



FCC/ISED Test Report

FOR:
Pratt & Whitney

Model Number:
HMU200-1(4G)

Product Description:
Collection of aircraft engine and airframe data in flight and wireless transmission of collected data on ground

FCC ID: 2AQWD-HMU200-4G
IC ID: 25562-HMU2004G

Per:
47 CFR: Part 22, Part 24, Part 27
RSS-130 Issue 2; RSS-132 Issue 3; RSS-133 Issue 6; RSS-139 Issue 3; RSS-199 Issue 3

REPORT #: EMC_PRATT-008-19001_FCC_22_24_27_ISED

DATE: 2021-04-05



A2LA Accredited

IC recognized #
3462B-1
CABID: US0187

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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 unlicensed radios according to criteria specified in the Code of Federal Regulations Title 47 parts 22, 24, 27 and Industry Canada Radio Standard Specifications RSS: 130 Issue 2, 132 Issue 3, 133 Issue 6, 139 Issue 3 and 199 Issue 3.

Company	Description	Model #
Pratt & Whitney	Collection of aircraft engine and airframe data in flight and wireless transmission of collected data on ground	HMU200-1(4G)

No deficiencies were ascertained.

Responsible for Testing Laboratory:

2021-04-05	Compliance	Kevin Wang (Lab Manager)	
Date	Section	Name	Signature

Responsible for the Report:

2021-04-05	Compliance	Yuchan Lu (Test Engineer)	
Date	Section	Name	Signature

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

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

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

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

2.2 Identification of the Client

Client's Name:	Pratt & Whitney
Street Address:	400 Main Street, MS 168-15
City/Zip Code	East Hartford, CT 06118
Country	USA

2.3 Identification of the Manufacturer

Manufacturer's Name:	Collins Aerospace & Setrix
Manufacturers Address:	400 Main Street, MS 168-15
City/Zip Code	East Hartford, CT 06118
Country	USA

3 Equipment Under Test (EUT)**3.1 EUT Specifications**

Model No:	HMU200-1(4G)
Firmware Version Identification Number (FVIN):	N/A
Hardware Version Identification Number (HVIN):	HMU2004G
Product Marketing Name (PMN):	eFAST
Antenna Information as declared:	Laird Technologies, P/N: CFS69271-FSMAF Antenna gains: • GSM 850: 1.5 dBi • GSM 1900: 3.0 dBi • WCDMA II: 3.0 dBi • WCDMA IV: 3.0 dBi • WCDMA V: 1.5 dBi • LTE Band 2: 3.0 dBi • LTE Band 4: 3.0 dBi • LTE Band 5: 1.5 dBi • LTE Band 7: 4.5 dBi • LTE Band 12: 1.5 dBi
Other Radios included in the device:	❖ <u>WLAN</u> • Module name: Ti-Wi BLE • Module number: TFB-TIWI1-01 / 5969A-TIWI101
Power Supply/ Rated Operating Voltage Range:	Low 23.8 VDC, Nominal 28 VDC, High 32.2 VDC
Operating Temperature Range:	Low -30° C, Nominal 25° C, High 70° C
Sample Revision	☐ Prototype Unit; ☒ Production Unit; ☐ Pre-Production
EUT Dimensions(mm):	365.1 x 92.1 x 161.9
Weight(grams):	3570
EUT Diameter	☒ < 60 cm ☐ Other _____

Module Information	
Module Name:	Gemalto
Model Number:	PLS62-W
FCC ID:	QIPPLS62-W
IC ID:	7830A-PLS62W

3.2 EUT Sample details

EUT #	IMEI number	HW Version	SW Version	Notes/Comments
1	358244080006564	4	1.24	Radiated Measurement

3.3 Accessory Equipment (AE) Details

AE #	Comments
1	Power cable
2	External Antenna: Laird Technologies, P/N: CFS69271-FSMAF The minimum antenna cable length is 10 ft. Band Attenuation for Min Cable Len (10 ft) dB LTE B12 0.94 dB GSM 850 / UMTS V / LTE B5 1.06 dB LTE B4 / UMTS IV 1.62 dB GSM 1900 / UMTS II / LTE B2 1.67 dB LTE B7 1.90 dB

3.4 Support Equipment

SE #	Comments
1	Communication Cable

3.5 Test Sample Configuration

EUT Set-up #	Combination of AE used for test set up	Comments
1	EUT# 1 + AE# 1 + AE# 2 +SE#1	Worst Case

3.6 Mode of Operation details

Mode of Operation	Description of Operating modes	Additional Information
Op. 1	Cellular and WLAN Co-Transmission	Cellular was tested on Low, Mid, High Channels at the maximum power in a co-transmission mode. Special commands through command window used to configure the WLAN Mid channel provided by the client that will not be available to the end user For radiated measurements: The external antenna was connected.

3.7 Justification for Worst Case Mode of Operation

During the testing process the EUT was tested with transmitter sets on low, mid and high channels at the maximum power simultaneous transmission with WLAN Mid channel. Which it is the worst case of the radios supported, based on the maximum average conducted output power from the reports.

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 support a request for new equipment authorization under **FCC ID: 2AQWD-HMU200-4G / IC ID: 25562-HMU2004G**

The pre-certified module to be integrated (PLS62-W) as described in Section 3, Radiated Spurious Emissions test was performed. Results have been checked to meet limits per Code of Federal Regulations Title 47 parts 22, 24, 27 and Industry Canada Radio Standard Specifications RSS: 130 Issue 2, 132 Issue 3, 133 Issue 6, 139 Issue 3 and 199 Issue 3.

The conducted module test data that can be obtained under the **FCC Filing ID: QIPPLS62-W** is applicable for the host described in section 3.

4.1 Dates of Testing:

09/30/2019 – 10/04/2019

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%

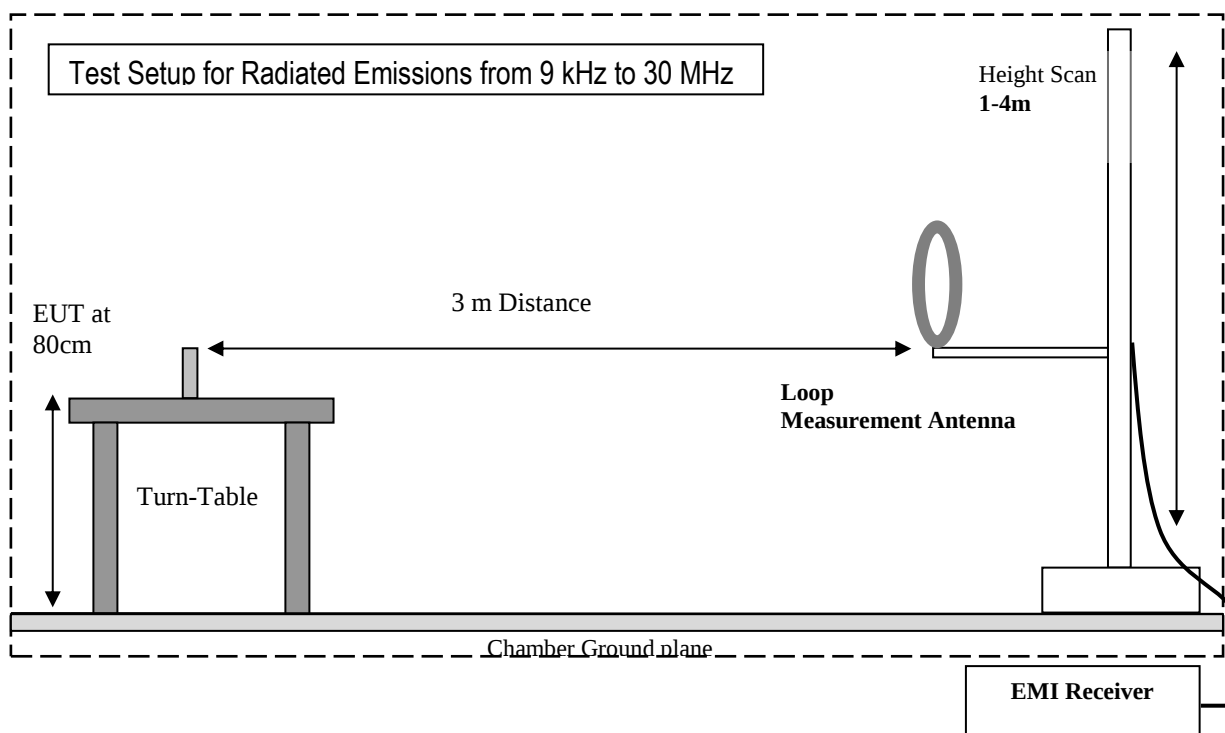
Deviating test conditions are indicated at individual test description where applicable.

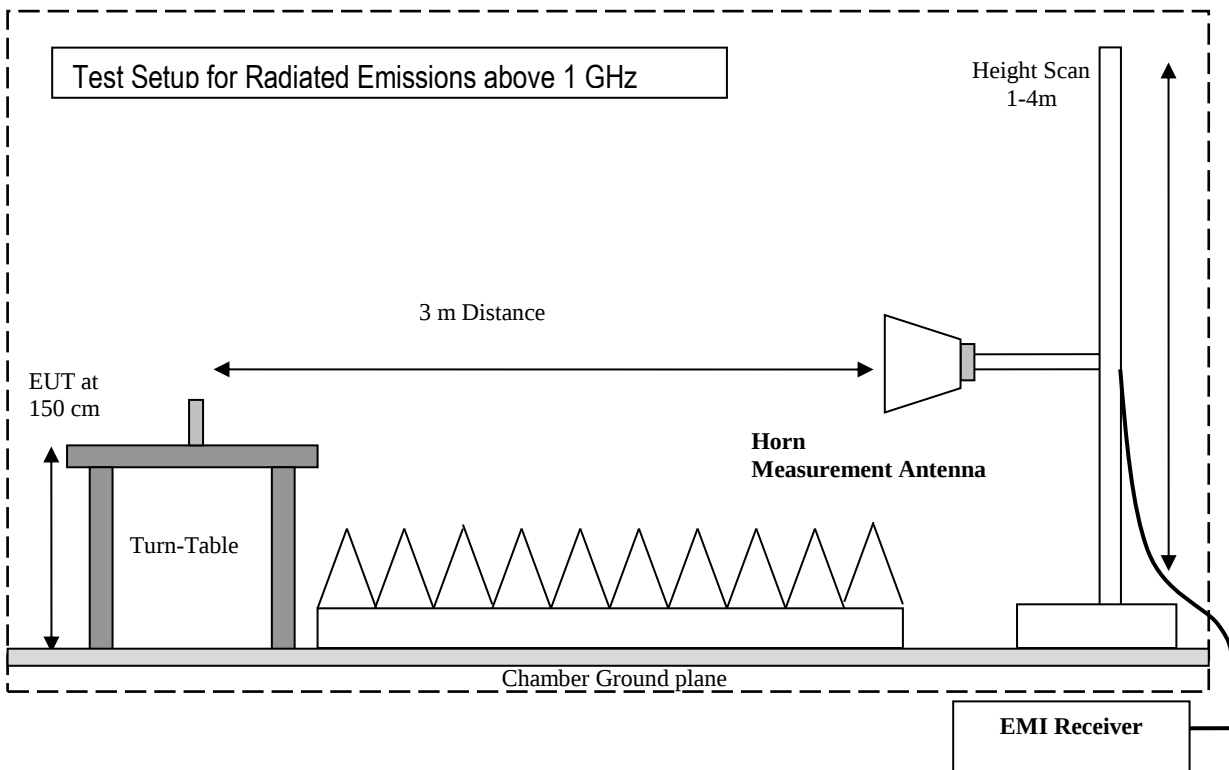
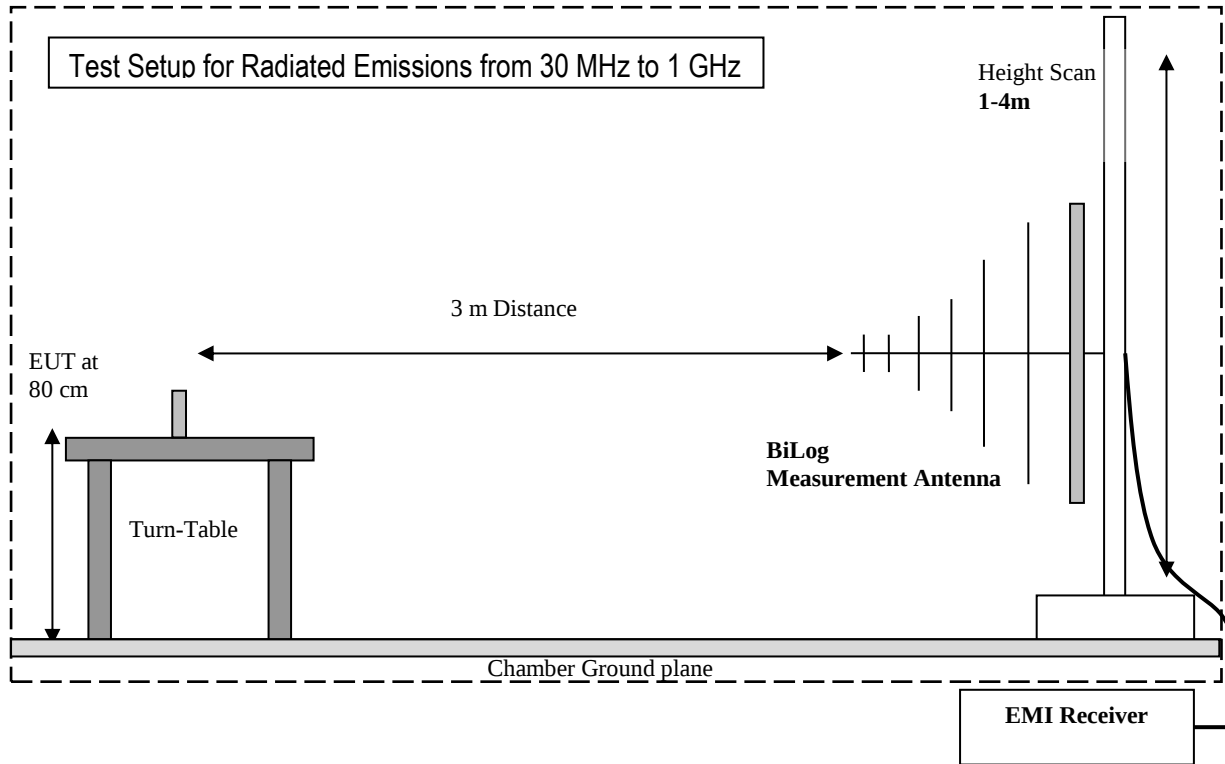
5 Measurement Procedures

Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03 – “Measurement Guidance for Certification of Licensed Digital Transmitters” and according to ANSI C63.26 as detailed below.

5.1 Radiated Measurement

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





5.2 Sample Calculations for Field Strength Measurements

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

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

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

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

Example:

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

6 Measurement Results Summary**6.1 FCC 22, RSS-132:**

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §22.913 (a)	RF Output Power	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1055; §22.355	Frequency Stability	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1049; §22.917	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §22.917	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §22.917	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1053; §22.917(a); RSS-132 Issue 3-5.5;	Radiated Spurious Emissions	Nominal	Op.1	■	☐	☐	☐	Complies

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

Note 2: Leveraged from module certification FCC ID: QIPPLS62-W

6.2 FCC 24, RSS-133:

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

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

Note 2: Leveraged from module certification FCC ID: QIPPLS62-W

6.3 FCC 27, RSS-130, RSS-139, RSS-199:

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(g); §27.53(h); RSS-130 Issue 2-4.6; RSS-139 Issue 3-6.6; RSS-199 Issue 3-4.6	Radiated Spurious Emissions	Nominal	Op.1	■	☐	☐	☐	Complies

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

Note 2: Leveraged from module certification FCC ID: QIPPLS62-W

7 Test Result Data**7.1 ERP**

Band	Frequency Range (MHz)	Power conducted (W)	Emission Designator	Antenna Gain + Cable loss (dBi)	gain linear	ERP < 1 GHz EIRP > 1 GHz (W)	Frequency deviation (ppm)	Limit ERP (W)
GSM 850	824.2 – 848.8	2.35	247KGXW	0.44	1.107	1.586	0.1	7
GSM 850	824.2 – 848.8	0.499	250KG7W	0.44	1.107	0.337	0.1	7
GSM 1900	1850.2 – 1909.8	1.035	248KGXW	1.33	1.358	1.406	0.1	2
GSM 1900	1850.2 – 1909.8	0.352	260KG7W	1.33	1.358	0.478	0.1	2
WCDMA II	1852.4 – 1907.6	0.17	4M09F9W	1.33	1.358	0.231	0.1	2
WCDMA IV	1712.4 - 1752.6	0.181	4M09F9W	1.38	1.374	0.249	0.1	1
WCDMA V	826.4 – 846.6	0.169	4M09F9W	0.44	1.107	0.114	0.1	7
LTE 2	1857.5 – 1902.5	0.164	13M6W7D	1.33	1.358	0.223	0.1	2
LTE 2	1860 – 1900	0.163	18M0W7D	1.33	1.358	0.221	0.1	2
LTE 4	1717.5 – 1747.5	0.171	13M6W7D	1.38	1.374	0.235	0.1	1
LTE 4	1720 – 1745	0.167	17M9W7D	1.38	1.374	0.229	0.1	1
LTE 5	824.7 – 848.3	0.203	1M09G7D	0.44	1.107	0.137	0.1	7
LTE 5	829 – 844	0.166	9M04W7D	0.44	1.107	0.112	0.1	7
LTE 7	2510 - 2560	0.134	18M1W7D	2.6	1.820	0.244	0.1	2
LTE 12	699.7 – 715.3	0.167	1M10W7D	0.56	1.138	0.116	0.1	3
LTE 12	704 – 711	0.164	9M04W7D	0.56	1.138	0.114	0.1	3

Note 1: ERP / EIRP are calculated from maximum power in grant of cellular module PLS62-W adding the maximum gain of the utilized cellular antenna with minimum length cable loss (10 ft cable length is used) as per the user manual stated attenuation.

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 v03, and according to ANSI C63.26 2017

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 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) and Part 24.238(a), Part 27.53 (g), and Part 27.53 (h)
- RSS-130 Issue 2-4.6, RSS-132 Issue 3 5.5, RSS-133 Issue 6 6.5.1, RSS-139 Issue 3 6.6, RSS-199 Issue 3-4.6

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 operating mode	Power Input
22	Op. 1	28 VDC

7.2.4 Measurement Plots:**GSM 850****Plot # 1 Radiated Emissions: 30 MHz - 1 GHz**

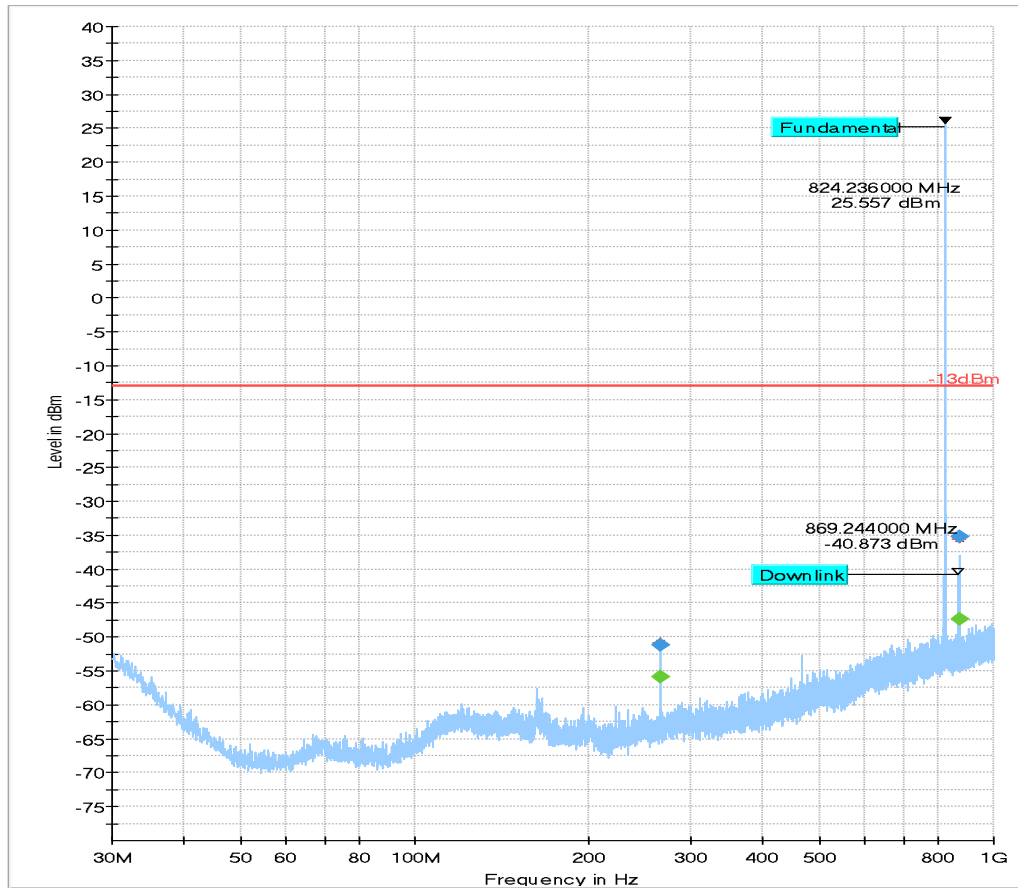
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.397570	-51.10	---	-13.00	38.10	100.0	100.000	140.0	H	247.0
266.397570	---	-55.79	---	---	100.0	100.000	140.0	H	247.0
876.072790	---	-47.29	---	---	100.0	100.000	179.0	H	-12.0
876.072790	-35.22	---	-13.00	22.22	100.0	100.000	179.0	H	-12.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.397570	-75.8	4:04:38 PM - 10/3/2019
266.397570	-75.8	4:04:39 PM - 10/3/2019
876.072790	-65.5	4:07:38 PM - 10/3/2019
876.072790	-65.5	4:07:38 PM - 10/3/2019

◆ Preview Result 1-PK+
Final_Result PK+* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 2 Radiated Emissions: 1 GHz - 3 GHz

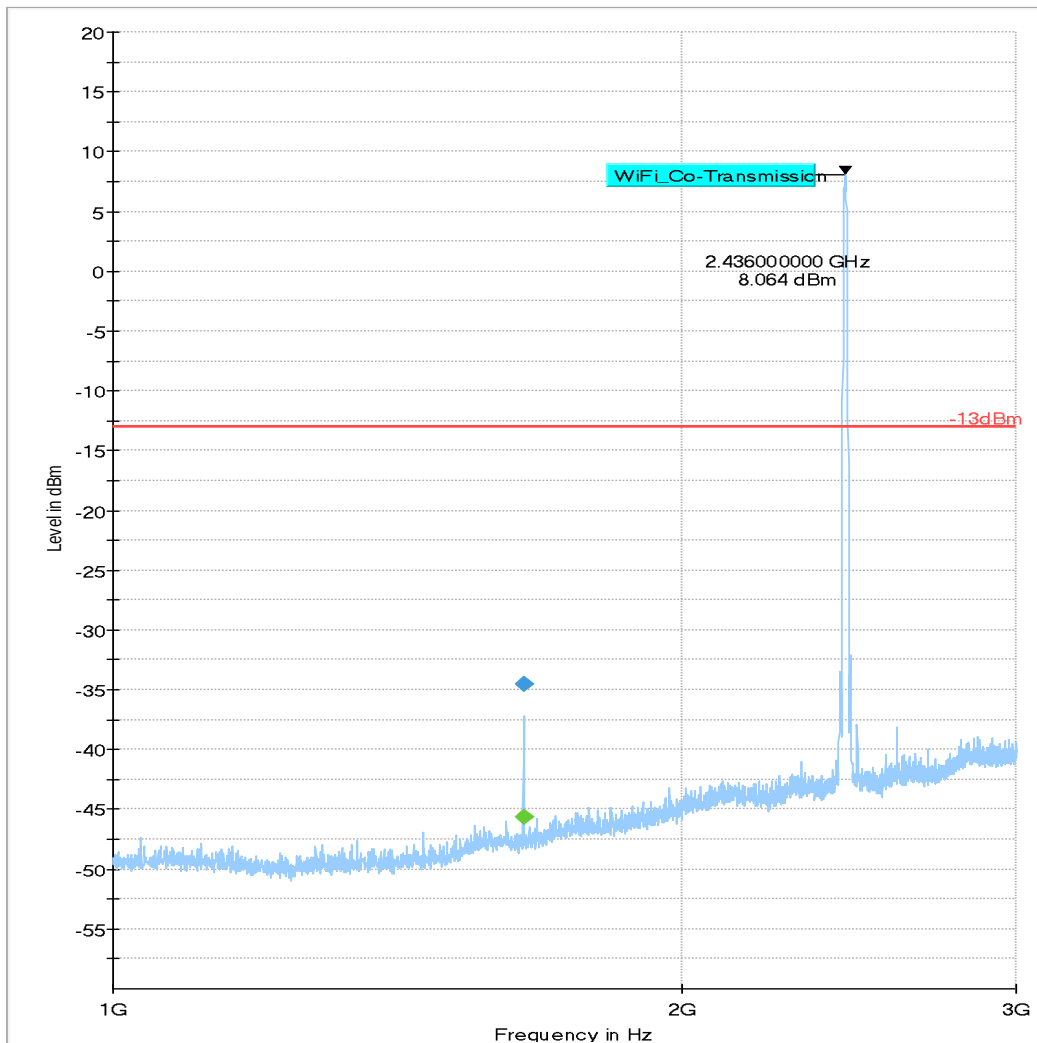
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1648.382500	---	-45.68	---	---	100.0	1000.000	181.0	H	156.0
1648.382500	-34.56	---	-13.00	21.56	100.0	1000.000	181.0	H	156.0

(continuation of the "Final_Result" table from column 15 ...)

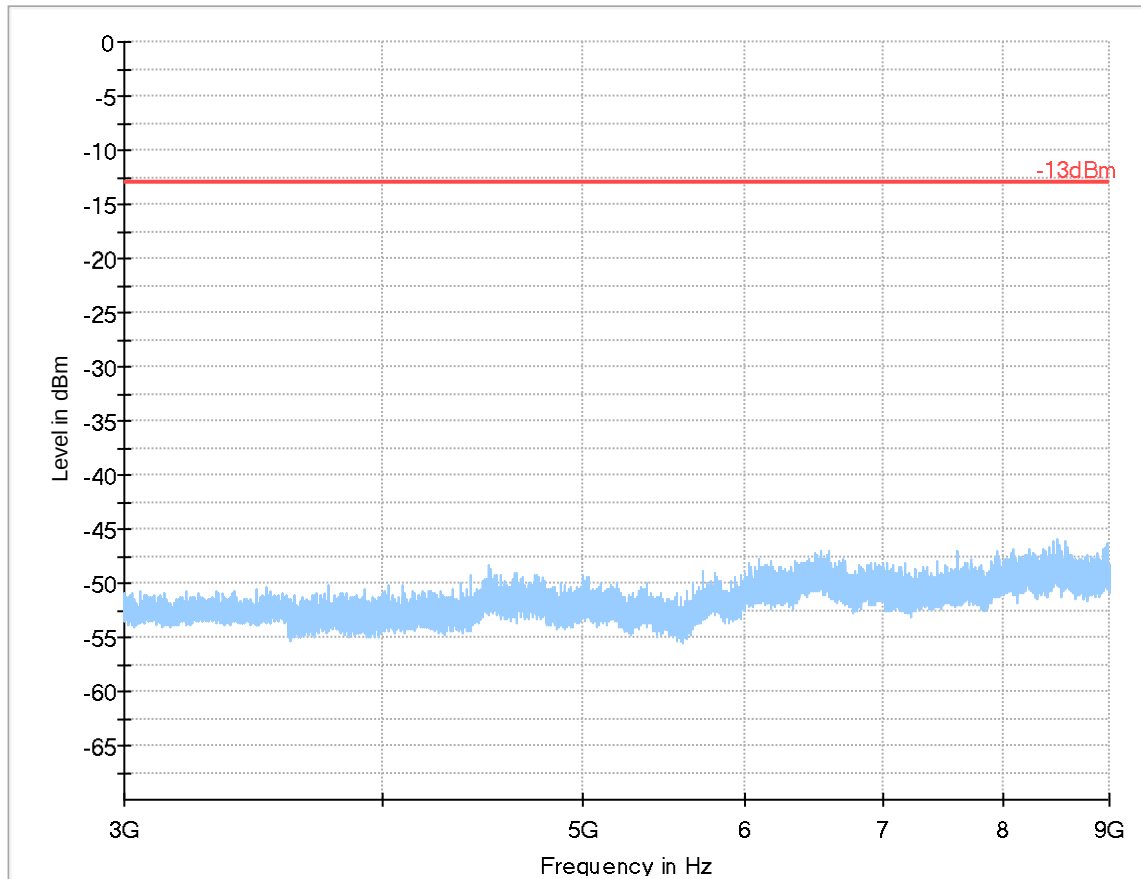
Frequency (MHz)	Corr. (dB)	Comment
1648.382500	-64.6	11:04:31 AM - 10/3/2019
1648.382500	-64.6	11:04:31 AM - 10/3/2019

◆ Preview Result 1-PK+
◆ Final_Result PK+* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 3 Radiated Emissions: 3 GHz - 9 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 4 Radiated Emissions: 9 kHz - 30 MHz

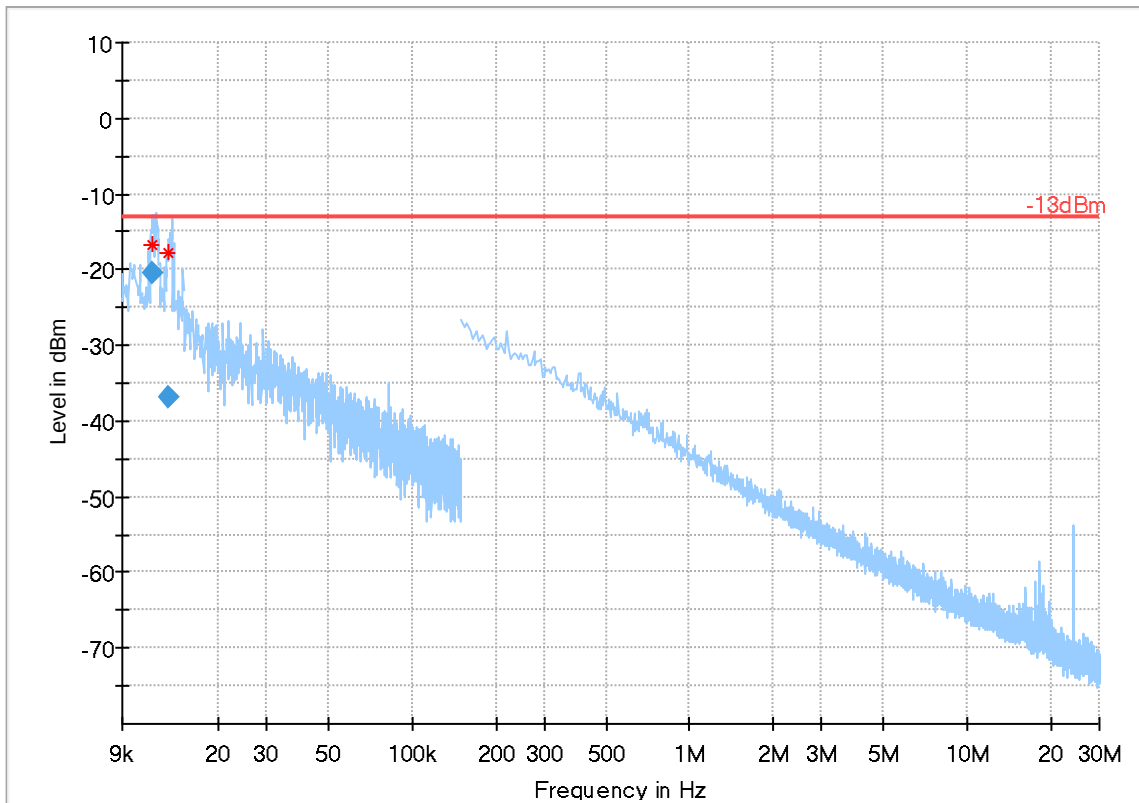
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.011480	-20.51	---	-13.00	7.51	2.0	0.200	165.0	V	142.0
0.013220	-36.84	---	-13.00	23.84	2.0	0.200	169.0	V	143.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
0.011480	-65.8	2:44:55 PM - 10/4/2019
0.013220	-66.8	2:46:39 PM - 10/4/2019



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

Plot # 5 Radiated Emissions: 30 MHz – 1 GHz

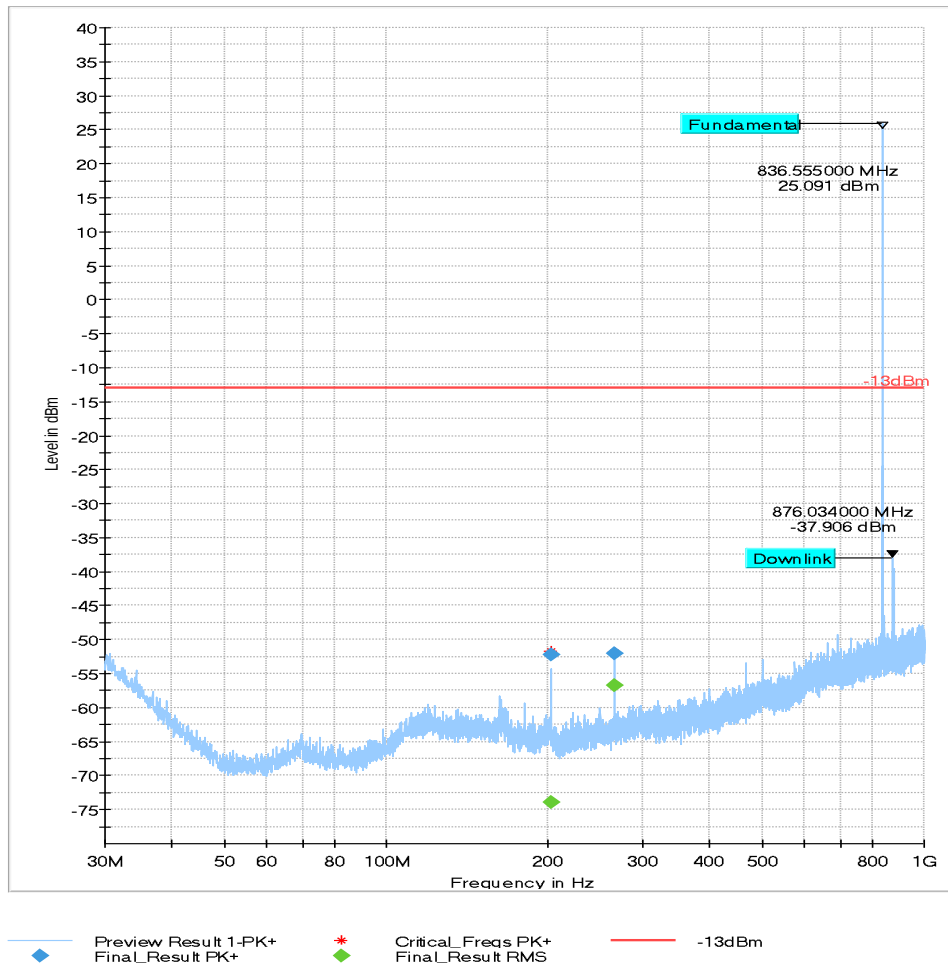
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
203.284813	---	-73.85	---	---	100.0	100.000	158.0	H	106.0
203.284813	-52.25	---	-13.00	39.25	100.0	100.000	158.0	H	106.0
266.399497	---	-56.73	---	---	100.0	100.000	151.0	H	116.0
266.399497	-52.07	---	-13.00	39.07	100.0	100.000	151.0	H	116.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
203.284813	-75.8	3:51:53 PM - 10/3/2019
203.284813	-75.8	3:51:53 PM - 10/3/2019
266.399497	-75.8	3:53:48 PM - 10/3/2019
266.399497	-75.8	3:53:48 PM - 10/3/2019



Plot # 6 Radiated Emissions: 1 GHz - 3 GHz

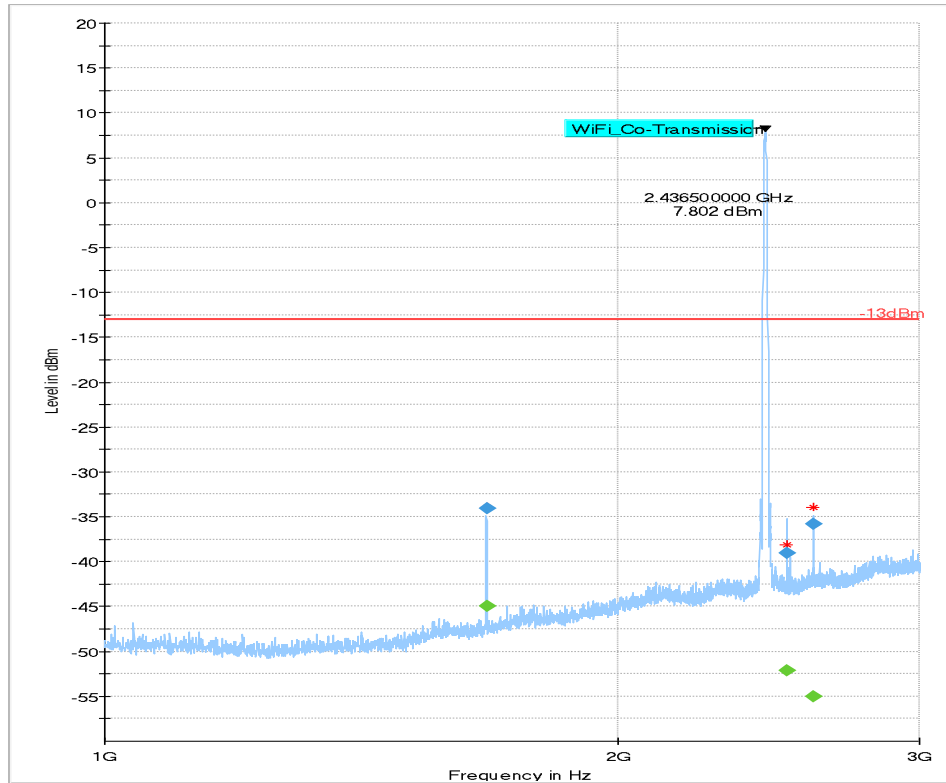
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1673.316250	---	-45.00	---	---	100.0	1000.000	166.0	H	158.0
1673.316250	-34.01	---	-13.00	21.01	100.0	1000.000	166.0	H	158.0
2509.547500	---	-52.11	---	---	100.0	1000.000	175.0	H	-58.0
2509.547500	-38.99	---	-13.00	25.99	100.0	1000.000	175.0	H	-58.0
2599.250313	---	-55.02	---	---	100.0	1000.000	152.0	V	69.0
2599.250313	-35.78	---	-13.00	22.78	100.0	1000.000	152.0	V	69.0

(continuation of the "Final_Result" table from column 15 ...)

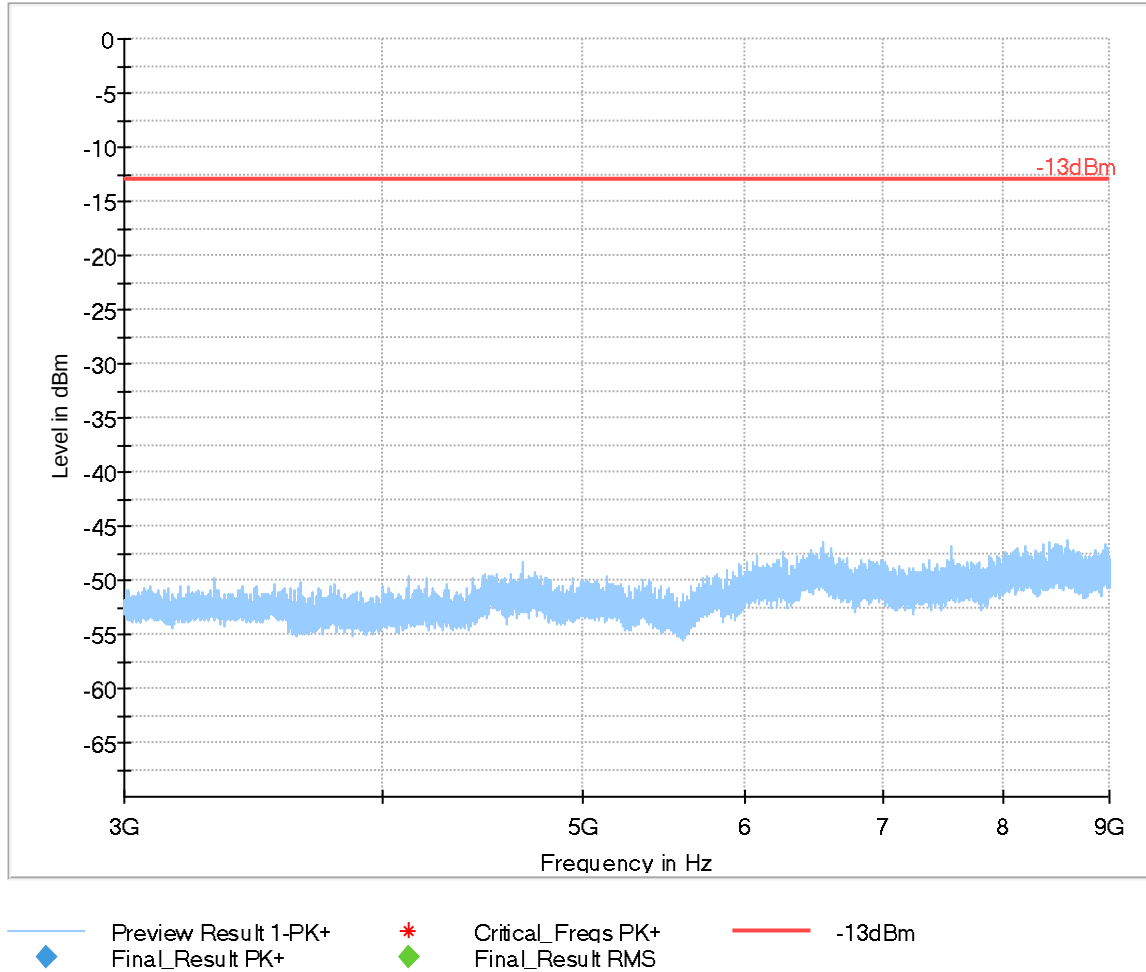
Frequency (MHz)	Corr. (dB)	Comment
1673.316250	-64.5	10:53:19 AM - 10/3/2019
1673.316250	-64.5	10:53:19 AM - 10/3/2019
2509.547500	-61.0	10:55:17 AM - 10/3/2019
2509.547500	-61.0	10:55:17 AM - 10/3/2019
2599.250313	-60.6	10:57:26 AM - 10/3/2019
2599.250313	-60.6	10:57:26 AM - 10/3/2019



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

Plot # 7 Radiated Emissions: 3 GHz – 9GHz

Channel: Mid



Plot # 8 Radiated Emissions: 30 MHz - 1 GHz

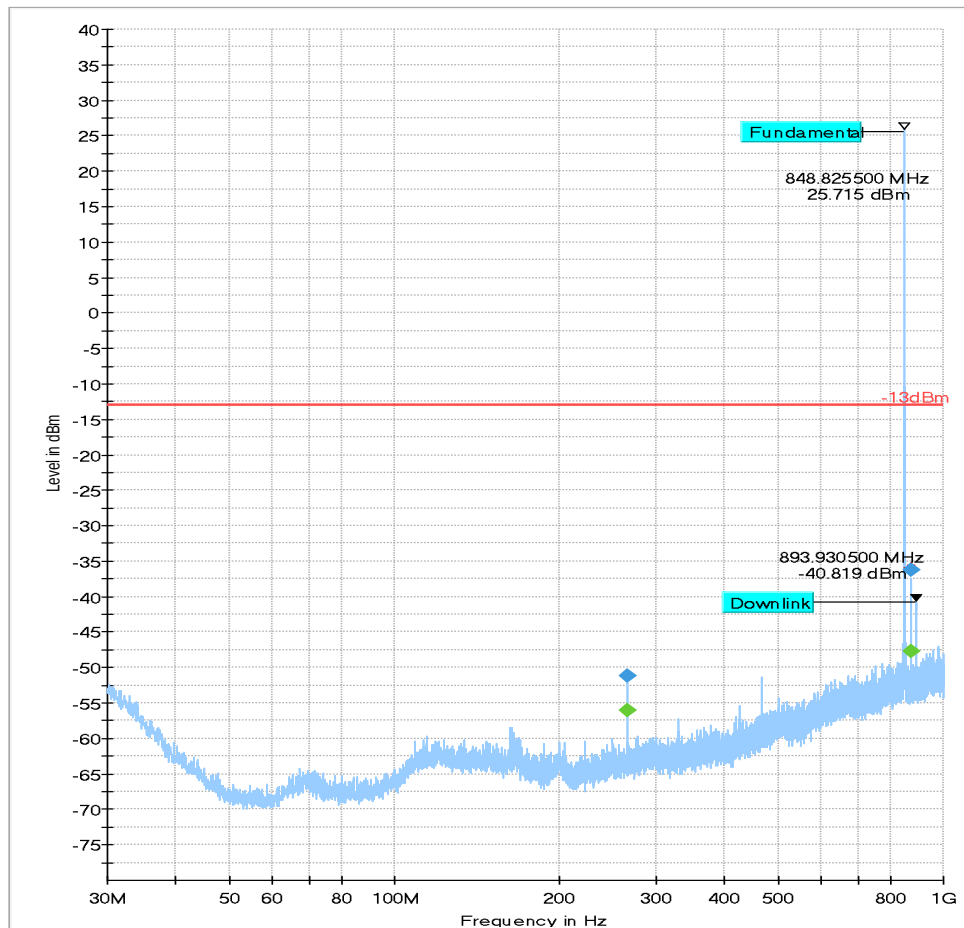
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.392983	---	-55.96	---	---	100.0	100.000	140.0	H	252.0
266.392983	-51.22	---	-13.00	38.22	100.0	100.000	140.0	H	252.0
876.002727	---	-47.77	---	---	100.0	100.000	152.0	H	351.0
876.002727	-36.27	---	-13.00	23.27	100.0	100.000	152.0	H	351.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.392983	-75.8	4:19:16 PM - 10/3/2019
266.392983	-75.8	4:19:16 PM - 10/3/2019
876.002727	-65.5	4:21:19 PM - 10/3/2019
876.002727	-65.5	4:21:18 PM - 10/3/2019

◆ Preview Result 1-PK+
Final_Result PK+* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 9 Radiated Emissions: 1 GHz - 3 GHz

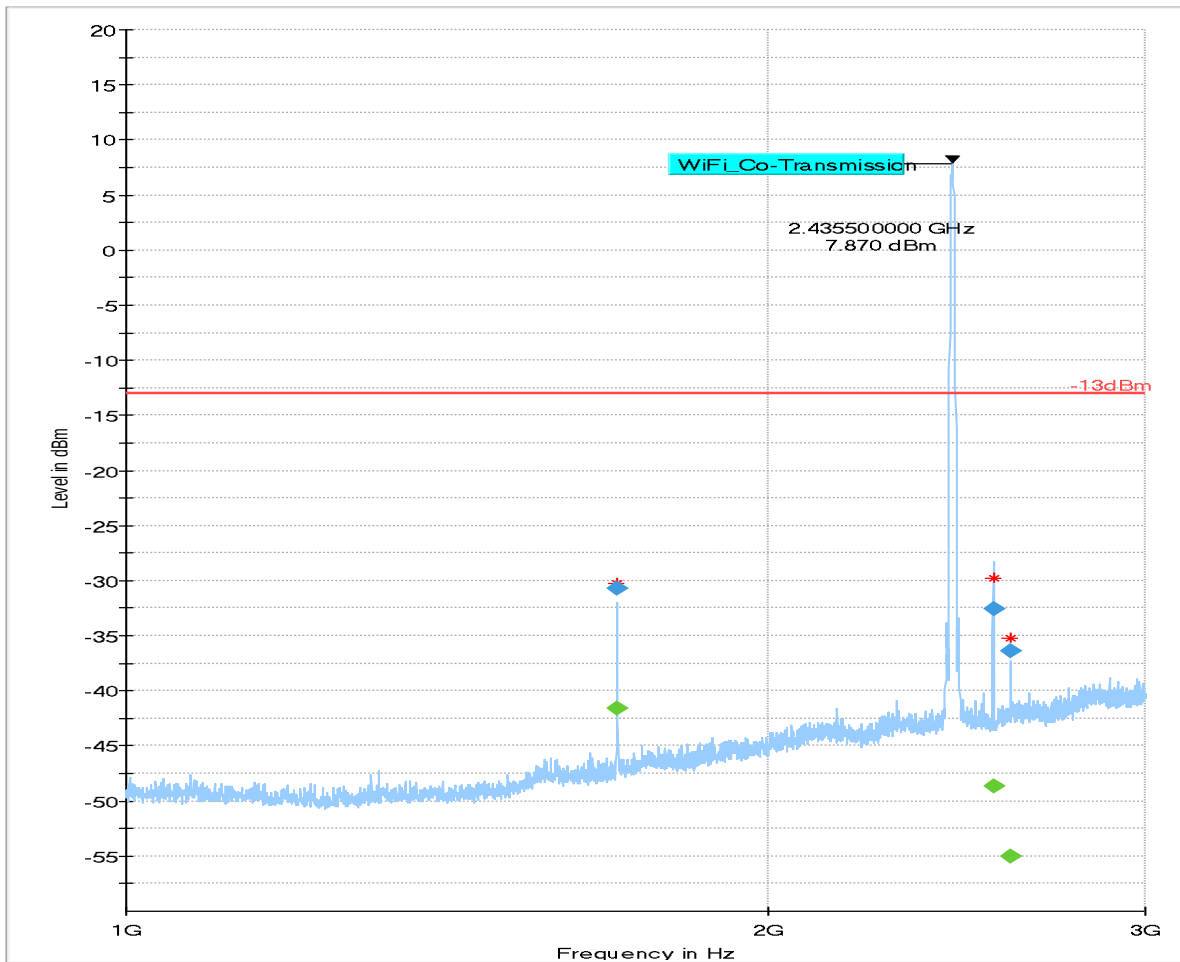
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1697.739688	---	-41.62	---	---	100.0	1000.000	161.0	H	160.0
1697.739688	-30.70	---	-13.00	17.70	100.0	1000.000	161.0	H	160.0
2546.500938	---	-48.68	---	---	100.0	1000.000	140.0	H	53.0
2546.500938	-32.55	---	-13.00	19.55	100.0	1000.000	140.0	H	53.0
2595.165938	---	-55.05	---	---	100.0	1000.000	170.0	V	71.0
2595.165938	-36.43	---	-13.00	23.43	100.0	1000.000	170.0	V	71.0

(continuation of the "Final_Result" table from column 15 ...)

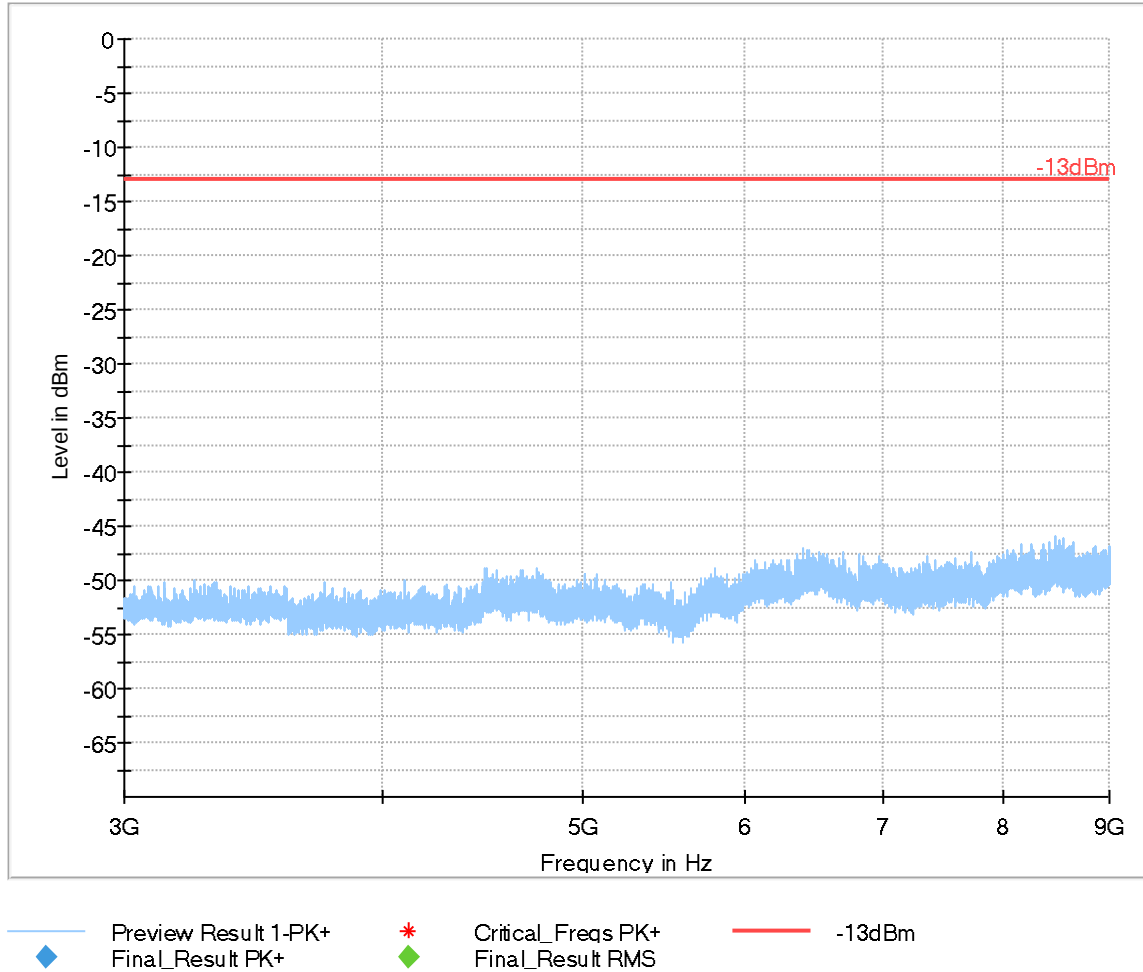
Frequency (MHz)	Corr. (dB)	Comment
1697.739688	-64.3	11:11:20 AM - 10/3/2019
1697.739688	-64.3	11:11:20 AM - 10/3/2019
2546.500938	-60.9	11:13:12 AM - 10/3/2019
2546.500938	-60.9	11:13:12 AM - 10/3/2019
2595.165938	-60.6	11:14:57 AM - 10/3/2019
2595.165938	-60.6	11:14:57 AM - 10/3/2019

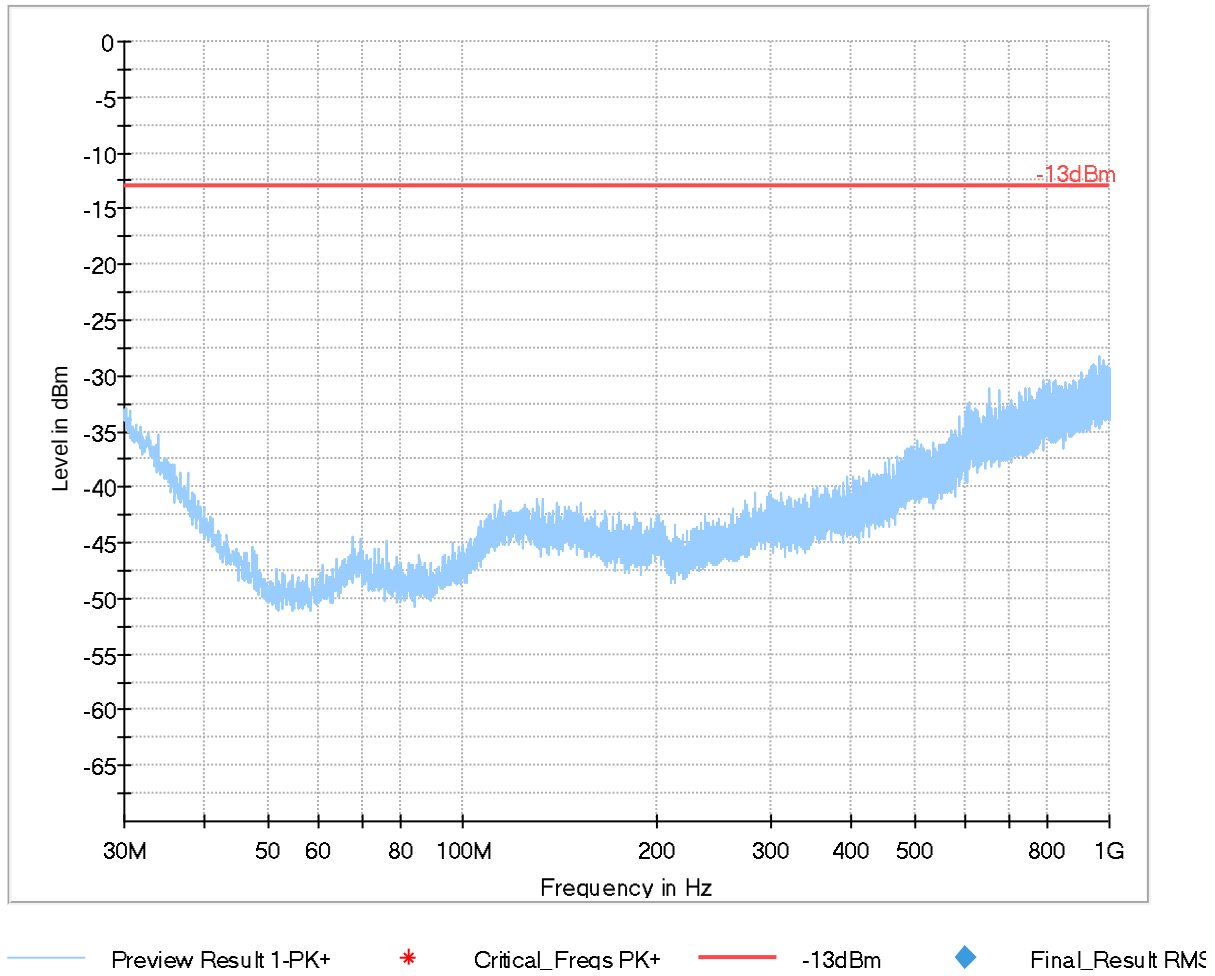
Preview Result 1-PK+
Final_Result PK+Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 10 Radiated Emissions: 3 GHz - 9 GHz

Channel: High



GSM 1900**Plot # 11 Radiated Emissions: 30 MHz - 1 GHz****Channel: Low**

Plot # 12 Radiated Emissions: 1 GHz - 3 GHz

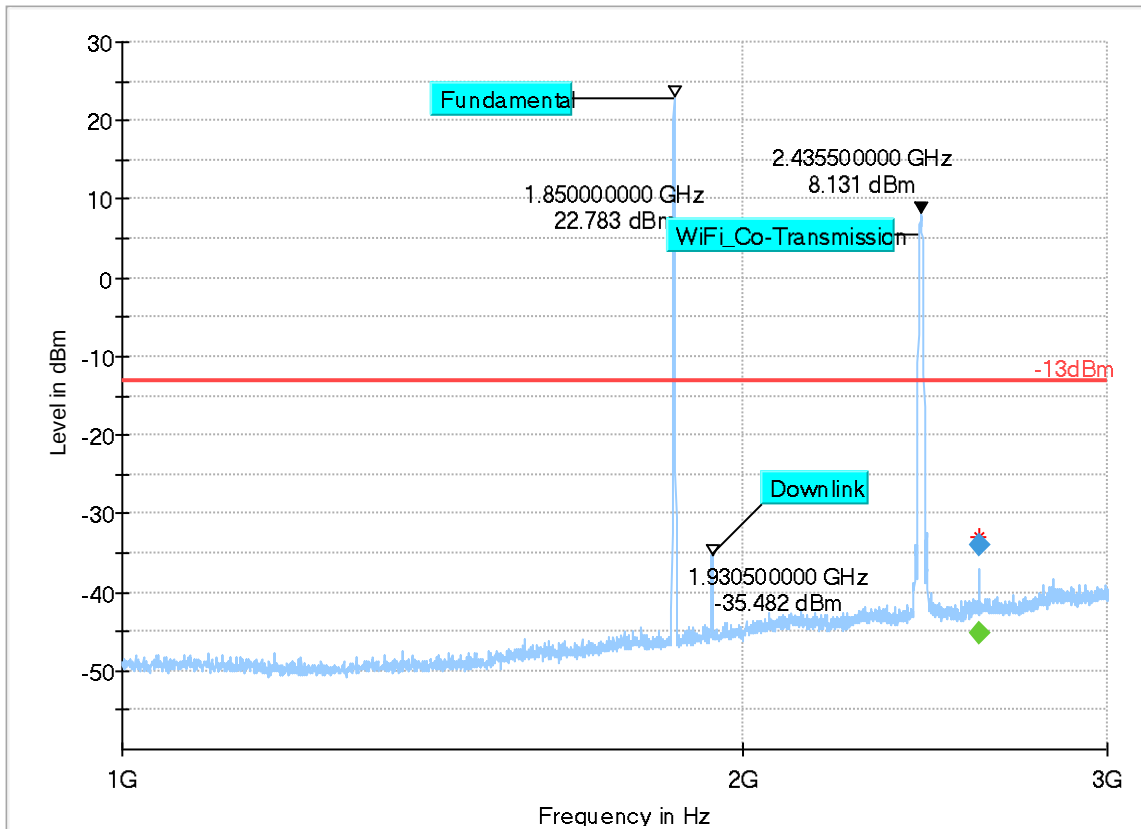
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2598.382750	---	-45.27	---	---	100.0	1000.000	325.0	V	163.0
2598.382750	-34.07	---	-13.00	21.07	100.0	1000.000	325.0	V	163.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
2598.382750	-60.6	11:45:30 AM - 10/3/2019
2598.382750	-60.6	11:45:30 AM - 10/3/2019



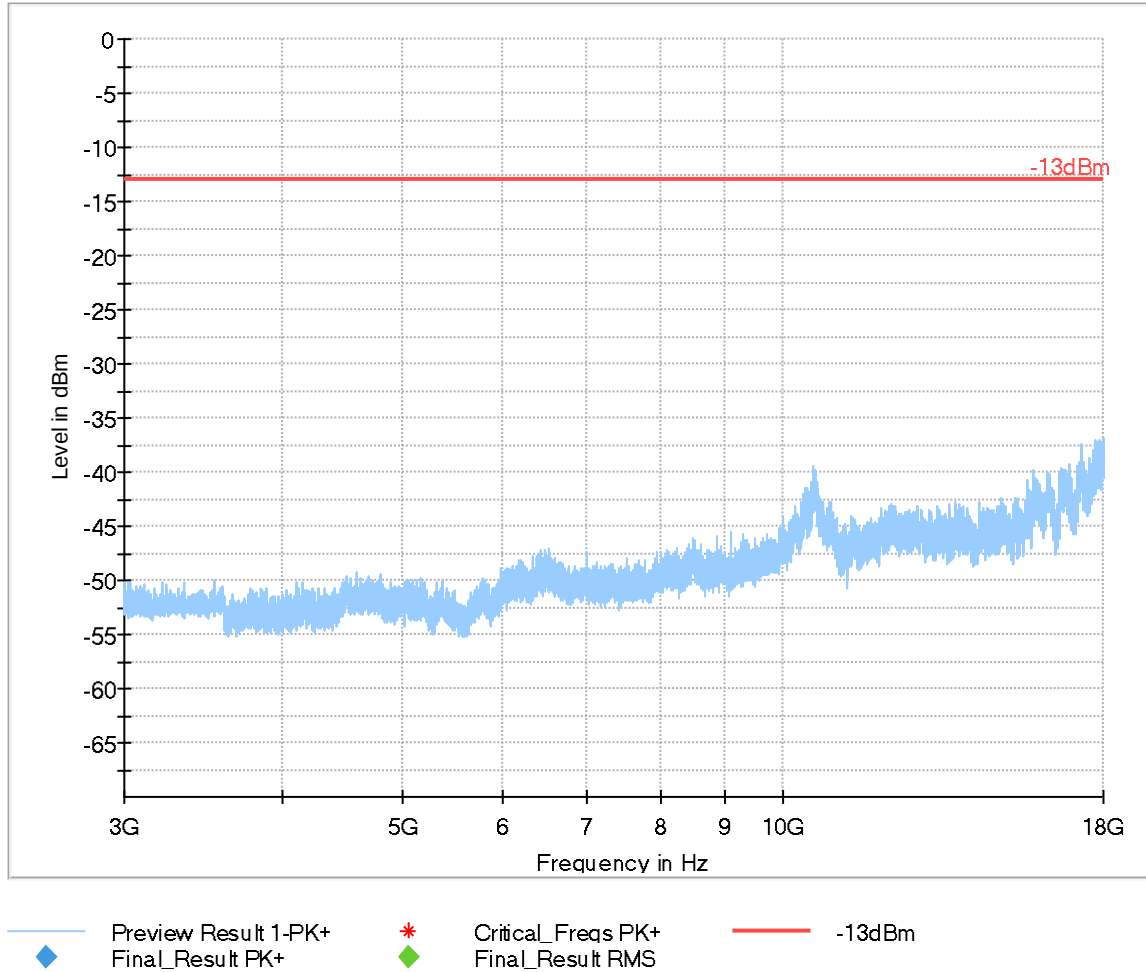
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

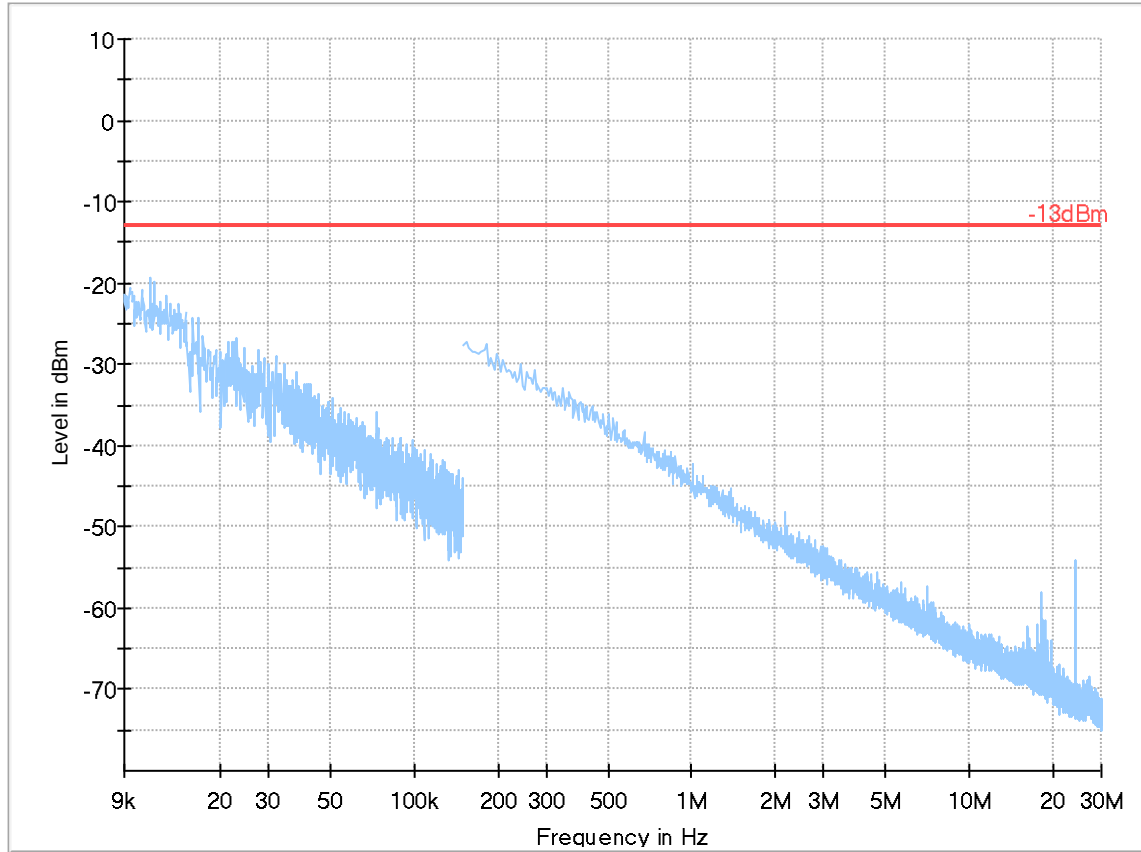
Plot # 13 Radiated Emissions: 3 GHz - 18 GHz

Channel: Low



Plot # 14 Radiated Emissions: 9 kHz - 30 MHz

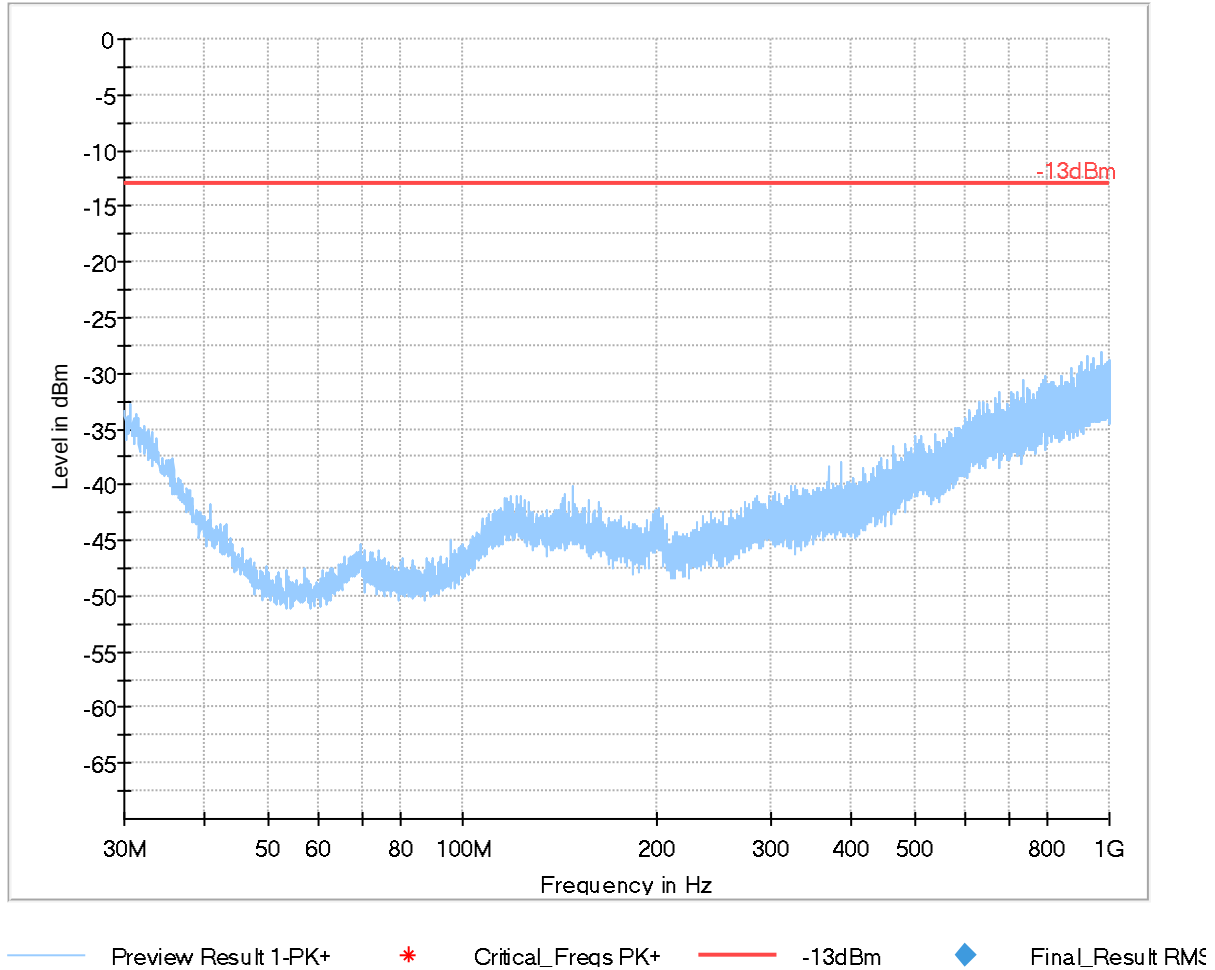
Channel: Mid



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

Plot # 15 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 16 Radiated Emissions: 1 GHz - 3 GHz

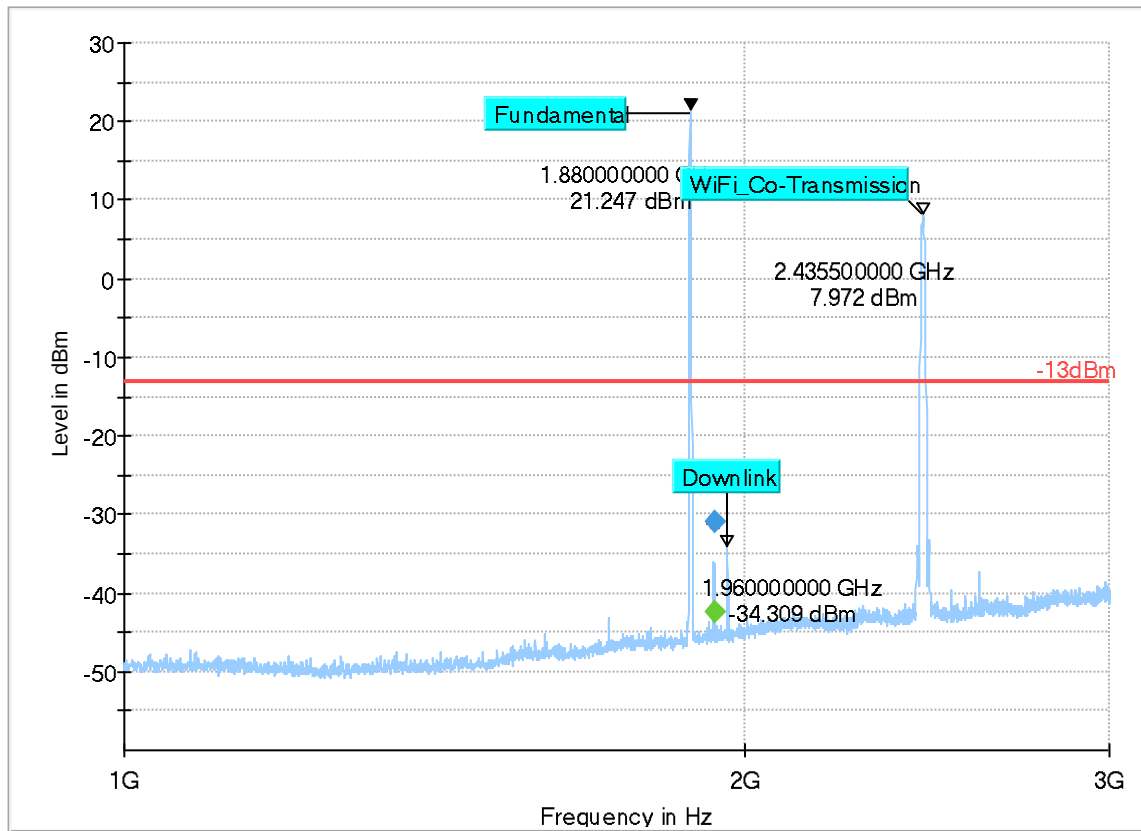
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1930.292250	---	-42.51	---	---	100.0	1000.000	195.0	H	112.0
1930.292250	-31.02	---	-13.00	18.02	100.0	1000.000	195.0	H	112.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
1930.292250	-62.9	11:38:24 AM - 10/3/2019
1930.292250	-62.9	11:38:24 AM - 10/3/2019



Preview Result 1-PK+
Final_Result PK+

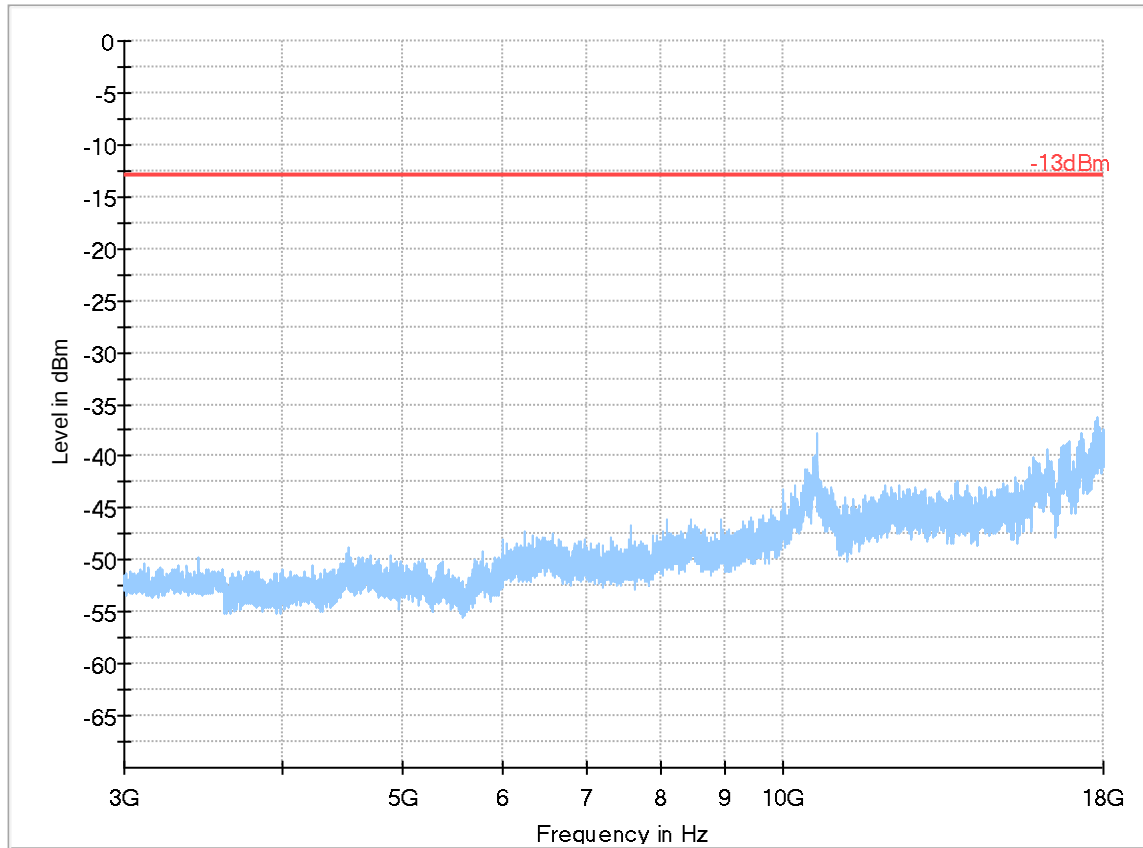


Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 17 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid



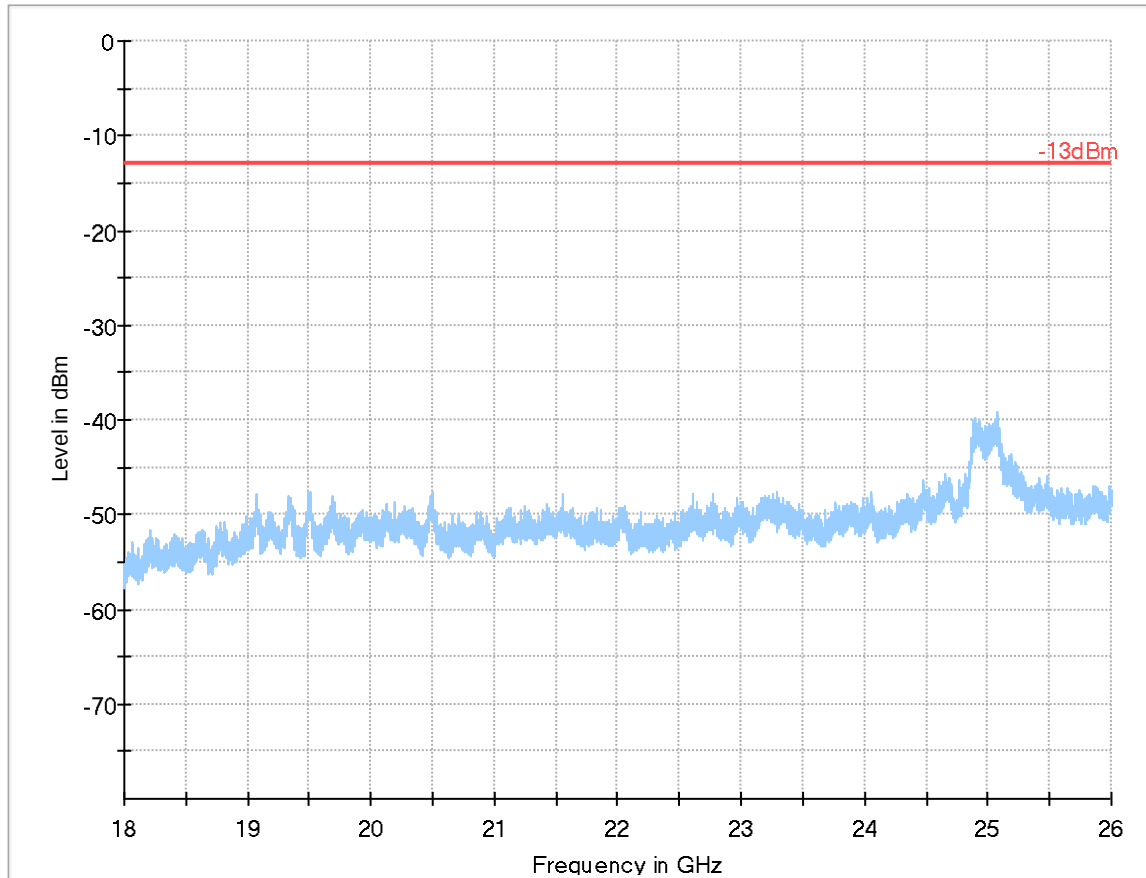
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

Plot # 18 Radiated Emissions: 18 GHz – 26 GHz

Channel: Mid



Preview Result 1-PK+
Fina_Result PK+



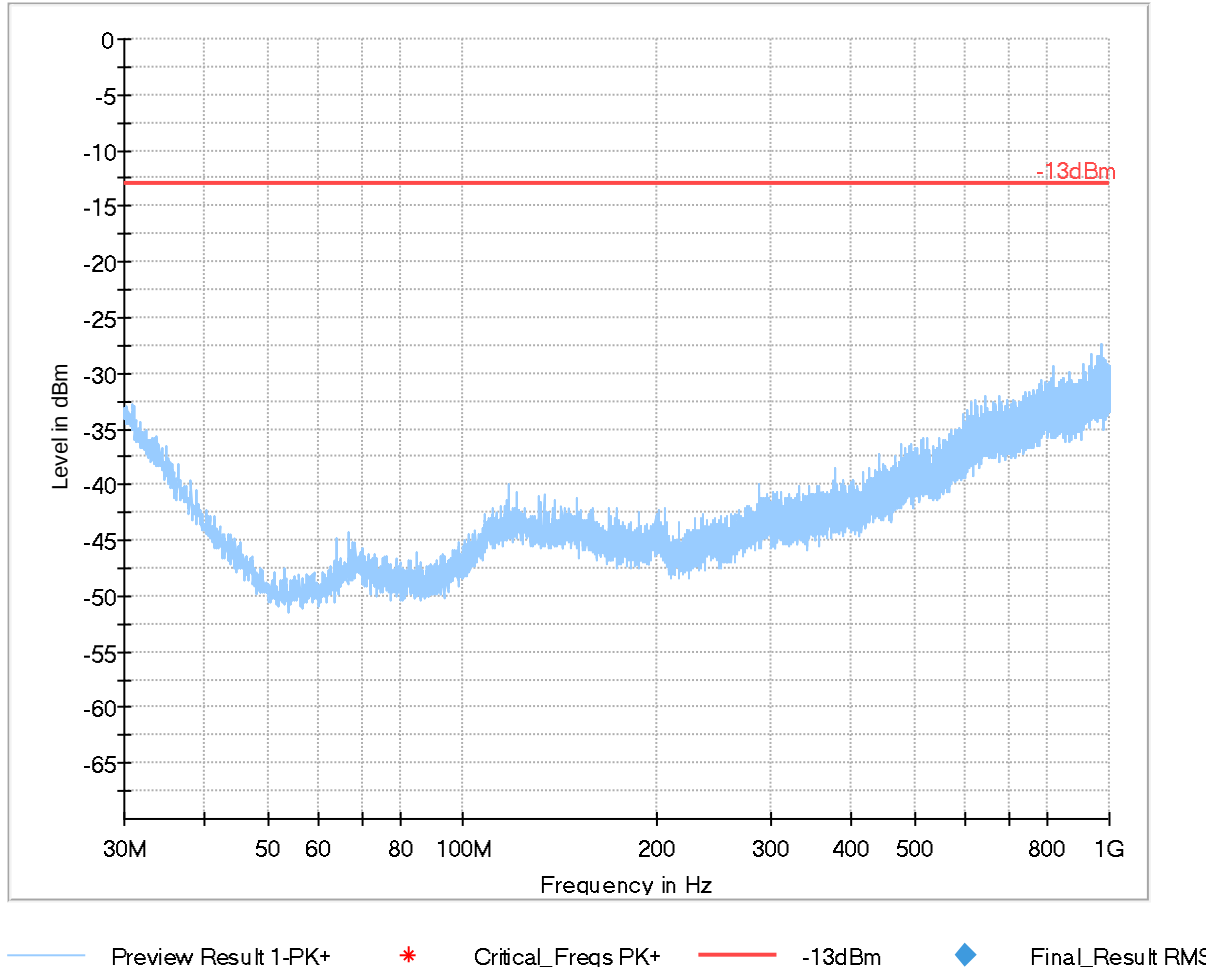
Critical_Freqs PK+
Fina_Result RMS



-13dBm

Plot # 19 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 20 Radiated Emissions: 1 GHz - 3 GHz

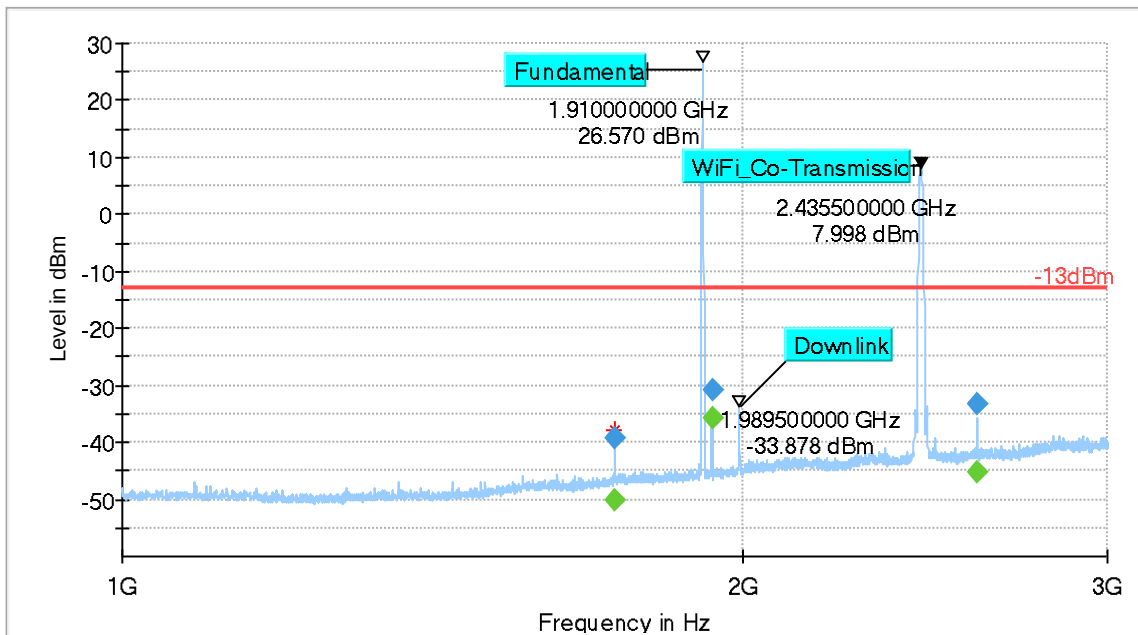
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1731.613750	---	-50.15	---	---	100.0	1000.000	175.0	H	147.0
1731.613750	-39.34	---	-13.00	26.34	100.0	1000.000	175.0	H	147.0
1930.258750	---	-35.62	---	---	100.0	1000.000	178.0	V	40.0
1930.258750	-30.84	---	-13.00	17.84	100.0	1000.000	178.0	V	40.0
2596.203625	---	-45.31	---	---	100.0	1000.000	154.0	V	302.0
2596.203625	-33.45	---	-13.00	20.45	100.0	1000.000	154.0	V	302.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
1731.613750	-64.0	11:52:42 AM - 10/3/2019
1731.613750	-64.0	11:52:42 AM - 10/3/2019
1930.258750	-62.9	11:54:40 AM - 10/3/2019
1930.258750	-62.9	11:54:40 AM - 10/3/2019
2596.203625	-60.6	11:56:49 AM - 10/3/2019
2596.203625	-60.6	11:56:49 AM - 10/3/2019



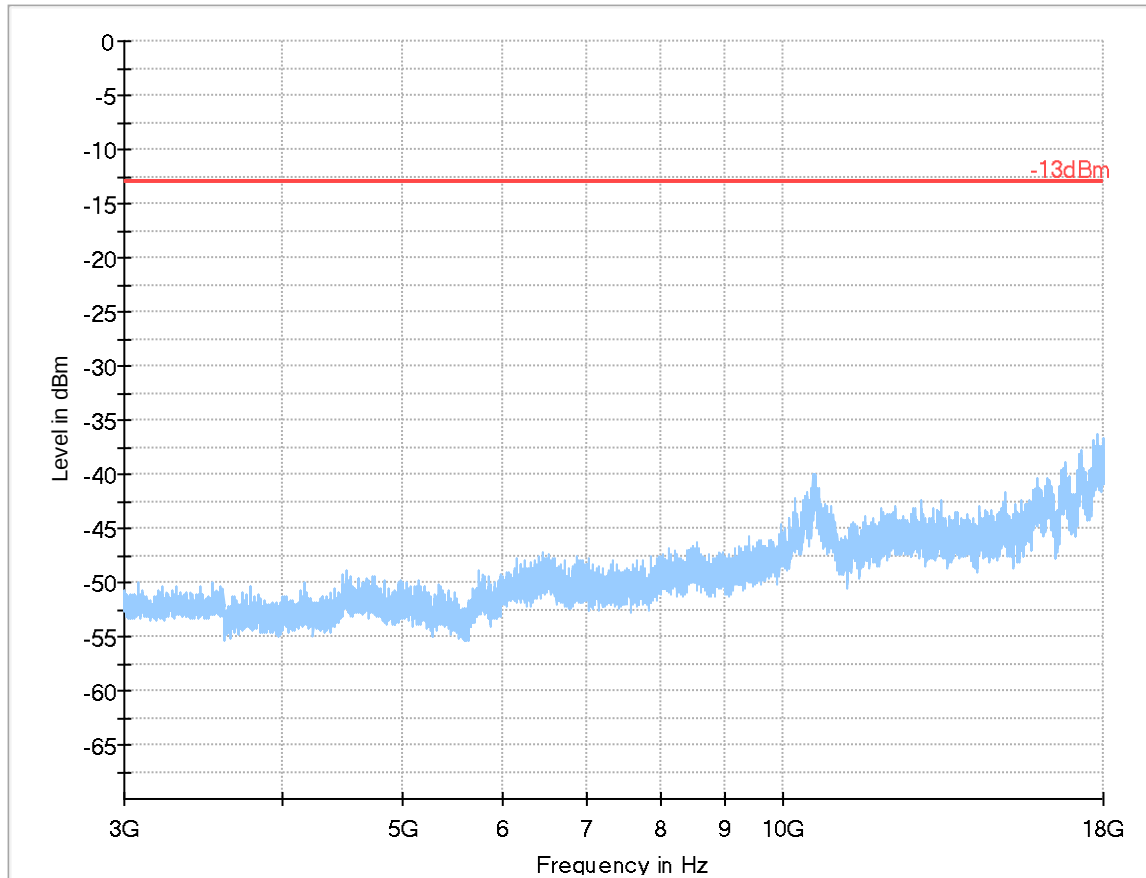
◆ Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 21 Radiated Emissions: 3 GHz - 18 GHz

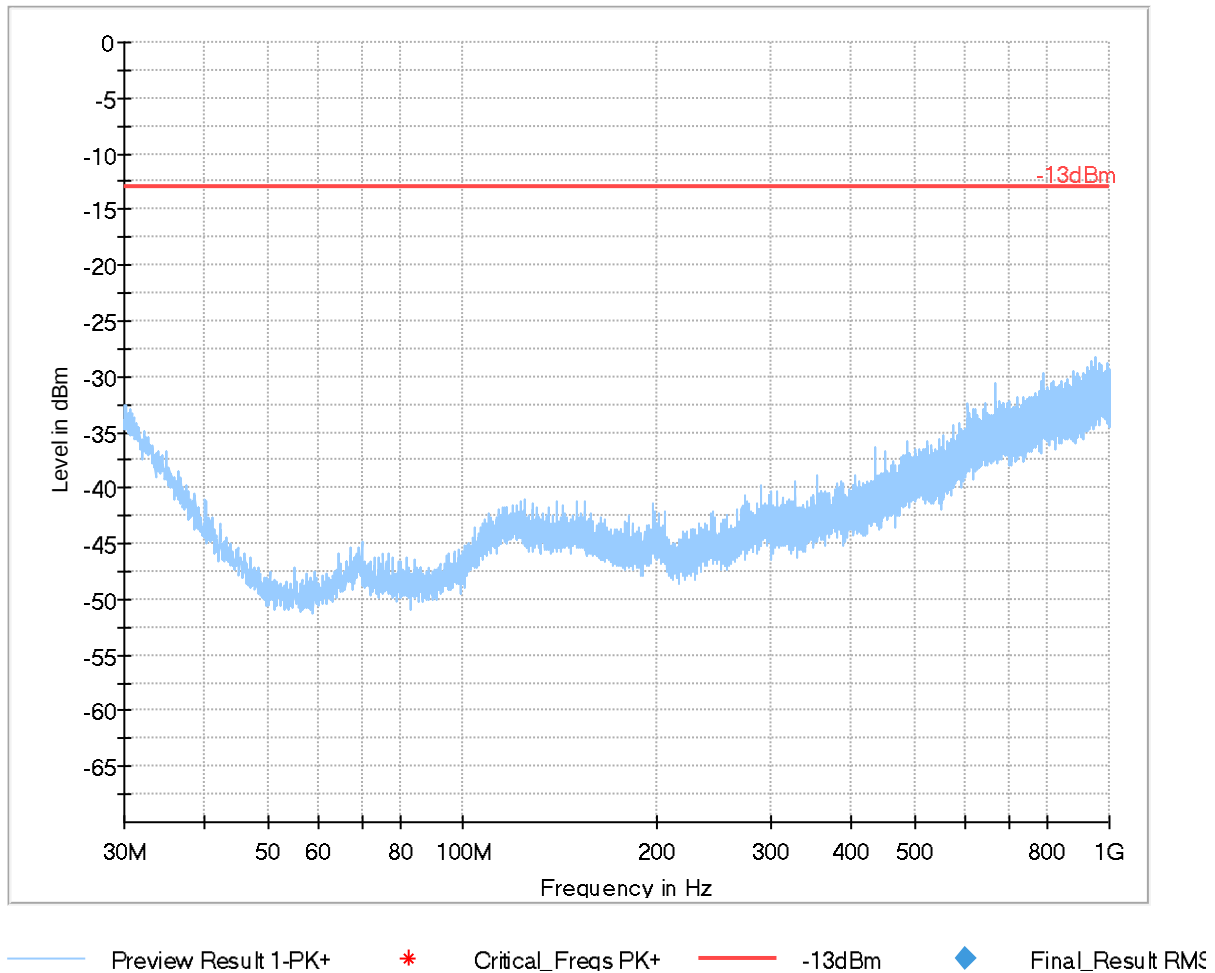
Channel: High



Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

WCDMA Band II**Plot # 22 Radiated Emissions: 30 MHz - 1 GHz****Channel: Low**

Plot # 23 Radiated Emissions: 1 GHz - 3 GHz

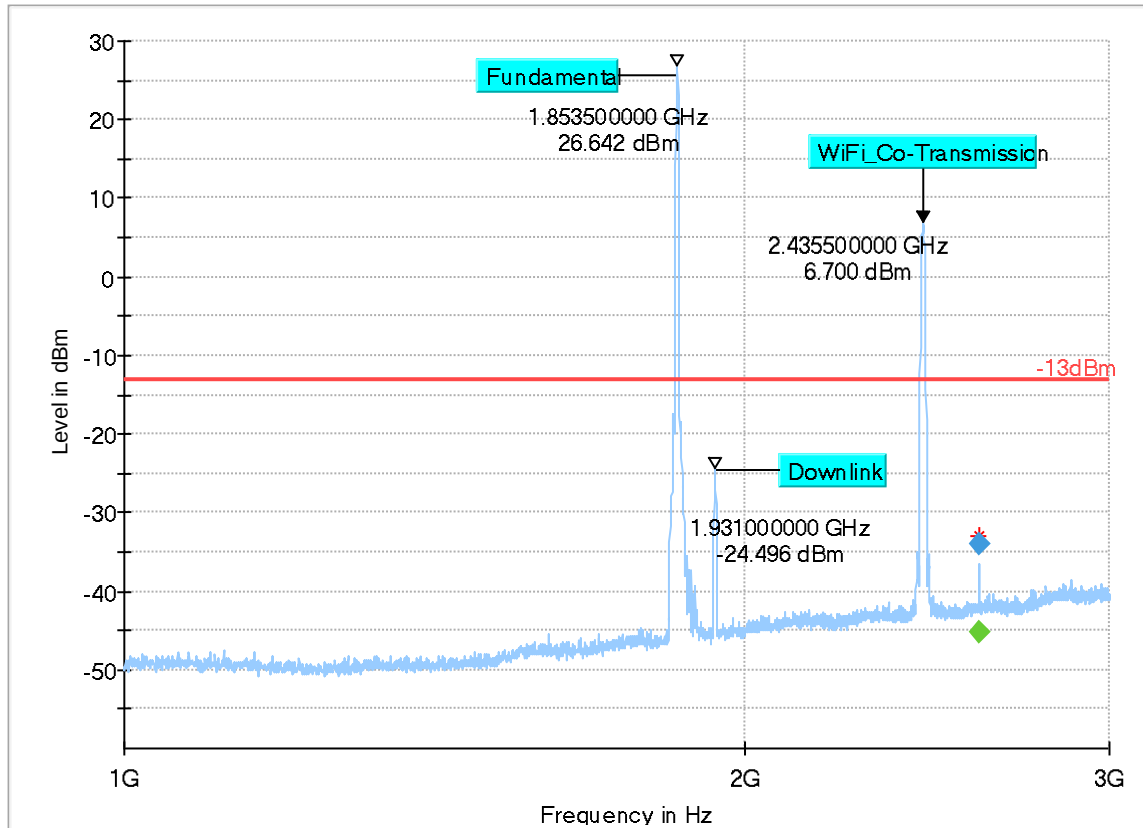
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2595.860375	---	-45.30	---	---	100.0	1000.000	140.0	V	-9.0
2595.860375	-34.00	---	-13.00	21.00	100.0	1000.000	140.0	V	-9.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
2595.860375	-60.6	5:27:15 PM - 10/2/2019
2595.860375	-60.6	5:27:15 PM - 10/2/2019



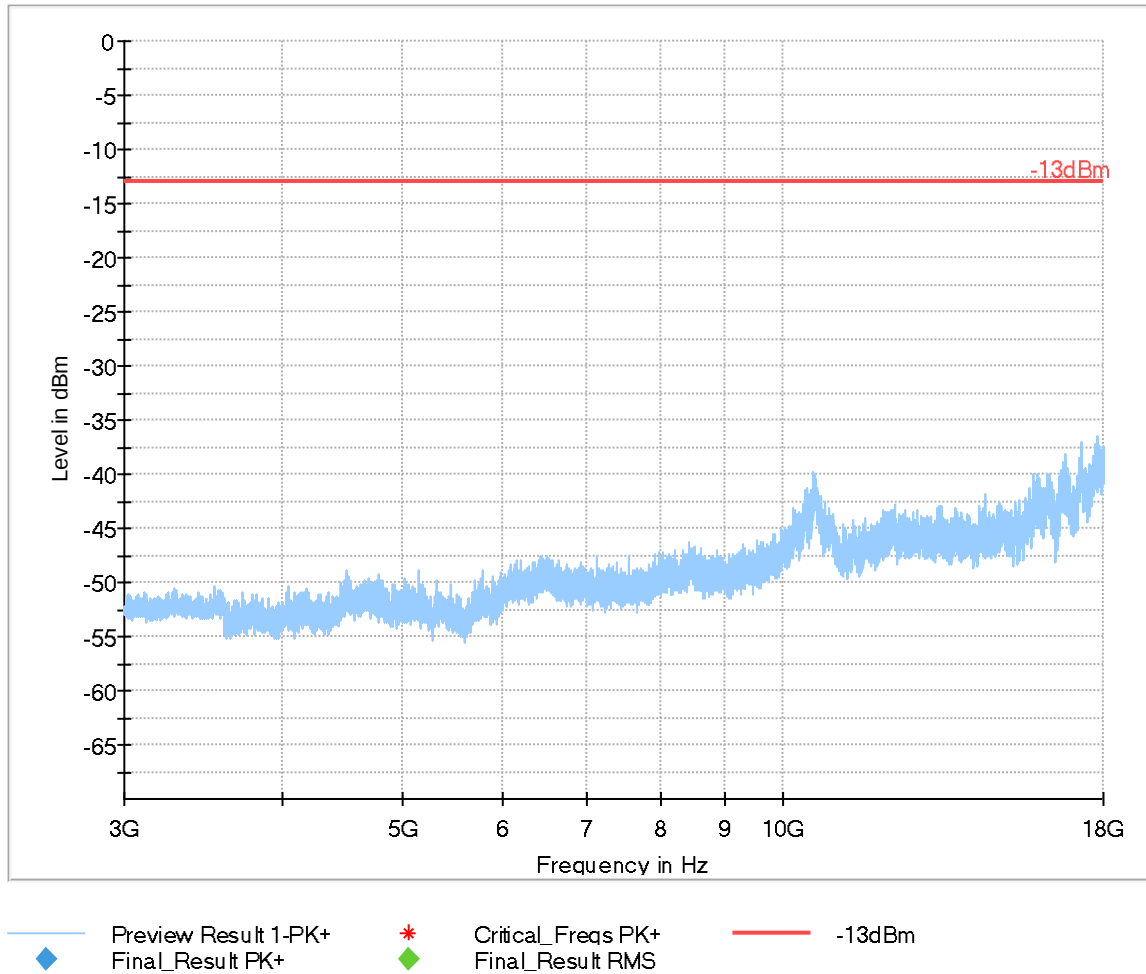
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

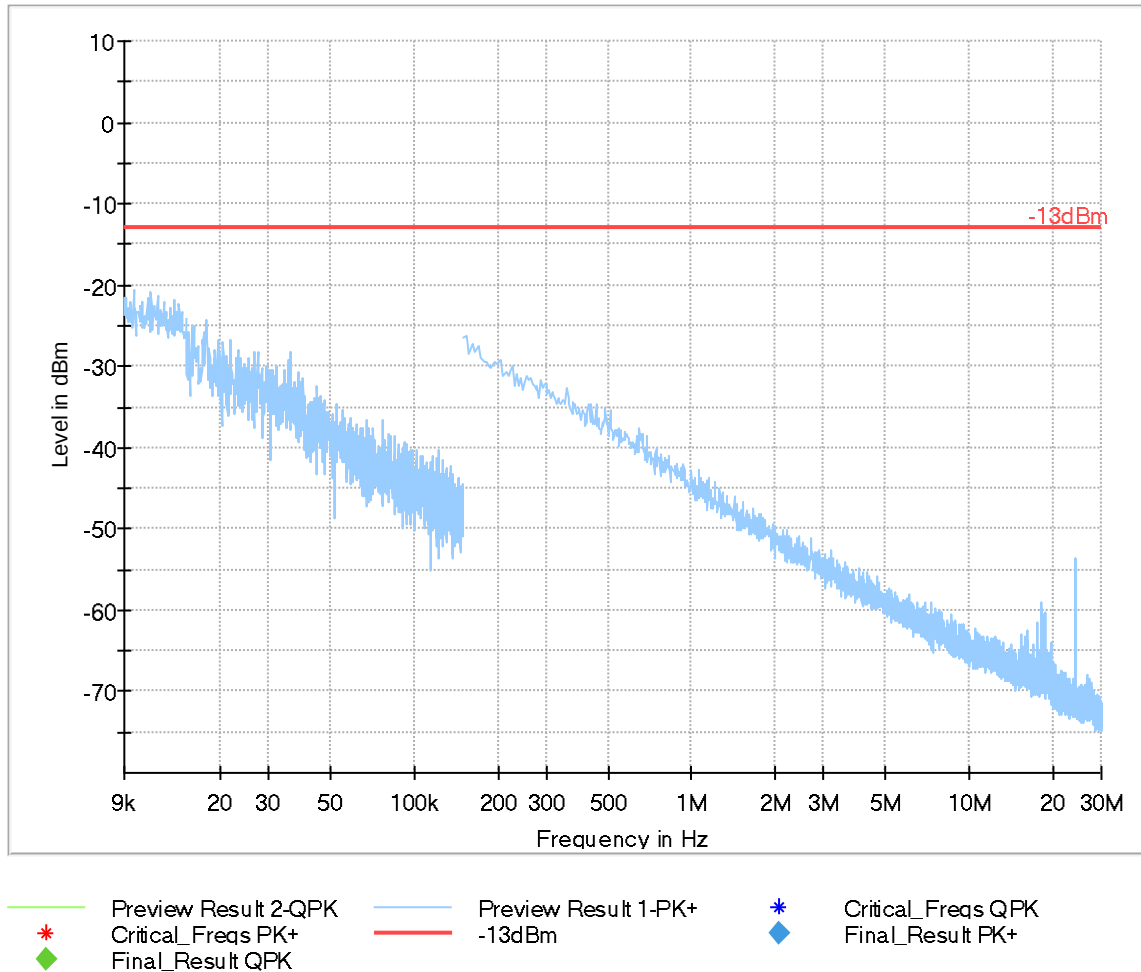
Plot # 24 Radiated Emissions: 3 GHz - 18 GHz

Channel: Low



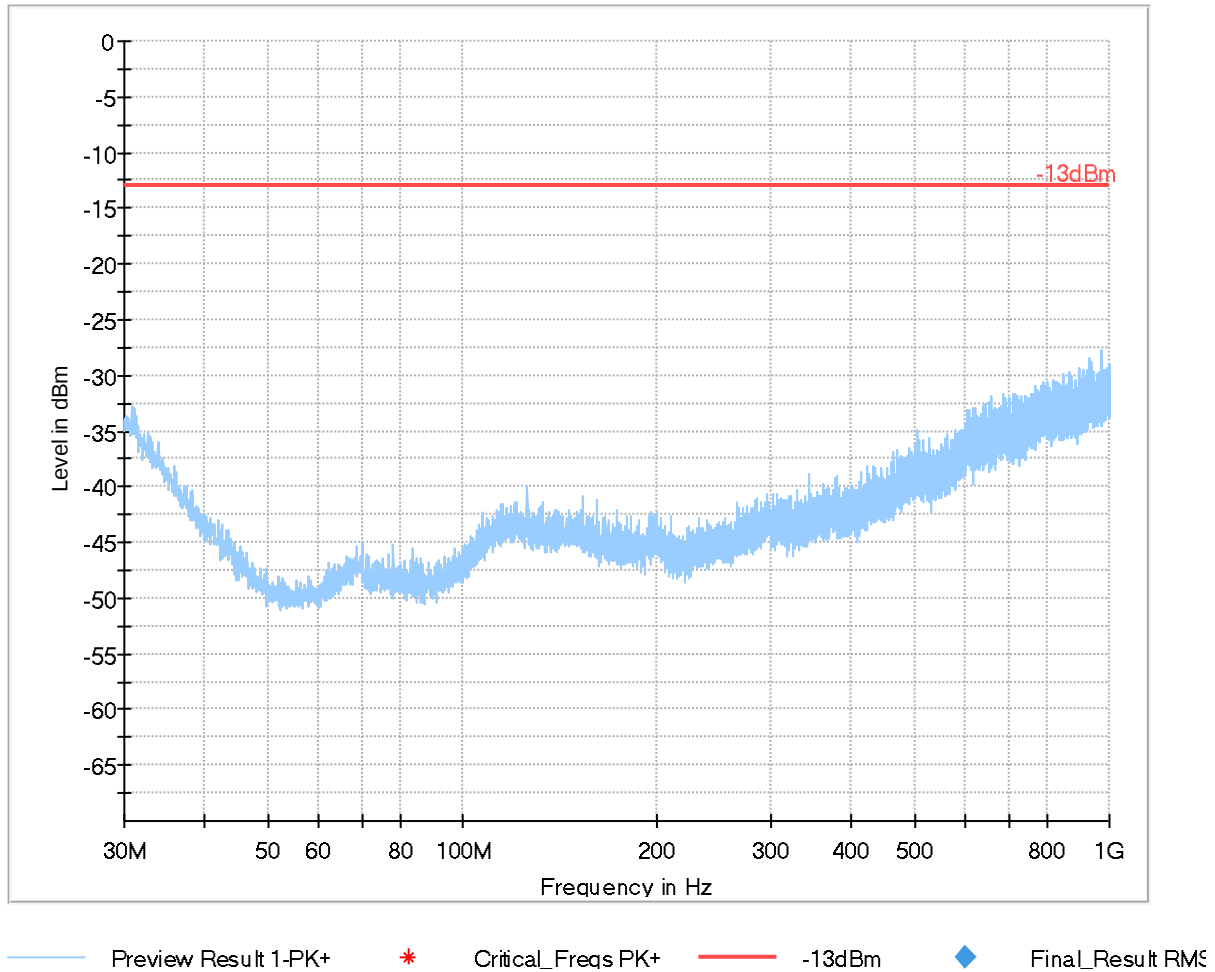
Plot # 25 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



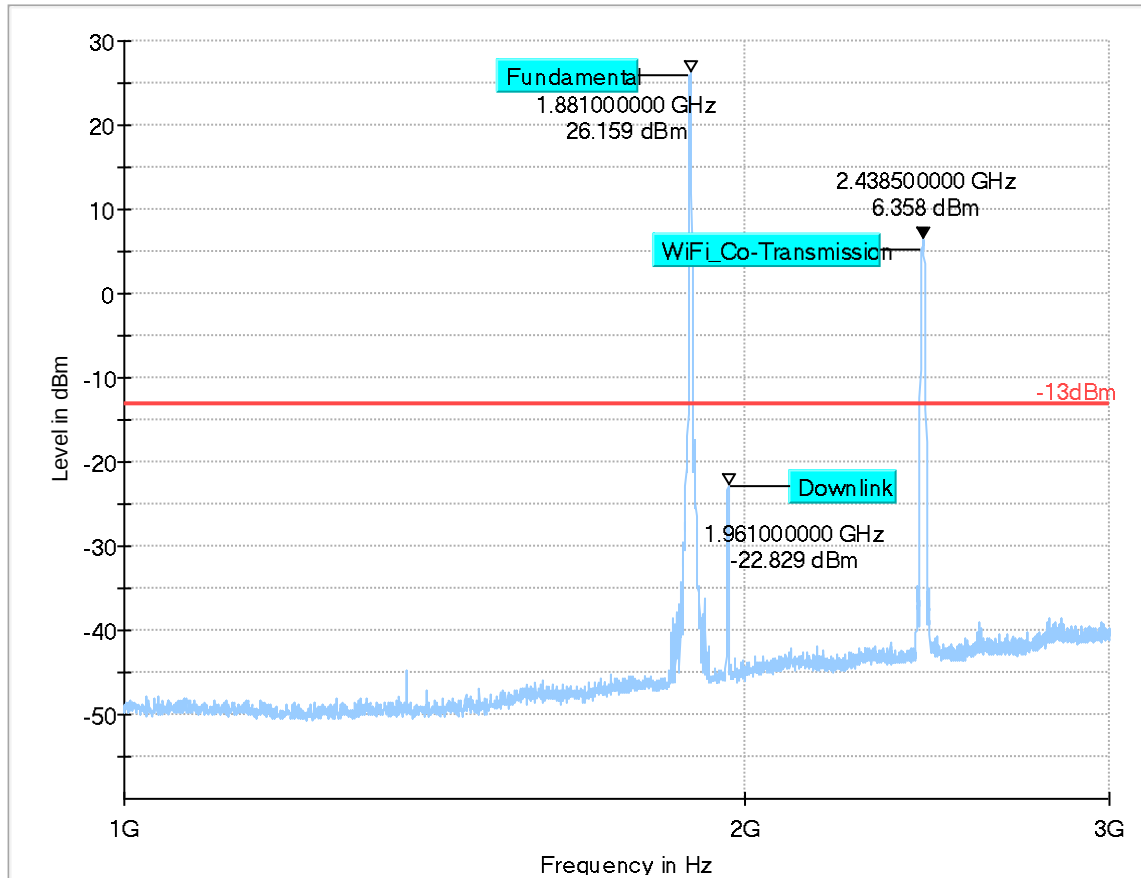
Plot # 26 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 27 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



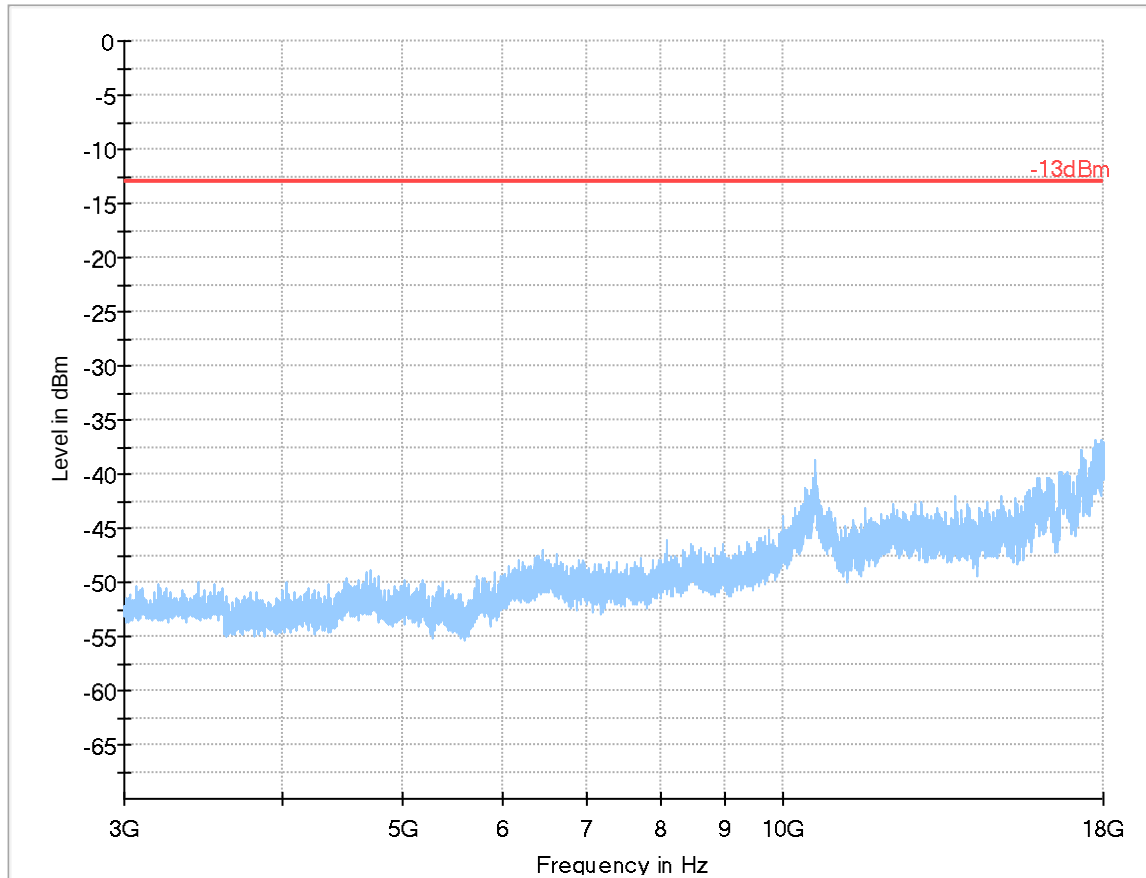
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 28 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid



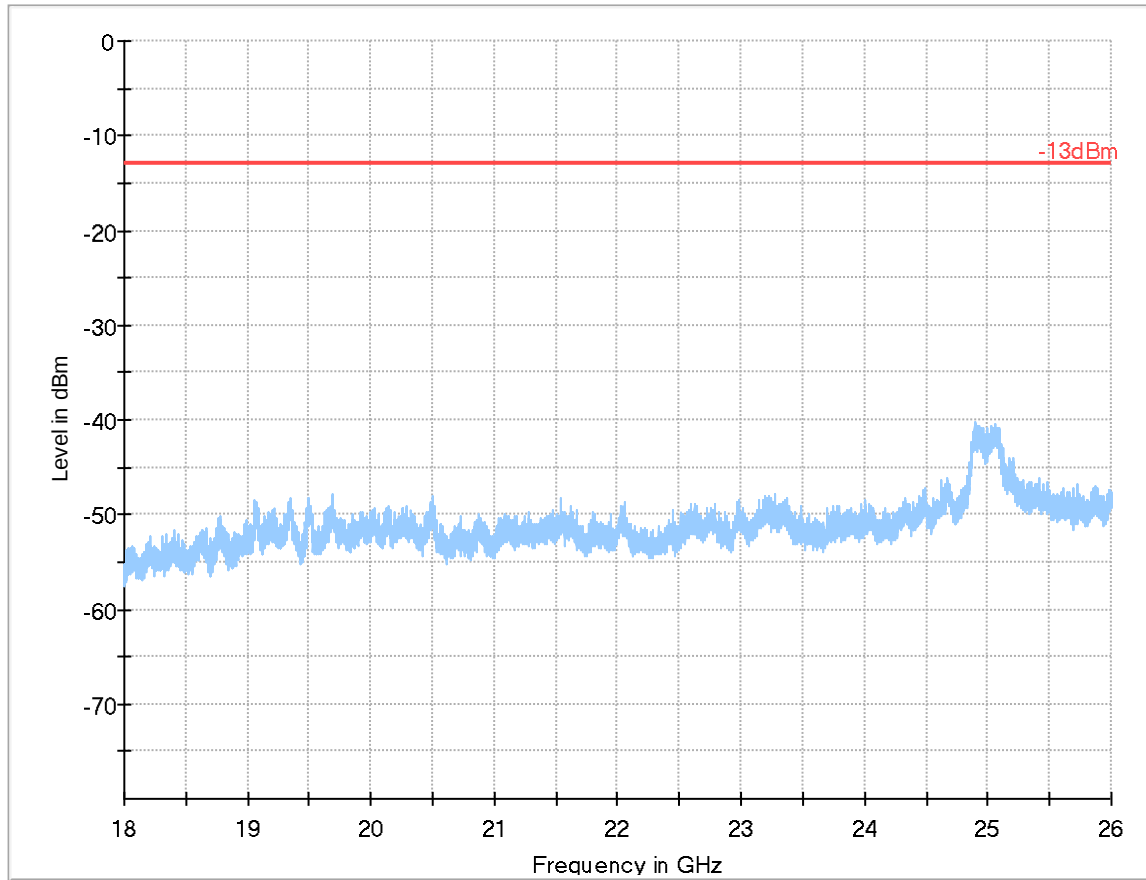
Preview Result 1-PK+
Fina_Result PK+

* Critical_Freqs PK+
◆ Fina_Result RMS

— -13dBm

Plot # 29 Radiated Emissions: 18 GHz – 26 GHz

Channel: Mid



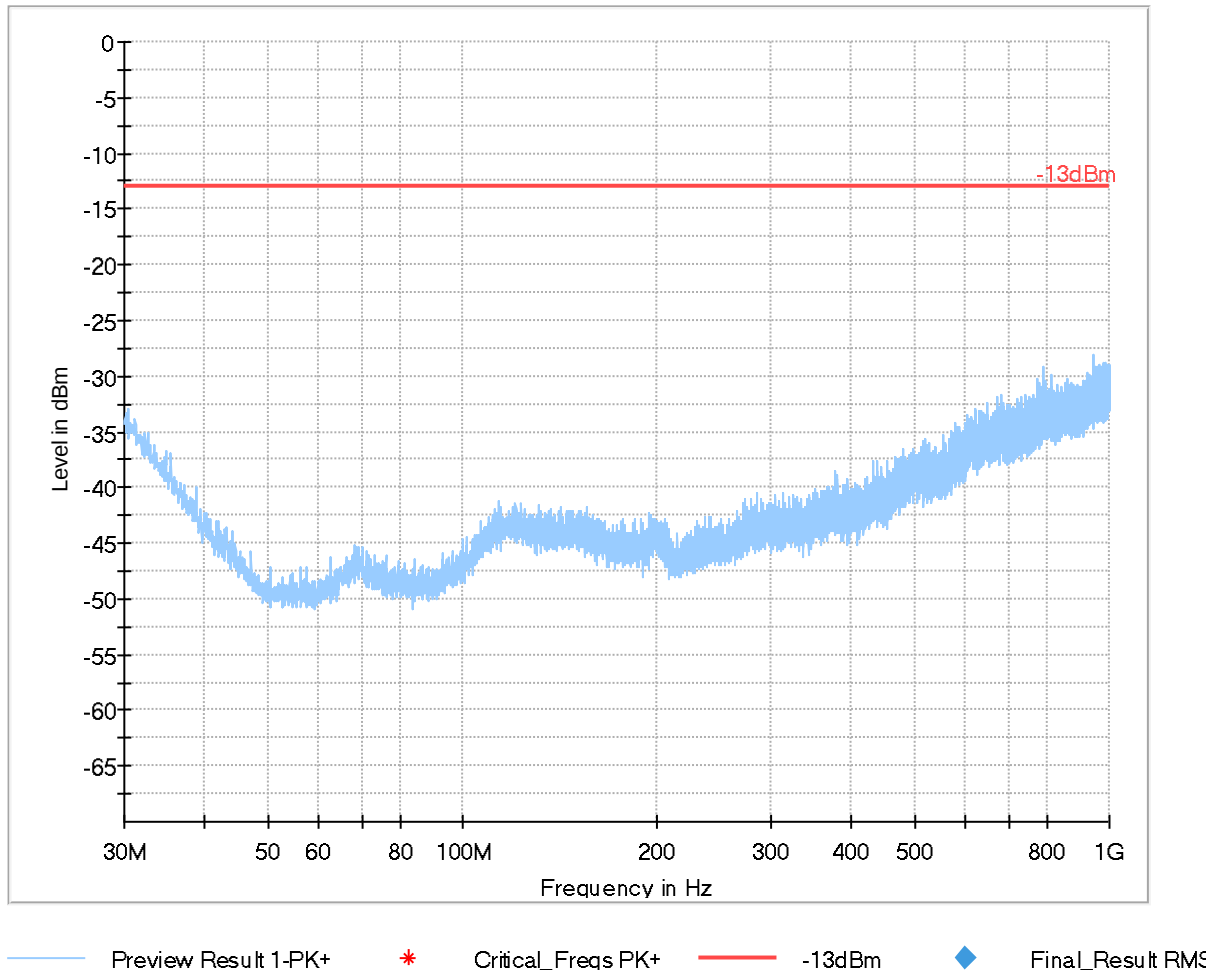
Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 30 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 31 Radiated Emissions: 1 GHz - 3 GHz

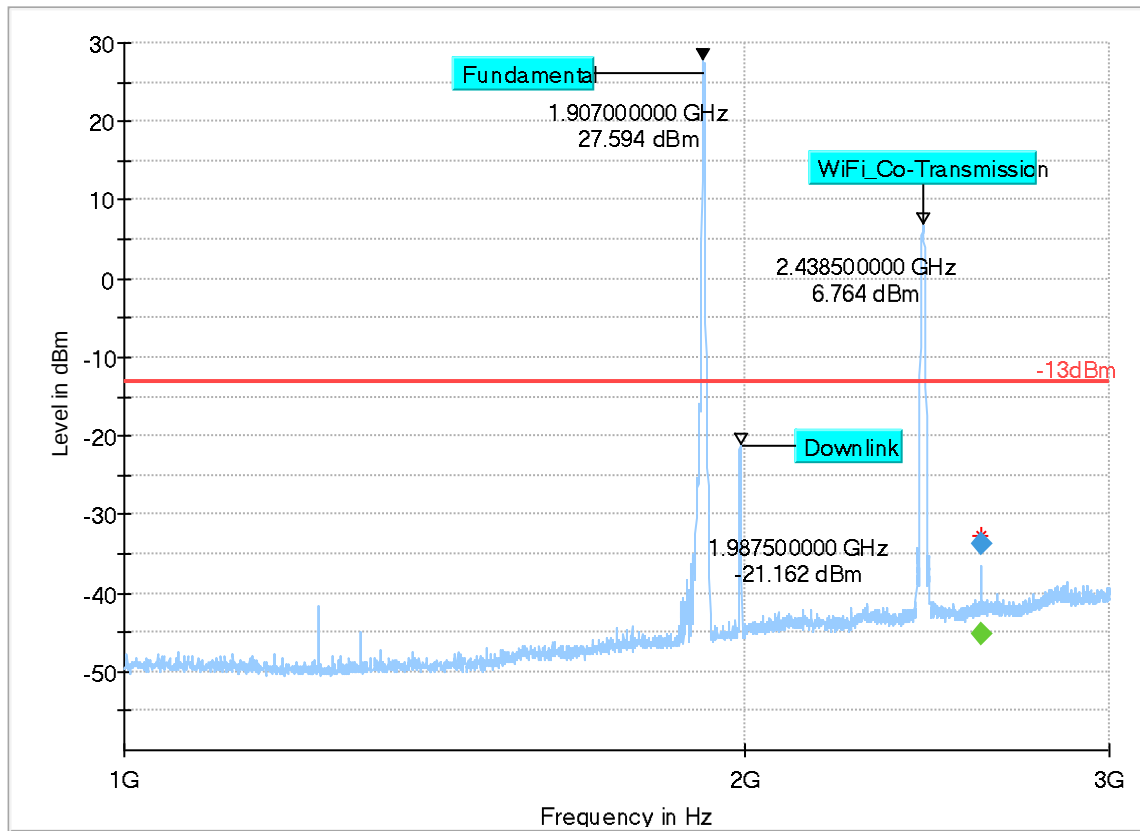
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2599.457625	---	-45.24	---	---	100.0	1000.000	299.0	V	211.0
2599.457625	-33.72	---	-13.00	20.72	100.0	1000.000	299.0	V	211.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
2599.457625	-60.6	5:10:49 PM - 10/2/2019
2599.457625	-60.6	5:10:49 PM - 10/2/2019



Preview Result 1-PK+
Final_Result PK+

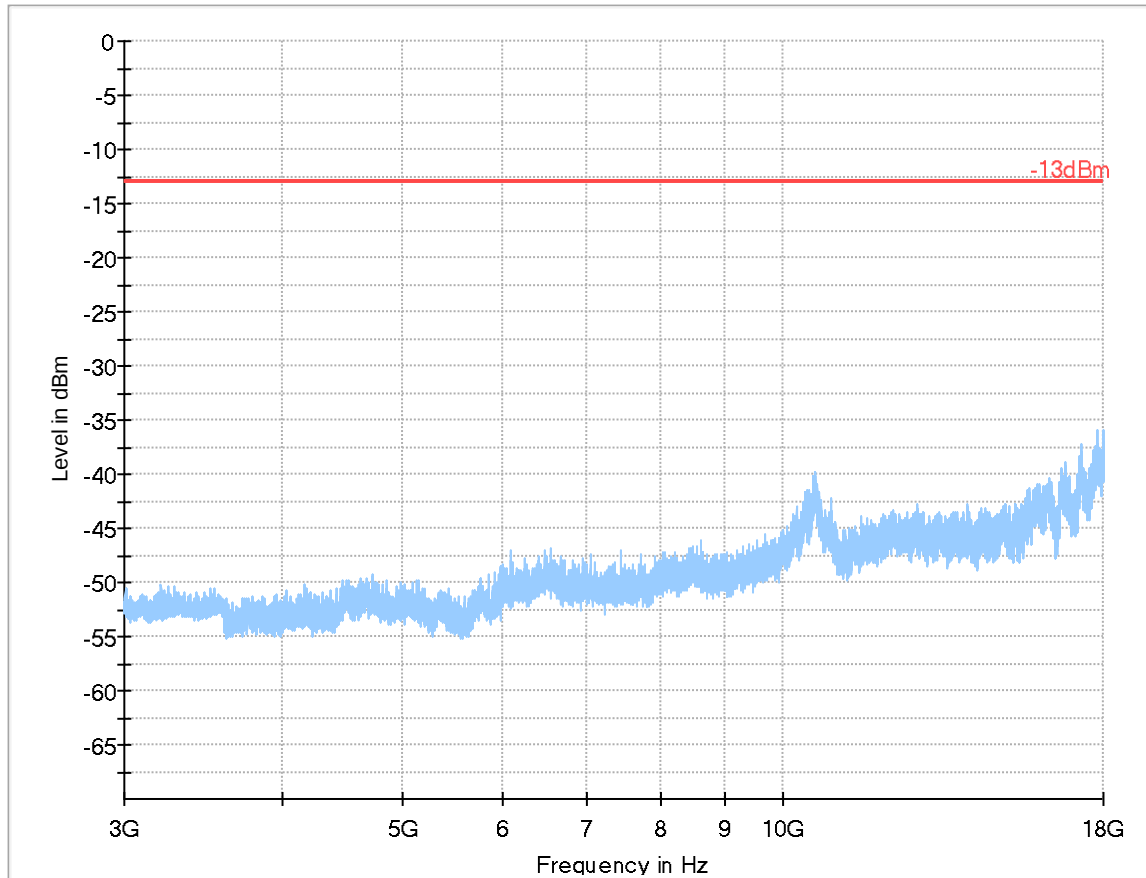


Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 32 Radiated Emissions: 3 GHz - 18 GHz

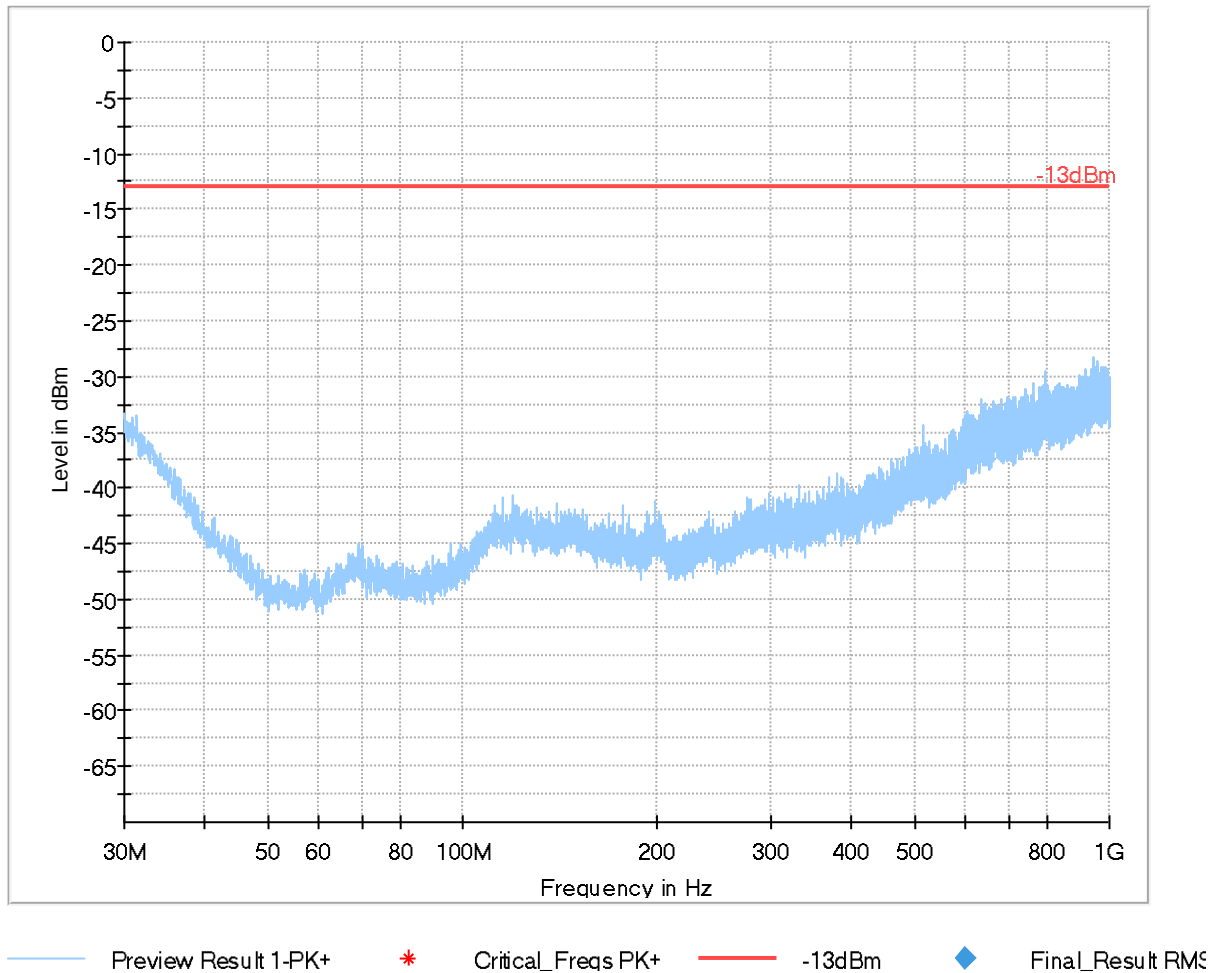
Channel: High



Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

WCDMA Band IV**Plot # 33 Radiated Emissions: 30 MHz - 1 GHz****Channel: Low**

Plot # 34 Radiated Emissions: 1 GHz - 3 GHz

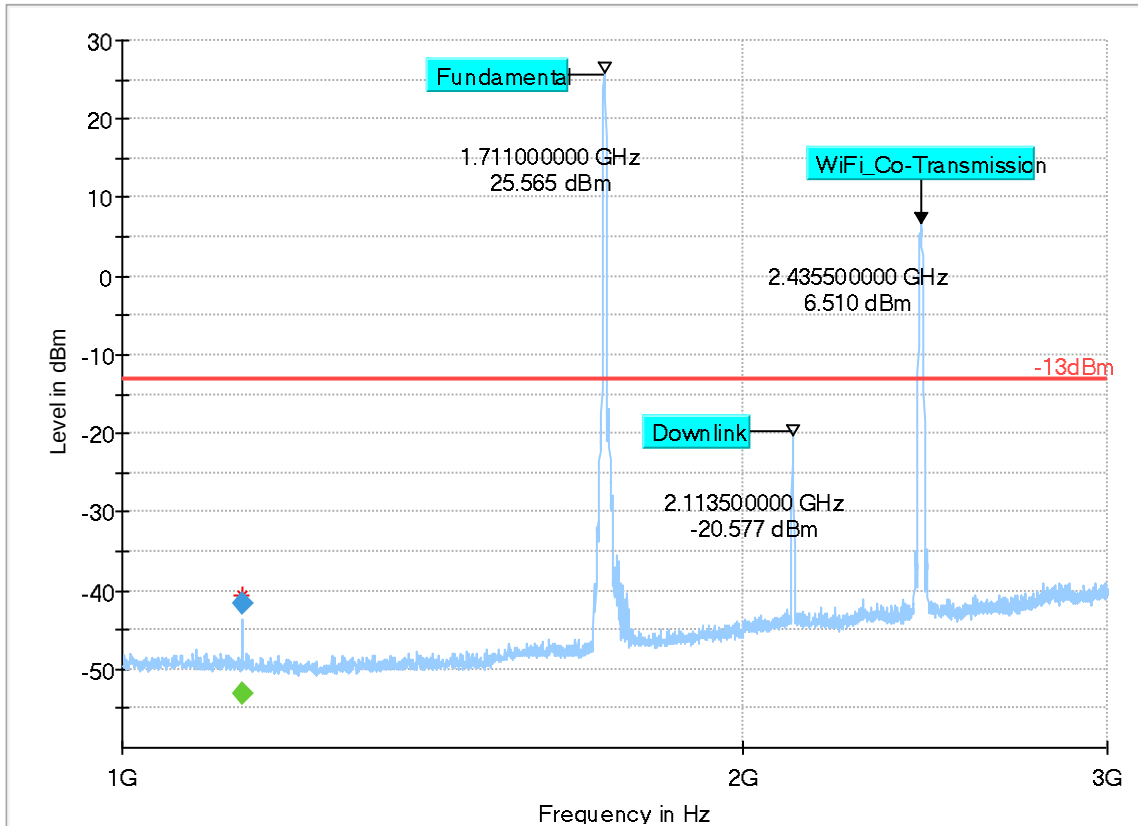
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1144.422125	---	-53.07	---	---	100.0	1000.000	307.0	H	225.0
1144.422125	-41.71	---	-13.00	28.71	100.0	1000.000	307.0	H	225.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
1144.422125	-66.3	5:35:36 PM - 10/2/2019
1144.422125	-66.3	5:35:36 PM - 10/2/2019



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 35 Radiated Emissions: 3 GHz - 18 GHz

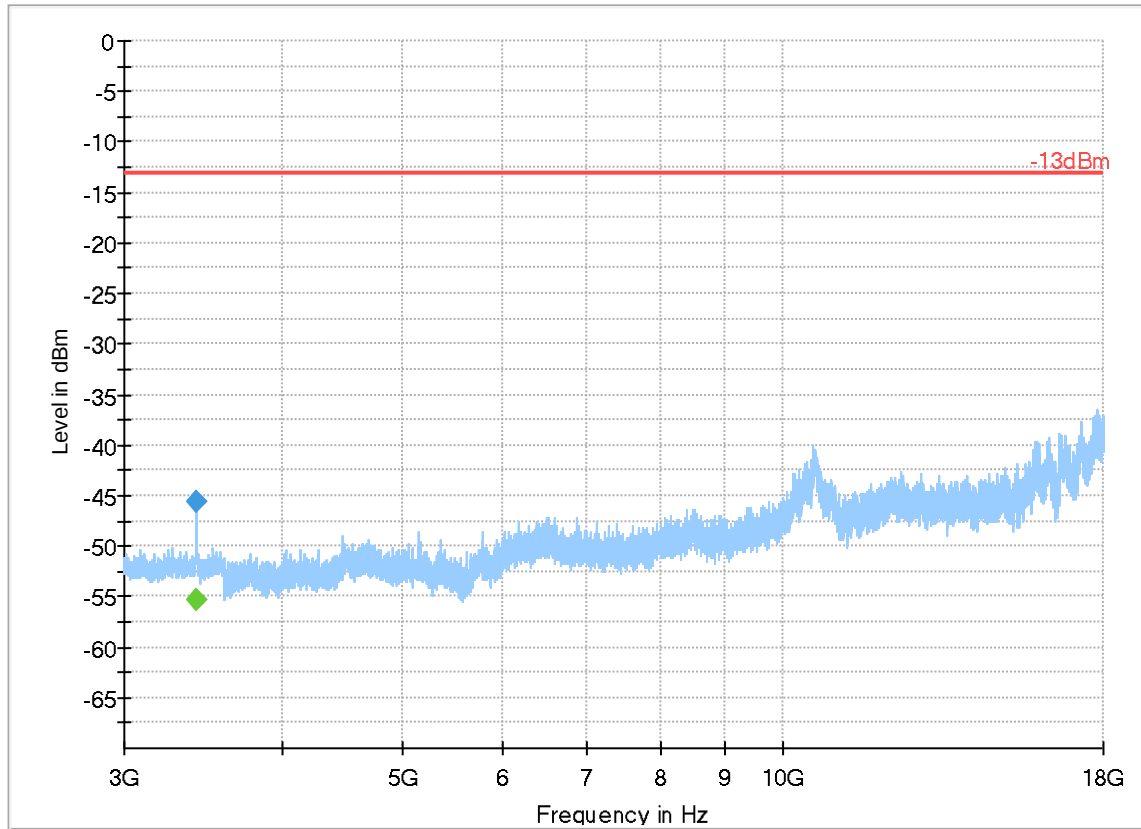
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
3422.508167	---	-55.40	---	---	100.0	1000.000	154.0	V	1.0
3422.508167	-45.63	---	-13.00	32.63	100.0	1000.000	154.0	V	1.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
3422.508167	-99.7	4:34:55 PM - 10/2/2019
3422.508167	-99.7	4:34:54 PM - 10/2/2019



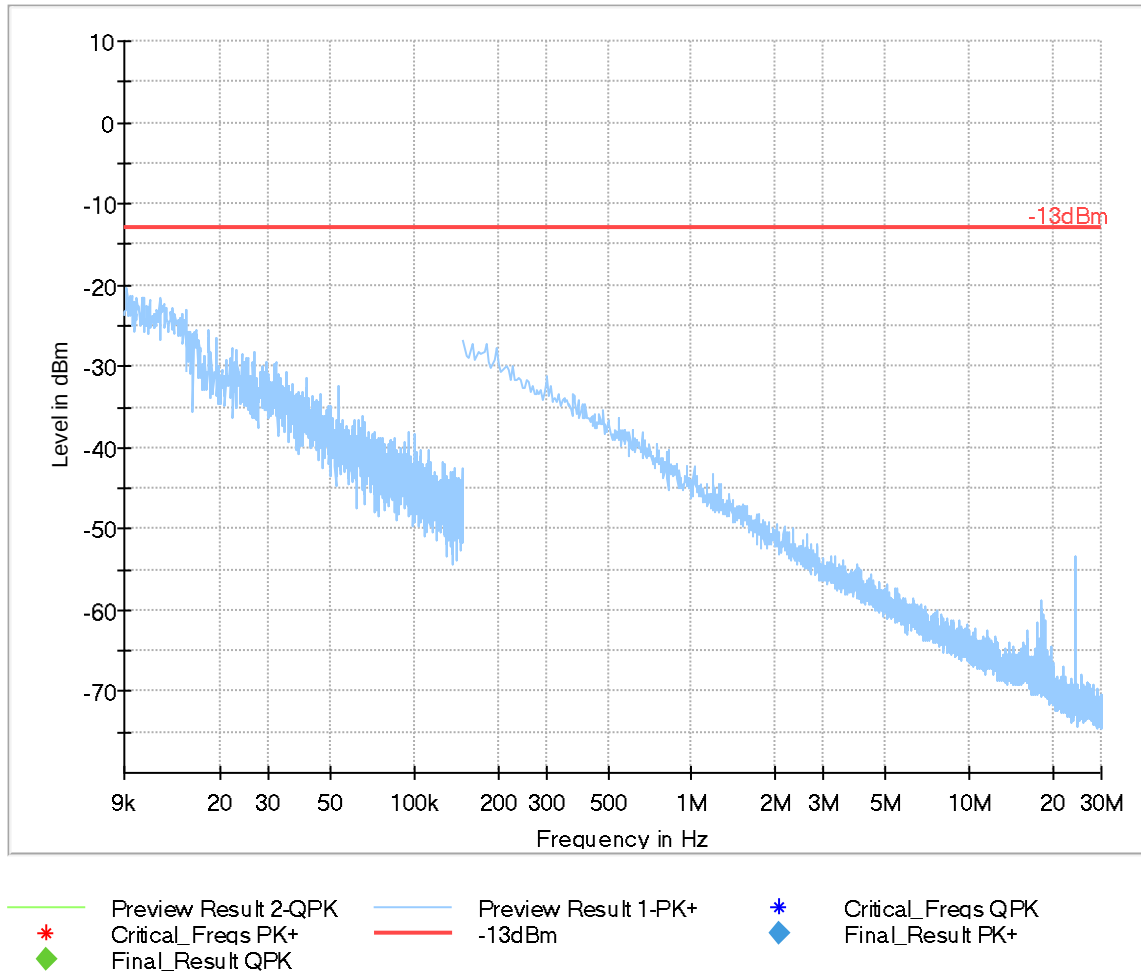
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

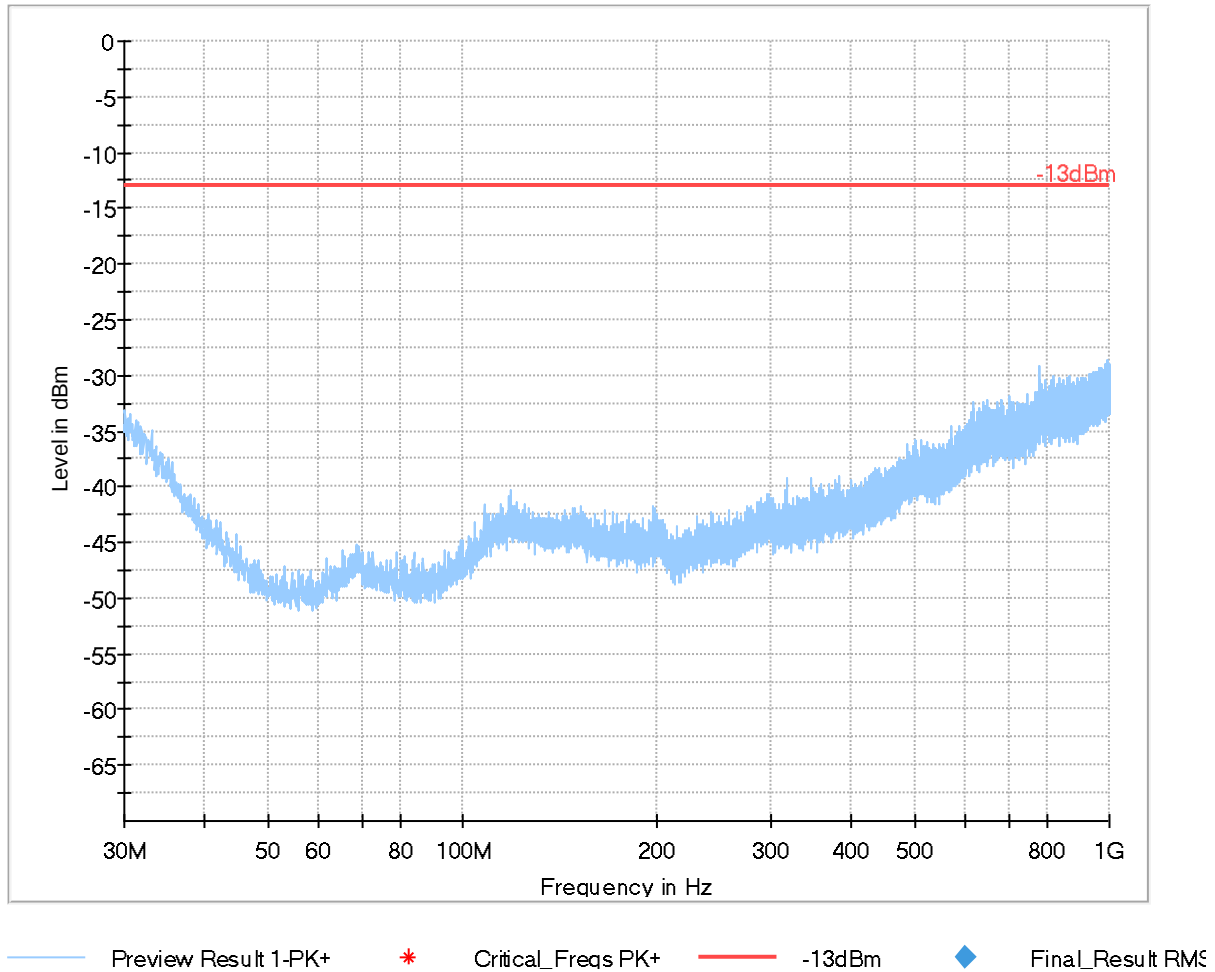
Plot # 36 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



Plot # 37 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Plot # 38 Radiated Emissions: 1 GHz - 3 GHz

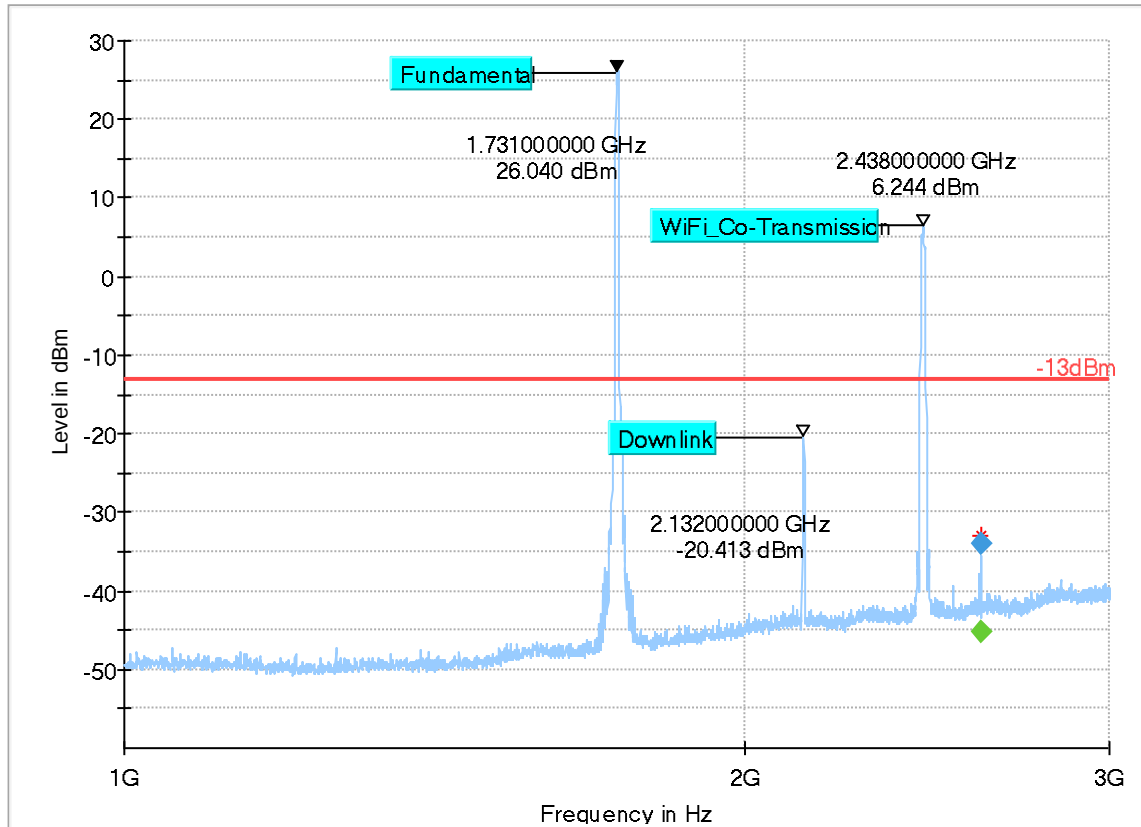
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2599.120250	---	-45.25	---	---	100.0	1000.000	172.0	V	-3.0
2599.120250	-34.06	---	-13.00	21.06	100.0	1000.000	172.0	V	-3.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
2599.120250	-60.6	5:45:48 PM - 10/2/2019
2599.120250	-60.6	5:45:48 PM - 10/2/2019



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

Plot # 39 Radiated Emissions: 3 GHz – 18GHz

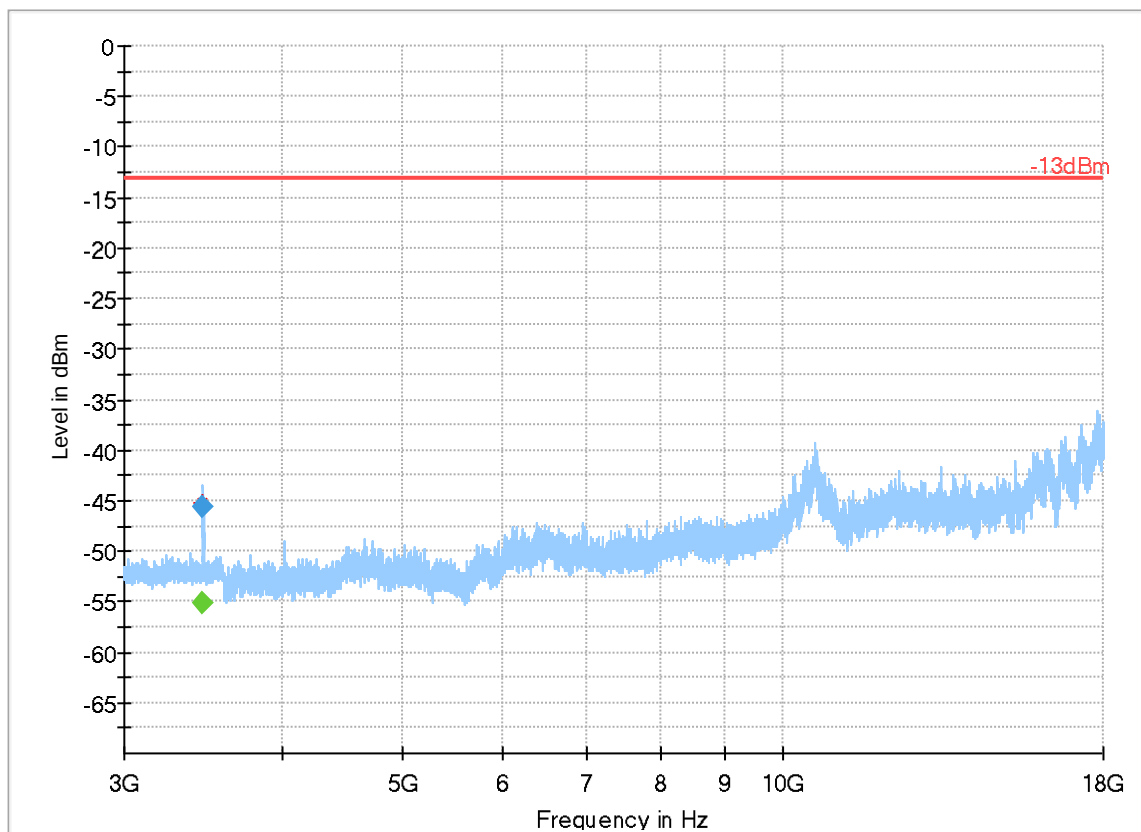
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
3466.743000	---	-55.16	---	---	100.0	1000.000	166.0	V	1.0
3466.743000	-45.70	---	-13.00	32.70	100.0	1000.000	166.0	V	1.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
3466.743000	-99.7	4:28:10 PM - 10/2/2019
3466.743000	-99.7	4:28:10 PM - 10/2/2019



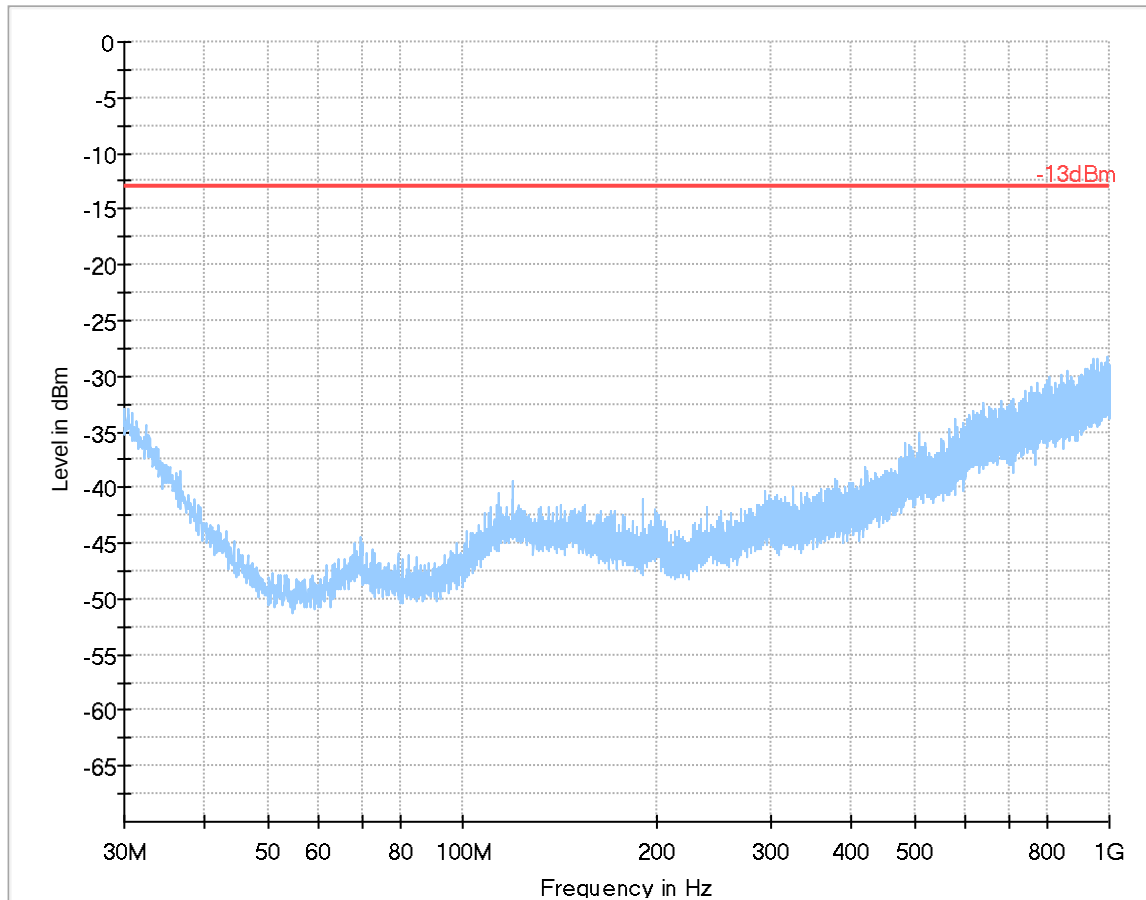
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 40 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Preview Result 1-PK+



Critical_Freqs PK+

-13dBm



Final_Result RMS

Plot # 41 Radiated Emissions: 1 GHz - 3 GHz

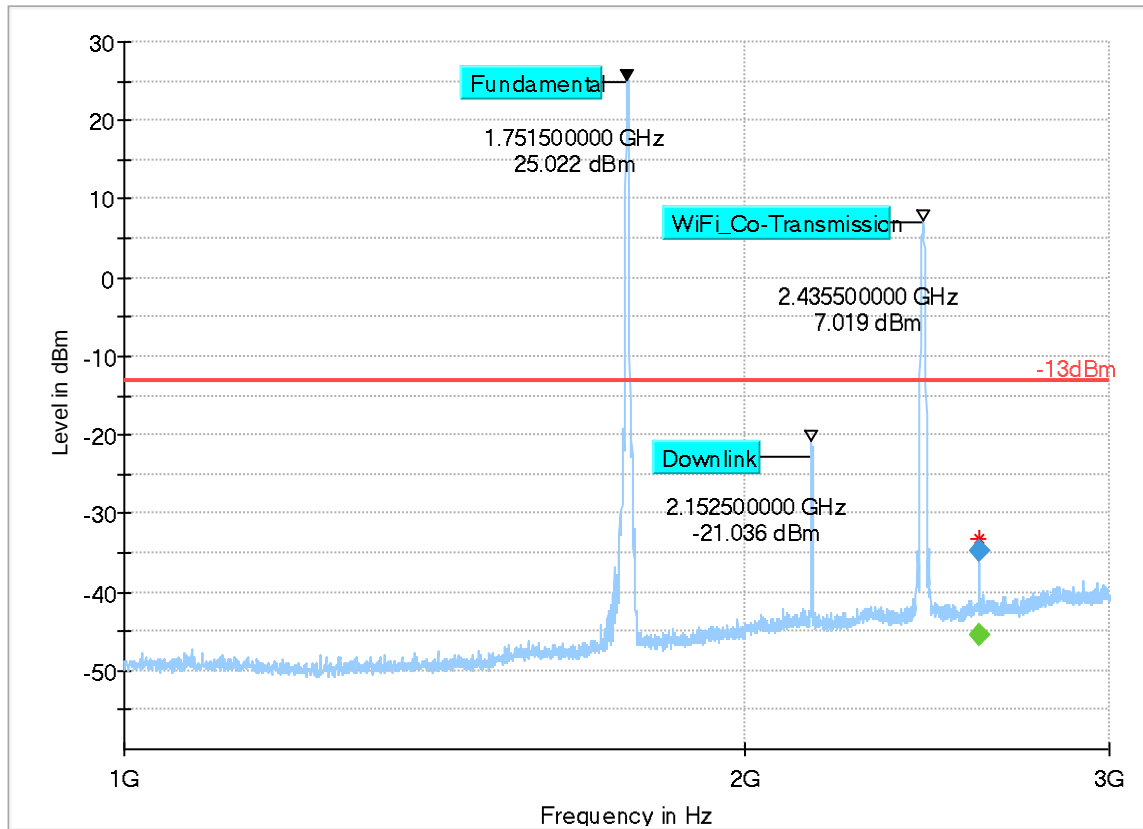
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2595.149125	---	-45.35	---	---	100.0	1000.000	325.0	V	314.0
2595.149125	-34.68	---	-13.00	21.68	100.0	1000.000	325.0	V	314.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
2595.149125	-60.6	5:53:27 PM - 10/2/2019
2595.149125	-60.6	5:53:27 PM - 10/2/2019



◆ Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 42 Radiated Emissions: 3 GHz - 18 GHz

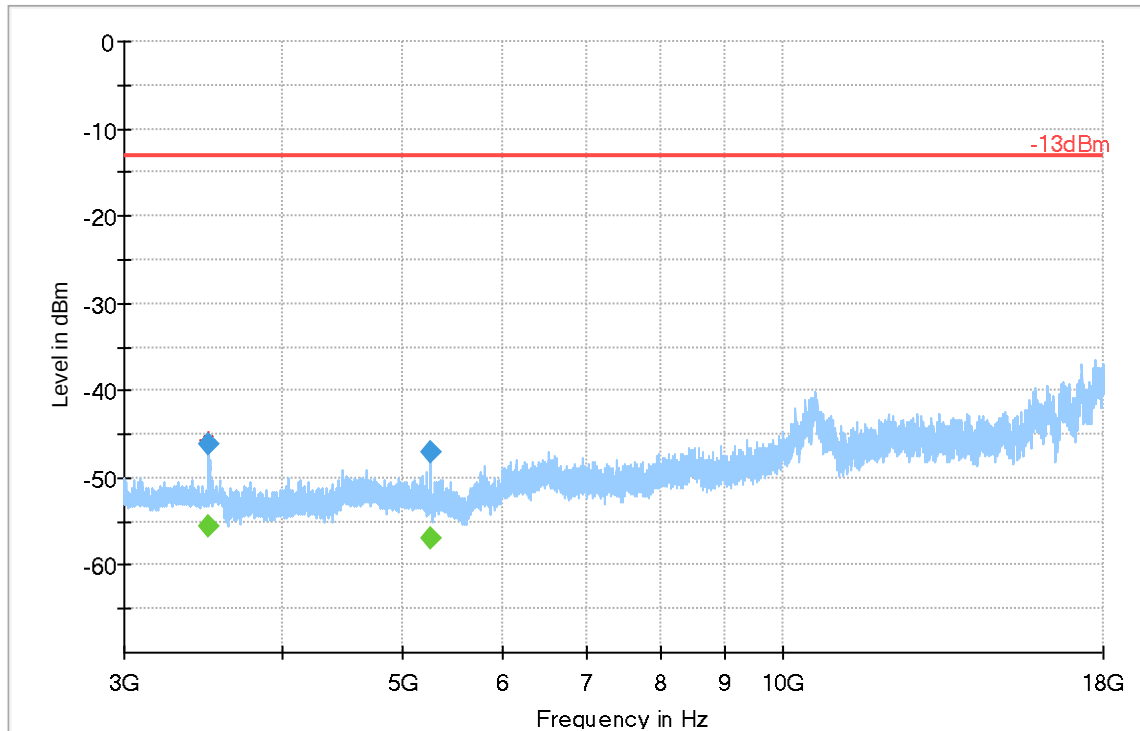
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
3503.029667	---	-55.61	---	---	100.0	1000.000	140.0	V	91.0
3503.029667	-46.12	---	-13.00	33.12	100.0	1000.000	140.0	V	91.0
5254.788833	---	-56.90	---	---	100.0	1000.000	140.0	V	26.0
5254.788833	-47.07	---	-13.00	34.07	100.0	1000.000	140.0	V	26.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
3503.029667	-99.6	4:18:27 PM - 10/2/2019
3503.029667	-99.6	4:18:27 PM - 10/2/2019
5254.788833	-96.7	4:20:20 PM - 10/2/2019
5254.788833	-96.7	4:20:20 PM - 10/2/2019



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

WCDMA Band V

Plot # 43 Radiated Emissions: 30 MHz - 1 GHz

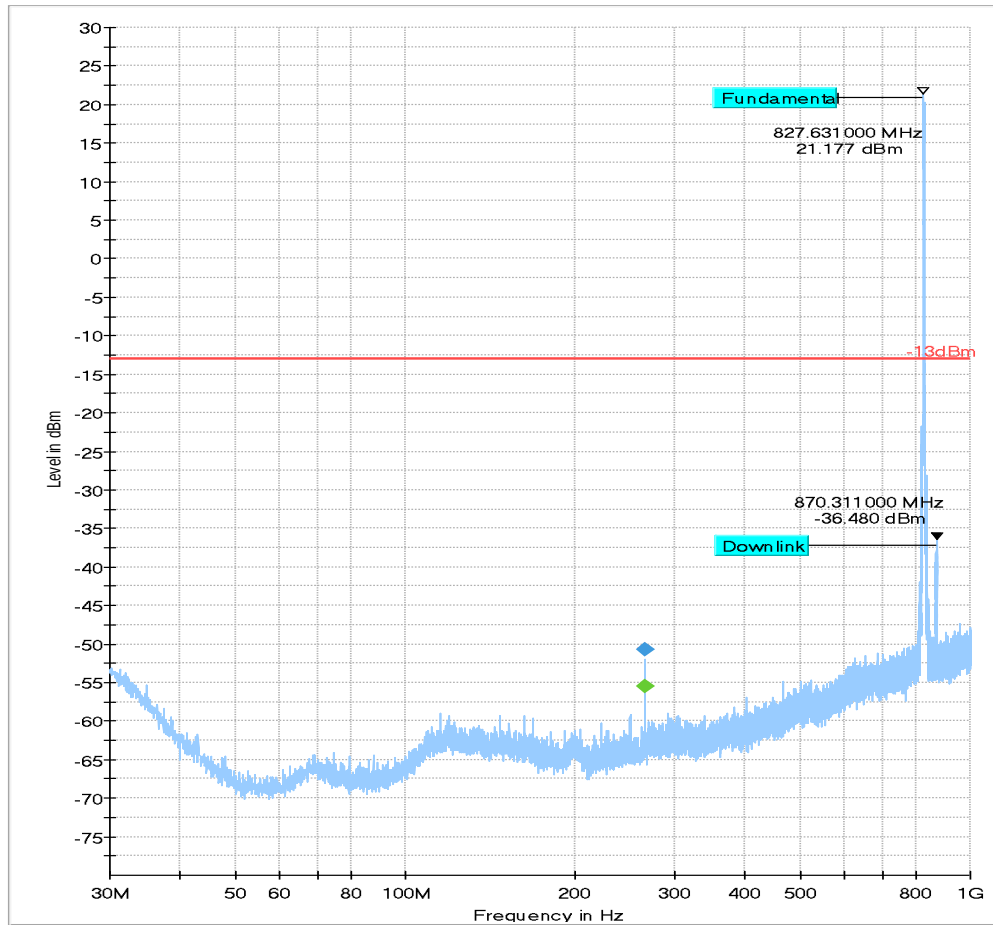
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.393243	---	-55.41	---	---	100.0	100.000	152.0	H	241.0
266.393243	-50.77	---	-13.00	37.77	100.0	100.000	152.0	H	241.0

(continuation of the "Final_Result" table from column 15 ...)

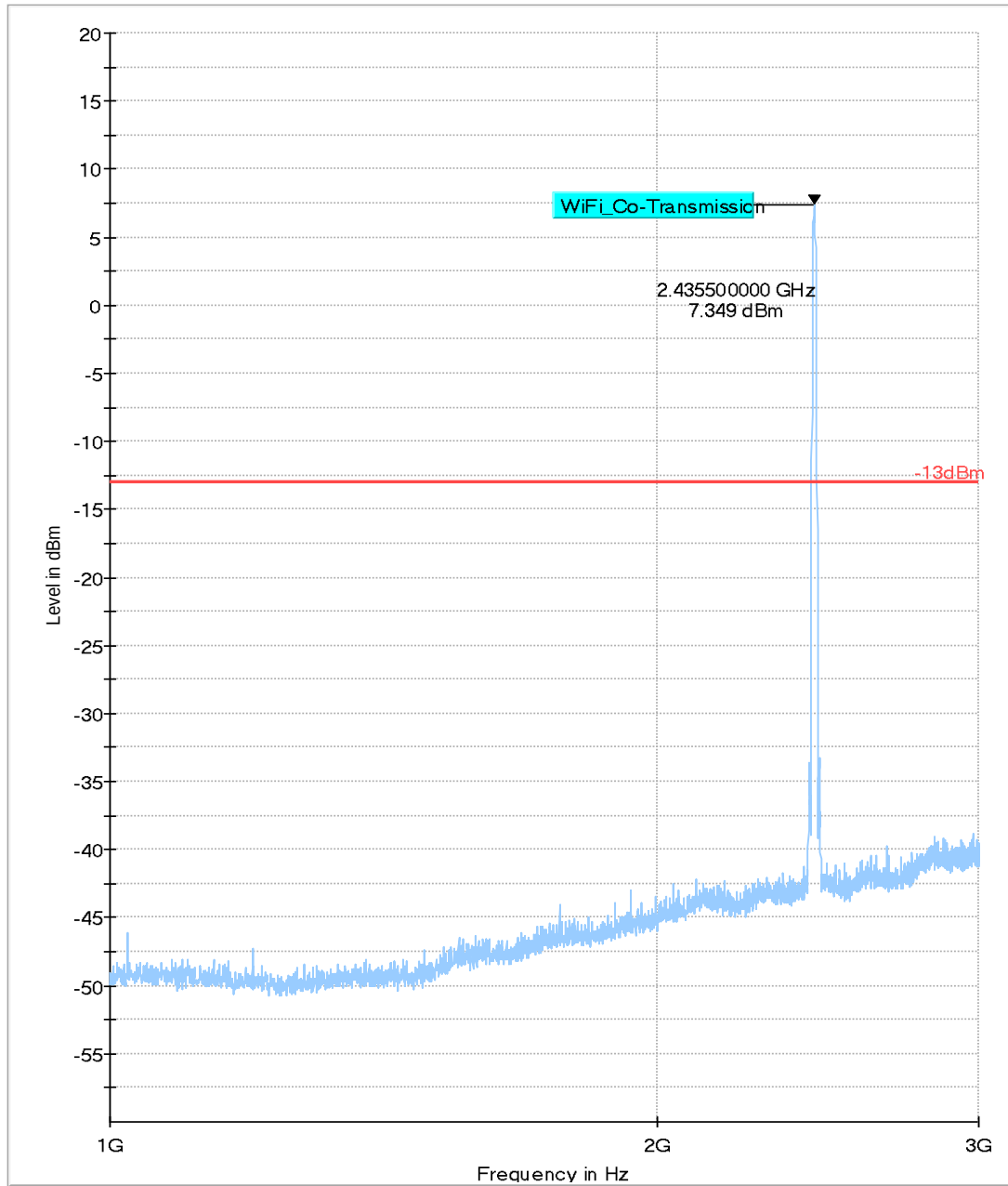
Frequency (MHz)	Corr. (dB)	Comment
266.393243	-75.8	5:42:56 PM - 10/3/2019
266.393243	-75.8	5:42:55 PM - 10/3/2019



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

Plot # 44 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



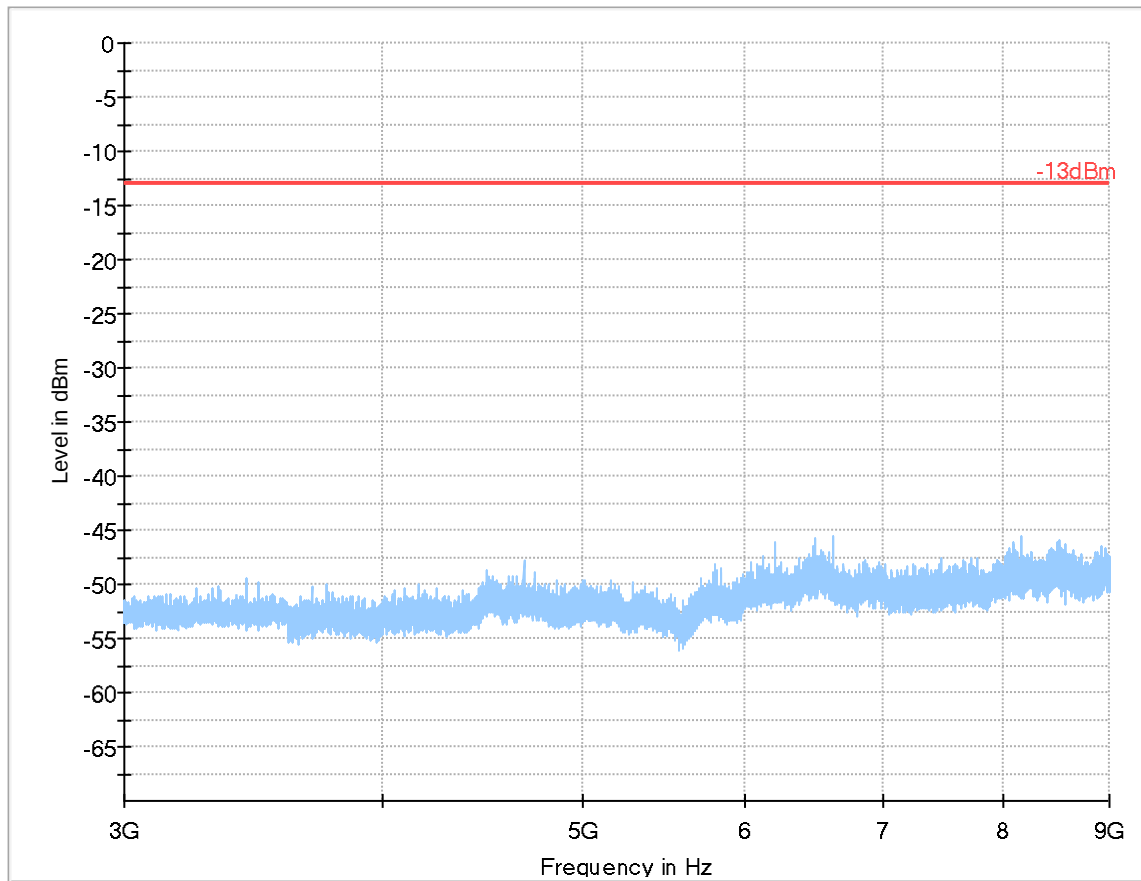
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 45 Radiated Emissions: 3 GHz - 9 GHz

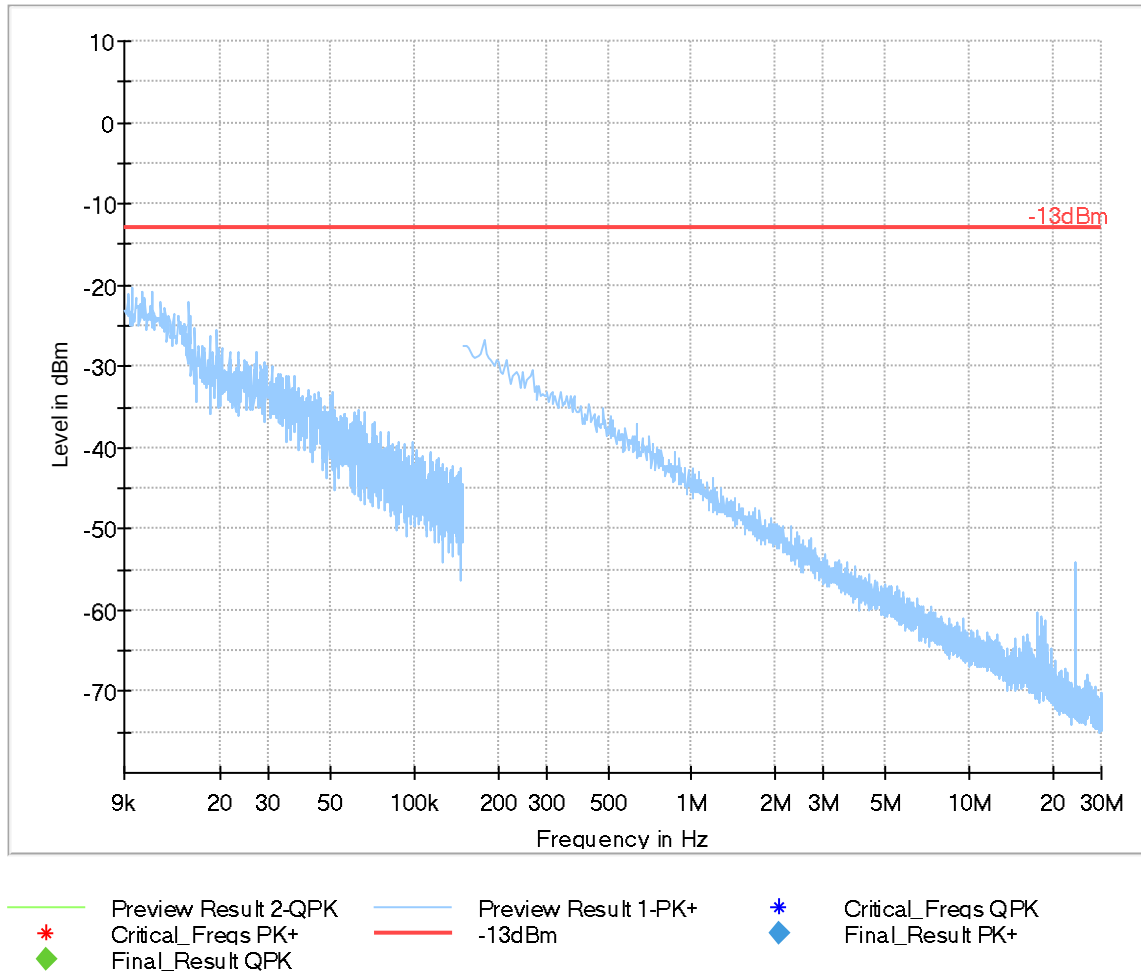
Channel: Low



Preview Result 1-PK+
Fina_Result PK+

* Critical_Freqs PK+
◆ Fina_Result RMS

-13dBm

Plot # 46 Radiated Emissions: 9 kHz - 30 MHz**Channel: Mid**

Plot # 47 Radiated Emissions: 30 MHz – 1 GHz

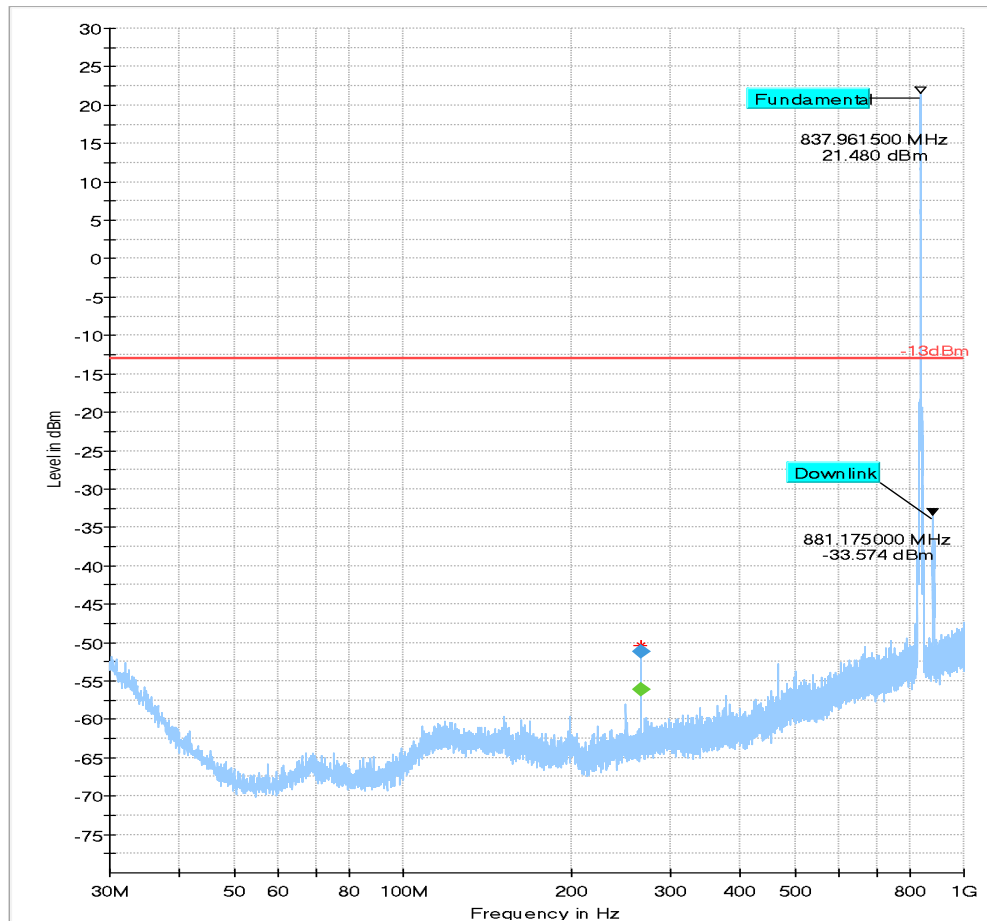
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.395247	---	-56.19	---	---	100.0	100.000	152.0	H	241.0
266.395247	-51.26	---	-13.00	38.26	100.0	100.000	152.0	H	241.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.395247	-75.8	5:33:00 PM - 10/3/2019
266.395247	-75.8	5:33:00 PM - 10/3/2019



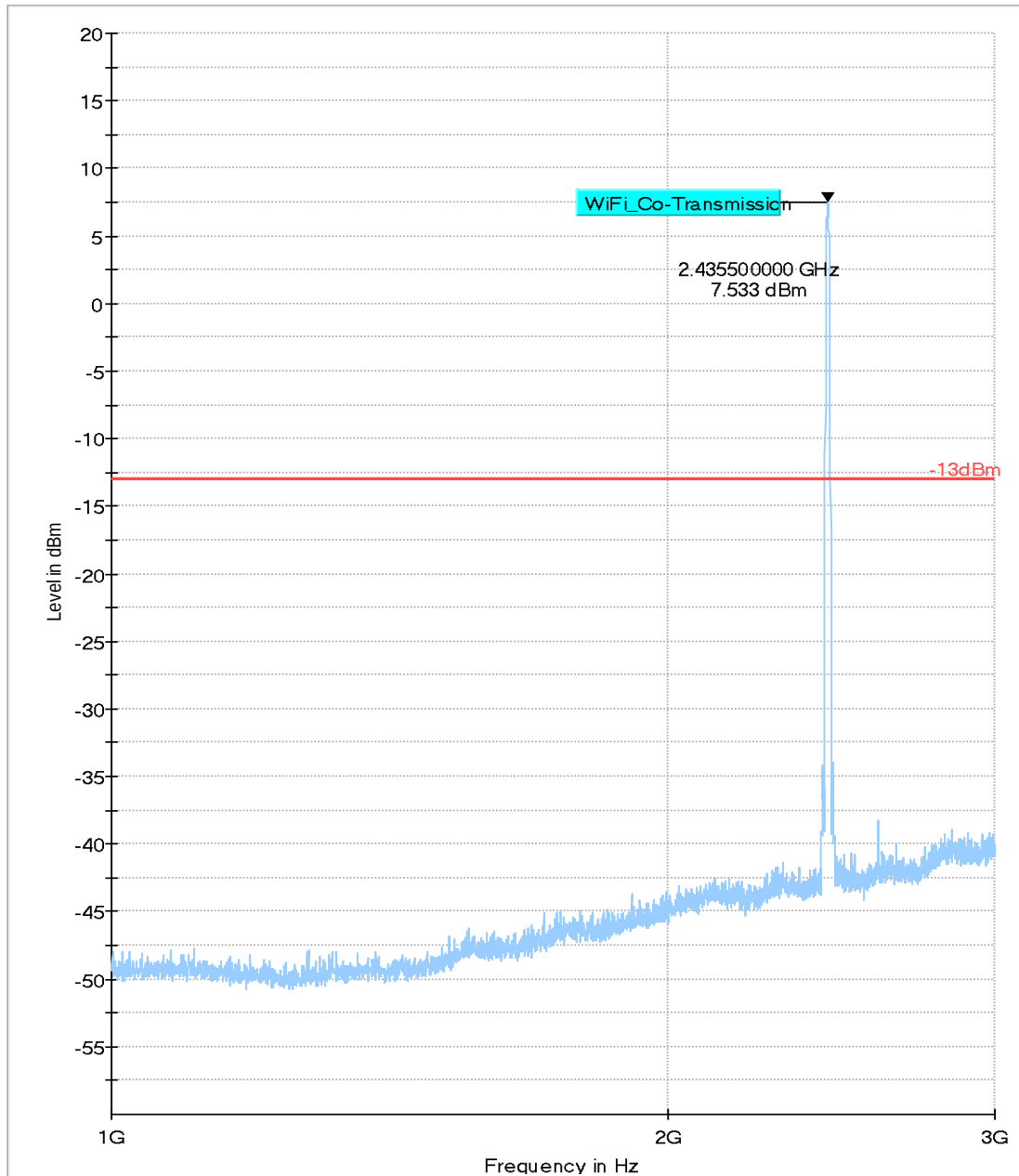
◆ Preview Result 1-PK+ Final_Result PK+ * Critical_Freqs PK+ Final_Result RMS

◆ Preview Result 1-RMS Final_Result RMS

— -13dBm

Plot # 48 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



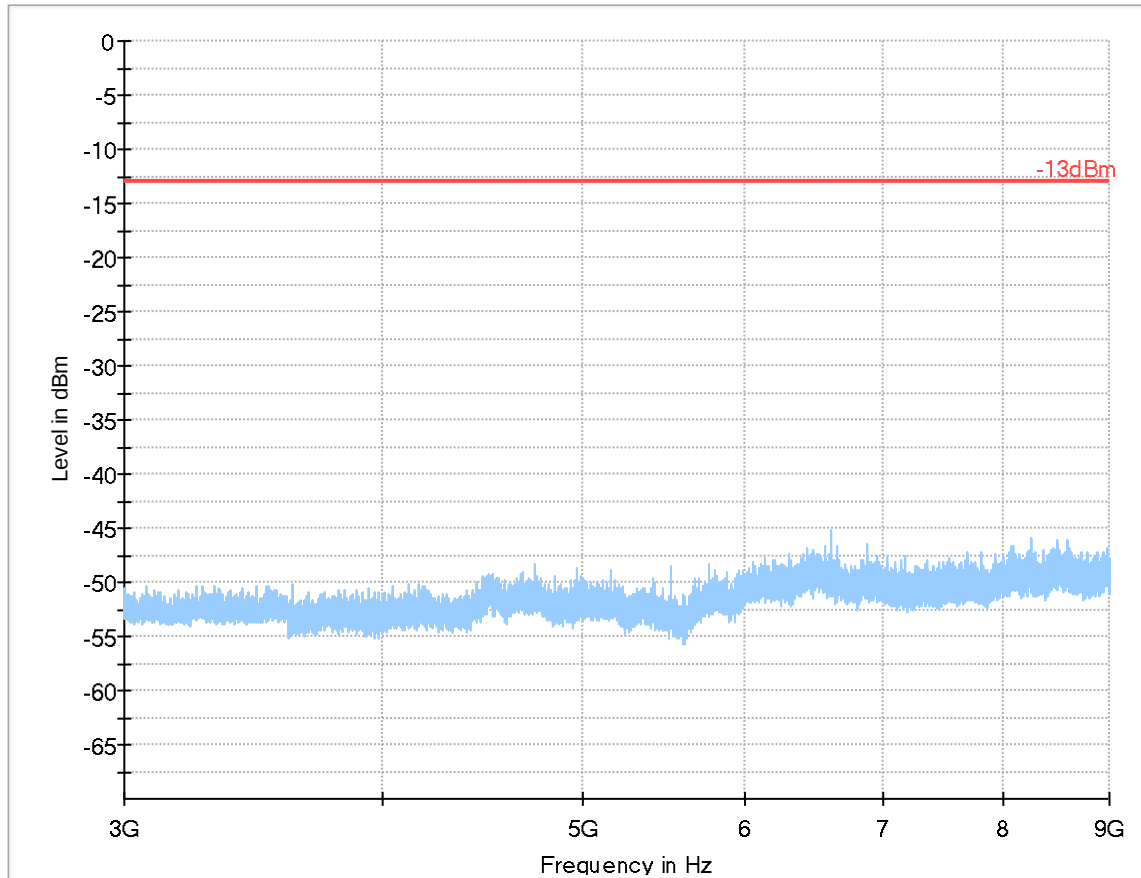
Preview Result 1-PK+
Final Result PK+

* Critical_Freqs PK+
◆ Final Result RMS

-13dBm

Plot # 49 Radiated Emissions: 3 GHz – 9GHz

Channel: Mid



Preview Result 1-PK+
Final Result PK+

* Critical_Freqs PK+
Final Result RMS

-13dBm

Plot # 50 Radiated Emissions: 30 MHz - 1 GHz

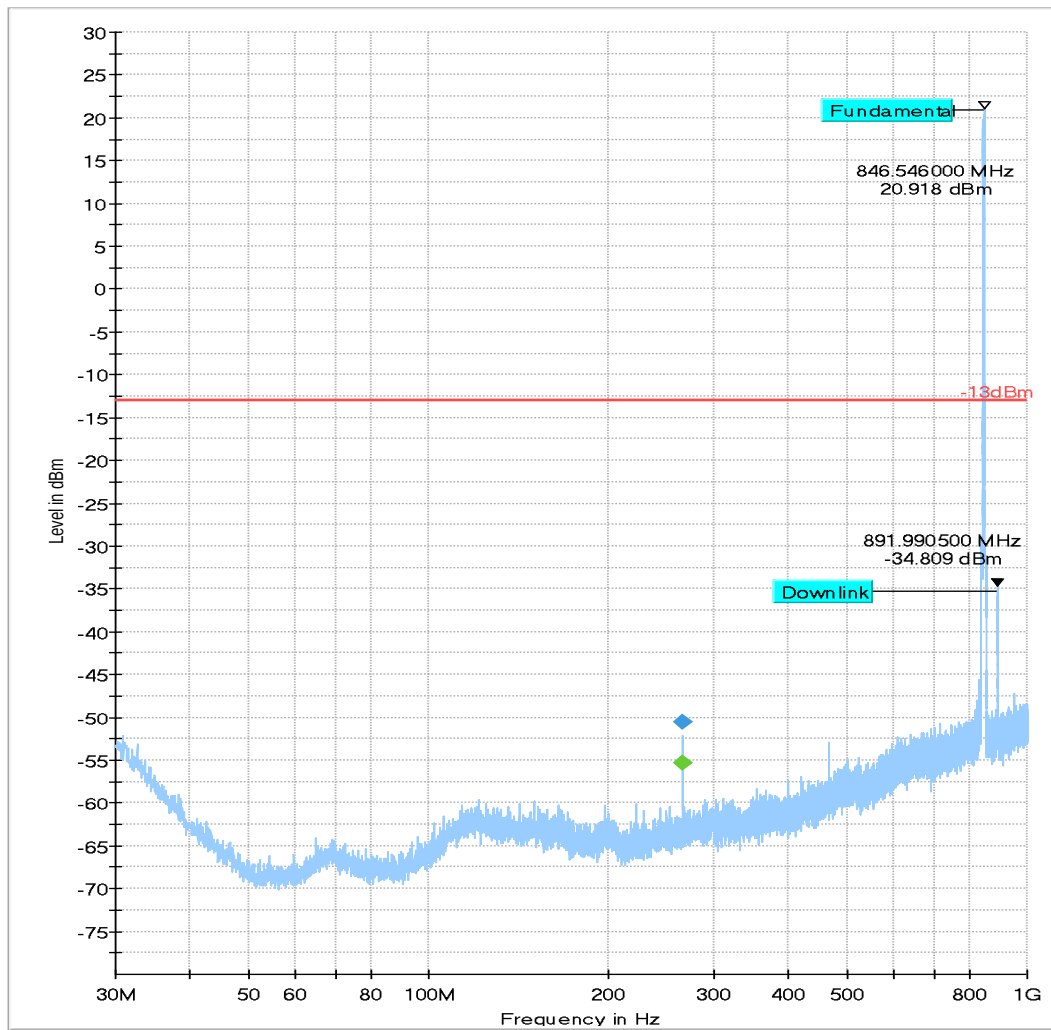
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.393897	---	-55.37	---	---	100.0	100.000	151.0	H	239.0
266.393897	-50.58	---	-13.00	37.58	100.0	100.000	151.0	H	239.0

(continuation of the "Final_Result" table from column 15 ...)

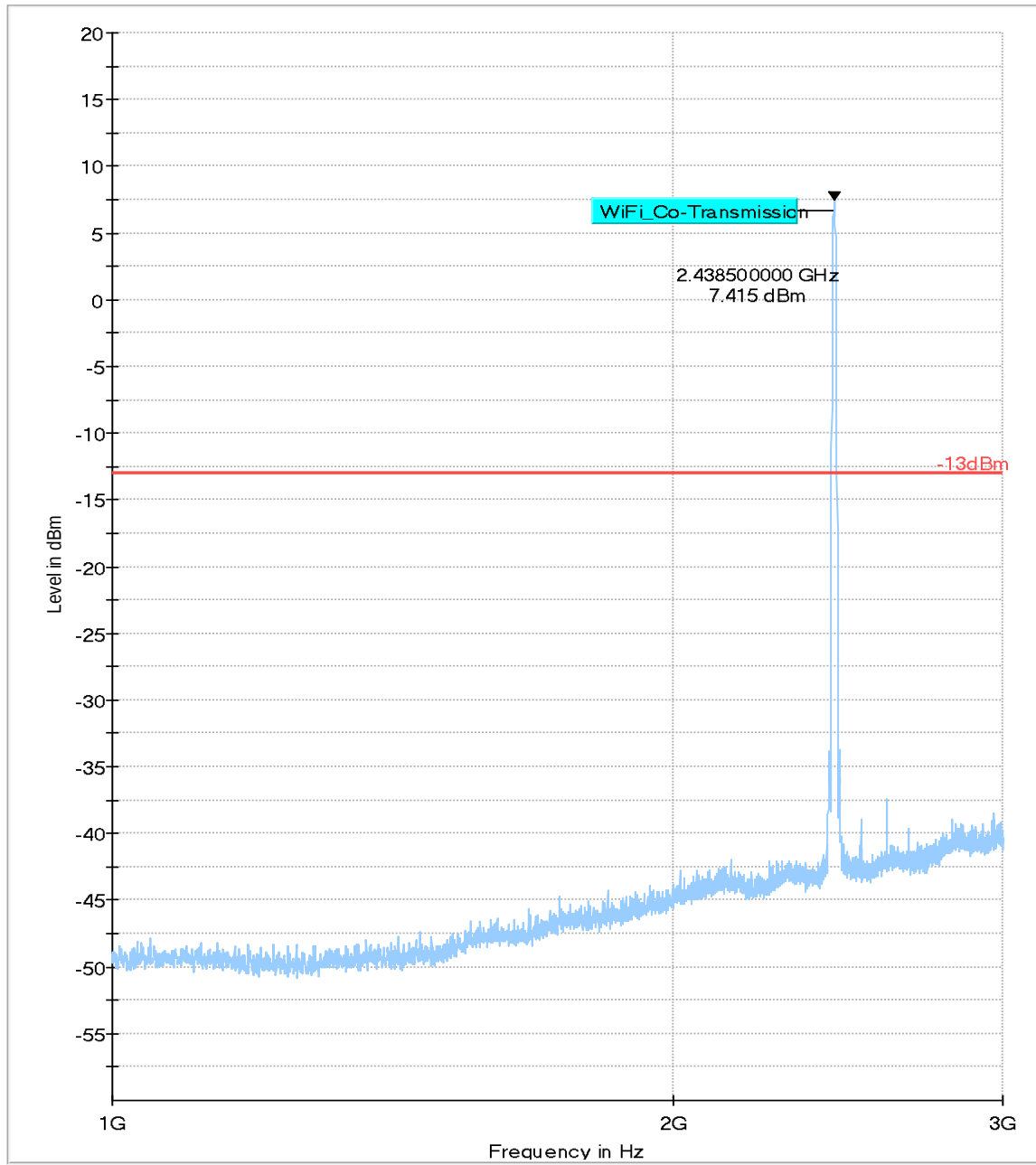
Frequency (MHz)	Corr. (dB)	Comment
266.393897	-75.8	5:51:38 PM - 10/3/2019
266.393897	-75.8	5:51:38 PM - 10/3/2019



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

Plot # 51 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

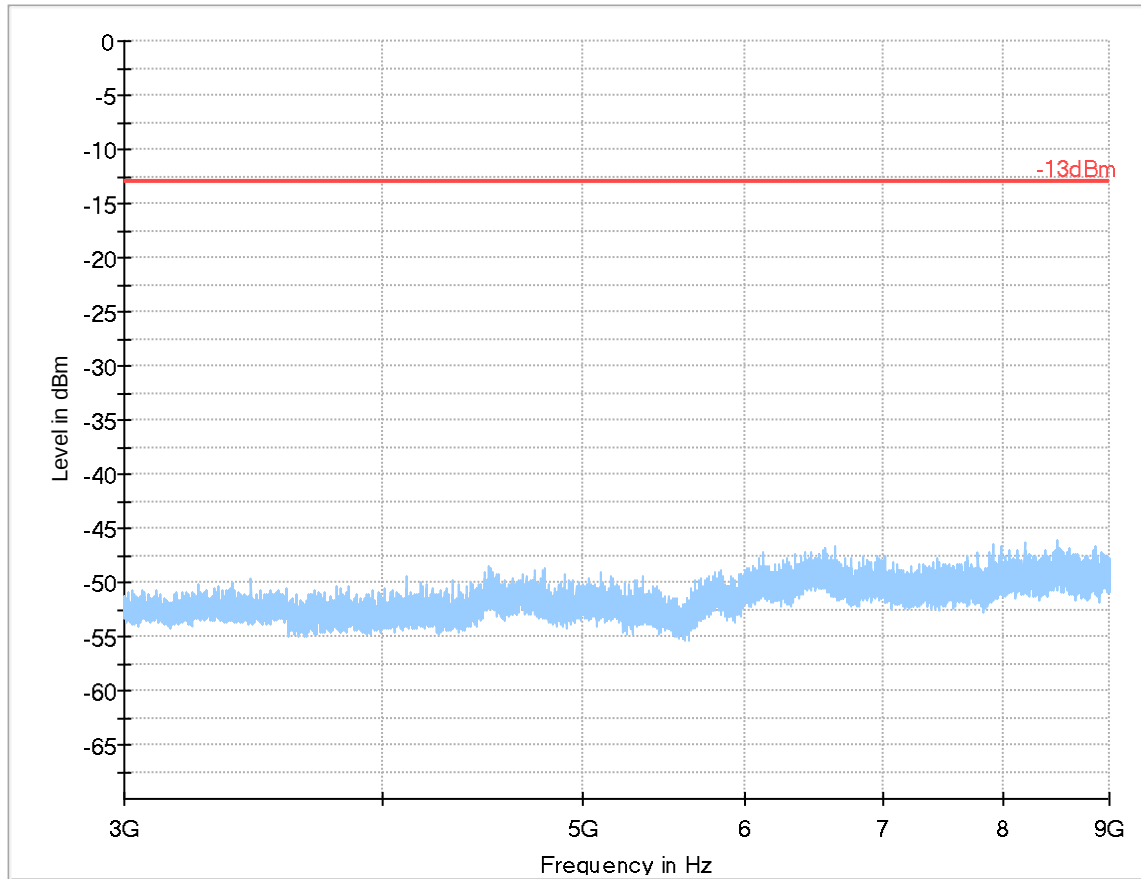


Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 52 Radiated Emissions: 3 GHz - 9 GHz

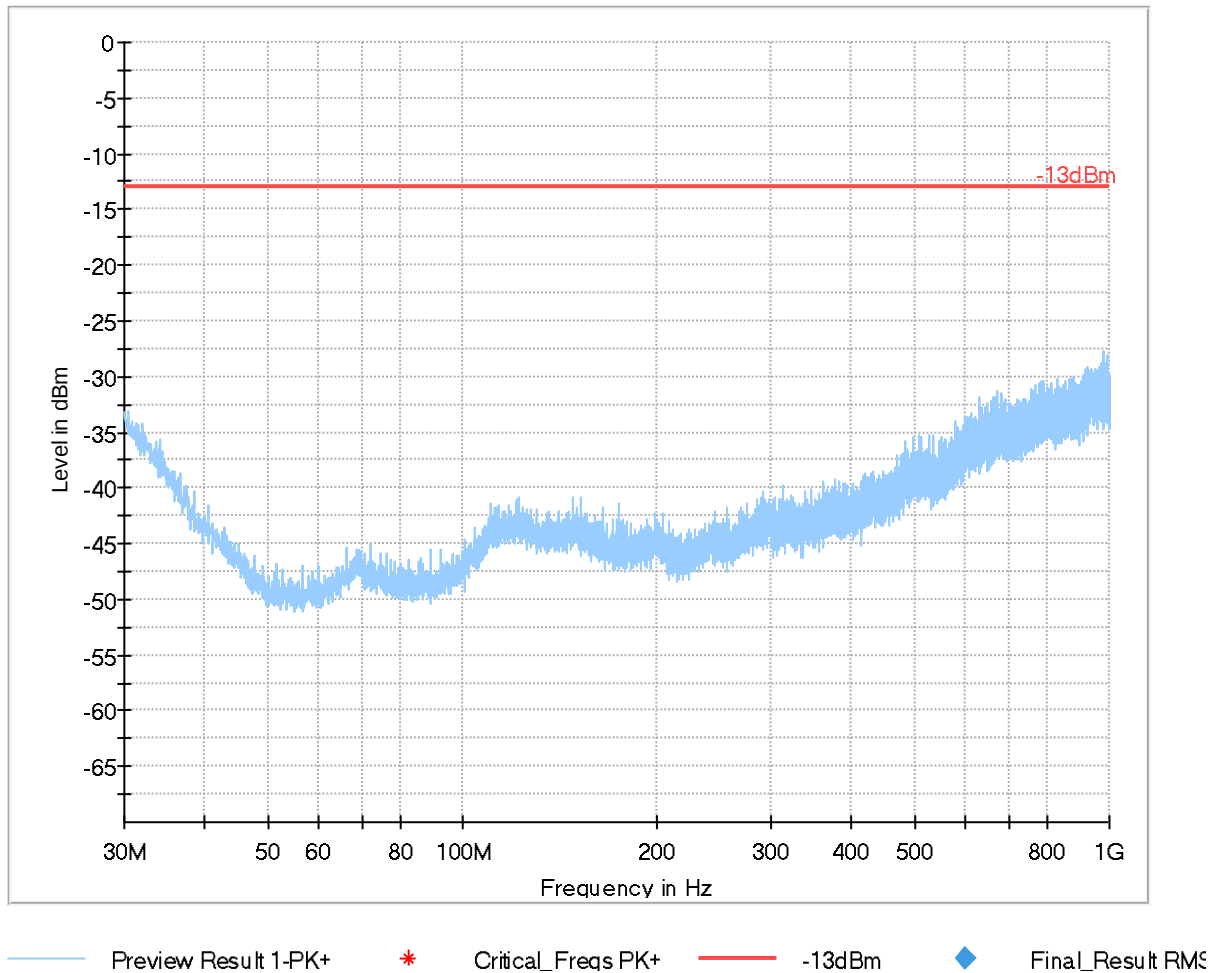
Channel: High



Preview Result 1-PK+
Fina_Result PK+

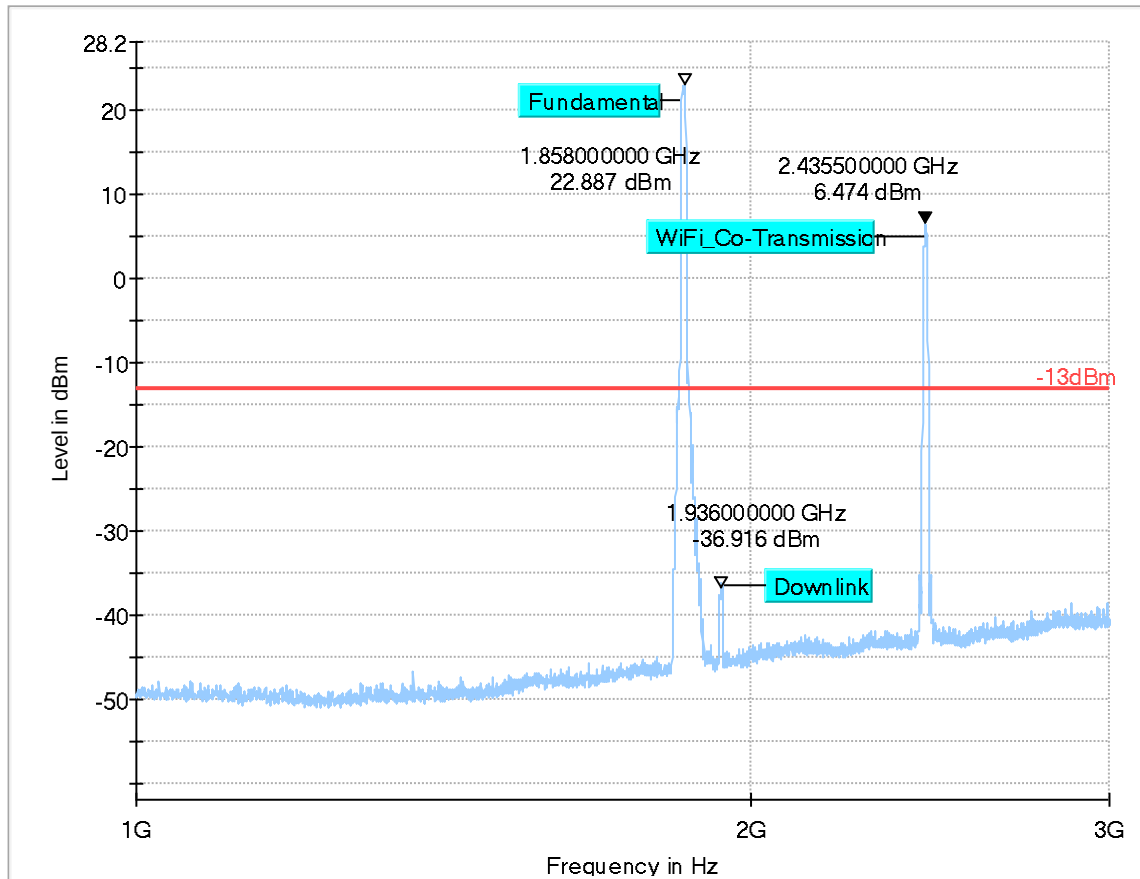
* Critical_Freqs PK+
◆ Fina_Result RMS

— -13dBm

LTE Band 2**Plot # 53 Radiated Emissions: 30 MHz - 1 GHz****Channel: Low**

Plot # 54 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



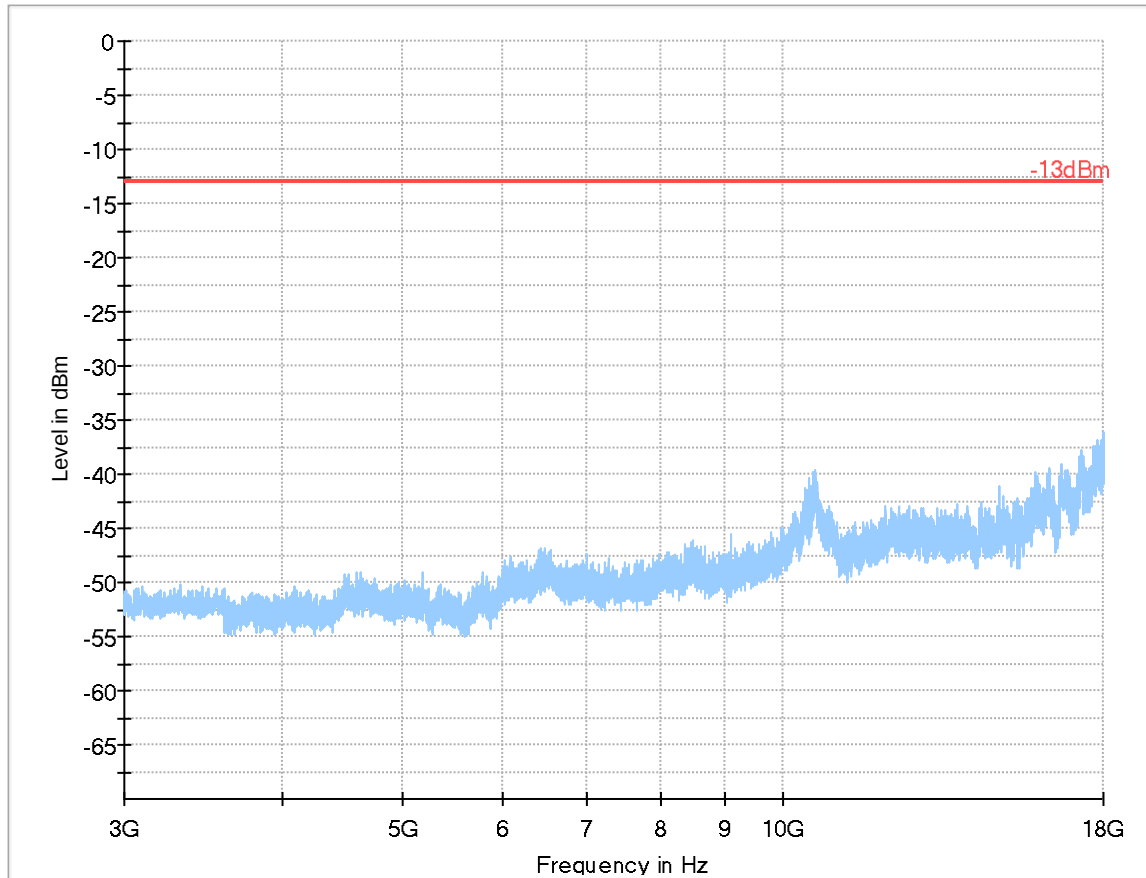
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 55 Radiated Emissions: 3 GHz - 18 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

Plot # 56 Radiated Emissions: 9 kHz - 30 MHz

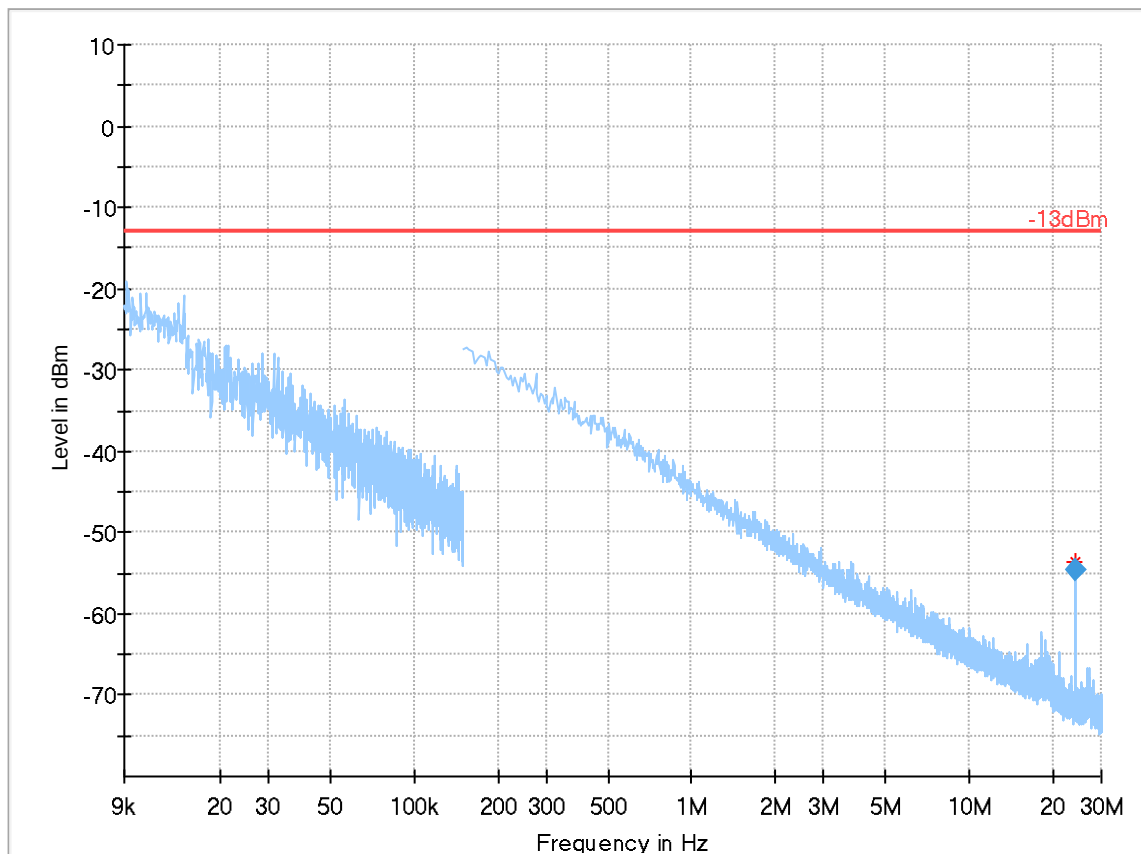
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
24.001000	-54.54	---	-13.00	41.54	2.0	9.000	140.0	H	39.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
24.001000	-78.5	9:55:32 AM - 10/4/2019



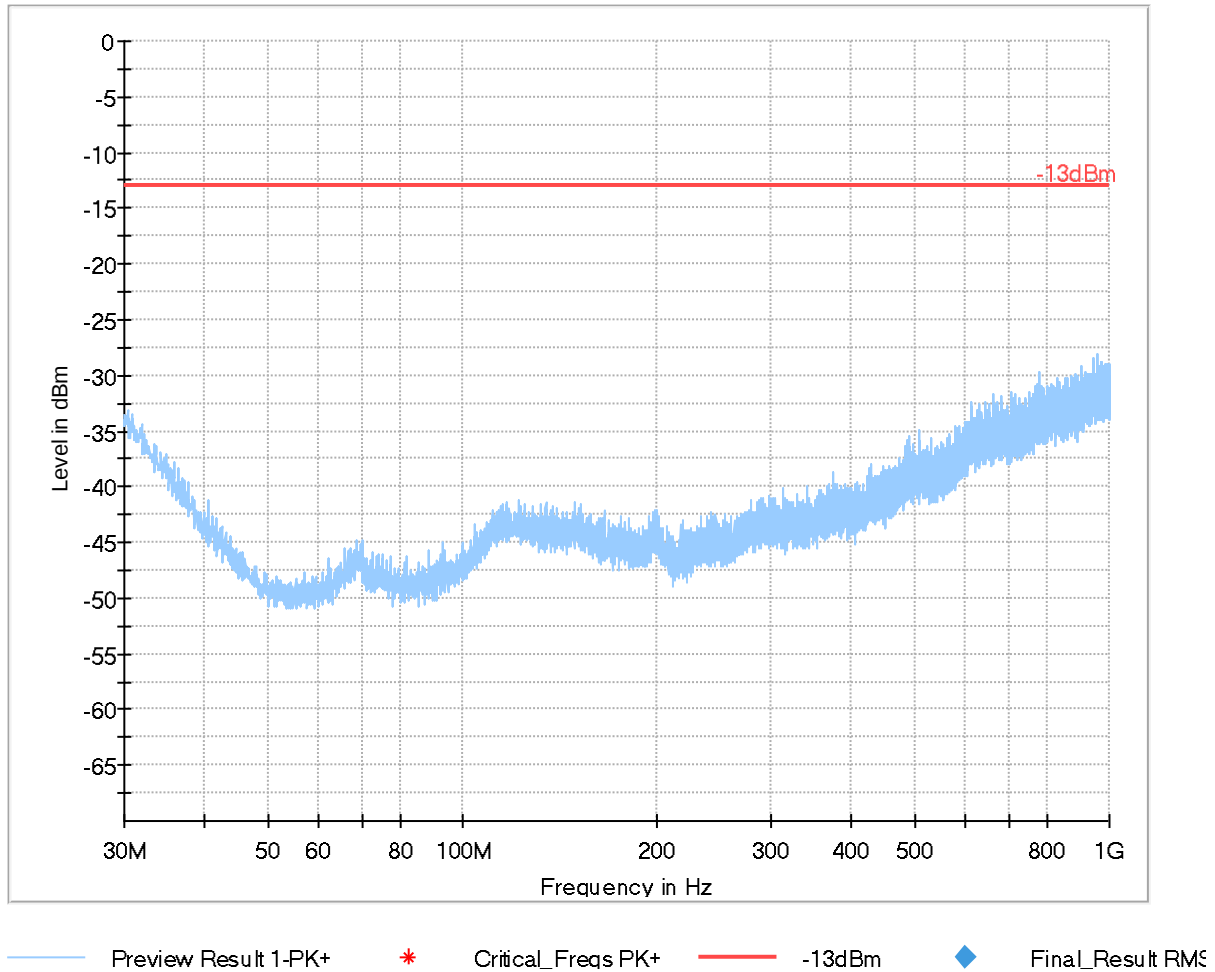
Preview Result 2-QPK
Critical_Freqs PK+
Final_Result QPK

Preview Result 1-PK+
-13dBm

Critical_Freqs QPK
Final_Result PK+

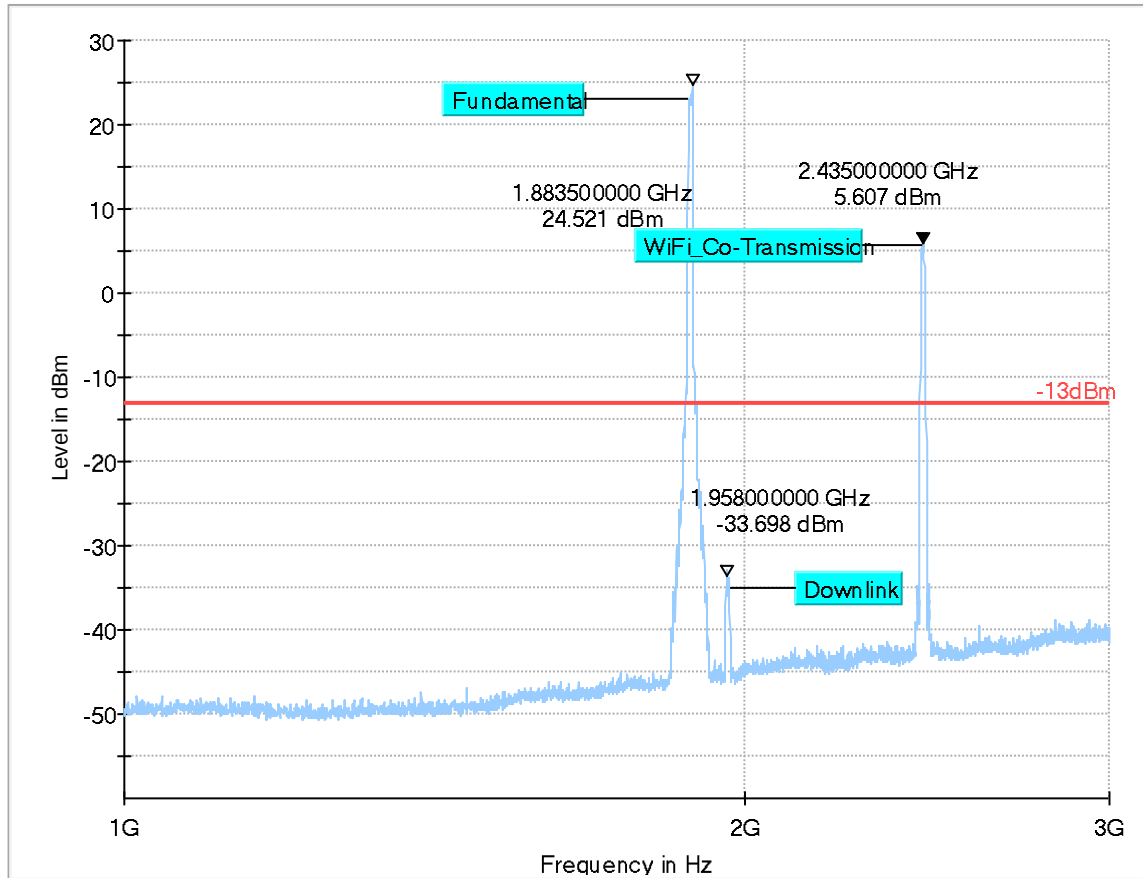
Plot # 57 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 58 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



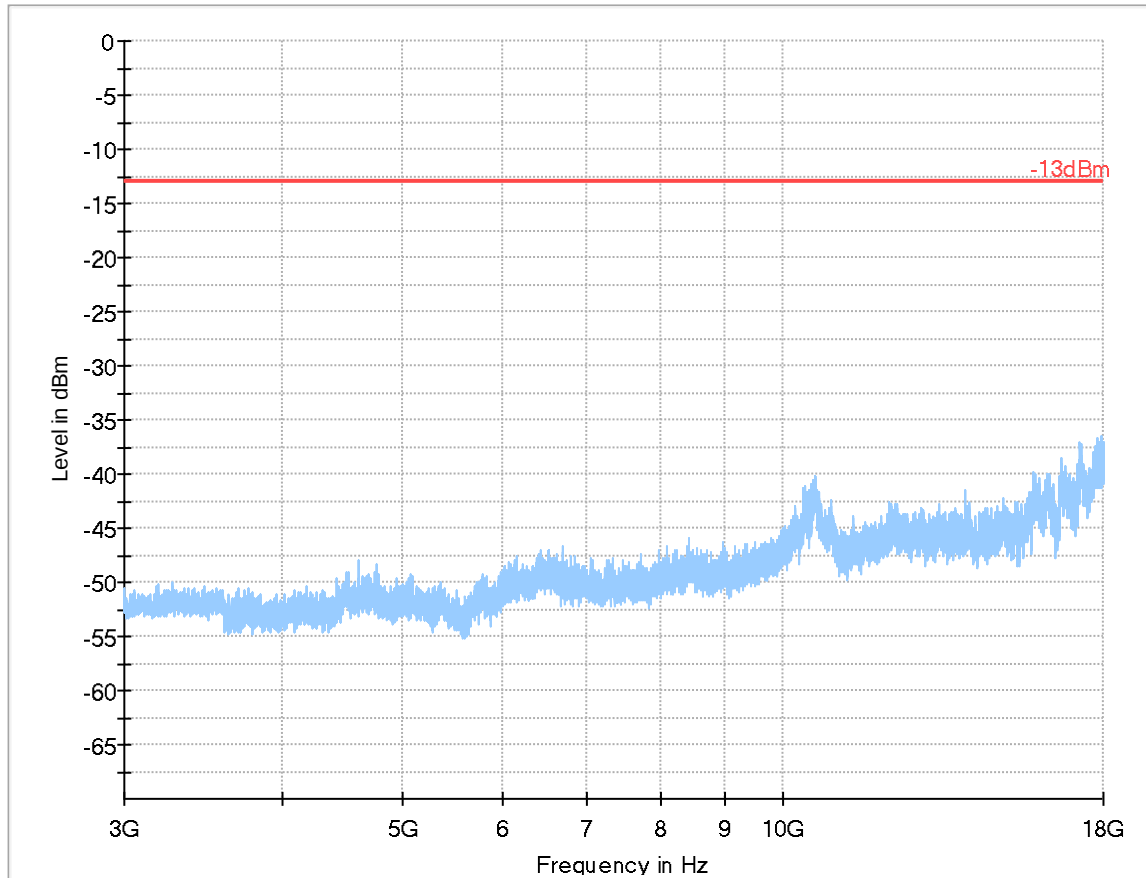
Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 59 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid



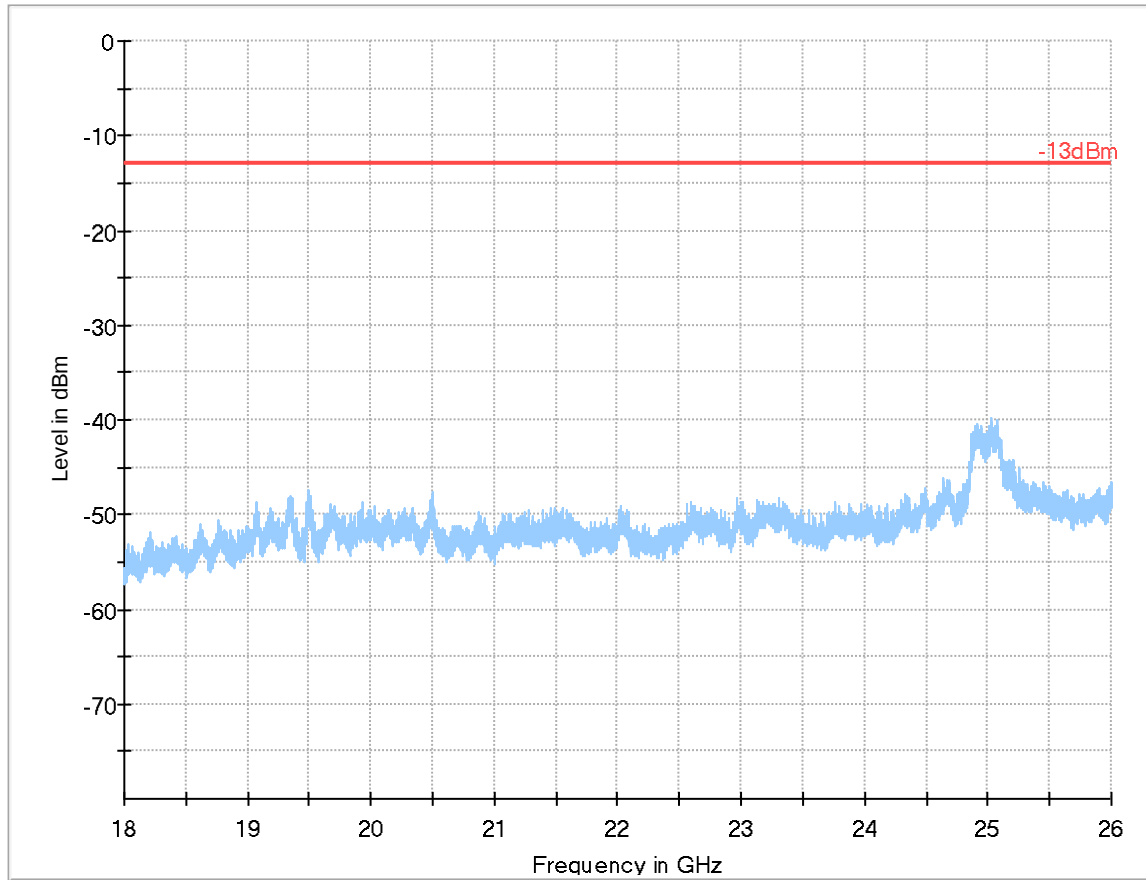
Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 60 Radiated Emissions: 18 GHz – 26 GHz

Channel: Mid



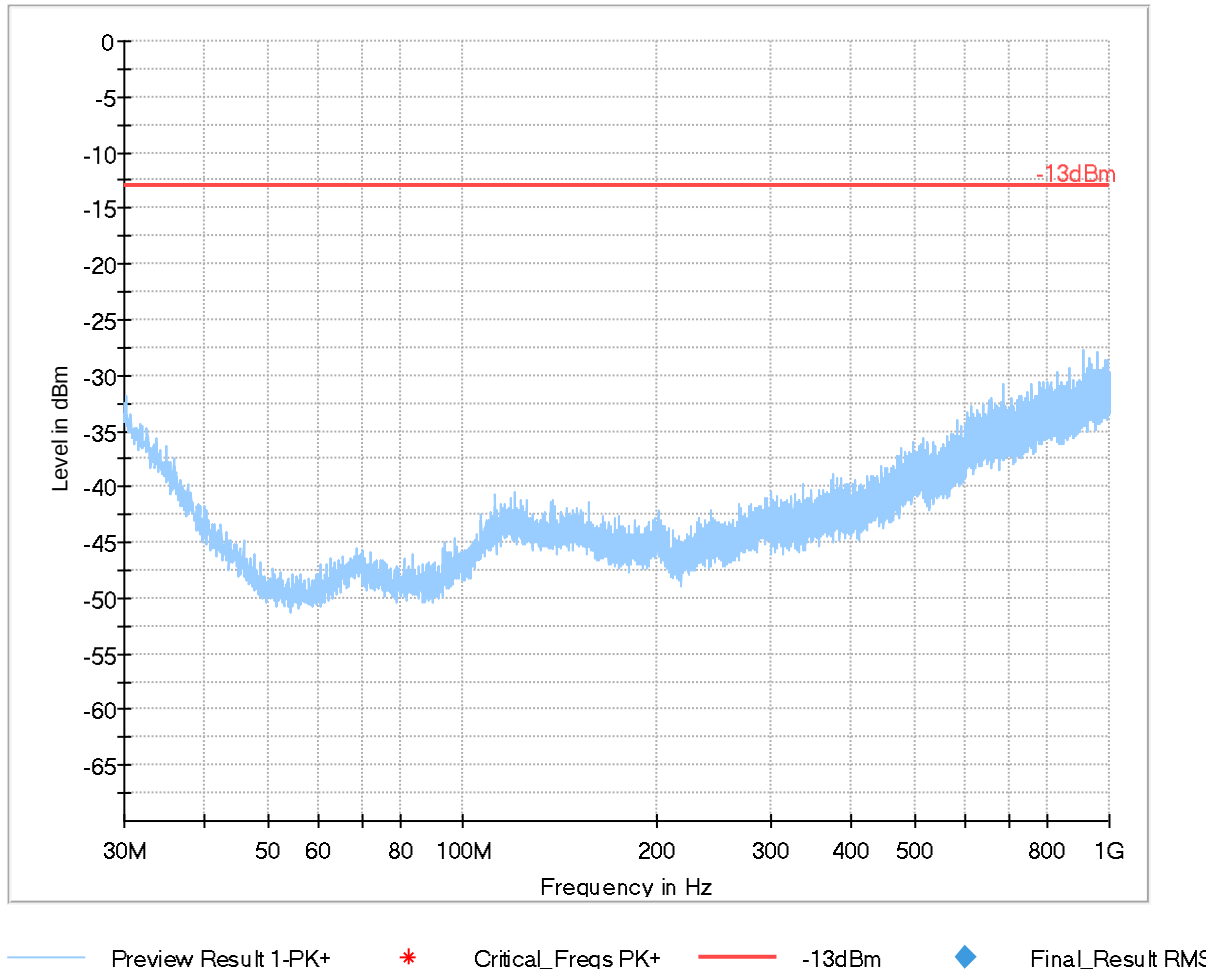
Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

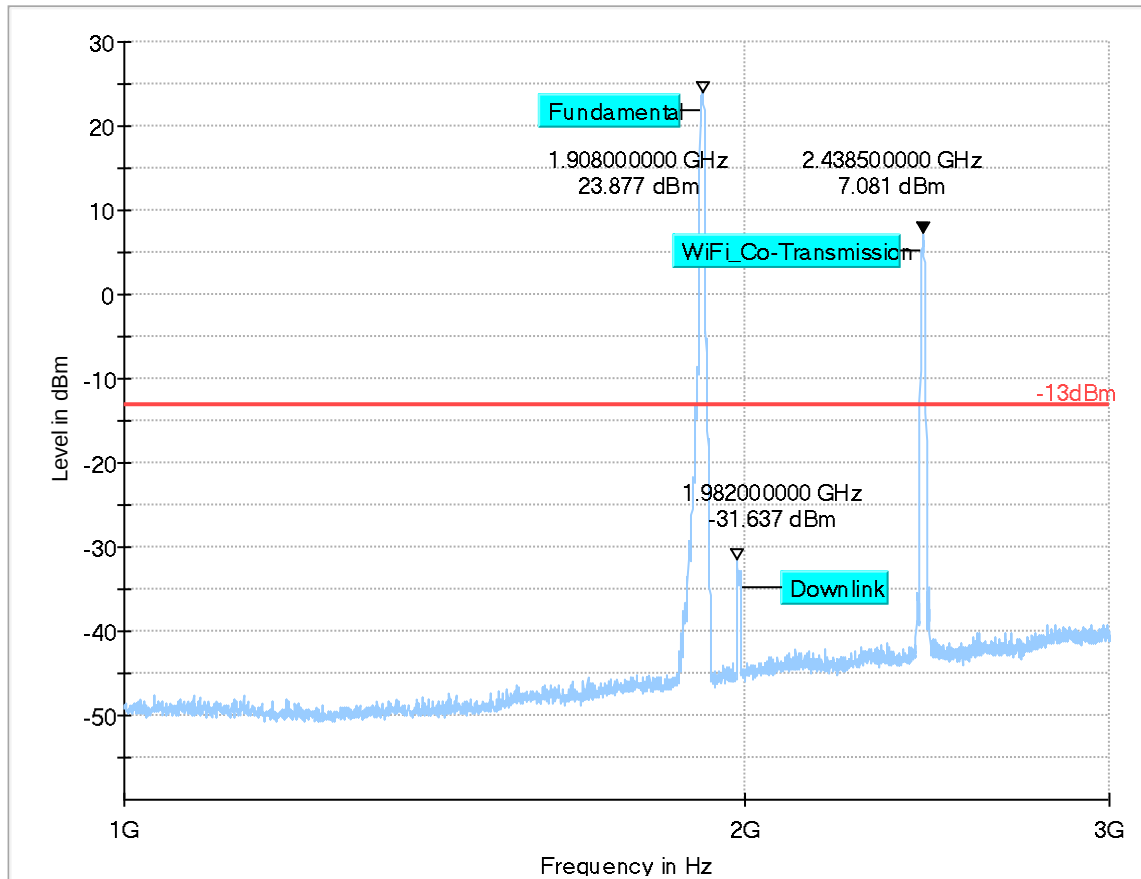
Plot # 61 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 62 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



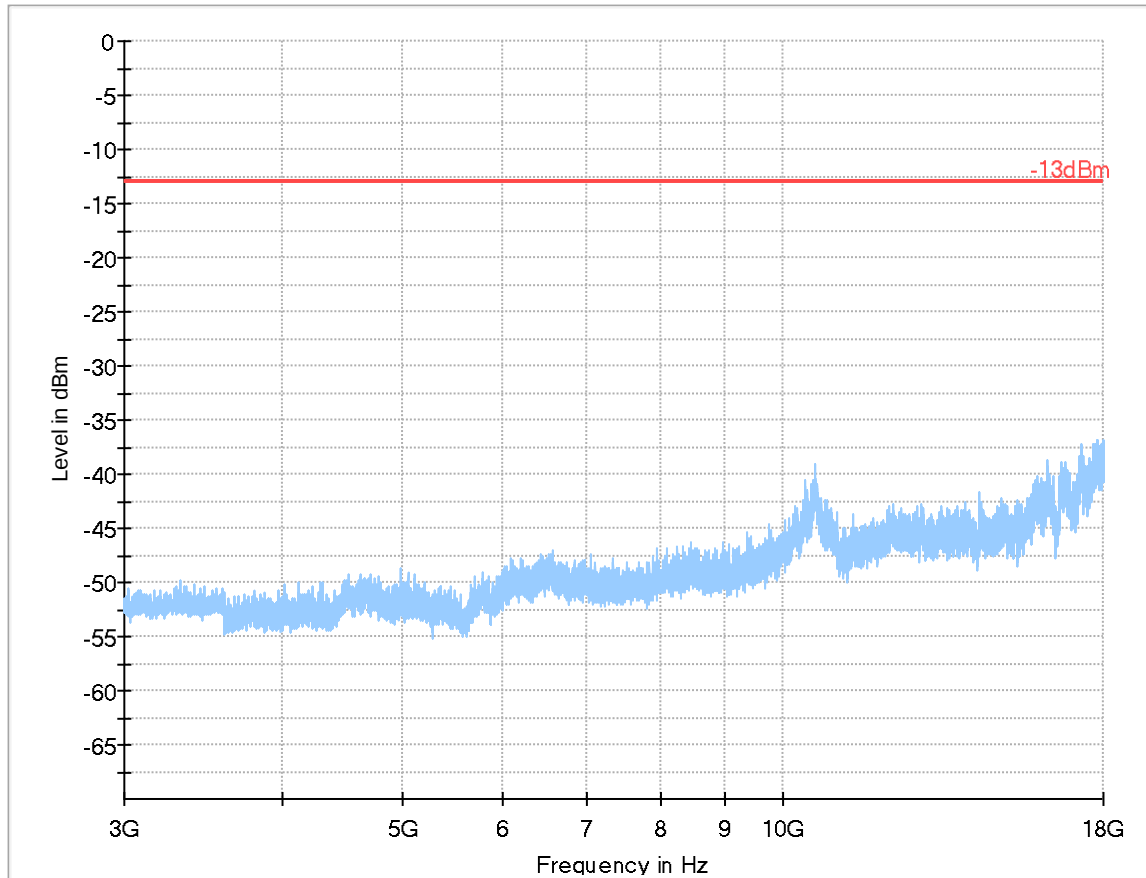
Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 63 Radiated Emissions: 3 GHz - 18 GHz

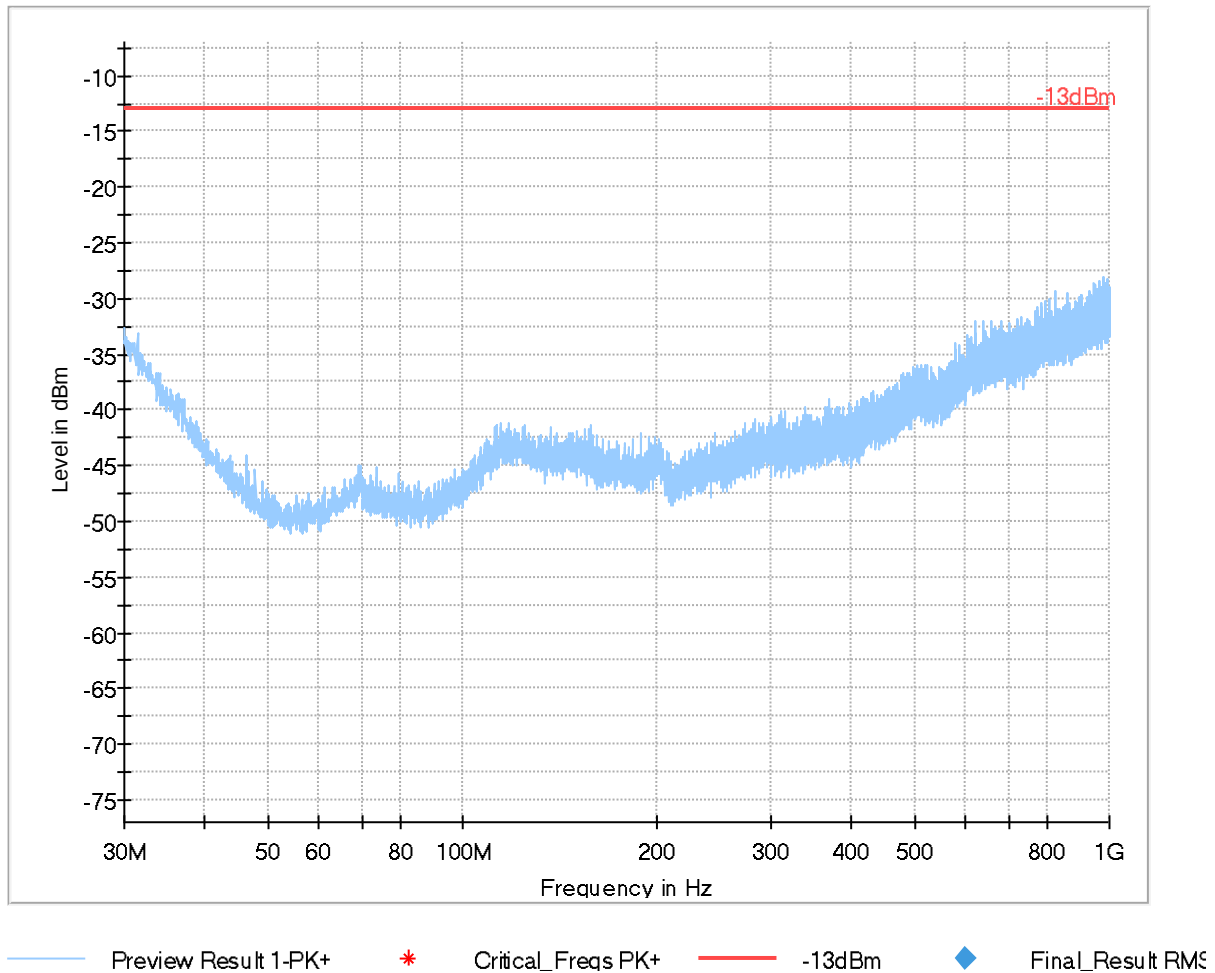
Channel: High



Preview Result 1-PK+
Final_Result PK+

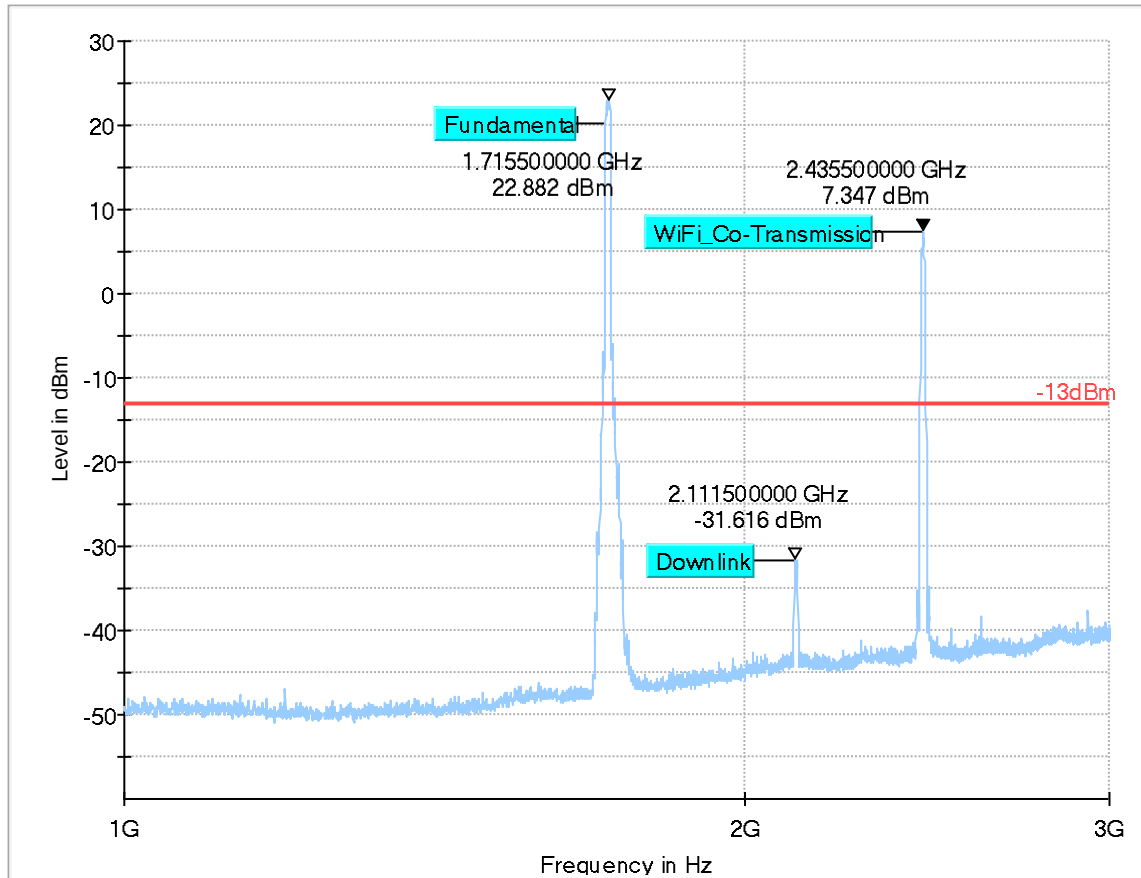
* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

LTE Band 4**Plot # 64 Radiated Emissions: 30 MHz - 1 GHz****Channel: Low**

Plot # 65 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 66 Radiated Emissions: 3 GHz - 18 GHz

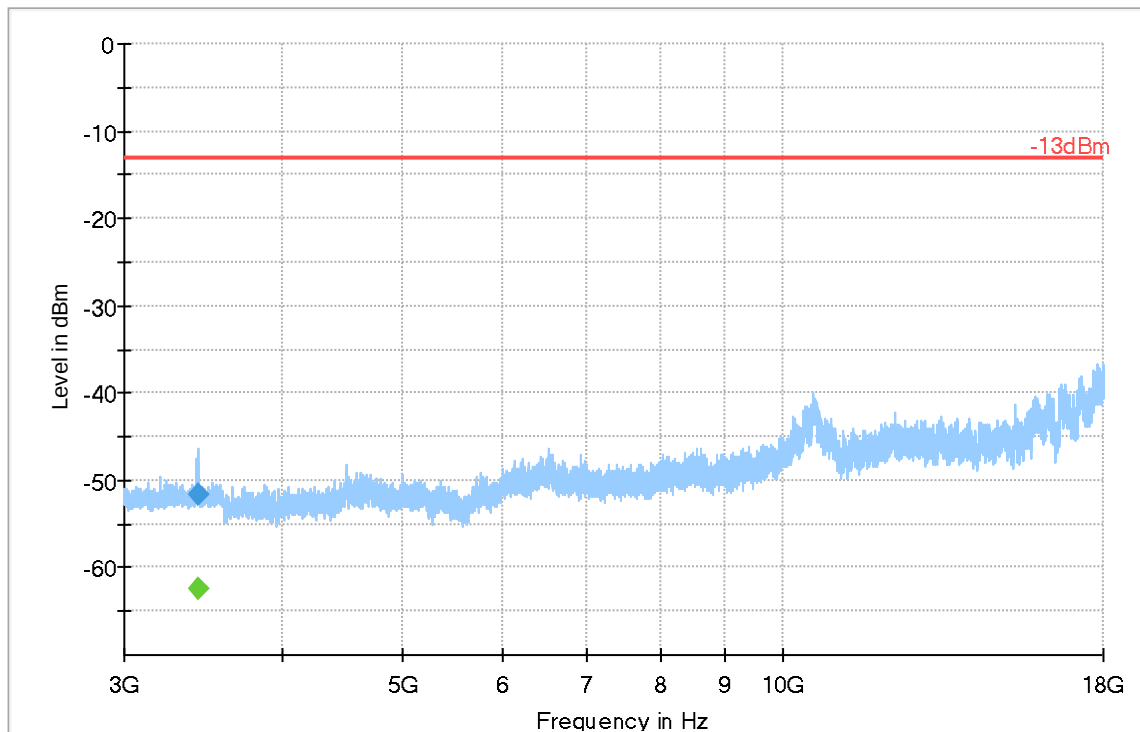
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
3431.115500	---	-62.44	---	---	100.0	1000.000	195.0	H	-67.0
3431.115500	-51.58	---	-13.00	38.58	100.0	1000.000	195.0	H	-67.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
3431.115500	-99.7	10:26:03 AM - 10/3/2019
3431.115500	-99.7	10:26:03 AM - 10/3/2019

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

-13dBm

Plot # 67 Radiated Emissions: 9 kHz - 30 MHz

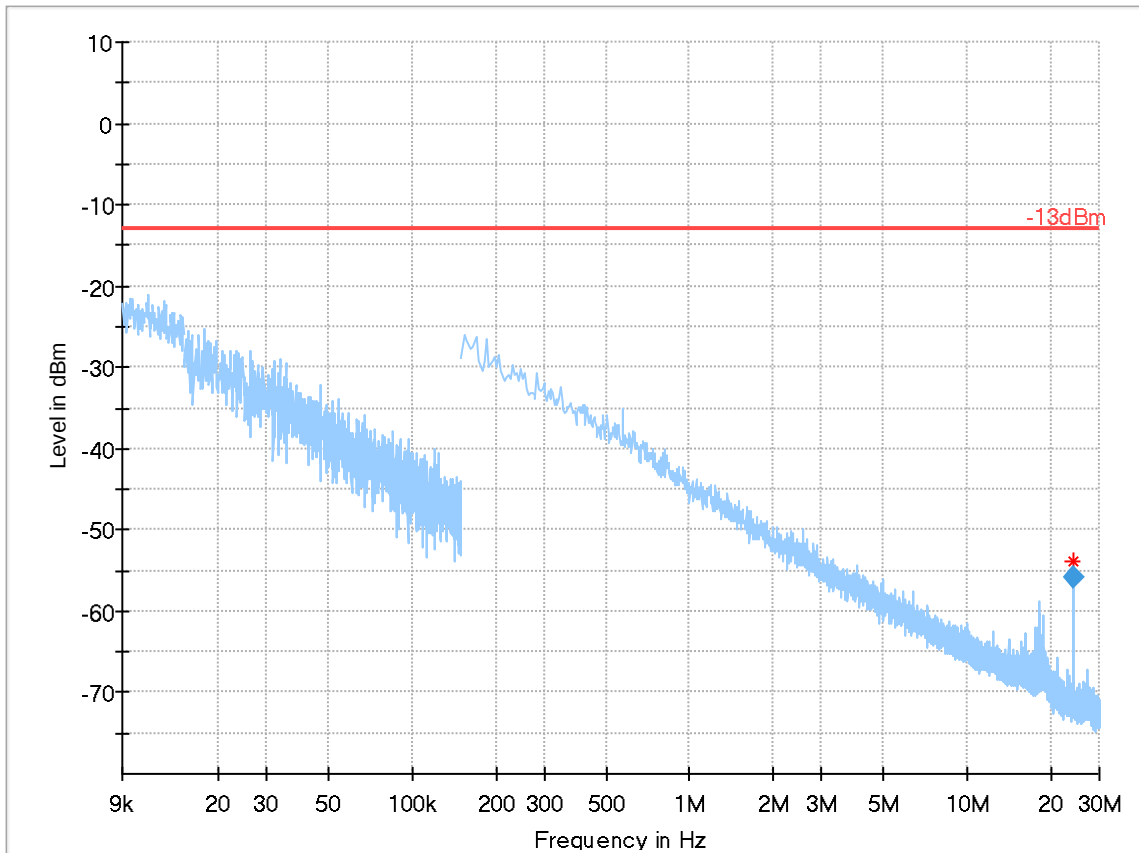
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
24.001000	-55.81	---	-13.00	42.81	2.0	9.000	140.0	H	12.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
24.001000	-78.5	10:12:41 AM - 10/4/2019



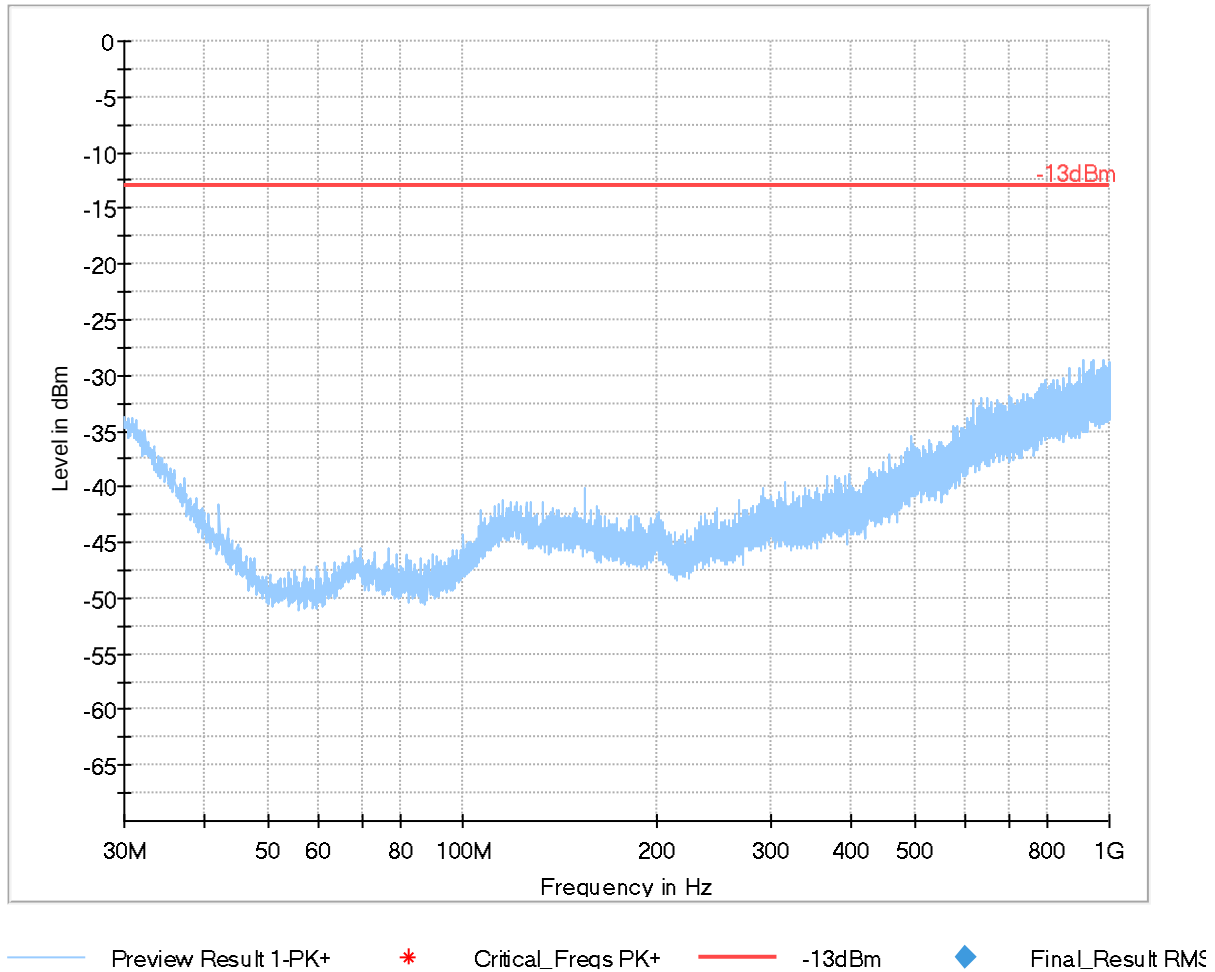
Preview Result 2-QPK
Critical_Freqs PK+
Final_Result QPK

Preview Result 1-PK+
-13dBm

Critical_Freqs QPK
Final_Result PK+

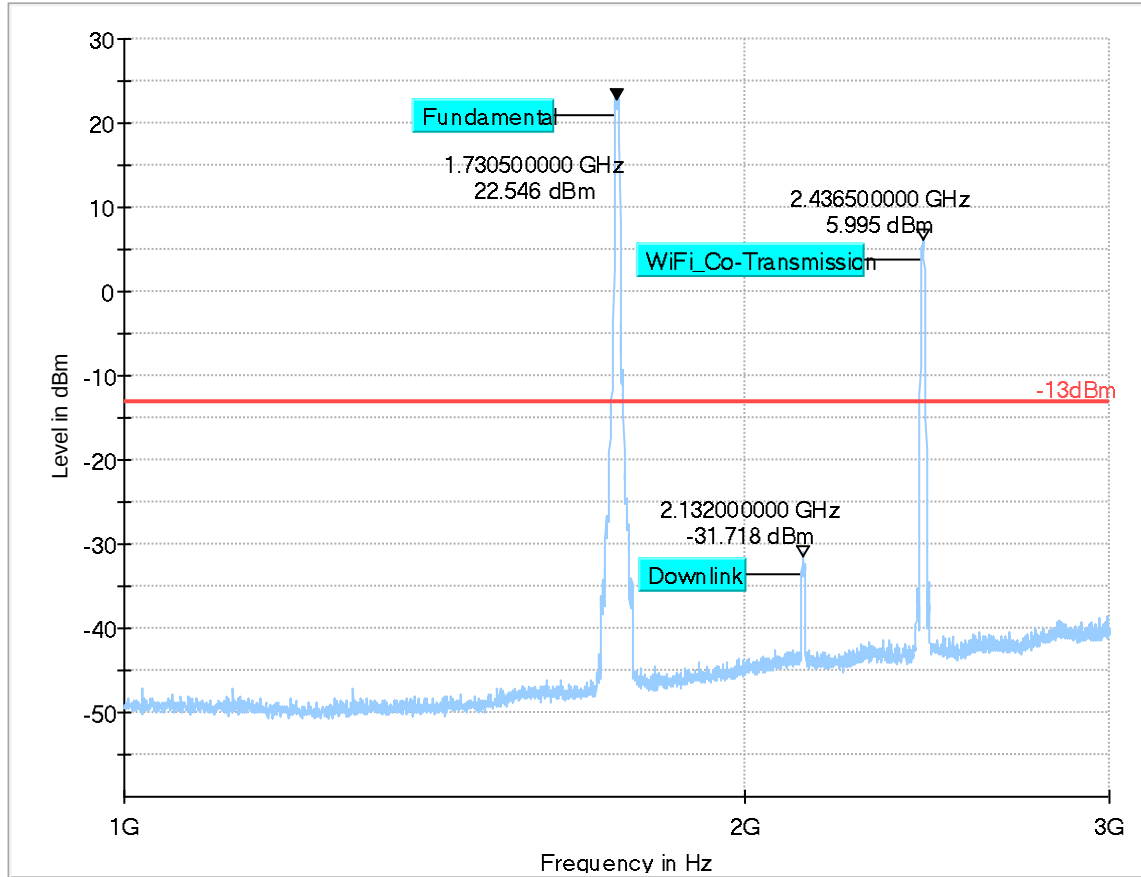
Plot # 68 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Plot # 69 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 70 Radiated Emissions: 3 GHz – 18GHz

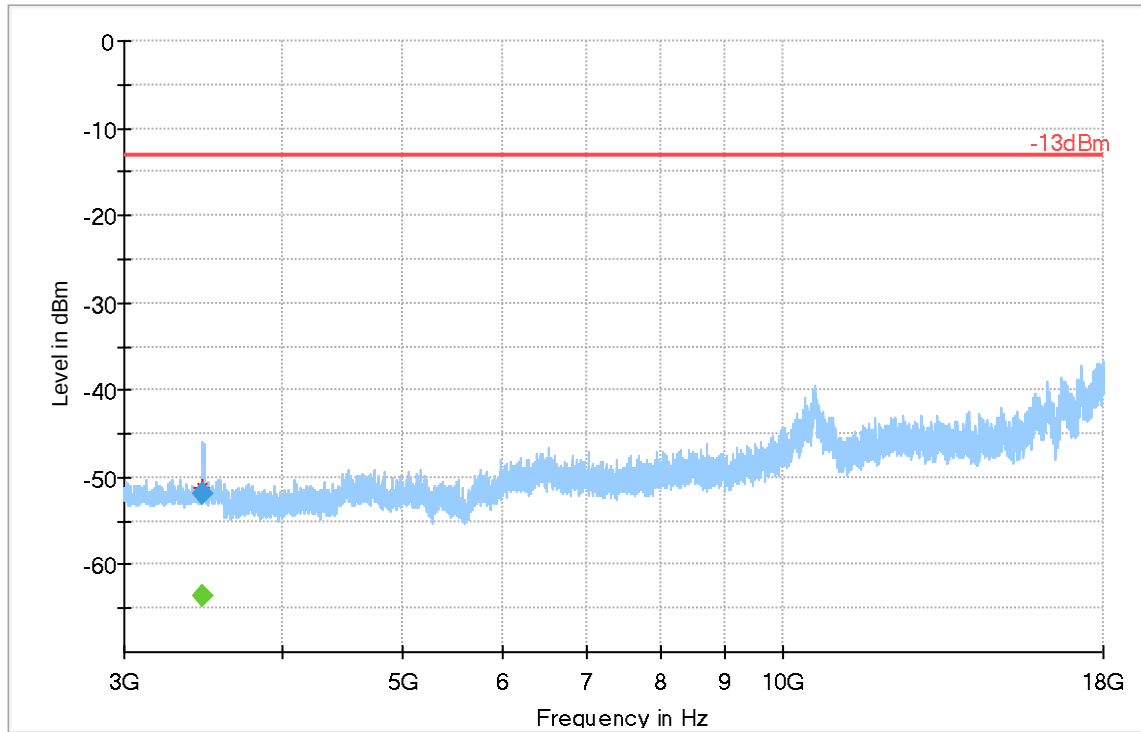
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
3462.326167	---	-63.68	---	---	100.0	1000.000	198.0	H	0.0
3462.326167	-51.95	---	-13.00	38.95	100.0	1000.000	198.0	H	0.0

(continuation of the "Final_Result" table from column 15 ...)

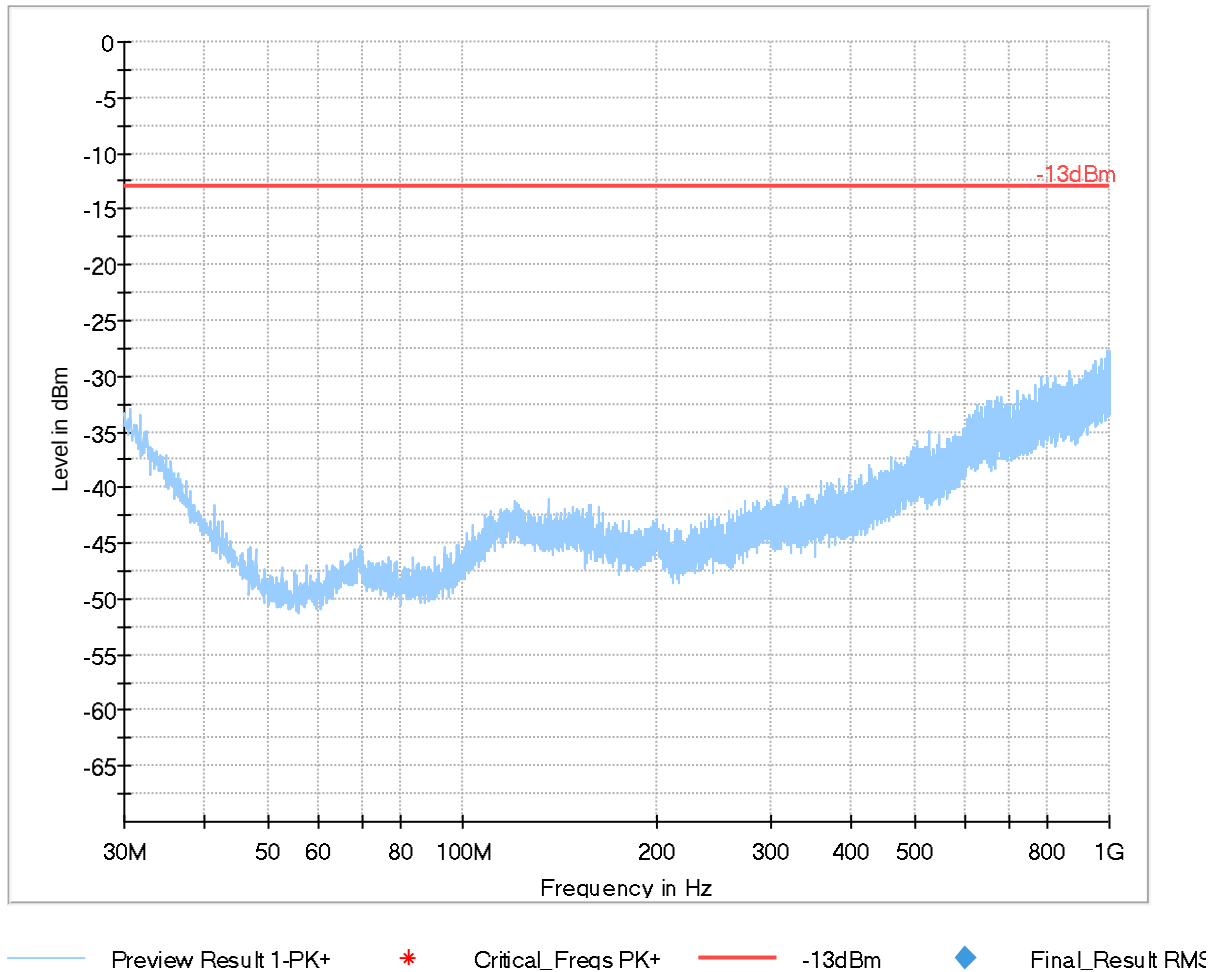
Frequency (MHz)	Corr. (dB)	Comment
3462.326167	-99.7	10:16:19 AM - 10/3/2019
3462.326167	-99.7	10:16:18 AM - 10/3/2019



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

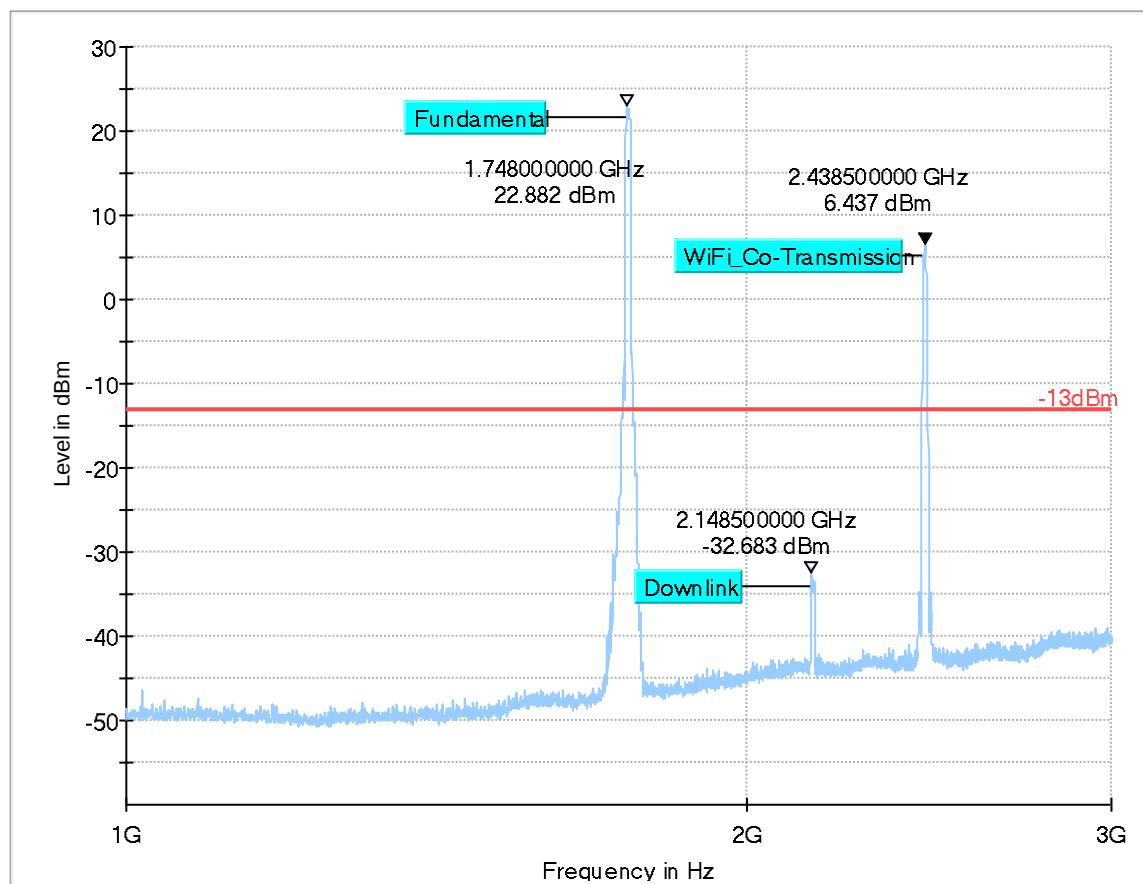
Plot # 71 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 72 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

-13dBm

Plot # 73 Radiated Emissions: 3 GHz - 18 GHz

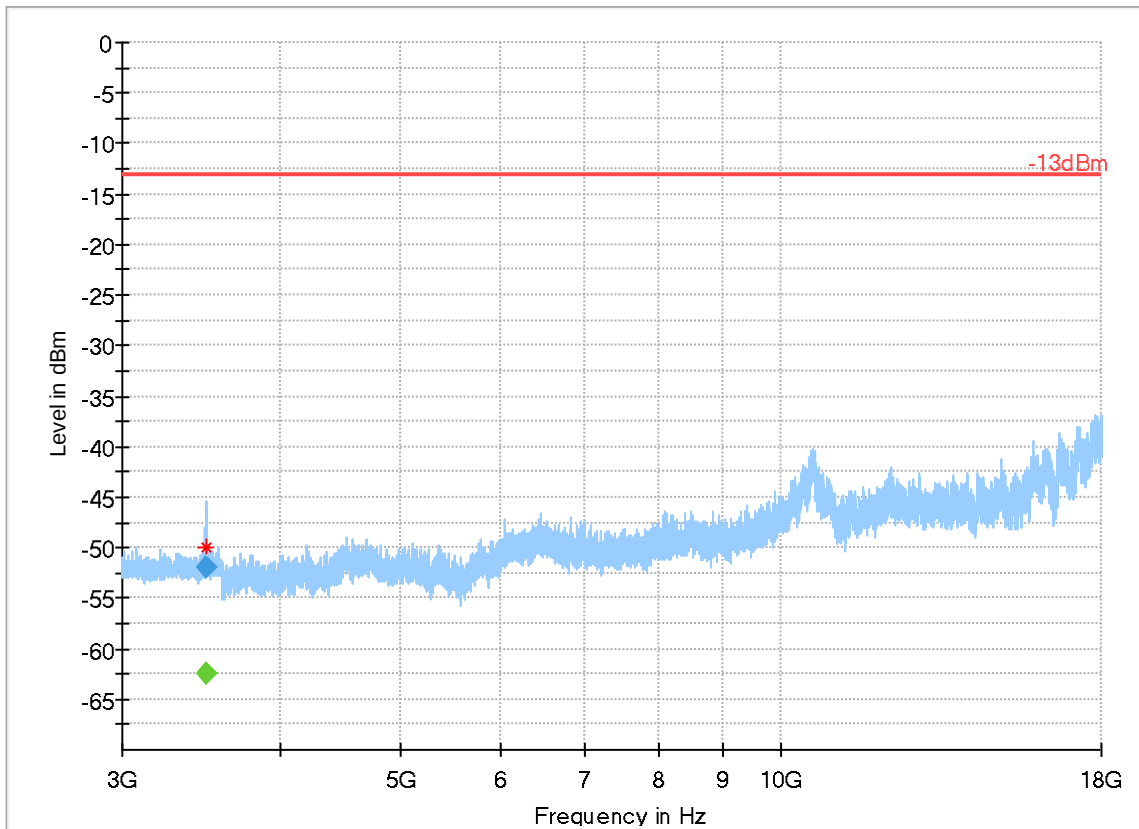
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
3494.921833	---	-62.55	---	---	100.0	1000.000	197.0	H	138.0
3494.921833	-51.91	---	-13.00	38.91	100.0	1000.000	197.0	H	138.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
3494.921833	-99.6	10:21:29 AM - 10/3/2019
3494.921833	-99.6	10:21:29 AM - 10/3/2019



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

LTE Band 5**Plot # 74 Radiated Emissions: 30 MHz - 1 GHz**

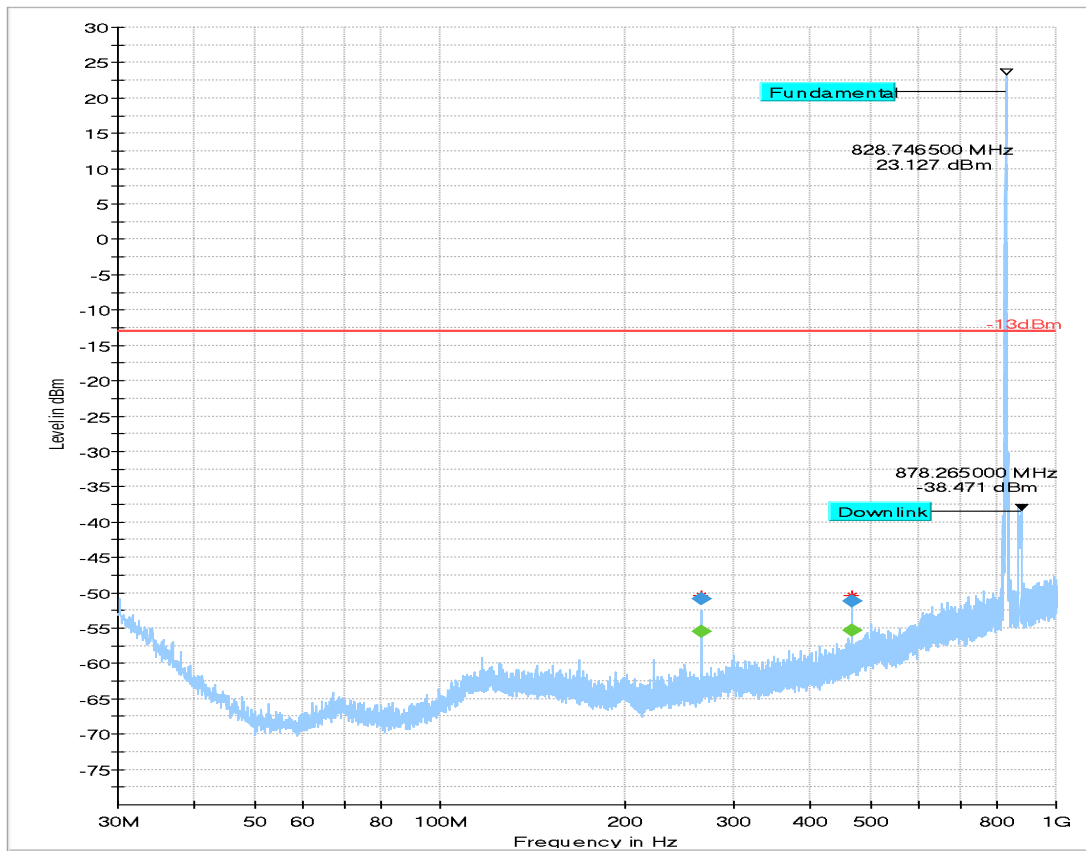
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.389730	-50.88	---	-13.00	37.88	100.0	100.000	140.0	H	234.0
266.389730	---	-55.55	---	---	100.0	100.000	140.0	H	234.0
466.182243	-51.13	---	-13.00	38.13	100.0	100.000	183.0	H	-34.0
466.182243	---	-55.35	---	---	100.0	100.000	183.0	H	-34.0

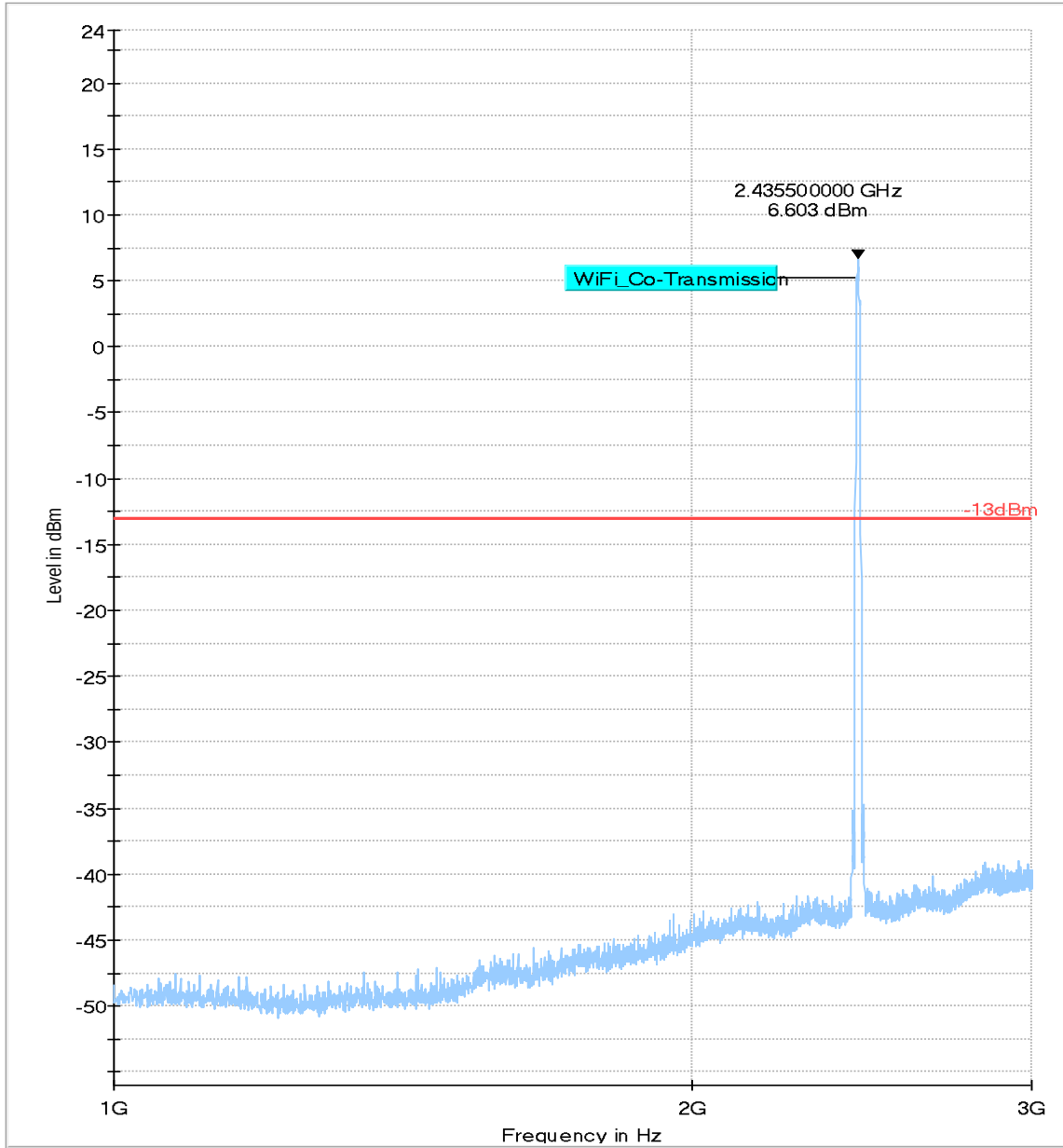
(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.389730	-75.8	6:18:21 PM - 10/3/2019
266.389730	-75.8	6:18:21 PM - 10/3/2019
466.182243	-71.0	6:15:58 PM - 10/3/2019
466.182243	-71.0	6:15:58 PM - 10/3/2019



Plot # 75 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



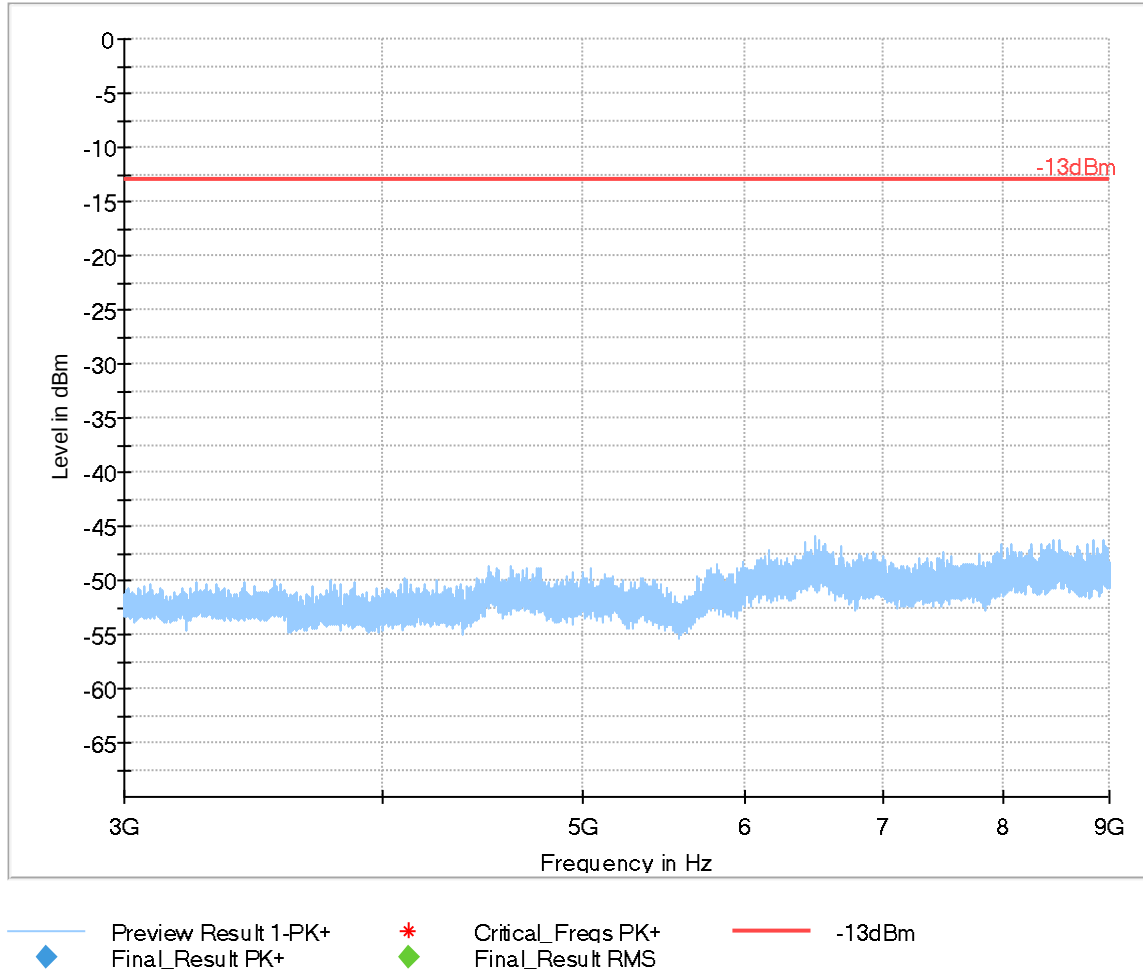
◆ Preview Result 1-PK+
Final Result PK+

* Critical_Freqs PK+
◆ Final Result RMS

— -13dBm

Plot # 76 Radiated Emissions: 3 GHz - 9 GHz

Channel: Low



Plot # 77 Radiated Emissions: 9 kHz - 30 MHz

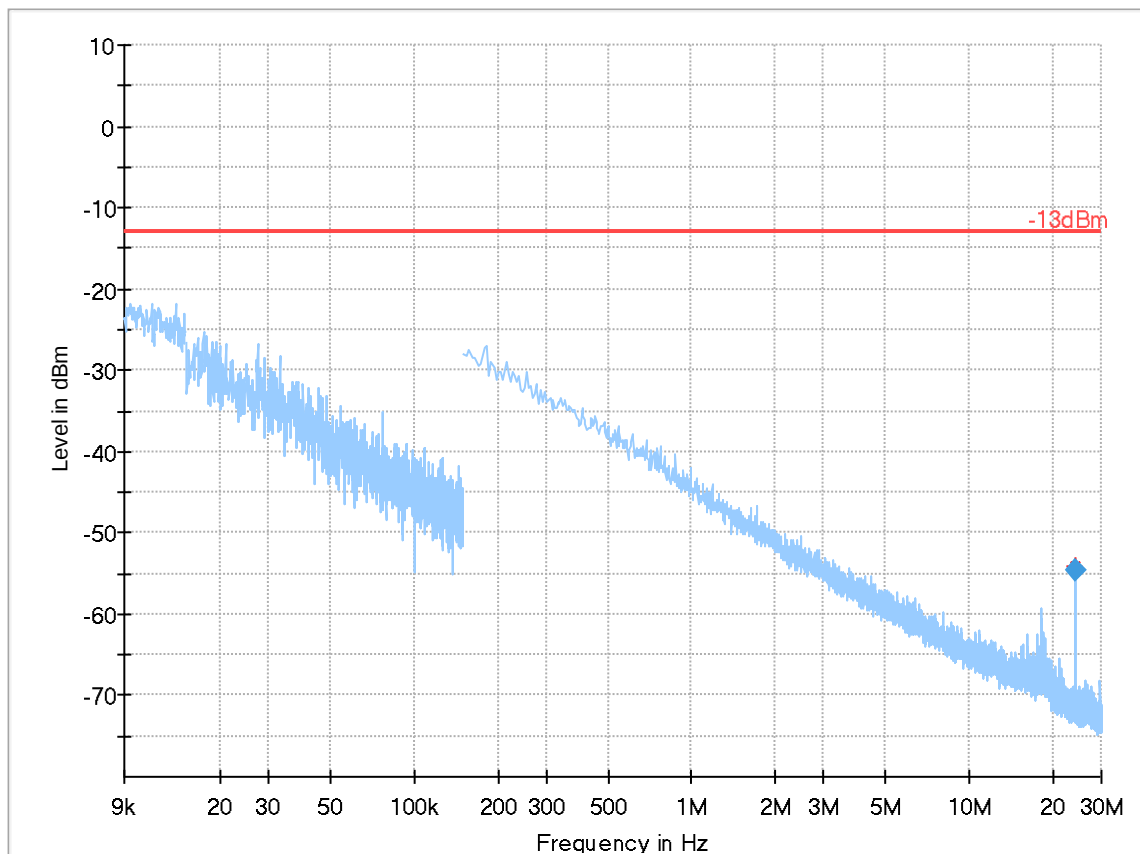
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
24.001000	-54.53	---	-13.00	41.53	2.0	9.000	152.0	H	-15.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
24.001000	-78.5	10:30:28 AM - 10/4/2019



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

Plot # 78 Radiated Emissions: 30 MHz – 1 GHz

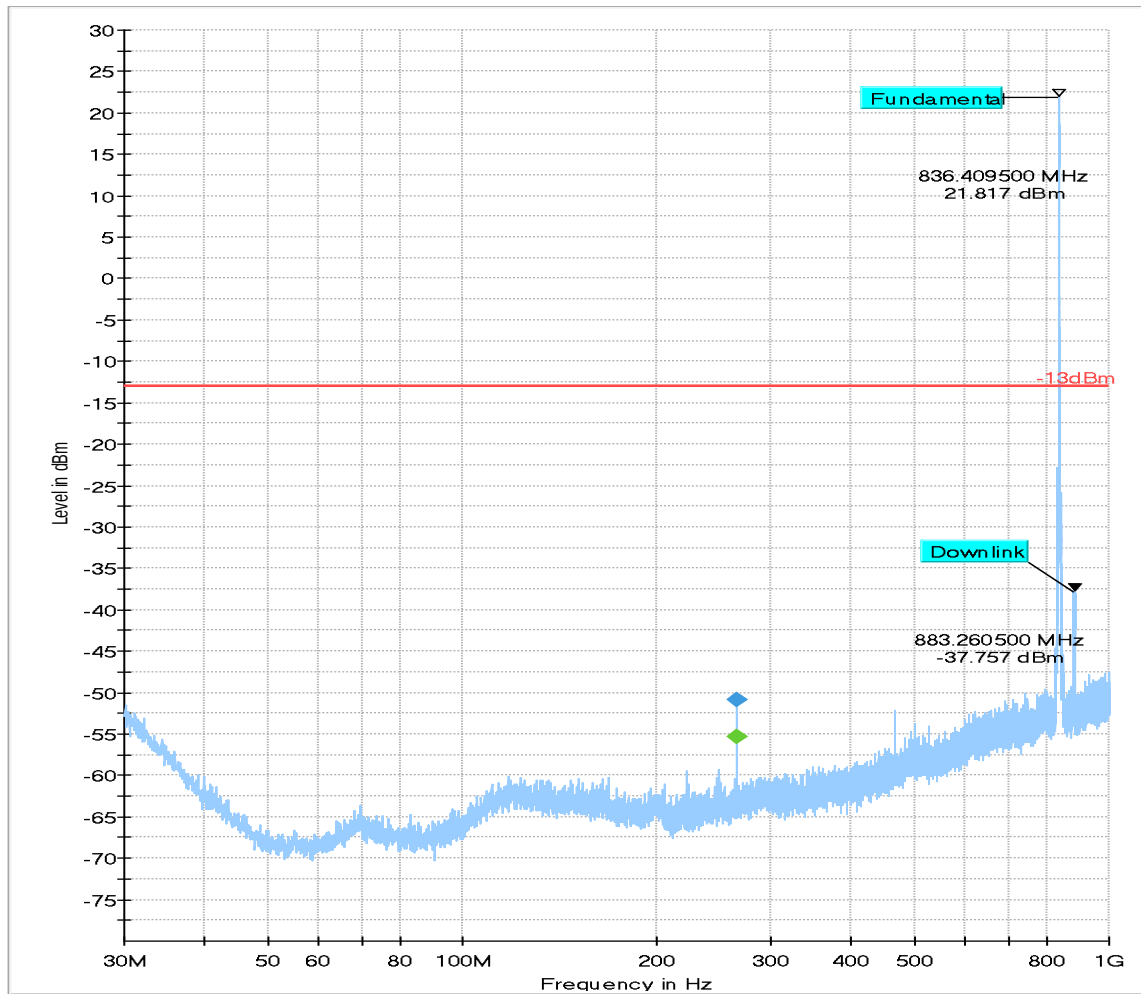
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.386690	---	-55.30	---	---	100.0	100.000	140.0	H	243.0
266.386690	-50.91	---	-13.00	37.91	100.0	100.000	140.0	H	243.0

(continuation of the "Final_Result" table from column 15 ...)

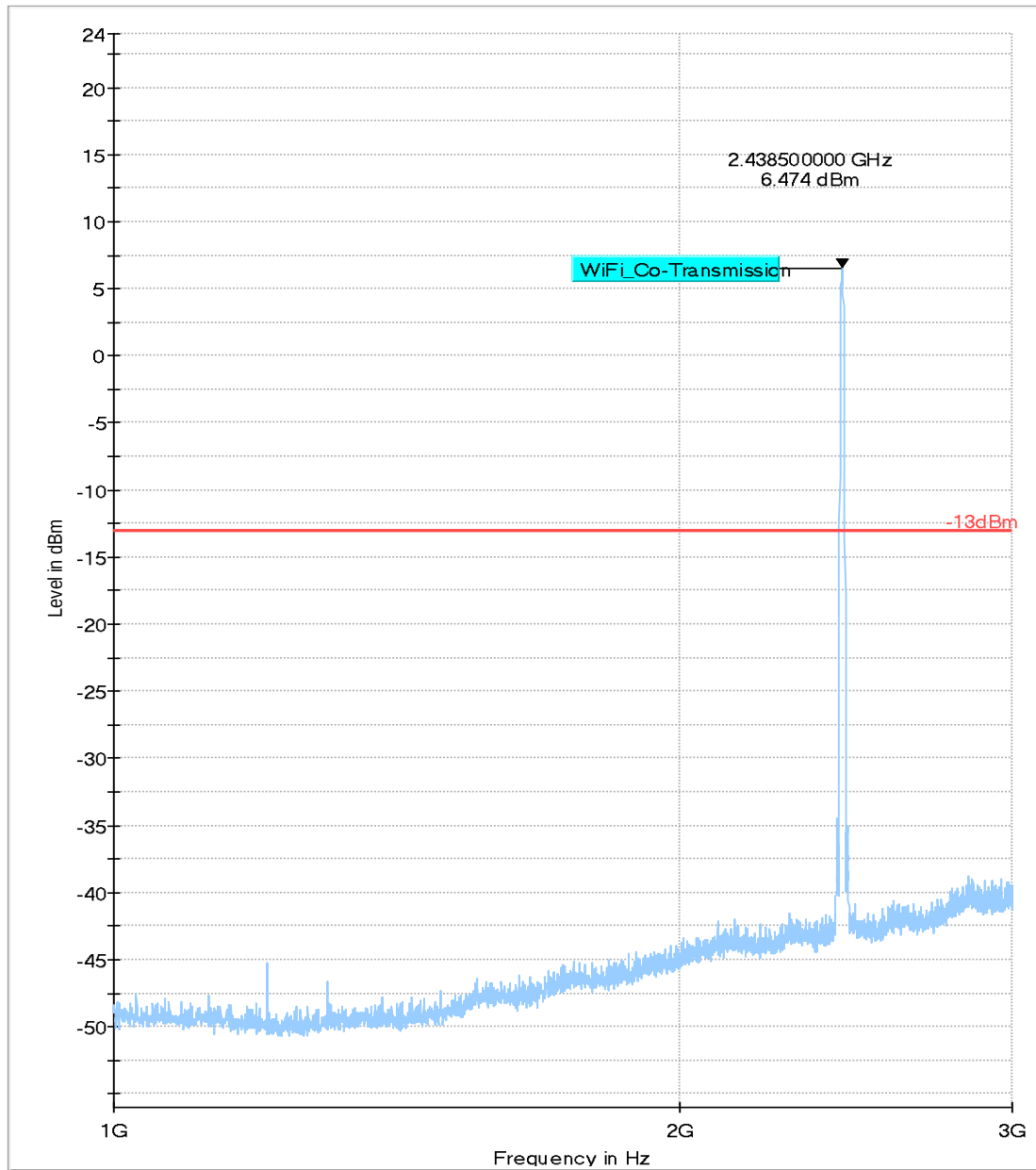
Frequency (MHz)	Corr. (dB)	Comment
266.386690	-75.8	6:02:23 PM - 10/3/2019
266.386690	-75.8	6:02:23 PM - 10/3/2019

Preview Result 1-PK+
Final_Result PK+Critical_Freqs PK+
Final_Result RMS

-13dBm

Plot # 79 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



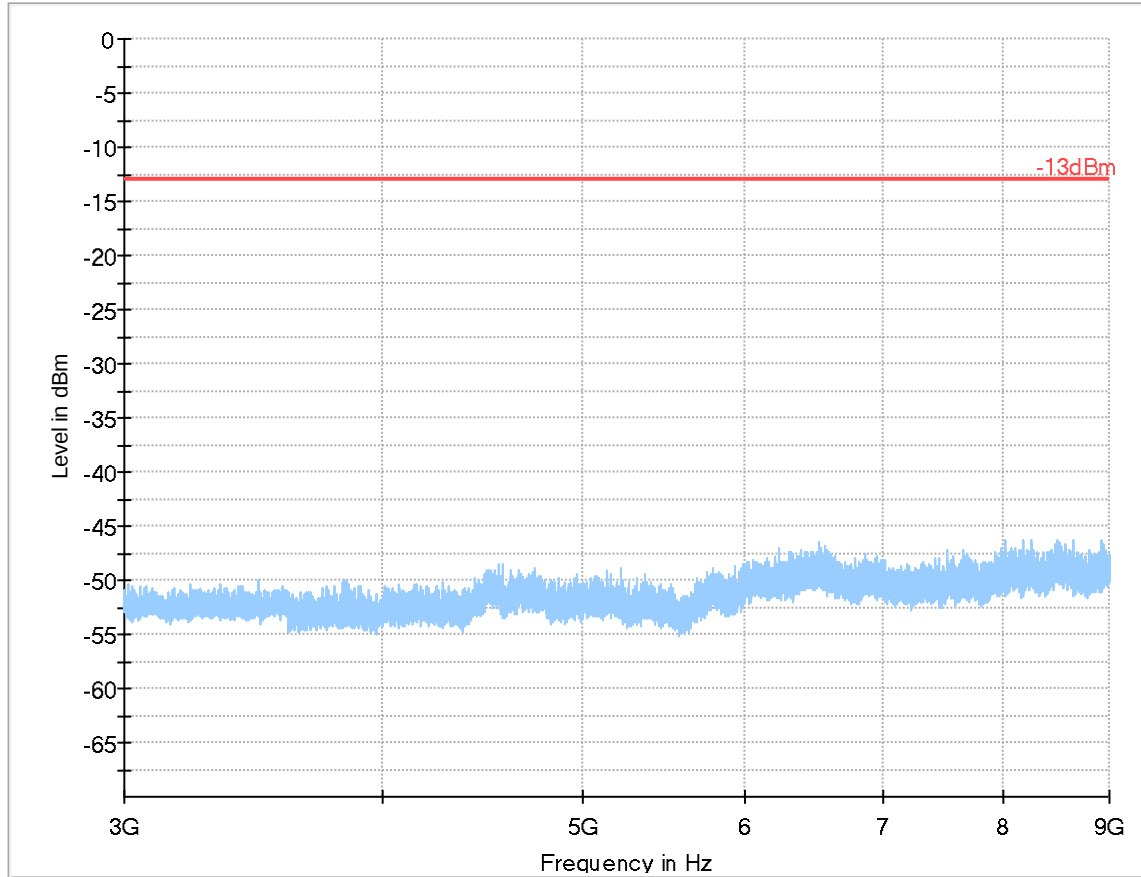
Preview Result 1-PK+
Final Result PK+

* Critical_Freqs PK+
◆ Final Result RMS

-13dBm

Plot # 80 Radiated Emissions: 3 GHz – 9 GHz

Channel: Mid



Plot # 81 Radiated Emissions: 30 MHz - 1 GHz

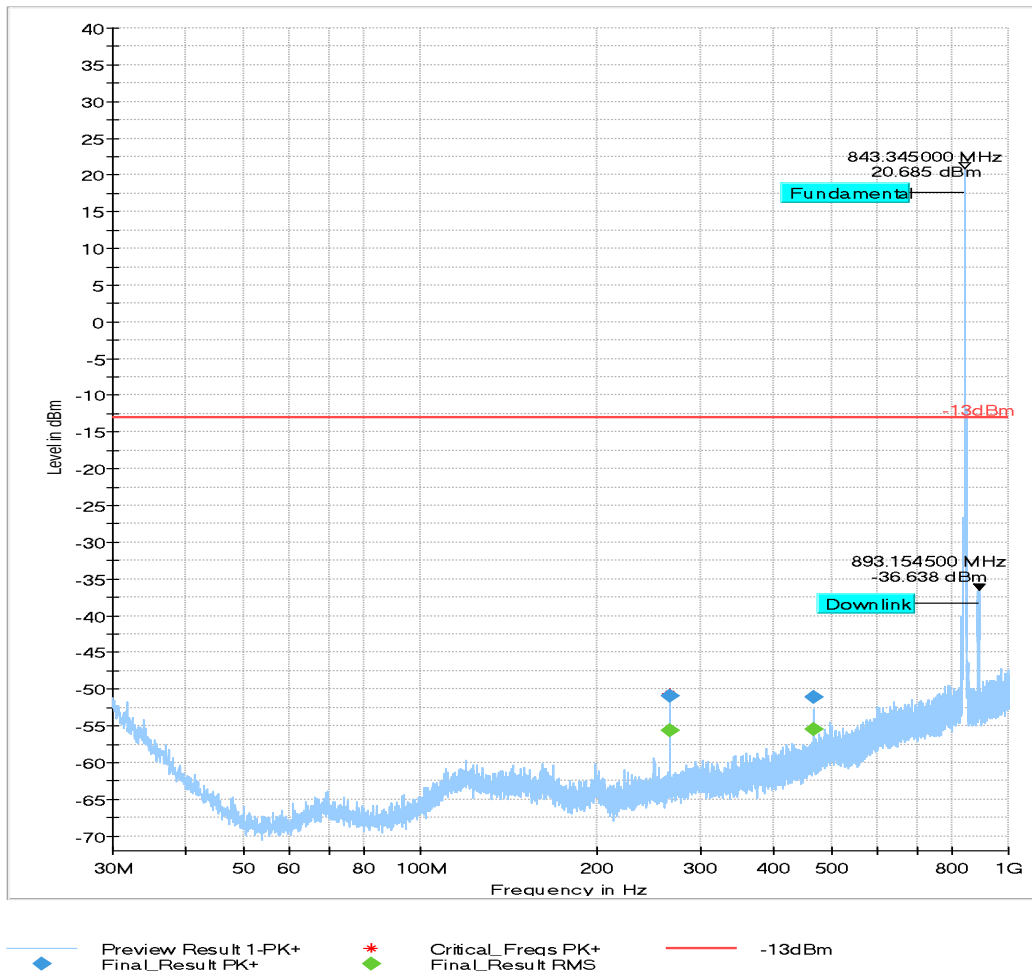
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.393673	---	-55.56	---	---	100.0	100.000	152.0	H	245.0
266.393673	-50.89	---	-13.00	37.89	100.0	100.000	152.0	H	245.0
466.182327	---	-55.41	---	---	100.0	100.000	174.0	H	329.0
466.182327	-51.14	---	-13.00	38.14	100.0	100.000	174.0	H	329.0

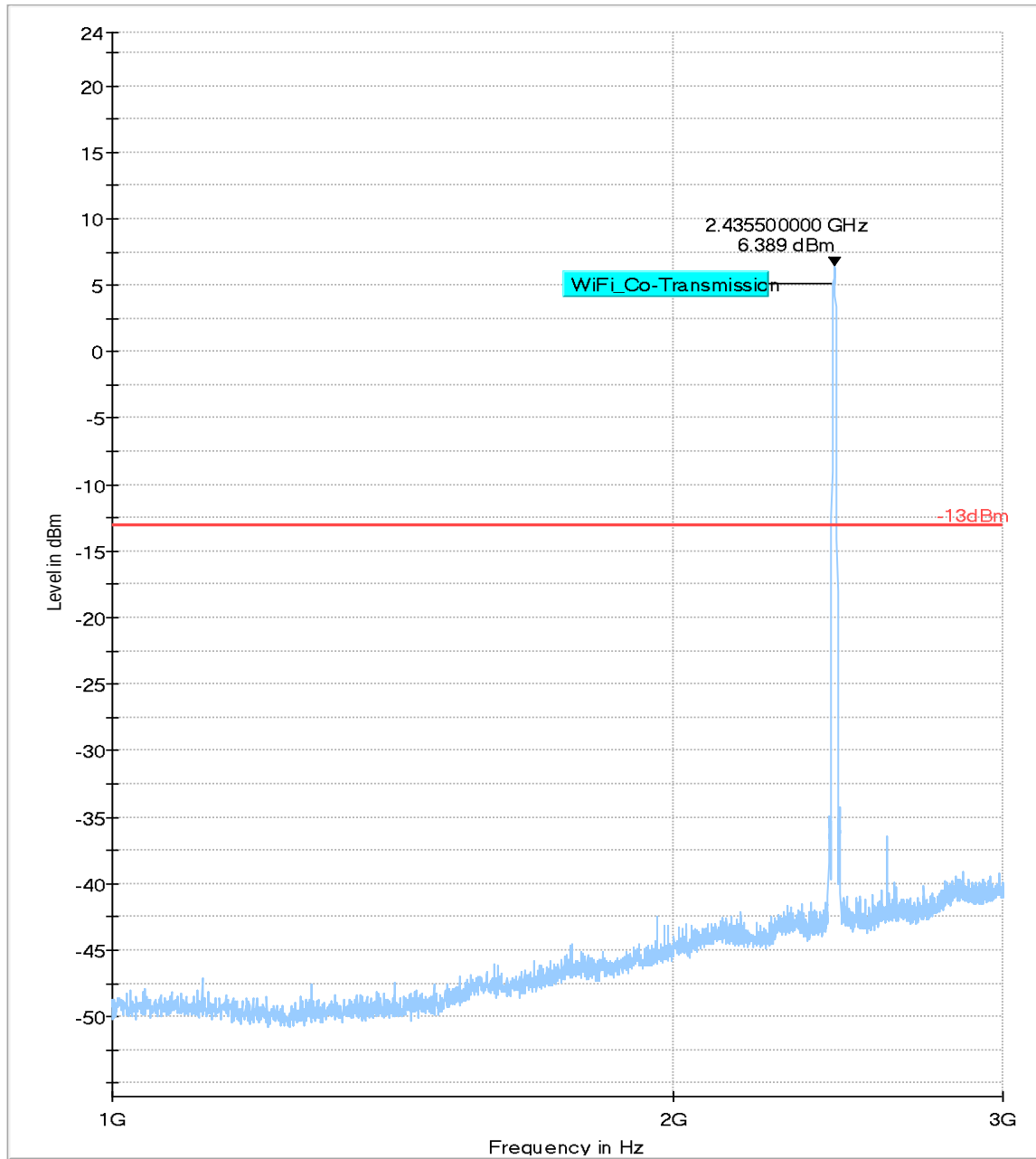
(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.393673	-75.8	6:39:23 PM - 10/3/2019
266.393673	-75.8	6:39:23 PM - 10/3/2019
466.182327	-71.0	6:41:32 PM - 10/3/2019
466.182327	-71.0	6:41:32 PM - 10/3/2019



Plot # 82 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



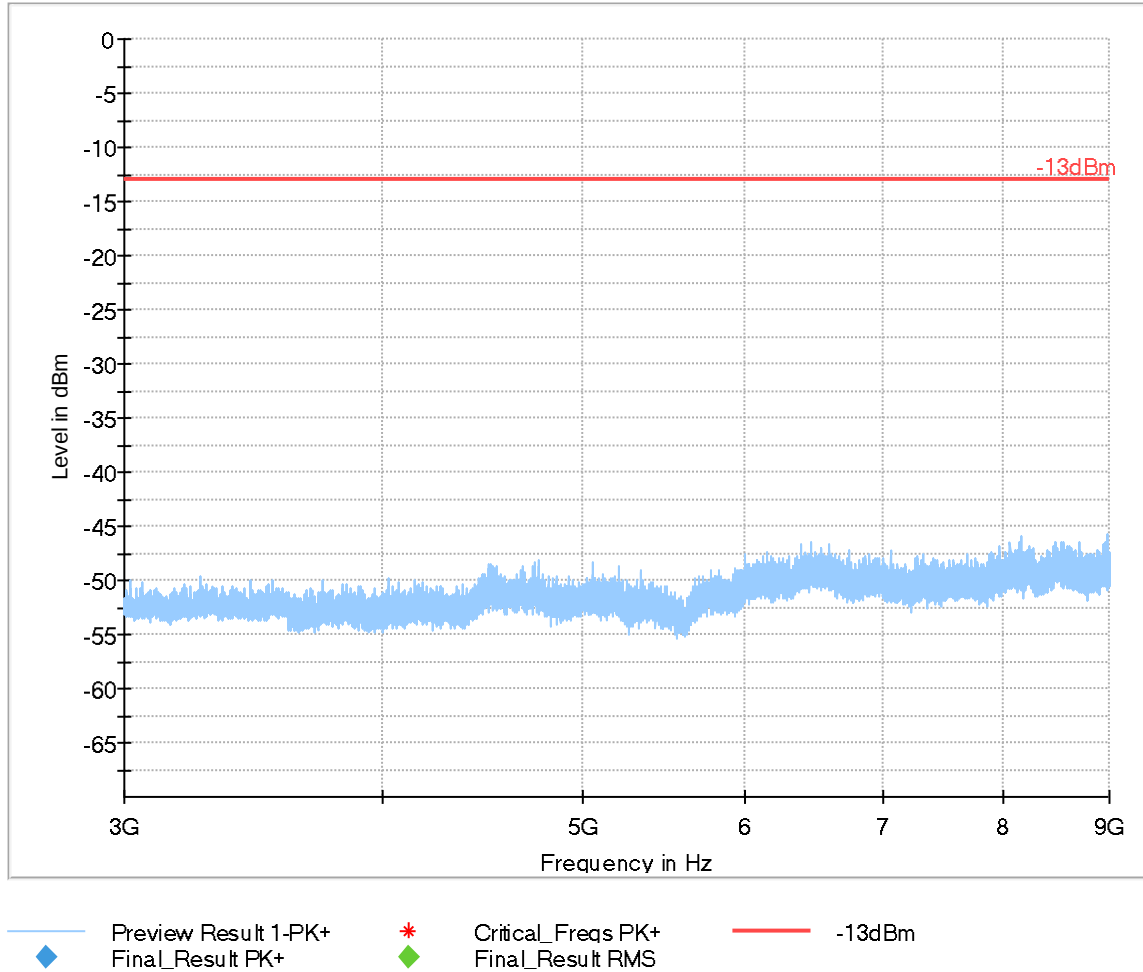
Preview Result 1-PK+
Final Result PK+

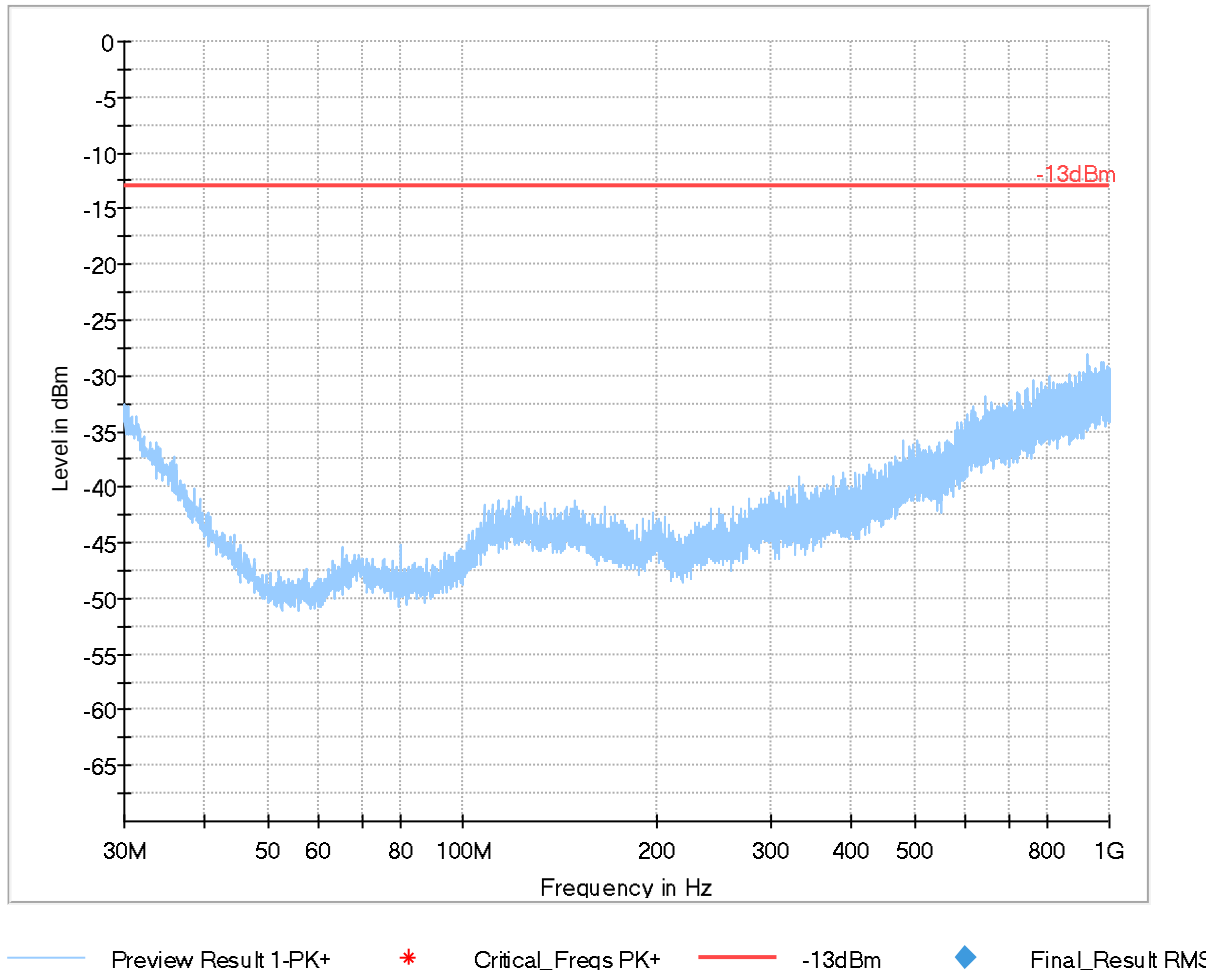
* Critical_Freqs PK+
◆ Final Result RMS

— -13dBm

Plot # 83 Radiated Emissions: 3 GHz - 9 GHz

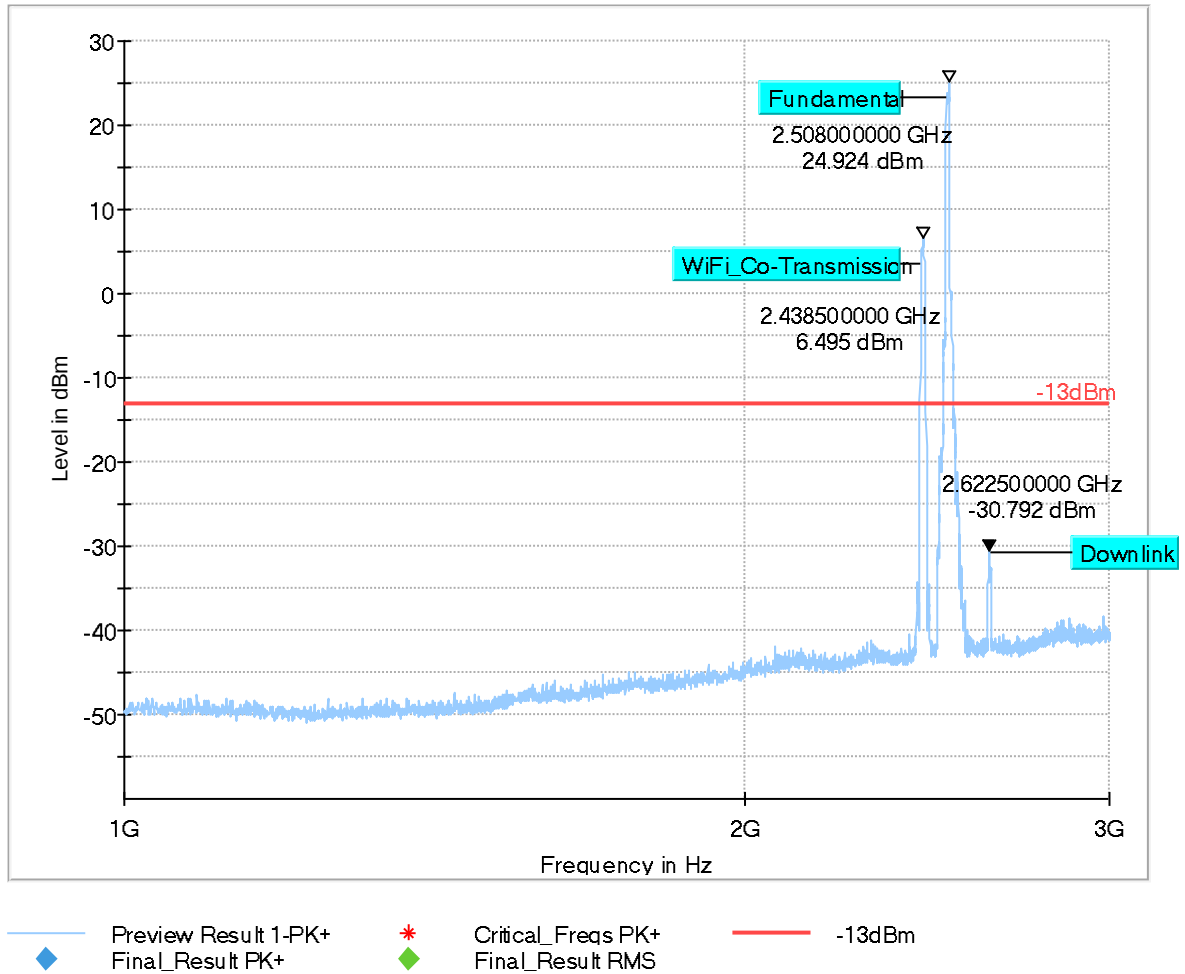
Channel: High



LTE Band 7**Plot # 84 Radiated Emissions: 30 MHz - 1 GHz****Channel: Low**

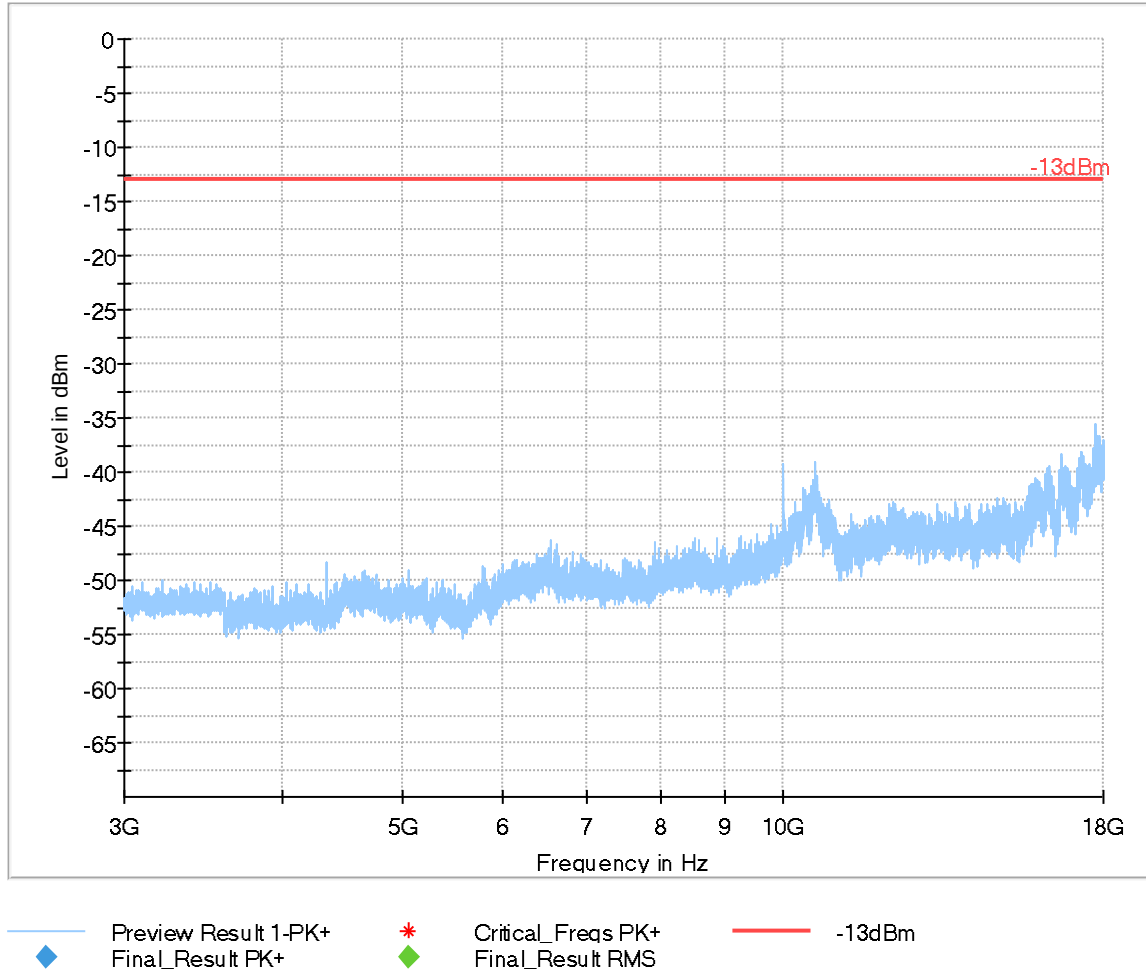
Plot # 85 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 86 Radiated Emissions: 3 GHz - 18 GHz

Channel: Low



Plot # 87 Radiated Emissions: 9 kHz - 30 MHz

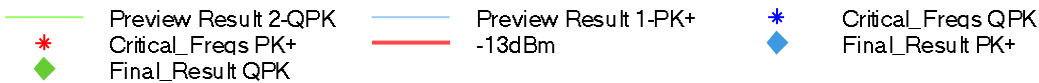
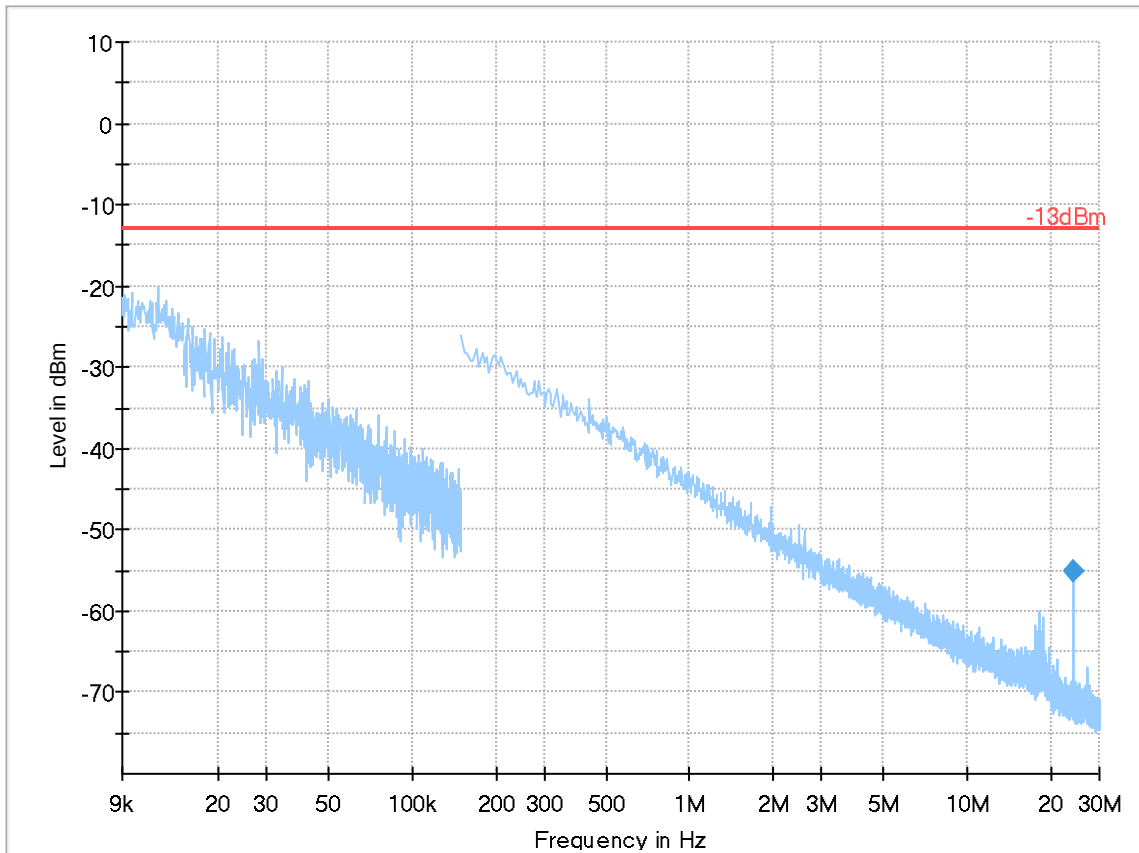
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
24.001000	-55.12	---	-13.00	42.12	2.0	9.000	140.0	H	11.0

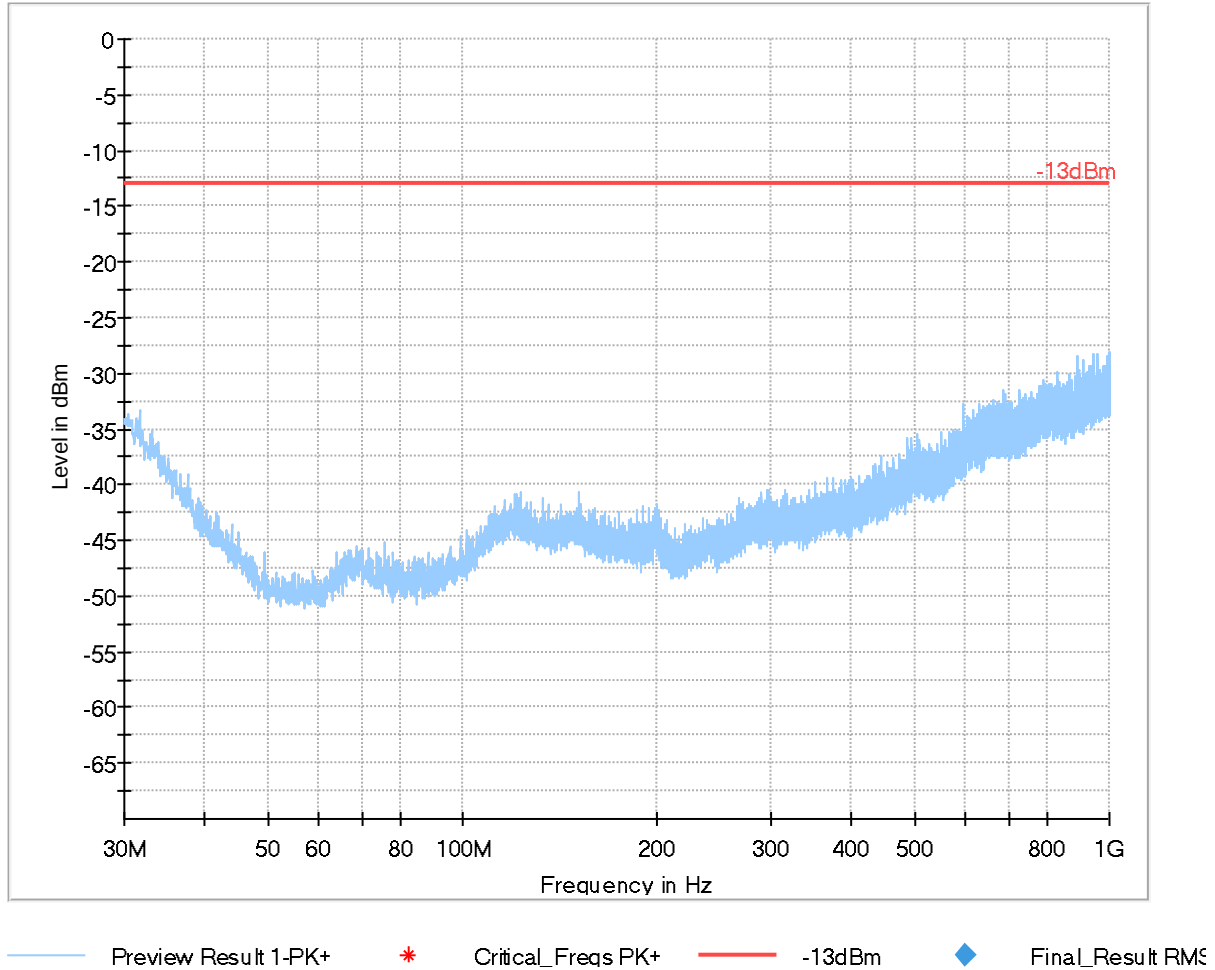
(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
24.001000	-78.5	10:48:26 AM - 10/4/2019



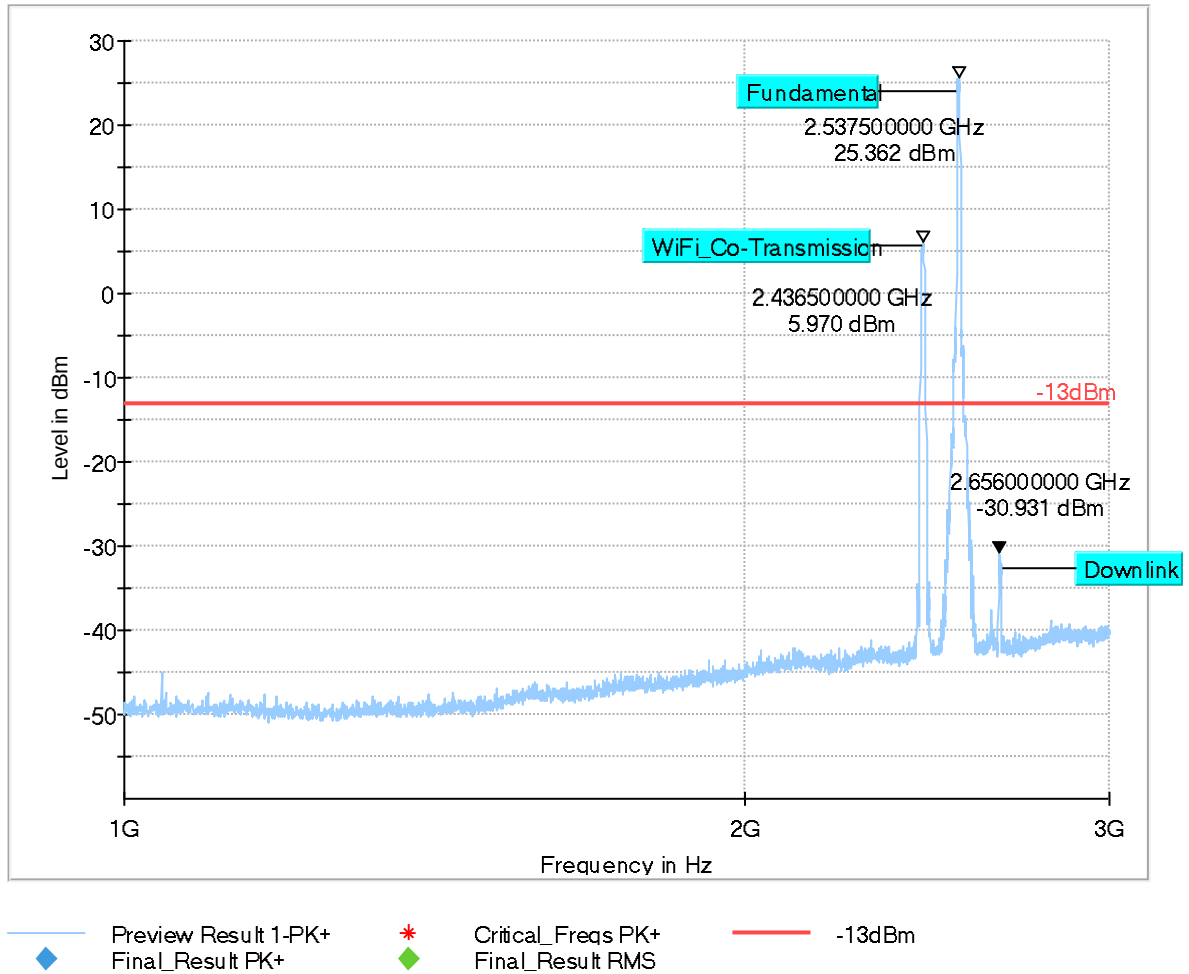
Plot # 88 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



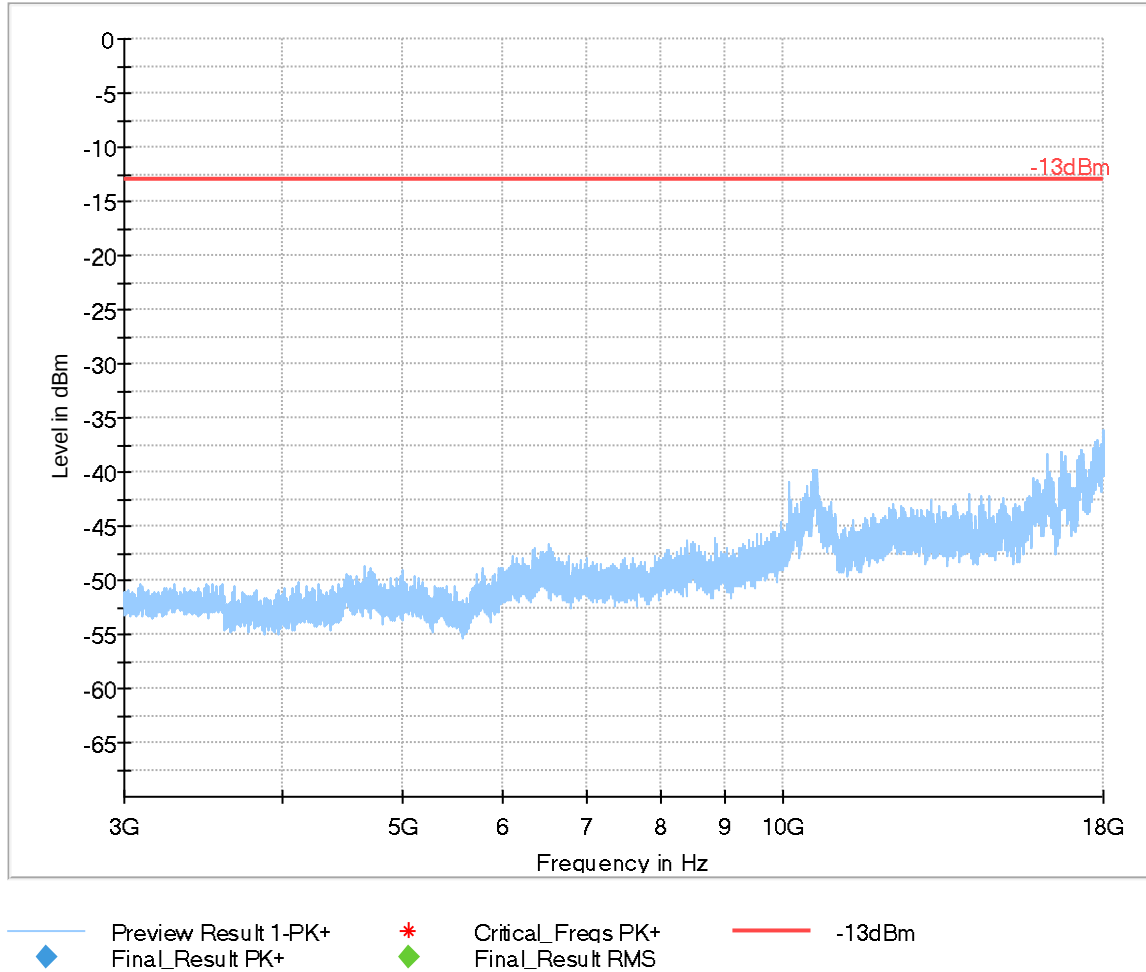
Plot # 89 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



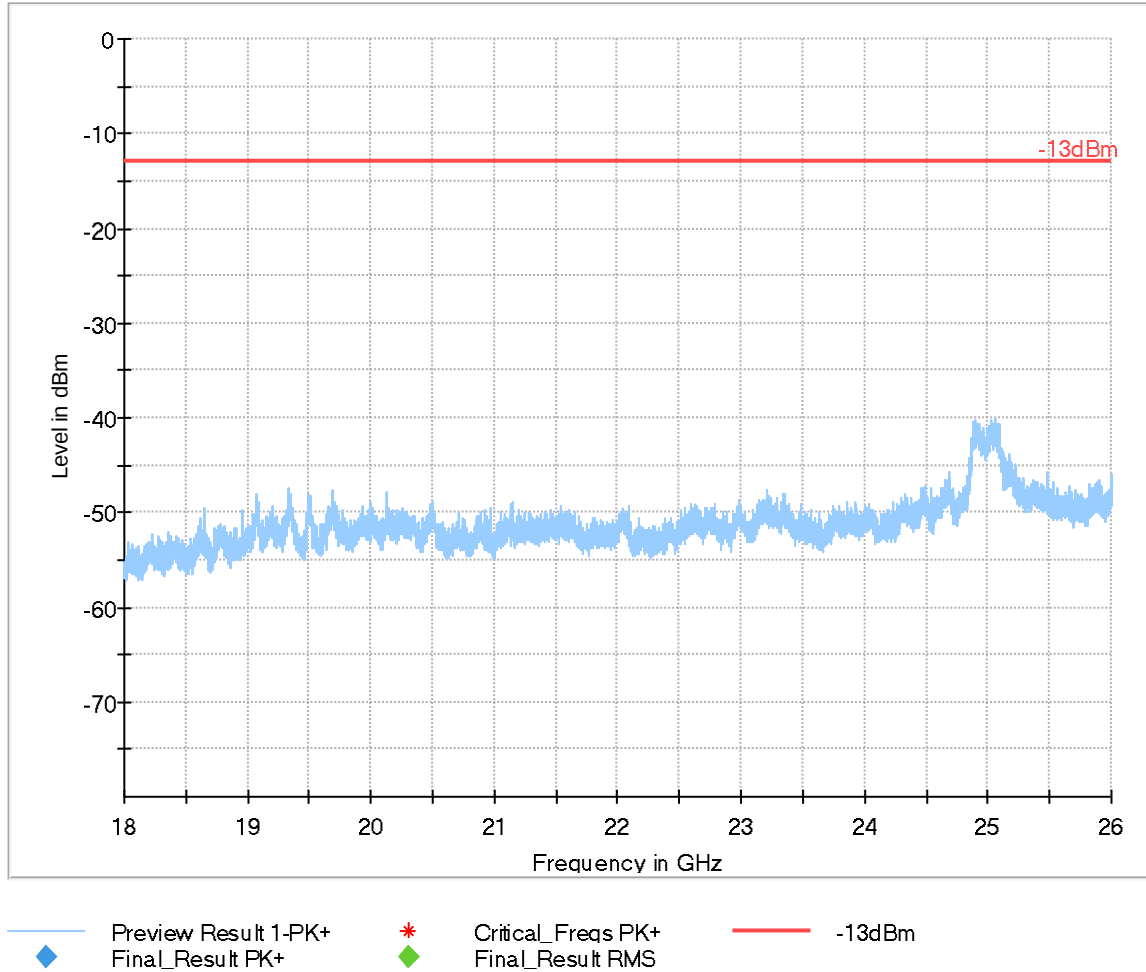
Plot # 90 Radiated Emissions: 3 GHz – 18 GHz

Channel: Mid



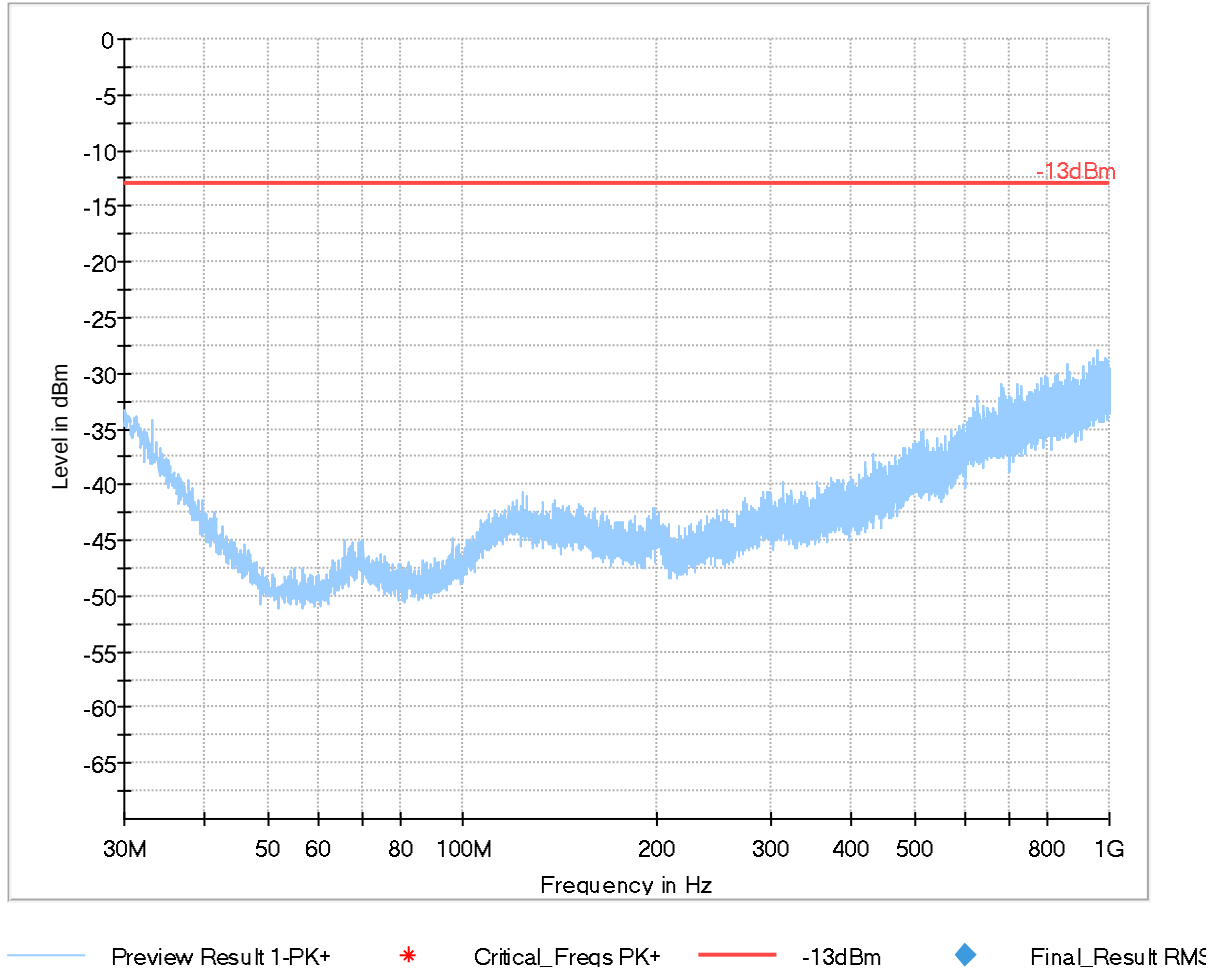
Plot # 91 Radiated Emissions: 18 GHz – 26 GHz

Channel: Mid



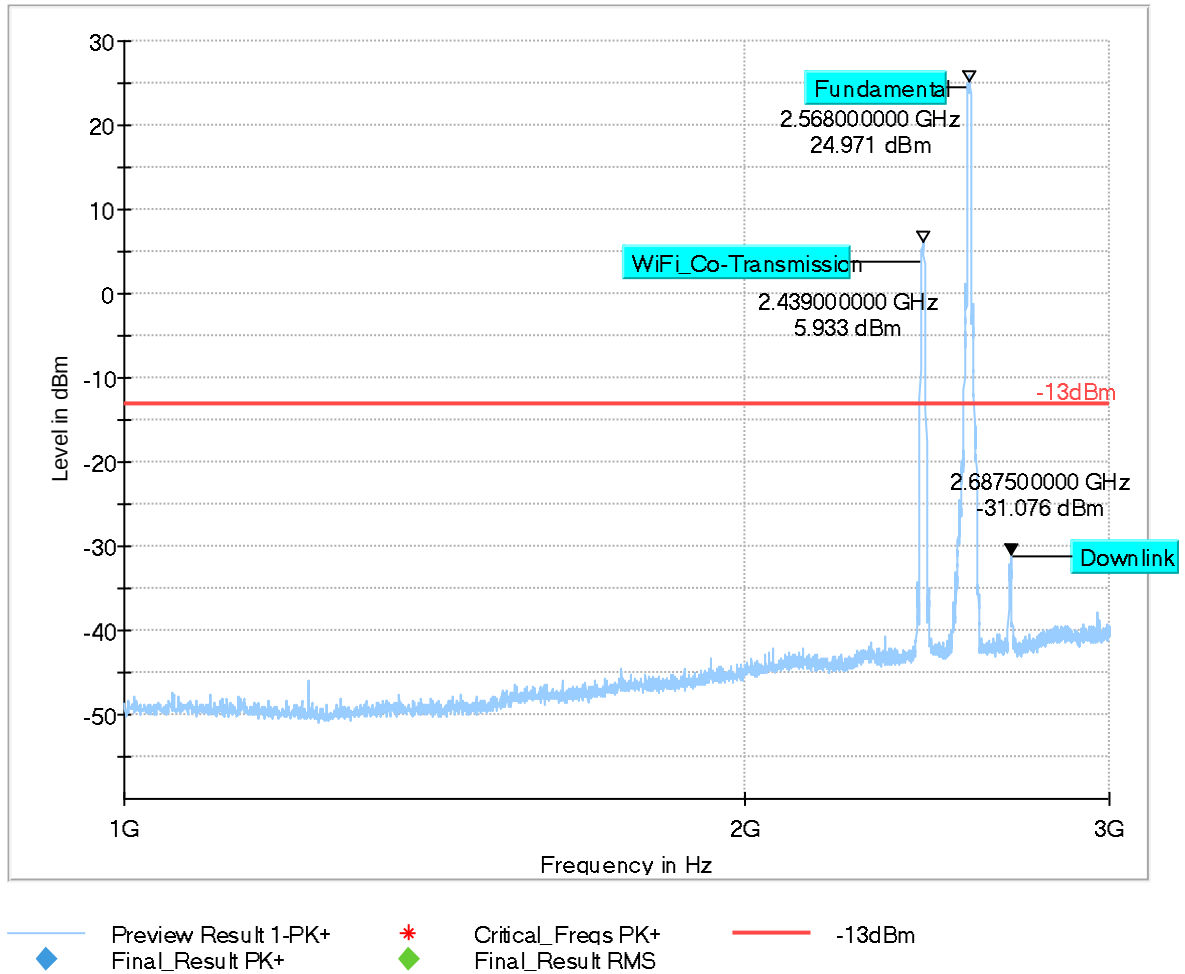
Plot # 92 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



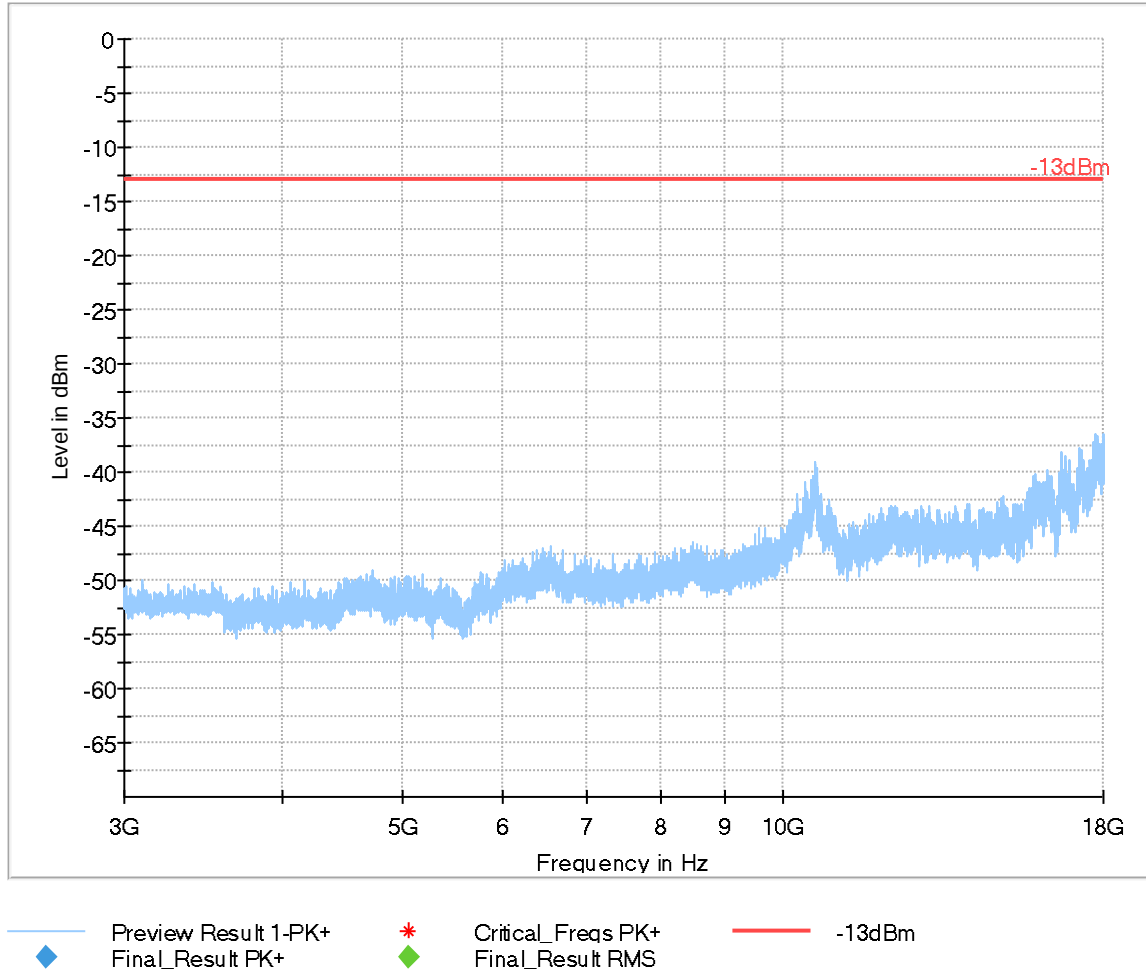
Plot # 93 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 94 Radiated Emissions: 3 GHz - 18 GHz

Channel: High



LTE Band 12**Plot # 95 Radiated Emissions: 30 MHz – 1GHz**

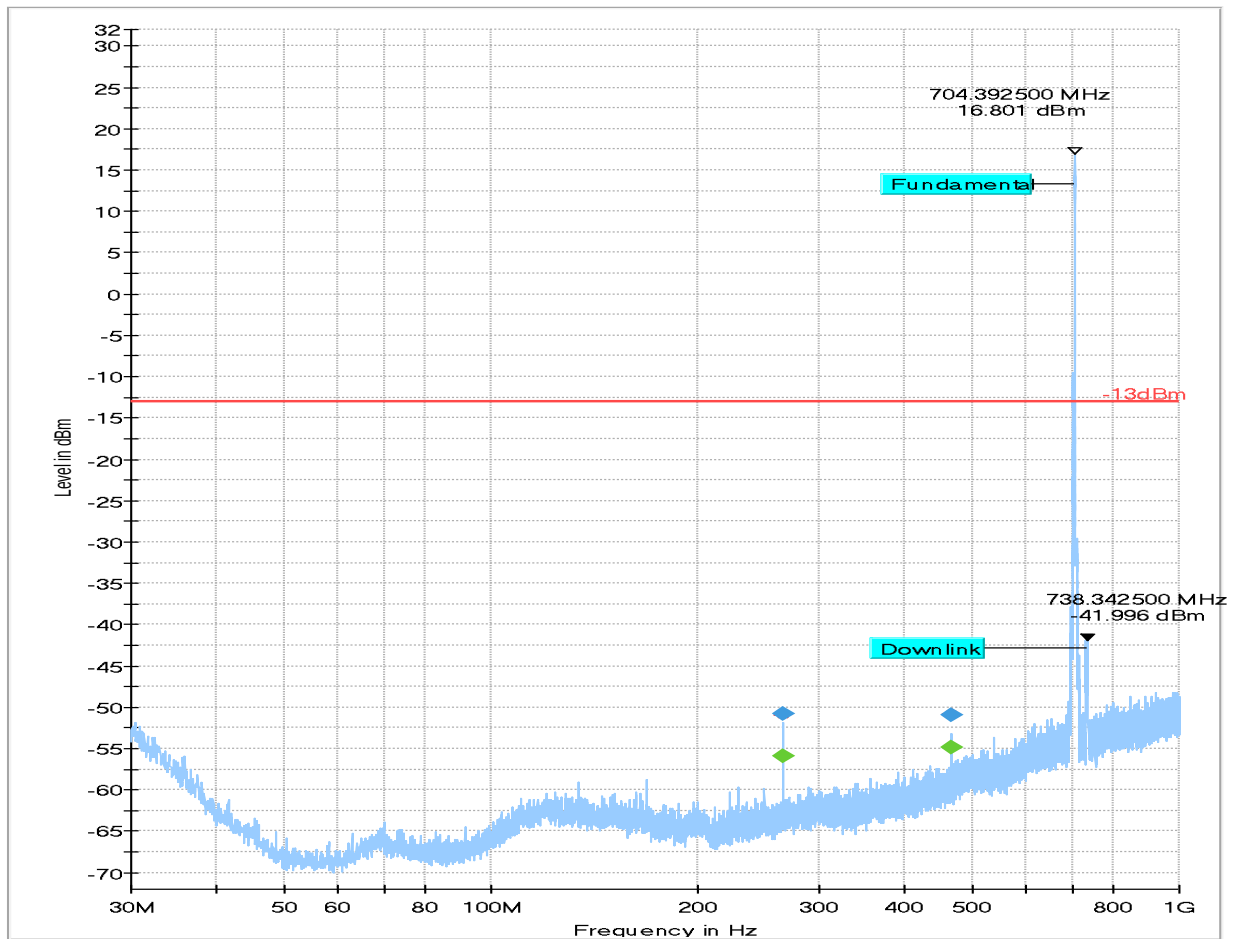
Channel: Low

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.393980	---	-55.83	---	---	100.0	100.000	140.0	H	239.0
266.393980	-50.72	---	-13.00	37.72	100.0	100.000	140.0	H	239.0
466.181860	---	-54.80	---	---	100.0	100.000	169.0	H	-12.0
466.181860	-50.99	---	-13.00	37.99	100.0	100.000	169.0	H	-12.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.393980	-75.8	7:08:11 PM - 10/3/2019
266.393980	-75.8	7:08:11 PM - 10/3/2019
466.181860	-71.0	7:10:29 PM - 10/3/2019
466.181860	-71.0	7:10:29 PM - 10/3/2019



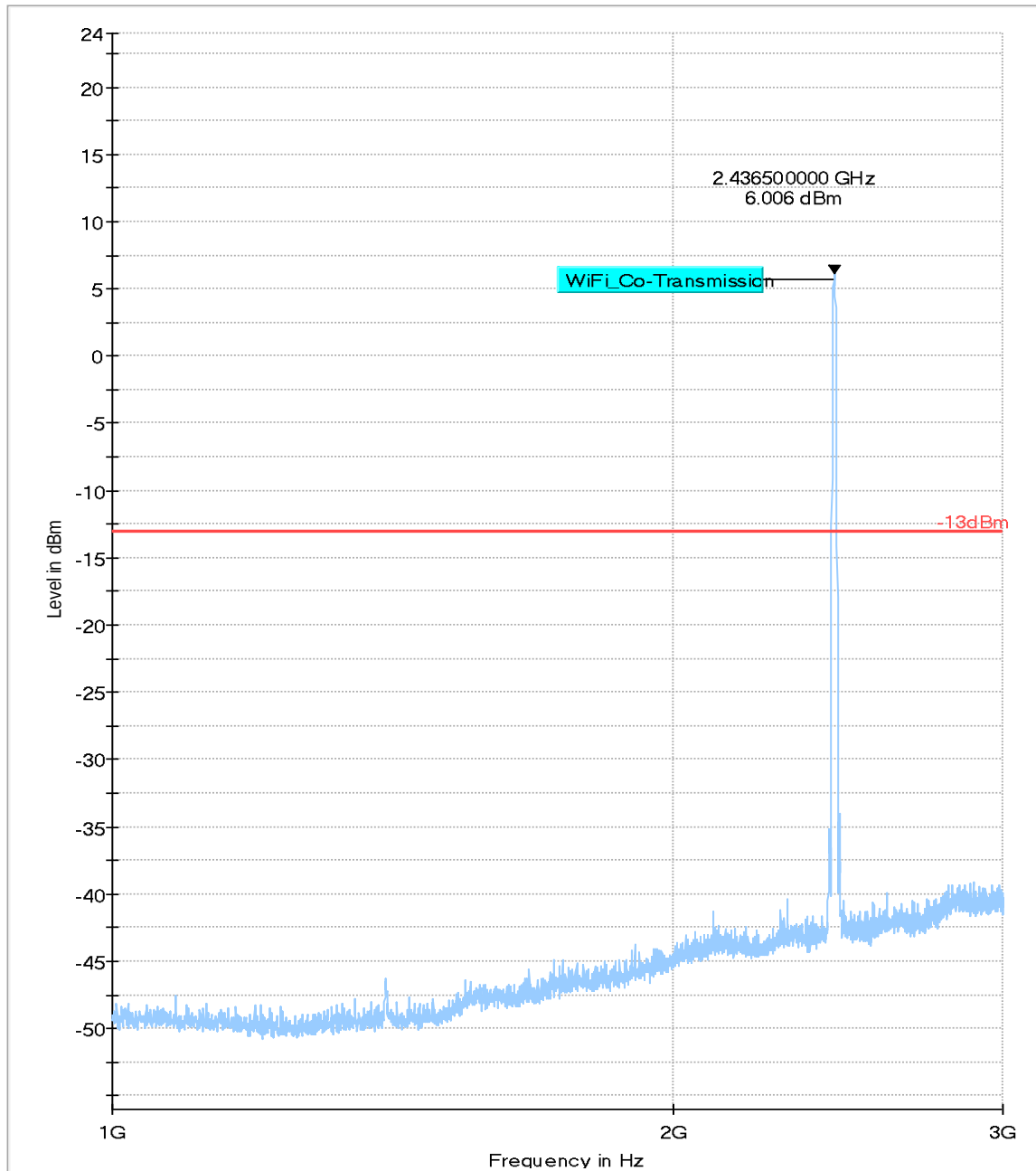
Preview Result 1-PK+
Final Result PK+

Critical Freqs PK+
Final Result RMS

-13dBm

Plot # 96 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



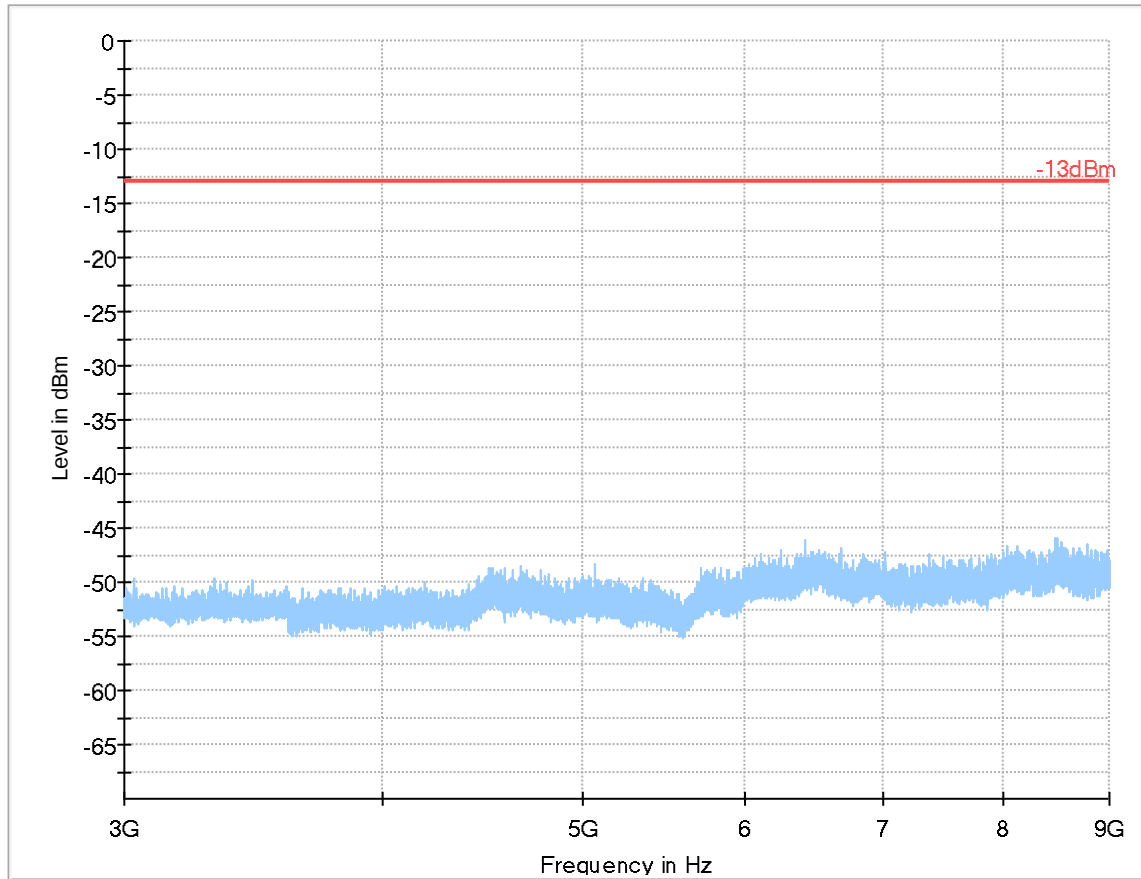
Preview Result 1-PK+
Final Result PK+

* Critical_Freqs PK+
◆ Final Result RMS

-13dBm

Plot # 97 Radiated Emissions: 3 GHz – 9 GHz

Channel: Low



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 98 Radiated Emissions: 9 kHz - 30 MHz

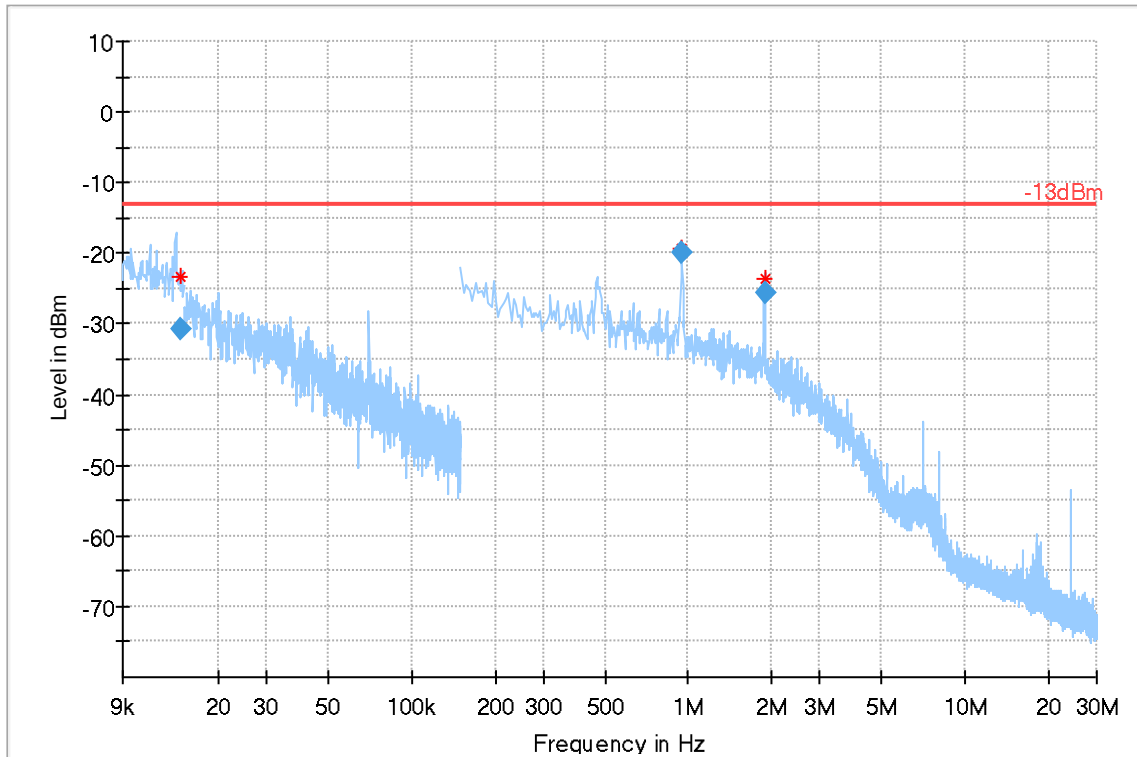
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.014480	-30.64	---	-13.00	17.64	2.0	0.200	262.0	V	170.0
0.945000	-19.94	---	-13.00	6.94	2.0	9.000	140.0	V	222.0
1.889000	-25.63	---	-13.00	12.63	2.0	9.000	152.0	V	223.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
0.014480	-67.4	1:06:49 PM - 10/4/2019
0.945000	-76.3	12:58:22 PM - 10/4/2019
1.889000	-76.0	12:59:50 PM - 10/4/2019



Preview Result 2-QPK
Critical_Freqs PK+
Final_Result QPK

Preview Result 1-PK+
-13dBm

Critical_Freqs QPK
Final_Result PK+

Plot # 99 Radiated Emissions: 30 MHz – 1GHz

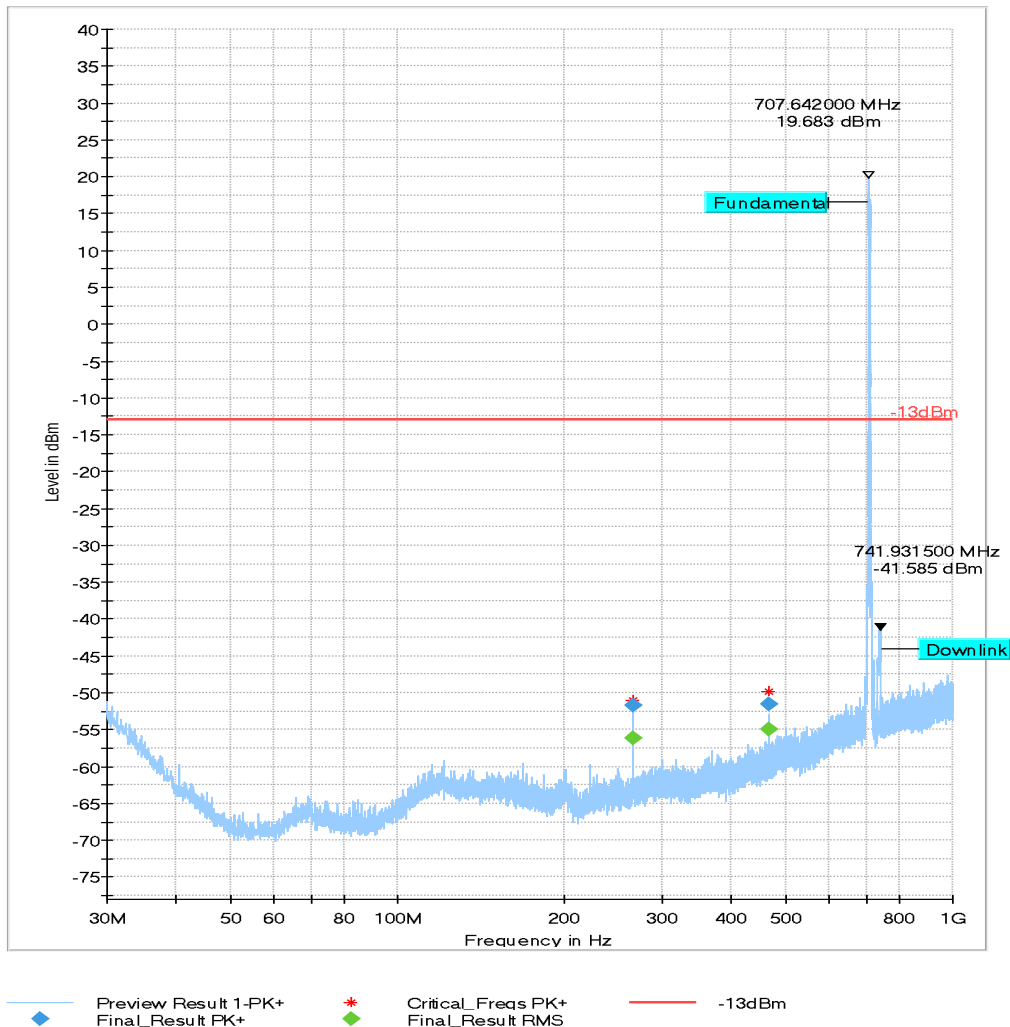
Channel: Mid

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.380283	---	-56.22	---	---	100.0	100.000	152.0	H	250.0
266.380283	-51.62	---	-13.00	38.62	100.0	100.000	152.0	H	250.0
466.194873	---	-55.03	---	---	100.0	100.000	195.0	H	342.0
466.194873	-51.58	---	-13.00	38.58	100.0	100.000	195.0	H	342.0

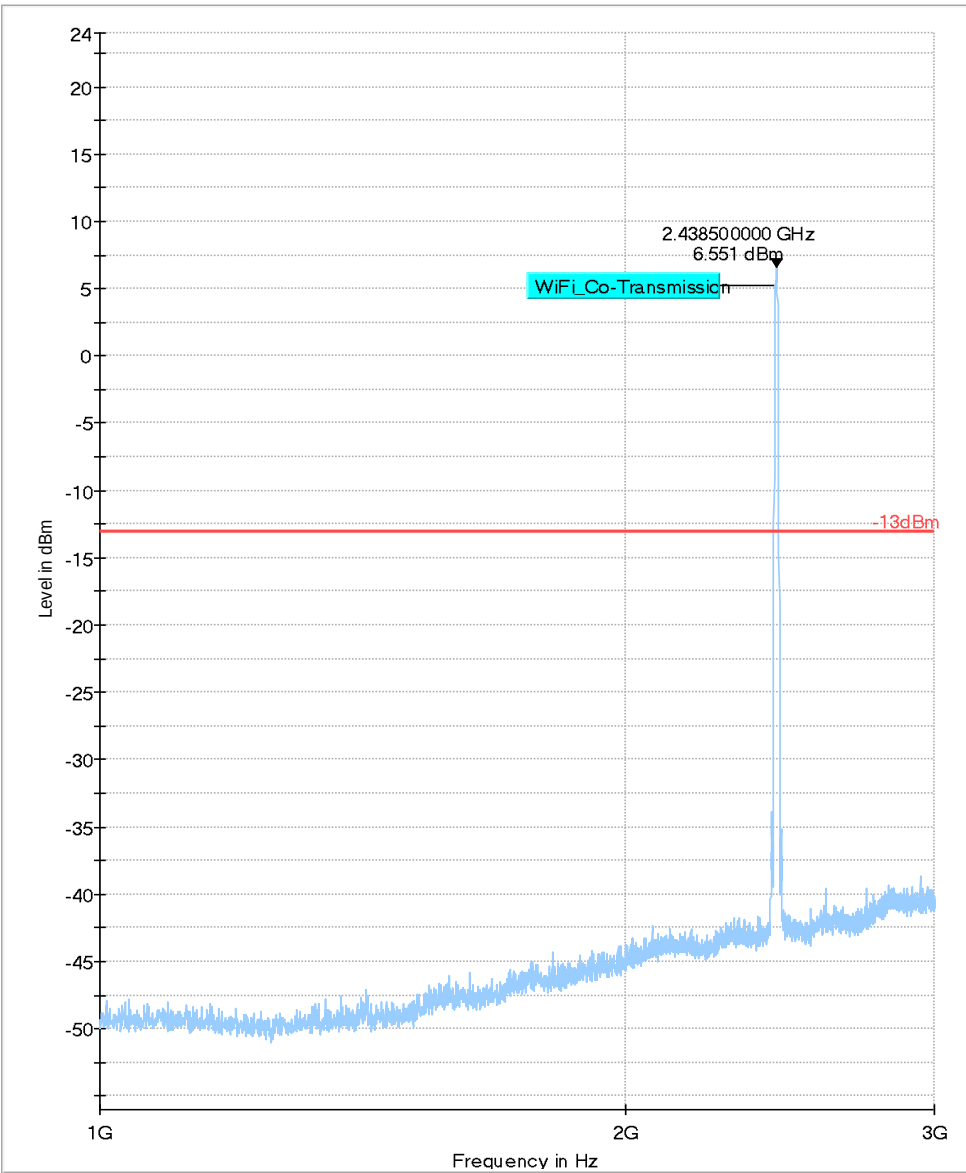
(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
266.380283	-75.8	7:26:37 PM - 10/3/2019
266.380283	-75.8	7:26:36 PM - 10/3/2019
466.194873	-71.0	7:28:37 PM - 10/3/2019
466.194873	-71.0	7:28:37 PM - 10/3/2019



Plot # 100 Radiated Emissions: 1 GHz - 3 GHz

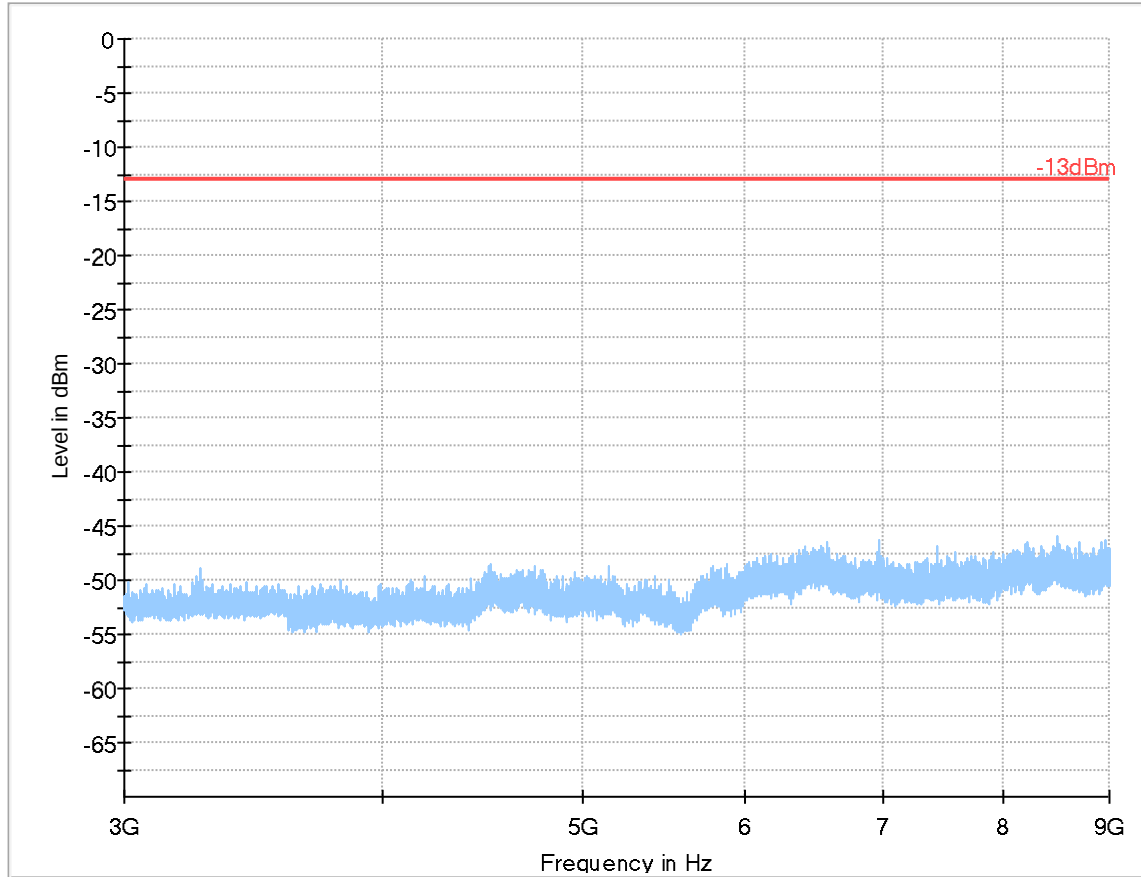
Channel: Mid



◆ Preview Result 1-PK+ Final Result PK+ * Critical_Freqs PK+ Final Result RMS — -13dBm

Plot # 101 Radiated Emissions: 3 GHz – 9 GHz

Channel: Mid



Preview Result 1-PK+
FinaL_Result PK+

* Critical_Freqs PK+
◆ FinaL_Result RMS

— -13dBm

Plot # 102 Radiated Emissions: 30 MHz – 1GHz

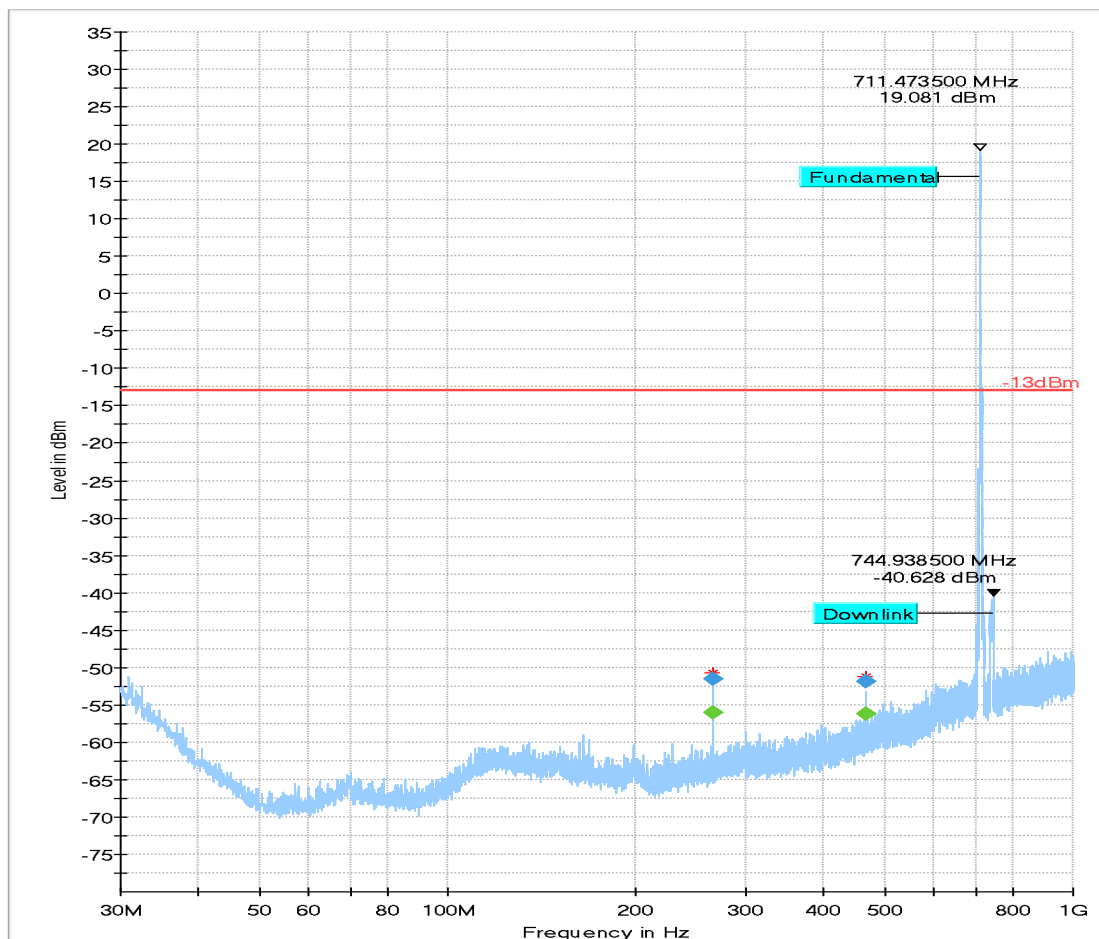
Channel: High

Final Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
266.390180	---	-56.10	---	---	100.0	100.000	158.0	H	246.0
266.390180	-51.60	---	-13.00	38.60	100.0	100.000	158.0	H	246.0
466.214057	---	-56.26	---	---	100.0	100.000	180.0	H	-9.0
466.214057	-51.92	---	-13.00	38.92	100.0	100.000	180.0	H	-9.0

(continuation of the "Final_Result" table from column 15 ...)

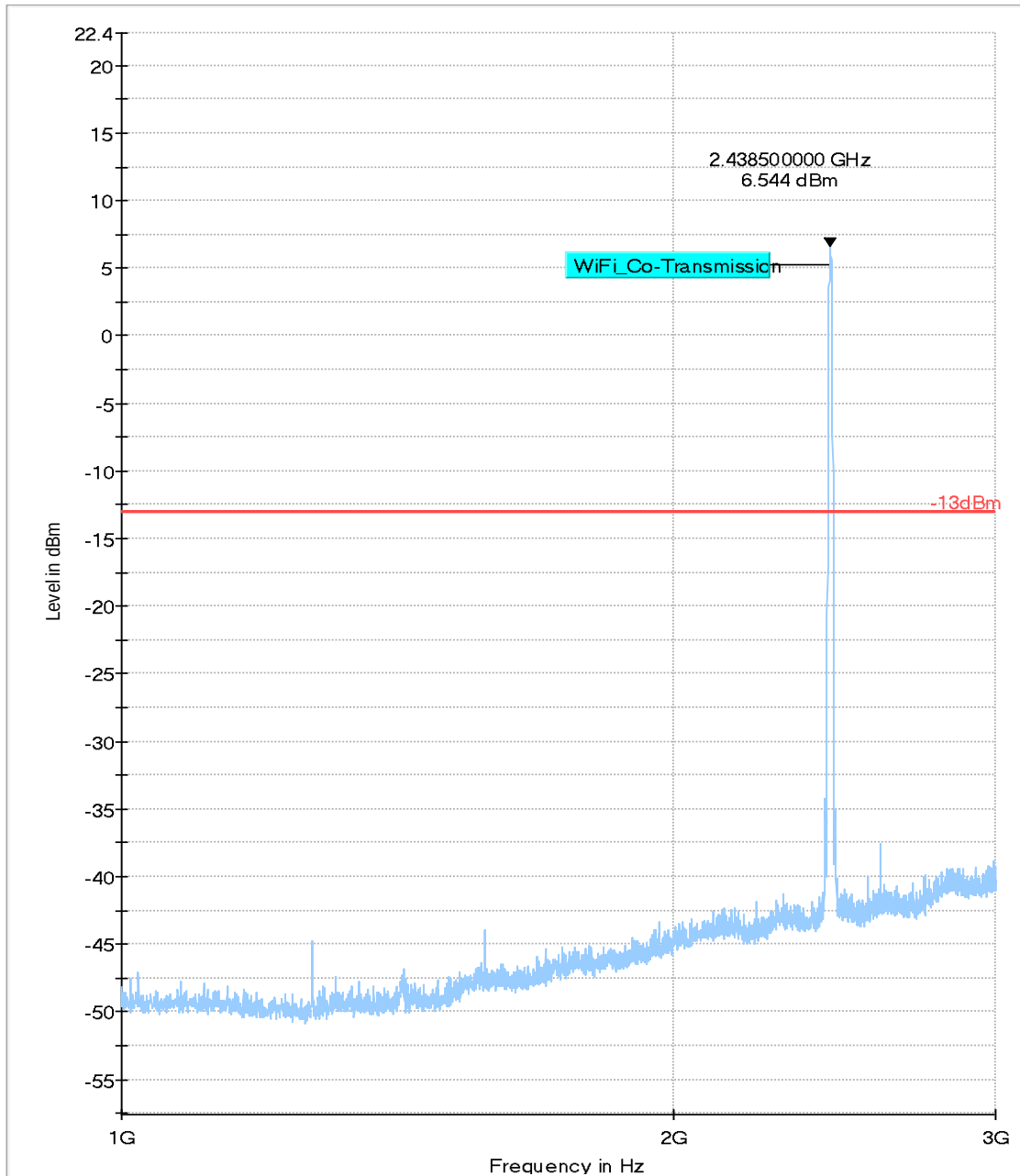
Frequency (MHz)	Corr. (dB)	Comment
266.390180	-75.8	7:43:17 PM - 10/3/2019
266.390180	-75.8	7:43:17 PM - 10/3/2019
466.214057	-71.0	7:45:35 PM - 10/3/2019
466.214057	-71.0	7:45:35 PM - 10/3/2019

◆ Preview Result 1-PK+
Final_Result PK+* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 103 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



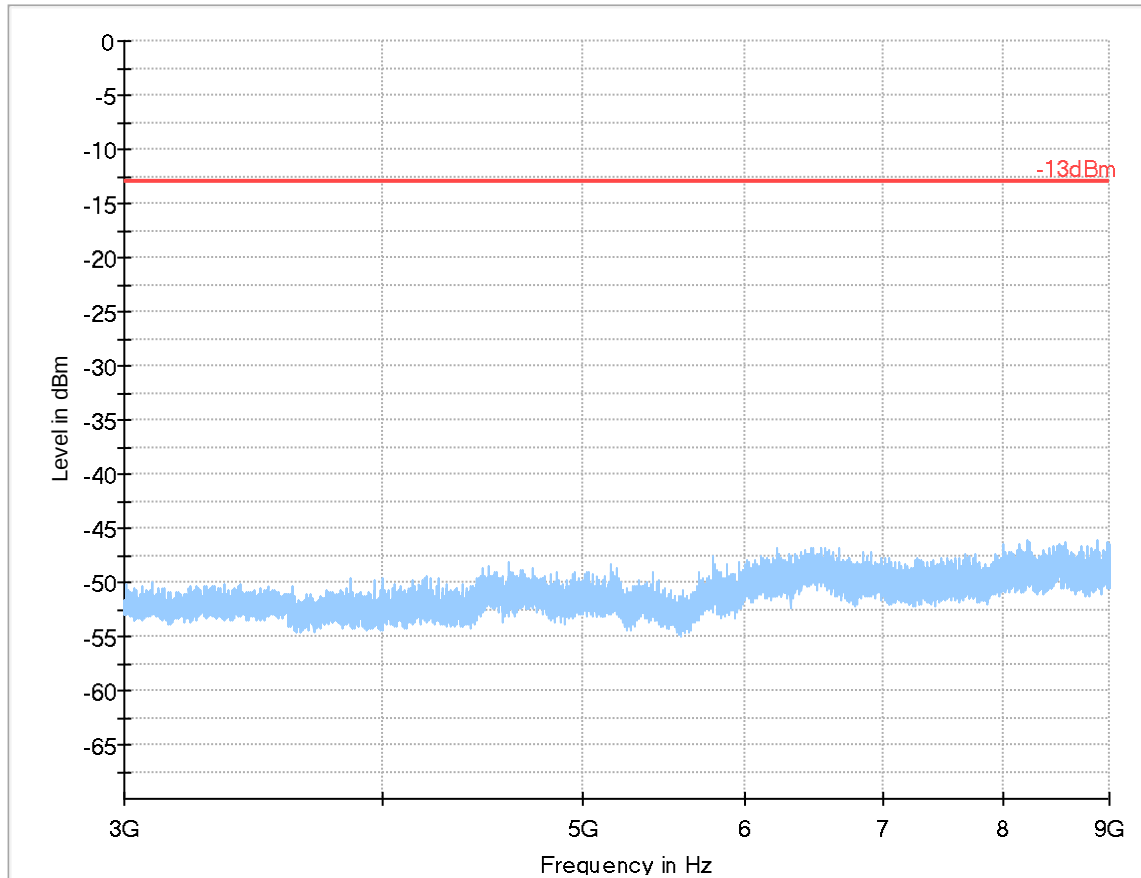
◆ Preview Result 1-PK+
◆ Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

Plot # 104 Radiated Emissions: 3 GHz – 9 GHz

Channel: High



Preview Result 1-PK+
Final_Result PK+

* Critical_Freqs PK+
◆ Final_Result RMS

— -13dBm

8 Test setup photo

Setup photos are included in supporting file name: "EMC_PRATT-008-19001_ISED_Setup_Photos.pdf"

9 Test Equipment And Ancillaries Used For Testing

Equipment Type	Manufacturer	Model	Serial #	Calibration Cycle	Last Calibration Date
PASSIVE LOOP ANTENNA	ETS.LINDGREN	6507	00161344	3 YEARS	10/26/2017
BILOG ANTENNA	ETS.LINDGREN	3149	00063983	3 YEARS	07/07/2017
HORN ANTENNA	ETS.LINDGREN	3115	00035111	3 YEARS	04/17/2019
HORN ANTENNA	ETS.LINDGREN	3117	00215984	3 YEARS	01/26/2018
HORN ANTENNA	ETS.LINDGREN	3116	00070497	3 YEARS	10/31/2017
SIGNAL ANALYZER	R&S	FSU26	200065	3 YEARS	07/16/2019
SIGNAL ANALYZER	R&S	FSV 40	101022	3 YEARS	07/15/2019
TEST RECEIVER	R&S	ESU.EMI	100256	3 YEARS	07/16/2019
COMPACT DIGITAL BAROMETER	CONTROL COMPANY	35519-055	91119547	3 YEARS	06/20/2017
DIGITAL THERMOMETER	CONTROL COMPANY	36934-164	181230565	2 YEARS	01/10/2019

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
2021-04-05	EMC_PRATT-008-19001_FCC_22_24_27_ISED	Initial version	Yuchan Lu

<<< The End >>>