FCC PART 15, SUBPART B and C
TEST REPORT

for

2.4 GHz TRANSCEIVER

MODEL: TR4-3.3

Prepared for

PRESTON CINEMA SYSTEMS
1659 ELEVENTH STREET
SANTA MONICA, CALIFORNIA 90404

Prepared by:_____

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DATE: MAY 23, 2018

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GENERAL REPORT SUMMARY

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

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

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government.

Device Tested:	2.4 GHz Transceiver Model: TR4-3.3 S/N: N/A
Product Description:	The EUT is a transmitter module that will only be used inside F+IZ systems produced by the manufacturer.
Modifications:	The EUT was not modified during the testing.
Customer:	Preston Cinema Systems 1659 Eleventh Street Santa Monica, California 90404
Test Dates:	April 19, 20, 23, and 25, 2018

Test Specifications covered by accreditation:

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CFR Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.207, 15.209, and 15.247

Test Procedures: ANSI C63.4: 2014 and ANSI C63.10: 2013

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	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.
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	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 15.209
3	Spurious Radiated RF Emissions, 9 kHz – 30 MHz and 1000 MHz – 25000 MHz	The EUT 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, 9 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, 9 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	DTS Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2)
7	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3)
8	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d)
9	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 (e)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the 2.4 GHz Transceiver, Model: TR4-3.3. The emissions measurements were performed according to the measurement procedure described in ANSI C63.10 and ANSI C63.4. 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.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions 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

Preston Cinema Systems

Howard Preston	President

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
James Ross	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on April 19, 2018.

2.5 Disposition of the Test Sample

The test sample has not been returned to Preston Cinema Systems as of the date of this test report.

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 emissions Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
KDB 558074 D01 v04	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The 2.4 GHz Transceiver Model: TR4-3.3 (EUT) was connected to two antennas and a power supply via its antenna and power ports respectively.

The EUT was tested in the X, Y and Z axis. The X orientation is when the EUT is parallel to the ground. The Y orientation is when the EUT is perpendicular to the ground mounted vertically. The Z orientation is when the EUT is perpendicular to the ground mounted horizontally.

The voltage was varied ±15%; the transmitting signal amplitude and frequency did not vary.

The EUT was programmed to transmit at the low, middle, and high channels by pressing a button on the EUT.

Both the Tyco and ANT-2.4-CW-RCS antennas were tested. The antennas do not simultaneously transmit and each antenna was tested on both antenna ports.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement 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 unshielded cable connecting the EUT to cable #2. The cable has a 5-pin jumper at the EUT end and a 1/8 inch power connector at the cable #2 end.

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

Cable 3 This is a 10-centimeter braid shielded cable connecting the EUT to the Tyco antenna. The cable as a u.fl connector at each end. The shield of the cable is grounded to the chassis via the connectors.

Cable 4 This is a 10-centimeter braid shielded cable connecting the EUT to the ANT-2.4-CW-RCS antenna. The cable as a u.fl connector at each end. The shield of the cable is grounded to the chassis via the connectors.

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 (EUT)	PRESTON CINEMA SYSTEMS	TR4-3.3	N/A	NMRTR433
AC POWER SUPPLY	PHIHONG	PSM03A-050	N/A	N/A
ANTENNA	LINX TECHNOLOGIES	ANT-2.4-CW-RCS	N/A	N/A
ANTENNA	TYCO ELECTRONICS	P/N: 1513504-1	N/A	N/A
FIRMWARE ON MODULE*	PRESTON CINEMA SYSTEMS	1.0	N/A	N/A

*Allows the EUT to change channels by hitting a button on the EUT.
Note: The firmware is stored on the company's drive in the network server.

5.2 EMISSIONS TEST EQUIPMENT

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
CombiLog Antenna	Com-Power	AC-220	61060	July 27, 2017	1 Year
Horn Antenna	Com-Power	AH-118	071175	February 22, 2018	2 Year
EMI Receiver, 20 Hz – 40 GHz	Rohde & Schwarz	ESIB40	100194	September 26, 2017	1 Year
EMI Receiver, 20 Hz – 26.5 GHz	Keysight Technologies	N9038A	MY5120150	December 6, 2017	1 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2016	2 Year
Loop Antenna	Com-Power	AL-130R	121090	February 9, 2017	2 Year
Preamplifier	Com-Power	PAM-118A	551024	May 12, 2016	2 Year
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A
LISN (EUT)	Com-Power	LI-215A	191951	May 17, 2017	1 Year
LISN (ACC)	Com-Power	LI-215A	191952	May 17, 2017	1 Year
Transient Limiter	Com-Power	252A910	N/A	November 1, 2017	1 Year
VARIATION OF THE INPUT POWER TEST EQUIPMENT					
Digital Multimeter	Fluke	115	Asset #: 4168	September 27, 2017	1 Year
Variable Autotransformer	Superior Electric Company	Type: 11560	Spec. BP142056	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	September 26, 2017	1 Year

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

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

6.2 EUT Mounting, Bonding and Grounding

For frequencies 1 GHz and below: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

For frequencies above 1 GHz: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 1.5 meters above the ground plane.

The EUT was not grounded.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Description and Frequencies

The lowest frequency the EUT will use is 2402 MHz and the highest frequency the EUT will use is 2476 MHz. The EUT will have a total of 30 channels.

Low Channel (Channel 0) = 2402 MHz
Mid Channel (Channel 14) = 2440 MHz
High Channel (Channel 29) = 2476 MHz

7.2 Antenna Gain

The EUT utilizes a Tyco Electronics P/N: 1513504-1 antenna with a u.FL connector. The gain is +2 dBi.

The EUT also utilizes a Linx Technologies antenna P/N: ANT-2.4-CW-RCS, the gain is -0.2 dBi.

8. TEST PROCEDURES

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

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. A transient limiter was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. 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 computer software. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.207.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as the measuring meter. Below 1 GHz, a built-in, internal preamplifier was used to increase the sensitivity of the instrument. At frequencies above 1 GHz, external preamplifiers were used. The Com Power Microwave Preamplifier Model: PAM-118A was used for frequencies above from 1 GHz to 18 GHz, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies above 18 GHz. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged by using a duty cycle correction factor.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	Combilog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

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

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.

8.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED EMISSION RESULTS
2.4 GHz Transceiver, Model: TR4-3.3

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.830 (WL) (Port 2) (ANT)	28.69 (Avg)	46.00	-17.31
0.830 (BL) (Port 2) (ANT)	24.43 (Avg)	46.00	-21.57
0.900 (WL) (Port 2) (ANT)	21.97 (Avg)	46.00	-24.03
0.640 (WL) (Port 2) (ANT)	21.07 (Avg)	46.00	-24.93
0.902 (BL) (Port 2) (ANT)	18.81 (Avg)	46.00	-27.19
0.830 (WL) (Port 2) (ANT)	18.60 (Avg)	46.00	-27.40

Table 2.0 RADIATED EMISSION RESULTS
2.4 GHz Transceiver, Model: TR4-3.3

Frequency MHz	Corrected Reading* dBuV/m	Specification Limit dBuV/m	Delta (Cor. Reading – Spec. Limit) dB
7320 (Y-Axis) (H) (Tyco Port 2)	50.40 (Avg)	53.97	-3.57
2483.5 (X-Axis) (H) (Tyco Port 2)	50.00 (Avg)	53.97	-3.97
7320 (Z-Axis) (H) (Tyco Port 2)	49.62 (Avg)	53.97	-4.35
7428 (Z-Axis) (H) (Tyco Port 1)	48.63 (Avg)	53.97	-5.34
7428 (Y-Axis) (H) (Tyco Port 1)	47.96 (Avg)	53.97	-6.01
7428 (Y-Axis) (H) (ANT Port 1)	47.70 (Avg)	53.97	-6.27

Notes:

*	The complete emissions data is given in Appendix E of this report.		
Pk	Peak Reading	Avg	Average Reading
H	Horizontal Polarization	V	Vertical Polarization
BL	Black Lead	QP	Quasi-Peak Reading

8.2 DTS Bandwidth

The DTS Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The following steps were performed for measuring the DTS Bandwidth.

1. Set RBW = 100 kHz
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep = Auto Couple
6. Allow the trace to stabilize
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(2).

8.3 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The peak output power was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 2 MHz and the video bandwidth was 8 MHz. The cable loss was also added back into the reading using the reference level offset. The Peak Output Power was then taken.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(3).

8.4 Emissions in Non-Restricted Bands

The emissions in the non-restricted frequency bands measurements were performed using the EMI receiver directly connected to the EUT. The reference level was established by setting the instrument center frequency to DTS channel center frequency. The span was set to ≥ 1.5 times the DTS bandwidth. The RBW was set to 100 kHz and the VBW was set to 300 kHz. A peak detector was used with sweep set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20 dB below that was the reference level. For emission level measurement, the center frequency and span were set to encompass the frequency range to be measured. The RBW was set to 100 kHz and the VBW was set to 300 kHz. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than the span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Note: The 2390 MHz to 2400 MHz band was also investigated. The three highest emissions in the non-restricted bands were recorded.

8.5 RF Band Edges

The RF band edges were taken at 2390 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 8.1.2 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 restricted bands closest to the band edges at 2390 MHz and 2483.5 MHz also meet the limits of section 15.209. Please see the data sheets located in Appendix E.

8.6 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 following steps were performed for measuring the spectral density.

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to 3 kHz <= RBW <= 100 kHz
4. Set the VBW >= 3 X RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize
9. Use the peak marker function to determine the maximum amplitude level within the RBW
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Results:

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

8.7 Variation of the Input Power

The variation of the input power test was performed using the EMI Receiver. The EUT input power was varied between 85% and 115% of the nominal rated supply voltage. The carrier frequency was monitored for any change in amplitude.

Test Results:

The EUT meets the requirements of FCC 15.31 (e). The amplitude does not change when the EUT's input power is varied between 85% and 115% of the nominal rated supply voltage.

8.7 Duty Cycle Calculation

The EMI Receiver was used to obtain the duty cycle. The data sheets are located in Appendix E.

Duty Cycle Correction Factor = -18.06 dB

Where

$$\delta(\mathrm{dB}) = 20\log\left[\sum\left(nt_1 + mt_2 + \ldots + \xi t_x\right)/T\right]$$

n is the number of pulses of duration *t*1
m is the number of pulses of duration *t*2
ξ is the number of pulses of duration *tx*
T is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

Pulse Train = 6 ms between each pulse (worst case)

Total On Time = 750 us

750 us / 6 ms = 12.50% duty cycle

The peak to average ratio is -18.06 dB (20 Log [0.1250])

9. CONCLUSIONS

The 2.4 GHz Transceiver, Model: TR4-3.3, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B, and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200528-0

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For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.
For the most up-to-date version of our scopes and certificates please visit http://celectronics.com/quality/scope/

Quote from ISO-ILAC-IAF Communiqué on 17025:
"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

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.

The EUT was not modified 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 Model: TR4-3.3 S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER

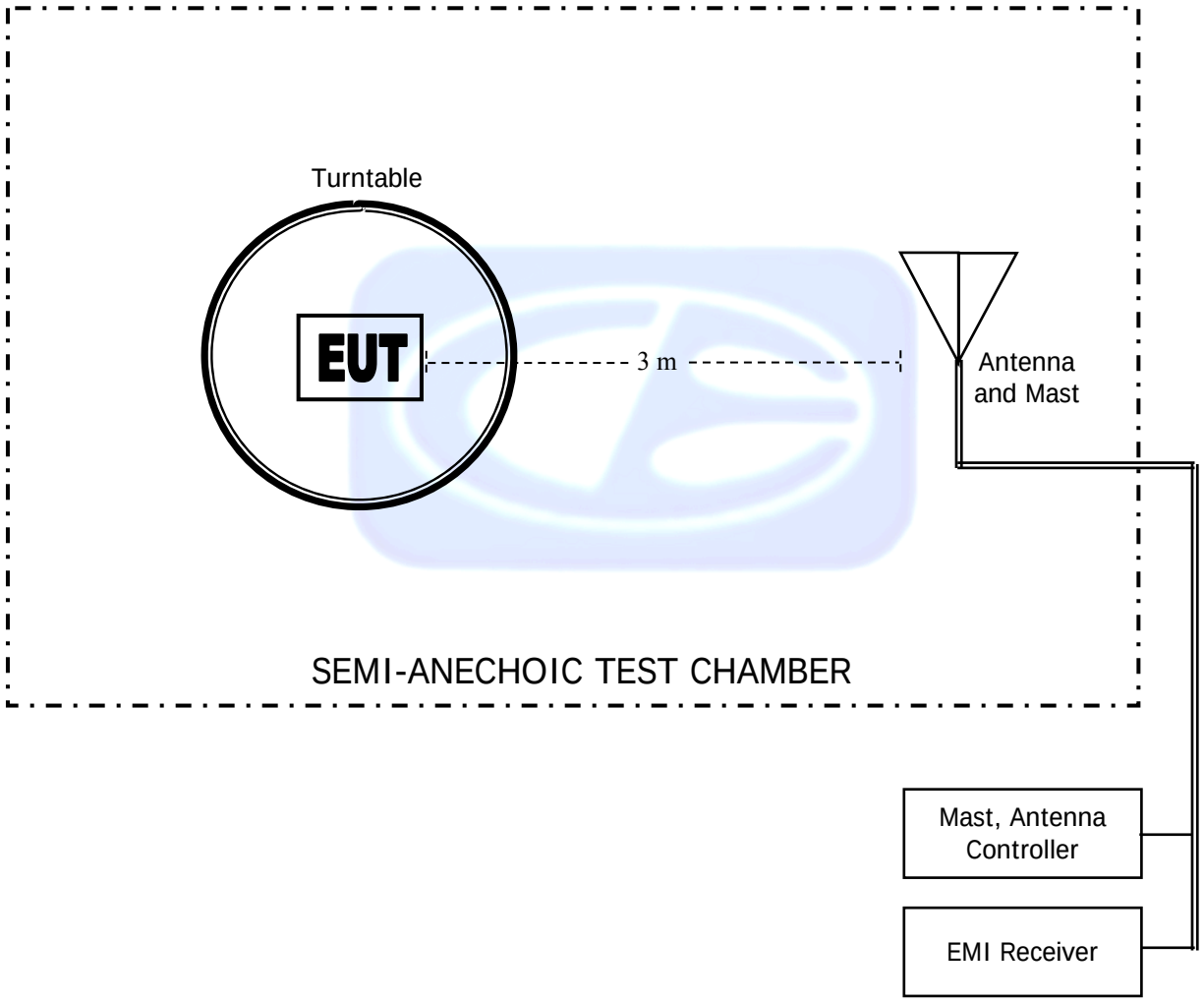
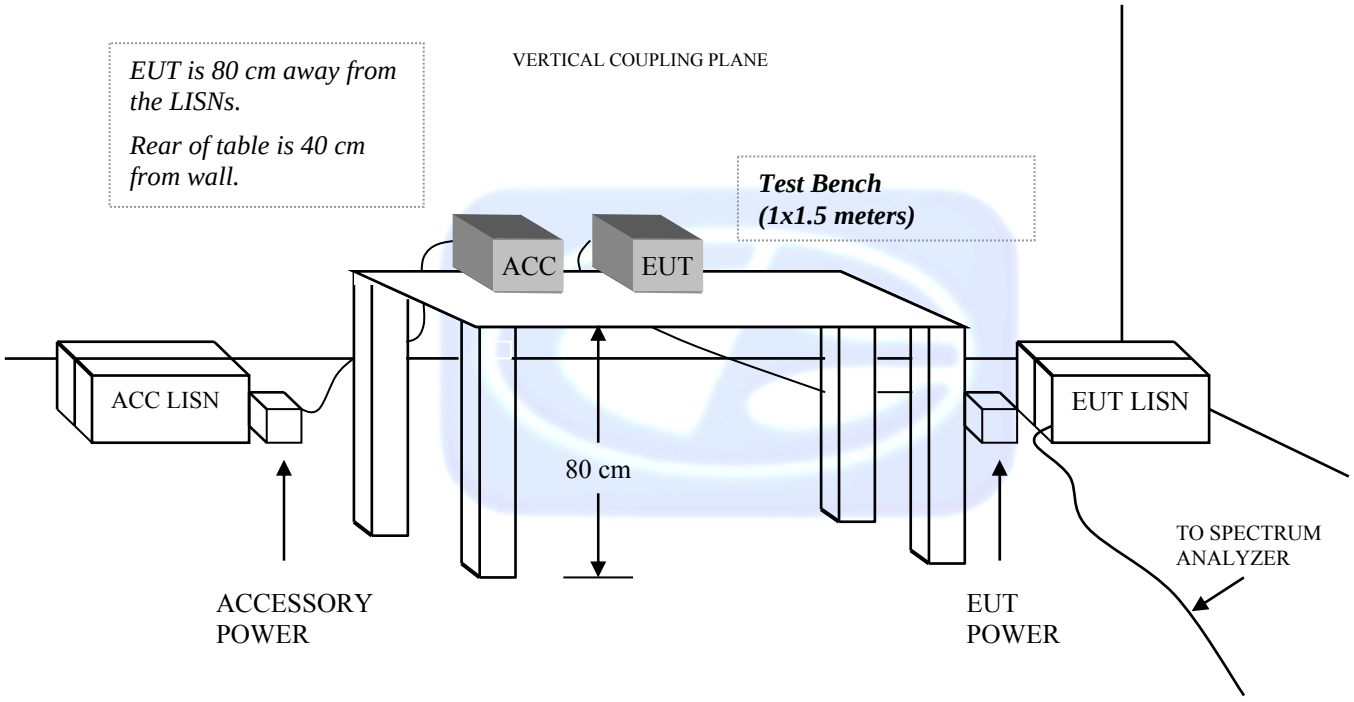


FIGURE 2: CONDUCTED EMISSIONS TEST SETUP



COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 9, 2017

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-36.17	15.33
0.01	-35.86	15.64
0.02	-37.30	14.20
0.03	-36.58	14.92
0.04	-36.99	14.51
0.05	-37.66	13.84
0.06	-37.53	13.97
0.07	-37.64	13.86
0.08	-37.52	13.98
0.09	-37.62	13.88
0.1	-37.59	13.91
0.2	-37.79	13.71
0.3	-37.80	13.70
0.4	-37.70	13.80
0.5	-37.79	13.71
0.6	-37.79	13.71
0.7	-37.69	13.81
0.8	-37.49	14.01
0.9	-37.39	14.11
1	-37.39	14.11
2	-37.09	14.41
3	-37.09	14.41
4	-37.19	14.31
5	-36.98	14.52
6	-37.17	14.33
7	-37.05	14.45
8	-36.85	14.65
9	-36.84	14.66
10	-36.75	14.75
15	-37.16	14.34
20	-36.44	15.06
25	-37.88	13.62
30	-39.14	12.36

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61060

CALIBRATION DATE: JULY 27, 2017

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.80	200	14.10
35	24.00	250	15.30
40	24.70	300	17.70
45	22.90	350	17.70
50	22.10	400	19.00
60	17.60	450	21.30
70	12.70	500	21.00
80	11.20	550	22.30
90	13.10	600	23.40
100	14.40	650	22.90
120	15.30	700	24.60
125	15.00	750	24.50
140	12.80	800	25.40
150	16.50	850	26.40
160	12.90	900	27.20
175	14.30	950	27.80
180	14.50	1000	26.80

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 22, 2018

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.71	10.0	40.08
1.5	25.46	10.5	40.75
2.0	29.26	11.0	41.78
2.5	27.95	11.5	41.02
3.0	29.03	12.0	40.32
3.5	29.70	12.5	40.96
4.0	30.71	13.0	40.29
4.5	31.62	13.5	39.48
5.0	33.23	14.0	39.89
5.5	35.07	14.5	42.75
6.0	34.43	15.0	40.98
6.5	34.98	15.5	38.54
7.0	36.75	16.0	39.40
7.5	37.10	16.5	39.40
8.0	37.66	17.0	41.74
8.5	39.29	17.5	42.58
9.0	37.75	18.0	44.68
9.5	38.23		

COM-POWER PAM-118A

PREAMPLIFIER

S/N: 551024

CALIBRATION DATE: MAY 12, 2016

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	39.84	6.0	39.05
1.1	39.40	6.5	38.94
1.2	39.58	7.0	39.25
1.3	39.68	7.5	39.09
1.4	39.91	8.0	39.01
1.5	39.78	8.5	38.60
1.6	39.50	9.0	38.64
1.7	39.81	9.5	39.67
1.8	39.89	10.0	39.30
1.9	39.94	11.0	39.15
2.0	39.57	12.0	39.24
2.5	40.39	13.0	39.49
3.0	40.63	14.0	39.44
3.5	40.80	15.0	39.94
4.0	40.86	16.0	40.09
4.5	39.94	17.0	40.06
5.0	34.47	18.0	39.76
5.5	39.32		

COM-POWER AH-826

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

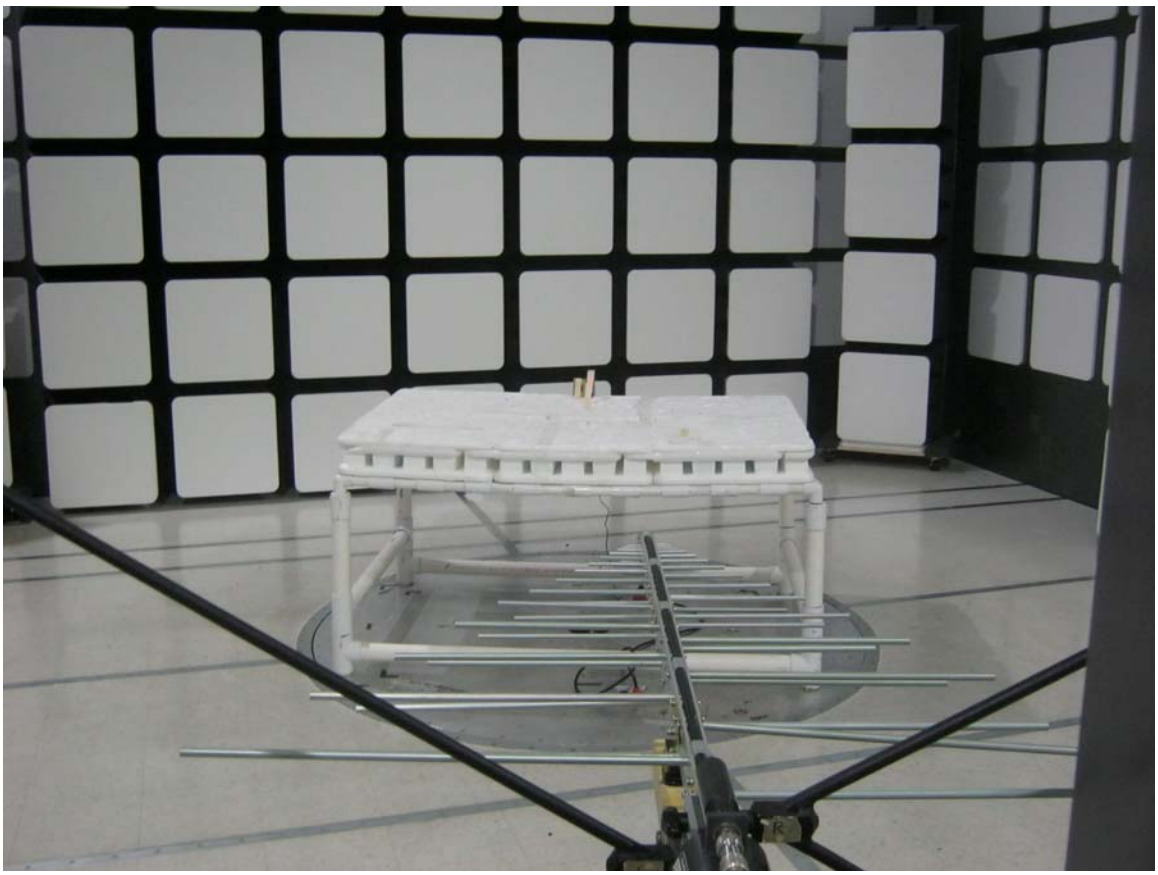
COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MAY 13, 2016

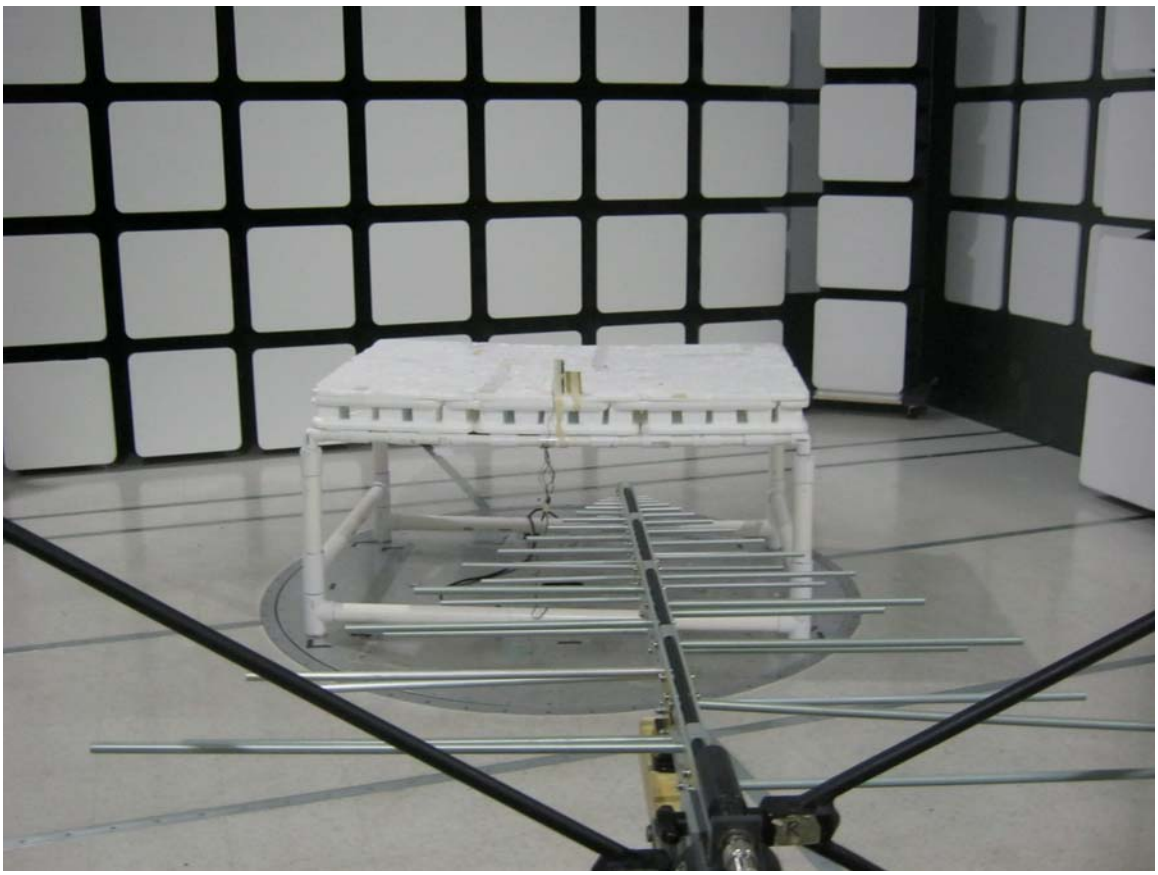
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	25.33	36.5	23.71
28.0	24.49	37.0	26.35
28.5	24.74	37.5	23.49
29.0	25.93	38.0	25.42
29.5	26.28	38.5	24.87
30.0	26.17	39.0	22.60
30.5	26.11	39.5	20.57
		40.0	19.15



FRONT VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER
MODEL: TR4-3.3
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

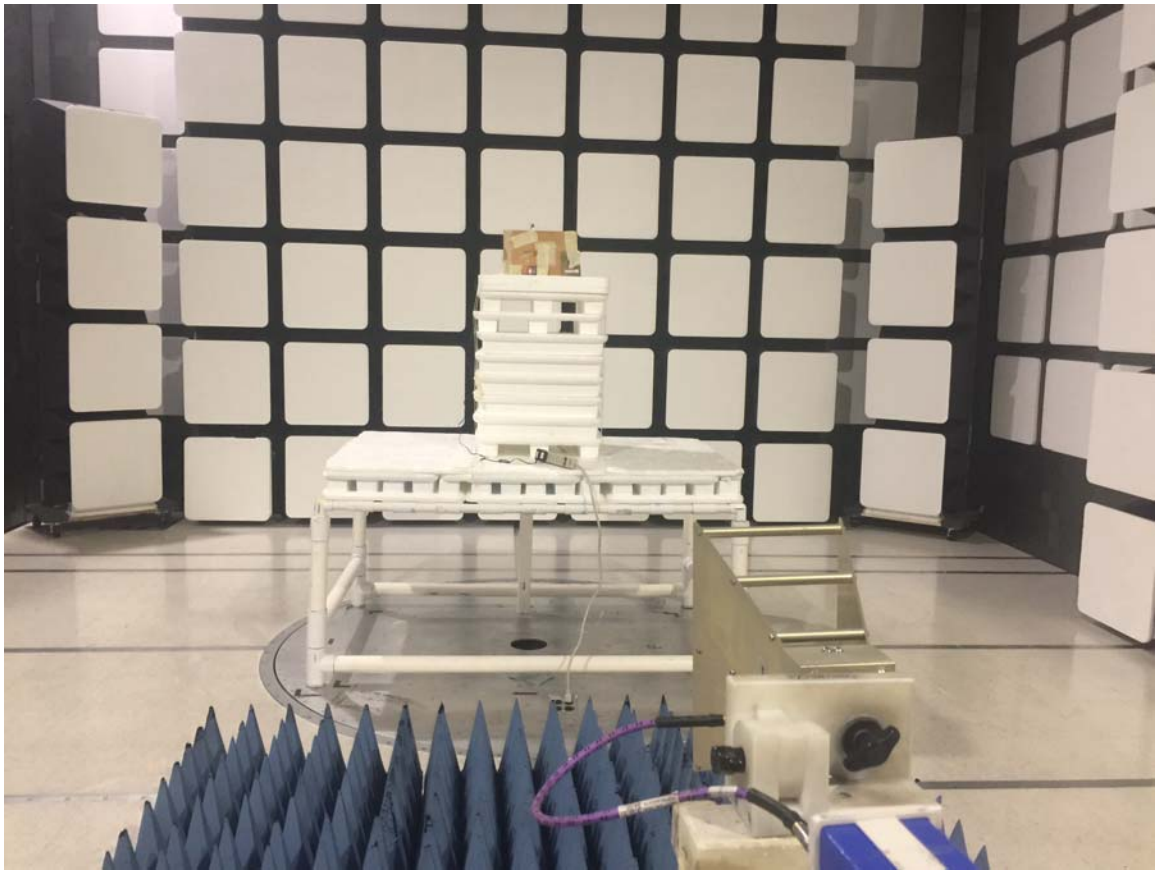
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER
MODEL: TR4-3.3
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

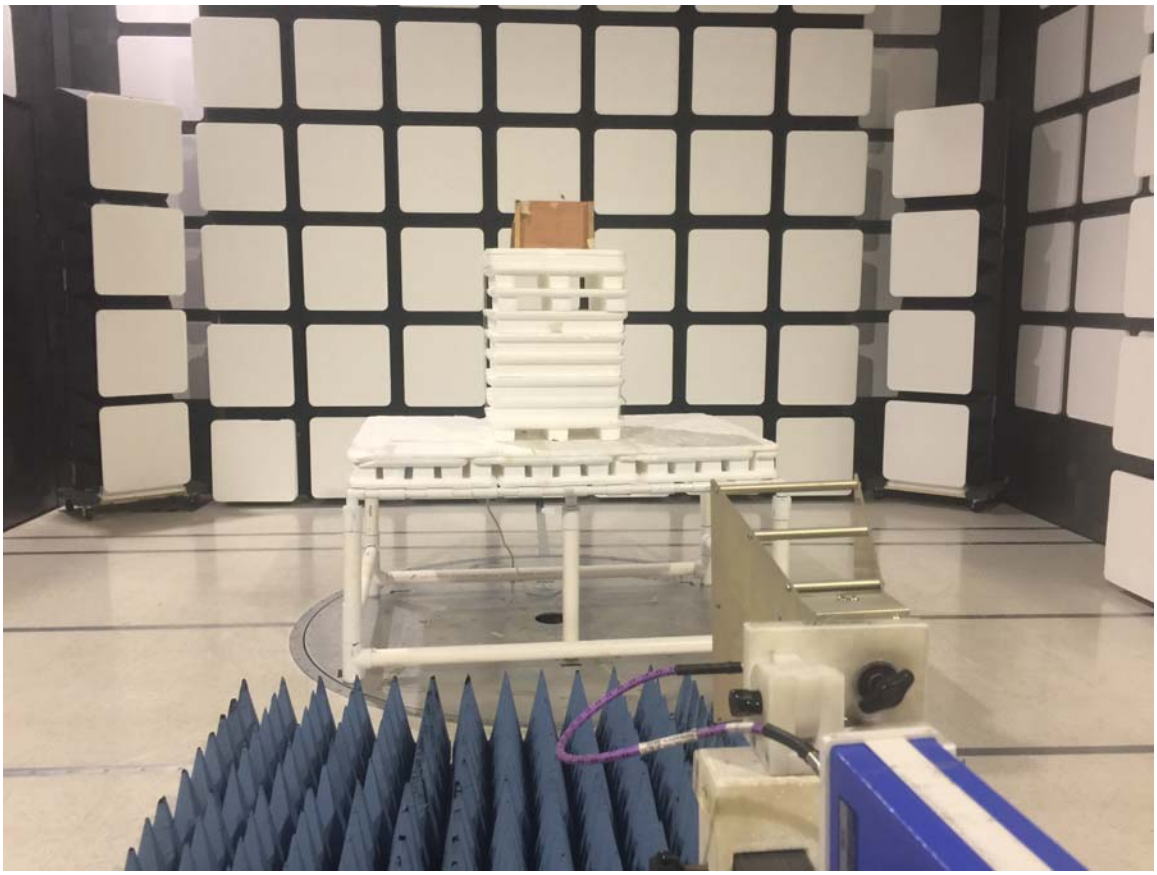
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER
MODEL: TR4-3.3
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

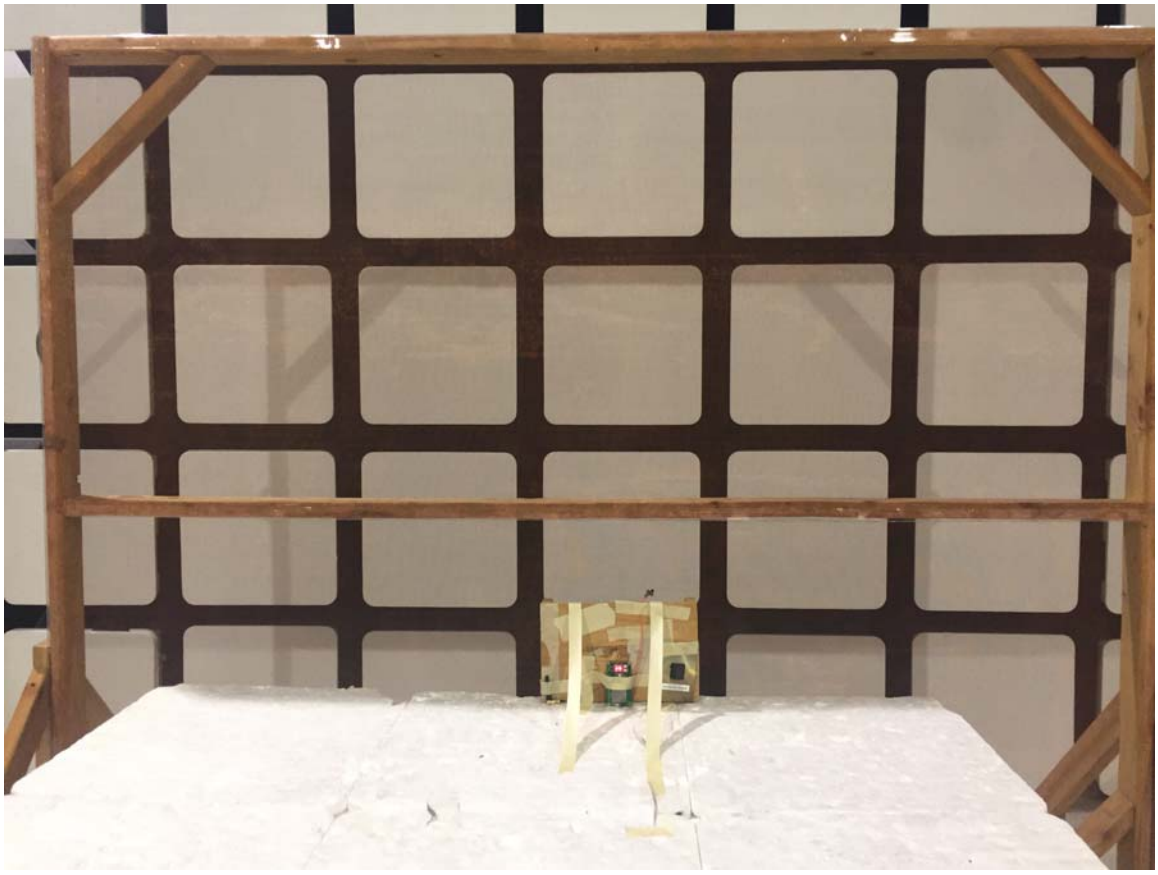
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER
MODEL: TR4-3.3
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

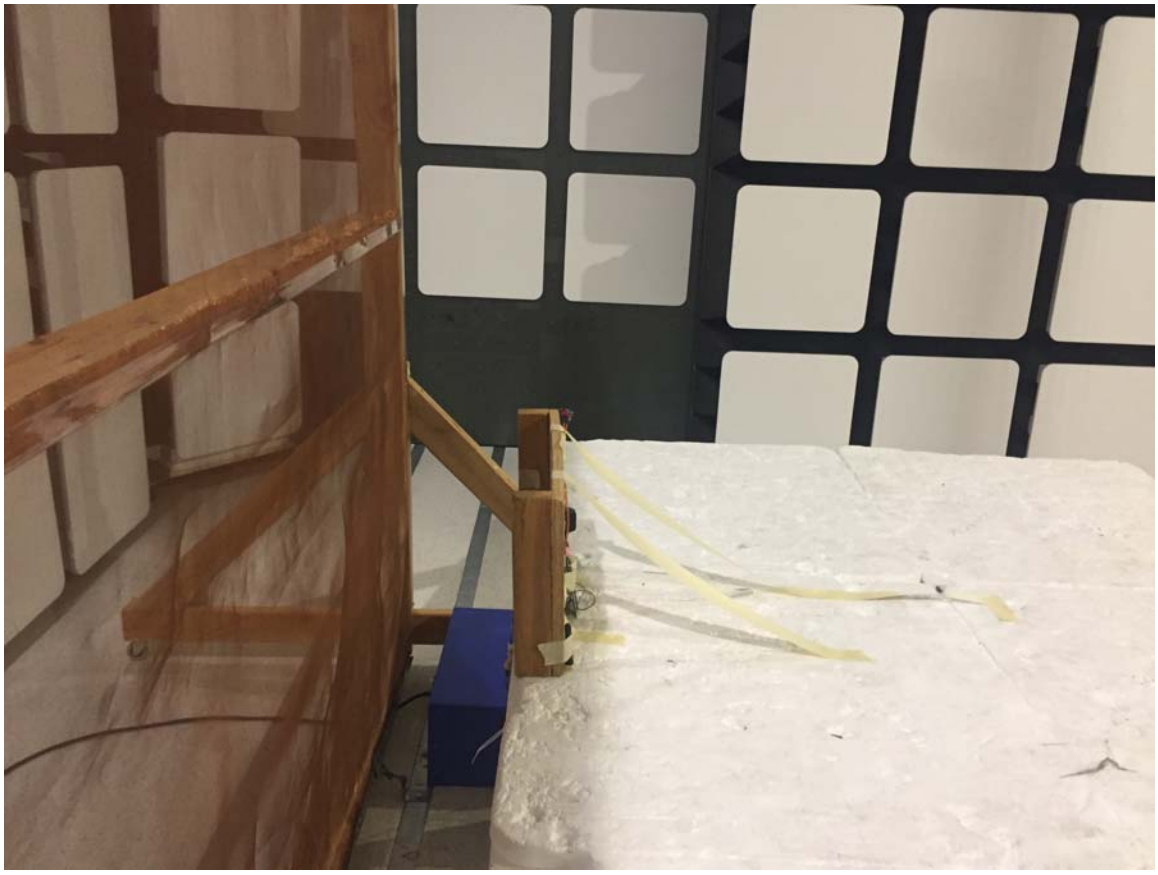
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER
MODEL: TR4-3.3
FCC SUBPART B AND C – CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

PRESTON CINEMA SYSTEMS
2.4 GHz TRANSCEIVER
MODEL: TR4-3.3
FCC SUBPART B AND C – CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.10	V	73.97	-23.87	Peak	308.00	158.91	
4804	32.04	V	53.97	-21.93	Avg	308.00	158.91	
7206	52.58	V	73.97	-21.39	Peak	186.25	238.73	
7206	34.52	V	53.97	-19.45	Avg	186.25	238.73	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	46.66	H	73.97	-27.31	Peak	78.50	126.79	
4804	28.60	H	53.97	-25.37	Avg	78.50	126.79	
7206	58.45	H	73.97	-15.52	Peak	280.00	127.32	
7206	40.39	H	53.97	-13.58	Avg	280.00	127.32	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	49.48	V	73.97	-24.49	Peak	353.00	111.38	
4804	31.42	V	53.97	-22.55	Avg	353.00	111.38	
7206	56.47	V	73.97	-17.50	Peak	134.00	222.79	
7206	38.41	V	53.97	-15.56	Avg	134.00	222.79	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	49.17	H	73.97	-24.80	Peak	226.00	111.32	
4804	31.11	H	53.97	-22.86	Avg	226.00	111.32	
7206	58.79	H	73.97	-15.18	Peak	108.75	111.44	
7206	40.73	H	53.97	-13.24	Avg	108.75	111.44	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.23	V	73.97	-23.74	Peak	235.25	111.38	
4804	32.17	V	53.97	-21.80	Avg	235.25	111.38	
7206	56.01	V	73.97	-17.96	Peak	220.50	127.20	
7206	37.95	V	53.97	-16.02	Avg	220.50	127.20	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	51.80	H	73.97	-22.17	Peak	252.50	127.32	
4804	33.74	H	53.97	-20.23	Avg	252.50	127.32	
7206	61.29	H	73.97	-12.68	Peak	283.25	175.08	
7206	43.23	H	53.97	-10.74	Avg	283.25	175.08	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	40.63	V	73.97	-33.34	Peak	219.50	175.08	
4880	22.57	V	53.97	-31.40	Avg	219.50	175.08	
7320	62.16	V	73.97	-11.81	Peak	304.00	111.38	
7320	44.10	V	53.97	-9.87	Avg	304.00	111.38	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	46.09	H	73.97	-27.88	Peak	221.25	111.08	
4880	28.03	H	53.97	-25.94	Avg	221.25	111.08	
7320	61.91	H	73.97	-12.06	Peak	305.00	111.20	
7320	43.85	H	53.97	-10.12	Avg	305.00	111.20	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	43.95	V	73.97	-30.02	Peak	228.00	249.99	
4880	25.89	V	53.97	-28.08	Avg	228.00	249.99	
7320	61.72	V	73.97	-12.25	Peak	4.25	174.91	
7320	43.66	V	53.97	-10.31	Avg	4.25	174.91	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	47.64	H	73.97	-26.33	Peak	134.50	111.38	
4880	29.58	H	53.97	-24.39	Avg	134.50	111.38	
7320	64.45	H	73.97	-9.52	Peak	248.00	127.14	
7320	46.39	H	53.97	-7.58	Avg	248.00	127.14	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	41.53	V	73.97	-32.44	Peak	228.00	158.73	
4880	23.47	V	53.97	-30.50	Avg	228.00	158.73	
7320	60.14	V	73.97	-13.83	Peak	217.25	111.38	
7320	42.08	V	53.97	-11.89	Avg	217.25	111.38	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	52.56	H	73.97	-21.41	Peak	244.75	142.97	
4880	34.50	H	53.97	-19.47	Avg	244.75	142.97	
7320	63.80	H	73.97	-10.17	Peak	270.59	111.38	
7320	45.74	H	53.97	-8.23	Avg	270.59	111.38	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	62.21	V	73.97	-11.76	Peak	184.50	249.97	
4952	44.15	V	53.97	-9.82	Avg	184.50	249.97	
7428	64.44	V	73.97	-9.53	Peak	185.75	111.38	
7428	46.38	V	53.97	-7.59	Avg	185.75	111.38	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	61.36	H	73.97	-12.61	Peak	216.25	127.32	
4952	43.30	H	53.97	-10.67	Avg	216.25	127.32	
7428	63.57	H	73.97	-10.40	Peak	268.25	206.91	
7428	45.51	H	53.97	-8.46	Avg	268.25	206.91	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.62	V	73.97	-13.35	Peak	13.00	249.95	
4952	42.56	V	53.97	-11.41	Avg	13.00	249.95	
7428	62.66	V	73.97	-11.31	Peak	139.75	110.73	
7428	44.60	V	53.97	-9.37	Avg	139.75	110.73	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.66	H	73.97	-13.31	Peak	259.50	111.50	
4952	42.60	H	53.97	-11.37	Avg	259.50	111.50	
7428	66.02	H	73.97	-7.95	Peak	223.00	111.38	
7428	47.96	H	53.97	-6.01	Avg	223.00	111.38	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.87	V	73.97	-13.10	Peak	233.50	110.55	
4952	42.81	V	53.97	-11.16	Avg	233.50	110.55	
7428	62.37	V	73.97	-11.60	Peak	220.75	111.44	
7428	44.31	V	53.97	-9.66	Avg	220.75	111.44	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: 1513504-1 - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.40	H	73.97	-13.57	Peak	215.50	126.97	
4952	42.34	H	53.97	-11.63	Avg	215.50	126.97	
7428	66.69	H	73.97	-7.28	Peak	17.75	111.32	
7428	48.63	H	53.97	-5.34	Avg	17.75	111.32	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 9 kHz to 30 MHz
Antenna Type: 1513504-1 - Port 1

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 9 kHz to 30 MHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 9 kHz to 30 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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 1 GHz to 25 GHz
Antenna Type: 1513504-1 - Port 1

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

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	48.44	V	73.97	-25.53	Peak	239.50	111.44	
4804	30.38	V	53.97	-23.59	Avg	239.50	111.44	
7206	56.70	V	73.97	-17.27	Peak	304.25	111.44	
7206	38.64	V	53.97	-15.33	Avg	304.25	111.44	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.18	H	73.97	-23.79	Peak	210.75	111.44	
4804	32.12	H	53.97	-21.85	Avg	210.75	111.44	
7206	60.85	H	73.97	-13.12	Peak	238.25	175.08	
7206	42.79	H	53.97	-11.18	Avg	238.25	175.08	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.36	V	73.97	-23.61	Peak	251.50	127.26	
4804	32.30	V	53.97	-21.67	Avg	251.50	127.26	
7206	60.87	V	73.97	-13.10	Peak	243.25	127.26	
7206	42.81	V	53.97	-11.16	Avg	243.25	127.26	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	48.60	H	73.97	-25.37	Peak	287.00	127.14	
4804	30.54	H	53.97	-23.43	Avg	287.00	127.14	
7206	65.07	H	73.97	-8.90	Peak	254.75	111.38	
7206	47.01	H	53.97	-6.96	Avg	254.75	111.38	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	47.51	V	73.97	-26.46	Peak	304.25	143.26	
4804	29.45	V	53.97	-24.52	Avg	304.25	143.26	
7206	60.55	V	73.97	-13.42	Peak	301.50	111.38	
7206	42.49	V	53.97	-11.48	Avg	301.50	111.38	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	52.96	H	73.97	-21.01	Peak	268.25	127.20	
4804	34.90	H	53.97	-19.07	Avg	268.25	127.20	
7206	64.56	H	73.97	-9.41	Peak	244.00	111.32	
7206	46.50	H	53.97	-7.47	Avg	244.00	111.32	
9608								**Not in Restricted Band -**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	41.18	V	73.97	-32.79	Peak	191.25	159.08	
4880	23.12	V	53.97	-30.85	Avg	191.25	159.08	
7320	62.69	V	73.97	-11.28	Peak	217.75	111.26	
7320	44.63	V	53.97	-9.34	Avg	217.75	111.26	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	40.57	H	73.97	-33.40	Peak	100.00	127.20	
4880	22.51	H	53.97	-31.46	Avg	100.00	127.20	
7320	65.55	H	73.97	-8.42	Peak	236.00	191.02	
7320	47.49	H	53.97	-6.48	Avg	236.00	191.02	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	40.52	V	73.97	-33.45	Peak	70.00	175.08	
4880	22.46	V	53.97	-31.51	Avg	70.00	175.08	
7320	57.10	V	73.97	-16.87	Peak	292.75	222.85	
7320	39.04	V	53.97	-14.93	Avg	292.75	222.85	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	41.31	H	73.97	-32.66	Peak	308.50	238.73	
4880	23.25	H	53.97	-30.72	Avg	308.50	238.73	
7320	68.46	H	73.97	-5.51	Peak	252.25	143.50	
7320	50.40	H	53.97	-3.57	Avg	252.25	143.50	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	40.66	V	73.97	-33.31	Peak	178.25	238.67	
4880	22.60	V	53.97	-31.37	Avg	178.25	238.67	
7320	61.24	V	73.97	-12.73	Peak	219.50	111.44	
7320	43.18	V	53.97	-10.79	Avg	219.50	111.44	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	40.86	H	73.97	-33.11	Peak	23.50	159.20	
4880	22.80	H	53.97	-31.17	Avg	23.50	159.20	
7320	67.68	H	73.97	-6.29	Peak	267.50	111.44	
7320	49.62	H	53.97	-4.35	Avg	267.50	111.44	
9760								**Not in Restricted Band -**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	40.80	V	73.97	-33.17	Peak	63.75	111.50	
4952	22.74	V	53.97	-31.23	Avg	63.75	111.50	
7428	62.28	V	73.97	-11.69	Peak	304.50	111.44	
7428	44.22	V	53.97	-9.75	Avg	304.50	111.44	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	55.38	H	73.97	-18.59	Peak	249.00	190.61	
4952	37.32	H	53.97	-16.65	Avg	249.00	190.61	
7428	61.78	H	73.97	-12.19	Peak	306.50	111.20	
7428	43.72	H	53.97	-10.25	Avg	306.50	111.20	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	54.88	V	73.97	-19.09	Peak	183.50	111.44	
4952	36.82	V	53.97	-17.15	Avg	183.50	111.44	
7428	63.89	V	73.97	-10.08	Peak	28.75	111.50	
7428	45.83	V	53.97	-8.14	Avg	28.75	111.50	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	54.06	H	73.97	-19.91	Peak	238.25	144.70	
4952	36.00	H	53.97	-17.97	Avg	238.25	144.70	
7428	64.65	H	73.97	-9.32	Peak	56.50	111.32	
7428	46.59	H	53.97	-7.38	Avg	56.50	111.32	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	55.69	V	73.97	-18.28	Peak	275.50	159.14	
4952	37.63	V	53.97	-16.34	Avg	275.50	159.14	
7428	59.83	V	73.97	-14.14	Peak	253.00	127.02	
7428	41.77	V	53.97	-12.20	Avg	253.00	127.02	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: 1513504-1 - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	52.33	H	73.97	-21.64	Peak	238.25	158.97	
4952	34.27	H	53.97	-19.70	Avg	238.25	158.97	
7428	62.80	H	73.97	-11.17	Peak	265.50	111.50	
7428	44.74	H	53.97	-9.23	Avg	265.50	111.50	
9904								**Not in Restricted Band -**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 9 kHz to 30 MHz
Antenna Type: 1513504-1 - Port 2

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 9 kHz to 30 MHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 9 kHz to 30 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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 1 GHz to 25 GHz
Antenna Type: 1513504-1 - Port 2

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

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.63	V	73.97	-23.35	Peak	286.75	112.28	
4804	32.57	V	53.97	-21.41	Avg	286.75	112.28	
7206	57.60	V	73.97	-16.37	Peak	63.00	250.00	
7206	39.54	V	53.97	-14.43	Avg	63.00	250.00	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	47.92	H	73.97	-26.05	Peak	193.75	110.91	
4804	29.86	H	53.97	-24.11	Avg	193.75	110.91	
7206	55.92	H	73.97	-18.05	Peak	251.75	181.95	
7206	37.86	H	53.97	-16.11	Avg	251.75	181.95	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.74	V	73.97	-23.23	Peak	348.50	190.85	
4804	32.68	V	53.97	-21.29	Avg	348.50	190.85	
7206	55.56	V	73.97	-18.41	Peak	349.00	105.47	
7206	37.50	V	53.97	-16.47	Avg	349.00	105.47	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	47.78	H	73.97	-26.19	Peak	122.75	100.00	
4804	29.72	H	53.97	-24.25	Avg	122.75	100.00	
7206	64.05	H	73.97	-9.92	Peak	235.50	196.04	
7206	45.99	H	53.97	-7.98	Avg	235.50	196.04	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	49.56	V	73.97	-24.41	Peak	219.75	112.28	
4804	31.50	V	53.97	-22.47	Avg	219.75	112.28	
7206	53.50	V	73.97	-20.47	Peak	300.75	103.86	
7206	35.44	V	53.97	-18.53	Avg	300.75	103.86	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	51.39	H	73.97	-22.58	Peak	227.75	215.86	
4804	33.33	H	53.97	-20.64	Avg	227.75	215.86	
7206	61.47	H	73.97	-12.50	Peak	30.75	129.83	
7206	43.41	H	53.97	-10.56	Avg	30.75	129.83	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	50.08	V	73.97	-23.89	Peak	197.75	154.97	
4880	32.02	V	53.97	-21.95	Avg	197.75	154.97	
7320	58.83	V	73.97	-15.14	Peak	313.00	103.32	
7320	40.77	V	53.97	-13.20	Avg	313.00	103.32	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	50.52	H	73.97	-23.45	Peak	260.25	206.31	
4880	32.46	H	53.97	-21.51	Avg	260.25	206.31	
7320	58.68	H	73.97	-15.29	Peak	279.50	211.92	
7320	40.62	H	53.97	-13.35	Avg	279.50	211.92	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	49.84	V	73.97	-24.14	Peak	195.50	163.92	
4880	31.78	V	53.97	-22.20	Avg	195.50	163.92	
7320	57.43	V	73.97	-16.54	Peak	344.00	169.00	
7320	39.37	V	53.97	-14.60	Avg	344.00	169.00	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	48.11	H	73.97	-25.86	Peak	108.50	110.79	
4880	30.05	H	53.97	-23.92	Avg	108.50	110.79	
7320	61.29	H	73.97	-12.68	Peak	231.50	182.73	
7320	43.23	H	53.97	-10.74	Avg	231.50	182.73	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	49.94	V	73.97	-24.03	Peak	239.50	119.98	
4880	31.88	V	53.97	-22.09	Avg	239.50	119.98	
7320	52.56	V	73.97	-21.41	Peak	236.75	235.50	
7320	34.50	V	53.97	-19.47	Avg	236.75	235.50	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	51.23	H	73.97	-22.74	Peak	260.25	199.98	
4880	33.17	H	53.97	-20.80	Avg	260.25	199.98	
7320	60.73	H	73.97	-13.25	Peak	26.75	127.98	
7320	42.67	H	53.97	-11.31	Avg	26.75	127.98	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.00	V	73.97	-13.97	Peak	198.50	153.83	
4952	41.94	V	53.97	-12.03	Avg	198.50	153.83	
7428	60.58	V	73.97	-13.39	Peak	202.00	100.00	
7428	42.52	V	53.97	-11.45	Avg	202.00	100.00	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	59.95	H	73.97	-14.02	Peak	260.25	118.13	
4952	41.89	H	53.97	-12.08	Avg	260.25	118.13	
7428	61.86	H	73.97	-12.11	Peak	255.00	169.89	
7428	43.80	H	53.97	-10.17	Avg	255.00	169.89	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	61.26	V	73.97	-12.72	Peak	246.50	157.23	
4952	43.20	V	53.97	-10.78	Avg	246.50	157.23	
7428	60.34	V	73.97	-13.63	Peak	211.00	100.00	
7428	42.28	V	53.97	-11.69	Avg	211.00	100.00	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	58.25	H	73.97	-15.72	Peak	195.00	102.07	
4952	40.19	H	53.97	-13.78	Avg	195.00	102.07	
7428	65.76	H	73.97	-8.21	Peak	233.75	110.85	
7428	47.70	H	53.97	-6.27	Avg	233.75	110.85	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.89	V	73.97	-13.08	Peak	179.50	157.95	
4952	42.83	V	53.97	-11.14	Avg	179.50	157.95	
7428	56.57	V	73.97	-17.40	Peak	286.75	100.58	
7428	38.51	V	53.97	-15.46	Avg	286.75	100.58	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	61.73	H	73.97	-12.24	Peak	260.50	165.89	
4952	43.67	H	53.97	-10.30	Avg	260.50	165.89	
7428	63.75	H	73.97	-10.22	Peak	289.25	100.00	
7428	45.69	H	53.97	-8.28	Avg	289.25	100.00	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 9 kHz to 30 MHz
Antenna Type: ANT-2.4-CW-RCS - Port 1

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 9 kHz to 30 MHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 9 kHz to 30 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
Model: TR4-3.3

Date: 04/19/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 1 GHz to 25 GHz
Antenna Type: ANT-2.4-CW-RCS - Port 1

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

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	49.59	V	73.97	-24.38	Peak	281.50	203.20	
4804	31.53	V	53.97	-22.44	Avg	281.50	203.20	
7206	59.70	V	73.97	-14.27	Peak	279.75	211.92	
7206	41.64	V	53.97	-12.33	Avg	279.75	211.92	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	51.08	H	73.97	-22.89	Peak	283.75	174.19	
4804	33.02	H	53.97	-20.95	Avg	283.75	174.19	
7206	58.04	H	73.97	-15.93	Peak	220.00	100.00	
7206	39.98	H	53.97	-13.99	Avg	220.00	100.00	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	53.01	V	73.97	-20.96	Peak	192.50	149.89	
4804	34.95	V	53.97	-19.02	Avg	192.50	149.89	
7206	57.42	V	73.97	-16.55	Peak	340.75	110.91	
7206	39.36	V	53.97	-14.61	Avg	340.75	110.91	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	52.45	H	73.97	-21.52	Peak	171.50	159.92	
4804	34.39	H	53.97	-19.58	Avg	171.50	159.92	
7206	56.68	H	73.97	-17.29	Peak	221.75	104.64	
7206	38.62	H	53.97	-15.35	Avg	221.75	104.64	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	49.71	V	73.97	-24.26	Peak	181.00	131.98	
4804	31.65	V	53.97	-22.32	Avg	181.00	131.98	
7206	58.53	V	73.97	-15.44	Peak	230.00	112.94	
7206	40.47	V	53.97	-13.50	Avg	230.00	112.94	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804	50.17	H	73.97	-23.80	Peak	334.50	129.83	
4804	32.11	H	53.97	-21.86	Avg	334.50	129.83	
7206	59.09	H	73.97	-14.88	Peak	269.50	197.95	
7206	41.03	H	53.97	-12.94	Avg	269.50	197.95	
9608								**Not in Restricted Band**
9608								**Done via Conducted**
12010								**No Emission**
12010								**Detected**
14412								**No Emission**
14412								**Detected**
16814								**No Emission**
16814								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	48.20	V	73.97	-25.77	Peak	248.00	109.83	
4880	30.14	V	53.97	-23.83	Avg	248.00	109.83	
7320	58.44	V	73.97	-15.54	Peak	214.50	105.05	
7320	40.38	V	53.97	-13.60	Avg	214.50	105.05	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	53.26	H	73.97	-20.71	Peak	254.75	121.89	
4880	35.20	H	53.97	-18.77	Avg	254.75	121.89	
7320	60.68	H	73.97	-13.29	Peak	249.75	196.16	
7320	42.62	H	53.97	-11.35	Avg	249.75	196.16	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	50.82	V	73.97	-23.15	Peak	207.00	159.74	
4880	32.76	V	53.97	-21.21	Avg	207.00	159.74	
7320	59.36	V	73.97	-14.61	Peak	360.00	100.00	
7320	41.30	V	53.97	-12.67	Avg	360.00	100.00	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	51.43	H	73.97	-22.55	Peak	241.50	109.77	
4880	33.37	H	53.97	-20.61	Avg	241.50	109.77	
7320	58.03	H	73.97	-15.95	Peak	244.25	102.07	
7320	39.97	H	53.97	-14.01	Avg	244.25	102.07	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	48.86	V	73.97	-25.11	Peak	226.25	114.91	
4880	30.80	V	53.97	-23.17	Avg	226.25	114.91	
7320	57.18	V	73.97	-16.79	Peak	230.25	118.31	
7320	39.12	V	53.97	-14.85	Avg	230.25	118.31	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880	54.33	H	73.97	-19.65	Peak	257.75	199.92	
4880	36.27	H	53.97	-17.71	Avg	257.75	199.92	
7320	60.29	H	73.97	-13.68	Peak	312.25	190.07	
7320	42.23	H	53.97	-11.74	Avg	312.25	190.07	
9760								**Not in Restricted Band**
9760								**Done via Conducted**
12200								**No Emission**
12200								**Detected**
14640								**No Emission**
14640								**Detected**
17080								**No Emission**
17080								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	56.29	V	73.97	-17.68	Peak	199.75	166.43	
4952	38.23	V	53.97	-15.74	Avg	199.75	166.43	
7428	60.48	V	73.97	-13.49	Peak	200.00	100.00	
7428	42.42	V	53.97	-11.55	Avg	200.00	100.00	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - X-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	57.92	H	73.97	-16.05	Peak	257.25	199.92	
4952	39.86	H	53.97	-14.11	Avg	257.25	199.92	
7428	64.25	H	73.97	-9.72	Peak	244.25	100.00	
7428	46.19	H	53.97	-7.78	Avg	244.25	100.00	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	54.67	V	73.97	-19.30	Peak	328.75	114.97	
4952	36.61	V	53.97	-17.36	Avg	328.75	114.97	
7428	62.15	V	73.97	-11.82	Peak	360.00	102.25	
7428	44.09	V	53.97	-9.88	Avg	360.00	102.25	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	56.81	H	73.97	-17.16	Peak	255.00	110.91	
4952	38.75	H	53.97	-15.22	Avg	255.00	110.91	
7428	61.92	H	73.97	-12.05	Peak	242.25	110.91	
7428	43.86	H	53.97	-10.11	Avg	242.25	110.91	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	58.52	V	73.97	-15.45	Peak	260.00	100.00	
4952	40.46	V	53.97	-13.51	Avg	260.00	100.00	
7428	60.71	V	73.97	-13.26	Peak	201.00	115.20	
7428	42.65	V	53.97	-11.32	Avg	201.00	115.20	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Antenna Type: ANT-2.4-CW-RCS - Port 2

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4952	60.00	H	73.97	-13.97	Peak	260.00	124.94	
4952	41.94	H	53.97	-12.03	Avg	260.00	124.94	
7428	63.33	H	73.97	-10.64	Peak	338.75	104.52	
7428	45.27	H	53.97	-8.70	Avg	338.75	104.52	
9904								**Not in Restricted Band**
9904								**Done via Conducted**
12380								**No Emission**
12380								**Detected**
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
Model: TR4-3.3

Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 9 kHz to 30 MHz
Antenna Type: ANT-2.4-CW-RCS - Port 2

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 9 kHz to 30 MHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 9 kHz to 30 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
Model: TR4-3.3

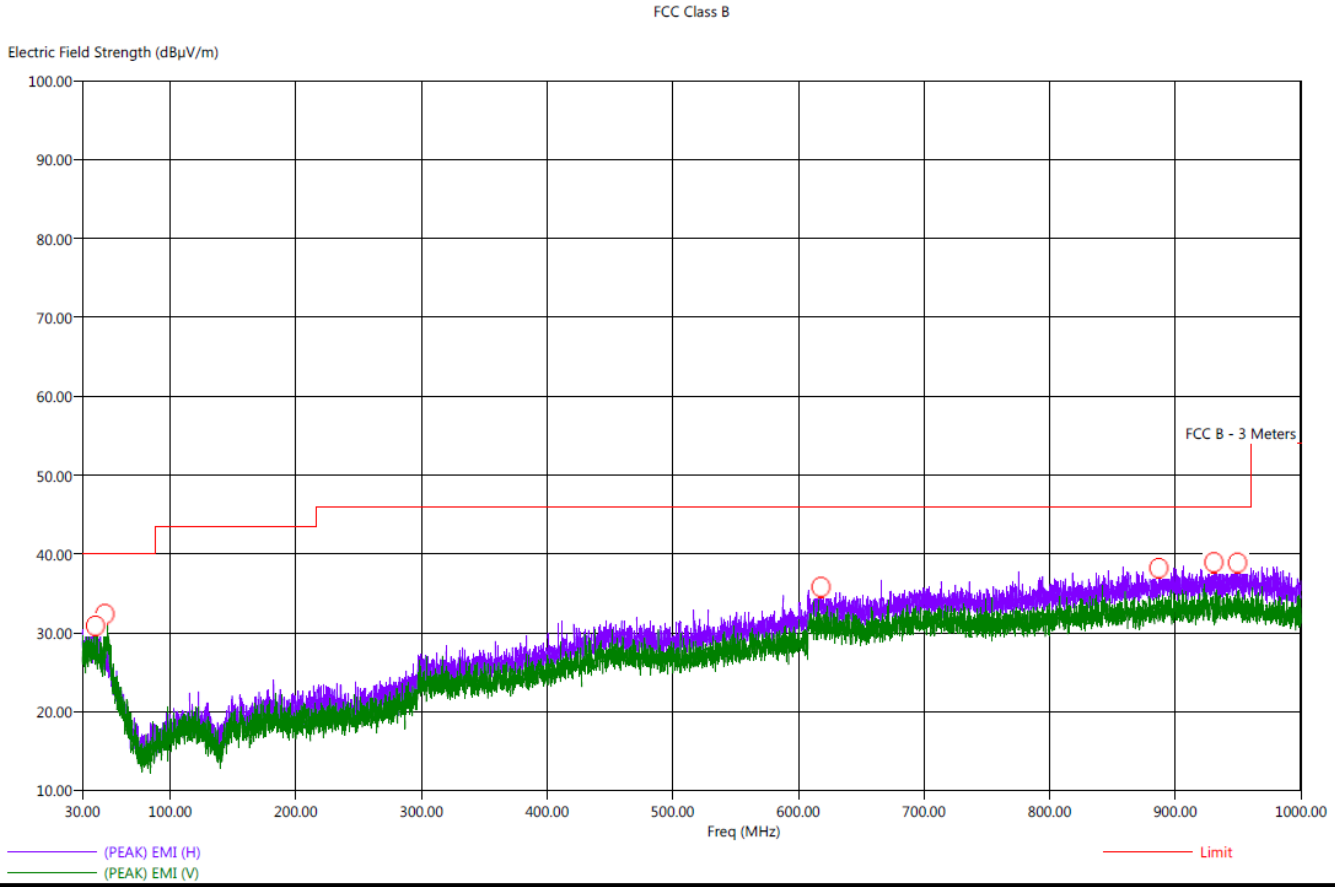
Date: 04/23/2018
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion 1 GHz to 25 GHz
Antenna Type: ANT-2.4-CW-RCS - Port 2

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

Title: Pre-Scan - FCC Class B
File: 1 - Agilent - Pre-Scan - FCC Class B - Port 1 - Tyco 1513504-1 Antenna - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 1
Y-Axis Worst Case

4/24/2018 11:01:23 AM
Sequence: Preliminary Scan



Title: Radiated Emissions Final Table - FCC Class B
File: 1 - Agilent - Final Scan - FCC Class B - Port 1 - Tyco 1513504-1 Antenna - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 1
Y-Axis Worst Case

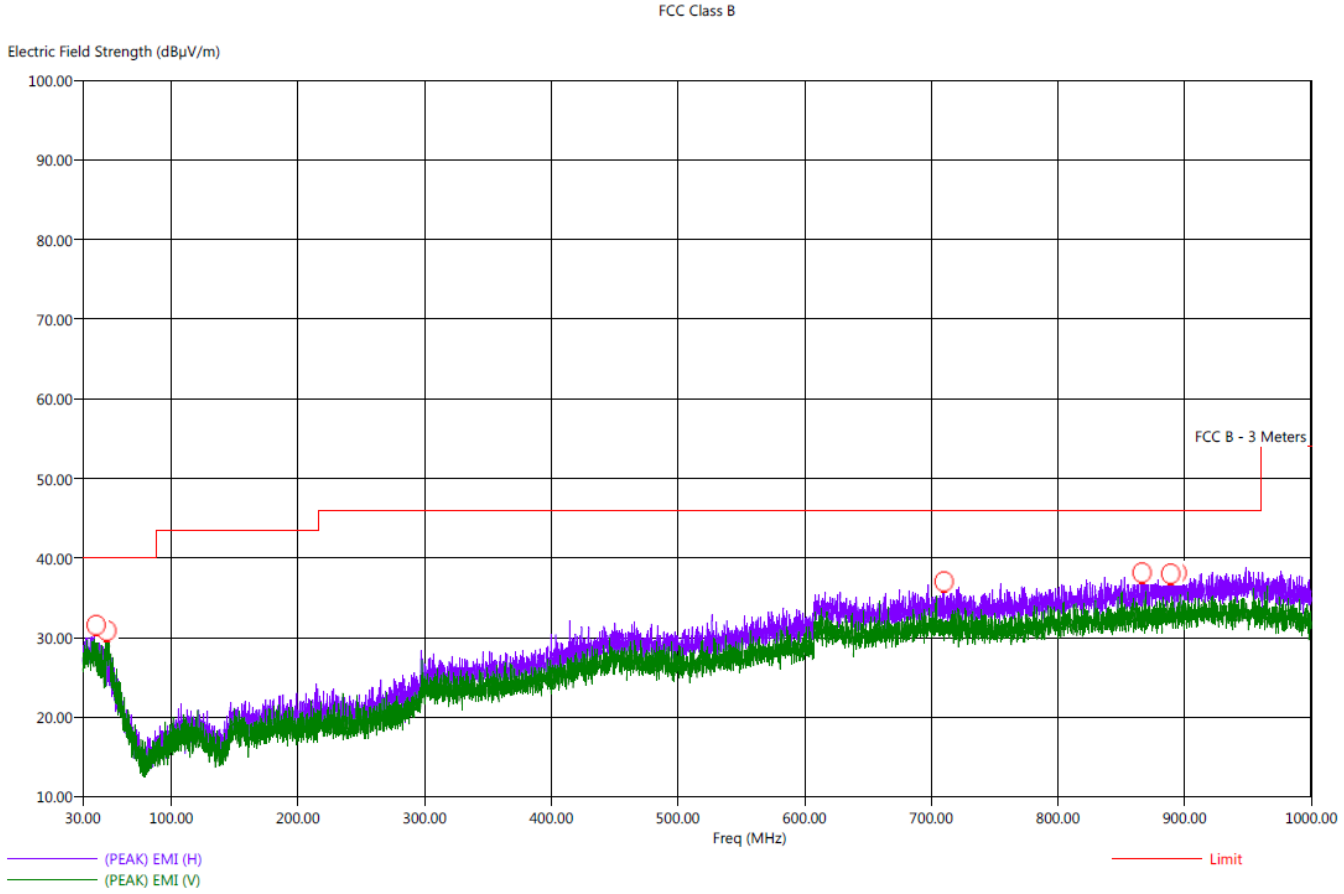
4/24/2018 11:30:46 AM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
40.50	V	32.99	27.46	-7.01	-12.54	40.00	24.42	0.90	260.75	318.67
48.00	V	31.04	26.31	-8.96	-13.69	40.00	22.41	0.90	116.00	302.61
618.00	H	35.92	30.98	-10.08	-15.02	46.00	23.22	2.50	206.50	270.67
887.00	H	38.02	33.26	-7.98	-12.74	46.00	26.99	2.95	114.50	366.49
930.80	H	39.28	33.65	-6.72	-12.35	46.00	27.58	3.06	275.00	350.43
949.60	H	39.43	33.89	-6.57	-12.11	46.00	27.80	3.10	260.25	175.14

Title: Pre-Scan - FCC Class B
File: 2 - Aqilent - Pre-Scan - FCC Class B - Port 2 - ANT-2.4-CW-RCS - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 2
Y-Axis Worst Case

4/24/2018 11:48:21 AM
Sequence: Preliminary Scan



Title: Radiated Emissions Final Table - FCC Class B
File: 2 - Agilent - Final Scan - FCC Class B - Port 2 - ANT-2.4-CW-RCS - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 2
Y-Axis Worst Case

4/24/2018 1:29:52 PM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
40.70	V	32.79	27.03	-7.21	-12.97	40.00	24.49	0.90	78.00	254.97
49.20	V	33.06	26.24	-6.94	-13.76	40.00	22.21	0.90	239.00	175.26
710.20	H	36.81	31.38	-9.19	-14.62	46.00	24.58	2.54	120.25	350.85
866.50	H	38.46	32.87	-7.54	-13.13	46.00	26.67	2.87	150.50	191.08
889.20	H	38.25	33.30	-7.75	-12.70	46.00	27.03	2.96	189.25	303.08
894.20	H	39.92	33.31	-6.08	-12.69	46.00	27.11	2.98	71.00	334.61

Title: Pre-Scan - FCC Class B
File: 3 - Agilent - Pre-Scan - FCC Class B - Port 2 - Tyco 1513504-1 Antenna - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 2
Y-Axis Worst Case

4/24/2018 2:39:02 PM
Sequence: Preliminary Scan

Title: Radiated Emissions Final Table - FCC Class B
File: 3 - Agilent - Final Scan - FCC Class B - Port 2 - ANT-2.4-CW-RCS - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 2
Y-Axis Worst Case

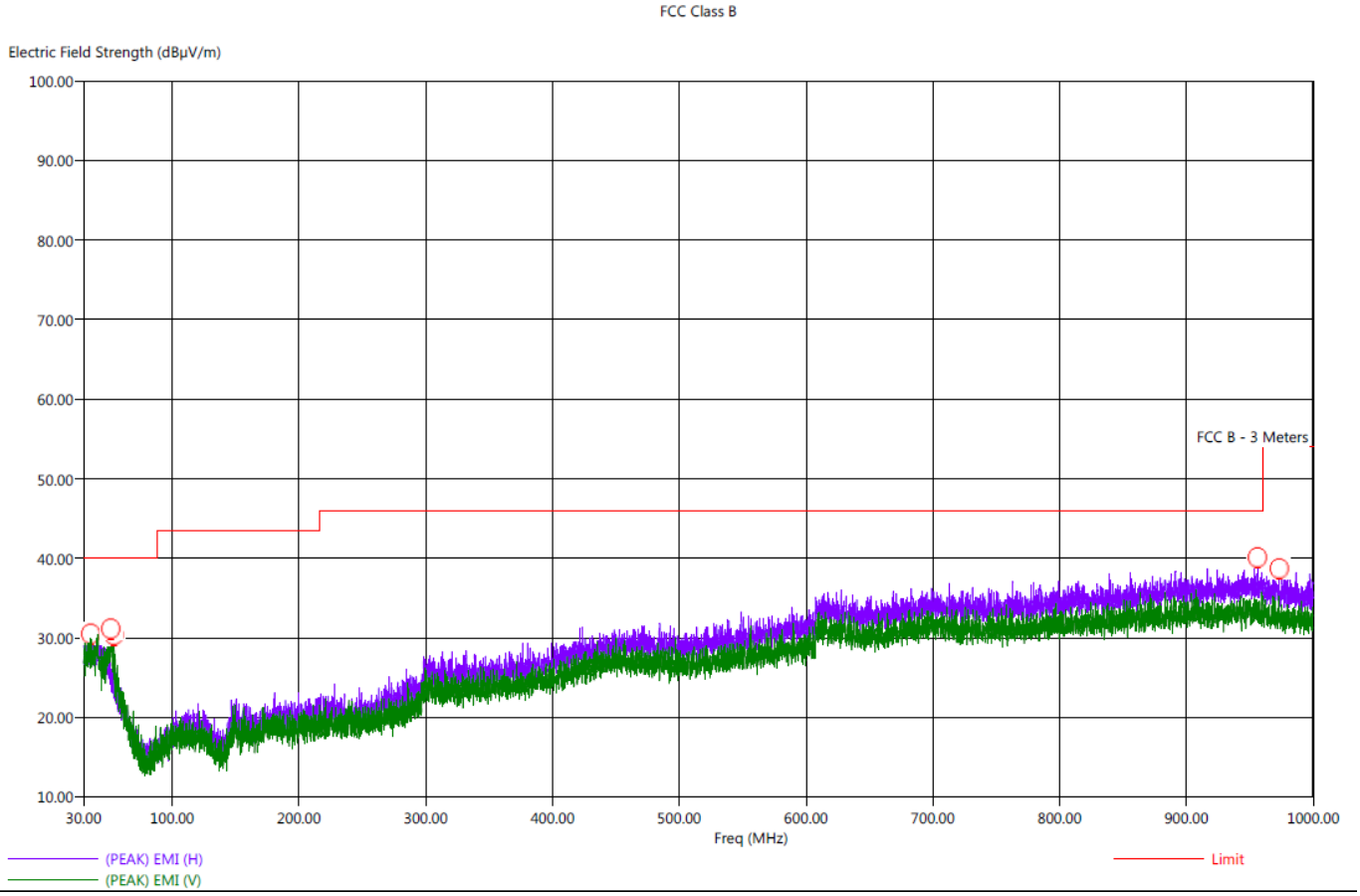
4/24/2018 2:49:38 PM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
39.10	H	31.94	26.96	-8.06	-13.04	40.00	24.58	0.89	65.75	127.14
40.10	V	33.10	27.31	-6.90	-12.69	40.00	24.69	0.90	169.50	127.20
53.80	V	32.33	26.74	-7.67	-13.26	40.00	20.23	0.90	244.75	111.50
921.60	H	38.61	33.61	-7.39	-12.39	46.00	27.46	3.04	200.25	334.79
939.40	H	38.87	33.69	-7.13	-12.31	46.00	27.68	3.08	72.75	398.37
958.20	H	38.46	33.61	-7.54	-12.39	46.00	27.64	3.10	112.50	286.79

Title: Pre-Scan - FCC Class B
File: 4- Agilent -Pre-Scan - FCC Class B - Port 1 - ANT-2.4-CW-RCS - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 1
Y-Axis Worst Case

4/24/2018 1:51:04 PM
Sequence: Preliminary Scan



Title: Radiated Emissions Final Table - FCC Class B
File: 4 - Agilent - Final Scan - FCC Class B - Port 1 - ANT-2.4-CW-RCS - Y-Axis.set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 1
Y-Axis Worst Case

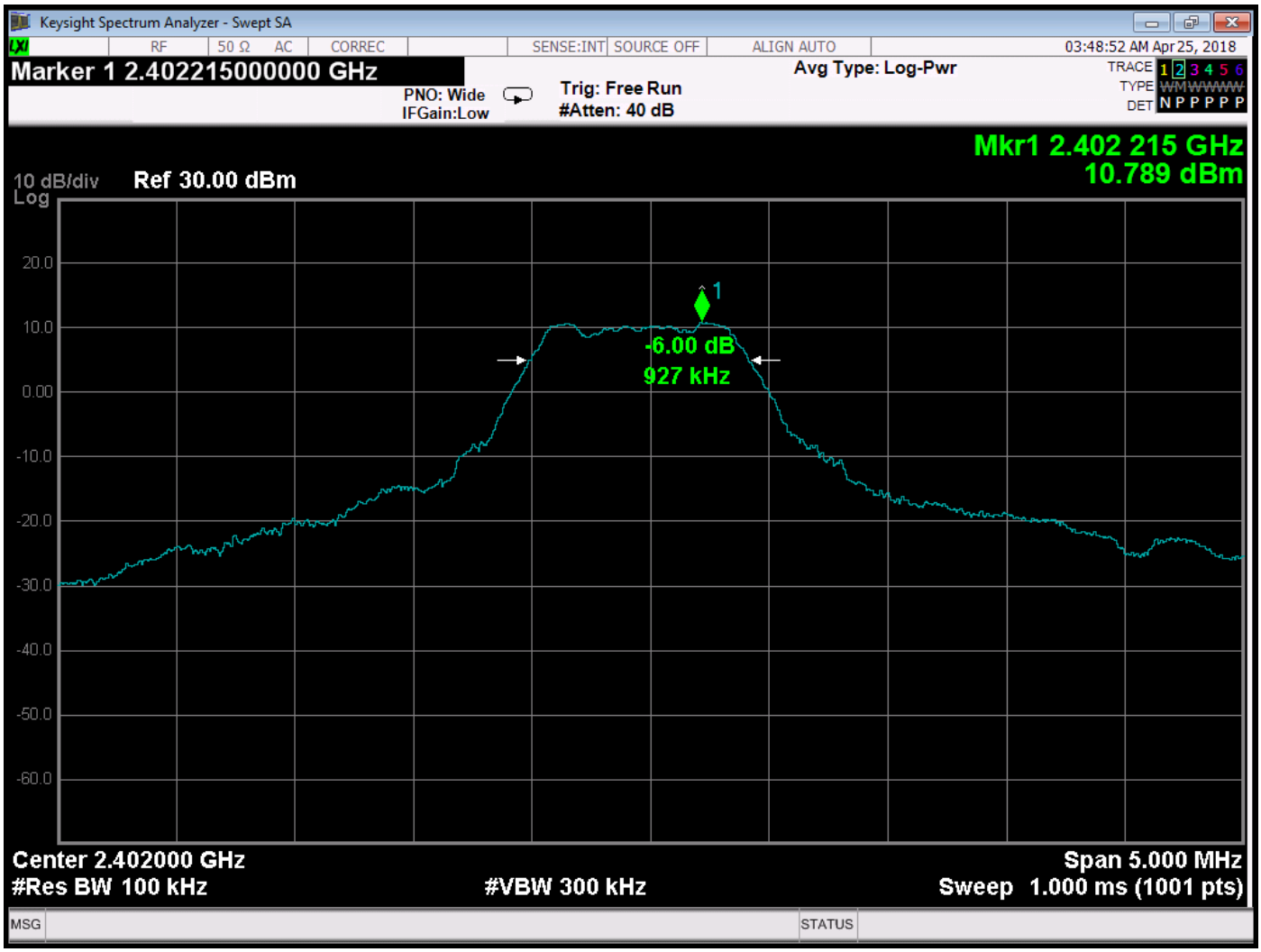
4/24/2018 2:16:00 PM
Sequence: Final Measurements

FCC Class B

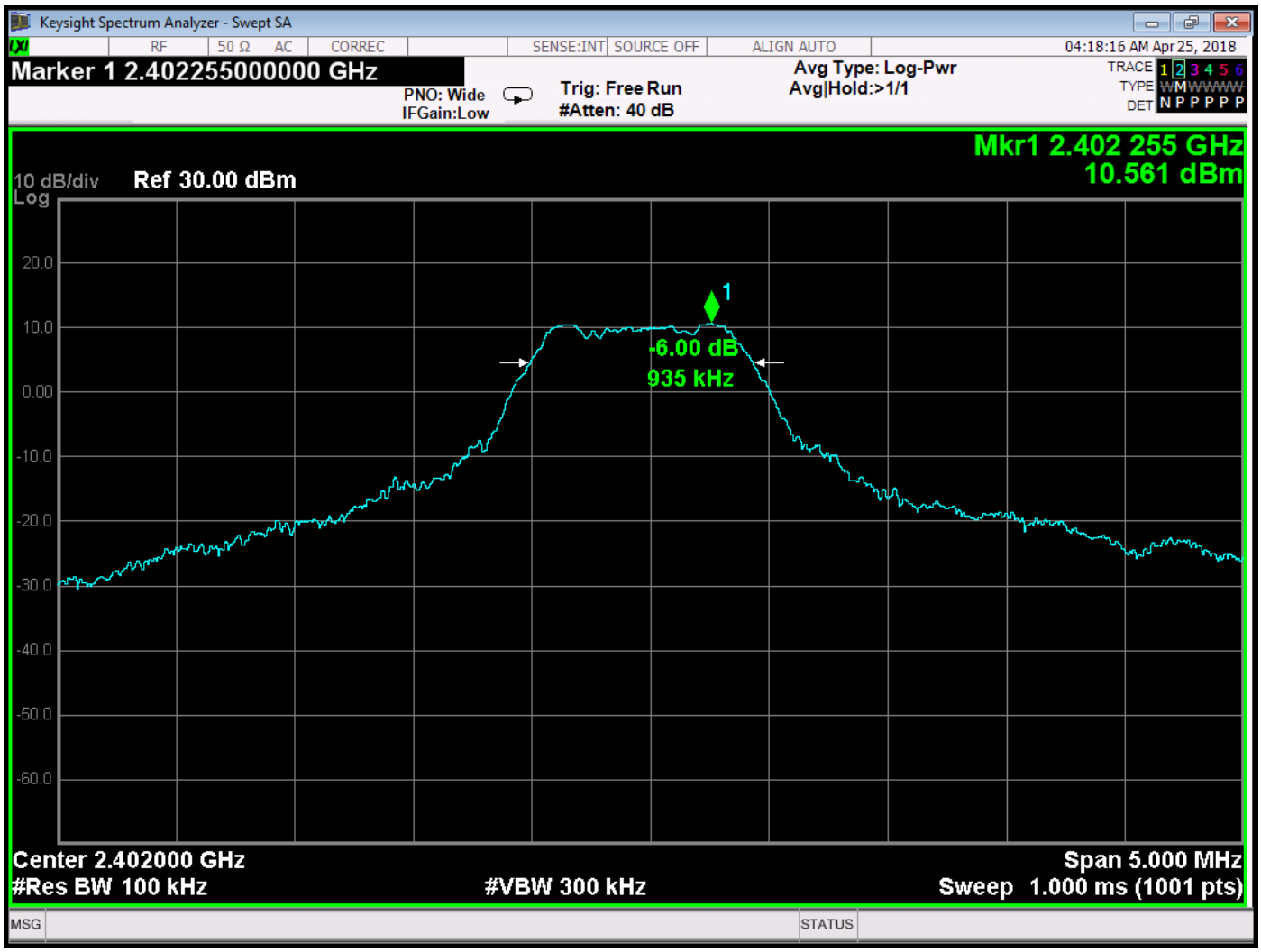
Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deg)	Twr Ht (cm)
35.80	H	31.80	26.52	-8.20	-13.48	40.00	24.10	0.86	220.75	367.86
41.70	H	31.82	26.40	-8.18	-13.60	40.00	23.99	0.90	66.00	111.44
51.60	V	33.41	28.15	-6.59	-11.85	40.00	21.25	0.90	206.25	127.32
54.00	V	31.84	26.57	-8.16	-13.43	40.00	20.12	0.90	253.75	111.50
956.10	H	38.57	33.63	-7.43	-12.37	46.00	27.67	3.10	359.25	207.20
973.30	H	38.40	33.19	-15.60	-20.81	54.00	27.32	3.10	271.00	191.32

-6 dB BANDWIDTH

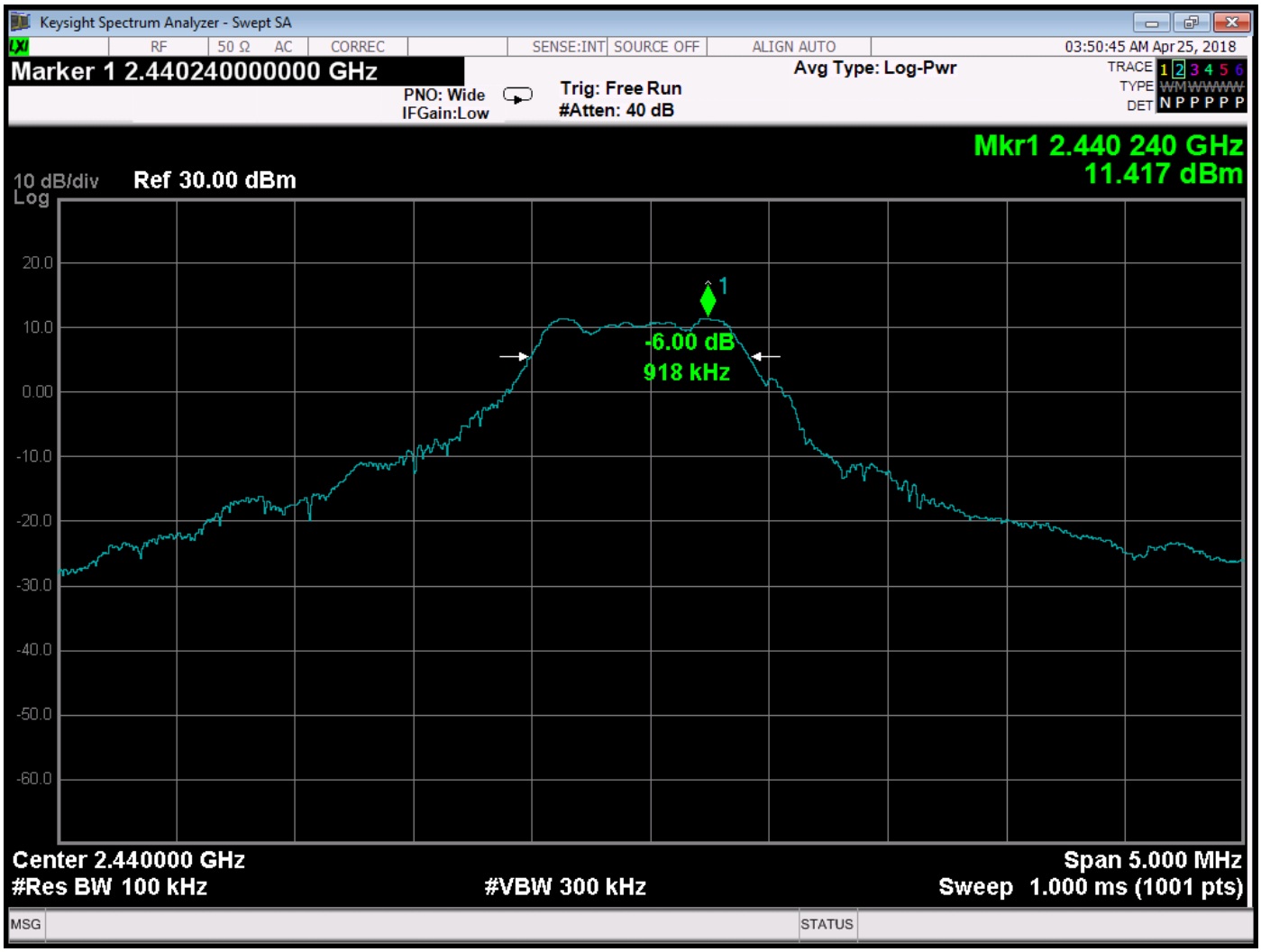
DATA SHEETS



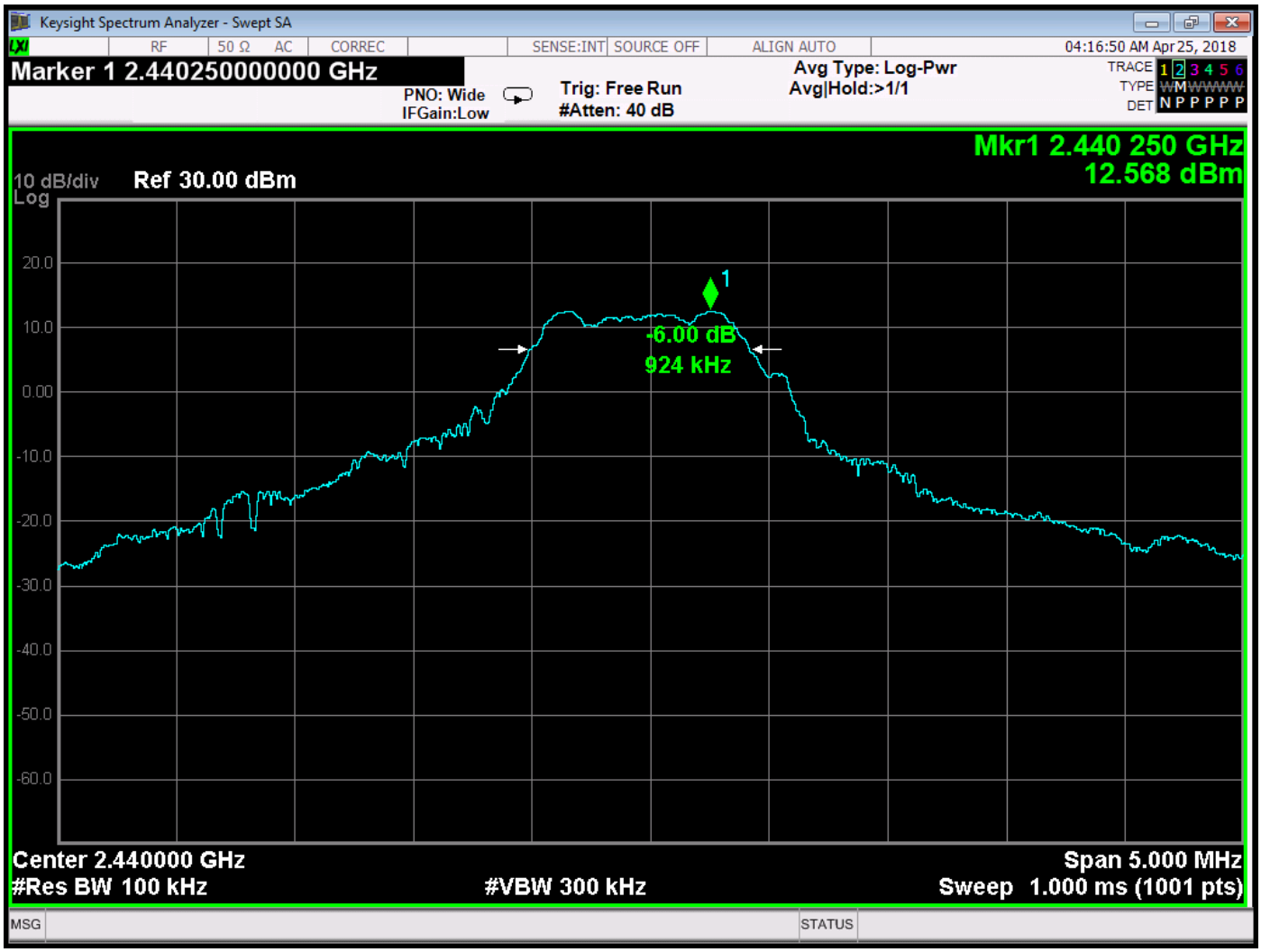
-6 dB Bandwidth – 2402 MHz – Port #1



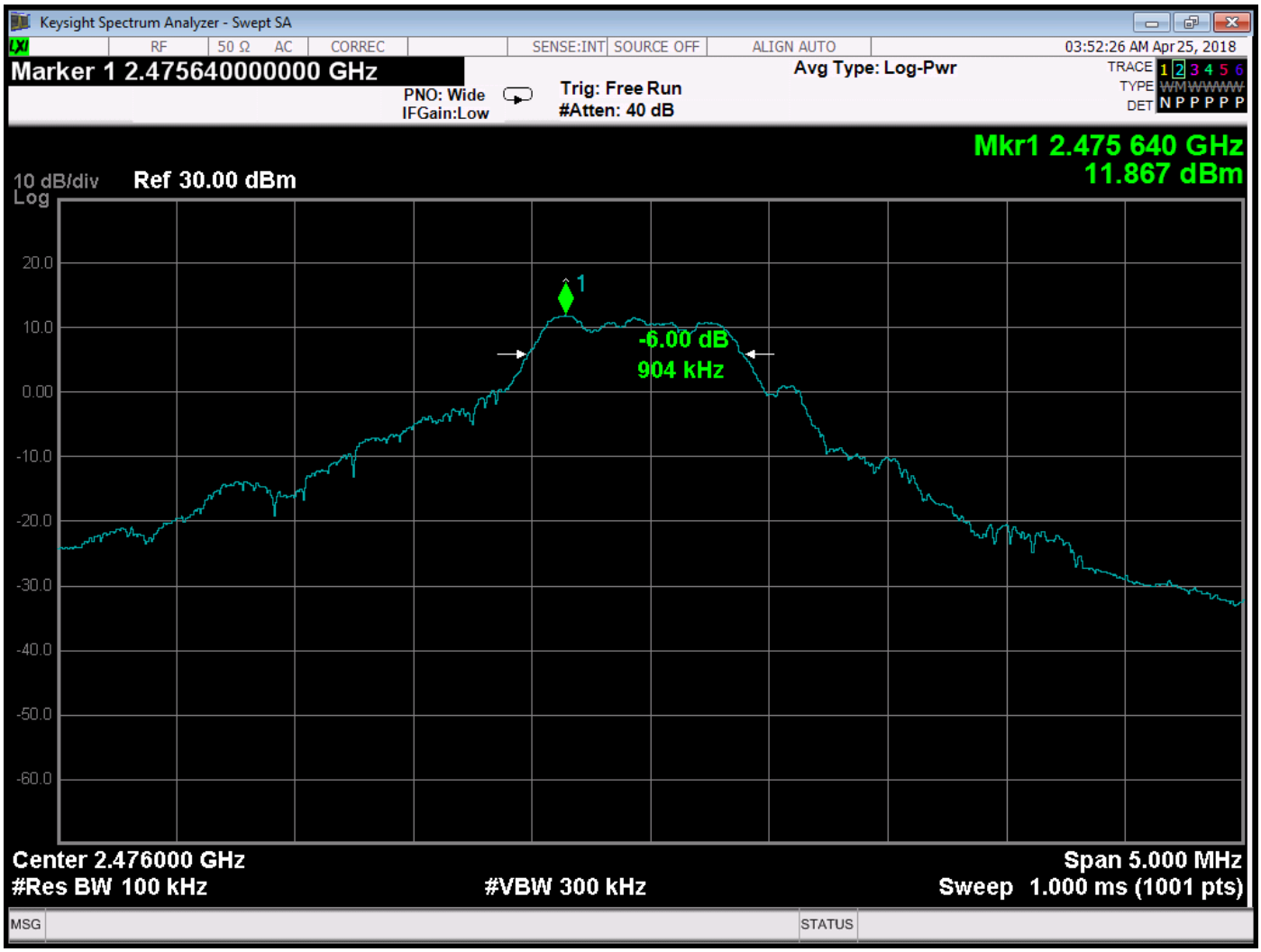
-6 dB Bandwidth – 2405 MHz – Port #2



-6 dB Bandwidth – 2440 MHz – Port #1



-6 dB Bandwidth – 2440 MHz – Port #2

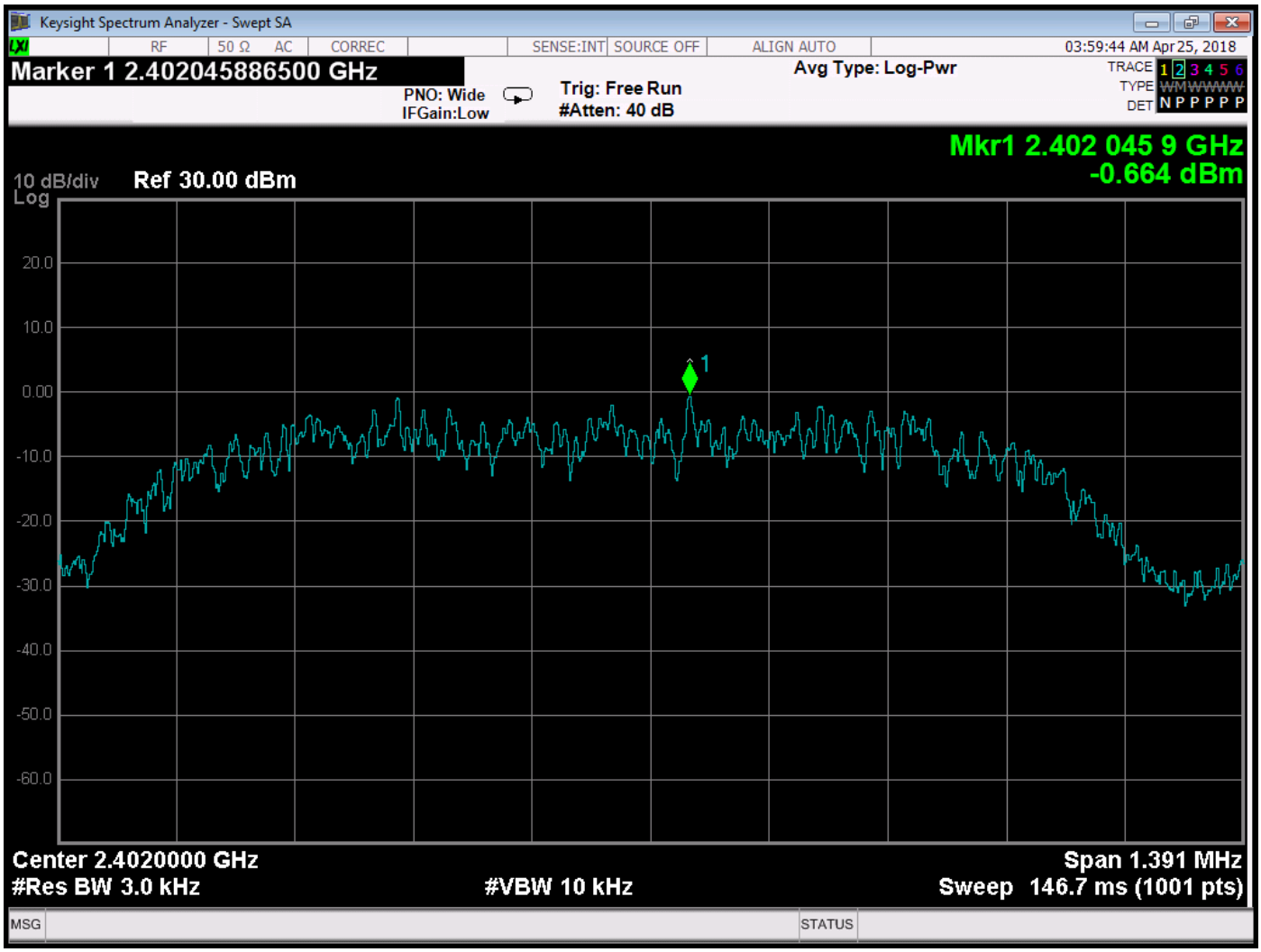


-6 dB Bandwidth – 2476 MHz – Port #1

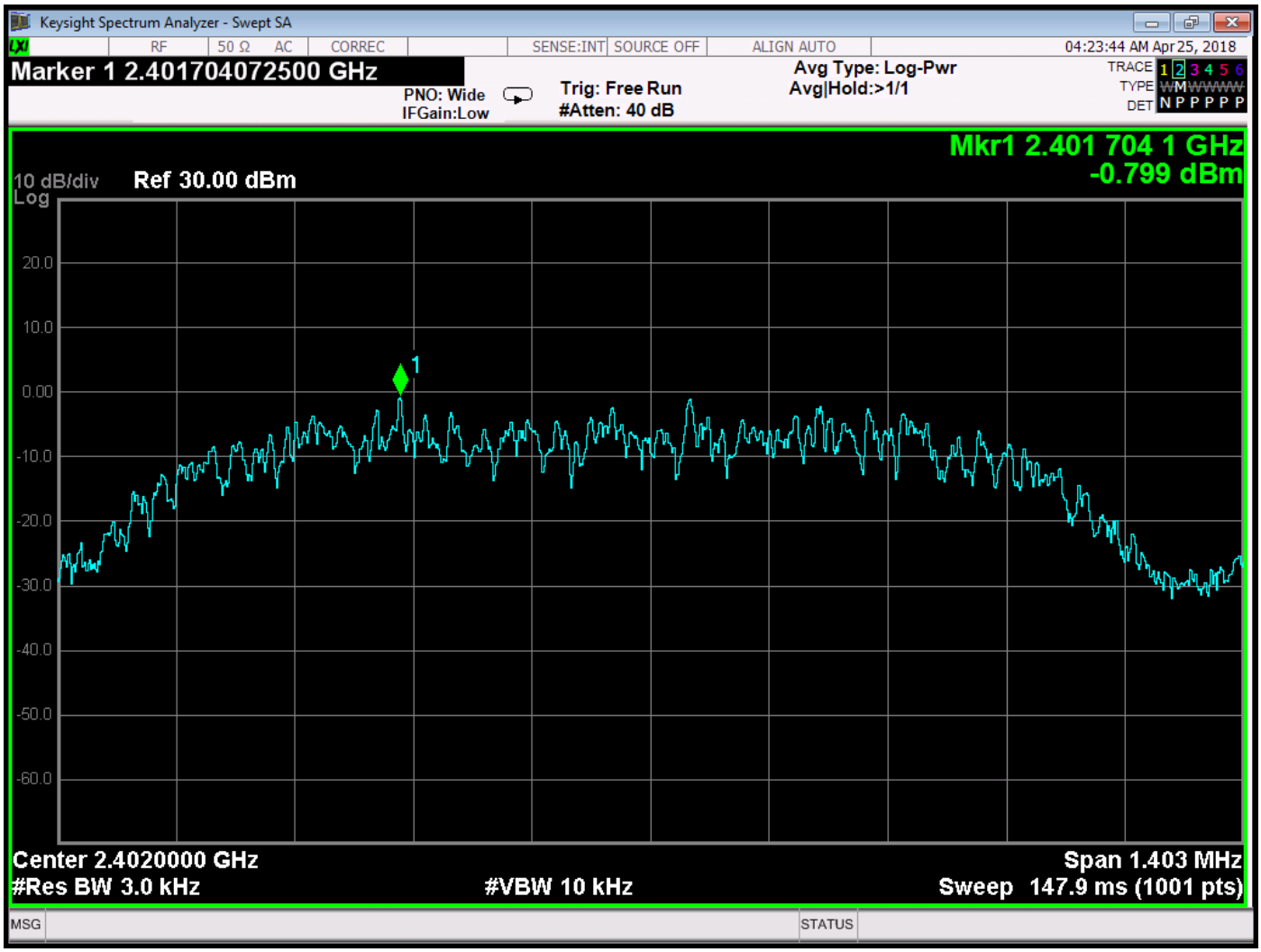
-6 dB Bandwidth – 2476 MHz – Port #2

SPECTRAL DENSITY OUTPUT

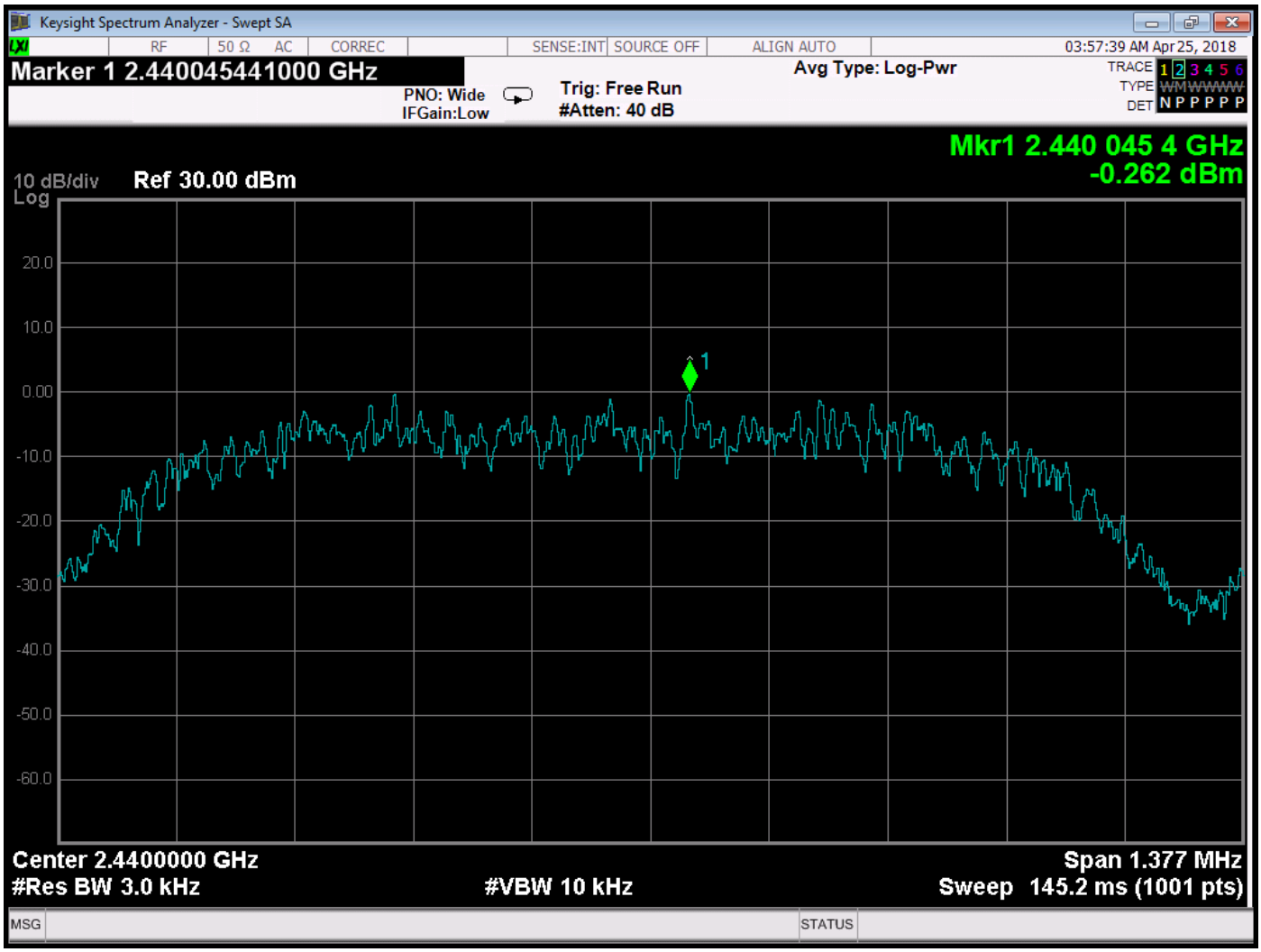
DATA SHEETS



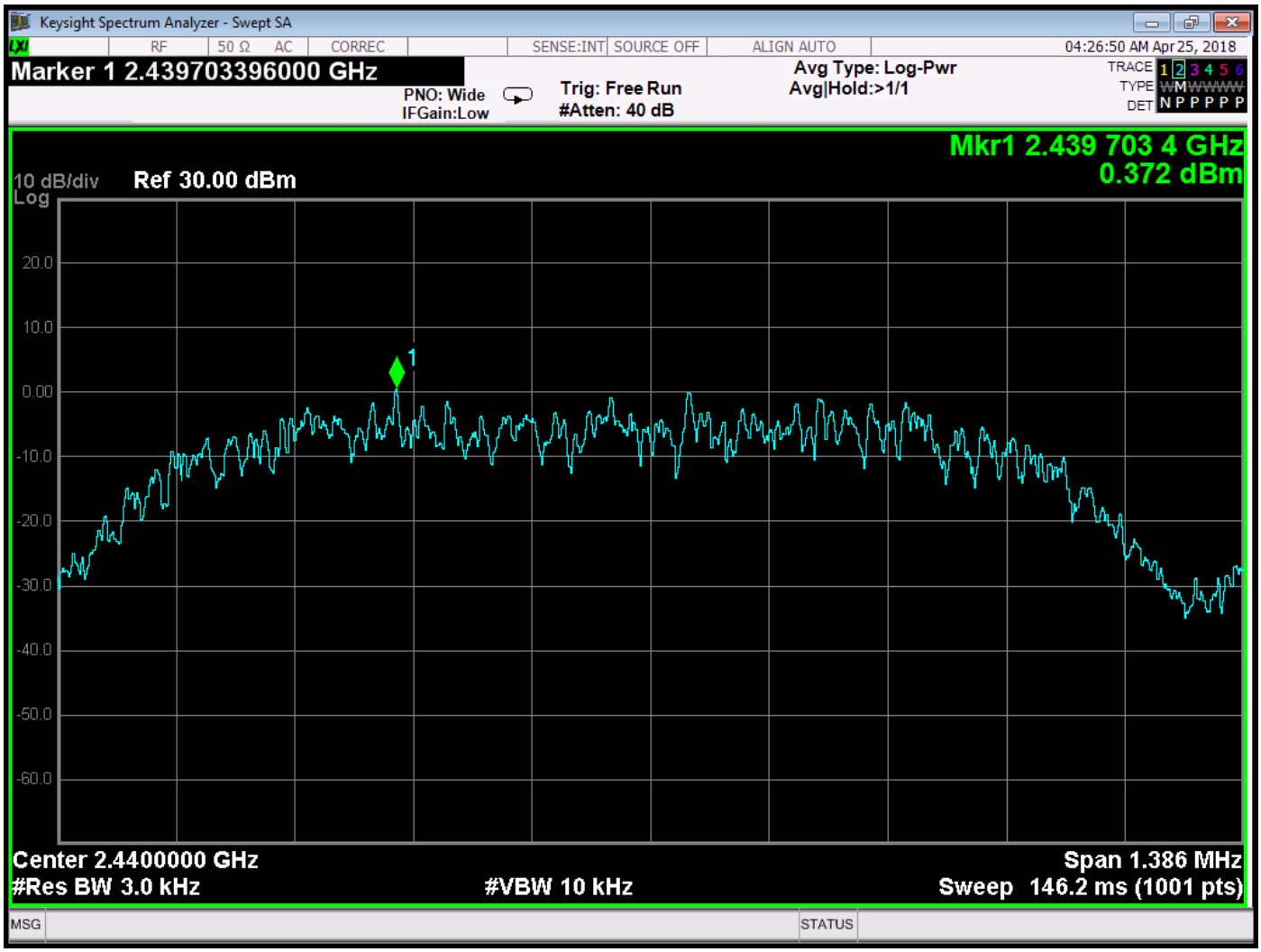
Spectral Density – 2402 MHz – Port #1



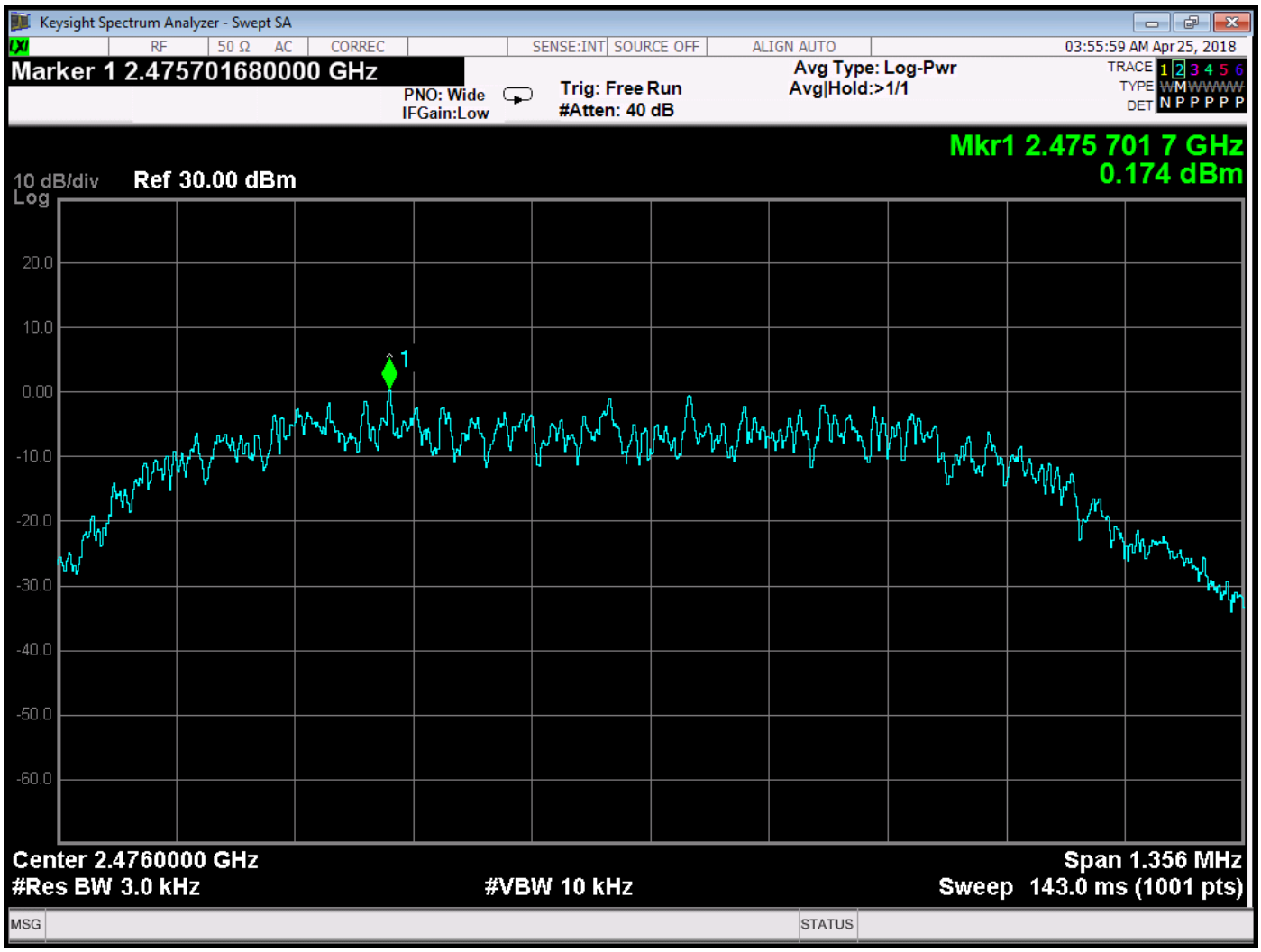
Spectral Density – 2402 MHz – Port #2



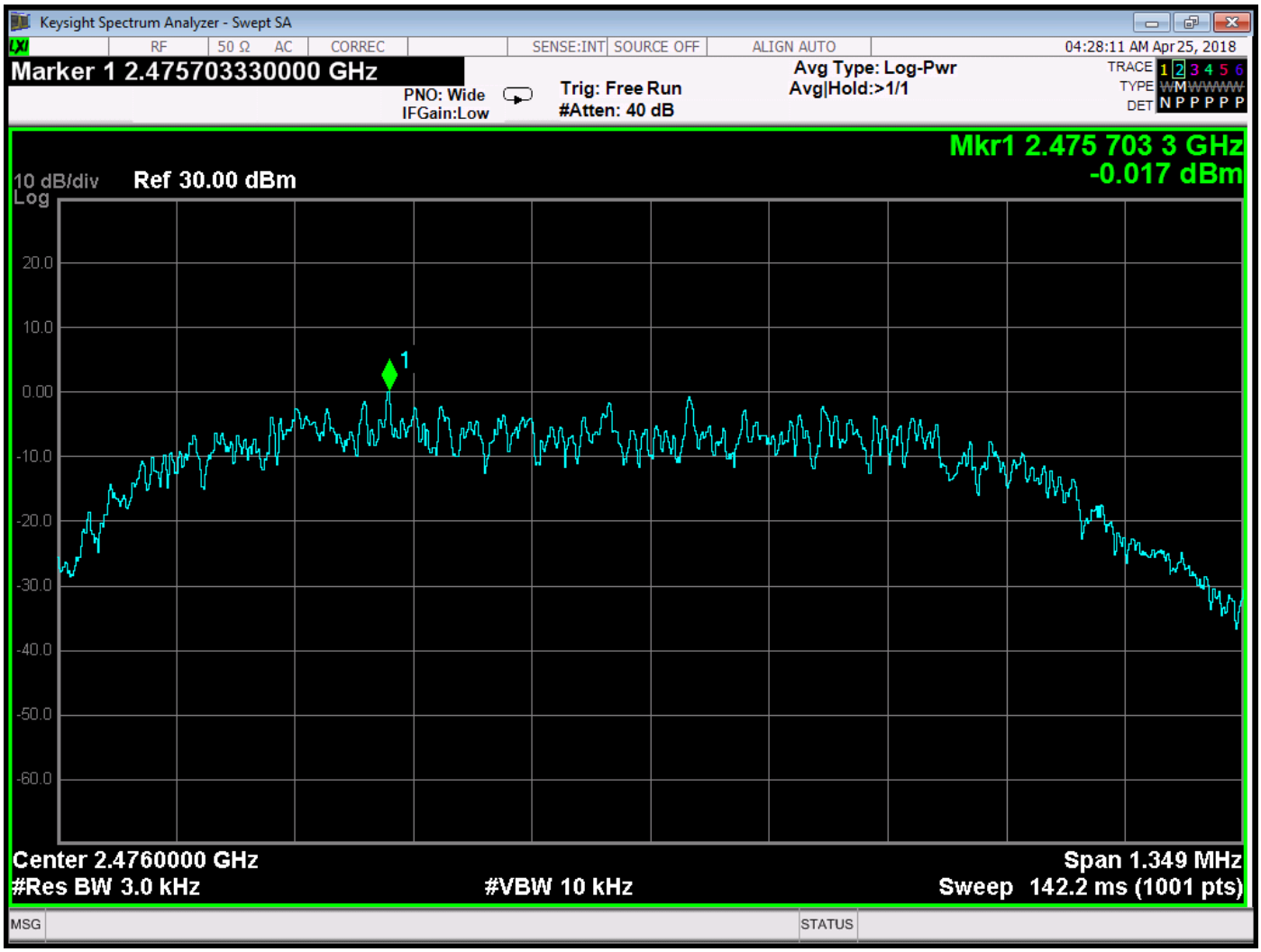
Spectral Density – 2440 MHz – Port #1



Spectral Density – 2440 MHz – Port #2



Spectral Density – 2476 MHz – Port #1



Spectral Density – 2476 MHz – Port #2

Spectral Density Output

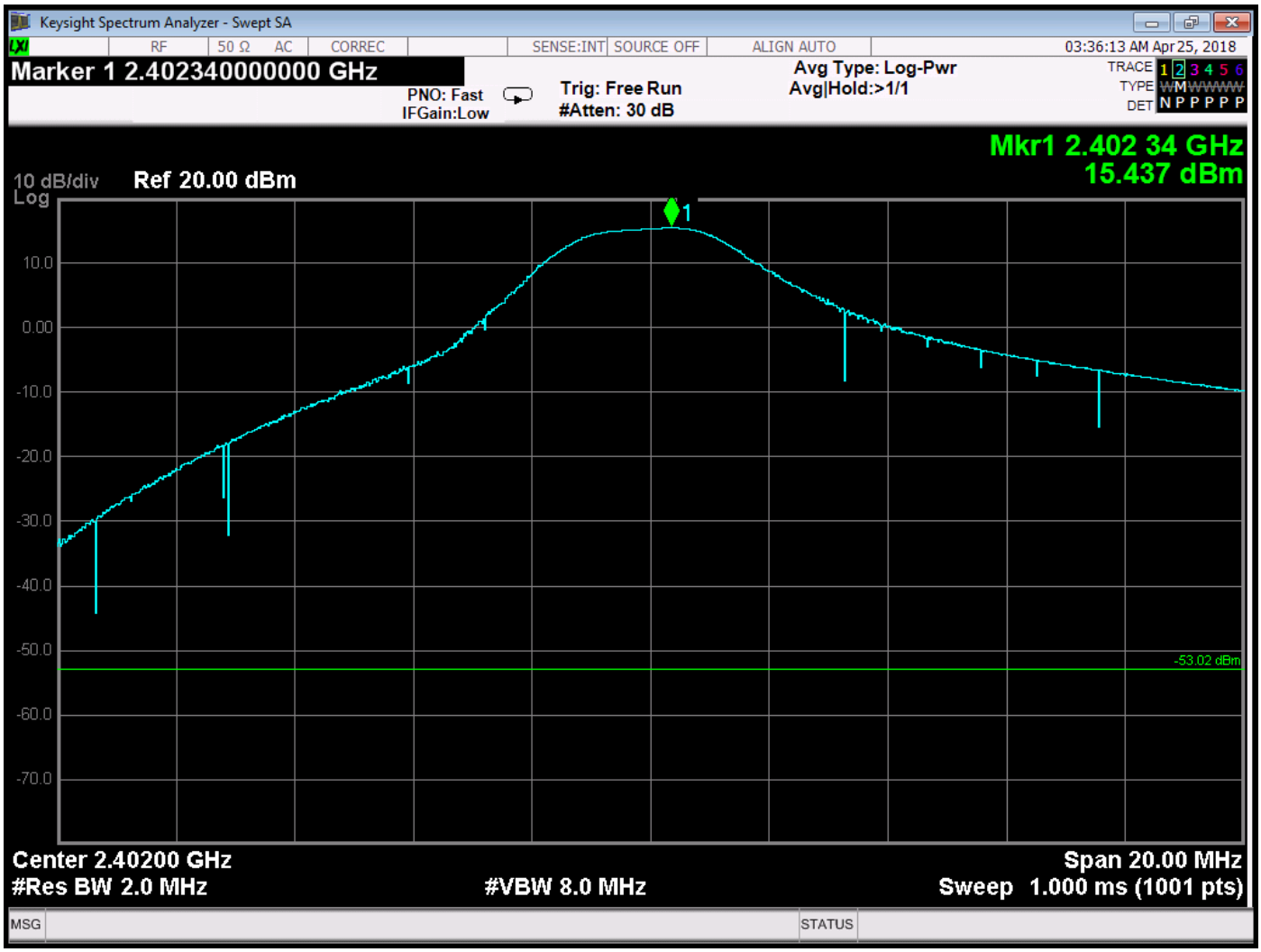
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/25/2018
Lab: D
Tested By: Kyle Fujimoto

Freq. (MHz)	Spectral Density Output (dBm)	Limit (dBm)	Margin (dB)	Cable Loss (dB)	Comments
2402	-0.664	8.000	-8.664	0.47	Port #1
2402	-0.799	8.000	-8.799	0.47	Port #2
2440	-0.262	8.000	-8.262	0.47	Port #1
2440	0.372	8.000	8.372	0.47	Port #2
2476	0.174	8.000	-8.174	0.47	Port #1
2476	-0.017	8.000	-8.017	0.47	Port #2

PEAK POWER

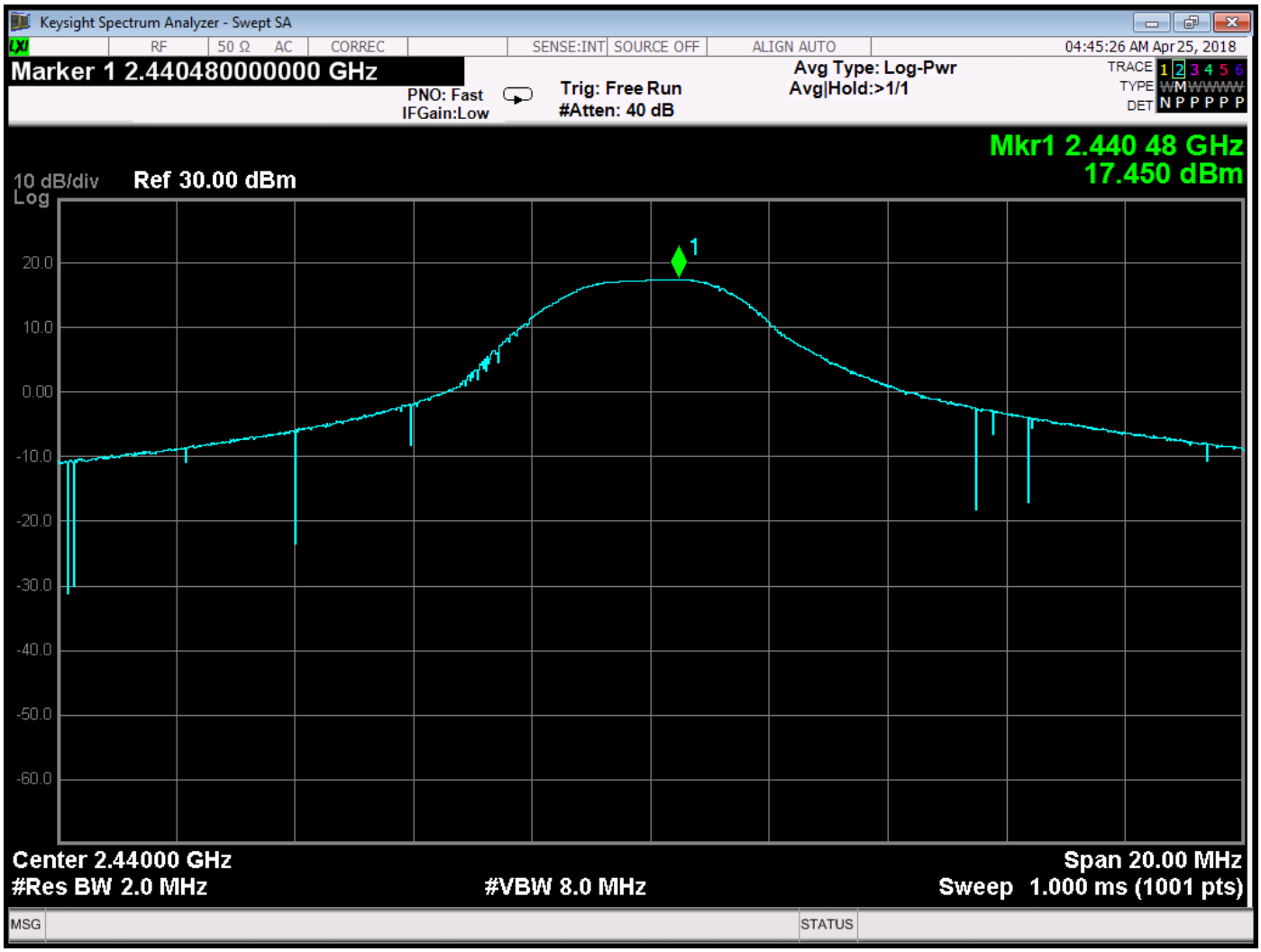
DATA SHEETS



Peak Power Output – 2402 MHz – Port #1

Peak Power Output – 2402 MHz – Port #2

Peak Power Output – 2440 MHz – Port #1



Peak Power Output – 2440 MHz – Port #2

Peak Power Output – 2476 MHz – Port #1

Peak Power Output – 2476 MHz – Port #2

Peak Power Output

Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/25/2018
Lab: D
Tested By: Kyle Fujimoto

Freq. (MHz)	Corrected Power (dBm)	Limit (dBm)	Margin (dB)	Cable Loss (dB)	Comments
2402	15.437	30.000	-14.563	0.47	Port #1
2402	15.200	30.000	-14.800	0.47	Port #2
2440	17.229	30.000	-12.771	0.47	Port #1
2440	17.450	30.000	-12.550	0.47	Port #2
2476	16.195	30.000	-13.805	0.47	Port #1
2476	16.313	30.000	-13.687	0.47	Port #2

BAND EDGES

DATA SHEETS

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Low Channel
Antenna Type: ANT-2.4-CW-RCS
Port 1 - Worst Case

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402	109.00	V	--	--	Peak	197.00	118.67	**Fund. of Low Channel**
2402	90.94	V	--	--	Avg	197.00	118.67	**Y-Axis Worst Case**
2390	57.62	V	73.97	-16.35	Peak	197.00	118.67	**Band Edge - Low Channel**
2390	39.56	V	53.97	-14.41	Avg	197.00	118.67	**Y-Axis Worst Case**
2402	106.79	H	--	--	Peak	238.50	114.73	**Fund. of Low Channel**
2402	88.73	H	--	--	Avg	238.50	114.73	**X-Axis Worst Case**
2390	46.68	H	73.97	-27.29	Peak	238.50	114.73	**Band Edge - Low Channel**
2390	28.62	H	53.97	-25.35	Avg	238.50	114.73	**X-Axis Worst Case**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Band Edges - High Channel
Antenna Type: ANT-2.4-CW-RCS
Port 1 - Worst Case

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2476	105.33	V	--	--	Peak	234.75	101.82	**Fund. of High Channel**
2476	87.27	V	--	--	Avg	234.75	101.82	**Y-Axis Worst Case**
2483.5	53.80	V	73.97	-20.17	Peak	234.75	101.82	**Band Edge - High Channel**
2483.5	35.74	V	53.97	-18.23	Avg	234.75	101.82	**Y-Axis Worst Case**
2476	108.80	H	--	--	Peak	184.75	149.11	**Fund. of High Channel**
2476	90.74	H	--	--	Avg	184.75	149.11	**Z-Axis Worst Case**
2483.5	63.59	H	73.97	-10.38	Peak	184.75	149.11	**Band Edge - High Channel**
2483.5	45.53	H	53.97	-8.44	Avg	184.75	149.11	**Z-Axis Worst Case**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Low Channel
Antenna Type: 1513504-1
Antenna Port 2 - Worst Case

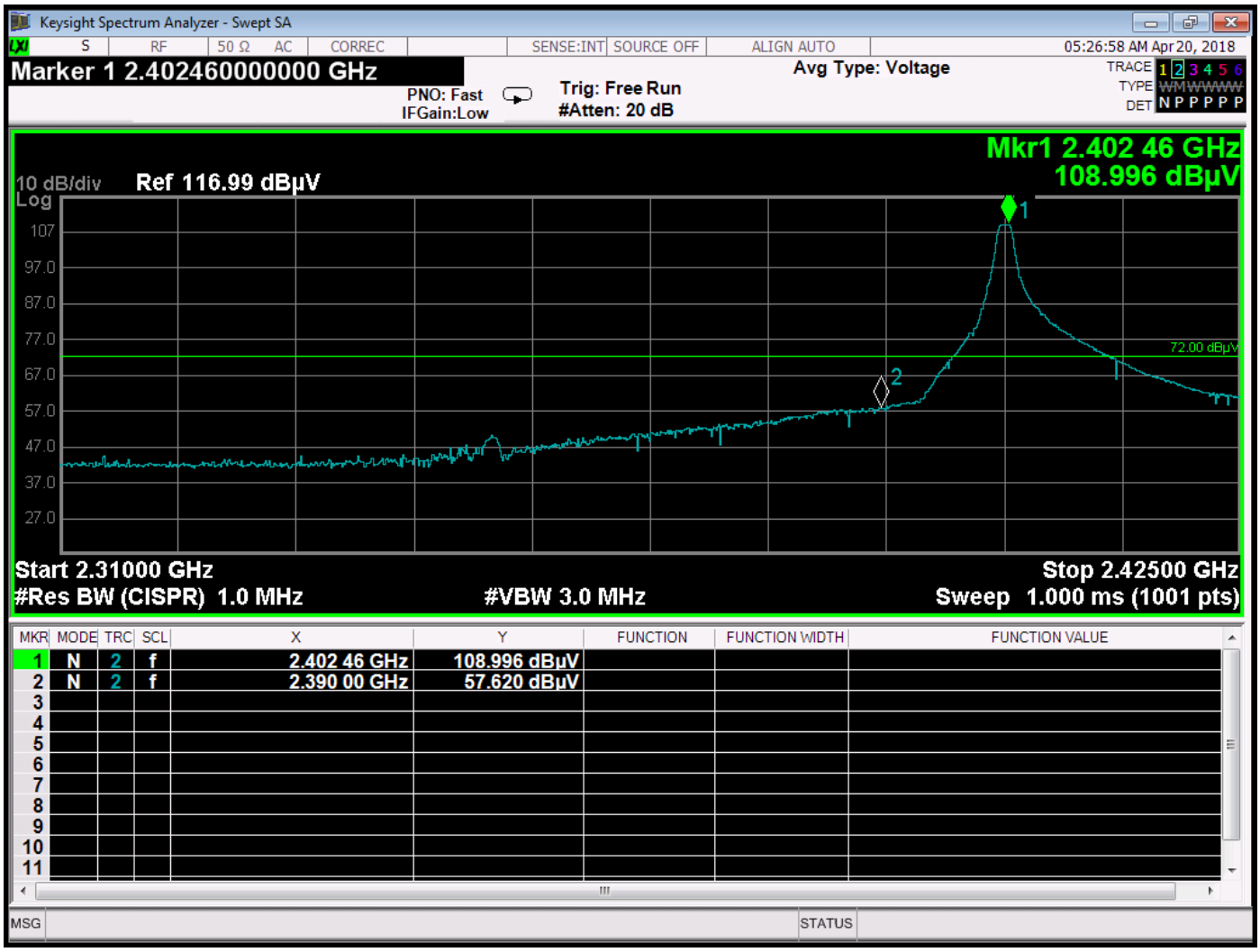
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402	108.05	V	--	--	Peak	350.75	100.46	**Fund. of Low Channel**
2402	89.99	V	--	--	Avg	350.75	100.46	**Y-Axis Worst Case**
2363.71	62.32	V	73.97	-11.65	Peak	350.75	100.46	**Band Edge - Low Channel**
2363.71	44.26	V	53.97	-9.71	Avg	350.75	100.46	**Y-Axis Worst Case**
2402	108.28	H	--	--	Peak	90.50	157.35	**Fund. of Low Channel**
2402	90.22	H	--	--	Avg	90.50	157.35	**X-Axis Worst Case**
2390	53.38	H	73.97	-20.59	Peak	90.50	157.35	**Band Edge - Low Channel**
2390	35.32	H	53.97	-18.65	Avg	90.50	157.35	**X-Axis Worst Case**

FCC 15.247
Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3

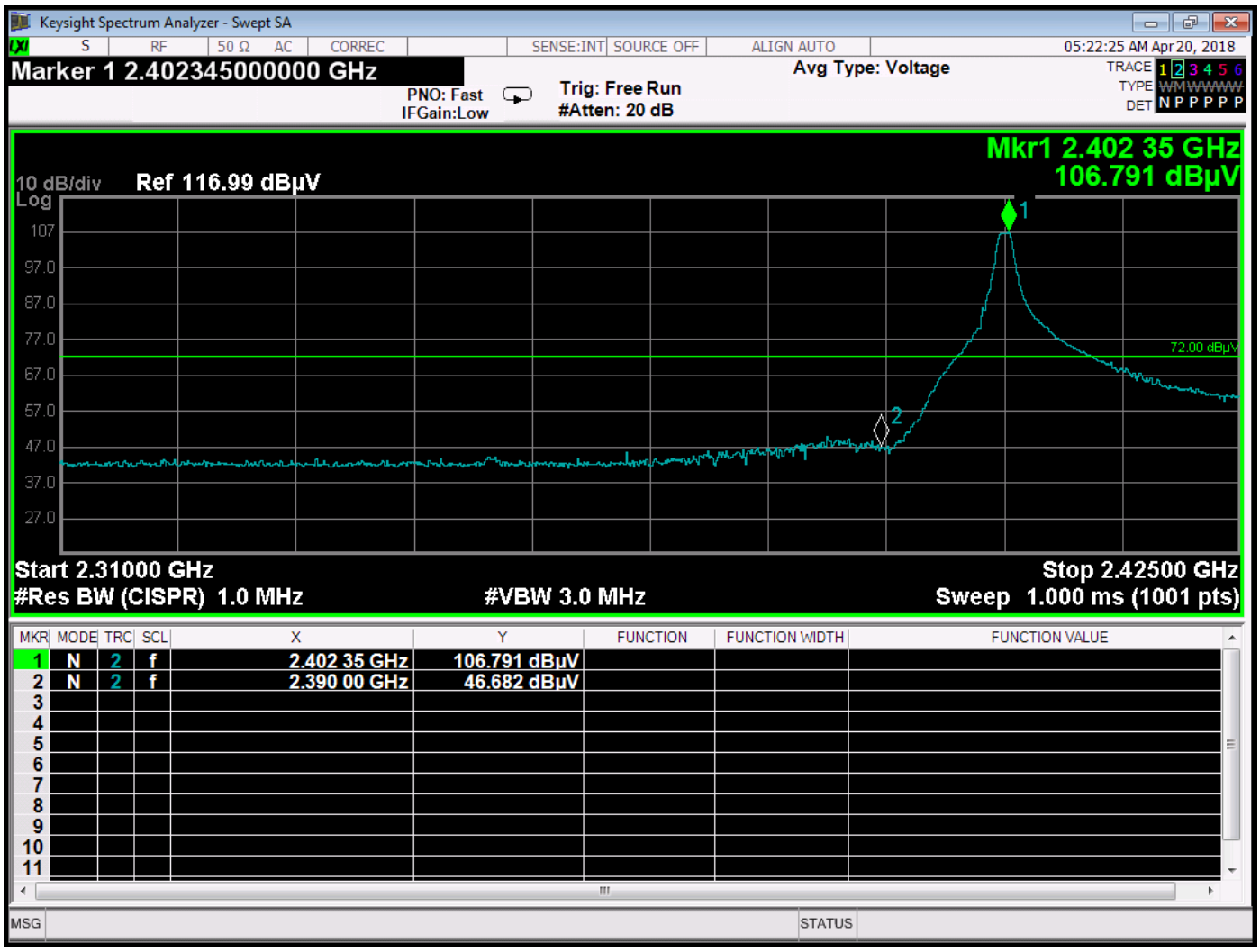
Date: 04/20/2018
Lab: D
Tested By: Kyle Fujimoto

Band Edges - High Channel
Antenna Type: 1513504-1
Antenna Port 2 - Worst Case

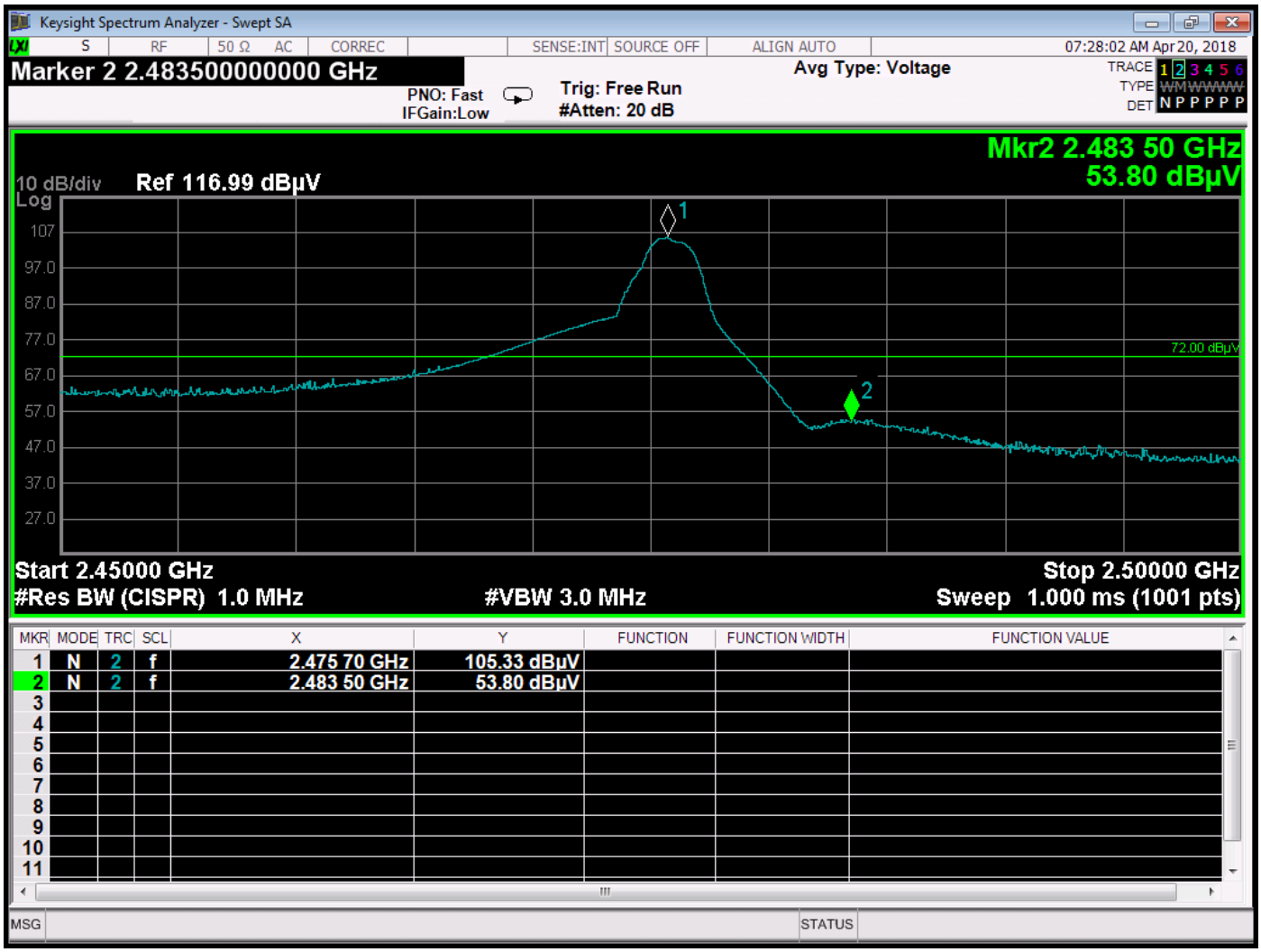
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2476	107.05	V	--	--	Peak	356.25	104.76	**Fund. of High Channel**
2476	88.99	V	--	--	Avg	356.25	104.76	**Y-Axis Worst Case**
2483.5	63.63	V	73.97	-10.34	Peak	356.25	104.76	**Band Edge - High Channel**
2483.5	45.57	V	53.97	-8.40	Avg	356.25	104.76	**Y-Axis Worst Case**
2476	108.67	H	--	--	Peak	281.25	144.10	**Fund. of High Channel**
2476	90.61	H	--	--	Avg	281.25	144.10	**X-Axis Worst Case**
2483.5	68.06	H	73.97	-5.91	Peak	281.25	144.10	**Band Edge - High Channel**
2483.5	50.00	H	53.97	-3.97	Avg	281.25	144.10	**X-Axis Worst Case**



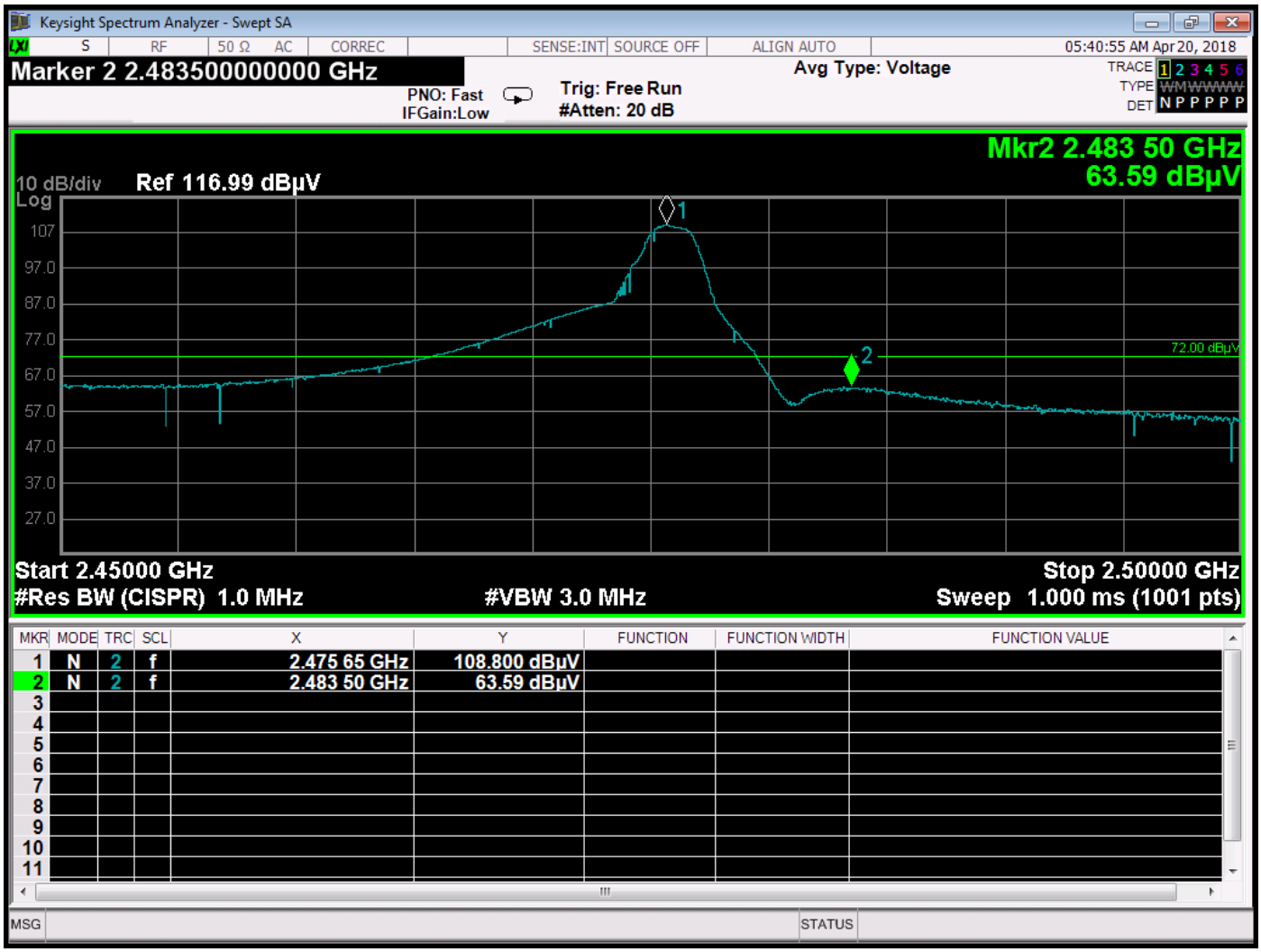
Band Edge – 2402 MHz – ANT-2.4CW-RCS Antenna – Vertical – Y-Axis – Worst Case



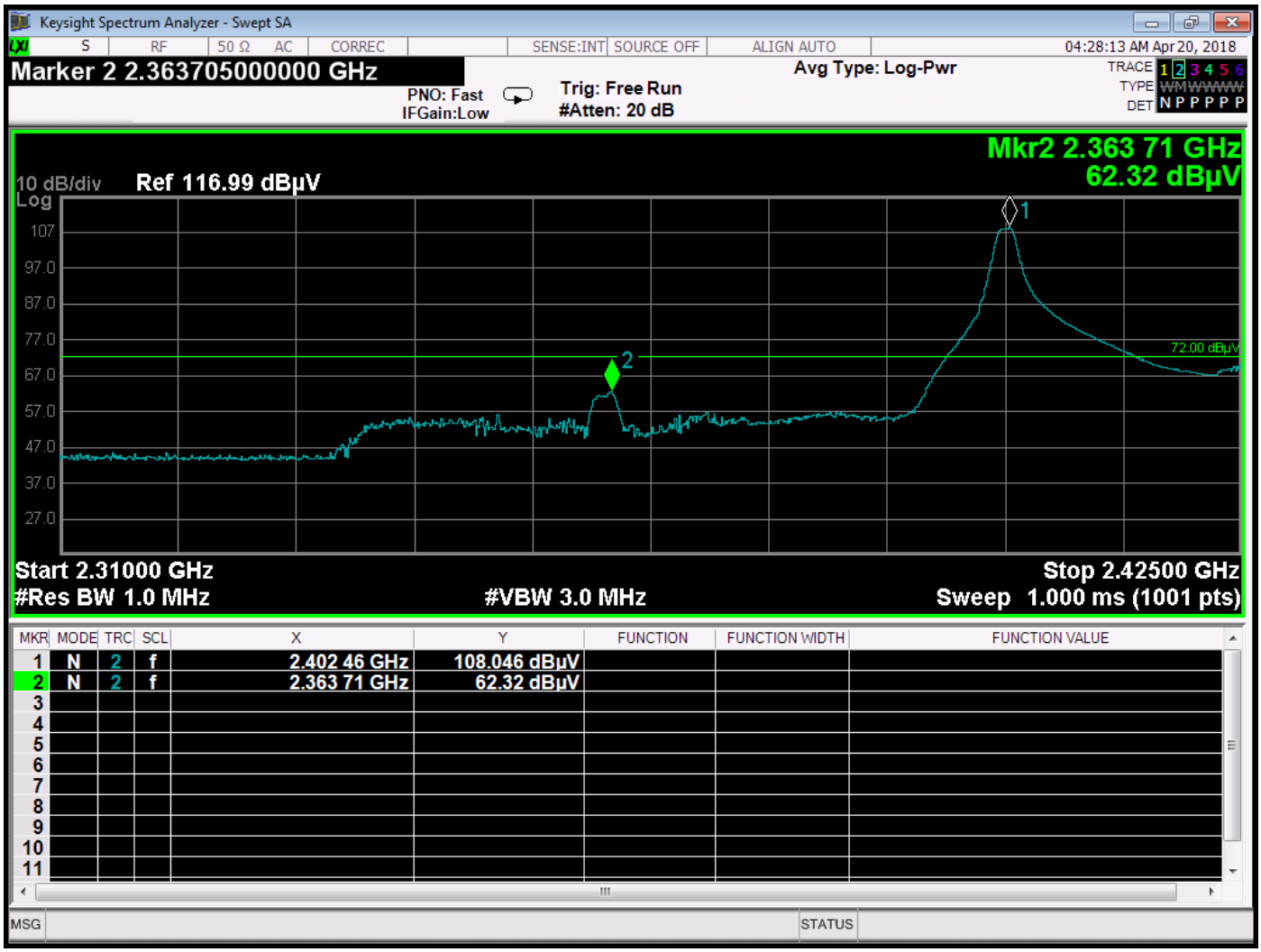
Band Edge – 2402 MHz – ANT-2.4CW-RCS Antenna – Horizontal – X-Axis – Worst Case



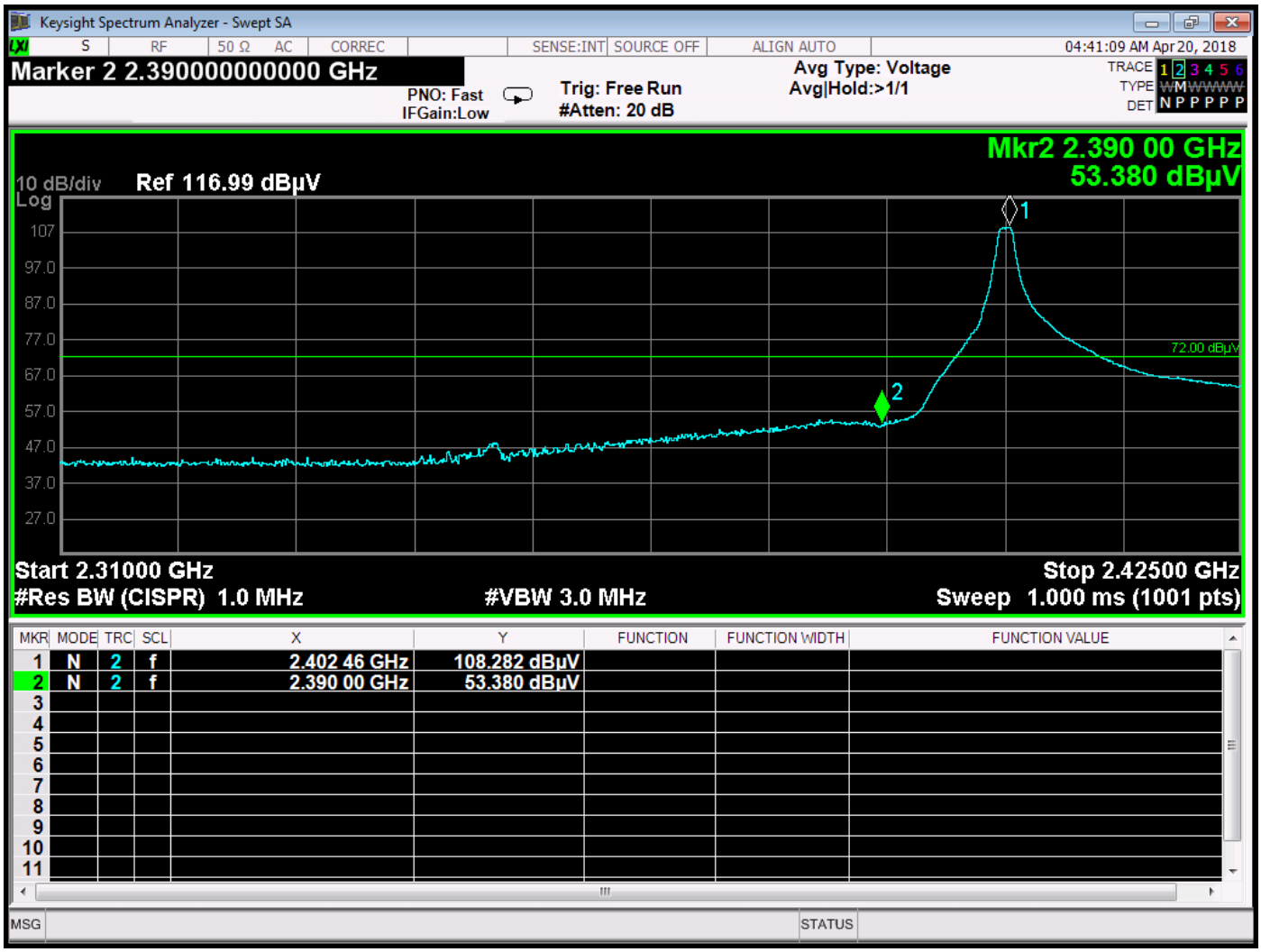
Band Edge – 2476 MHz – ANT-2.4CW-RCS Antenna – Vertical – Y-Axis – Worst Case



Band Edge – 2476 MHz – ANT-2.4CW-RCS Antenna – Horizontal – Z-Axis – Worst Case

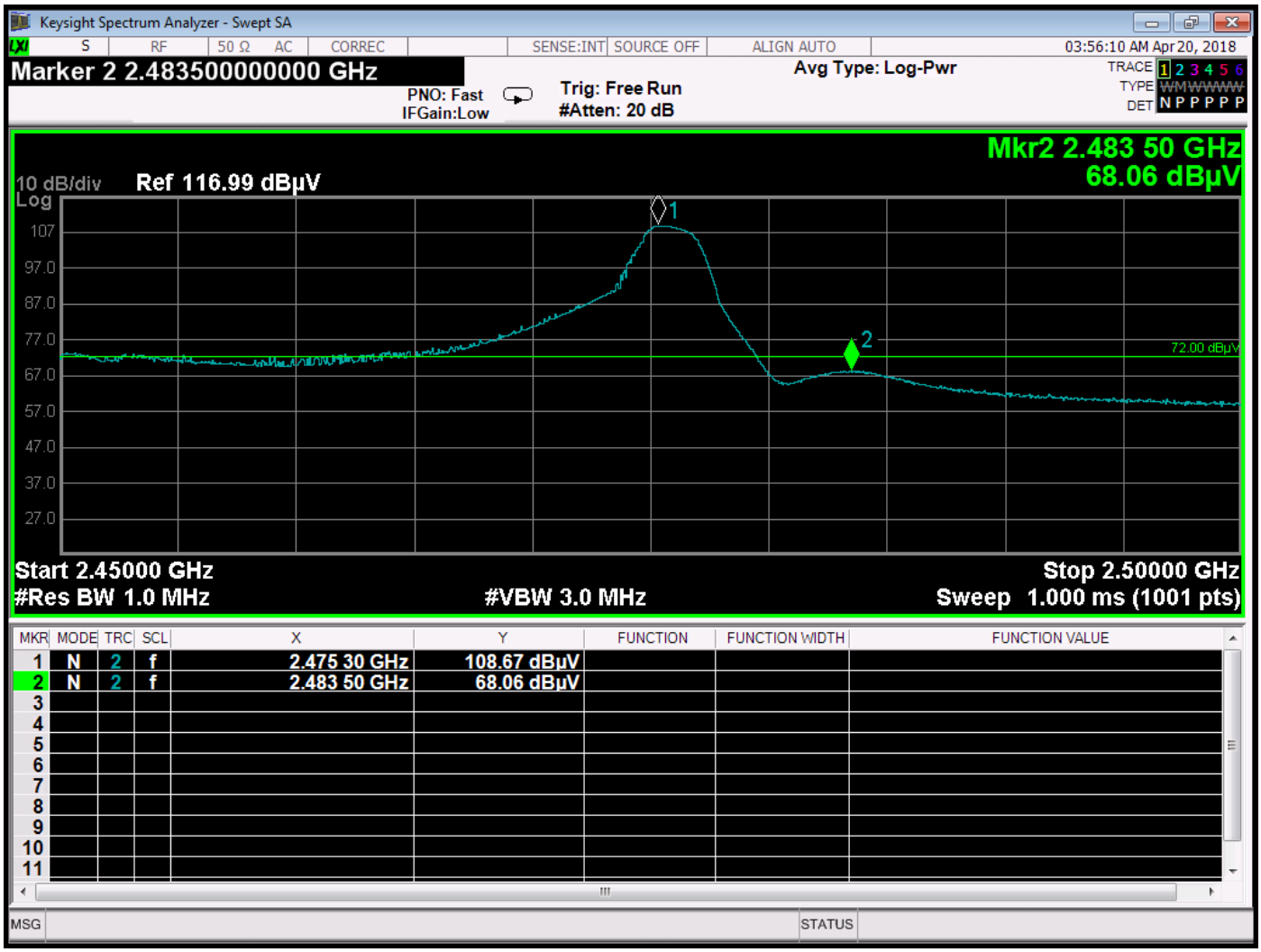


Band Edge – 2402 MHz – 1513504-1 Antenna – Vertical – Y-Axis – Worst Case



Band Edge – 2402 MHz – 1513504-1 Antenna – Horizontal – X-Axis – Worst Case

Band Edge – 2476 MHz – 1513504-1 Antenna – Vertical – Y-Axis – Worst Case



Band Edge – 2476 MHz – 1513504-1 Antenna – Horizontal – X-Axis – Worst Case

EMISSIONS IN
NON-RESRTICTED BANDS
DATA SHEETS

FCC 15.247 - Emissions in Non-Restricted Bands

Preston Cinema Systems
2.4 GHz Transceiver
Model: TR4-3.3
Configuration: Continuously Transmitting

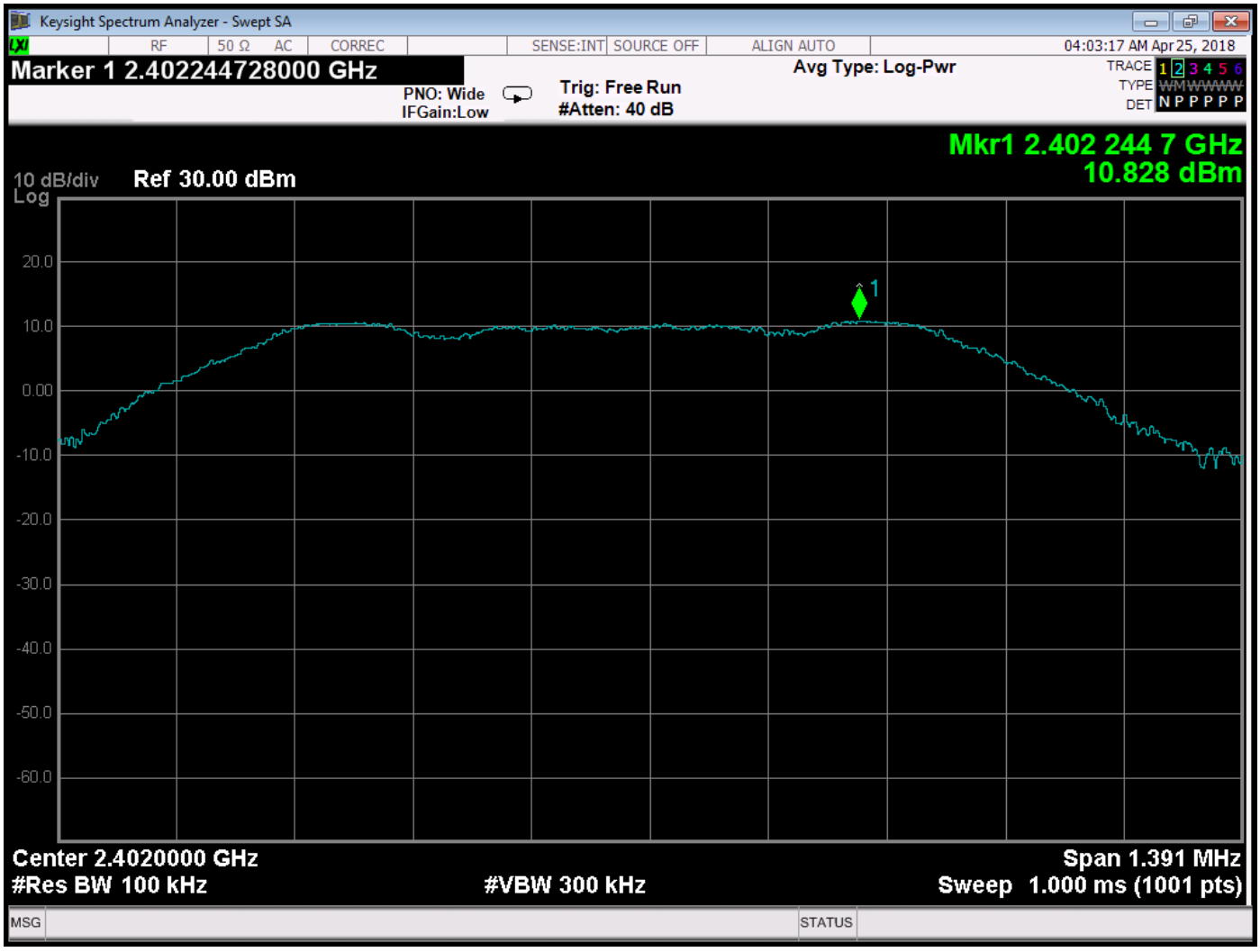
Date: 04/25/2018
Lab: D
Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin	Peak / QP / Avg	Comments
9760	-49.212	-7.364	-41.848	Peak	Middle Channel
9904	-48.235	-7.364	-40.871	Peak	High Channel
9608	-45.431	-7.364	-38.067	Peak	Low Channel

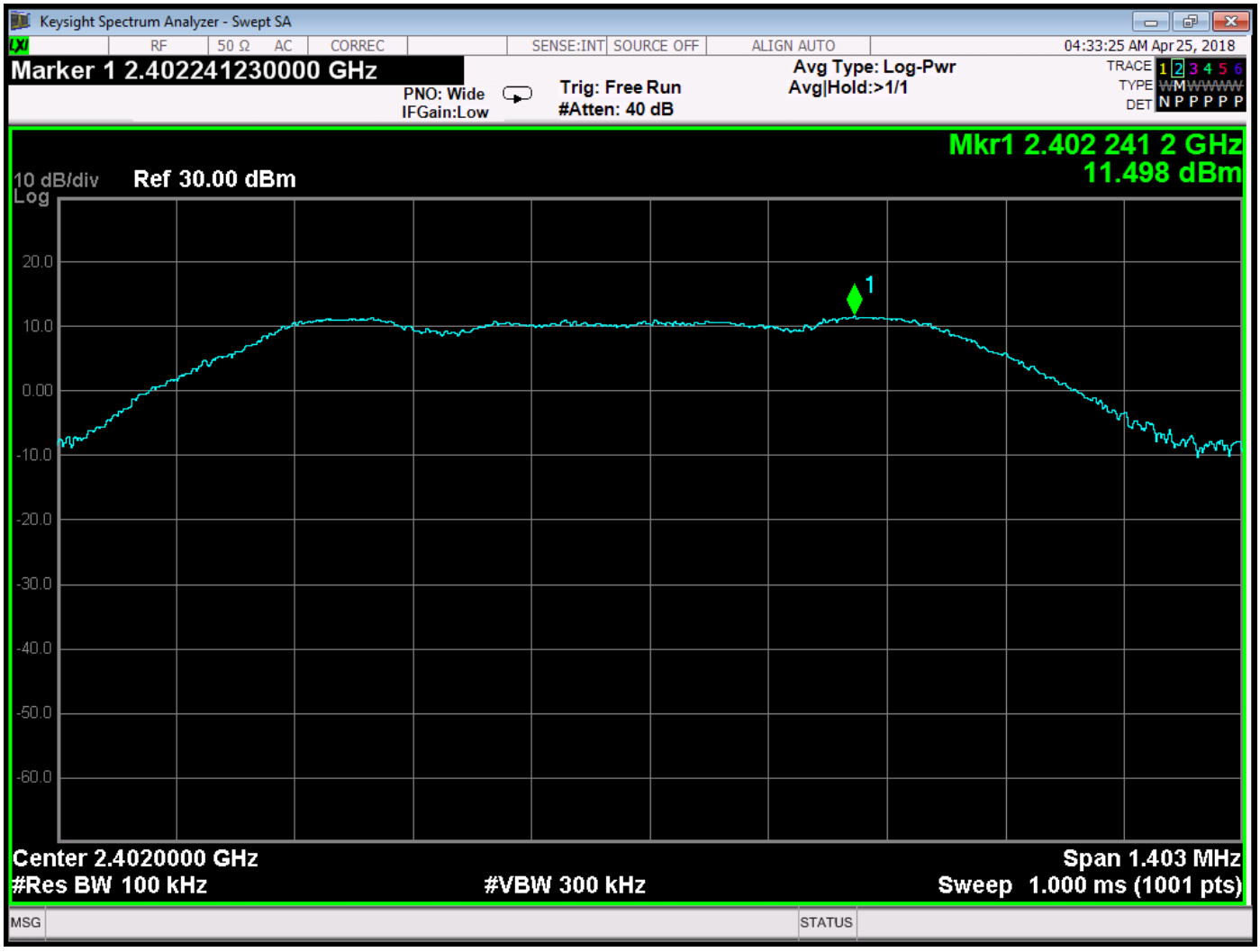
Note: All two ports were investigated during the testing. The three highest non-restricted emissions are reported.

*The Limit is based on 20 dB below the reference levels obtained on the following pages.

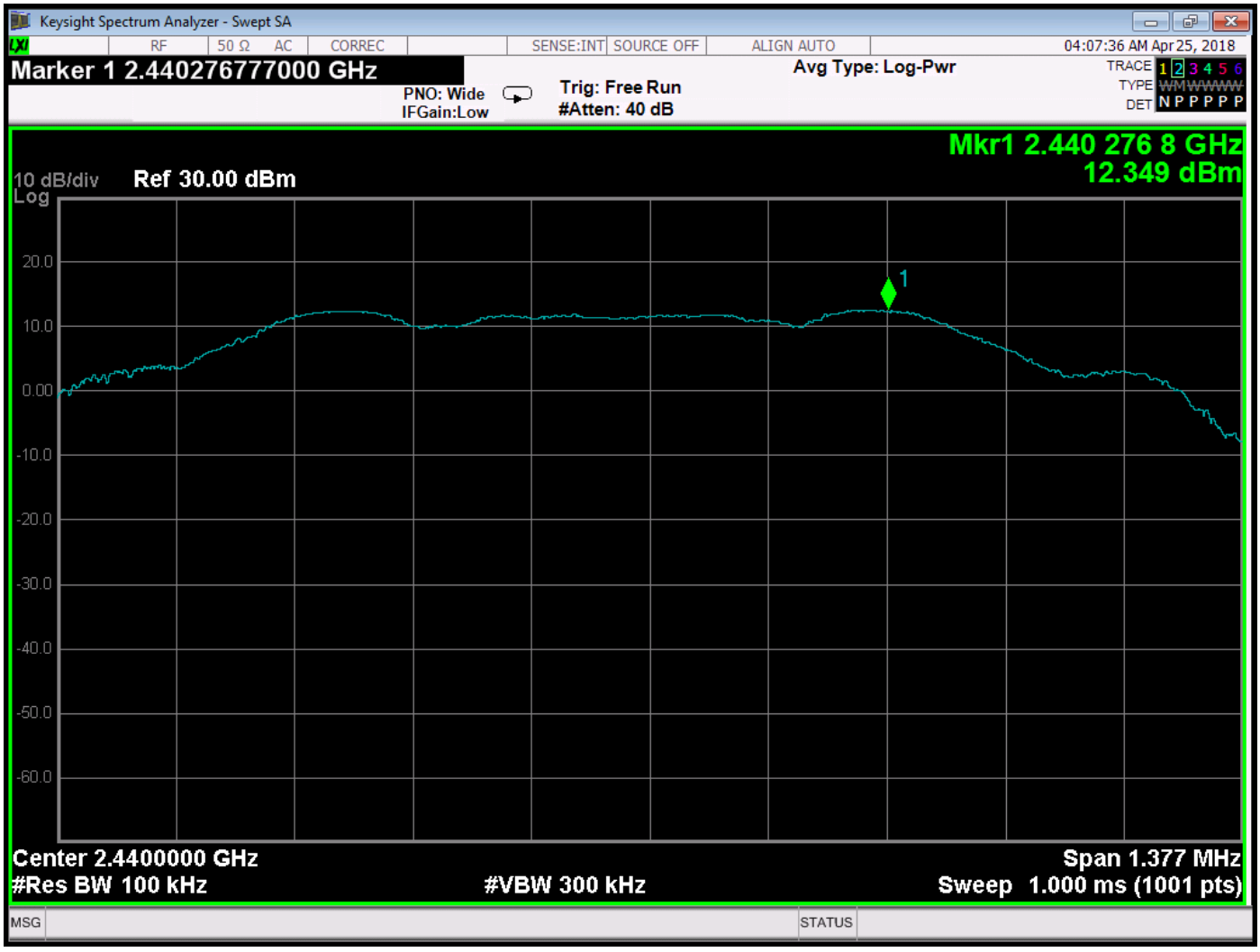
Per ANSI C63.10, section 11.11.2, the channel found to contain the maximum PSD level can be used to establish the reference level.



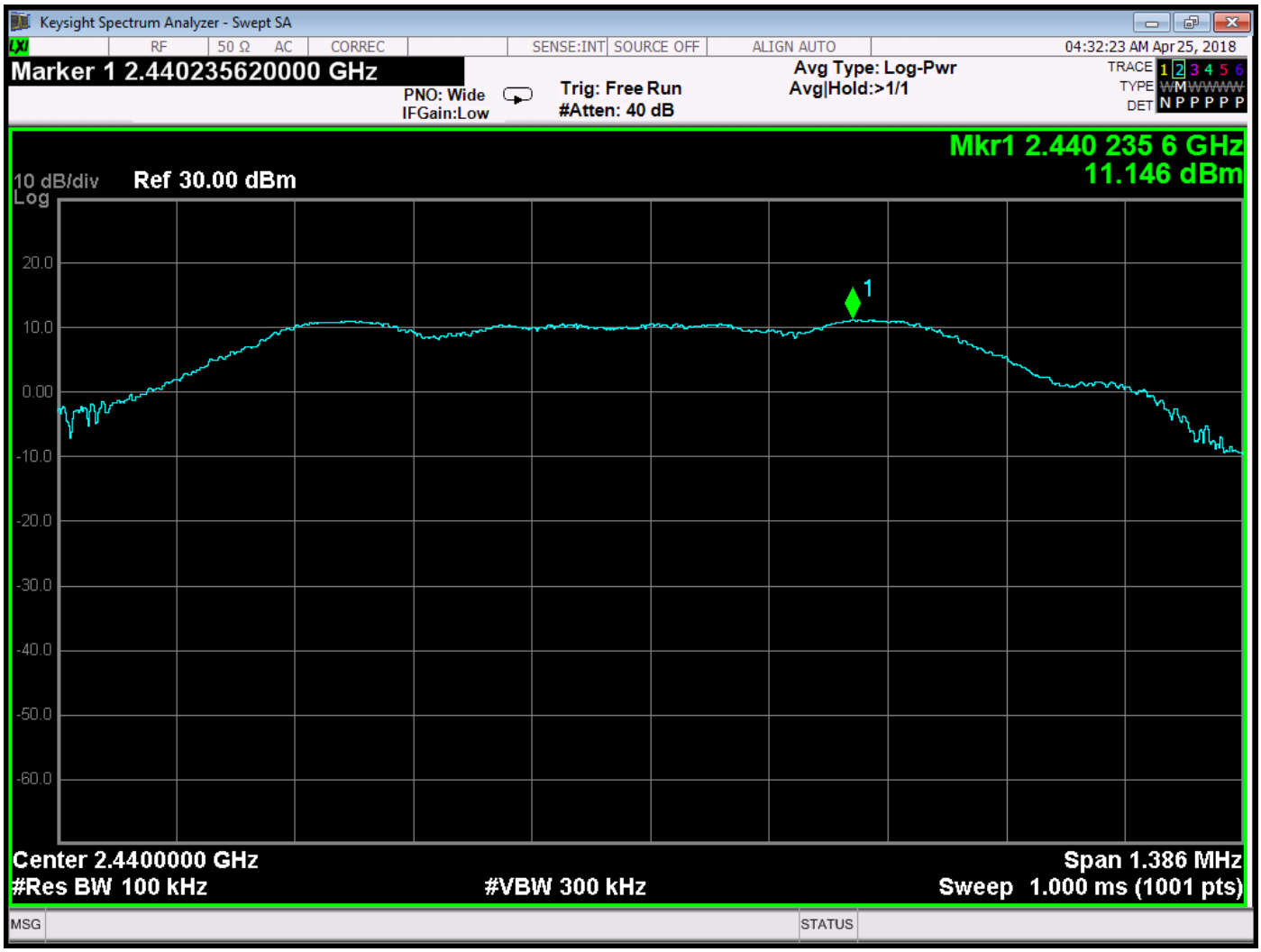
Reference Level – Low Channel (2402 MHz) – Port #1



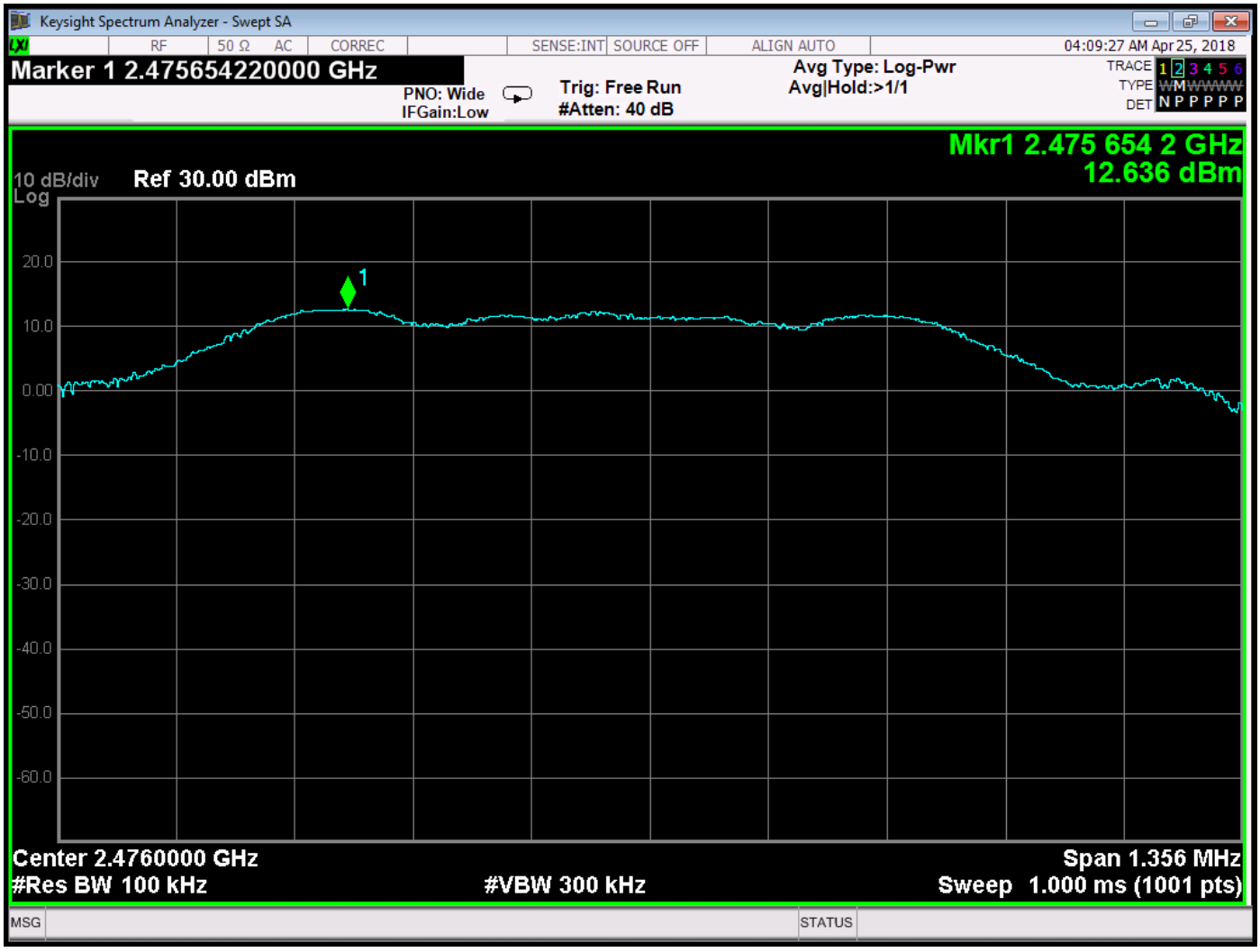
Reference Level – Low Channel (2402 MHz) – Port #2



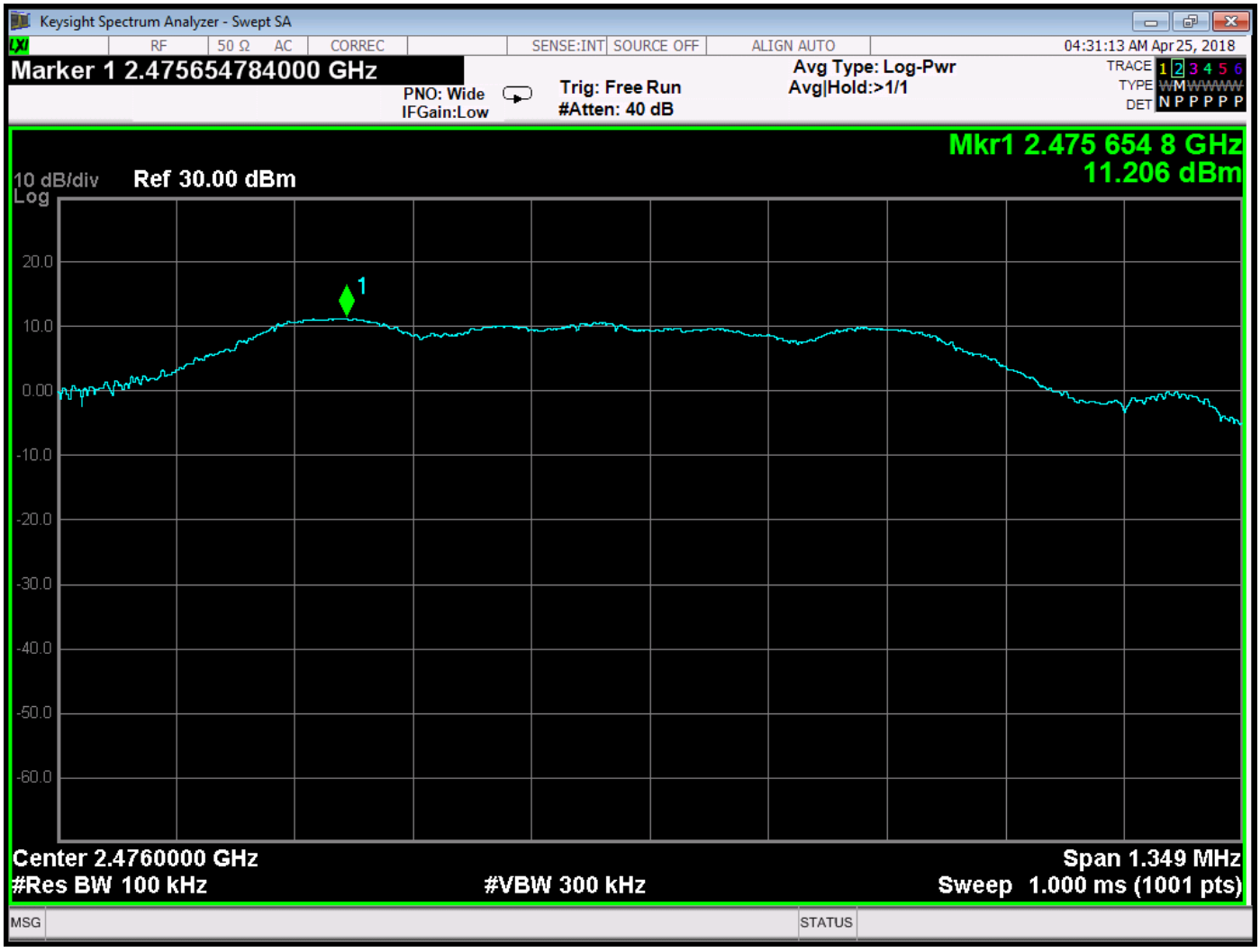
Reference Level – Middle Channel (2440 MHz) – Port #1



Reference Level – Middle Channel (2440 MHz) – Port #2



Reference Level – High Channel (2476 MHz) – Port #1



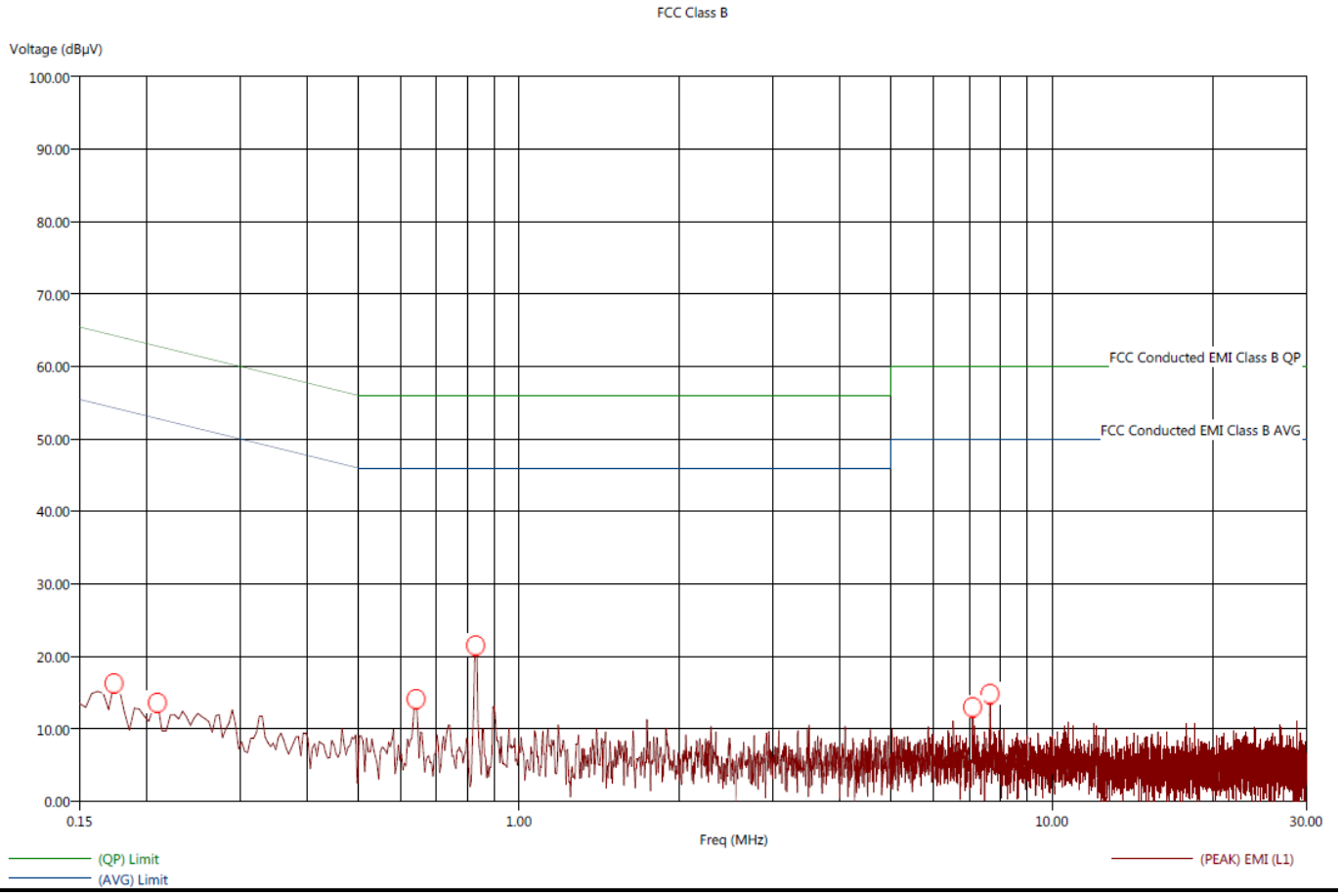
Reference Level – High Channel (2476 MHz) – Port #2

CONDUCTED EMISSIONS

DATA SHEETS

Title: FCC Class B - Black Lead
File: 5 Agilent - Conducted Pre-Scan LINE Tyco Ant 1513504-1 Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 1
Y-Axis Worst Case

4/24/2018 4:19:46 PM
Sequence: Preliminary Scan



Title: FCC Class B - Black Lead
File: 5 Agilent - Conducted Final-Scan LINE Tyco Ant 1513504-1 Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 1
Y-Axis Worst Case

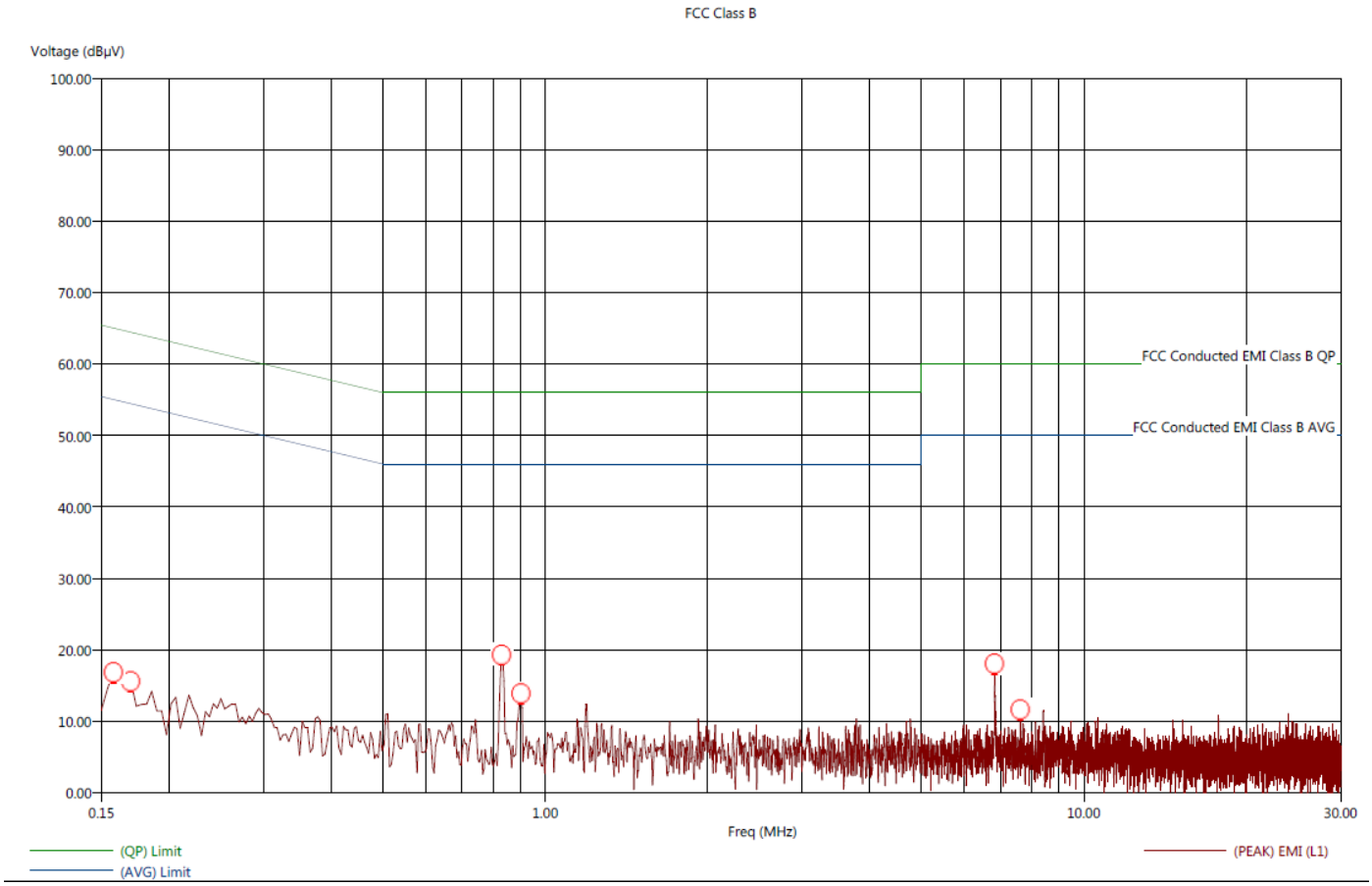
4/24/2018 4:32:41 PM
Sequence: Final Measurements

Black Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.174	23.20	13.13	-31.61	-41.68	54.81	0.00	0.39	9.80
0.210	21.90	11.78	-31.01	-41.13	52.92	0.00	0.28	9.80
0.642	21.67	11.99	-24.33	-34.01	46.00	0.06	0.03	9.80
0.830	24.34	17.62	-21.66	-28.38	46.00	0.03	0.03	9.80
7.106	19.78	1.12	-30.22	-48.88	50.00	0.25	0.04	9.90
7.662	17.29	1.08	-32.71	-48.92	50.00	0.26	0.04	9.92

Title: FCC Class B - White Lead
File: 5 Agilent - Conducted Pre-Scan NEUTRAL Tyco Ant 1513504-1 Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 1
Y-Axis Worst Case

4/24/2018 4:36:04 PM
Sequence: Preliminary Scan



Title: FCC Class B - White Lead
File: 5 Agilent - Conducted Final-Scan NEUTRAL Tyco Ant 1513504-1 Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 1
Y-Axis Worst Case

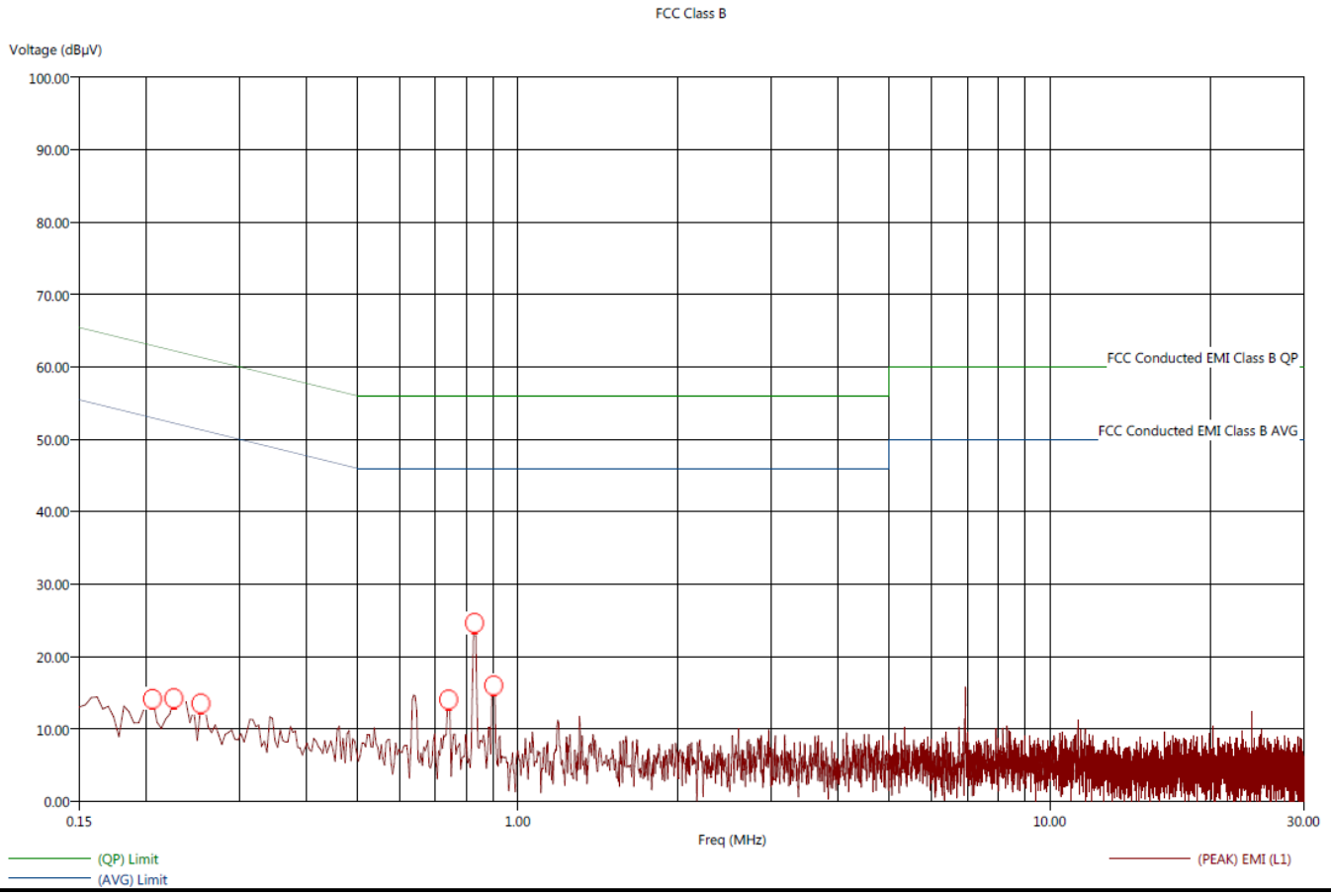
4/25/2018 8:23:10 AM
Sequence: Final Measurements

White Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.158	23.20	12.98	-31.51	-41.73	54.71	0.00	0.36	9.80
0.170	23.66	12.71	-30.79	-41.74	54.45	0.00	0.35	9.80
0.830	25.46	18.60	-20.54	-27.40	46.00	0.03	0.03	9.80
0.902	21.35	17.81	-24.65	-28.19	46.00	0.02	0.03	9.80
6.830	15.88	0.92	-34.12	-49.08	50.00	0.24	0.05	9.89
7.622	15.25	0.86	-34.75	-49.14	50.00	0.26	0.05	9.92

Title: FCC Class B - Black Lead
File: 6 Agilent - Conducted Pre-Scan LINE Ant-2.4-CW-RCS Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 2
Y-Axis Worst Case

4/25/2018 8:29:32 AM
Sequence: Preliminary Scan



Title: FCC Class B - Black Lead
File: 6 Agilent - Conducted Final-Scan LINE Ant-2.4-CW-RCS Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 2
Y-Axis Worst Case

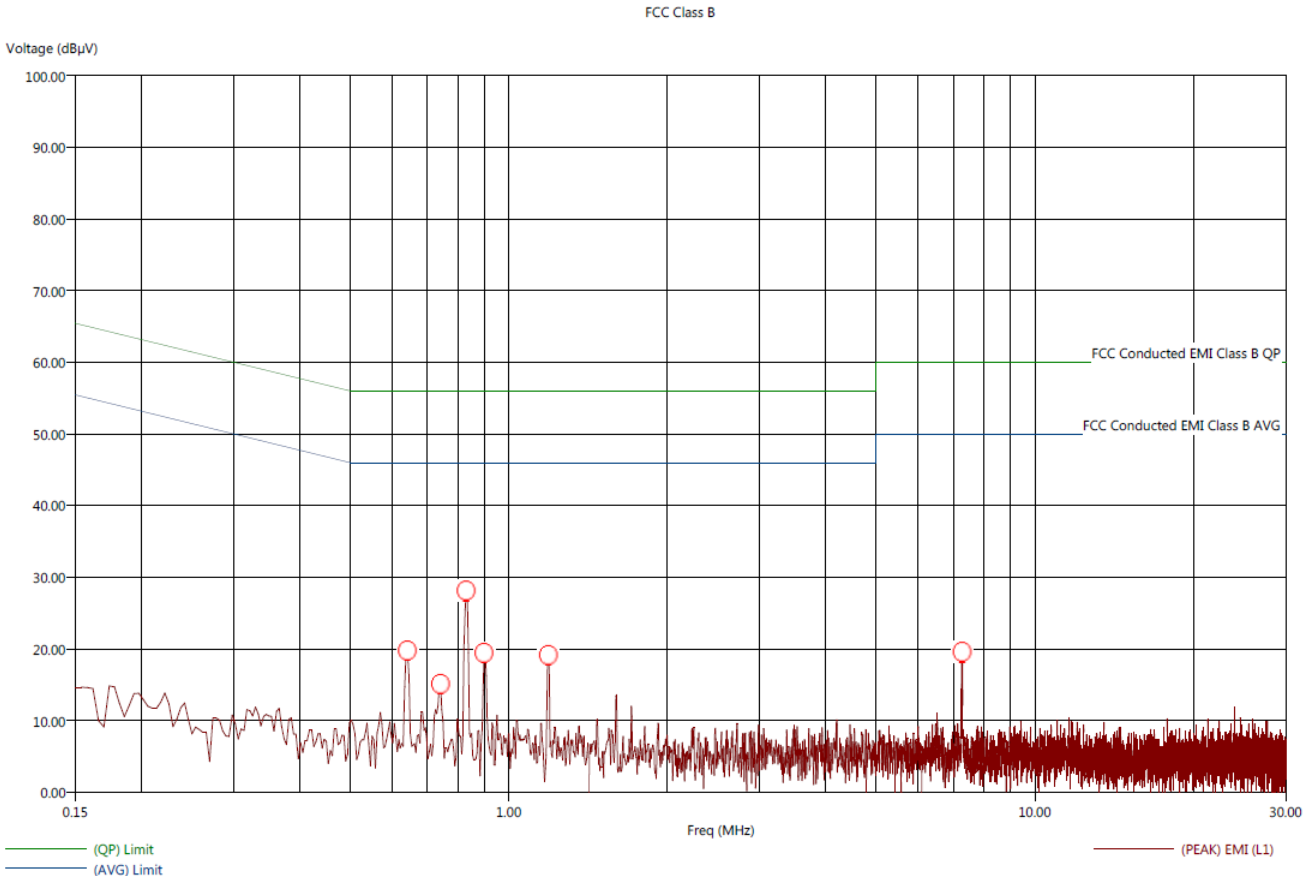
4/25/2018 8:32:39 AM
Sequence: Final Measurements

Black Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.206	20.76	11.26	-31.98	-41.48	52.74	0.01	0.27	9.80
0.226	21.31	10.74	-30.82	-41.39	52.13	0.01	0.23	9.80
0.254	24.98	14.86	-26.23	-36.35	51.21	0.03	0.18	9.80
0.742	19.85	11.27	-26.15	-34.73	46.00	0.04	0.03	9.80
0.830	30.61	24.43	-15.39	-21.57	46.00	0.03	0.03	9.80
0.902	25.32	18.81	-20.68	-27.19	46.00	0.02	0.03	9.80

Title: FCC Class B - White Lead
File: 6 Agilent - Conducted Pre-Scan NEUTRAL Ant-2.4-CW-RCS Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 2
Y-Axis Worst Case

4/25/2018 8:41:56 AM
Sequence: Preliminary Scan



Title: FCC Class B - White Lead
File: 8 Agilent - Conducted Final-Scan NEUTRAL Ant-2.4-CW-RCS Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 2
Y-Axis Worst Case

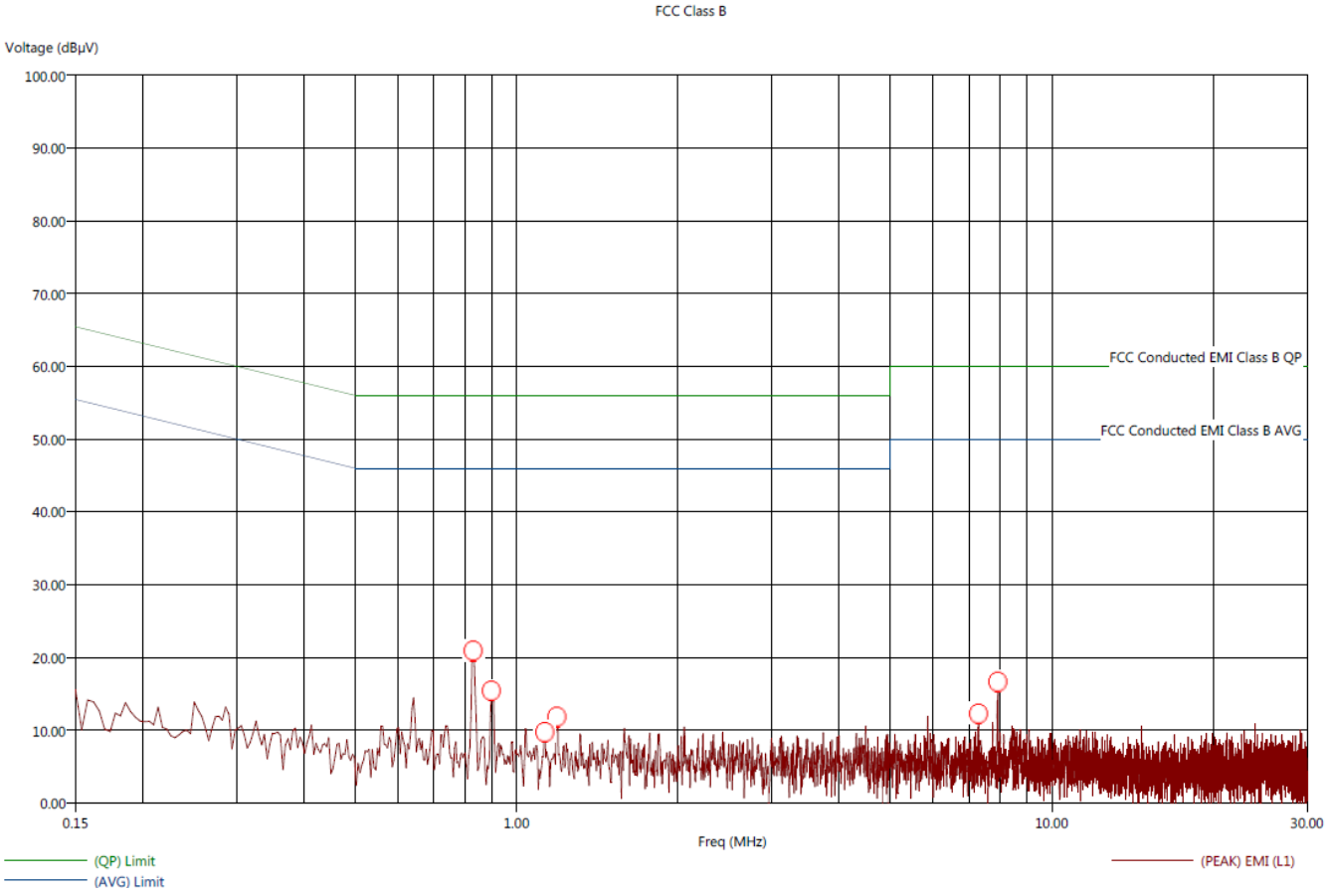
4/25/2018 8:44:50 AM
Sequence: Final Measurements

White Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.642	23.83	16.71	-22.17	-29.29	46.00	0.06	0.03	9.80
0.742	20.80	10.52	-25.20	-35.48	46.00	0.04	0.04	9.80
0.830	31.04	24.47	-14.96	-21.53	46.00	0.03	0.03	9.80
0.898	24.97	18.00	-21.03	-28.00	46.00	0.02	0.03	9.80
1.190	20.64	12.25	-25.36	-33.75	46.00	0.02	0.02	9.82
7.282	18.66	0.73	-31.34	-49.27	50.00	0.25	0.05	9.91

Title: FCC Class B - Black Lead
File: 7 Agilent - Conducted Pre-Scan LINE Tyco Ant 1513504-1 Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 2
Y-Axis Worst Case

4/24/2018 3:46:22 PM
Sequence: Preliminary Scan



Title: FCC Class B - Black Lead
File: 7 Agilent - Conducted Final-Scan LINE Tyco Ant 1513504-1 Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 2
Y-Axis Worst Case

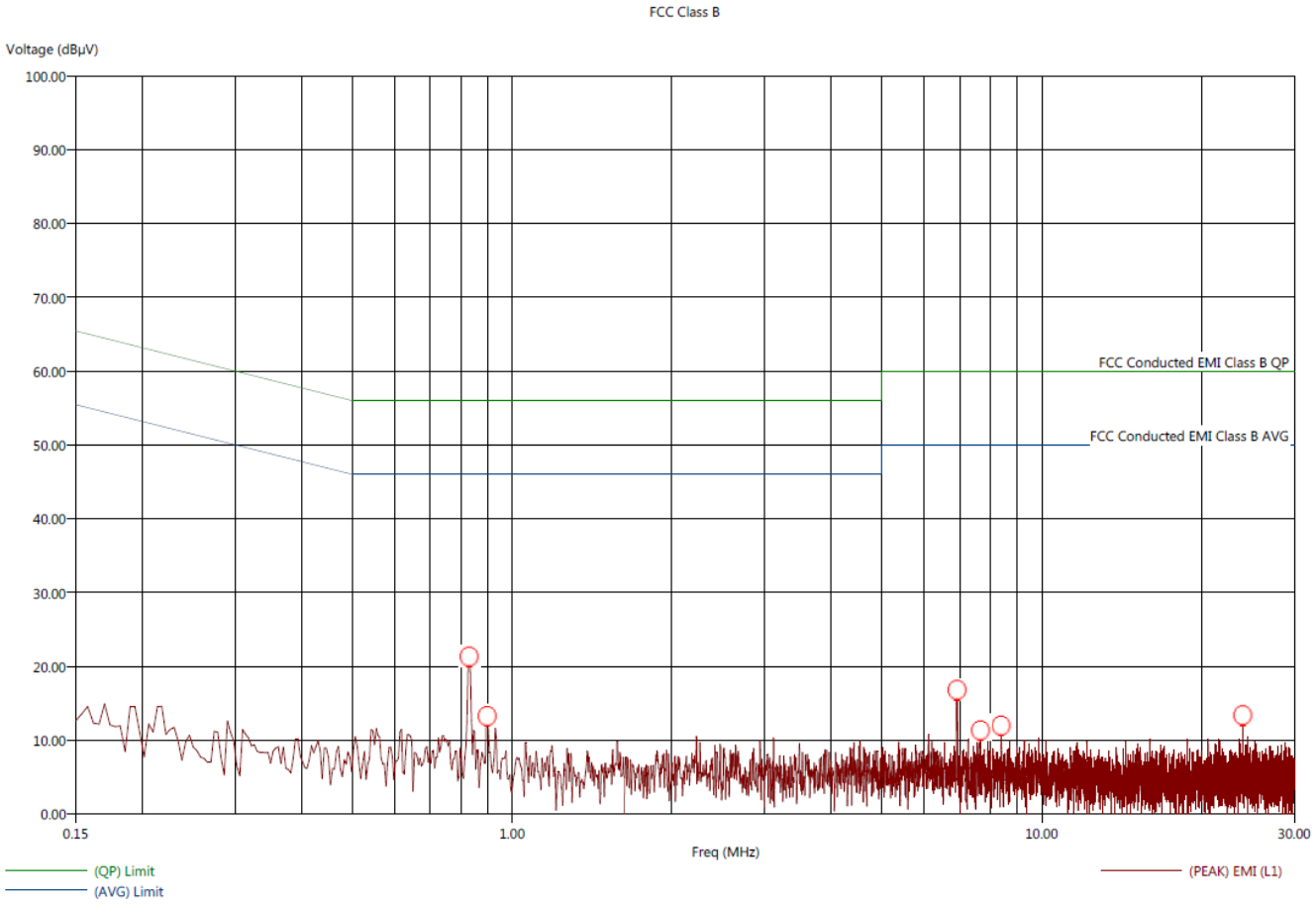
4/24/2018 3:48:43 PM
Sequence: Final Measurements

Black Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.830	24.82	17.22	-21.18	-28.78	46.00	0.03	0.03	9.80
0.898	19.39	11.35	-26.61	-34.65	46.00	0.01	0.03	9.80
1.130	15.70	5.44	-30.30	-40.56	46.00	0.02	0.03	9.82
1.190	17.48	7.78	-28.52	-38.22	46.00	0.03	0.04	9.83
7.302	20.04	1.65	-29.96	-48.35	50.00	0.25	0.04	9.91
7.934	19.46	2.18	-30.54	-47.82	50.00	0.27	0.04	9.93

Title: FCC Class B - White Lead
File: 7 Agilent - Conducted Pre-Scan NEUTRAL Tyco Ant 1513504-1 Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 2

4/24/2018 3:50:36 PM
Sequence: Preliminary Scan



Title: FCC Class B - White Lead
File: 7 Agilent - Conducted Final-Scan NEUTRAL Tyco Ant 1513504-1 Port 2 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With Tyco 1513504-1 Antenna on Port 2
Y-Axis Worst Case

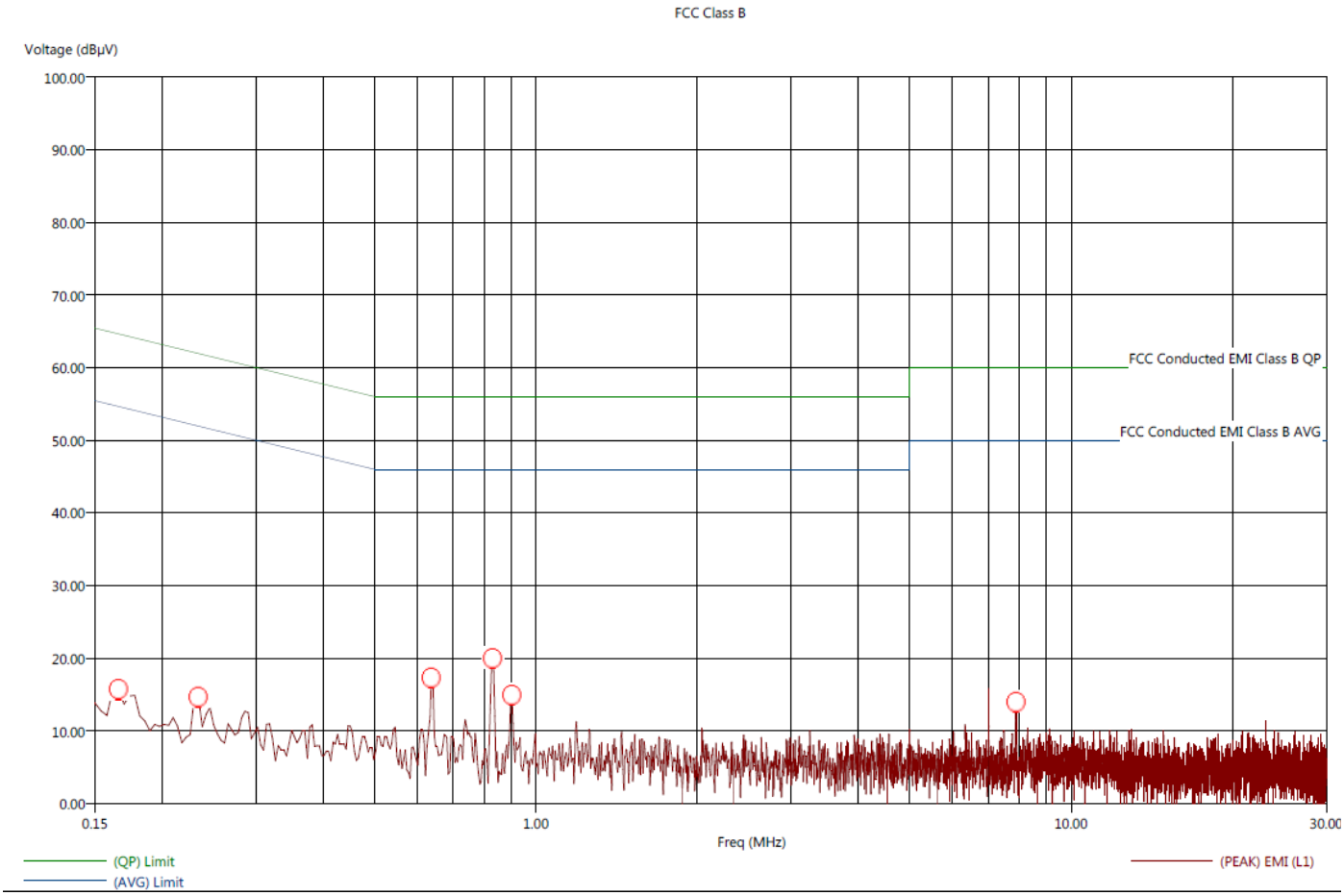
4/24/2018 3:53:02 PM
Sequence: Final Measurements

White Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.830	24.49	17.18	-21.51	-28.82	46.00	0.03	0.03	9.80
0.898	20.71	11.63	-25.29	-34.37	46.00	0.02	0.03	9.80
6.926	16.70	0.74	-33.30	-49.26	50.00	0.25	0.05	9.89
7.666	15.09	1.16	-34.91	-48.84	50.00	0.26	0.05	9.92
8.386	12.53	0.72	-37.47	-49.28	50.00	0.27	0.05	9.95
23.966	16.49	9.65	-33.51	-40.35	50.00	0.94	0.10	10.56

Title: FCC Class B - Black Lead
File: 8 Agilent - Conducted Pre-Scan LINE Ant-2.4-CW-RCS Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 1
Y-Axis Worst Case

4/24/2018 4:07:40 PM
Sequence: Preliminary Sca



Title: FCC Class B - Black Lead
File: 8 Agilent - Conducted Final-Scan LINE Ant-2.4-CW-RCS Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 1
Y-Axis Worst Case

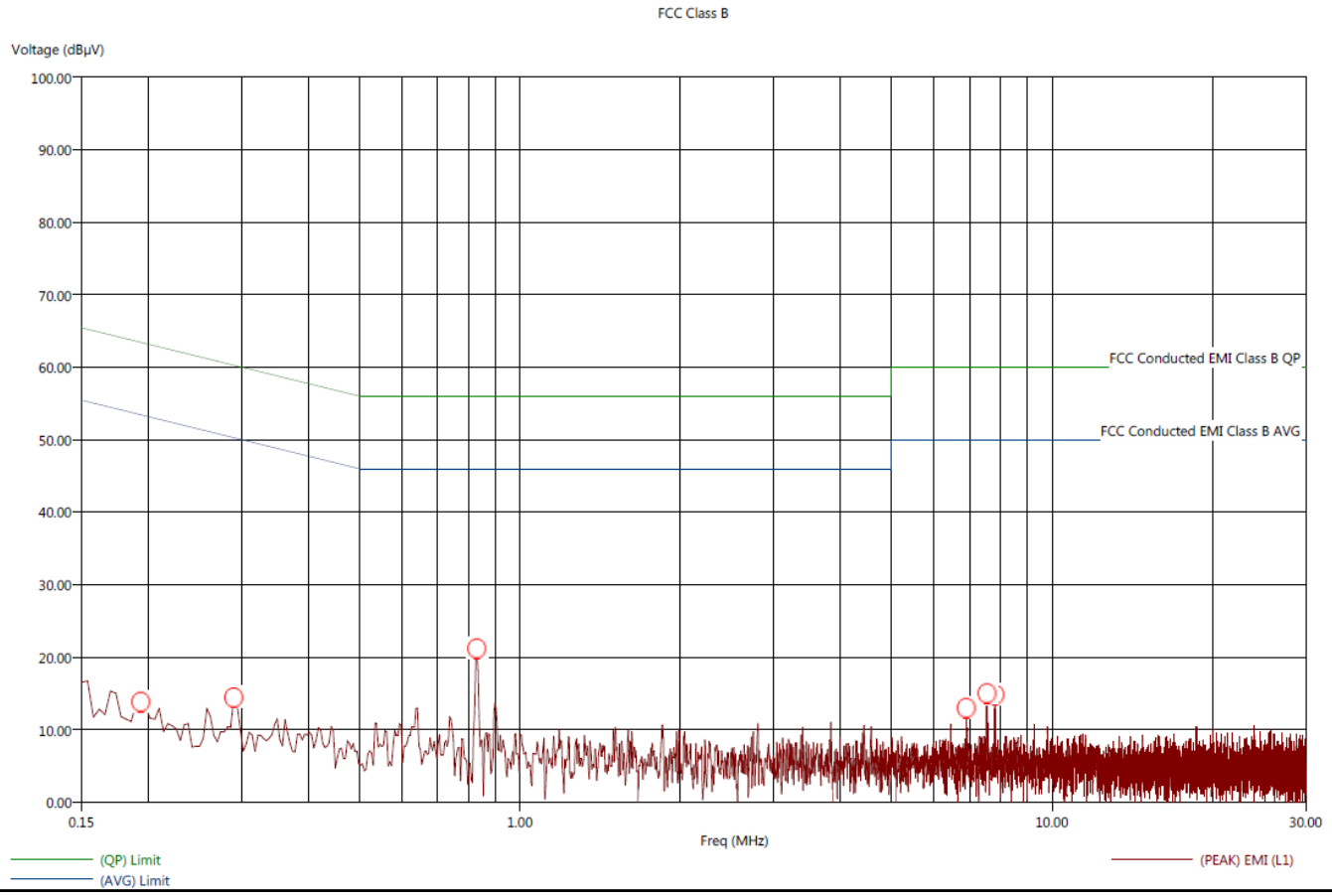
4/24/2018 4:12:30 PM
Sequence: Final Measurements

Black Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.166	23.58	13.34	-31.50	-41.74	55.09	0.00	0.40	9.80
0.234	21.70	11.35	-30.07	-40.42	51.77	0.02	0.21	9.80
0.638	20.97	12.42	-25.03	-33.58	46.00	0.06	0.03	9.80
0.830	25.01	17.45	-20.99	-28.55	46.00	0.03	0.03	9.80
0.902	20.42	11.42	-25.58	-34.58	46.00	0.02	0.03	9.80
7.894	17.65	0.81	-32.35	-49.19	50.00	0.27	0.04	9.93

Title: FCC Class B - White Lead
File: 8 Agilent - Conducted Pre-Scan NEUTRAL Ant-2.4-CW-RCS Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Comments: Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 1
Y-Axis Worst Case

4/24/2018 3:59:56 PM
Sequence: Preliminary Scan



Title: FCC Class B - White Lead
File: 8 Agilent - Conducted Final-Scan NEUTRAL Ant-2.4-CW-RCS Port 1 - 0.15-30 MHz - FCC-B .set
Operator: Kyle Fujimoto
EUT Type: 2.4 GHz Transceiver Module
EUT Condition: The EUT is continuously transmitting at the middle channel
Company: Preston Cinema Systems
Model: TR4-3.3
S/N: N/A
With ANT-2.4-CW-RCS on Port 1
Y-Axis Worst Case

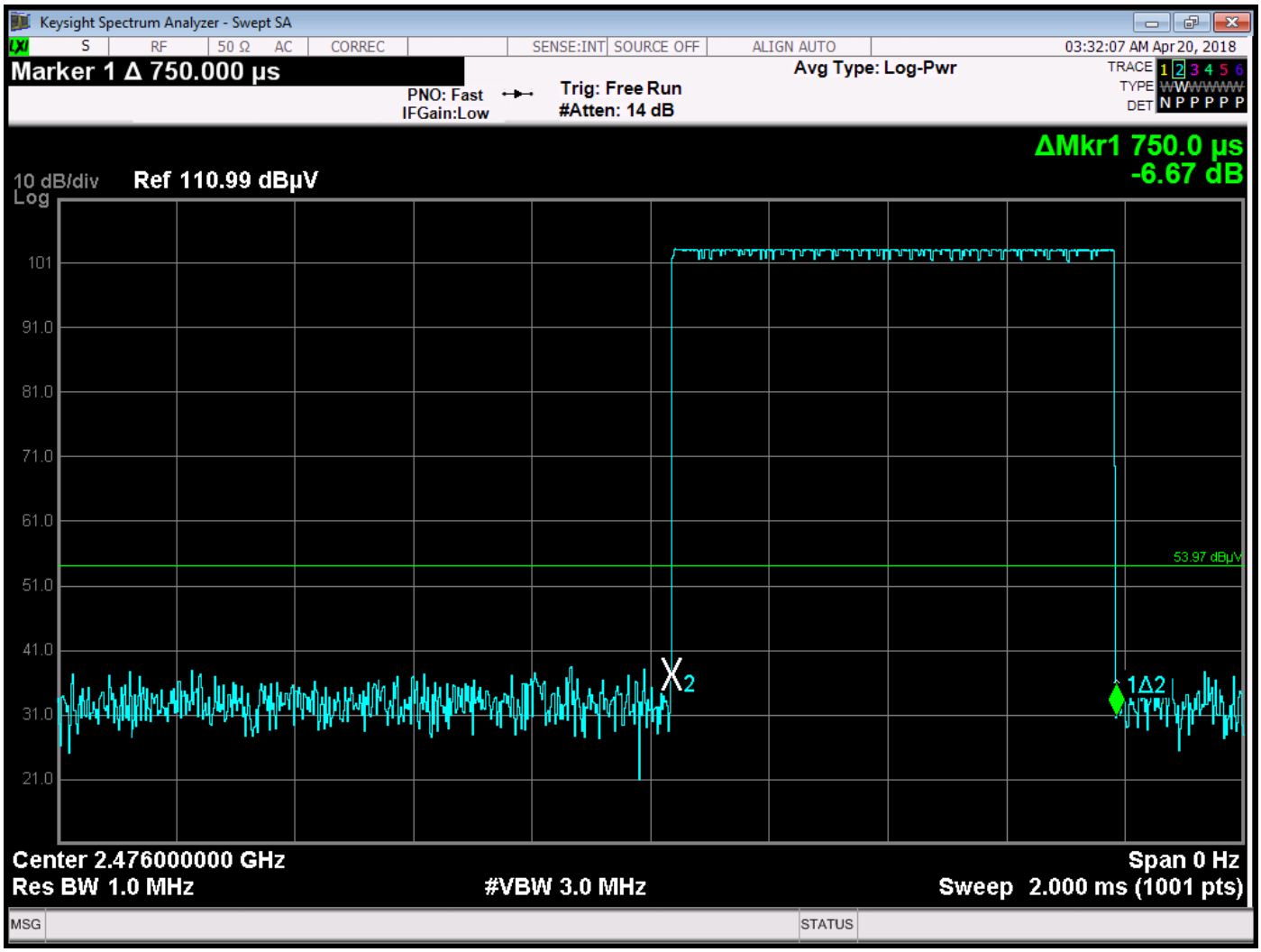
4/25/2018 4:02:01 PM
Sequence: Final Measurements

White Lead

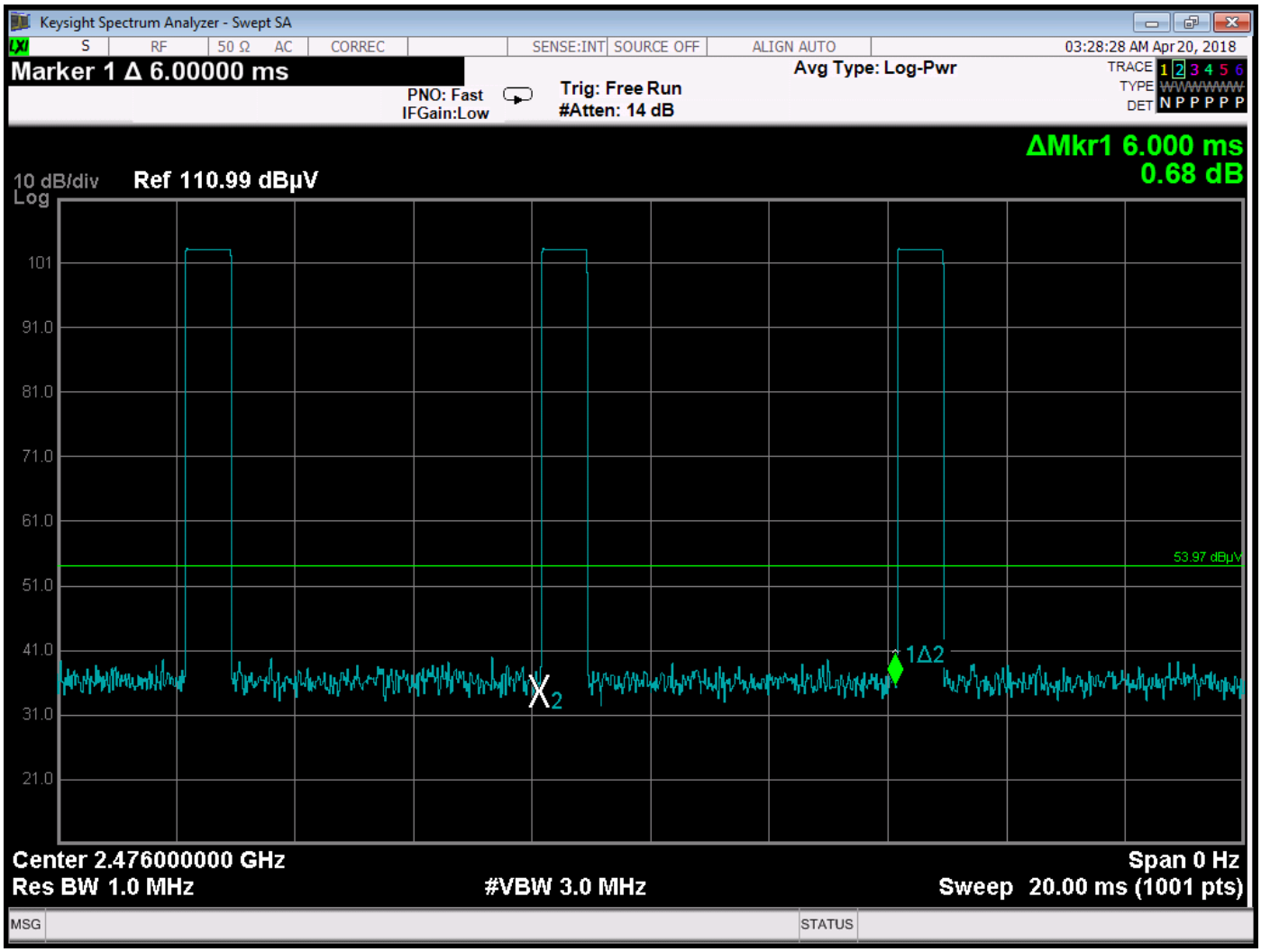
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.175	17.98	10.98	-37.30	-44.30	55.28	0.06	0.03	9.80
0.290	18.08	11.53	-33.92	-40.47	52.00	0.04	0.04	9.80
0.830	23.01	17.83	-22.99	-28.17	46.00	0.03	0.03	9.80
6.835	14.97	10.02	-31.03	-35.98	46.00	0.02	0.03	9.80
7.583	17.35	10.98	-28.65	-35.02	46.00	0.02	0.02	9.82
7.815	17.65	9.73	-32.35	-40.27	50.00	0.25	0.05	9.91

DUTY CYCLE

DATA SHEETS



Time of One Pulse = 750 us



Time Between Pulses – 6 ms

Total Duty Cycle = 750 us / 6 ms = 12.50%

The Peak to Average Ratio is -18.06 dB.