



FCC / ISED & Test Report

For:
Garmin International, Inc.

Model Name:
A03675

Product Description:
N/A

Applied Rules and Standards:
47 CFR Parts 22, 24, and 27
RSS: 130 Issue 2, 132 Issue 3, 133 Issue 6, 139 Issue 3

FCC ID: IPH-03675
IC ID: 1792A-03675

REPORT #: EMC_GARMI-064-19001_FCC_22_24_27_REV5

DATE: 2020-05-18



A2LA Accredited

IC recognized #
3462B-1

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1 Assessment

The following device as further described in section 3 of this report was evaluated against the applicable criteria specified in the Code of Federal Regulations Title 47 parts 22, 24, 27, and Industry Canada Standards RSS-130 issue 2, RSS-132 issue 3, RSS-133 issue 6 and RSS-139 issue 3.

No deficiencies were ascertained.

Company Name	Product Description	Model #
Garmin International, Inc.	N/A	A03675

Responsible for Testing Laboratory:

2020-05-18	Compliance	Cindy Li (EMC Lab Manager)	 Digitally signed by: cindy.li@cetecom.com DN: CN=cindy.li@cetecom.com Reason: I am approving this document Location: Date: 2020-05-21 16:15:34
Date	Section	Name	Signature

Responsible for the Report:

2020-05-18	Compliance	Chin Ming Lui (Associate EMC Engineer)	Chin Ming Lui  Digitally signed by: Chin Ming Lui DN: CN = Chin Ming Lui email = chinming.lui@cetecom.com C = US O = CETECOM Date: 2020.05.18 17:03:49 - 07'00'
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
EMC Lab Manager:	Cindy Li
Responsible Project Leader:	Sangeetha Sivaraman

2.2 Identification of the Client

Client's Name:	Garmin International, Inc.
Street Address:	1200 East 151 st Street
City/Zip Code	Olathe, KS 66062
Country	USA
Contact Person:	Jeff Hailey
Phone No.	(913) 440-1592
e-mail:	Jeffrey.Hailey@garmin.com

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

Model No	A03675
HW Version	1
SW Version	1.20
FCC-ID	IPH-03675
IC-ID:	1792A-03675
HVIN:	A03675
PMN:	N/A
Product Description	N/A
Transceiver Technology / Type(s) of Modulation	Module: Quectel EG25-G FCC ID: XMR201903EG25G; IC ID: 10224A-201903EG25G; 4G: FDD LTE Bands 2, 4, 5, 12 3G: UMTS FDD Bands II, IV, V
Frequency Range	LTE Band 2: 1850 – 1910 MHz LTE Band 4: 1710 – 1755 MHz LTE Band 5: 824 – 849 MHz LTE Band 12: 699 – 716 MHz UMTS Band II: 1852.4 – 1907.6 MHz UMTS Band IV: 1712.4 – 1752.6 MHz UMTS Band V: 826.4 – 846.6 MHz
Max. declared antenna gain	Name: Sinbon Type: 4G Cellular Connector Mount Monopole SMA(M)RA Location: External Peak Gain: • LTE Band 2 / UMTS Band II: 0.4 dBi • LTE Band 4 / UMTS Band IV: 0.2 dBi • LTE Band 5 / UMTS Band V: -1.0 dBi • LTE Band 12: -2.1 dBi
Other Radios included in the device:	GPS; WiFi; BTLE; ANT
Power Supply/ Rated Operating Voltage Range	10V (Low) / 12V (Nominal) / 32V (Max)
Operating Temperature Range	-15°C to +55°C
Sample Revision Note 1	☐ Prototype ☐ Production ☒ Pre-Production

Note 1: Pre-production PCB has a new communication circuit that was made functional using wire mods.
 From a radio perspective the units tested are production quality per client communication.

3.2 EUT Sample details

EUT #	IMEI Number	Serial Number	HW Version	SW Version	Comments
1	015697000000824	ESN: 3303209644	1	1.20	Radiated

3.3 Accessory Equipment (AE) details

N/A

3.4 Test Sample Configuration

Set-up #	EUT / AE used for set-up	Comments
1	EUT#1	Radiated RF measurements were performed with EUT configured via client provided "Factory Test" software and instructions.

3.5 Mode of Operation details

Mode of Operation	Description of Operating modes	Additional Information
Op. 1	Cellular and WiFi 802.11b Co-Transmission	Cellular bands were tested on Low, Mid, High Channels at maximum power in co-transmission with WiFi. Cellular radio connection was established by issuing AT commands via the "Factory Test" software provided by the client. The cellular external antennas were connected. The WiFi radio was configured using the "Factory Test" software provided by the client: • Modulation: 1 Mbps (802.11b) • Channel: 11 (High Channel, 2462 MHz) The "Factory Test" software will not be available to the end user. The power was controlled through software updated by the client. The latest software was used for the measurements. The WiFi internal antennas were connected.

3.6 Justification for Worst Case Mode of Operation

During the testing process, the cellular radio of the EUT was tested for low, mid and high channels at maximum power in simultaneous transmission with WiFi 802.11b high channel. For radiated measurements, all data in this report show the worst case between horizontal and vertical antenna polarizations and for all orientations of the EUT.

4 Subject of Investigation

The objective of the measurements done by CETECOM Inc. was to evaluate the compliance of the EUT against the relevant requirements specified in the Code of Federal Regulations Title 47 parts 22, 24, 27 and ISSED Standards RSS-130 issue 2, RSS-132 issue 3, RSS-133 issue 6, and RSS-139 issue 3.

4.1 Dates of Testing:

3/10/2020 - 3/31/2020

4.2 Measurement Uncertainty

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

Radiated measurement

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

Conducted measurement

150 kHz to 30 MHz	± 0.7 dB (LISN)
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RF conducted measurement	± 0.5 dB
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4.3 Environmental Conditions during Testing:

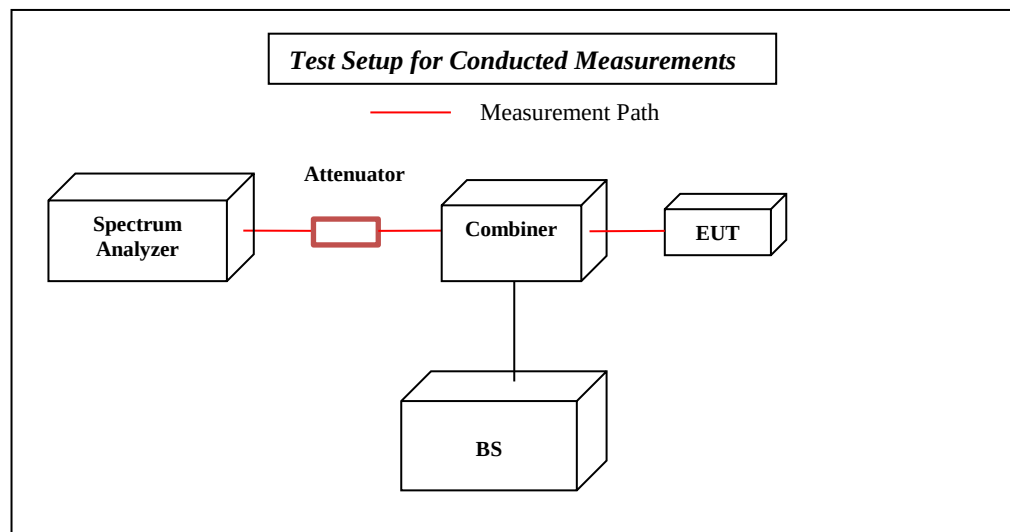
The following environmental conditions were maintained during the course of testing:

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

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

5 Measurement Procedures

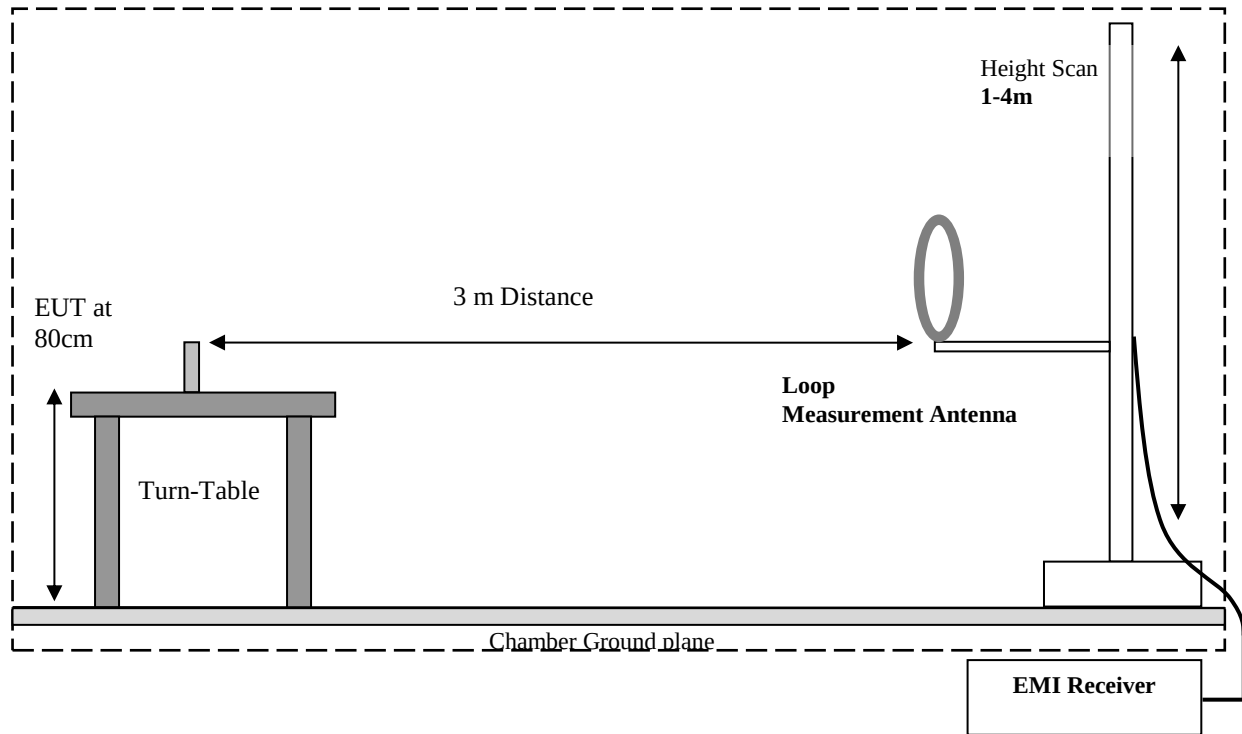
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03r01 – “Measurement Guidance for Certification of Licensed Digital Transmitters” and according to relevant parts of ANSI/TIA-603-D-2010 as detailed below.



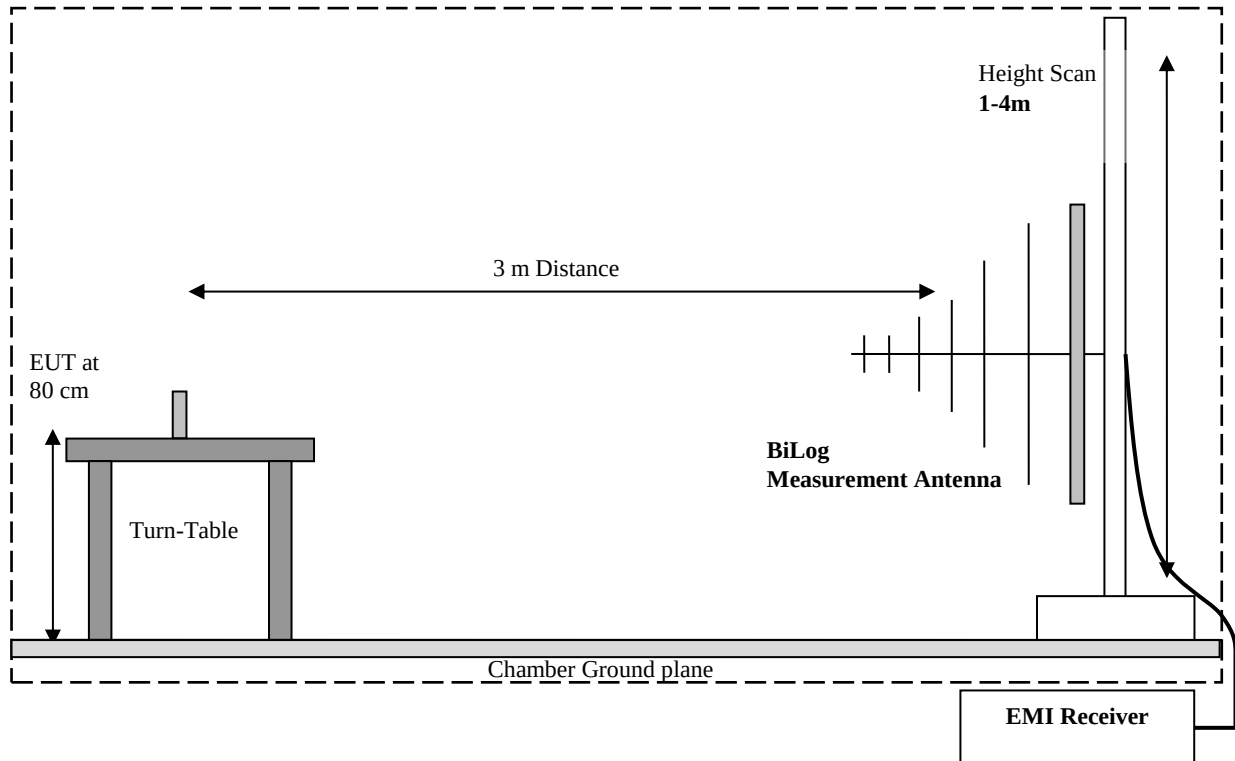
5.1 Radiated Measurement

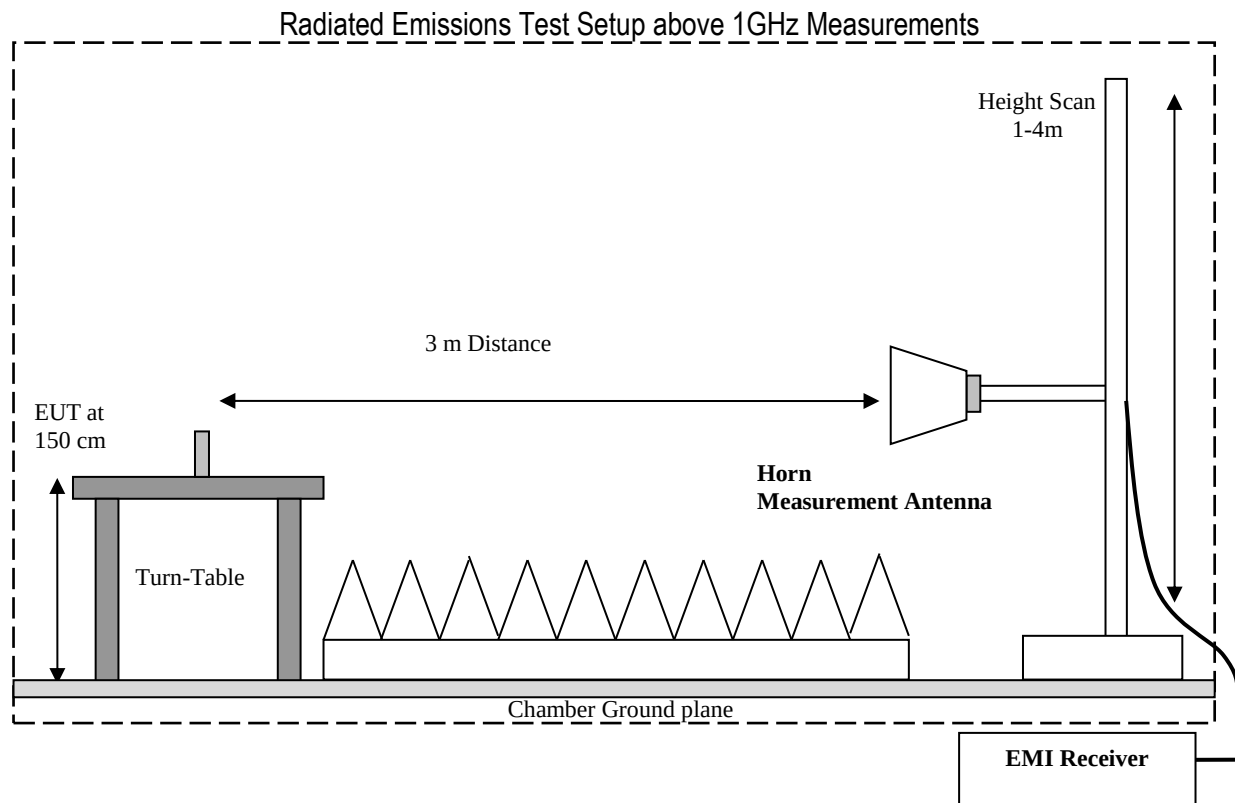
- The exploratory measurement is accomplished by running a matrix of 16 sweeps over the required frequency range with R&S Test-SW EMC32 for 4 positions of the turntable, two orthogonal positions of the EUT and both antenna polarizations. This procedure exceeds the requirement of the above standards to 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.

Radiated Emissions Test Setup below 30MHz Measurements



Radiated Emissions Test Setup 30MHz-1GHz Measurements





5.2 Sample Calculations for Field Strength Measurements

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

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

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

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

Example:

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

6 Measurement Results Summary

6.1 Part 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	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1055; §22.355	Frequency Tolerance	Extreme Temperature and Voltage	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1049; §22.917	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1051; §22.917	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1051; §22.917	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1053; §22.917(a); RSS-132 Issue 3-5.5	Radiated Spurious Emissions	Nominal	Op. 1	■	☐	☐	☐	Complies

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

Note 2: Leveraged from module certification Quectel EG25-G (FCC ID: XMR201903EG25G, IC ID: 10224A-201903EG25G)

6.2 Part 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	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1055; §24.235	Frequency Stability	Extreme Temperature and Voltage	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1049; §24.238	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1051; §24.238	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1051; §24.238	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1053; §24.238(a); RSS-133 Issue 6-6.5.1	Radiated Spurious Emissions	Nominal	Op. 1	■	☐	☐	☐	Complies

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

Note 2: Leveraged from module certification Quectel EG25-G (FCC ID: XMR201903EG25G, IC ID: 10224A-201903EG25G)

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	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1055; §27.54	Frequency Stability	Extreme Temperature and Voltage	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1049; §27.53	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1051; §27.53	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1051; §27.53	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Complies Note 1 Note 2
§2.1053; §27.53(g); §27.53(h); RSS-130 Issue 2-4.7; RSS-139 Issue 3-6.6	Radiated Spurious Emissions	Nominal	Op. 1	■	☐	☐	☐	Complies

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

Note 2: Leveraged from module certification Quectel EG25-G (FCC ID: XMR201903EG25G, IC ID: 10224A-201903EG25G)

7 Test Result Data

7.1 ERP/EIRP

FCC Rule Parts	Band	Frequency Range (MHz)	Power Conducted (dBm) Note 1	Power Conducted (W)	Gain (dBi)	Gain Linear	EIRP (W) Note 2	ERP (W) Note 2	Limit EIRP (W)	Limit ERP (W)
22H	LTE 5	824 – 849	23.54	0.2259	-1.0	0.794	-	0.1094	-	7
22H	UMTS V	826.4 – 846.6	23.86	0.2432	-1.0	0.794	-	0.1177	-	7
24E	LTE 2	1850 – 1910	24.64	0.2911	0.4	1.096	0.3190	-	2	-
24E	UMTS II	1852.4 – 1907.6	23.88	0.2443	0.4	1.096	0.2678	-	2	-
27	LTE 4	1710 – 1755	24.89	0.3083	0.2	1.047	0.3228	-	1	-
27	UMTS IV	1712.4 – 1752.6	23.82	0.2410	0.2	1.047	0.2523	-	1	-
27	LTE 12	699 – 716	24.30	0.2692	-2.1	0.617	-	0.1013	-	3

Note 1: Power Conducted (dBm) leveraged from test report "HR/2019/1001601" prepared by SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch of cellular module Quectel EG25-G (FCC ID: XMR201903EG25G, IC ID: 10224A-201903EG25G).

Note 2: ERP/EIRP are based on calculations from Power Conducted by adding the declared maximum gain of the utilized cellular antenna per operational description.

7.2 Radiated Spurious Emissions

7.2.1 Measurement utilizing KDB 971168 D01 Power Meas License Digital Systems v03r01, and according to ANSI/TIA-603-D-2010

Spectrum Analyzer Settings for FCC 22

Frequency Range	30MHz – 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 and 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), Part 24.238(a), Part 27.53 (g)(h)
- RSS-130 Issue 2 4.7, RSS-132 Issue 3 5.5, RSS-133 Issue 6 6.5.1, RSS-139 Issue 3 6.6

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 = (-13dBm)

7.2.3 Test conditions and setup:

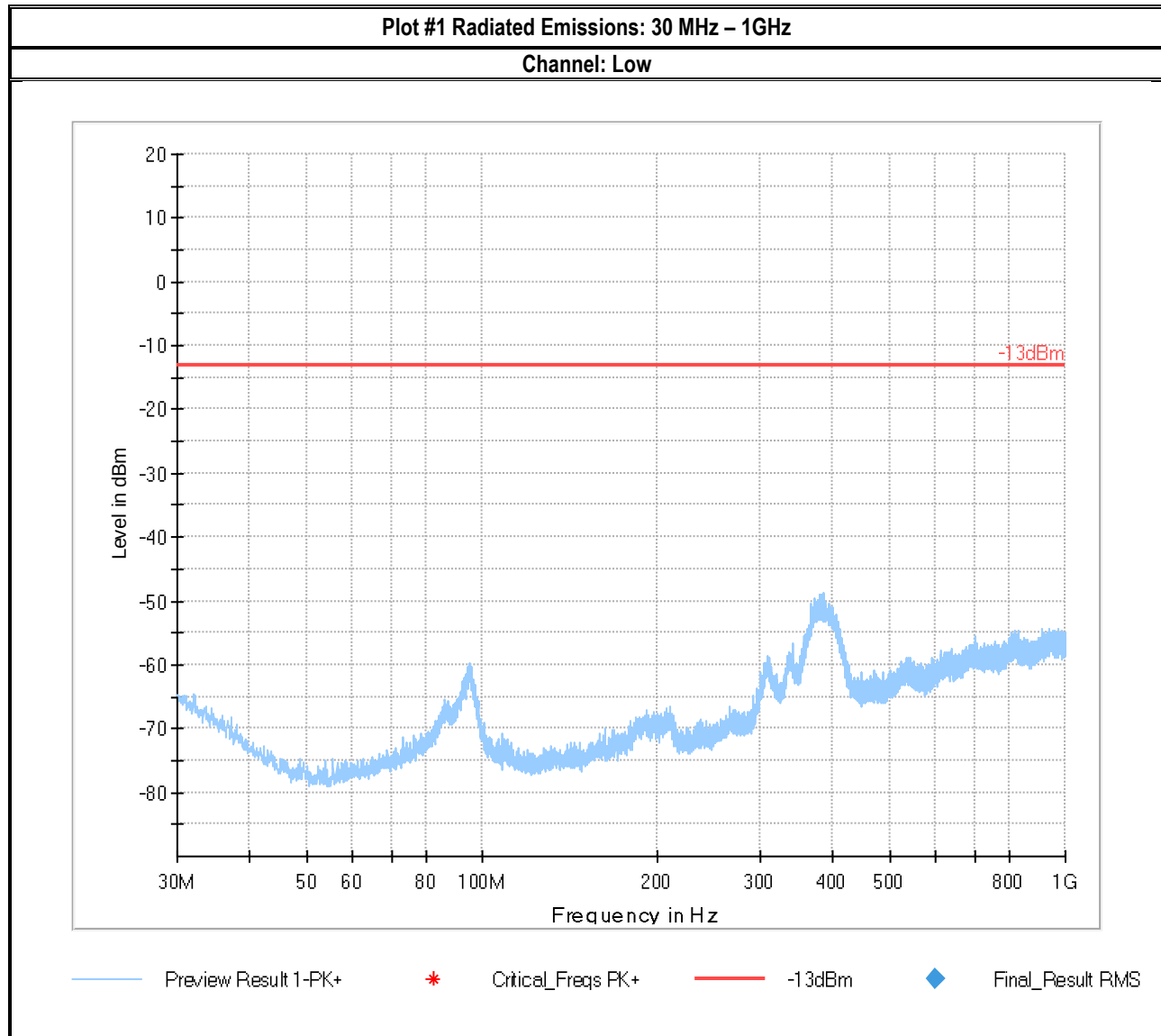
Ambient Temperature (°C)	EUT Set-Up #	EUT operating mode	Power Input
22.0	1	Op. 1	12 VDC

7.2.4 Measurement result:

Plot #	Channel	EUT operating mode	Scan Frequency	Limit (dBm)	Result
1-3	Low	LTE Band 2	30 MHz – 18 GHz	-13	Pass
4-8	Mid		9 kHz – 26 GHz	-13	Pass
9-11	High		30 MHz – 18 GHz	-13	Pass
12-14	Low	LTE Band 4	30 MHz – 18 GHz	-13	Pass
15-18	Mid		9 kHz – 18 GHz	-13	Pass
19-21	High		30 MHz – 18 GHz	-13	Pass
22-24	Low	LTE Band 5	30 MHz – 9 GHz	-13	Pass
25-28	Mid		9 kHz – 9 GHz	-13	Pass
29-31	High		30 MHz – 9 GHz	-13	Pass
32-34	Low	LTE Band 12	30 MHz – 9 GHz	-13	Pass
35-38	Mid		9 kHz – 9 GHz	-13	Pass
39-41	High		30 MHz – 9 GHz	-13	Pass
42-44	Low	UMTS Band II	30 MHz – 18 GHz	-13	Pass
45-49	Mid		9 kHz – 26 GHz	-13	Pass
50-52	High		30 MHz – 18 GHz	-13	Pass
53-55	Low	UMTS Band IV	30 MHz – 18 GHz	-13	Pass
56-59	Mid		9 kHz – 18 GHz	-13	Pass
60-62	High		30 MHz – 18 GHz	-13	Pass
63-65	Low	UMTS Band V	30 MHz – 9 GHz	-13	Pass
66-69	Mid		9 kHz – 9 GHz	-13	Pass
70-72	High		30 MHz – 9 GHz	-13	Pass

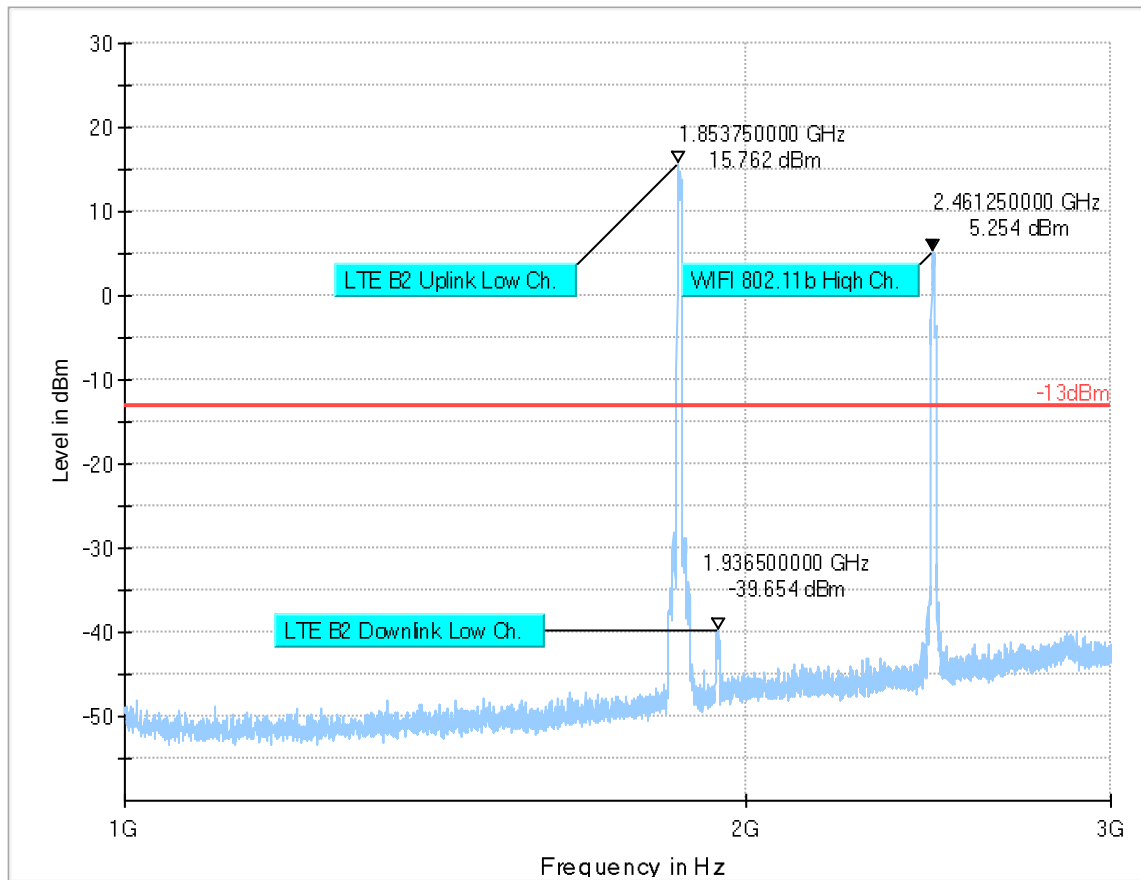
7.2.5 Measurement Plots:

LTE Band 2



Plot # 2 Radiated Emissions: 1-3 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

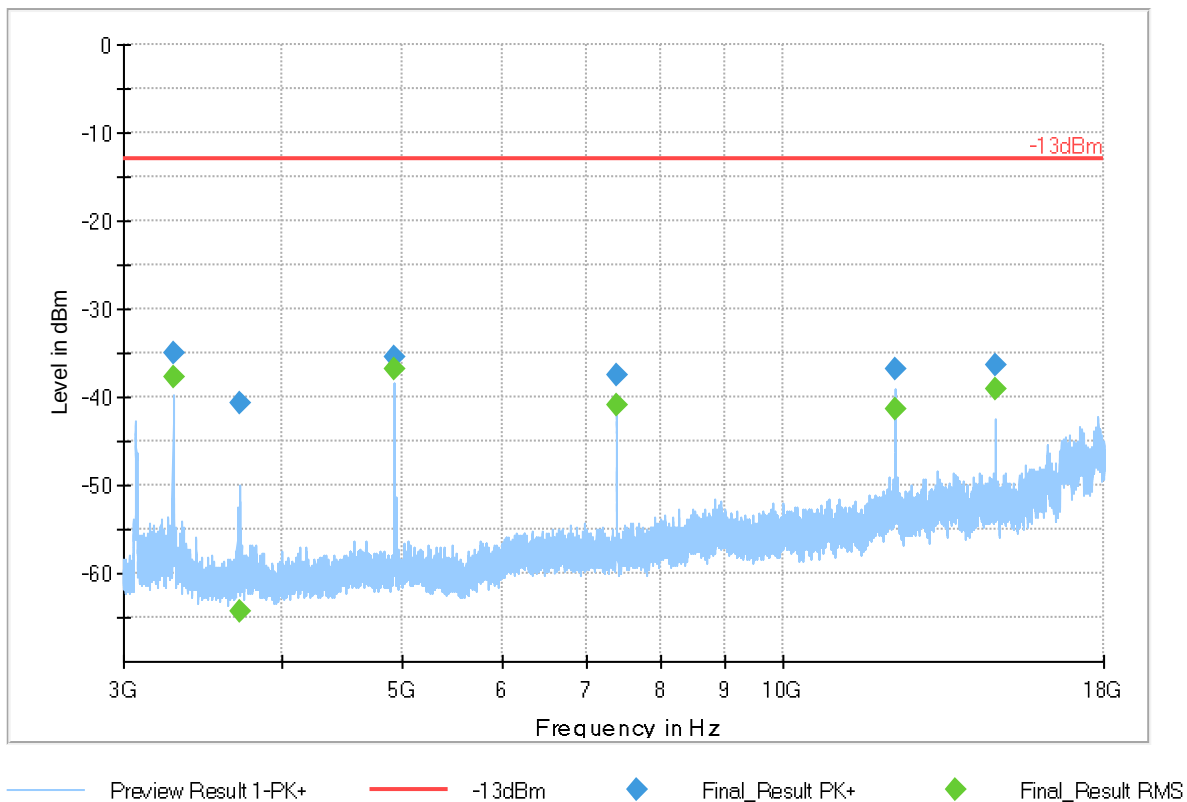
-13dBm

Plot # 3 Radiated Emissions: 3-18 GHz

Channel: Low

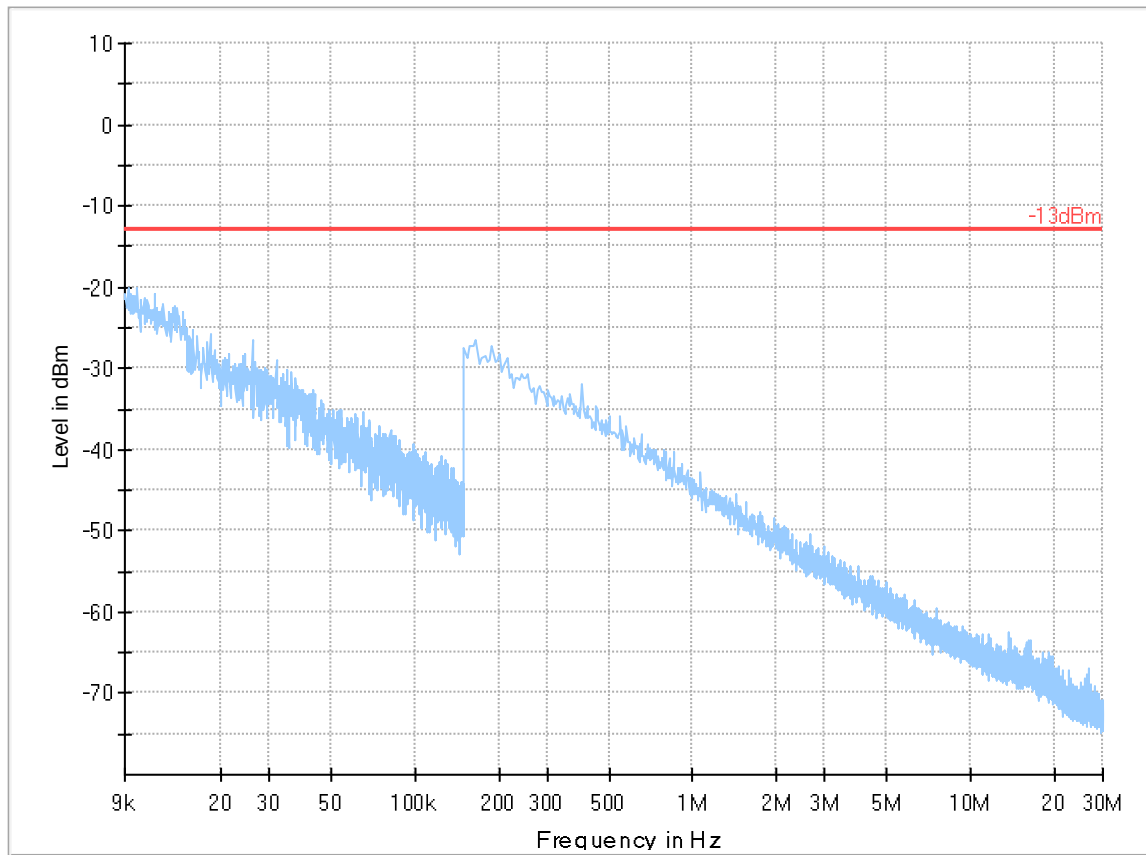
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.573	---	-37.72	-13.00	24.72	100.0	1000.000	239.0	H	91.0	-103.2
3282.573	-35.06	---	-13.00	22.06	100.0	1000.000	239.0	H	91.0	-103.2
3708.000	---	-64.23	-13.00	51.23	100.0	1000.000	240.0	H	278.0	-101.4
3708.000	-40.76	---	-13.00	27.76	100.0	1000.000	240.0	H	278.0	-101.4
4923.853	-35.44	---	-13.00	22.44	100.0	1000.000	209.0	H	273.0	-99.5
4923.853	---	-36.72	-13.00	23.72	100.0	1000.000	209.0	H	273.0	-99.5
7388.292	-37.47	---	-13.00	24.47	100.0	1000.000	219.0	H	122.0	-94.7
7388.292	---	-40.98	-13.00	27.98	100.0	1000.000	219.0	H	122.0	-94.7
12310.582	---	-41.32	-13.00	28.32	100.0	1000.000	223.0	H	141.0	-89.5
12310.582	-36.82	---	-13.00	23.82	100.0	1000.000	223.0	H	141.0	-89.5
14771.650	---	-39.09	-13.00	26.09	100.0	1000.000	211.0	H	190.0	-87.5
14771.650	-36.31	---	-13.00	23.31	100.0	1000.000	211.0	H	190.0	-87.5



Plot #4 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid



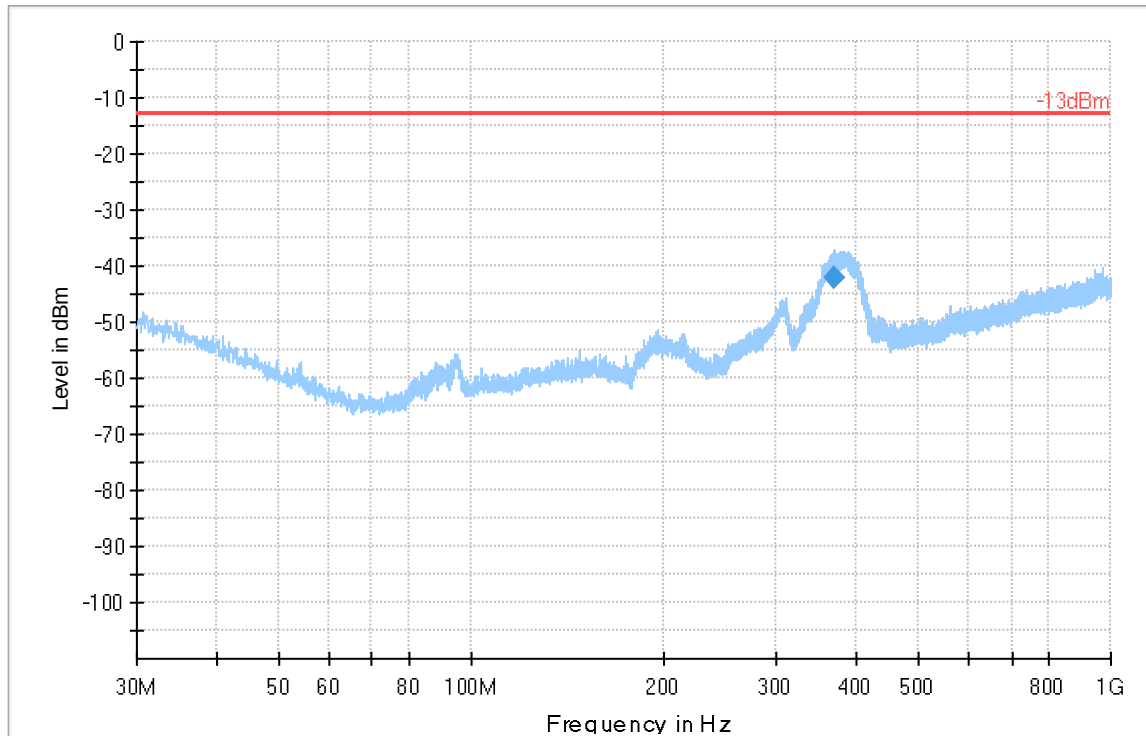
Preview Result 2-QPK	Preview Result 1-PK+	Critical_Freqs QPK
* Critical_Freqs PK+	-13dBm	◆ Final_Result PK+
◆ Final_Result QPK		

Plot #5 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid

Final_Result

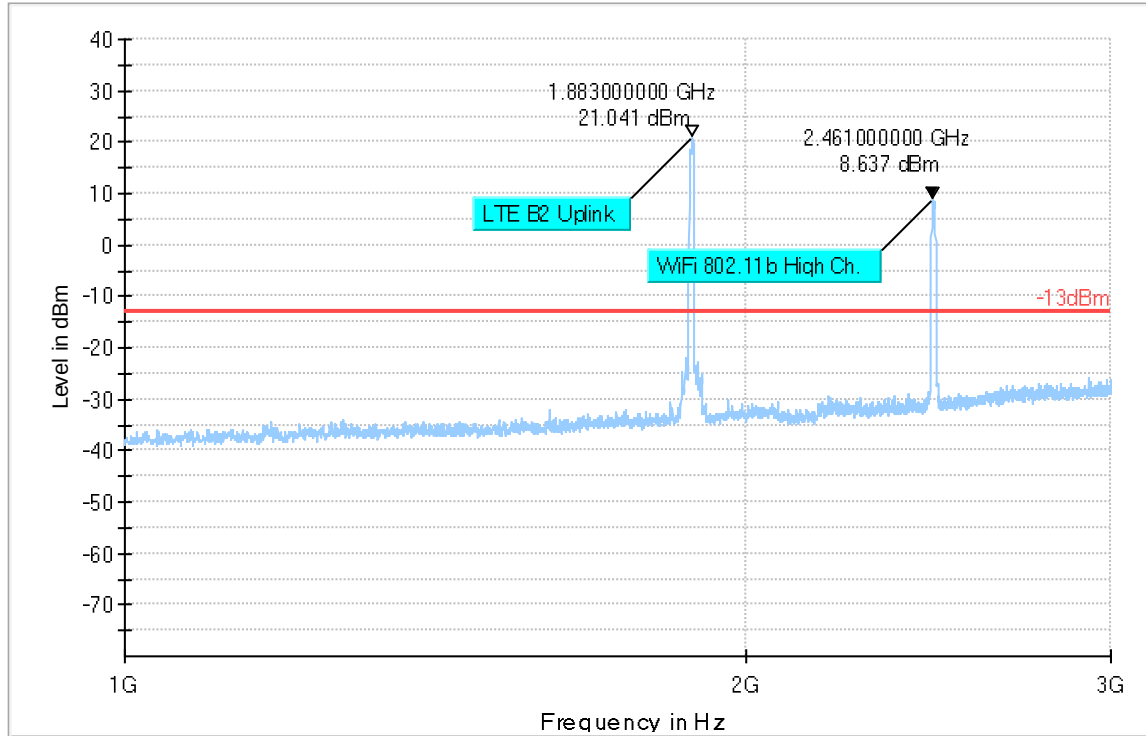
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
368.958	-42.248	-13.00	29.25	200.0	100.000	100.0	H	120.0	-77.2	10:48:27 AM - 3/11/2020



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

Plot #6 Radiated Emissions: 1-3 GHz

Channel: Mid



Preview Result 1-PK+



Critical_Freqs PK+

-13dBm



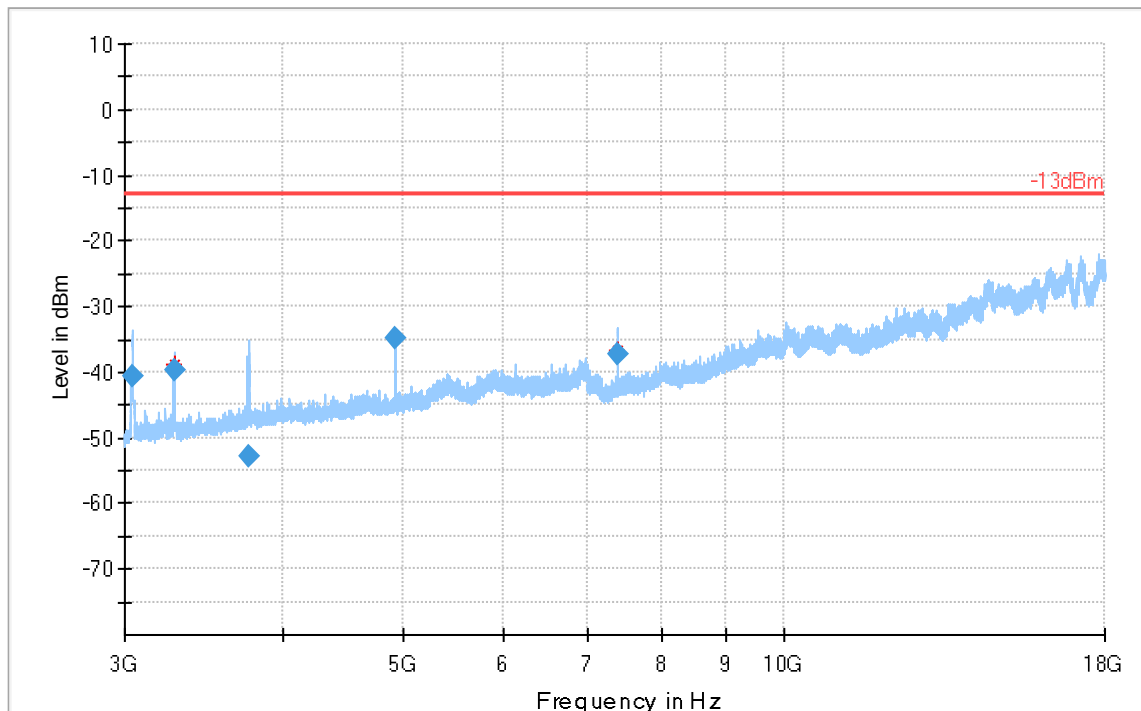
Final_Result RMS

Plot #7 Radiated Emissions: 3-18 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)	Comment
3044.187	-40.608	-13.00	27.61	200.0	1000.000	152.0	V	220.0	-104.7	4:43:32 PM - 3/10/2020
3282.676	-39.616	-13.00	26.62	200.0	1000.000	114.0	H	105.0	-104.4	4:40:08 PM - 3/10/2020
3764.616	-52.797	-13.00	39.80	200.0	1000.000	127.0	H	276.0	-102.3	4:56:52 PM - 3/10/2020
4923.920	-34.720	-13.00	21.72	200.0	1000.000	308.0	H	268.0	-100.8	4:52:45 PM - 3/10/2020
7384.418	-37.154	-13.00	24.15	200.0	1000.000	244.0	H	225.0	-97.7	4:46:40 PM - 3/10/2020



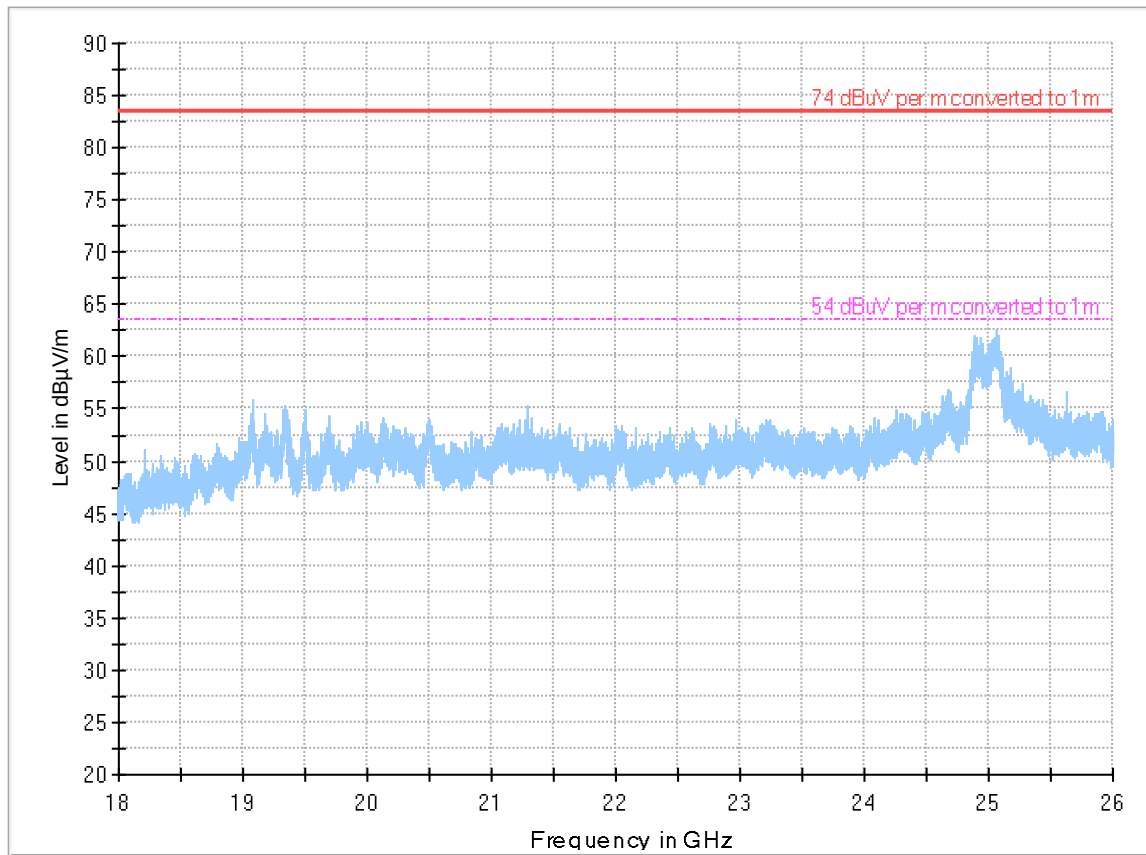
◆ Preview Result 1-PK+ Final_Result RMS

* Critical_Freqs PK+ MaxPeak-PK+ (Single)

+ -13dBm RMS (Single)

Plot #8 Radiated Emissions: 18-26 GHz

Channel: Mid

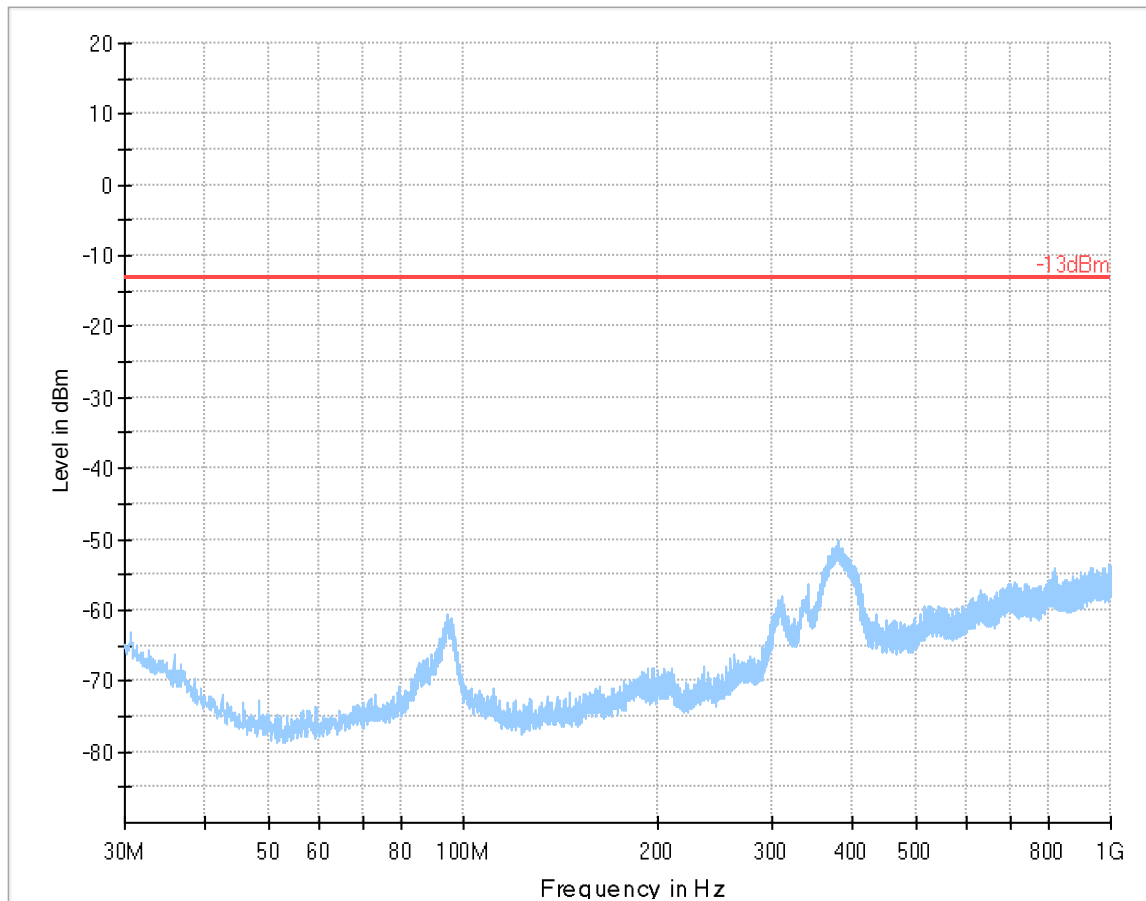


Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result AVG

Plot #9 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Preview Result 1-PK+



Critical_Freqs PK+

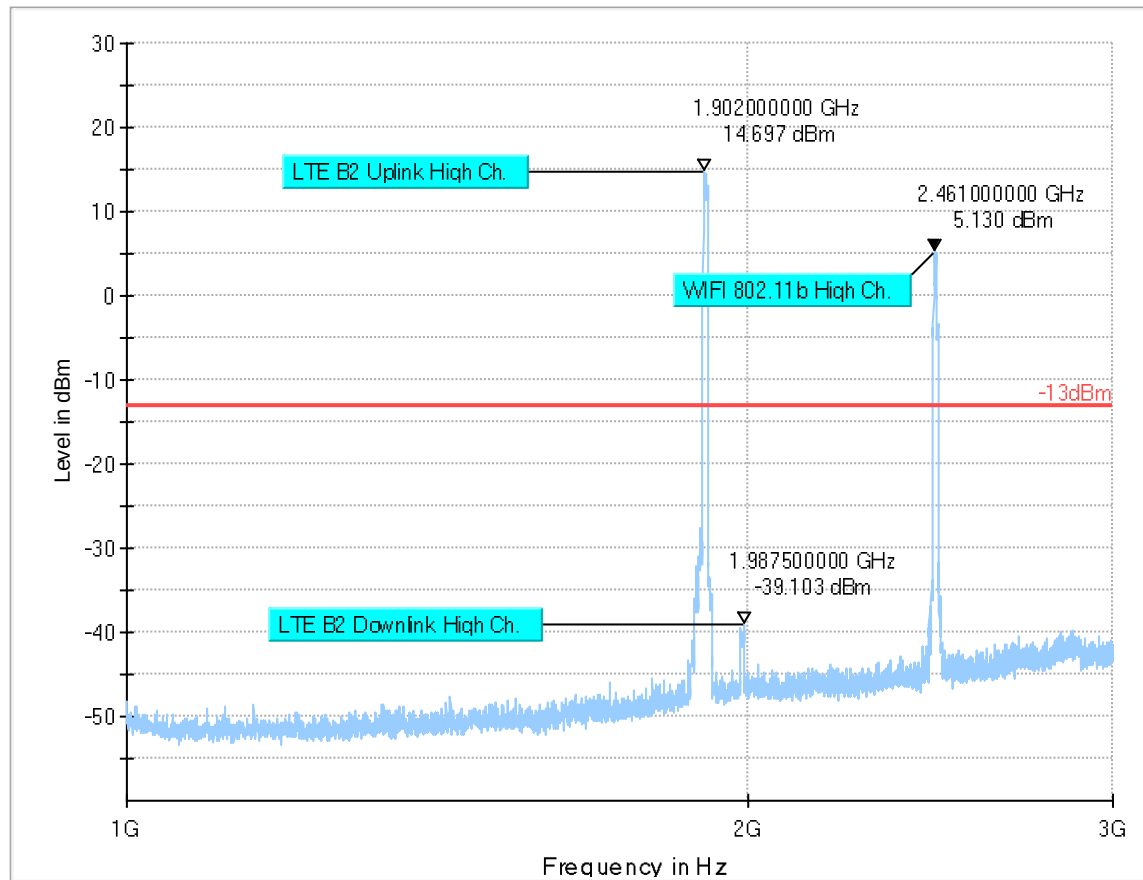
-13dBm



Final_Result RMS

Plot #10 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

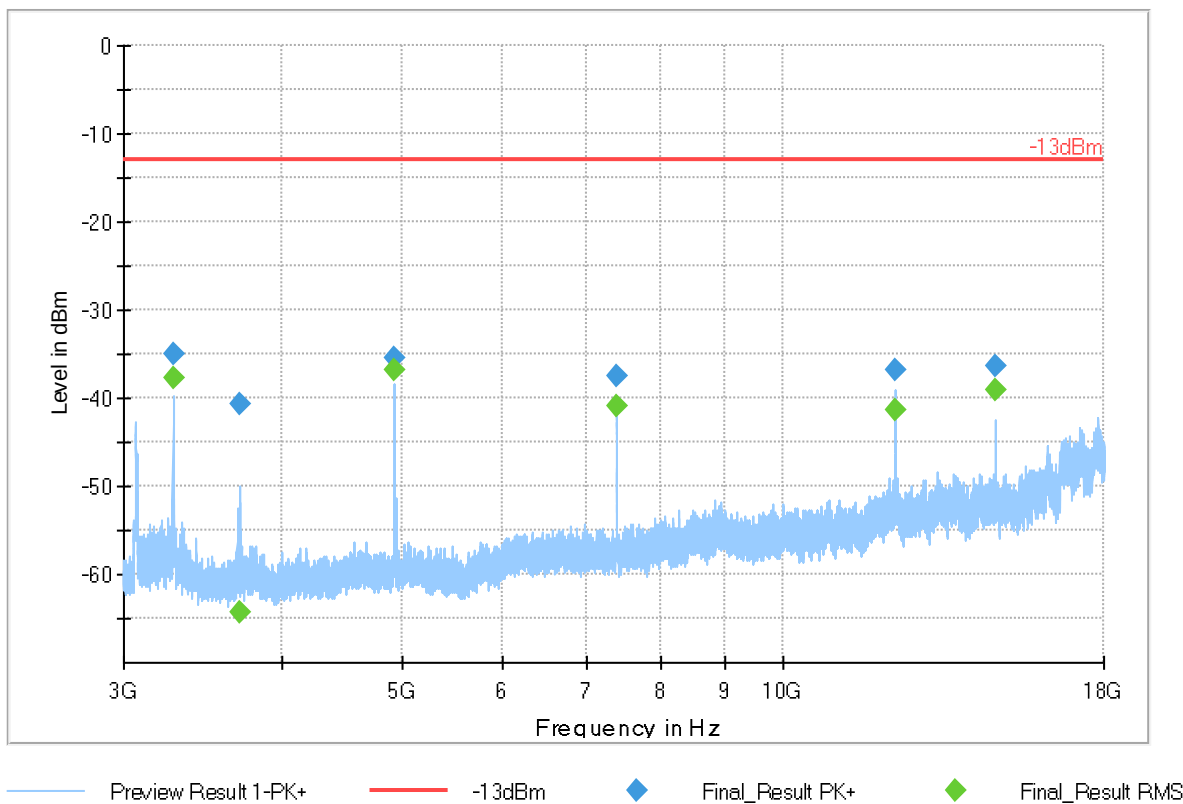
-13dBm

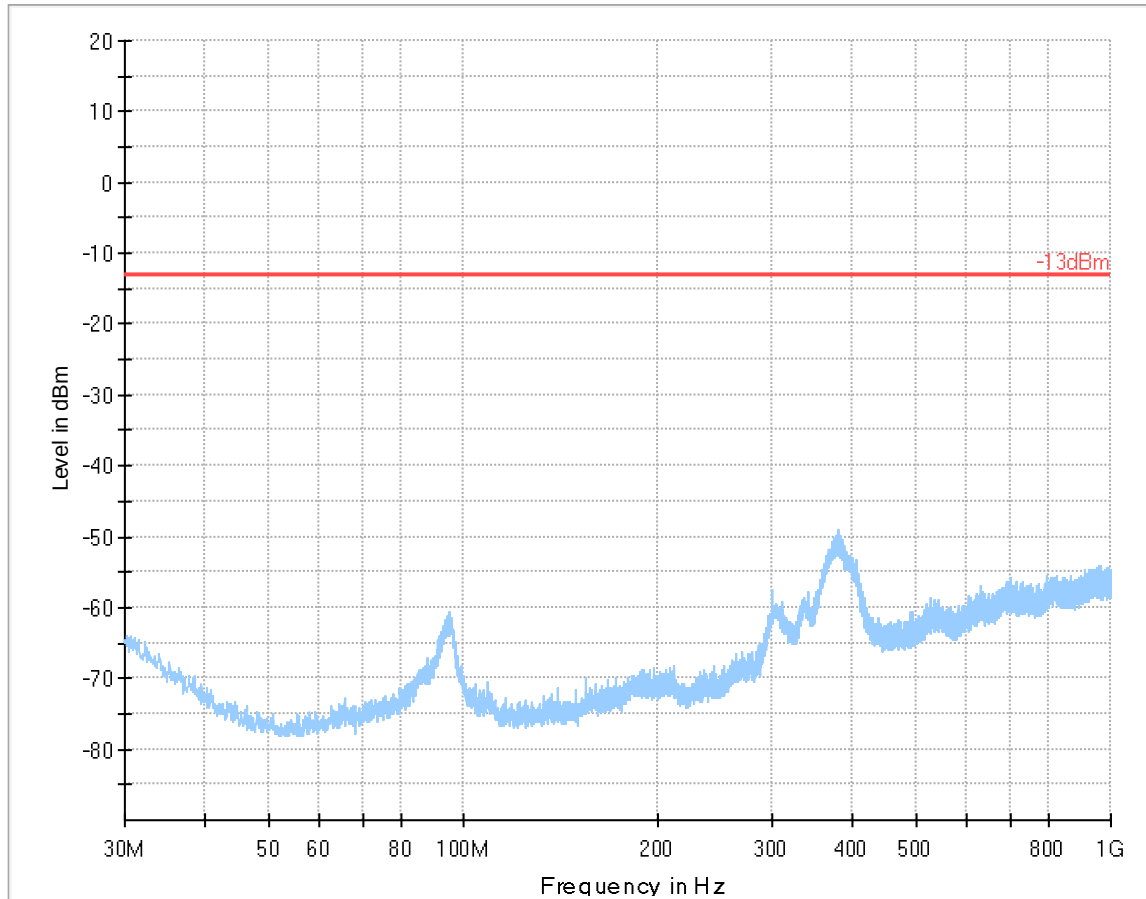
Plot #11 Radiated Emissions: 3-18 GHz

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)
3282.573	---	-37.72	-13.00	24.72	100.0	1000.000	239.0	H	91.0	-103.2
3282.573	-35.06	---	-13.00	22.06	100.0	1000.000	239.0	H	91.0	-103.2
3708.000	---	-64.23	-13.00	51.23	100.0	1000.000	240.0	H	278.0	-101.4
3708.000	-40.76	---	-13.00	27.76	100.0	1000.000	240.0	H	278.0	-101.4
4923.853	-35.44	---	-13.00	22.44	100.0	1000.000	209.0	H	273.0	-99.5
4923.853	---	-36.72	-13.00	23.72	100.0	1000.000	209.0	H	273.0	-99.5
7388.292	-37.47	---	-13.00	24.47	100.0	1000.000	219.0	H	122.0	-94.7
7388.292	---	-40.98	-13.00	27.98	100.0	1000.000	219.0	H	122.0	-94.7
12310.582	---	-41.32	-13.00	28.32	100.0	1000.000	223.0	H	141.0	-89.5
12310.582	-36.82	---	-13.00	23.82	100.0	1000.000	223.0	H	141.0	-89.5
14771.650	---	-39.09	-13.00	26.09	100.0	1000.000	211.0	H	190.0	-87.5
14771.650	-36.31	---	-13.00	23.31	100.0	1000.000	211.0	H	190.0	-87.5



LTE Band 4**Plot #12 Radiated Emissions: 30 MHz – 1GHz****Channel: Low**

— Preview Result 1-PK+



Critical_Freqs PK+

— -13dBm



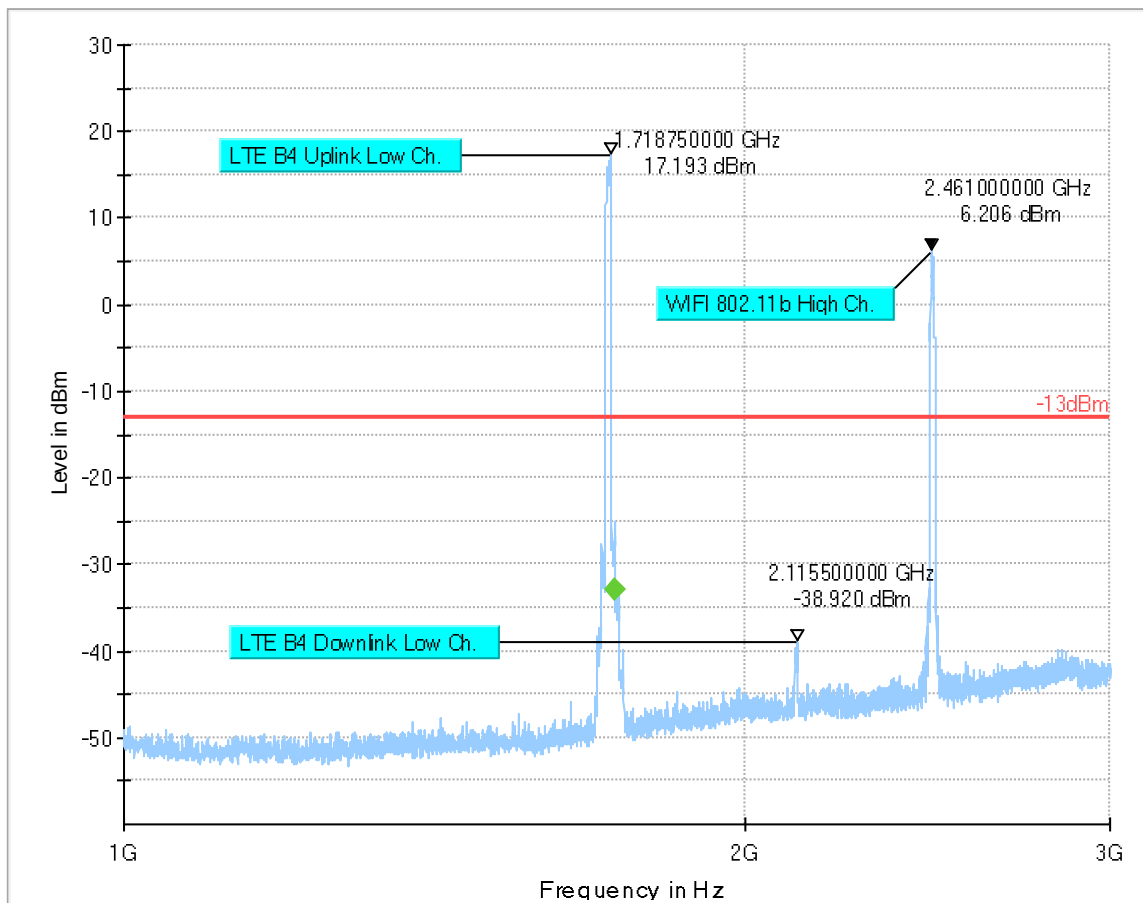
Final_Result RMS

Plot # 13 Radiated Emissions: 1-3 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)
1727.893	---	-32.92	---	---	100.0	1000.000	160.0	V	266.0	-64.4



Preview Result 1-PK+

-13dBm

Final_Result PK+

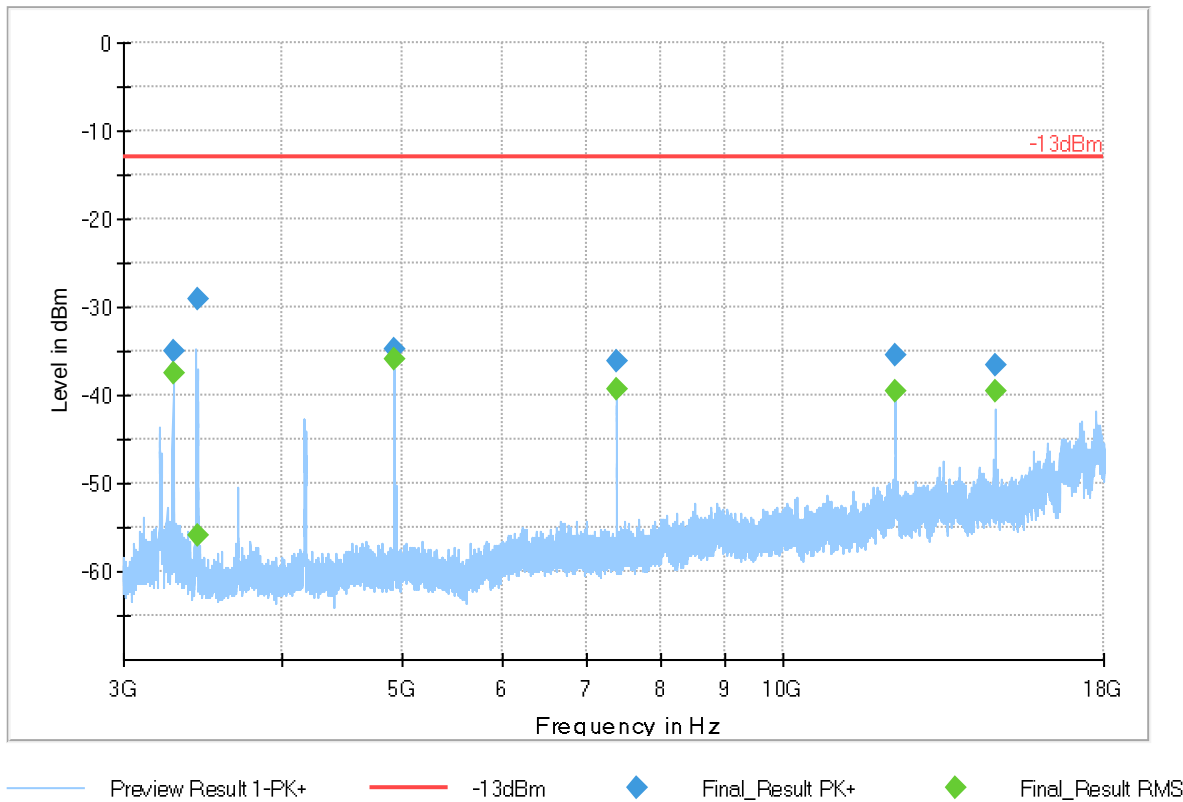
Final_Result RMS

Plot # 14 Radiated Emissions: 3-18 GHz

Channel: Low

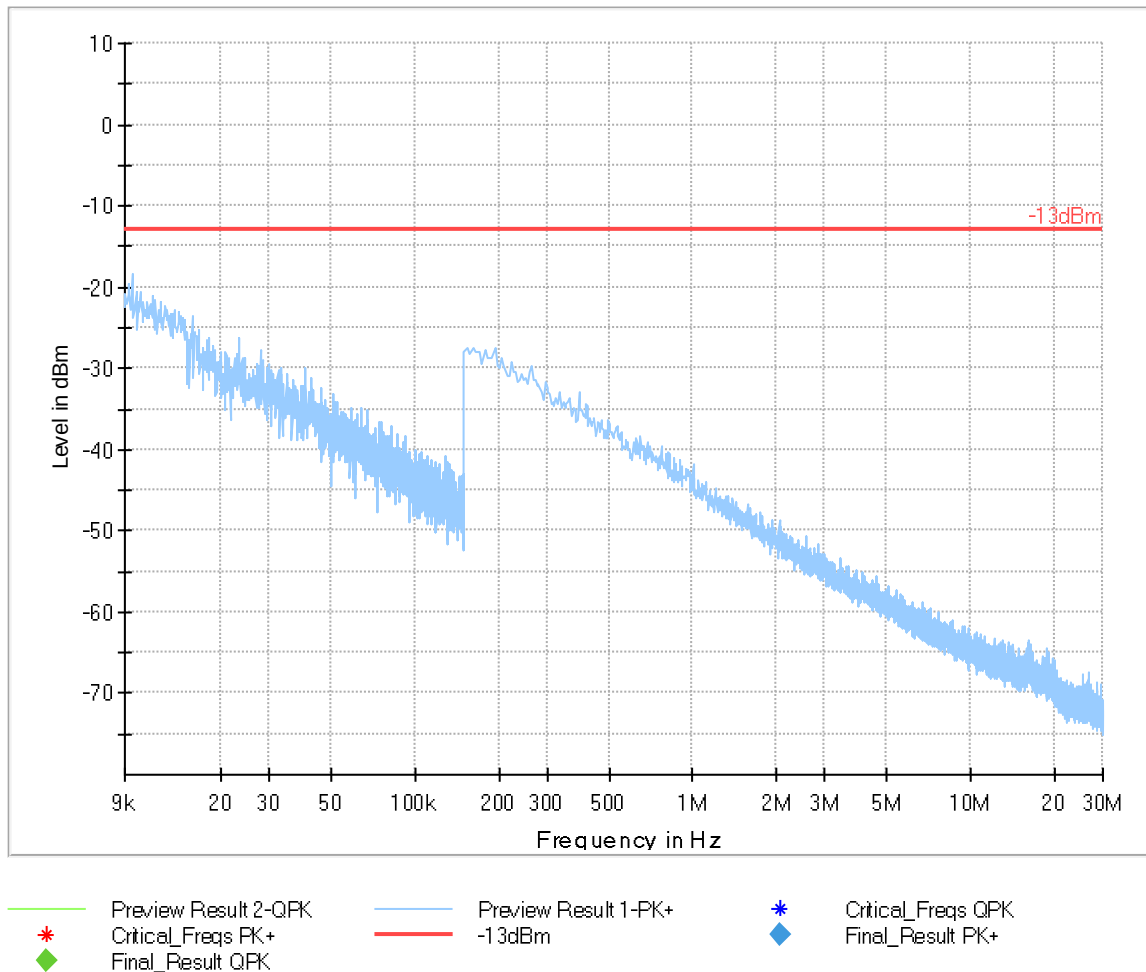
Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.528	---	-37.48	-13.00	24.48	100.0	1000.000	202.0	H	94.0	-103.2
3282.528	-35.06	---	-13.00	22.06	100.0	1000.000	202.0	H	94.0	-103.2
3430.584	---	-55.98	-13.00	42.98	100.0	1000.000	171.0	H	303.0	-102.8
3430.584	-29.20	---	-13.00	16.20	100.0	1000.000	171.0	H	303.0	-102.8
4923.809	---	-35.91	-13.00	22.91	100.0	1000.000	292.0	H	271.0	-99.5
4923.809	-34.77	---	-13.00	21.77	100.0	1000.000	292.0	H	271.0	-99.5
7385.114	-36.10	---	-13.00	23.10	100.0	1000.000	245.0	H	120.0	-94.7
7385.114	---	-39.41	-13.00	26.41	100.0	1000.000	245.0	H	120.0	-94.7
12311.045	---	-39.61	-13.00	26.61	100.0	1000.000	208.0	H	141.0	-89.5
12311.045	-35.37	---	-13.00	22.37	100.0	1000.000	208.0	H	141.0	-89.5
14771.452	-36.70	---	-13.00	23.70	100.0	1000.000	207.0	H	193.0	-87.5
14771.452	---	-39.57	-13.00	26.57	100.0	1000.000	207.0	H	193.0	-87.5



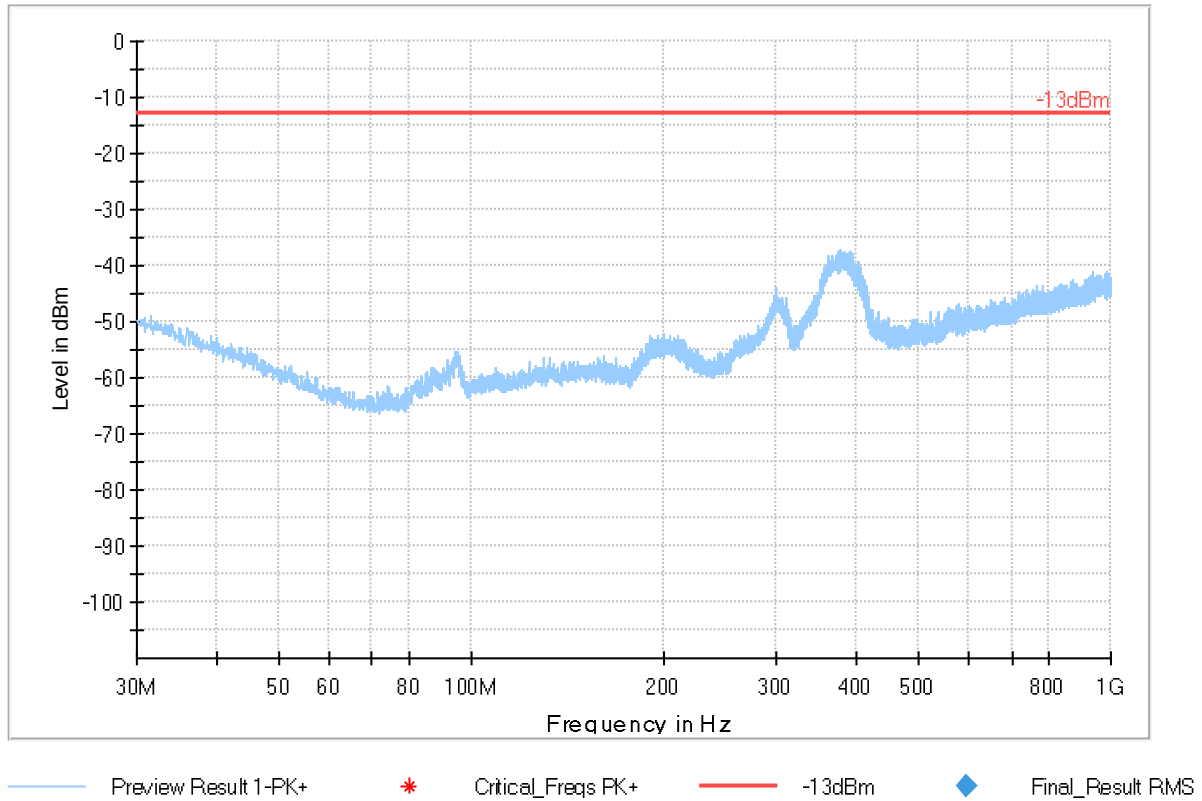
Plot #15 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid



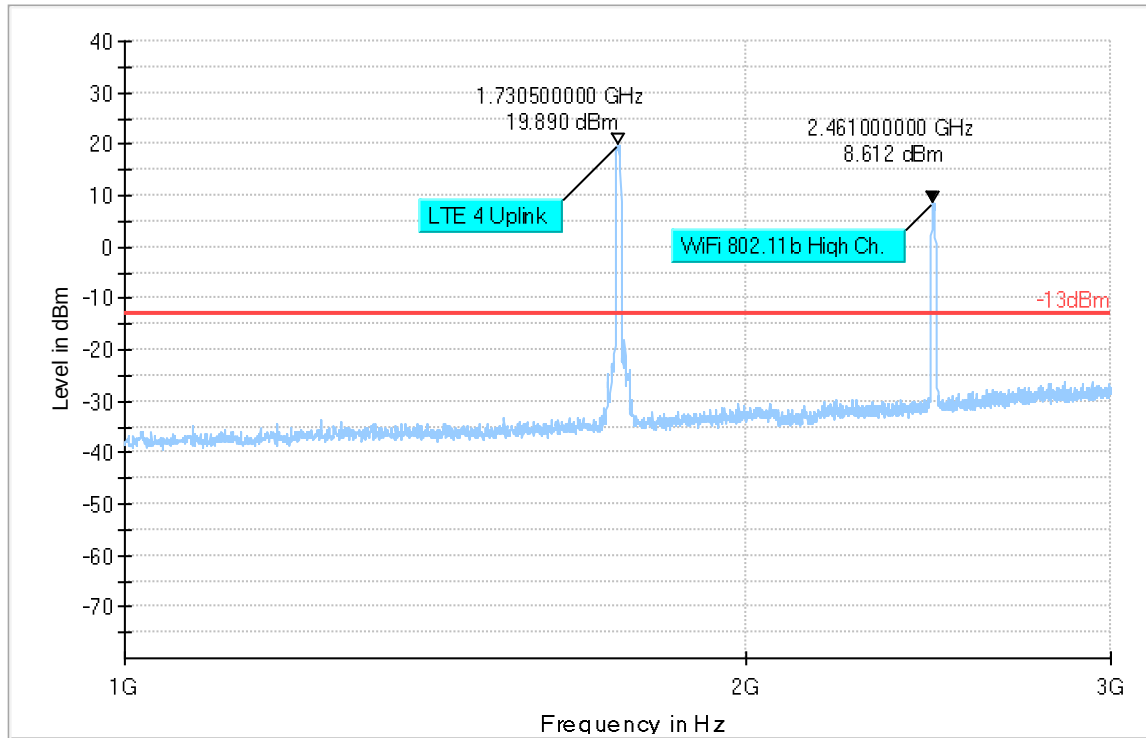
Plot #16 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Plot #17 Radiated Emissions: 1-3 GHz

Channel: Mid



Preview Result 1-PK+



Critical_Freqs PK+

-13dBm



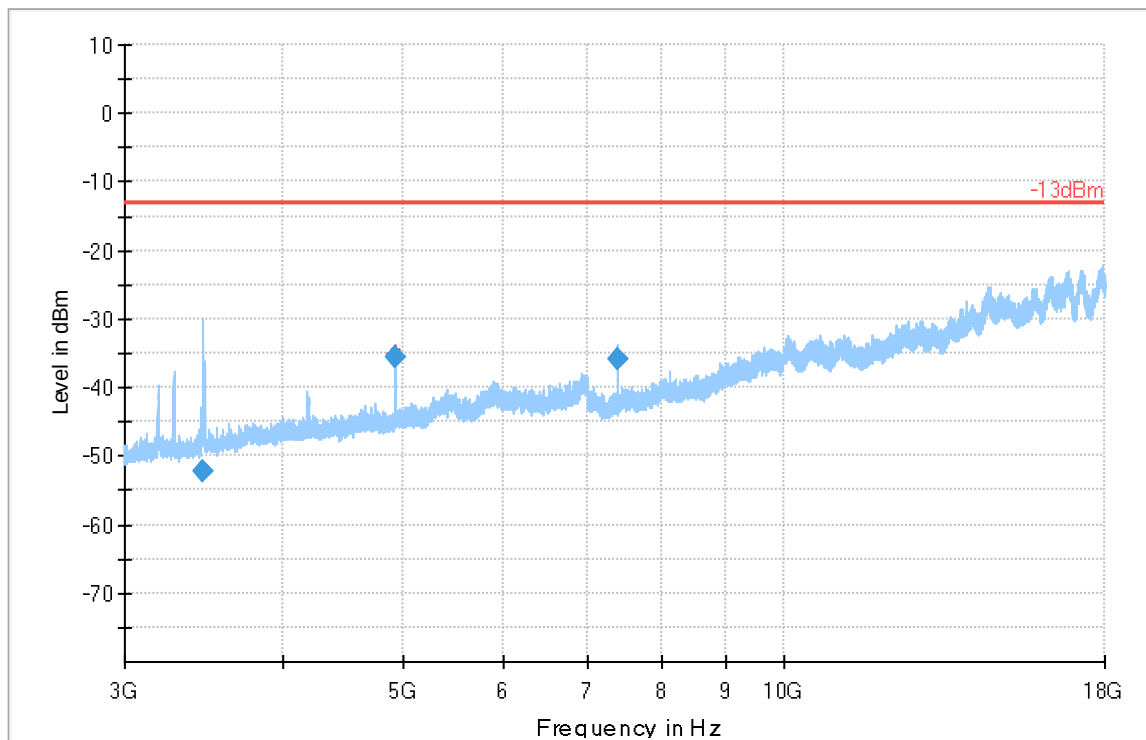
Final_Result RMS

Plot #18 Radiated Emissions: 3-18 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)	Comment
3465.201	-52.188	-13.00	39.19	200.0	1000.000	120.0	H	262.0	-103.8	5:33:03 PM - 3/10/2020
4923.927	-35.640	-13.00	22.64	200.0	1000.000	306.0	H	267.0	-100.8	5:35:55 PM - 3/10/2020
7383.807	-35.932	-13.00	22.93	200.0	1000.000	226.0	H	121.0	-97.7	5:29:41 PM - 3/10/2020



Preview Result 1-PK+



Critical_Freqs PK+

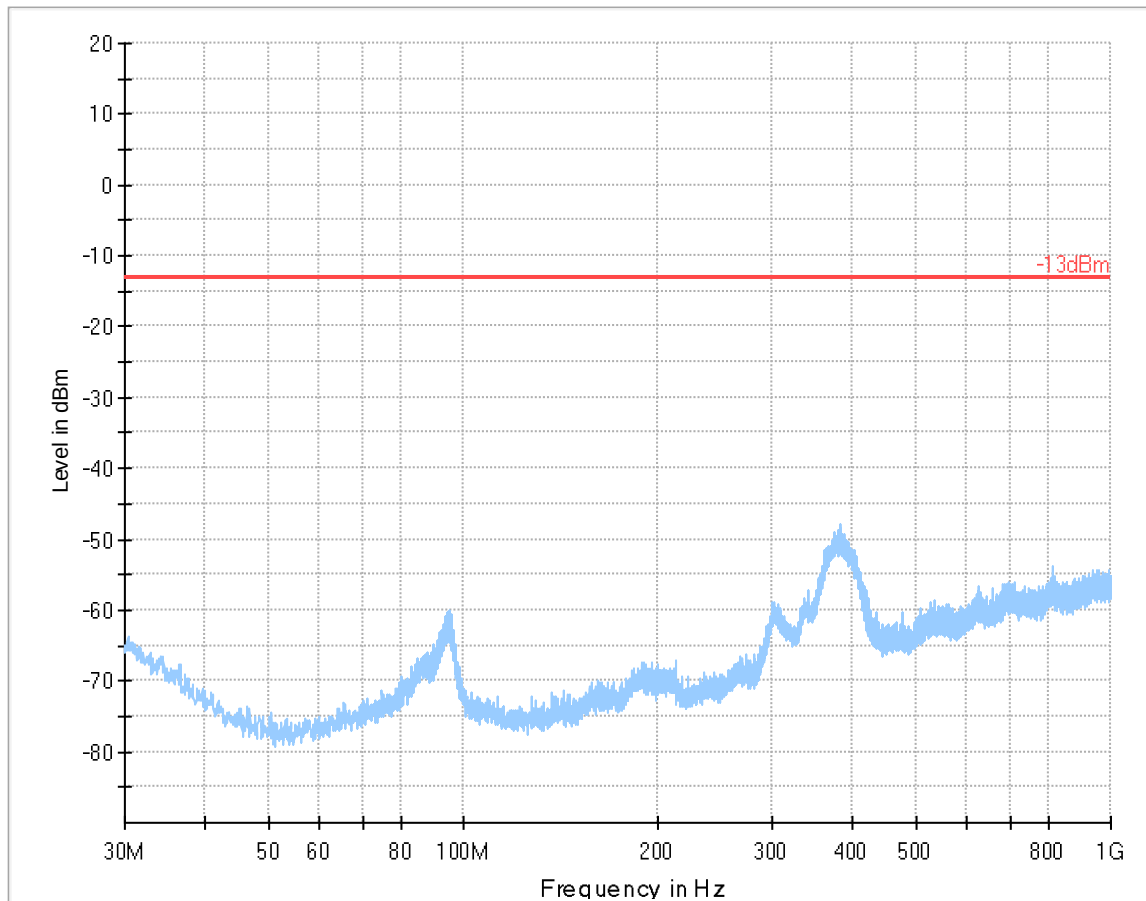
-13dBm



Final_Result RMS

Plot #19 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Preview Result 1-PK+



Critical_Freqs PK+

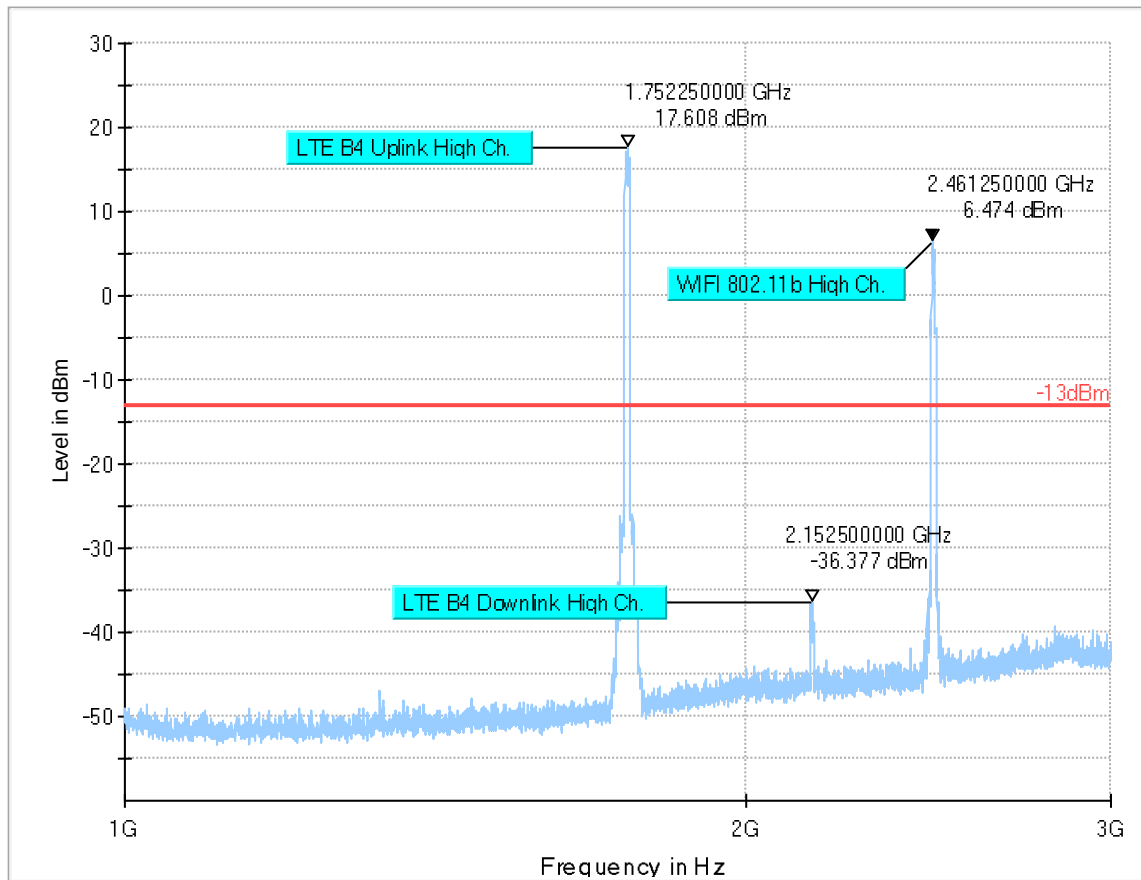
-13dBm



Final_Result RMS

Plot #20 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

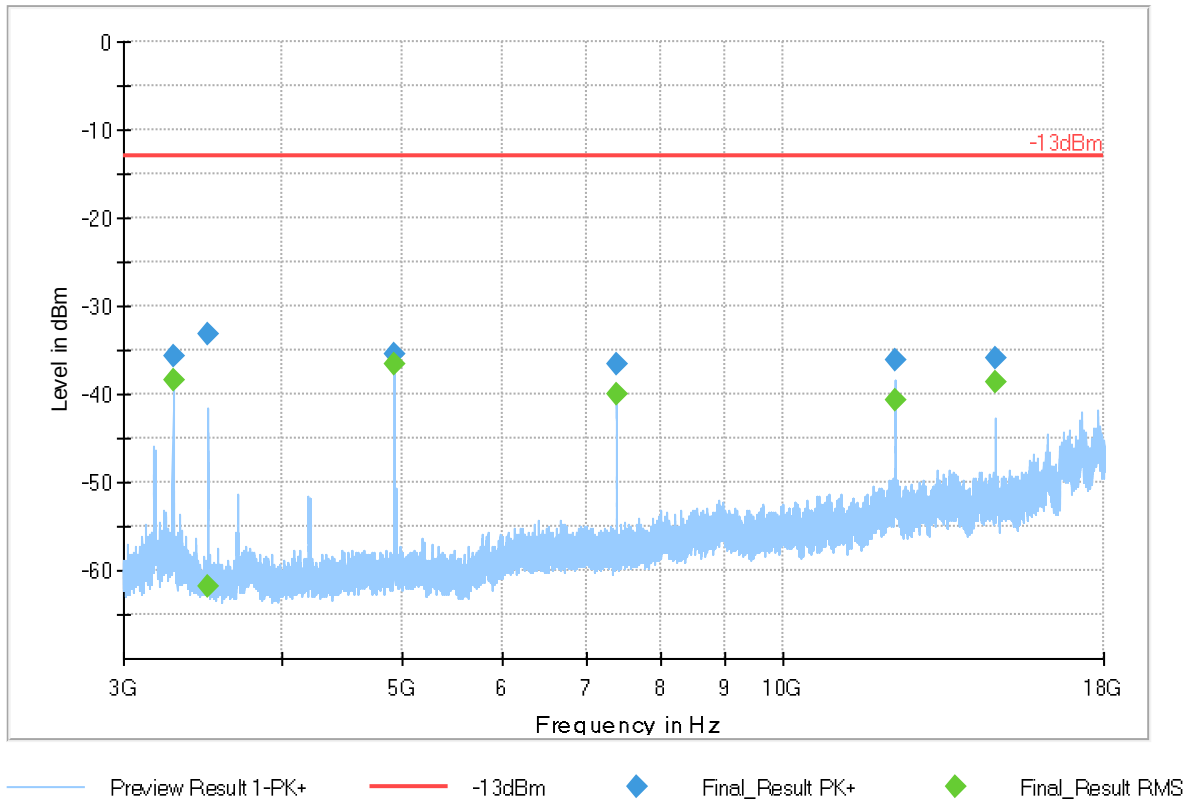
-13dBm

Plot #21 Radiated Emissions: 3-18 GHz

Channel: High

Final_Result

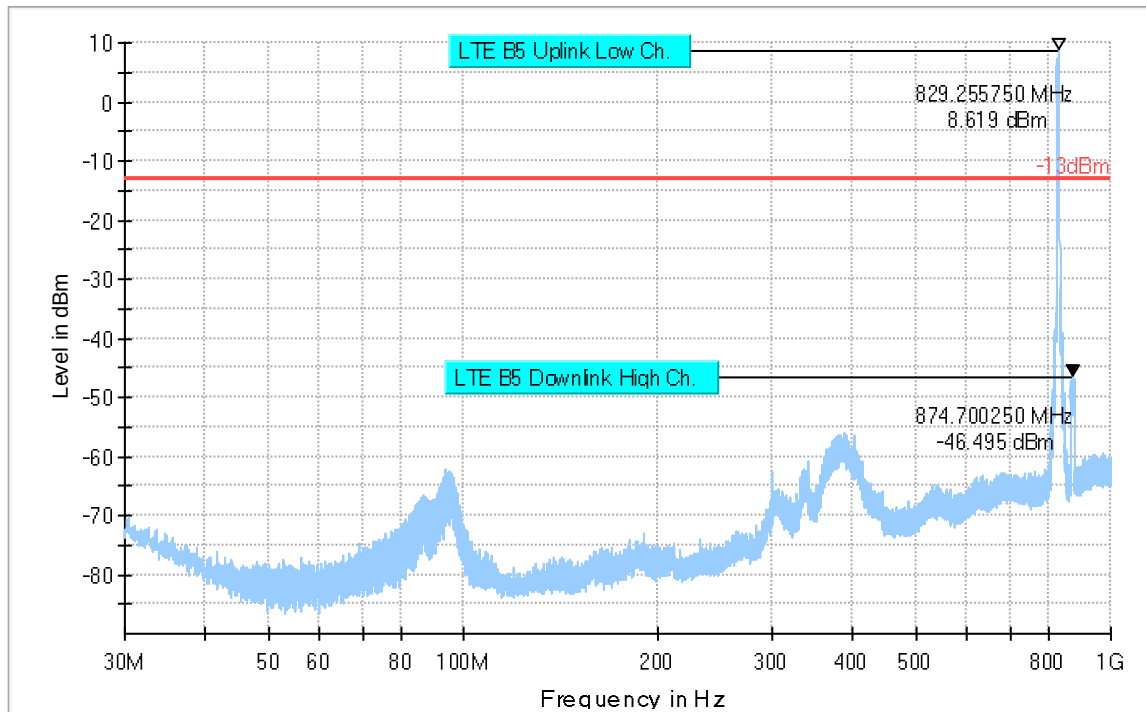
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.581	-35.78	---	-13.00	22.78	100.0	1000.000	202.0	H	97.0	-103.2
3282.581	---	-38.40	-13.00	25.40	100.0	1000.000	202.0	H	97.0	-103.2
3500.245	-33.26	---	-13.00	20.26	100.0	1000.000	244.0	H	28.0	-102.6
3500.245	---	-61.76	-13.00	48.76	100.0	1000.000	244.0	H	28.0	-102.6
4923.848	-35.48	---	-13.00	22.48	100.0	1000.000	292.0	H	278.0	-99.5
4923.848	---	-36.61	-13.00	23.61	100.0	1000.000	292.0	H	278.0	-99.5
7388.293	---	-39.91	-13.00	26.91	100.0	1000.000	226.0	H	121.0	-94.7
7388.293	-36.61	---	-13.00	23.61	100.0	1000.000	226.0	H	121.0	-94.7
12308.110	-36.11	---	-13.00	23.11	100.0	1000.000	203.0	H	142.0	-89.5
12308.110	---	-40.79	-13.00	27.79	100.0	1000.000	203.0	H	142.0	-89.5
14771.597	---	-38.72	-13.00	25.72	100.0	1000.000	218.0	H	192.0	-87.5
14771.597	-35.96	---	-13.00	22.96	100.0	1000.000	218.0	H	192.0	-87.5



LTE Band 5

Plot #22 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



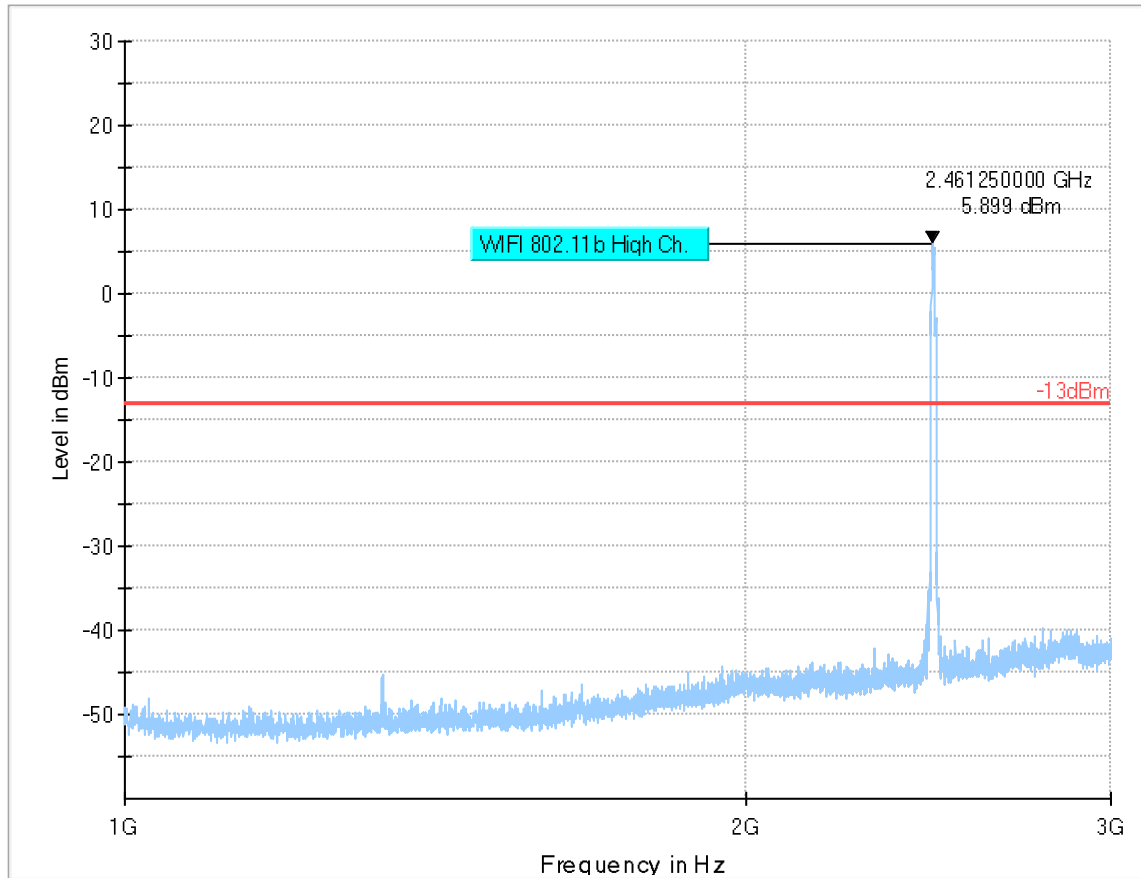
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

Plot # 23 Radiated Emissions: 1-3 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

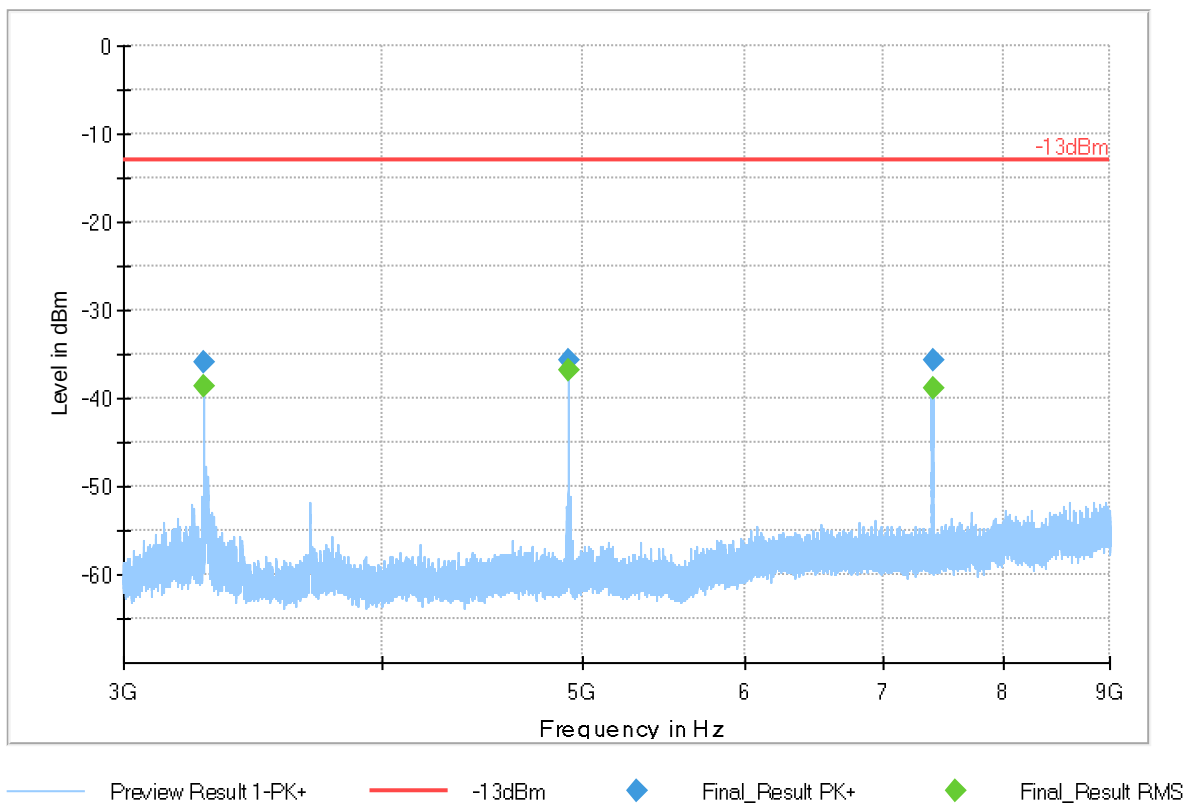
-13dBm

Plot # 24 Radiated Emissions: 3-9 GHz

Channel: Low

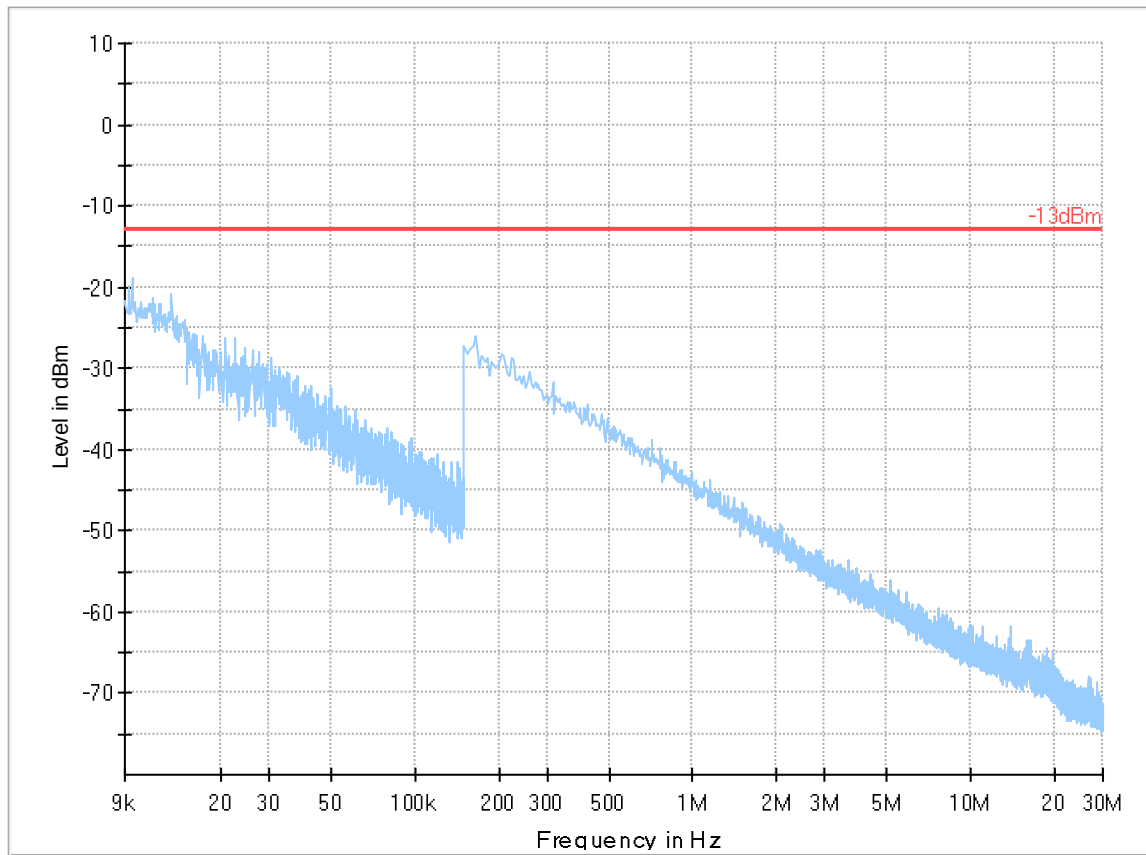
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.574	-35.88	---	-13.00	22.88	100.0	1000.000	201.0	H	93.0	-103.2
3282.574	---	-38.62	-13.00	25.62	100.0	1000.000	201.0	H	93.0	-103.2
4923.860	---	-36.93	-13.00	23.93	100.0	1000.000	292.0	H	279.0	-99.5
4923.860	-35.67	---	-13.00	22.67	100.0	1000.000	292.0	H	279.0	-99.5
7387.302	---	-38.90	-13.00	25.90	100.0	1000.000	223.0	H	120.0	-94.7
7387.302	-35.59	---	-13.00	22.59	100.0	1000.000	223.0	H	120.0	-94.7



Plot #25 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid



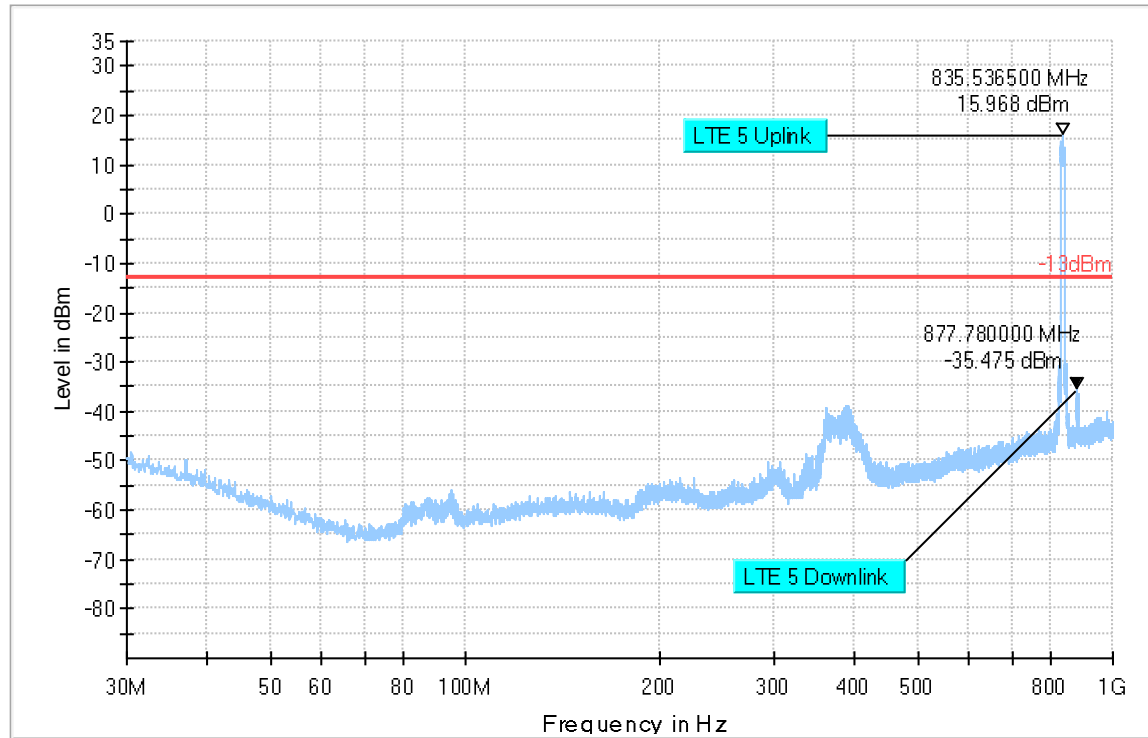
Preview Result 2-QPK
Critical_Freqs PK+
Final_Result QPK

Preview Result 1-PK+
-13dBm

Critical_Freqs QPK
Final_Result PK+

Plot #26 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Preview Result 1-PK+



Critical_Freqs PK+

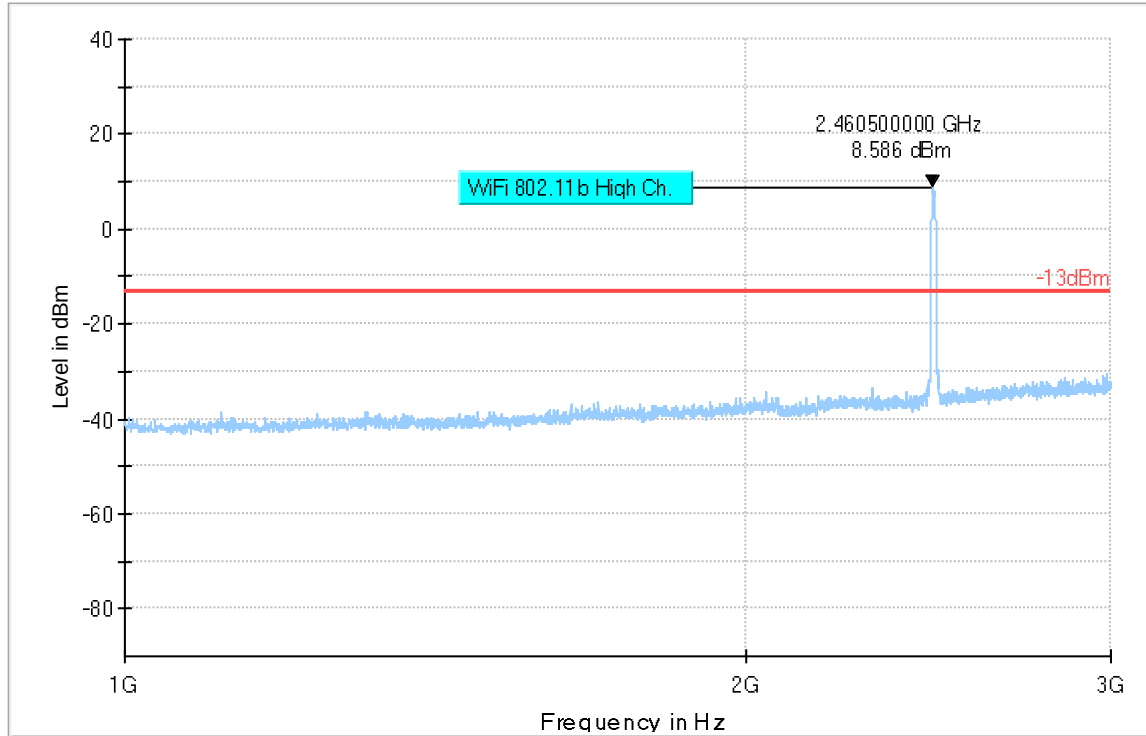
-13dBm



Final_Result RMS

Plot #27 Radiated Emissions: 1-3 GHz

Channel: Mid

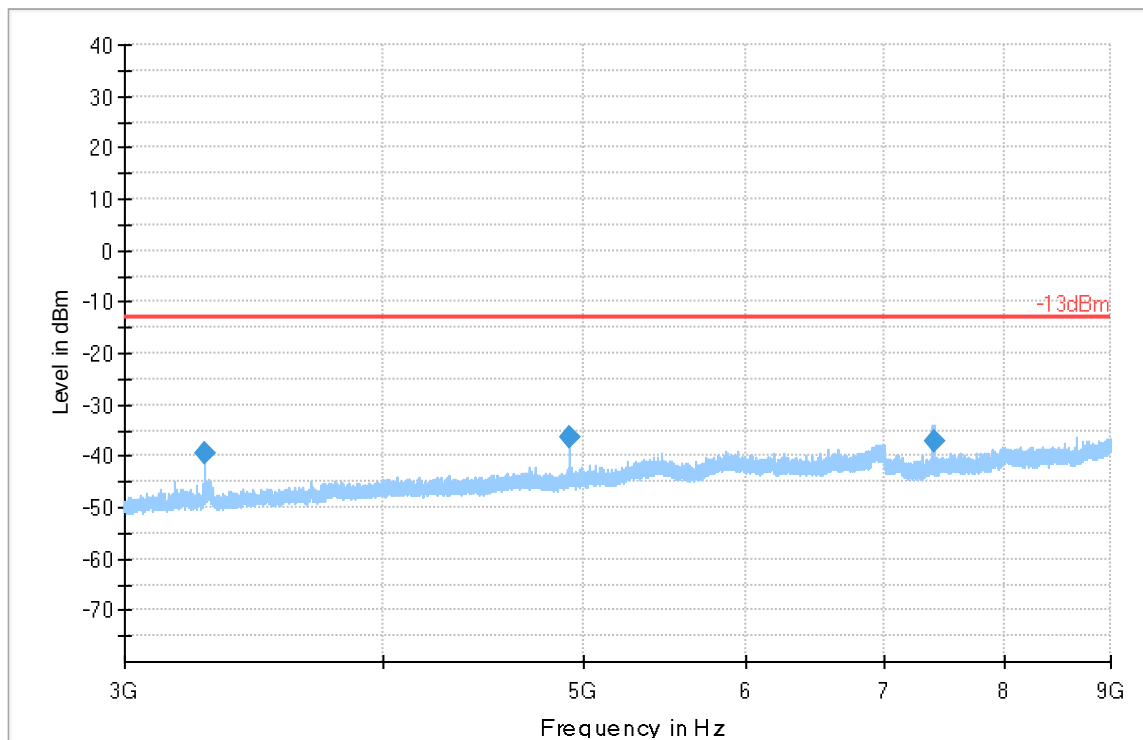


Plot #28 Radiated Emissions: 3-9 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
3282.721	-39.340	-13.00	26.34	500.0	1000.000	117.0	H	104.0	-104.4	3:32:13 PM - 3/10/2020
4923.841	-36.255	-13.00	23.26	500.0	1000.000	300.0	H	267.0	-100.8	3:40:59 PM - 3/10/2020
7387.501	-37.030	-13.00	24.03	500.0	1000.000	248.0	H	225.0	-97.7	3:36:27 PM - 3/10/2020



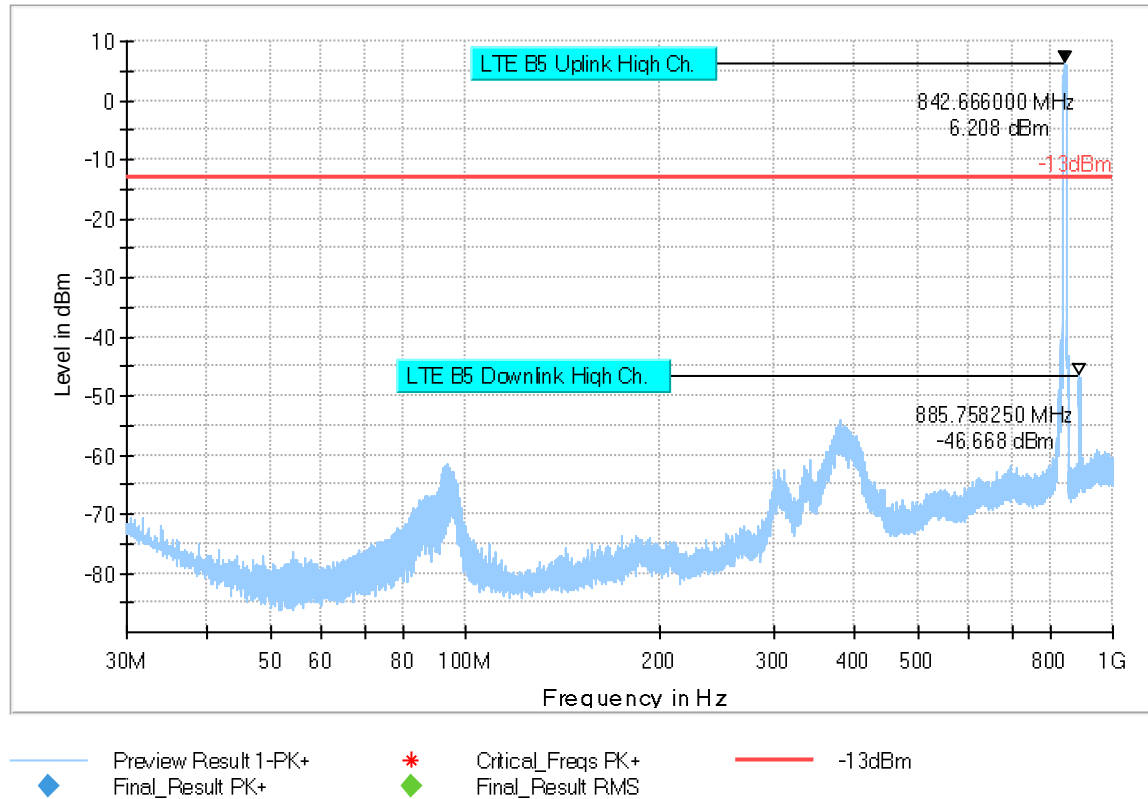
— Preview Result 1-PK+

— -13dBm

◆ Final_Result RMS

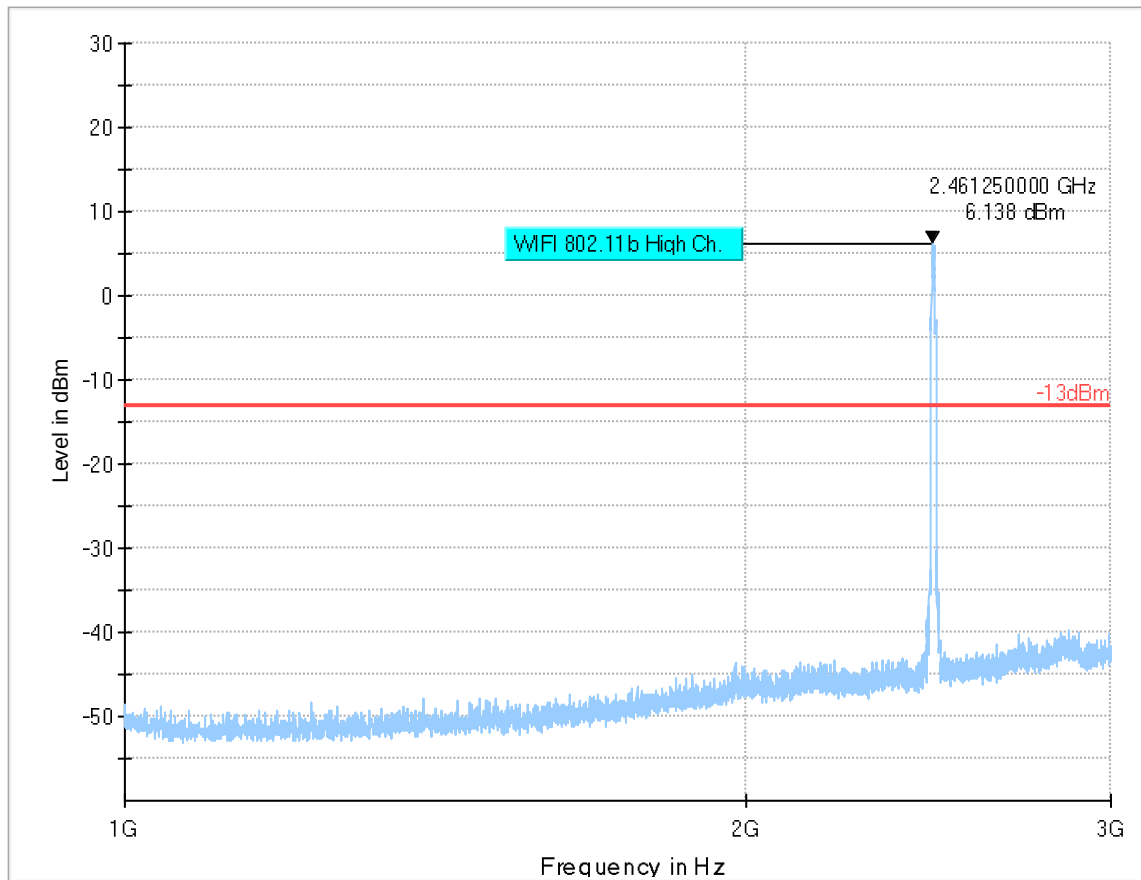
Plot #29 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Plot #30 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

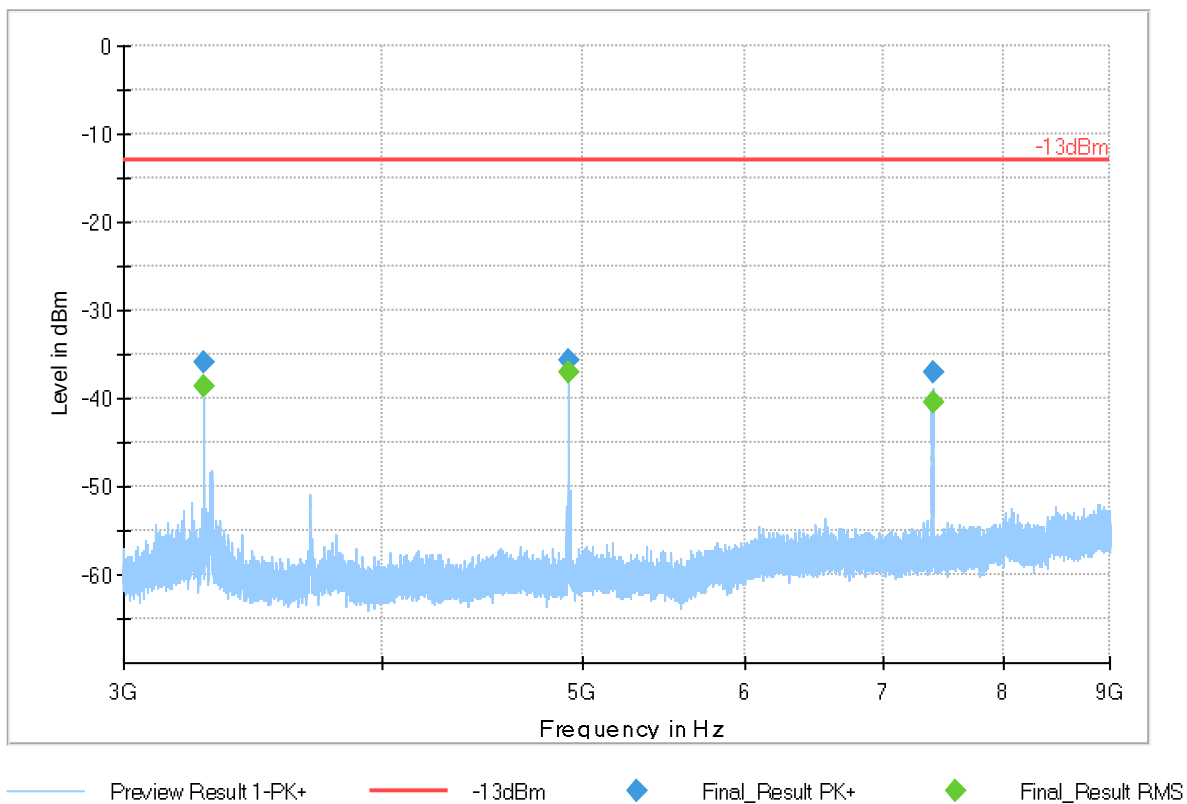
-13dBm

Plot #31 Radiated Emissions: 3-9 GHz

Channel: High

Final_Result

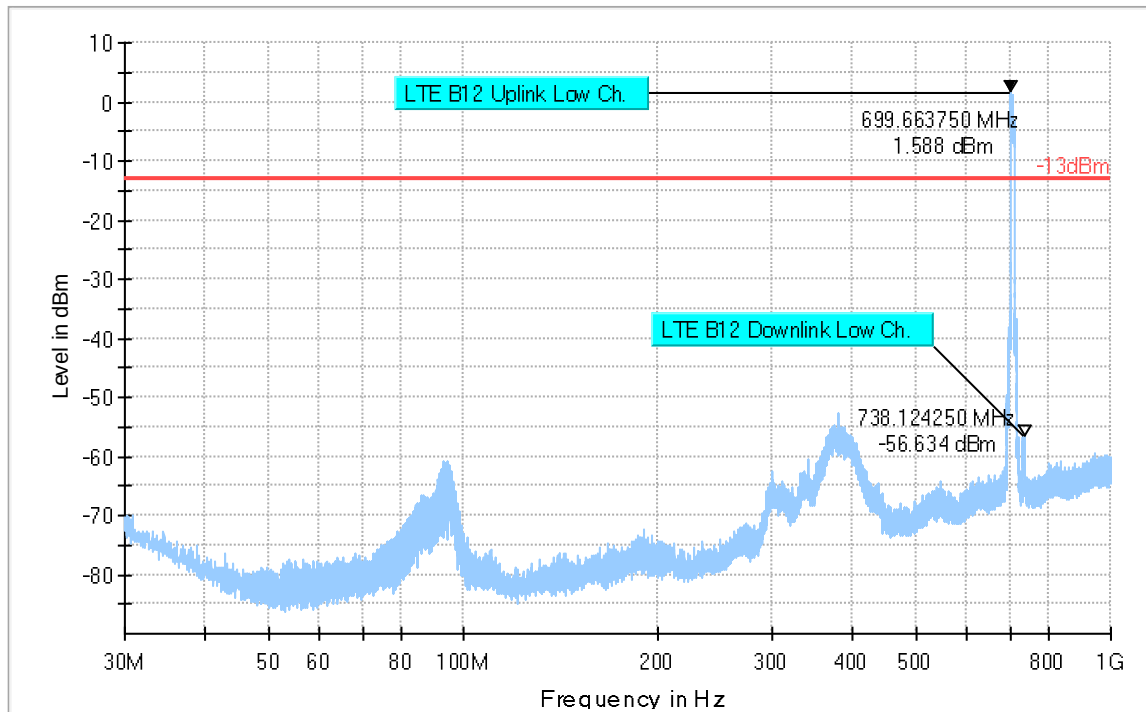
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.575	---	-38.63	-13.00	25.63	100.0	1000.000	201.0	H	94.0	-103.2
3282.575	-35.93	---	-13.00	22.93	100.0	1000.000	201.0	H	94.0	-103.2
4923.861	-35.68	---	-13.00	22.68	100.0	1000.000	290.0	H	278.0	-99.5
4923.861	---	-36.97	-13.00	23.97	100.0	1000.000	290.0	H	278.0	-99.5
7388.774	-37.03	---	-13.00	24.03	100.0	1000.000	230.0	H	234.0	-94.7
7388.774	---	-40.53	-13.00	27.53	100.0	1000.000	230.0	H	234.0	-94.7



LTE Band 12

Plot #32 Radiated Emissions: 30 MHz – 1GHz

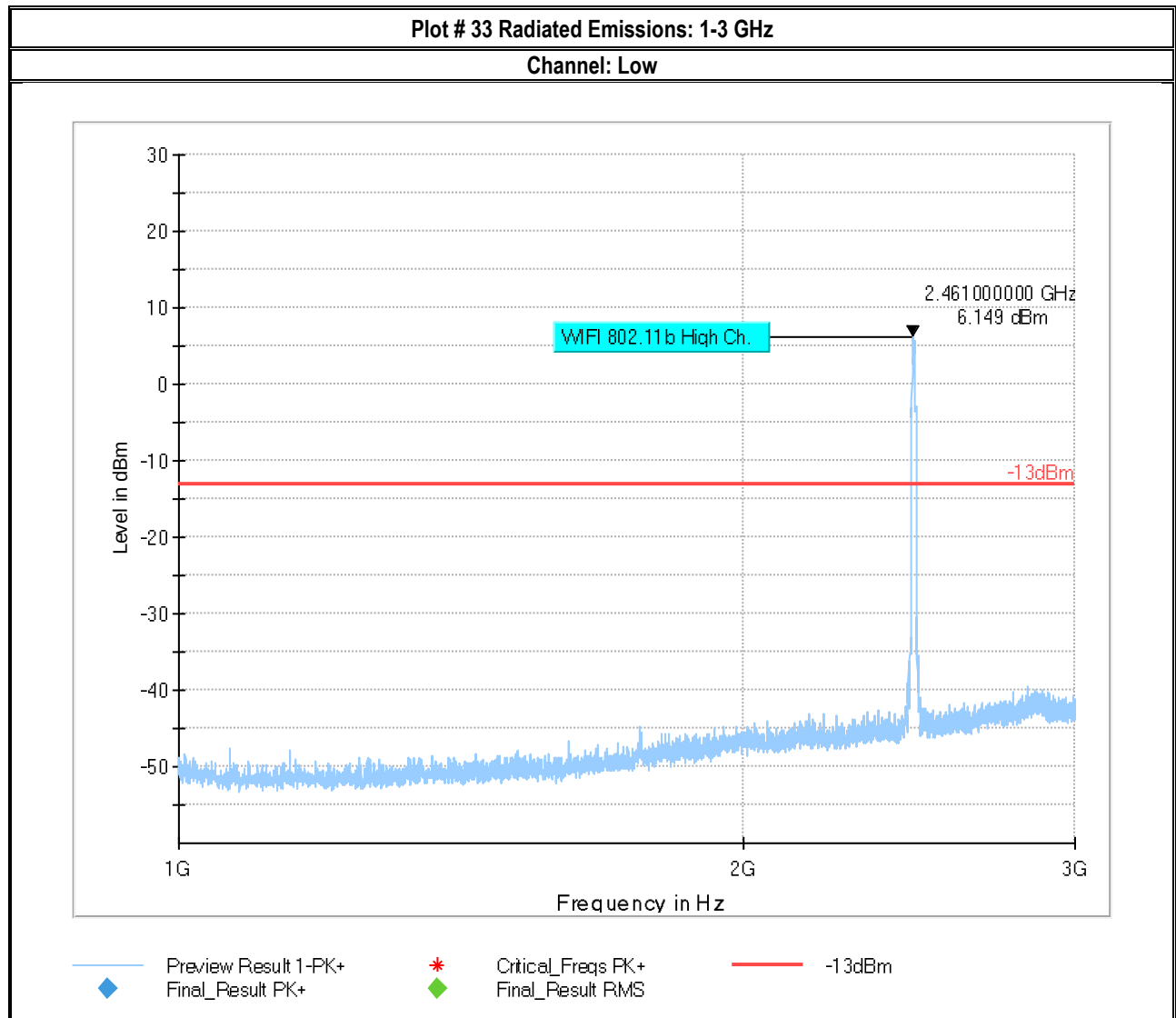
Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

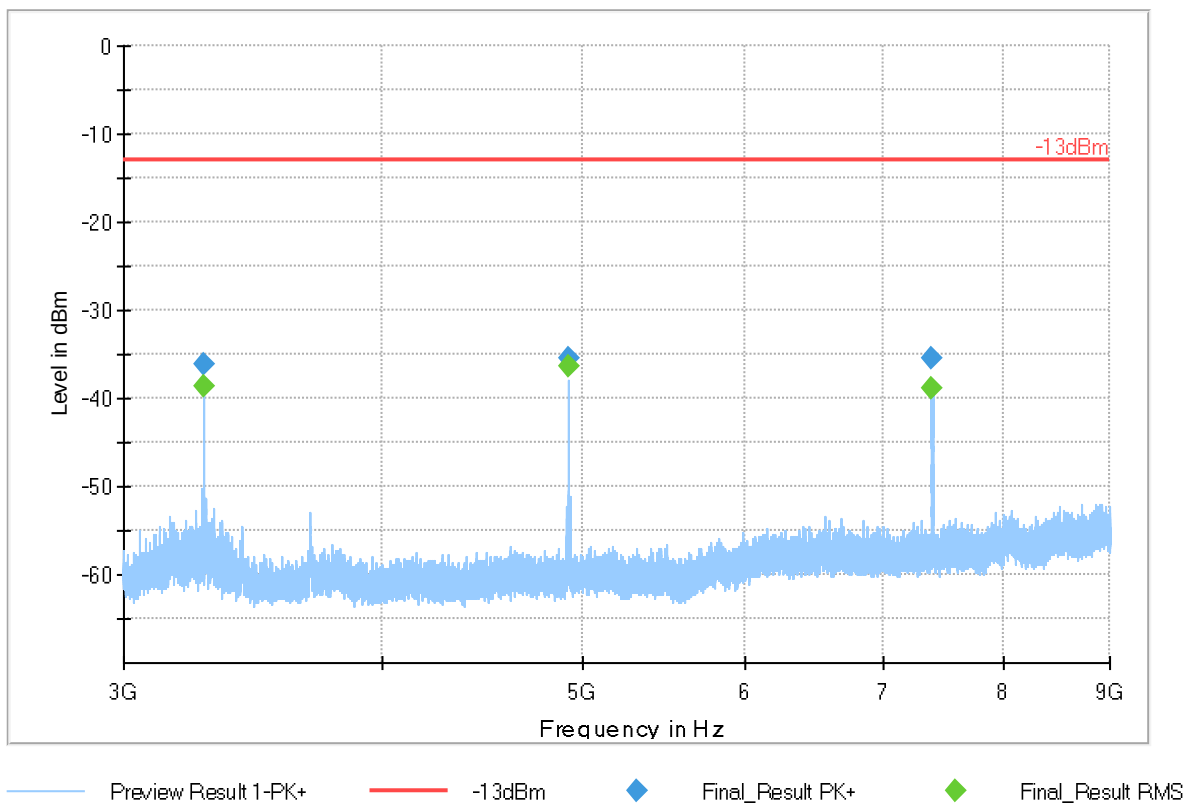


Plot # 34 Radiated Emissions: 3-9 GHz

Channel: Low

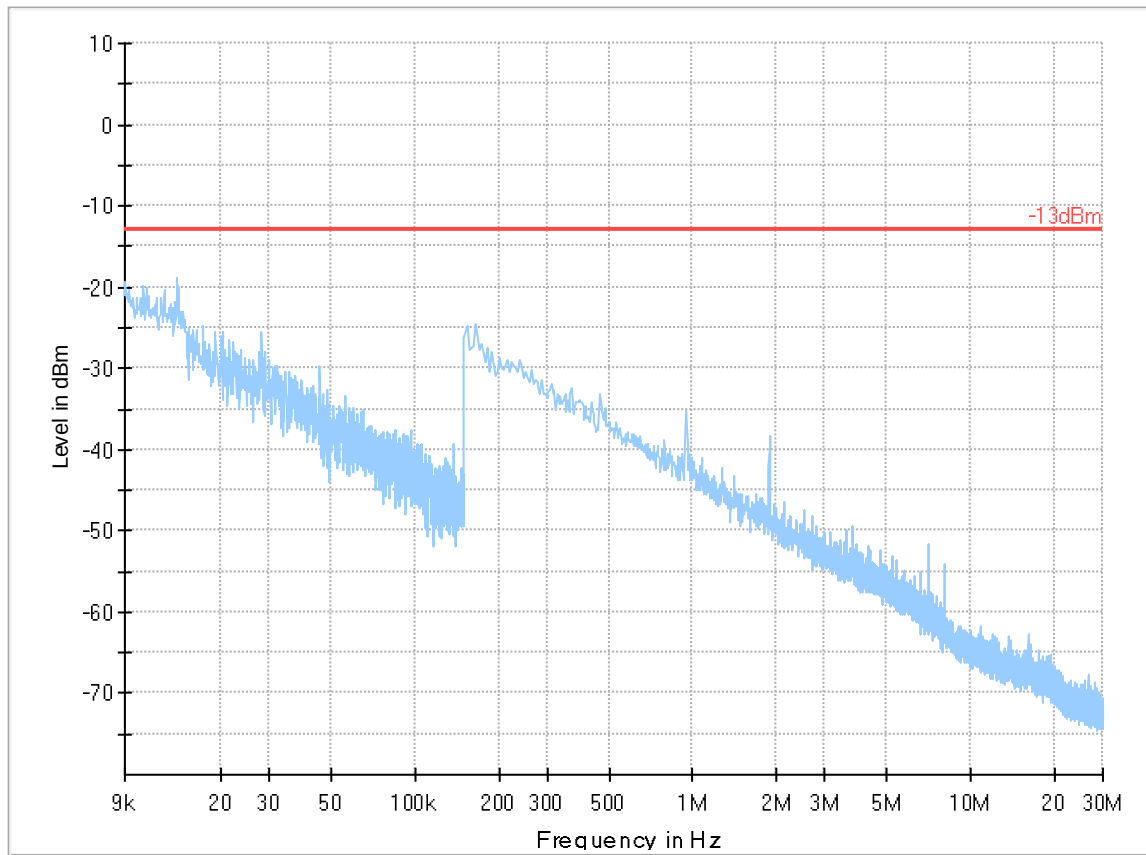
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.585	---	-38.61	-13.00	25.61	100.0	1000.000	203.0	H	98.0	-103.2
3282.585	-36.09	---	-13.00	23.09	100.0	1000.000	203.0	H	98.0	-103.2
4923.859	-35.34	---	-13.00	22.34	100.0	1000.000	291.0	H	276.0	-99.5
4923.859	---	-36.44	-13.00	23.44	100.0	1000.000	291.0	H	276.0	-99.5
7384.824	-35.40	---	-13.00	22.40	100.0	1000.000	222.0	H	120.0	-94.7
7384.824	---	-38.85	-13.00	25.85	100.0	1000.000	222.0	H	120.0	-94.7



Plot #35 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid



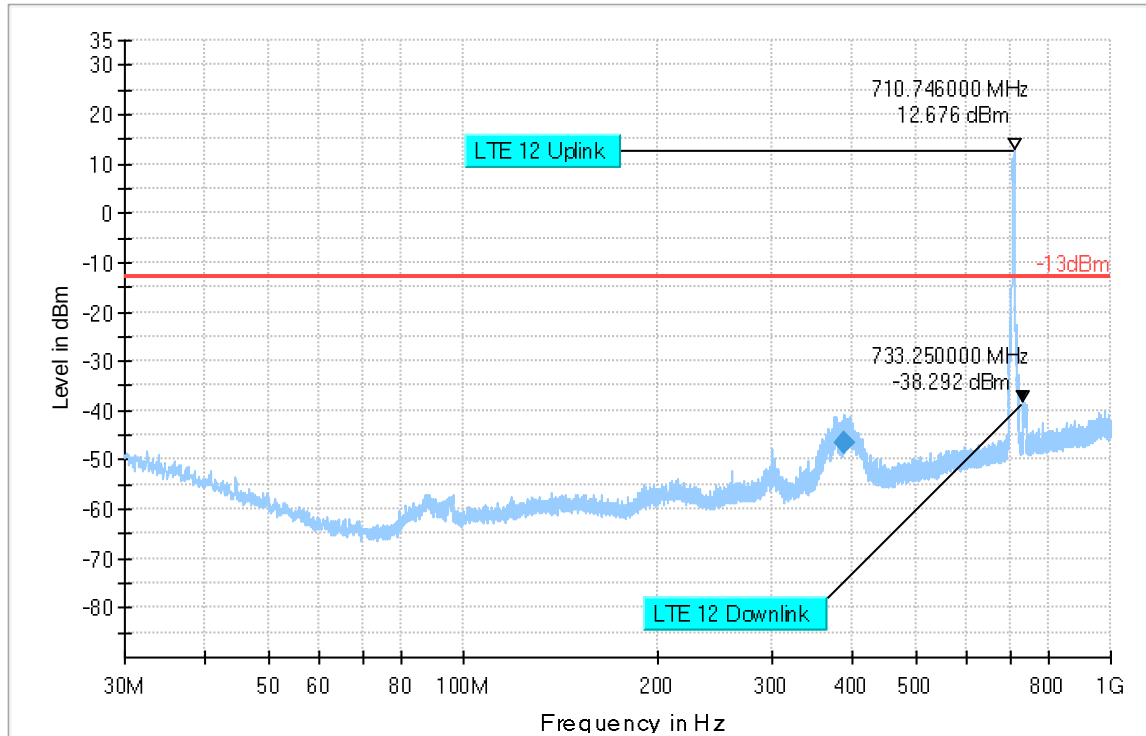
Preview Result 2-QPK	Preview Result 1-PK+	Critical_Freqs QPK
* Critical_Freqs PK+	-13dBm	◆ Final_Result PK+
◆ Final_Result QPK		

Plot #36 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid

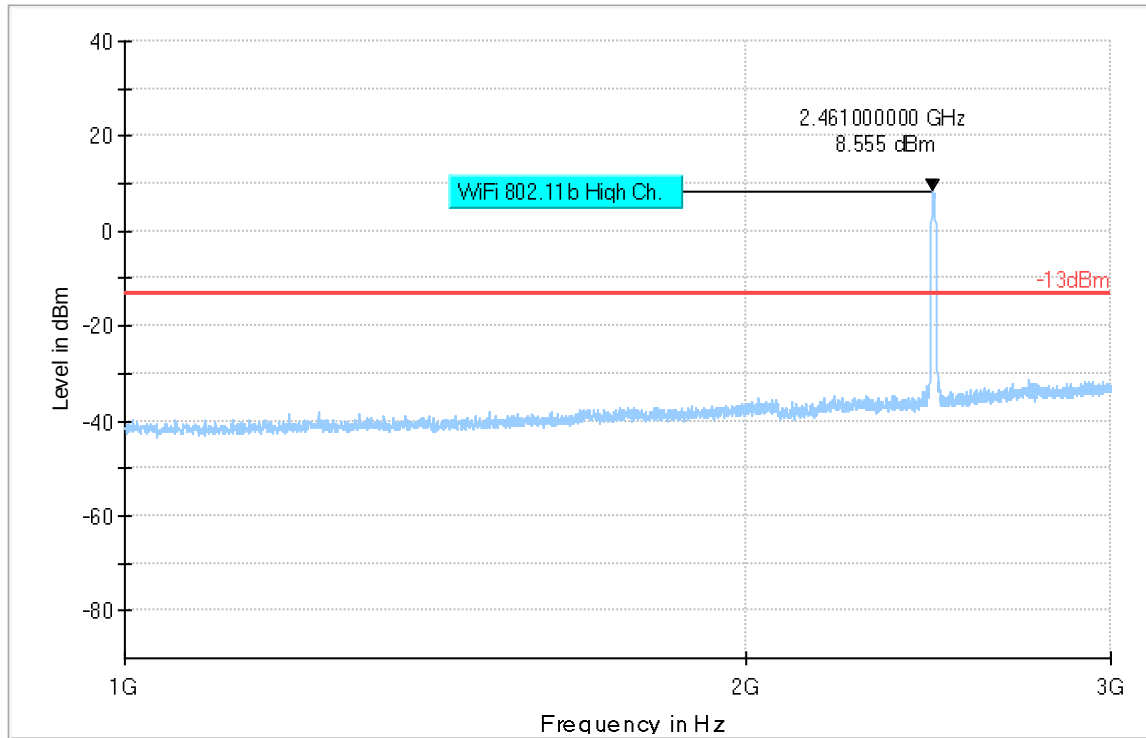
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
388.521	-46.592	-13.00	33.59	500.0	100.000	107.0	H	288.0	-76.8	10:25:40 AM - 3/11/2020



Plot #37 Radiated Emissions: 1-3 GHz

Channel: Mid

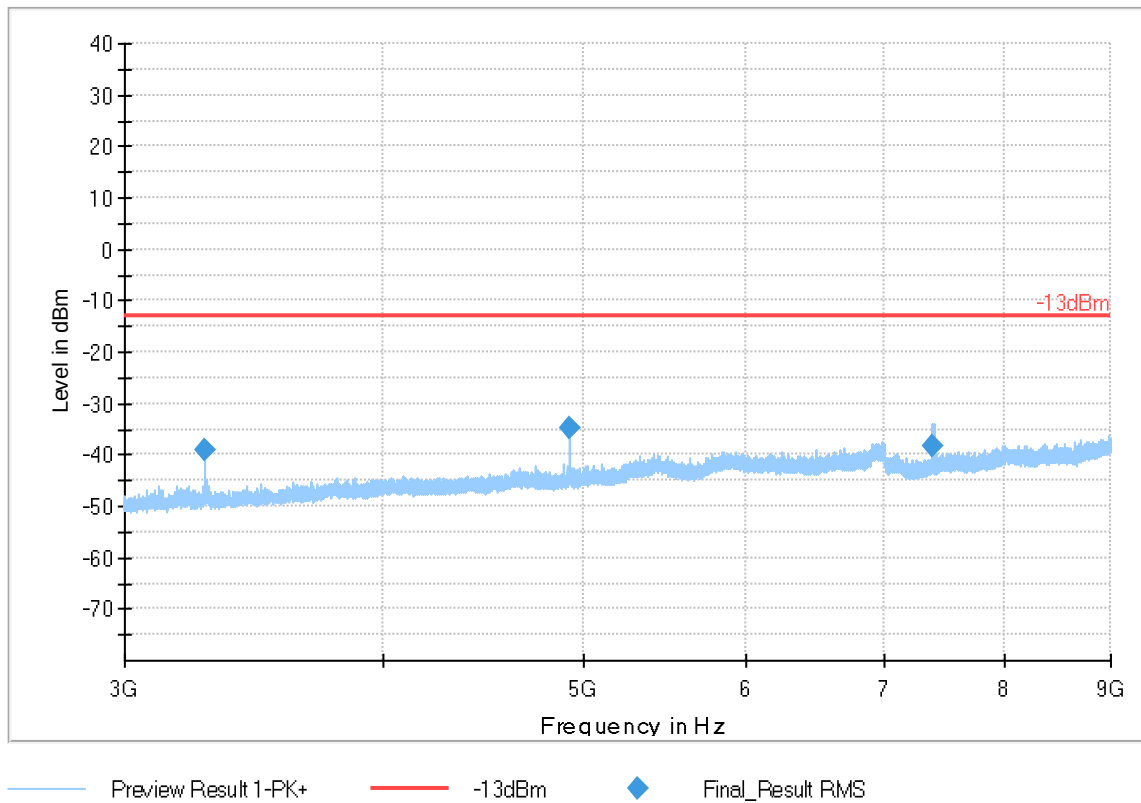


Plot #38 Radiated Emissions: 3-9 GHz

Channel: Mid

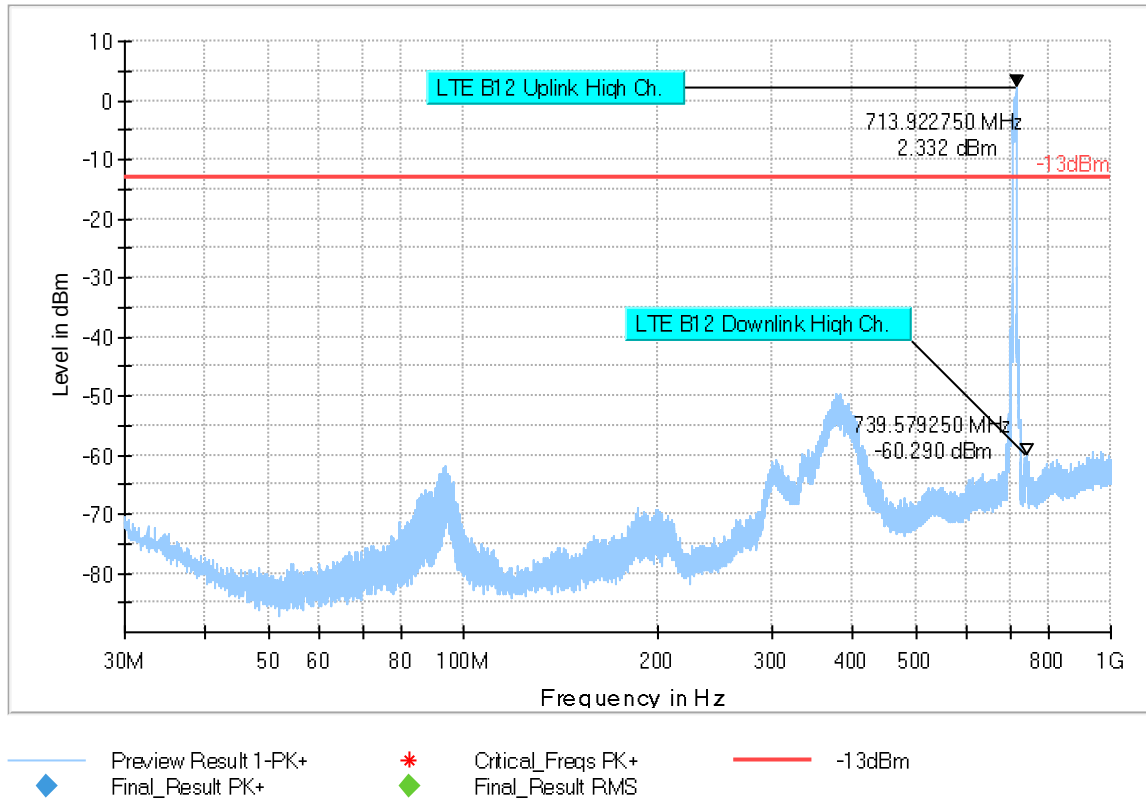
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
3282.431	-39.102	-13.00	26.10	500.0	1000.000	116.0	H	104.0	-104.4	4:01:54 PM - 3/10/2020
4923.811	-34.865	-13.00	21.86	500.0	1000.000	306.0	H	266.0	-100.8	4:10:46 PM - 3/10/2020
7383.748	-38.171	-13.00	25.17	500.0	1000.000	241.0	H	224.0	-97.7	4:06:58 PM - 3/10/2020



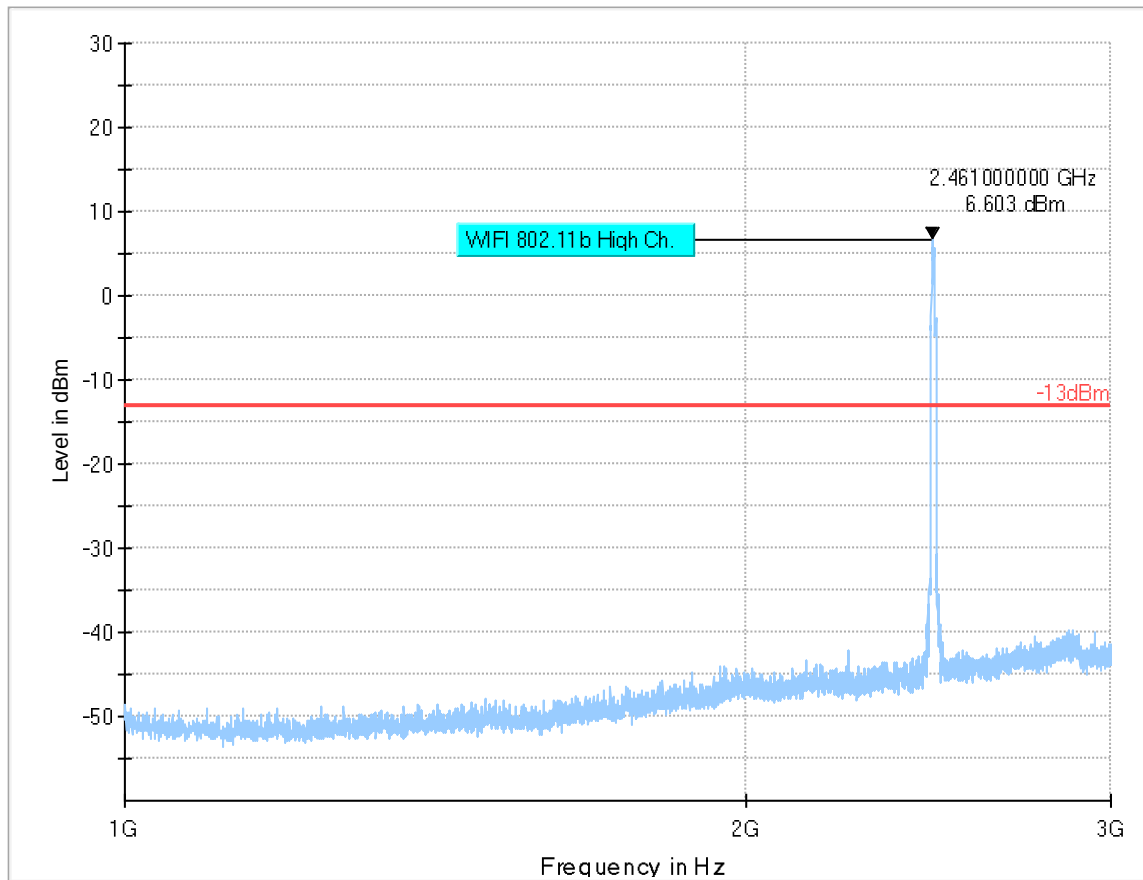
Plot #39 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Plot #40 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final Result PK+

* Critical_Freqs PK+
◆ Final Result RMS

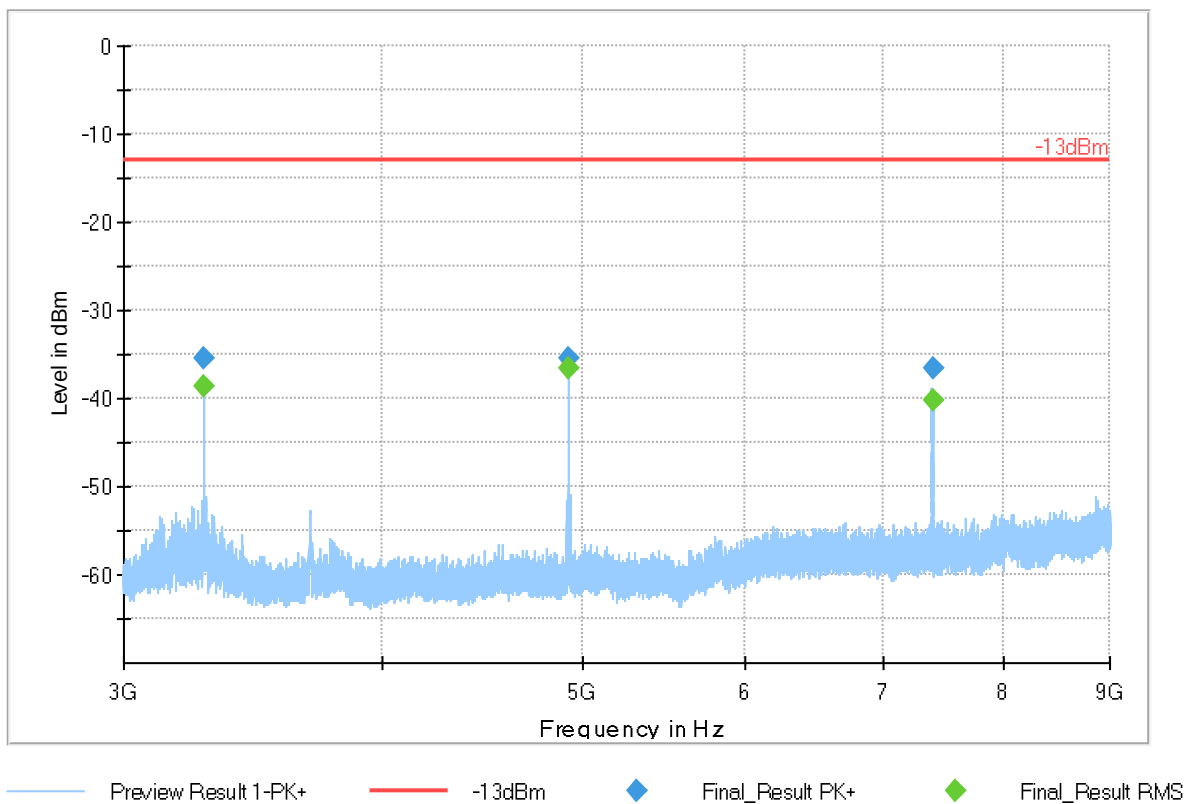
-13dBm

Plot #41 Radiated Emissions: 3-9 GHz

Channel: High

Final_Result

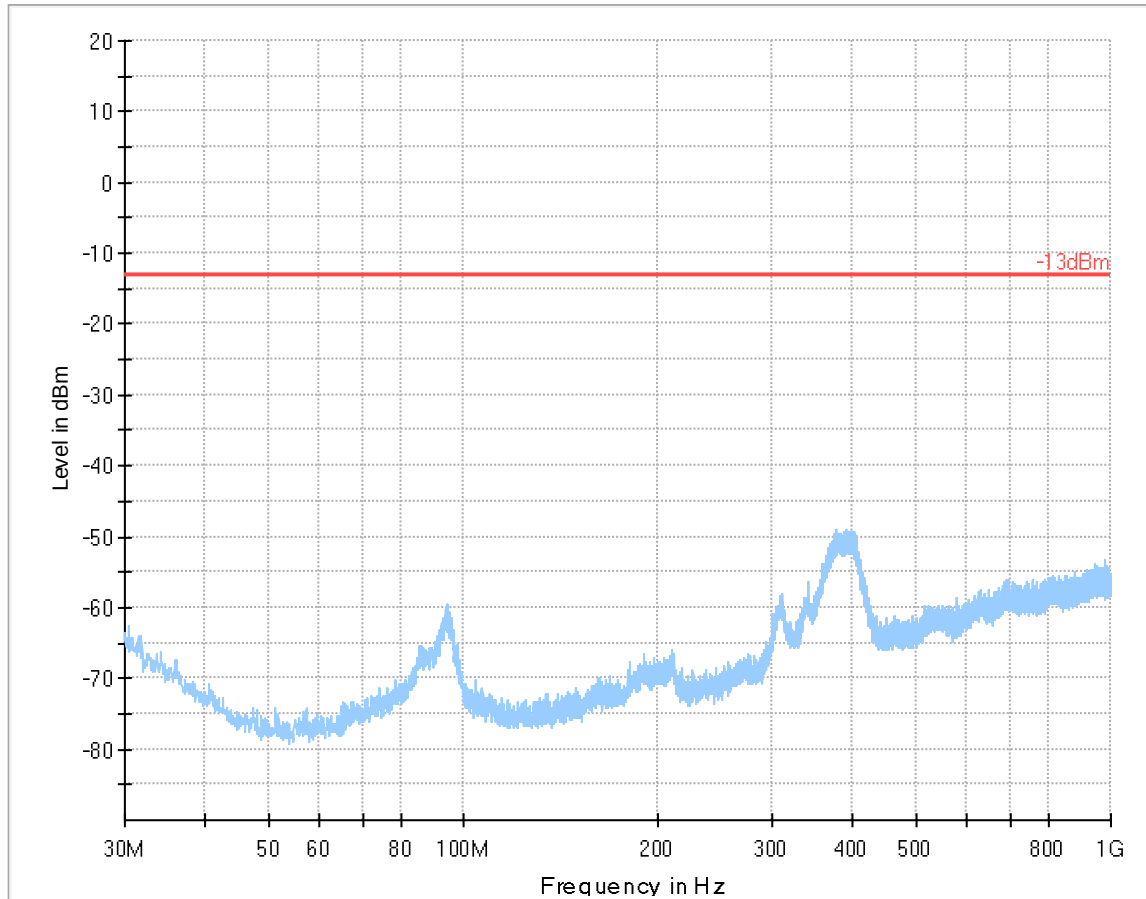
Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.583	---	-38.62	-13.00	25.62	100.0	1000.000	198.0	H	95.0	-103.2
3282.583	-35.50	---	-13.00	22.50	100.0	1000.000	198.0	H	95.0	-103.2
4923.861	-35.36	---	-13.00	22.36	100.0	1000.000	292.0	H	277.0	-99.5
4923.861	---	-36.52	-13.00	23.52	100.0	1000.000	292.0	H	277.0	-99.5
7386.306	-36.67	---	-13.00	23.67	100.0	1000.000	223.0	H	121.0	-94.7
7386.306	---	-40.22	-13.00	27.22	100.0	1000.000	223.0	H	121.0	-94.7



UMTS Band II

Plot #42 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



— Preview Result 1-PK+



Critical_Freqs PK+

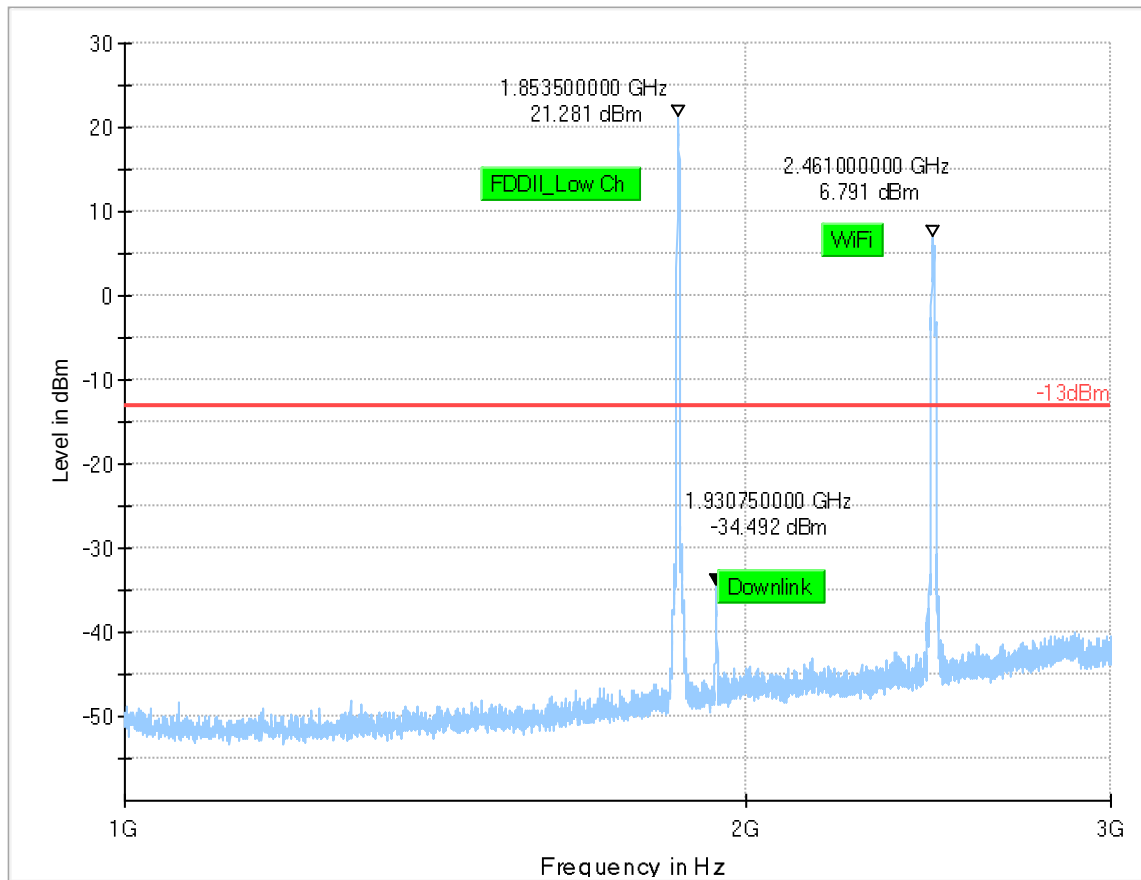
— -13dBm



◆ Final_Result RMS

Plot #43 Radiated Emissions: 1-3 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

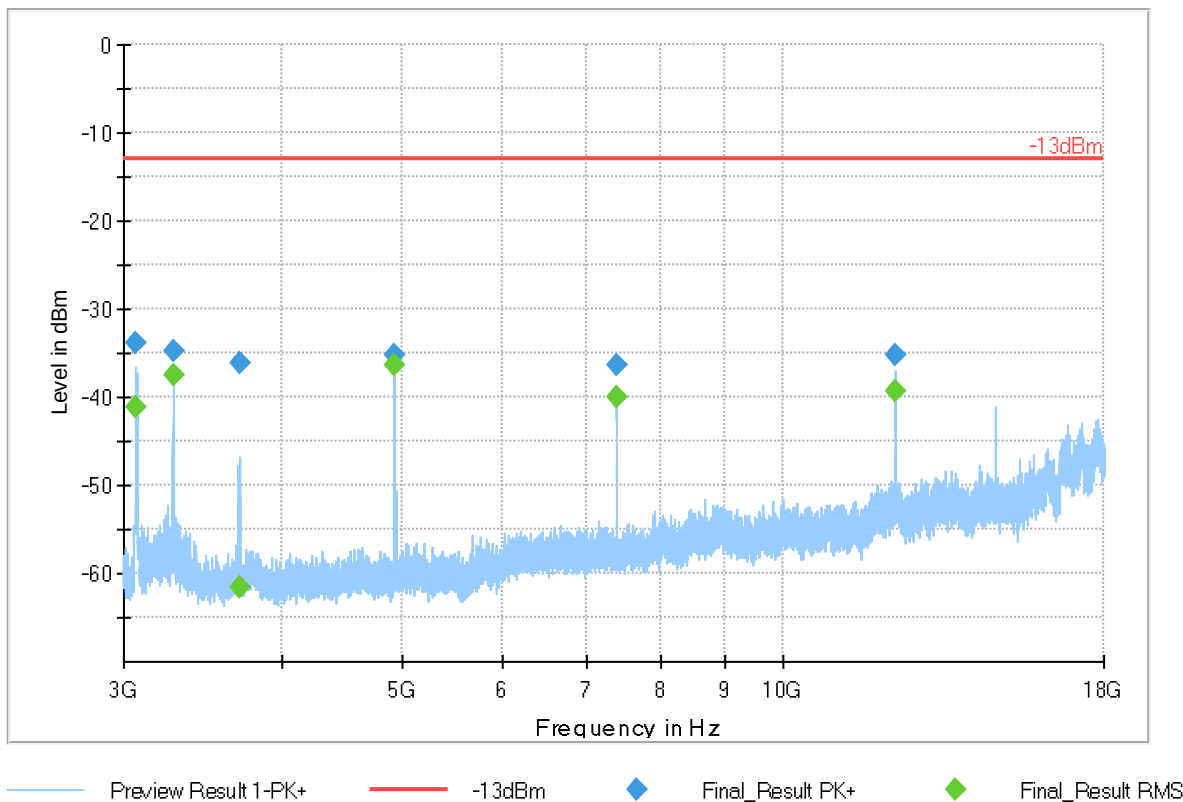
-13dBm

Plot #44 Radiated Emissions: 3-18 GHz

Channel: Low

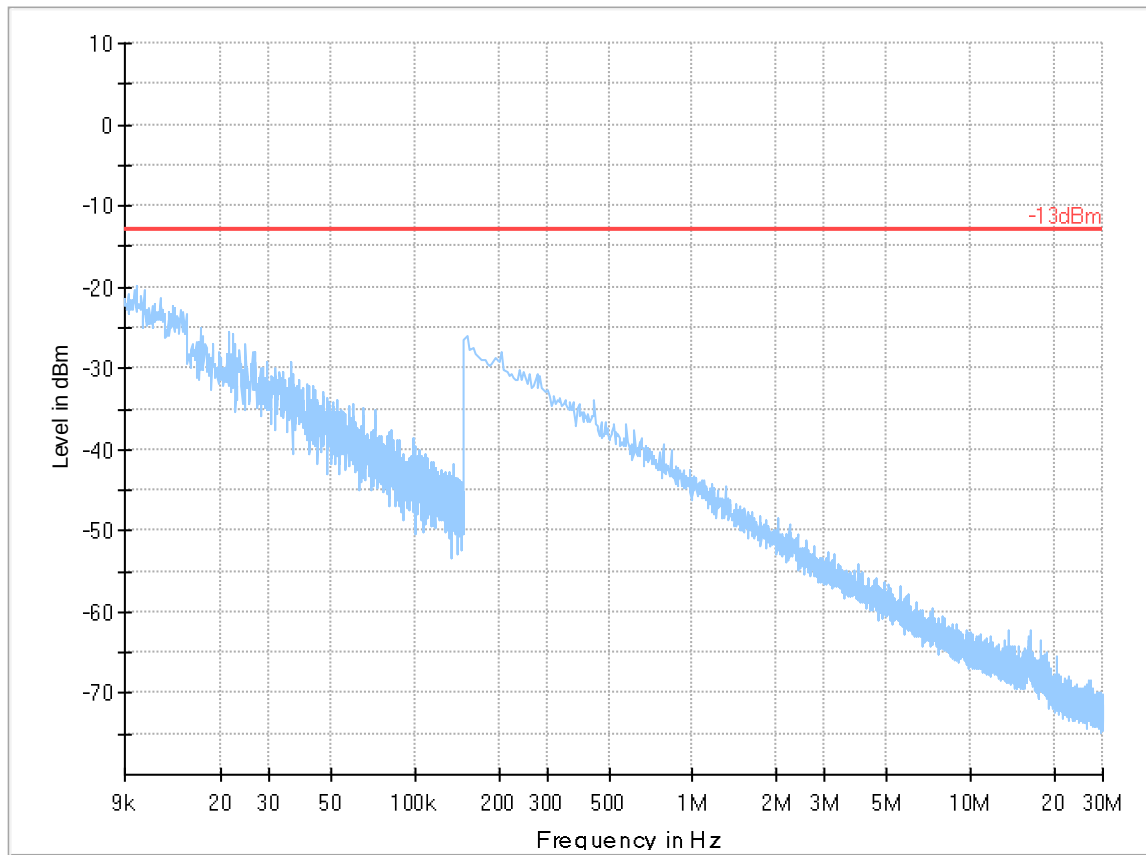
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3072.003	---	-41.12	-13.00	28.12	100.0	1000.000	284.0	V	0.0	-103.9
3072.003	-33.92	---	-13.00	20.92	100.0	1000.000	284.0	V	0.0	-103.9
3282.540	-34.67	---	-13.00	21.67	100.0	1000.000	199.0	H	95.0	-103.2
3282.540	---	-37.52	-13.00	24.52	100.0	1000.000	199.0	H	95.0	-103.2
3706.355	-36.10	---	-13.00	23.10	100.0	1000.000	208.0	V	21.0	-101.4
3706.355	---	-61.62	-13.00	48.62	100.0	1000.000	208.0	V	21.0	-101.4
4923.827	---	-36.28	-13.00	23.28	100.0	1000.000	291.0	H	277.0	-99.5
4923.827	-35.14	---	-13.00	22.14	100.0	1000.000	291.0	H	277.0	-99.5
7385.242	-36.29	---	-13.00	23.29	100.0	1000.000	229.0	H	121.0	-94.7
7385.242	---	-39.96	-13.00	26.96	100.0	1000.000	229.0	H	121.0	-94.7
12308.599	-35.19	---	-13.00	22.19	100.0	1000.000	206.0	H	140.0	-89.5
12308.599	---	-39.28	-13.00	26.28	100.0	1000.000	206.0	H	140.0	-89.5



Plot #45 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid



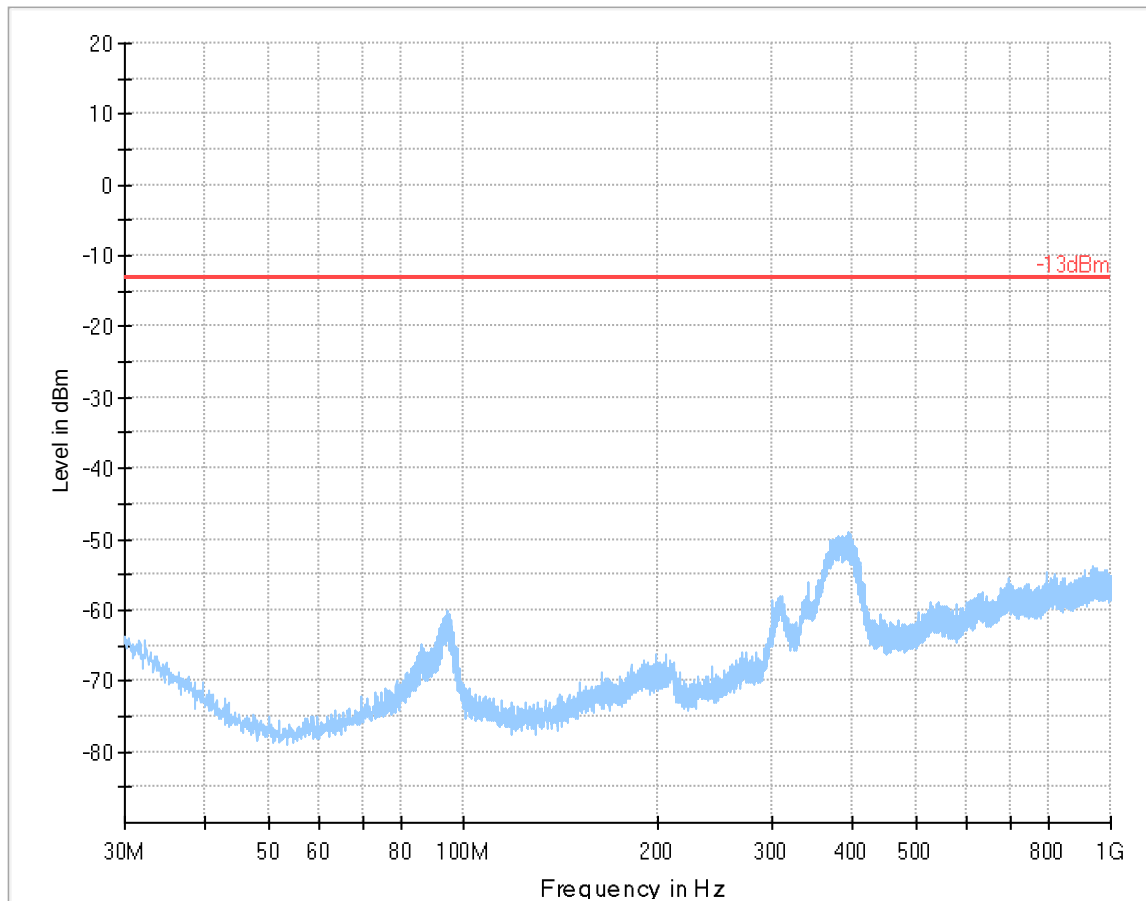
Preview Result 2-QPK
Critical_Freqs PK+
Final_Result QPK

Preview Result 1-PK+
-13dBm

Critical_Freqs QPK
Final_Result PK+

Plot #46 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Preview Result 1-PK+



Critical_Freqs PK+

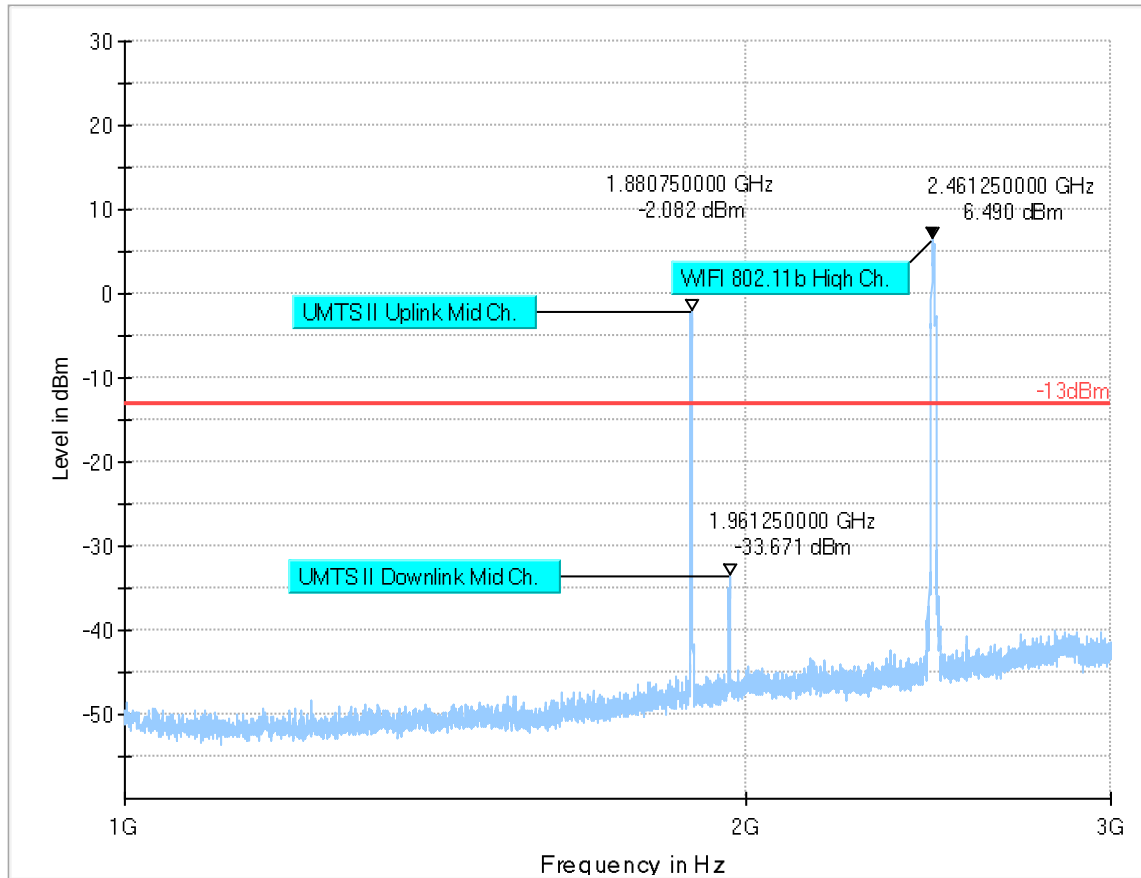
-13dBm



Final_Result RMS

Plot #47 Radiated Emissions: 1-3 GHz

Channel: Mid



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

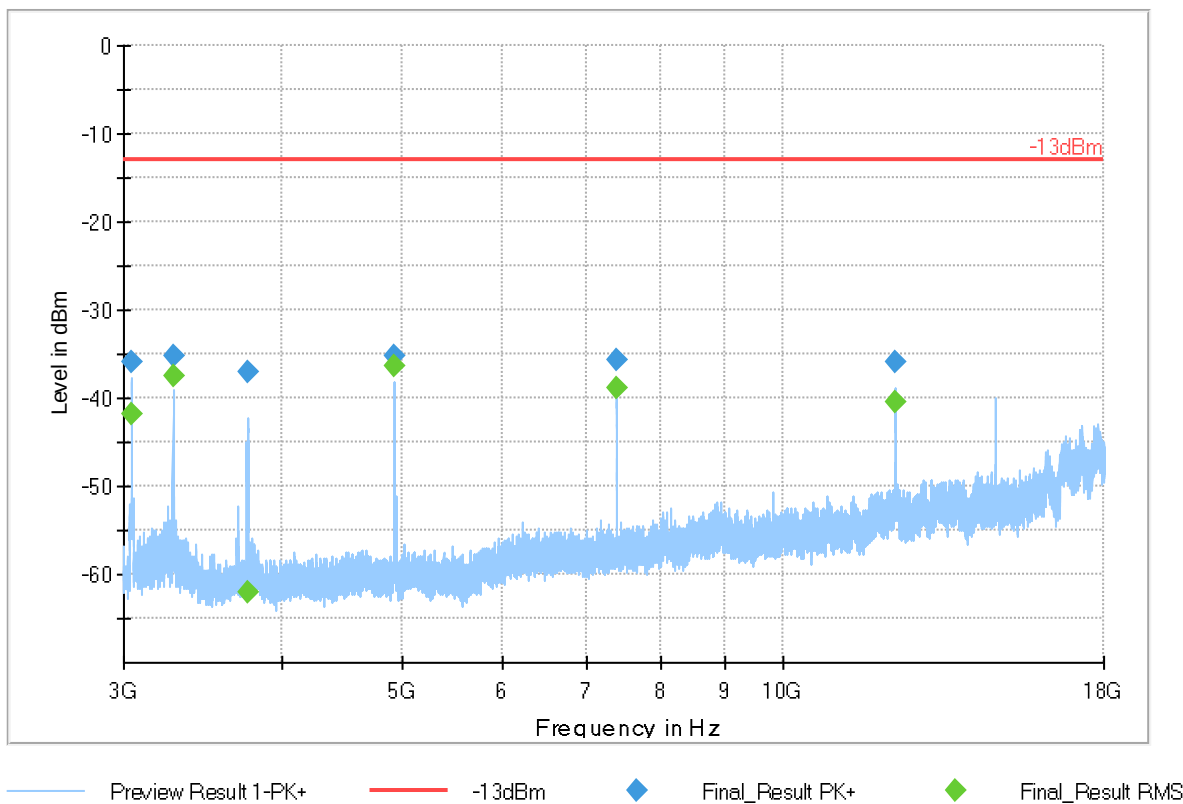
-13dBm

Plot #48 Radiated Emissions: 3-18 GHz

Channel: Mid

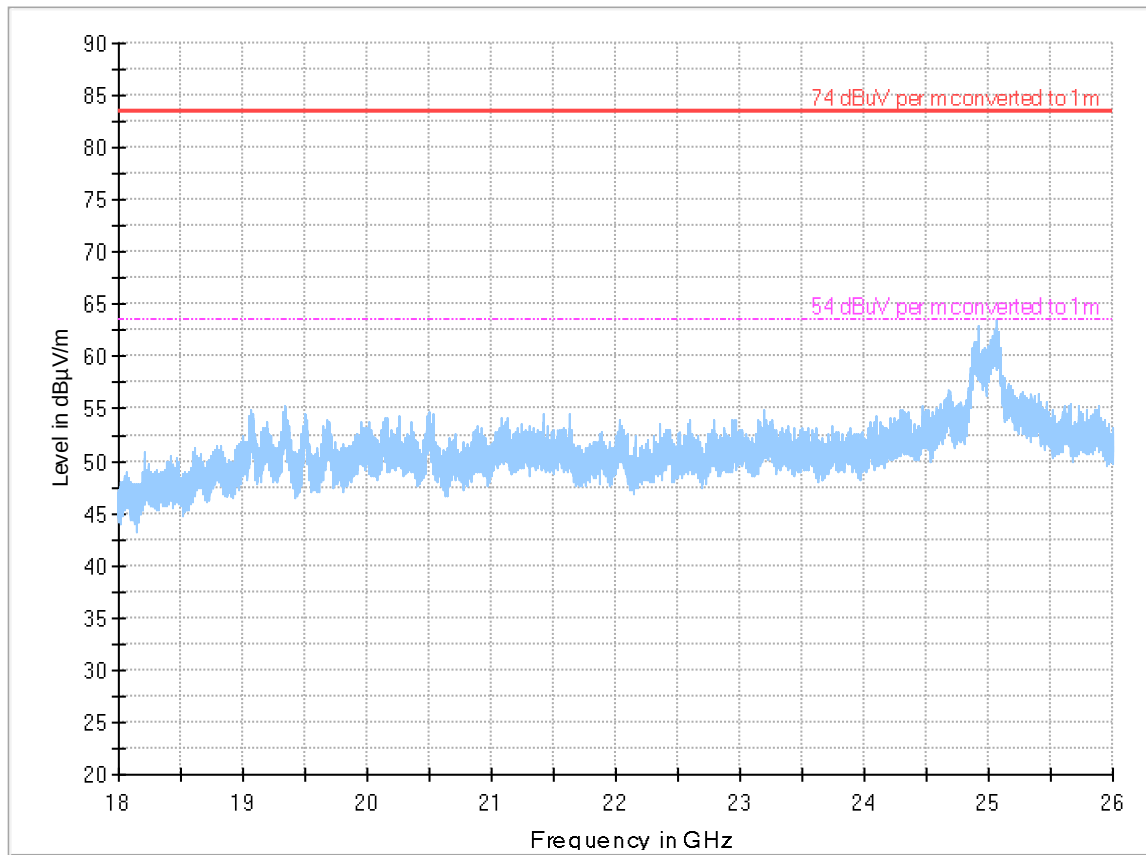
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3043.953	---	-41.77	-13.00	28.77	100.0	1000.000	257.0	H	275.0	-104.0
3043.953	-35.90	---	-13.00	22.90	100.0	1000.000	257.0	H	275.0	-104.0
3282.557	---	-37.58	-13.00	24.58	100.0	1000.000	202.0	H	95.0	-103.2
3282.557	-35.13	---	-13.00	22.13	100.0	1000.000	202.0	H	95.0	-103.2
3761.266	---	-62.09	-13.00	49.09	100.0	1000.000	169.0	H	39.0	-101.4
3761.266	-37.08	---	-13.00	24.08	100.0	1000.000	169.0	H	39.0	-101.4
4923.833	---	-36.47	-13.00	23.47	100.0	1000.000	229.0	H	265.0	-99.5
4923.833	-35.28	---	-13.00	22.28	100.0	1000.000	229.0	H	265.0	-99.5
7387.685	---	-38.82	-13.00	25.82	100.0	1000.000	223.0	H	120.0	-94.7
7387.685	-35.69	---	-13.00	22.69	100.0	1000.000	223.0	H	120.0	-94.7
12307.560	---	-40.48	-13.00	27.48	100.0	1000.000	194.0	H	141.0	-89.5
12307.560	-35.93	---	-13.00	22.93	100.0	1000.000	194.0	H	141.0	-89.5



Plot #49 Radiated Emissions: 18-26 GHz

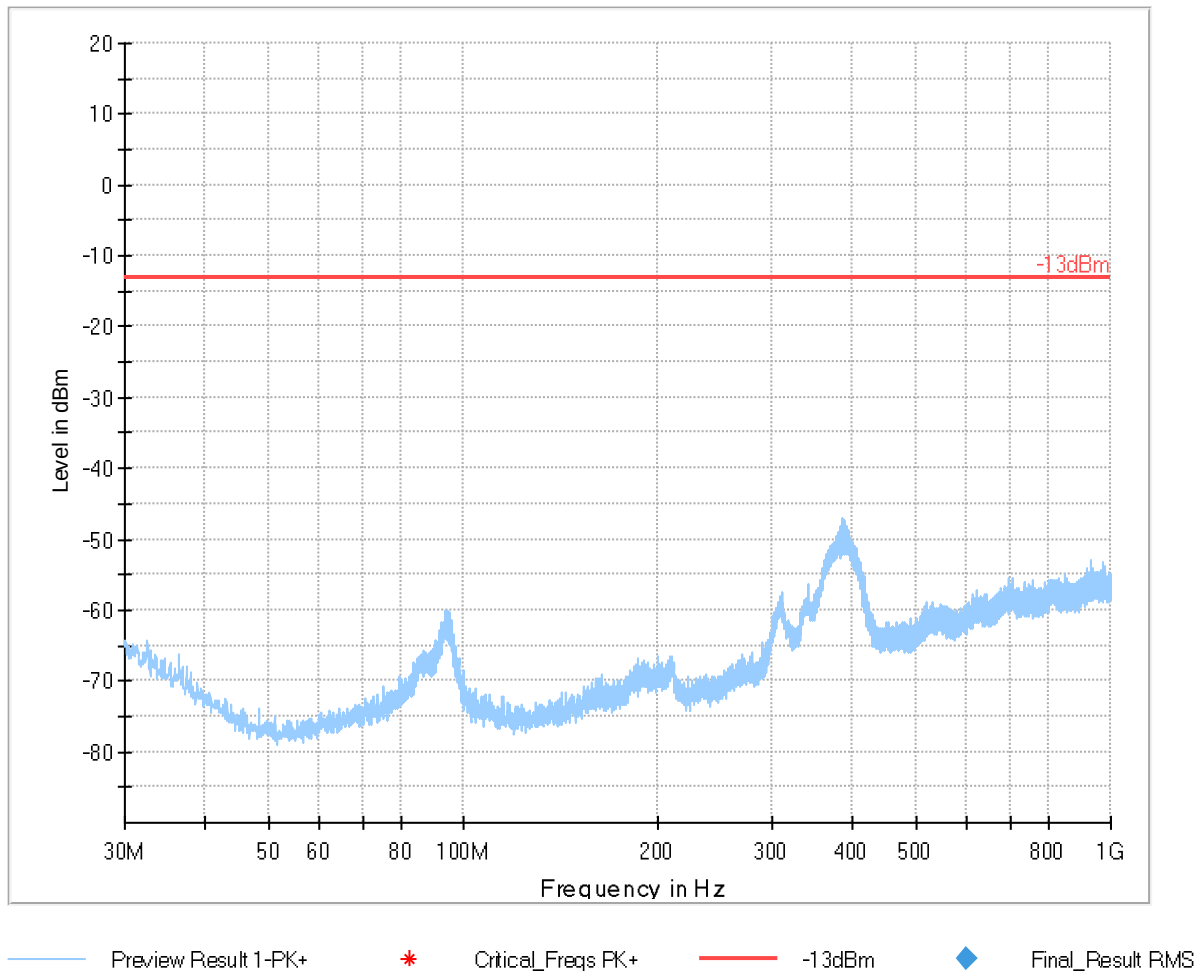
Channel: Mid



— Preview Result 1-PK+	* Critical_Freqs PK+
◆ Final_Result PK+	◆ Final_Result AVG
	◆ Final_Result AVG

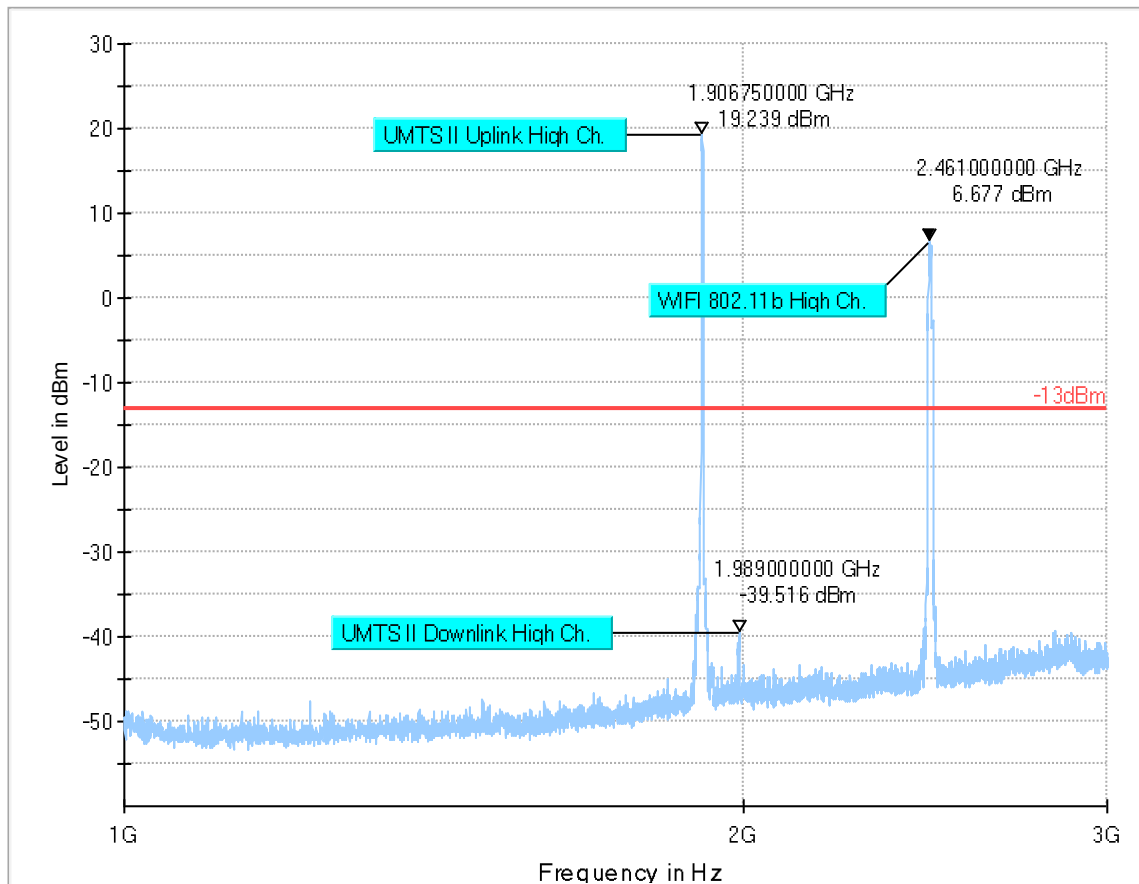
Plot #50 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Plot #51 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

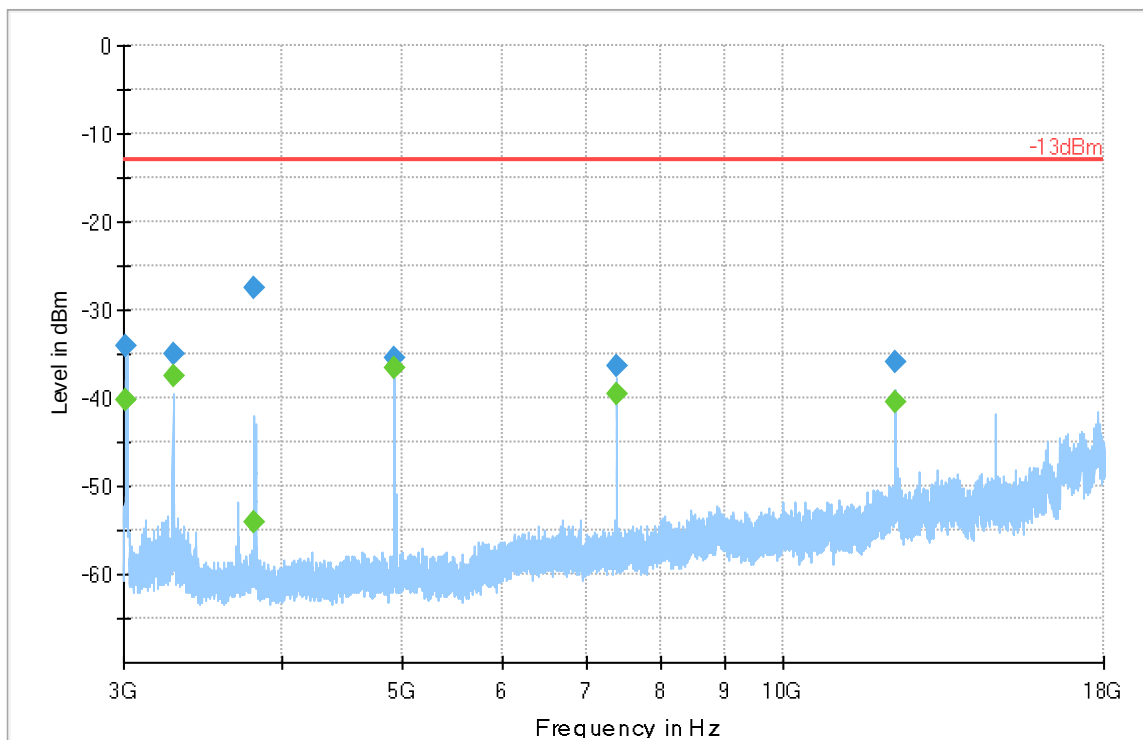
-13dBm

Plot #52 Radiated Emissions: 3-18 GHz

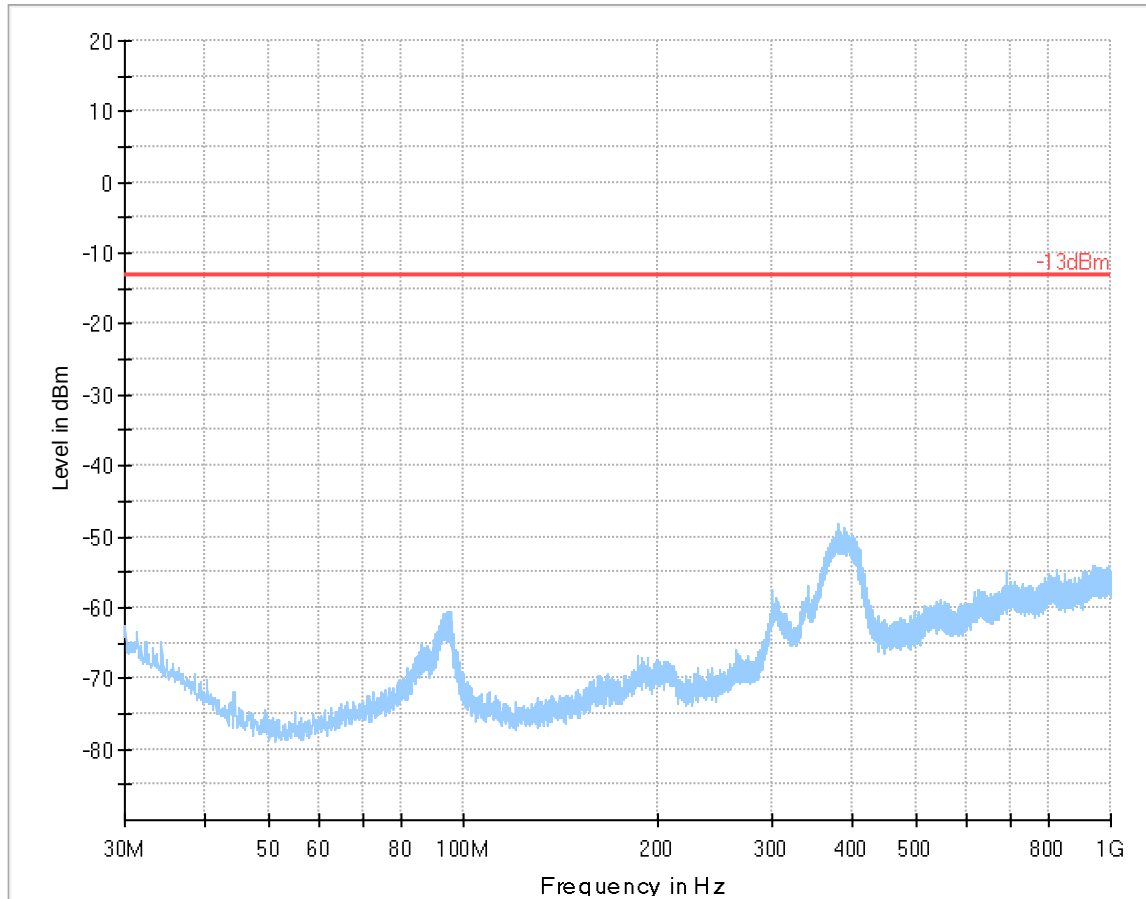
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3015.884	---	-40.32	-13.00	27.32	100.0	1000.000	201.0	V	218.0	-103.9
3015.884	-34.02	---	-13.00	21.02	100.0	1000.000	201.0	V	218.0	-103.9
3282.558	-35.09	---	-13.00	22.09	100.0	1000.000	201.0	H	96.0	-103.2
3282.558	---	-37.56	-13.00	24.56	100.0	1000.000	201.0	H	96.0	-103.2
3813.565	-27.40	---	-13.00	14.40	100.0	1000.000	140.0	V	50.0	-101.2
3813.565	---	-54.01	-13.00	41.01	100.0	1000.000	140.0	V	50.0	-101.2
4923.830	---	-36.61	-13.00	23.61	100.0	1000.000	249.0	H	277.0	-99.5
4923.830	-35.43	---	-13.00	22.43	100.0	1000.000	249.0	H	277.0	-99.5
7386.534	-36.28	---	-13.00	23.28	100.0	1000.000	226.0	H	234.0	-94.7
7386.534	---	-39.50	-13.00	26.50	100.0	1000.000	226.0	H	234.0	-94.7
12310.065	-35.87	---	-13.00	22.87	100.0	1000.000	233.0	H	142.0	-89.5
12310.065	---	-40.48	-13.00	27.48	100.0	1000.000	233.0	H	142.0	-89.5



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

UMTS Band IV**Plot #53 Radiated Emissions: 30 MHz – 1GHz****Channel: Low**

— Preview Result 1-PK+



Critical_Freqs PK+

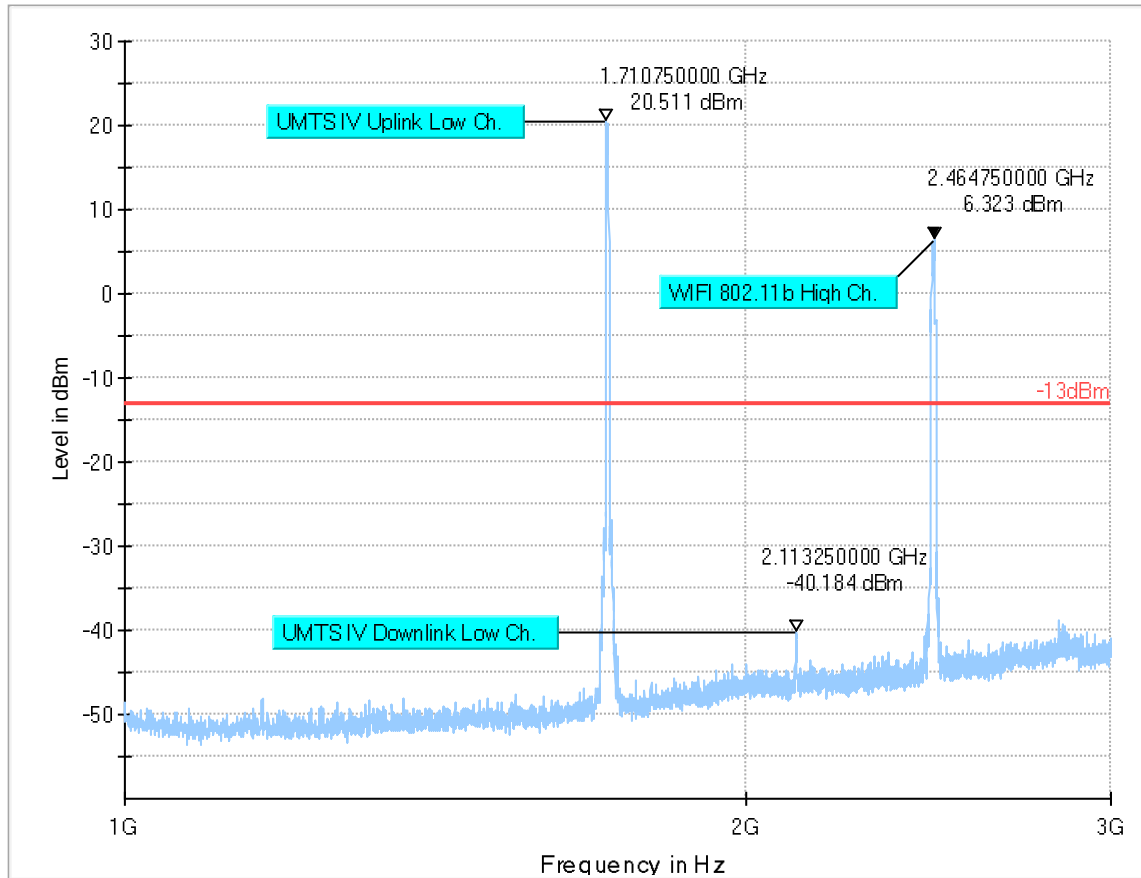
— -13dBm



◆ Final_Result RMS

Plot #54 Radiated Emissions: 1-3 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

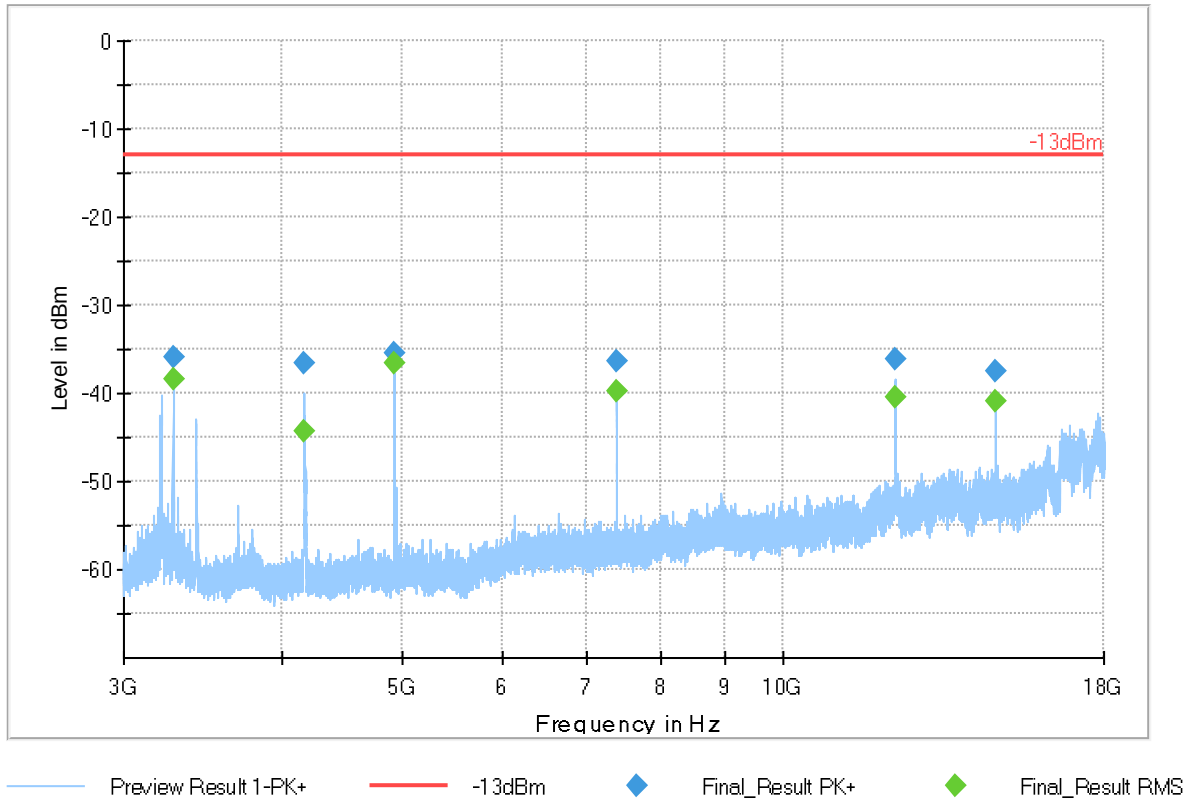
-13dBm

Plot #55 Radiated Emissions: 3-18 GHz

Channel: Low

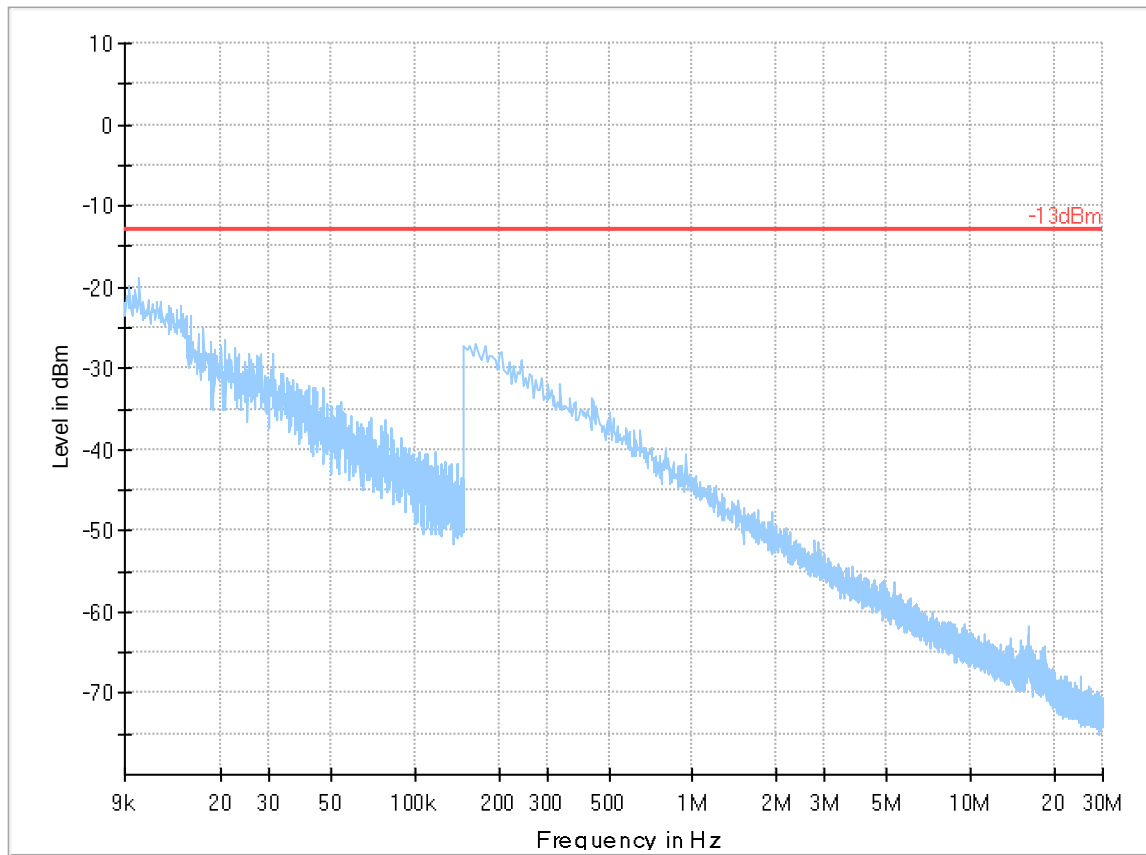
Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.576	---	-38.36	-13.00	25.36	100.0	1000.000	201.0	H	95.0	-103.2
3282.576	-35.93	---	-13.00	22.93	100.0	1000.000	201.0	H	95.0	-103.2
4173.744	---	-44.34	-13.00	31.34	100.0	1000.000	284.0	H	282.0	-100.2
4173.744	-36.66	---	-13.00	23.66	100.0	1000.000	284.0	H	282.0	-100.2
4923.854	-35.43	---	-13.00	22.43	100.0	1000.000	248.0	H	276.0	-99.5
4923.854	---	-36.53	-13.00	23.53	100.0	1000.000	248.0	H	276.0	-99.5
7387.308	---	-39.76	-13.00	26.76	100.0	1000.000	206.0	H	121.0	-94.7
7387.308	-36.38	---	-13.00	23.38	100.0	1000.000	206.0	H	121.0	-94.7
12310.138	-36.03	---	-13.00	23.03	100.0	1000.000	233.0	H	141.0	-89.5
12310.138	---	-40.36	-13.00	27.36	100.0	1000.000	233.0	H	141.0	-89.5
14771.472	---	-40.87	-13.00	27.87	100.0	1000.000	180.0	V	190.0	-87.5
14771.472	-37.49	---	-13.00	24.49	100.0	1000.000	180.0	V	190.0	-87.5



Plot #56 Radiated Emissions: 9 kHz – 30 MHz

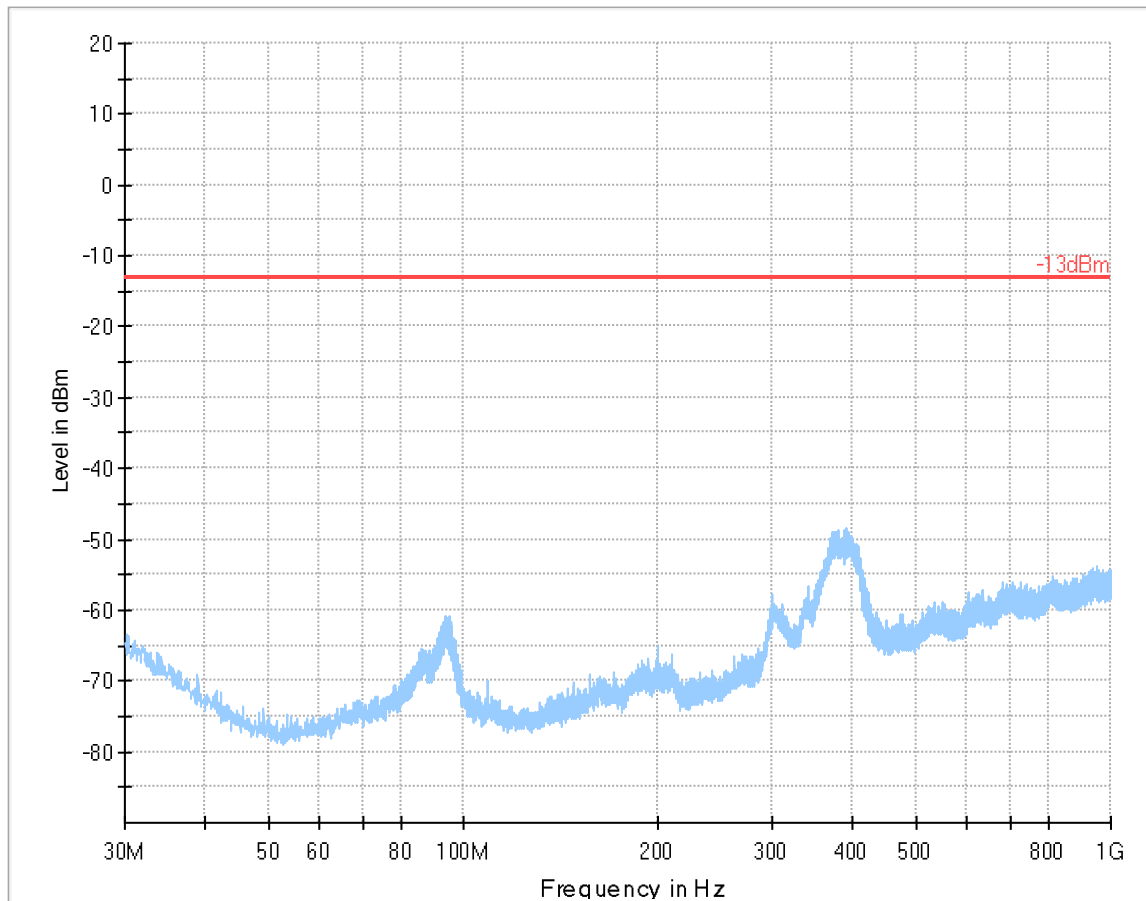
Channel: Mid



Preview Result 2-QPK	Preview Result 1-PK+	Critical_Freqs QPK
* Critical_Freqs PK+	-13dBm	◆ Final_Result PK+
◆ Final_Result QPK		

Plot #57 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



— Preview Result 1-PK+



Critical_Freqs PK+

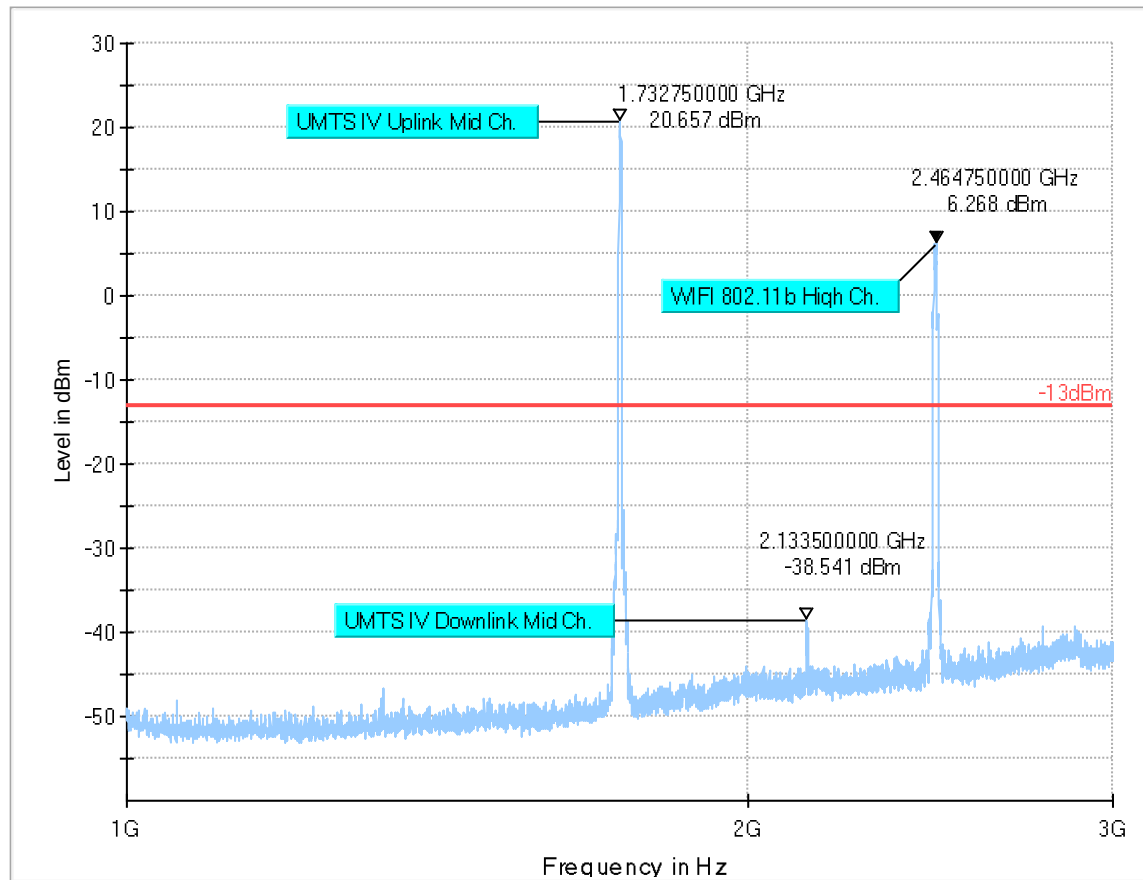
— -13dBm



Final_Result RMS

Plot #58 Radiated Emissions: 1-3 GHz

Channel: Mid



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

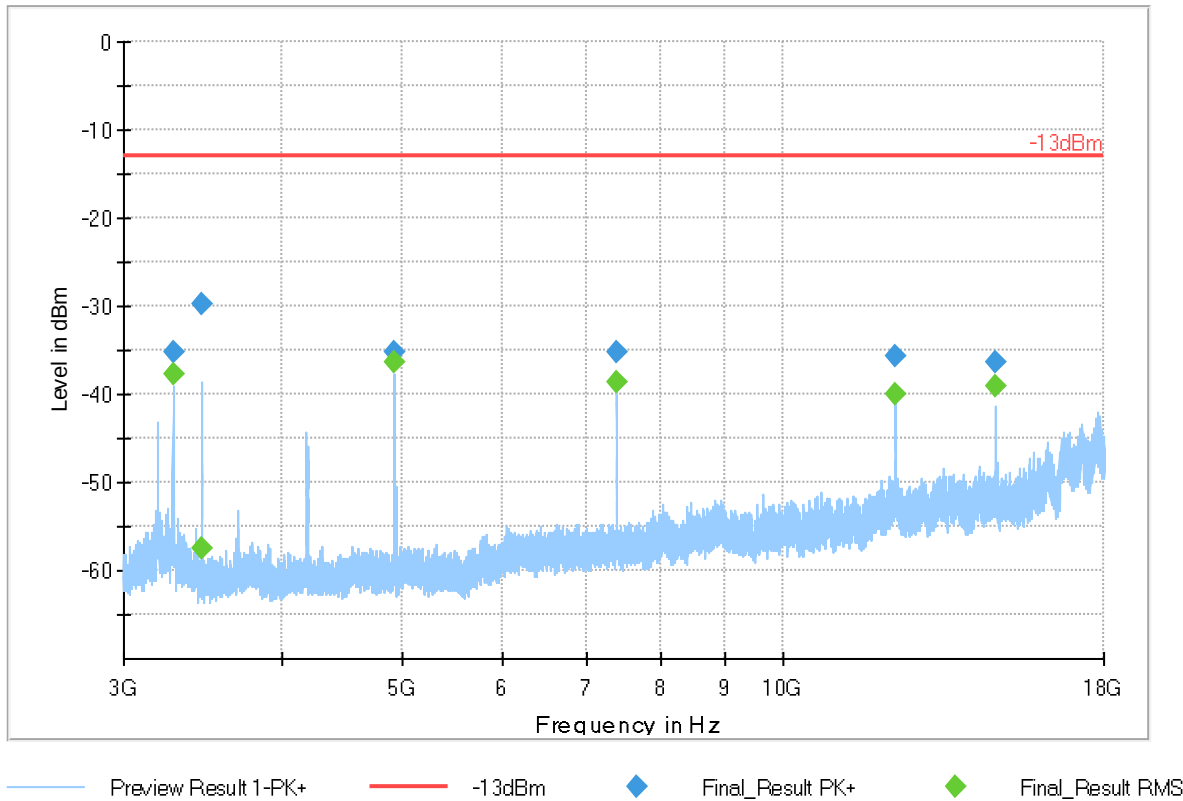
-13dBm

Plot #59 Radiated Emissions: 3-18 GHz

Channel: Mid

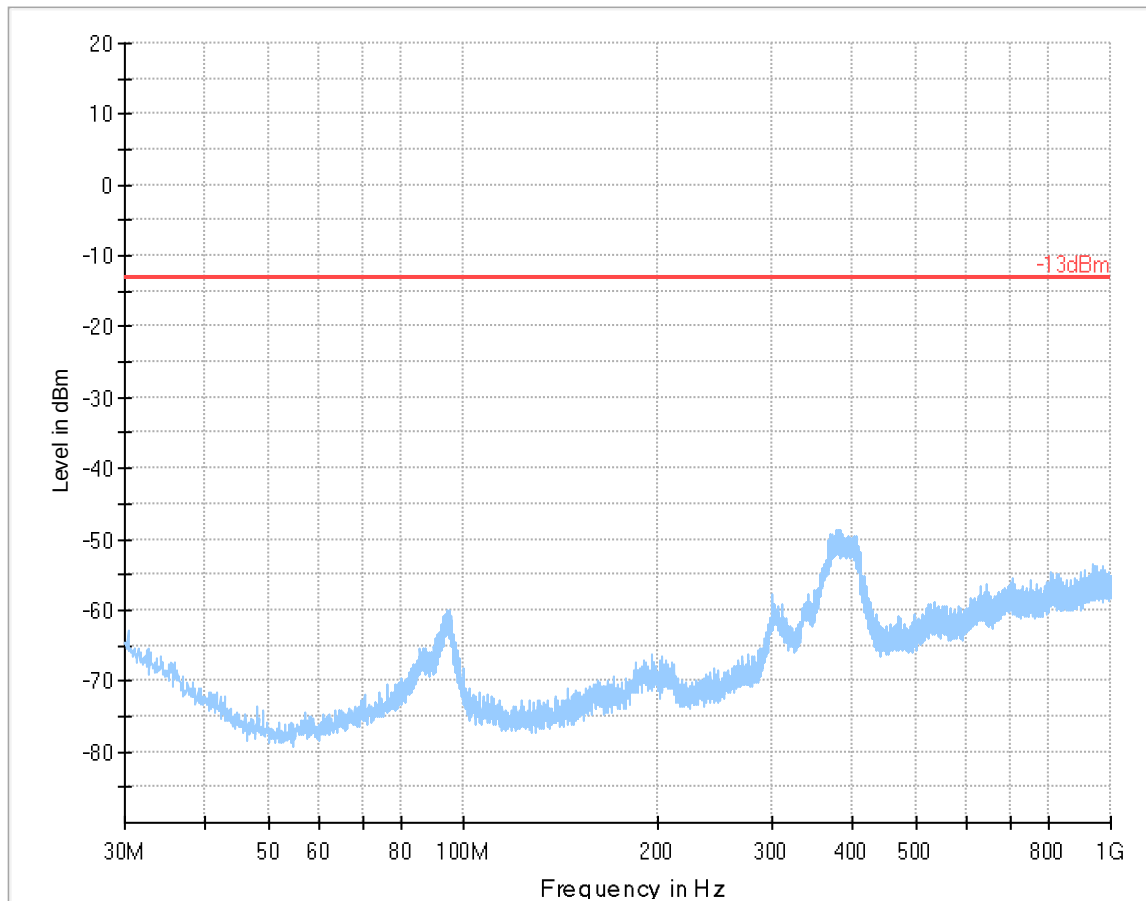
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.562	---	-37.72	-13.00	24.72	100.0	1000.000	202.0	H	96.0	-103.2
3282.562	-35.27	---	-13.00	22.27	100.0	1000.000	202.0	H	96.0	-103.2
3463.804	---	-57.47	-13.00	44.47	100.0	1000.000	285.0	V	15.0	-102.7
3463.804	-29.82	---	-13.00	16.82	100.0	1000.000	285.0	V	15.0	-102.7
4923.823	-35.28	---	-13.00	22.28	100.0	1000.000	292.0	H	278.0	-99.5
4923.823	---	-36.39	-13.00	23.39	100.0	1000.000	292.0	H	278.0	-99.5
7384.246	-35.26	---	-13.00	22.26	100.0	1000.000	223.0	H	120.0	-94.7
7384.246	---	-38.59	-13.00	25.59	100.0	1000.000	223.0	H	120.0	-94.7
12307.518	---	-39.95	-13.00	26.95	100.0	1000.000	196.0	H	141.0	-89.5
12307.518	-35.76	---	-13.00	22.76	100.0	1000.000	196.0	H	141.0	-89.5
14771.459	---	-39.00	-13.00	26.00	100.0	1000.000	215.0	H	191.0	-87.5
14771.459	-36.37	---	-13.00	23.37	100.0	1000.000	215.0	H	191.0	-87.5



Plot #60 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Preview Result 1-PK+



Critical_Freqs PK+

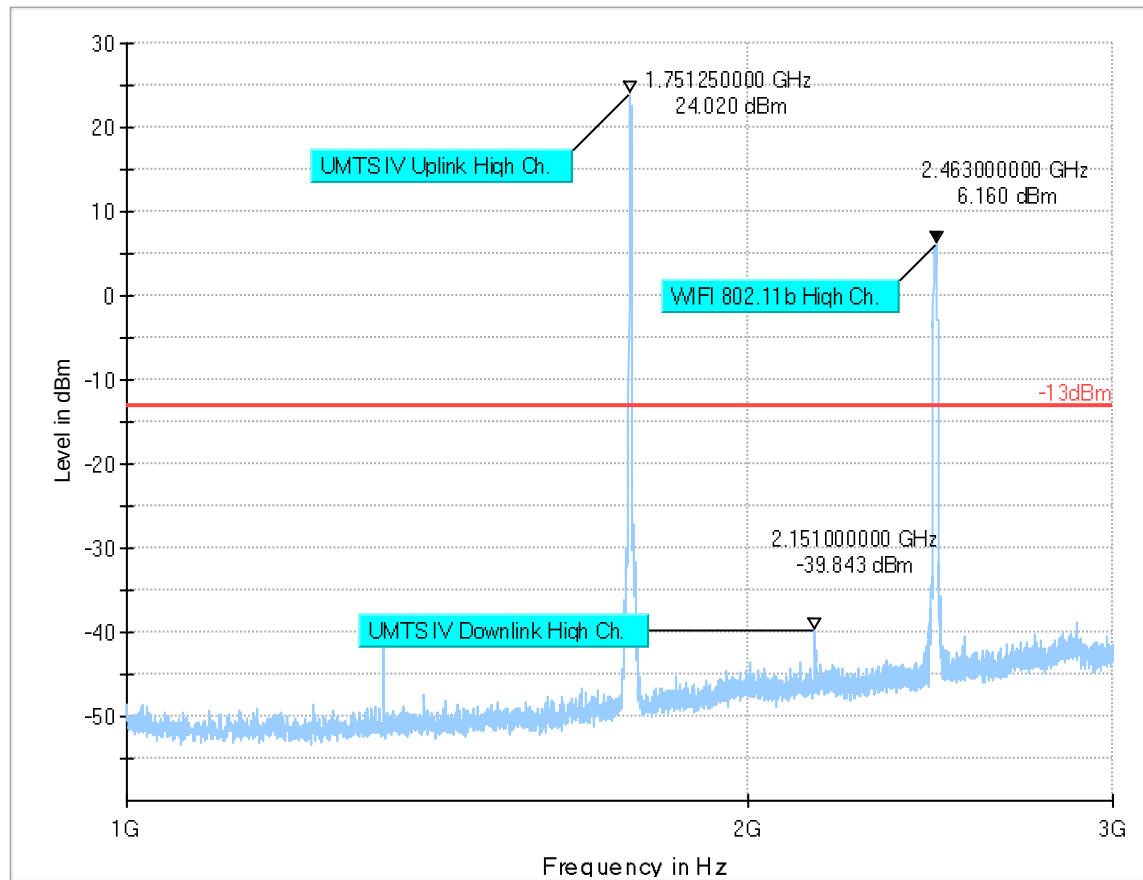
-13dBm



Final_Result RMS

Plot #61 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

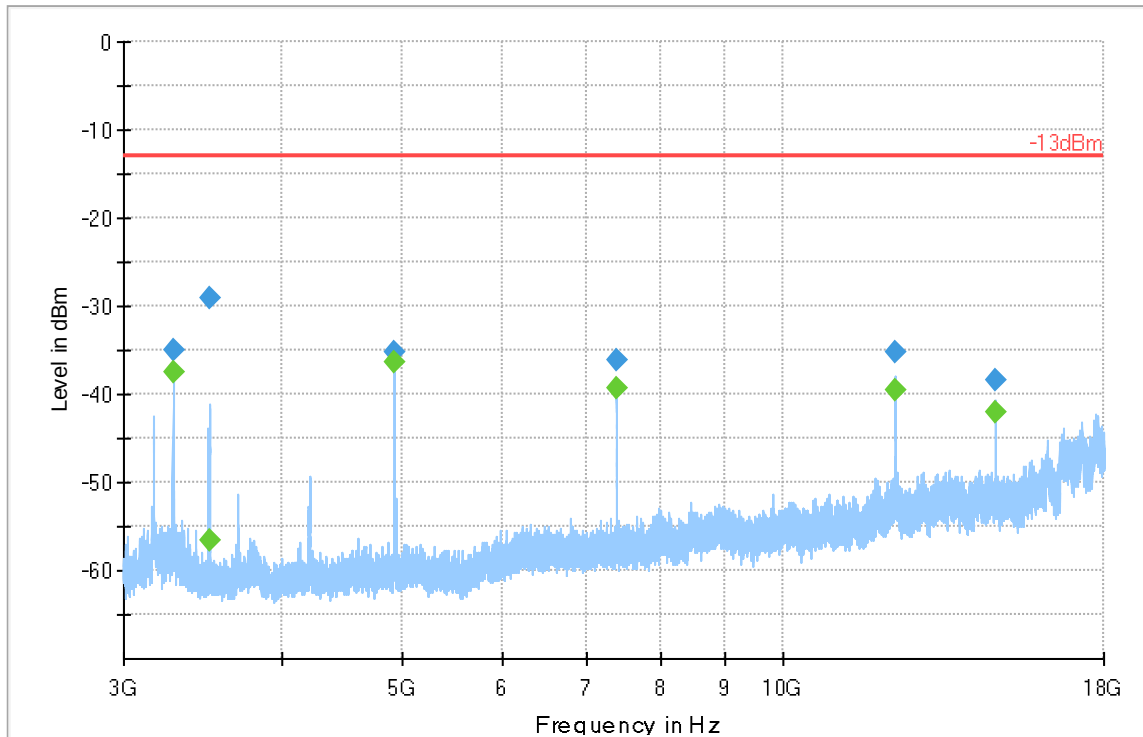
-13dBm

Plot #62 Radiated Emissions: 3-18 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)
3282.537	---	-37.56	-13.00	24.56	100.0	1000.000	200.0	H	95.0	-103.2
3282.537	-35.05	---	-13.00	22.05	100.0	1000.000	200.0	H	95.0	-103.2
3507.198	-29.20	---	-13.00	16.20	100.0	1000.000	204.0	H	262.0	-102.6
3507.198	---	-56.52	-13.00	43.52	100.0	1000.000	204.0	H	262.0	-102.6
4923.827	-35.28	---	-13.00	22.28	100.0	1000.000	292.0	H	278.0	-99.5
4923.827	---	-36.43	-13.00	23.43	100.0	1000.000	292.0	H	278.0	-99.5
7384.731	-36.08	---	-13.00	23.08	100.0	1000.000	230.0	H	233.0	-94.7
7384.731	---	-39.35	-13.00	26.35	100.0	1000.000	230.0	H	233.0	-94.7
12312.121	-35.15	---	-13.00	22.15	100.0	1000.000	205.0	H	142.0	-89.5
12312.121	---	-39.46	-13.00	26.46	100.0	1000.000	205.0	H	142.0	-89.5
14771.472	---	-41.94	-13.00	28.94	100.0	1000.000	159.0	V	191.0	-87.5
14771.472	-38.44	---	-13.00	25.44	100.0	1000.000	159.0	V	191.0	-87.5

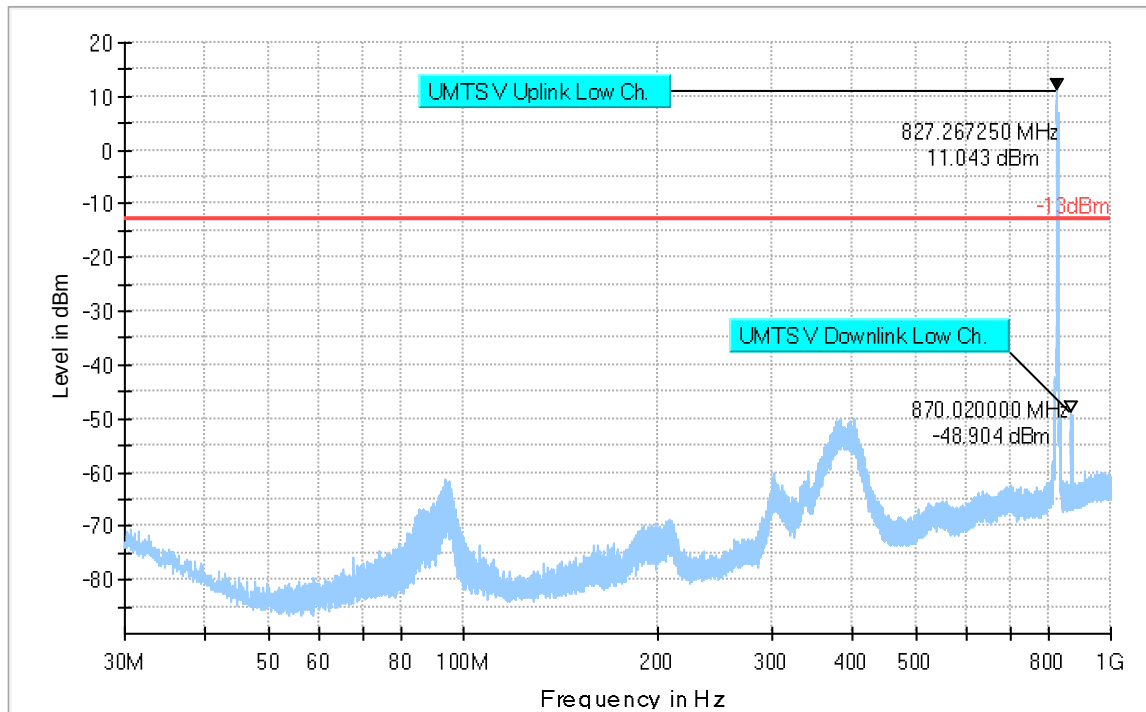


Preview Result 1-PK+

-13dBm

Final_Result PK+

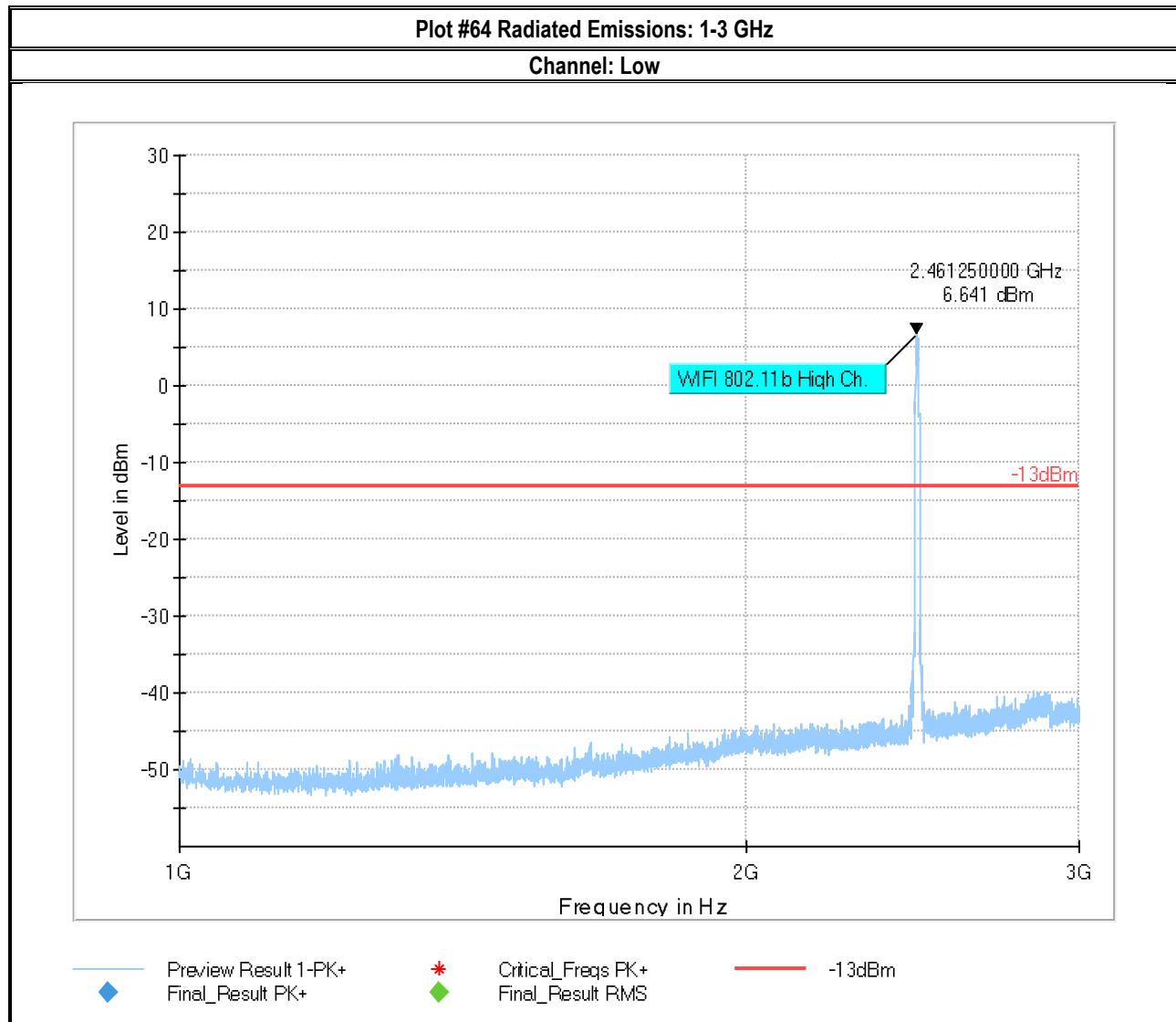
Final_Result RMS

UMTS Band V**Plot #63 Radiated Emissions: 30 MHz – 1GHz****Channel: Low**

Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

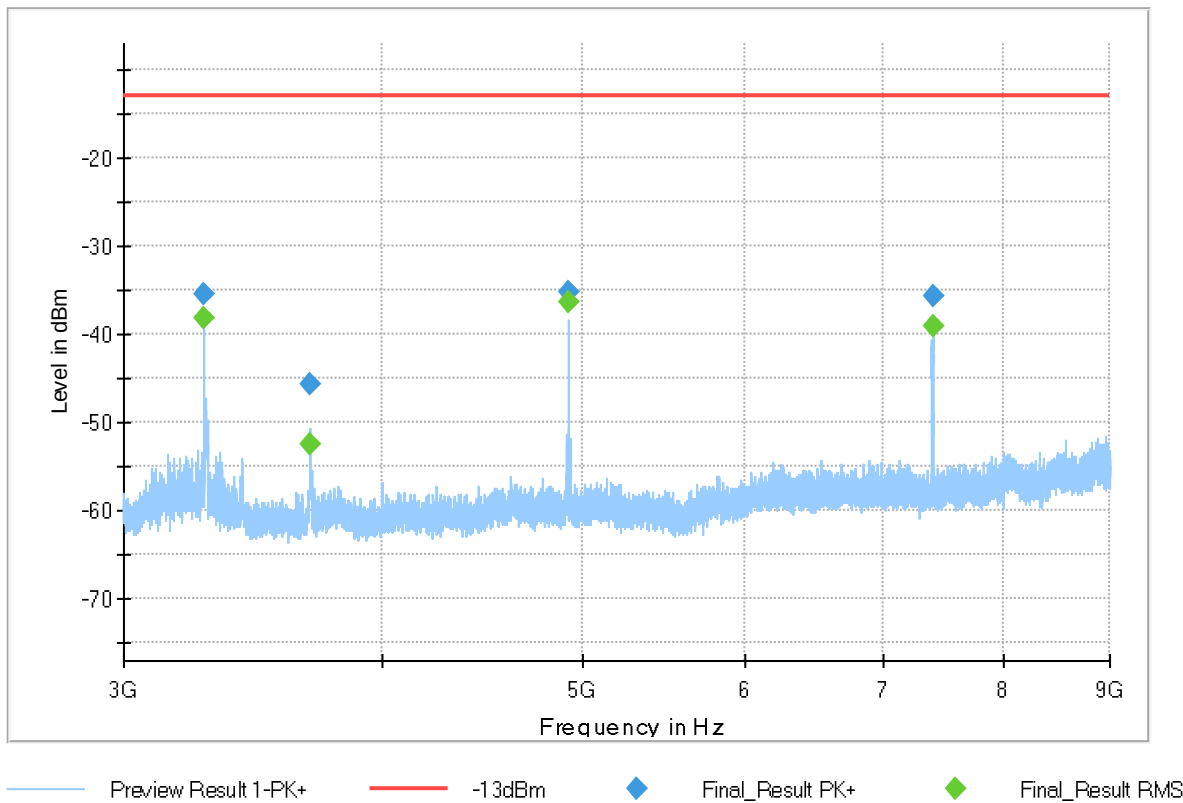


Plot #65 Radiated Emissions: 3-9 GHz

Channel: Low

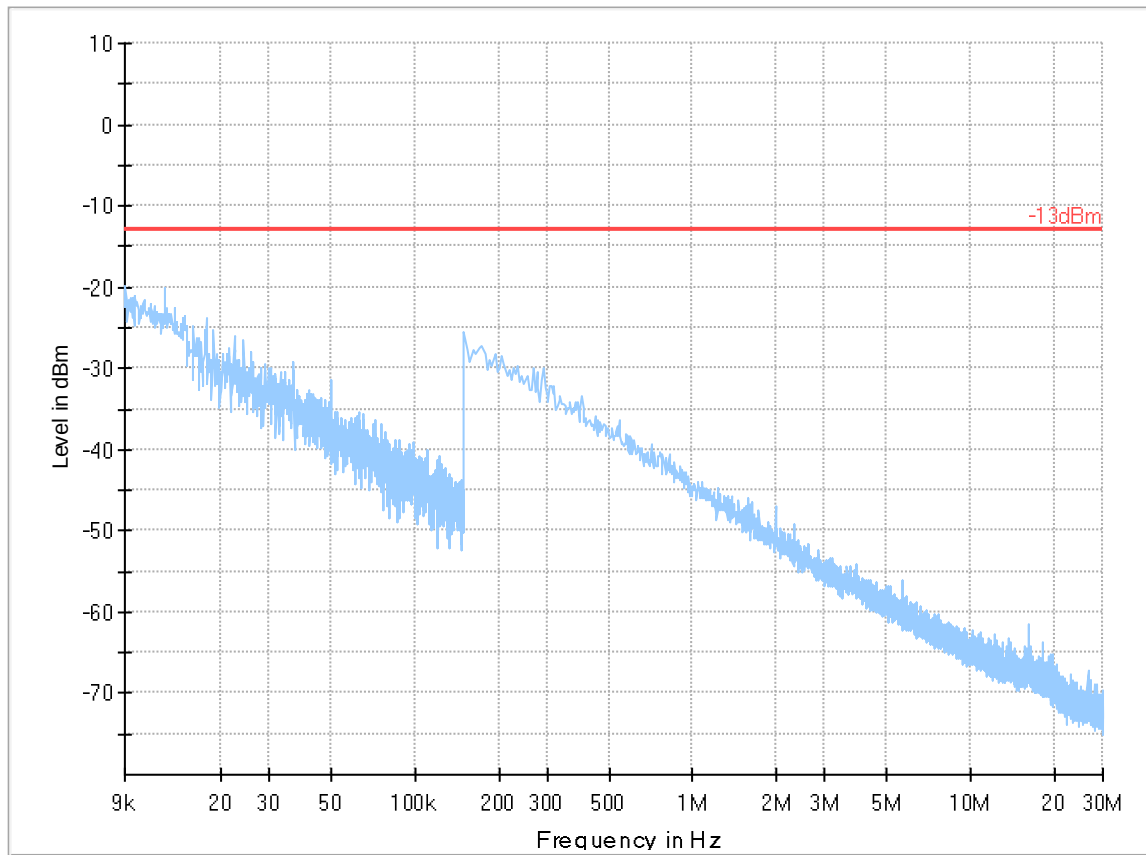
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.542	---	-38.22	-13.00	25.22	100.0	1000.000	140.0	H	92.0	-103.2
3282.542	-35.38	---	-13.00	22.38	100.0	1000.000	140.0	H	92.0	-103.2
3692.819	---	-52.47	-13.00	39.47	100.0	1000.000	261.0	H	267.0	-101.4
3692.819	-45.73	---	-13.00	32.73	100.0	1000.000	261.0	H	267.0	-101.4
4923.829	-35.18	---	-13.00	22.18	100.0	1000.000	238.0	H	274.0	-99.5
4923.829	---	-36.33	-13.00	23.33	100.0	1000.000	238.0	H	274.0	-99.5
7387.248	-35.68	---	-13.00	22.68	100.0	1000.000	221.0	H	120.0	-94.7
7387.248	---	-39.04	-13.00	26.04	100.0	1000.000	221.0	H	120.0	-94.7



Plot #66 Radiated Emissions: 9 kHz – 30 MHz

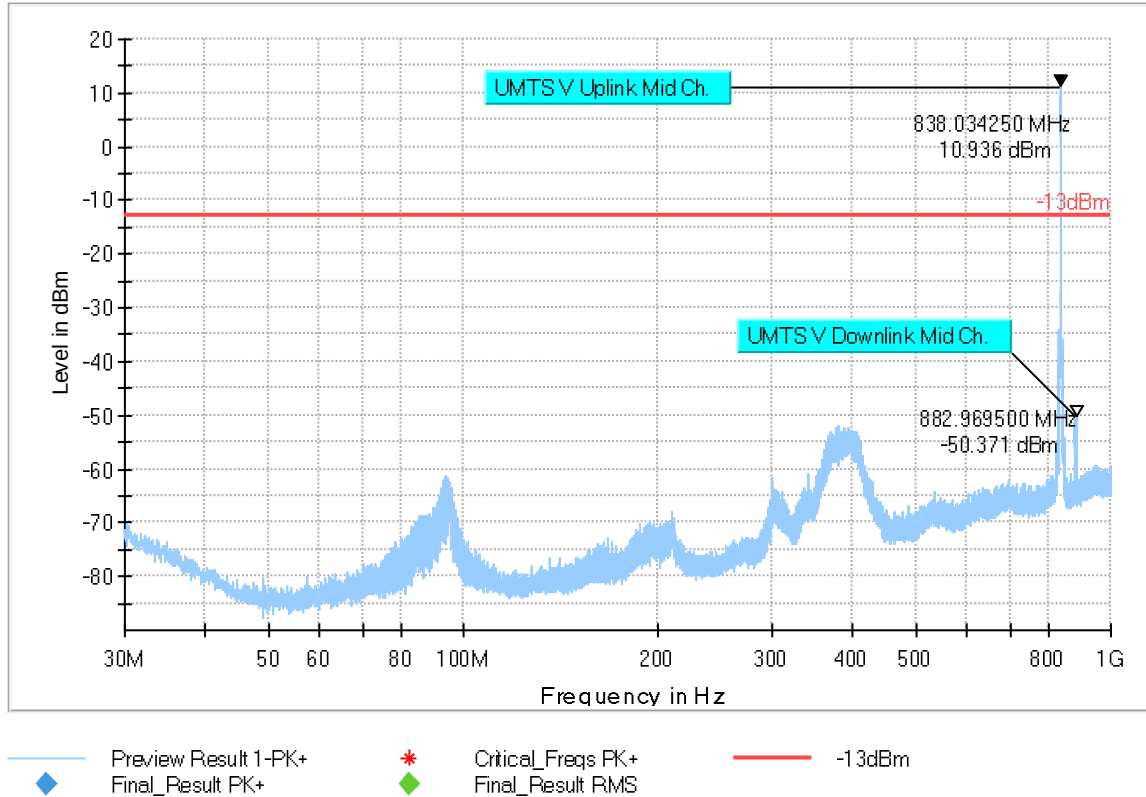
Channel: Mid

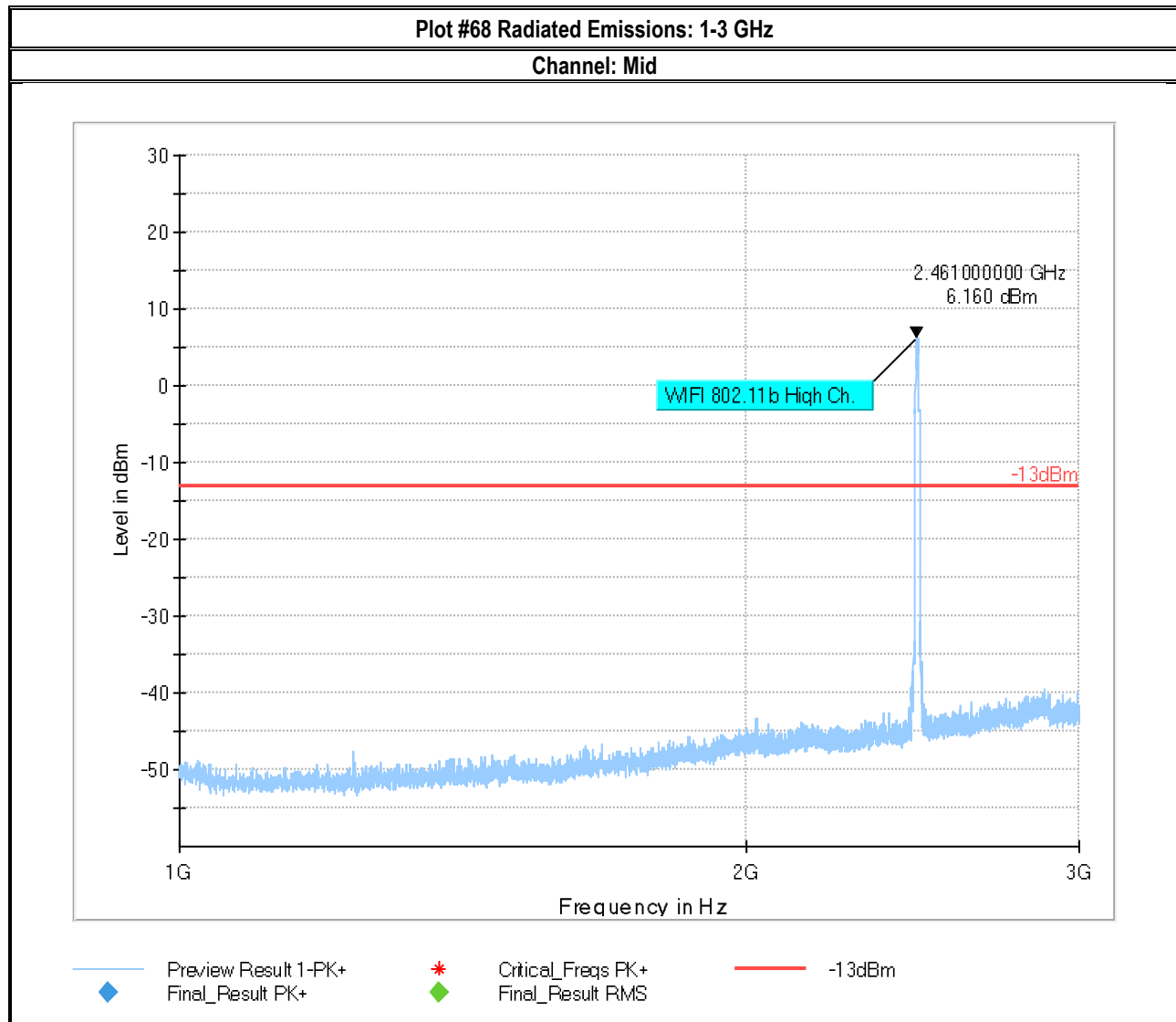


Preview Result 2-QPK	Preview Result 1-PK+	Critical_Freqs QPK
* Critical_Freqs PK+	-13dBm	◆ Final_Result PK+
◆ Final_Result QPK		

Plot #67 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



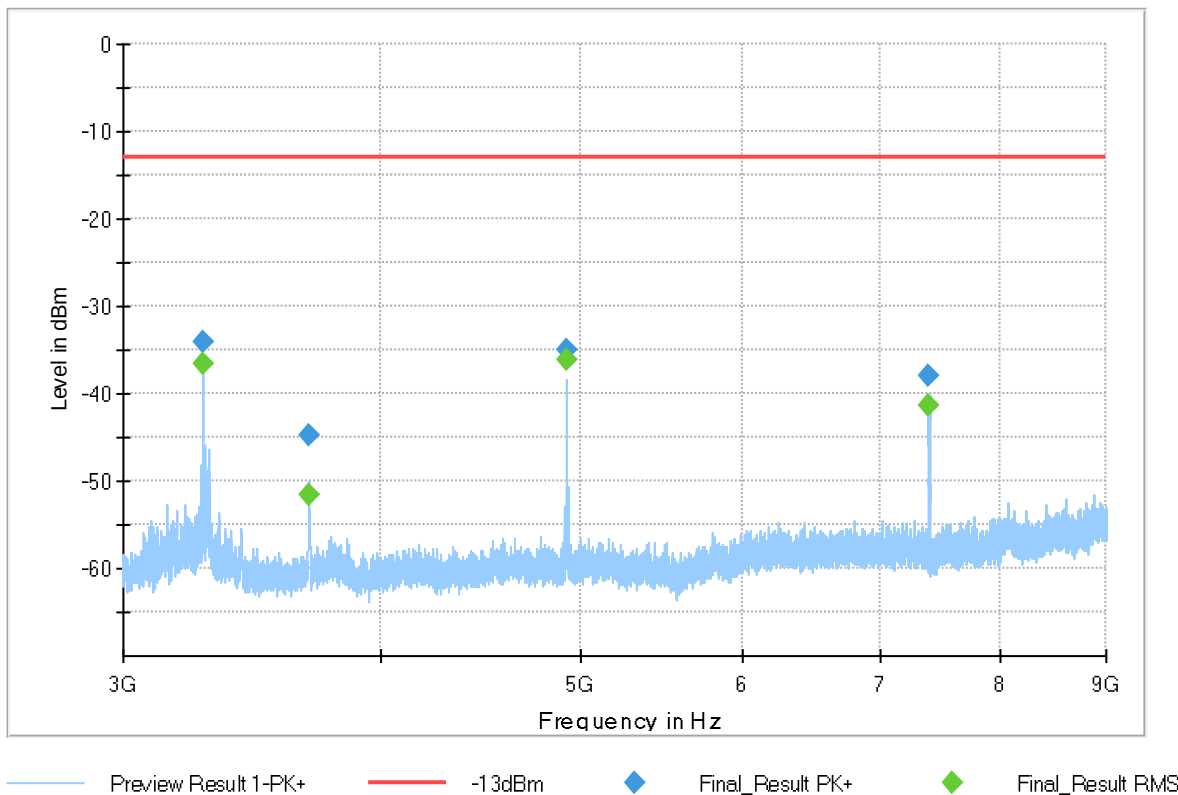


Plot #69 Radiated Emissions: 3-9 GHz

Channel: Mid

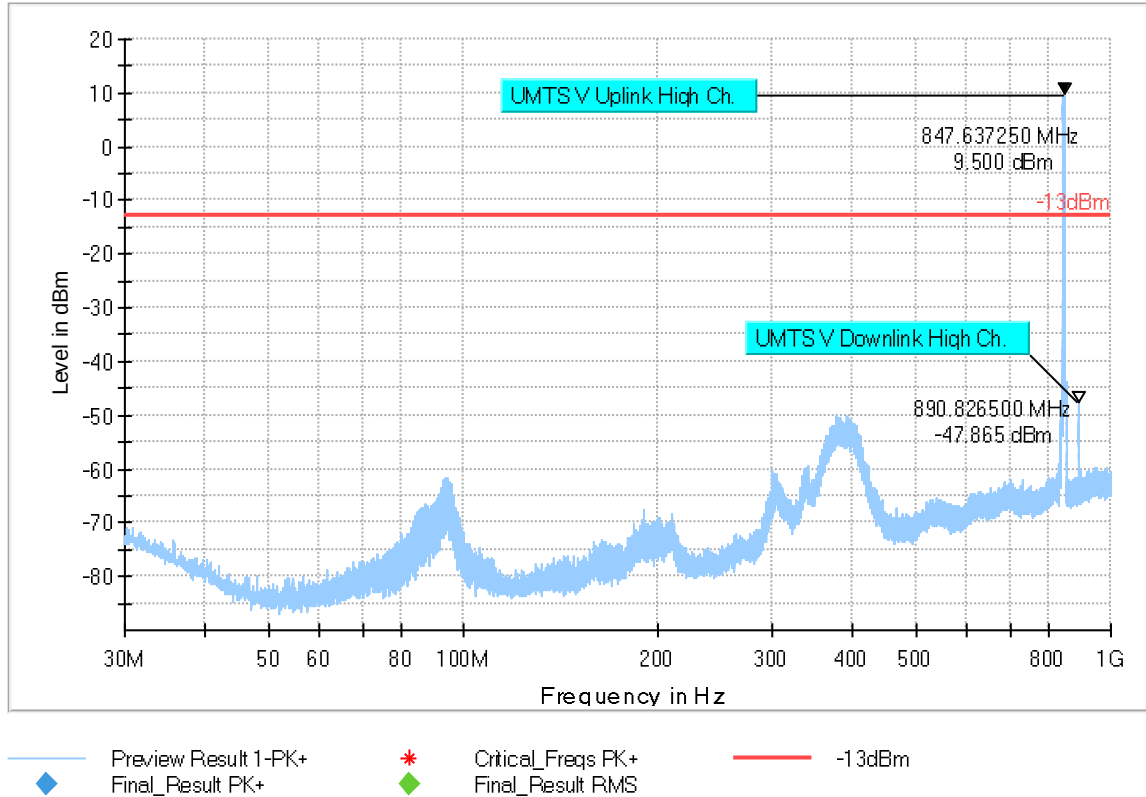
Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3282.540	---	-36.50	-13.00	23.50	100.0	1000.000	240.0	H	90.0	-103.2
3282.540	-34.04	---	-13.00	21.04	100.0	1000.000	240.0	H	90.0	-103.2
3692.882	---	-51.59	-13.00	38.59	100.0	1000.000	257.0	H	271.0	-101.4
3692.882	-44.82	---	-13.00	31.82	100.0	1000.000	257.0	H	271.0	-101.4
4923.803	-34.93	---	-13.00	21.93	100.0	1000.000	238.0	H	272.0	-99.5
4923.803	---	-36.05	-13.00	23.05	100.0	1000.000	238.0	H	272.0	-99.5
7384.750	-38.06	---	-13.00	25.06	100.0	1000.000	236.0	H	123.0	-94.7
7384.750	---	-41.46	-13.00	28.46	100.0	1000.000	236.0	H	123.0	-94.7



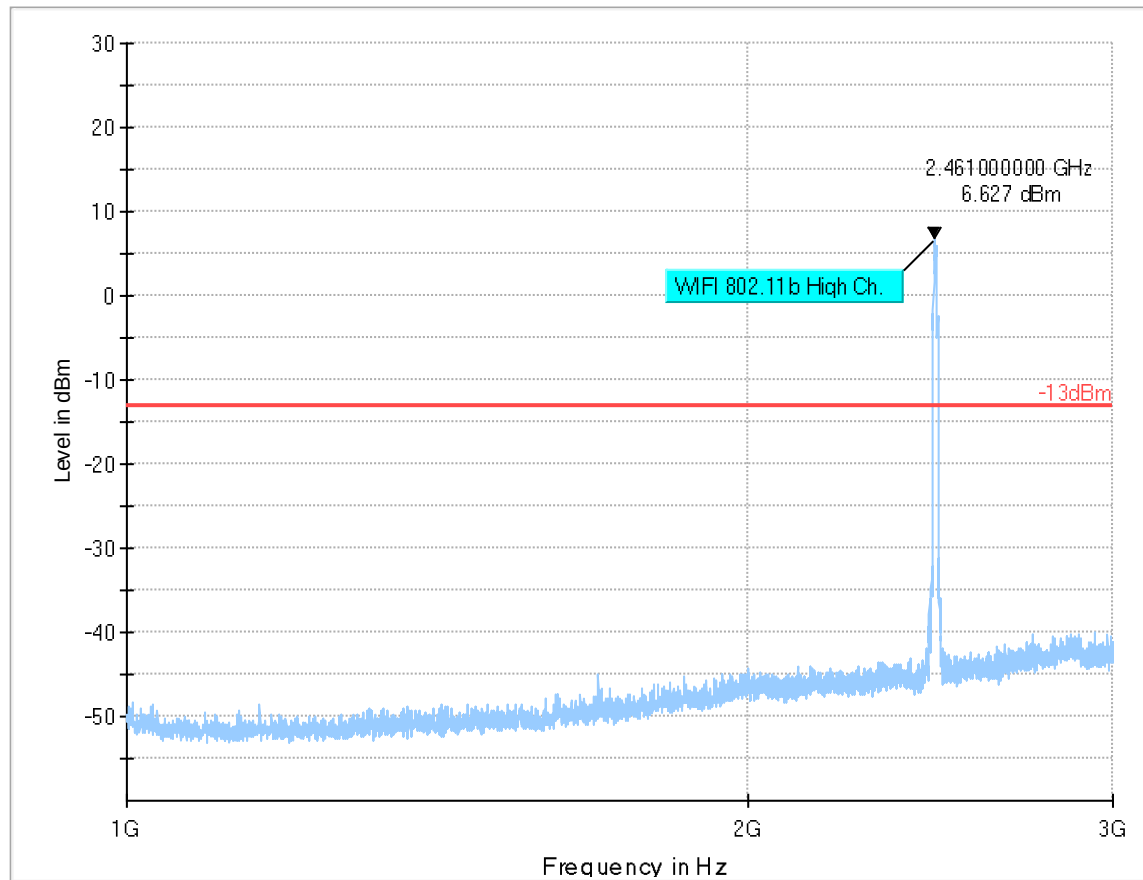
Plot #70 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Plot #71 Radiated Emissions: 1-3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

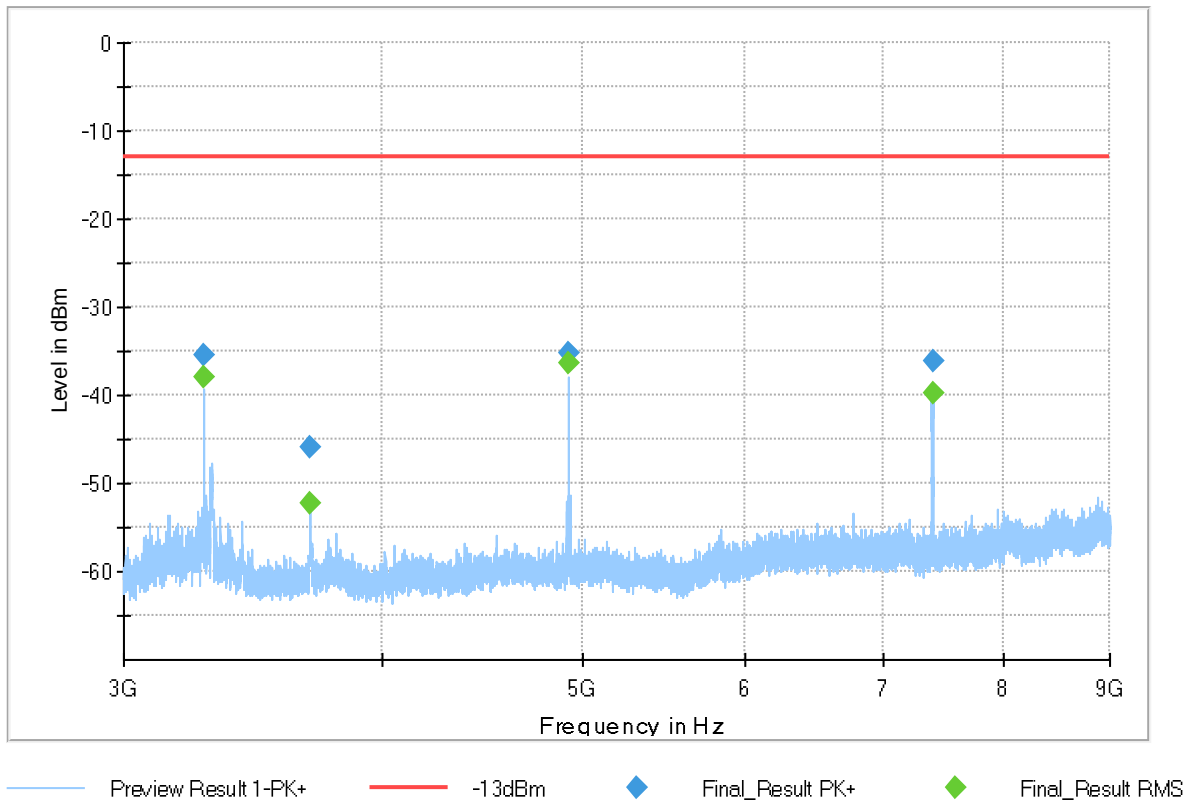
-13dBm

Plot #72 Radiated Emissions: 3-9 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)
3282.567	---	-37.86	-13.00	24.86	100.0	1000.000	238.0	H	89.0	-103.2
3282.567	-35.40	---	-13.00	22.40	100.0	1000.000	238.0	H	89.0	-103.2
3692.920	-45.85	---	-13.00	32.85	100.0	1000.000	282.0	H	277.0	-101.4
3692.920	---	-52.27	-13.00	39.27	100.0	1000.000	282.0	H	277.0	-101.4
4923.850	-35.17	---	-13.00	22.17	100.0	1000.000	205.0	H	273.0	-99.5
4923.850	---	-36.38	-13.00	23.38	100.0	1000.000	205.0	H	273.0	-99.5
7387.250	-36.21	---	-13.00	23.21	100.0	1000.000	221.0	H	121.0	-94.7
7387.250	---	-39.69	-13.00	26.69	100.0	1000.000	221.0	H	121.0	-94.7



8 Test setup photos

Setup photos are included in supporting file name: "EMC_GARMI-064-19001_FCC_22_24_27_Setup_photos.pdf"

9 Test Equipment And Ancillaries Used For Testing

Equipment Type	Manufacturer	Model	Serial #	Calibration Cycle	Last Calibration Date
Loop Antenna	ETS Lindgren	6507	161344	3 years	10/26/2017
Biconlog Antenna	ETS Lindgren	3142E	166067	3 years	03/12/2020
Horn Antenna	ETS Lindgren	3115	35114	3 years	07/31/2017
Horn Antenna	ETS Lindgren	3117-PA	215984	3 years	01/26/2018
Horn Antenna	ETS Lindgren	3116	70497	3 years	10/31/2017
EMI Test Receiver	R&S	ESW44	101715	3 years	01/06/2020
Spectrum Analyzer	R&S	FSU26	200065	3 years	07/16/2019
Wideband Radio Communication Tester	R&S	CMW 500	109825	2 years	03/09/2020
Thermometer Humidity Monitor	Control Company	36934-164	181230565	2 years	04/27/2018

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
2020-04-16	EMC_GARMI-064-19001_FCC_22_24_27	Initial Version	Chin Ming Lui
2020-04-20	EMC_GARMI-064-19001_FCC_22_24_27_REV1	Modified sample revision note for pre-production PCB from N2K to communication circuit	Chin Ming Lui
2020-04-29	EMC_GARMI-064-19001_FCC_22_24_27_REV2	Modified antenna gains for LTE and UMTS bands based on operational description	Chin Ming Lui
2020-05-06	EMC_GARMI-064-19001_FCC_22_24_27_REV3	Modified antenna gains for LTE and UMTS bands based on operational description, and updated test sample configuration and mode of operation details	Chin Ming Lui
2020-05-11	EMC_GARMI-064-19001_FCC_22_24_27_REV4	Updated EUT SW version from Test Rev 7 to 1.20	Chin Ming Lui
2020-05-18	EMC_GARMI-064-19001_FCC_22_24_27_REV5	Updated test sample configuration by adding power control through SW for WiFi radio	Chin Ming Lui

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