



FCC/ISED Partial Test Report

FOR:

Ibeat, Inc.

Brand:

100Plus

Model #:

G1

Product Description:

Relays data from certain Bluetooth devices to our physician portal over LTE.

FCC ID: 2AP3M-G1

Per:

Title 47 CFR: Part 24, Part 27

REPORT #: EMC_IBEAT_006_20001_FCC_24_27

DATE: 8/19/2020



A2LA Accredited

IC recognized #
3462B-2

CETECOM Inc.

411 Dixon Landing Road ♦ Milpitas, CA 95035 ♦ U.S.A.

Phone: + 1 (408) 586 6200 ♦ Fax: + 1 (408) 586 6299 ♦ E-mail: info@cetecom.com ♦ <http://www.cetecom.com>
CETECOM Inc. is a Delaware Corporation with Corporation number: 2905571

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1 Assessment


The following device as further described in section 3 of this report was evaluated for radiated spurious emissions, in simultaneous transmission mode of Cellular and Bluetooth LE, according to criteria specified in the Code of Federal Regulations Title 47 CFR: Part 24, Part 27.

No deficiencies were ascertained.

According to section 6 of this report, the overall result is PASS.

Company	Description	Model #
Ibeat, Inc.	Relays data from certain Bluetooth devices to our physician portal over LTE.	G1

Responsible for Testing Laboratory:

8/19/2020	Compliance	Li, Cindy (Lab Manager)	
Date	Section	Name	Signature

Responsible for the Report:

8/19/2020	Compliance	Ghanma, Issa (EMC Engineer)	
Date	Section	Name	Signature

The test results of this test report relate exclusively to the test item specified in Section 3.

CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Street Address:	411 Dixon Landing Road
City/Zip Code	Milpitas, CA 95035
Country	USA
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Lab Manager:	Li, Cindy
Responsible Project Leader:	Palacios, Cathy

2.1 Identification of the Client

Applicant's Name:	Ibeat, Inc.
Street Address:	430 Main St
City/Zip Code	San Francisco, CA 94105
Country	USA

2.2 Identification of the Manufacturer

Manufacturer's Name:	Same as client.
Manufacturers Address:	-----
City/Zip Code	-----
Country	-----

3 Equipment Under Test (EUT)

3.1 EUT Specifications

Model #:	G1
Marketing name:	100Plus Home Health Gateway.
FCC ID:	2AP3M-G1
HW Version :	1.8.0
SW Version :	0.7.25
Product Description:	Relays data from certain Bluetooth devices to our physician portal over LTE.
Transceiver Technology / Type(s) of Modulation:	<ul style="list-style-type: none"> ❖ Cellular: LTE Cat-M1 bands 2, 4, 12, 13 <ul style="list-style-type: none"> • Module name : BG96 • FCC ID : XMR201707BG96
Frequency Range:	<ul style="list-style-type: none"> • LTE Band 2 : 1850 ~ 1910 MHz • LTE Band 4 : 1710 ~ 1755 MHz • LTE Band 12 : 699 ~ 716 MHz • LTE Band 13 : 777 ~ 787 MHz
Antenna:	<ul style="list-style-type: none"> • Part Number : PCS.06.A Havok • Product Name : Havok – Low profile LTE/Cellular 4G/3G/2G SMD Dielectric Antenna • Features: <ul style="list-style-type: none"> ▪ SMD Dielectric Antenna ▪ GSM / CDMA / DCS / PCS / WCDMA / UMTS / HSDPA / GPRS / EDGE ▪ 698~960MHz/ 1710~2690MHz High Efficiency Multi-Band ▪ SMD Antenna ▪ Low profile 42 * 10 * 3mm • Peak gain [dBi] <ul style="list-style-type: none"> ▪ 698~803 : -0.21 ▪ 824~894 : 0.77 ▪ 880~960 : 0.61 ▪ 1710~1880 : 3.05 ▪ 1850~1990 : 2.92 ▪ 1920~2170 : 3.17 ▪ 2500~2690 : 3.72
Power Supply/ Rated Operating Voltage Range:	Low 4 V DC, Nominal 5 V DC, High 6 V DC
Operating Temperature Range:	Low 0° C, Nominal 25° C, High +60° C
Other Radios included in the device:	<ul style="list-style-type: none"> ❖ Bluetooth LE <ul style="list-style-type: none"> • Module Name : BGM13P Wireless Gecko • Model Number : BGM13P32F512GA-V2 • FCC ID : QOQBGM13P
Sample Revision	<input type="checkbox"/> Prototype Unit; <input type="checkbox"/> Production Unit; <input checked="" type="checkbox"/> Pre-Production
Product dimensions [mm]:	140 x 140 x 40
EUT Diameter	<input checked="" type="checkbox"/> < 60 cm <input type="checkbox"/> Other _____

3.2 EUT Sample details

EUT #	IMEI	HW Version	SW Version	Notes/Comments
1	865284049594108	1.8.0	0.7.25	-

3.3 Accessory Equipment (AE) details

AE #	Type	Model	Manufacturer	Notes/Comments
1	Class 2 Power Supply	WP0502000U	Dongguan Will Electronics Technology Co., Ltd	<ul style="list-style-type: none">• Input: 100-240V – 50/60Hz 0.5A Max• Output: 5.0V ---2.0A

3.4 Test Sample Configuration

EUT Set-up #	Combination of AE used for test set up	Comments
1	EUT#1 + AE#1	-

3.5 Mode of Operation details

Mode of Operation	Description of Operating modes	Additional Information
Op. 1	LTE Cat-M1 & BLE Co-TX	<ul style="list-style-type: none">❖ A driver provided by client, to get the ability to send commands through serial terminal, used to control Cellular modem, to connect to base-station (CMW500) and configure <u>BLE</u> radio to:<ul style="list-style-type: none">• Transmit mode: Continuous <u>TX</u>• Hopping: <u>No</u>• Channel(s): Mid (19) <p>The external antenna was connected.</p>

3.6 Justification for Worst Case Mode of Operation

During the testing process the cellular radio was tested with transmitter sets to Low, Mid and High channel(s) at the maximum power; transmitting simultaneously with BLE, representing the worst case mode of operation.

For radiated measurements, all data in this report shows the worst case between horizontal and vertical antenna polarizations and for all orientations of the EUT.

4 Subject of Investigation

The objective of the evaluation conducted by CETECOM Inc. is to perform and check radiated spurious emissions, in simultaneous transmission mode, against the limits per Code of Federal Regulations Title 47 CFR: Part 24, Part 27 under:

FCC ID: 2AP3M-G1

4.1 Dates of Testing:

7/8/2020 – 7/22/2020

4.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus, with 95% confidence interval (in dB delta to result), based on a coverage factor k=1.

Radiated measurement

9 kHz to 30MHz	±2.5 dB (Magnetic Loop Antenna)
30 MHz to 1000 MHz	±2.0 dB (Biconilog Antenna)
1 GHz to 40 GHz	±2.3 dB (Horn Antenna)

4.3 Environmental Conditions during Testing:

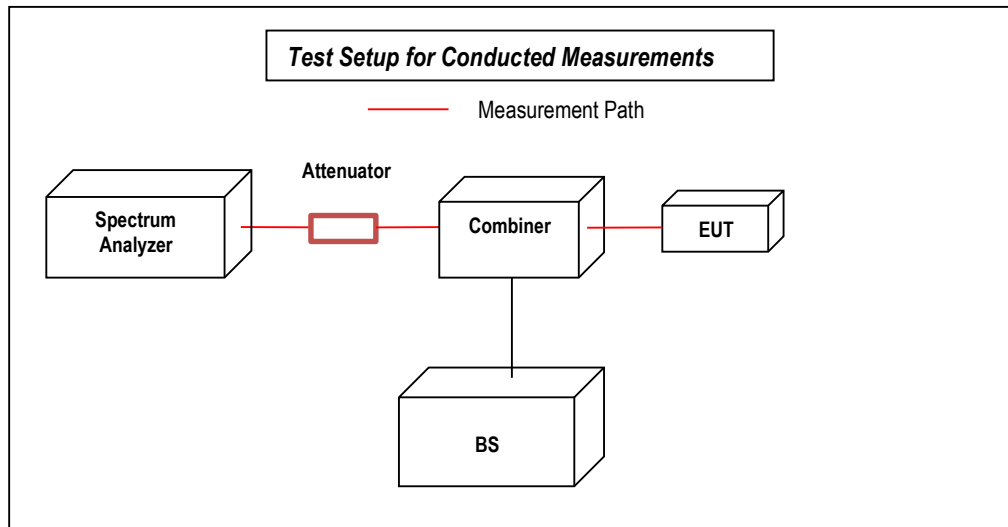
The following environmental conditions were maintained during the course of testing:

- Ambient Temperature: 20-25°C
- Relative humidity: 40-60%

Deviating test conditions are indicated at individual test description where applicable.

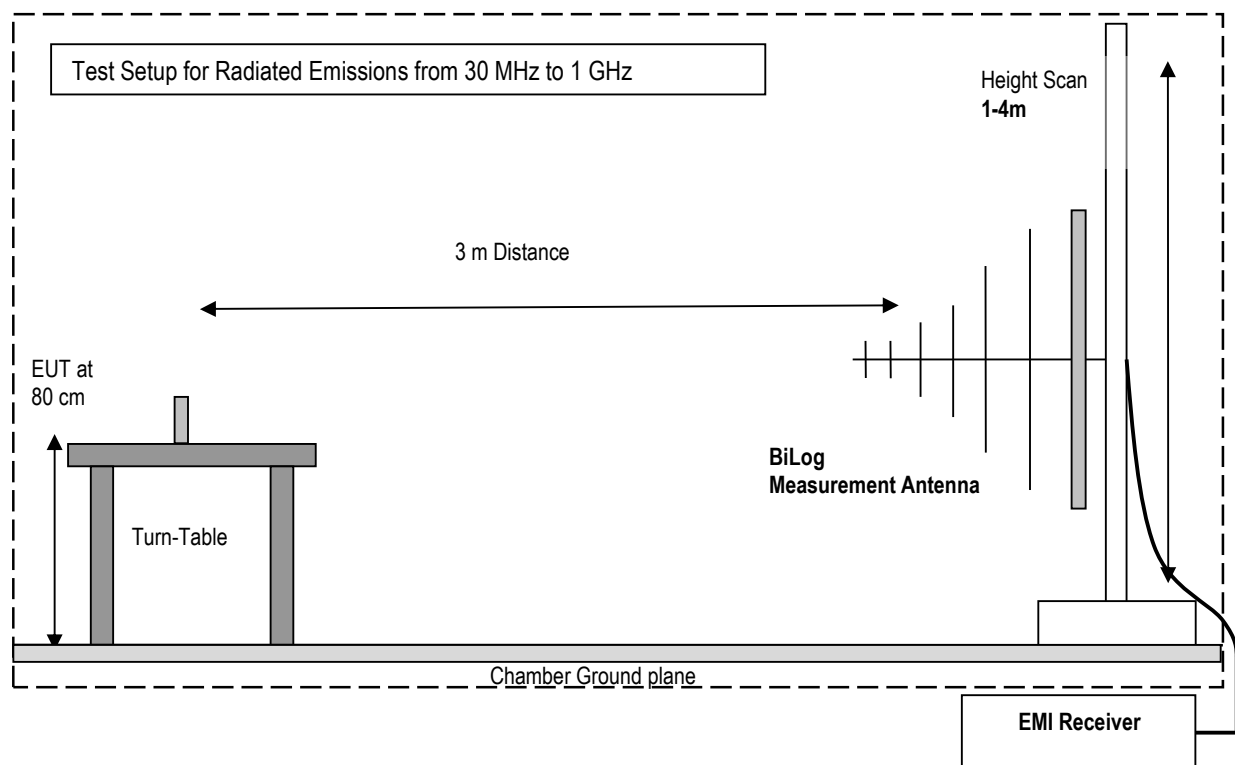
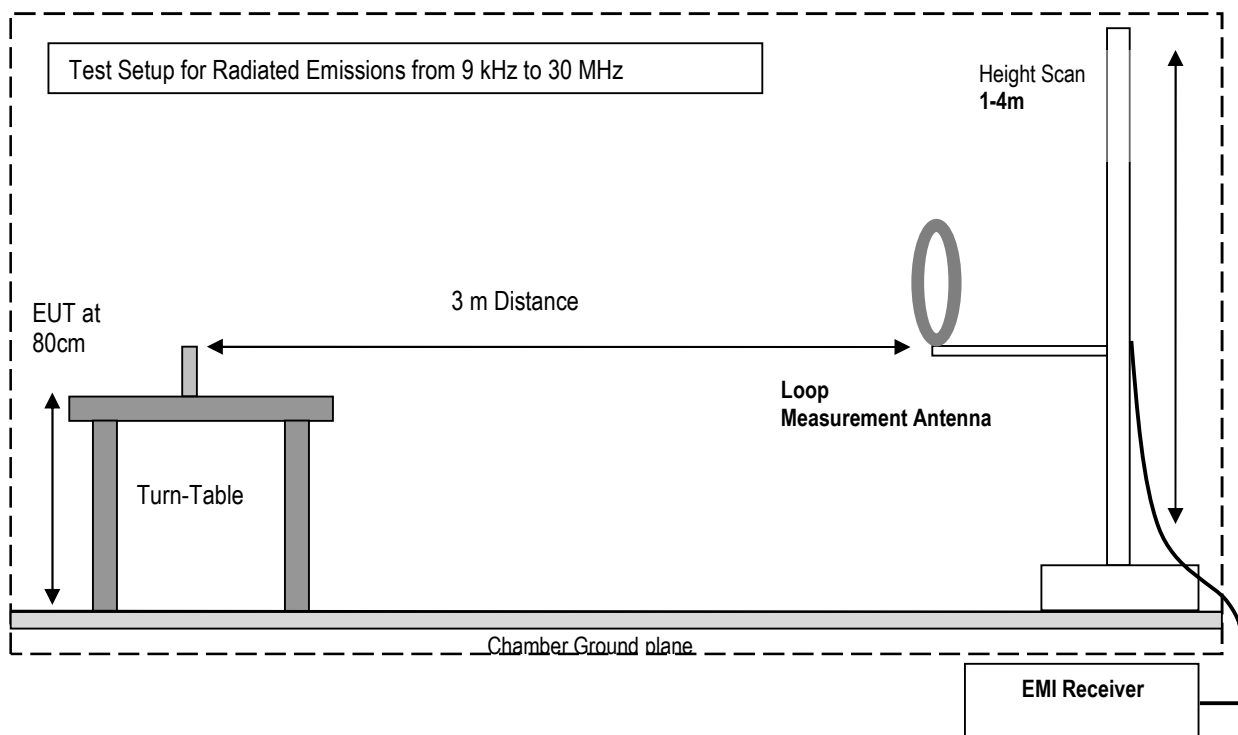
5 Measurement Procedures

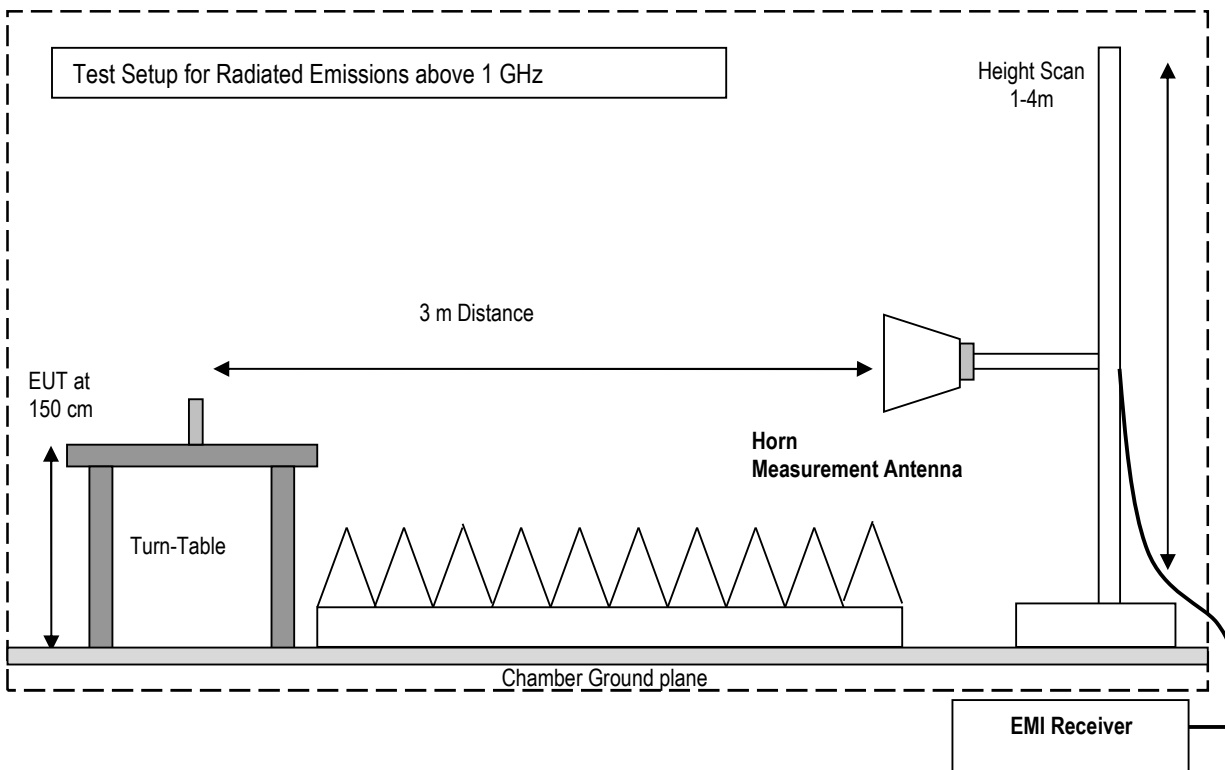
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03r01 – “Measurement Guidance for Certification of Licensed Digital Transmitters” and according to relevant parts of ANSI/TIA-603-D-2010 as detailed below.



5.1 Radiated Measurement

- The exploratory measurement is accomplished by running a matrix of 16 sweeps over the required frequency range with R&S Test-SW EMC32 for 4 positions of the turntable, two orthogonal positions of the EUT and both antenna polarizations. This procedure exceeds the requirement of the above standards to cover the 3 orthogonal axis of the EUT. A max peak detector is utilized during the exploratory measurement. The Test-SW creates an overall maximum trace for all 12 sweeps and saves the settings for each point of this trace. The maximum trace is part of the test report.
- The 10 highest emissions are selected with an automatic algorithm of EMC32 searching for peaks in the noise floor and ensuring that broadband signals are not selected multiple times.
- The maxima are then put through the final measurement and again maximized in a 90deg range of the turntable, fine search in frequency domain and height scan between 1m and 4m.
- The above procedure is repeated for all possible ways of power supply to EUT and for all supported modulations.
- In case there are no emissions above noise floor level only the maximum trace is reported as described above.
- The results are split up into up to 4 frequency ranges due to antenna bandwidth restrictions. A magnetic loop is used from 9 kHz to 30 MHz, a Biconilog antenna is used from 30 MHz to 1 GHz, and two different horn antennas are used to cover frequencies up to 40 GHz.





5.2 Sample Calculations for Field Strength Measurements

Field Strength is calculated from the Spectrum Analyzer/ Receiver readings, taking into account the following parameters:

- Measured reading in dB μ V
- Cable Loss between the receiving antenna and SA in dB and
- Antenna Factor in dB/m

All radiated measurement plots in this report are taken from a test SW that calculates the Field Strength based on the following equation:

$$FS \text{ (dB}\mu\text{V/m)} = \text{Measured Value on SA (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$$

Example:

Frequency (MHz)	Measured SA (dB μ V)	Cable Loss (dB)	Antenna Factor Correction (dB)	Field Strength Result (dB μ V/m)
1000	80.5	3.5	14	98.0

6 Measurement Results Summary

6.1 FCC 24:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §24.232 (a)	RF Output Power	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■	Note 1 Note 2
§2.1055; §24.235	Frequency Stability	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■	Note 1 Note 2
§2.1049; §24.238	Occupied Bandwidth	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■	Note 1 Note 2
§2.1051; §24.238	Band Edge Compliance	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■	Note 1 Note 2
§2.1051; §24.238	Conducted Spurious Emissions	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■	Note 1 Note 2
§2.1053; §24.238(a);	Radiated Spurious Emissions	Nominal	LTE 2	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Complies

Note 1: NA= Not Applicable; NP= Not Performed.

Note 2: Leveraged from module certification report: RXA1706-0199RF02R1; under FCC ID: 2AP3M-G1

6.2 FCC 27:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §27.50 (d)	RF Output Power	Nominal	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Note 1 Note 2
§2.1055; §27.54	Frequency Stability	Nominal	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Note 1 Note 2
§2.1049; §27.53	Occupied Bandwidth	Nominal	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Note 1 Note 2
§2.1051; §27.53	Band Edge Compliance	Nominal	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Note 1 Note 2
§2.1051; §27.53	Conducted Spurious Emissions	Nominal	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Note 1 Note 2
§2.1053; §27.53(h); §27.53(g); §27.53(c);	Radiated Spurious Emissions	Nominal	LTE 4, 12, 13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Complies

Note 1: NA= Not Applicable; NP= Not Performed.

Note 2: Leveraged from module certification report: R1811A0536-R3; under FCC ID: 2AP3M-G1

7 Test Result Data

7.1 ERP / EIRP

Module Name:		BG96				
Band	Frequency range (MHz)	BW / Modulation	Power (Watts)	Gain (dBi / Lin)	ERP (Watts)	EIRP (Watts)
LTE 2	1855 ~ 1905	10 MHz / 16QAM	0.247	2.9 / 1.96	-	0.484
LTE 2	1860 ~ 1900	20 MHz / 16QAM	0.244	2.9 / 1.96	-	0.478
LTE 4	1710 ~ 1755	3 MHz / QPSK	0.174	3.1 / 2.02	-	0.351
LTE 4	1712 ~ 1745	20 MHz / QPSK	0.172	3.1 / 2.02	-	0.347
LTE 12	699 ~ 716	3 MHz / QPSK	0.219	-0.2 / 0.95	0.127	-
LTE 12	704 ~ 711	20 MHz / QPSK	0.216	-0.2 / 0.95	0.126	-
LTE 13	777 ~ 787	5 MHz / 16QAM	0.240	-0.2 / 0.95	0.140	-
LTE 13	782	10 MHz / 16QAM	0.234	-0.2 / 0.95	0.136	-

Note: ERP / EIRP are calculated from maximum power in cellular module reports, adding known peak gain of the utilized cellular antenna.

7.2 Radiated Spurious Emissions

7.2.1 Measurement according to FCC: CFR 47 Part 2.1053; CFR Part 22.917; CFR Part 24.238, Part 27.53 utilizing KDB 971168 D01 Power Meas License Digital Systems v03r01, and according to ANSI C63.26 2015

Spectrum Analyzer Settings for FCC 22

Frequency Range	30 MHz – 1 GHz	1 – 1.58 GHz	1.58 – 9 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto

Spectrum Analyzer Settings for FCC 24, 27 and 90

Frequency Range	30MHz – 1 GHz	1 – 2.7 GHz	2.7 – 18 GHz	18 – 19.1 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto	Auto

7.2.2 Limits:

7.2.2.1 FCC Part 24.238 (a); FCC Part 27.53 (c), (g), (h);

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

7.2.2.2 RSS-130 Part 4.7; RSS-133 Part 6.5; RSS-139 Part 6.6

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- i. In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).
- ii. After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

7.2.3 Test conditions and setup:

Ambient Temperature (C)	EUT Set-Up #	EUT operating mode	Power Input
23	1	Op. 1	12VAC

7.2.4 Measurement result:

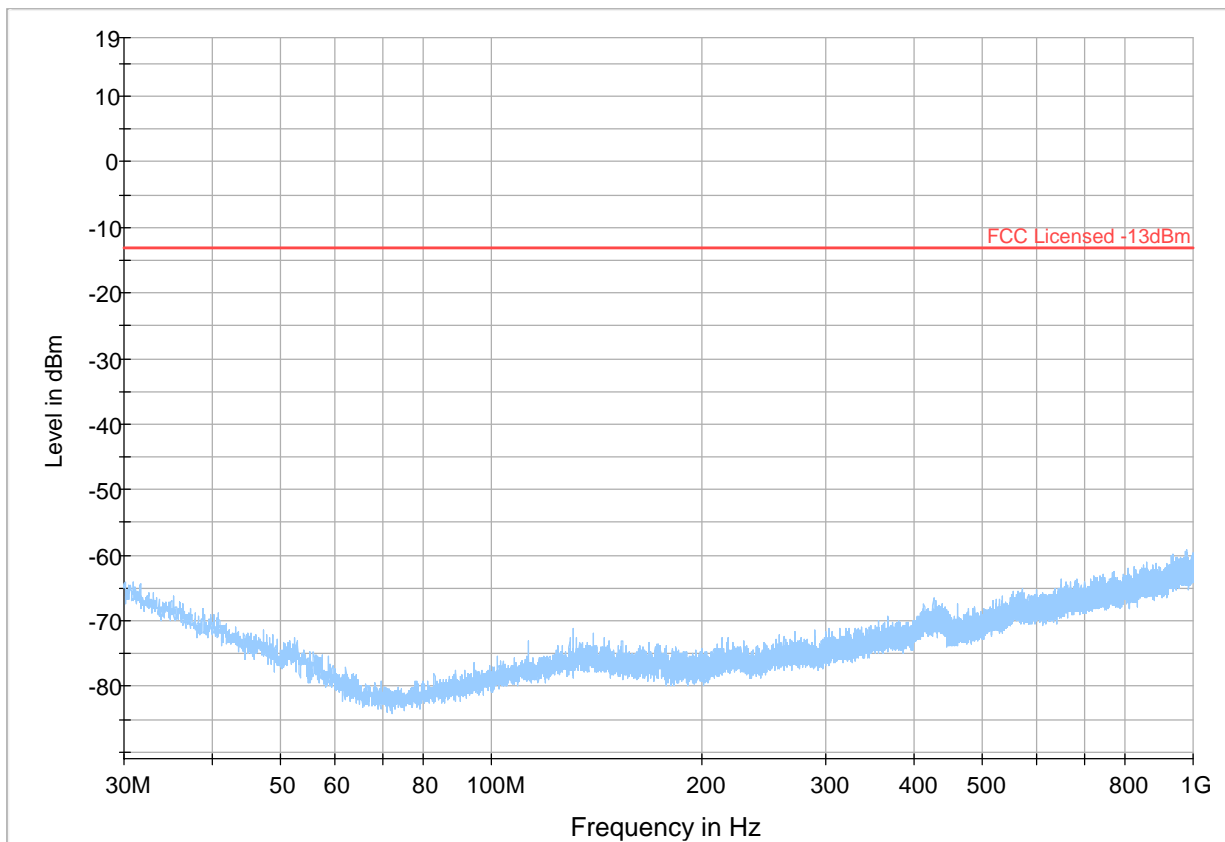
Plot #	Channel	EUT operating mode	Scan Frequency	Limit (dBm)	Result
1 – 3	Low	LTE Band 2	30 MHz – 18 GHz	-13	Pass
4 – 8	Mid		9 kHz – 22 GHz	-13	Pass
9 – 11	High		30 MHz – 18 GHz	-13	Pass
12 – 14	Low	LTE Band 4	30 MHz – 18 GHz	-13	Pass
15 – 18	Mid		9 kHz – 18 GHz	-13	Pass
19 – 21	High		30 MHz – 18 GHz	-13	Pass
22 – 24	Low	LTE Band 12	30 MHz – 18 GHz	-13	Pass
25 – 28	Mid		9 kHz – 18 GHz	-13	Pass
29 – 31	High		30 MHz – 18 GHz	-13	Pass
32 – 34	Low	LTE Band 13	30 MHz – 18 GHz	-13	Pass
35 – 38	Mid		9 kHz – 18 GHz	-13	Pass
39 – 41	High		30 MHz – 18 GHz	-13	Pass

7.2.5 Measurement plots:

LTE 2

Plot # 1 Radiated Emissions: 30 MHz – 1GHz

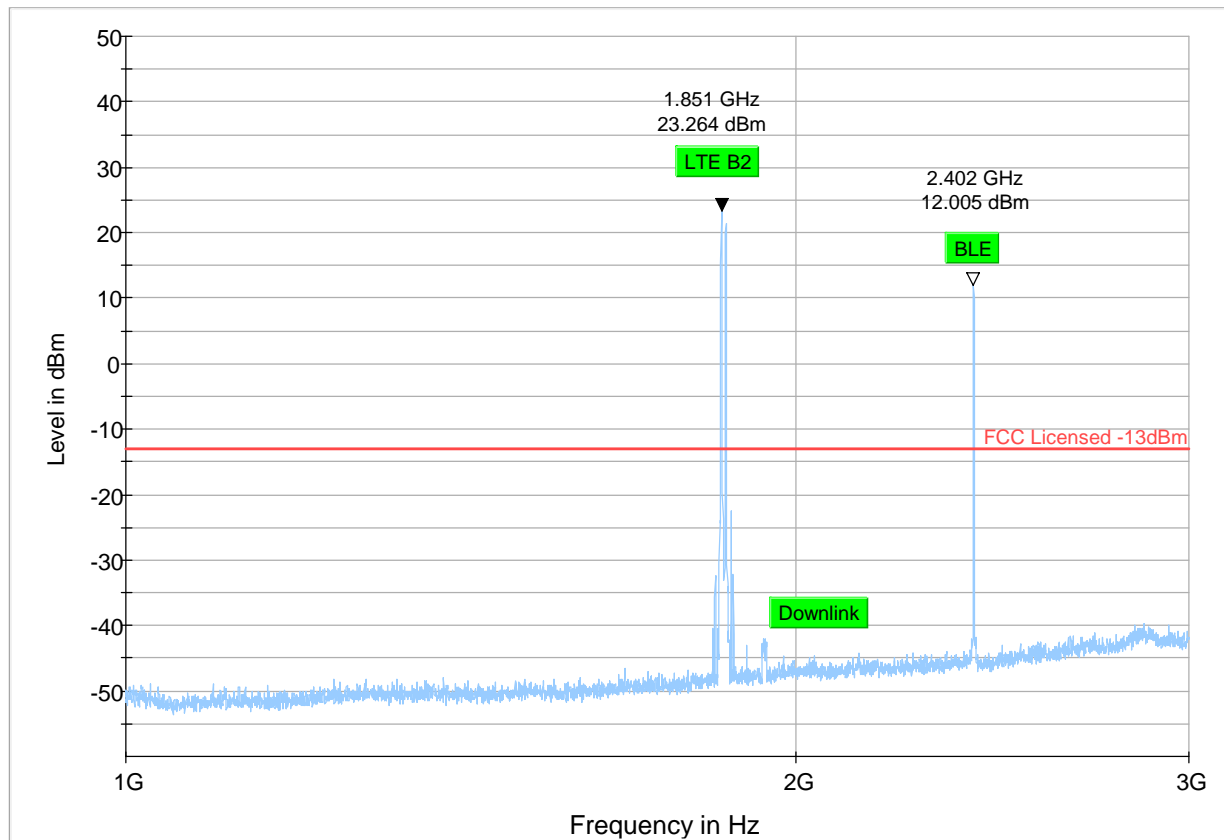
Channel: Low



— Preview Result 1-PK+ * Critical_Freqs PK+ — FCC Licensed -13dBm ◆ Final_Result RM

Plot # 2 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



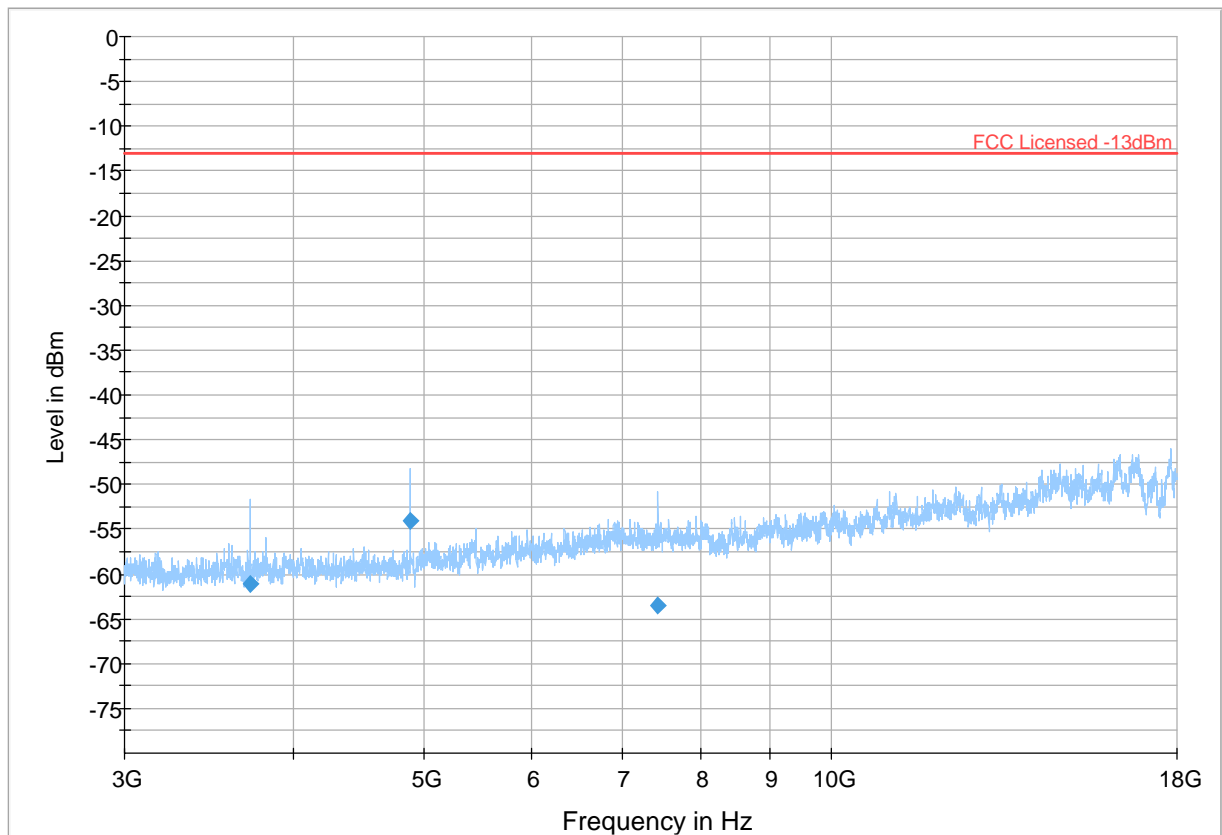
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 3 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3720.250	-61.09	-13.00	48.09	500.0	1000.000	325.0	V	232.0	-104.0
4879.250	-54.01	-13.00	41.01	500.0	1000.000	315.0	H	263.0	-102.0
7441.000	-63.44	-13.00	50.44	500.0	1000.000	172.0	V	64.0	-98.5

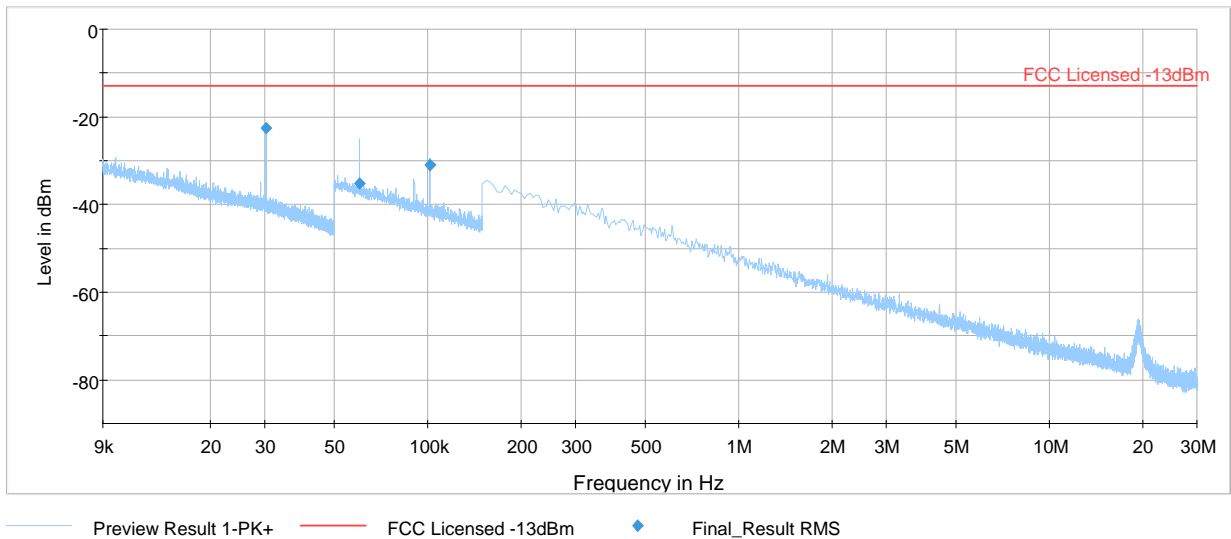


Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 4 Radiated Emissions: 9 KHz – 30 MHz

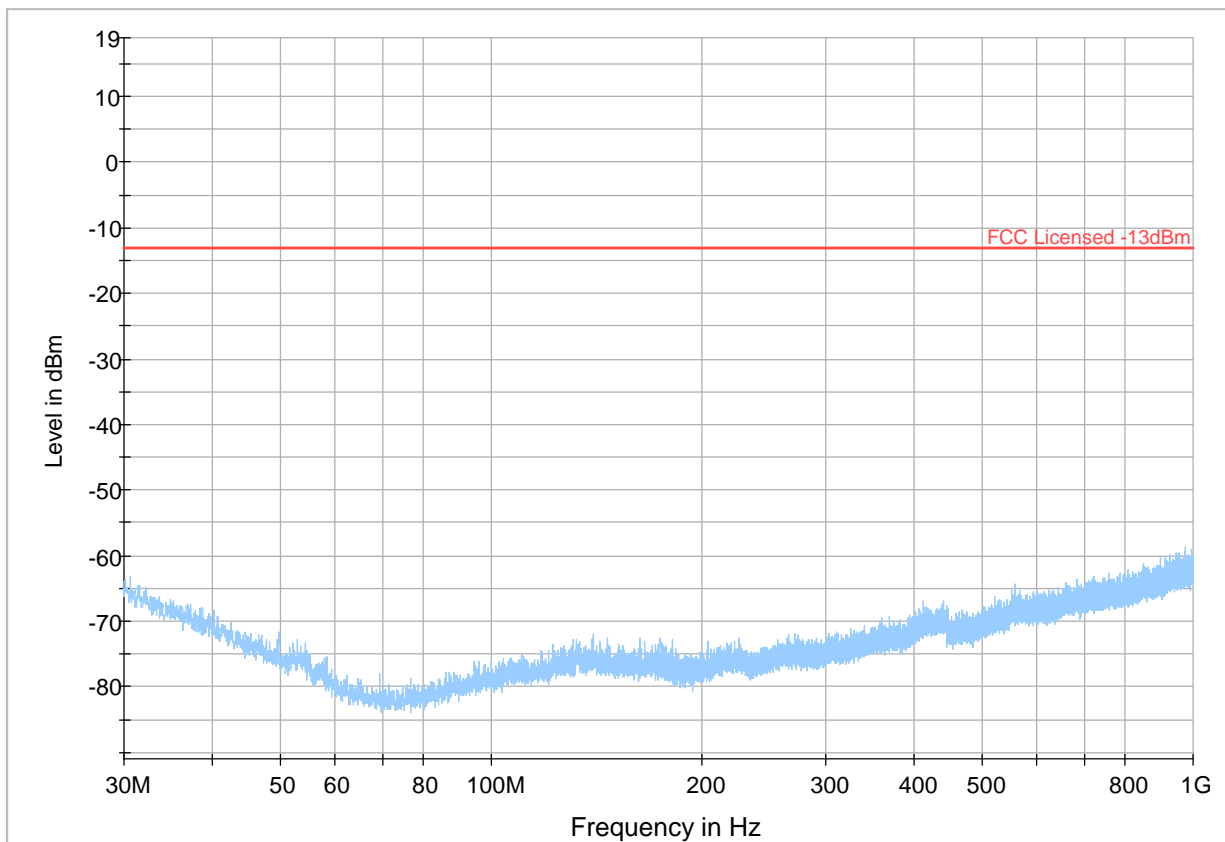
Channel: Mid

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030153	-22.50	-13.00	9.50	500.0	1.000	117.0	H	256.0	-72.1
0.060300	-35.11	-13.00	22.11	500.0	1.000	100.0	H	306.0	-75.4
0.101900	-31.06	-13.00	18.06	500.0	1.000	105.0	H	78.0	-76.3
0.030153	-22.50	-13.00	9.50	500.0	1.000	117.0	H	256.0	-72.1



Plot # 5 Radiated Emissions: 30 MHz – 1GHz

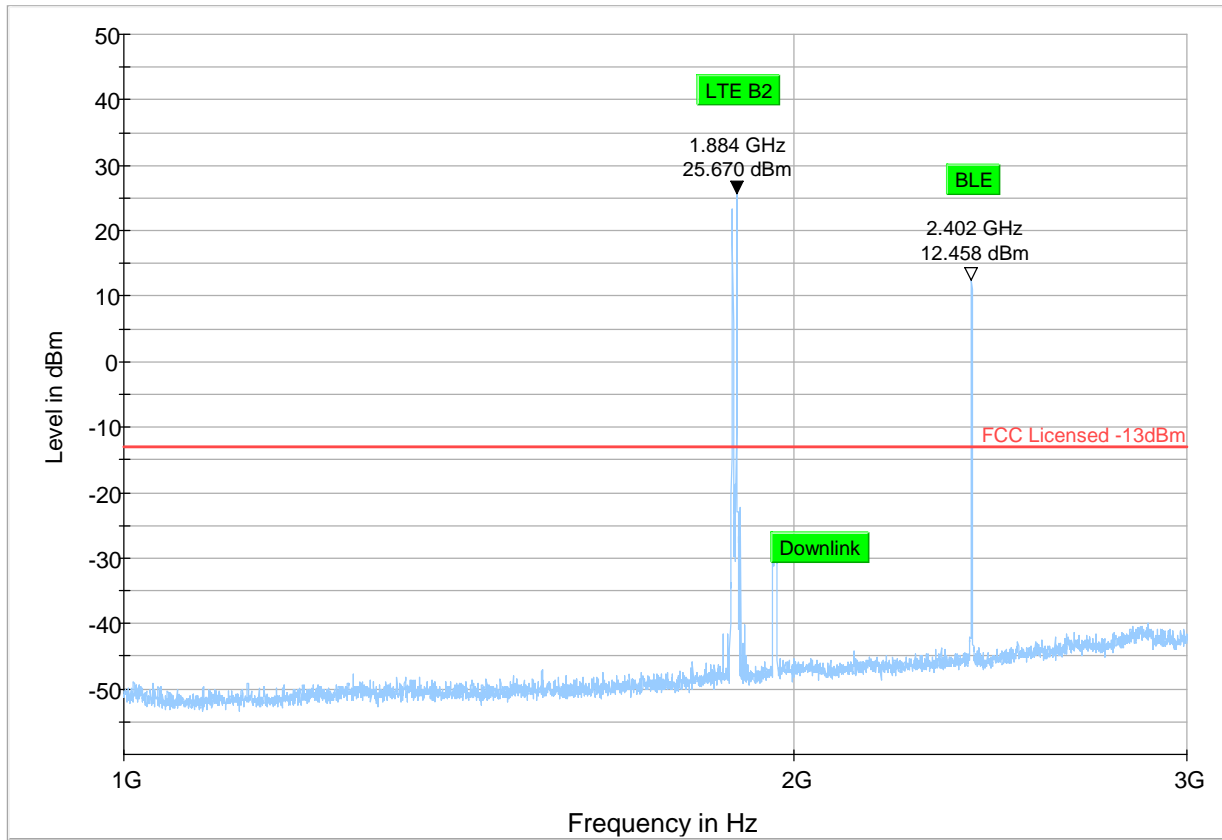
Channel: Mid



Preview Result 1-PK+ * Critical_Freqs PK+ FCC Licensed -13dBm Final_Result RM

Plot # 6 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



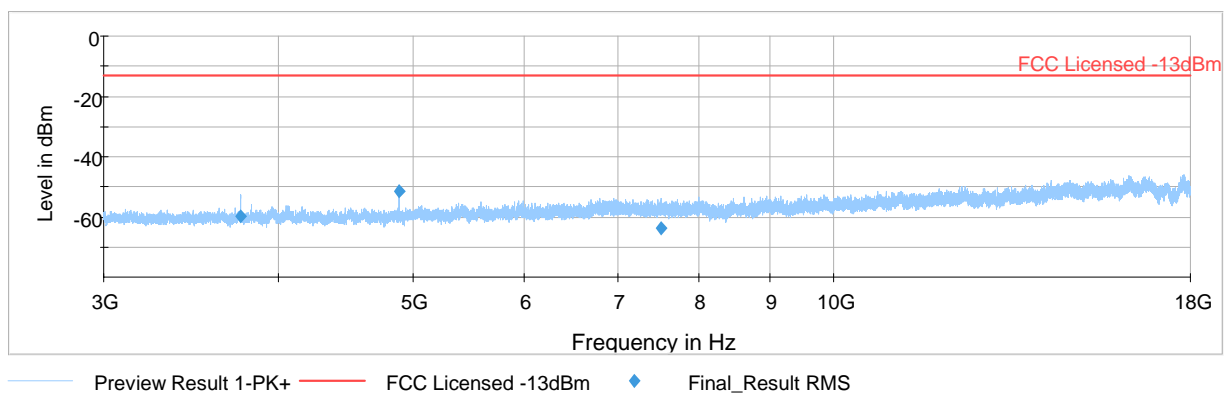
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 7 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

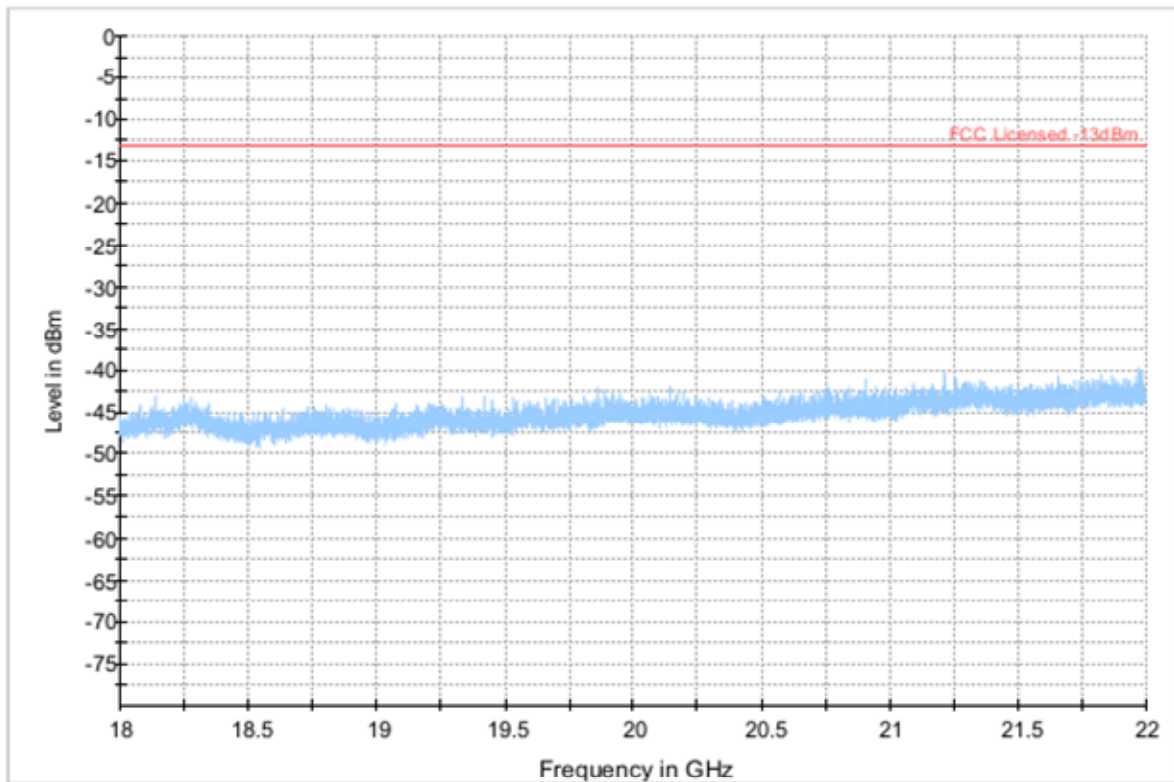
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3760.250000	-59.78	-13.00	46.78	500.0	1000.000	325.0	V	236.0	-103.9
4880.500000	-51.48	-13.00	38.48	500.0	1000.000	274.0	H	254.0	-102.0
7519.500000	-63.95	-13.00	50.95	500.0	1000.000	289.0	V	269.0	-98.1



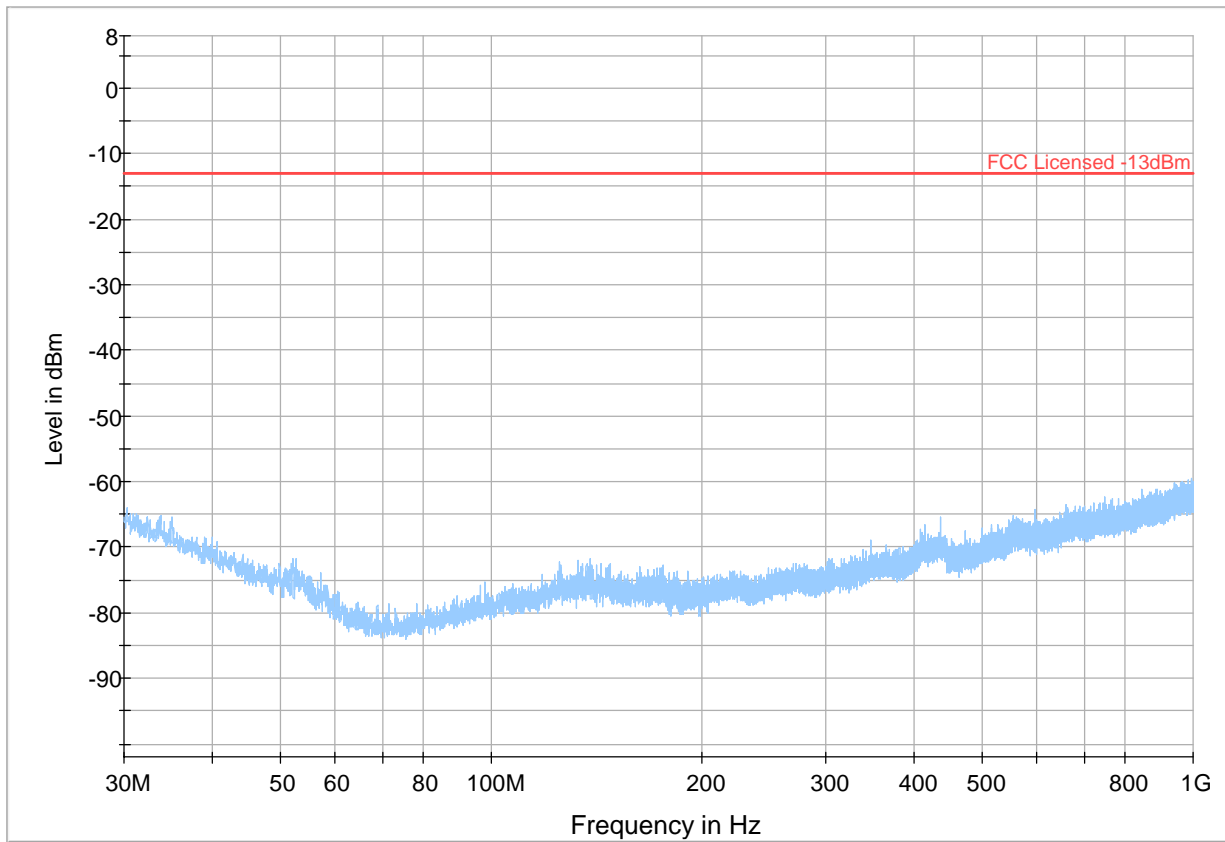
Plot # 8 Radiated Emissions: 18 – 22GHz

Channel: Mid



Plot # 9 Radiated Emissions: 30 MHz – 1GHz

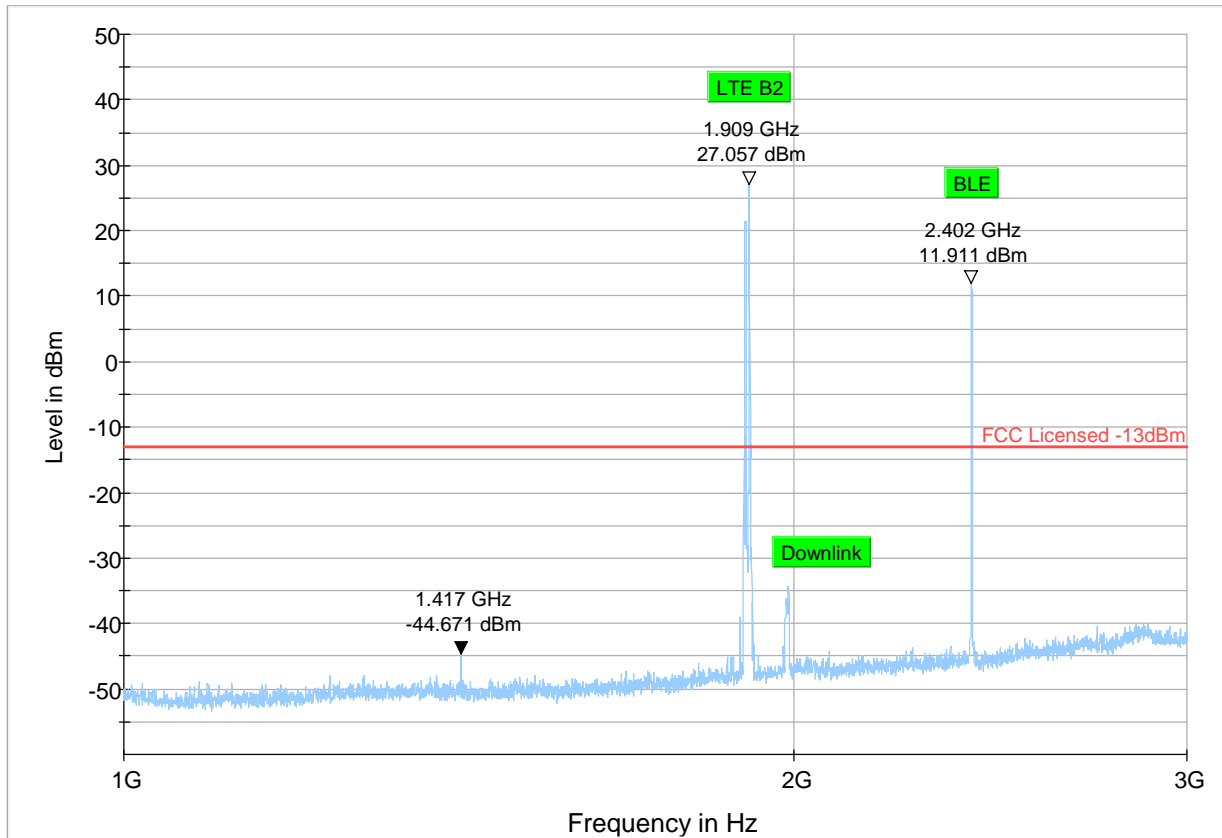
Channel: High



Preview Result 1-PK+ * Critical_Freqs PK+ FCC Licensed -13dBm Final_Result RM

Plot # 10 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



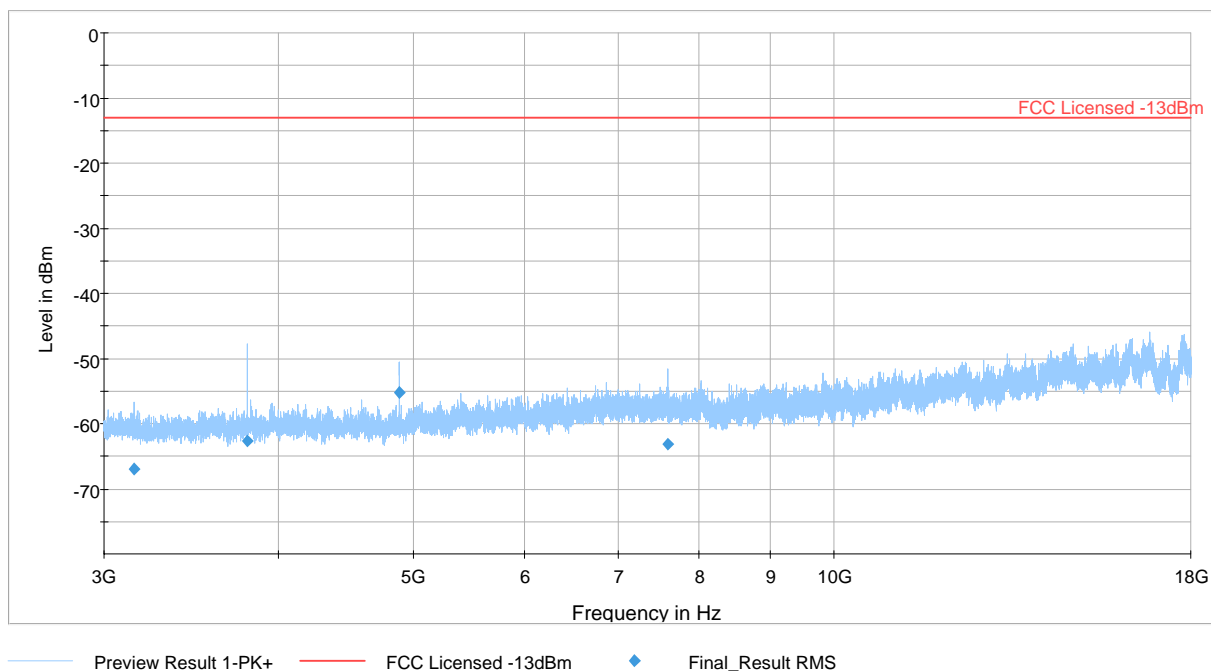
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 11 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final Result

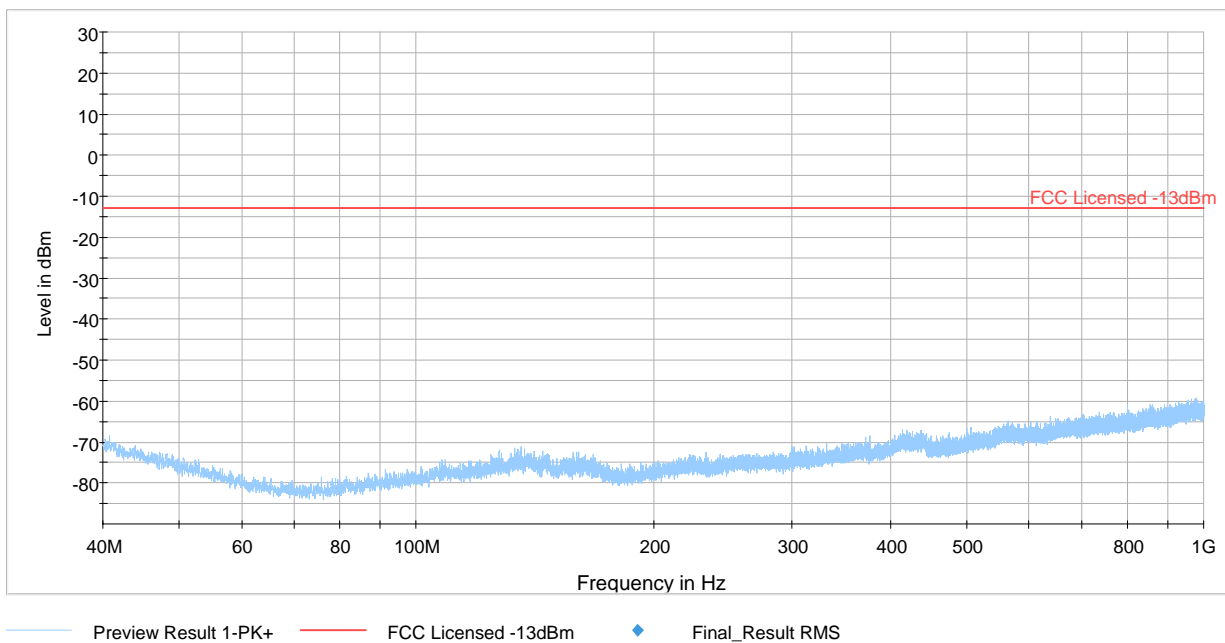
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3152.250	-66.98	-13.00	53.98	500.0	1000.0	259.0	V	333.0	-105.8
3799.750	-62.63	-13.00	49.63	500.0	1000.0	100.0	V	265.0	-103.8
4879.250	-55.25	-13.00	42.25	500.0	1000.0	272.0	H	254.0	-102.0
7601.750	-63.13	-13.00	50.13	500.0	1000.0	100.0	V	28.0	-98.1



LTE 4

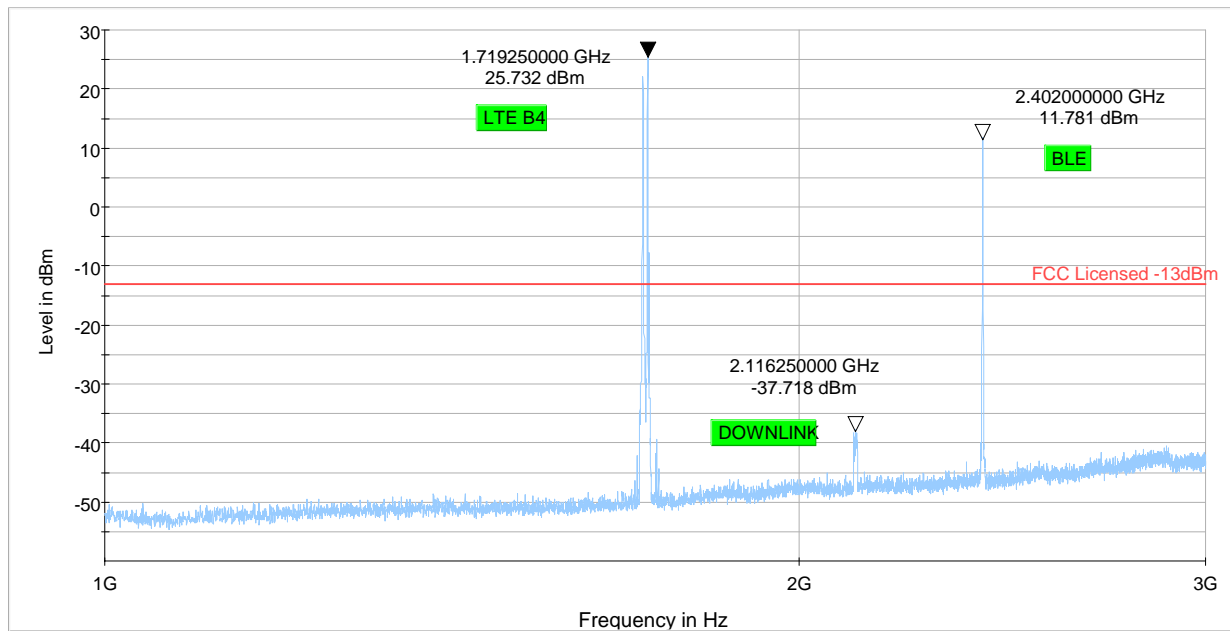
Plot # 12 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 13 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



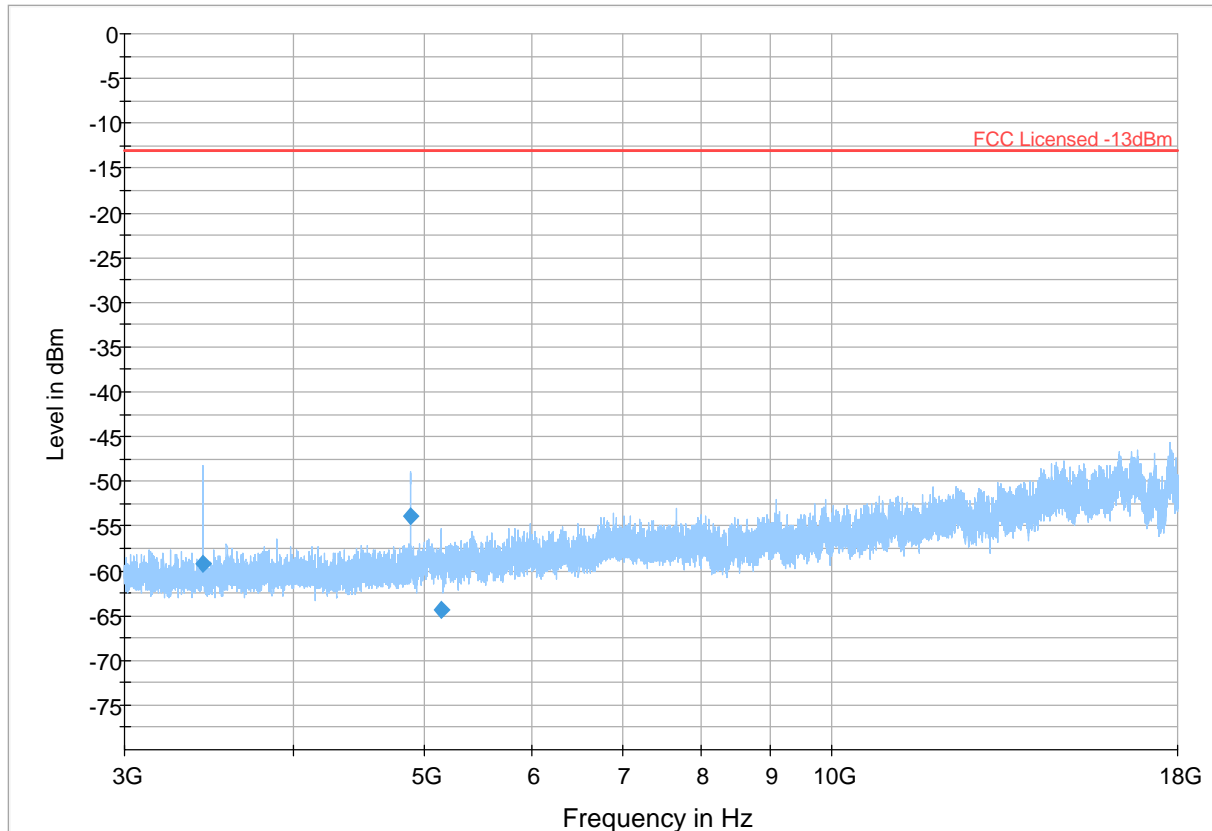
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 14 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3430.750	-59.30	-13.00	46.30	500.0	1000.0	207.0	V	87.0	-105.1
4879.250	-53.97	-13.00	40.97	500.0	1000.0	254.0	H	274.0	-102.0
5145.000	-64.36	-13.00	51.36	500.0	1000.0	257.0	V	79.0	-101.5



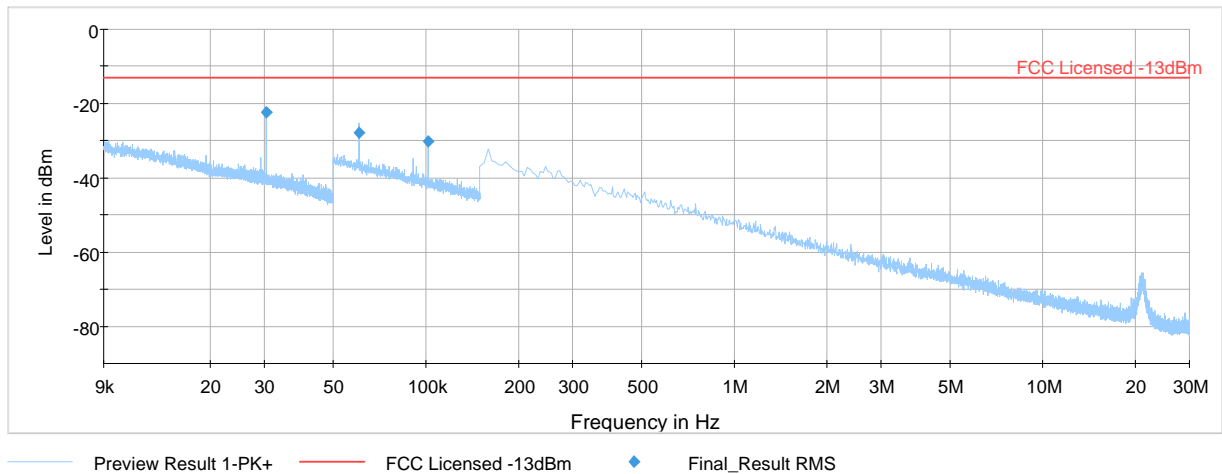
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 15 Radiated Emissions: 9 KHz – 30 MHz

Channel: Mid

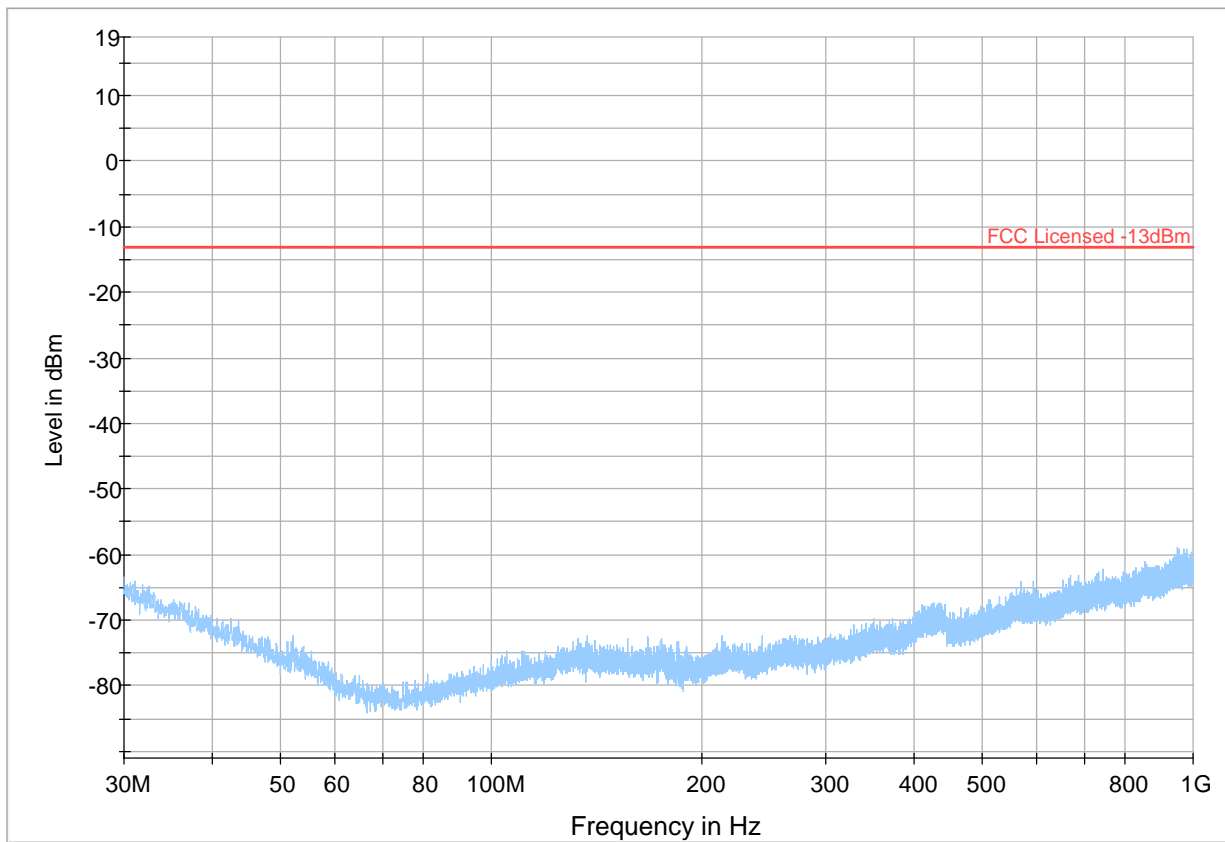
Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030320	-22.29	-13.00	9.29	500.0	1.000	100.0	V	130.0	-72.1
0.060600	-27.74	-13.00	14.74	500.0	1.000	100.0	H	93.0	-75.4
0.101750	-30.27	-13.00	17.27	500.0	1.000	100.0	H	132.0	-76.3



Plot # 16 Radiated Emissions: 30 MHz – 1GHz

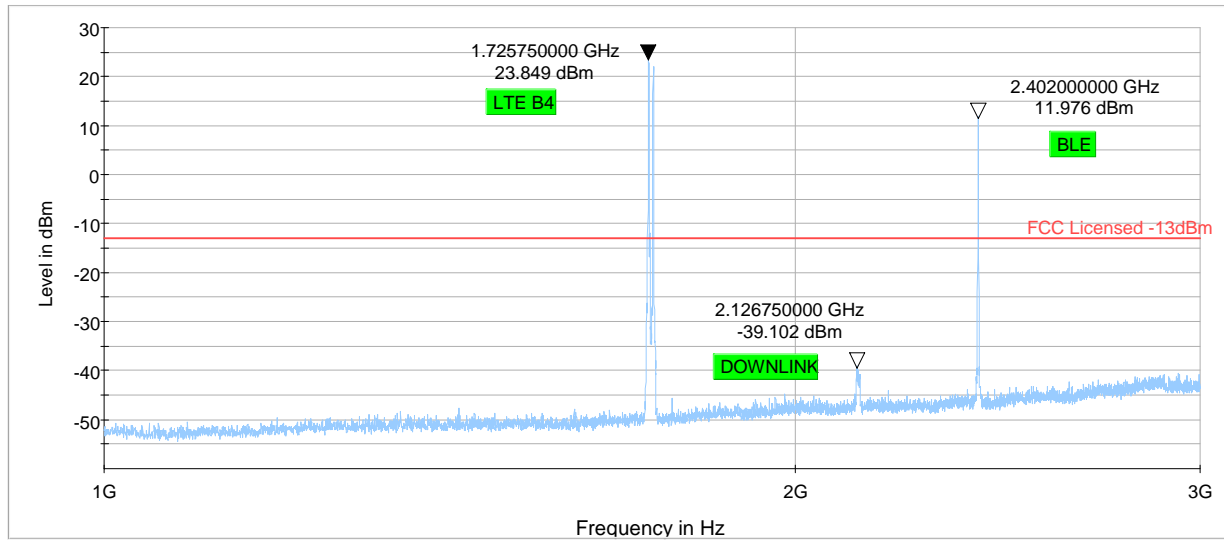
Channel: Mid



Preview Result 1-PK+ * Critical_Freqs PK+ FCC Licensed -13dBm Final_Result RM

Plot # 17 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



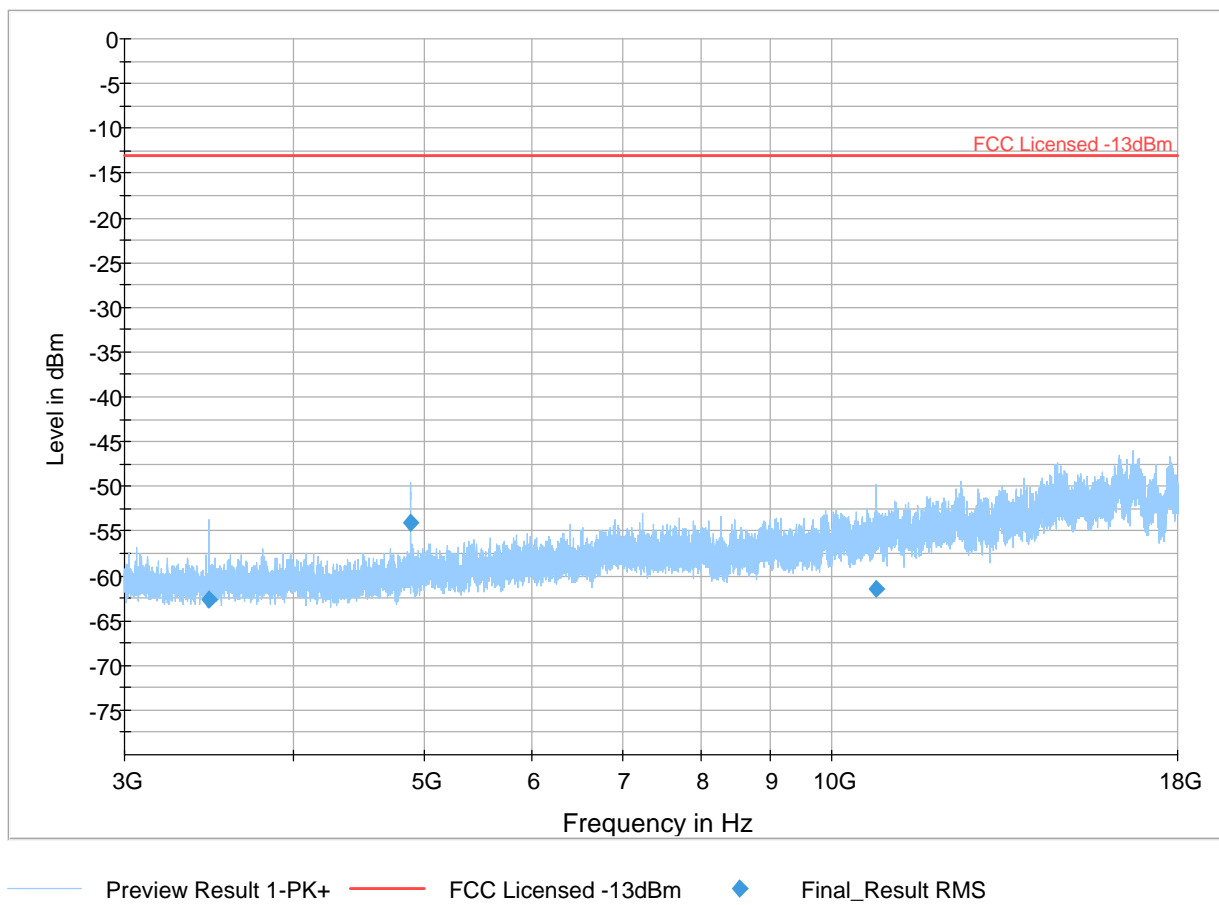
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 18 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

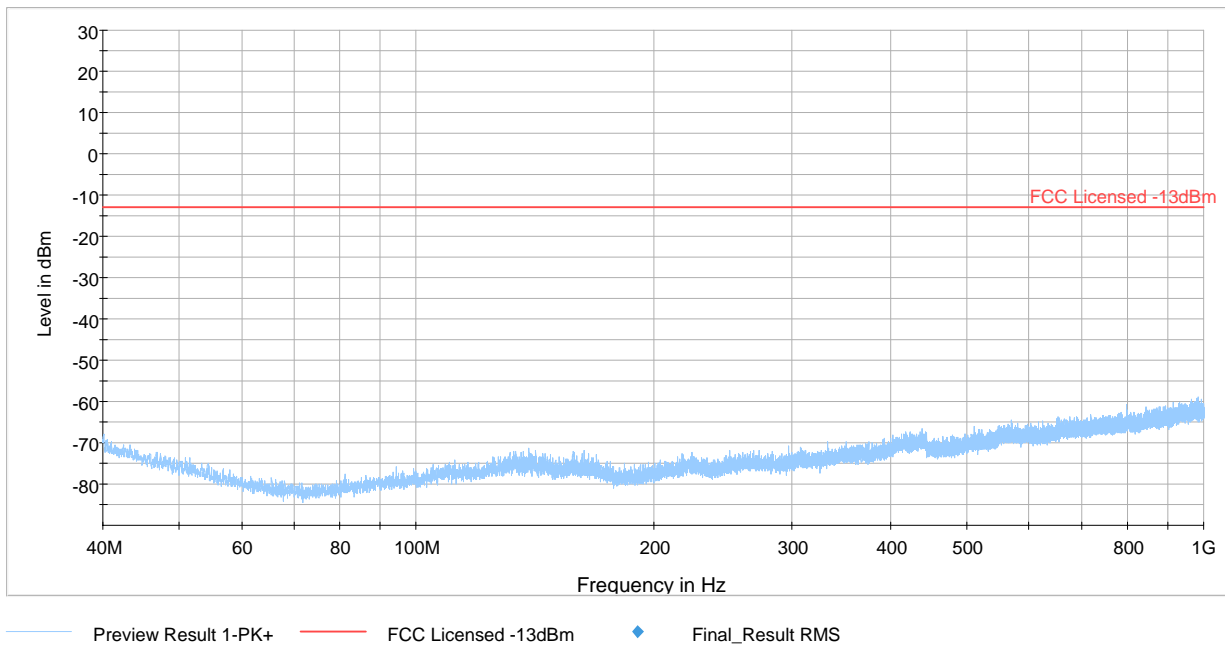
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3465.500	-62.67	-13.00	49.67	500.0	1000.0	249.0	V	60.0	-105.0
4879.250	-54.06	-13.00	41.06	500.0	1000.0	256.0	H	259.0	-102.0
10783.500	-61.54	-13.00	48.54	500.0	1000.0	107.0	H	299.0	-93.7



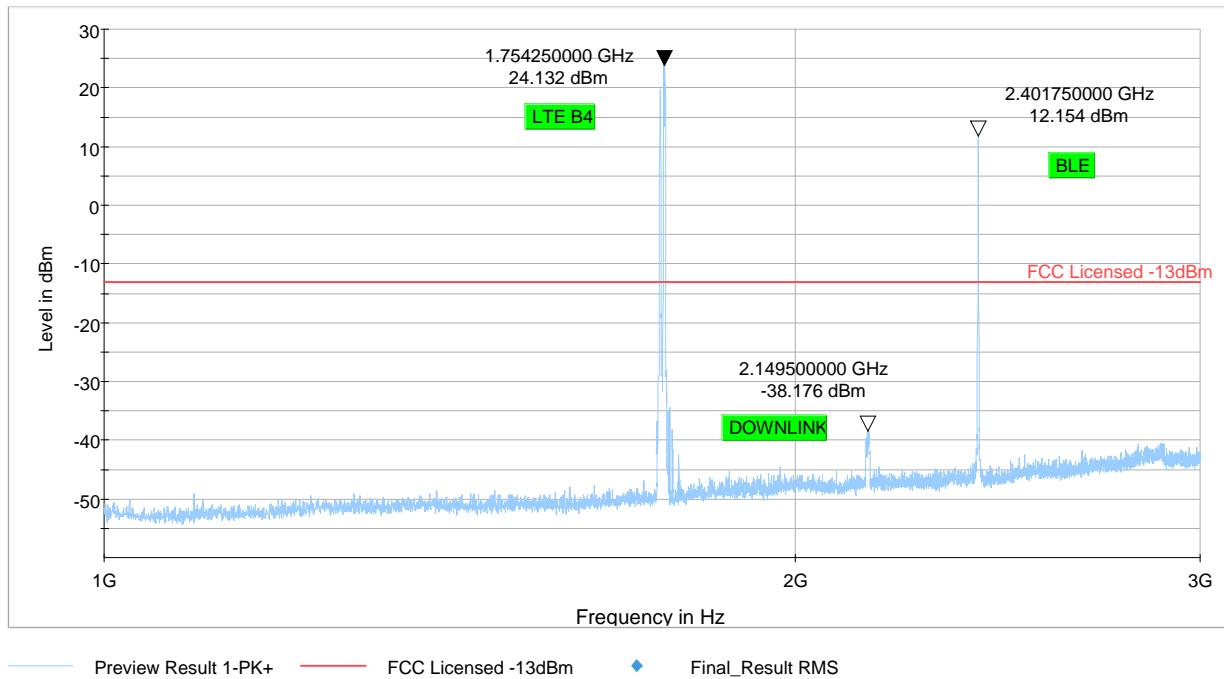
Plot # 19 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 20 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

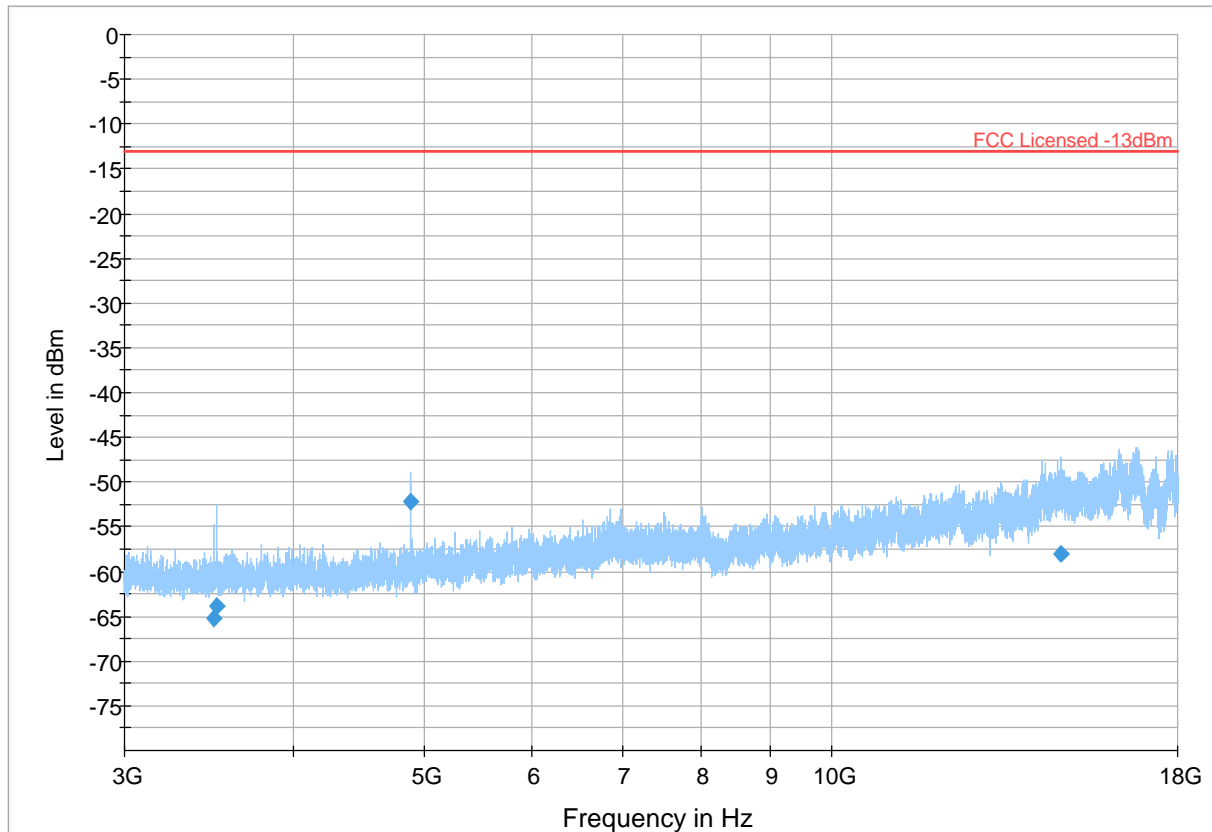


Plot # 21 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3492.250	-65.25	-13.00	52.25	500.0	1000.0	125.0	H	226.0	-104.8
3508.750	-63.87	-13.00	50.87	500.0	1000.0	257.0	H	267.0	-104.7
4879.500	-52.22	-13.00	39.22	500.0	1000.0	265.0	H	256.0	-102.0
14769.000	-58.03	-13.00	45.03	500.0	1000.0	246.0	H	323.0	-86.1

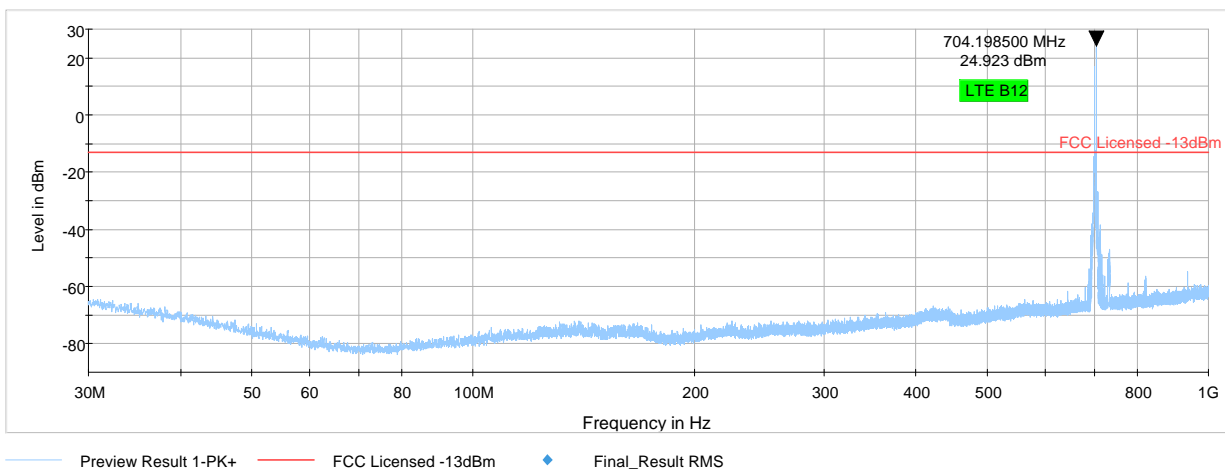


Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

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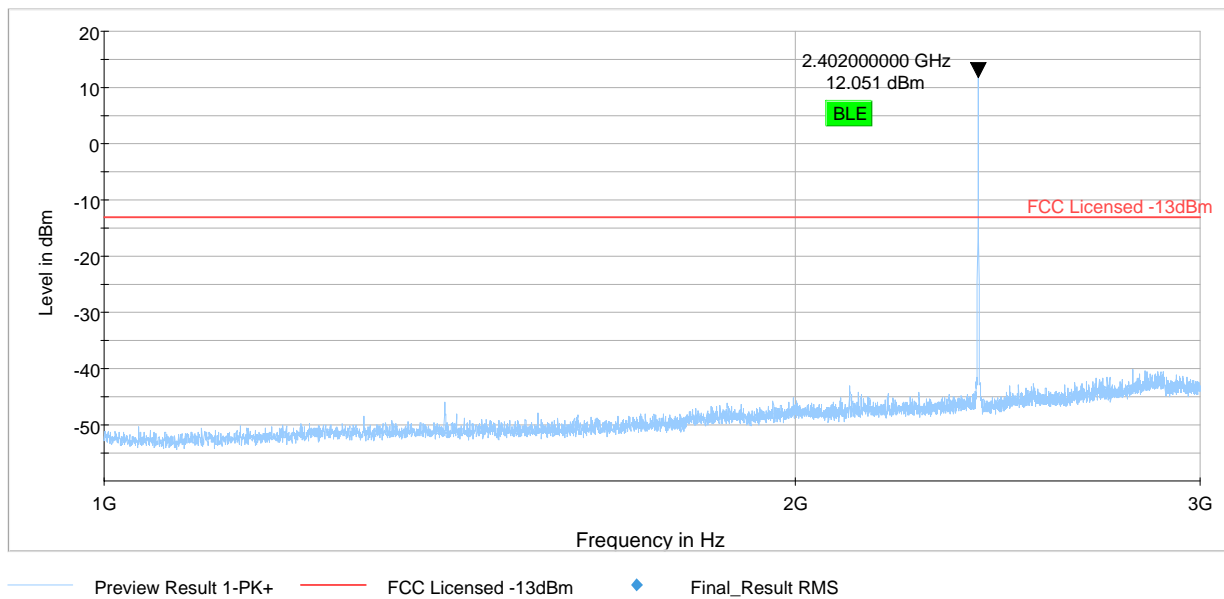
Plot # 22 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 23 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

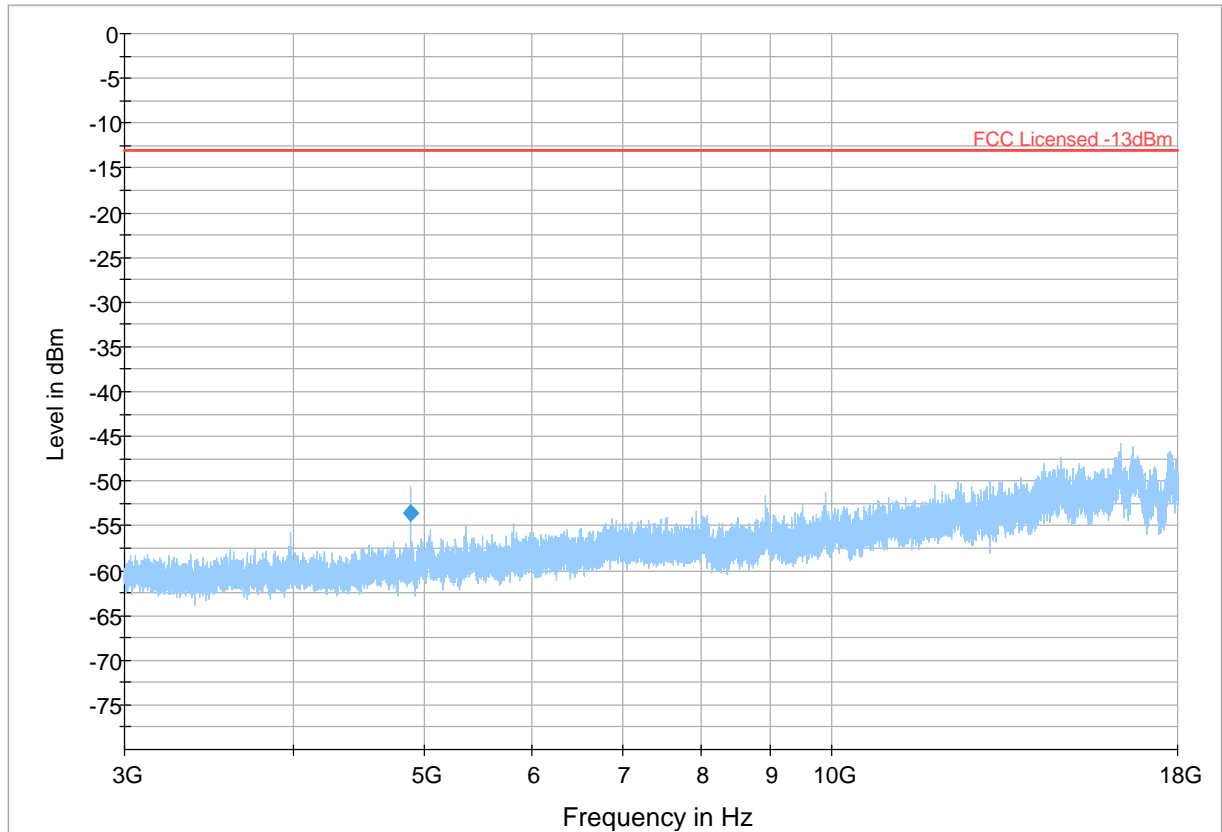


Plot # 24 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.500000	-53.50	-13.00	40.50	500.0	1000.000	272.0	H	241.0	-102.0



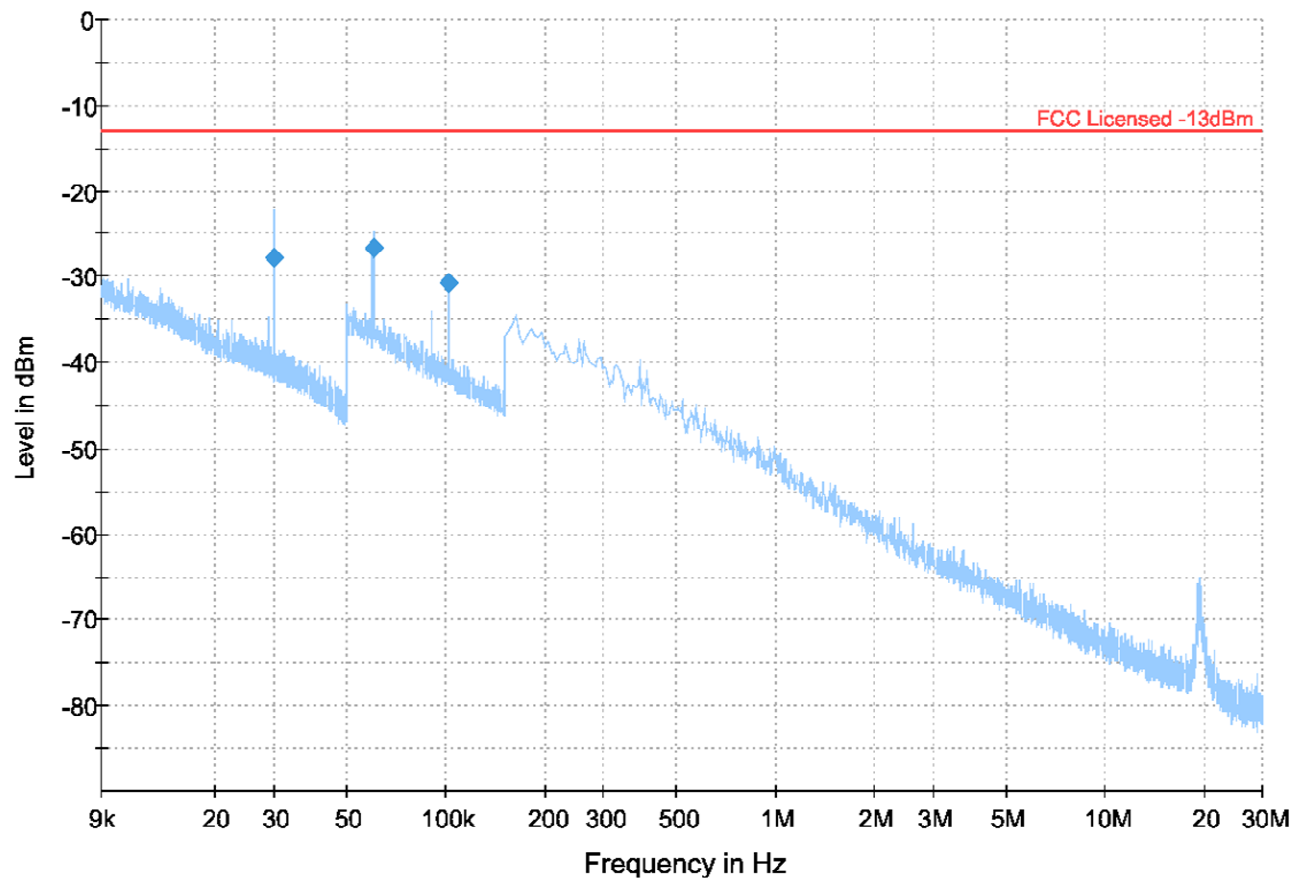
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 25 Radiated Emissions: 9KHz – 30 MHz

Channel: Mid

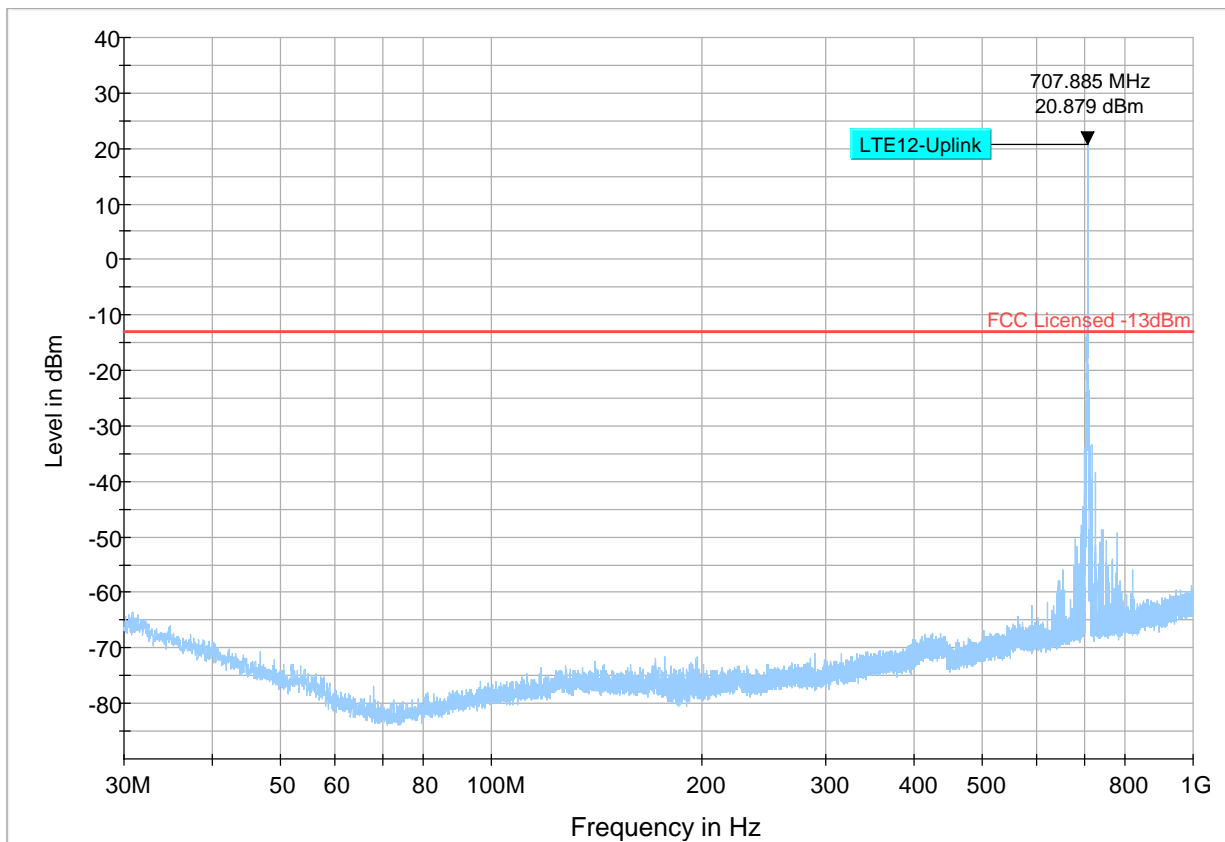
Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030145	-27.76	-13.00	14.76	500.0	1.000	105.0	V	-11.0	-72.1
0.060250	-26.62	-13.00	13.62	500.0	1.000	100.0	H	-44.0	-75.4
0.101900	-30.79	-13.00	17.79	500.0	1.000	100.0	H	234.0	-76.3



Plot # 26 Radiated Emissions: 30 MHz – 1GHz

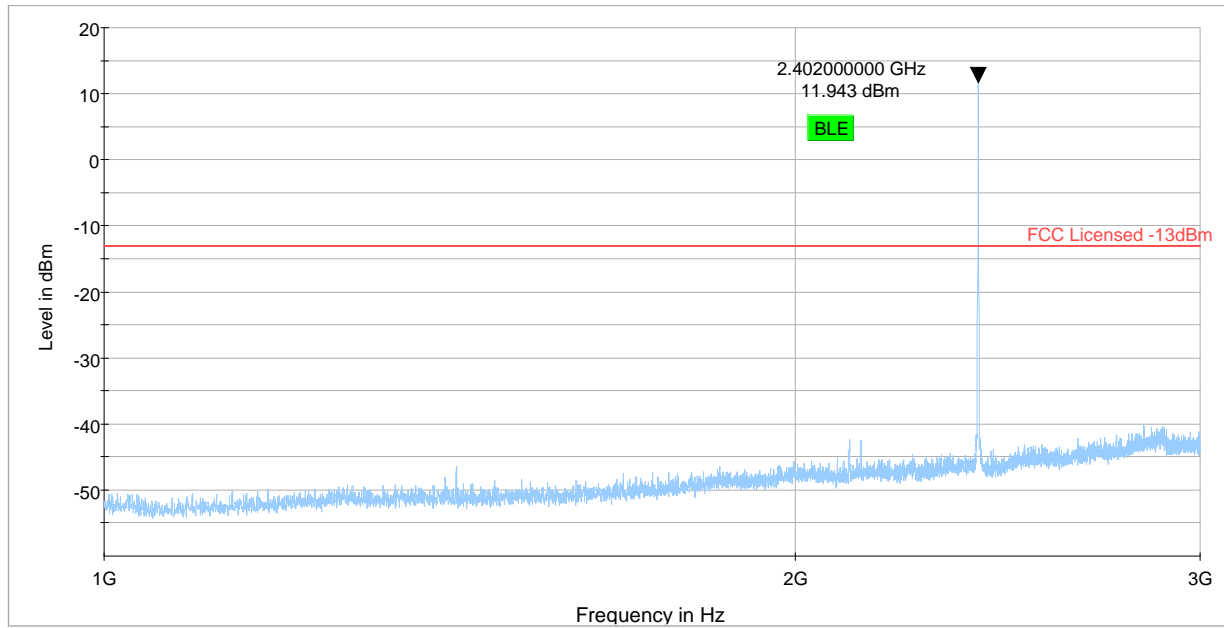
Channel: Mid



Preview Result 1-PK+ * Critical_Freqs PK+ FCC Licensed -13dBm Final_Result RM

Plot # 27 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



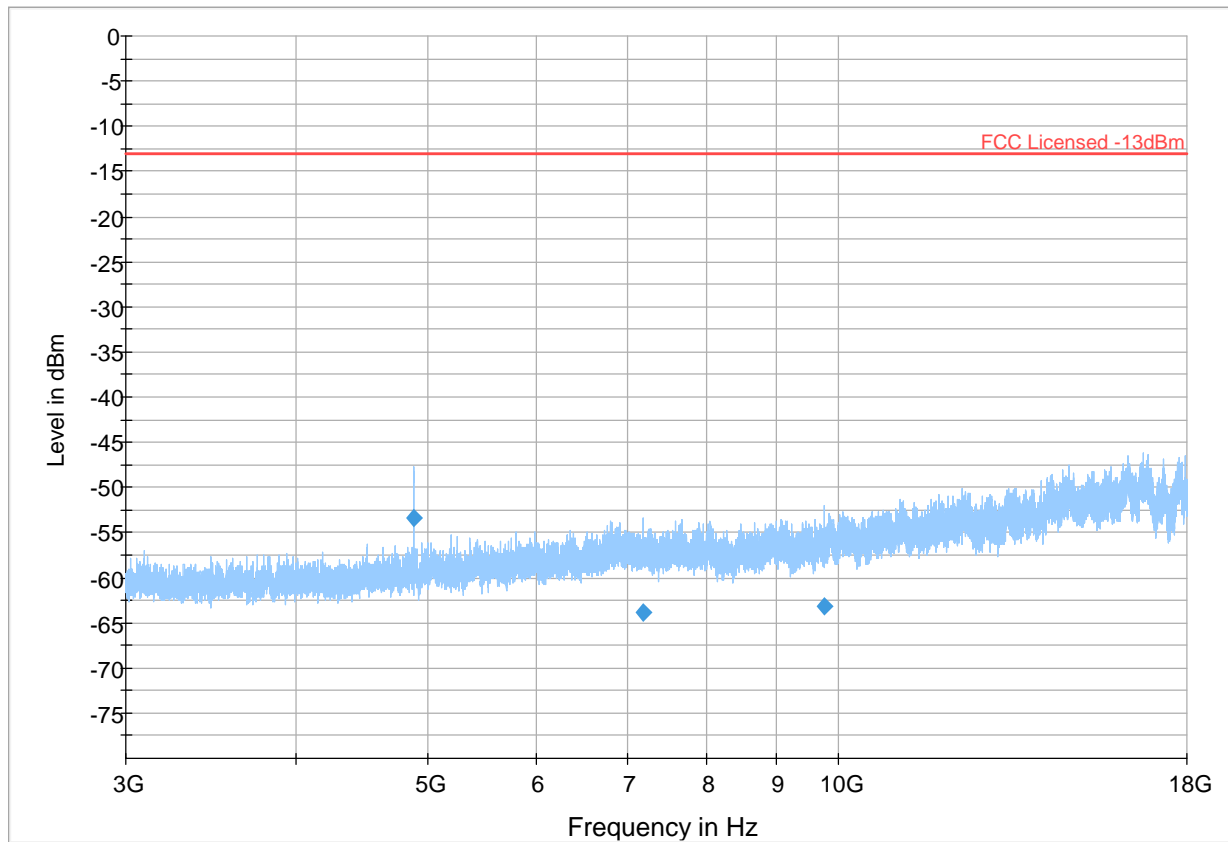
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 28 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

Final_Result

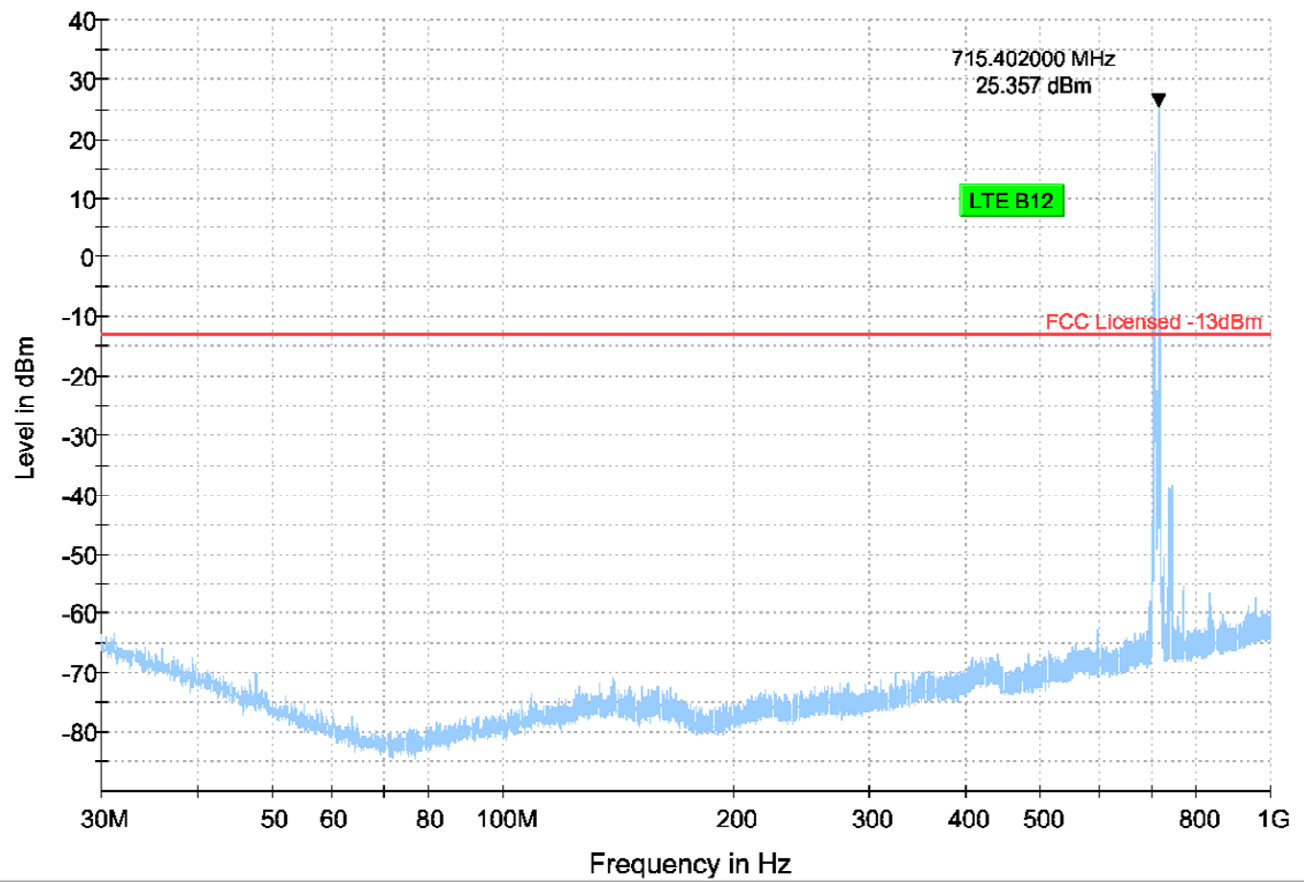
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.250000	-53.37	-13.00	40.37	500.0	1000.000	258.0	H	240.0	-102.0
7181.250000	-63.92	-13.00	50.92	500.0	1000.000	117.0	V	285.0	-98.7
9756.000000	-63.19	-13.00	50.19	500.0	1000.000	278.0	H	106.0	-93.9



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

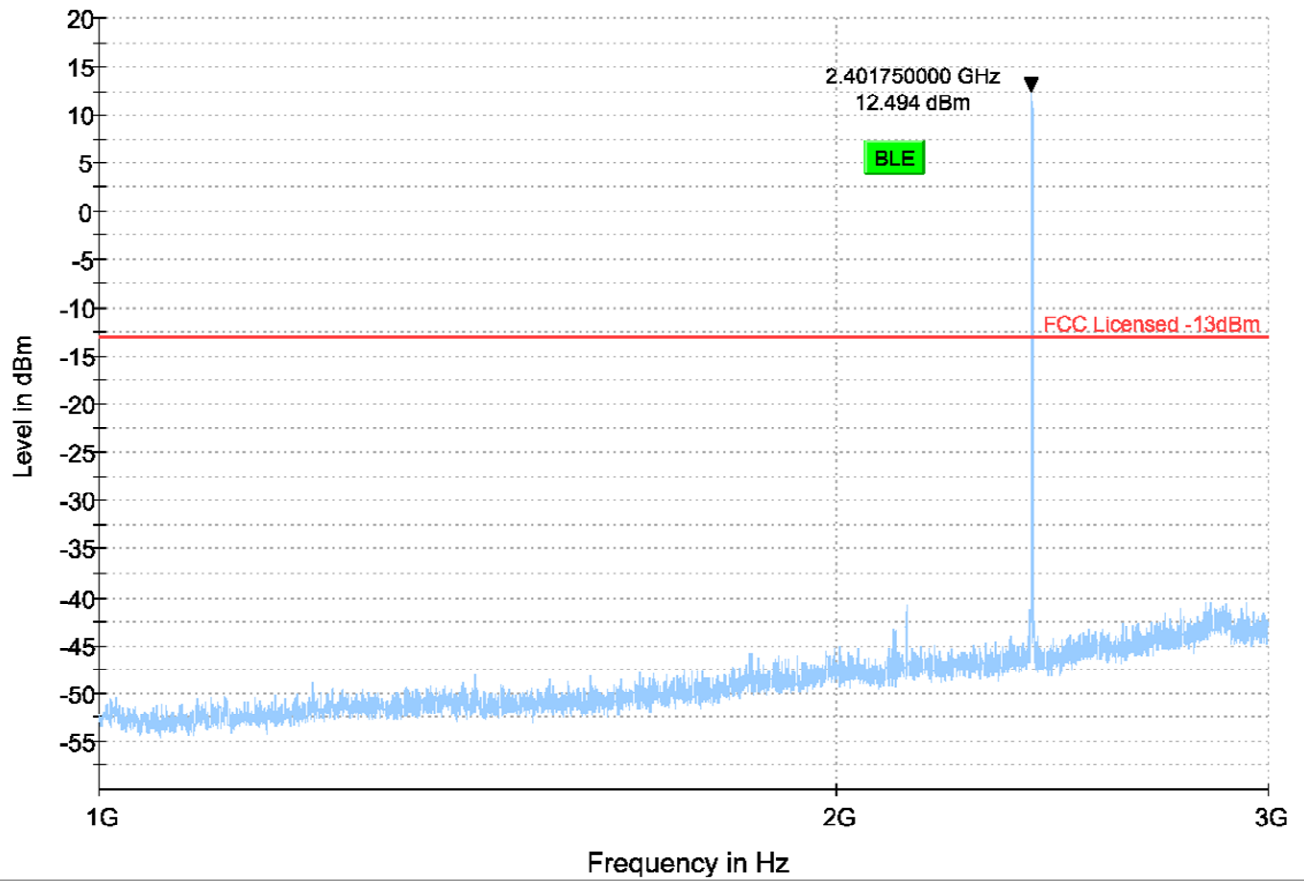
Plot # 29 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 30 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

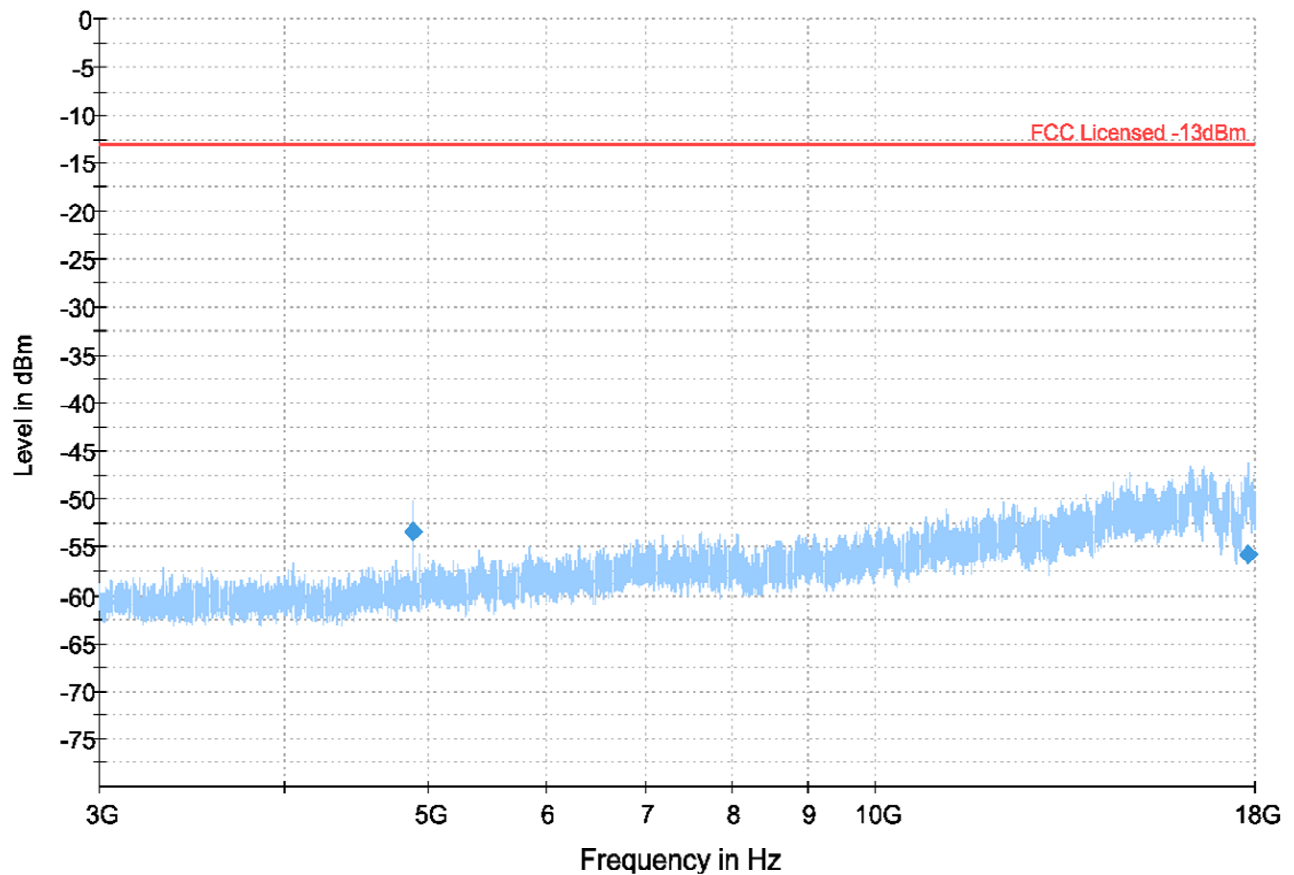


Plot # 31 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final Result

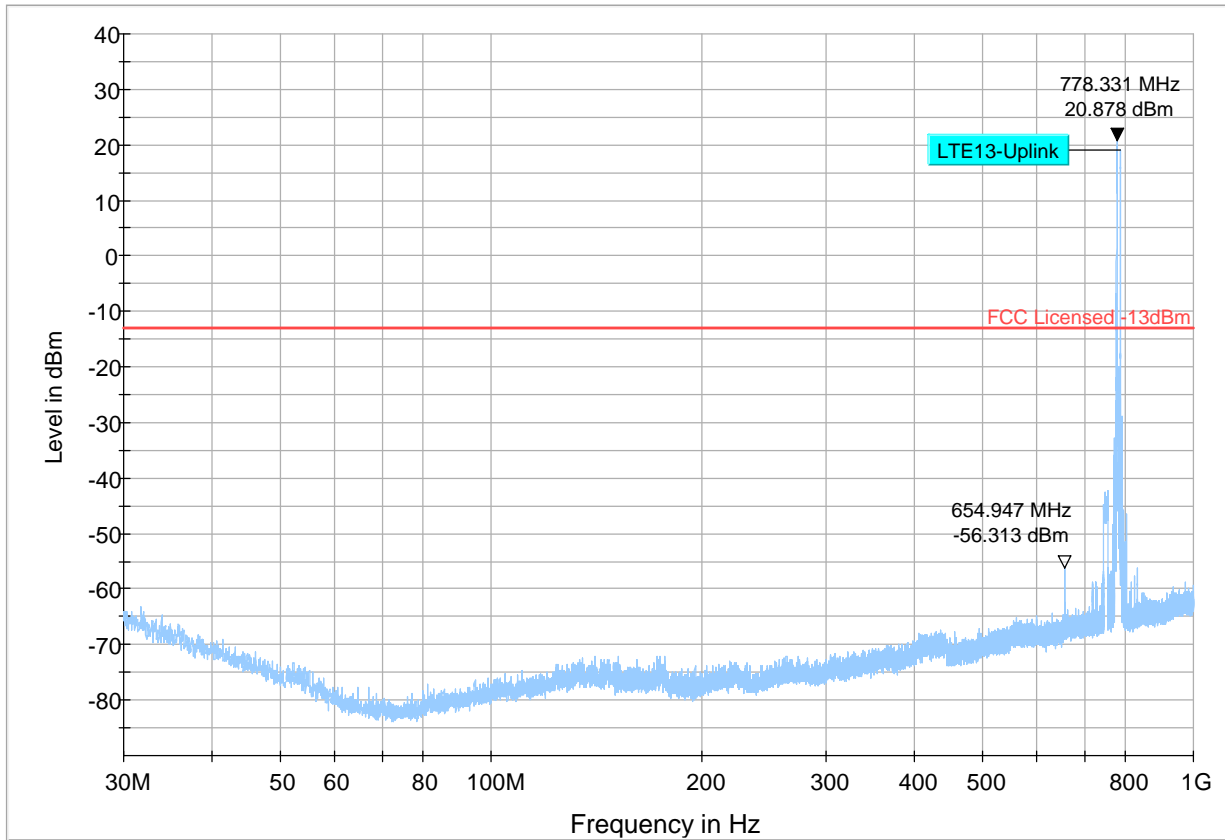
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500000	-53.44	-13.00	40.44	500.0	1000.000	289.0	H	253.0	-102.0
17810.750000	-55.87	-13.00	42.87	500.0	1000.000	306.0	V	294.0	-82.6



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Plot # 32 Radiated Emissions: 30 MHz – 1GHz

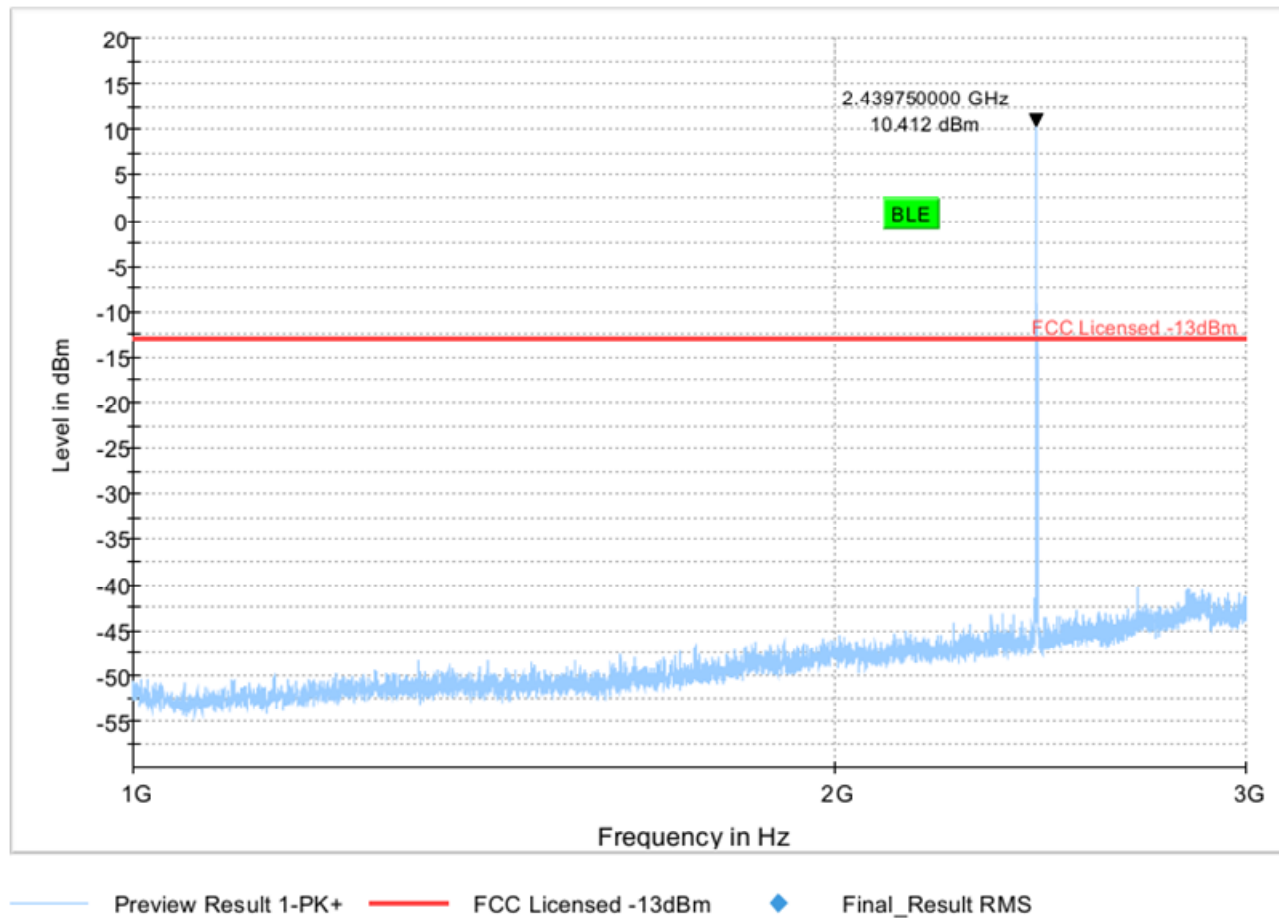
Channel: Low



— Preview Result 1-PK+ * Critical_Freqs PK+ — FCC Licensed -13dBm ◆ Final_Result RM

Plot # 33 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

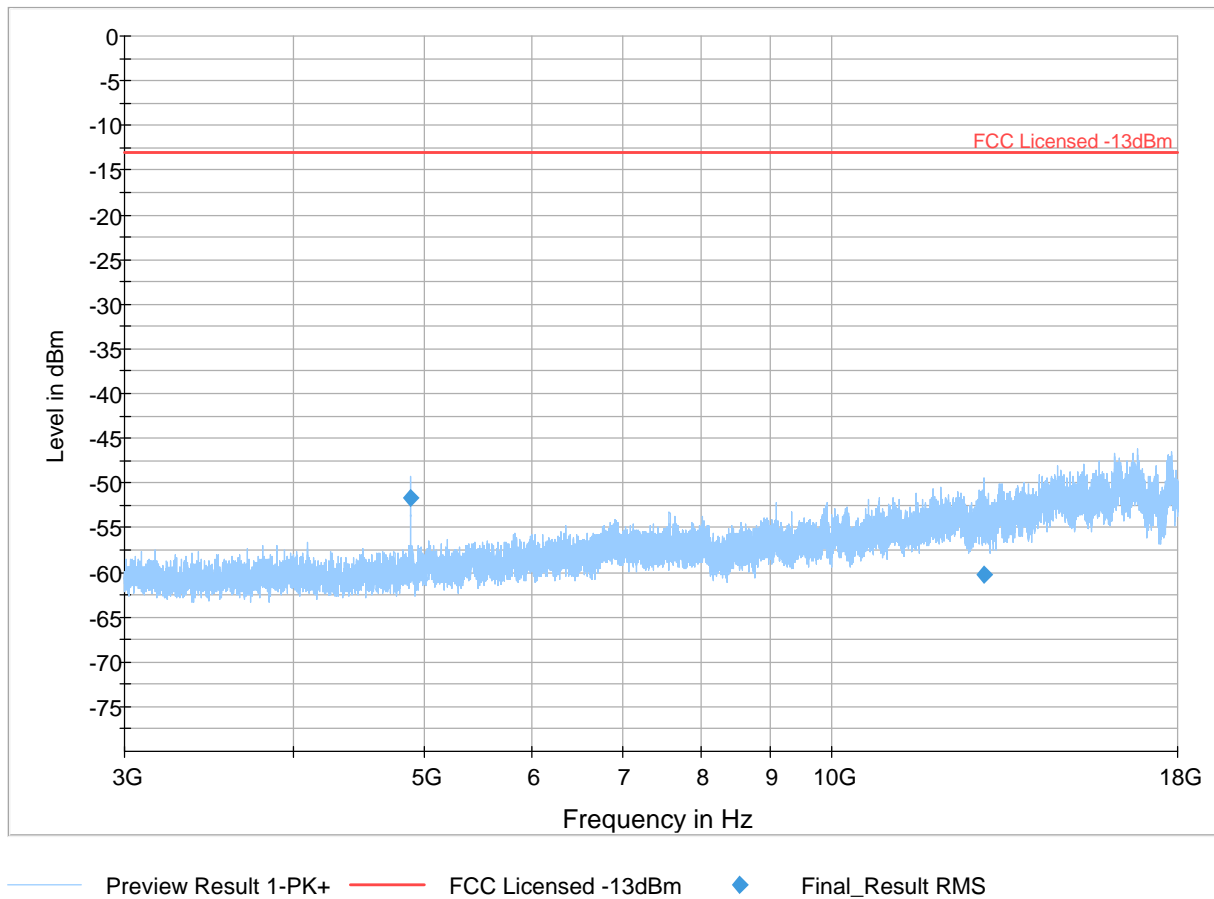


Plot # 34 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.250000	-51.70	-13.00	38.70	500.0	1000.000	247.0	H	270.0	-102.0
12953.500000	-60.18	-13.00	47.18	500.0	1000.000	100.0	V	49.0	-90.0

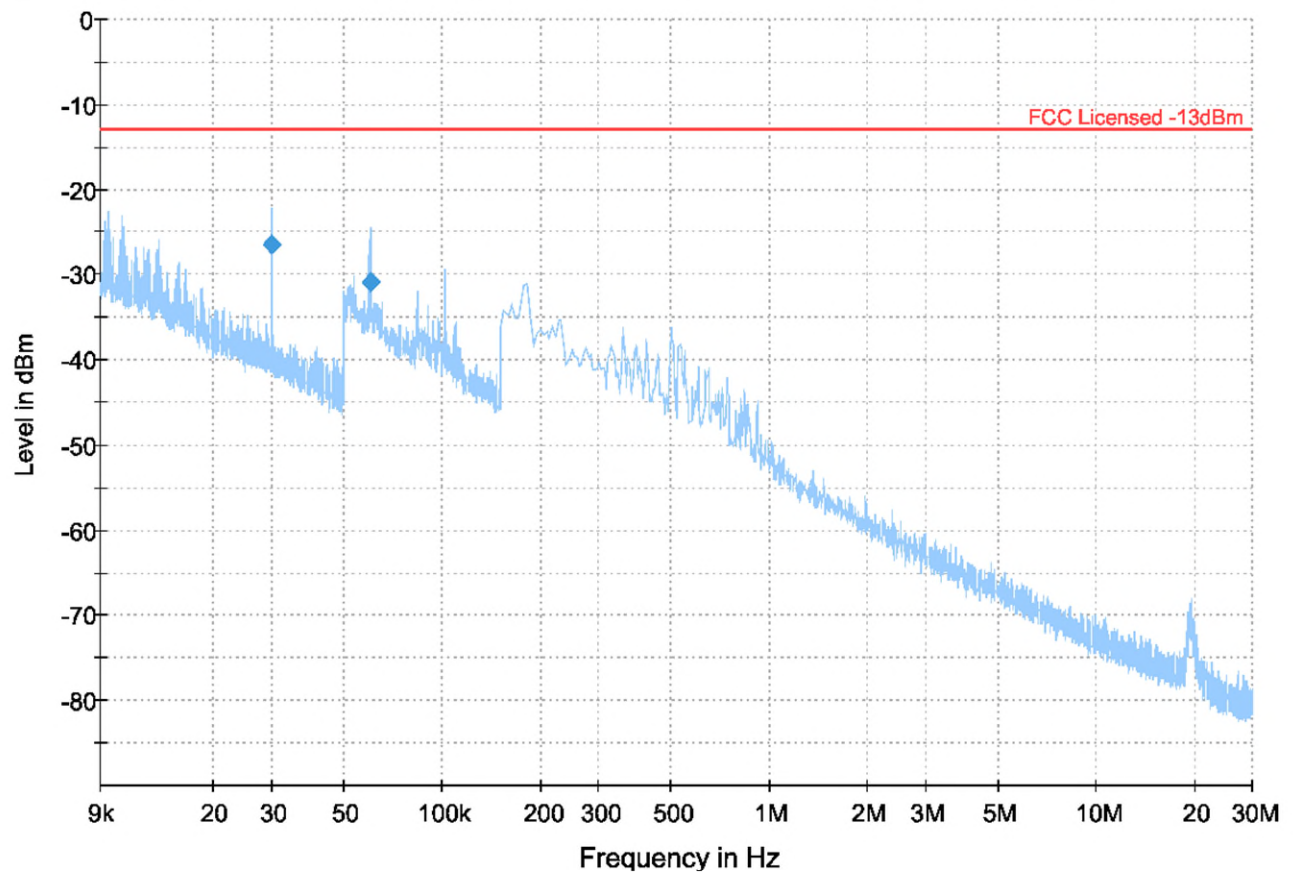


Plot # 35 Radiated Emissions: 9KHz – 30 MHz

Channel: Mid

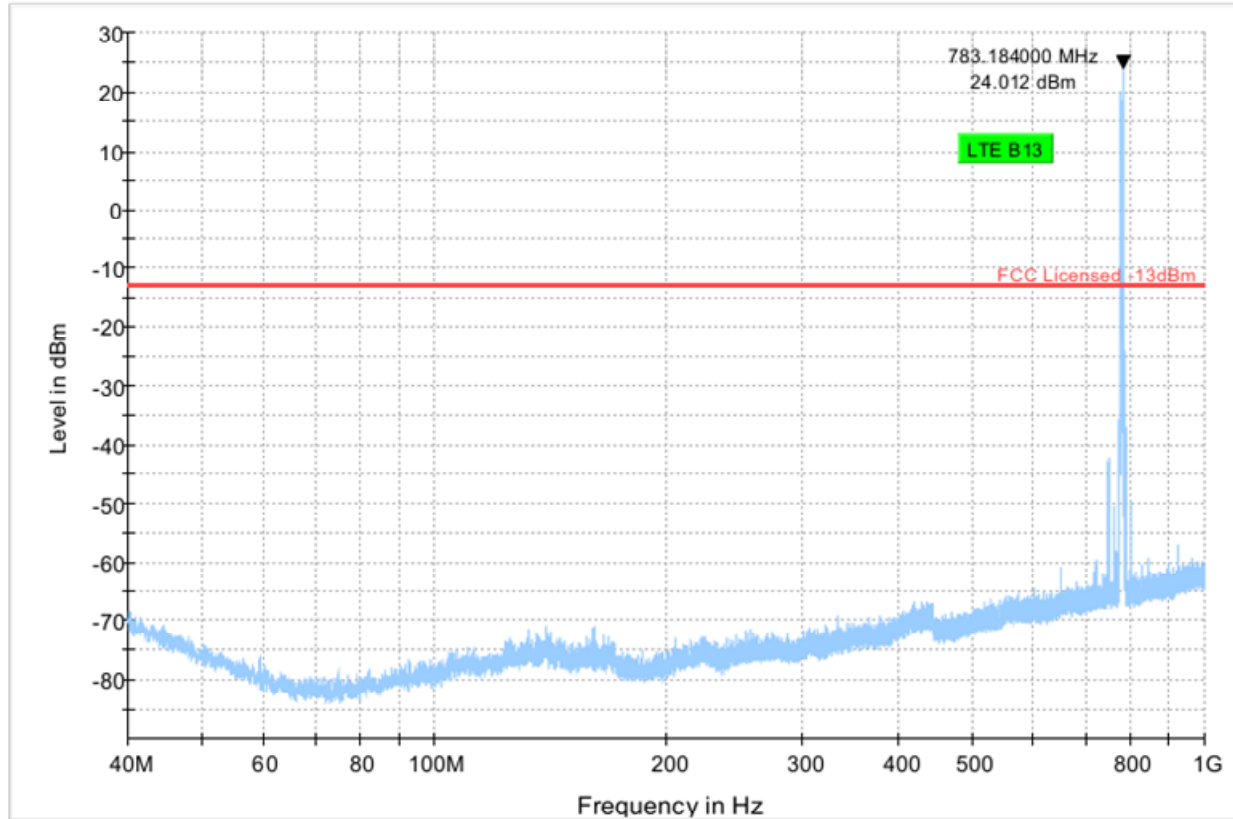
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030153	-26.39	-13.00	13.39	500.0	1.000	112.0	H	78.0	-72.1
0.060300	-30.85	-13.00	17.85	500.0	1.000	123.0	H	346.0	-75.4



Plot # 36 Radiated Emissions: 30 MHz – 1GHz

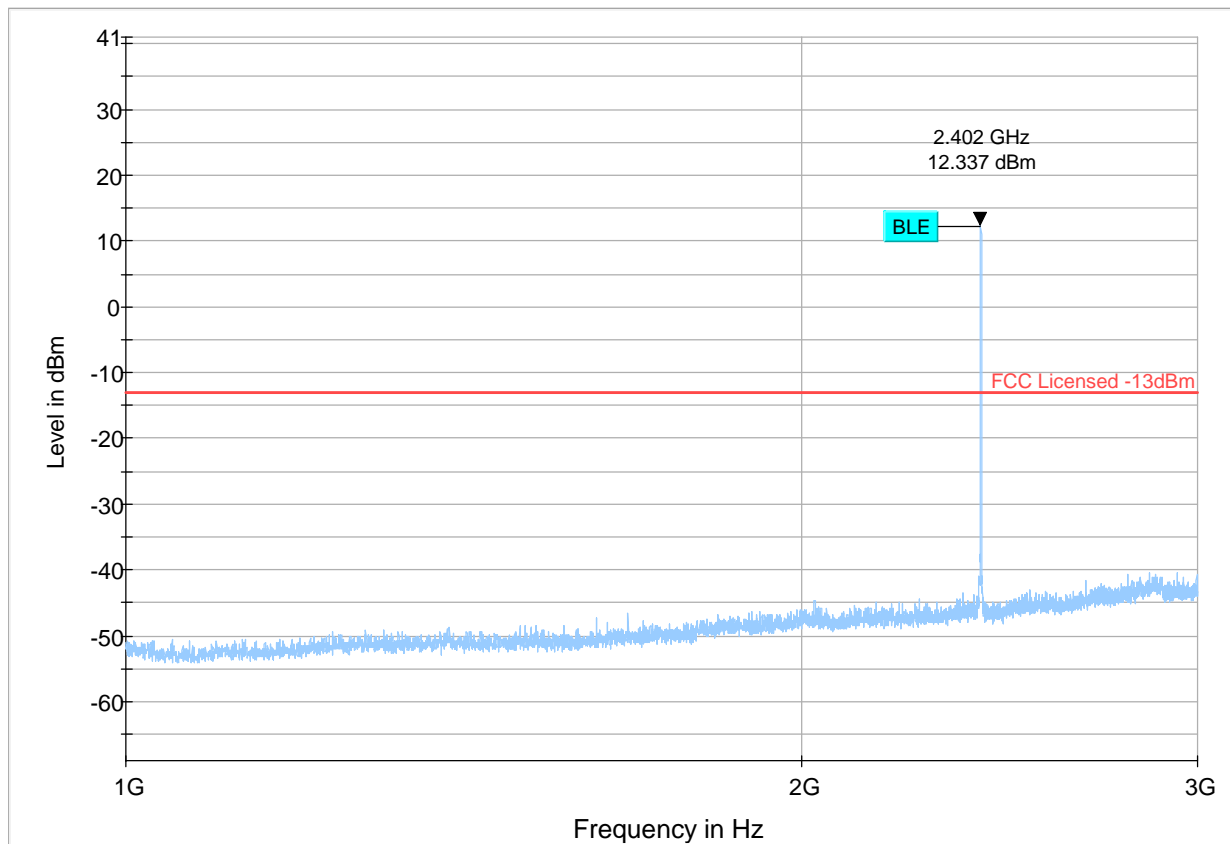
Channel: Mid



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 37 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



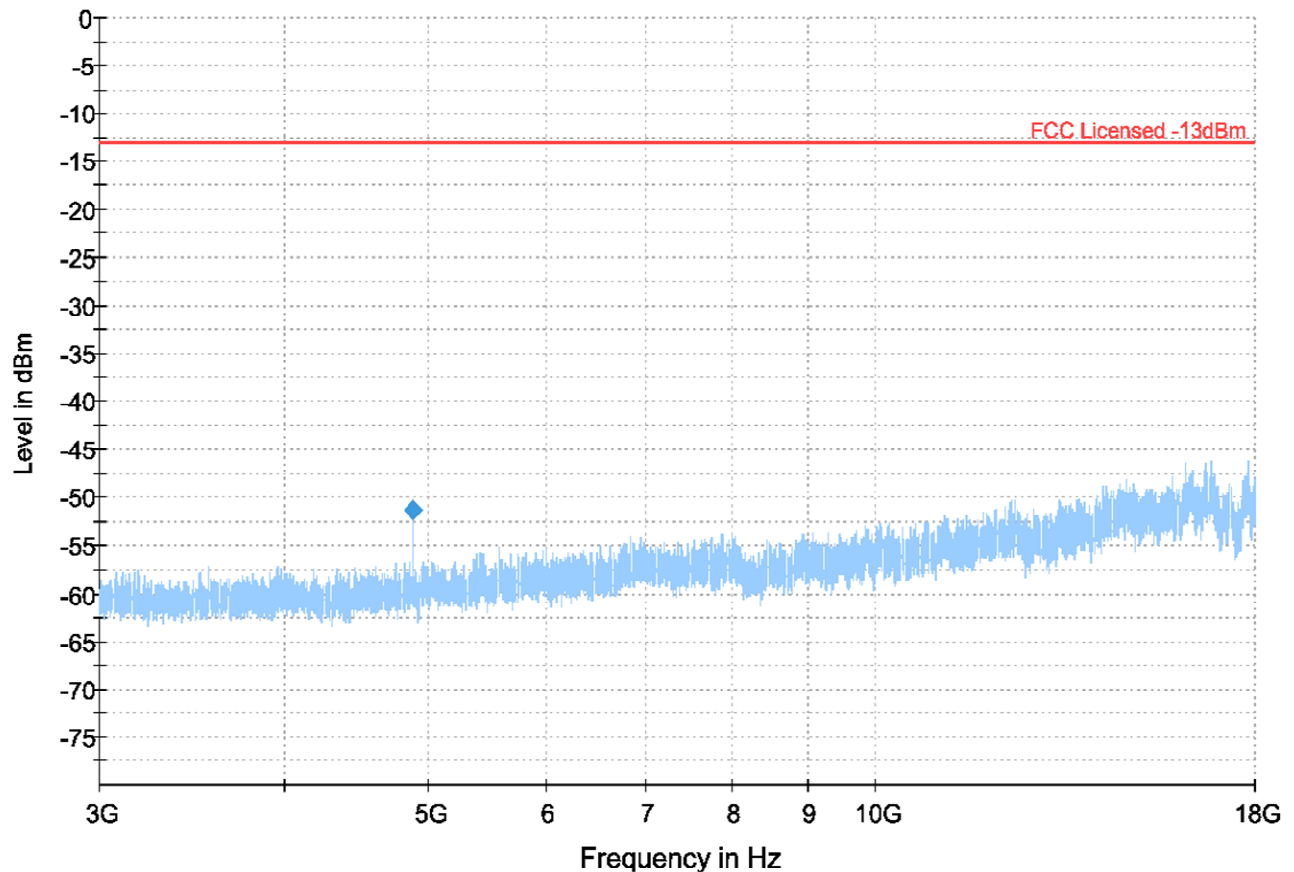
Preview Result 1-PK+ * Critical_Freqs PK+ FCC Licensed -13dBm Final_Result RM

Plot # 38 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

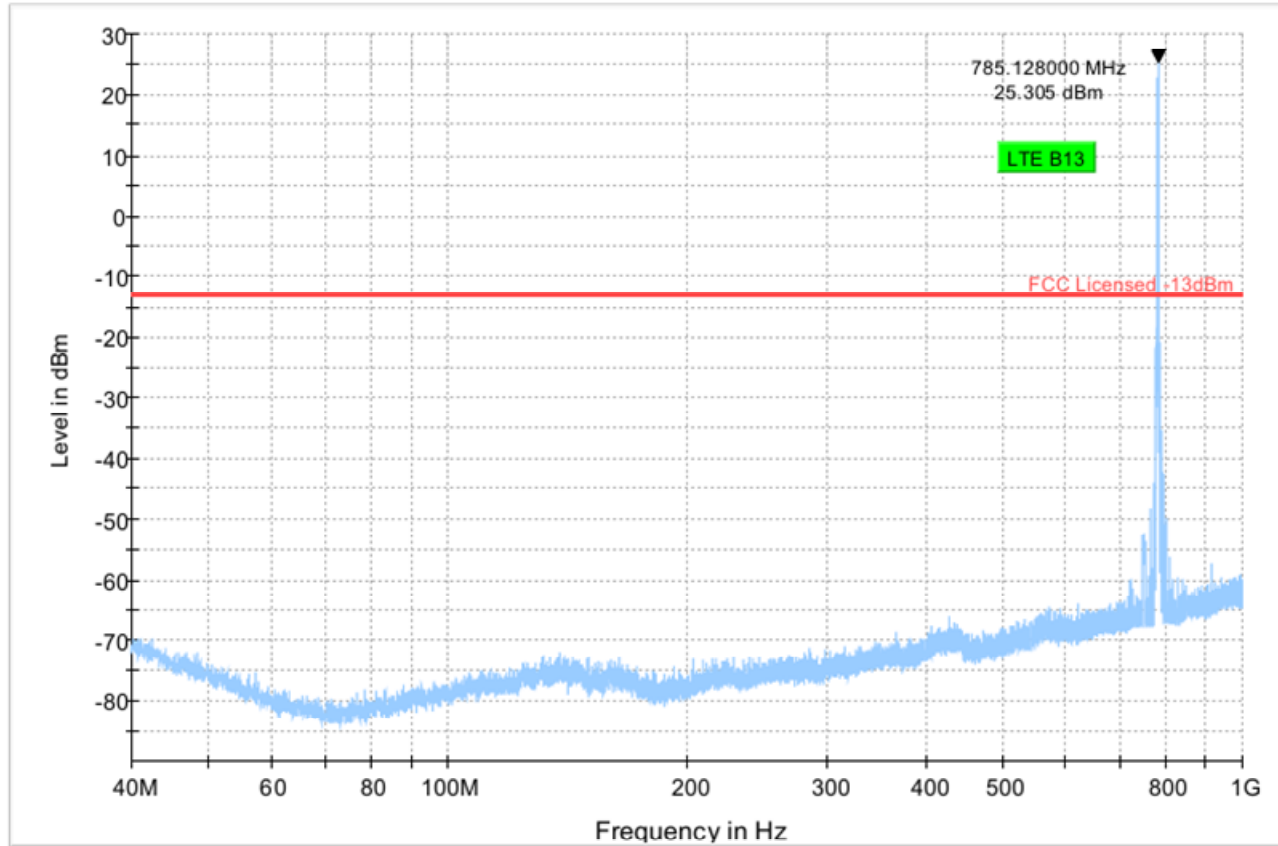
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.000	-51.37	-13.00	38.37	500.0	1000.000	267.0	H	258.0	-102.0



Plot # 39 Radiated Emissions: 30 MHz – 1GHz

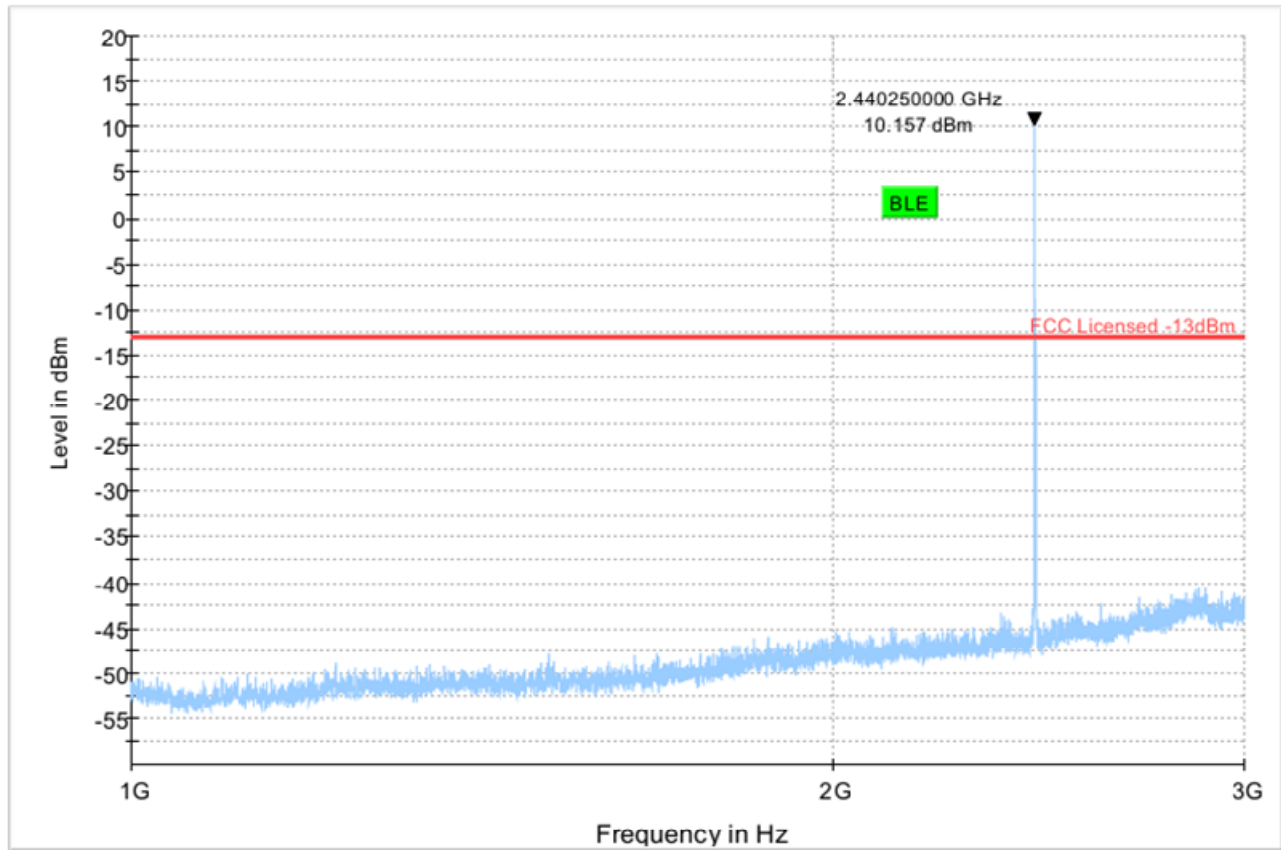
Channel: High



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 40 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



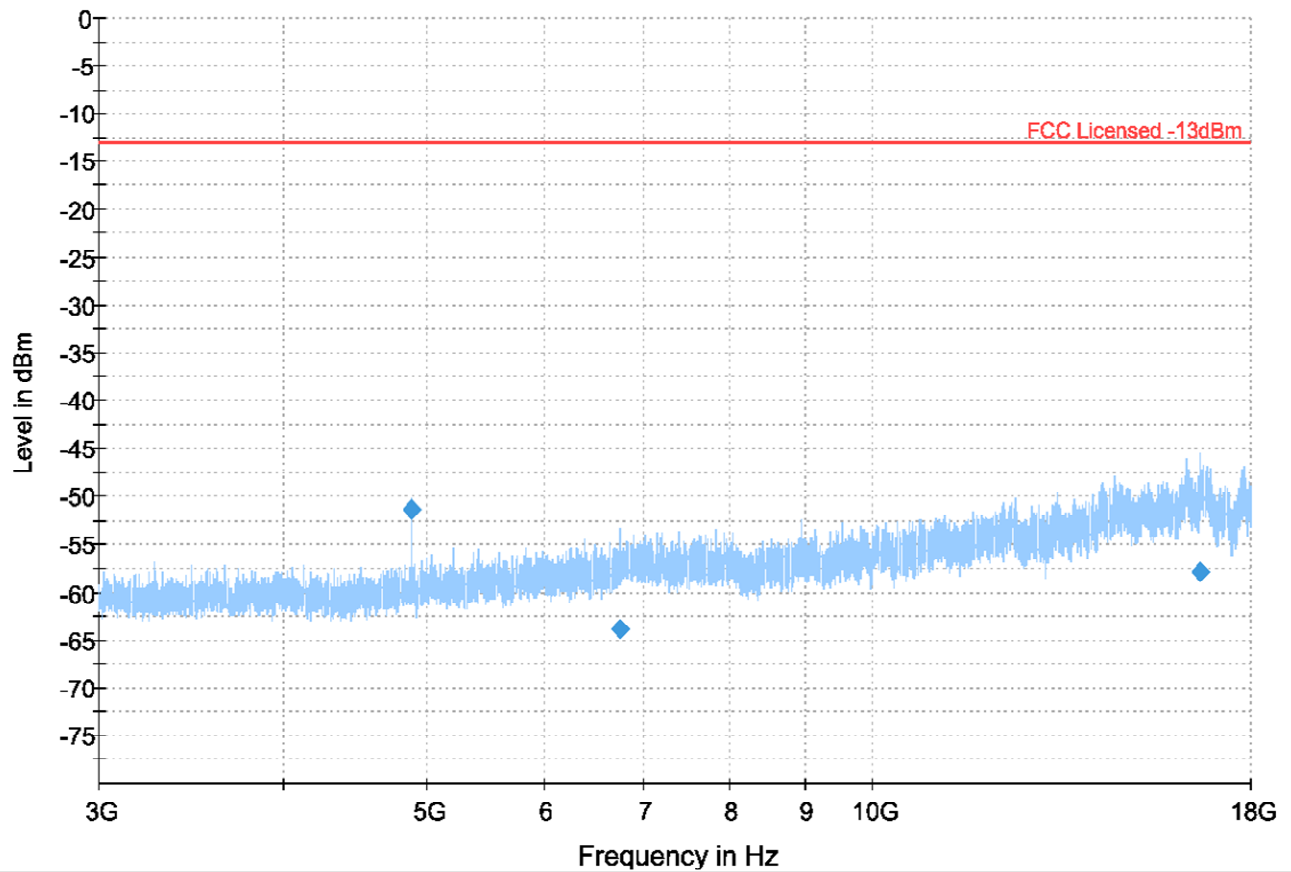
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 41 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.750	-51.33	-13.00	38.33	500.0	1000.000	255.0	H	260.0	-102.0
6749.000	-63.83	-13.00	50.83	500.0	1000.000	178.0	V	2.0	-98.5
16653.250	-57.80	-13.00	44.80	500.0	1000.000	176.0	H	201.0	-85.3



8 Test setup photos

Setup photos are included in supporting file name: "EMC_IBEAT_006_20001_FCC_ISSED_Setup_Photos.pdf"

9 Test Equipment And Ancillaries Used For Testing

Equipment Type	Manufacturer	Model	Serial #	Calibration Cycle	Last Calibration Date
ACTIVE LOOP ANTENNA	ETS LINDGREN	6507	00161344	3 YEARS	10/26/2017
BILOG ANTENNA	TESEO	CBL 6141B	41106	3 YEARS	11/1/2017
HORN ANTENNA	EMCO	3115	00035111	3 YEARS	4/17/2019
HORN ANTENNA	ETS LINDGREN	3117	00215984	3 YEARS	1/26/2018
HORN ANTENNA	ETS LINDGREN	3116C	00169535	3 YEARS	9/24/2017
ESW. EMI TEST RECEIVER	R&S	ESW44	101715	3 YEARS	1/6/2020
DIGITAL THERMOMETER	CONTROL COMPANY	36934-164	191871994	2 YEARS	10/1/2019

Note: Equipment used meets the measurement uncertainty requirements as required per applicable standards for 95% confidence levels.

Calibration due dates, unless defined specifically, falls on the last day of the month. Items indicated "N/A" for cal status either do not specifically require calibration or is internally characterized before use.

10 Revision History

Date	Report Name	Changes to report	Report prepared by
8/19/2020	EMC_IBEAT_006_20001_FCC_24_27	Initial Version	Issa Ghanma

<<< The End >>>