

FCC PART 15, SUBPART B and C; RSS-247 and RSS-GEN
TEST REPORT

for

BRIDGE

MODEL: MMS100

Prepared for

NORTEK SECURITY & CONTROL, LLC
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DATE: OCTOBER 30, 2019

	REPORT BODY	APPENDICES					TOTAL
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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: Bridge
Model: MMS100
S/N: N/A

Product Description: The EUT acts as a WiFi access point to allow communication between the customers home WiFi and automatic gate controller.

Modifications: The EUT was not modified during the testing.

Customer: Nortek Security & Control, LLC
5919 Sea Otter Place
Carlsbad, California 92010

Test Dates: August 2 and 5, 2019; September 11, 2019; October 1, 2, 12 and 16, 2019; and April 8, 2020

Test Specifications covered by accreditation:

Emissions requirements

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

RSS-247 and RSS-GEN

Test Procedure: ANSI C63.4 and ANSI C63.10



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; the limits of CFR Title 47, Part 15, Subpart C, section 15.207; RSS-247 and RSS-GEN See section 6.3 for Measurement Uncertainty
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; the limits of CFR Title 47, Part 15, Subpart C, section 15.209; RSS-247 and RSS-GEN See section 6.3 for Measurement Uncertainty
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; CFR Title 47, Part 15, Subpart C, section 15.247(d); RSS-247 and RSS-GEN See section 6.3 for Measurement Uncertainty
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); RSS-247 and RSS-GEN
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, section 15.247 (d); RSS-247 and RSS-GEN
6	DTS Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2); RSS-247
7	Maximum Conducted Output Power	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3); RSS-247
8	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d); RSS-247
9	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); RSS-247

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Bridge, Model: MMS100. 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; RSS-247 and RSS-GEN.

Note: This test report only covers the DTS requirements of the EUT. For the FHSS requirements, please see the test report B91028D2.

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

Nortek Security & Control, LLC

Josh Hansen

Engineering Manager, Regulatory

Compatible Electronics Inc.

Kyle Fujimoto

Test Engineer

Harvey Samaco

Test Technician

James Ross

Test Engineer

2.4 Date Test Sample was Received

The test sample was received on prior to the initial test date.

2.5 Disposition of the Test Sample

The test sample has not been returned to Nortek Security & Control, LLC 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 v05r02	Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC Rules
RSS-Gen Issue 5 April 2019 Amendment 1	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 2 February 2017	Digital Transmissions Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The WiFi Bridge, Model: MMS100 (EUT) was connected to a switching power supply via its power in port.

When being programmed, the EUT was also connected to a laptop. The laptop was also connected to an AC Adapter. The programming allowed the EUT to operate at the low, middle, and high channels and change the data rate and modulation for 802.11b, 802.11g, 802.11n, and the 900 MHz FHSS. The laptop was removed prior to the testing.

The EUT was continuously transmitting both the WiFi and 900 MHz FHSS simultaneously. Also, the 900 MHz FHSS was also put into receive mode to do the receive tests.

4.1.1 Cable Construction and Termination

Cable 1 This is a 1.2 meter unshielded cable connecting the EUT to the switching power supply. The cable has a 1/8 inch power connector at the EUT end and is hard wired into the switching power supply

Cable 2 This is a 2 meter braid shielded cable connecting the EUT to the laptop. The cable has 3 jumpers at the EUT end and a USB type 'A' connector at the laptop end. The shield of the cable was grounded to the chassis via the connector. This cable was removed prior to the testing as it was only used to program the EUT.

Cable 3 This is a 2 meter unshielded cable connecting the laptop to the AC Adapter. The cable has a 1-pin connector at the laptop end and is hard wired into the AC Adapter. The cable has a molded ferrite at the EUT end. The cable was removed prior to the testing as it was only used with the laptop to program the EUT.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
BRIDGE (EUT)	NORTEK SECURITY & CONTROL, LLC	MMS100	N/A	I6H-MMS100
SWITCH POWER SUPPLY (EUT)	N/A	MKS-0502000H	N/A	N/A
LAPTOP	LENOVO	T430	101-2037	DoC
FIRMWARE	TEXAS INSTRUMENTS	CC310013200	V1.2.5942.19689	N/A
AC ADAPTER (LAPTOP)	LENOVO	DCWP CM-2	11592P1156Z1ZDXN01L1ND	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
RADIATED AND CONDUCTED EMISSIONS TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
EMI Receiver, 20 Hz – 40 GHz	Rohde & Schwarz	ESIB40	100218	March 21, 2019	1 Year
EMI Receiver, 20 Hz – 26.5 GHz	Keysight Technologies	N9038A	MY5120150	August 23, 2019	1 Year
CombiLog Antenna	Com-Power	AC-220	061093	June 5, 2019	2 Year
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
Turntable	Com-Power	TT-100	N/A	N/A	N/A
Antenna-Mast	Com-Power	AM-100	N/A	N/A	N/A
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A
Preamplifier	Com-Power	PA-118	181653	January 25, 2019	1 Year
Preamplifier	Com-Power	PA-840	711013	May 10, 2018	2 Year
Horn Antenna	Com-Power	AH-118	071302	February 22, 2018	2 Year
Loop Antenna	Com-Power	AL-130R	121090	February 5, 2019	2 Year
LISN (EUT)	Com-Power	LI-215A	191951	August 7, 2019	1 Year
LISN (ACC)	Com-Power	LI-215A	191952	August 7, 2019	1 Year
Attenuator 10 dB	SureCall	SC-ATT-10	17100025	November 27, 2018	1 Year
Power Sensor	ETS-Lindgren	7002-006	00160367	April 19, 2018	2 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.

6.3 Measurement Uncertainty

Compatible Electronics' U_{lab} value is less than U_{cispr} , thus based on this – compliance is deemed to occur if no measured disturbance exceeds the disturbance limit

$$u_c(y) = \sqrt{\sum_i c_i^2 u^2(x_i)}$$

MEASUREMENT TYPE	UNCERTAINTY VALUES
Radiated Emissions 30 MHz to 1000 MHz	3.26 dB (Vertical) 3.19 dB (Horizontal)
Radiated Emissions 1 GHz to 40 GHz	3.67 dB (Both Vertical and Horizontal)
AC Line Conducted Emissions 0.15 MHz to 30 MHz	2.72 dB (Line and Neutral Leads)

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Description and Frequencies

The EUT operates on eleven channels. The 802.11b, 802.11g, and 802.11n all operate at the same channels and frequencies.

Channel 1 – 2412 MHz
Channel 2 – 2417 MHz
Channel 3 – 2422 MHz
Channel 4 – 2427 MHz
Channel 5 – 2432 MHz
Channel 6 – 2437 MHz
Channel 7 – 2442 MHz
Channel 8 – 2447 MHz
Channel 9 – 2452 MHz
Channel 10 – 2457 MHz
Channel 11 – 2462 MHz

7.2 Antenna Gain

The gain of the chip antenna is 1.9 dBi.
The gain of the rubber antenna is 2.5 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 10 dB Attenuator 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.

The six highest reading are listed in Table 2.

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B; the limits of CFR Title 47, Part 15, Subpart C, Section 15.207; and RSS-GEN. Please see Appendix E for the data sheets.

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 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.

The frequencies above 1 GHz were averaged by using the RMS detector function on the EMI Receiver.

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.

The six highest reading are listed in Table 1.

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B; the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d); RSS-GEN and RSS-247 for radiated emissions. Please see Appendix E for the data sheets.

8.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION TEST RESULTS
Bridge, Model: MMS100

Frequency MHz	Corrected Reading* dBuV/m	Specification Limit dBuV/m	Delta (Cor. Reading – Spec. Limit) dB
2487.99 (H) (802.11b)	52.87 (AVG)	53.97	-1.10
3906.41 (V) (802.11b)	52.13 (AVG)	53.97	-1.84
2483.50 (H) (802.11n)	52.01 (AVG)	53.97	-1.96
4018.43 (H) (802.11b)	51.75 (AVG)	53.97	-2.22
2483.50 (V) (802.11n)	51.54 (AVG)	53.97	-2.43
2483.50 (H) (802.11g)	50.60 (AVG)	53.97	-3.37

Table 2.0 CONDUCTED EMISSION TEST RESULTS
Bridge, Model: MMS100

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.542 (BL) (802.11 g)	34.61 (AVG)	46.00	-11.39
0.550 (BL) (802.11 b)	34.50 (AVG)	46.00	-11.50
0.550 (BL) (802.11 g)	34.48 (AVG)	46.00	-11.52
0.546 (BL) (802.11 g)	34.38 (AVG)	46.00	-11.62
0.550 (BL) (802.11 n)	34.21 (AVG)	46.00	-11.79
0.554 (BL) (802.11 g)	34.09 (AVG)	46.00	-11.91

Notes:

(H) Horizontal
(V) Vertical
(BL) Black Lead
(WL) White Lead
(QP) Quasi Peak
(AVG) Average

* The complete emissions data is given in Appendix E of this report.

8.2 DTS Bandwidth

The DTS Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from 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); and RSS-247.

8.3 Maximum Peak Conducted Output Power

The Conducted Peak Output Power was measured using the Power Meter. The peak output power was measured using the peak power measurement procedure described in section 11.9.1.3 of KDB 558074 v05r02. The Maximum Conducted 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); and RSS-247.

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); and RSS-247.

8.5 RF Band Edges

The RF band edges were measured using the EMI Receiver. The RF band edges were 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.

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.

The RF band edge was also taken at 2400 MHz when the EUT was on the low channel. The following steps were performed for measuring the band edge at 2400 MHz:

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span wide enough to cover the band edges.
3. Set the RBW to 100 kHz
4. Set the VBW $\geq 3 \times$ RBW
5. Detector = Peak
6. Sweep time = auto couple
7. Allow the trace to stabilize
8. Use the peak marker function to determine the maximum amplitude level

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d) for band edges; and RSS-247. 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 at least 1.5 times the OBW.
3. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
4. Set the VBW $\geq [3 \times \text{RBW}]$
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 requirement, then reduce RBW (but 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); and RSS-247.

8.7 Variation of the Input Power

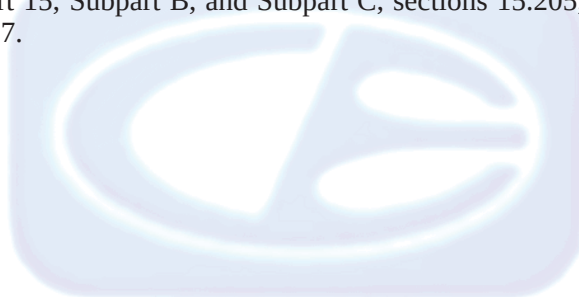
The variation of the input power test was performed using the EMI Receiver. The EUT input power was varied between 85% and 115% of the nominal rated supply voltage. The carrier frequency was monitored for any change in amplitude.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart A section 15.31 (e); and RSS-247.

9. CONCLUSIONS

The WiFi Bridge, Model: MMS100 (EUT), 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; RSS-GEN and RSS-247.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

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

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

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

LABORATORY ACCREDITATIONS AND RECOGNITIONS



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."

ISED Test Site Registration Number: 2154A

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, RSS-GEN and RSS-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

Bridge
Model: MMS100
S/N: N/A

There are no additional models covered under this report.



APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER

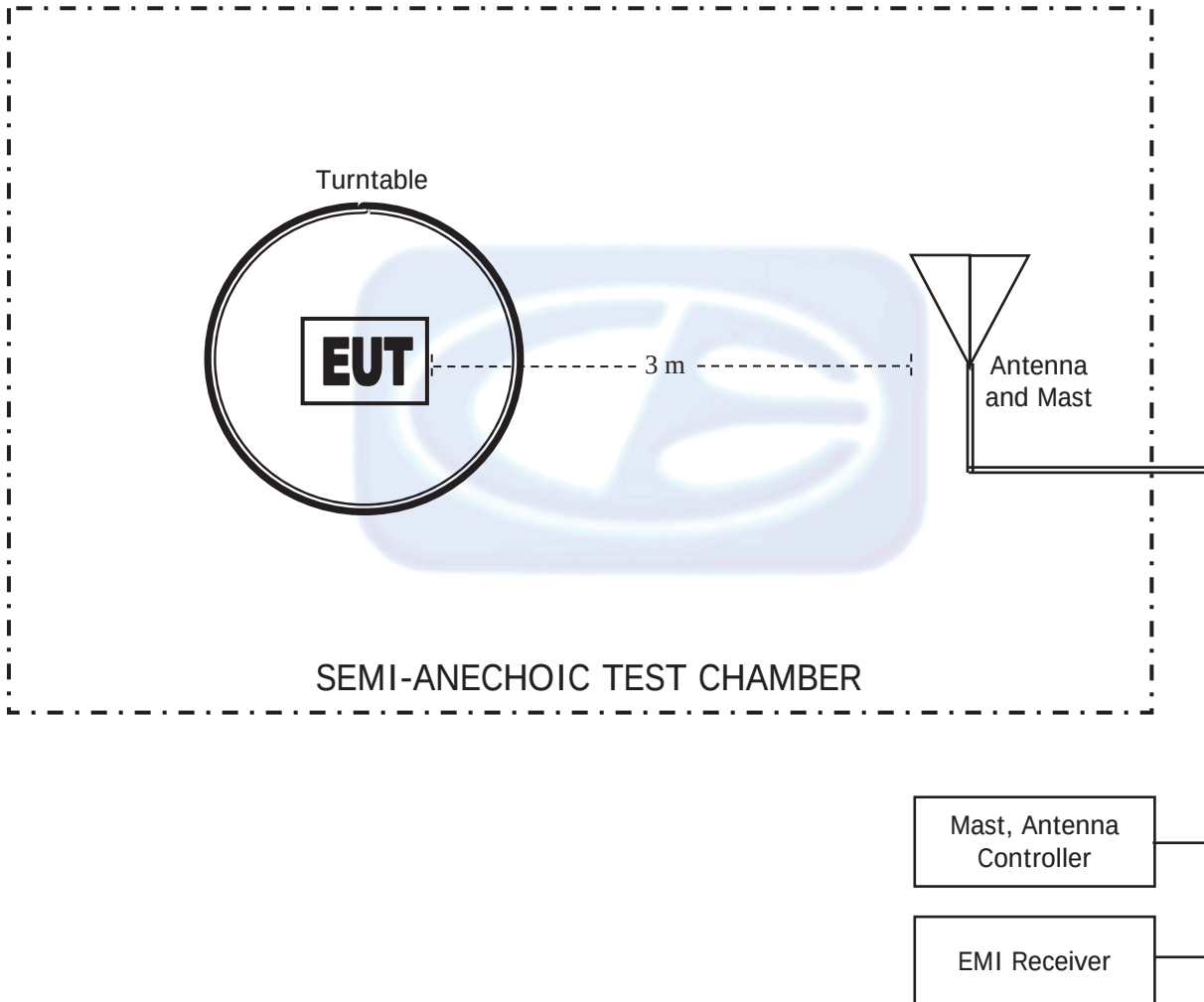
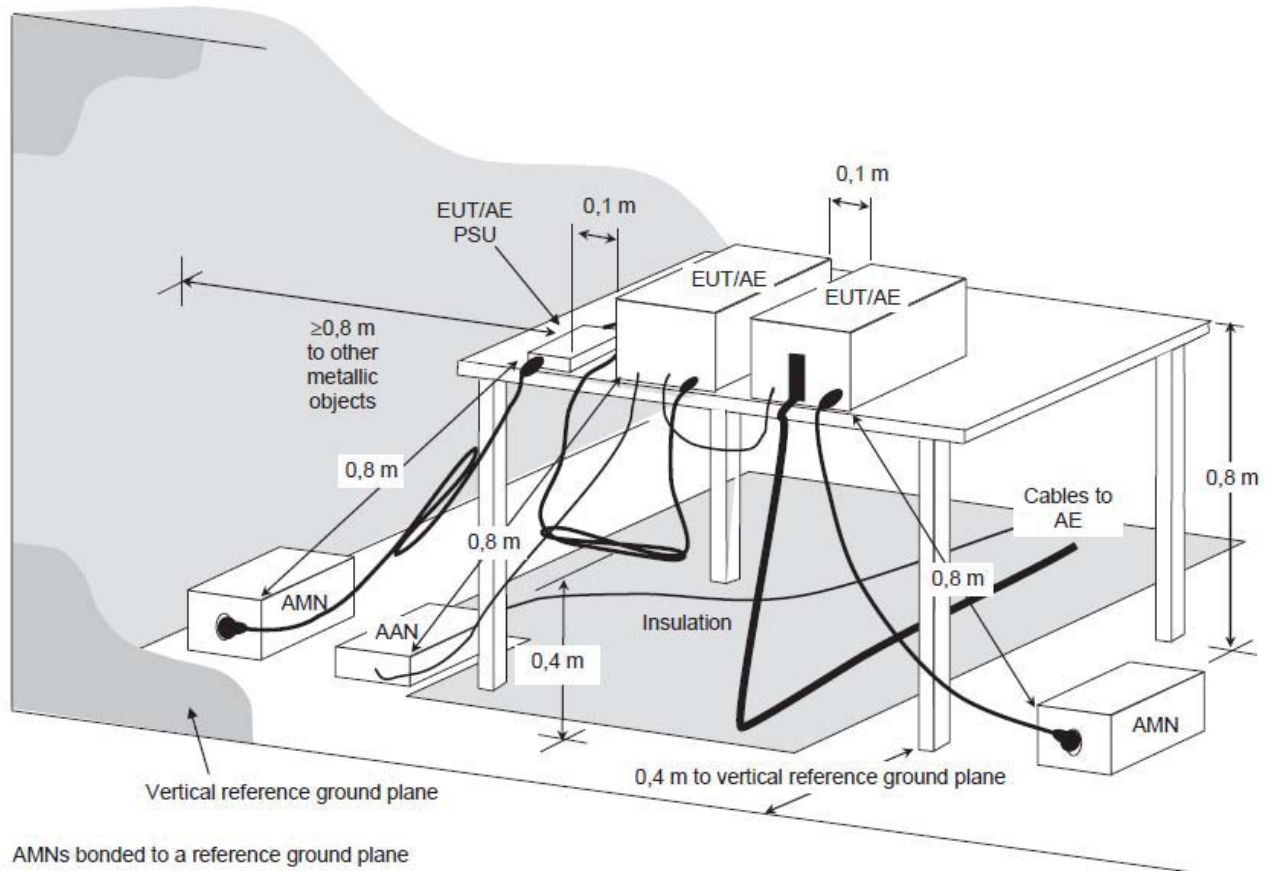


FIGURE 2: CONDUCTED EMISSIONS TEST SETUP



COM-POWER AL-130R**LOOP ANTENNA**

S/N: 121090

CALIBRATION DATE: FEBRUARY 5, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.01	15.6	-35.9
0.02	14.8	-36.7
0.03	15.6	-35.9
0.04	15.1	-36.4
0.05	14.4	-37.0
0.06	14.6	-36.9
0.07	14.4	-37.1
0.08	14.3	-37.1
0.09	14.5	-36.9
0.10	14.1	-37.3
0.20	14.1	-37.3
0.30	14.0	-37.4
0.40	14.0	-37.4
0.50	14.2	-37.2
0.60	14.2	-37.2
0.70	14.2	-37.2
0.80	14.2	-37.3
0.90	14.3	-37.2
1.00	14.5	-37.0
2.00	14.5	-36.9
3.00	14.5	-36.9
4.00	14.7	-36.8
5.00	14.6	-36.9
6.00	14.6	-36.9
7.00	14.6	-36.9
8.00	14.6	-36.9
9.00	14.6	-36.9
10.00	14.8	-36.6
11.00	14.9	-36.6
12.00	14.8	-36.6
13.00	14.8	-36.7
14.00	14.6	-36.8
15.00	14.5	-36.9
16.00	14.5	-37.0
17.00	14.6	-36.9
18.00	14.7	-36.7
19.00	14.8	-36.6
20.00	14.9	-36.6
21.00	14.6	-36.8
22.00	14.2	-37.2
23.00	13.7	-37.7
24.00	13.3	-38.2
25.00	13.0	-38.5
26.00	12.9	-38.6
27.00	13.0	-38.5
28.00	13.1	-38.4
29.00	13.1	-38.4
30.00	12.9	-38.5

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61093****CALIBRATION DATE: JUNE 5, 2019**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.10	200	15.30
35	20.90	250	16.80
40	20.10	300	19.00
45	19.40	350	19.60
50	18.40	400	21.70
60	15.10	450	21.60
70	12.00	500	22.20
80	11.60	550	22.70
90	13.50	600	24.20
100	14.70	650	24.40
120	15.90	700	24.50
125	15.90	750	25.40
140	14.80	800	26.30
150	15.50	850	26.70
160	19.80	900	27.50
175	15.20	950	27.80
180	14.90	1000	27.90

COM POWER AH-118**HORN ANTENNA****S/N: 071302****CALIBRATION DATE: FEBRUARY 22, 2018**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.87	10.0	38.74
1.5	25.54	10.5	39.65
2.0	28.81	11.0	38.53
2.5	28.16	11.5	39.28
3.0	29.32	12.0	40.28
3.5	30.05	12.5	41.69
4.0	30.79	13.0	41.61
4.5	32.15	13.5	41.71
5.0	34.04	14.0	40.75
5.5	33.79	14.5	41.40
6.0	34.50	15.0	42.87
6.5	35.42	15.5	41.05
7.0	37.20	16.0	40.43
7.5	37.21	16.5	40.17
8.0	37.70	17.0	42.63
8.5	37.68	17.5	43.83
9.0	38.45	18.0	46.38
9.5	39.44		

COM-POWER PA-118**PREAMPLIFIER****S/N: 181653****CALIBRATION DATE: JANUARY 25, 2019**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	40.10	6.0	40.60
1.1	40.10	6.5	39.50
1.2	40.00	7.0	39.40
1.3	39.70	7.5	39.30
1.4	39.60	8.0	39.20
1.5	39.90	8.5	40.50
1.6	40.00	9.0	39.60
1.7	39.70	9.5	39.50
1.8	39.50	10.0	38.80
1.9	39.60	11.0	38.70
2.0	39.90	12.0	42.20
2.5	40.10	13.0	40.00
3.0	40.80	14.0	40.30
3.5	40.60	15.0	40.20
4.0	40.50	16.0	41.00
4.5	41.60	17.0	39.70
5.0	39.20	18.0	40.90
5.5	40.00		

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

S/N: 711013

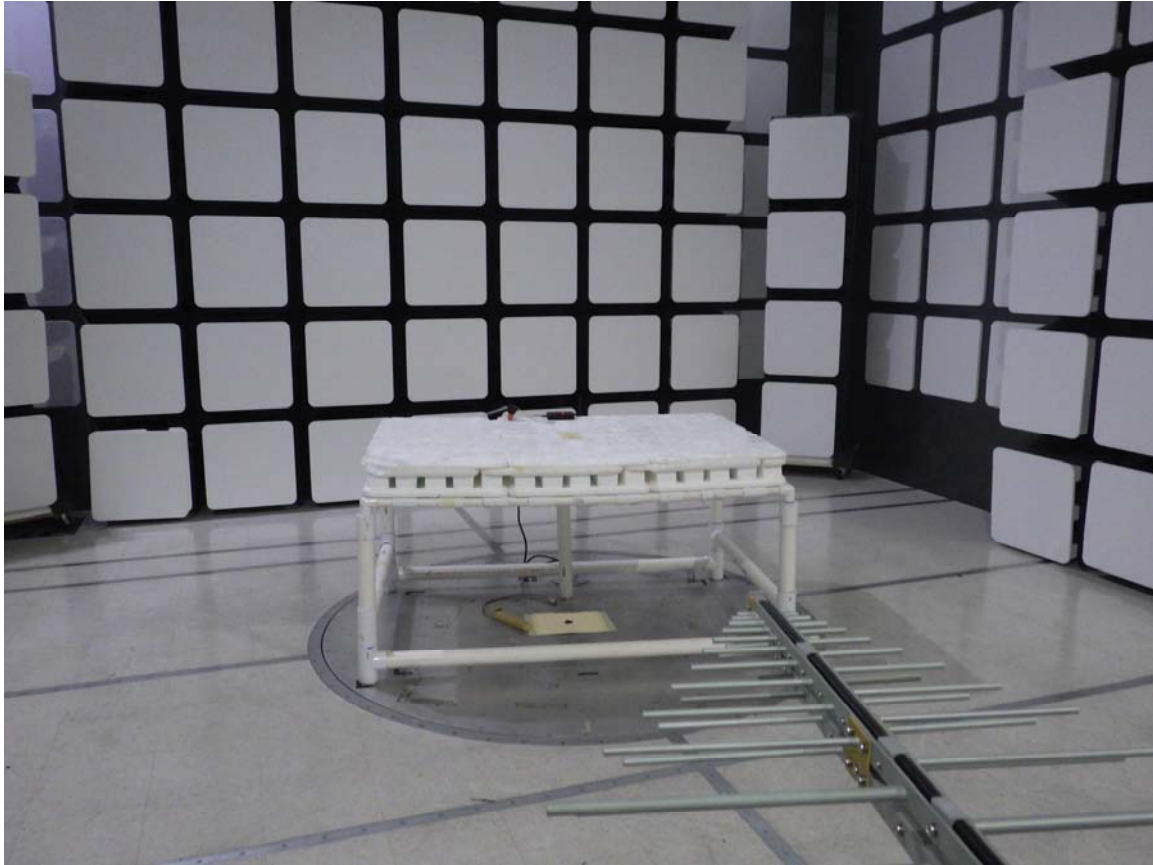
CALIBRATION DATE: MAY 10, 2018

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	26.90	31.0	24.56
19.0	24.65	31.5	25.84
20.0	25.74	32.0	26.93
21.0	24.78	32.5	27.76
22.0	24.83	33.0	25.76
23.0	24.81	33.5	26.76
24.0	25.52	34.0	26.51
25.0	24.90	34.5	27.49
26.0	25.92	35.0	27.64
26.5	26.53	35.5	27.45
27.0	26.41	36.0	25.08
27.5	24.78	36.5	25.61
28.0	25.13	37.0	24.69
28.5	29.29	37.5	24.10
29.0	28.44	38.0	24.83
29.5	27.51	38.5	24.41
30.0	27.12	39.0	24.44
30.5	26.42	39.5	22.96
		40.0	22.29

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



FRONT VIEW

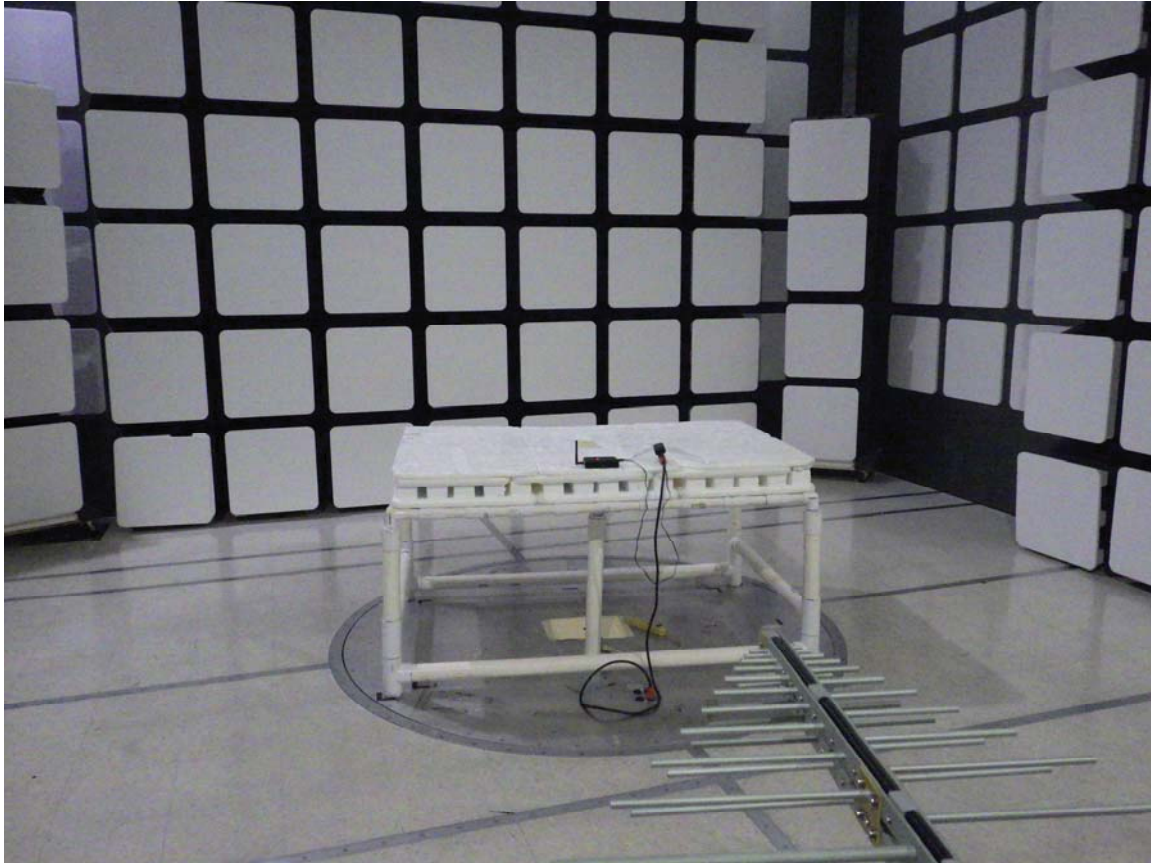
NORTEK SECURITY & CONTROL, LLC

BRIDGE

MODEL: MMS100

FCC SUBPART B AND C – RADIATED EMISSIONS – 30 MHz to 1000 MHz

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



REAR VIEW

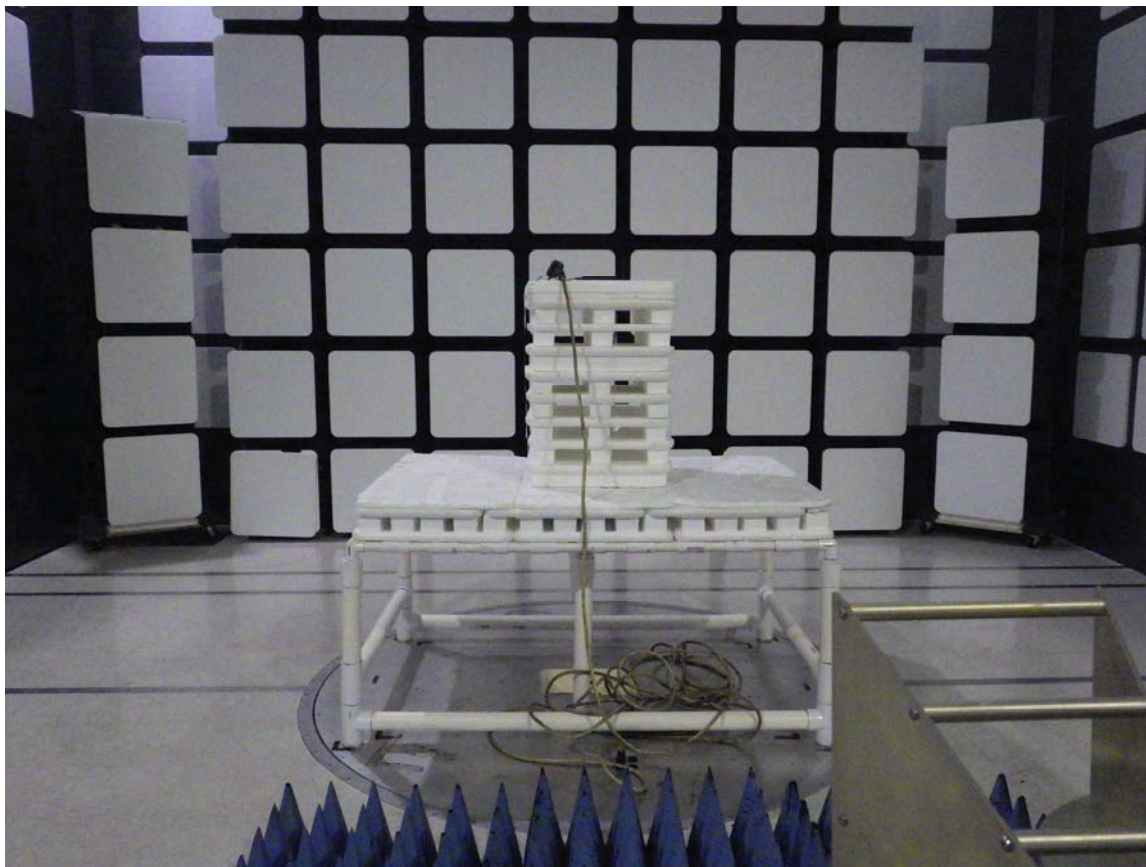
NORTEK SECURITY & CONTROL, LLC

BRIDGE

MODEL: MMS100

FCC SUBPART B AND C – RADIATED EMISSIONS – 30 MHz to 1000 MHz

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



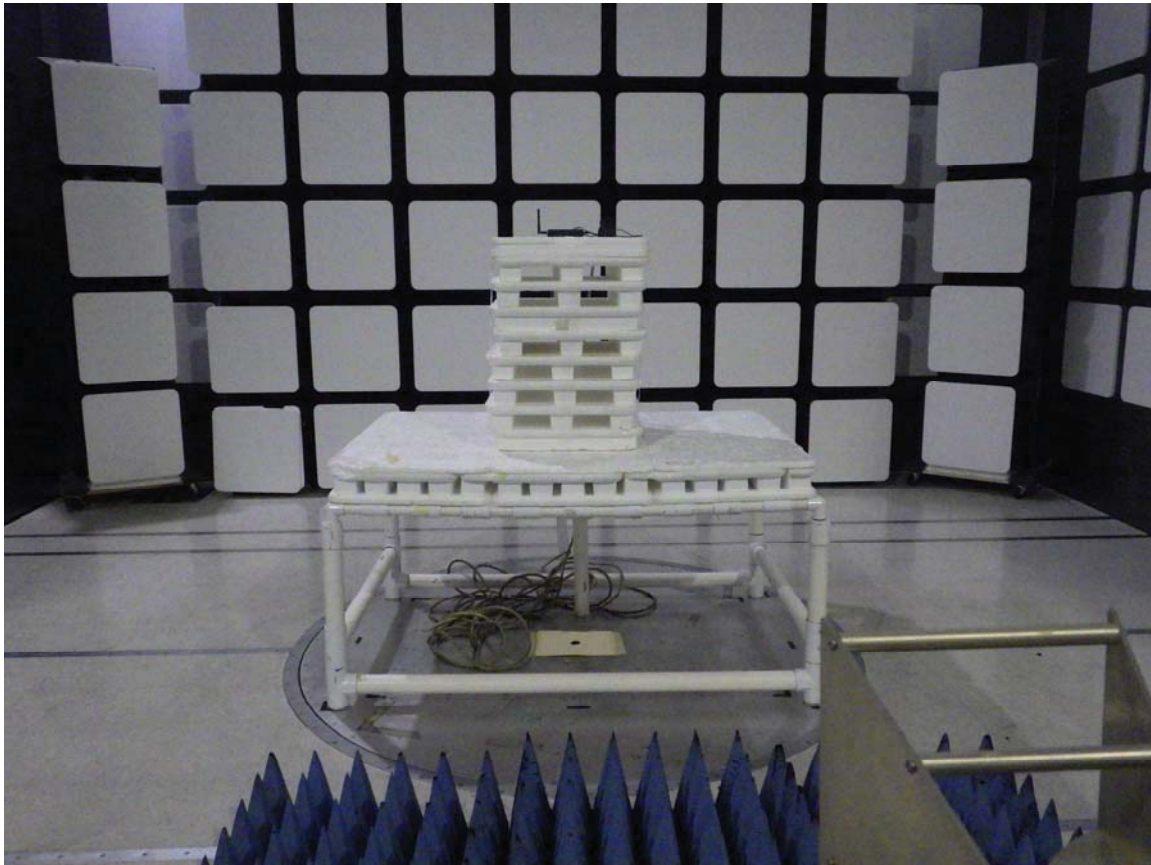
FRONT VIEW

NORTEK SECURITY & CONTROL, LLC
BRIDGE

MODEL: MMS100

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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



REAR VIEW

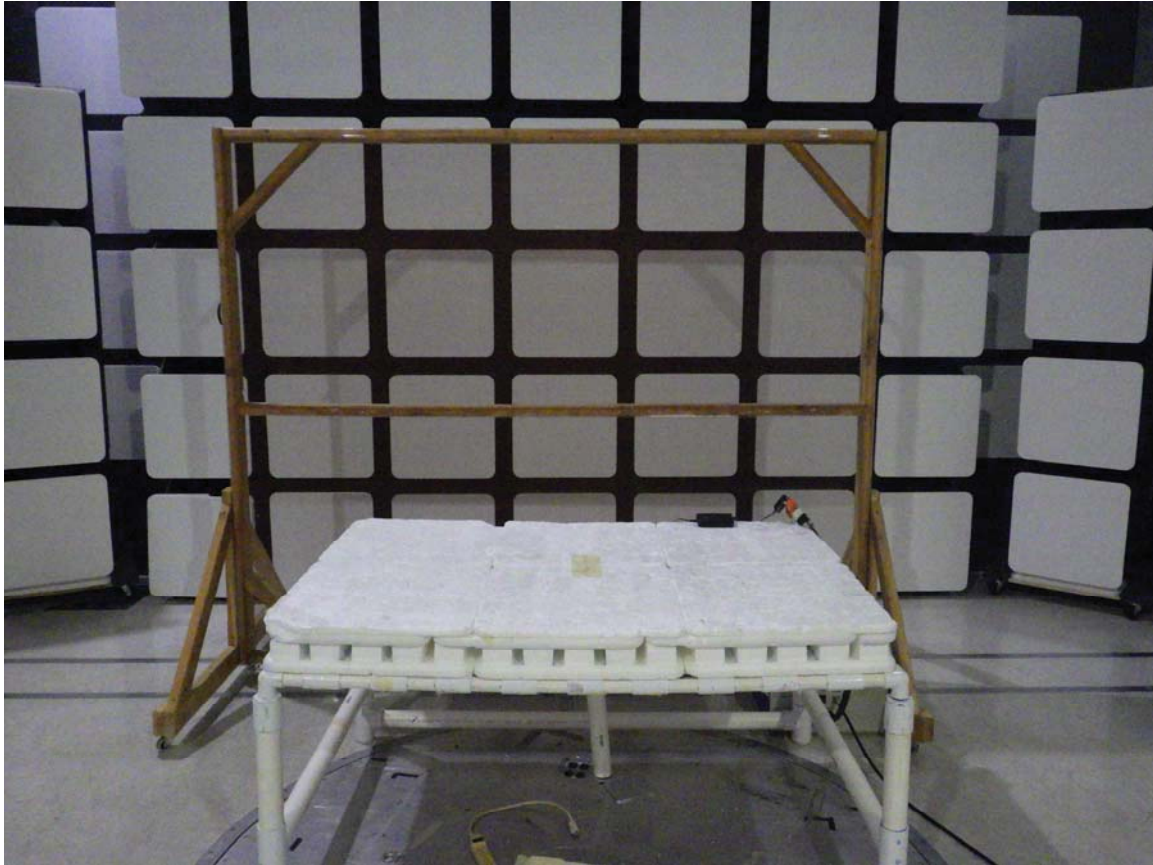
NORTEK SECURITY & CONTROL, LLC

BRIDGE

MODEL: MMS100

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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



FRONT VIEW

NORTEK SECURITY & CONTROL, LLC
BRIDGE
MODEL: MMS100
FCC SUBPART B AND C – CONDUCTED EMISSIONS

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



REAR VIEW

NORTEK SECURITY & CONTROL, LLC
BRIDGE
MODEL: MMS100
FCC SUBPART B AND C – CONDUCTED EMISSIONS

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

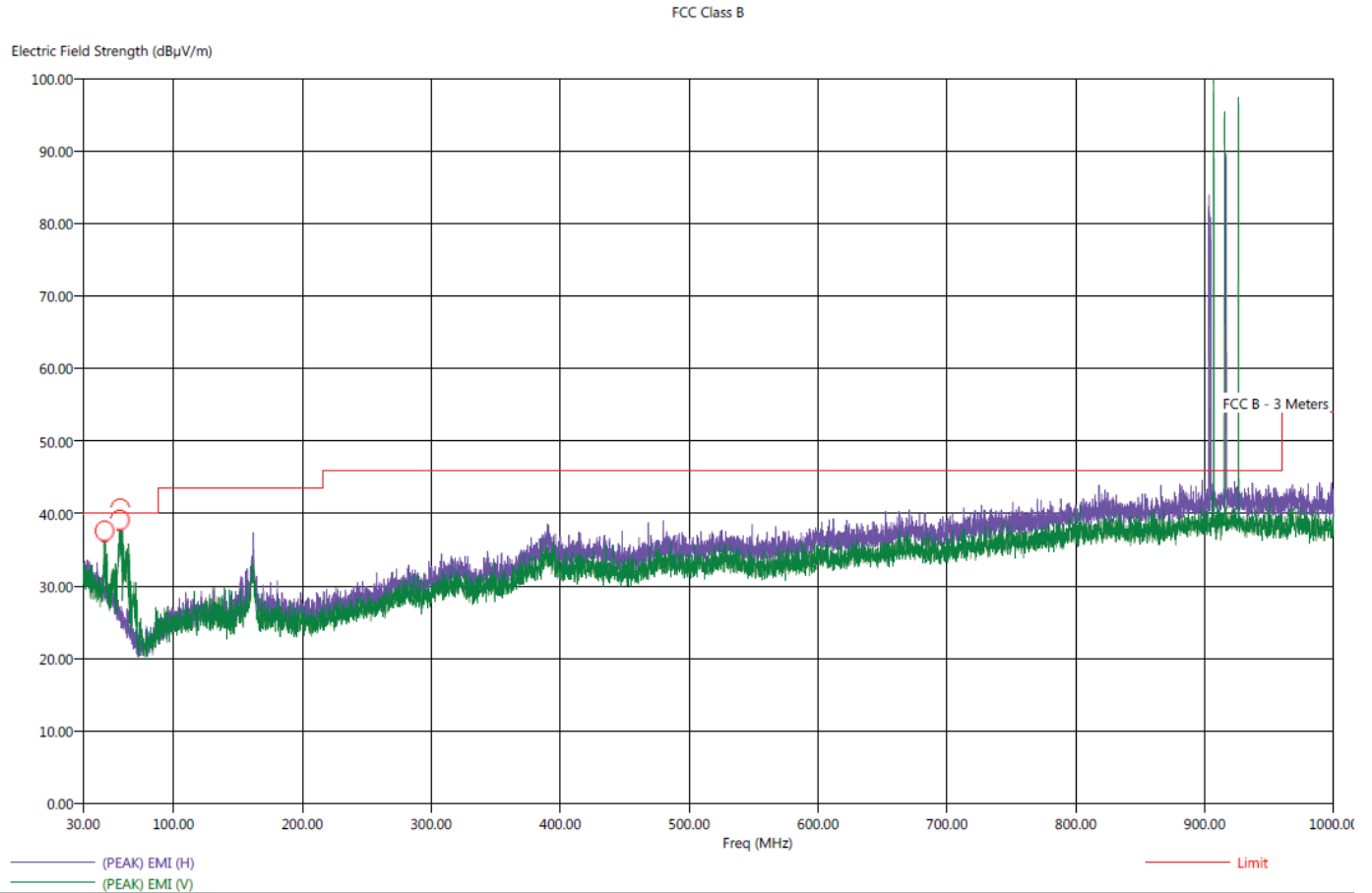
APPENDIX E

DATA SHEETS

***RADIATED EMISSIONS
DATA SHEETS***

Title: Pre-Scan - FCC Class B
File: Pre-Scan - 30MHz - 1000MHz - b Mode - Low Ch - X-axis - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 2412 MHz 802.11 b and FHSS from 902 to 928 MHz
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11 b Mode
X-Axis - Worst Case
Note: The frequencies from 902 MHz to 928 MHz are from the FHSS and subject to the rules of FCC 15.247 instead

10/1/2019 9:28:33 AM
Sequence: Preliminary Sc



Note: No Emissions Detected form 9 kHz to 30 MHz

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

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

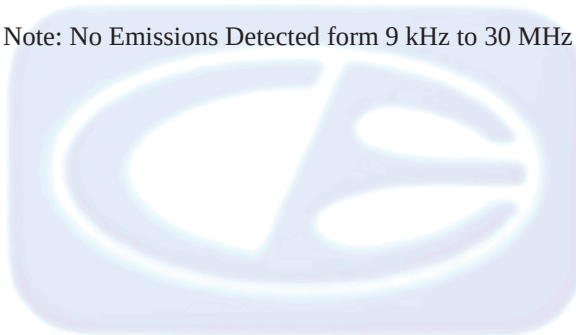
Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: Radiated Final - FCC Class B
File: Final Scan - 30MHz - 1000MHz - b Mode - Low Ch - X-axis - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 2412 MHz 802.11 b and FHSS from 902 to 928 MHz
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11 b Mode
X-Axis - Worst Case
Note: The frequencies from 902 MHz to 928 MHz are from the FHSS and subject to the rules of FCC 15.247 instead

10/1/2019 9:40:03 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 Aql (deg)	Twr Ht (cm)
46.70	V	34.84	19.96	-5.16	-20.04	40.00	19.06	0.90	351.25	333.29
58.50	V	42.40	16.51	2.40	-23.49	40.00	15.61	0.90	22.25	111.32
58.90	V	42.46	16.48	2.46	-23.52	40.00	15.58	0.90	359.75	111.26
59.40	V	41.85	16.26	1.85	-23.74	40.00	15.36	0.90	309.00	127.26
59.80	V	41.16	16.13	1.16	-23.87	40.00	15.23	0.90	54.75	111.02
60.20	V	41.14	15.99	1.14	-24.01	40.00	15.09	0.90	341.25	143.14

Note: No Emissions Detected form 9 kHz to 30 MHz



Title: Pre-Scan - FCC Class B
 File: Pre-Scan - 30MHz - 1000MHz - g Mode - Low Ch - X-axis - FCC-B.set
 Operator: Harvey Samaco
 EUT Type: Bridge
 EUT Condition: The EUT is continuously transmitting at 2412 MHz 802.11 g and FHSS from 902 to 928 MHz
 Company: Nortek Security & Control, LLC
 Model: MMS100
 S/N: N/A
 802.11 g Mode
 X-Axis - Worst Case
 Note: The frequencies from 902 MHz to 928 MHz are from the FHSS and subject to the rules of FCC 15.247 Instead

10/1/2019 9:58:27 AM
 Sequence: Preliminary Scan



Note: No Emissions Detected form 9 kHz to 30 MHz

Title: Radiated Final - FCC Class B
File: Final Scan - 30MHz - 1000MHz - g Mode - Low Ch - X-axis - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 2412 MHz 802.11 g and FHSS from 902 to 928 MHz
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11 g Mode
X-Axis - Worst Case
Note: The frequencies from 902 MHz to 928 MHz are from the FHSS and subject to the rules of FCC 15.247 instead

10/1/2019 10:06:56 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 Aql (deg)	Twr Ht (cm)
46.30	V	37.41	19.99	-2.59	-20.01	40.00	19.09	0.90	224.50	111.32
58.20	V	39.78	16.68	-0.22	-23.32	40.00	15.78	0.90	0.50	158.85
58.60	V	41.37	16.56	1.37	-23.44	40.00	15.66	0.90	321.75	111.02
59.00	V	41.24	16.41	1.24	-23.59	40.00	15.51	0.90	18.75	143.02
59.40	V	41.38	16.30	1.38	-23.70	40.00	15.40	0.90	360.00	127.20
63.30	V	38.17	14.96	-1.83	-25.04	40.00	14.03	0.93	14.00	127.14



Title: Pre-Scan - FCC Class B
File: Pre-Scan - 30MHz - 1000MHz - n Mode - Low Ch - X-axis - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 2412 MHz 802.11 n and FHSS from 902 to 928 MHz
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11 n Mode
X-Axis - Worst Case
Note: The frequencies from 902 MHz to 928 MHz are from the FHSS and subject to the rules of FCC 15.247 Instead

10/1/2019 10:25:37 AM
Sequence: Preliminary Scan



Note: No Emissions Detected form 9 kHz to 30 MHz

Title: Radiated Final - FCC Class B

File: Final Scan - 30MHz - 1000MHz - n Mode - Low Ch - X-axis - FCC-B.set

Operator: Harvey Samaco

EUT Type: Bridge

EUT Condition: The EUT is continuously transmitting at 2412 MHz 802.11 n and FHSS from 902 to 928 MHz

Company: Nortek Security & Control, LLC

Model: MMS100

S/N: N/A

802.11 n Mode

X-Axis - Worst Case

Note: The frequencies from 902 MHz to 928 MHz are from the FHSS and are subject to the rules of FCC 15.247 instead

10/1/2019 10:34:07 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)	Ttbi Aql (deg)	Twr Ht (cm)
46.90	V	39.13	19.95	-0.87	-20.05	40.00	19.05	0.90	187.25	111.26
57.90	V	40.34	16.66	0.34	-23.34	40.00	15.76	0.90	22.00	143.08
58.60	V	40.64	16.56	0.64	-23.44	40.00	15.66	0.90	359.50	127.08
59.00	V	40.94	16.46	0.94	-23.54	40.00	15.56	0.90	6.25	143.14
59.50	V	40.39	16.27	0.39	-23.73	40.00	15.37	0.90	343.00	143.20
62.30	V	36.45	15.28	-3.55	-24.72	40.00	14.36	0.92	70.00	174.67



FCC 15.247, RSS-247, and RSS-GENNortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel**Transmit Mode - X-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	46.23	V	73.97	-27.74	Peak	51.25	225.17	
4824.00	41.56	V	53.97	-12.41	Avg	51.25	225.17	
7236.00	47.21	V	73.97	-26.76	Peak	306.25	100.00	
7236.00	38.98	V	53.97	-14.99	Avg	306.25	100.00	
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GENNortek Security & Control, LLC
Bridge
Model: MMS100Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco**Harmonics - Low Channel****Transmit Mode - Y-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	46.08	V	73.97	-27.89	Peak	142.00	158.00	
4824.00	41.36	V	53.97	-12.61	Avg	142.00	158.00	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Low Channel
Transmit Mode - Z-Axis
802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	48.12	V	73.97	-25.85	Peak	229.25	167.00	
4824.00	43.94	V	53.97	-10.03	Avg	229.25	167.00	
7236.00	46.32	V	73.97	-27.65	Peak	316.25	100.00	
7236.00	38.41	V	53.97	-15.56	Avg	316.25	100.00	
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - X-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	44.16	H	73.97	-29.81	Peak	102.75	100.00	
4824.00	38.65	H	53.97	-15.32	Avg	102.75	100.00	
7236.00	45.27	H	73.97	-28.70	Peak	348.25	100.00	
7236.00	34.48	H	53.97	-19.49	Avg	348.25	100.00	
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Y-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	48.86	H	73.97	-25.11	Peak	153.50	150.90	
4824.00	45.81	H	53.97	-8.16	Avg	153.50	150.90	
7236.00	48.58	H	73.97	-25.39	Peak	200.25	100.00	
7236.00	42.44	H	53.97	-11.53	Avg	200.25	100.00	
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Z-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	45.76	H	73.97	-28.21	Peak	299.75	100.00	
4824.00	41.29	H	53.97	-12.68	Avg	299.75	100.00	
7236.00	45.37	H	73.97	-28.60	Peak	338.25	101.11	
7236.00	36.66	H	53.97	-17.31	Avg	338.25	101.11	
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - X-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	47.15	V	73.97	-26.82	Peak	212.75	100.00	
4874.00	42.52	V	53.97	-11.45	Avg	212.75	100.00	
7311.00	45.90	V	73.97	-28.07	Peak	302.25	162.61	
7311.00	35.39	V	53.97	-18.58	Avg	302.25	162.61	
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GENNortek Security & Control, LLC
Bridge
Model: MMS100Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco**Harmonics - Middle Channel****Transmit Mode - Y-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	48.52	V	73.97	-25.45	Peak	189.50	170.07	
4874.00	45.05	V	53.97	-8.92	Avg	189.50	170.07	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Middle Channel**Transmit Mode - Z-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	49.78	V	73.97	-24.19	Peak	251.75	173.47	
4874.00	46.37	V	53.97	-7.60	Avg	251.75	173.47	
7311.00	45.03	V	73.97	-28.94	Peak	1.50	100.00	
7311.00	34.19	V	53.97	-19.78	Avg	1.50	100.00	
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - X-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	45.77	H	73.97	-28.20	Peak	0.00	100.00	
4874.00	40.27	H	53.97	-13.70	Avg	0.00	100.00	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - Y-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	49.68	H	73.97	-24.29	Peak	158.25	174.00	
4874.00	46.21	H	53.97	-7.76	Avg	158.25	174.00	
7311.00	47.58	H	73.97	-26.39	Peak	209.25	204.28	
7311.00	40.53	H	53.97	-13.44	Avg	209.25	204.28	
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GENNortek Security & Control, LLC
Bridge
Model: MMS100Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco**Harmonics - Middle Channel****Transmit Mode - Z-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	49.93	H	73.97	-24.04	Peak	305.25	103.92	
4874.00	46.85	H	53.97	-7.12	Avg	305.25	103.92	
7311.00	45.90	H	73.97	-28.07	Peak	174.25	186.43	
7311.00	35.93	H	53.97	-18.04	Avg	174.25	186.43	
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GENNortek Security & Control, LLC
Bridge
Model: MMS100Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco**Harmonics - High Channel****Transmit Mode - X-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	46.22	V	73.97	-27.75	Peak	43.50	100.00	
4924.00	40.35	V	53.97	-13.62	Avg	43.50	100.00	
7386.00	46.15	V	73.97	-27.82	Peak	114.50	225.00	
7386.00	36.51	V	53.97	-17.46	Avg	114.50	225.00	
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Y-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	46.64	V	73.97	-27.33	Peak	193.50	186.91	
4924.00	41.86	V	53.97	-12.11	Avg	193.50	186.91	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - High Channel
Transmit Mode - Z-Axis
802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	49.06	V	73.97	-24.91	Peak	253.50	135.80	
4924.00	44.43	V	53.97	-9.54	Avg	253.50	135.80	
7386.00	45.92	V	73.97	-28.05	Peak	263.25	195.14	
7386.00	34.88	V	53.97	-19.09	Avg	263.25	195.14	
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - X-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	45.70	H	73.97	-28.27	Peak	21.50	100.00	
4924.00	39.24	H	53.97	-14.73	Avg	21.50	100.00	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
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Harmonics - High Channel

Transmit Mode - Y-Axis

802.11 b

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	48.07	H	73.97	-25.90	Peak	161.00	180.10	
4924.00	44.43	H	53.97	-9.54	Avg	161.00	180.10	
7386.00	46.36	H	73.97	-27.61	Peak	204.00	202.37	
7386.00	36.99	H	53.97	-16.98	Avg	204.00	202.37	
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel**Transmit Mode - Z-Axis****802.11 b**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	48.18	H	73.97	-25.79	Peak	271.50	100.00	
4924.00	43.87	H	53.97	-10.10	Avg	271.50	100.00	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel**Transmit Mode - X-Axis****802.11 g**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	41.72	V	73.97	-32.25	Peak	209.25	164.34	
4824.00	29.68	V	53.97	-24.29	Avg	209.25	164.34	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Y-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	33.15	V	73.97	-40.82	Peak	181.00	163.68	
4824.00	22.80	V	53.97	-31.17	Avg	181.00	163.68	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Z-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	34.01	V	73.97	-39.96	Peak	259.00	162.61	
4824.00	22.23	V	53.97	-31.74	Avg	259.00	162.61	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Harmonics - Low Channel

Transmit Mode - X-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	32.11	H	73.97	-41.86	Peak	236.25	181.29	
4824.00	19.57	H	53.97	-34.40	Avg	236.25	181.29	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Nortek Security & Control, LLC
Bridge
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Harmonics - Low Channel

Transmit Mode - Y-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	34.54	H	73.97	-39.43	Peak	164.25	162.07	
4824.00	22.23	H	53.97	-31.74	Avg	164.25	162.07	
7236.00	38.04	H	73.97	-35.93	Peak	198.50	100.00	
7236.00	27.12	H	53.97	-26.85	Avg	198.50	100.00	
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Harmonics - Low Channel

Transmit Mode - Z-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	36.16	H	73.97	-37.81	Peak	284.50	100.00	
4824.00	22.80	H	53.97	-31.17	Avg	284.50	100.00	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - X-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	44.93	V	73.97	-29.04	Peak	213.00	183.00	
4874.00	31.23	V	53.97	-22.74	Avg	213.00	183.00	
7311.00	46.71	V	73.97	-27.26	Peak	106.00	243.68	
7311.00	34.81	V	53.97	-19.16	Avg	106.00	243.68	
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - Y-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	35.40	V	73.97	-38.57	Peak	197.50	212.52	
4874.00	23.37	V	53.97	-30.60	Avg	197.50	212.52	
7311.00	35.62	V	73.97	-38.35	Peak	117.25	100.00	
7311.00	23.64	V	53.97	-30.33	Avg	117.25	100.00	
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

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Bridge
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Lab: D

Tested By: Harvey Samaco

Harmonics - Middle Channel**Transmit Mode - Z-Axis****802.11 g**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	36.90	V	73.97	-37.07	Peak	254.25	189.77	
4874.00	25.42	V	53.97	-28.55	Avg	254.25	189.77	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - X-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	32.57	H	73.97	-41.40	Peak	320.75	172.88	
4874.00	20.78	H	53.97	-33.19	Avg	320.75	172.88	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - Y-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	36.66	H	73.97	-37.31	Peak	161.50	162.00	
4874.00	25.42	H	53.97	-28.55	Avg	161.50	162.00	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - Z-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	37.63	H	73.97	-36.34	Peak	292.25	100.00	
4874.00	26.29	H	53.97	-27.68	Avg	292.25	100.00	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - X-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	43.13	V	73.97	-30.84	Peak	341.75	244.64	
4924.00	30.73	V	53.97	-23.24	Avg	341.75	244.64	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Y-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	33.83	V	73.97	-40.14	Peak	220.00	195.50	
4924.00	21.23	V	53.97	-32.74	Avg	220.00	195.50	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Z-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	34.35	V	73.97	-39.62	Peak	285.00	172.28	
4924.00	22.63	V	53.97	-31.34	Avg	285.00	172.28	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

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Bridge
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Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - X-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	42.28	H	73.97	-31.69	Peak	281.75	213.35	
4924.00	29.87	H	53.97	-24.10	Avg	281.75	213.35	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Nortek Security & Control, LLC
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Harmonics - High Channel

Transmit Mode - Y-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	34.39	H	73.97	-39.58	Peak	187.75	161.89	
4924.00	21.95	H	53.97	-32.02	Avg	187.75	161.89	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Harmonics - High Channel

Transmit Mode - Z-Axis

802.11 g

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	34.76	H	73.97	-39.21	Peak	276.75	100.00	
4924.00	22.63	H	53.97	-31.34	Avg	276.75	100.00	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

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Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - X-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	41.27	V	73.97	-32.70	Peak	201.00	194.31	
4824.00	28.50	V	53.97	-25.47	Avg	201.00	194.31	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Y-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	42.32	V	73.97	-31.65	Peak	153.75	186.31	
4824.00	29.10	V	53.97	-24.87	Avg	153.75	186.31	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Z-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	35.13	V	73.97	-38.84	Peak	279.00	194.55	
4824.00	21.59	V	53.97	-32.38	Avg	279.00	194.55	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - X-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	41.16	H	73.97	-32.81	Peak	27.00	160.58	
4824.00	28.68	H	53.97	-25.29	Avg	27.00	160.58	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - Low Channel

Transmit Mode - Y-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	42.28	H	73.97	-31.69	Peak	152.50	100.00	
4824.00	29.25	H	53.97	-24.72	Avg	152.50	100.00	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Bridge
Model: MMS100Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco**Harmonics - Low Channel**
Transmit Mode - Z-Axis
802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4824.00	33.95	H	73.97	-40.02	Peak	303.25	180.22	
4824.00	21.56	H	53.97	-32.41	Avg	303.25	180.22	
7236.00								No Emission
7236.00								Detected
9648.00								No Emission
9648.00								Detected
12060.00								No Emission
12060.00								Detected
14472.00								No Emission
14472.00								Detected
16884.00								No Emission
16884.00								Detected
19296.00								No Emission
19296.00								Detected
21708.00								No Emission
21708.00								Detected
24120.00								No Emission
24120.00								Detected

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Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
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Harmonics - Middle Channel

Transmit Mode - X-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	43.04	V	73.97	-30.93	Peak	0.00	205.89	
4874.00	30.41	V	53.97	-23.56	Avg	0.00	205.89	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

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Bridge
Model: MMS100Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco**Harmonics - Middle Channel****Transmit Mode - Y-Axis****802.11 n**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	43.73	V	73.97	-30.24	Peak	185.25	164.58	
4874.00	30.97	V	53.97	-23.00	Avg	185.25	164.58	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

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Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	36.04	V	73.97	-37.93	Peak	282.50	153.77	
4874.00	24.45	V	53.97	-29.52	Avg	282.50	153.77	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

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Nortek Security & Control, LLC
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Lab: D
Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - X-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	43.02	H	73.97	-30.95	Peak	0.00	175.44	
4874.00	30.00	H	53.97	-23.97	Avg	0.00	175.44	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

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Model: MMS100

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Lab: D

Tested By: Harvey Samaco

Harmonics - Middle Channel

Transmit Mode - Y-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	44.57	H	73.97	-29.40	Peak	149.00	198.00	
4874.00	31.62	H	53.97	-22.35	Avg	149.00	198.00	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

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Transmit Mode - Z-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4874.00	37.17	H	73.97	-36.80	Peak	290.50	100.00	
4874.00	25.87	H	53.97	-28.10	Avg	290.50	100.00	
7311.00								No Emission
7311.00								Detected
9748.00								No Emission
9748.00								Detected
12185.00								No Emission
12185.00								Detected
14622.00								No Emission
14622.00								Detected
17059.00								No Emission
17059.00								Detected
19496.00								No Emission
19496.00								Detected
21933.00								No Emission
21933.00								Detected
24370.00								No Emission
24370.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - X-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	42.77	V	73.97	-31.20	Peak	341.75	100.00	
4924.00	29.67	V	53.97	-24.30	Avg	341.75	100.00	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Y-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	42.45	V	73.97	-31.52	Peak	177.00	149.95	
4924.00	30.16	V	53.97	-23.81	Avg	177.00	149.95	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Z-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	33.44	V	73.97	-40.53	Peak	291.25	100.00	
4924.00	21.24	V	53.97	-32.73	Avg	291.25	100.00	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - X-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	41.70	H	73.97	-32.27	Peak	12.25	182.91	
4924.00	29.67	H	53.97	-24.30	Avg	12.25	182.91	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Y-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	42.27	H	73.97	-31.70	Peak	157.75	188.88	
4924.00	30.31	H	53.97	-23.66	Avg	157.75	188.88	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

Harmonics - High Channel

Transmit Mode - Z-Axis

802.11 n

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4924.00	34.53	H	73.97	-39.44	Peak	294.25	100.00	
4924.00	23.27	H	53.97	-30.70	Avg	294.25	100.00	
7386.00								No Emission
7386.00								Detected
9848.00								No Emission
9848.00								Detected
12310.00								No Emission
12310.00								Detected
14772.00								No Emission
14772.00								Detected
17234.00								No Emission
17234.00								Detected
19696.00								No Emission
19696.00								Detected
22158.00								No Emission
22158.00								Detected
24620.00								No Emission
24620.00								Detected

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Non-Harmonic Emissions

and Digital Portion

Transmit Mode - X-Axis

802.11 b - Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1507.00	59.34	H	73.97	-14.63	Peak	304.00	111.38	
1507.00	30.40	H	53.97	-23.57	Avg	304.00	111.38	
1805.80	71.63	H	73.97	-2.34	Peak	308.50	118.49	
1805.80	29.95	H	53.97	-24.02	Avg	308.50	118.49	
2709.31	45.82	H	73.97	-28.15	Peak	308.25	114.97	
2709.31	25.49	H	53.97	-28.48	Avg	308.25	114.97	
4019.60	48.98	H	73.97	-24.99	Peak	219.50	128.64	
4019.60	42.94	H	53.97	-11.04	Avg	219.50	128.64	
1498.00	52.21	V	73.97	-21.76	Peak	338.25	100.00	
1498.00	23.18	V	53.97	-30.79	Avg	338.25	100.00	
1811.00	54.26	V	73.97	-19.71	Peak	338.25	100.00	
1811.00	24.65	V	53.97	-29.32	Avg	338.25	100.00	
2722.00	50.88	V	73.97	-23.09	Peak	85.00	100.00	
2722.00	27.23	V	53.97	-26.74	Avg	85.00	100.00	
4020.00	48.15	V	73.97	-25.82	Peak	48.50	100.00	
4020.00	43.56	V	53.97	-10.41	Avg	48.50	100.00	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 b - Low Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1428.85	38.65	H	73.97	-35.32	Peak	228.50	100.00	
1428.85	28.01	H	53.97	-25.96	Avg	228.50	100.00	
2250.10	50.81	H	73.97	-23.16	Peak	347.75	100.00	
2250.10	43.02	H	53.97	-10.95	Avg	347.75	100.00	
4018.43	55.55	H	73.97	-18.42	Peak	134.50	176.88	
4018.43	51.75	H	53.97	-2.22	Avg	134.50	176.88	
1593.18	42.60	V	73.97	-31.37	Peak	144.25	100.00	
1593.18	30.01	V	53.97	-23.96	Avg	144.25	100.00	
2248.49	51.29	V	73.97	-22.68	Peak	166.00	100.00	
2248.49	43.64	V	53.97	-10.33	Avg	166.00	100.00	
3121.24	37.55	V	73.97	-36.42	Peak	150.75	100.00	
3121.24	29.20	V	53.97	-24.77	Avg	150.75	100.00	
3321.44	51.21	V	73.97	-22.76	Peak	156.25	191.80	
3321.44	47.22	V	53.97	-6.75	Avg	156.25	191.80	
3906.41	57.84	V	73.97	-16.13	Peak	22.00	159.26	
3906.41	52.13	V	53.97	-1.84	Avg	22.00	159.26	
4021.04	46.69	V	73.97	-27.28	Peak	200.50	223.80	
4021.04	42.00	V	53.97	-11.97	Avg	200.50	223.80	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - Z-Axis

802.11 b - Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1440.88	39.17	H	73.97	-34.80	Peak	191.25	100.00	
1440.88	29.54	H	53.97	-24.43	Avg	191.25	100.00	
2249.29	54.71	H	73.97	-19.26	Peak	12.75	101.95	
2249.29	46.64	H	53.97	-7.33	Avg	12.75	101.95	
4023.07	50.80	H	73.97	-23.17	Peak	111.25	100.00	
4023.07	45.68	H	53.97	-8.29	Avg	111.25	100.00	
1597.19	42.22	V	73.97	-31.75	Peak	115.25	133.29	
1597.19	32.02	V	53.97	-21.95	Avg	115.25	133.29	
2251.70	53.06	V	73.97	-20.91	Peak	47.75	100.00	
2251.70	45.14	V	53.97	-8.83	Avg	47.75	100.00	
4018.43	54.03	V	73.97	-19.94	Peak	136.00	218.55	
4018.43	49.84	V	53.97	-4.13	Avg	136.00	218.55	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - X-Axis

802.11 b - Mid Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1505.00	50.41	H	73.97	-23.56	Peak	304.50	112.10	
1505.00	25.27	H	53.97	-28.70	Avg	304.50	112.10	
1807.00	42.00	H	73.97	-31.97	Peak	306.50	113.29	
1807.00	23.64	H	53.97	-30.33	Avg	306.50	113.29	
2709.00	46.43	H	73.97	-27.54	Peak	309.00	115.20	
2709.00	26.09	H	53.97	-27.88	Avg	309.00	115.20	
4021.30	45.37	H	73.97	-28.60	Peak	343.00	100.00	
4021.30	41.13	H	53.97	-12.85	Avg	343.00	100.00	
1509.80	48.99	V	73.97	-24.98	Peak	97.00	99.86	
1509.80	21.21	V	53.97	-32.76	Avg	97.00	99.86	
1806.00	59.63	V	73.97	-14.34	Peak	92.25	100.00	
1806.00	24.74	V	53.97	-29.23	Avg	92.25	100.00	
2709.00	42.62	V	73.97	-31.35	Peak	86.50	100.00	
2709.00	36.93	V	53.97	-17.04	Avg	86.50	100.00	
4019.90	49.04	V	73.97	-24.93	Peak	300.00	200.34	
4019.90	44.22	V	53.97	-9.75	Avg	300.00	200.34	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 b - Mid Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1530.00	50.10	H	73.97	-23.87	Peak	151.50	100.00	
1530.00	25.00	H	53.97	-28.97	Avg	151.50	100.00	
1822.00	44.36	H	73.97	-29.61	Peak	150.50	100.00	
1822.00	39.48	H	53.97	-14.49	Avg	150.50	100.00	
2775.00	54.70	H	73.97	-19.27	Peak	149.00	100.00	
2775.00	26.58	H	53.97	-27.39	Avg	149.00	100.00	
4061.60	49.41	H	73.97	-24.56	Peak	343.25	167.38	
4061.60	44.87	H	53.97	-9.10	Avg	343.25	167.38	
1527.40	58.43	V	73.97	-15.54	Peak	102.50	146.37	
1527.40	30.69	V	53.97	-23.28	Avg	102.50	146.37	
1850.00	54.92	V	73.97	-19.05	Peak	106.25	145.00	
1850.00	22.91	V	53.97	-31.06	Avg	106.25	145.00	
2781.00	59.84	V	73.97	-14.13	Peak	30.75	149.95	
2781.00	30.37	V	53.97	-23.60	Avg	30.75	149.95	
4063.60	44.14	V	73.97	-29.83	Peak	257.50	153.77	
4063.60	38.73	V	53.97	-15.24	Avg	257.50	153.77	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Z-Axis
802.11 b - Mid Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1531.60	51.88	H	73.97	-22.09	Peak	314.75	101.35	
1531.60	26.99	H	53.97	-26.98	Avg	314.75	101.35	
1806.00	46.64	H	73.97	-27.33	Peak	308.00	103.44	
1806.00	28.79	H	53.97	-25.18	Avg	308.00	103.44	
2708.80	53.28	H	73.97	-20.69	Peak	311.25	109.71	
2708.80	27.77	H	53.97	-26.20	Avg	311.25	109.71	
4061.60	47.47	H	73.97	-26.50	Peak	30.75	100.00	
4061.60	41.66	H	53.97	-12.31	Avg	30.75	100.00	
1534.80	49.77	V	73.97	-24.20	Peak	64.25	100.00	
1534.80	21.07	V	53.97	-32.90	Avg	64.25	100.00	
1806.00	58.04	V	73.97	-15.93	Peak	64.00	179.56	
1806.00	23.25	V	53.97	-30.72	Avg	64.00	179.56	
2708.80	52.52	V	73.97	-21.45	Peak	70.50	114.55	
2708.80	27.15	V	53.97	-26.82	Avg	70.50	114.55	
4061.30	49.31	V	73.97	-24.66	Peak	49.50	145.47	
4061.30	45.05	V	53.97	-8.92	Avg	49.50	145.47	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - X-Axis
802.11 b - High Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1552.40	55.52	H	73.97	-18.45	Peak	263.25	107.02	
1552.40	30.21	H	53.97	-23.77	Avg	263.25	107.02	
1814.60	42.06	H	73.97	-31.91	Peak	117.00	100.00	
1814.60	26.01	H	53.97	-27.96	Avg	117.00	100.00	
2721.80	43.73	H	73.97	-30.24	Peak	119.25	100.00	
2721.80	26.31	H	53.97	-27.66	Avg	119.25	100.00	
4102.80	47.01	H	73.97	-26.97	Peak	134.00	100.00	
4102.80	42.29	H	53.97	-11.68	Avg	134.00	100.00	
1555.60	56.53	V	73.97	-17.44	Peak	214.00	100.00	
1555.60	26.81	V	53.97	-27.16	Avg	214.00	100.00	
1811.40	52.01	V	73.97	-21.96	Peak	207.75	104.52	
1811.40	38.73	V	53.97	-15.24	Avg	207.75	104.52	
2709.00	45.46	V	73.97	-28.51	Peak	210.25	108.88	
2709.00	27.08	V	53.97	-26.89	Avg	210.25	108.88	
4104.80	48.88	V	73.97	-25.09	Peak	314.75	185.29	
4104.80	44.80	V	53.97	-9.17	Avg	314.75	185.29	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 b - High Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1554.20	57.76	H	73.97	-16.22	Peak	160.75	100.00	
1554.20	22.86	H	53.97	-31.11	Avg	160.75	100.00	
1817.90	40.33	H	73.97	-33.64	Peak	155.00	100.00	
1817.90	22.99	H	53.97	-30.98	Avg	155.00	100.00	
2714.80	43.47	H	73.97	-30.50	Peak	156.00	100.00	
2714.80	26.04	H	53.97	-27.93	Avg	156.00	100.00	
4104.50	48.27	H	73.97	-25.70	Peak	39.00	156.75	
4104.50	44.23	H	53.97	-9.74	Avg	39.00	156.76	
1551.30	56.75	V	73.97	-17.22	Peak	117.25	103.08	
1551.30	27.69	V	53.97	-26.28	Avg	117.25	103.08	
1829.10	54.85	V	73.97	-19.12	Peak	112.75	100.00	
1829.10	22.89	V	53.97	-31.08	Avg	112.75	100.00	
2748.40	55.31	V	73.97	-18.66	Peak	112.25	102.37	
2748.40	26.95	V	53.97	-27.02	Avg	112.25	102.37	
4102.80	44.51	V	73.97	-29.46	Peak	288.50	136.70	
4102.80	39.24	V	53.97	-14.73	Avg	288.50	136.70	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - Z-Axis

802.11 b - High Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1557.40	62.59	H	73.97	-11.38	Peak	313.00	119.38	
1557.40	27.19	H	53.97	-26.78	Avg	313.00	119.38	
1806.00	43.28	H	73.97	-30.69	Peak	314.25	110.25	
1806.00	23.15	H	53.97	-30.82	Avg	314.25	110.25	
2710.00	51.84	H	73.97	-22.13	Peak	294.25	112.64	
2710.00	27.02	H	53.97	-26.95	Avg	294.25	112.64	
4102.70	47.94	H	73.97	-26.03	Peak	26.25	100.00	
4102.70	43.56	H	53.97	-10.41	Avg	26.25	100.00	
1556.40	50.32	V	73.97	-23.65	Peak	56.75	109.29	
1556.40	28.58	V	53.97	-25.40	Avg	56.75	109.29	
1811.50	56.07	V	73.97	-17.90	Peak	68.50	108.94	
1811.50	22.70	V	53.97	-31.27	Avg	68.50	108.94	
2708.80	48.50	V	73.97	-25.47	Peak	72.00	114.37	
2708.80	27.69	V	53.97	-26.28	Avg	72.00	114.37	
4102.80	49.95	V	73.97	-24.02	Peak	42.25	159.32	
4102.80	45.84	V	53.97	-8.13	Avg	42.25	159.32	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - X-Axis

802.11 g - Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1503.60	32.74	H	73.97	-41.23	Peak	86.50	100.00	
1503.60	27.87	H	53.97	-26.10	Avg	86.50	100.00	
1814.80	40.99	H	73.97	-32.98	Peak	122.75	103.44	
1814.80	22.86	H	53.97	-31.11	Avg	122.75	103.44	
2711.20	42.89	H	73.97	-31.08	Peak	121.50	102.01	
2711.20	25.74	H	53.97	-28.24	Avg	121.50	102.01	
4021.00	46.59	H	73.97	-27.38	Peak	136.50	133.41	
4021.00	38.01	H	53.97	-15.96	Avg	136.50	133.41	
1506.80	58.53	V	73.97	-15.44	Peak	213.50	101.23	
1506.80	20.99	V	53.97	-32.98	Avg	213.50	101.23	
1809.10	42.63	V	73.97	-31.34	Peak	211.00	118.97	
1809.10	22.91	V	53.97	-31.06	Avg	211.00	118.97	
2708.80	46.23	V	73.97	-27.74	Peak	214.50	108.58	
2708.80	25.28	V	53.97	-28.69	Avg	214.50	108.58	
4019.10	52.80	V	73.97	-21.17	Peak	306.75	214.91	
4019.10	44.45	V	53.97	-9.52	Avg	306.75	214.91	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Non-Harmonic Emissions

and Digital Portion

Transmit Mode - Y-Axis

802.11 g - Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1498.60	56.88	H	73.97	-17.09	Peak	299.25	104.46	
1498.60	26.56	H	53.97	-27.41	Avg	299.25	104.46	
1814.00	48.19	H	73.97	-25.78	Peak	59.50	112.82	
1814.00	22.87	H	53.97	-31.10	Avg	59.50	112.82	
2708.80	54.05	H	73.97	-19.92	Peak	63.00	112.46	
2708.80	25.29	H	53.97	-28.68	Avg	63.00	112.46	
4020.45	52.96	H	73.97	-21.01	Peak	34.75	203.02	
4020.45	44.25	H	53.97	-9.73	Avg	34.75	203.02	
1505.90	59.37	V	73.97	-14.60	Peak	127.75	100.00	
1505.90	23.86	V	53.97	-30.11	Avg	127.75	100.00	
1831.50	52.67	V	73.97	-21.30	Peak	115.75	100.64	
1831.50	22.81	V	53.97	-31.16	Avg	115.75	100.64	
2756.80	51.16	V	73.97	-22.81	Peak	113.25	100.00	
2756.80	32.27	V	53.97	-21.70	Avg	113.25	100.00	
4019.10	47.29	V	73.97	-26.68	Peak	243.50	158.37	
4019.10	38.81	V	53.97	-15.16	Avg	243.50	158.37	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Z-Axis
802.11 g - Low Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1506.00	53.36	H	73.97	-20.61	Peak	181.25	109.00	
1506.00	21.31	H	53.97	-32.66	Avg	181.25	109.00	
1810.00	51.58	H	73.97	-22.39	Peak	180.50	100.64	
1810.00	24.83	H	53.97	-29.15	Avg	180.50	100.64	
2708.80	45.43	H	73.97	-28.54	Peak	247.75	100.04	
2708.80	25.63	H	53.97	-28.34	Avg	247.75	100.04	
4019.20	53.65	H	73.97	-20.32	Peak	272.50	231.26	
4019.20	45.17	H	53.97	-8.80	Avg	272.50	231.26	
1499.80	50.42	V	73.97	-23.55	Peak	131.50	103.62	
1499.80	27.41	V	53.97	-26.56	Avg	131.50	103.62	
1810.00	57.82	V	73.97	-16.15	Peak	141.00	118.55	
1810.00	28.23	V	53.97	-25.74	Avg	141.00	118.55	
2711.20	58.36	V	73.97	-15.61	Peak	138.50	118.07	
2711.20	25.80	V	53.97	-28.17	Avg	138.50	118.07	
4020.40	56.20	V	73.97	-17.77	Peak	34.50	159.44	
4020.40	47.92	V	53.97	-6.05	Avg	34.50	159.44	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - X-Axis

802.11 g - Mid Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1522.20	54.60	H	73.97	-19.37	Peak	291.00	106.49	
1522.20	24.89	H	53.97	-29.08	Avg	291.00	106.49	
1815.60	53.52	H	73.97	-20.45	Peak	190.00	100.00	
1815.60	39.92	H	53.97	-14.05	Avg	190.00	100.00	
2708.80	44.04	H	73.97	-29.93	Peak	188.50	100.00	
2708.80	25.44	H	53.97	-28.53	Avg	188.50	100.00	
4060.60	49.70	H	73.97	-24.27	Peak	217.25	100.00	
4060.60	40.51	H	53.97	-13.46	Avg	217.25	100.00	
1530.40	56.11	V	73.97	-17.86	Peak	315.75	199.74	
1530.40	25.71	V	53.97	-28.26	Avg	315.75	199.74	
1811.60	52.52	V	73.97	-21.45	Peak	331.75	207.26	
1811.60	22.97	V	53.97	-31.00	Avg	331.75	207.26	
2708.80	56.89	V	73.97	-17.08	Peak	70.50	132.64	
2708.80	25.23	V	53.97	-28.74	Avg	70.50	132.64	
4061.00	50.76	V	73.97	-23.21	Peak	329.75	185.95	
4061.00	41.18	V	53.97	-12.79	Avg	329.75	185.95	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

Non-Harmonic Emissions

and Digital Portion

Transmit Mode - Y-Axis

802.11 g - Mid Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1530.40	56.68	H	73.97	-17.29	Peak	159.25	100.00	
1530.40	25.52	H	53.97	-28.45	Avg	159.25	100.00	
1814.00	49.80	H	73.97	-24.17	Peak	64.50	108.28	
1814.00	22.84	H	53.97	-31.13	Avg	64.50	108.28	
2711.20	56.04	H	73.97	-17.93	Peak	66.75	116.47	
2711.20	25.64	H	53.97	-28.33	Avg	66.75	116.47	
4062.20	52.89	H	73.97	-21.08	Peak	341.50	132.76	
4062.20	44.28	H	53.97	-9.69	Avg	341.50	132.76	
1530.80	40.70	V	73.97	-33.27	Peak	108.75	100.04	
1530.80	28.02	V	53.97	-25.95	Avg	108.75	100.04	
1811.60	46.04	V	73.97	-27.93	Peak	113.00	146.49	
1811.60	22.88	V	53.97	-31.09	Avg	113.00	146.49	
2710.00	45.63	V	73.97	-28.34	Peak	114.25	144.76	
2710.00	32.76	V	53.97	-21.21	Avg	114.25	144.76	
4060.70	46.40	V	73.97	-27.57	Peak	268.00	100.00	
4060.70	36.60	V	53.97	-17.37	Avg	268.00	100.00	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Z-Axis
802.11 g - Mid Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1529.60	53.56	H	73.97	-20.41	Peak	297.25	107.38	
1529.60	29.95	H	53.97	-24.02	Avg	297.25	107.38	
1811.60	45.42	H	73.97	-28.55	Peak	282.75	108.22	
1811.60	22.94	H	53.97	-31.03	Avg	282.75	108.22	
2709.00	49.73	H	73.97	-24.24	Peak	279.00	108.82	
2709.00	26.00	H	53.97	-27.98	Avg	279.00	108.82	
4060.65	52.84	H	73.97	-21.13	Peak	278.50	229.17	
4060.65	44.20	H	53.97	-9.77	Avg	278.50	229.17	
1533.40	51.27	V	73.97	-22.70	Peak	53.50	100.00	
1533.40	26.38	V	53.97	-27.59	Avg	53.50	100.00	
1811.60	58.03	V	73.97	-15.94	Peak	143.25	112.82	
1811.60	22.99	V	53.97	-30.98	Avg	143.25	112.82	
2709.00	59.35	V	73.97	-14.62	Peak	140.00	116.82	
2709.00	36.28	V	53.97	-17.70	Avg	140.00	116.82	
4060.80	54.65	V	73.97	-19.32	Peak	47.50	157.59	
4060.80	46.13	V	53.97	-7.85	Avg	47.50	157.59	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 09/11/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - X-Axis
802.11 g - High Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1553.00	56.24	H	73.97	-17.73	Peak	297.25	100.00	
1553.00	28.70	H	53.97	-25.27	Avg	297.25	100.00	
1814.00	44.45	H	73.97	-29.52	Peak	188.00	100.00	
1814.00	22.91	H	53.97	-31.06	Avg	188.00	100.00	
2717.20	44.86	H	73.97	-29.11	Peak	190.25	100.00	
2717.20	25.66	H	53.97	-28.32	Avg	190.25	100.00	
4102.00	50.35	H	73.97	-23.62	Peak	124.00	100.00	
4102.00	40.18	H	53.97	-13.79	Avg	124.00	100.00	
1558.40	45.64	V	73.97	-28.33	Peak	212.00	100.22	
1558.40	21.56	V	53.97	-32.41	Avg	212.00	100.22	
1814.00	44.38	V	73.97	-29.59	Peak	61.75	140.52	
1814.00	32.92	V	53.97	-21.06	Avg	61.75	140.52	
2709.00	48.21	V	73.97	-25.76	Peak	61.75	138.91	
2709.00	25.40	V	53.97	-28.57	Avg	61.75	138.91	
4104.80	51.30	V	73.97	-22.67	Peak	127.75	158.25	
4104.80	43.16	V	53.97	-10.81	Avg	127.75	158.25	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 09/11/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 g - High Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1538.00	50.62	H	73.97	-23.35	Peak	340.00	223.68	
1538.00	31.03	H	53.97	-22.94	Avg	340.00	223.68	
1848.00	54.79	H	73.97	-19.18	Peak	340.00	223.68	
1848.00	33.19	H	53.97	-20.78	Avg	340.00	223.68	
2734.00	53.70	H	73.97	-20.27	Peak	81.75	100.00	
2734.00	48.86	H	53.97	-5.11	Avg	81.75	100.00	
4104.20	54.51	H	73.97	-19.46	Peak	340.00	212.04	
4104.20	46.43	H	53.97	-7.54	Avg	340.00	212.04	
1557.00	53.77	V	73.97	-20.20	Peak	108.00	100.00	
1557.00	32.49	V	53.97	-21.49	Avg	108.00	100.00	
1830.00	58.22	V	73.97	-15.75	Peak	108.00	100.00	
1830.00	35.64	V	53.97	-18.33	Avg	108.00	100.00	
2749.00	59.40	V	73.97	-14.57	Peak	110.50	100.00	
2749.00	35.69	V	53.97	-18.28	Avg	110.50	100.00	
4107.00	45.20	V	73.97	-28.77	Peak	333.50	100.00	
4107.00	37.18	V	53.97	-16.79	Avg	333.50	100.00	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 09/11/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Z-Axis
802.11 g - High Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1553.00	63.95	H	73.97	-10.02	Peak	292.75	161.47	
1553.00	32.66	H	53.97	-21.31	Avg	292.75	161.47	
1806.00	62.24	H	73.97	-11.73	Peak	292.75	161.47	
1806.00	36.82	H	53.97	-17.15	Avg	292.75	161.47	
2709.00	52.53	H	73.97	-21.44	Peak	274.50	100.00	
2709.00	44.33	H	53.97	-9.64	Avg	274.50	100.00	
4102.00	51.34	H	73.97	-22.63	Peak	28.50	100.00	
4102.00	43.29	H	53.97	-10.68	Avg	28.50	100.00	
1556.00	54.14	V	73.97	-19.83	Peak	122.50	100.00	
1556.00	32.38	V	53.97	-21.59	Avg	122.50	100.00	
1809.50	53.56	V	73.97	-20.41	Peak	122.50	100.00	
1809.50	40.30	V	53.97	-13.67	Avg	122.50	100.00	
2711.00	58.39	V	73.97	-15.58	Peak	119.75	104.22	
2711.00	44.90	V	53.97	-9.07	Avg	119.75	104.22	
4105.50	53.51	V	73.97	-20.46	Peak	37.00	163.26	
4105.50	44.92	V	53.97	-9.05	Avg	37.00	163.26	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - X-Axis

802.11 n - Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1440.88	38.26	H	73.97	-35.71	Peak	206.75	100.00	
1440.88	28.88	H	53.97	-25.09	Avg	206.75	100.00	
2255.71	52.43	H	73.97	-21.54	Peak	124.50	100.00	
2255.71	43.68	H	53.97	-10.29	Avg	124.50	100.00	
3316.03	48.26	H	73.97	-25.71	Peak	42.00	161.23	
3316.03	40.37	H	53.97	-13.60	Avg	42.00	161.23	
4018.43	47.03	H	73.97	-26.94	Peak	308.25	100.00	
4018.43	39.32	H	53.97	-14.65	Avg	308.25	100.00	
1597.19	44.38	V	73.97	-29.59	Peak	122.25	134.91	
1597.19	31.29	V	53.97	-22.68	Avg	122.25	134.91	
2256.51	47.39	V	73.97	-26.58	Peak	306.75	100.00	
2256.51	38.79	V	53.97	-15.18	Avg	306.75	100.00	
4021.04	53.07	V	73.97	-20.90	Peak	34.50	190.13	
4021.04	45.97	V	53.97	-8.00	Avg	34.50	190.13	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 n - Low Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1440.88	39.63	H	73.97	-34.34	Peak	193.50	100.00	
1440.88	30.19	H	53.97	-23.78	Avg	193.50	100.00	
1839.67	41.88	H	73.97	-32.09	Peak	241.50	122.85	
1839.67	35.53	H	53.97	-18.44	Avg	241.50	122.85	
2269.33	50.27	H	73.97	-23.70	Peak	349.00	100.00	
2269.33	41.23	H	53.97	-12.74	Avg	349.00	100.00	
4021.04	54.81	H	73.97	-19.16	Peak	133.75	166.91	
4021.04	48.50	H	53.97	-5.47	Avg	133.75	166.91	
1505.01	40.26	V	73.97	-33.71	Peak	108.50	132.64	
1505.01	31.77	V	53.97	-22.20	Avg	108.50	132.64	
1595.19	41.69	V	73.97	-32.28	Peak	108.50	132.64	
1595.19	31.48	V	53.97	-22.49	Avg	108.50	132.64	
2254.10	51.10	V	73.97	-22.87	Peak	90.25	100.00	
2254.10	42.53	V	53.97	-11.44	Avg	90.25	100.00	
3314.22	45.66	V	73.97	-28.31	Peak	58.50	133.77	
3314.22	37.88	V	53.97	-16.09	Avg	58.50	133.77	
3911.62	49.06	V	73.97	-24.91	Peak	147.00	100.00	
3911.62	39.29	V	53.97	-14.68	Avg	147.00	100.00	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

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**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - Z-Axis

802.11 n - Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1428.85	39.75	H	73.97	-34.22	Peak	191.75	100.00	
1428.85	29.65	H	53.97	-24.32	Avg	191.75	100.00	
2258.11	53.04	H	73.97	-20.93	Peak	16.00	99.92	
2258.11	44.07	H	53.97	-9.90	Avg	16.00	99.92	
4018.43	49.93	H	73.97	-24.04	Peak	111.75	103.62	
4018.43	42.69	H	53.97	-11.28	Avg	111.75	103.62	
1266.53	39.80	V	73.97	-34.17	Peak	156.00	100.00	
1266.53	28.58	V	53.97	-25.39	Avg	156.00	100.00	
2249.29	52.99	V	73.97	-20.98	Peak	45.75	100.00	
2249.29	43.00	V	53.97	-10.97	Avg	45.75	100.00	
3193.38	42.57	V	73.97	-31.40	Peak	78.00	100.00	
3193.38	29.36	V	53.97	-24.61	Avg	78.00	100.00	
4018.43	53.98	V	73.97	-19.99	Peak	135.00	168.28	
4018.43	47.10	V	53.97	-6.87	Avg	135.00	168.28	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/05/2019

Lab: D

Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion**

Transmit Mode - X-Axis

802.11 n - Mid Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1438.87	39.15	H	73.97	-34.82	Peak	225.50	157.77	
1438.87	28.33	H	53.97	-25.64	Avg	225.50	157.77	
1519.03	40.87	H	73.97	-33.10	Peak	39.75	100.00	
1519.03	32.80	H	53.97	-21.17	Avg	39.75	100.00	
2287.57	49.28	H	73.97	-24.69	Peak	113.50	148.58	
2287.57	41.76	H	53.97	-12.21	Avg	113.50	148.58	
3968.73	50.07	H	73.97	-23.90	Peak	42.75	120.94	
3968.73	38.99	H	53.97	-14.98	Avg	42.75	120.94	
4063.12	44.77	H	73.97	-29.20	Peak	211.00	115.26	
4063.12	37.41	H	53.97	-16.56	Avg	211.00	115.26	
1846.69	39.54	V	73.97	-34.43	Peak	85.25	144.10	
1846.69	30.91	V	53.97	-23.06	Avg	85.25	144.10	
2298.59	43.13	V	73.97	-30.84	Peak	182.75	100.28	
2298.59	33.86	V	53.97	-20.11	Avg	182.75	100.28	
4058.11	48.43	V	73.97	-25.54	Peak	48.75	182.01	
4058.11	40.78	V	53.97	-13.19	Avg	48.75	182.01	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 n - Mid Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1440.88	40.30	H	73.97	-33.67	Peak	187.00	100.00	
1440.88	30.26	H	53.97	-23.71	Avg	187.00	100.00	
2290.58	46.57	H	73.97	-27.40	Peak	341.75	100.00	
2290.58	38.19	H	53.97	-15.78	Avg	341.75	100.00	
4065.13	50.42	H	73.97	-23.55	Peak	117.25	213.05	
4065.13	41.47	H	53.97	-12.50	Avg	117.25	213.05	
1849.69	40.30	V	73.97	-33.67	Peak	82.00	100.00	
1849.69	29.88	V	53.97	-24.09	Avg	82.00	100.00	
1521.04	37.82	V	73.97	-36.15	Peak	156.25	210.01	
1521.04	30.67	V	53.97	-23.30	Avg	156.25	210.01	
2292.58	48.27	V	73.97	-25.70	Peak	52.00	105.23	
2292.58	39.04	V	53.97	-14.93	Avg	52.00	105.23	
3352.70	45.97	V	73.97	-28.00	Peak	57.50	115.74	
3352.70	38.14	V	53.97	-15.83	Avg	57.50	115.74	
3963.92	52.54	V	73.97	-21.43	Peak	57.50	115.74	
3963.92	44.06	V	53.97	-9.91	Avg	57.50	115.74	
4063.12	42.22	V	73.97	-31.75	Peak	181.00	234.67	
4063.12	34.56	V	53.97	-19.41	Avg	181.00	234.67	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - X-Axis
802.11 n -- High Channel**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1440.88	38.78	H	73.97	-35.19	Peak	197.75	140.34	
1440.88	30.42	H	53.97	-23.55	Avg	197.75	140.34	
1559.11	41.53	H	73.97	-32.44	Peak	26.00	203.68	
1559.11	35.47	H	53.97	-18.50	Avg	26.00	203.68	
2286.97	53.14	H	73.97	-20.83	Peak	123.00	105.71	
2286.97	43.32	H	53.97	-10.65	Avg	123.00	105.71	
4015.83	50.45	H	73.97	-23.52	Peak	103.25	133.89	
4015.83	43.63	H	53.97	-10.34	Avg	103.25	133.89	
4107.01	48.94	H	73.97	-25.03	Peak	150.50	179.08	
4107.01	40.26	H	53.97	-13.71	Avg	150.50	179.08	
2287.77	45.35	V	73.97	-28.62	Peak	306.75	100.00	
2287.77	37.64	V	53.97	-16.33	Avg	306.75	100.00	
4101.80	50.26	V	73.97	-23.71	Peak	46.00	190.13	
4101.80	43.80	V	53.97	-10.17	Avg	46.00	190.13	

FCC 15.247, RSS-247, and RSS-GEN

Nortek Security & Control, LLC
Bridge
Model: MMS100

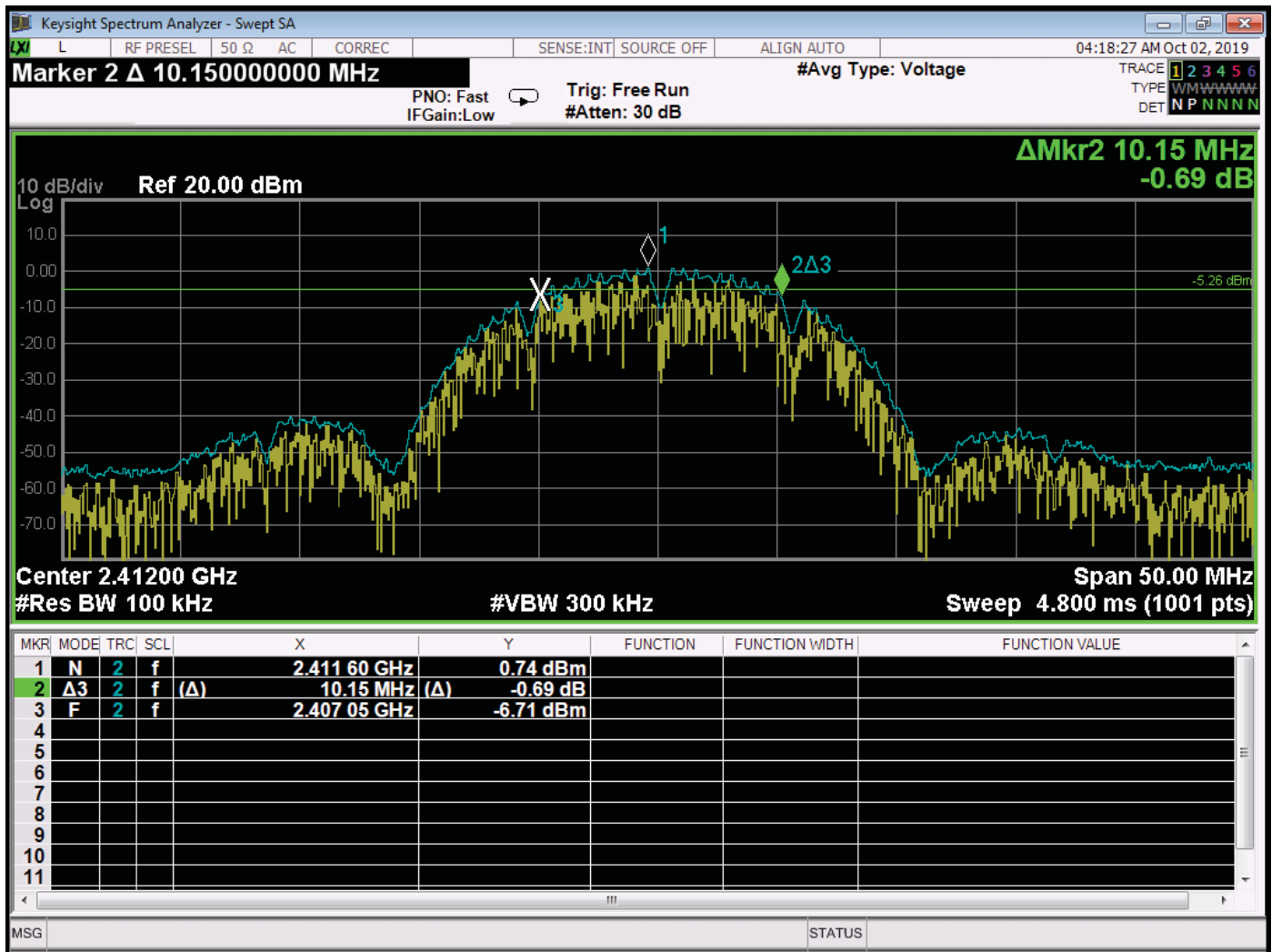
Date: 08/05/2019
Lab: D
Tested By: Harvey Samaco

**Non-Harmonic Emissions
and Digital Portion
Transmit Mode - Y-Axis
802.11 n -- High Channel**

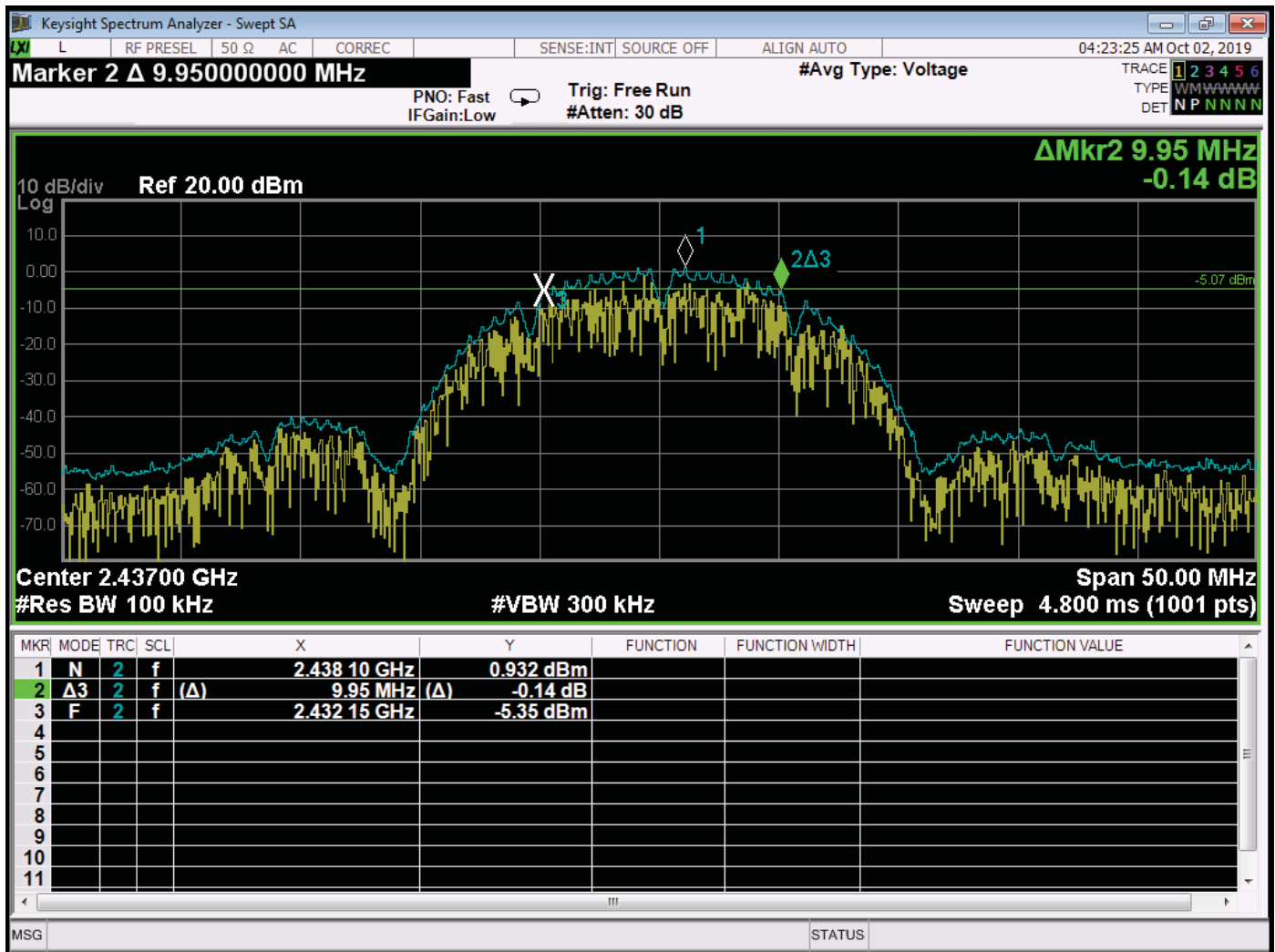
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1440.88	40.30	H	73.97	-33.67	Peak	191.00	153.17	
1440.88	31.64	H	53.97	-22.33	Avg	191.00	153.17	
1841.68	44.07	H	73.97	-29.90	Peak	205.00	165.95	
1841.68	38.54	H	53.97	-15.43	Avg	205.00	165.95	
2297.39	42.41	H	73.97	-31.56	Peak	333.00	100.40	
2297.39	34.90	H	53.97	-19.07	Avg	333.00	100.40	
4104.20	48.17	H	73.97	-25.80	Peak	163.25	129.17	
4104.20	41.75	H	53.97	-12.22	Avg	163.25	129.17	
1561.12	41.33	V	73.97	-32.64	Peak	270.50	100.00	
1561.12	34.15	V	53.97	-19.82	Avg	270.50	100.00	
2296.59	49.96	V	73.97	-24.01	Peak	135.00	100.00	
2296.59	40.67	V	53.97	-13.30	Avg	135.00	100.00	
3378.75	47.47	V	73.97	-26.50	Peak	45.25	119.14	
3378.75	40.07	V	53.97	-13.90	Avg	45.25	119.14	
4018.43	56.43	V	73.97	-17.54	Peak	133.00	138.25	
4018.43	47.06	V	53.97	-6.91	Avg	133.00	138.25	
4102.60	46.36	V	73.97	-27.61	Peak	86.50	100.00	
4102.60	38.32	V	53.97	-15.65	Avg	86.50	100.00	

-6 dB BANDWIDTH

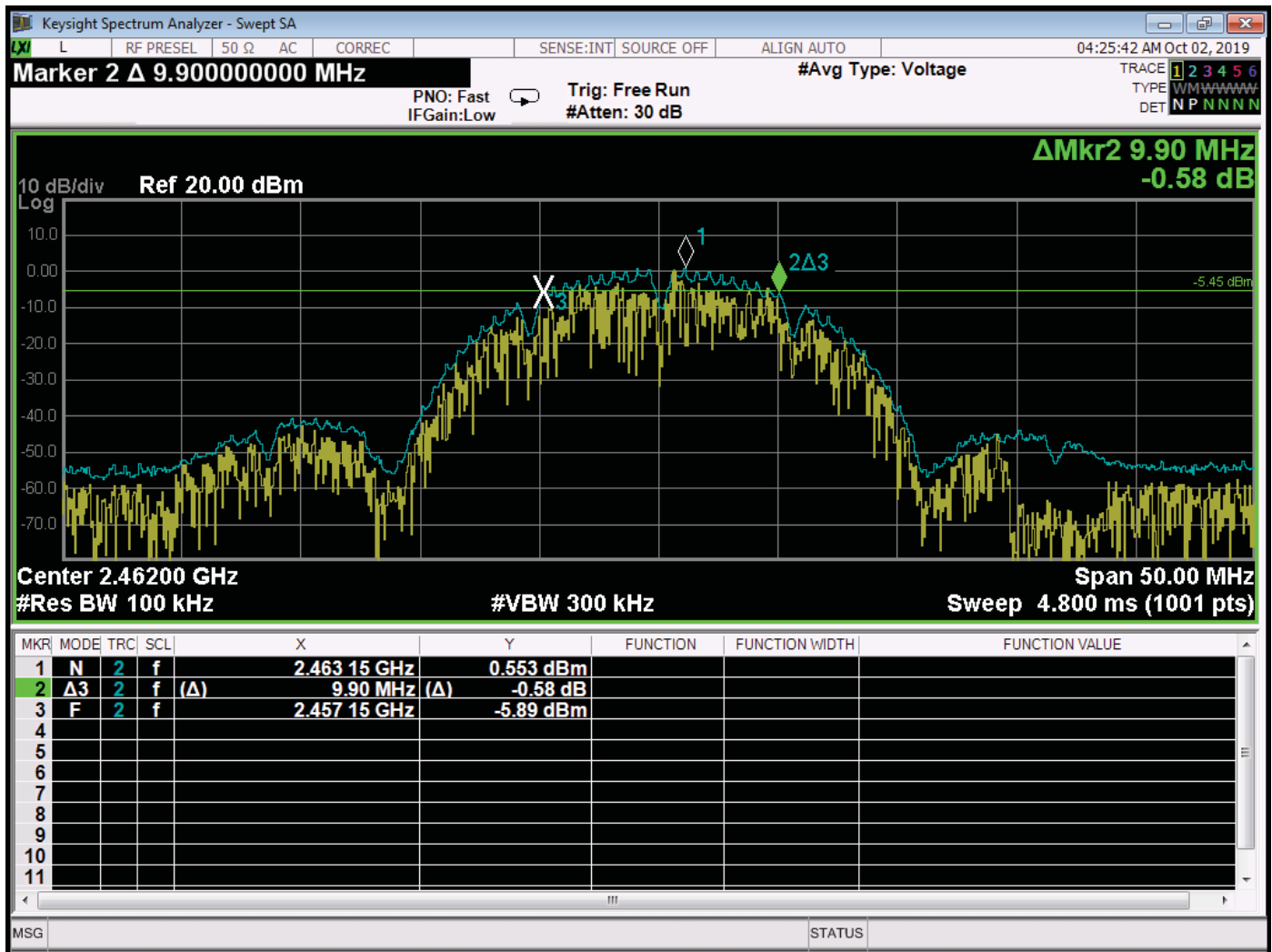
DATA SHEETS



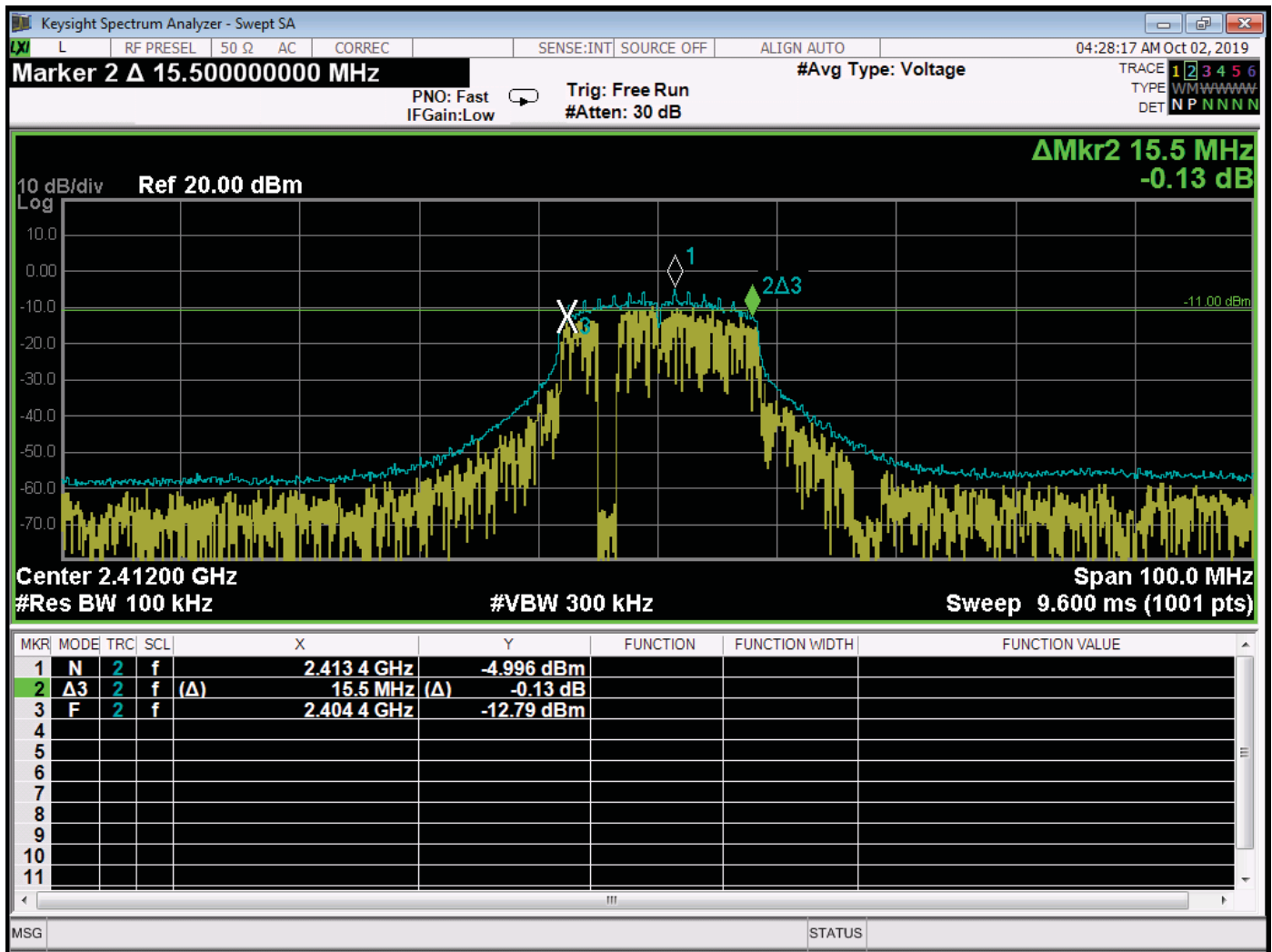
-6 dB Bandwidth – Low Channel – 802.11 b Mode



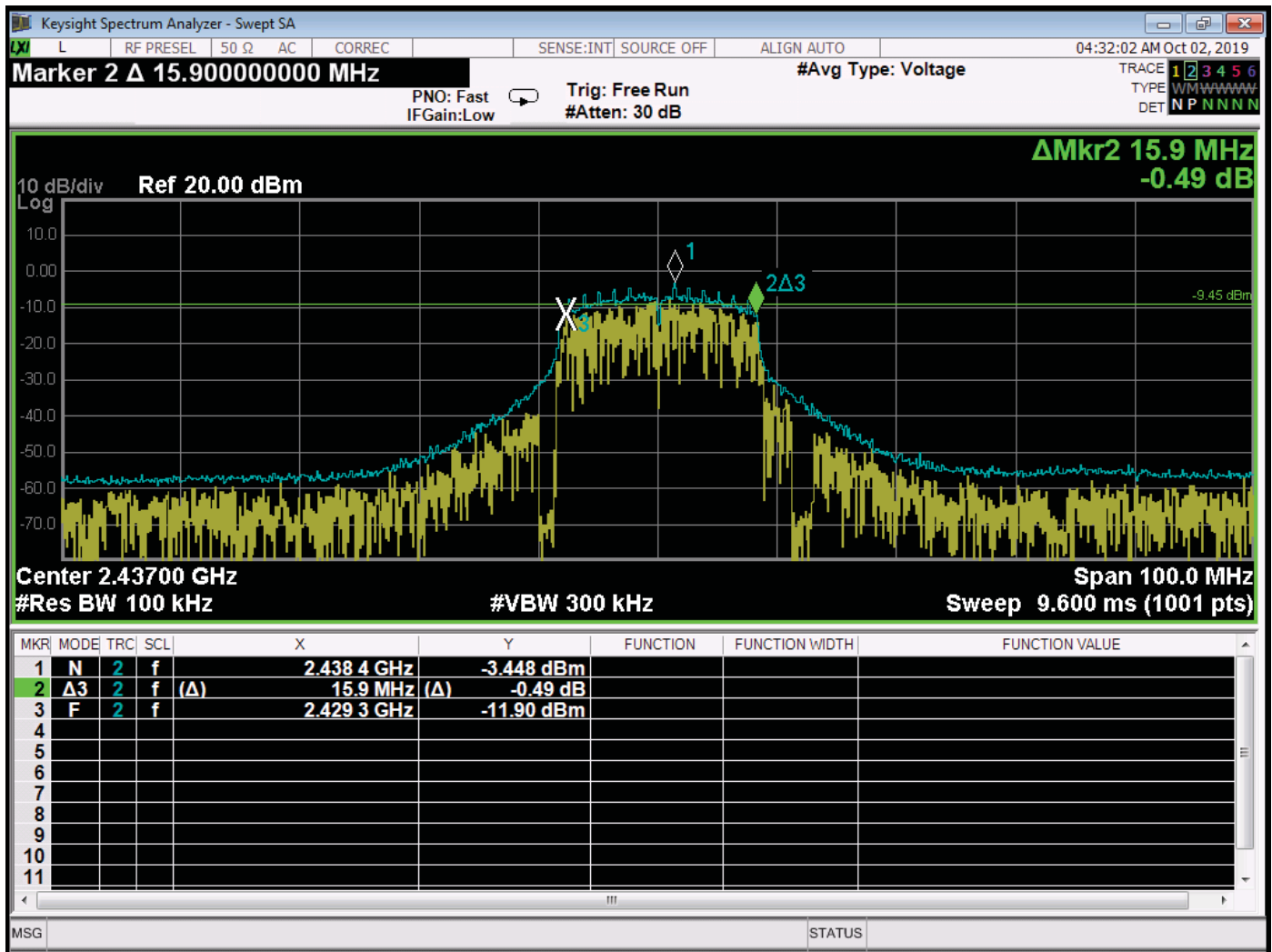
-6 dB Bandwidth – Middle Channel – 802.11 b Mode



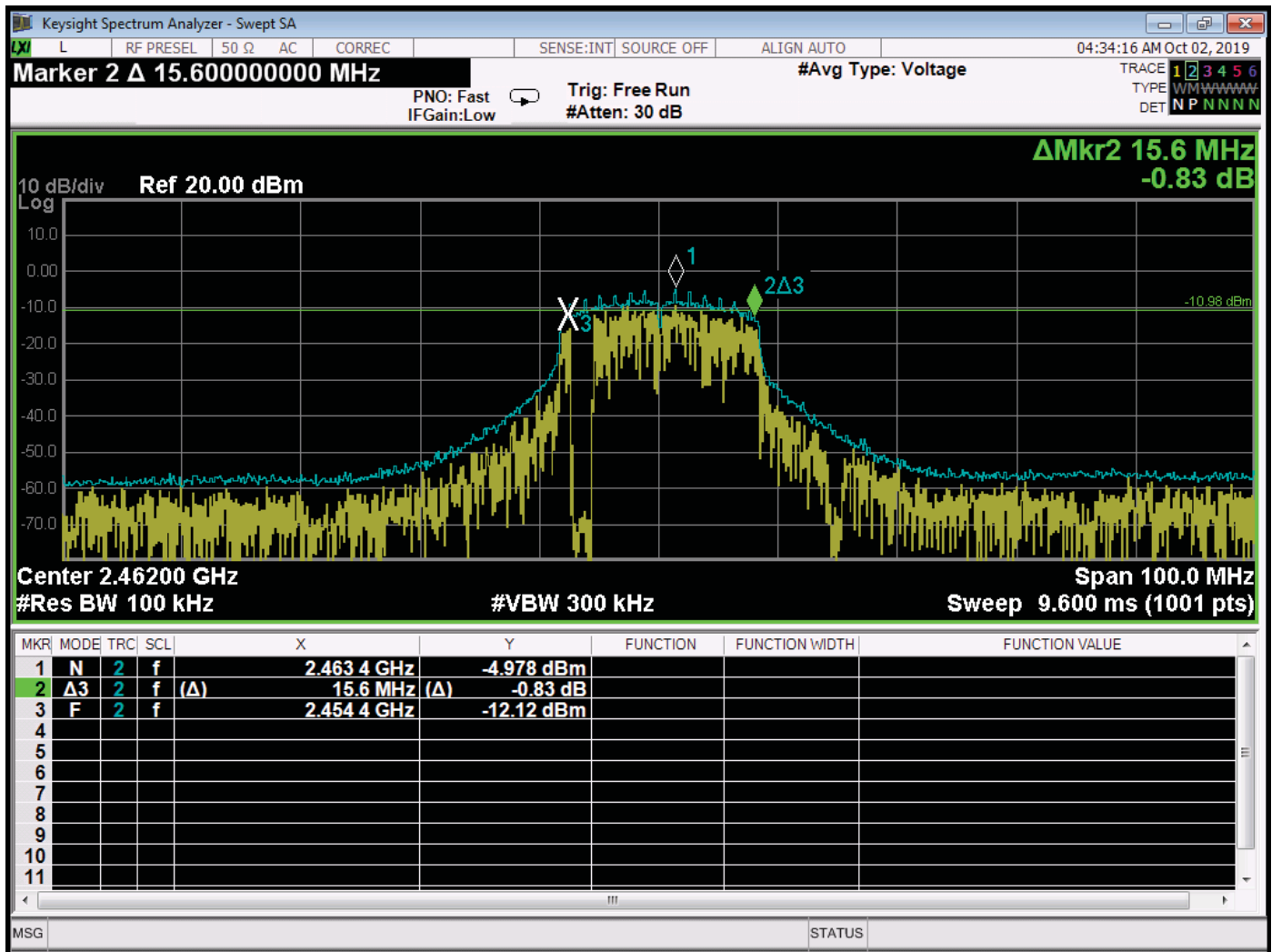
-6 dB Bandwidth – High Channel – 802.11 b Mode



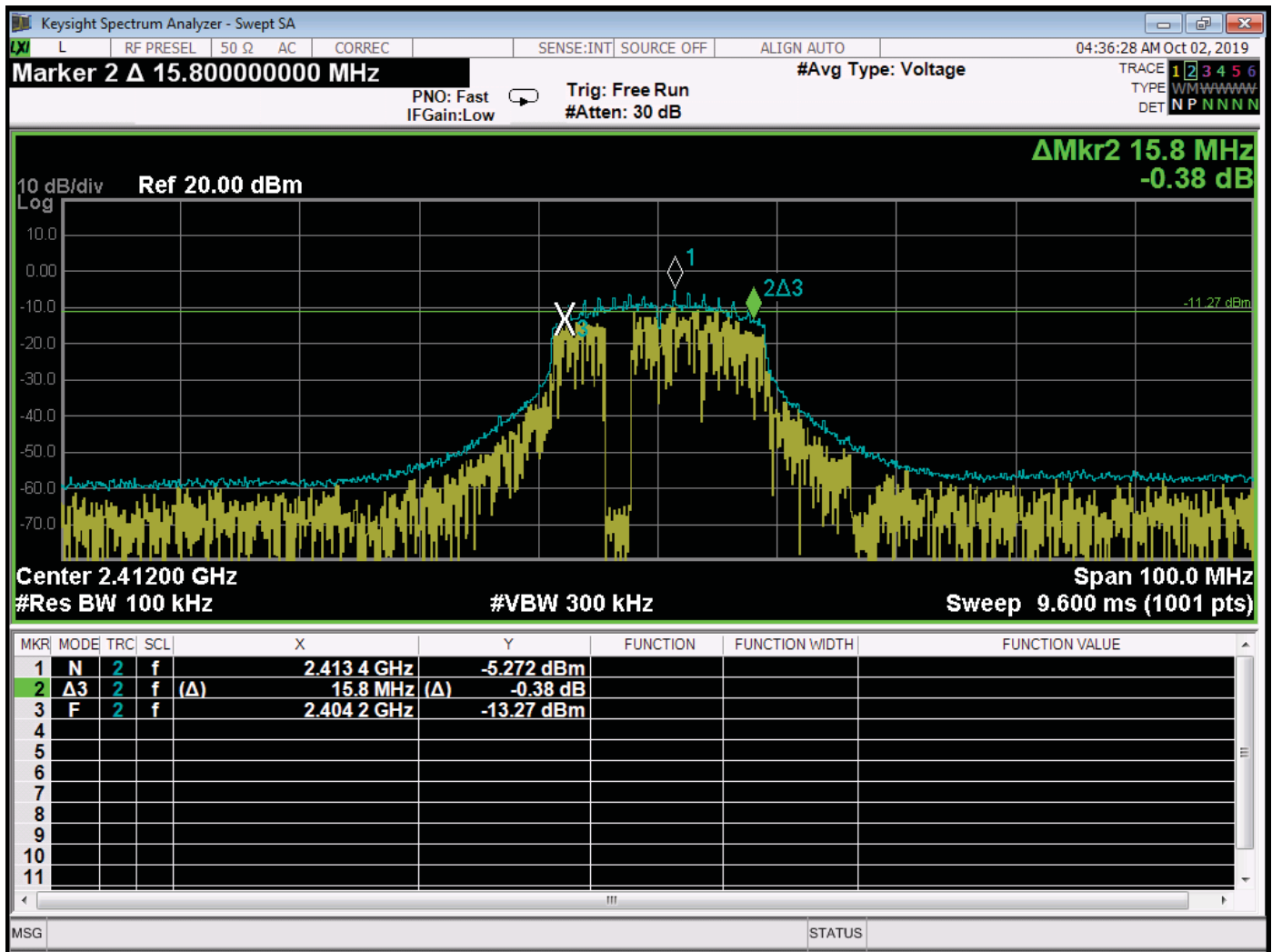
-6 dB Bandwidth – Low Channel – 802.11g Mode



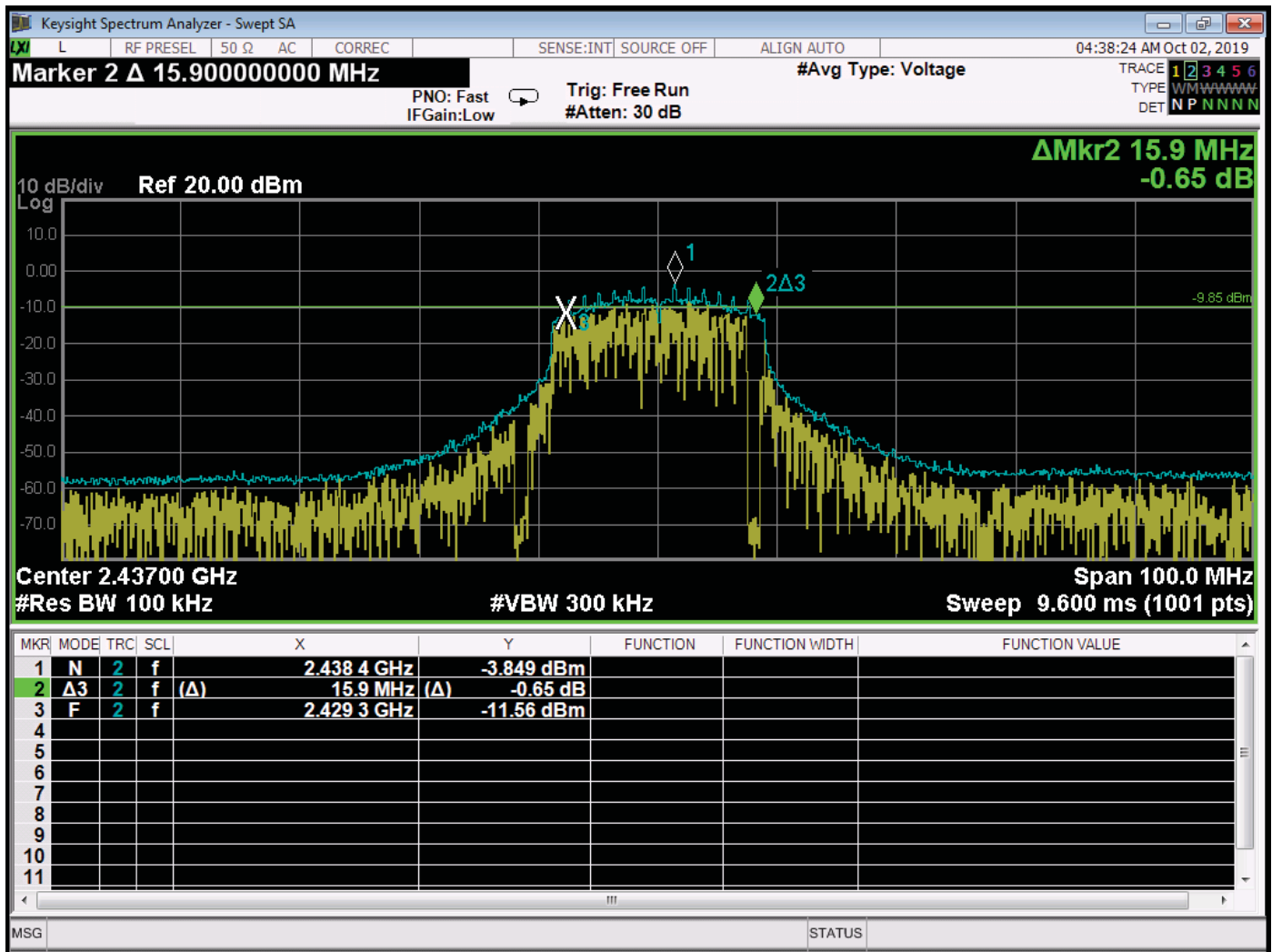
-6 dB Bandwidth – Middle Channel – 802.11 g Mode



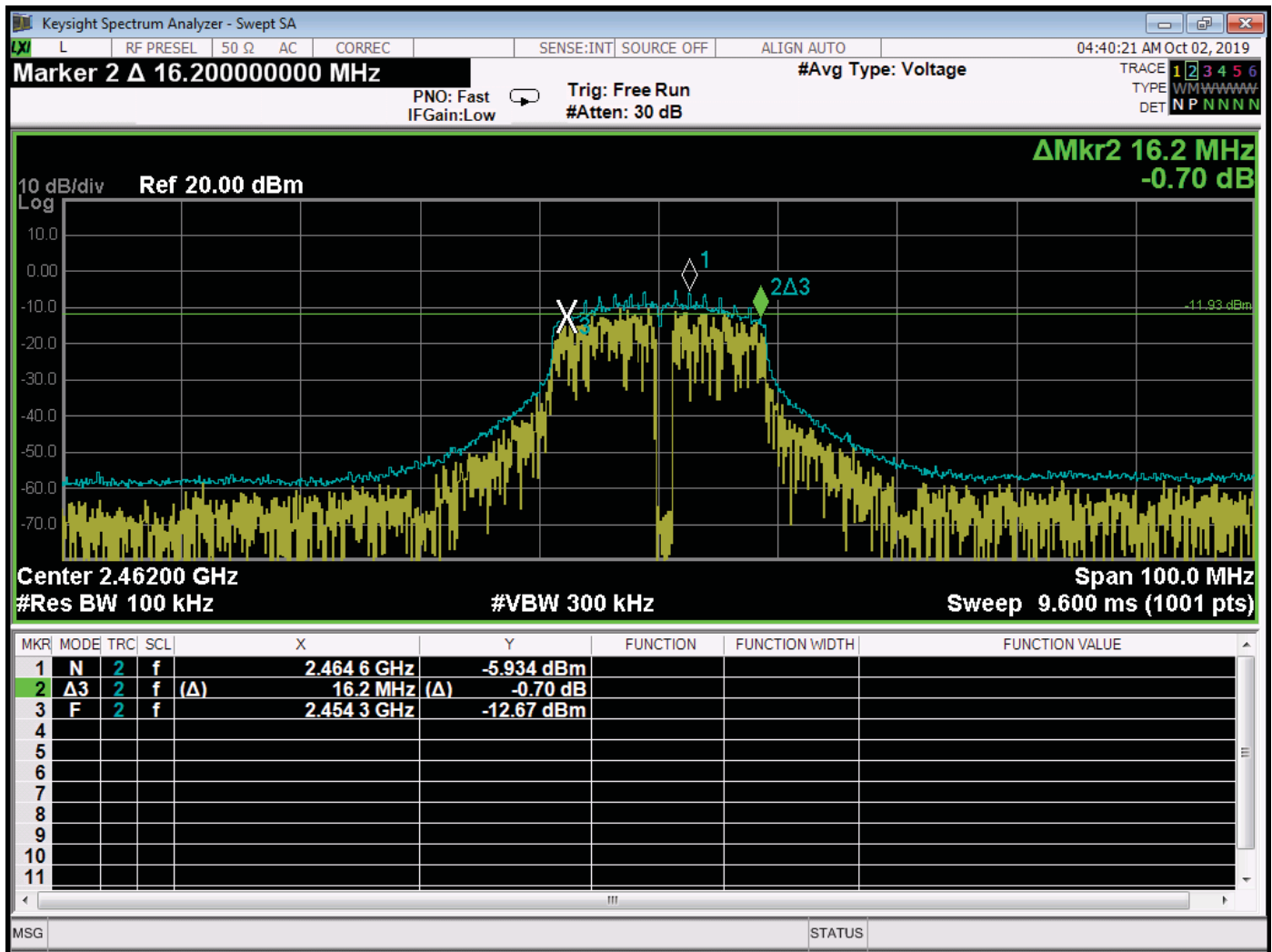
-6 dB Bandwidth – High Channel – 802.11 g Mode



-6 dB Bandwidth – Low Channel – 802.11 n Mode



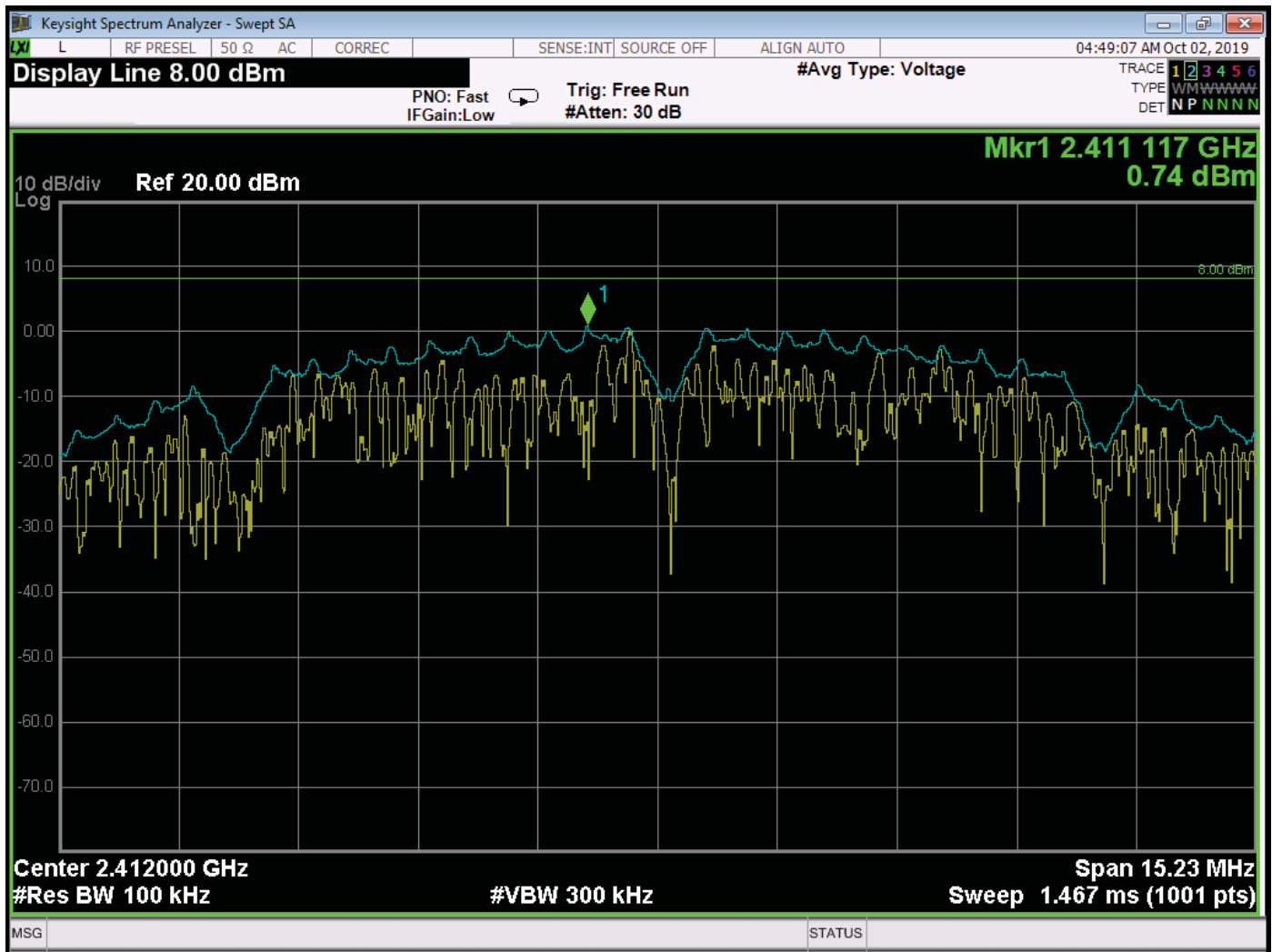
-6 dB Bandwidth – Middle Channel – 802.11 n Mode



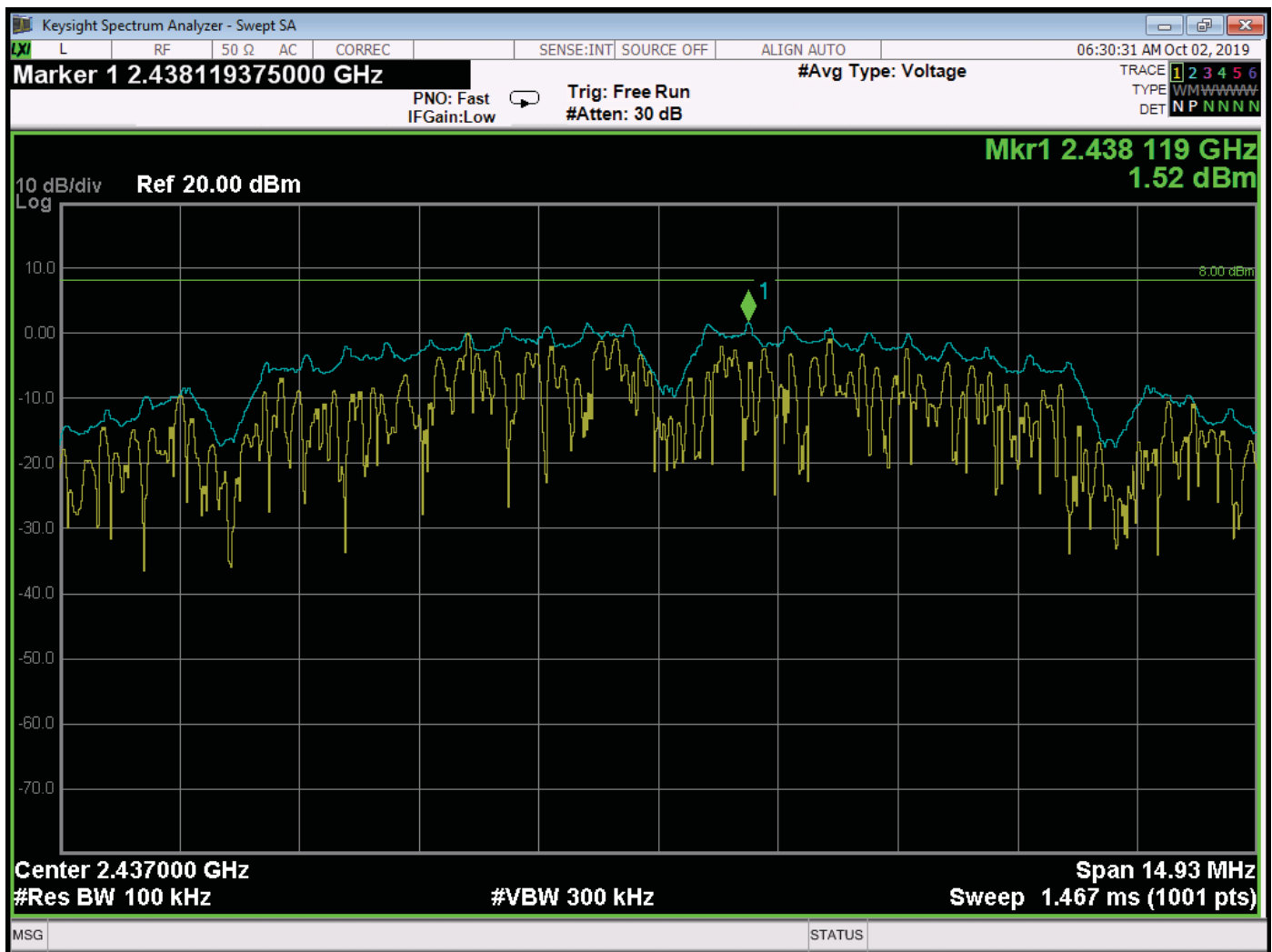
-6 dB Bandwidth – High Channel – 802.11 n Mode

SPECTRAL DENSITY OUTPUT

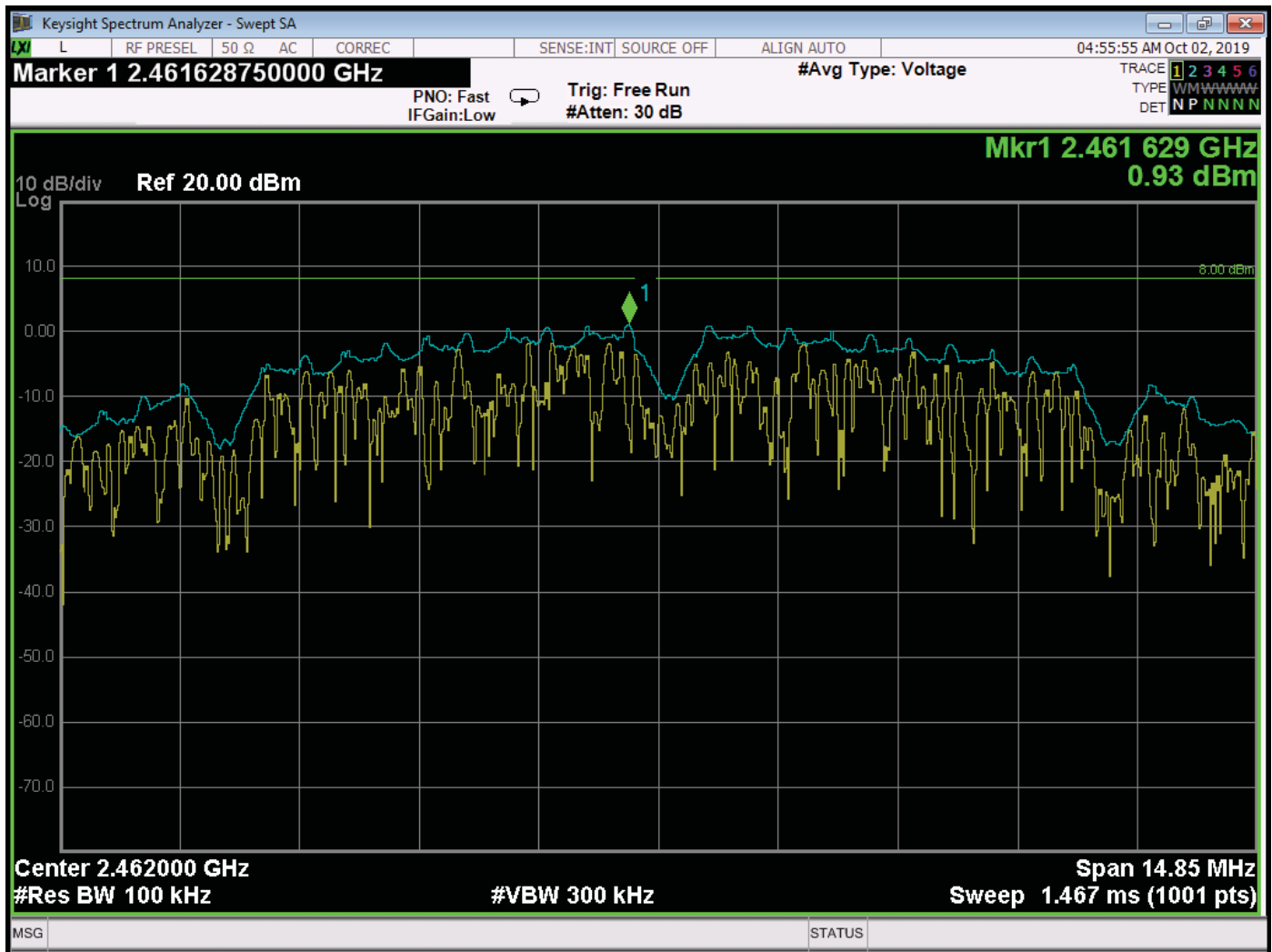
DATA SHEETS



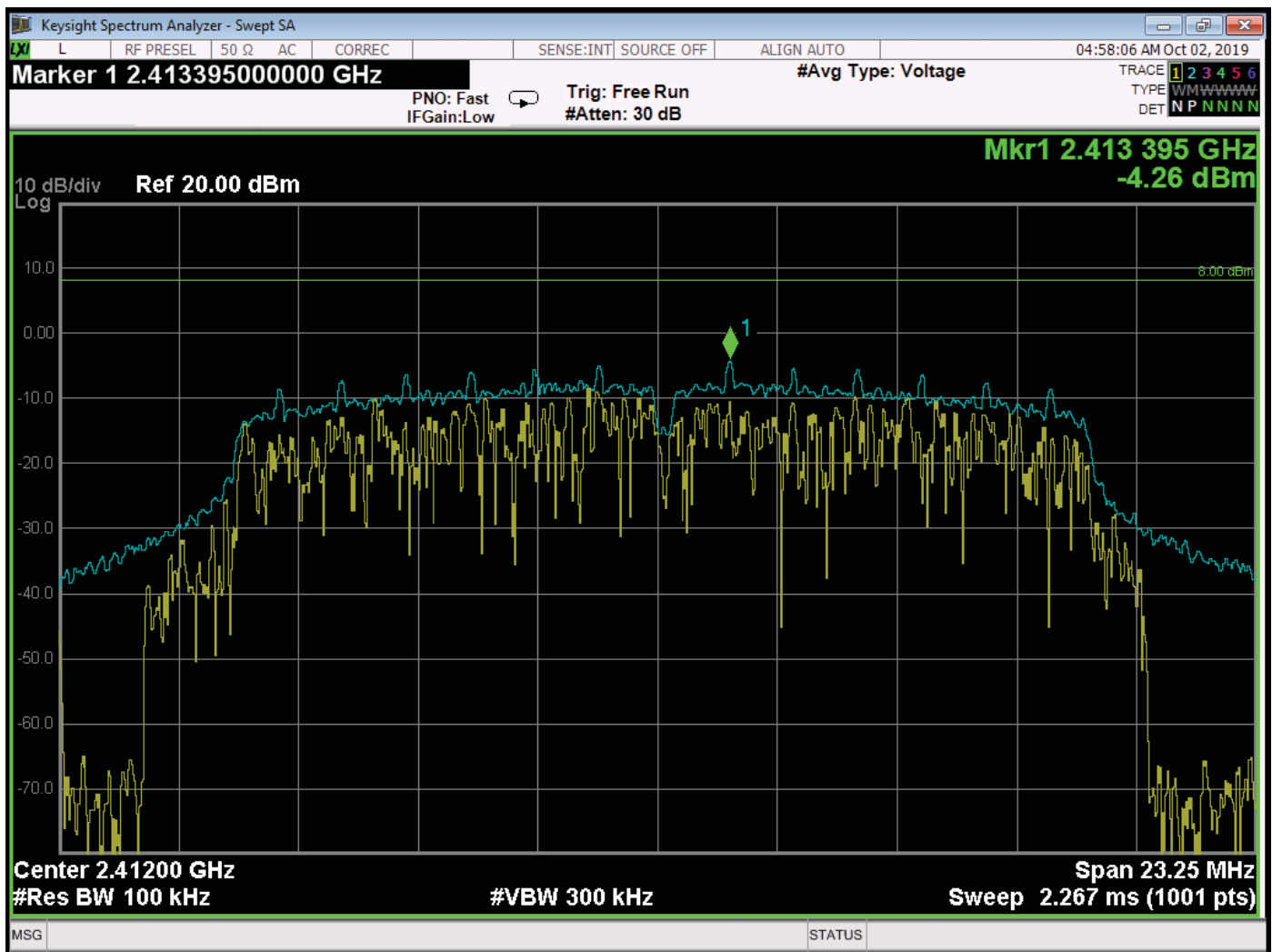
Spectral Density – Low Channel – 802.11 b Mode



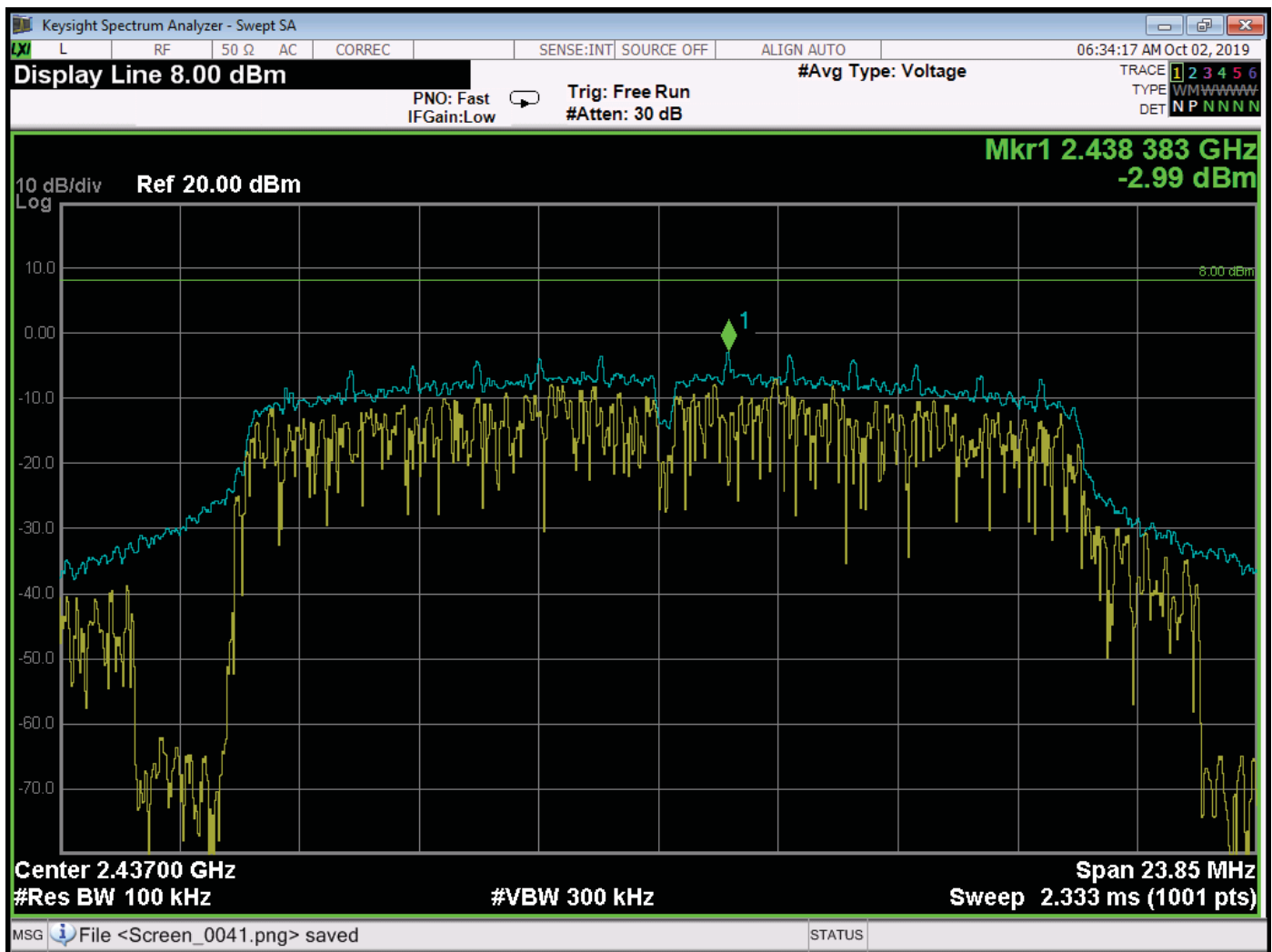
Spectral Density – Middle Channel – 802.11 b Mode



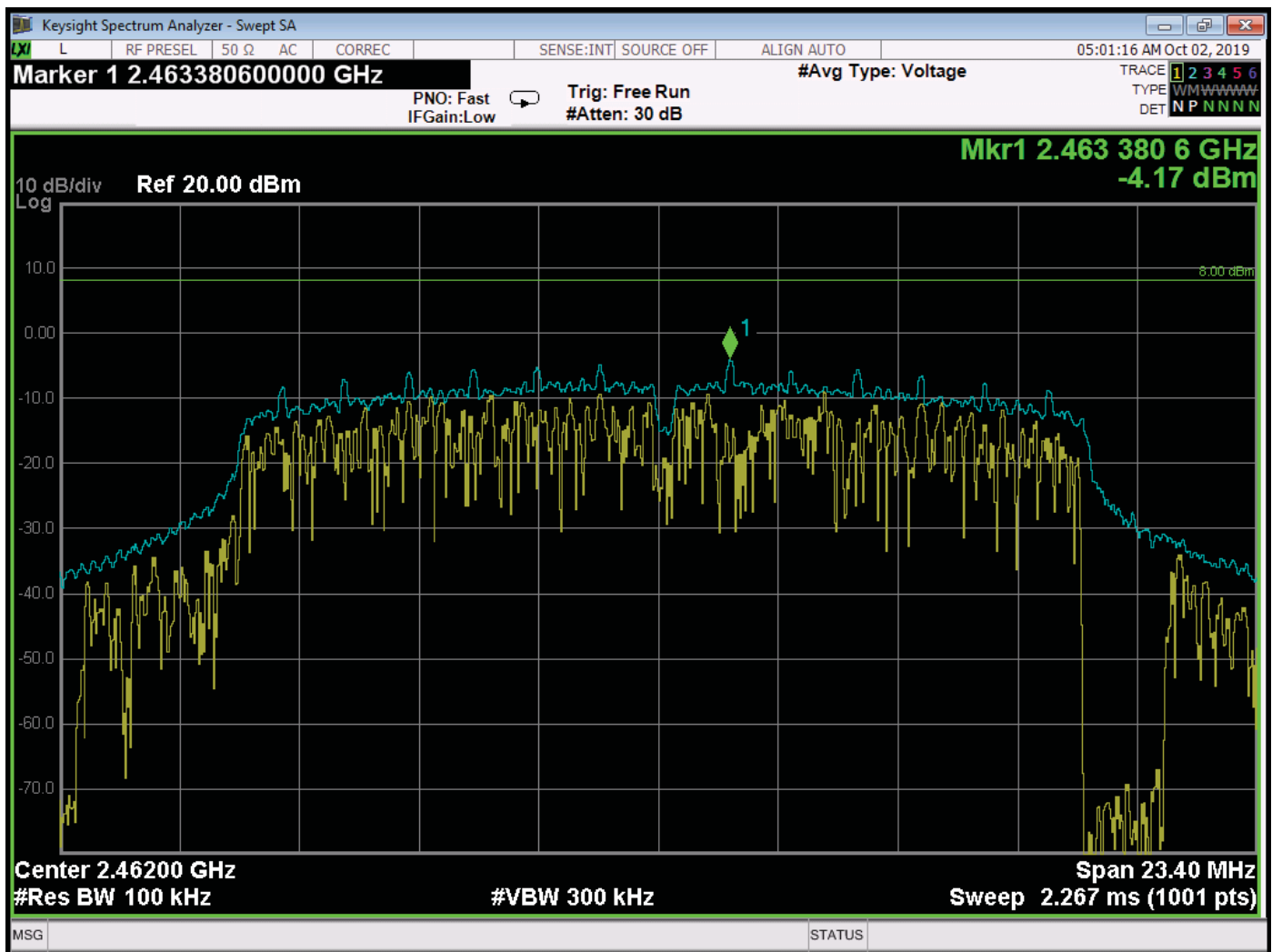
Spectral Density – High Channel – 802.11 b Mode



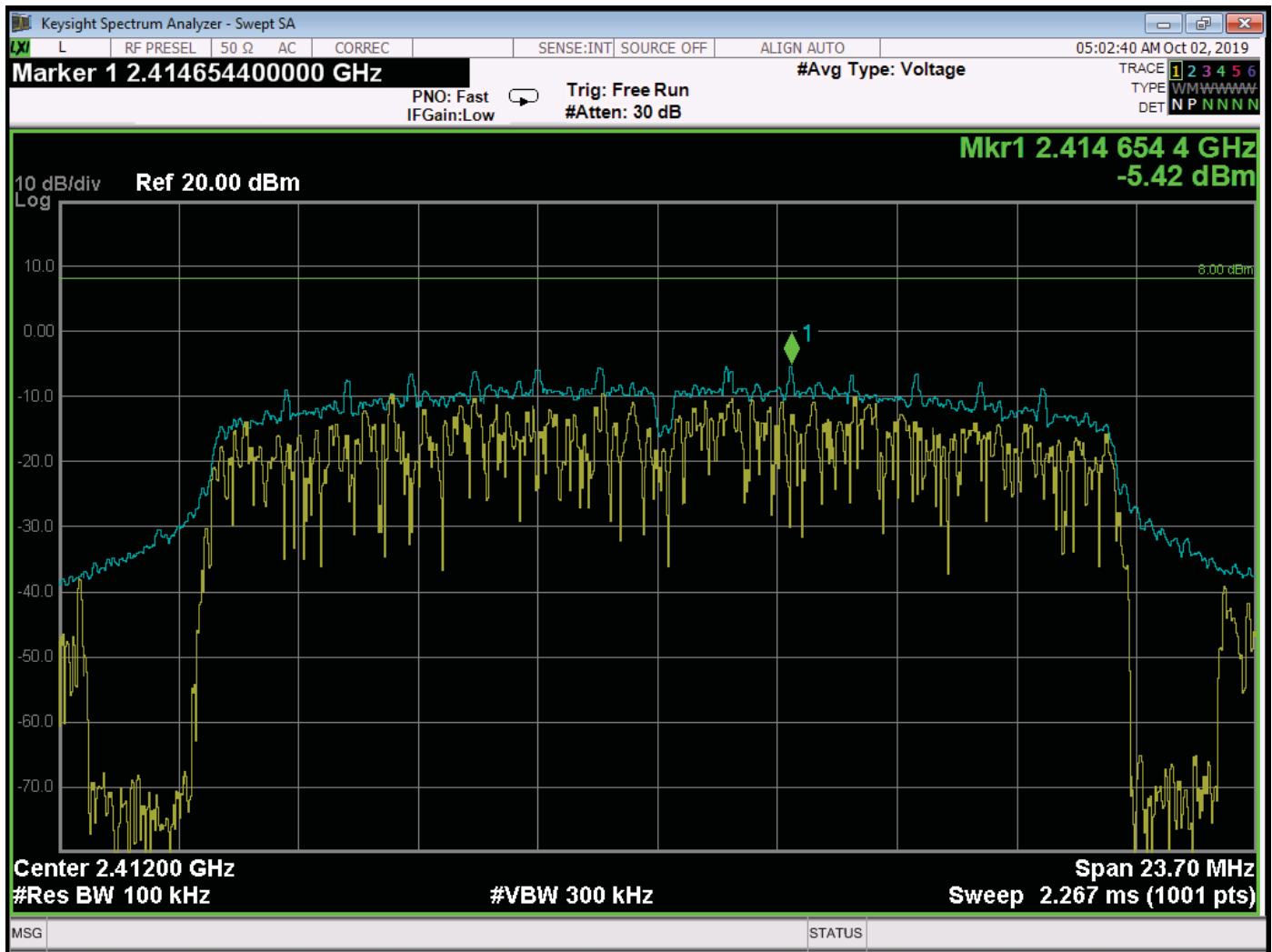
Spectral Density – Low Channel – 802.11 g Mode



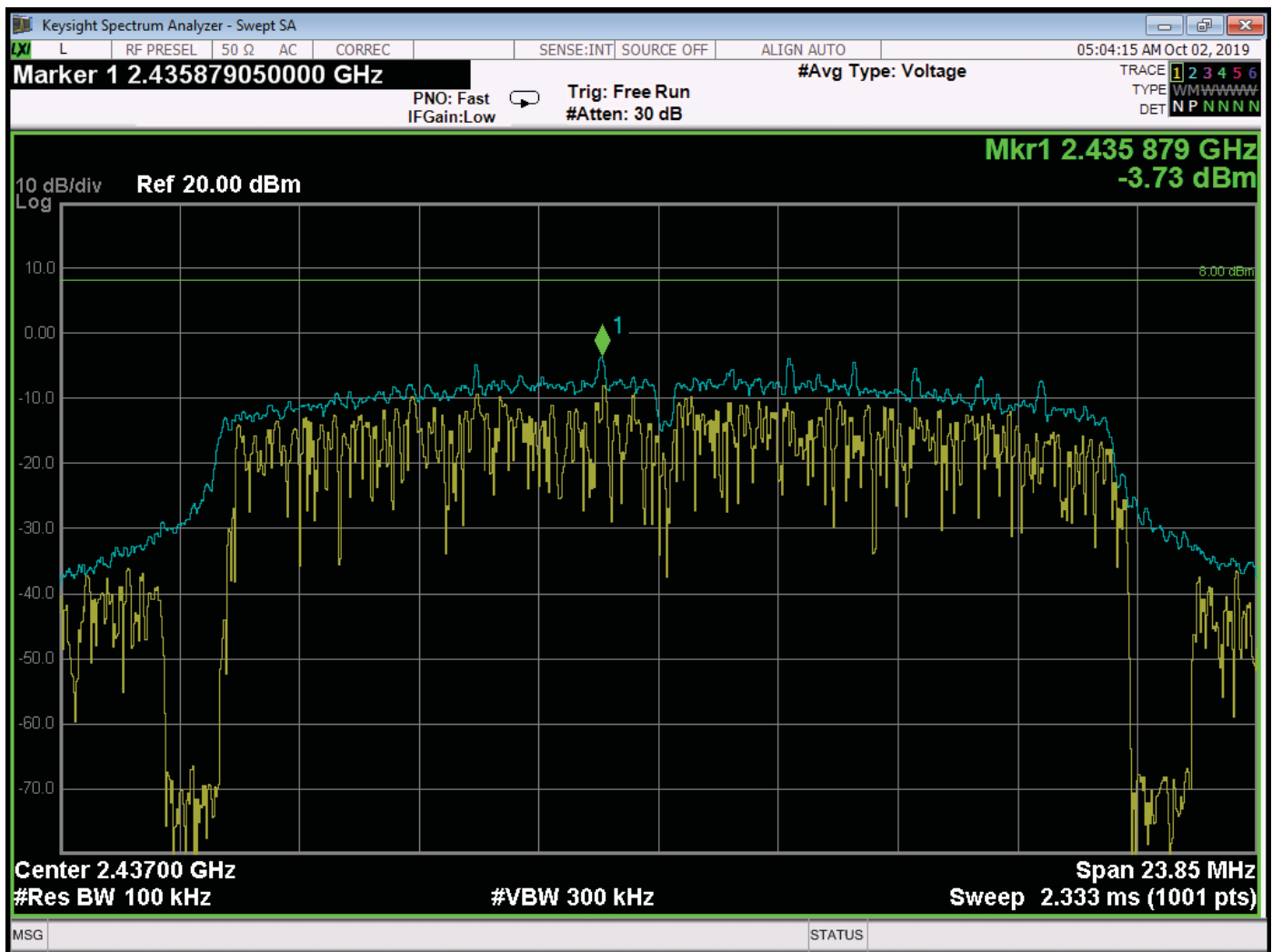
Spectral Density – Middle Channel – 802.11 g Mode



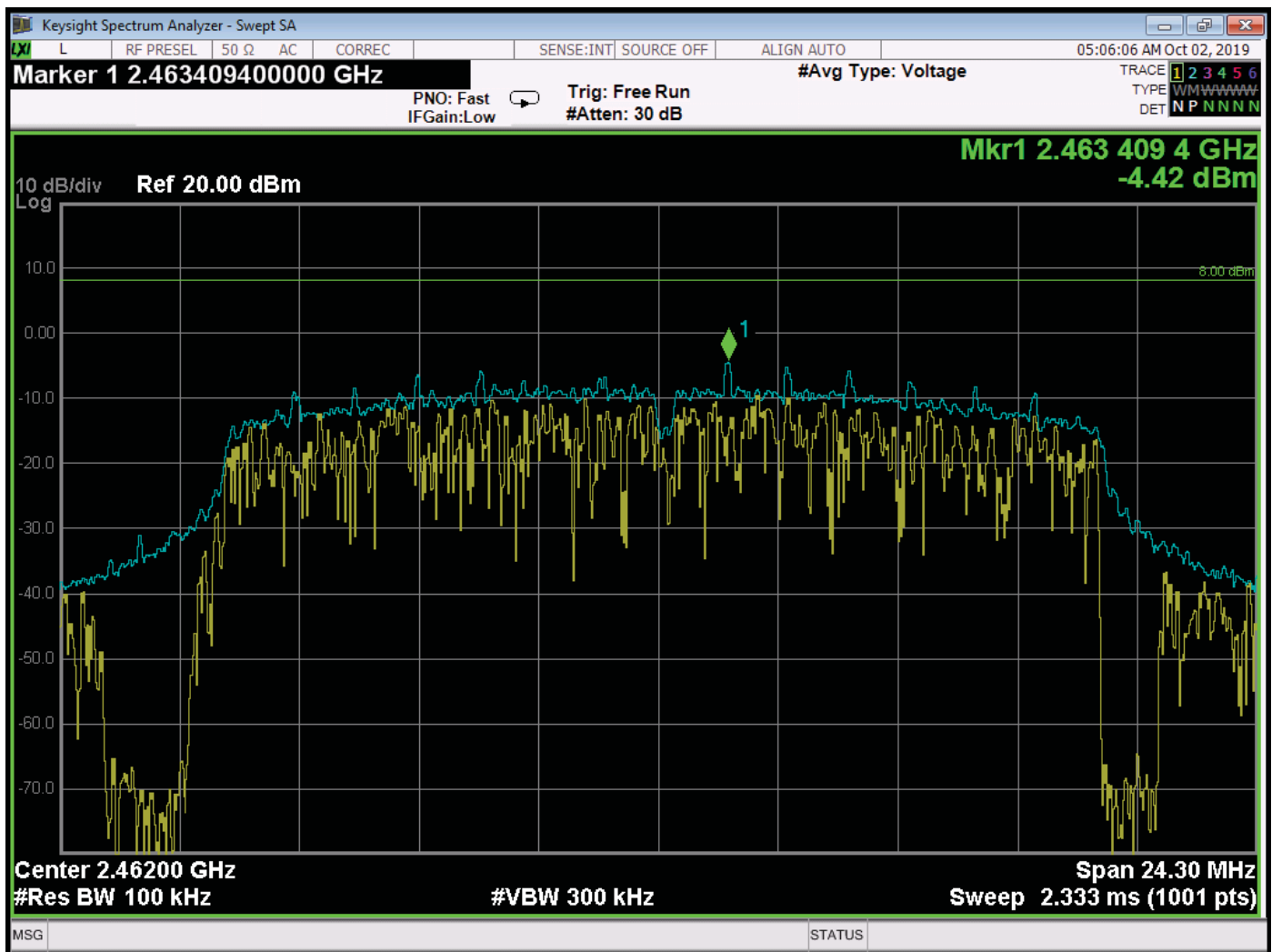
Spectral Density – High Channel – 802.11 g Mode



Spectral Density – Low Channel – 802.11 n Mode



Spectral Density – Middle Channel – 802.11 n Mode



Spectral Density – High Channel – 802.11 n Mode

PEAK OUTPUT POWER

DATA SHEETS

NORTEK SECURITY & CONTROL, LLC

BRIDGE

MODEL: MMS100

PEAK POWER OUTPUT

802.11 b MODE

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
2412	9.63	30.00	-20.37
2437	9.49	30.00	-20.51
2462	9.41	30.00	-20.59

NORTEK SECURITY & CONTROL, LLC

BRIDGE

MODEL: MMS100

PEAK POWER OUTPUT

802.11 g MODE

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
2412	3.99	30.00	-26.01
2437	5.32	30.00	-24.68
2462	4.21	30.00	-25.79

NORTEK SECURITY & CONTROL, LLC

BRIDGE

MODEL: MMS100

PEAK POWER OUTPUT

802.11 n MODE

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
2412	3.51	30.00	-26.49
2437	4.81	30.00	-25.19
2462	3.77	30.00	-26.23

BAND EDGES

DATA SHEETS

FCC 15.247

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/02/2019

Lab: D

Tested By: Kyle Fujimoto

Band Edges - 802.11 b**Lower Band Edge - Power Level 9**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2412.00	96.90	H	--	--	Peak	123.00	153.23	Fundamental
2412.00	93.41	H	--	--	Avg	123.00	153.23	X-Axis Worst Case
2387.75	47.93	H	73.97	-26.04	Peak	123.00	153.23	Band Edge
2387.66	39.26	H	53.97	-14.71	Avg	123.00	153.23	X-Axis Worst Case
2412.00	95.70	V	--	--	Peak	221.25	153.28	Fundamental
2412.00	92.38	V	--	--	Avg	221.25	153.28	Y-Axis Worst Case
2390.00	46.11	V	73.97	-27.86	Peak	221.25	153.28	Band Edge
2390.00	36.53	V	53.97	-17.44	Avg	221.25	153.28	Y-Axis Worst Case

FCC 15.247

Nortek Security & Control, LLC

Bridge

Model: MMS100

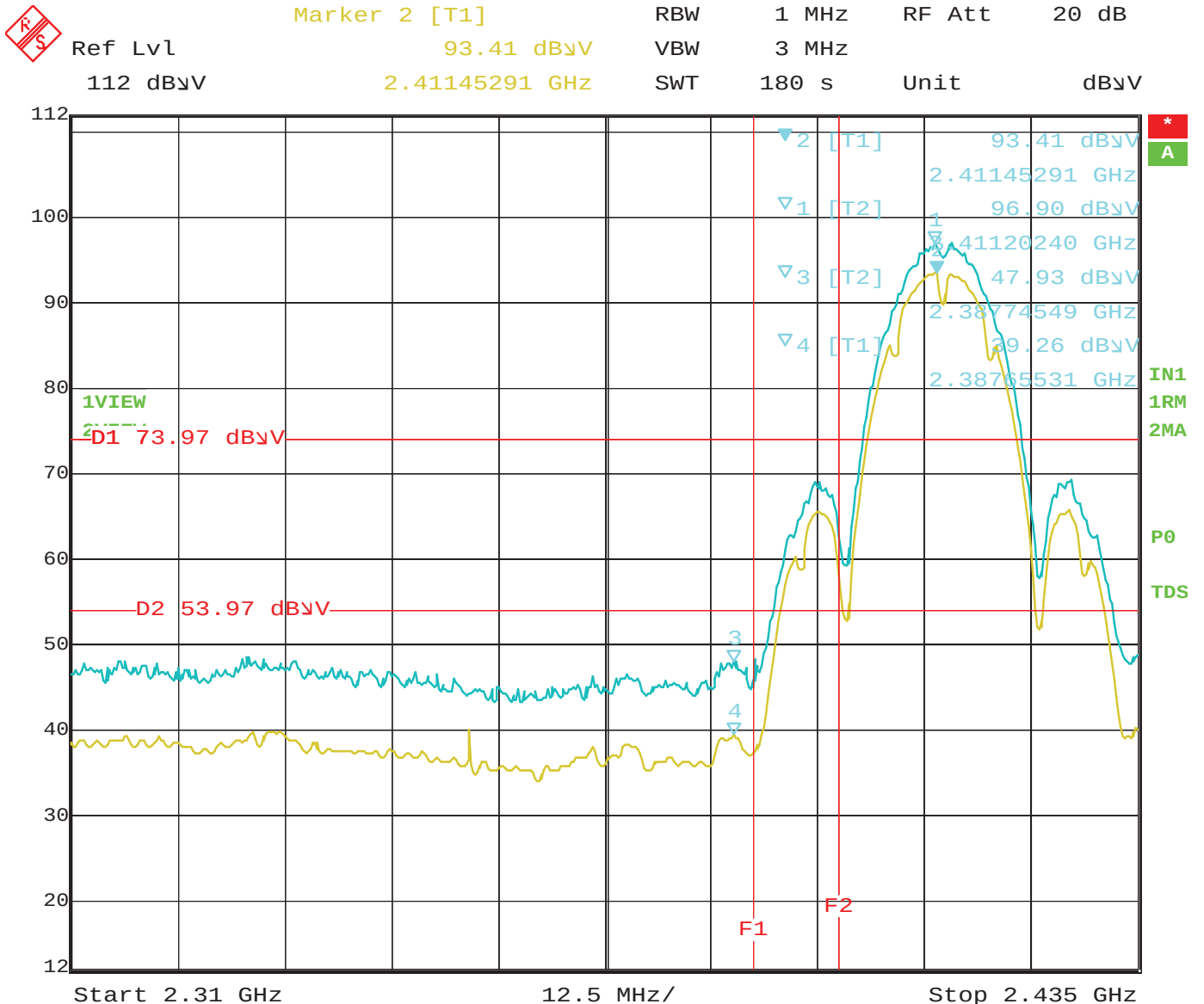
Date: 08/02/2019

Lab: D

Tested By: Kyle Fujimoto

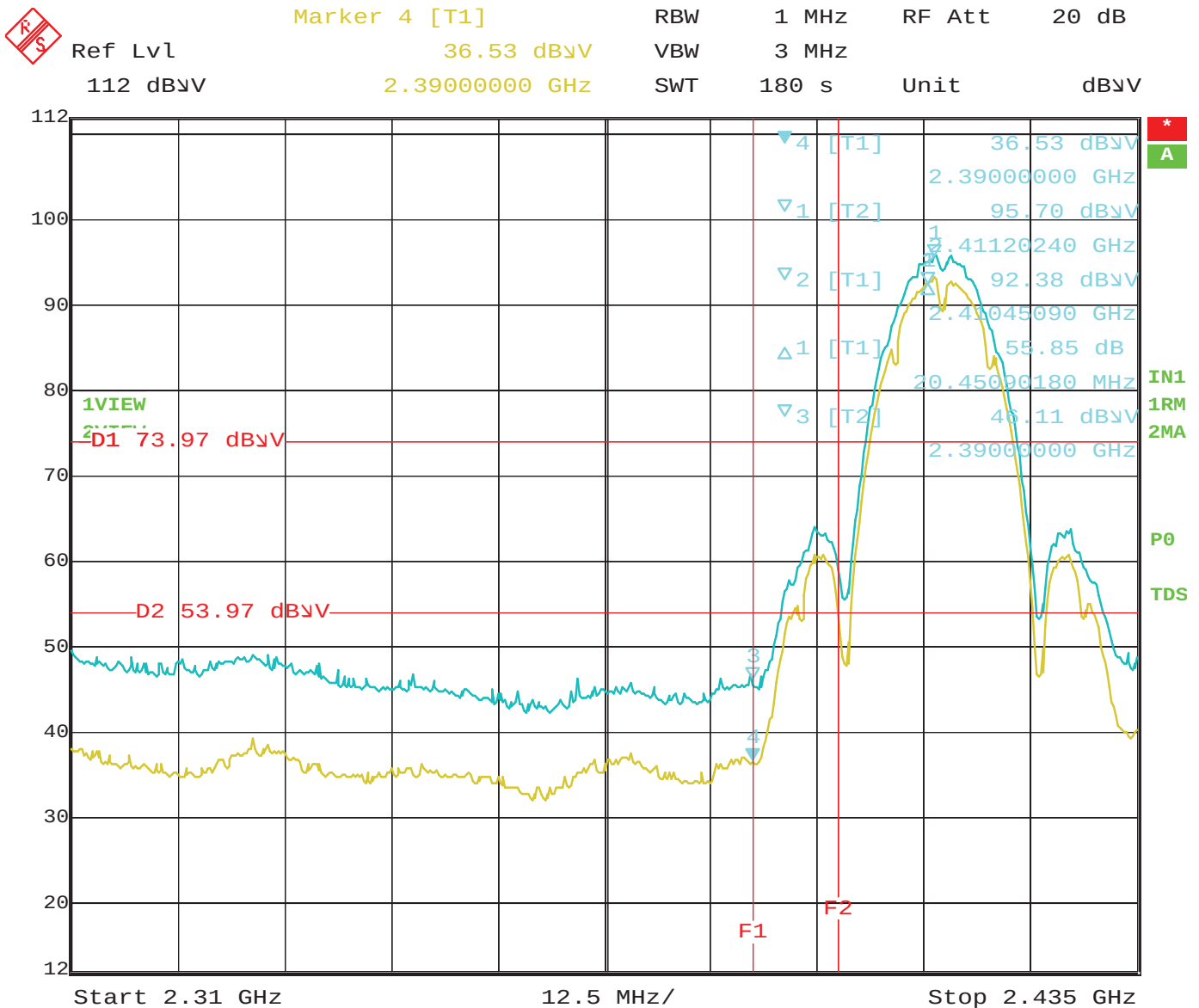
Band Edges - 802.11 b**Upper Band Edge - Power Level 9**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2462.00	98.09	H	--	--	Peak	185.00	152.25	Fundamental
2462.00	94.52	H	--	--	Avg	185.00	152.25	X-Axis Worst Case
2487.99	57.16	H	73.97	-16.81	Peak	190.00	135.25	Band Edge
2487.99	52.87	H	53.97	-1.10	Avg	190.00	135.25	X-Axis Worst Case
2462.00	97.46	V	--	--	Peak	175.00	167.14	Fundamental
2462.00	94.98	V	--	--	Avg	175.00	167.14	Y-Axis Worst Case
2483.50	49.46	V	73.97	-24.51	Peak	175.00	167.14	Band Edge
2483.50	41.99	V	53.97	-11.98	Avg	175.00	167.14	Y-Axis Worst Case



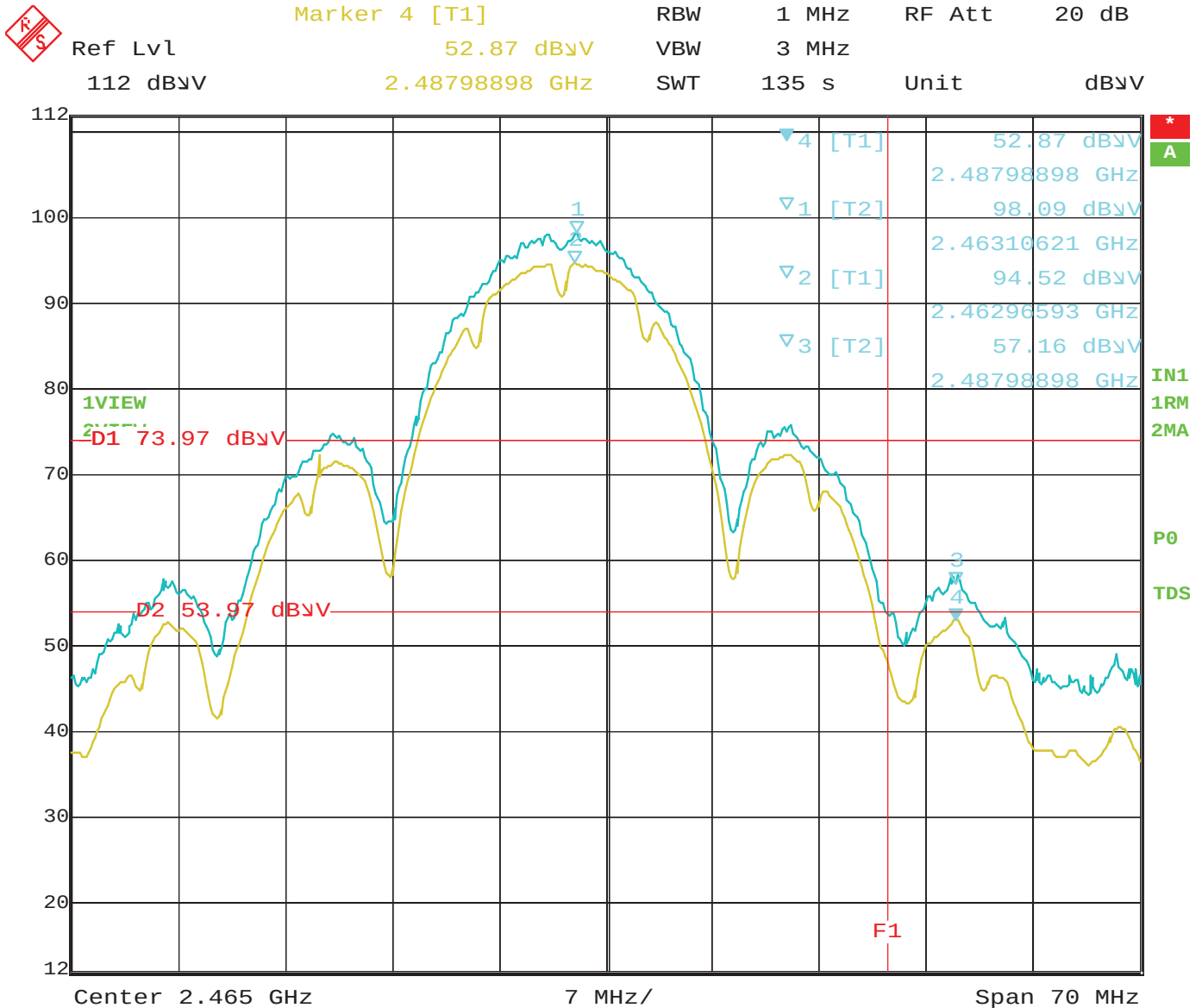
Date: 2.AUG.2019 15:46:32

Band Edges – 2412 MHz – Horizontal Polarization – 802.11 b Mode – X-Axis



Date: 5.AUG.2019 08:29:21

Band Edges – 2412 MHz – Vertical Polarization – 802.11 b Mode – Y-Axis



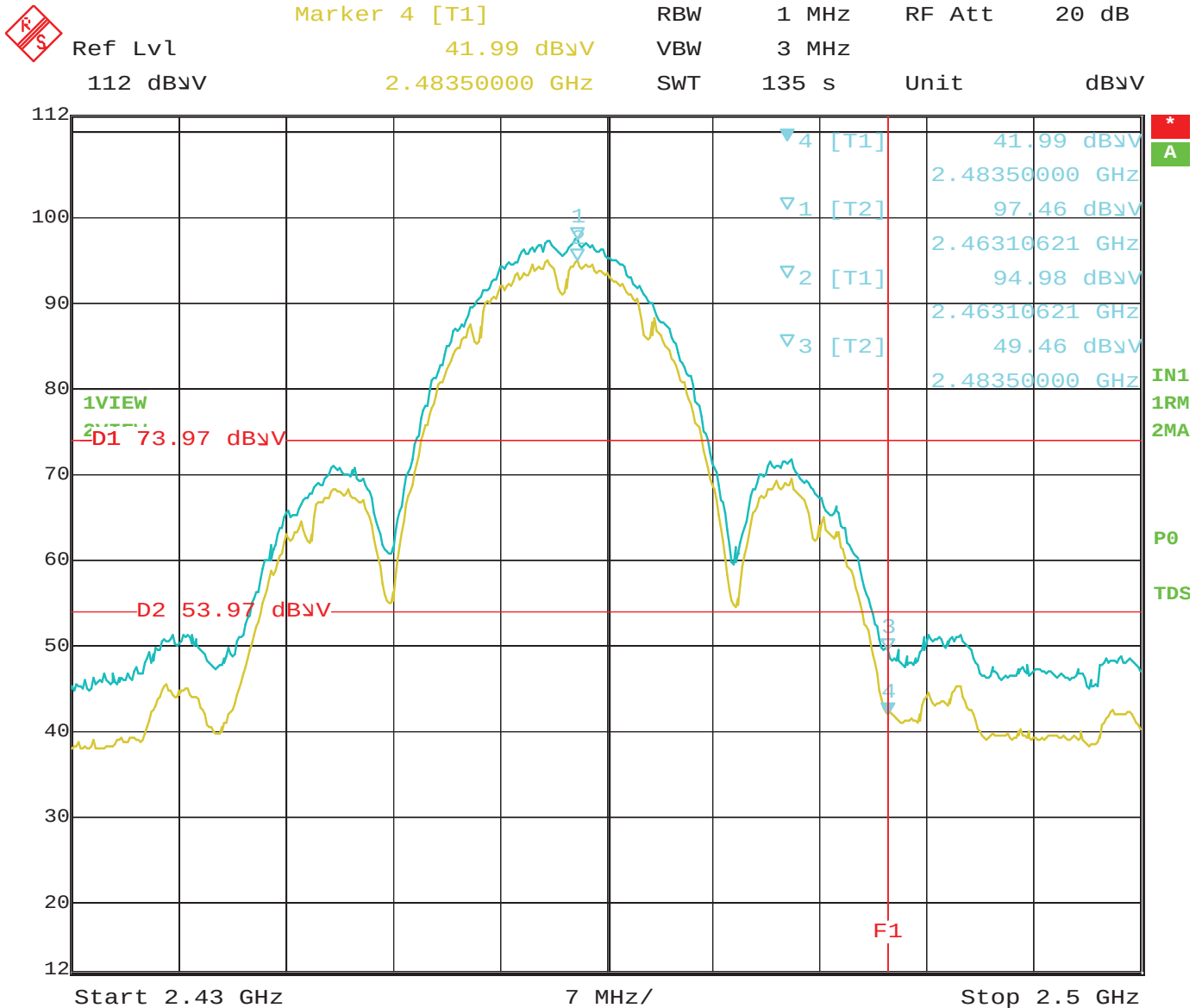
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Band Edges – 2462 MHz – Horizontal Polarization – 802.11 b Mode – X-Axis

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

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

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



Date: 2.AUG.2019 14:17:35

Band Edges – 2462 MHz – Vertical Polarization – 802.11 b Mode – Y-Axis

FCC 15.247

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/02/2019

Lab: D

Tested By: Kyle Fujimoto

Band Edges - 802.11 g**Lower Band Edge - Power Level 9**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2412.00	96.70	H	--	--	Peak	165.25	153.24	Fundamental
2412.00	88.17	H	--	--	Avg	165.25	153.24	X-Axis Worst Case
2390.00	56.31	H	73.97	-17.66	Peak	165.25	153.24	Band Edge
2390.00	43.62	H	53.97	-10.35	Avg	165.25	153.24	X-Axis Worst Case
2412.00	93.21	V	--	--	Peak	191.25	154.26	Fundamental
2412.00	85.72	V	--	--	Avg	191.25	154.26	Y-Axis Worst Case
2390.00	50.67	V	73.97	-23.30	Peak	191.25	154.26	Band Edge
2390.00	36.53	V	53.97	-17.44	Avg	191.25	154.26	Y-Axis Worst Case

FCC 15.247

Nortek Security & Control, LLC

Bridge

Model: MMS100

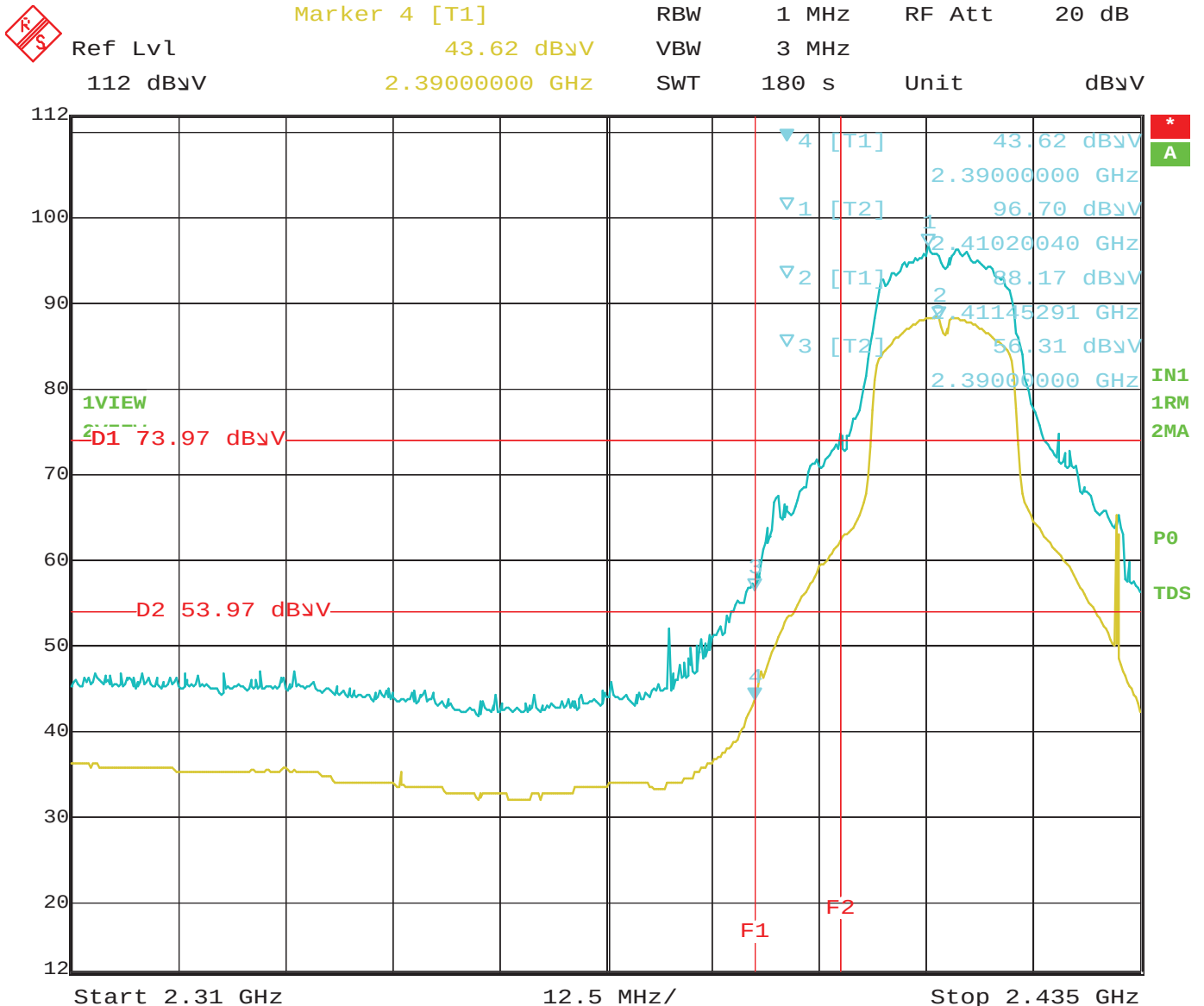
Date: 08/02/2019

Lab: D

Tested By: Kyle Fujimoto

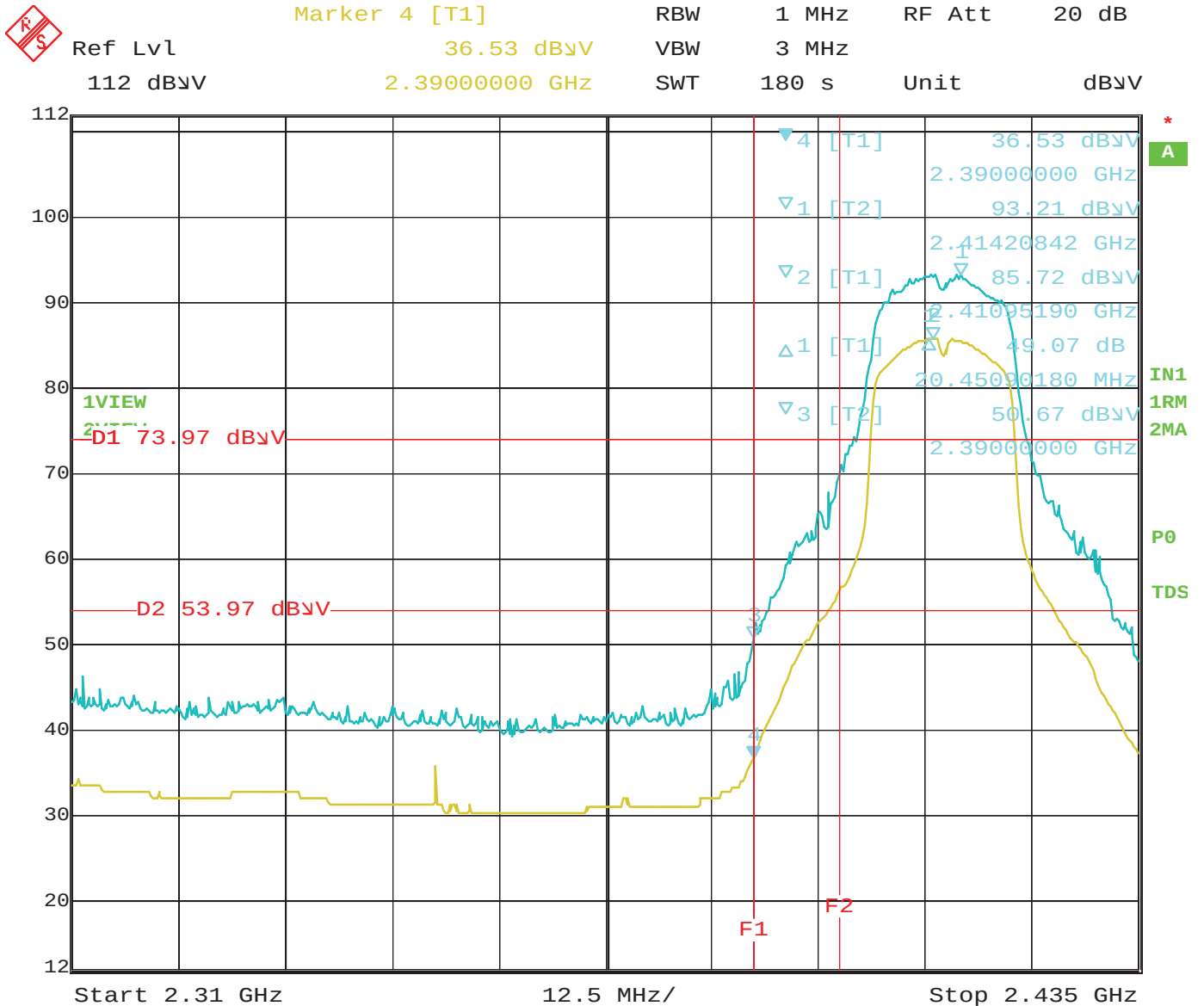
Band Edges - 802.11 g**Lower Band Edge - Power Level 9**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2462.00	97.71	H	--	--	Peak	173.00	155.74	Fundamental
2462.00	89.47	H	--	--	Avg	173.00	155.74	X-Axis Worst Case
2483.50	65.44	H	73.97	-8.53	Peak	173.00	155.74	Band Edge
2483.50	50.60	H	53.97	-3.37	Avg	173.00	155.74	X-Axis Worst Case
2462.00	97.61	V	--	--	Peak	175.00	156.25	Fundamental
2462.00	89.32	V	--	--	Avg	175.00	156.25	Y-Axis Worst Case
2483.50	65.76	V	73.97	-8.21	Peak	175.00	156.25	Band Edge
2483.50	50.24	V	53.97	-3.73	Avg	175.00	156.25	Y-Axis Worst Case



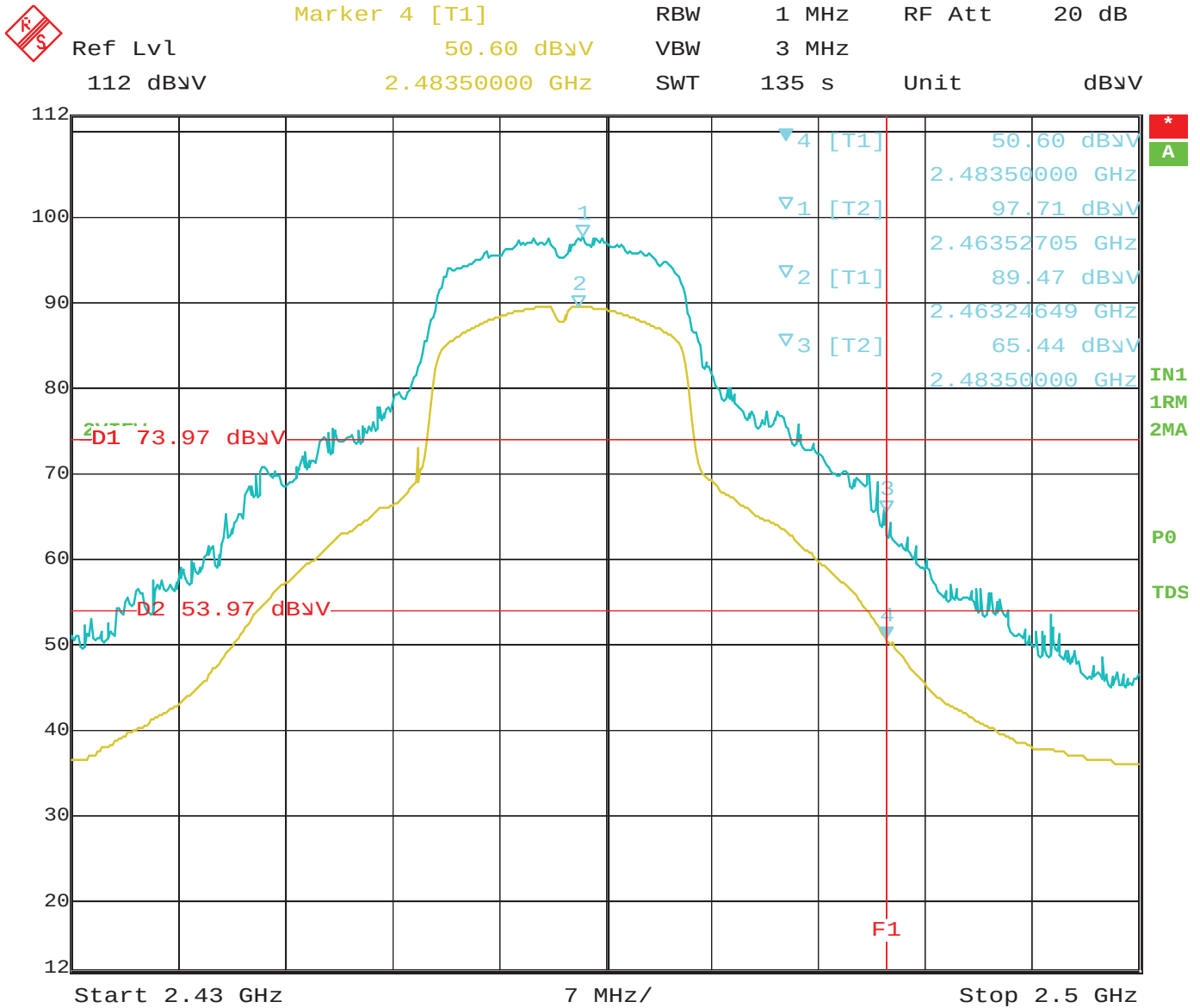
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Band Edges – 2412 MHz – Horizontal Polarization – 802.11 g Mode – X-Axis



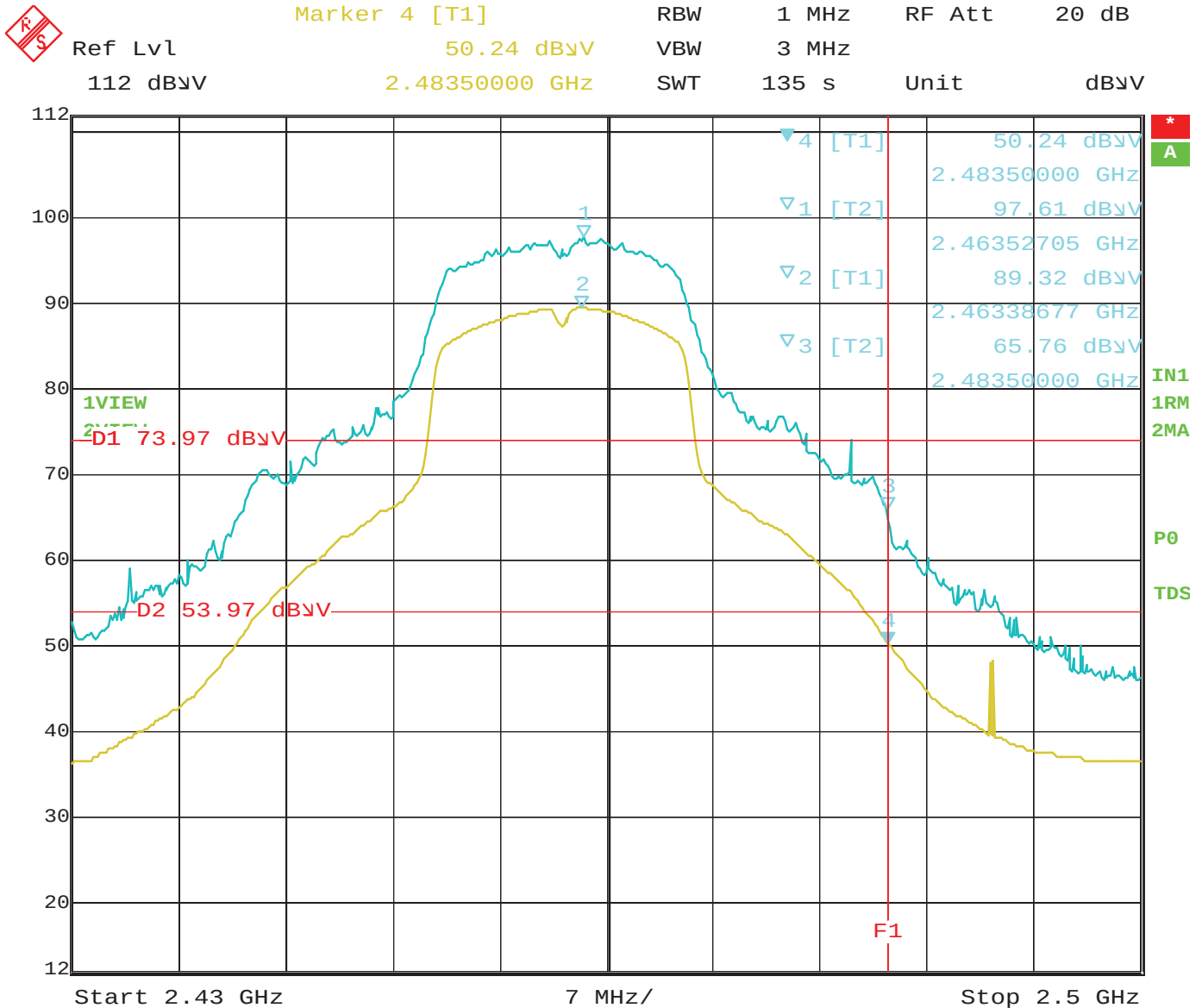
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Band Edges – 2412 MHz – Vertical Polarization – 802.11 g Mode – Y-Axis



Date: 2.AUG.2019 13:25:09

Band Edges – 2462 MHz – Horizontal Polarization – 802.11 g Mode – X-Axis



FCC 15.247

Nortek Security & Control, LLC

Bridge

Model: MMS100

Date: 08/02/2019

Lab: D

Tested By: Kyle Fujimoto

Band Edges - 802.11 n**Lower Band Edge - Power Level 9**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2412.00	95.78	H	--	--	Peak	204.50	158.31	Fundamental
2412.00	87.98	H	--	--	Avg	204.50	158.31	X-Axis Worst Case
2390.00	58.34	H	73.97	-15.63	Peak	204.50	158.31	Band Edge
2390.00	45.92	H	53.97	-8.05	Avg	204.50	158.31	X-Axis Worst Case
2412.00	94.78	V	--	--	Peak	205.50	159.26	Fundamental
2412.00	86.80	V	--	--	Avg	205.50	159.26	Y-Axis Worst Case
2390.00	55.16	V	73.97	-18.81	Peak	206.50	160.25	Band Edge
2390.00	44.02	V	53.97	-9.95	Avg	206.50	160.25	Y-Axis Worst Case

FCC 15.247

Nortek Security & Control, LLC

Bridge

Model: MMS100

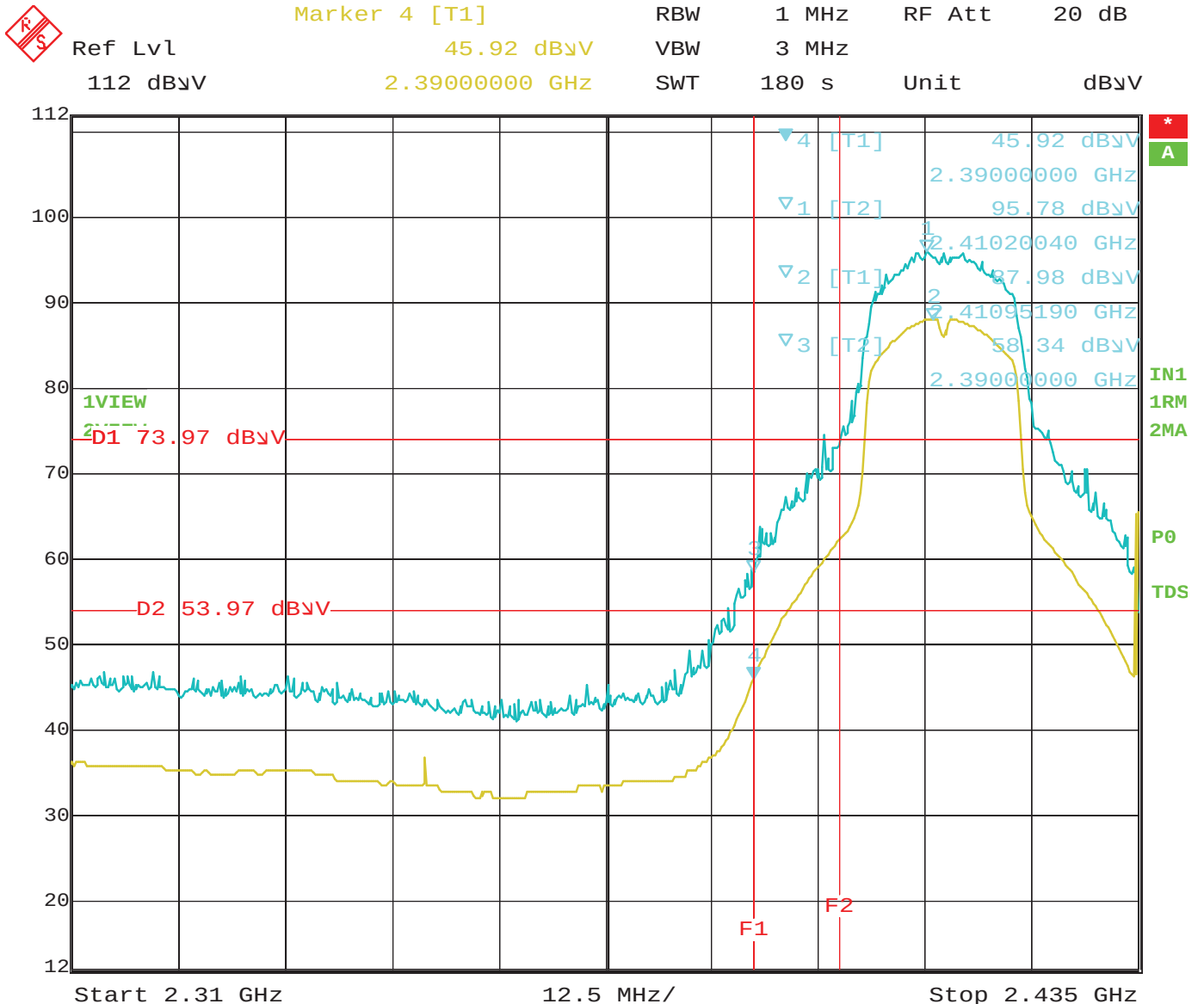
Date: 08/02/2019

Lab: D

Tested By: Kyle Fujimoto

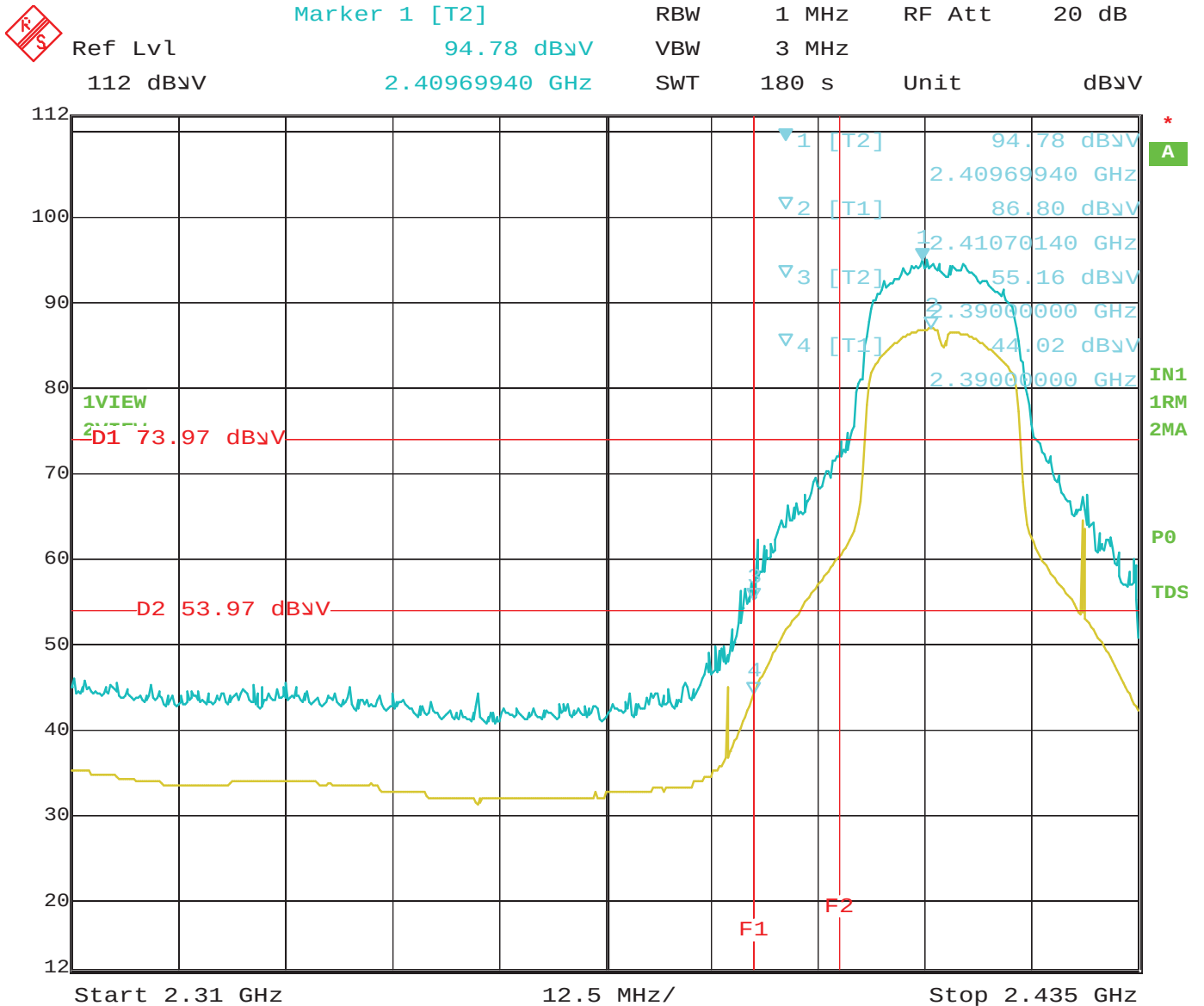
Band Edges - 802.11 n**Upper Band Edge - Power Level 9**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2462.00	97.89	H	--	--	Peak	175.00	167.14	Fundamental
2462.00	89.08	H	--	--	Avg	175.00	167.14	X-Axis Worst Case
2483.50	67.17	H	73.97	-6.80	Peak	175.00	167.14	Band Edge
2483.50	52.01	H	53.97	-1.96	Avg	175.00	167.14	X-Axis Worst Case
2462.00	96.98	V	--	--	Peak	176.00	170.25	Fundamental
2462.00	88.87	V	--	--	Avg	176.00	170.25	Y-Axis Worst Case
2483.50	63.95	V	73.97	-10.02	Peak	176.00	170.25	Band Edge
2483.50	51.54	V	53.97	-2.43	Avg	176.00	170.25	Y-Axis Worst Case



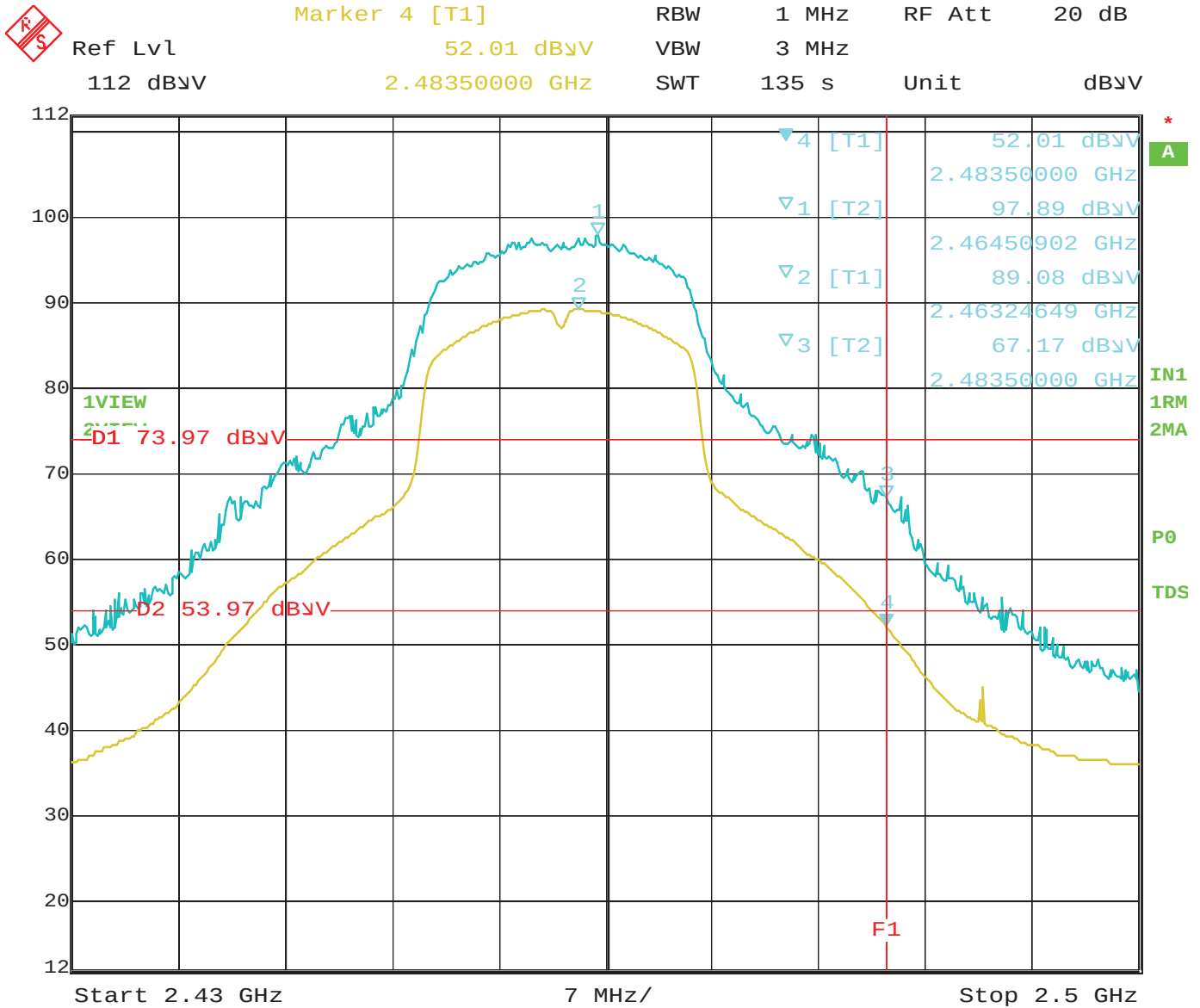
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Band Edges – 2412 MHz – Horizontal Polarization – 802.11 n Mode – X-Axis



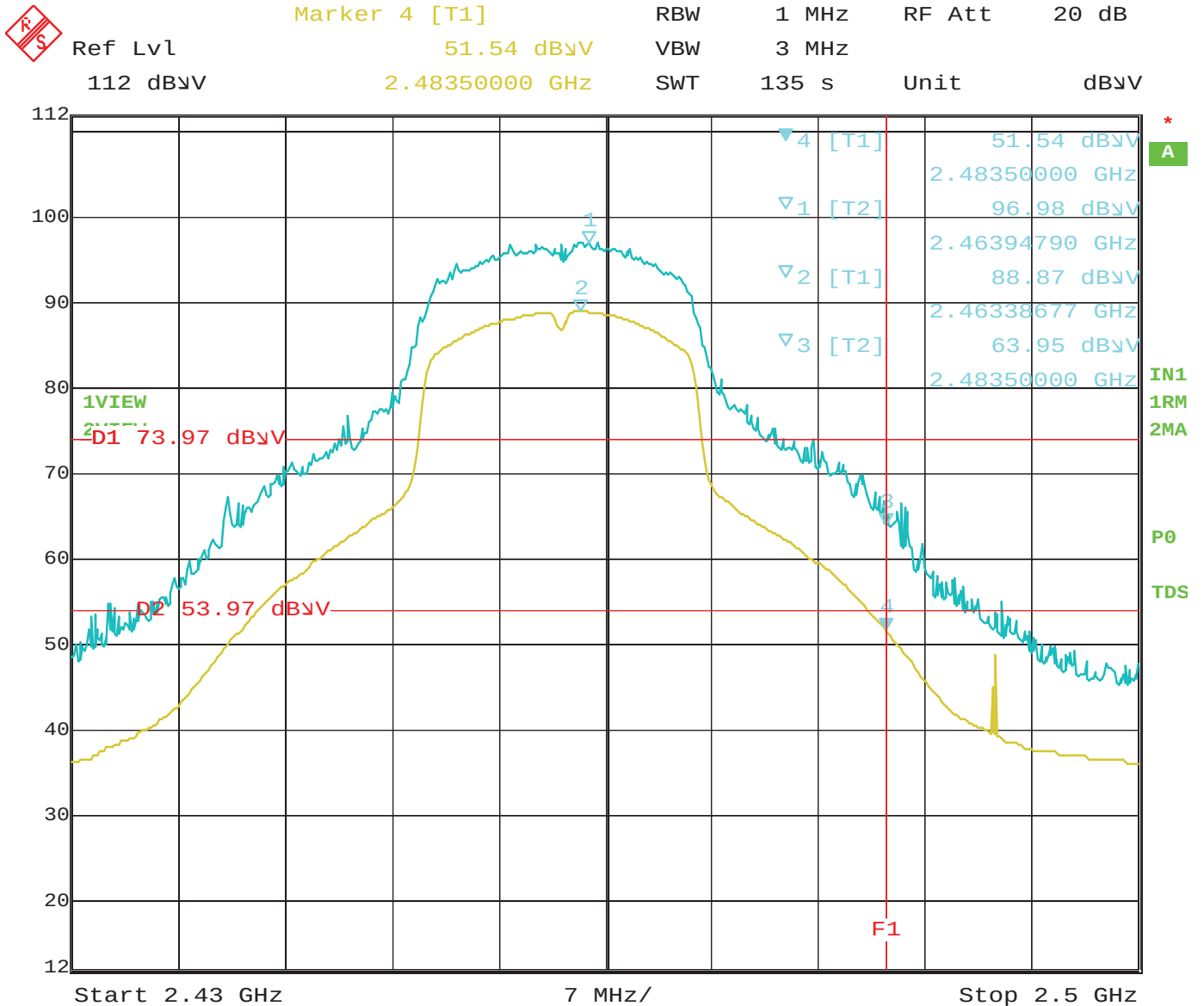
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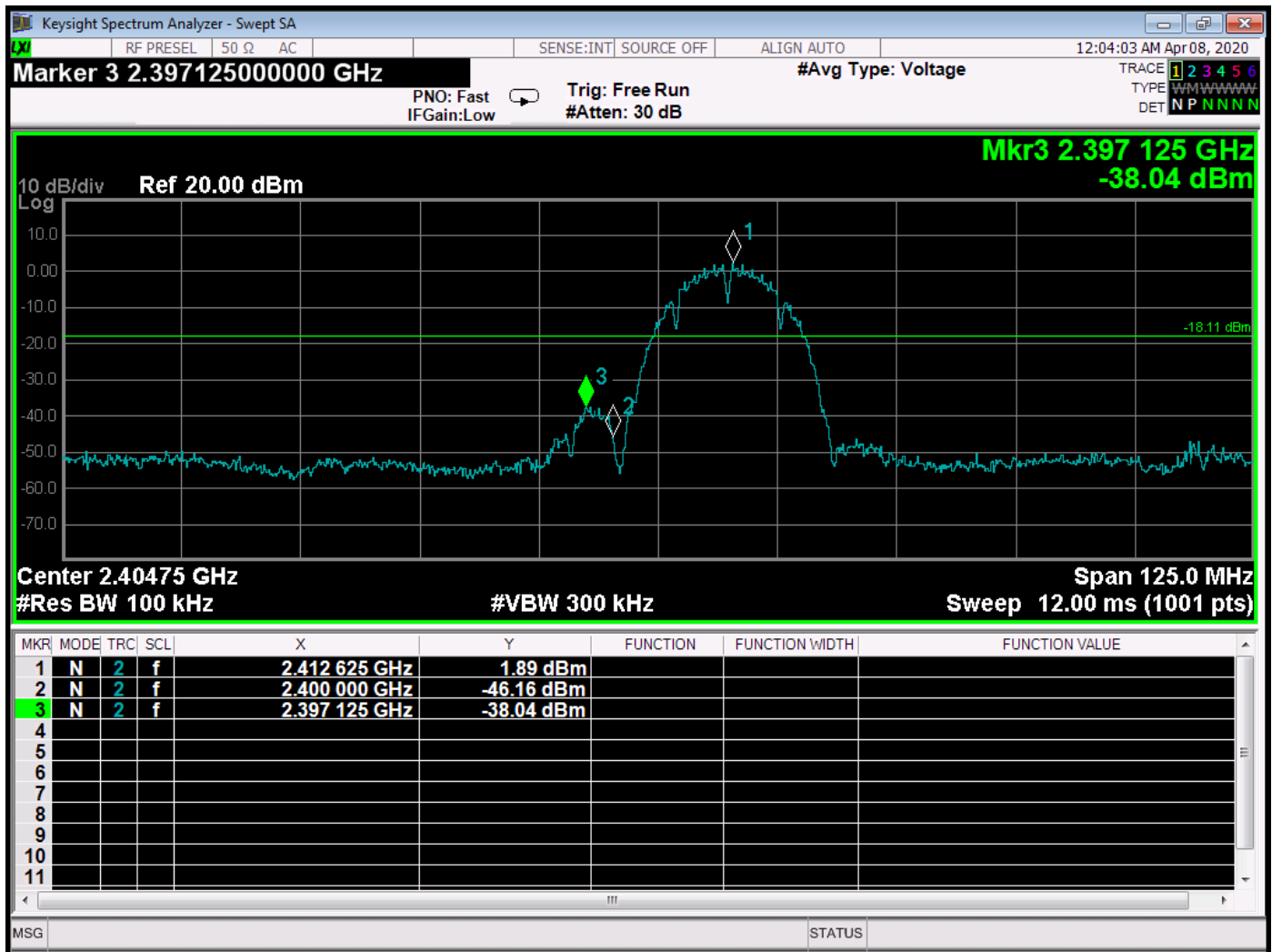
Band Edges – 2412 MHz – Vertical Polarization – 802.11 n Mode – Y-Axis



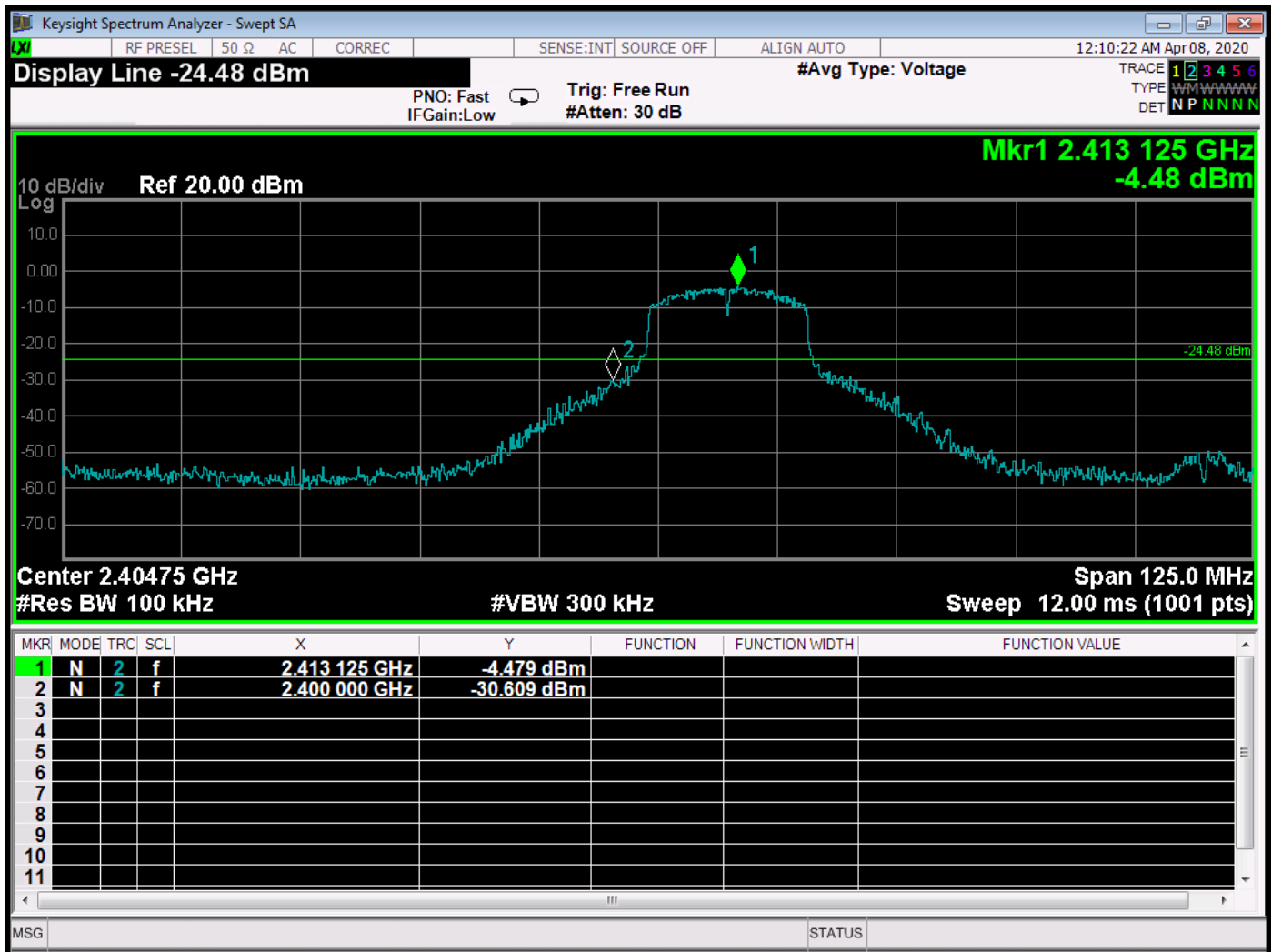
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Band Edges – 2462 MHz – Horizontal Polarization – 802.11 n Mode – X-Axis

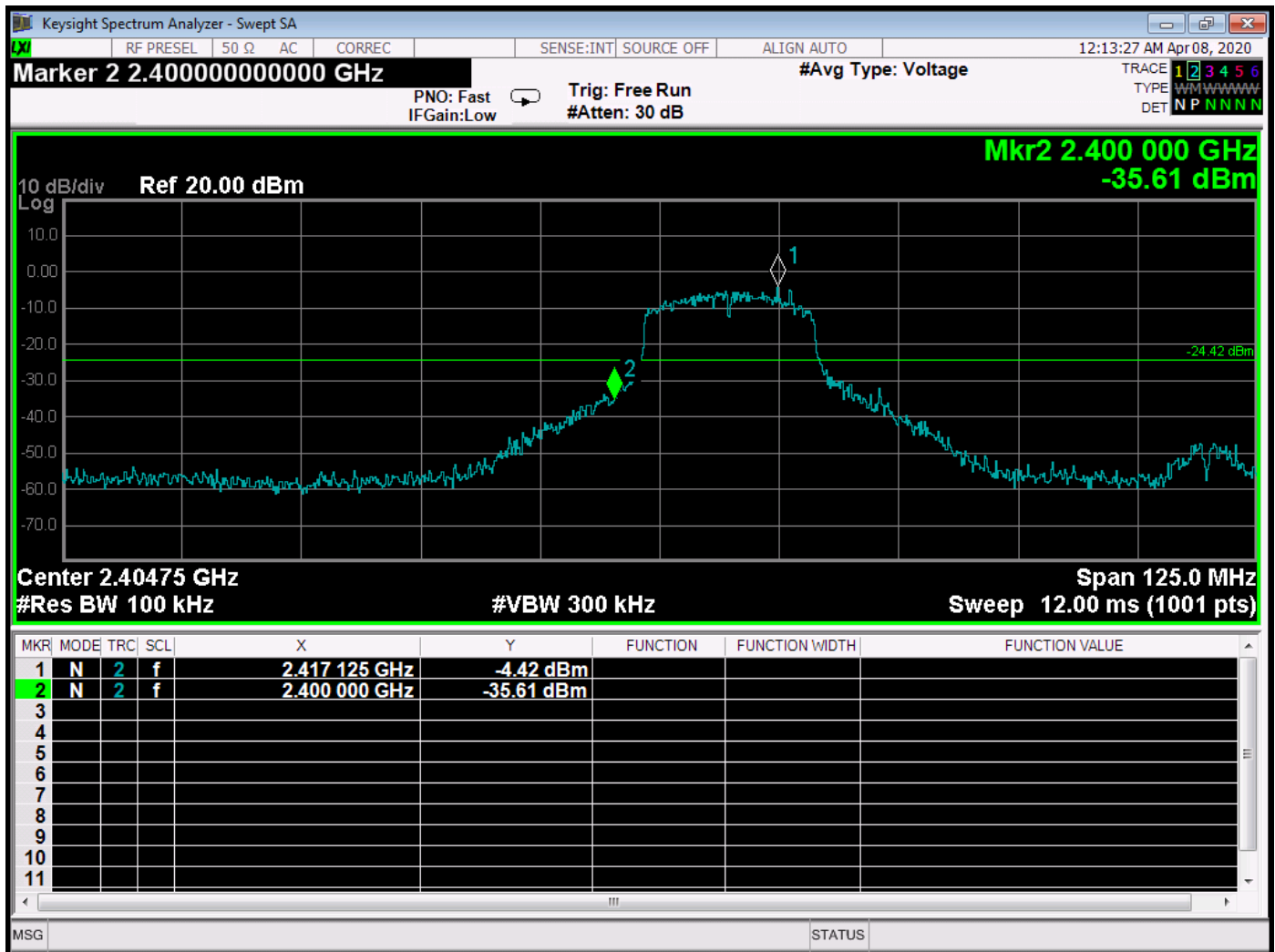




Band Edge at 2400 MHz – 802.11 b Mode – Low Channel

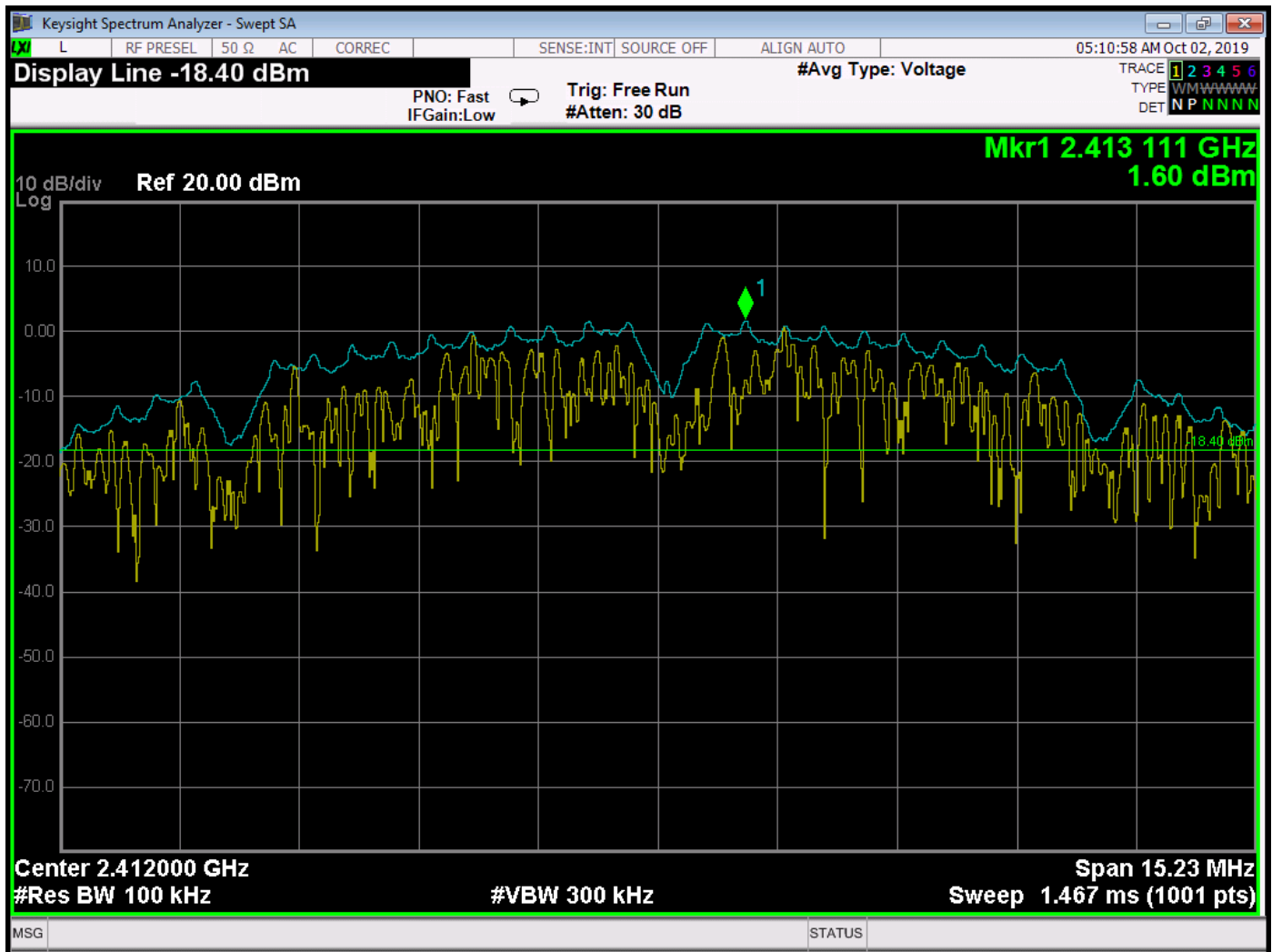


Band Edge at 2400 MHz – 802.11 g Mode – Low Channel

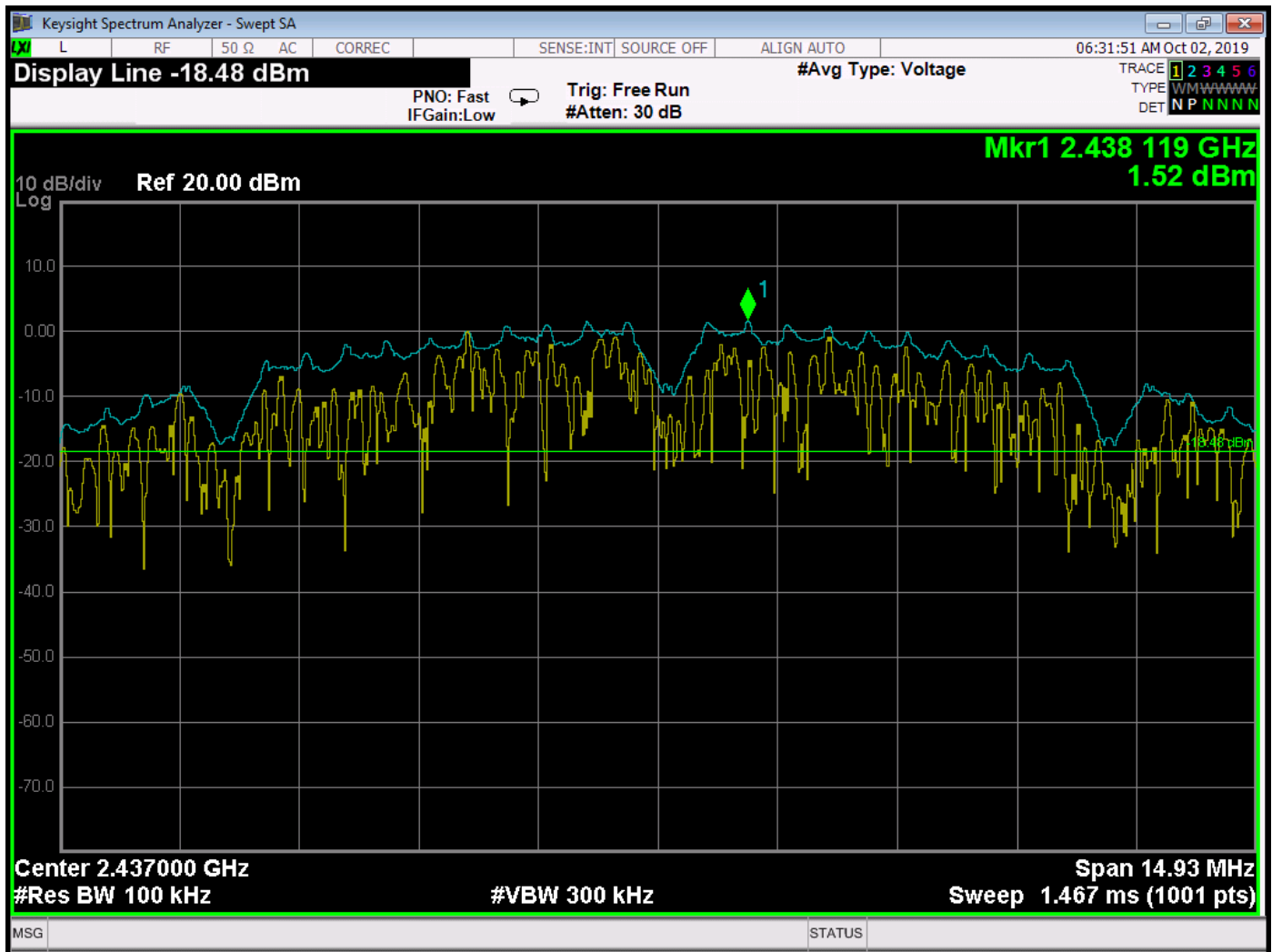


Band Edge at 2400 MHz – 802.11 n Mode – Low Channel

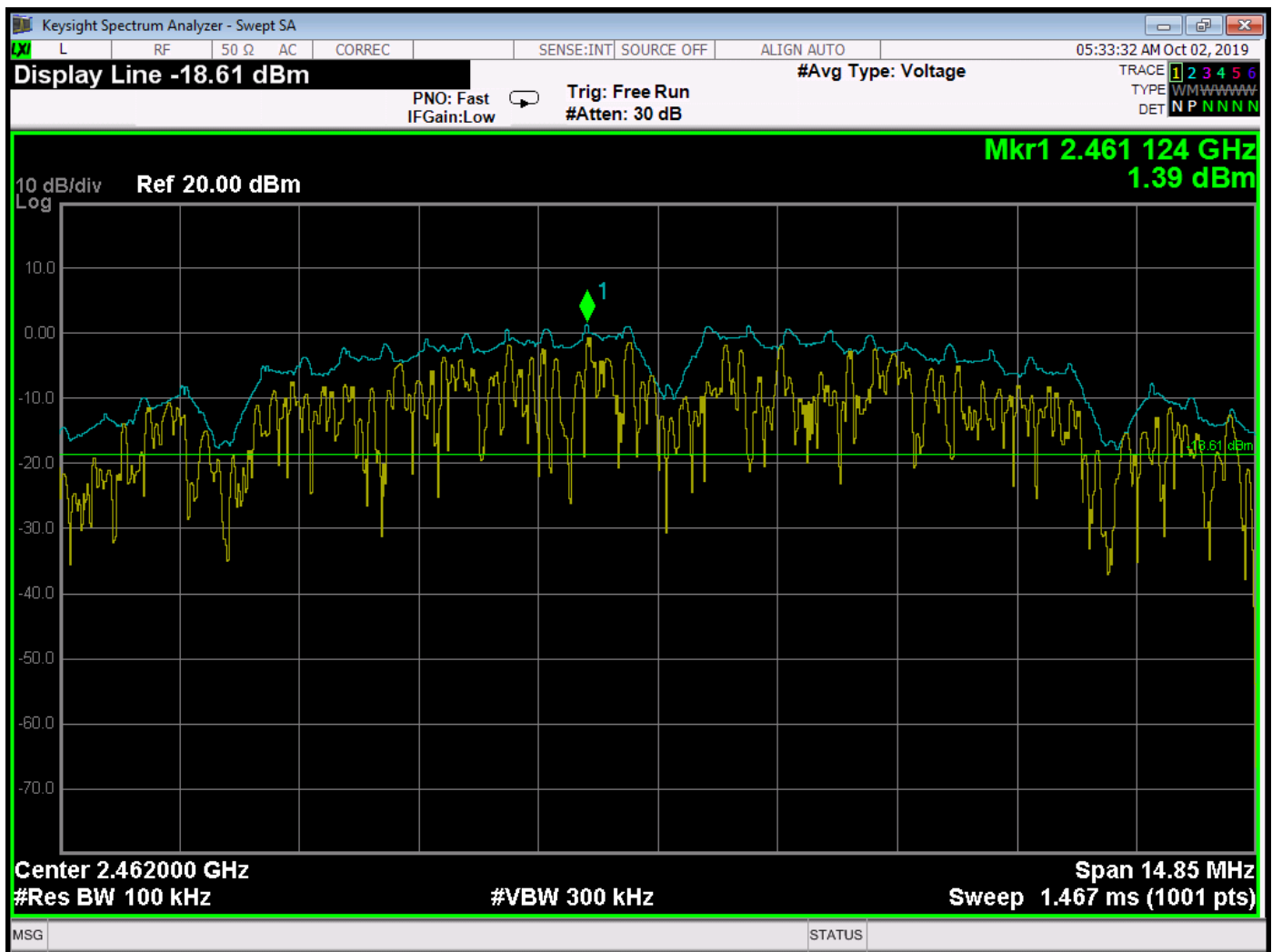
**EMISSIONS IN
NON-RESRTICTED BANDS
*DATA SHEETS***



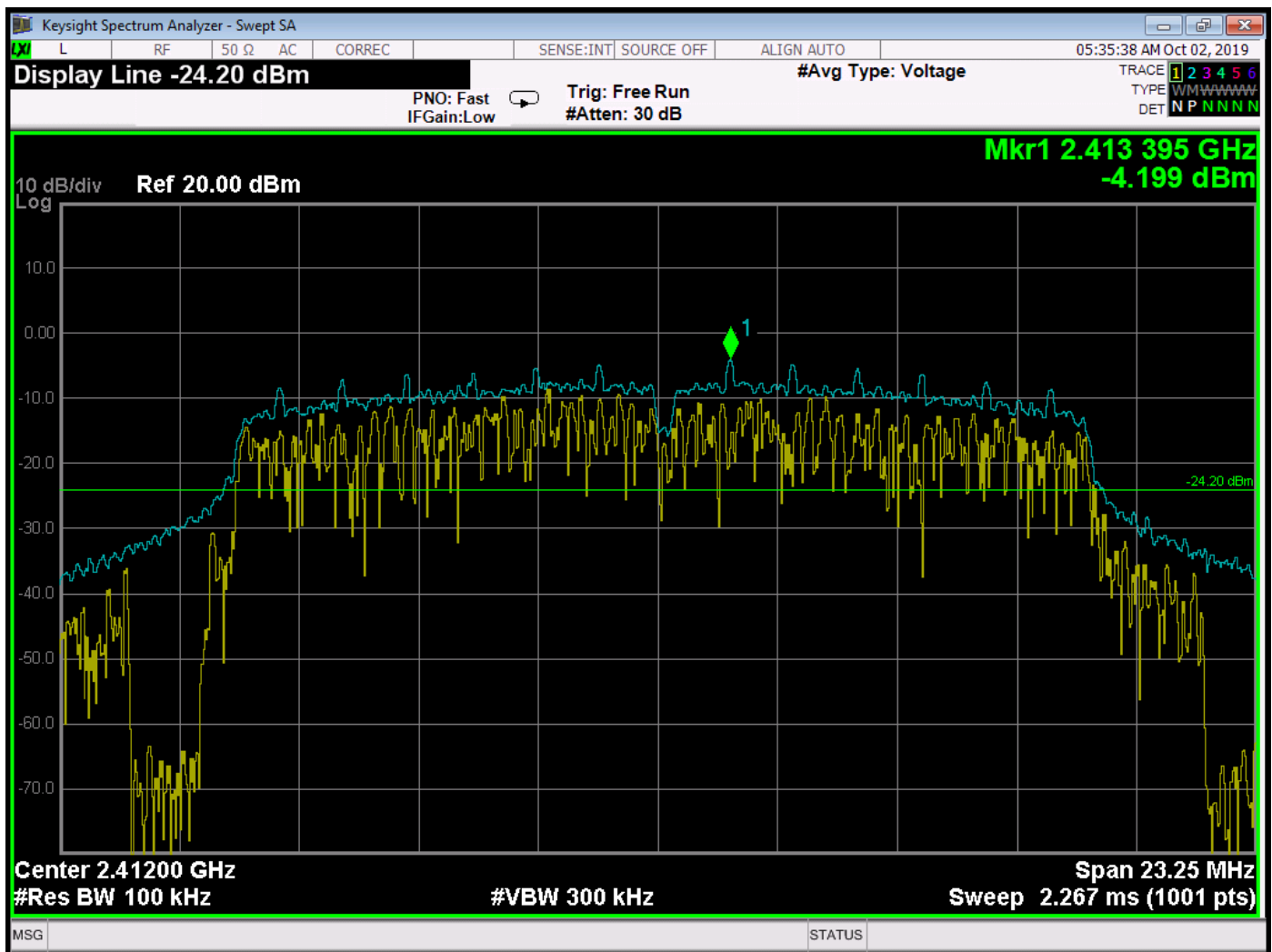
RF Antenna Conducted – Reference Level – 2412 MHz – 802.11 b Mode



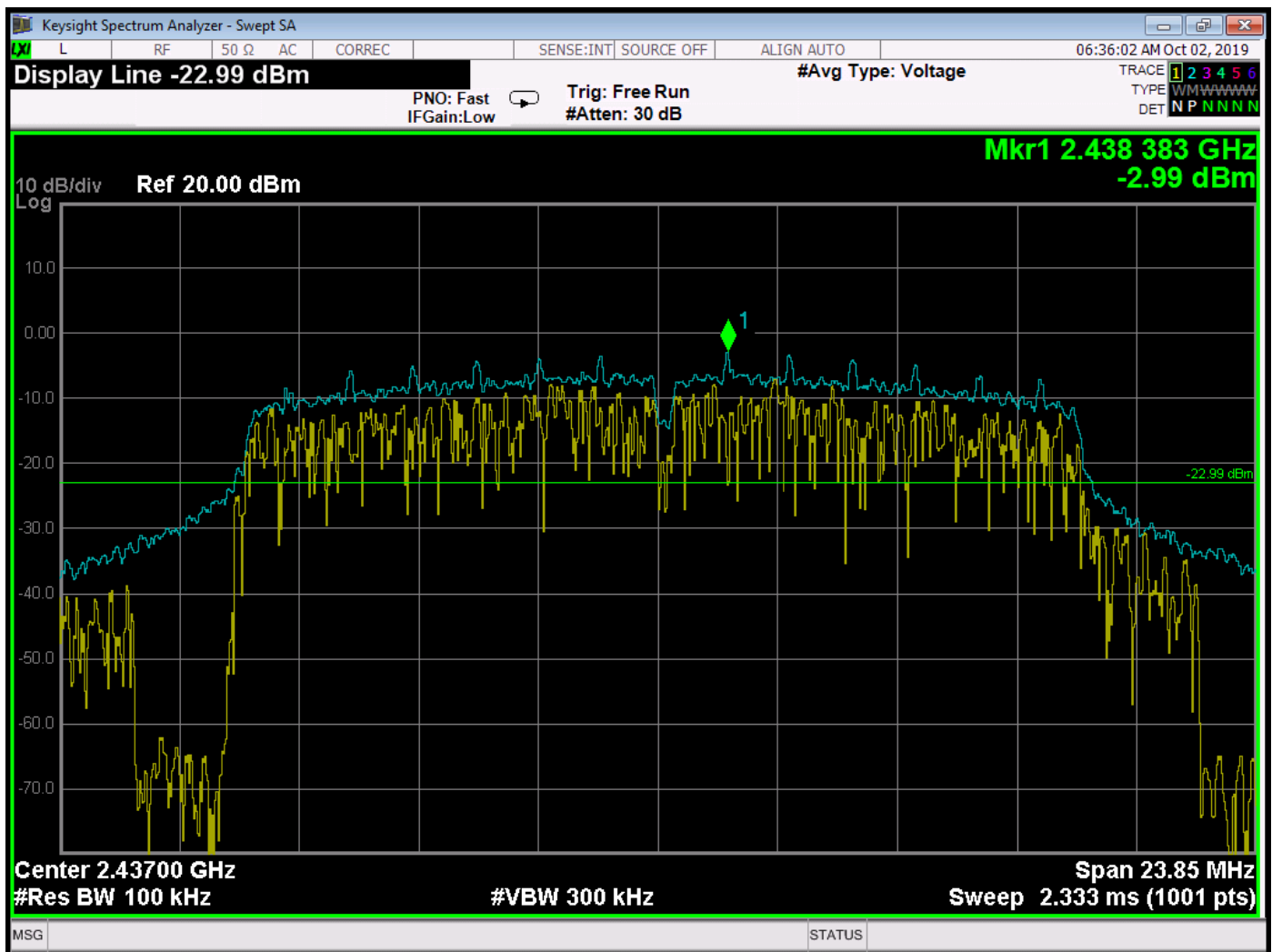
RF Antenna Conducted – Reference Level – 2437 MHz – 802.11 b Mode



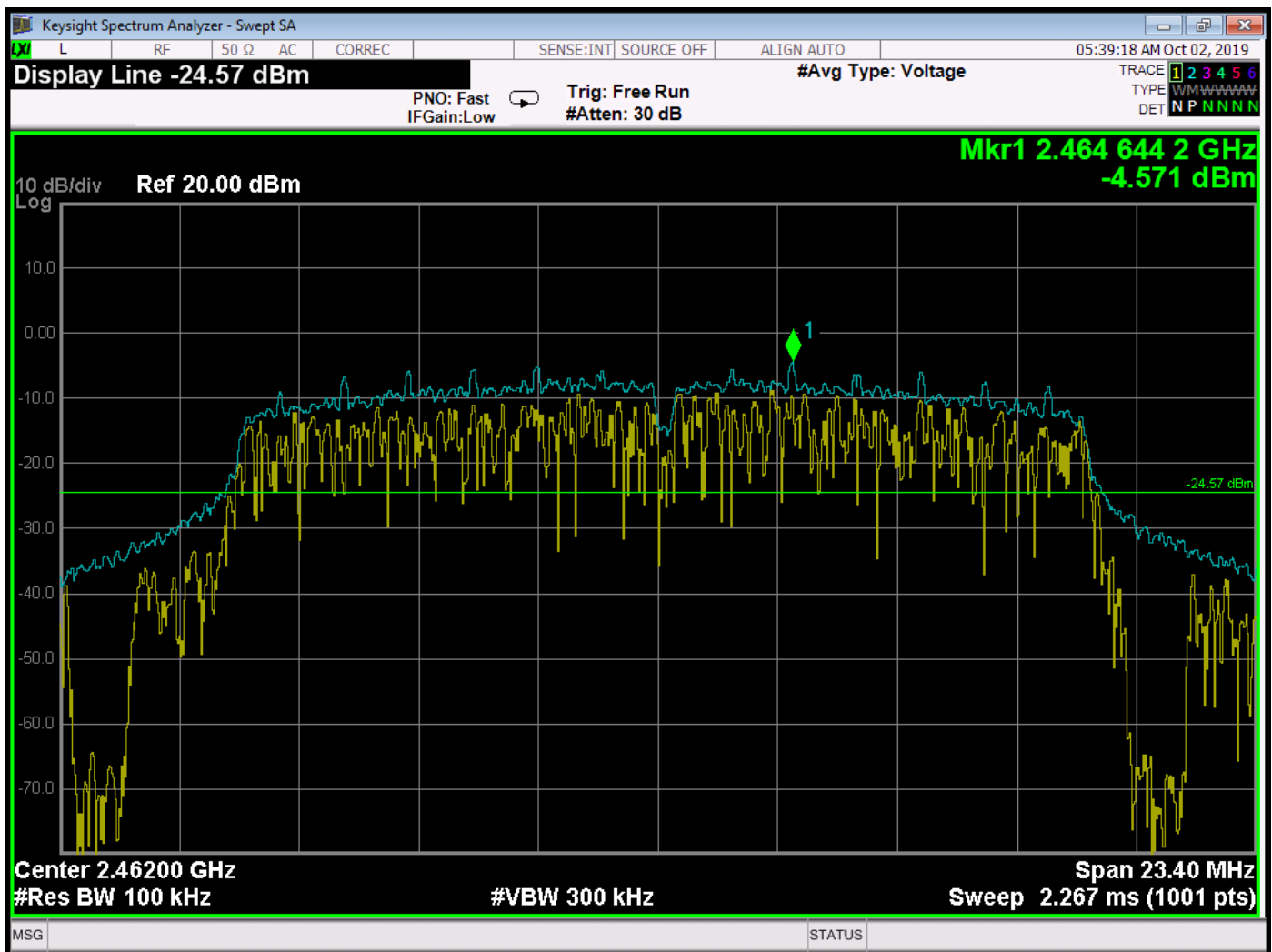
Antenna Conducted – Reference Level – 2462 MHz – 802.11 b Mode



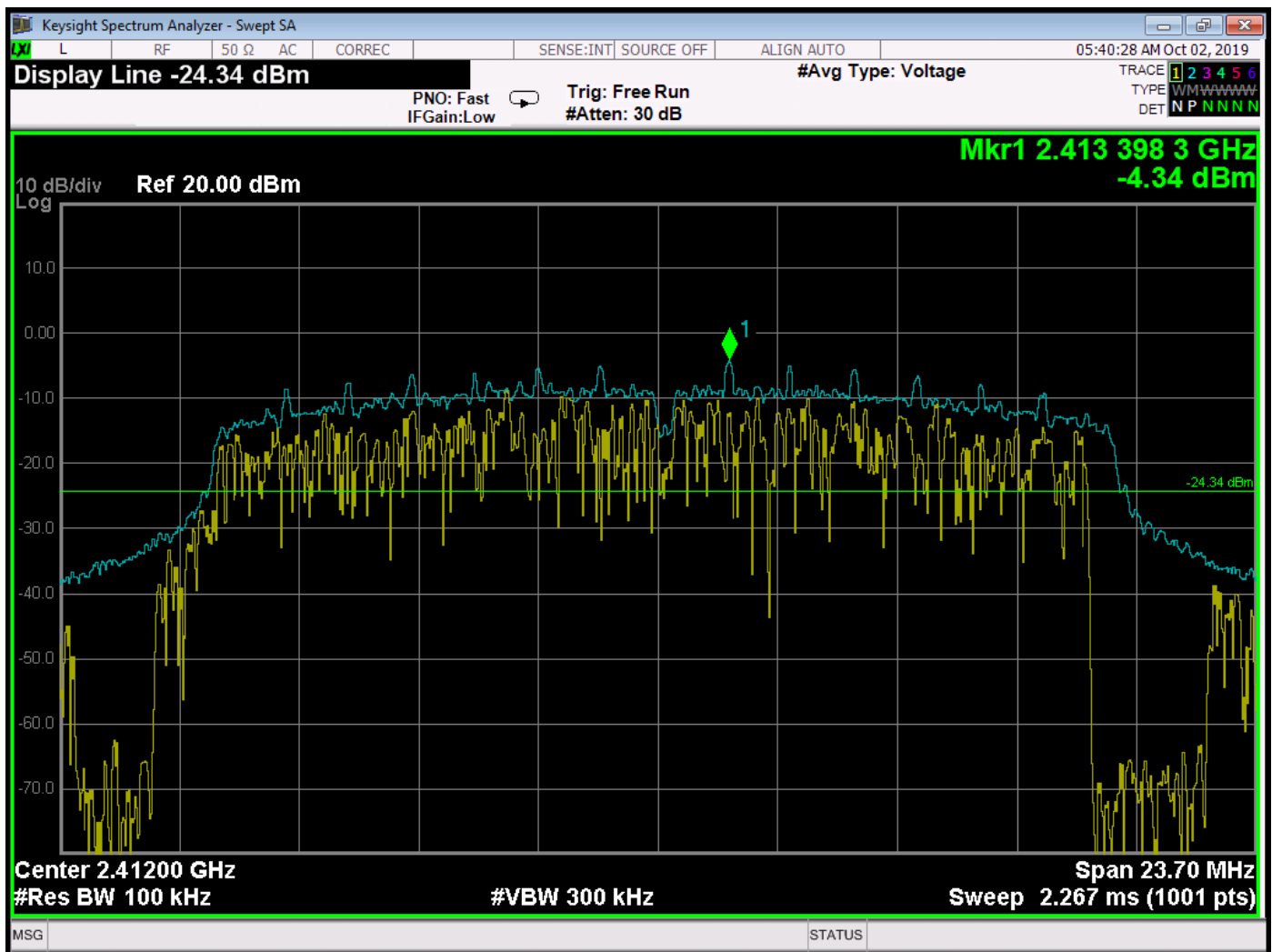
RF Antenna Conducted – Reference Level – 2412 MHz – 802.11 g Mode



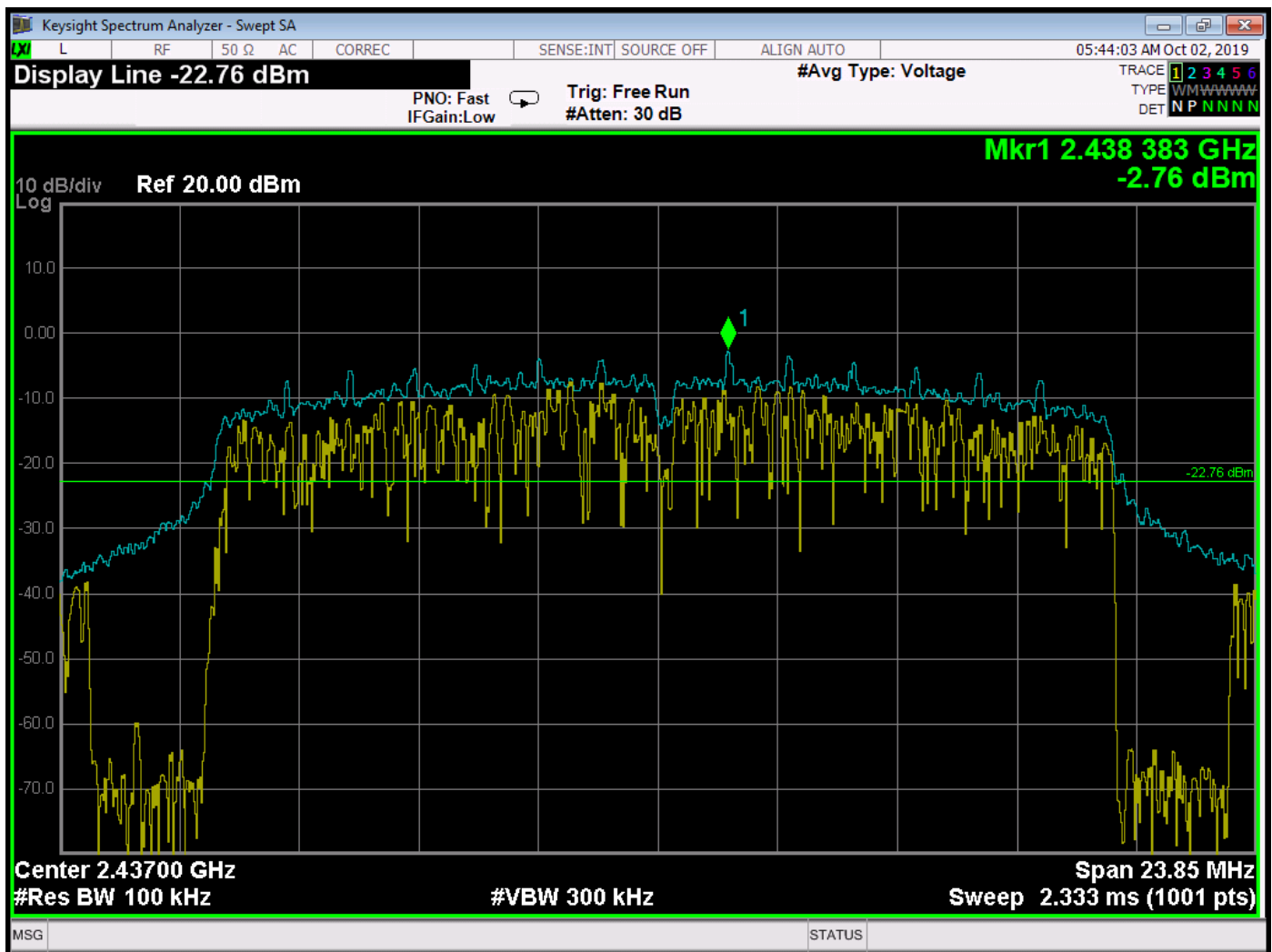
RF Antenna Conducted – Reference Level – 2437 MHz – 802.11 g Mode



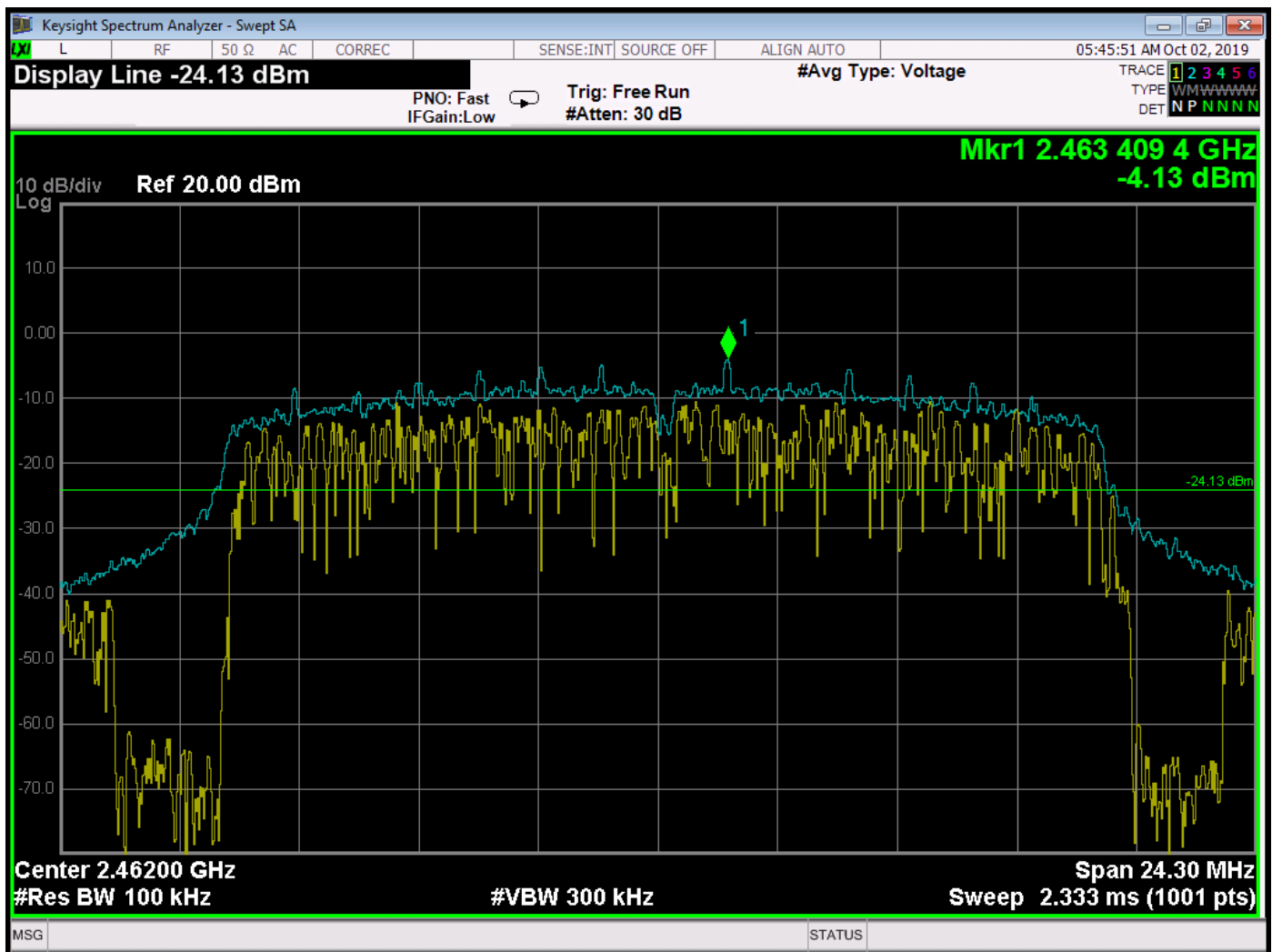
RF Antenna Conducted – Reference Level – 2462 MHz – 802.11 g Mode



RF Antenna Conducted – Reference Level – 2412 MHz – 802.11 n Mode



RF Antenna Conducted – Reference Level – 2437 MHz – 802.11 n Mode



RF Antenna Conducted – Reference Level – 2462 MHz – 802.11 n Mode

NORTEK SECURITY & CONTROL, LLC**BRIDGE****MODEL: MMS100****EMISSIONS IN NON-RESTRICTED BANDS****802.11 b Mode**

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
6562	-38.879	-18.40	-20.479
6499	-38.906	-18.40	-20.506
6430	-46.045	-18.40	-27.645

Note: The three highest non-restricted emissions are reported.

*The Limit is based on 20 dB below the highest reference level obtained on the previous pages per section 11.11.2 of ANSI C63.10.

The channel found to have the maximum level can be used to determine the reference level

NORTEK SECURITY & CONTROL, LLC**BRIDGE****MODEL: MMS100****EMISSIONS IN NON-RESTRICTED BANDS****802.11 g Mode**

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
6499	-41.365	-22.99	-18.375
6562	-42.217	-22.99	-19.227
6436	-52.640	-22.99	-31.650

Note: The three highest non-restricted emissions are reported.

*The Limit is based on 20 dB below the highest reference level obtained on the previous pages per section 11.11.2 of ANSI C63.10.

The channel found to have the maximum level can be used to determine the reference level

NORTEK SECURITY & CONTROL, LLC**BRIDGE****MODEL: MMS100****EMISSIONS IN NON-RESTRICTED BANDS****802.11 n Mode**

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
6499	-41.532	-22.76	-18.772
6562	-42.278	-22.76	-19.518
6436	-52.771	-22.76	-30.011

Note: The three highest non-restricted emissions are reported.

*The Limit is based on 20 dB below the highest reference level obtained on the previous pages
per section 11.11.2 of ANSI C63.10.

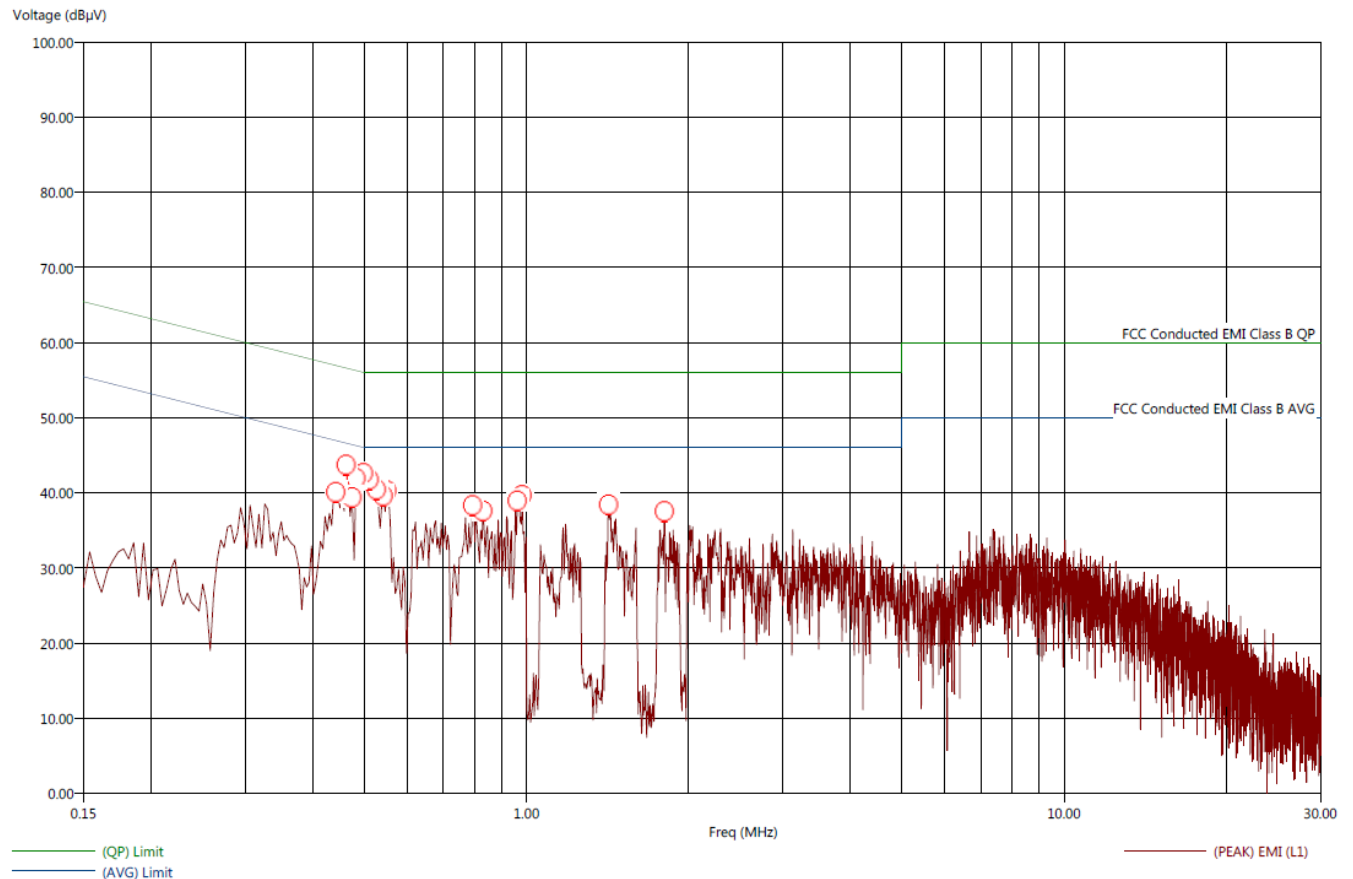
The channel found to have the maximum level can be used to determine the reference level

***CONDUCTED EMISSIONS
DATA SHEETS***

Title: FCC-B - Conducted Emissions - Black Lead
File: 1 - Keysight - Pre-Scan - 802.11b - Black Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11b - Channel 11

10/16/2019 3:33:17 PM
Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - Black Lead



Title: FCC-B - Conducted Emissions - Black Lead

File: 1 - Keysight - Final Scan - 802.11b - Black Lead - FCC-B.set

Operator: Harvey Samaco

EUT Type: Bridge

EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on

Company: Nortek Security & Control, LLC

Model: MMS100

S/N: N/A

802.11b - Channel 11

10/16/2019 3:35:07 PM

Sequence: Final Measurements

FCC Class B - Conducted Emissions - Black Lead

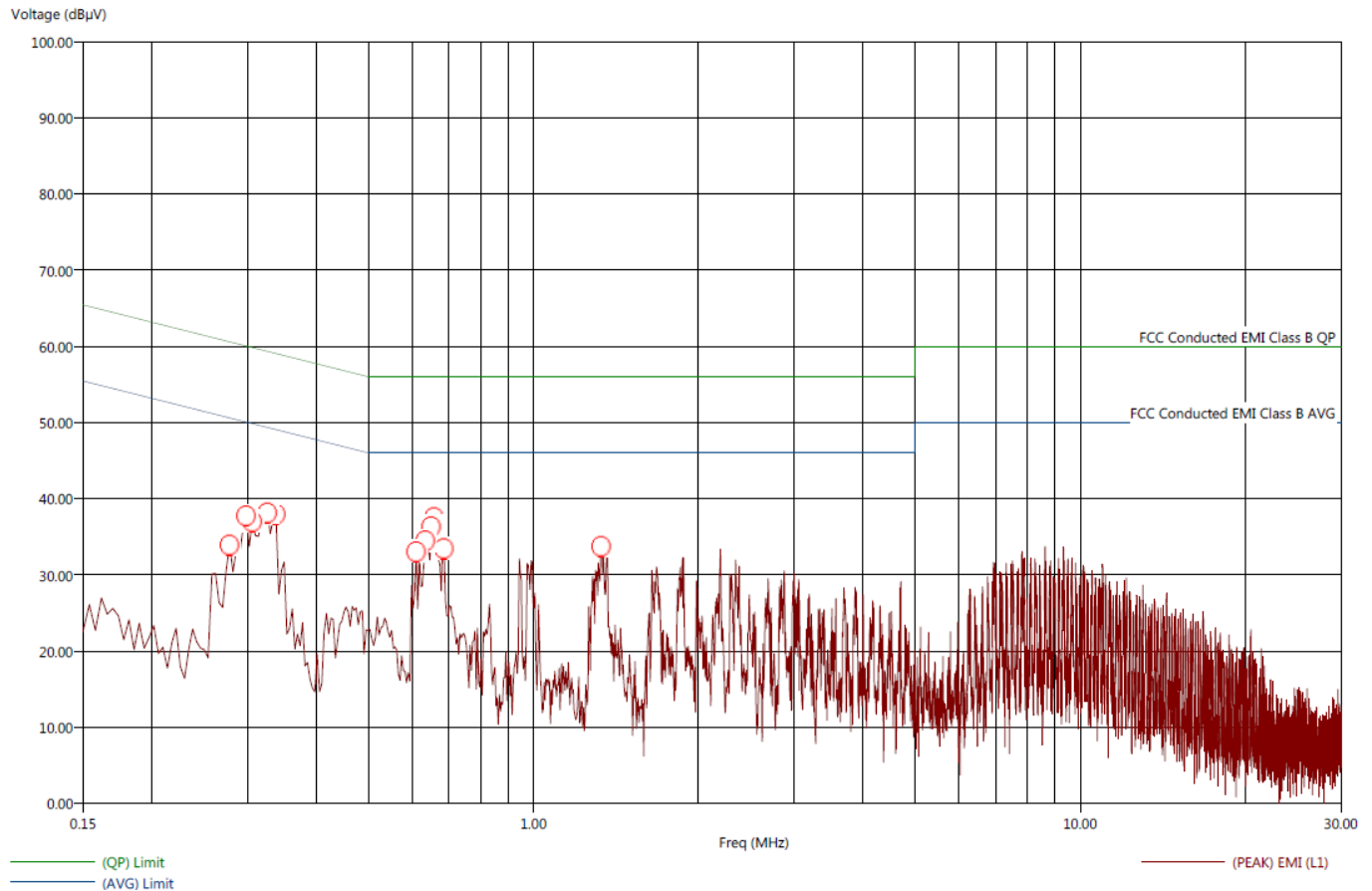
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.442	43.97	30.40	-2.70	-16.27	46.67	0.09	0.02	9.71
0.462	43.77	29.79	-3.05	-17.03	46.82	0.09	0.02	9.71
0.474	45.38	30.53	-1.02	-15.87	46.40	0.09	0.02	9.71
0.482	45.60	30.27	-0.56	-15.89	46.16	0.10	0.02	9.70
0.498	45.93	30.26	-0.07	-15.74	46.00	0.10	0.02	9.70
0.510	49.20	33.41	3.20	-12.59	46.00	0.09	0.02	9.72
0.526	46.08	30.38	0.08	-15.62	46.00	0.09	0.02	9.71
0.542	46.83	31.93	0.83	-14.07	46.00	0.08	0.02	9.73
0.550	49.16	34.50	3.16	-11.50	46.00	0.09	0.02	9.73
0.794	41.81	27.73	-4.19	-18.27	46.00	0.03	0.02	9.84
0.830	42.01	27.12	-3.99	-18.88	46.00	0.03	0.02	9.84
0.962	40.89	26.18	-5.11	-19.82	46.00	0.01	0.02	9.88
0.982	40.81	26.13	-5.19	-19.87	46.00	0.01	0.02	9.89
1.422	38.82	23.97	-7.18	-22.03	46.00	0.05	0.02	9.85
1.806	36.92	23.30	-9.08	-22.70	46.00	0.09	0.02	9.81



Title: FCC-B - Conducted Emissions - White Lead
File: 1 - Keysight - Pre-Scan - 802.11b - White Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11b - Channel 11

10/16/2019 3:38:30 PM
Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - White Lead



Title: FCC-B - Conducted Emissions - White Lead
File: 1 - Keysight - Final Scan - 802.11b - White Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11b - Channel 11

10/16/2019 3:40:19 PM
Sequence: Final Measurements

FCC Class B - Conducted Emissions - White Lead

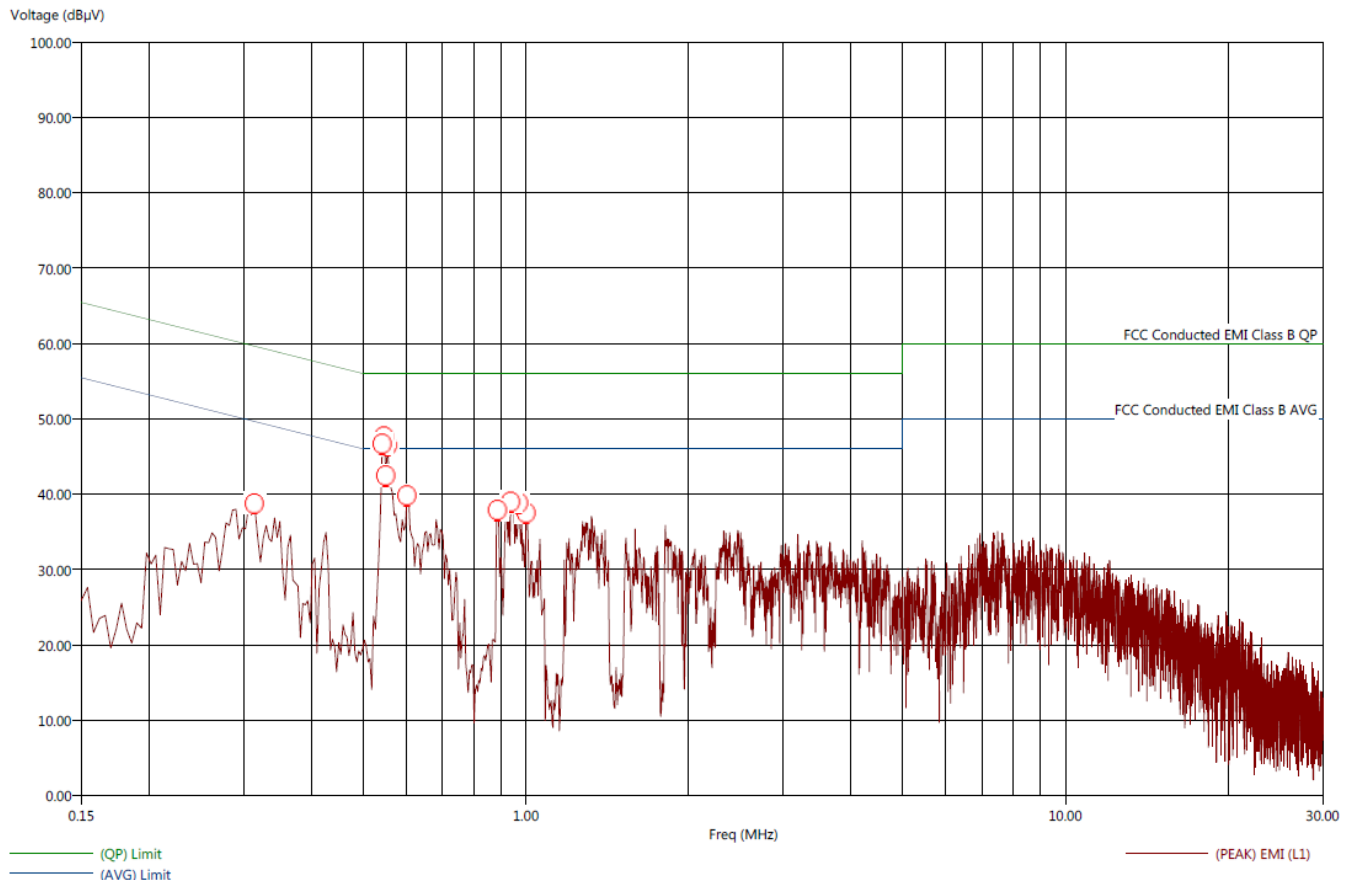
Freq (MHz)	(PEAK) EMI (dBμV)	(AVG) EMI (dBμV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBμV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.278	40.00	21.47	-10.38	-28.91	50.38	0.04	0.04	9.76
0.298	40.12	21.87	-9.93	-28.18	50.05	0.04	0.04	9.76
0.306	39.58	22.21	-10.31	-27.68	49.89	0.05	0.04	9.75
0.326	40.37	22.69	-9.01	-26.69	49.38	0.05	0.04	9.75
0.338	40.76	22.16	-8.45	-27.05	49.21	0.06	0.04	9.74
0.610	39.55	14.90	-6.45	-31.10	46.00	0.08	0.04	9.75
0.634	37.25	17.40	-8.75	-28.60	46.00	0.06	0.04	9.77
0.650	38.48	17.78	-7.52	-28.22	46.00	0.06	0.04	9.77
0.654	38.26	20.12	-7.74	-25.88	46.00	0.06	0.04	9.79
0.658	38.96	20.31	-7.04	-25.69	46.00	0.05	0.04	9.79
0.686	38.28	20.86	-7.72	-25.14	46.00	0.05	0.04	9.80
1.330	34.90	17.57	-11.10	-28.43	46.00	0.04	0.04	9.86



Title: FCC-B - Conducted Emissions - Black Lead
File: 2 - Keysight - Pre-Scan - Black Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11g - Channel 11

10/16/2019 3:13:49 PM
Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - Black Lead



Title: FCC-B - Conducted Emissions - Black Lead
File: 2 - Keysight - Final Scan - Black Lead - FCC-B.set
Operator: Harvey Samaco

10/16/2019 3:17:46 PM
Sequence: Final Measurements

EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11g - Channel 11

FCC Class B - Conducted Emissions - Black Lead

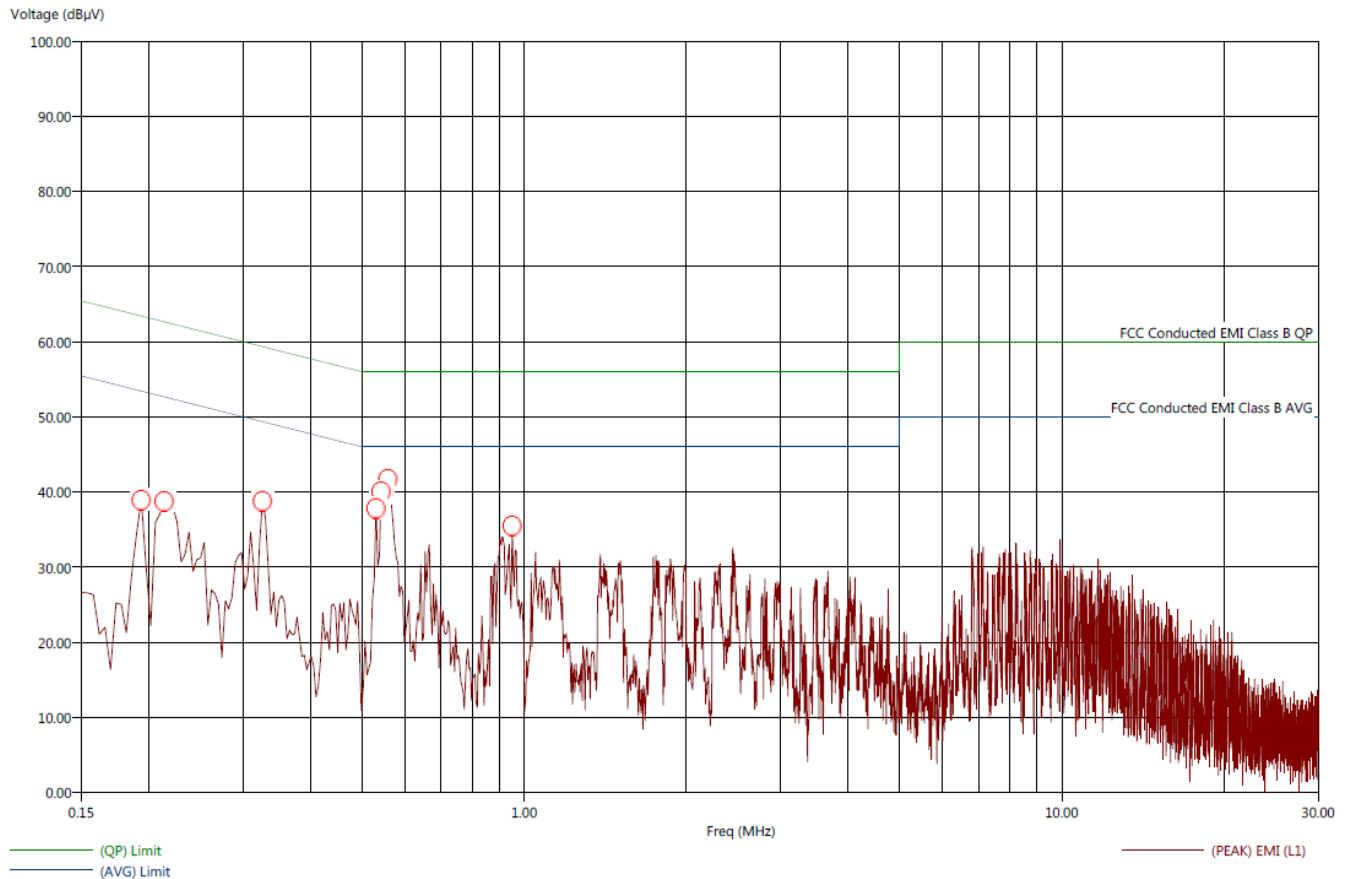
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.314	40.08	26.89	-9.80	-22.99	49.88	0.05	0.02	9.75
0.542	49.60	34.61	3.60	-11.39	46.00	0.09	0.02	9.73
0.546	49.28	34.38	3.28	-11.62	46.00	0.09	0.02	9.73
0.550	48.47	34.48	2.47	-11.52	46.00	0.09	0.02	9.73
0.554	49.30	34.09	3.30	-11.91	46.00	0.09	0.02	9.72
0.602	38.84	20.76	-7.16	-25.24	46.00	0.07	0.02	9.76
0.886	42.77	27.12	-3.23	-18.88	46.00	0.02	0.02	9.86
0.938	41.02	25.83	-4.98	-20.17	46.00	0.01	0.02	9.88
0.970	40.25	25.18	-5.75	-20.82	46.00	0.00	0.02	9.89
1.002	40.05	25.23	-5.95	-20.77	46.00	0.00	0.02	9.89



Title: FCC-B - Conducted Emissions - White Lead
File: 2 - Keysight - Pre-Scan - White Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11g - Channel 11

10/16/2019 3:20:04 PM
Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - White Lead



Title: FCC-B - Conducted Emissions - White Lead
File: 2 - Keysight - Final Scan - White Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11g - Channel 11

10/16/2019 3:21:36 PM
Sequence: Final Measurements

FCC Class B - Conducted Emissions - White Lead

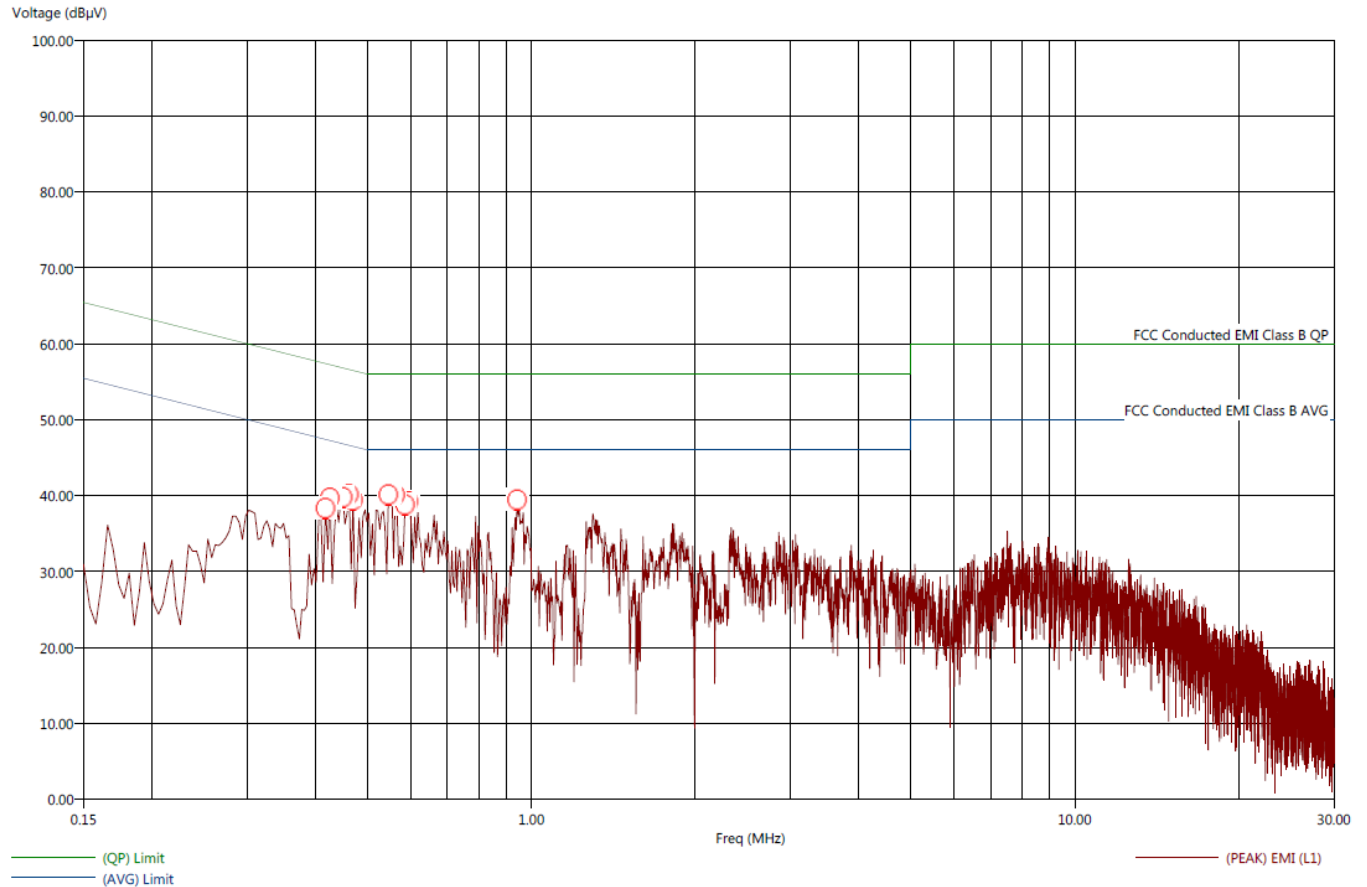
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.194	40.40	22.20	-13.02	-31.22	53.43	0.00	0.06	9.80
0.214	39.01	20.88	-13.52	-31.65	52.53	0.01	0.06	9.79
0.326	40.09	22.71	-9.18	-26.56	49.27	0.05	0.04	9.75
0.530	45.43	25.74	-0.57	-20.26	46.00	0.09	0.04	9.72
0.542	45.95	27.31	-0.05	-18.69	46.00	0.09	0.04	9.73
0.546	46.72	27.57	0.72	-18.43	46.00	0.09	0.04	9.73
0.558	46.02	27.43	0.02	-18.57	46.00	0.09	0.04	9.73
0.950	37.54	18.74	-8.46	-27.26	46.00	0.01	0.04	9.88



Title: FCC-B - Conducted Emissions - Black Lead
File: 3 - Keysight - Pre-Scan - 802.11n - Black Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Comments: Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11n - Channel 11

10/16/2019 3:46:29 PM
Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - Black Lead



Title: FCC-B - Conducted Emissions - Black Lead
 File: 3 - Keysight - Final Scan - 802.11n - Black Lead - FCC-B.set
 Operator: Harvey Samaco
 EUT Type: Bridge
 EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
 Company: Nortek Security & Control, LLC
 Model: MMS100
 S/N: N/A
 802.11n - Channel 11

10/16/2019 3:47:51 PM
 Sequence: Final Measurements

FCC Class B - Conducted Emissions - Black Lead

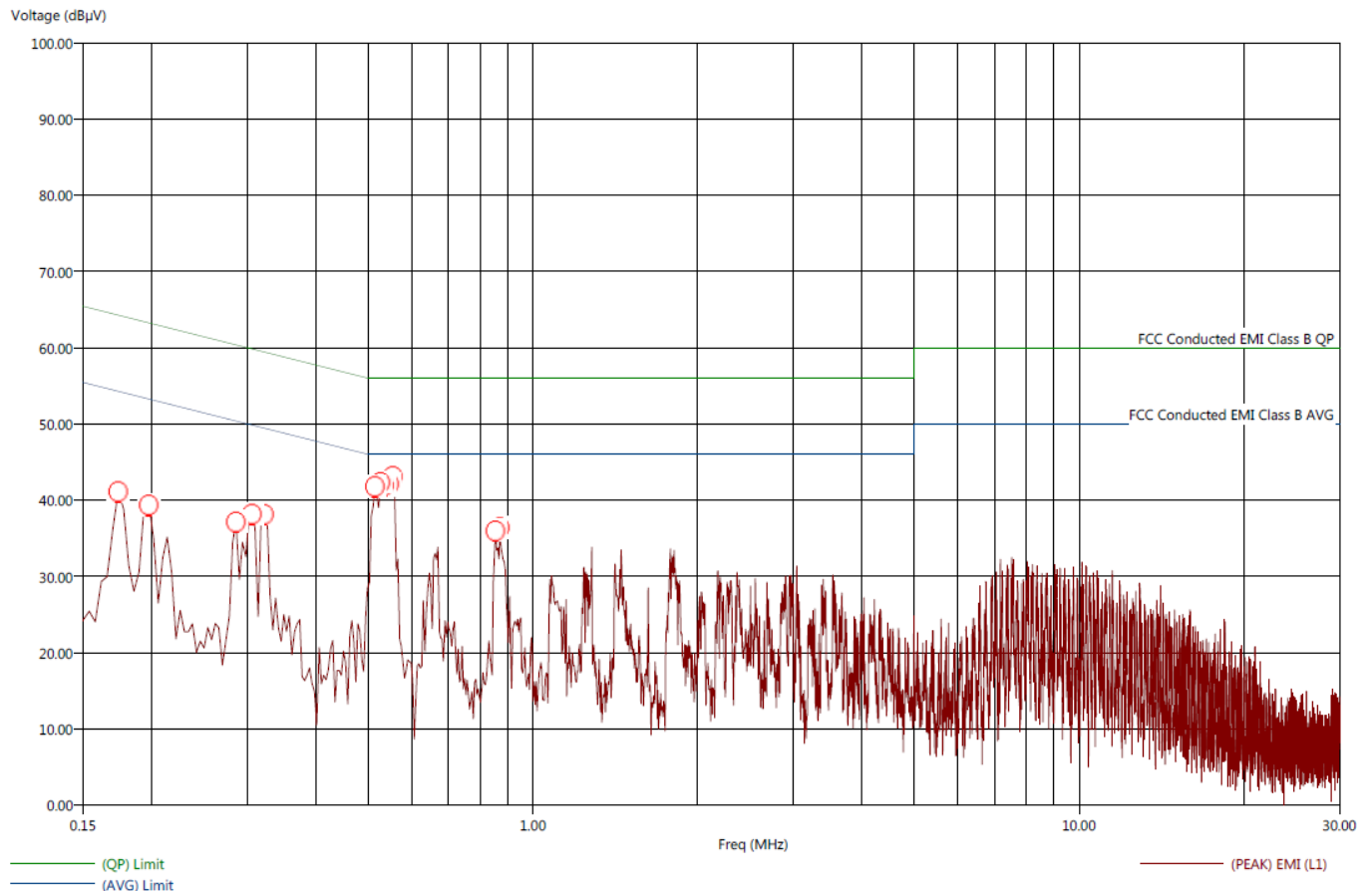
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.418	42.59	28.24	-4.38	-18.73	46.97	0.09	0.02	9.71
0.426	43.56	30.22	-3.23	-16.57	46.79	0.09	0.02	9.71
0.450	44.17	30.02	-2.42	-16.57	46.59	0.09	0.02	9.71
0.462	44.81	31.00	-1.64	-15.45	46.45	0.09	0.02	9.71
0.470	46.23	30.27	-0.12	-16.08	46.35	0.10	0.02	9.70
0.546	49.42	33.60	3.42	-12.40	46.00	0.09	0.02	9.72
0.550	49.34	34.21	3.34	-11.79	46.00	0.09	0.02	9.72
0.562	47.50	33.42	1.50	-12.58	46.00	0.09	0.02	9.73
0.586	45.57	30.27	-0.43	-15.73	46.00	0.08	0.02	9.73
0.594	43.64	27.43	-2.36	-18.57	46.00	0.08	0.02	9.74
0.942	40.31	25.87	-5.69	-20.13	46.00	0.01	0.02	9.88



Title: FCC-B - Conducted Emissions - White Lead
File: 3 - Keysight - Pre-Scan - 802.11n - White Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11n - Channel 11

10/16/2019 3:50:10 PM
Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - White Lead



Title: FCC-B - Conducted Emissions - White Lead
File: 3 - Keysight - Final Scan - 802.11n - White Lead - FCC-B.set
Operator: Harvey Samaco
EUT Type: Bridge
EUT Condition: The EUT is continuously transmitting at 902.3 MHz in the high channel with WiFi on
Company: Nortek Security & Control, LLC
Model: MMS100
S/N: N/A
802.11n - Channel 11

10/16/2019 3:51:29 PM
Sequence: Final Measurements

FCC Class B - Conducted Emissions - White Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.174	40.94	21.53	-13.15	-32.56	54.09	0.00	0.07	9.80
0.198	39.99	21.22	-13.25	-32.02	53.24	0.00	0.06	9.80
0.286	39.43	21.72	-10.94	-28.65	50.37	0.04	0.04	9.76
0.306	39.43	21.72	-10.31	-28.02	49.74	0.05	0.04	9.75
0.322	40.31	22.76	-8.96	-26.51	49.27	0.05	0.04	9.75
0.514	44.28	25.64	-1.72	-20.36	46.00	0.09	0.04	9.71
0.526	43.85	26.18	-2.15	-19.82	46.00	0.08	0.04	9.73
0.534	43.21	25.58	-2.79	-20.42	46.00	0.09	0.04	9.71
0.546	47.30	27.09	1.30	-18.91	46.00	0.09	0.04	9.72
0.554	43.40	25.41	-2.60	-20.59	46.00	0.08	0.04	9.73
0.854	38.62	21.32	-7.38	-24.68	46.00	0.03	0.04	9.85
0.870	38.85	20.48	-7.15	-25.52	46.00	0.02	0.04	9.86

