



FCC/ISED Test Report

For:

Motive Technologies, Inc.

Brand:

Motive Technologies, Inc.

Product Description:

Is a vehicle camera, designed to be powered by vehicle power (12 or 24 V DC). It is designed to be always on and recording video while the vehicle is on. It will upload small video files to Motive back-end servers via LTE on request.

FCC ID: 2AQM7-OC1

IC: 24516-OC1

Per:

Title 47 CFR: Part 22, Part 24, Part 27

RSS-130 Issue 2, RSS-132 Issue 4; RSS-133 Issue 6; RSS-139 Issue 4

REPORT #: EMC_KPTRK_040_23001_FCC_22_24_27_ISED

DATE: 6/28/2023



A2LA Accredited

IC recognized #
3462B

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

TABLE OF CONTENTS

1	ASSESSMENT	3
2	ADMINISTRATIVE DATA	4
2.1	IDENTIFICATION OF THE TESTING LABORATORY ISSUING THE EMC TEST REPORT	4
2.2	IDENTIFICATION OF THE CLIENT	4
2.3	IDENTIFICATION OF THE MANUFACTURER	4
3	EQUIPMENT UNDER TEST (EUT)	5
3.1	EUT SPECIFICATIONS	5
3.2	EUT SAMPLE DETAILS	6
3.3	ACCESSORY EQUIPMENT (AE) DETAILS	6
3.4	TEST SAMPLE CONFIGURATION	6
3.5	MODE OF OPERATION DETAILS	7
3.6	JUSTIFICATION FOR WORST CASE MODE OF OPERATION	7
4	SUBJECT OF INVESTIGATION	8
4.1	DATES OF TESTING:	8
4.2	MEASUREMENT UNCERTAINTY	8
4.3	ENVIRONMENTAL CONDITIONS DURING TESTING:	8
4.1	DECISION RULE:	8
5	MEASUREMENT PROCEDURES	9
5.1	RADIATED MEASUREMENT	9
5.2	SAMPLE CALCULATIONS FOR FIELD STRENGTH MEASUREMENTS	12
6	MEASUREMENT RESULTS SUMMARY	13
6.1	FCC 22, RSS-132:	13
6.2	FCC 24, RSS-133:	14
6.3	FCC 27, RSS-130, RSS-139:	15
7	TEST RESULT DATA	16
7.1	RF OUTPUT POWER VERIFICATION	16
7.2	RADIATED SPURIOUS EMISSIONS	19
8	TEST SETUP PHOTOS	97
9	TEST EQUIPMENT AND ANCILLARIES USED FOR TESTING	97
10	REVISION HISTORY	98

1 Assessment

The following device as further described in section 3 of this report was evaluated for radiated spurious emissions in simultaneous transmission of cellular and Bluetooth LE radio and WLAN according to criteria specified in the Code of Federal Regulations Title 47 CFR: Part 22, Part 24, Part 27 and Industry Canada Radio Standard Specifications RSS-130 Issue 2, RSS-132 Issue 4; RSS-133 Issue 6; RSS-139 Issue 4.

No deficiencies were ascertained.

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

Company	Description	Model #
Motive Technologies, Inc.	Is a vehicle camera, designed to be powered by vehicle power (12 or 24 V DC). It is designed to be always on and recording video while the vehicle is on. It will upload small video files to Motive back-end servers via LTE on request.	OC-1

Responsible for Testing Laboratory:

Stoecker, Arndt			
6/28/2023	Compliance	(Director of Regulatory Services)	
Date	Section	Name	Signature

Responsible for the Report:

Ghanma, Issa			
6/28/2023	Compliance	(Deputy Lab Manager)	
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:	Stoecker, Arndt
Responsible Project Leader:	Baskaran, Akanksha

2.2 Identification of the Client

Applicant's Name:	Motive Technologies, Inc.
Street Address:	55 Hawthorne St., Suite 400
City/Zip Code	San Francisco, CA 94105
Country	USA

2.3 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

Brand:	Motive Technologies, Inc.	
Model No:	OC-1	
Marketing name:	Omnica	
FCC ID:	2AQM7-OC1	
IC:	24516-OC1	
HW Version :	1	
SW Version :	0.7.2	
HVIN:	OC-1	
PMN:	Omnica	
Product Description:	Is a vehicle camera, designed to be powered by vehicle power (12 or 24 V DC). It is designed to be always on and recording video while the vehicle is on. It will upload small video files to Motive back-end servers via LTE on request.	
Transceiver Technology / Type(s) of Modulation / Power class:	Cellular radio Sierra Wireless RC7612 - FCC ID: N7NRC76C - IC: 2417C-RC76C - Technology/Modulation/Power class: - UMTS / FDD, QPSK, 16 QAM / 23 dBm $\pm$ 1dB Power class 3 - LTE / FDD / 23 dBm $\pm$ 1dB Power class 3	
Frequency Range:	Band	MHz
	UMTS, LTE 2	1850 ~ 1910
	UMTS, LTE 4	1710 ~ 1755
	UMTS, LTE 5	824 ~ 849
	LTE 12	699 ~ 716
	LTE 13	777 ~ 787
Power Supply/ Rated Operating Voltage Range:	12 or 24 V DC	
Operating Temperature Range:	T min: -40 °C / T Nom: 20 °C / T max: +60 °C	
Other Radios included in the device:	BT LE/WLAN 2.4 GHz and U-NII-3 Murata LBEE5XV1XZ	
Sample Revision:	☐ Production Unit;	☒ Pre-Production;
EUT Diameter	☒ < 60 cm;	☐ Other: _____

Antenna specifications as declared:	❖ LTE Main ○ Type: Monopole Antenna ○ Tx/Rx ○ Max Gain ▪ 704 – 894 MHz: 4.6 dBi ▪ 1710 – 2155 MHz: 5.3 dBi ❖ LTE Diversity ○ Type: Inverted-F Antenna ○ Rx only ○ Max Gain ▪ 1710 – 2170 MHz: -1.1 dBi ❖ BLE/WLAN 0 ○ Type: Inverted-F Antenna ○ Tx/Rx ○ Max Gain ▪ 2.4 -2.48 GHz: 1.7 dBi ▪ 5.0 – 6.0 GHz: 4.4 dBi ❖ BLE/WLAN 1 ○ Type: Inverted-F Antenna ○ Tx/Rx ○ Max Gain ▪ 2.4 -2.48 GHz: 0.8 dBi ▪ 5.0 – 6.0 GHz: 5.6 dBi
Note: The information of the EUT specifications in the table above is provided by the applicant.	

3.2 EUT Sample details

EUT #	S/N	IMEI	HW Version	SW Version	Notes/Comments
1	ACCS1BC332451	016292000100649	1	0.7.2	Radiated measurement

3.3 Accessory Equipment (AE) details

AE #	Type	Model	Manufacturer	S/N	Notes/Comments
N/A	-	-	-	-	-

3.4 Test Sample Configuration

EUT Set-up #	Combination of AE used for test set up	Comments
1	EUT#1	The internal antenna was connected.

3.5 Mode of Operation details

Mode of Operation	Description of Operating modes	Additional Information
Op. 1	Cellular	Cellular was tested on Mid channel at the maximum power.
Op. 2	Cellular & BT-LE & Wi-Fi Co-TX	Cellular was tested on Low, Mid and High Channels at the maximum power, in simultaneous transmission mode with BT-LE, and Wi-Fi. ❖ An Ethernet to USB adaptor provided by the client used to communicate with the device and send commands, that will not be available to the end-user to configure the Cellular, BLE and Wi-Fi radios to the worst case mode of operation as below: - Cellular: send AT commands to connect the to the base station simulator (R&S CMW500) - BT LE 2M: continuous modulated transmission at the maximum output power settings (+3 dBm), highest duty cycle, and fixed TX channel (2402 MHz). - Wi-Fi 802.11n-HT20 MIMO MCS8: continuous modulated transmission at the maximum output power settings (+14 dBm), highest duty cycle, and fixed TX channel (2442)

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 at the maximum power in simultaneous transmission mode with the highest output power of radios included in the device (BT-LE 2M and Wi-Fi 802.11n-HT20 MIMO MCS8), as it is described in section 3.5 of this document; 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**

This test report is to support a request for new FCC ID: 2AQM7-OC1, and IC: 24516-OC1

The pre-certified module to be integrated is Sierra Wireless RC7612, as described in Section 3, Radiated Spurious Emissions test was performed. Results have been checked to meet limits per Code of Federal Regulations Title 47 CFR: Part 22, Part 24, Part 27 and Industry Canada Radio Standard Specifications RSS-130 Issue 2, RSS-132 Issue 4; RSS-133 Issue 6; RSS-139 Issue 4, in simultaneous transmission mode of Cellular (Sierra Wireless RC7612 FCC/IC: N7NRC76C/2417C-RC76C) and BT-LE (Murata LBEE5XV1XZ24516-OC1) Radios.

4.1 **Dates of Testing:**

1/27/2023 – 6/13/2023

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=2.

Measurement System	EMC 1	EMC 2
Conducted emissions (mains port)	1.12 dB	0.46 dB
Radiated emissions (< 30 MHz)	3.66 dB	3.88 dB
(30 MHz – 1GHz)	3.17 dB	3.34 dB
(1 GHz – 3 GHz)	5.01 dB	4.45 dB
(>3 GHz)	4.0 dB	4.79 dB

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.

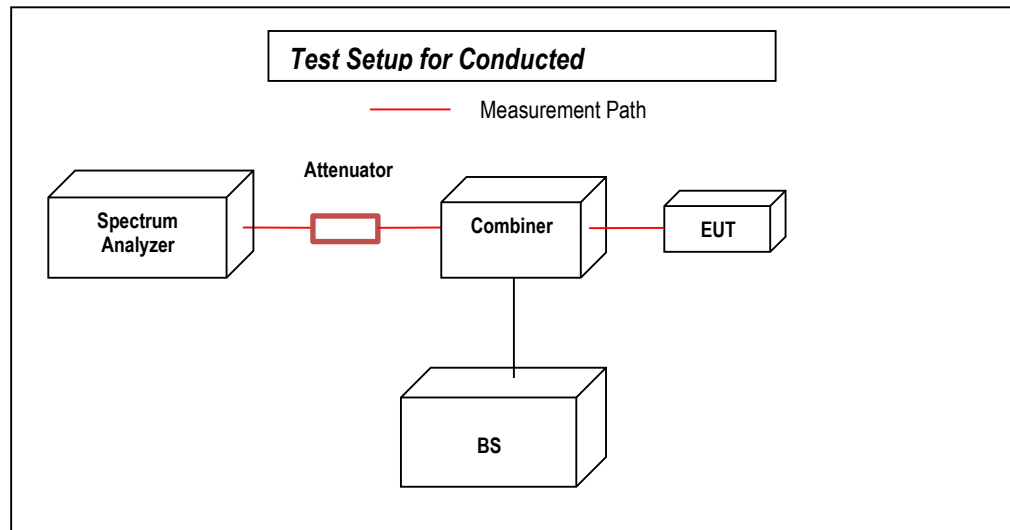
4.1 **Decision Rule:**

Cetecom advanced follows ILAC G8:2019 chapter 4.2.1 (Simple Acceptance Rule).

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3. The measurement uncertainty is mentioned in this test report, See chapter 9, but is not taken into account – neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong.

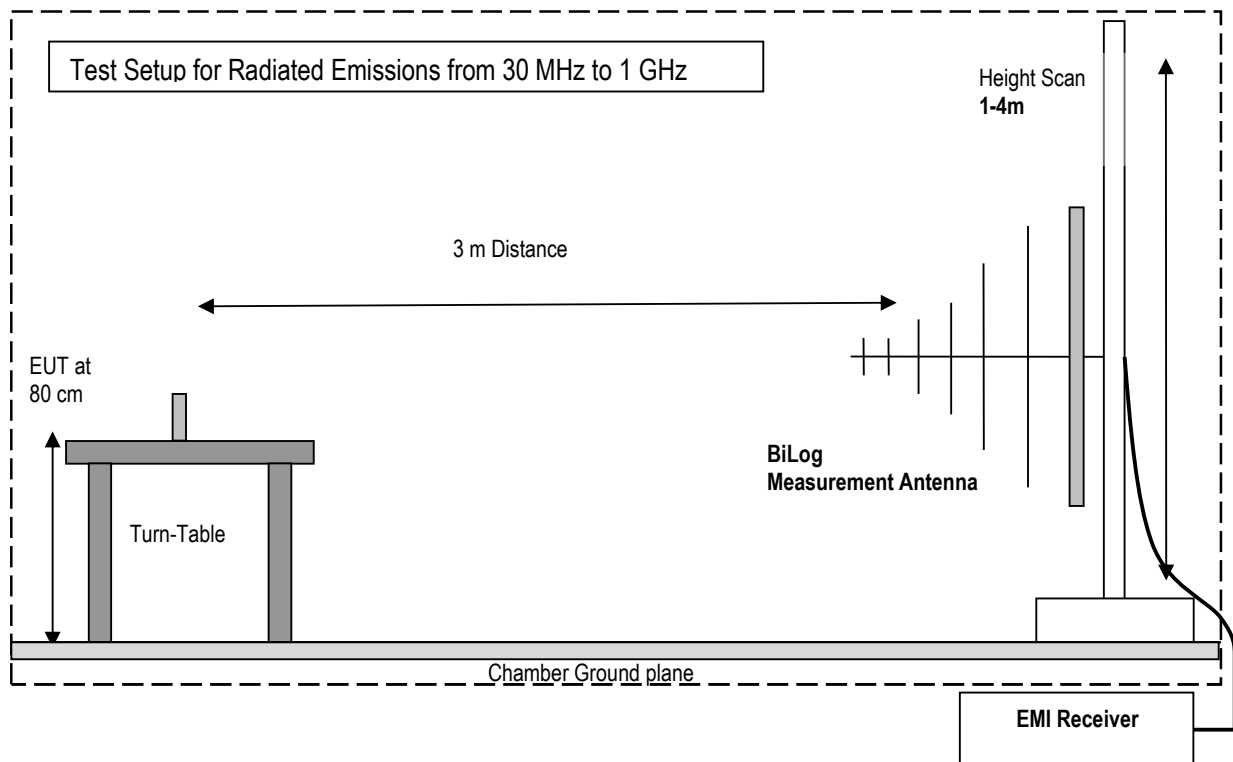
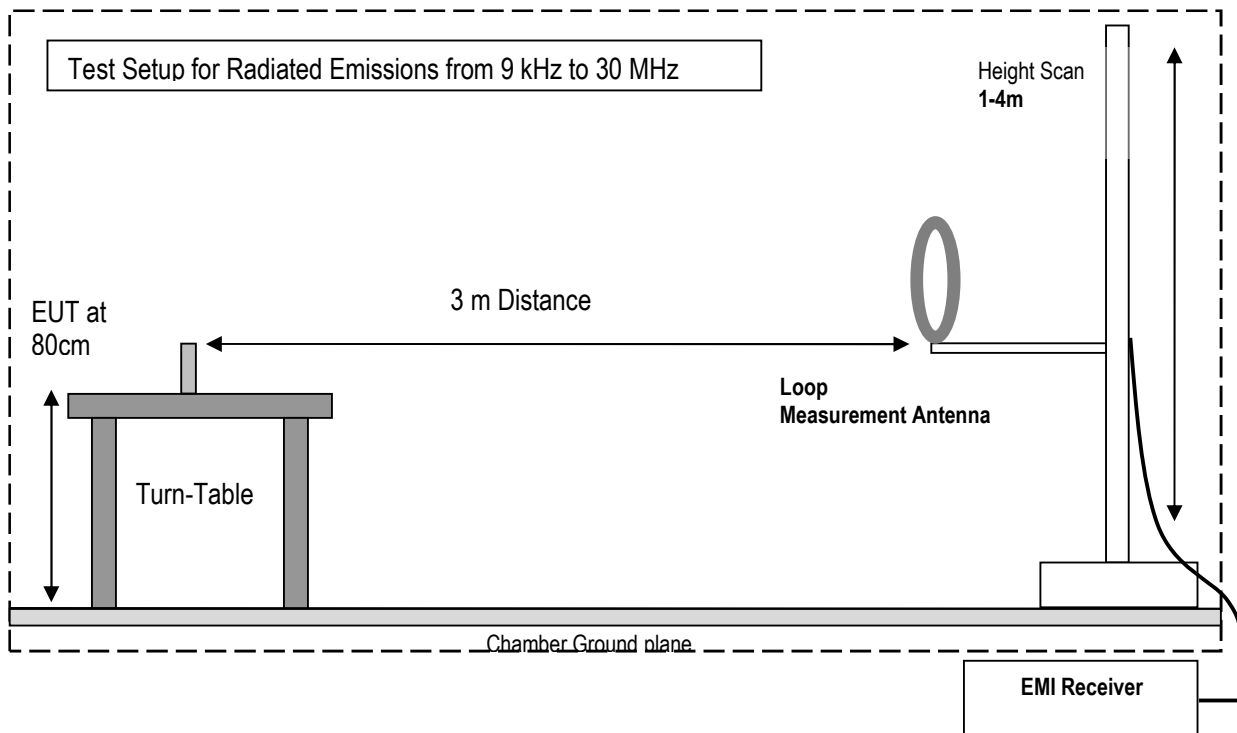
5 Measurement Procedures

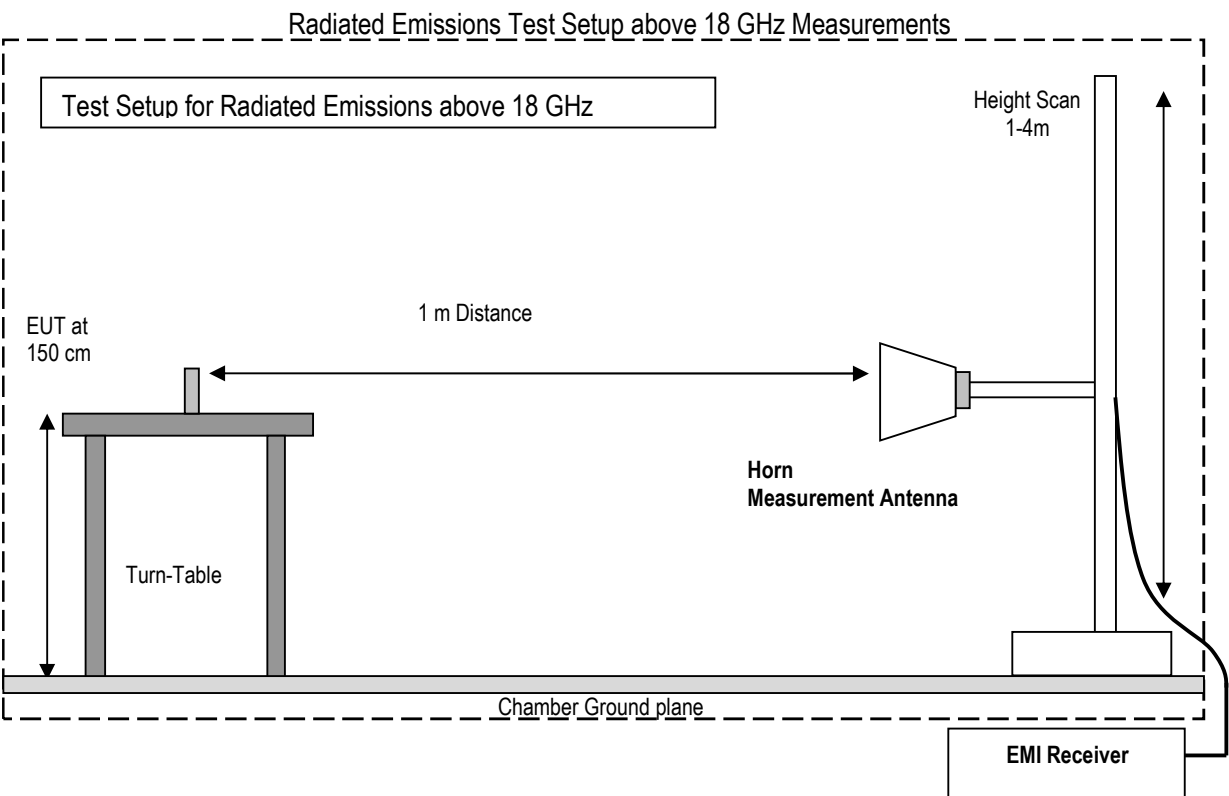
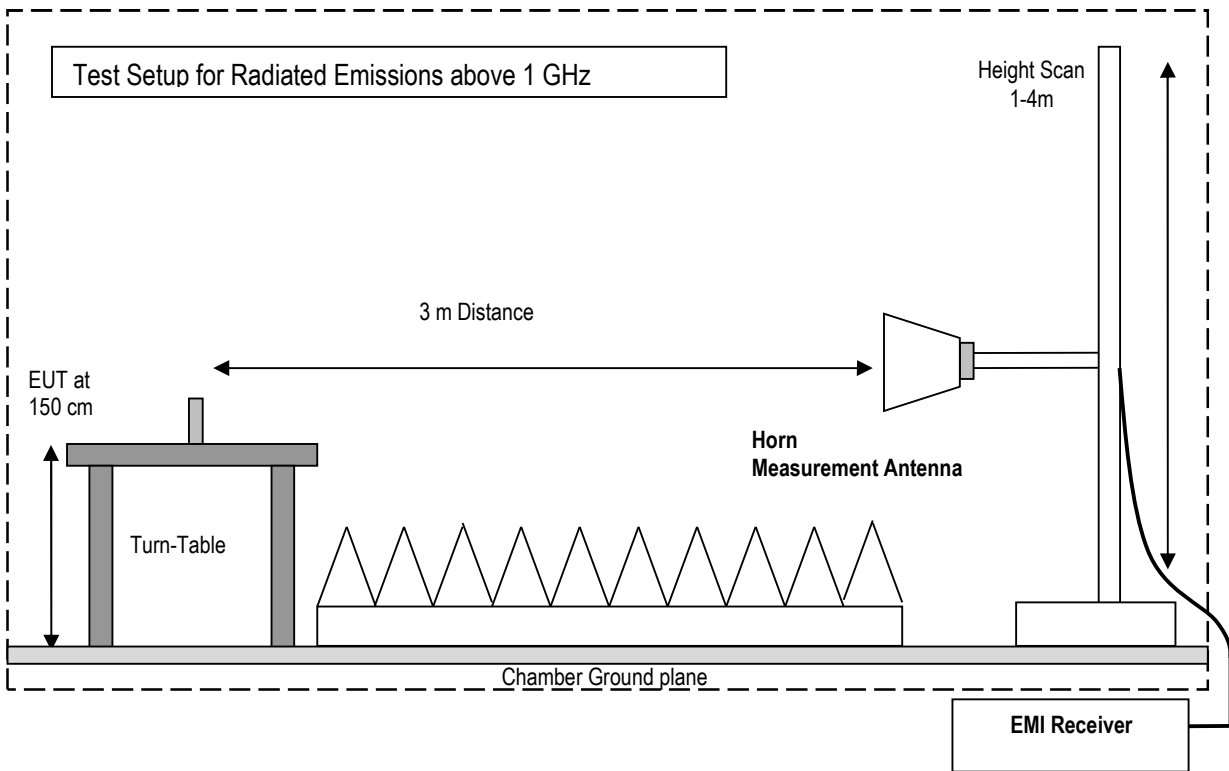
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03r01 – “Measurement Guidance for Certification of Licensed Digital Transmitters” and according to relevant parts of ANSI/TIA-603-D-2010 as detailed below.



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:

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

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 22, RSS-132:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §22.913 (a)	RF Output Power	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1055; §22.355	Frequency Stability	Extreme	-	☐	☐	☐	☒	Note 1 Note 2
§2.1049; §22.917	Occupied Bandwidth	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1051; §22.917	Band Edge Compliance	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1051; §22.917	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1053; §22.917(a); RSS-132 Issue 4-5.5;	Radiated Spurious Emissions	Nominal	Op.2 UMTS V, LTE 5	☒	☐	☐	☐	Complies

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

Note 2: Leveraged from Sierra Wireless RC7612 module certification FCC report(s) #: BTL-FCCP-1-2203T030, BTL-FCCP-2-2203T030, and BTL-FCCP-3-2203T030 and ISED report(s) #: BTL-ISED-1-2203T030, BTL-ISED-2-2203T030, BTL-ISED-3-2203T030, and BTL-ISED-4-2203T030 under FCC ID: N7NRC76C/ IC ID: 2417C-RC76C;

6.2 FCC 24, RSS-133:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §24.232 (a)	RF Output Power	Nominal	Op.1 UMTS II, LTE 2	☒	☐	☐	☐	Note 2 Note 3
§2.1055; §24.235	Frequency Stability	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1049; §24.238	Occupied Bandwidth	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1051; §24.238	Band Edge Compliance	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1051; §24.238	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1053; §24.238(a); RSS-133 Issue 6-6.5.1;	Radiated Spurious Emissions	Nominal	Op.2 UMTS II, LTE 2	☒	☐	☐	☐	Complies

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

Note 2: Leveraged from Sierra Wireless RC7612 module certification FCC report(s) #: BTL-FCCP-1-2203T030, BTL-FCCP-2-2203T030, and BTL-FCCP-3-2203T030 and ISED report(s) #: BTL-ISED-1-2203T030, BTL-ISED-2-2203T030, BTL-ISED-3-2203T030, and BTL-ISED-4-2203T030 under FCC ID: N7NRC76C/ IC ID: 2417C-RC76C;

Note 3: Limited power verification measurement (Radiated) was performed before the radiated spurious emission testing.

6.3 FCC 27, RSS-130, RSS-139:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §27.50 (d)	RF Output Power	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1055; §27.54	Frequency Stability	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1049; §27.53	Occupied Bandwidth	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1051; §27.53	Band Edge Compliance	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1051; §27.53	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	☒	Note 1 Note 2
§2.1053; §27.53(h); §27.53(g); §27.53(c); RSS-130 Issue 2-4.7; RSS-139 Issue 4-6.6;	Radiated Spurious Emissions	Nominal	Op.2 LTE 4, 12, 13	☒	☐	☐	☐	Complies

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

Note 2: Leveraged from Sierra Wireless RC7612 module certification FCC report(s) #: BTL-FCCP-1-2203T030, BTL-FCCP-2-2203T030, and BTL-FCCP-3-2203T030 and ISED report(s) #: BTL-ISED-1-2203T030, BTL-ISED-2-2203T030, BTL-ISED-3-2203T030, and BTL-ISED-4-2203T030 under FCC ID: N7NRC76C/ IC ID: 2417C-RC76C;

7 **Test Result Data**

7.1 **RF output power verification**

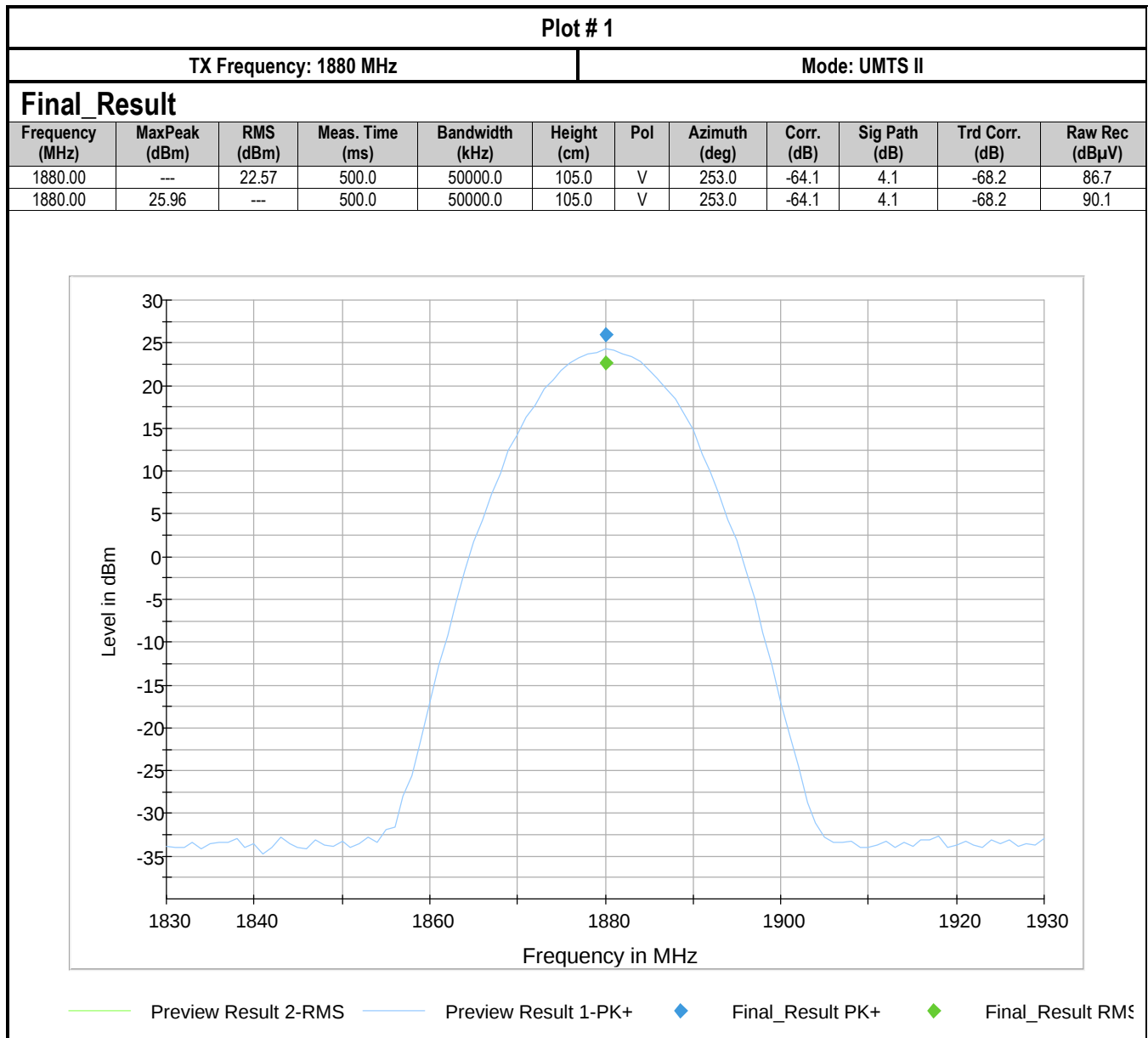
Spectrum Analyzer settings:

- $RBW \geq DTS$ bandwidth.
- $VBW \geq 3 \times RBW$
- $Span \geq [3 \times RBW]$
- Sweep = Auto couple
- Detector function = Peak
- Trace = Max-hold
- Use peak marker function to determine the peak amplitude level.

7.1.1 **Test conditions and setup:**

Ambient Temperature	EUT Set-Up #	EUT operating mode	Power Input	Antenna Gain
23.0°C	1	Op.2	12V DC	1710-2155 MHz: 5.3 dBi

7.1.2 Measurement results:



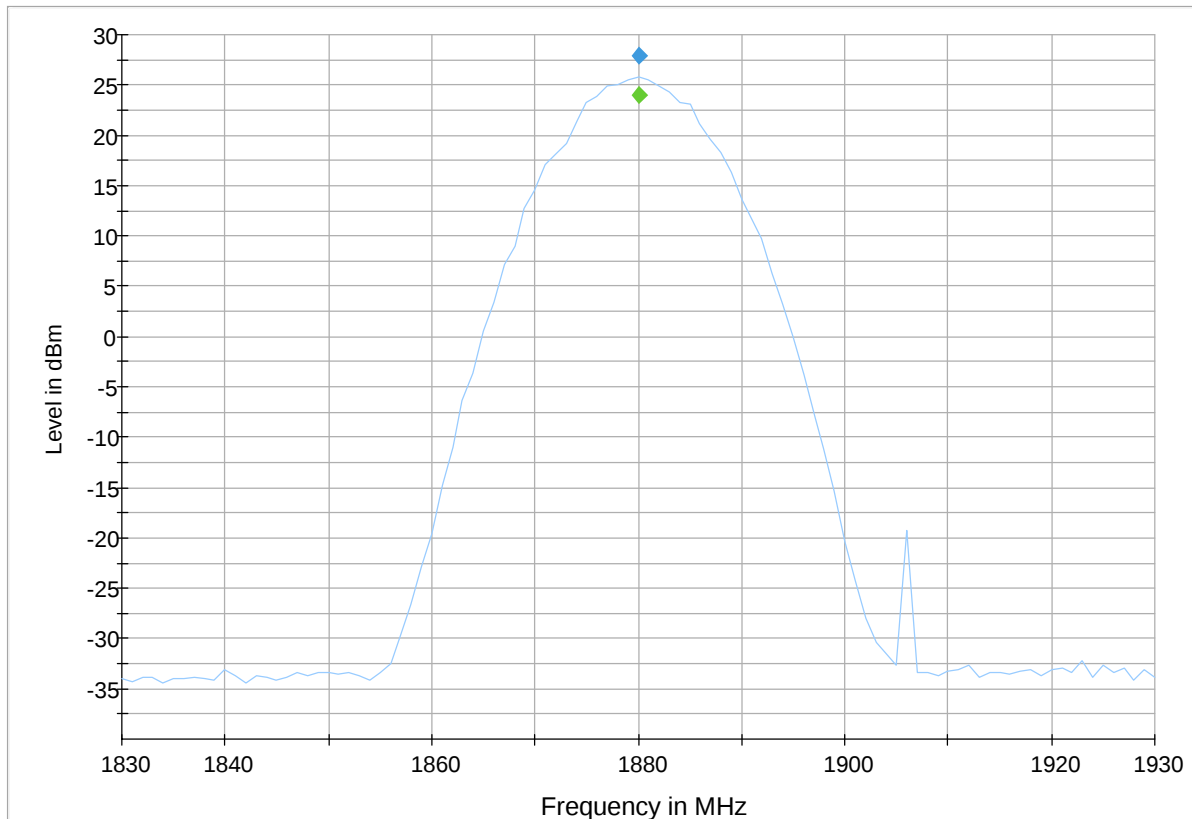
Plot # 2

TX Frequency: 1880 MHz

Mode: LTE 2

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Sig Path (dB)	Trd Corr. (dB)	Raw Rec (dBμV)
1880.00	---	23.97	500.0	50000.0	105.0	V	256.0	-64.1	4.1	-68.2	88.1
1880.00	27.92	---	500.0	50000.0	105.0	V	256.0	-64.1	4.1	-68.2	92.0



— Preview Result 2-RMS
 — Preview Result 1-PK+
 ◆ Final_Result PK+
 ◆ Final_Result RMS

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

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:

FCC Part 22.917 (a); 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.

RSS-130 Part 4.7; RSS-132 Part 5.5; 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	EUT Set-Up #	EUT operating mode	Power Input
23.0°C	1	Op.2	12V DC

7.2.4 Measurement result:

Plot #	Channel	EUT operating mode	Scan Frequency	Lowest margin emission [dBm]	Limit [dBm]	Result
1 – 3	Low	UMTS Band II	30 MHz – 18 GHz	-42.13	-13	Pass
4 – 8	Mid		9 kHz – 22 GHz	-21.08	-13	Pass
9 – 11	High		30 MHz – 18 GHz	-45.02	-13	Pass
12 – 14	Low	UMTS Band IV	30 MHz – 18 GHz	-43.54	-13	Pass
15 – 18	Mid		9 kHz – 18 GHz	-26.91	-13	Pass
19 – 21	High		30 MHz – 18 GHz	-43.23	-13	Pass
22 – 24	Low	UMTS Band V	30 MHz – 9 GHz	-42.83	-13	Pass
25 – 28	Mid		9 kHz – 9 GHz	-43.99	-13	Pass
29 – 31	High		30 MHz – 9 GHz	-42.06	-13	Pass
32 – 34	Low	LTE Band 2	30 MHz – 18 GHz	-20.84	-13	Pass
35 – 39	Mid		9 kHz – 22 GHz	-26.45	-13	Pass
40 – 42	High		30 MHz – 18 GHz	-25.89	-13	Pass
43 – 45	Low	LTE Band 4	30 MHz – 18 GHz	-43.72	-13	Pass
46 – 49	Mid		9 kHz – 18 GHz	-26.47	-13	Pass
50 – 52	High		30 MHz – 18 GHz	-43.13	-13	Pass
53 – 55	Low	LTE Band 5	30 MHz – 9 GHz	-41.59	-13	Pass
56 – 59	Mid		9 kHz – 9 GHz	-45.99	-13	Pass
60 – 62	High		30 MHz – 9 GHz	-41.93	-13	Pass
63 – 65	Low	LTE Band 12	30 MHz – 18 GHz	-43.16	-13	Pass
66 – 69	Mid		9 kHz – 18 GHz	-40.82	-13	Pass
70 – 72	High		30 MHz – 18 GHz	-43.37	-13	Pass
76 – 79	Mid	LTE Band 13	9 kHz – 18 GHz	-37.23	-13	Pass

7.2.5 Measurement plots:

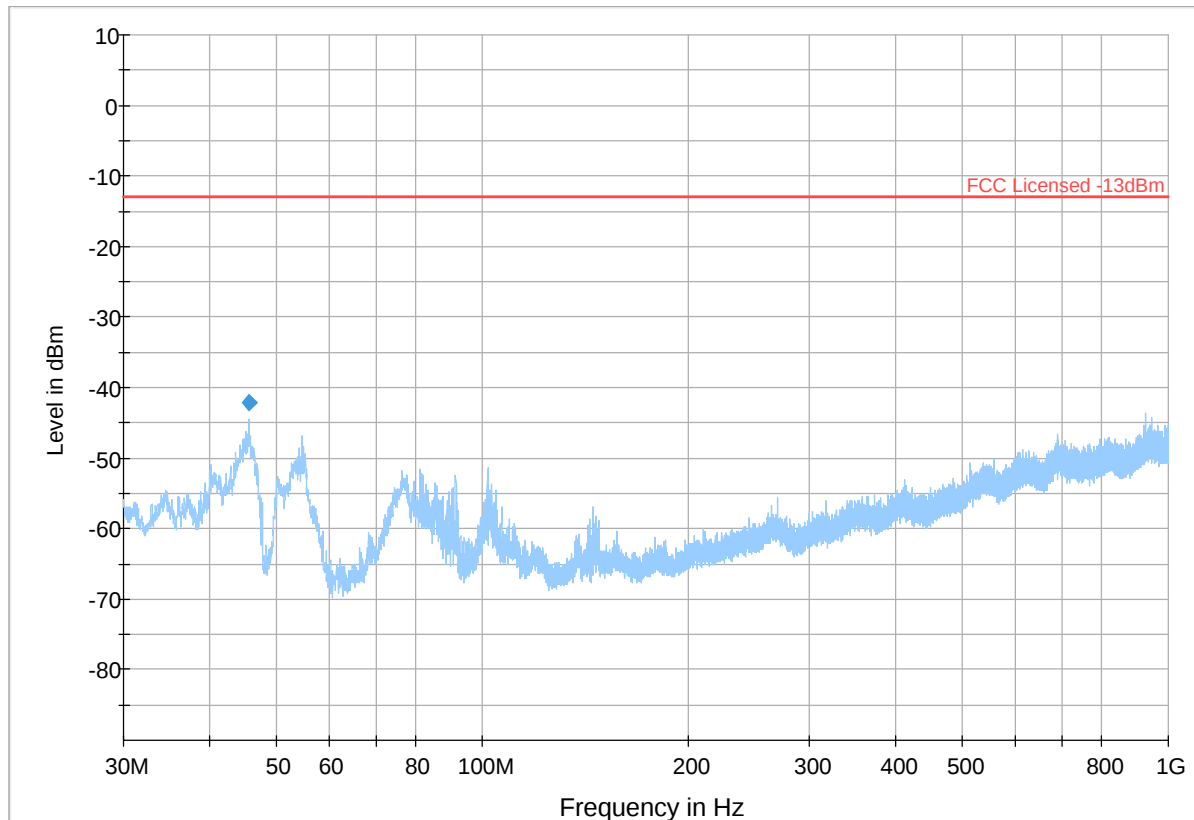
UMTS II

Plot # 3 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

Final_Result

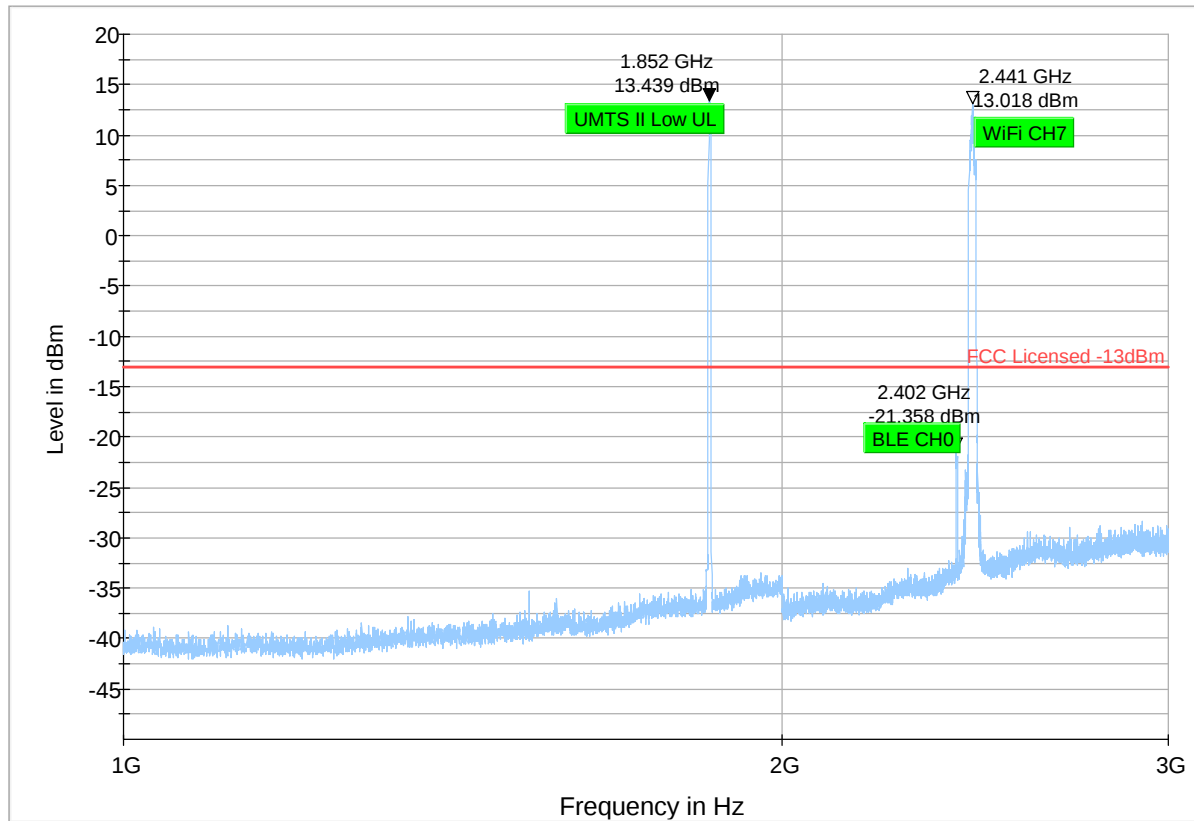
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.714	-42.134	---	-13.00	29.13	500.0	100.000	150.0	V	98.0	-81.0



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

Plot # 4 Radiated Emissions: 1 GHz - 3 GHz

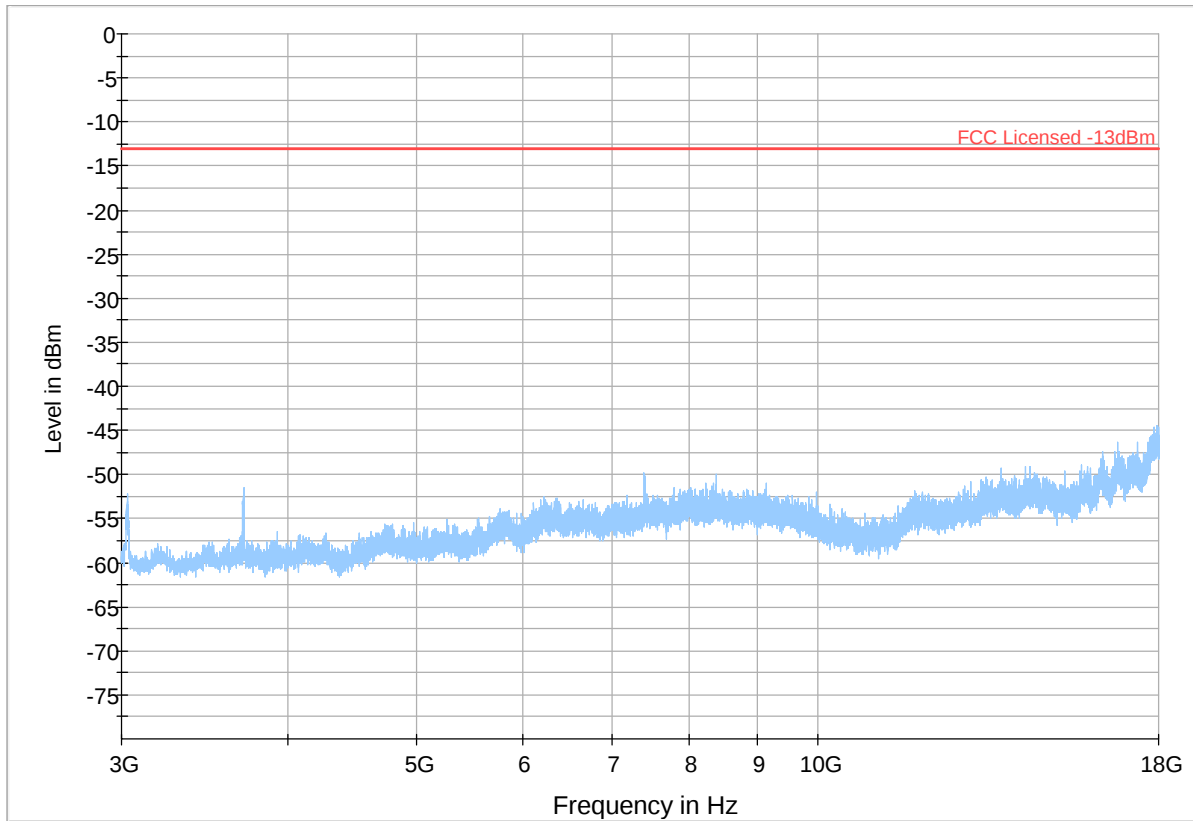
Channel: Low



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

Plot # 5 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low



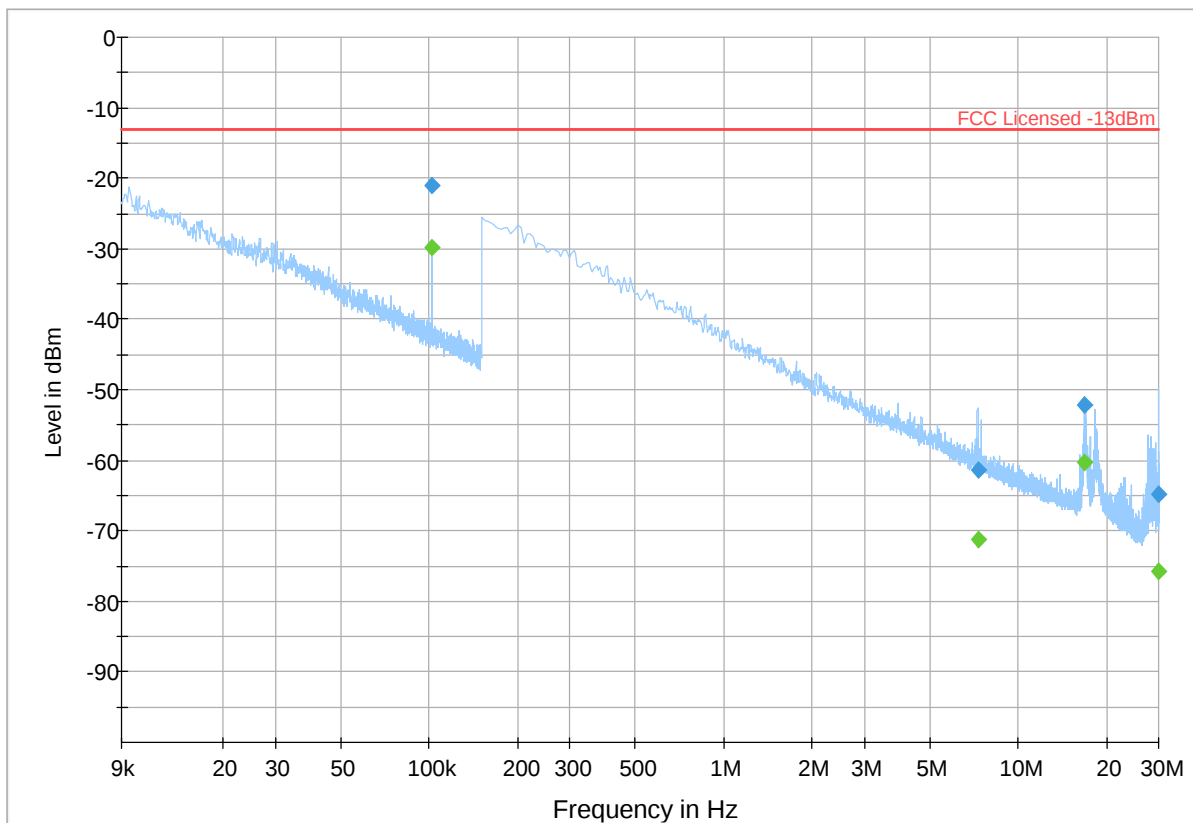
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 6 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.10	---	-29.89	---	---	500.0	9.0	100.0	V	130.0	-76.9
0.10	-21.08	---	-13.00	8.08	500.0	9.0	100.0	V	130.0	-76.9
7.29	---	-71.28	---	---	500.0	9.0	100.0	V	336.0	-77.7
7.29	-61.41	---	-13.00	48.41	500.0	9.0	100.0	V	336.0	-77.7
16.84	---	-60.37	---	---	500.0	9.0	100.0	V	-82.0	-78.6
16.84	-52.09	---	-13.00	39.09	500.0	9.0	100.0	V	-82.0	-78.6
30.00	---	-75.70	---	---	500.0	9.0	100.0	H	4.0	-79.3
30.00	-64.78	---	-13.00	51.78	500.0	9.0	100.0	H	4.0	-79.3



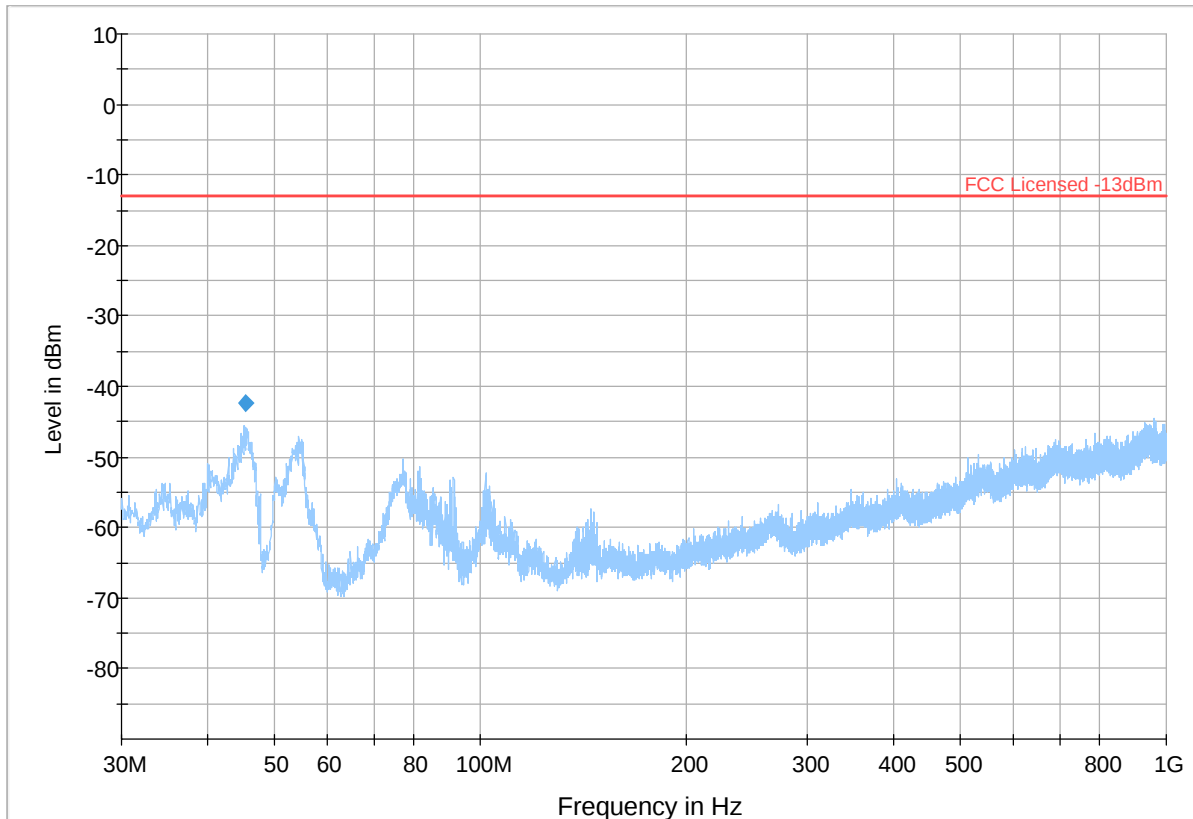
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 7 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

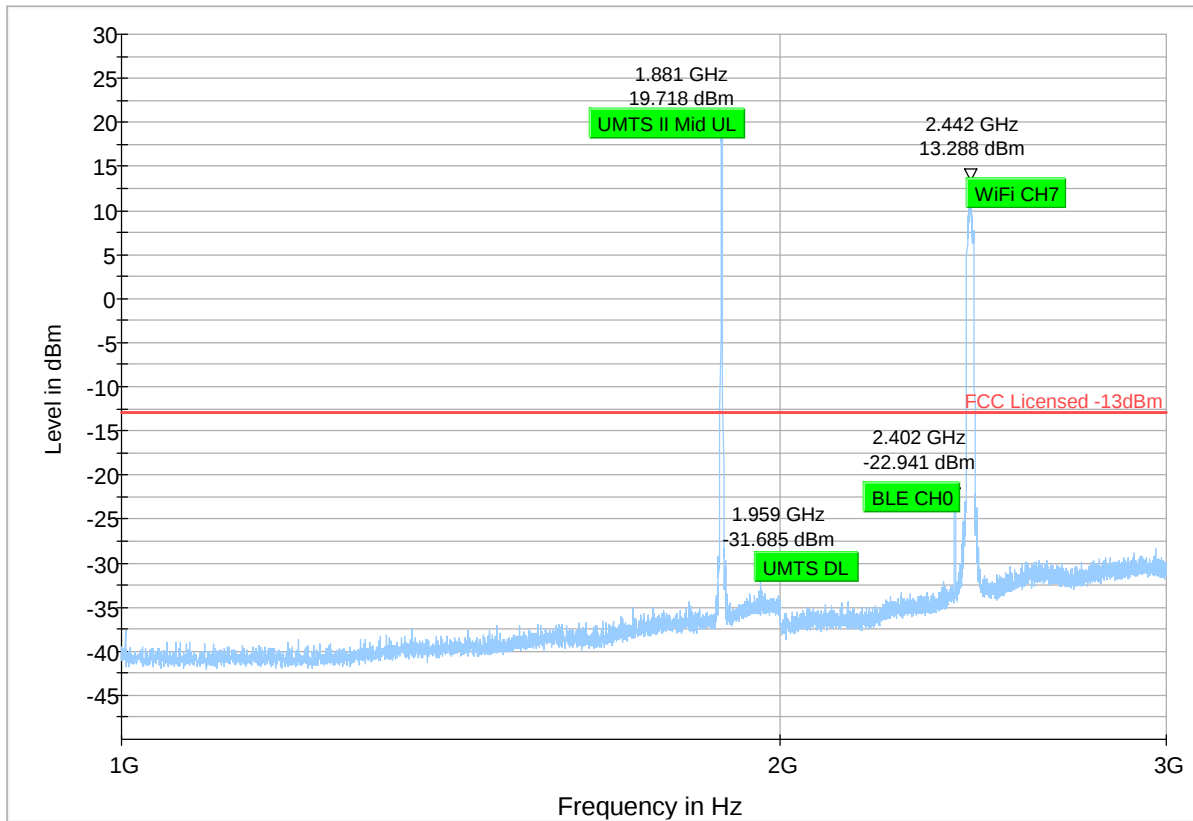
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.552	-42.422	---	-13.00	29.42	500.0	100.000	149.0	V	45.0	-80.9



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

Plot # 8 Radiated Emissions: 1 GHz - 3 GHz

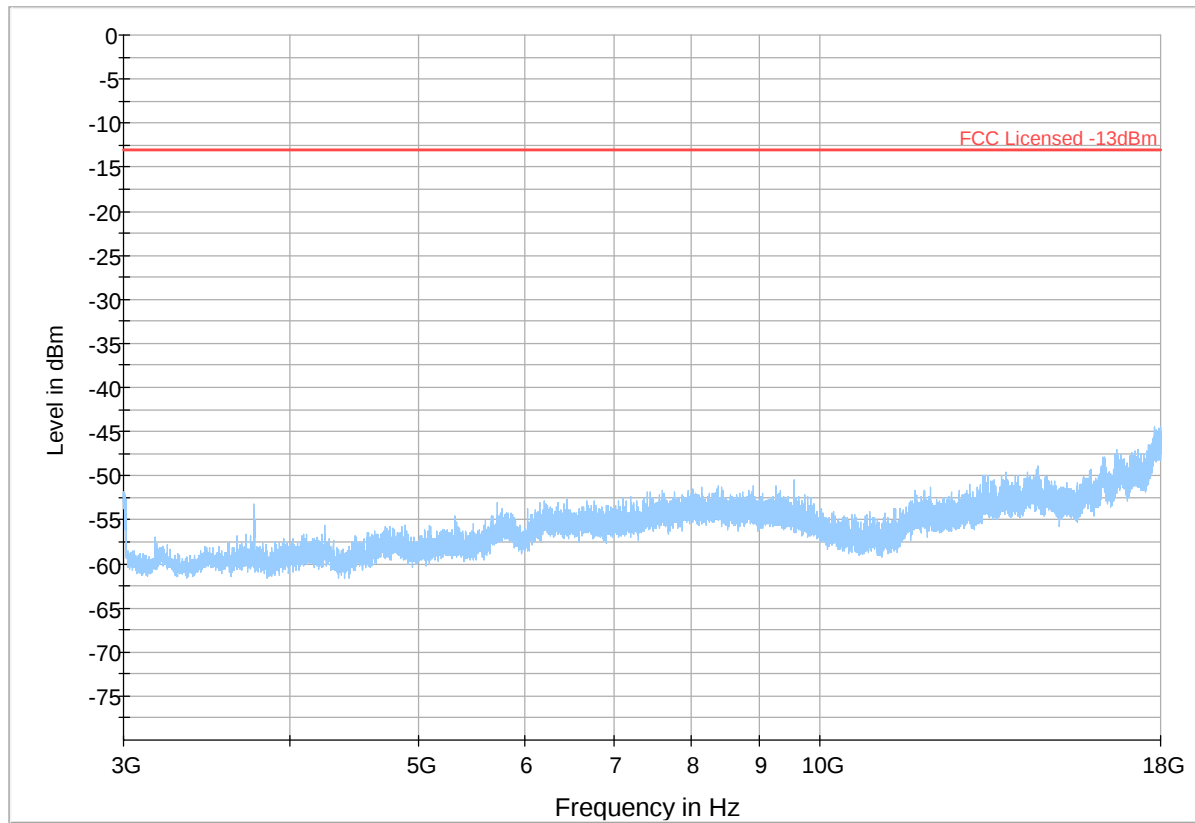
Channel: Mid



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

Plot # 9 Radiated Emissions: 3 GHz – 18 GHz

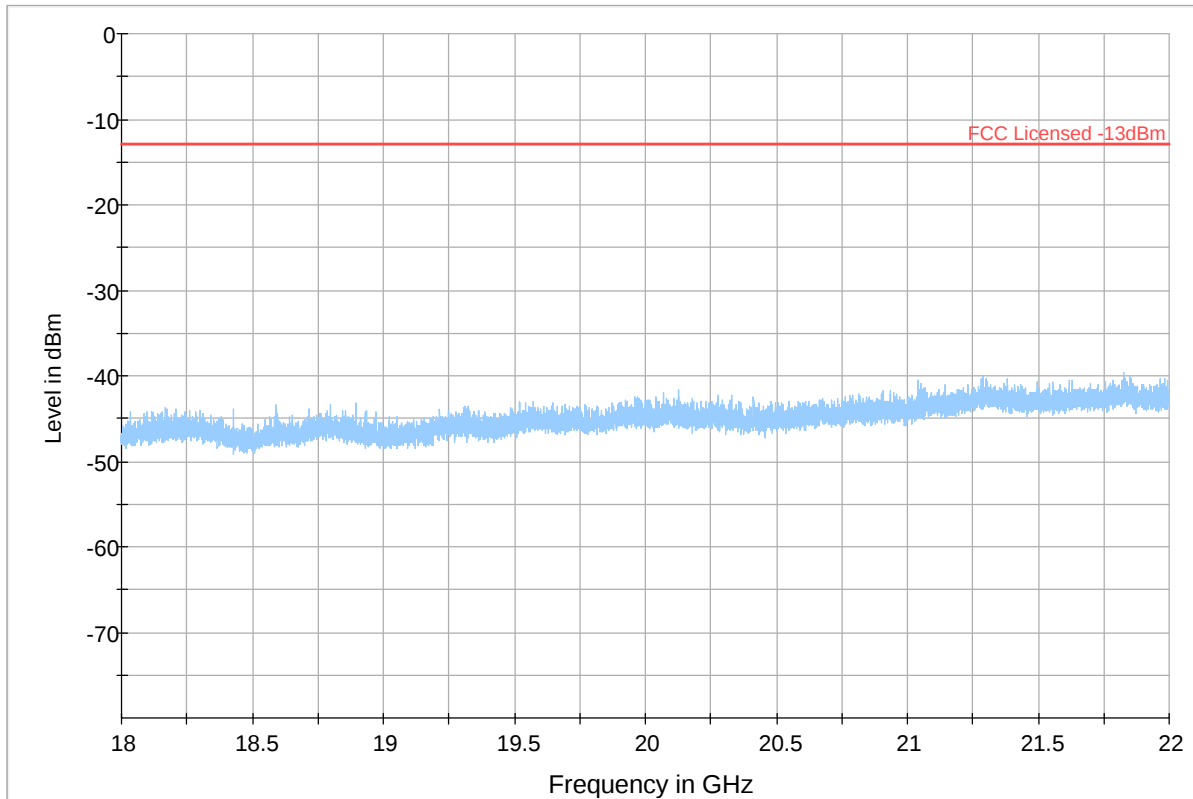
Channel: Mid



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

Plot # 10 Radiated Emissions: 18 GHz – 22 GHz

Channel: Mid



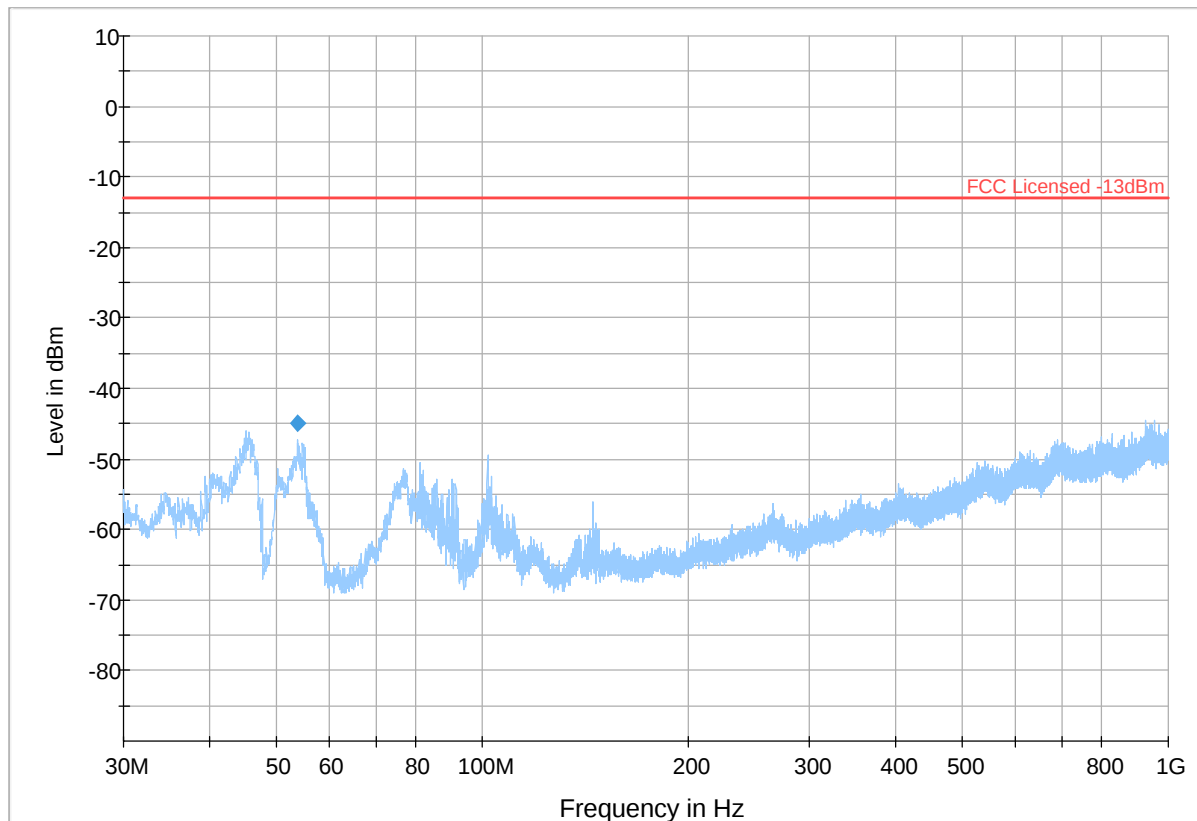
Preview Result 1-PK+ * Critical_Freqs PK+ — FCC Licensed -13dBm
Final_Result PK+ ♦ Final_Result RMS

Plot # 11 Radiated Emissions: 30 MHz – 1GHz

Channel: High

Final Result

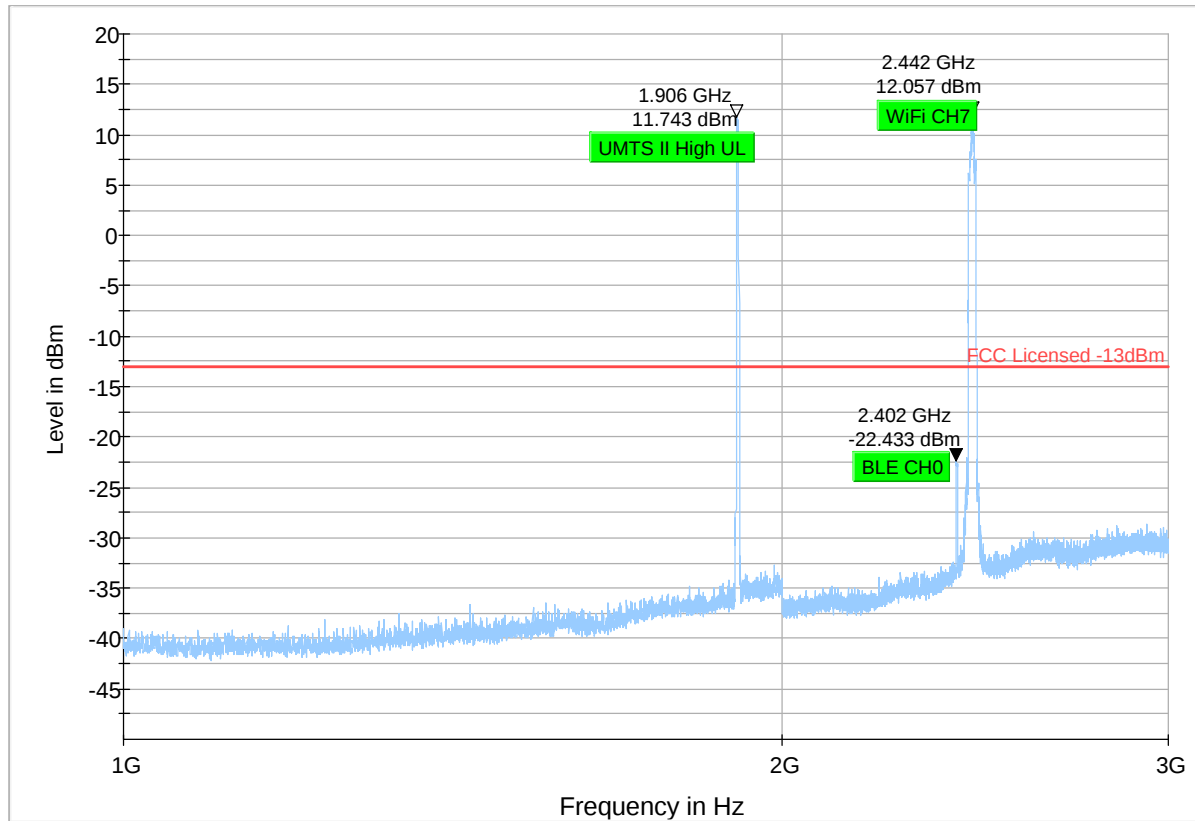
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
53.830	-45.029	---	-13.00	32.03	500.0	100.000	150.0	V	229.0	-81.2



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

Plot # 12 Radiated Emissions: 1 GHz - 3 GHz

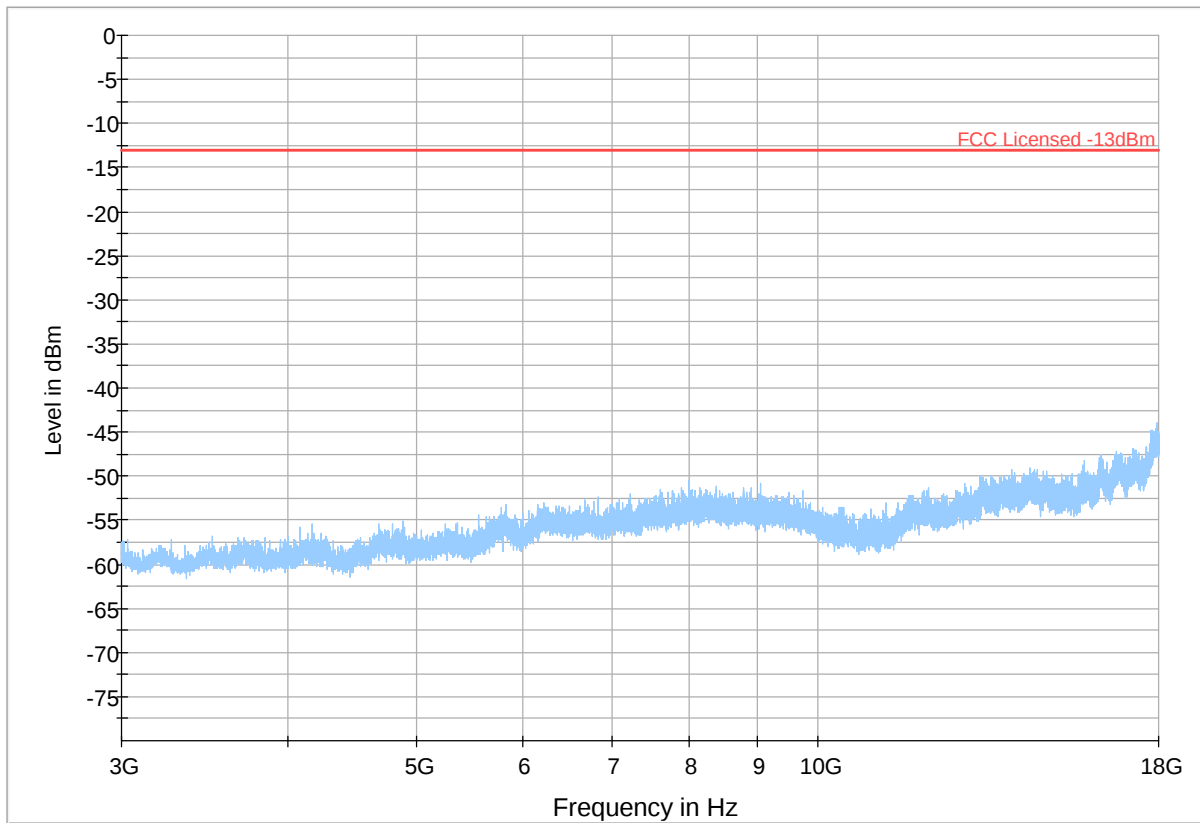
Channel: High



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

Plot # 13 Radiated Emissions: 3 GHz – 18 GHz

Channel: High



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

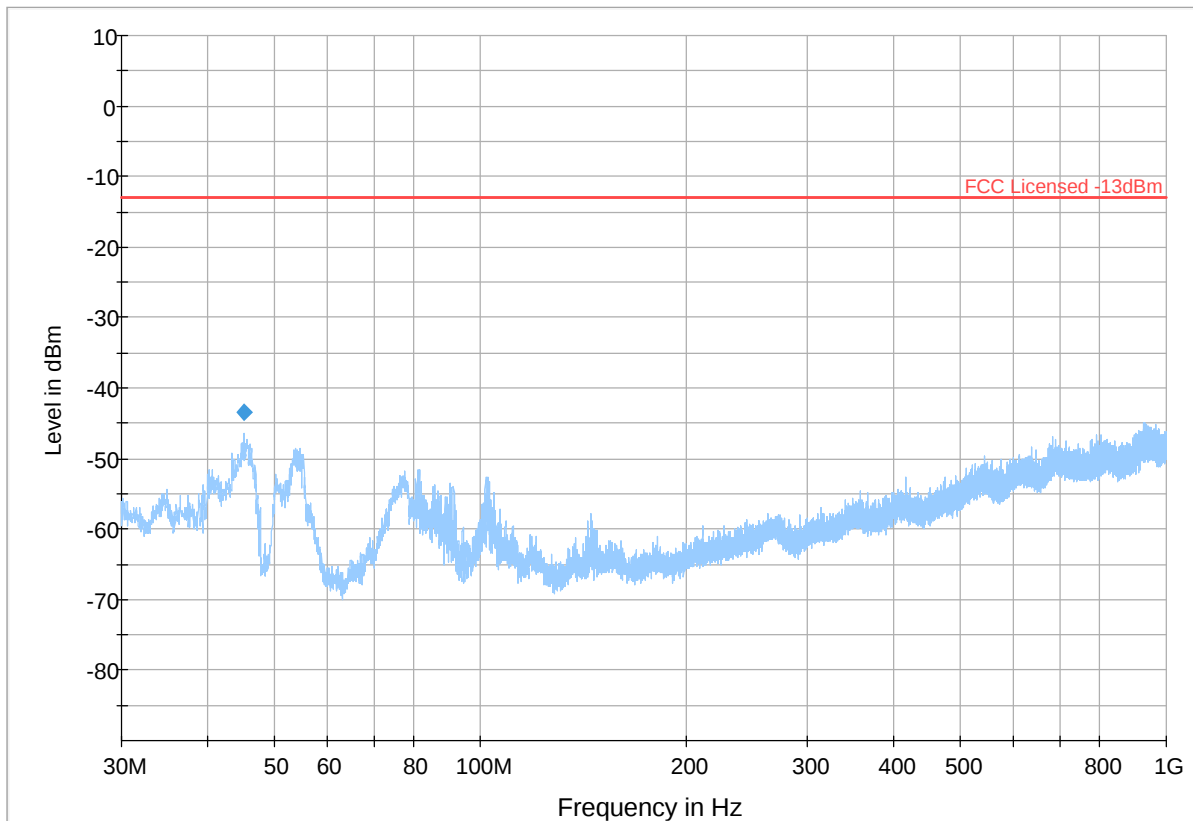
UMTS IV

Plot # 14 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.229	-43.540	---	-13.00	30.54	500.0	100.000	163.0	V	146.0	-80.8



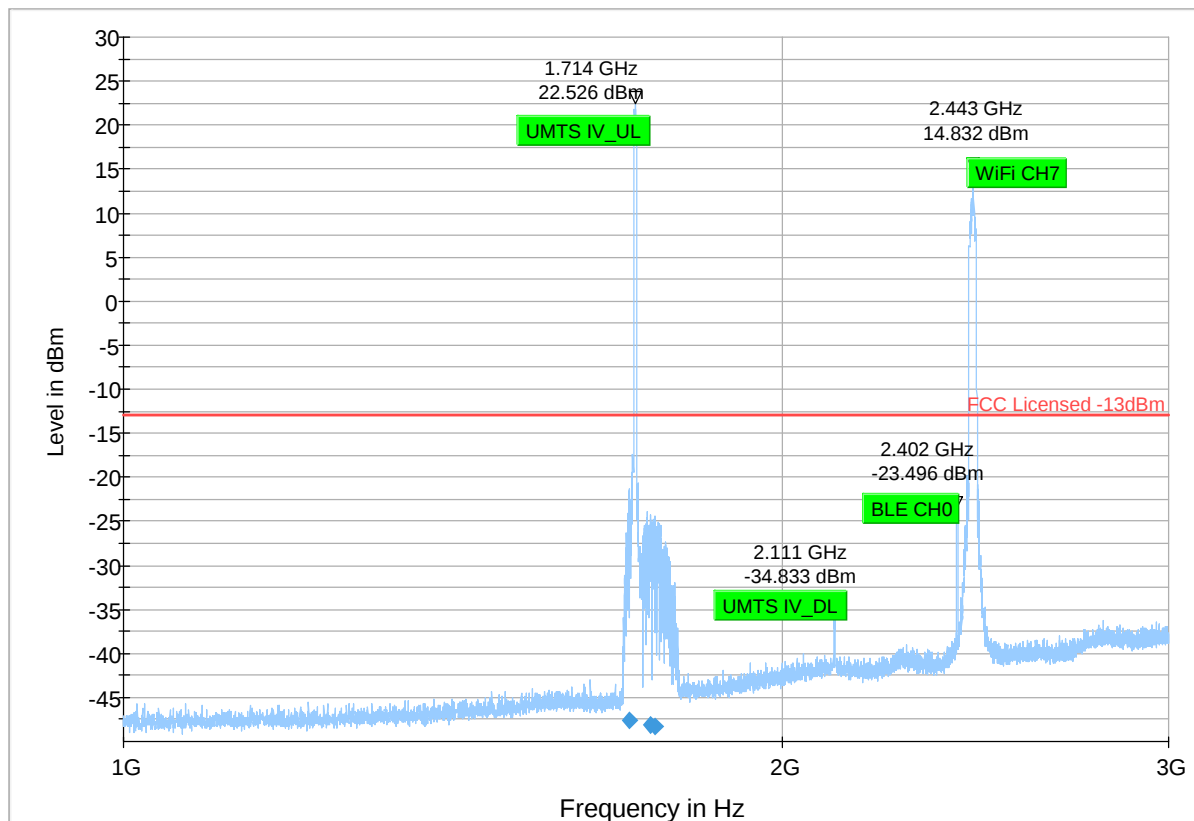
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 15 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

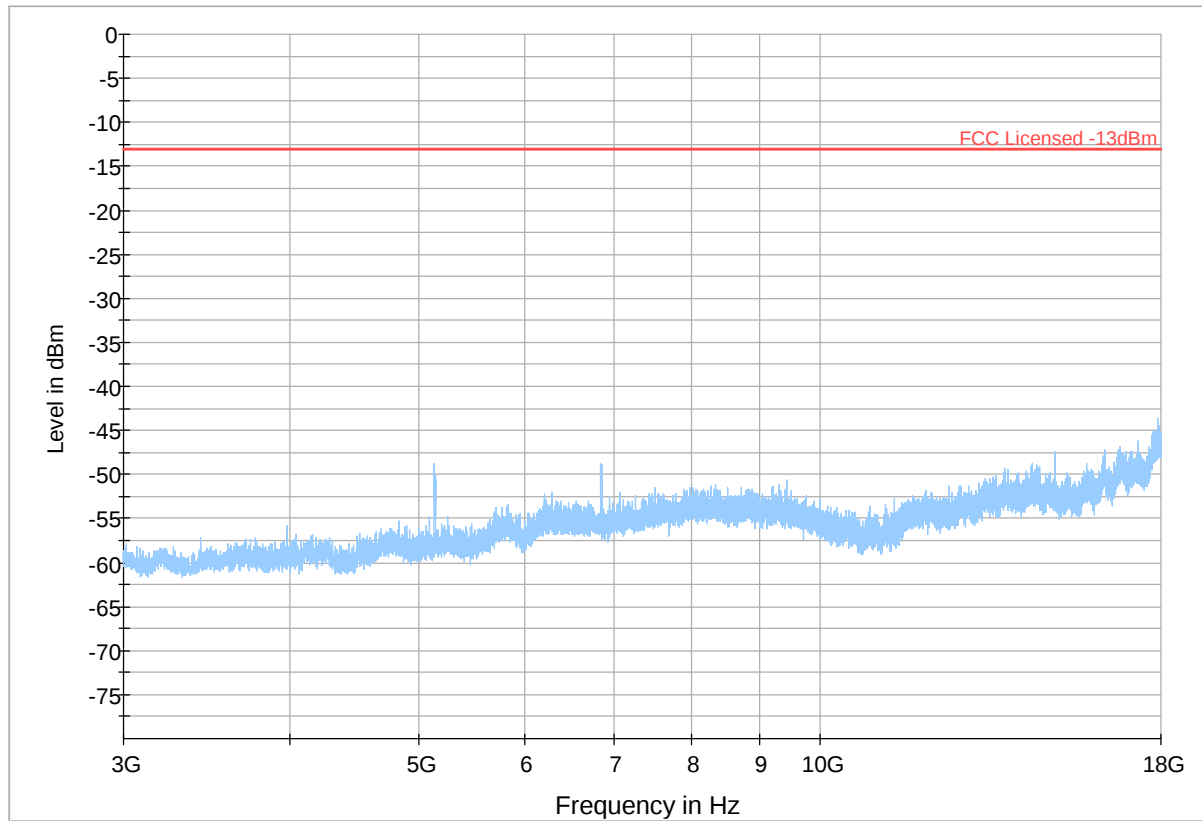
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1701.250	-47.550	-13.00	34.55	500.0	1000.000	315.0	H	62.0	-63.1
1741.250	-48.099	-13.00	35.10	500.0	1000.000	219.0	H	62.0	-62.6
1749.000	-48.298	-13.00	35.30	500.0	1000.000	225.0	H	56.0	-62.5



Plot # 16 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low



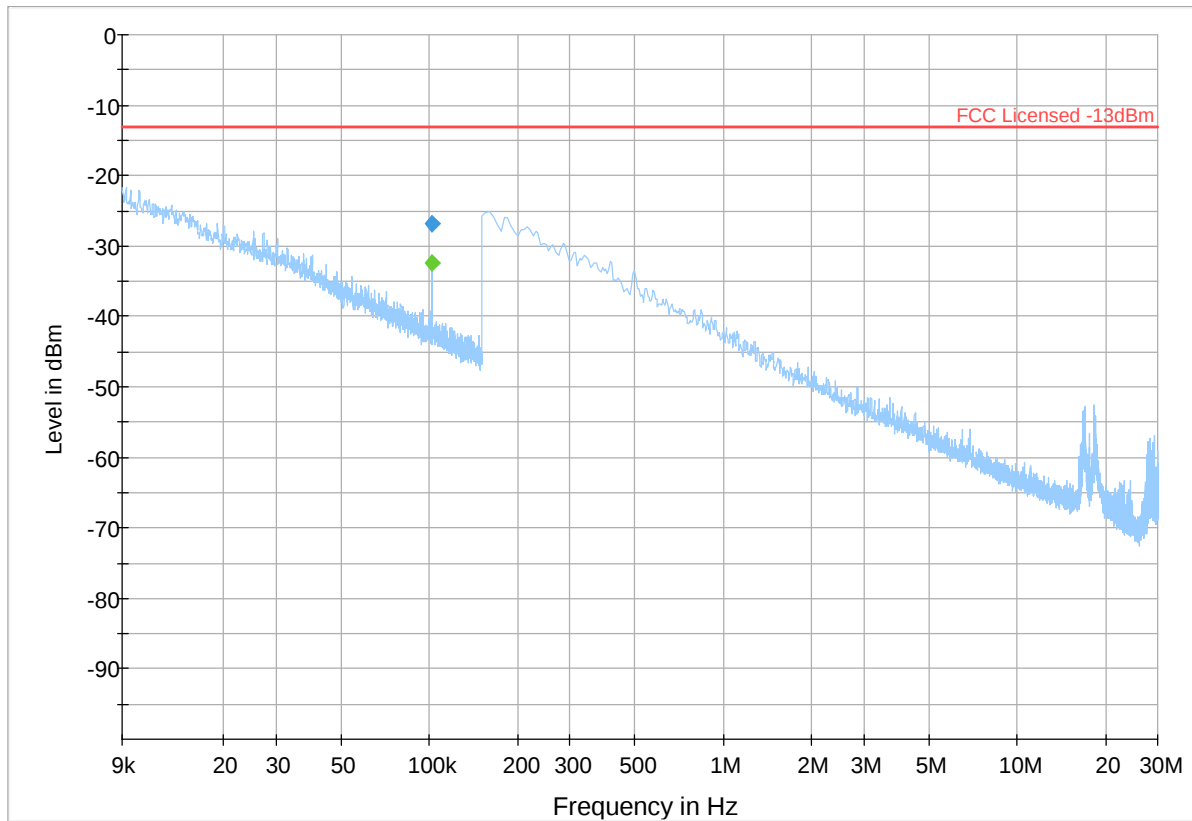
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 17 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

Final Result

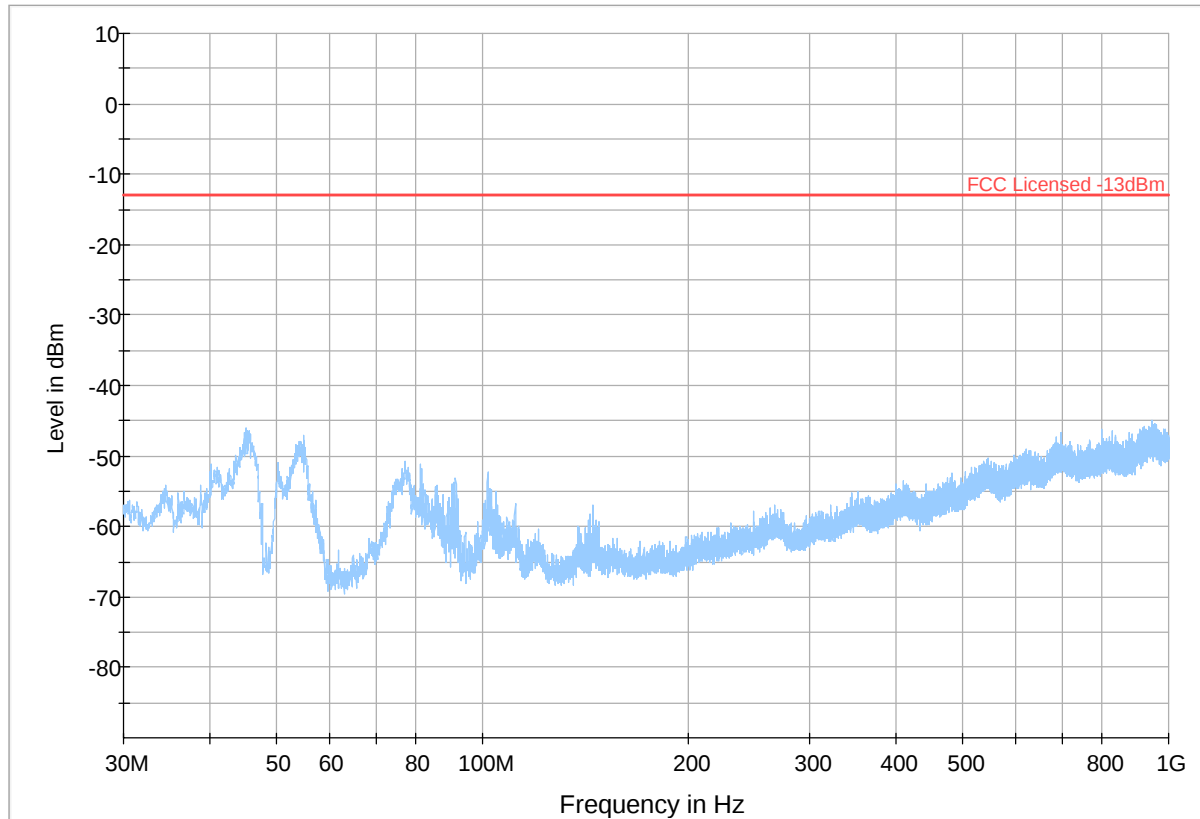
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.10	---	-32.34	---	---	500.0	1.0	100.0	V	173.0	-76.9
0.10	-26.91	---	-13.00	13.91	500.0	1.0	100.0	V	173.0	-76.9



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

Plot # 18 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



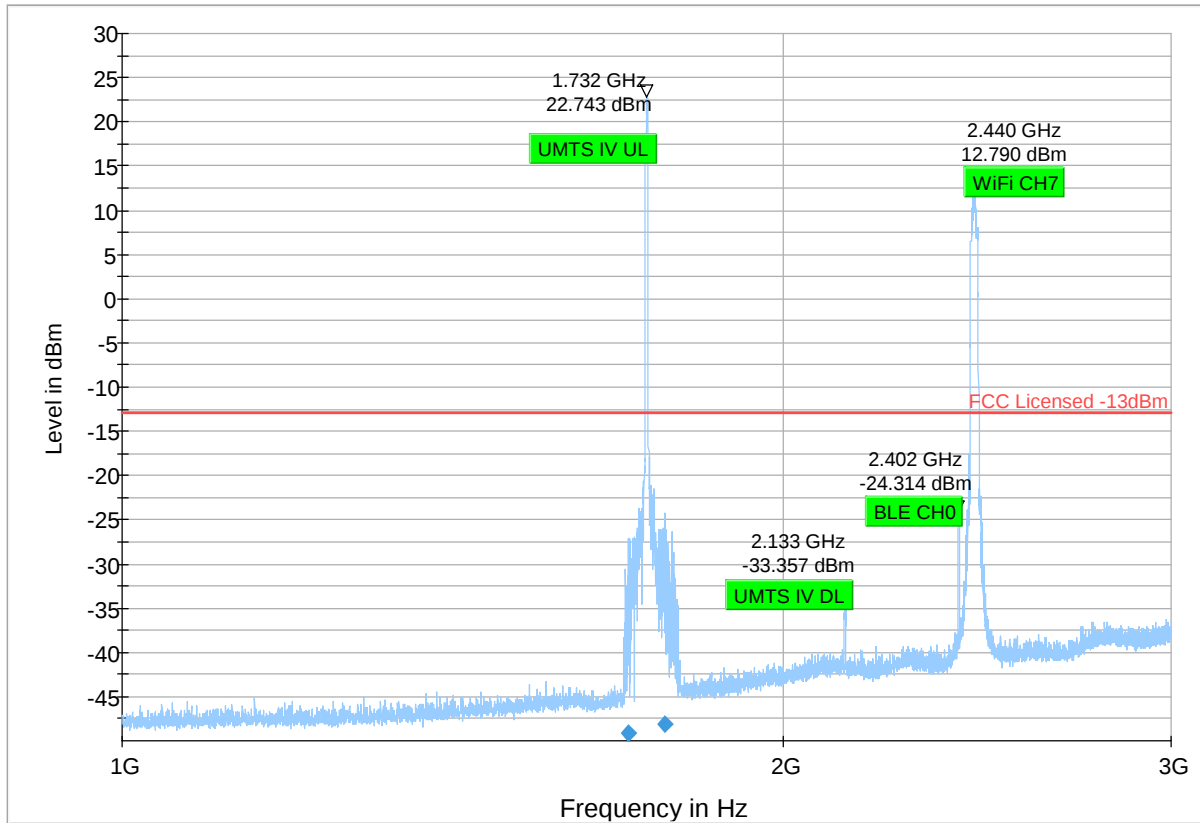
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 19 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

Final_Result

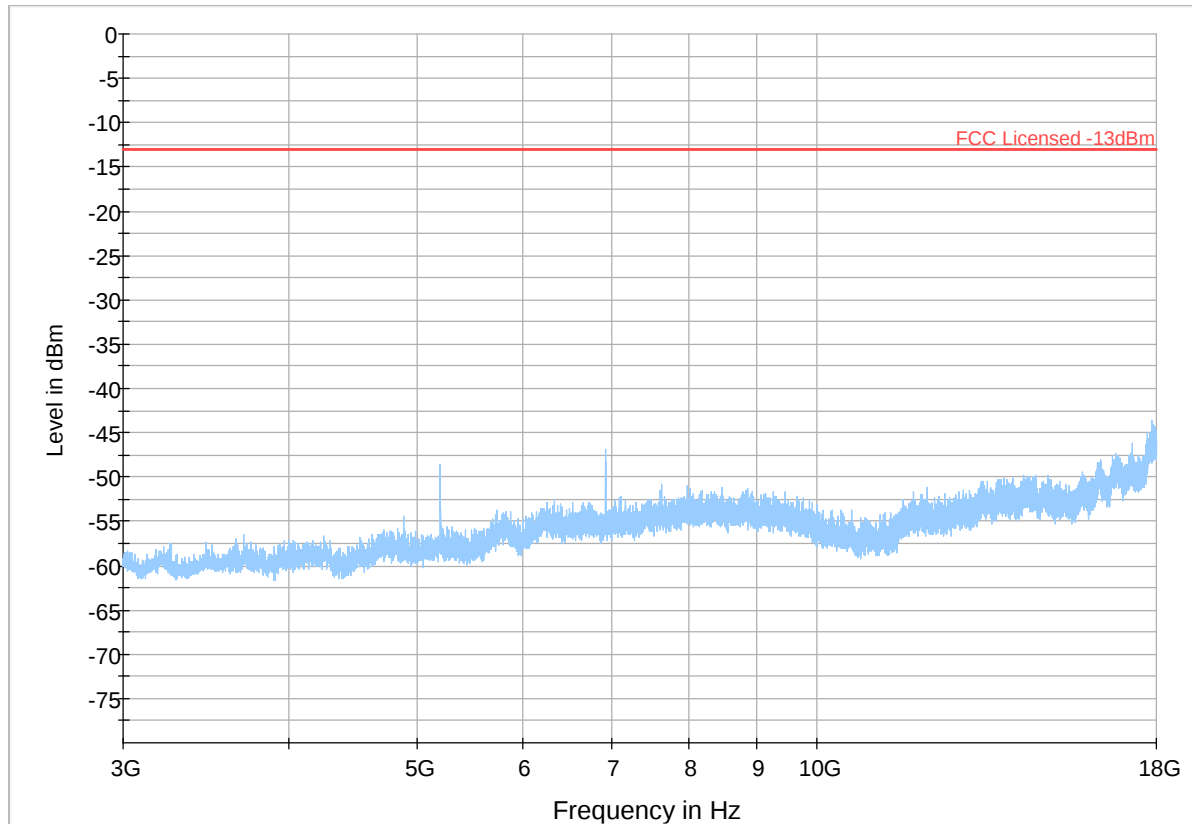
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1699.000	-49.212	-13.00	36.21	500.0	1000.000	196.0	H	62.0	-63.1
1765.000	-48.175	-13.00	35.17	500.0	1000.000	149.0	H	23.0	-62.4



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

Plot # 20 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid



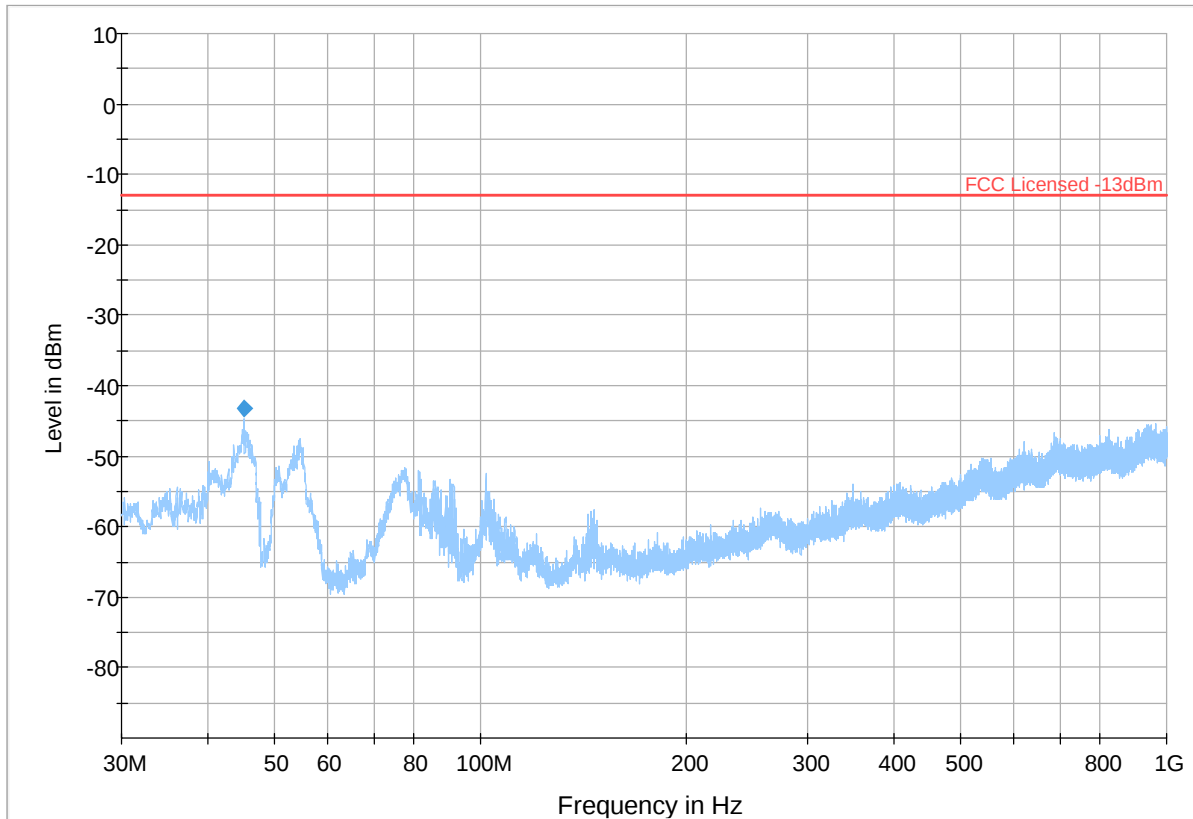
Preview Result 1-PK+ FCC Licensed -13dBm ♦ Final_Result RMS

Plot # 21 Radiated Emissions: 30 MHz – 1GHz

Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.197	-43.232	---	-13.00	30.23	500.0	100.000	150.0	V	158.0	-80.8



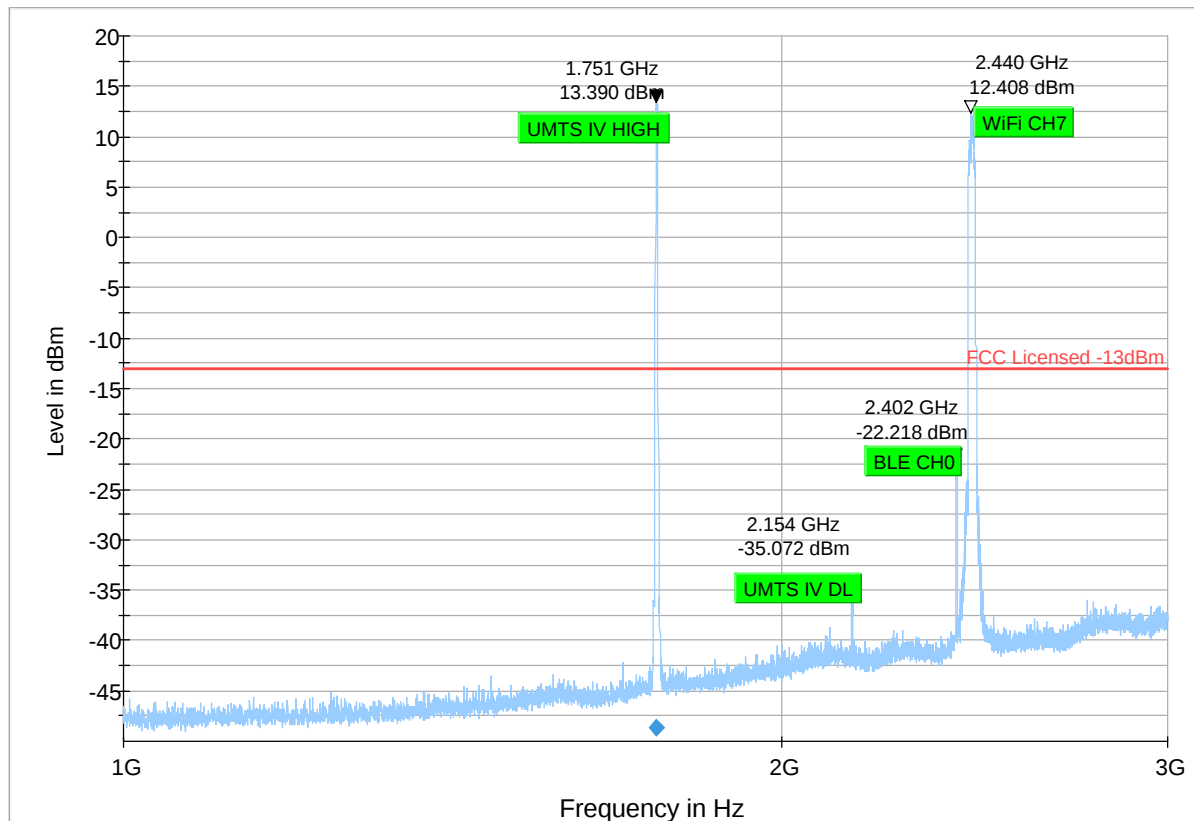
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 22 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

Final_Result

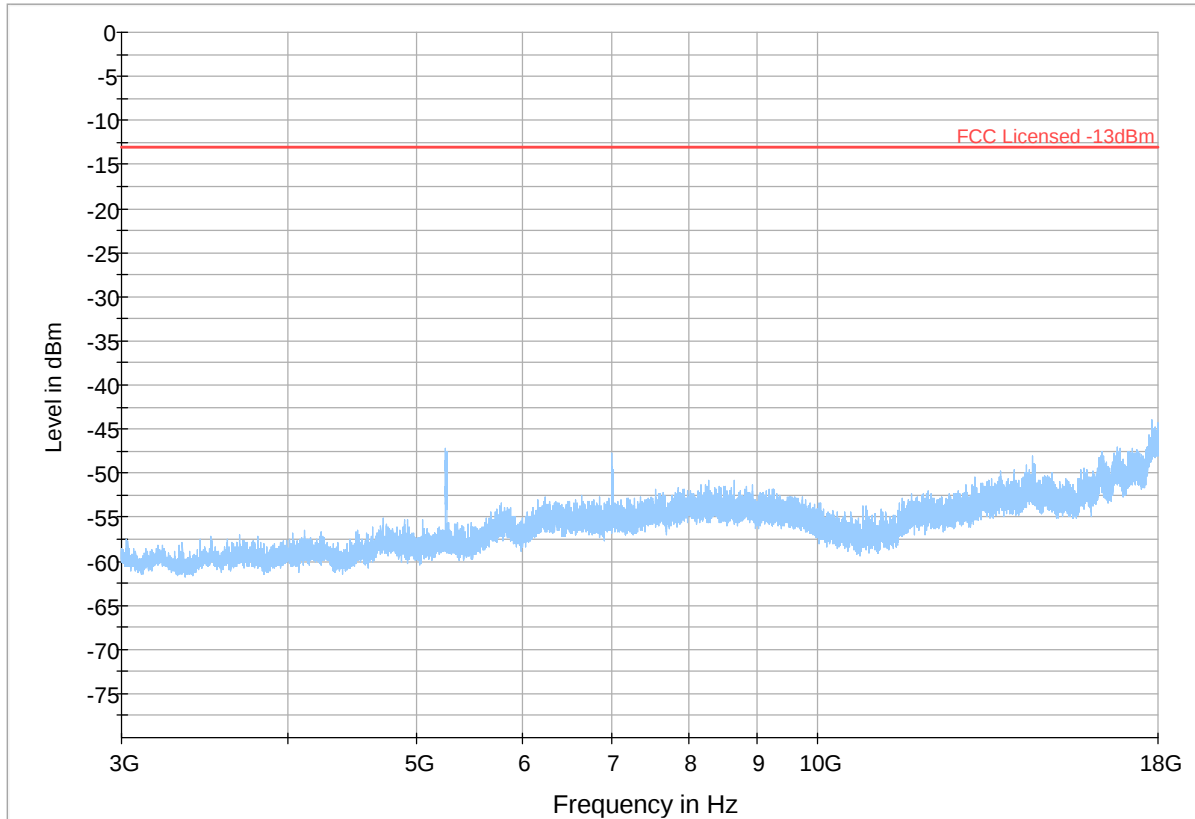
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1751.250	-48.576	-13.00	35.58	500.0	1000.000	315.0	H	-36.0	-62.4



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

Plot # 23 Radiated Emissions: 3 GHz – 18 GHz

Channel: High



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

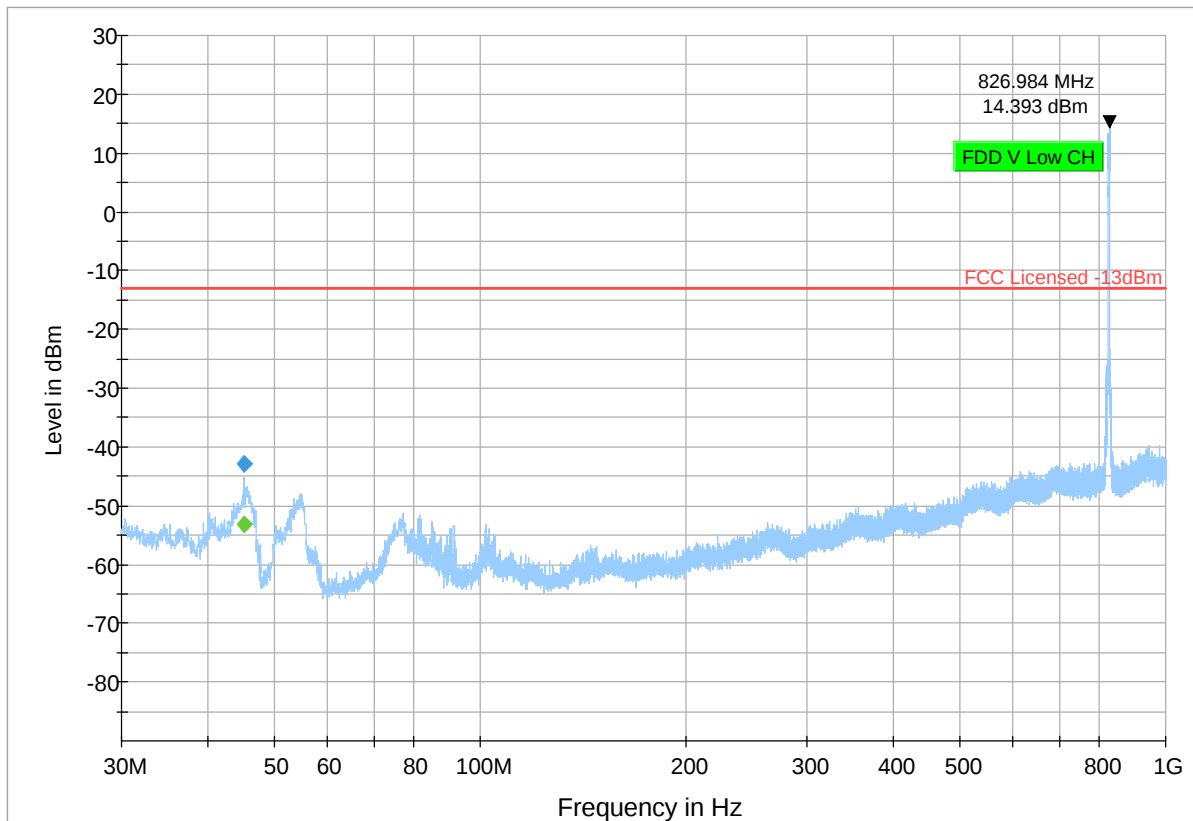
UMTS V

Plot # 24 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.229	---	-53.292	---	---	500.0	100.000	163.0	V	124.0	-80.8
45.229	-42.834	---	-13.00	29.83	500.0	100.000	163.0	V	124.0	-80.8



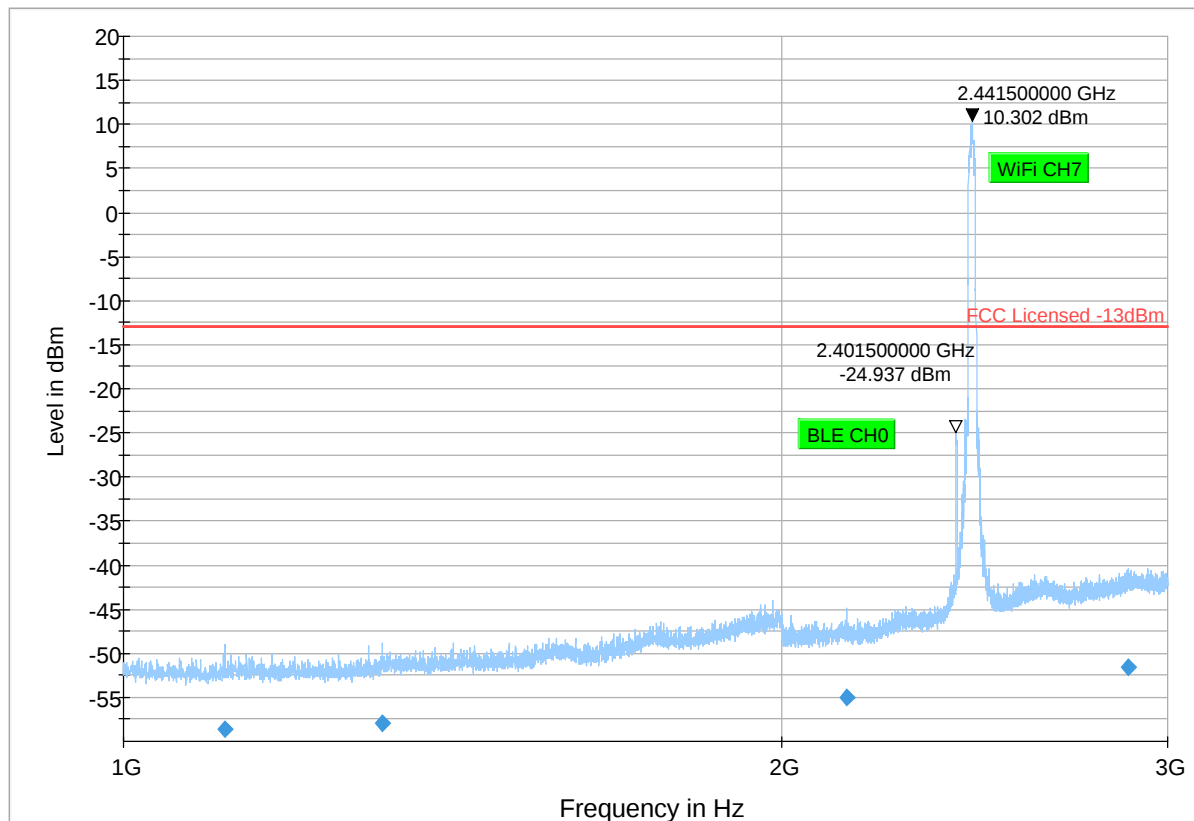
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 25 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

Final_Result

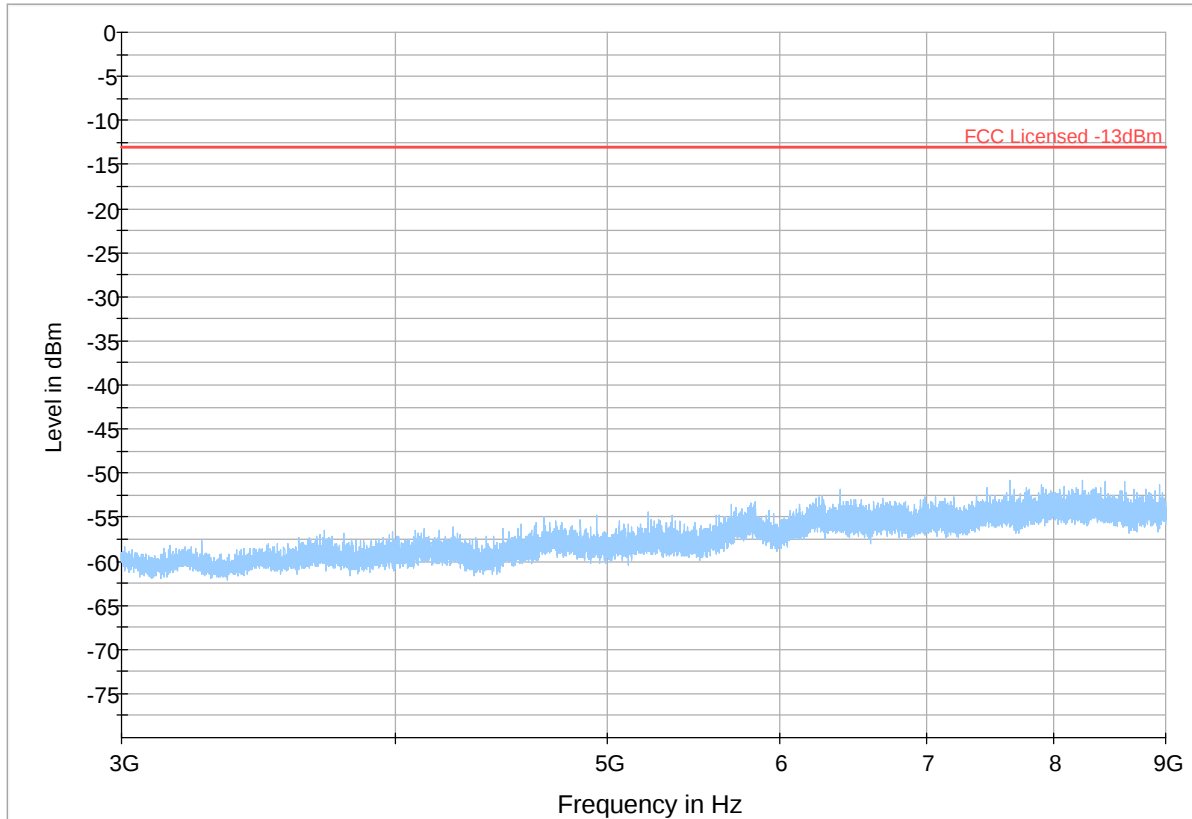
Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1112.500	-58.626	-13.00	45.63	500.0	1000.000	290.0	V	222.0	-91.8
1312.750	-57.889	-13.00	44.89	500.0	1000.000	266.0	H	318.0	-90.6
2141.000	-55.014	-13.00	42.01	500.0	1000.000	315.0	H	222.0	-86.9
2879.750	-51.599	-13.00	38.60	500.0	1000.000	309.0	H	258.0	-84.6



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

Plot # 26 Radiated Emissions: 3 GHz – 9 GHz

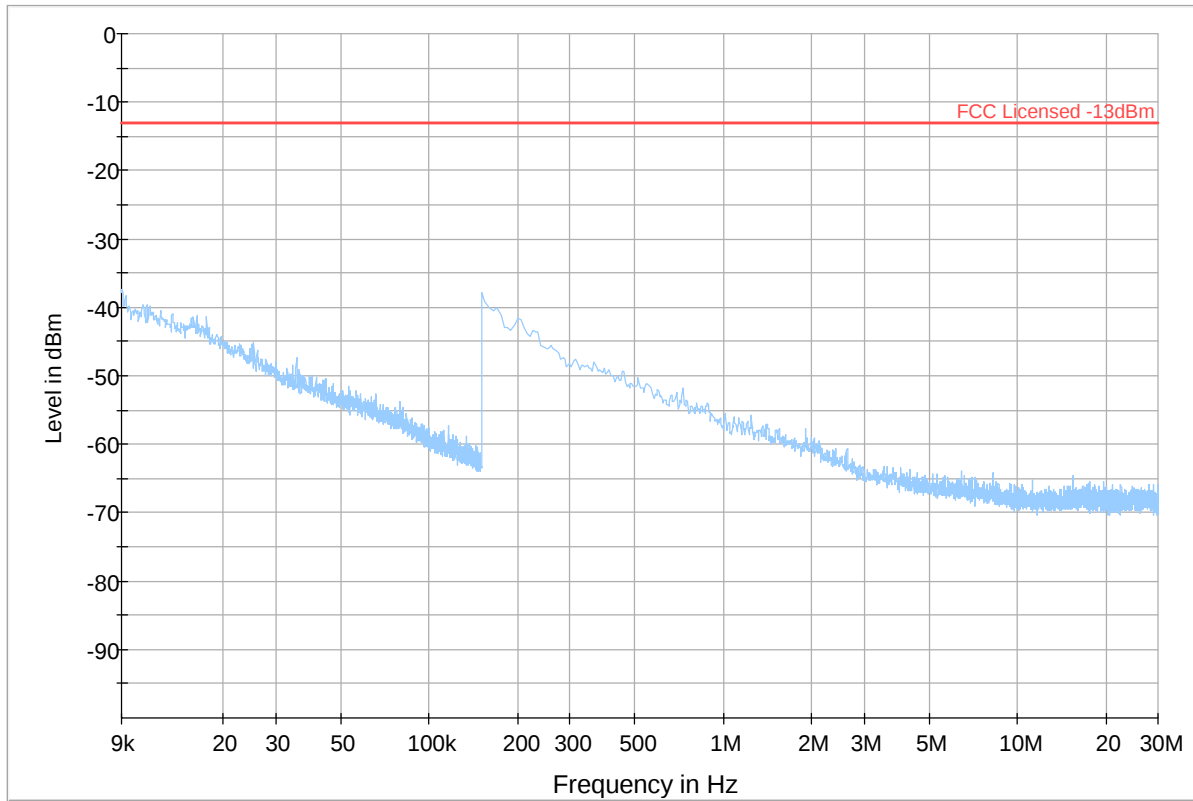
Channel: Low



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

Plot # 27 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



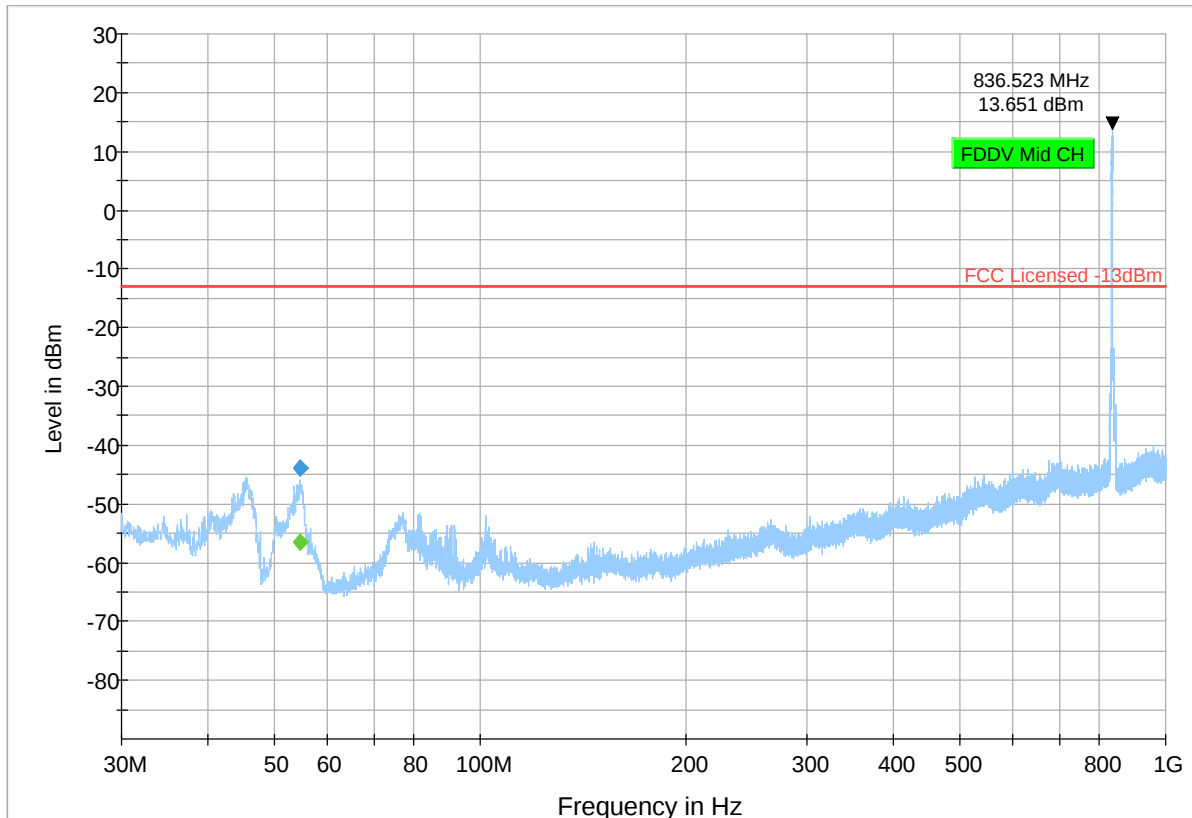
Preview Result 1-PK+ * Critical_Freqs PK+ — FCC Licensed -13dBm
Final_Result PK+ ◆ Final_Result RMS

Plot # 28 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
54.703	---	-56.444	---	---	500.0	100.000	149.0	V	99.0	-81.2
54.703	-43.994	---	-13.00	30.99	500.0	100.000	149.0	V	99.0	-81.2



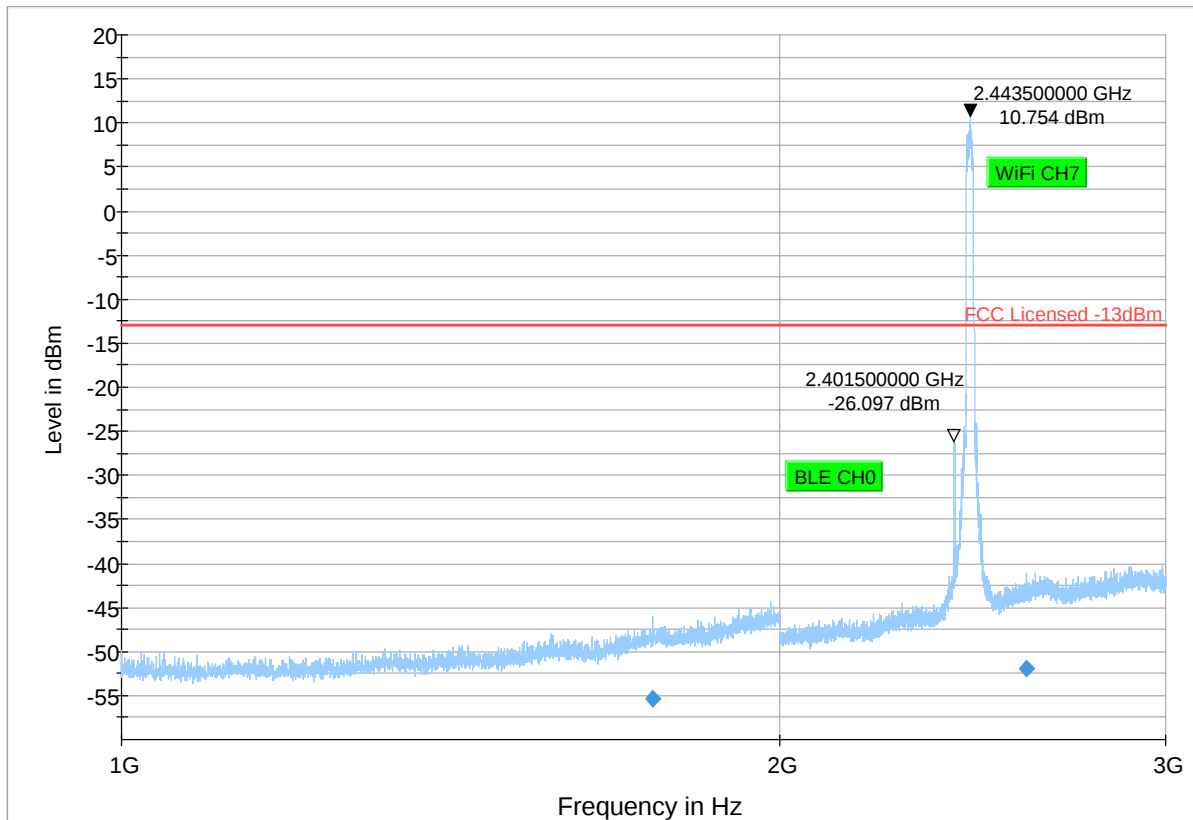
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 29 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

Final Result

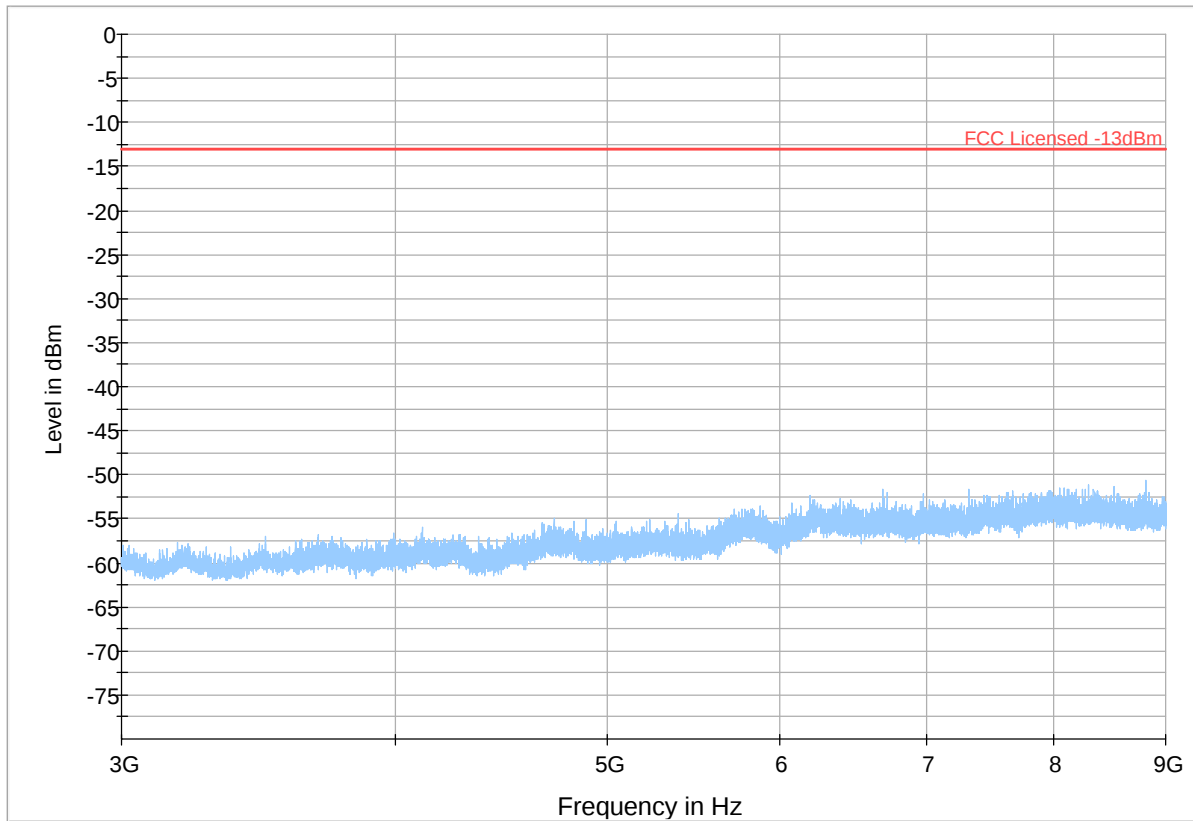
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1748.000	-55.308	---	-13.00	42.31	500.0	1000.000	275.0	H	221.0	-88.5
2590.000	-52.010	---	-13.00	39.01	500.0	1000.000	197.0	H	190.0	-85.3



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

Plot # 30 Radiated Emissions: 3 GHz – 9 GHz

Channel: Mid



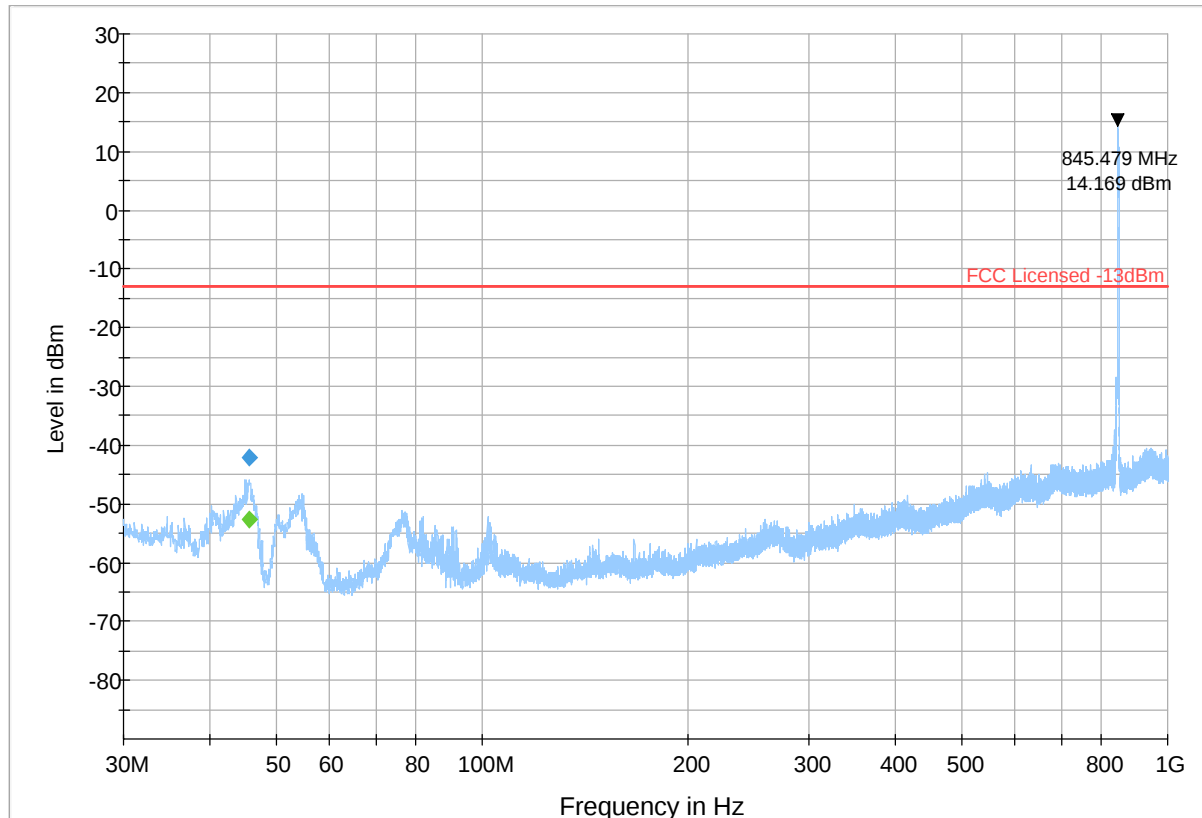
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 31 Radiated Emissions: 30 MHz – 1GHz

Channel: High

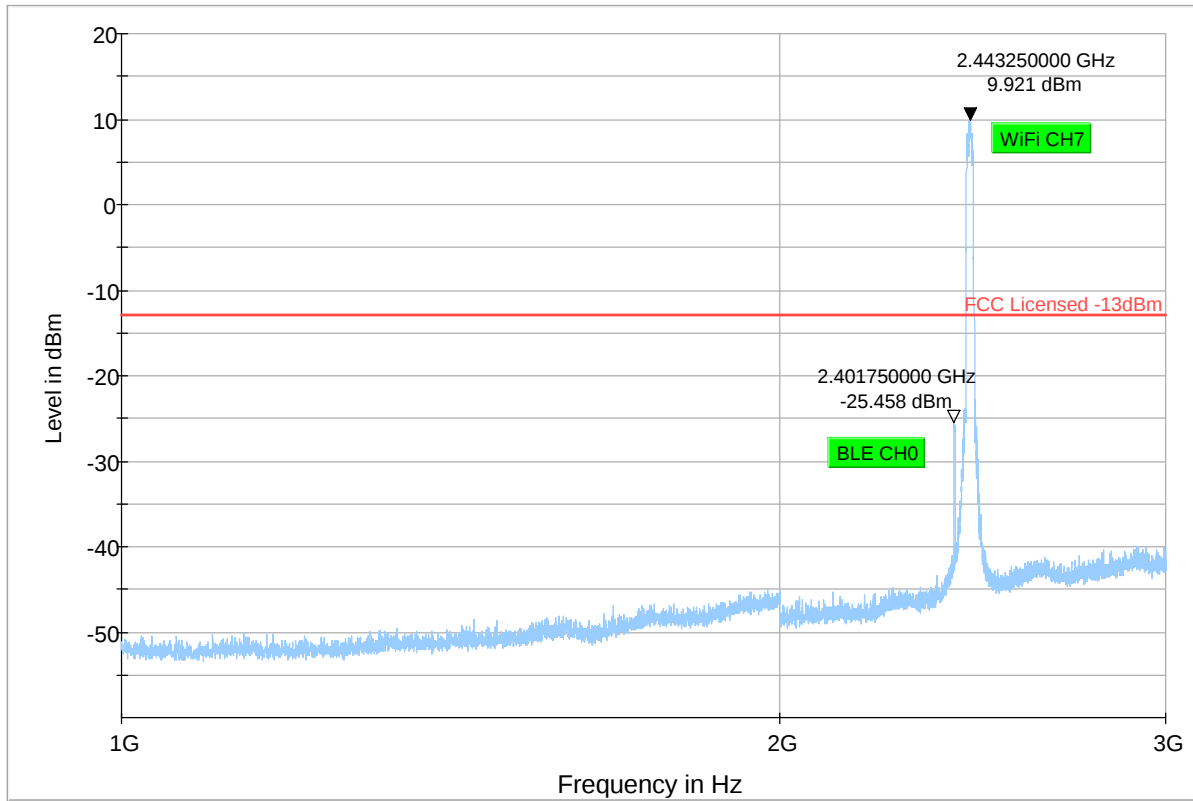
Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.682	---	-52.689	---	---	500.0	100.000	150.0	V	60.0	-81.0
45.682	-42.056	---	-13.00	29.06	500.0	100.000	150.0	V	60.0	-81.0



Plot # 32 Radiated Emissions: 1 GHz - 3 GHz

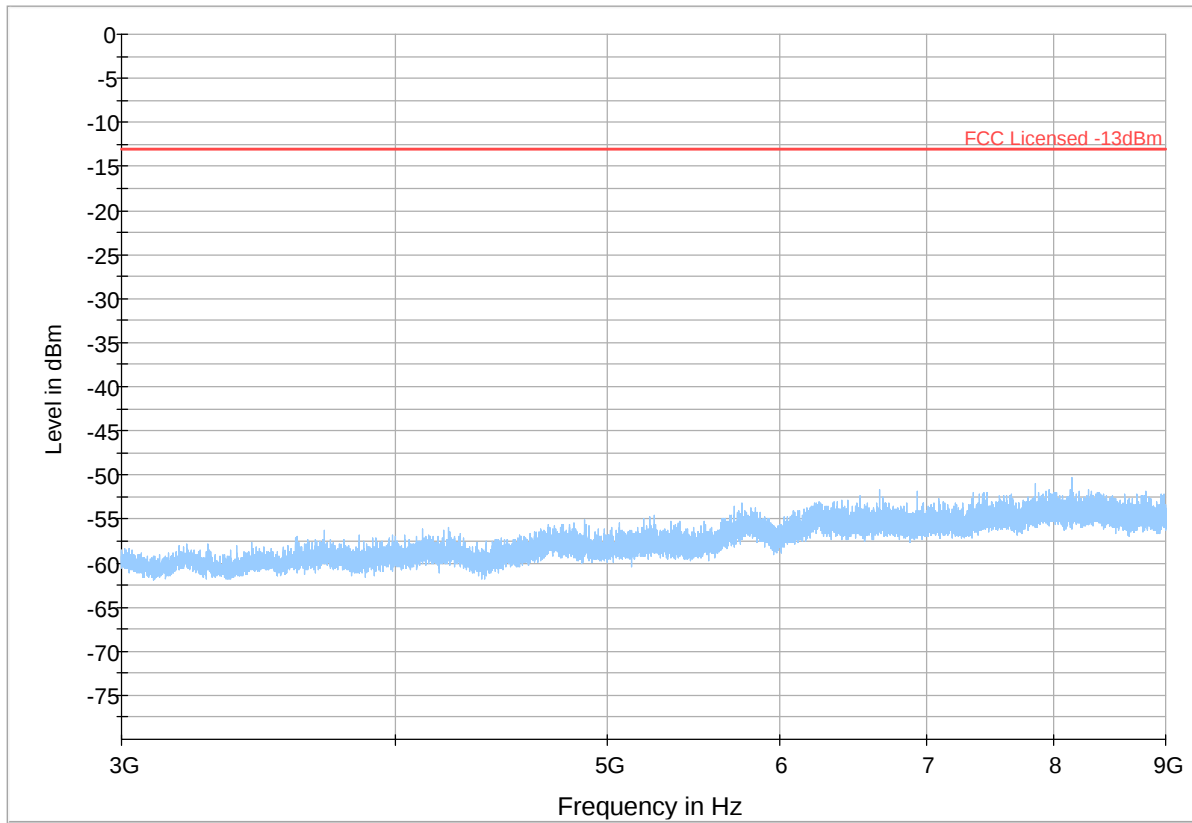
Channel: High



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

Plot # 33 Radiated Emissions: 3 GHz – 9 GHz

Channel: High

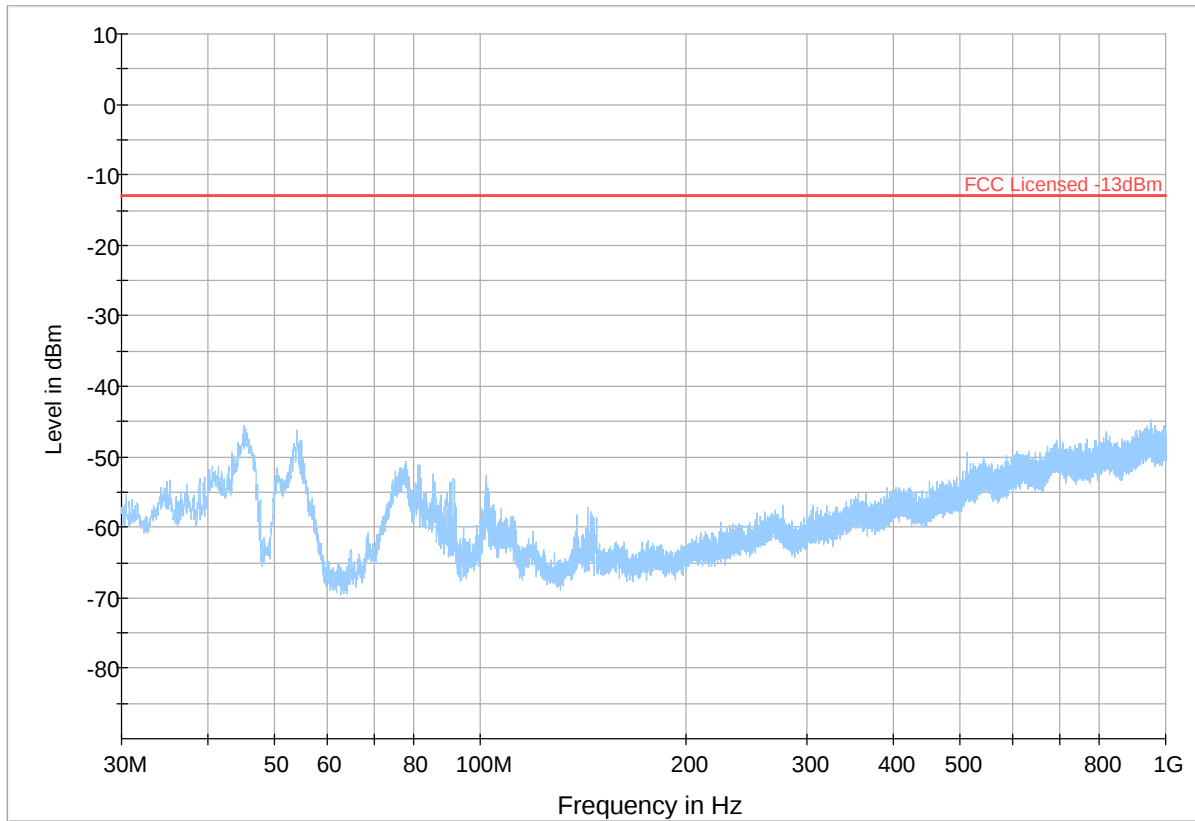


— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

LTE 2

Plot # 34 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



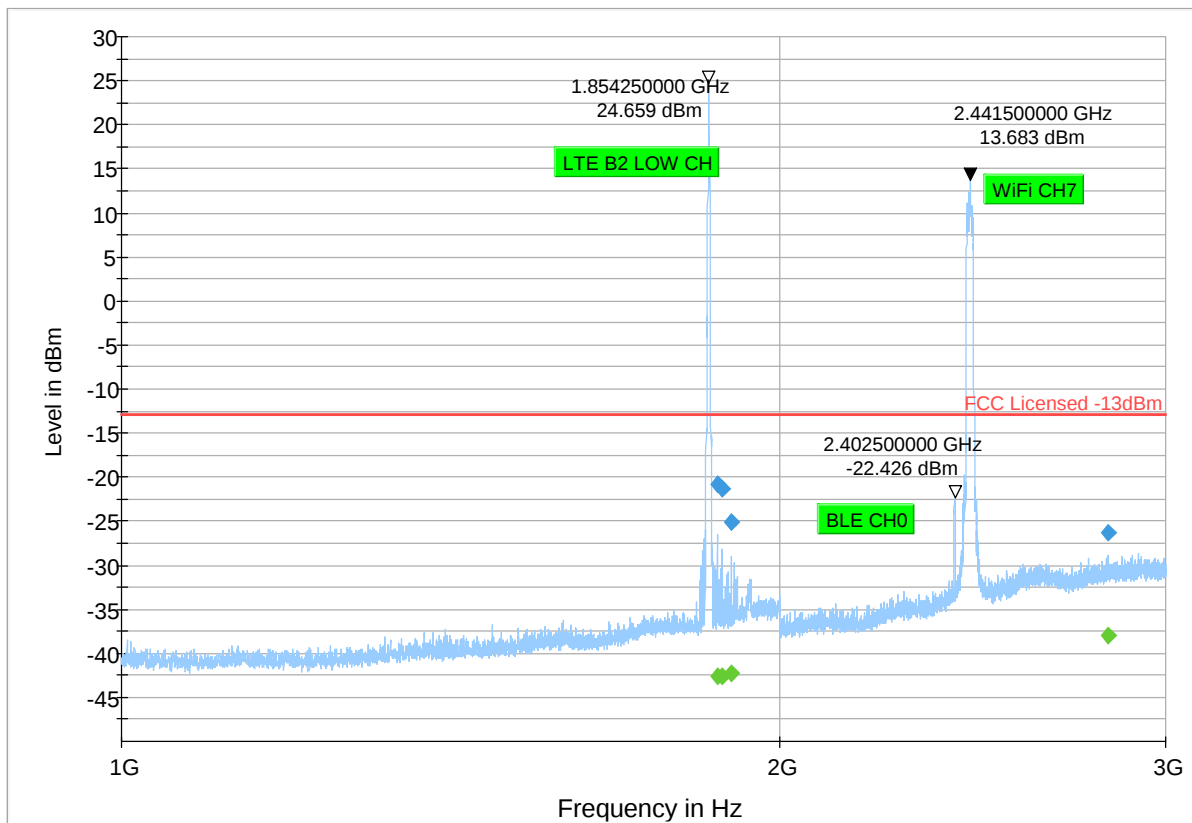
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 35 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1871.250	---	-42.596	---	---	500.0	1000.000	163.0	H	55.0	-61.6
1871.250	-20.843	---	-13.00	7.84	500.0	1000.000	163.0	H	55.0	-61.6
1880.750	---	-42.544	---	---	500.0	1000.000	149.0	H	62.0	-61.5
1880.750	-21.322	---	-13.00	8.32	500.0	1000.000	149.0	H	62.0	-61.5
1899.000	---	-42.341	---	---	500.0	1000.000	206.0	H	27.0	-61.4
1899.000	-25.113	---	-13.00	12.11	500.0	1000.000	206.0	H	27.0	-61.4
2823.750	---	-37.924	---	---	500.0	1000.000	164.0	H	91.0	-58.0
2823.750	-26.327	---	-13.00	13.33	500.0	1000.000	164.0	H	91.0	-58.0



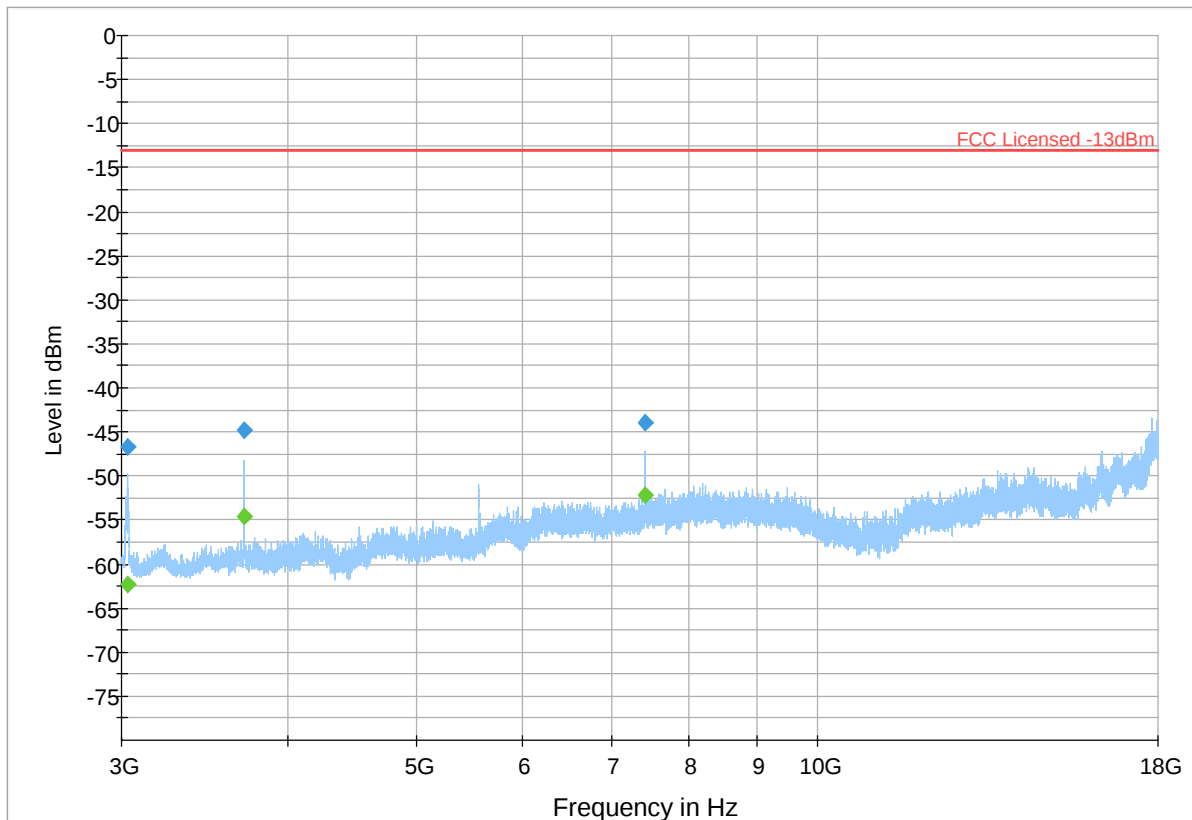
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 36 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final Result

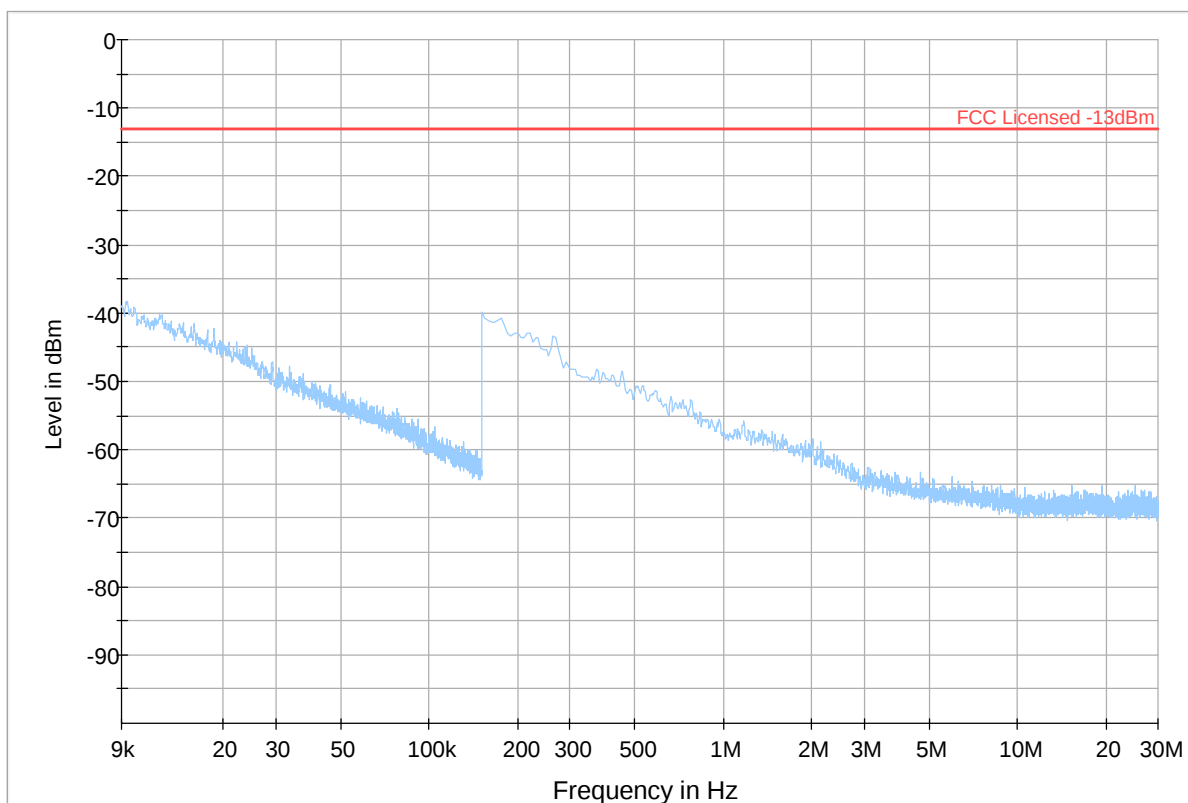
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3028.500	---	-62.403	---	---	500.0	1000.000	150.0	H	107.0	-103.4
3028.500	-46.621	---	-13.00	33.62	500.0	1000.000	150.0	H	107.0	-103.4
3711.000	-44.824	---	-13.00	31.82	500.0	1000.000	196.0	V	319.0	-101.3
3711.000	---	-54.530	---	---	500.0	1000.000	196.0	V	319.0	-101.3
7420.000	-43.895	---	-13.00	30.89	500.0	1000.000	173.0	V	10.0	-94.3
7420.000	---	-52.145	---	---	500.0	1000.000	173.0	V	10.0	-94.3



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

Plot # 37 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



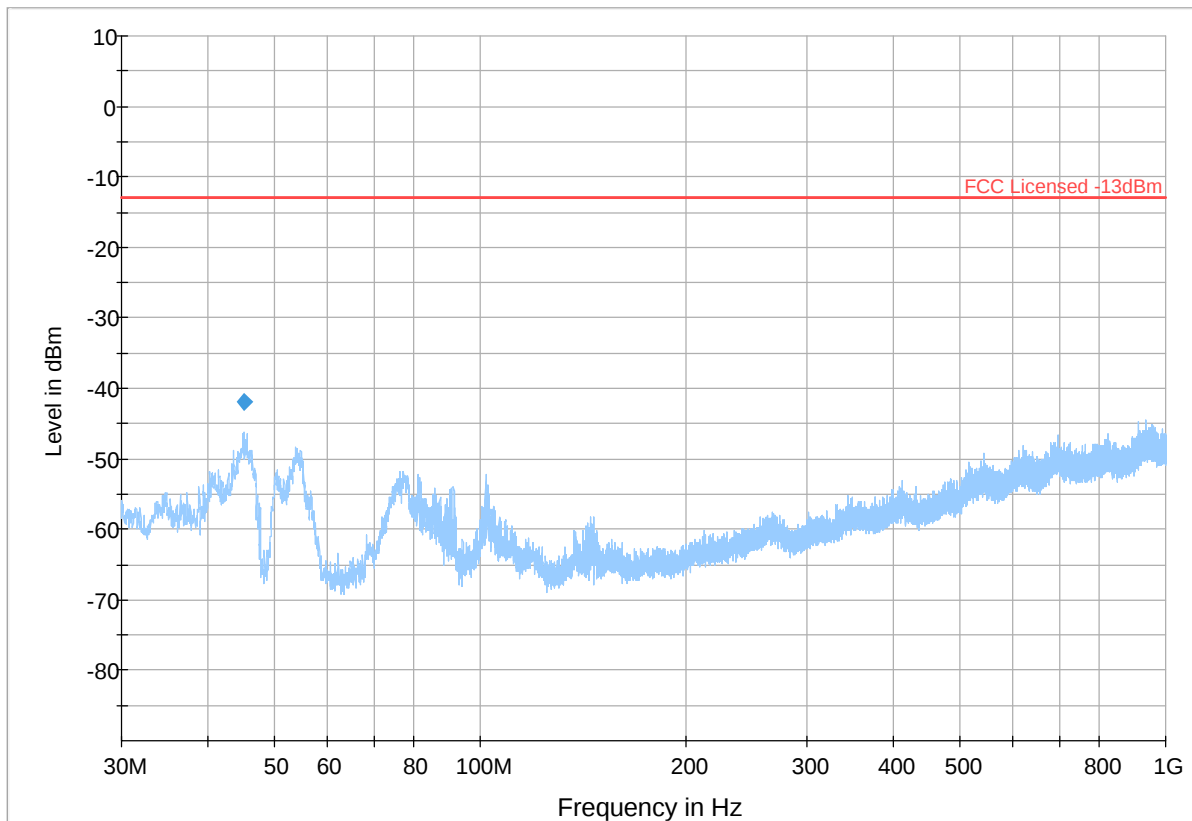
Preview Result 1-PK+ Final_Result PK+ * Critical_Freqs PK+ Final_Result RMS FCC Licensed -13dBm

Plot # 38 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.229	-41.968	---	-13.00	28.97	500.0	100.000	150.0	V	87.0	-80.8



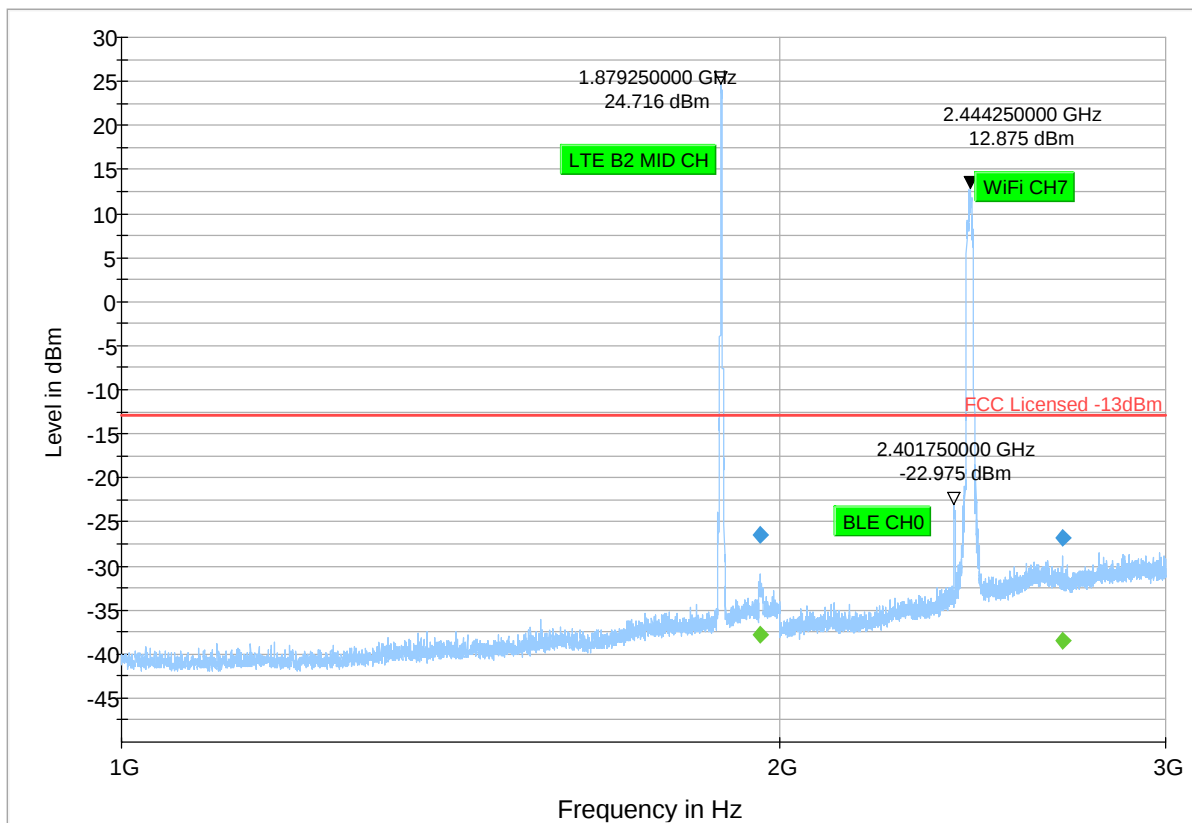
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 39 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

Final Result

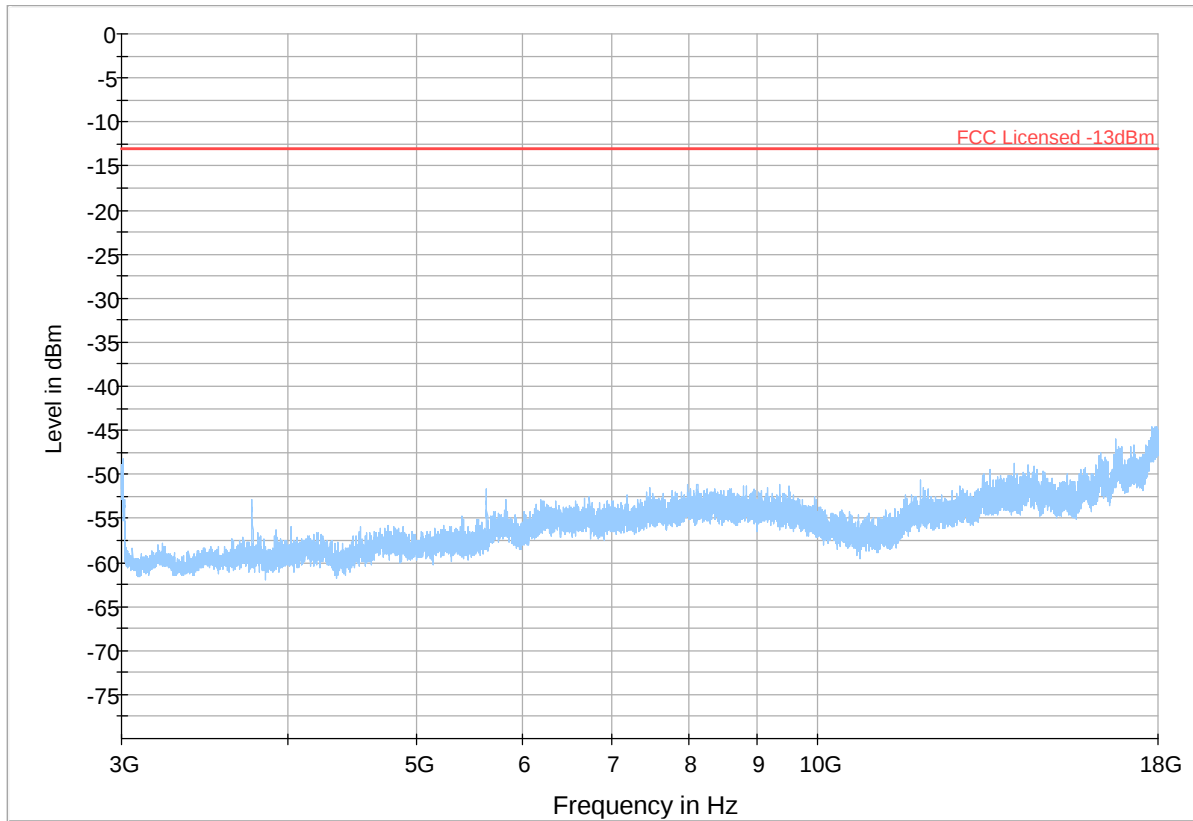
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1956.750	---	-37.757	---	---	500.0	1000.000	282.0	V	204.0	-61.3
1956.750	-26.454	---	-13.00	13.45	500.0	1000.000	282.0	V	204.0	-61.3
2693.500	---	-38.528	---	---	500.0	1000.000	299.0	H	-17.0	-58.3
2693.500	-26.851	---	-13.00	13.85	500.0	1000.000	299.0	H	-17.0	-58.3



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

Plot # 40 Radiated Emissions: 3 GHz – 18 GHz

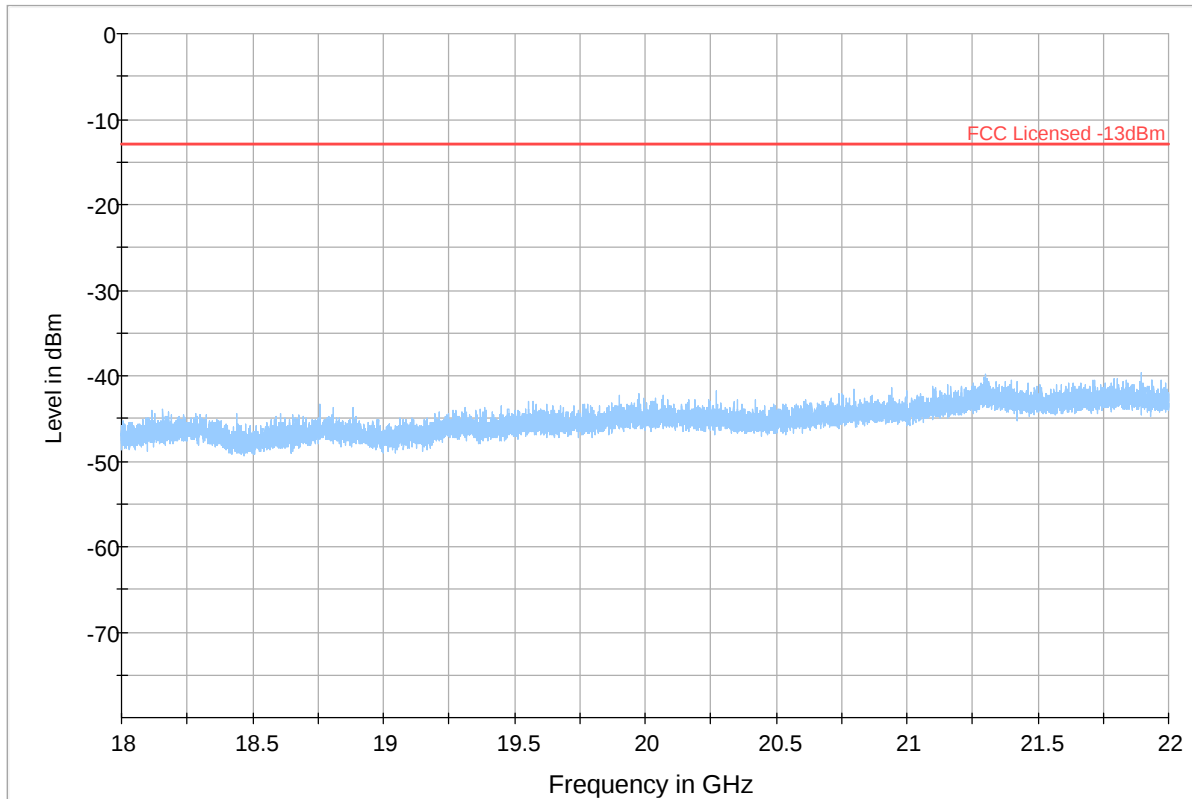
Channel: Mid



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

Plot # 41 Radiated Emissions: 18 GHz – 22 GHz

Channel: Mid



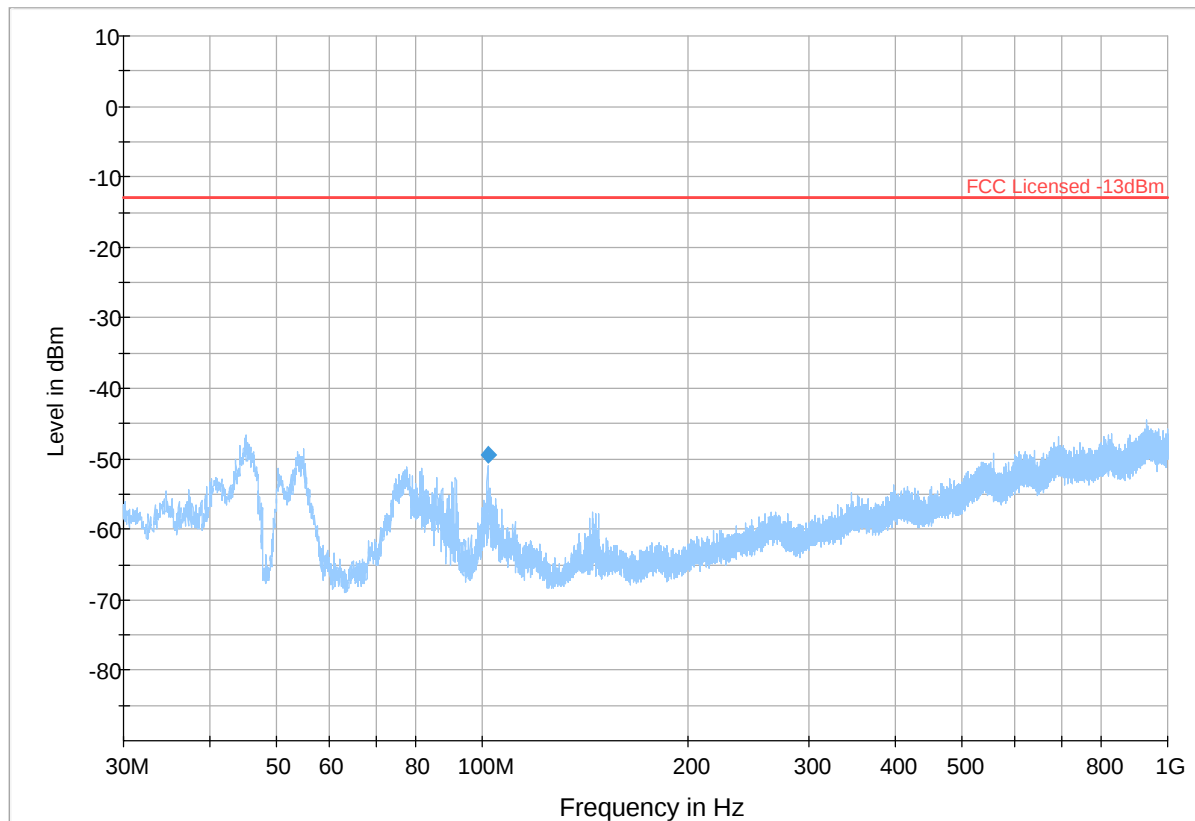
Preview Result 1-PK+ * Critical_Freqs PK+ — FCC Licensed -13dBm
Final_Result PK+ ♦ Final_Result RMS

Plot # 42 Radiated Emissions: 30 MHz – 1GHz

Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
101.845	-49.533	---	-13.00	36.53	500.0	100.000	174.0	V	102.0	-79.2



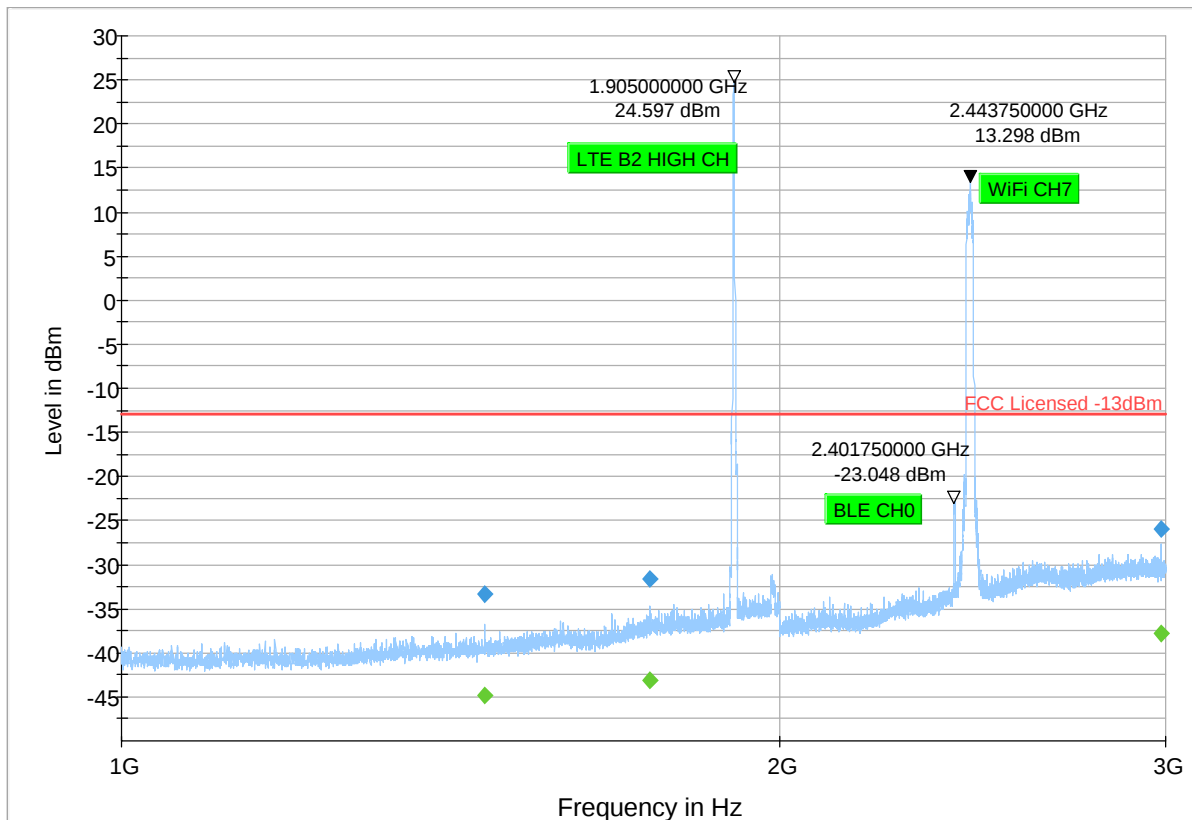
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 43 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

Final Result

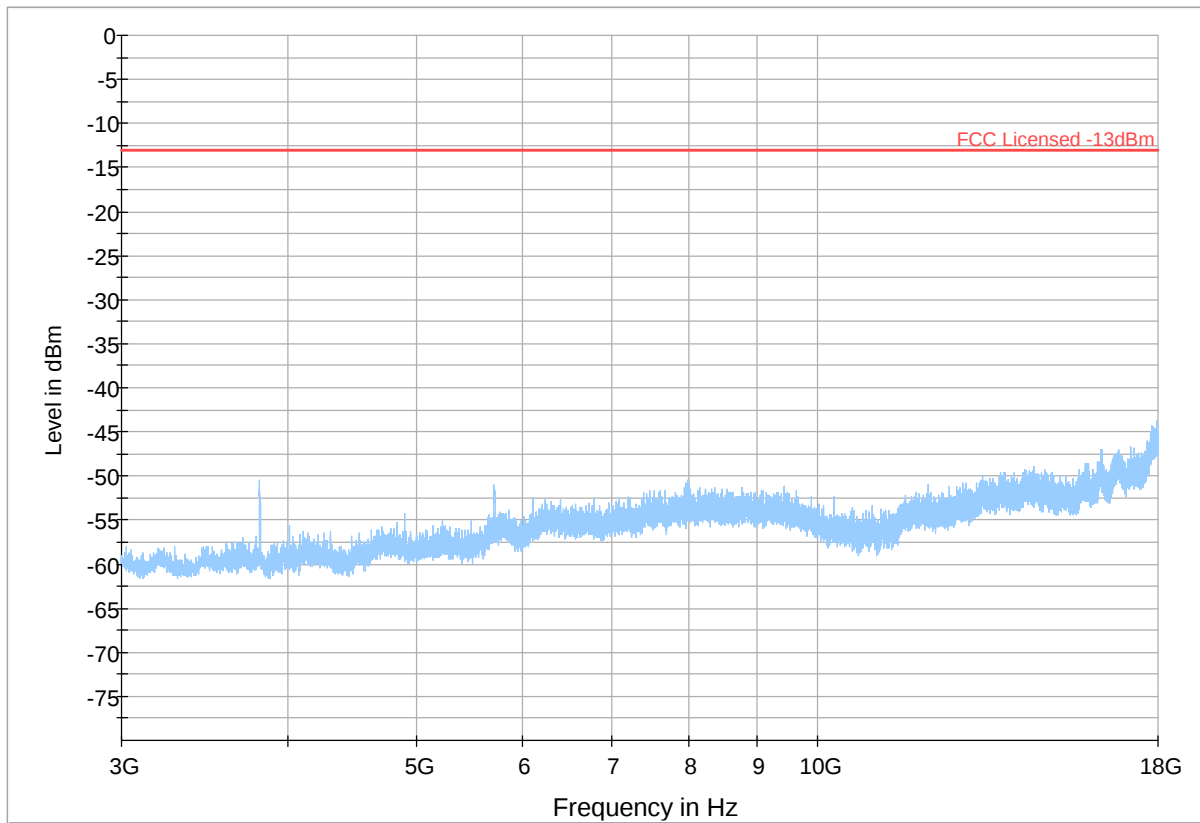
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1466.250	---	-44.932	---	---	500.0	1000.000	175.0	H	0.0	-63.2
1466.250	-33.400	---	-13.00	20.40	500.0	1000.000	175.0	H	0.0	-63.2
1743.000	---	-43.195	---	---	500.0	1000.000	251.0	H	334.0	-62.0
1743.000	-31.676	---	-13.00	18.68	500.0	1000.000	251.0	H	334.0	-62.0
2985.500	---	-37.828	---	---	500.0	1000.000	241.0	V	95.0	-57.8
2985.500	-25.893	---	-13.00	12.89	500.0	1000.000	241.0	V	95.0	-57.8



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

Plot # 44 Radiated Emissions: 3 GHz – 18 GHz

Channel: High



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

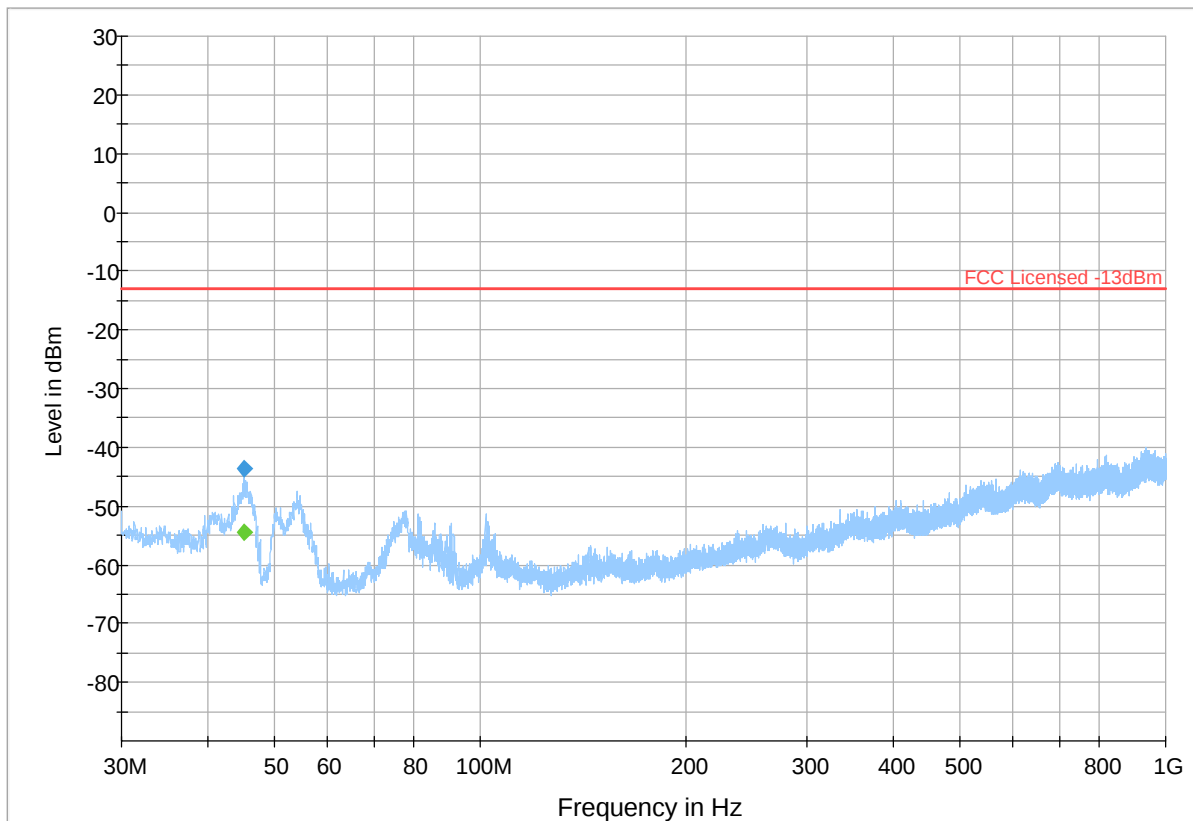
LTE 4

Plot # 45 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.197	---	-54.466	---	---	500.0	100.000	149.0	V	291.0	-80.8
45.197	-43.720	---	-13.00	30.72	500.0	100.000	149.0	V	291.0	-80.8



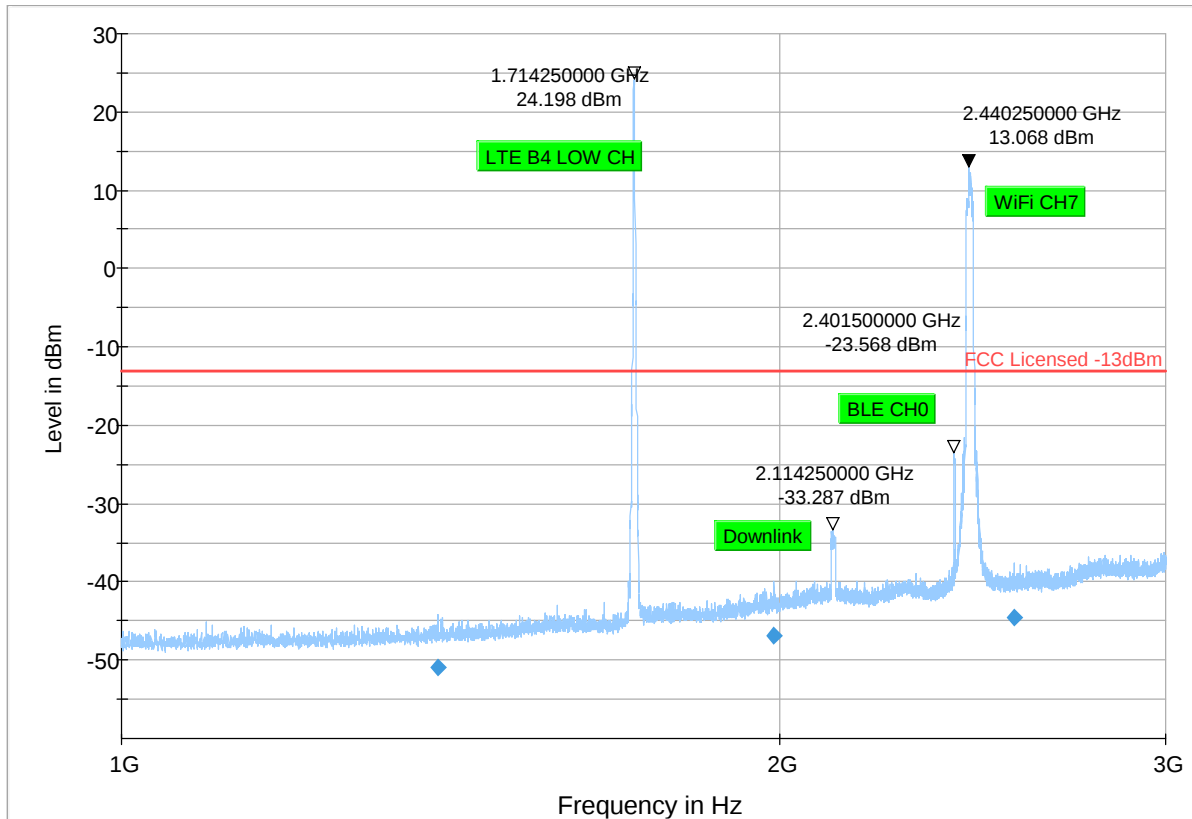
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 46 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

Final_Result

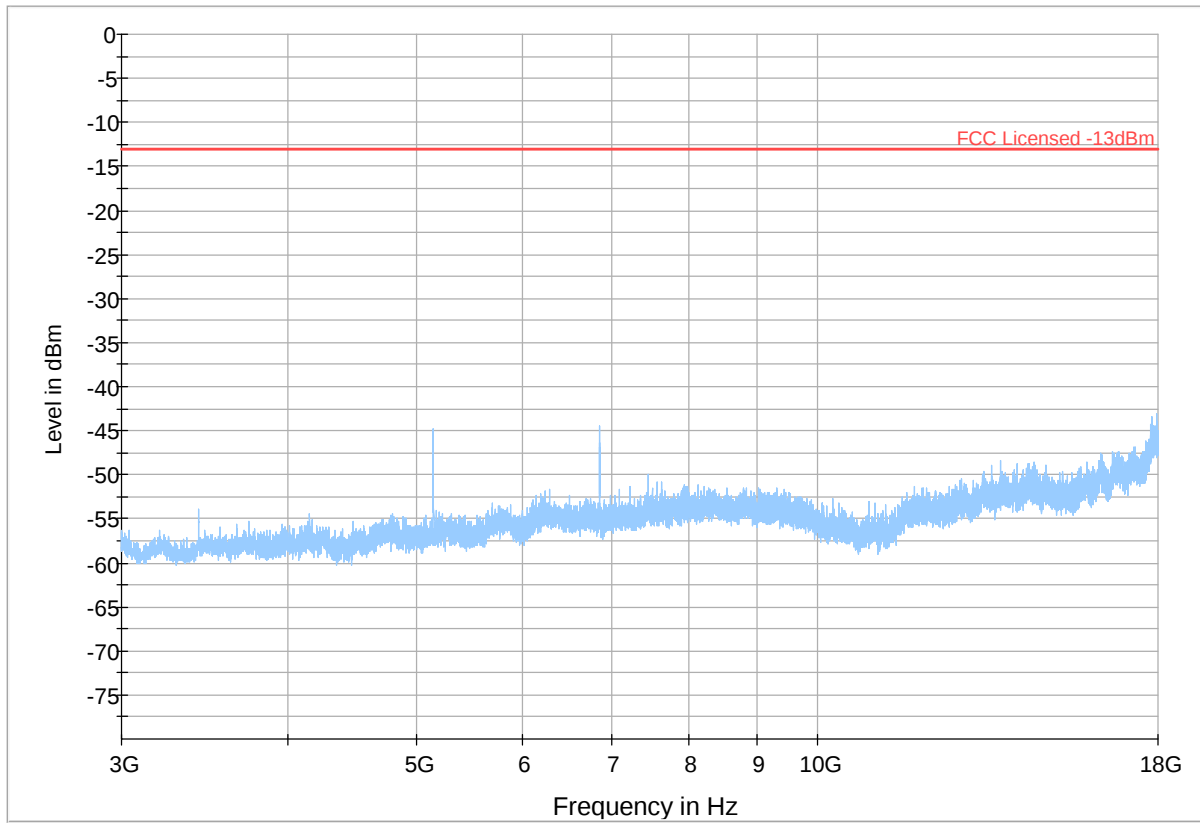
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1395.000	-50.989	-13.00	37.99	500.0	1000.000	150.0	H	98.0	-64.2
1987.750	-46.811	-13.00	33.81	500.0	1000.000	187.0	H	173.0	-61.1
2558.750	-44.497	-13.00	31.50	500.0	1000.000	229.0	H	23.0	-59.4



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

Plot # 47 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low



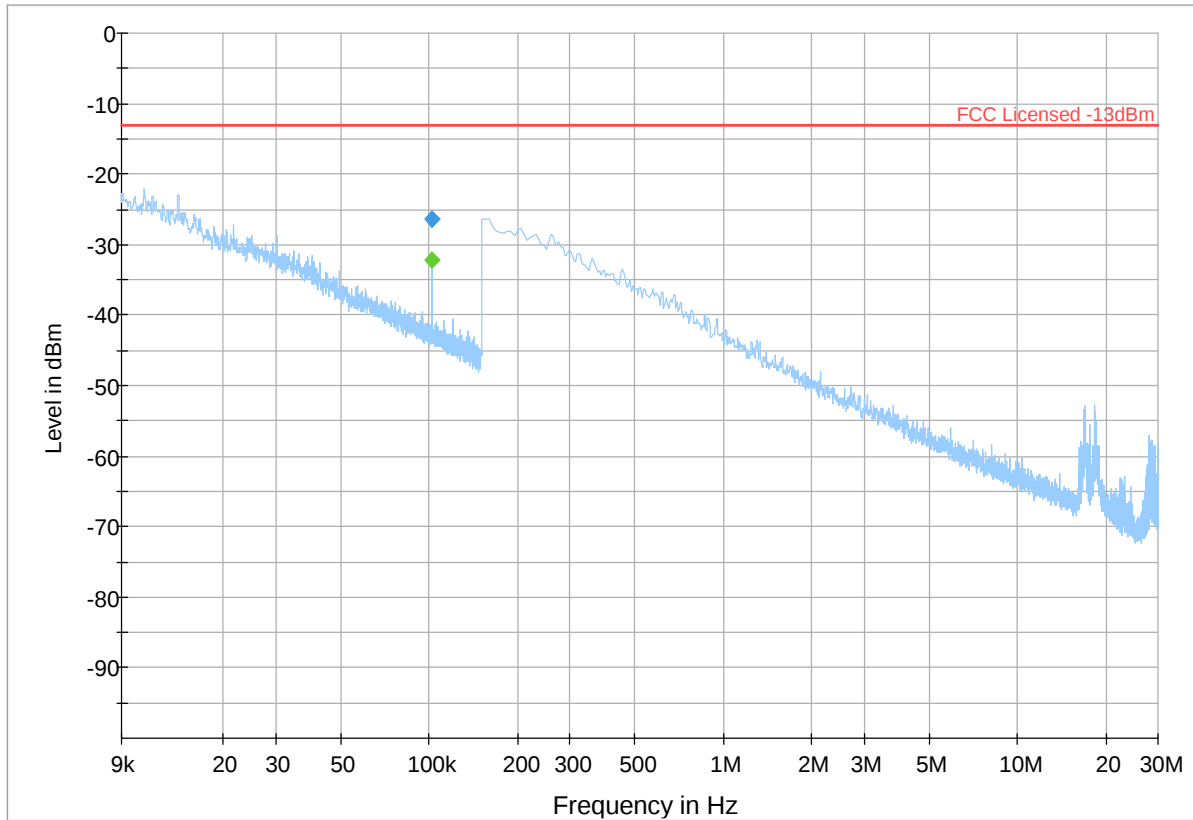
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 48 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.10	---	-32.30	---	---	500.0	1.0	100.0	V	279.0	-76.9
0.10	-26.47	---	-13.00	13.47	500.0	1.0	100.0	V	279.0	-76.9



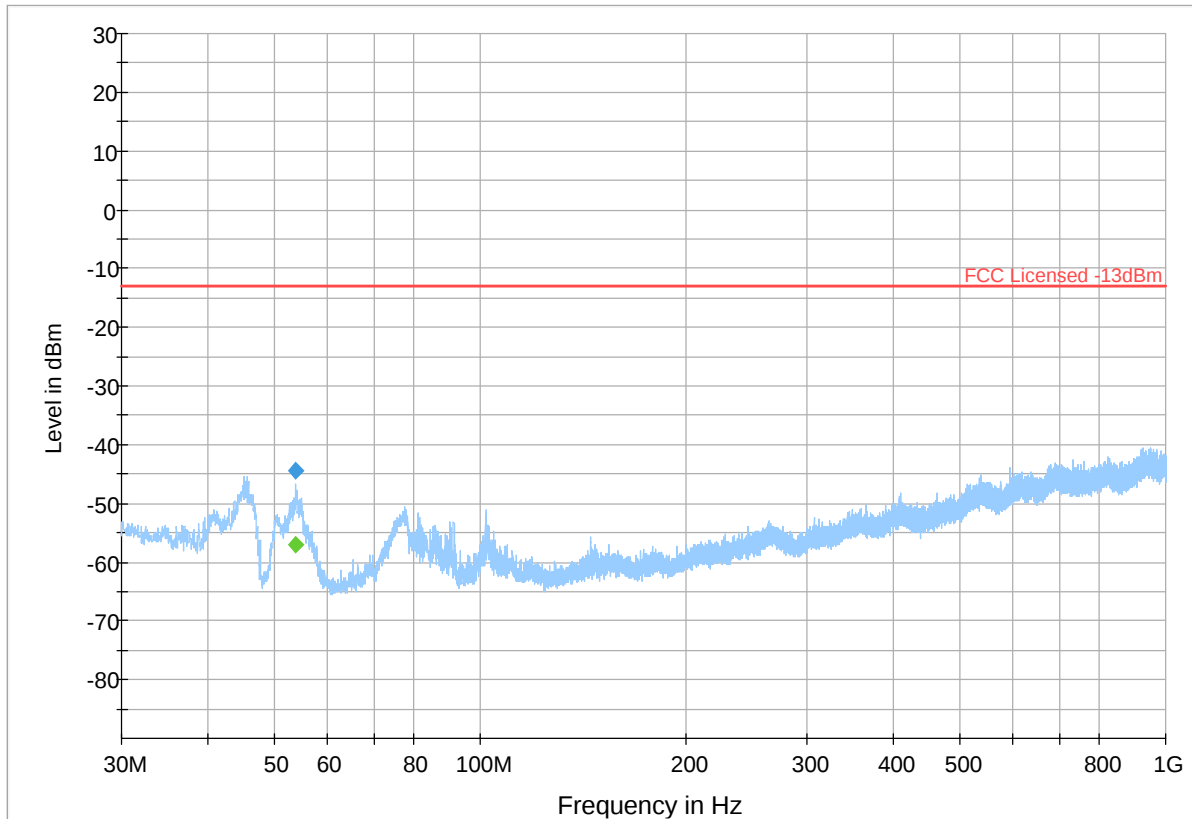
— Preview Result 1-PK+
 — FCC Licensed -13dBm
 ◆ Final_Result PK+
 ◆ Final_Result RMS

Plot # 49 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
53.862	---	-56.967	---	---	500.0	100.000	149.0	V	-9.0	-81.2
53.862	-44.401	---	-13.00	31.40	500.0	100.000	149.0	V	-9.0	-81.2



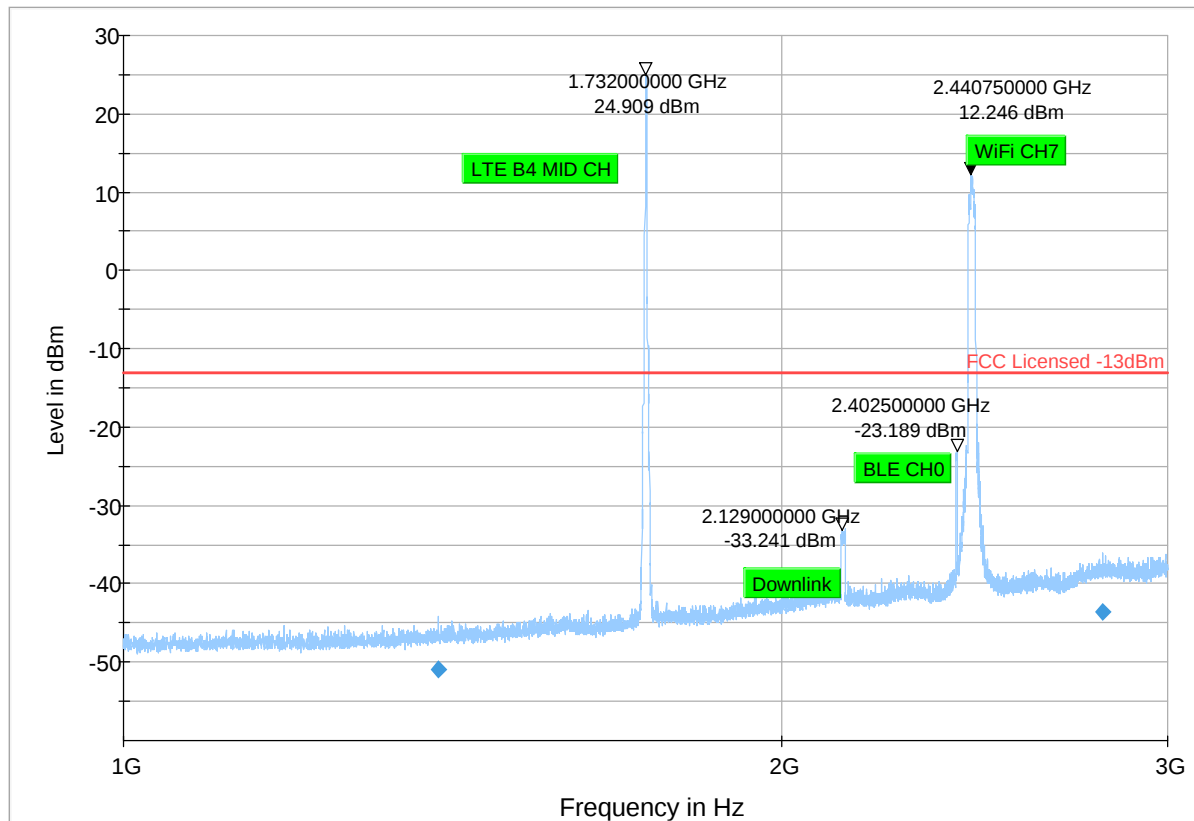
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 50 Radiated Emissions: 1 GHz - 3 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)
1393.000	-51.015	-13.00	38.02	500.0	1000.000	195.0	H	294.0	-64.2
2799.750	-43.509	-13.00	30.51	500.0	1000.000	315.0	H	272.0	-58.5

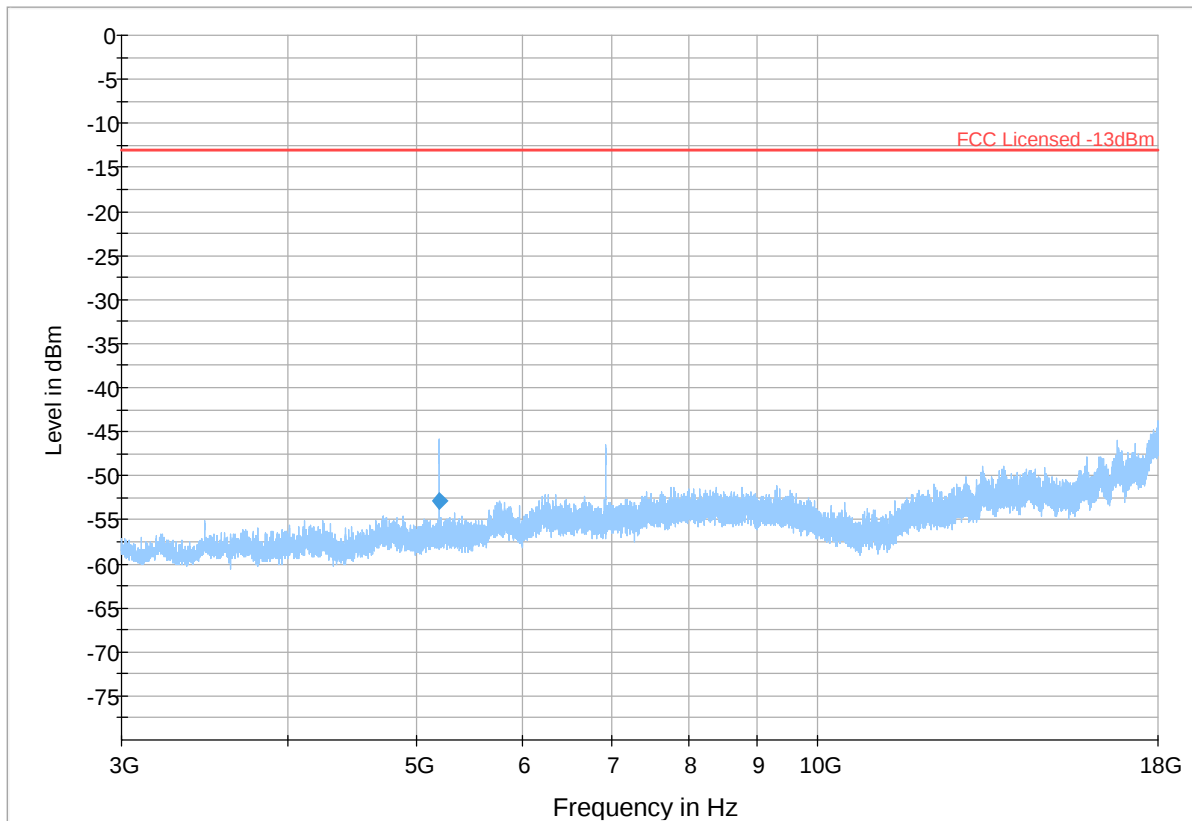


Plot # 51 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

Final Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5197.000	-52.869	-13.00	39.87	500.0	1000.000	240.0	V	-4.0	-99.0



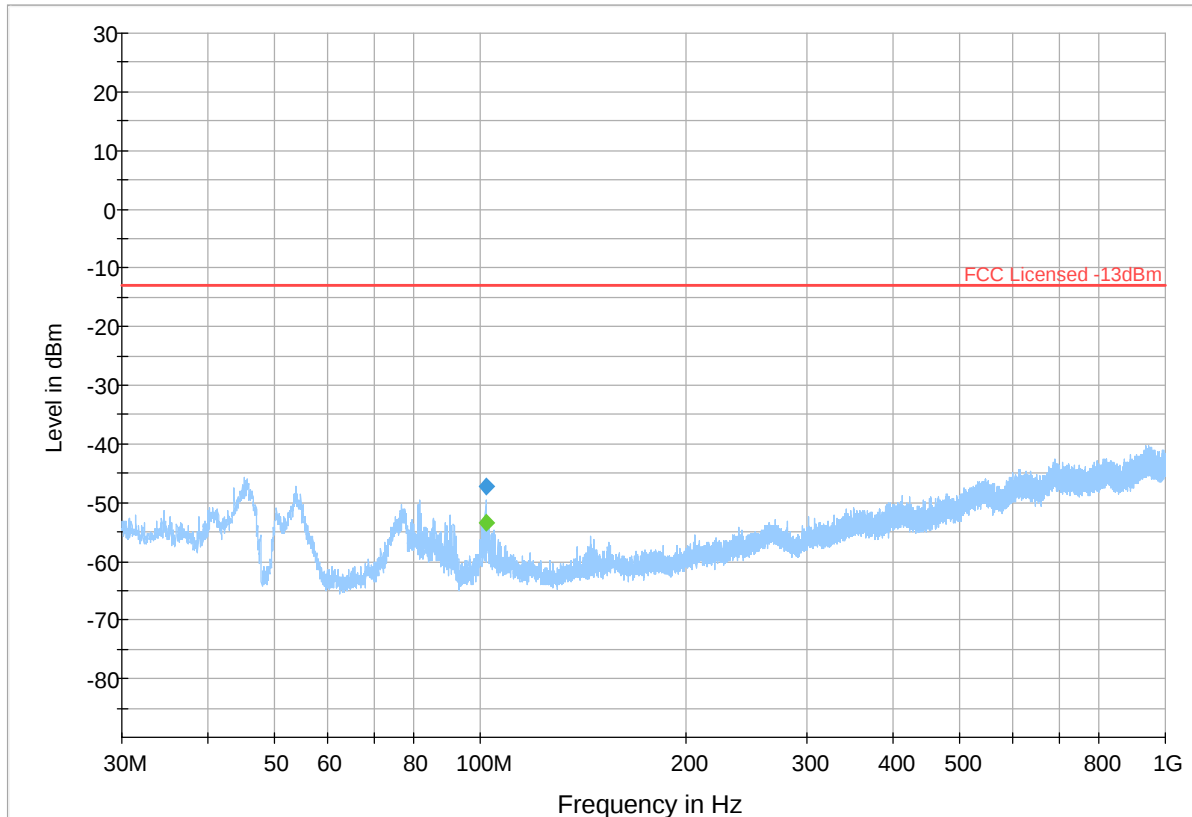
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 52 Radiated Emissions: 30 MHz – 1GHz

Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
101.877	---	-53.475	---	---	500.0	100.000	184.0	V	91.0	-79.2
101.877	-47.264	---	-13.00	34.26	500.0	100.000	184.0	V	91.0	-79.2



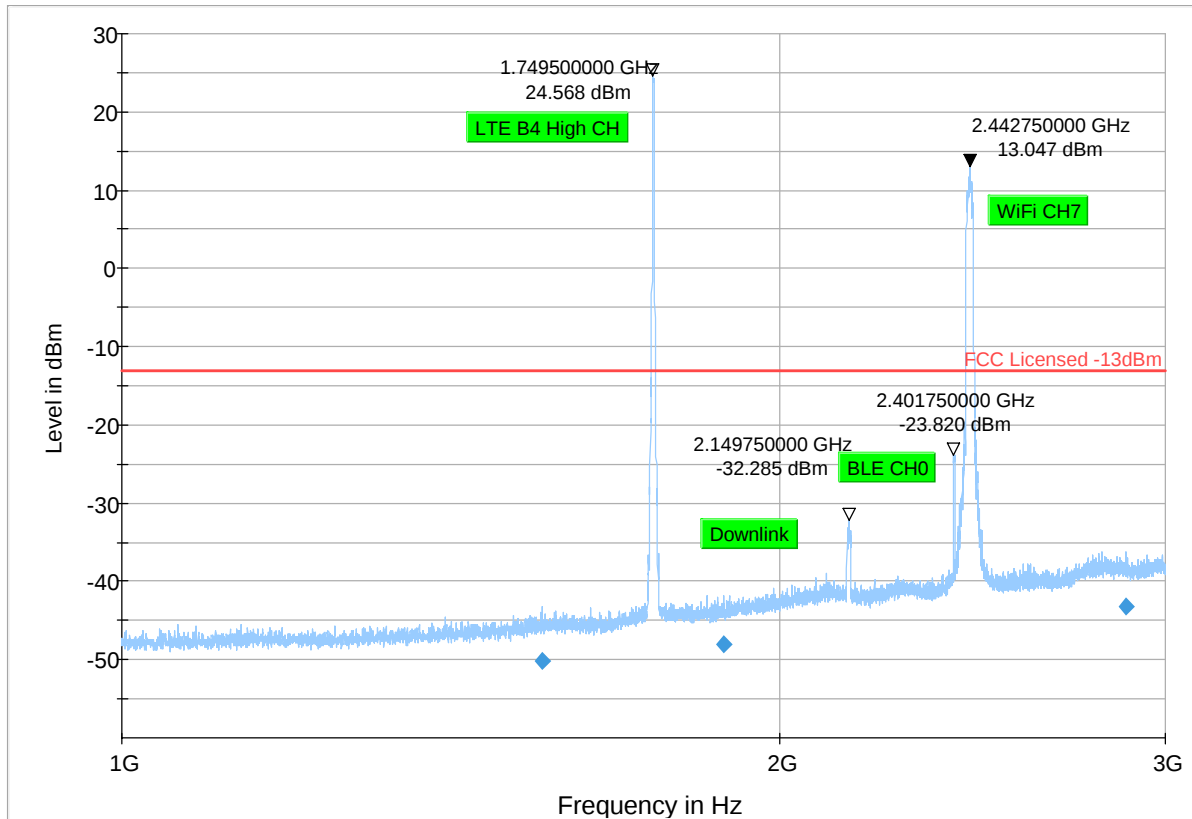
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 53 Radiated Emissions: 1 GHz - 3 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)
1556.000	-50.098	-13.00	37.10	500.0	1000.000	217.0	H	49.0	-63.8
1884.750	-48.097	-13.00	35.10	500.0	1000.000	205.0	H	248.0	-62.1
2877.500	-43.134	-13.00	30.13	500.0	1000.000	251.0	H	274.0	-58.6



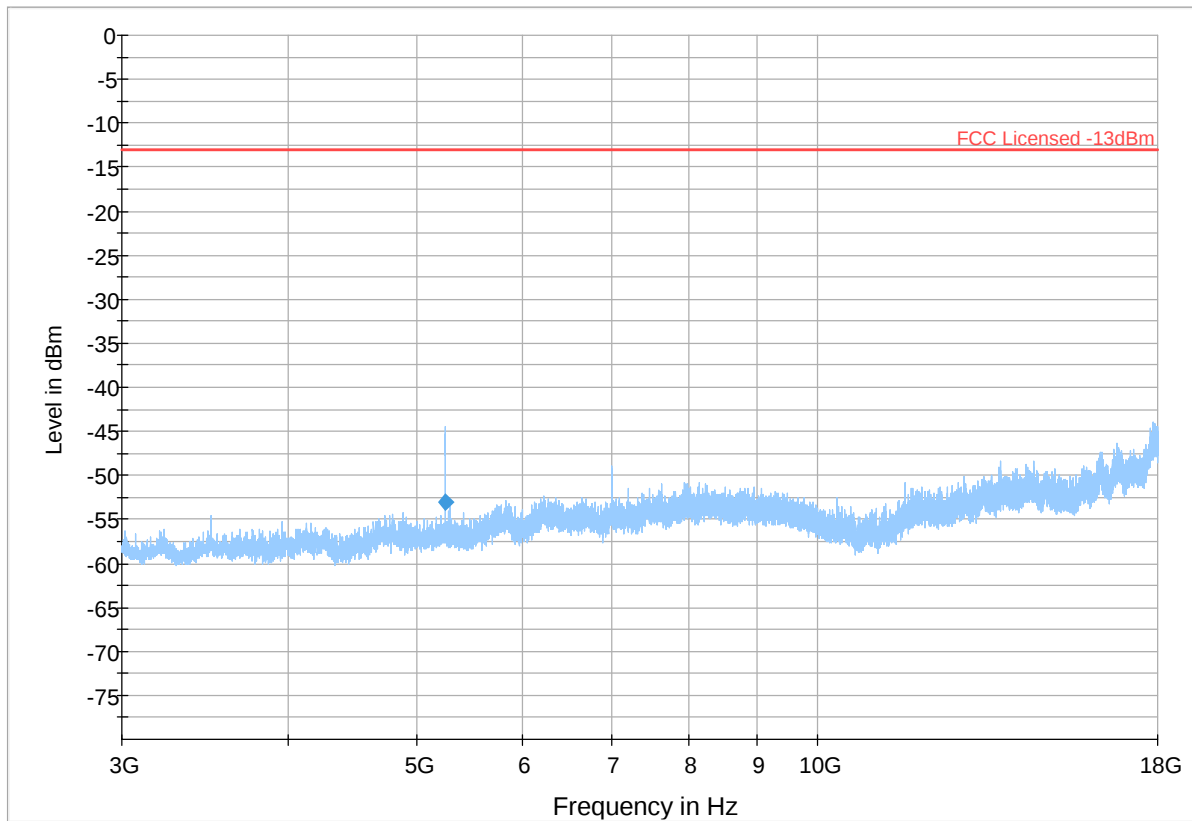
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 54 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)
5250.500	-53.012	-13.00	40.01	500.0	1000.000	185.0	V	350.0	-98.8



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

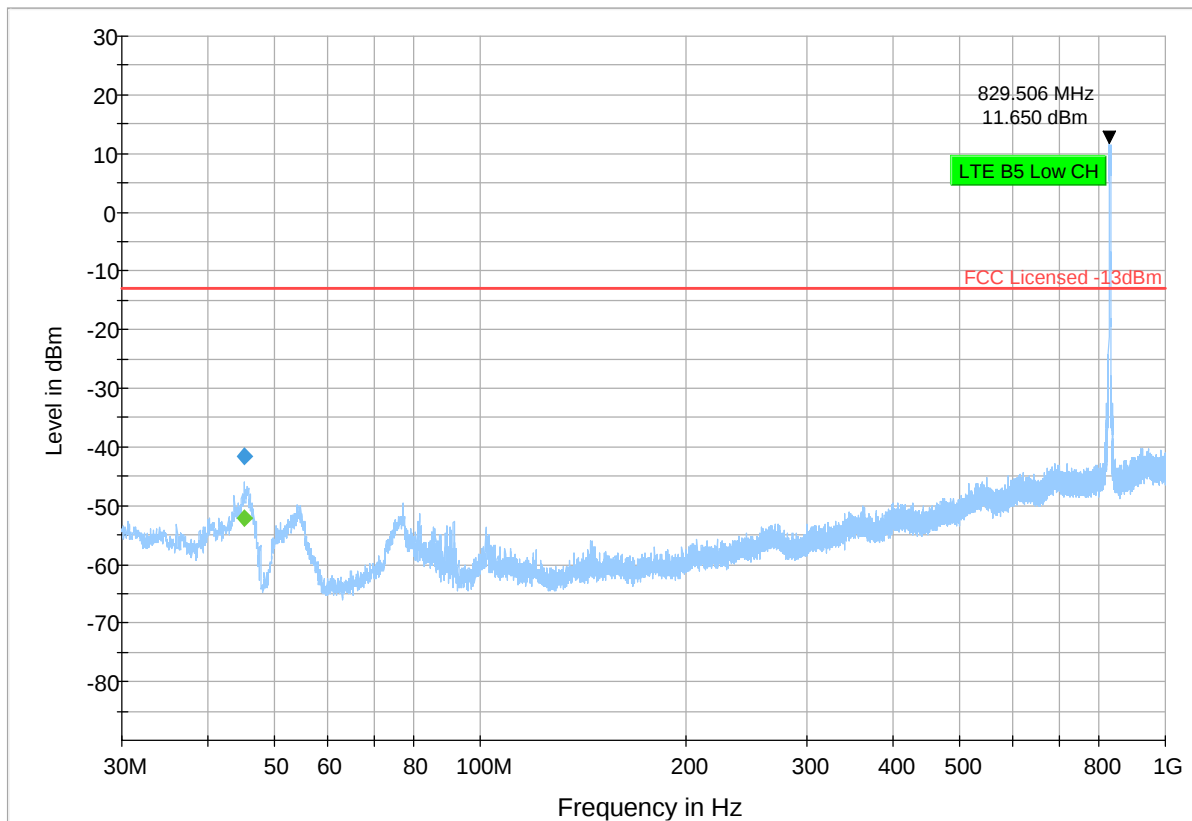
LTE 5

Plot # 55 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

Final Result

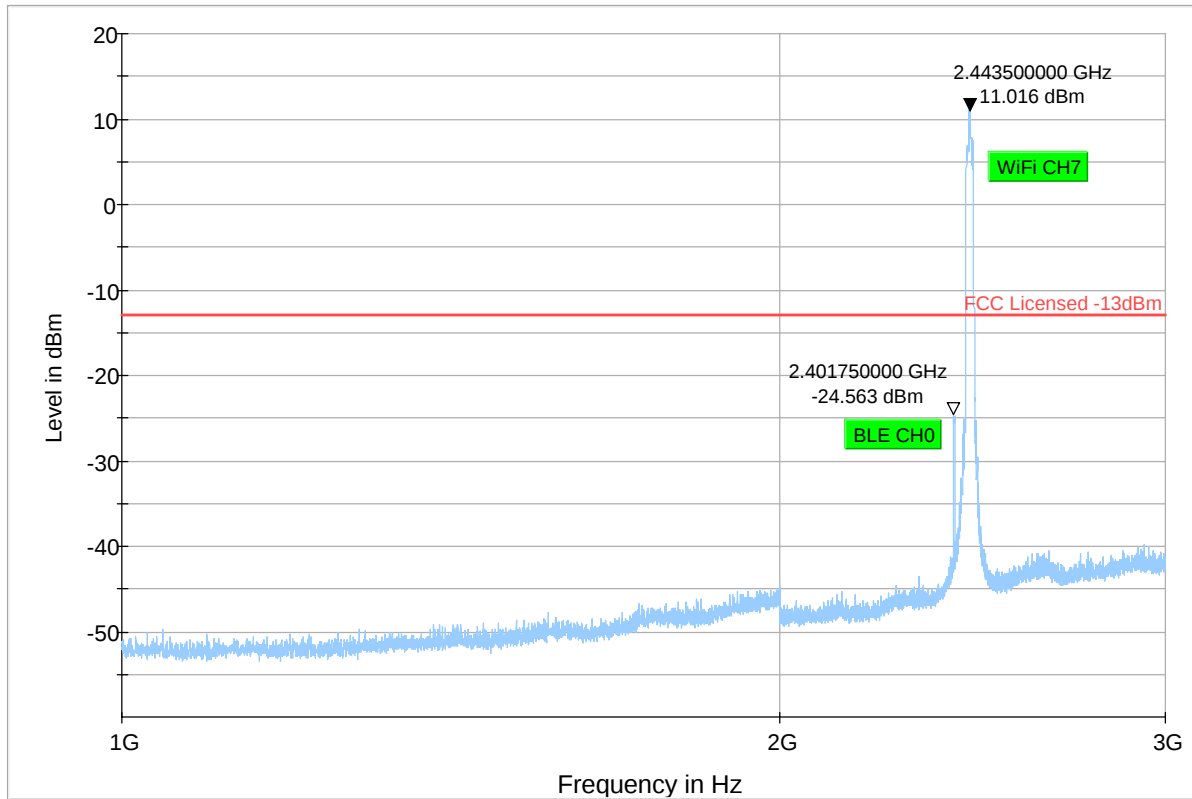
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.261	---	-52.040	---	---	500.0	100.000	149.0	V	73.0	-80.8
45.261	-41.587	---	-13.00	28.59	500.0	100.000	149.0	V	73.0	-80.8



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

Plot # 56 Radiated Emissions: 1 GHz - 3 GHz

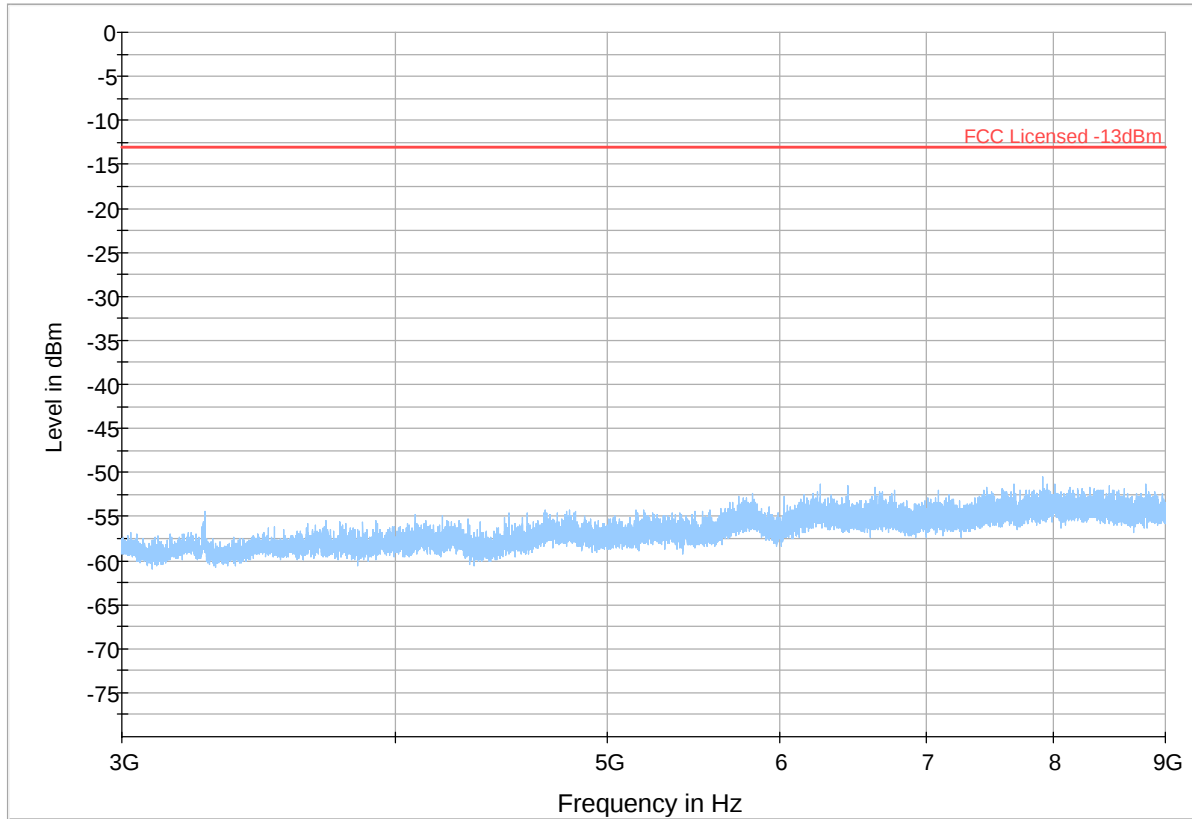
Channel: Low



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

Plot # 57 Radiated Emissions: 3 GHz – 9 GHz

Channel: Low



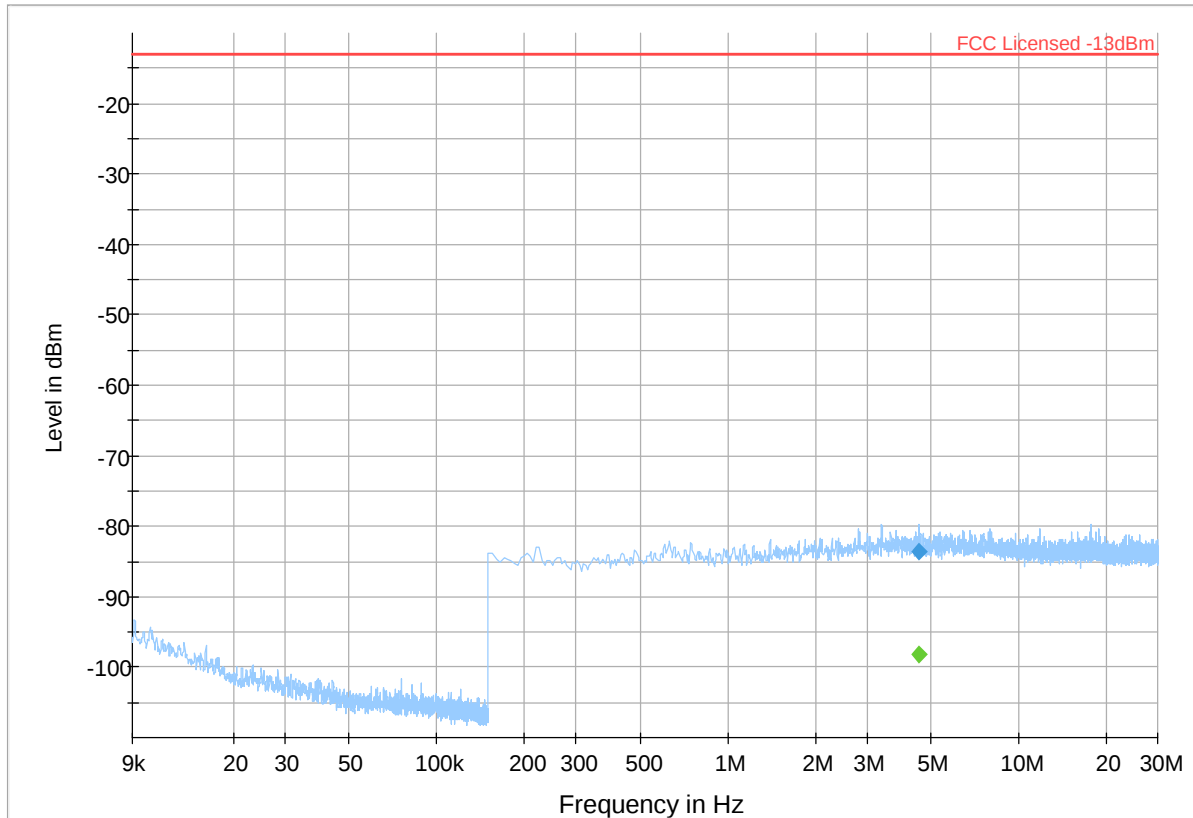
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 58 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4.51	---	-98.26	---	---	500.0	9.0	100.0	V	70.0	-77.1
4.51	-83.66	---	-13.00	70.66	500.0	9.0	100.0	V	70.0	-77.1



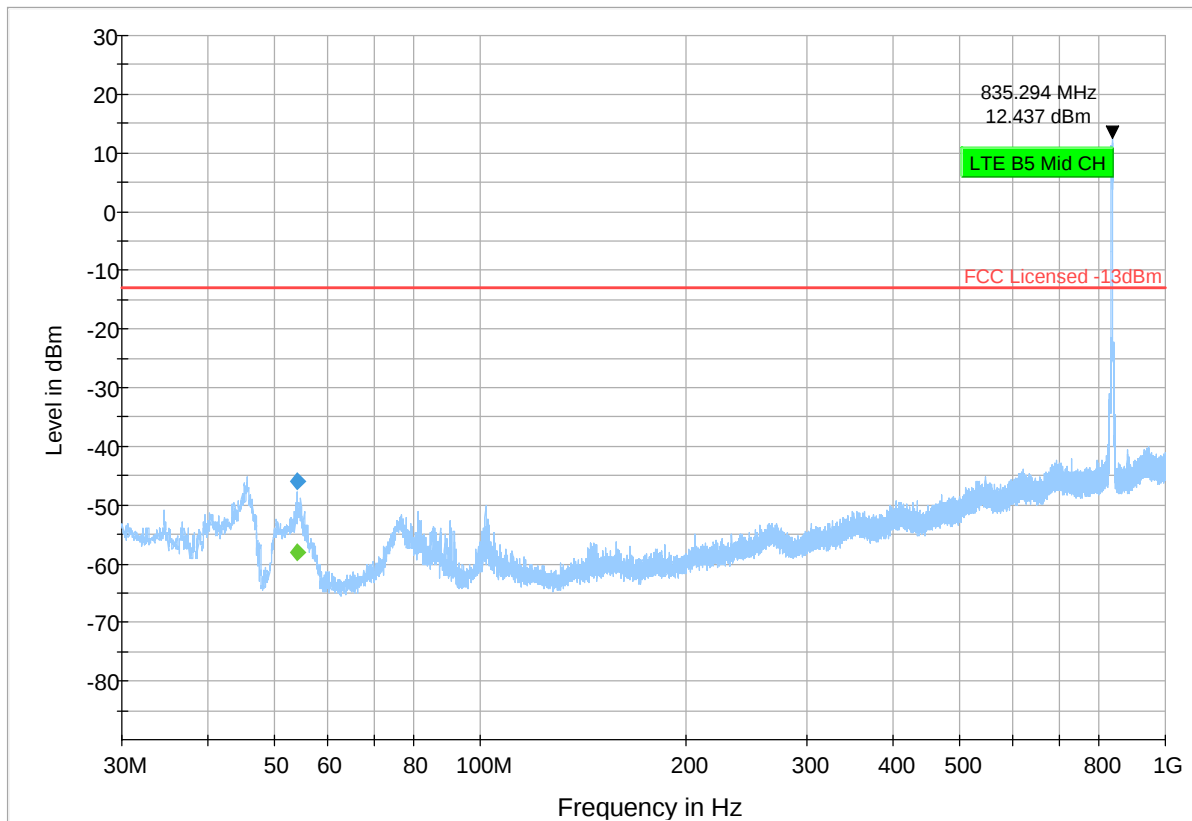
— Preview Result 1-PK+
 — FCC Licensed -13dBm
 ◆ Final_Result PK+
 ◆ Final_Result RMS

Plot # 59 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

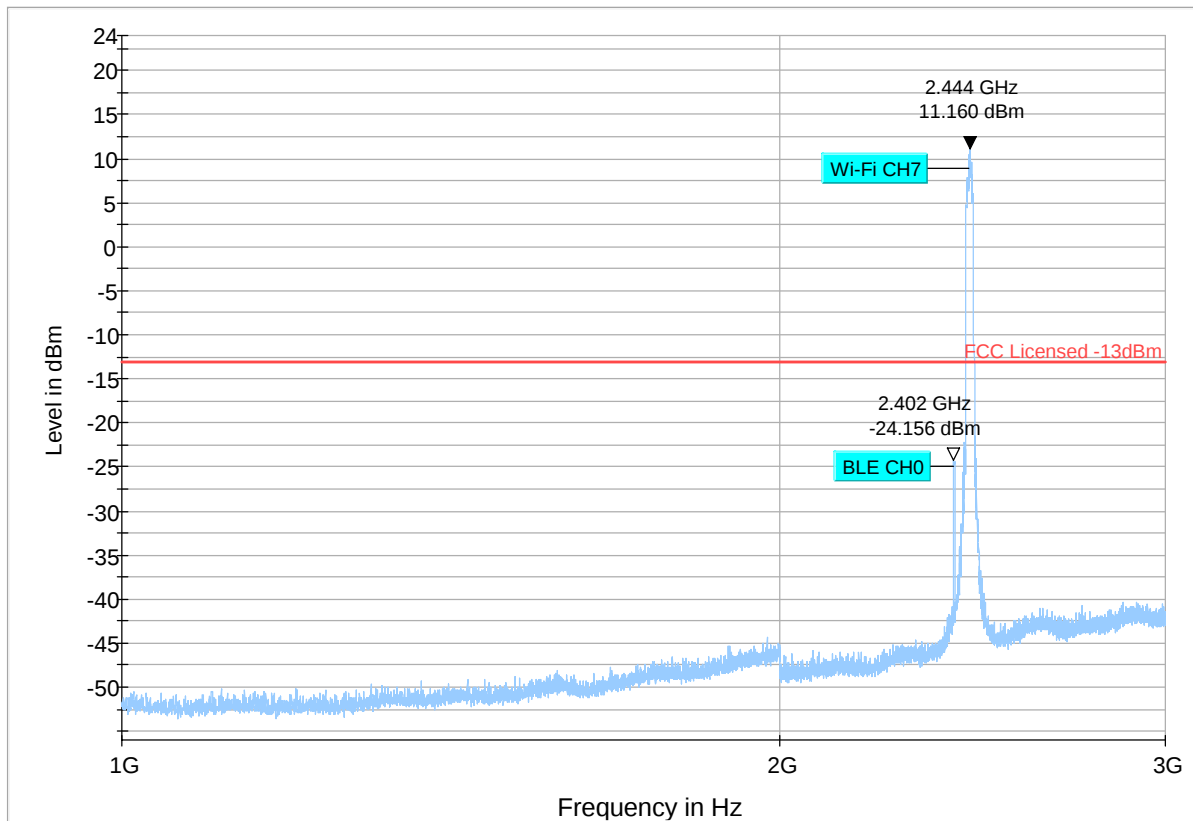
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
54.121	---	-58.015	---	---	500.0	100.000	149.0	V	74.0	-81.2
54.121	-45.999	---	-13.00	33.00	500.0	100.000	149.0	V	74.0	-81.2



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

Plot # 60 Radiated Emissions: 1 GHz - 3 GHz

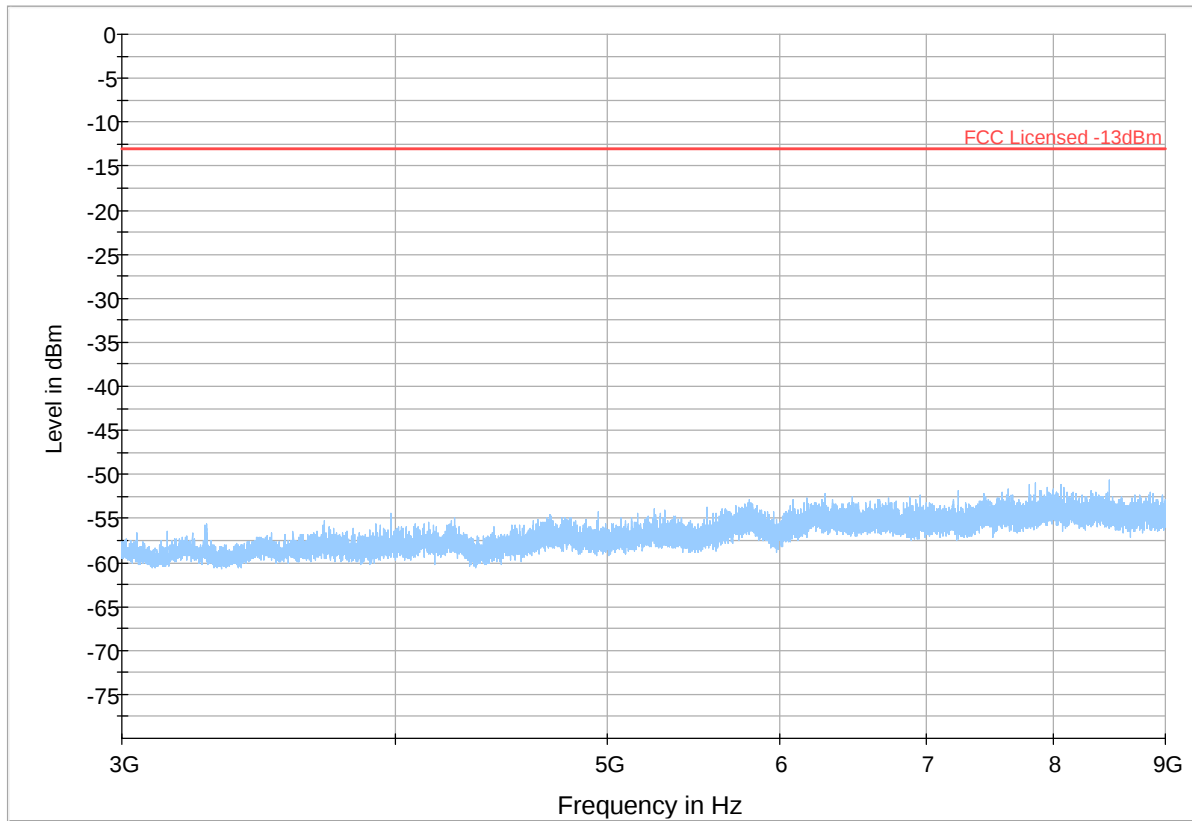
Channel: Mid



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

Plot # 61 Radiated Emissions: 3 GHz – 9 GHz

Channel: Mid



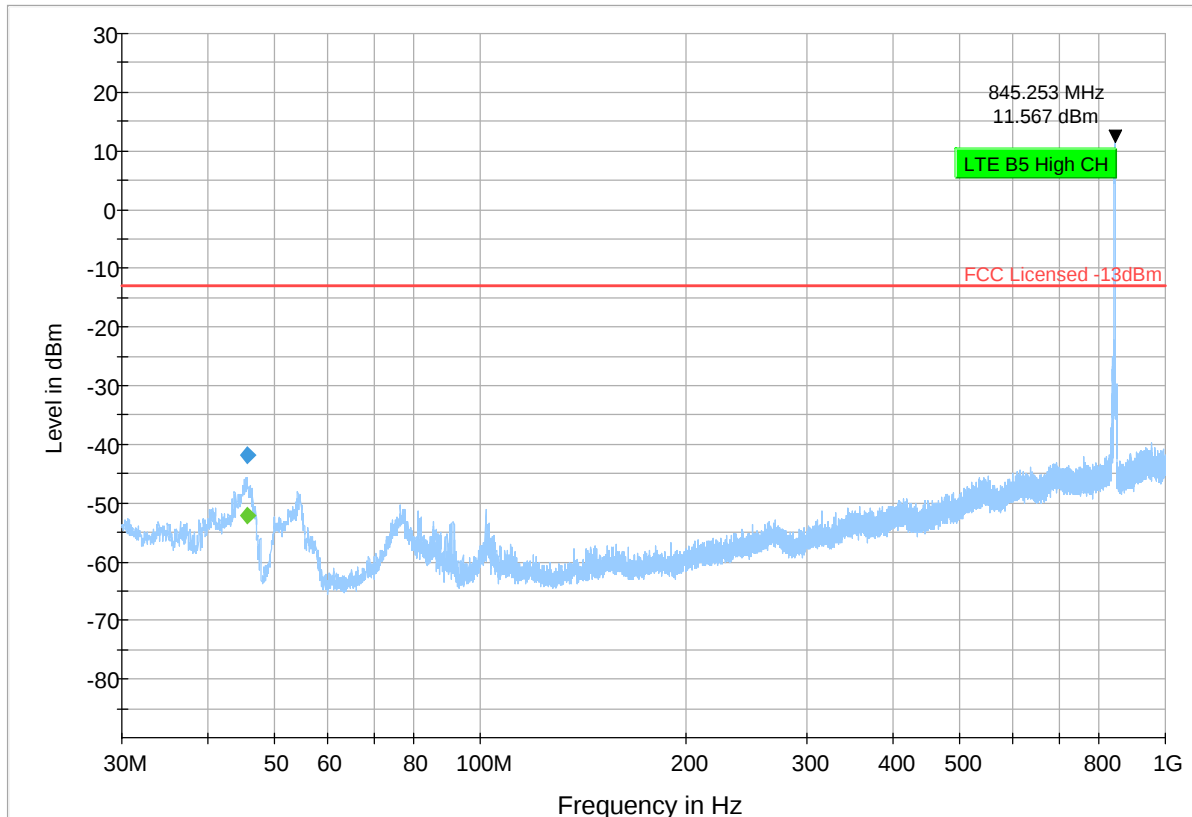
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 62 Radiated Emissions: 30 MHz – 1GHz

Channel: High

Final Result

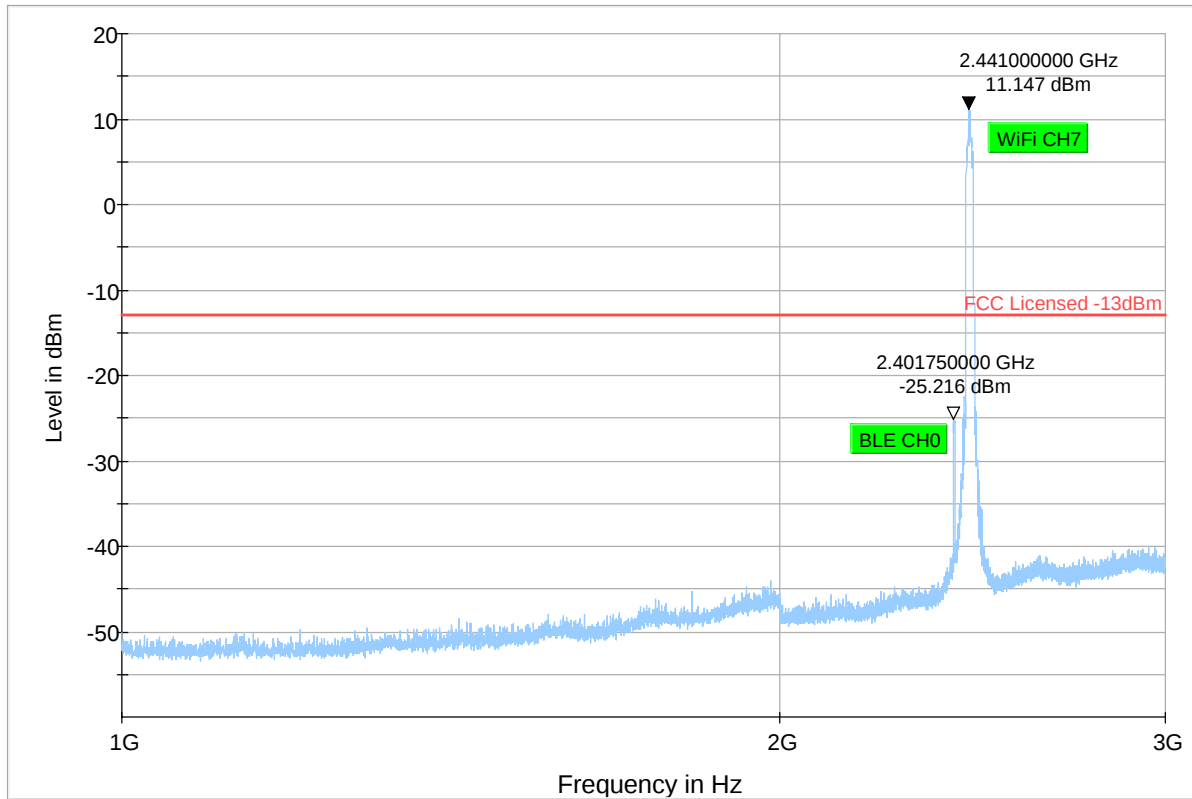
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
45.746	---	-52.175	---	---	500.0	100.000	149.0	V	49.0	-81.0
45.746	-41.926	---	-13.00	28.93	500.0	100.000	149.0	V	49.0	-81.0



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

Plot # 63 Radiated Emissions: 1 GHz - 3 GHz

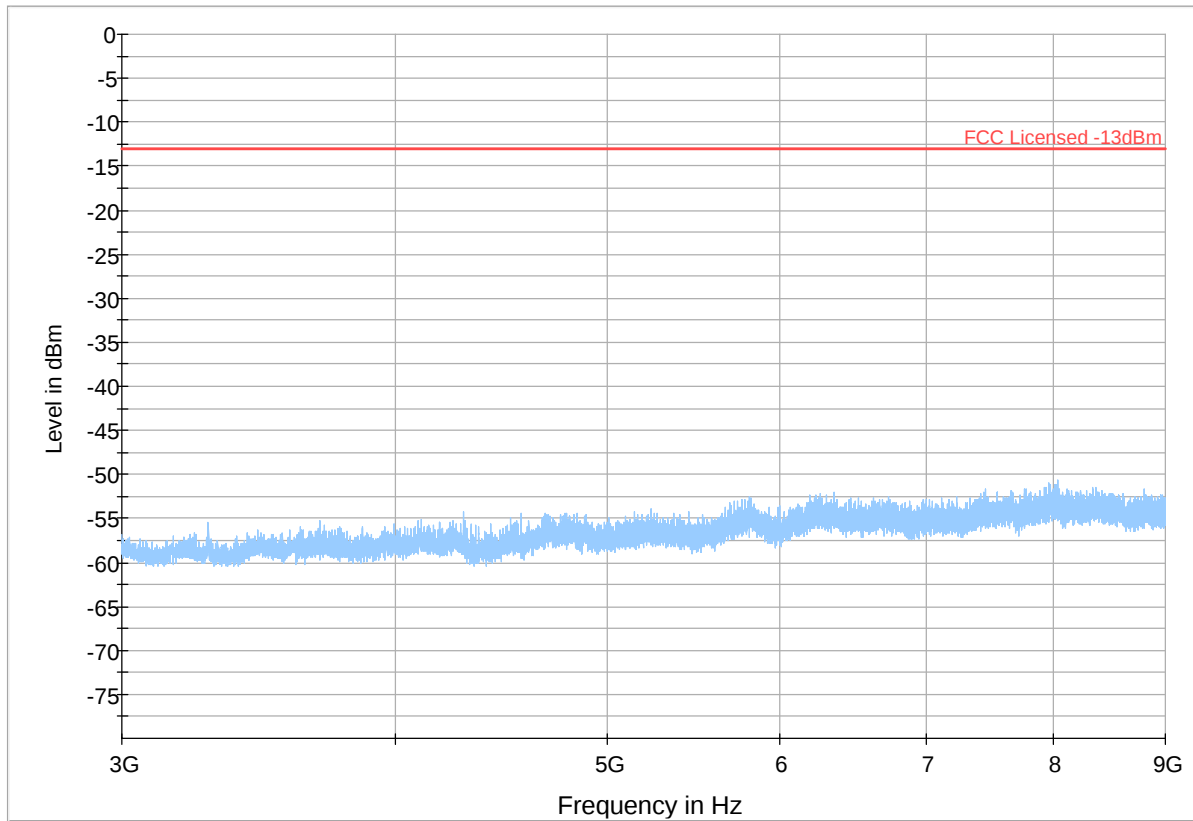
Channel: High



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

Plot # 64 Radiated Emissions: 3 GHz – 9 GHz

Channel: High



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

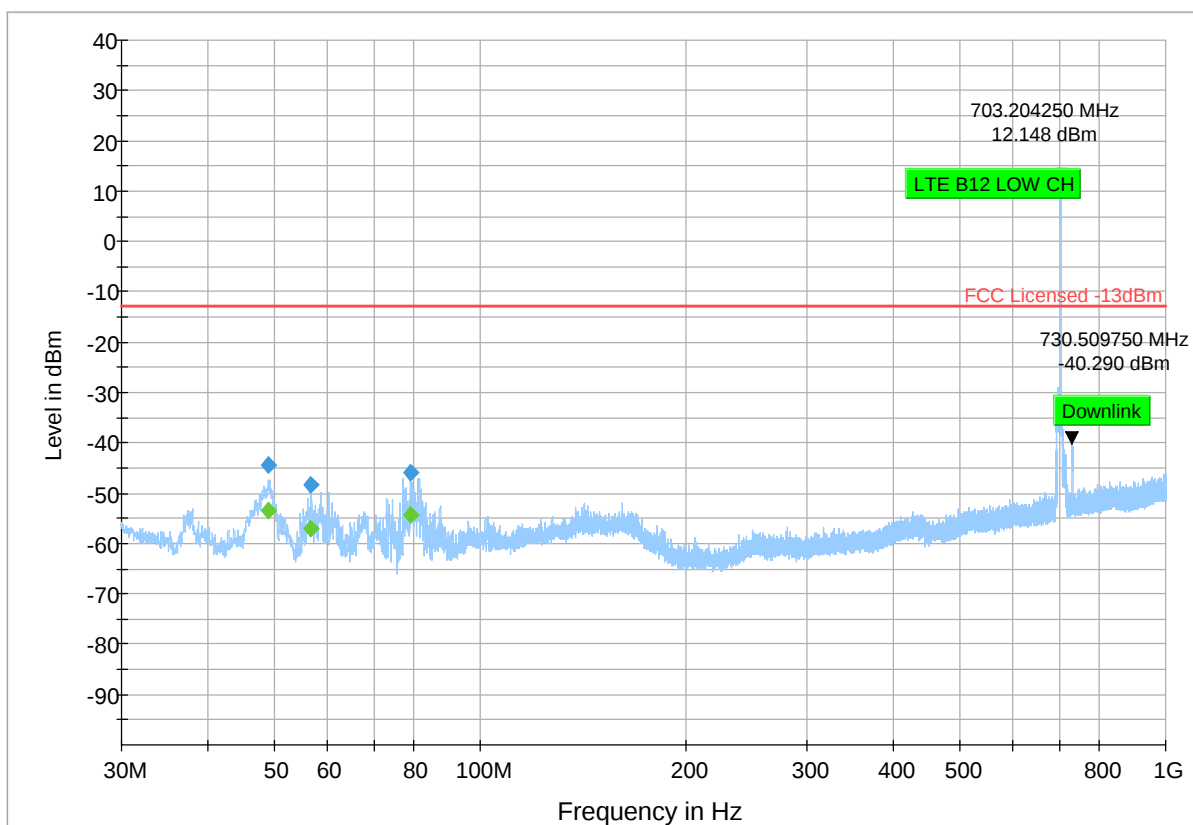
LTE 12

Plot # 65 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
49.16	---	-53.45	---	---	500.0	100.0	100.0	V	151.0	-79.1
49.16	-44.34	---	-13.00	31.34	500.0	100.0	100.0	V	151.0	-79.1
56.72	-48.28	---	-13.00	35.28	500.0	100.0	150.0	V	29.0	-81.7
56.72	---	-57.13	---	---	500.0	100.0	150.0	V	29.0	-81.7
79.18	-46.07	---	-13.00	33.07	500.0	100.0	193.0	V	-22.0	-80.6
79.18	---	-54.33	---	---	500.0	100.0	193.0	V	-22.0	-80.6



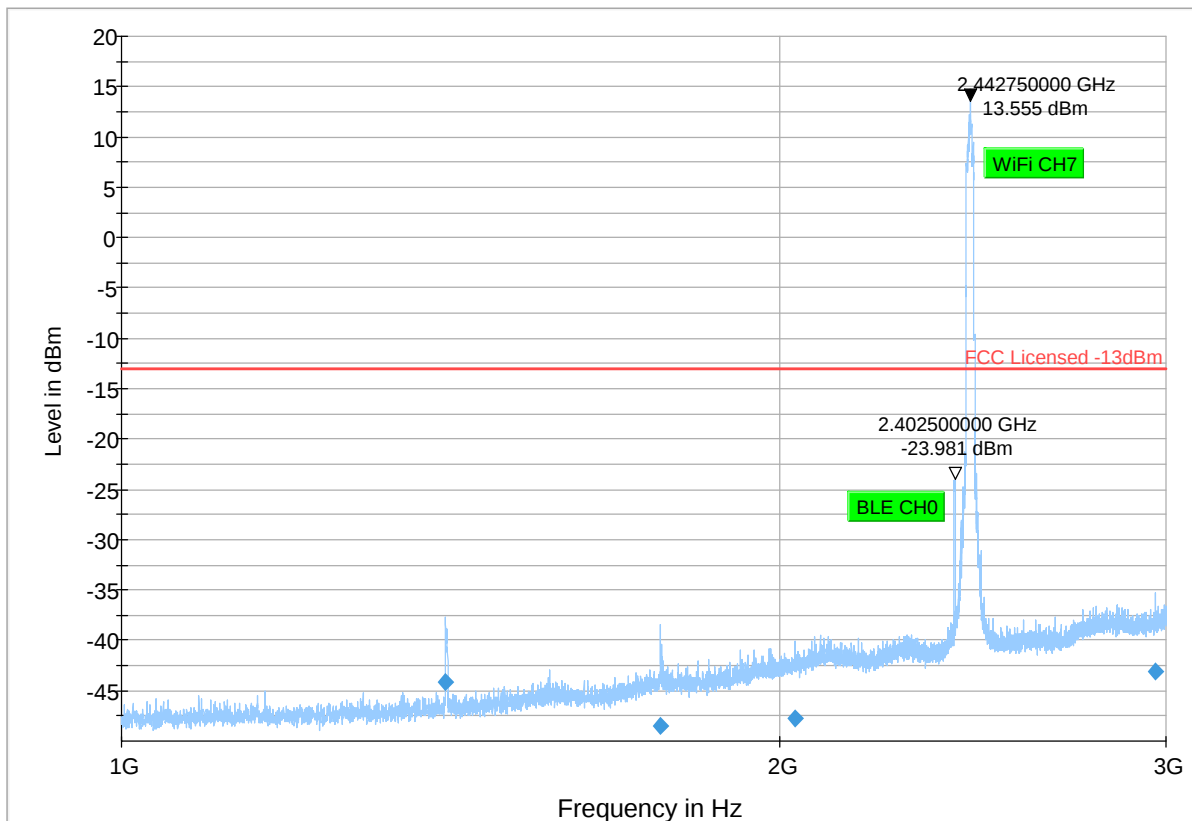
— Preview Result 1-PK+
 — FCC Licensed -13dBm
 ◆ Final_Result PK+
 ◆ Final_Result RMS

Plot # 66 Radiated Emissions: 1 GHz - 3 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)
1406.750	-44.168	-13.00	31.17	500.0	1000.000	162.0	H	330.0	-64.1
1763.750	-48.501	-13.00	35.50	500.0	1000.000	296.0	H	110.0	-62.4
2031.250	-47.748	-13.00	34.75	500.0	1000.000	315.0	H	38.0	-60.9
2966.000	-43.159	-13.00	30.16	500.0	1000.000	149.0	V	283.0	-58.2



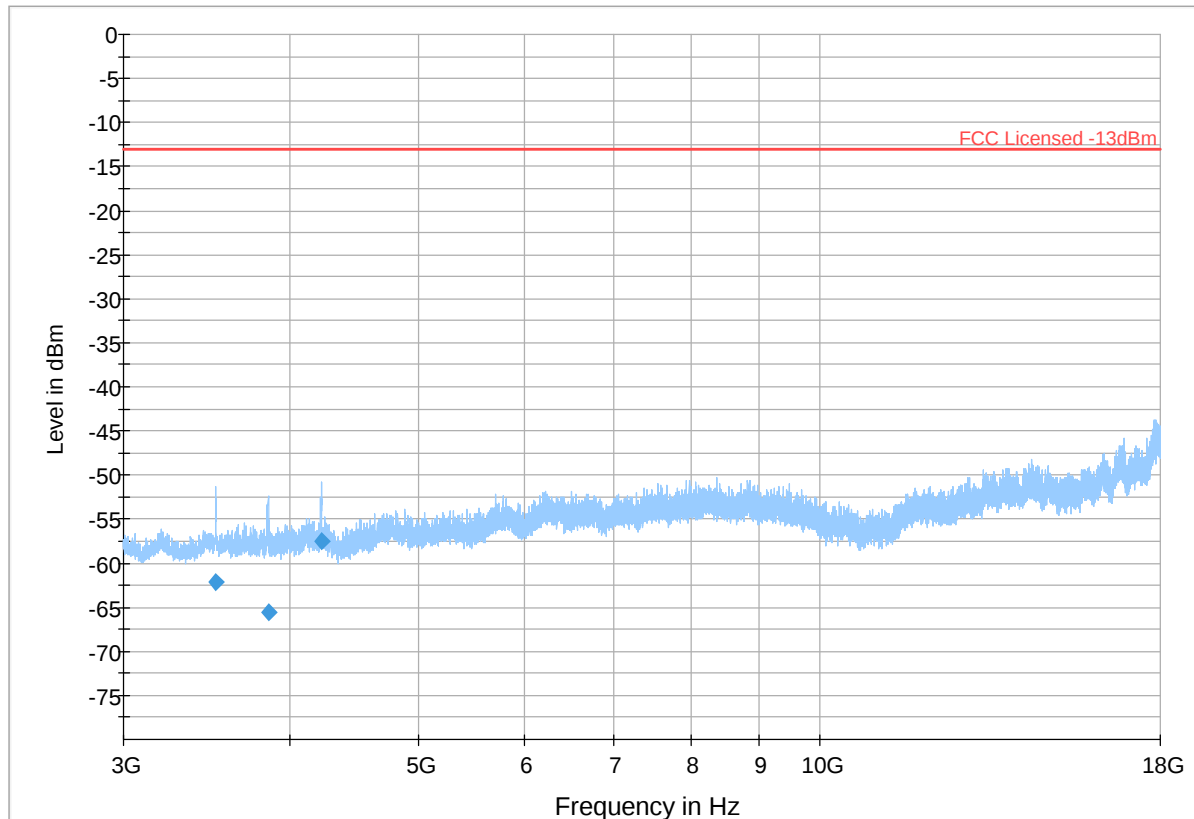
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 67 Radiated Emissions: 3 GHz – 9 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)
3519.000	-62.084	-13.00	49.08	500.0	1000.000	245.0	V	322.0	-102.2
3851.500	-65.551	-13.00	52.55	500.0	1000.000	185.0	H	313.0	-101.3
4224.000	-57.587	-13.00	44.59	500.0	1000.000	175.0	V	298.0	-100.1



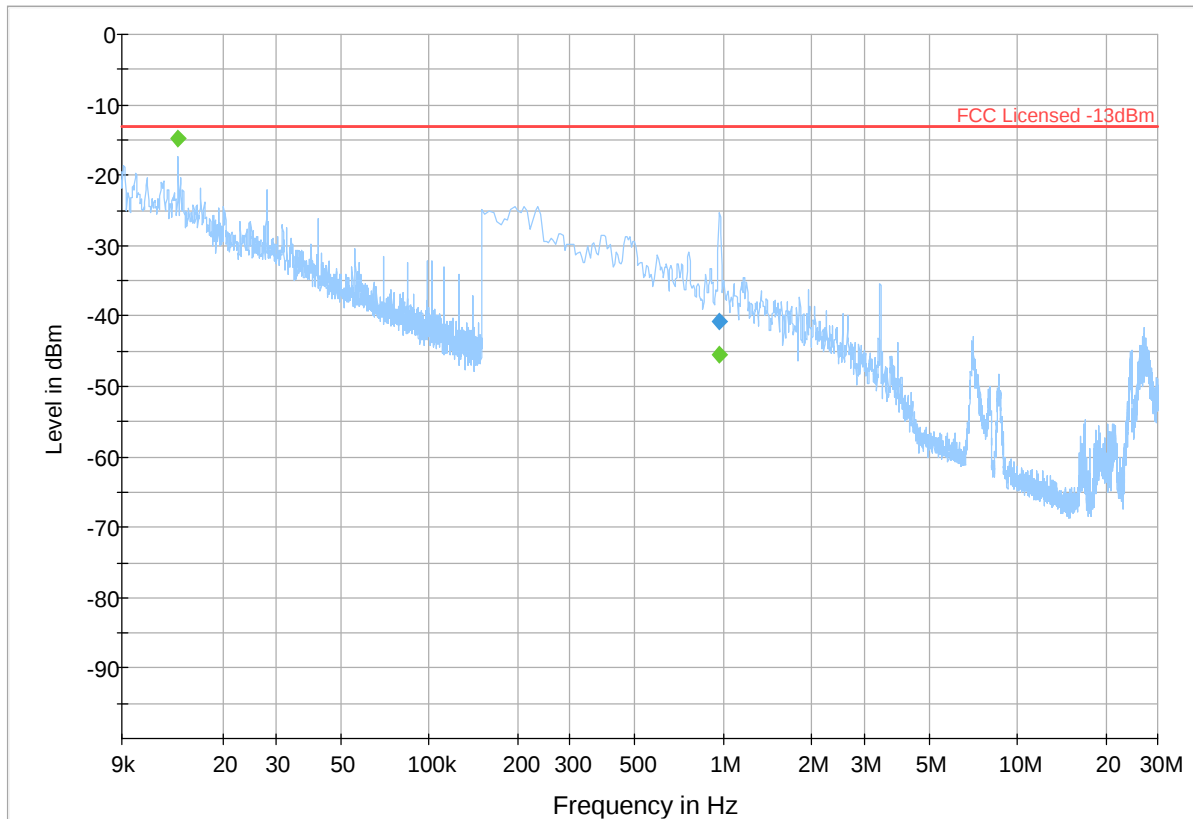
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 68 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.01	---	-14.90	---	---	500.0	1.0	100.0	V	224.0	-68.7
0.97	-40.82	---	-13.00	27.82	500.0	1.0	100.0	V	235.0	-77.0
0.97	---	-45.48	---	---	500.0	1.0	100.0	V	235.0	-77.0



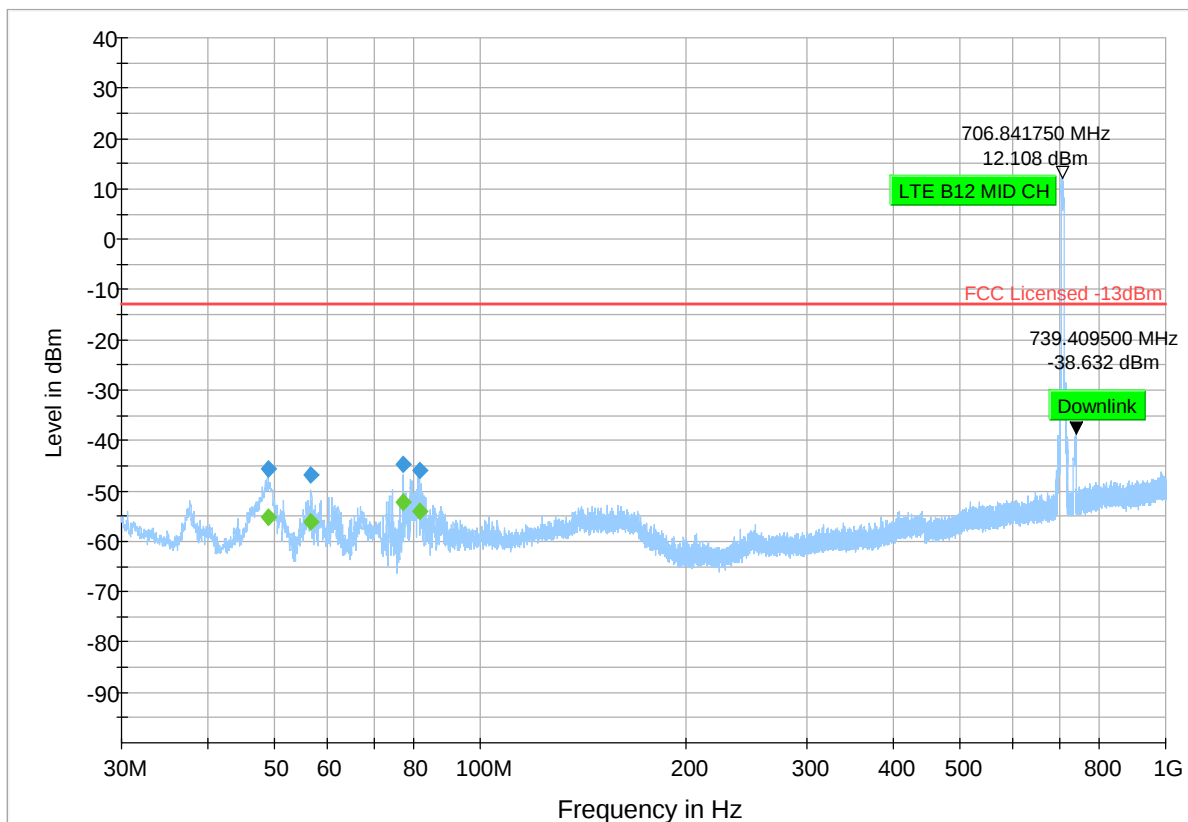
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result PK+ ◆ Final_Result RMS

Plot # 69 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
49.04	-45.61	---	-13.00	32.61	500.0	100.0	100.0	V	138.0	-79.1
49.04	---	-55.24	---	---	500.0	100.0	100.0	V	138.0	-79.1
56.75	---	-56.06	---	---	500.0	100.0	125.0	V	21.0	-81.7
56.75	-46.68	---	-13.00	33.68	500.0	100.0	125.0	V	21.0	-81.7
77.17	-44.85	---	-13.00	31.85	500.0	100.0	143.0	V	349.0	-81.0
77.17	---	-52.22	---	---	500.0	100.0	143.0	V	349.0	-81.0
81.46	---	-54.03	---	---	500.0	100.0	133.0	V	29.0	-79.9
81.46	-46.05	---	-13.00	33.05	500.0	100.0	133.0	V	29.0	-79.9



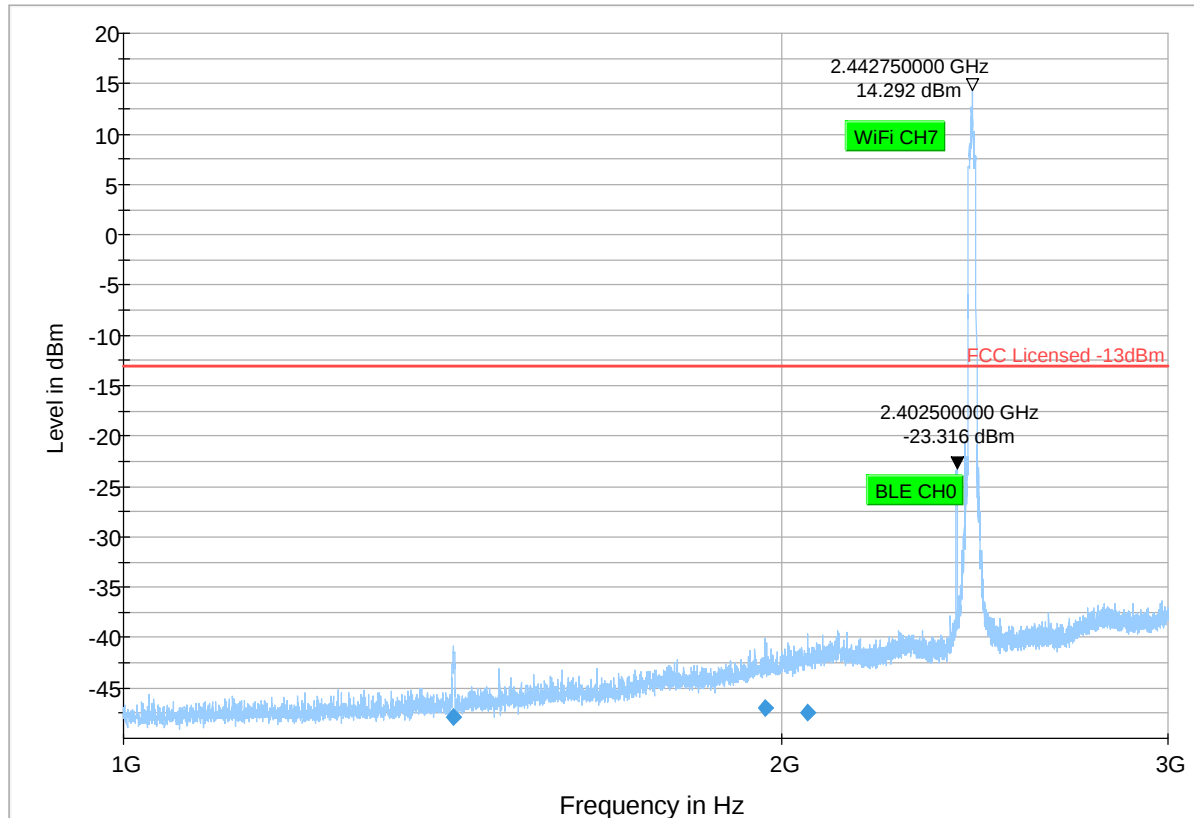
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 70 Radiated Emissions: 1 GHz - 3 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)
1415.750	-47.946	-13.00	34.95	500.0	1000.000	196.0	H	20.0	-64.1
1964.250	-46.925	-13.00	33.92	500.0	1000.000	315.0	H	312.0	-61.2
2055.000	-47.515	-13.00	34.51	500.0	1000.000	252.0	H	177.0	-60.8



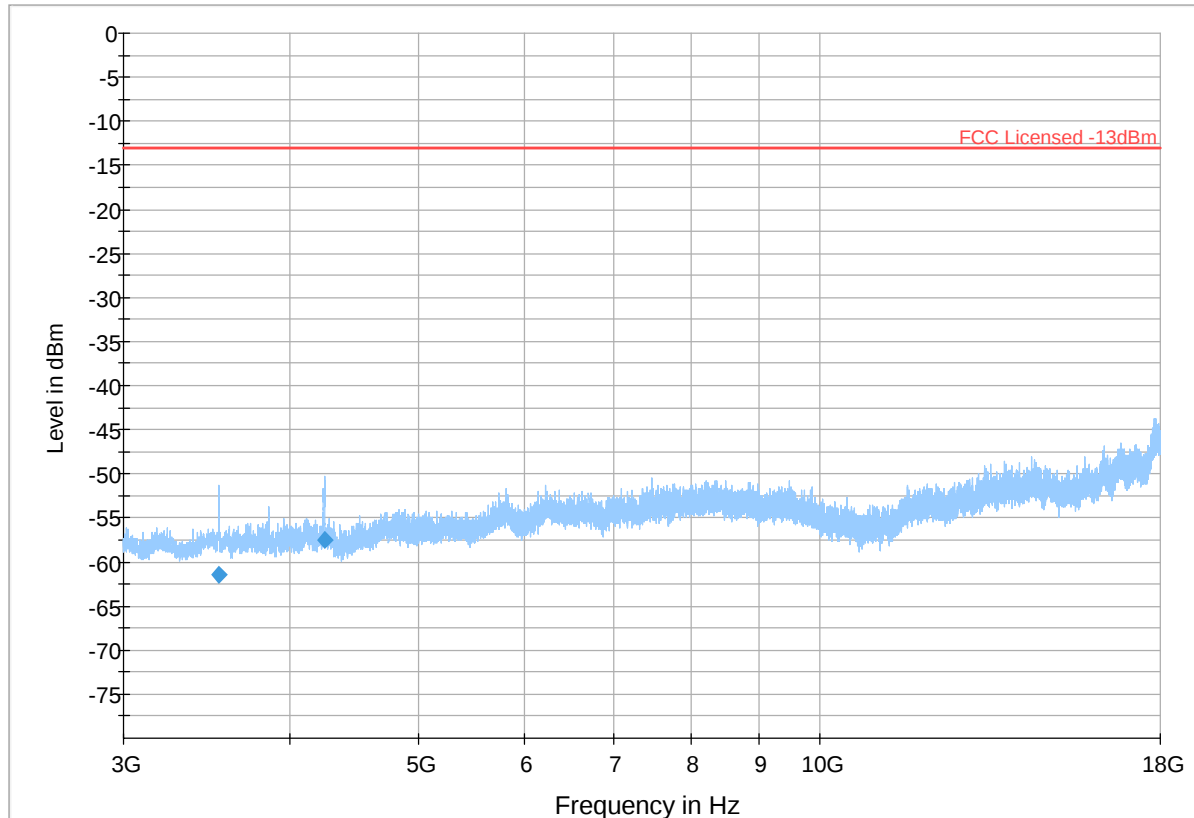
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 71 Radiated Emissions: 3 GHz – 9 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)
3537.500	-61.539	-13.00	48.54	500.0	1000.000	267.0	V	334.0	-102.3
4245.000	-57.495	-13.00	44.49	500.0	1000.000	183.0	V	311.0	-100.1



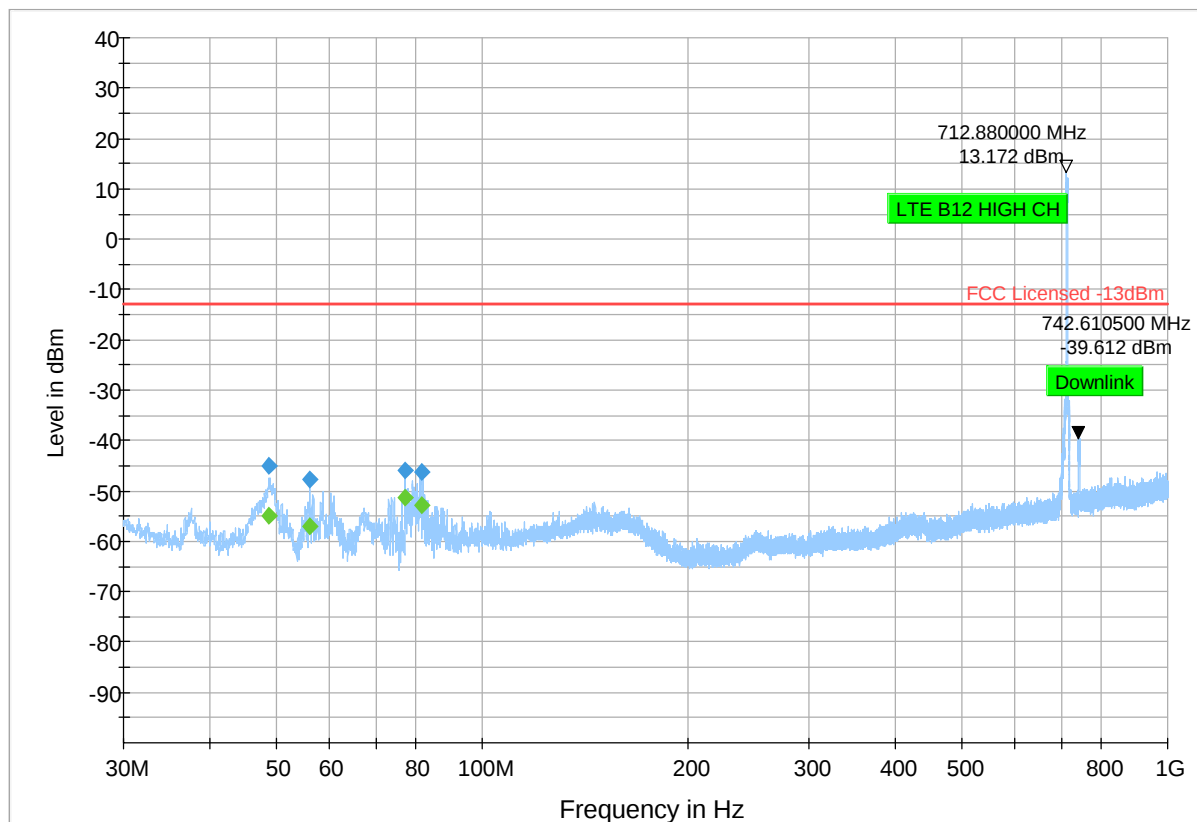
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 72 Radiated Emissions: 30 MHz – 1GHz

Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
48.99	-45.12	---	-13.00	32.12	500.0	100.0	100.0	V	153.0	-79.1
48.99	---	-54.89	---	---	500.0	100.0	100.0	V	153.0	-79.1
55.97	-47.79	---	-13.00	34.79	500.0	100.0	133.0	V	42.0	-81.6
55.97	---	-57.05	---	---	500.0	100.0	133.0	V	42.0	-81.6
77.19	---	-51.37	---	---	500.0	100.0	121.0	V	338.0	-81.0
77.19	-45.86	---	-13.00	32.86	500.0	100.0	121.0	V	338.0	-81.0
81.46	---	-52.88	---	---	500.0	100.0	142.0	V	1.0	-79.9
81.46	-46.29	---	-13.00	33.29	500.0	100.0	142.0	V	1.0	-79.9



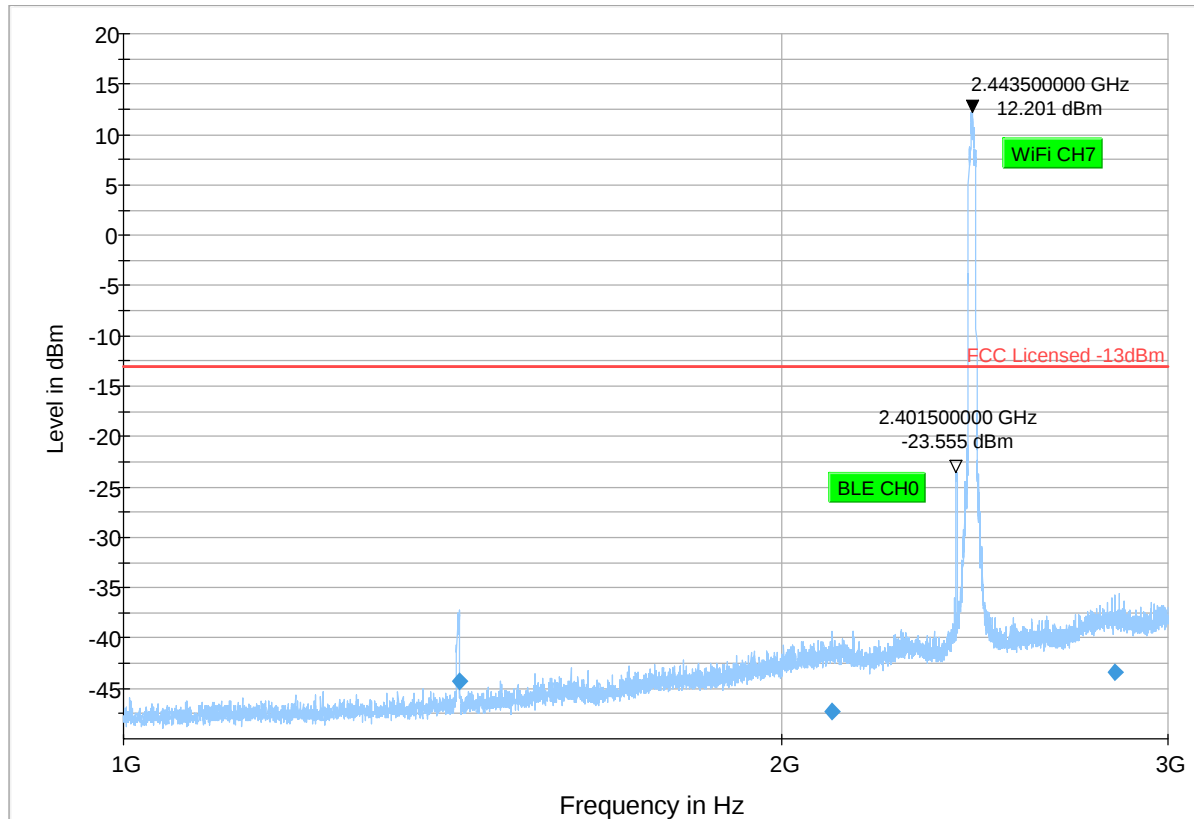
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 73 Radiated Emissions: 1 GHz - 3 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)
1423.250	-44.314	-13.00	31.31	500.0	1000.000	205.0	H	24.0	-64.0
2108.250	-47.282	-13.00	34.28	500.0	1000.000	301.0	H	292.0	-60.6
2837.750	-43.365	-13.00	30.36	500.0	1000.000	220.0	H	10.0	-58.6



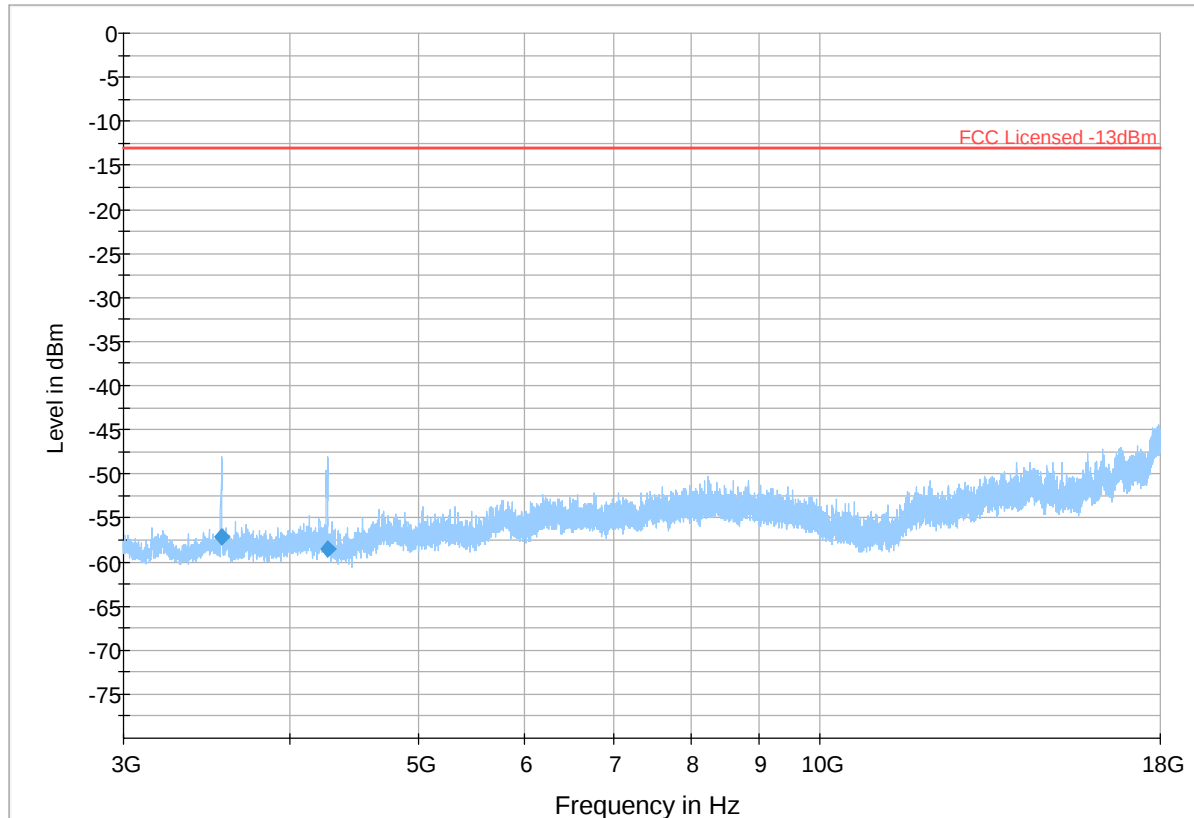
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS

Plot # 74 Radiated Emissions: 3 GHz – 9 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)
3556.500	-57.093	-13.00	44.09	500.0	1000.000	196.0	V	-17.0	-102.3
4269.500	-58.480	-13.00	45.48	500.0	1000.000	186.0	V	-44.0	-100.2



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

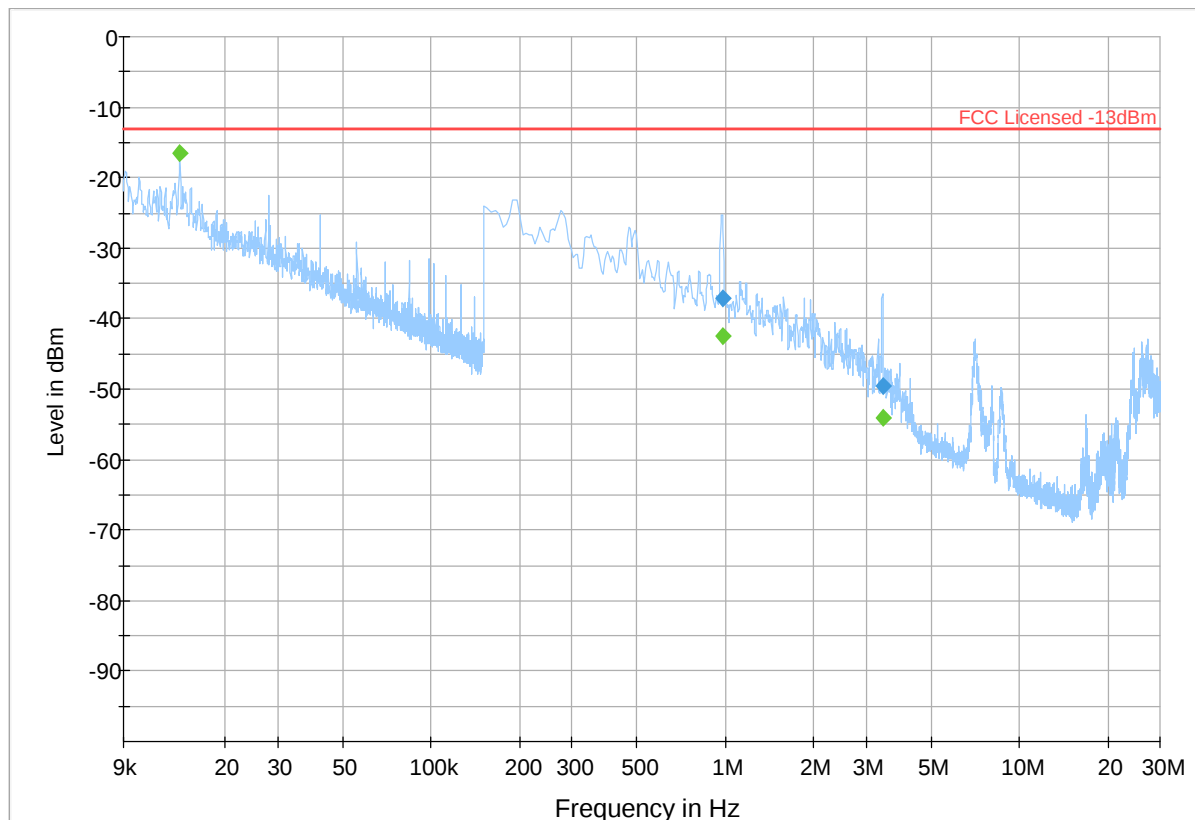
LTE 13

Plot # 75 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.01	---	-16.45	---	---	500.0	1.0	100.0	V	218.0	-68.7
0.98	-37.23	---	-13.00	24.23	500.0	1.0	100.0	V	226.0	-77.0
0.98	---	-42.60	---	---	500.0	1.0	100.0	V	226.0	-77.0
3.42	---	-53.99	---	---	500.0	1.0	100.0	V	228.0	-76.8
3.42	-49.57	---	-13.00	36.57	500.0	1.0	100.0	V	228.0	-76.8



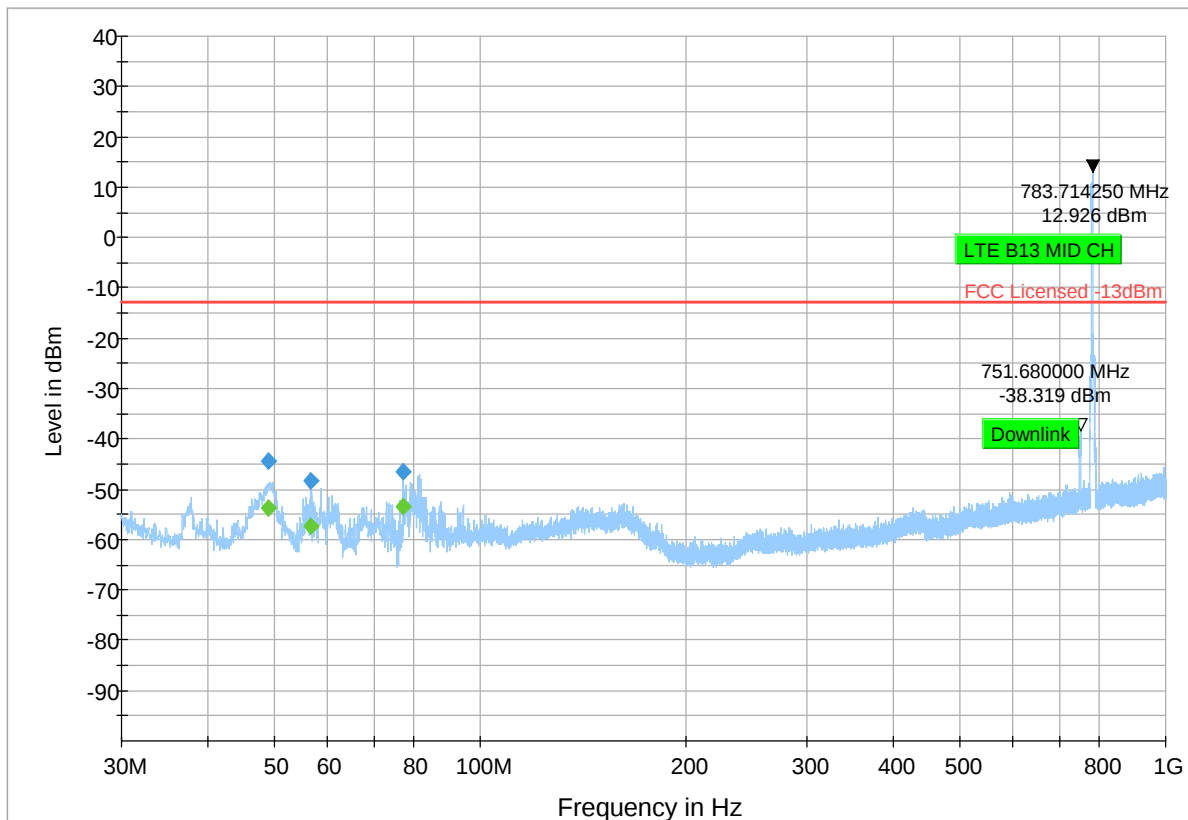
— Preview Result 1-PK+
 — FCC Licensed -13dBm
 ◆ Final_Result PK+
 ◆ Final_Result RMS

Plot # 76 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
49.21	---	-53.59	---	---	500.0	100.0	107.0	V	155.0	-79.2
49.21	-44.46	---	-13.00	31.46	500.0	100.0	107.0	V	155.0	-79.2
56.72	-48.47	---	-13.00	35.47	500.0	100.0	194.0	V	-2.0	-81.7
56.72	---	-57.27	---	---	500.0	100.0	194.0	V	-2.0	-81.7
77.17	-46.49	---	-13.00	33.49	500.0	100.0	177.0	V	-34.0	-81.0
77.17	---	-53.43	---	---	500.0	100.0	177.0	V	-34.0	-81.0



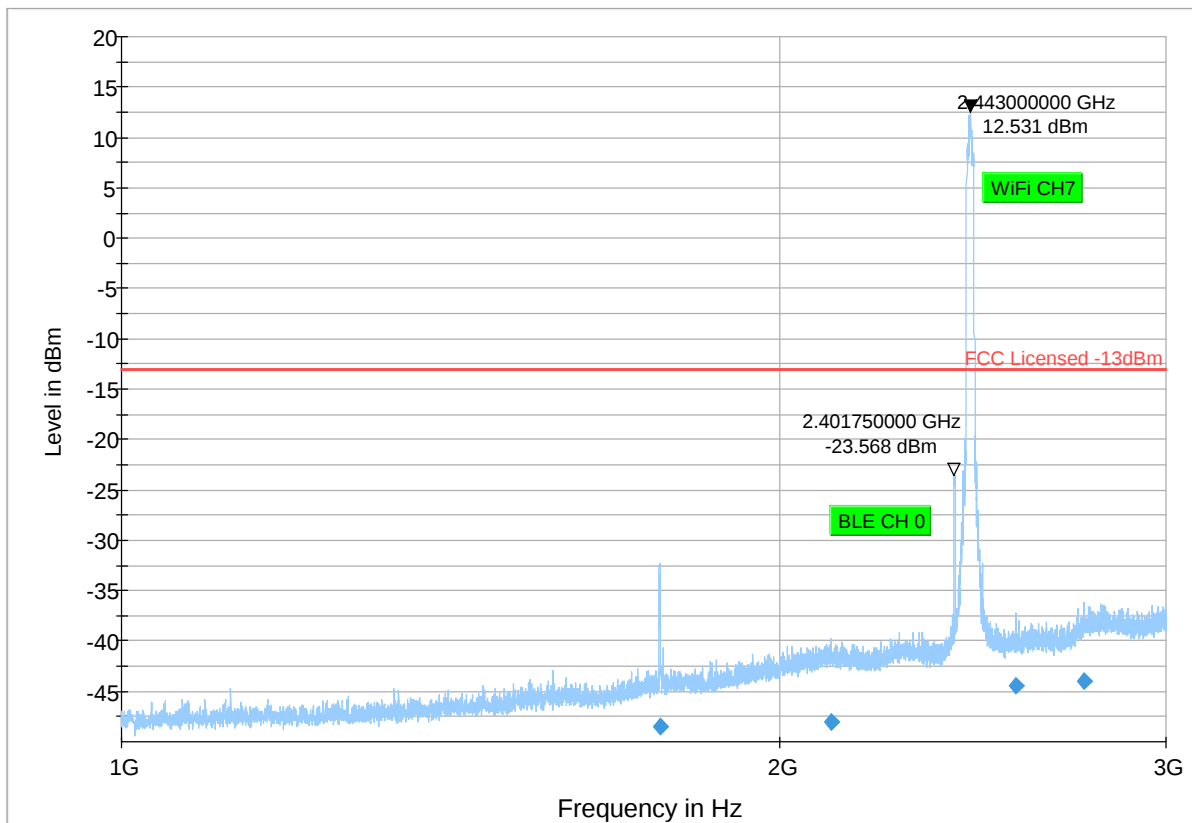
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result PK+ Final_Result RMS

Plot # 77 Radiated Emissions: 1 GHz - 3 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)
1761.500	-48.502	-13.00	35.50	500.0	1000.000	227.0	H	269.0	-62.4
2109.750	-48.083	-13.00	35.08	500.0	1000.000	300.0	V	179.0	-61.4
2561.750	-44.470	-13.00	31.47	500.0	1000.000	210.0	H	116.0	-59.4
2754.250	-43.969	-13.00	30.97	500.0	1000.000	186.0	H	132.0	-58.6



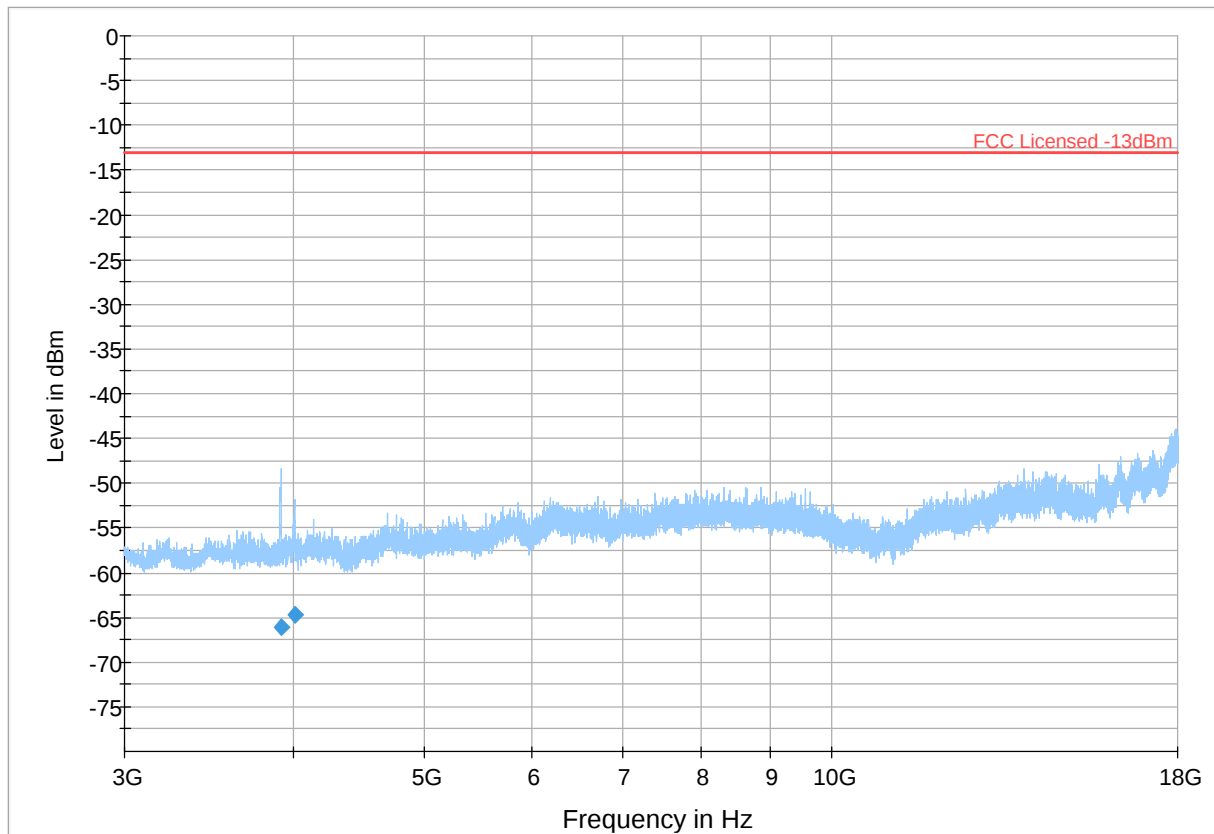
— Preview Result 1-PK+ — FCC Licensed -13dBm ◆ Final_Result RMS

Plot # 78 Radiated Emissions: 3 GHz – 9 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)
3913.000	-66.074	-13.00	53.07	500.0	1000.000	205.0	H	20.0	-101.0
4005.500	-64.766	-13.00	51.77	500.0	1000.000	199.0	H	296.0	-100.5



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

8 Test setup photos

Setup photos are included in supporting file name: "EMC_KPTRK_040_23001_FCC_ISED_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	10/30/2020
BICONILOG ANTENNA	ETS Lindgren	3142E	00166067	3 YEARS	6/8/2022
HORN ANTENNA	EMCO	3115	00035114	3 YEARS	8/10/2020
HORN ANTENNA	ETS LINDGREN	3117-PA	00215984	3 YEARS	1/31/2021
HORN ANTENNA	ETS LINDGREN	3116C-PA	00169535	3 YEARS	9/23/2020
EMI RECEIVER	R&S	ESU40	100251	3 YEARS	9/13/2021
DIGITAL THERMOMETER	CONTROL COMPANY	36934-164	191871986	3 YEARS	10/20/2021

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
6/28/2023	EMC_KPTRK_040_23001_FCC_22_24_27_ISED	Initial Version	Issa Ghanma

<<< The End >>>
