FCC / ISED & Test Report

For:
Philips Respironics

Model Name:
DreamStation

Product Description:
Continuous Airway Pressure Device with Bluetooth Radio (BDR/EDR) and accessory 2G/3G cellular modem, which sends and receives data

Applied Rules and Standards:

47 CFR Parts 22 and 24
RSS: 132 Issue 3, 133 Issue 6

FCC ID: THO1116426
IC ID: 3234B-1116426

REPORT #: EMC_PHIL4-071-20001_FCC_22_24_ISED_C2PC

DATE: 2020-06-26

A2LA Accredited

IC recognized # 3462B-2

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1 Assessment

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

Company Name	Product Description	Model #
Philips Respironics	Continuous Airway Pressure Device with Bluetooth Radio (BDR/EDR) and accessory 2G/3G cellular modem, which sends and receives data	1116426

Specifically, this report shows that the product fulfills the radiated emission requirements, operating in simultaneous transmission mode when plugged into a common host together with the following cellular modem model:

Company Name	Product Description	Model #
Philips Respironics	2G/3G cellular modem which sends and receives data on Bands GSM 850, GSM 1900, UMTS II, UMTS V	100610C & 100650C

Based on client similarity declaration, both cellular modem models use the same integrated cellular module (Gemalto Cinterion EHS6), and have only differences in the labels and the SIM internal data.

No deficiencies were ascertained.

Responsible for Testing Laboratory:

Date	Section	Name	Signature
2020-06-26	Compliance	Cindy Li (EMC Lab Manager)	Cindy Li Digitally signed by cindy.li@cetecom.com DN: CN=cindy.li@cetecom.com Reason: I am approving this document Location: Date: 2020-06-26 13:07:33

Responsible for the Report:

Date	Section	Name	Signature
2020-06-26	Compliance	Chin Ming Lui (Associate EMC Engineer)	Chin Ming Lui Digitally signed by: Chin Ming Lui DN: CN = Chin Ming Lui email = chinming.lui@cetecom.com C = US O = CETECOM Date: 2020.06.26 11:44:30 -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
EMC Lab Manager:	Cindy Li
Responsible Project Leader:	Cathy Palacios

2.2 Identification of the Client

Client's Name:	Philips Respironics
Street Address:	1740 Golden Mile Highway
City/Zip Code	Monroeville, PA 15146
Country	USA
Contact Person:	Jerry Shore
Phone No.	(724) 387-7578
e-mail:	jerry.shore@philips.com

2.3 Identification of the Manufacturer

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

3 Equipment Under Test (EUT)

3.1 EUT Specifications

Model #	Host Device: 1116426, Cellular Modem: 100610C & 100650C
HW Version	Rev. 4
SW Version	4.003
FCC-ID	THO1116426
IC-ID:	3234B-1116426
HVIN:	100610C & 100650C
PMN:	DreamStation
Product Description	Continuous Airway Pressure Device with Bluetooth Radio (BDR/EDR) and accessory 2G/3G cellular modem, which sends and receives data
Radio Module Information	❖ 2G/3G Cellular • Module name: Gemalto Cinterion • Model number: EHS6 • FCC ID: QIPEHS6; IC ID: 7830A-EH6;
Frequency Band of Operation	❖ 2G • GSM 850: 824.2 – 848.8 MHz • GSM 1900: 1850.2 – 1909.8 MHz ❖ 3G • UMTS Band II: 1852.4 – 1907.6 MHz • UMTS Band V: 826.4 – 846.6 MHz
Antenna Information as declared:	❖ Main Antenna • Name: Molex • Type: Printed on Case • Location: Internal • Max Gain: ○ UMTS Band II / GSM 1900 (1900 Band): 2 dBi ○ UMTS Band V / GSM 850 (800 Band): 0 dBi
Other Radios included in the device:	❖ Bluetooth Classic (BDR/EDR) • Module name: Broadcom • Module number: 1116426 • FCC ID: THO1116426; IC ID: 3234B-1116426
Power Supply/ Rated Operating Voltage Range	100V (Low) / 115V (Nominal) / 240V (Max)
Operating Temperature Range	5°C to +35°C
Sample Revision	☐Prototype ■Production ☐ Pre-Production

3.2 EUT Sample details

EUT #	DreamST autoSV, H, EU Serial Number	DreamStation Hum Core Pack DOM Serial Number	HW Version	SW Version	Comments
1	J2370781507AB	H2692984482AB	REV. 4	4.003	----------

3.3 Accessory Equipment (AE) details

AE #	Comments
1	❖ 2G/3G Cellular Modem Accessory: • Module: Gemalto Cinterion EHS6 • IMEI: 352557101959636 • PMN: DreamStation Cellular Modem • HVIN: 100610C & 100650C • S.W. Version: 4.003
2	❖ AC/DC ADAPTER: • Manufacturer: Delta Electronics, Inc. • MODEL: MDS-080AAS12 A C.C.: A • S/N: 70HW8A90G6M • INPUT: 100-240V~50-60Hz 2.0-1.0A • OUTPUT: 12V ⎓ 6.67A

3.4 Test Sample Configuration

Set-up #	EUT / AE used for set-up	Comments
1	EUT#1 + AE#1 + AE#2	Radiated Measurements

3.5 Mode of Operation details

Mode of Operation	Description of Operating modes	Additional Information
Op. 1	Cellular 2G/3G and Bluetooth Co-Transmission	Cellular bands were tested on Low, Mid, High Channels at maximum power in co-transmission with Bluetooth. The "RASP Bluetooth Test Suite" software tool was provided by the customer and used to configure the Bluetooth radio: • Mode: **Bluetooth Classic** / Bluetooth LE • Transmit mode: **Transmit** / Receive • Hopping: **No** / Yes • Hopping Type: **Single Frequency** / 79 Channels • Channel: Low, **Mid**, High, Channel # • Packet Type: DH1, DH3, DH5, 2-DH1, 2-DH3, 2-DH5, 3DH-1, 3DH-3, **3-DH5** • Modulation: GFSK, QPSK, **8PSK**, Unmodulated The "RASP Bluetooth Test Suite" software tool will not be available to the end user. The internal antenna was connected.

3.6 Justification for Worst Case Mode of Operation

During the testing process the cellular radio was tested with transmitter set on low, mid and high channels at the maximum power in simultaneous transmission with the worst case mode of the Bluetooth radio, 8PSK 3-DH5 at mid channel, based on the maximum average conducted output power from the Bluetooth radio report.

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 Class II Permissive Change (C2PC) towards host device under **FCC ID:** THO1116426 / **IC ID**: 3234B-1116426.

The accessory cellular modem contains the pre-certified module (Gemalto Cinterion EHS6) supporting 2G & 3G cellular technologies as described in Section 3. Radiated Spurious Emissions test was performed on the accessory cellular modem integrated into the host device. Results have been checked to meet limits per Code of Federal Regulations Title 47 Part 22, Part 24, and Industry Canada Radio Standard Specifications RSS-132 Issue 3 and RSS-133 Issue 6.

The conducted module test data, which can be obtained under FCC ID: QIPEHS6 / IC ID: 7830A-EH6, is applicable for the host device described in section 3.

4.1 Dates of Testing:

4/23/2020 - 4/28/2020

4.2 Measurement Uncertainty

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

Radiated measurement

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

Conducted measurement

150 kHz to 30 MHz	±0.7 dB (LISN)
RF conducted measurement	±0.5 dB

4.3 Environmental Conditions during Testing:

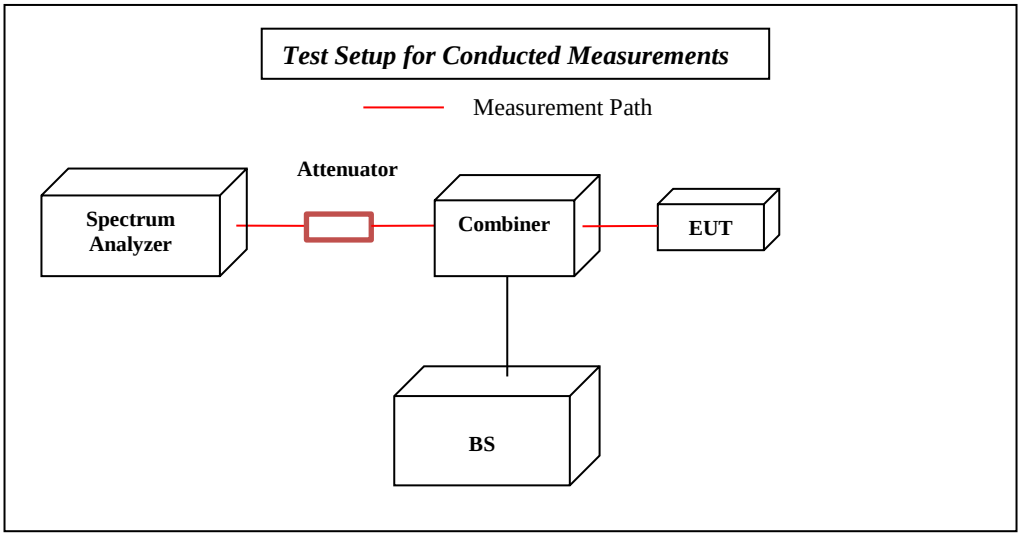
The following environmental conditions were maintained during the course of testing:

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

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

5 Measurement Procedures

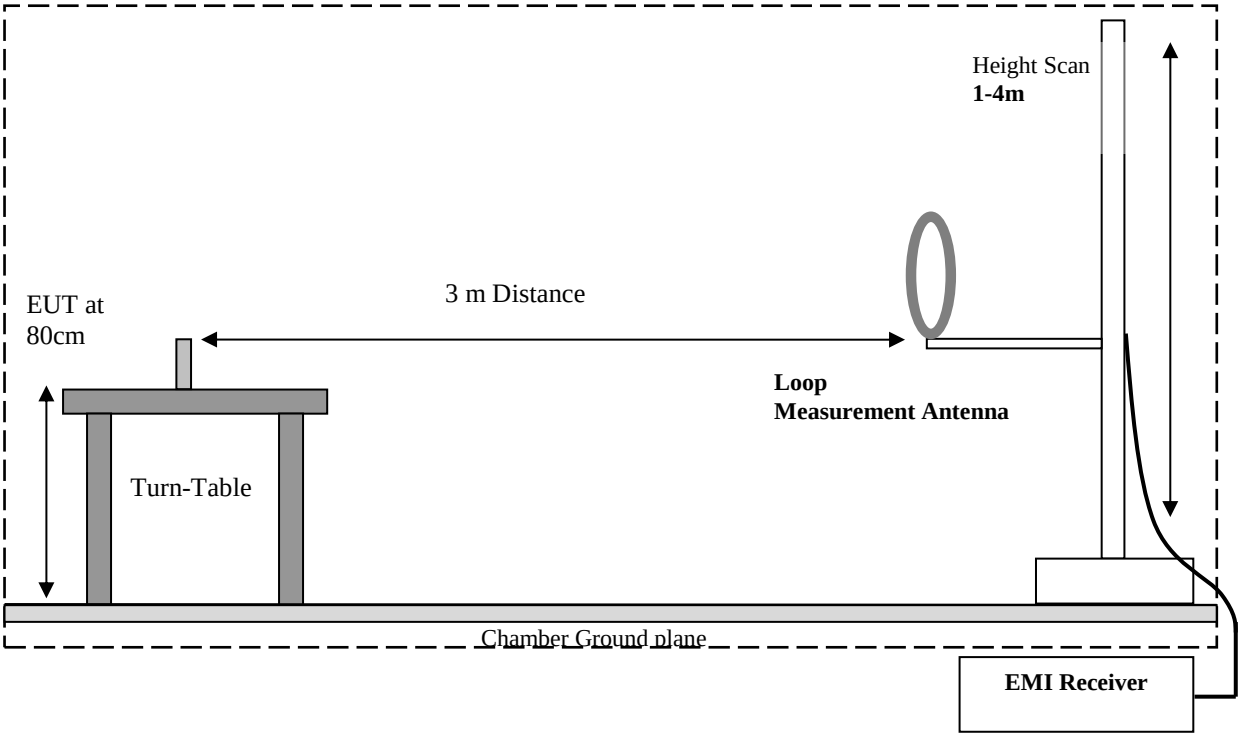
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03r01 – "Measurement Guidance for Certification of Licensed Digital Transmitters" and according to relevant parts of ANSI/TIA-603-D-2010 as detailed below.



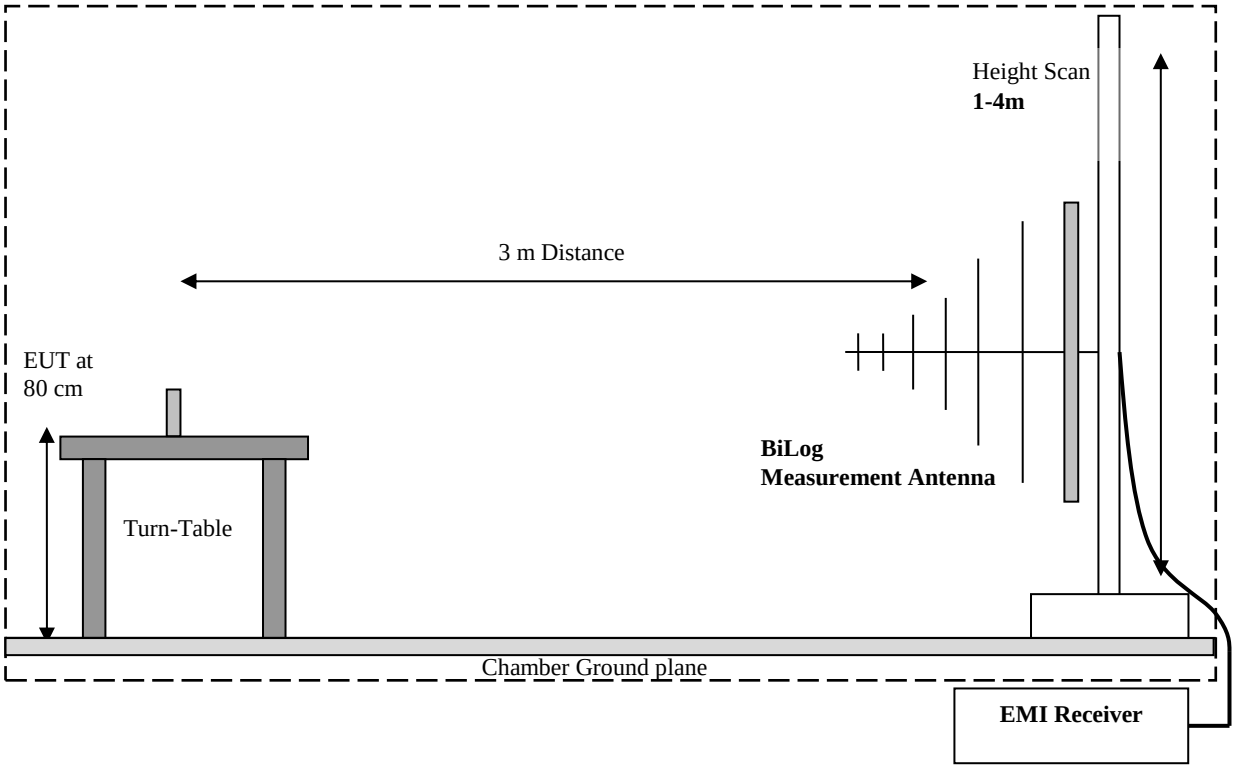
5.1 Radiated Measurement

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

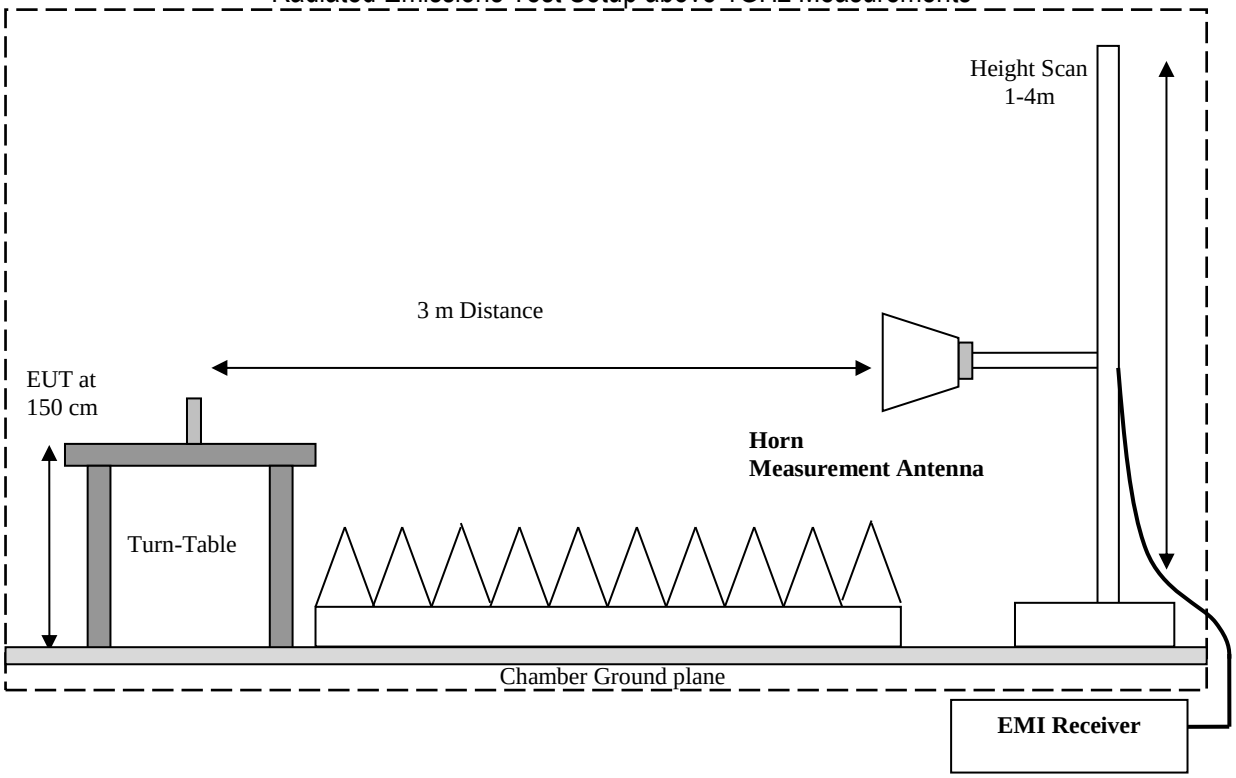
Radiated Emissions Test Setup below 30MHz Measurements



Radiated Emissions Test Setup 30MHz-1GHz Measurements



Radiated Emissions Test Setup above 1GHz Measurements



5.2 Sample Calculations for Field Strength Measurements

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

- Measured reading in 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 Part 22 / RSS-132

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

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from module certification Gemalto EHS6 (FCC ID: QIPEHS6, IC ID: 7830A-EHS6)

6.2 Part 24 / RSS-133

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

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from module certification Gemalto EHS6 (FCC ID: QIPEHS6, IC ID: 7830A-EHS6)

7 Test Result Data

7.1 ERP/EIRP

FCC Rule Parts	Band	Frequency Range (MHz)	Power Conducted (W) Note 1	Emission Designator	Gain (dBi)	Gain Linear	EIRP (W) Note 2	ERP (W) Note 2	Limit EIRP (W)	Limit ERP (W)
22H	UMTS V	826.4 – 846.6	0.263	4M17F9W	0	1	-	0.160	-	7
22H	GSM 850	824.2 – 848.8	2.466	244KGXW	0	1	-	1.504	-	7
24E	UMTS II	1852.4 – 1907.6	0.253	4M17F9W	2	1.585	0.401	-	2	-
24E	GSM 1900	1850.2 – 1909.8	1.122	247KGXW	2	1.585	1.778	-	2	-

Note 1: Power Conducted (W) leveraged from certification grant of cellular module Gemalto EHS6 (FCC ID: QIPEHS6, IC ID: 7830A-EHS6)

Note 2: ERP / EIRP are calculated by adding the declared maximum gain of the utilized cellular antenna per operational description to the Power Conducted (W).

7.2 Radiated Spurious Emissions

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

Spectrum Analyzer Settings for FCC 22

Frequency Range	30MHz – 1 GHz	1 – 1.58 GHz	1.58 – 9 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto

Spectrum Analyzer Settings for FCC 24

Frequency Range	30MHz – 1 GHz	1 – 2.7 GHz	2.7 – 18 GHz	18 – 19.1 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto	Auto

7.2.2 Limits:

7.2.2.1 FCC Part 22.917 (a); FCC Part 24.238 (a)

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

7.2.2.2 RSS-132 Part 5.5; RSS-133 Part 6.5 Transmitter Unwanted Emissions

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 $\log_{10}$ p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 $\log_{10}$ p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

Note: The limit calculation result is a constant of -13 dBm.

7.2.3 Test conditions and setup:

Ambient Temperature (°C)	EUT Set-Up #	EUT operating mode	Power Input
23.4	1	Op. 1	115 VAC

7.2.4 Measurement result:

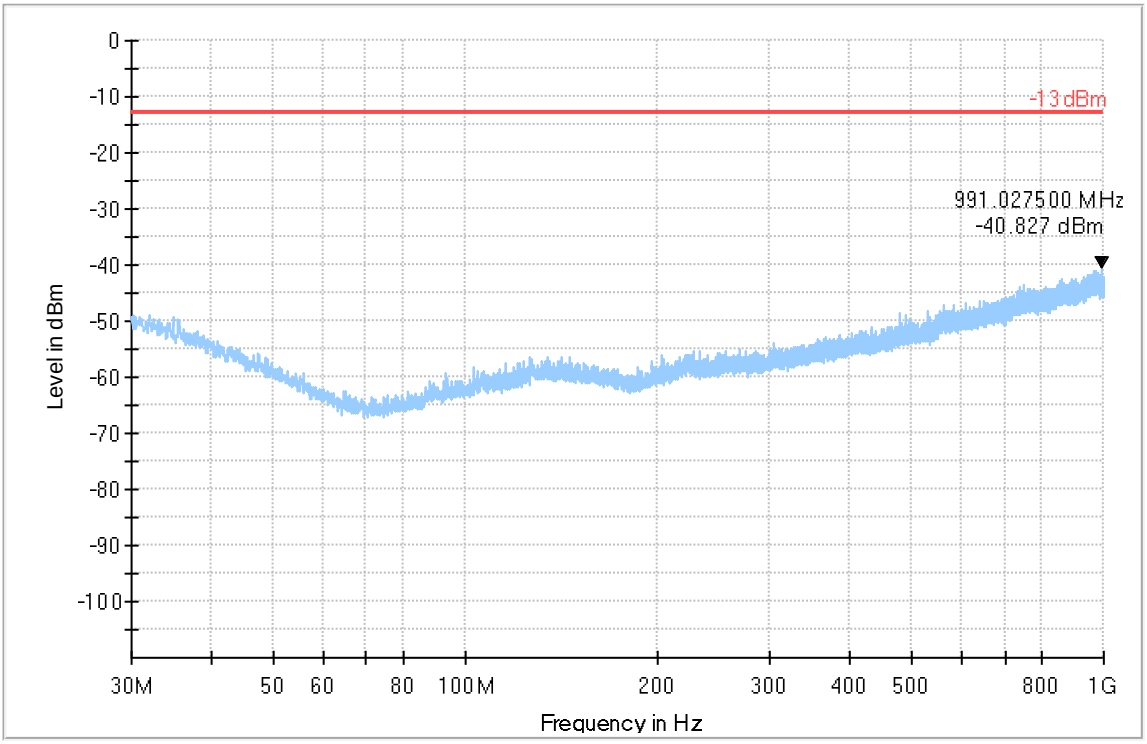
Plot #	Channel	EUT operating mode	Scan Frequency	Limit (dBm)	Result
1-3	Low	UMTS Band II	30 MHz – 18 GHz	-13	Pass
4-8	Mid		9 kHz – 26 GHz	-13	Pass
9-11	High		30 MHz – 18 GHz	-13	Pass
12-14	Low	UMTS Band V	30 MHz – 9 GHz	-13	Pass
15-18	Mid		9 kHz – 9 GHz	-13	Pass
19-21	High		30 MHz – 9 GHz	-13	Pass
22-24	Low	GSM 850	30 MHz – 9 GHz	-13	Pass
25-28	Mid		9 kHz – 9 GHz	-13	Pass
29-31	High		30 MHz – 9 GHz	-13	Pass
32-34	Low	GSM 1900	30 MHz – 18 GHz	-13	Pass
35-39	Mid		9 kHz – 26 GHz	-13	Pass
40-42	High		30 MHz – 18 GHz	-13	Pass

7.2.5 Measurement Plots:

UMTS Band II

Plot #1 Radiated Emissions: 30 MHz – 1GHz

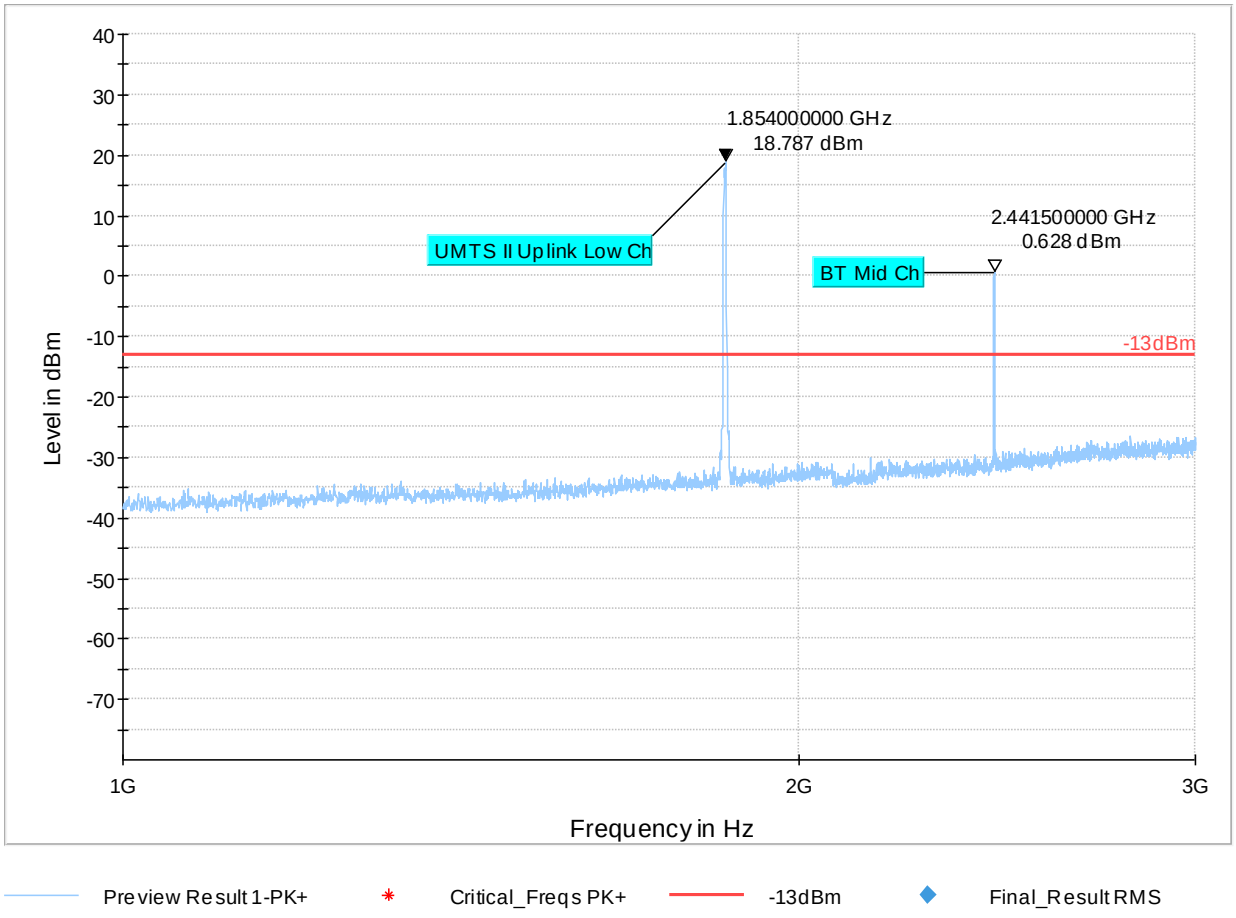
Channel: Low



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

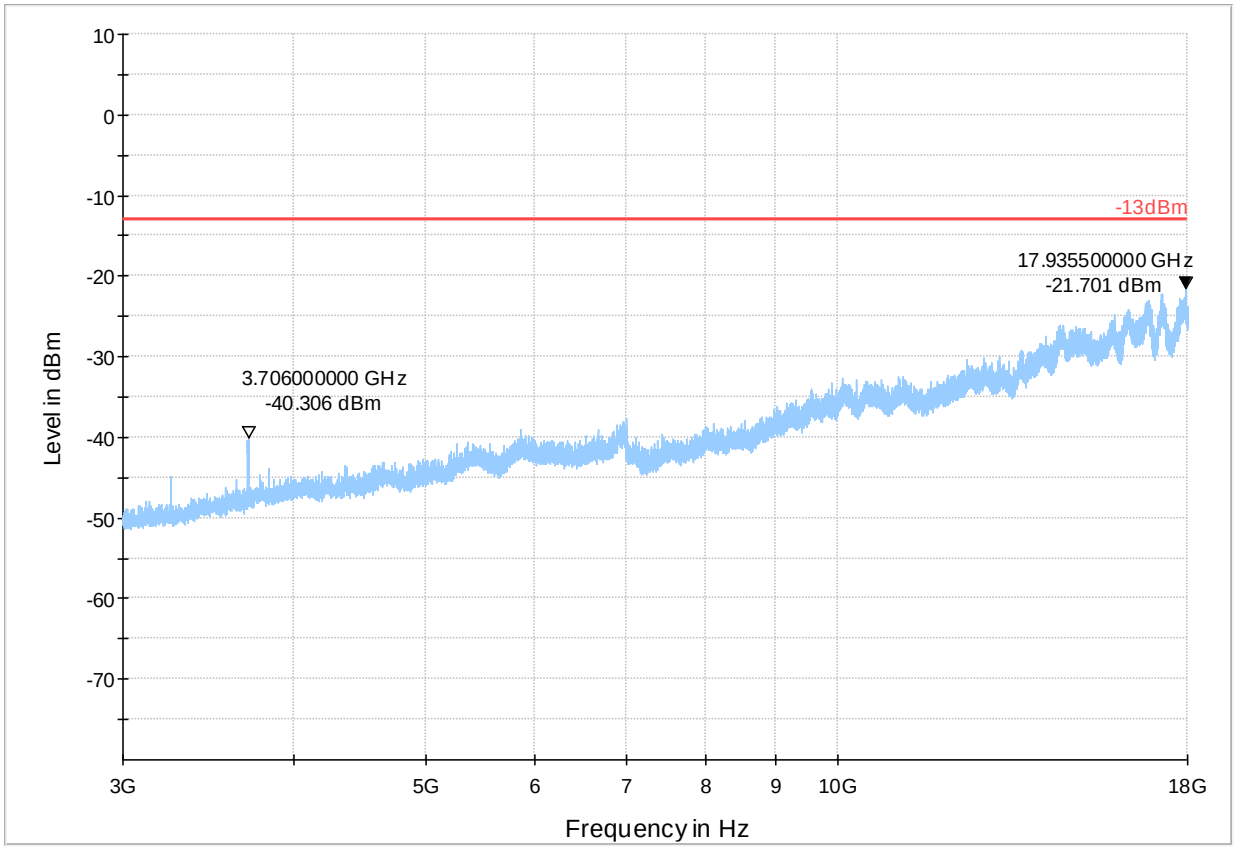
Plot # 2 Radiated Emissions: 1-3 GHz

Channel: Low



Plot # 3 Radiated Emissions: 3-18 GHz

Channel: Low



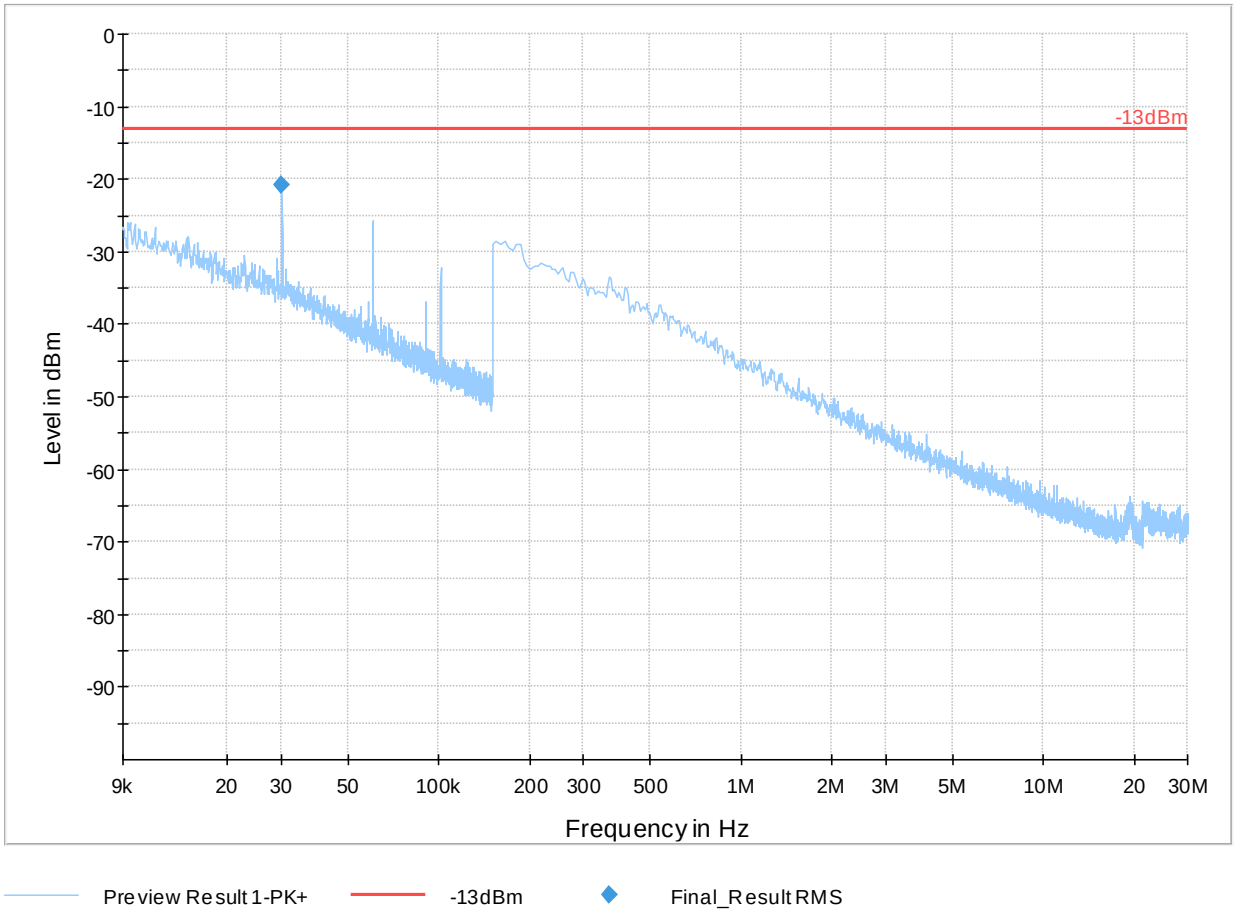
Preview Result 1-PK+ Critical_Freqs PK+ -13dBm Final_Result RMS

Plot #4 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid

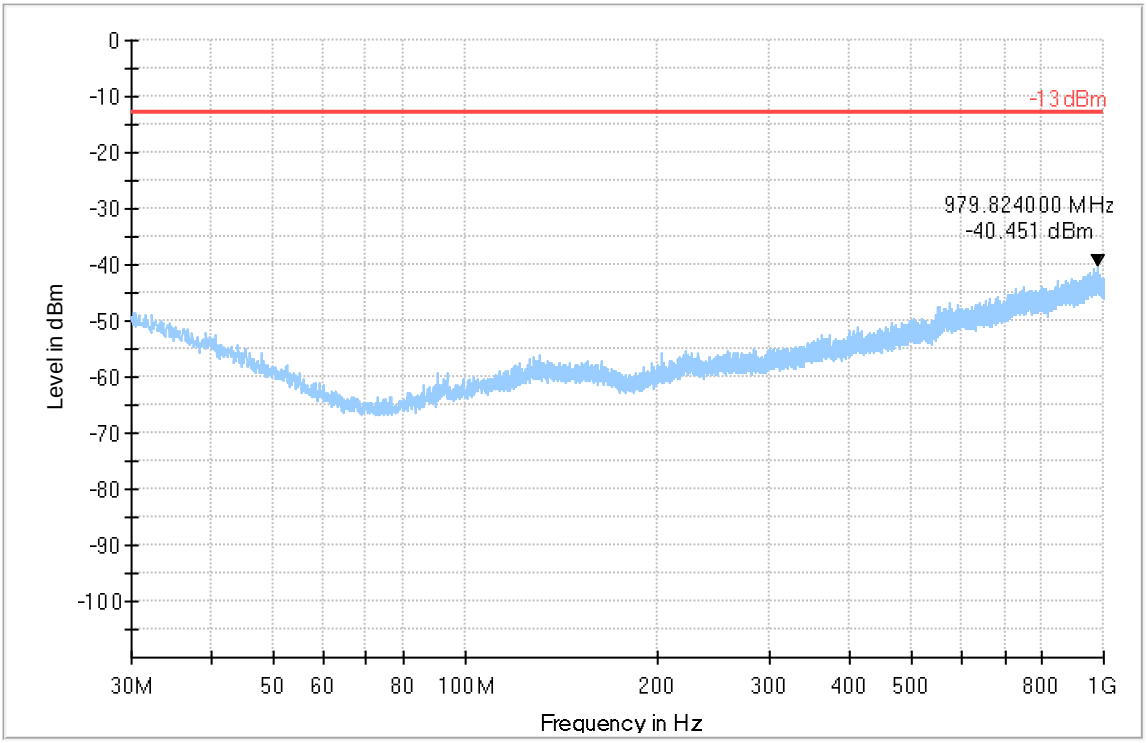
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030231	-20.76	-13.00	7.76	100.0	0.100	100.0	V	190.0	-75.8



Plot #5 Radiated Emissions: 30 MHz – 1 GHz

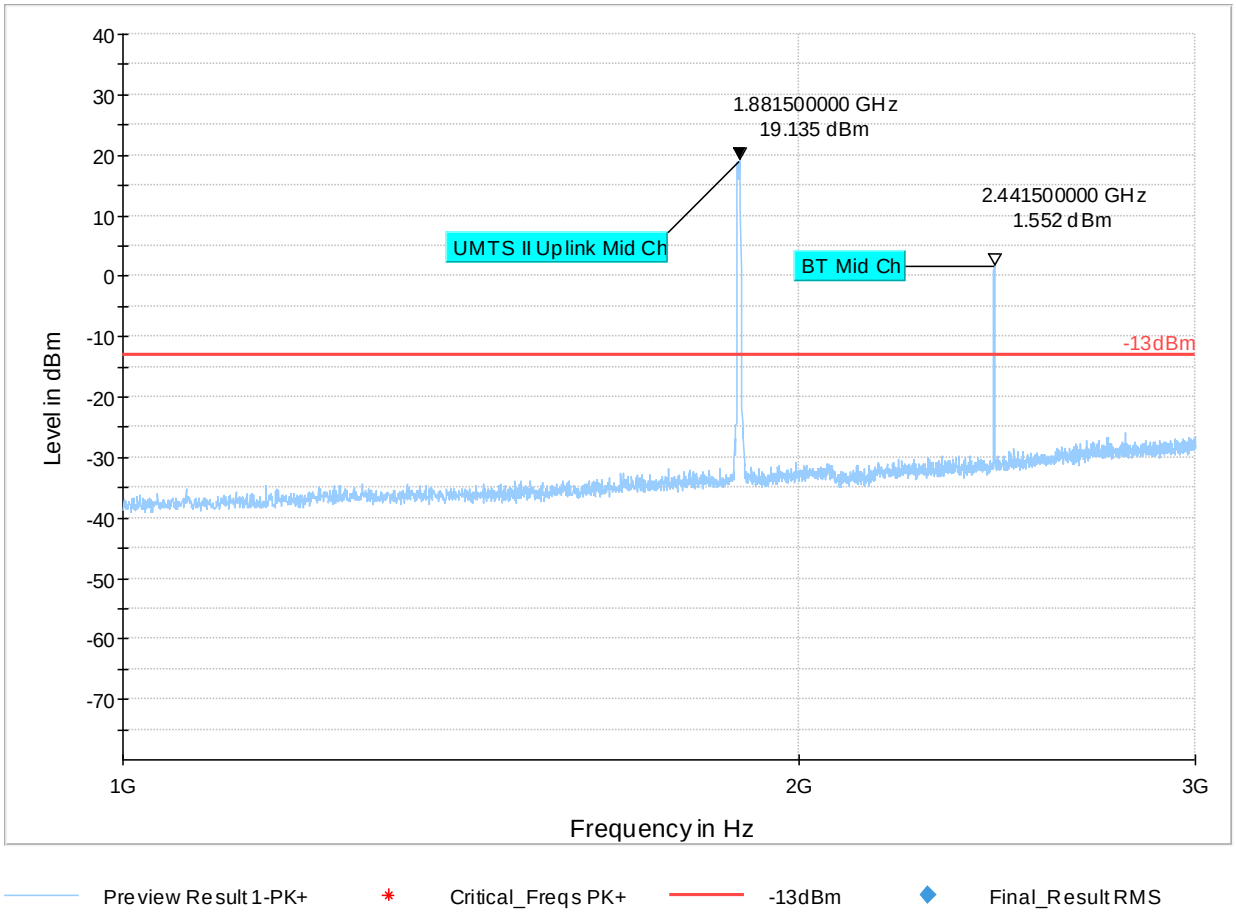
Channel: Mid



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

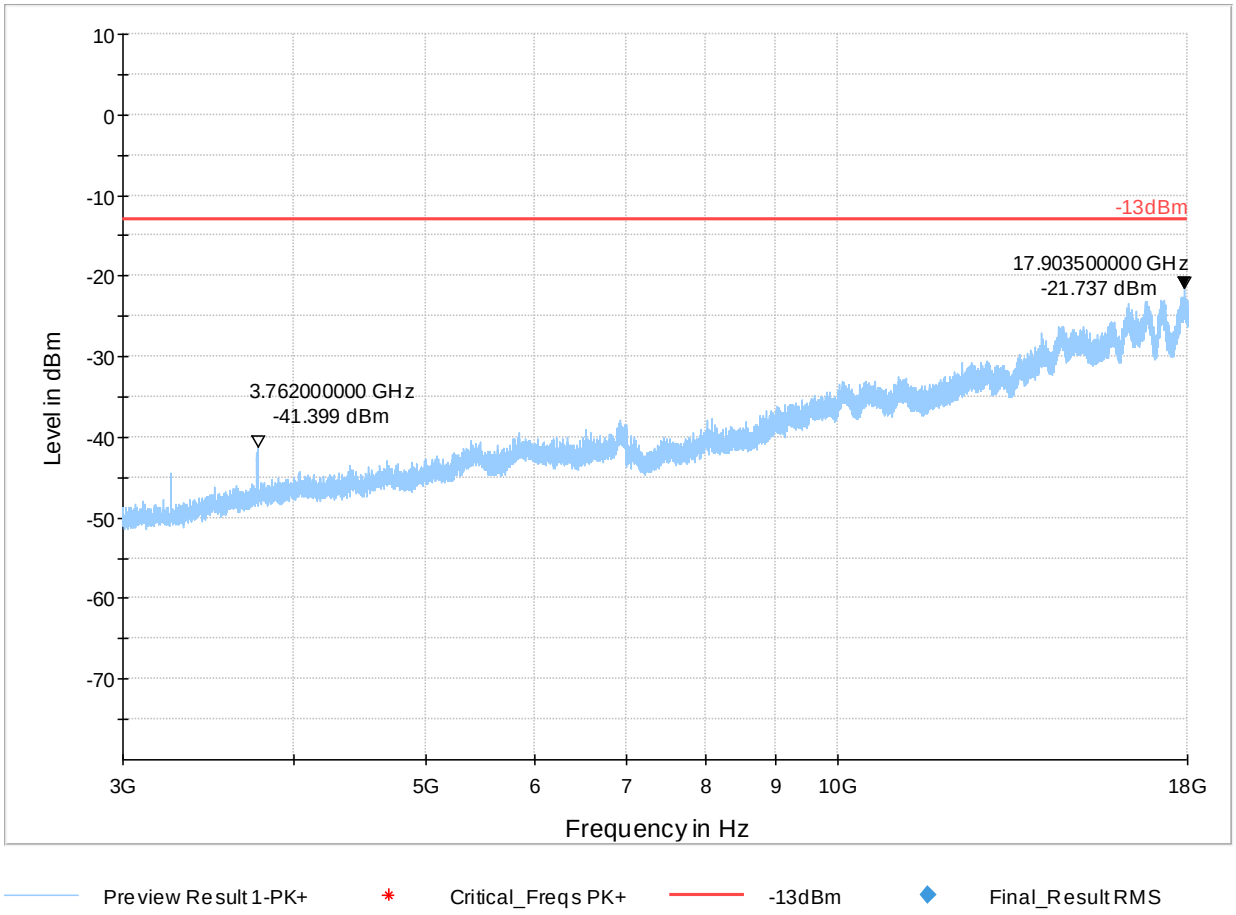
Plot #6 Radiated Emissions: 1-3 GHz

Channel: Mid



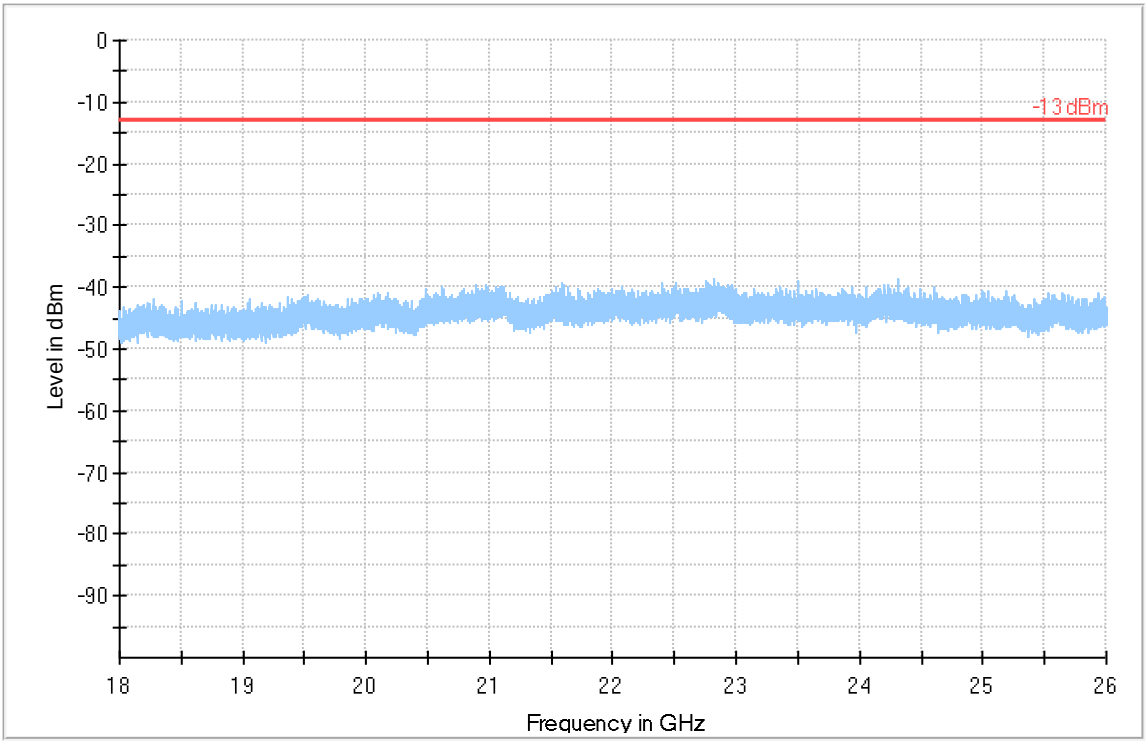
Plot #7 Radiated Emissions: 3-18 GHz

Channel: Mid



Plot #8 Radiated Emissions: 18-26 GHz

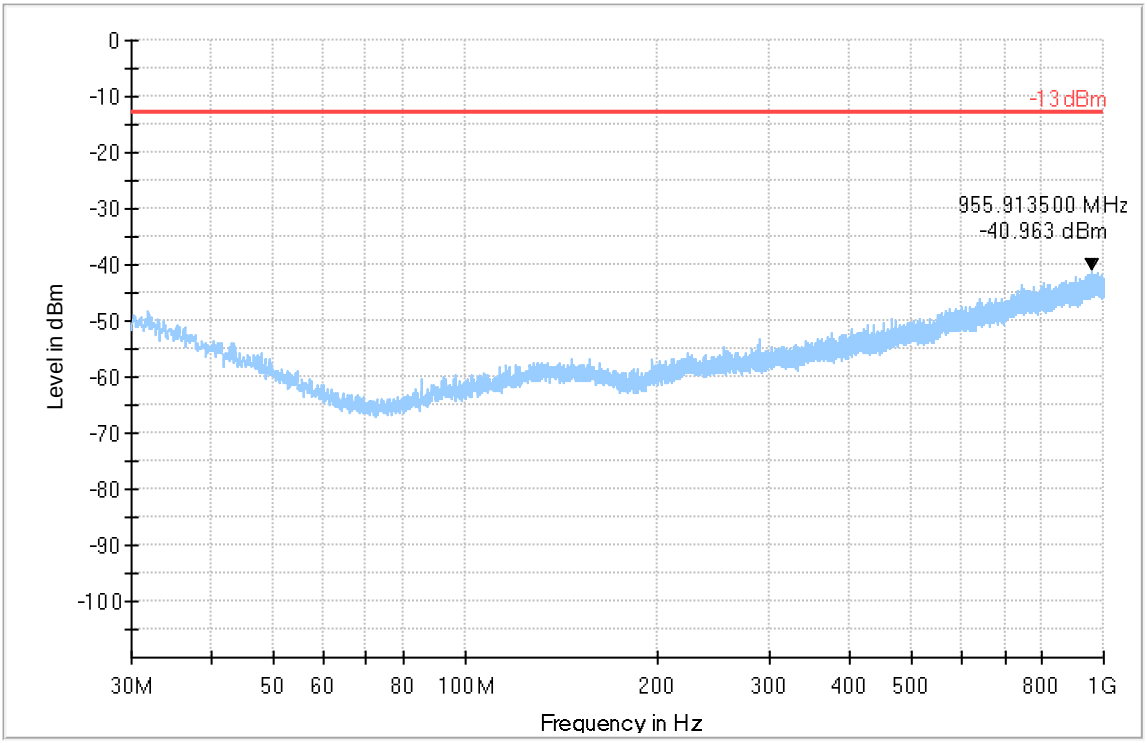
Channel: Mid



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

Plot #9 Radiated Emissions: 30 MHz – 1 GHz

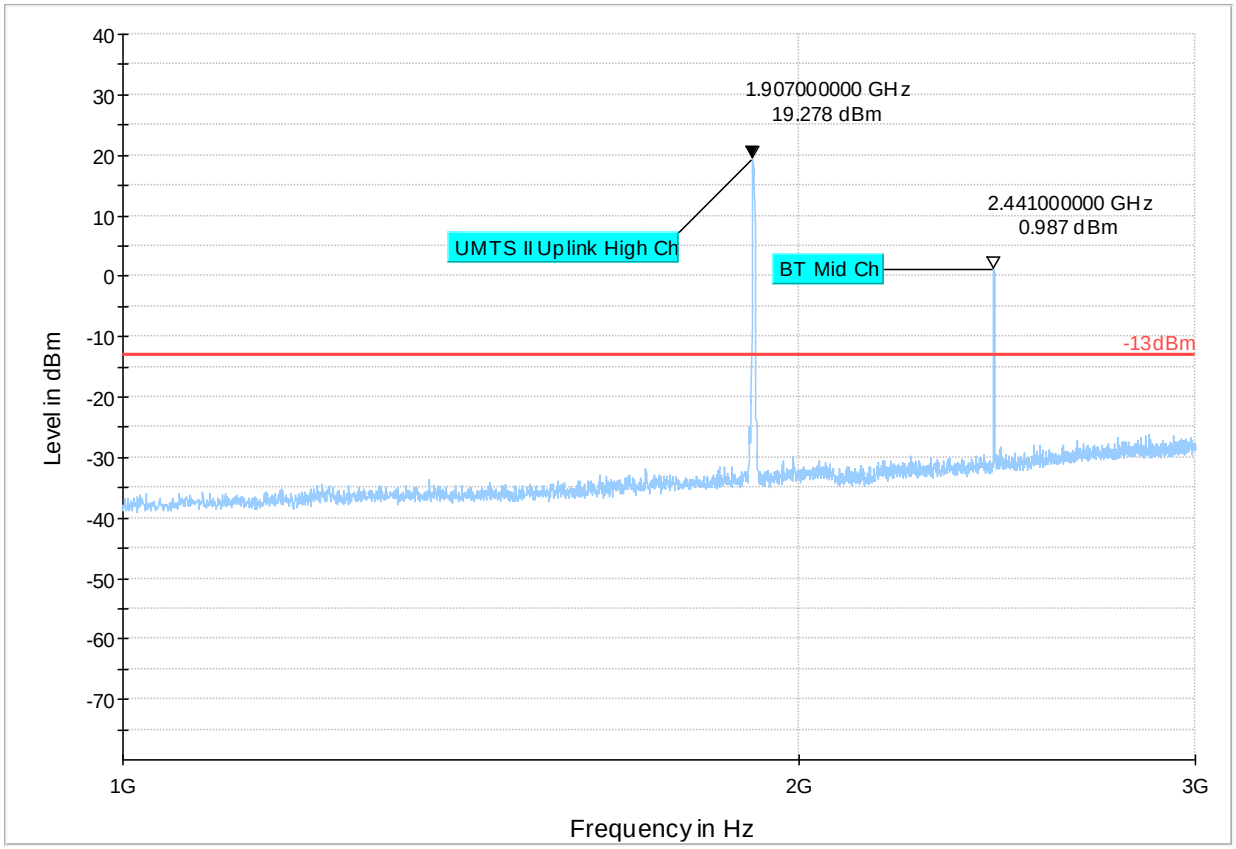
Channel: High



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

Plot #10 Radiated Emissions: 1-3 GHz

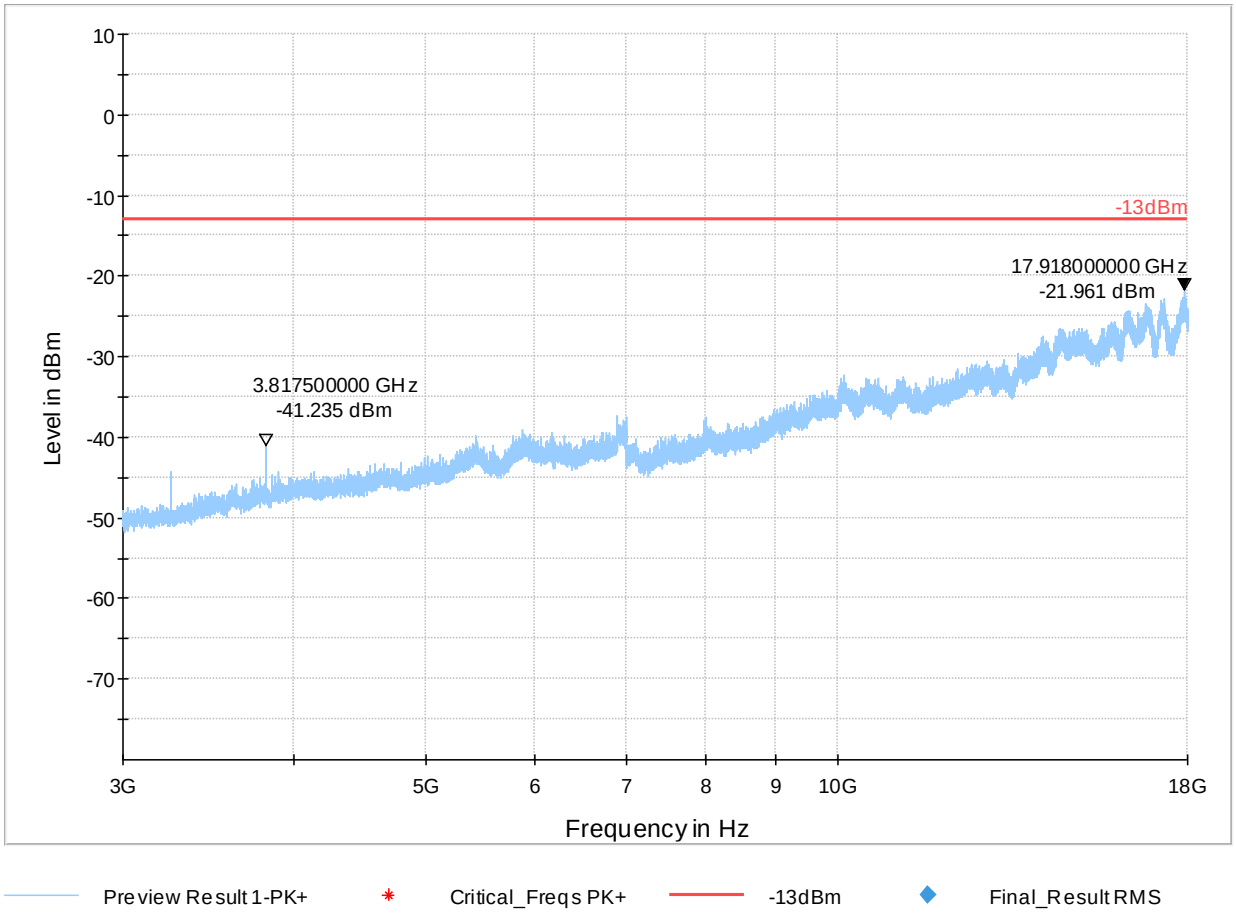
Channel: High



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

Plot #11 Radiated Emissions: 3-18 GHz

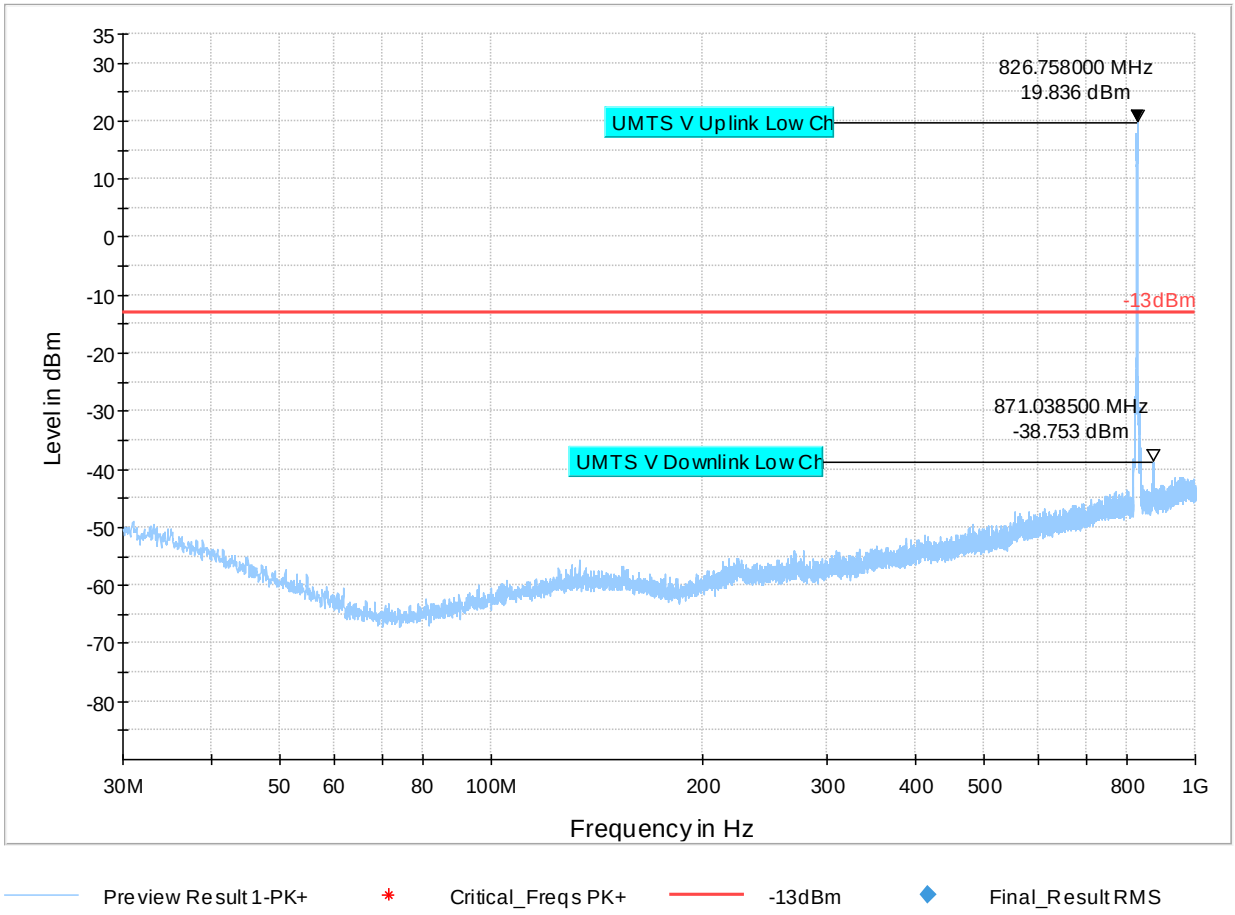
Channel: High



UMTS V

Plot #12 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

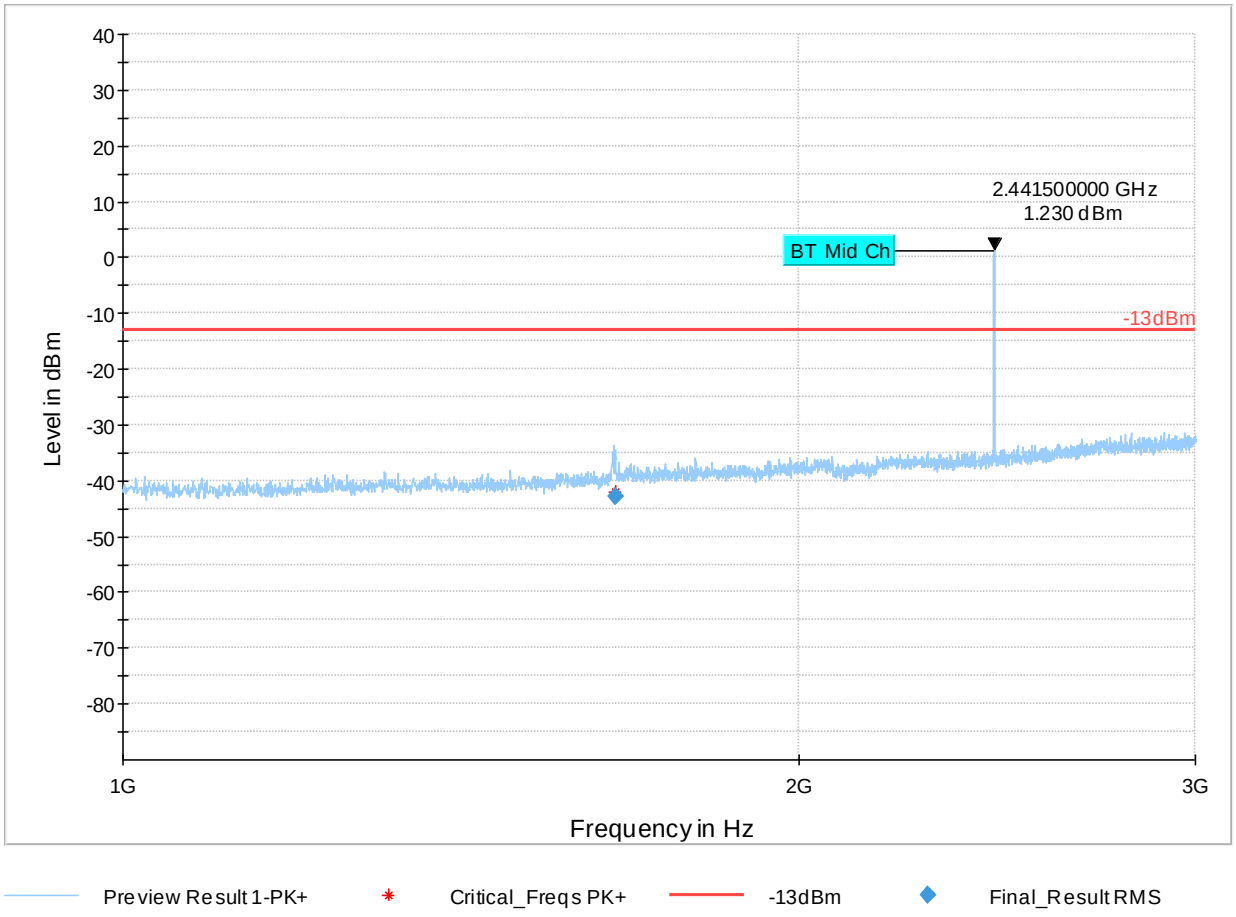


Plot # 13 Radiated Emissions: 1-3 GHz

Channel: Low

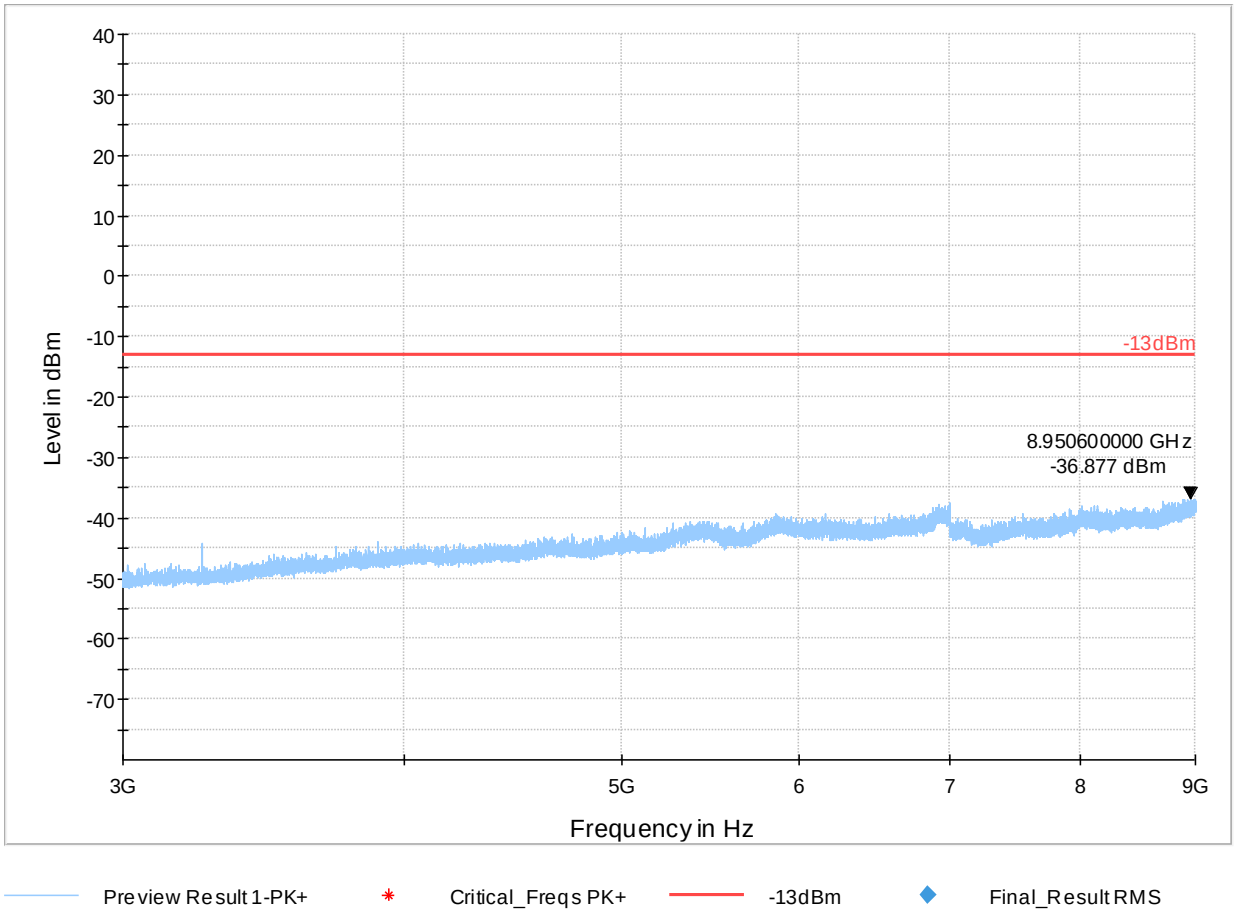
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1655.660000	-42.93	-13.00	29.93	500.0	1000.000	186.0	H	200.0	-90.7



Plot # 14 Radiated Emissions: 3-9 GHz

Channel: Low

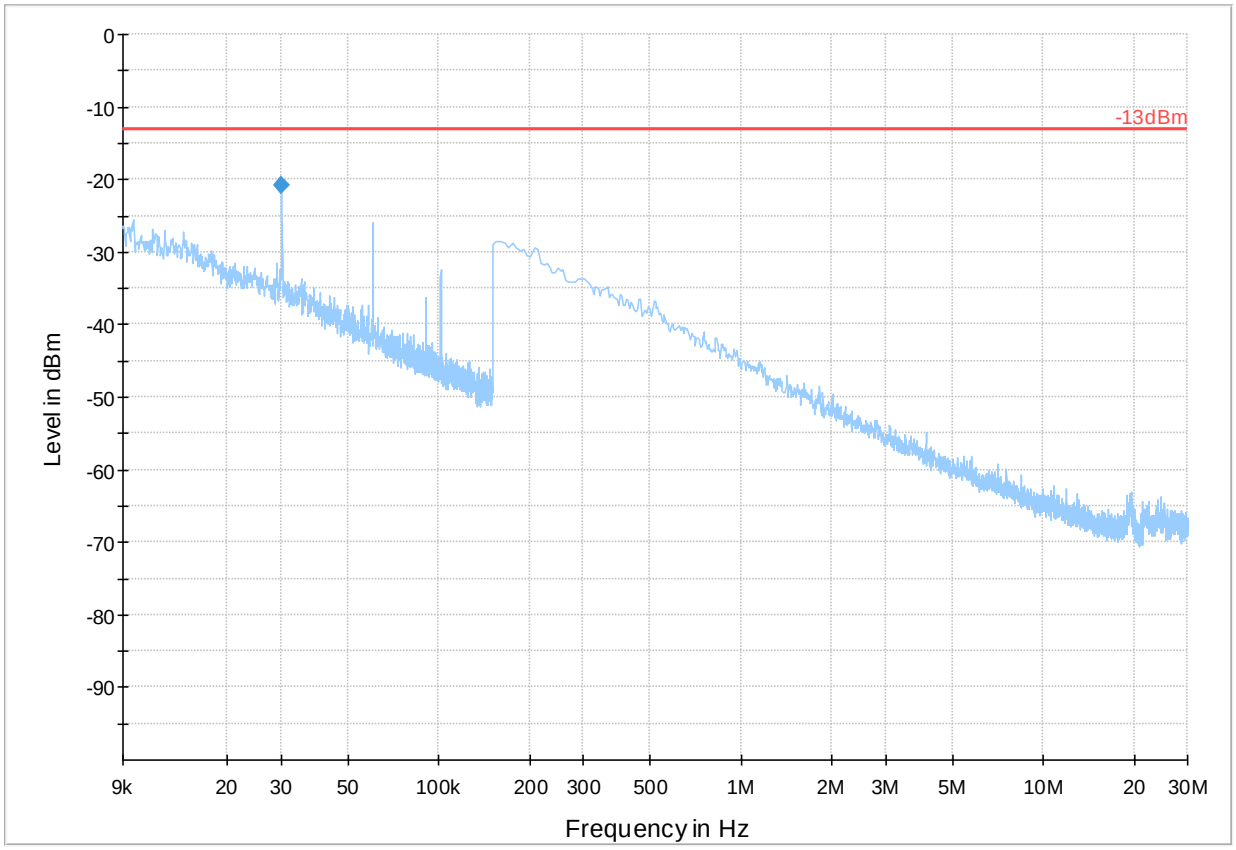


Plot #15 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid

Final_Result

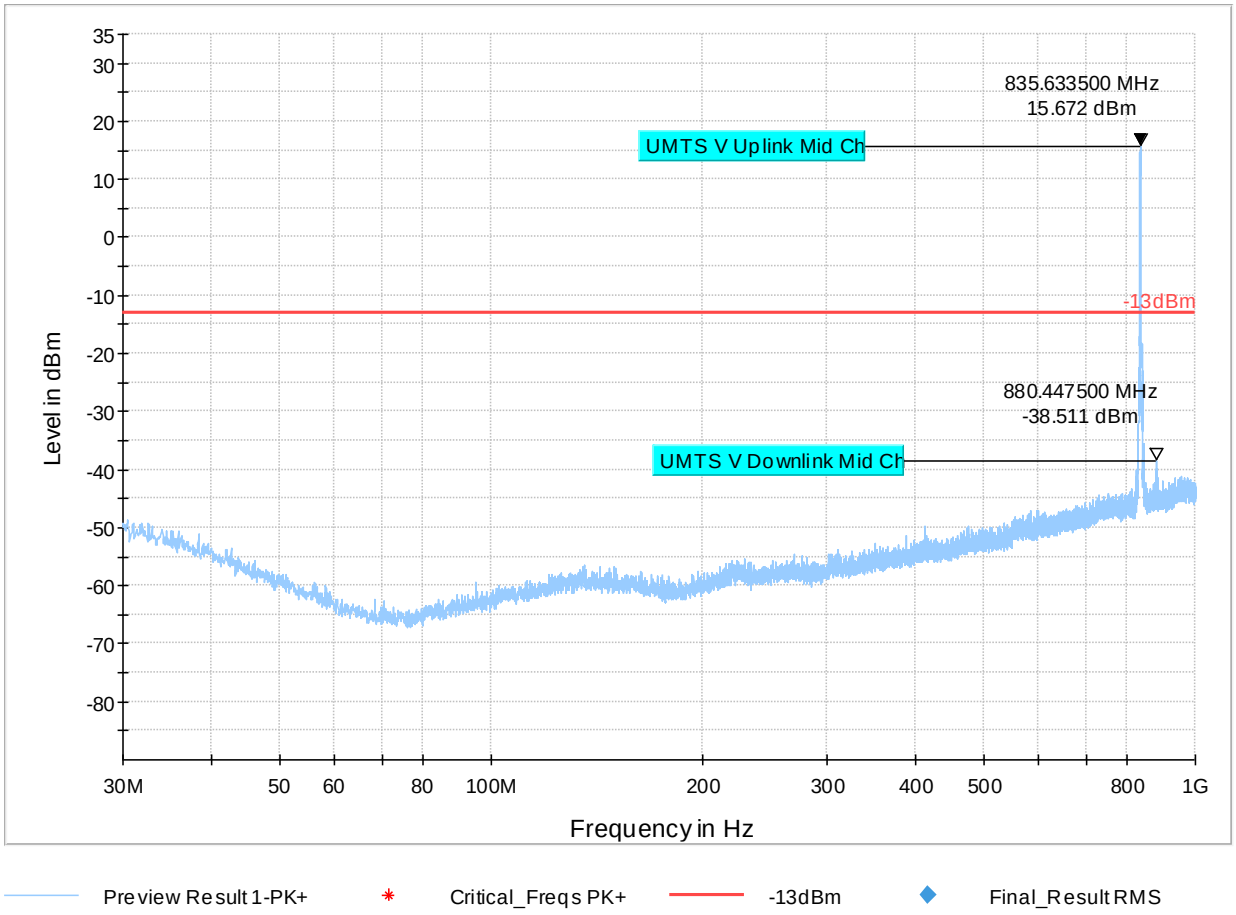
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030236	-20.83	-13.00	7.83	100.0	0.100	100.0	V	109.0	-75.8



Preview Result 1-PK+ -13dBm Final_Result RMS

Plot #16 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid

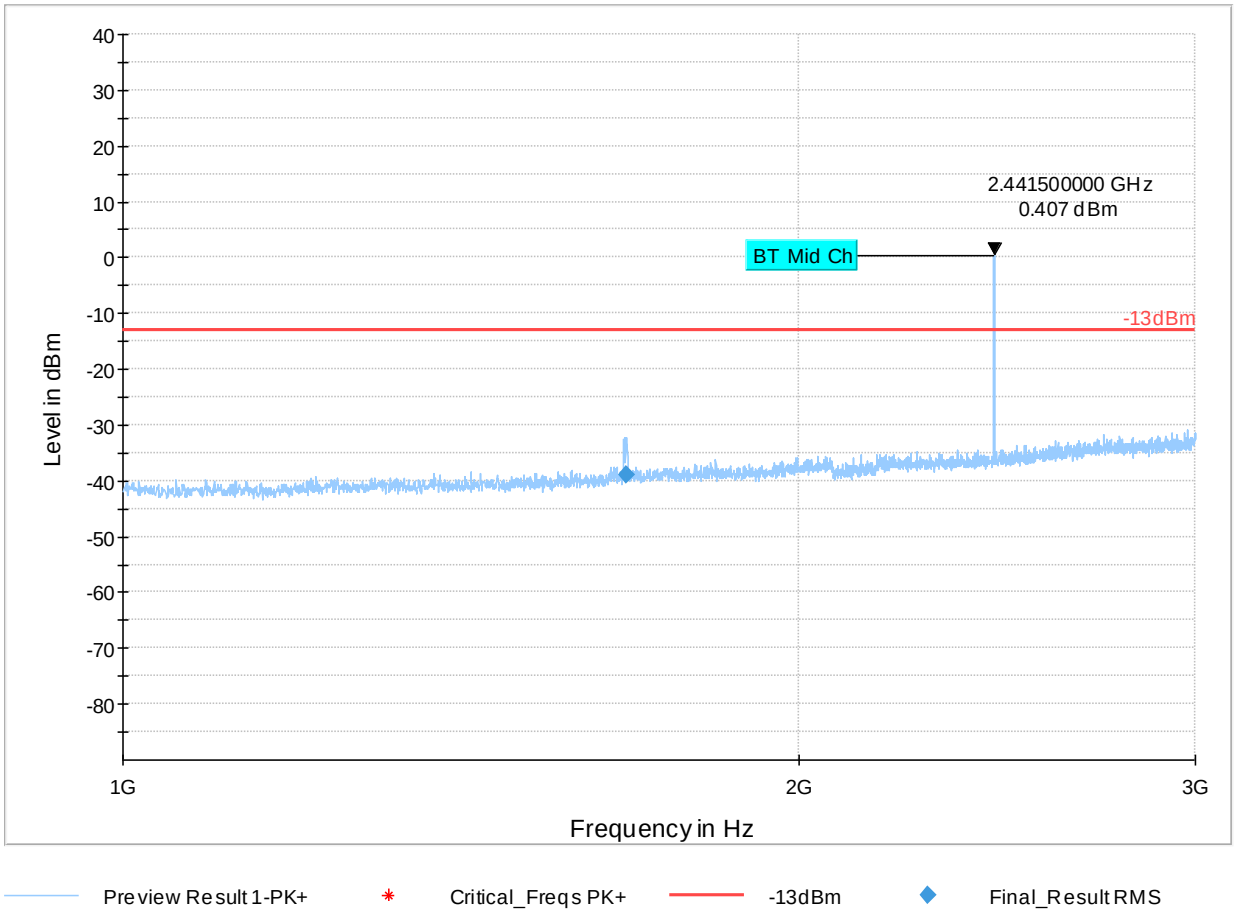


Plot #17 Radiated Emissions: 1-3 GHz

Channel: Mid

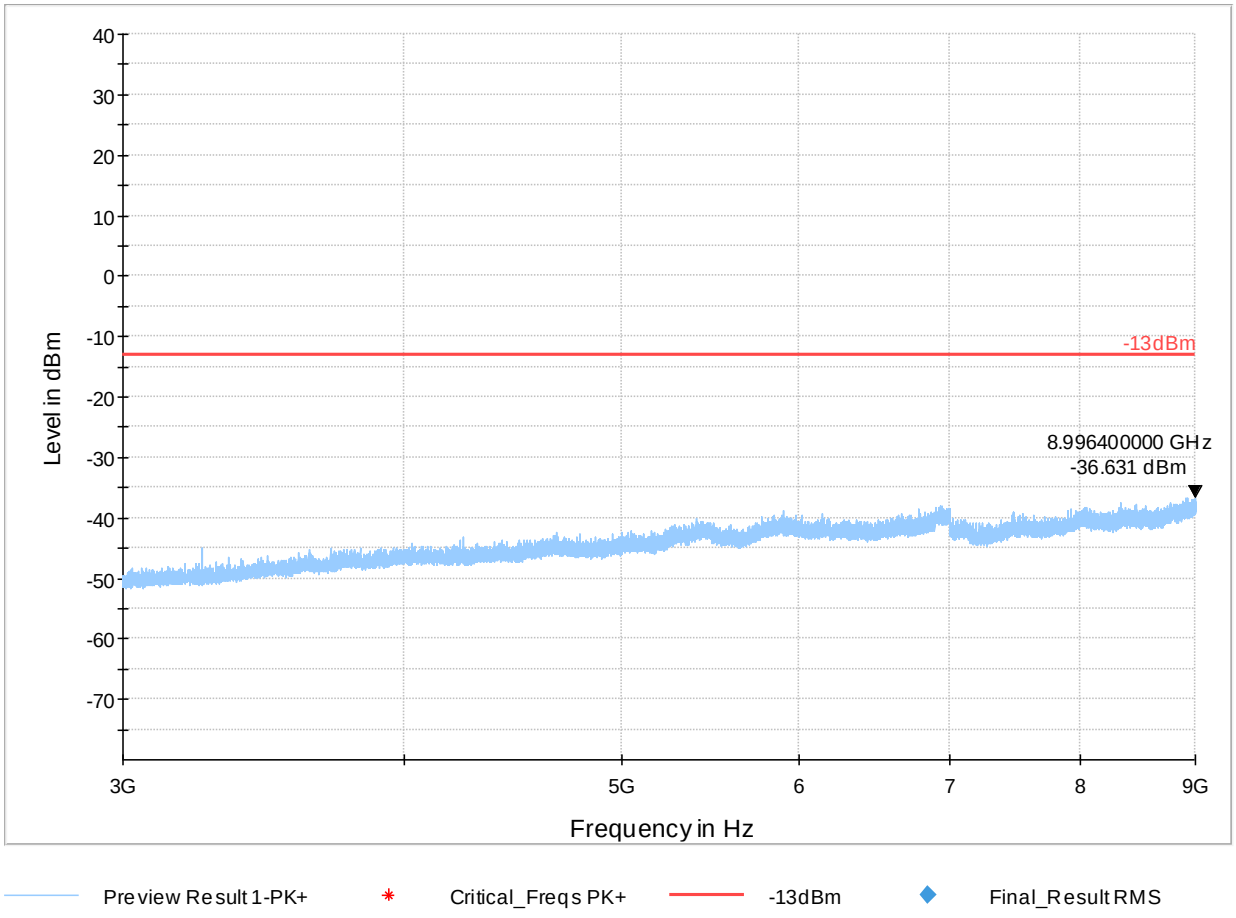
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1674.780000	-39.03	-13.00	26.03	500.0	1000.000	142.0	H	220.0	-90.5



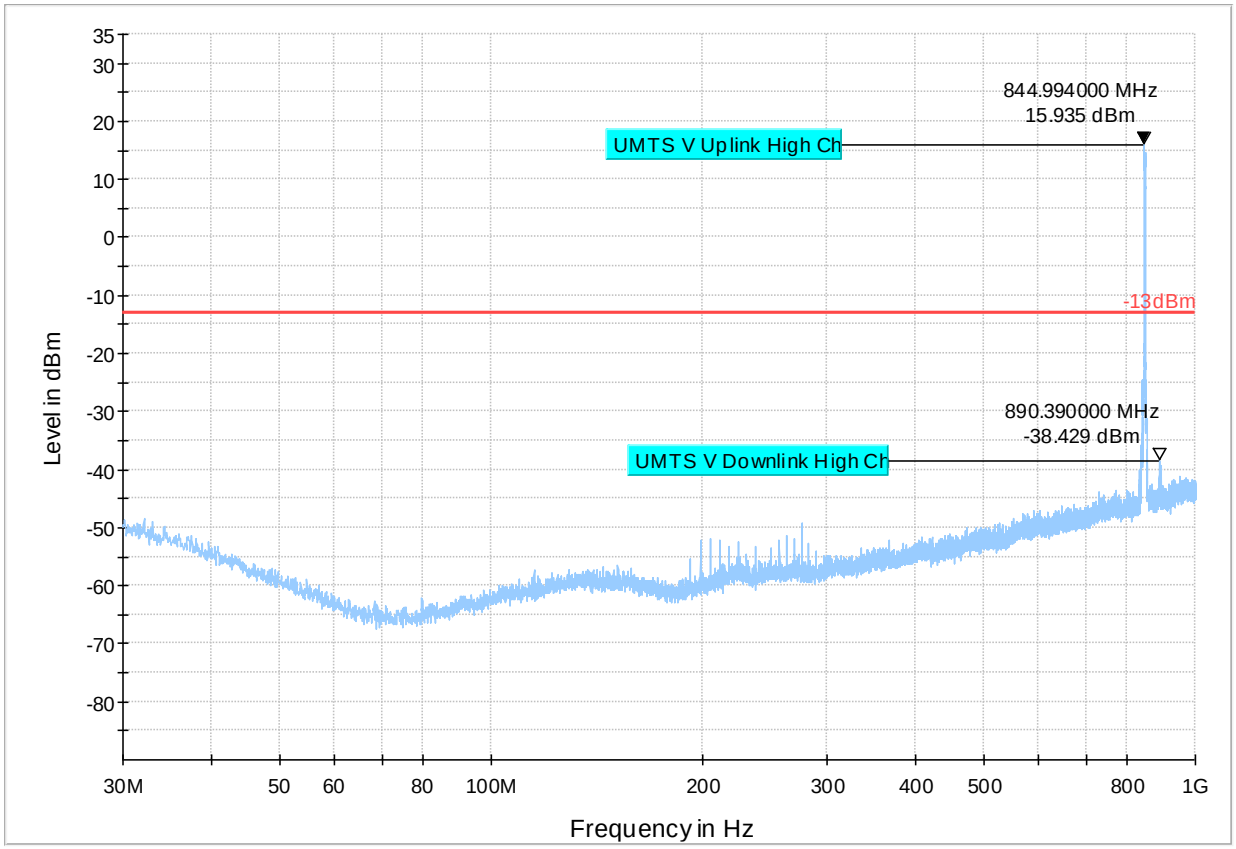
Plot #18 Radiated Emissions: 3-9 GHz

Channel: Mid



Plot #19 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



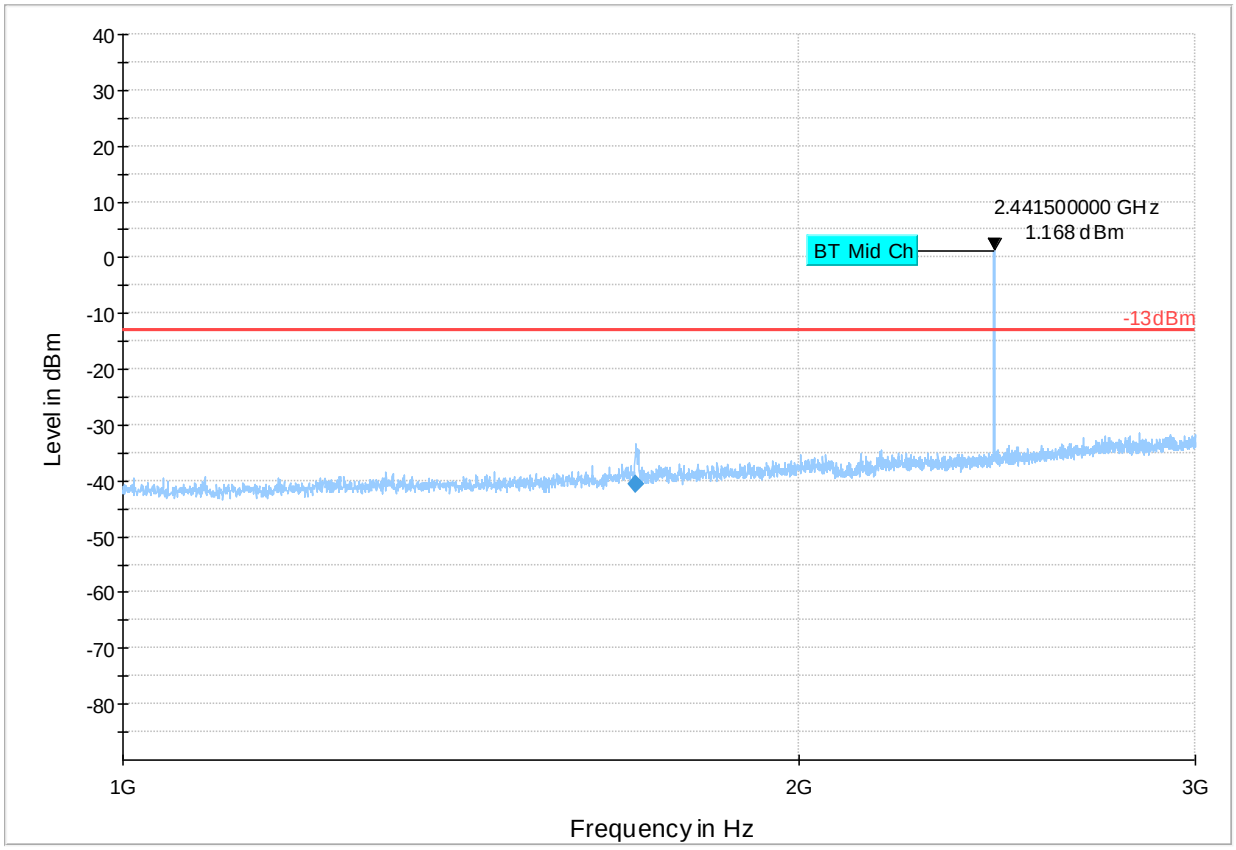
Preview Result 1-PK+ Critical_Freqs PK+ -13dBm Final_Result RMS

Plot #20 Radiated Emissions: 1-3 GHz

Channel: High

Final_Result

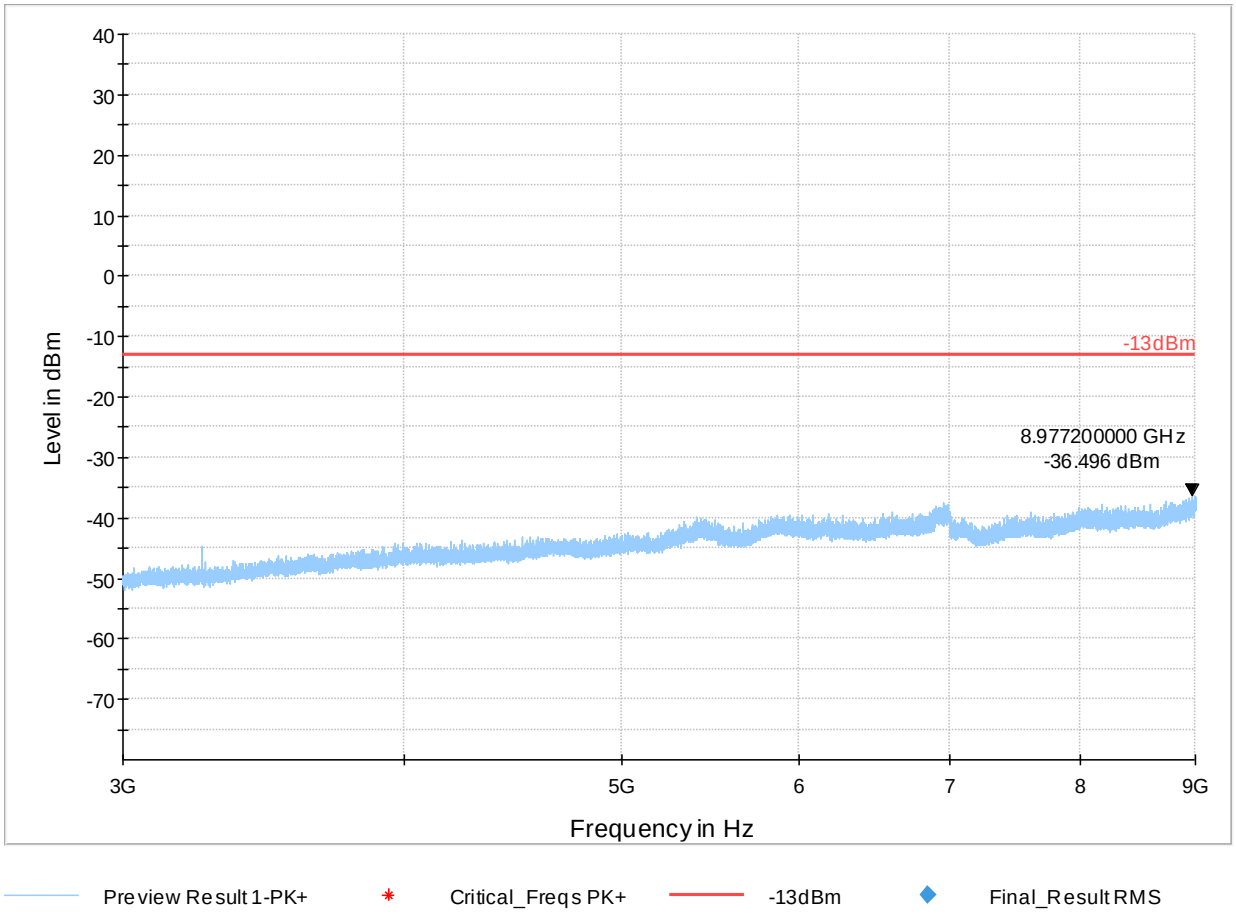
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1692.000000	-40.71	-13.00	27.71	500.0	1000.000	131.0	H	204.0	-90.6



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

Plot #21 Radiated Emissions: 3-9 GHz

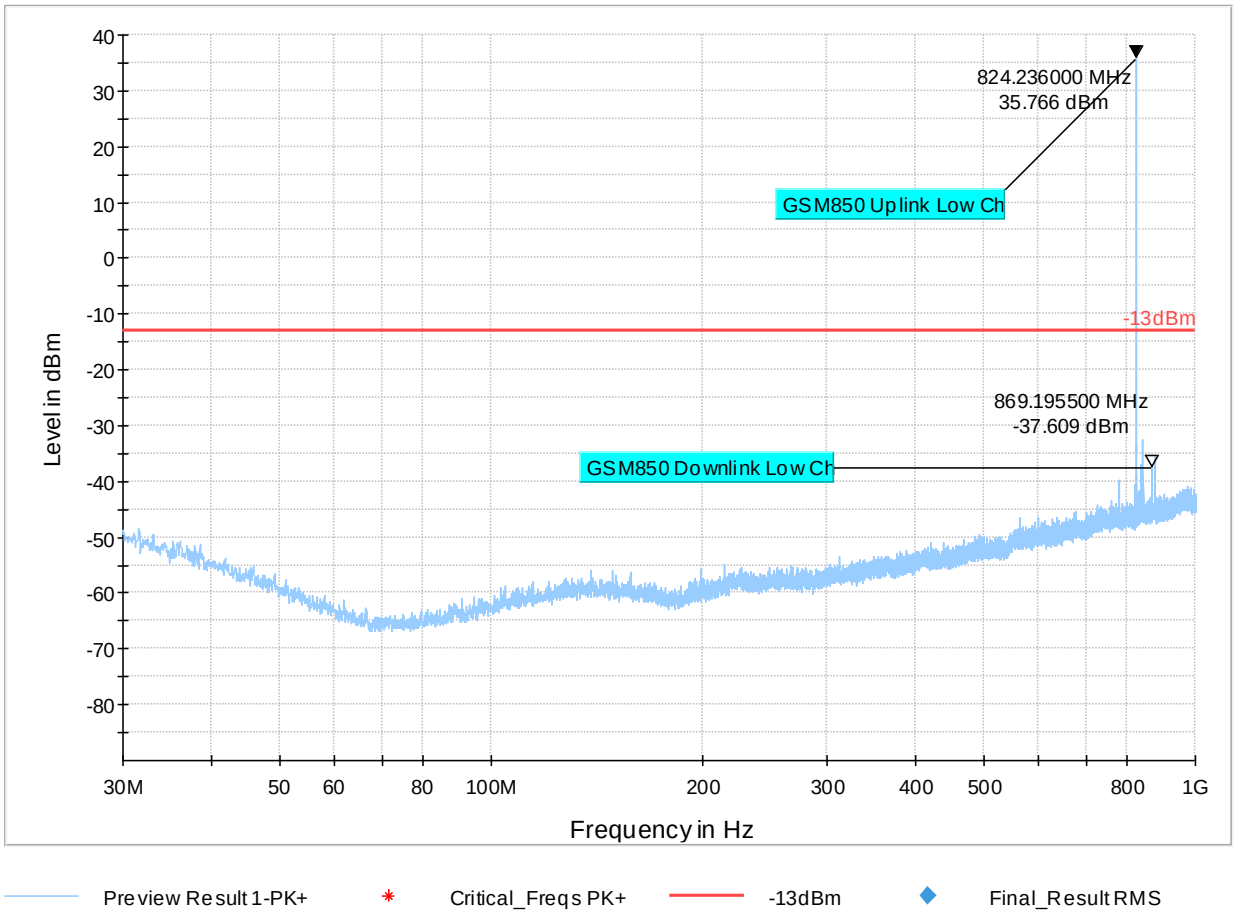
Channel: High



GSM 850

Plot #22 Radiated Emissions: 30 MHz – 1GHz

Channel: Low

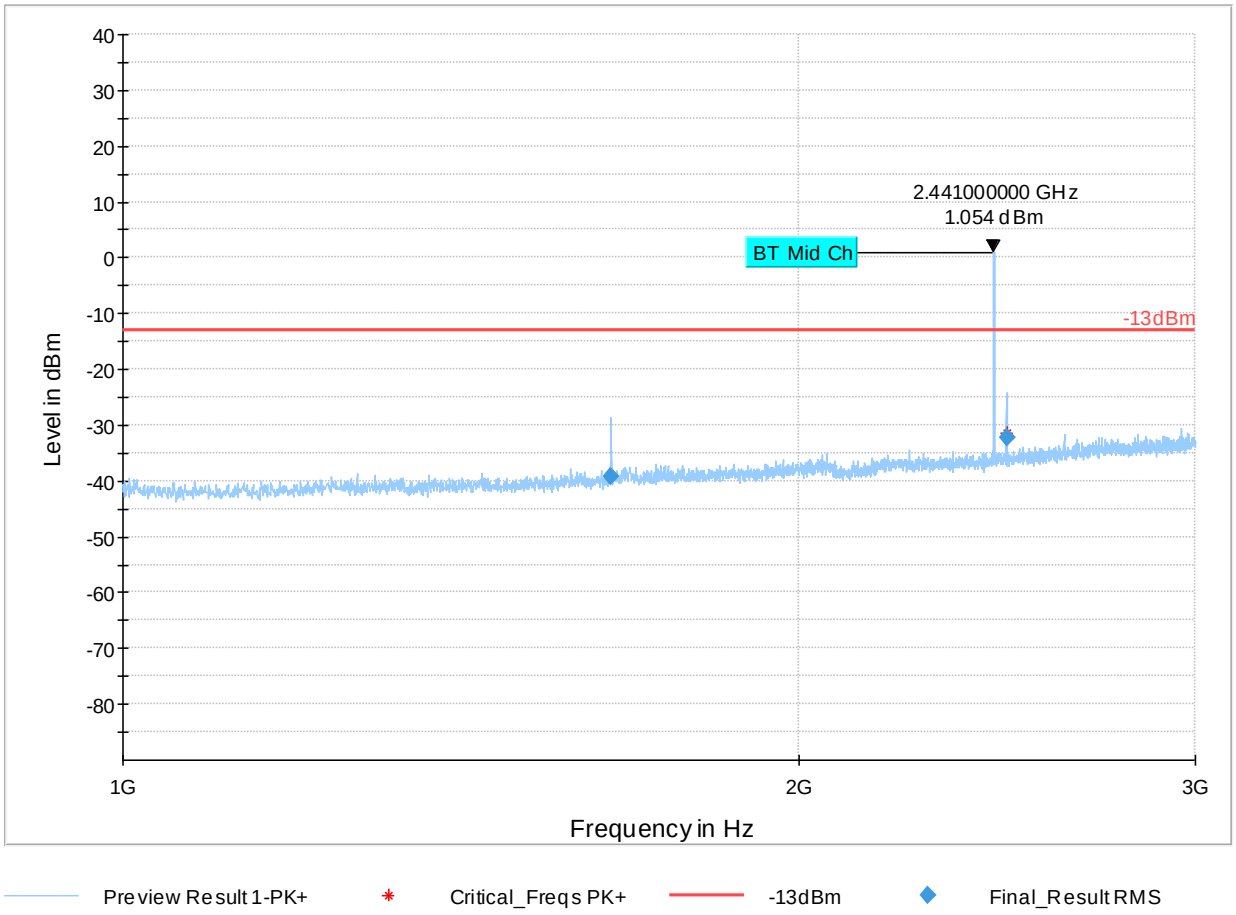


Plot # 23 Radiated Emissions: 1-3 GHz

Channel: Low

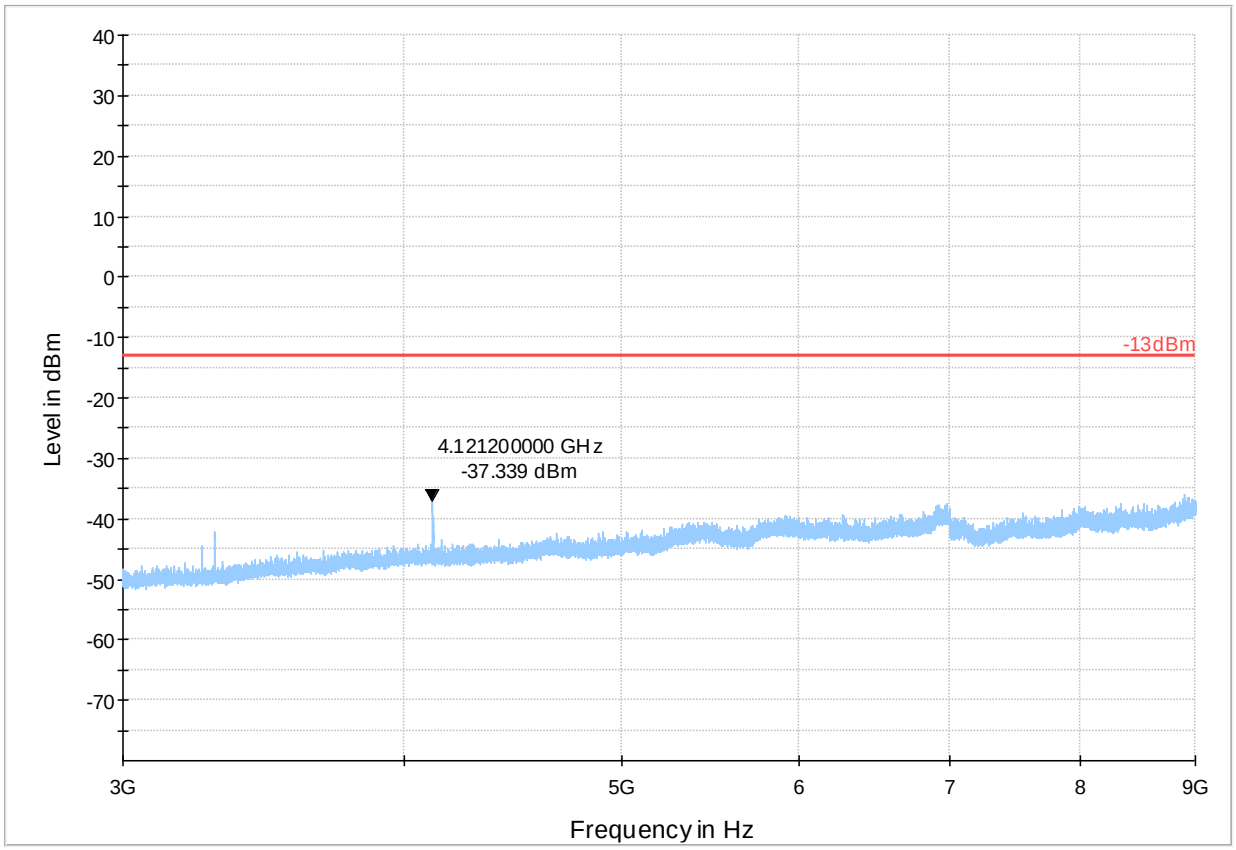
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1647.839500	-39.32	-13.00	26.32	500.0	1000.000	173.0	H	136.0	-90.9
2472.775000	-32.32	-13.00	19.32	500.0	1000.000	165.0	H	174.0	-88.3



Plot # 24 Radiated Emissions: 3-9 GHz

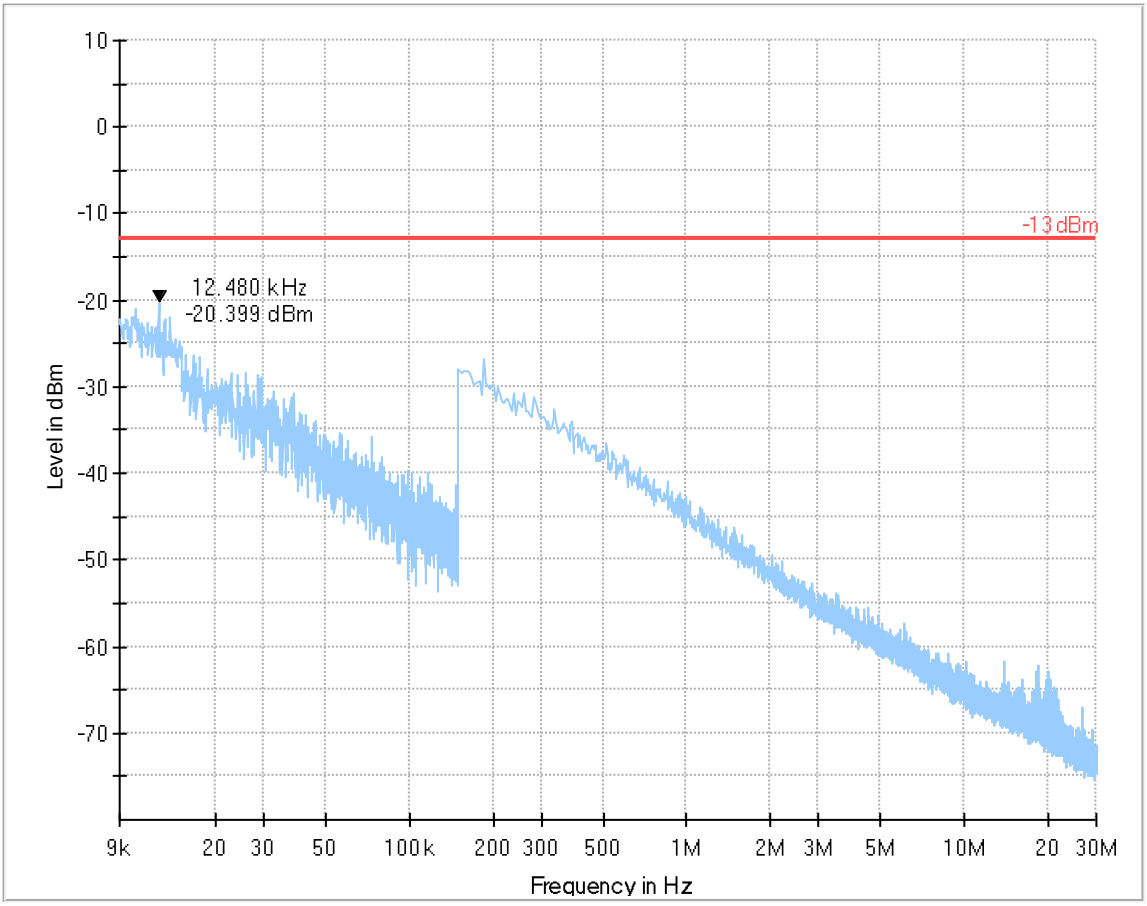
Channel: Low



Preview Result 1-PK+ -13dBm Final_Result RMS

Plot #25 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid



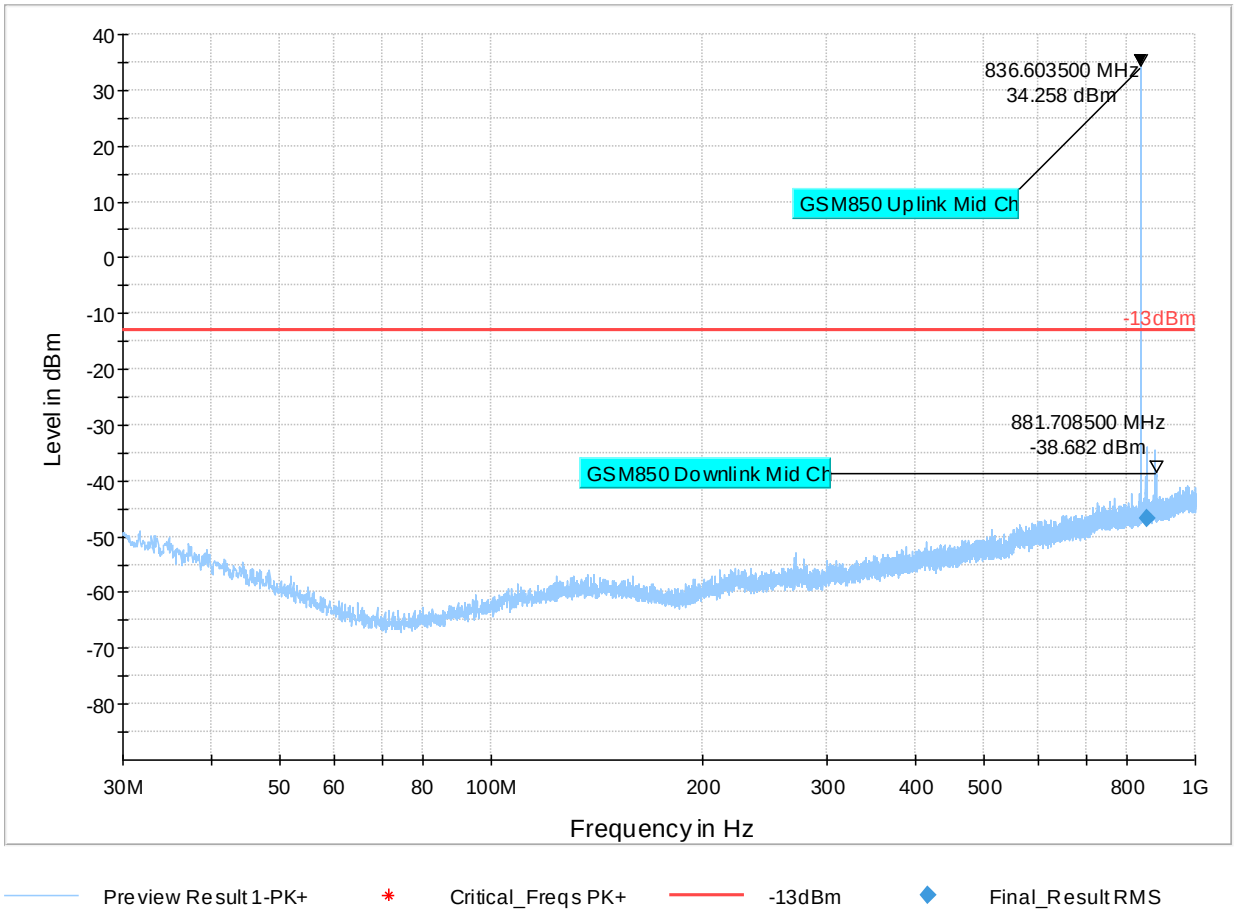
Preview Result 1-PK+ Critical_Freqs PK+ -13 dBm Final_Result RMS

Plot #26 Radiated Emissions: 30 MHz – 1 GHz

Channel: Mid

Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
855.692790	-46.74	-13.00	33.74	500.0	100.000	100.0	H	223.0	-68.5

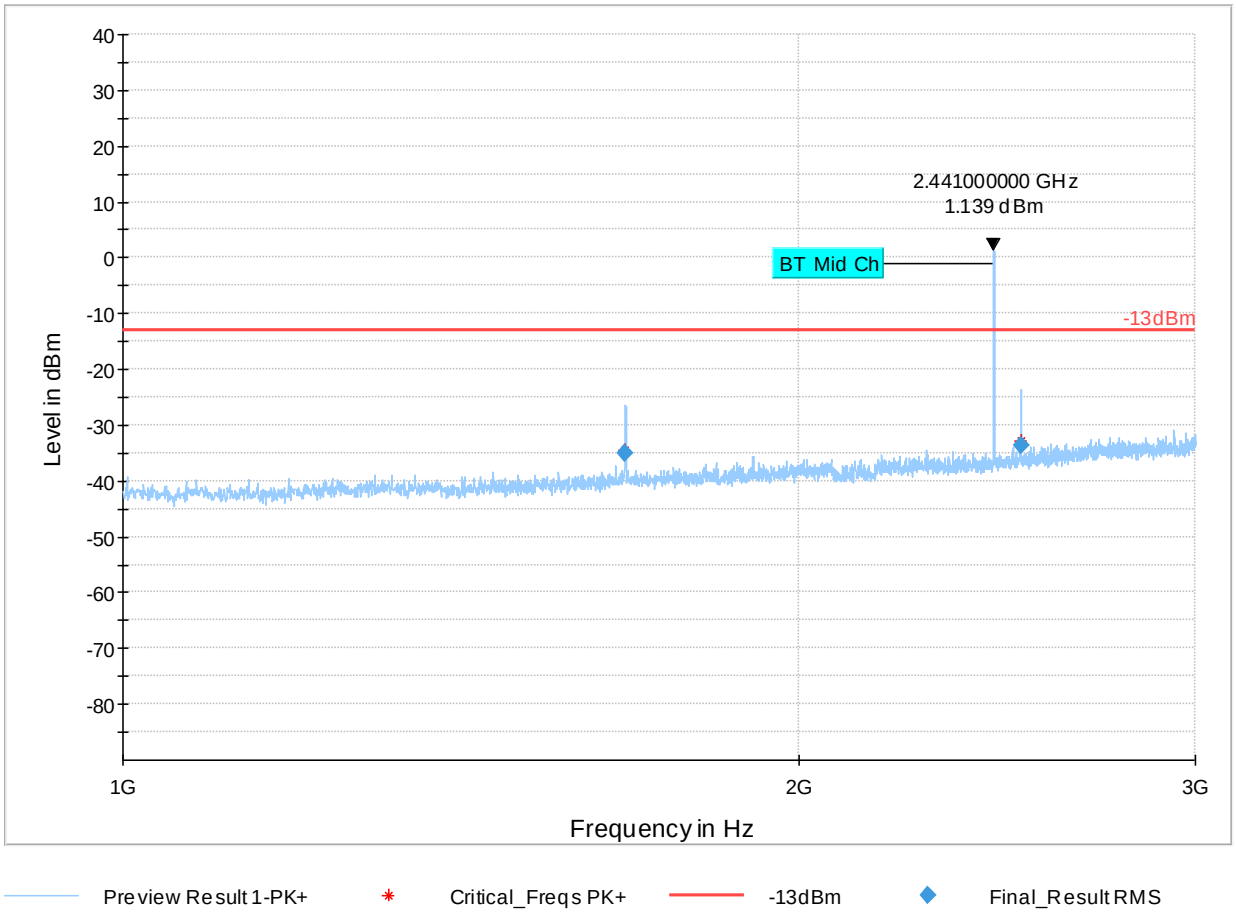


Plot #27 Radiated Emissions: 1-3 GHz

Channel: Mid

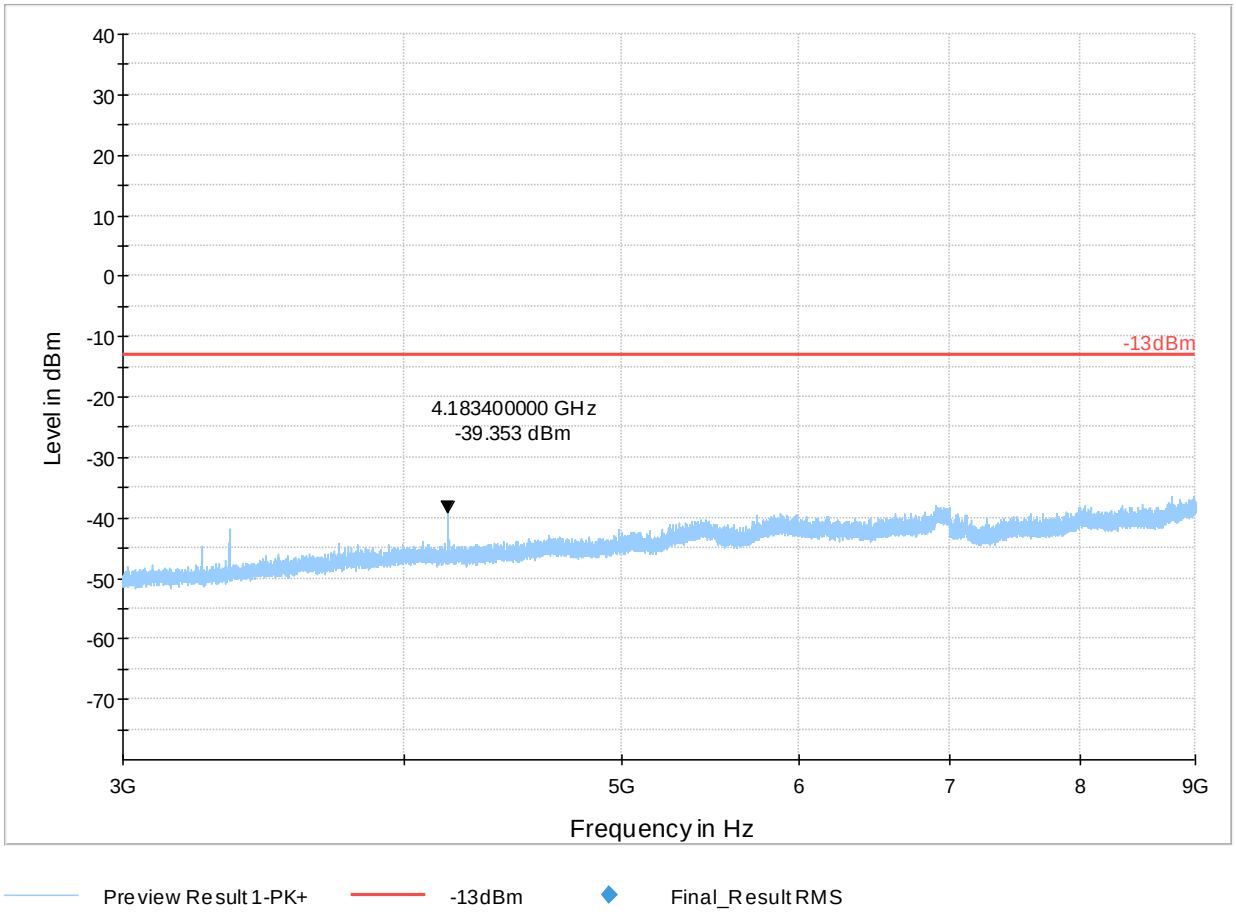
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1673.134500	-34.95	-13.00	21.95	500.0	1000.000	142.0	H	259.0	-90.5
2510.261000	-33.64	-13.00	20.64	500.0	1000.000	116.0	H	175.0	-88.3



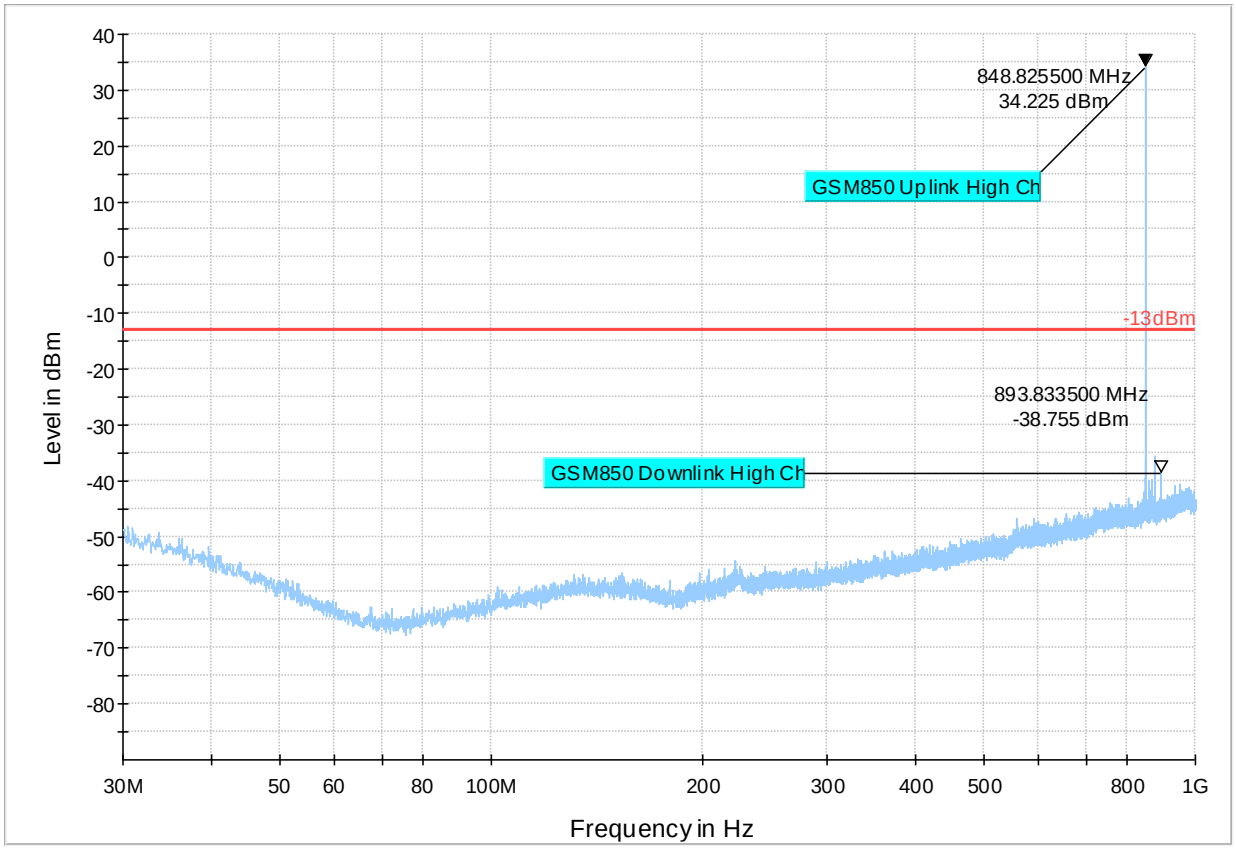
Plot #28 Radiated Emissions: 3-9 GHz

Channel: Mid



Plot #29 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



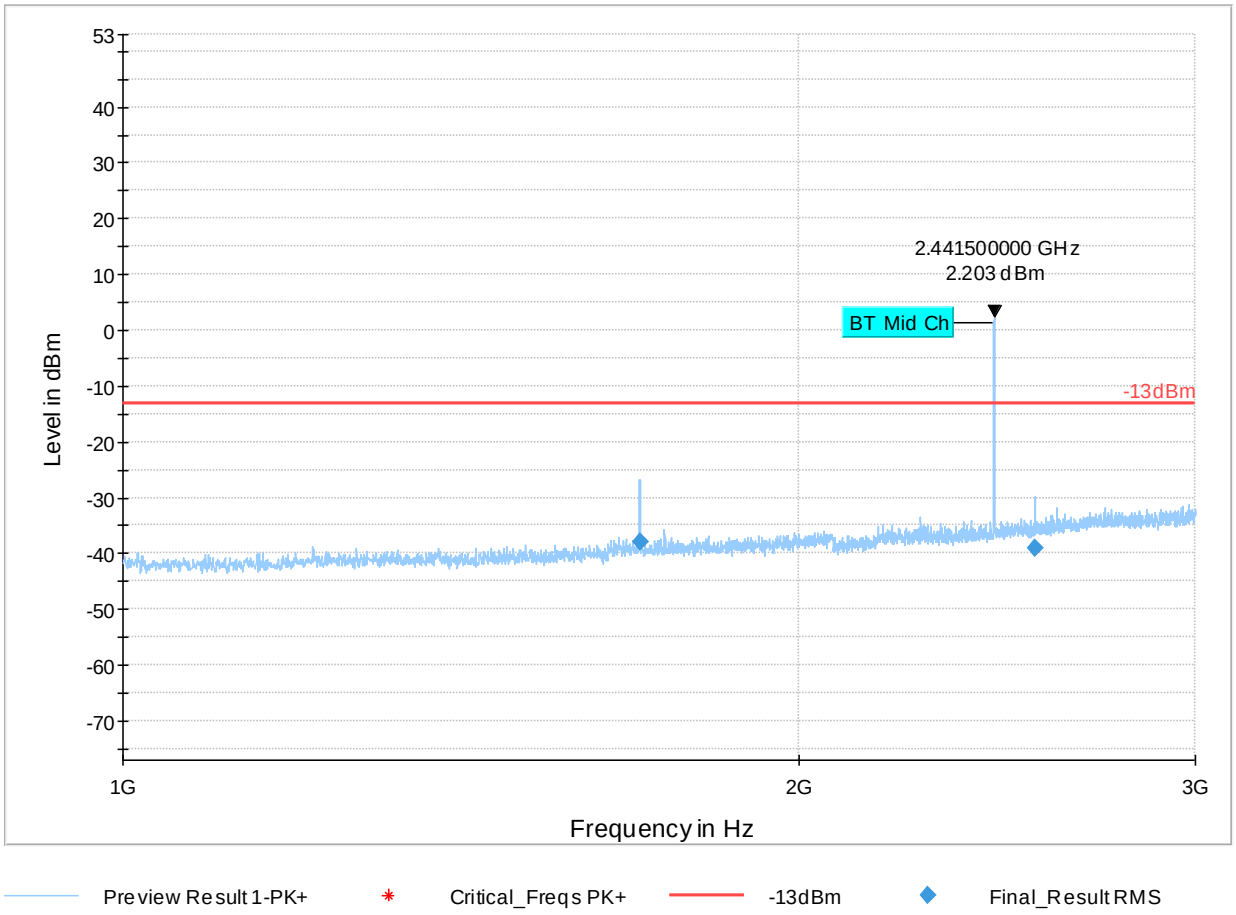
Preview Result 1-PK+ Critical_Freqs PK+ -13dBm Final_Result RMS

Plot #30 Radiated Emissions: 1-3 GHz

Channel: High

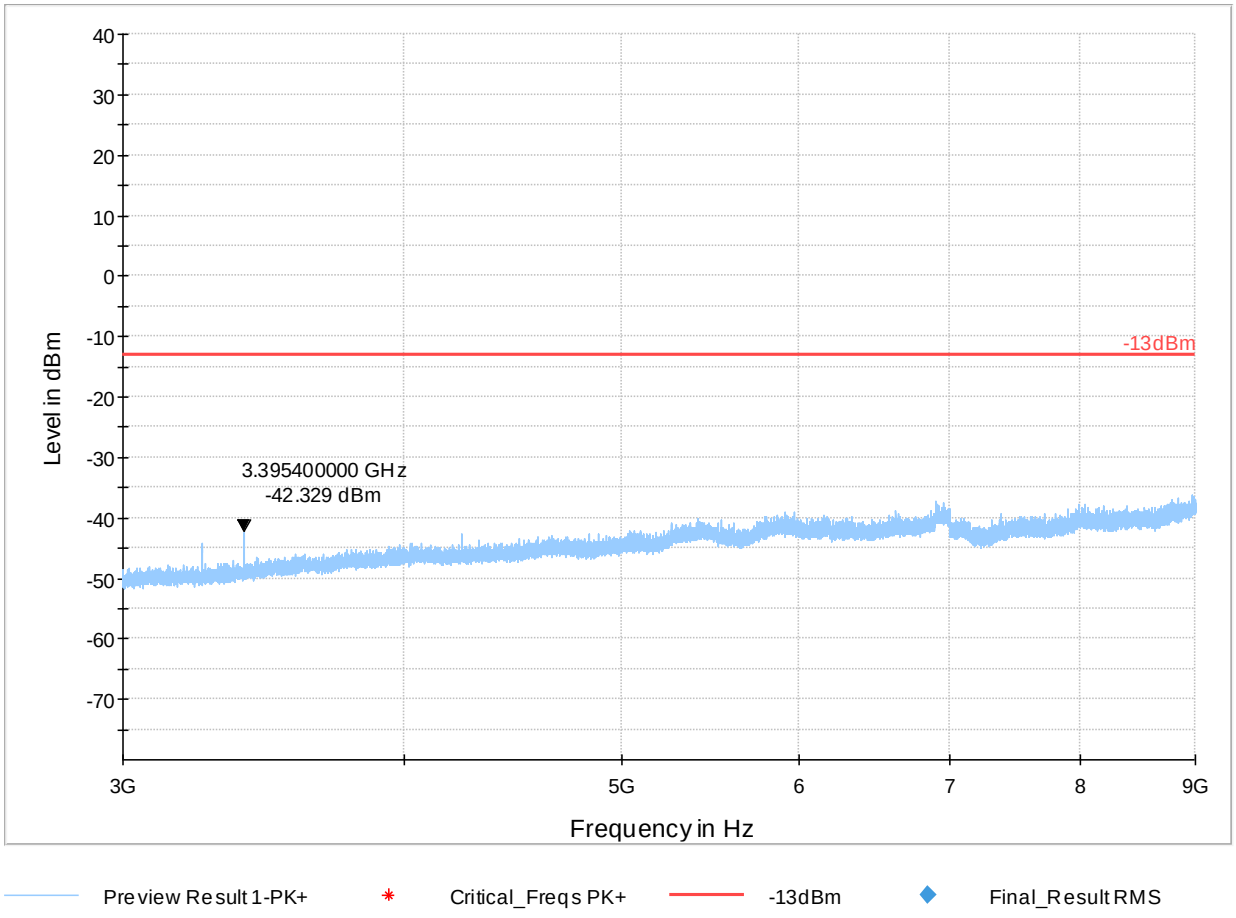
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1698.169000	-38.06	-13.00	25.06	500.0	1000.000	140.0	H	244.0	-90.7
2546.897500	-38.96	-13.00	25.96	500.0	1000.000	296.0	H	162.0	-88.2



Plot #31 Radiated Emissions: 3-9 GHz

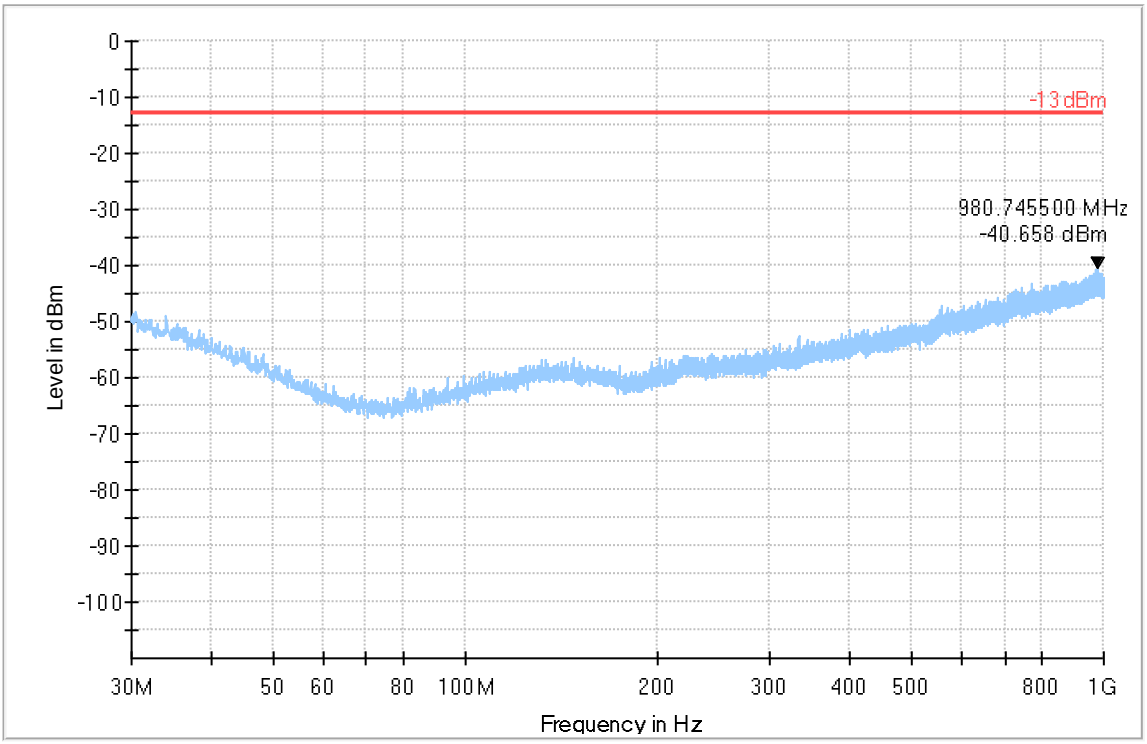
Channel: High



GSM 1900

Plot #32 Radiated Emissions: 30 MHz – 1GHz

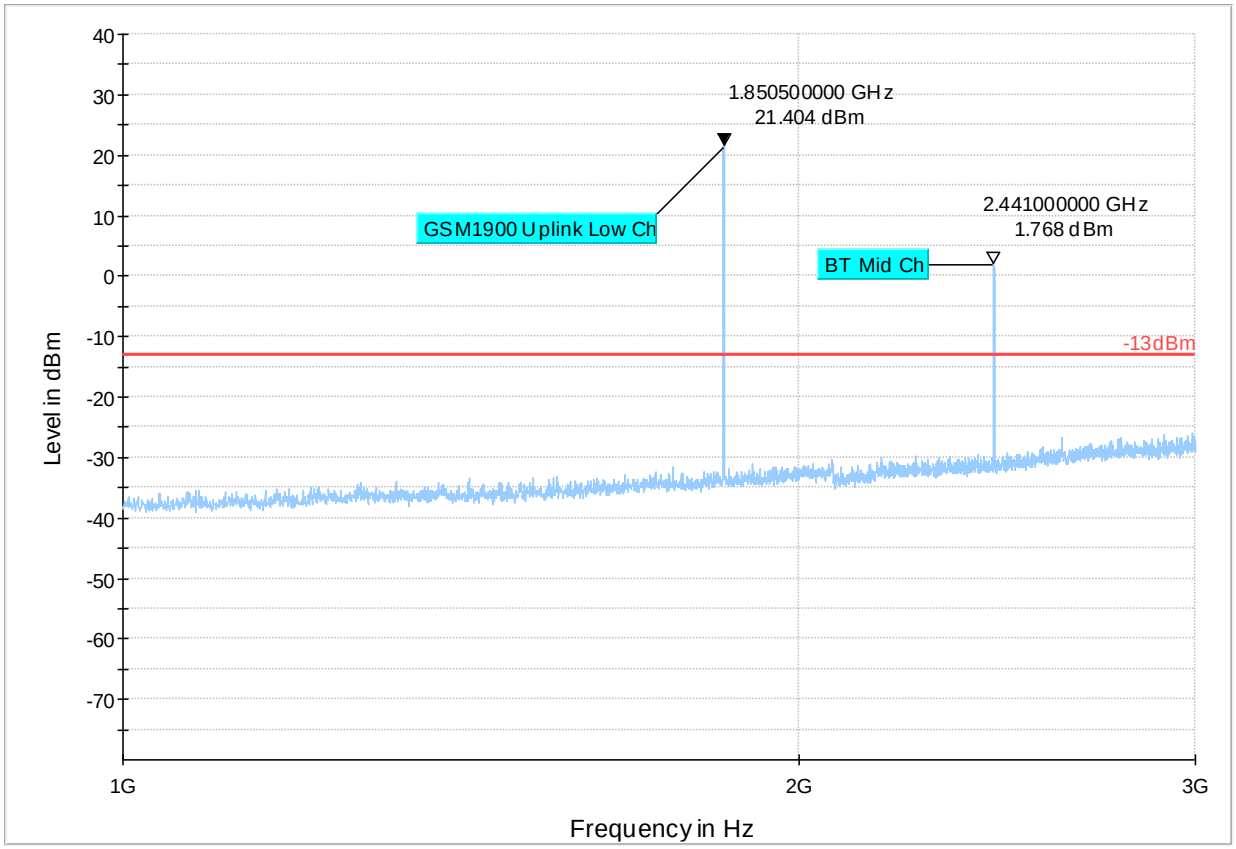
Channel: Low



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

Plot #33 Radiated Emissions: 1-3 GHz

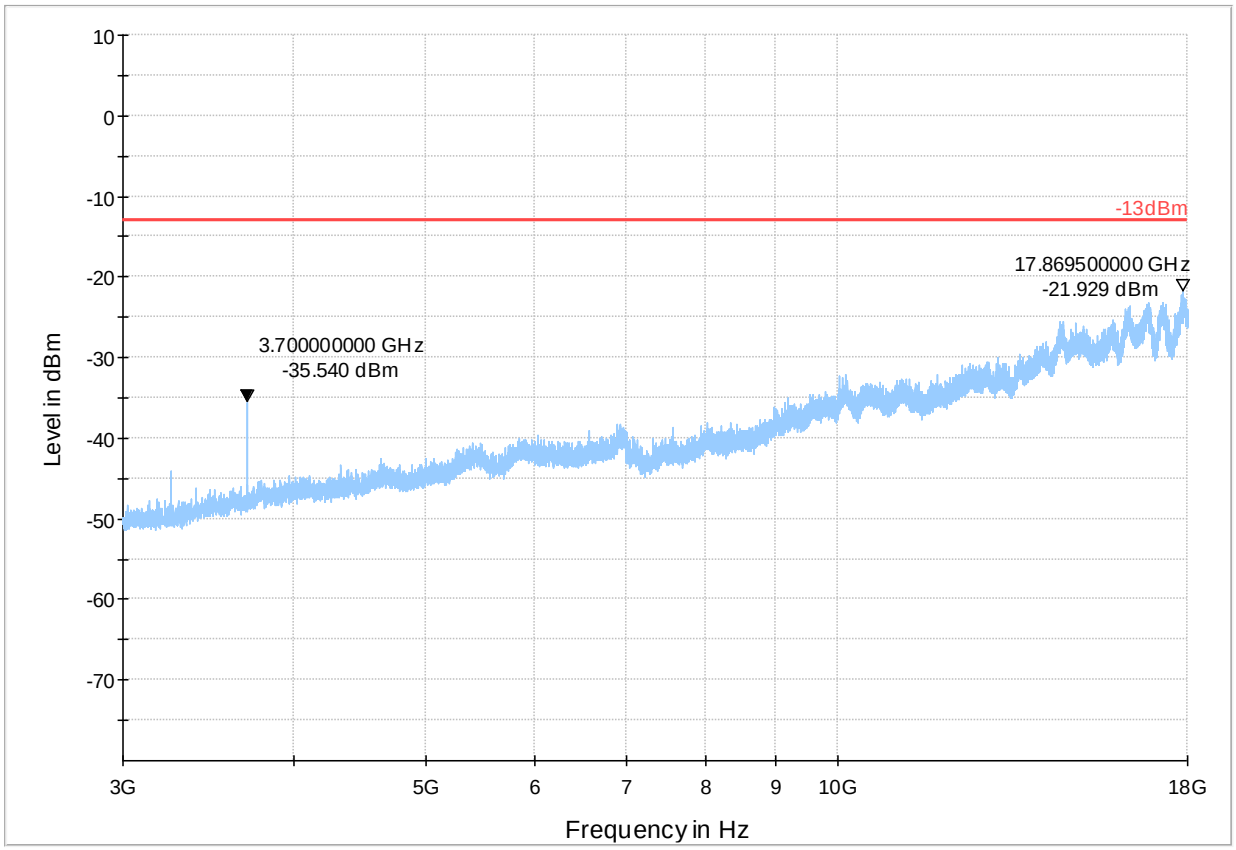
Channel: Low



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

Plot #34 Radiated Emissions: 3-18 GHz

Channel: Low



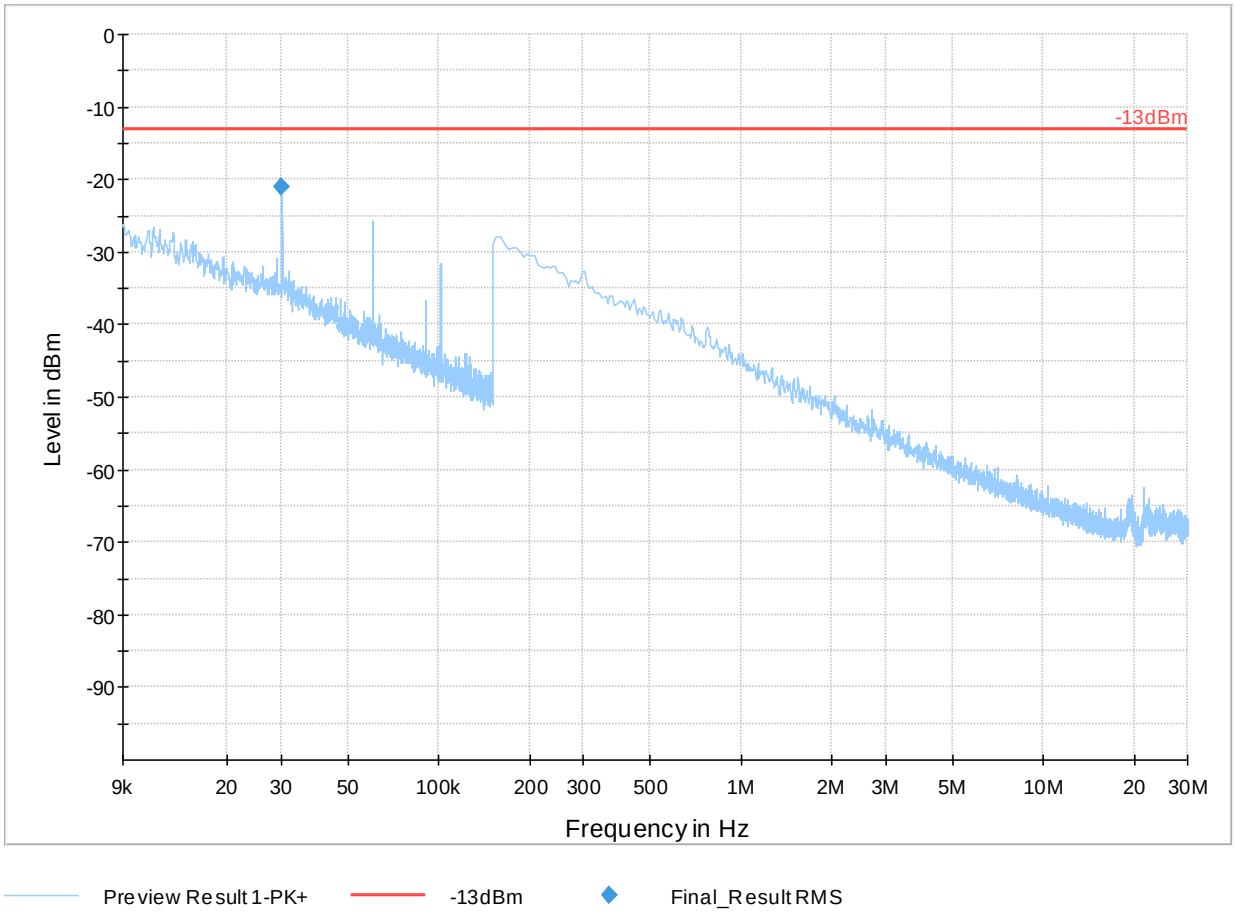
Preview Result 1-PK+ Critical_Freqs PK+ -13dBm Final_Result RMS

Plot #35 Radiated Emissions: 9 kHz – 30 MHz

Channel: Mid

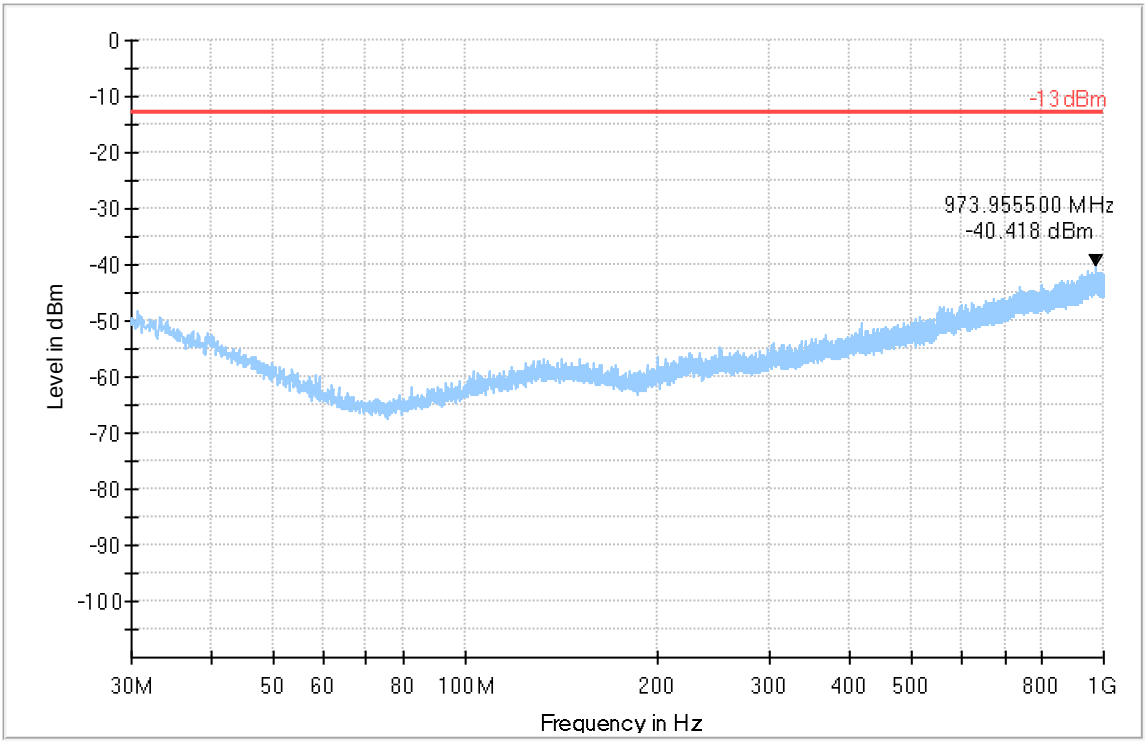
Final_Result

Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
0.030240	-20.98	-13.00	7.98	100.0	0.100	100.0	V	-59.0	-75.8



Plot #36 Radiated Emissions: 30 MHz – 1 GHz

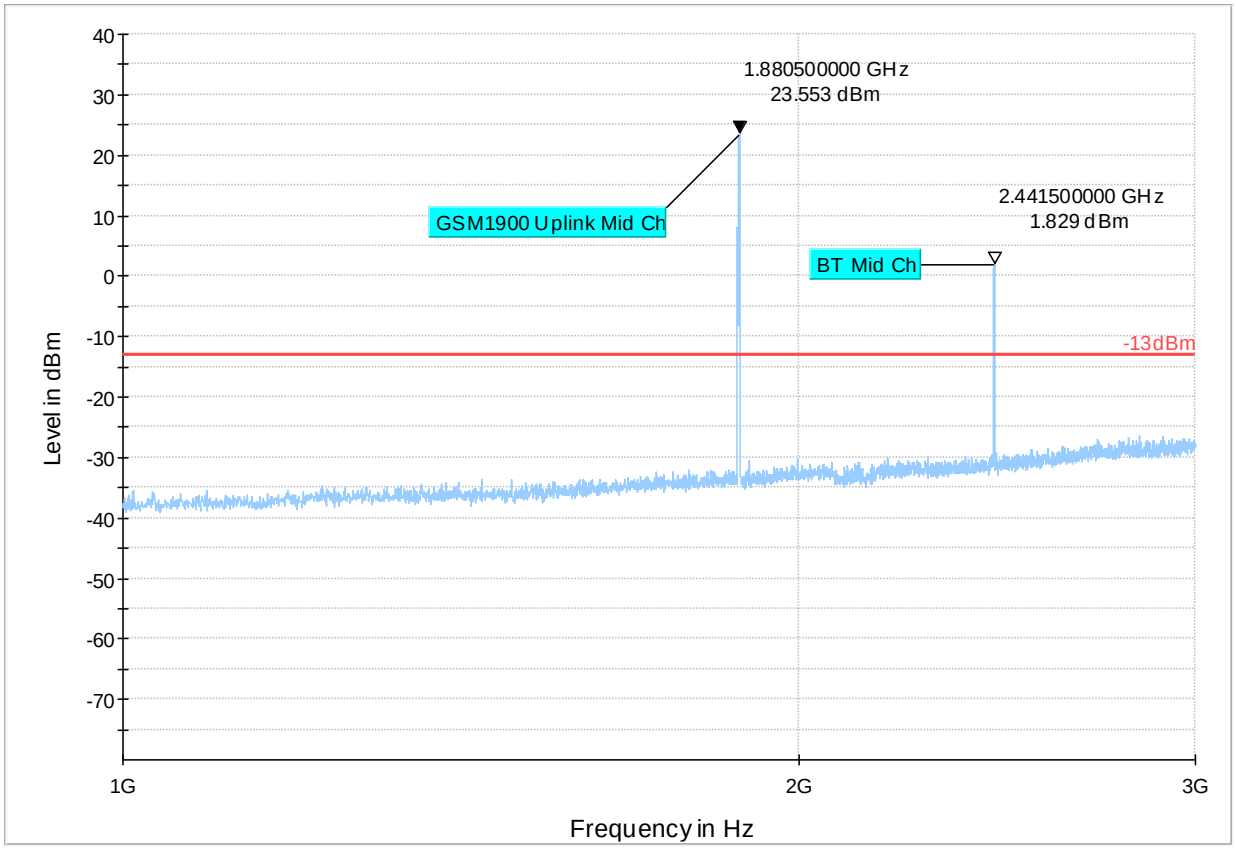
Channel: Mid



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

Plot #37 Radiated Emissions: 1-3 GHz

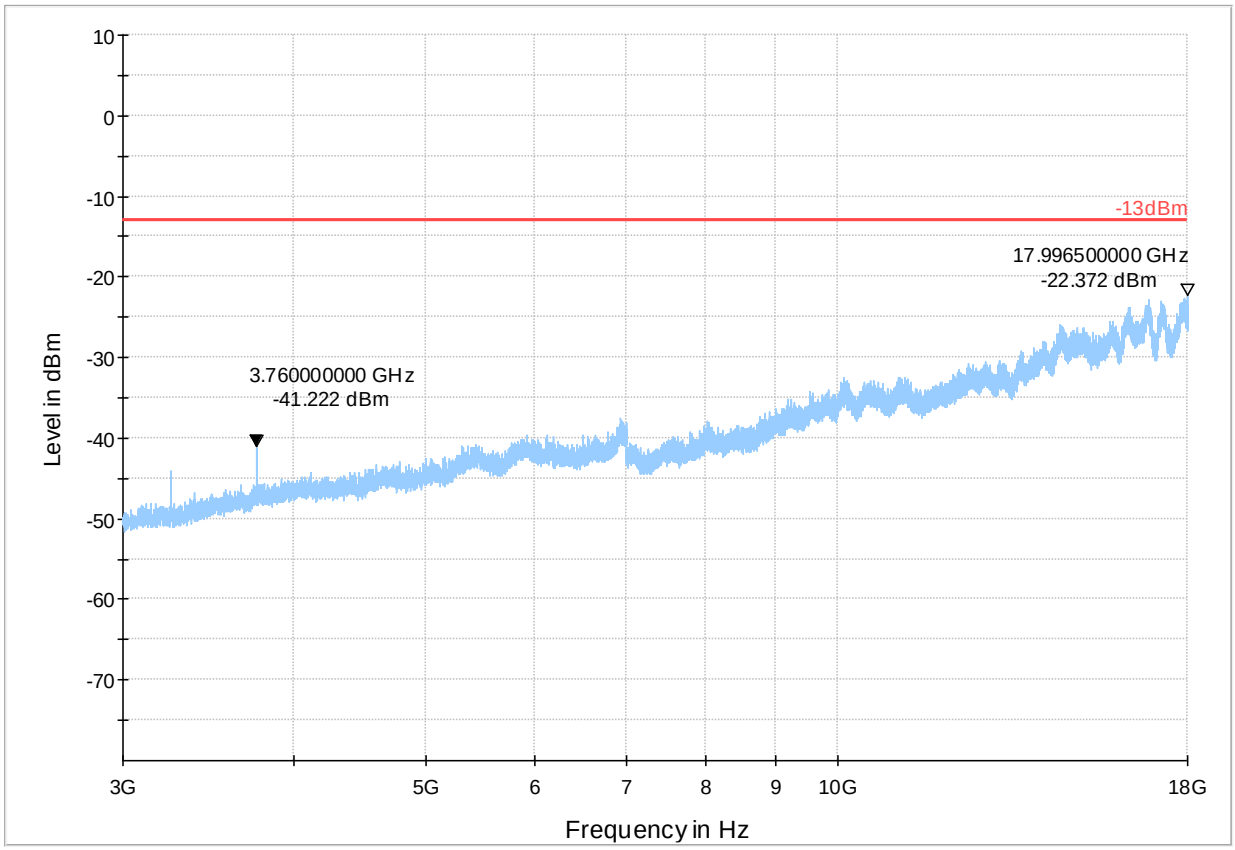
Channel: Mid



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

Plot #38 Radiated Emissions: 3-18 GHz

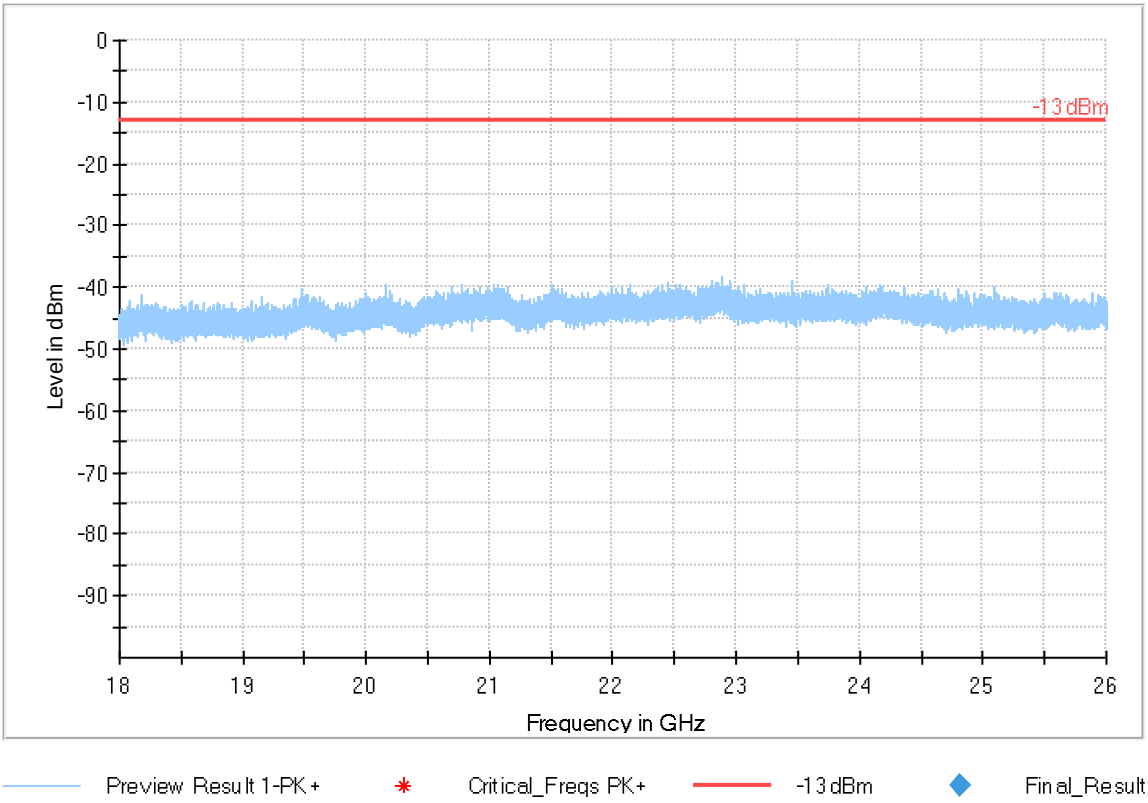
Channel: Mid



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

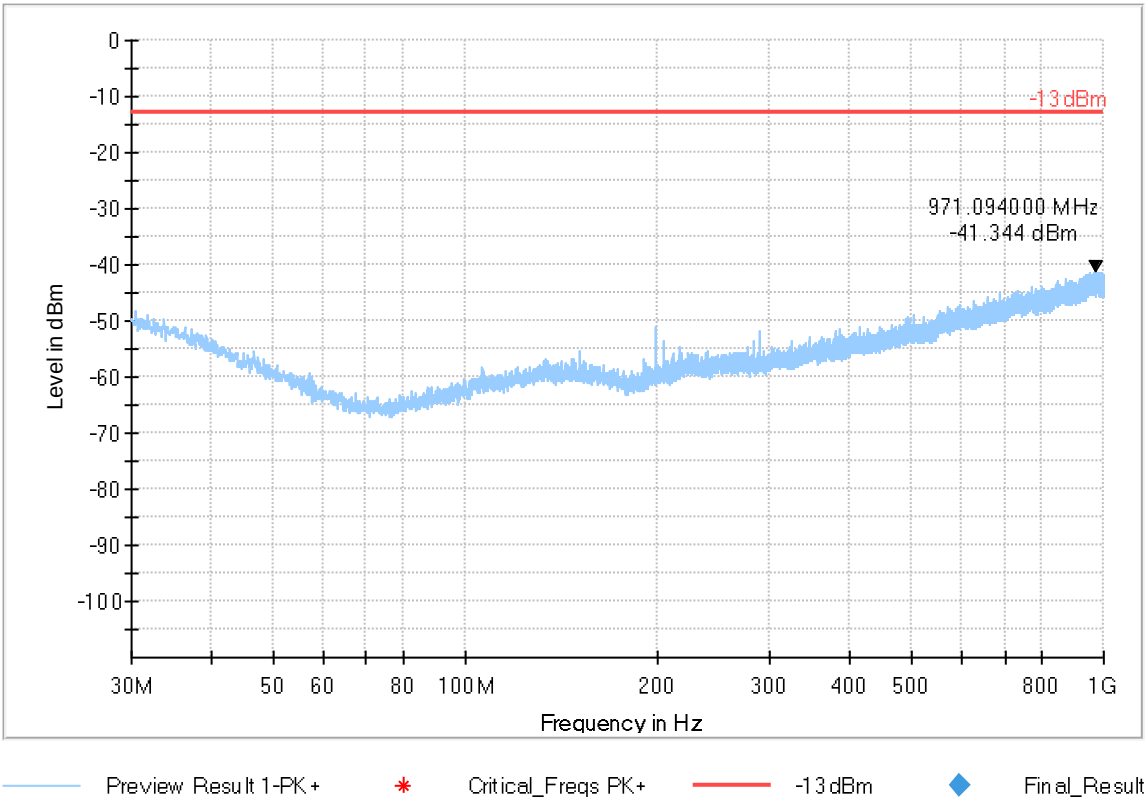
Plot #39 Radiated Emissions: 18-26 GHz

Channel: Mid



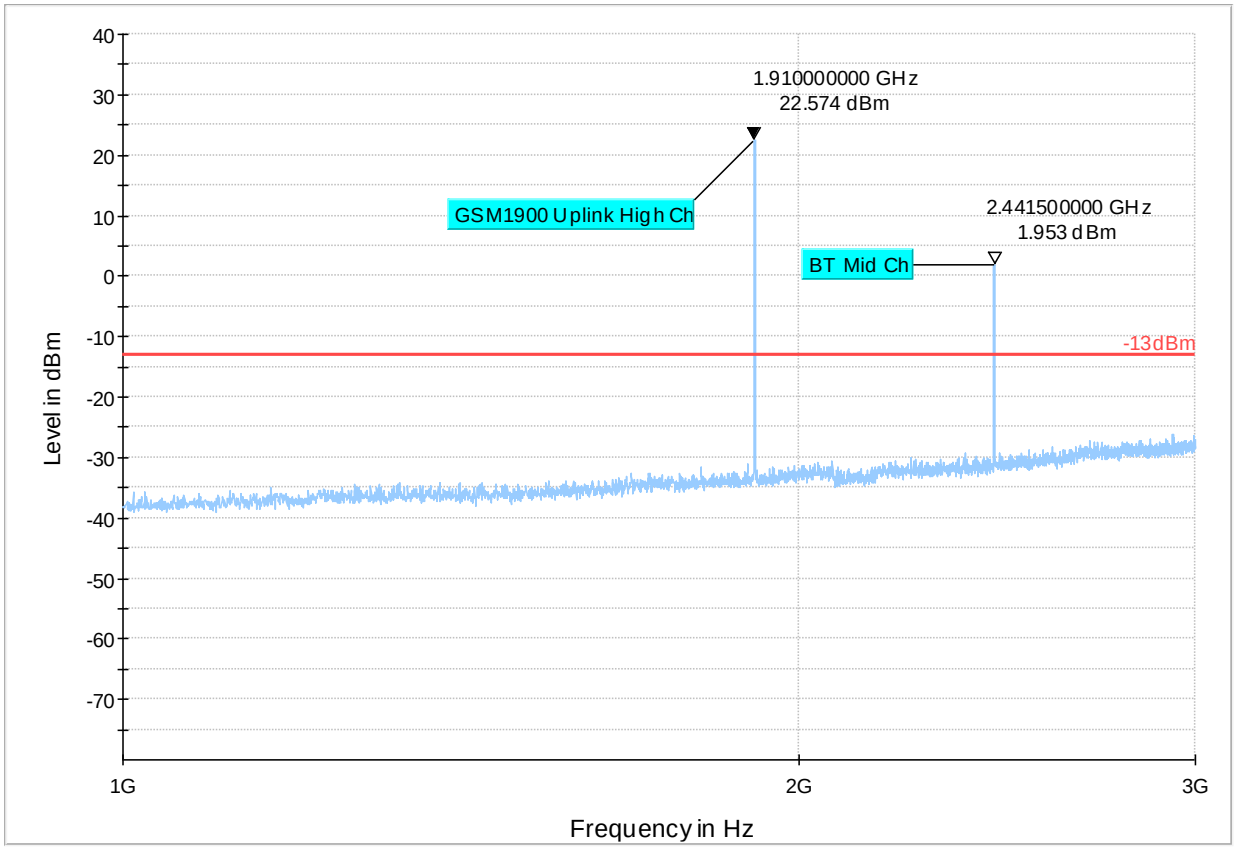
Plot #40 Radiated Emissions: 30 MHz – 1 GHz

Channel: High



Plot #41 Radiated Emissions: 1-3 GHz

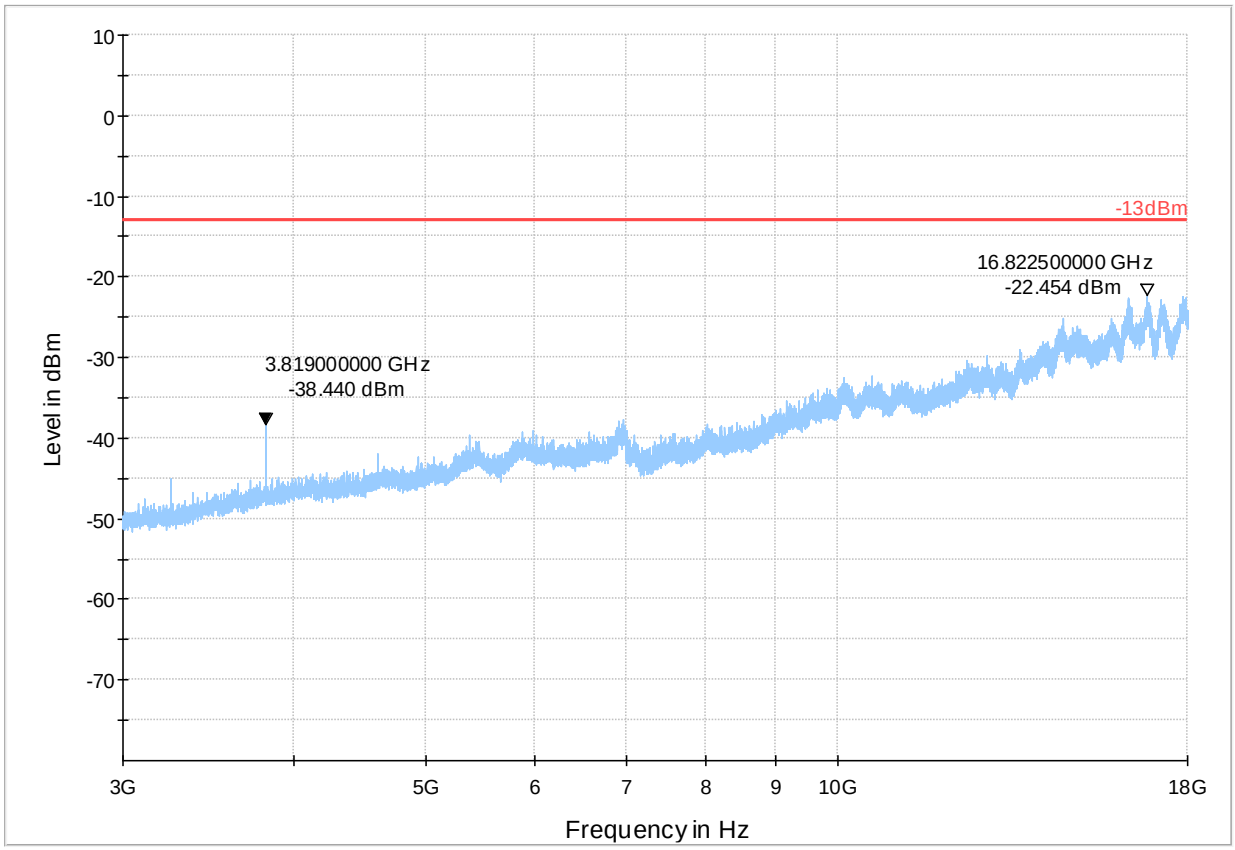
Channel: High



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

Plot #42 Radiated Emissions: 3-18 GHz

Channel: High



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

8 Test setup photos

Setup photos are included in supporting file name: "EMC_PHIL4-071-20001_FCC_22_24_ISED_C2PC_Setup_photos.pdf"

9 Test Equipment And Ancillaries Used For Testing

Equipment Type	Manufacturer	Model	Serial #	Calibration Cycle	Last Calibration Date
Loop Antenna	ETS Lindgren	6507	161344	3 years	10/26/2017
Biconlog Antenna	Teseo	CBL 6141B	41106	3 years	11/01/2017
Horn Antenna	ETS Lindgren	3115	35111	3 years	04/17/2019
Horn Antenna	ETS Lindgren	3117-PA	169547	3 years	08/08/2017
Horn Antenna	ETS Lindgren	3116C-PA	169535	3 years	09/24/2017
Signal Analyzer	R&S	FSV40	101022	3 years	07/15/2019
Signal Analyzer	R&S	FSV13	101014	3 years	07/16/2019
Wideband Radio Communication Tester	R&S	CMW500	127068	2 years	03/09/2020
Universal Radio Communication Tester	R&S	CMU200	105249	2 years	12/04/2019
Thermometer Humidity Monitor	Control Company	36934-164	191871994	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
2020-06-26	EMC_PHIL4-071-20001_FCC_22_24_ISED_C2PC	Initial Version	Chin Ming Lui

<<< The End >>>