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GPS INDUSTRIES, LLC TEST REPORT

SCOPE OF WORK

EMC TESTING – V3-1005AQ

REPORT NUMBER

104702325LEX-001

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Non-Specific EMC Report Shell Rev. December 2017

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EMC TEST REPORT

(FULL COMPLIANCE)

Report Number: 104702325LEX-001

Project Number: G104702325

Report Issue Date: 11/30/2021

Model(s) Tested: V3-1005AQ

Standards: FCC Part 15B
ICES-003 Issue 7
FCC Part 15C, 22, 24, 27, 90
(Radiated Spurious Emissions)

Tested by:
Intertek Testing Services NA, Inc.
731 Enterprise Dr.
Lexington, KY 40510
USA

Client:
GPS INDUSTRIES, LLC
1074 N. Orange Ave.
Sarasota, FL 34236
USA

Report prepared by



Ben Coolbear,
Engineer

Report reviewed by



Bryan Taylor,
EMC Team Leader

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Table of Contents

1	<i>Introduction and Conclusion</i>	<i>4</i>
2	<i>Test Summary.....</i>	<i>4</i>
3	<i>Client Information.....</i>	<i>5</i>
4	<i>Description of Equipment under Test and Variant Models</i>	<i>6</i>
5	<i>System Setup and Method.....</i>	<i>7</i>
6	<i>Radiated Emissions</i>	<i>10</i>
7	<i>Revision History</i>	<i>46</i>



1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
6	Radiated Emissions (Transmitters Idle) (ANSI C63.4:2014)	Pass
6	Radiated Spurious Emissions (Transmitters Active) (ANSI C63.26:2015)	Pass
7	Conducted Emissions (ANSI C63.4:2014)	NA ¹

1 This test was not applicable since the V3-1005AQ was battery powered from a golf cart



3 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	GPS INDUSTRIES, LLC
Address:	1074 N. Orange Ave. Sarasota, FL 34236 USA
Contact:	Josh Hubert
Telephone:	1+706.619.3122
Email:	josh.hubert@irco.com
Manufacturer Information	
Manufacturer Name:	GPS INDUSTRIES, LLC
Manufacturer Address:	1074 N. Orange Ave. Sarasota, FL 34236 USA



4 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	V3-1005AQ
Model Number	V3-1005AQ
Serial Number	861364040286344
Supported Transmit Bands	Add FCCIDs of all transmitter modules (not just cellular)
Embedded Modules	Texas Instruments Model WL18MODGB (FCCID: Z64-WL18SBMOD) Quectel Model EM06-A (FCCID: XMR201906EM06A)
Receive Date	9/9/2021
Test Start Date	9/9/2021
Test End Date	10/16/2021
Device Received Condition	Good
Test Sample Type	Production
Rated Voltage	12VDC
Description of Equipment Under Test (provided by client)	
The V3-1005AQ is a tracking device that installs on golf carts. It provides distances to holes, tracking capabilities for the golf carts.	

4.1 Variant Models:

There were no variant models covered by this evaluation.



5 System Setup and Method

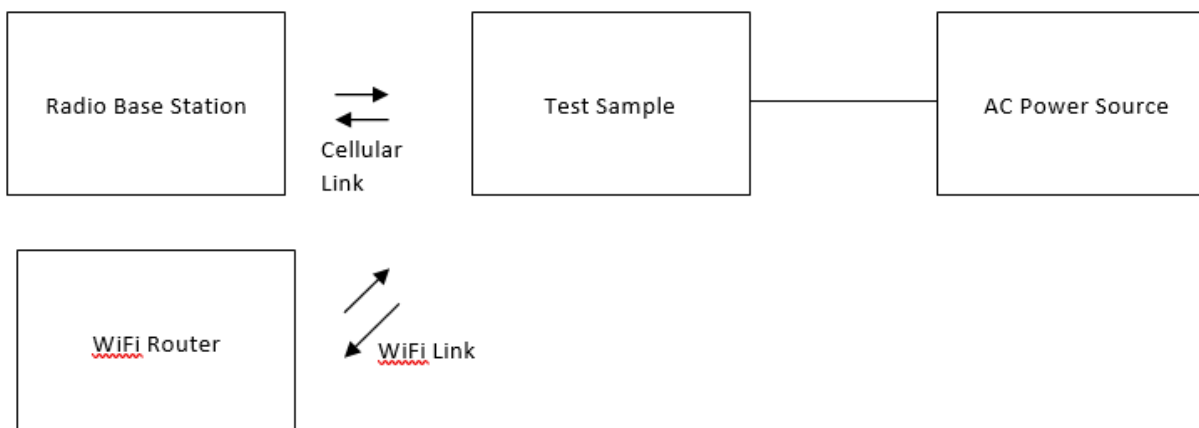
5.1 Method:

Configuration as required by ANSI C63.4:2014 and ANSI C63.26:2015.

No.	Descriptions of EUT Exercising
1	The V3-1005AQ was powered and operating normally for the duration of the evaluation.
2	A wireless call was established with the V3-1005AQ and the radio base station.
3	The wireless call was monitored for connectivity, bit error rates, and block error rates.
4	A Wifi Connection was established with a router and the V3-1005AQ.

Cables					
#	Description	Length (m)	Shielding	Ferrites	Termination
1	Power Cable	1	None	None	AC to DC Power Adapter

5.2 EUT Block Diagram:





5.3 EUT Photo (Front):





5.4 EUT Photo (Back):





6 Radiated Emissions

6.1 Method

Tests are performed in accordance with ANSI C63.4:2014 and ANSI C63.26:2015.

TEST SITE: 10m ALSE

Site Designation: 10m Chamber

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisp
Radiated Emissions, 10m	30-1000 MHz	3.9dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	4.0dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.7dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	4.7dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	4.7dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	4.7dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required.



6.2 Sample 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:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 52.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB/m}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$FS = 32 \text{ dB}\mu\text{V/m}$$

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$
$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

6.3 Field Strength to Power Calculation

As allowable by ANSI C63.26: 2015 section 5.2.7, the output power of unwanted emissions can be calculated from a field strength measurement. The transmitter measurements that follow in this report have applied the following calculation to the -13dBm limit to arrive an equivalent field strength limit at 3 meters as follows:

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$; where D is the measurement distance (in the far field region) in m.

Example:

$$\text{Limit (dB}\mu\text{V/m)} = -13 - 20\log(3) + 104.8 = 82.25 \text{ dB}\mu\text{V/m}$$

**6.4 Test Equipment Used:**

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
EMI Test Receiver	8131	Rohde & Schwarz	ESW44	1/15/2020	1/22/2022
Bilog Antenna (30MHz-1GHz)	3133	ETS	3142C	8/26/2021	8/26/2022
Horn Antenna	4001	ETS	3117	1/26/2021	1/26/2022
System Controller	4096	ETS Lindgren	2090	Verify at Time of Use	Verify at Time of Use
System Controller	3957	Sunol Sciences	SC99V	Verify at Time of Use	Verify at Time of Use
Coaxial Cable	3074			12/21/2020	12/21/2021
Preamplifier	3918	Rohde & Schwarz	TS-PR18	12/21/2020	12/21/2021
Coaxial Cable	2588			12/21/2020	12/21/2021
Coaxial Cable	2593			12/21/2020	12/21/2021
Coaxial Cable	2592			12/21/2020	12/21/2021
Coaxial Cable	3339			12/21/2020	12/21/2021
Preamplifier	7019	Rohde & Schwarz	TS-PR3	12/21/2020	12/21/2021
Coaxial Cable	3172			12/21/2020	12/21/2021
Coaxial Cable	2590			12/21/2020	12/21/2021
Coaxial Cable	2589			12/21/2020	12/21/2021

6.5 Software Utilized:

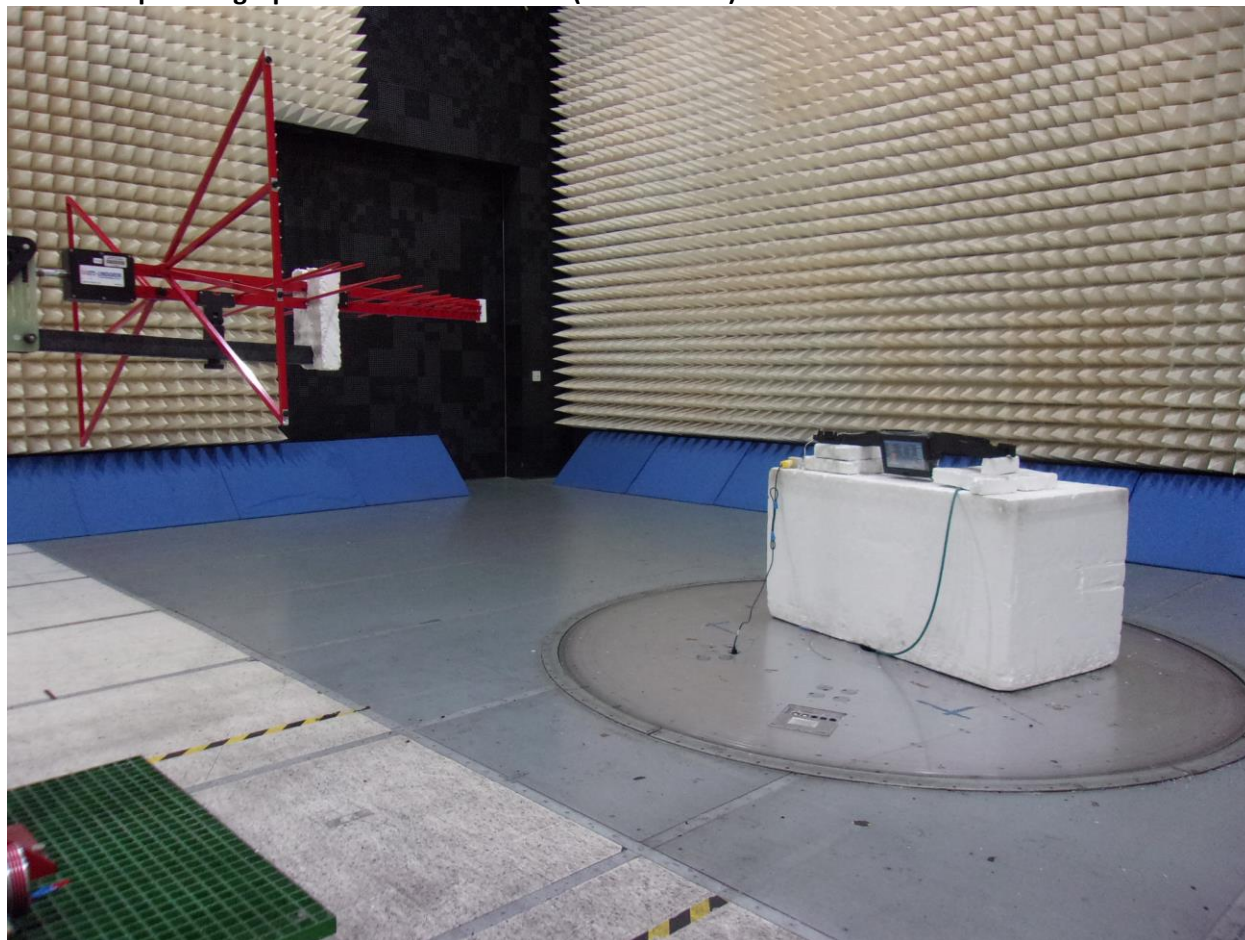
Name	Manufacturer	Version
EMC32	Rohde & Schwarz	Version 9.15.02

6.6 Results:

The sample tested was found to Comply.



6.7 Setup Photographs: Radiated Emissions (Below 1GHz)



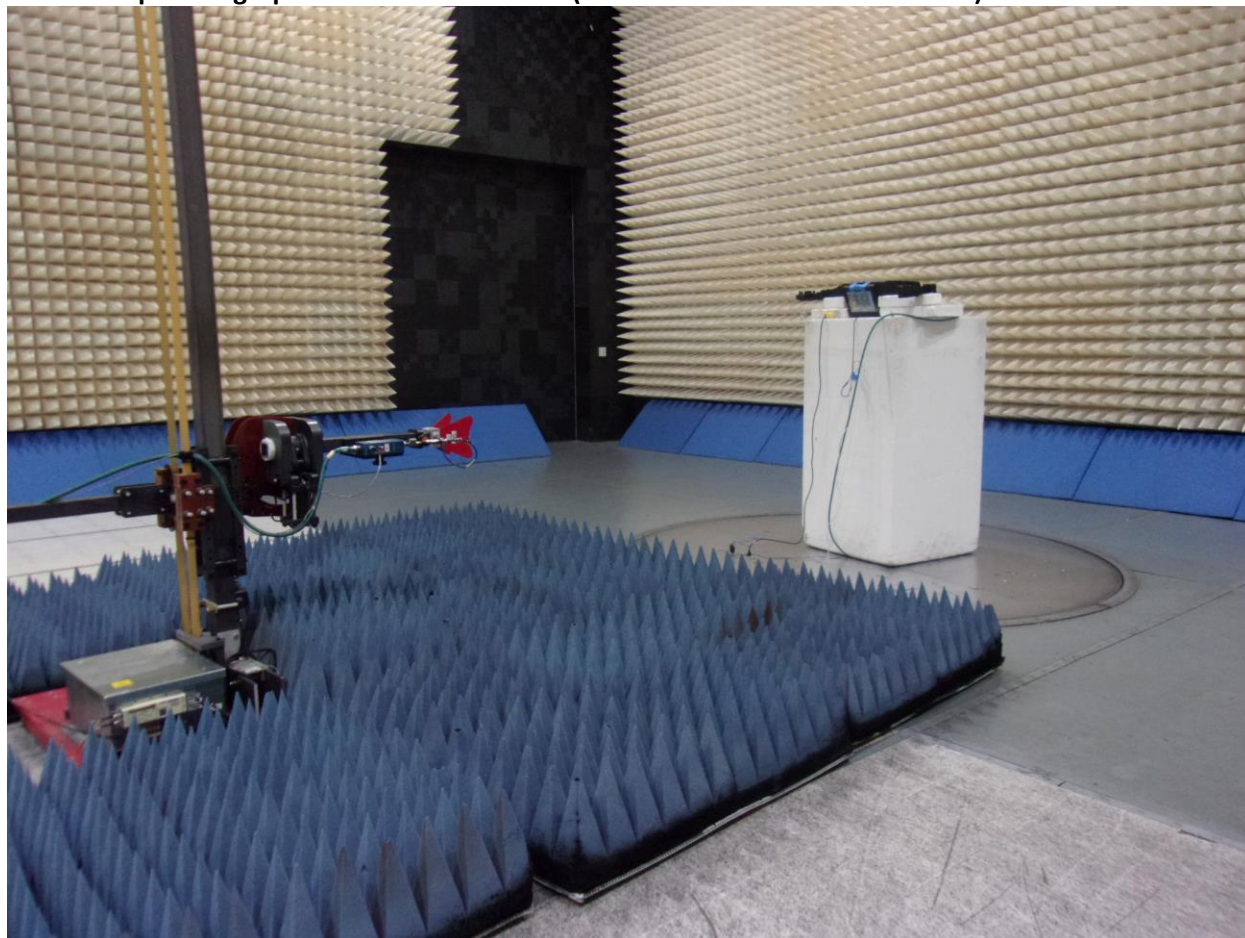


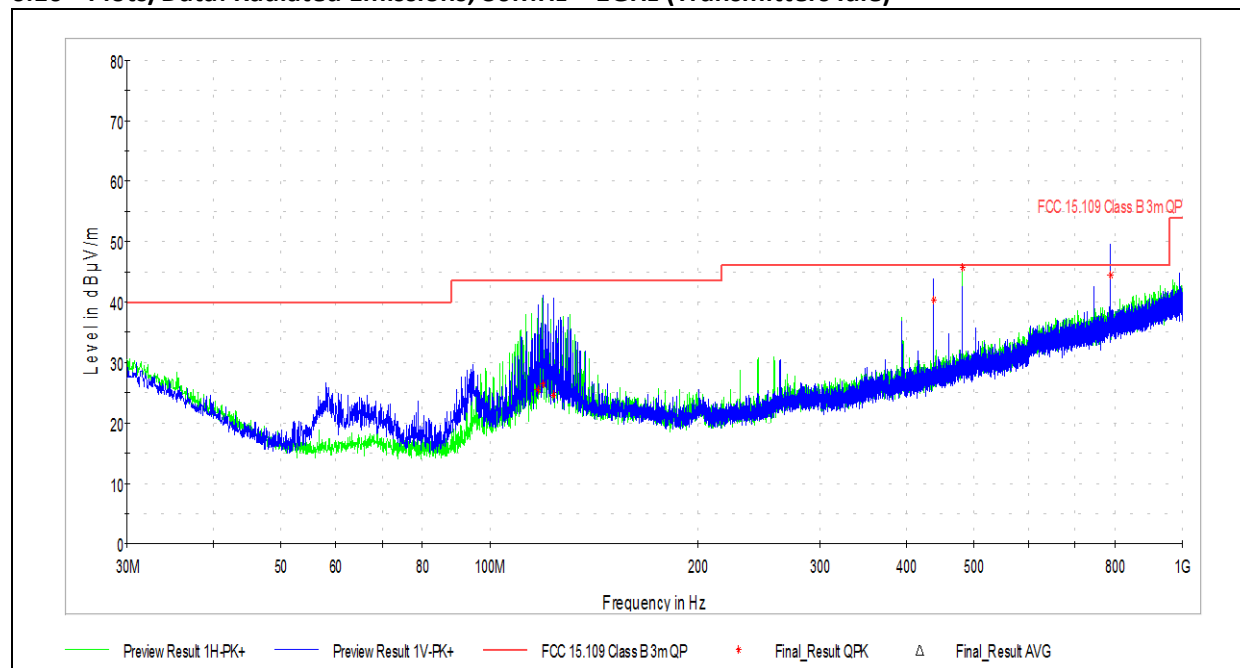
6.8 Setup Photographs: Radiated Emissions (FCC Part 15B Above 1GHz)





6.9 Setup Photographs: Radiated Emissions (Transmitters Active Above 1GHz)



**6.10 Plots/Data: Radiated Emissions, 30MHz – 1GHz (Transmitters Idle)**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
117.407778	25.52	43.52	18.00	120.000	100.0	V	170.0	22
119.509444	26.43	43.52	17.10	120.000	100.0	V	180.0	22
123.712778	24.57	43.52	18.95	120.000	104.0	V	180.0	22
437.992778	40.35	46.02	5.67	120.000	125.0	V	171.0	27
481.804444	45.65	46.02	0.37	120.000	192.0	H	201.0	29
788.378333	44.50	46.02	1.52	120.000	153.0	V	206.0	34

Test Personnel: Bryan Taylor

Supervising/Reviewing Engineer: NA

(Where Applicable) FCC Part 15B

Product Standard: ICES-003 Issue 7

Input Voltage: 12 VDC Via 120VAC to DC adapter

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 9/10/2021

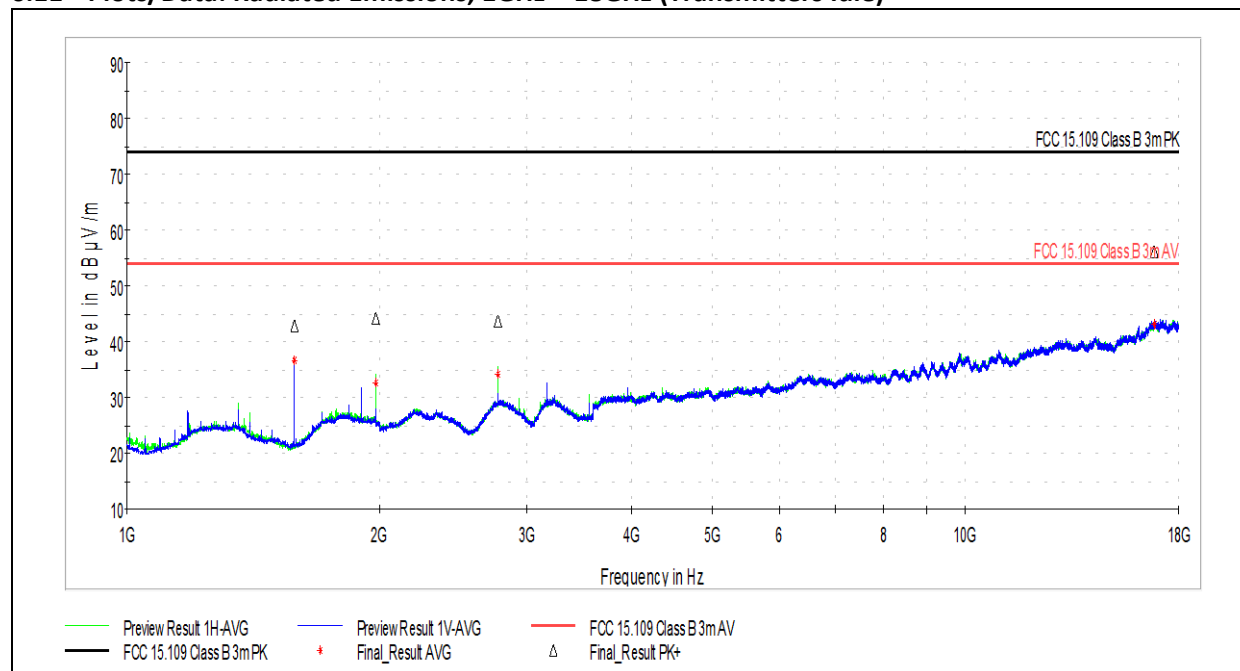
Limit Applied: Class B

Ambient Temperature: 23.0 °C

Relative Humidity: 54.5 %

Atmospheric Pressure: 982.7 mbar

Deviations, Additions, or Exclusions: The FCC Part 15.109 limits are more stringent than the corresponding limits from ICES-003 Issue 7.

**6.11 Plots/Data: Radiated Emissions, 1GHz – 18GHz (Transmitters Idle)**

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1584.000000	42.80	73.98	31.18	1000.000	127.0	H	299.0	0
1979.500000	44.21	73.98	29.77	1000.000	220.0	H	301.0	4
2772.000000	43.80	73.98	30.18	1000.000	195.0	H	285.0	6
16837.500000	56.13	73.98	17.85	1000.000	100.0	H	197.0	25

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1584.000000	36.61	53.98	17.37	1000.000	127.0	H	299.0	0
1979.500000	32.72	53.98	21.26	1000.000	220.0	H	301.0	4
2772.000000	34.31	53.98	19.67	1000.000	195.0	H	285.0	6
16837.500000	43.14	53.98	10.84	1000.000	100.0	H	197.0	25

Test Personnel: Bryan Taylor

Supervising/Reviewing Engineer: NA
(Where Applicable)

Product Standard: FCC Part 15B
ICES-003 Issue 7

Input Voltage: 12 VDC Via 120VAC to DC
adapter

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 9/10/2021

Limit Applied: Class B

Ambient Temperature: 23.0 °C

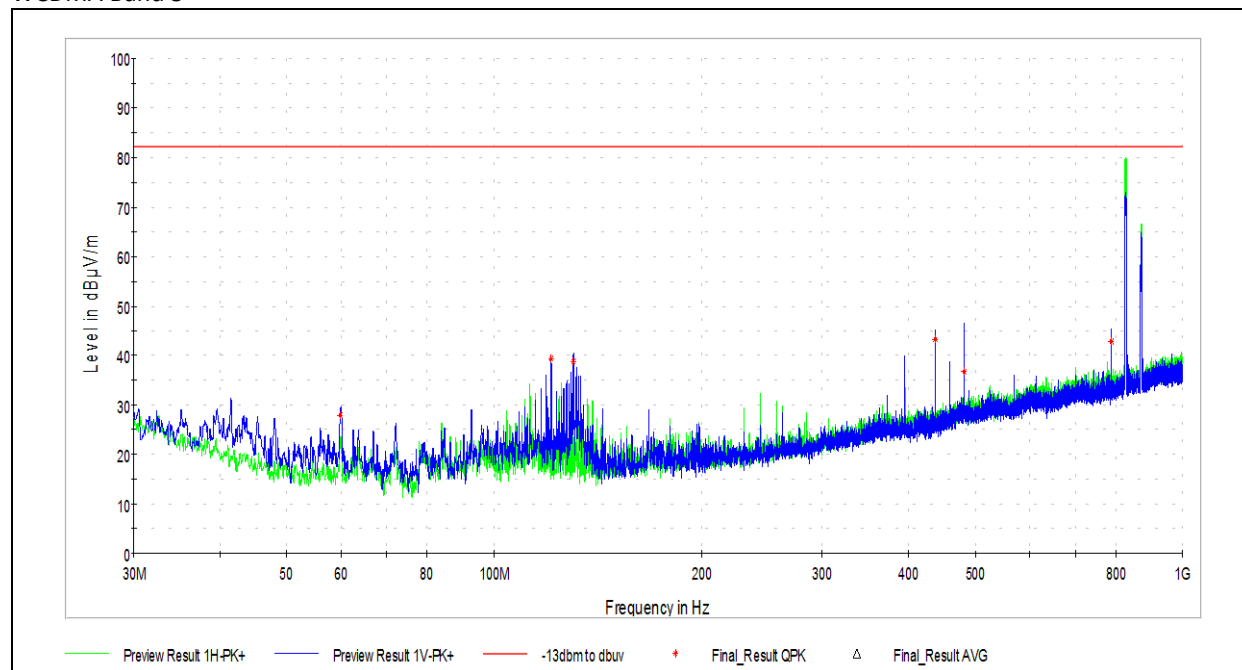
Relative Humidity: 54.5 %

Atmospheric Pressure: 982.7 mbar

Deviations, Additions, or Exclusions: None

**6.12 FCC Part 22 Radiated Spurious Emissions (WCDMA B5, LTE B5)****6.12.1 Radiated Spurious Emissions, 30 MHz – 1 GHz**

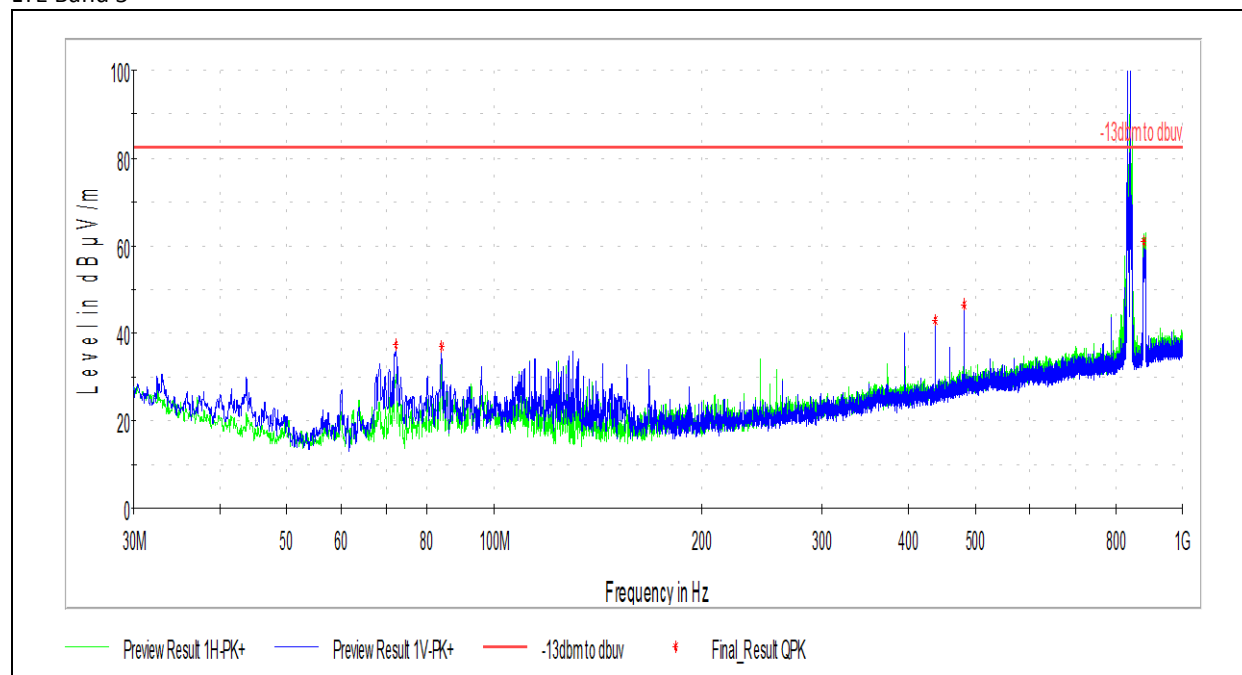
WCDMA Band 5



Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
59.908333	27.84	82.25	54.41	120.000	99.0	V	91.0	15
121.233889	39.44	82.25	42.81	120.000	104.0	V	69.0	16
130.610556	38.88	82.25	43.37	120.000	104.0	V	71.0	16
437.938889	43.32	82.25	38.93	120.000	104.0	V	3.0	27
481.750556	36.81	82.25	45.44	120.000	202.0	H	-3.0	29
788.324444	42.75	82.25	39.50	120.000	140.0	V	123.0	34



LTE Band 5



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
72.033333	37.40	82.25	44.85	120.000	98.0	V	0.0	14
83.942778	36.95	82.25	45.30	120.000	101.0	V	228.0	15
437.938889	43.00	82.25	39.25	120.000	105.0	V	0.0	27
481.750556	46.62	82.25	35.63	120.000	100.0	V	7.0	29
878.588333	60.87	82.25	21.38	120.000	124.0	H	-2.0	36

Test Personnel: Ben Coolbear

Supervising/Reviewing Engineer: (Where Applicable) NA

Product Standard: FCC Part 22

Input Voltage: 12 VDC Via 120VAC to DC adapter

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 10/15/2021

Limit Applied: -13dBm converted to field strength

Ambient Temperature: 22.7 °C

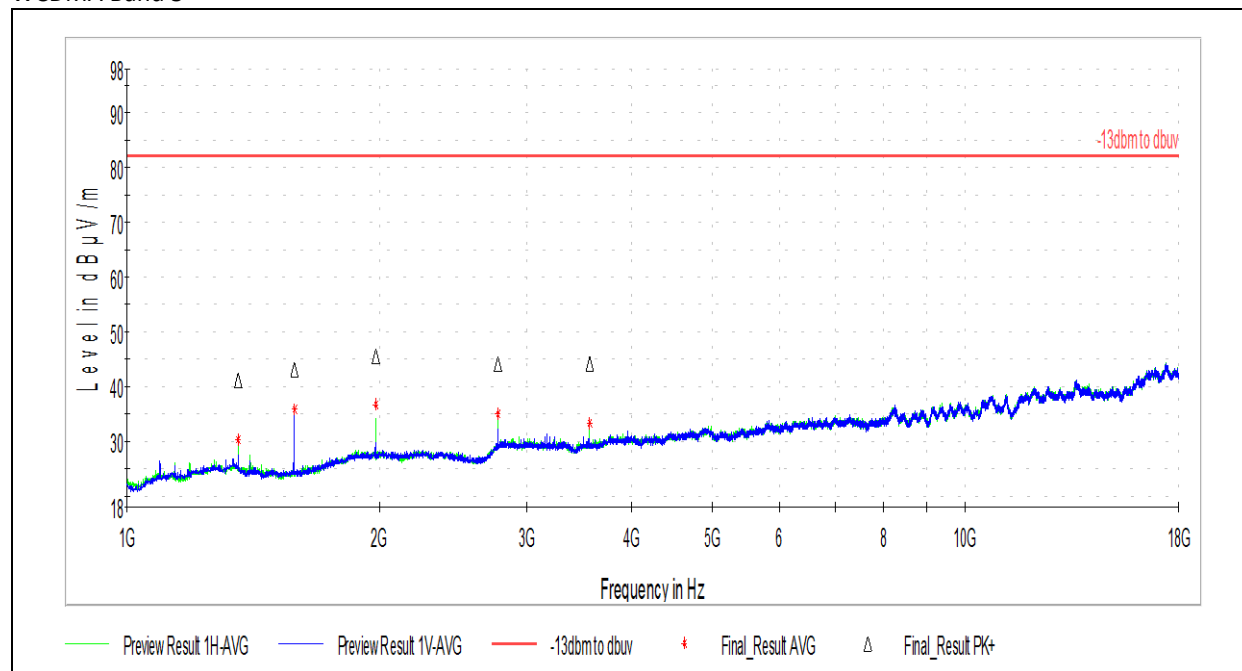
Relative Humidity: 68.7 %

Atmospheric Pressure: 977.7 mbar

Deviations, Additions, or Exclusions: None

**6.12.2 Radiated Spurious Emissions, 1 GHz – 18 GHz**

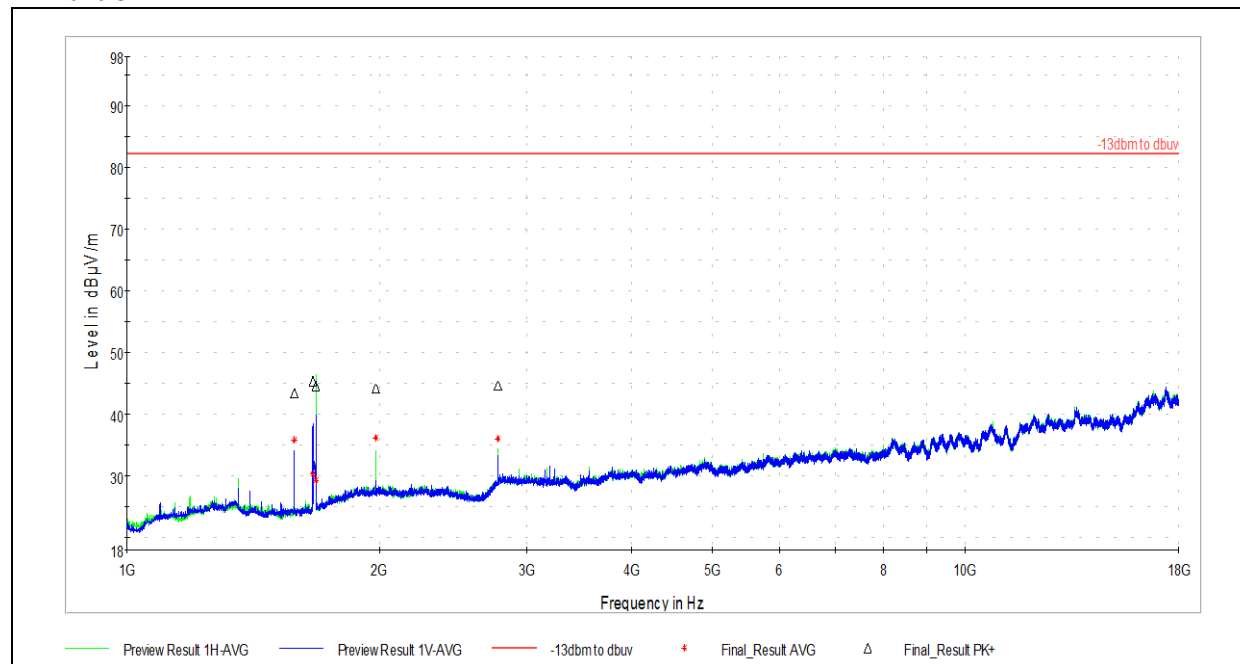
WCDMA Band 5



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1357.500000	30.35	82.25	51.90	1000.000	209.0	H	101.0	1
1584.000000	35.74	82.25	46.51	1000.000	100.0	V	131.0	0
1980.000000	36.54	82.25	45.71	1000.000	163.0	H	104.0	4
2772.000000	34.88	82.25	47.37	1000.000	100.0	H	155.0	6
3564.000000	33.20	82.25	49.05	1000.000	220.0	H	156.0	7



LTE Band 5



Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1584.000000	35.82	82.25	46.43	1000.000	154.0	V	95.0	0
1665.000000	30.22	82.25	52.03	1000.000	109.0	V	83.0	1
1681.000000	29.32	82.25	52.93	1000.000	236.0	H	169.0	1
1980.000000	36.14	82.25	46.11	1000.000	159.0	H	102.0	4
2772.000000	36.00	82.25	46.25	1000.000	127.0	H	157.0	6

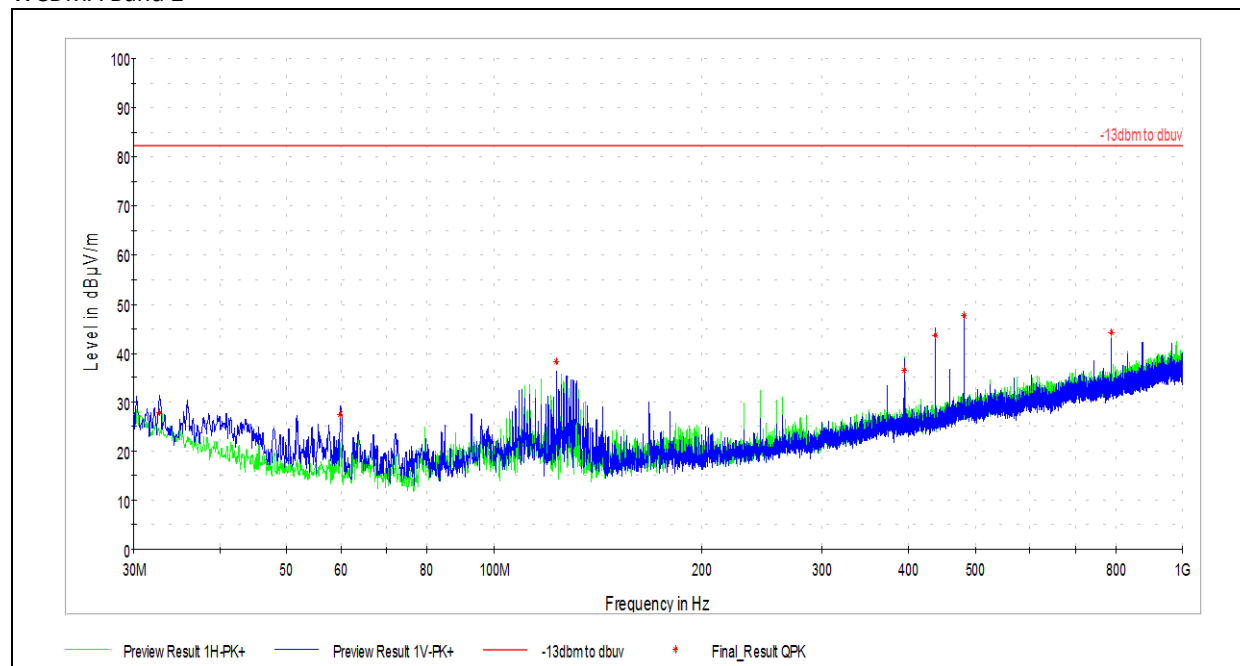
Test Personnel: Michael Carlson
 Supervising/Reviewing Engineer: _____
 (Where Applicable) NA
 Product Standard: FCC Part 22
 12 VDC Via 120VAC to DC
 Input Voltage: adapter
 Pretest Verification w / Ambient
 Signals or BB Source: Yes

Test Date: 10/16/2021
 Limit Applied: -13dBm converted to field strength
 Ambient Temperature: 21.3 °C
 Relative Humidity: 60.5 %
 Atmospheric Pressure: 983.8 mbar

Deviations, Additions, or Exclusions: None

**6.13 FCC Part 24 Radiated Spurious Emissions (WCDMA B2, LTE B2/B25)****6.13.1 Radiated Spurious Emissions, 30 MHz – 1 GHz**

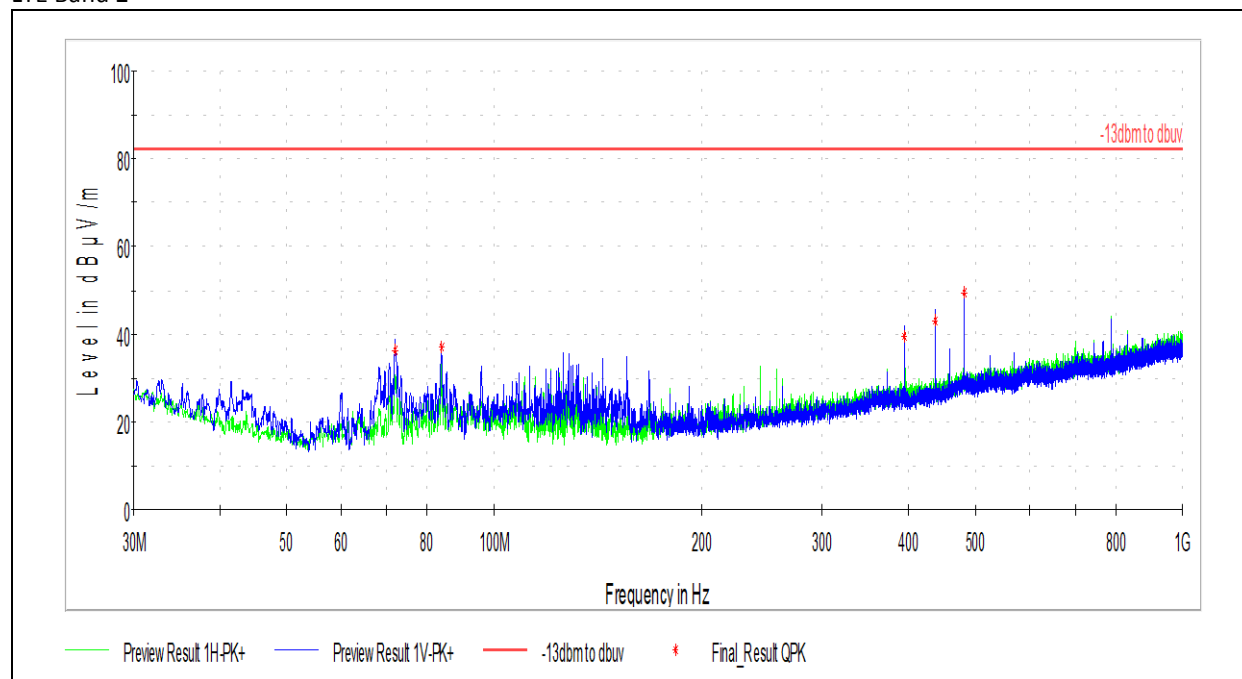
WCDMA Band 2



Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
32.748333	27.89	82.25	54.36	120.000	99.0	V	78.0	22
59.908333	27.47	82.25	54.78	120.000	100.0	V	83.0	15
123.281667	38.28	82.25	43.97	120.000	100.0	V	70.0	16
394.127222	36.53	82.25	45.72	120.000	95.0	H	5.0	27
437.938889	43.57	82.25	38.68	120.000	106.0	V	0.0	27
481.750556	47.60	82.25	34.65	120.000	100.0	V	6.0	29
788.378333	44.18	82.25	38.07	120.000	95.0	H	300.0	35



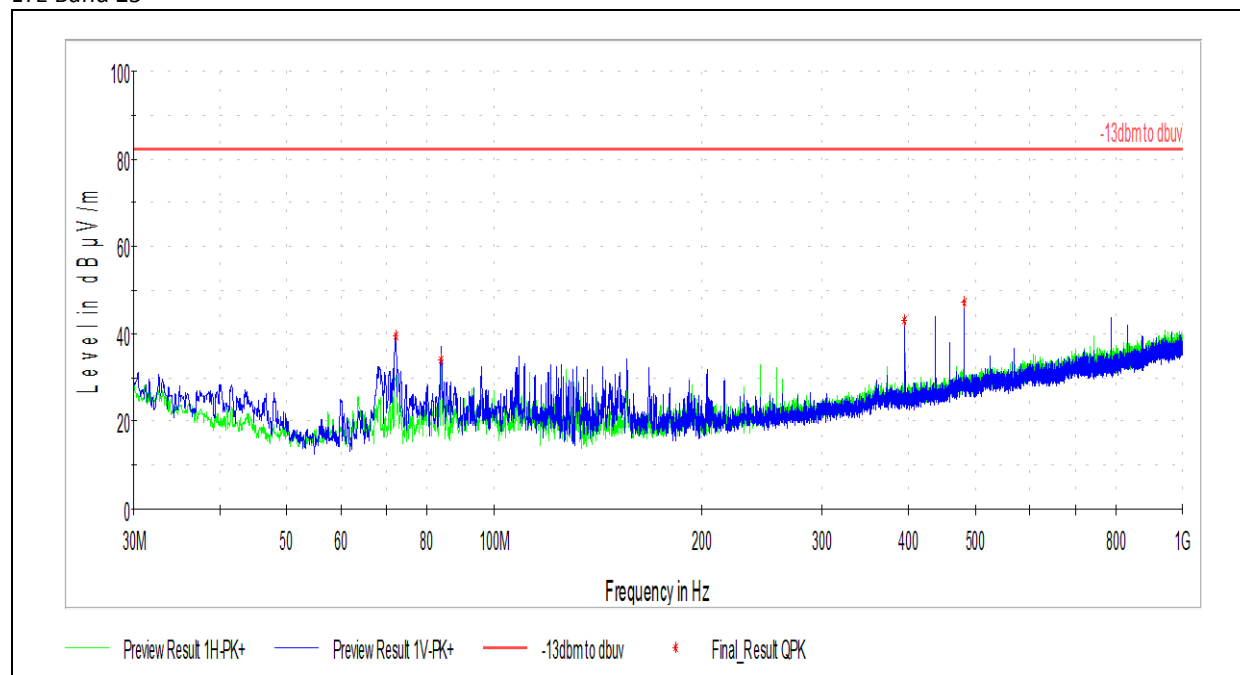
LTE Band 2



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.871667	36.30	82.25	45.95	120.000	100.0	V	0.0	14
83.942778	37.00	82.25	45.25	120.000	100.0	V	228.0	15
394.127222	39.54	82.25	42.71	120.000	105.0	V	322.0	26
437.938889	43.13	82.25	39.12	120.000	106.0	V	0.0	27
481.750556	49.52	82.25	32.73	120.000	99.0	V	17.0	29



LTE Band 25



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.979444	39.72	82.25	42.53	120.000	100.0	V	0.0	14
83.835000	33.87	82.25	48.38	120.000	100.0	V	224.0	15
394.181111	43.12	82.25	39.13	120.000	105.0	V	324.0	26
481.750556	47.38	82.25	34.87	120.000	100.0	V	6.0	29

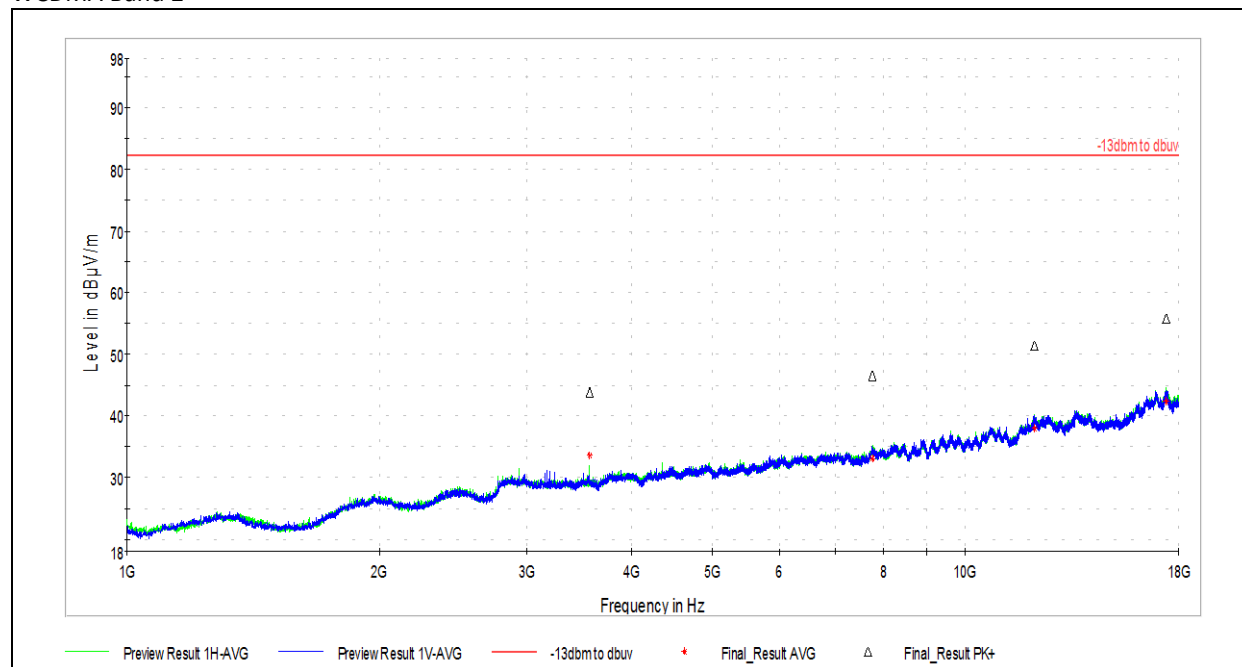
Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) NA
Product Standard: FCC Part 24
12 VDC Via 120VAC to DC
Input Voltage: adapter
Pretest Verification w / Ambient
Signals or BB Source: Yes

Test Date: 10/16/2021
Limit Applied: -13dBm converted to field strength
Ambient Temperature: 21.3 °C
Relative Humidity: 60.5 %
Atmospheric Pressure: 9838 mbar

Deviations, Additions, or Exclusions: None

**6.13.2 Radiated Spurious Emissions, 1 GHz – 18 GHz**

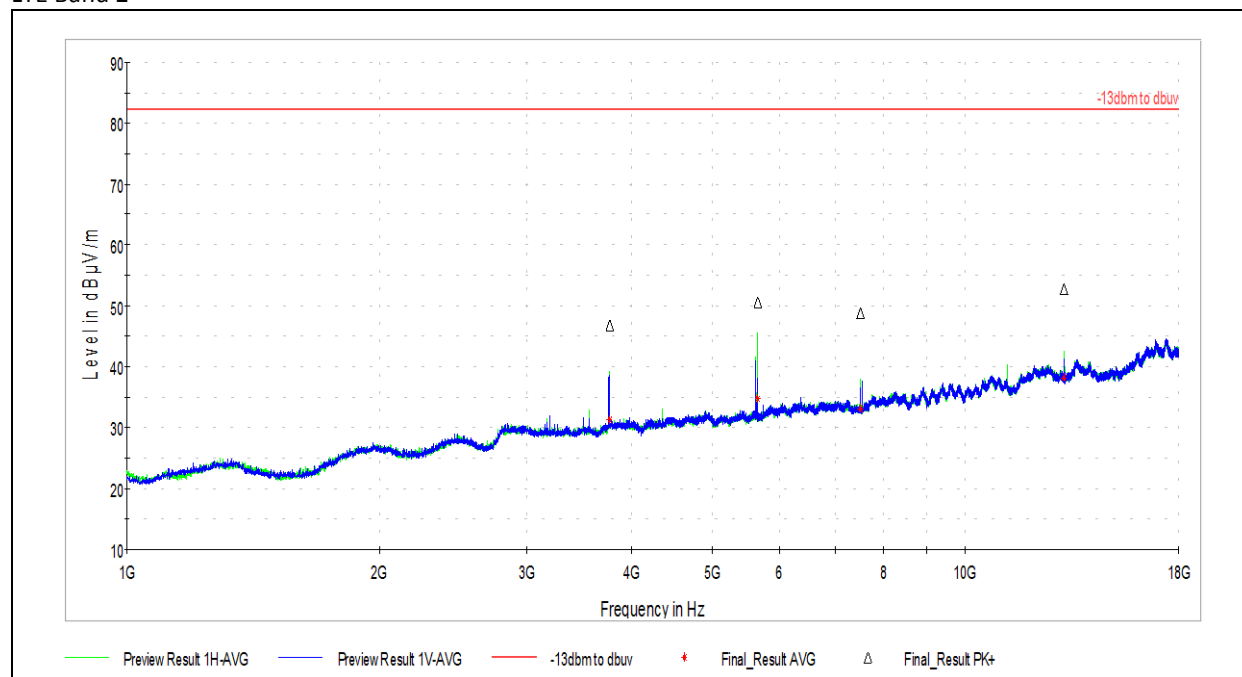
WCDMA Band 2



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3564.000000	33.63	82.25	48.62	1000.000	246.0	H	158.0	7
7754.000000	33.02	82.25	49.23	1000.000	100.0	H	0.0	14
12095.500000	38.00	82.25	44.25	1000.000	100.0	H	0.0	20
17395.000000	42.40	82.25	39.85	1000.000	100.0	H	33.0	25



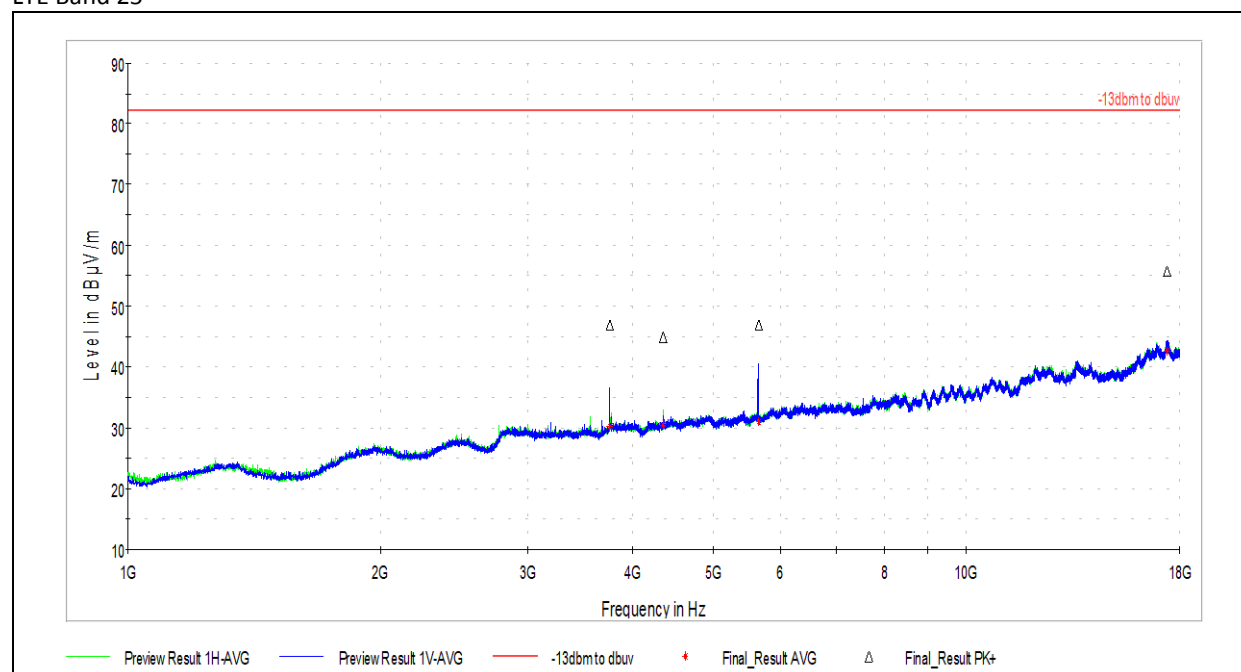
LTE Band 2



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3768.000000	31.38	82.25	50.87	1000.000	145.0	H	167.0	8
5652.000000	34.70	82.25	47.55	1000.000	221.0	H	193.0	11
7504.000000	33.16	82.25	49.09	1000.000	361.0	H	100.0	13
13131.500000	38.12	82.25	44.13	1000.000	302.0	H	0.0	21



LTE Band 25



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3757.000000	30.28	82.25	51.97	1000.000	189.0	V	134.0	8
4356.000000	30.48	82.25	51.77	1000.000	196.0	H	117.0	9
5659.500000	30.92	82.25	51.33	1000.000	100.0	V	120.0	11
17390.500000	42.53	82.25	39.72	1000.000	100.0	V	0.0	25

Test Personnel: Michael Carlson
 Supervising/Reviewing Engineer: _____
 (Where Applicable) NA
 Product Standard: FCC Part 24
 12 VDC Via 120VAC to DC
 Input Voltage: adapter
 Pretest Verification w / Ambient
 Signals or BB Source: Yes

Test Date: 10/16/2021
 Limit Applied: -13dBm converted to field strength
 Ambient Temperature: 21.3 °C
 Relative Humidity: 60.5 %
 Atmospheric Pressure: 9838 mbar

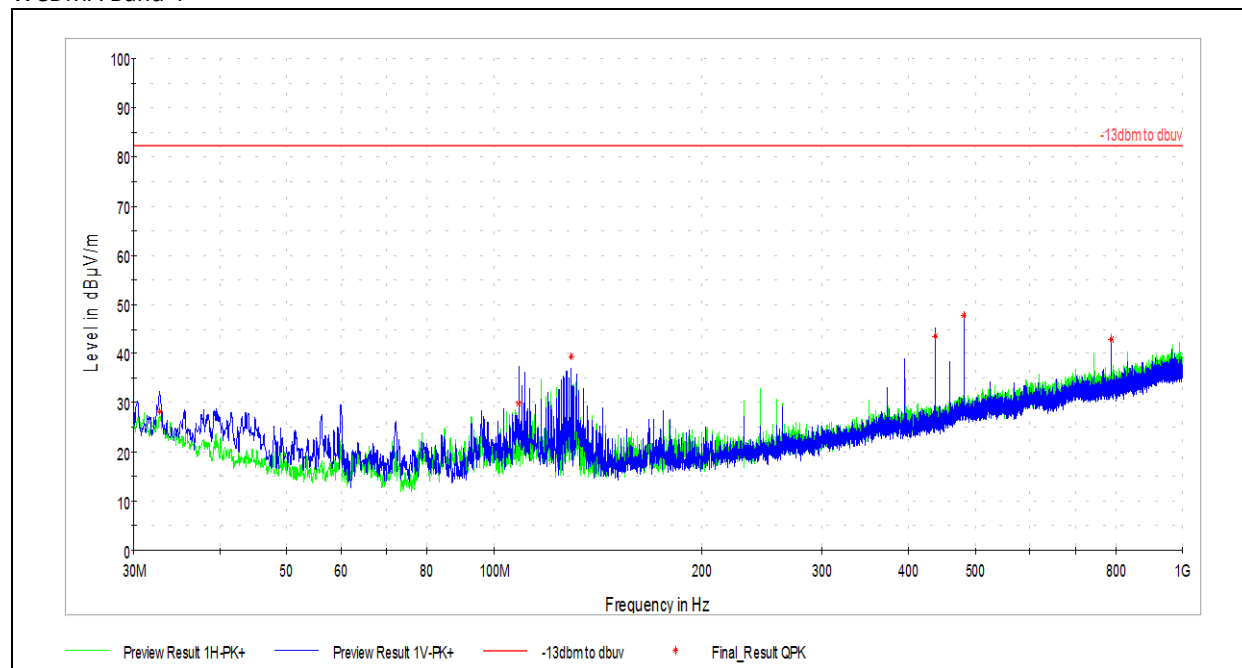
Deviations, Additions, or Exclusions: None



6.14 FCC Part 27 Radiated Spurious Emissions (WCDMA B4, LTE B4/B7/B12/B13/B30/B41/B66)

6.14.1 Radiated Spurious Emissions, 30 MHz – 1 GHz

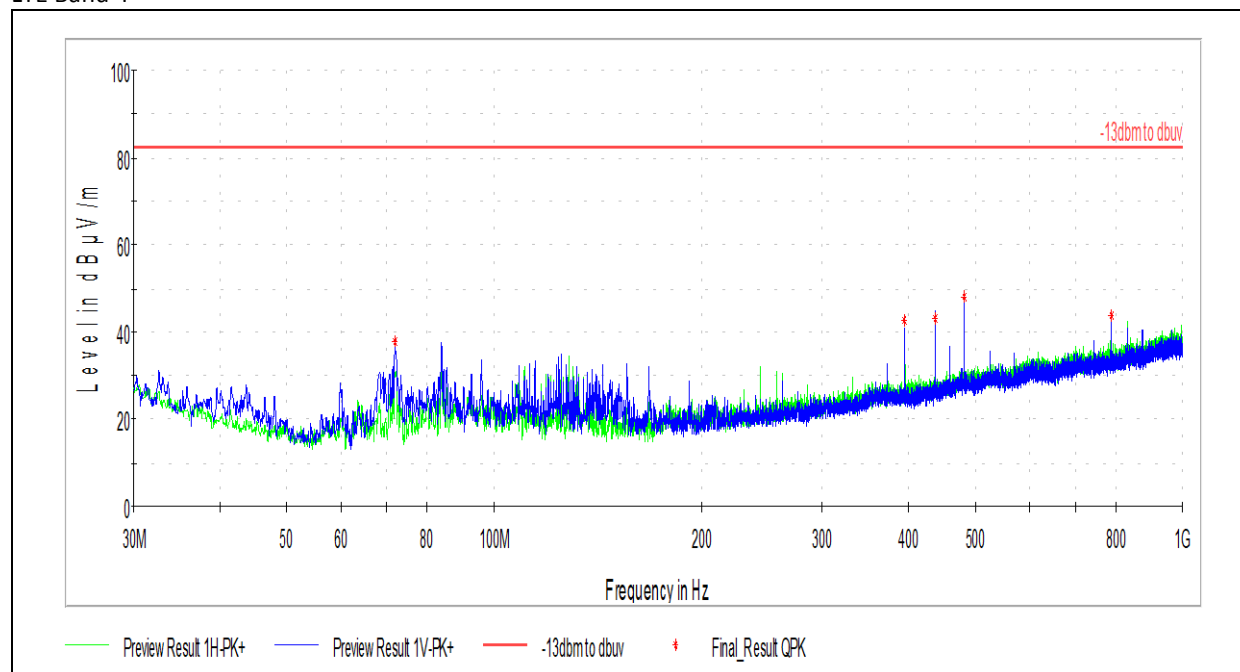
WCDMA Band 4



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
32.694444	28.26	82.25	53.99	120.000	100.0	V	100.0	22
108.623889	29.93	82.25	52.32	120.000	100.0	V	71.0	17
129.586667	39.43	82.25	42.82	120.000	100.0	V	50.0	16
437.938889	43.53	82.25	38.72	120.000	106.0	V	0.0	27
481.750556	47.77	82.25	34.48	120.000	100.0	V	8.0	29
788.324444	42.80	82.25	39.45	120.000	100.0	H	291.0	35



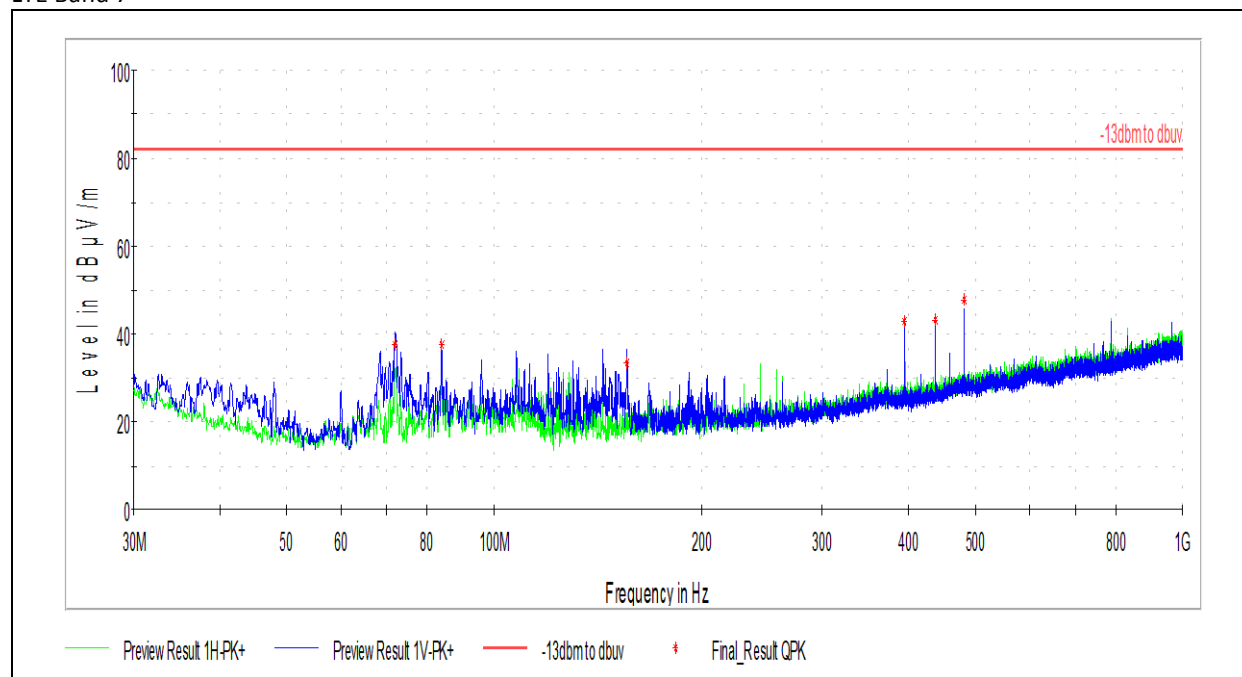
LTE Band 4



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.925556	37.66	82.25	44.59	120.000	98.0	V	6.0	14
394.181111	42.61	82.25	39.64	120.000	104.0	V	317.0	26
437.938889	43.28	82.25	38.97	120.000	109.0	V	0.0	27
481.750556	47.95	82.25	34.30	120.000	100.0	V	8.0	29
788.324444	43.77	82.25	38.48	120.000	95.0	H	168.0	35



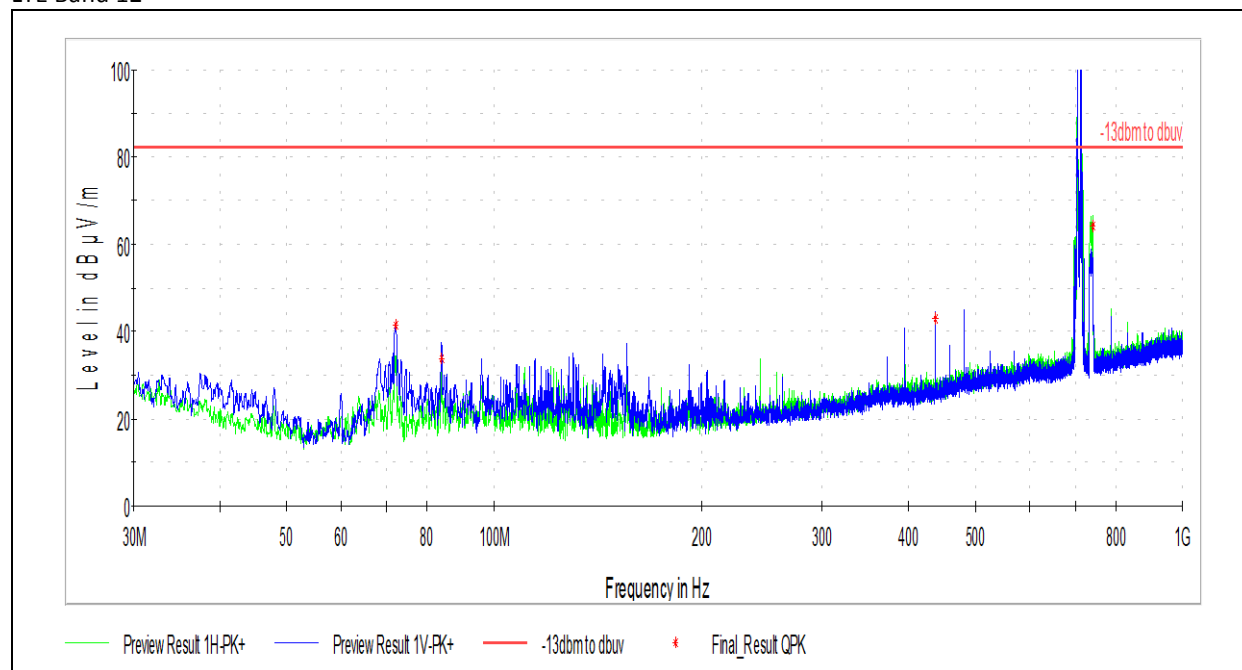
LTE Band 7



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.871667	37.66	82.25	44.59	120.000	101.0	V	0.0	14
83.996667	37.61	82.25	44.64	120.000	101.0	V	227.0	15
156.046111	33.30	82.25	48.95	120.000	99.0	V	25.0	18
394.181111	42.89	82.25	39.36	120.000	105.0	V	321.0	26
437.938889	43.25	82.25	39.00	120.000	109.0	V	0.0	27
481.750556	47.86	82.25	34.39	120.000	100.0	V	8.0	29



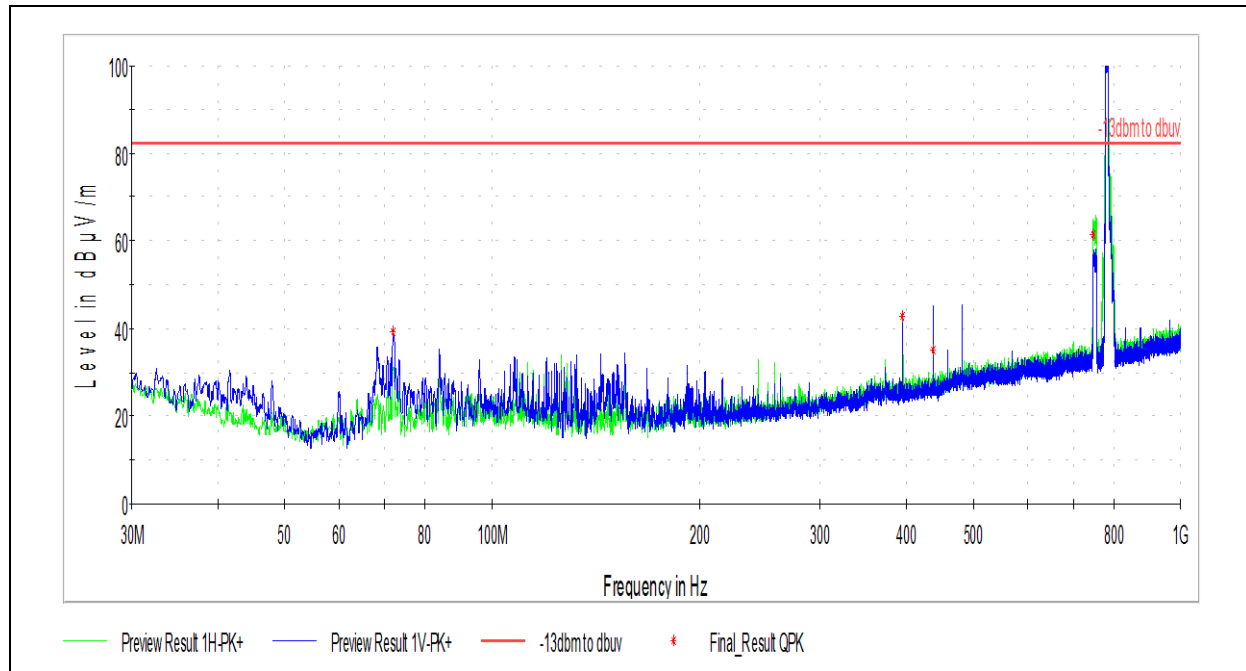
LTE Band 12



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
72.033333	41.52	82.25	40.73	120.000	102.0	V	27.0	14
83.888889	33.77	82.25	48.48	120.000	106.0	V	102.0	15
437.938889	42.76	82.25	39.49	120.000	102.0	V	-1.0	27
741.441111	64.24	82.25	18.01	120.000	97.0	H	-2.0	34



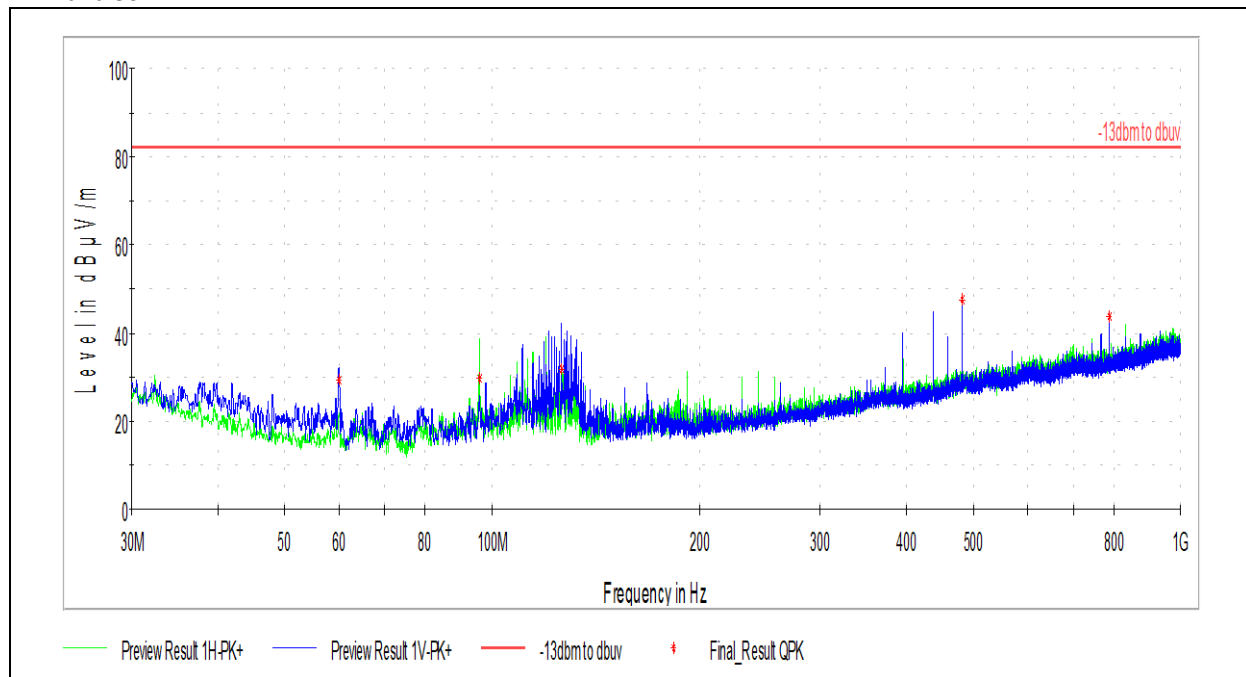
LTE Band 13



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.871667	39.38	82.25	42.87	120.000	100.0	V	27.0	14
394.181111	42.80	82.25	39.45	120.000	105.0	V	323.0	26
437.885000	35.24	82.25	47.01	120.000	102.0	V	0.0	27
746.506667	61.48	82.25	20.77	120.000	100.0	H	-1.0	34



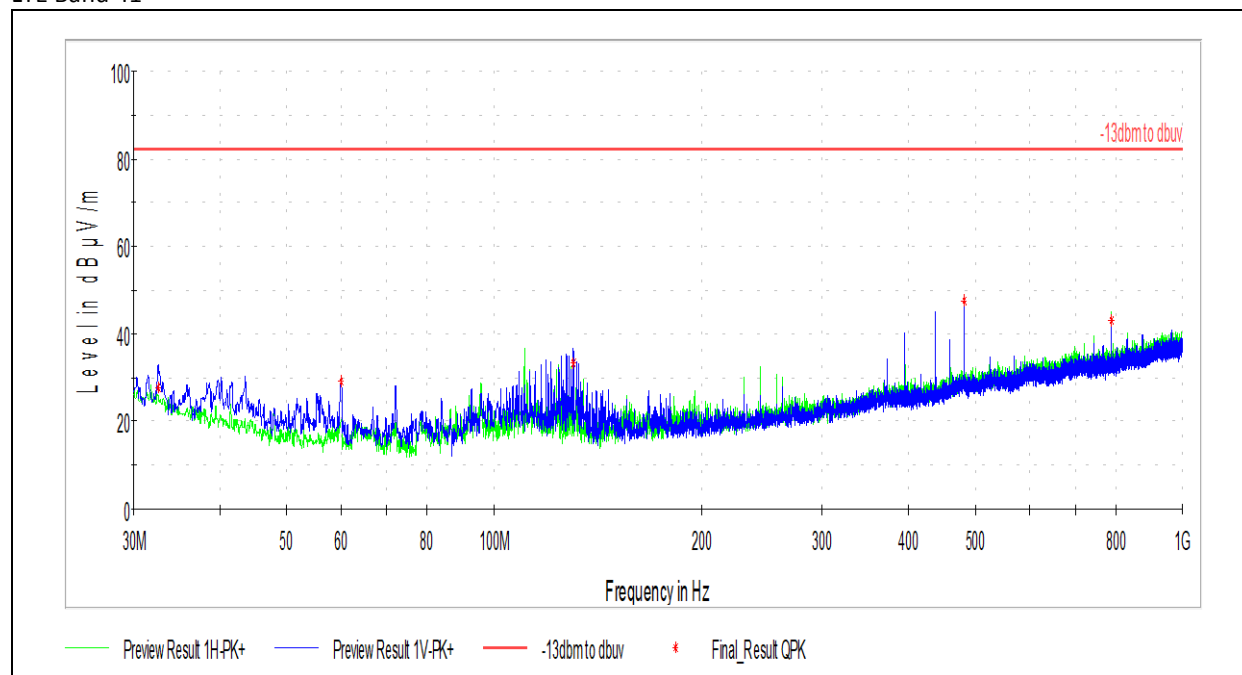
LTE Band 30



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
59.962222	29.31	82.25	52.94	120.000	105.0	V	17.0	15
95.960000	29.62	82.25	52.63	120.000	339.0	H	16.0	16
126.299444	31.73	82.25	50.52	120.000	100.0	V	87.0	16
481.750556	47.52	82.25	34.73	120.000	100.0	V	6.0	29
788.324444	43.60	82.25	38.65	120.000	105.0	V	122.0	34



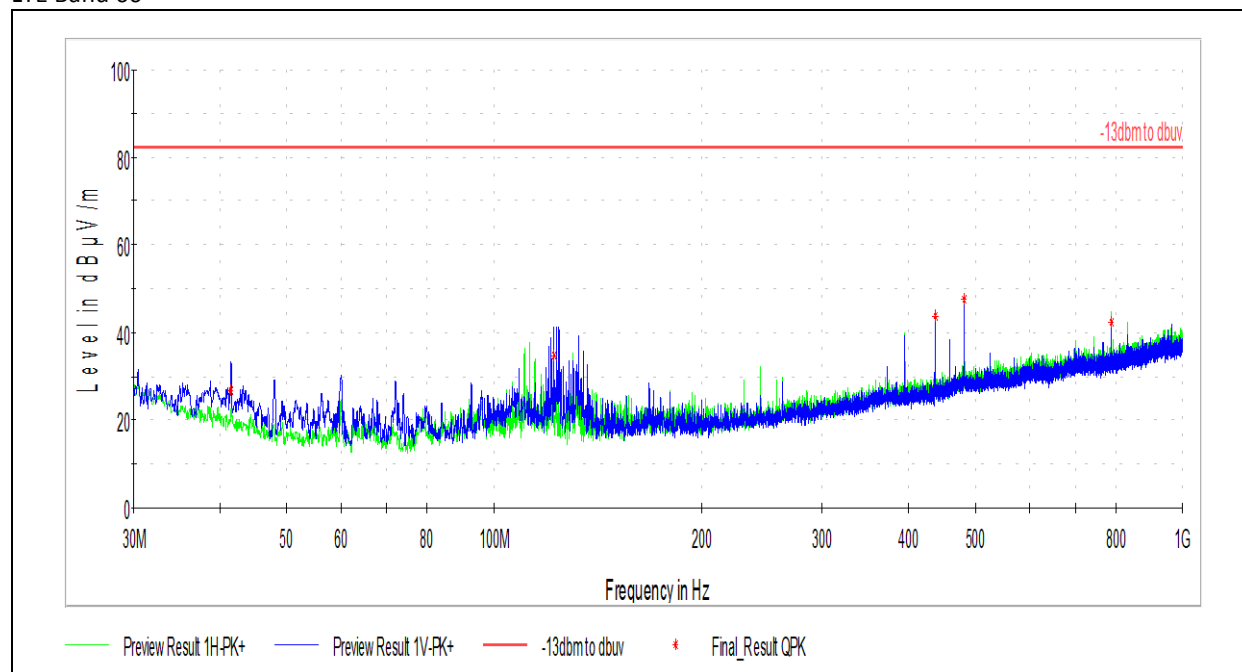
LTE Band 41



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
32.532778	27.70	82.25	54.55	120.000	100.0	V	77.0	22
59.962222	29.09	82.25	53.16	120.000	104.0	V	111.0	15
130.556667	33.31	82.25	48.94	120.000	106.0	V	279.0	16
481.750556	47.46	82.25	34.79	120.000	100.0	V	6.0	29
788.324444	43.10	82.25	39.15	120.000	100.0	H	291.0	35



LTE Band 66



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.532222	26.80	82.25	55.45	120.000	100.0	V	233.0	17
122.257778	34.56	82.25	47.69	120.000	99.0	V	80.0	16
437.938889	43.61	82.25	38.64	120.000	105.0	V	0.0	27
481.750556	47.64	82.25	34.61	120.000	100.0	V	7.0	29
788.324444	42.36	82.25	39.89	120.000	100.0	H	292.0	35

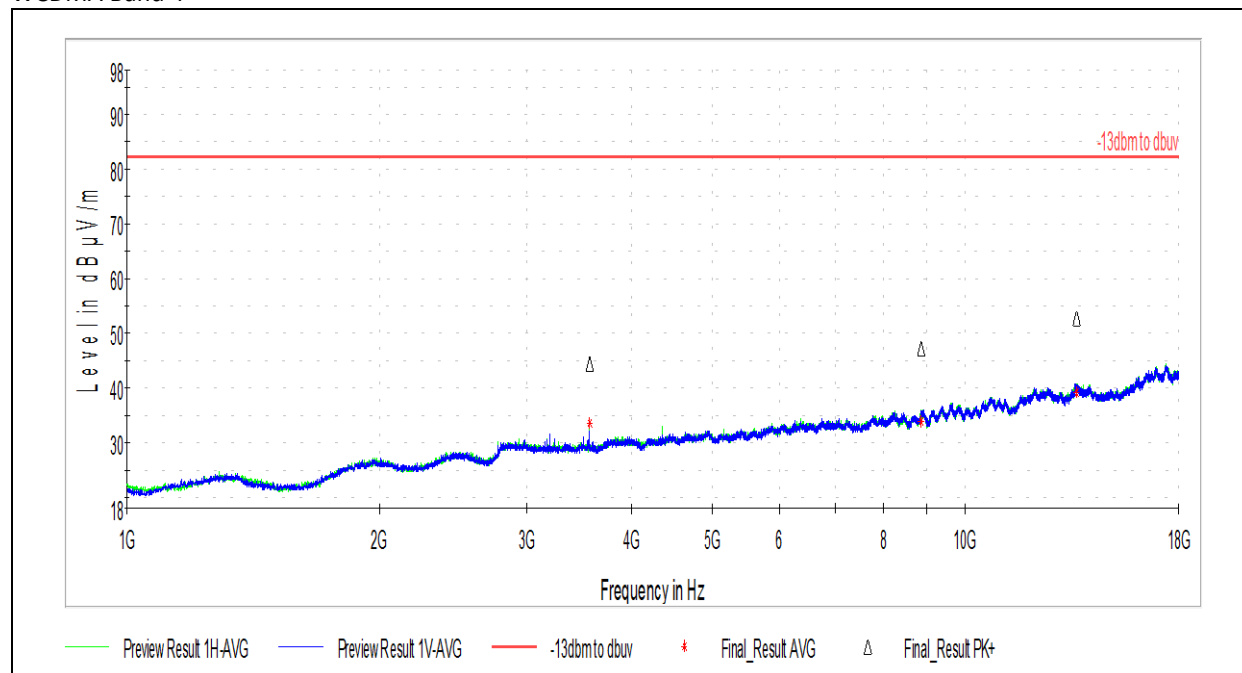
Test Personnel: Ben Coolbear
 Supervising/Reviewing Engineer: _____
 (Where Applicable) NA
 Product Standard: FCC Part 27
 12 VDC Via 120VAC to DC
 Input Voltage: adapter
 Pretest Verification w / Ambient
 Signals or BB Source: Yes

Test Date: 10/15/2021
 Limit Applied: -13dBm converted to field strength
 Ambient Temperature: 22.7 °C
 Relative Humidity: 68.7 %
 Atmospheric Pressure: 977.7 mbar

Deviations, Additions, or Exclusions: None

**6.14.2 Radiated Spurious Emissions, 1 GHz – 18 GHz**

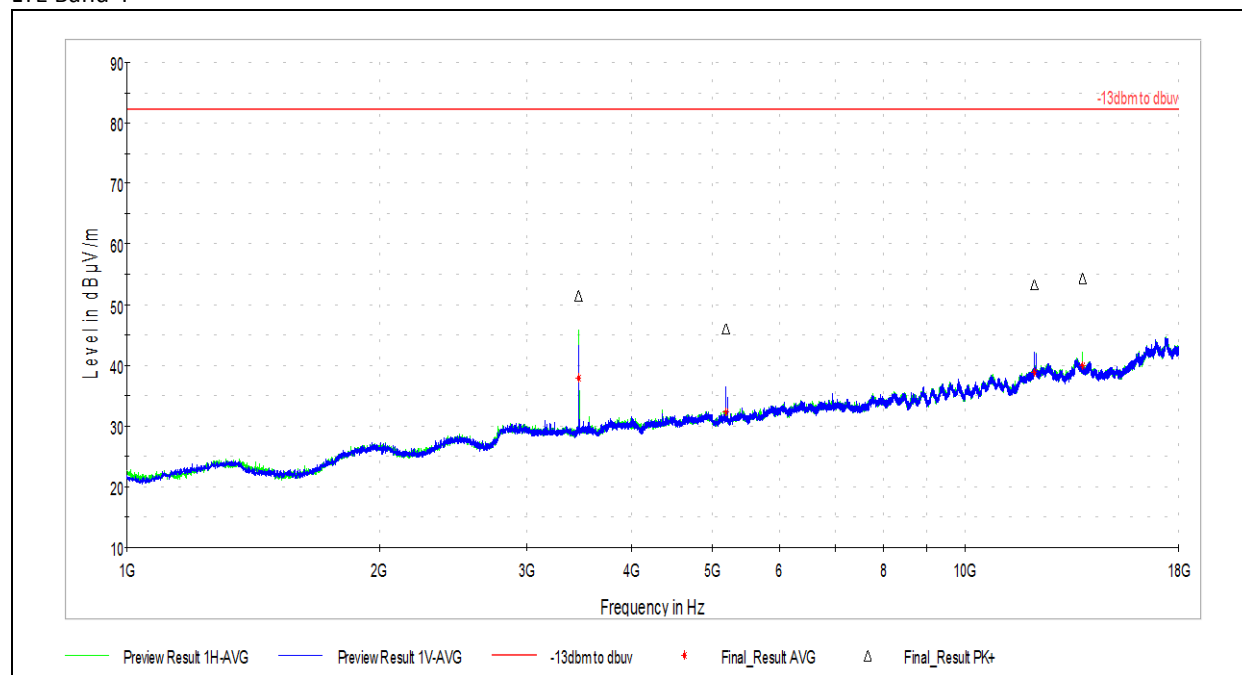
WCDMA Band 4



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3564.000000	33.68	82.25	48.57	1000.000	248.0	H	158.0	7
8877.000000	33.86	82.25	48.39	1000.000	109.0	H	168.0	16
13597.000000	39.22	82.25	43.03	1000.000	100.0	H	213.0	21



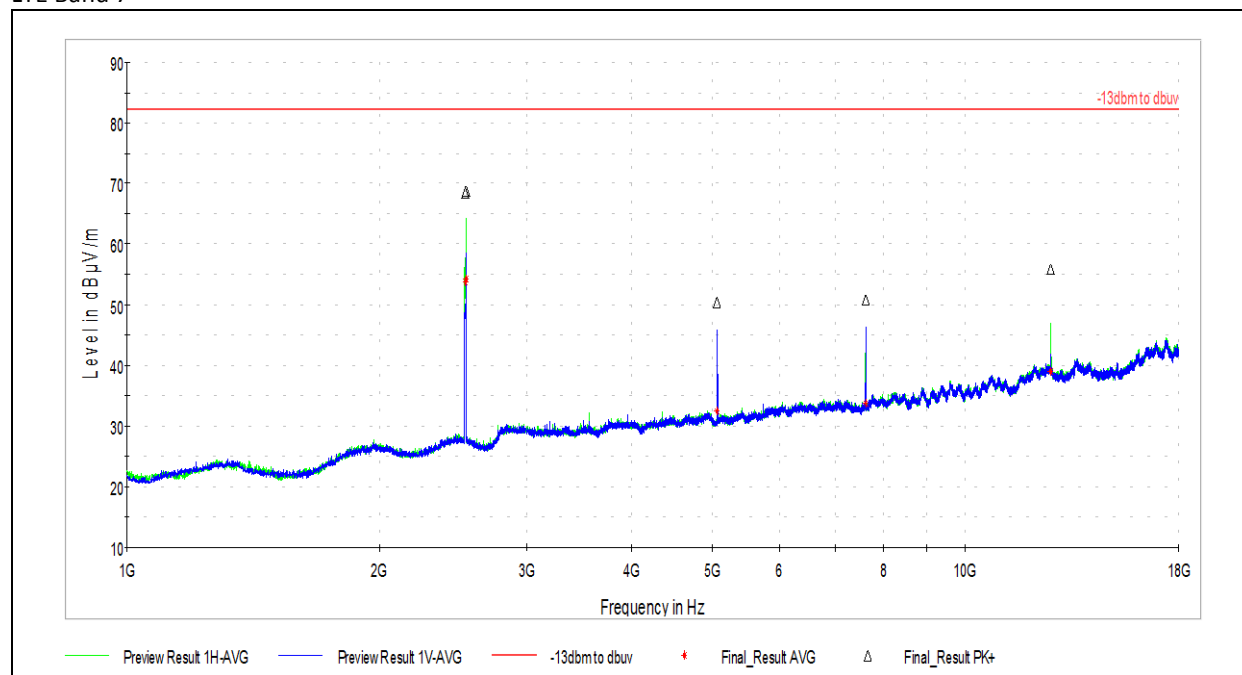
LTE Band 4



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3457.000000	37.95	82.25	44.30	1000.000	127.0	H	204.0	7
5185.500000	32.30	82.25	49.95	1000.000	100.0	V	143.0	10
12099.000000	38.93	82.25	43.32	1000.000	239.0	V	244.0	20
13827.500000	39.94	82.25	42.31	1000.000	168.0	H	168.0	21



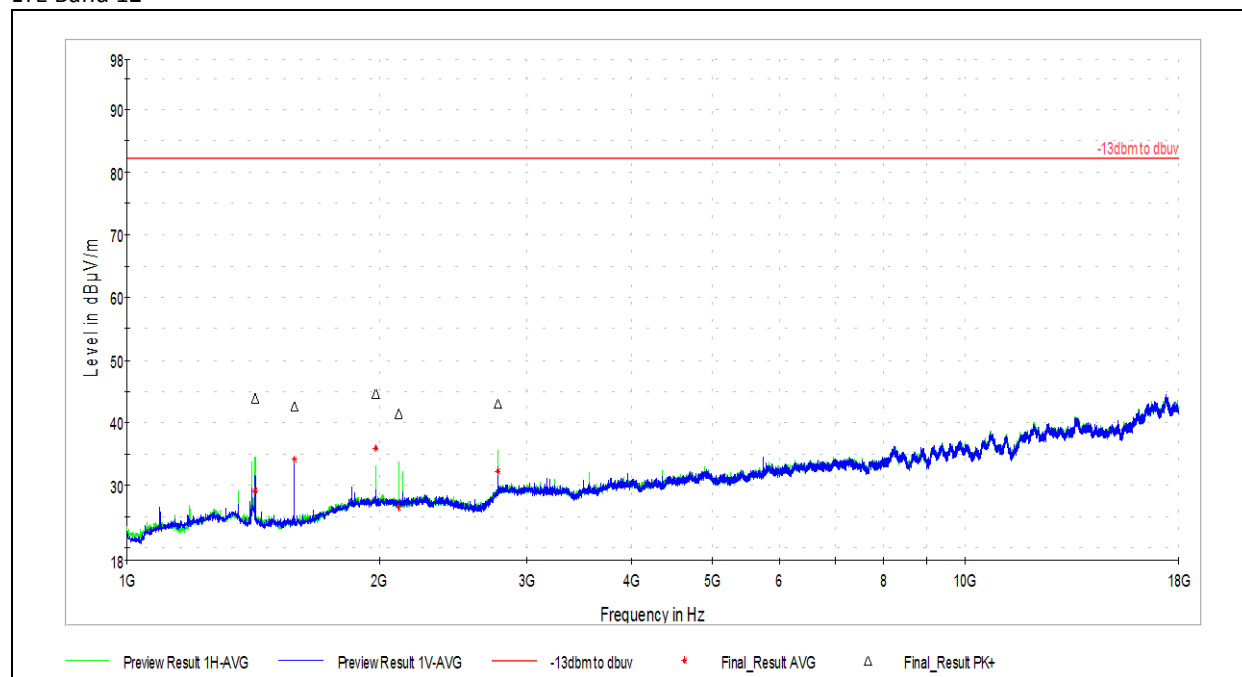
LTE Band 7



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2531.000000	53.64	82.25	28.61	1000.000	100.0	H	216.0	6
2539.000000	54.21	82.25	28.04	1000.000	100.0	H	210.0	6
5061.500000	32.41	82.25	49.84	1000.000	117.0	V	146.0	9
7617.500000	33.78	82.25	48.47	1000.000	100.0	V	131.0	13
12654.500000	38.94	82.25	43.31	1000.000	100.0	H	118.0	21



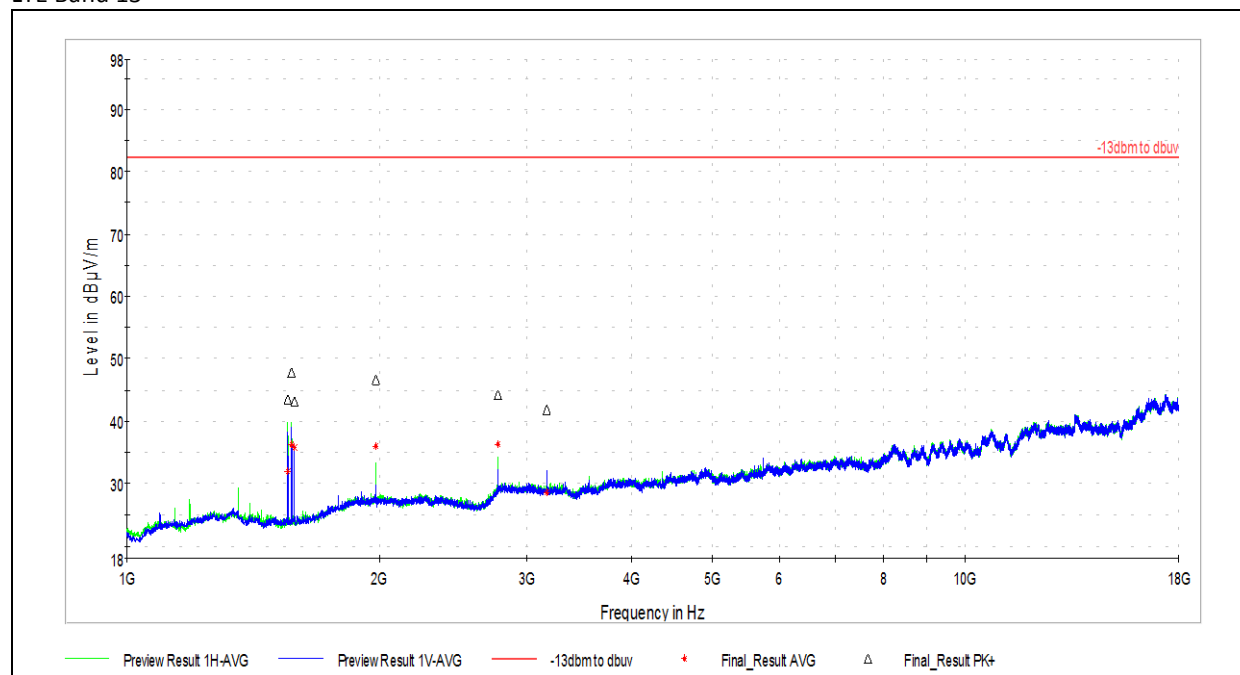
LTE Band 12



Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1423.000000	29.14	82.25	53.11	1000.000	199.0	H	226.0	1
1584.000000	34.11	82.25	48.14	1000.000	100.0	V	121.0	0
1980.000000	35.95	82.25	46.30	1000.000	159.0	H	101.0	4
2110.000000	26.53	82.25	55.72	1000.000	218.0	H	168.0	4
2772.000000	32.23	82.25	50.02	1000.000	127.0	H	148.0	6



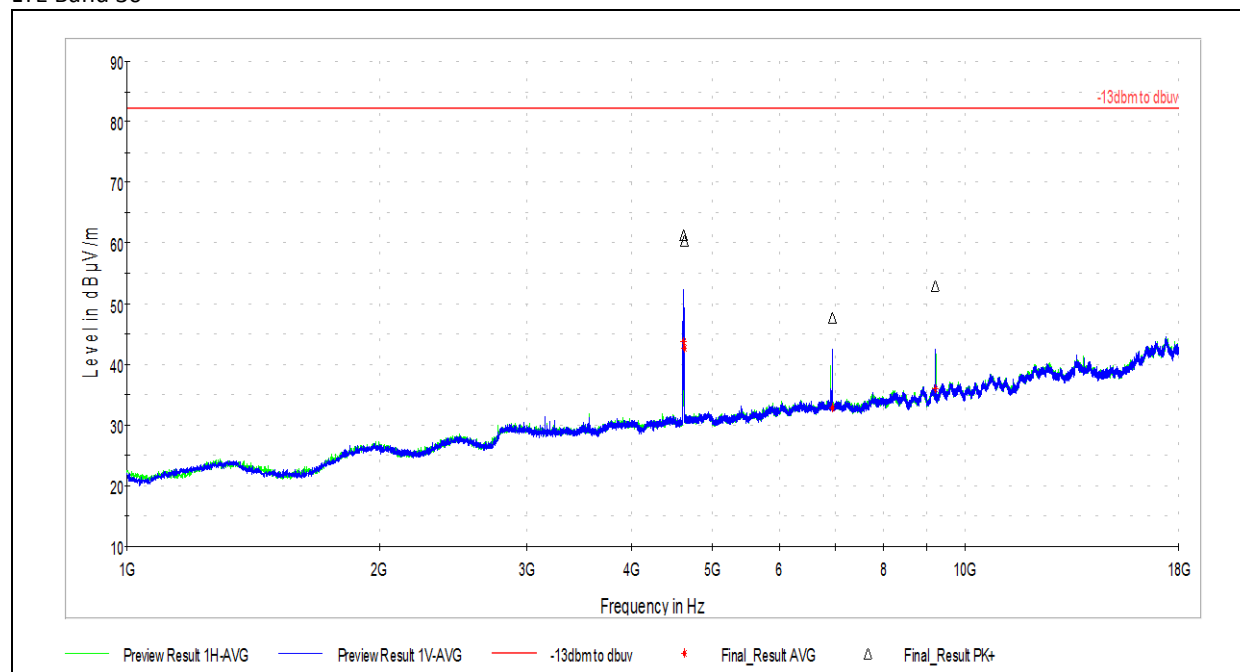
LTE Band 13



Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1556.000000	31.98	82.25	50.27	1000.000	218.0	H	143.0	0
1572.000000	36.29	82.25	45.96	1000.000	219.0	H	214.0	0
1584.000000	35.85	82.25	46.40	1000.000	154.0	V	95.0	0
1980.000000	36.01	82.25	46.24	1000.000	159.0	H	103.0	4
2772.000000	36.20	82.25	46.05	1000.000	128.0	H	158.0	6
3167.500000	28.63	82.25	53.62	1000.000	219.0	V	144.0	7



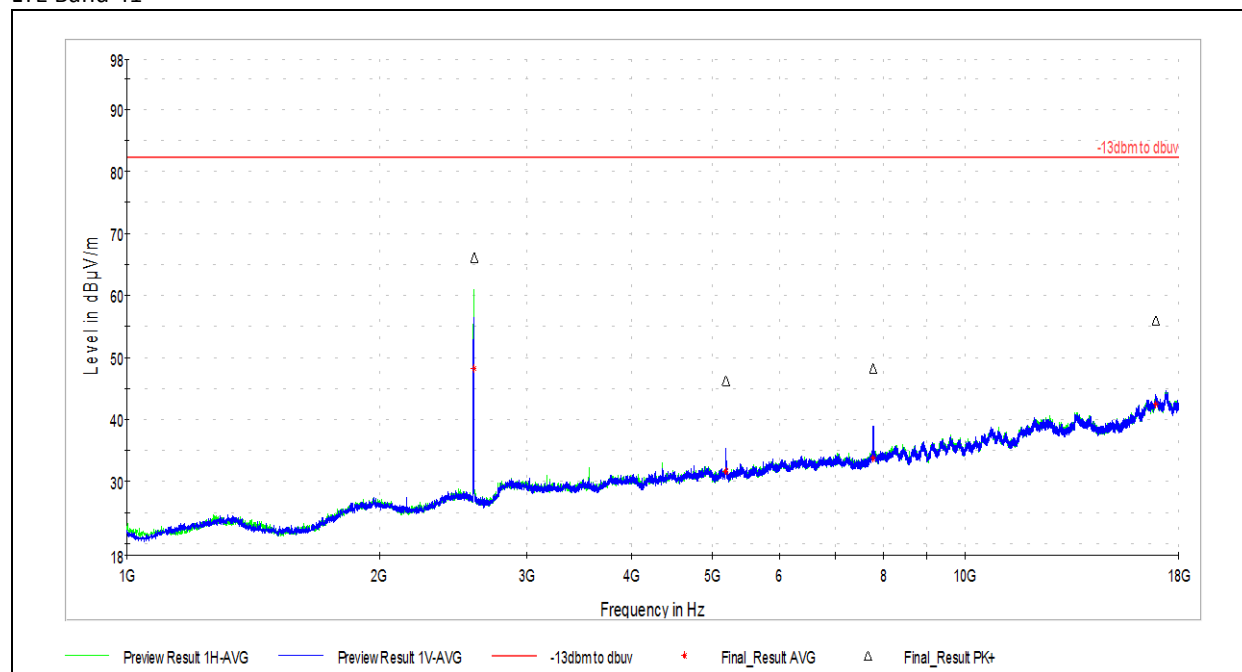
LTE Band 30



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4612.000000	43.74	82.25	38.51	1000.000	184.0	V	134.0	9
4628.000000	42.69	82.25	39.56	1000.000	219.0	V	131.0	9
6942.500000	32.81	82.25	49.44	1000.000	100.0	V	133.0	13
9224.000000	35.92	82.25	46.33	1000.000	177.0	V	136.0	16



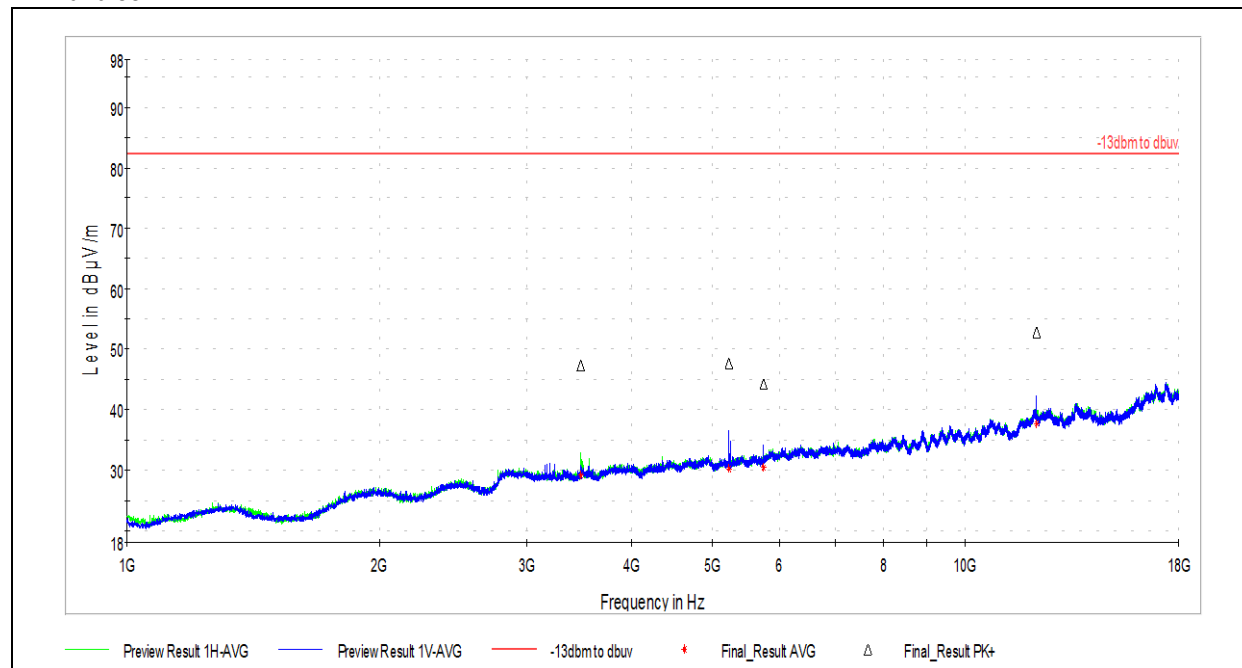
LTE Band 41



Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2596.500000	48.20	82.25	34.05	1000.000	239.0	H	114.0	6
5184.500000	31.54	82.25	50.71	1000.000	200.0	V	144.0	10
7771.000000	33.57	82.25	48.68	1000.000	162.0	V	130.0	14
16916.000000	42.37	82.25	39.88	1000.000	100.0	V	157.0	26



LTE Band 66



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3482.000000	29.07	82.25	53.18	1000.000	210.0	H	292.0	7
5222.500000	30.17	82.25	52.08	1000.000	191.0	V	145.0	10
5748.000000	30.34	82.25	51.91	1000.000	100.0	V	275.0	11
12187.000000	37.75	82.25	44.50	1000.000	243.0	V	167.0	20

Test Personnel: Michael Carlson

Supervising/Reviewing Engineer: (Where Applicable) NA

Product Standard: FCC Part 27

Input Voltage: 12 VDC Via 120VAC to DC adapter

Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 10/16/2021

Limit Applied: -13dBm converted to field strength

Ambient Temperature: 21.3 °C

Relative Humidity: 60.5 %

Atmospheric Pressure: 983.8 mbar

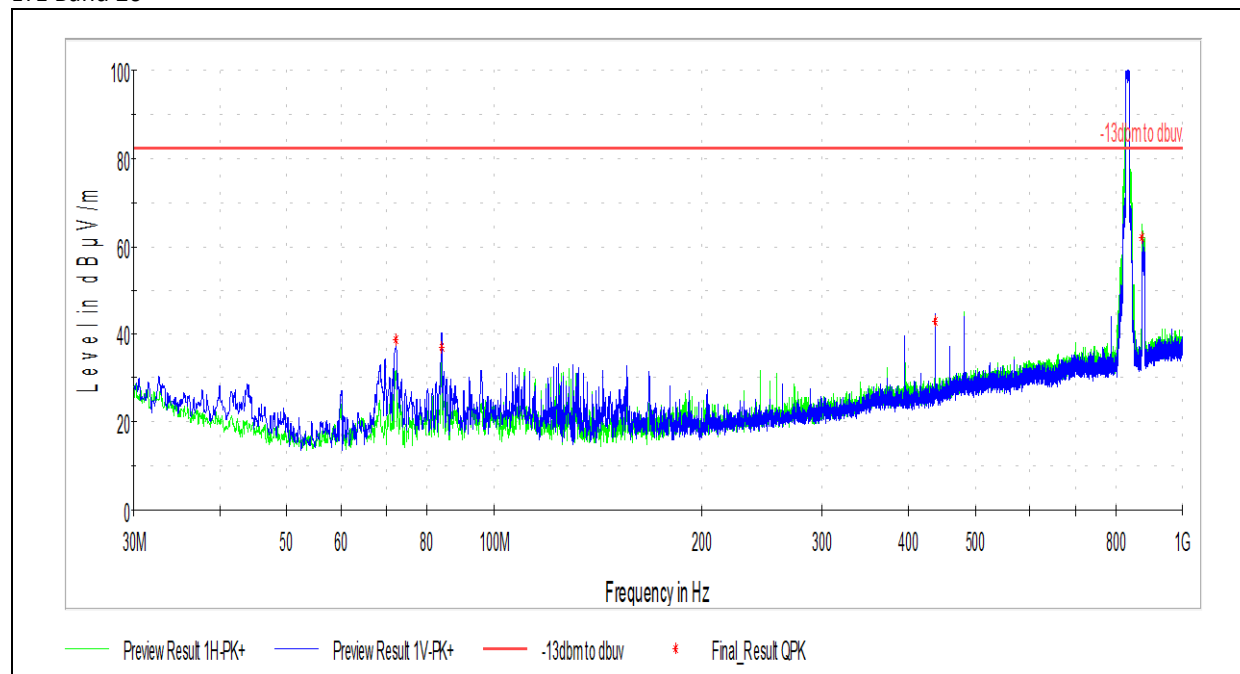
Deviations, Additions, or Exclusions: None



6.15 FCC Part 90 Radiated Spurious Emissions (LTE B26)

6.15.1 Radiated Spurious Emissions, 30 MHz – 1 GHz

LTE Band 26



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
72.033333	38.71	82.25	43.54	120.000	100.0	V	0.0	14
83.996667	37.14	82.25	45.11	120.000	154.0	V	227.0	15
437.938889	42.92	82.25	39.33	120.000	100.0	V	0.0	27
872.445000	61.81	82.25	20.44	120.000	128.0	H	-2.0	36

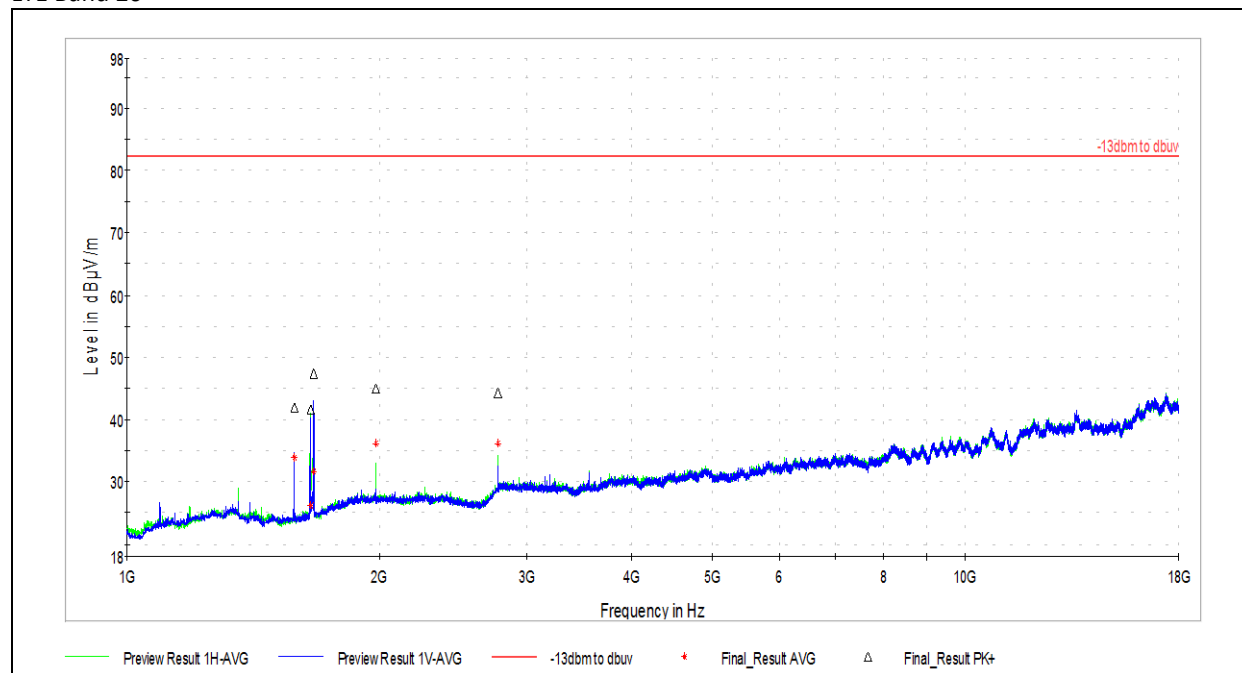
Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: _____
(Where Applicable) NA
Product Standard: FCC Part 90
12 VDC Via 120VAC to DC adapter
Input Voltage: _____
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 10/16/2021
Limit Applied: -13dBm converted to field strength
Ambient Temperature: 21.3 °C
Relative Humidity: 60.5 %
Atmospheric Pressure: 983.8 mbar

Deviations, Additions, or Exclusions: None

**6.15.2 Radiated Spurious Emissions, 1 GHz – 18 GHz**

LTE Band 26



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1584.000000	33.94	82.25	48.31	1000.000	109.0	V	131.0	0
1654.500000	26.15	82.25	56.10	1000.000	254.0	H	202.0	1
1671.000000	31.70	82.25	50.55	1000.000	109.0	V	84.0	1
1980.000000	36.09	82.25	46.16	1000.000	161.0	H	102.0	4
2772.000000	36.15	82.25	46.10	1000.000	127.0	H	158.0	6

Test Personnel: Michael Carlson
Supervising/Reviewing Engineer: NA
(Where Applicable)
Product Standard: FCC Part 90
12 VDC Via 120VAC to DC adapter
Input Voltage: 12 VDC Via 120VAC to DC adapter
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 10/16/2021
Limit Applied: -13dBm converted to field strength
Ambient Temperature: 21.3 °C
Relative Humidity: 60.5 %
Atmospheric Pressure: 983.8 mbar

Deviations, Additions, or Exclusions: None

**7 Revision History**

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	11/30/2021	104702325LEX-001	<i>EC</i>	<i>BCT</i>	Original Issue