FCC/ISED Test Report

FOR:
Danlaw Inc.

Model Name:
DL980

Product Description:
Cellular, GNSS, BT/WiFi OBDII dongle.

FCC ID: 2AD9I-DL980SW
IC ID: 20087- DL980SW

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

REPORT #: EMC_DANLA_058_18001_FCC_22_24_27_ISED

DATE: 2019-04-15

A2LA Accredited

IC recognized # 3462B-1

***CETECOM* Inc.**
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CETECOM Inc. is a Delaware Corporation with Corporation number: 2905571

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1 Assessment

The following device as further described in section 3 of this report was evaluated for radiated spurious emissions in simultaneous transmission 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, 132 Issue 3, 133 Issue 6 and 139 Issue3.

Company	Description	Model #
Danlaw Inc.	Cellular, GNSS, BT/WiFi OBDII dongle.	DL980SW

No deficiencies were ascertained.

Responsible for Testing Laboratory:

Date	Section	Name	Signature
04/15/2019	Compliance	Cindy Li (Lab Manager)	Cindy Li Digitally signed by Cindy Li DN: cn=Cindy Li, o=Cetecom Inc., ou=EMC, email=cindy.li@cetecom.com, c=US Date: 2019.04.22 17:45:23 -07'00'

Responsible for the Report:

Date	Section	Name	Signature
04/15/2019	Compliance	Yuchan Lu (Test Engineer)	Yuchan Lu Digitally signed by: Yuchan Lu DN: CN = Yuchan Lu email = Yuchan.Lu@cetecom.com C = US O = CETECOM Inc. OU = EMC Date: 2019.04.19 11:54:56 -07'00'

The test results of this test report relate exclusively to the test item specified in Section3.
CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

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

2.2 Identification of the Client

Applicant's Name:	Danlaw Inc.
Street Address:	41131 Vincenti Ct
City/Zip Code	Novi, MI 48375
Country	USA

2.3 Identification of the Manufacturer

Manufacturer's Name:	Same as Client
Manufacturers Address:	
City/Zip Code	
Country	

3 Equipment Under Test (EUT)

3.1 EUT Specifications

Firmware Version Identification Number (FVIN):	v1.0
Hardware Version Identification Number (HVIN):	DL980SW
Product Marketing Name (PMN):	DL980
Antenna (Primary & Diversity) Information as declared:	Primary antenna maximum gains: • WCDMA II: 1.59 dBi • WCDMA IV: 1.27 dBi • WCDMA V: 3.91 dBi • LTE Band 2: 1.59 dBi • LTE Band 4: 1.27 dBi • LTE Band 5: 3.91 dBi • LTE Band 12: 0.2 dBi
Other Radios included in the device:	❖ GPS, BLE,WLAN • Module name: Qualcomm QCA 9377 Chipset • PIFA -2.05 dBi
Power Supply/ Rated Operating Voltage Range:	Battery / Low 9 VDC, Nominal 12 VDC, High 24 VDC
Operating Temperature Range:	Low 0º C, Nominal 25º C, High 50º C
Sample Revision	☐Prototype Unit; ☐Production Unit; ■Pre-Production
EUT Dimensions(mm):	50 x 47 x 25
Weight(grams):	100
EUT Diameter	■ < 60 cm ☐ Other _____

Module Information	
Module Name:	SW WP7603
Model Number:	WP7603
FCC/IC ID:	N7NWP76C

3.2 EUT Sample details

EUT #	IMEI number	HW Version	SW Version	Notes/Comments
1	357409080145867	v1.0	v1.0	Radiated Measurement

3.3 Support Equipment

SE #	Comments
1	Power and USB cable
2	Fan; Manufacture : OceanAire; Model No:DC-10

3.4 Test Sample Configuration

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

3.5 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 radio to 802.11b, 1Mbps, Mid channel provided by the client that will not be available to the end user For radiated measurements: The internal antenna was connected.

3.6 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 radio 802.11b, 1Mbps, 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:** 2AD9I-DL980SW / **IC ID**: 20087- DL980SW.

The pre-certified module to be integrated (SW WP7603) 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, 132 Issue 3, 133 Issue 6 and 139 Issue 3.

The conducted module test data that can be obtained under the **FCC Filing ID:** N7NWP76C is applicable for the host described in section 3.

4.1 Dates of Testing:

02/26/2019 – 02/27/2019

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%

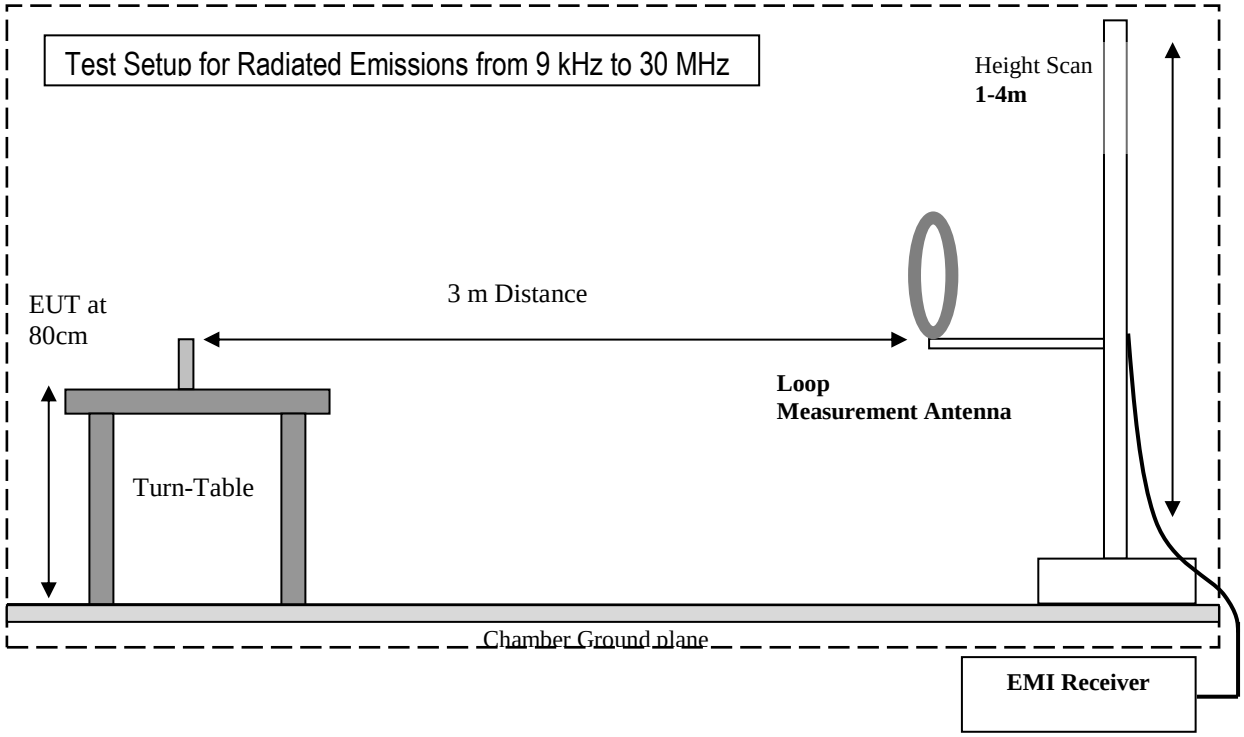
Deviating test conditions are indicated at individual test description where applicable.

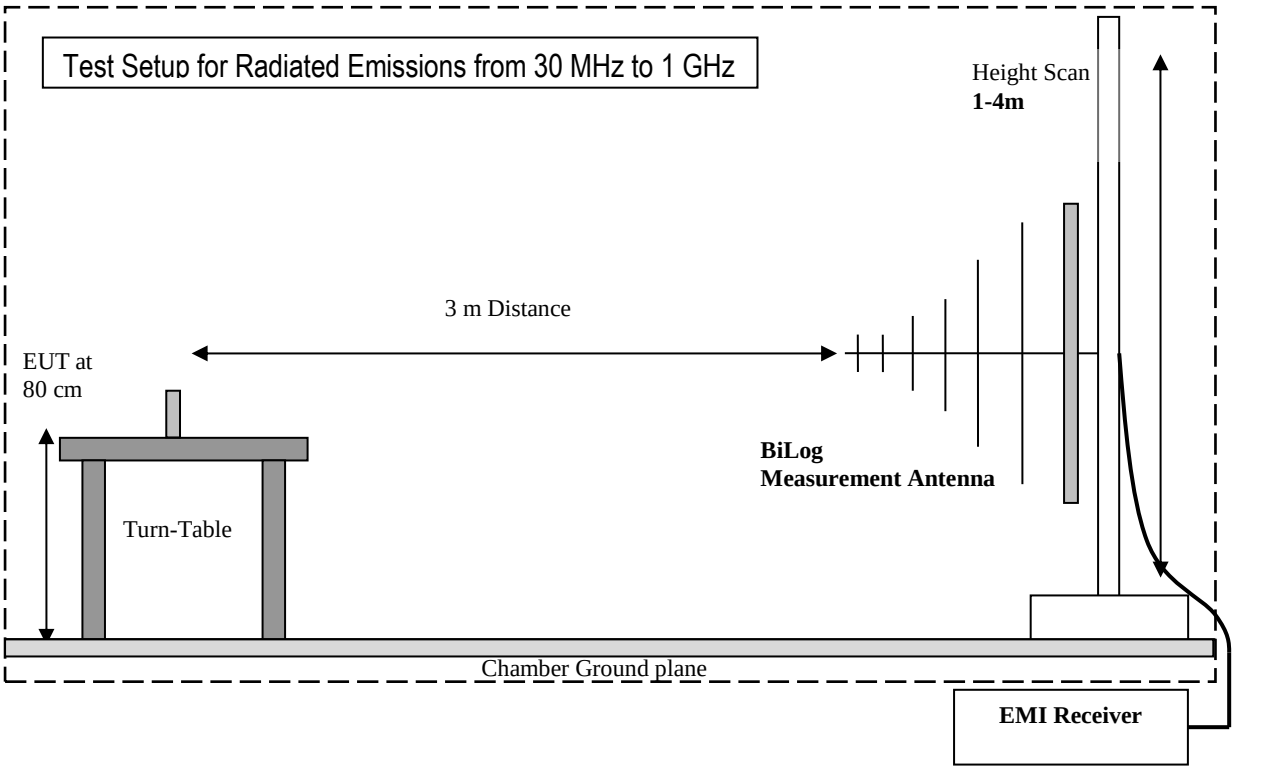
5 Measurement Procedures

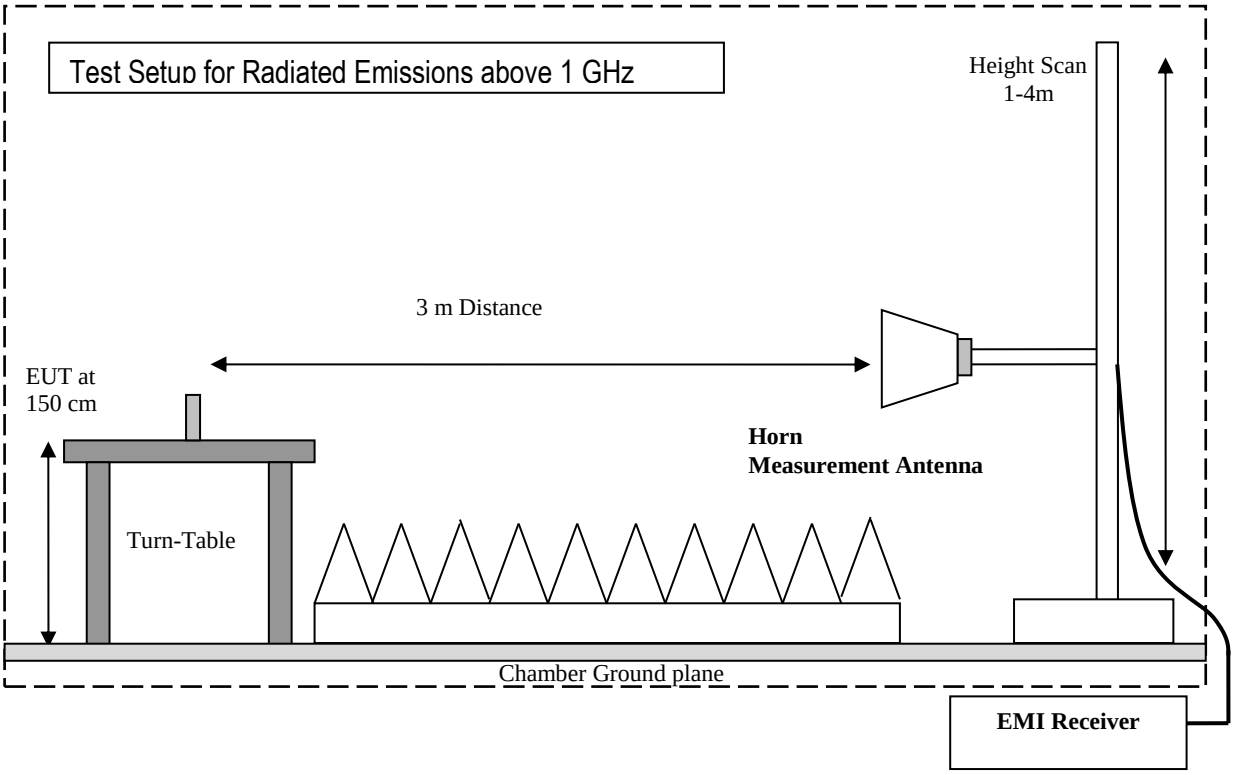
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03 – "Measurement Guidance for Certification of Licensed Digital Transmitters" and according to ANSI C63.26 as detailed below.

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.




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


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

5.2 Sample Calculations for Field Strength Measurements

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

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

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

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

Example:

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

6 Measurement Results Summary

6.1 FCC 22, RSS-132:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §22.913 (a)	RF Output Power	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: N7NWP76C

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: N7NWP76C

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

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §27.50 (d)	RF Output Power	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1055; §27.54	Frequency Stability	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1049; §27.53	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §27.53	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1051; §27.53	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Note 1 Note 2
§2.1053; §27.53(g); §27.53(h); RSS-130 Issue 1-4.6; 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 FCC ID: N7NWP76C

7 Test Result Data

7.1 ERP

Band	Frequency (MHz)	Power conducted (W)	Emission Designator	Gain (dBi)	gain linear	EIRP (W]	ERP (W)	Frequency deviation (ppm)	Limit ERP (W)
WCDMA II	1850-1910	0.218	4M13G7D	3.91	2.460	0.537	-	2.5	2
WCDMA IV	1710 – 1755	0.238	4M12G7D	3.91	2.460	0.585	-	2.5	1
WCDMA V	824 – 849	0.232	4M12G7D	3.91	2.460	0.570	0.348	2.5	7
LTE 2	1850 – 1910	0.209	17M8G7D	3.91	2.460	0.515	-	2.5	2
LTE 4	1710 – 1755	0.216	17M9G7D	3.91	2.460	0.531	-	2.5	1
LTE 5	824-849	0.234	8M95G7D	3.91	2.460	0.575	0.351	2.5	7
LTE 12	699 – 716	0.230	2M69G7D	3.91	2.460	0.566	0.345	2.5	3
LTE 12	699 – 716	0.225	8M95G7D	3.91	2.460	0.554	0.338	2.5	3

Note: ERP are calculated from maximum power in grant of cellular module SW WP7603 adding the maximum gain of the utilized cellular antenna per operational description.

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-130-4.6, 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 operating mode**	**Power Input**
22	Op. 1	12 VDC

7.2.4 Measurement result:

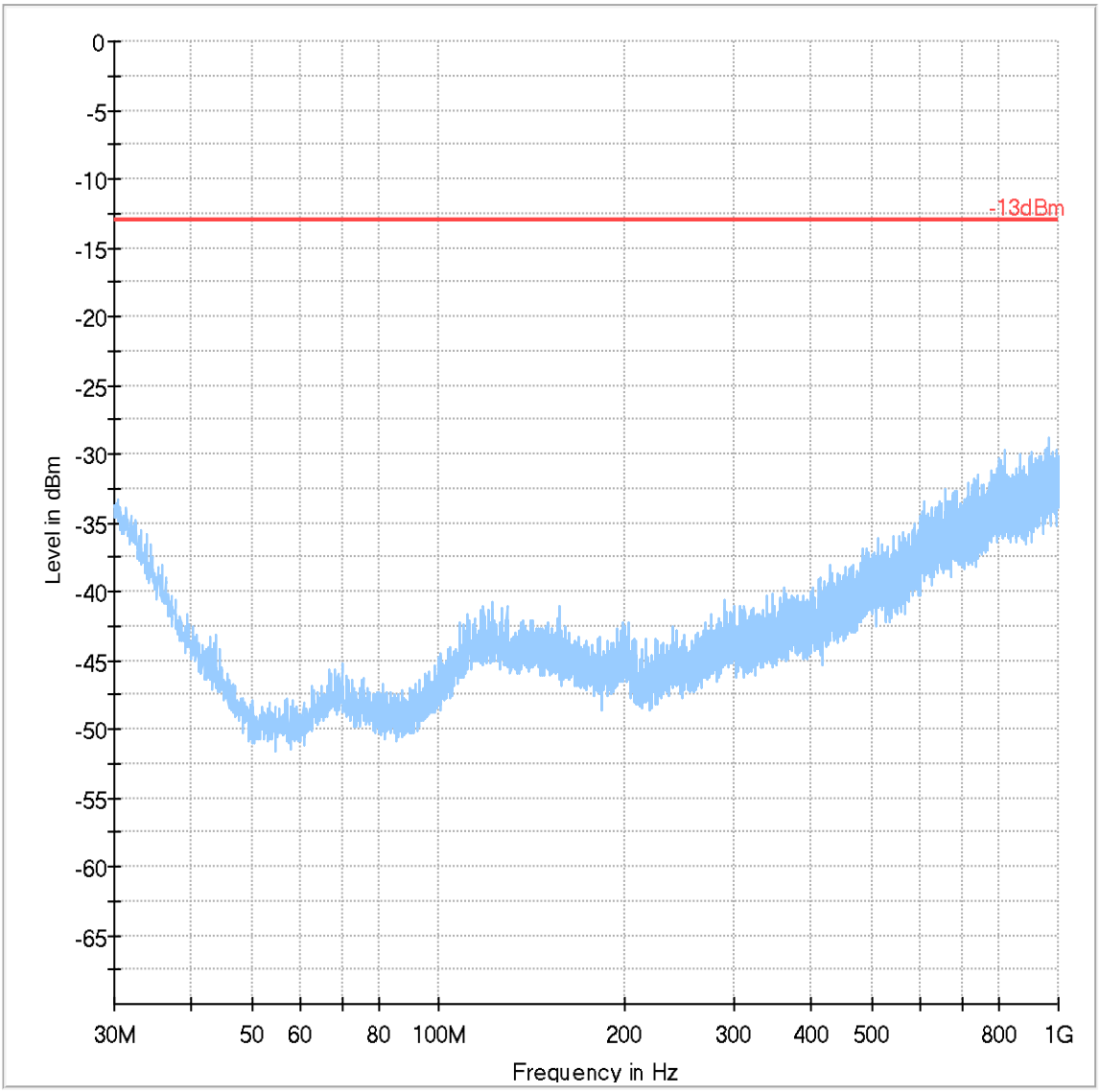
Plot #	Cellular Channel	EUT operating mode	Scan Frequency	Critical Frequency [MHz]	Emission level [dBm]	Limit [dBm]	Result
1 – 3	Low	WCDMA II	30 MHz – 18 GHz	5555.04	-41.51	-13	Pass
4 – 8	Mid	WCDMA II	9 kHz – 26 GHz	4874.02	-37.95	-13	Pass
9 – 11	High	WCDMA II	30 MHz – 18 GHz	5726.31	-42.58	-13	Pass
12 – 14	Low	WCDMA IV	30 MHz – 18 GHz	5133.79	-41.26	-13	Pass
15 – 18	Mid	WCDMA IV	9 kHz – 18 GHz	4874.03	-42.36	-13	Pass
19 – 21	High	WCDMA IV	30 MHz – 18 GHz	4873.77	-43.82	-13	Pass
22 - 24	Low	WCDMA V	30 MHz – 9 GHz	4873.91	-42.63	-13	Pass
25 – 28	Mid	WCDMA V	9 kHz – 9 GHz	4874.02	-42.19	-13	Pass
29 – 31	High	WCDMA V	30 MHz – 9 GHz	4873.98	-42.32	-13	Pass
32 – 34	Low	LTE 2	30 MHz – 18 GHz	5565.13	-43.55	-13	Pass
35 – 39	Mid	LTE 2	9 kHz – 26 GHz	7522.53	-45.89	-13	Pass
40 - 42	High	LTE 2	30 MHz – 18 GHz	4974.05	-43.09	-13	Pass
43 - 45	Low	LTE 4	30 MHz – 18 GHz	5145.10	-39.46	-13	Pass
46 – 49	Mid	LTE 4	9 kHz – 18 GHz	4874.16	-38.87	-13	Pass
50 - 52	High	LTE 4	30 MHz – 18 GHz	4874.17	-39.52	-13	Pass
53 - 55	Low	LTE 5	30 MHz – 9 GHz	4873.99	-38.14	-13	Pass
56 - 59	Mid	LTE 5	9 kHz – 9 GHz	4874.01	-38.89	-13	Pass
60 - 62	High	LTE 5	30 MHz – 9 GHz	4873.95	-38.35	-13	Pass
63 – 65	Low	LTE 12	30 MHz – 9 GHz	1407.89	-36.58	-13	Pass
66 – 69	Mid	LTE 12	9 kHz – 9 GHz	1416.31	-36.75	-13	Pass
70 – 72	High	LTE 12	30 MHz – 9 GHz	1416.32	-36.75	-13	Pass

7.2.5 Measurement Plots:

WCDMA Band II

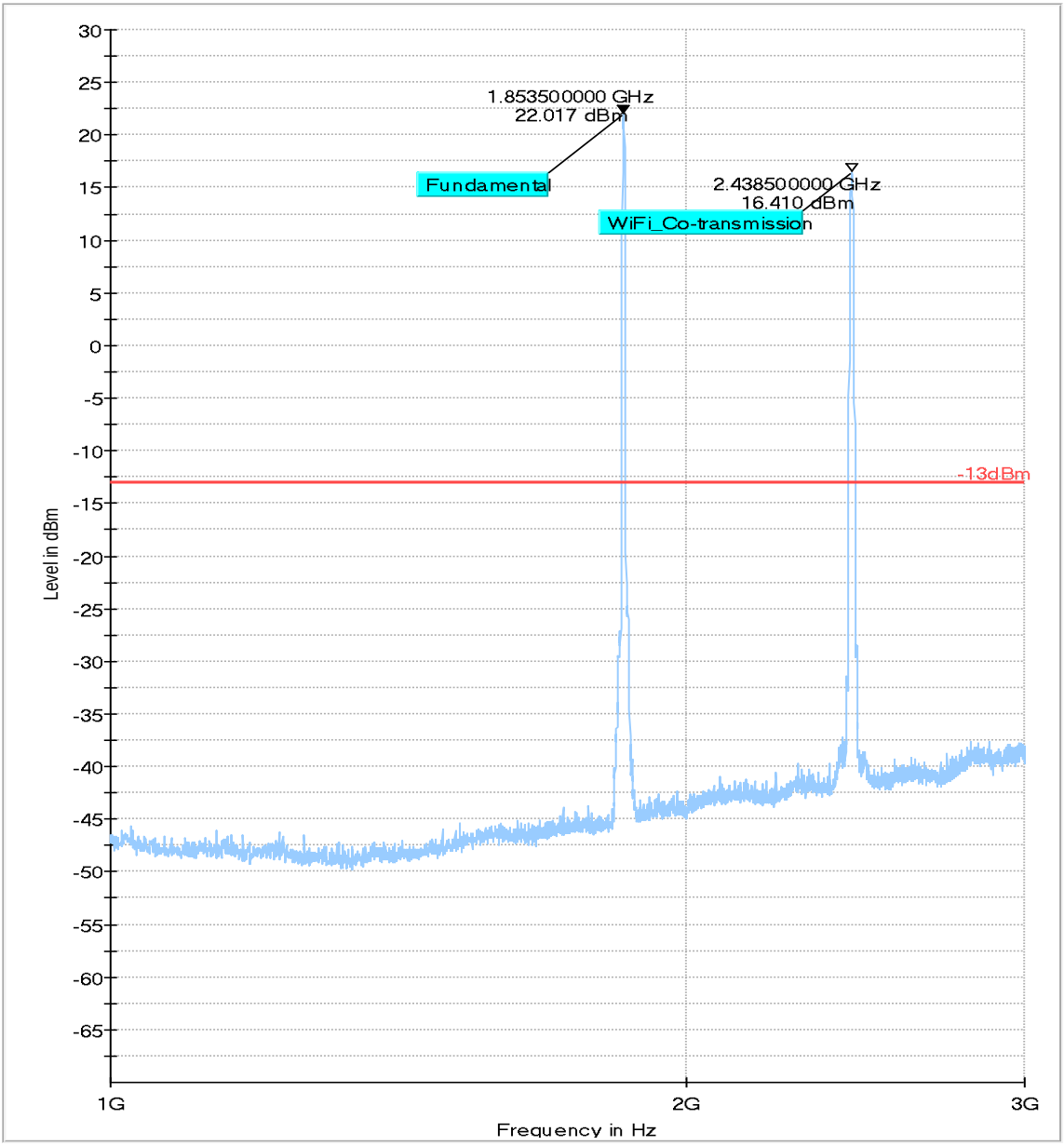
Plot # 1 Radiated Emissions: 30 MHz - 1 GHz

Channel: Low



Plot # 2 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 3 Radiated Emissions: 3 GHz - 18 GHz

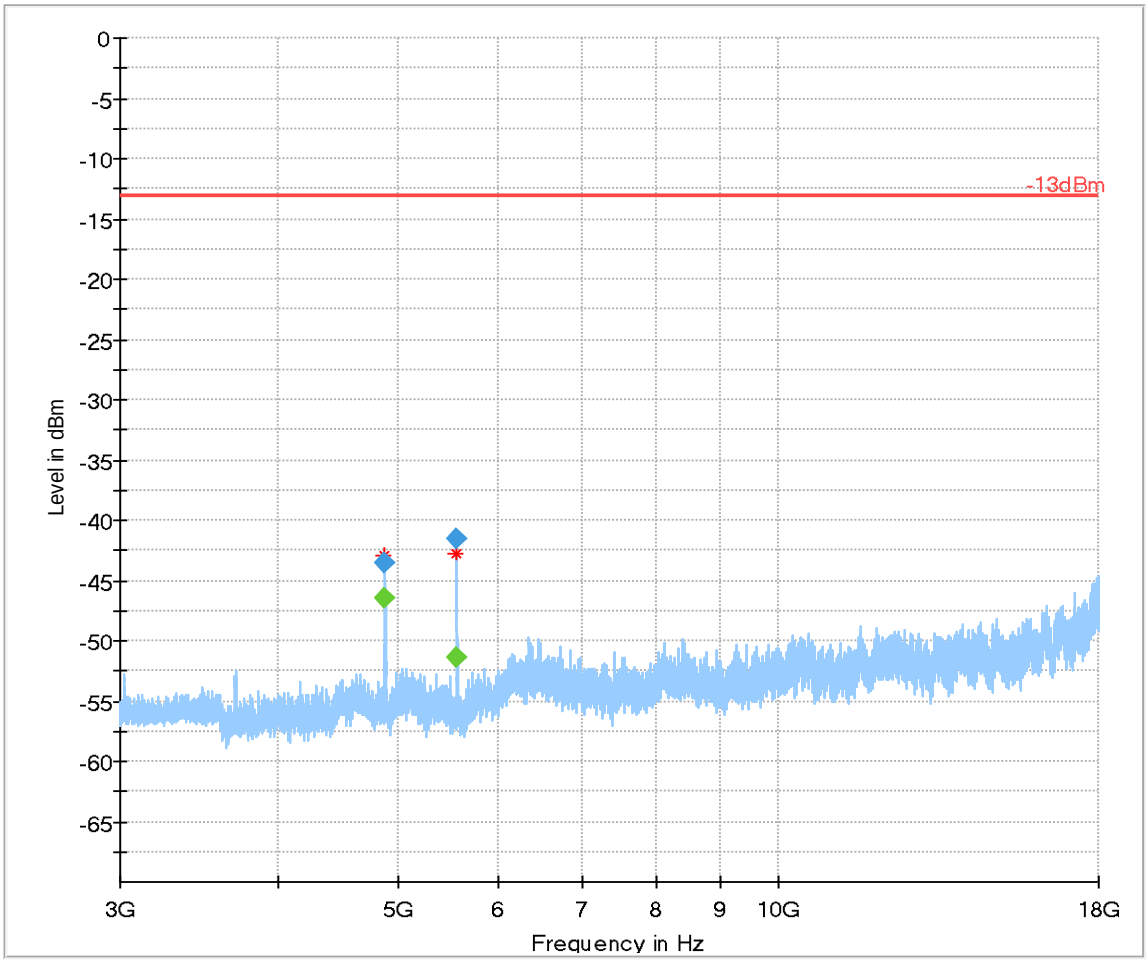
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.960333	-43.56	---	-13.00	30.56	100.0	1000.000	231.0	H	122.0	-100.5
4873.960333	---	-46.42	---	---	100.0	1000.000	231.0	H	122.0	-100.5
5555.044333	-41.51	---	-13.00	28.51	100.0	1000.000	293.0	V	89.0	-99.7
5555.044333	---	-51.37	---	---	100.0	1000.000	293.0	V	89.0	-99.7

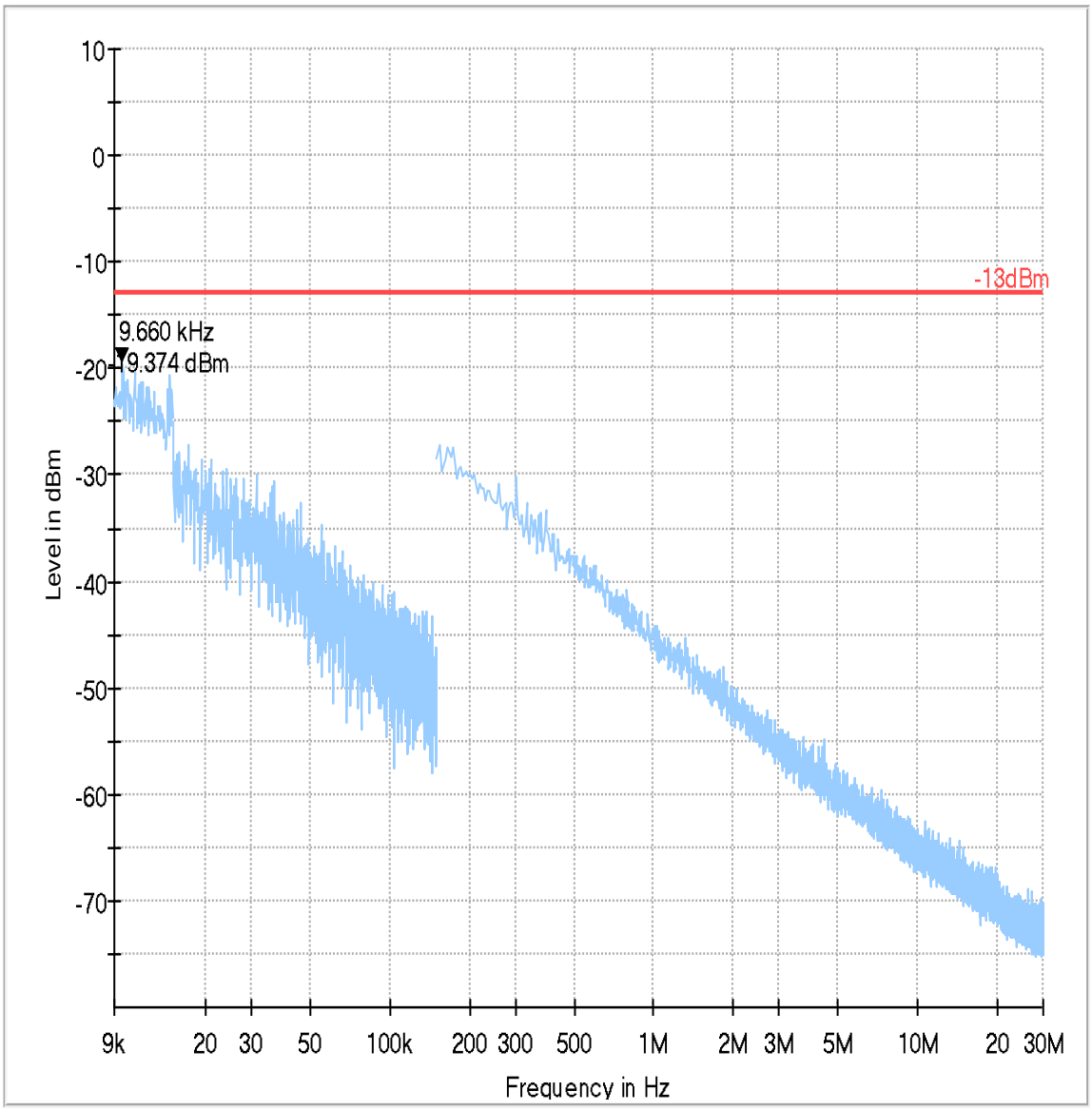
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.960333	11:01:56 AM - 2/26/2019
4873.960333	11:01:56 AM - 2/26/2019
5555.044333	11:00:02 AM - 2/26/2019
5555.044333	11:00:02 AM - 2/26/2019



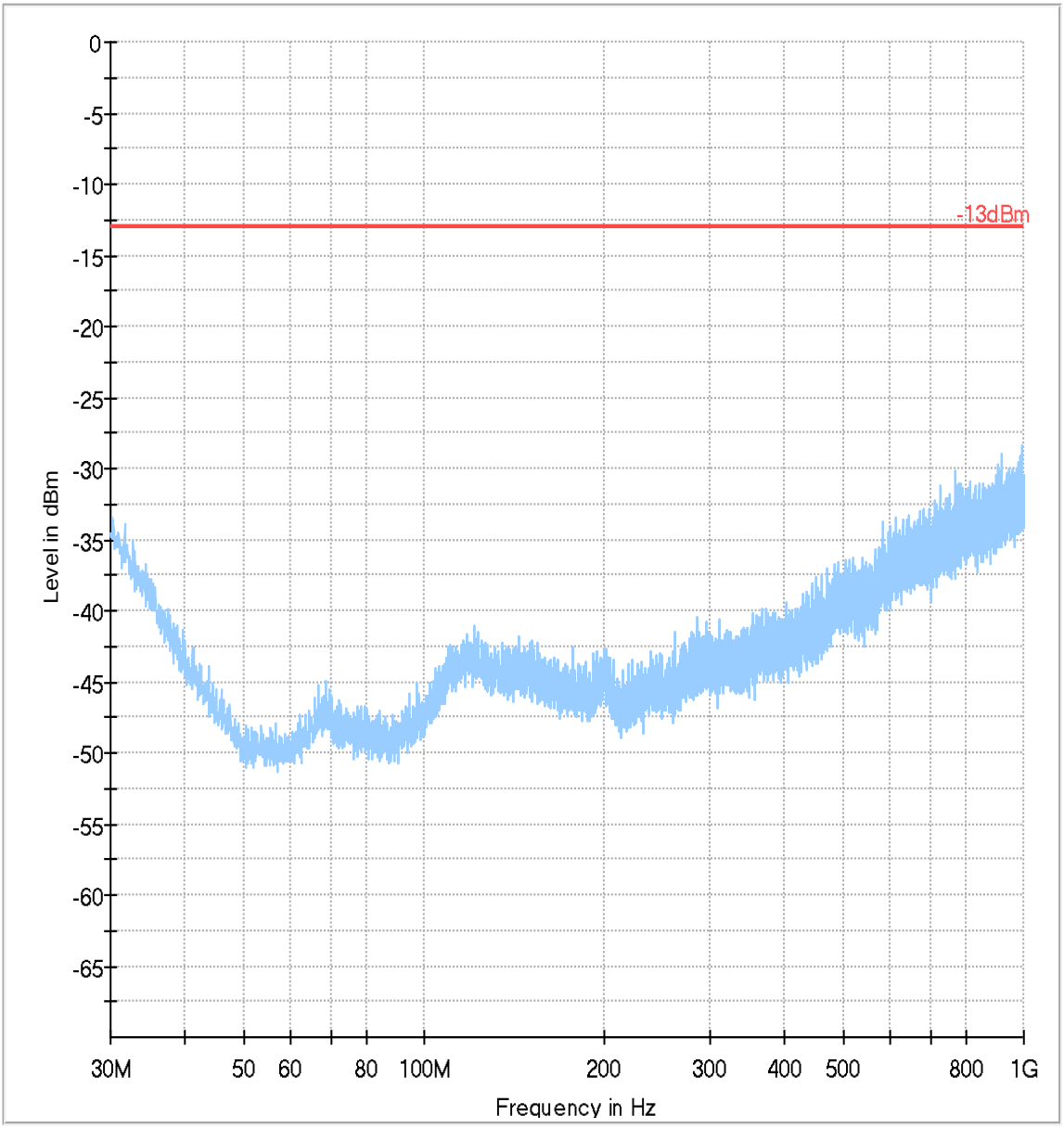
Plot # 4 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



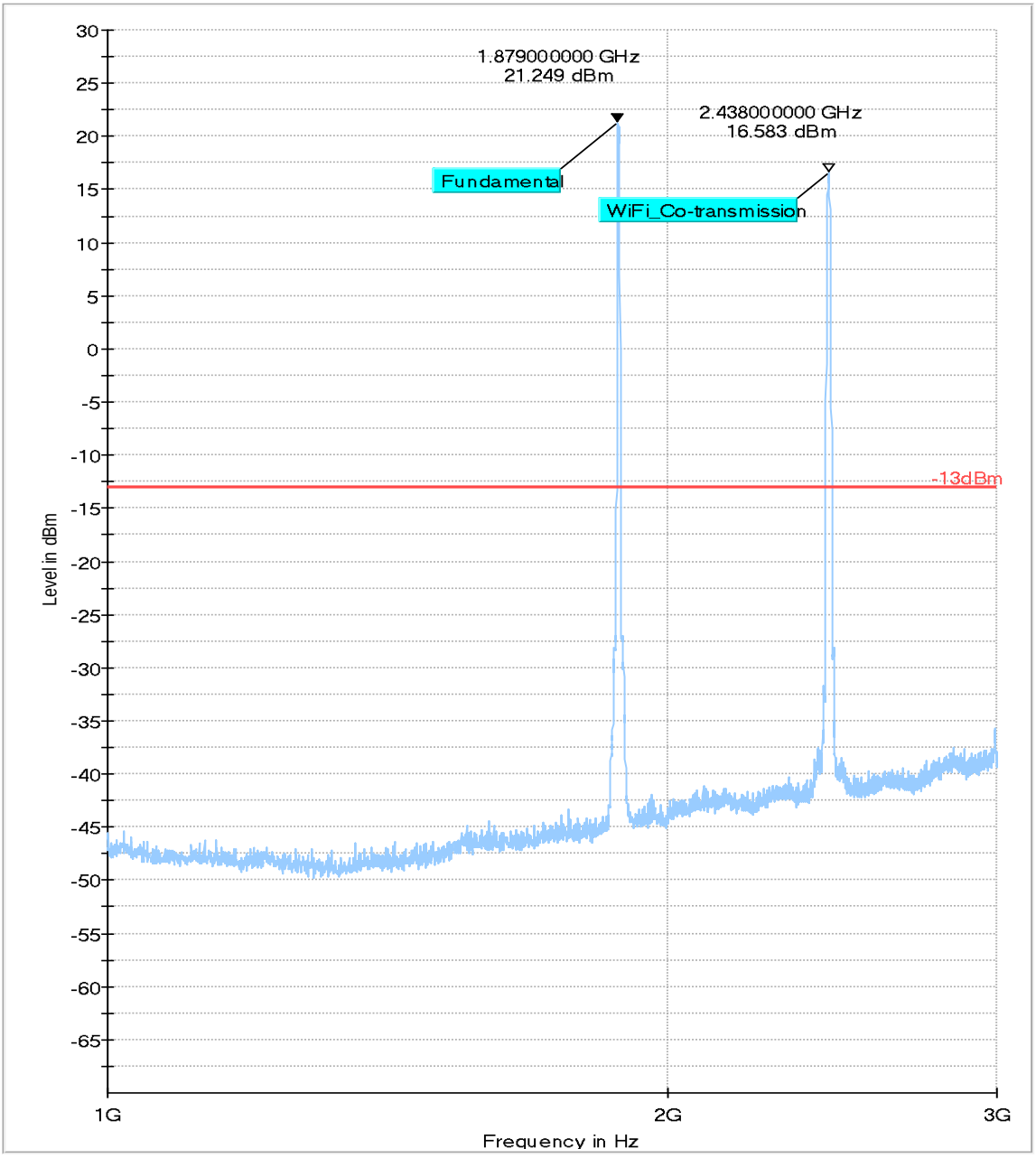
Plot # 5 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 6 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Plot # 7 Radiated Emissions: 3 GHz – 18 GHz

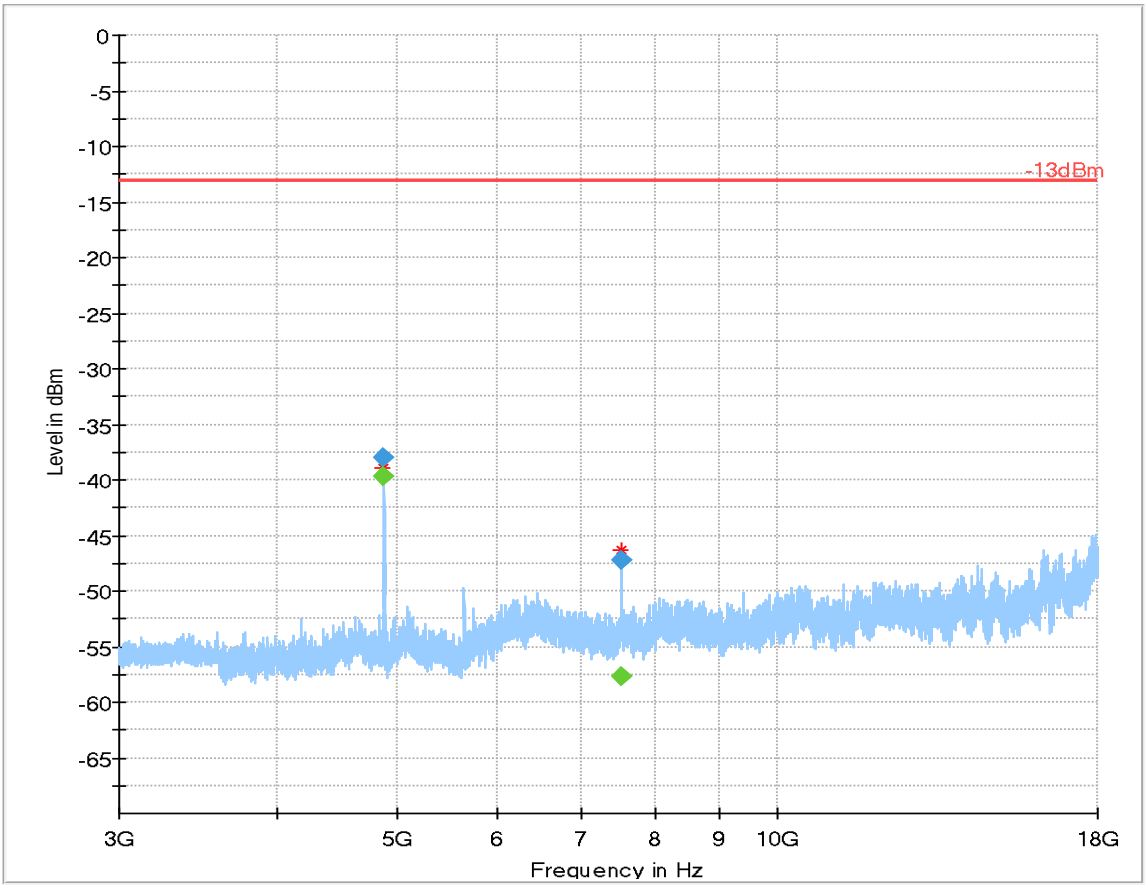
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.023333	---	-39.66	---	---	100.0	1000.000	253.0	H	127.0	-100.5
4874.023333	-37.95	---	-13.00	24.95	100.0	1000.000	253.0	H	127.0	-100.5
7516.568667	---	-57.74	---	---	100.0	1000.000	157.0	V	188.0	-95.1
7516.568667	-47.28	---	-13.00	34.28	100.0	1000.000	157.0	V	188.0	-95.1

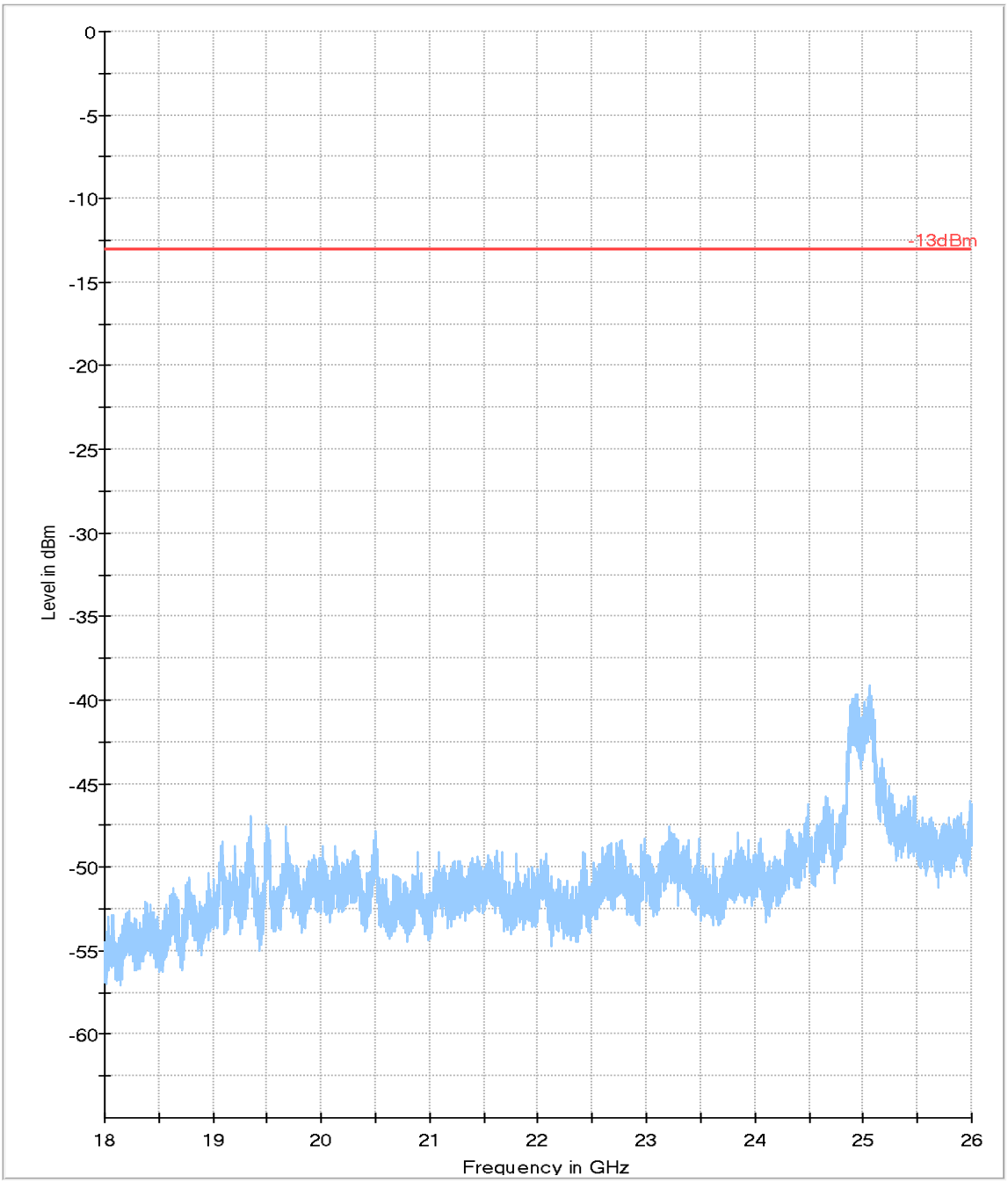
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4874.023333	10:48:10 AM - 2/26/2019
4874.023333	10:48:09 AM - 2/26/2019
7516.568667	10:50:18 AM - 2/26/2019
7516.568667	10:50:18 AM - 2/26/2019



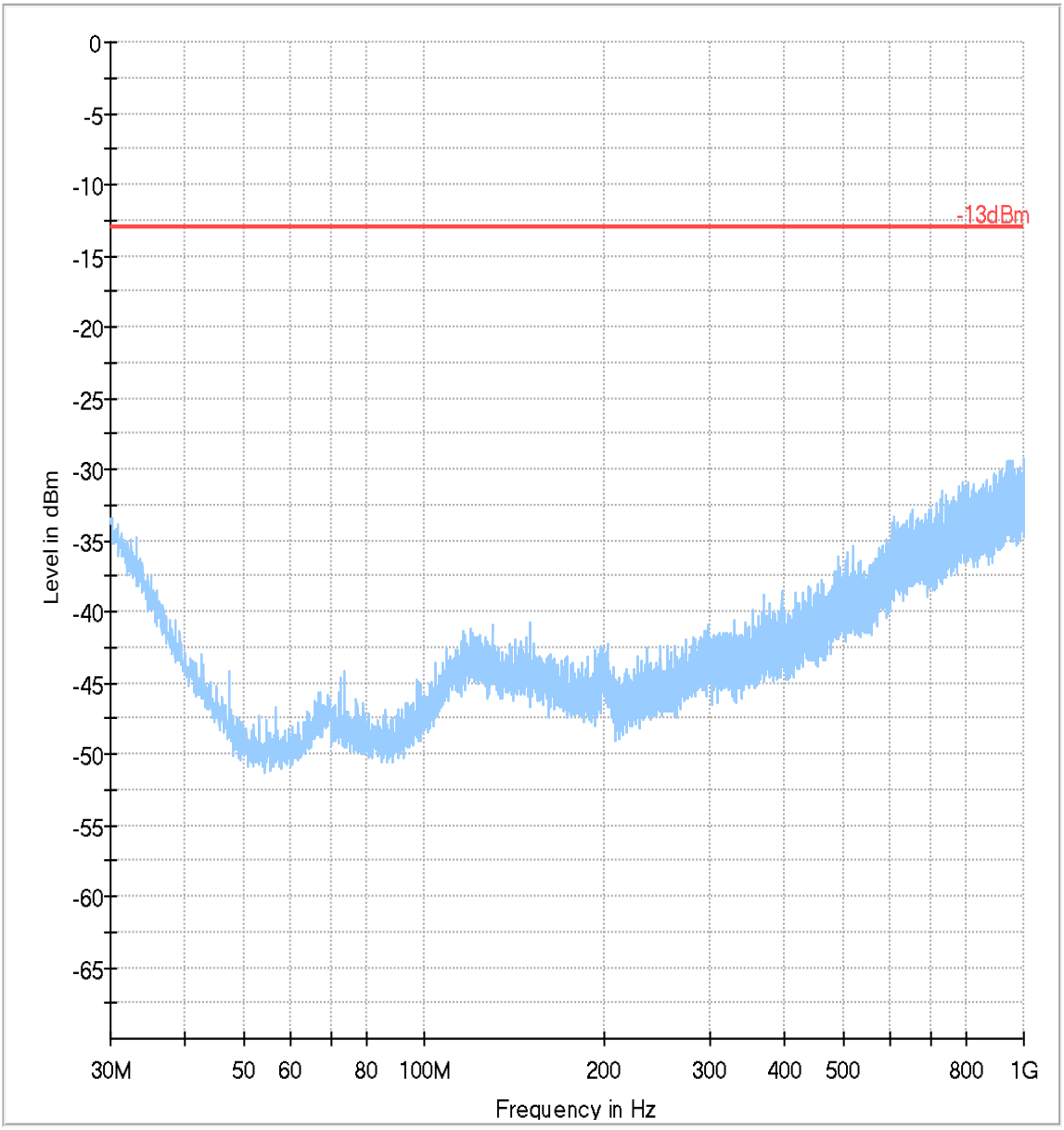
Plot # 8 Radiated Emissions: 18 GHz – 26 GHz

Channel: Mid



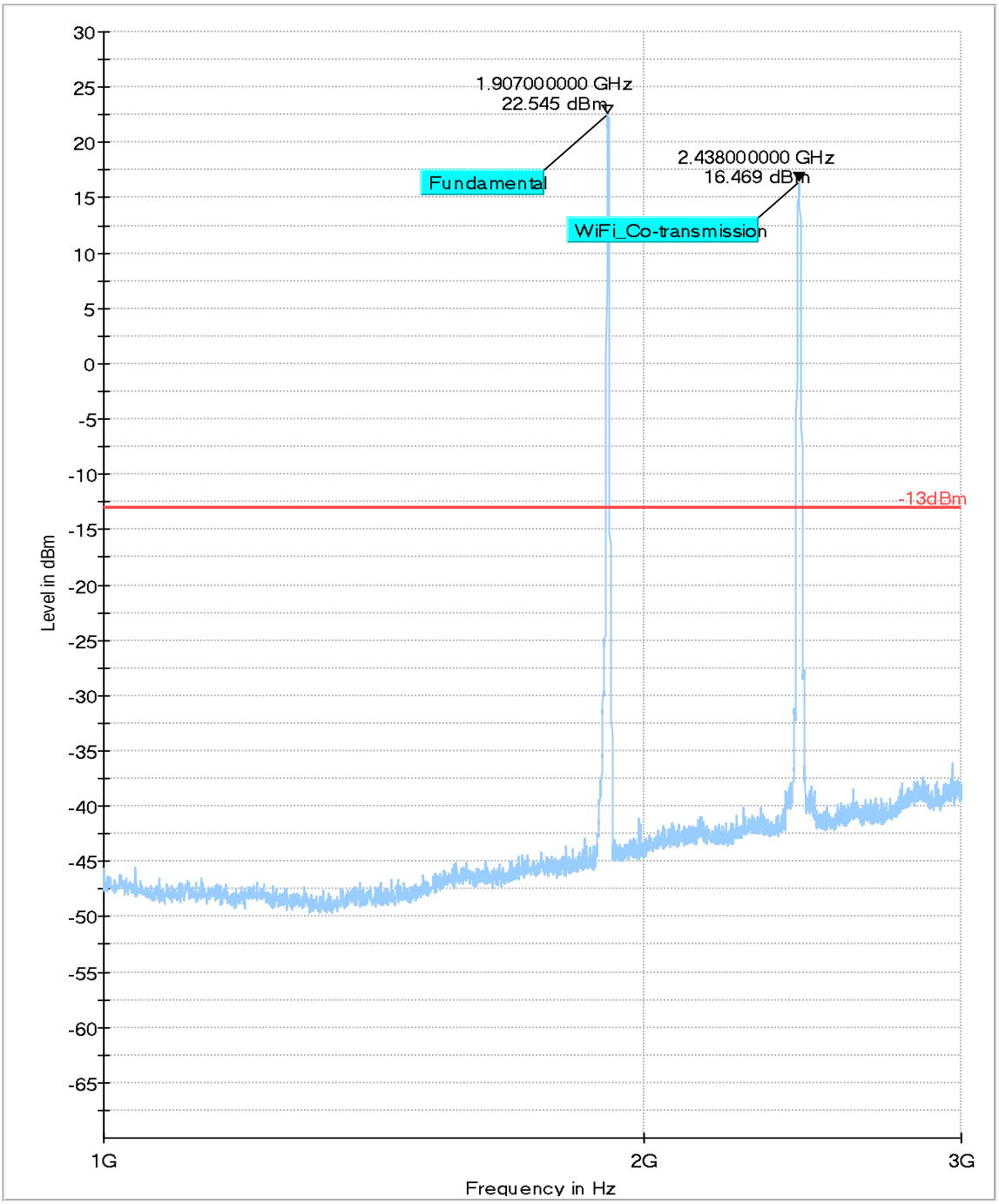
Plot # 9 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 10 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 11 Radiated Emissions: 3 GHz - 18 GHz

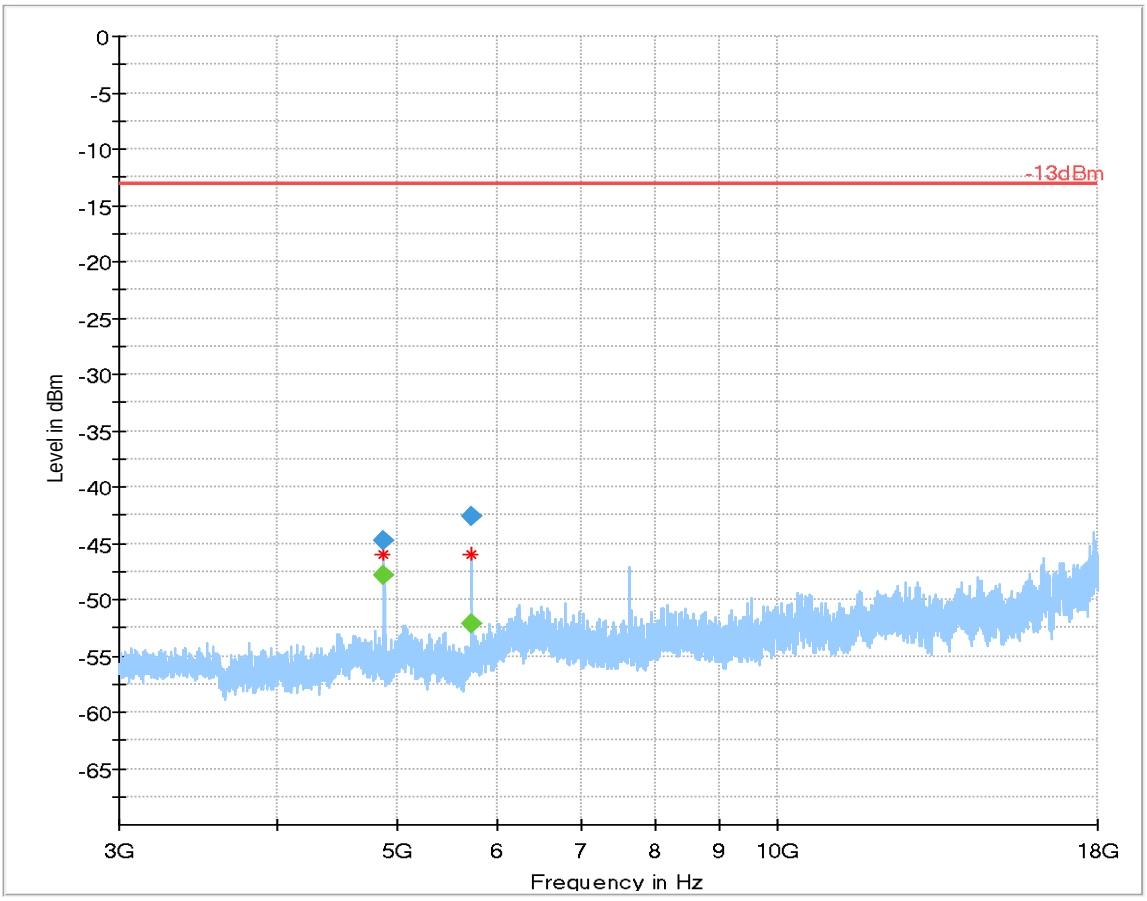
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.821000	-44.75	---	-13.00	31.75	100.0	1000.000	225.0	H	112.0	-100.5
4873.821000	---	-47.77	---	---	100.0	1000.000	225.0	H	112.0	-100.5
5726.310333	-42.58	---	-13.00	29.58	100.0	1000.000	261.0	V	71.0	-98.6
5726.310333	---	-52.14	---	---	100.0	1000.000	261.0	V	71.0	-98.6

(continuation of the "Final_Result" table from column 16 ...)

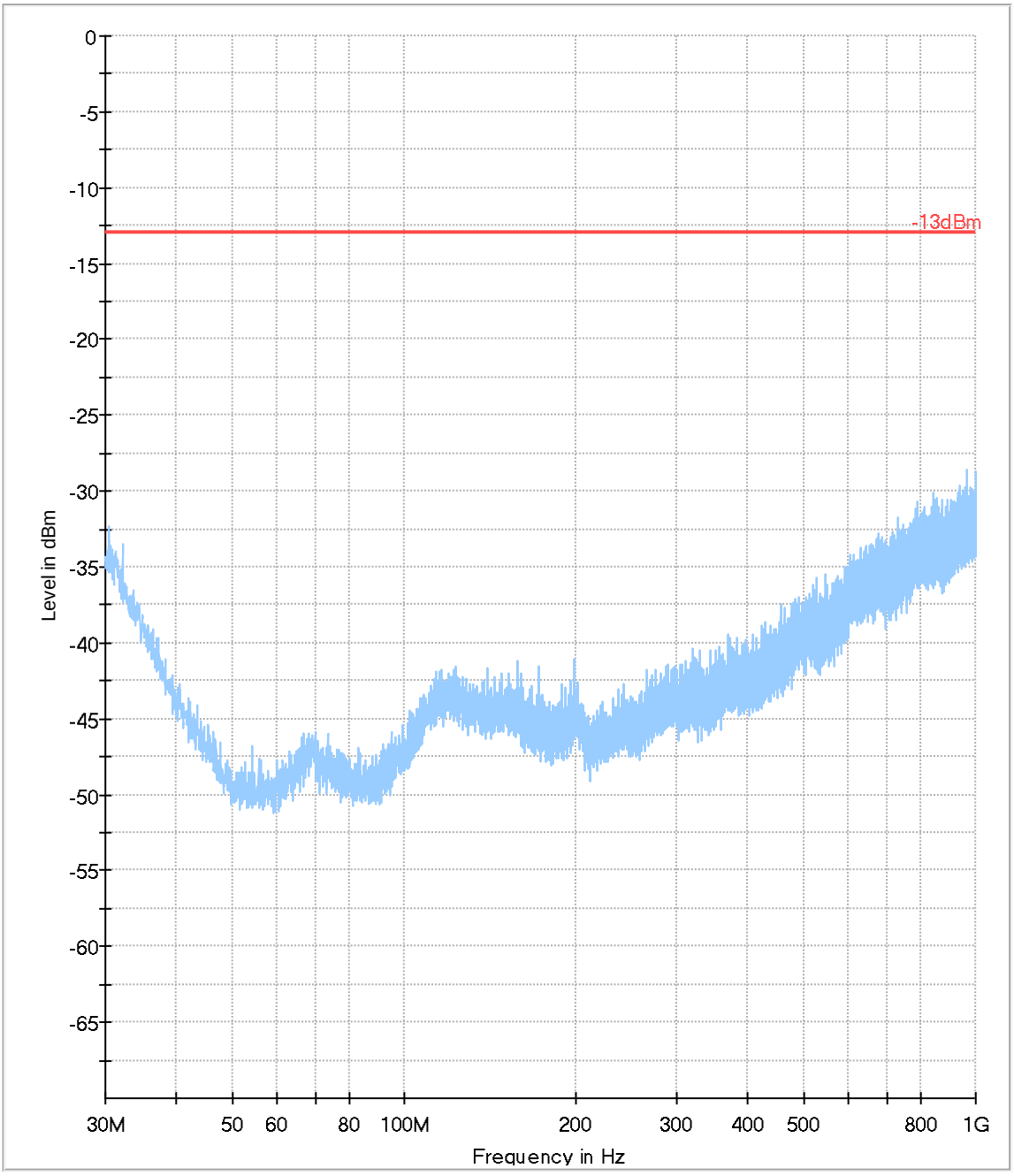
Frequency (MHz)	Comment
4873.821000	11:10:28 AM - 2/26/2019
4873.821000	11:10:28 AM - 2/26/2019
5726.310333	11:08:36 AM - 2/26/2019
5726.310333	11:08:36 AM - 2/26/2019



WCDMA Band IV

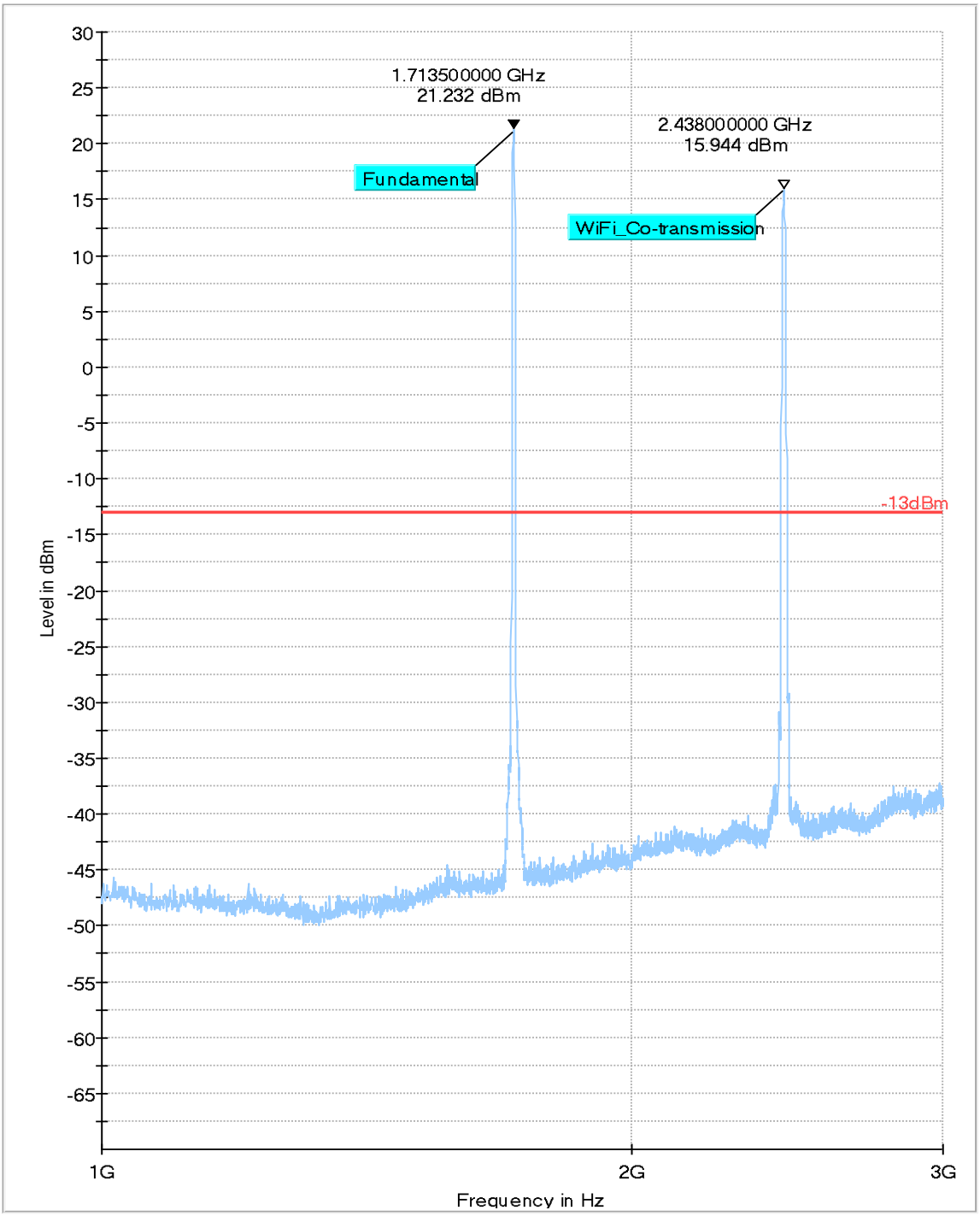
Plot # 12 Radiated Emissions: 30 MHz - 1 GHz

Channel: Low



Plot # 13 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 14 Radiated Emissions: 3 GHz - 18 GHz

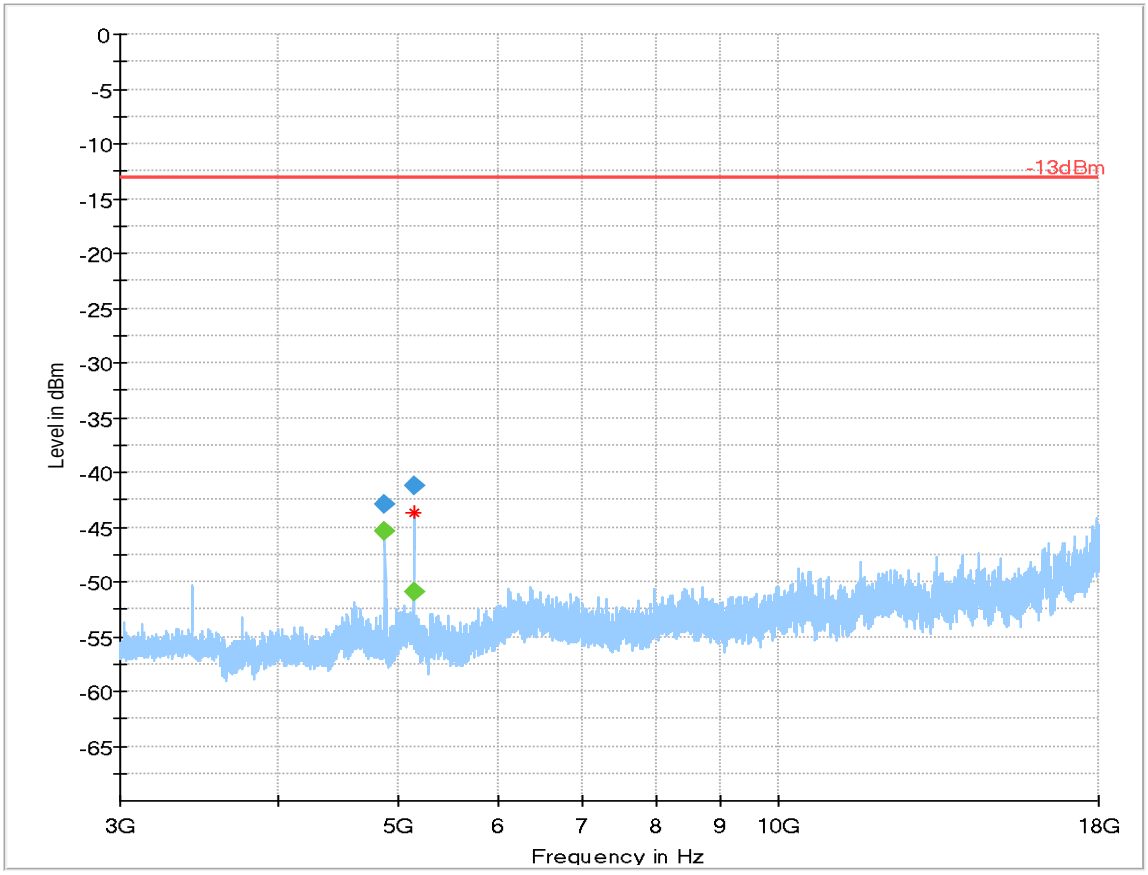
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.954833	---	-45.39	---	---	100.0	1000.000	283.0	H	122.0	-100.5
4873.954833	-42.98	---	-13.00	29.98	100.0	1000.000	283.0	H	122.0	-100.5
5133.791833	---	-50.88	---	---	100.0	1000.000	210.0	H	47.0	-99.2
5133.791833	-41.26	---	-13.00	28.26	100.0	1000.000	210.0	H	47.0	-99.2

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.954833	11:17:22 AM - 2/26/2019
4873.954833	11:17:22 AM - 2/26/2019
5133.791833	11:19:14 AM - 2/26/2019
5133.791833	11:19:14 AM - 2/26/2019



Plot # 15 Radiated Emissions: 9 kHz - 30 MHz

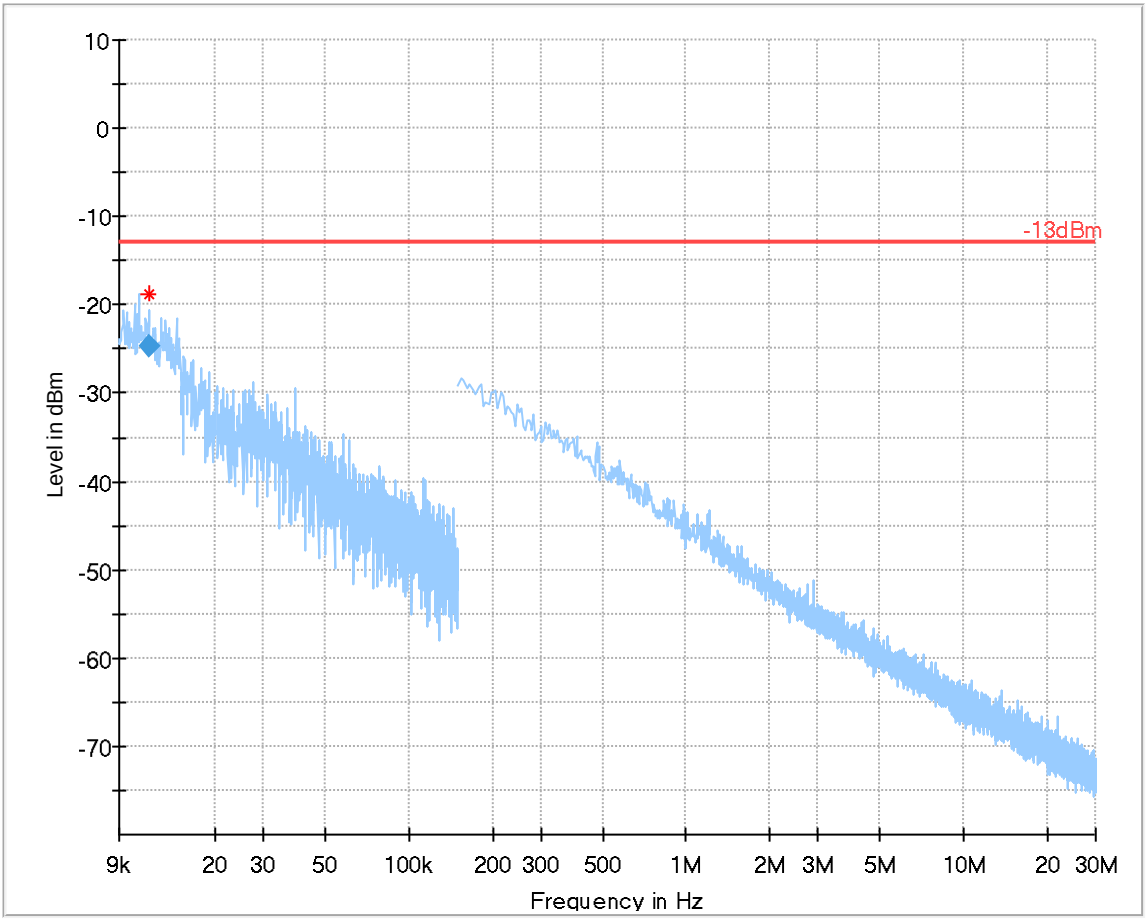
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.011480	-24.76	---	-13.00	11.76	2.0	0.200	249.0	H	41.0

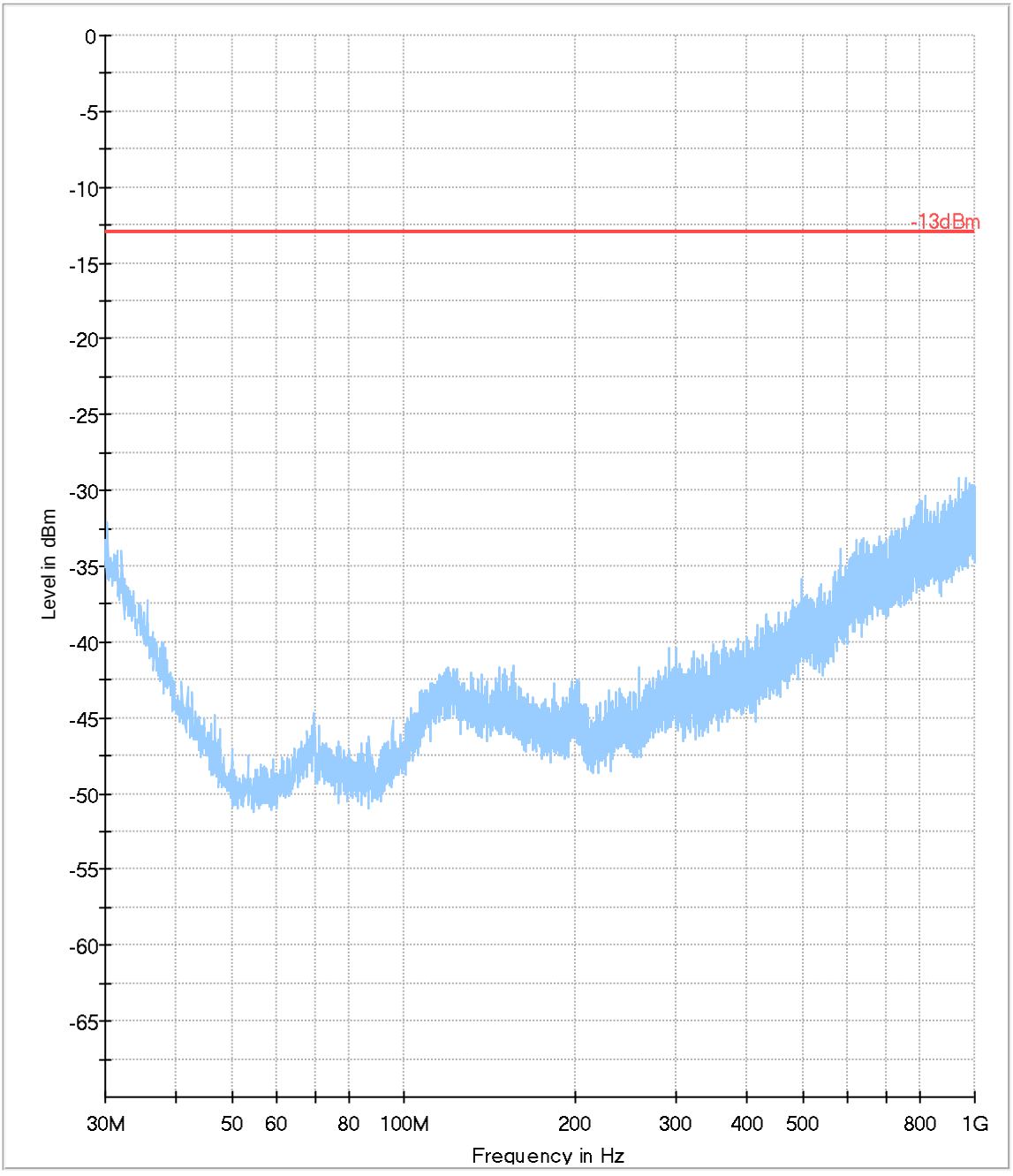
(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Corr. (dB)	Comment
0.011480	-66.0	10:52:52 AM - 2/27/2019



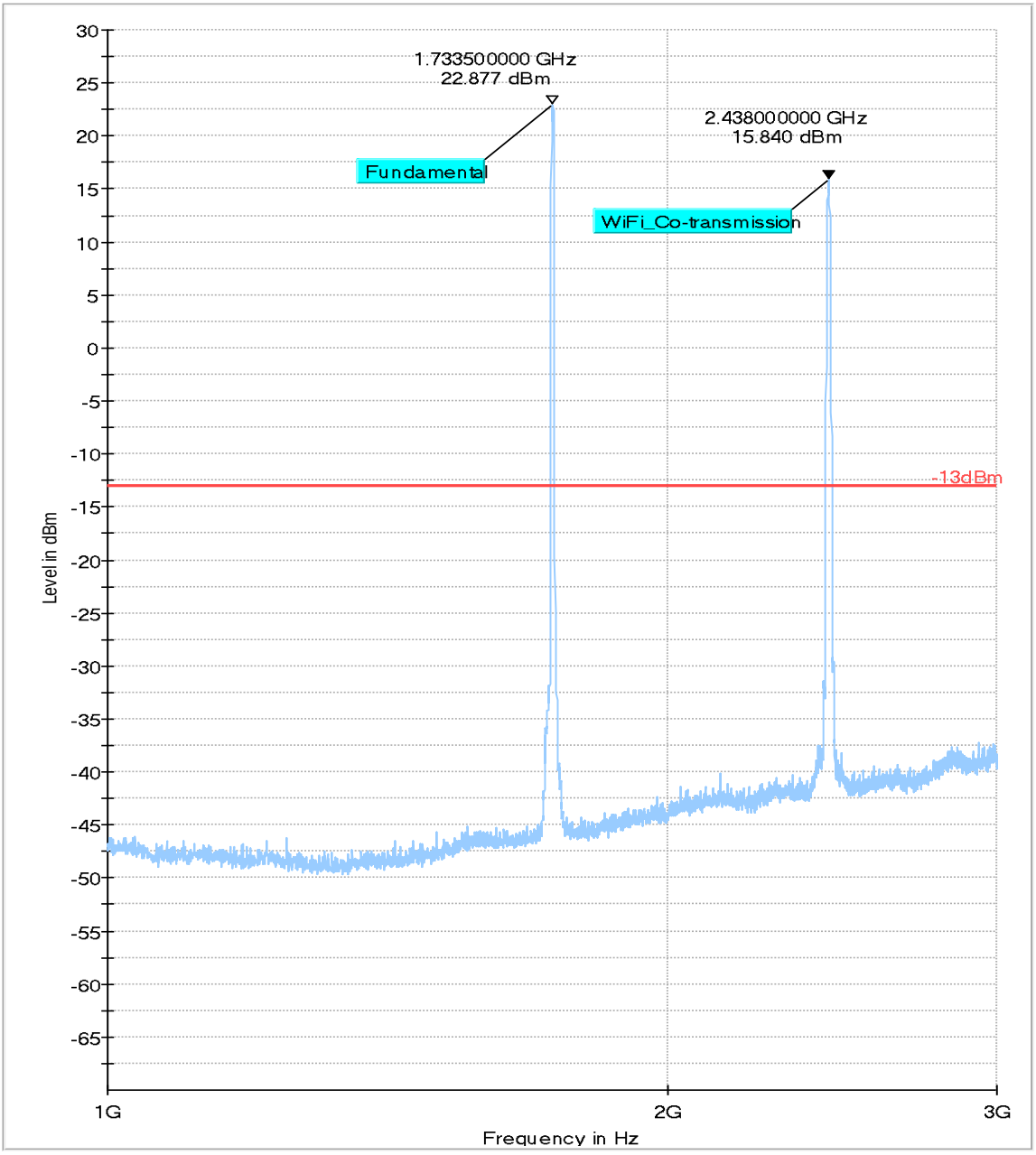
Plot # 16 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Plot #17 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Plot # 18 Radiated Emissions: 3 GHz – 18GHz

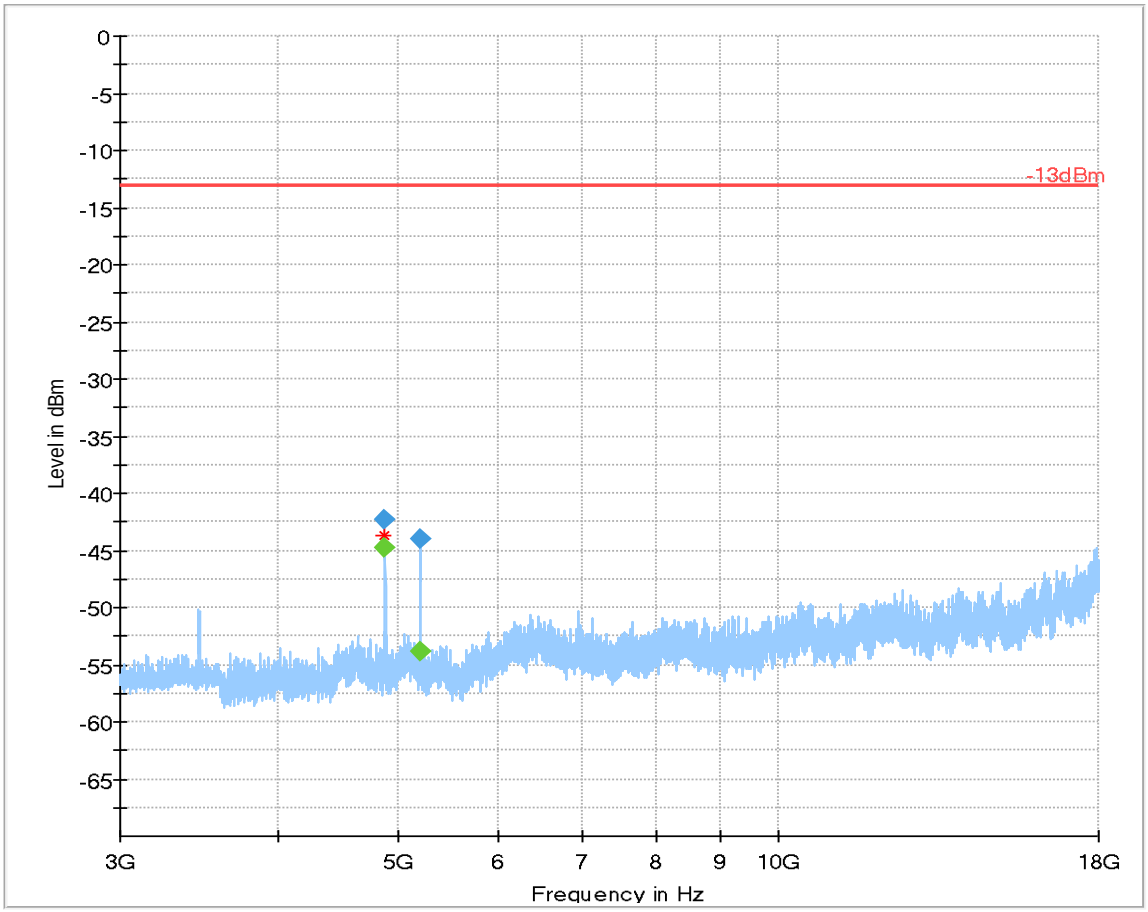
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.032333	-42.36	---	-13.00	29.36	100.0	1000.000	281.0	H	125.0	-100.5
4874.032333	---	-44.77	---	---	100.0	1000.000	281.0	H	125.0	-100.5
5201.401167	-44.07	---	-13.00	31.07	100.0	1000.000	157.0	H	41.0	-99.4
5201.401167	---	-53.89	---	---	100.0	1000.000	157.0	H	41.0	-99.4

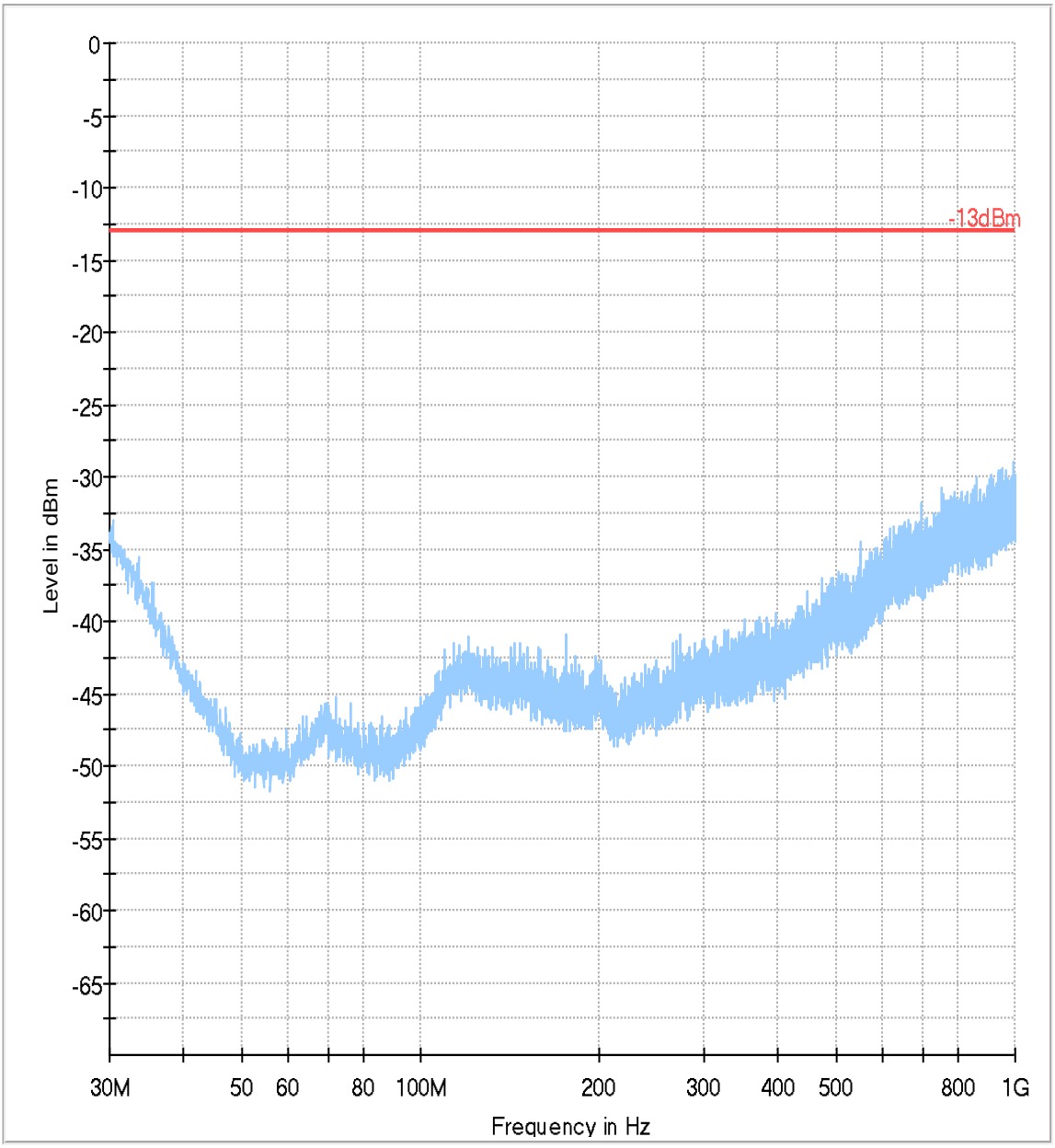
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4874.032333	11:34:43 AM - 2/26/2019
4874.032333	11:34:43 AM - 2/26/2019
5201.401167	11:32:57 AM - 2/26/2019
5201.401167	11:32:58 AM - 2/26/2019



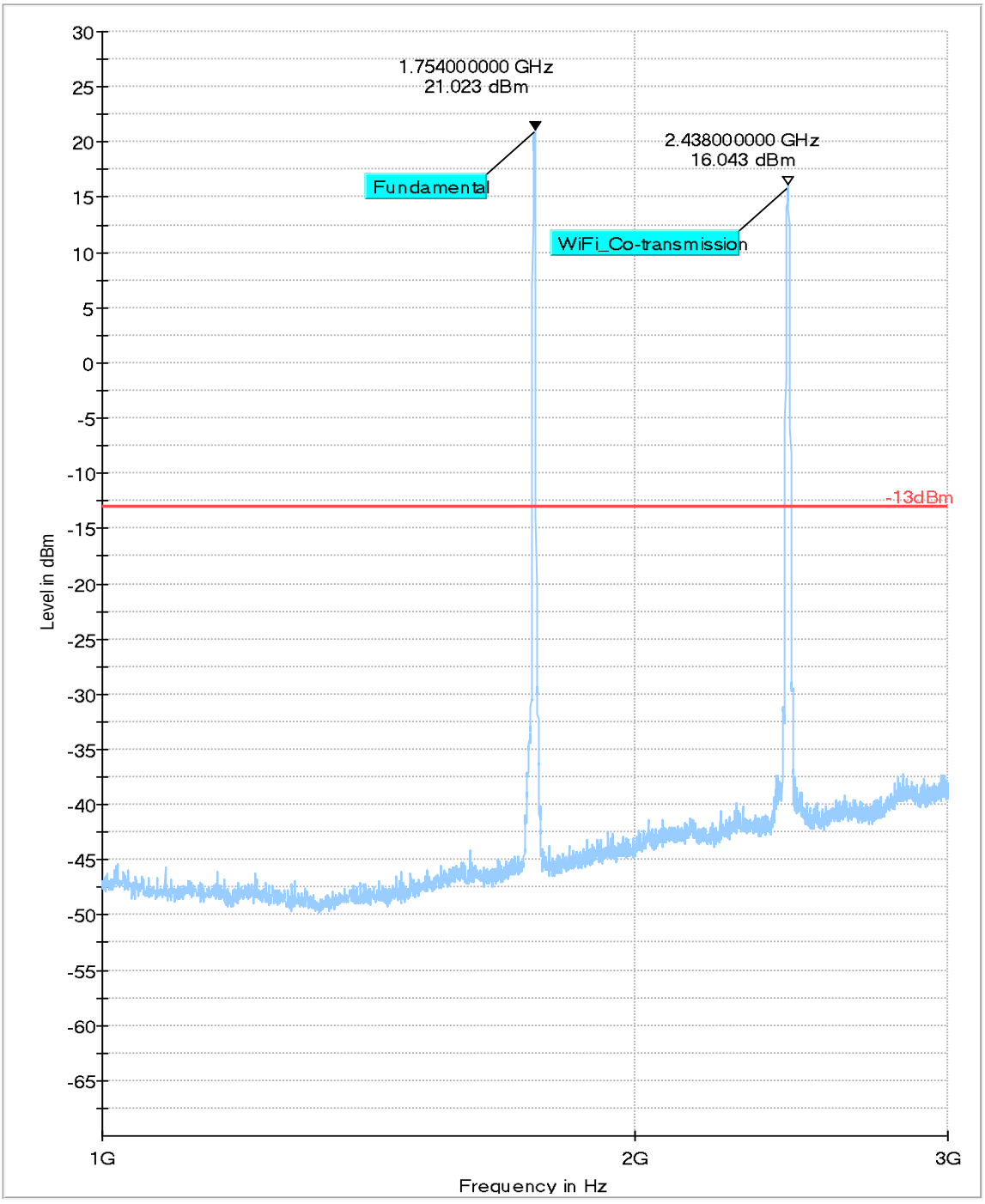
Plot # 19 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 20 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 21 Radiated Emissions: 3 GHz - 18 GHz

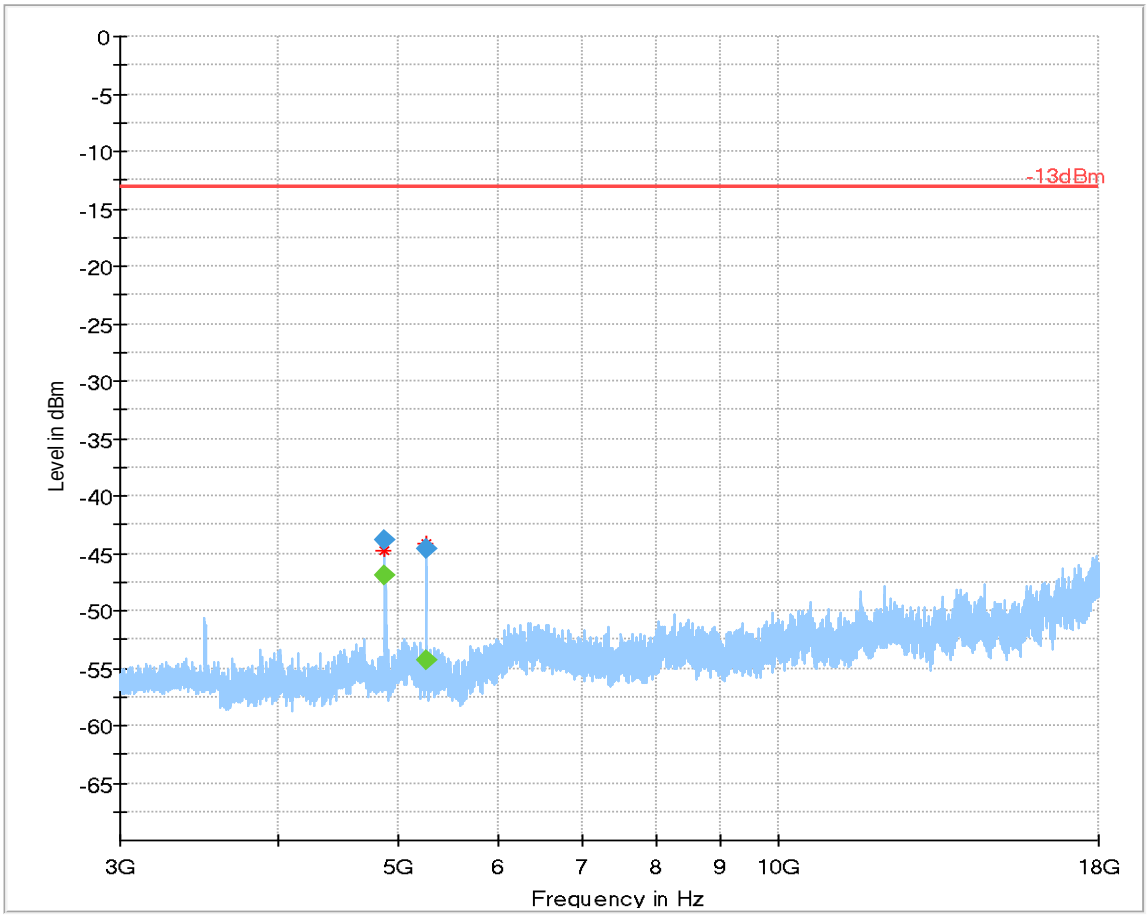
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.767000	-43.82	---	-13.00	30.82	100.0	1000.000	230.0	H	125.0	-100.5
4873.767000	---	-46.99	---	---	100.0	1000.000	230.0	H	125.0	-100.5
5254.274000	-44.57	---	-13.00	31.57	100.0	1000.000	224.0	H	48.0	-99.4
5254.274000	---	-54.32	---	---	100.0	1000.000	224.0	H	48.0	-99.4

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.767000	11:43:51 AM - 2/26/2019
4873.767000	11:43:51 AM - 2/26/2019
5254.274000	11:42:02 AM - 2/26/2019
5254.274000	11:42:02 AM - 2/26/2019



WCDMA Band V

Plot # 22 Radiated Emissions: 30 MHz - 1 GHz

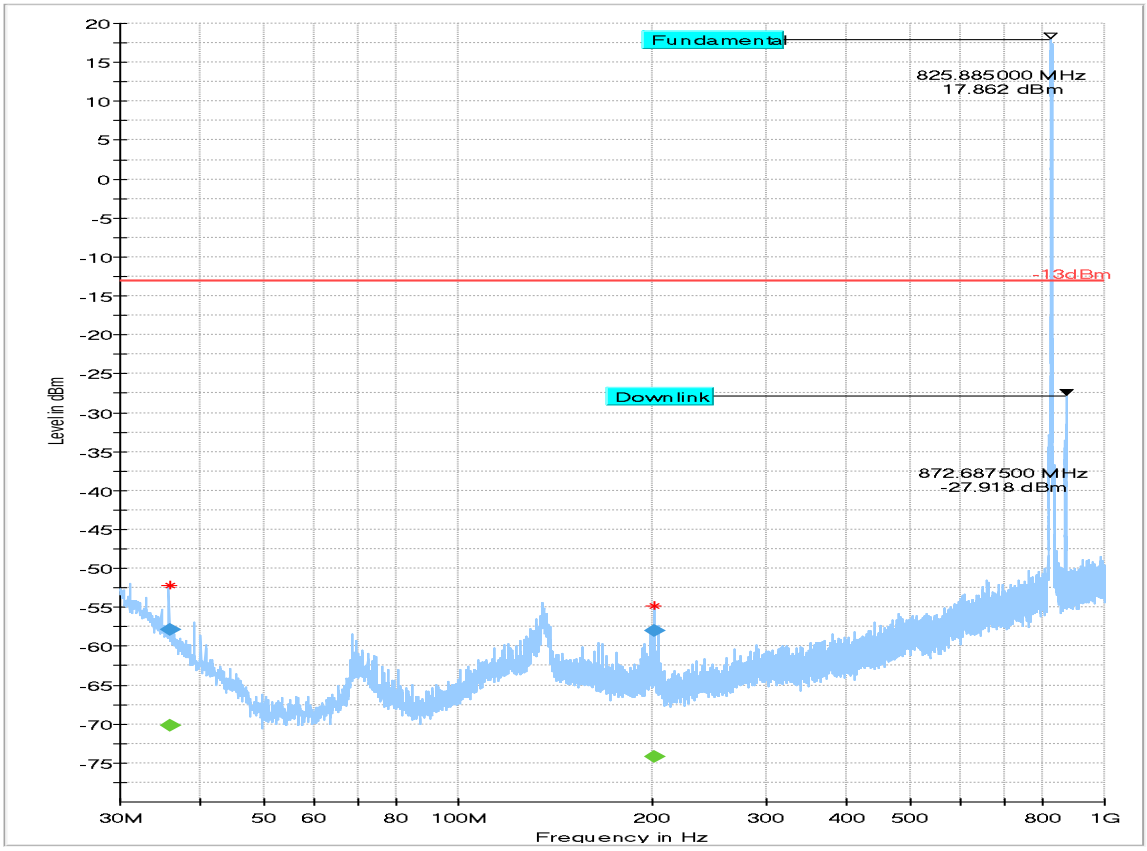
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.756117	---	-70.21	---	---	100.0	100.000	317.0	H	0.0	-71.0
35.756117	-57.83	---	-13.00	44.83	100.0	100.000	317.0	H	0.0	-71.0
201.505200	---	-74.20	---	---	100.0	100.000	152.0	H	257.0	-75.5
201.505200	-57.99	---	-13.00	44.99	100.0	100.000	152.0	H	257.0	-75.5

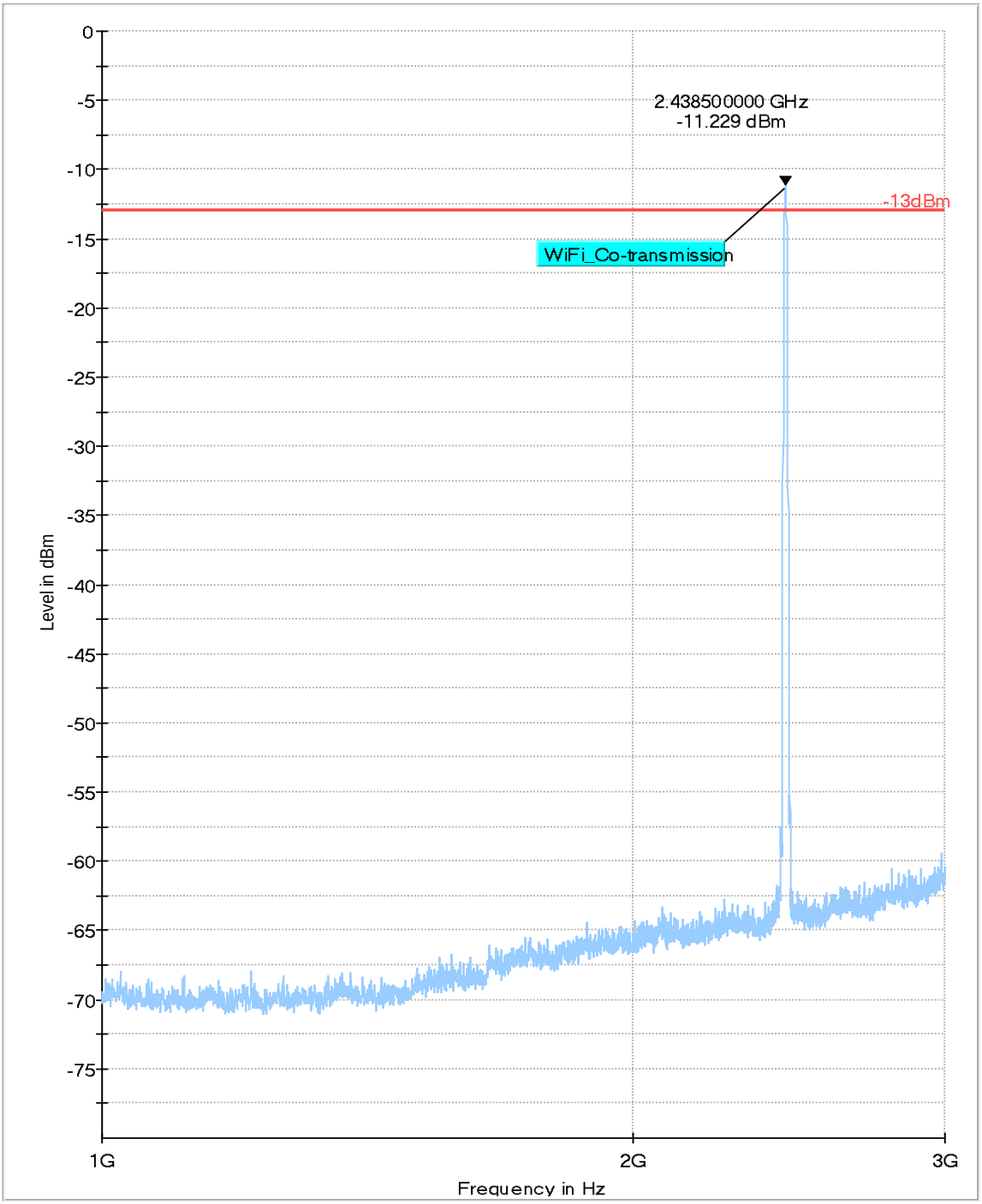
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
35.756117	5:52:32 PM - 2/26/2019
35.756117	5:52:32 PM - 2/26/2019
201.505200	5:54:52 PM - 2/26/2019
201.505200	5:54:51 PM - 2/26/2019



Plot # 23 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 24 Radiated Emissions: 3 GHz - 9 GHz

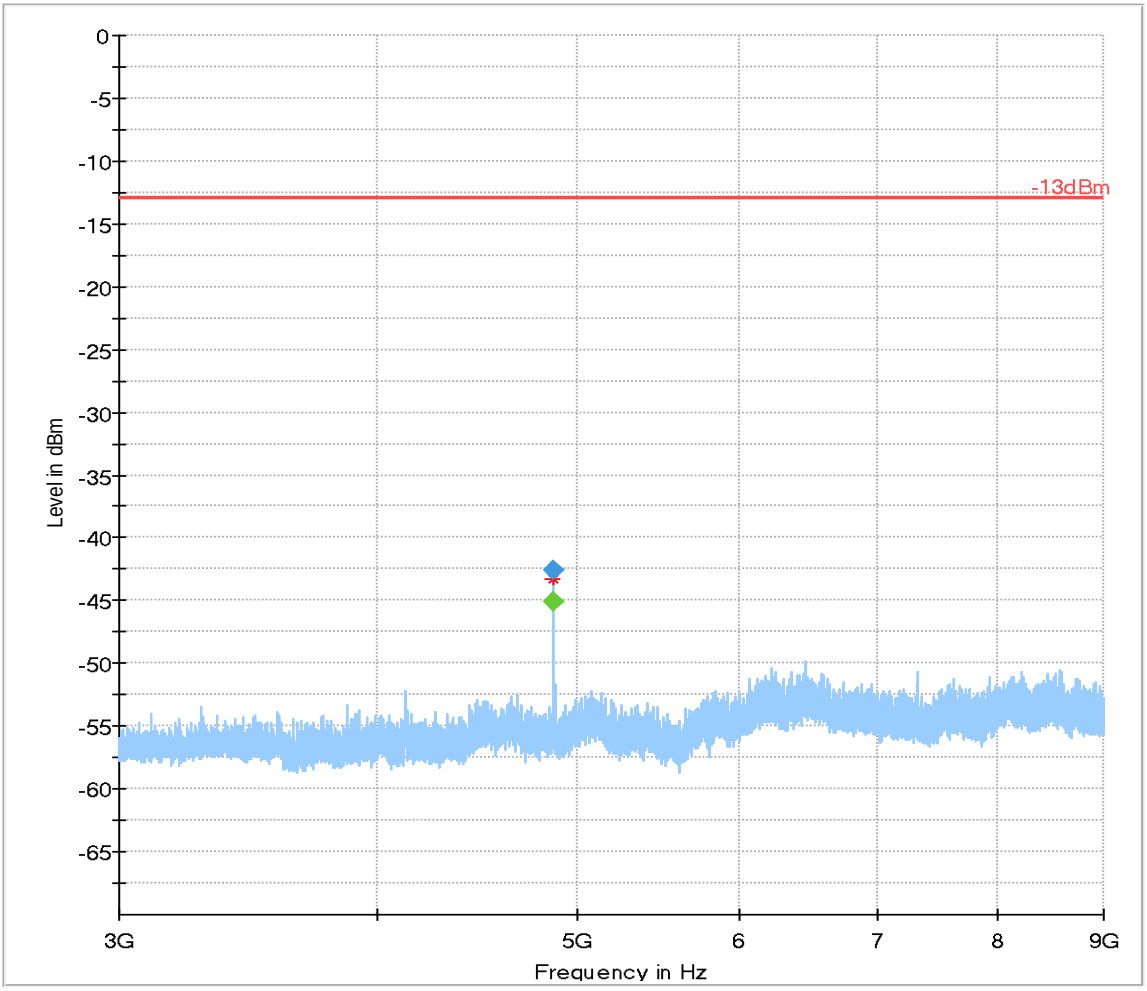
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.908833	---	-45.07	---	---	100.0	1000.000	228.0	H	123.0	-100.5
4873.908833	-42.63	---	-13.00	29.63	100.0	1000.000	228.0	H	123.0	-100.5

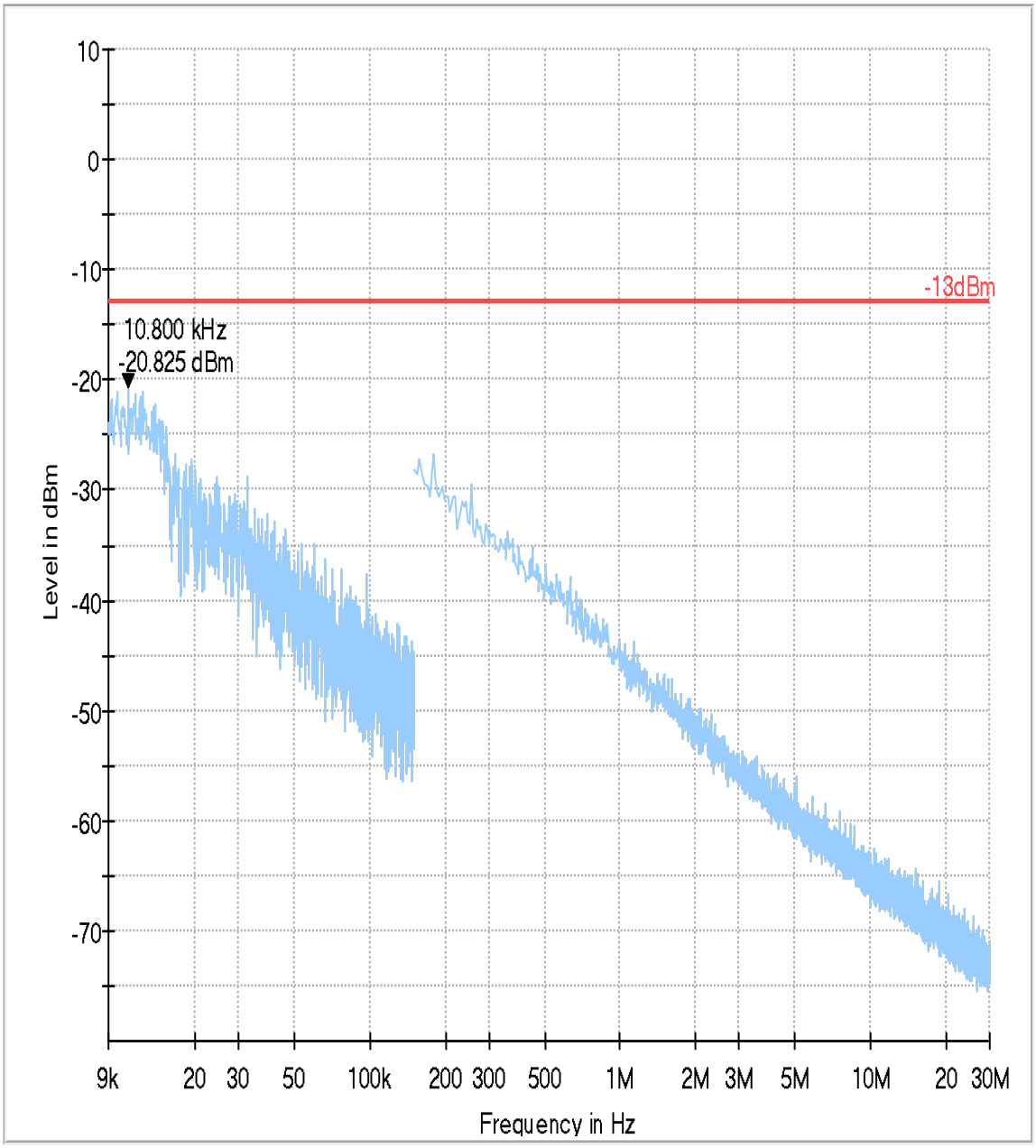
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.908833	11:50:18 AM - 2/26/2019
4873.908833	11:50:18 AM - 2/26/2019



Plot # 25 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



Plot # 26 Radiated Emissions: 30 MHz – 1 GHz

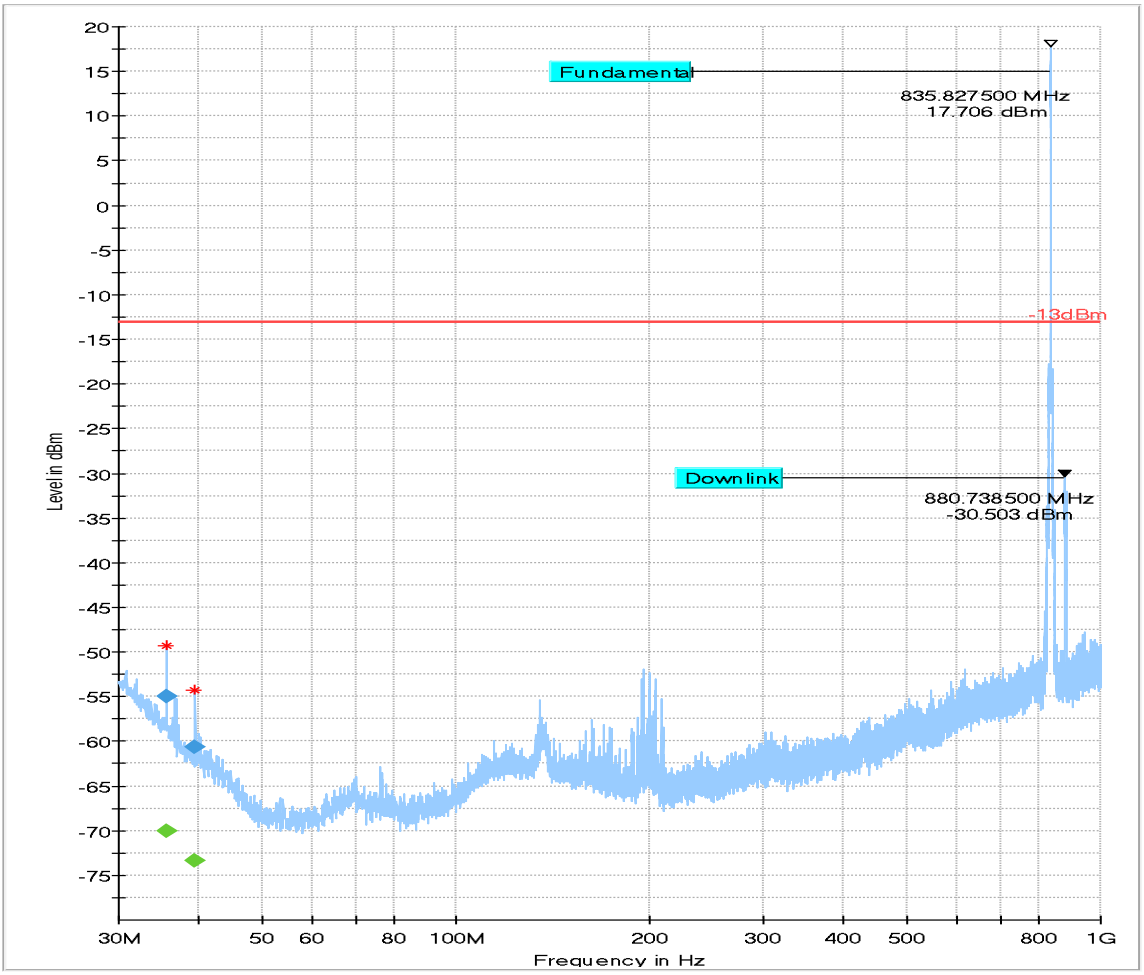
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.617643	-54.93	---	-13.00	41.93	100.0	100.000	320.0	H	311.0	-70.9
35.617643	---	-70.09	---	---	100.0	100.000	320.0	H	311.0	-70.9
39.418033	-60.58	---	-13.00	47.58	100.0	100.000	210.0	H	-23.0	-74.5
39.418033	---	-73.30	---	---	100.0	100.000	210.0	H	-23.0	-74.5

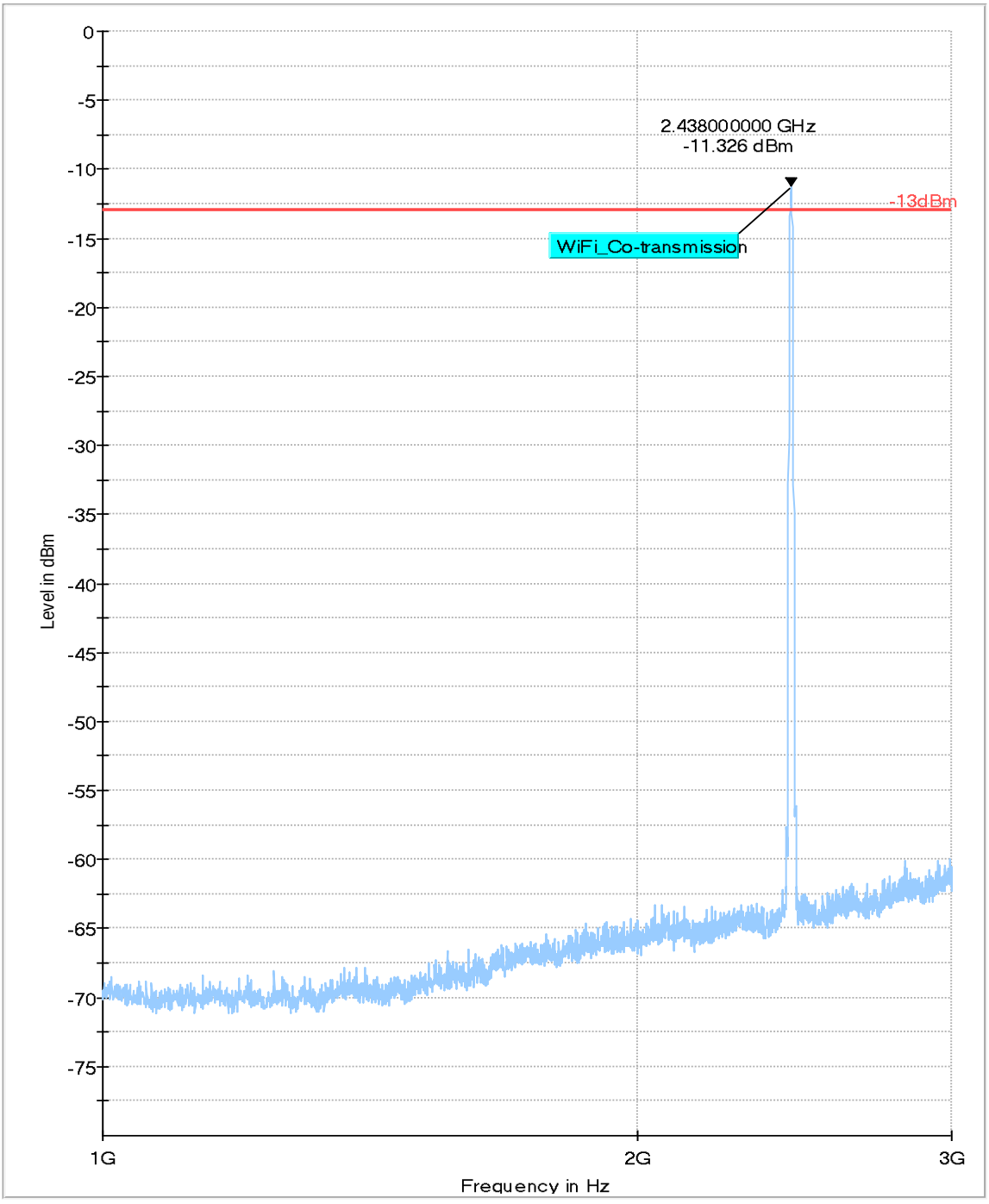
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
35.617643	5:43:58 PM - 2/26/2019
35.617643	5:43:58 PM - 2/26/2019
39.418033	5:41:49 PM - 2/26/2019
39.418033	5:41:49 PM - 2/26/2019



Plot # 27 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Plot # 28 Radiated Emissions: 3 GHz – 9GHz

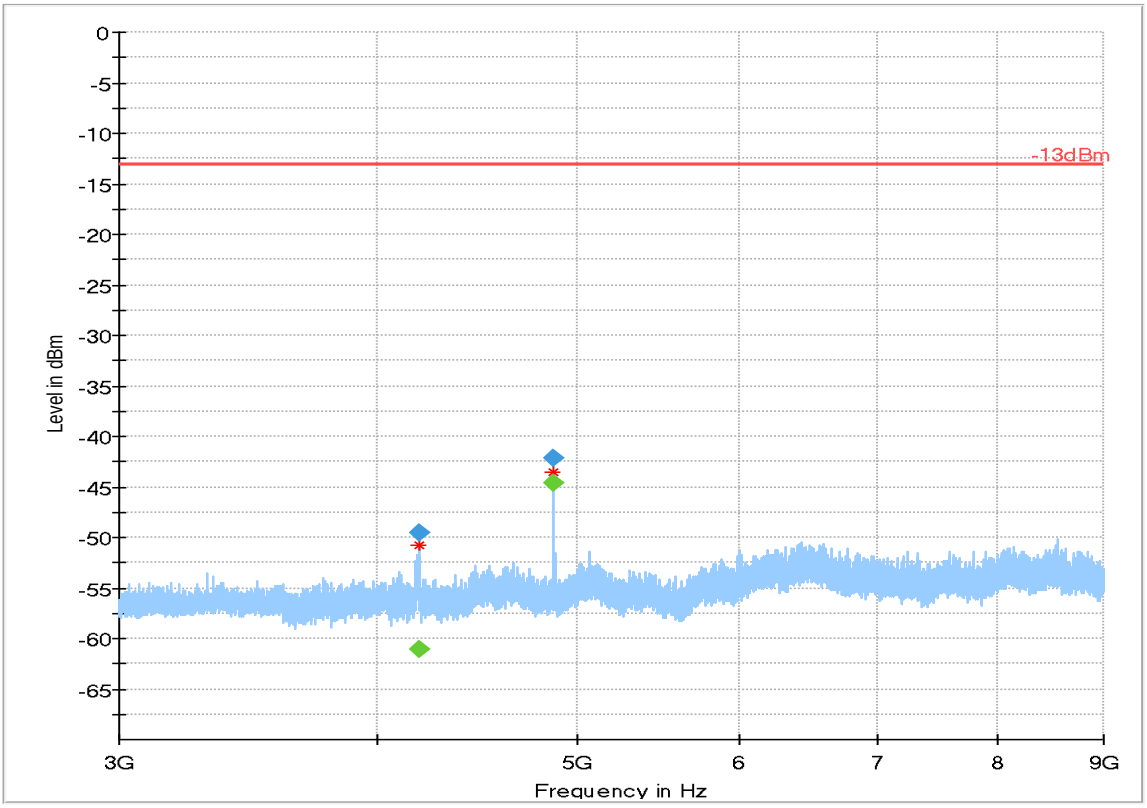
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4189.295000	---	-61.11	---	---	100.0	1000.000	266.0	H	59.0	-100.6
4189.295000	-49.52	---	-13.00	36.52	100.0	1000.000	266.0	H	59.0	-100.6
4874.023333	---	-44.60	---	---	100.0	1000.000	281.0	H	125.0	-100.5
4874.023333	-42.19	---	-13.00	29.19	100.0	1000.000	281.0	H	125.0	-100.5

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4189.295000	11:57:23 AM - 2/26/2019
4189.295000	11:57:23 AM - 2/26/2019
4874.023333	11:59:11 AM - 2/26/2019
4874.023333	11:59:11 AM - 2/26/2019



Plot # 29 Radiated Emissions: 30 MHz - 1 GHz

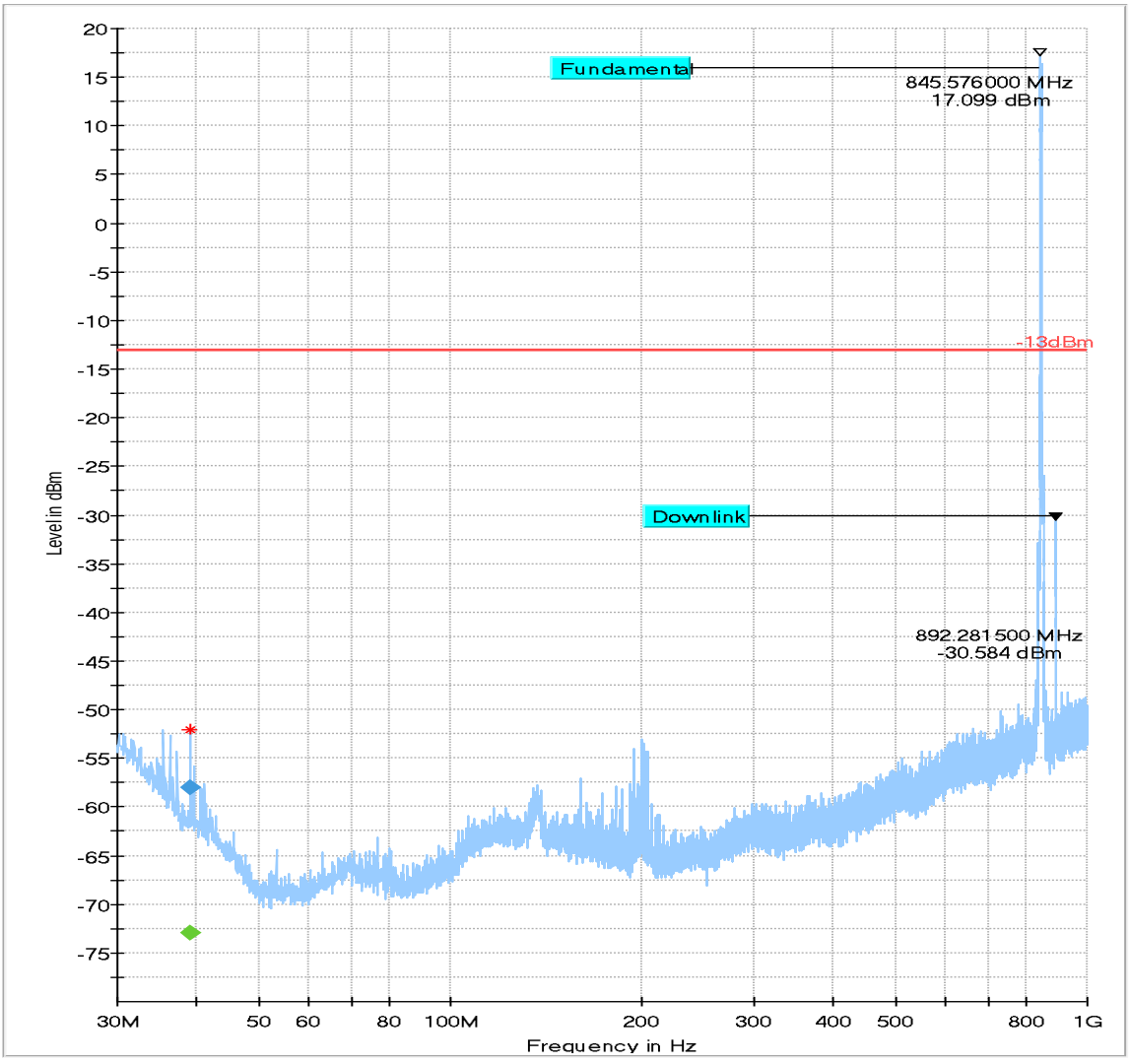
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.153267	---	-72.98	---	---	100.0	100.000	194.0	H	275.0	-74.2
39.153267	-58.01	---	-13.00	45.01	100.0	100.000	194.0	H	275.0	-74.2

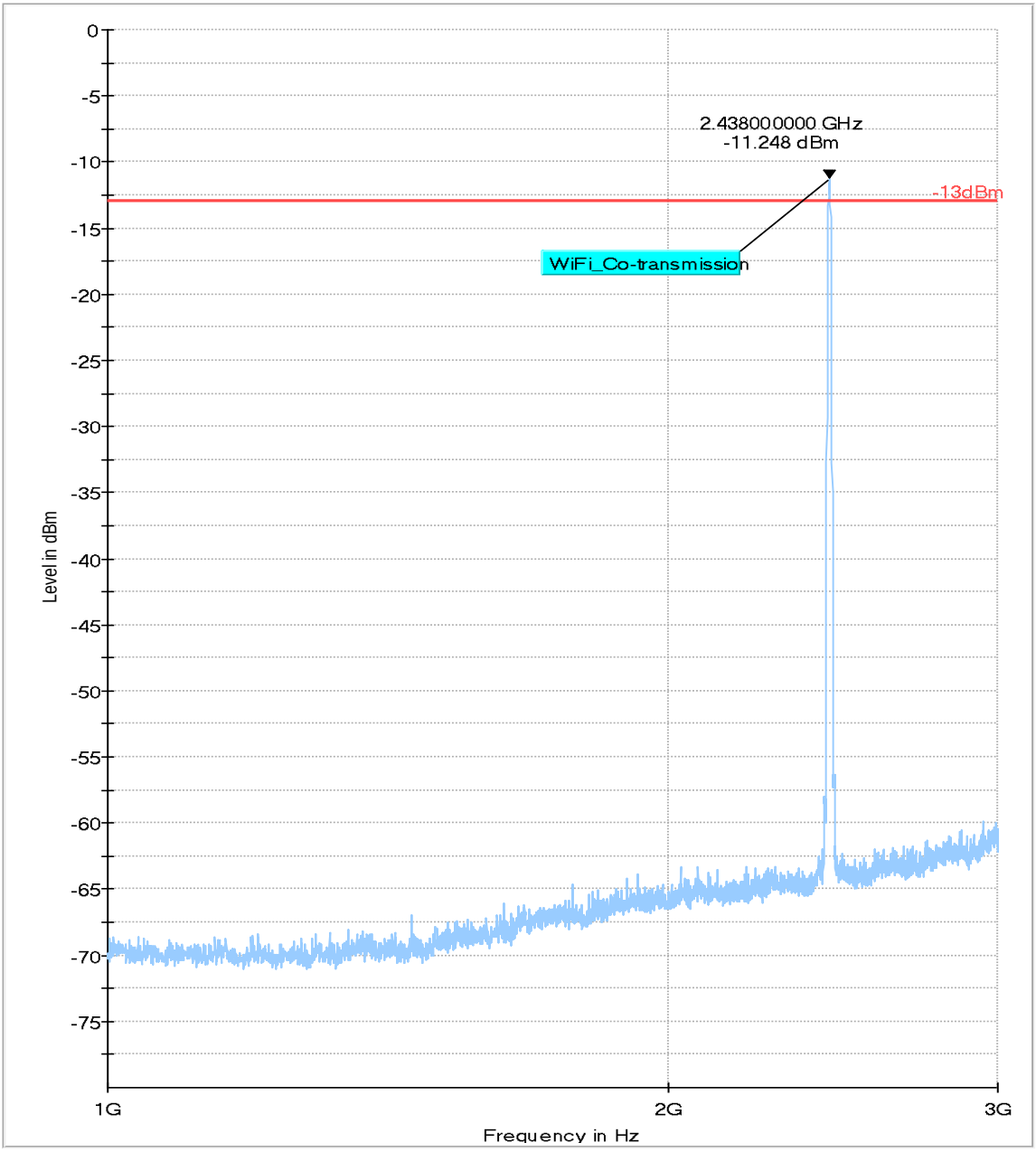
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
39.153267	5:33:26 PM - 2/26/2019
39.153267	5:33:26 PM - 2/26/2019



Plot # 30 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 31 Radiated Emissions: 3 GHz - 9 GHz

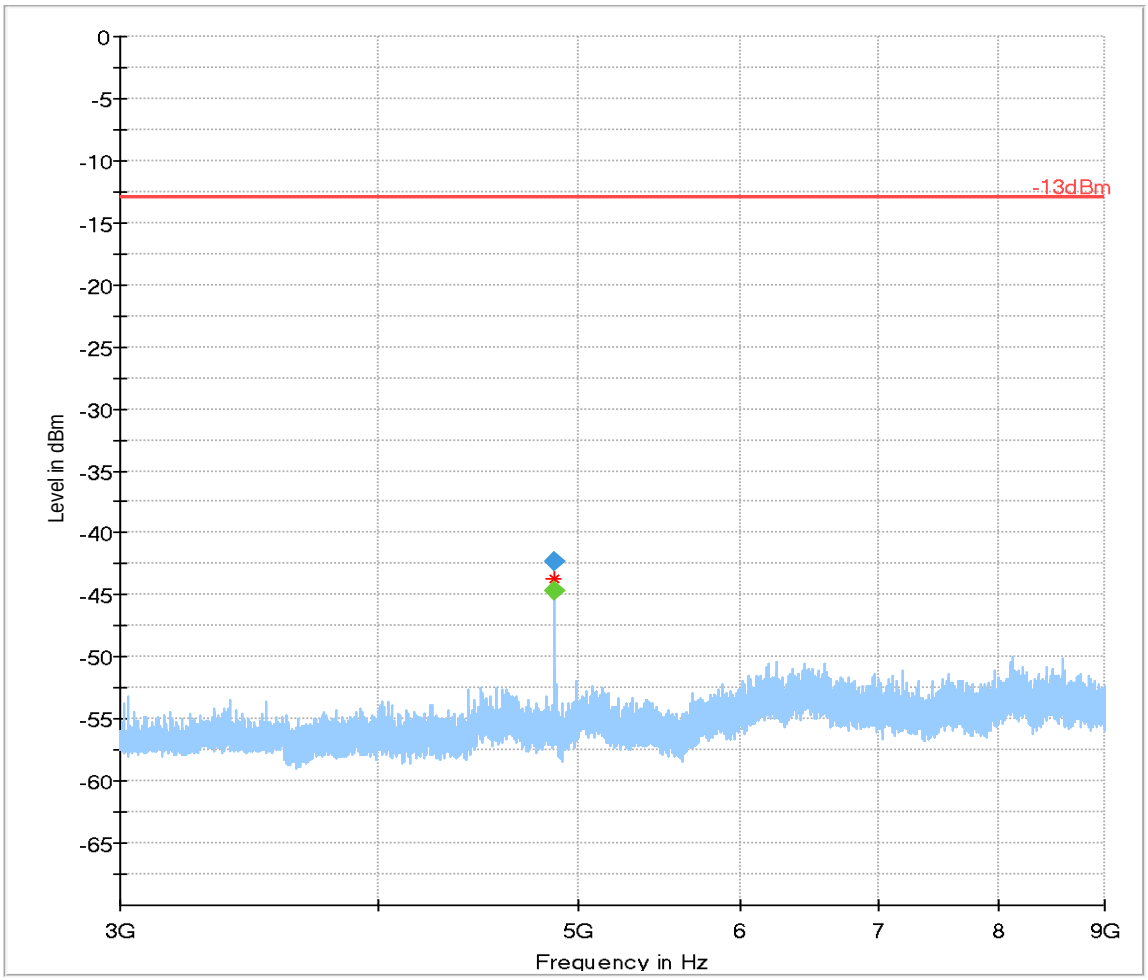
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.982500	---	-44.65	---	---	100.0	1000.000	230.0	H	125.0	-100.5
4873.982500	-42.32	---	-13.00	29.32	100.0	1000.000	230.0	H	125.0	-100.5

(continuation of the "Final_Result" table from column 16 ...)

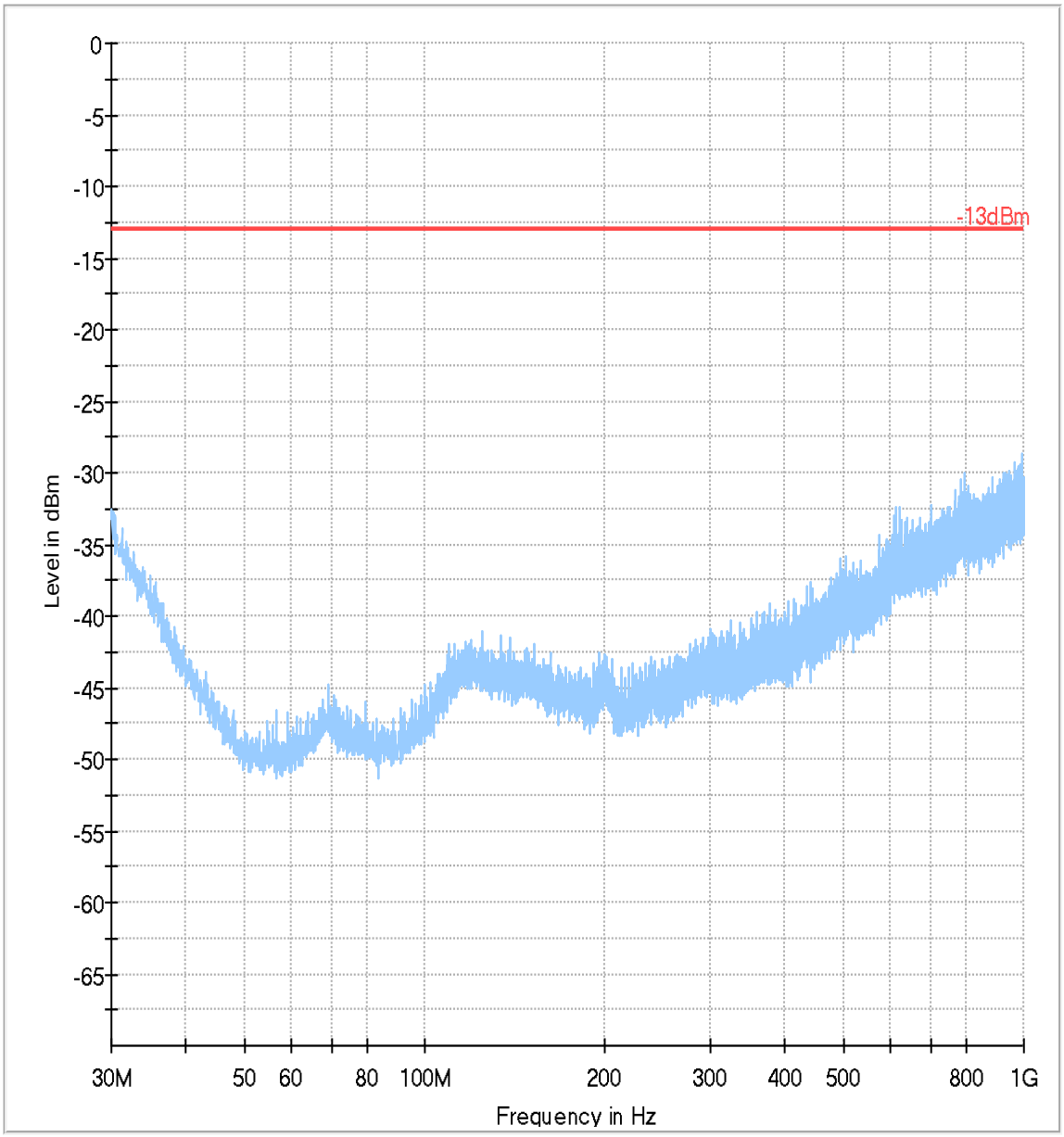
Frequency (MHz)	Comment
4873.982500	12:05:15 PM - 2/26/2019
4873.982500	12:05:15 PM - 2/26/2019



LTE Band 2

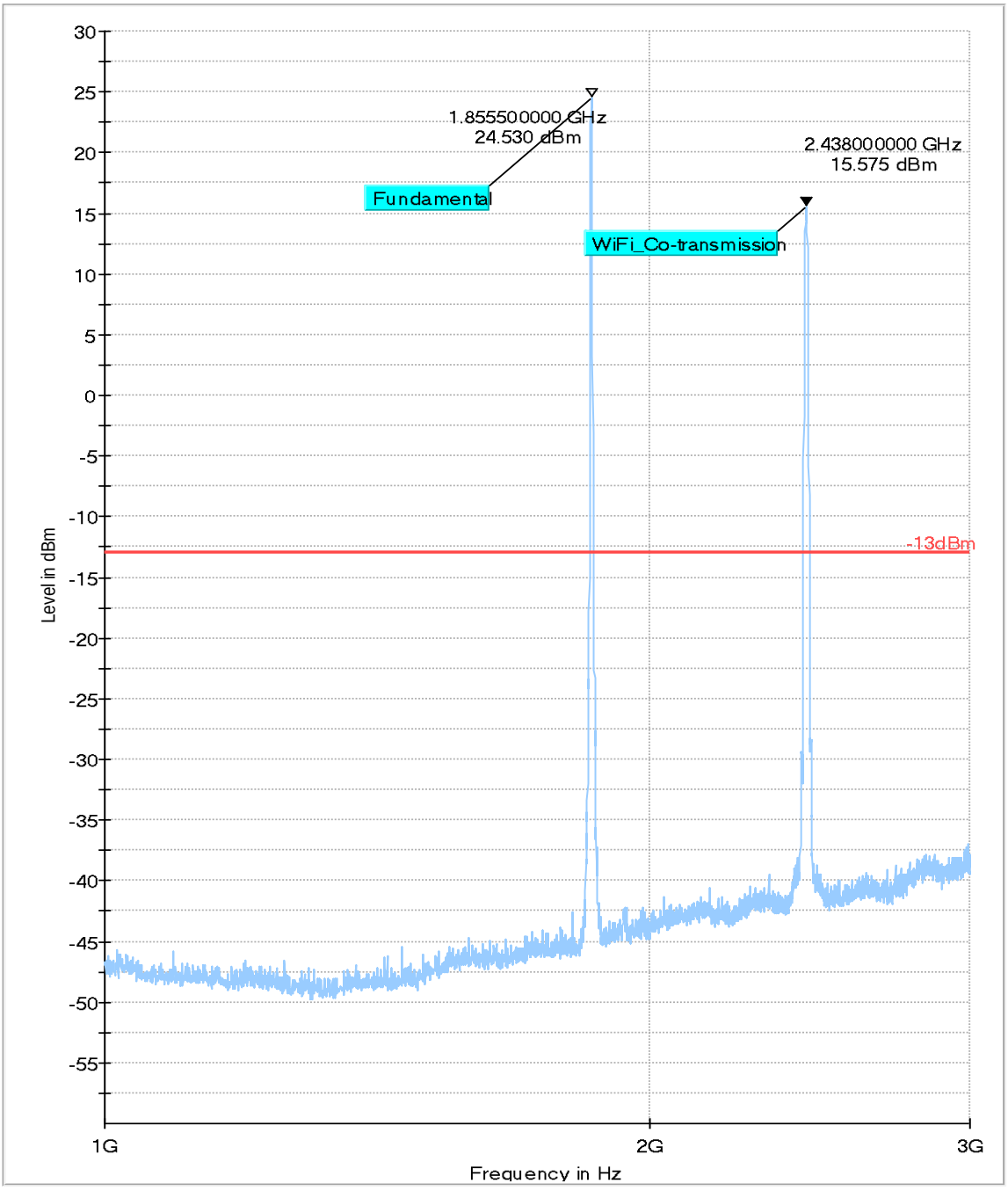
Plot # 32 Radiated Emissions: 30 MHz - 1 GHz

Channel: Low



Plot # 33 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 34 Radiated Emissions: 3 GHz - 18 GHz

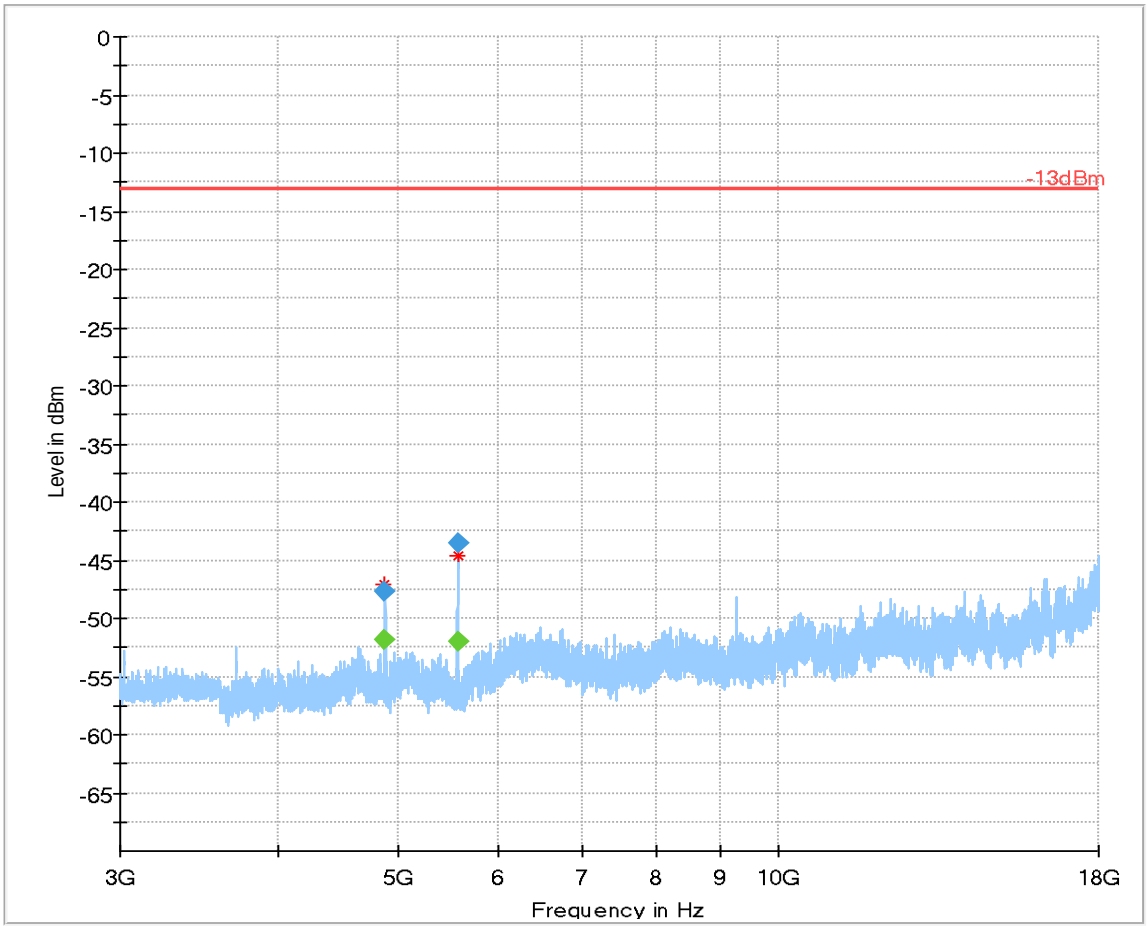
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.123500	---	-51.83	---	---	100.0	1000.000	266.0	H	127.0	-100.5
4874.123500	-47.70	---	-13.00	34.70	100.0	1000.000	266.0	H	127.0	-100.5
5565.134167	---	-52.02	---	---	100.0	1000.000	140.0	H	212.0	-99.7
5565.134167	-43.55	---	-13.00	30.55	100.0	1000.000	140.0	H	212.0	-99.7

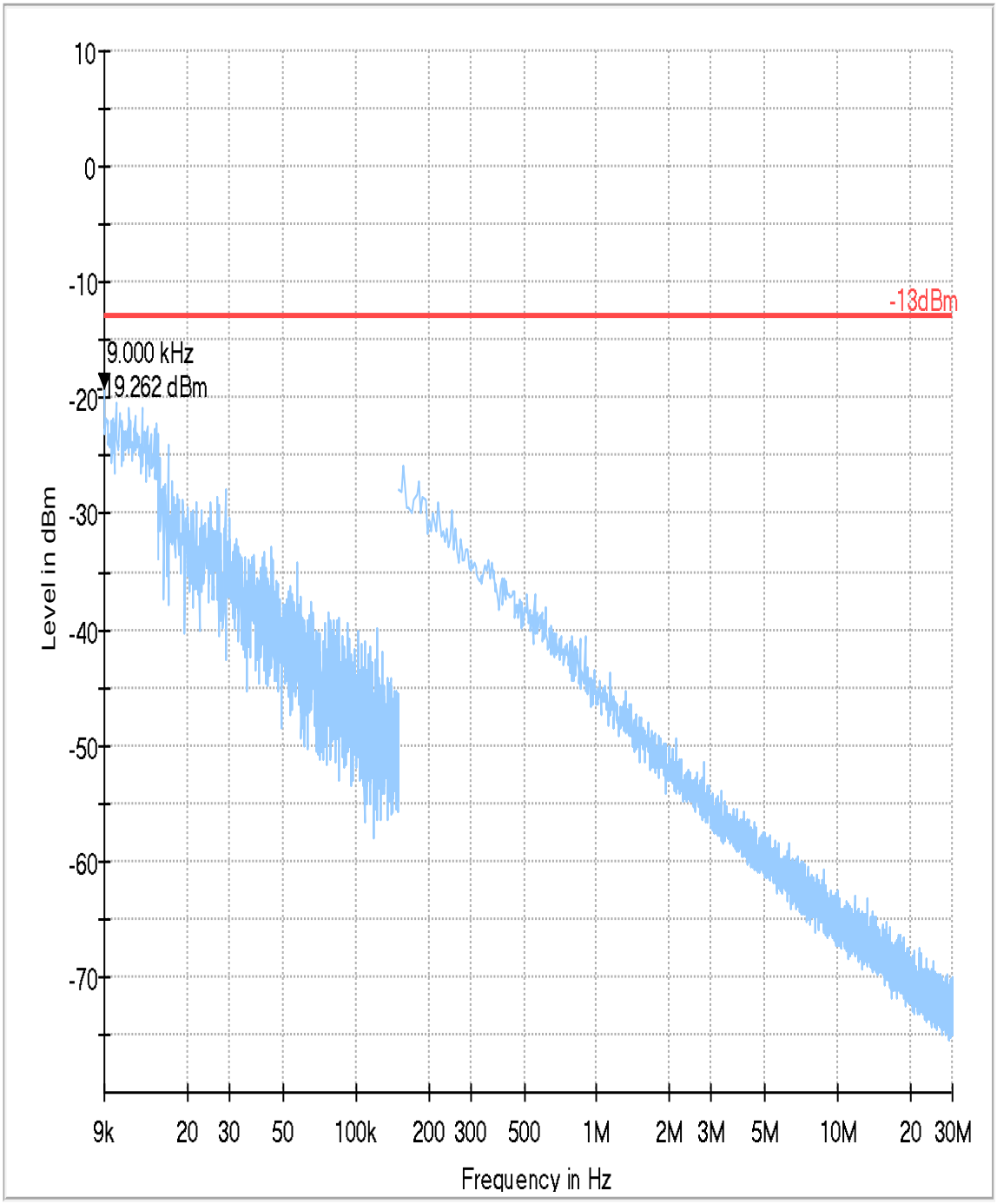
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4874.123500	12:41:33 PM - 2/26/2019
4874.123500	12:41:33 PM - 2/26/2019
5565.134167	12:43:28 PM - 2/26/2019
5565.134167	12:43:28 PM - 2/26/2019



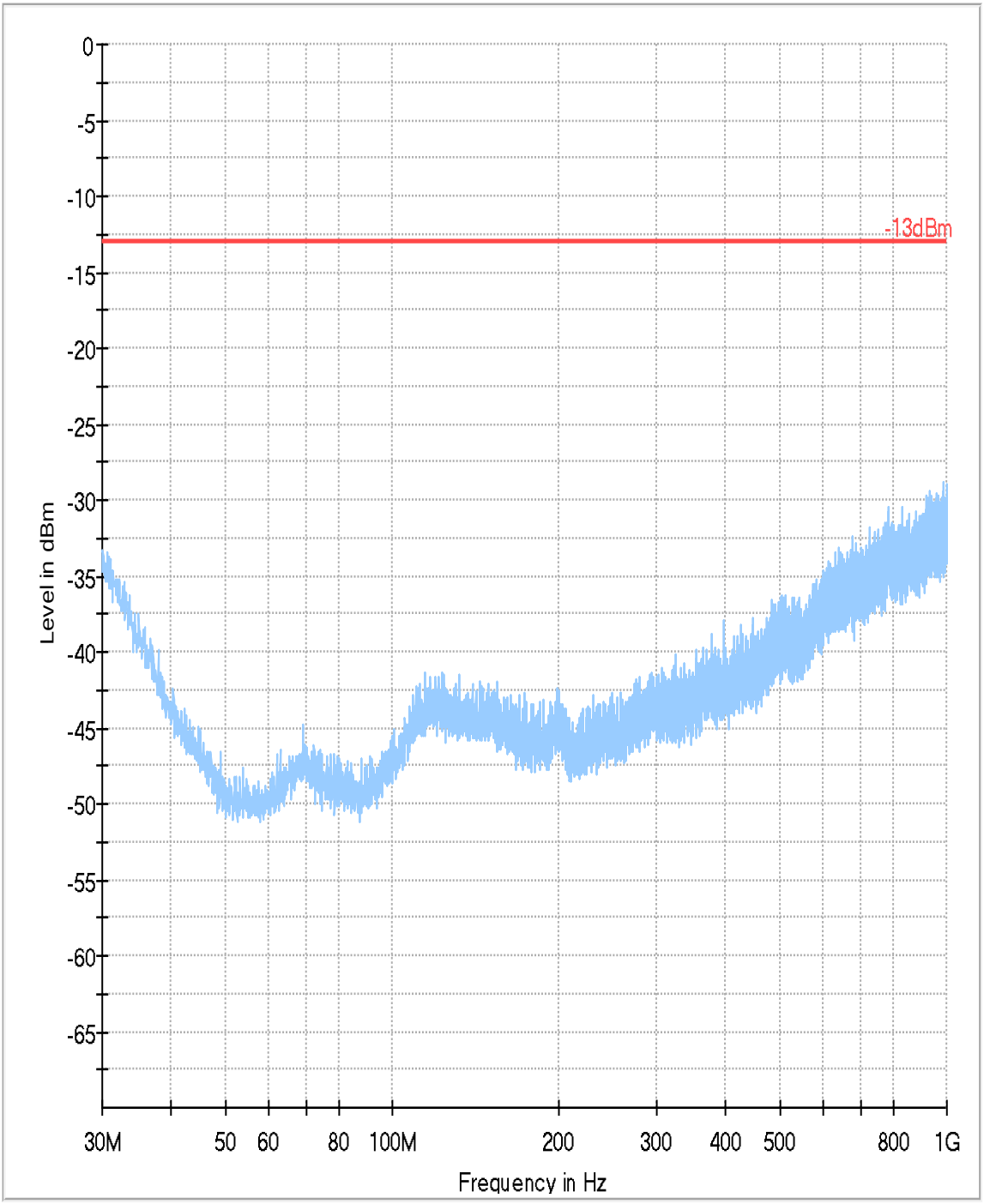
Plot # 35 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



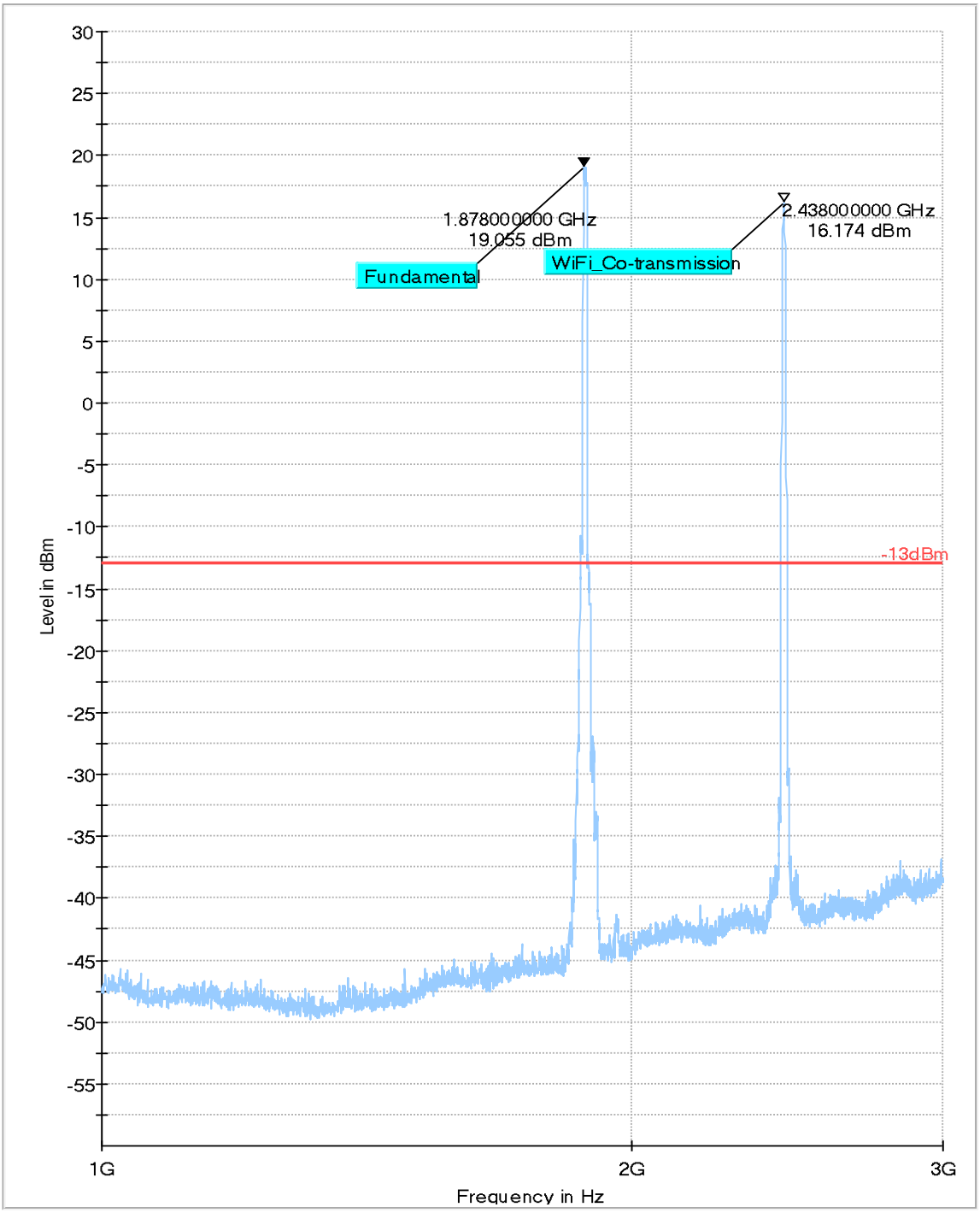
Plot # 36 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid



Plot # 37 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Plot # 38 Radiated Emissions: 3 GHz – 18 GHz

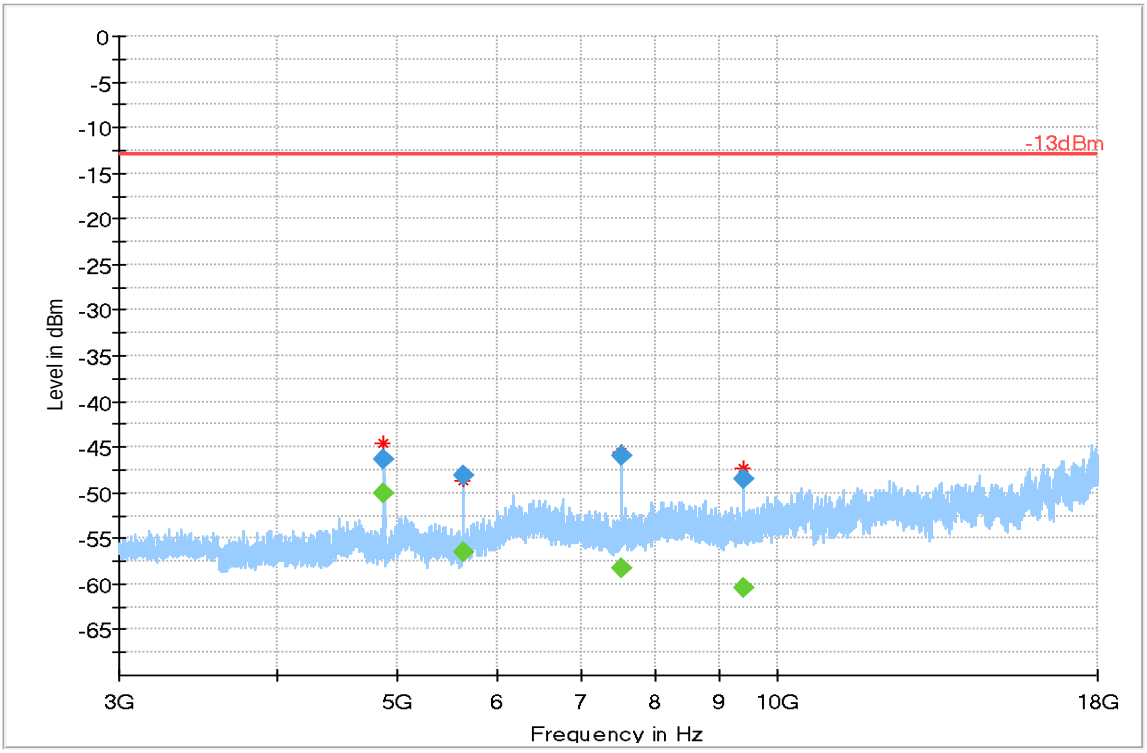
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.364500	---	-50.04	---	---	100.0	1000.000	225.0	H	122.0	-100.5
4874.364500	-46.43	---	-13.00	33.43	100.0	1000.000	225.0	H	122.0	-100.5
5639.871000	---	-56.46	---	---	100.0	1000.000	140.0	H	152.0	-99.6
5639.871000	-48.02	---	-13.00	35.02	100.0	1000.000	140.0	H	152.0	-99.6
7522.530167	---	-58.26	---	---	100.0	1000.000	182.0	V	189.0	-95.1
7522.530167	-45.89	---	-13.00	32.89	100.0	1000.000	182.0	V	189.0	-95.1
9399.871667	---	-60.35	---	---	100.0	1000.000	189.0	H	122.0	-93.2
9399.871667	-48.47	---	-13.00	35.47	100.0	1000.000	189.0	H	122.0	-93.2

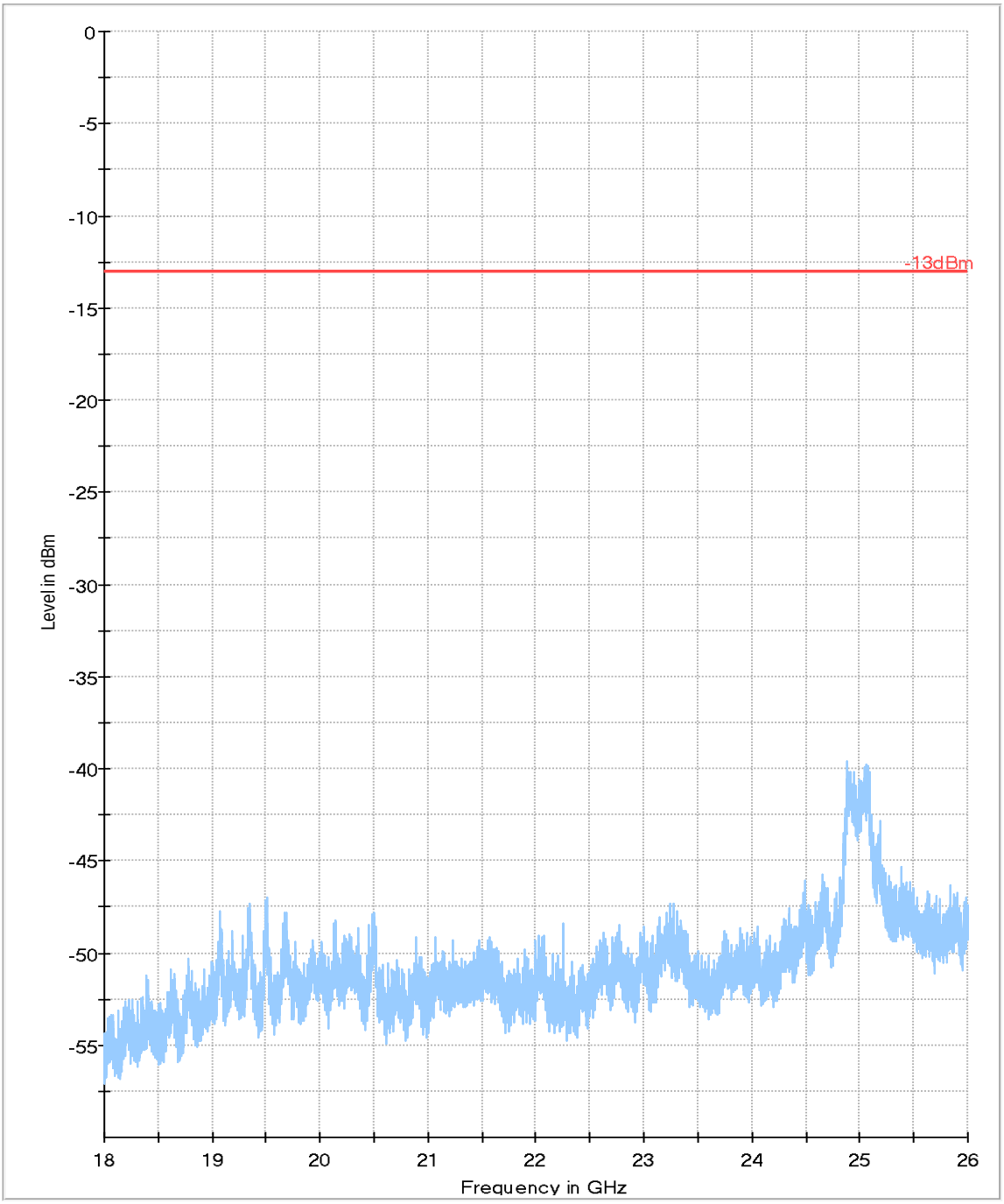
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4874.364500	12:26:01 PM - 2/26/2019
4874.364500	12:26:01 PM - 2/26/2019
5639.871000	12:28:01 PM - 2/26/2019
5639.871000	12:28:01 PM - 2/26/2019
7522.530167	12:29:51 PM - 2/26/2019
7522.530167	12:29:51 PM - 2/26/2019
9399.871667	12:31:46 PM - 2/26/2019
9399.871667	12:31:46 PM - 2/26/2019



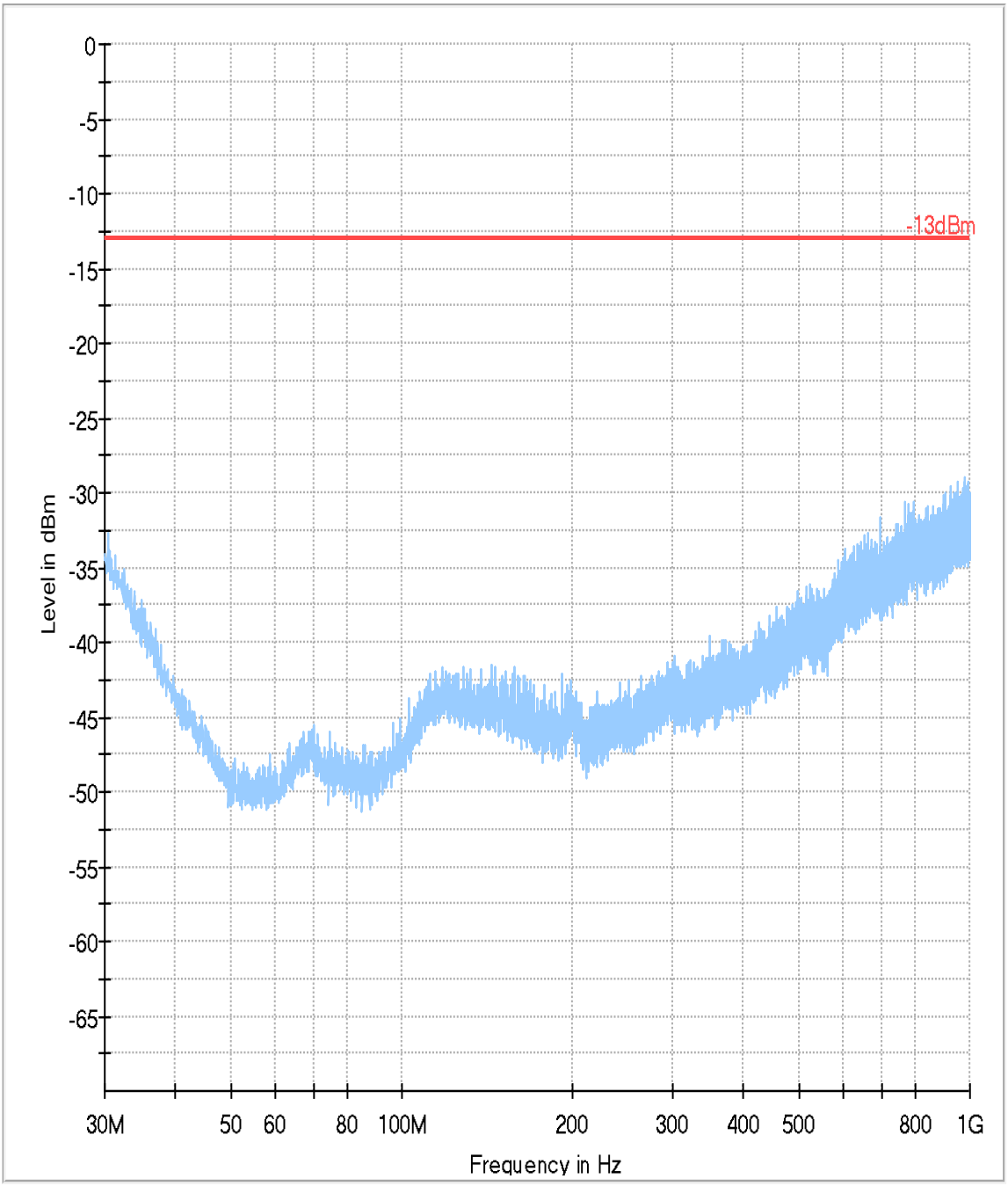
Plot # 39 Radiated Emissions: 18 GHz – 26 GHz

Channel: Mid



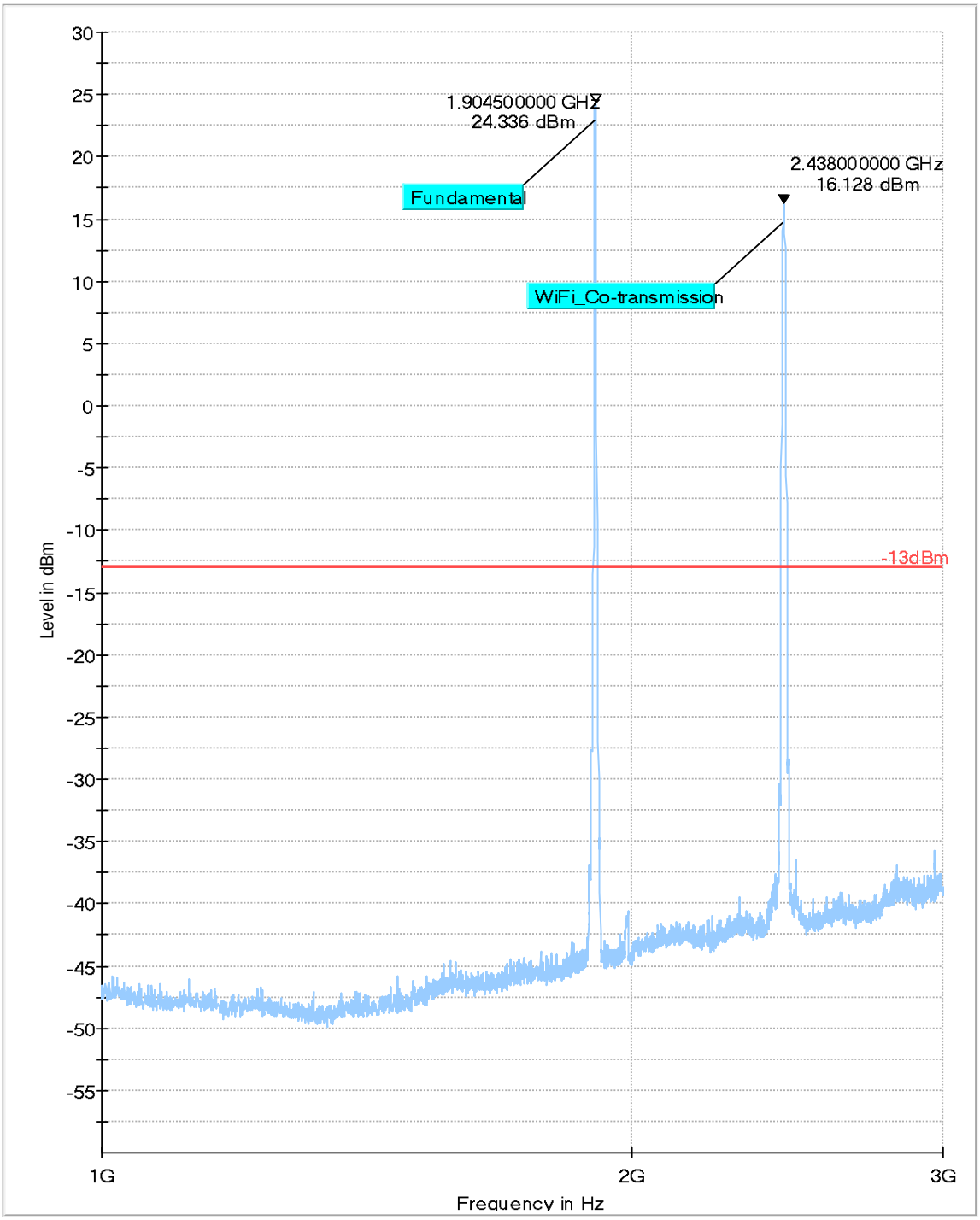
Plot # 40 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 41 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 42 Radiated Emissions: 3 GHz - 18 GHz

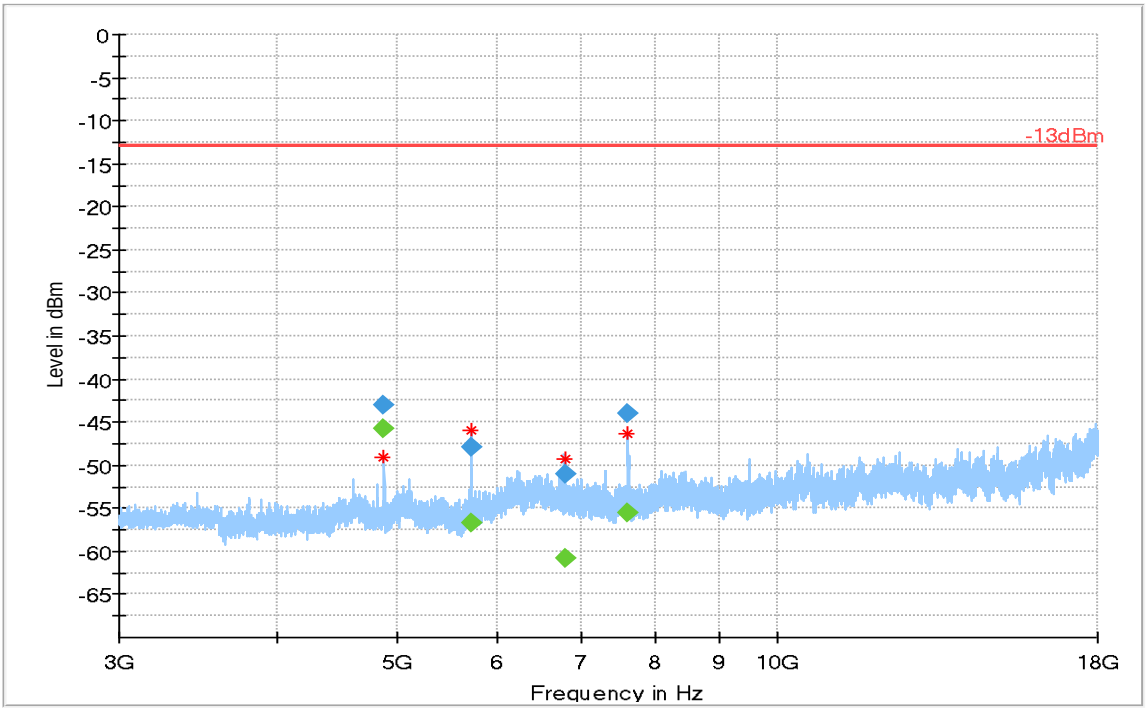
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.051667	---	-45.73	---	---	100.0	1000.000	251.0	H	221.0	-100.5
4874.051667	-43.09	---	-13.00	30.09	100.0	1000.000	251.0	H	221.0	-100.5
5714.710333	---	-56.78	---	---	100.0	1000.000	152.0	H	152.0	-98.8
5714.710333	-47.99	---	-13.00	34.99	100.0	1000.000	152.0	H	152.0	-98.8
6779.521500	---	-60.78	---	---	100.0	1000.000	153.0	H	283.0	-95.7
6779.521500	-50.96	---	-13.00	37.96	100.0	1000.000	153.0	H	283.0	-95.7
7622.331333	---	-55.63	---	---	100.0	1000.000	325.0	V	218.0	-95.2
7622.331333	-43.98	---	-13.00	30.98	100.0	1000.000	325.0	V	218.0	-95.2

(continuation of the "Final_Result" table from column 16 ...)

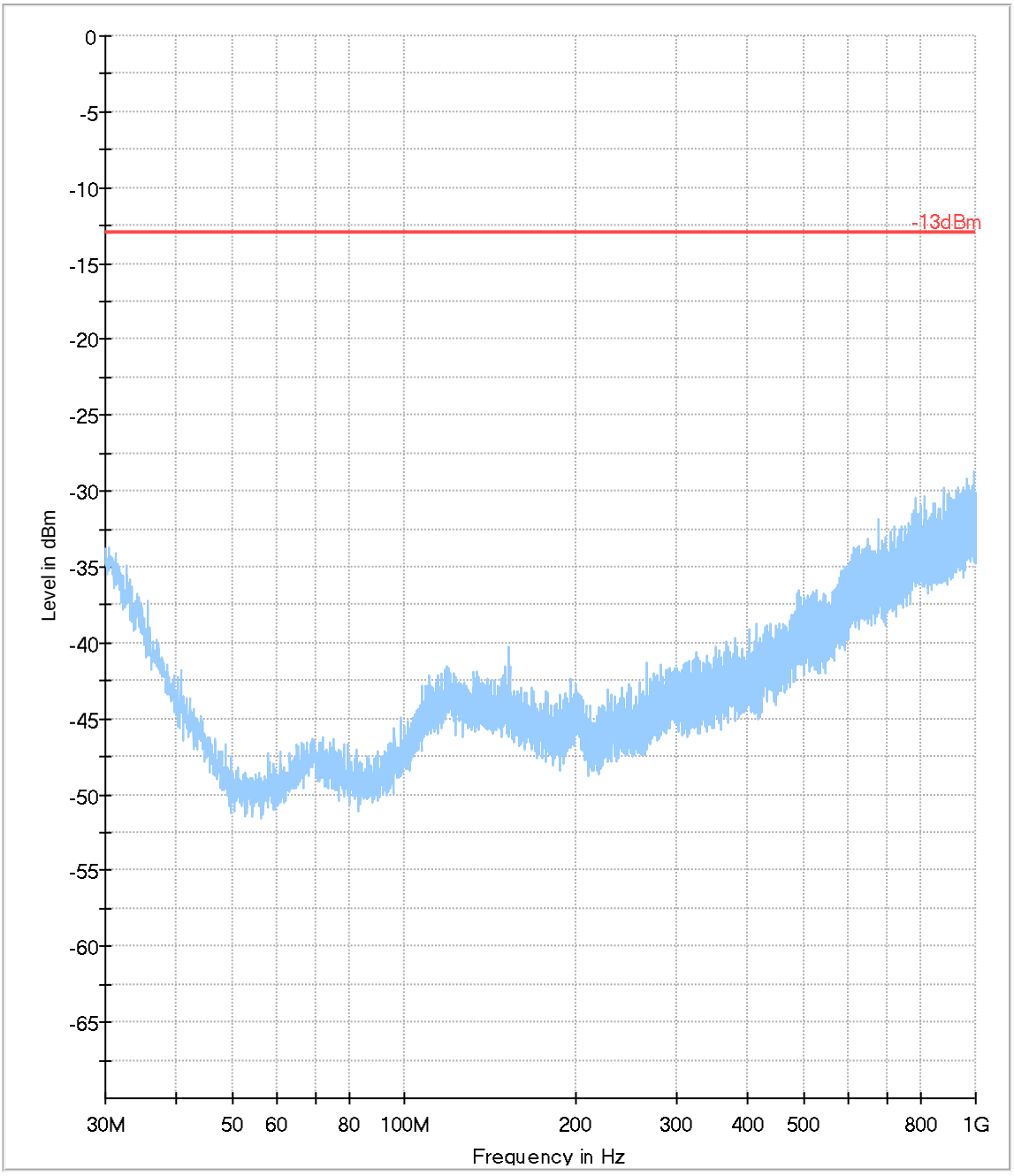
Frequency (MHz)	Comment
4874.051667	12:50:35 PM - 2/26/2019
4874.051667	12:50:35 PM - 2/26/2019
5714.710333	12:52:29 PM - 2/26/2019
5714.710333	12:52:29 PM - 2/26/2019
6779.521500	12:54:23 PM - 2/26/2019
6779.521500	12:54:23 PM - 2/26/2019
7622.331333	12:56:07 PM - 2/26/2019
7622.331333	12:56:07 PM - 2/26/2019



LTE Band 4

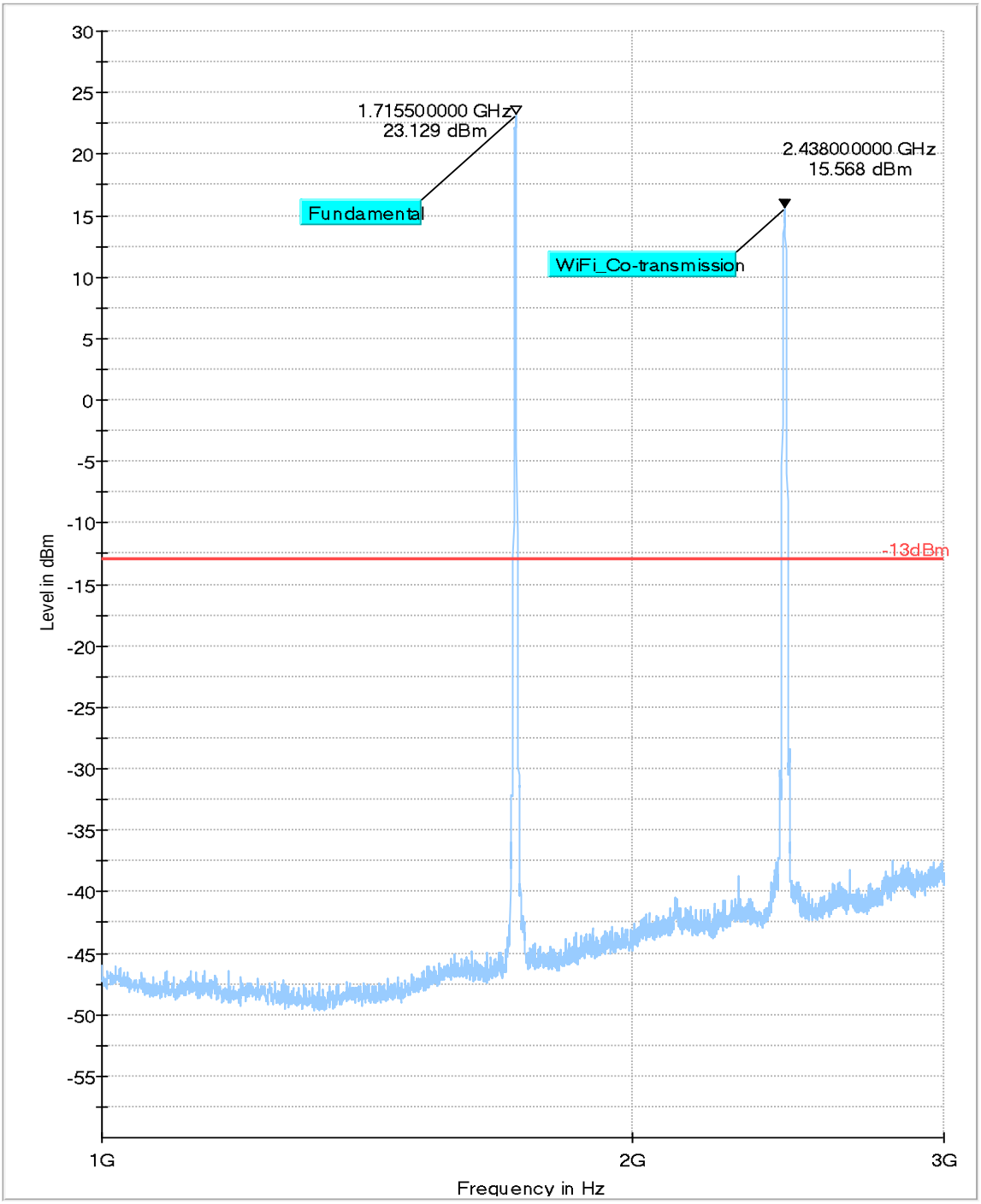
Plot # 43 Radiated Emissions: 30 MHz - 1 GHz

Channel: Low



Plot # 44 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 45 Radiated Emissions: 3 GHz - 18 GHz

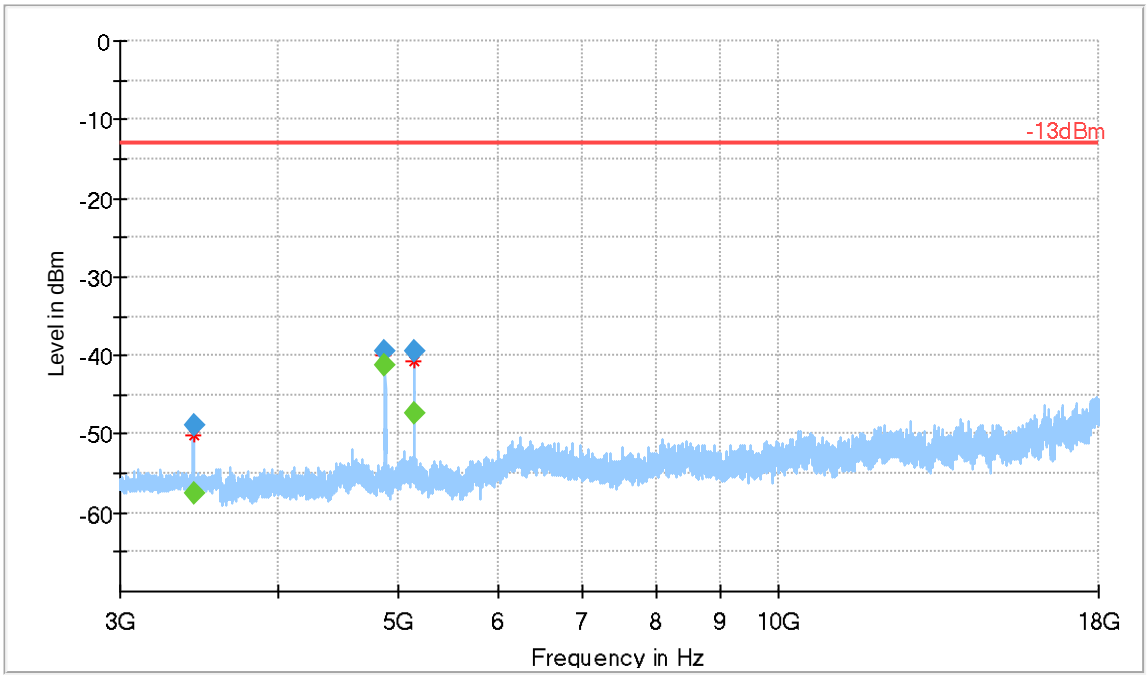
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3429.970333	---	-57.63	---	---	100.0	1000.000	243.0	V	293.0	-103.1
3429.970333	-48.79	---	-13.00	35.79	100.0	1000.000	243.0	V	293.0	-103.1
4873.999500	---	-41.36	---	---	100.0	1000.000	229.0	H	127.0	-100.5
4873.999500	-39.49	---	-13.00	26.49	100.0	1000.000	229.0	H	127.0	-100.5
5145.101167	---	-47.47	---	---	100.0	1000.000	220.0	H	52.0	-99.3
5145.101167	-39.46	---	-13.00	26.46	100.0	1000.000	220.0	H	52.0	-99.3

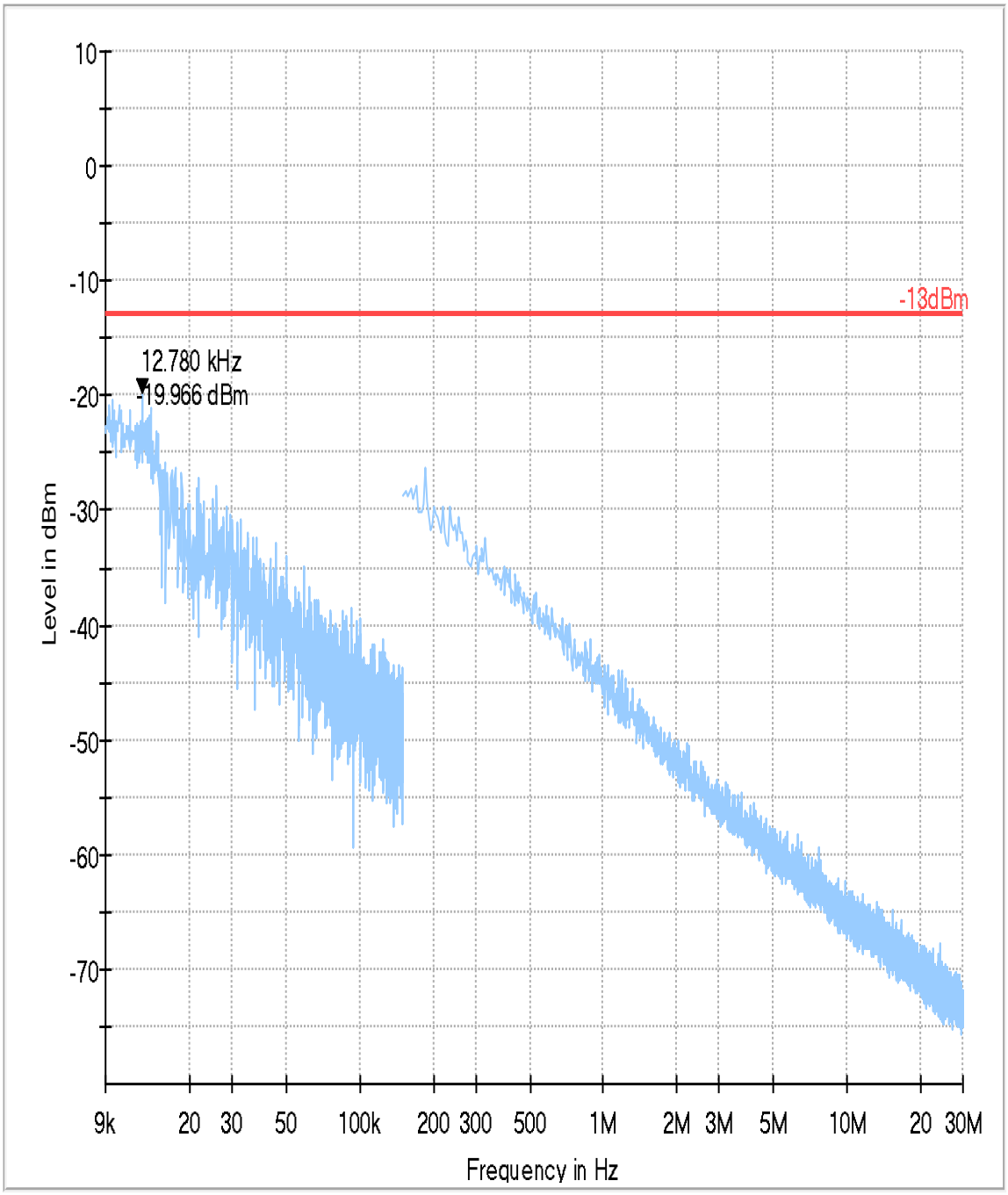
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
3429.970333	1:17:10 PM - 2/26/2019
3429.970333	1:17:10 PM - 2/26/2019
4873.999500	1:19:13 PM - 2/26/2019
4873.999500	1:19:13 PM - 2/26/2019
5145.101167	1:21:02 PM - 2/26/2019
5145.101167	1:21:02 PM - 2/26/2019



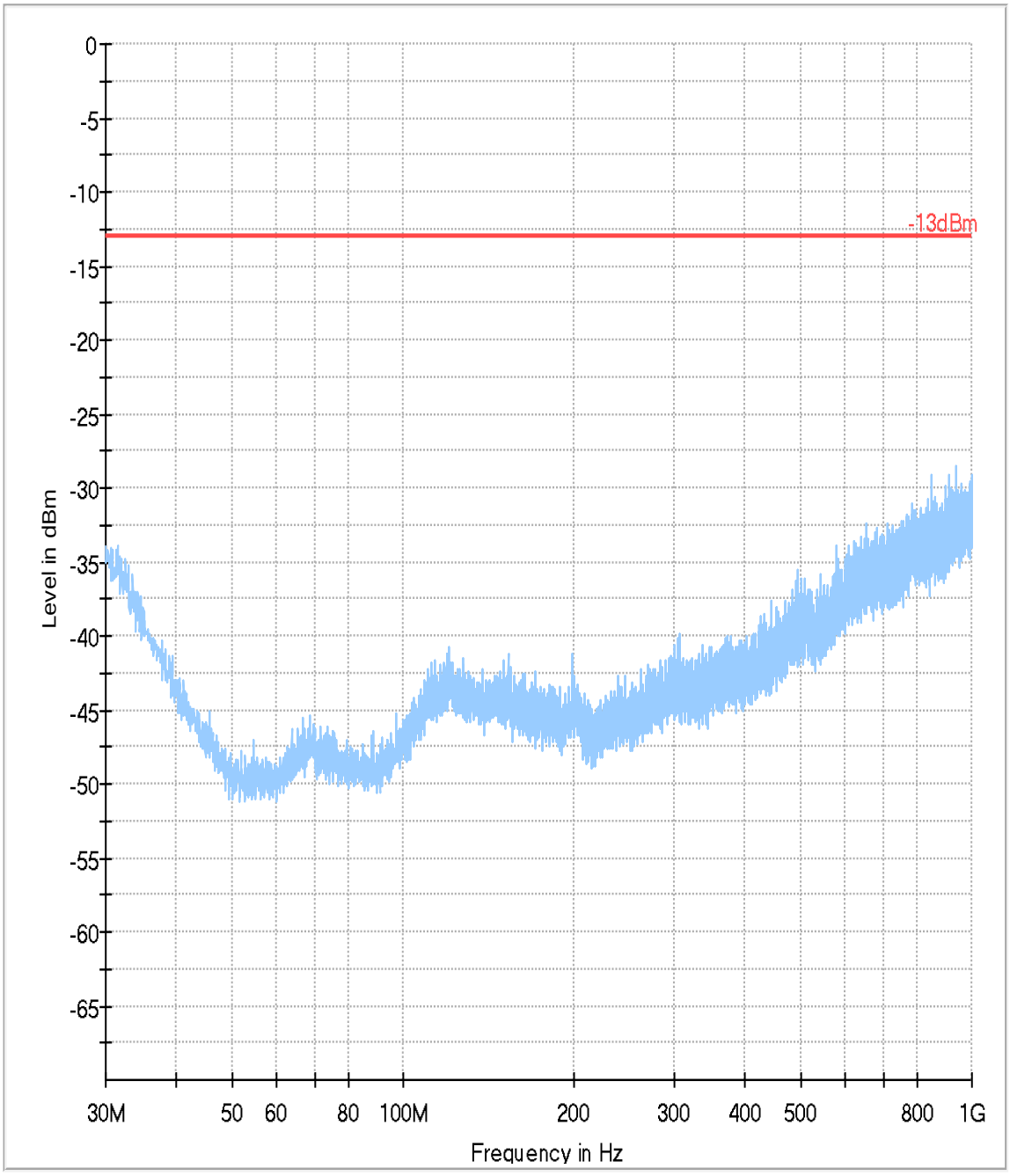
Plot # 46 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



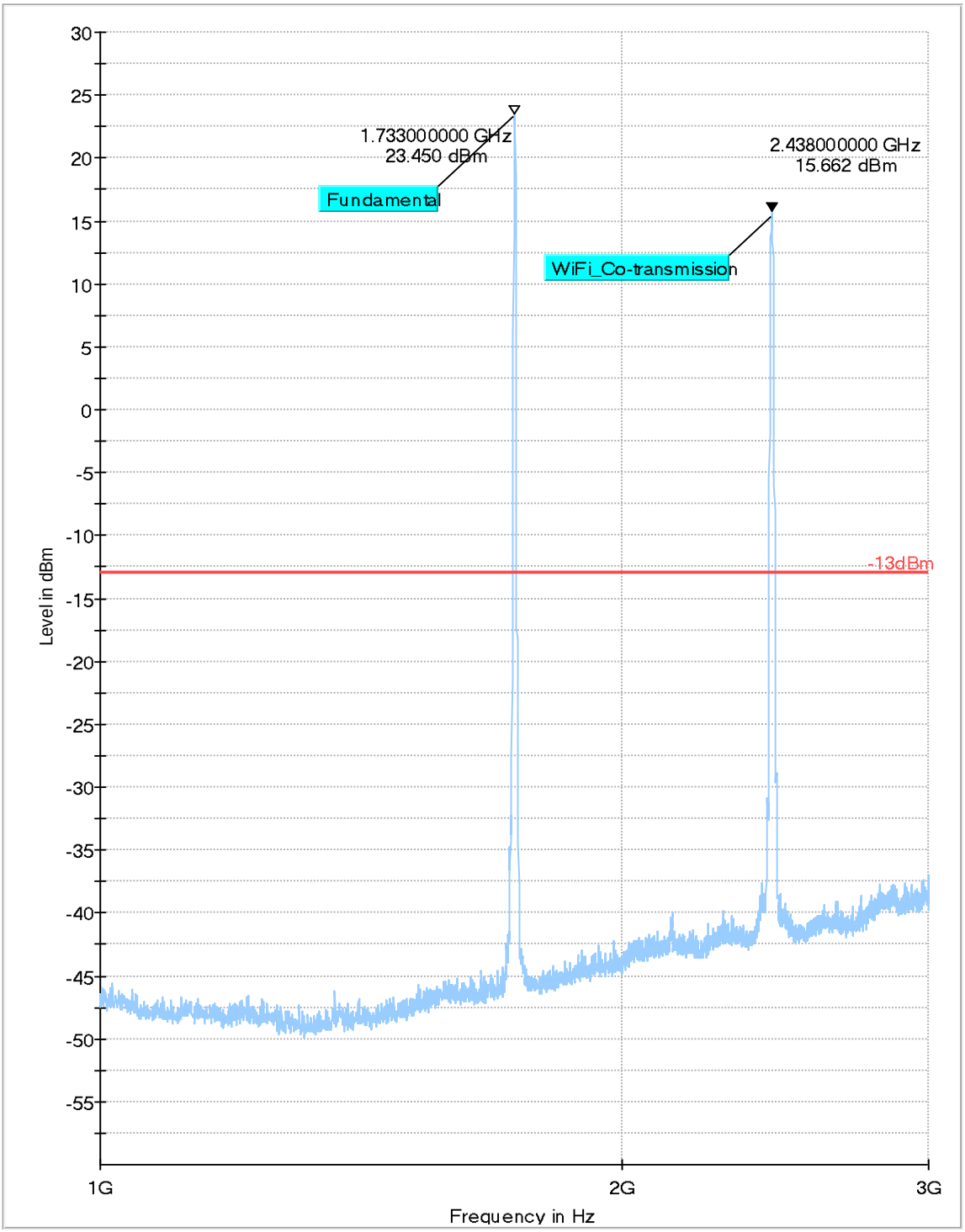
Plot # 47 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid



Plot # 48 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Plot # 49 Radiated Emissions: 3 GHz – 18GHz

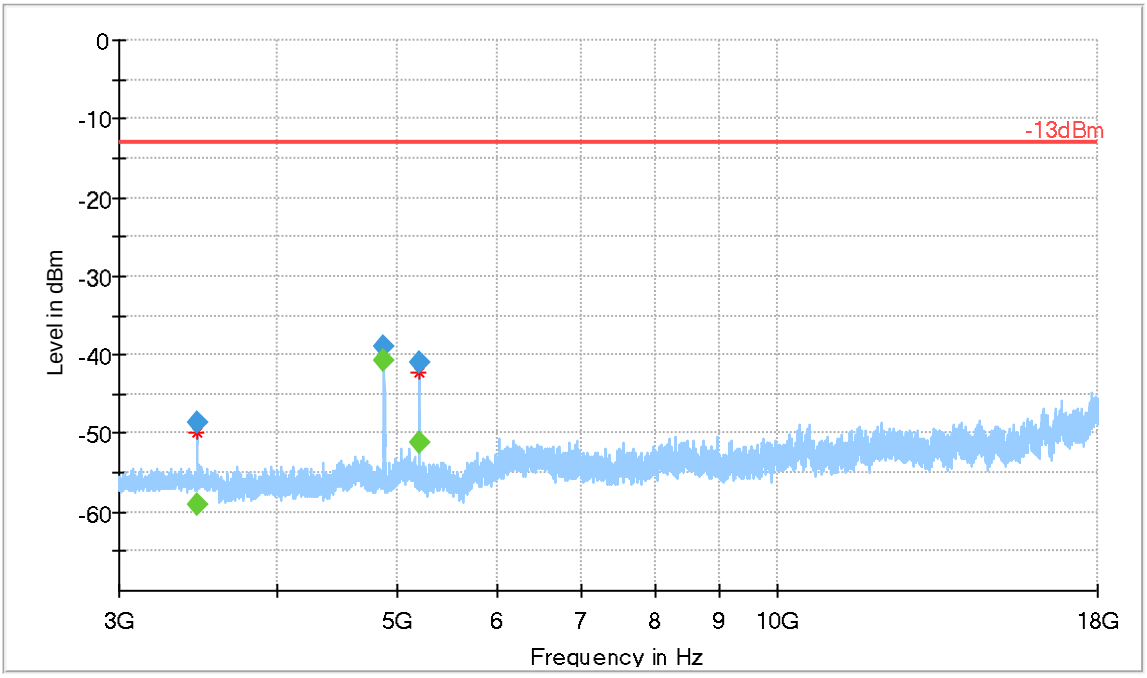
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3463.659167	---	-59.09	---	---	100.0	1000.000	294.0	V	292.0	-103.1
3463.659167	-48.50	---	-13.00	35.50	100.0	1000.000	294.0	V	292.0	-103.1
4874.161500	---	-40.78	---	---	100.0	1000.000	280.0	H	125.0	-100.5
4874.161500	-38.87	---	-13.00	25.87	100.0	1000.000	280.0	H	125.0	-100.5
5195.751167	---	-51.22	---	---	100.0	1000.000	241.0	H	53.0	-99.4
5195.751167	-41.05	---	-13.00	28.05	100.0	1000.000	241.0	H	53.0	-99.4

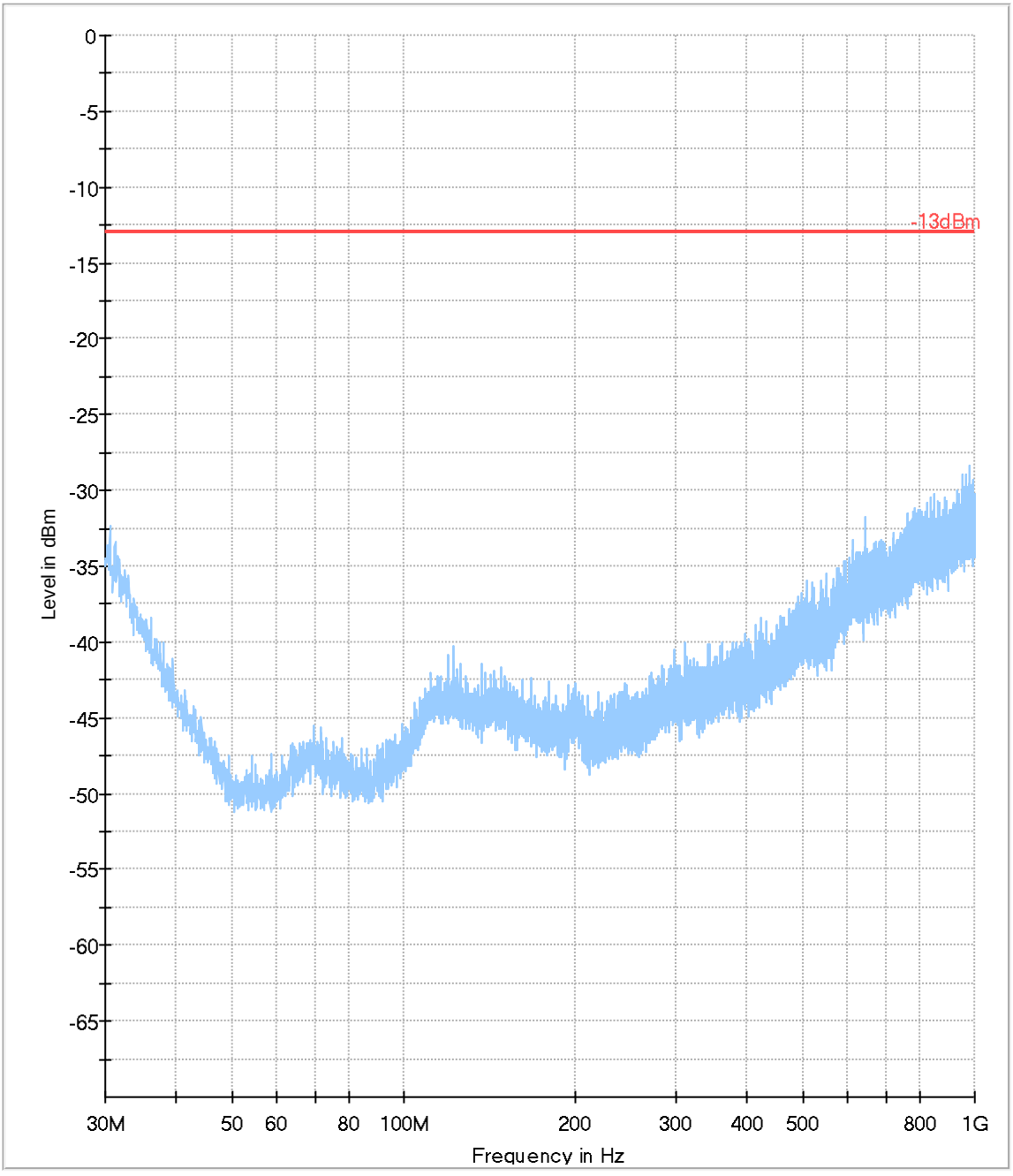
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
3463.659167	1:04:07 PM - 2/26/2019
3463.659167	1:04:07 PM - 2/26/2019
4874.161500	1:06:10 PM - 2/26/2019
4874.161500	1:06:10 PM - 2/26/2019
5195.751167	1:08:04 PM - 2/26/2019
5195.751167	1:08:03 PM - 2/26/2019



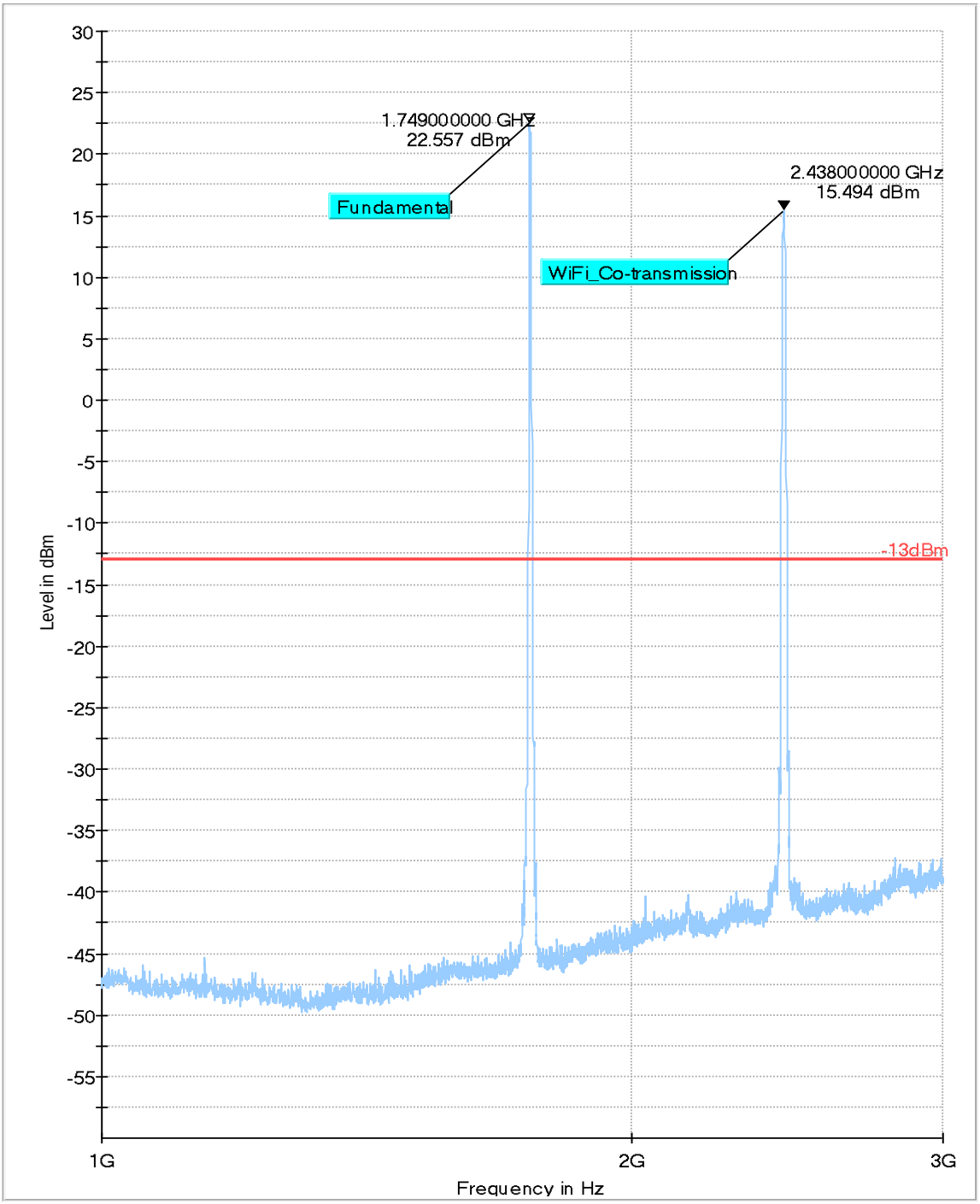
Plot # 50 Radiated Emissions: 30 MHz - 1 GHz

Channel: High



Plot # 51 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 52 Radiated Emissions: 3 GHz - 18 GHz

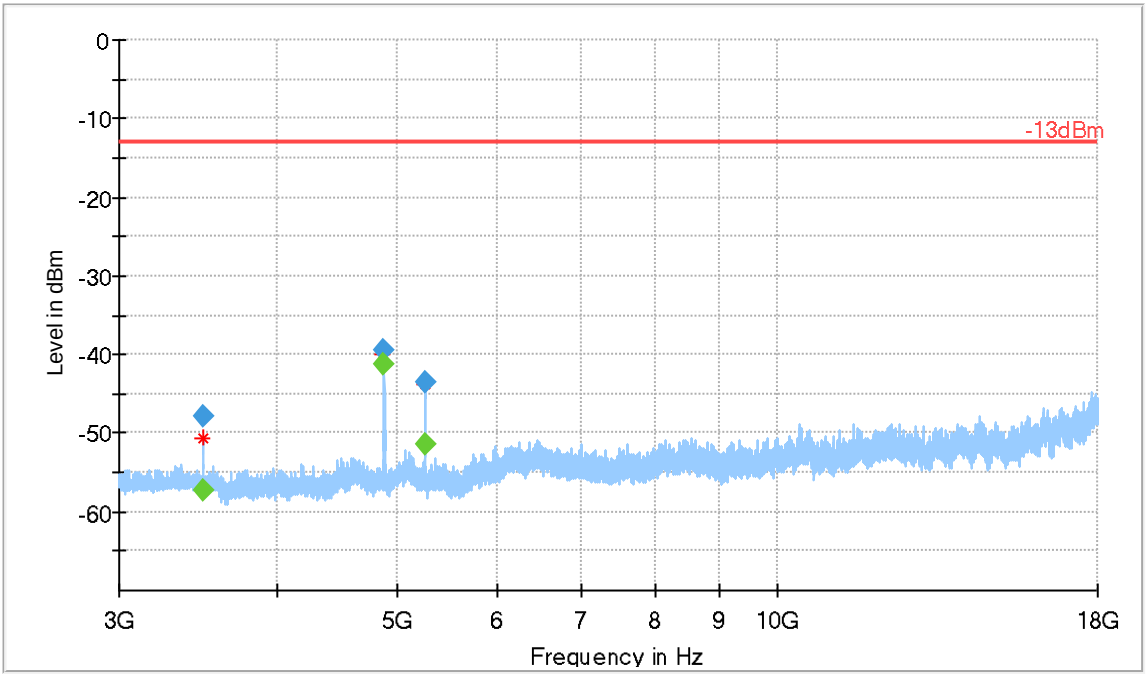
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3498.950333	---	-57.30	---	---	100.0	1000.000	140.0	V	290.0	-102.9
3498.950333	-47.86	---	-13.00	34.86	100.0	1000.000	140.0	V	290.0	-102.9
4874.166500	---	-41.28	---	---	100.0	1000.000	231.0	H	128.0	-100.5
4874.166500	-39.52	---	-13.00	26.52	100.0	1000.000	231.0	H	128.0	-100.5
5249.807000	---	-51.37	---	---	100.0	1000.000	140.0	H	48.0	-99.4
5249.807000	-43.57	---	-13.00	30.57	100.0	1000.000	140.0	H	48.0	-99.4

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
3498.950333	1:27:31 PM - 2/26/2019
3498.950333	1:27:31 PM - 2/26/2019
4874.166500	1:29:31 PM - 2/26/2019
4874.166500	1:29:31 PM - 2/26/2019
5249.807000	1:31:25 PM - 2/26/2019
5249.807000	1:31:25 PM - 2/26/2019



LTE Band 5

Plot # 53 Radiated Emissions: 30 MHz - 1 GHz

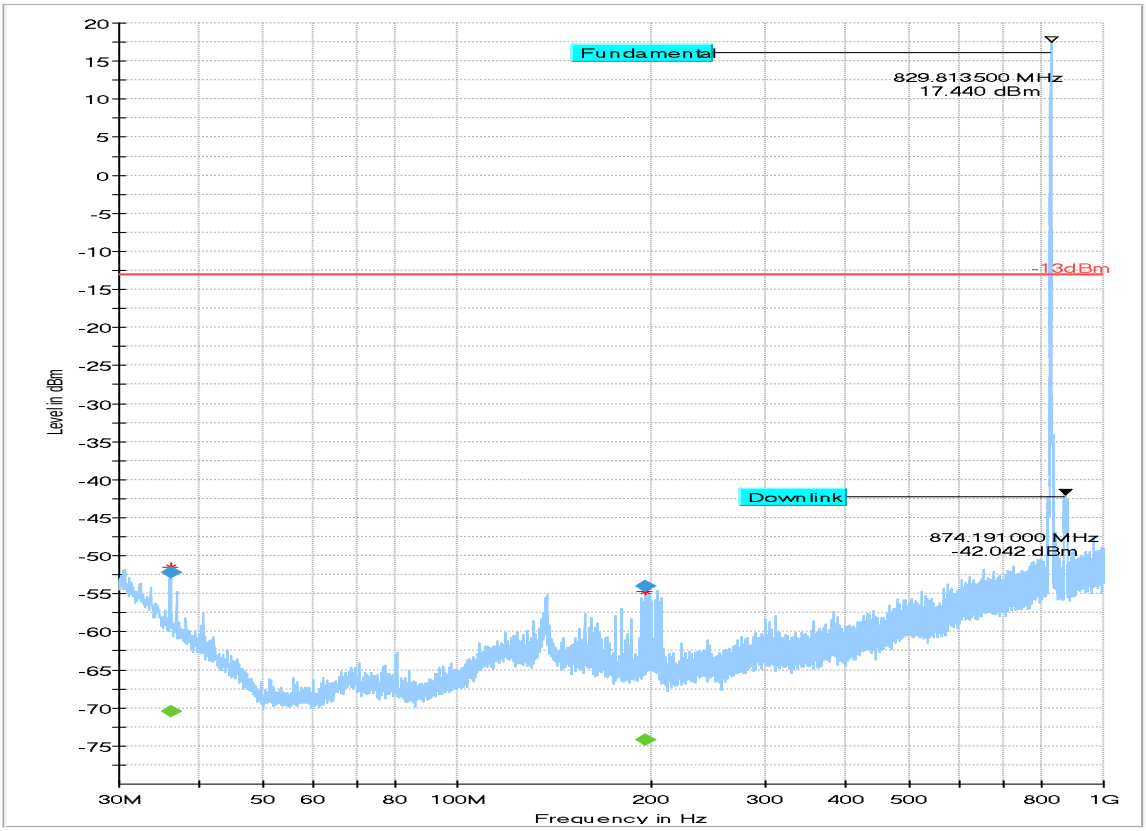
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.152390	---	-70.51	---	---	100.0	100.000	196.0	H	322.0	-71.4
36.152390	-52.27	---	-13.00	39.27	100.0	100.000	196.0	H	322.0	-71.4
195.361153	---	-74.25	---	---	100.0	100.000	171.0	H	107.0	-76.0
195.361153	-54.05	---	-13.00	41.05	100.0	100.000	171.0	H	107.0	-76.0

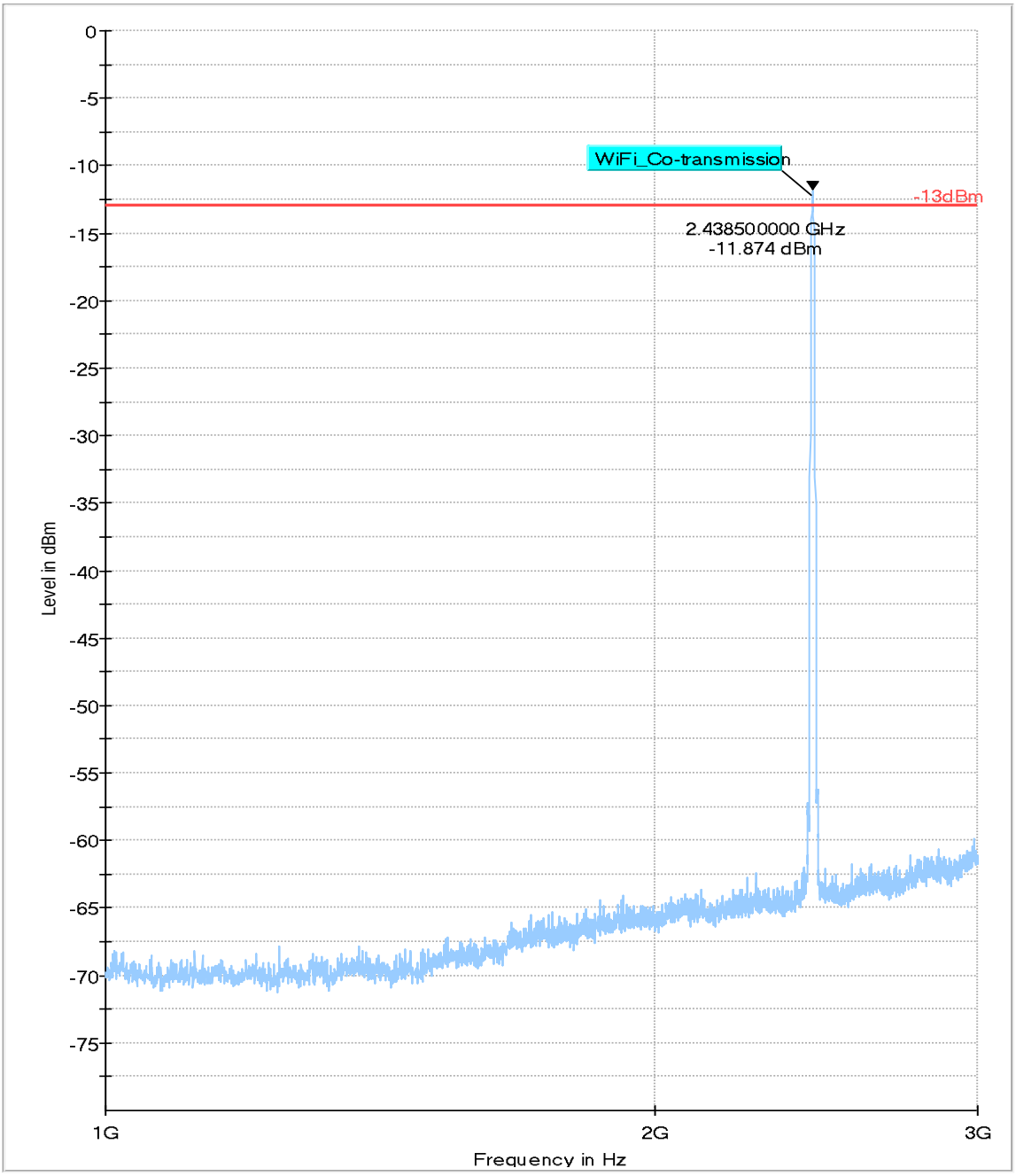
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
36.152390	3:21:24 PM - 2/26/2019
36.152390	3:21:24 PM - 2/26/2019
195.361153	3:23:29 PM - 2/26/2019
195.361153	3:23:29 PM - 2/26/2019



Plot # 54 Radiated Emissions: 1 GHz - 3 GHz

Channel: Low



Plot # 55 Radiated Emissions: 3 GHz - 9 GHz

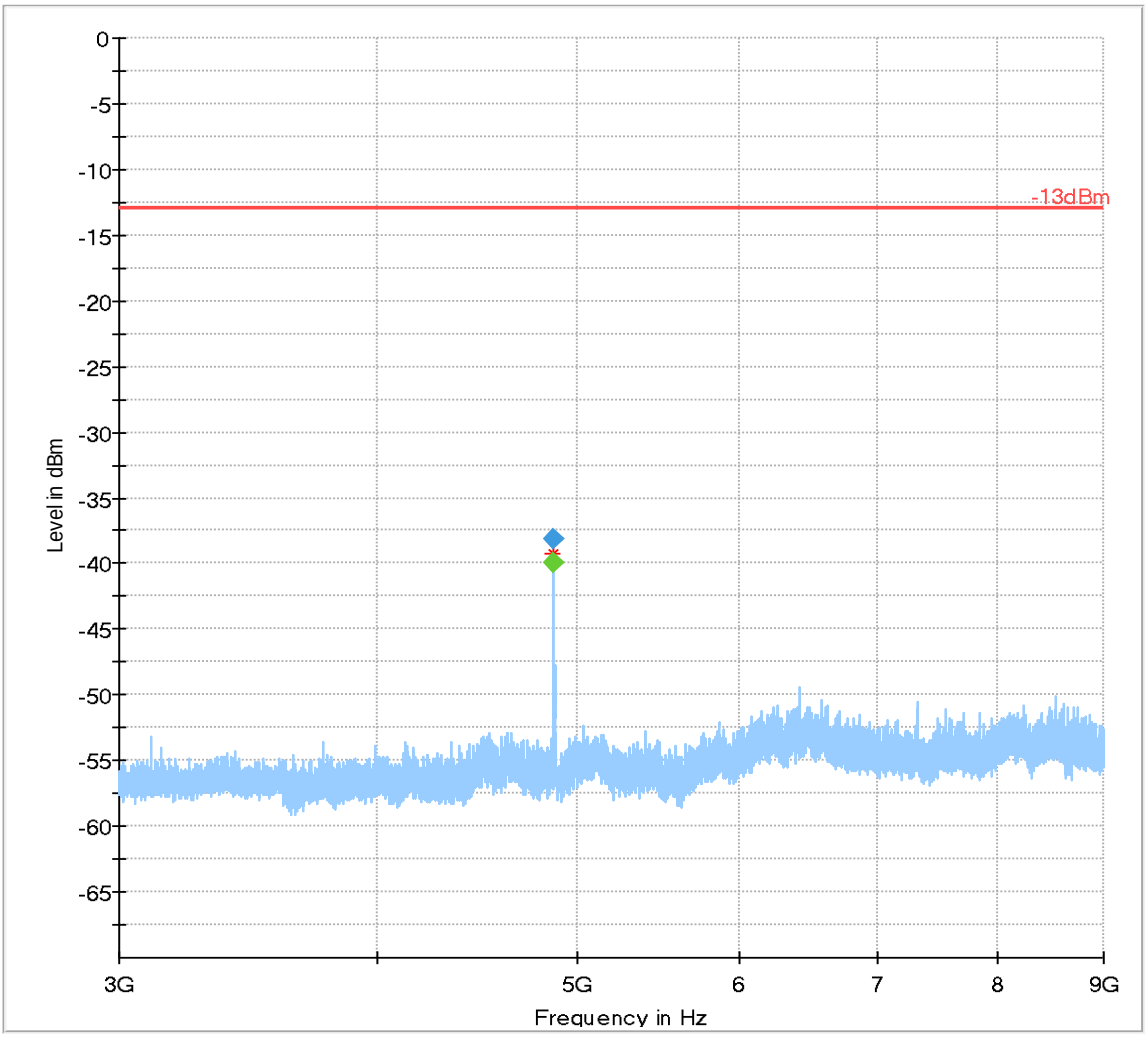
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.991500	---	-39.88	---	---	100.0	1000.000	281.0	H	126.0	-100.5
4873.991500	-38.14	---	-13.00	25.14	100.0	1000.000	281.0	H	126.0	-100.5

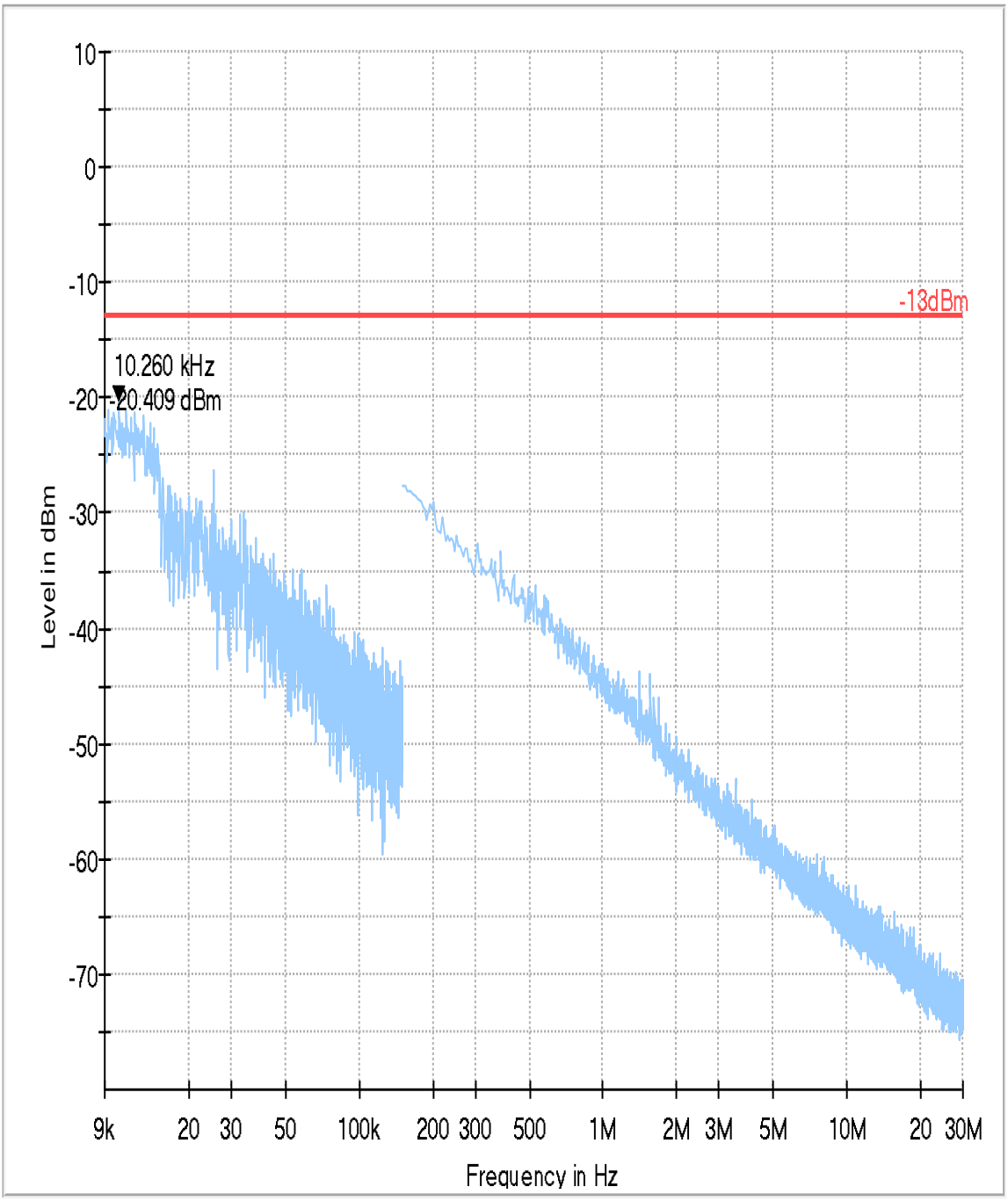
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.991500	2:13:09 PM - 2/26/2019
4873.991500	2:13:09 PM - 2/26/2019



Plot # 56 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



Plot # 57 Radiated Emissions: 30 MHz – 1 GHz

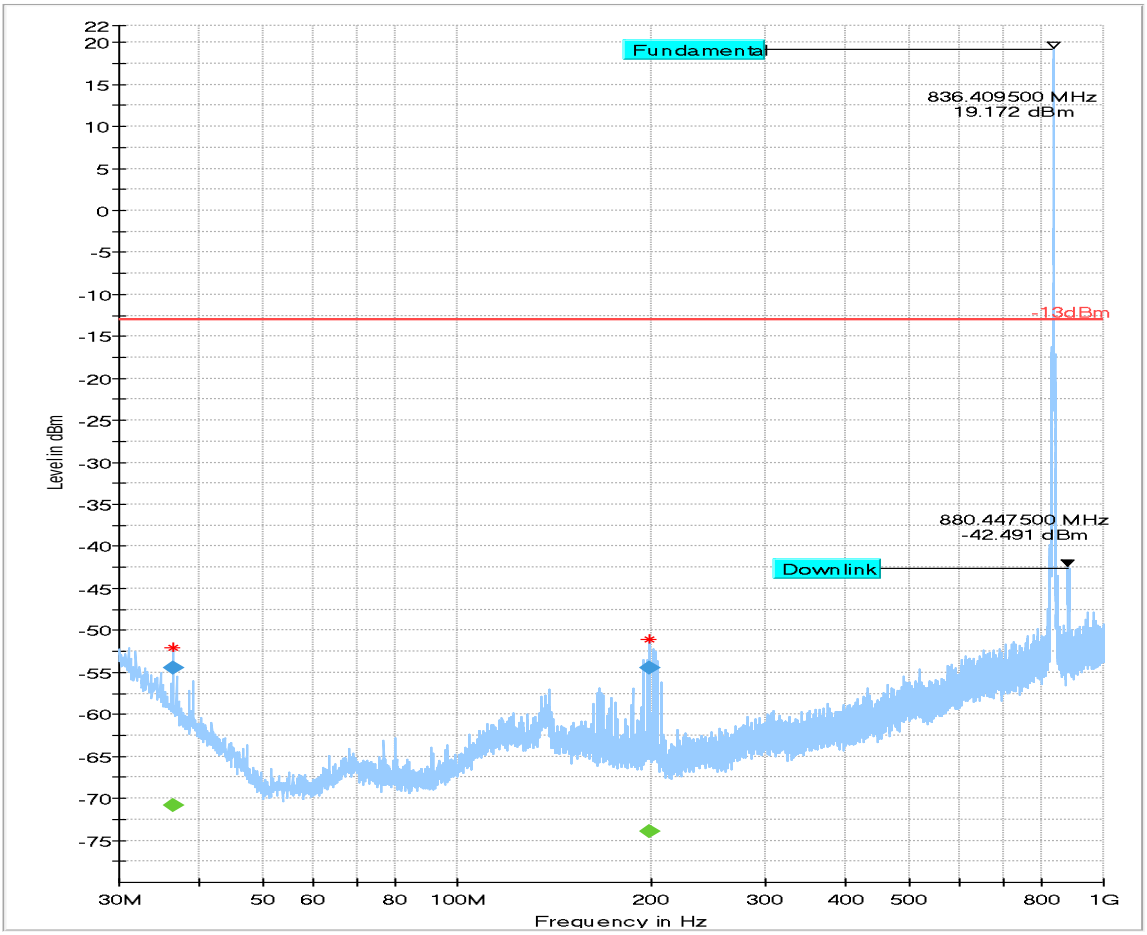
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.354960	---	-70.81	---	---	100.0	100.000	238.0	H	342.0	-71.6
36.354960	-54.52	---	-13.00	41.52	100.0	100.000	238.0	H	342.0	-71.6
197.947740	---	-73.91	---	---	100.0	100.000	194.0	H	112.0	-75.5
197.947740	-54.51	---	-13.00	41.51	100.0	100.000	194.0	H	112.0	-75.5

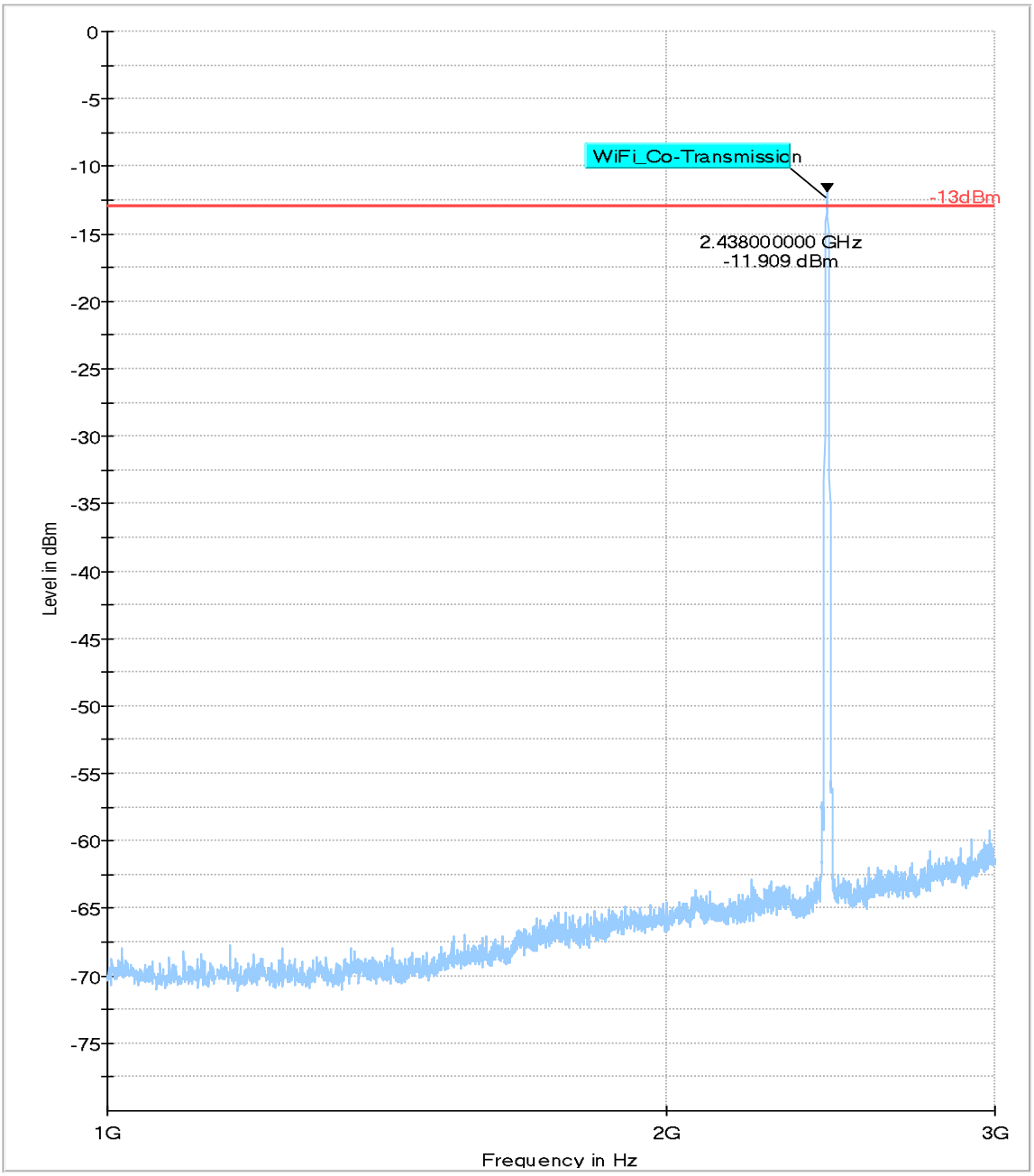
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
36.354960	3:31:40 PM - 2/26/2019
36.354960	3:31:40 PM - 2/26/2019
197.947740	3:33:49 PM - 2/26/2019
197.947740	3:33:49 PM - 2/26/2019



Plot # 58 Radiated Emissions: 1 GHz - 3 GHz

Channel: Mid



Plot # 59 Radiated Emissions: 3 GHz – 9 GHz

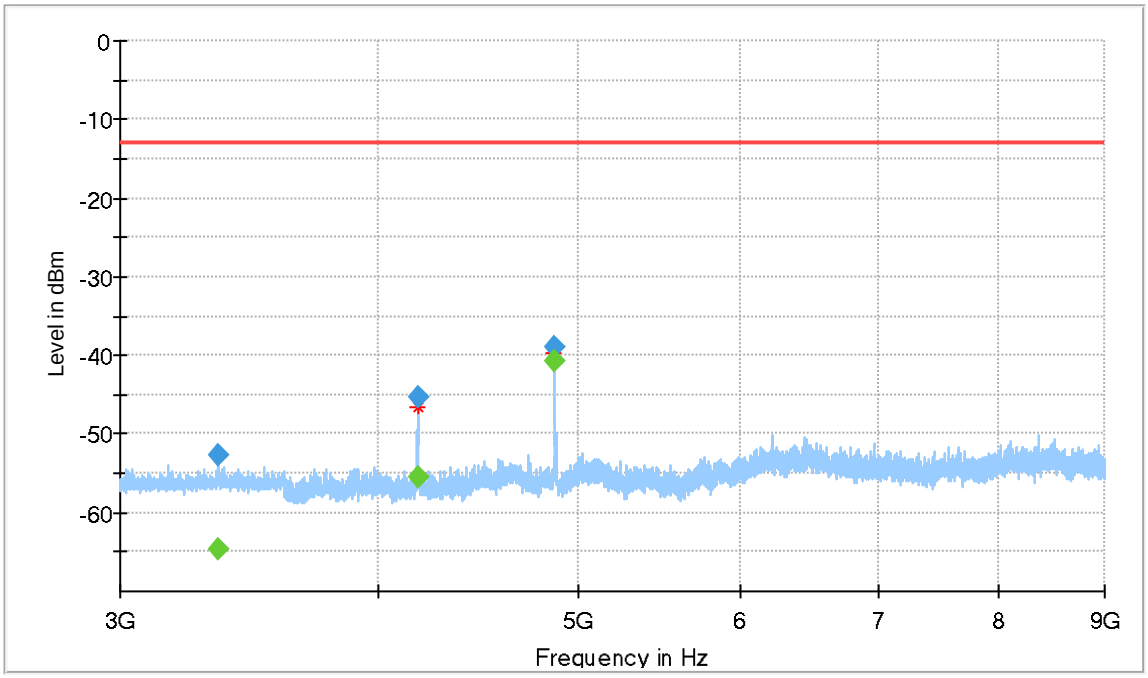
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3346.334333	-52.73	---	-13.00	39.73	100.0	1000.000	150.0	H	294.0	-103.3
3346.334333	---	-64.55	---	---	100.0	1000.000	150.0	H	294.0	-103.3
4182.849167	-45.27	---	-13.00	32.27	100.0	1000.000	267.0	H	57.0	-100.6
4182.849167	---	-55.56	---	---	100.0	1000.000	267.0	H	57.0	-100.6
4874.013000	-38.89	---	-13.00	25.89	100.0	1000.000	280.0	H	125.0	-100.5
4874.013000	---	-40.80	---	---	100.0	1000.000	280.0	H	125.0	-100.5

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
3346.334333	1:58:11 PM - 2/26/2019
3346.334333	1:58:11 PM - 2/26/2019
4182.849167	2:00:10 PM - 2/26/2019
4182.849167	2:00:10 PM - 2/26/2019
4874.013000	2:02:01 PM - 2/26/2019
4874.013000	2:02:01 PM - 2/26/2019



Plot # 60 Radiated Emissions: 30 MHz - 1 GHz

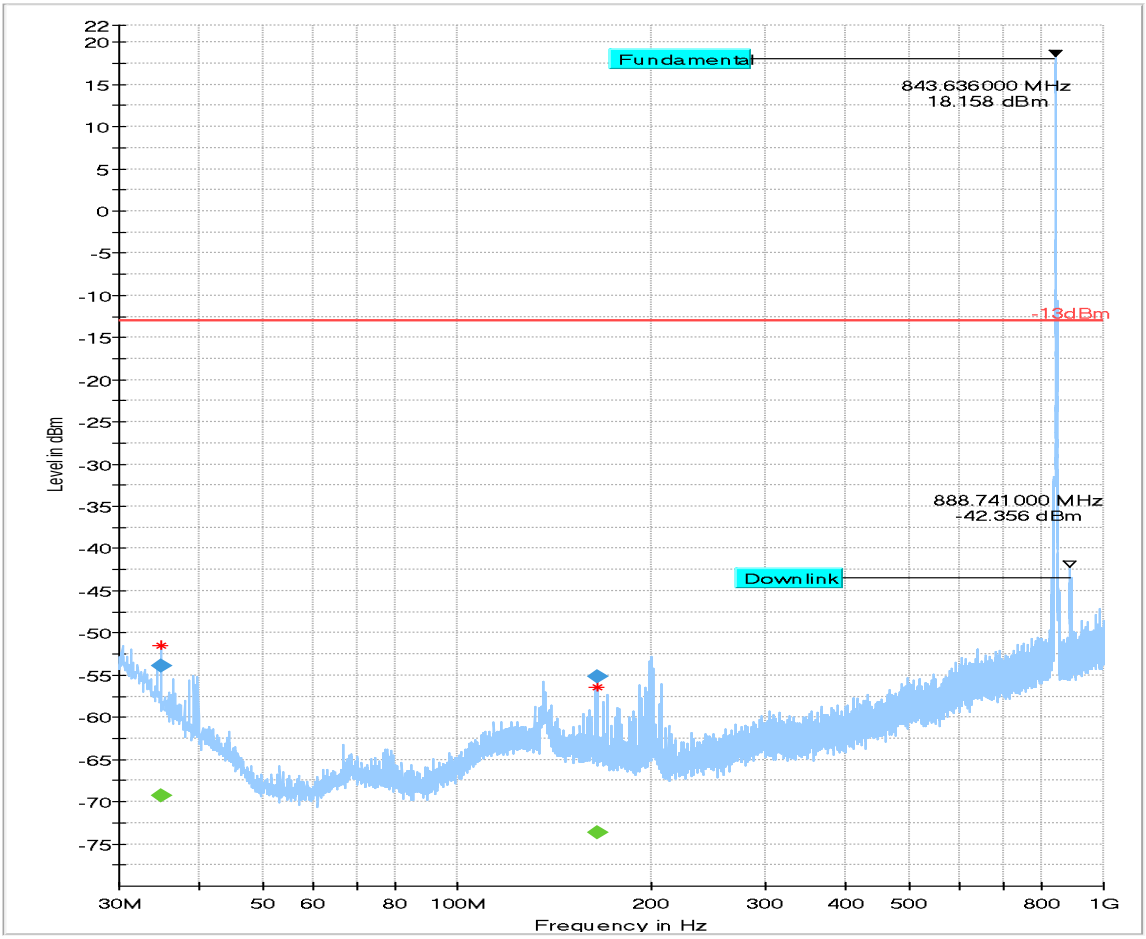
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
34.935607	---	-69.33	---	---	100.0	100.000	306.0	H	270.0	-70.3
34.935607	-53.87	---	-13.00	40.87	100.0	100.000	306.0	H	270.0	-70.3
165.200353	---	-73.63	---	---	100.0	100.000	227.0	H	130.0	-76.0
165.200353	-55.20	---	-13.00	42.20	100.0	100.000	227.0	H	130.0	-76.0

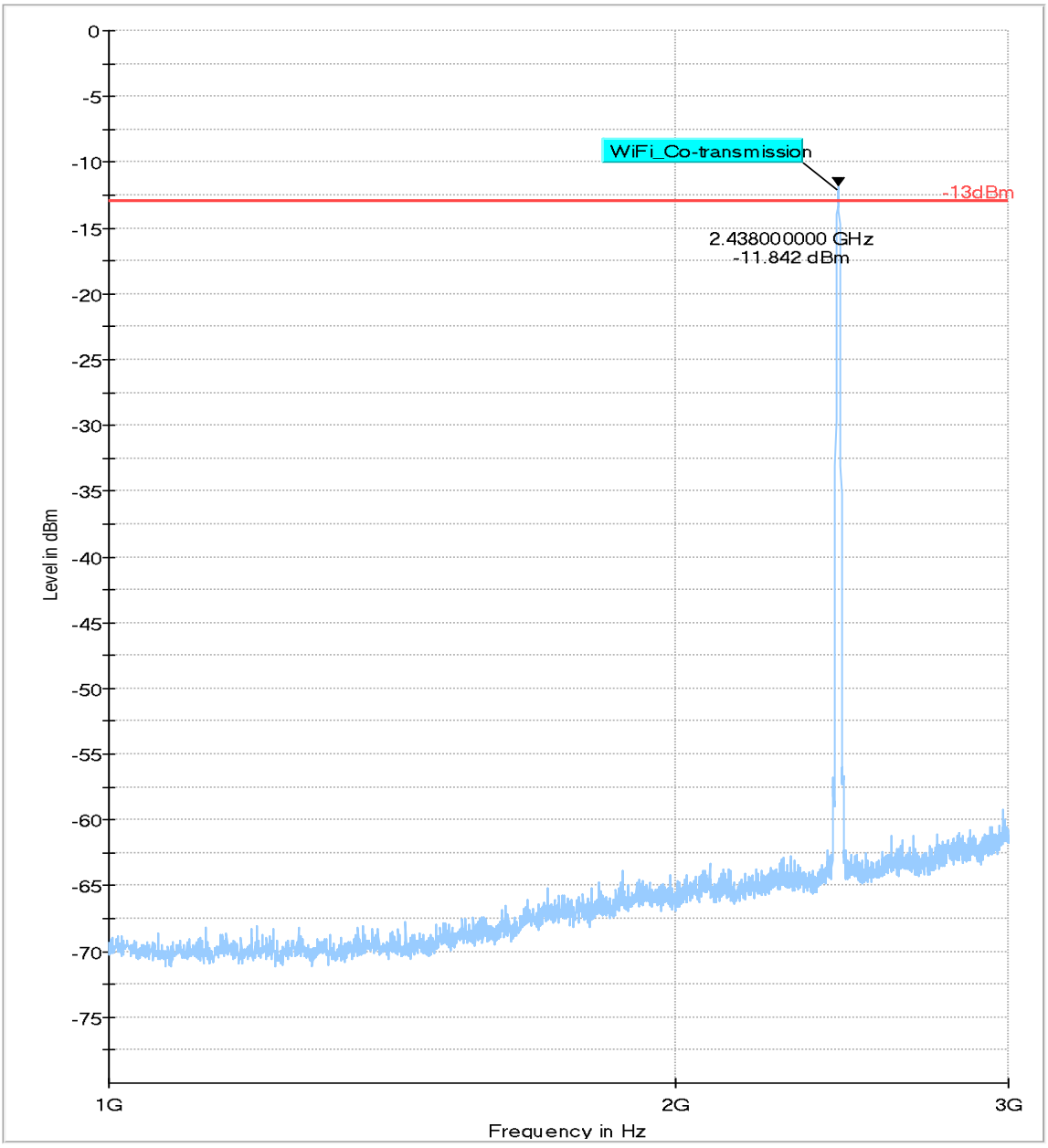
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
34.935607	3:42:45 PM - 2/26/2019
34.935607	3:42:44 PM - 2/26/2019
165.200353	3:44:48 PM - 2/26/2019
165.200353	3:44:47 PM - 2/26/2019



Plot # 61 Radiated Emissions: 1 GHz - 3 GHz

Channel: High



Plot # 62 Radiated Emissions: 3 GHz - 9 GHz

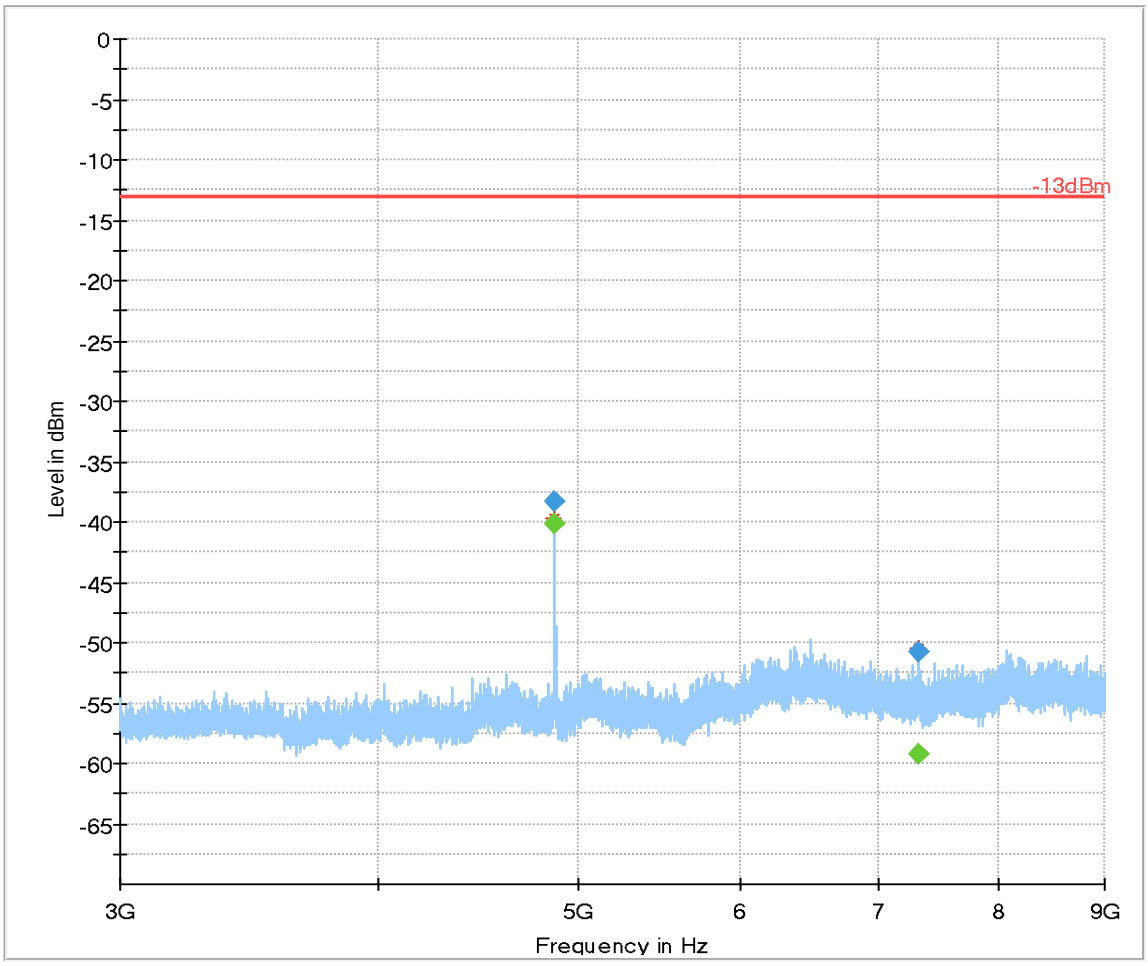
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.947500	---	-40.08	---	---	100.0	1000.000	279.0	H	116.0	-100.5
4873.947500	-38.35	---	-13.00	25.35	100.0	1000.000	279.0	H	116.0	-100.5
7311.961000	---	-59.28	---	---	100.0	1000.000	213.0	H	329.0	-95.8
7311.961000	-50.72	---	-13.00	37.72	100.0	1000.000	213.0	H	329.0	-95.8

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.947500	2:21:05 PM - 2/26/2019
4873.947500	2:21:05 PM - 2/26/2019
7311.961000	2:23:09 PM - 2/26/2019
7311.961000	2:23:09 PM - 2/26/2019



LTE Band 12

Plot # 63 Radiated Emissions: 30 MHz – 1GHz

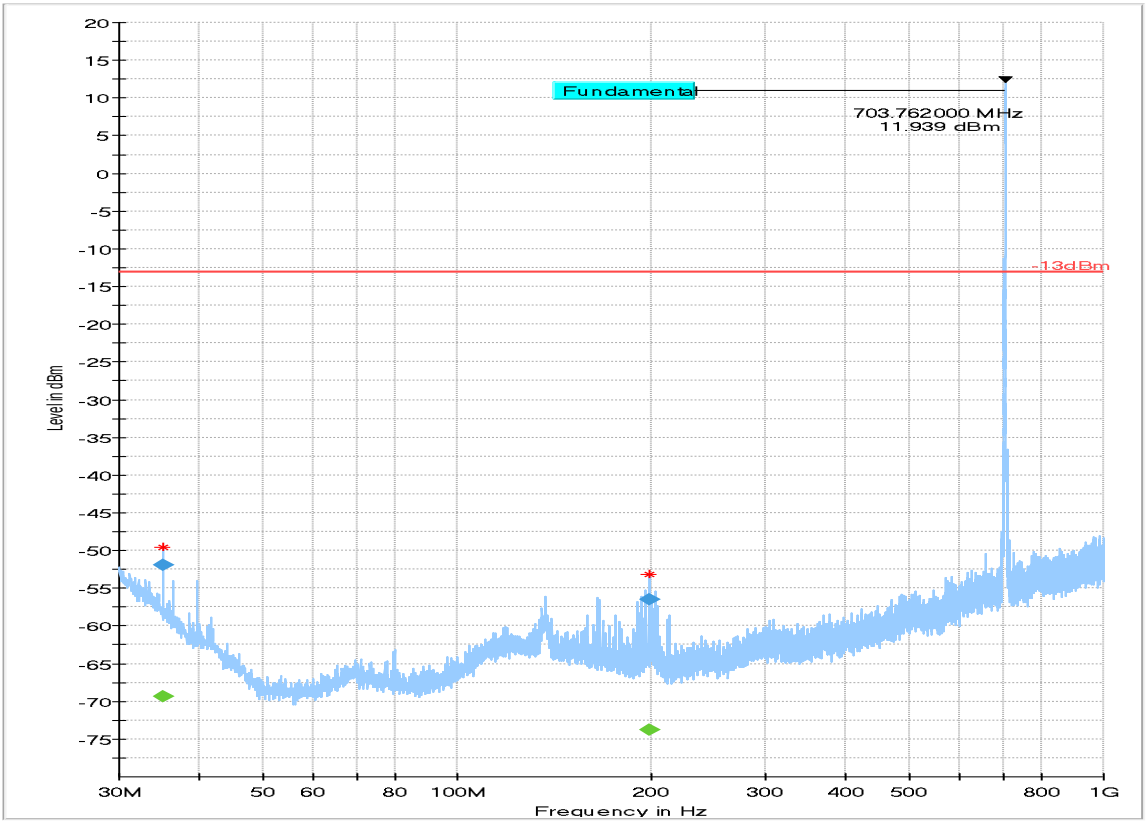
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
34.995813	---	-69.38	---	---	100.0	100.000	325.0	H	-22.0	-70.3
34.995813	-51.97	---	-13.00	38.97	100.0	100.000	325.0	H	-22.0	-70.3
198.692183	---	-73.79	---	---	100.0	100.000	279.0	H	235.0	-75.4
198.692183	-56.47	---	-13.00	43.47	100.0	100.000	279.0	H	235.0	-75.4

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
34.995813	4:21:06 PM - 2/26/2019
34.995813	4:21:06 PM - 2/26/2019
198.692183	4:23:15 PM - 2/26/2019
198.692183	4:23:15 PM - 2/26/2019



Plot # 64 Radiated Emissions: 1 GHz - 3 GHz

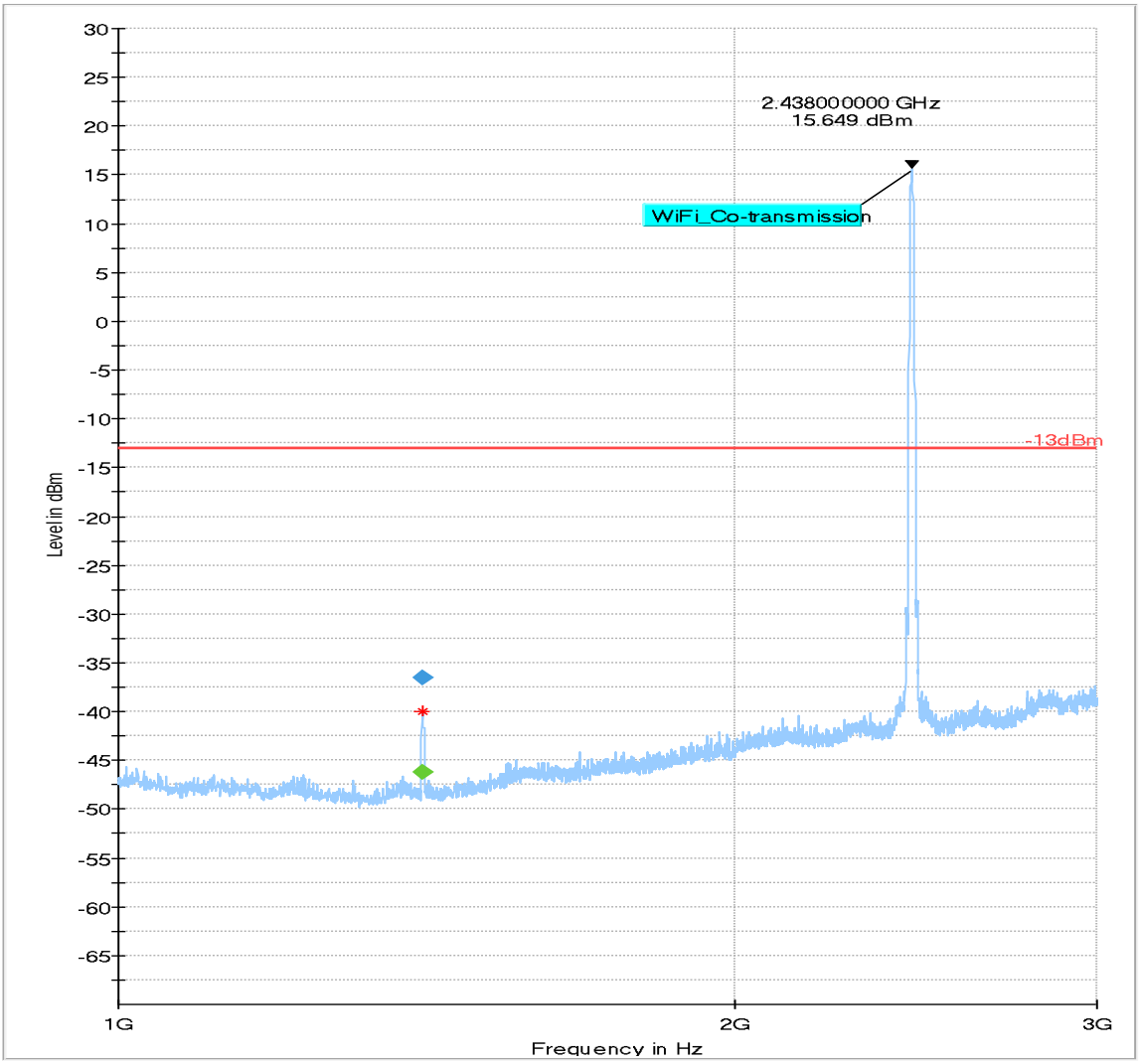
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1407.889000	---	-46.17	---	---	100.0	1000.000	172.0	V	315.0	-64.8
1407.889000	-36.58	---	-13.00	23.58	100.0	1000.000	172.0	V	315.0	-64.8

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
1407.889000	2:04:03 PM - 2/27/2019
1407.889000	2:04:03 PM - 2/27/2019



Plot # 65 Radiated Emissions: 3 GHz – 9 GHz

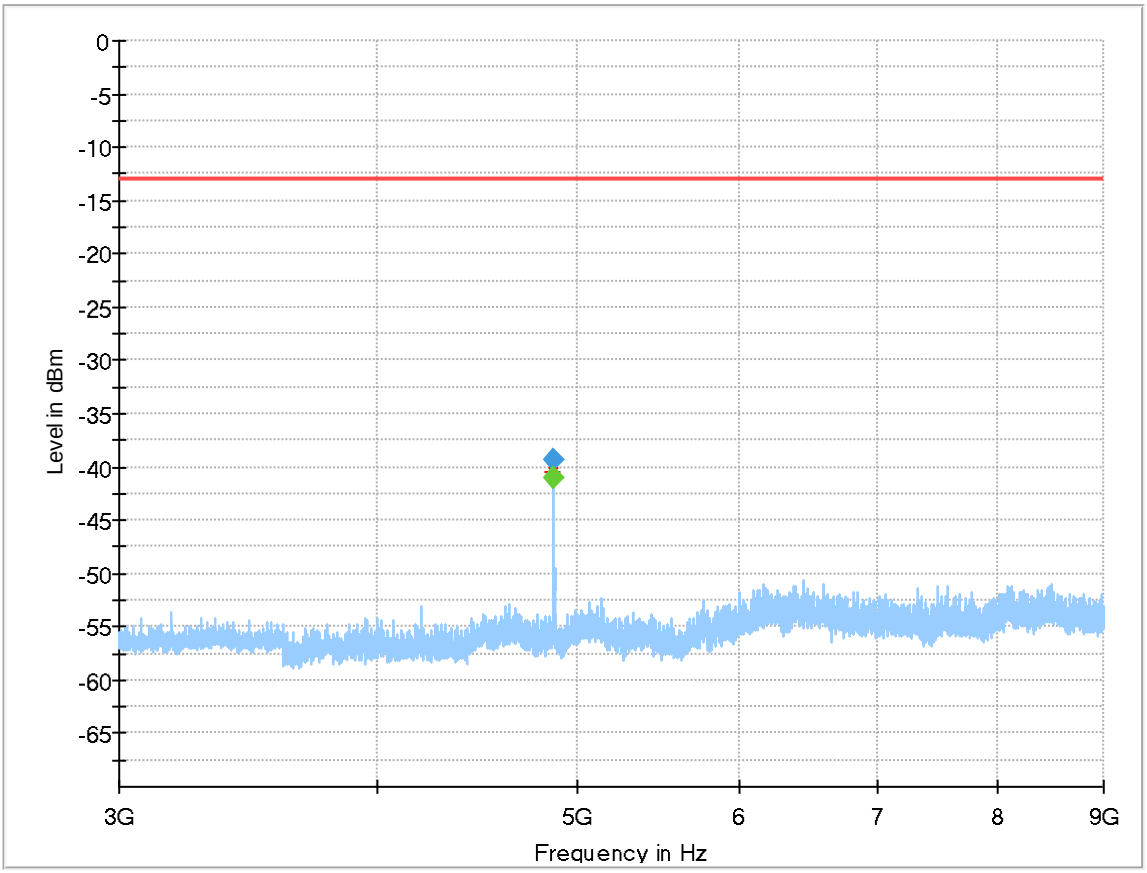
Channel: Low

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.989833	---	-41.01	---	---	100.0	1000.000	279.0	H	116.0	-100.5
4873.989833	-39.25	---	-13.00	26.25	100.0	1000.000	279.0	H	116.0	-100.5

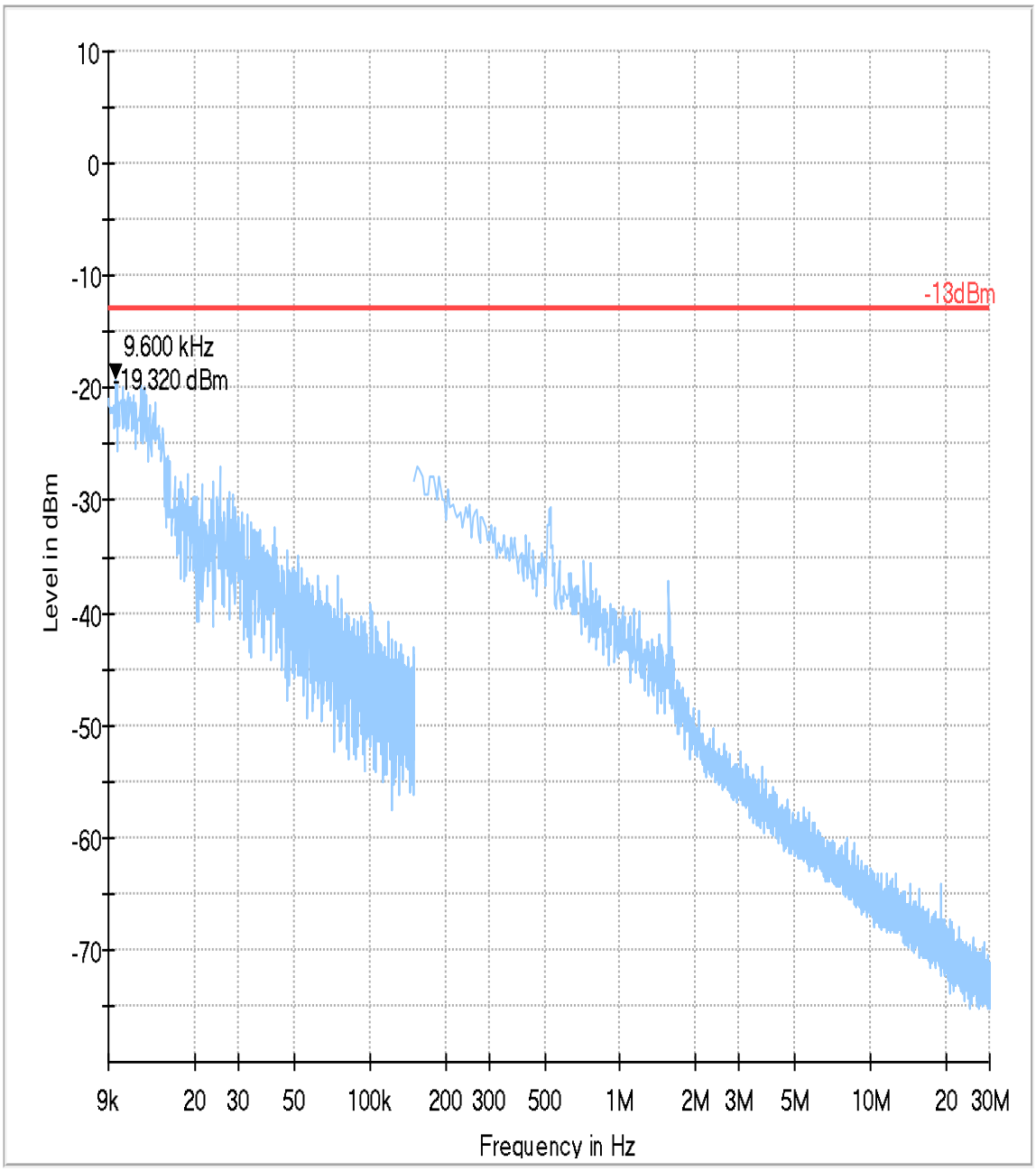
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.989833	1:44:39 PM - 2/26/2019
4873.989833	1:44:39 PM - 2/26/2019



Plot # 66 Radiated Emissions: 9 kHz - 30 MHz

Channel: Mid



Plot # 67 Radiated Emissions: 30 MHz – 1GHz

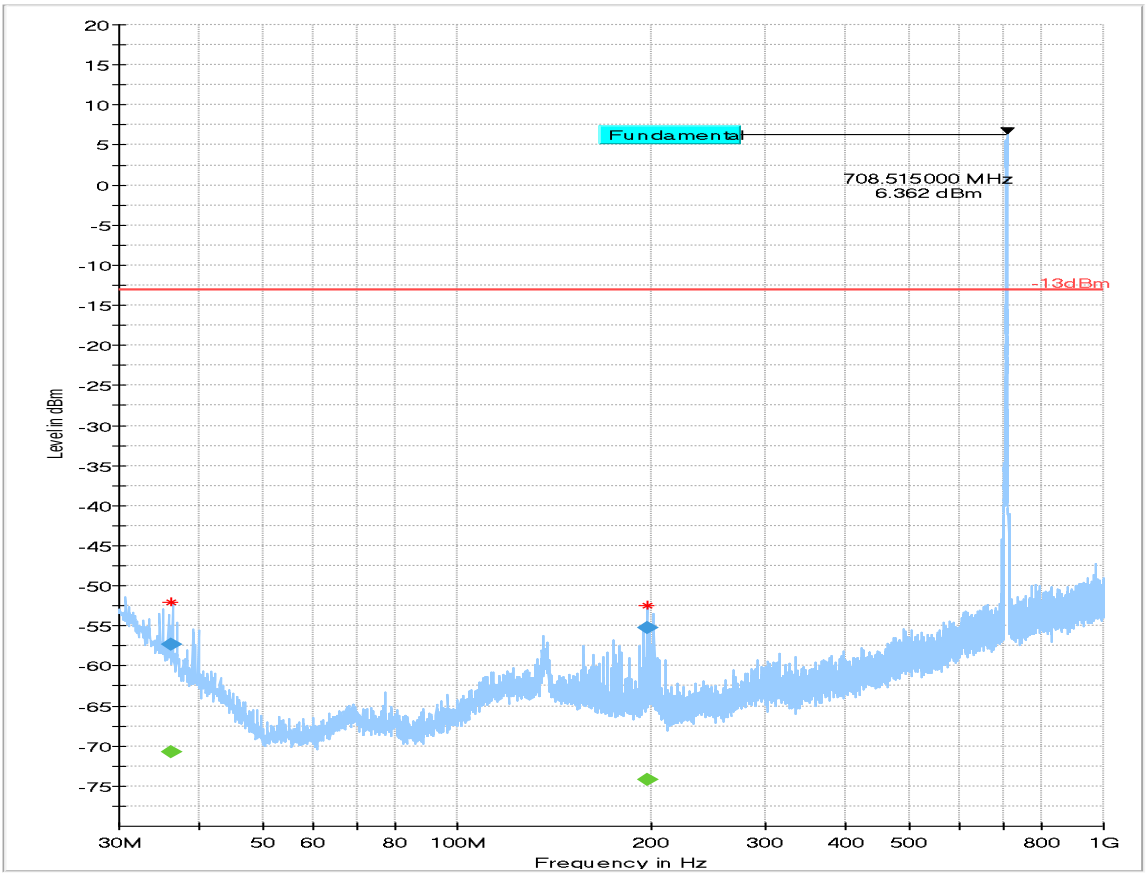
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.236087	---	-70.69	---	---	100.0	100.000	229.0	H	288.0	-71.5
36.236087	-57.34	---	-13.00	44.34	100.0	100.000	229.0	H	288.0	-71.5
196.245760	---	-74.21	---	---	100.0	100.000	197.0	H	97.0	-75.8
196.245760	-55.20	---	-13.00	42.20	100.0	100.000	197.0	H	97.0	-75.8

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
36.236087	4:06:13 PM - 2/26/2019
36.236087	4:06:13 PM - 2/26/2019
196.245760	4:08:17 PM - 2/26/2019
196.245760	4:08:17 PM - 2/26/2019



Plot # 68 Radiated Emissions: 1 GHz - 3 GHz

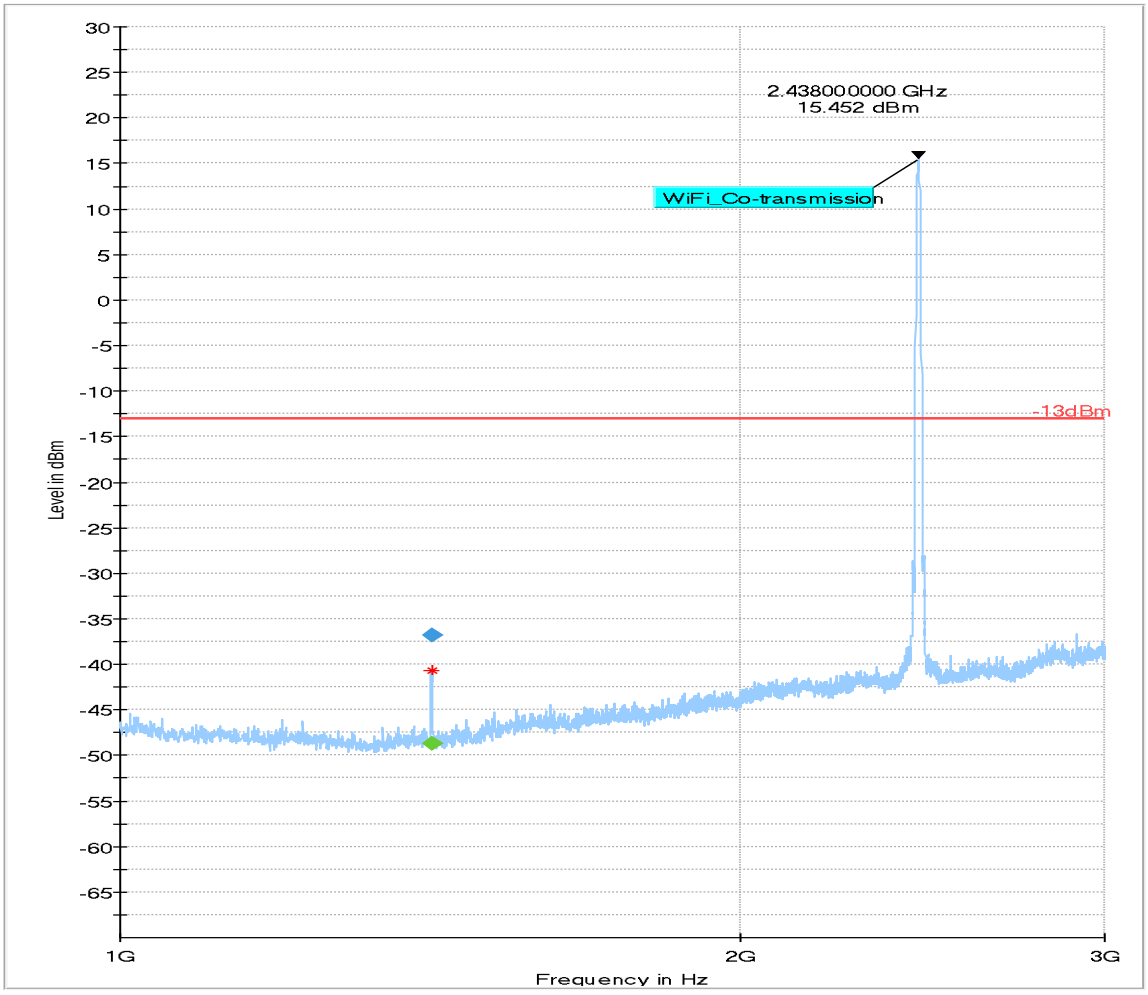
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1416.311875	-36.75	---	-13.00	23.75	100.0	1000.000	172.0	V	312.0	-64.8
1416.311875	---	-48.70	---	---	100.0	1000.000	172.0	V	312.0	-64.8

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
1416.311875	1:52:46 PM - 2/27/2019
1416.311875	1:52:46 PM - 2/27/2019



Plot # 69 Radiated Emissions: 3 GHz – 9 GHz

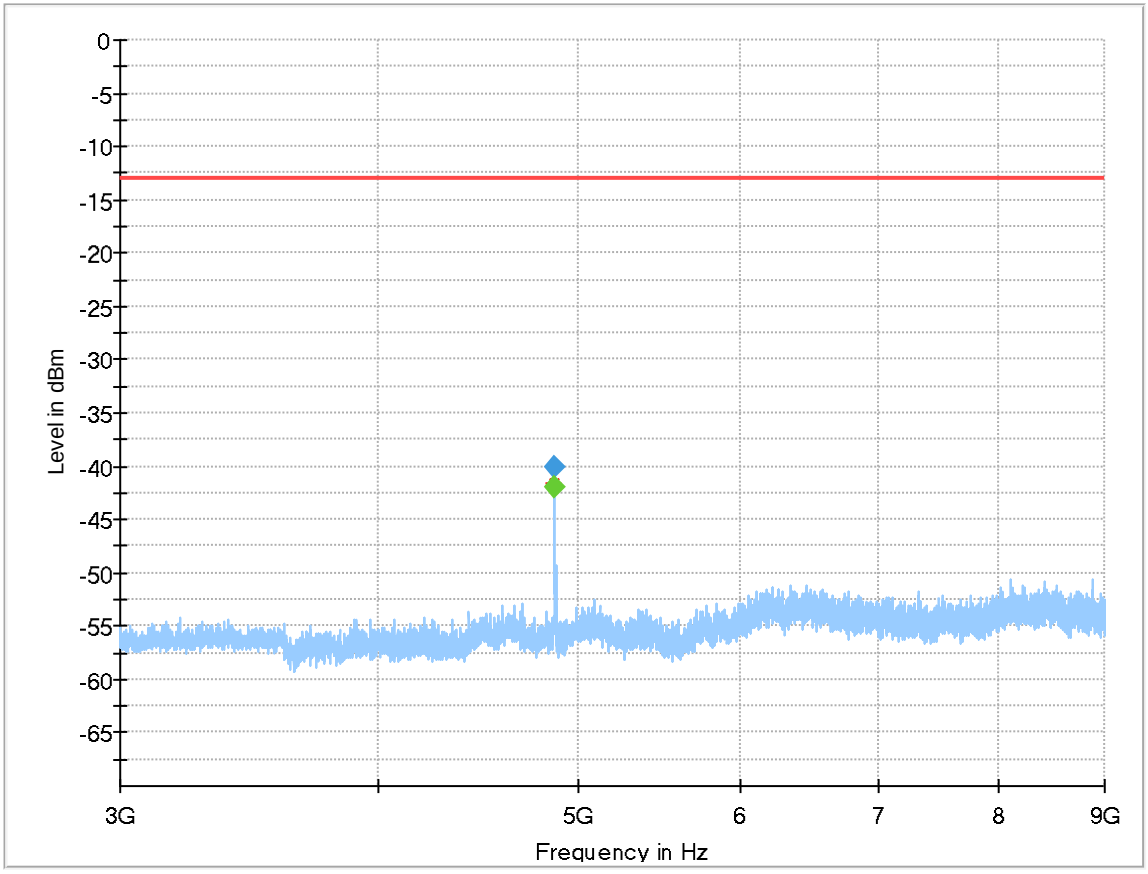
Channel: Mid

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4873.972667	-39.99	---	-13.00	26.99	100.0	1000.000	226.0	H	126.0	-100.5
4873.972667	---	-41.93	---	---	100.0	1000.000	226.0	H	126.0	-100.5

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4873.972667	1:37:42 PM - 2/26/2019
4873.972667	1:37:42 PM - 2/26/2019



Plot # 70 Radiated Emissions: 30 MHz – 1GHz

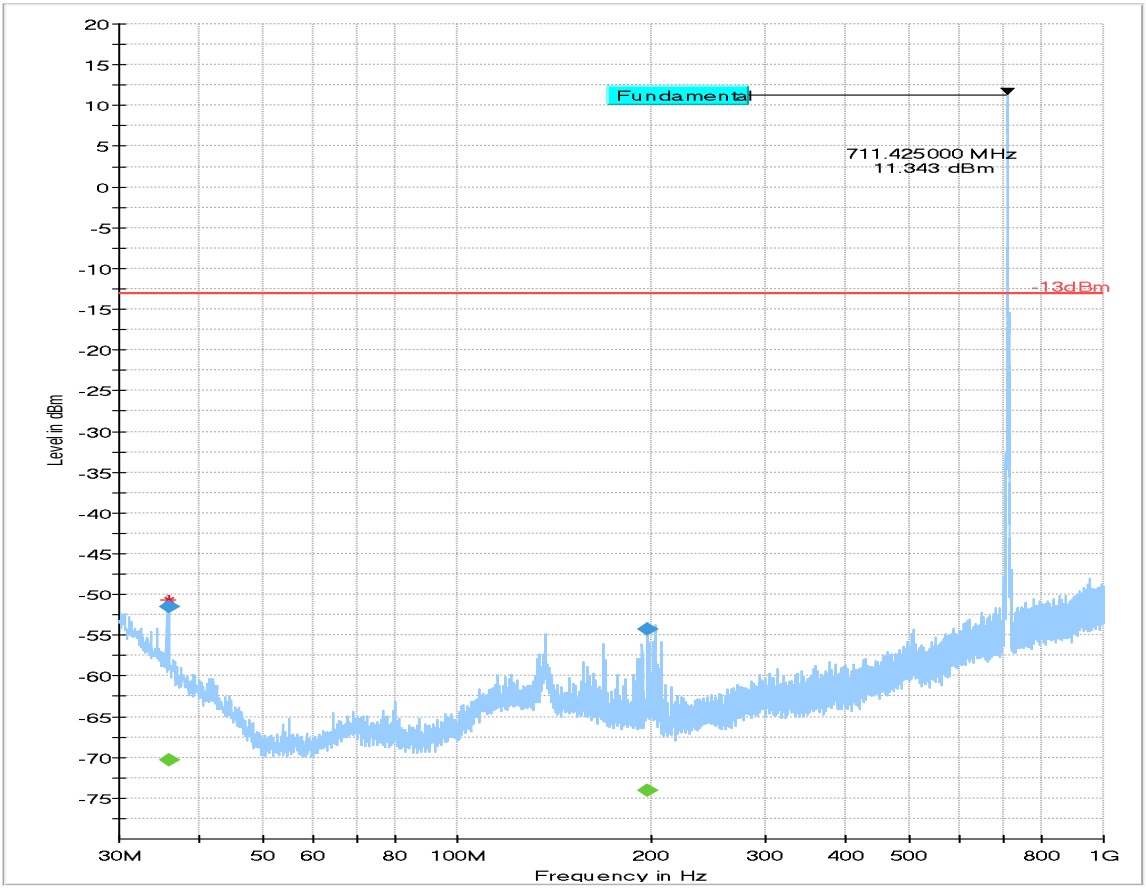
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.820693	---	-70.31	---	---	100.0	100.000	205.0	H	3.0	-71.1
35.820693	-51.55	---	-13.00	38.55	100.0	100.000	205.0	H	3.0	-71.1
197.068950	---	-74.10	---	---	100.0	100.000	140.0	H	105.0	-75.7
197.068950	-54.23	---	-13.00	41.23	100.0	100.000	140.0	H	105.0	-75.7

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
35.820693	3:54:45 PM - 2/26/2019
35.820693	3:54:45 PM - 2/26/2019
197.068950	3:56:46 PM - 2/26/2019
197.068950	3:56:46 PM - 2/26/2019



Plot # 71 Radiated Emissions: 1 GHz - 3 GHz

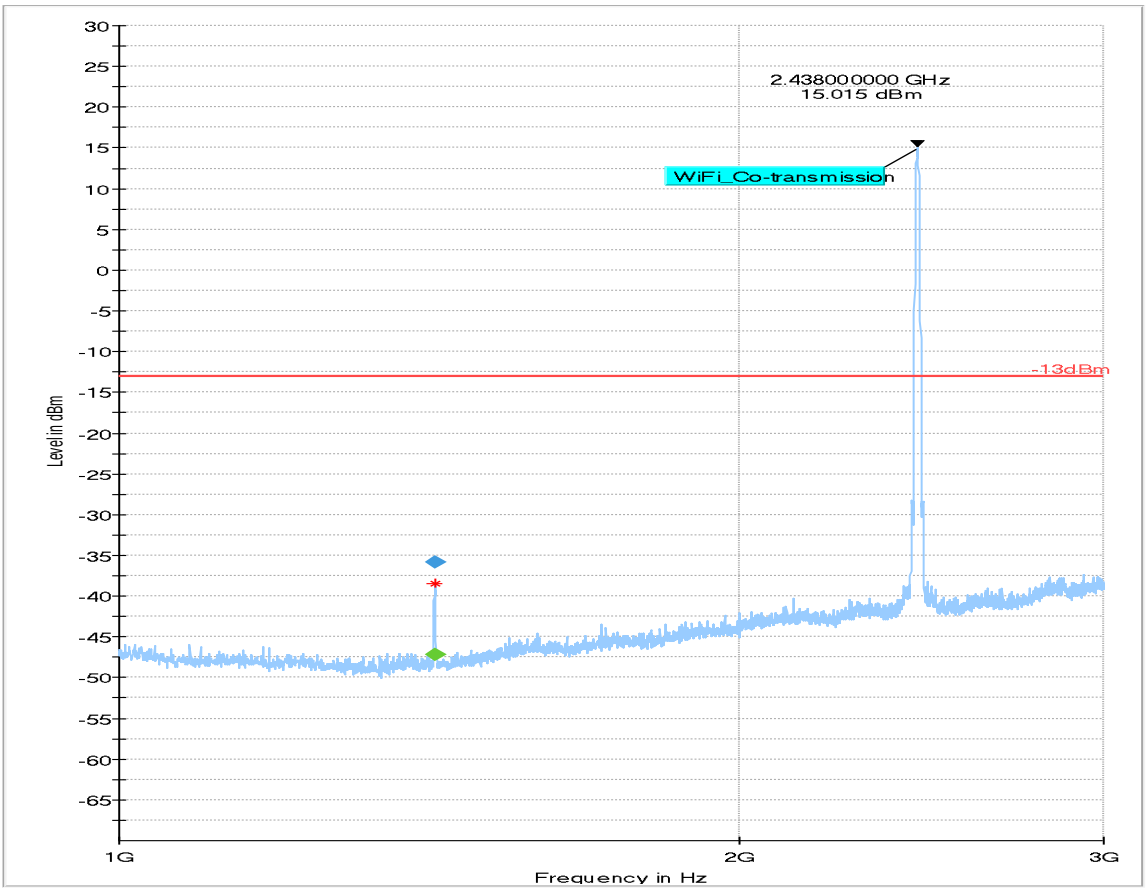
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1423.511625	---	-47.19	---	---	100.0	1000.000	161.0	V	312.0	-64.8
1423.511625	-35.77	---	-13.00	22.77	100.0	1000.000	161.0	V	312.0	-64.8

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
1423.511625	2:10:09 PM - 2/27/2019
1423.511625	2:10:09 PM - 2/27/2019



Plot # 72 Radiated Emissions: 3 GHz – 9 GHz

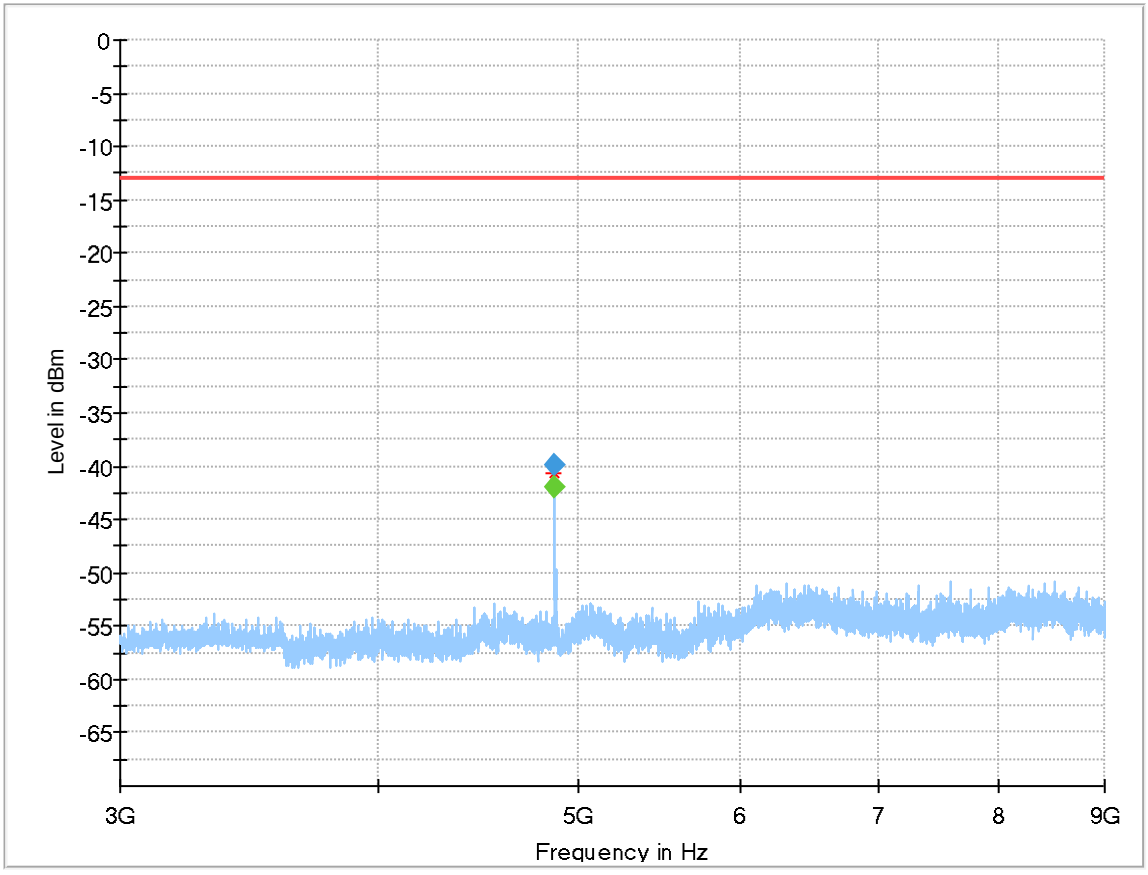
Channel: High

Final_Result

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.020000	-39.94	---	-13.00	26.94	100.0	1000.000	281.0	H	127.0	-100.5
4874.020000	---	-41.97	---	---	100.0	1000.000	281.0	H	127.0	-100.5

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Comment
4874.020000	1:51:07 PM - 2/26/2019
4874.020000	1:51:07 PM - 2/26/2019



8 Test setup photos

Setup photos are included in supporting file name: "EMC_DANLA_058_18001_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	6512	00164698	3 YEARS	08/08/2017
BILOG ANTENNA	TESEO	CBL 6141B	41106	3 YEARS	11/01/2017
HORN ANTENNA	EMCO	3115	00035114	3 YEARS	07/31/2017
HORN ANTENNA	ETS LINDGREN	3117	00167061	3 YEARS	08/08/2017
HORN ANTENNA	ETS LINDGREN	3116C	00166821	3 YEARS	09/24/2017
UNIVERSAL RADIO COMMUNICATION TESTER	R&S	CMU 200	101821	2 YEARS	07/06/2017
WIDEBAND RADIO COMMUNICATION	R&S	CMW500	127068	2 YEARS	07/01/2017
SIGNAL ANALYZER	R&S	FSV 40	101022	2 YEARS	07/05/2017
COMPACT DIGITAL BAROMETER	CONTROL COMPANY	35519-055	91119547	2 YEARS	06/20/2017
TEST RECEIVER	R&S	ESU.EMI	100256	3 YEARS	01/31/2018
THRMOMETER HUMIDIY	DICKSON	TM320	16253639	3 YEARS	11/02/2017

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
2019/04/15	EMC_ DANLA_058_18001_FCC_22_24_27_ISED	Initial version	Yuchan Lu