FCC/IC Test Report

FOR:

ResMed Limited

Model Name:

AirSense 10 & AirCurve 10

Product Description:

Continuous Positive Airway Pressure (CPAP) Device

FCC ID: 2ACHL-AIR104G
IC ID: 9103A-AIR104G

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

Report #: EMC_CONNE-051-16001_FCC_22_24_27_rev1
Date: September 16, 2016

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

TABLE OF CONTENTS

1 Assessment

The following device as further described in section 3 of this report was evaluated against the applicable criteria specified in the Code of Federal Regulations Title 47 parts 22, 24, 27 and Industry Canada Radio Standard Specifications RSS-132 Issue 3 and RSS-133 Issue 6. No deviations were ascertained during the course of the tests performed.

Company Name	Product Description	Model #
ResMed Limited	Continuous Positive Airway Pressure (CPAP) Device	37028

Responsible for Testing Laboratory:

Date	Section	Name	Signature
September 16, 2016	Compliance	Franz Engert (Compliance Manager)	Digitally signed by Franz Engert DN: cn=Franz Engert, c=US, o=CETECOM, ou=Compliance, email=franz.engert@cetecom.com

Responsible for the Report:

Date	Section	Name	Signature
September 16, 2016	Compliance	Yu-Chien Ho (EMC Engineer)	Yu-Chien Ho

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
Compliance Manager:	Franz Engert
Project Engineer:	Yu-Chien Ho

2.2 Identification of the Client

Applicant's Name:	ResMed Limited
Street Address:	1 Elizabeth MacArthur Drive
City/Zip Code	Bella Vista NSW 2153
Country	Australia

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 # & HVIN[1]:	37015, 37020, 37028, 37036, 37043, 37046, 37051, 37056
Marketing Name & PMN[1]:	AirSense 10: 37015, 37020, 37028, 37036 AirCruve 10: 37043, 37046, 37051, 37056
HW Version:	BOM 37028
SW Version:	SX558
FCC-ID:	2ACHL-AIR104G
IC-ID:	9103A-AIR104G
Product Description	Continuous Positive Airway Pressure (CPAP) Device
Module Information:	Module Gemalto Cinterion ELS61-US; FCC-ID: QIPELS61-US; IC-ID: 7830A-ELS61US
Transceiver Technology / Type(s) of Modulation	WCDMA/UMTS Band II, IV, V / QPSK / HPSK (CDMA2000) LTE 2, 4, 5, 12 / OFDM, OFDMA, SC-FDMA
Operating Frequency Ranges (MHz):	WCDMA/UMTS FDD BAND II: 1852 - 1908 MHz; WCDMA/UMTS FDD BAND IV: 1710 - 1755 MHz; WCDMA/UMTS FDD BAND V: 824 - 849 MHz; LTE Band 2: 1850 - 1910 MHz; LTE Band 4: 1710 - 1755 MHz; LTE Band 5: 824 - 849 MHz: LTE Band 12: 698 - 716 MHz;
Measured AVG Conducted Output Power:	23.06 dBm, LTE Band 5.
Antenna info:	Hexa Band SMD Antenna. Atennna Gain: 698-960MHz: 1.7 dBi, 1710-2170MHz: 3.03dBi.
Rated Operating Voltage Range:	Input: AC Adapter: 100 ~ 240V ~ 50-60Hz 1.0-1.5, – 0.3A, 115V ~ 400Hz 1.5A Output: +24VDC, 3.75A
Operating Temperature Range:	Tlow: -40° C/ Tnom: 23° C/ Tmax: 85° C
Other Radios included in the device	N/A
Sample Revision	■Prototype ☐Production ☐ Pre-Production

[1] Only Model 37028, please refer to section 3.5

3.2 EUT Sample details

EUT #	Serial Number	HW Version	SW Version	Notes/Comments
1	22161345304	BOM 37028	SX558	Radiated Sample
2	22161345305	BOM 37028	SX558	Conducted Sample

3.3 Accessory Equipment (AE) details

AE #	Type	Model	Manufacturer	Serial Number
1	AC Adapter	370001	ResMed Limited	YL88516319003780300

3.4 Test Sample Configuration

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

3.5 Miscellaneous EUT Information

Only Model 27028 was tested for EMC evaluation.
Based on a related model equality/similarity declaration provided by ResMed and which will be part of the FCC and IC filing exhibits, it is assumed that the results obtained from testing of the mentioned EUT remains valid for all model variants listed in sections 3.1 above

4 Subject of Investigation

The objective of the measurements done by CETECOM Inc. was to evaluate the compliance of the EUT against the relevant requirements specified in the Code of Federal Regulations Title 47 parts 22, 24, 27 and Industry Canada Radio Standard Specifications RSS-132 Issue 3 and RSS-133 Issue 6 to support the equipment certification under FCC-ID 2ACHL-AIR104G.

Full conducted measurements according to the above standards are filed under the certification of the module FCC-ID: QIPELS61-US with a singular grant. Thus this report verifies the radiated performance.

5 Measurement

5.1 Dates of Testing:

August 12, 2015 – August 15, 2016

5.2 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

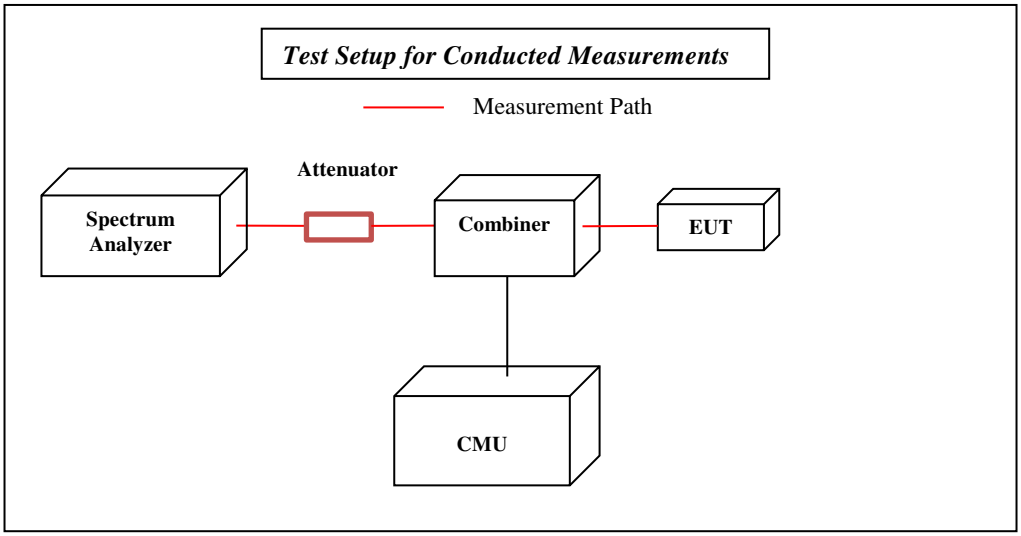
5.3 Environmental Conditions during Testing:

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

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

5.4 Conducted measurements

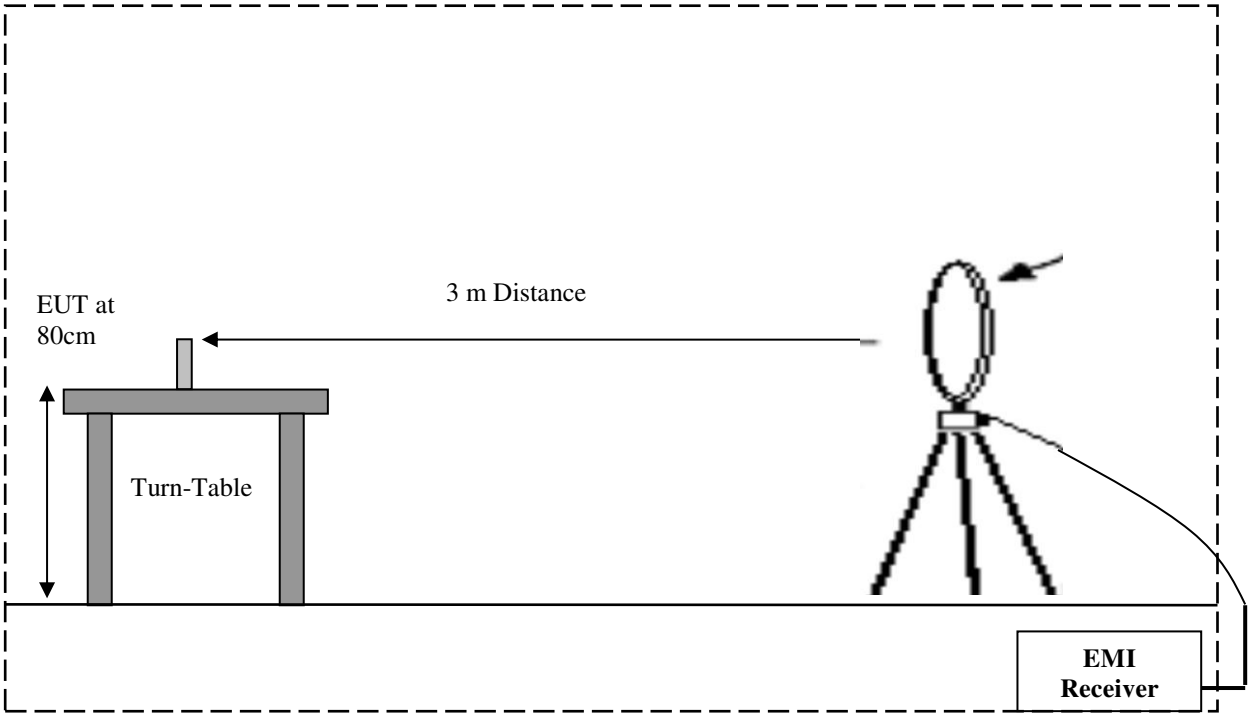
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v02r02 – "Measurement Guidance for Certification of Licensed Digital Transmitters" and according to relevant parts of TIA-603C 2004 as detailed below.



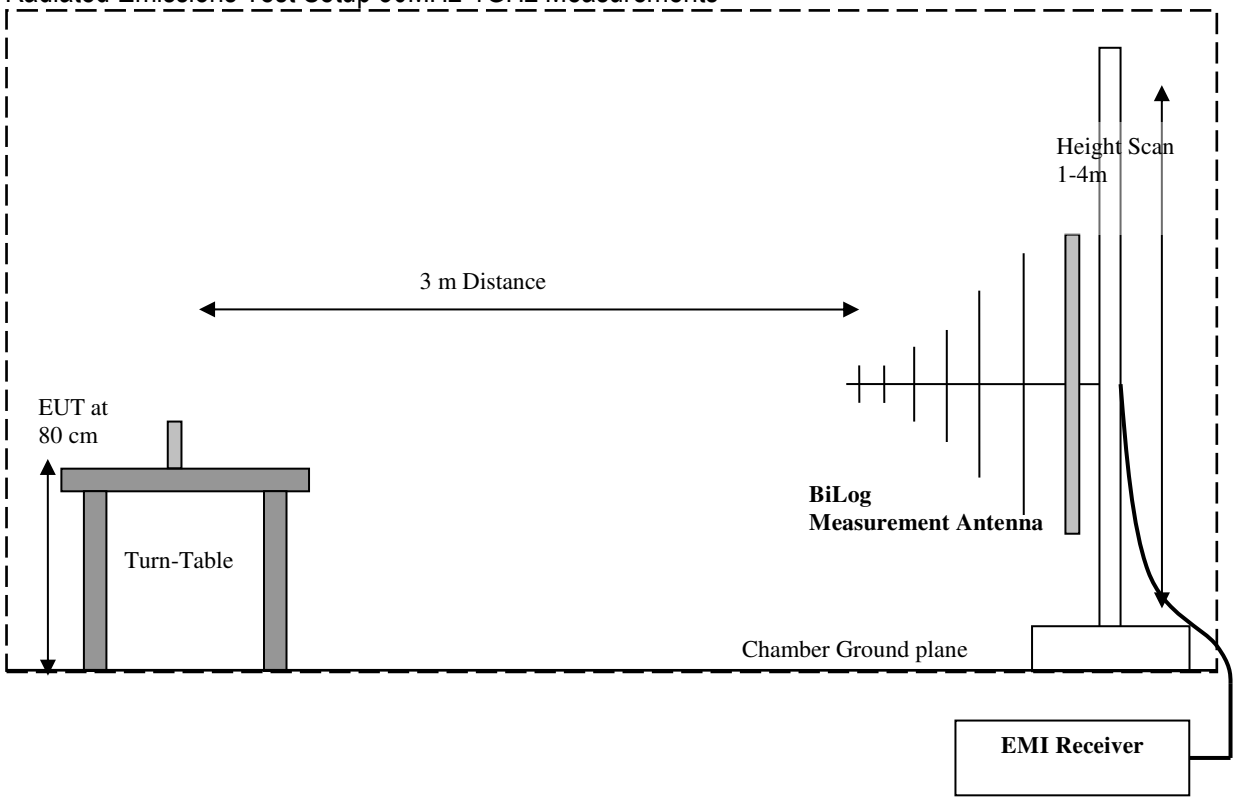
5.5 Radiated Measurement

- 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.

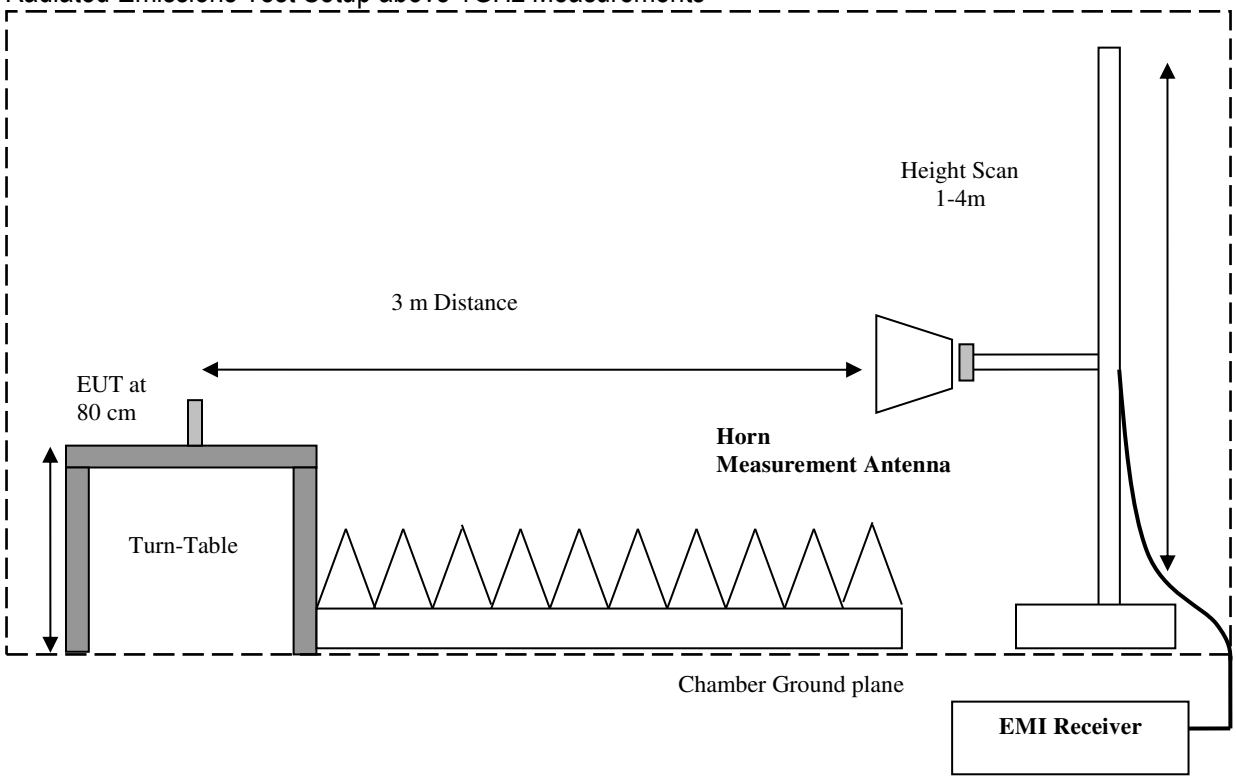
Radiated Emissions Test Setup below 30MHz Measurements



Radiated Emissions Test Setup 30MHz-1GHz Measurements



Radiated Emissions Test Setup above 1GHz Measurements



5.6 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:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §22.913 (a) RSS-132 5.4	RF Output Power	Nominal	UMTS/LTE	■	☐	☐	☐	Complies
§2.1055 §22.355 RSS-132 5.3	Frequency Stability	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1049 §22.917(b) RSS-132 5.2	Occupied Bandwidth	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1051 §22.917 RSS-132 5.5	Band Edge Compliance	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1051 §22.917 RSS-132 5.5	Conducted Spurious Emissions	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1053 §22.917 RSS-132 5.5	Radiated Spurious Emissions	Nominal	UMTS/LTE	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from module certification.

6.2 FCC 24 & 27:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §24.232 (a); §27.50 (d) RSS-133 6.4	RF Output Power	Nominal	UMTS/LTE	■	☐	☐	☐	Complies
§2.1055; §24.235; §27.54 RSS-133 6.3	Frequency Stability	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1049; §24.238; §27.53 RSS-133 6.2	Occupied Bandwidth	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1051; §24.238; §27.53 RSS-133 6.5	Band Edge Compliance	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1051; §24.238; §27.53 RSS-133 6.5	Conducted Spurious Emissions	Nominal	UMTS/LTE	☐	☐	☐	■	Note 2
§2.1053; §24.238; §27.53 RSS-133 6.5	Radiated Spurious Emissions	Nominal	UMTS/LTE	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from module certification.

7 RF Output Power verification

7.1 Reference:

FCC: CFR Part 2.1046, CFR Part 22.913, CFR Part 24.232, CFR Part 27.50

7.2 Limits:

7.2.1 FCC Part 22.913 (a)

(a) The effective radiated power (ERP) of mobile transmitters must not exceed 7 Watts (38.45dBm).

7.2.2 FCC Part 24.232 (c),(d),(e)

(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

(d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

7.2.3 FCC Part 27.50 (d) (4)

(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

7.3 Summary Measurement Result:

Band	Channel	Frequency [MHz]	Duty Cycle Correction (dB)	Conducted Average Power [dBm]
WCDMA FDD V	4132	826.4	0	22.37
	4183	836.6	0	22.33
	4233	846.6	0	22.43
WCDMA FDD II	9262	1852.4	0	21.94
	9400	1880	0	21.83
	9538	1907.6	0	21.84
LTE 2 (BW: 20MHz/1RB,RB Low)	18700	1860	0	22.75
	18900	1880	0	22.48
	19100	1900	0	22.87
LTE 4 (BW: 20MHz/1RB,RB Low)	20050	1720	0	22.93
	20175	1732.5	0	22.82
	20300	1745	0	22.68
LTE 5 (BW: 10MHz/1RB,RB Low)	20600	844	0	22.9
	20525	836.5	0	22.92
	20450	829	0	23.06
LTE 12 (BW: 10MHz/1RB,RB Low)	23060	704	0	22.43
	23099	707.5	0	22.62
	23130	711	0	22.18

8 Radiated Spurious Emissions

8.1 References:

FCC: CFR Part 2.1053, CFR Part 22.917, CFR Part 24.238,
IC: RSS-Gen issue 4, section 6.13; RSS-132 issue 3, section 5.5; RSS-133 issue 6, section 6.5

8.2 Limits:

(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.
For all power levels +30dBm to 0dBm, this becomes a constant specification of -13dBm.

8.2.1 FCC 22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.
(b) *Measurement procedure.* Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

8.2.2 FCC 24.238 Emission limitations for Broadband PCS equipment.

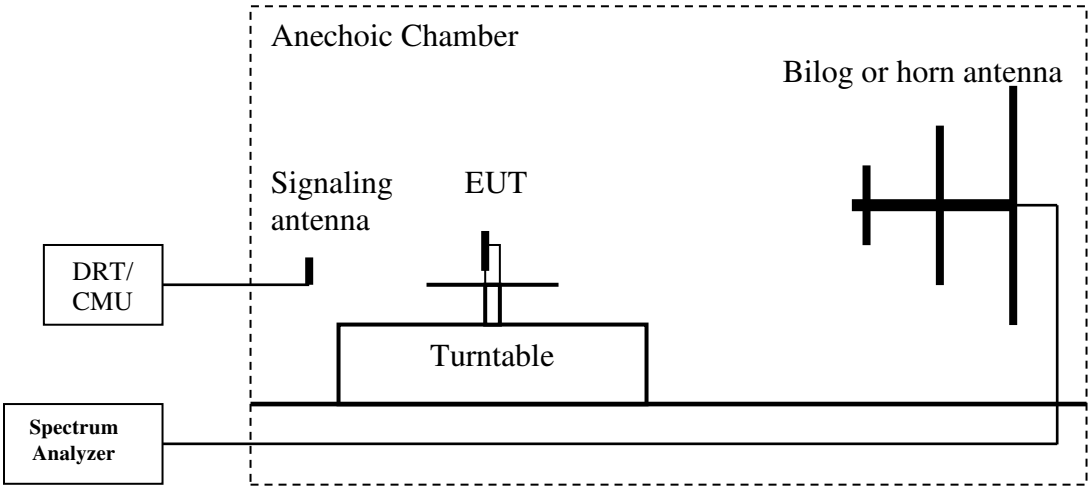
The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.
(b) Measurement procedure. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

8.2.3 RSS-132 Section 5.5.1.1 and RSS-133 Section 6.5.1

In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 $\log_{10}$(P), dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least 43 + 10 $\log_{10}$(P), dB, in any 100 kHz bandwidth.
After the first 1.5 MHz, the power of emissions shall be attenuated below the transmitter output power by at least 43 + 10 log10(P), dB, in any MHz of bandwidth.

8.3 Radiated out of band measurement procedure:

Ref: TIA-603C 2004- 2.2.12 Unwanted emissions: Radiated Spurious



1. Connect the equipment as shown in the above diagram with the EUT's antenna in a horizontal orientation.
2. Adjust the settings of the Digital Radio Communication Tester (DRT) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to measure peak hold with the required settings.
4. Place the measurement antenna in a horizontal orientation. Rotate the EUT 360°. Raise the measurement antenna up to 4 meters in 0.5 meters increments and rotate the EUT 360° at each height to maximize all emissions. Measure and record all spurious emissions (**LVL**) up to the tenth harmonic of the carrier frequency.
5. Replace the EUT with a horizontally polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
6. Connect the antenna to a signal generator with known output power and record the path loss in dB (**LOSS)**. **LOSS** = Generator Output Power (dBm) – Analyzer reading (dBm).
7. Determine the level of spurious emissions using the following equation:
   Spurious (dBm) = **LVL** (dBm) + **LOSS** (dB):
8. Repeat steps 4, 5 and 6 with all antennas vertically polarized.
9. Determine the level of spurious emissions using the following equation:

Spurious (dBm) = **LVL** (dBm) + **LOSS** (dB):

10. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.
    (N**ote:** Steps 5 and 6 above are performed prior to testing and **LOSS** is recorded by test software. Steps 3, 4 and 7 above are performed with test software.)

8.3.1 Sample Calculations for Radiated Measurements:

Power Measurements using Substitution Procedure:

The measurement on the Spectrum Analyzer is used as a basis for the Substitution procedure.
The EUT is replaced with a Signal Generator and an antenna. The setting on the Signal Generator is varied until the Spectrum Analyzer displays the original reading. EIRP is calculated as-

EIRP (dBm)= Signal Generator setting (dBm)- Cable Loss (dB)+ Antenna Gain (dBi). Example below.

Frequency (MHz)	Measured SA (dBµV)	Signal Generator setting (dBm)	Antenna Gain (dBi)	Dipole Gain (dBd)	Cable Loss (dB)	EIRP (dBm)
1000	95.5	24.5	6.5	0	3.5	27.5

8.3.2 Spectrum Analyzer Settings

Settings for FCC 22

	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

Settings for FCC 24

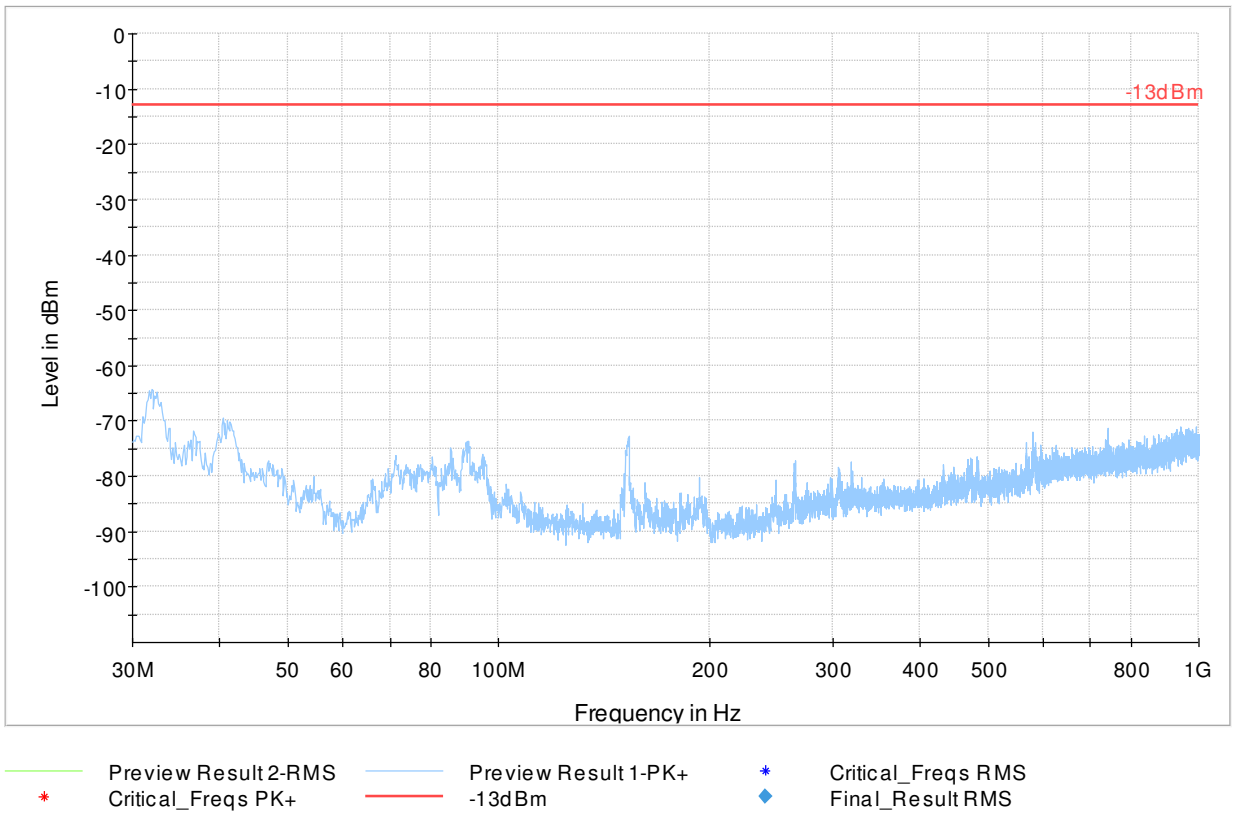
	30MHz – 1 GHz	1 – 2.7 GHz	2.7 – 18 GHz	18 – 19.1 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto	Auto

8.4 Summary Measurement result:

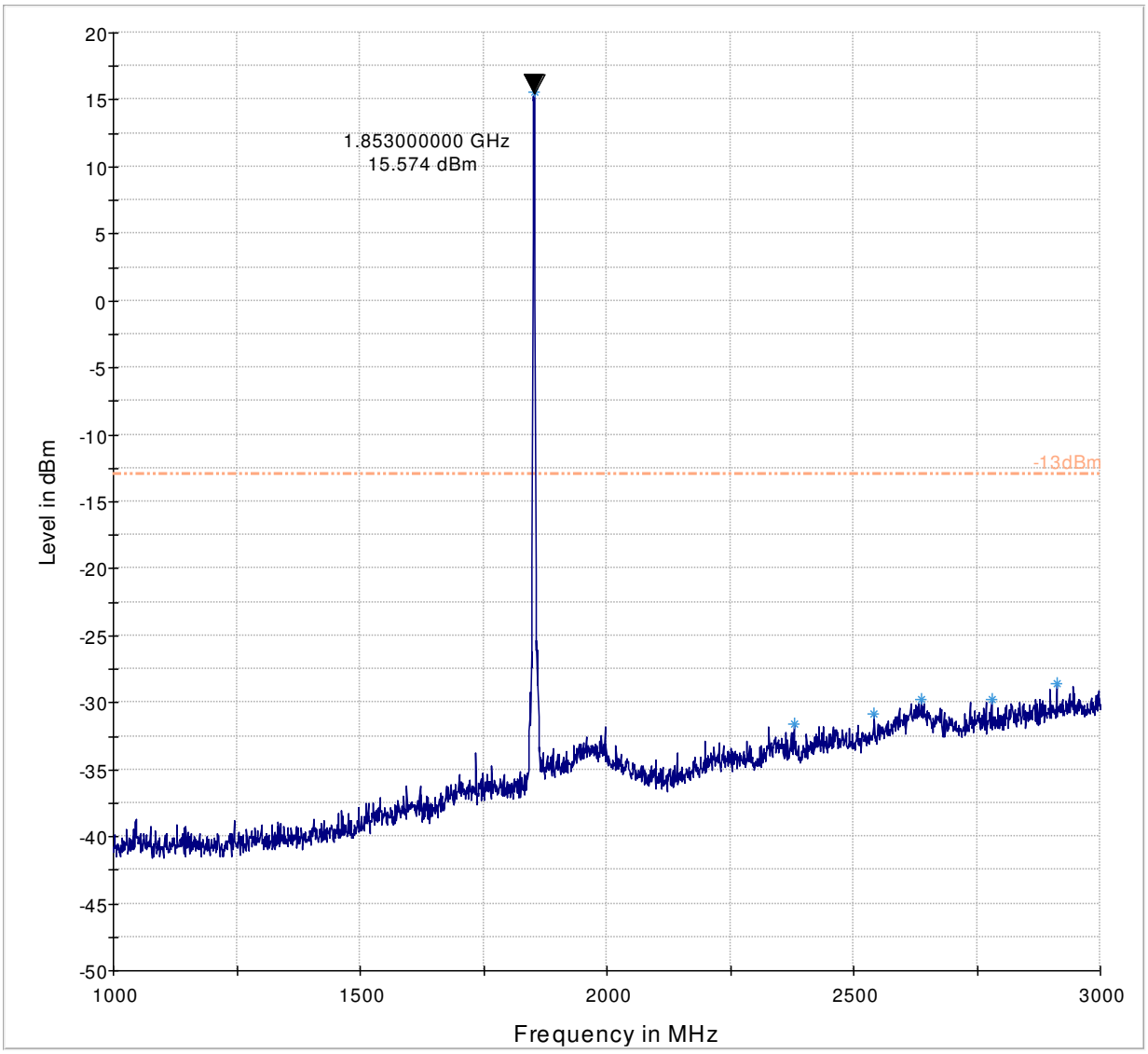
Channel	EUT Operating Mode	Scan Frequency	Limit (dBm)	Result	Note
Low	UMTS FDD II	30 MHz – 18 GHz	-13	Pass	
Mid	UMTS FDD II	9 kHz – 22 GHz	-13	Pass	
High	UMTS FDD II	30 MHz – 18 GHz	-13	Pass	
Low	UMTS FDD IV	30 MHz – 18 GHz	-13	Pass	
Mid	UMTS FDD IV	9 kHz – 22 GHz	-13	Pass	
High	UMTS FDD IV	30 MHz – 18 GHz	-13	Pass	
Low	UMTS FDD V	30 MHz – 9 GHz	-13	Pass	
Mid	UMTS FDD V	9 kHz – 9 GHz	-13	Pass	
High	UMTS FDD V	30 MHz – 9 GHz	-13	Pass	
Low	LTE Band 2	30 MHz – 18 GHz	-13	Pass	
Mid	LTE Band 2	9 kHz – 22 GHz	-13	Pass	
High	LTE Band 2	30 MHz – 18 GHz	-13	Pass	
Low	LTE Band 4	30 MHz – 18 GHz	-13	Pass	
Mid	LTE Band 4	9 KHz – 22 GHz	-13	Pass	
High	LTE Band 4	30 MHz – 18 GHz	-13	Pass	
Low	LTE Band 5	30 MHz – 9 GHz	-13	Pass	
Mid	LTE Band 5	9 kHz – 9 GHz	-13	Pass	
High	LTE Band 5	30 MHz – 9 GHz	-13	Pass	
Low	LTE Band 12	30 MHz – 9 GHz	-13	Pass	
Mid	LTE Band I2	9 kHz – 30 MHz	-13	Pass	
High	LTE Band I2	30 MHz – 9 GHz	-13	Pass	

8.5 Measurement Plots WCDMA/UMTS FDD II

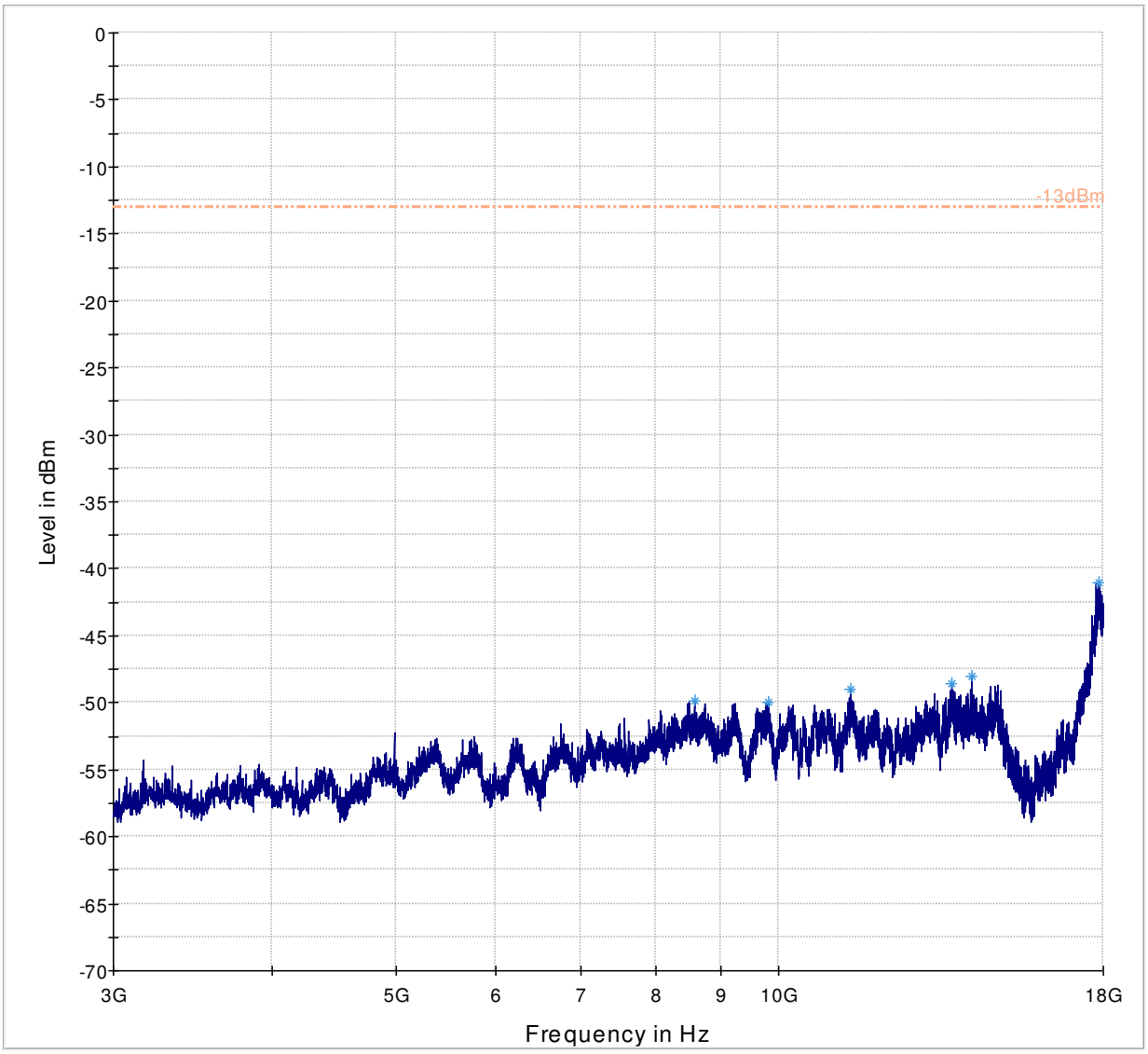
8.5.1 30 - 1000 MHz, Ch. Low



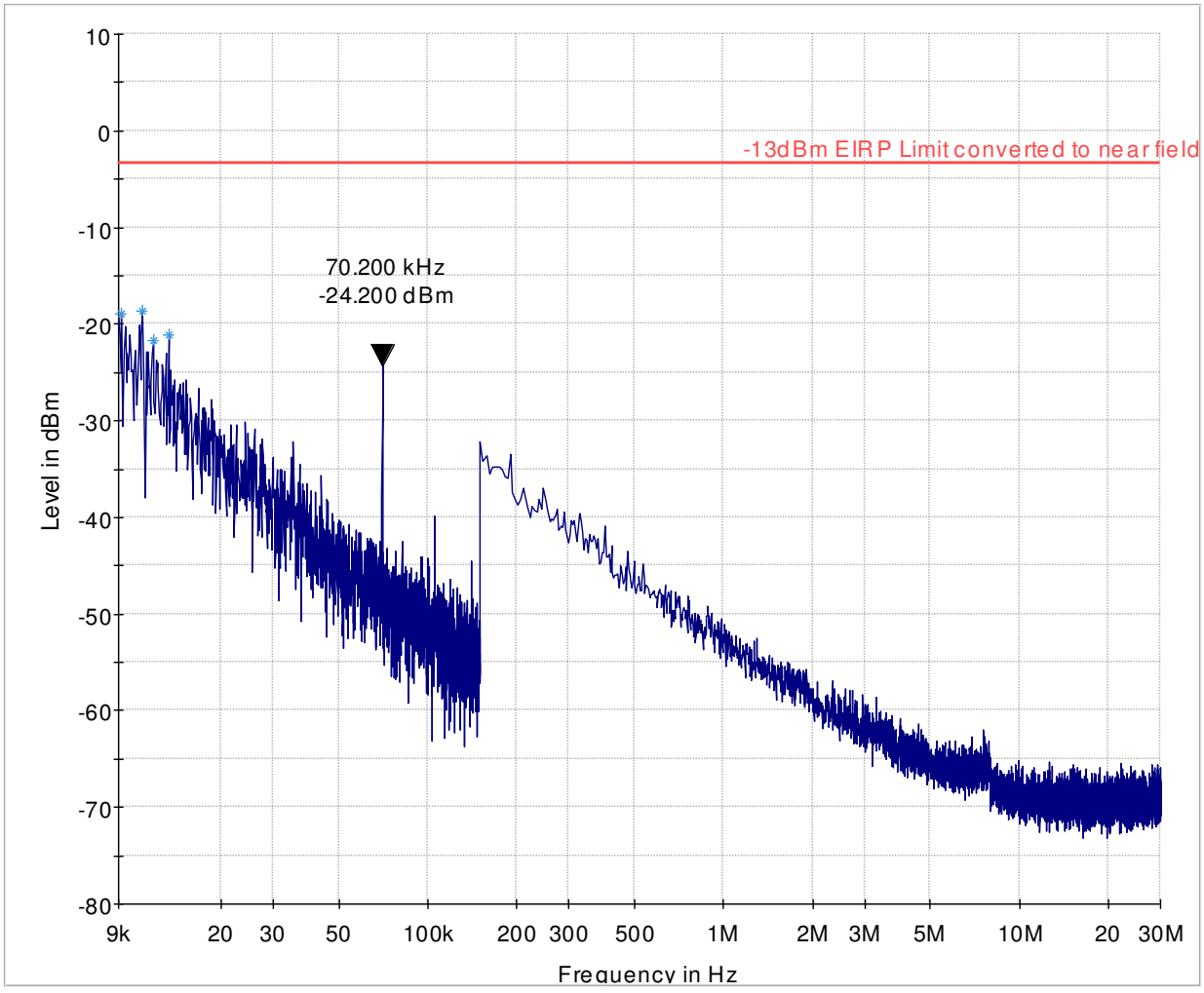
8.5.2 1 - 3 GHz, Ch. Low



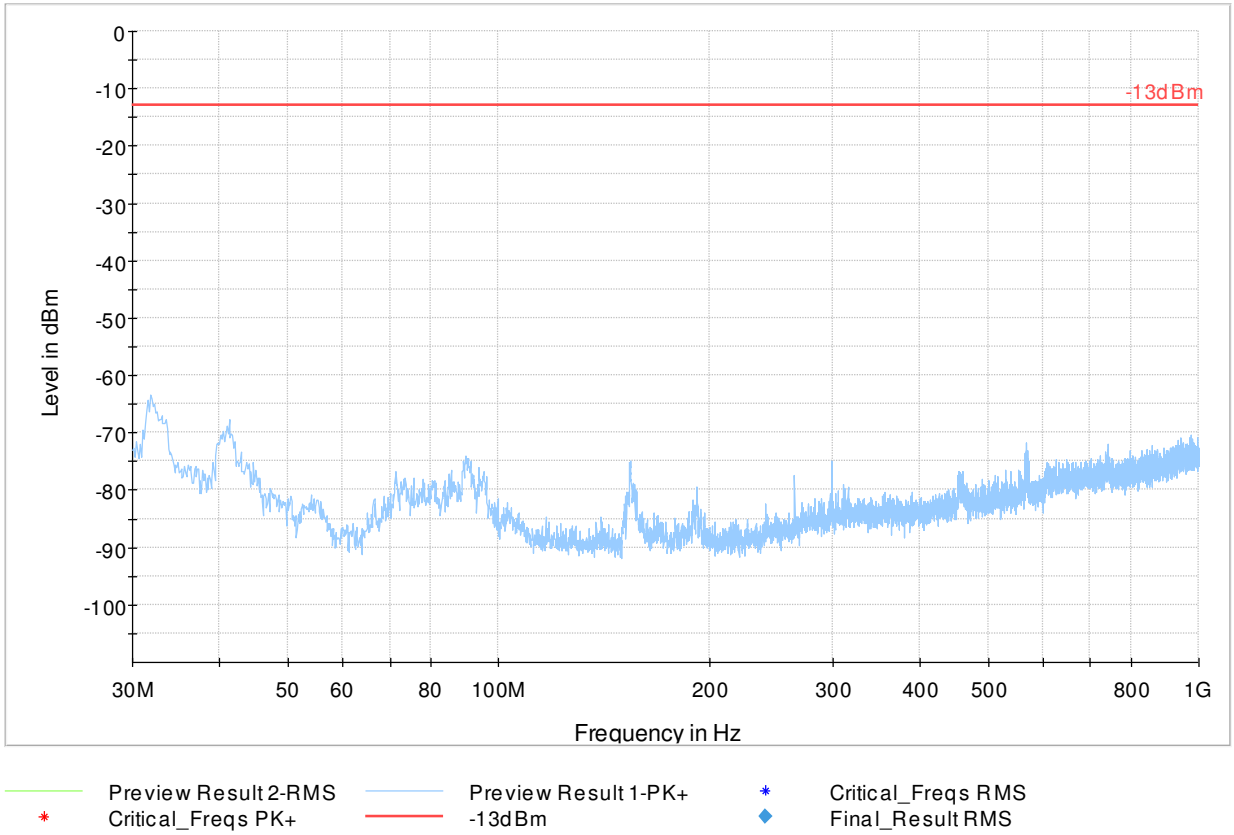
8.5.3 3 - 18 GHz, Ch. Low



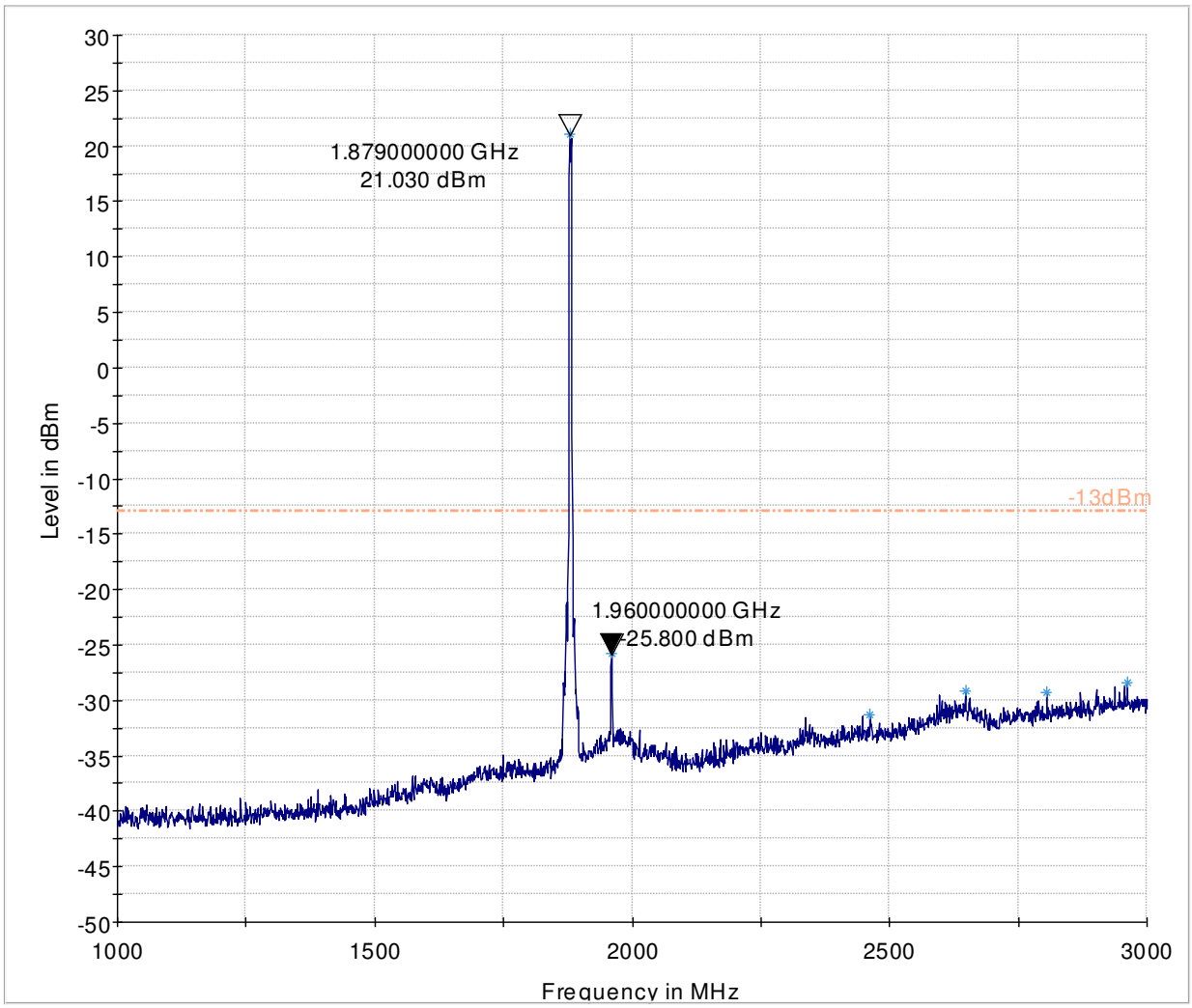
8.5.4 9 KHz - 30 MHz, Ch. Mid



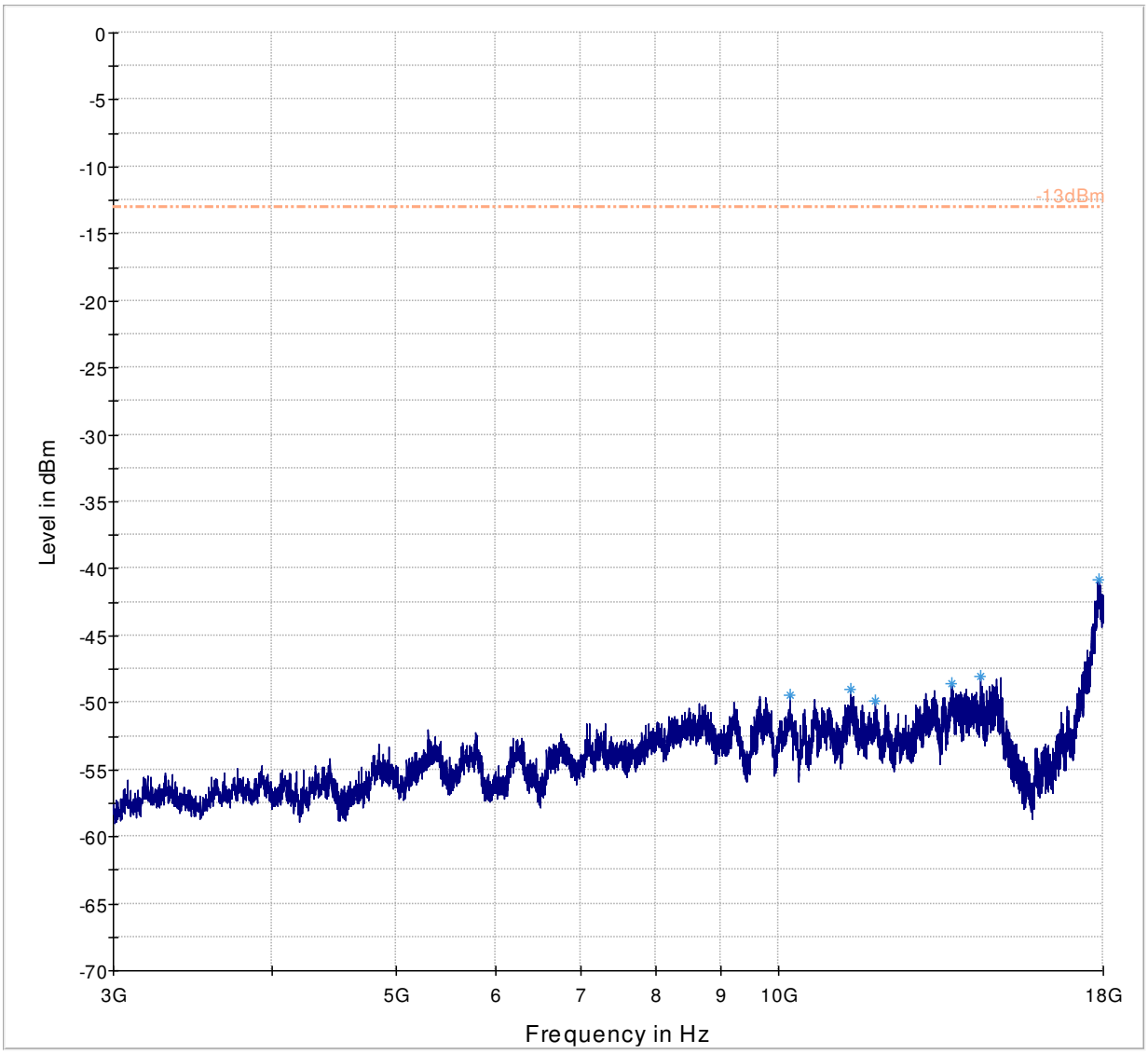
8.5.5 30 - 1000 MHz, Ch. Mid



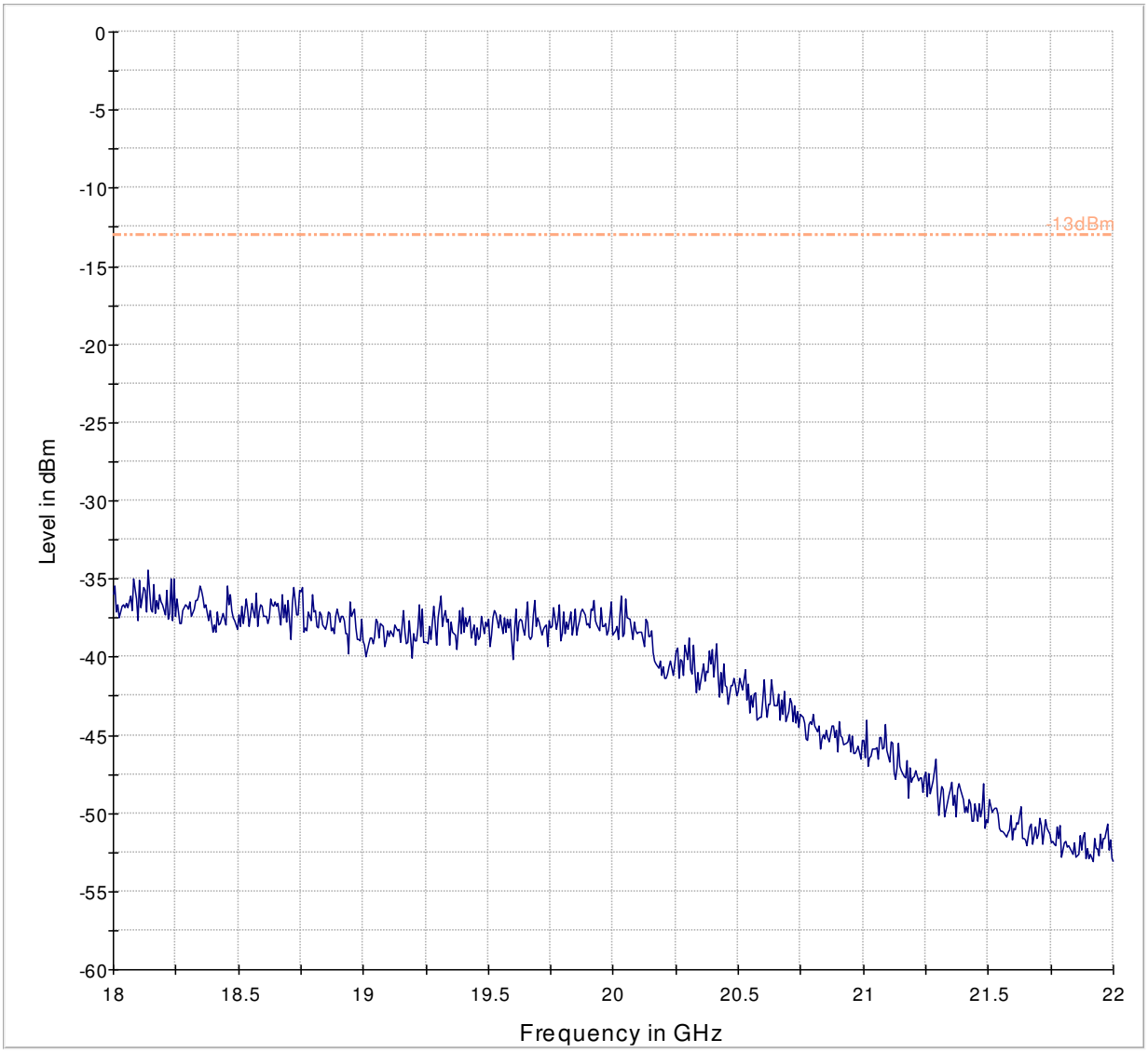
8.5.6 1 - 3 GHz, Ch. Mid



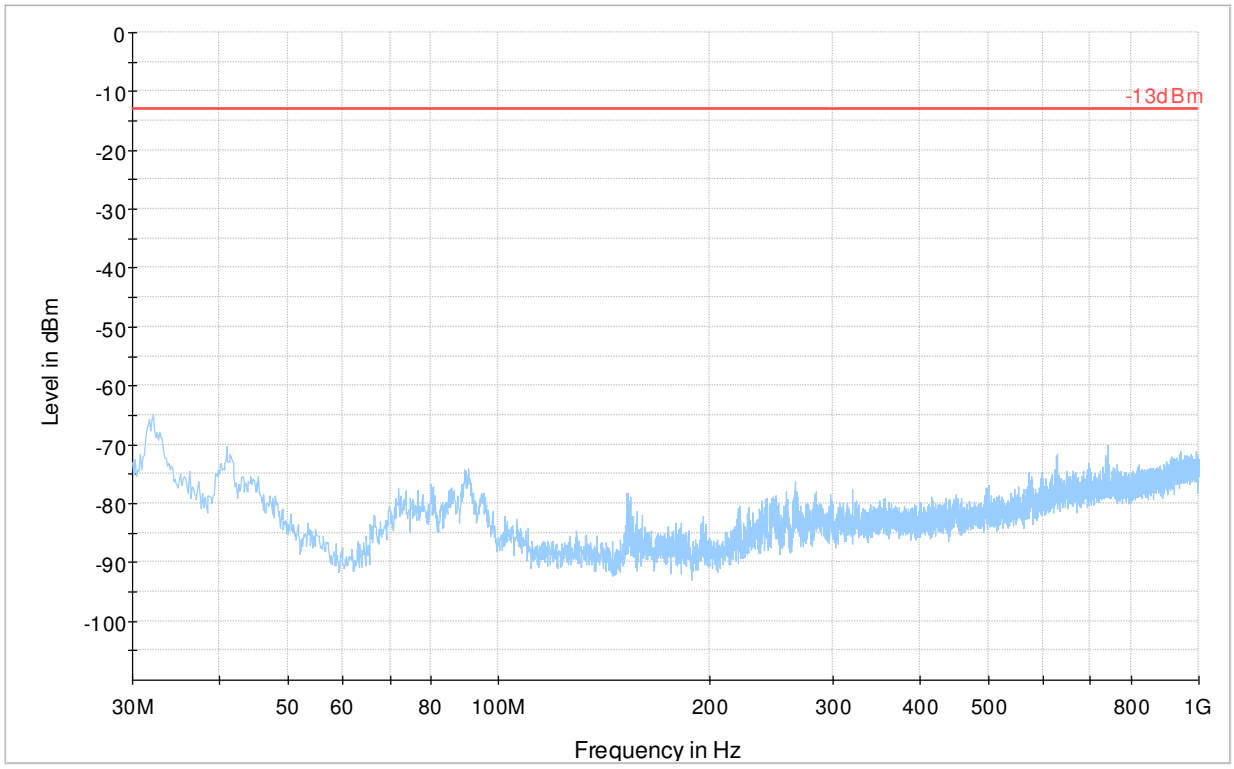
8.5.7 3 GHz - 18 GHz, Ch. Mid



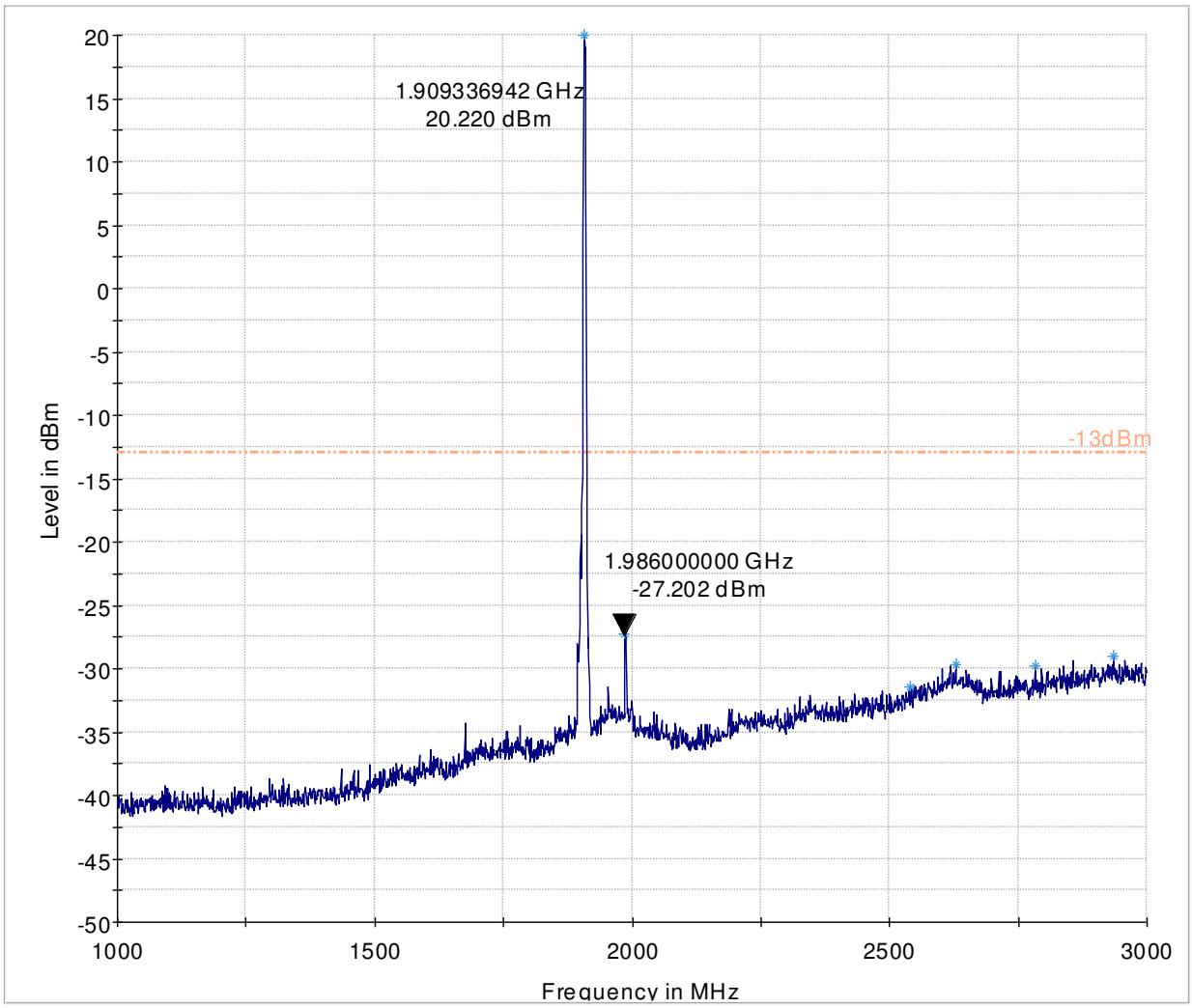
8.5.8 18 - 22 GHz, Ch. Mid



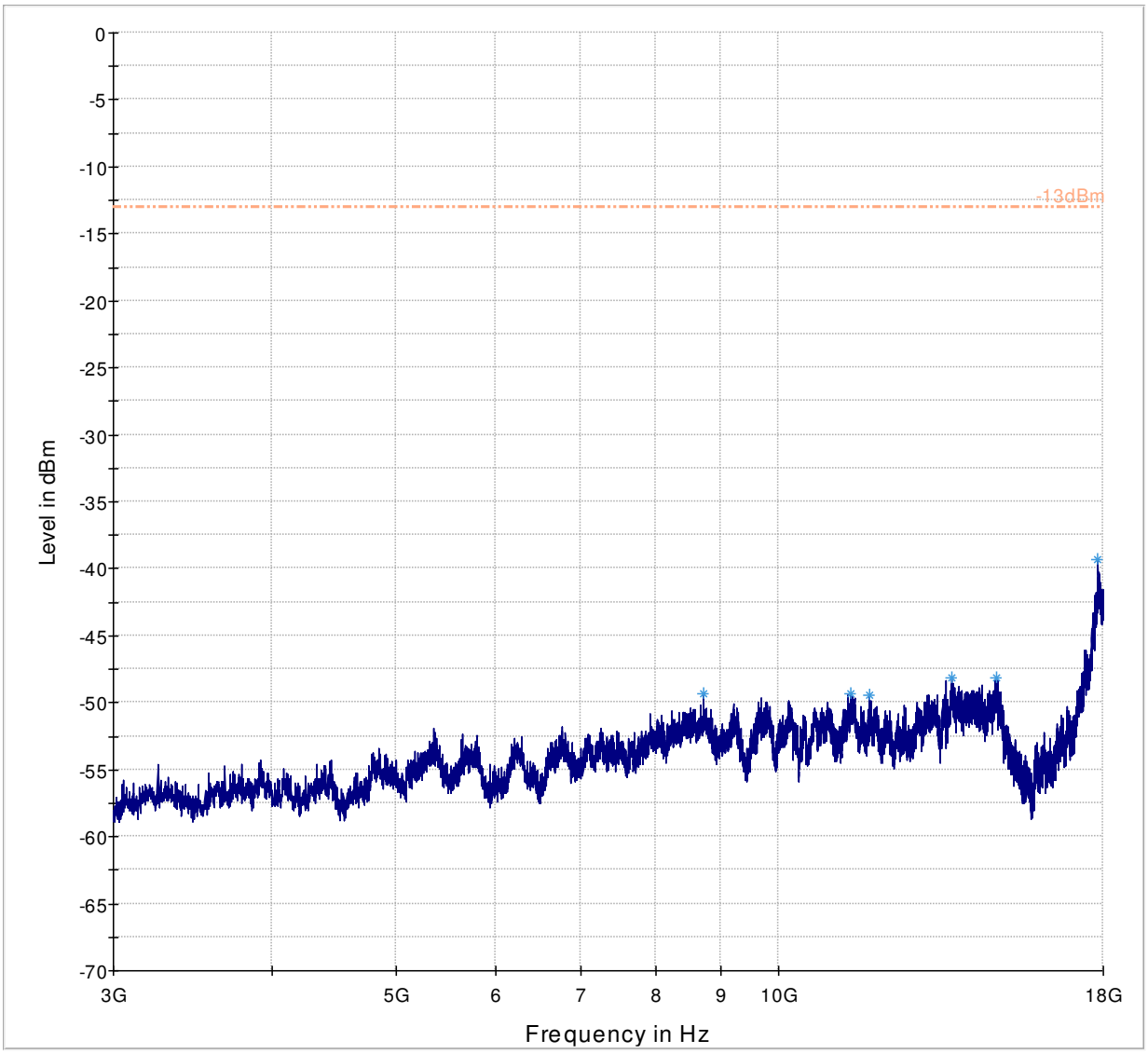
8.5.9 30 - 1000 MHz, Ch. High



8.5.10 1 - 3 GHz, Ch. High

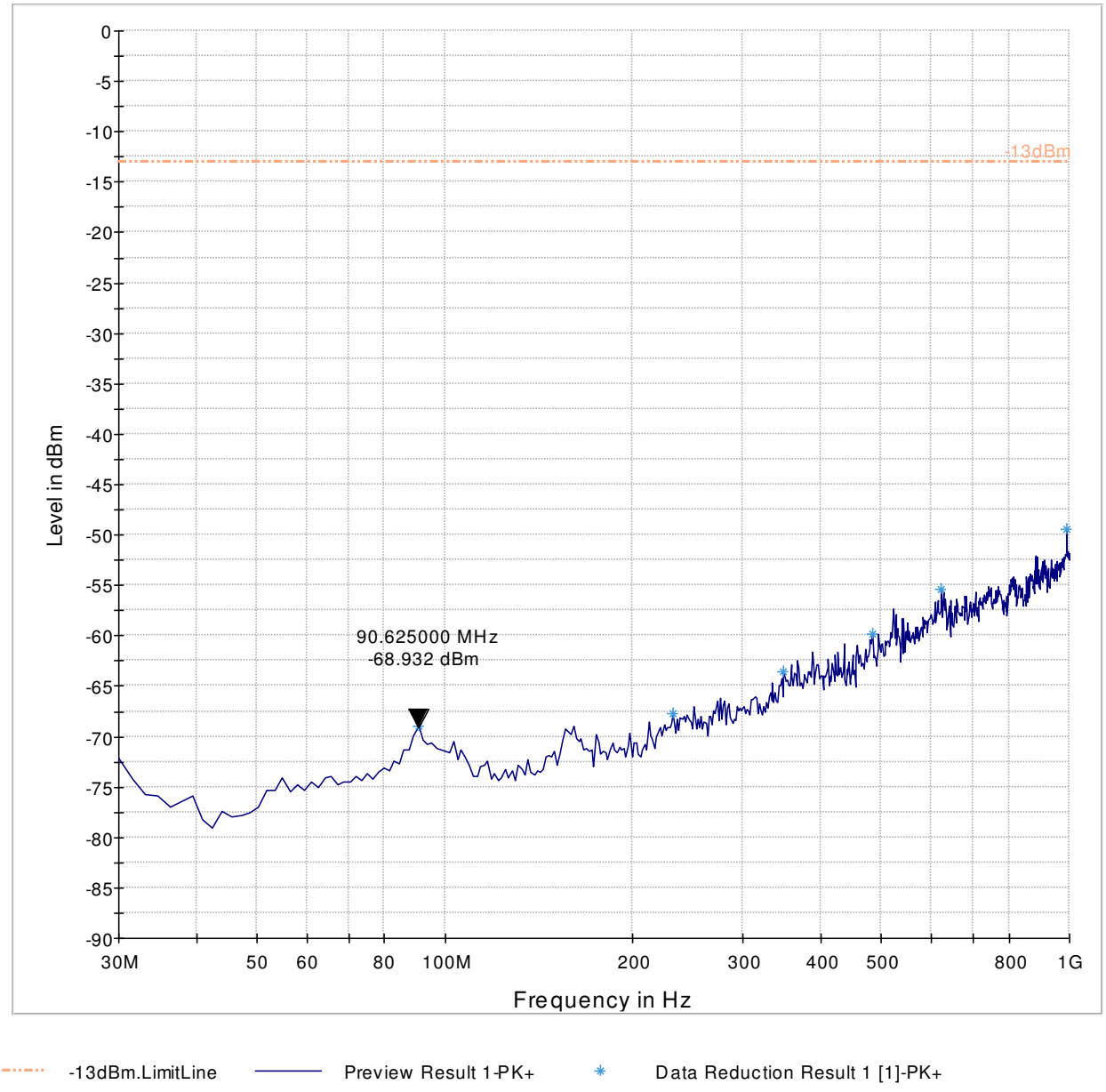


8.5.11 3 - 18 GHz, Ch. High

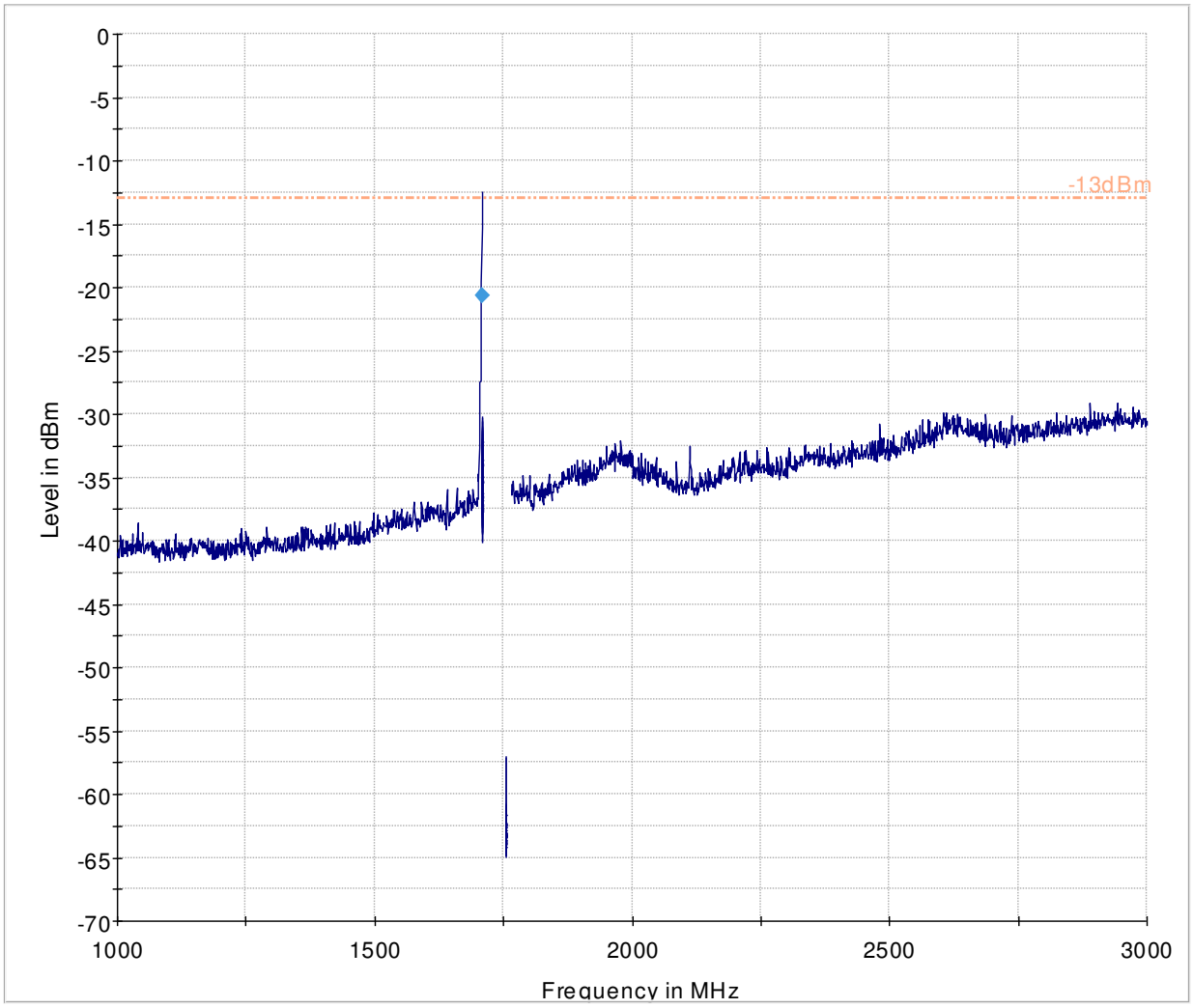


8.6 Measurement Plots WCDMA/UMTS FDD IV

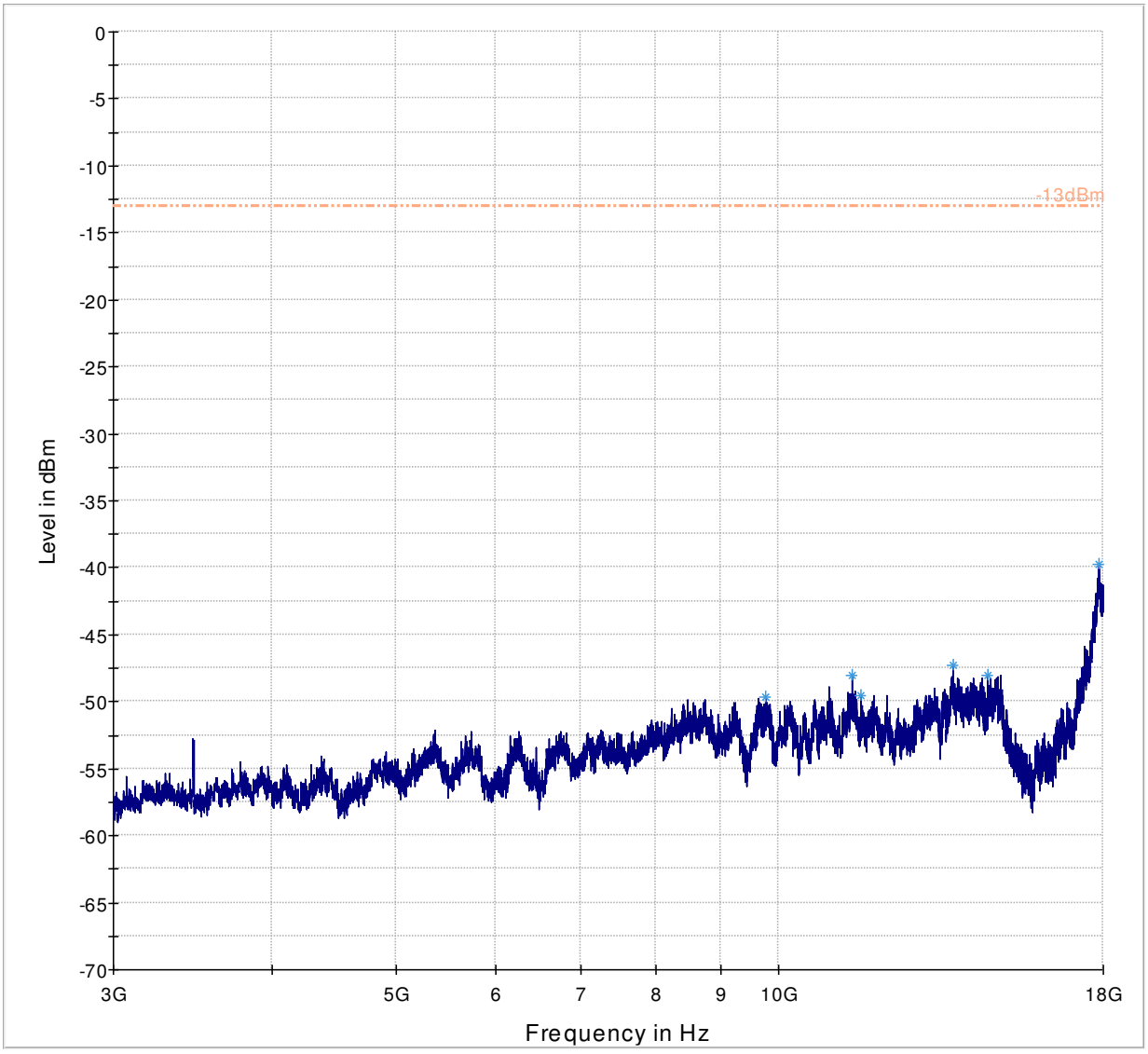
8.6.1 30 – 1000 MHz, Ch. Low



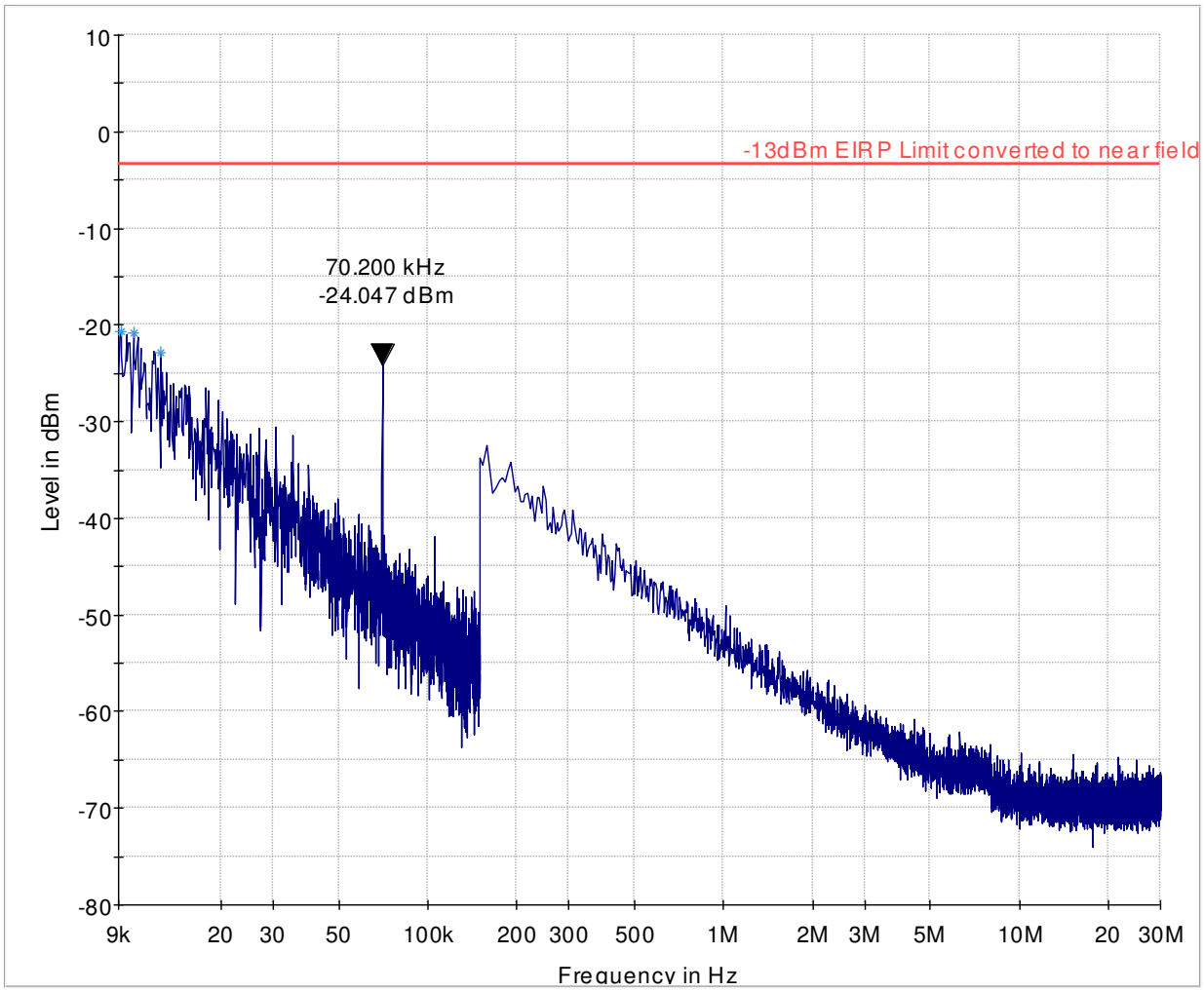
8.6.2 1 GHz – 3 GHz, Ch. Low



8.6.3 3 GHz – 18 GHz, Ch. Low

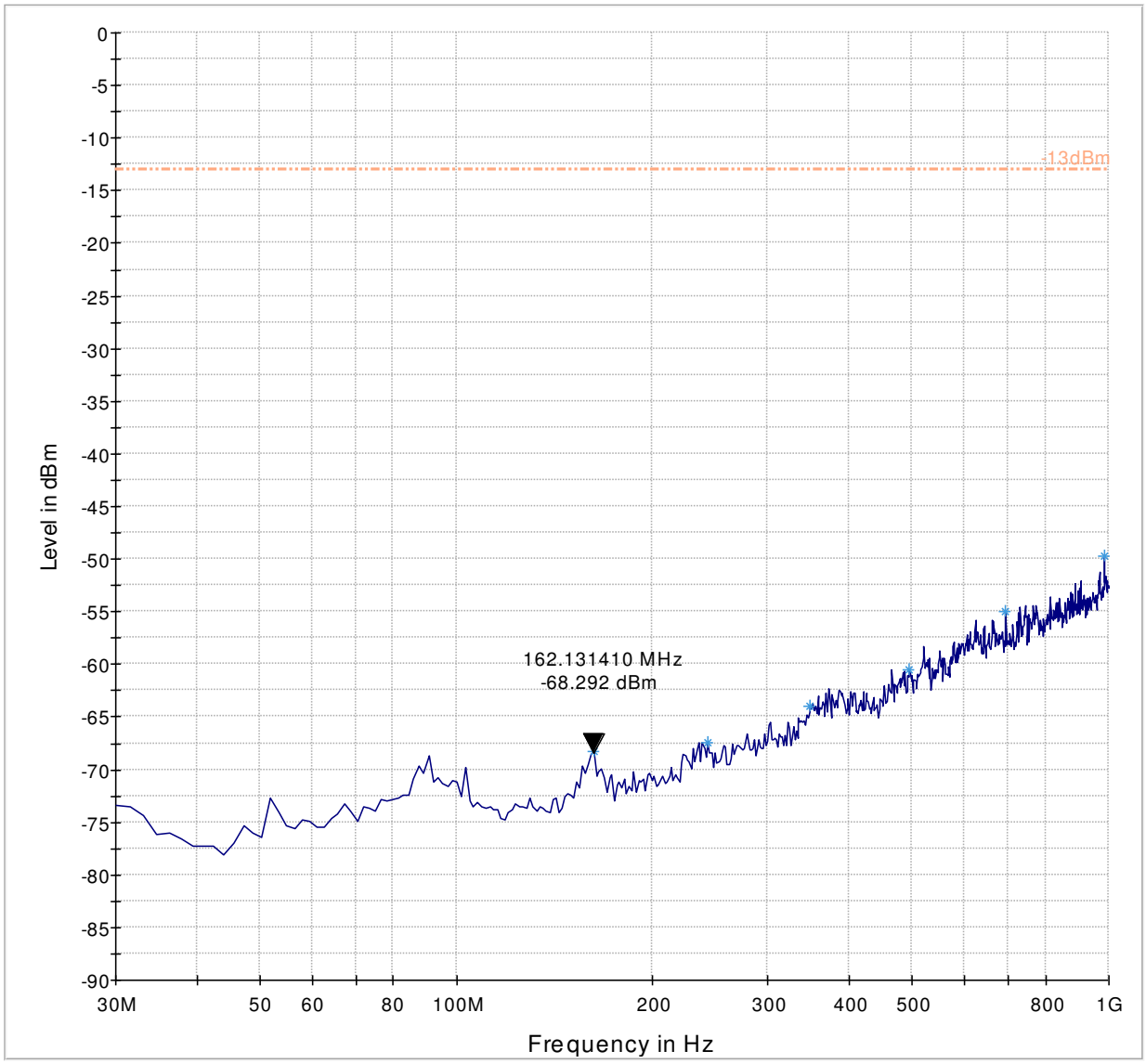


8.6.4 9 KHz – 30 MHz, Ch. Mid

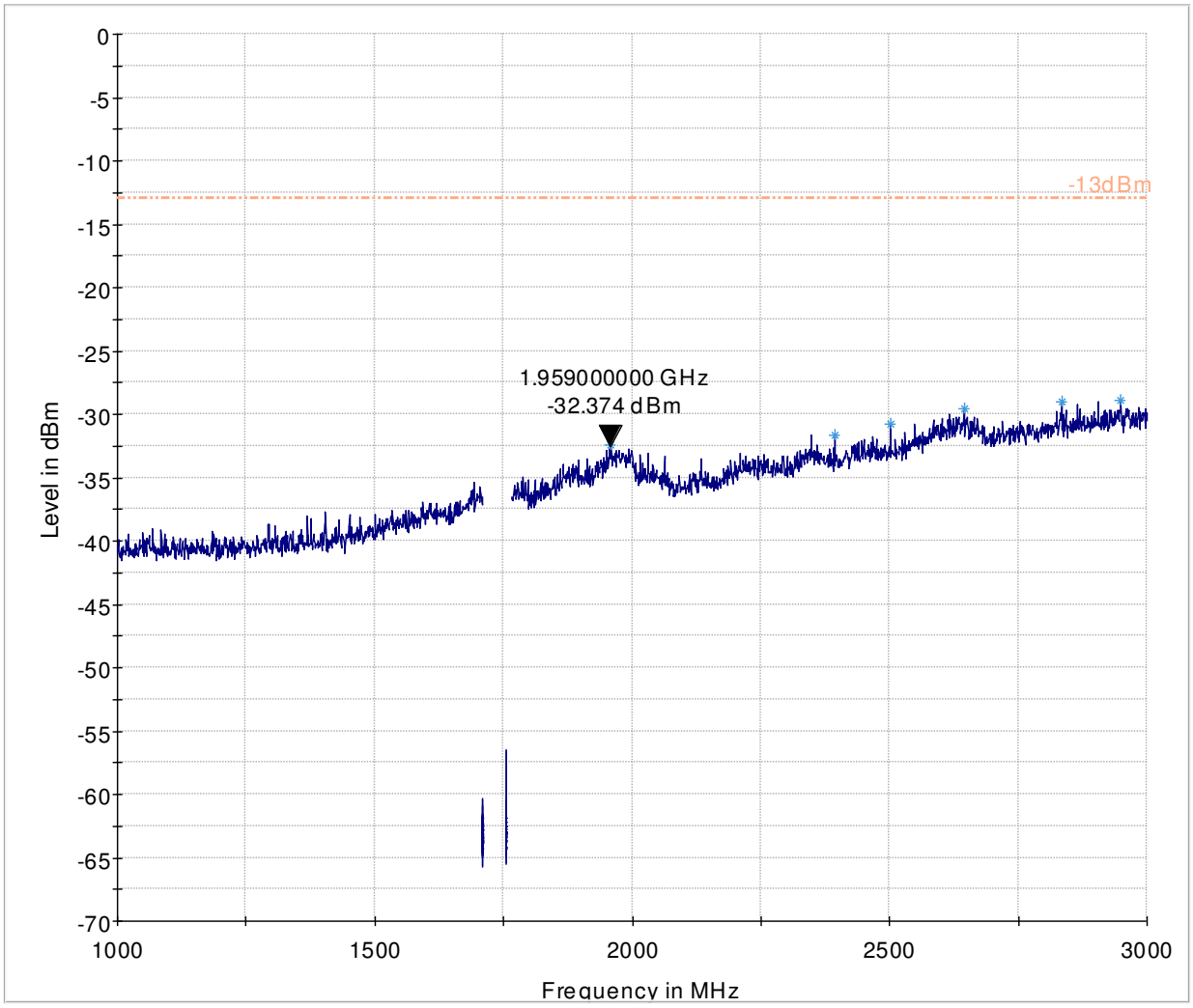


-13dBm EIRP Limit converted to near field
Preview Result 1-PK+
Data Reduction Result 1 [1]-PK+

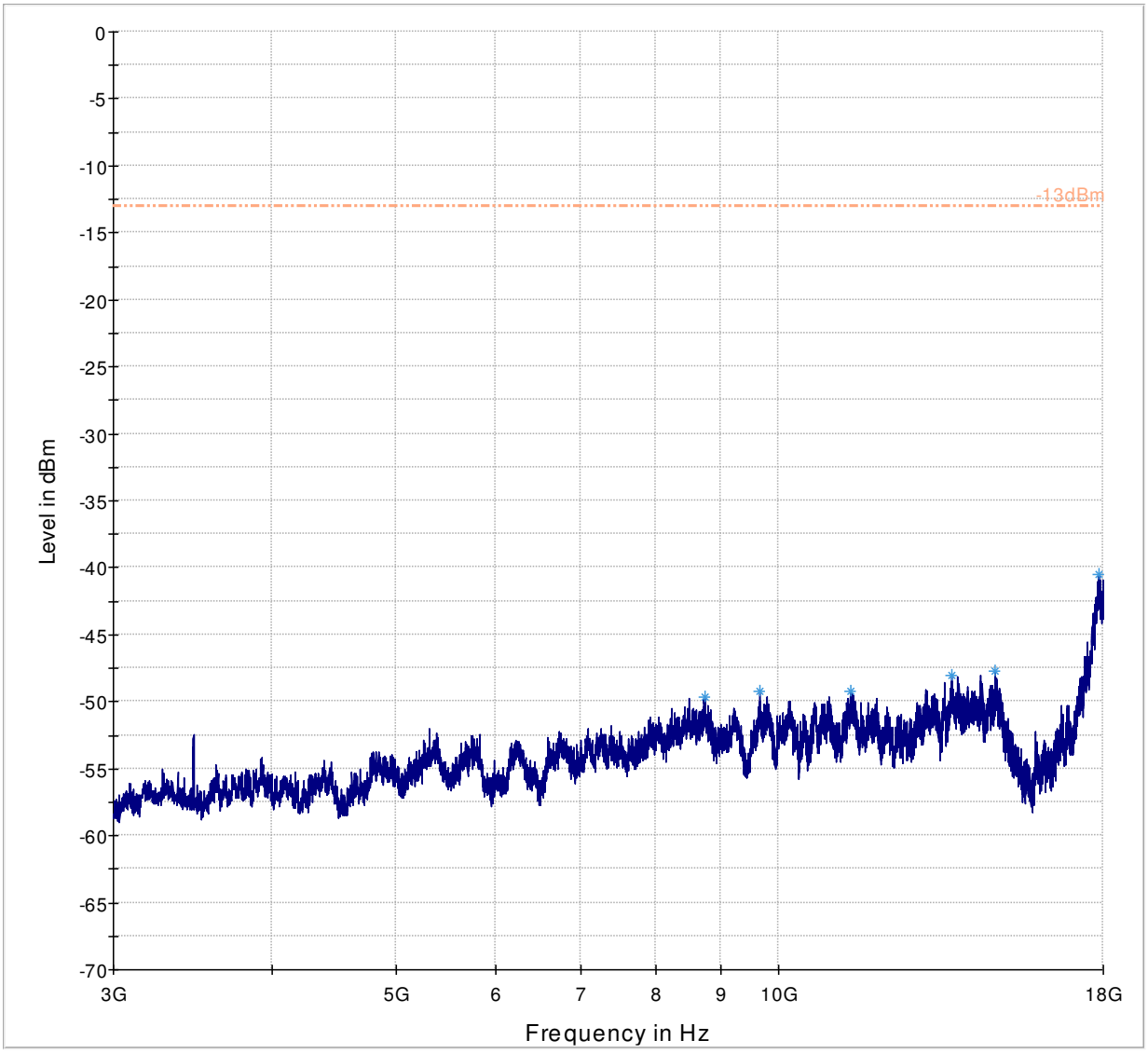
8.6.5 30 – 1000 MHz, Ch. Mid



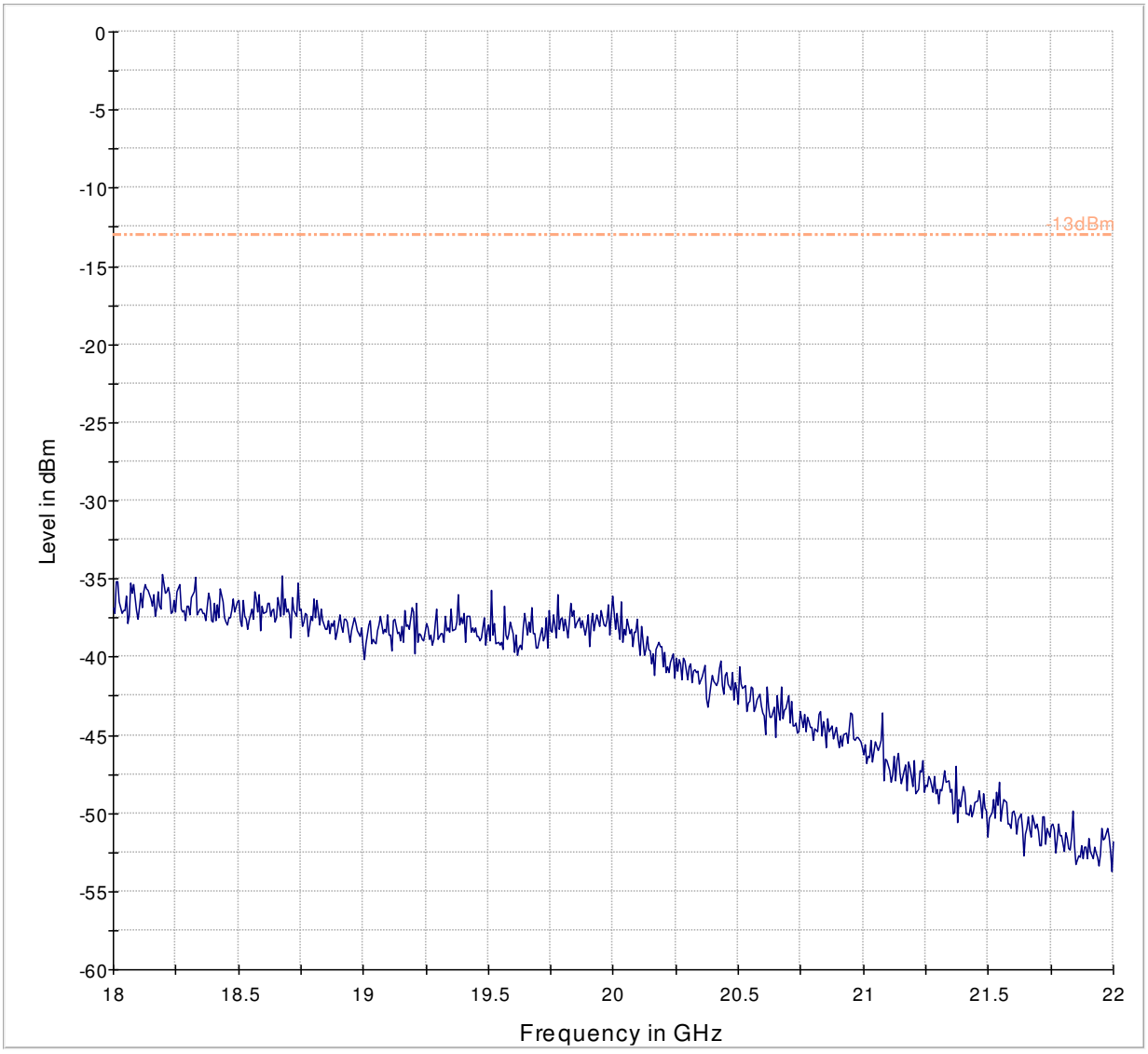
8.6.6 1 GHz – 3 GHz, Ch. Mid



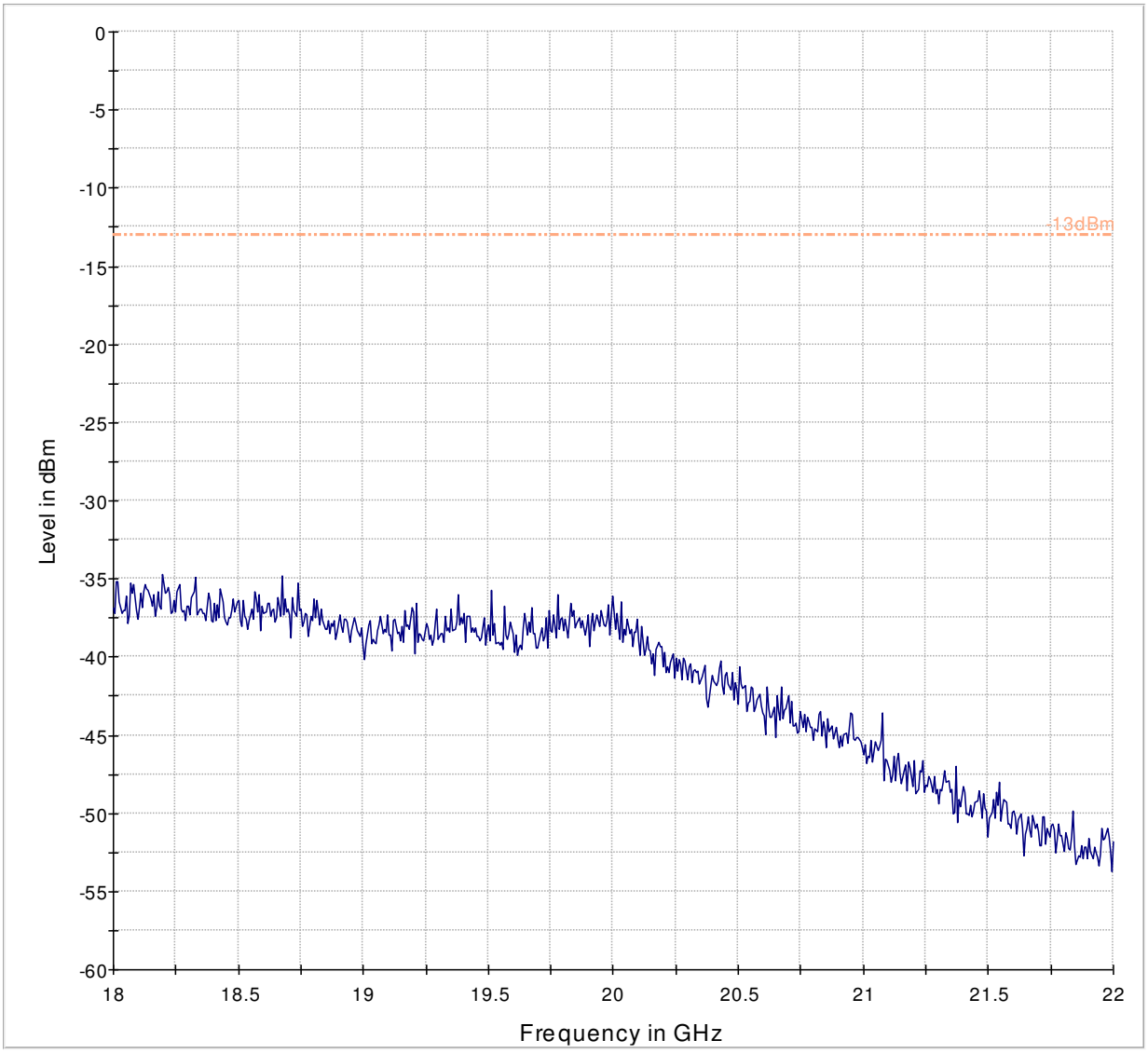
8.6.7 3 GHz – 18 GHz, Ch. Mid



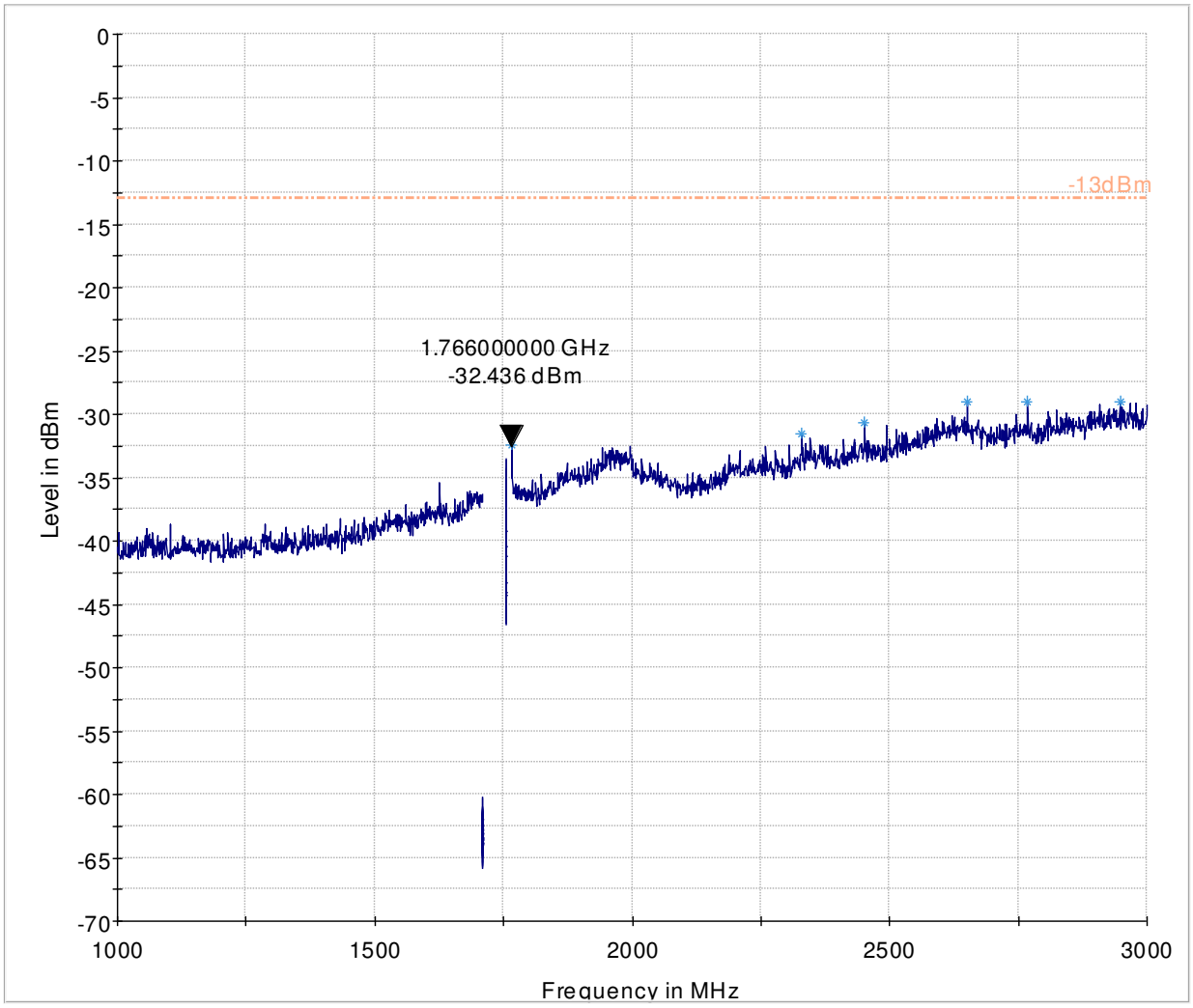
8.6.8 18 GHz – 22 GHz, Ch. Mid



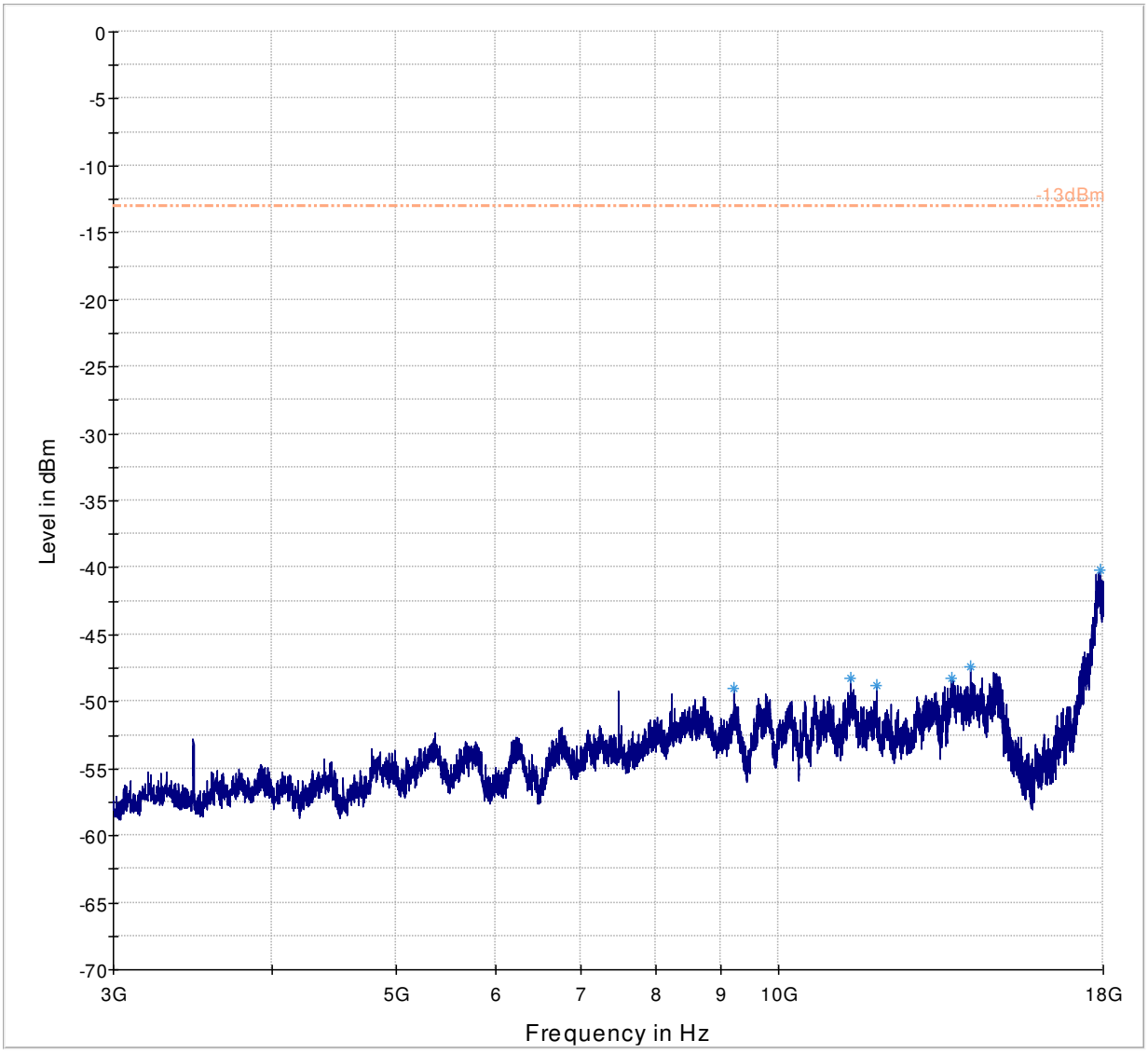
8.6.9 30 – 1000 MHz, Ch. High



8.6.10 1 GHz – 3 GHz, Ch. High

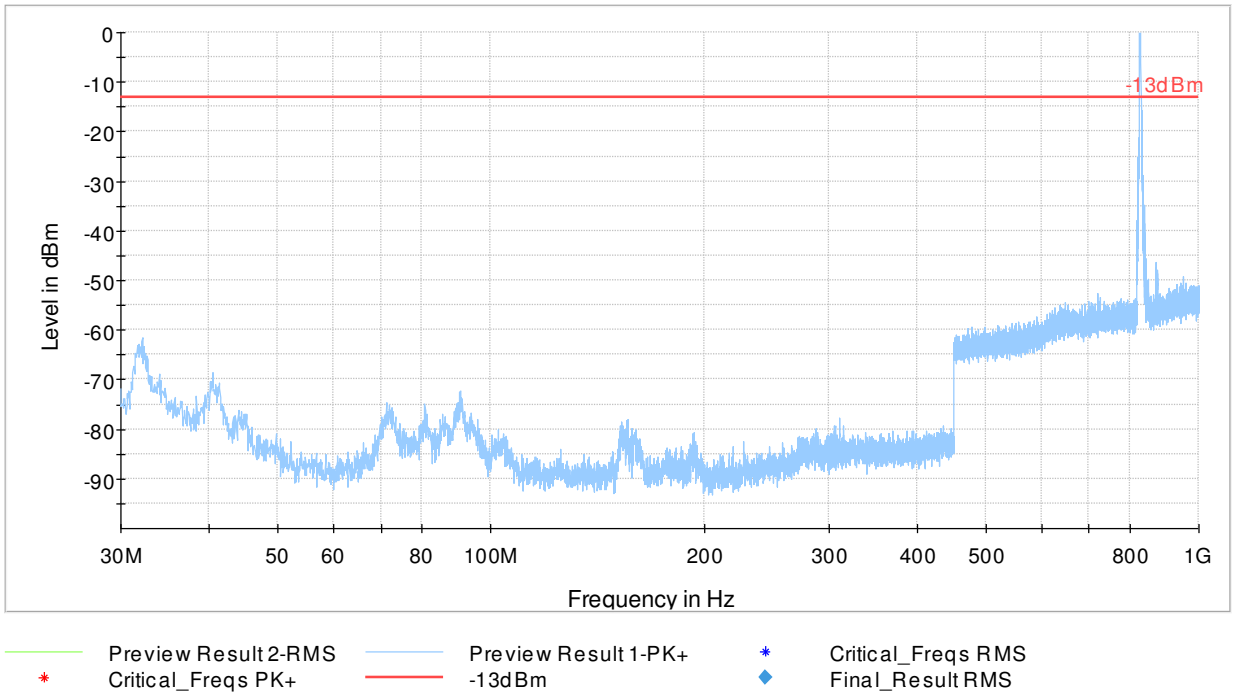


8.6.11 3 GHz – 18 GHz, Ch. High

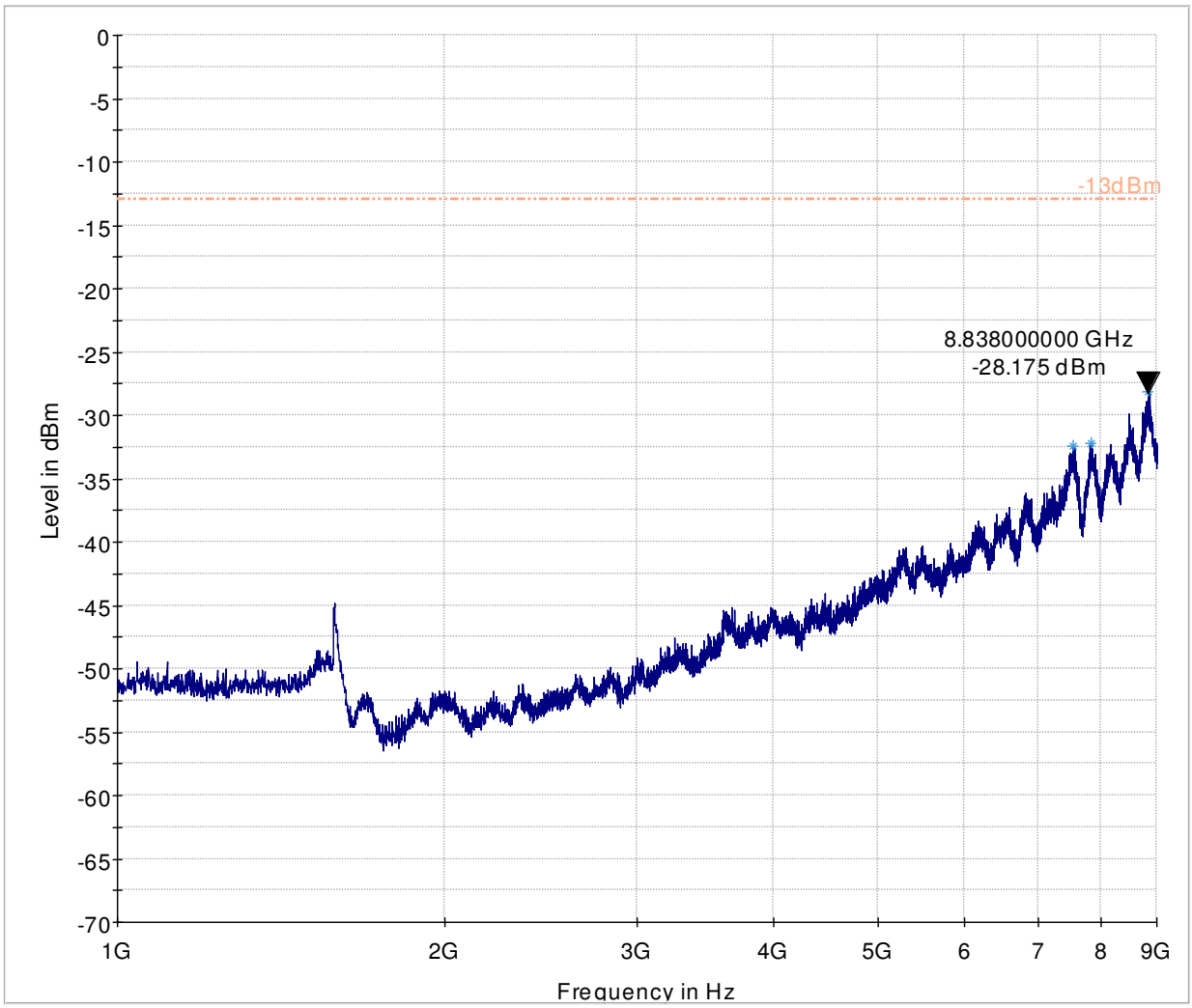


8.7 Measurement Plots WCDMA/UMTS FDD V:

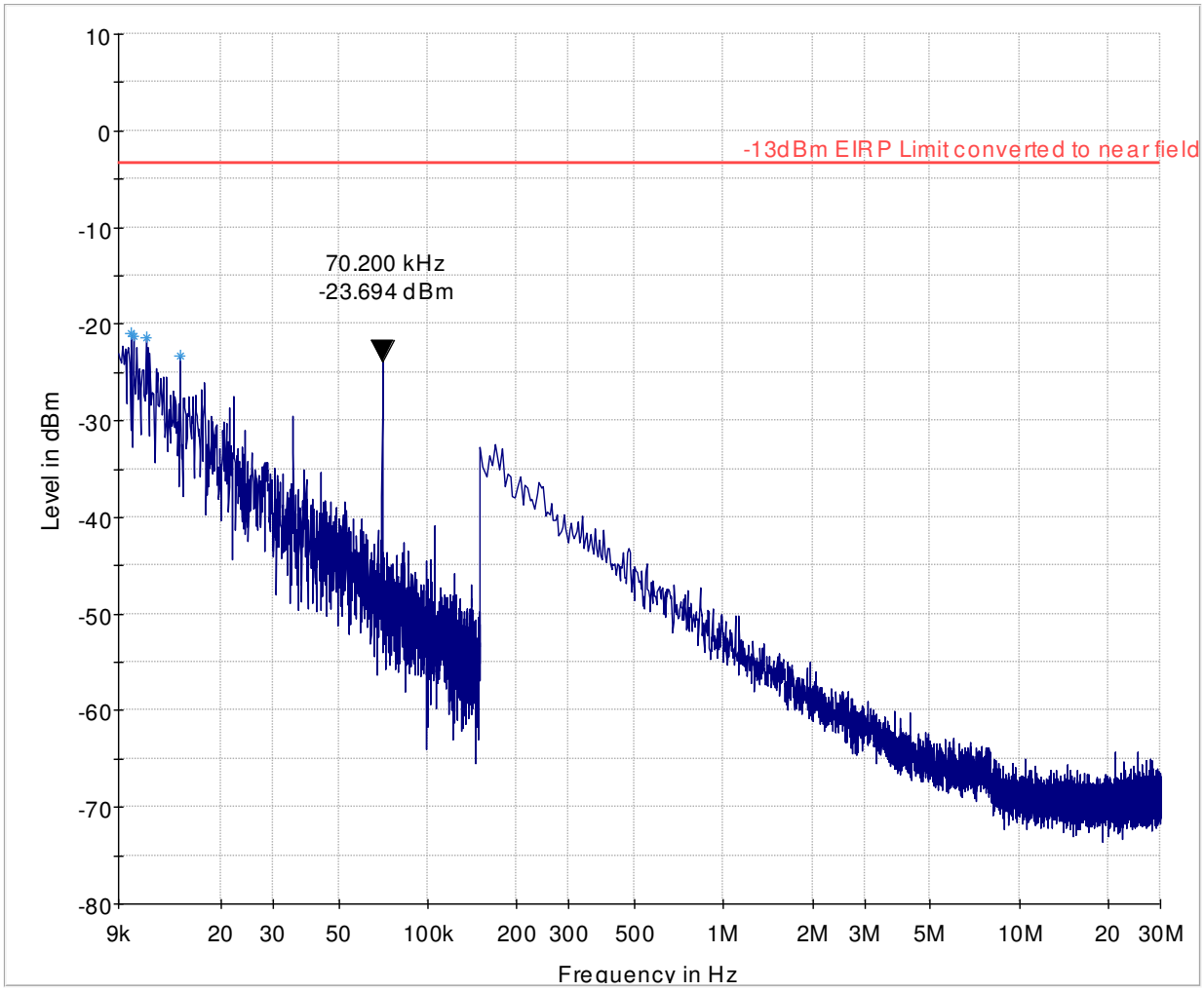
8.7.1 30 – 1000 MHz, Ch. Low



8.7.2 1 – 9 GHz, Ch. Low

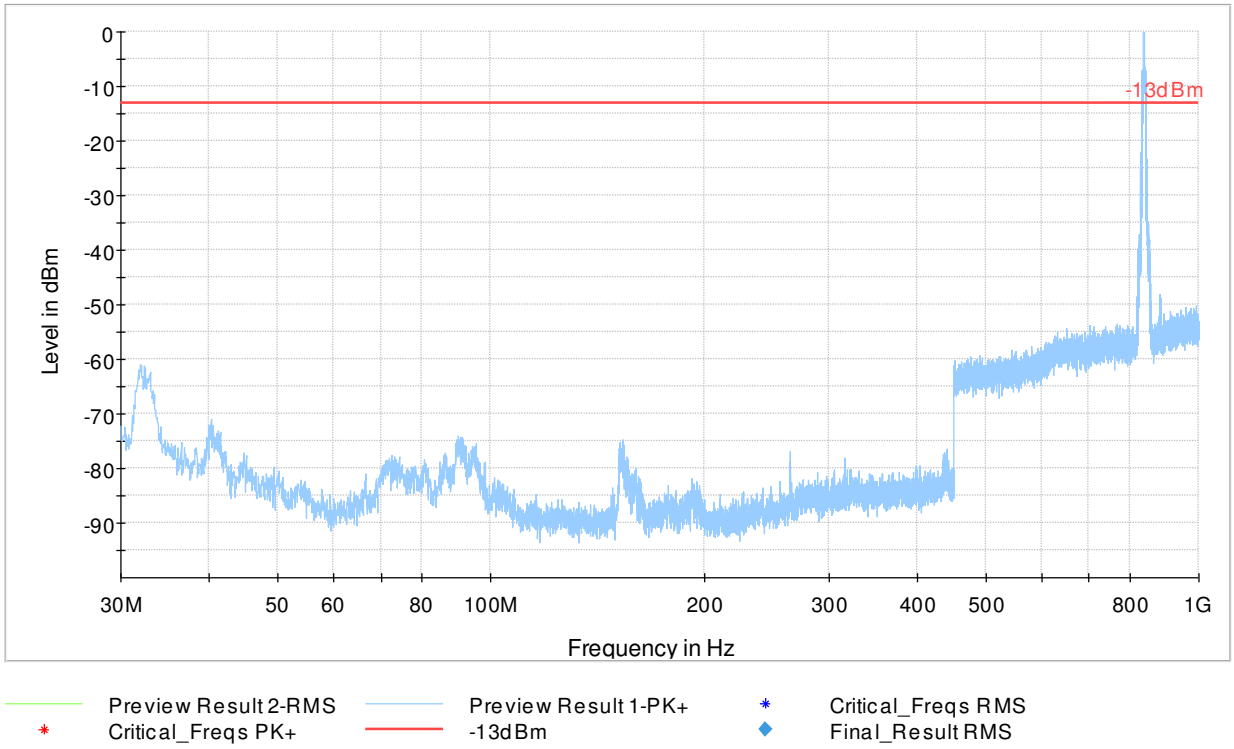


8.7.3 9 KHz – 30 MHz, Ch. Mid

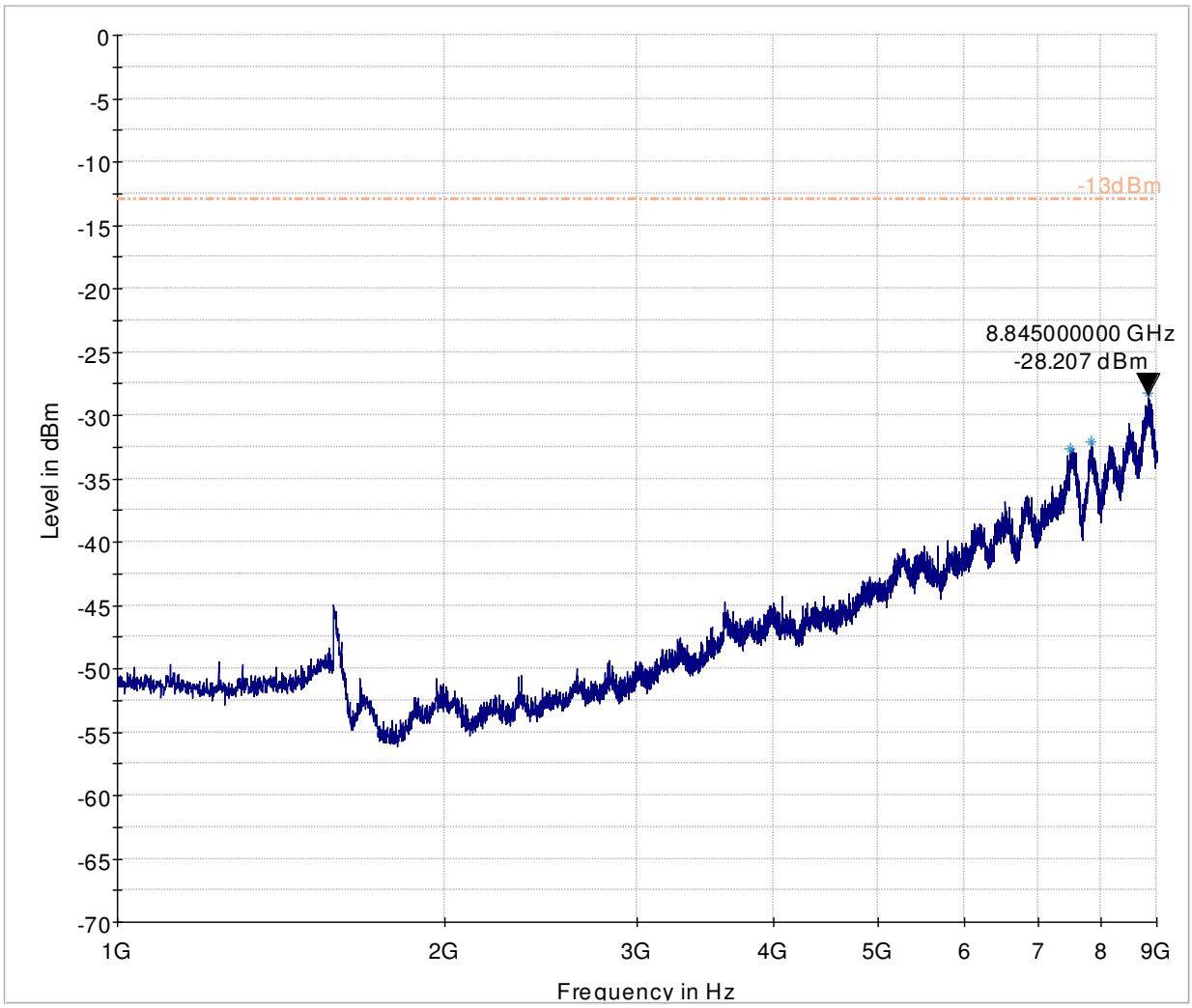


-13dBm EIRP Limit converted to near field
Preview Result 1-PK+
Data Reduction Result 1 [1]-PK+

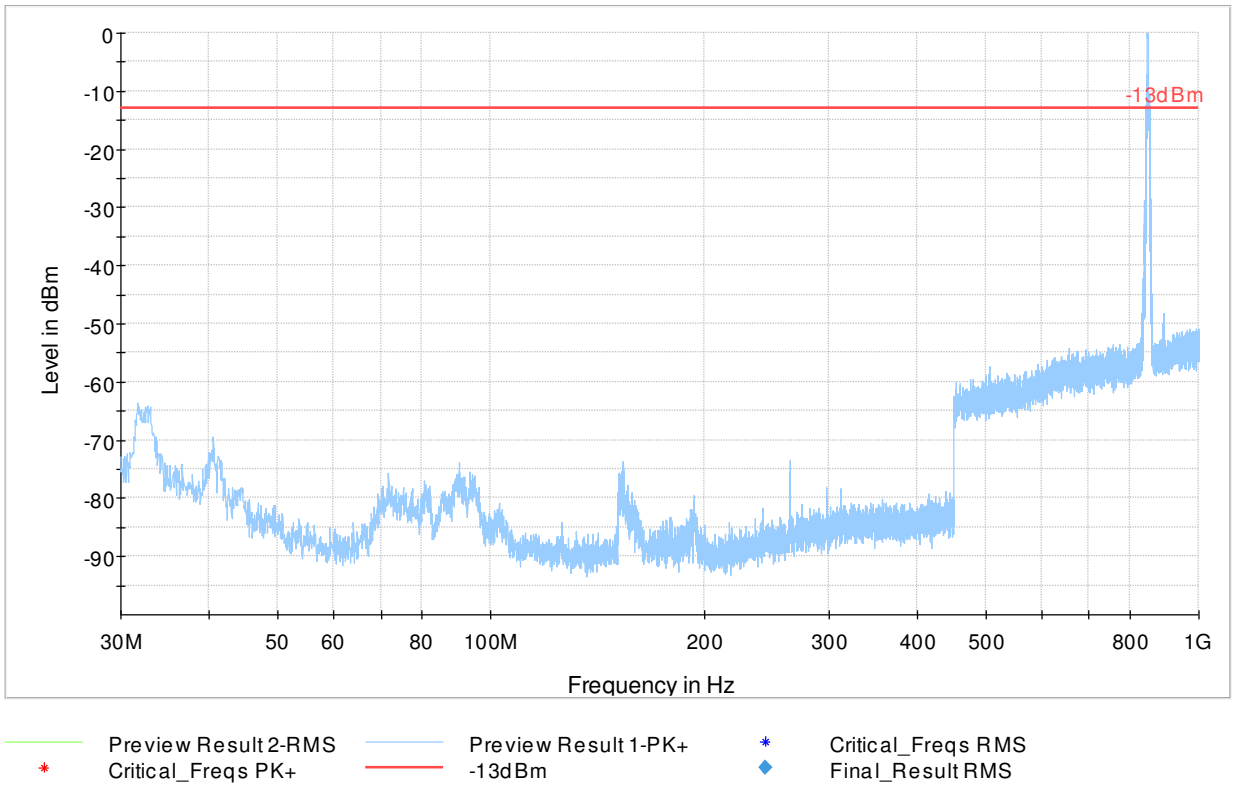
8.7.4 30 – 1000 MHz, Ch. Mid



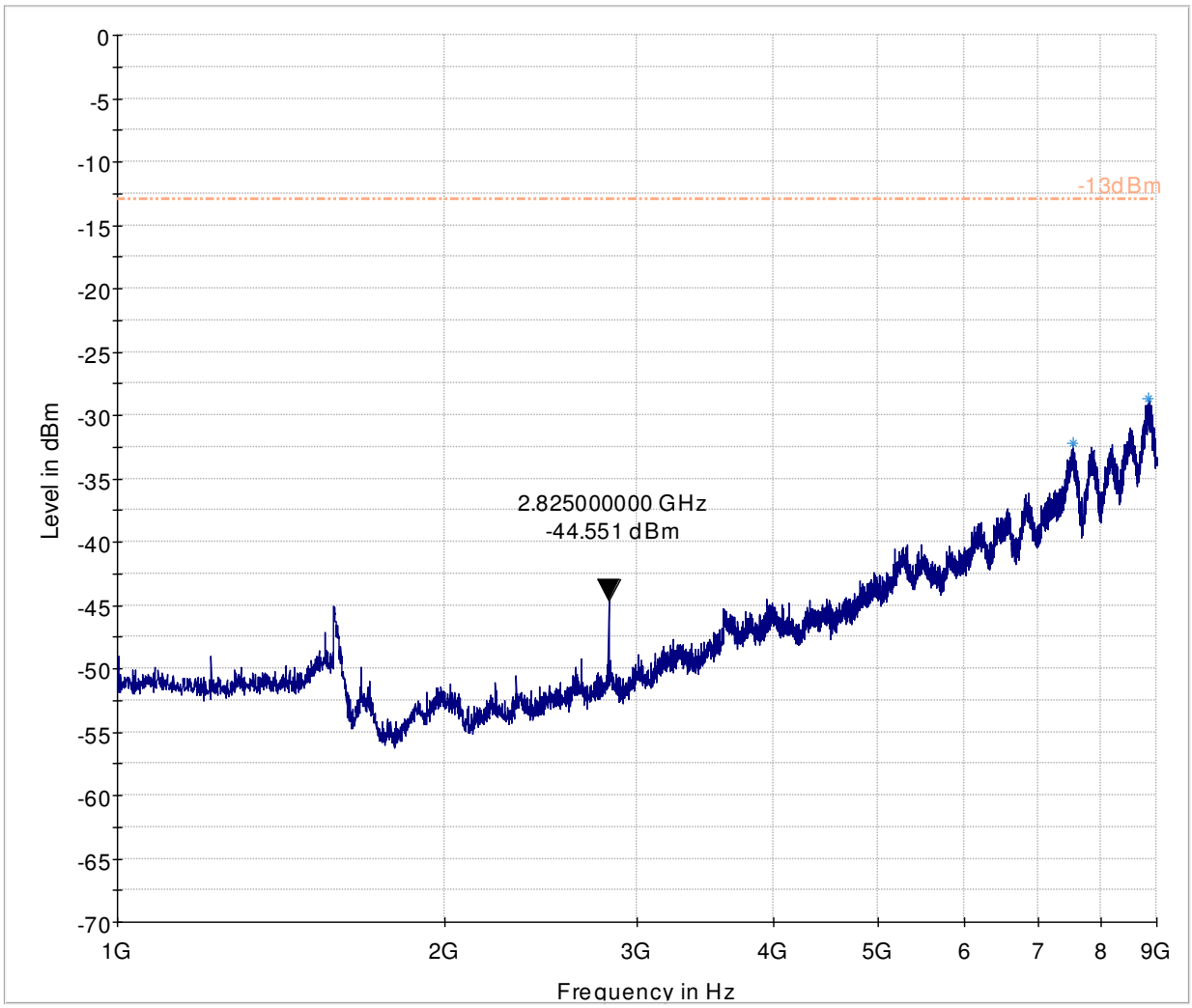
8.7.5 1 GHz – 9 GHz, Ch. Mid



8.7.6 30 – 1000 MHz, Ch. High

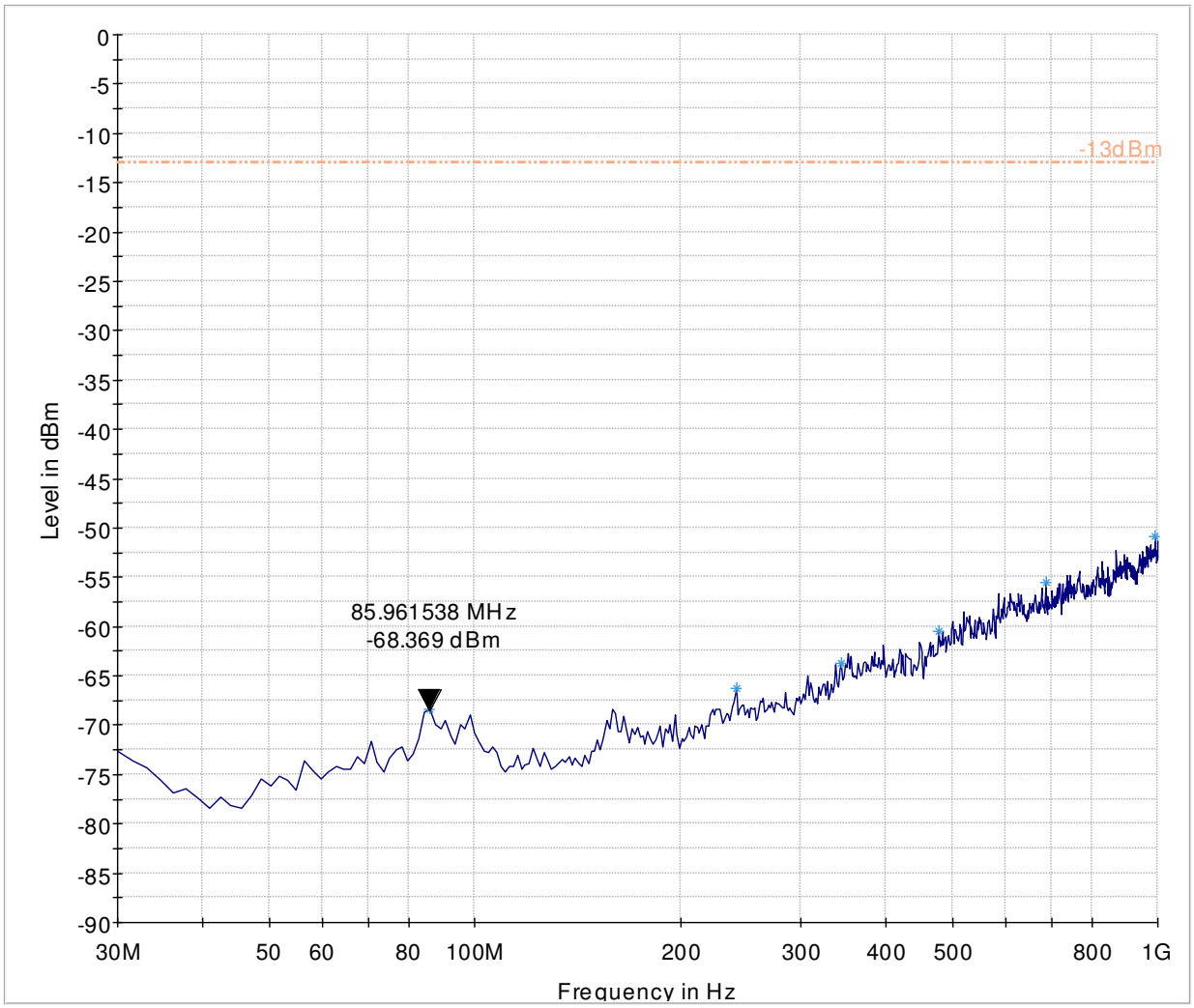


8.7.7 1 - 9 GHz, Ch. High

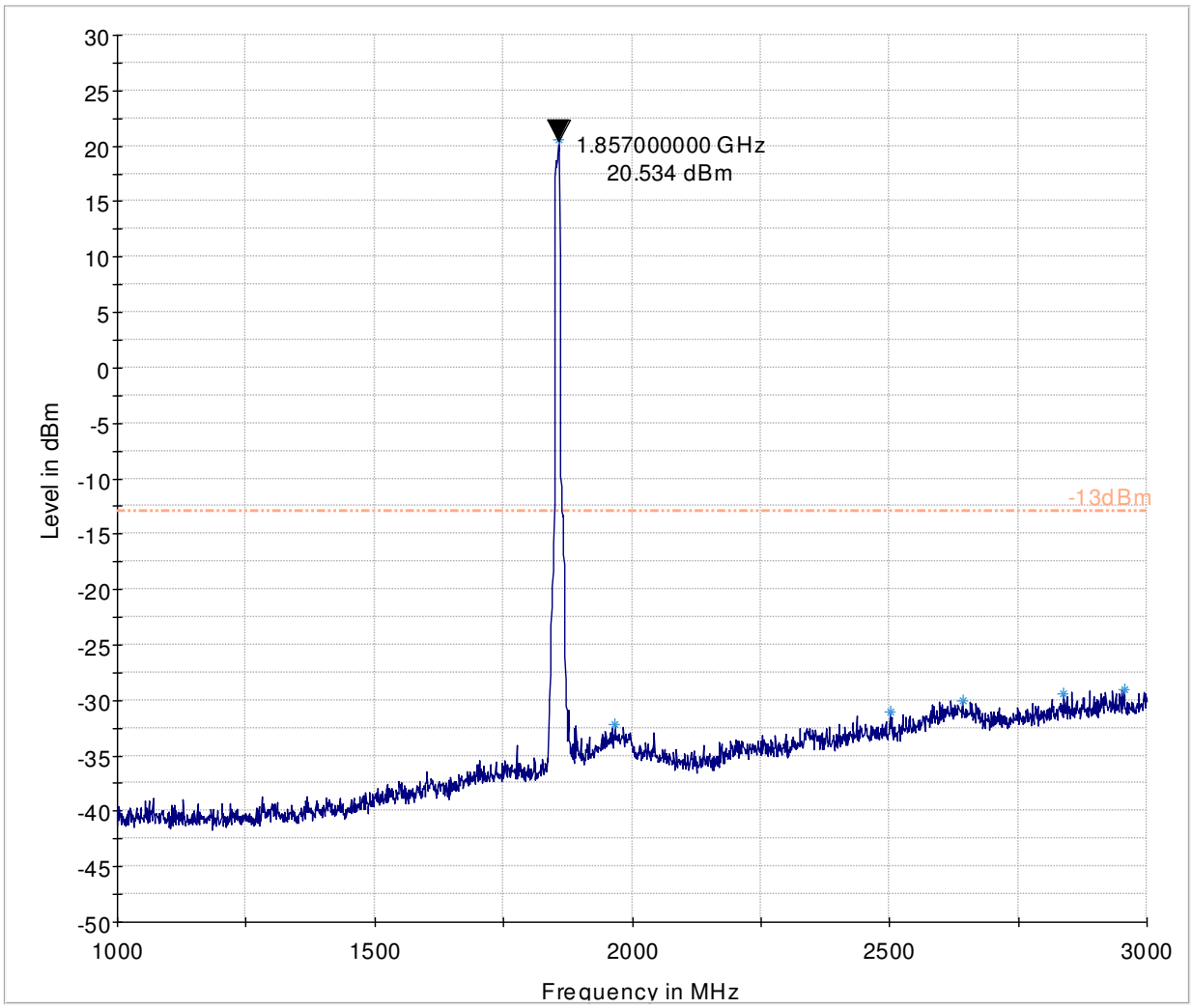


8.8 Measurement Plots LTE 2

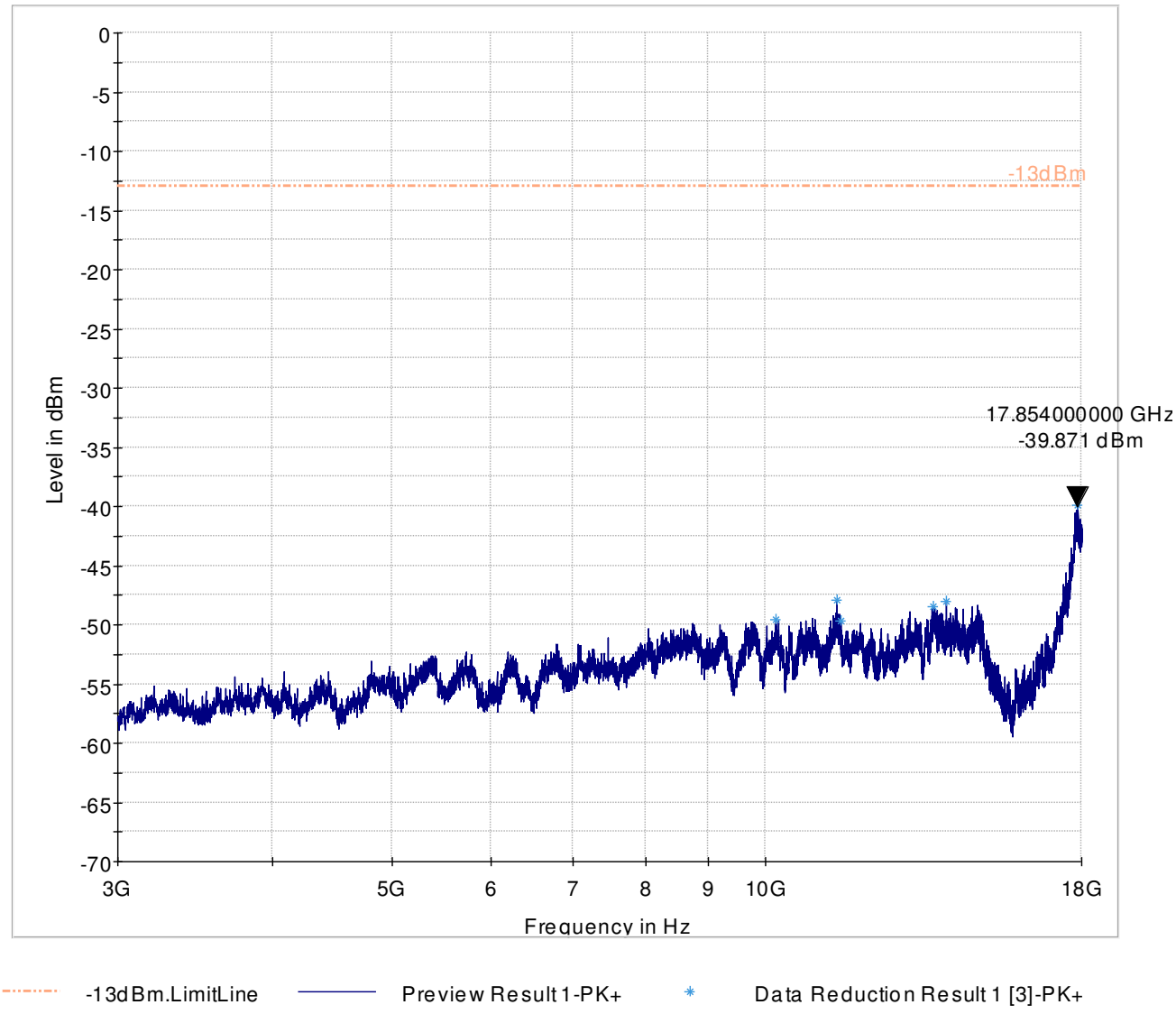
8.8.1 30 - 1000 MHz, Ch. Low



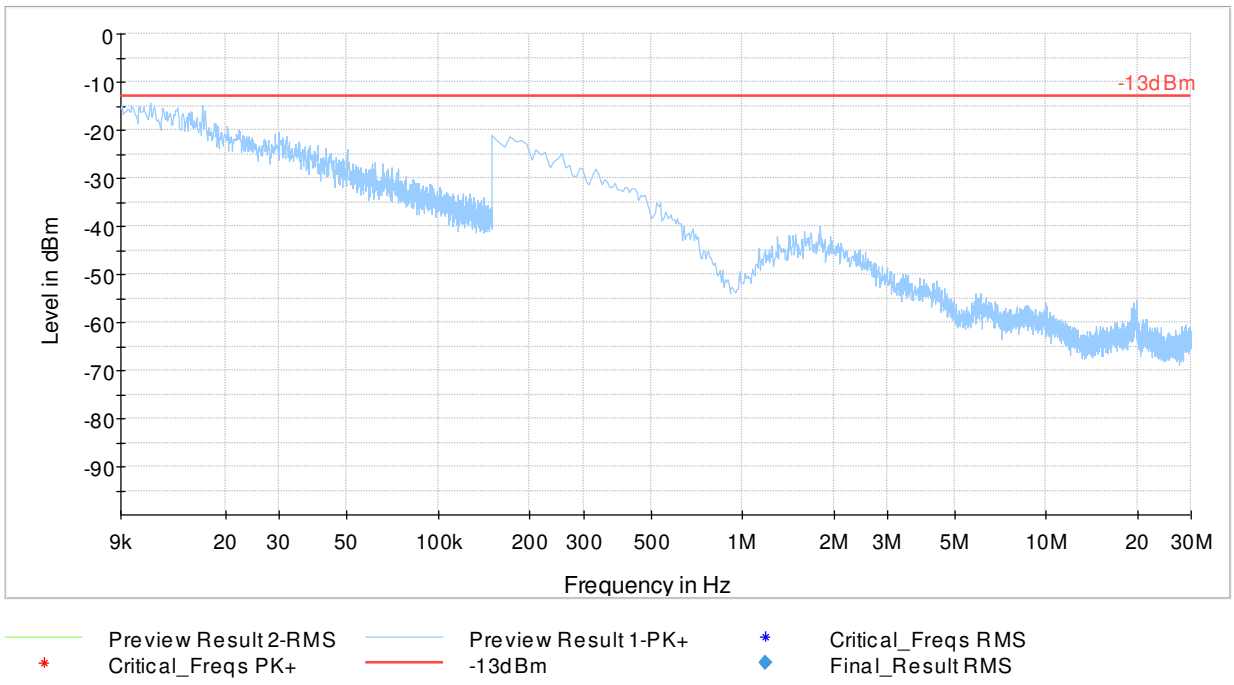
8.8.2 1 GHz - 7 GHz, Ch. Low



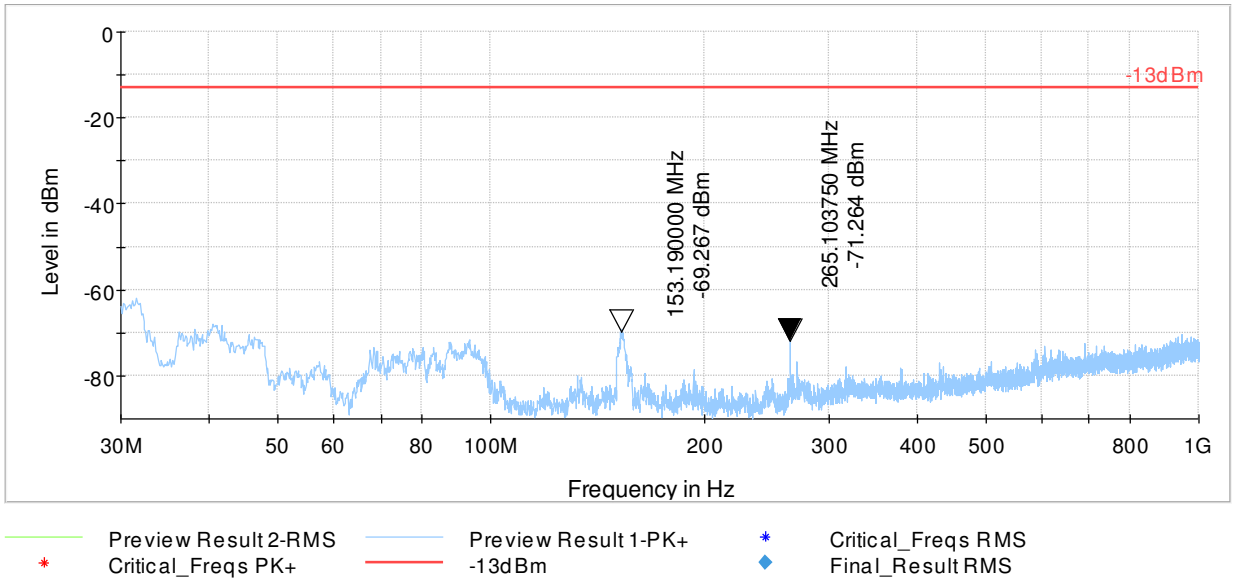
8.8.3 3 - 18 GHz, Ch. Low



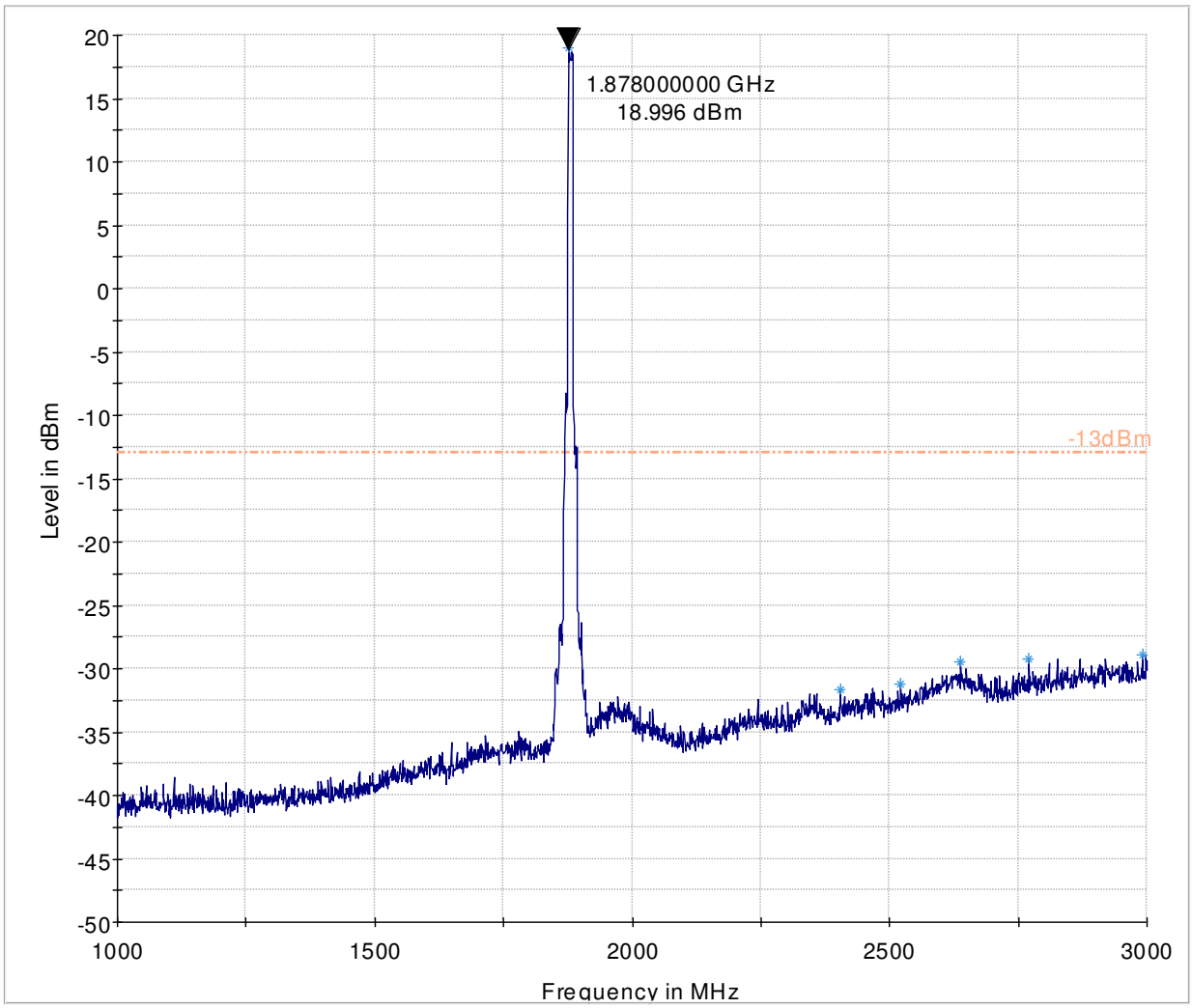
8.8.4 9 KHz - 30 MHz, Ch. Mid



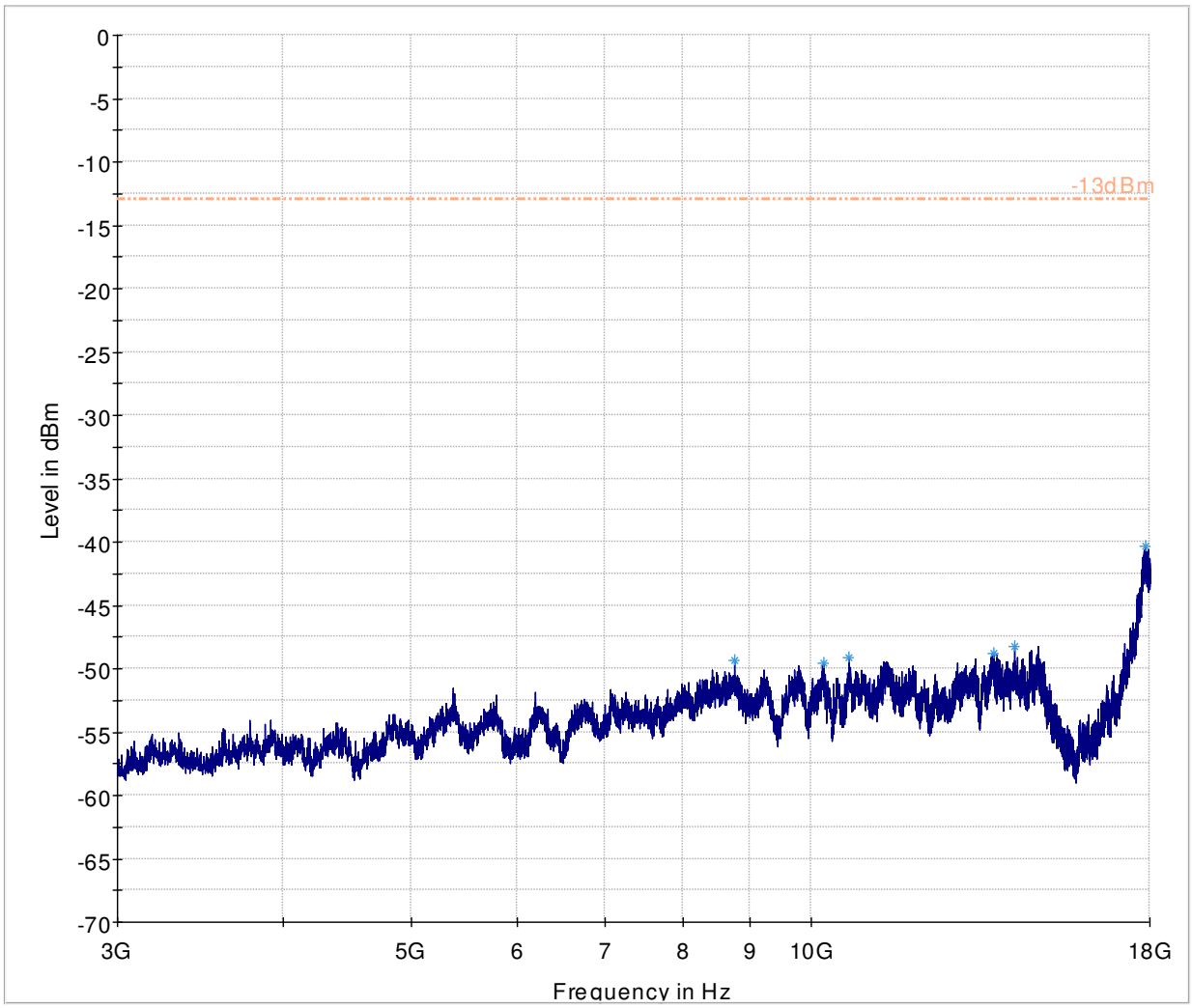
8.8.5 30 - 1000 MHz, Ch. Mid



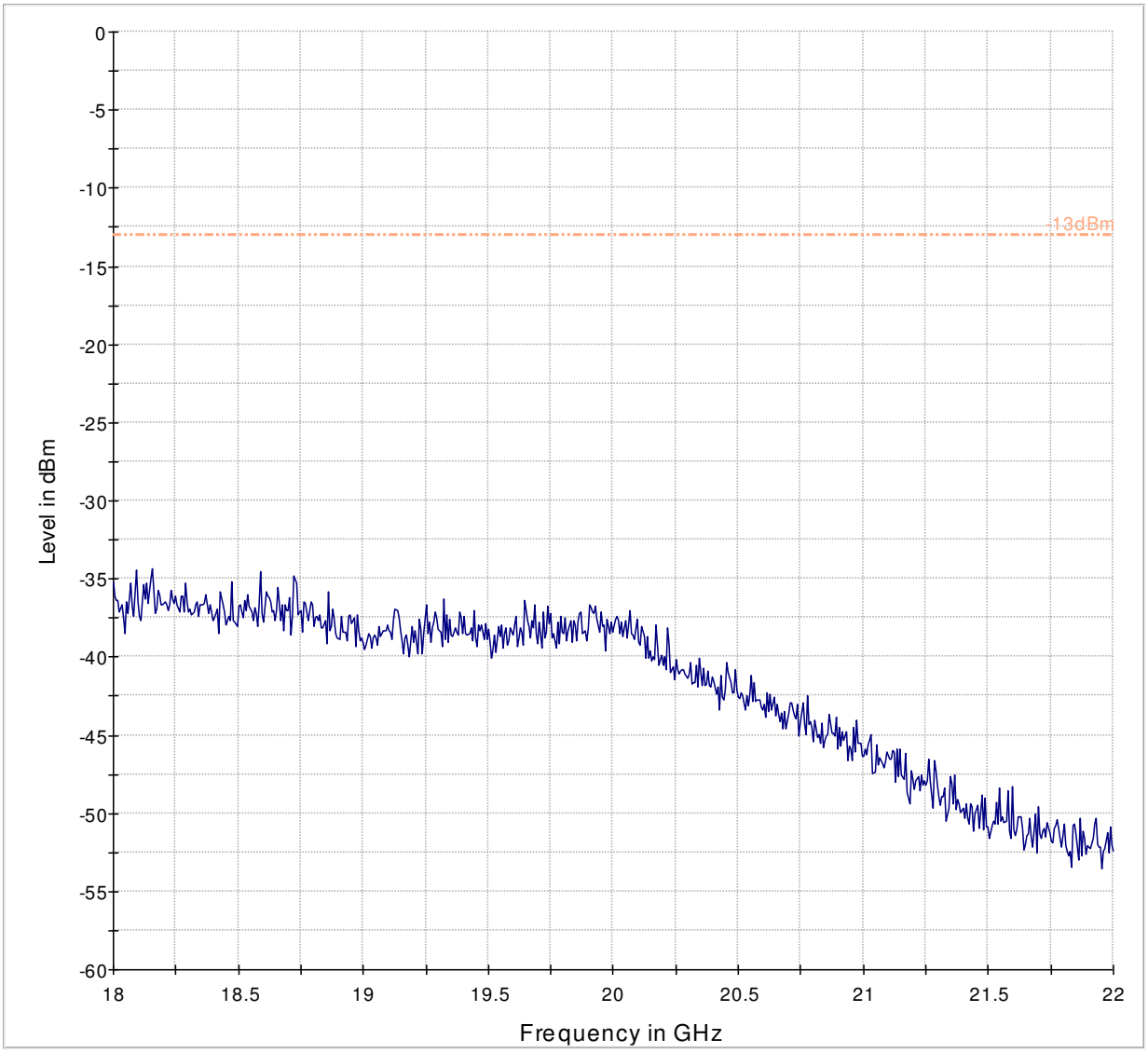
8.8.6 1 GHz - 3 GHz, Ch. Mid



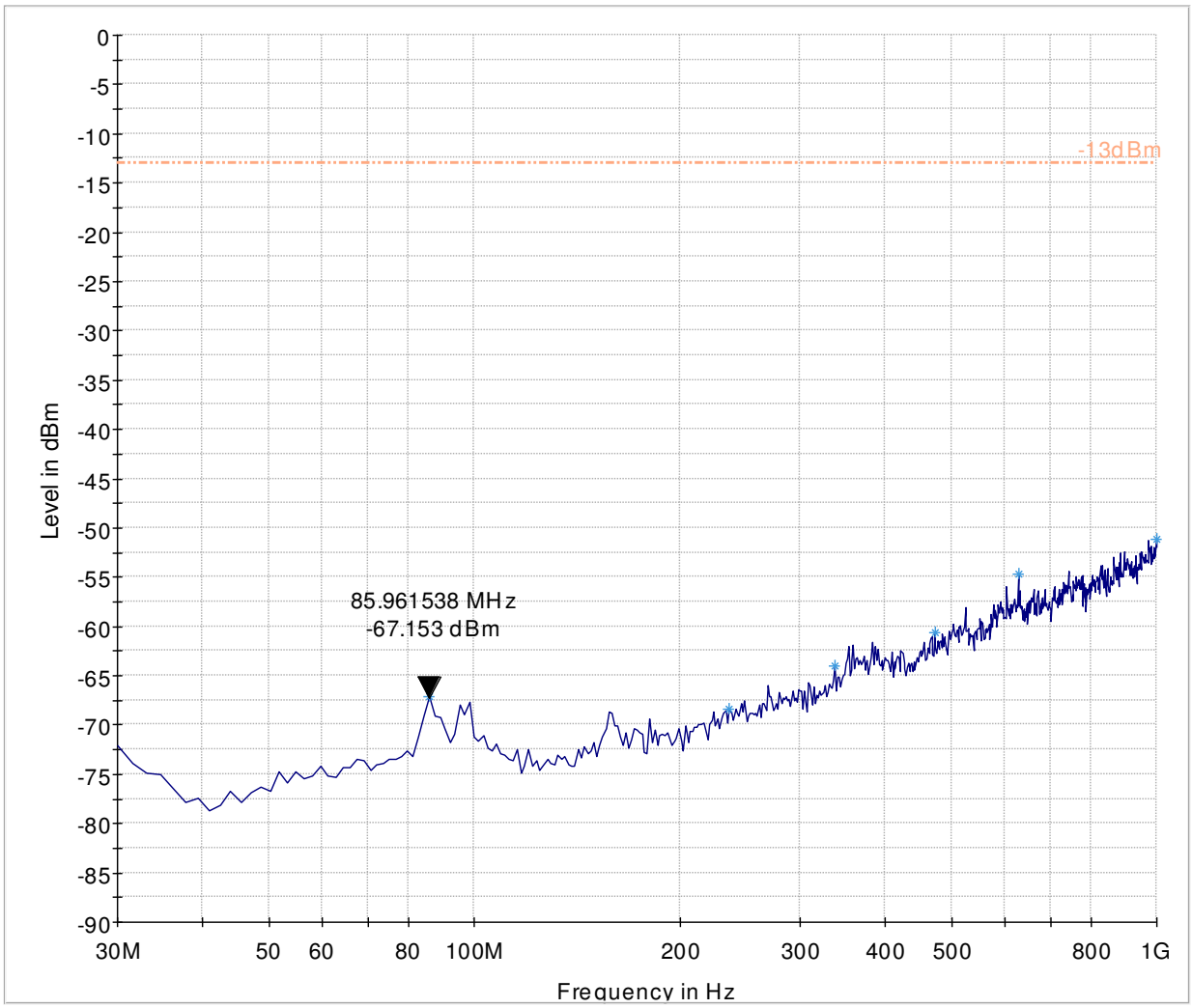
8.8.7 3 GHz - 18 GHz, Ch. Mid



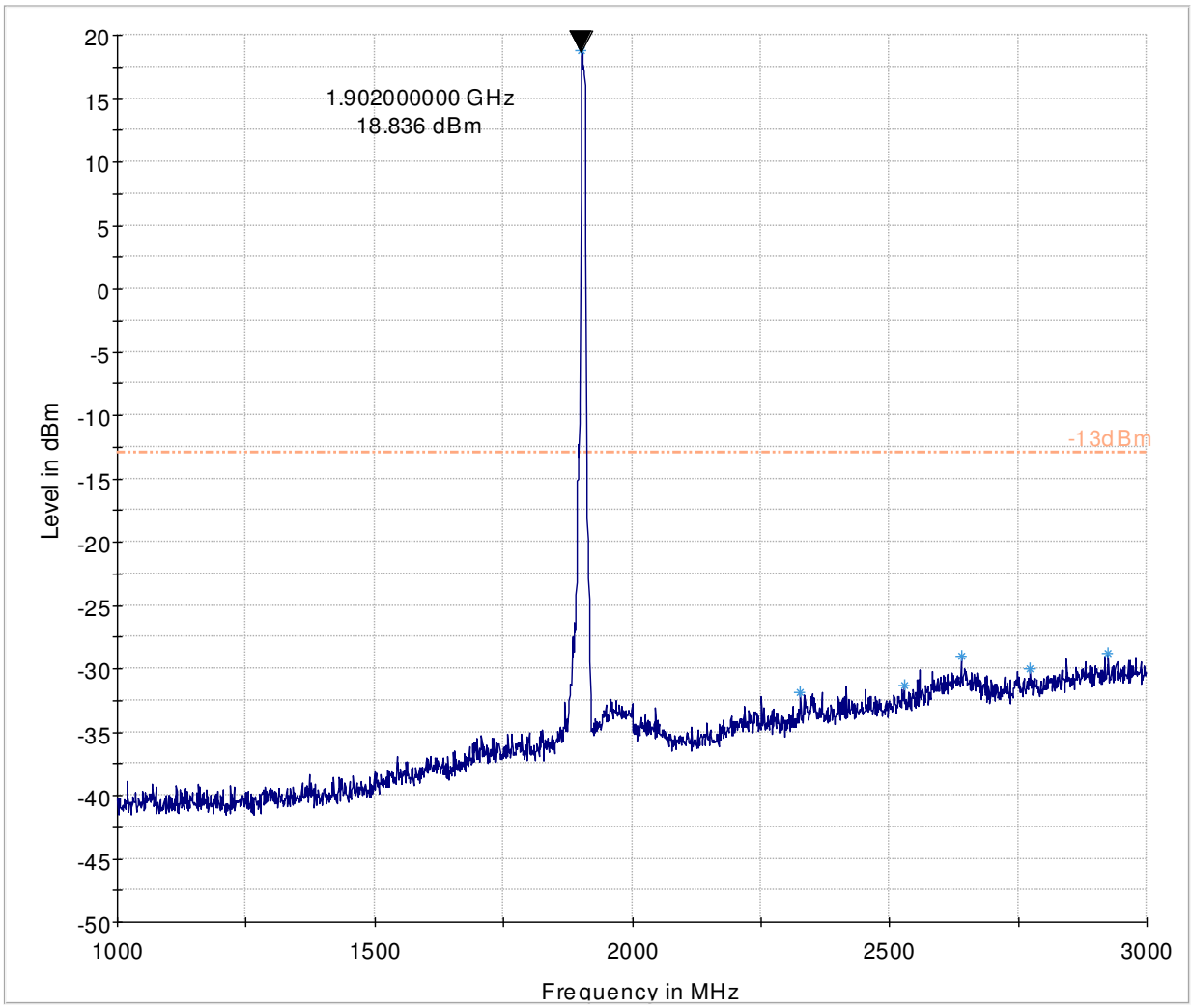
8.8.8 18 - 22 GHz, Ch. Mid



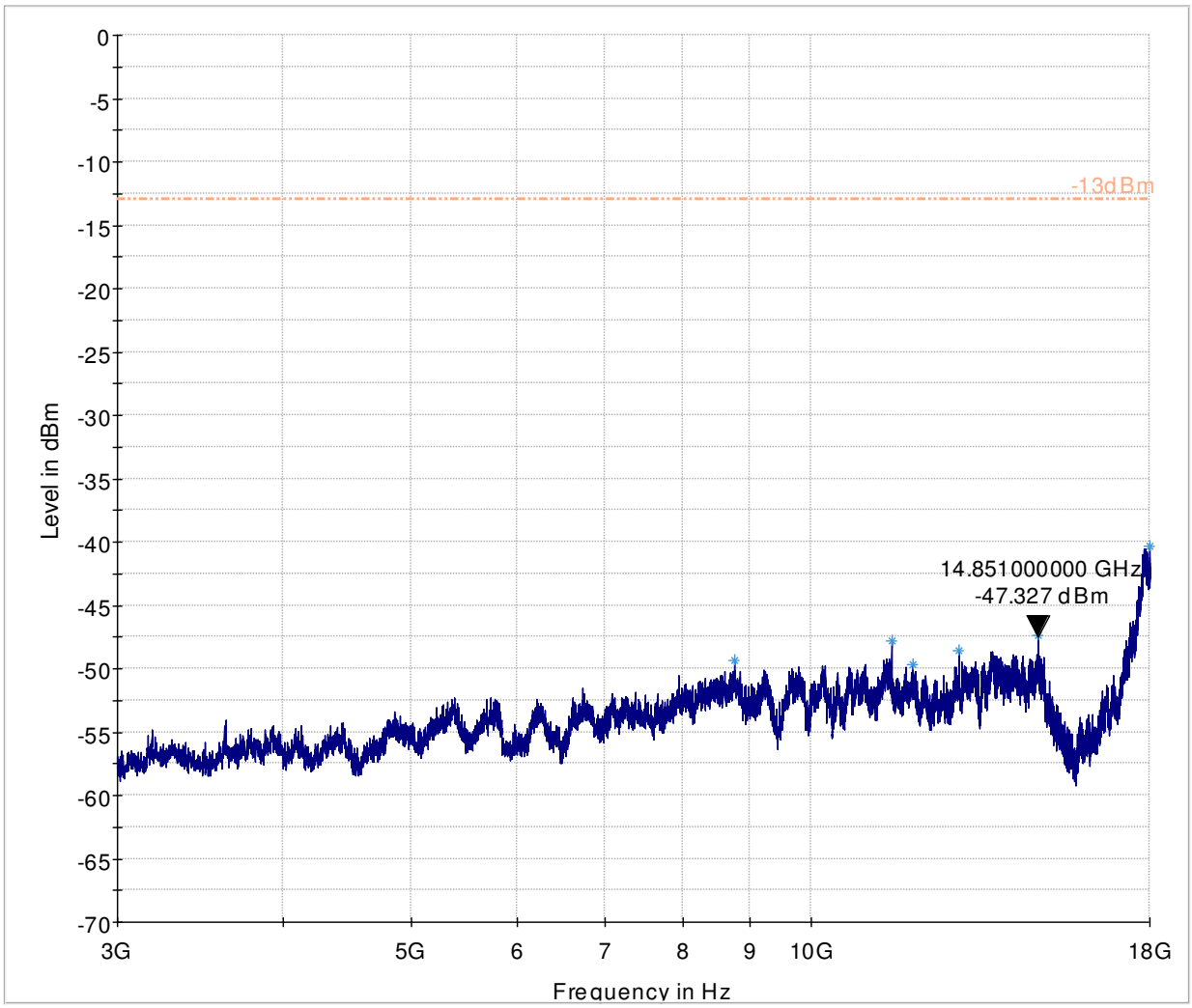
8.8.9 30 - 1000 MHz, Ch. High



8.8.10 1 - 3 GHz, Ch. High

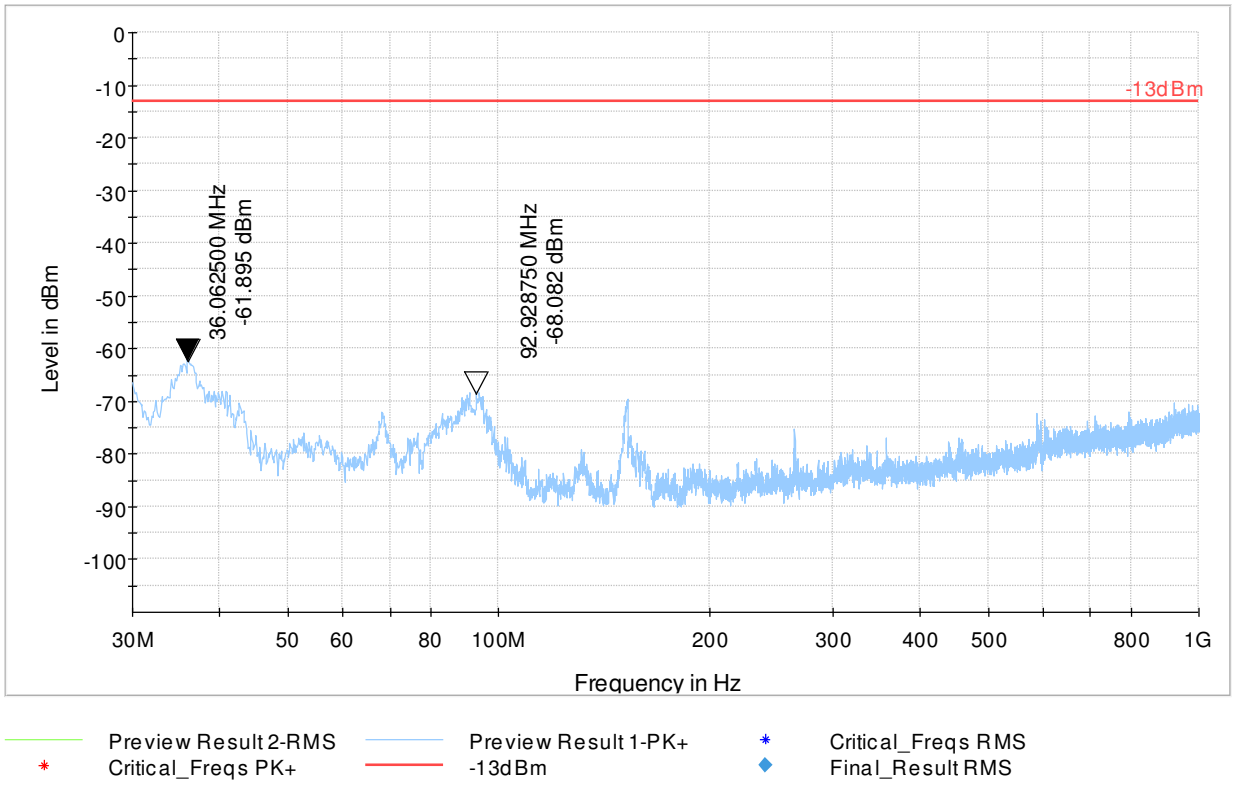


8.8.11 3 - 18 GHz, Ch. High

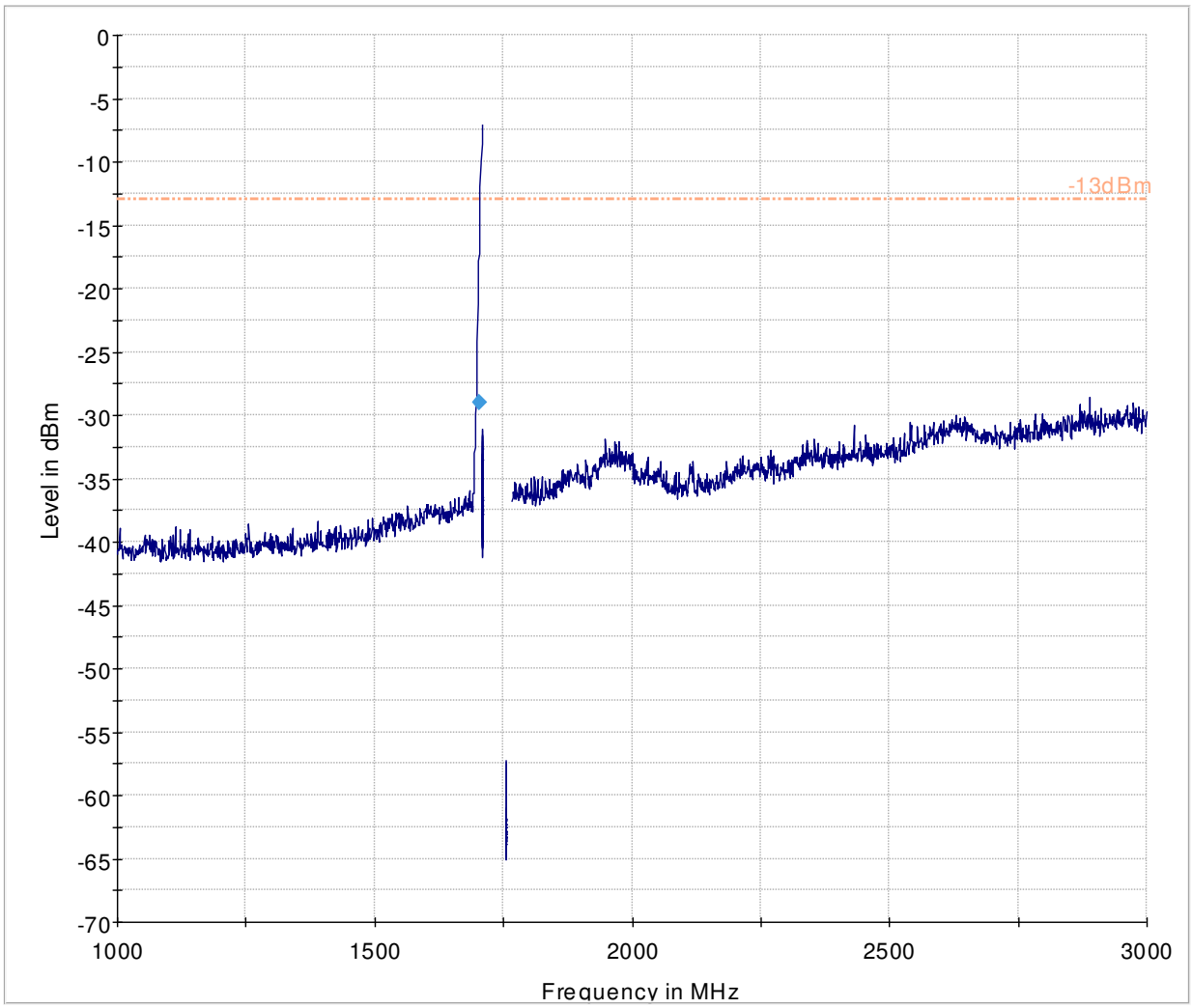


8.9 Measurement Plots LTE 4

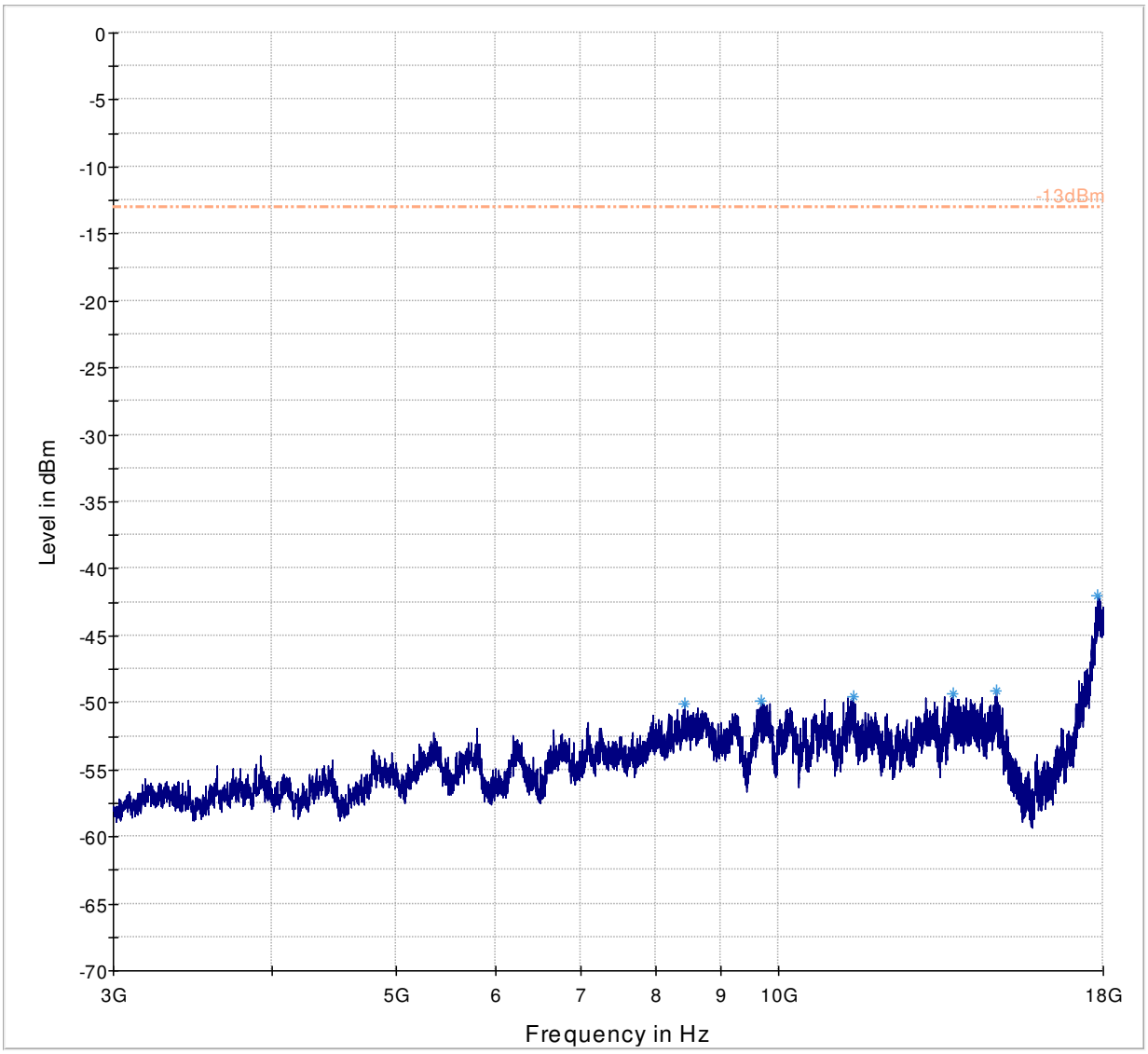
8.9.1 30 - 1000 MHz, Ch. Low



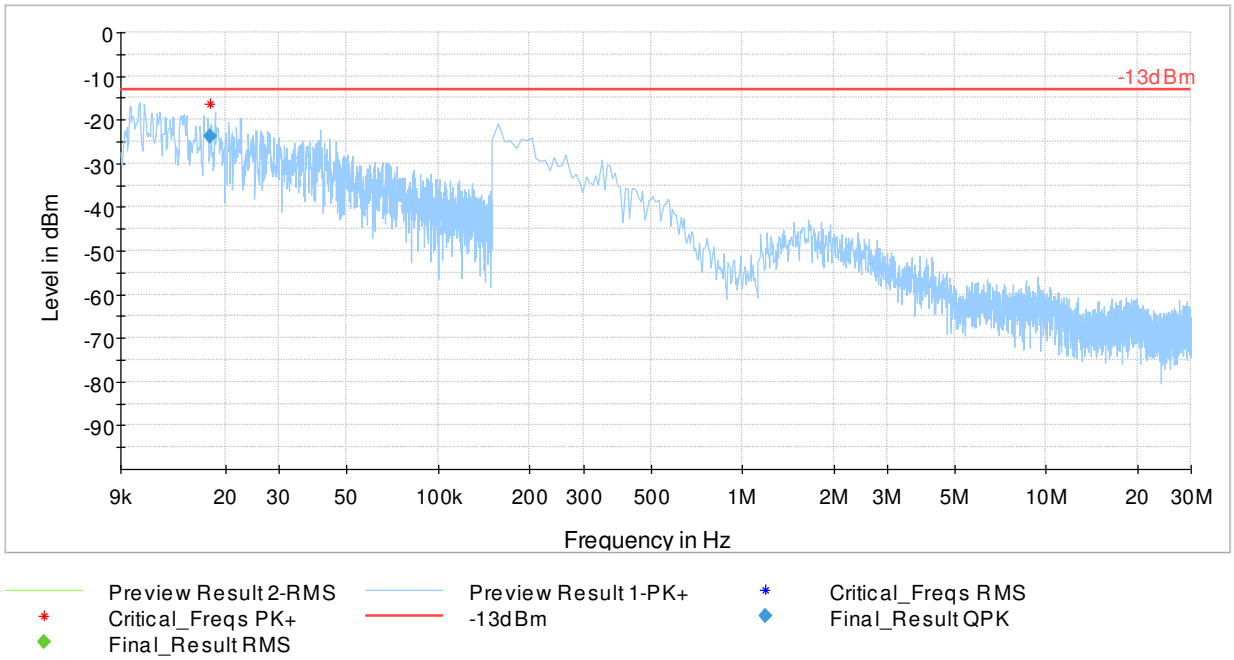
8.9.2 1 - 3 GHz, Ch. Low



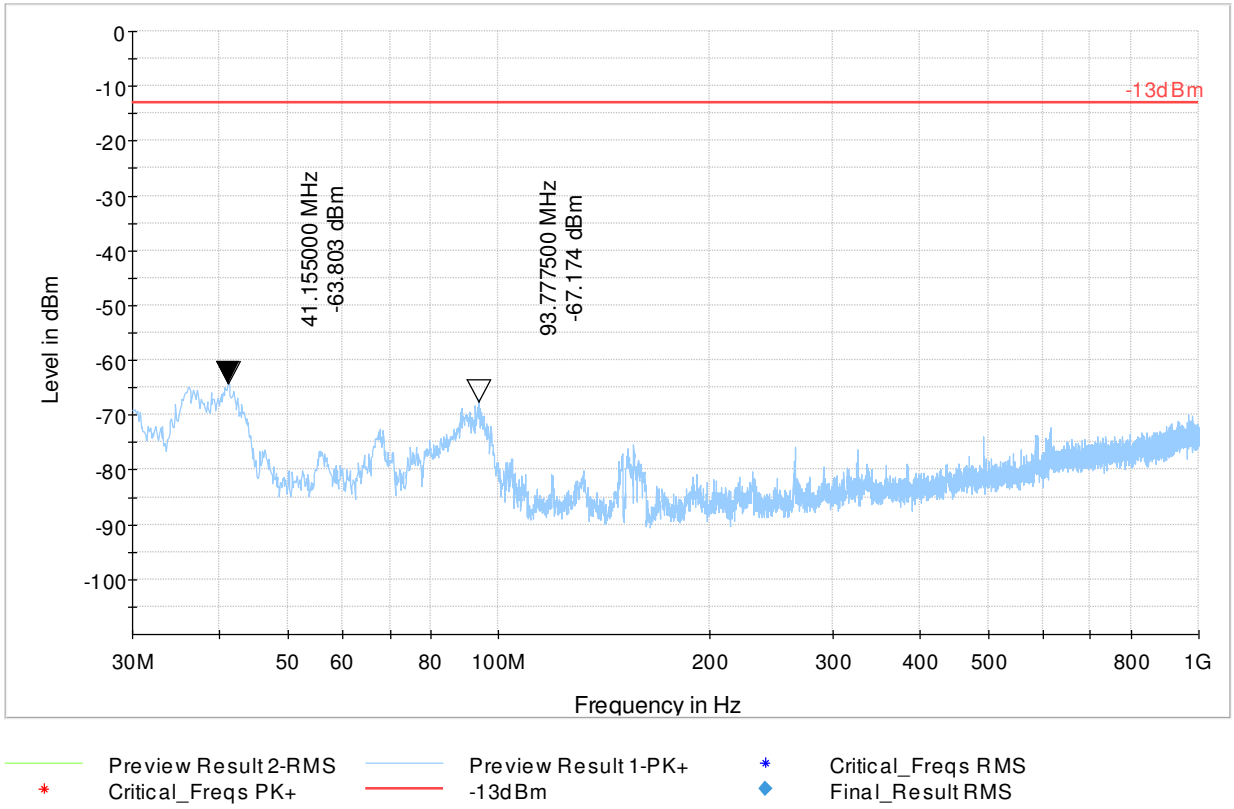
8.9.3 3 - 18 GHz, Ch. Low



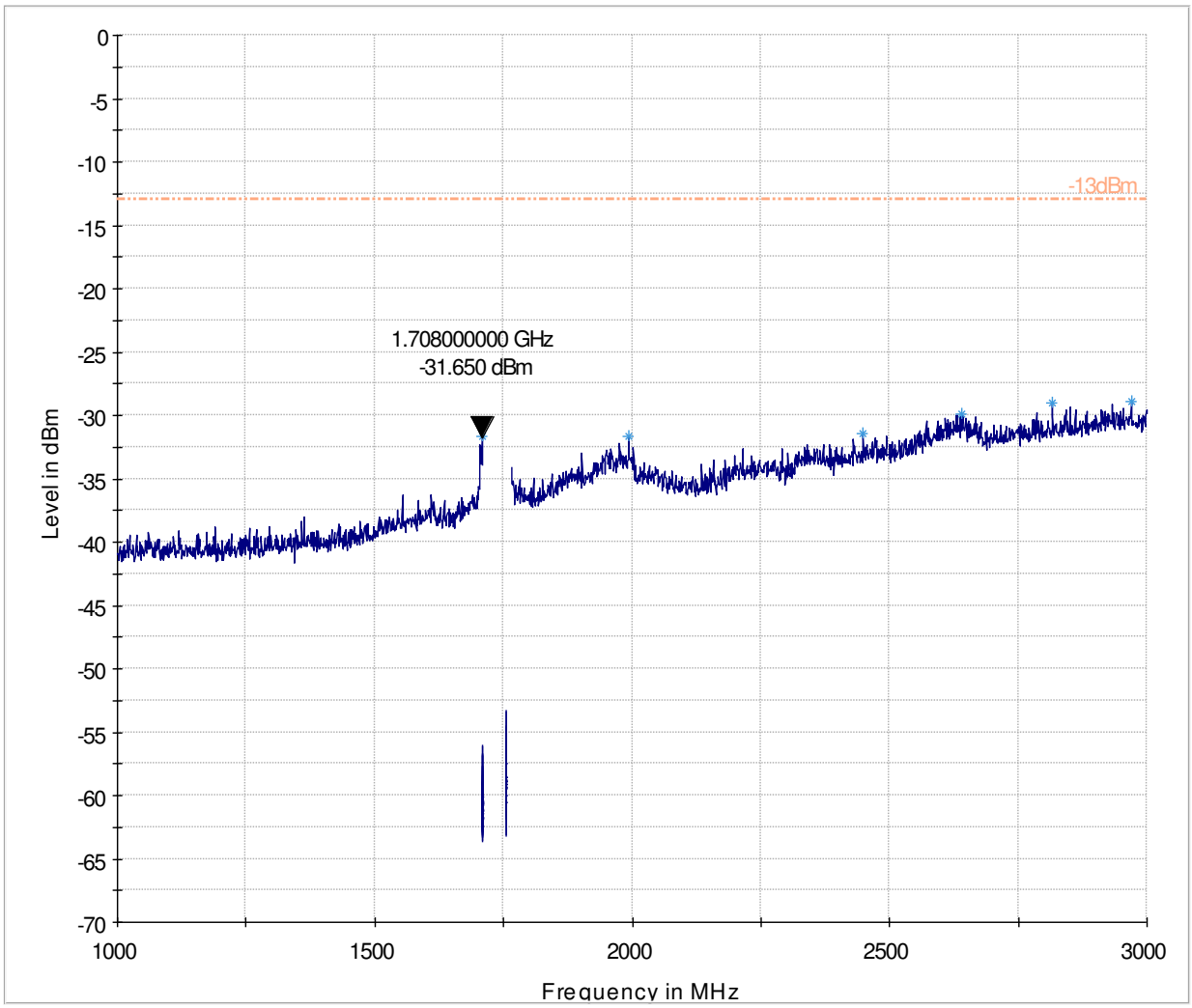
8.9.4 9 KHz - 30 MHz, Ch. Mid



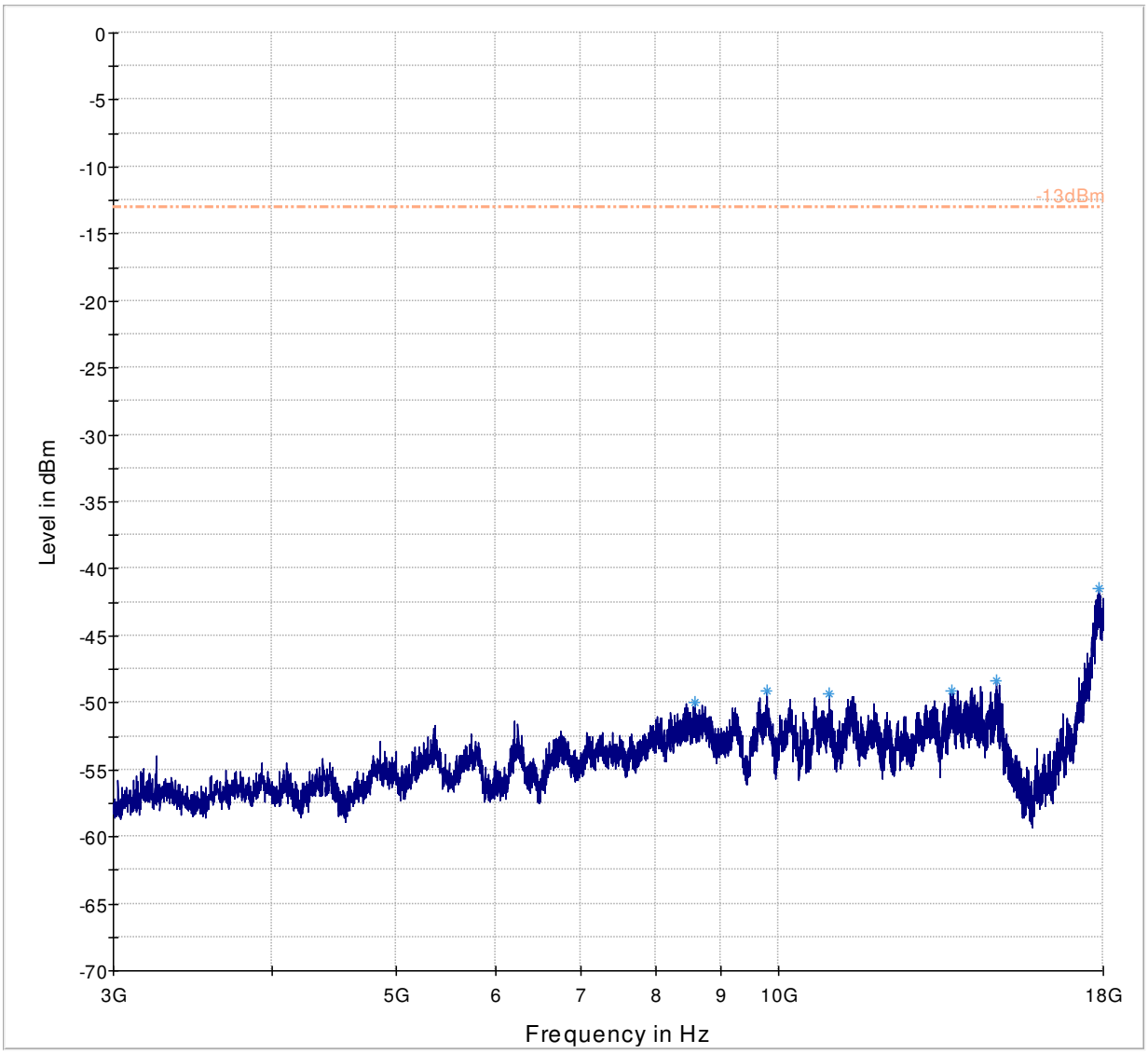
8.9.5 30 – 1000 MHz, Ch. Mid



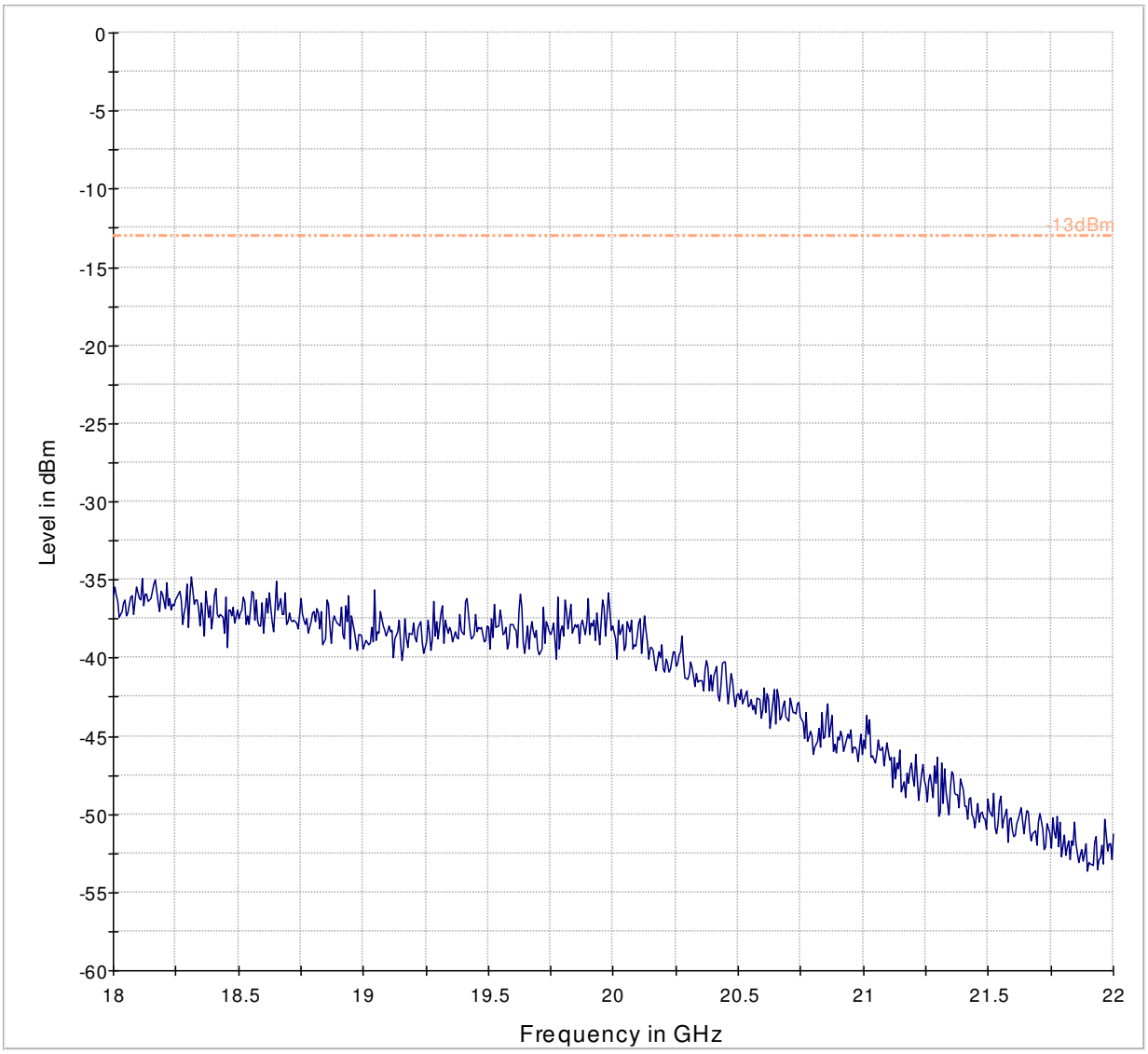
8.9.6 1 GHz – 3 GHz, Ch. Mid



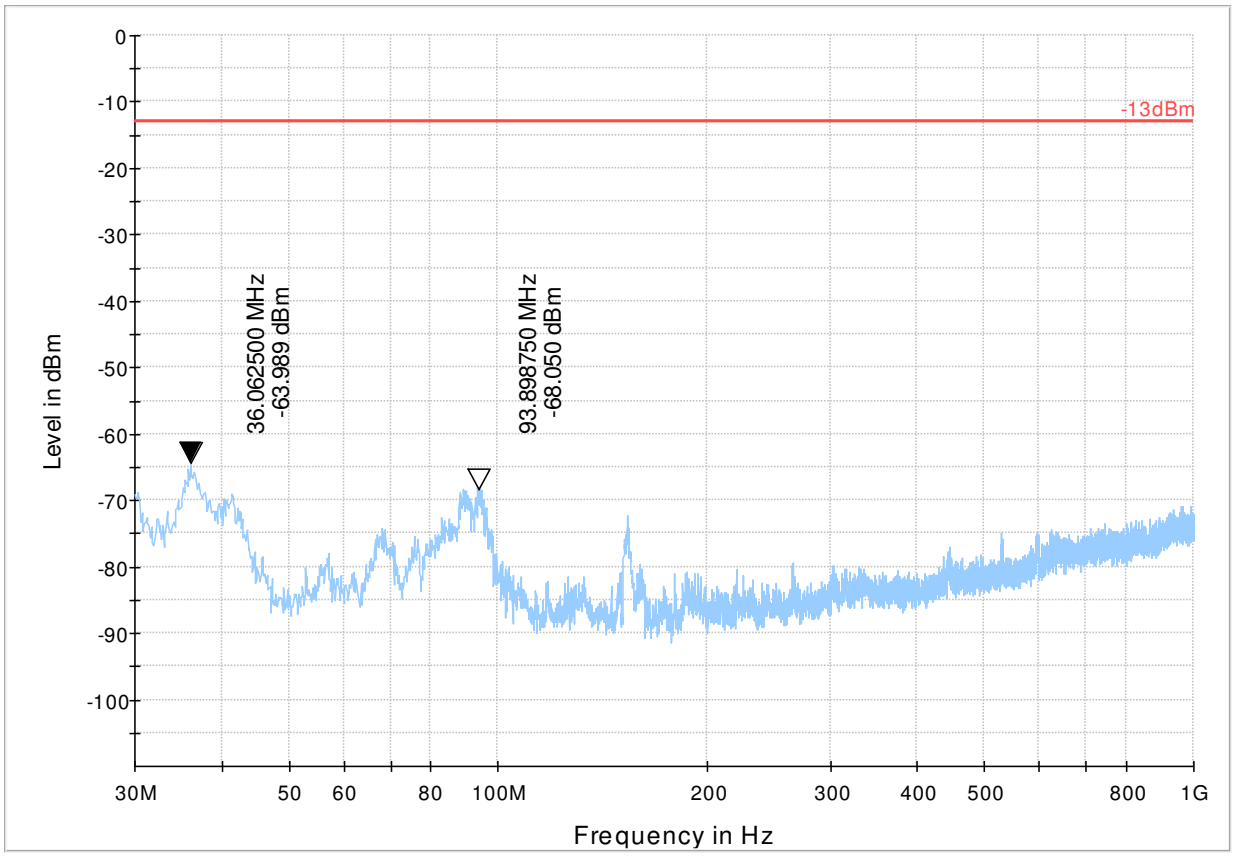
8.9.7 3 GHz – 18 GHz, Ch. Mid



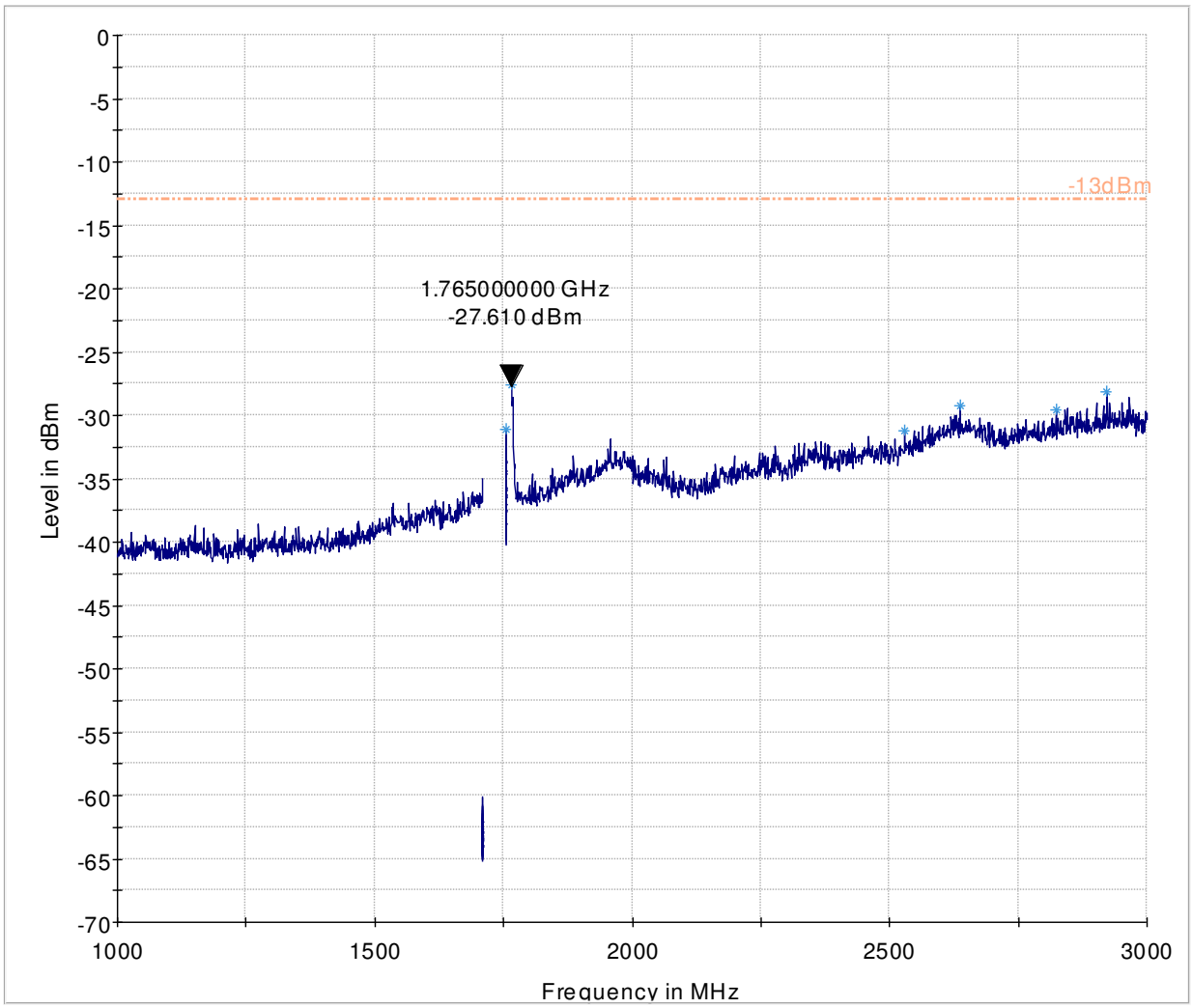
8.9.8 18 GHz - 22 GHz, Ch. Mid



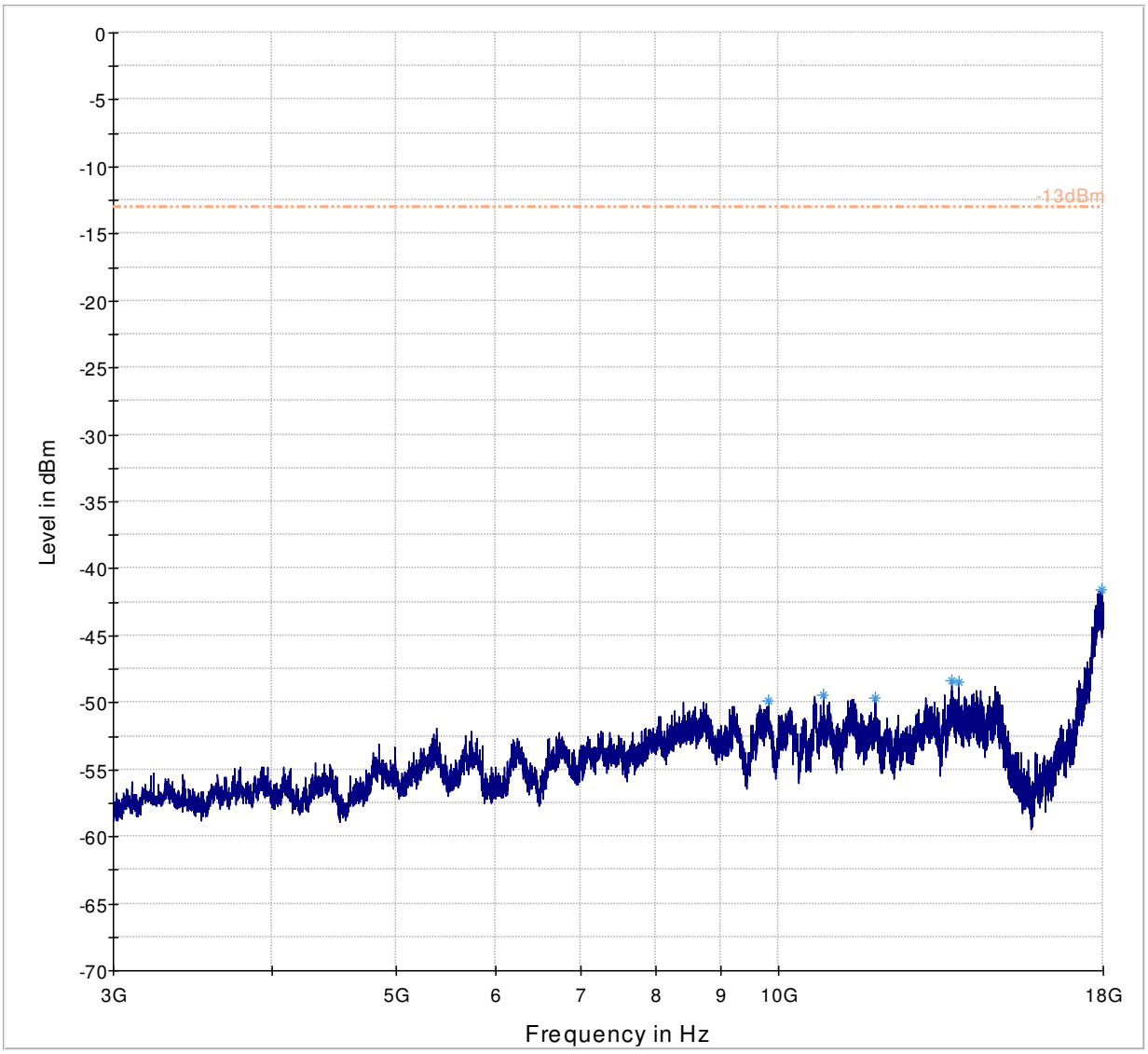
8.9.9 30 - 1000 MHz, Ch. High



8.9.10 1 - 3 GHz, Ch. High

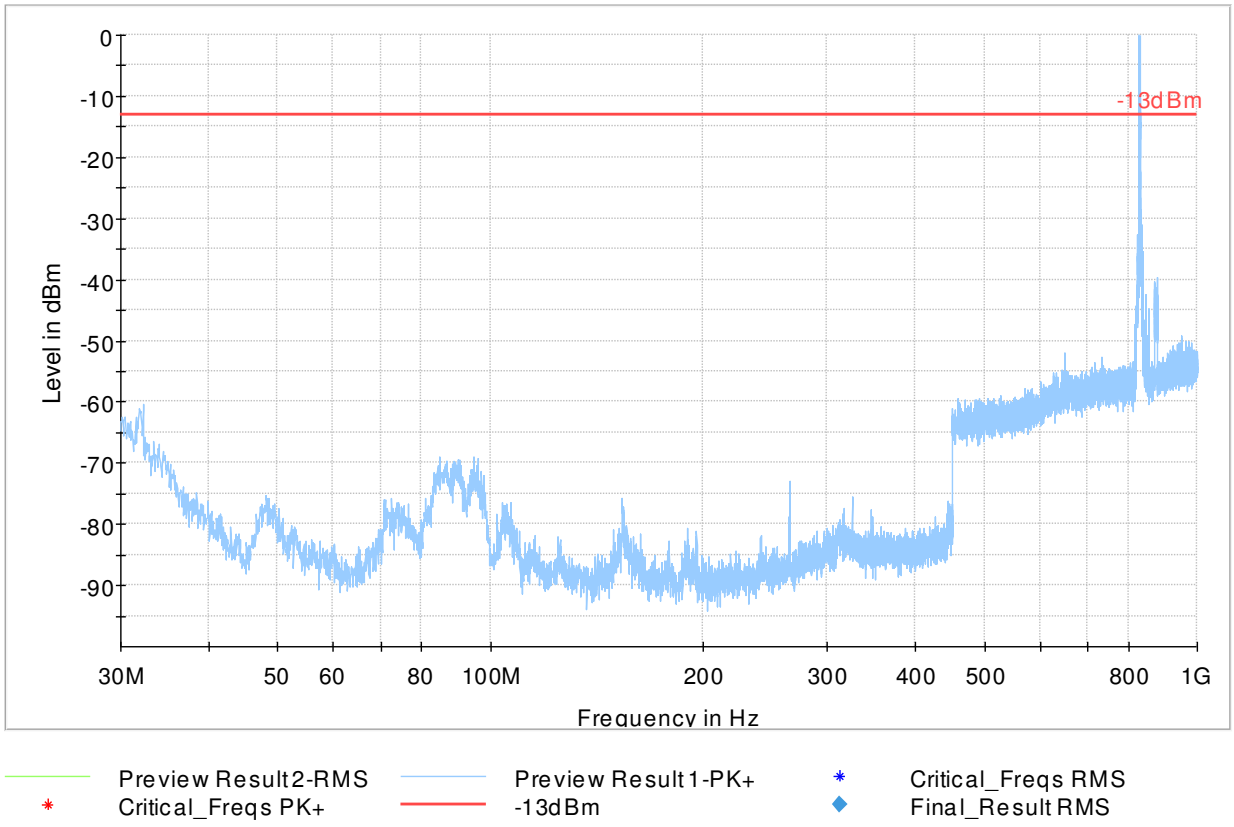


8.9.11 3 – 18 GHz, Ch. High

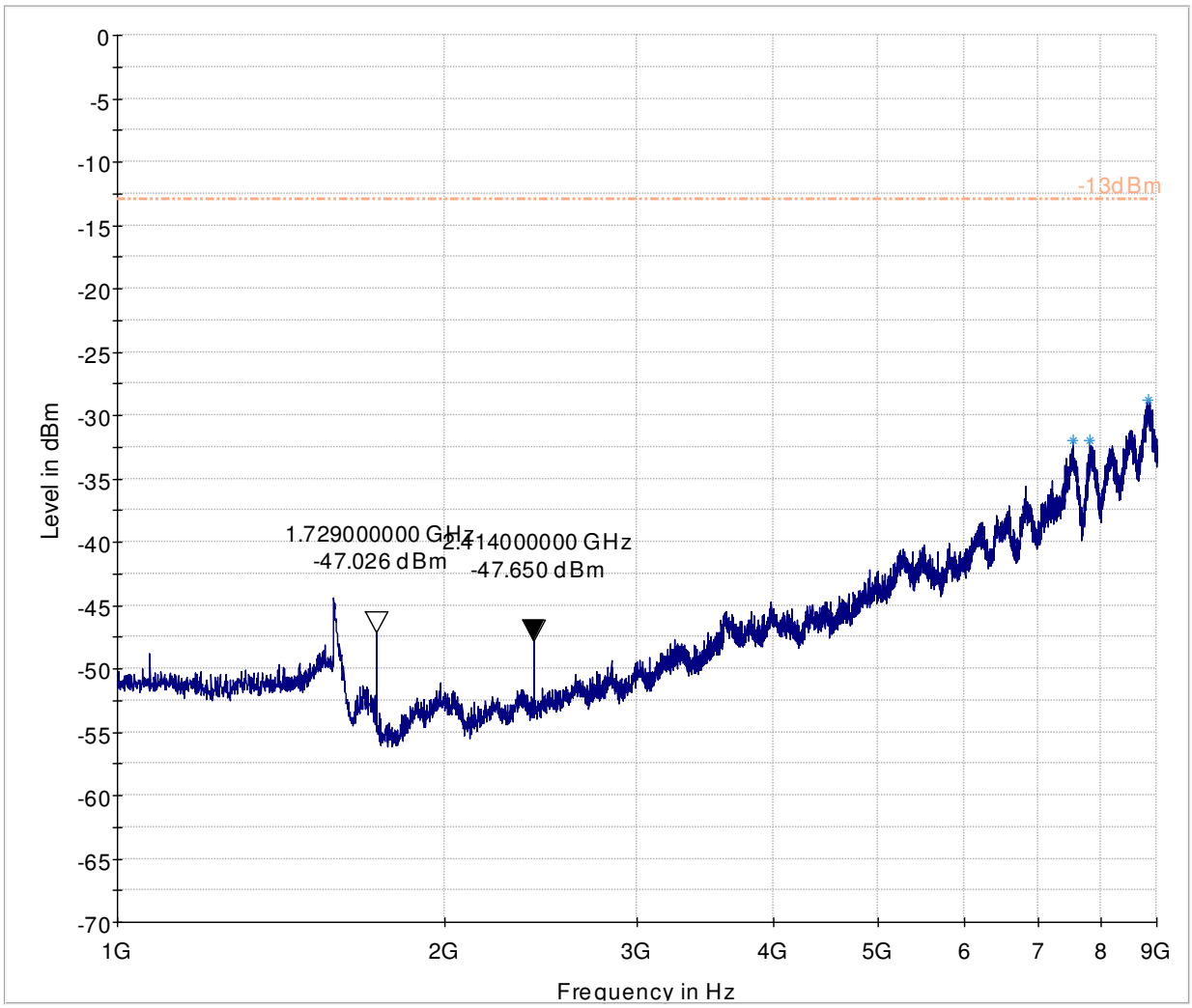


8.10 Measurement Plots LTE 5

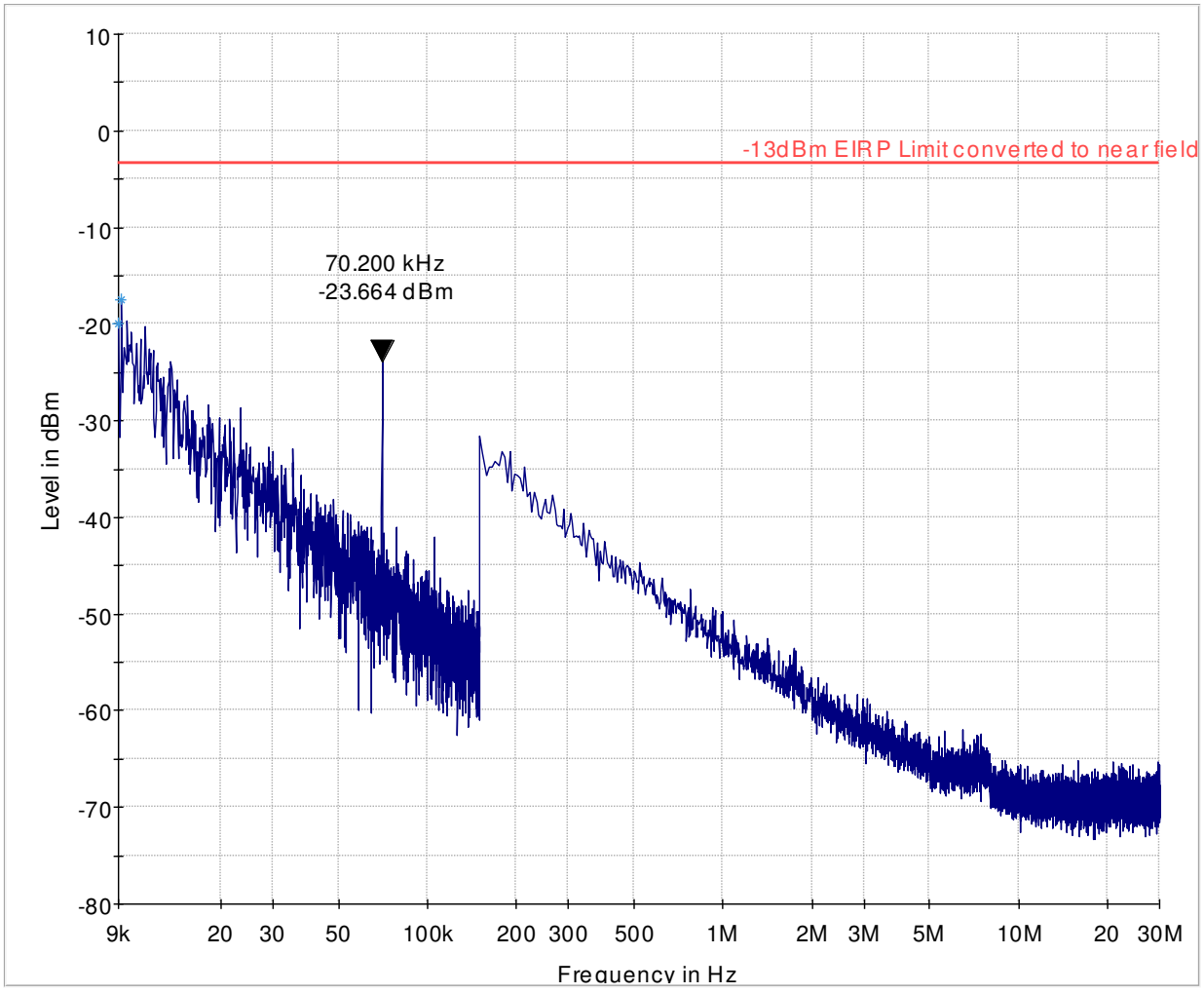
8.10.1 30 – 1000 MHz, Ch. Low



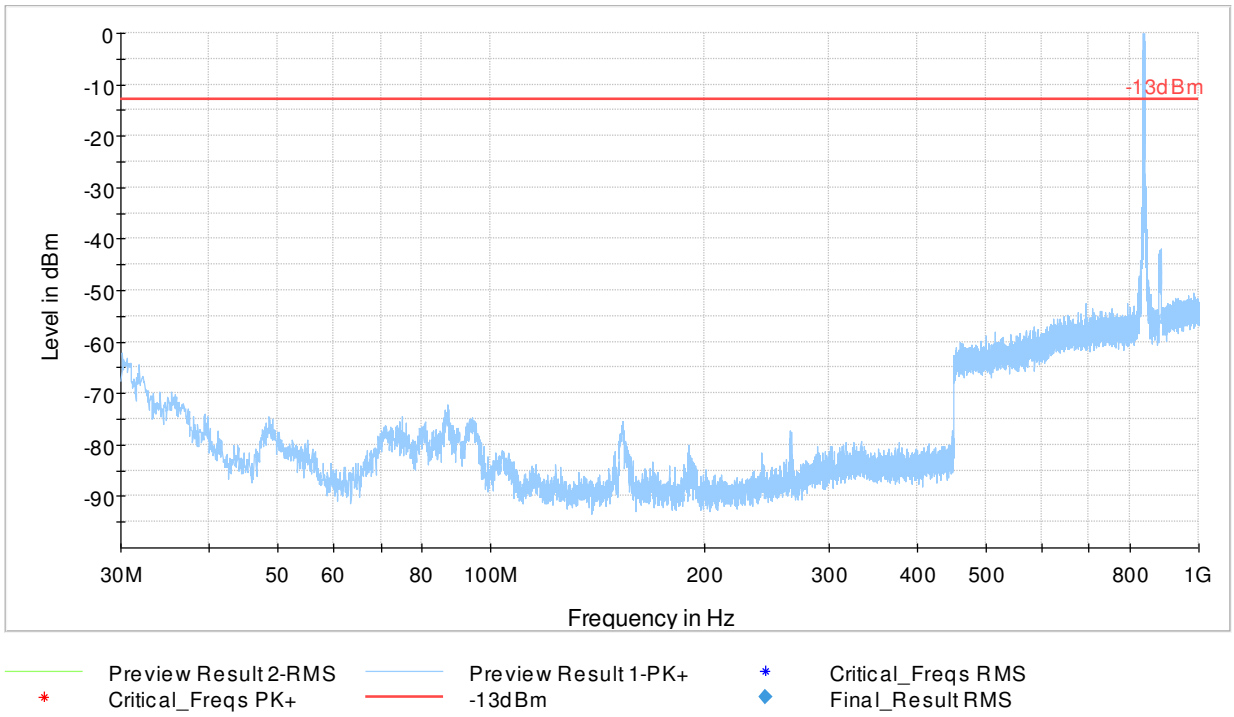
8.10.2 1 – 9 GHz, Ch. Low



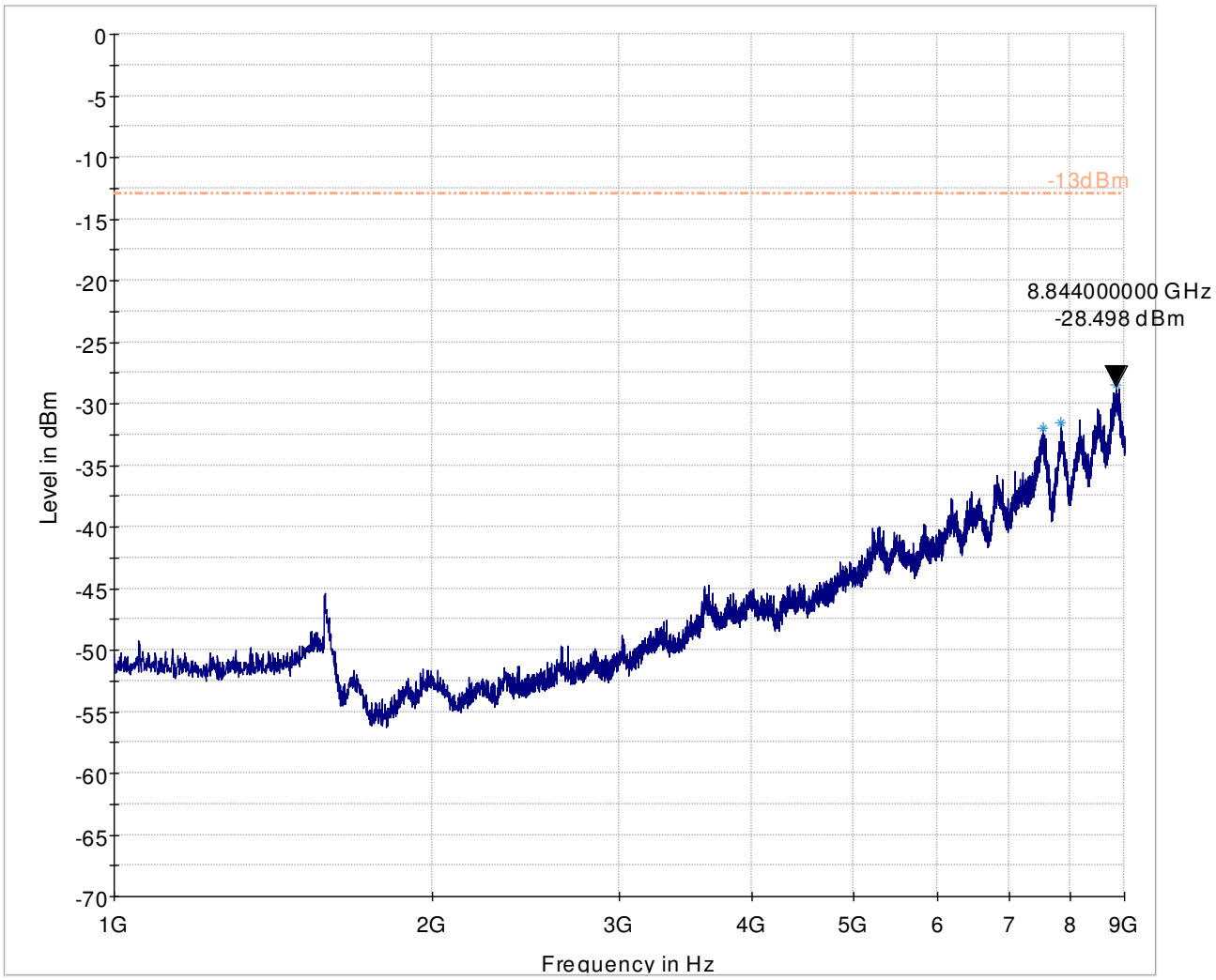
8.10.3 9 KHz – 30 MHz, Ch. Mid



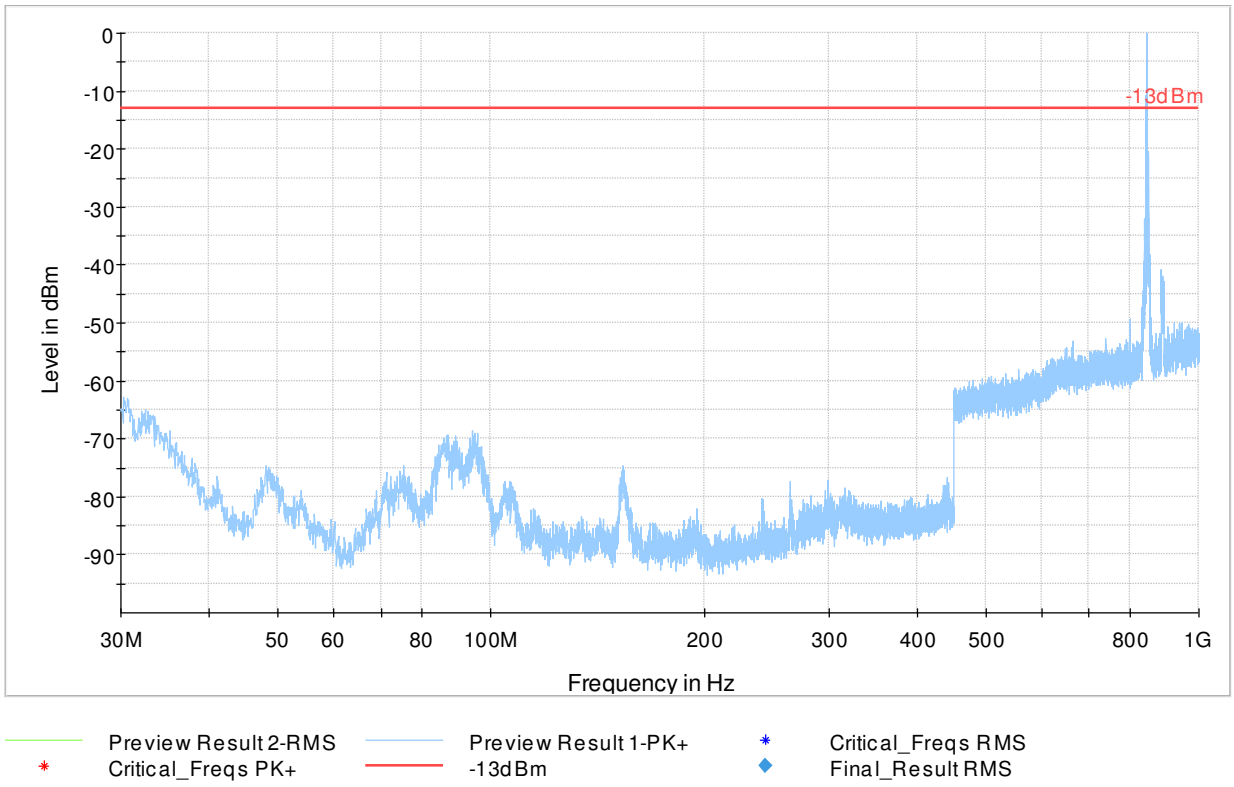
8.10.4 30 – 1000 MHz, Ch. Mid



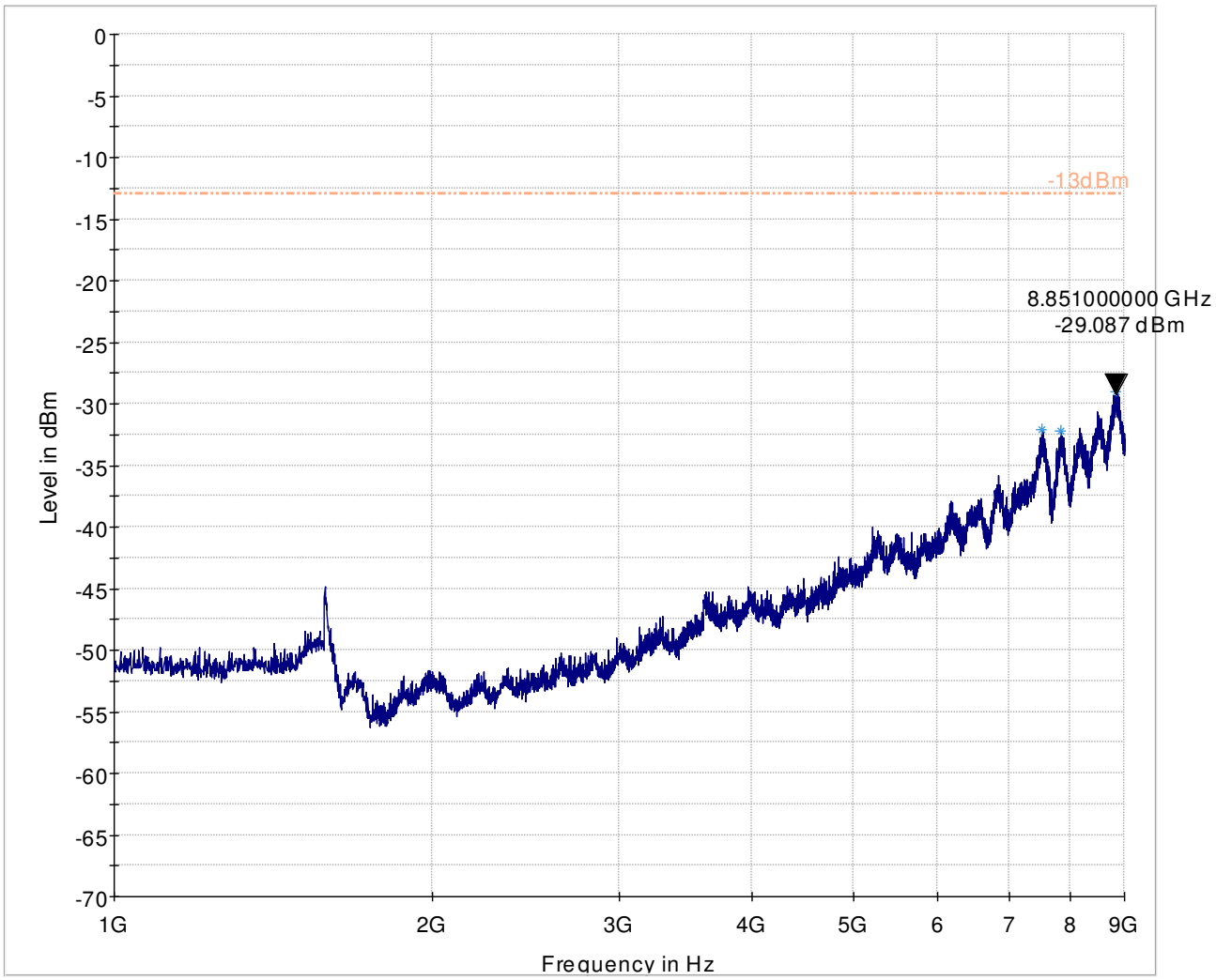
8.10.5 1 GHz – 9 GHz, Ch. Mid



8.10.6 30 – 1000 MHz, Ch. High

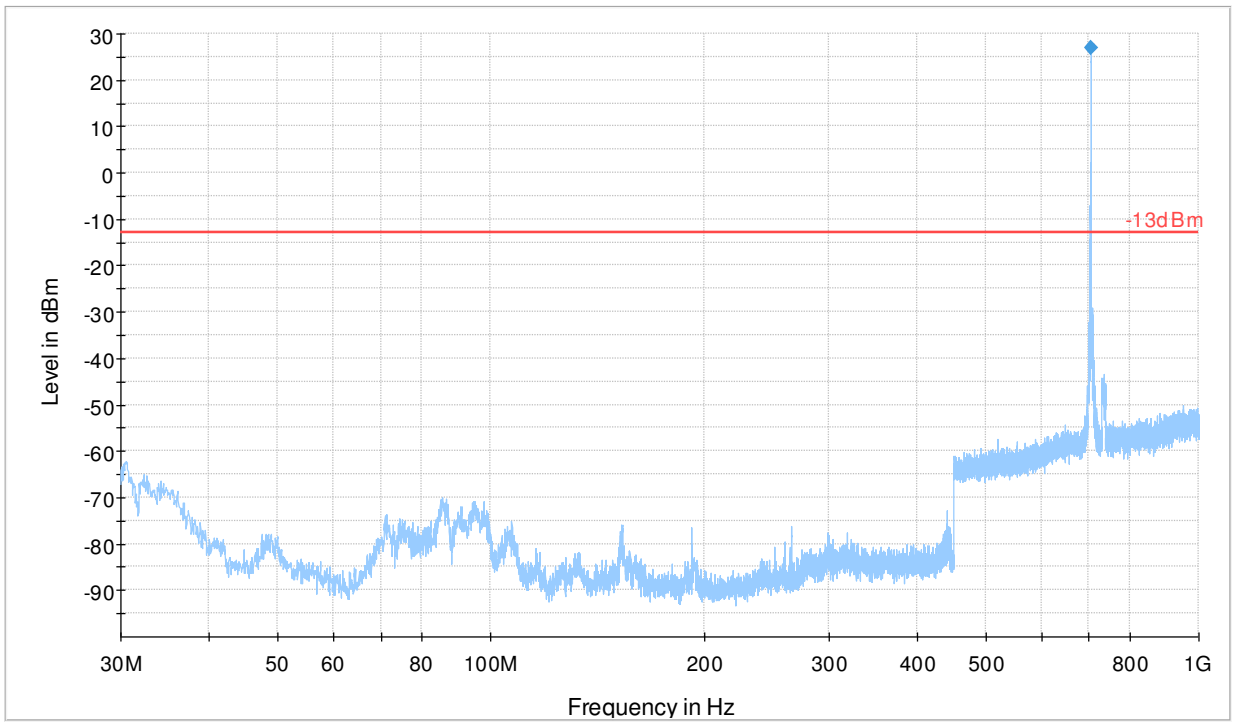


8.10.7 1 - 9 GHz, Ch. High

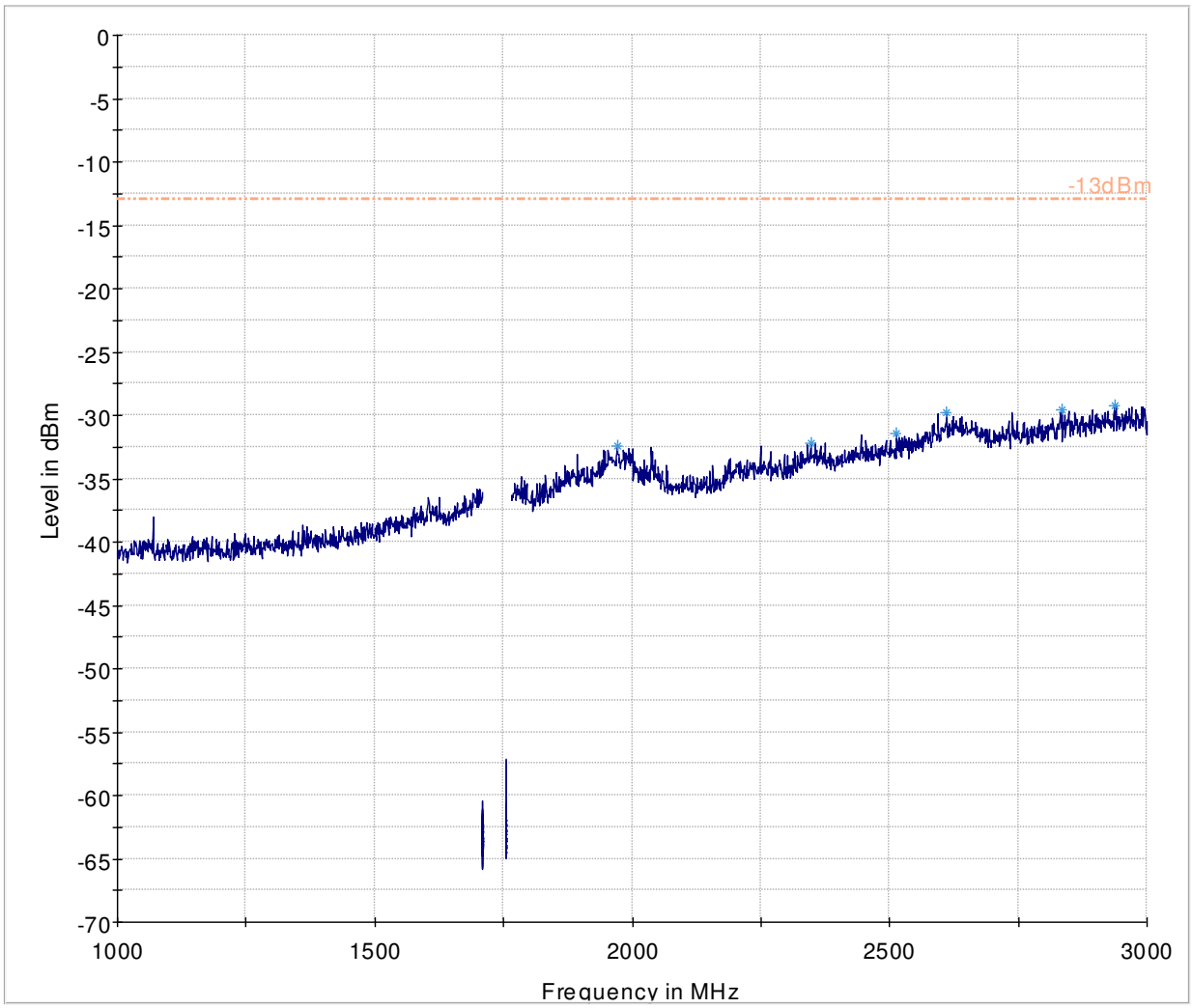


8.11 Measurement Plots LTE 12

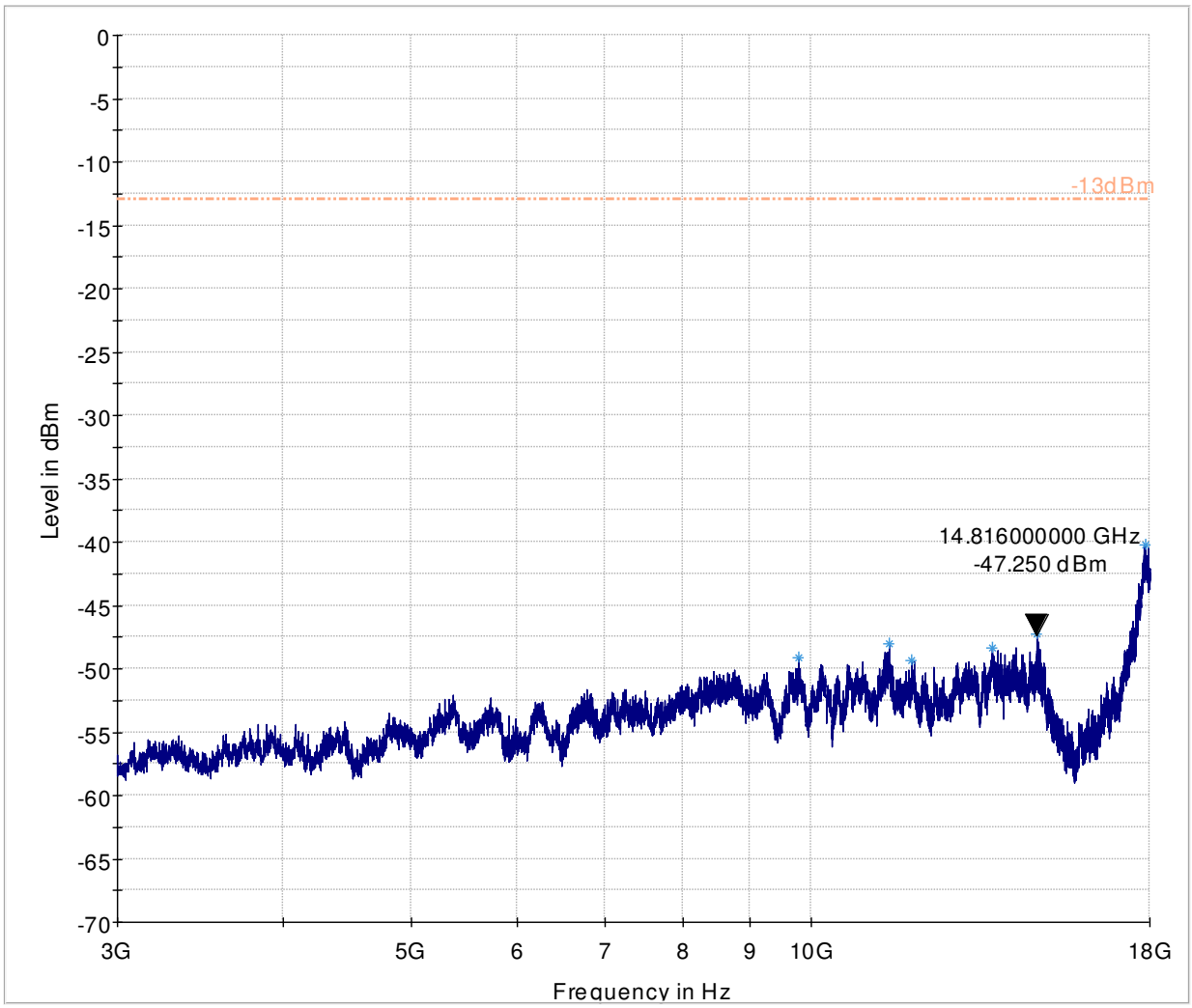
8.11.1 30 - 1000 MHz, Ch. Low



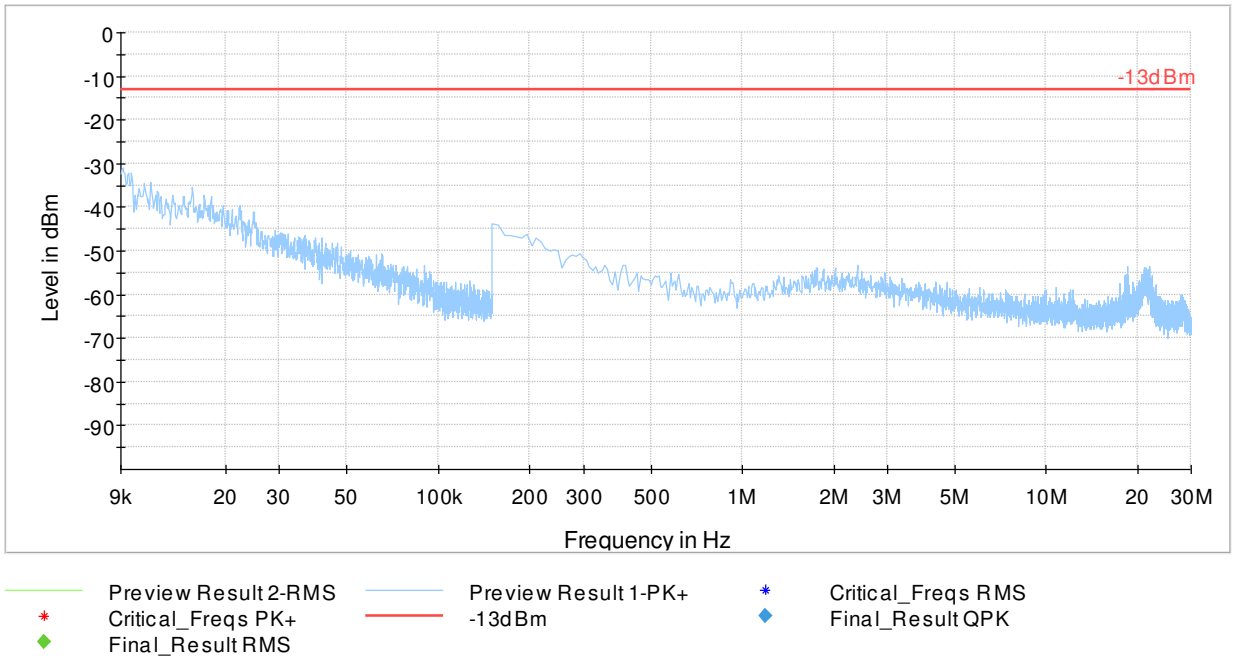
8.11.2 1 - 3 GHz, Ch. Low



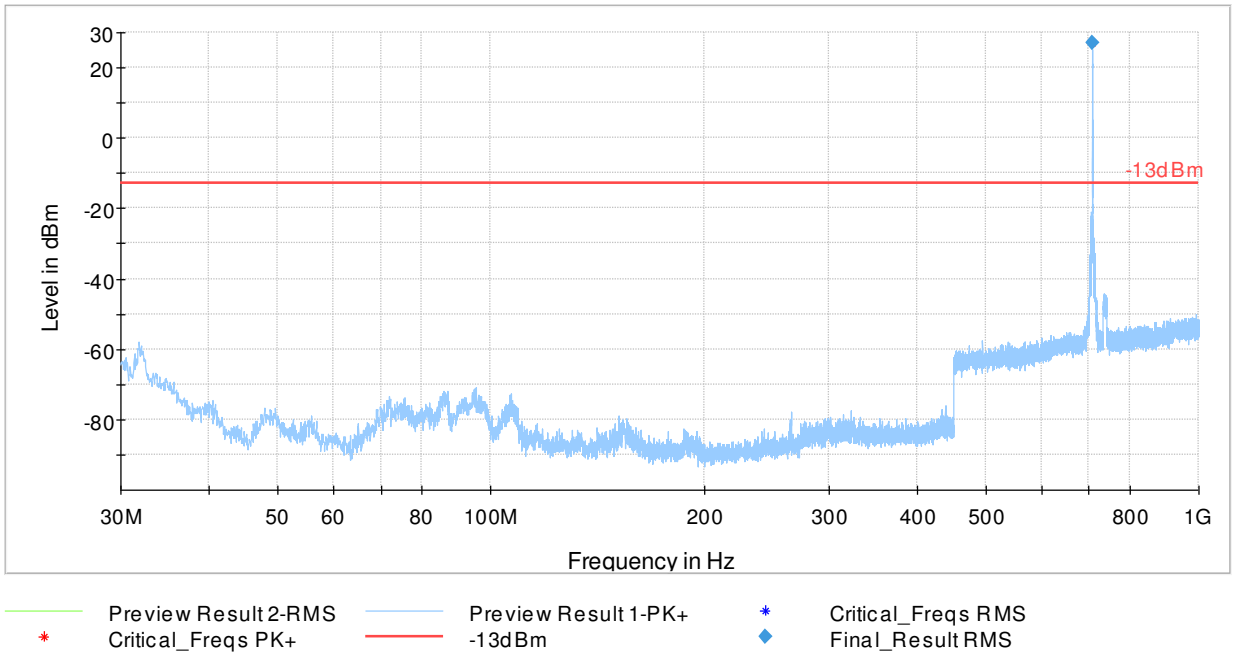
8.11.3 3 – 18 GHz, Ch. Low



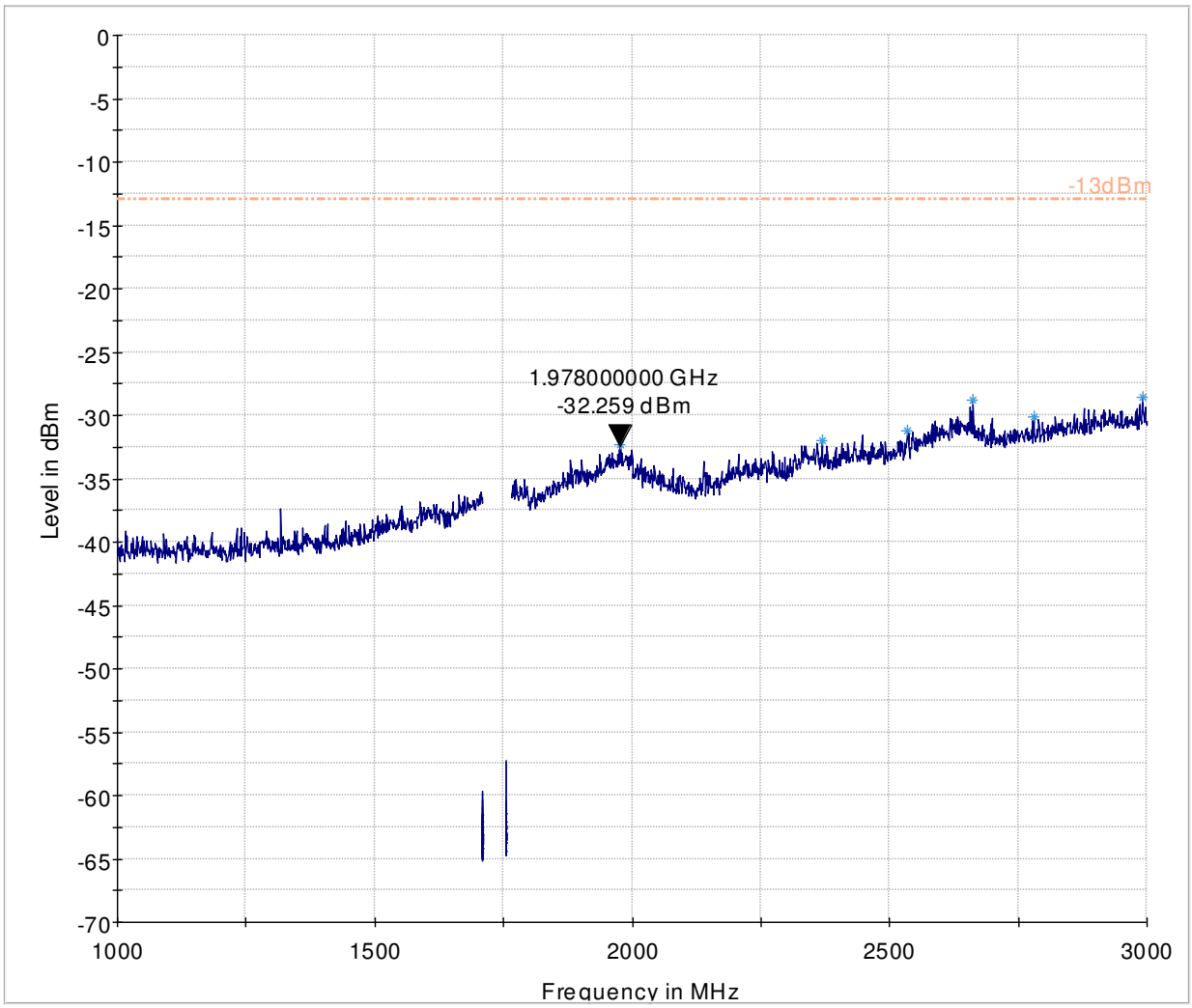
8.11.4 9 KHz - 30 MHz, Ch. Mid



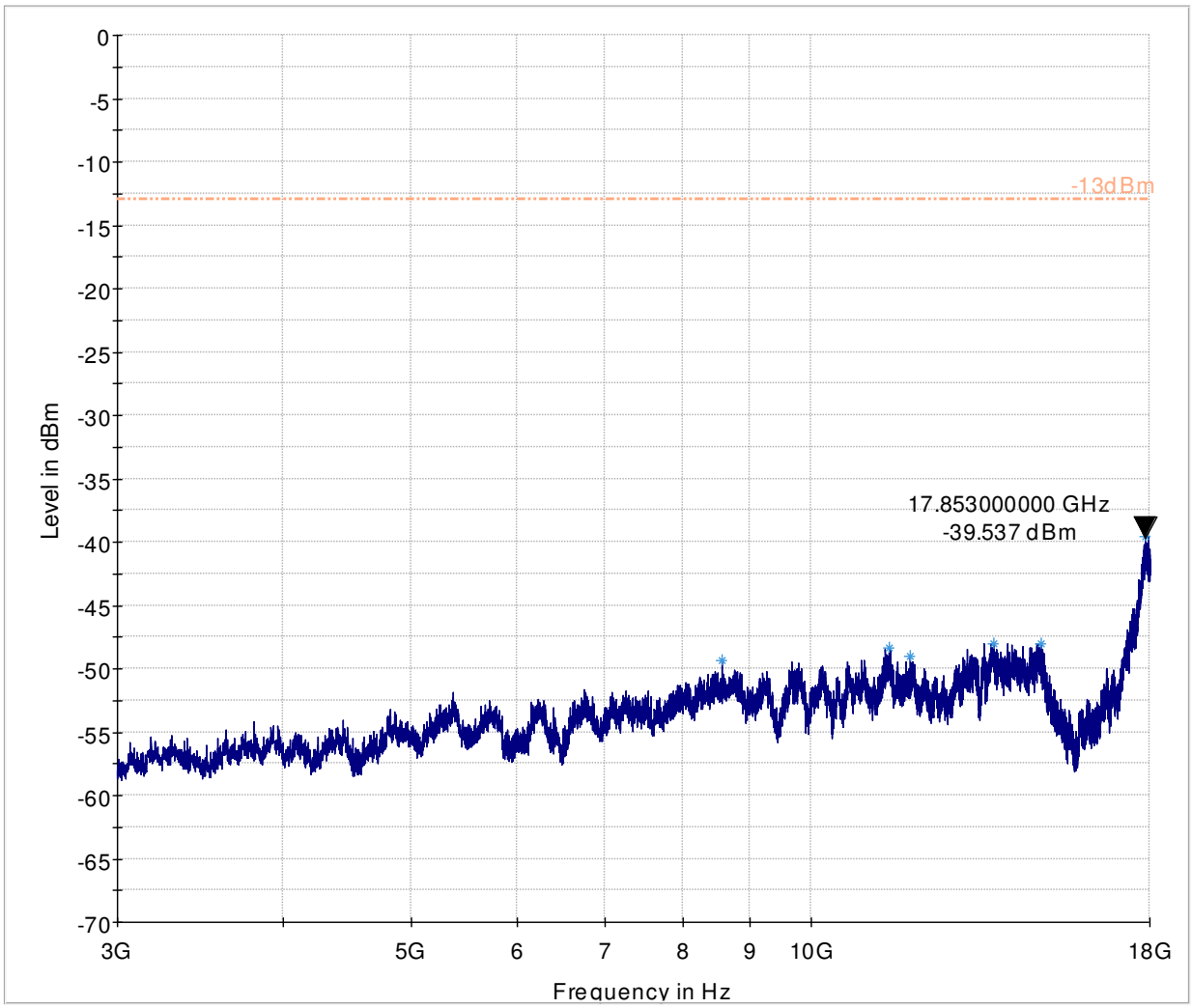
8.11.5 30 – 1000 MHz, Ch. Mid



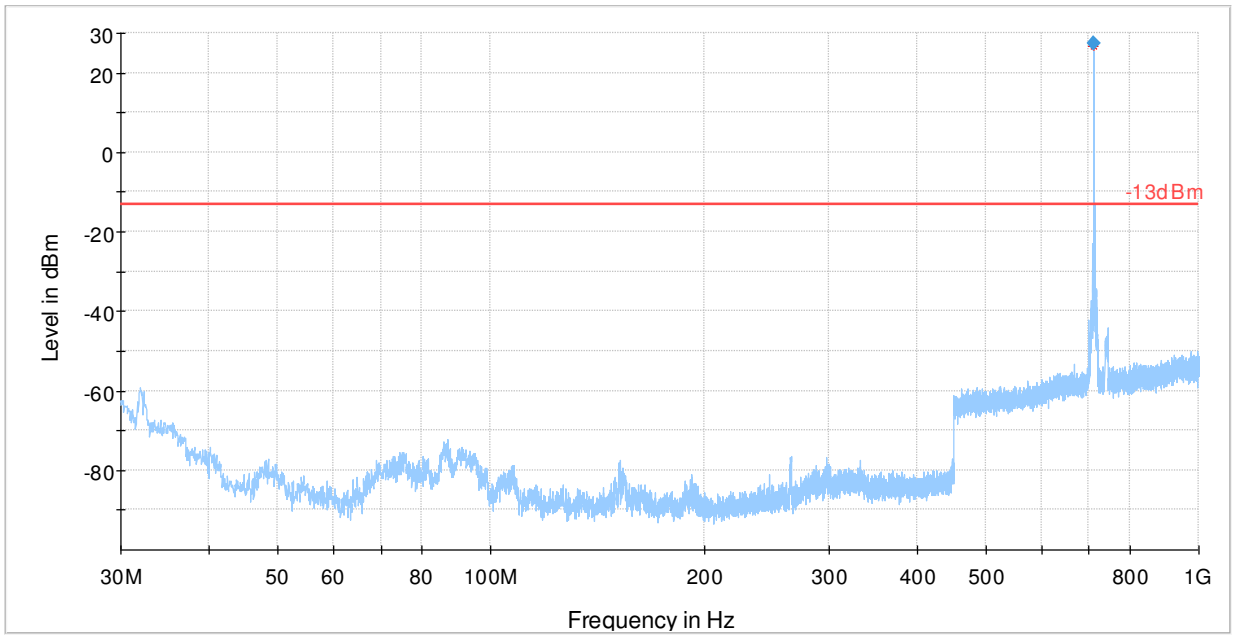
8.11.6 1 – 3 GHz, Ch. Mid



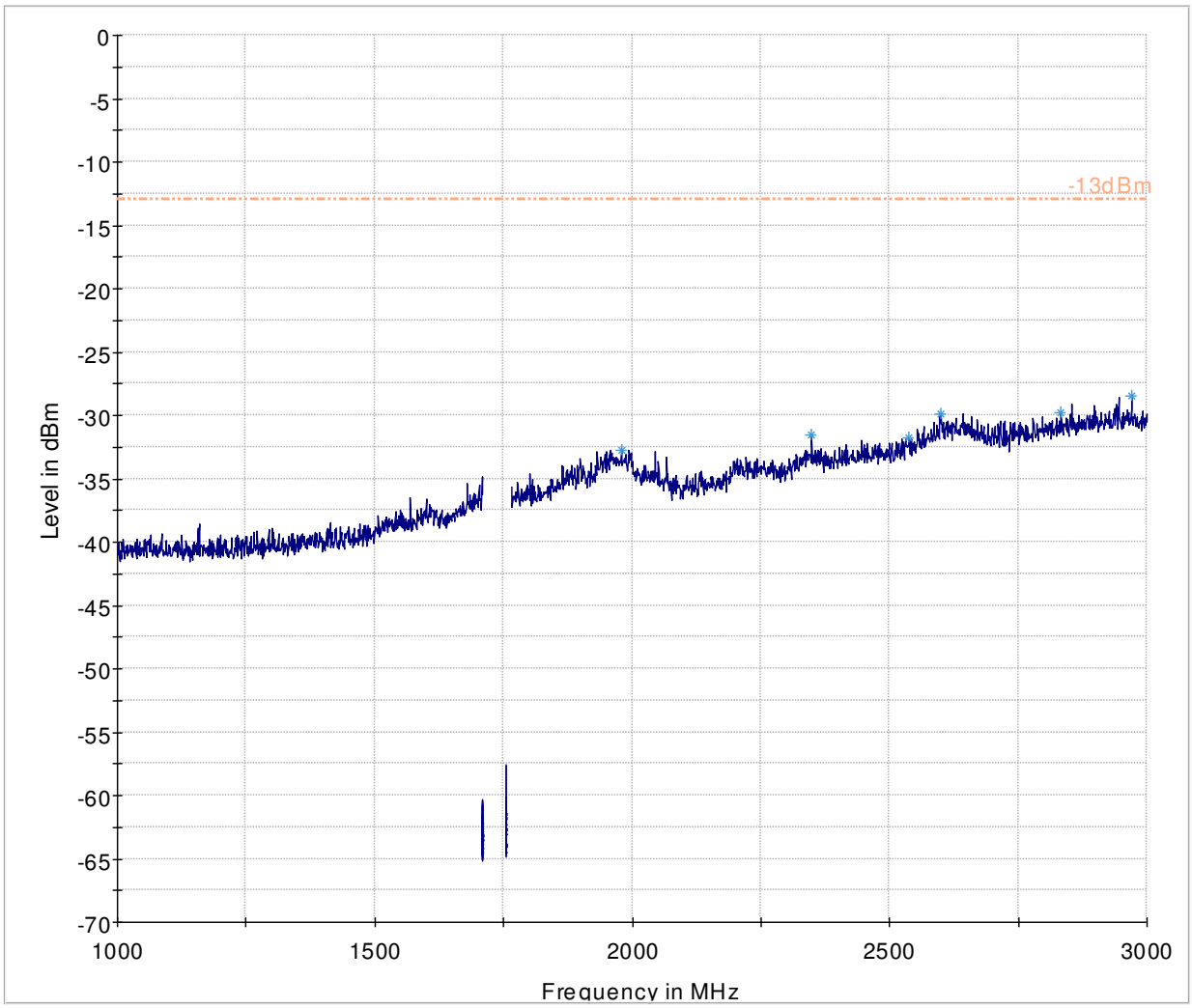
8.11.7 3 – 18 GHz, Ch. Mid



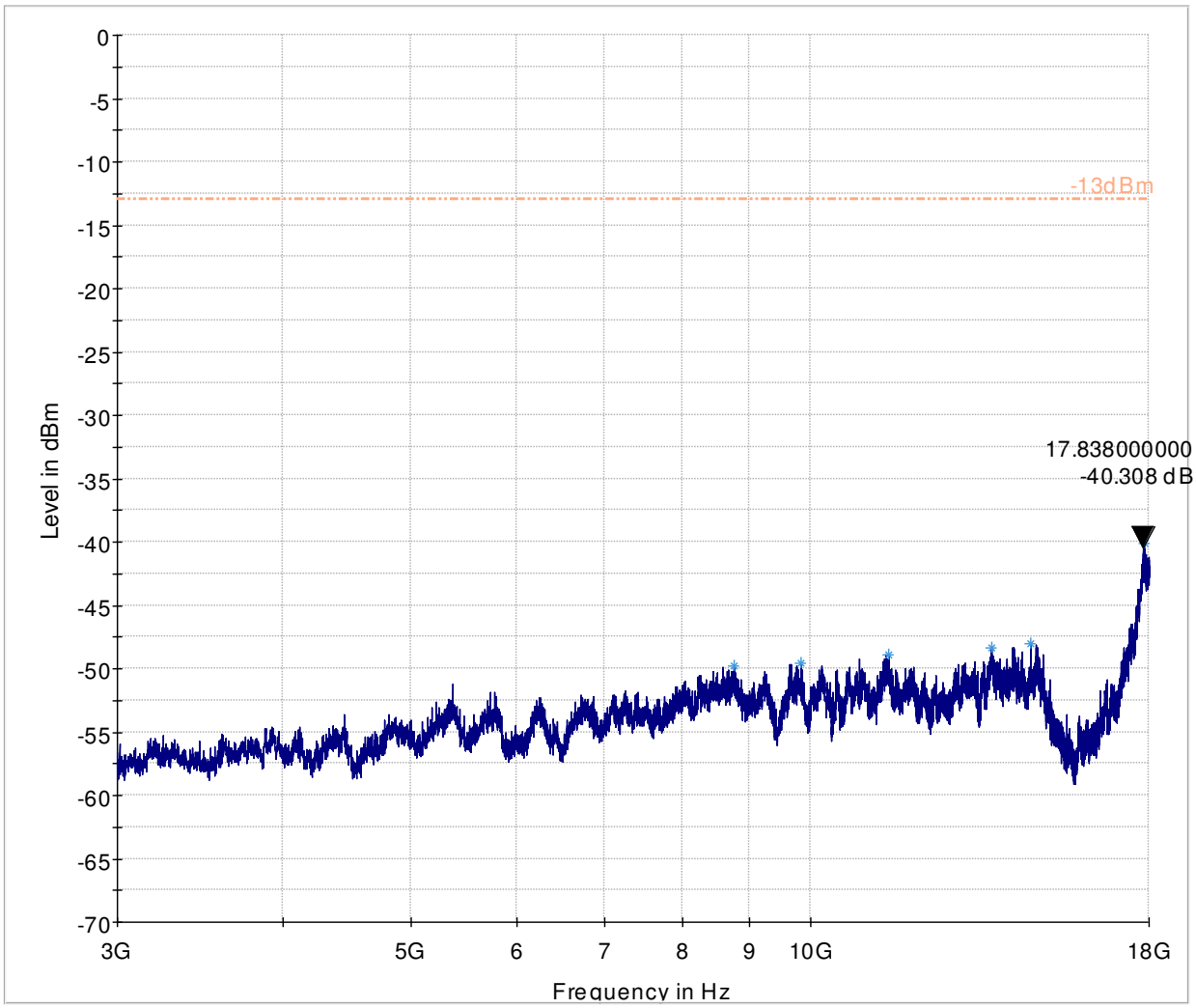
8.11.8 30 - 1000 MHz, Ch. High



8.11.9 1 – 3 GHz, Ch. High



8.11.10 3 - 18 GHz, Ch. High



9 Test Setup Photos

Setup photos are included in supporting file name: “EMC_CONNE-051-16001_TestSetupPhotos.pdf”

10 Test Equipment And Ancillaries Used For Testing

Item Name	Equipment Type	Manufacturer	Model	Serial #	Calibration Cycle	Last Calibration Date
Antenna Biconilog 3142E	Biconlog Antenna	EMCO	3142E	166067	3 years	6/14/2014
Antenna Loop 6512	Loop Antenna	ETS Lindgren	6512	49838	3 years	3/13/2014
Antenna Horn 3115 SN 35111	Horn Antenna	EMCO	3115	35111	3 years	7/24/2015
Antenna Horn 3116	Horn Antenna	ETS Lindgren	3116	70497	3 years	7/22/2015
LISN FCC-LISN-50-25-2-08	LISN	FCC	FCC-LISN-50-25-2-08	8014	2 Years	3/26/2015
Digital Barometer	Compact Digital Barometer	Control Company	35519-055	91119547	2 Years	4/7/2015
Digital Radio Comm. Tester CMU 200 #1	Digital Radio Comm. Tester	R&S	CMU 200 #1	101821	2 Years	7/4/2015
Spectrum Analyzer FSU26 #2	Spectrum Analyzer	R&S	FSU26	200065	3 years	7/4/2015
Thermometer Humidity TM320	Thermometer Humidity	Dickson	TM320	5280063	1 Year	7/29/2016

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.

11 Revision History

Date	Report Name	Changes to report	Report prepared by
September 15, 2016	EMC_CONNE-051-16001_FCC_22_24_27	Initial Version	Yu-Chien Ho
September 16, 2016	EMC_CONNE-051-16001_FCC_22_24_27_rev1	Spelling correction	Yu-Chien Ho