FCC/IC Test Report

FOR:

NetComm Wireless

Model Name:

MAX 6200-V1

Product Description:

3G M2M Router Plus

FCC ID: XIA-NTC620002
IC ID: 8847A-NTC600002

Per:
47 CFR: Part 22, Part 24, Part 27

Report #: EMC-NETCO-007-16001_FCC_22_24_27_v2
Date: August 30, 2016

***CETECOM* Inc.**
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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 24, 27.
No deficiencies to the FCC limits were ascertained.

The evaluation was performed for antenna+cable+adapter-configurations different to the ones in the filing for above FCC-ID, IC-ID.
The device was found to exceed the ERP value stated in the grant.

Company Name	Product Description	Model #
NetComm Wireless	3G M2M Router Plus	MAX 6200-V1

Responsible for Testing Laboratory:

Date	Section	Name	Signature
August 30, 2016	Compliance	Franz Engert (Manager Compliance Services)	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
August 30, 2016	Compliance	James Donnellan (Sr. EMC Engineer)	James Donnellan Digitally signed by James Donnellan DN: cn=James Donnellan, c=US, o=Cetecom Inc., ou=Compliance, email=james.donnellan@cetecom.com Date: 2016.09.01 09:05:48 -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
Compliance Manager:	Franz Engert
Project Engineer:	Yu-Chien Ho

2.2 Identification of the Client

Applicant's Name:	NetComm Wireless Limited
Street Address:	Level 2, 18-20 Orion Road
City/Zip Code	Lane Cove / 2066
Country	Australia

2.3 Identification of the Manufacturer

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

3 Equipment Under Test (EUT)

3.1 EUT Specifications

Model #:	MAX 6200-V1
HW Version:	1.0
SW Version:	2.0.24.3
FCC-ID:	XIA-NTC620002
IC-ID:	8847A-NTC600002
Product Description	3G M2M Router Plus
Module Information:	Not applicable. FCC-ID is not based on a modular certification.
Transceiver Technology / Type(s) of Modulation	WCDMA/UMTS: QPSK GPRS/GSM: GMSK EGPRS: 8-PSK
TX Operating Frequency Ranges (MHz):	GSM850: 824.2MHz – 848.8MHz GSM1900: 1850.2MHz – 1909.8MHz WCDMA/UMTS FDD BAND II: 1852.4MHz – 1907.6MHz WCDMA/UMTS FDD BAND V: 826.4MHz – 846.6MHz
Maximum AVG Conducted Output Power from grant:	GPRS850 1.03W = 30.1dBm ERP EDGE850 0.25W = 24.0dBm ERP UMTS850 0.12W = 20.8dBm ERP GPRS1900 1.54W = 31.9dBm EIRP EDGE1900 0.53W = 27.2dBm EIRP UMTS1900 0.37W = 25.7dBm EIRP
Antenna info:	Antenna more than 20cm away from human body according to manufacturer declaration. ANT-0040 with 2 feet RG58 ANT-0040 with 2 feet RG174 ANT-0040 with 8 feet RG58 ANT-0040 with 8 feet RG174 Maximum Gain (in bands supported by EUT) of ANT-0040 tube antenna 3.42dBi in 1900Band
Rated Operating Voltage Range:	DC 8V to 40V
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

3.2 EUT Sample details

EUT #	Radio Serial Number	HW Version	SW Version	Antenna cable	Antenna
1	165 711 160 310 026	1.0	2.0.24.3	2 feet RG-58	ANT-0040
2	165 711 160 310 026	1.0	2.0.24.3	2 feet RG-174	ANT-0040
3	165 711 160 310 026	1.0	2.0.24.3	8 feet RG-58	ANT-0040
4	165 711 160 310 026	1.0	2.0.24.3	8 feet RG-174	ANT-0040

3.3 Accessory Equipment (AE) details

AE #	Type	Model	Manufacturer	Serial Number
1	Switching Power Supply	S01BBAM1200150	Kanematsu Corp	NA

3.4 Test Sample Configuration

Set-up #	EUT / AE used for set-up	Measurement	Comments
1	EUT #1 + AE #1	E(I)RP measurements	Lowest loss between Radio and Antenna.
2	EUT #3 + AE #1	Radiated Spurious Emissions	Longer cables prone to more unintentional radiation.

4 Subject of Investigation

The objective of the measurements done by CETECOM Inc. was to evaluate the compliance of the EUT with 4 new configurations for antenna + cable + antenna adapter against the relevant requirements specified in the Code of Federal Regulations Title 47 parts 22, 24, 27, 90 inside the scope of the existing grant for FCC-ID XIA-NTC620002 and IC ID: 8847A-NTC600002.

5 Measurement

5.1 Dates of Testing:

August 22, 2016 – August 30, 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

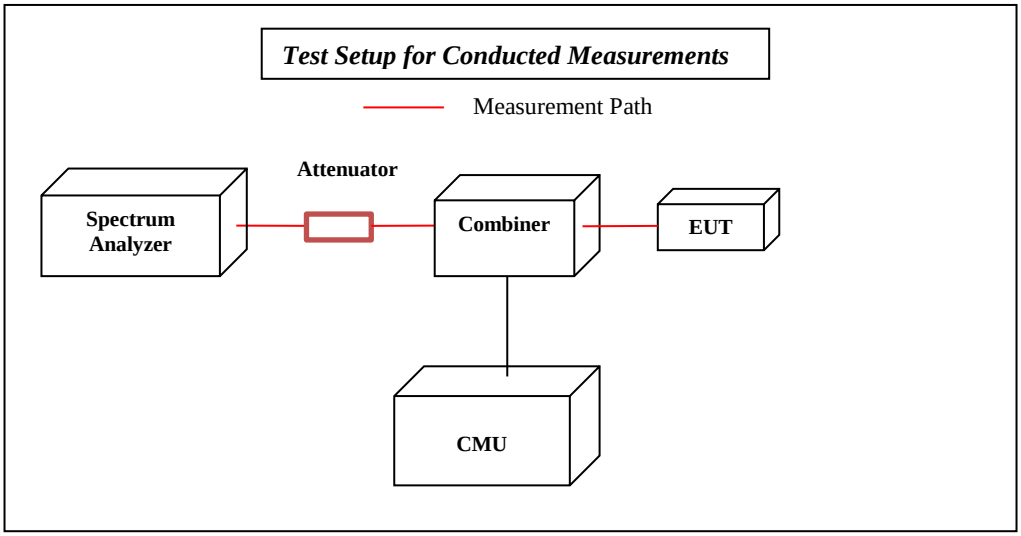
5.3 Environmental Conditions during Testing:

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

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

5.4 Conducted measurements

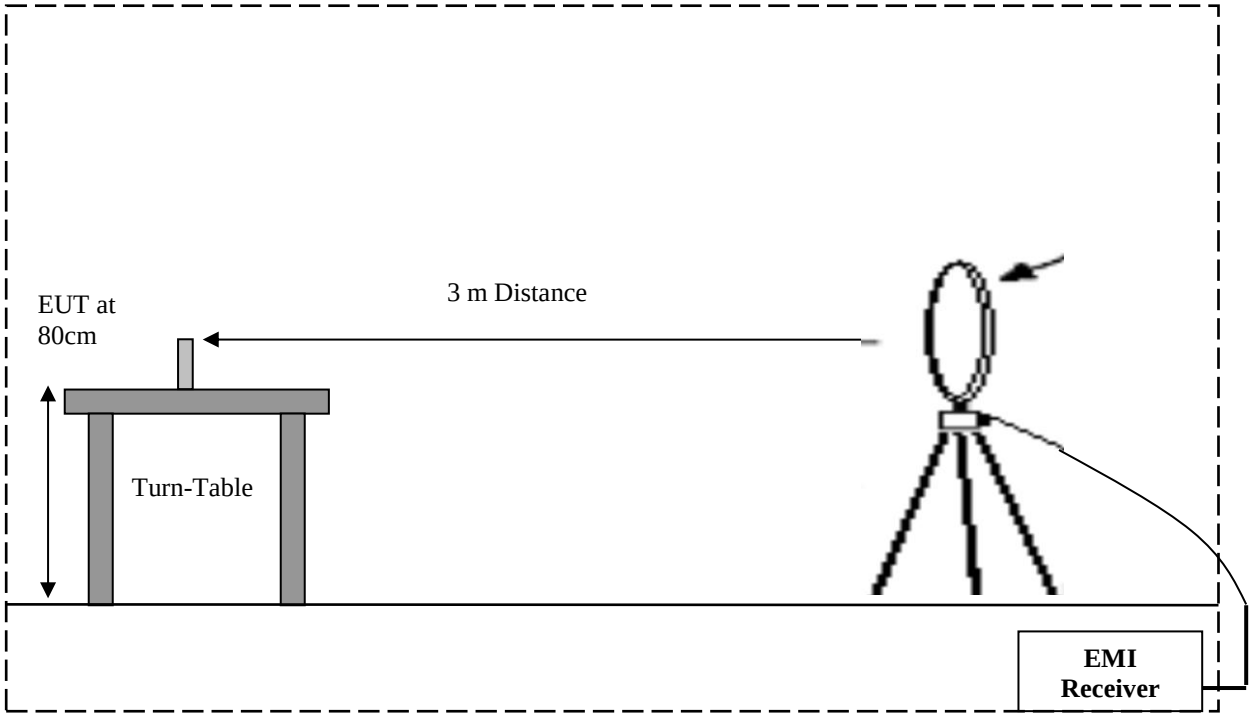
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v02r02 – "Measurement Guidance for Certification of Licensed Digital Transmitters" and according to relevant parts of TIA-603C 2004 as detailed below.



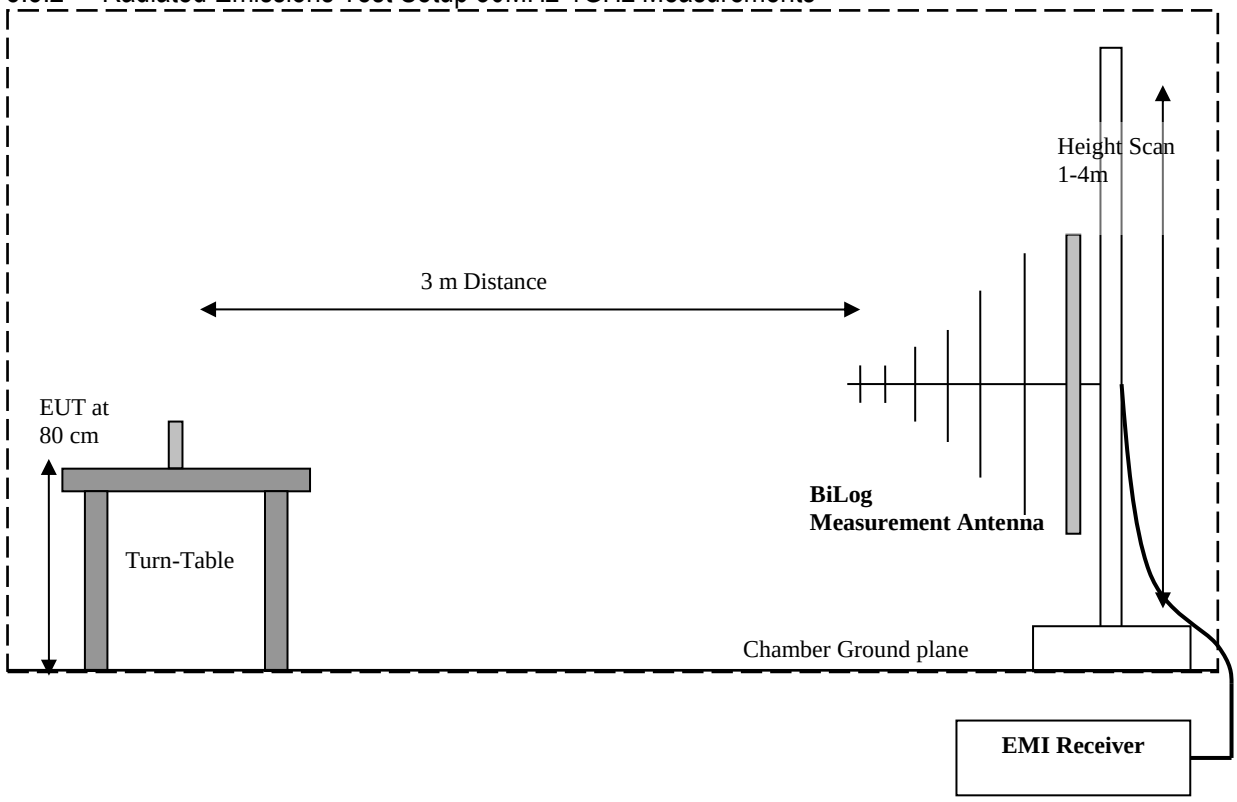
5.5 Radiated Measurement

- 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.

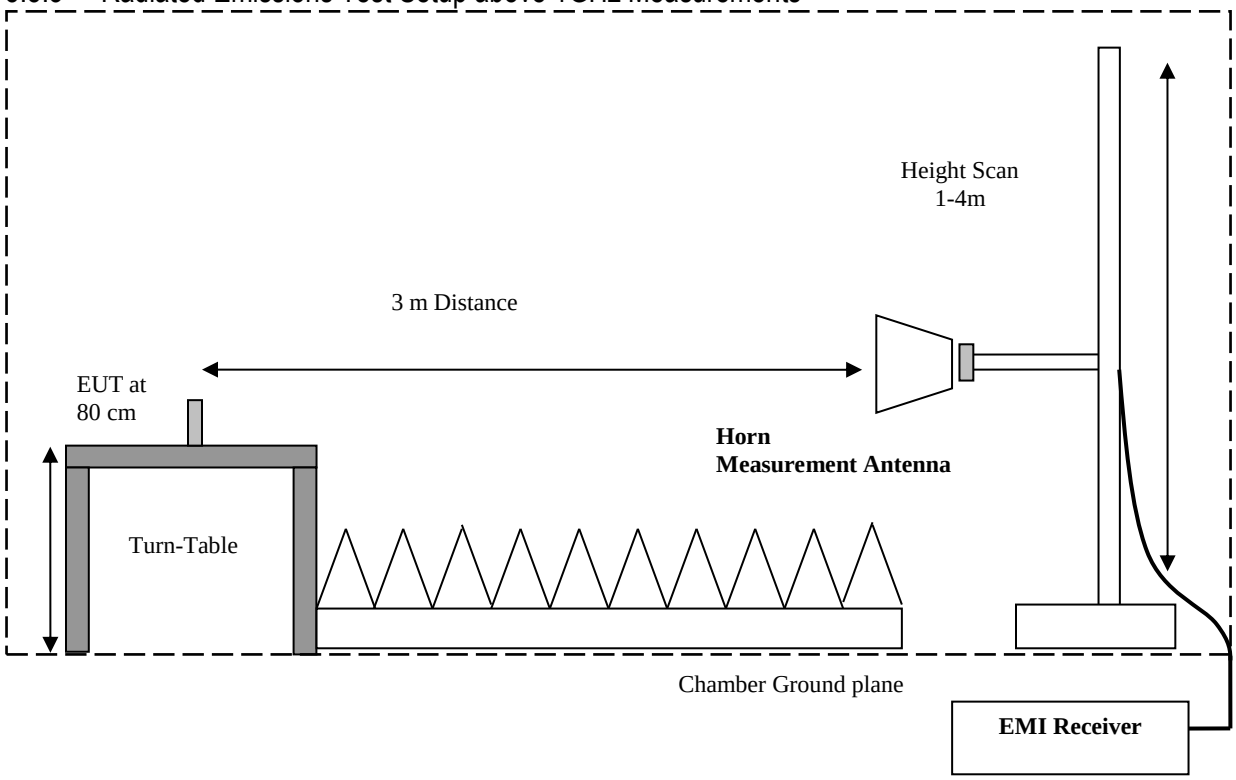
5.5.1 Radiated Emissions Test Setup below 30MHz Measurements



5.5.2 Radiated Emissions Test Setup 30MHz-1GHz Measurements



5.5.3 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)	RF Output Power	Nominal	GPRS class 8, WCDMA RMC12.2kbps	■	☐	☐	☐	Complies
§2.1055; §22.355	Frequency Stability	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1049; §22.917	Occupied Bandwidth	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1051; §22.917	Band Edge Compliance	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1051; §22.917	Conducted Spurious Emissions	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1053; §22.917	Radiated Spurious Emissions	Nominal	GPRS class 8, WCDMA RMC12.2kbps	■	☐	☐	☐	Complies

Note 1: NA= Not Applicable; NP= Not Performed.
Note 2: Leveraged from certification of initial product.

6.2 FCC 24:

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §24.232 (a); §27.50 (d)	RF Output Power	Nominal	GPRS class 8, WCDMA RMC12.2kbps	■	☐	☐	☐	Complies
§2.1055; §24.235; §27.54	Frequency Stability	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1049; §24.238; §27.53	Occupied Bandwidth	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1051; §24.238; §27.53	Band Edge Compliance	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1051; §24.238; §27.53	Conducted Spurious Emissions	Nominal	GPRS class 8, WCDMA RMC12.2kbps	☐	☐	☐	■	Note 2
§2.1053; §24.238; §27.53	Radiated Spurious Emissions	Nominal	GPRS class 8, WCDMA RMC12.2kbps	■	☐	☐	☐	Complies

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

7 RF Output Power

7.1 Reference:

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

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)

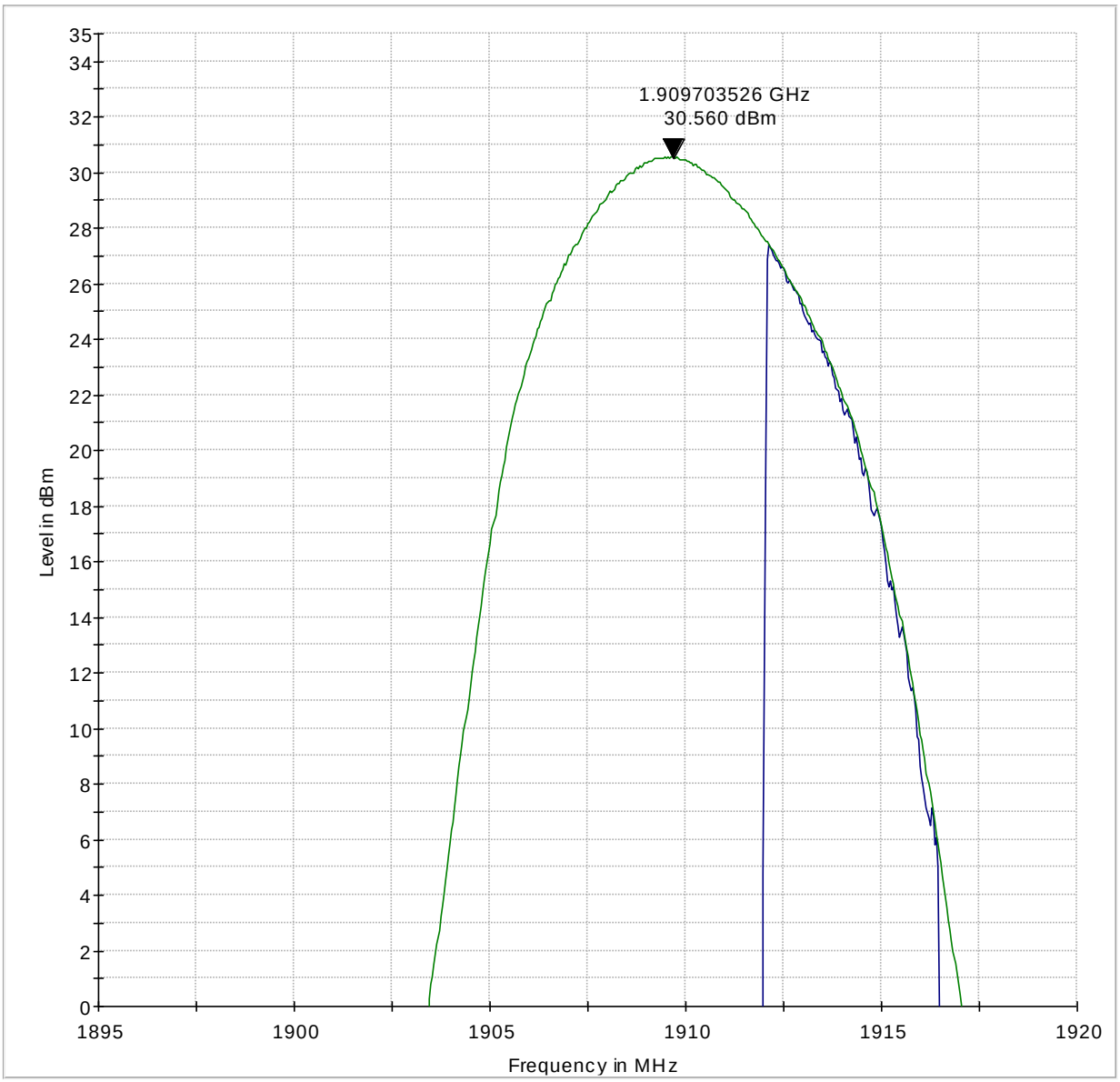
(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

7.3 Summary Measurement Result:

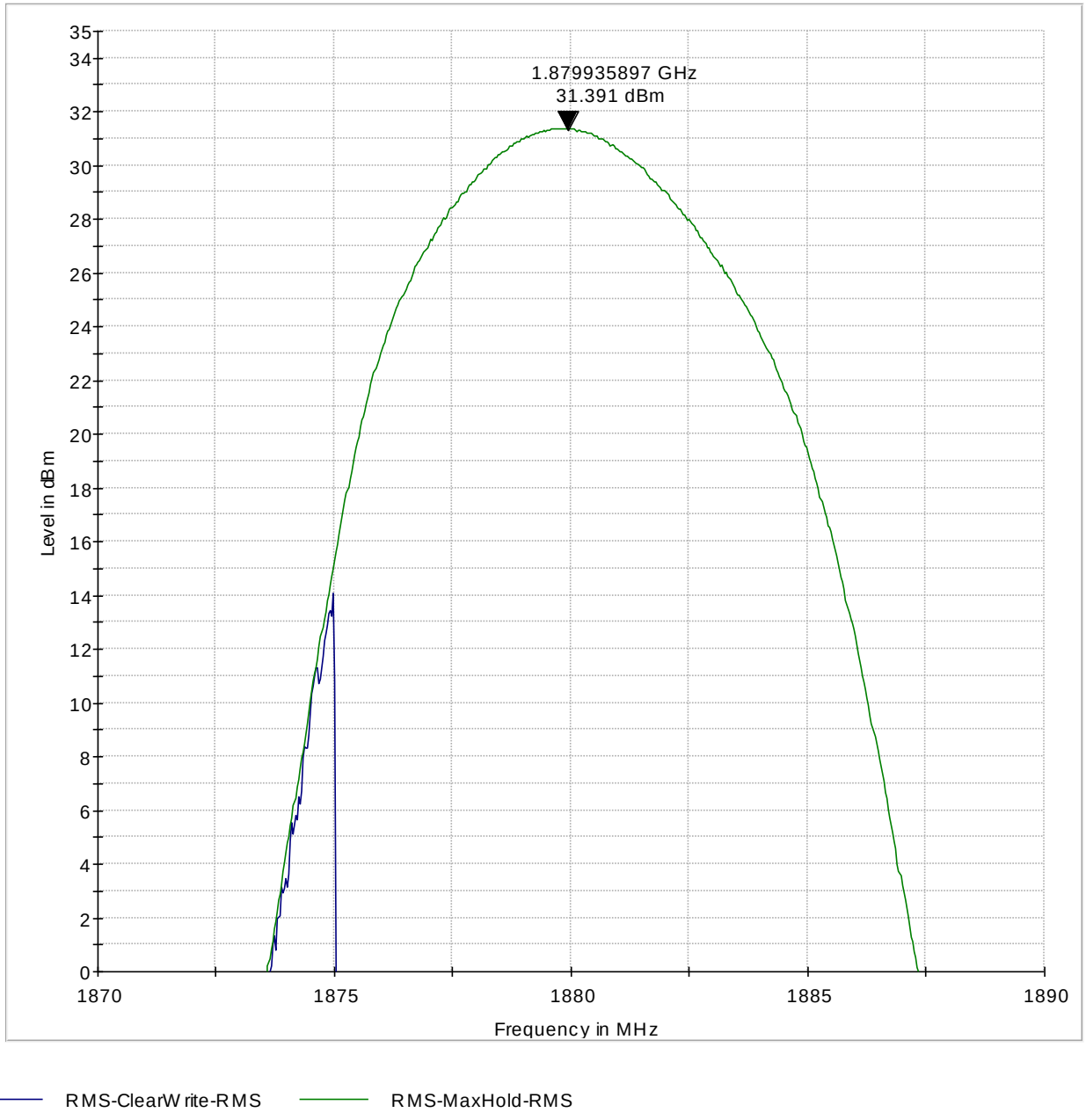
Band	Frequency (MHz)	Channel	Measured RMS ERP/EIRP [dBm]	Duty Cycle Correction [dB]	Maximum RMS ERP/EIRP from grant [dBm]	Margin to grant (dB)
GPRS850 (class8)	848.8	High	28.7	0	30.1	1.4
GPRS850 (class8)	836.6	Mid	30.4	0	30.1	-0.3
GPRS850 (class8)	824.2	Low	28.9	0	30.1	1.2
GPRS1900 (class8)	1909.8	High	30.6	0	31.9	1.3
GPRS1900 (class8)	1880	Mid	31.4	0	31.9	0.5
GPRS1900 (class8)	1850.2	Low	30.3	0	31.9	1.6
UMTS FDD II (RMC 12.2k)	1907.6	High	24.3	0	25.7	1.4
UMTS FDD II (RMC 12.2k)	1880	Mid	25.4	0	25.7	0.3
UMTS FDD II (RMC 12.2k)	1852.4	Low	24.0	0	25.7	1.7
UMTS FDD V (RMC 12.2k)	849	High	23.7	0	20.8	-2.9
UMTS FDD V (RMC 12.2k)	836.6	Mid	23.0	0	20.8	-2.2
UMTS FDD V (RMC 12.2k)	826.4	Low	22.5	0	20.8	-1.7

7.4 Measurement Plots:

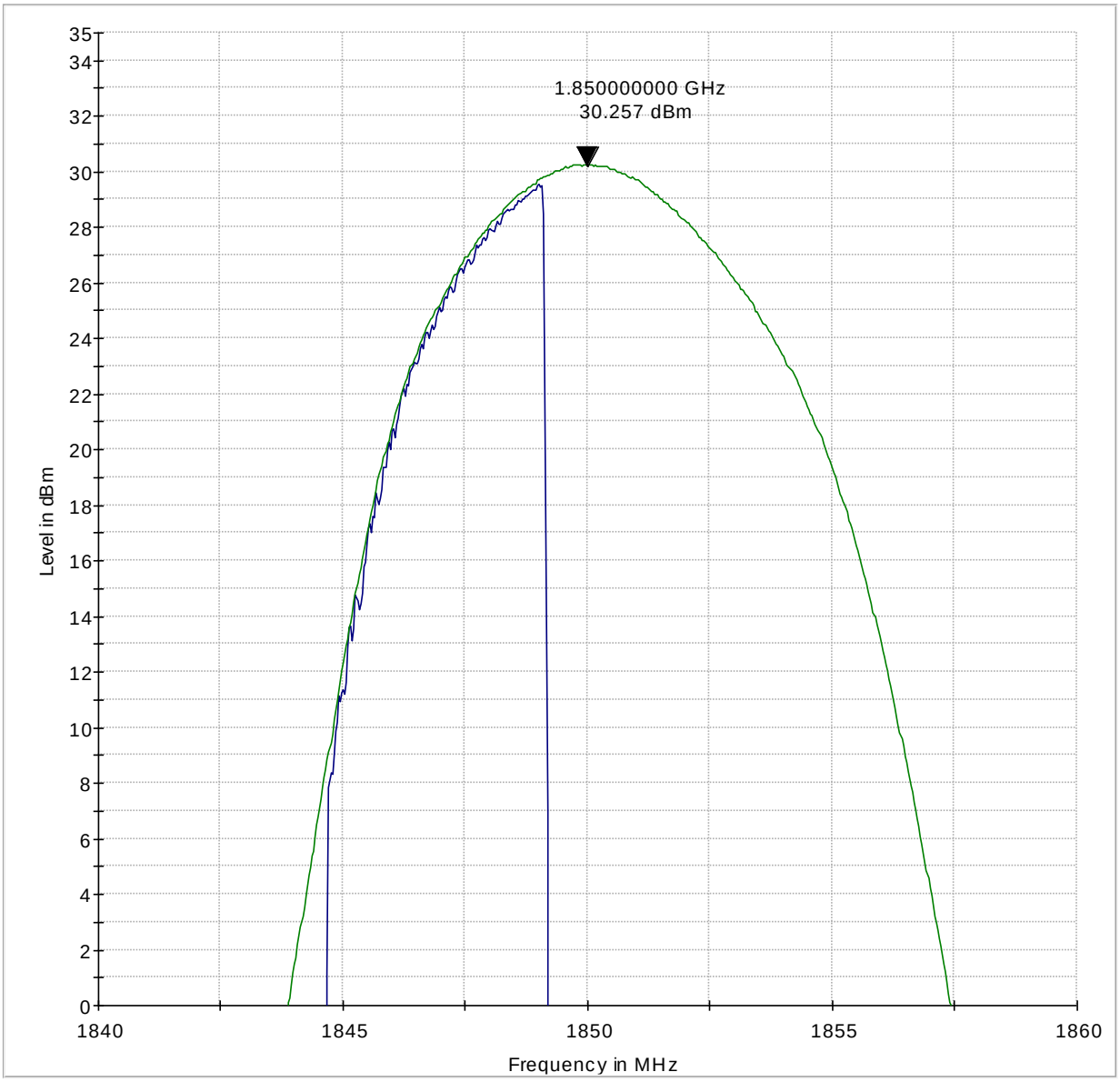
7.4.1 GSM1900 EIRP high channel



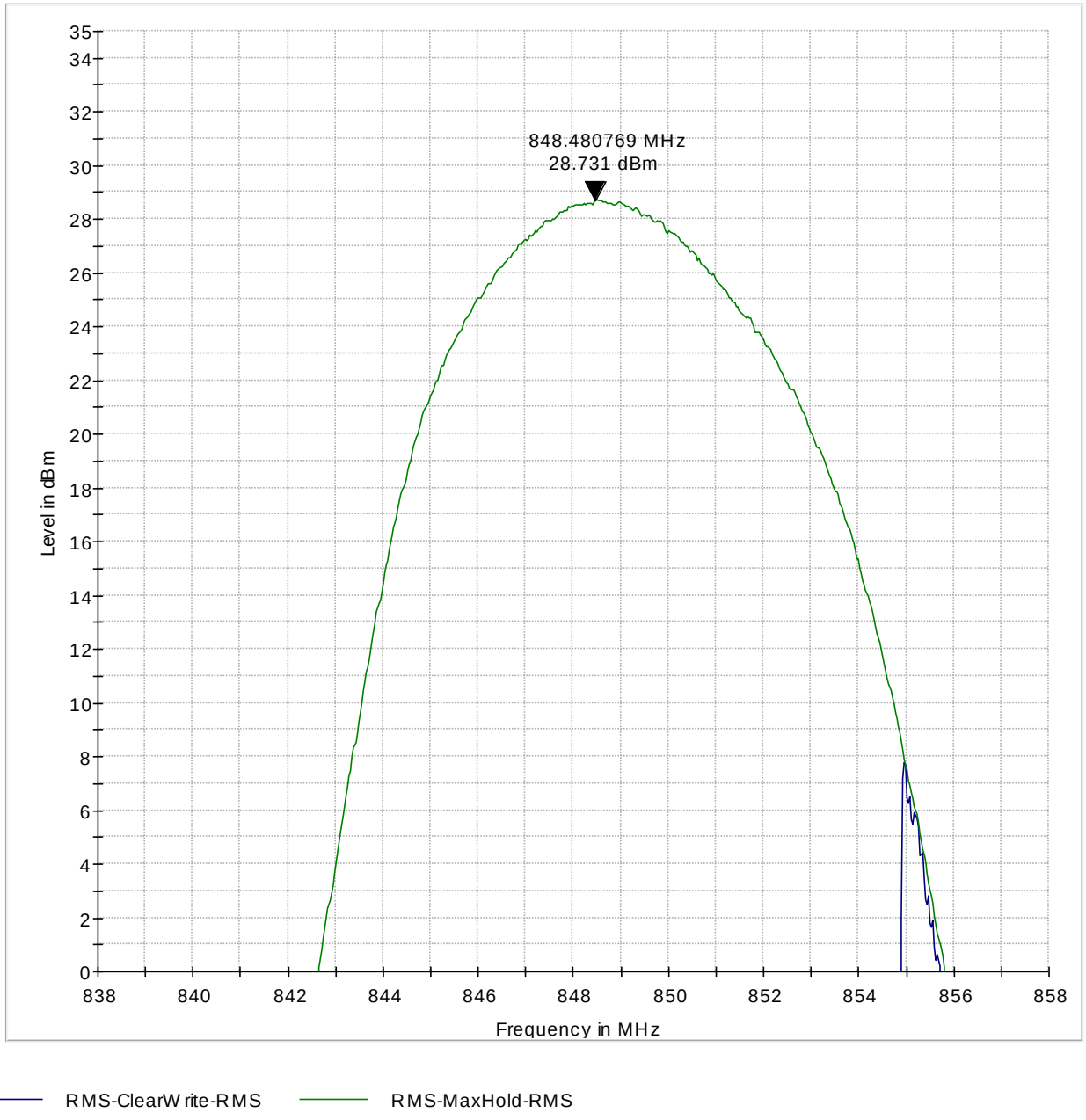
7.4.2 GSM1900 EIRP mid channel:



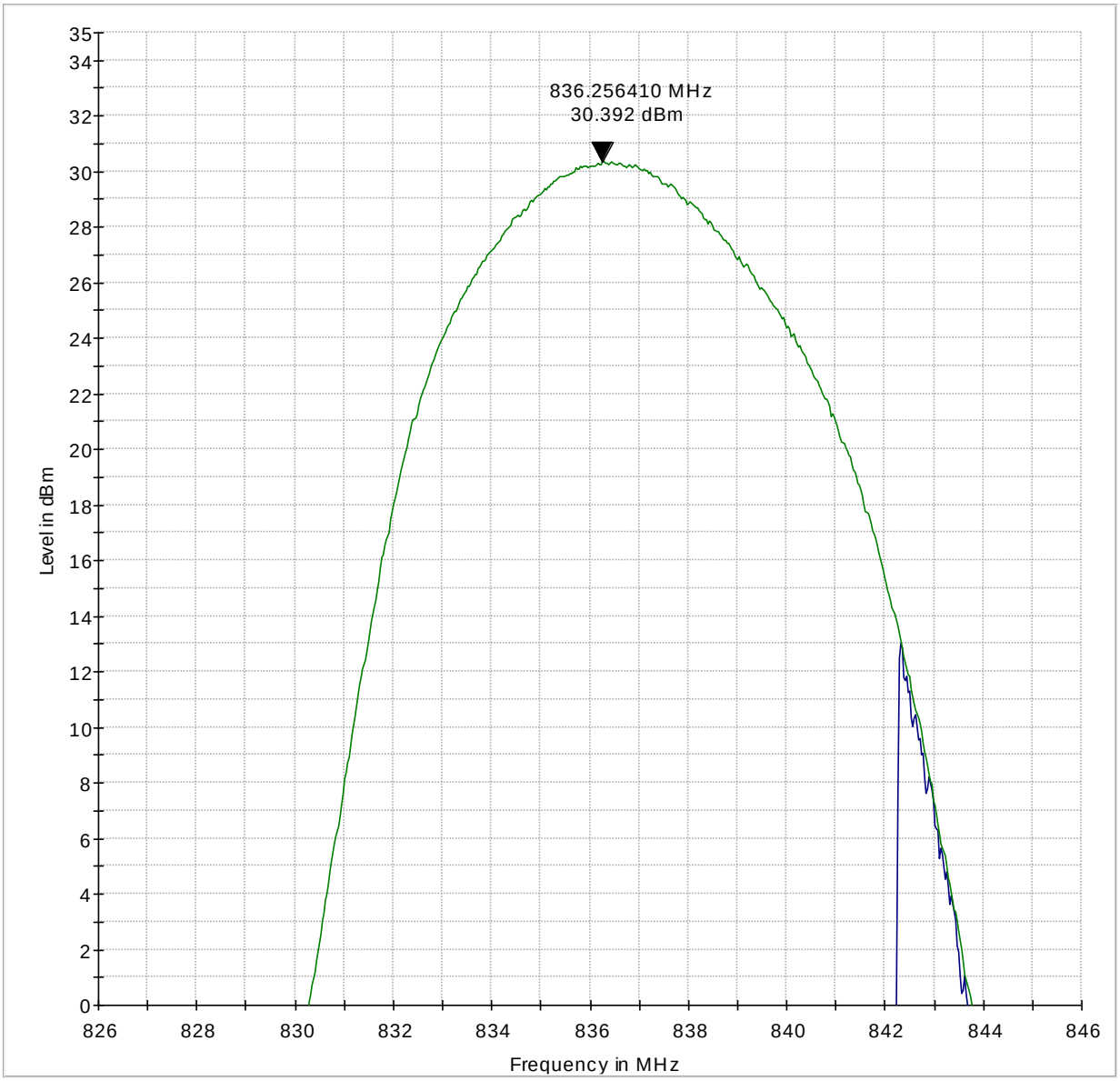
7.4.3 GSM1900 EIRP low channel:



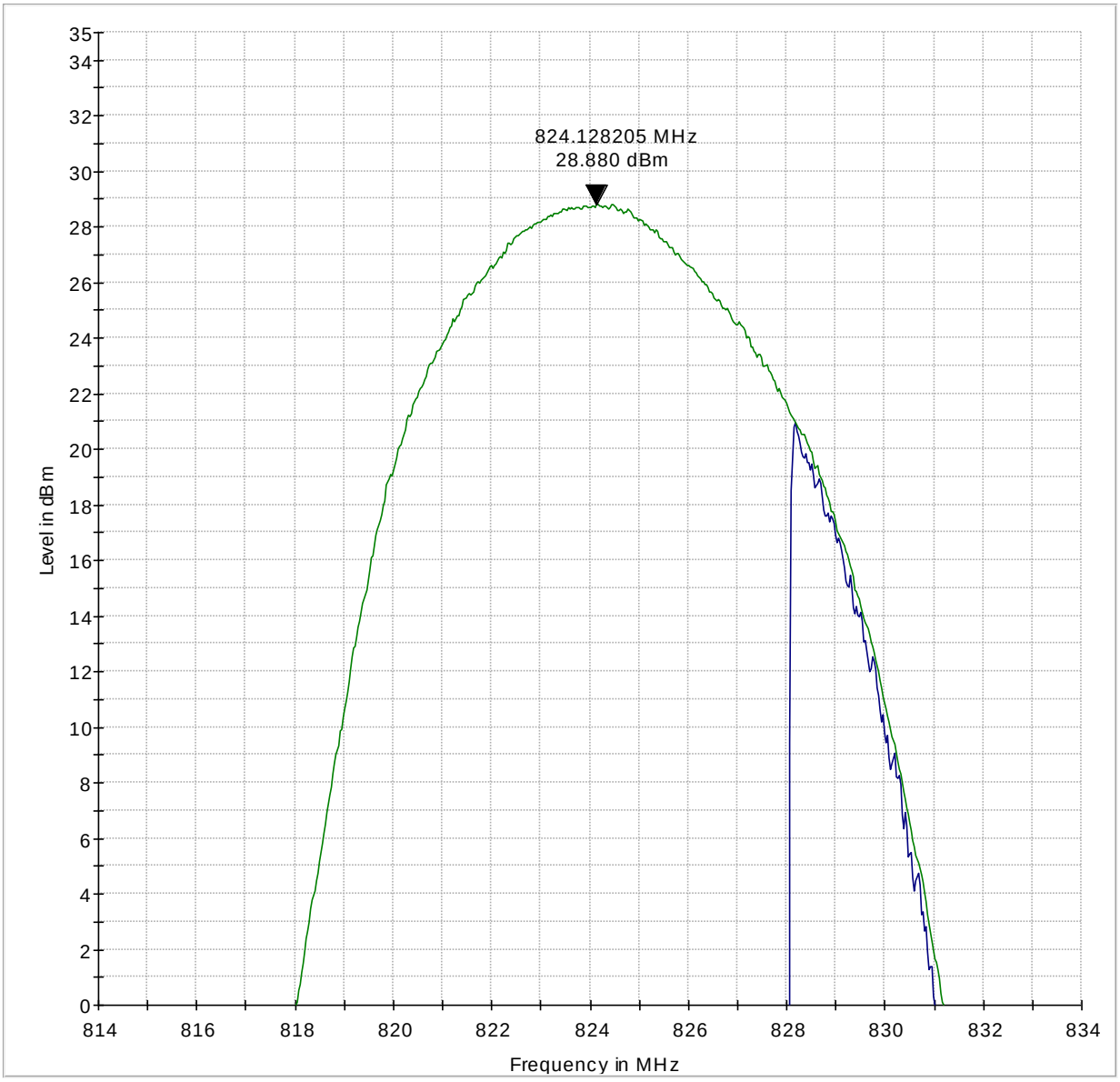
7.4.4 GSM850 ERP high channel



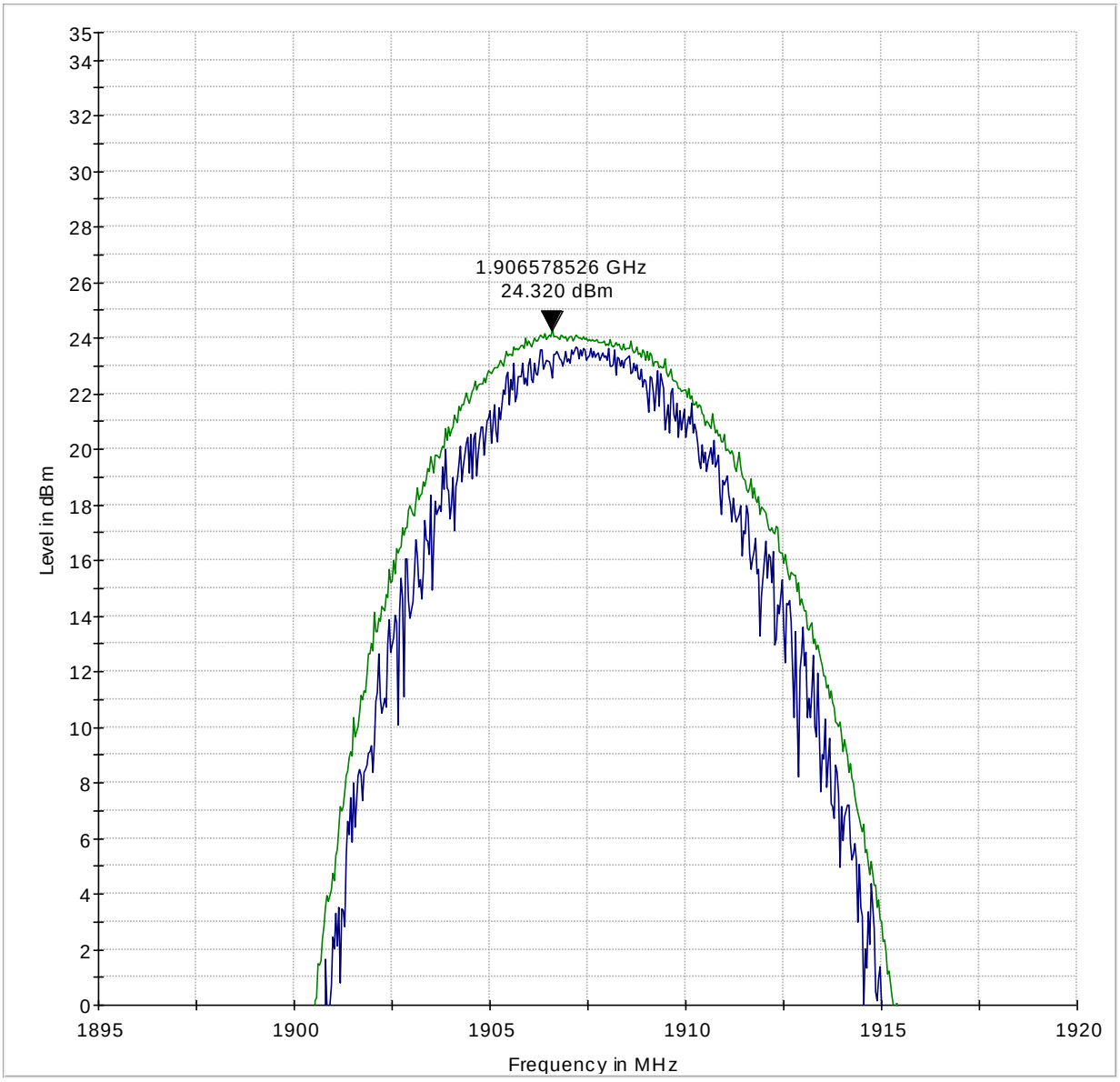
7.4.5 GSM850ERP mid channel



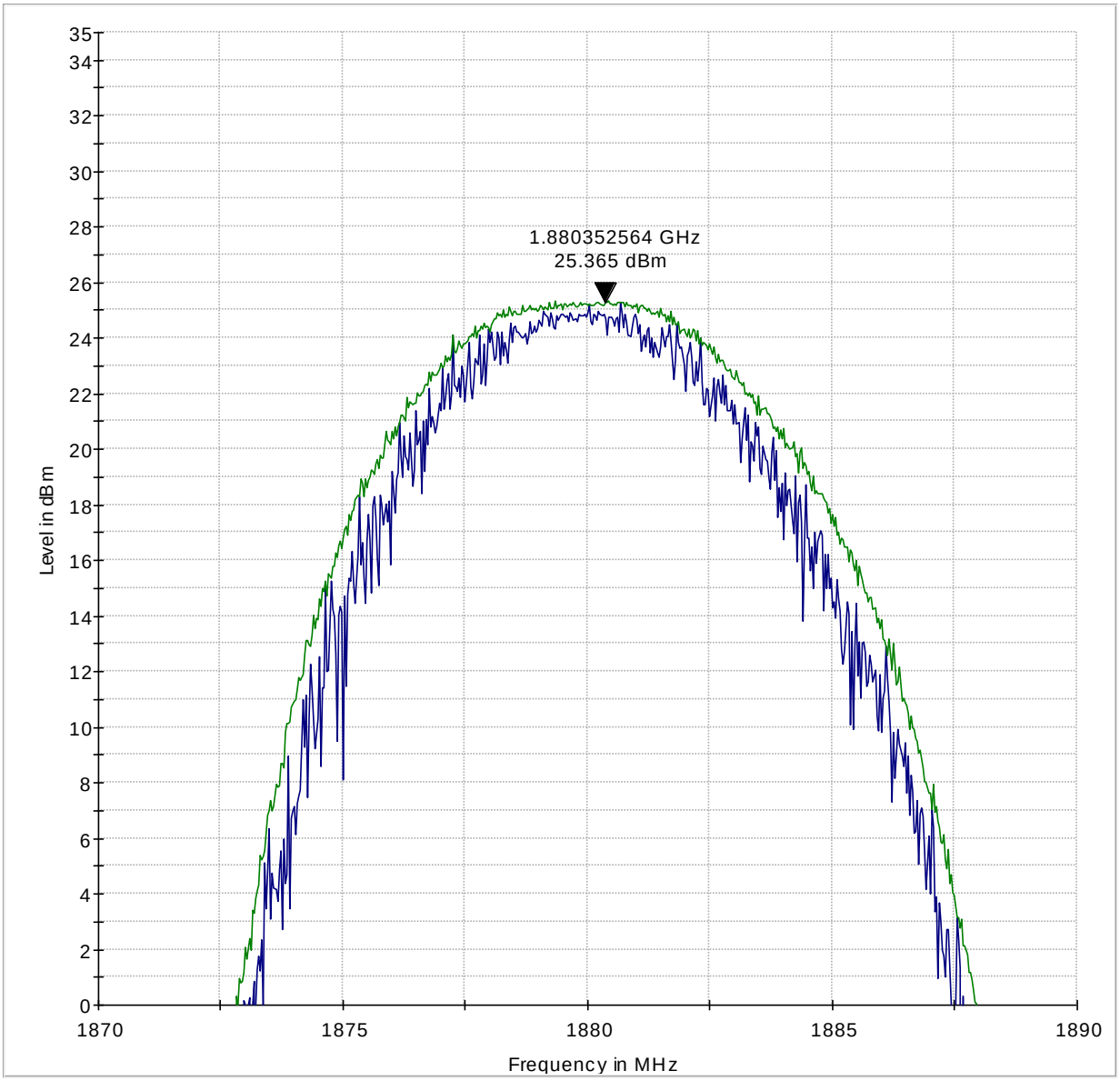
7.4.6 GSM850ERP low channel



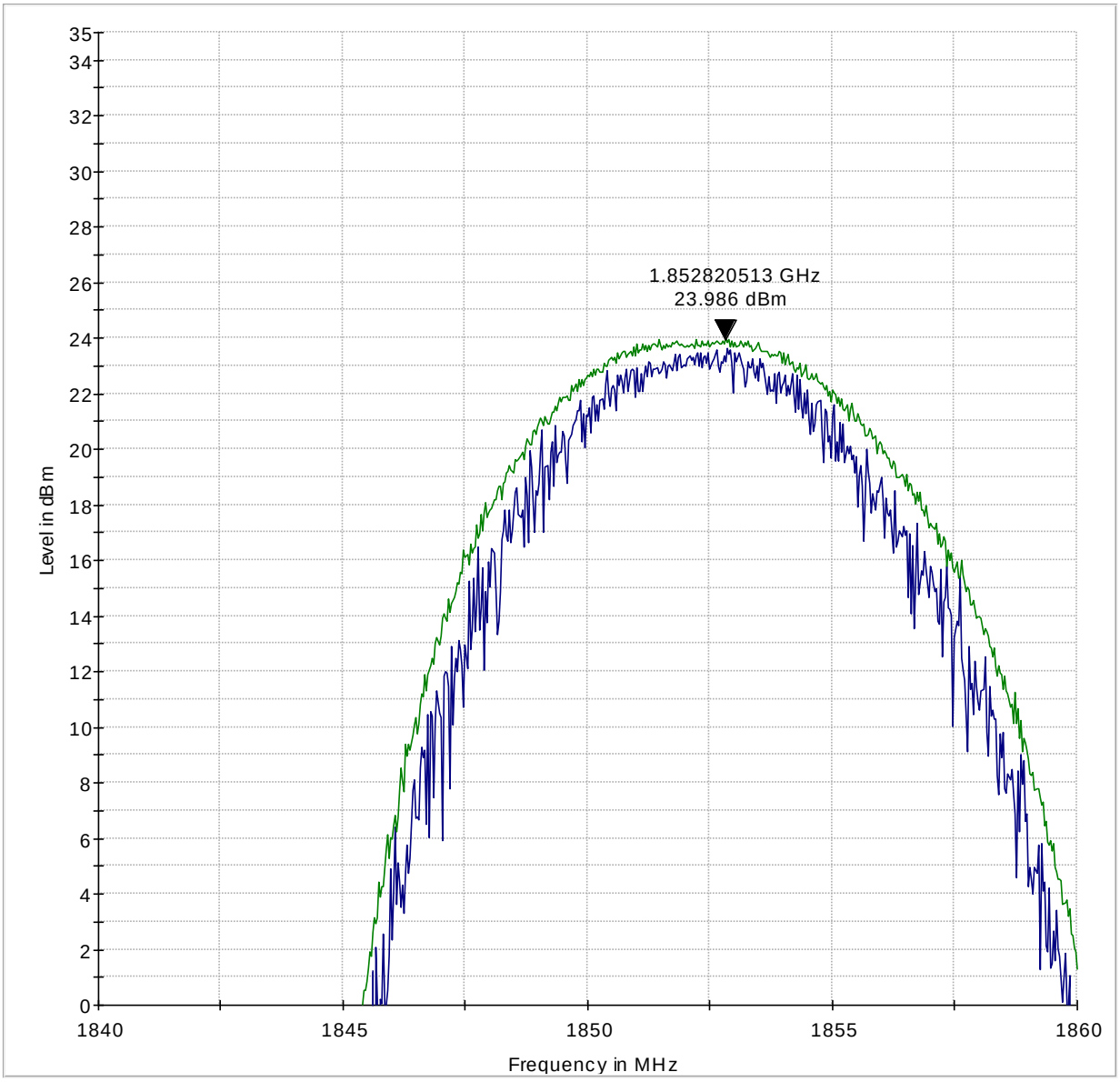
7.4.7 UMTS II EIRP high channel



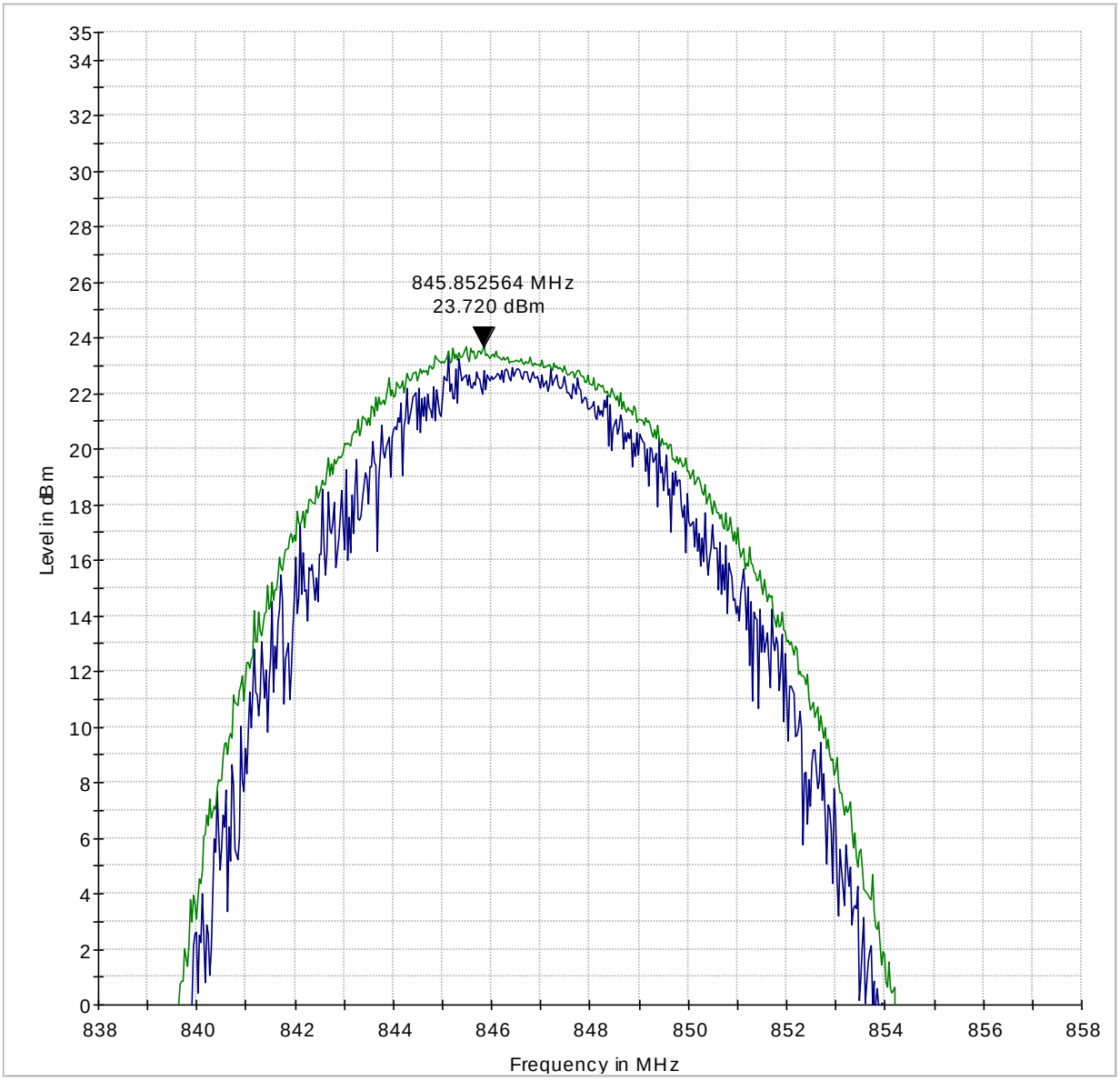
7.4.8 UMTS II EIRP mid channel



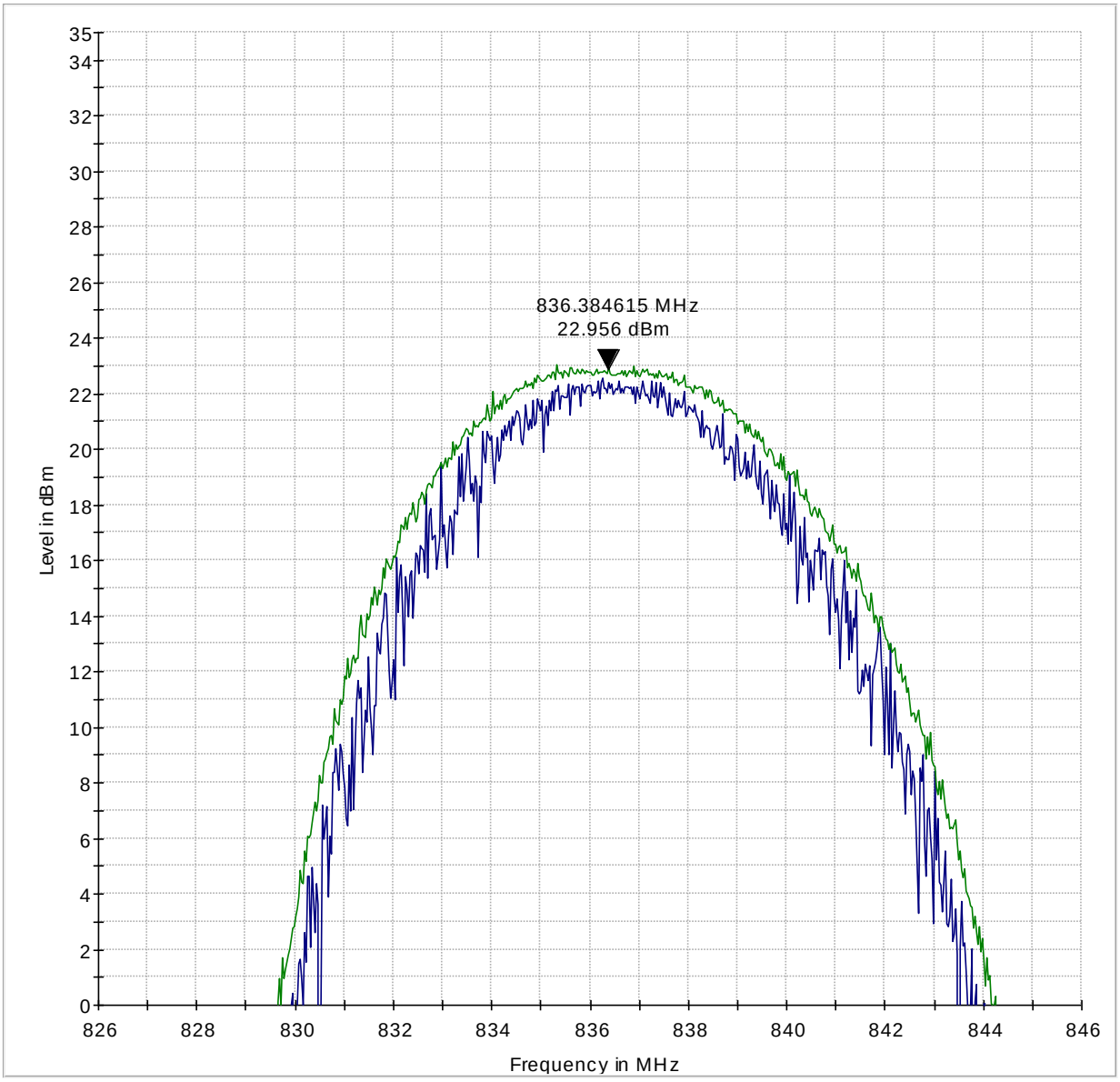
7.4.9 UMTS II EIRP low channel



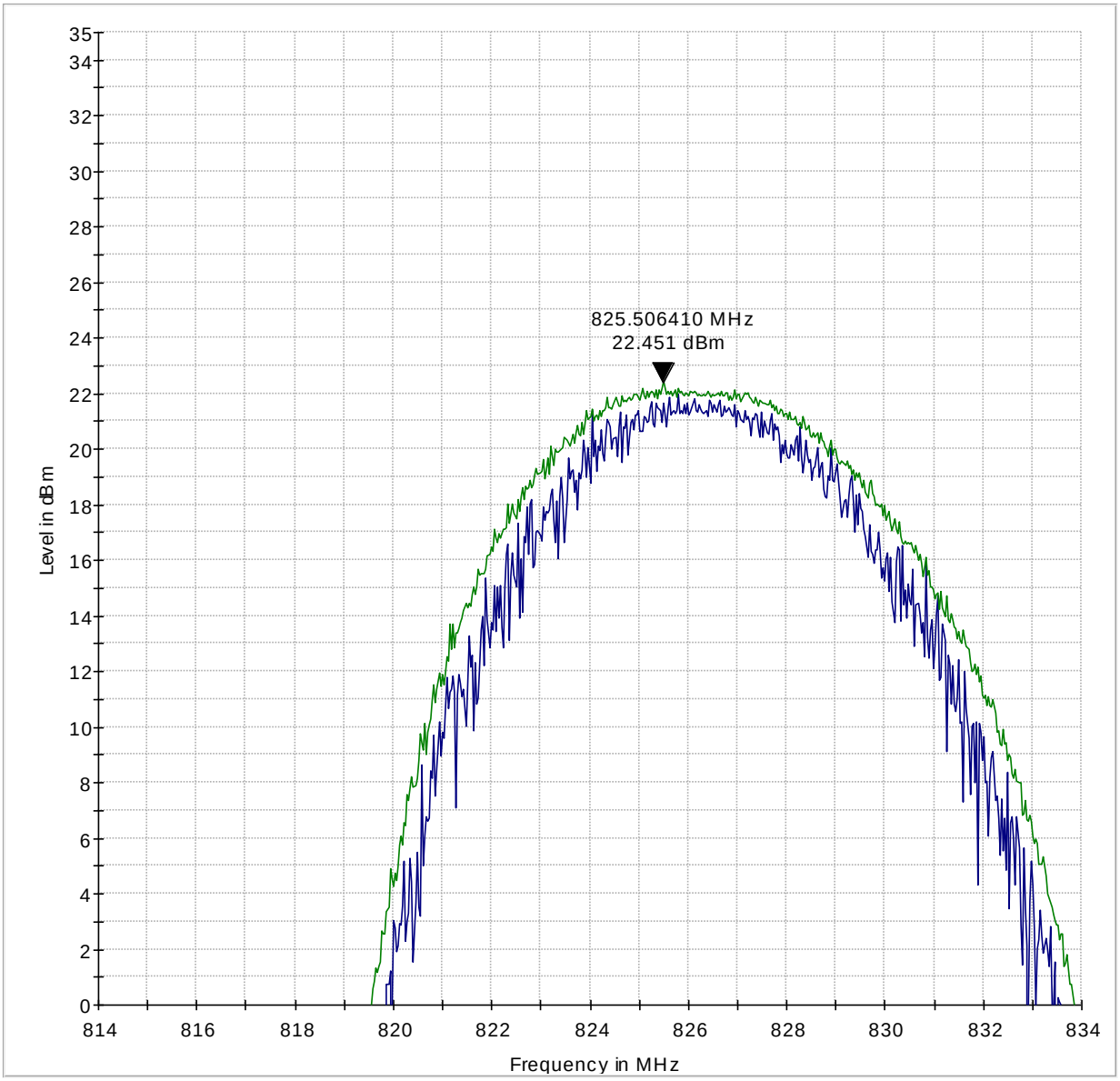
7.4.10 UMTS V ERP high channel



7.4.11 UMTS V ERP mid channel



7.4.12 UMTS V ERP low channel



8 Radiated Spurious Emissions

8.1 Reference

Measurement according to FCC: CFR 47 Part 2.1053; CFR Part 22.917; Part 24.238; Part 27.53; RSS-132 5.5; RSS-133 6.5; RSS-139 6.6, utilizing KDB 971168 D01 Power Meas License Digital Systems v02r02, and according to TIA-603C 2004- 2.2.12

Spectrum Analyzer Settings for FCC 22

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

Spectrum Analyzer Settings for FCC 24 and 27

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

8.2 Limits:

8.2.1 FCC Part 22.917 (a), Part 24.238 (a), and Part 27.53 (h)

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)

8.3 Test conditions and setup:

Ambient Temperature (C)	EUT Set-Up #	EUT Operating Mode	Power Input
22	1	GPRS class 8	03 on 850MHz, 05 on 1900MHz
22	2	UMTS RMC 12.2k	All 1

8.4 Test plan

GPRS: maximum peak power measured on class 8 GPRS according to report on file for FCC-ID.

UMTS: maximum peak power measured on RMC12.2k according to report on file for FCC-ID.

Frequencies below 30MHz and frequencies above 18GHz have only been investigated for mid channel. For the frequency range between 1GHz and 18GHz low mid and high channel have been investigated.

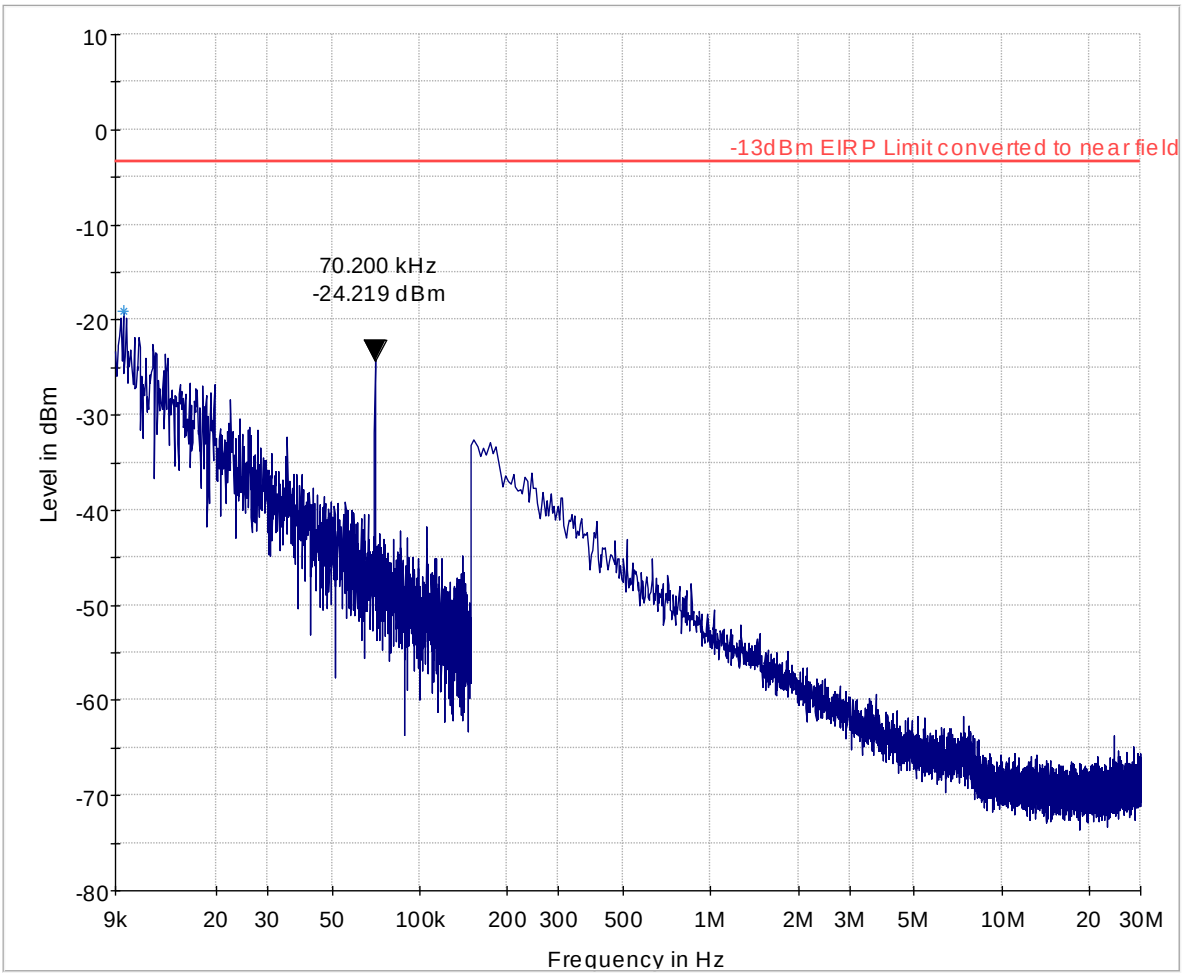
8.5 Summary Measurement result:

Channel	EUT Operating Mode	Scan Frequency	Limit [dBm]	Result	Frequency of highest emission [MHz]	Highest Emission [dBm]
Mid	WCDMA II RMC 12.2k	9kHz – 30MHz	-13	Pass	0.701	-24.2
Low	WCDMA II RMC 12.2k	30MHz – 1 GHz	-13	Pass		NF
Mid	WCDMA II RMC 12.2k	30MHz – 1 GHz	-13	Pass		NF
High	WCDMA II RMC 12.2k	30MHz – 1 GHz	-13	Pass		NF
Low	WCDMA II RMC 12.2k	1GHz – 18GHz	-13	Pass	3700	-51.3
Mid	WCDMA II RMC 12.2k	1GHz – 18GHz	-13	Pass		NF
High	WCDMA II RMC 12.2k	1GHz – 18GHz	-13	Pass	3817	-49.5
Mid	WCDMA II RMC 12.2k	18GHz – 22GHz	-13	Pass		NF
Mid	WCDMA V RMC 12.2k	9kHz – 30MHz	-13	Pass	0.701	-24.6
Low	WCDMA V RMC 12.2k	30MHz – 1 GHz	-13	Pass		NF
Mid	WCDMA V RMC 12.2k	30MHz – 1 GHz	-13	Pass		NF
High	WCDMA V RMC 12.2k	30MHz – 1 GHz	-13	Pass		NF
Low	WCDMA V RMC 12.2k	1GHz – 9GHz	-13	Pass		NF
Mid	WCDMA V RMC 12.2k	1GHz – 9GHz	-13	Pass		NF
High	WCDMA V RMC 12.2k	1GHz – 9GHz	-13	Pass		NF
Mid	GPRS 1900 class8	9kHz – 30MHz	-13	Pass	0.701	-25.0
Low	GPRS 1900 class8	30MHz – 1 GHz	-13	Pass		-49.0
Mid	GPRS 1900 class8	30MHz – 1 GHz	-13	Pass		NF
High	GPRS 1900 class8	30MHz – 1 GHz	-13	Pass	877	-36.4
Low	GPRS 1900 class8	1GHz – 18GHz	-13	Pass		NF
Mid	GPRS 1900 class8	1GHz – 18GHz	-13	Pass		NF
High	GPRS 1900 class8	1GHz – 18GHz	-13	Pass		NF
Mid	GPRS 1900 class8	18GHz – 22GHz	-13	Pass	18256	-33.4
Mid	GPRS 850 class8	9kHz – 30MHz	-13	Pass	0.701	-24.7
Low	GPRS 850 class8	30MHz – 1 GHz	-13	Pass	220	-65.0
Mid	GPRS 850 class8	30MHz – 1 GHz	-13	Pass	220	-65.0
High	GPRS 850 class8	30MHz – 1 GHz	-13	Pass	220	-65.0
Low	GPRS 850 class8	1GHz – 9GHz	-13	Pass		NF
Mid	GPRS 850 class8	1GHz – 9GHz	-13	Pass	1673	-43.8
High	GPRS 850 class8	1GHz – 9GHz	-13	Pass		NF

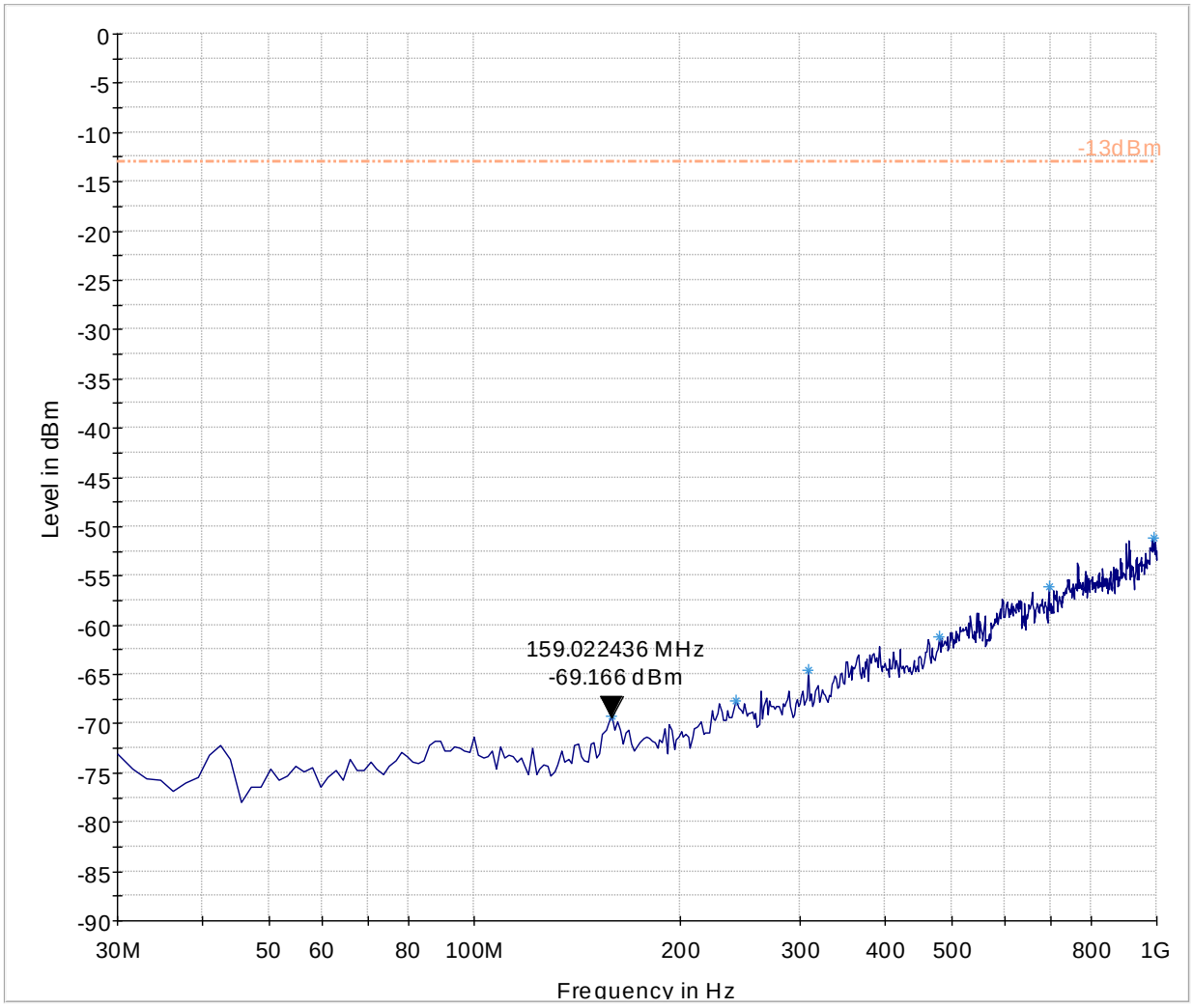
NF – Noise Floor

8.6 Measurement Plots WCDMA/UMTS FDD II

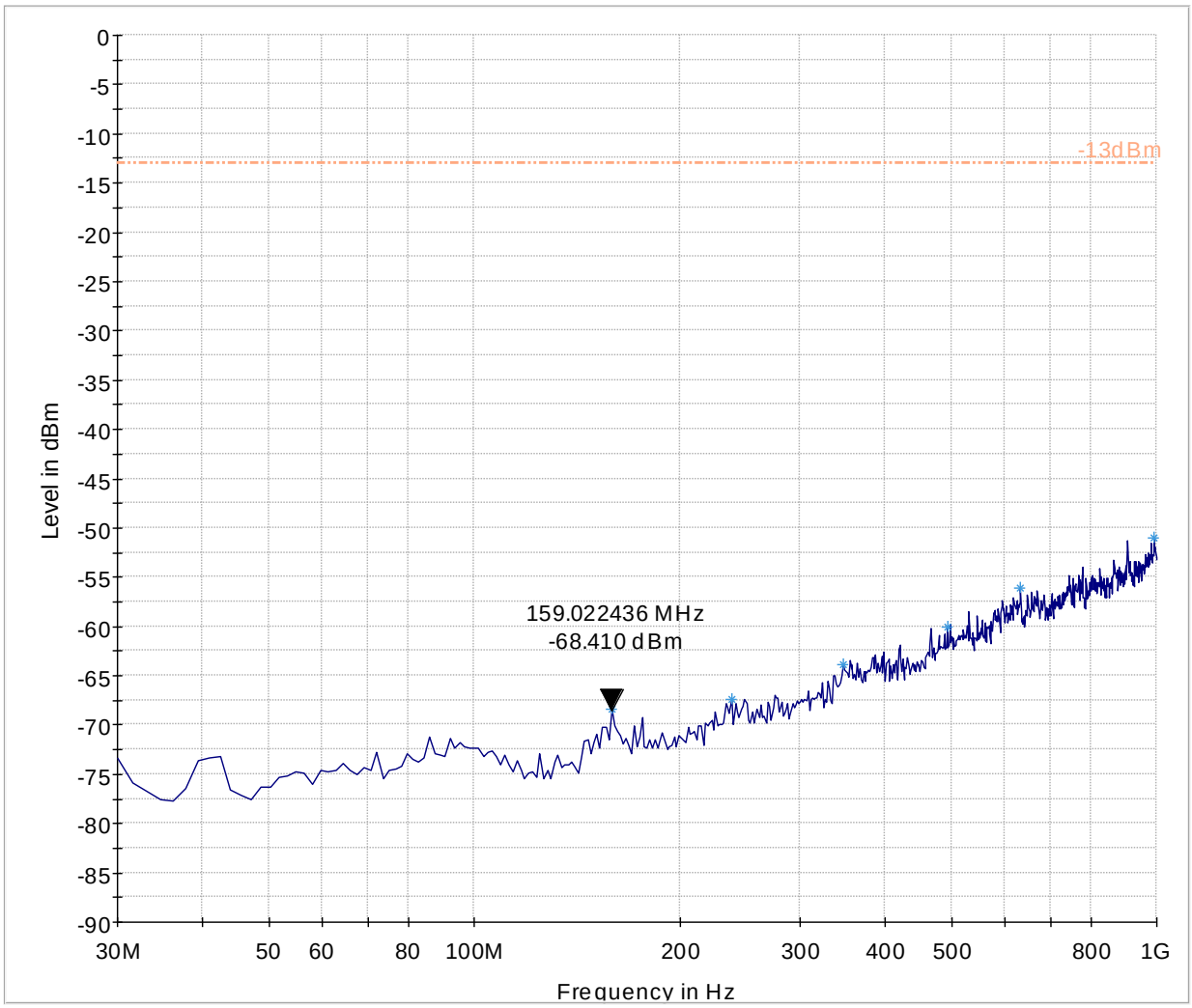
8.6.1 9 kHz – 30MHzHz, Ch. mid



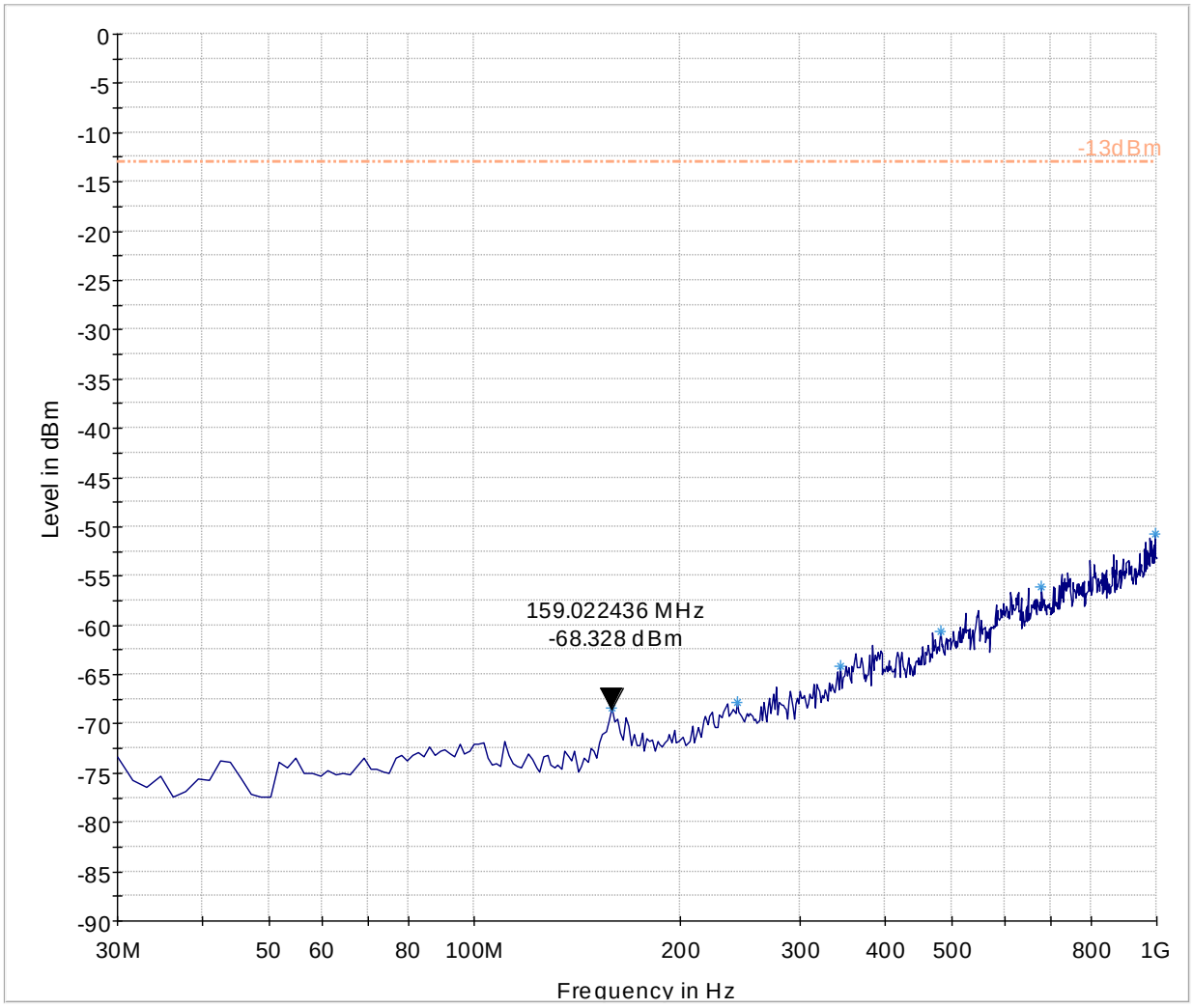
8.6.2 30MHz - 1GHz, Ch. Low



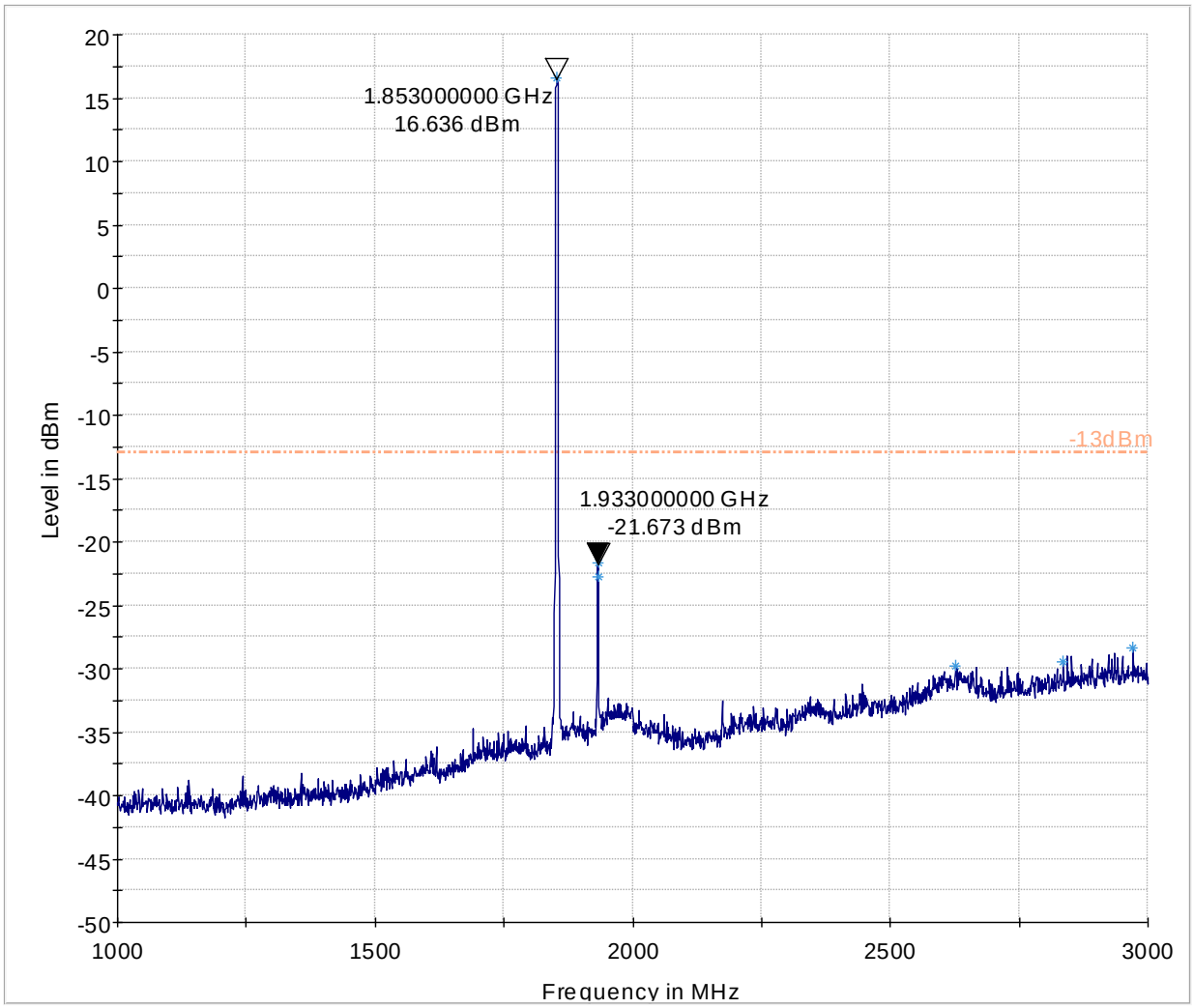
8.6.3 30MHz - 1GHz, Ch. Mid



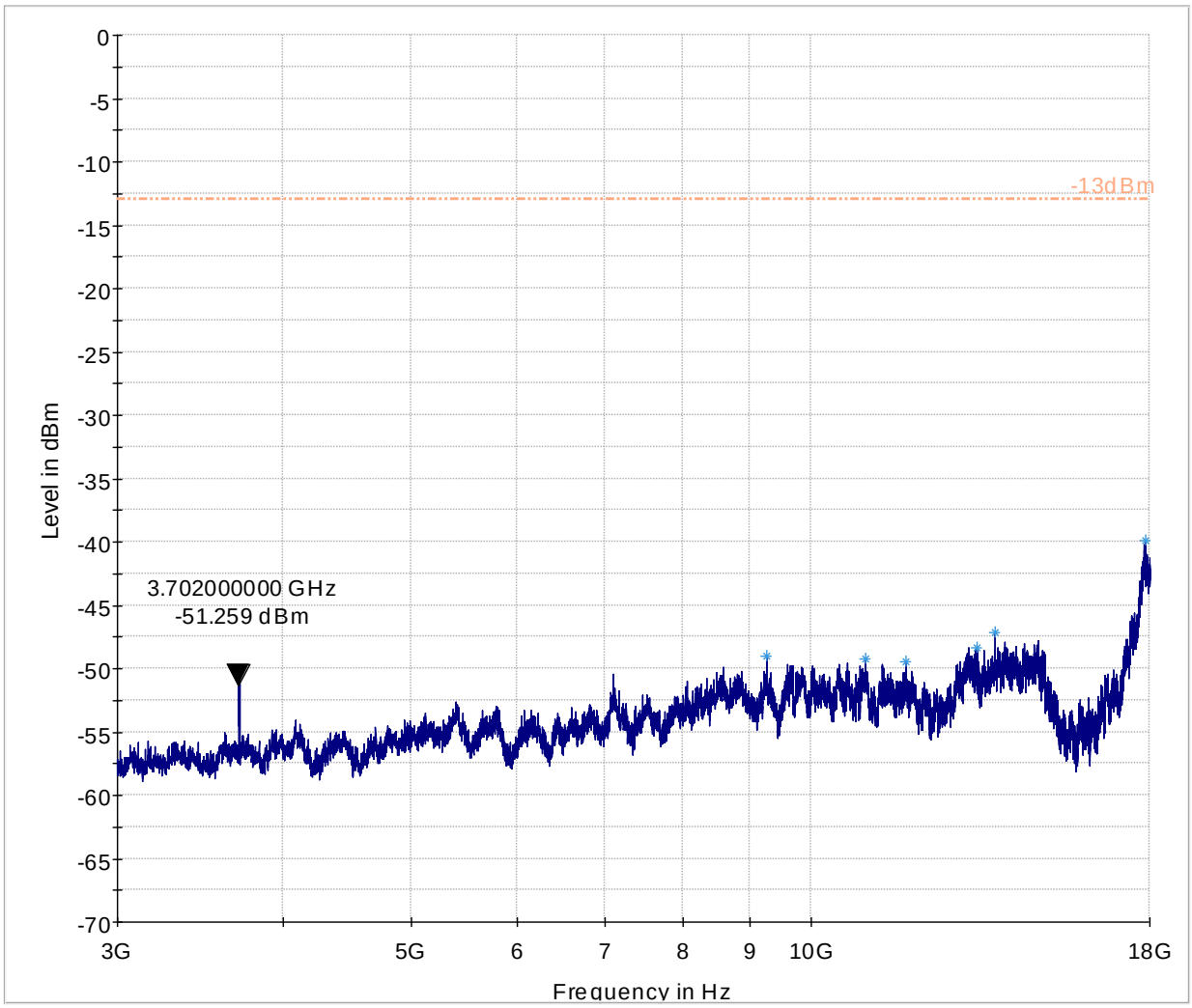
8.6.4 30MHz - 1GHz, Ch. High



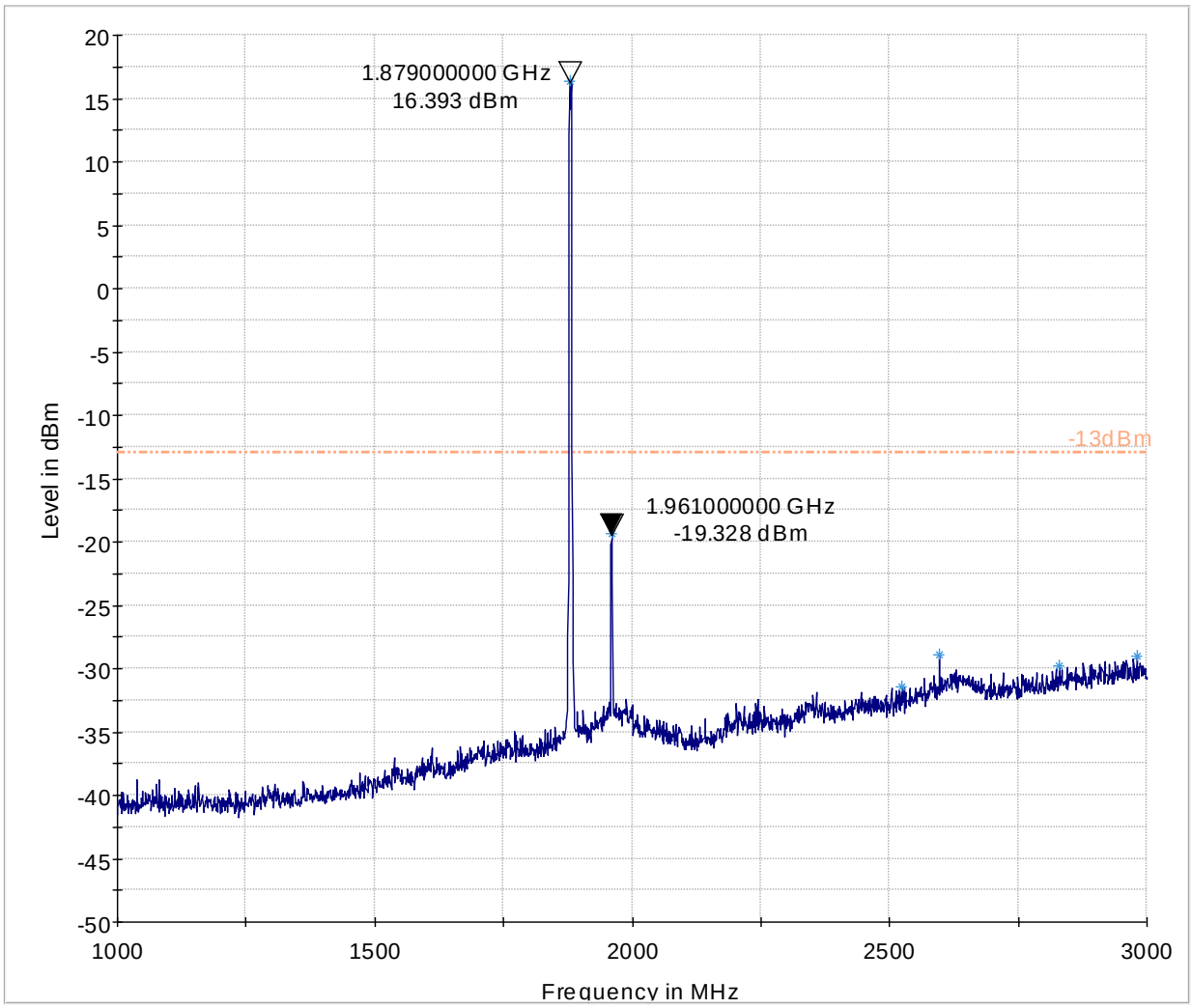
8.6.5 1 - 3GHz, Ch. Low



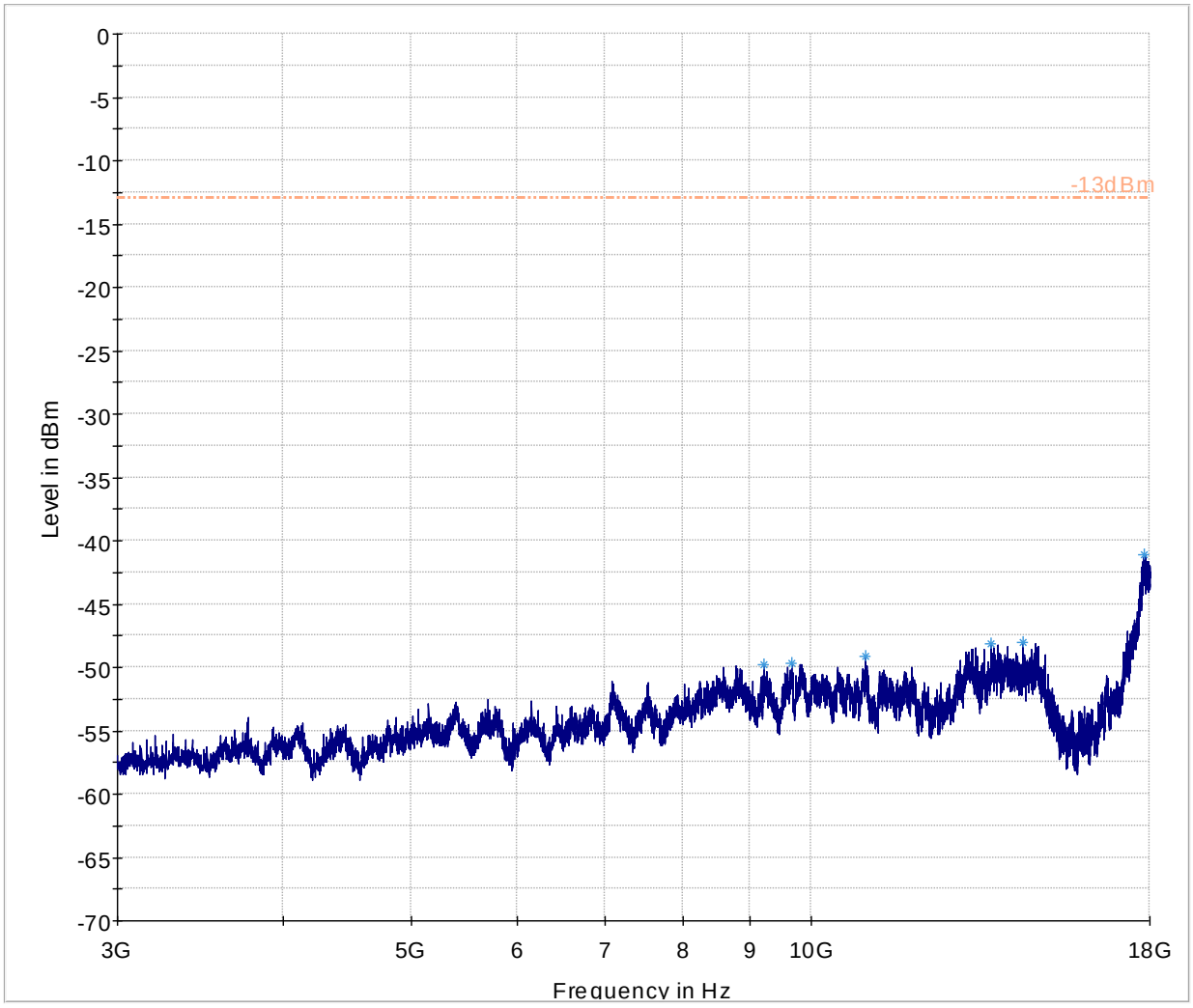
8.6.6 3GHz – 18GHz, Ch. Low



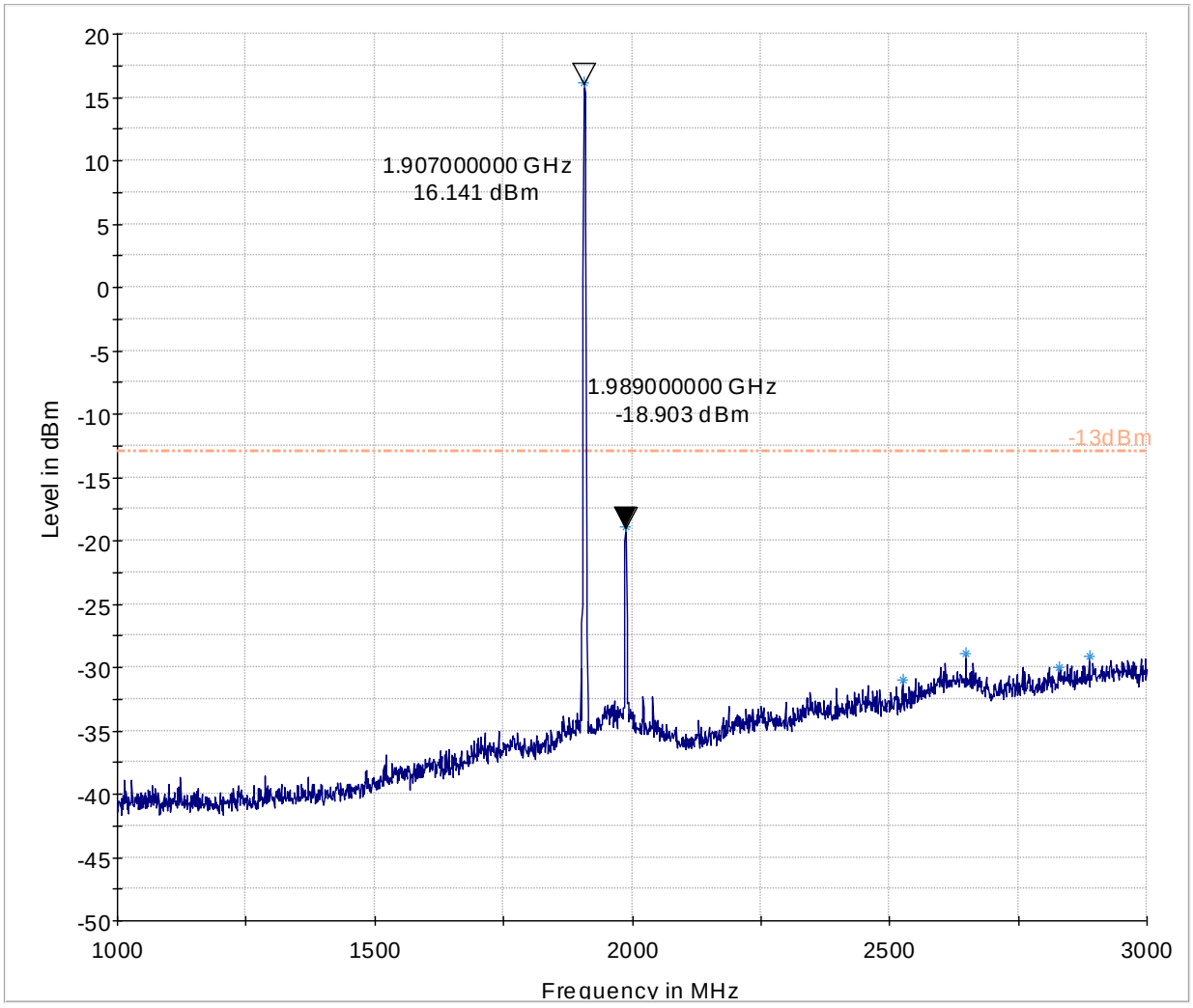
8.6.7 1GHz - 3GHz, Ch. Mid



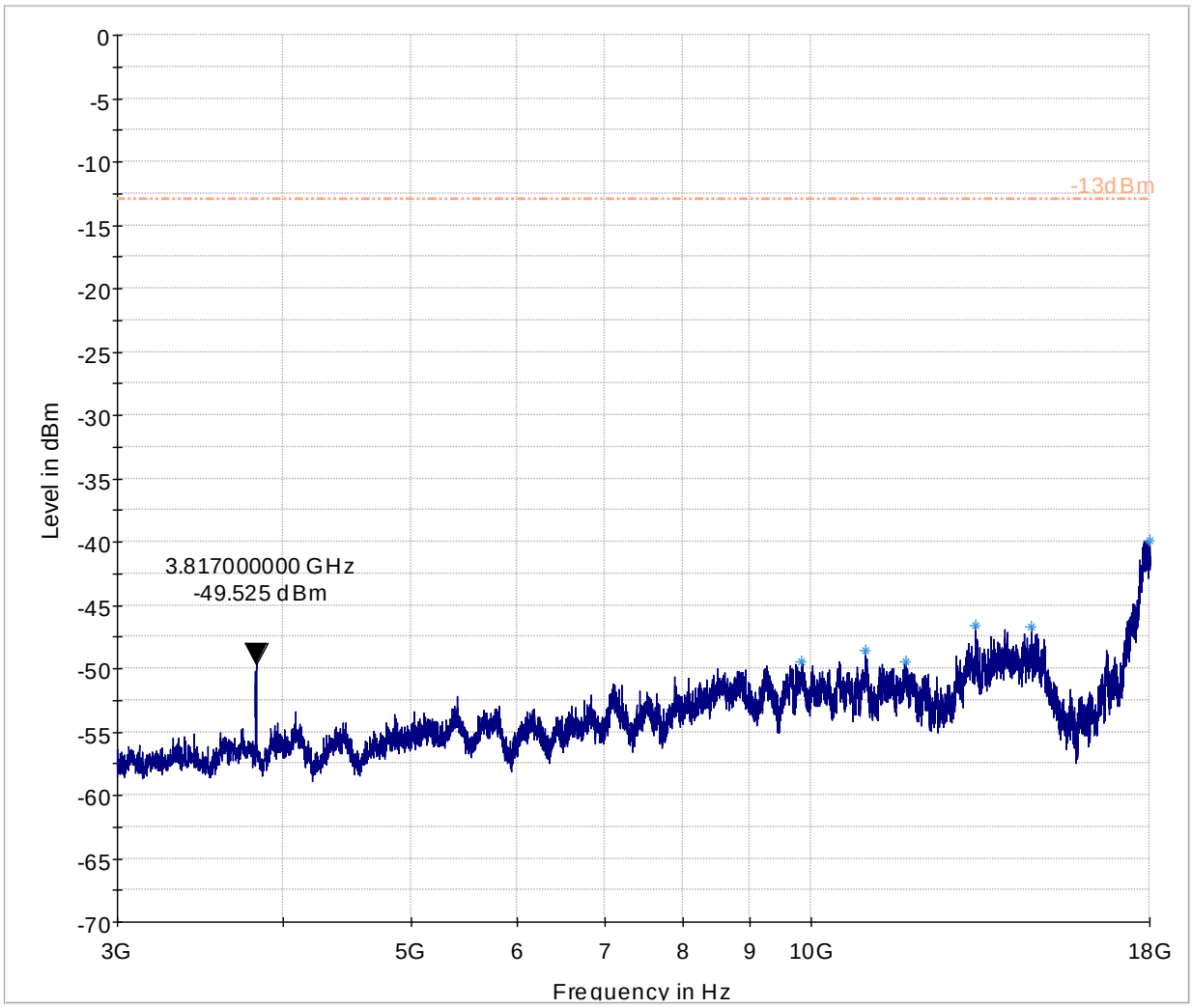
8.6.8 3GHz - 18GHz, Ch. Mid



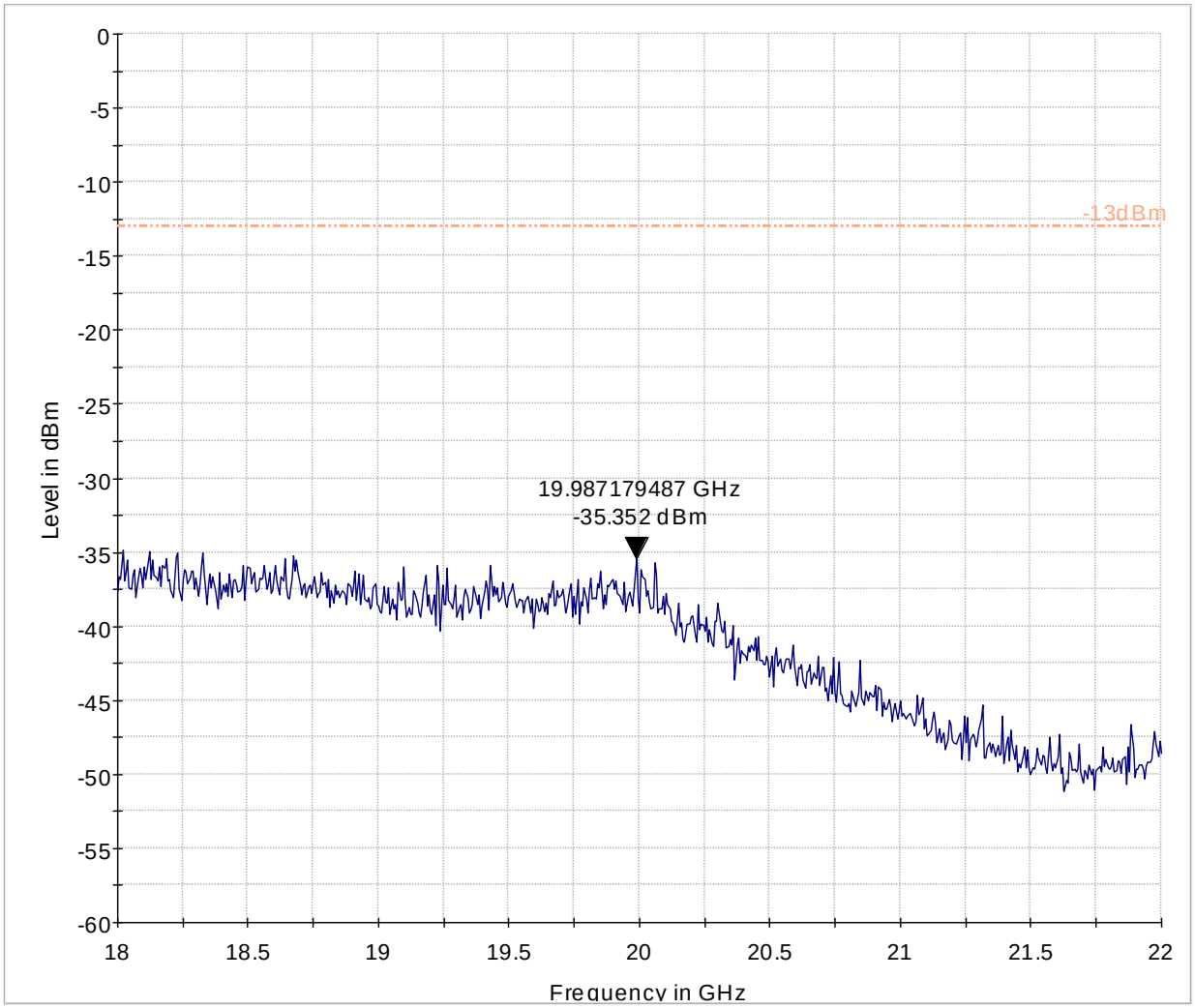
8.6.9 1GHz - 3GHz, Ch. High



8.6.10 3GHz - 18GHz, Ch. High

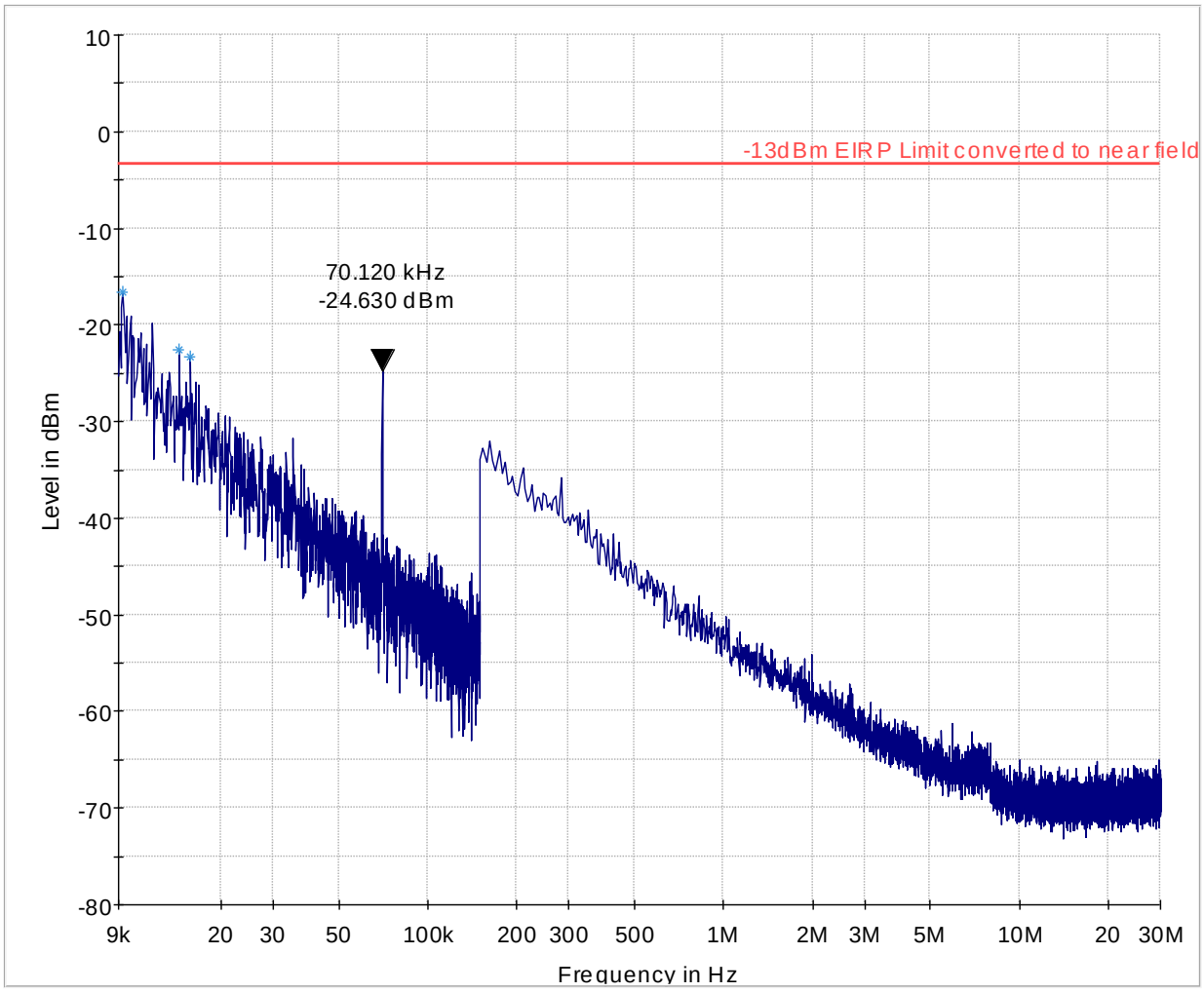


8.6.11 18 - 22 GHz, Ch. Mid

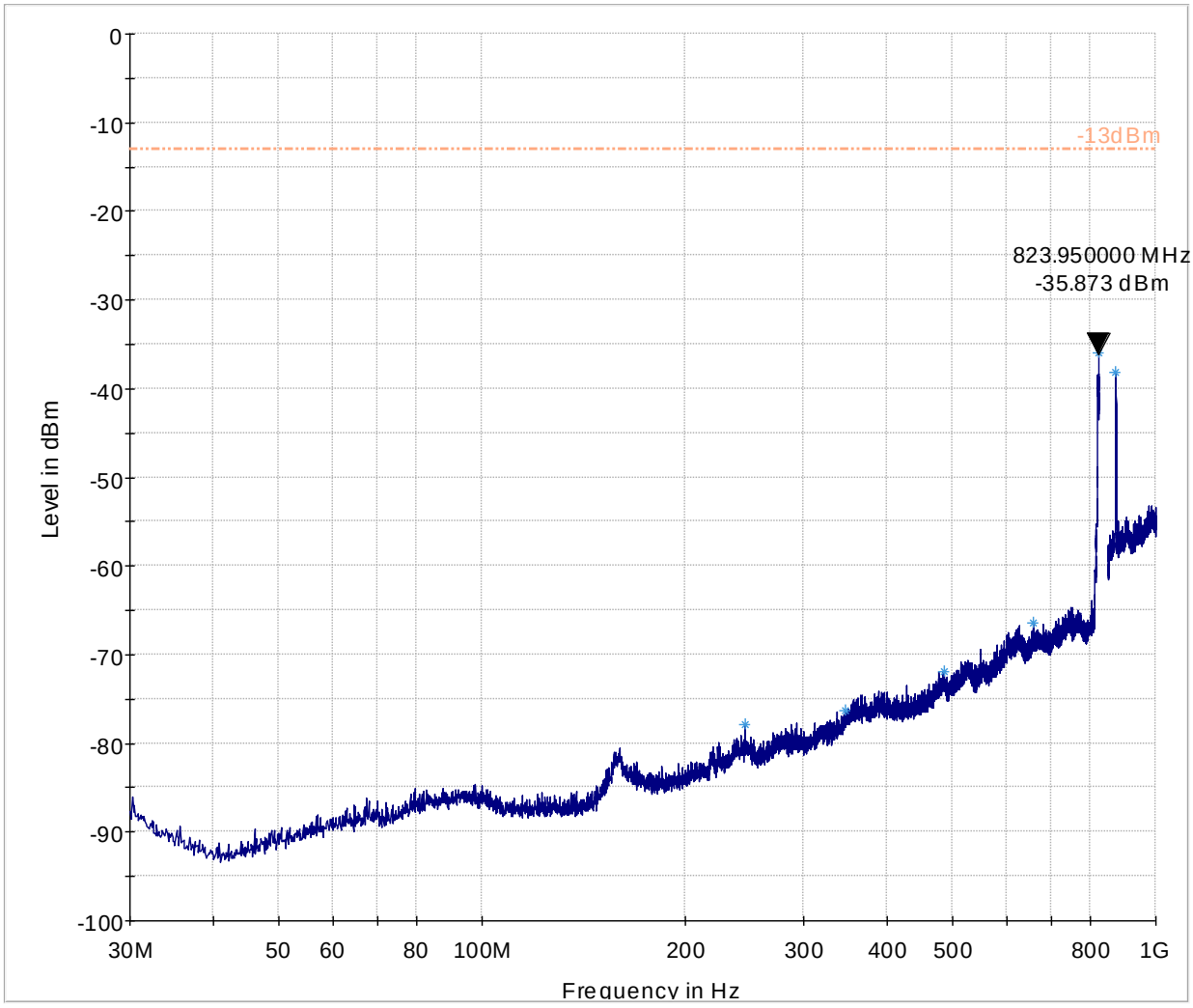


8.7 Measurement Plots WCDMA/UMTS FDD V:

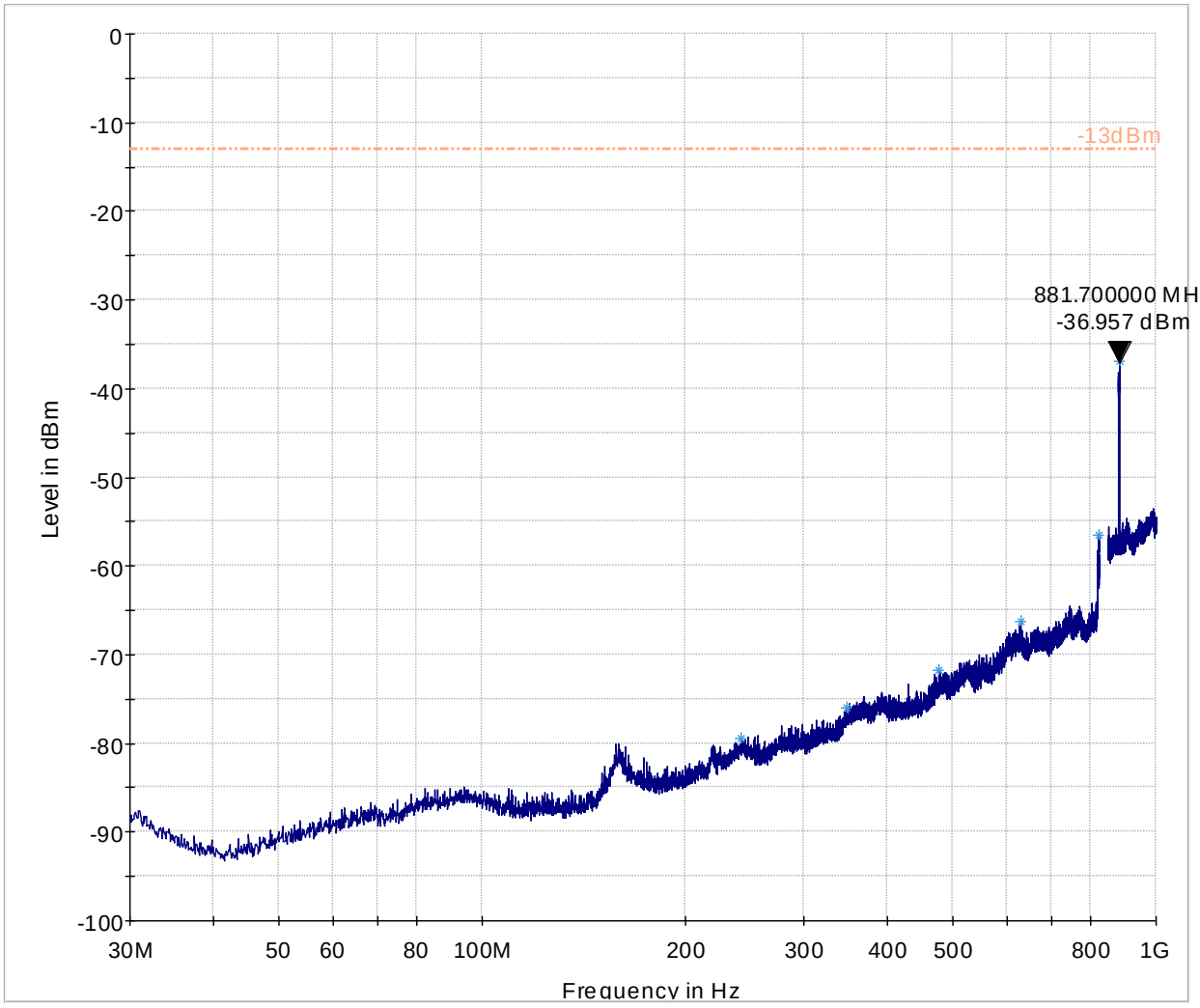
8.7.1 9kHz – 30MHz, Ch. mid



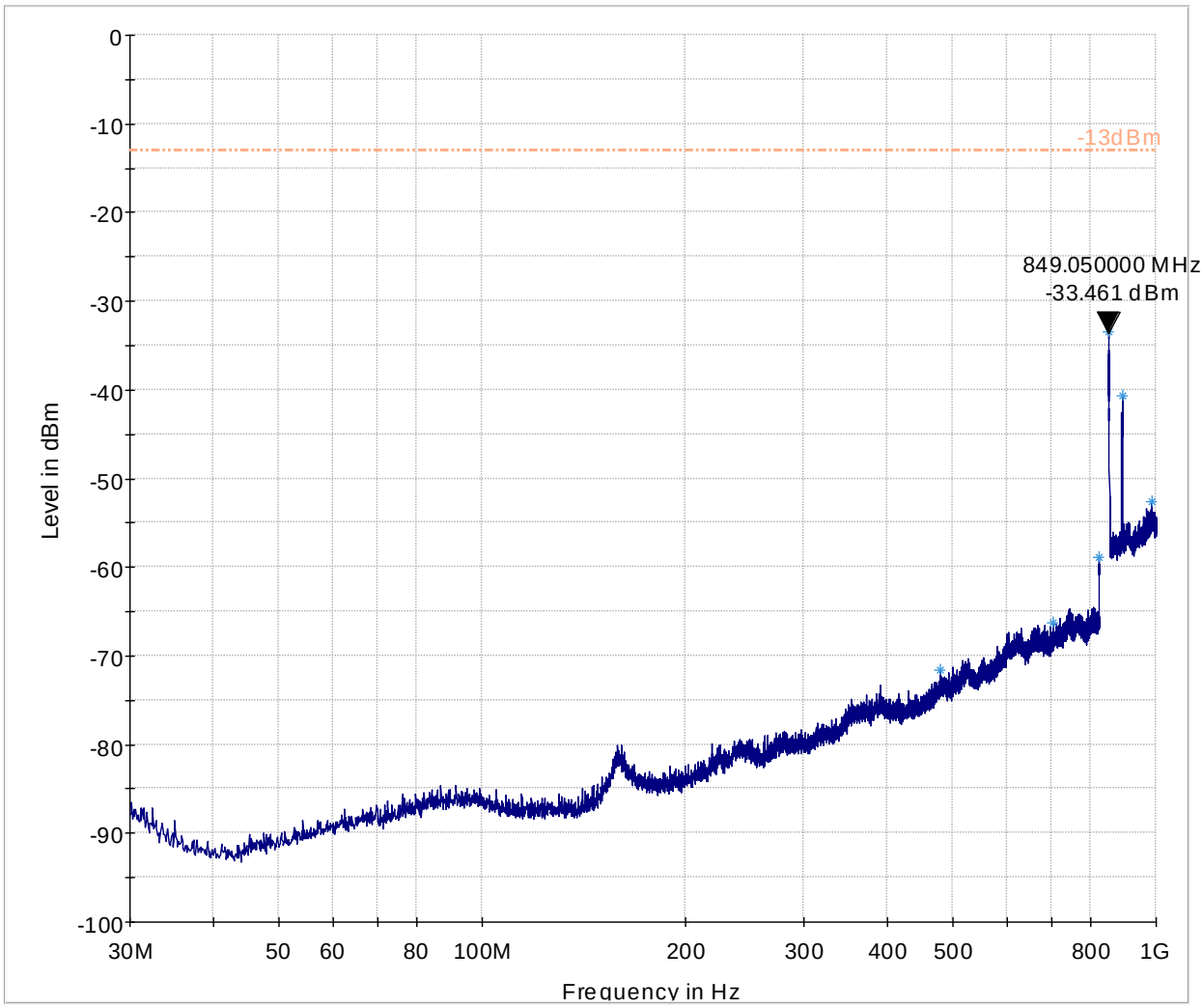
8.7.2 30 MHz – 1 GHz, Ch. Low



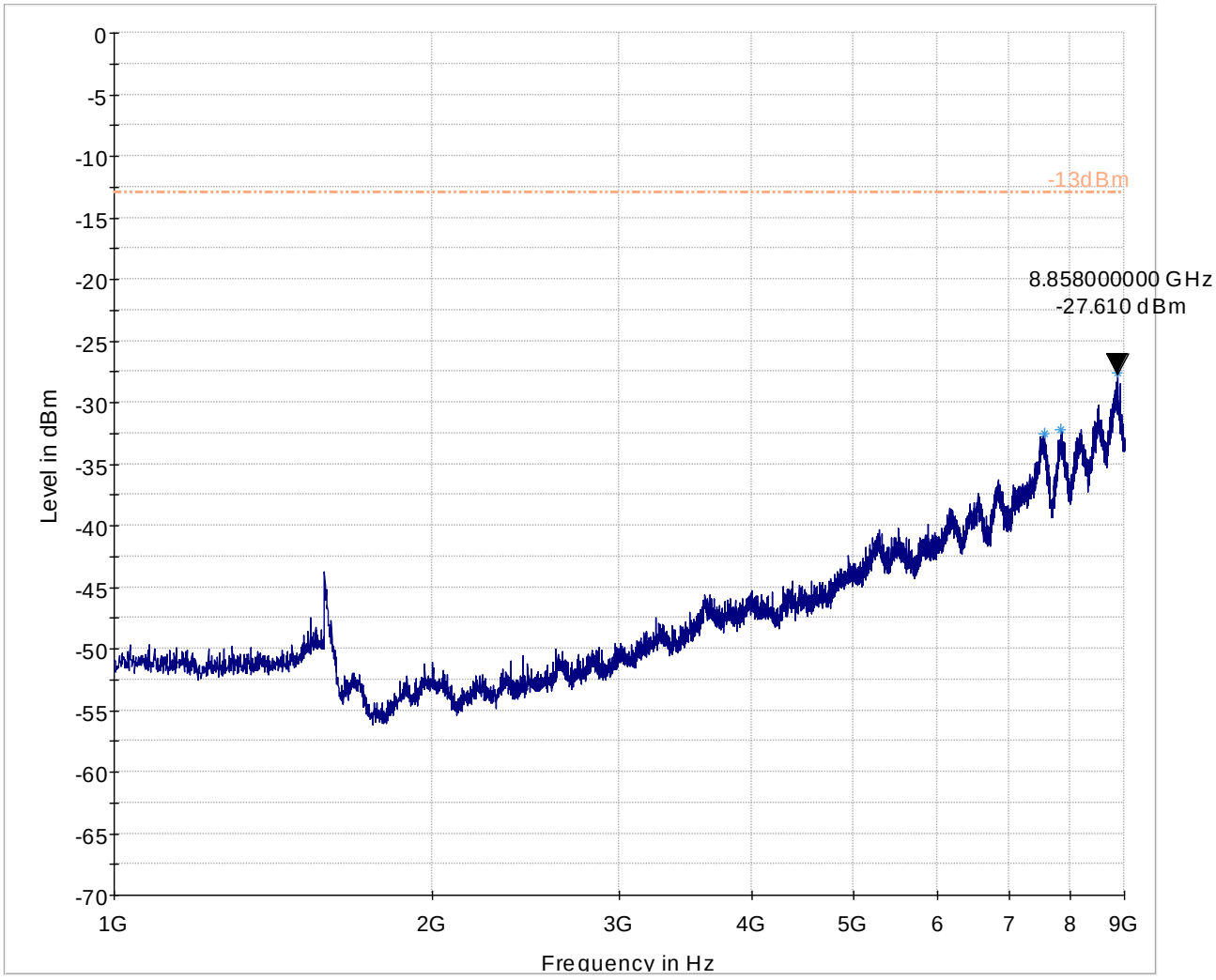
8.7.3 30 MHz – 1 GHz, Ch. Mid



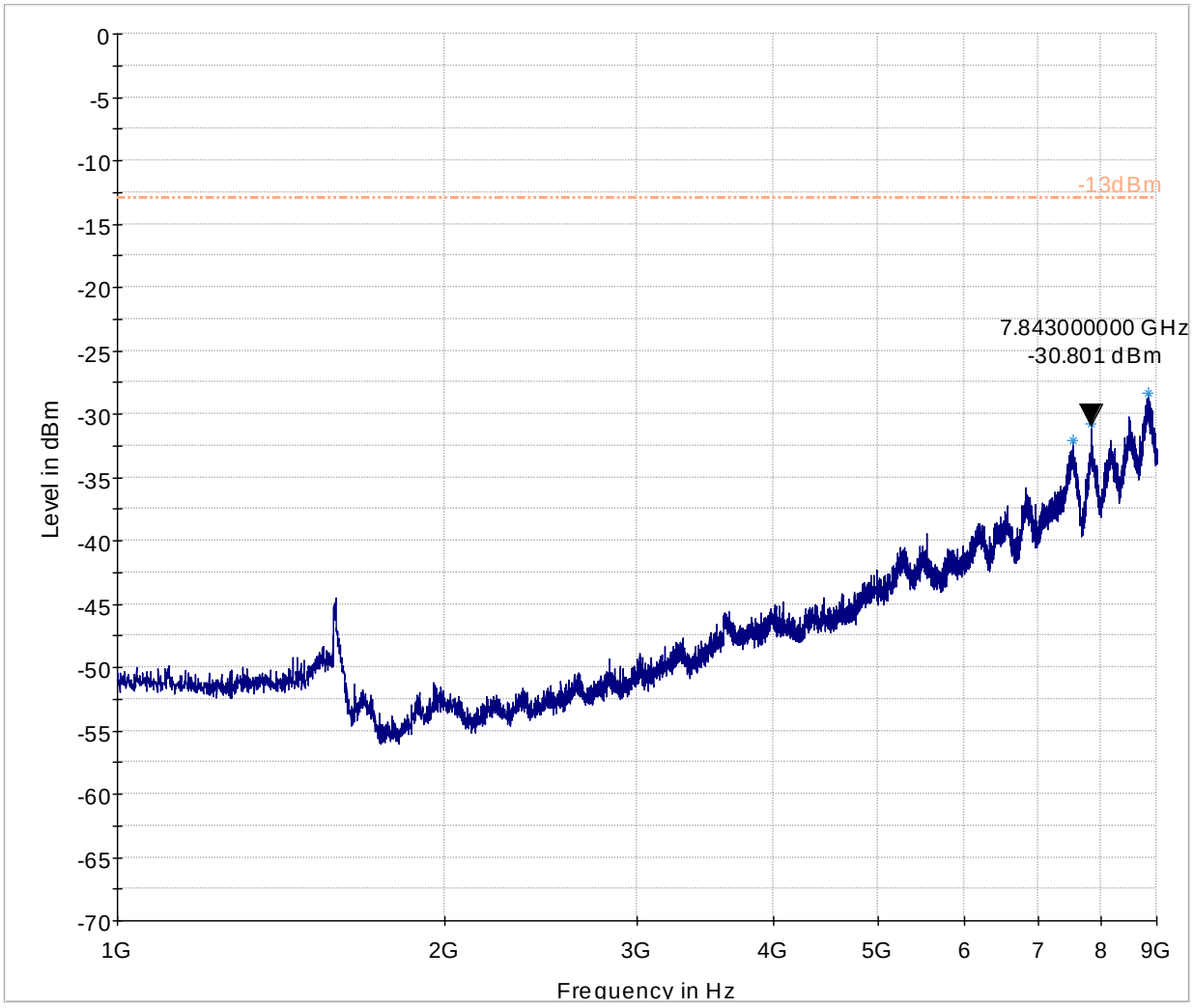
8.7.4 30 MHz – 1 GHz, Ch. High



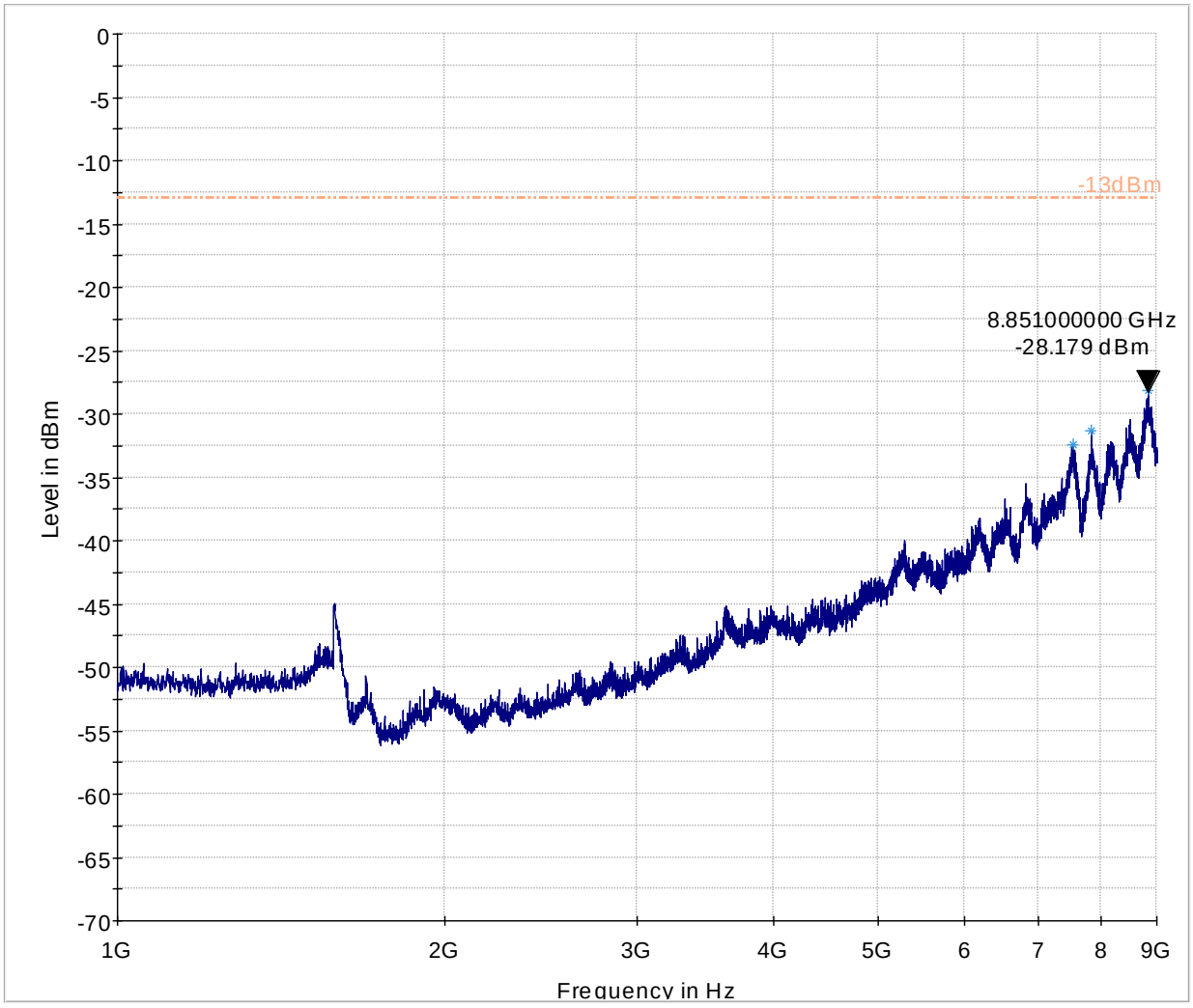
8.7.5 1 GHz – 9 GHz, Ch. Low



8.7.6 1 GHz – 9 GHz, Ch. Mid

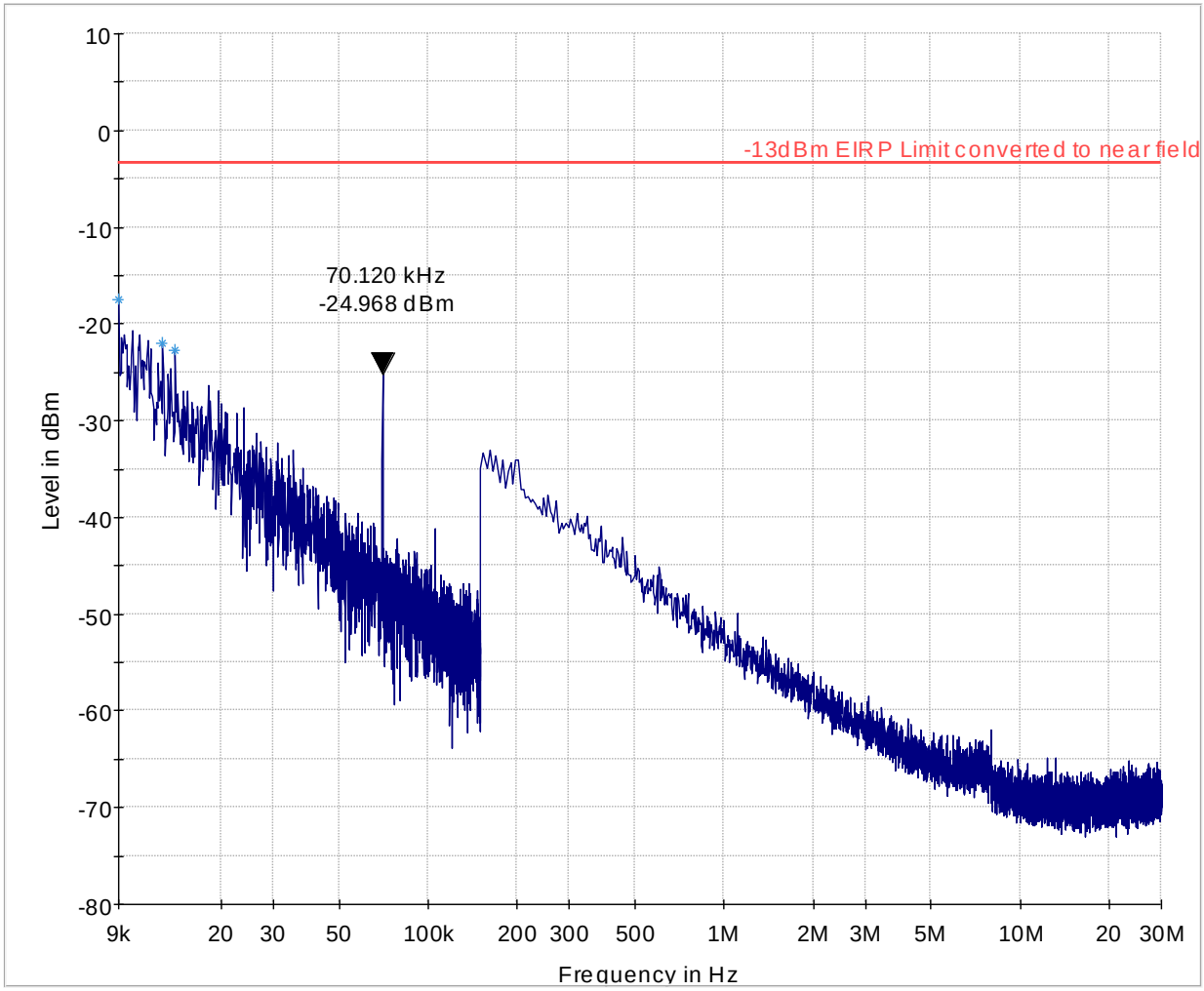


8.7.7 1 GHz – 9 GHz, Ch. High

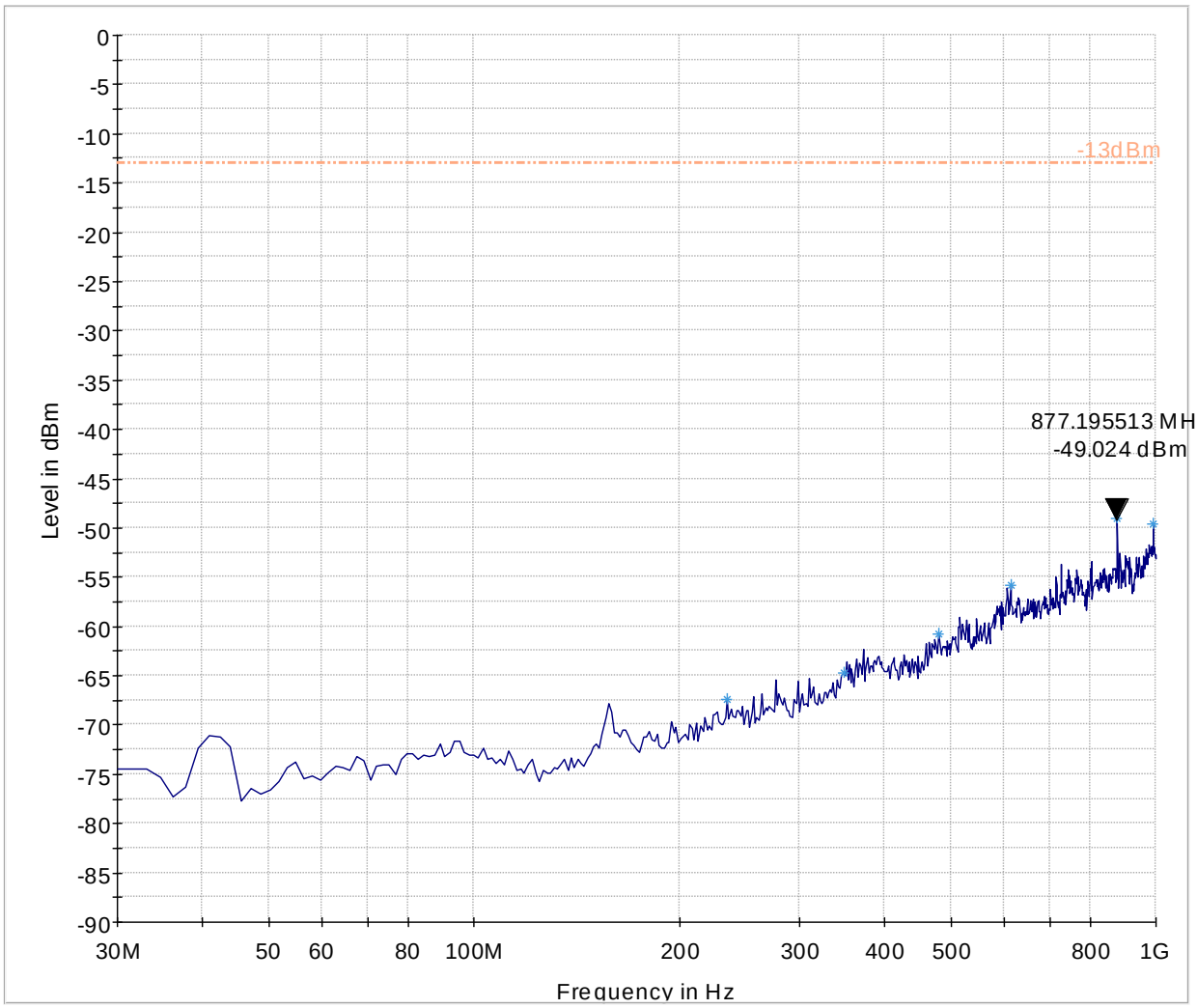


8.8 Measurement Plots GPRS1900 (class8):

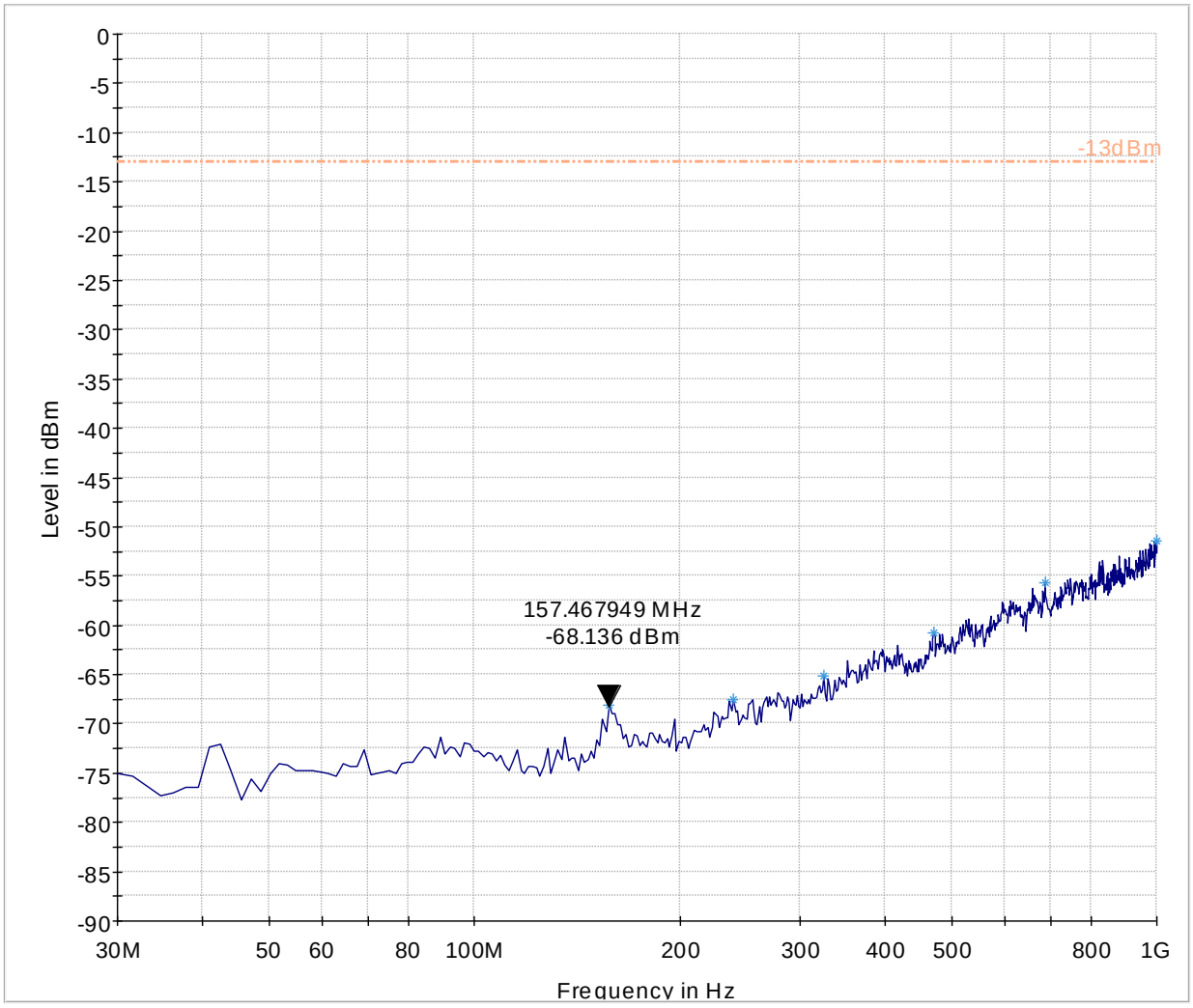
8.8.1 9kHz – 30MHz, Ch. mid



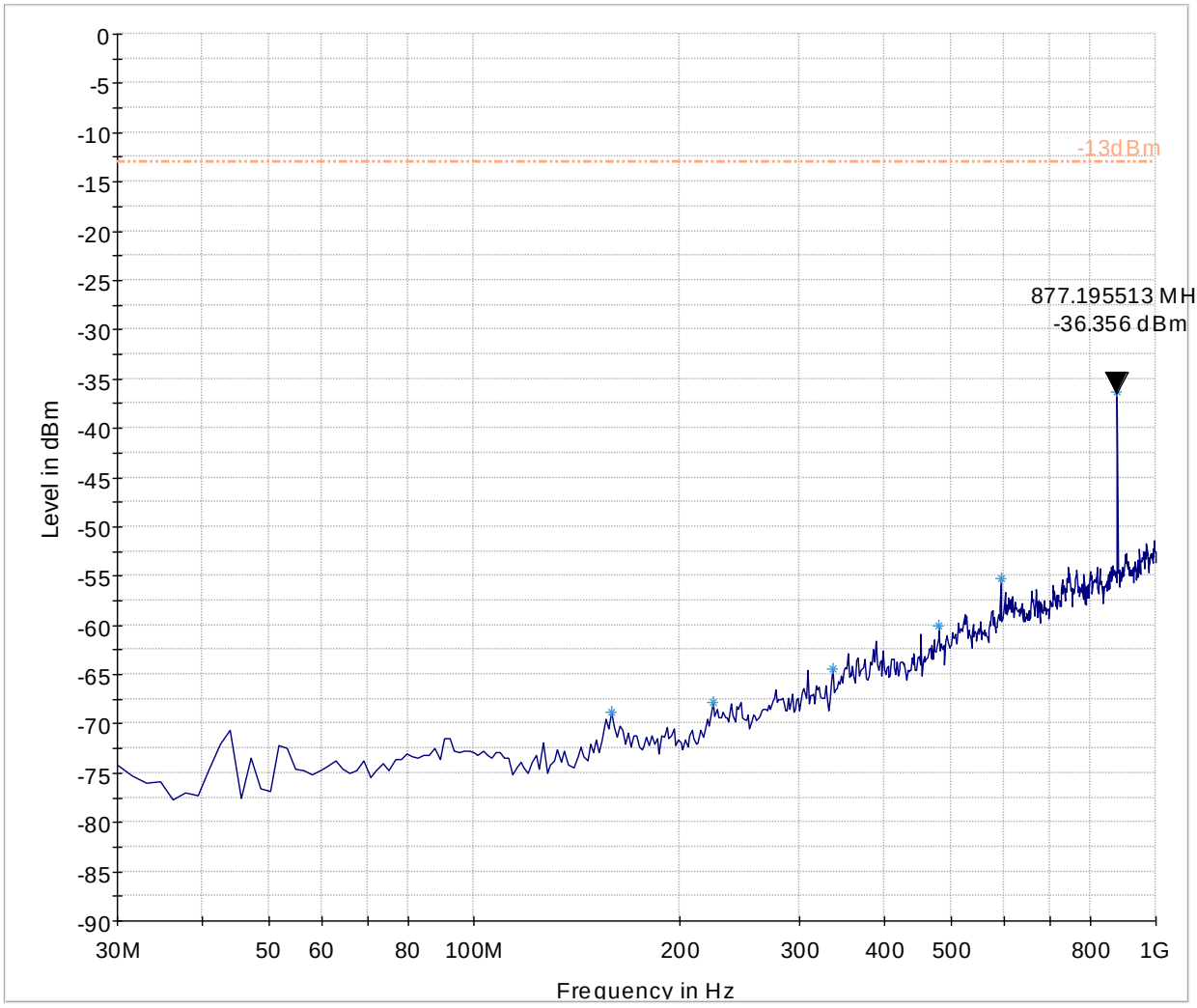
8.8.2 30MHz – 1GHz, Ch. Low



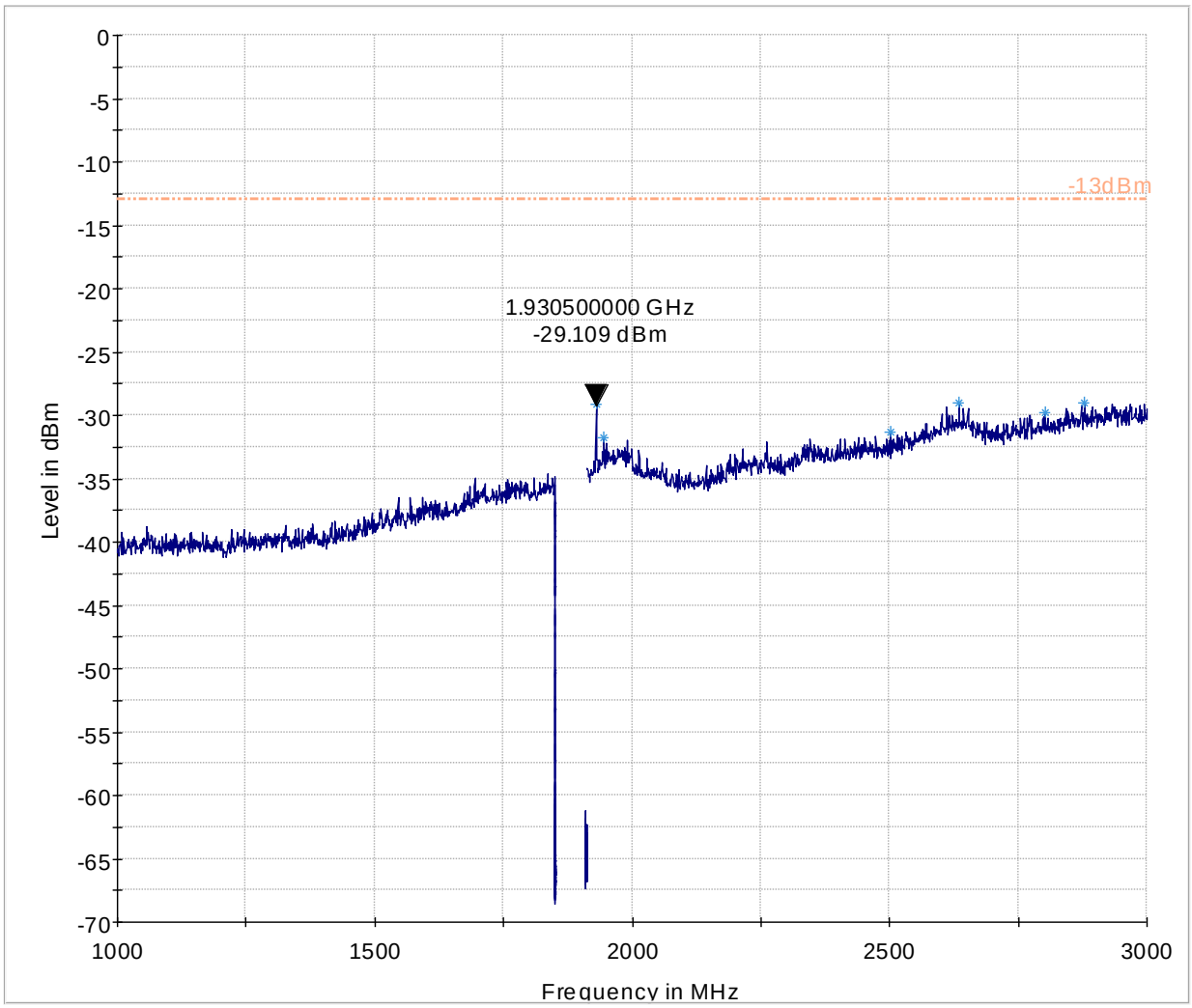
8.8.3 30MHz – 1GHz, Ch. Mid



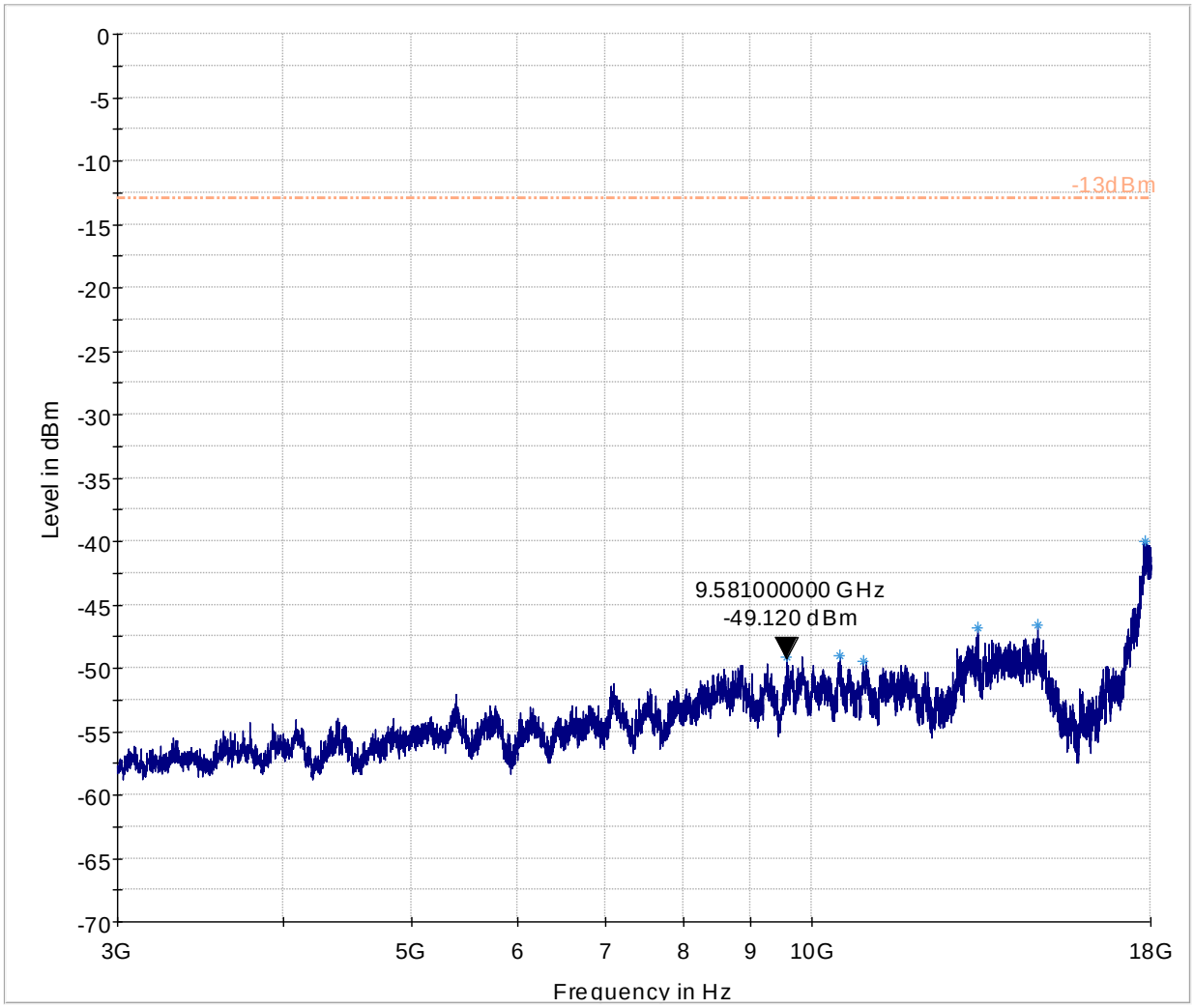
8.8.4 30MHz – 1GHz, Ch. High



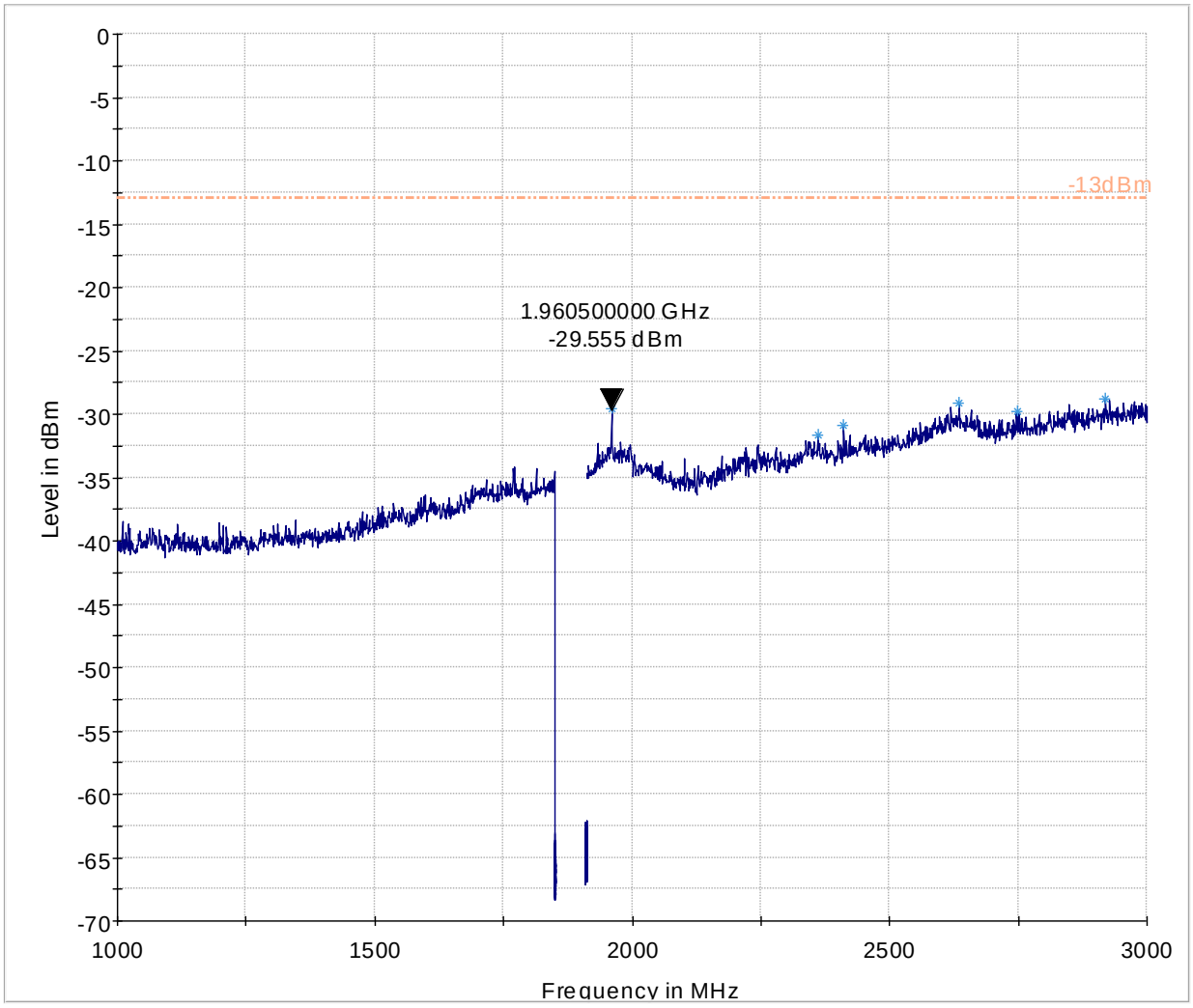
8.8.5 1GHz – 3GHz, Ch. Low



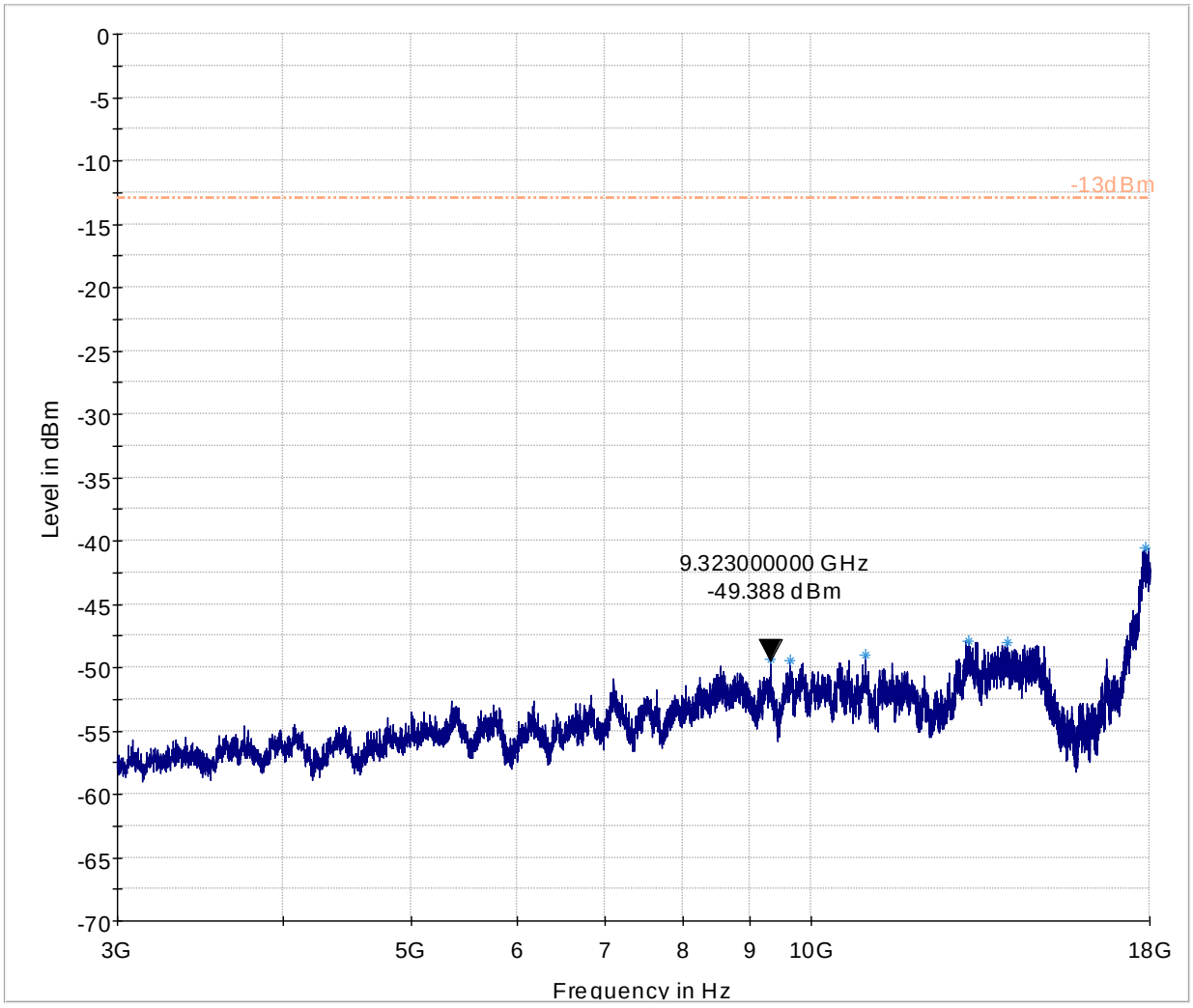
8.8.6 3GHz – 18GHz, Ch. Low



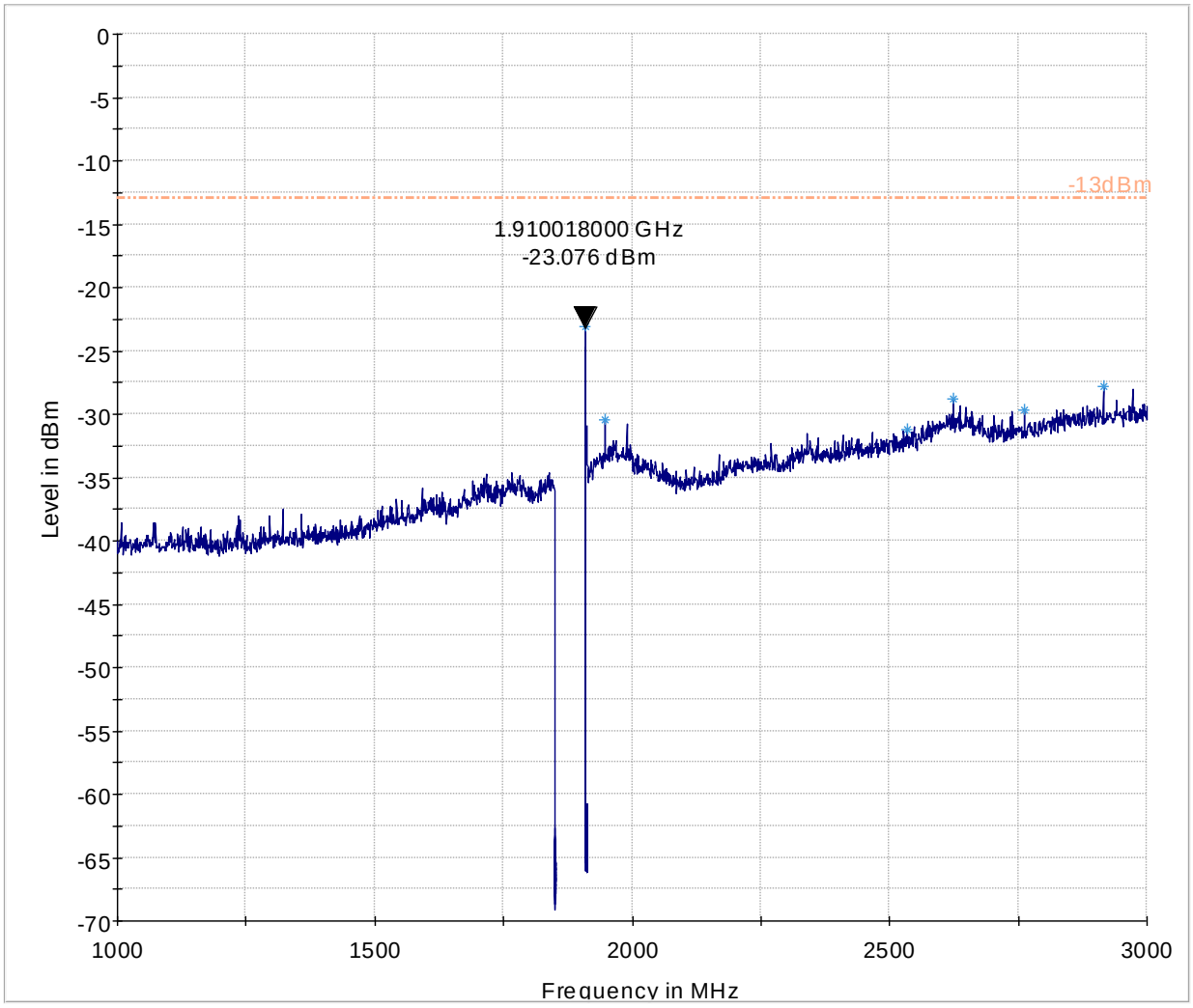
8.8.7 1GHz – 3GHz, Ch. Mid



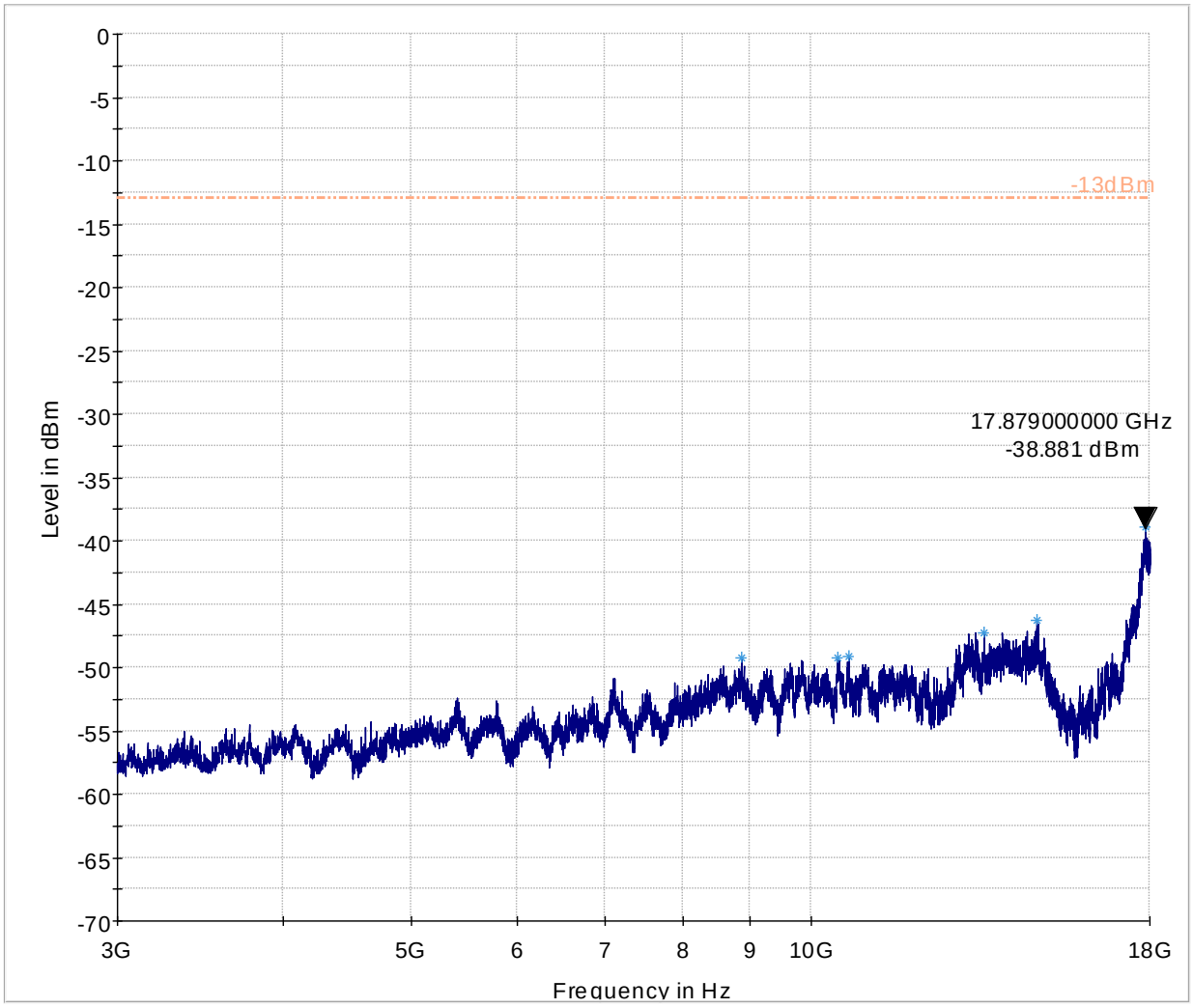
8.8.8 3GHz – 18GHz, Ch. Mid



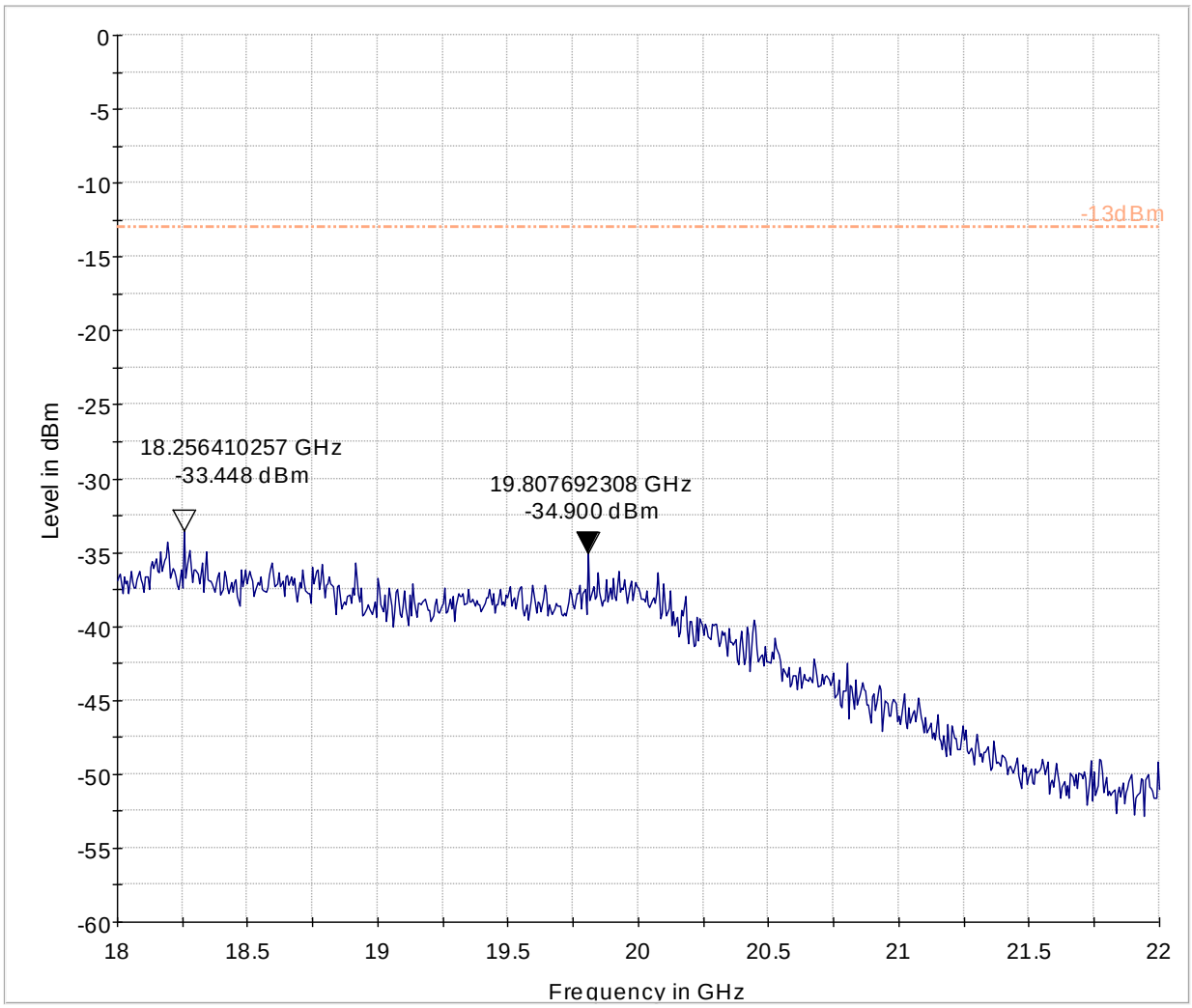
8.8.9 1GHz – 3GHz, Ch. High



8.8.10 3GHz – 18GHz, Ch. High

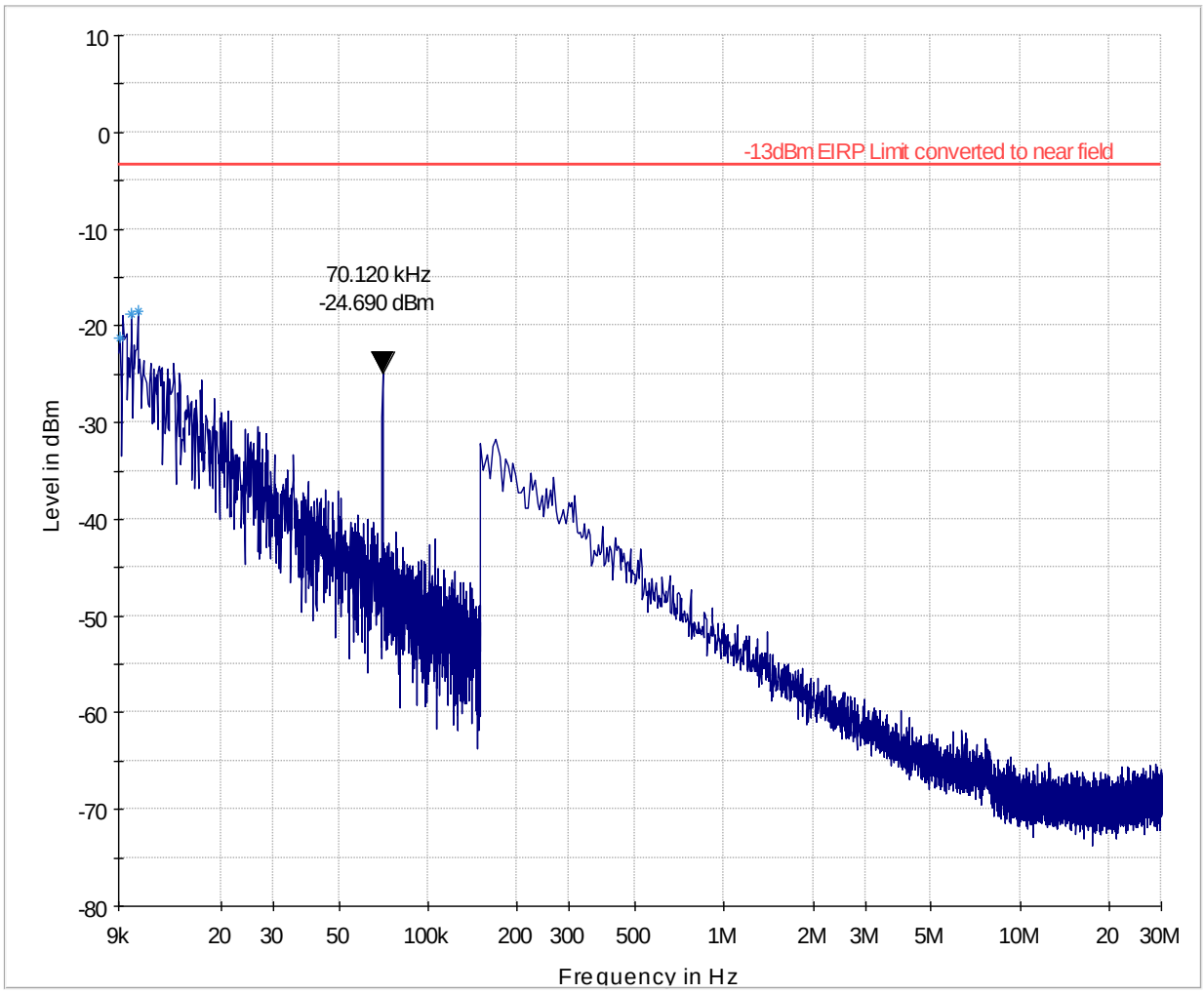


8.8.11 18GHz - 22GHz, Ch. Mid

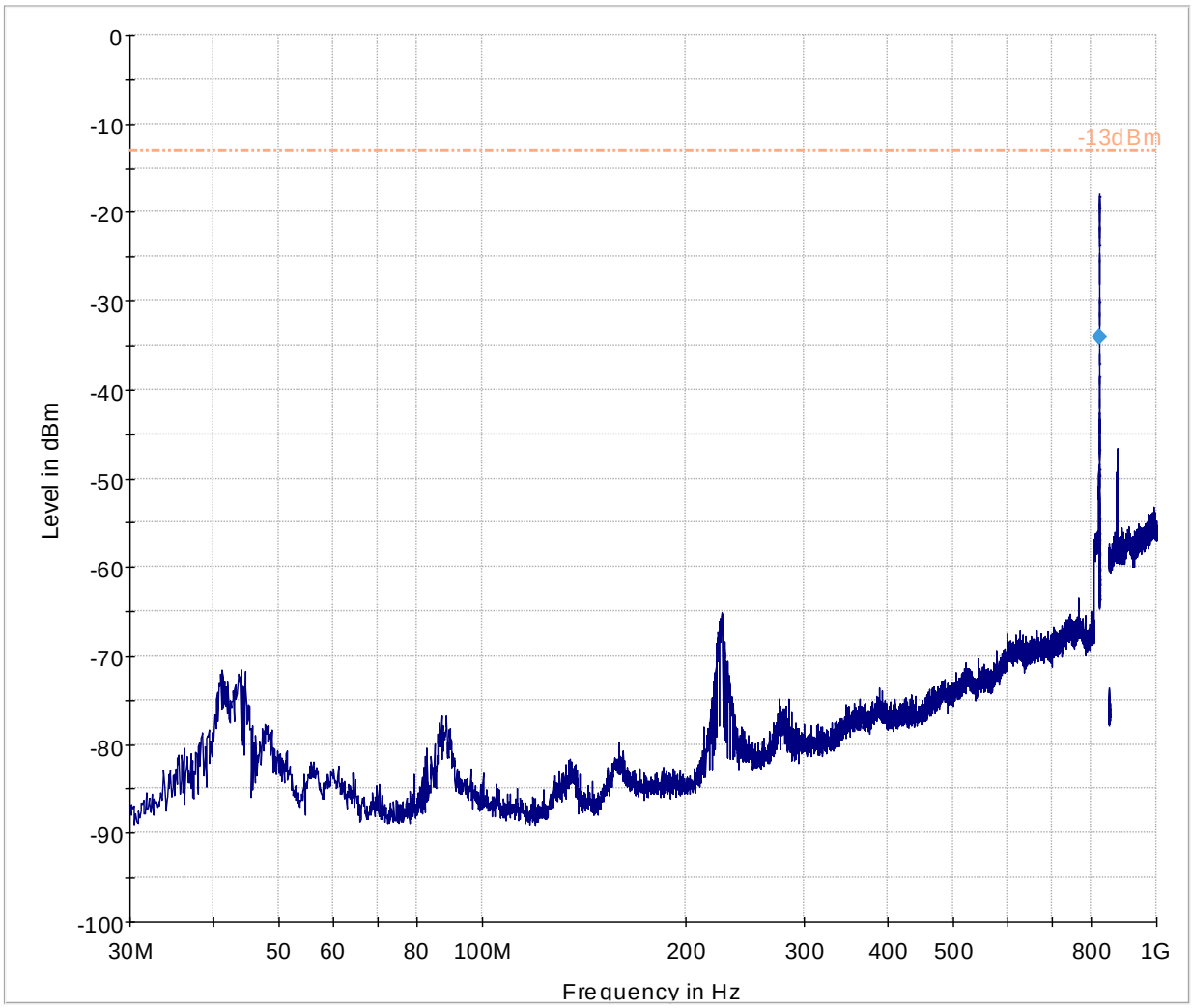


8.9 Measurement Plots GPRS850 (class8):

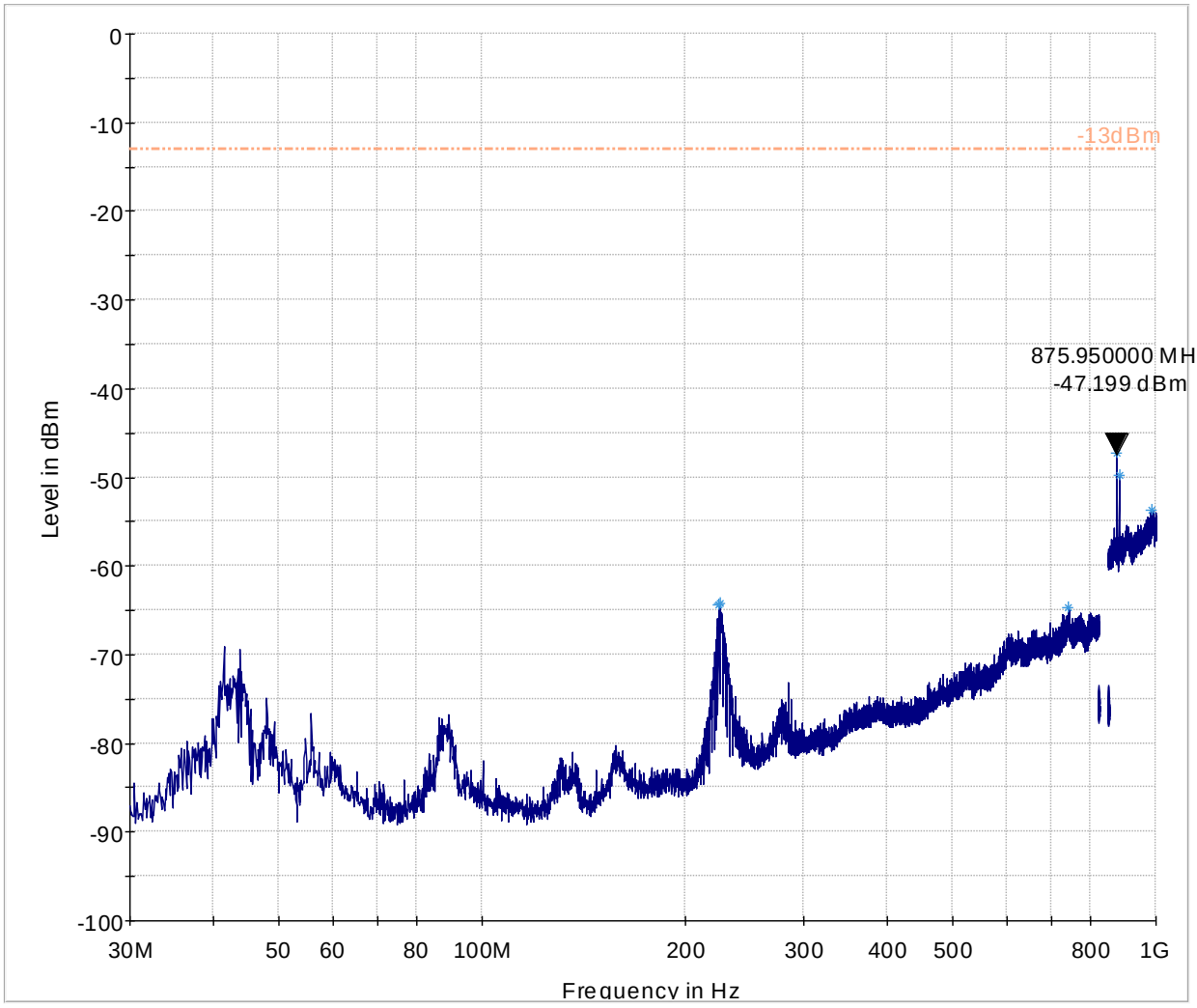
8.9.1 9kHz – 30MHz, Ch. mid



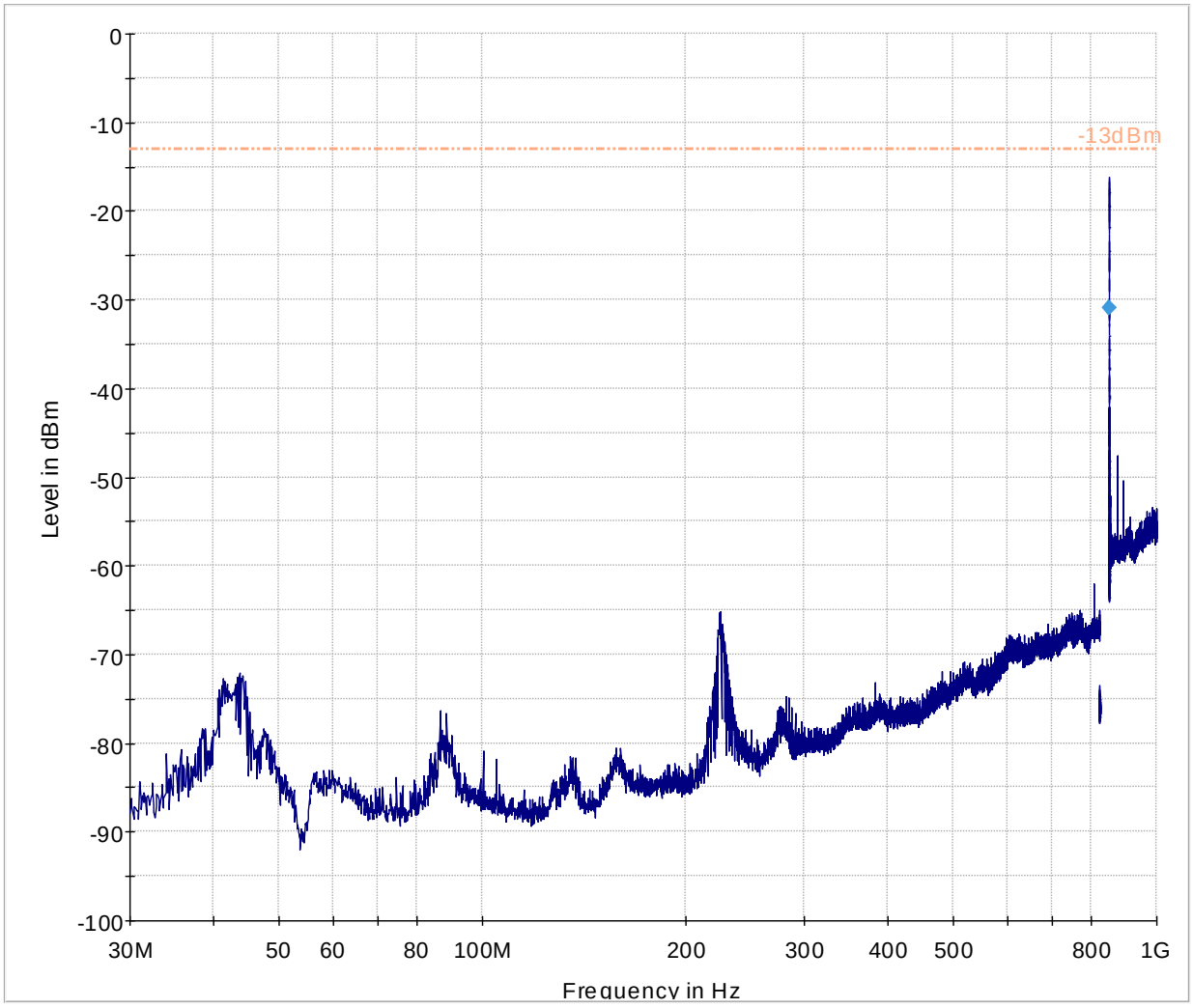
8.9.2 30MHz – 1GHz, Ch. Low



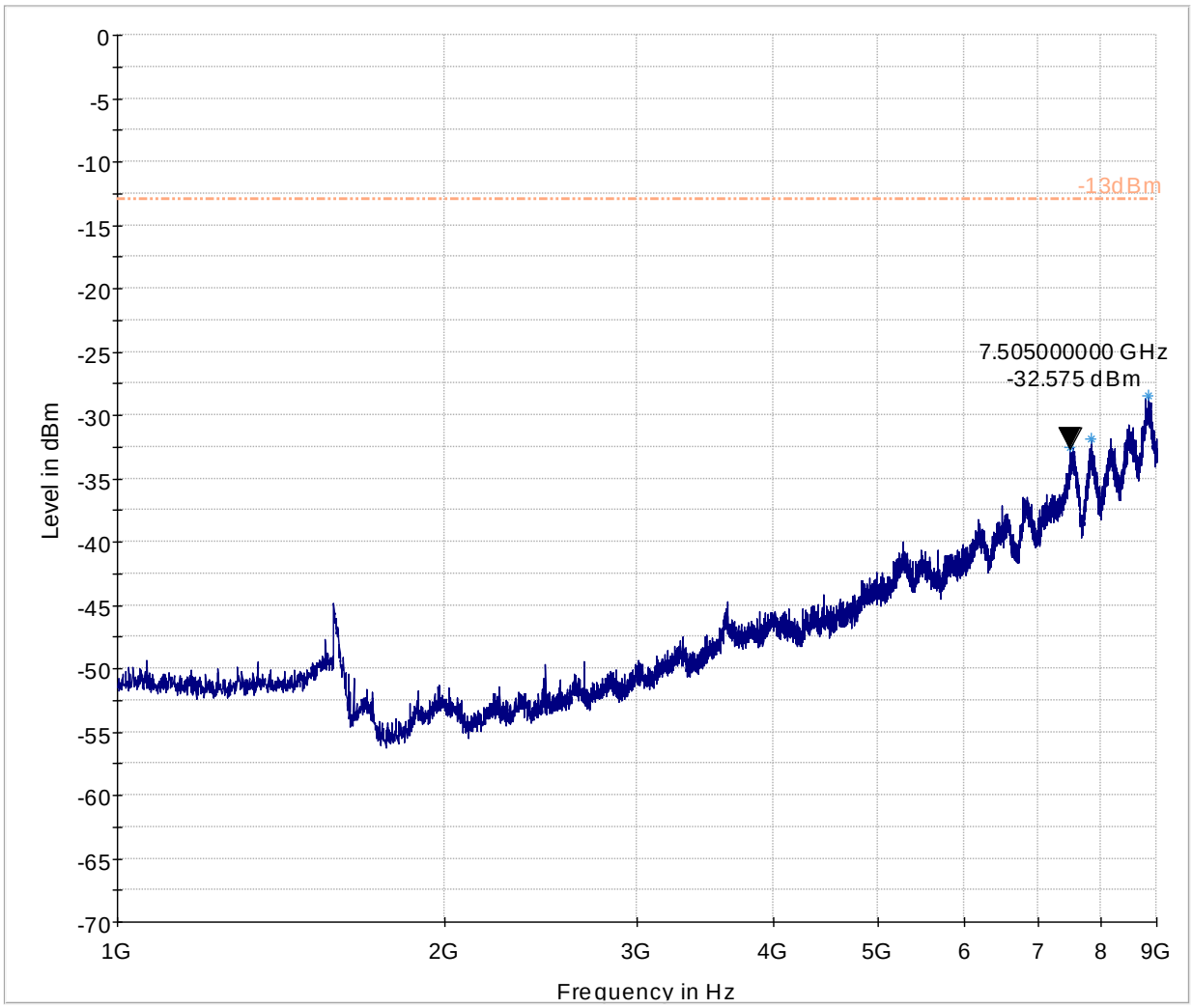
8.9.3 30MHz – 1GHz, Ch. Mid



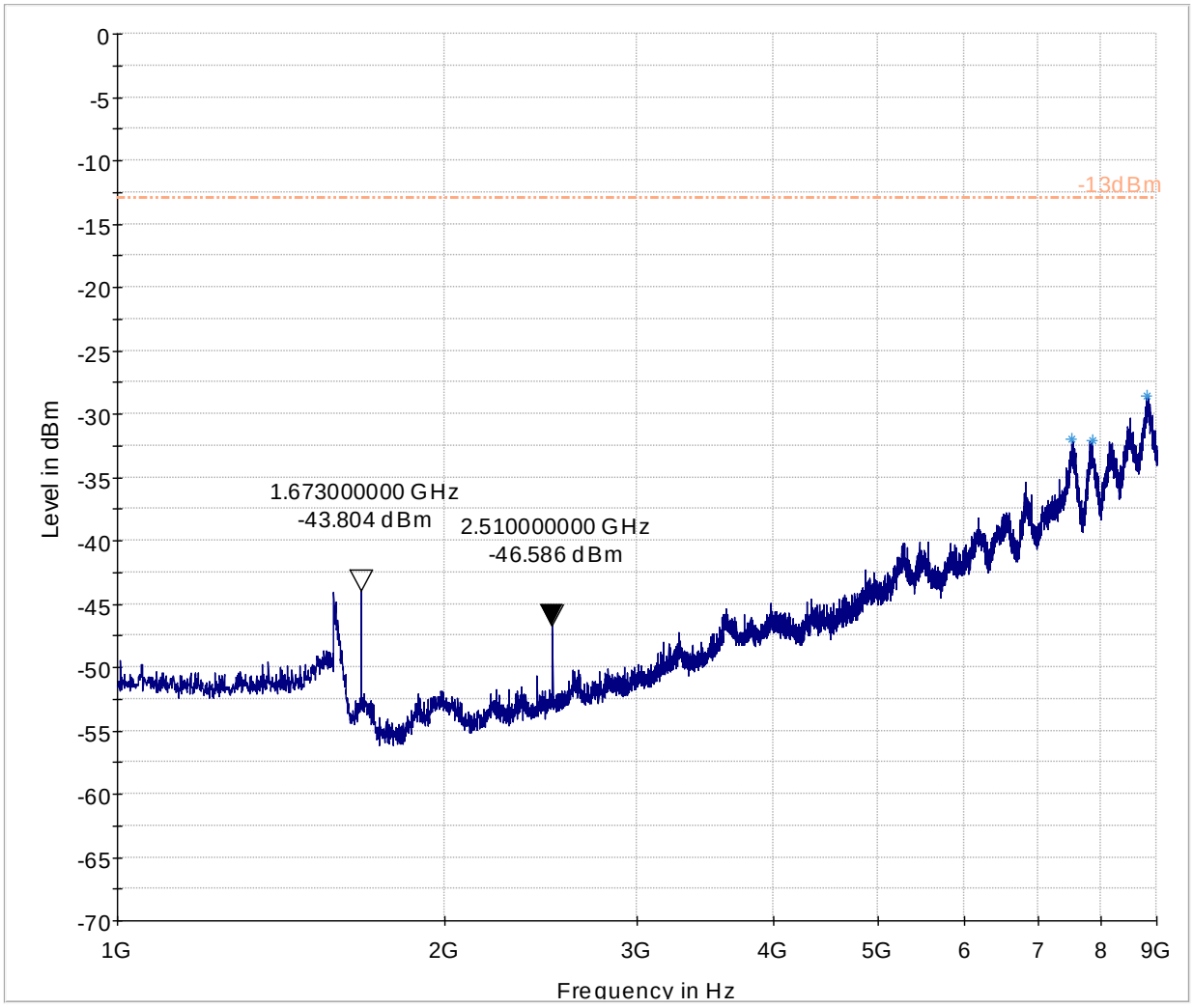
8.9.4 30MHz – 1GHz, Ch. High



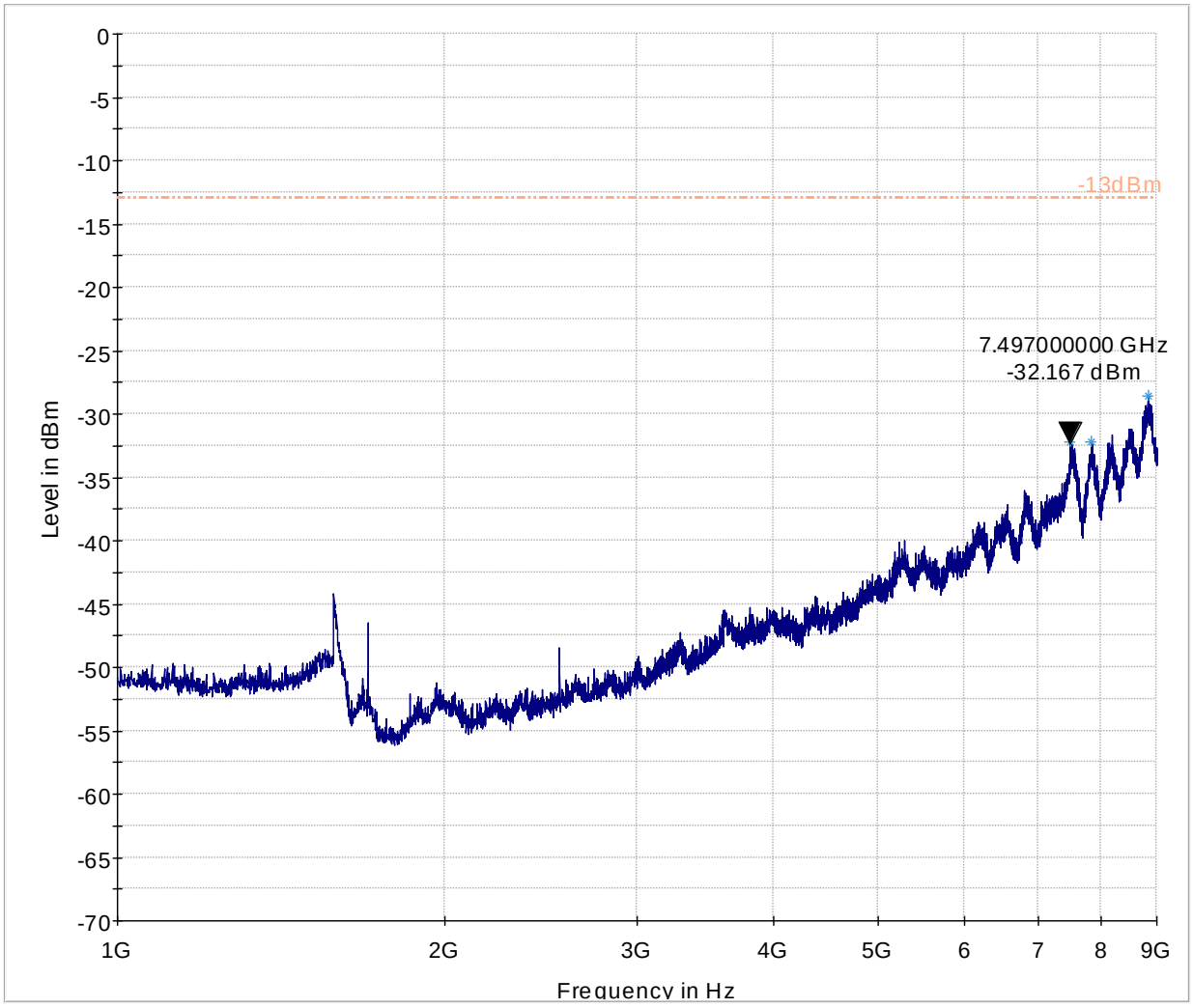
8.9.5 1GHz – 9GHz, Ch. Low



8.9.6 1GHz – 9GHz, Ch. Mid



8.9.7 1GHz – 9GHz, Ch. High



9 Test Setup Photos

Setup photos are included in supporting file name: “EMC-NETCO-007-16001_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
ESU 40	Receiver	R&S	ESU 40	100251	2 years	6/29/2015
Thermometer Humidity TM320	Thermometer Humidity	Dickson	TM320	5280063	1 Year	7/29/2015

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
August 30, 2016	EMC-NETCO-007-16001_FCC_22_24_27	Initial Version	Franz Engert
August 31, 2016	EMC-NETCO-007-16001_FCC_22_24_27_v2	Repeated E(I)RP measurement with worst case cable RG58 2 feet.	Franz Engert