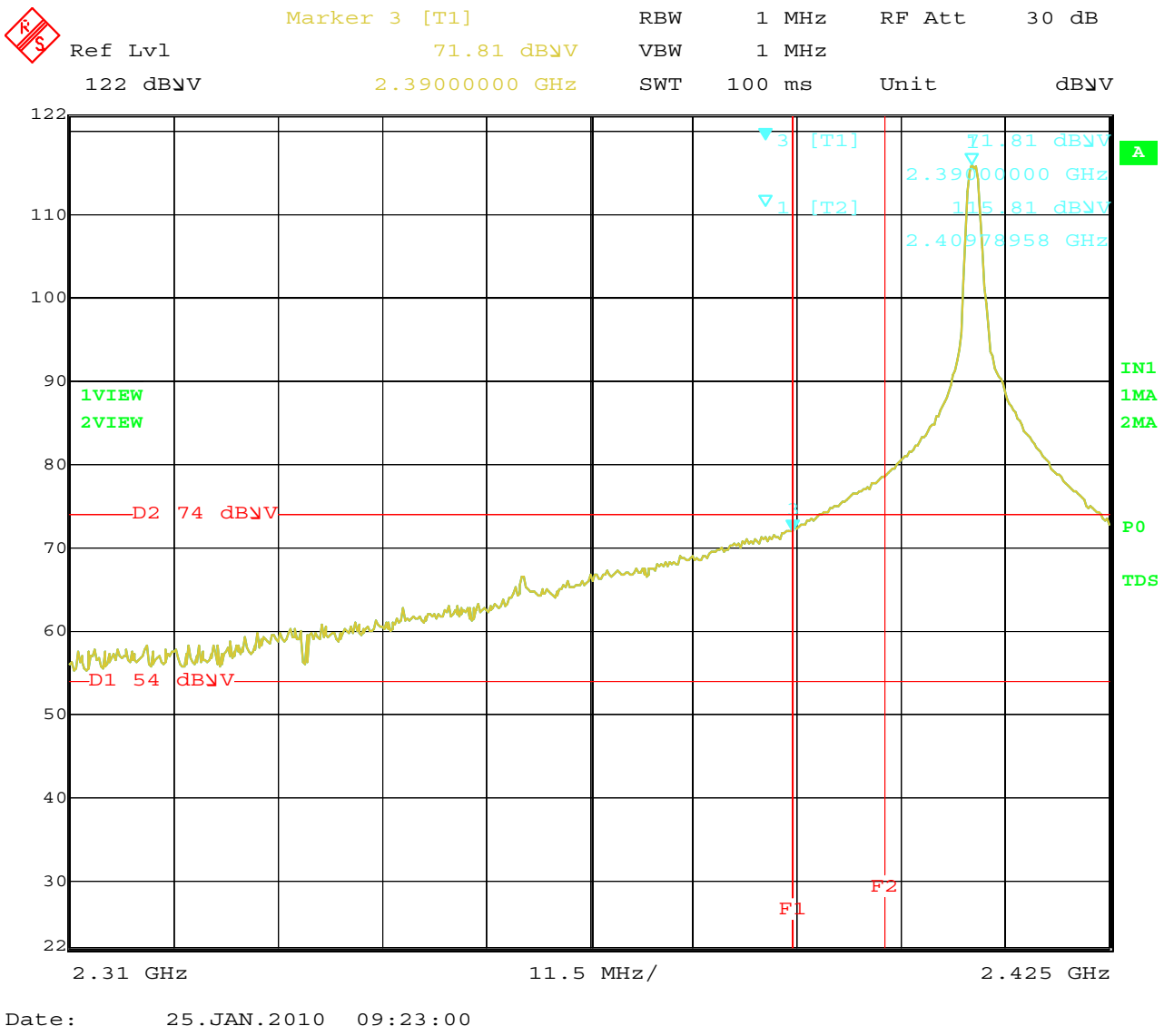
Band Edge – Monopole Antenna – High Channel – Vertical Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



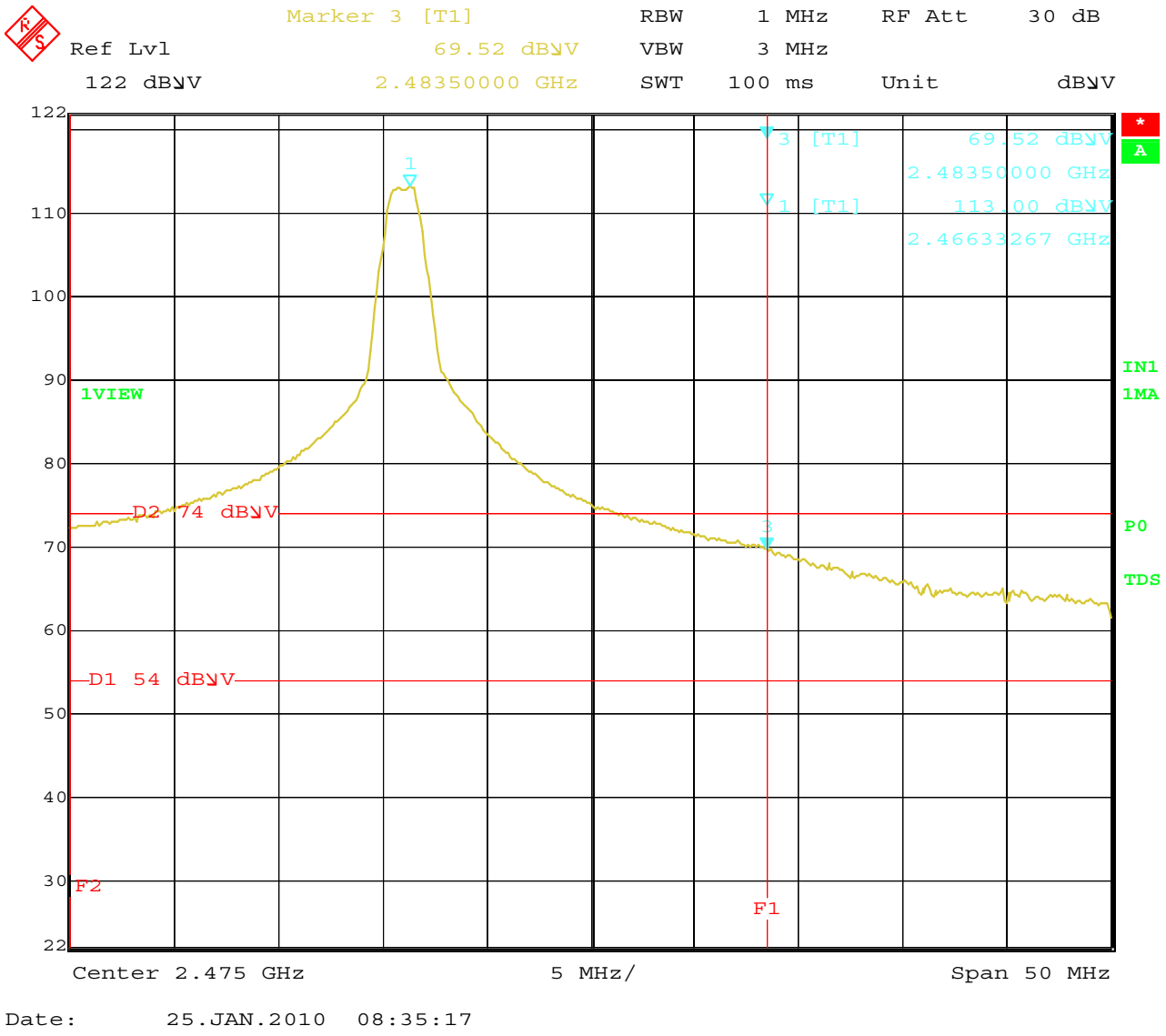
Band Edge – Monopole Antenna – High Channel – Horizontal Polarization – X-Axis (Worst Case) – Power Level 1
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



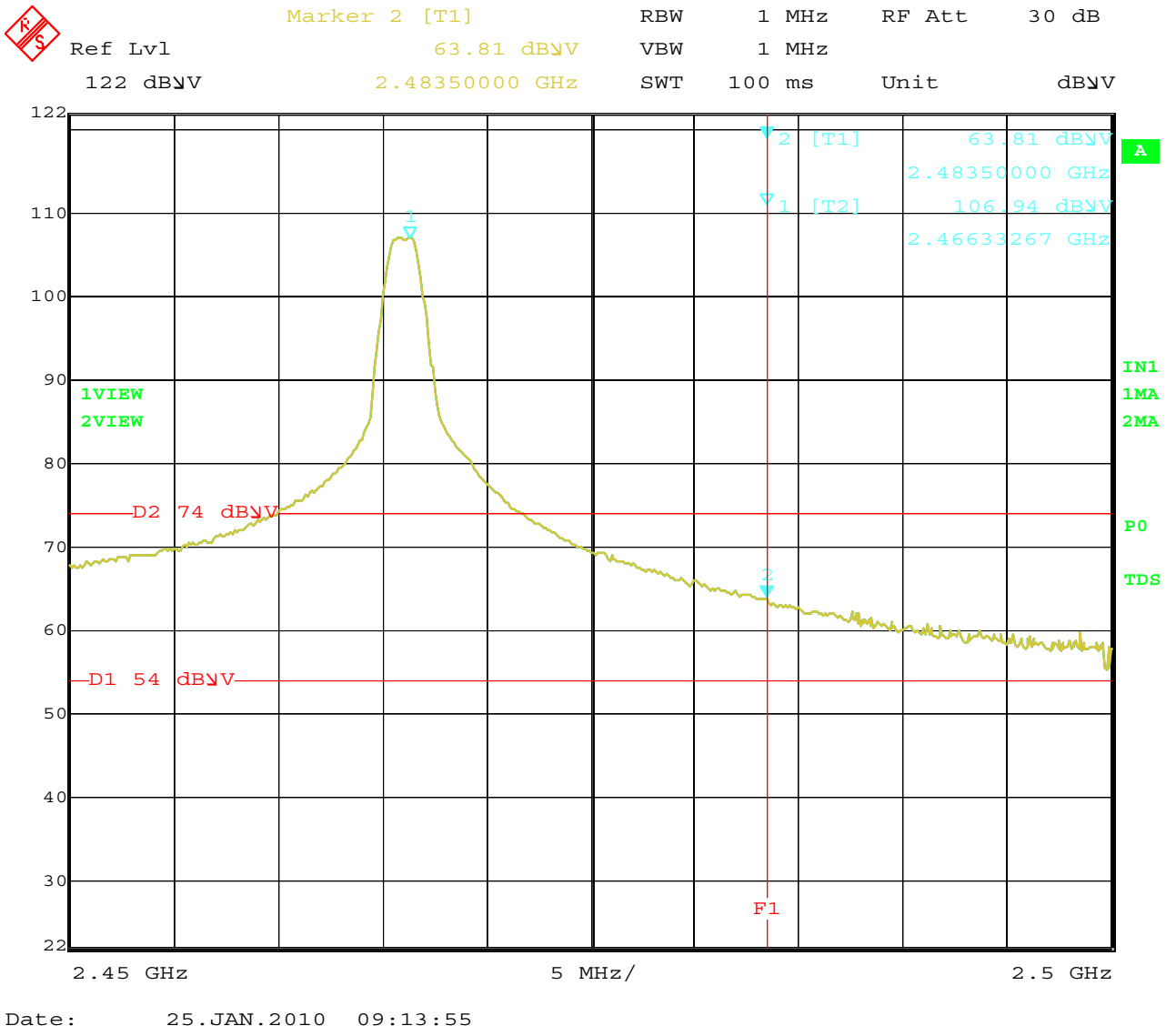
Band Edge – Monopole Antenna – Channel 4 – Vertical Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



Band Edge – Monopole Antenna – Channel 4 – Horizontal Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



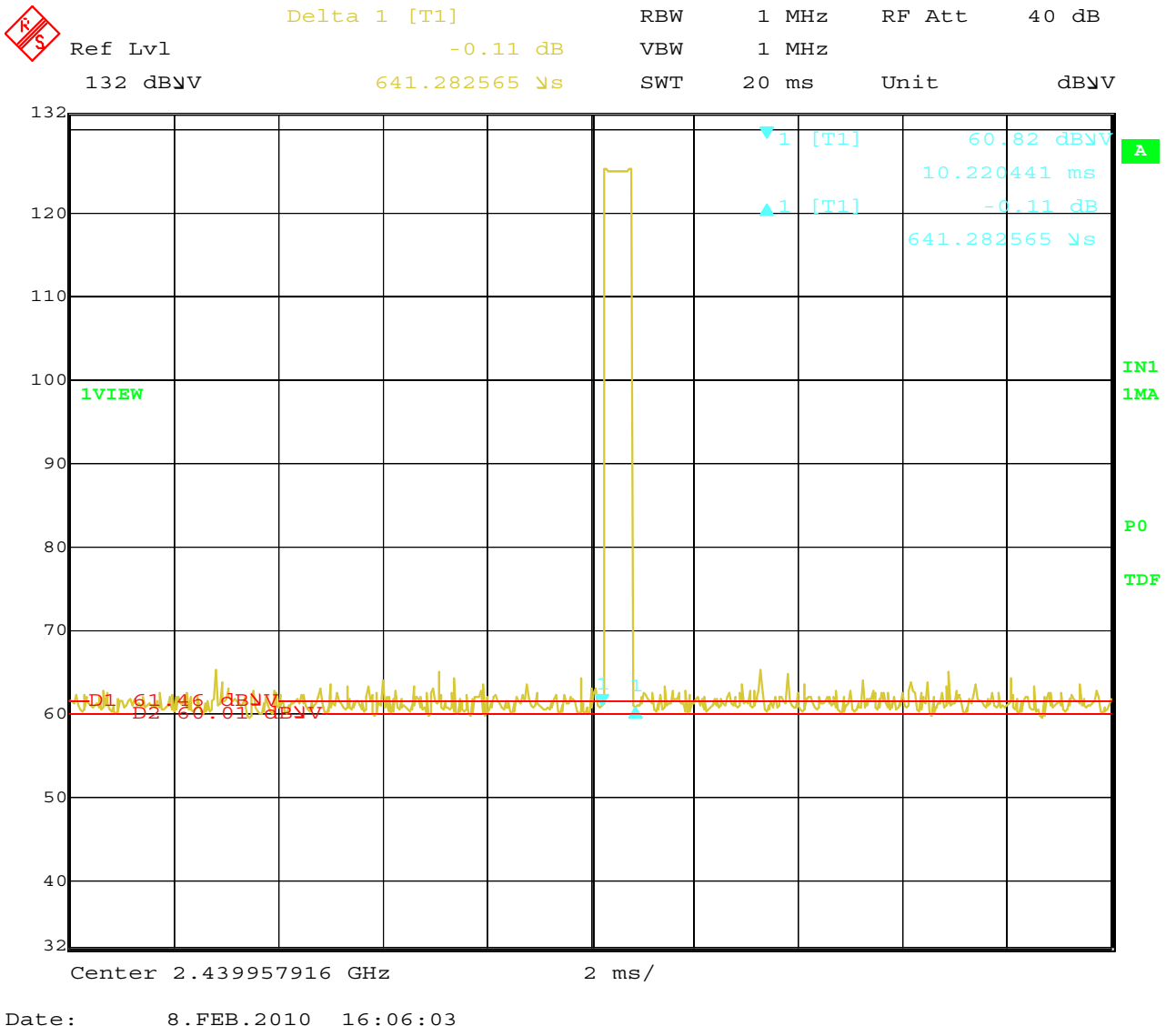
Band Edge – Monopole Antenna – Channel 24 – Vertical Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%



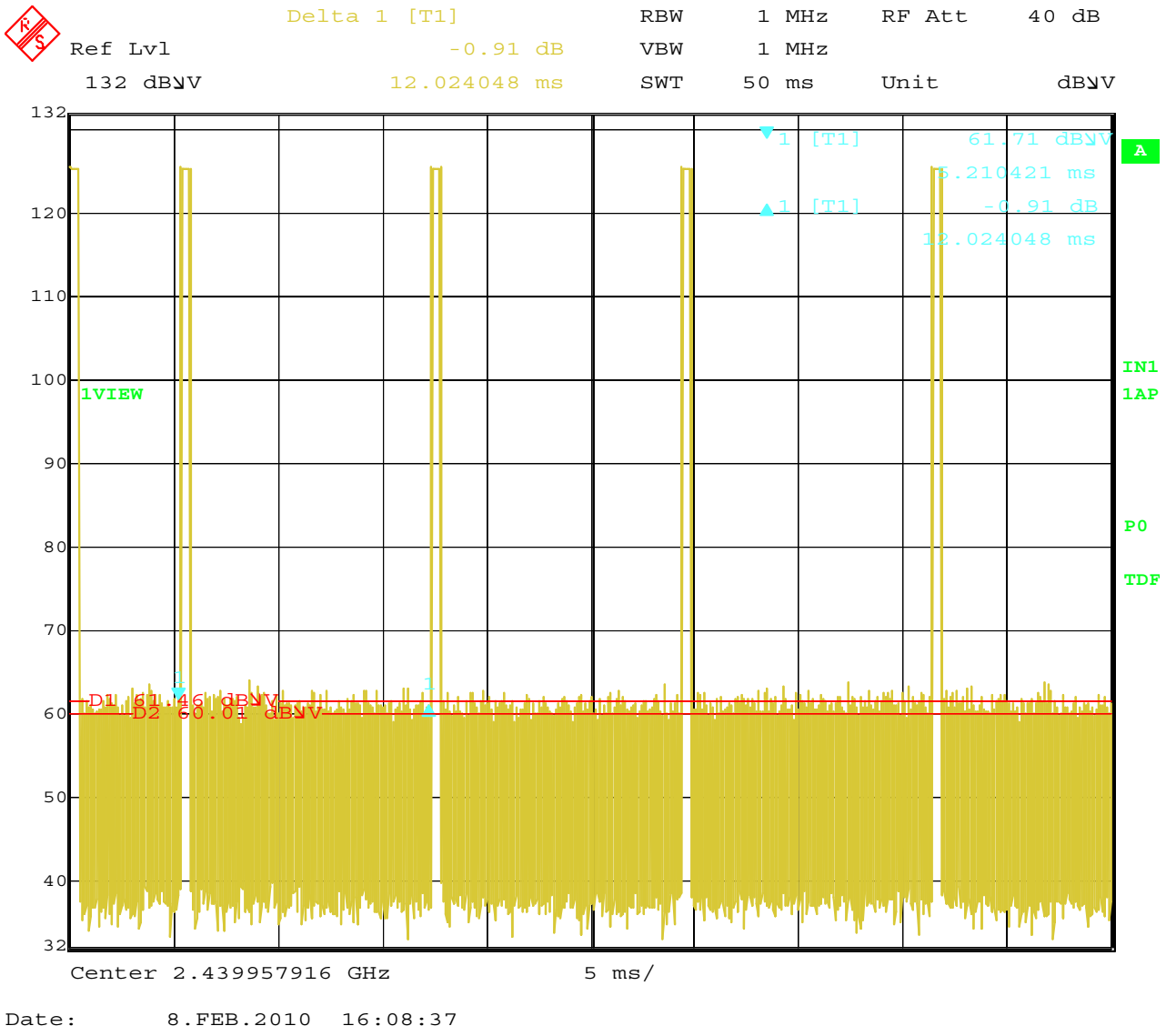
Band Edge – Monopole Antenna – Channel 24 – Horizontal Polarization – X-Axis (Worst Case) – Power Level 2
Plot represents peak readings
Note: the Average Reading for all peaks will be 20 dB down based on the Duty Cycle being less than 10%

DUTY CYCLE INFORMATION

DATA SHEETS



Time of One Pulse = 641.282565 uS



Time of One Pulse Train with Blanking Interval = 12.024048 mS

Total Duty Cycle = 641.282565 uS / 12.024048 mS = 5.33%