CLASS II PERMISSIVE CHANGE
TEST REPORT

Report Number: 104123623MPK-001
Project Number: G104123623
Issue Date: November 6, 2019

Testing performed on
Wireless Transceiver
Model: 10475

FCC ID: 2ABXLT5001
IC: 11858A-T5001

to

FCC Part 15 Subpart C (15.247)
Industry Canada RSS-247 Issue 2
FCC Part 15, Subpart B
Industry Canada ICES-003

For

Tile, Inc.

Test Performed by:	Test Authorized by:
Intertek	Tile, Inc.
1365 Adams Court	2121 S El Camino Real Ste 9th Floor
Menlo Park, CA 94025 USA	San Mateo, CA 94403 USA

Prepared by: _____ **Date:** November 6, 2019
Anderson Soungpanya

Reviewed by: _____ **Date:** November 6, 2019
Krishna Vemuri

Report No. 104123623MPK-001	
Equipment Under Test:	Wireless Transceiver
Trade Name:	Tile Mate
Model Tested:	10475
Serial Number:	MPK1910291333-001 (Conducted Sample) MPK1910291333-002 (Radiated Sample)
Applicant:	Tile, Inc.
Contact:	Neena Kaushik
Address:	Tile, Inc. 2121 S El Camino Real Ste 9th Floor San Mateo, CA 94403
Country:	USA
Tel. Number:	(408) 921-2547
Email:	neena.kaushik@tile.com
Applicable Regulation:	FCC 47 CFR PT 15.247 Industry Canada RSS-247 Issue 2 FCC Part 15, Subpart B Industry Canada ICES-003 Issue 6
Test Site Location:	ITS – Site 1 1365 Adams Drive Menlo Park, CA 94025
Date(s) of Test:	October 29 – 31, 2019

We attest to the accuracy of this report:

Anderson Soungpanya
EMC Project Engineer

Krishna K Vemuri
Engineering Team Lead

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1.0 Summary of Tests

TEST	REFERENCE FCC 15.247	REFERENCE RSS-247	RESULTS
RF Output Power	15.247(b)(3)	RSS-247, 5.4.d)	Complies
Out of Band Antenna Conducted Emission	15.247(d)	RSS-247, 5.5	Complies
Transmitter Radiated Emissions	15.247(d), 15.209, 15.205	RSS-247, 5.5	Complies
Line Conducted Emissions	15.207	RSS-GEN	Not Applicable[2]
Radiated Emission from Digital Part and Receiver	15.109	ICES 003	Complies
AC Line Conducted Emission	15.107	ICES 003	Not Applicable[2]
Antenna Requirement	15.203	RSS-GEN	Complies[1]

[1] EUT utilizes an internal Antenna.

[2] EUT is battery powered and not rechargeable.

2.0 General Description

2.1 Product Description

Tile, Inc. supplied the following description of the EUT:

Equipment under Test (EUT) is the Wireless Transceiver, Model 10475. As described by the manufacturer, Tile Mate is intended to be used on a variety of items in order to track them using a smartphone enabled with Bluetooth Low Energy technology.

Information about the Bluetooth 4.0 (BLE) radio is presented below:

For more information, refer to the following product specification, declared by the manufacturer.

Overview of the EUT	
Applicant name & address:	Tile, Inc. 2121 S El Camino Real Ste 9th Floor San Mateo, CA 94403 USA
Contact / Email:	Neena Kaushik / neena.kaushik@tile.com
Model:	10475
FCC Identifier:	2ABXLT5001
IC Identifier:	11858A-T5001
Operating Frequency Range:	2402 – 2480 MHz
Number of Channels:	40
Rated RF Output:	-1.00 dBm / 0.794 mW
Type of modulation/data rate:	GFSK / 1Mbit/s
Antenna Type:	Permanent PCB Trace; Internal Antenna Gain
Antenna Gain:	-1.38 dBi

EUT receive date: October 29, 2019

EUT receive condition: The EUT was received in good condition with no apparent damage. As declared by the Applicant it is identical to the production units.

Test start date: October 29, 2019
Test completion date: October 31, 2019

Variant Models:

The following variant models were not tested as part of this evaluation but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2.2 Related Submittal(s) Grants

None

2.3 Test Methodology

Antenna conducted measurements were performed according to the FCC documents “Guidance for Performing Compliance Measurement on Digital Transmission Systems (DTS) Operating under §15.247” (KDB 558074 D01 DTS Meas Guidance v05r02), and RSS-247 Issue 2, RSS-GEN Issue 5.

Radiated emissions and AC mains conducted emissions measurements were performed according to the procedures in ANSI C63.10: 2013. Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Data Sheet" of this report.

2.4 Test Facility

The radiated emission test site and conducted measurement facility used to collect the data is 10m semi-anechoic chamber located in Menlo Park, California. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada (Site # 2042L-1).

2.5 Measurement Uncertainty

Compliance with the limits was based on the results of the measurements and doesn’t take into account the measurement uncertainty.

Estimated Measurement Uncertainty

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 1 GHz	1 GHz – 2.5 GHz	> 2.5 GHz
RF Power and Power Density – antenna conducted	-	0.7 dB	-
Unwanted emissions - antenna conducted	1.1 dB	1.3 dB	1.9 dB
Bandwidth – antenna conducted	-	30 Hz	-

Measurement	Expanded Uncertainty (k=2)			
	0.15 MHz – 30MHz	30 – 200 MHz	200 MHz – 1 GHz	1 GHz – 18 GHz
Radiated emissions	-	4.7	4.6	5.1 dB
AC mains conducted emissions	2.1 dB	-	-	-

3.0 System Test Configuration

3.1 Support Equipment and description

No support equipment was used for testing.

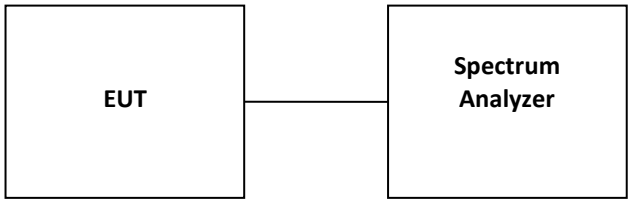
3.2 Block Diagram of Test Setup

Equipment Under Test			
Description	**Manufacturer**	**Model Number**	**Serial Number**
Wireless transceiver	Tile, Inc.	10475	MPK1910291333-001 (Conducted Sample) MPK1910291333-002 (Radiated Sample)

Note: EUT is Power with a CR1632 3V Battery

The diagram shown below details the interconnection of the EUT and support equipment. For specific layout, refer to the test configuration photograph in the relevant section of this report.

Antenna was removed and co-axial connector with a cable was installed for Conducted Measurements.



S = Shielded **U** = Unshielded	**F** = With Ferrite **m** = Length in Meters

3.3 Justification

For radiated emission measurements the EUT is placed on a non-conductive table.

Class II permissive change testing was performed based on:

Tile model T5001 PCB is being embedded into a different plastic enclosure. There is no change on the PCB. The audio circuit is now physically attached to the PCB with two wires at TP16 and TP17.

3.4 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was provided by Tile, Inc.

3.5 Mode of Operation during test

During transmitter testing, the transmitter was setup to transmit at maximum RF power on low, middle and high frequencies/channels.

3.6 Modifications required for Compliance

No modifications were installed by Intertek Testing Services during compliance testing in order to bring the product into compliance.

3.7 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Maximum Peak Conducted Output Power at Antenna Terminals
FCC Rule: 15.247(b)(3); RSS-247, 5.4.d);

4.1.1 Requirement

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt or 30 dBm.
For antennas with gains greater than 6 dBi, transmitter output level must be decreased appropriately, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.1.2 Procedure

The procedure described in FCC Publication KDB 558074 D01 Meas Guidance v05r02 was used. Specifically, section 11.9.1.1 RBW ≥ DTS bandwidth in ANSI 63.10.

1. Set the RBW ≥ DTS Bandwidth
2. Set the VBW ≥ 3 x RBW
3. Set the span ≥ 3 x RBW
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max Hold
7. Allow trace to fully stabilize
8. Use peak marker function to determine the peak amplitude level.

A spectrum analyzer was connected to the antenna port of the transmitter.

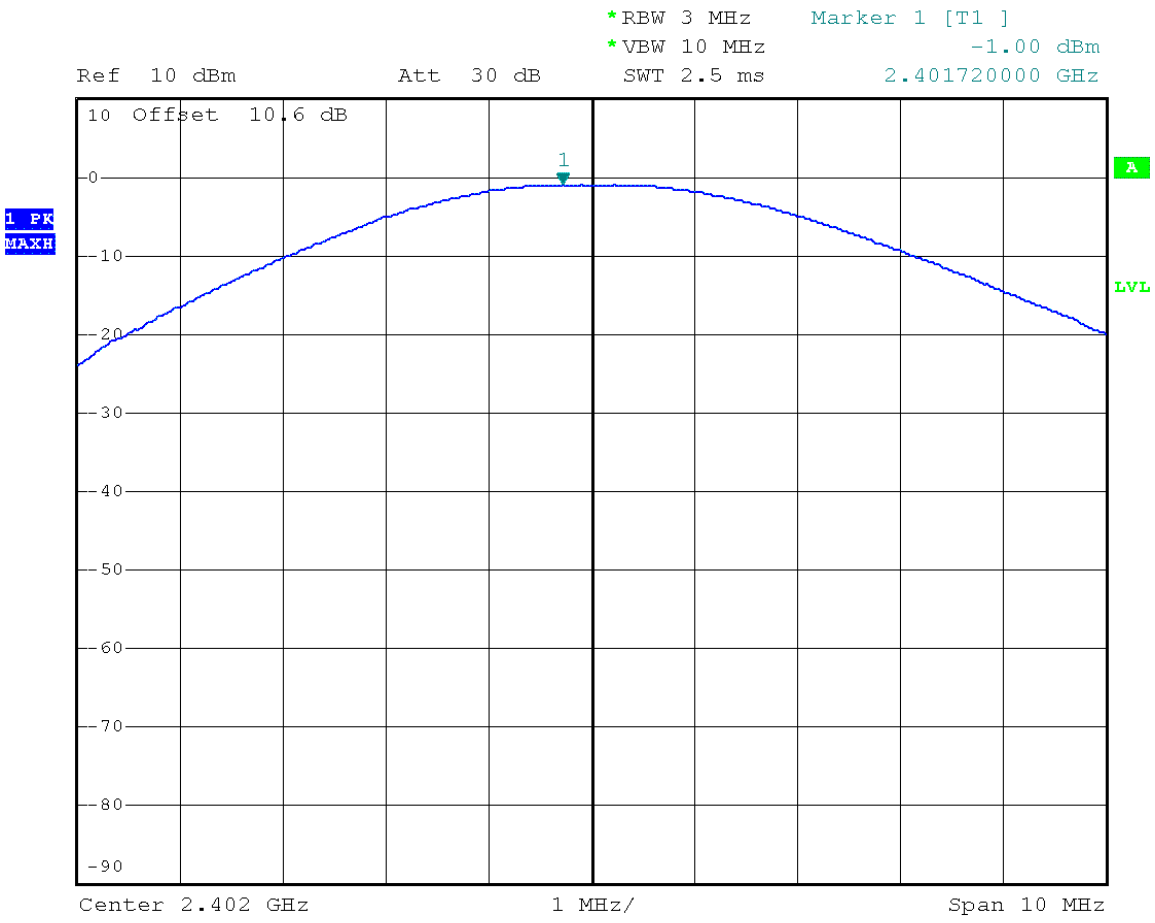
4.1.3 Test Result

Refer to the following plots 1.1 – 1.3 for the test details.

Frequency	Peak Conducted Power		Plot
MHz	dBm	mW	
2402	-1.00	0.794	1.1
2426	-1.09	0.778	1.2
2480	-1.51	0.706	1.3

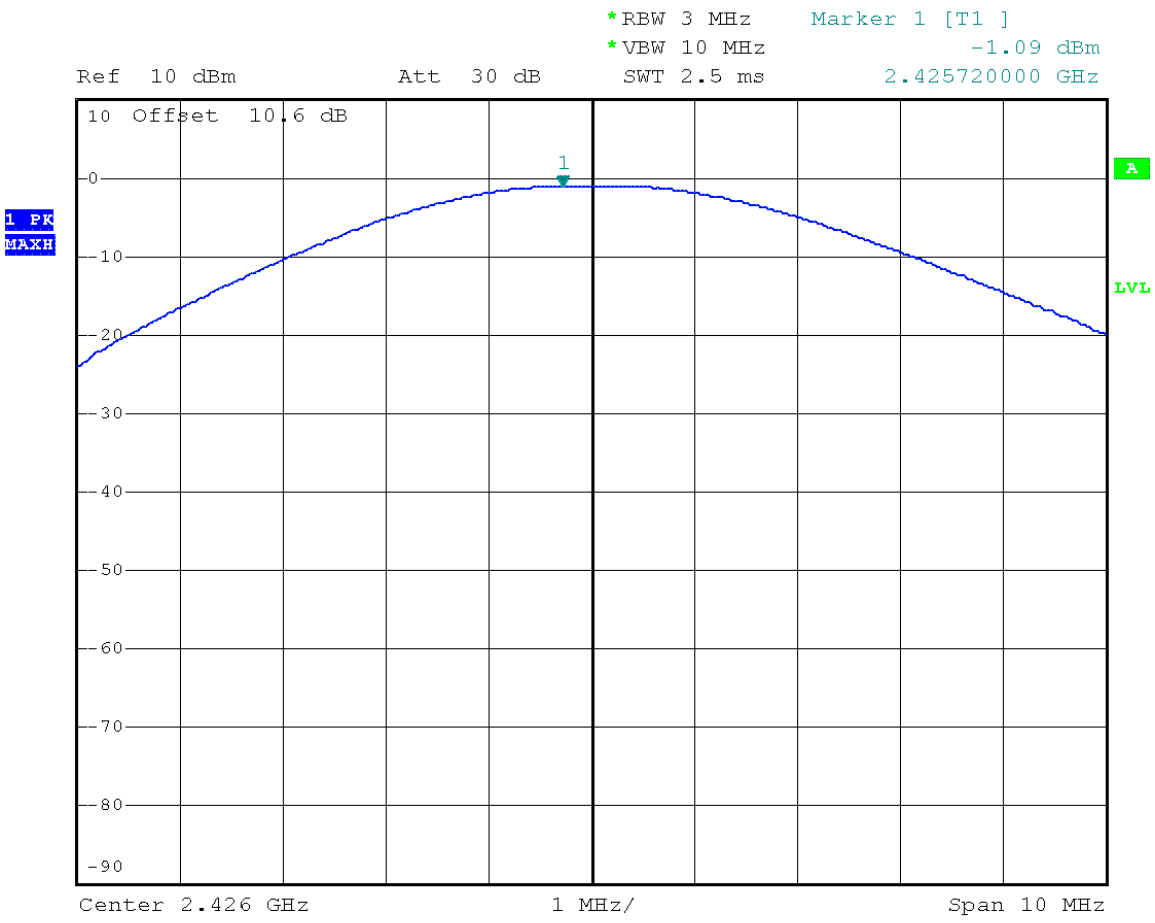
Tested By	Test Date
Anderson Soungpanya	October 29, 2019

Plot 1. 1



Date: 29.OCT.2019 13:00:54

Plot 1. 2



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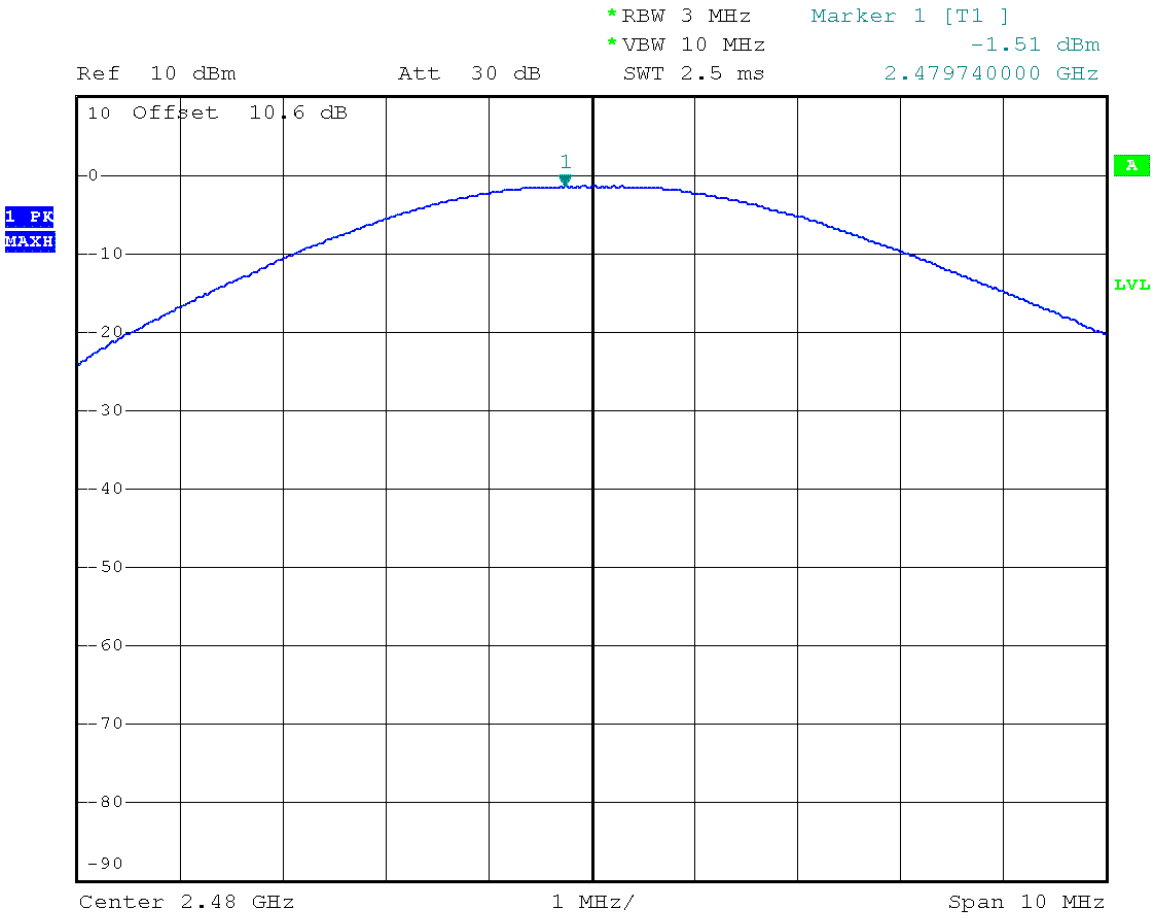
Plot 1. 3



Date: 29.OCT.2019 13:05:06

4.2 Transmitter Radiated Emissions
FCC Rules: 15.247(d), 15.209, 15.205; RSS-247, 5.5;

4.2.1 Requirement

The field strength of emissions which fall in the restricted bands as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

For out of band radiated emissions (frequencies not in 15.205 restricted bands), in any 100 kHz bandwidths outside the EUT pass-band, the RF power shall be at least 20dB (peak) or 30 dB (average) below that of the maximum in-band 100 kHz emissions.

4.2.2 Procedure

Radiated emission measurements were performed from 30 MHz to 25 GHz according to the procedure described in ANSI C63.10: 2013. Spectrum Analyzer Resolution Bandwidth is 120 kHz or greater for frequencies 30 MHz to 1 GHz, 1 MHz for frequencies above 1 GHz.

The EUT is placed on a plastic turntable that is 80 cm in height for below 1GHz and 1.5m in height for above 1GHz. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). During testing, all cables were manipulated to produce worst-case emissions. The signal is maximized through rotation. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at 3 meters for frequencies above 1 GHz and at 10 meters for frequencies below 1 GHz.

Measurements made from 1 GHz to 18GHz had a 2.4-2.5GHz notch filter in place. A preamp was used from 30MHz to 26GHz.

All measurements were made with a Peak Detector and compared to QP limits for 30MHz – 1GHz and Average limits for 1GHz – 26GHz.

Radiated measurements were performed on the X, Y and Z orientation of the EUT. Data is presented with the worst-case configuration (the configuration which resulted in the highest emission levels).

4.2.3 Field Strength 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; if measurement is performed at a distance other than specified in the rule, a Distance Correction Factor (DCF) shall be added.

Where FS = Field Strength in dB(μV/m)
RA = Receiver Amplitude (including preamplifier) in dB(μV); AF = Antenna Factor in dB(1/m)
CF = Cable Attenuation Factor in dB; AG = Amplifier Gain in dB

Assume a receiver reading of 52.0 dB(μV) is obtained. The antennas factor of 7.4 dB(1/m) and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB(μV/m). This value in dB(μV/m) was converted to its corresponding level in μV/m.
RA = 52.0 dB(μV)
AF = 7.4 dB(1/m)
CF = 1.6 dB
AG = 29.0 dB
FS = 52.0+7.4+1.6-29.0 = 32 dB(μV/m).
Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m.

4.2.4 Antenna-port conducted measurements

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

4.2.5 General Procedure for conducted measurements in restricted bands

a) Measure the conducted output power (in dBm) using the detector specified for determining quasi-peak, peak, and average conducted output power, respectively.

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (*e.g.*, Watts, mW).

e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
E = EIRP – 20log D + 104.8+DCF (DCF for Average measurements)
where:
E = electric field strength in dBµV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.
DCF = Duty Cycle Correction Factor
f) Compare the resultant electric field strength level to the applicable limit.
g) Perform radiated spurious emission test

4.2.6 Test Results

All testing in this section were performed by radiated measurements.

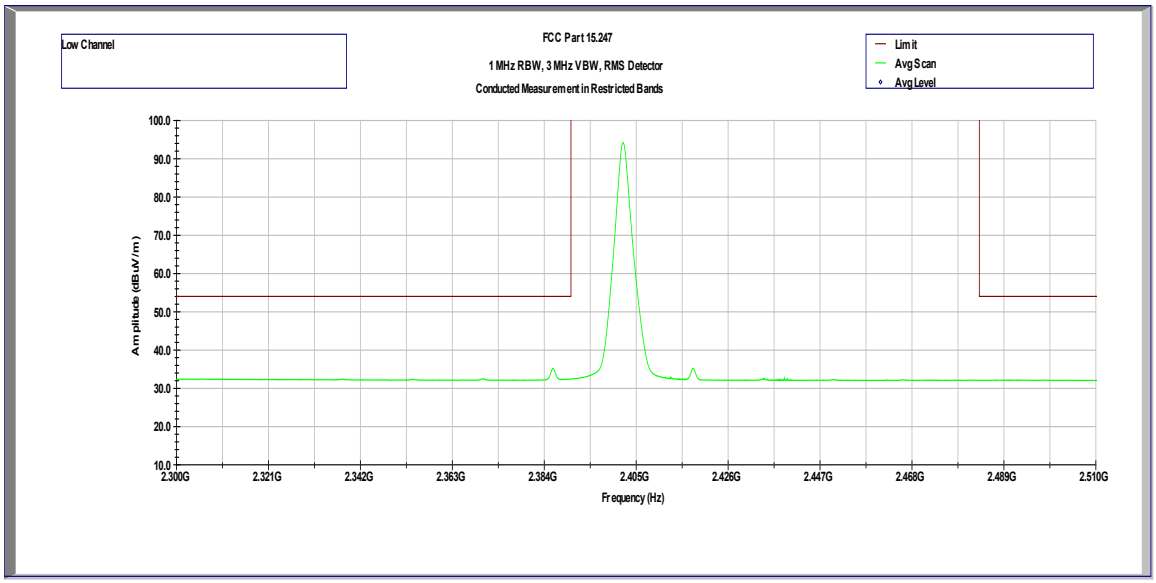
Tested By	Test Date
Anderson Soungpanya	October 30 - 31, 2019

Conducted Out-of-Band Emissions were made with the consideration of path losses and the addition of a 2dBi Antenna.

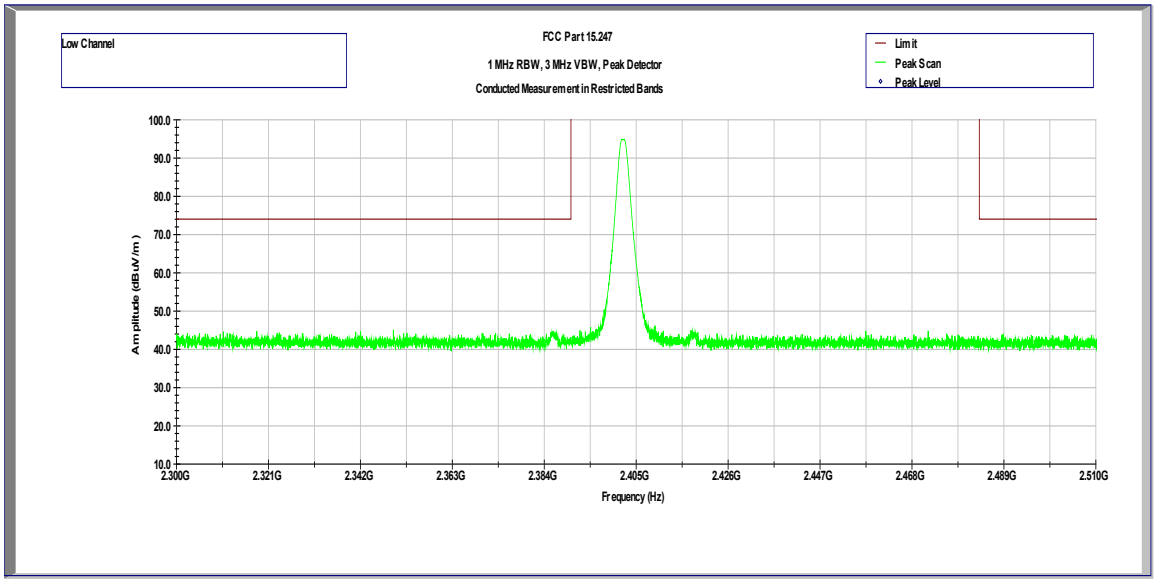
4.2.6 Test Setup Configuration (Continued)

Test Results: 15.209/15.205 Radiated Restricted Band Emissions

Conducted Out-of-Band Spurious Emissions at the Band Edge – Tx @ 2402 MHz, Average

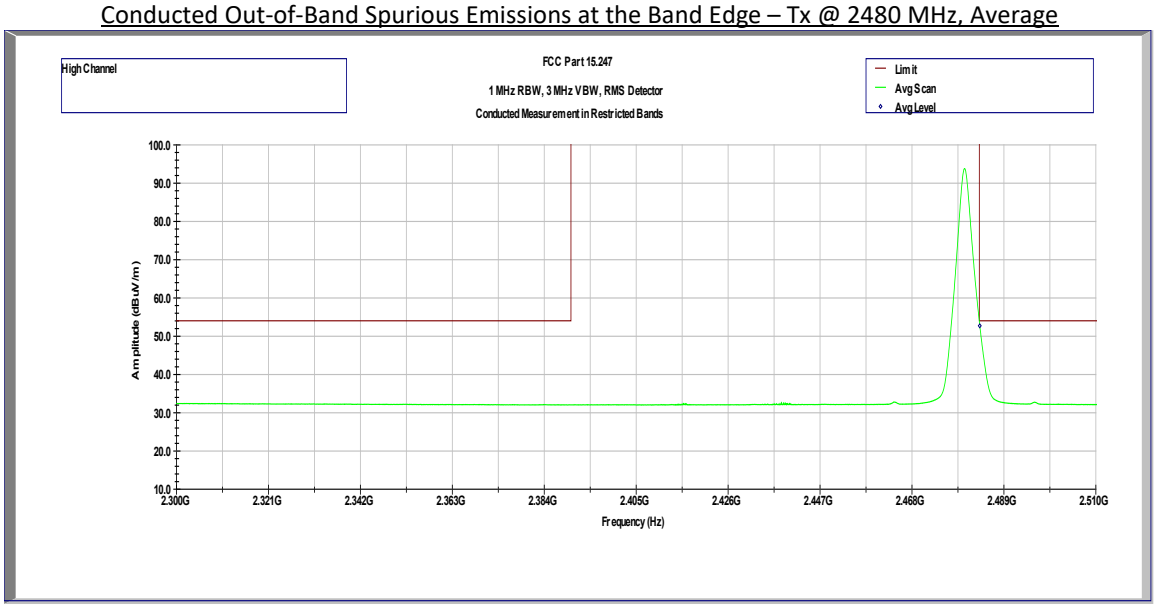


Conducted Out-of-Band Spurious Emissions at the Band Edge – Tx @ 2402 MHz, Peak



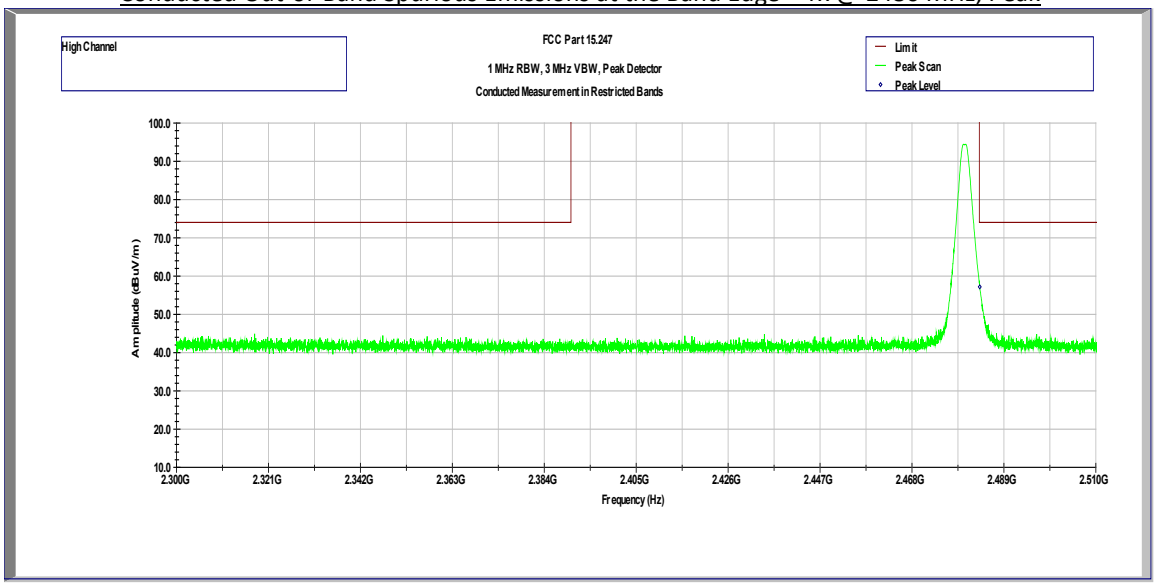
4.2.6 Test Setup Configuration (Continued)

Conducted Out-of-Band Spurious Emissions at the Band Edge – Tx @ 2480 MHz, Average



Frequency	Corrected Amplitude	Limit	Margin	Detector	Results
GHz	dB(µV/m)	dB(µV/m)	dB		
2.4835	52.69	54	-1.31	RMS	Pass

Conducted Out-of-Band Spurious Emissions at the Band Edge – Tx @ 2480 MHz, Peak

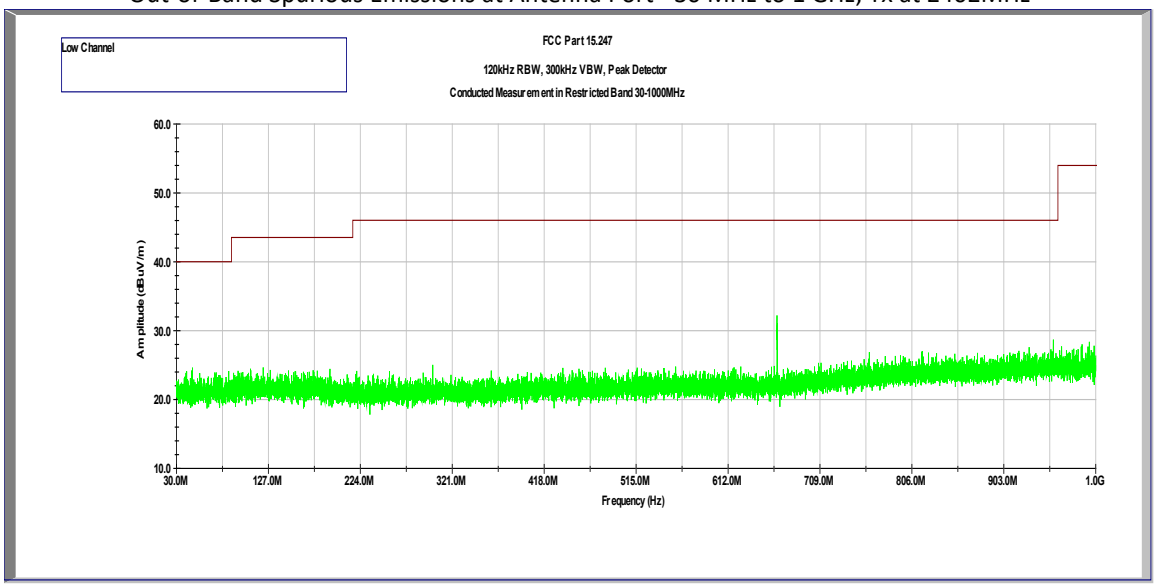


Frequency	Corrected Amplitude	Limit	Margin	Detector	Results
GHz	dB(µV/m)	dB(µV/m)	dB		
2.4835	57.16	74	-16.84	Peak	Pass

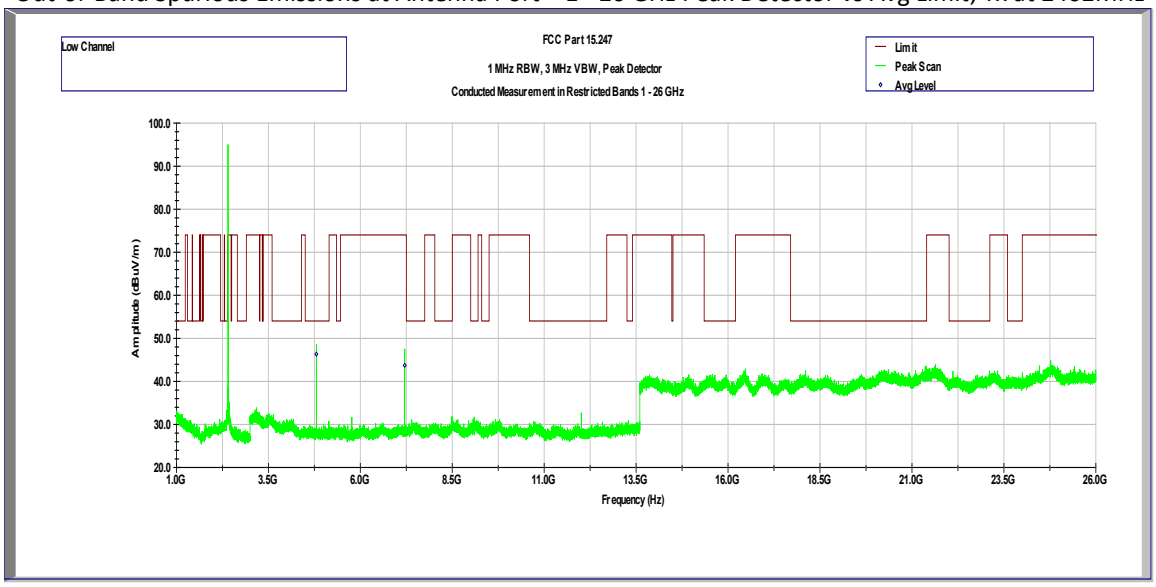
4.2.6 Test Setup Configuration (Continued)

Out-of-Band Conducted Spurious Emissions (at Antenna Port)

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz; Tx at 2402MHz



Out-of-Band Spurious Emissions at Antenna Port – 1 - 26 GHz Peak Detector vs Avg Limit; Tx at 2402MHz

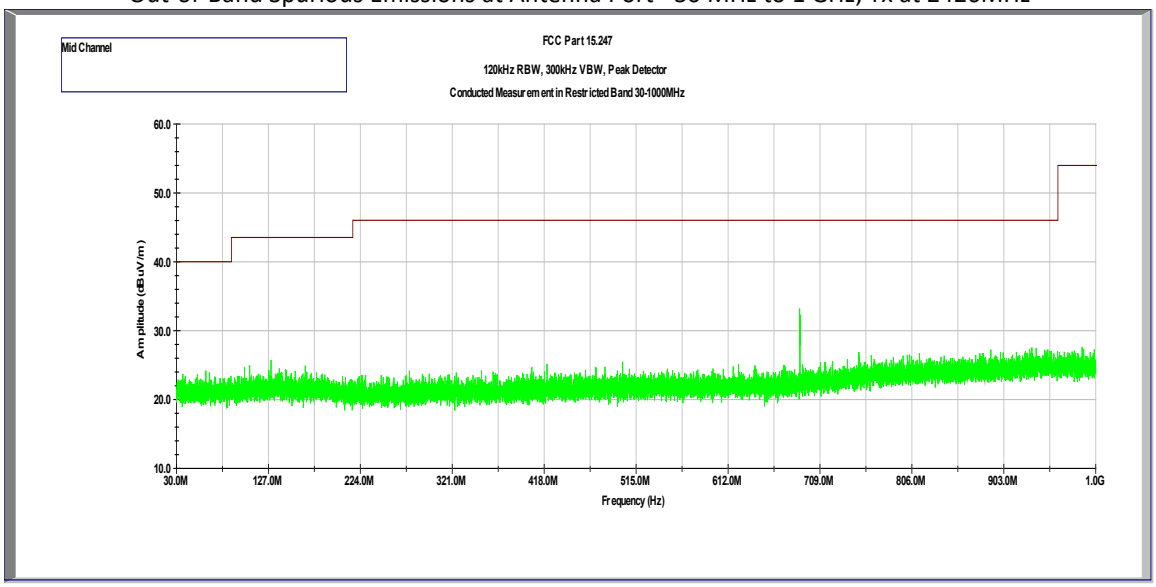


Frequency	Corrected Amplitude	Avg Limit	Margin	Detector	Results
GHz	dBµV/m	dBµV/m	dB		
4.804	46.3	54	-7.7	RMS	Pass
7.207	43.7	54	-10.3	RMS	Pass

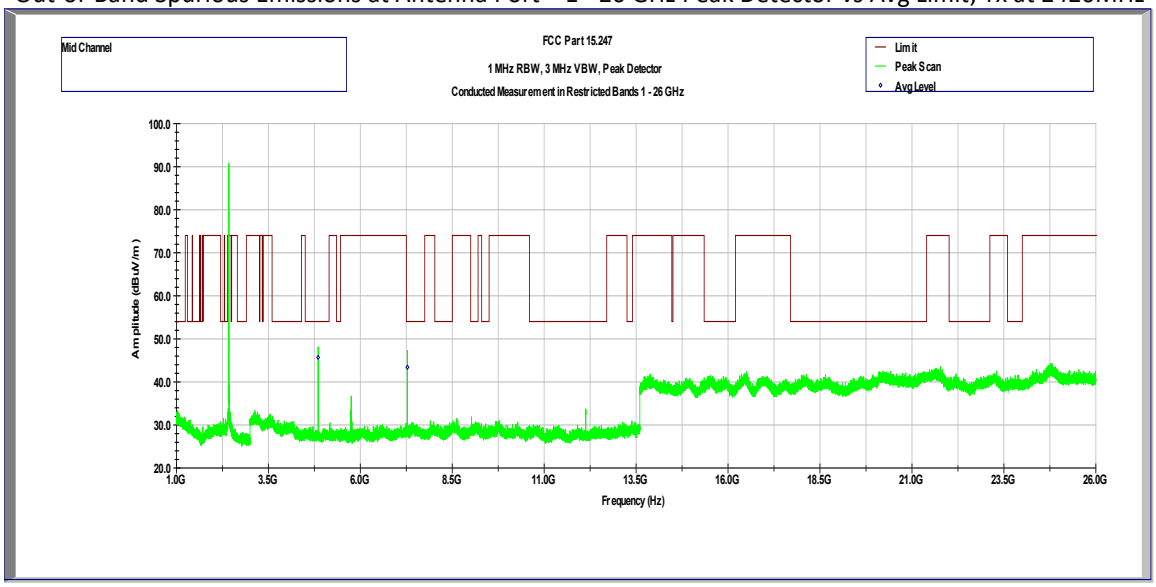
4.2.6 Test Setup Configuration (Continued)

Out-of-Band Conducted Spurious Emissions (at Antenna Port)

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz; Tx at 2426MHz



Out-of-Band Spurious Emissions at Antenna Port – 1 - 26 GHz Peak Detector vs Avg Limit; Tx at 2426MHz

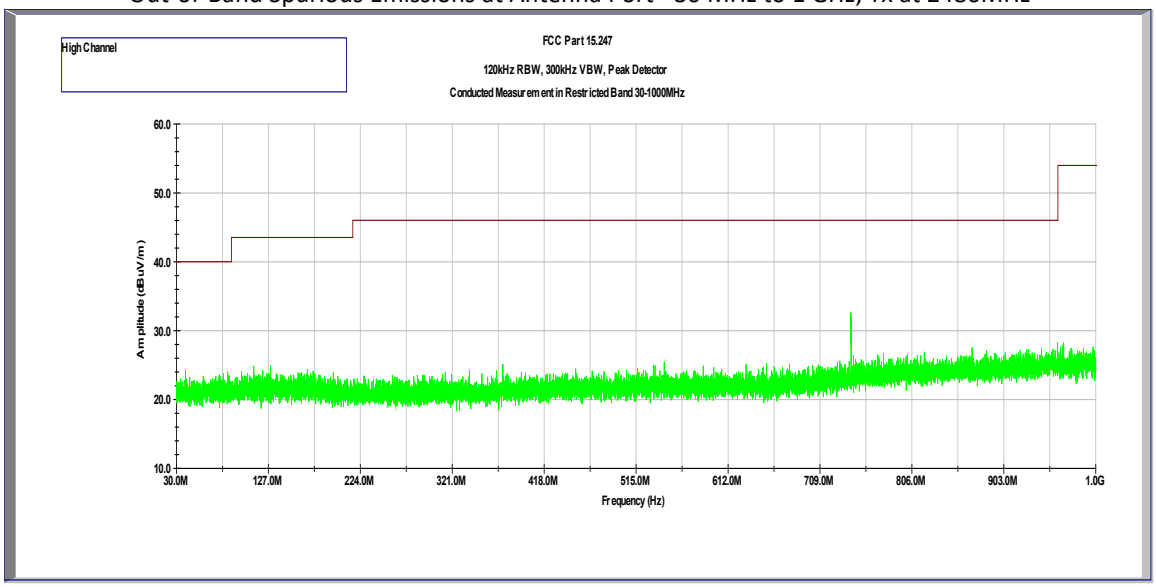


Frequency	Corrected Amplitude	Avg Limit	Margin	Detector	Results
GHz	dBµV/m	dBµV/m	dB		
4.852	45.7	54	-8.3	RMS	Pass
7.279	43.4	54	-10.6	RMS	Pass

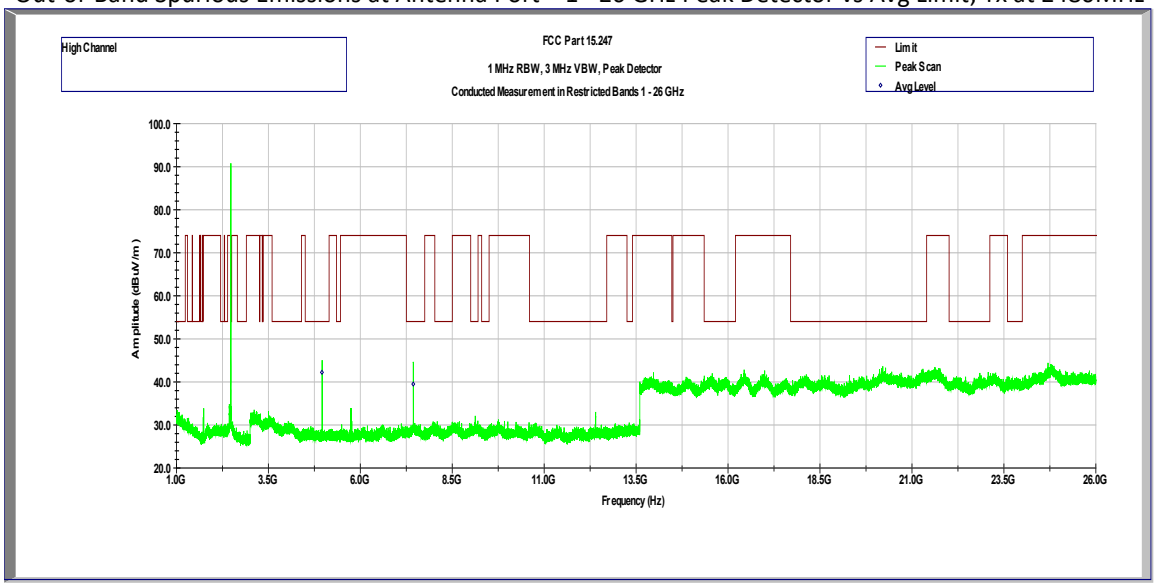
4.2.6 Test Setup Configuration (Continued)

Out-of-Band Conducted Spurious Emissions (at Antenna Port)

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz; Tx at 2480MHz



Out-of-Band Spurious Emissions at Antenna Port – 1 - 26 GHz Peak Detector vs Avg Limit; Tx at 2480MHz



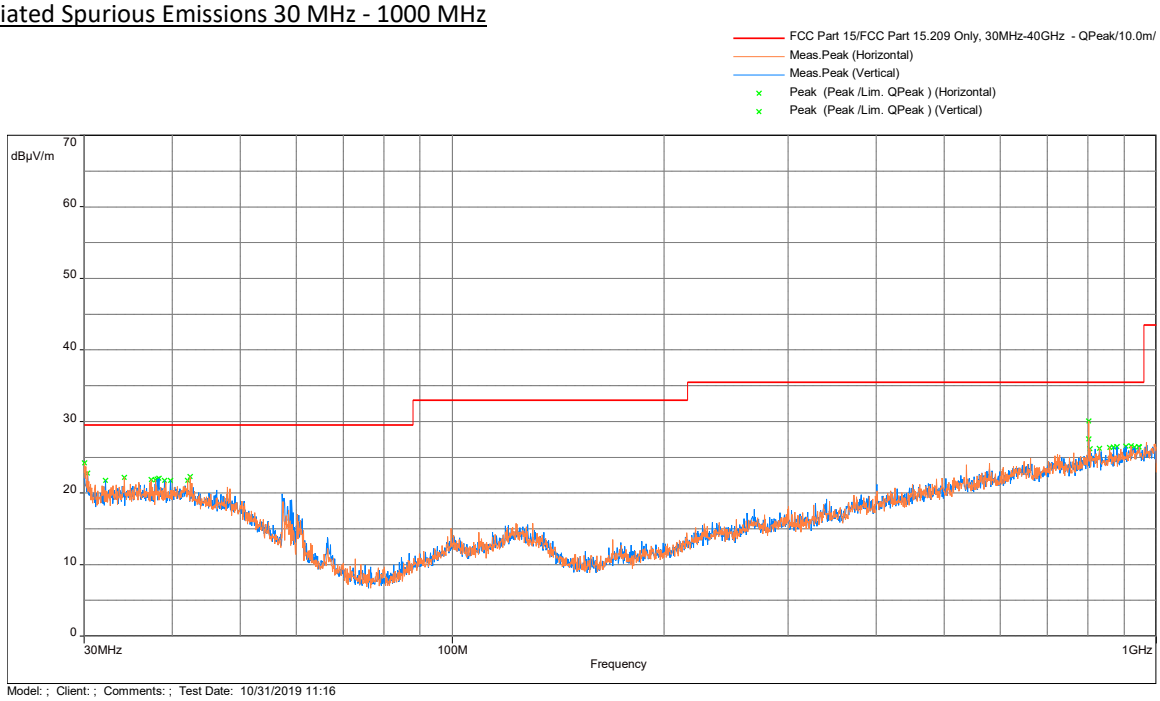
Frequency	Corrected Amplitude	Avg Limit	Margin	Detector	Results
GHz	dBµV/m	dBµV/m	dB		
4.956	42.2	54	-11.8	RMS	Pass
7.440	39.5	54	-14.5	RMS	Pass

4.2.6 Test Setup Configuration (Continued)

Out-of-Band Radiated Spurious Emissions

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 2402MHz

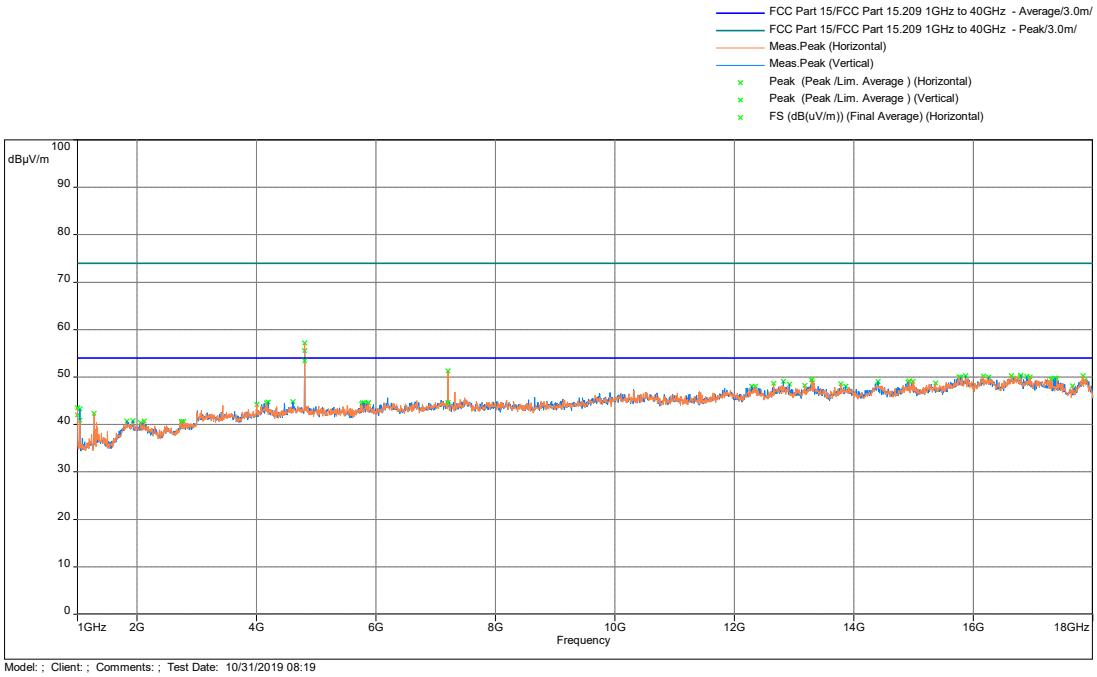
Radiated Spurious Emissions 30 MHz - 1000 MHz



Frequency	QP@10m	Limit@10m	Margin	Height	Angle	Polarization	Correction
MHz	dB(µV/m)	dB(µV/m)	(dB)	(m)	(°)		(dB)
801.810	30.05	35.5	-5.45	1.02	327	Horizontal	-1.64

4.2.6 Test Setup Configuration (Continued)

Radiated Spurious Emissions 1000 - 18000 MHz, Peak Scan vs Avg & Peak Limit



Freq. MHz	Ave@3m dB(uV/m)	Ave Limit@3m dB(µV/m)	Margin dB	Azimuth deg	Height m	Polarity	Correction dB
4803.508	53.38	54	-0.62	338	1.88	Horizontal	-7.52
7205.371	44.63	54	-9.37	301	1.39	Horizontal	-4.33
4803.508	50.43	54	-3.57	335	1.76	Vertical	-7.52

Note: Radiated emission measurements were performed up to 25GHz. No Emissions were identified when scanned from 18-25 GHz

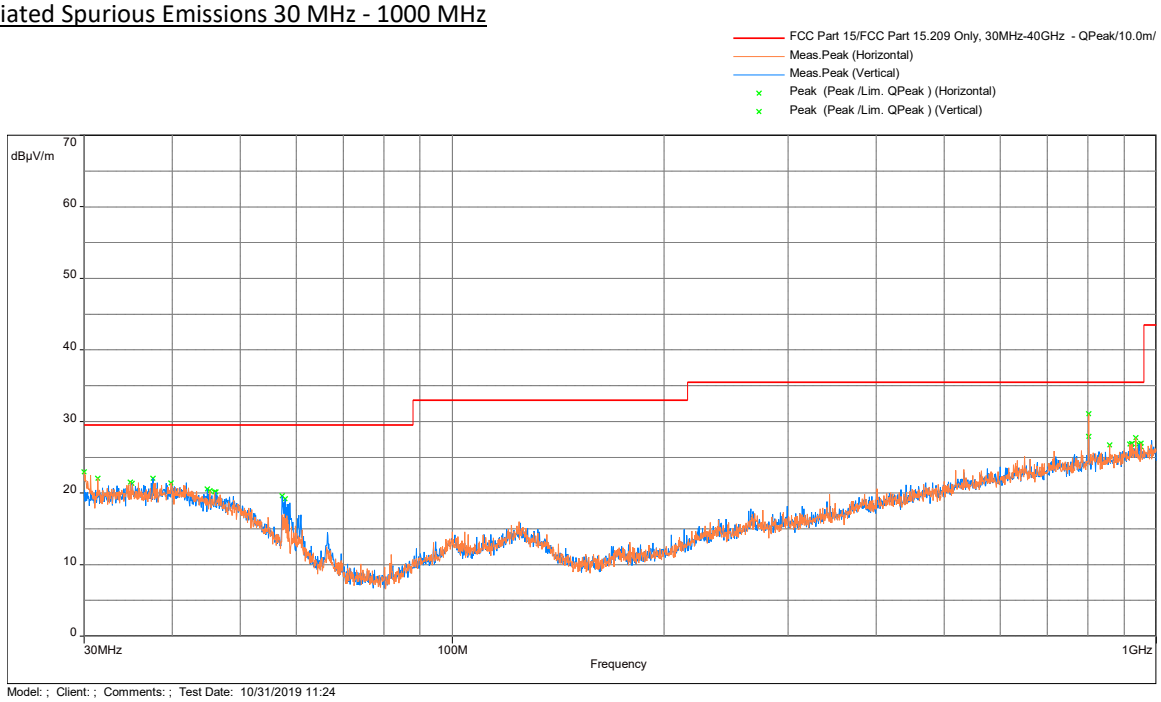
Note: FS@3m = RA + Correction
Correction = AF + CF – Preamp

Results:	Complies

4.2.6 Test Setup Configuration (Continued)

Test Results: 15.209 Radiated Spurious Emissions Mid Channel, Tx at 2426

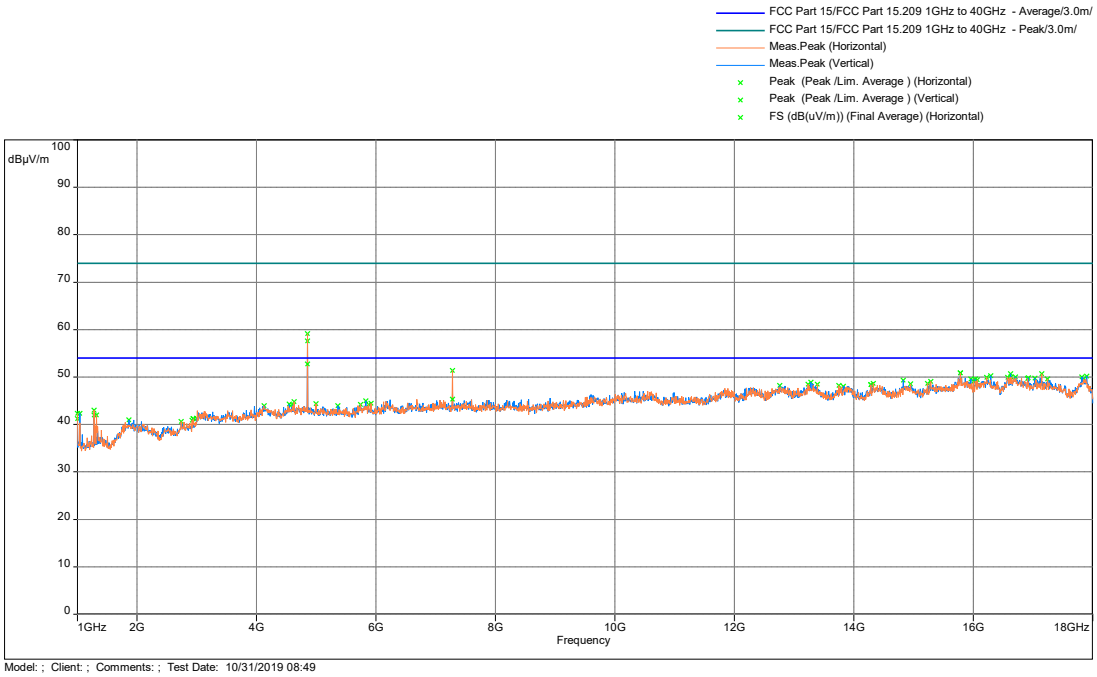
Radiated Spurious Emissions 30 MHz - 1000 MHz



Frequency	QP@10m	Limit@10m	Margin	Height	Angle	Polarization	Correction
MHz	dB(µV/m)	dB(µV/m)	(dB)	(m)	(°)		(dB)
801.861	31.05	35.5	-4.45	1.02	143	Horizontal	-1.64

4.2.6 Test Setup Configuration (Continued)

Radiated Spurious Emissions 1000 - 18000 MHz, Peak Scan vs Avg & Peak Limit



Freq. MHz	Ave@3m dB(uV/m)	Ave Limit@3m dB(µV/m)	Margin dB	Azimuth deg	Height m	Polarity	Correction dB
4851.506	52.73	54	-1.27	341	1.75	Horizontal	-7.77
7277.354	45.30	54	-8.70	303	1.27	Horizontal	-4.45
4851.506	49.77	54	-4.23	344	1.95	Vertical	-7.77

Note: Radiated emission measurements were performed up to 25GHz. No Emissions were identified when scanned from 18-25 GHz

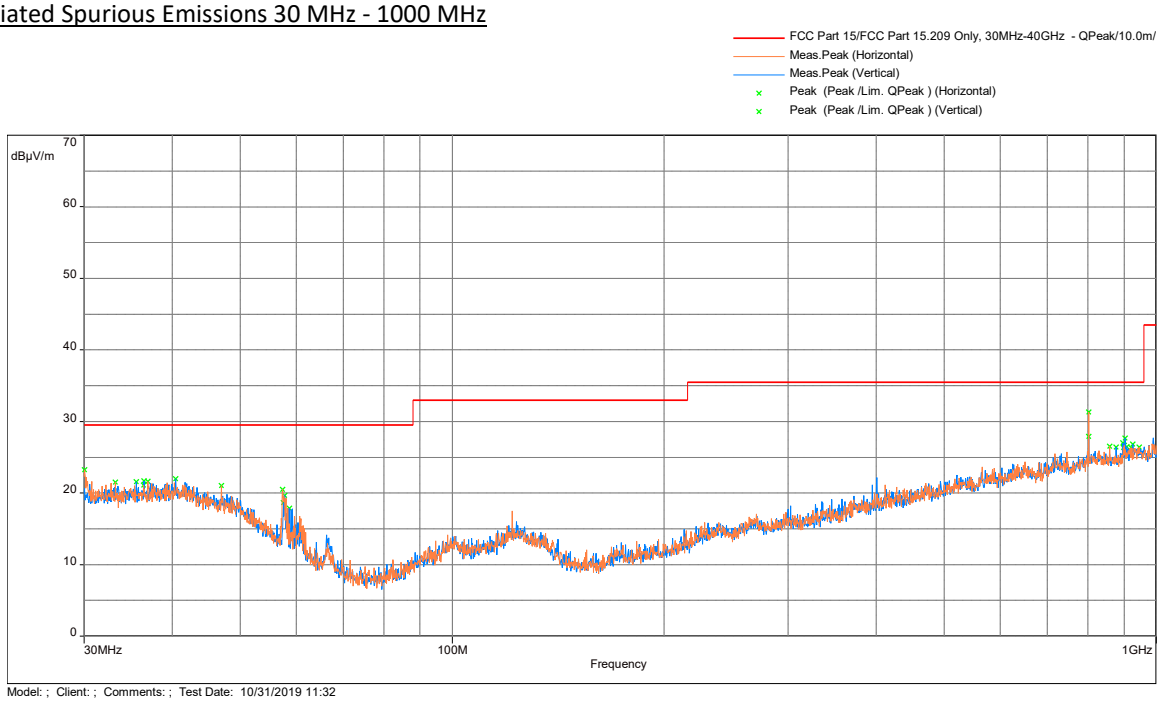
Note: FS@3m = RA + Correction
Correction = AF + CF – Preamp

Results:	Complies

4.2.6 Test Setup Configuration (Continued)

Test Results: 15.209 Radiated Spurious Emissions High Channel, Tx at 2480MHz

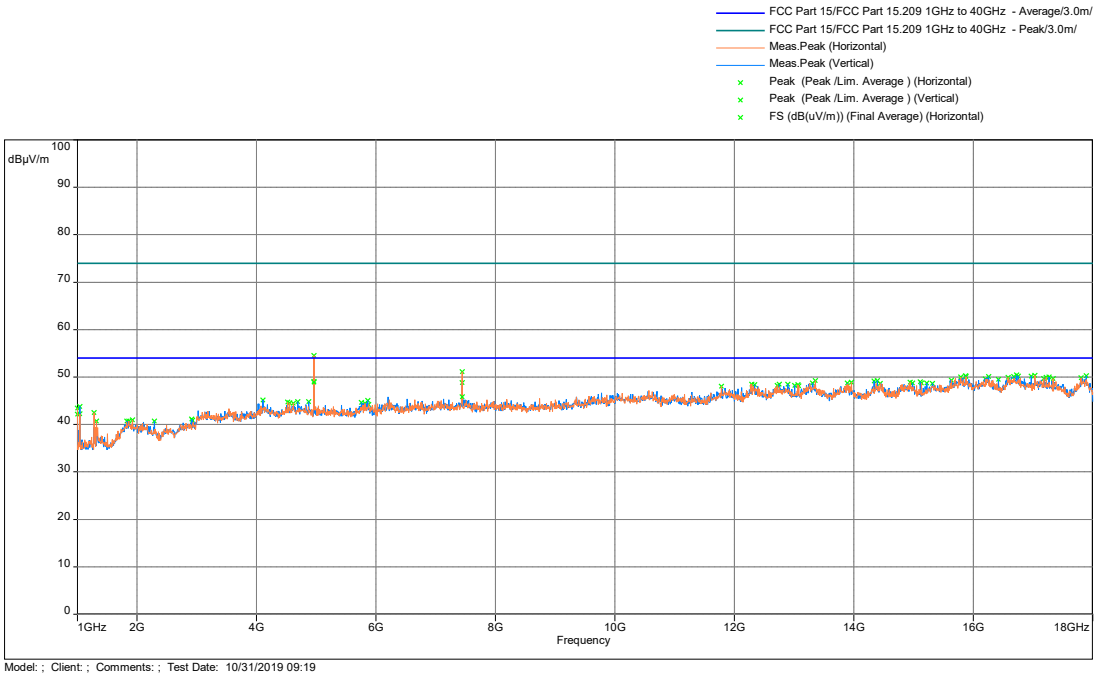
Radiated Spurious Emissions 30 MHz - 1000 MHz



Frequency	QP@10m	Limit@10m	Margin	Height	Angle	Polarization	Correction
MHz	dB(µV/m)	dB(µV/m)	(dB)	(m)	(°)		(dB)
801.829	31.30	35.5	-4.20	1.00	180	Horizontal	-1.64

4.2.6 Test Setup Configuration (Continued)

Radiated Spurious Emissions 1000 - 18000 MHz, Peak Scan vs Avg & Peak Limit



Freq. MHz	Ave@3m dB(uV/m)	Ave Limit@3m dB(µV/m)	Margin dB	Azimuth deg	Height m	Polarity	Correction dB
4960.507	48.91	54	-5.09	307	1.91	Horizontal	-7.7
7439.511	45.84	54	-8.16	299	1.28	Horizontal	-3.97

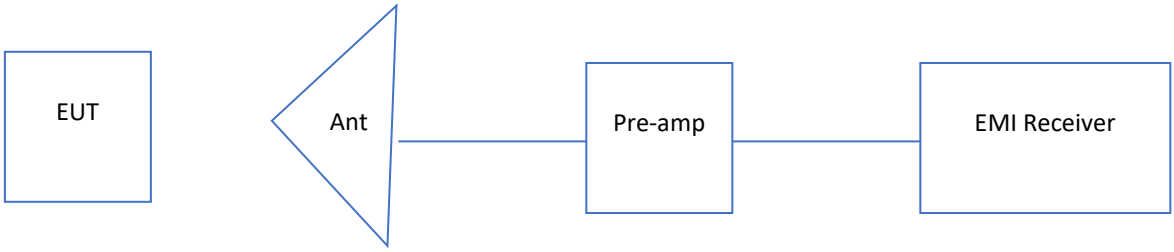
Note: Radiated emission measurements were performed up to 25GHz. No Emissions were identified when scanned from 18-25 GHz

Note: FS@3m = RA + Correction
Correction = AF + CF – Preamp

Results:	Complies

4.2.7 Test Setup Configuration

The following photographs show the testing configurations used.



4.3 Digital Parts Radiated Emissions
FCC Ref: 15.109, ICES 003

4.3.1 Requirements

Limits for Electromagnetic Radiated Emissions FCC Section 15.109(b), ICES 003*, RSS GEN

Frequency (MHz)	Class A at 10m dB(µV/m)	Class B at 3m dB(µV/m)
30-88	39	40.0
88-216	43.5	43.5
216-960	46.4	46.0
Above 960	49.5	54.0

* According to FCC Part 15.109(g) an alternative to the radiated emission limits shown above, digital devices may be shown to comply with the limit of CISPR Pub. 22

4.3.2 Procedure

Measurements are conducted with a quasi-peak detector instrument in the frequency range of 30 MHz to 1000 MHz and with the average detector instrument in the frequency range above 1000 MHz. The measuring receiver meets the requirements of Section One of CISPR 16 and the measuring antenna correlates to a balanced dipole.

Measurements of the radiated field are made with the antenna located at a distance of 10 meters from the EUT. If the field-strength measurements at 10m cannot be made because of high ambient noise level or for other reasons, measurements of Class B equipment may be made at a closer distance, for example 3m. An inverse proportionality factor of 20 dB per decade should be used to normalize the measured data to the specified distance for determining compliance.

The antenna is adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth is varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) is varied during the measurements to find the maximum field-strength readings.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m but may be extended for a larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material.

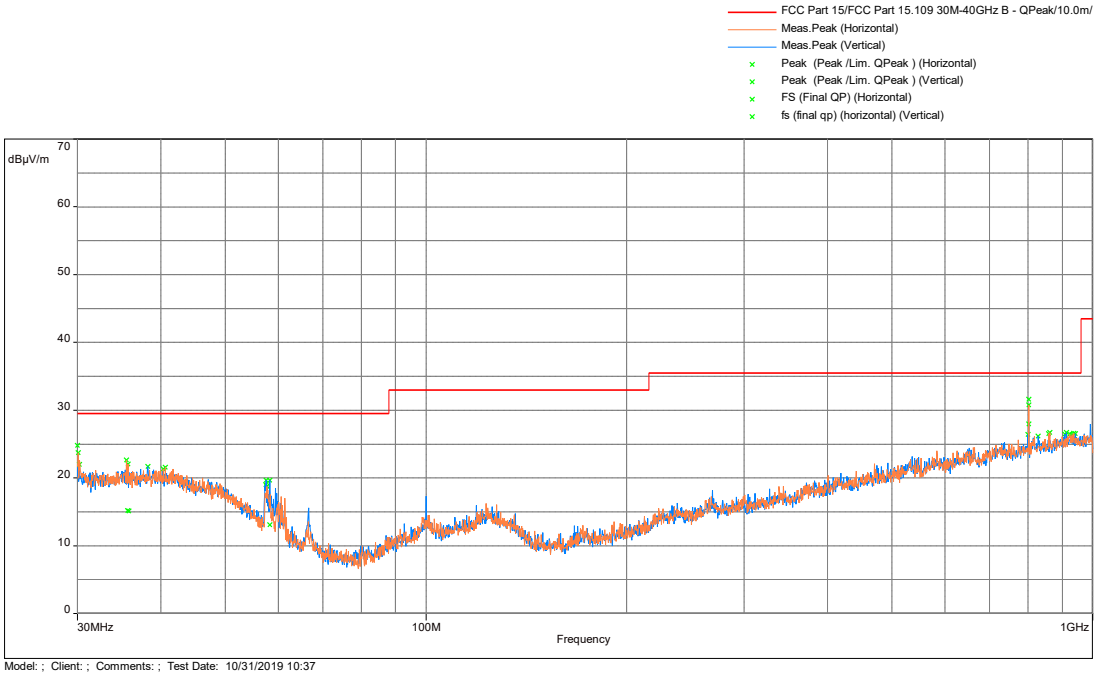
Equipment setup for radiated disturbance tests followed the guidelines of ANSI C63.4-2014.

Tested By	Test Date
Anderson Soungpanya	October 31, 2019

4.3.3 Test Result

The EUT met the radiated disturbance requirements of FCC & ICES 003 for a Class B device.

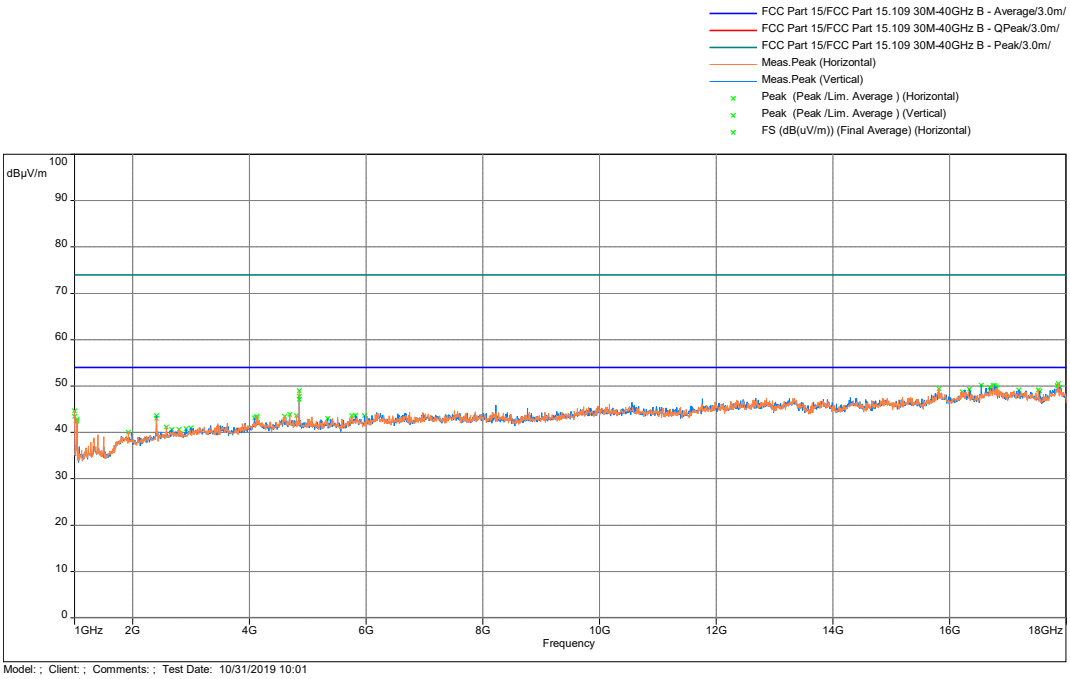
15.109 Radiated Emissions 30 MHz – 1000 MHz



Frequency (MHz)	QPeak@10m dB(µV/m)	Lim. QPeak dB(µV/m)	Margin (dB)	Angle (°)	Height (m)	Antenna Polarization	Correction (dB)
30.000	24.78	29.5	-4.72	315	1.20	Horizontal	-6.68
30.194	22.00	29.5	-7.5	320	1.10	Vertical	-6.60
35.686	15.15	29.5	-14.35	146	2.00	Horizontal	-6.32
38.245	21.71	29.5	-7.79	315	1.02	Vertical	-6.71
58.306	13.11	29.5	-16.39	339	1.13	Vertical	-14.66
801.816	31.61	35.5	-3.89	313	1.08	Horizontal	-1.64

4.3.3 Test Result (Continued)

15.109 Radiated Emissions 1000 - 18000 MHz;
Peak Scan vs Avg Limit

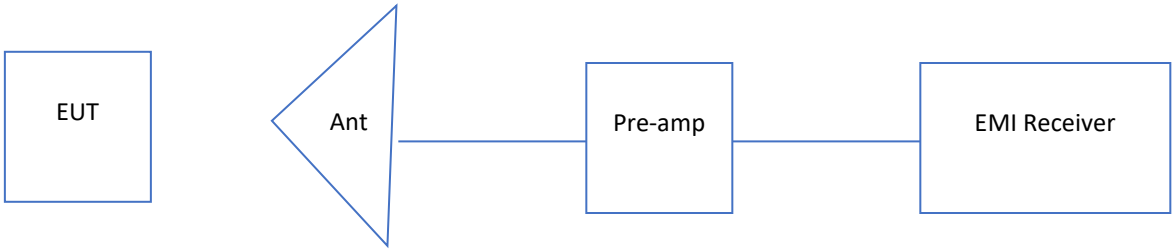


Freq. MHz	Ave@3m dB(uV/m)	Ave Limit@3m dB(µV/m)	Margin dB	Azimuth deg	Height m	Polarity	Correction dB
4854.006	47.06	54	-6.94	346	1.40	Horizontal	-9.08

Results:	Complies

4.3.4 Test Setup Configuration

The following photographs show the testing configurations used.



5.0 List of test equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Serial No.	Calibration Interval	Cal Due
EMI Receiver	Rohde and Schwarz	ESU40	ITS 01375	12	06/12/20
Spectrum Analyzer	Rohde and Schwarz	FSP40	ITS 01200	12	01/11/20
Pre-Amplifier (18-40GHz)	Miteq	TTA1840-35-S-M	ITS 01393	12	02/08/20
Active Horn Antenna	ETS-Lindgren	3117-PA	ITS 01636	12	01/17/20
Horn Antenna (10-40 GHz)	ETS-Lindgren1376	3116C	ITS 01376	12	04/15/20
Bi-Log Antenna	Antenna Research	LPB-2513	ITS 00355	12	04/24/20
Pre-Amplifier	Sonoma Instrument	310N	ITS 00415	12	04/17/20
RE Cable	TRU Corporation	TRU CORE 300	ITS 01462	12	08/27/20
RE Cable	TRU Corporation	TRU CORE 300	ITS 01465	12	08/27/20
RE Cable	TRU Corporation	TRU CORE 300	ITS 01470	12	08/27/20
RF Cable	TRU Corporation	TRU CORE 300	ITS 01342	12	10/07/20
Notch Filter	MICRO-TRONICS	BRM50702	ITS 01166	12	05/14/20
RF Cable	Mega Phase	EMC1-K1K1-236	ITS 01537	12	02/20/20
10 dB Attenuator	Mini Circuits	BW-S10W5+	ITS 01582	12	10/07/20
RF Cable	Mega Phase	TM40-K1K1-59	ITS 01156	12	02/20/20

Software used for emission compliance testing utilized the following:

Name	Manufacturer	Version	Template/Profile
BAT-EMC	Nexio	3.16.0.64	G104123623_Tile.bat
Tile	Quantum Change	3.4.K.22	Conducted Restricted Band Edge_Avg Conducted Restricted Band Edge_Peak Conducted Restricted Band_1-26GHz Conducted Restricted Band_30M-1GHz
RS Commander	Rohde Schwarz	1.6.4	Not Applicable (Screen grabber)

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0 / G104123623	AS	KV	November 6, 2019	Original document

END OF REPORT