FCC/ISED Test Report

FOR:
Zipcar Inc.

Brand:
Zipcar

Marketing name:
M400

Model #:
M400

Product Description:
Provide telemetry data to Zipcar backend

FCC ID: 2AYUAM400
IC ID: 21268-M400

Per:
Title 47 CFR: Part 22, Part 24, Part 27, Part 90s
RSS-130 Issue 2, RSS-132 Issue 3; RSS-133 Issue 6; RSS-139 Issue 3; RSS-140 Issue 1

REPORT #: EMC_ZIPCA_009_20001_FCC 22_24_27_90_ISED_REV1

DATE: 4/27/2021

A2LA Accredited

IC recognized # 3462B

***CETECOM* Inc.**
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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 of cellular and Wi-Fi 2.4 GHz radio according to criteria specified in the Code of Federal Regulations Title 47 CFR: Part 22, Part 24, Part 27, Part 90s and Industry Canada Radio Standard Specifications RSS-130 Issue 2, RSS-132 Issue 3; RSS-133 Issue 6; RSS-139 Issue 3; RSS-140 Issue 1.

No deficiencies were ascertained.

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

Company	Description	Model #
Zipcar Inc.	Provide telemetry data to Zipcar backend	M400

Responsible for Testing Laboratory:

Date	Section	Name	Signature
4/27/2021	Compliance	Wang, Kevin (Lab Manager)	kevin.wang@cetecom.com Digitally signed by: kevin.wang@cetecom.com DN: CN = kevin.wang@cetecom.com Date: 2021.04.27 21:44:35 -07'00'

Responsible for the Report:

Date	Section	Name	Signature
4/27/2021	Compliance	Ghanma, Issa (EMC Engineer)	Digitally signed by: Issa W Ghanma DN: CN = Issa W Ghanma email = issa.ghanma@cetecom.com C = US O = CETECOM Inc. OU = EMC Date: 2021.04.27 17:10:49 -07'00'

The test results of this test report relate exclusively to the test item specified in Section3.
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:	Wang, Kevin
Responsible Project Leader:	Saman, Rami

2.1 Identification of the Client

Applicant's Name:	Zipcar Inc.
Street Address:	35 Thomson Place
City/Zip Code	Boston, MA 02210
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 #:	M400
FCC ID:	2AYUAM400
IC ID:	21268-M400
HW Version :	E4
SW Version :	670
HVIN:	M400
PMN:	M400
Product Description:	Provide telemetry data to Zipcar backend
Transceiver Technology / Type(s) of Modulation:	❖ Cellular Module: • Name / Number : Telit / LE910C1-NF • FCC / IC ID : RI7LE910CXNF / 5131A-LE910CXNF ▪ 4G Bands : B 2, B 4, B 5, B 12, B 13, B 14, B 66, B 71 ▪ 3G Bands : B II, B IV, B V
Frequency Range:	• UMTS Band II : 1850 ~ 1910 MHz • UMTS Band IV : 1710 ~ 1755 MHz • UMTS Band V : 824 ~ 849 MHz • LTE Band 2 : 1850 ~ 1910 MHz • LTE Band 4 : 1710 ~ 1755 MHz • LTE Band 5 : 824 ~ 849 MHz • LTE Band 12 : 699 ~ 716 MHz • LTE Band 13 : 777 ~ 787 MHz • LTE Band 14 : 788 ~ 798 MHz • LTE Band 66 : 1710 ~ 1780 MHz • LTE Band 71 : 663 ~ 698 MHz

Max. declared antenna gain:	❖ External Antenna Mounted Under Dash: • Optimus MA220 2in1 GPS-GLONASS-GALILO/ LTE External Adhesive Antenna for Glass & Plastic Mount. • Peak gain [dBi] ▪ 698 ~ 798 MHz : -0.71 ▪ 791 ~ 862 MHz : -0.05 ▪ 824 ~ 894 MHz : -0.05 ▪ 880 ~ 960 MHz : -1.07 ▪ 1710 ~ 1880 MHz : 2.21 ▪ 1850 ~ 1990 MHz : 1.71 ▪ 1920 ~ 2170 MHz : 1.63 ▪ 2570 ~ 2690 MHz : - 0.63
Power Supply/ Rated Operating Voltage Range:	Low 9 V, High 14 V DC
Operating Temperature Range:	Low -40º C, High +85º C
Other Radios included in the device:	❖ Bluetooth LE version 4.2: • Module name : ST Microelectonics • Model number : BlueNRG-M0 • FCC ID : S9NBNRGM0AL • IC ID : : 8976C-BNRGM0AL ❖ GPS – Ublox MAX-8Q ❖ 125 KHz AWID SR2400 Card reader: • FCC ID : OGSSR2400 • IC ID : 6449!-SR2400A
Sample Revision	☐ Prototype Unit; ☐ Production Unit; ■ Pre-Production
EUT Diameter	■ < 60 cm ☐ Other _____

3.2 EUT Sample details

EUT #	IMEI	HW Version	SW Version	Notes/Comments
1	357541092315144	E4	670	Radiated measurement

3.3 Accessory Equipment (AE) details

AE #	Type	Model	Brand/Manufacturer	Serial Number
1	Card reader	SR2400	AWID	Y1226-02-0410
2	Combined GPS/LTE external antenna	MA220.LB.079	Taoglas	1
3	Key Management Device	Traka	Traka	1
4	Installation Cable	17.HONDA.BK	Zipcar customer-made	1

3.4 Test Sample Configuration

EUT Set-up #	Combination of AE used for test set up	Comments
1	EUT#1 + AE#1 + AE#2 + AE#3 + AE#4	The external antenna was connected.

3.5 Mode of Operation details

Mode of Operation	Description of Operating modes	Additional Information
Op. 1	Cellular + BT-LE + 125 KHz Card reader	❖ Cellular was tested on Low, Mid and High Channels at the maximum power, simultaneous transmission with BT-LE. Cellular was configured using AT commands, through TeraTerm terminal. ❖ TeraTerm terminal also used to configure the Co-transmitter BT-LE radio to: ▪ Power : Maximum output power ▪ Transmit mode: : Continuous TX ▪ Hopping : No ▪ Frequency : 2440 MHz ▪ Data rate : 1 Mb/s ❖ Card reader AWID SR-2400 is always on with a duty cycle of 2 seconds OFF and 360ms ON. The maximum power output of this reader is 96 dB at 12 V.

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), and 125 KHz card reader, 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

The objective of the evaluation conducted by CETECOM Inc. is to perform and check radiated spurious emissions against the limits per Code of Federal Regulations Title 47 CFR: Part 22, Part 24, Part 27, Part 90s and Industry Canada Radio Standard Specifications RSS-130 Issue 2, RSS-132 Issue 3; RSS-133 Issue 6; RSS-139 Issue 3; RSS-140 Issue 1, in simultaneous transmission mode of Cellular (Telit / LE910C1-NF FCC/IC ID: RI7LE910CXNF/5131A-LE910CXNF) and BT-LE (ST MicroelectronicsBlueNRG-M0) Radios.

4.1 Dates of Testing:

2/10/2021 – 2/14/2021

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:

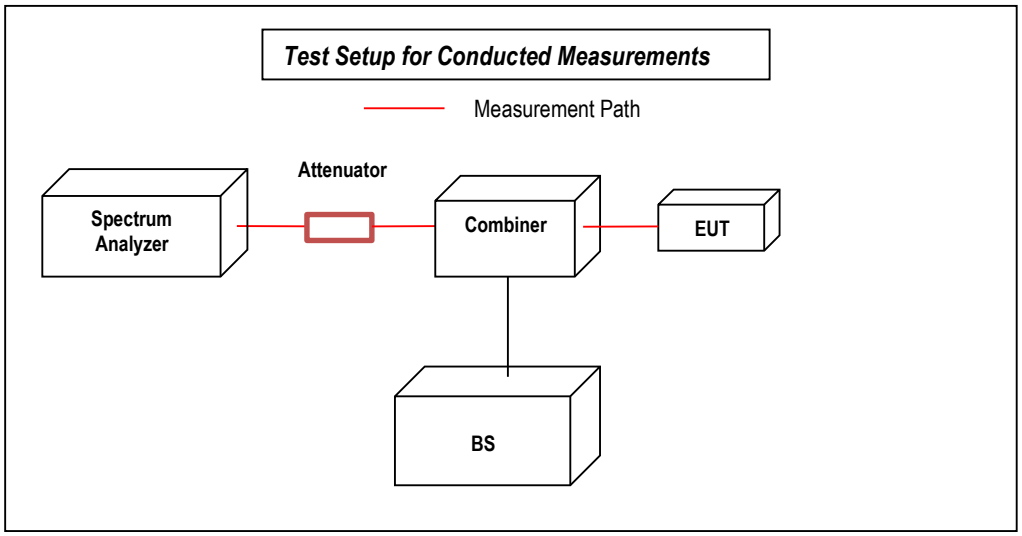
The following environmental conditions were maintained during the course of testing:

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

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

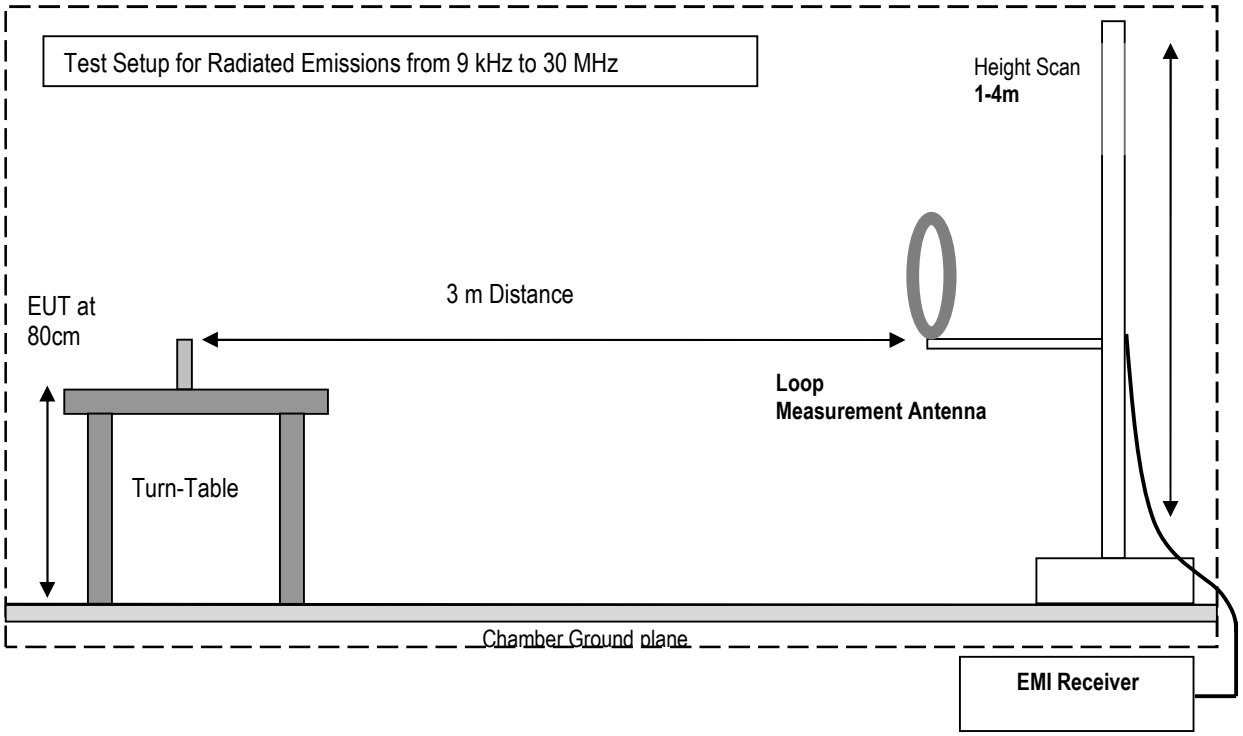
5 Measurement Procedures

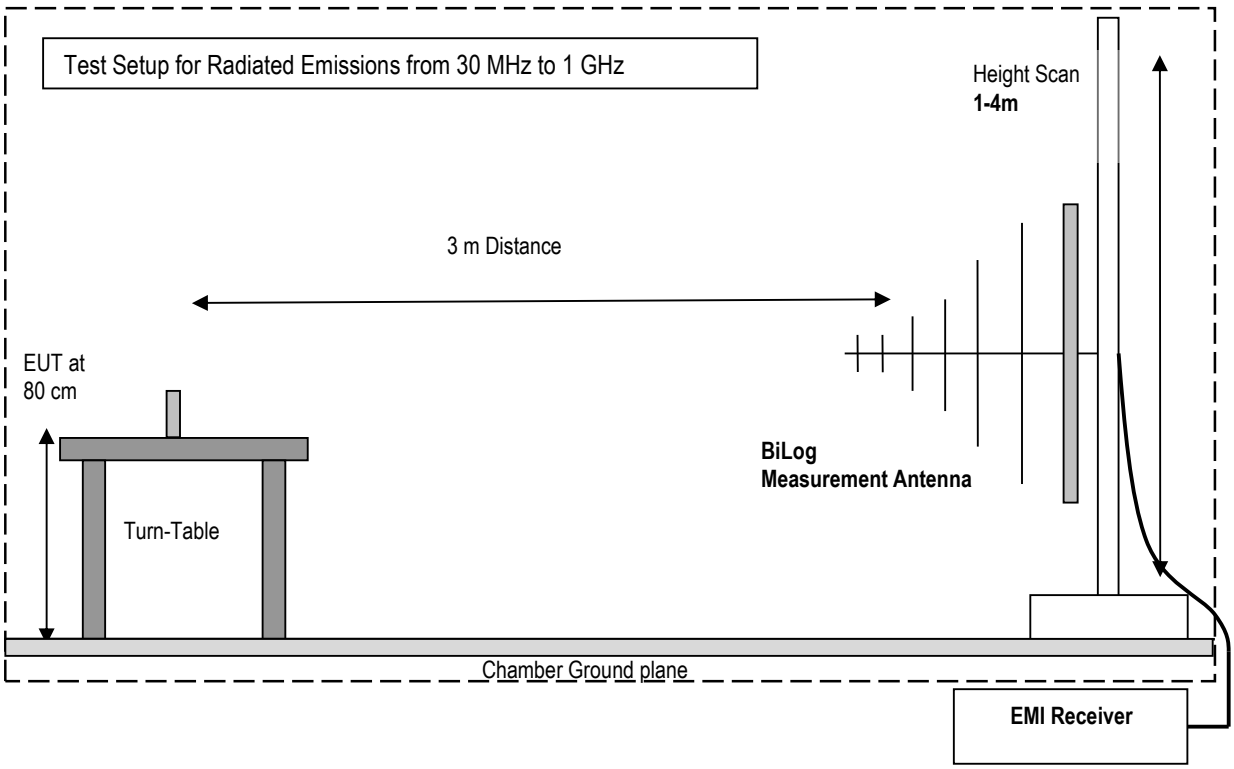
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03r01 – "Measurement Guidance for Certification of Licensed Digital Transmitters" and according to relevant parts of ANSI/TIA-603-D-2010 as detailed below.

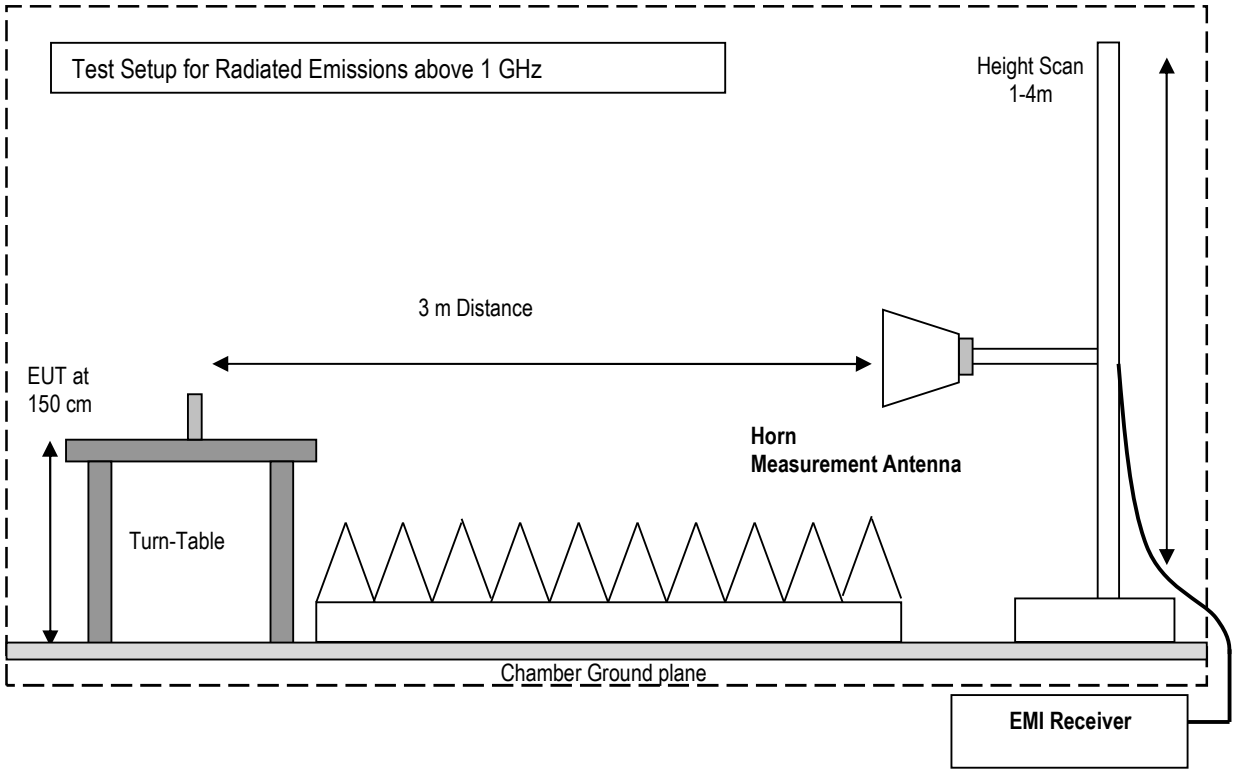


5.1 Radiated Measurement

- 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.


Test Setup for Radiated Emissions from 9 kHz to 30 MHz
Height Scan
1-4m
3 m Distance
EUT at
80cm
Loop
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver


Test Setup for Radiated Emissions from 30 MHz to 1 GHz
Height Scan
1-4m
3 m Distance
EUT at
80 cm
BiLog
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver


Test Setup for Radiated Emissions above 1 GHz
Height Scan
1-4m
3 m Distance
EUT at
150 cm
Horn
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver

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 dBµV
- 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 (dBµV/m) = Measured Value on SA (dBµV) + Cable Loss (dB) + Antenna Factor (dB/m)

Example:

Frequency (MHz)	Measured SA (dBµV)	Cable Loss (dB)	Antenna Factor Correction (dB)	Field Strength Result (dBµV/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	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1055; §22.355	Frequency Stability	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1049; §22.917	Occupied Bandwidth	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §22.917	Band Edge Compliance	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §22.917	Conducted Spurious Emissions	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1053; §22.917(a); RSS-132 Issue 3-5.5;	Radiated Spurious Emissions	Nominal	Op.1 WCDMA V, LTE 5	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from Telit / LE910C1-NF module certification report(s) #: 1870209R-HPUSP17V00-A for LTE and 1870209R-HPUSP17V00 for WCDMA under FCC ID: RI7LE910CXNF/ IC ID: 5131A-LE910CXNF;

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	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1055; §24.235	Frequency Stability	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1049; §24.238	Occupied Bandwidth	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §24.238	Band Edge Compliance	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §24.238	Conducted Spurious Emissions	-	-	☐	☐	☐	■	Note 1 Note 2
§2.1053; §24.238(a); RSS-133 Issue 6-6.5.1;	Radiated Spurious Emissions	Nominal	Op.1 WCDMA II, LTE 2	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from Telit / LE910C1-NF module certification report(s) #: 1870209R-HPUSP17V00-A for LTE and 1870209R-HPUSP17V00 for WCDMA under FCC ID: RI7LE910CXNF/ IC ID: 5131A-LE910CXNF;

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 3-6.6;	Radiated Spurious Emissions	Nominal	Op.1 WCDMA IV LTE 4, 12, 13, 66, 71	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from Telit / LE910C1-NF module certification report(s) #: 1870209R-HPUSP17V00-A for LTE and 1870209R-HPUSP17V00 for WCDMA under FCC ID: RI7LE910CXNF/ IC ID: 5131A-LE910CXNF;

6.4 FCC 90, RSS-140:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §90.635;	RF Output Power	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1055; §90.213	Frequency Stability	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1049; §90.209	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §90.691	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§90.691 (a) 2); §90.543; RSS-140 Issue 1-4.4;	Radiated Spurious Emissions	Nominal	Op.1 LTE 14	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from Telit / LE910C1-NF module certification report(s) #: 1870209R-HPUSP17V00-A under FCC ID: RI7LE910CXNF/ IC ID: 5131A-LE910CXNF;

7 Test Result Data

7.1 ERP / EIRP

Module Name / #:	Telit / LE910C1-NF
FCC ID:	RI7LE910CXNF
IC ID:	5131A-LE910CXNF
Max. declared antenna gain:	2.21 dBi

Band	Frequency range (MHz)	Power (Watts)	ERP (Watts)	EIRP (Watts)
WCDMA 2	1852.4 ~ 1907.5	0.298	-	0.495
WCDMA 4	1712.4 ~ 1752.6	0.324	-	0.538
WCDMA 5	826.4 ~ 846.6	0.327	0.331	-
LTE 2	1855 ~ 1905	0.286	-	0.476
LTE 2	1860 ~ 1900	0.262	-	0.436
LTE 4	1710 ~ 1755	0.288	-	0.479
LTE 4	1720 ~ 1745	0.265	-	0.442
LTE 5	829 ~ 844	0.324	0.328	-
LTE 12	699 ~ 716	0.298	0.302	-
LTE 12	704 ~ 711	0.259	0.262	-
LTE 13	777 ~ 787	0.313	0.318	-
LTE 13	782	0.285	0.289	-
LTE 14	793	0.274	0.278	-
LTE 66	1710 ~ 1780	0.276	-	0.459
LTE 66	1720 ~ 1770	0.272	-	0.452
LTE 71	663 ~ 698	0.251	0.255	-
LTE 71	673 ~ 688	0.234	0.238	-

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

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 22.917 (a); FCC Part 24.238 (a); FCC Part 27.53 (c), (g), (h); FCC Part 90.691 (a);

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-132 Part 5.5; RSS-133 Part 6.5; RSS-139 Part 6.6; RSS-140 Part 4.4;

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 log10p (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 log10 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 operating mode	Power Input
23	Op. 1	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	-48.36	-13	Pass
4 – 8	Mid		9 kHz – 22 GHz	-45.57	-13	Pass
9 – 11	High		30 MHz – 18 GHz	-46.51	-13	Pass
12 – 14	Low	UMTS Band IV	30 MHz – 18 GHz	-43.33	-13	Pass
15 – 18	Mid		9 kHz – 18 GHz	-43.46	-13	Pass
19 – 21	High		30 MHz – 18 GHz	-42.47	-13	Pass
22 - 24	Low	UMTS Band V	30 MHz – 9 GHz	-44.66	-13	Pass
25 – 28	Mid		9 kHz – 9 GHz	-16.09	-13	Pass
29 – 31	High		30 MHz – 9 GHz	-44.66	-13	Pass
32 – 34	Low	LTE Band 2	30 MHz – 18 GHz	-45.29	-13	Pass
35 – 39	Mid		9 kHz – 22 GHz	-42.04	-13	Pass
40 – 42	High		30 MHz – 18 GHz	-43.74	-13	Pass
43 – 45	Low	LTE Band 4	30 MHz – 18 GHz	-45.29	-13	Pass
46 – 49	Mid		9 kHz – 18 GHz	-42.67	-13	Pass
50 – 52	High		30 MHz – 18 GHz	-41.76	-13	Pass
53 – 55	Low	LTE Band 5	30 MHz – 9 GHz	-44.59	-13	Pass
56 – 59	Mid		9 kHz – 9 GHz	-43.71	-13	Pass
60 – 62	High		30 MHz – 9 GHz	-42.49	-13	Pass
63 – 65	Low	LTE Band 12	30 MHz – 18 GHz	-44.27	-13	Pass
66 – 69	Mid		9 kHz – 18 GHz	-51.15	-13	Pass
70 – 72	High		30 MHz – 18 GHz	-42.36	-13	Pass

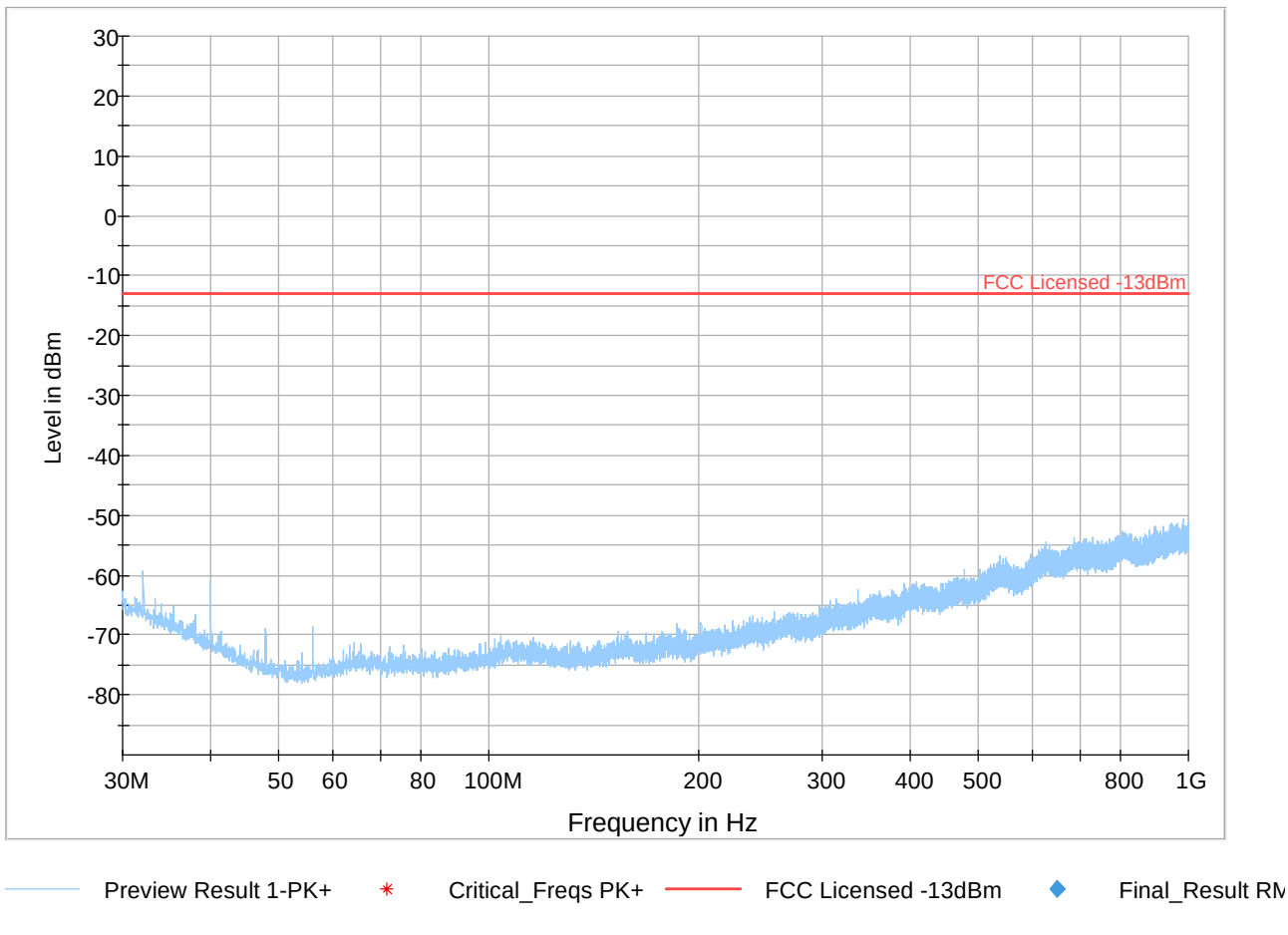
73 – 75	Low	LTE Band 13	30 MHz – 18 GHz	-44.40	-13	Pass
76	Mid		9 kHz – 30 MHz	-69.46	-13	Pass
77 – 79	High		30 MHz – 18 GHz	-46.12	-13	Pass
80 – 83	Mid	LTE Band 14	9 kHz – 18 GHz	-45.95	-13	Pass
84 - 86	Low	LTE Band 66	30 MHz – 18 GHz	-48.00	-13	Pass
87 – 90	Mid		9 kHz – 18 GHz	-42.55	-13	Pass
91 – 93	High		30 MHz – 18 GHz	-44.46	-13	Pass
94 – 96	Low	LTE Band 71	30 MHz – 18 GHz	-40.73	-13	Pass
97 – 100	Mid		9 kHz – 26 GHz	-40.94	-13	Pass
101 – 103	High		30 MHz – 18 GHz	-44.23	-13	Pass

7.2.5 Measurement plots:

UMTS II

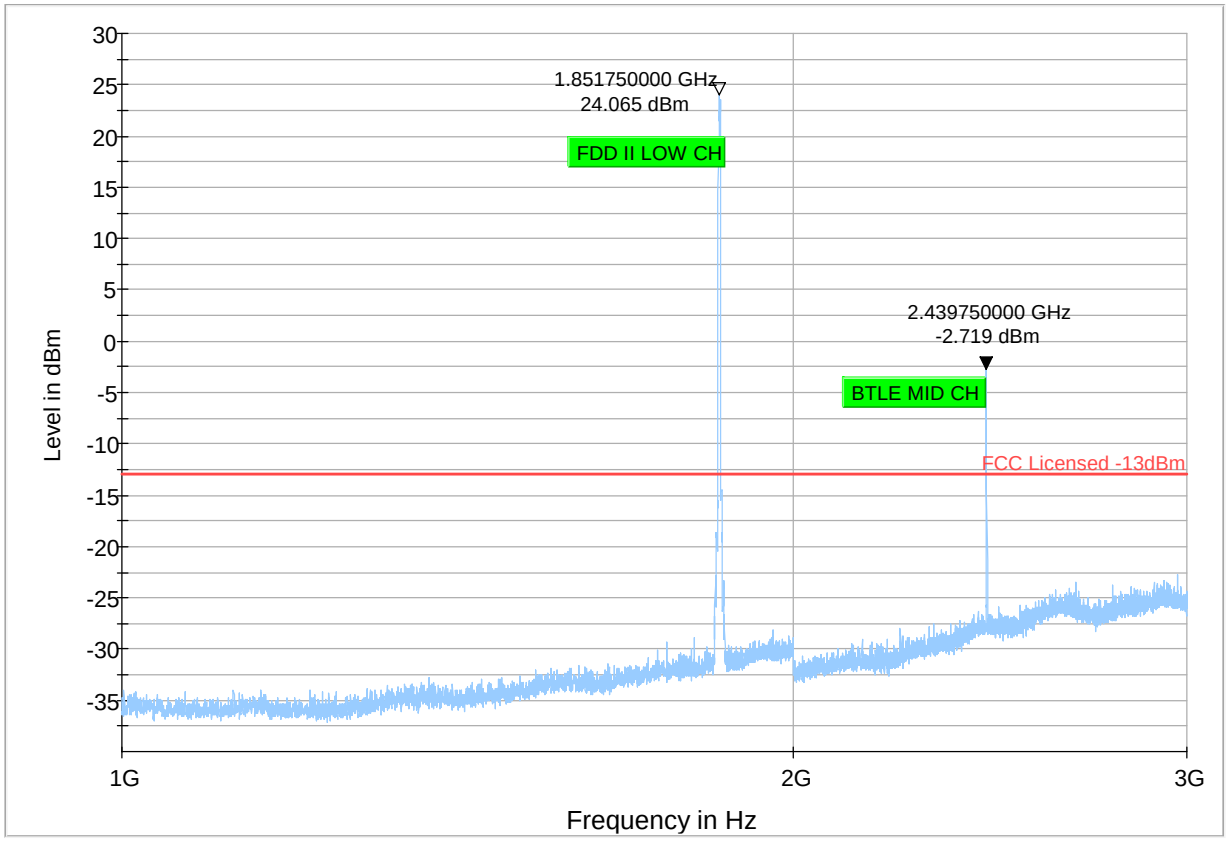
Plot # 1 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 2 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

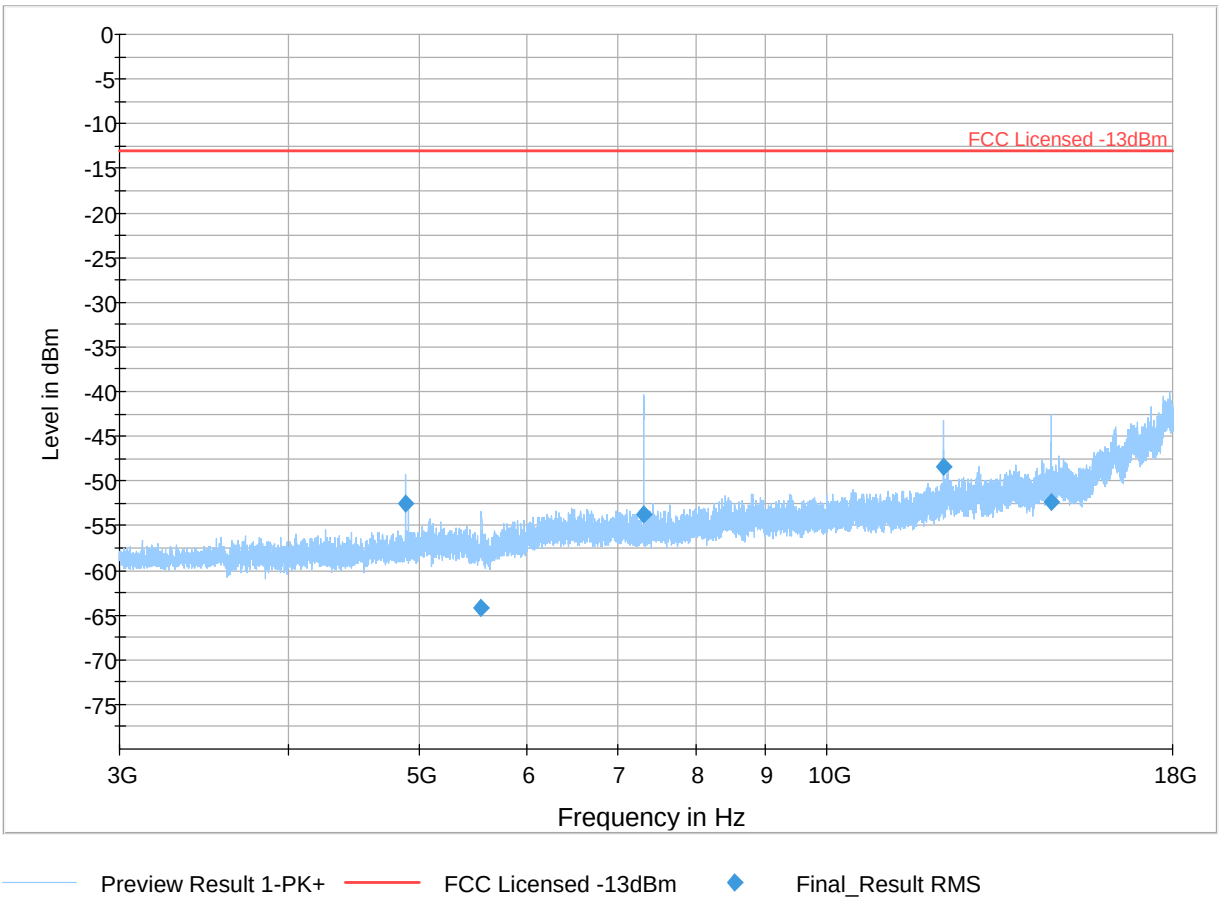


Plot # 3 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.58	-13.00	39.58	500.0	1000.000	140.0	H	144.0	-100.2
5554.500	-64.17	-13.00	51.17	500.0	1000.000	241.0	V	207.0	-99.7
7319.500	-53.65	-13.00	40.65	500.0	1000.000	297.0	V	140.0	-95.7
12201.500	-48.36	-13.00	35.36	500.0	1000.000	175.0	V	2.0	-91.6
14642.000	-52.38	-13.00	39.38	500.0	1000.000	140.0	V	331.0	-89.6

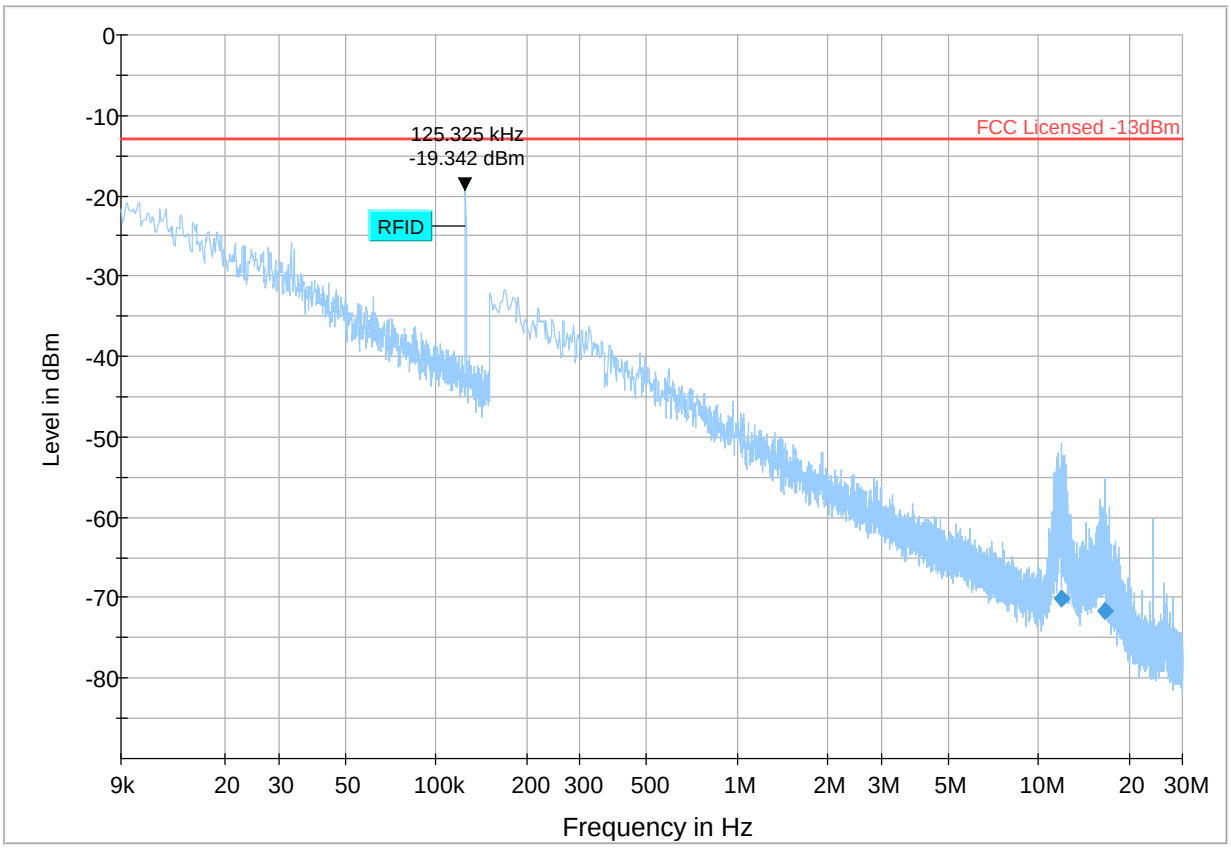


Plot # 4 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

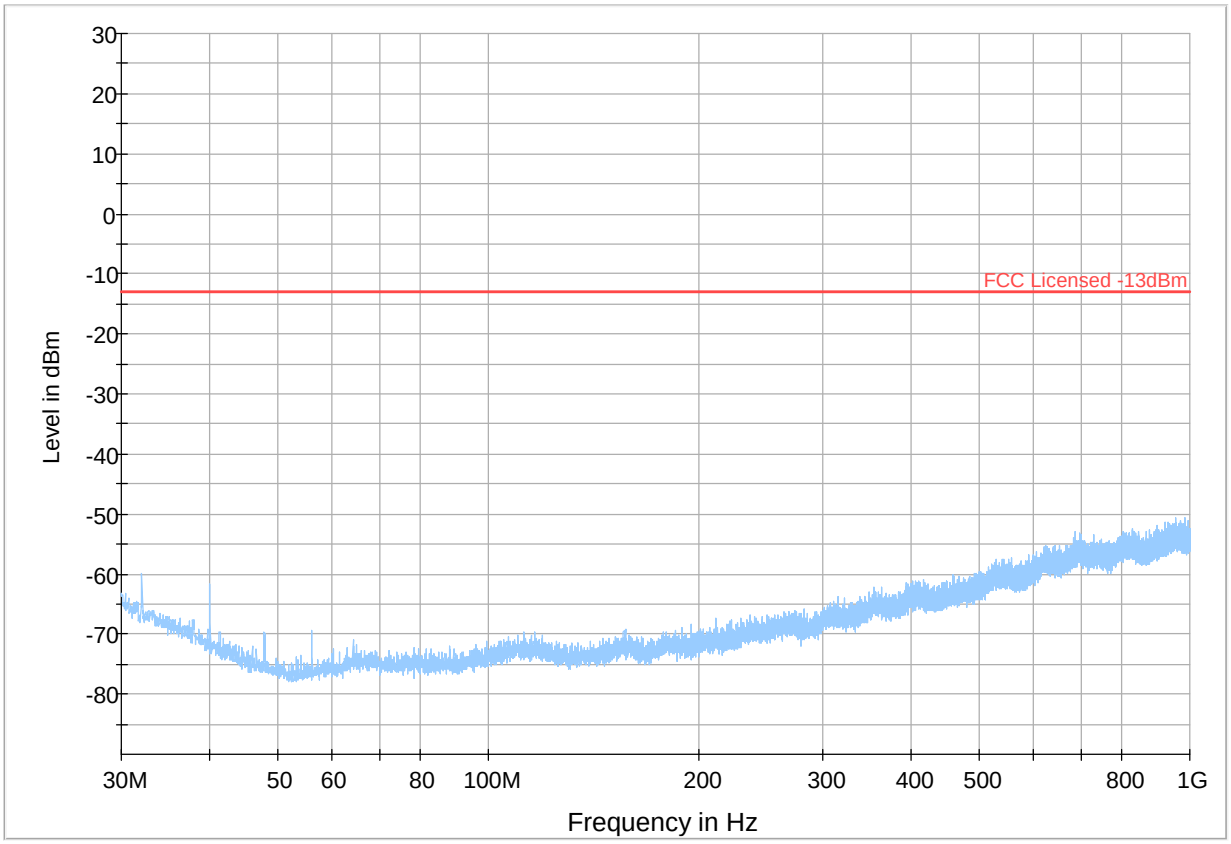
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.944	-70.11	-13.00	57.11	500.0	3.000	229.0	V	46.0	-77.8
16.515	-71.62	-13.00	58.62	500.0	3.000	240.0	V	28.0	-78.2



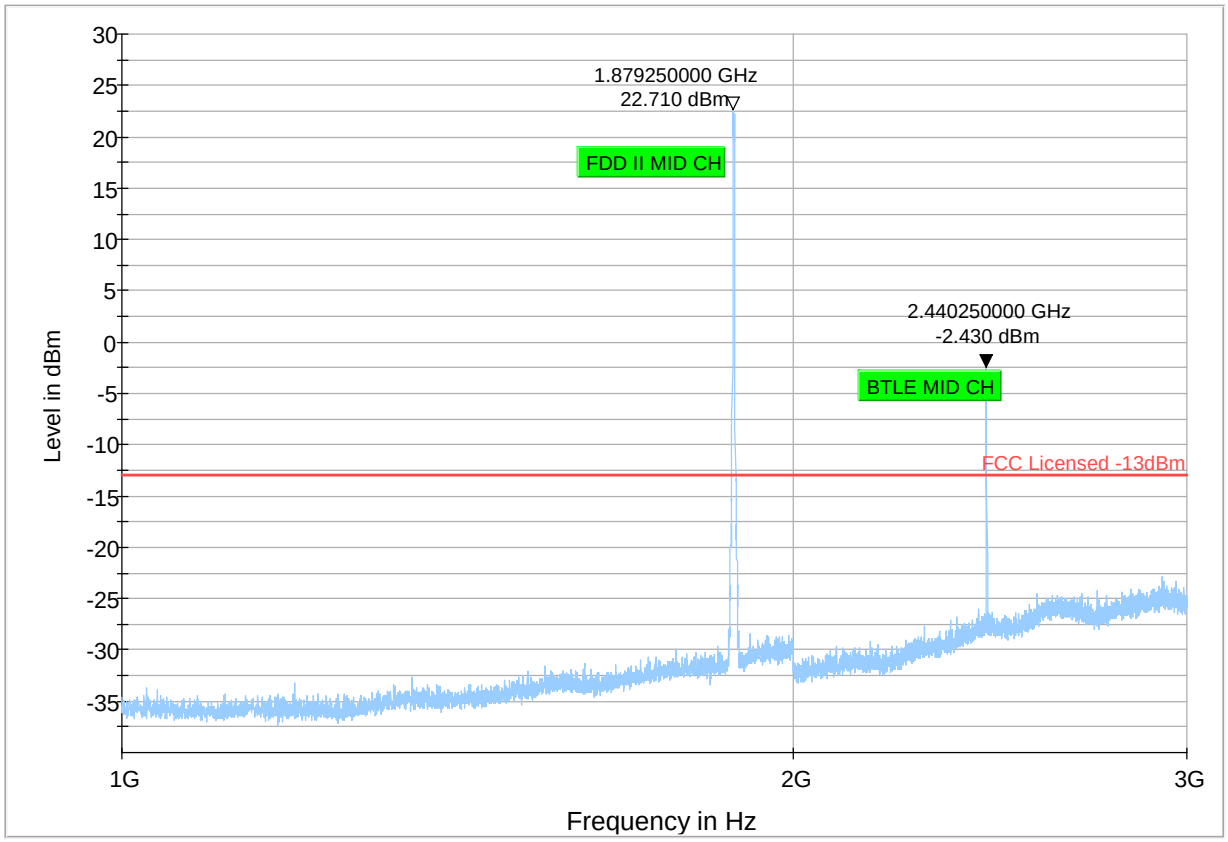
Plot # 5 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 6 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

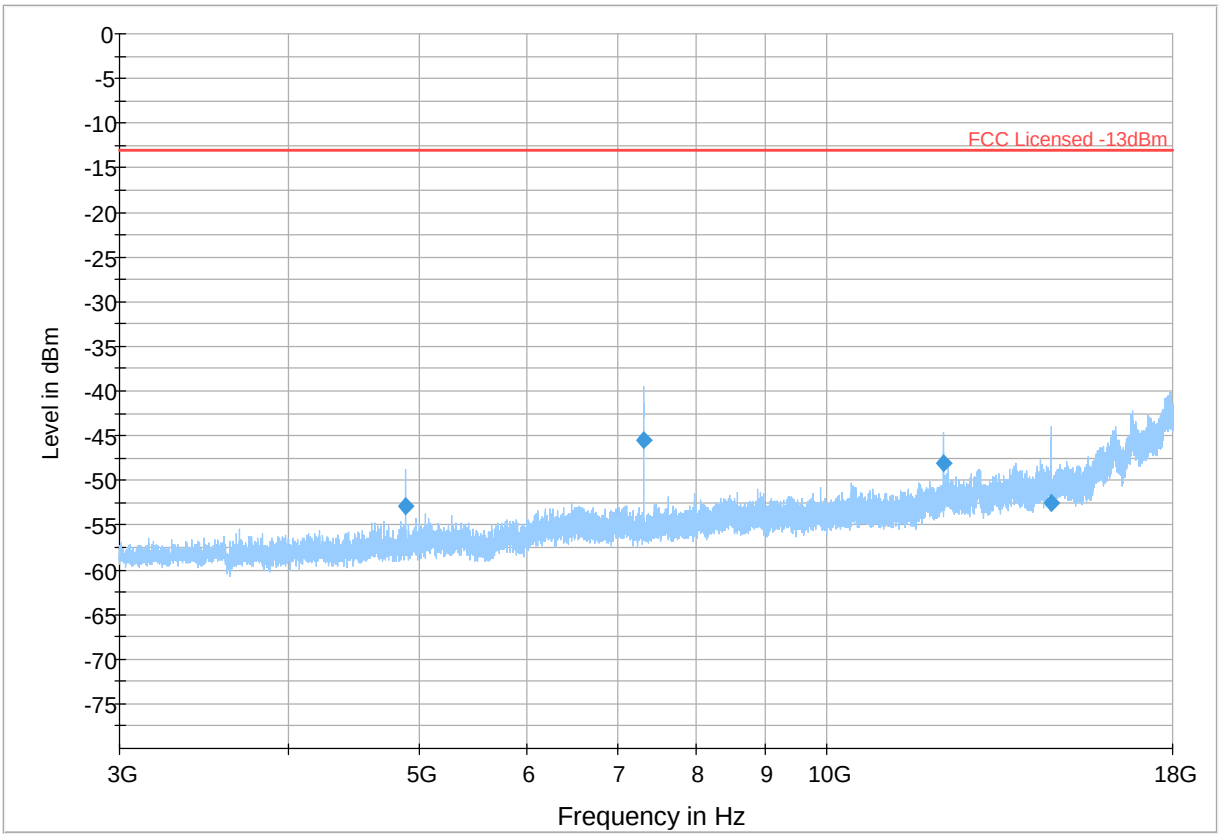


Plot # 7 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.82	-13.00	39.82	500.0	1000.000	140.0	H	144.0	-100.2
7321.000	-45.57	-13.00	32.57	500.0	1000.000	162.0	V	189.0	-95.7
12201.500	-48.09	-13.00	35.09	500.0	1000.000	164.0	V	6.0	-91.6
14642.000	-52.60	-13.00	39.60	500.0	1000.000	140.0	V	185.0	-89.6

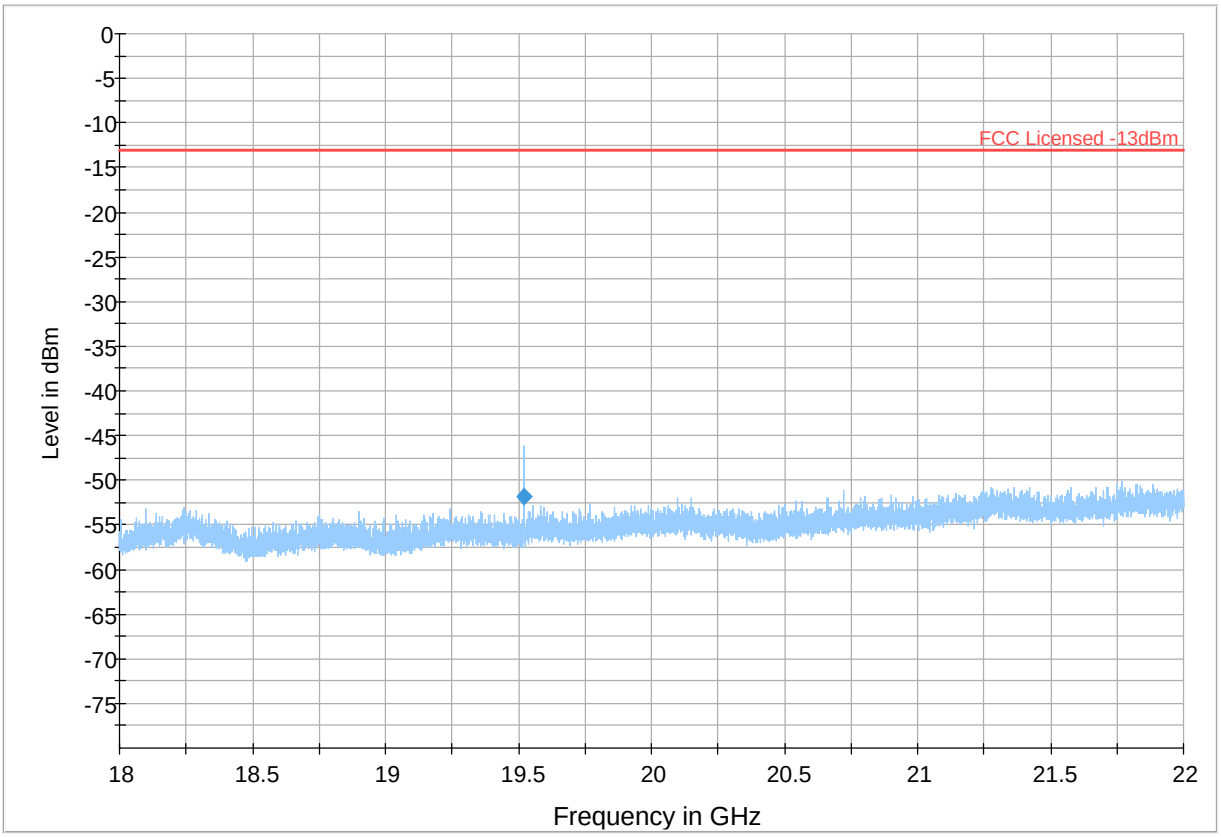


Plot # 8 Radiated Emissions: 18 GHz – 22 GHz

Channel: Mid

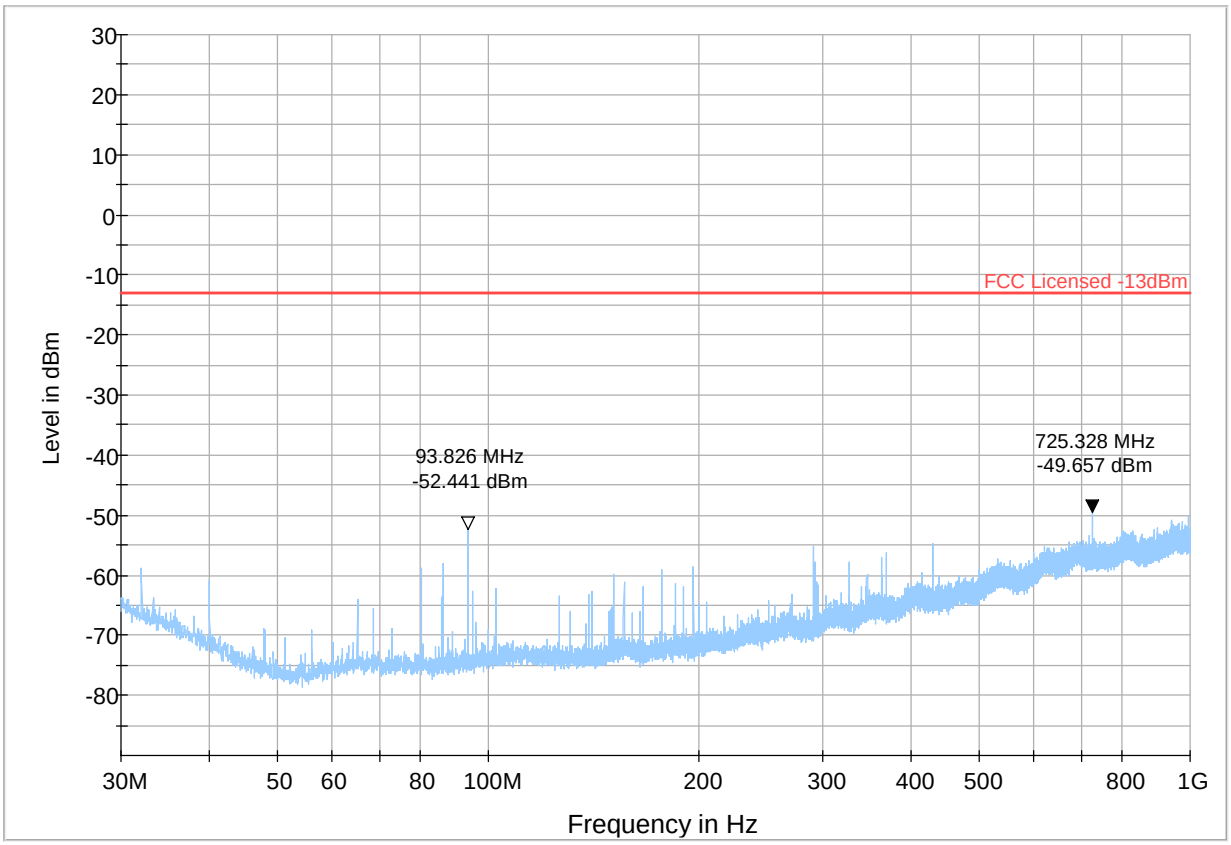
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
19522.250	-51.80	-13.00	38.80	500.0	1000.000	315.0	V	288.0	-90.8



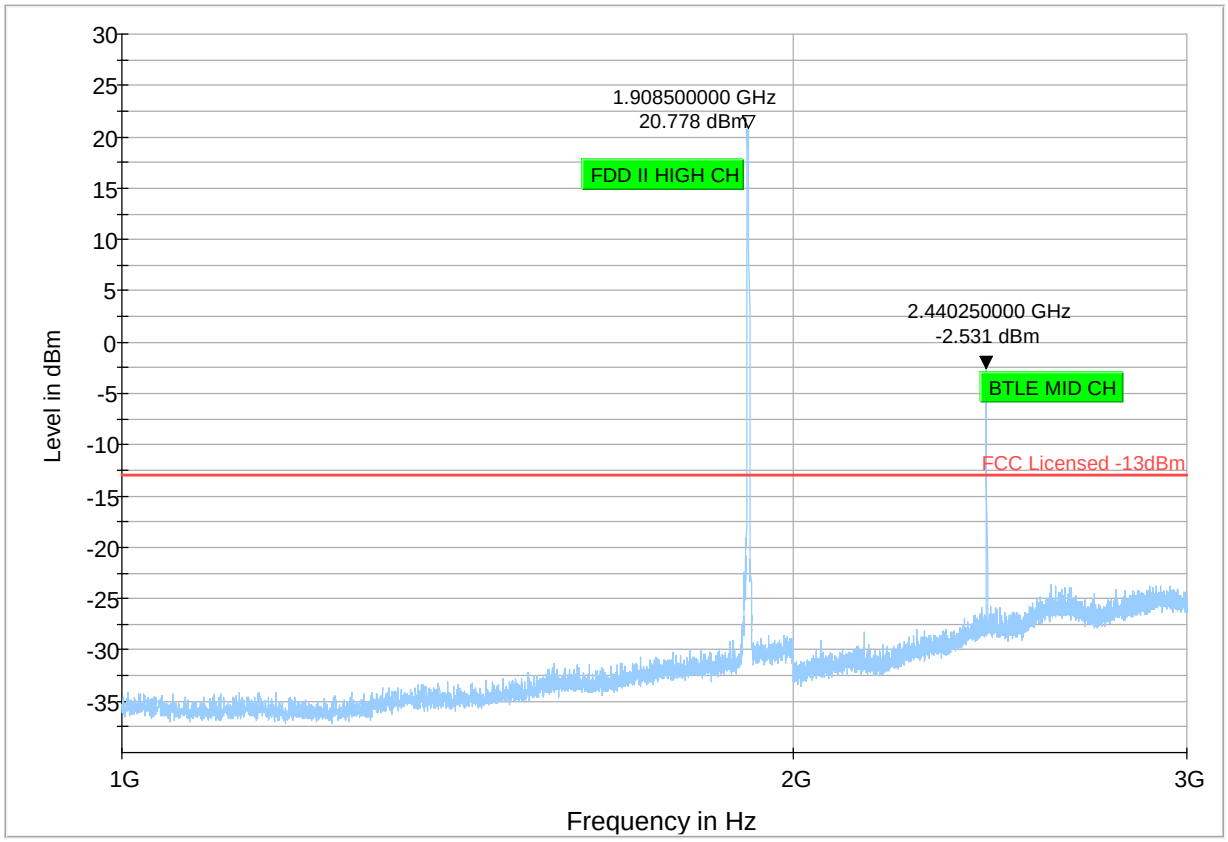
Plot # 9 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 10 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

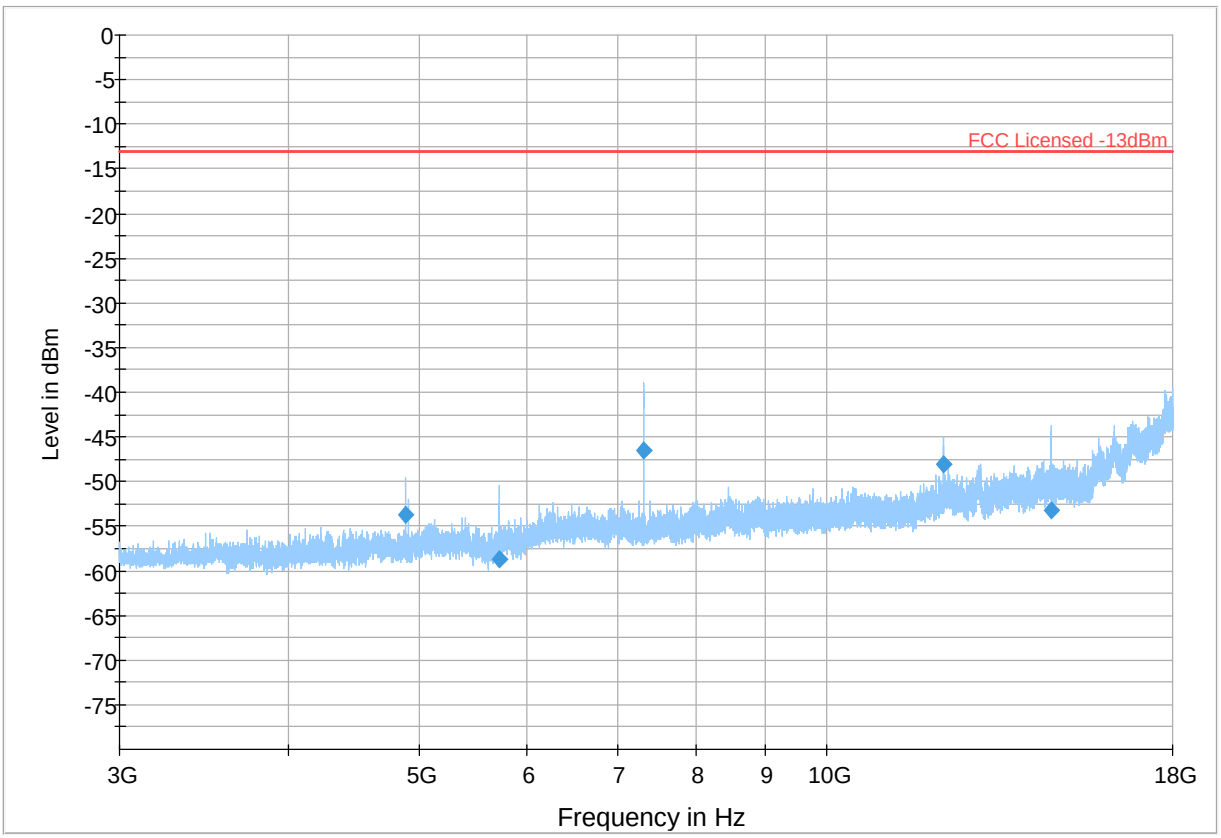


Plot # 11 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

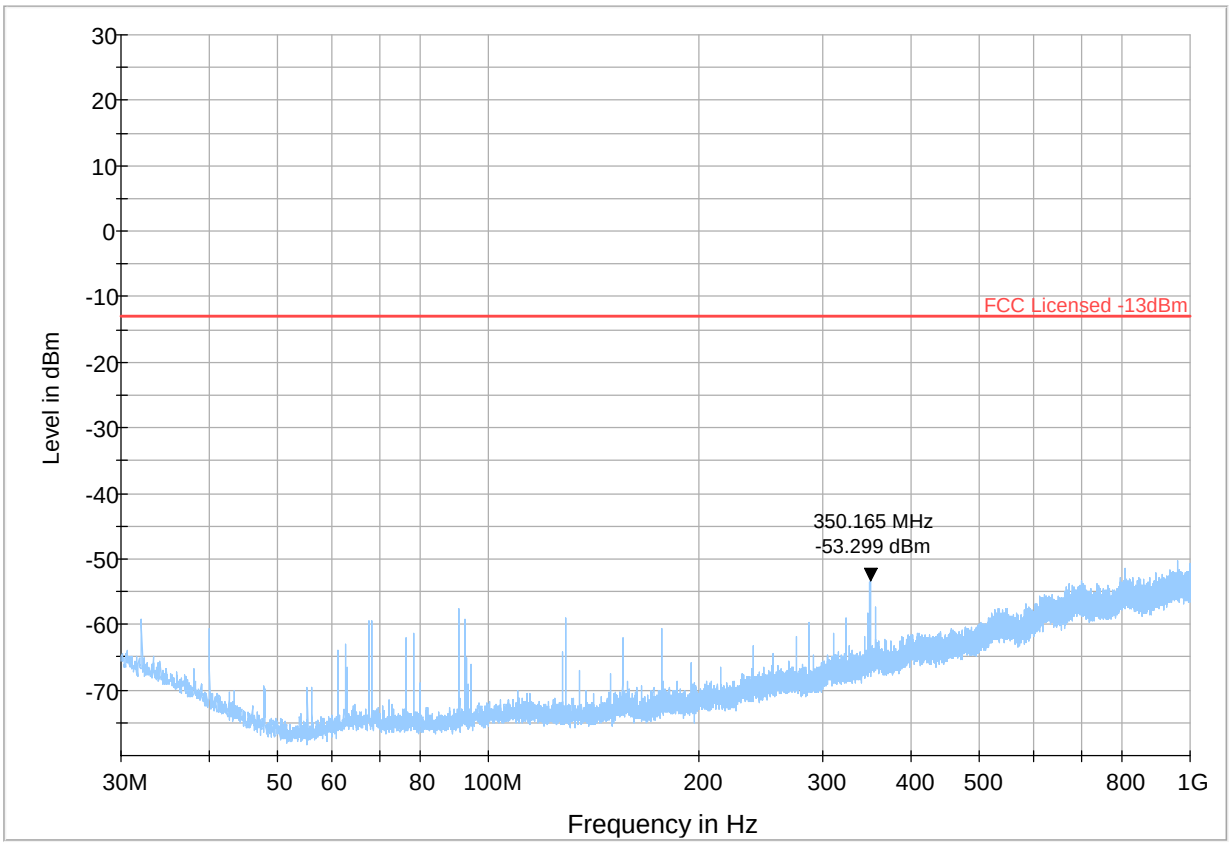
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-53.79	-13.00	40.79	500.0	1000.000	163.0	H	314.0	-100.2
5725.000	-58.69	-13.00	45.69	500.0	1000.000	184.0	V	102.0	-98.6
7321.000	-46.51	-13.00	33.51	500.0	1000.000	164.0	V	189.0	-95.7
12201.500	-48.02	-13.00	35.02	500.0	1000.000	162.0	V	4.0	-91.6
14642.000	-53.25	-13.00	40.25	500.0	1000.000	229.0	V	22.0	-89.6



UMTS IV

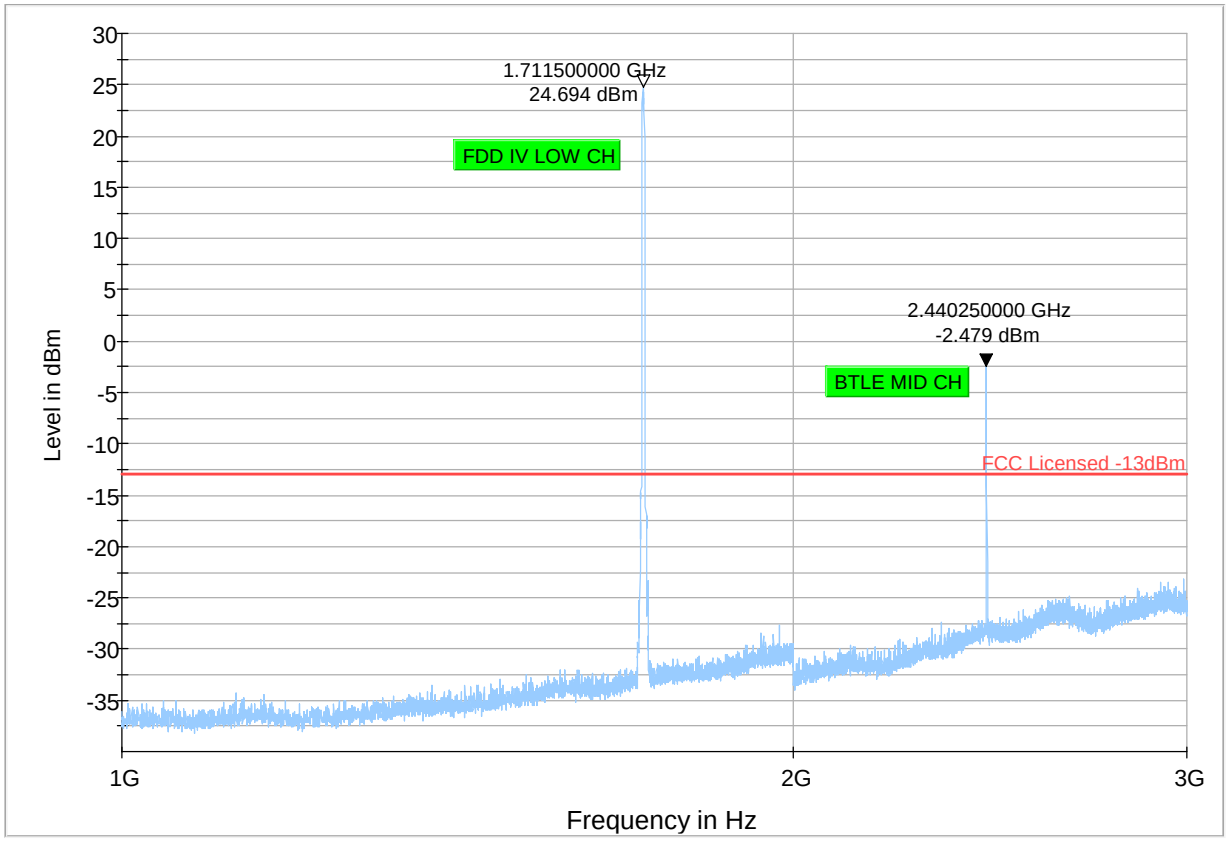
Plot # 12 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 13 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

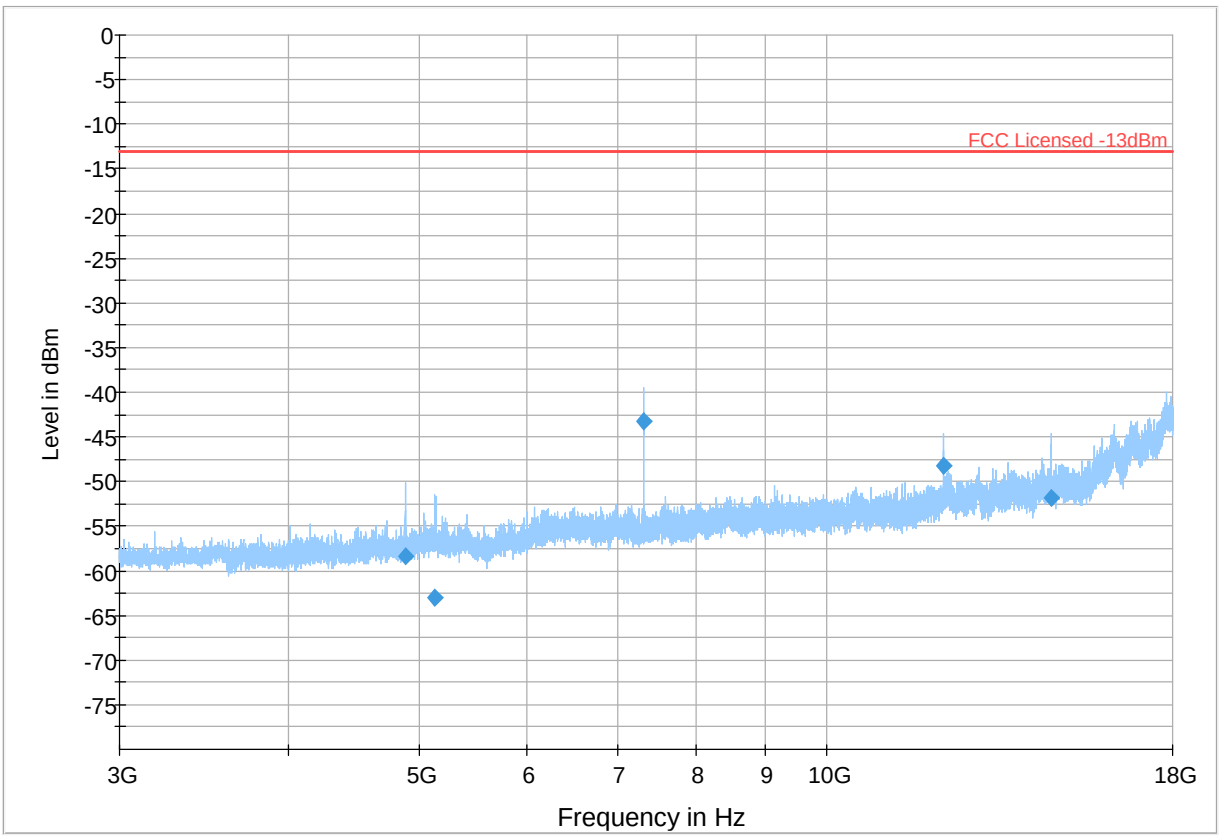


Plot # 14 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.500	-58.41	-13.00	45.41	500.0	1000.000	140.0	H	145.0	-100.2
5133.500	-63.04	-13.00	50.04	500.0	1000.000	315.0	V	113.0	-99.2
7321.000	-43.33	-13.00	30.33	500.0	1000.000	140.0	V	193.0	-95.7
12201.500	-48.31	-13.00	35.31	500.0	1000.000	152.0	V	3.0	-91.6
14642.000	-51.83	-13.00	38.83	500.0	1000.000	164.0	V	18.0	-89.6

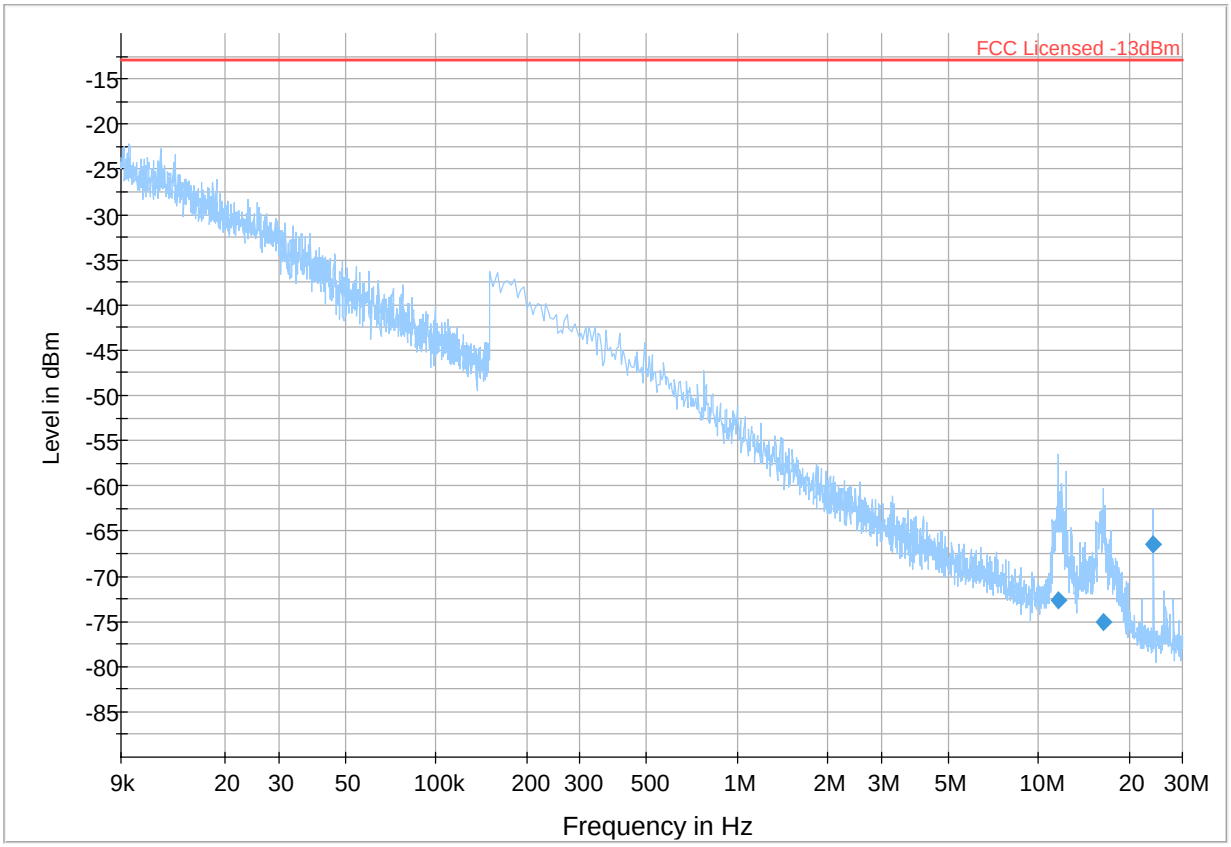


Plot # 15 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

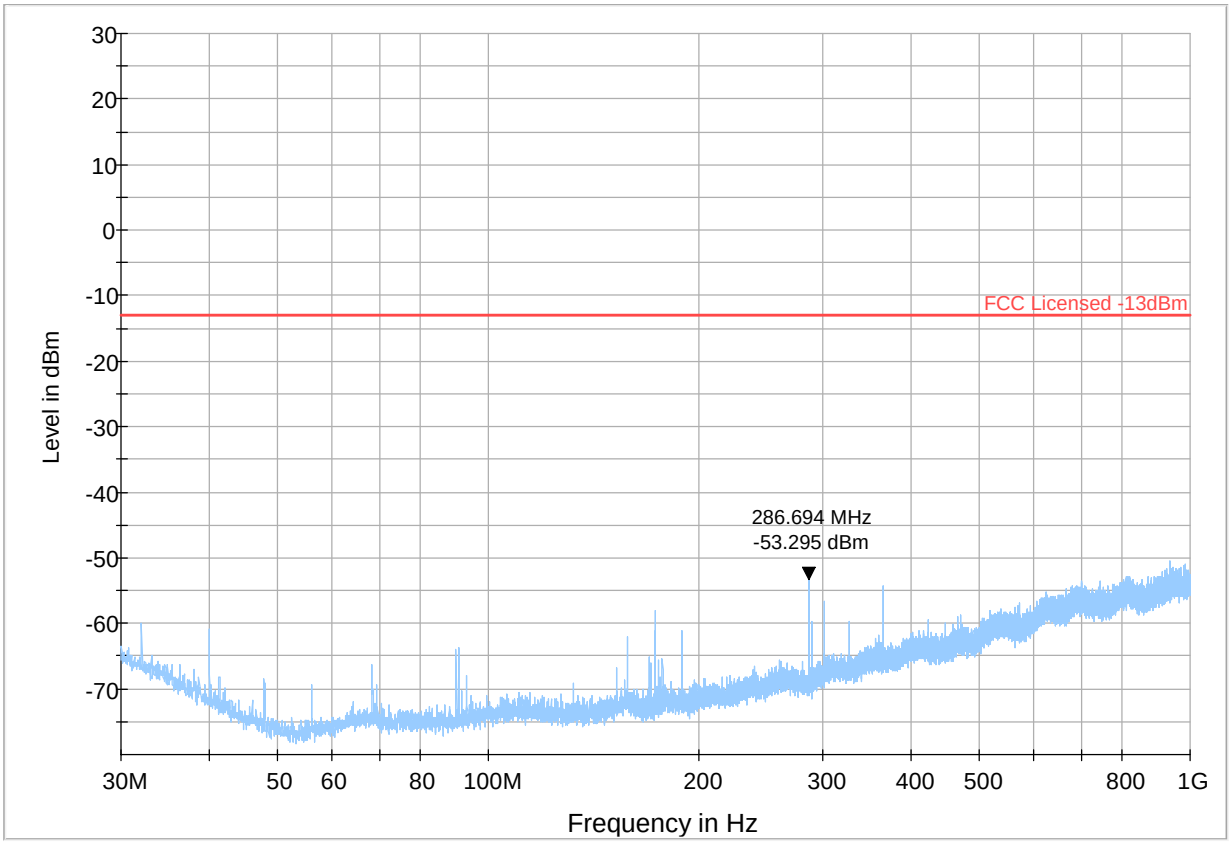
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.606	-72.68	-13.00	59.68	500.0	1.000	209.0	V	194.0	-77.8
16.373	-75.02	-13.00	62.02	500.0	1.000	230.0	V	155.0	-78.2
24.066	-66.49	-13.00	53.49	500.0	1.000	140.0	H	42.0	-78.8



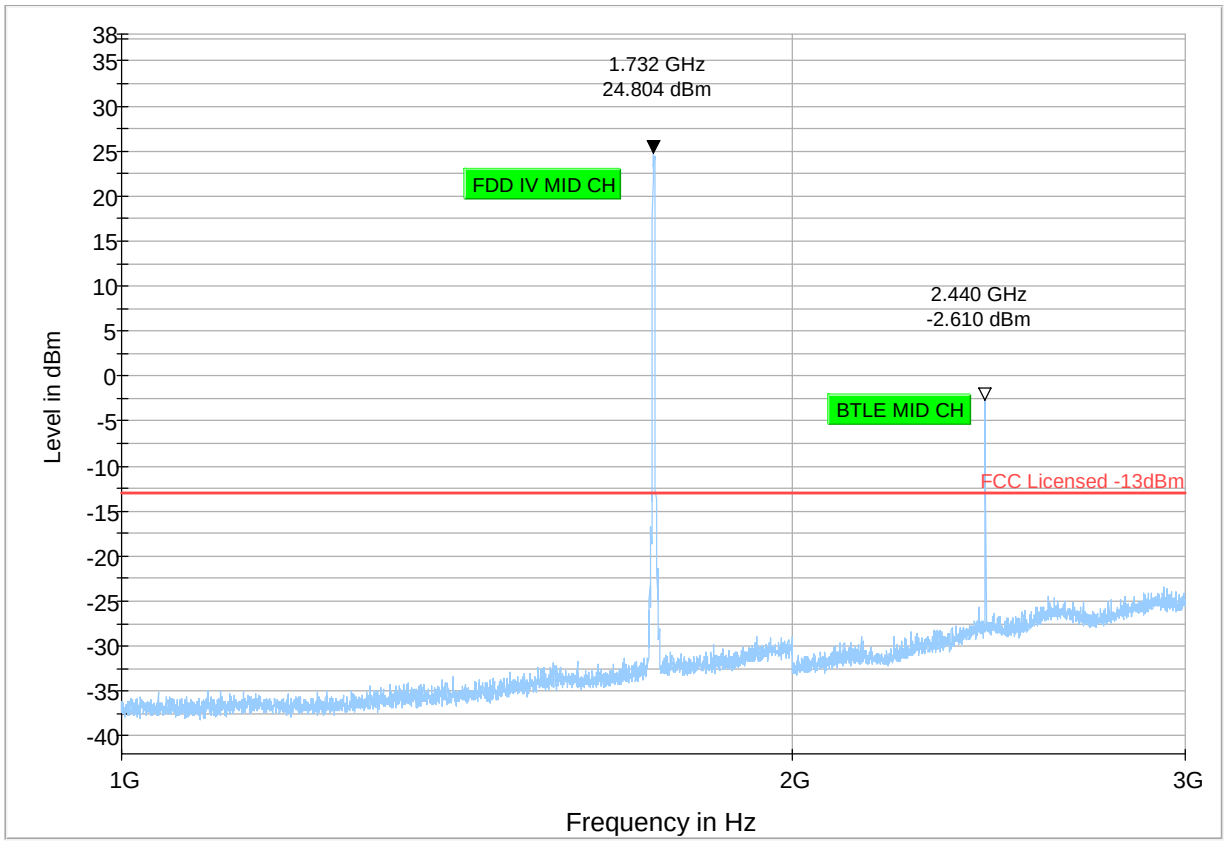
Plot # 16 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 17 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

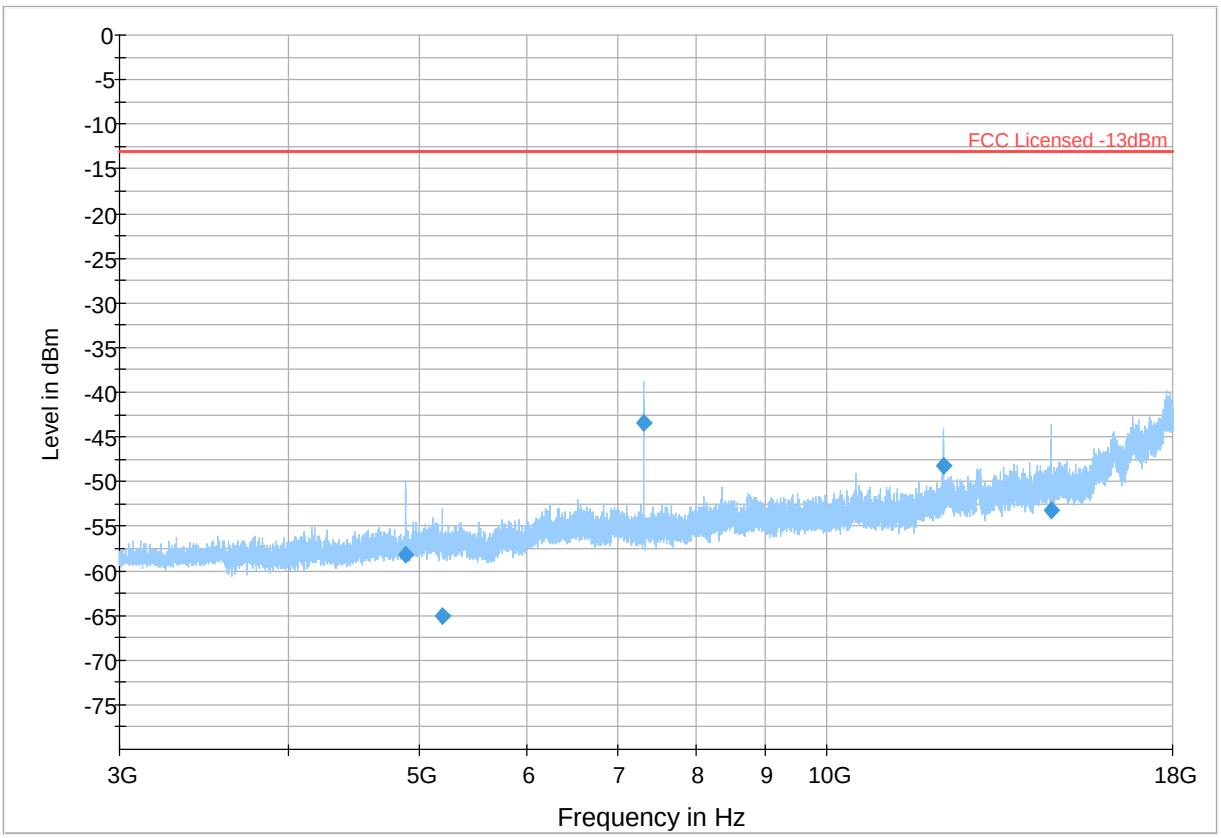


Plot # 18 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

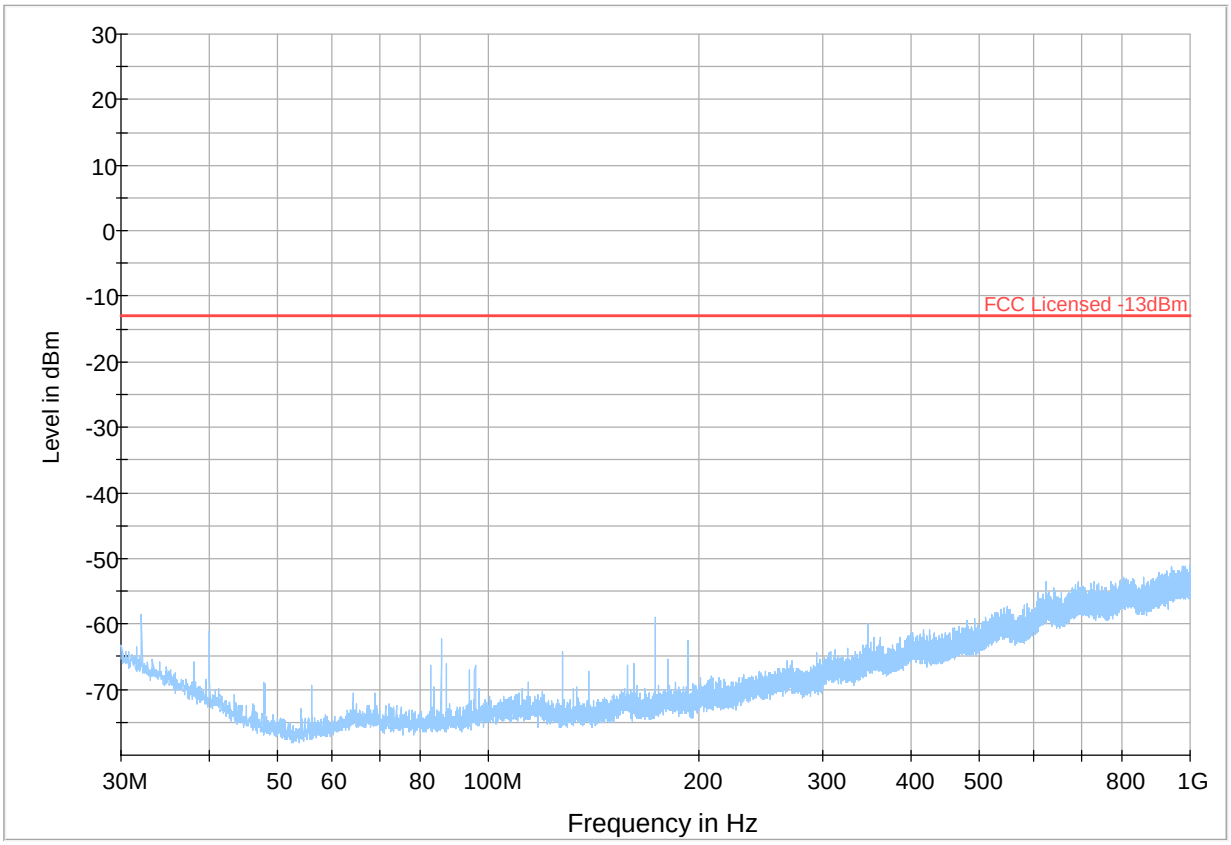
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.500	-58.21	-13.00	45.21	500.0	1000.000	140.0	H	146.0	-100.2
5201.500	-64.98	-13.00	51.98	500.0	1000.000	163.0	V	79.0	-99.2
7321.000	-43.46	-13.00	30.46	500.0	1000.000	140.0	V	192.0	-95.7
12201.500	-48.23	-13.00	35.23	500.0	1000.000	163.0	V	3.0	-91.6
14642.000	-53.29	-13.00	40.29	500.0	1000.000	151.0	V	190.0	-89.6



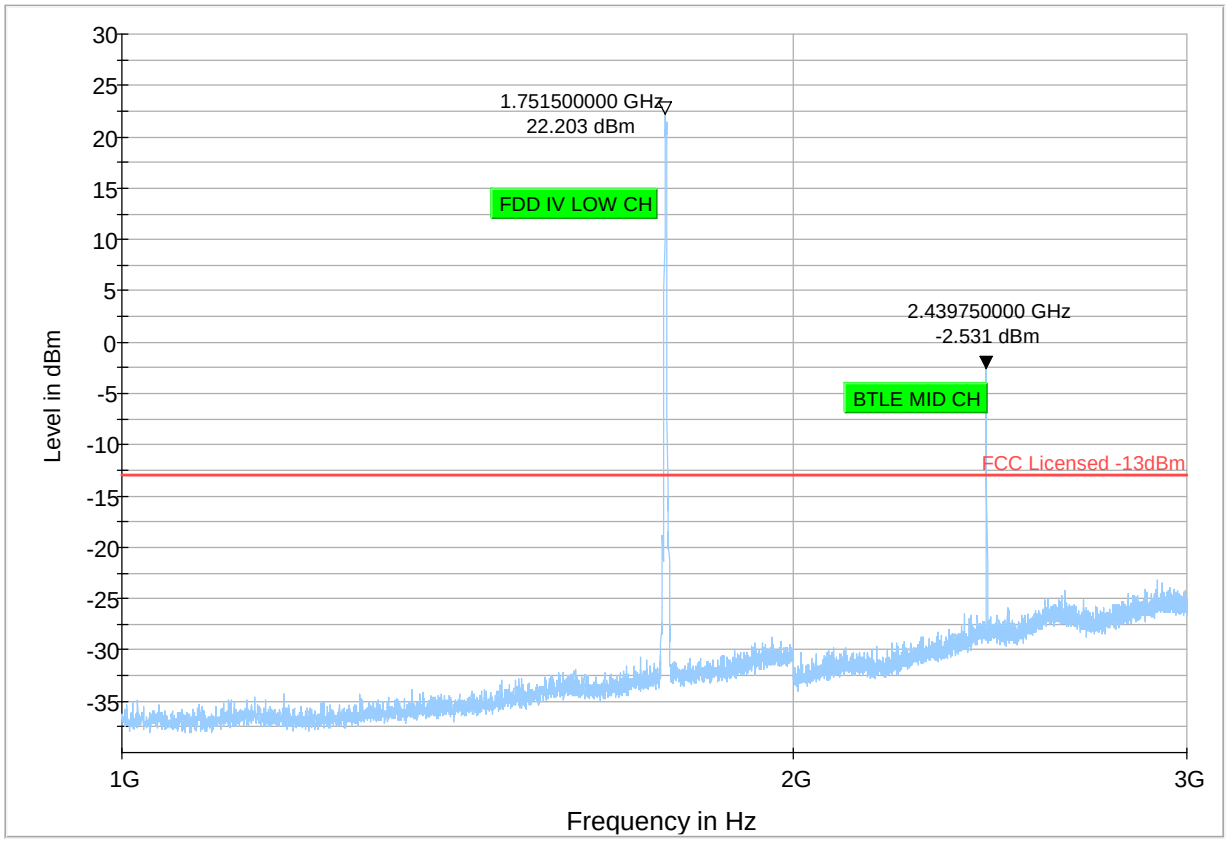
Plot # 19 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 20 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

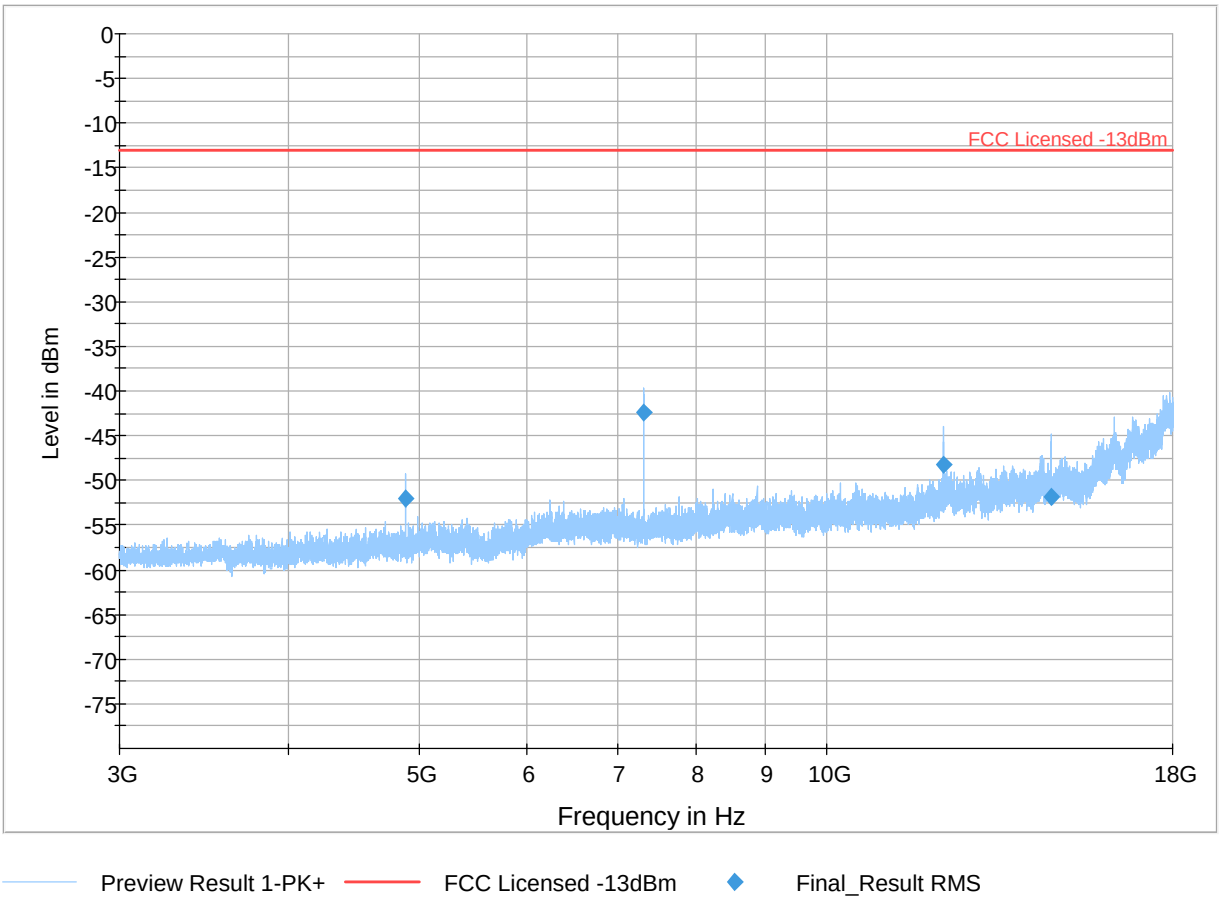


Plot # 21 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

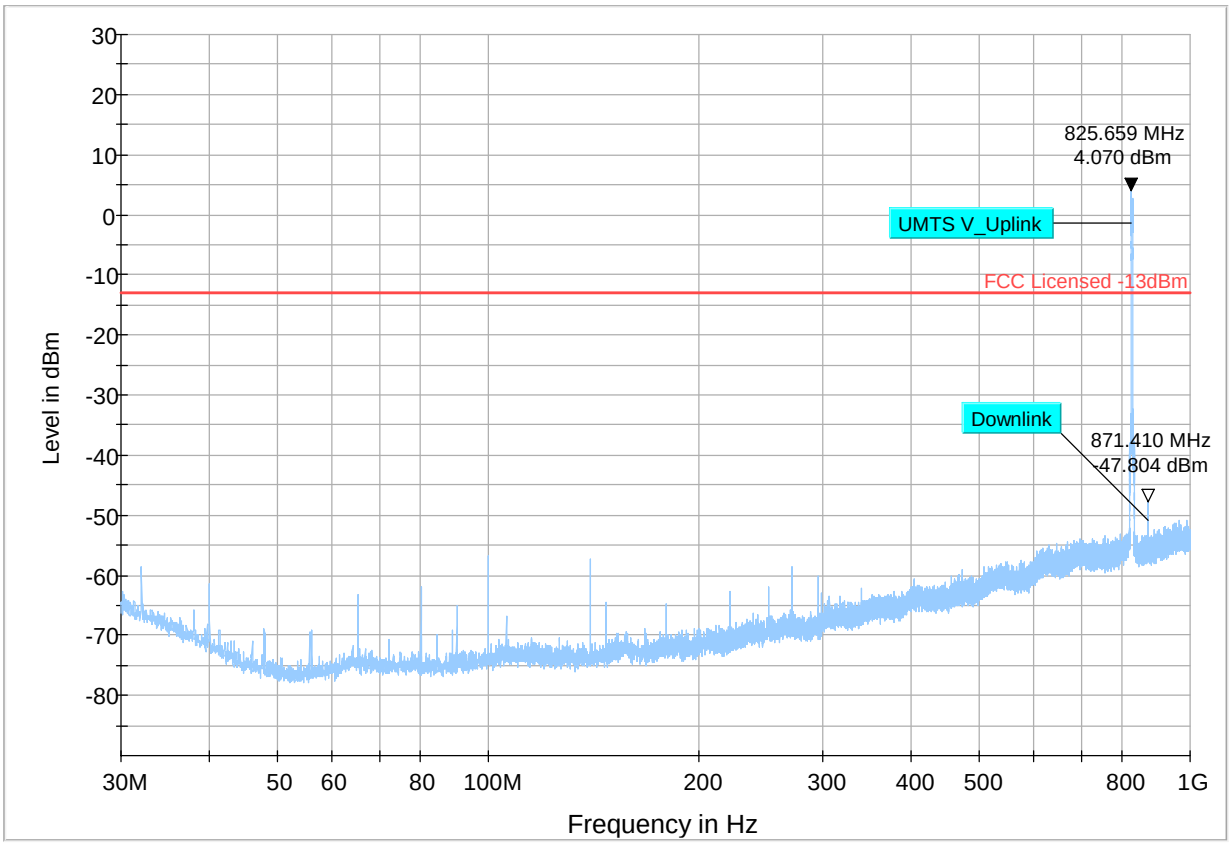
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.07	-13.00	39.07	500.0	1000.000	140.0	H	148.0	-100.2
7321.000	-42.47	-13.00	29.47	500.0	1000.000	315.0	V	29.0	-95.7
12201.500	-48.20	-13.00	35.20	500.0	1000.000	174.0	V	3.0	-91.6
14642.000	-51.81	-13.00	38.81	500.0	1000.000	184.0	V	19.0	-89.6



UMTS V

Plot # 22 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

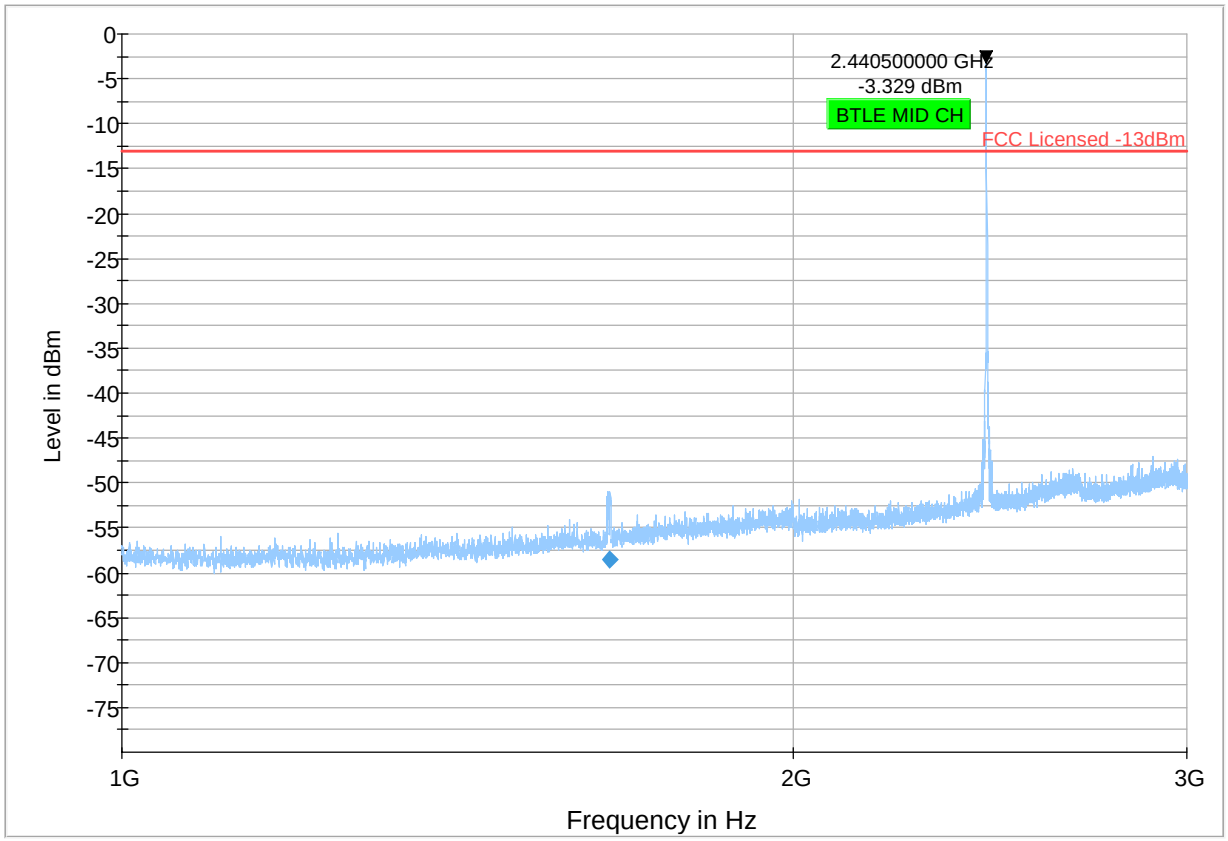


Plot # 23 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1655.000	-58.57	-13.00	45.57	500.0	1000.000	140.0	H	6.0	-89.1

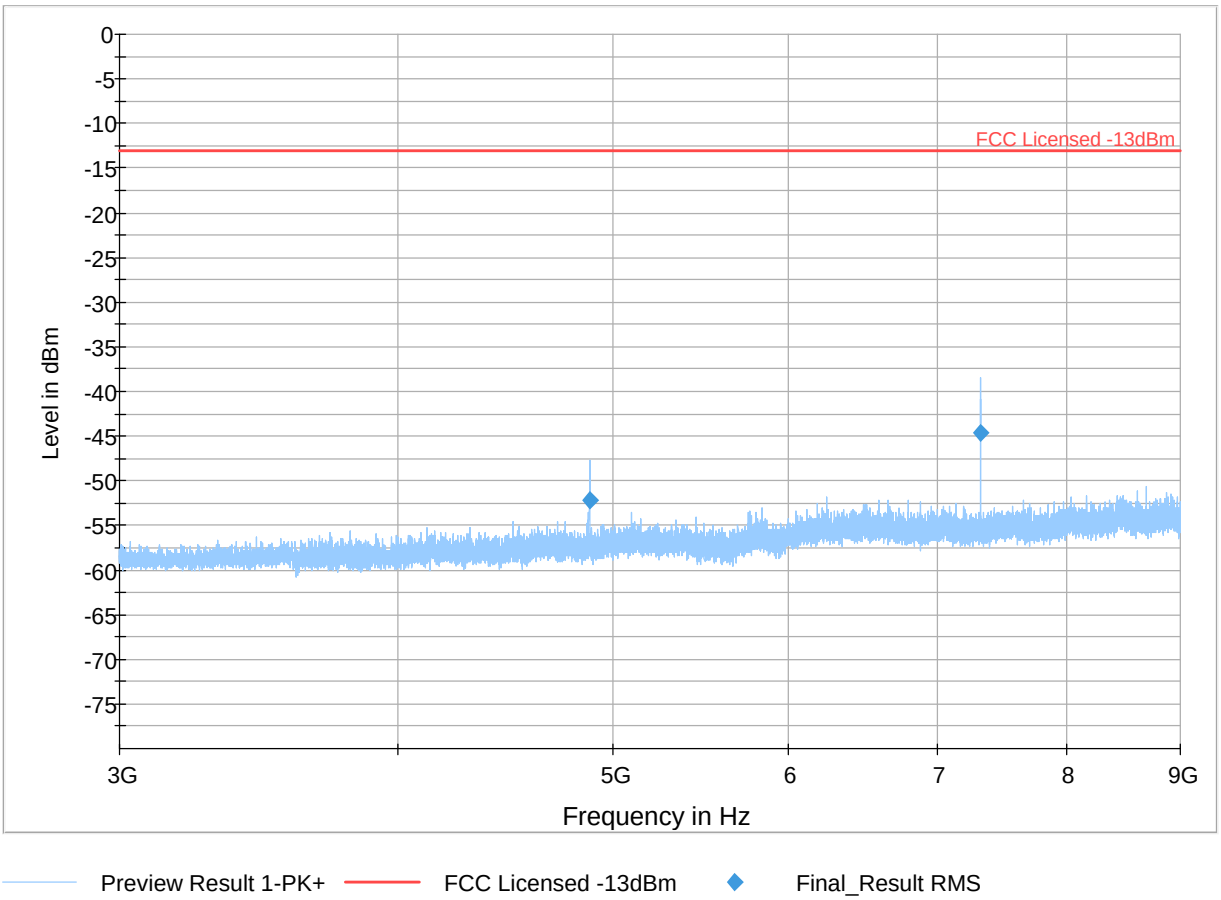


Plot # 24 Radiated Emissions: 3 GHz – 9 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.13	-13.00	39.13	500.0	1000.000	140.0	H	149.0	-100.2
7321.000	-44.66	-13.00	31.66	500.0	1000.000	152.0	H	246.0	-95.7

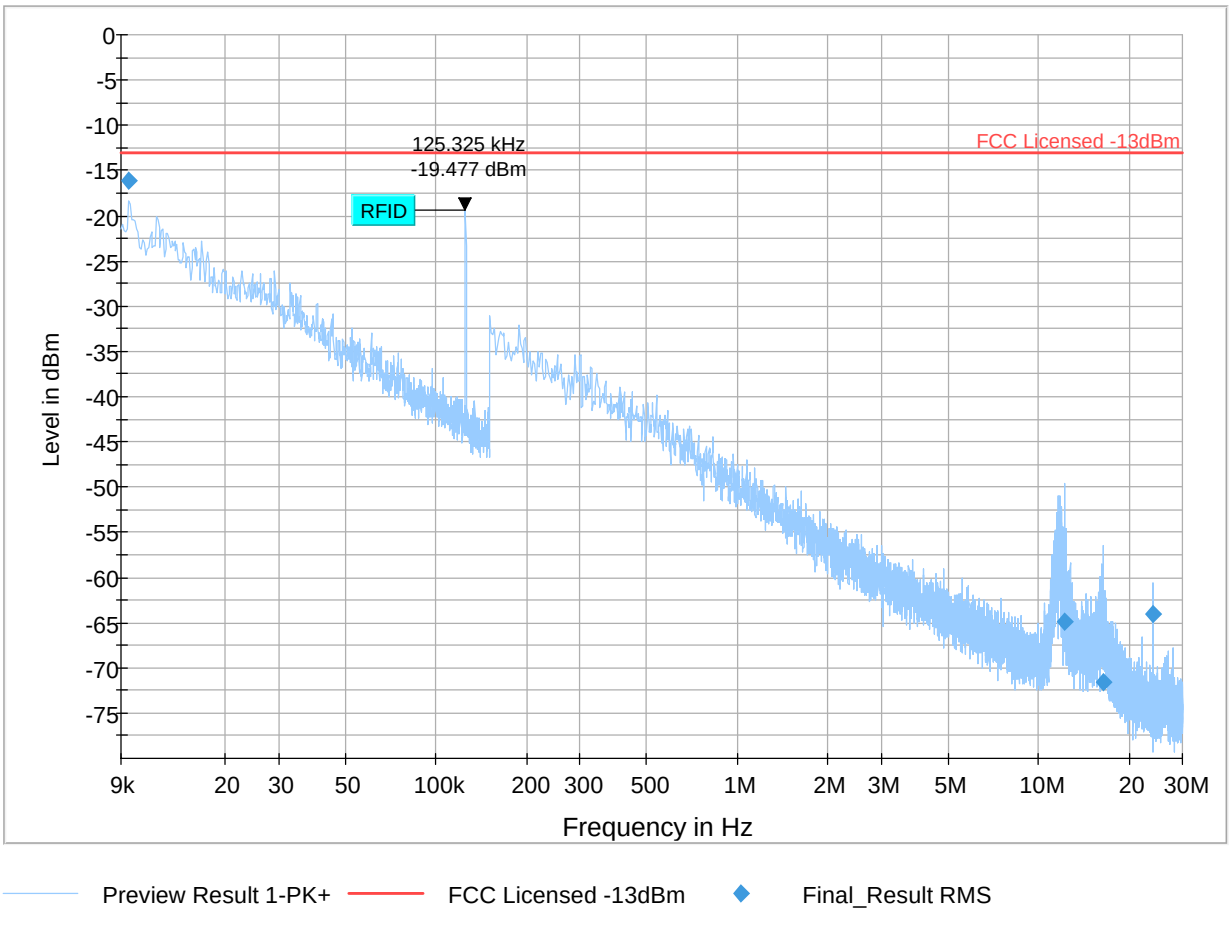


Plot # 25 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

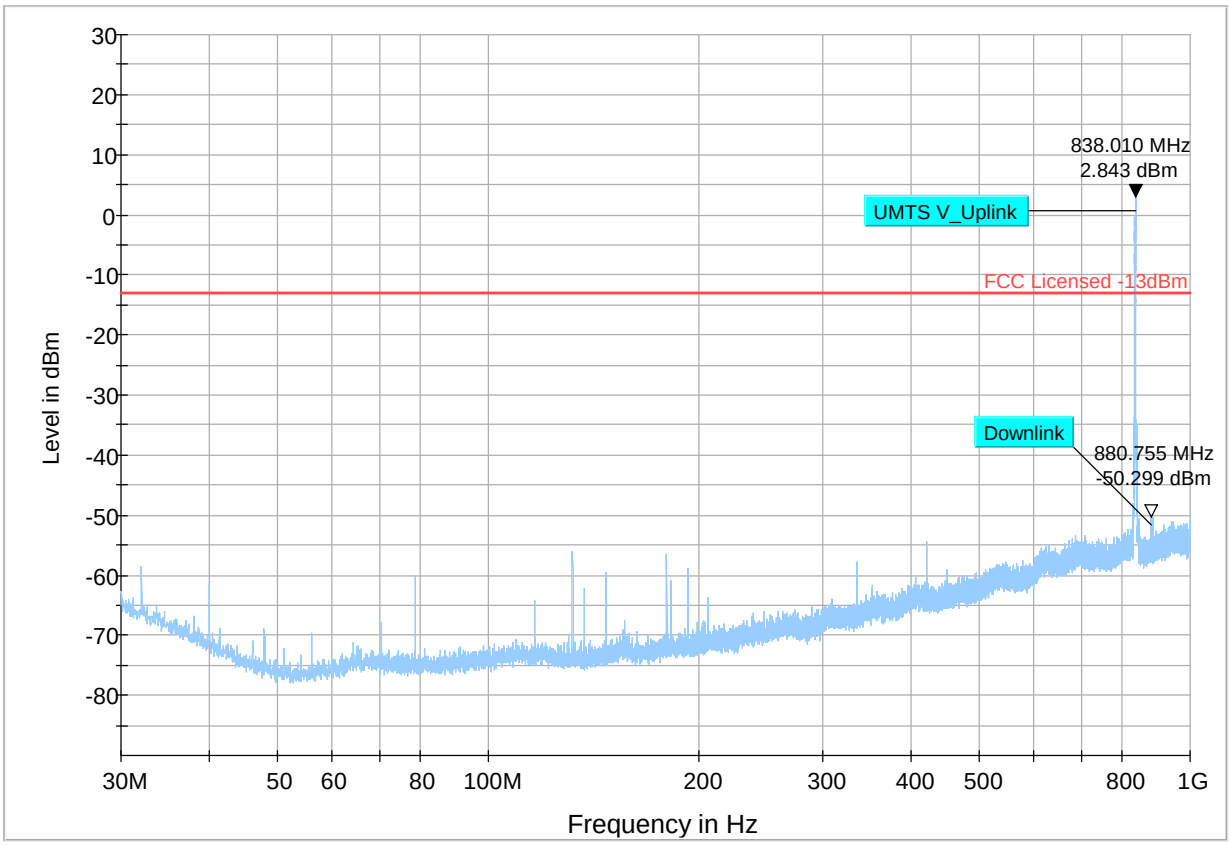
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.010	-16.09	-13.00	3.09	500.0	3.000	227.0	H	150.0	-64.9
12.157	-64.85	-13.00	51.85	500.0	3.000	174.0	V	82.0	-77.9
16.392	-71.56	-13.00	58.56	500.0	3.000	162.0	V	217.0	-78.2
24.067	-64.12	-13.00	51.12	500.0	3.000	175.0	V	98.0	-78.8



Plot # 26 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

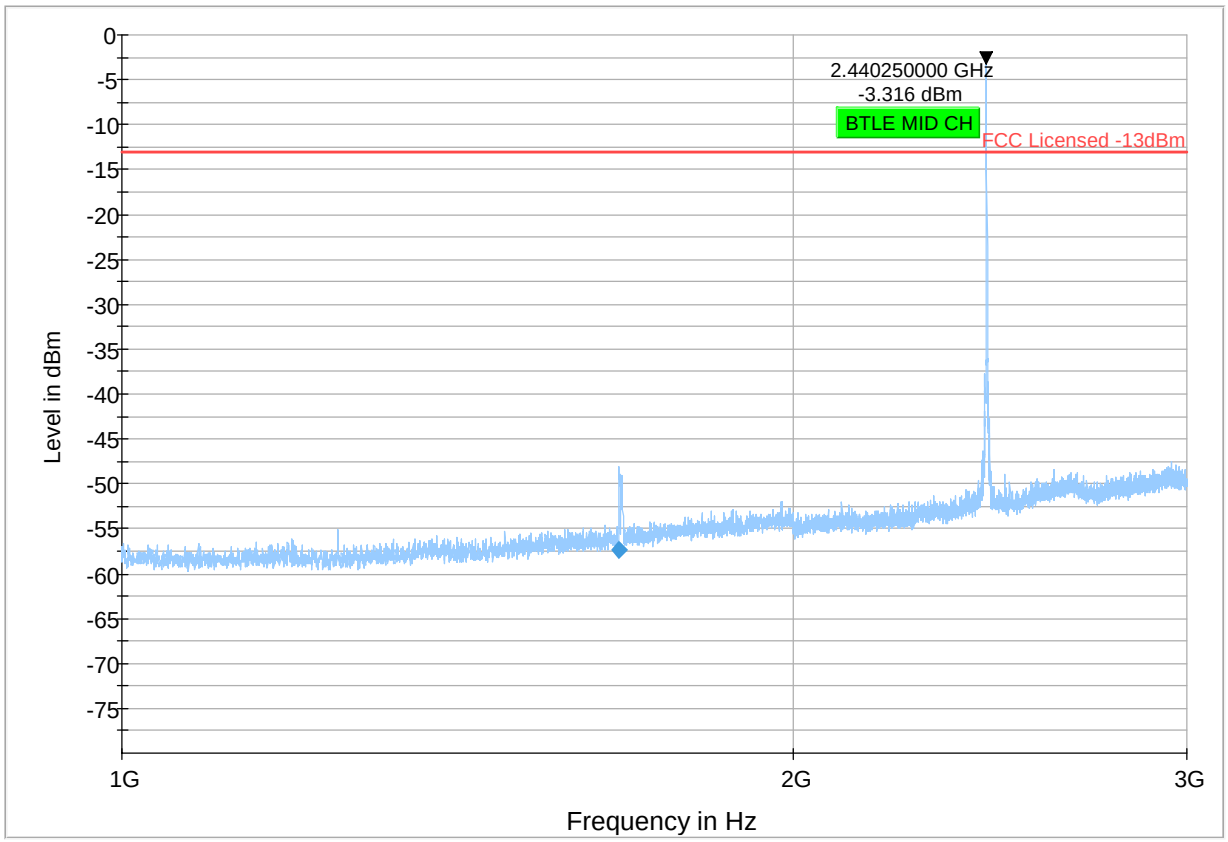


Plot # 27 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1670.750	-57.42	-13.00	44.42	500.0	1000.000	140.0	H	10.0	-89.0

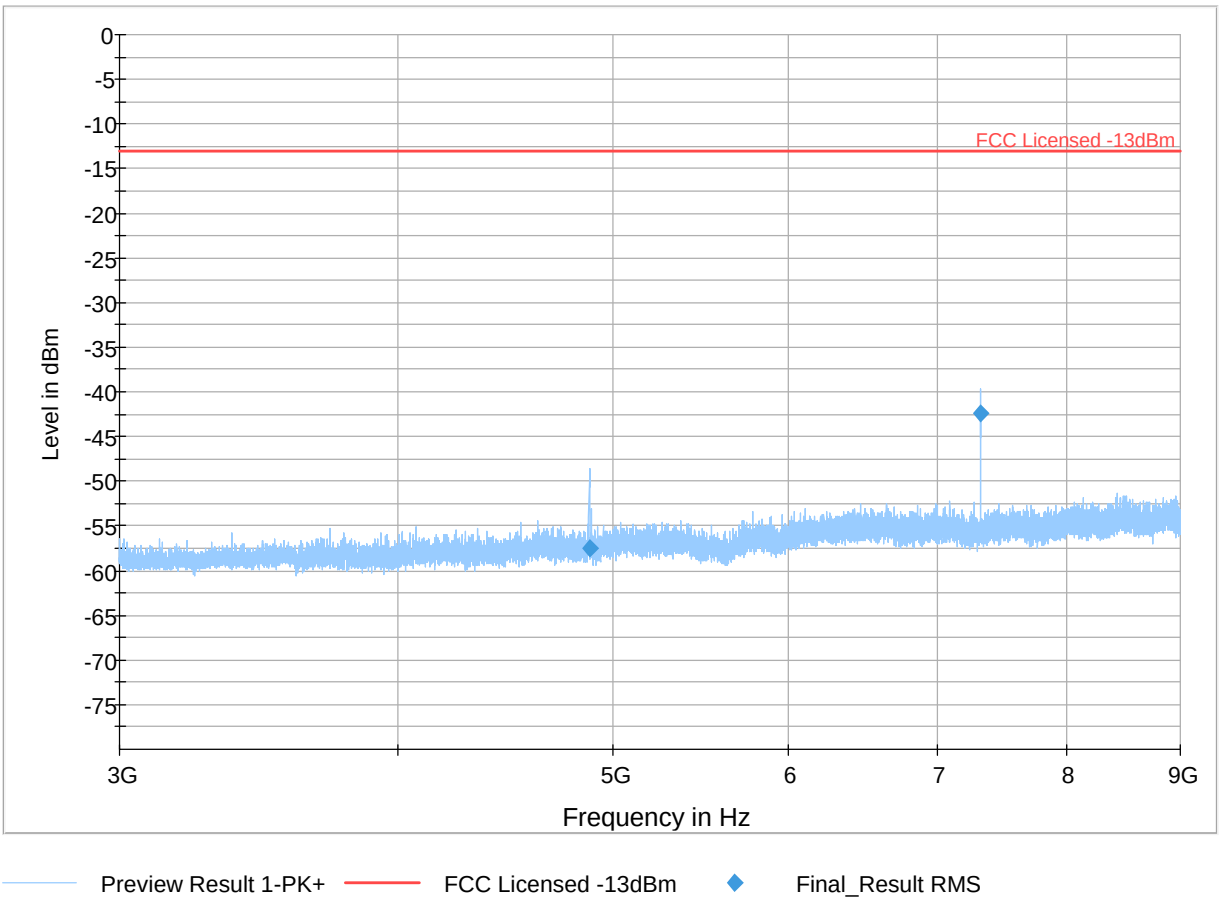


Plot # 28 Radiated Emissions: 3 GHz – 9 GHz

Channel: Mid

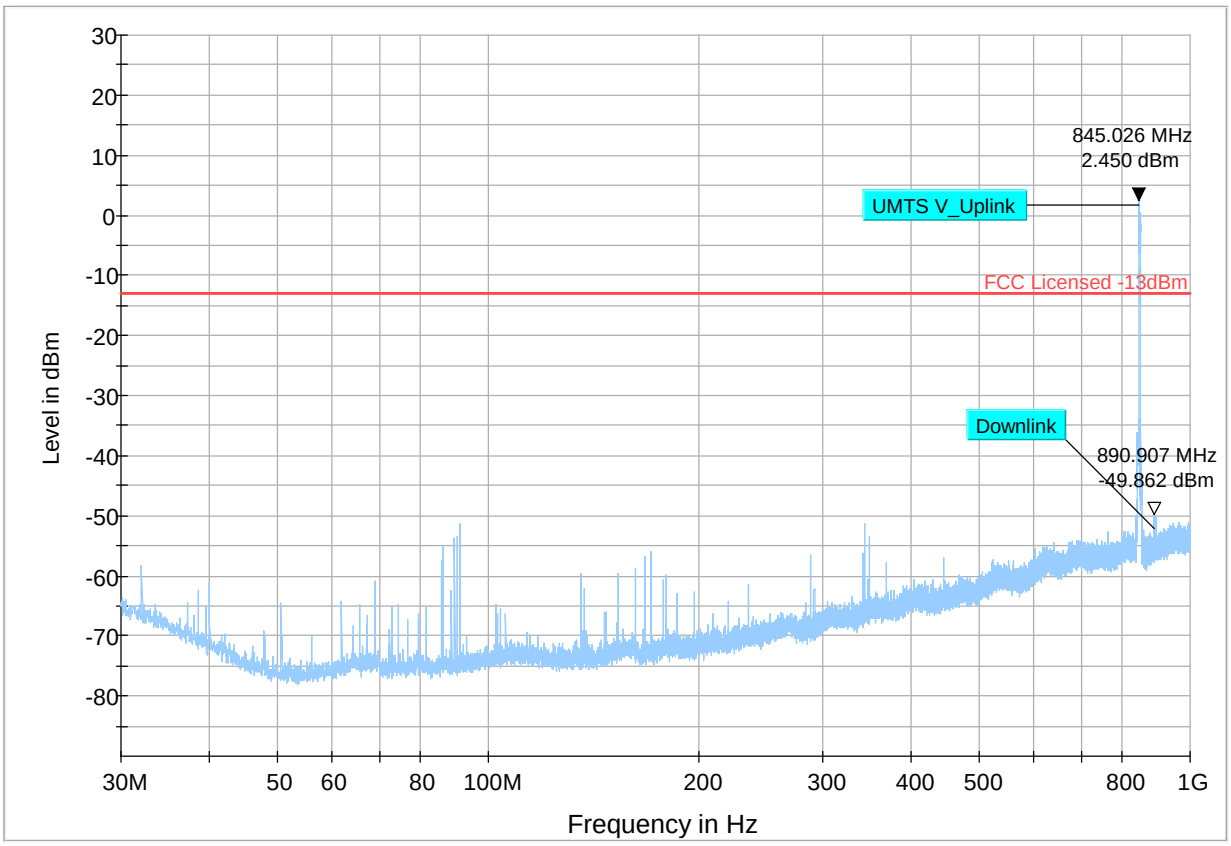
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.750	-57.55	-13.00	44.55	500.0	1000.000	140.0	H	148.0	-100.2
7321.000	-42.39	-13.00	29.39	500.0	1000.000	197.0	H	243.0	-95.7



Plot # 29 Radiated Emissions: 30 MHz – 1GHz

Channel: High

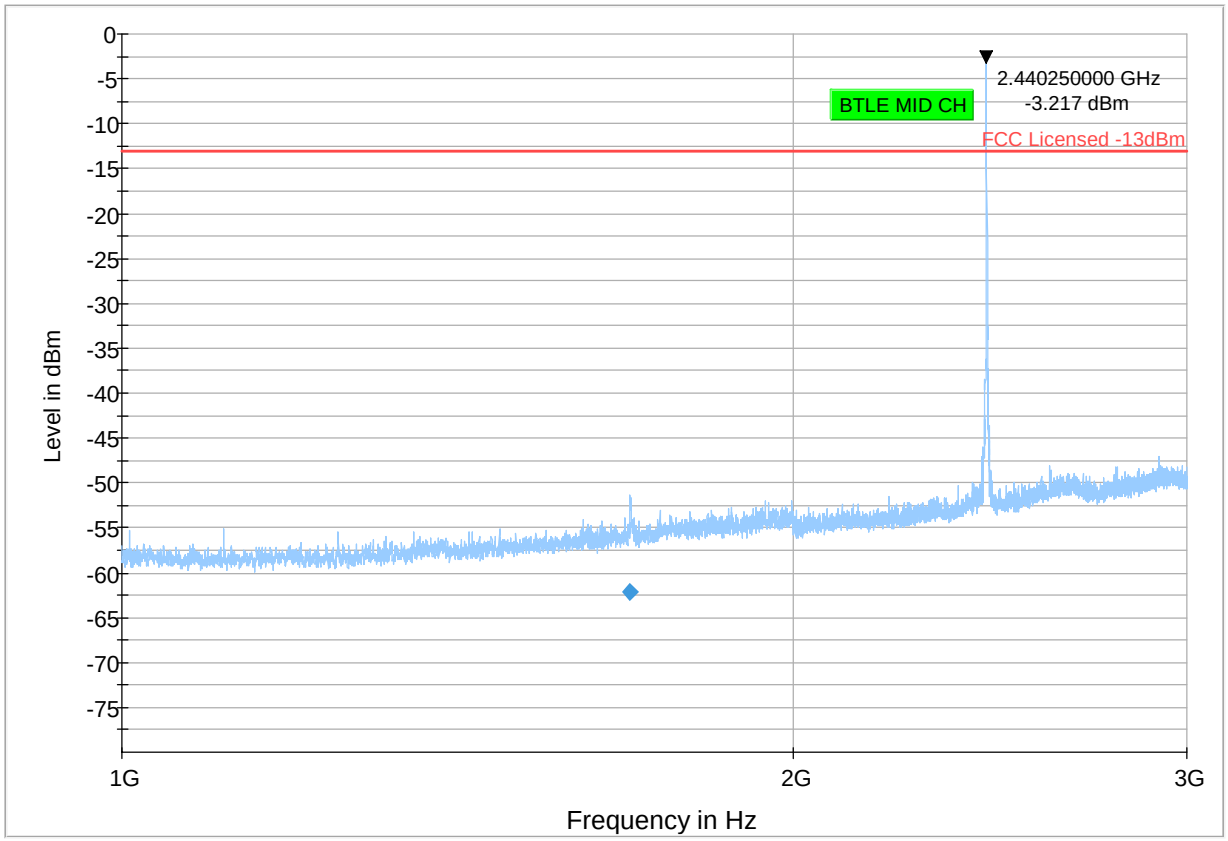


Plot # 30 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1689.750	-62.07	-13.00	49.07	500.0	1000.000	140.0	V	259.0	-88.8

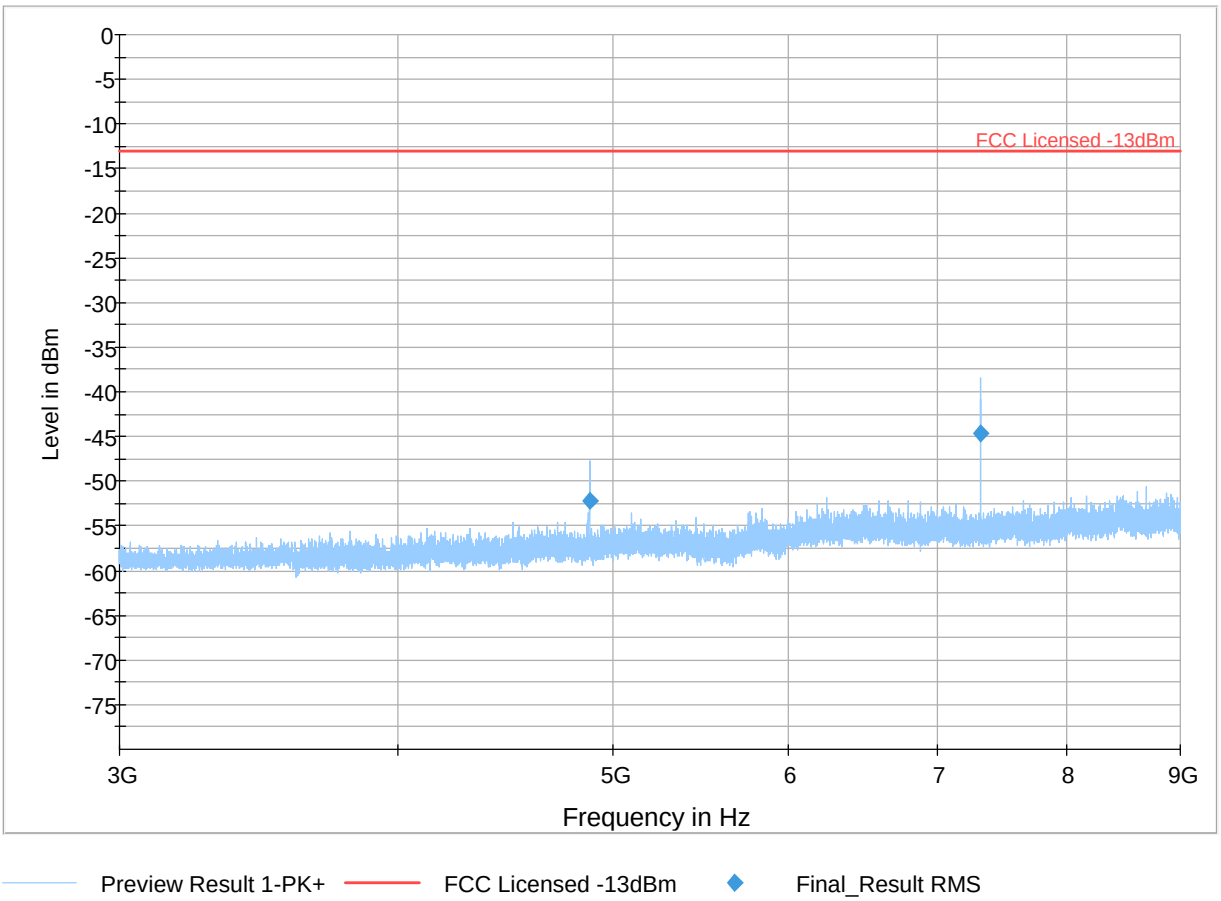


Plot # 31 Radiated Emissions: 3 GHz – 9 GHz

Channel: High

Final_Result

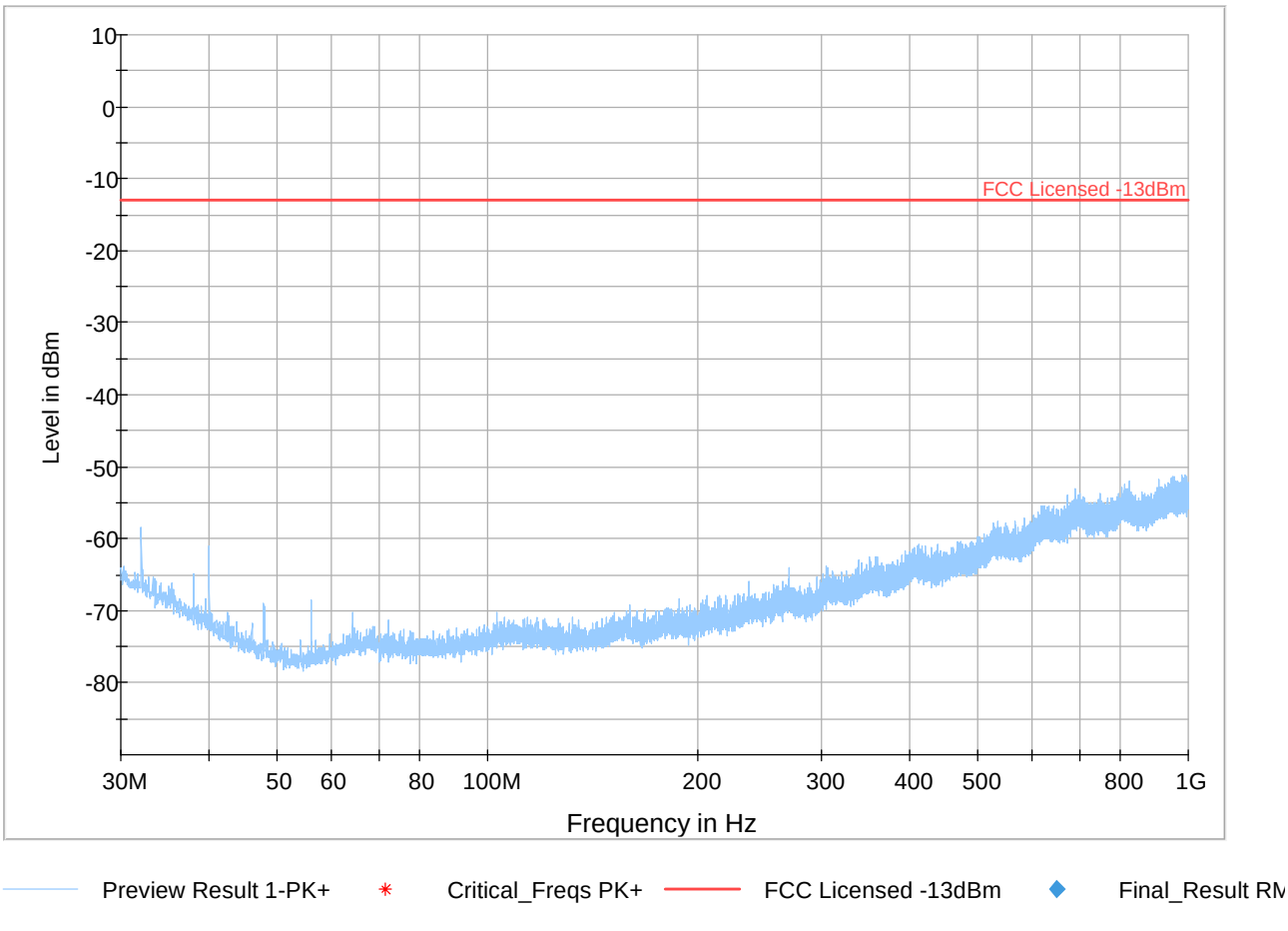
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.13	-13.00	39.13	500.0	1000.000	140.0	H	149.0	-100.2
7321.000	-44.66	-13.00	31.66	500.0	1000.000	152.0	H	246.0	-95.7



LTE 2

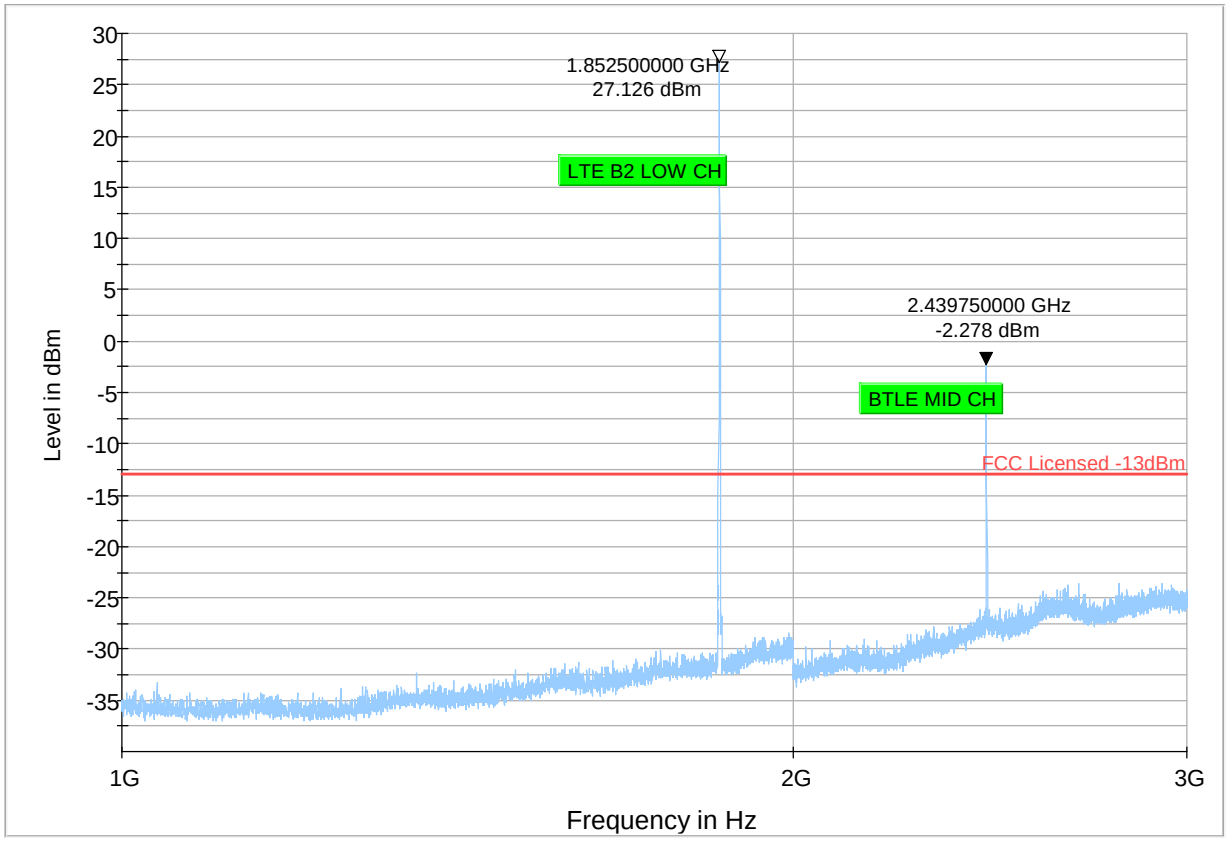
Plot # 32 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 33 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

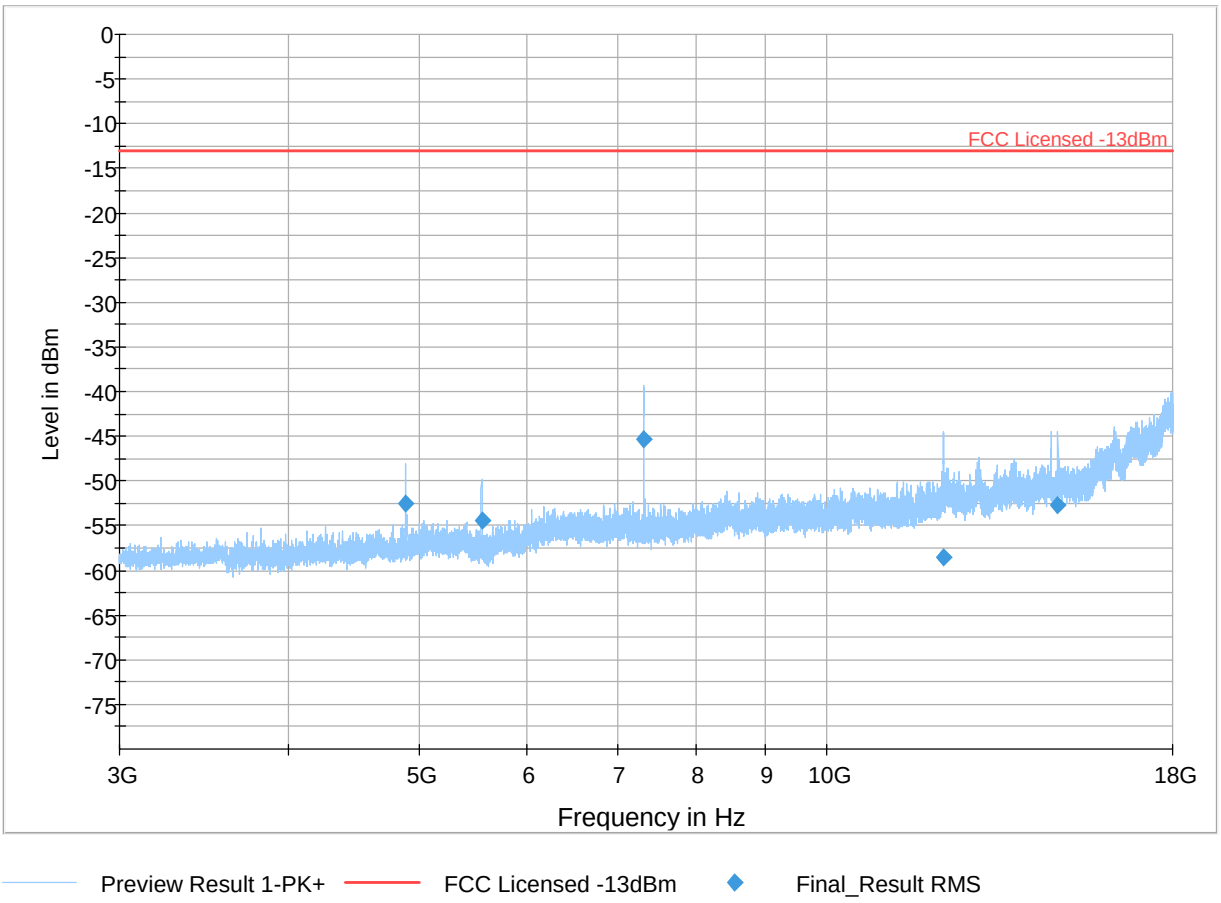


Plot # 34 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.55	-13.00	39.55	500.0	1000.000	140.0	H	147.0	-100.2
5555.000	-54.51	-13.00	41.51	500.0	1000.000	315.0	V	270.0	-99.7
7321.000	-45.29	-13.00	32.29	500.0	1000.000	163.0	V	188.0	-95.7
12200.000	-58.49	-13.00	45.49	500.0	1000.000	152.0	V	6.0	-91.6
14812.500	-52.64	-13.00	39.64	500.0	1000.000	238.0	V	237.0	-89.1

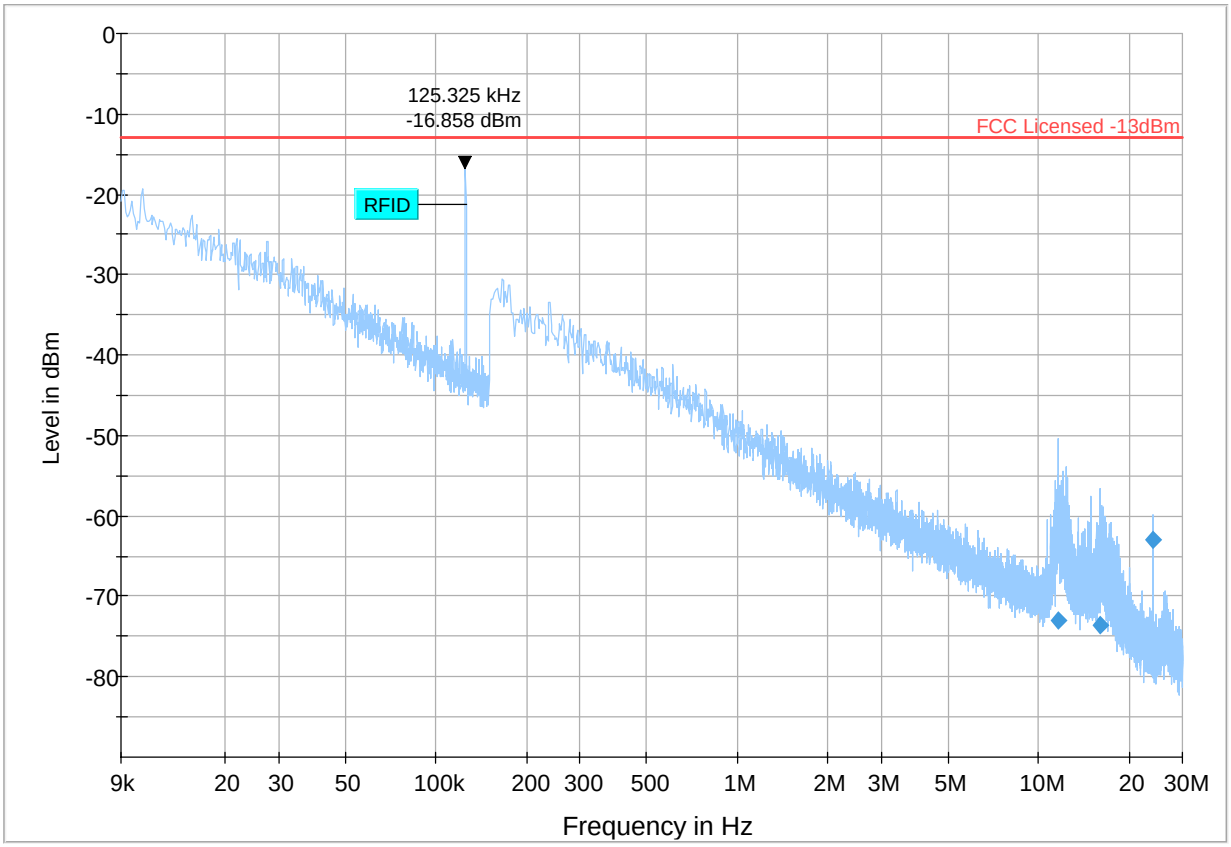


Plot # 35 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

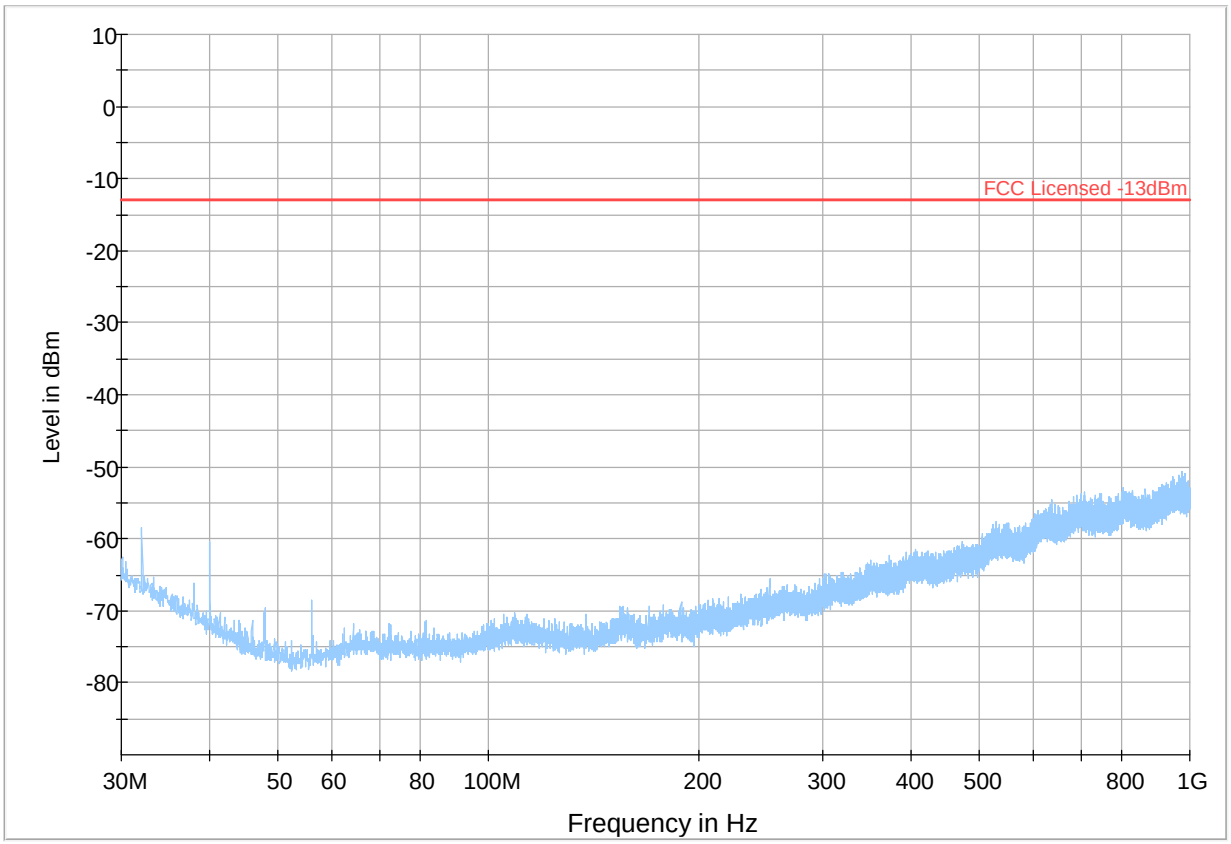
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.637	-73.07	-13.00	60.07	500.0	3.000	282.0	H	-4.0	-77.8
16.071	-73.49	-13.00	60.49	500.0	3.000	206.0	H	46.0	-78.2
24.067	-62.95	-13.00	49.95	500.0	3.000	140.0	H	104.0	-78.8



Plot # 36 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

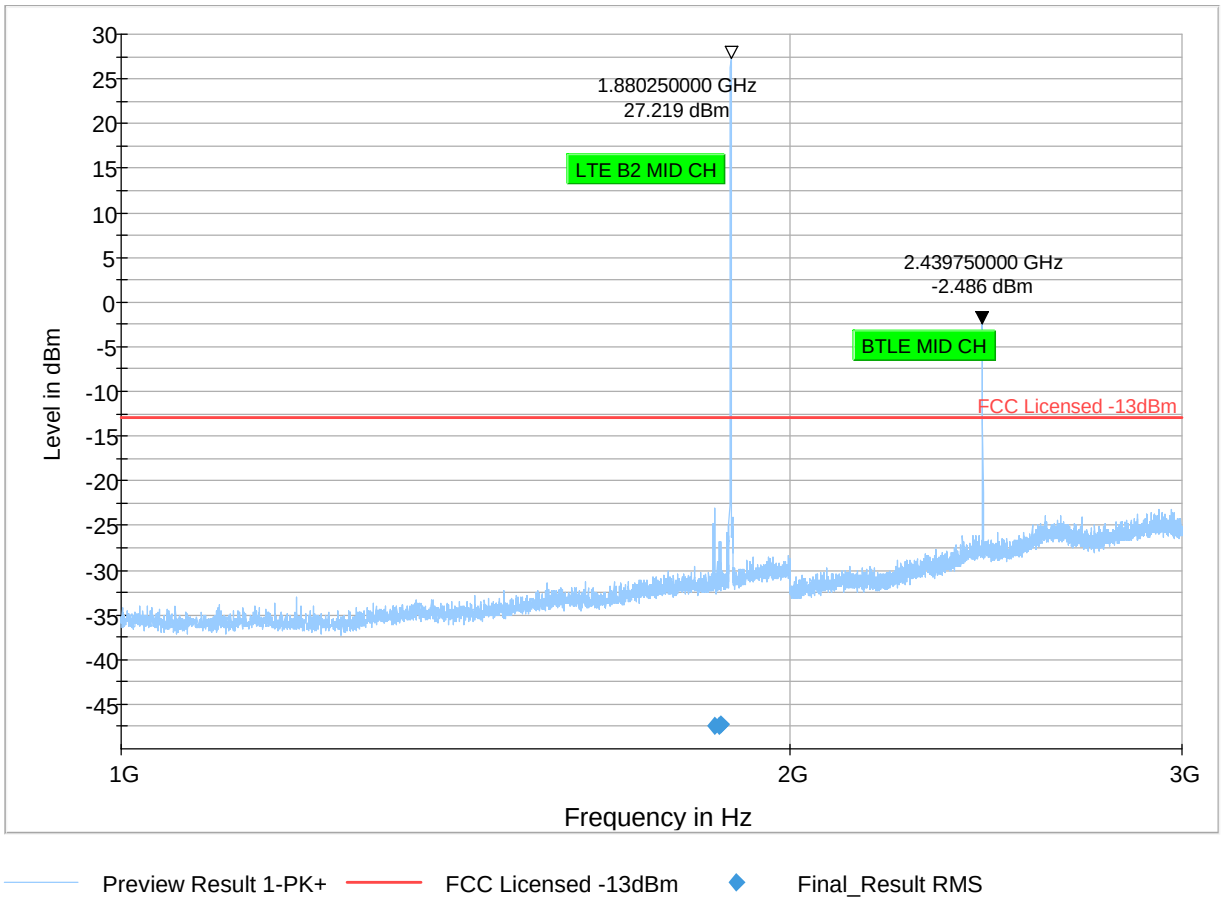


Plot # 37 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1848.500	-47.48	-13.00	34.48	500.0	1000.000	140.0	H	198.0	-61.3
1856.750	-47.43	-13.00	34.43	500.0	1000.000	290.0	V	168.0	-61.3
1861.750	-47.34	-13.00	34.34	500.0	1000.000	207.0	V	311.0	-61.3

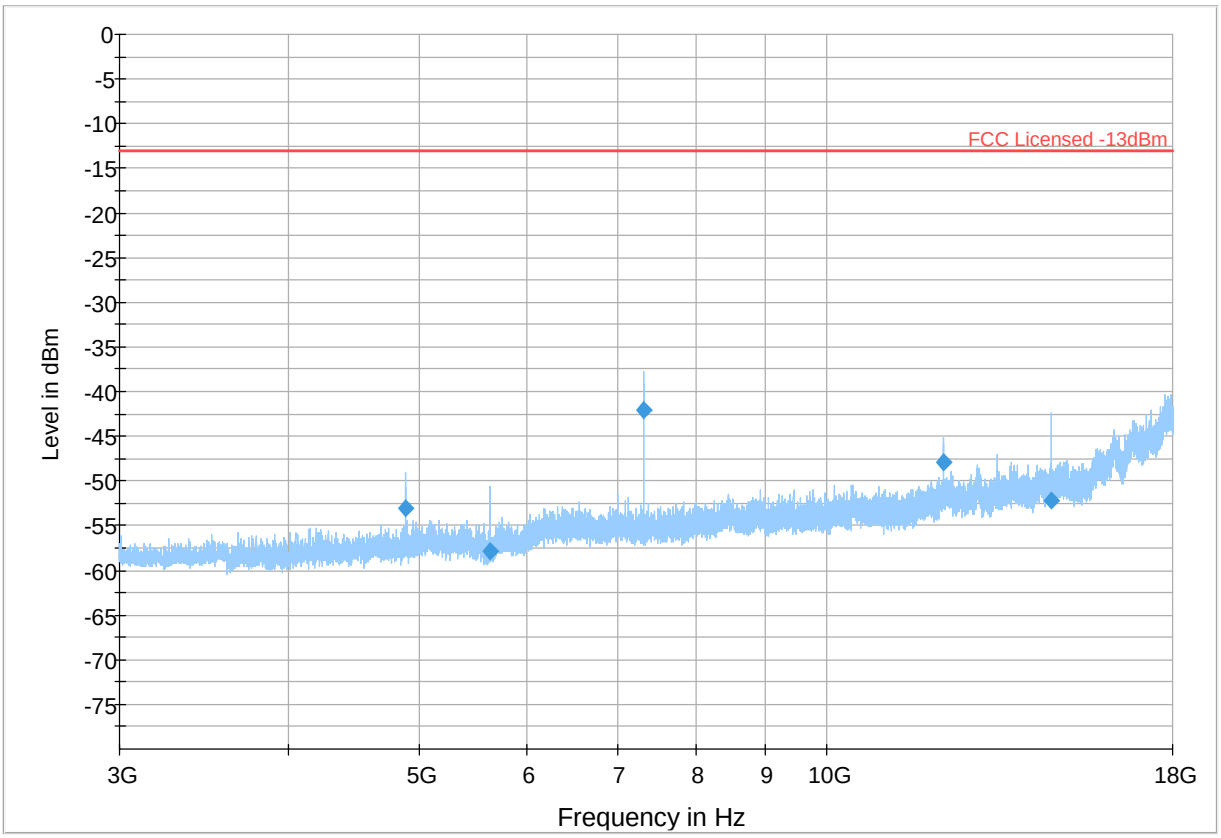


Plot # 38 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-53.09	-13.00	40.09	500.0	1000.000	195.0	H	146.0	-100.2
5640.000	-57.93	-13.00	44.93	500.0	1000.000	315.0	V	59.0	-99.5
7321.000	-42.04	-13.00	29.04	500.0	1000.000	196.0	H	245.0	-95.7
12201.500	-47.82	-13.00	34.82	500.0	1000.000	151.0	V	6.0	-91.6
14642.000	-52.14	-13.00	39.14	500.0	1000.000	207.0	V	21.0	-89.6

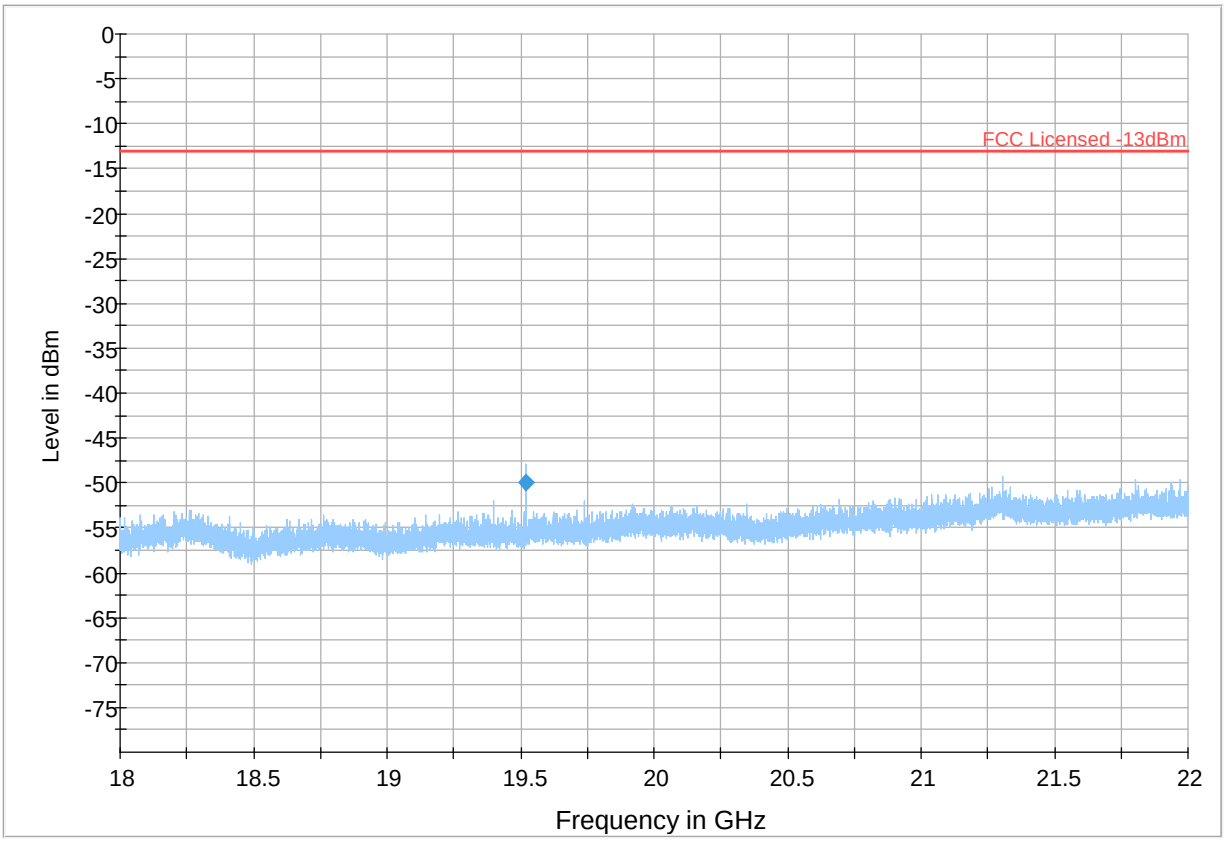


Plot # 39 Radiated Emissions: 18 GHz – 22 GHz

Channel: Mid

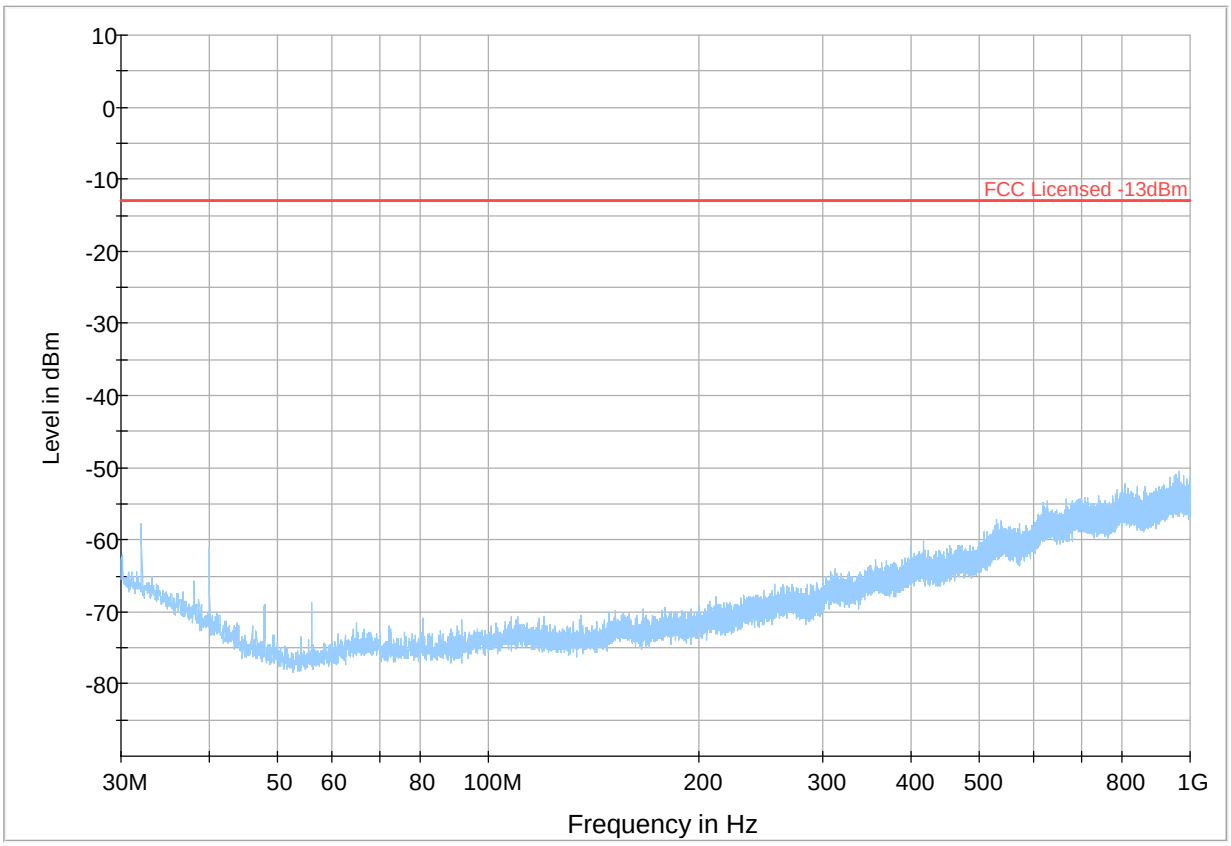
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
19522.250	-49.97	-13.00	36.97	500.0	1000.000	100.0	V	267.0	-90.8



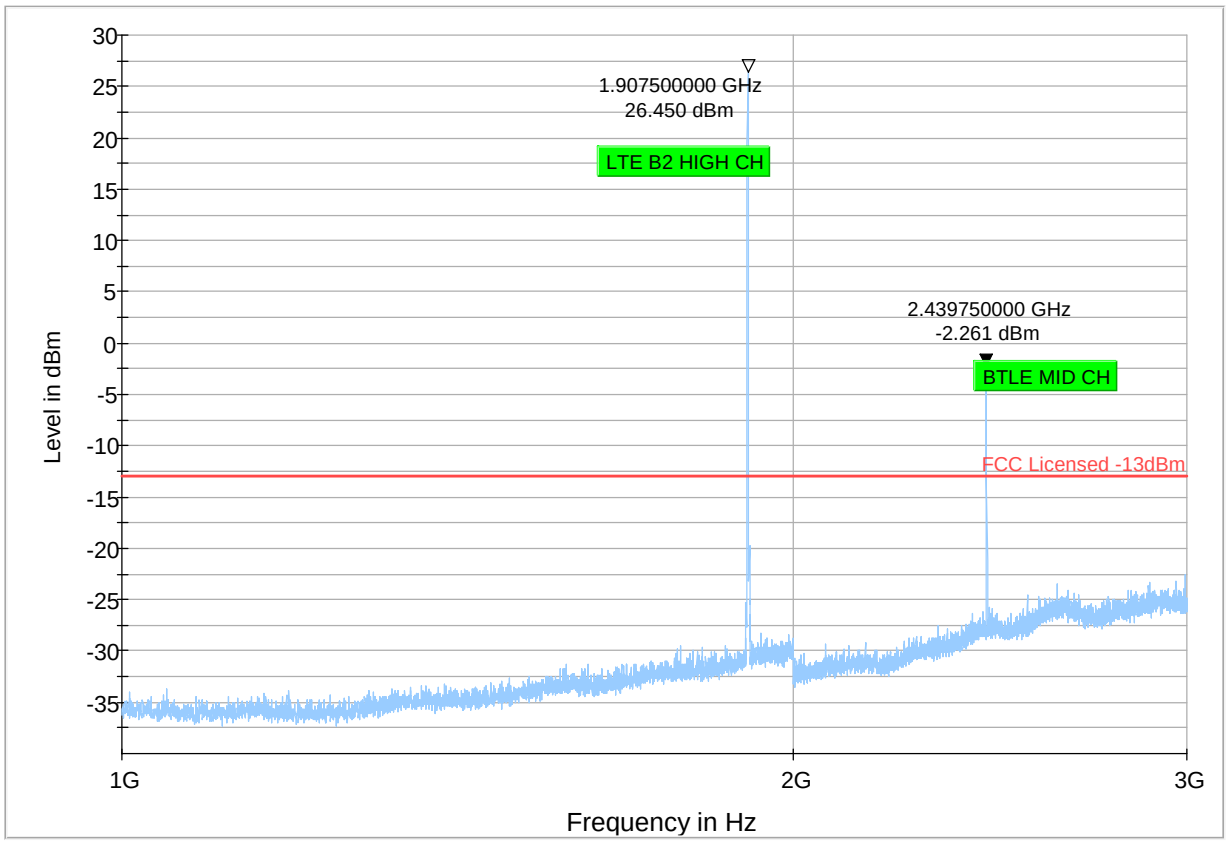
Plot # 40 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 41 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

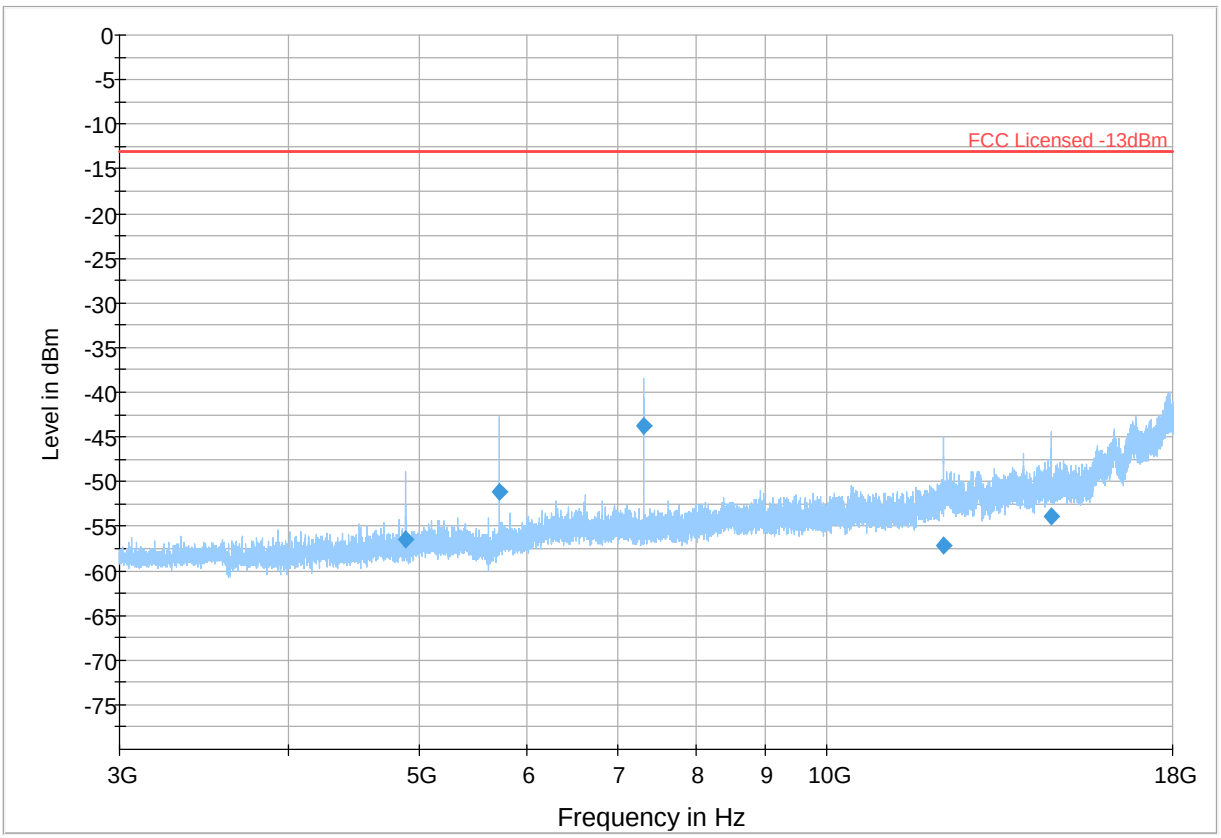


Plot # 42 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.000	-56.50	-13.00	43.50	500.0	1000.000	151.0	H	146.0	-100.2
5725.500	-51.09	-13.00	38.09	500.0	1000.000	315.0	V	95.0	-98.6
7321.000	-43.74	-13.00	30.74	500.0	1000.000	140.0	V	191.0	-95.7
12202.000	-57.12	-13.00	44.12	500.0	1000.000	186.0	V	-3.0	-91.6
14642.000	-53.95	-13.00	40.95	500.0	1000.000	231.0	H	322.0	-89.6



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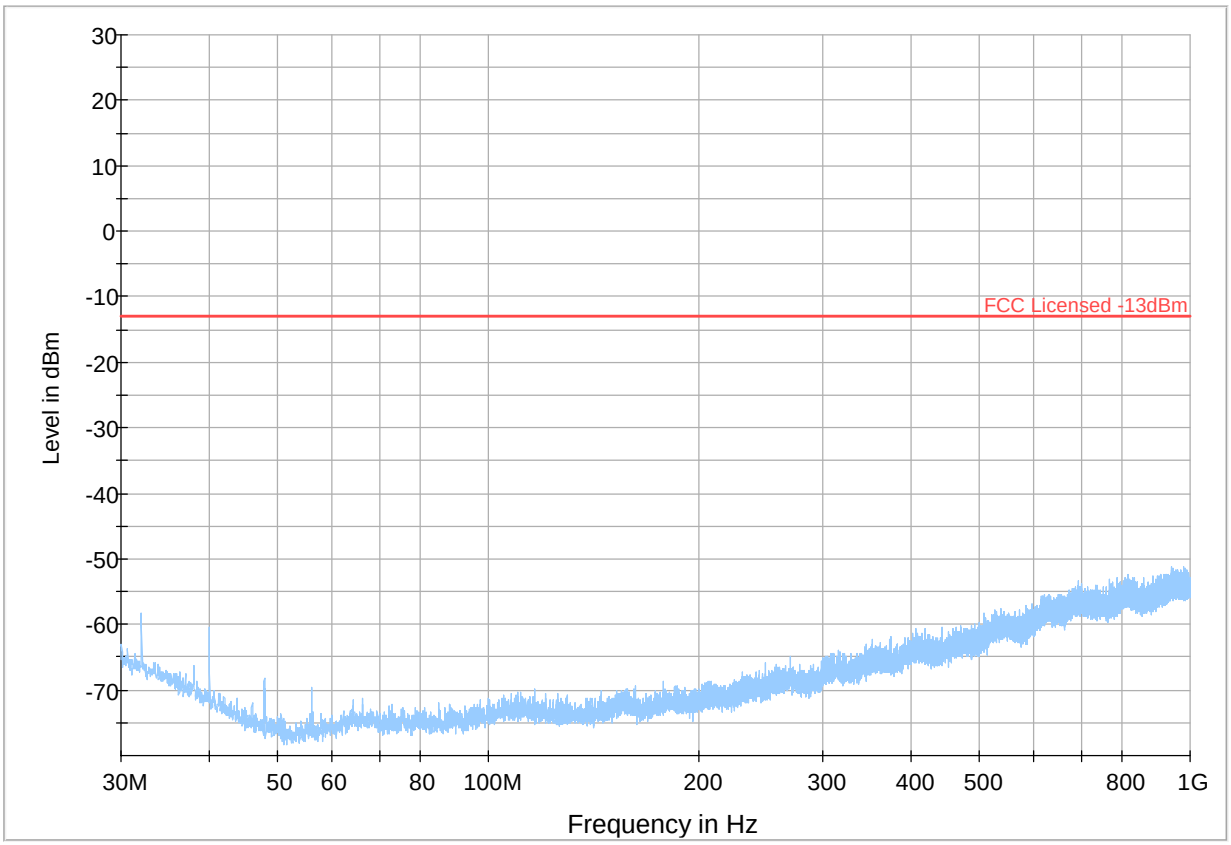
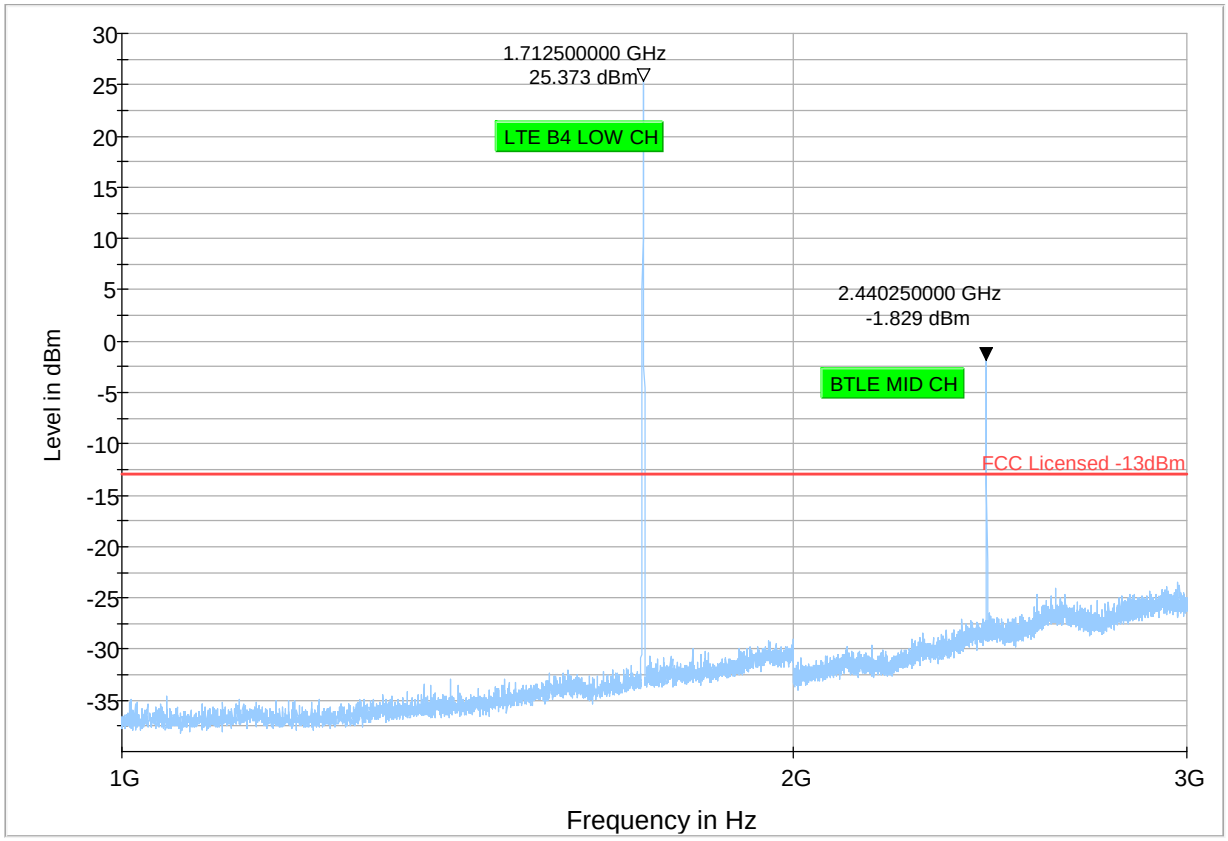
Plot # 43 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 44 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

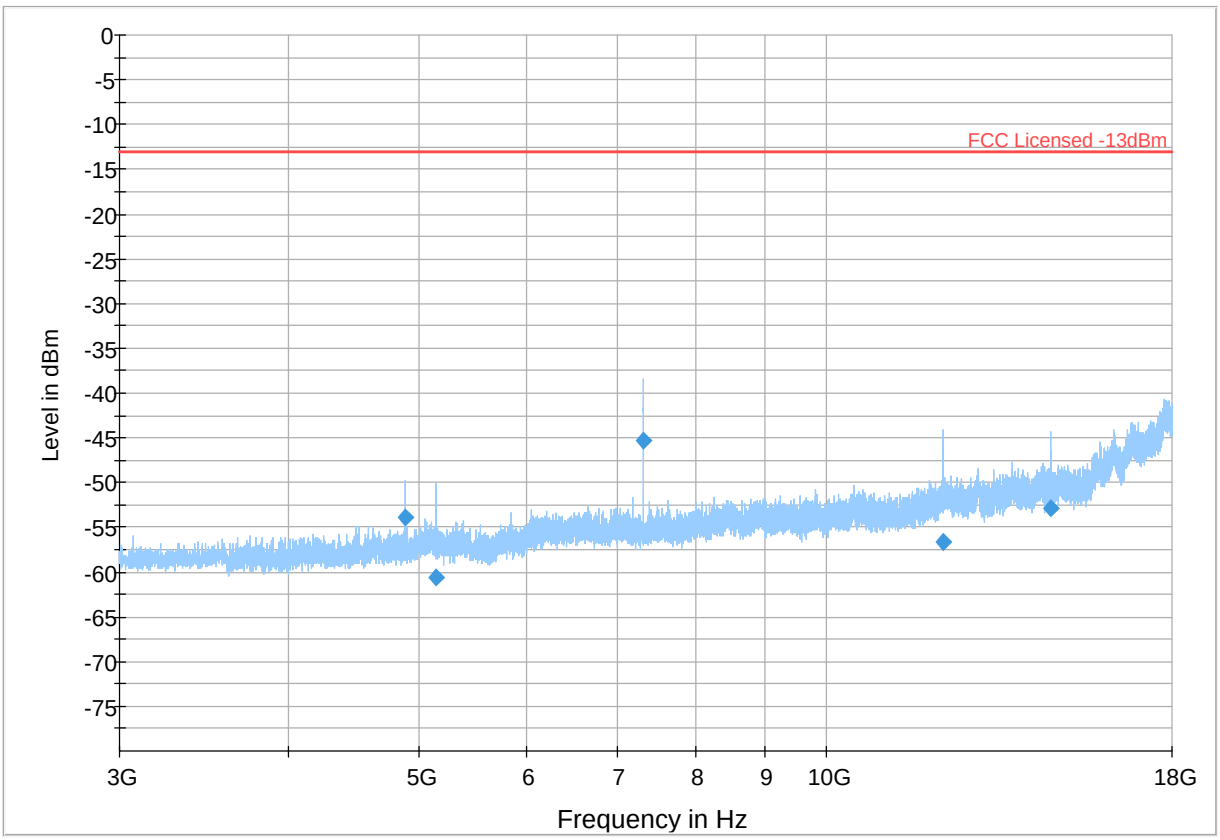


Plot # 45 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-53.89	-13.00	40.89	500.0	1000.000	185.0	H	147.0	-100.2
5137.500	-60.62	-13.00	47.62	500.0	1000.000	307.0	H	263.0	-99.1
7321.000	-45.29	-13.00	32.29	500.0	1000.000	164.0	V	189.0	-95.7
12202.000	-56.63	-13.00	43.63	500.0	1000.000	180.0	V	6.0	-91.6
14642.000	-52.82	-13.00	39.82	500.0	1000.000	140.0	V	330.0	-89.6

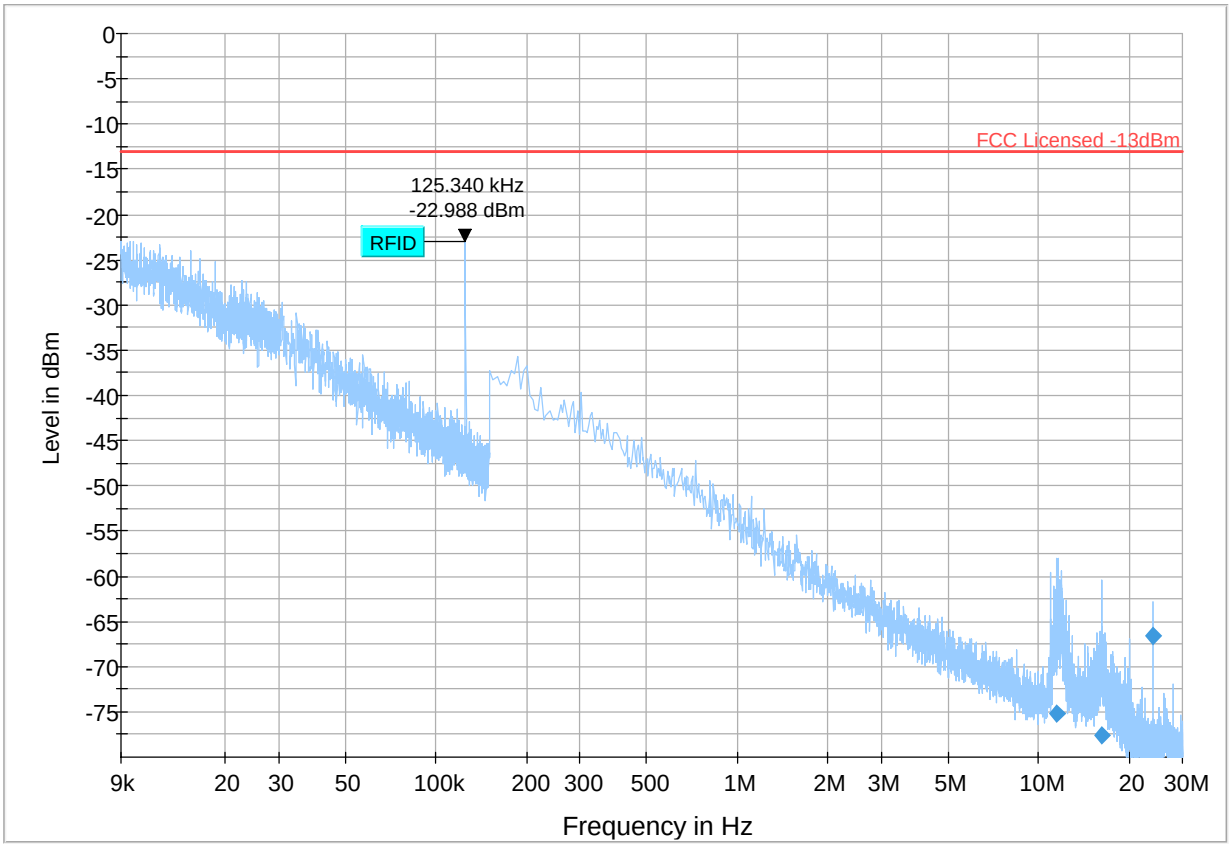


Plot # 46 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

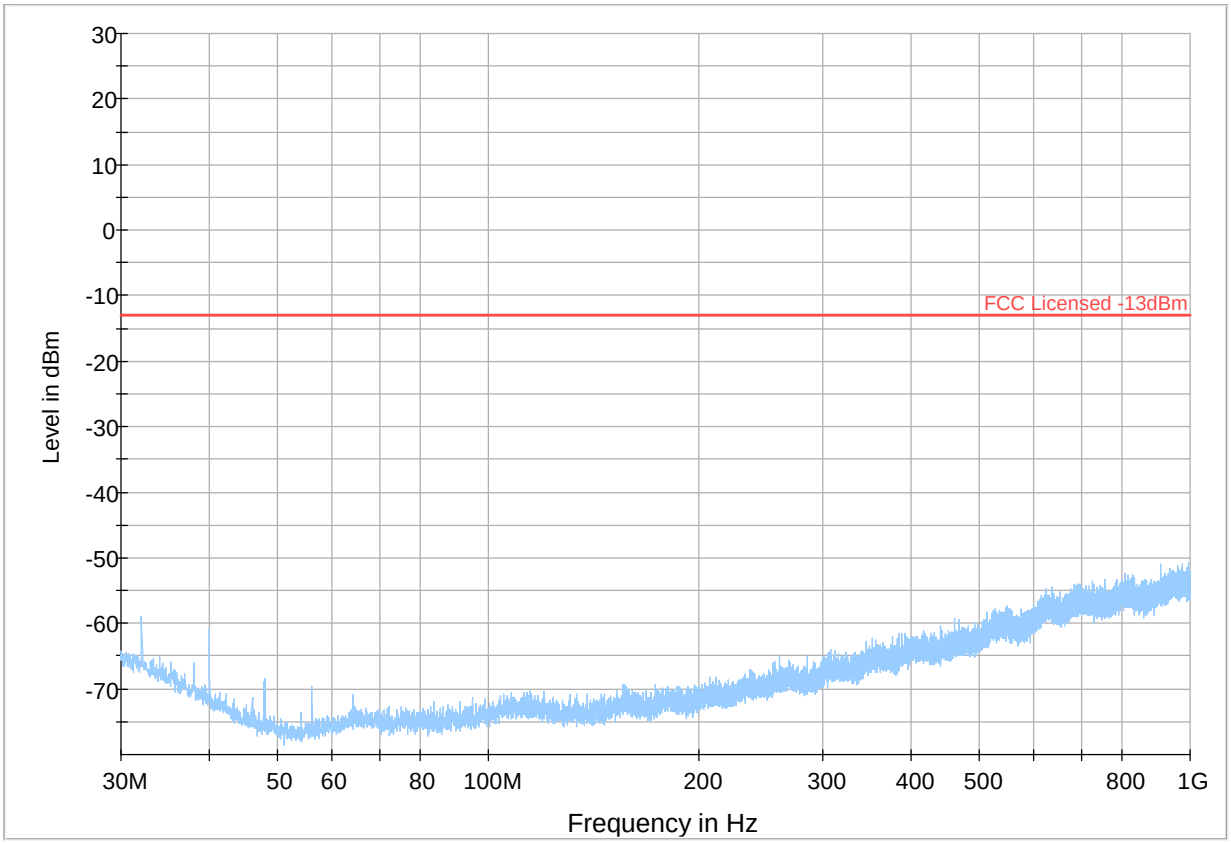
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.534	-75.18	-13.00	62.18	500.0	1.000	278.0	V	190.0	-77.8
16.210	-77.68	-13.00	64.68	500.0	1.000	193.0	H	322.0	-78.2
24.066	-66.64	-13.00	53.64	500.0	1.000	140.0	H	17.0	-78.8



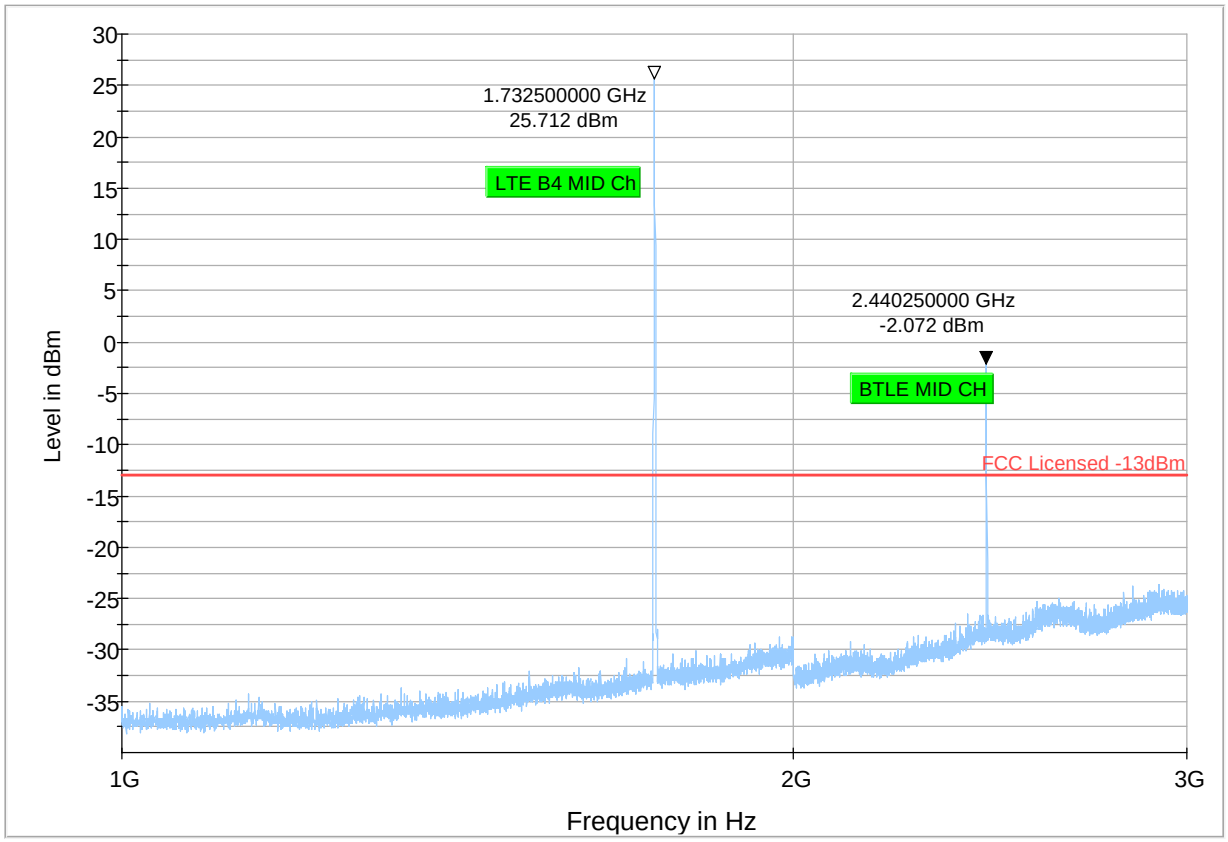
Plot # 47 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 48 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

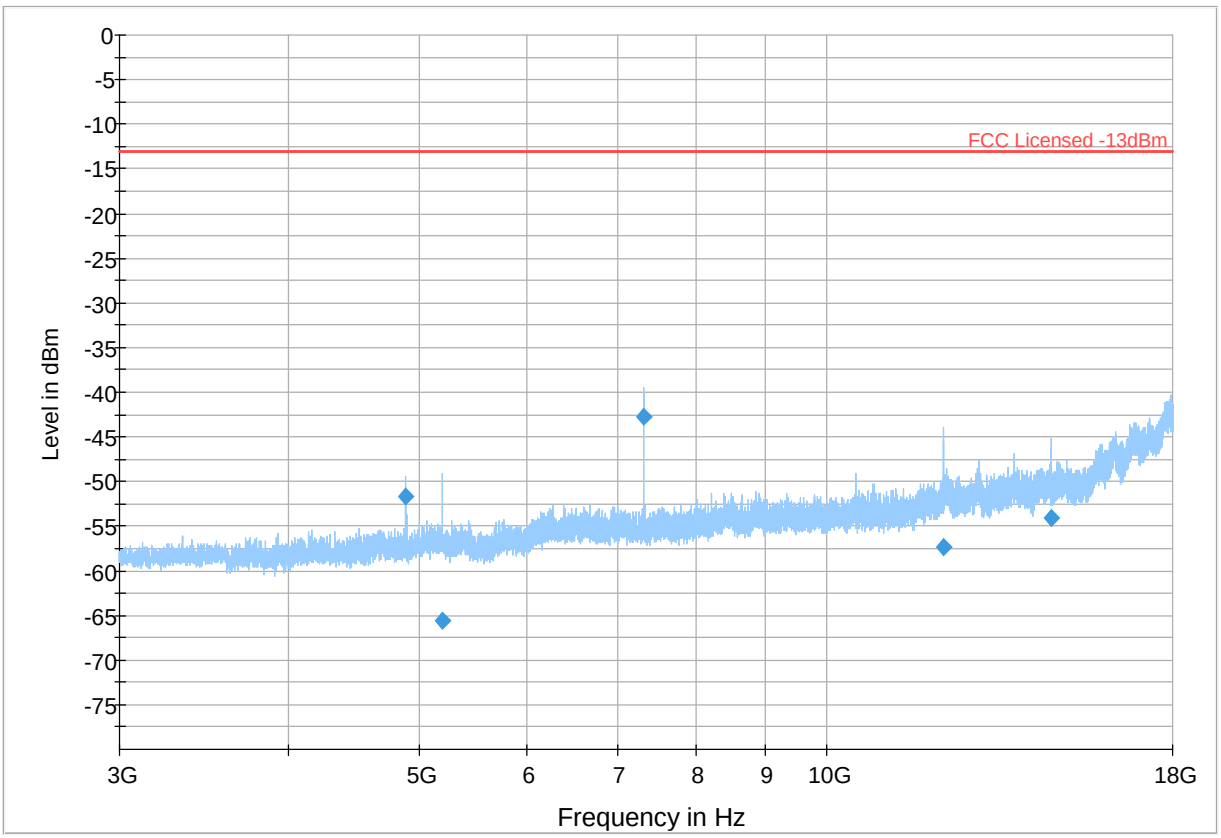


Plot # 49 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

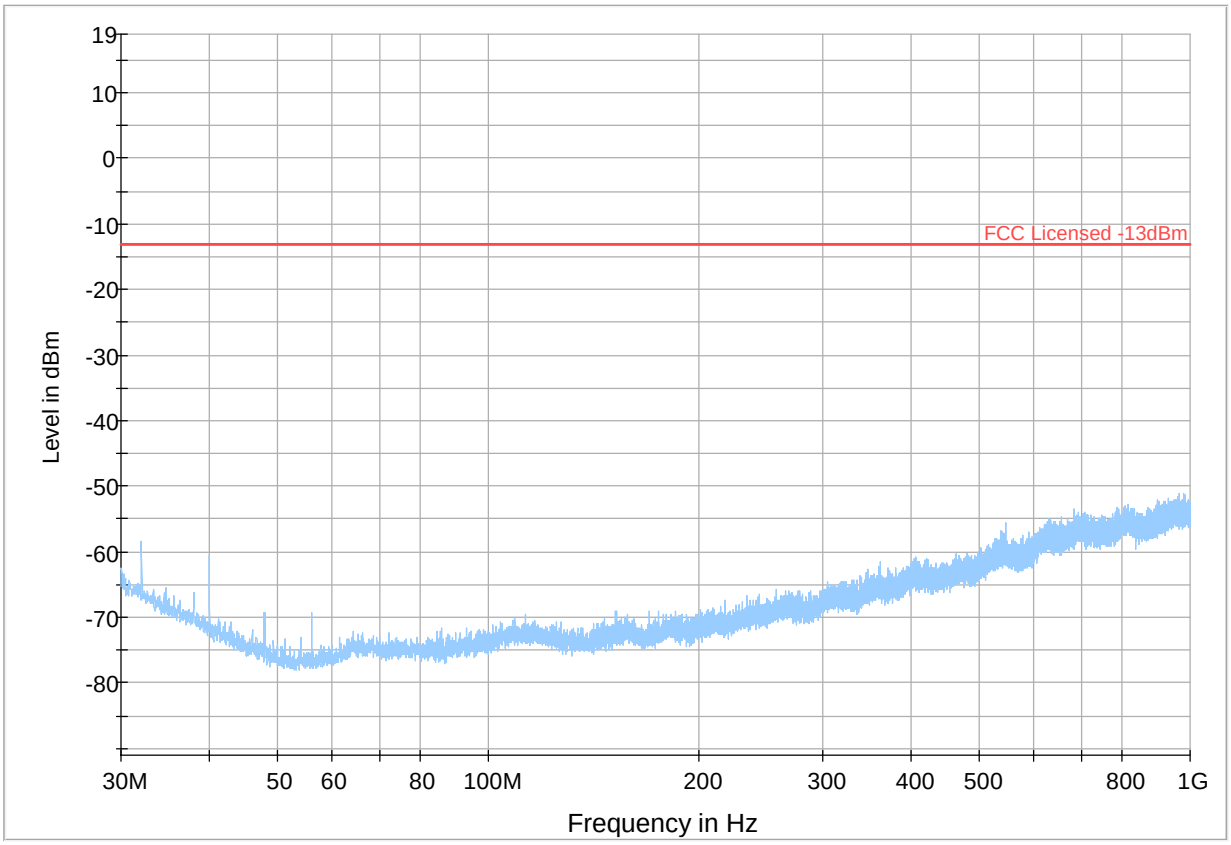
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-51.63	-13.00	38.63	500.0	1000.000	140.0	H	148.0	-100.2
5198.000	-65.51	-13.00	52.51	500.0	1000.000	153.0	H	91.0	-99.2
7321.000	-42.67	-13.00	29.67	500.0	1000.000	315.0	V	30.0	-95.7
12202.000	-57.42	-13.00	44.42	500.0	1000.000	152.0	V	22.0	-91.6
14642.000	-54.04	-13.00	41.04	500.0	1000.000	140.0	V	115.0	-89.6



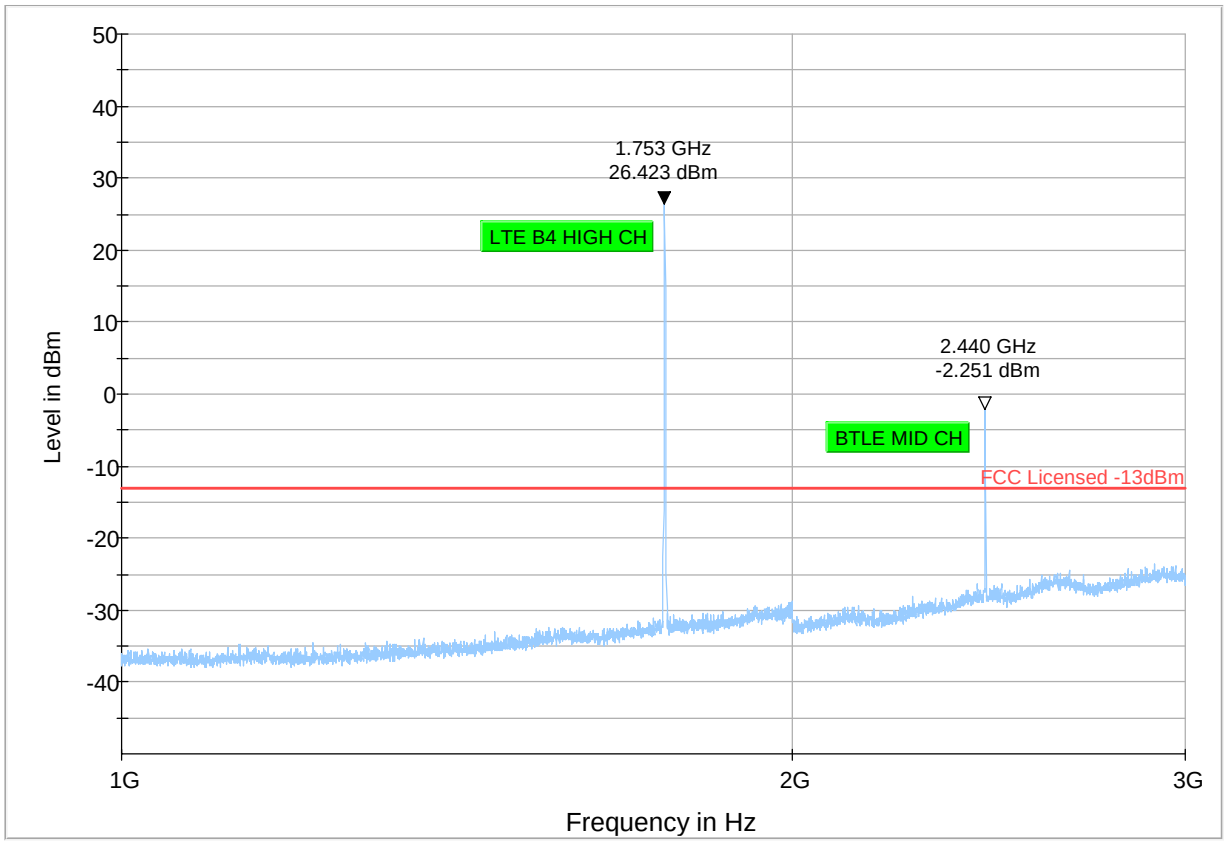
Plot # 50 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 51 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

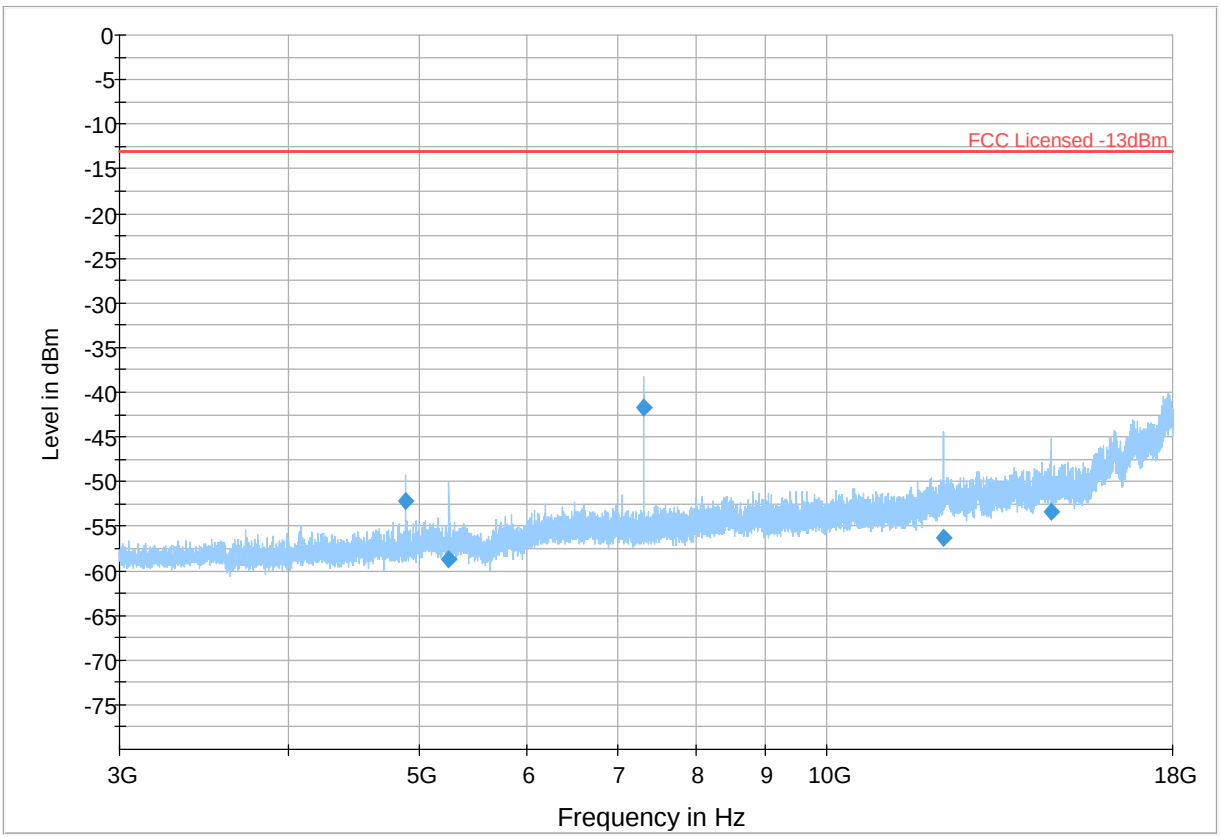


Plot # 52 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.16	-13.00	39.16	500.0	1000.000	140.0	H	147.0	-100.2
5257.500	-58.65	-13.00	45.65	500.0	1000.000	296.0	V	56.0	-99.2
7321.000	-41.76	-13.00	28.76	500.0	1000.000	196.0	H	244.0	-95.7
12202.000	-56.24	-13.00	43.24	500.0	1000.000	185.0	V	-1.0	-91.6
14642.000	-53.40	-13.00	40.40	500.0	1000.000	140.0	H	321.0	-89.6



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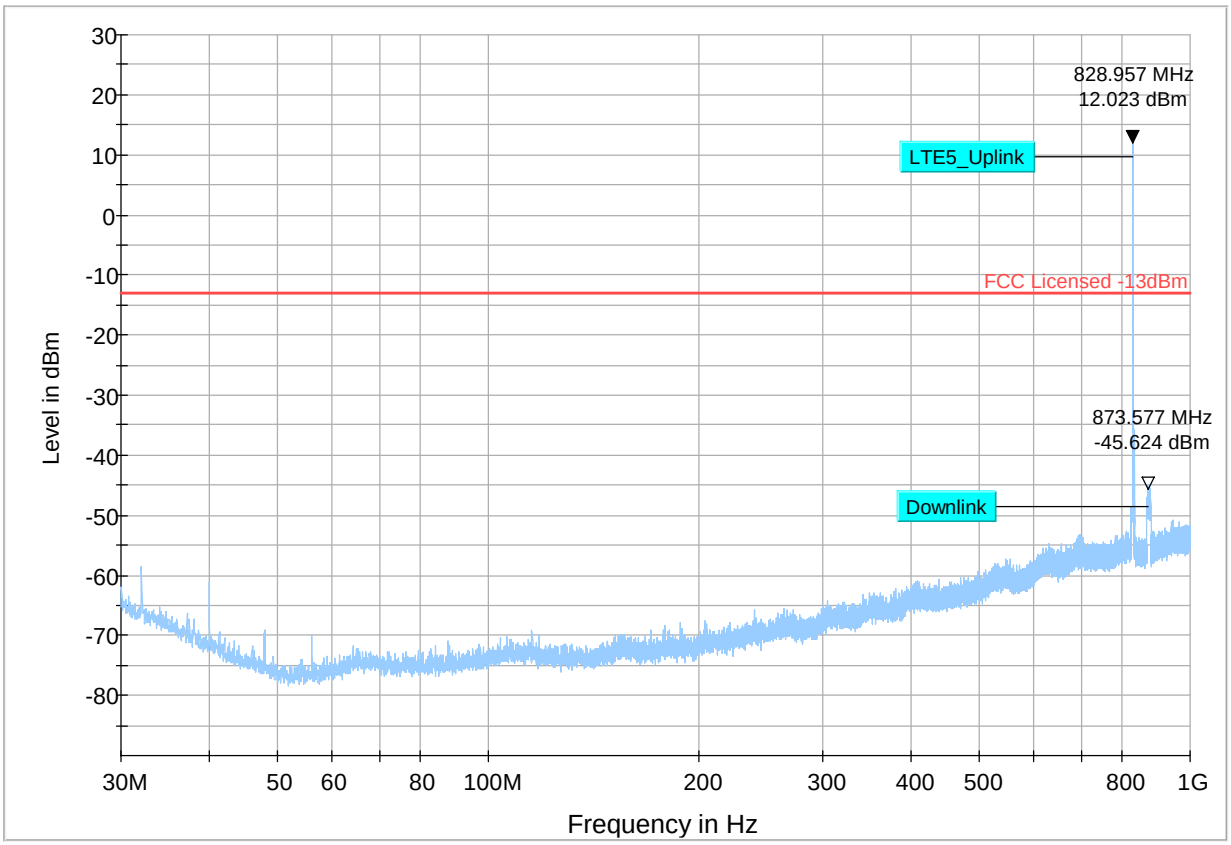
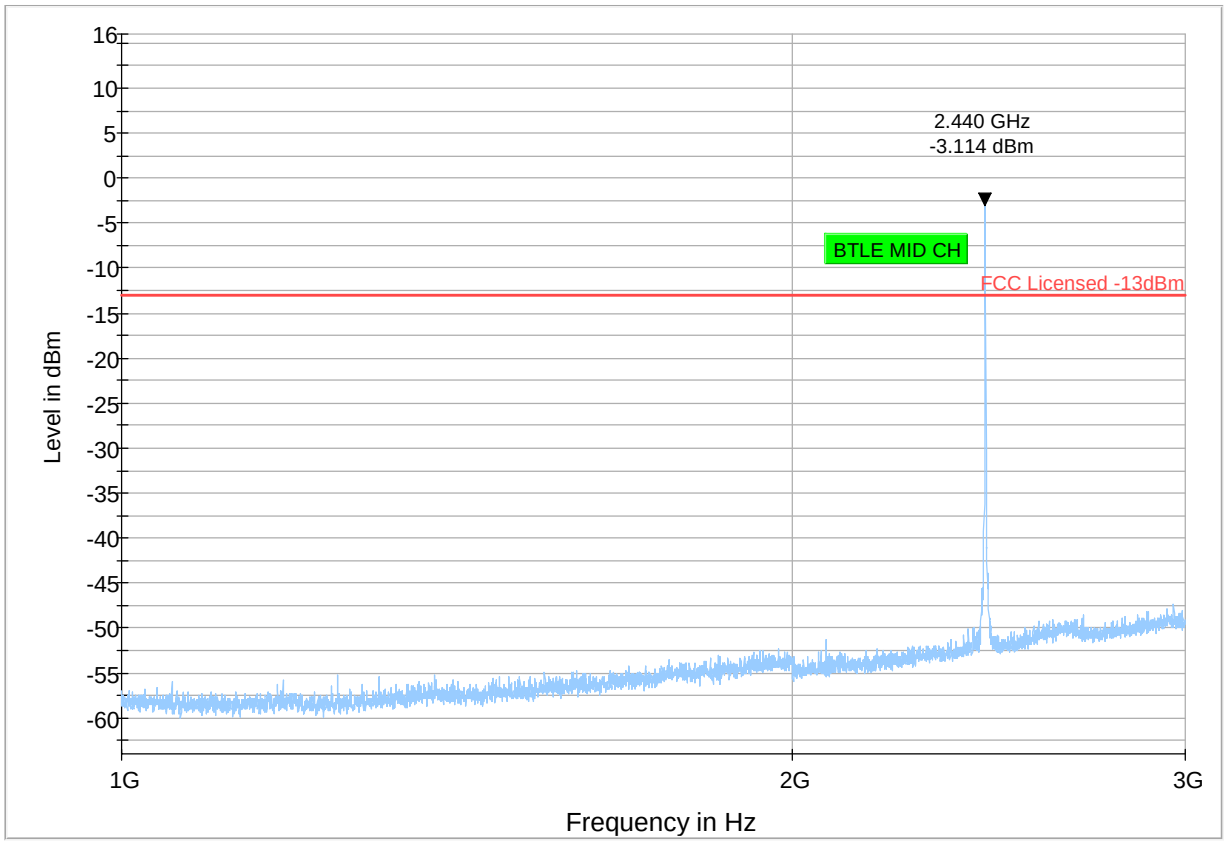
Plot # 53 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 54 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

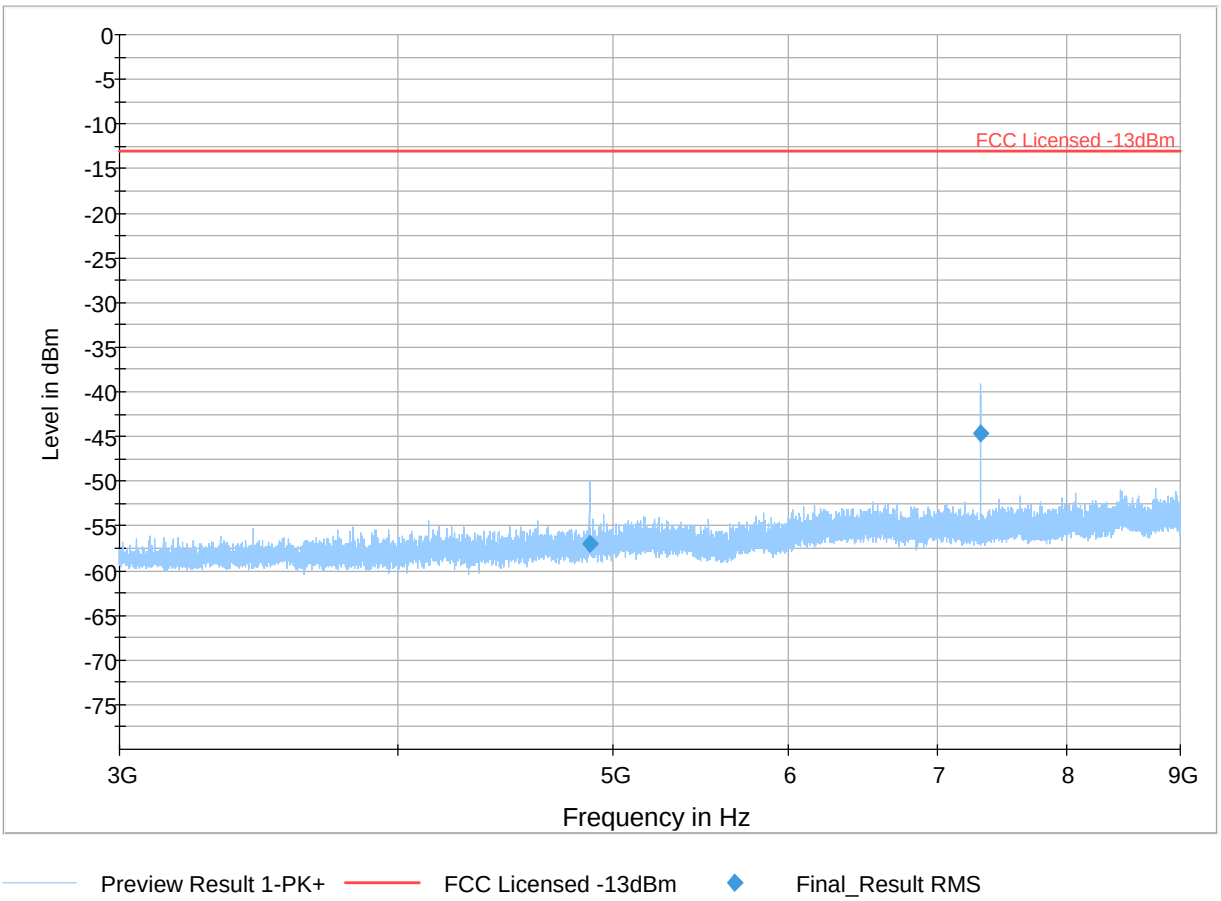


Plot # 55 Radiated Emissions: 3 GHz – 9 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.750	-57.08	-13.00	44.08	500.0	1000.000	219.0	H	298.0	-100.2
7321.000	-44.59	-13.00	31.59	500.0	1000.000	162.0	H	194.0	-95.7

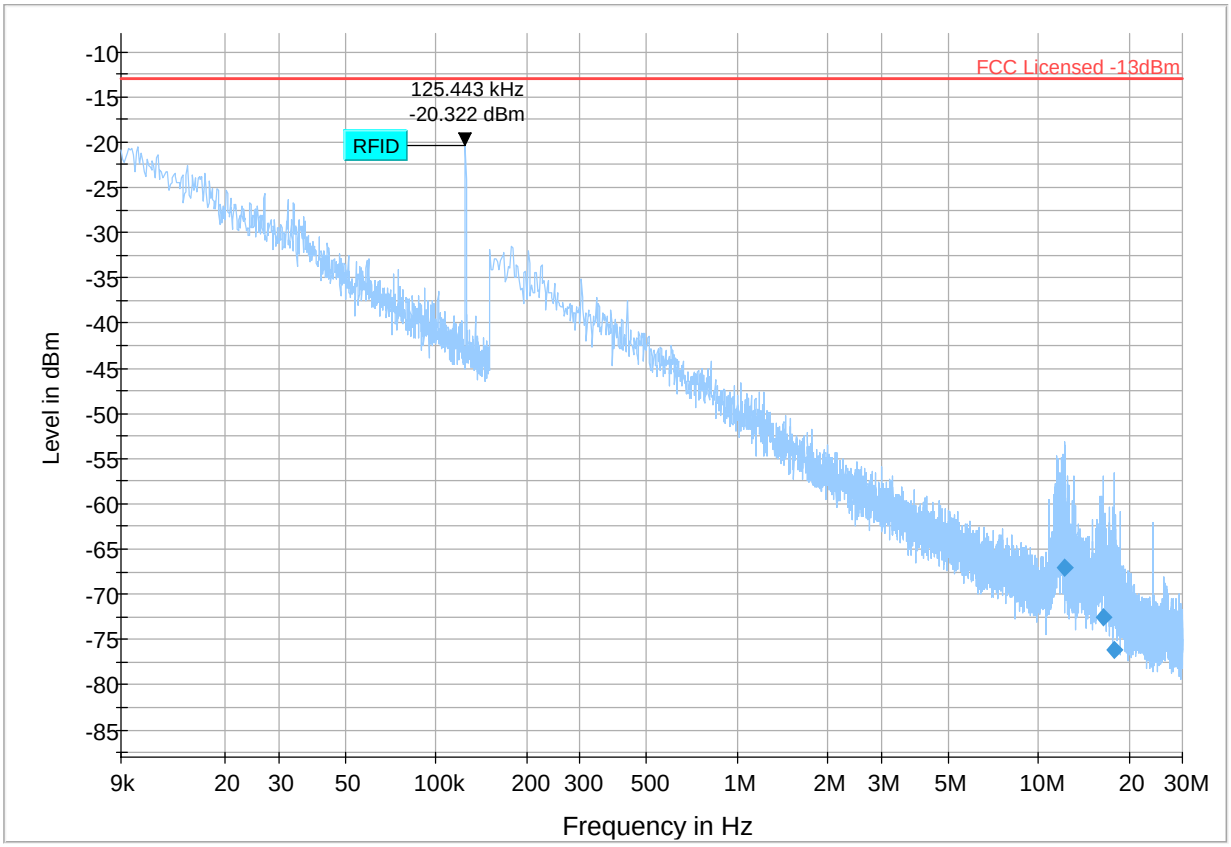


Plot # 56 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

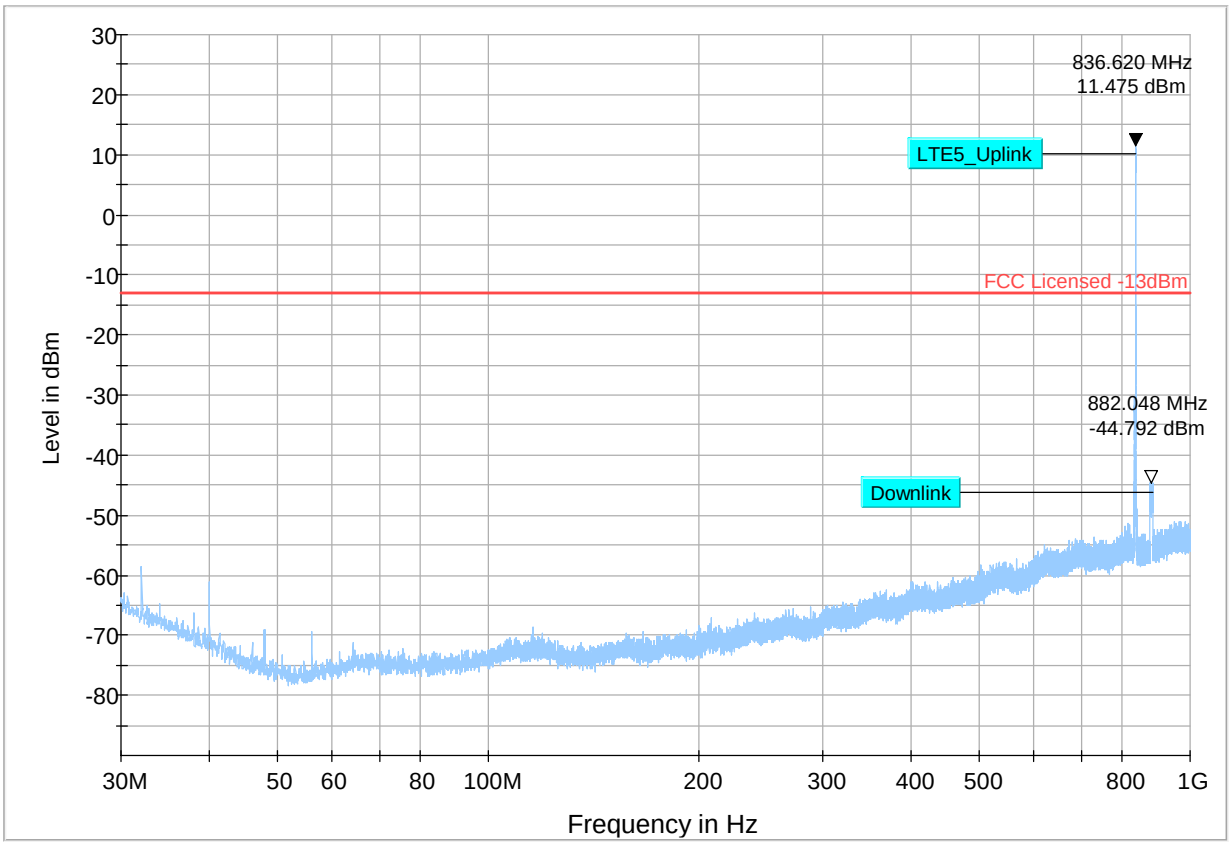
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
12.127	-66.99	-13.00	53.99	500.0	3.000	184.0	V	-8.0	-77.8
16.355	-72.59	-13.00	59.59	500.0	3.000	140.0	V	222.0	-78.2
17.868	-76.19	-13.00	63.19	500.0	3.000	174.0	V	32.0	-78.3



Plot # 57 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

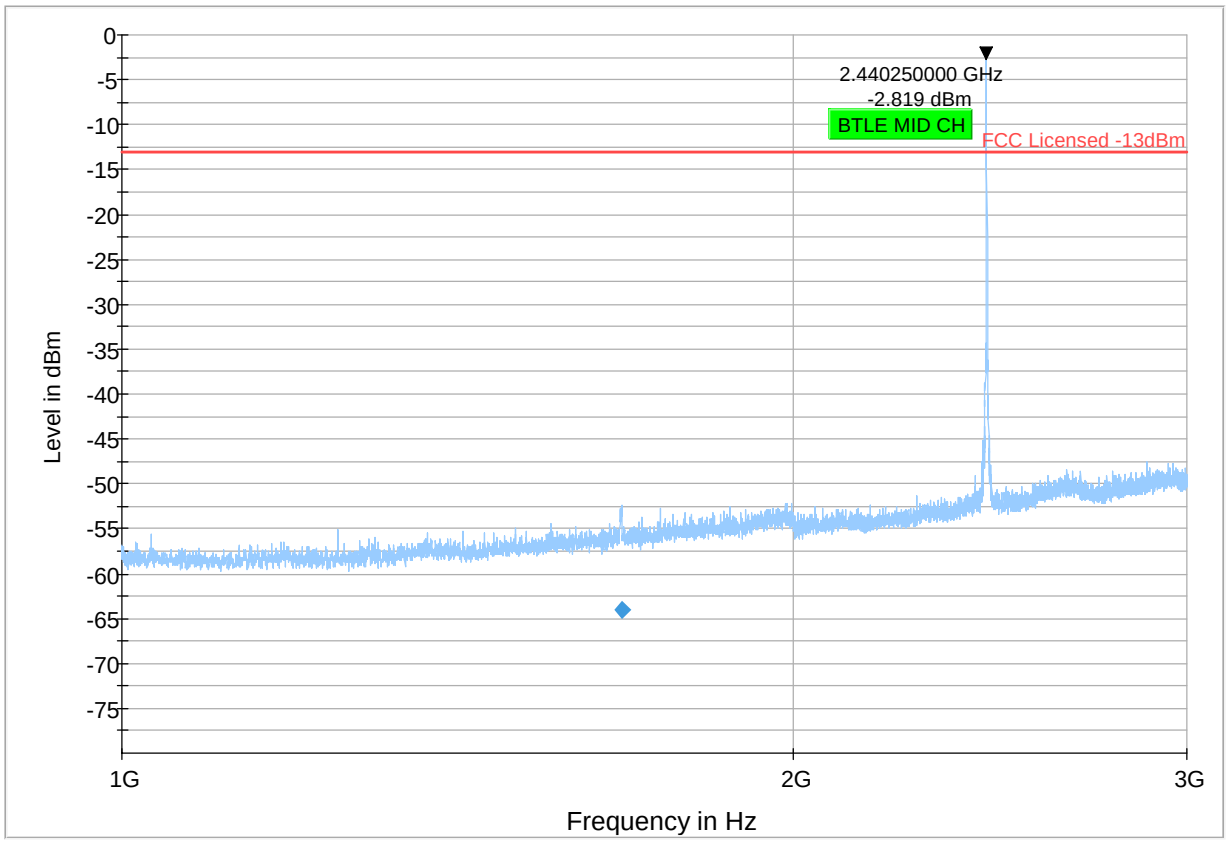


Plot # 58 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1674.000	-64.00	-13.00	51.00	500.0	1000.000	215.0	H	38.0	-88.9

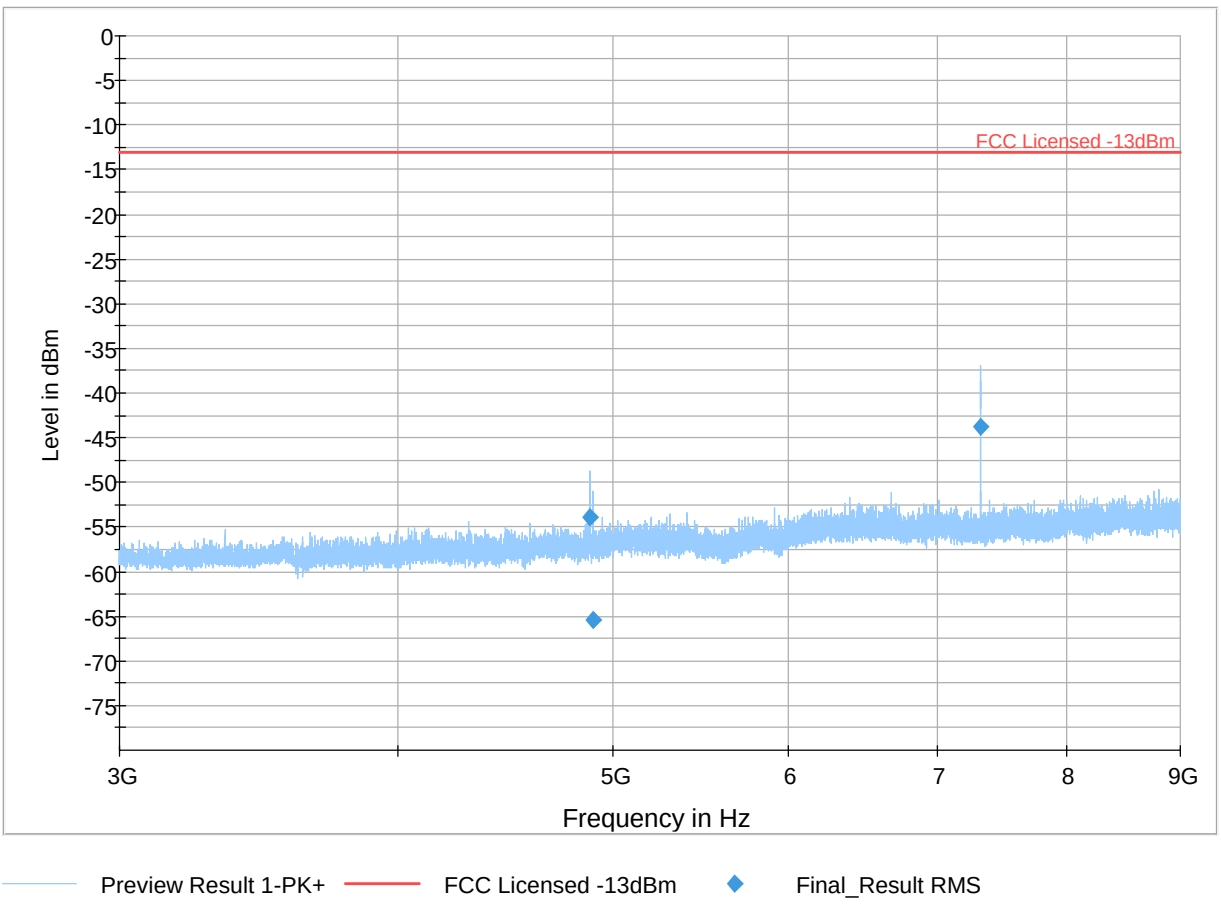


Plot # 59 Radiated Emissions: 3 GHz – 9 GHz

Channel: Mid

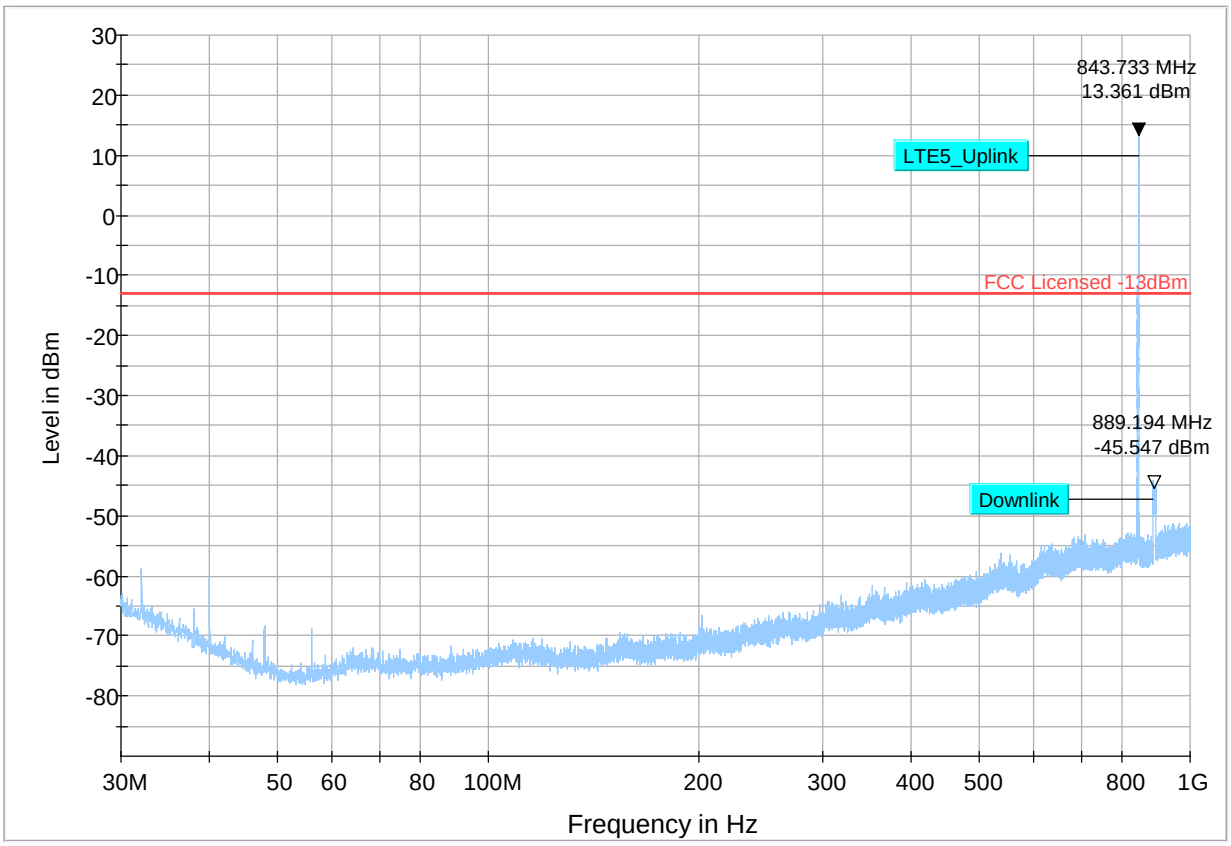
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-53.85	-13.00	40.85	500.0	1000.000	140.0	H	308.0	-100.2
4900.250	-65.42	-13.00	52.42	500.0	1000.000	227.0	H	149.0	-100.1
7321.000	-43.71	-13.00	30.71	500.0	1000.000	152.0	H	243.0	-95.7



Plot # 60 Radiated Emissions: 30 MHz – 1GHz

Channel: High

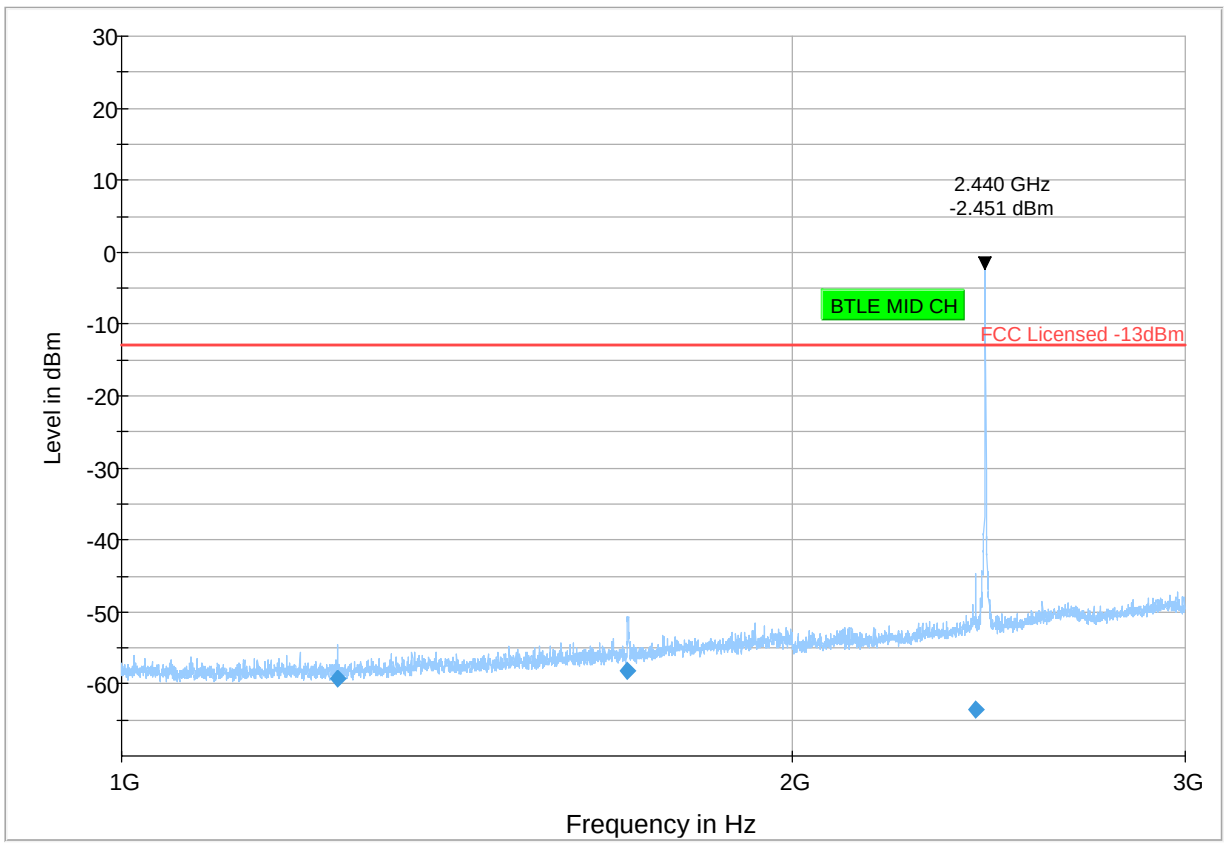


Plot # 61 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1250.000	-59.18	-13.00	46.18	500.0	1000.000	315.0	V	304.0	-91.0
1686.500	-58.23	-13.00	45.23	500.0	1000.000	227.0	H	38.0	-88.8
2416.000	-63.46	-13.00	50.46	500.0	1000.000	238.0	V	198.0	-85.9

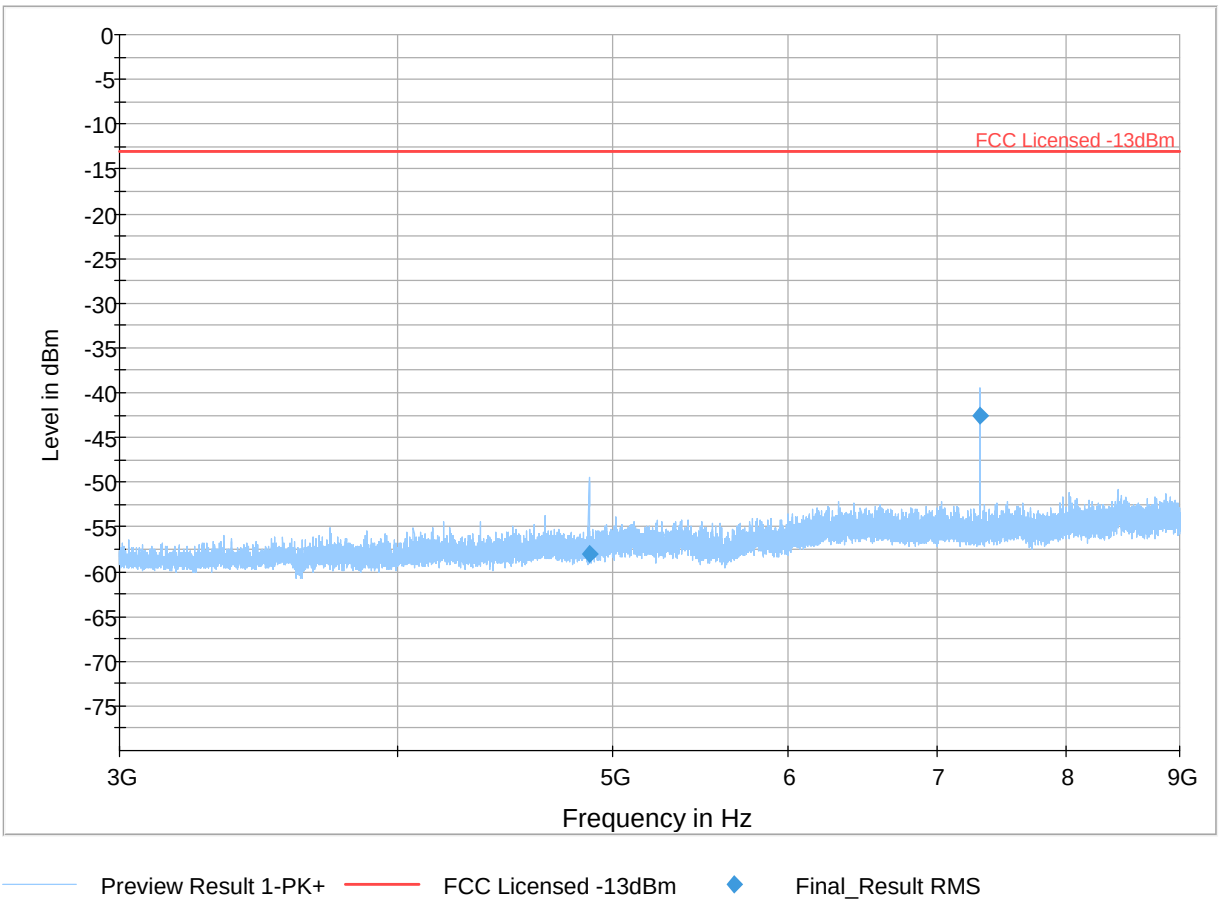


Plot # 62 Radiated Emissions: 3 GHz – 9 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4879.500	-57.96	-13.00	44.96	500.0	1000.000	140.0	H	149.0	-100.2
7321.000	-42.49	-13.00	29.49	500.0	1000.000	315.0	V	29.0	-95.7



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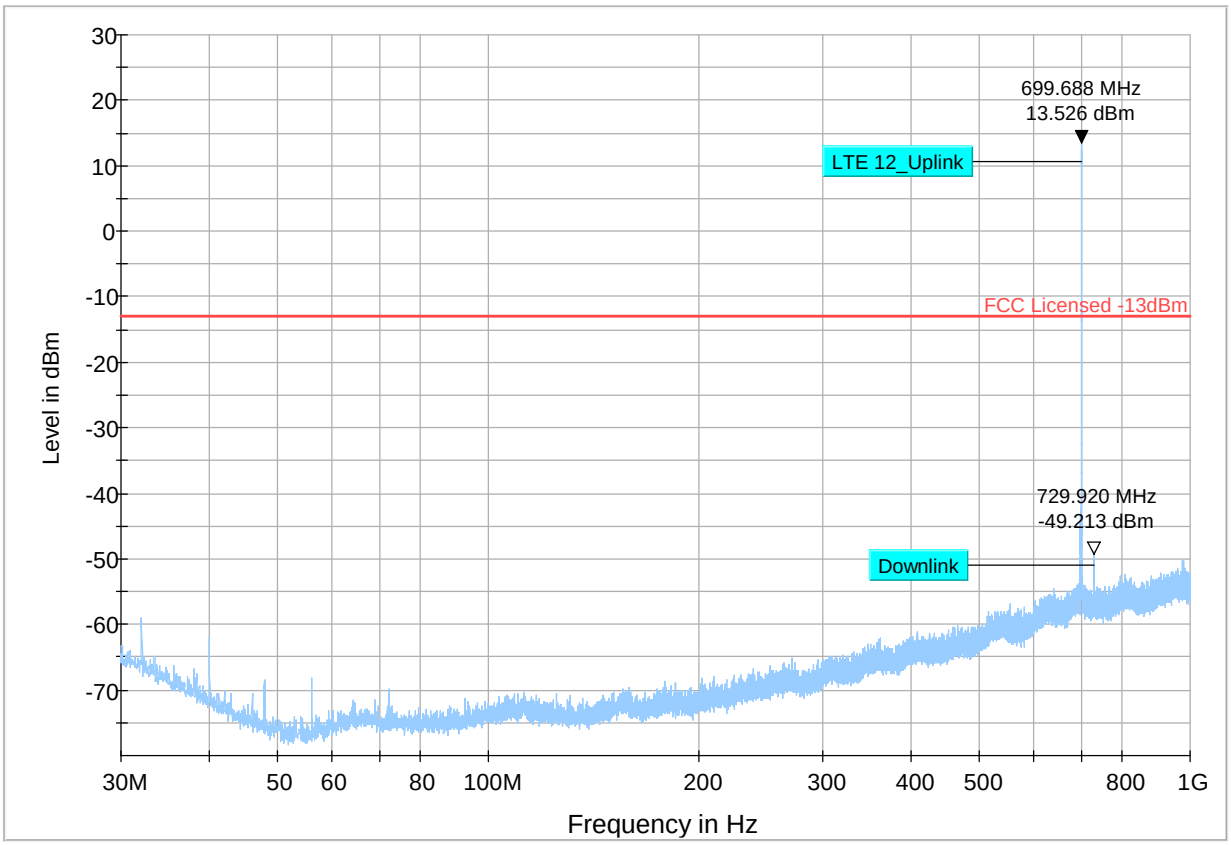
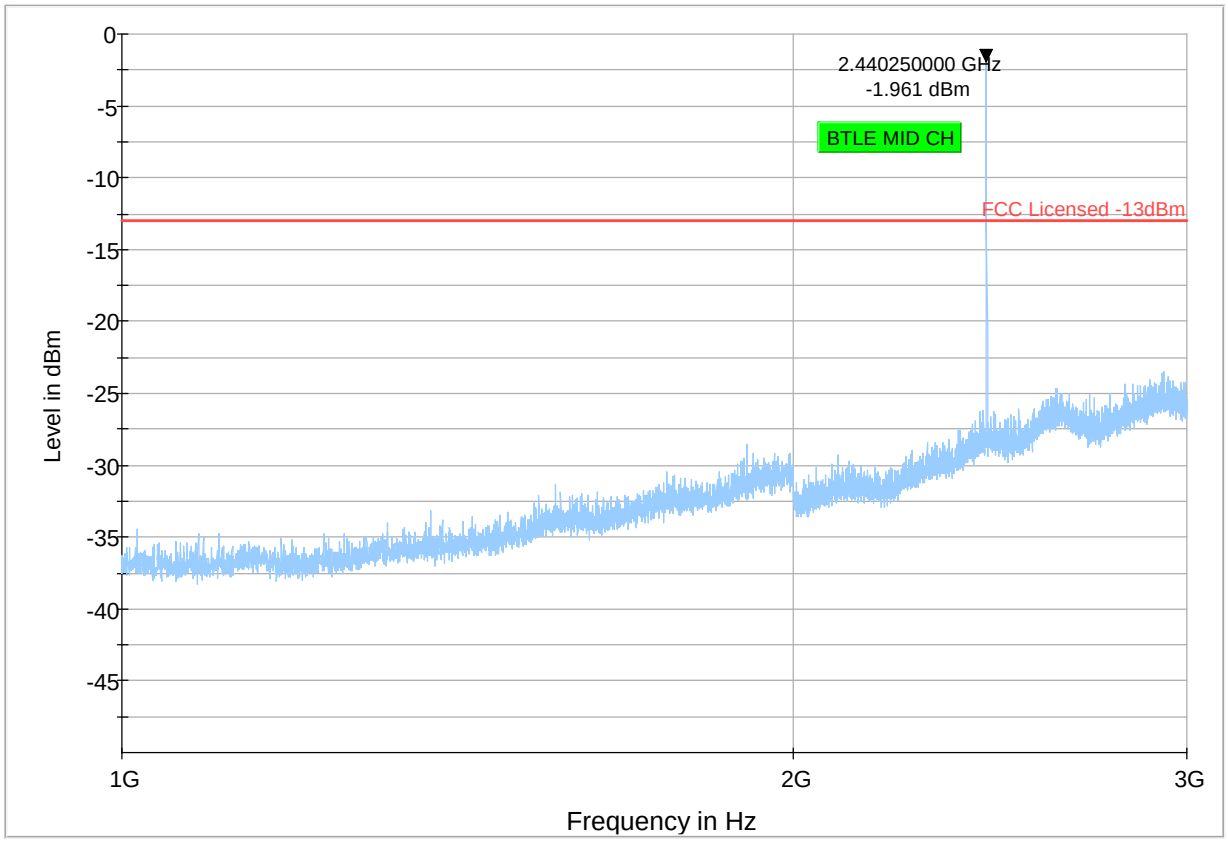
Plot # 63 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 64 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

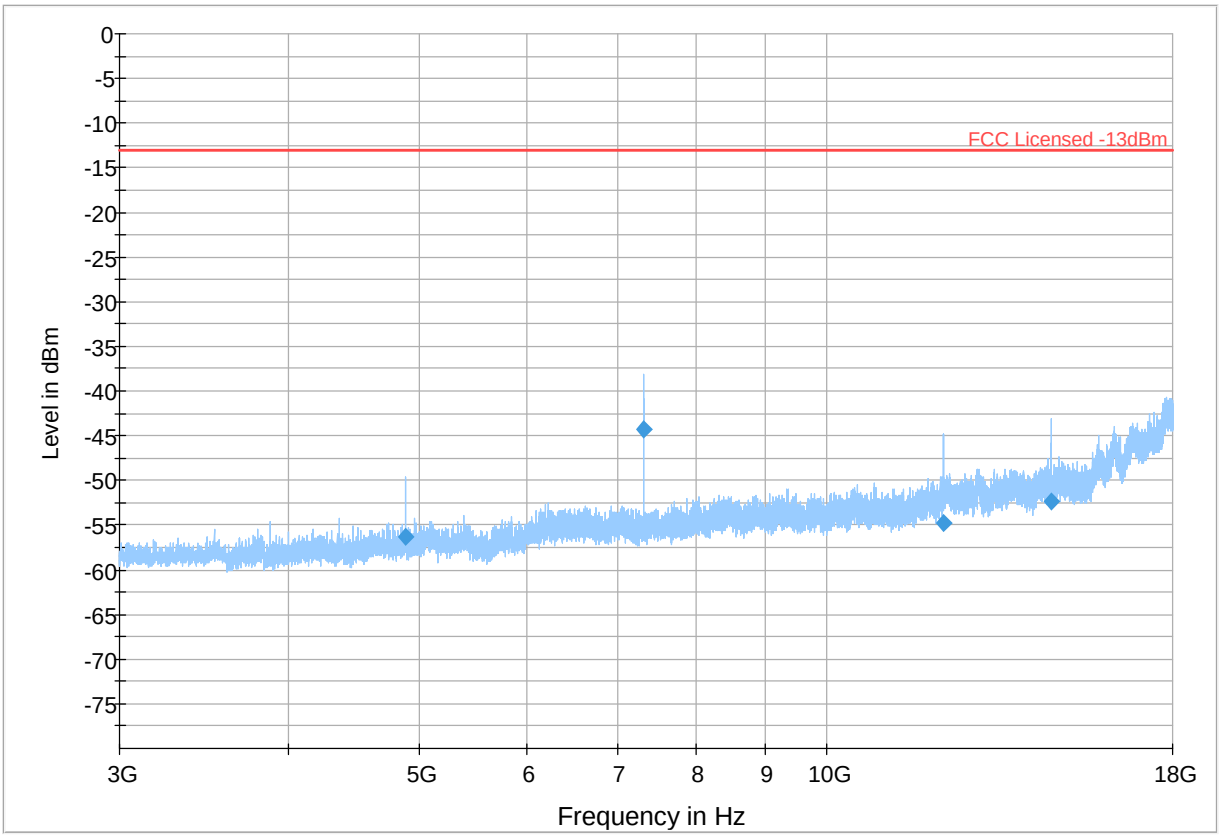


Plot # 65 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.000	-56.37	-13.00	43.37	500.0	1000.000	140.0	H	148.0	-100.2
7321.000	-44.27	-13.00	31.27	500.0	1000.000	152.0	H	243.0	-95.7
12199.000	-54.82	-13.00	41.82	500.0	1000.000	152.0	V	3.0	-91.6
14642.000	-52.41	-13.00	39.41	500.0	1000.000	297.0	H	331.0	-89.6

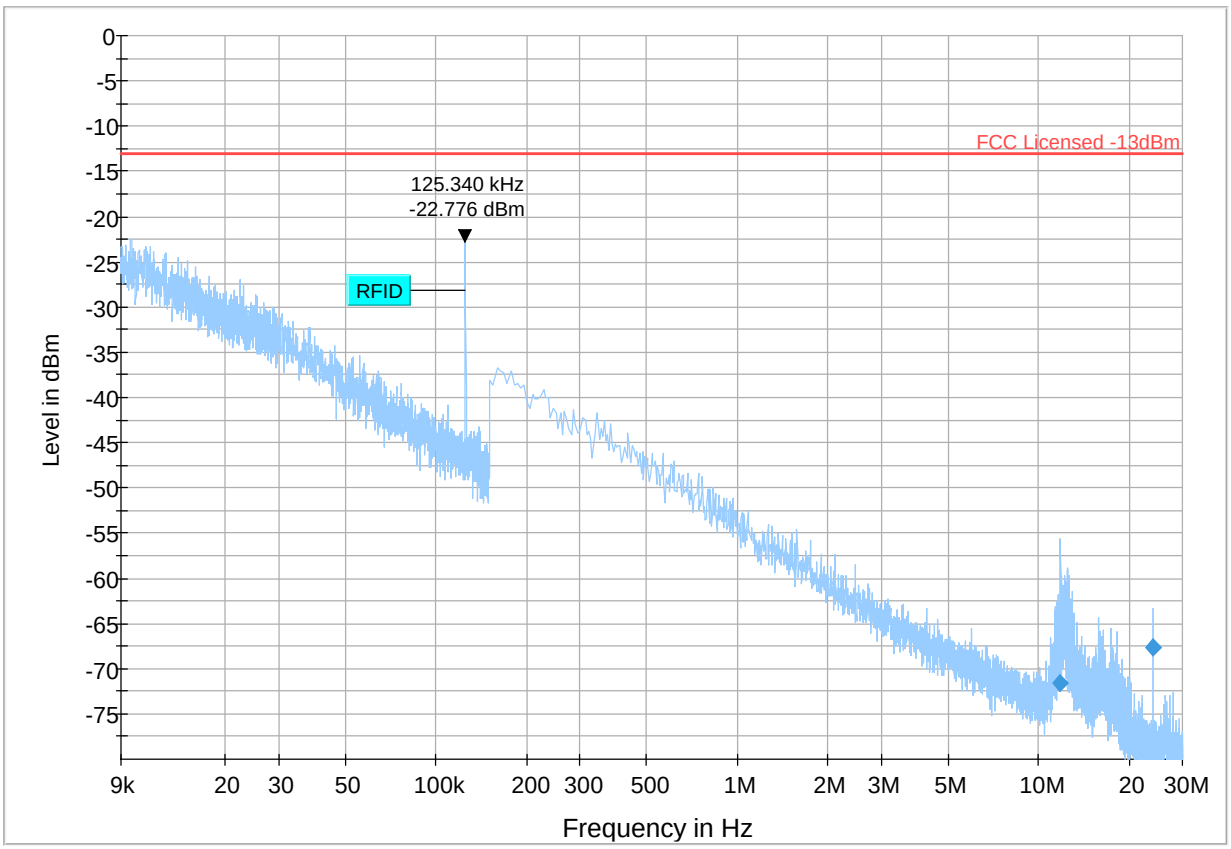


Plot # 66 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

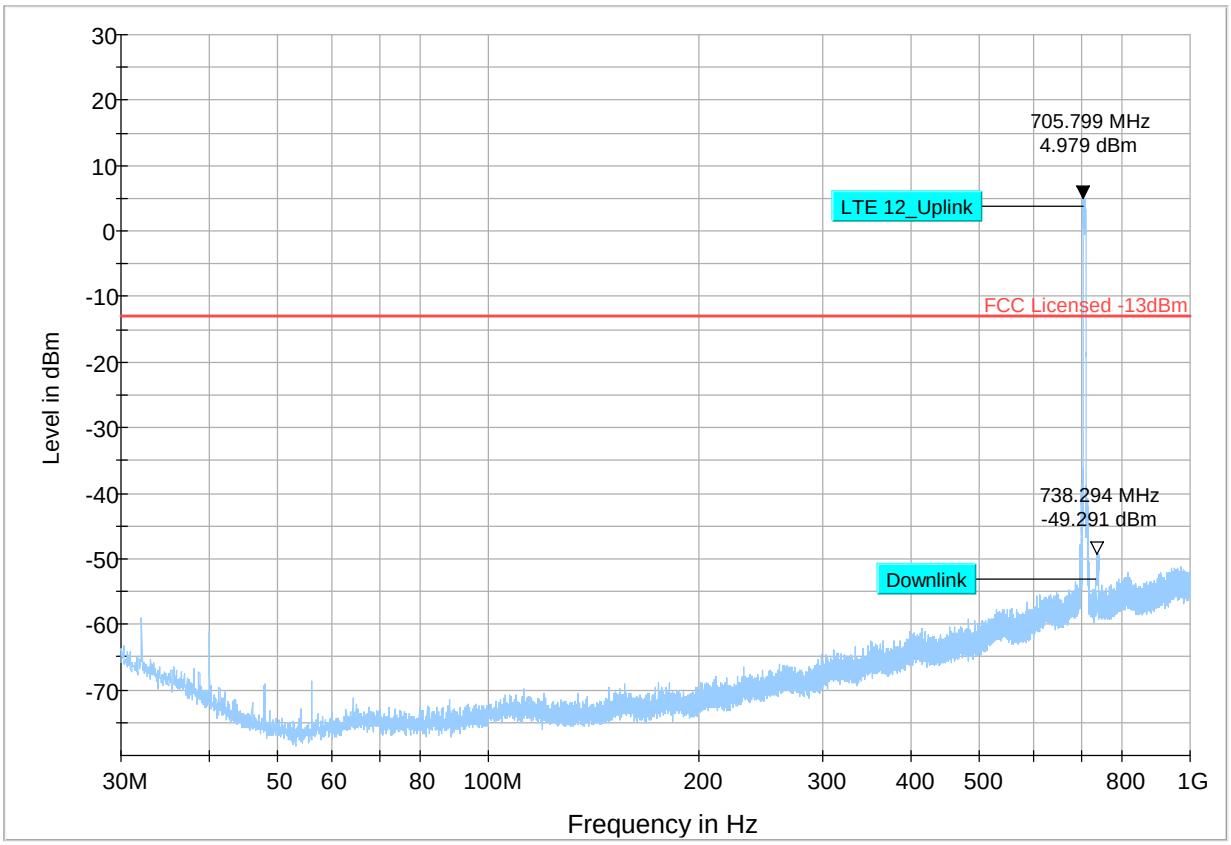
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.841	-71.54	-13.00	58.54	500.0	1.000	179.0	V	23.0	-77.8
24.066	-67.67	-13.00	54.67	500.0	1.000	147.0	H	137.0	-78.8



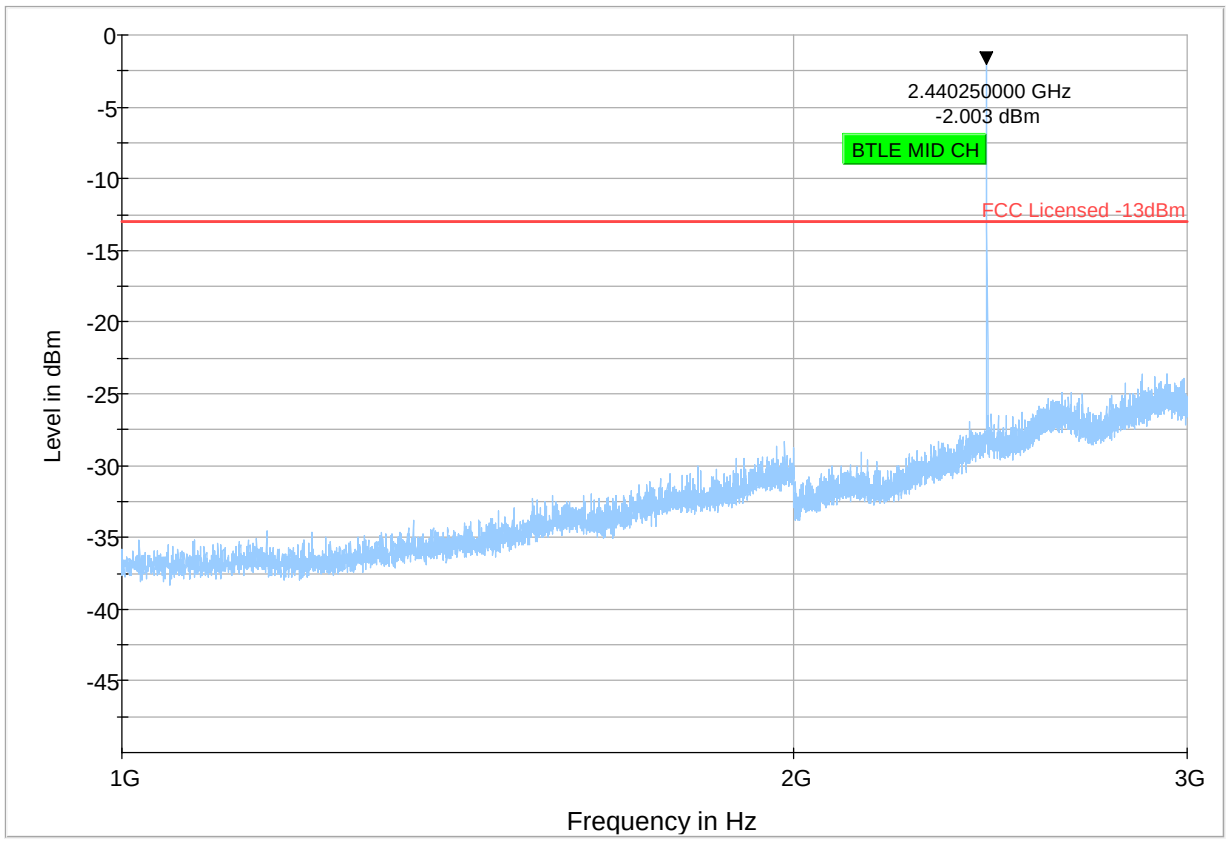
Plot # 67 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 68 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

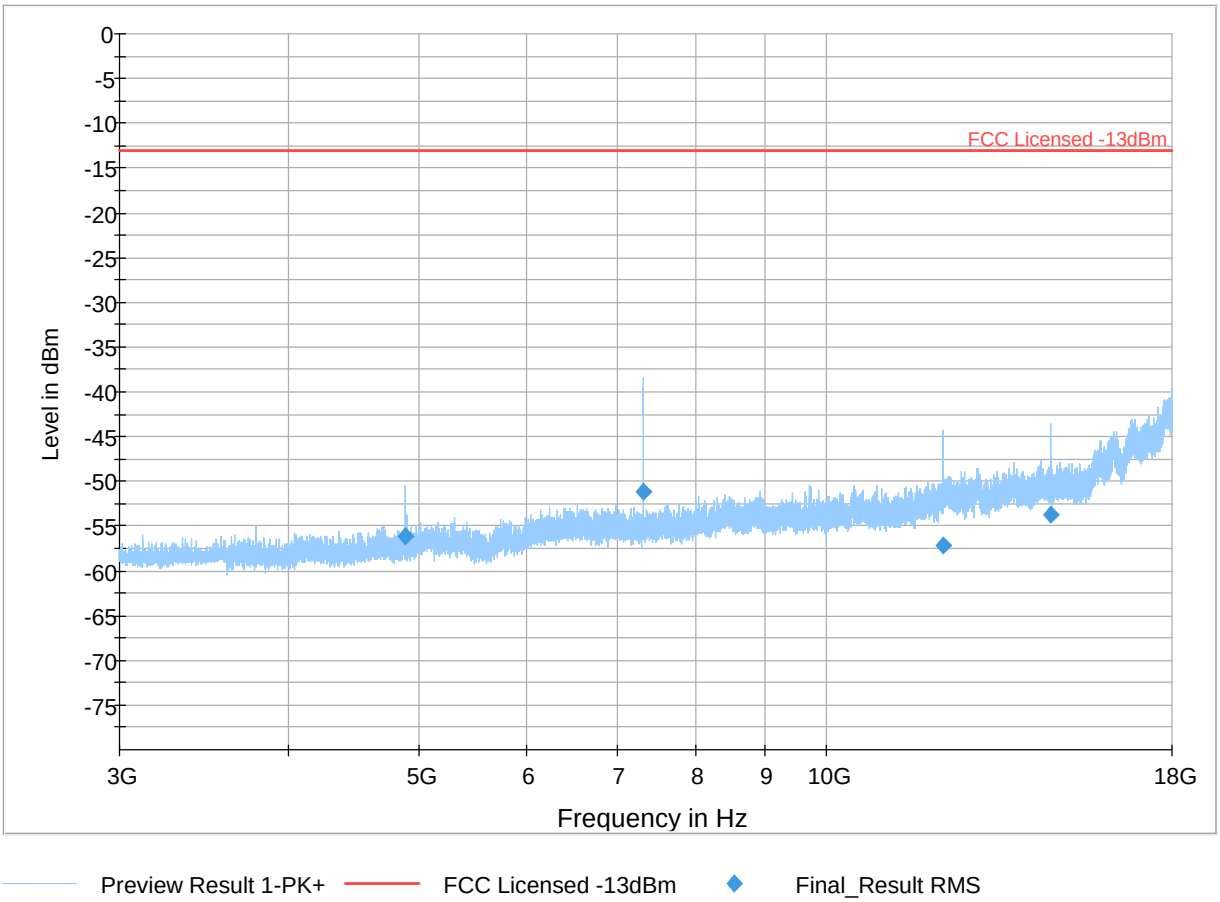


Plot # 69 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

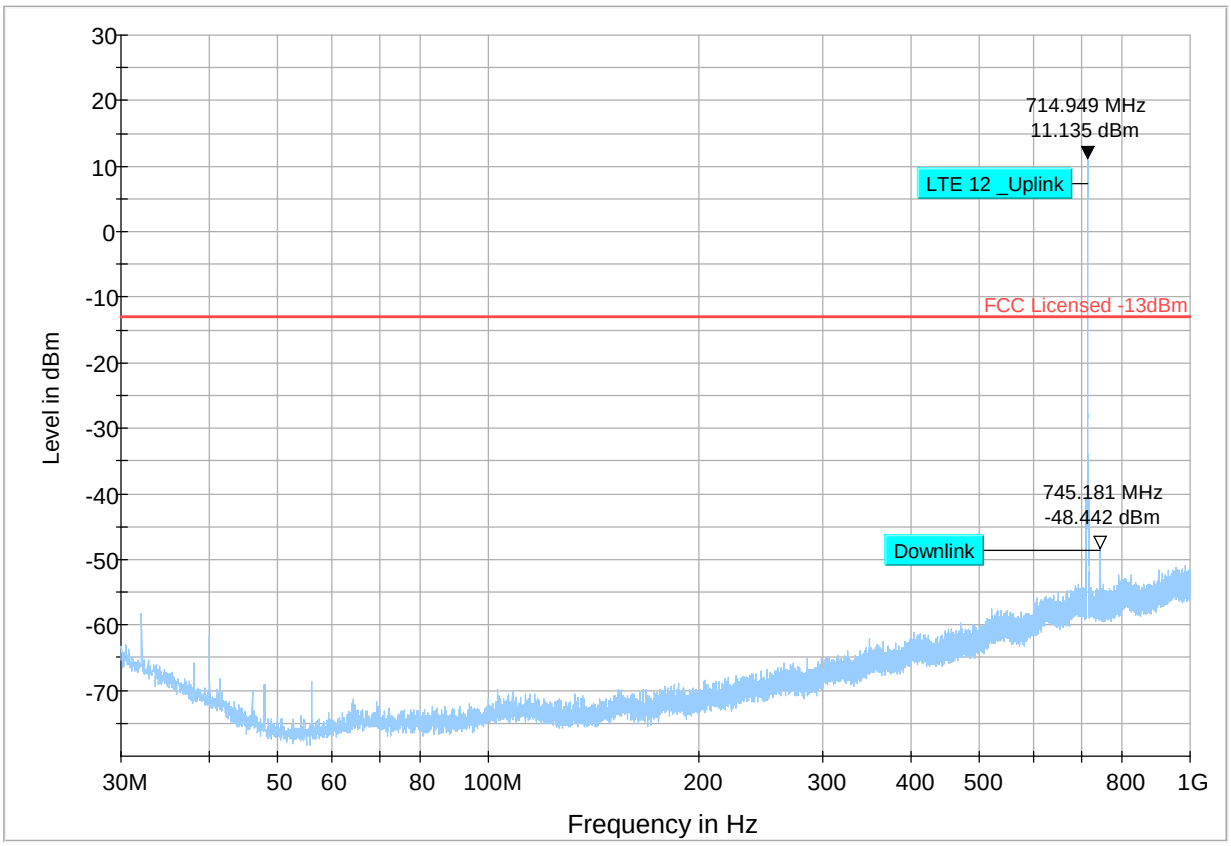
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.000	-56.21	-13.00	43.21	500.0	1000.000	140.0	H	150.0	-100.2
7319.500	-51.15	-13.00	38.15	500.0	1000.000	152.0	H	243.0	-95.7
12202.000	-57.13	-13.00	44.13	500.0	1000.000	195.0	V	-4.0	-91.6
14642.000	-53.82	-13.00	40.82	500.0	1000.000	163.0	H	323.0	-89.6



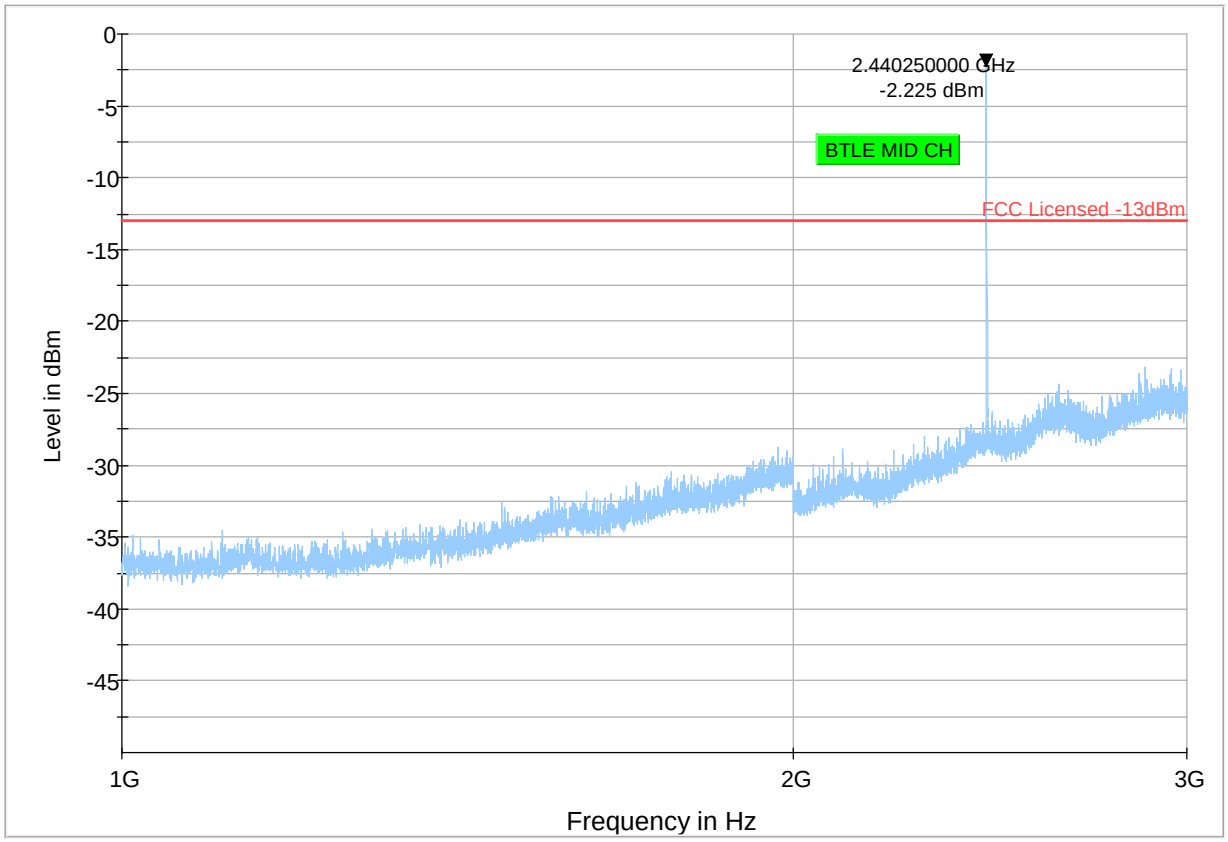
Plot # 70 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 71 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

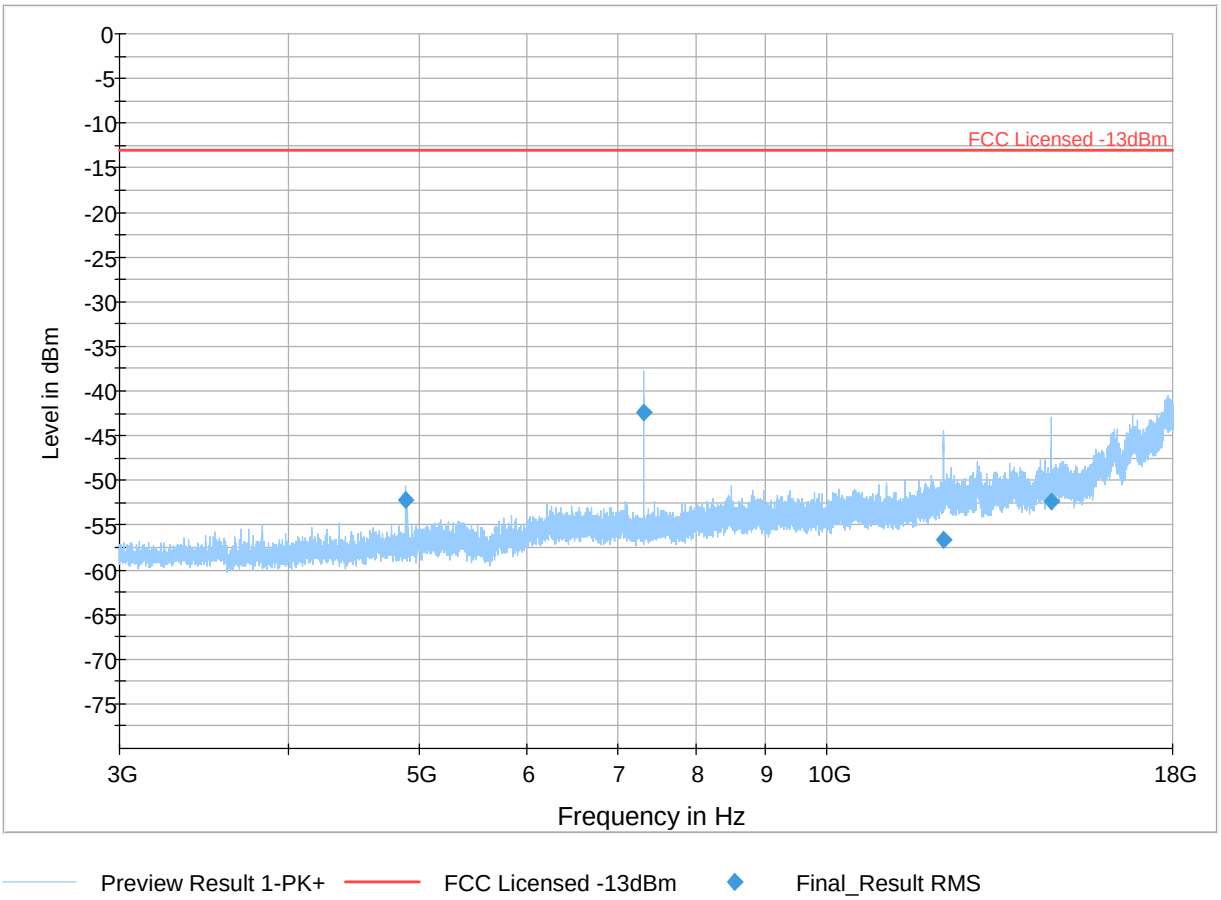


Plot # 72 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.26	-13.00	39.26	500.0	1000.000	140.0	H	148.0	-100.2
7321.000	-42.36	-13.00	29.36	500.0	1000.000	152.0	V	189.0	-95.7
12202.000	-56.58	-13.00	43.58	500.0	1000.000	140.0	V	7.0	-91.6
14642.000	-52.31	-13.00	39.31	500.0	1000.000	271.0	V	196.0	-89.6



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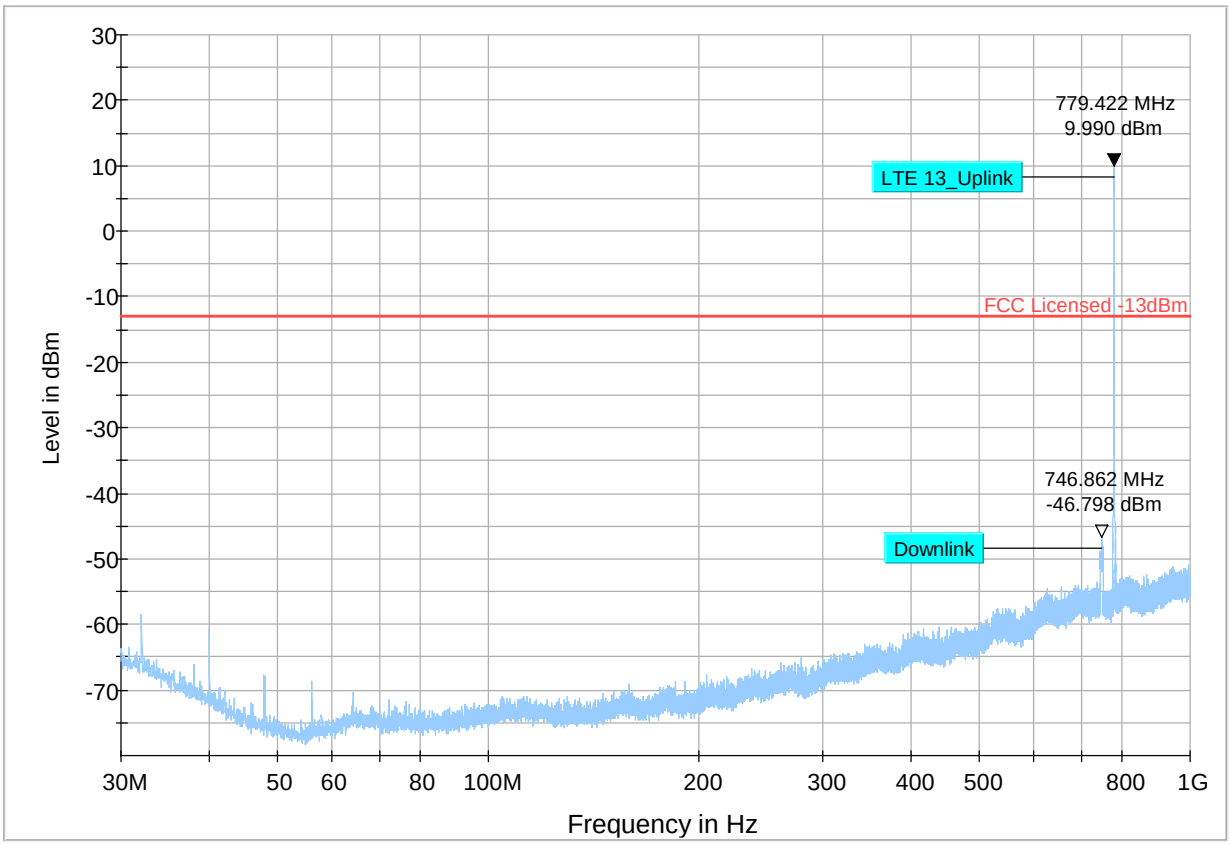
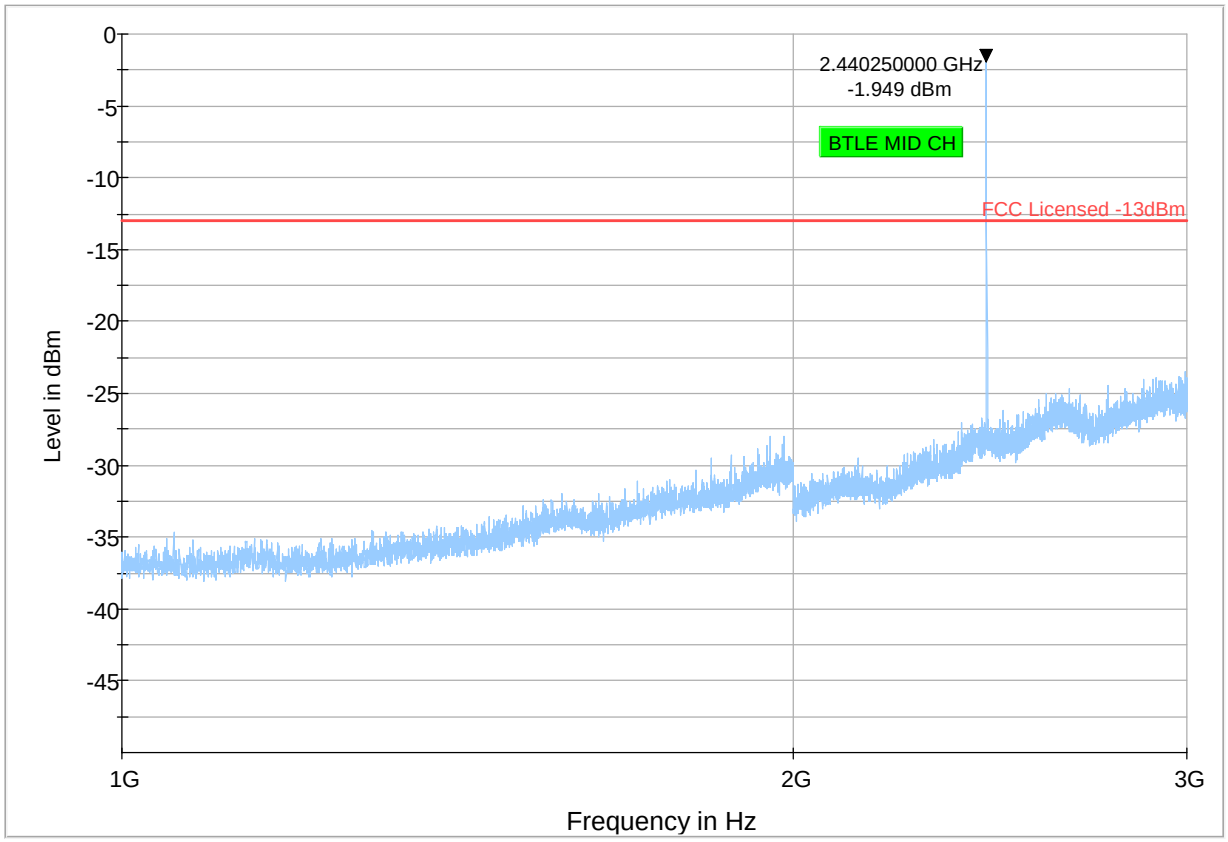
Plot # 73 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 74 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

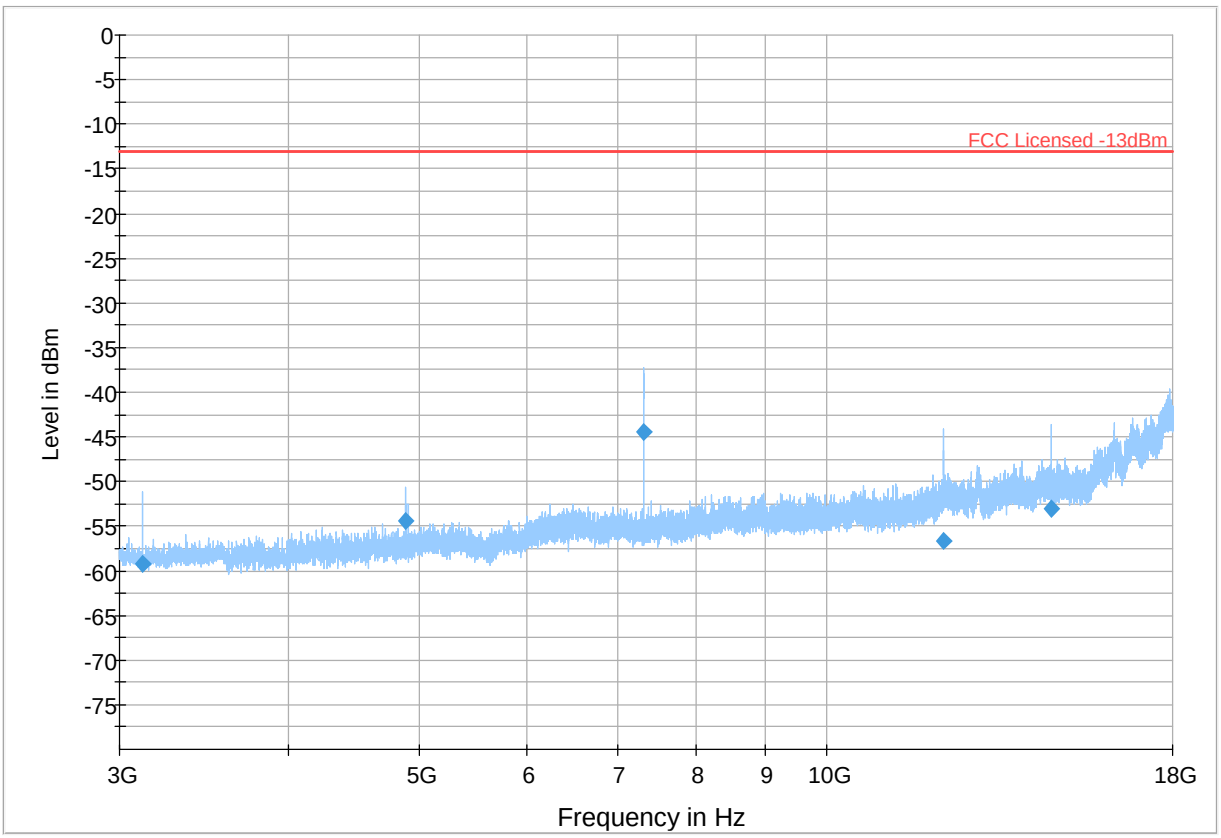


Plot # 75 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3119.000	-59.19	-13.00	46.19	500.0	1000.000	197.0	V	90.0	-104.2
4880.500	-54.38	-13.00	41.38	500.0	1000.000	152.0	H	313.0	-100.2
7321.000	-44.40	-13.00	31.40	500.0	1000.000	151.0	H	243.0	-95.7
12202.000	-56.62	-13.00	43.62	500.0	1000.000	164.0	V	-1.0	-91.6
14642.000	-53.12	-13.00	40.12	500.0	1000.000	140.0	V	187.0	-89.6

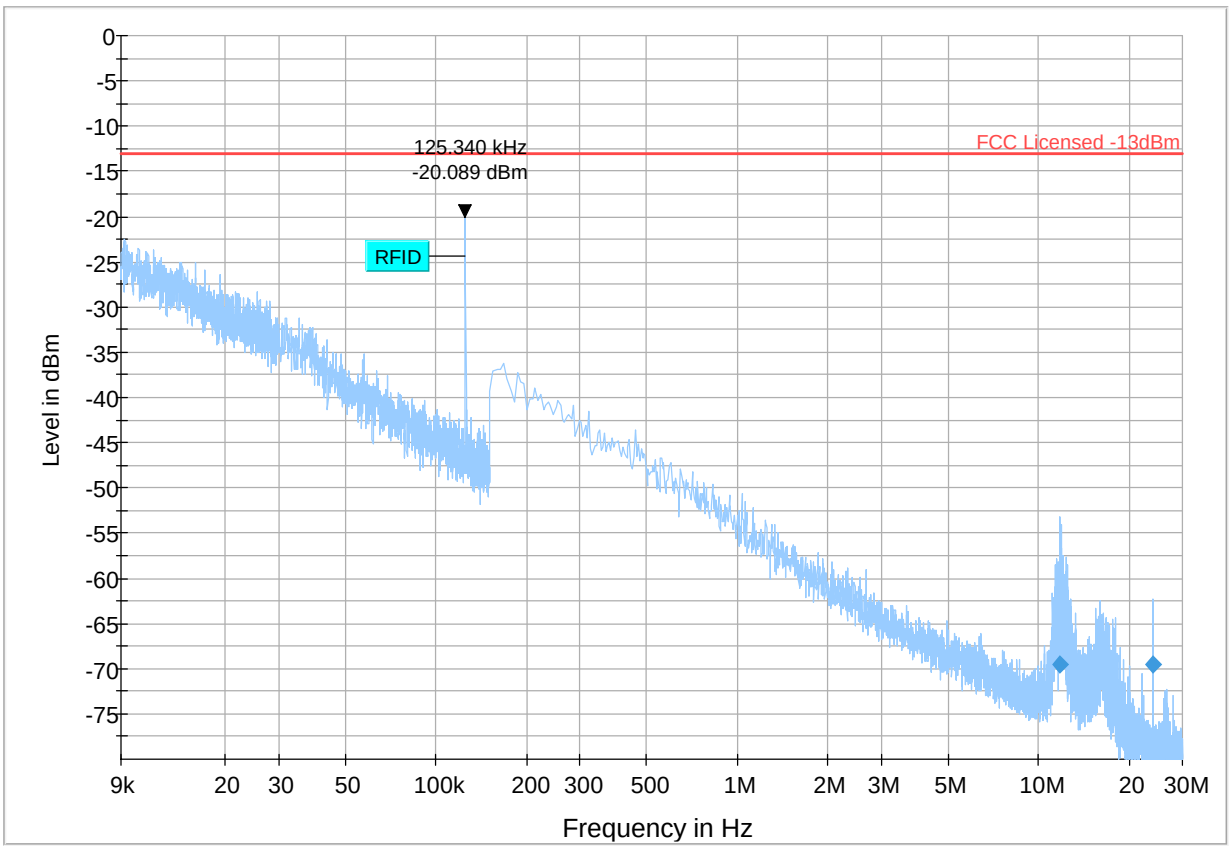


Plot # 76 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

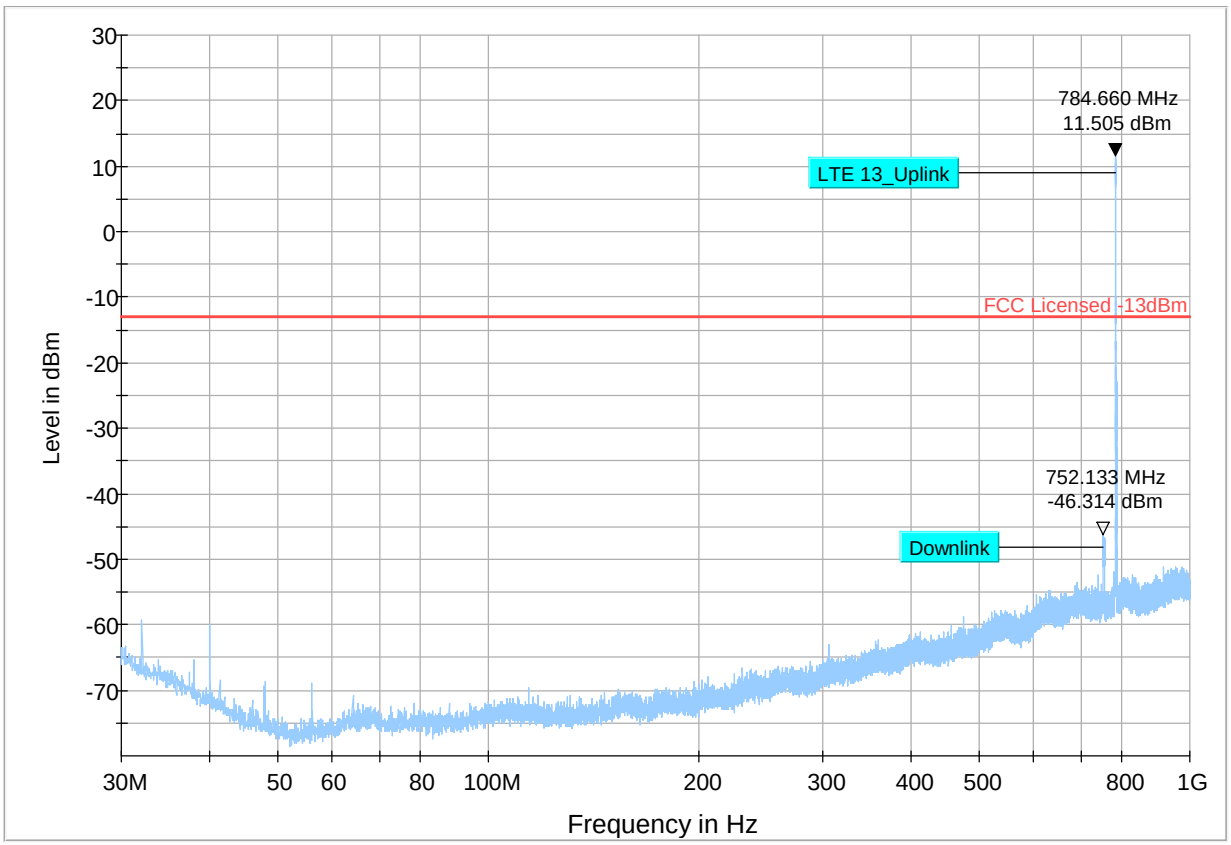
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.819	-69.52	-13.00	56.52	500.0	1.000	183.0	V	45.0	-77.8
24.066	-69.46	-13.00	56.46	500.0	1.000	147.0	H	44.0	-78.8



Plot # 77 Radiated Emissions: 30 MHz – 1GHz

Channel: High

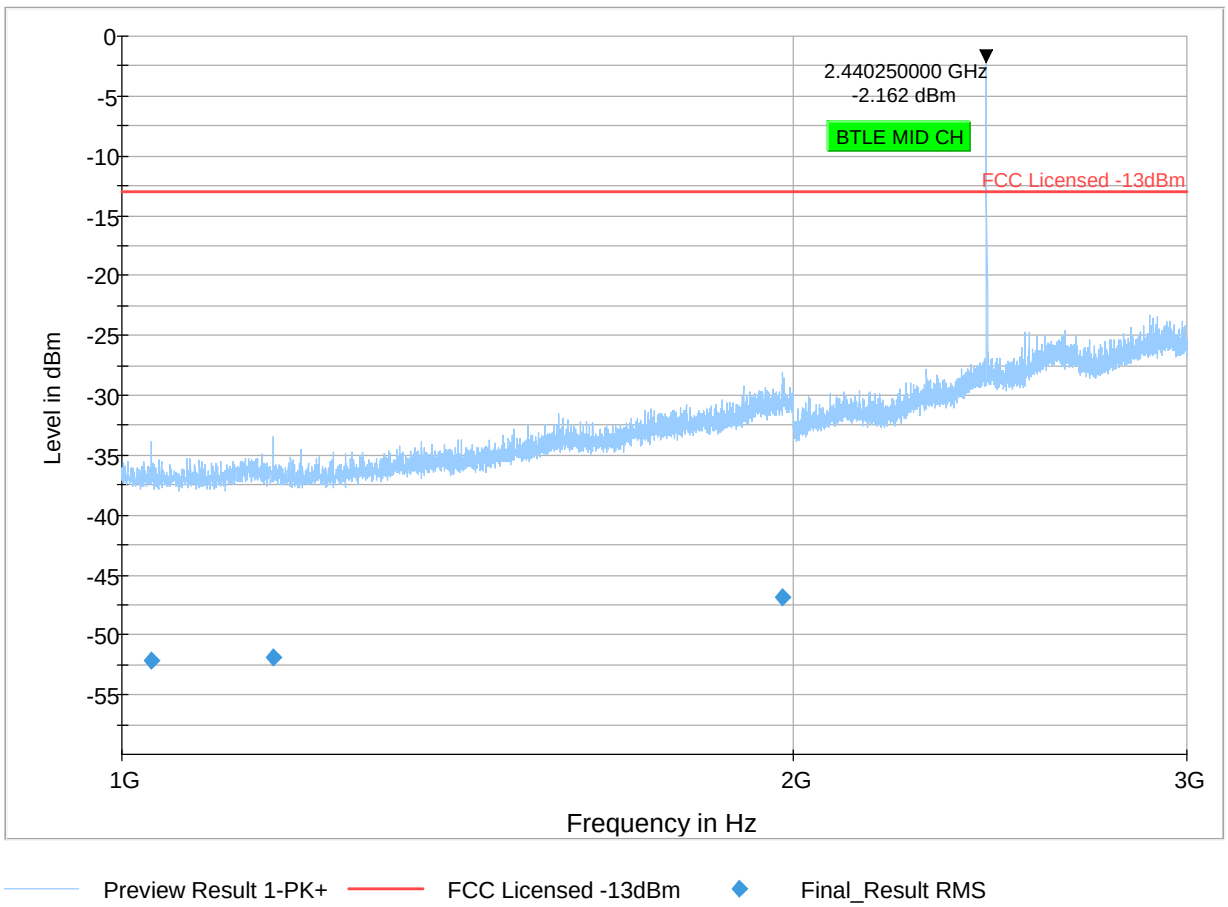


Plot # 78 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1030.500	-52.12	-13.00	39.12	500.0	1000.000	315.0	H	273.0	-65.4
1169.500	-51.92	-13.00	38.92	500.0	1000.000	207.0	V	263.0	-65.1
1978.250	-46.85	-13.00	33.85	500.0	1000.000	152.0	V	20.0	-61.1

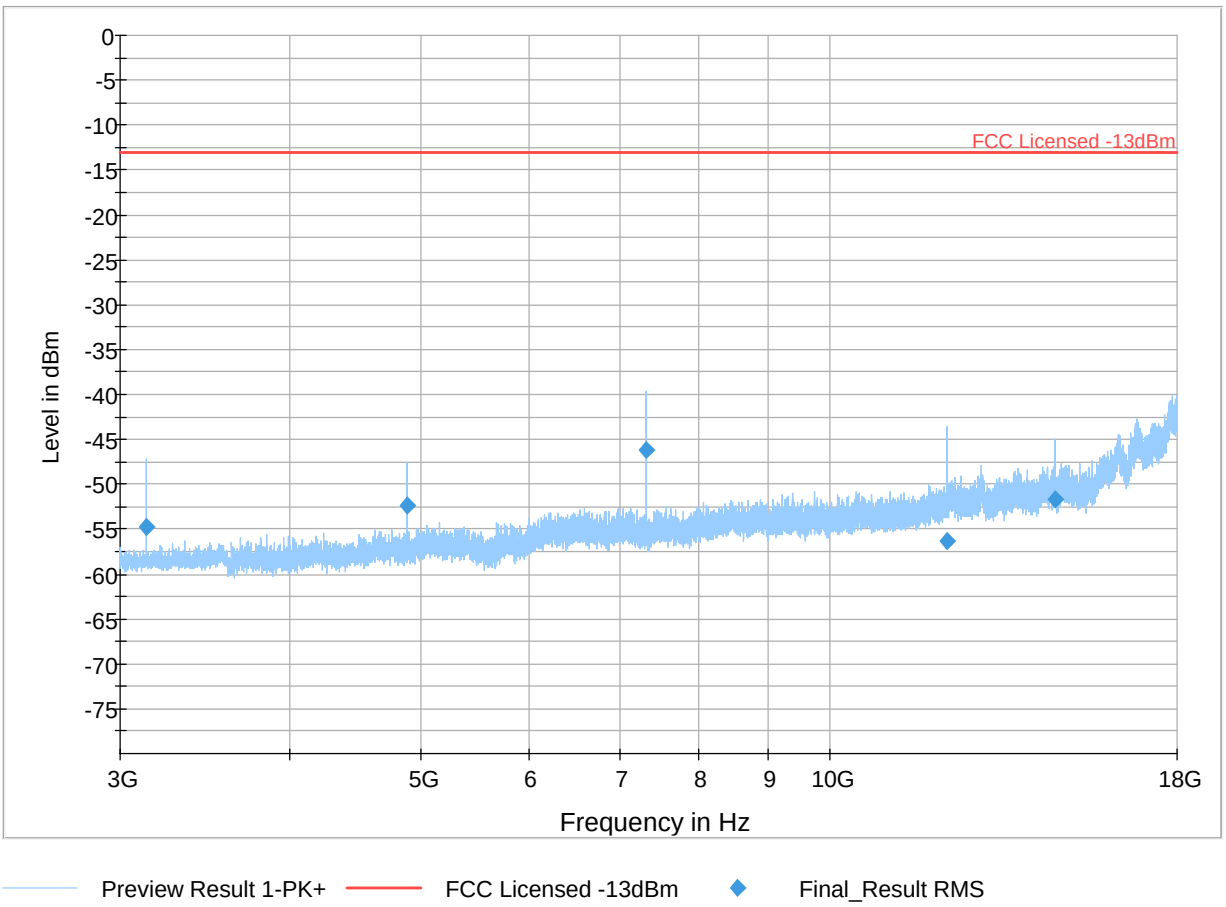


Plot # 79 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3138.500	-54.81	-13.00	41.81	500.0	1000.000	140.0	V	83.0	-104.1
4880.500	-52.38	-13.00	39.38	500.0	1000.000	140.0	H	150.0	-100.2
7321.000	-46.12	-13.00	33.12	500.0	1000.000	164.0	V	189.0	-95.7
12202.000	-56.26	-13.00	43.26	500.0	1000.000	162.0	V	3.0	-91.6
14642.000	-51.62	-13.00	38.62	500.0	1000.000	164.0	V	19.0	-89.6



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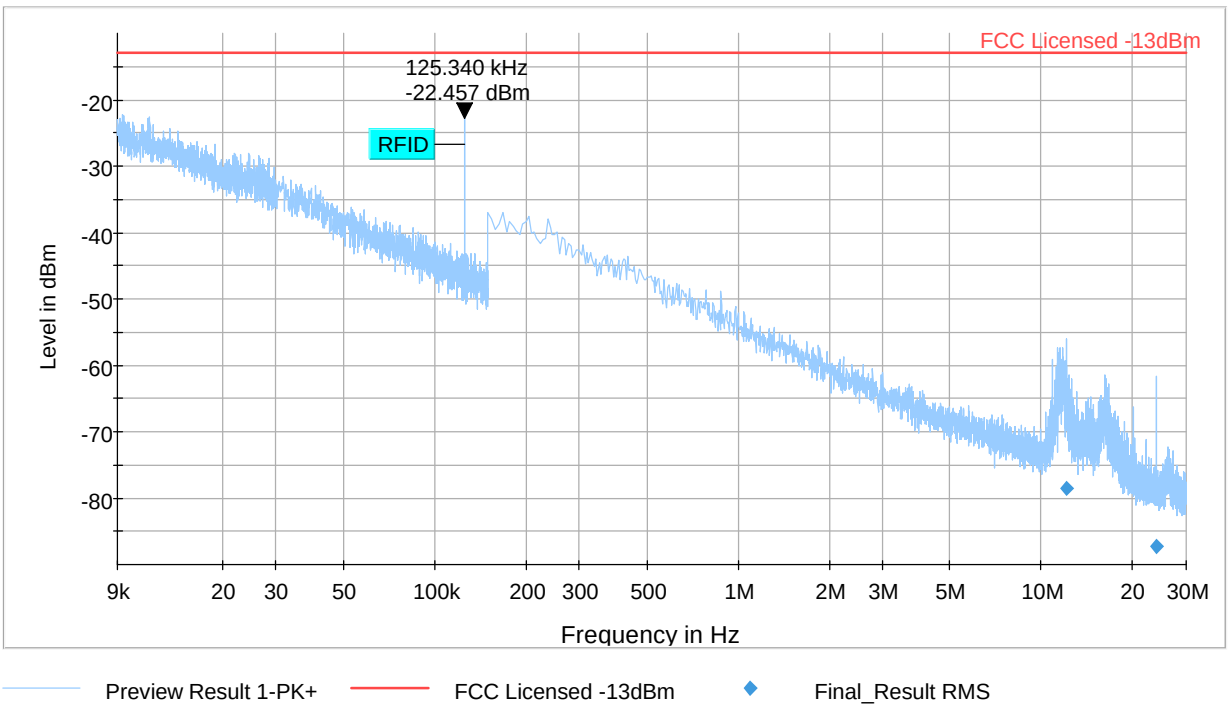
Plot # 80 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

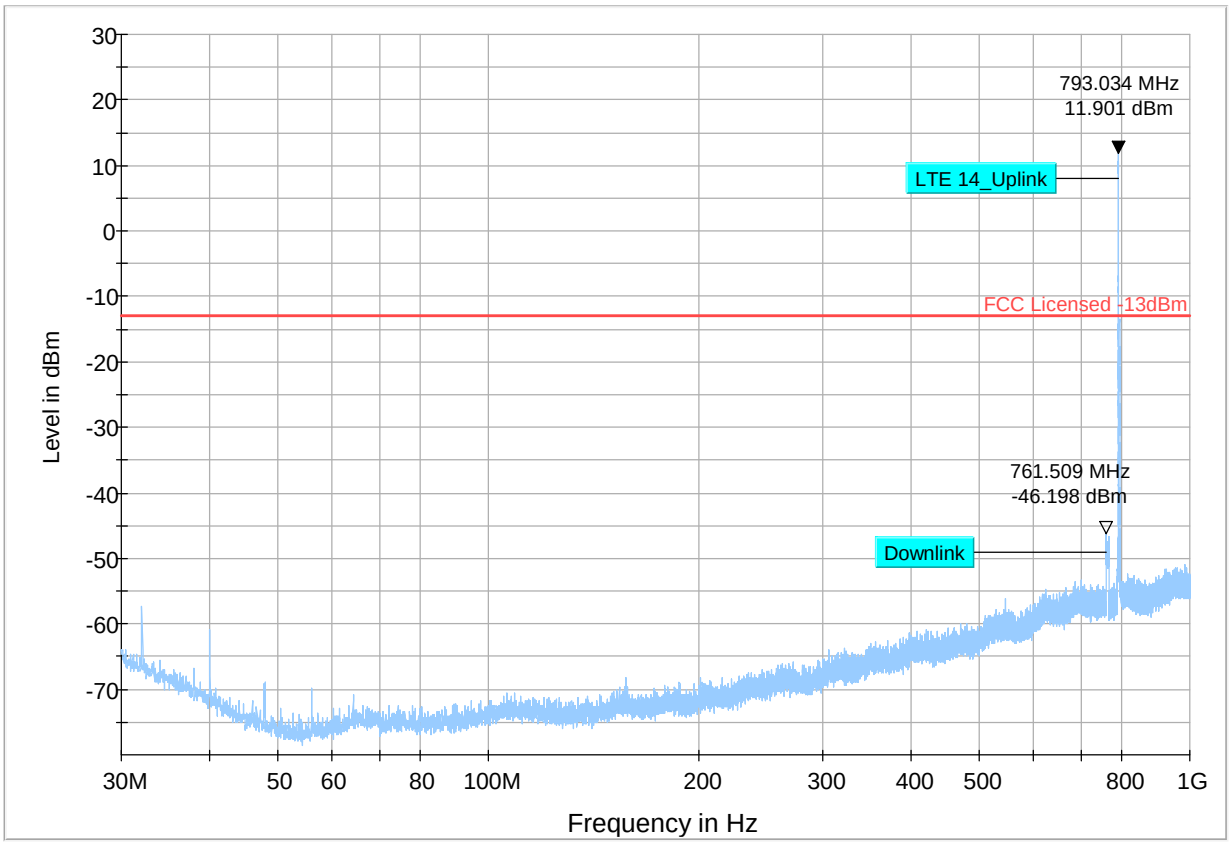
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
12.081	-78.54	-13.00	65.54	500.0	1.000	182.0	H	320.0	-77.8
24.071	-87.31	-13.00	74.31	500.0	1.000	152.0	H	7.0	-78.8



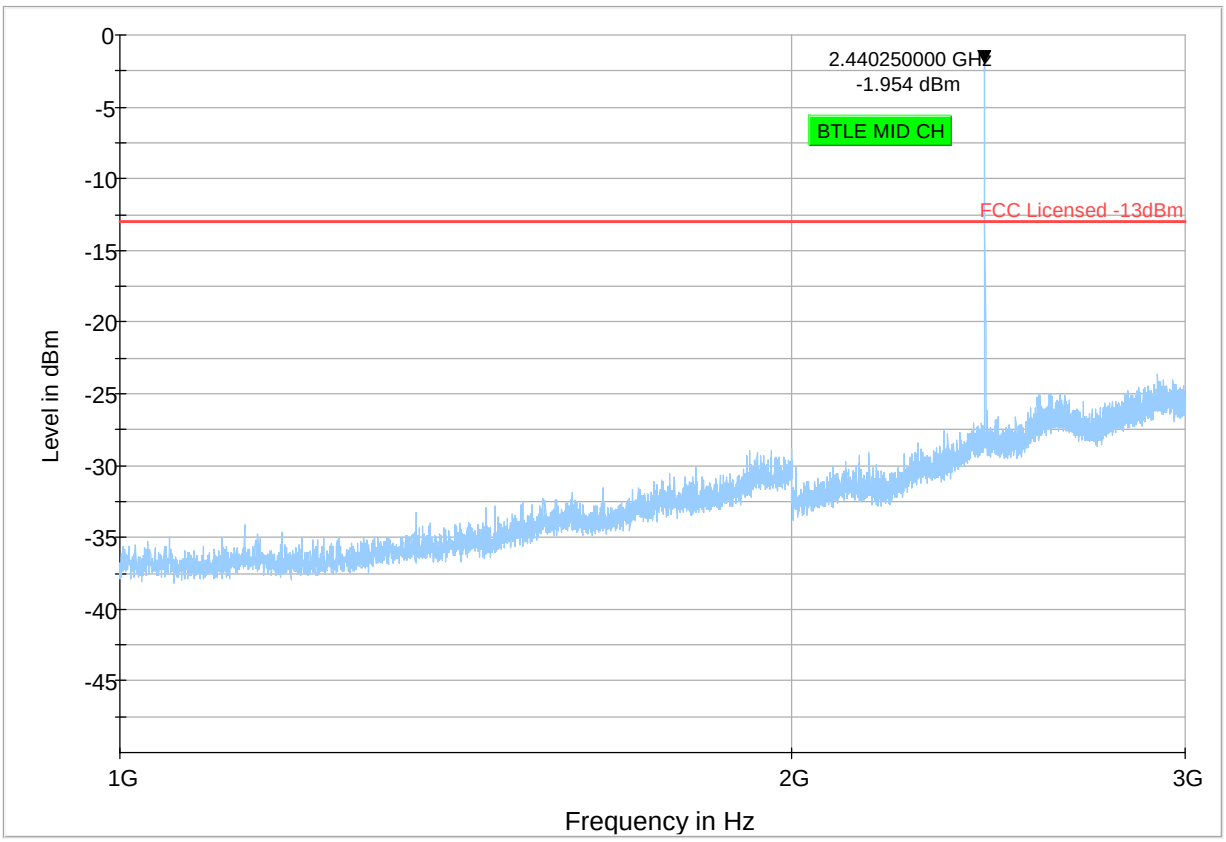
Plot # 81 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 82 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

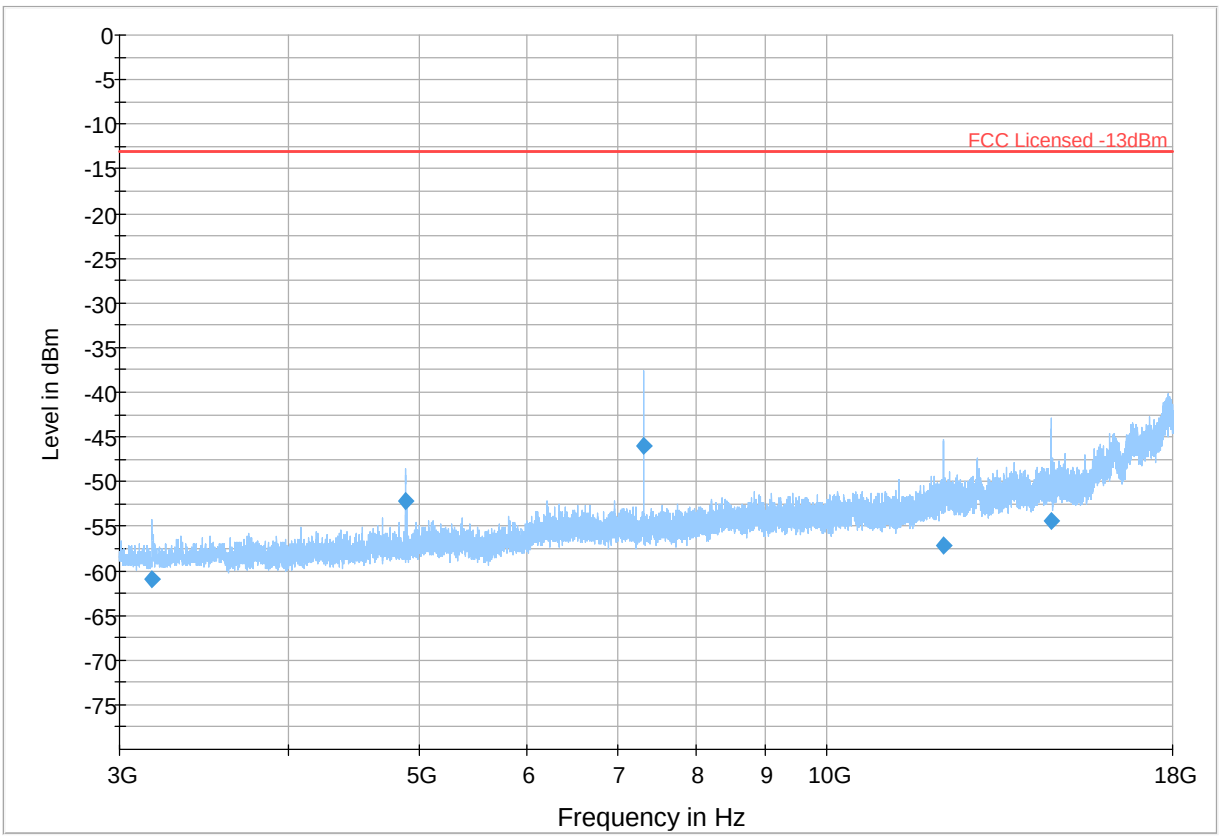


Plot # 83 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3172.000	-60.88	-13.00	47.88	500.0	1000.000	187.0	V	87.0	-103.9
4880.500	-52.27	-13.00	39.27	500.0	1000.000	140.0	H	149.0	-100.2
7321.000	-45.95	-13.00	32.95	500.0	1000.000	175.0	H	241.0	-95.7
12199.500	-57.14	-13.00	44.14	500.0	1000.000	175.0	V	5.0	-91.6
14642.000	-54.34	-13.00	41.34	500.0	1000.000	140.0	V	329.0	-89.6



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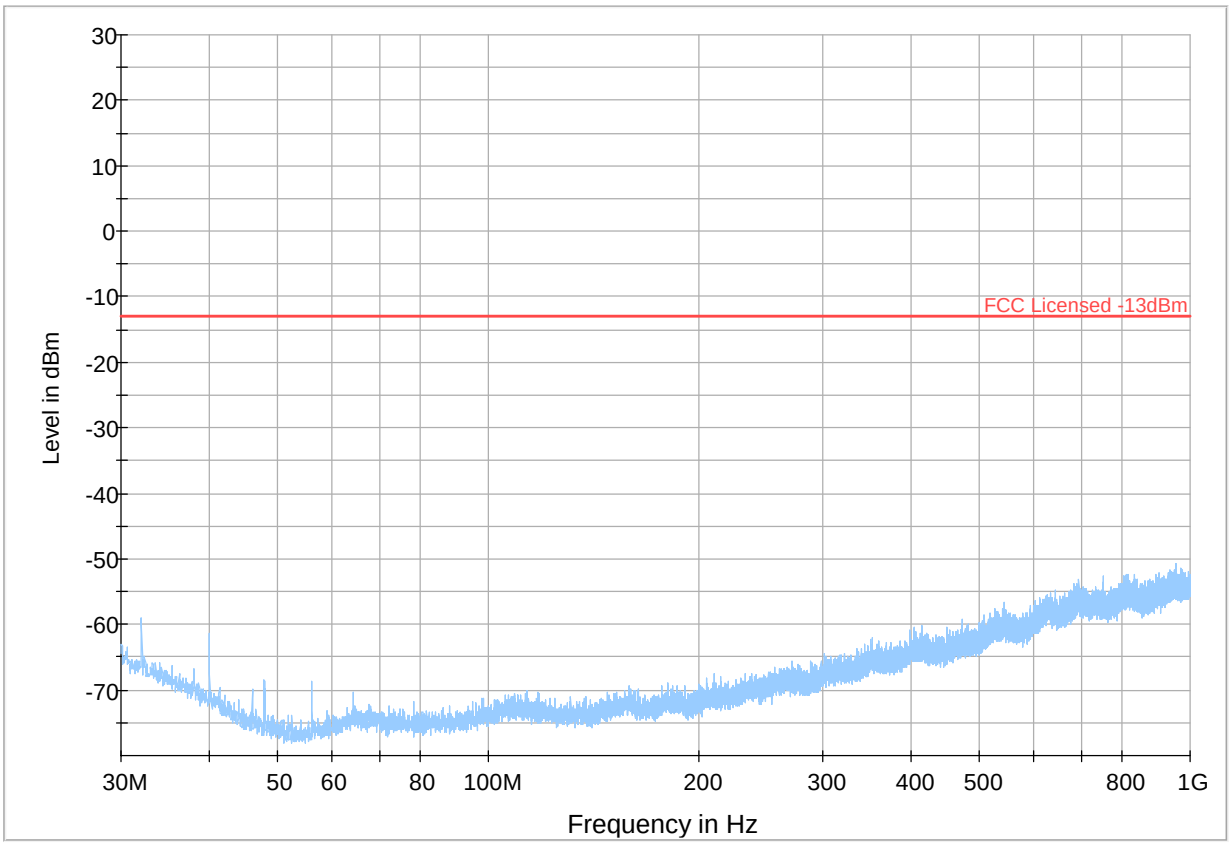
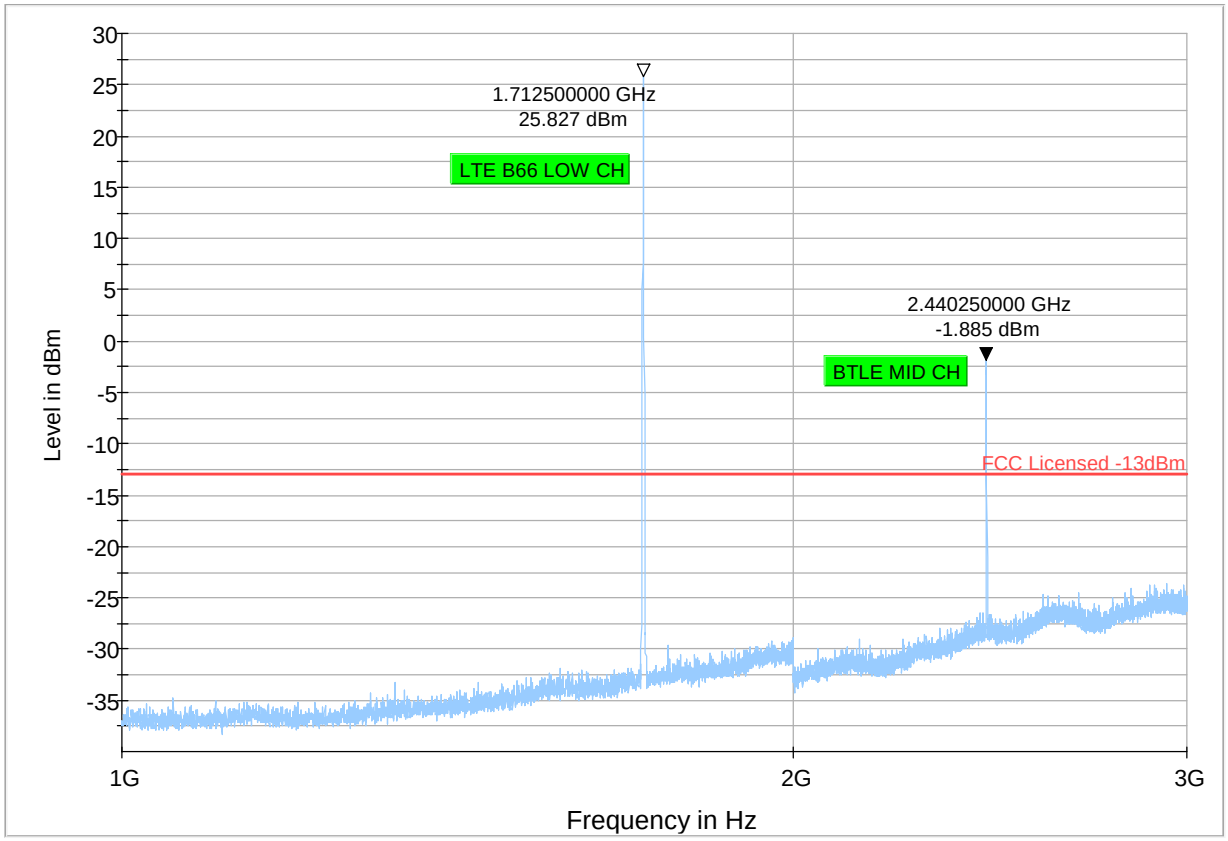
Plot # 84 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 85 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

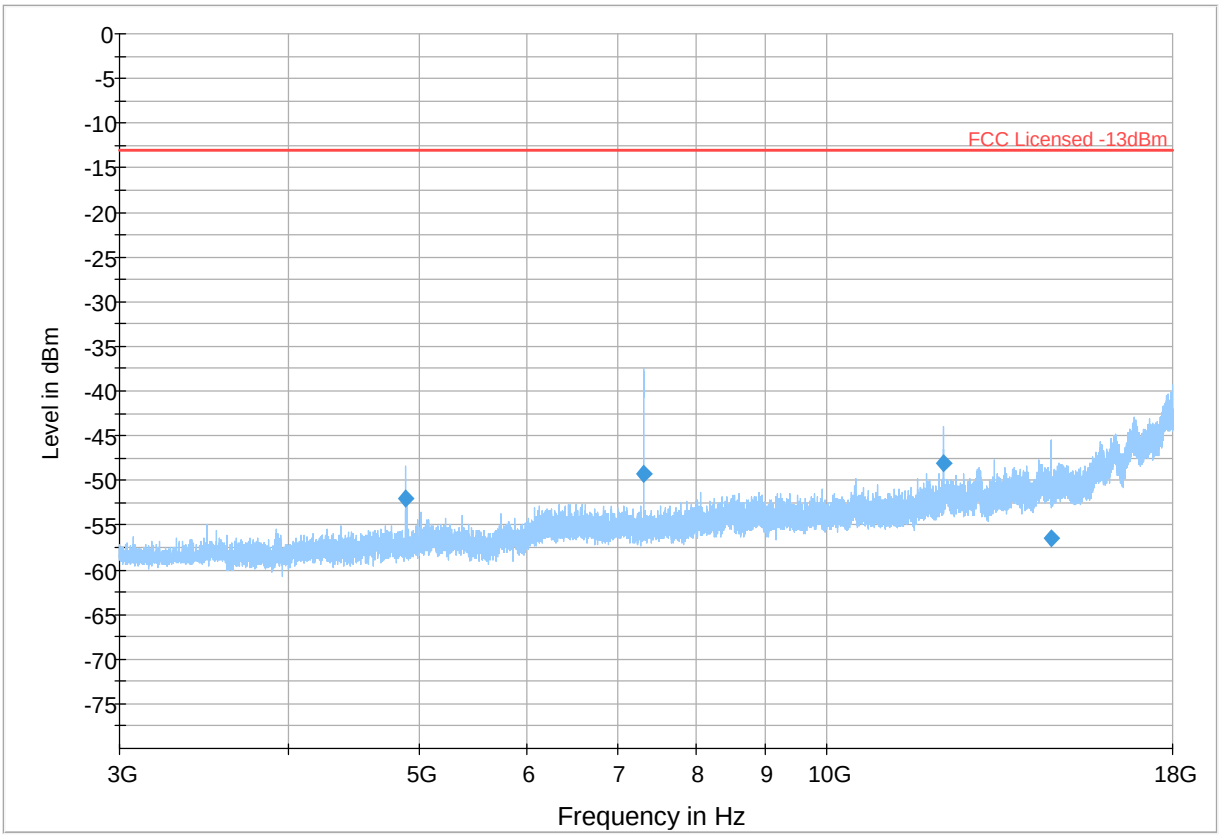


Plot # 86 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-52.02	-13.00	39.02	500.0	1000.000	140.0	H	151.0	-100.2
7319.500	-49.32	-13.00	36.32	500.0	1000.000	140.0	H	242.0	-95.7
12201.500	-48.00	-13.00	35.00	500.0	1000.000	175.0	V	3.0	-91.6
14639.000	-56.43	-13.00	43.43	500.0	1000.000	231.0	V	19.0	-89.6

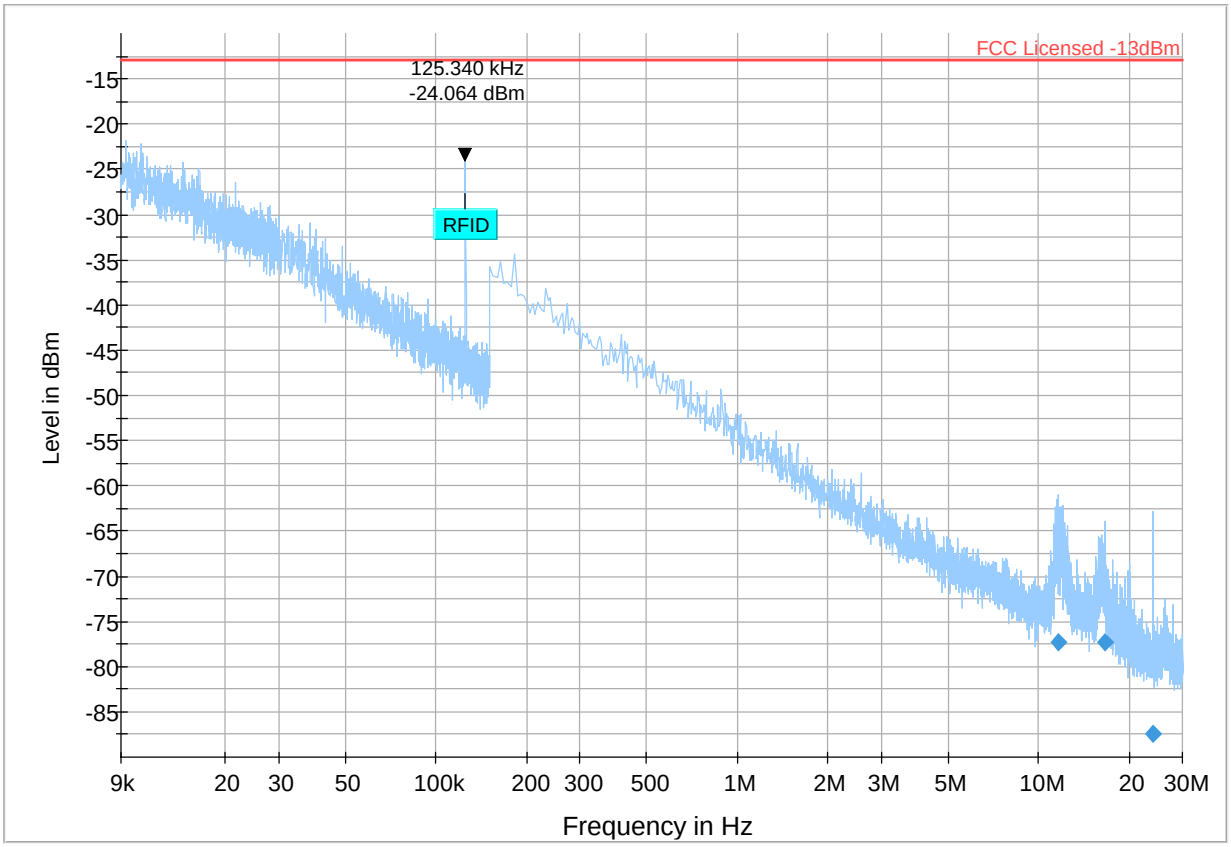


Plot # 87 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

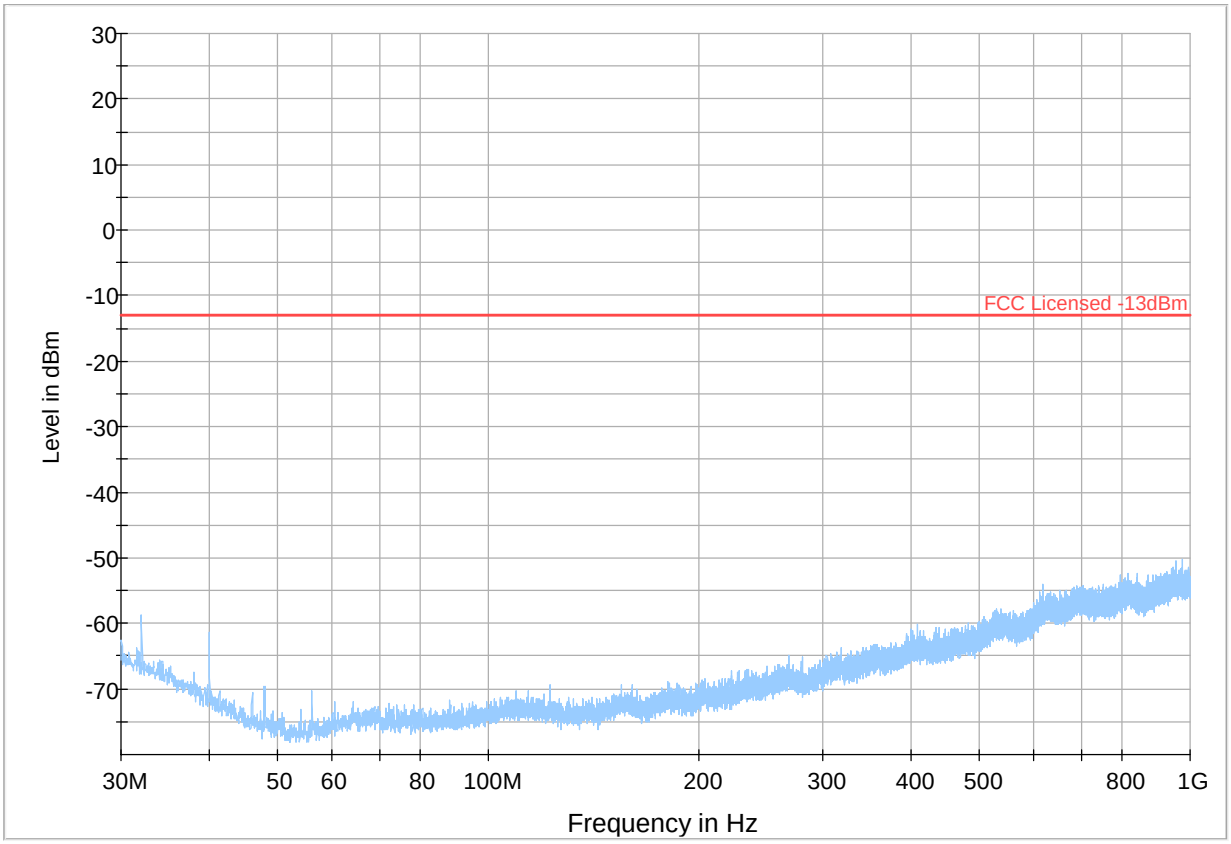
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
11.697	-77.37	-13.00	64.37	500.0	1.000	183.0	H	142.0	-77.8
16.690	-77.22	-13.00	64.22	500.0	1.000	182.0	H	11.0	-78.2
24.071	-87.40	-13.00	74.40	500.0	1.000	168.0	H	335.0	-78.8



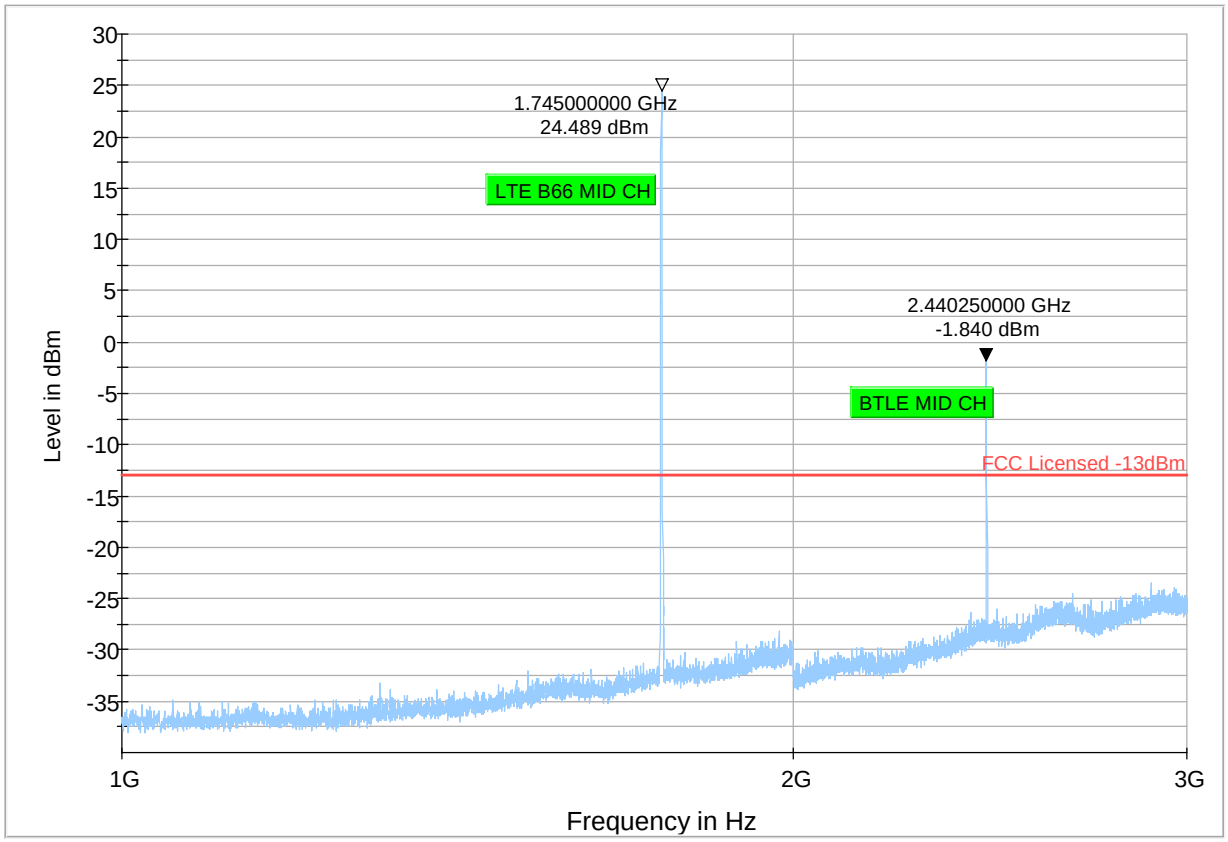
Plot # 88 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 89 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

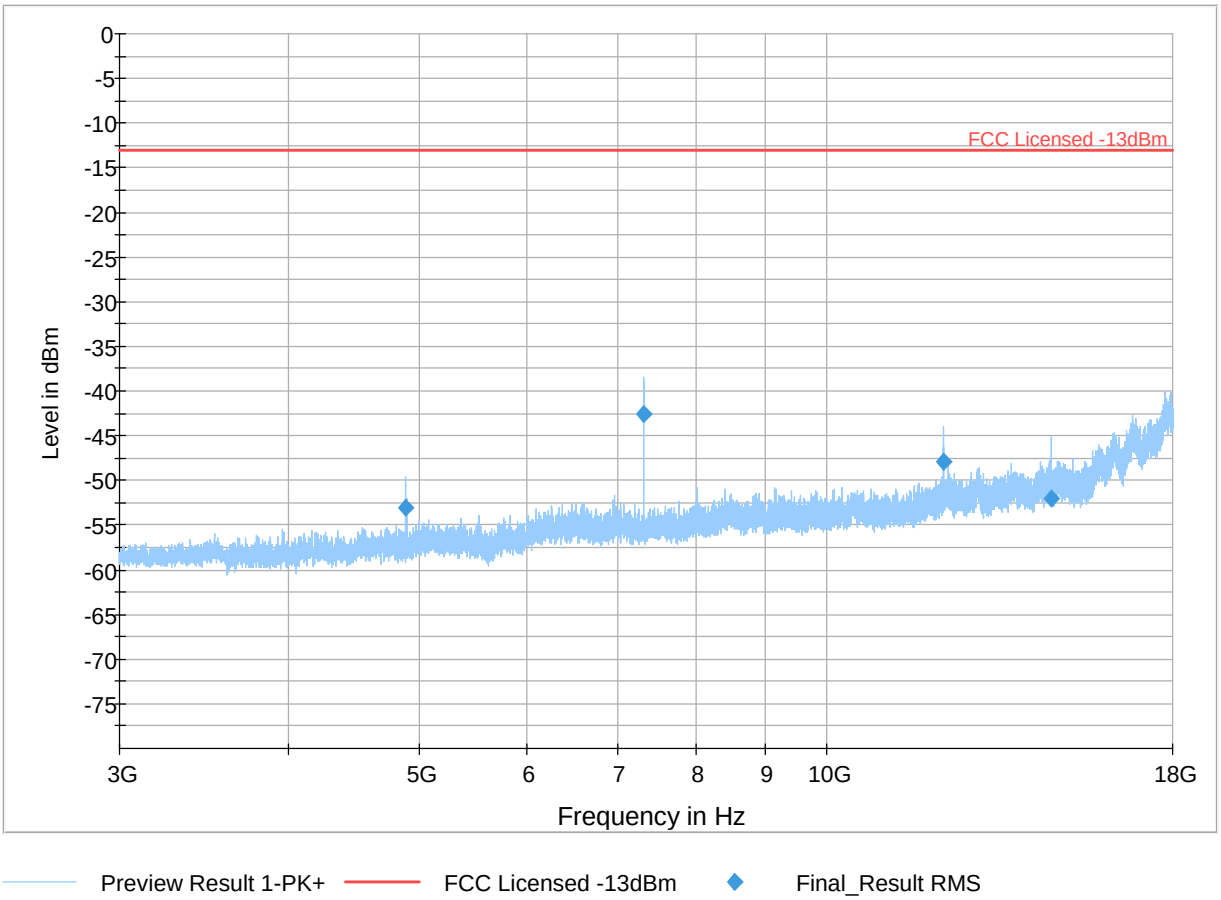


Plot # 90 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

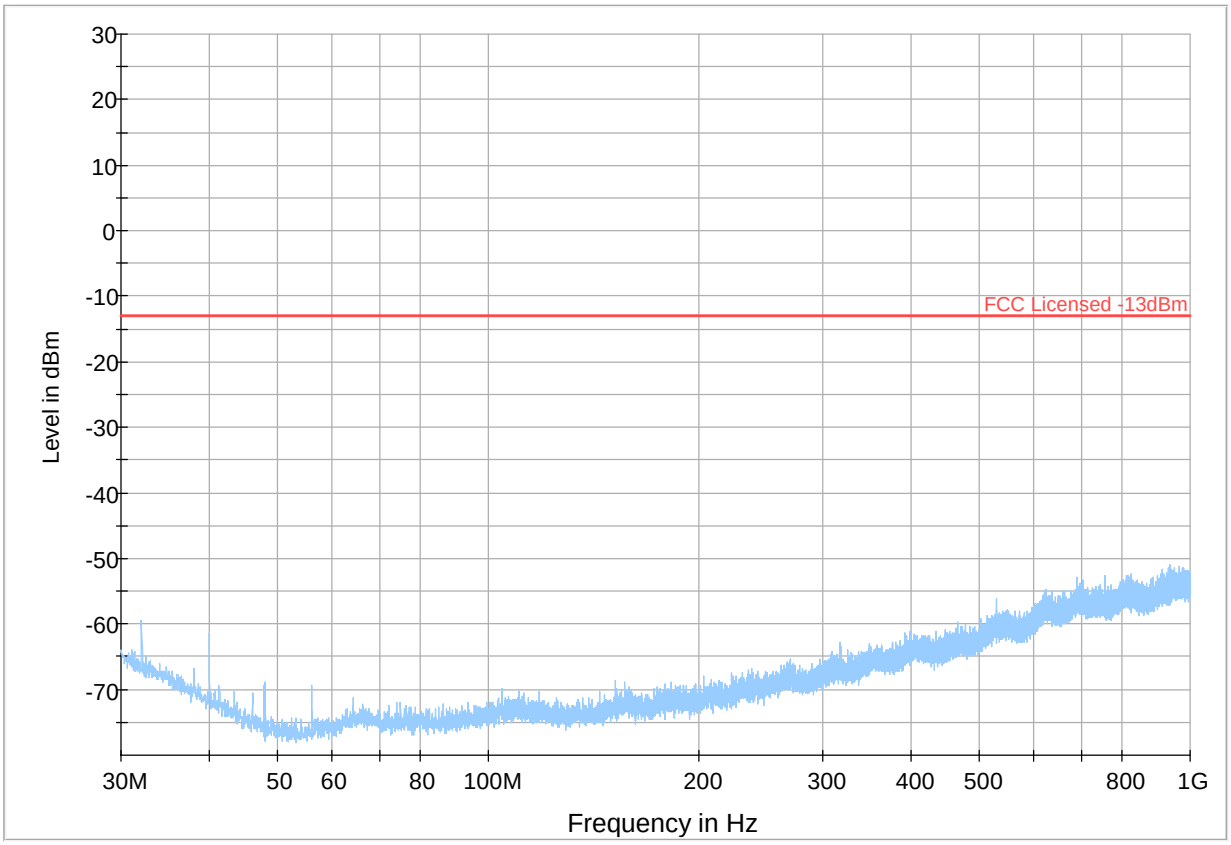
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-53.02	-13.00	40.02	500.0	1000.000	140.0	H	147.0	-100.2
7321.000	-42.55	-13.00	29.55	500.0	1000.000	140.0	H	242.0	-95.7
12201.500	-47.89	-13.00	34.89	500.0	1000.000	162.0	V	5.0	-91.6
14642.000	-51.94	-13.00	38.94	500.0	1000.000	140.0	V	331.0	-89.6



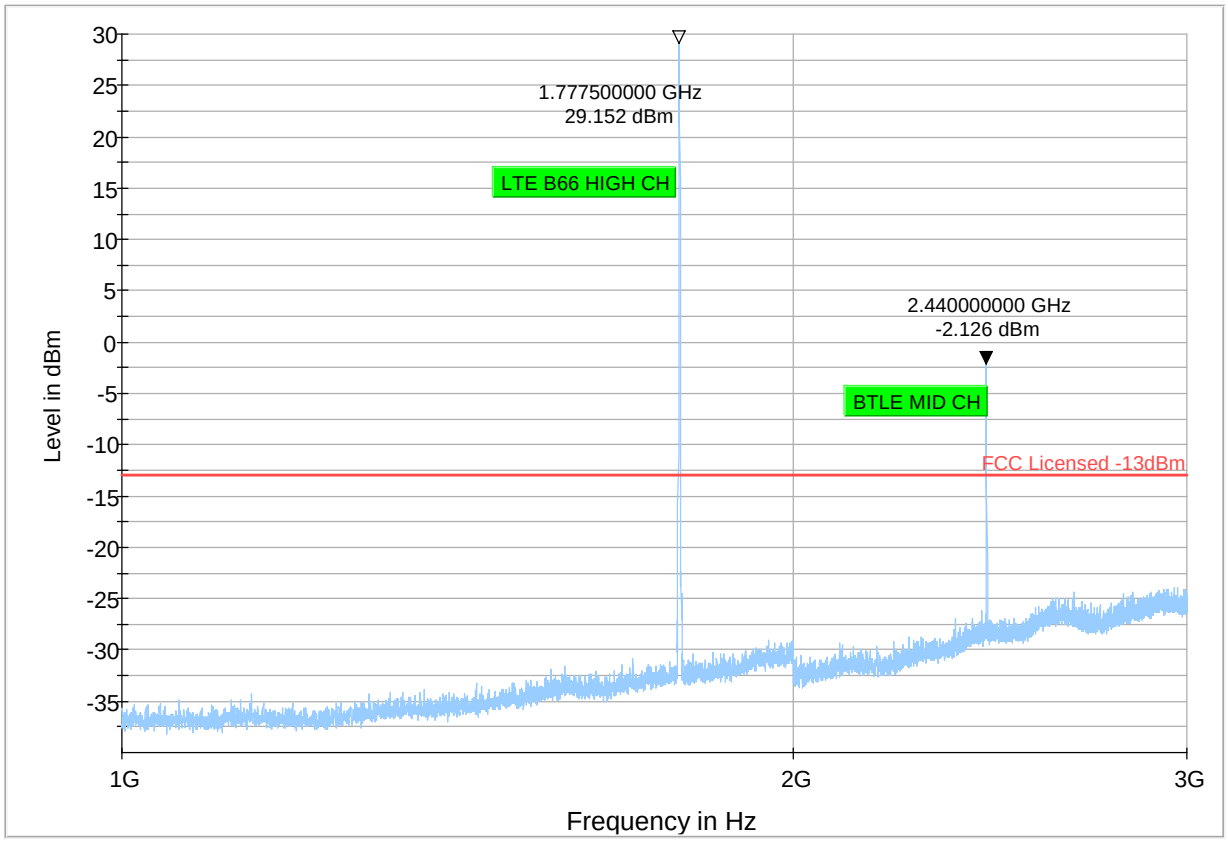
Plot # 91 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 92 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

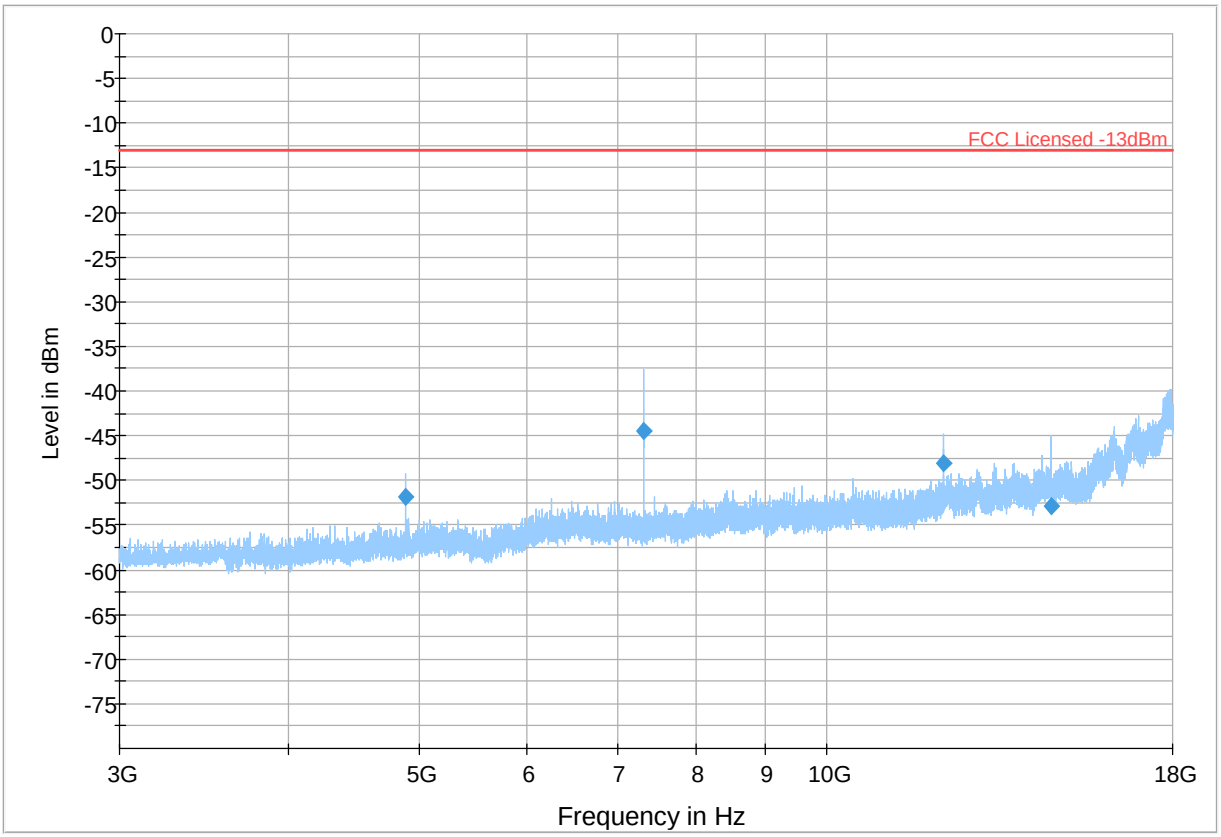


Plot # 93 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-51.79	-13.00	38.79	500.0	1000.000	152.0	H	147.0	-100.2
7321.000	-44.46	-13.00	31.46	500.0	1000.000	177.0	H	241.0	-95.7
12201.500	-48.09	-13.00	35.09	500.0	1000.000	164.0	V	4.0	-91.6
14642.000	-52.89	-13.00	39.89	500.0	1000.000	140.0	H	323.0	-89.6



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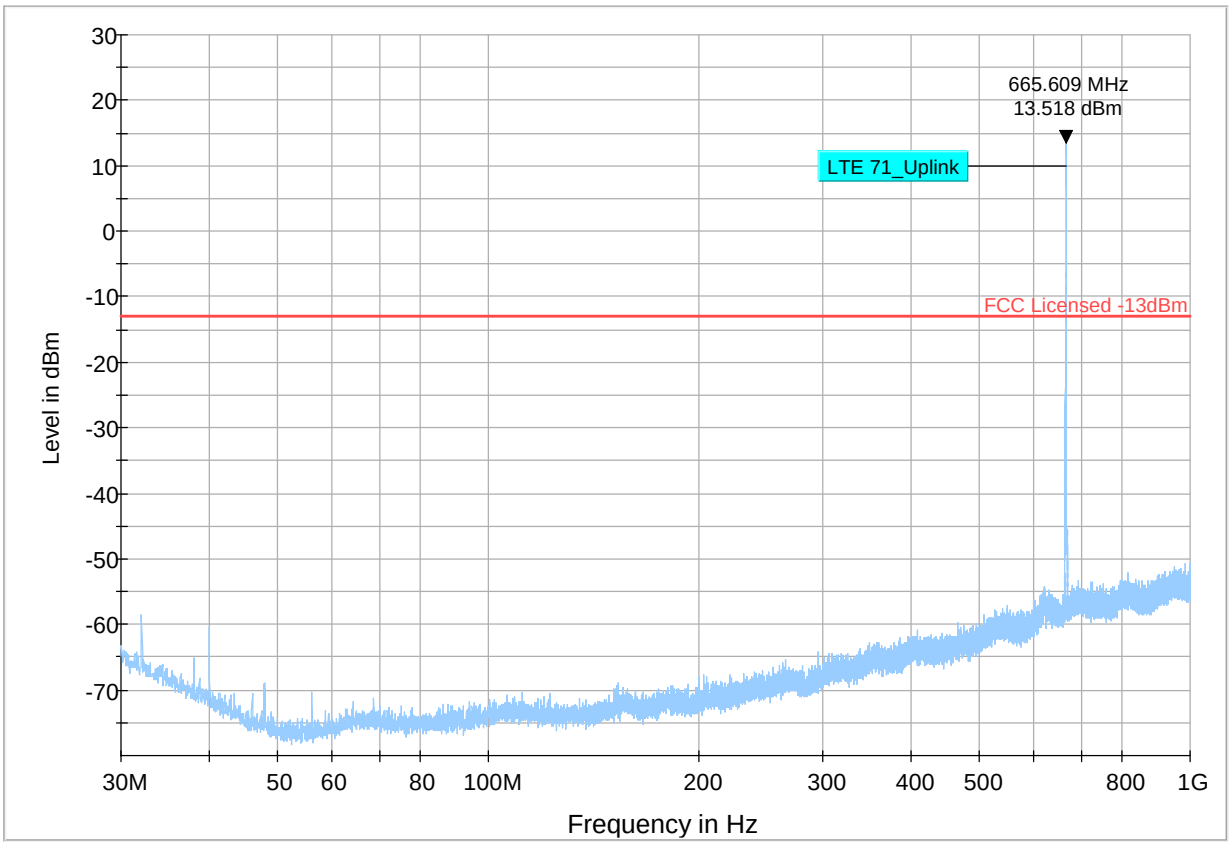
Plot # 94 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

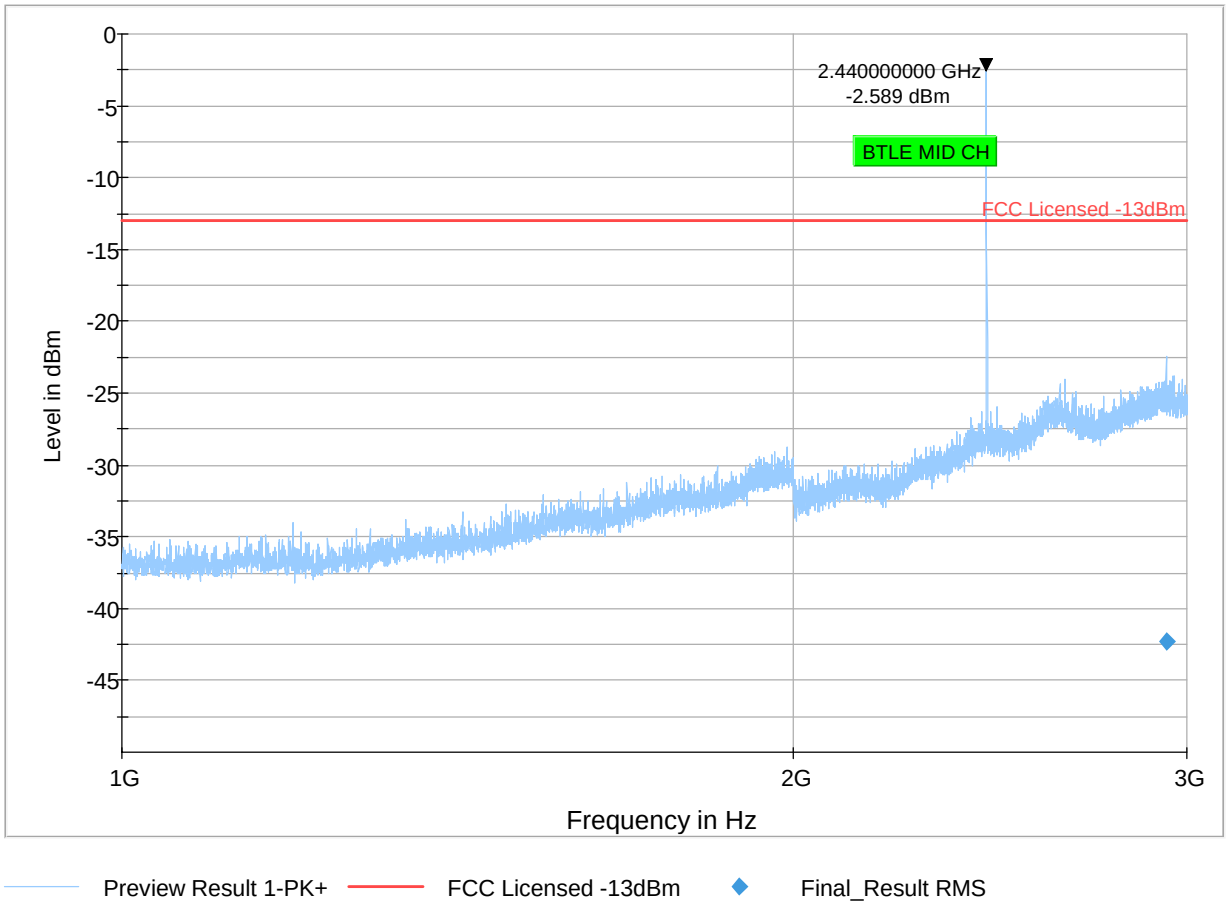


Plot # 95 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2936.250	-42.24	-13.00	29.24	500.0	1000.000	224.0	V	55.0	-57.4

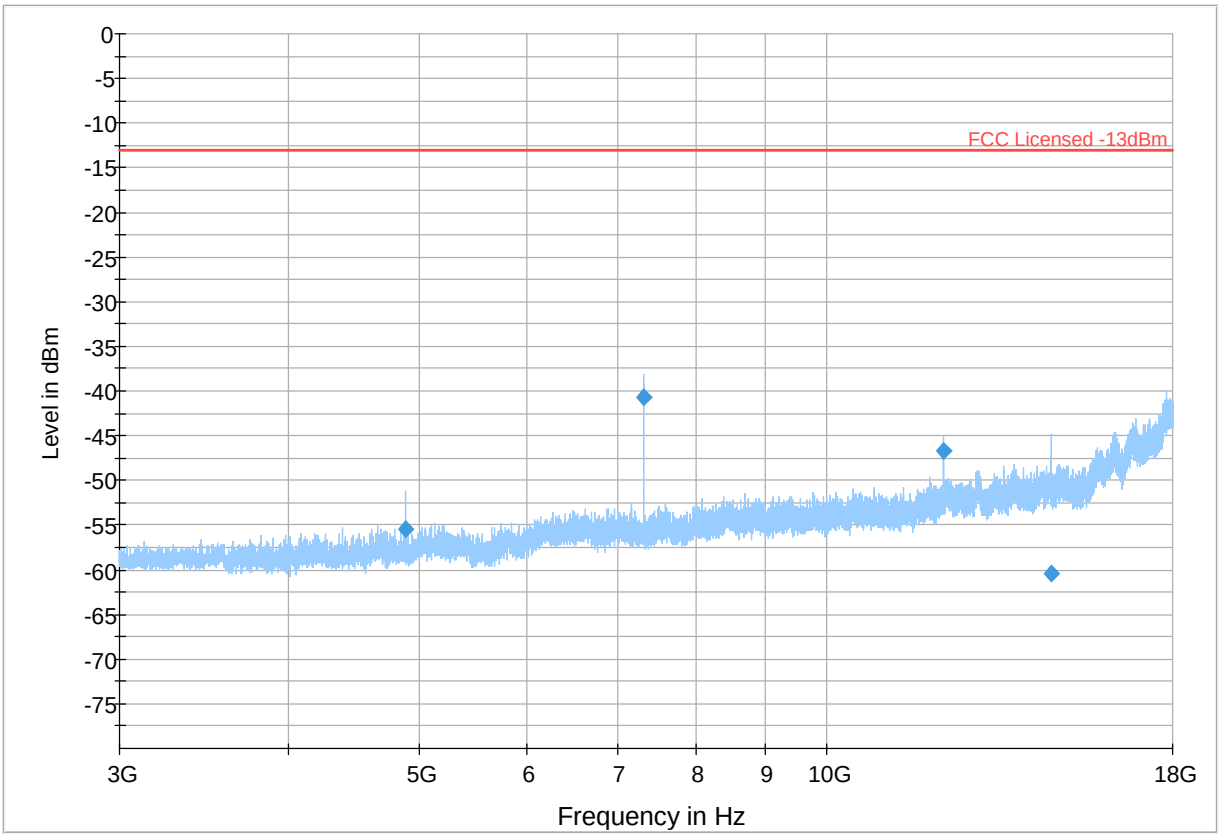


Plot # 96 Radiated Emissions: 3 GHz – 18 GHz

Channel: Low

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-55.52	-13.00	42.52	500.0	1000.000	140.0	H	56.0	-100.2
7321.000	-40.73	-13.00	27.73	500.0	1000.000	263.0	H	3.0	-95.7
12201.500	-46.67	-13.00	33.67	500.0	1000.000	153.0	V	144.0	-91.6
14642.500	-60.43	-13.00	47.43	500.0	1000.000	315.0	V	-42.0	-89.6

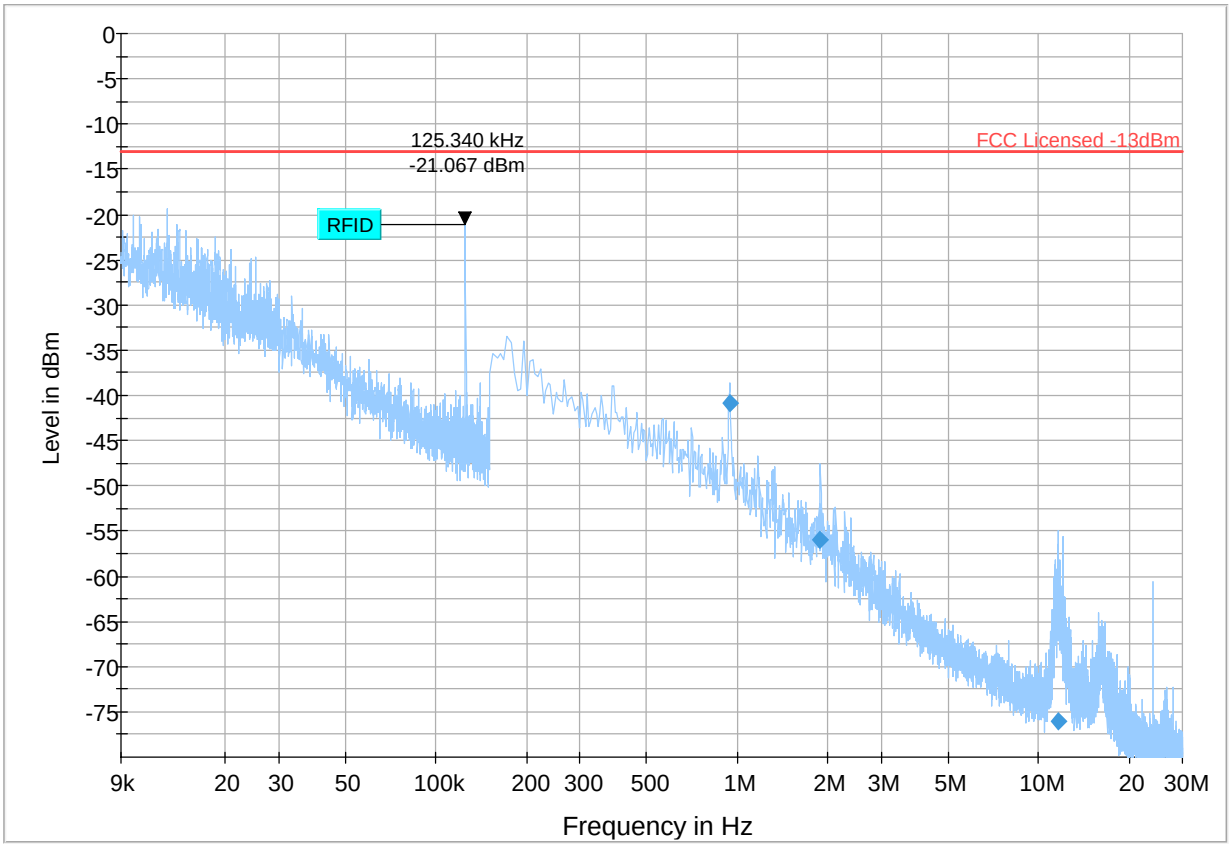


Plot # 97 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid

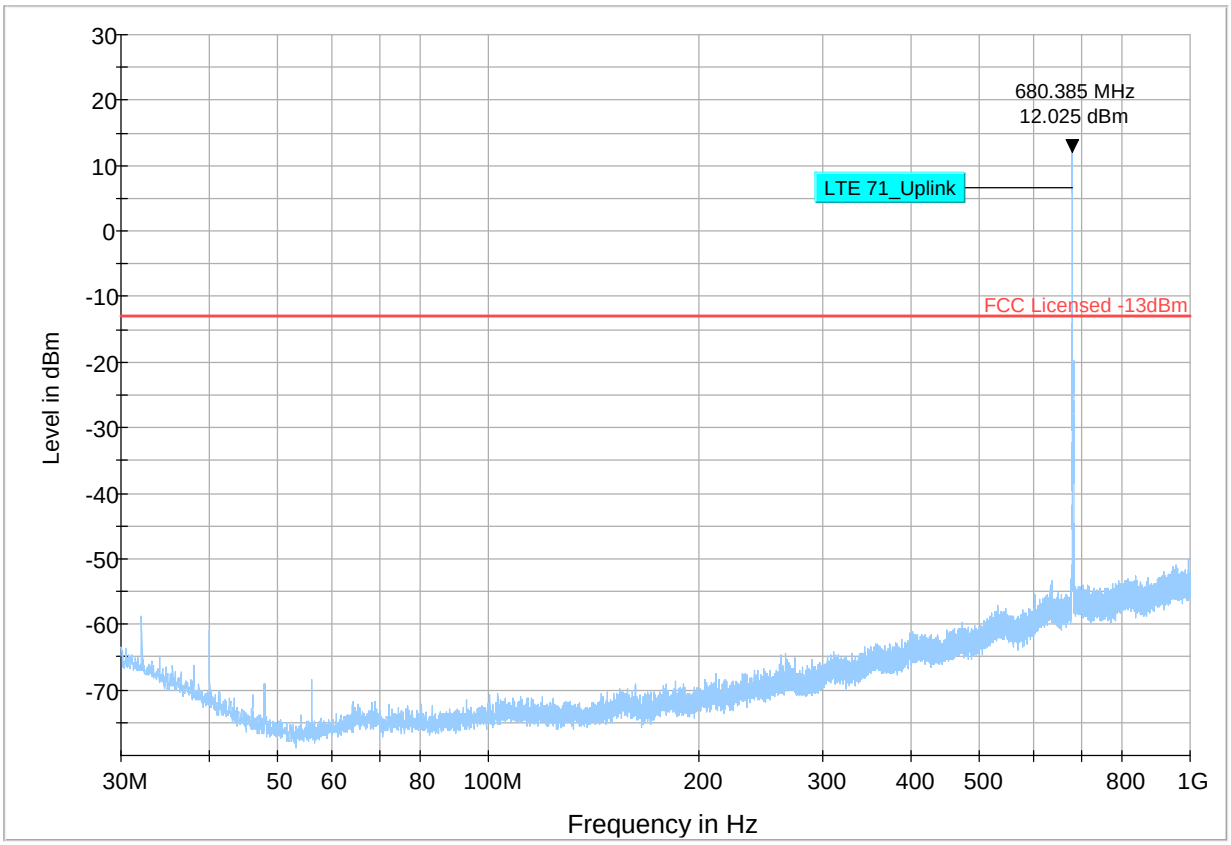
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.946	-40.94	-13.00	27.94	500.0	1.000	147.0	V	211.0	-76.5
1.887	-55.90	-13.00	42.90	500.0	1.000	140.0	V	206.0	-76.3
11.624	-75.97	-13.00	62.97	500.0	1.000	162.0	V	4.0	-77.8



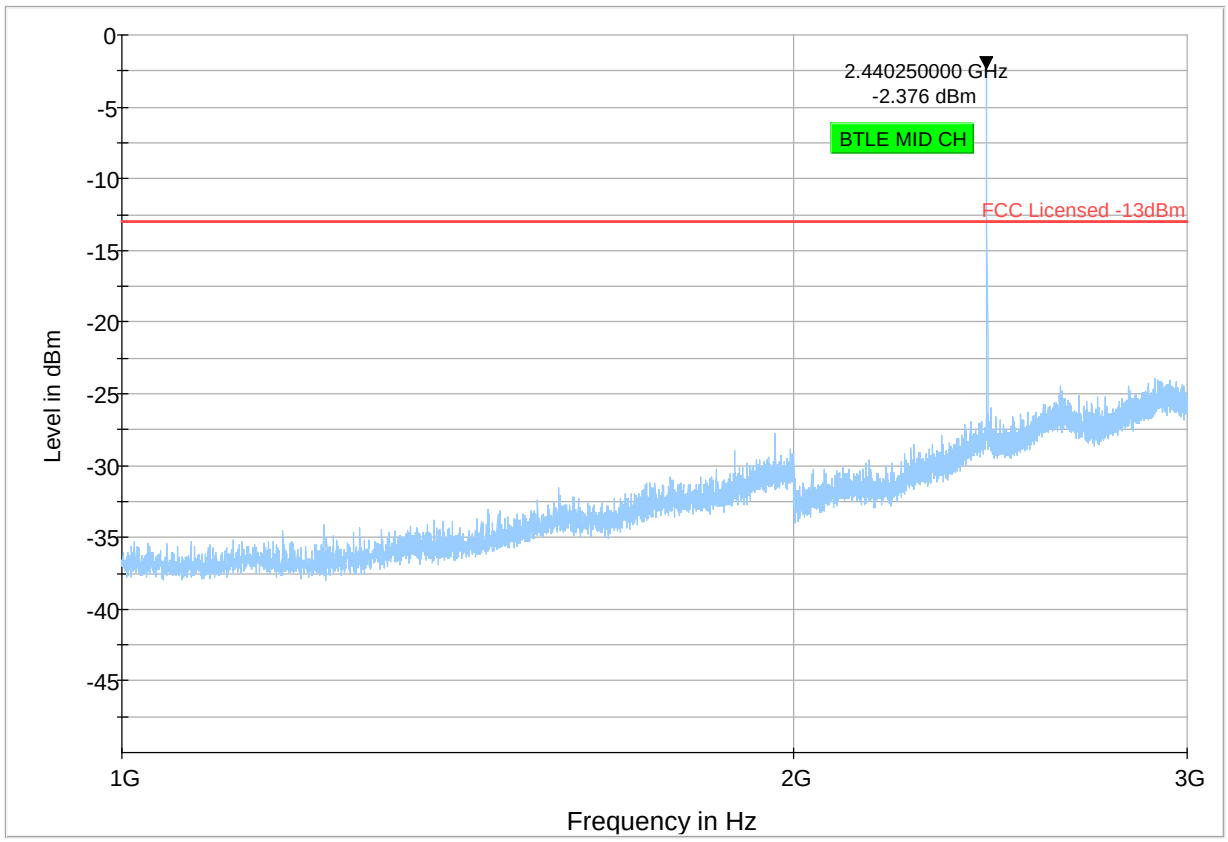
Plot # 98 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 99 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid

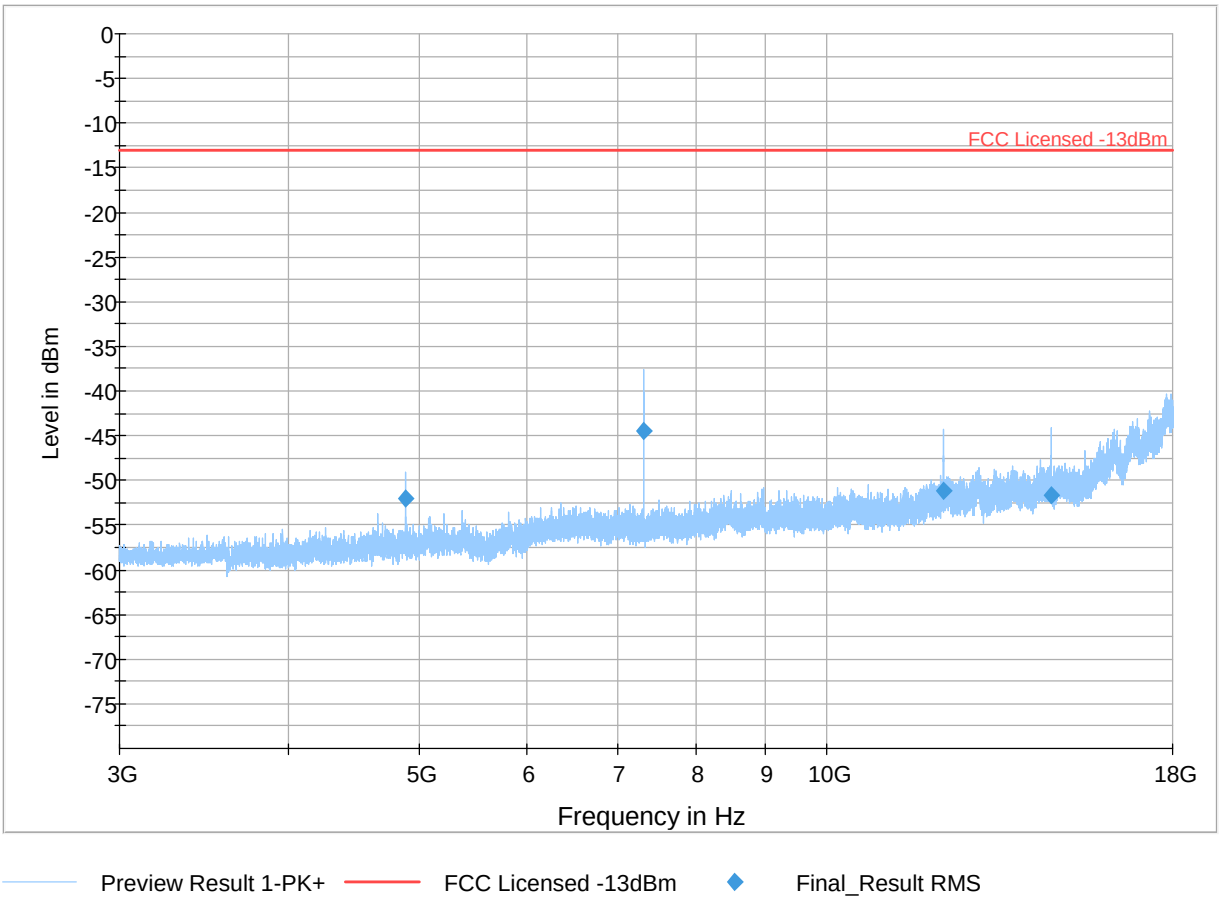


Plot # 100 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid

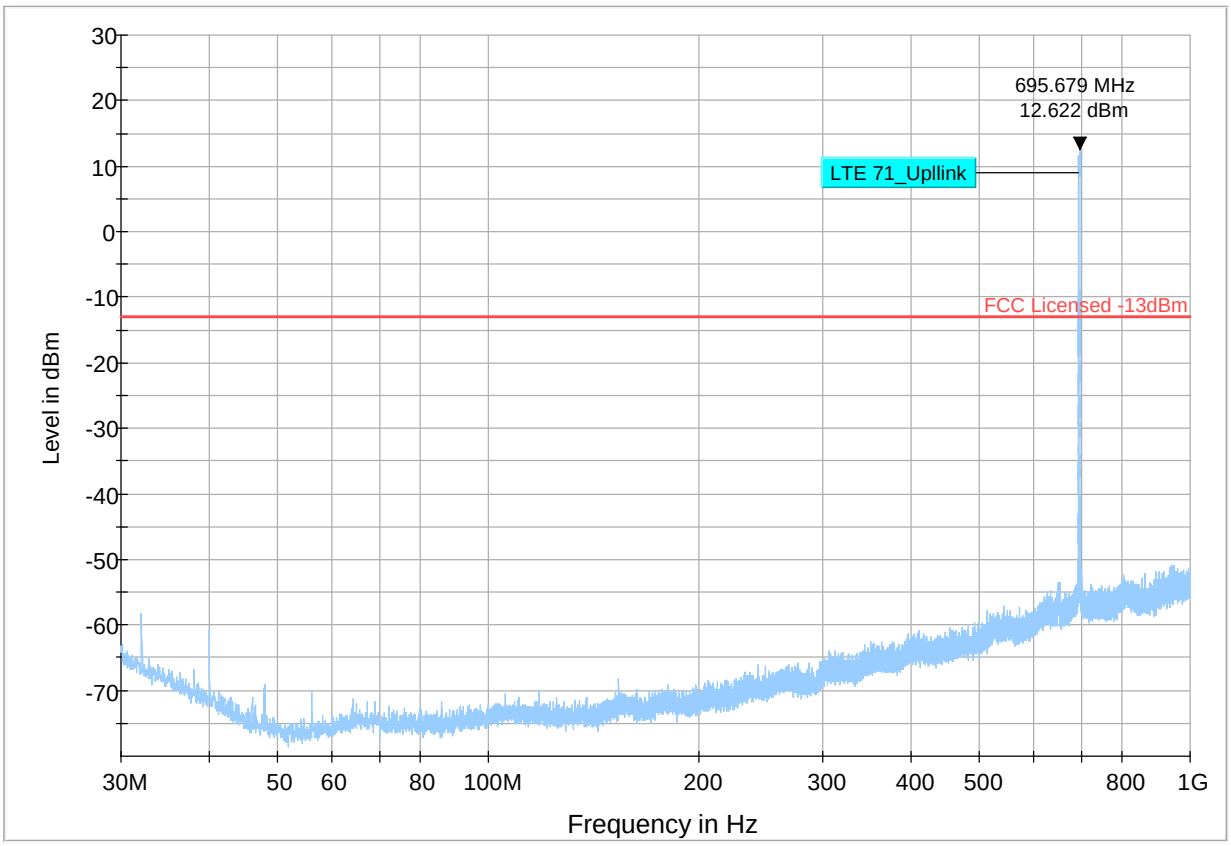
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-51.95	-13.00	38.95	500.0	1000.000	140.0	H	150.0	-100.2
7321.000	-44.39	-13.00	31.39	500.0	1000.000	152.0	H	243.0	-95.7
12201.500	-51.17	-13.00	38.17	500.0	1000.000	140.0	V	118.0	-91.6
14642.000	-51.64	-13.00	38.64	500.0	1000.000	198.0	V	19.0	-89.6



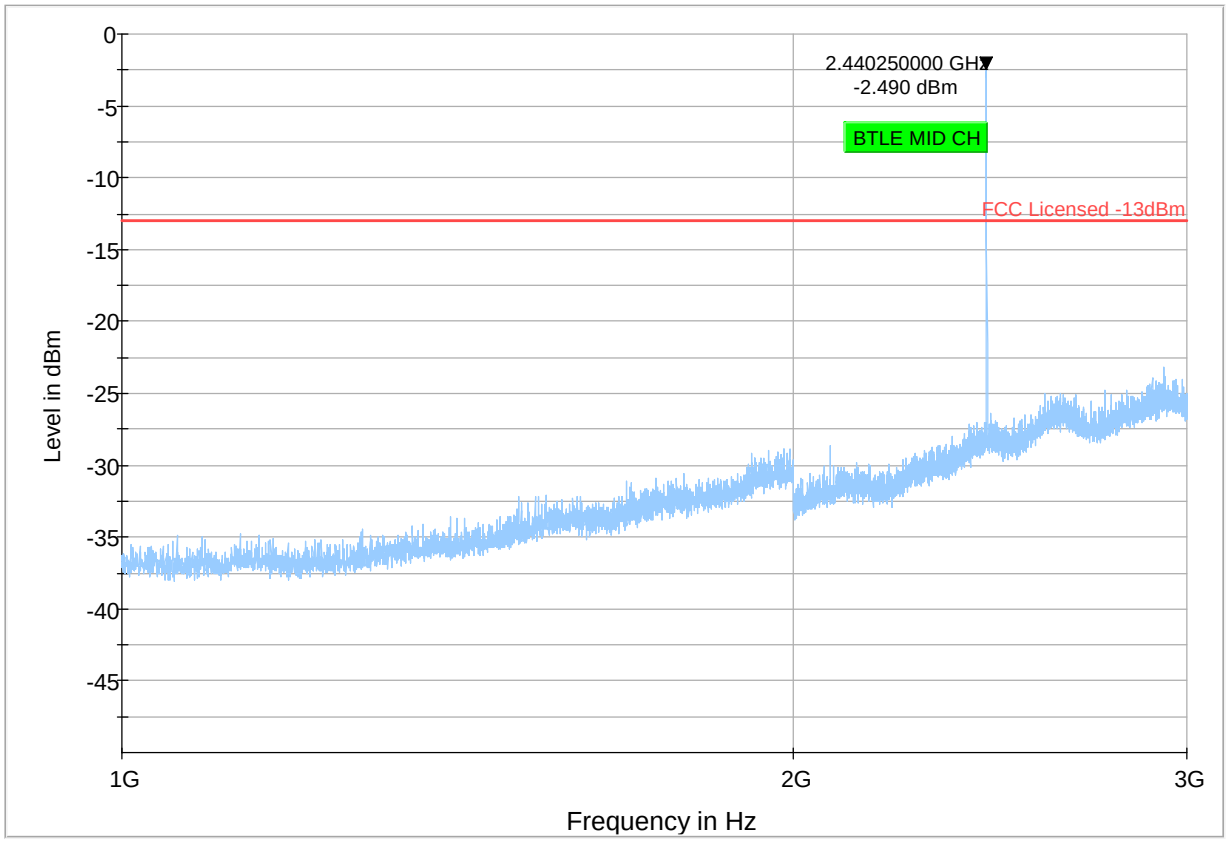
Plot # 101 Radiated Emissions: 30 MHz – 1GHz

Channel: High



Plot # 102 Radiated Emissions: 1 GHz - 3 GHz

Channel: High

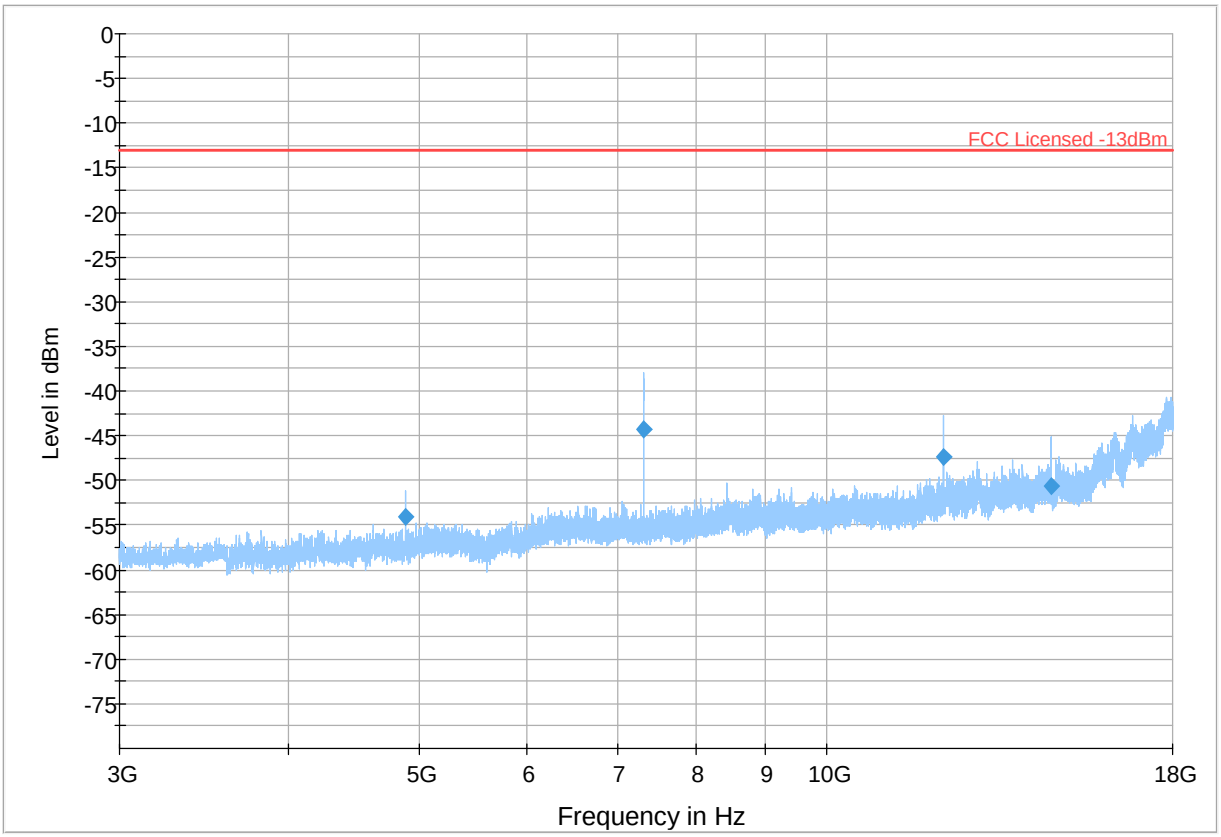


Plot # 103 Radiated Emissions: 3 GHz – 18 GHz

Channel: High

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4880.500	-54.12	-13.00	41.12	500.0	1000.000	140.0	H	311.0	-100.2
7321.000	-44.23	-13.00	31.23	500.0	1000.000	279.0	H	-7.0	-95.7
12201.500	-47.45	-13.00	34.45	500.0	1000.000	152.0	V	144.0	-91.6
14642.000	-50.70	-13.00	37.70	500.0	1000.000	273.0	V	-19.0	-89.6



8 Test setup photos

Setup photos are included in supporting file name: "EMC_ZIPCA_009_20001_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	3/20/2020
Horn Antenna	ETS Lindgren	3115	00035114	3 years	10/10/2020
Horn Antenna	ETS Lindgren	3117-PA	00215984	3 years	1/31/2021
HORN ANTENNA	ETS LINDGREN	3116C	00070497	3 YEARS	11/23/2020
EMI Receiver	R&S	ESU40	100251	3 years	7/16/2019
Digital Thermometer/Chilled Mirror Hygrometer	Control Company	36934-164	191872028	3 years	1/10/2019

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
4/6/2021	EMC_ZIPCA_009_20001_FCC_22_24_27_90_ISED	Initial Version	Issa Ghanma
4/27/2021	EMC_ZIPCA_009_20001_FCC_22_24_27_90_ISED_Rev1	❖ Add 125 KHz card reader to: • Section 3.1 Other Radios included in the device. • Section 3.5 Mode of Operation details • Section 3.6 Justification for worst case mode of operation. • Section 7.2.5 Measurement plots, marker and label to 125 KHz	Issa Ghanma

<<< The End >>>