ncee labs
Product Compliance Solutions

4740 Discovery Drive | Lincoln, NE 68521
tel- 402.323.6233 | tel -888.657.6860 | fax - 402.323.6238
info@nceelabs.com | http://nceelabs.com

FCC/ISED Test Report

Prepared for: **Hunter Douglas**

Address: **2550 W. Midway Blvd.**
Broomfield, CO 80020

Product: **LBEE5HY1MW**
802.11b, g, n

Test Report No: **R20200723-21-E4**

Approved by:

Nic S. Johnson, NCE
Technical Manager
iNARTE Certified EMC Engineer #EMC-003337-NE

DATE: **11 February 2021**

Total Pages: **35**

The Nebraska Center for Excellence in Electronics (NCEE) authorizes the above named company to reproduce this report provided it is reproduced in its entirety for use by the company's employees only. Any use that a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. NCEE accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

ilac-MRA
ACCREDITED
TESTING LABORATORY
CERTIFICATE NO. 1953.01

REVISION PAGE

Rev. No.	Date	Description
0	11 February 2021	Original – NJohnson Prepared by KVepuri/FLane

CONTENTS

Revision Page 2

1.0 Summary of test results 4

2.0 EUT Description 5

2.1 Equipment under test 5

2.2 Description of test modes 5

2.3 Description of support units 5

3.0 Laboratory and General Test Description 6

3.1 Laboratory description 6

3.2 Test personnel 6

3.3 Test equipment 7

3.4 General Test Procedure and Setup for Radio Measuremnts 8

4.0 Results 9

4.1 Radiated emissions 10

4.2 Band edges 16

4.3 Conducted AC Mains Emissions 17

Appendix A: Sample Calculation 20

Appendix B – Measurement Uncertainty 22

Appendix C – Graphs and Tables 23

REPORT END 35

1.0 SUMMARY OF TEST RESULTS

The intention of this report is to determine, if the module in the EUT can be qualified as Class II permissive change. The EUT contains Murata module (with model number LBEE5HY1MW (FCC ID: VPYLBEE5HY1MW)). The manufacturer declared that they changed the antenna on the module. So, only the measurements that would be affected due to these changes are investigated in this report. The measurements that can be done in conducted manner are ignored as they won't be affected due to these changes. The worst-case measurements were reported in this report. Summary of test results presented in this report correspond to the following section:

FCC Part 15.247 ☒

The EUT has been tested according to the following specifications:

(1) US Code of Federal Regulations, Title 47, Part 15
(2) ISED RSS-Gen, Issue 5
(3) ISED RSS-247, Issue 2

APPLIED STANDARDS AND REGULATIONS		
Standard Section	**Test Type**	**Result**
FCC Part 15.209 RSS-Gen Issue 4, Section 7.1	Receiver Radiated Emissions	Pass
FCC Part 15.209 (restricted bands), 15.247 (unrestricted) RSS-247 Issue 2 Section 5.5, RSS-Gen Issue 4, Section 8.9	Transmitter Radiated Emissions	Pass
FCC Part 15.209, 15.247(d) RSS-247 Issue 2 Section 11.13	Band Edge Measurement	Pass
FCC Part 15.207 RSS-Gen Issue 4, Section 7.1	Conducted Emissions	Pass

See Section 4 for details on the test methods used for each test.

2.0 EUT DESCRIPTION

2.1 EQUIPMENT UNDER TEST

EUT	Gen3 Gateway
EUT Received	20 November 2020
EUT Tested	23 November 2020- 27 January 2021
Serial No.	00220 (conducted antenna port measurements); 00218 (radiated measurements); Serial numbers assigned by the test lab.
Operating Band	2400 MHz – 2483.5 MHz
Device Type	☒ 802.11b/g/n
Power Supply / Voltage	TP-POE-48 SN:139049622D RC03

NOTE: For more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.2 DESCRIPTION OF TEST MODES

The operating range of the EUT is dependent on the device type found in section 2.1:

For 802.11x Transmissions:

Channel	Frequency
Low	2412 MHz
Mid	2437 MHz
High	2462 MHz

These are the only representative channels tested in the frequency range according to FCC Part 15.31 and RSS-Gen Table A1. See the operational description for a list of all channel frequency and designations.

2.3 DESCRIPTION OF SUPPORT UNITS

None

3.0 LABORATORY AND GENERAL TEST DESCRIPTION

3.1 LABORATORY DESCRIPTION

All testing was performed at the following Facility:

The Nebraska Center for Excellence in Electronics (NCEE Labs)
4740 Discovery Drive
Lincoln, NE 68521

A2LA Certificate Number:	1953.01
FCC Accredited Test Site Designation No:	US1060
Industry Canada Test Site Registration No:	4294A-1
NCC CAB Identification No:	US0177

Environmental conditions varied slightly throughout the tests:
Relative humidity of 35 ± 4%
Temperature of 22 ± 3° Celsius

3.2 TEST PERSONNEL

No.	PERSONNEL	TITLE	ROLE
1	Nic Johnson	Technical Manager	Review/editing
2	Karthik Vepuri	Test Engineer	Testing and report
3	Fox Lane	Test Engineer	Testing and report

Notes:
All personnel are permanent staff members of NCEE Labs. No testing or review was sub-contracted or performed by sub-contracted personnel.

3.3 TEST EQUIPMENT

DESCRIPTION AND MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CALIBRATION DATE	CALIBRATION DUE DATE
Keysight MXE Signal Analyzer** (44GHz)	N9038A	MY59050109	April 23, 2019	April 23, 2021
Keysight MXE Signal Analyzer** (26.5GHz)	N9038A	MY56400083	May 5, 2020	May 5, 2022
Keysight EXA Signal Analyzer***	N9010A	MY56070862	December 14, 2018	December 14, 2021
SunAR RF Motion	JB1	A091418	March 6, 2020	March 6, 2021
EMCO Horn Antenna**	3115	6415	March 16, 2020	March 16, 2022
EMCO Horn Antenna**	3116	2576	March 9, 2020	March 9, 2022
Com-Power LISN 50µH / 250µH - 50Ω	LI-220C	20070017	September 22, 2020	September 22, 2021
Rohde & Schwarz Preamplifier*	TS-PR18	3545700803	April 14, 2020	April 14, 2022
Trilithic High Pass Filter*	6HC330	23042	April 14, 2020	April 14, 2022
RF Cable (preamplifier to antenna)*	MFR-57500	01-07-002	April 14, 2020	April 14, 2022
RF Cable (antenna to 10m chamber bulkhead)*	FSCM 64639	01E3872	April 14, 2020	April 14, 2022
RF Cable (10m chamber bulkhead to control room bulkhead)*	FSCM 64639	01E3874	April 14, 2020	April 14, 2022
RF Cable (control room bulkhead to test receiver)*	FSCM 64639	01F1206	April 14, 2020	April 14, 2022
N connector bulkhead (10m chamber)*	PE9128	NCEEBH1	April 14, 2020	April 14, 2022
N connector bulkhead (control room)*	PE9128	NCEEBH2	April 14, 2020	April 14, 2022
TDK Emissions Lab Software	V11.25	700307	NA	NA

* Internal Verification
**2 Year Cal Cycle
**3 Year Cal Cycle

Notes:

All equipment is owned by NCEE Labs and stored permanently at NCEE Labs facilities.

3.4 GENERAL TEST PROCEDURE AND SETUP FOR RADIO MEASUREMNTS

Measurement type presented in this report:

Conducted ☒

The conducted measurements were performed by connecting the output of the transmitter directly into a spectrum analyzer using an impedance matched cable and connector soldered to the EUT in place of the antenna. The information regarding resolution bandwidth, video bandwidth, span and the detector used can be found in the graphs provided in the Appendix C. All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

Figure 1 - Bandwidth Measurements Test Setup

Radiated ☒

All the radiated measurements were taken at a distance of 3m from the EUT. The information regarding resolution bandwidth, video bandwidth, span and the detector used can be found in the graphs provided in the Appendix C. All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

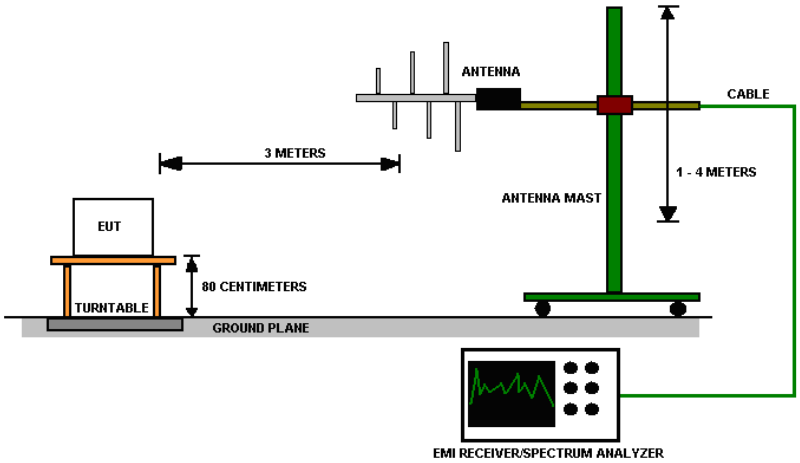


Figure 2 - Radiated Emissions Test Setup

4.0 RESULTS

Radiated Unrestricted Band-Edge							
CHANNEL	Mode	Band edge /Measurement Frequency (MHz)	Relative Highest out of band level (dBm)	Relative Fundamental (dBm)	Delta (dB)	Min Delta (dB)	Result
Low	802.11 b	2400.00	-76.54	-34.72	41.83	20.00	PASS
Low	802.11 g	2400.00	-76.68	-44.91	31.78	20.00	PASS
Low	802.11 n	2400.00	-80.49	-44.45	36.04	20.00	PASS
High	802.11 b	2483.50	-90.16	-35.12	55.04	20.00	PASS
High	802.11 g	2483.50	-95.58	-44.90	50.68	20.00	PASS
High	802.11 n	2483.50	-95.72	-44.75	50.97	20.00	PASS

Radiated Peak Restricted Band-Edge							
CHANNEL	Mode	Band edge /Measurement Frequency (MHz)	Highest out of band level (dBuV/m @ 3m)	Measurement Type	Limit (dBuV/m @ 3m)	Margin	Result
Low	802.11 b	2390.00	58.68	PEAK	73.98	15.30	PASS
Low	802.11 g	2390.00	70.78	PEAK	73.98	3.20	PASS
Low	802.11 n	2390.00	67.82	PEAK	73.98	6.16	PASS
High	802.11 b	2483.50	56.63	PEAK	73.98	17.35	PASS
High	802.11 g	2483.50	60.41	PEAK	73.98	13.57	PASS
High	802.11 n	2483.50	63.90	PEAK	73.98	10.08	PASS

*Limit shown is the peak limit taken from FCC Part 15.209

Radiated Average Restricted Band-Edge							
CHANNEL	Mode	Band edge /Measurement Frequency (MHz)	Highest out of band level (dBuV/m @ 3m)	Measurement Type	Limit (dBuV/m @ 3m)	Margin	Result
Low	802.11 b	2390.00	43.65	AVERAGE	53.98	10.33	PASS
Low	802.11 g	2390.00	49.89	AVERAGE	53.98	4.09	PASS
Low	802.11 n	2390.00	46.85	AVERAGE	53.98	7.13	PASS
High	802.11 b	2483.50	43.33	AVERAGE	53.98	10.65	PASS
High	802.11 g	2483.50	44.69	AVERAGE	53.98	9.29	PASS
High	802.11 n	2483.50	44.95	AVERAGE	53.98	9.03	PASS

*Limit shown is the average limit taken from FCC Part 15.209

4.1 RADIATED EMISSIONS

Test Method: ANSI C63.10-2013, Section 6.5, 6.6

Limits for radiated emissions measurements:

Emissions radiated outside of the specified bands shall be applied to the limits in 15.209 as followed:

FREQUENCIES (MHz)	FIELD STRENGTH (µV/m)	MEASUREMENT DISTANCE (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 * log * Emission level (µV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits by more than 20dB under any condition of modulation.
4. The EUT was tested for spurious emissions while running off of battery power and external USB power. The worse-case emissions were produced while running off of USB power, so results from this mode are presented.

Test procedures:

a. The EUT was placed on the top of a rotating table above the ground plane in a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The table was 0.8m high for measurements from 30MHz-1Ghz and 1.5m for measurements from 1GHz and higher.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna was a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are used to make the measurement.

d. For each suspected emission, the EUT was arranged to maximize its emissions and then the antenna height was varied from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum emission reading.

e. The test-receiver system was set to use a peak detector with a specified resolution bandwidth. For spectrum analyzer measurements, the composite maximum of several analyzer sweeps was used for final measurements.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. The EUT was maximized in all 3 orthogonal positions. The results are presented for the axis that had the highest emissions.

Test setup:

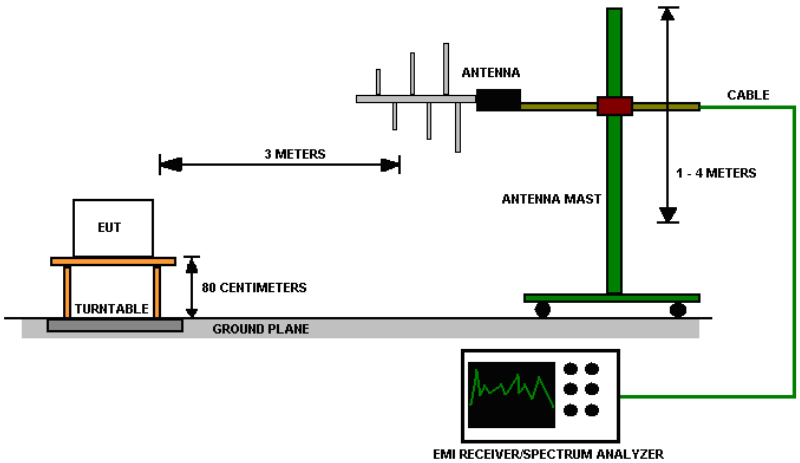


Figure 3 - Radiated Emissions Test Setup

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequencies below 1GHz.

2. The resolution bandwidth 1 MHz for all measurements and at frequencies above 1GHz, a peak detector was used for all measurements above 1GHz. Measurements were made with an EMI Receiver.

Deviations from test standard:

No deviation.

EUT operating conditions

Details can be found in section 2.1 of this report.

Test results:

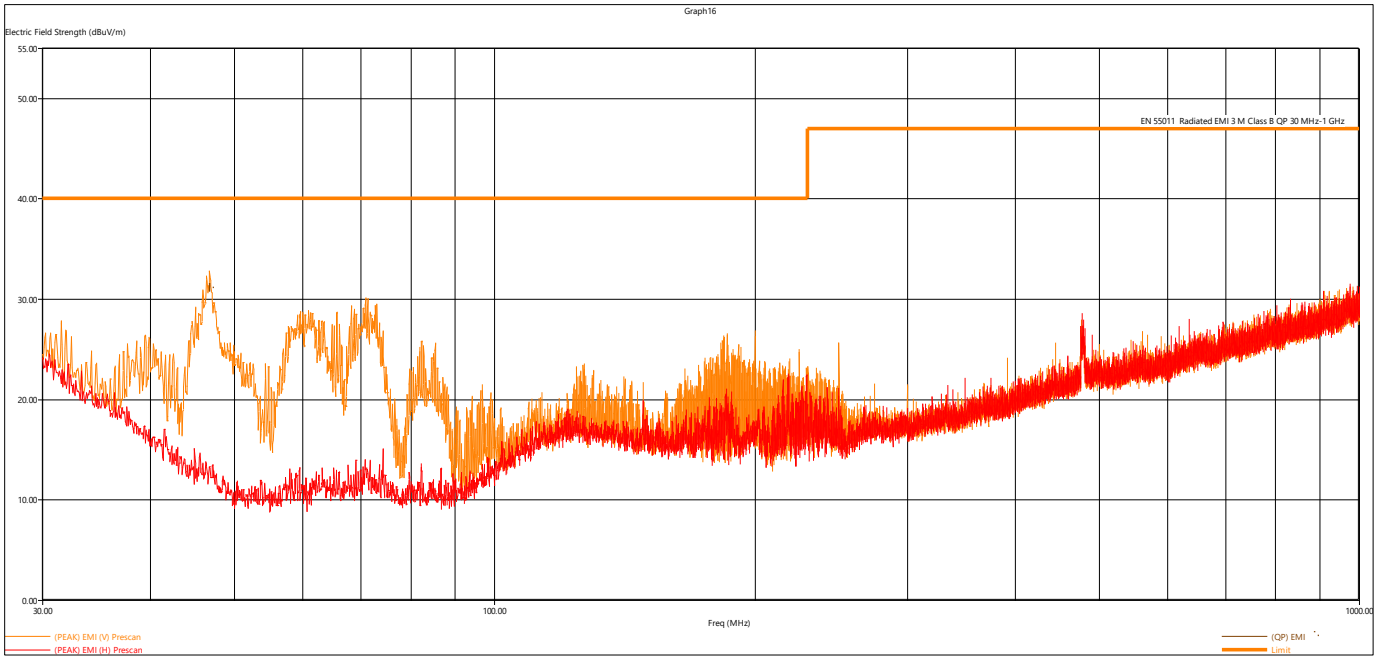


Figure 4 - Radiated Emissions Plot, Receive

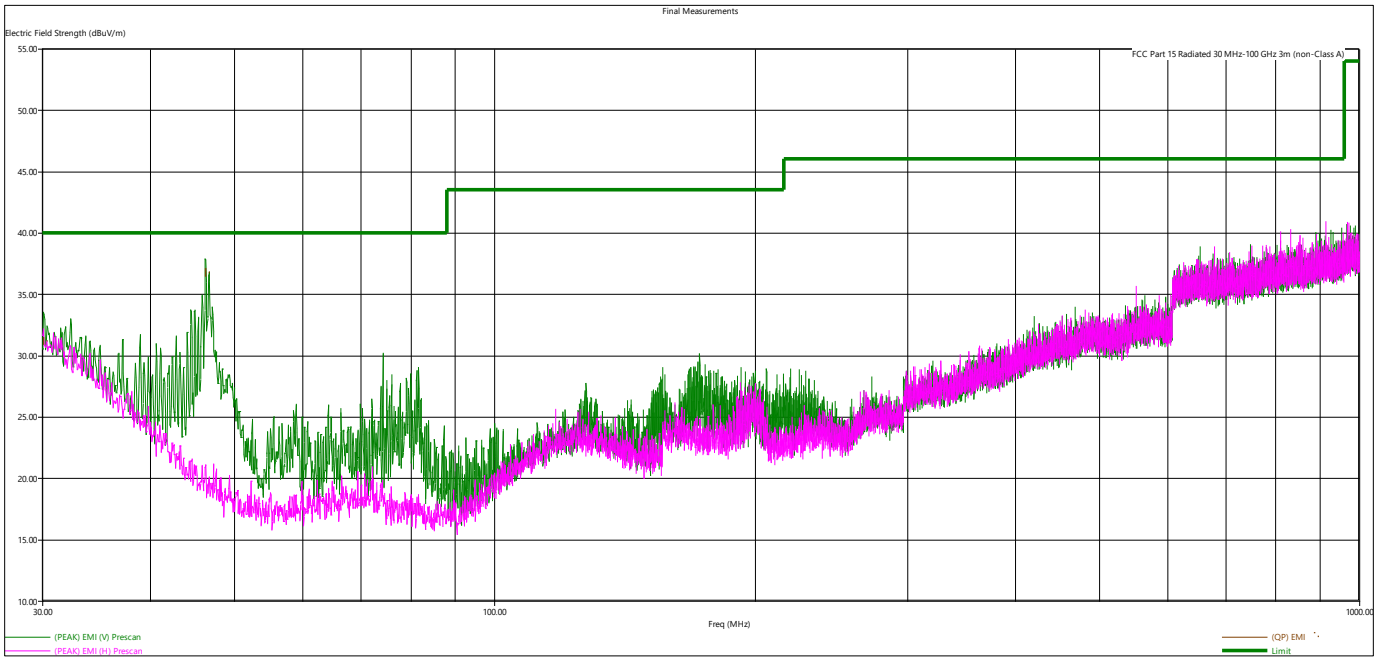


Figure 5 - Radiated Emissions Plot, Mid Channel, 802.11b

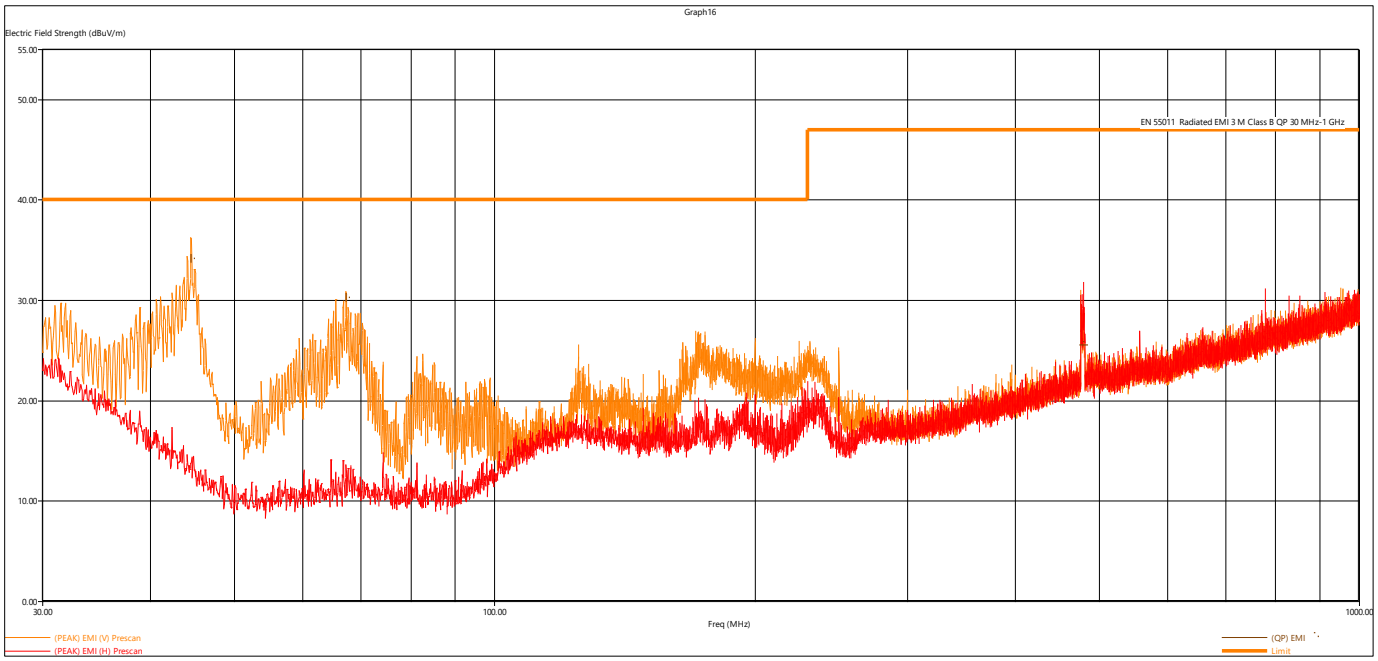


Figure 6 - Radiated Emissions Plot, High Channel, 802.11g

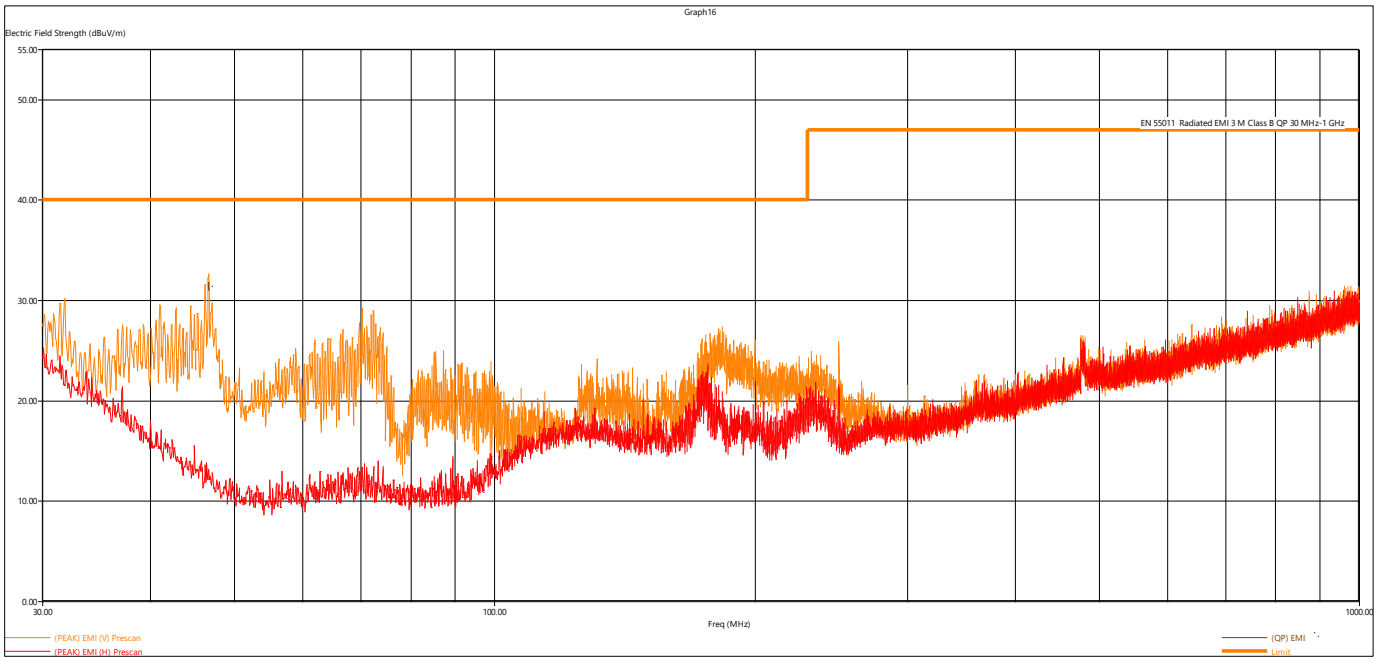


Figure 7 - Radiated Emissions Plot, Mid Channel, 802.11n

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

Quasi-Peak Measurements, 802.11x								
Frequency	Level	Limit	Margin	Height	Angle	Pol	Channel	Modulation
MHz	dBµV/m	dBµV/m	dB	cm.	deg.			
46.862400	31.09	40.00	8.91	106.00	8.00	V	Receive	
30.124080	31.13	40.00	8.87	160.00	189.00	V	Mid	802.11b
46.246320	36.73	40.00	3.27	109.00	287.00	V	Mid	802.11b
479.632320	25.48	47.00	21.52	312.00	5.00	H	High	802.11g
44.562960	34.09	40.00	5.91	104.00	293.00	V	High	802.11g
67.243440	30.20	40.00	9.80	105.00	360.00	V	High	802.11g
46.654080	31.26	40.00	8.74	112.00	27.00	V	Mid	802.11n

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above.

Peak Measurements Vs Average Limit, 802.11x								
Frequency	Level	Limit	Margin	Height	Angle	Pol	Channel	Modulation
MHz	dBµV/m	dBµV/m	dB	cm.	deg.			
2410.656000	111.98	NA	NA	235.00	315.00	H	Low	802.11b
2411.082000	112.66	NA	NA	207.00	38.00	V	Low	802.11b
4823.660000	45.13	53.98	8.85	193.00	66.00	H	Low	802.11b
2438.262000	111.57	NA	NA	227.00	349.00	V	Mid	802.11b
4874.400000	43.44	53.98	10.54	344.00	55.00	H	Mid	802.11b
2461.998000	111.08	NA	NA	188.00	0.00	V	High	802.11b
4923.966000	44.1	53.98	9.88	222.00	215.00	H	High	802.11b
2411.084000	102.22	NA	NA	280.00	48.00	V	Low	802.11g
6197.196000	44.58	53.98	9.40	290.00	348.00	V	Low	802.11g
2462.898000	100.5	NA	NA	398.00	290.00	H	High	802.11n

Peak measurements were compared to average limit and they were found to be below the limit.

*Worst-case data is provided in this section

4.2 BAND EDGES

Test Method: All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

Limits of band-edge measurements:

For FCC Part 15.249 Device:
For emissions outside of the allowed band of operation, the emission level needs to be 50dB under the maximum fundamental field strength. However, if the emissions fall within one of the restricted bands from 15.205 the field strength levels need to be under that of the limits in 15.209.

For FCC Part 15.247 Device:
For emissions outside of the allowed band of operation (2400.0MHz – 2480.0MHz), the emission level needs to be 20dB under the maximum fundamental field strength. However, if the emissions fall within one of the restricted bands from 15.205 the field strength levels need to be under that of the limits in 15.209.

Test procedures:

The highest emissions level beyond the band-edge was measured and recorded. All band edge measurements were evaluated to the general limits in Part 15.209. More details can be found in section 3.4 of this report.

Deviations from test standard:
No deviation.

Test setup:
Test setup details can be found in section 3.4 of this report.

EUT operating conditions:
Details can be found in section 2.1 of this report.

Test results:
Pass

Comments:
1. All the band edge plots can be found in the Appendix C.
2. All data is in the table in results section 4.0.
3. If the device falls under FCC Part 15.247 (Details can be found in summary of test results), compliance is shown in the unrestricted band edges by showing minimum delta of 20 dB between peak and the band edge.
4. If the device falls under FCC Part 15.249 (Details can be found in summary of test results), compliance is shown in the unrestricted band edges by showing minimum delta of 50 dB between peak and the band edge.
5. The restricted band edge compliance is shown by comparing to the general limit defined in Part 15.209. The limit shown in the graph accounts for the antenna gain of the device.

4.3 CONDUCTED AC MAINS EMISSIONS

Test Method: ANSI C63.10-2013, Section(s) 6.2

Limits for conducted emissions measurements:

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Notes:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

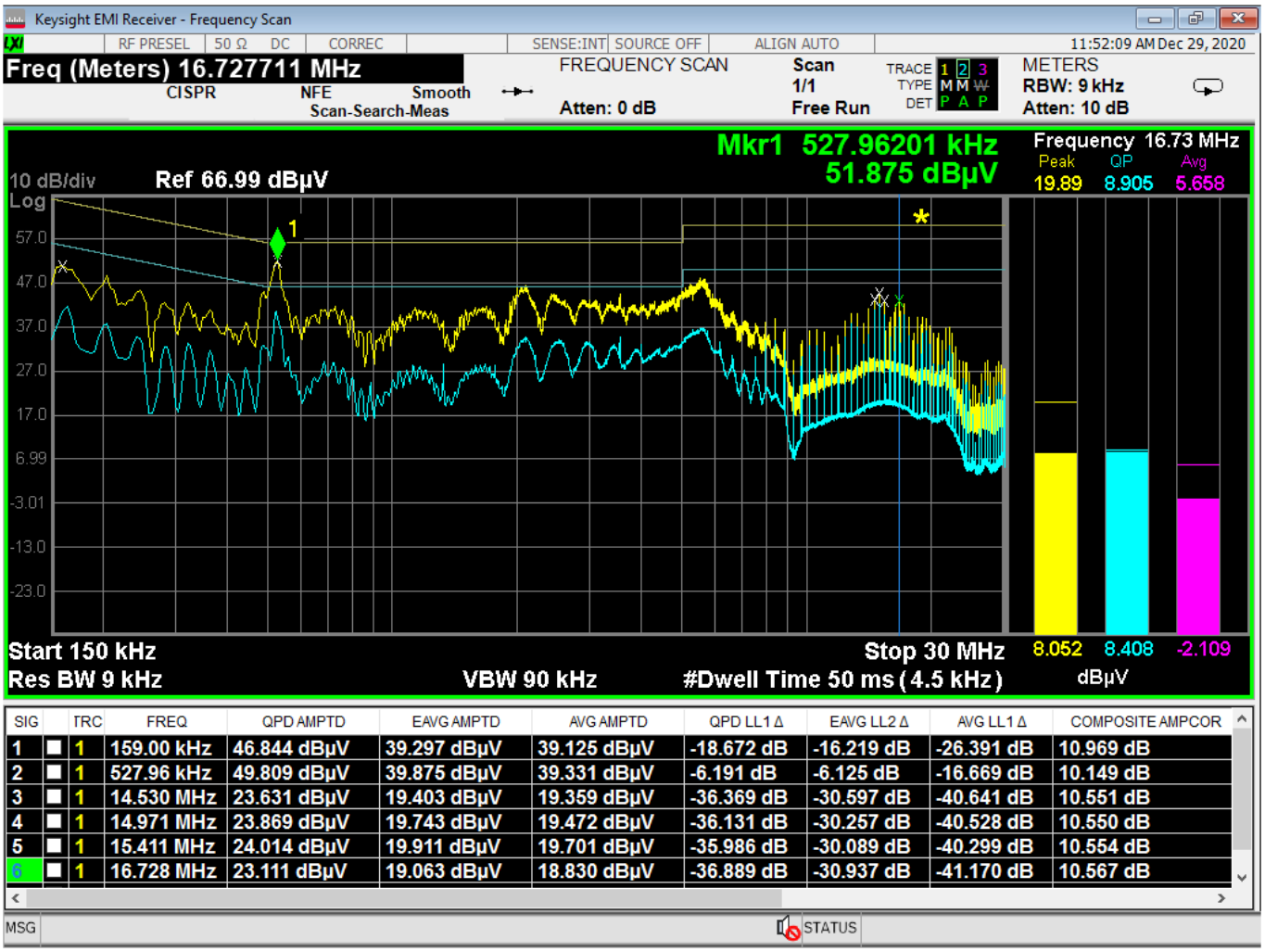
Test Procedures:

a. The EUT was placed 0.8m above a ground reference plane and 0.4 meters from the conducting wall of a shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provides 50 ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference as well as the ground.
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits are not reported.
d. Results were compared to the 15.207 limits.

Deviation from the test standard:
No deviation

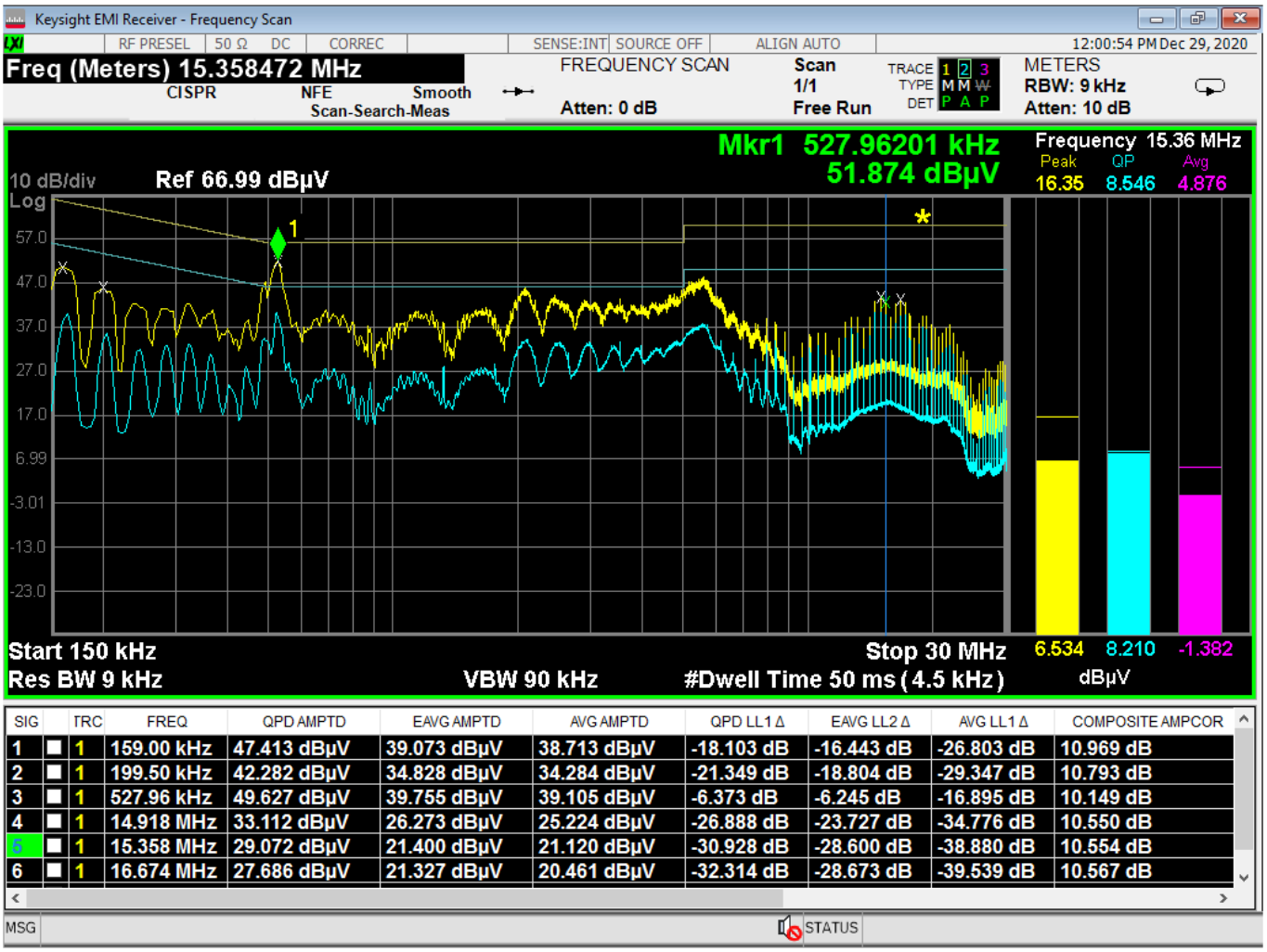
EUT operating conditions:
Details can be found in section 2.1 of this report.
.

Test Results:



SIG		TRC	FREQ	QPD AMPTD	EAVG AMPTD	AVG AMPTD	QPD LL1 Δ	EAVG LL2 Δ	AVG LL1 Δ	COMPOSITE AMPCOR
1	■	1	159.00 kHz	46.844 dBµV	39.297 dBµV	39.125 dBµV	-18.672 dB	-16.219 dB	-26.391 dB	10.969 dB
2	■	1	527.96 kHz	49.809 dBµV	39.875 dBµV	39.331 dBµV	-6.191 dB	-6.125 dB	-16.669 dB	10.149 dB
3	■	1	14.530 MHz	23.631 dBµV	19.403 dBµV	19.359 dBµV	-36.369 dB	-30.597 dB	-40.641 dB	10.551 dB
4	■	1	14.971 MHz	23.869 dBµV	19.743 dBµV	19.472 dBµV	-36.131 dB	-30.257 dB	-40.528 dB	10.550 dB
5	■	1	15.411 MHz	24.014 dBµV	19.911 dBµV	19.701 dBµV	-35.986 dB	-30.089 dB	-40.299 dB	10.554 dB
6	■	1	16.728 MHz	23.111 dBµV	19.063 dBµV	18.830 dBµV	-36.889 dB	-30.937 dB	-41.170 dB	10.567 dB

Figure 8 - Conducted Emissions Plot, Line



SIG		TRC	FREQ	QPD AMPTD	EAVG AMPTD	AVG AMPTD	QPD LL1 Δ	EAVG LL2 Δ	AVG LL1 Δ	COMPOSITE AMPCOR
1	■	1	159.00 kHz	47.413 dBµV	39.073 dBµV	38.713 dBµV	-18.103 dB	-16.443 dB	-26.803 dB	10.969 dB
2	■	1	199.50 kHz	42.282 dBµV	34.828 dBµV	34.284 dBµV	-21.349 dB	-18.804 dB	-29.347 dB	10.793 dB
3	■	1	527.96 kHz	49.627 dBµV	39.755 dBµV	39.105 dBµV	-6.373 dB	-6.245 dB	-16.895 dB	10.149 dB
4	■	1	14.918 MHz	33.112 dBµV	26.273 dBµV	25.224 dBµV	-26.888 dB	-23.727 dB	-34.776 dB	10.550 dB
5	■	1	15.358 MHz	29.072 dBµV	21.400 dBµV	21.120 dBµV	-30.928 dB	-28.600 dB	-38.880 dB	10.554 dB
6	■	1	16.674 MHz	27.686 dBµV	21.327 dBµV	20.461 dBµV	-32.314 dB	-28.673 dB	-39.539 dB	10.567 dB

Figure 9 - Conducted Emissions Plot, Neutral

APPENDIX A: SAMPLE CALCULATION

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:
FS = RA + AF – (-CF + AG) + AV

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

AG = Amplifier Gain

AV = Averaging Factor (if applicable)

Assume a receiver reading of 55 dBμV is obtained. The Antenna Factor of 12 and a Cable Factor of 1.1 is added. The Amplifier Gain of 20 dB is subtracted, giving a field strength of 48.1 dBμV/m.

FS = 55 + 12 – (-1.1 + 20) + 0 = 48.1 dBμV/m

The 48.1 dBμV/m value can be mathematically converted to its corresponding level in μV/m.

Level in μV/m = Common Antilogarithm [(48.1 dBμV/m)/20]= 254.1 μV/m

AV is calculated by the taking the 20*log(T_{on}/100) where T_{on} is the maximum transmission time in any 100ms window.

EIRP Calculations

In cases where direct antenna port measurement is not possible or would be inaccurate, output power is measured in EIRP. The maximum field strength is measured at a specified distance and the EIRP is calculated using the following equation;

EIRP (Watts) = [Field Strength (V/m) x antenna distance (m)]^2 / 30

Power (watts) = 10^[Power (dBm)/10] / 1000

Voltage (dBµV) = Power (dBm) + 107 (for 50Ω measurement systems)

Field Strength (V/m) = 10^[Field Strength (dBµV/m) / 20] / 10^6

Gain = 1 (numeric gain for isotropic radiator)

Conversion from 3m field strength to EIRP (d=3):

EIRP = [FS(V/m) x d^2]/30 = FS [0.3] for d = 3

EIRP(dBm) = FS(dBµV/m) – 10(log 10^9)+ 10log[0.3] = FS(dBµV/m) - 95.23

10log(10^9) is the conversion from micro to milli

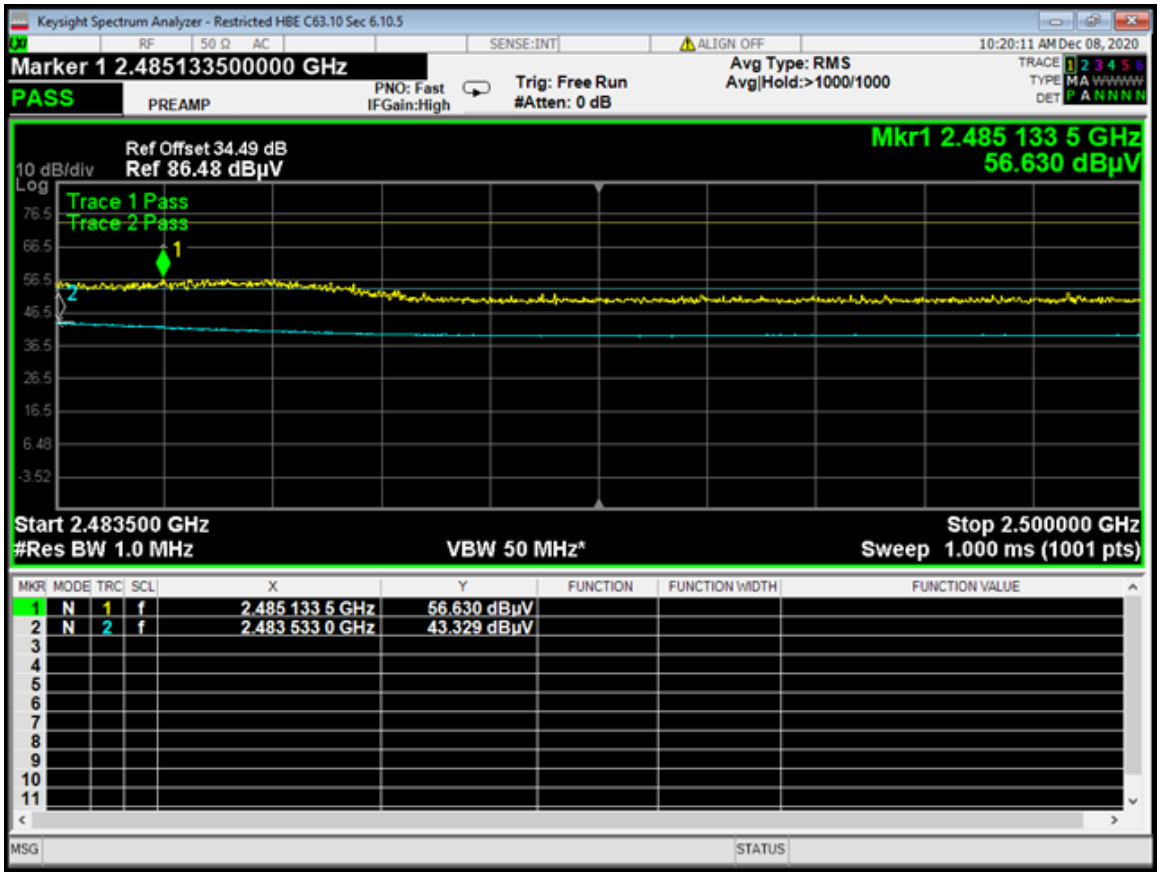
APPENDIX B – MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been for tests performed in this test report:

Test	Frequency Range	Uncertainty Value (dB)
Radiated Emissions, 3m	30MHz - 1GHz	3.82
Radiated Emissions, 3m	1GHz - 18GHz	4.44
Emissions limits, conducted	30MHz – 18GHz	±3.30 dB

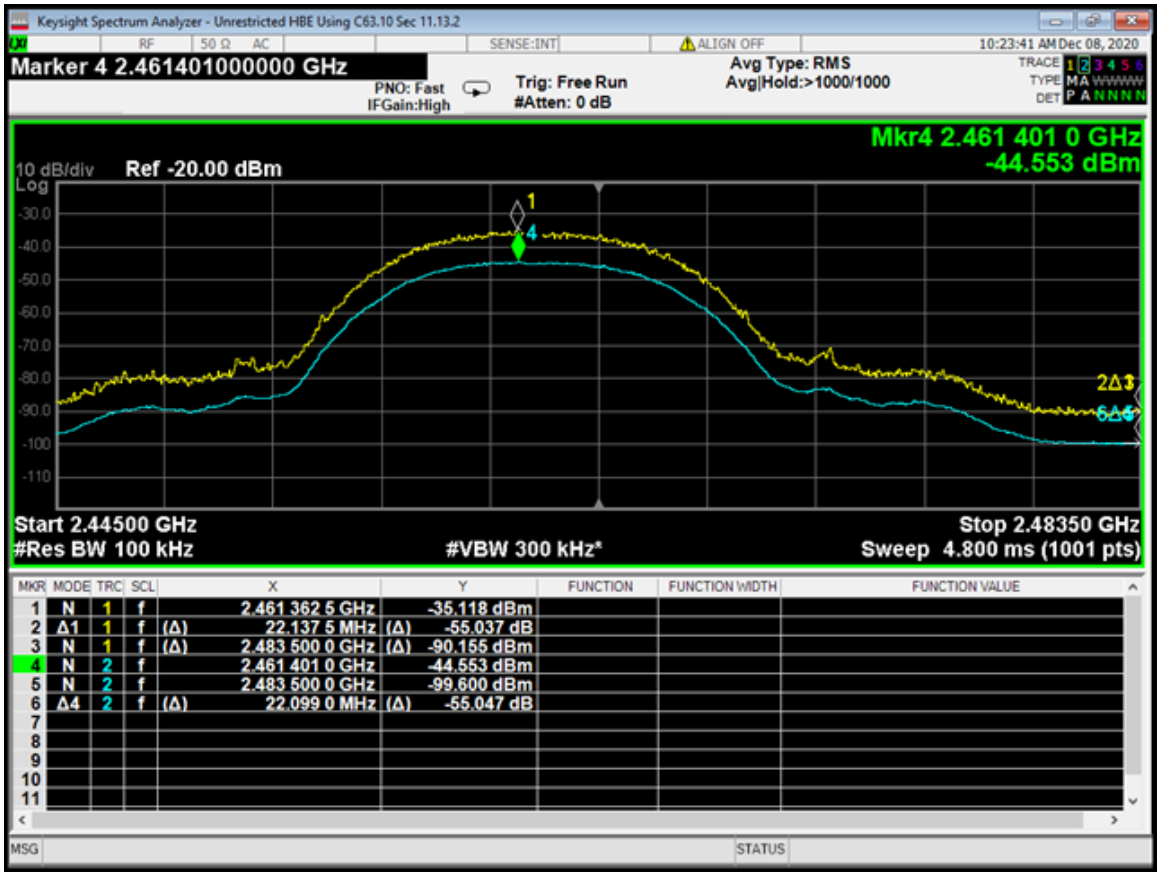
Expanded uncertainty values are calculated to a confidence level of 95%.

APPENDIX C – GRAPHS AND TABLES



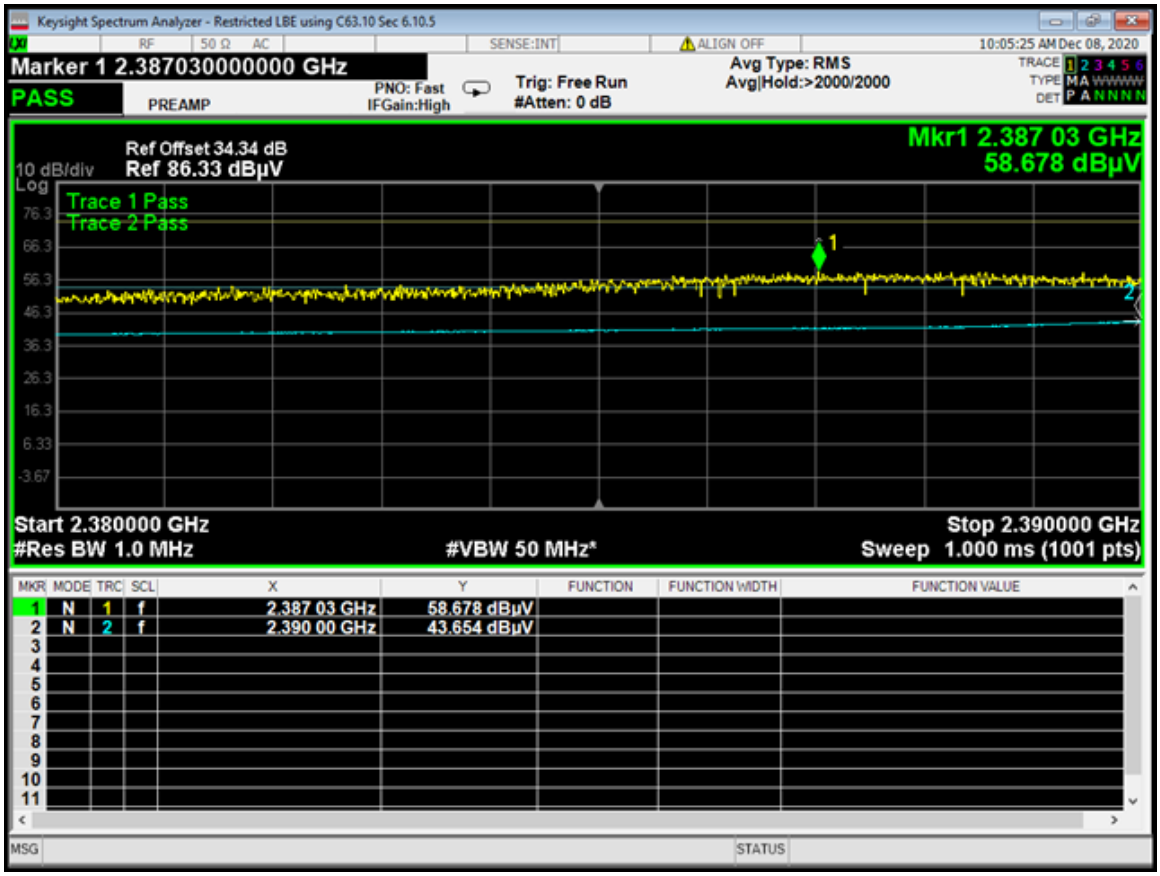
1. 802.11 B Modulation, Higher Band edge, Restricted

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above. Use of average detector is permitted as the duty cycle of the radio for these tests was > 98 percent. Corrections are included in the graph.



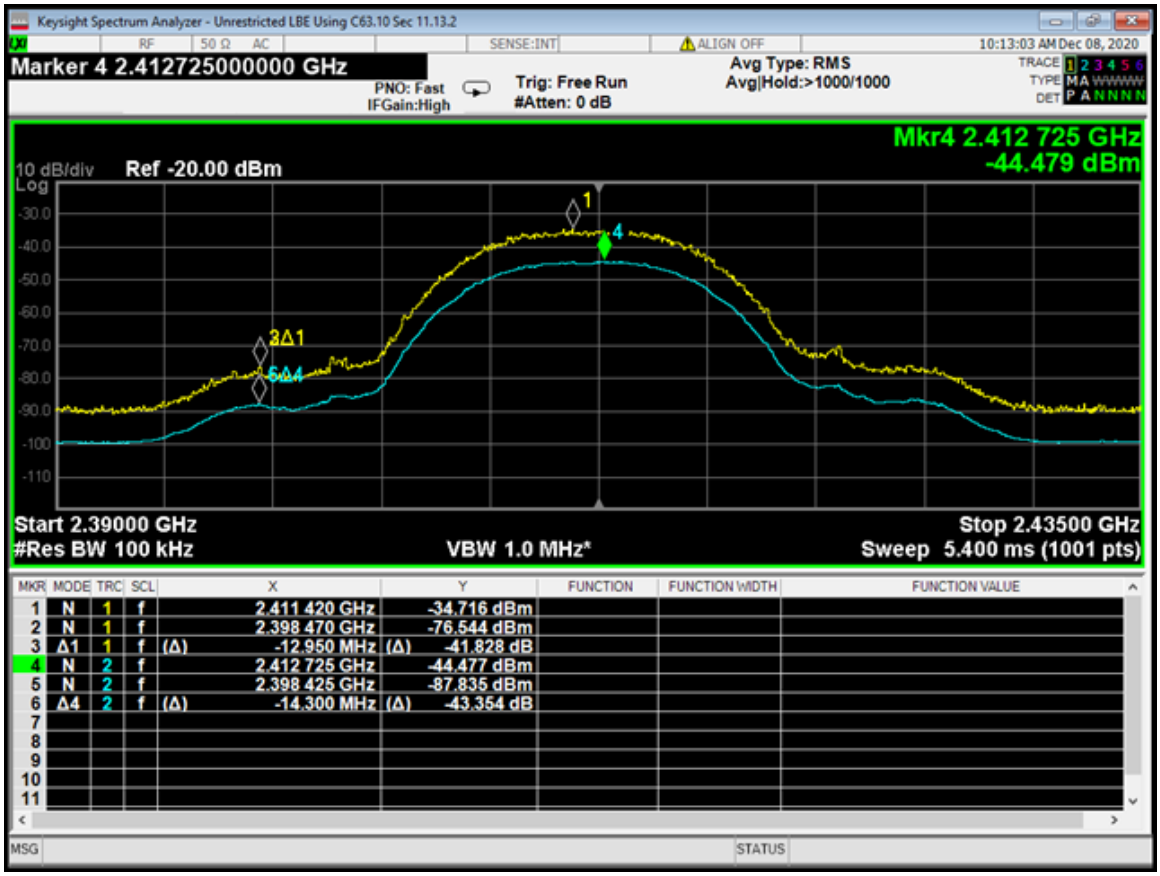
2. 802.11 B Modulation, Higher Band edge, Unrestricted

Relative measurements only.Peak measurements are reported in the results table in section 4.0.



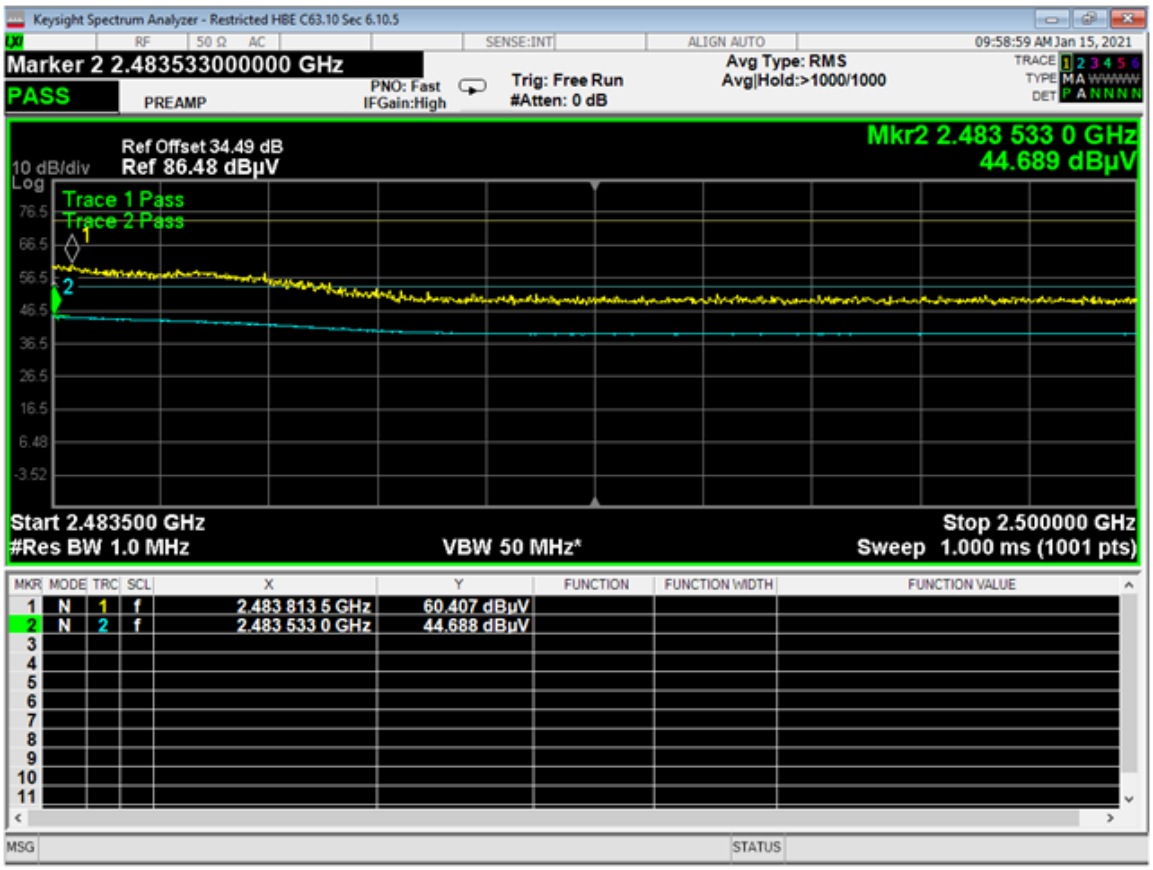
3. 802.11 B Modulation, Lower Band edge, Restricted

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above. Use of average detector is permitted as the duty cycle of the radio for these tests was > 98 percent. Corrections are included in the graph.



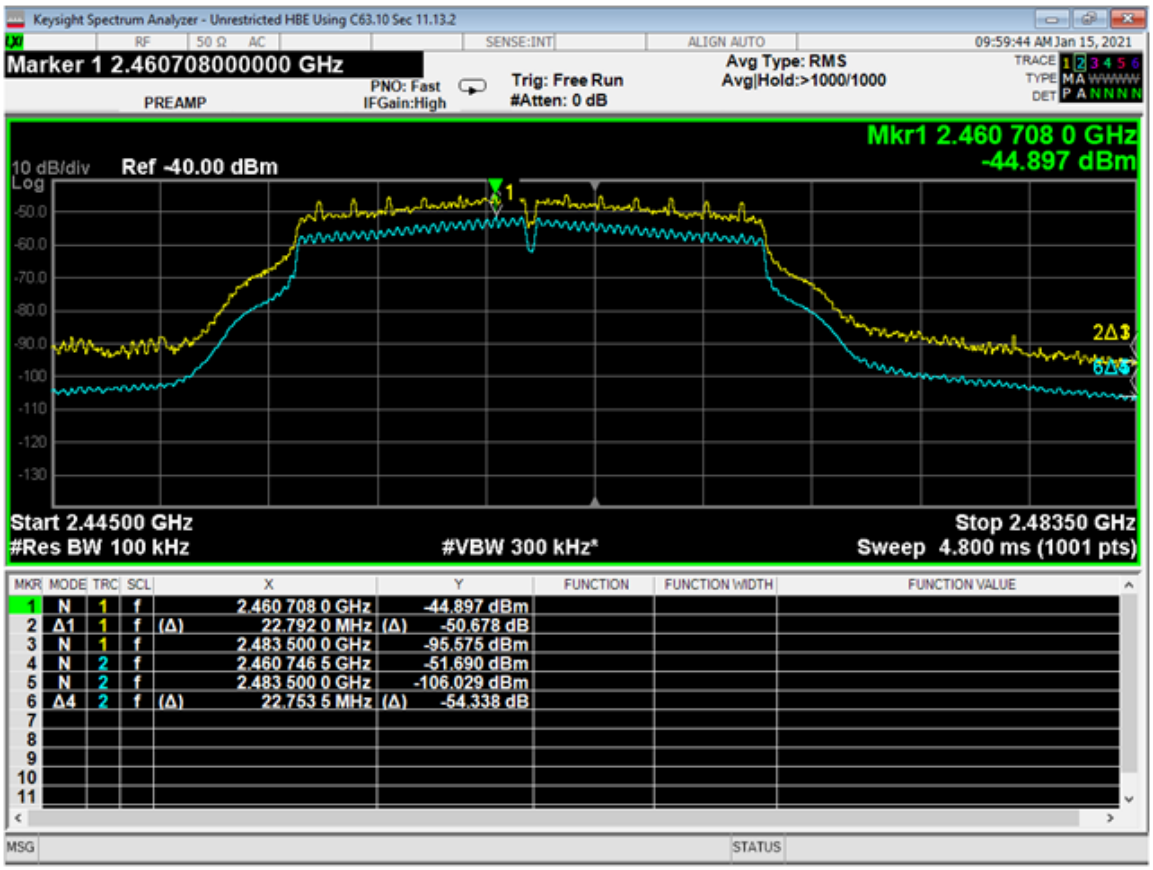
4. 802.11 B Modulation, Lower Band edge, Unrestricted

Relative measurements only.Peak measurements are reported in the results table in section 4.0.



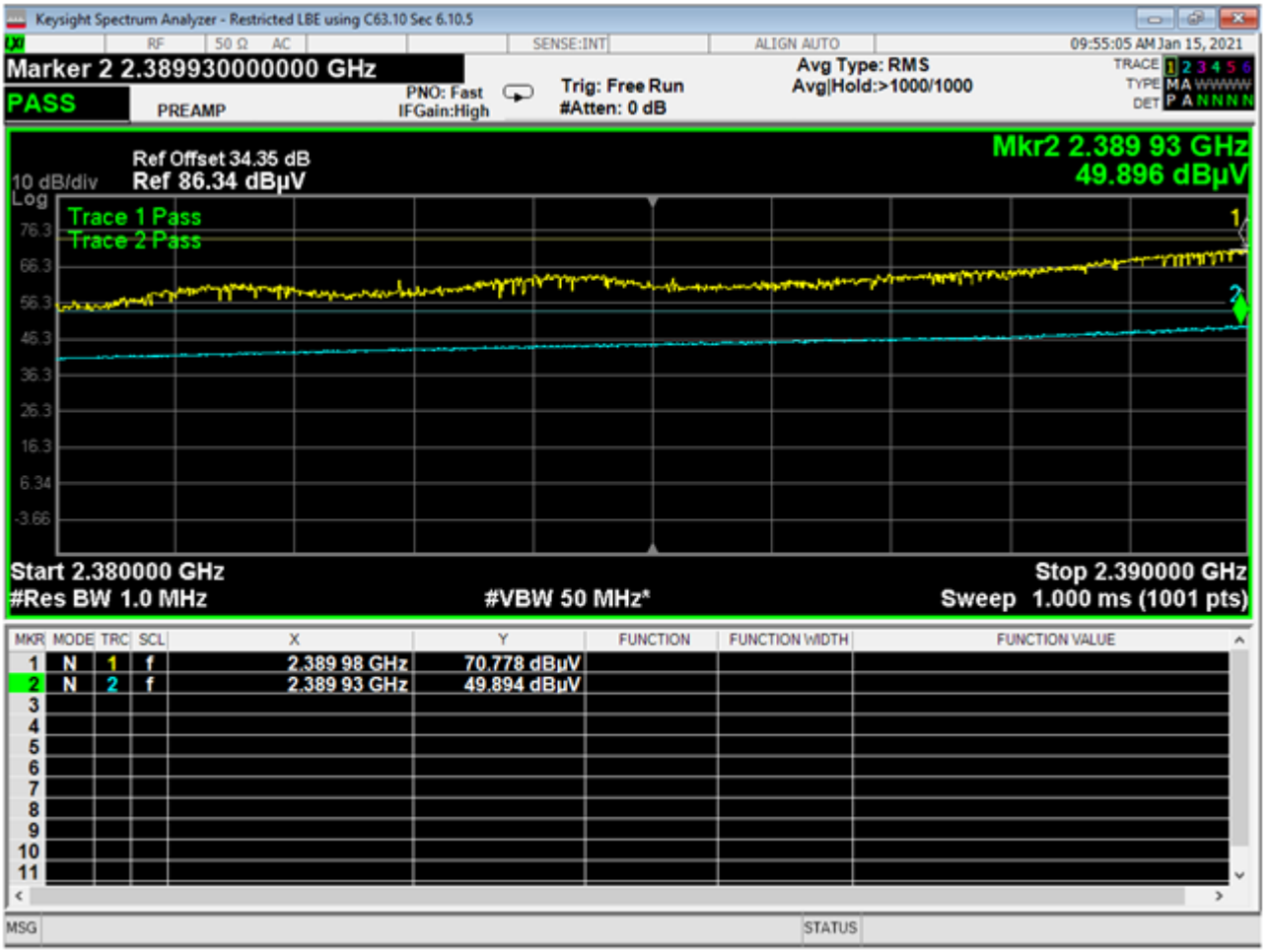
5. 802.11 G Modulation, Higher Band edge, Restricted

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above. Use of average detector is permitted as the duty cycle of the radio for these tests was > 98 percent. Corrections are included in the graph.



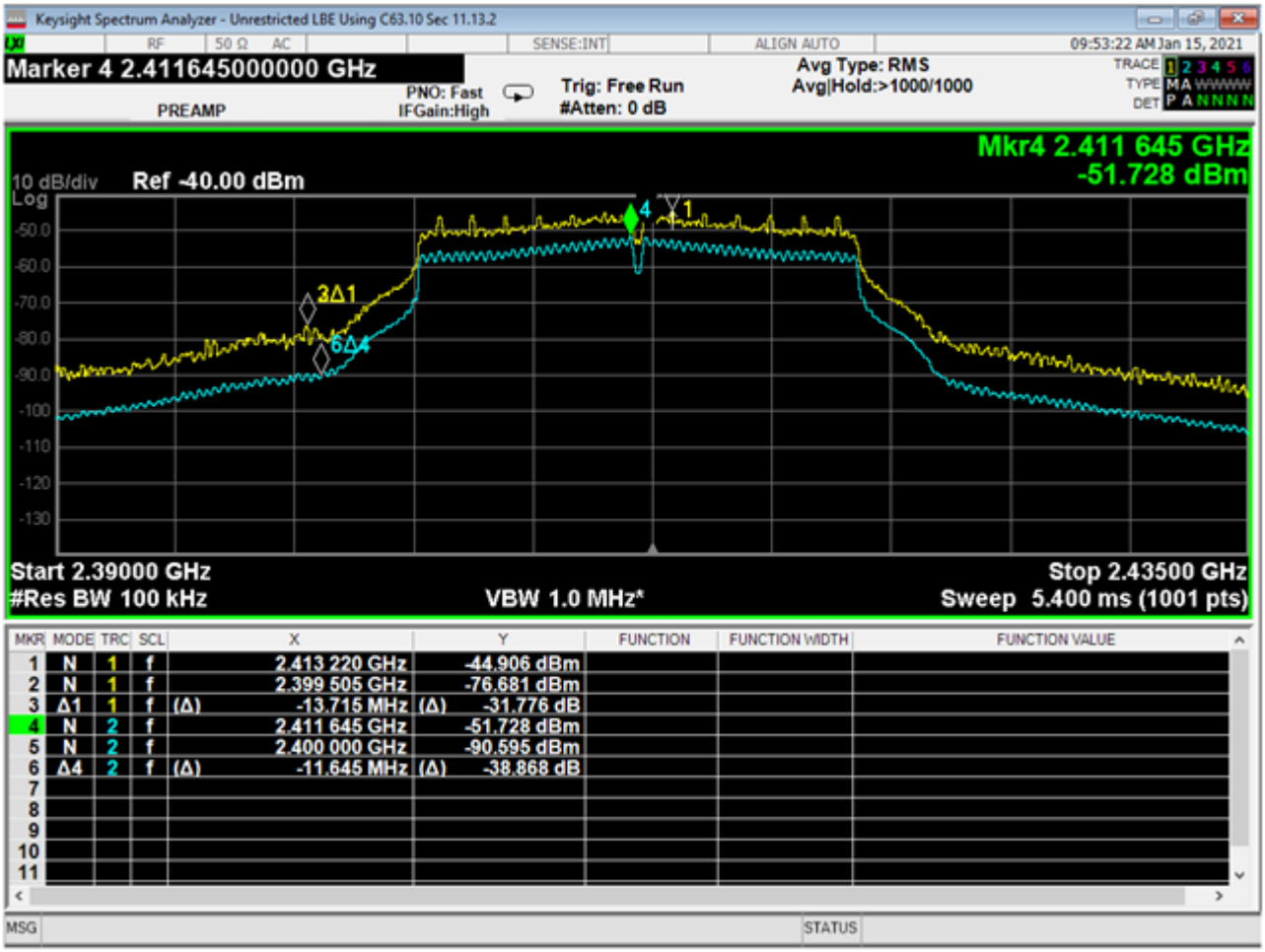
6. 802.11 G Modulation, Higher Band edge, Unrestricted

Relative measurements only.Peak measurements are reported in the results table in section 4.0.



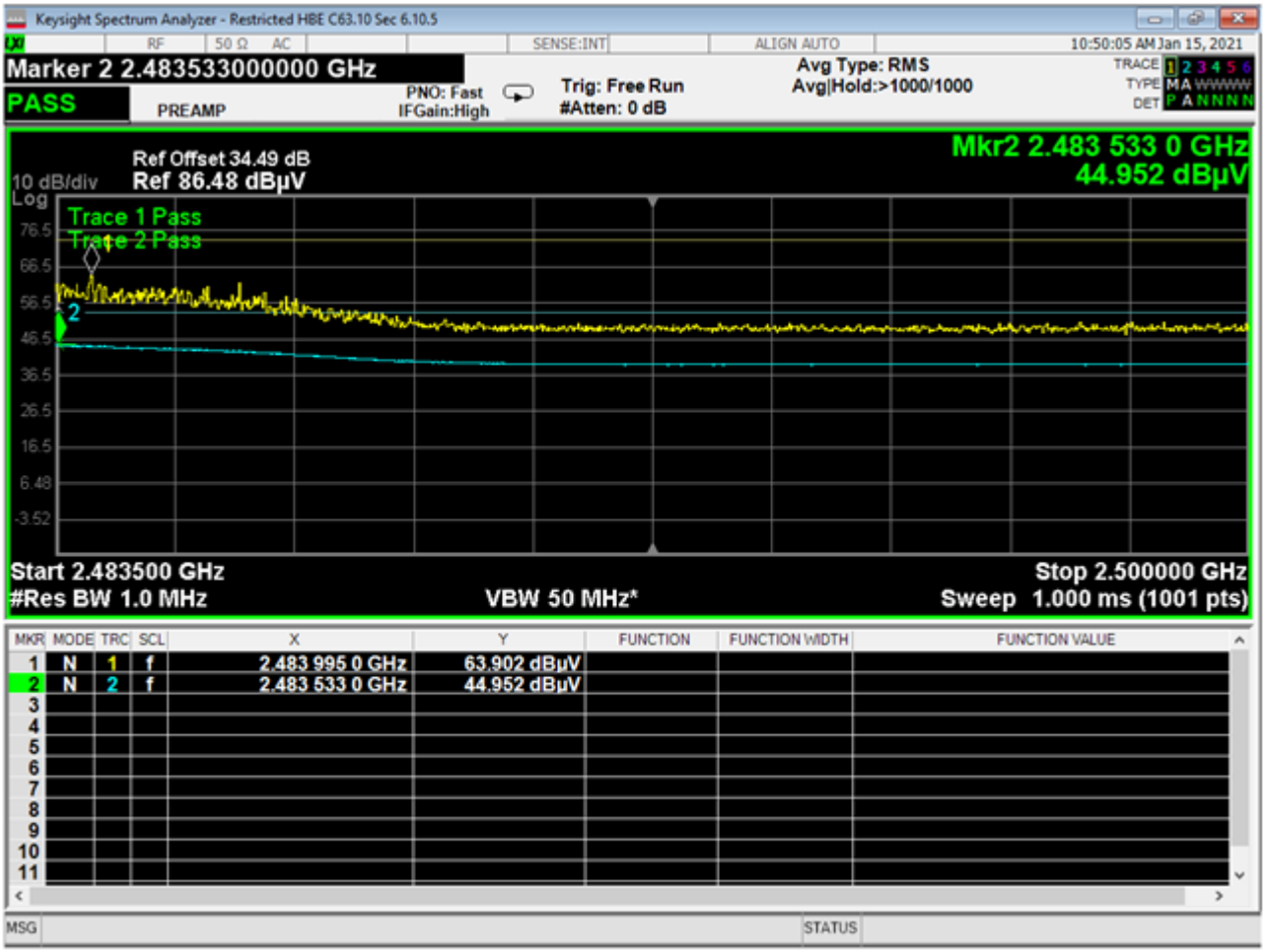
7. 802.11 G Modulation, Lower Band edge, Restricted

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above. Use of average detector is permitted as the duty cycle of the radio for these tests was > 98 percent. Corrections are included in the graph.



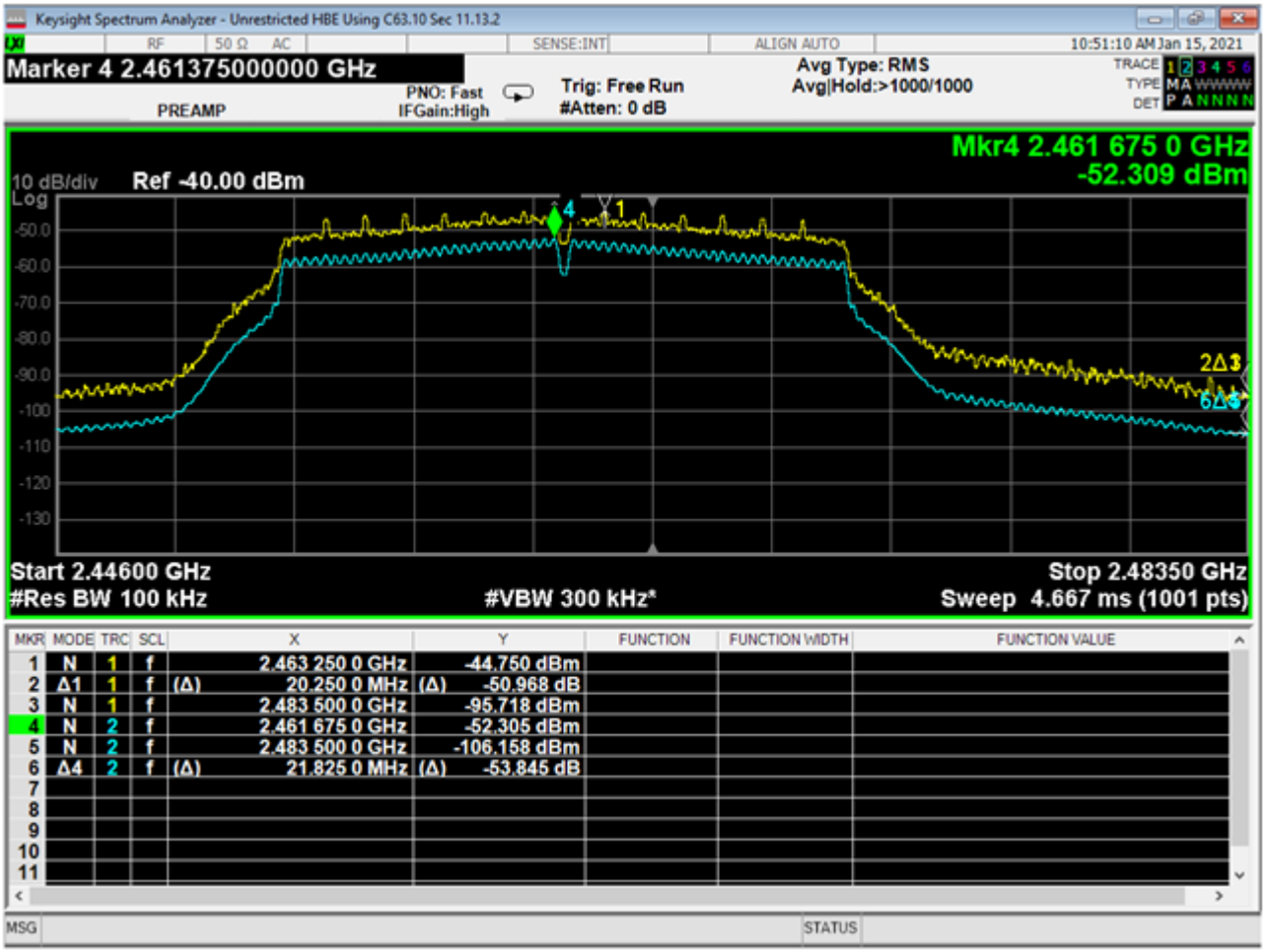
8. 802.11 G Modulation, Lower Band edge, Unrestricted

Relative measurements only.Peak measurements are reported in the results table in section 4.0.



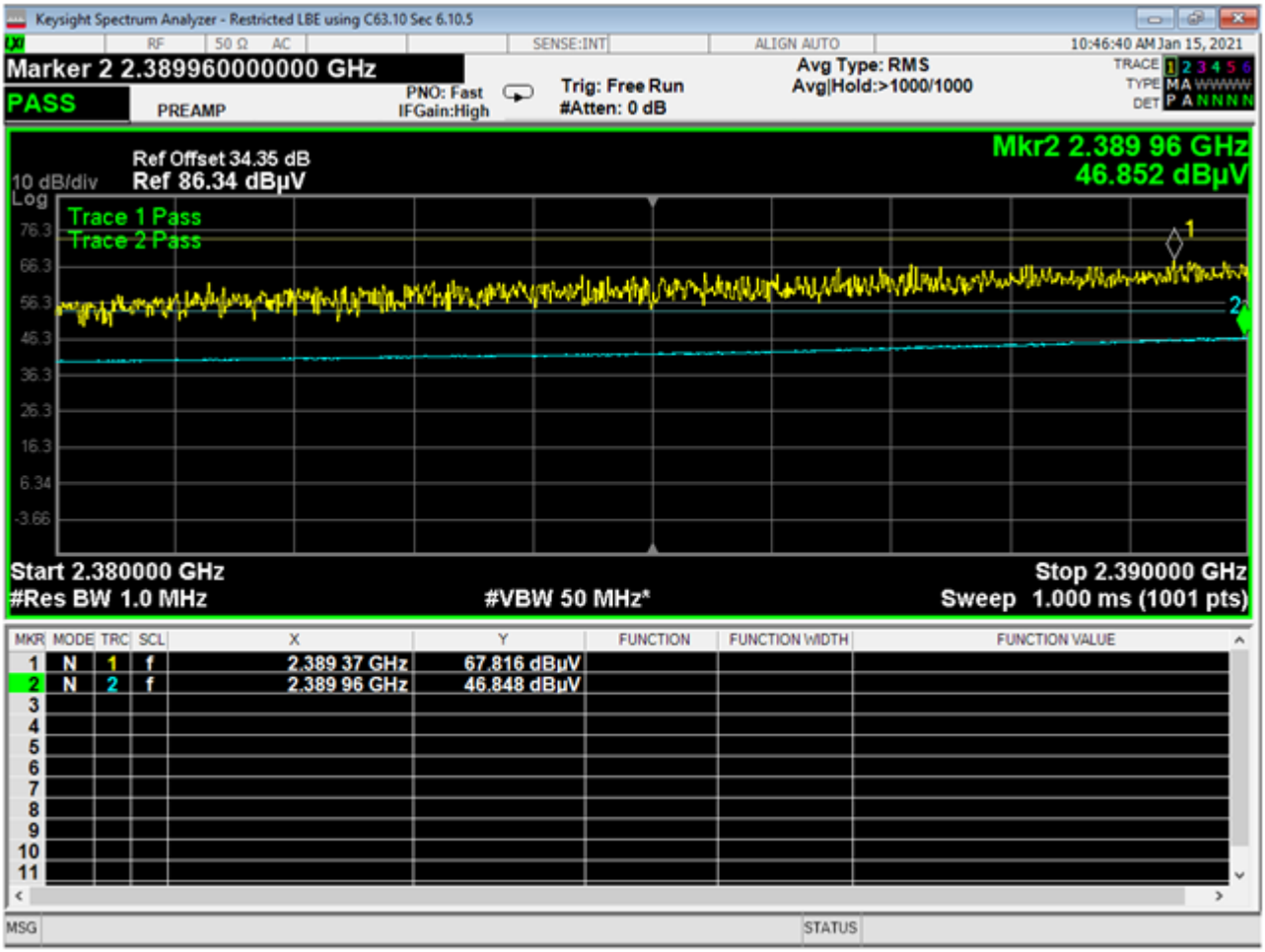
9. 802.11 N Modulation, Higher Band edge, Restricted

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above. Use of average detector is permitted as the duty cycle of the radio for these tests was > 98 percent. Corrections are included in the graph.



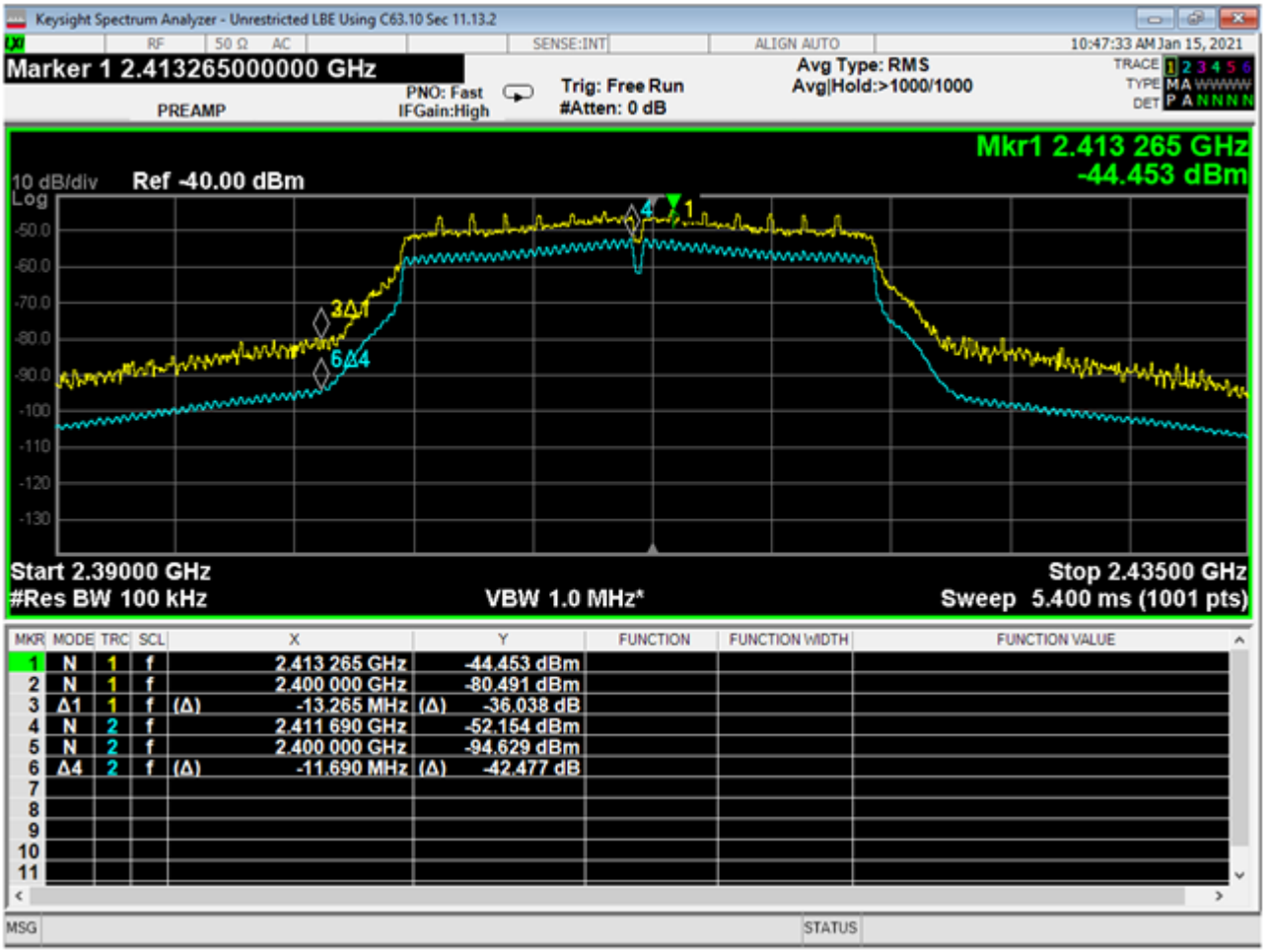
10. 802.11 N Modulation, Higher Band edge, Unrestricted

Relative measurements only.Peak measurements are reported in the results table in section 4.0.



11. 802.11 N Modulation, Lower Band edge, Restricted

The EUT was maximized in all 3 orthogonal axis. The worst-case is shown in the plot and table above. Use of average detector is permitted as the duty cycle of the radio for these tests was > 98 percent. Corrections are included in the graph.



12. 802.11 N Modulation, Lower Band edge, Unrestricted

Relative measurements only.Peak measurements are reported in the results table in section 4.0.

REPORT END