



CERTIFICATION TEST REPORT

Report Number. : R12663957C-E3

Applicant : Bose Corporation
100 The Mountain
Framingham, MA 01701, USA

Model : 427929

FCC ID : A94427929

IC : 3232A-427929

EUT Description : Charging Case

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5

Date Of Issue:
2019-03-28

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2019-03-28	Initial Issue	Niklas Haydon

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Bose Corporation
100 The Mountain
Framingham, MA 01701, USA

EUT DESCRIPTION: Charging Case

MODEL: 427929

SERIAL NUMBER: Non-serialized

DATE TESTED: 2019-03-18 to 2019-03-25

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

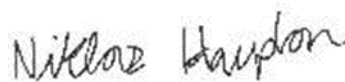
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Approved & Released For
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Prepared By:



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Engineering Project Handler
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UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05, RSS-GEN Issue 5, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Drive, Research Triangle Park, North Carolina, USA and 2800 Suite Perimeter Park Dr., Morrisville, North Carolina, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

12 Laboratory Dr.		2800 Suite Perimeter Park Dr.	
<input type="checkbox"/>	Chamber A (ISED:2180C-1)	<input type="checkbox"/>	Chamber North (ISED:2180C-3)
<input type="checkbox"/>	Chamber C (ISED:2180C-2)	<input checked="" type="checkbox"/>	Chamber South (ISED:2180C-4)

The above test sites and facilities are covered under FCC Test Firm Registration # 703469. Chambers above are covered under Industry Canada company address and respective code.

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable} \\ &\text{Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Final Voltage (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \\ &\text{LISN Insertion Loss.} \\ 36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} &= 46.6 \text{ dBuV} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	2.00%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	3.05 dB
All emissions, radiated	4.88 dB
Temperature	2.26°C
Humidity	6.79%
DC Supply voltages	1.70%
Time	3.39%

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a BLE charging case.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BLE	-0.89	0.81

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PCB inverted L antenna, with a maximum gain of 5.75 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was:

BT firmware version 13944.

Audio firmware version 5360.

Apps0 firmware version 1213.

Apps1 firmware version 1547165335.

The EUT driver software installed in the host support equipment during testing was 97.0.0.0

The test utility software, BlueTest3, used during testing was 3.1.4

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions 1-18GHz were performed with the EUT set to low, mid, and high channels. Radiated emission below 1GHz and above 18GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power and PSD as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates as provided by the client were:

BLE: 1 Mbps.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Bose	F5V-1.6C-1U-US	076215Z71504342AE	N/A

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC In	1	AC Plug	N/A	0	Wall-wart adapter
2	DC Out	1	USB-A	Shielded	0.3	Output of AC adapter
3	DC In	1	USB-C	Shielded	0.3	Input of EUT

TEST SETUP

The EUT is setup as standalone equipment.

SETUP DIAGRAMS

Please refer to R12663957C-EP3 for setup diagrams

6. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10 Section 11.6

6 dB BW: ANSI C63.10 Subclause -11.8.1

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

General Radiated Emissions: ANSI C63.10:2013 Sections 6.3 – 6.6

Radiated Band-edge: ANSI C63.10-2013 Section 6.10.5

Out-of-band emissions in non-restricted bands: ANSI C63.10-2013 Section 11.11 & 6.10.4

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
SN 181474341	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27
81018	Spectrum Analyzer	Agilent Technologies	E4446A	2018-04-12	2019-04-12
PWM002	RF Power Meter	Keysight Technologies	N1911A	2018-07-30	2019-07-30
PWS002	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2018-07-30	2019-07-30
MM0168	True RMS Multimeter	Agilent	U1232A	2018-10-12	2019-10-31

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2019-01-24	2020-01-31
AT0074	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2018-07-24	2019-07-24
AT0069	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2018-04-30	2019-04-30
AT0076	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2018-11-08	2019-11-08
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2018-09-06	2019-09-06
S-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2018-05-20	2019-05-20
S-SAC03	Gain-loss string: 1-18GHz	Various	Various	2019-03-13	2020-03-13
S-SAC04	Gain-loss string: 18-40GHz	Various	Various	2018-09-30	2019-09-30
SA0025	Spectrum Analyzer	Agilent	N9030A	2019-02-28	2020-02-28
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2018-06-19	2019-06-19
s/n 181562858	Environmental Meter	Fisher Scientific	14-650-118	2018-09-04	2020-09-04
LISN003	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2018-08-21	2019-08-21
75141 (PRE0101521)	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2018-08-22	2019-08-22
TL001	Transient Limiter, 0.009-30MHz	Com-Power	LIT-930A	2018-06-13	2019-06-13
PS214	AC Power Source	Elgar	CW2501M (s/n 1523A02396)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Miscellaneous (if needed)				
MM0168	Multi-meter	Agilent	U1232A	2018-10-12	2019-10-31
CDECABLE001	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2018-07-16	2019-07-16

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

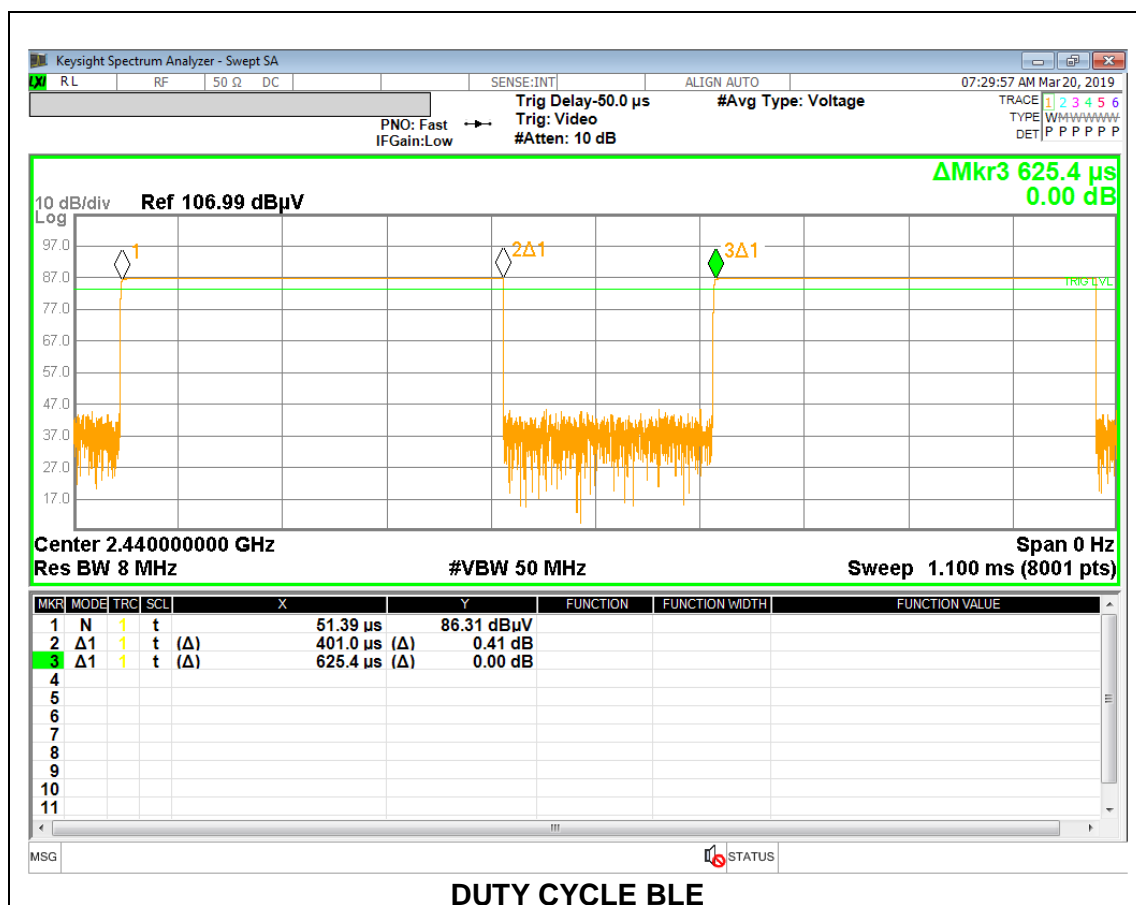
None; for reporting purposes only.

PROCEDURE

ANSI C63.10, Section 11.6 : Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
BLE	0.401	0.6254	0.641	64.12%	1.93	2.494



8.2. 99% BANDWIDTH

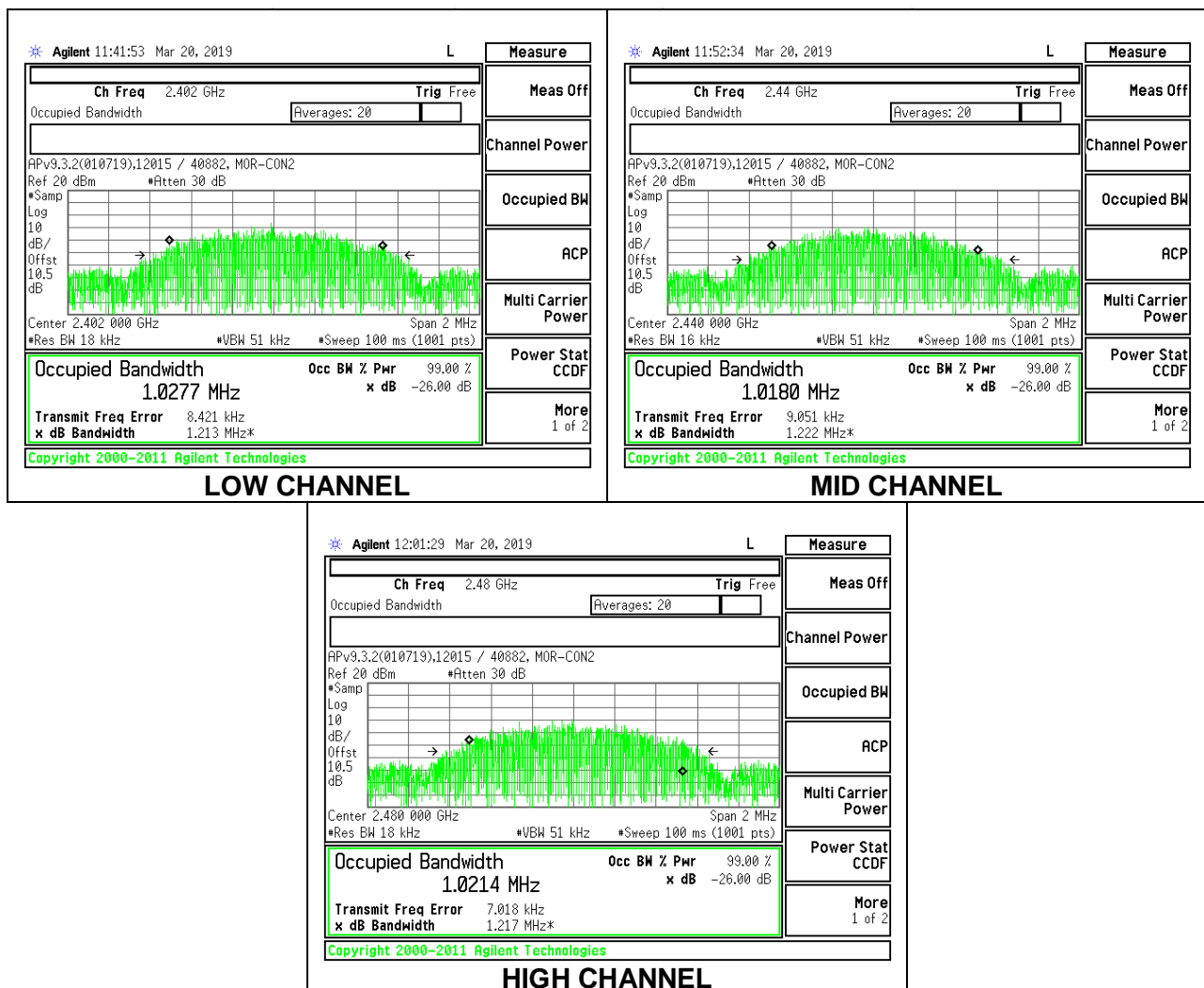
LIMITS

None; for reporting purposes only.

RESULTS

8.2.1. BLE (1Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0280
Middle	2440	1.0180
High	2480	1.0210



8.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

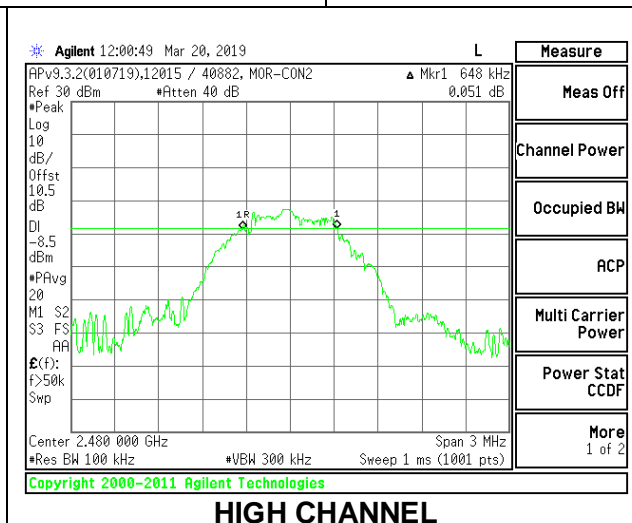
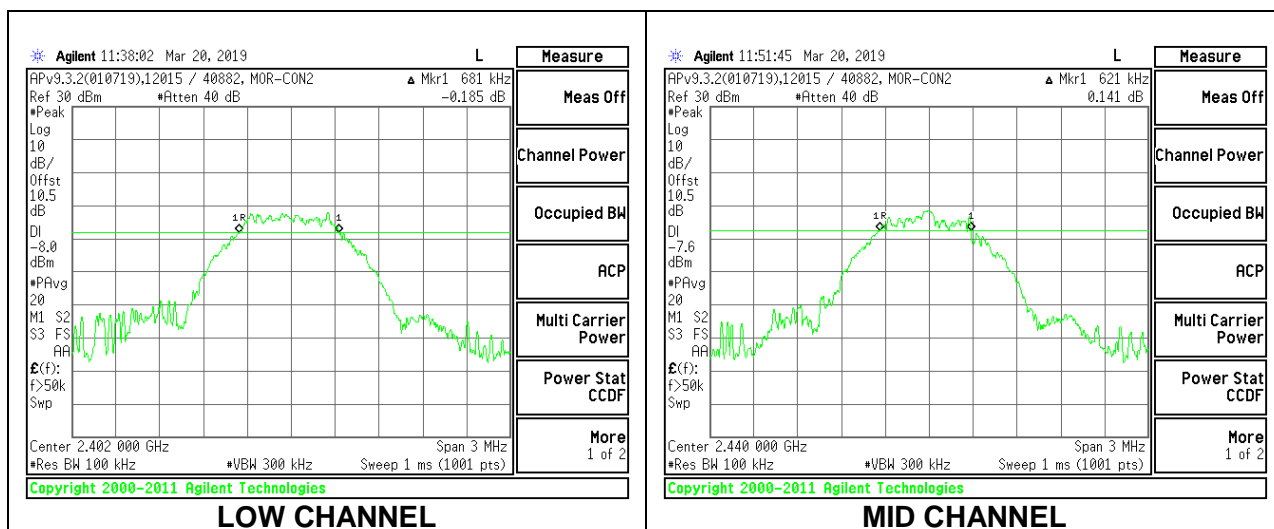
RSS-247 5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

8.3.1. BLE (1Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6810	0.5
Middle	2440	0.6210	0.5
High	2480	0.6480	0.5



8.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for a peak reading of power.

RESULTS

8.4.1. BLE (1Mbps)

Tested By:	12015 / 40882
Date:	2019-03-18

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-0.89	30	-30.890
Middle	2440	-1.43	30	-31.430
High	2480	-2.07	30	-32.070

8.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power.

RESULTS

8.5.1. BLE (1Mbps)

Tested By:	12015 / 40882
Date:	2019-03-18

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	-1.24
Middle	2440	-1.84
High	2480	-3.19

8.6. POWER SPECTRAL DENSITY

LIMITS

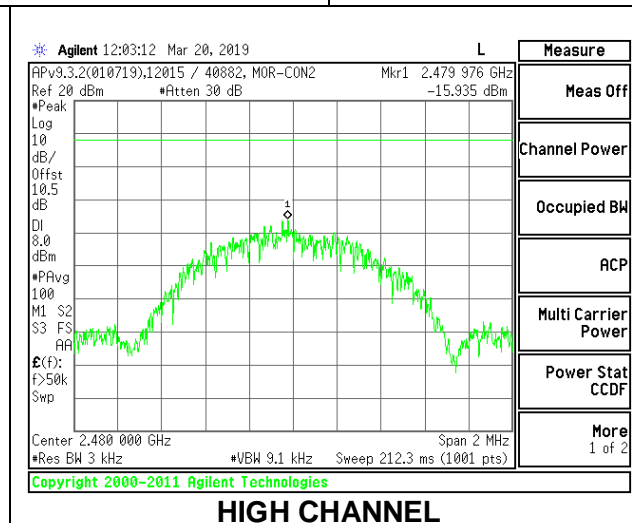
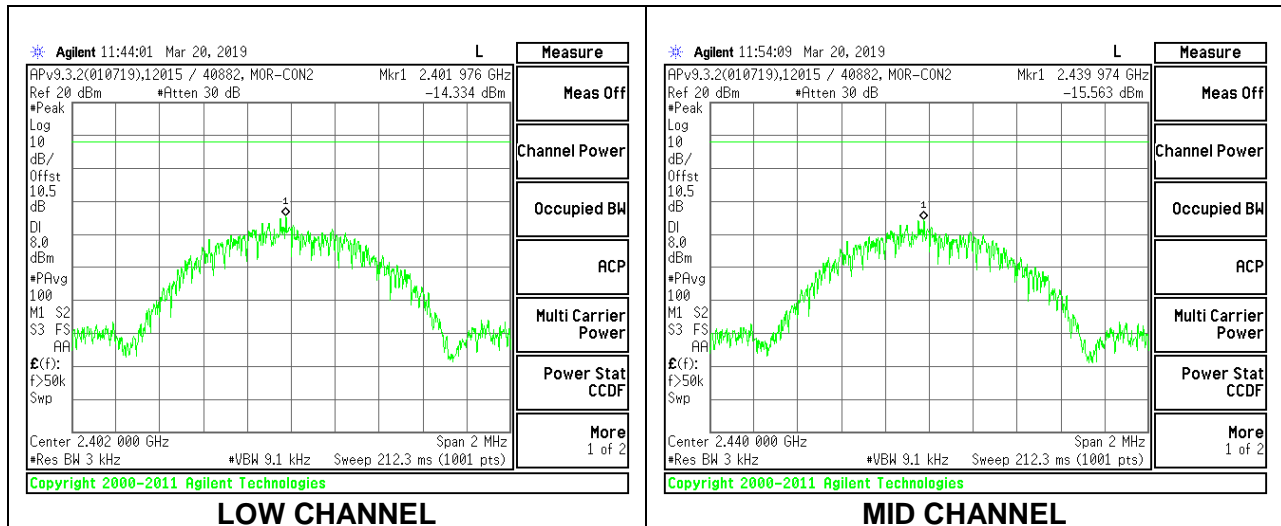
FCC §15.247 (e)
RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

8.6.1. BLE (1Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-14.33	8	-22.33
Middle	2440	-15.56	8	-23.56
High	2480	-15.94	8	-23.94



8.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

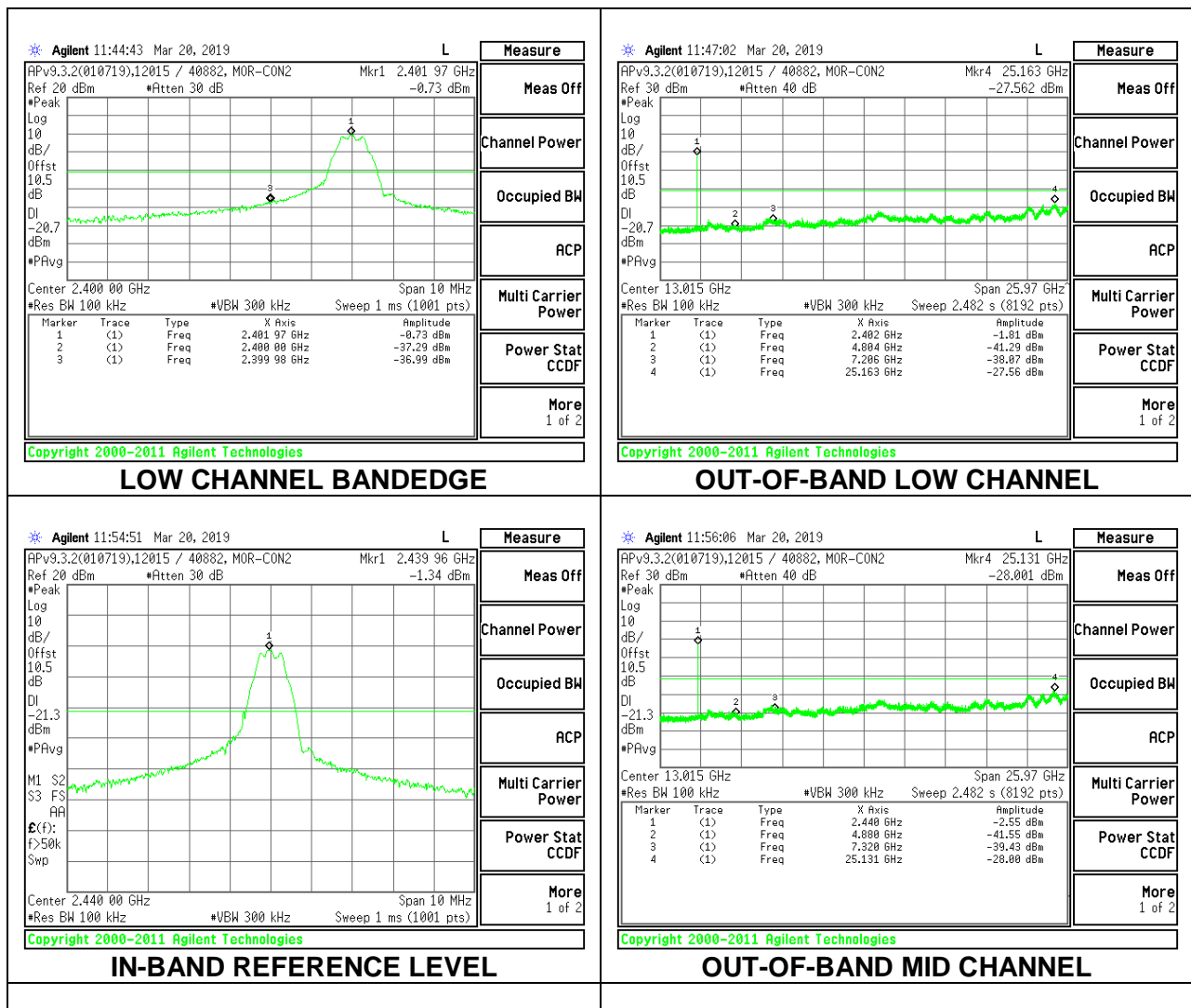
FCC §15.247 (d)

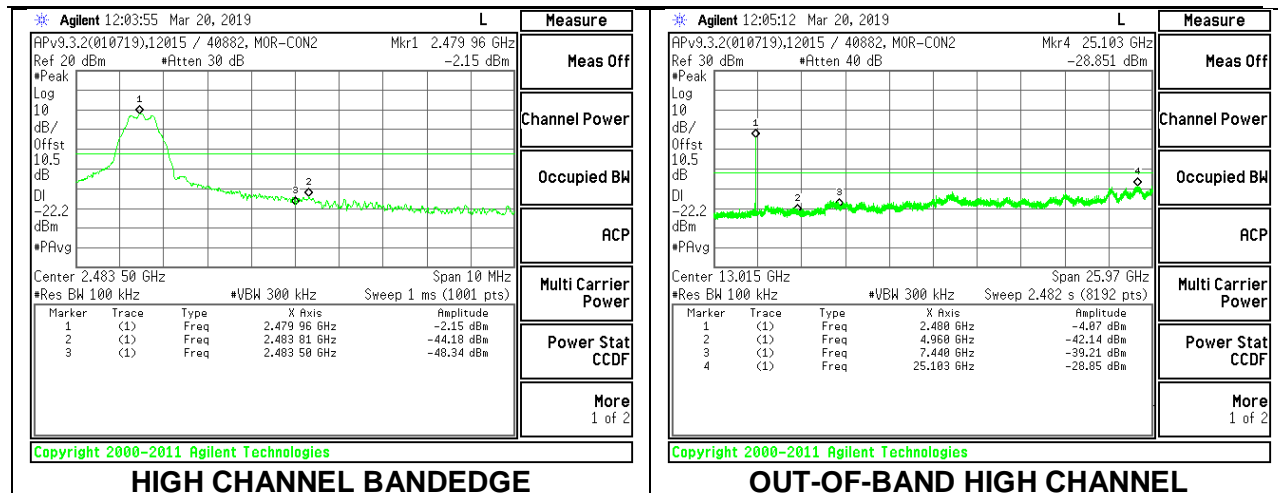
RSS-247 5.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS

8.7.1. BLE (1Mbps)





9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak and/or quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements. For average measurements above 1GHz, the resolution bandwidth and video bandwidth are set as described in ANSI C63.10:2013 for the applicable measurement. The particular averaging method used for this test program was RMS.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

KDB 414788 OATS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

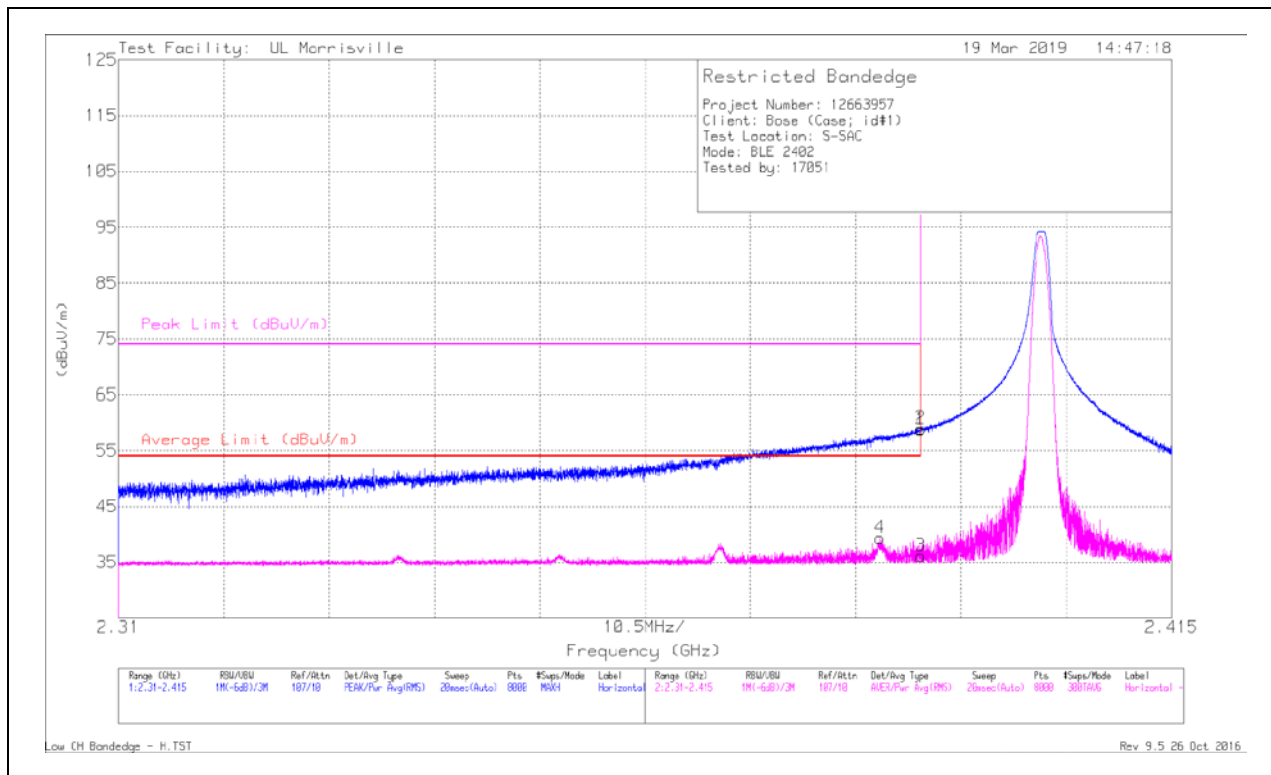
9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. BLE (1Mbps)

Antenna 1

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.39	50.76	Pk	32	-24	0	58.76	-	-	74	-15.24	310	118	H
2	* ** 2.39	50.91	Pk	32	-24	0	58.91	-	-	74	-15.09	310	118	H
3	* ** 2.39	26.21	RMS	32	-24	1.93	36.14	54	-17.86	-	-	310	118	H
4	* ** 2.386	29.38	RMS	32	-24	1.93	39.31	54	-14.69	-	-	310	118	H

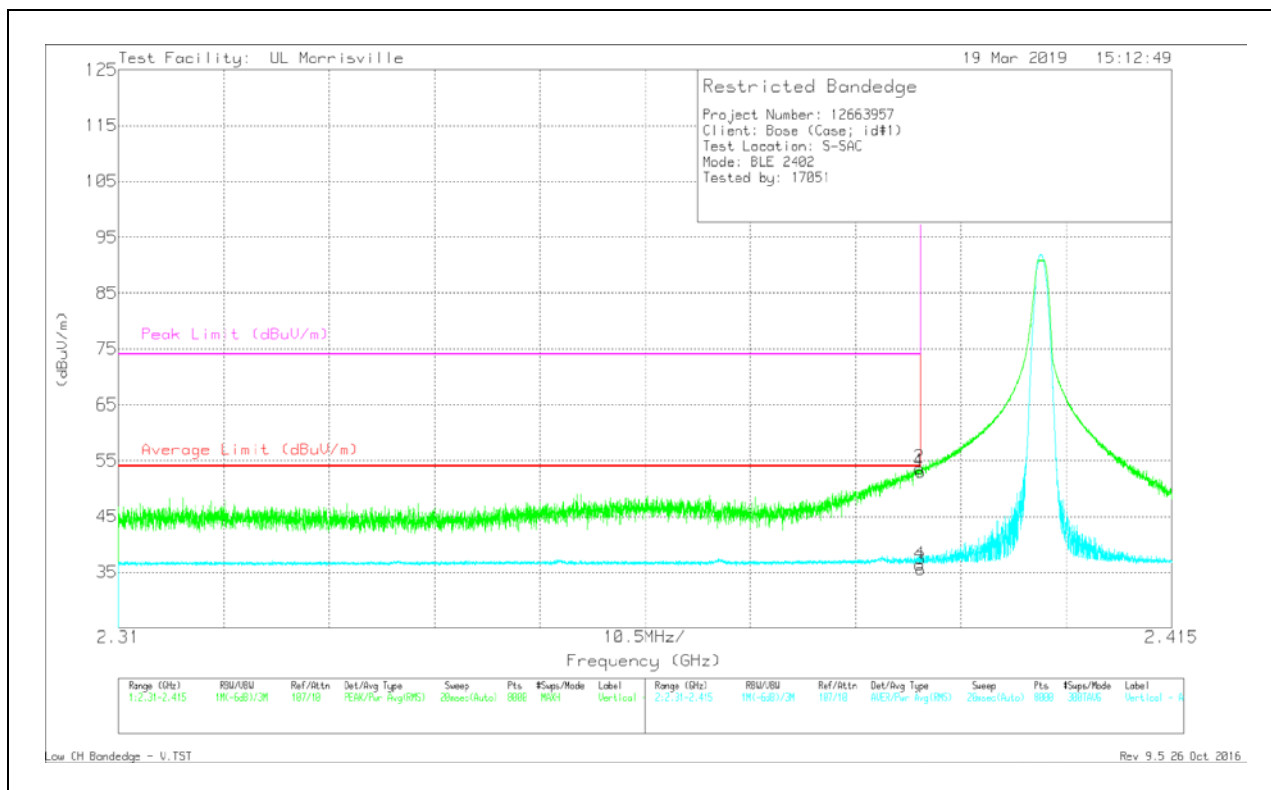
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.39	45.07	Pk	32	-24	0	53.07	-	-	74	-20.93	348	342	V
2	*** 2.39	45.68	Pk	32	-24	0	53.68	-	-	74	-20.32	348	342	V
3	*** 2.39	25.6	RMS	32	-24	1.93	35.53	54	-18.47	-	-	348	342	V
4	*** 2.39	26.44	RMS	32	-24	1.93	36.37	54	-17.63	-	-	348	342	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

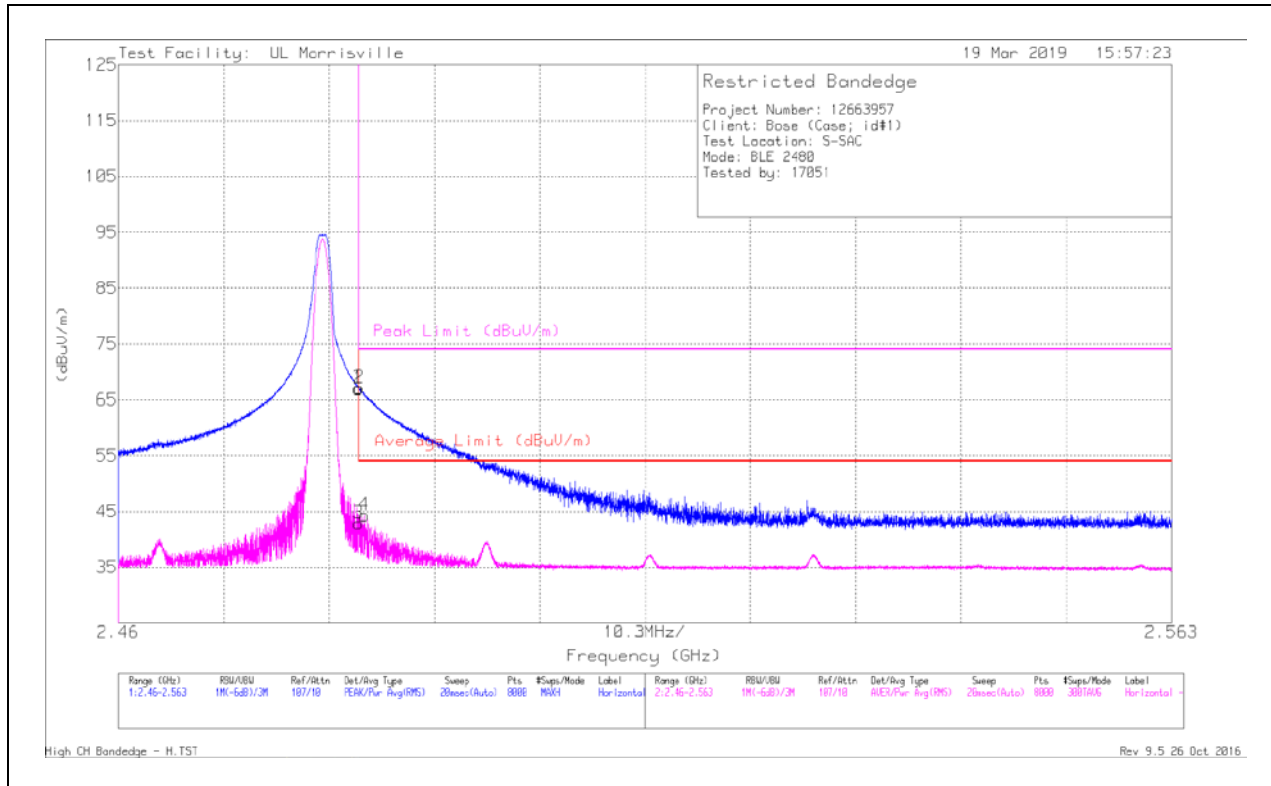
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.484	59.12	Pk	32.4	-24.5	0	67.02	-	-	74	-6.98	306	113	H
2	*** 2.484	59.2	Pk	32.4	-24.5	0	67.1	-	-	74	-6.9	306	113	H
3	*** 2.484	33.02	RMS	32.4	-24.5	1.93	42.85	54	-11.15	-	-	306	113	H
4	*** 2.484	34.46	RMS	32.4	-24.5	1.93	44.29	54	-9.71	-	-	306	113	H

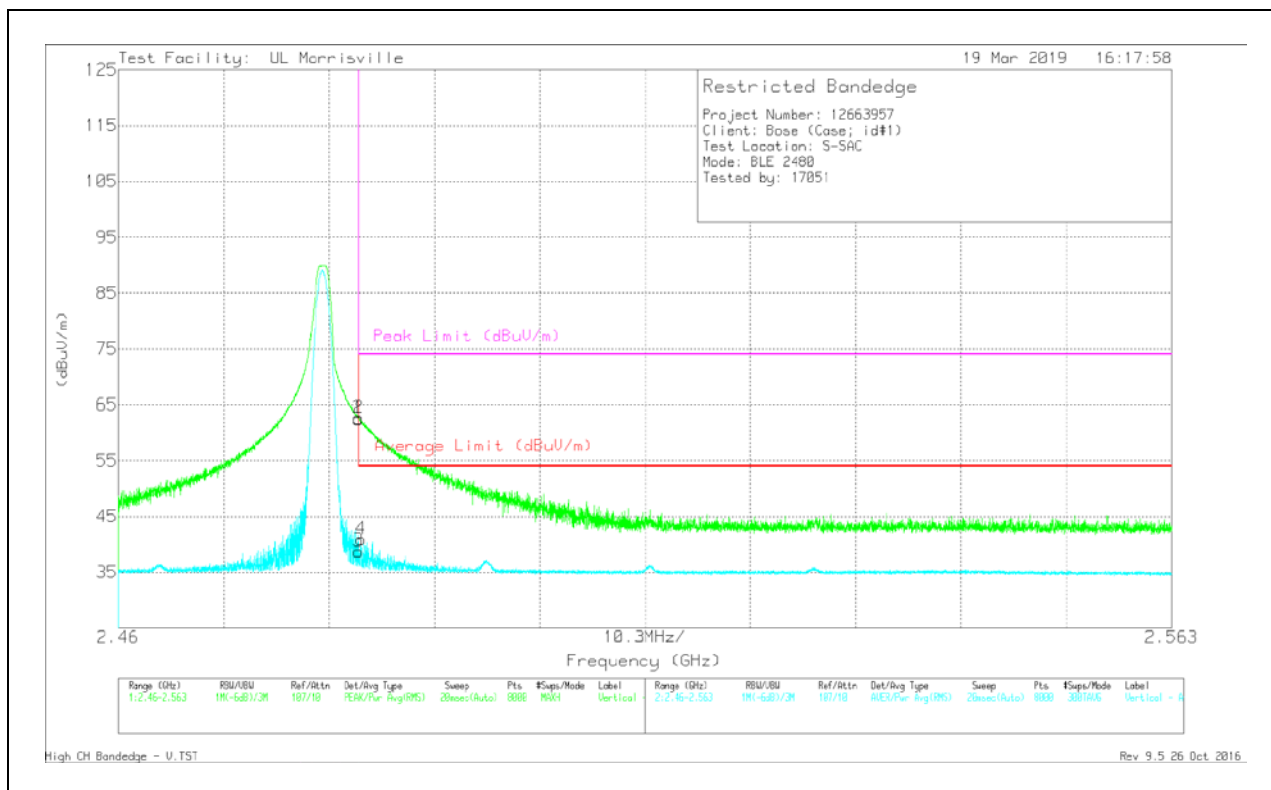
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.484	54.58	Pk	32.4	-24.5	0	62.48	-	-	74	-11.52	352	359	V
2	*** 2.484	54.73	Pk	32.4	-24.5	0	62.63	-	-	74	-11.37	352	359	V
3	*** 2.484	28.93	RMS	32.4	-24.5	1.93	38.76	54	-15.24	-	-	352	359	V
4	*** 2.484	31.06	RMS	32.4	-24.5	1.93	40.89	54	-13.11	-	-	352	359	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

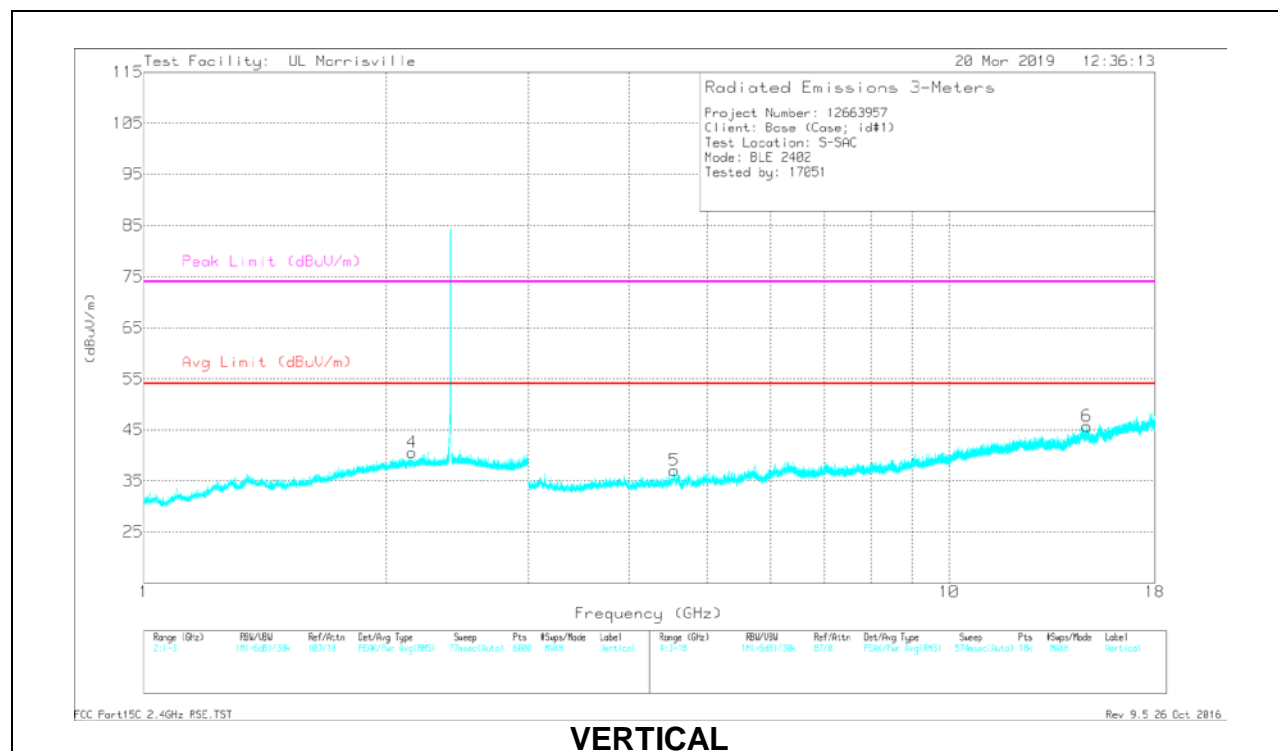
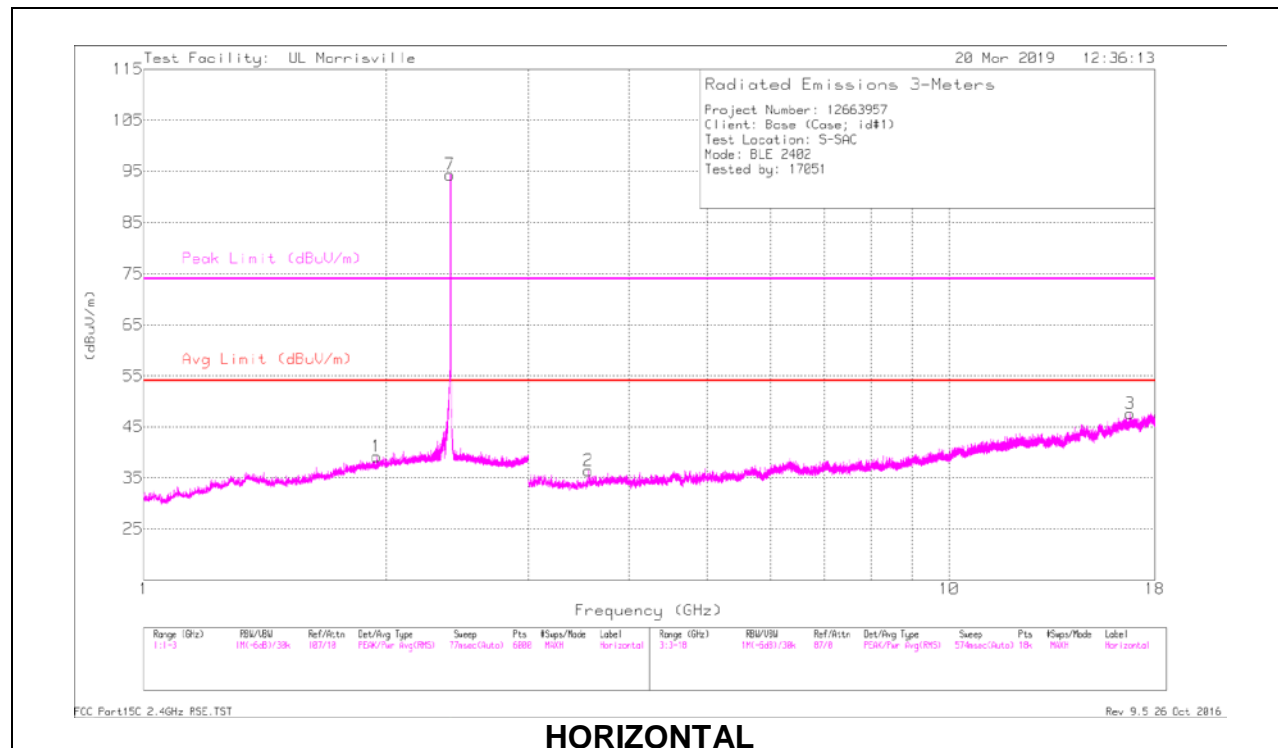
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* ** 3.566	40.92	PK2	33	-32.2	0	41.72	-	-	74	-32.28	222	284	H
* ** 3.56	28.82	MAv1	33	-32.2	1.93	31.55	54	-22.45	-	-	222	284	H
* ** 4.564	40.27	PK2	34	-31.3	0	42.97	-	-	74	-31.03	337	315	V
* ** 4.547	28.45	MAv1	34	-31.4	1.93	32.98	54	-21.02	-	-	337	315	V
** 1.947	36.02	PK2	30.7	-22.4	0	44.32	-	-	-	-	29	198	H
** 1.946	23.95	MAv1	30.7	-22.4	1.93	34.18	-	-	-	-	29	198	H
** 2.152	36.67	PK2	31.5	-23	0	45.17	-	-	-	-	206	103	V
** 2.154	24.67	MAv1	31.5	-23	1.93	35.1	-	-	-	-	206	103	V

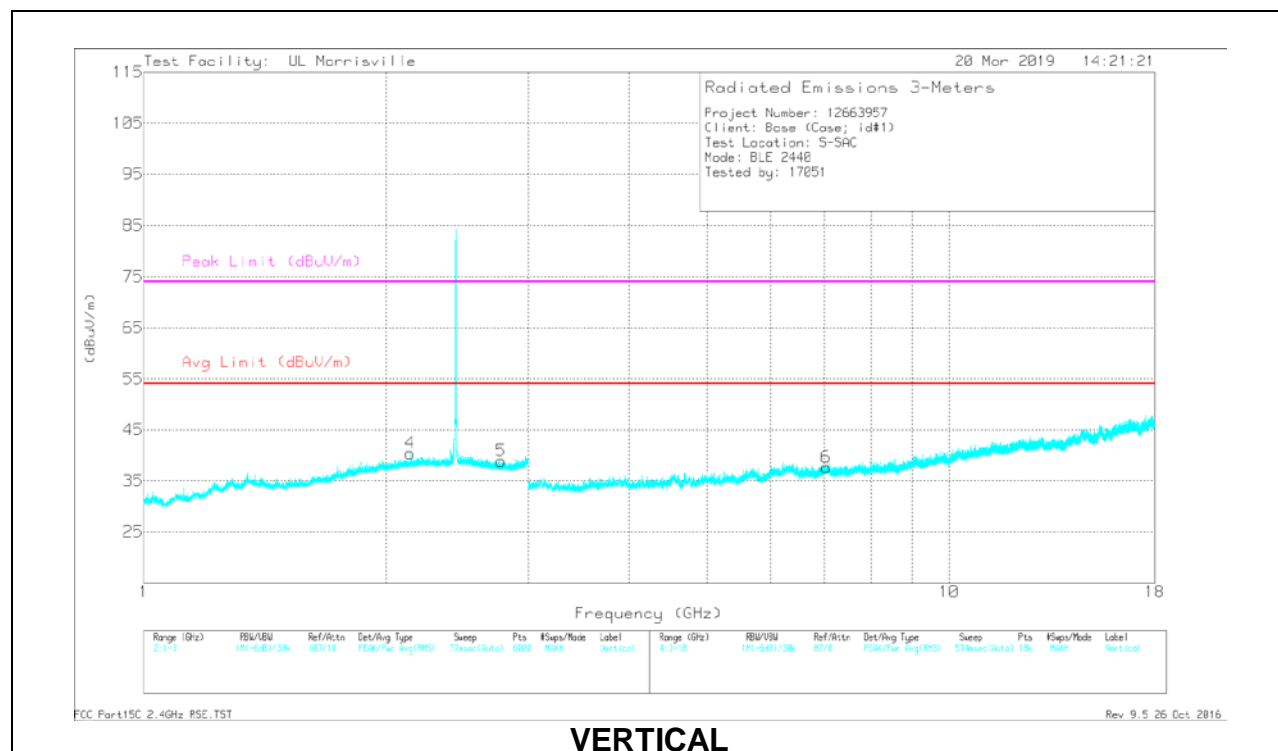
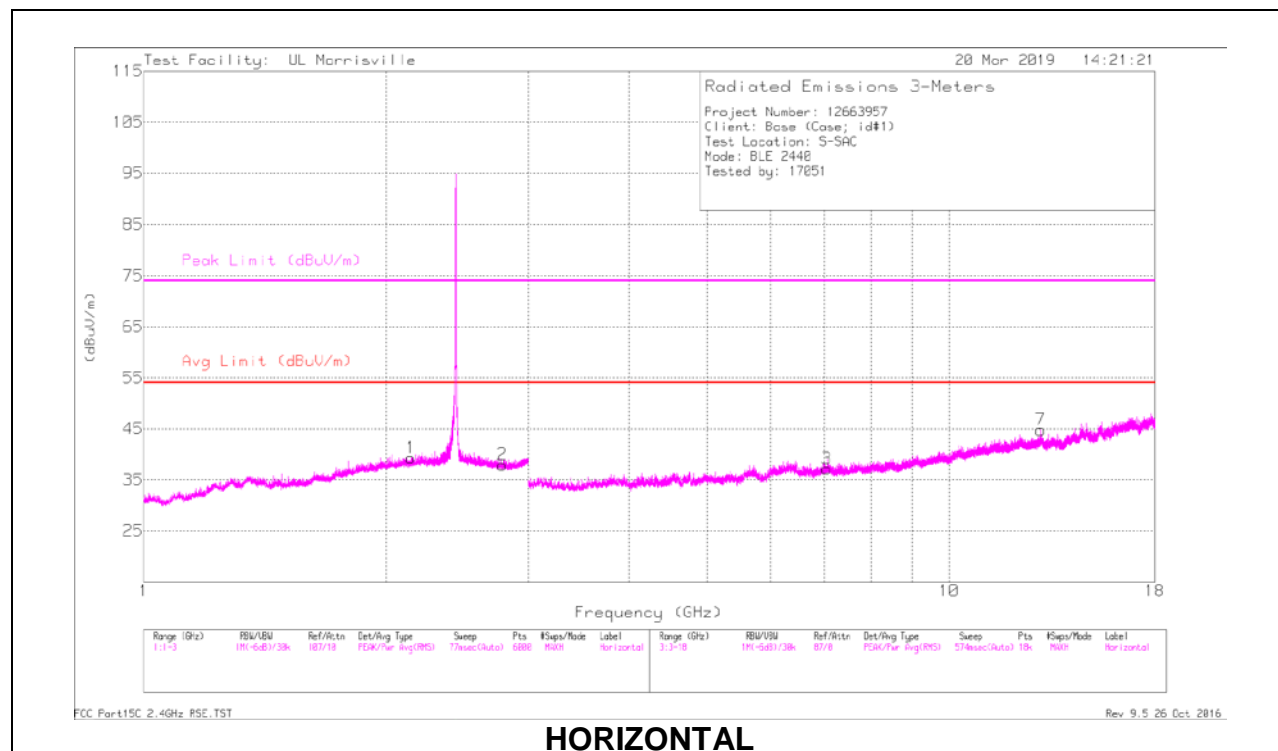
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

MAv1 - Maximum RMS Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* ** 2.785	37.91	PK2	32.3	-25.9	0	44.31	-	-	74	-29.69	289	312	H
* ** 2.787	25.89	MAv1	32.3	-25.9	1.93	34.22	54	-19.78	-	-	289	312	H
* ** 2.785	38.04	PK2	32.3	-25.9	0	44.44	-	-	74	-29.56	348	381	V
* ** 2.771	25.86	MAv1	32.3	-25.8	1.93	34.29	54	-19.71	-	-	348	381	V
** 2.145	36.68	PK2	31.5	-23	0	45.18	-	-	-	-	109	382	H
** 2.146	24.61	MAv1	31.5	-23	1.93	35.04	-	-	-	-	109	382	H
** 2.142	36.78	PK2	31.5	-23	0	45.28	-	-	-	-	37	352	V
** 2.151	24.61	MAv1	31.5	-23	1.93	35.04	-	-	-	-	37	352	V
7.036	36.39	PK2	35.6	-27.6	0	44.39	-	-	-	-	31	111	V
7.047	24.74	MAv1	35.6	-27.7	1.93	34.57	-	-	-	-	31	111	V
7.057	24.89	MAv1	35.6	-27.8	1.93	34.62	-	-	-	-	13	328	H
7.058	36.27	PK2	35.6	-27.8	0	44.07	-	-	-	-	13	328	H

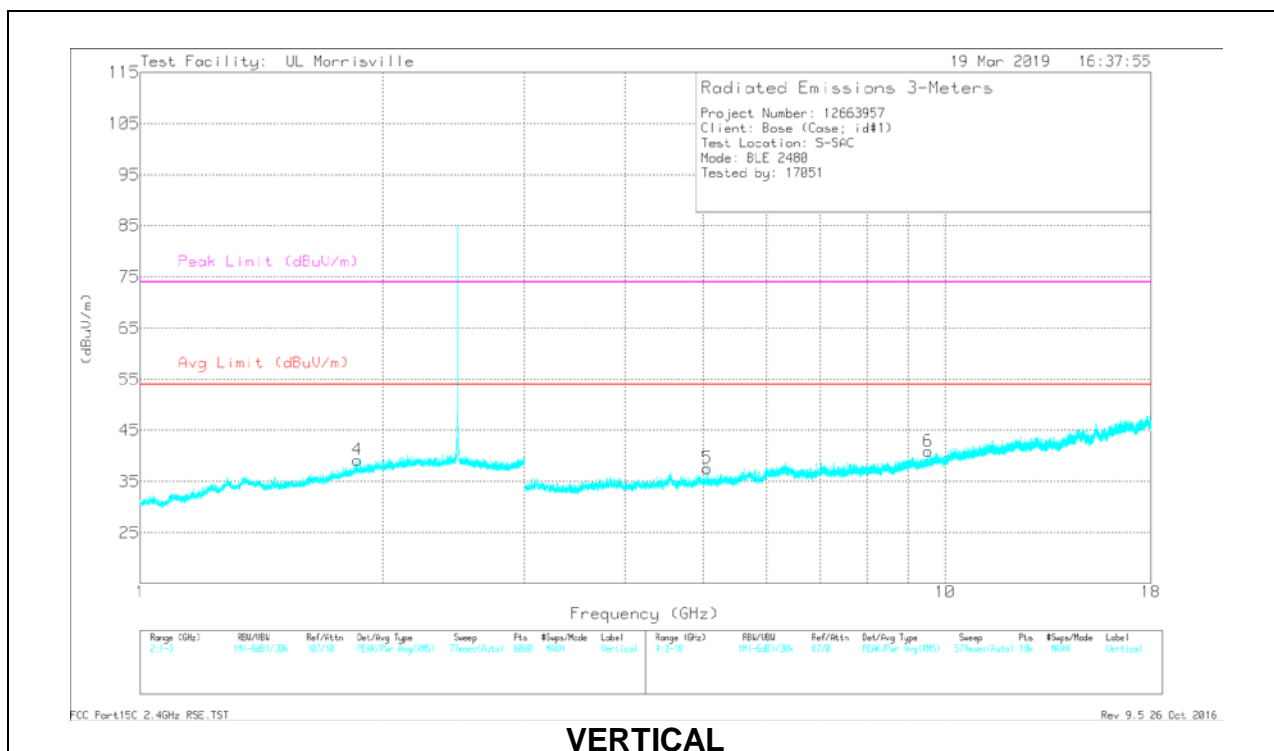
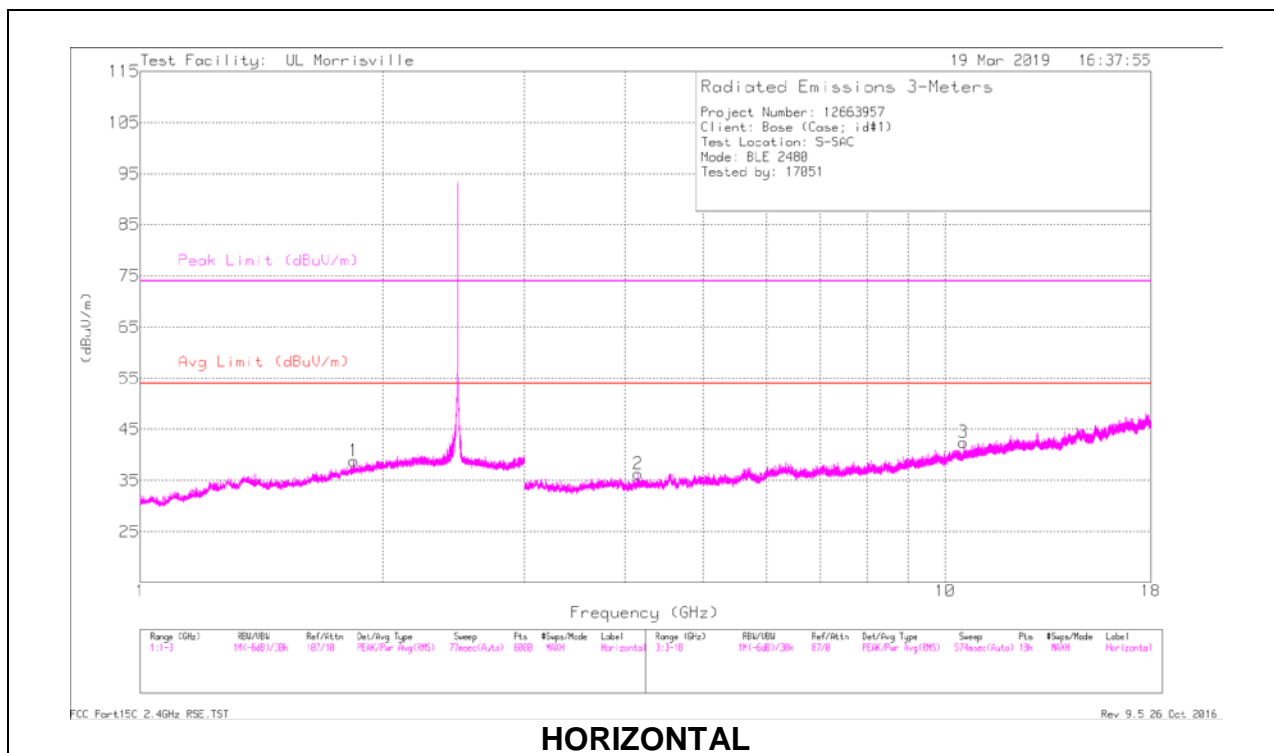
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

MAv1 - Maximum RMS Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 AF (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* ** 4.151	39.93	PK2	33.3	-31.5	0	41.73	-	-	74	-32.27	187	231	H
* ** 4.151	28.08	MAv1	33.3	-31.5	1.93	31.81	54	-22.19	-	-	187	231	H
* ** 5.06	40.1	PK2	34	-31.1	0	43	-	-	74	-31	50	155	V
* ** 5.06	27.45	MAv1	34	-31.1	1.93	32.28	54	-21.72	-	-	50	155	V
** 1.843	23.91	MAv1	30.4	-22.3	1.93	33.94	-	-	-	-	208	100	H
** 1.844	36.51	PK2	30.4	-22.3	0	44.61	-	-	-	-	208	100	H
** 1.863	36.32	PK2	30.5	-22.4	0	44.42	-	-	-	-	97	199	V
** 1.863	23.97	MAv1	30.5	-22.4	1.93	34	-	-	-	-	97	199	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

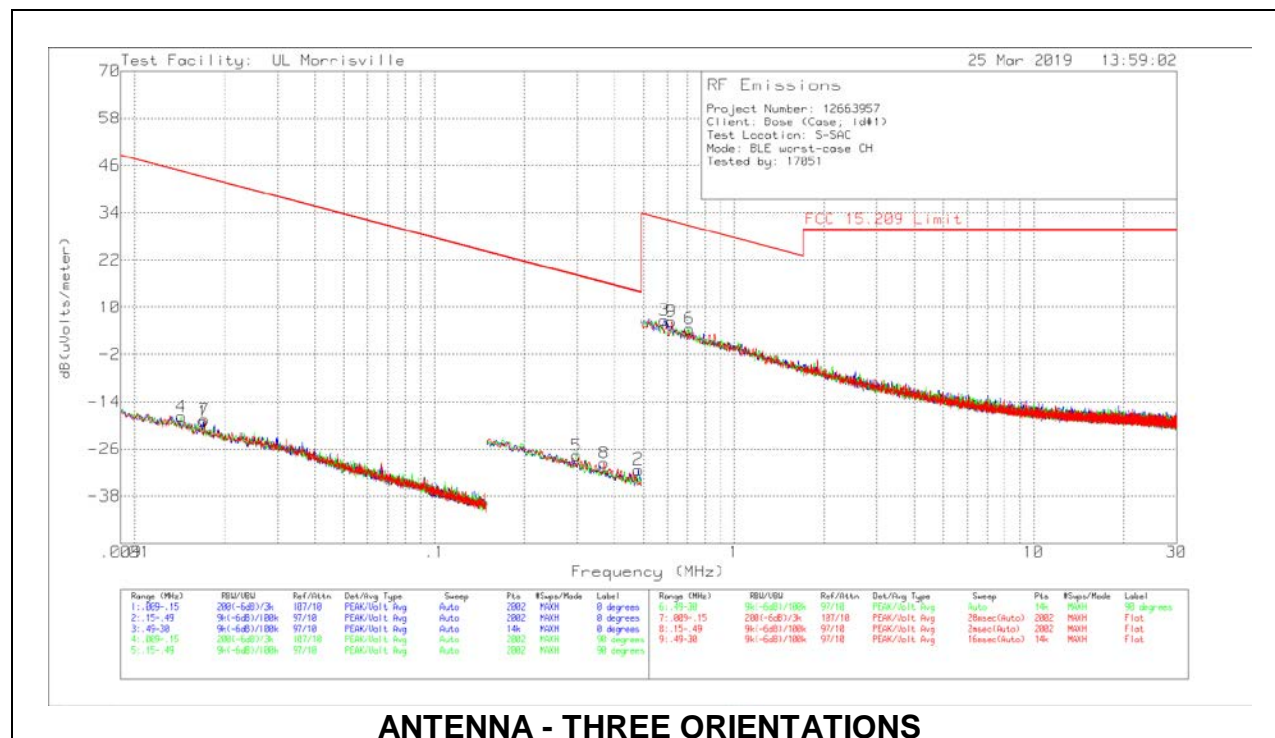
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

MAv1 - Maximum RMS Average

9.3. WORST CASE BELOW 30MHZ

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



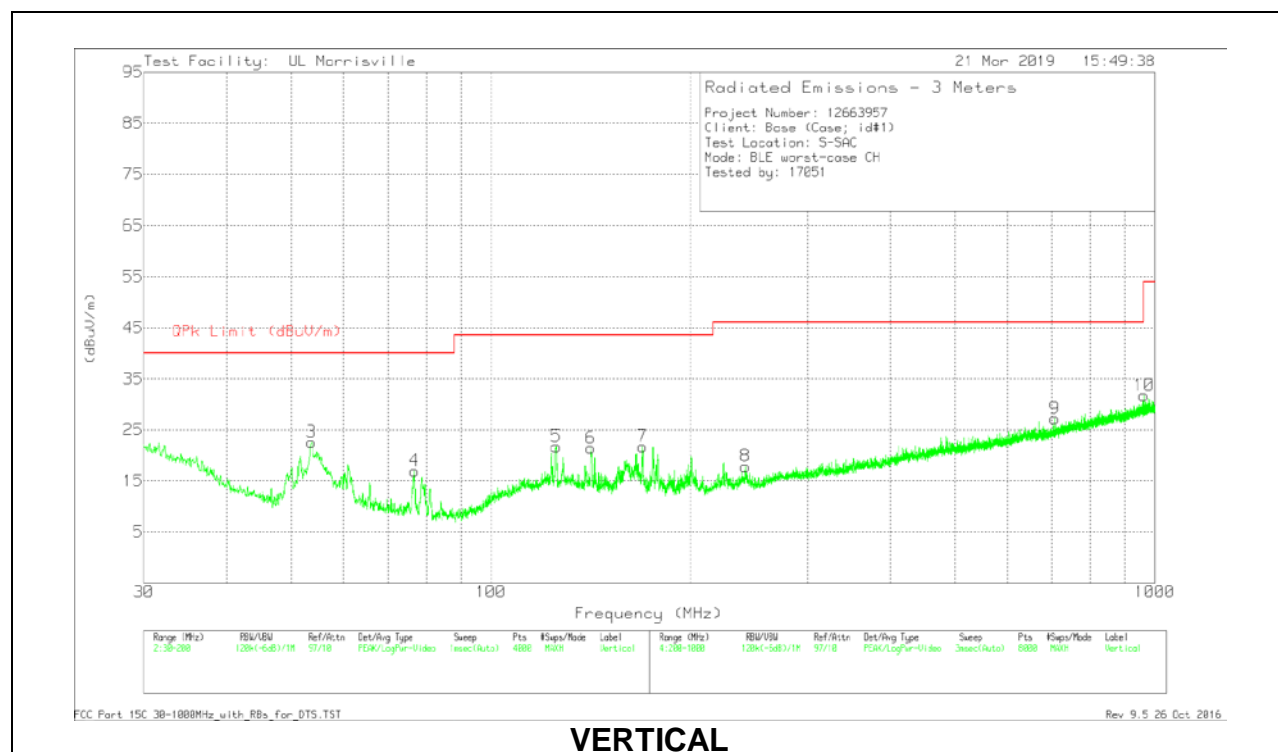
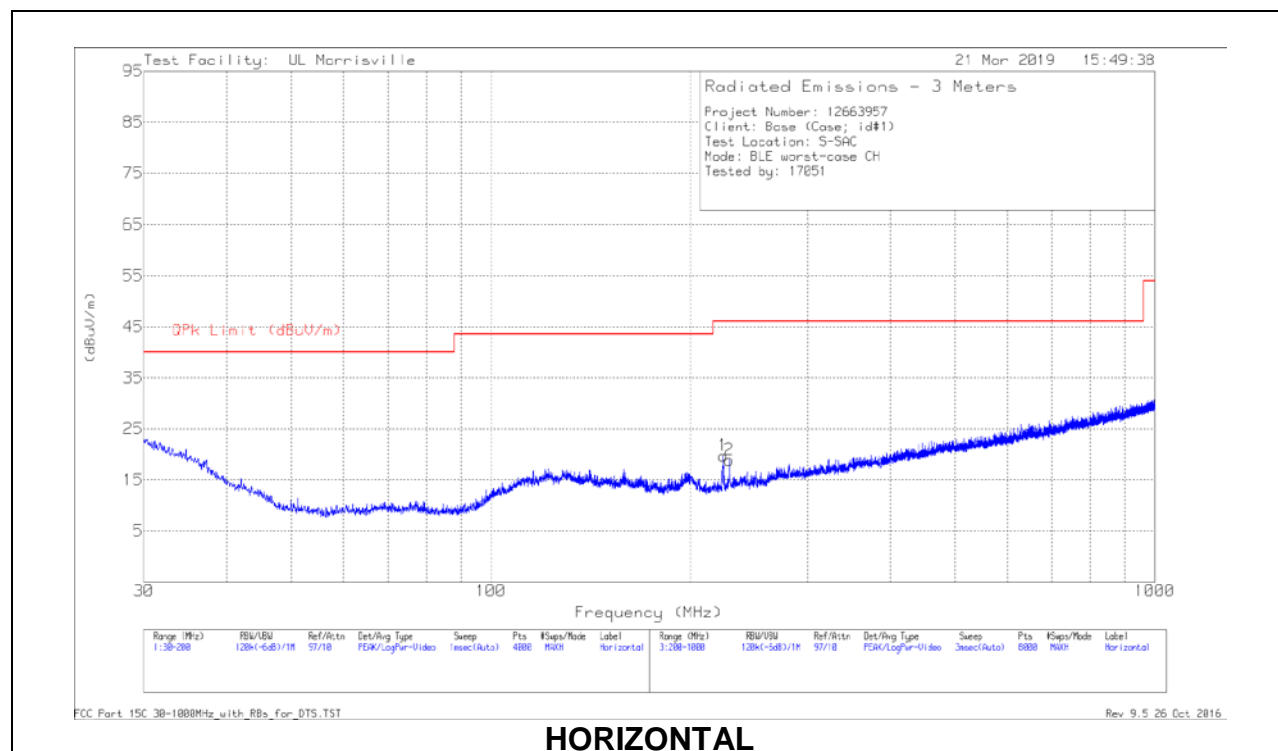
Below 30MHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 Limit	Margin (dB)	Azimuth (Degs)
Loop antenna: 0 degrees.										
1	.01691	45.53	Pk	15.3	.1	-80	-19.07	43.04	-62.11	0-360
2	.47955	37.84	Pk	10.8	.1	-80	-31.26	13.99	-45.25	0-360
3	.58697	35.8	Pk	10.8	.1	-40	6.7	32.23	-25.53	0-360
Loop antenna: 90 degrees.										
4	.01432	45.7	Pk	16.4	.1	-80	-17.8	44.49	-62.29	0-360
5	.29765	41.59	Pk	10.6	.1	-80	-27.71	18.13	-45.84	0-360
6	.71029	33.65	Pk	10.8	.1	-40	4.55	30.58	-26.03	0-360
Loop antenna: Flat.										
7	.01712	46.09	Pk	15.2	.1	-80	-18.61	42.93	-61.54	0-360
8	.36837	39.76	Pk	10.6	.1	-80	-29.54	16.28	-45.82	0-360
9	.61859	35.45	Pk	10.8	.1	-40	6.35	31.78	-25.43	0-360

Pk - Peak detector

9.4. WORST CASE BELOW 1 GHZ

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



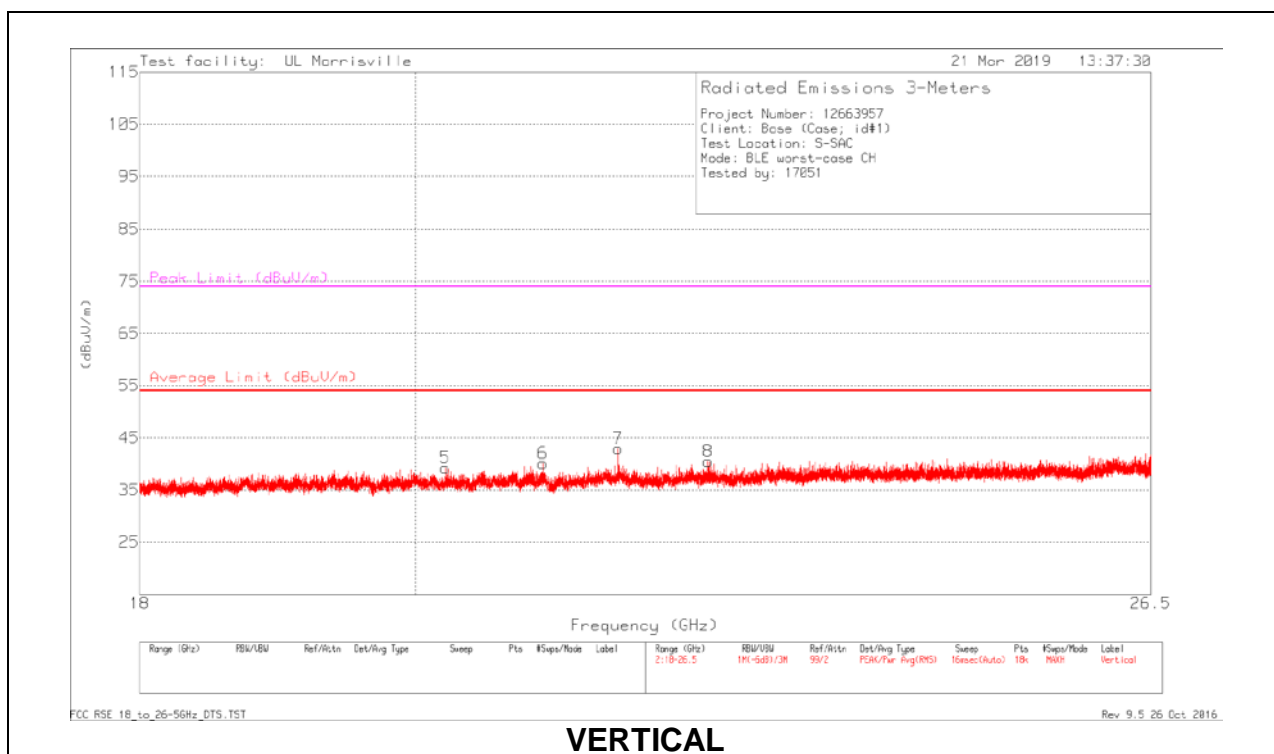
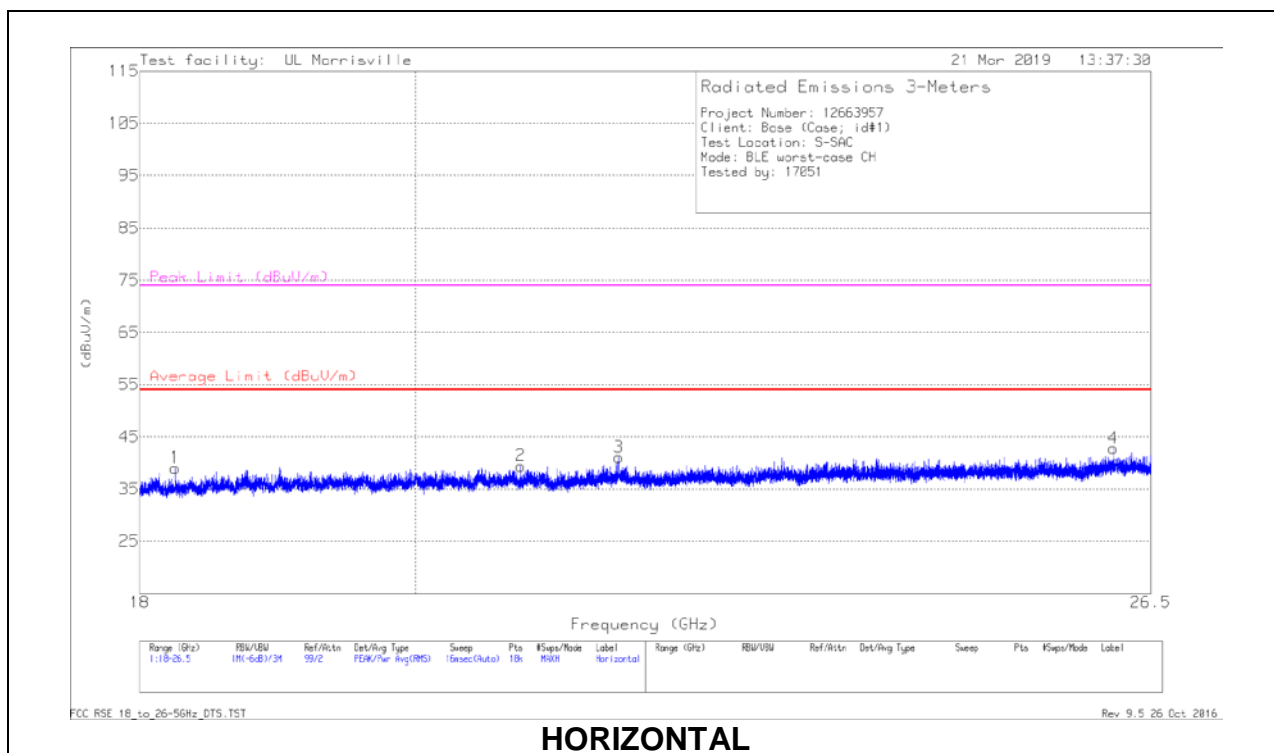
Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0074 AF (dB/m)	Cbl/Amp	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* ** 125.4372	34.34	Pk	18.2	-30.8	21.74	43.52	-21.78	0-360	102	V
7	* ** 169.266	35.73	Pk	16.4	-30.4	21.73	43.52	-21.79	0-360	102	V
8	* ** 241.8054	31.36	Pk	16.4	-29.9	17.86	46.02	-28.16	0-360	102	V
9	** 707.2659	30.61	Pk	24.8	-28.2	27.21	46.02	-18.81	0-360	198	V
10	* ** 963.4992	30.45	Pk	27.6	-26.3	31.75	53.97	-22.22	0-360	299	V
3	53.6786	42.11	Pk	12	-31.5	22.61	40	-17.39	0-360	102	V
4	76.6771	35.97	Pk	12.3	-31.3	16.97	40	-23.03	0-360	102	V
6	141.4851	34.52	Pk	17.5	-30.6	21.42	43.52	-22.1	0-360	102	V
1	223.8031	34.14	Pk	15.7	-30.1	19.74	46.02	-26.28	0-360	198	H
2	228.4037	33.08	Pk	15.8	-30	18.88	46.02	-27.14	0-360	398	H

Pk - Peak detector

9.5. WORST CASE 18-26 GHZ

SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0076 AF (dB/m)	Cbl/Amp (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 18.246	45.93	Pk	32.3	-39.2	0	39.03	54	-14.97	74	-34.97	0-360	102	H
2	* ** 20.825	44.72	Pk	33	-38.3	0	39.42	54	-14.58	74	-34.58	0-360	199	H
5	* ** 20.233	44.85	Pk	32.9	-38.5	0	39.25	54	-14.75	74	-34.75	0-360	300	V
6	* ** 21.001	45.12	Pk	33.2	-38.2	0	40.12	54	-13.88	74	-33.88	0-360	300	V
8	* ** 22.371	45.09	Pk	33.5	-38.1	0	40.49	54	-13.51	74	-33.51	0-360	151	V
7	21.616	47.73	Pk	33.3	-38.1	0	42.93	54	-11.07	74	-31.07	0-360	101	V
3	21.617	45.89	Pk	33.3	-38.1	0	41.09	54	-12.91	74	-32.91	0-360	102	H
4	26.124	44.22	Pk	34.6	-36	0	42.82	54	-11.18	74	-31.18	0-360	299	H

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

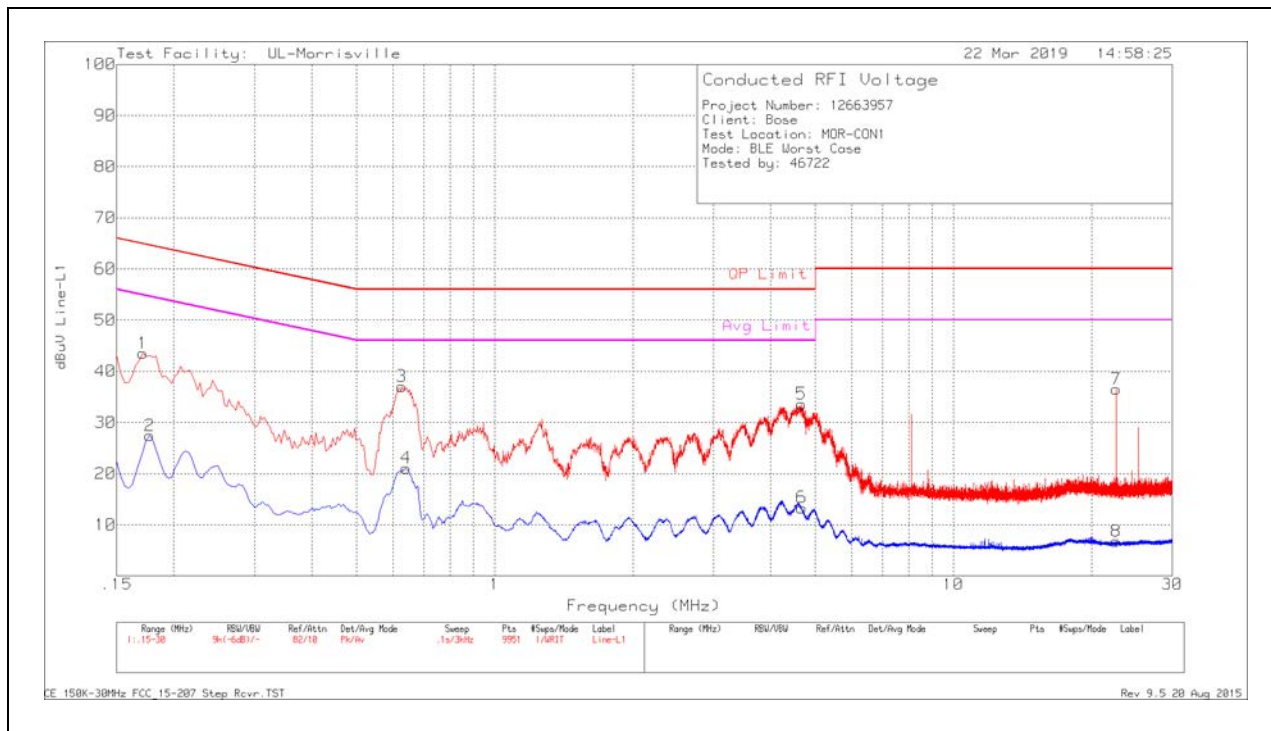
RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

10.1.1. AC Power Line Host

LINE 1 RESULTS



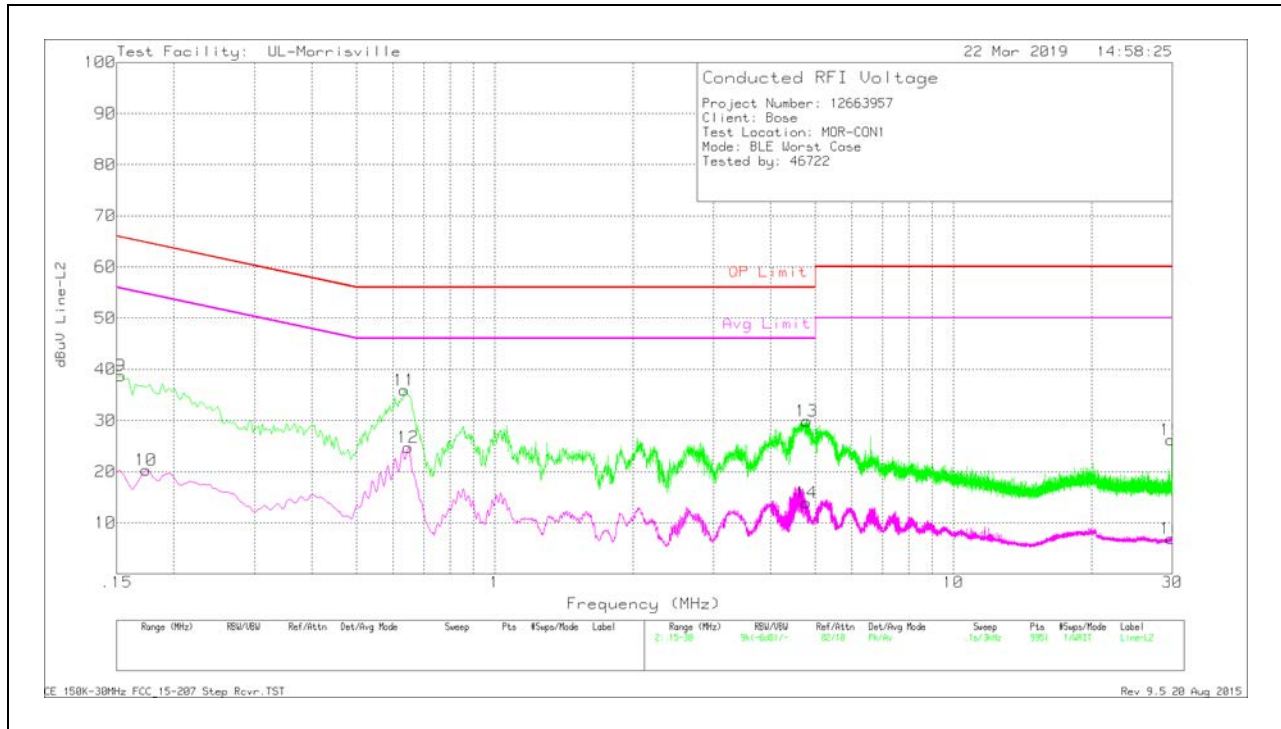
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit	Margin (dB)	Avg Limit	Margin (dB)
1	.171	33.34	Pk	.2	10	43.54	64.91	-21.37	-	-
2	.177	17.24	Av	.2	10	27.44	-	-	54.63	-27.19
3	.627	27.06	Pk	0	10	37.06	56	-18.94	-	-
4	.642	11.09	Av	0	10	21.09	-	-	46	-24.91
5	4.665	23.52	Pk	0	10.1	33.62	56	-22.38	-	-
6	4.671	3.26	Av	0	10.1	13.36	-	-	46	-32.64
7	22.644	25.75	Pk	.2	10.6	36.55	60	-23.45	-	-
8	22.644	-3.99	Av	.2	10.6	6.81	-	-	50	-43.19

Pk - Peak detector

Av - Average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit	Margin (dB)	Avg Limit	Margin (dB)
9	.153	28.52	Pk	.2	10	38.72	65.84	-27.12	-	-
10	.174	10.07	Av	.2	10	20.27	-	-	54.77	-34.5
11	.636	25.9	Pk	0	10	35.9	56	-20.1	-	-
12	.648	14.73	Av	0	10	24.73	-	-	46	-21.27
13	4.791	19.68	Pk	0	10.2	29.88	56	-26.12	-	-
14	4.788	3.71	Av	0	10.2	13.91	-	-	46	-32.09
15	29.85	15.07	Pk	.3	10.8	26.17	60	-33.83	-	-
16	29.853	-4.17	Av	.3	10.8	6.93	-	-	50	-43.07

Pk - Peak detector

Av - Average detection

11. SETUP PHOTOS

Please refer to R12663957C-EP3 for setup photos

END OF TEST REPORT