



# FCC Test Report

FOR:  
**Livongo Health, Inc.**

**Model Number: BG300**

**Product Description: Blood Glucose Monitor**

**FCC ID: 2AA92 LV00408**

**47 CFR Part 22, 24, 27**

**TEST REPORT #: EMC-KORET-003-16001-FCC-22-24-27**

**DATE: 2016-05-25**



**A2LA Accredited**

**FCC Recognized**

***CETECOM Inc.***

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

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## 1 Assessment

The following equipment as further described in section 3 of this test report was evaluated against the applicable criteria specified in FCC CFR47 Parts 22, 24 and 27 and


No deviations were ascertained during the course of the tests performed.

Company	Description	Model #
Livongo Health, Inc	Blood Glucose Monitor	BG300

### Report reviewed by:

2016-05-25	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
Date	Section	Name	Signature

### Responsible for the Report:

2016-05-25	Compliance	James Donnellan (EMC Engineer)	 Digitally signed by James Donnellan DN: cn=James Donnellan, c=US, o=Cetecom Inc., ou=Compliance, email=james.donnellan@cetecom.com Date: 2016.05.26 14:47:01 -07'00'
Date	Section	Name	Signature

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 Test Report

<b>Company Name:</b>	CETECOM Inc.
<b>Department:</b>	Compliance
<b>Address:</b>	CETECOM Inc. 411 Dixon Landing Rd Milpitas, CA 95035
<b>Telephone:</b>	+1 (408) 586 6200
<b>Fax:</b>	+1 (408) 586 6299
<b>Compliance Manager:</b>	Franz Engert
<b>Responsible Project Leader</b>	James Donnellan

### 2.2 Identification of the Client

<b>Client Firm/Name:</b>	Livongo Health, Inc.
<b>Street Address:</b>	150 W. Evelyn Ave, Suite 150
<b>City/Zip Code</b>	Mountain View, CA 94041
<b>Country</b>	USA
<b>Contact Person:</b>	Randy Buswell
<b>Phone No.</b>	866 435 5643
<b>e-mail:</b>	<a href="mailto:compliance@livongo.com">compliance@livongo.com</a>

### 2.3 Identification of the Manufacturer

<b>Client Firm/Name:</b>	Same as client.
<b>Street Address:</b>	
<b>City/Zip Code</b>	
<b>Country</b>	
<b>Contact Person:</b>	
<b>Phone No.</b>	
<b>e-mail:</b>	

### 3 Equipment under Test (EUT)

#### 3.1 Specification of the Equipment under Test

<b>Marketing Name / Description:</b>	Livongo Meter			
<b>Model Number:</b>	BG300			
<b>FCC-ID :</b>	2AA92 LV00408			
<b>Product Description:</b>	Blood Glucose Monitor			
<b>Technology / Type(s) of Modulation:</b>	GSM/(E)GPRS 850/1900 WCDMA FDD II/IV/V			
<b>Integrated Module Information</b>	Telit Model HE910NAD		FCC ID R17HE910NA	
<b>Mode</b>	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation
<b>GSM GPRS EGPRS</b>	850	824.2 – 848.8	869.2 - 893.8	GMSK/8PSK
	1900	1850.2 1909.8	1930.2 - 1989.8	GMSK/8PSK
<b>WCDMA</b>	II	1852.4 - 1907.6	1932.4 - 1987.6	QPSK
	IV	1712.4 - 1752.6	2112.4 – 2152.6	QPSK
	V	826.4 – 846.6	871.4 - 891.6	QPSK
<b>Antenna info:</b>	Internal Antenna: Taoglas Part Number PA.25a Documented Maximum Antenna Gain obtained from Antenna Manufacturer datasheet: 850MHz: 1.5 dBi      1700Mhz 2.5 dBi      1900MHz: 2.5 dBi			
<b>Max. Output Powers:</b>	Mode	850 Band	1700 Band	1900 Band
	GPRS (GMSK)	33.5 dBm	-	30.5 dBm
	EGPRS (GMSK)	33.5 dBm	-	30.5 dBm
	EGPRS (8PSK)	28 dBm	-	27 dBm
	WCDMA	24.0 dBm	24.0 dBm	24.0 dBm
<b>Rated Operating Voltage Range: Internal Battery</b>	V min 3.4V, V nom 3.8V, V max 4.2 V			
<b>Rated Operating Temperature Range:</b>	5°C to 45°C			
<b>Test Sample Status:</b>	Prototype			

### 3.2 Identification of the Equipment under Test (EUT)

EUT #	SN	Sample	HW / SW Version
1	BG3001616000072	Radiated	HW SA00412 SW 0.7.0
2	BG2031609000014	Radiated	HW SA00412 SW 0.7.0
3	BG2031609000038	Conducted	HW SA00412 SW 0.7.0

Note: EUT 1 and 2 are the same except for packaging difference

### 3.3 Identification of Accessory equipment

AE #	Type	Model	Manufacturer	Serial Number
1	Switching Mode Power Supply	SKB0501000PU	ITE	N/A
2	USB Shielded High Speed cable	E318233 / 2525	Kaibo / AWM	-

### 3.4 Test Sample Configuration

Setup	Items Used	Comments
1	EUT #1 / 2 , AE #1, 2	Radiated setups
2	EUT #3 , AE # 1, 2	Conducted setups

Note: EUT was tested while powered through USB with the power supply.

## 4 Subject of Investigation

The objective of the evaluation conducted by CETECOM Inc. is to support a request for new equipment authorization under FCC ID: 2AHL01854.

According to the guidelines from FCC KDB 996369 for the product under evaluation, and the pre-certified module to be integrated (Telit HE910) as described in Section 3, the output power has been verified to be within the specified production tolerances and measurement uncertainties, and where relevant test procedures did not change the conducted test results from module certification are re-used. Full Radiated Spurious Emissions test was conducted, per Code of Federal Regulations Title 47 parts 22, 24 and 27.

The module test data can be obtained under the FCC Filing ID: RI7HE910NA

### 4.1 Dates of Testing

03/29/2016 - 04/21/2016

### 4.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests 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 measurements	+/- 0.5 dB

### 4.3 Environmental Conditions during Testing

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

- \* Ambient Temperature: 20-25oC
- \* Relative humidity: 40-60%

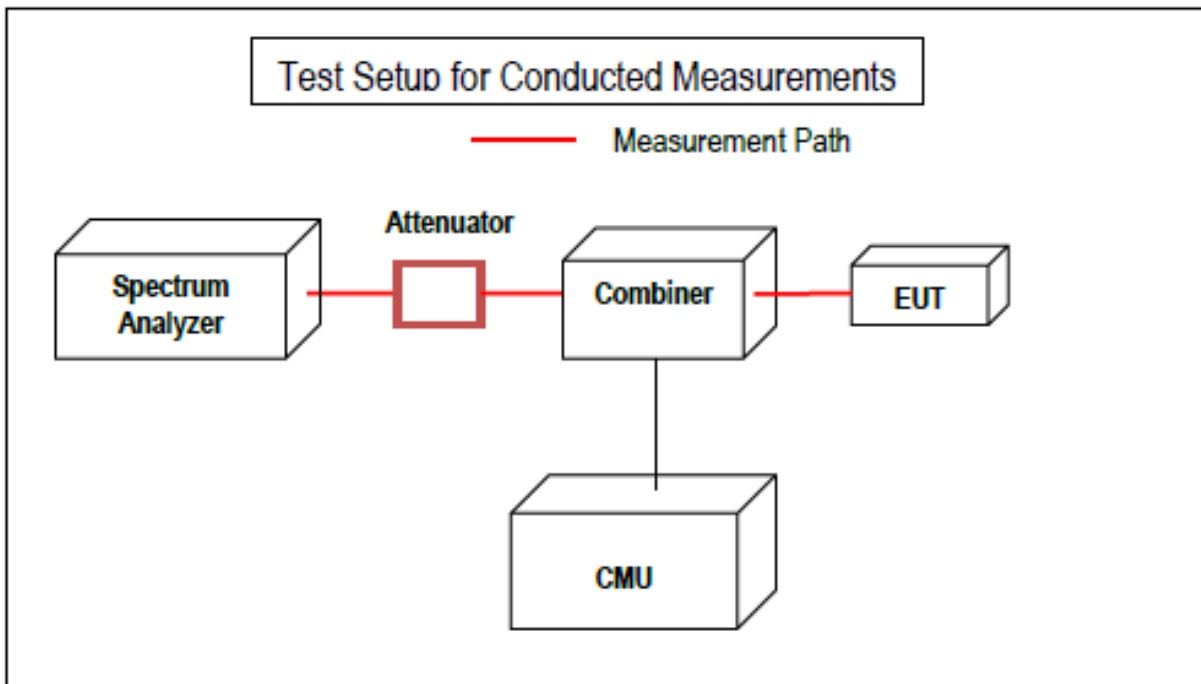
Deviating test conditions are indicated at individual test description where applicable.

## 5 Measurements Procedures

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

### 5.1 RF Conducted Measurement

The CMU communicates with the EUT over the Network shown and attenuation of the measurement path is accounted for with the SA offset.

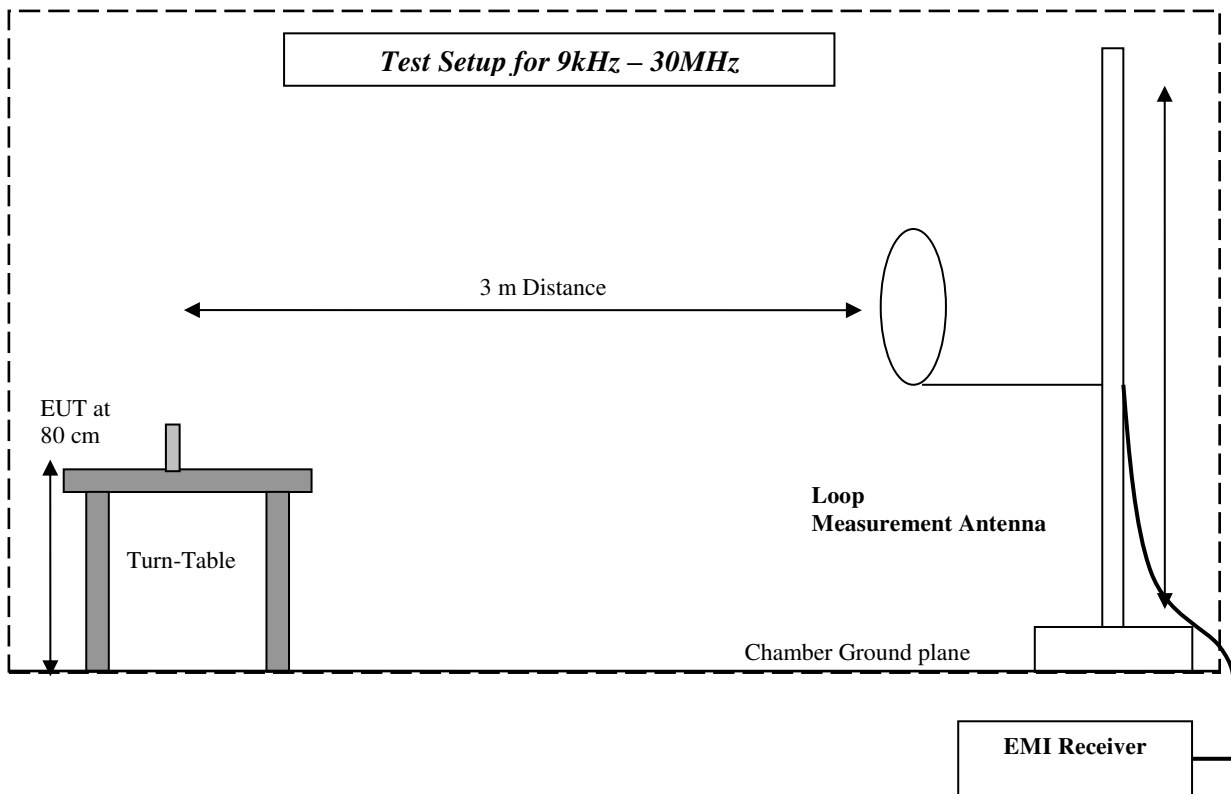


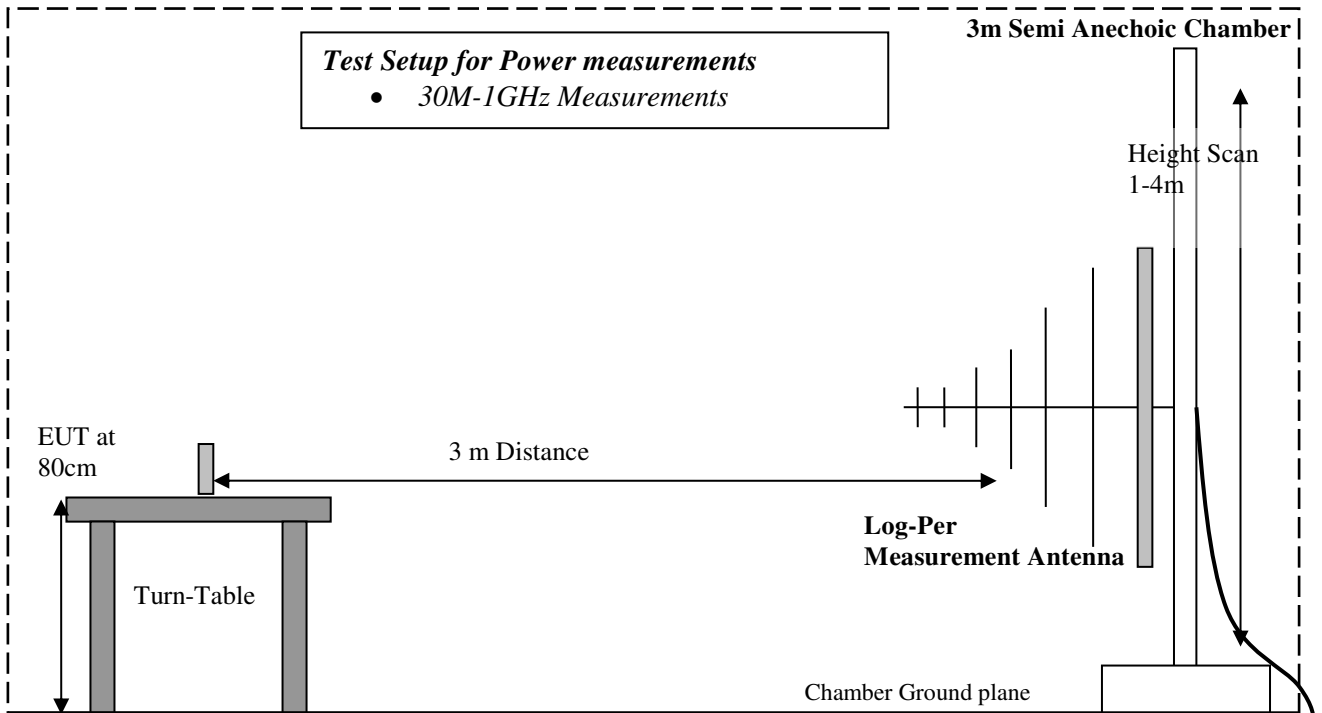
### 5.2 Radiated Measurement

- 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 Door 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.

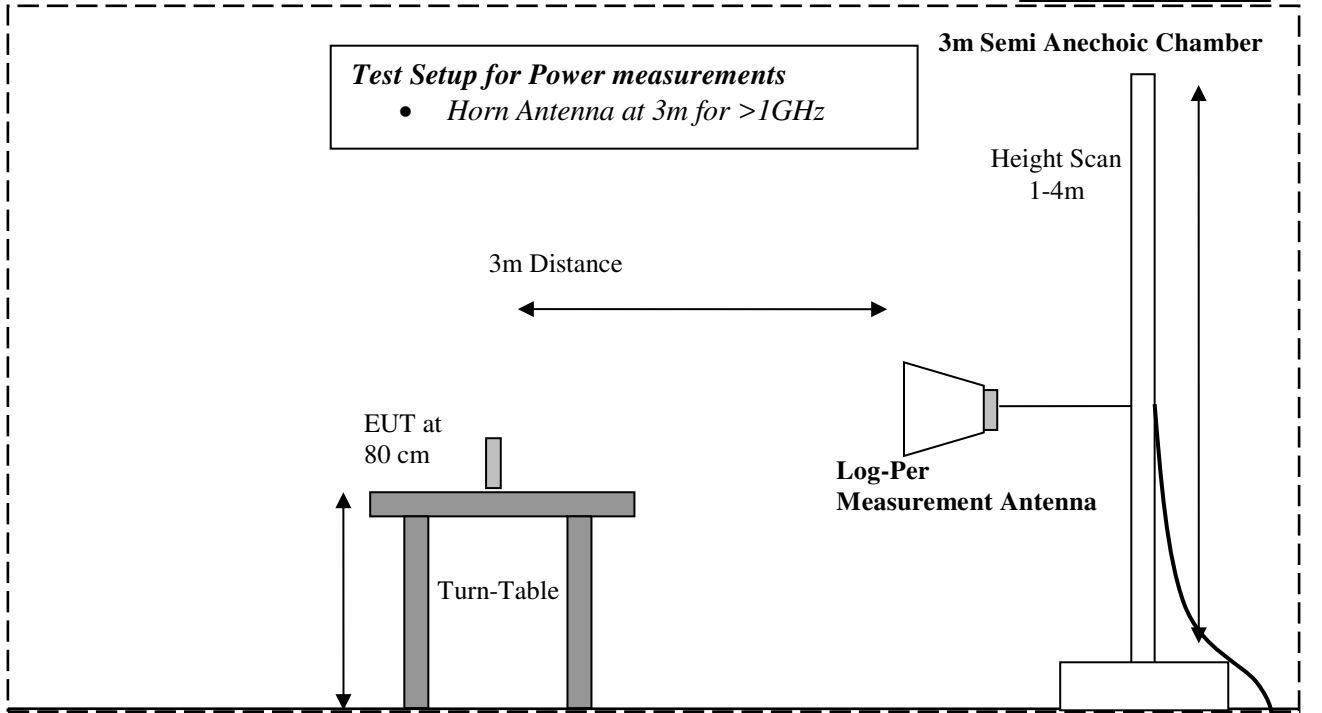


- The above procedure is repeated for all possible ways of power supply to EUT and for all supported modulations.
- In case there are no emissions above noise floor level only the maximum trace is reported as described above.
- The results are split up into up to 4 frequency ranges due to antenna bandwidth 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.





EMI Receiver



EMI Receiver

## 6 Summary of Measurement Results

### 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	GSM & UMTS	■	□	□	□	Complies (See Note 1)
§2.1055 §22.355	Frequency Stability	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1049 §22.917(b)	Occupied Bandwidth	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1051 §22.917	Band Edge Compliance	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1051 §22.917	Conducted Spurious Emissions	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1053 §22.917	Radiated Spurious Emissions	Nominal	GSM & UMTS	■	□	□	□	Complies

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

Note 1: Verification done on mid channel for each band, low and high channel measurements leveraged from module certification.

Note 2: Leveraged from module certification.

6.2 FCC 24

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §24.232 (a)	RF Output Power	Nominal	GSM & UMTS	■	□	□	□	Complies (See Note 1)
§2.1055 §24.235	Frequency Stability	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1049 §24.238(b)	Occupied Bandwidth	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1051 §24.238	Band Edge Compliance	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1051 §24.238	Conducted Spurious Emissions	Nominal	GSM & UMTS	□	□	□	■	Note 2
§2.1053 §24.238	Radiated Spurious Emissions	Nominal	GSM & UMTS	■	□	□	□	Complies

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

Note 1: Verification done on mid channel for each band, low and high channel measurements leveraged from module certification.

Note 2: Leveraged from module certification.

6.3 FCC 27

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §27.50 (d)	RF Output Power	Nominal	UMTS	■	□	□	□	Complies (See Note 1)
§2.1055 §27.54	Frequency Stability	Nominal	UMTS	□	□	□	■	Note 2
§2.1049 §27.53	Occupied Bandwidth	Nominal	UMTS	□	□	□	■	Note 2
§2.1051 §27.53	Band Edge Compliance	Nominal	UMTS	□	□	□	■	Note 2
§2.1051 §27.53	Conducted Spurious Emissions	Nominal	UMTS	□	□	□	■	Note 2
§2.1053 §27.53	Radiated Spurious Emissions	Nominal	UMTS	■	□	□	□	Complies

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

Note 1: Verification done on mid channel for each band, low and high channel measurements leveraged from module certification.

Note 2: Leveraged from module certification.

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6.4 Nominal Environmental Conditions

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

6.5 Voltage Test Conditions

- Nominal Battery Voltage: 3.7 VDC( nominal);

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

6.6 Inheriting Test Results from Incorporated Module Certification:

The EUT integrates the certified module HE910-NAD (details see EUT spec in section 3.1)

Taking into account guidance from FCC KDB 996369 (modular approval) and where relevant test procedures did not change conducted test results are leveraged.

6.7 Nominal Cellular Test Conditions

1. The different cellular operation modes of the EUT as required for testing are controlled through the link with the Digital Radio Communication Tester (R&S CMU200).
2. The EUT is tested on the mid channel of each of the supported cellular operation modes.

6.8 Additional Test Information.

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 ANSI 63.4 as detailed below.

Measurements were done on GSM mode with GMSK Modulation and on UMTS with QPSK Modulation.

## 7 Test Results

### 7.1 RF Power Output Verification (Conducted)

#### 7.1.1 Measurement Method

Conducted Measurement according to: FCC: CFR 47 Part 2.1046; CFR Part 22.913; Part 24.232; Part 27.50, utilizing KDB 971168 DOI Power Measurements License Digital Systems v02r02 - Section 5.2.1

Spectrum Analyzer settings for CCDF procedure for conducted output power / PAPR measurements

- \* RBW  $\geq$  OBW
- \* Number of counts = 10000
- \* Sweep time  $\geq$  1 ms
- \* Record the Mean Power level
- \* Record the maximum PAPR level associated with a probability of 0.1%

#### 7.1.2 Limits:

The measured output power shall be within tolerance levels of the integrated module plus conducted measurement uncertainty levels.

The power measured on the mid channel of each RF band of operation will be compared to the Max Output Power from the tune up procedure including uncertainty.

The document with Title: Power Tune up procedure for HE910 Products Family with Code: 30378NT11098A, Proj. nr: 0378, Rel.: 7 and Date: 28.01.2016 is referenced

RF Bands	Max Power Level from Tune up procedure.	Module Tolerance Delta plus measurement uncertainty	Level Measured	Measured Level in-line with integrated Module.
GSM 850	33.5	-2.5	31.48	Yes
PCS 1900	30.5	-2.5	27.95	Yes
FDD II	24	-3.0	21.78	Yes
FDD IV	24	-3.0	22.07	Yes
FDD V	24	-3.0	22.05	Yes

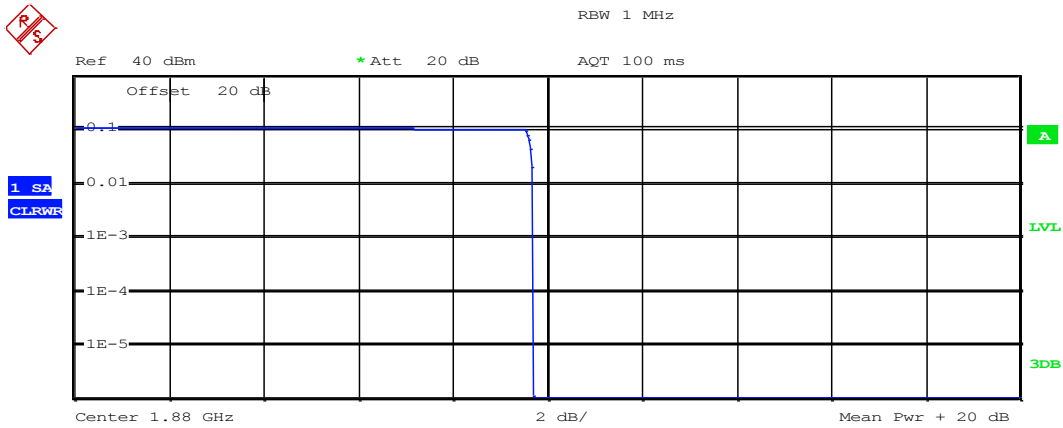
#### 7.1.3 Measurement Result ERP/EIRP:

All ERP/EIRP are within the regulatory limits

#### UMTS/WCDMA

Frequency (MHz)	Conducted Average Output Power to Antenna	Gain	ERP	EIRP
GSM 850	31.48	1.5	30.83	32.98
PCS 1900	27.95	2.5	28.3	30.45
FDD II	21.78	2.5	22.13	24.28
FDD IV	22.07	2.5	22.42	24.57
FDD V	22.05	1.5	21.4	23.55

7.1.4 Plots:  
 850 MHz Band GSM



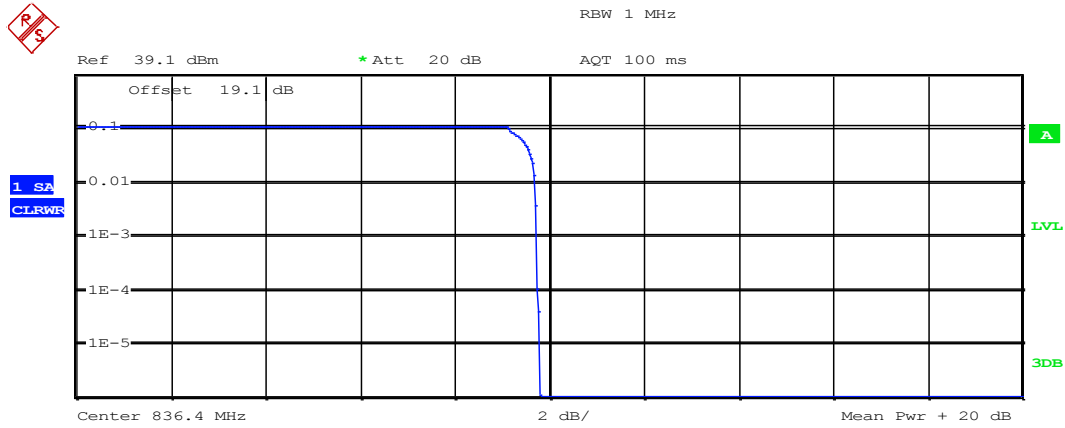
Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	18.95 dBm
Peak	28.65 dBm
Crest	9.69 dB
10 %	9.52 dB
1 %	9.71 dB
.1 %	9.71 dB
.01 %	9.71 dB

Date: 25.APR.2016 19:11:38



1900 MHz Band PCS

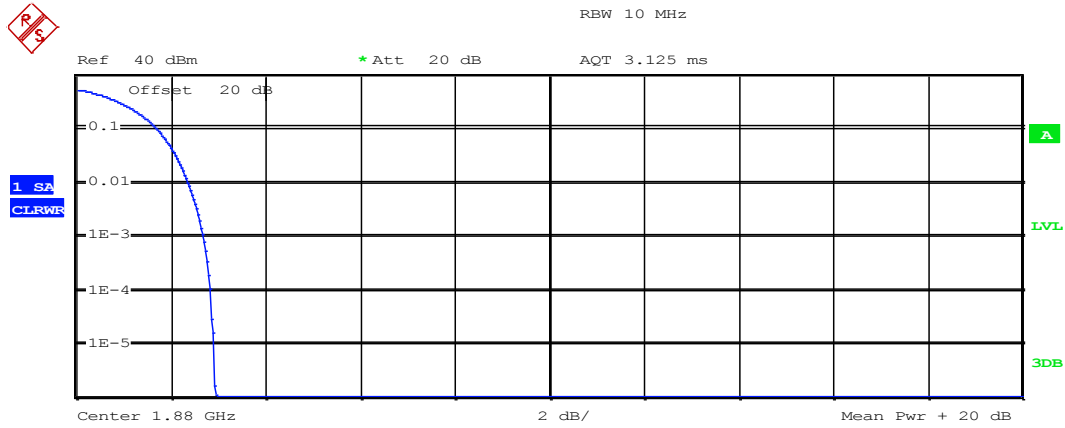


Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	22.48 dBm
Peak	32.26 dBm
Crest	9.78 dB
10 %	9.13 dB
1 %	9.68 dB
.1 %	9.74 dB
.01 %	9.74 dB

Date: 25.APR.2016 19:21:59

FDDII

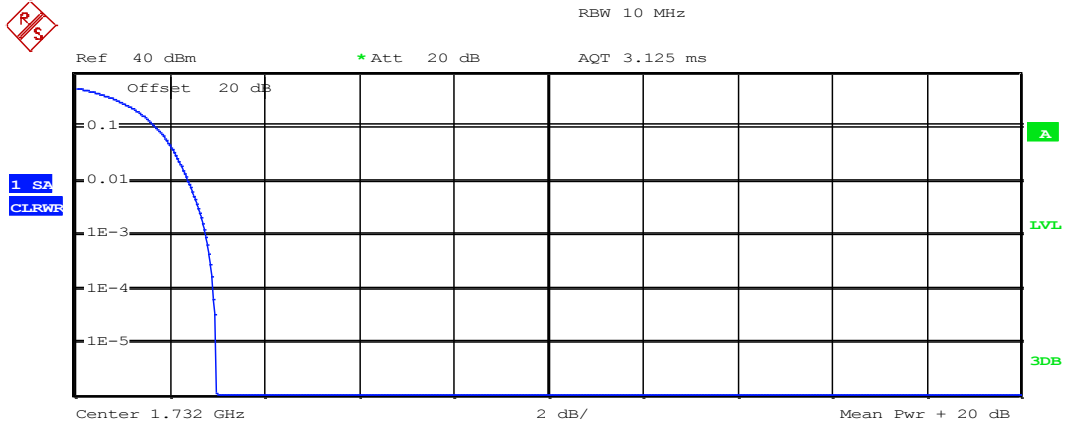


Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	21.78 dBm
Peak	24.70 dBm
Crest	2.92 dB
10 %	1.67 dB
1 %	2.34 dB
.1 %	2.66 dB
.01 %	2.82 dB

Date: 25.APR.2016 19:48:18

FDDIV

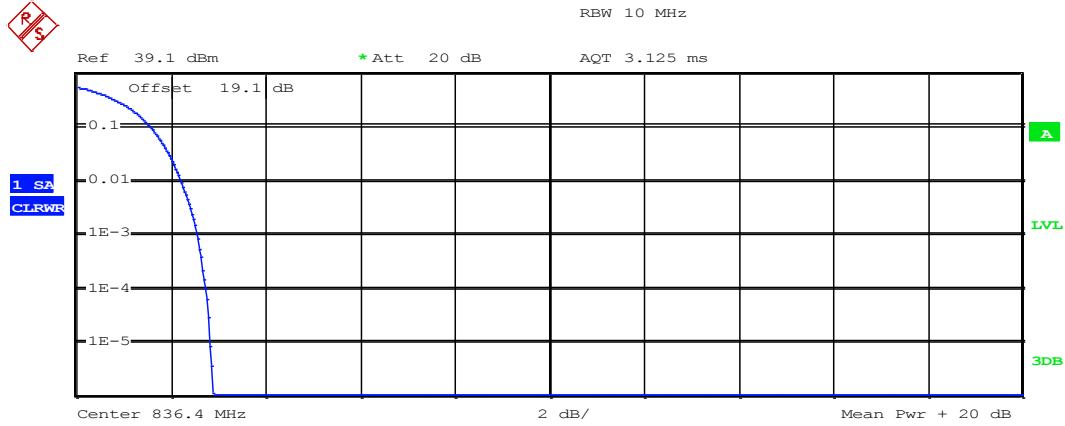


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1	
Mean	22.07	dBm
Peak	25.05	dBm
Crest	2.98	dB
10 %	1.67	dB
1 %	2.37	dB
.1 %	2.76	dB
.01 %	2.92	dB

Date: 25.APR.2016 19:40:01

FDDV



Complementary Cumulative Distribution Function (100000 samples)

Trace 1  
Mean      22.05 dBm  
Peak      24.92 dBm  
Crest      2.87 dB

10 %      1.54 dB  
1 %      2.18 dB  
.1 %      2.53 dB  
.01 %      2.72 dB

Date: 25.APR.2016 19:43:25

## 7.2 Radiated Spurious Emissions

### 7.2.1 Measurement References

Measurements according to FCC: CFR 47 Part 2.1053; CFR Part 22.917; Part 24.238 Part 25.53 utilizing KDB 971168 D01 Power Meas License Digital Systems v02r02, and according to TIA-603C 2004 2.2.12

### 7.2.2 Spectrum Analyzer Settings

#### Settings for FCC 22

	30MHz – 1 GHz	1 – 1.58 GHz	1.58 – 9 GHz
<b>Resolution Bandwidth</b>	100 kHz	1 MHz	1 MHz
<b>Video Bandwidth</b>	100 kHz	1 MHz	1 MHz
<b>Detector</b>	Peak	Peak	Peak
<b>Trace Mode</b>	Max Hold	Max Hold	Max Hold
<b>Sweep Time</b>	Auto	Auto	Auto

#### Settings for FCC 24 and 27

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

### 7.2.3 Limits:

Per 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)

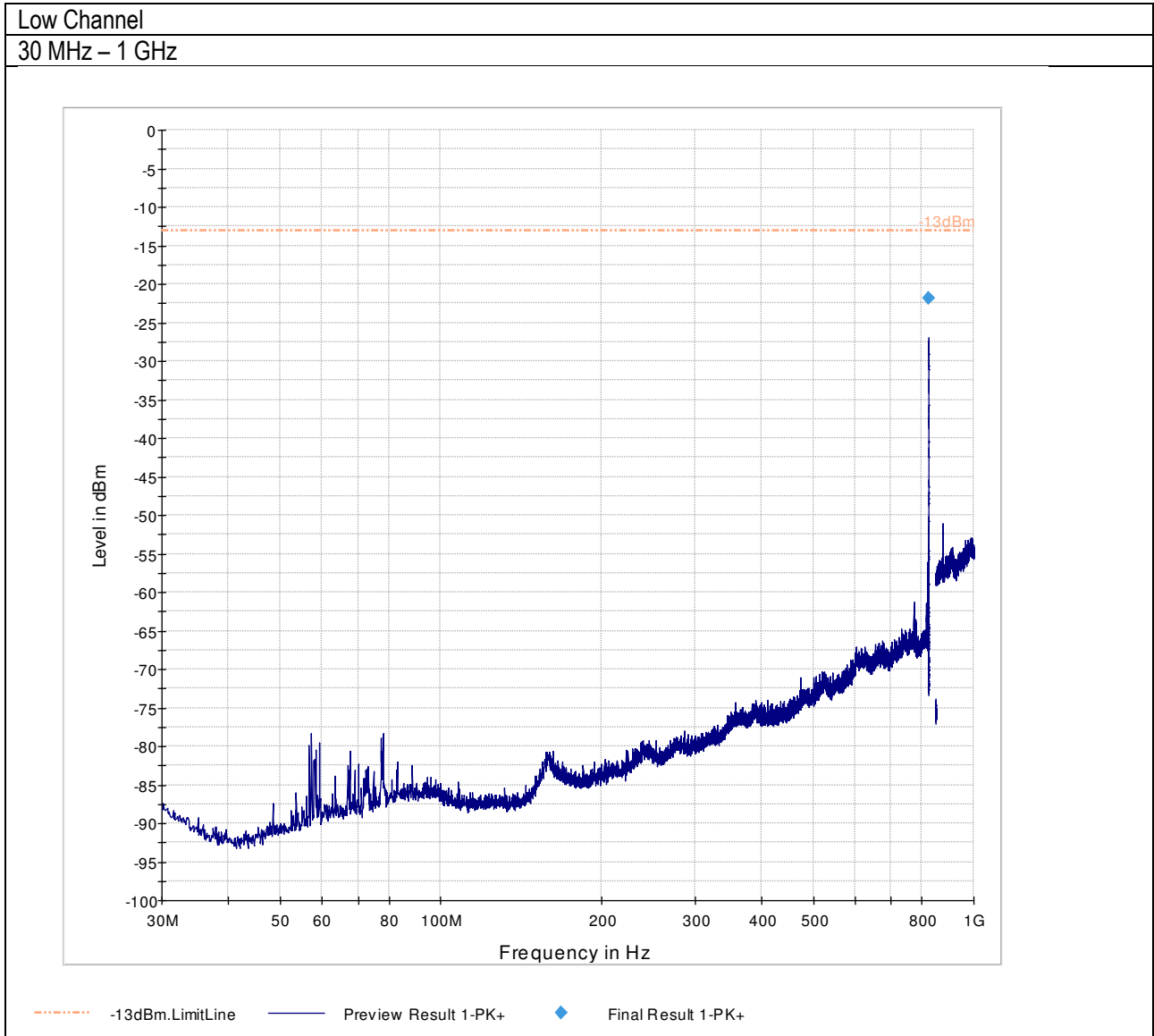
### 7.2.4 Test Conditions / Setup

Temperature 23.1 C

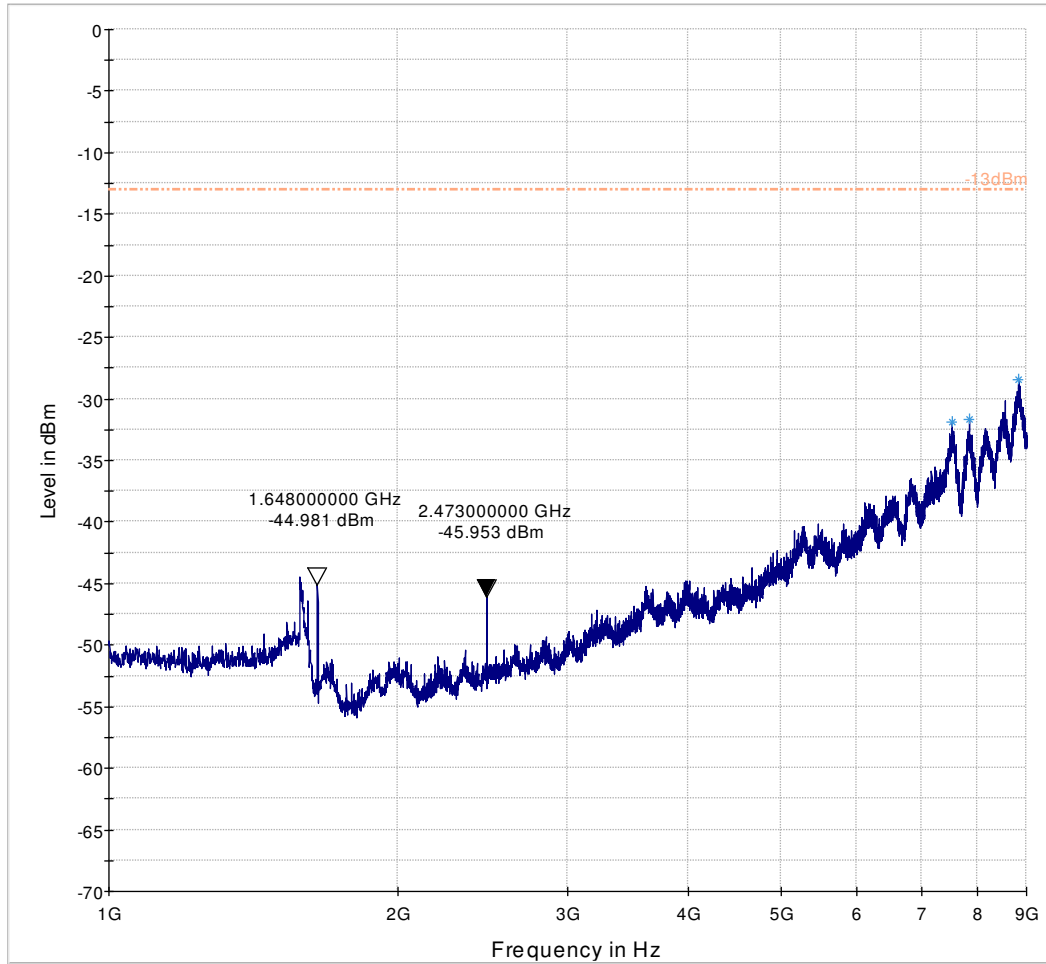
EUT was set to transmit at the channel specified for GSM 850/1900 and FDD II/IV/V

### 7.3 Measurement Plots:

#### 7.3.1 GSM 850 Radiated Plots



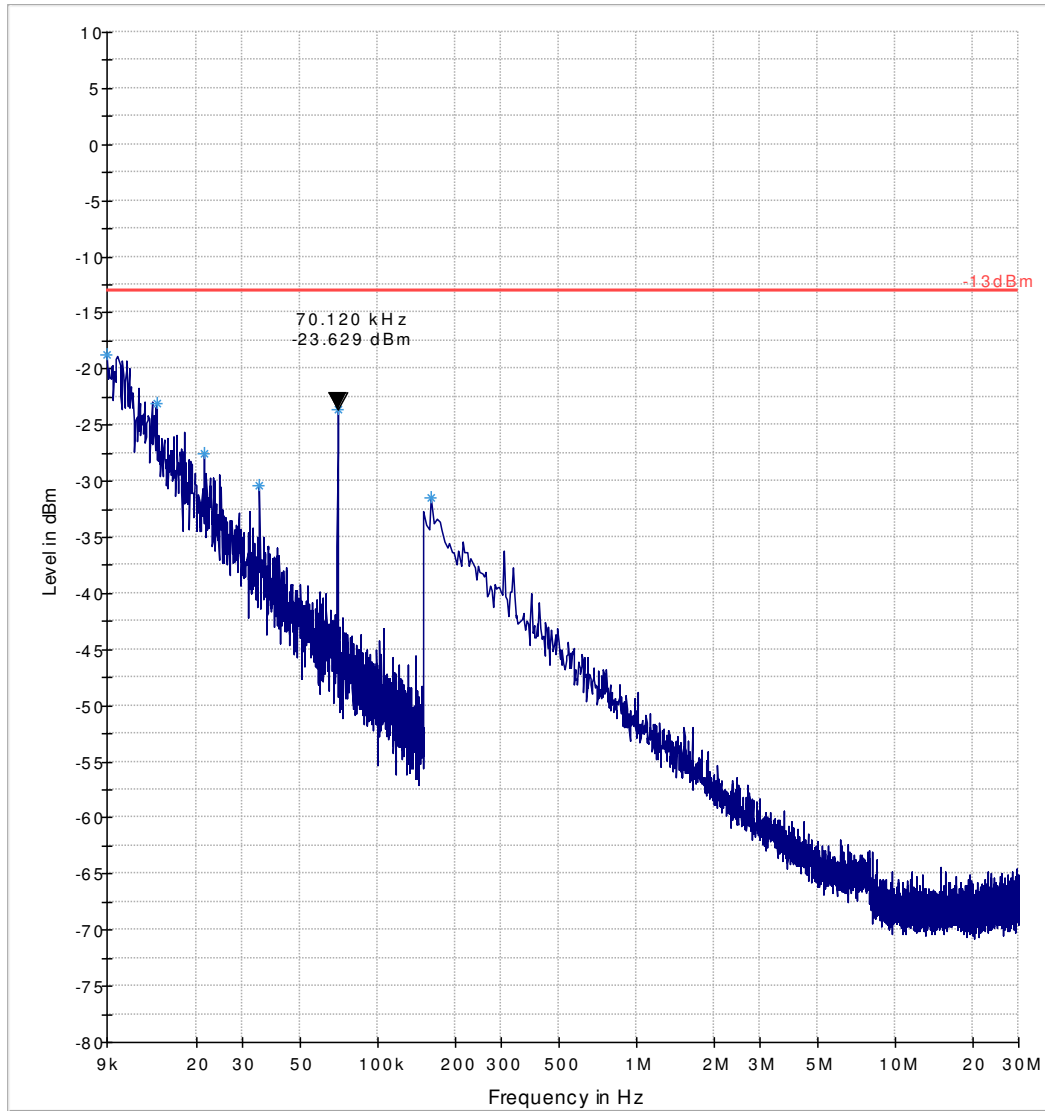
Low Channel  
1 GHz – 9GHz



-13dBm    Preview Result 1-PK+    \*    Data Reduction Result 1 [2]-PK+

Mid Channel

9 KHz – 30 MHz

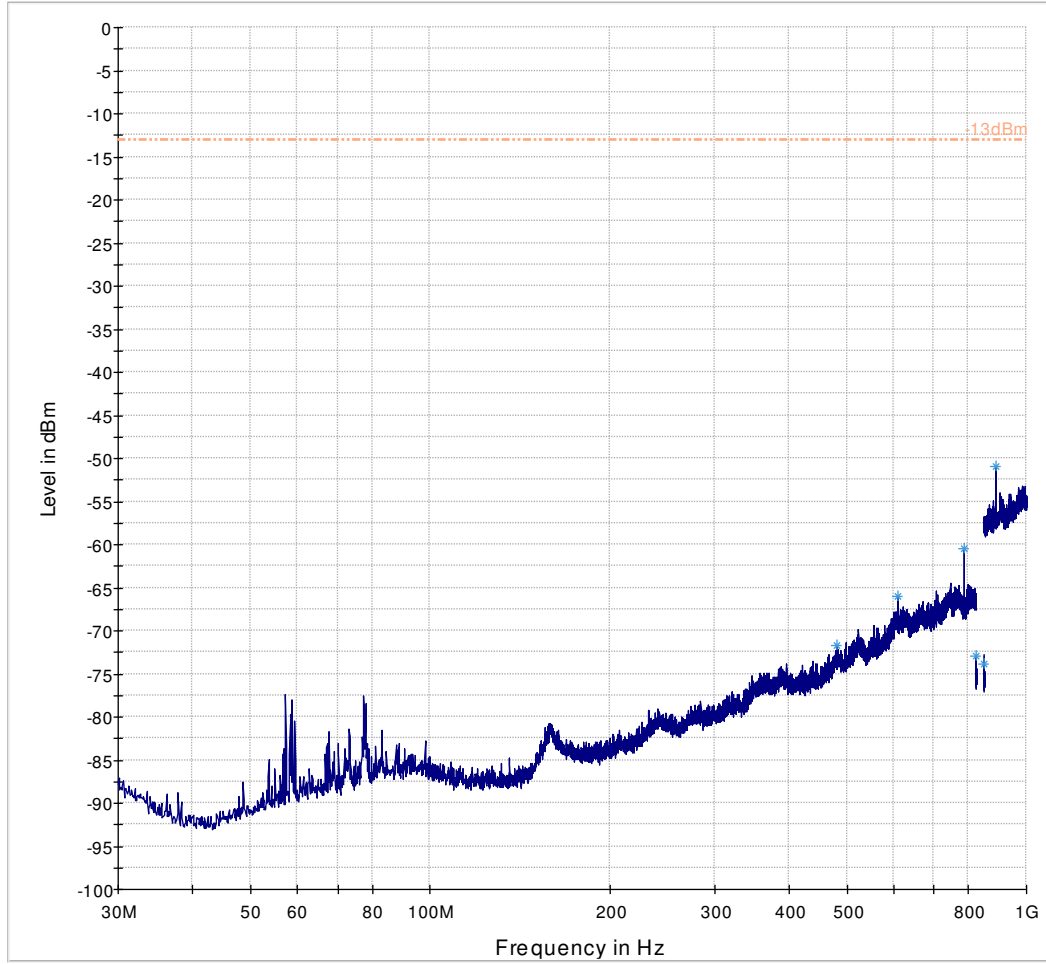


-13dBm    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+



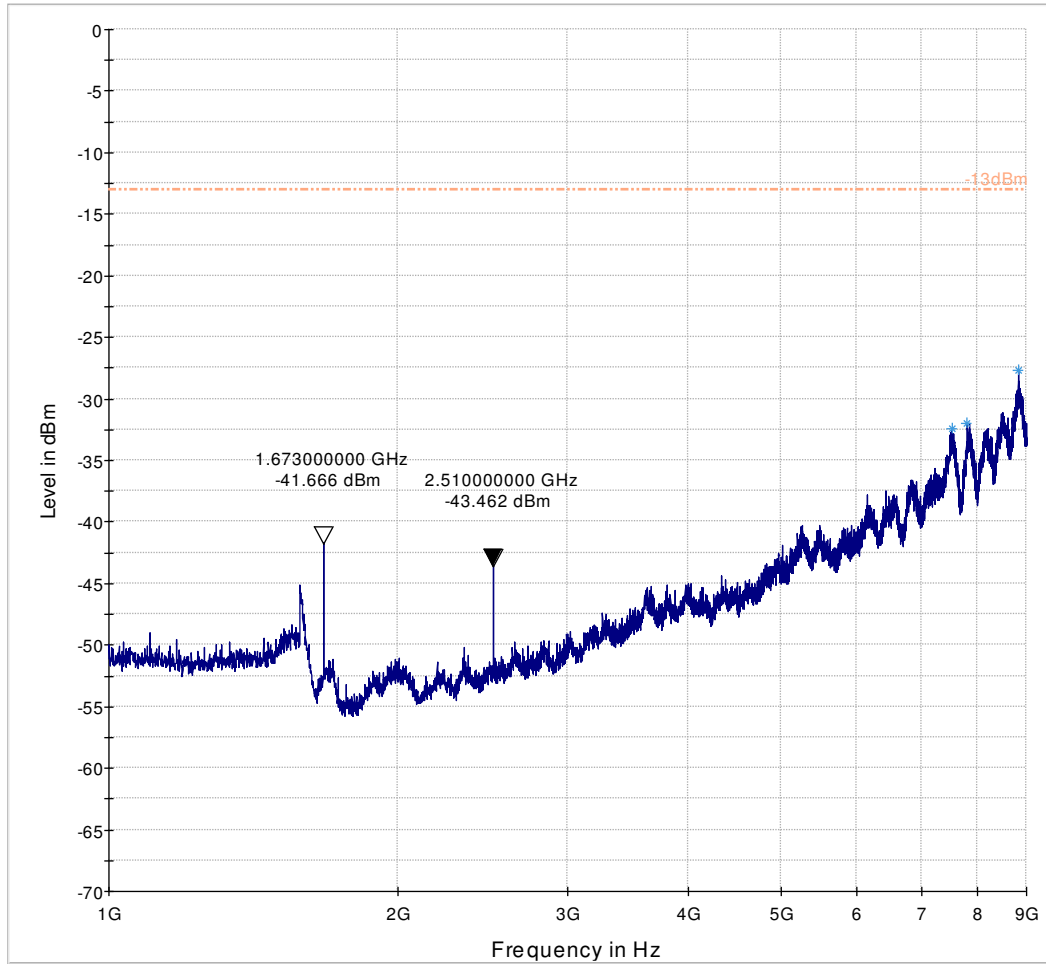
Mid Channel

30 MHz – 1 GHz



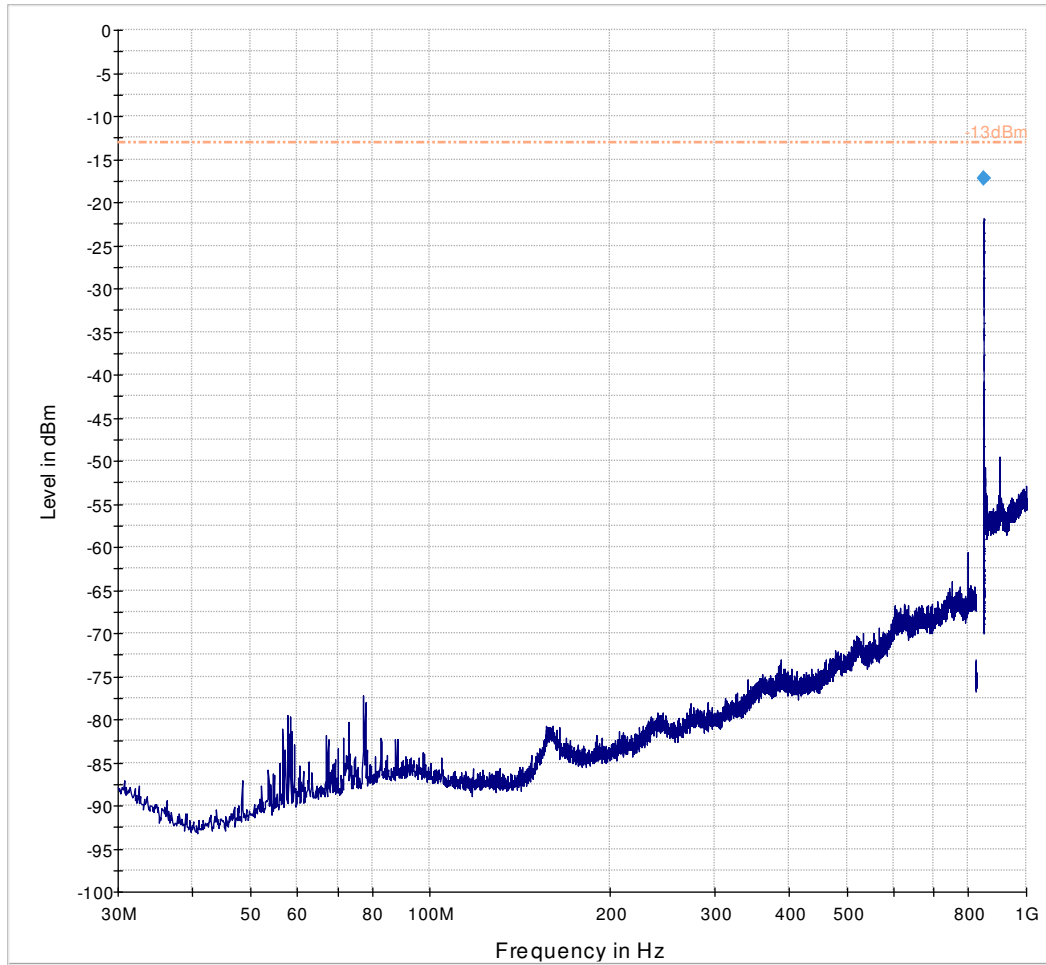
-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+

Mid Channel  
1 GHz – 9 GHz



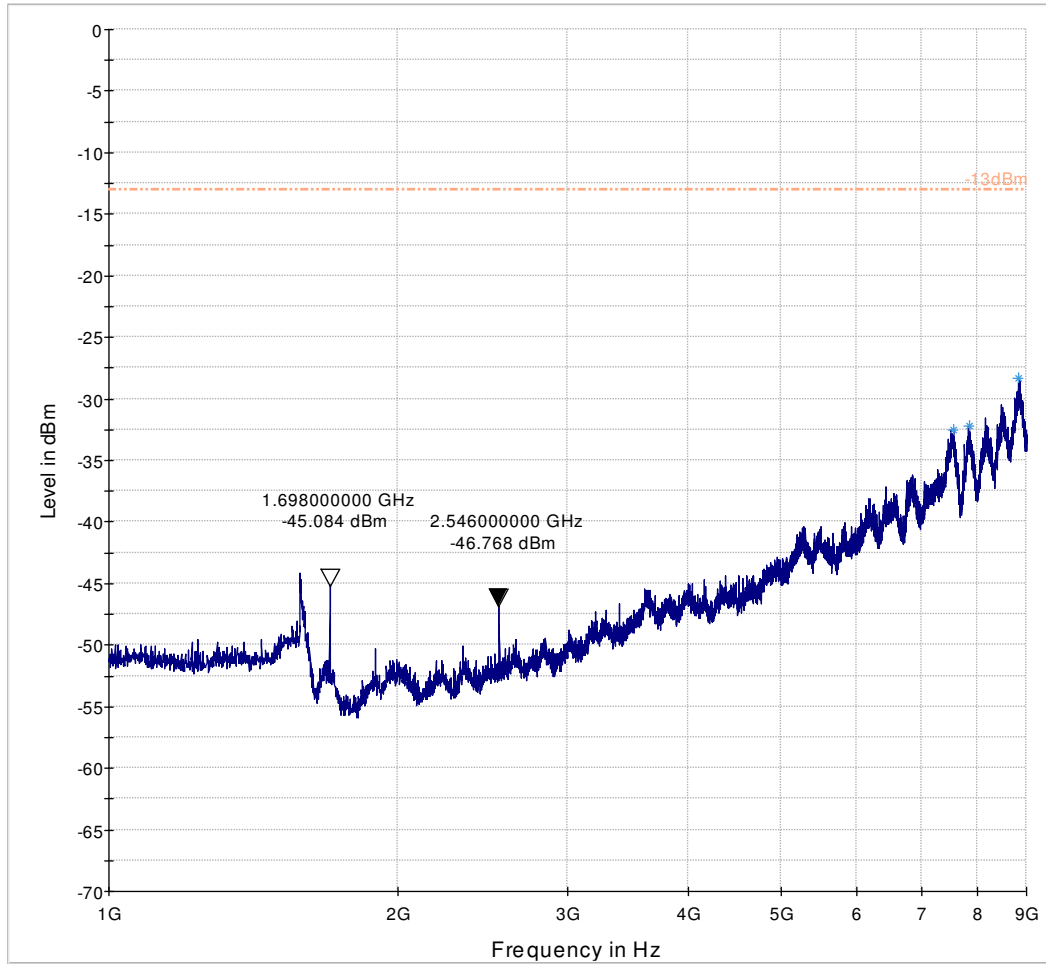
-13dBm    Preview Result 1-PK+    \*    Data Reduction Result 1 [2]-PK+

High Channel  
30 MHz – 1 GHz



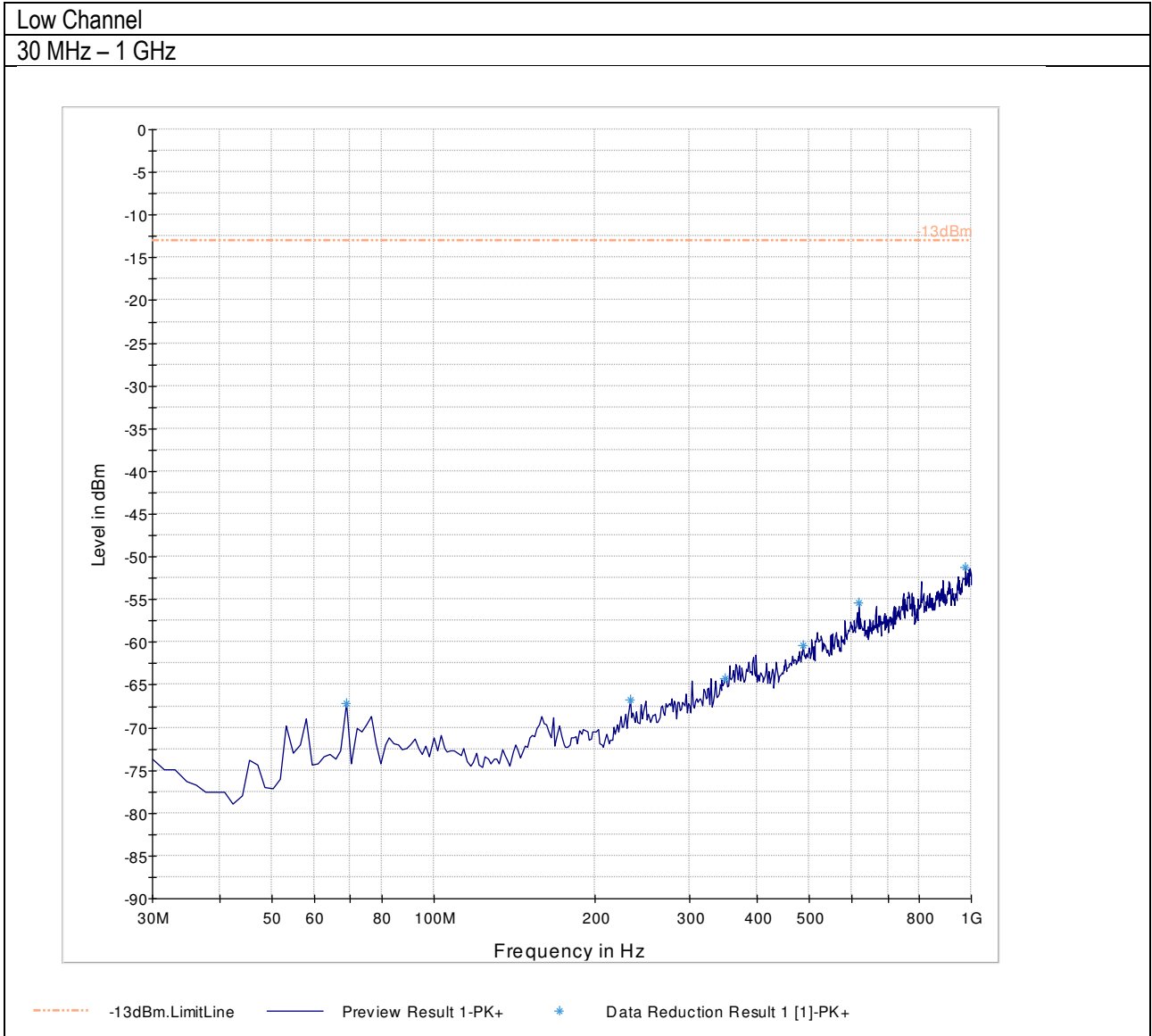
-13dBm.LimitLine    Preview Result 1-PK+    Final Result 1-PK+

High Channel  
1 GHz – 9 GHz

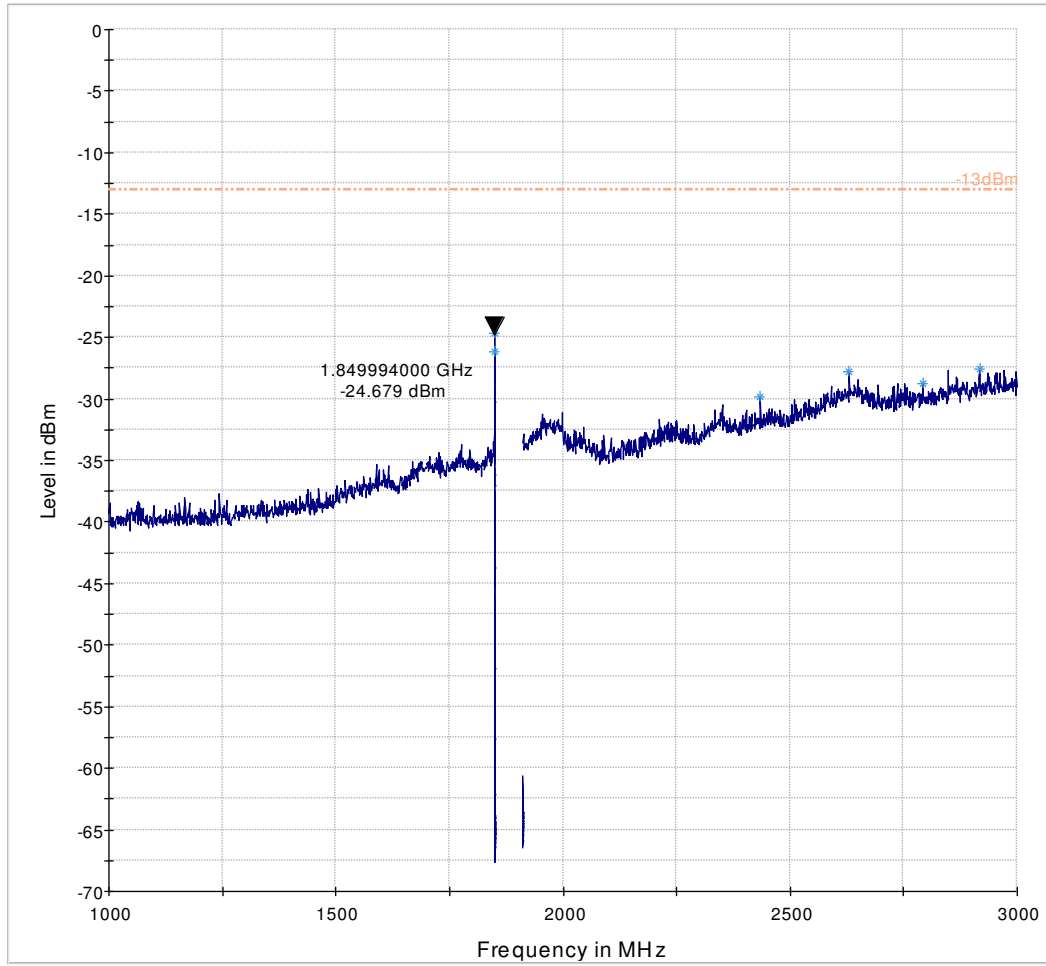


-13dBm    Preview Result 1-PK+    \*    Data Reduction Result 1 [2]-PK+

### 7.3.2 GSM 1900 Radiated Plots



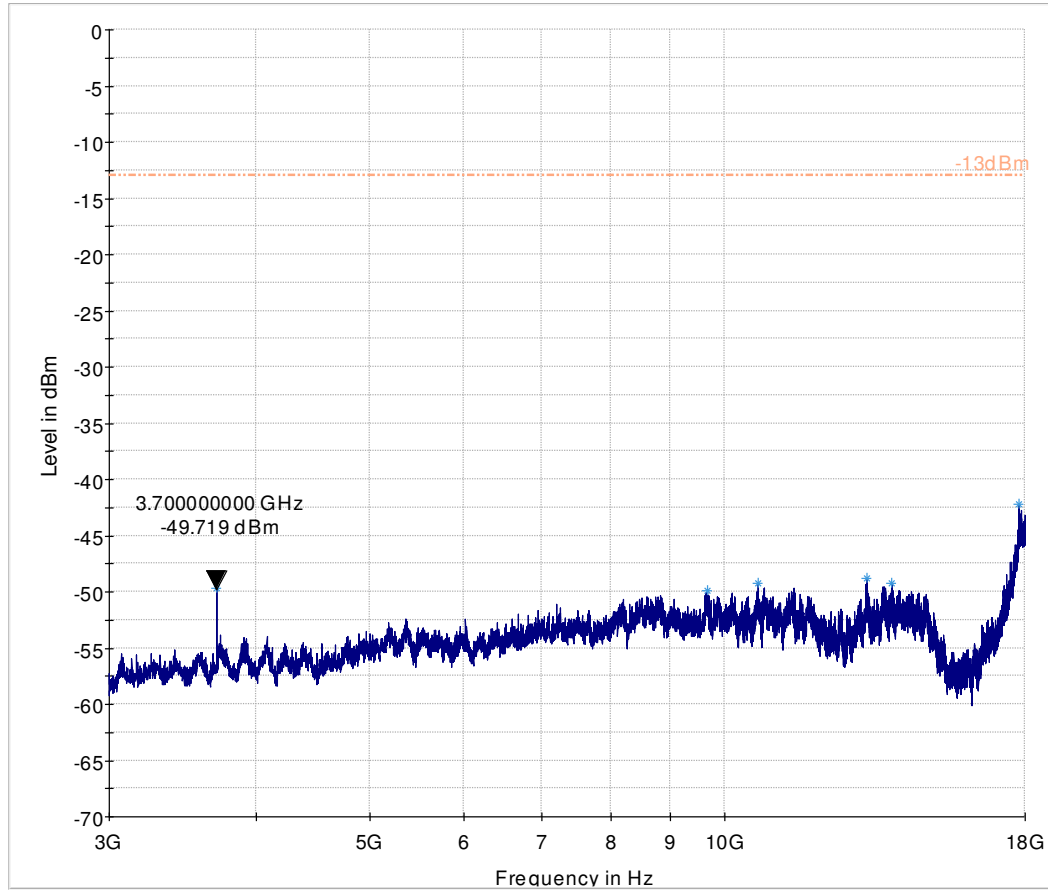
Low Channel  
1 GHz – 3GHz



- - - - -13dBm.LimitLine      — Preview Result 1-PK+      \* Data Reduction Result 1 [2]-PK+

Low Channel

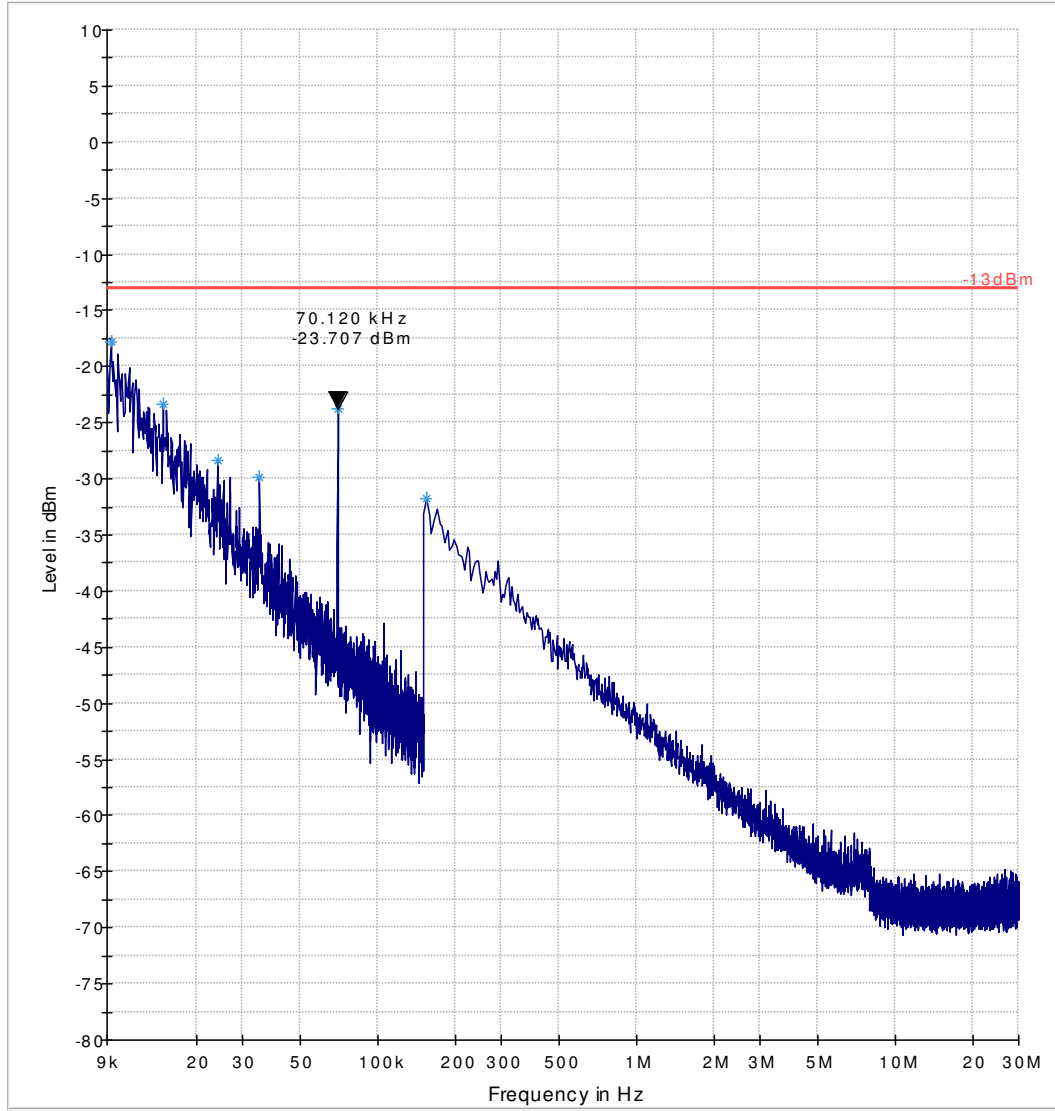
3 GHz – 18 GHz



-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [3]-PK+

Mid Channel

9 KHz – 30 MHz

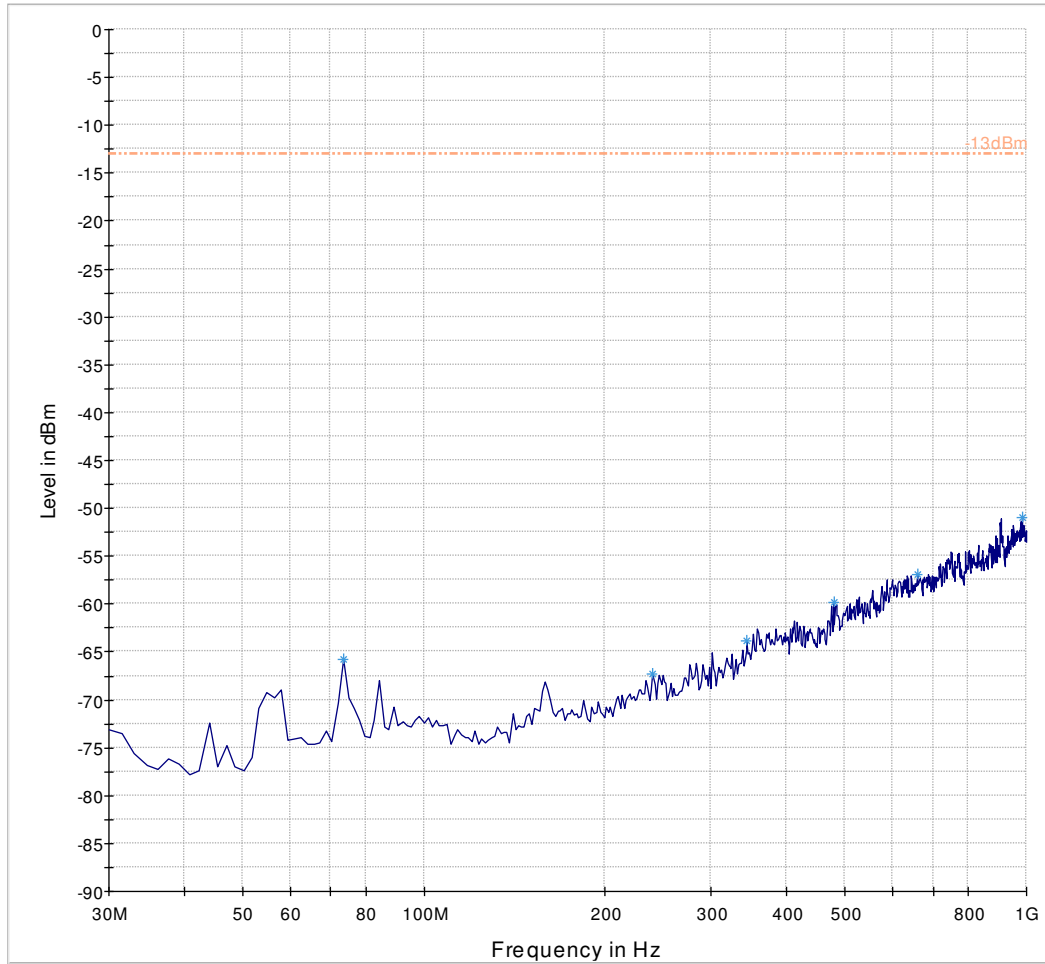


— -13dBm — Preview Result 1-PK+ \* Data Reduction Result 1 [1]-PK+



Mid Channel

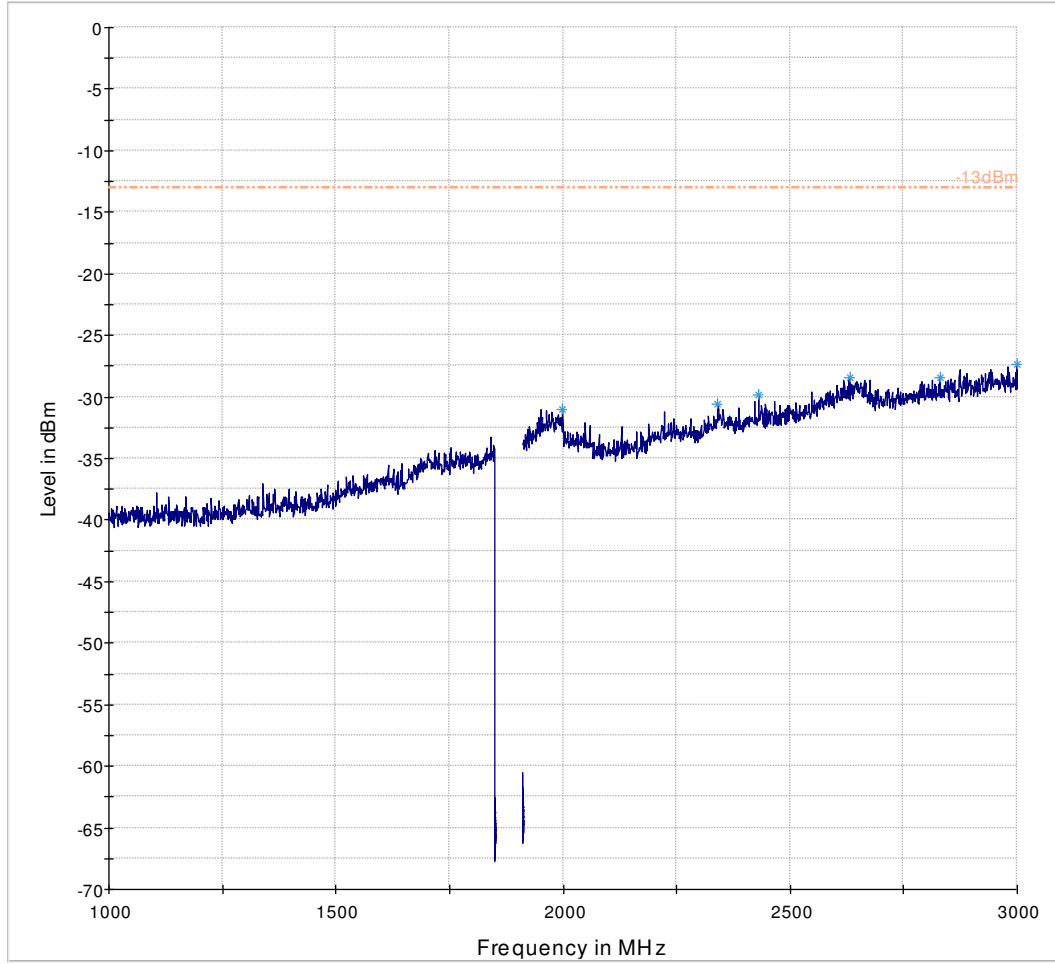
30 MHz – 1 GHz



-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+

Mid Channel

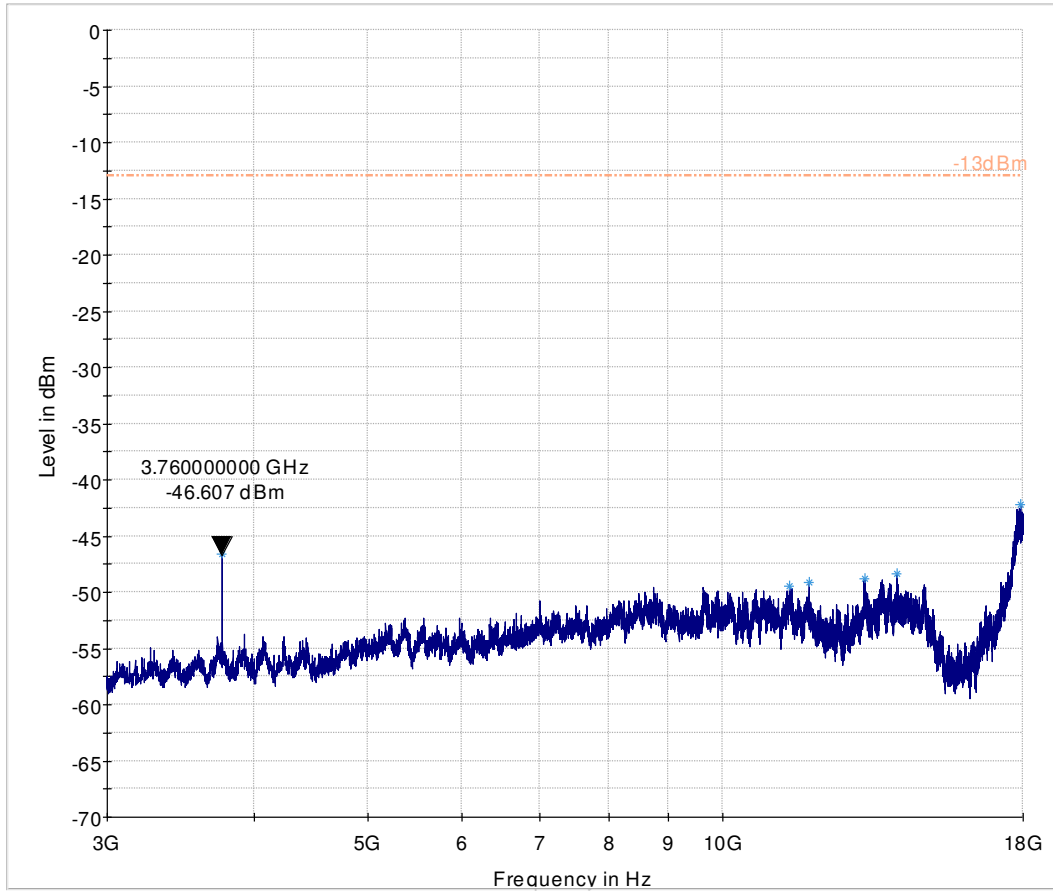
1 GHz – 3GHz



-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [2]-PK+

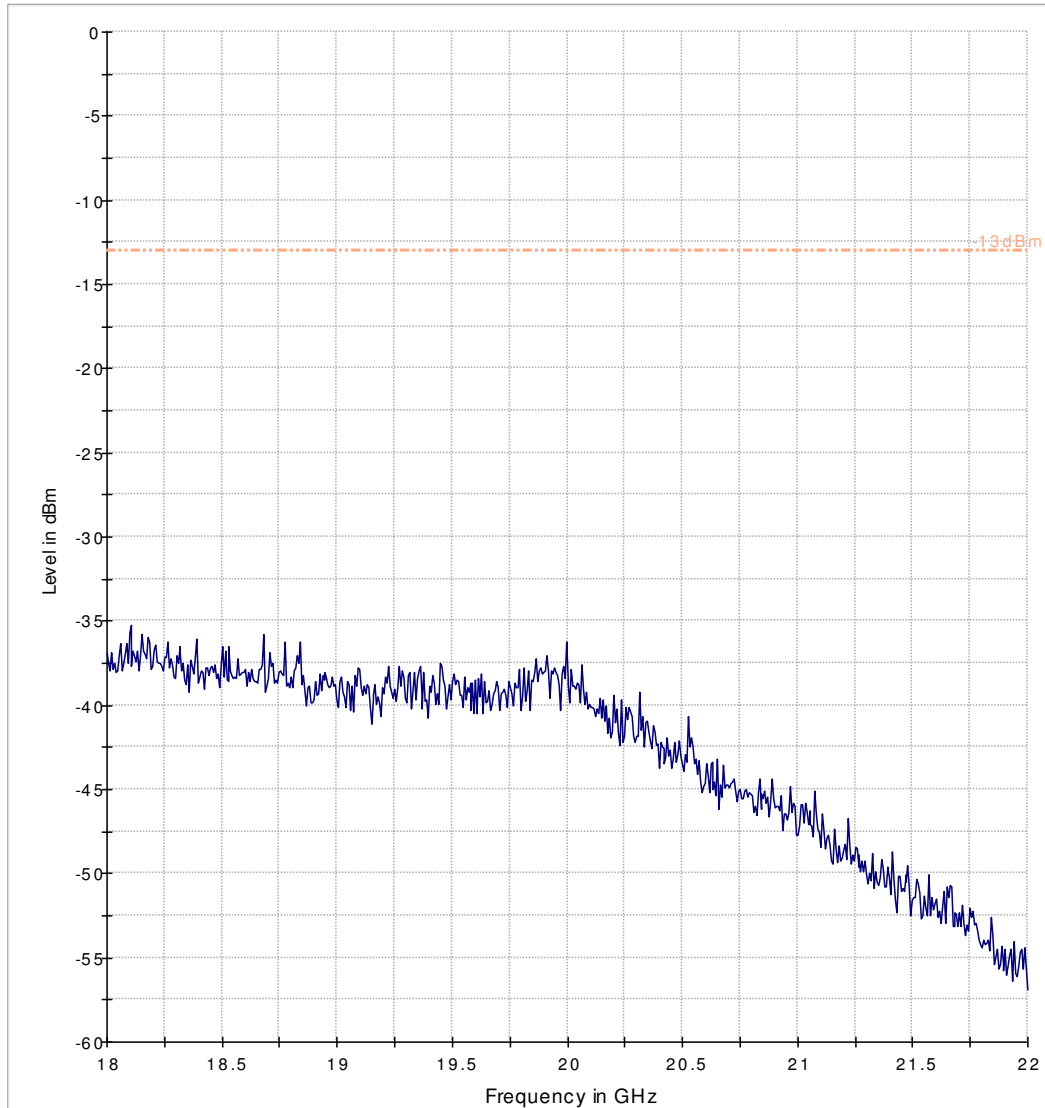
Mid Channel

3 GHz – 18 GHz

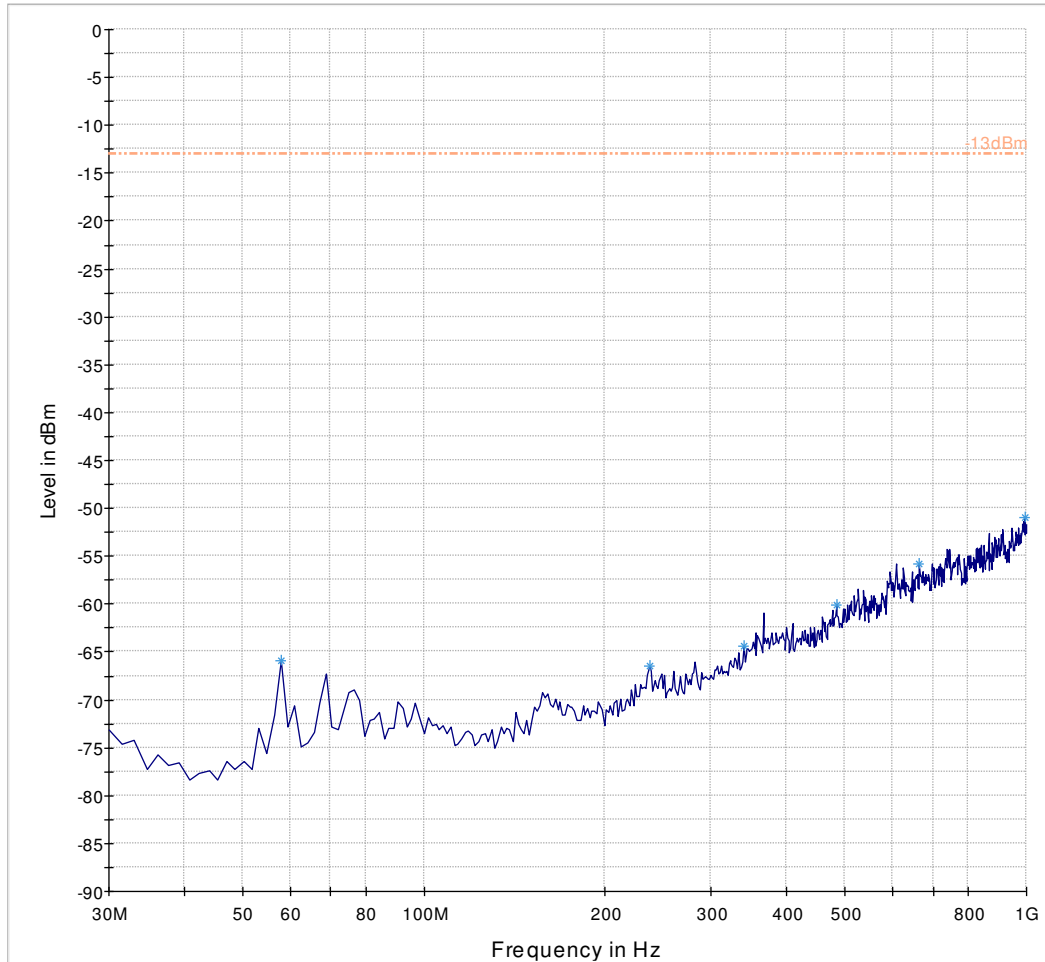


Mid Channel

18 GHz – 22 GHz

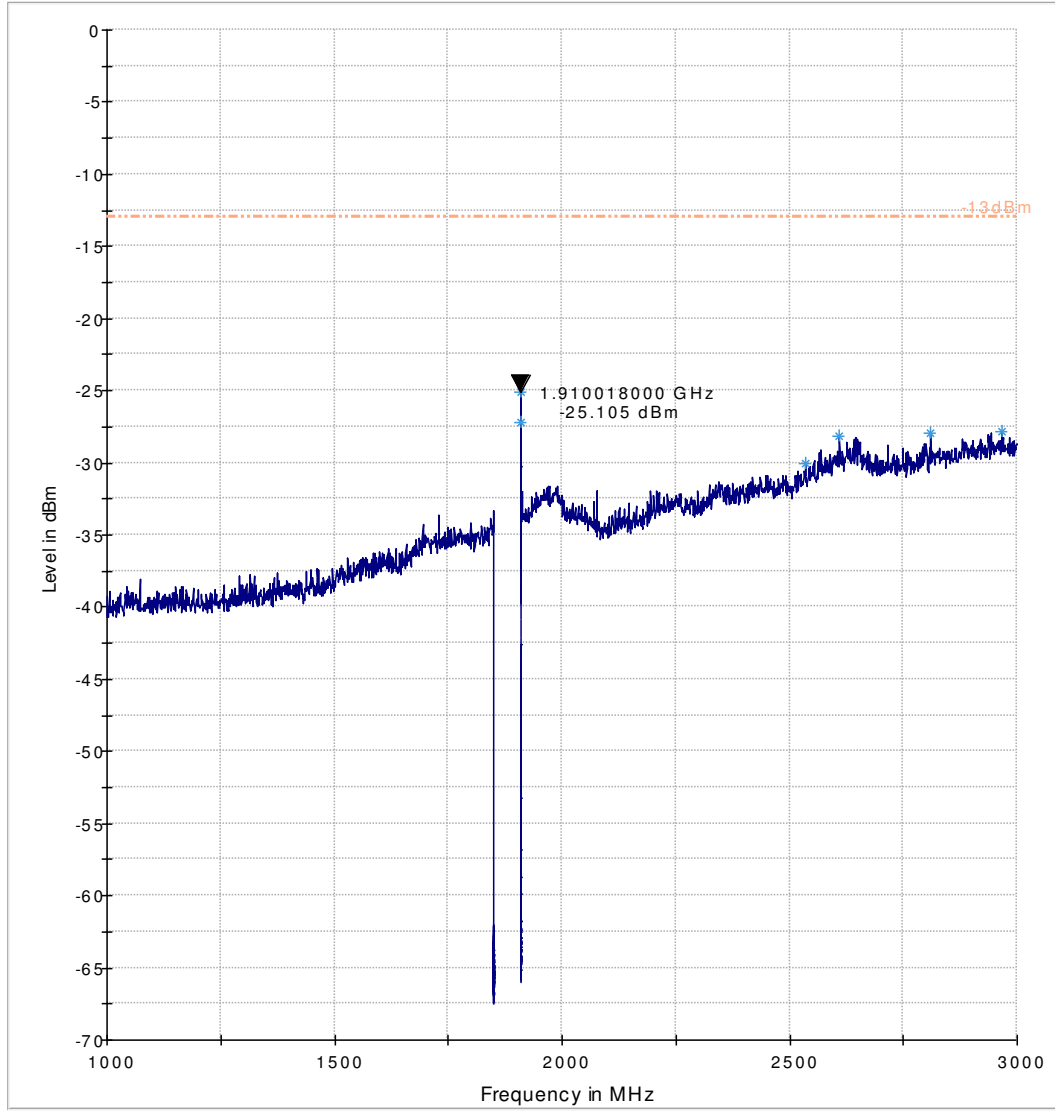


High Channel  
30 MHz – 1 GHz



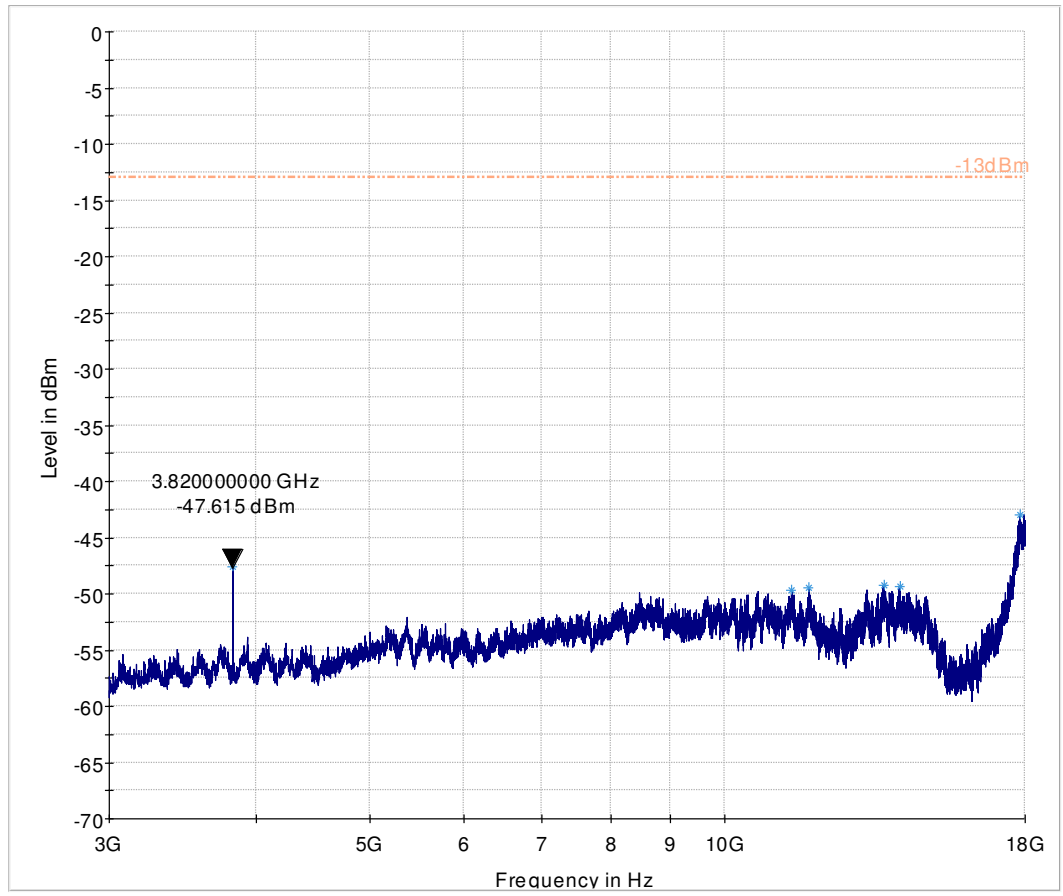
-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+

High Channel  
1 GHz - 3GHz



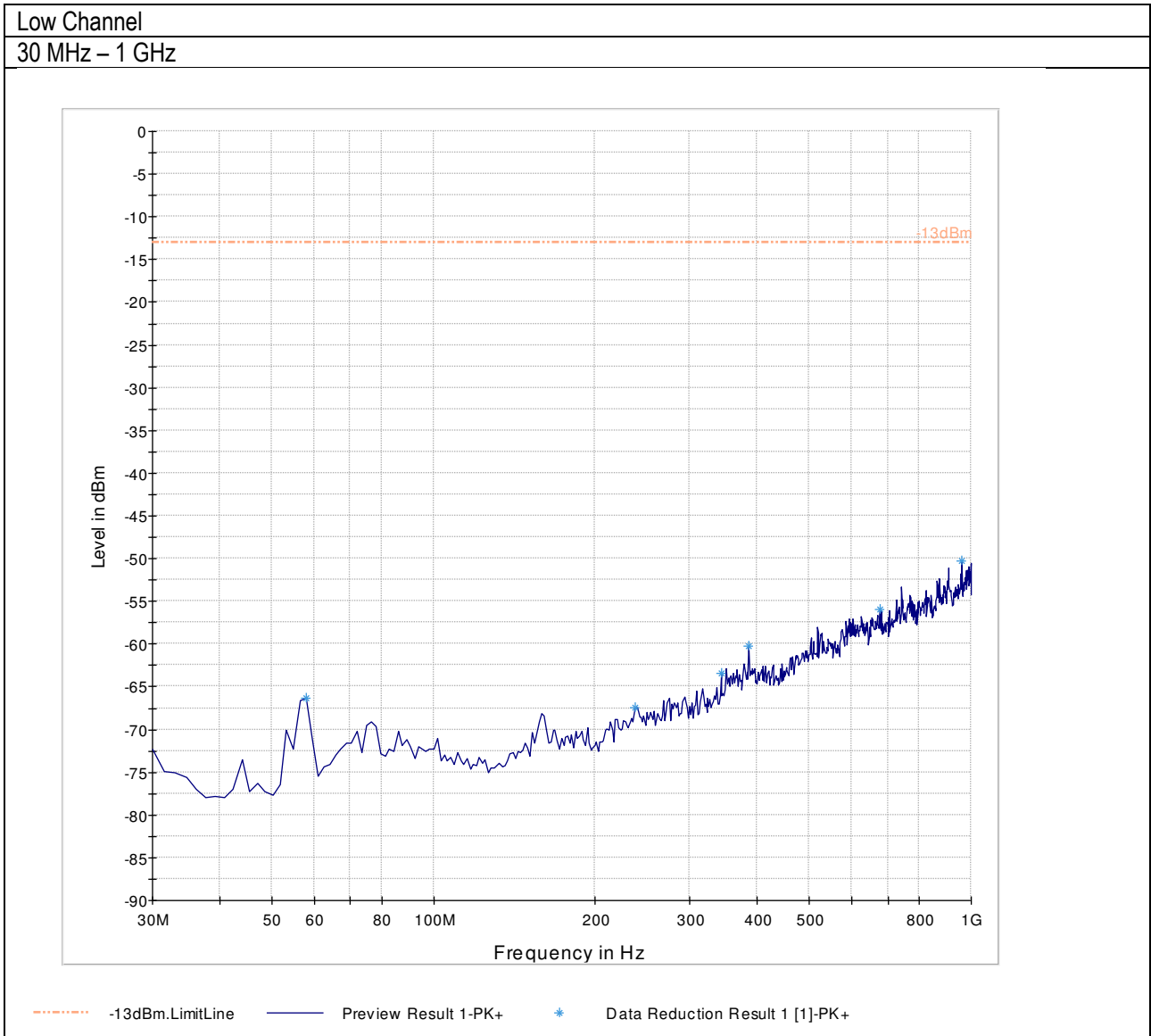
-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [2]-PK+

High Channel  
3 GHz – 18 GHz



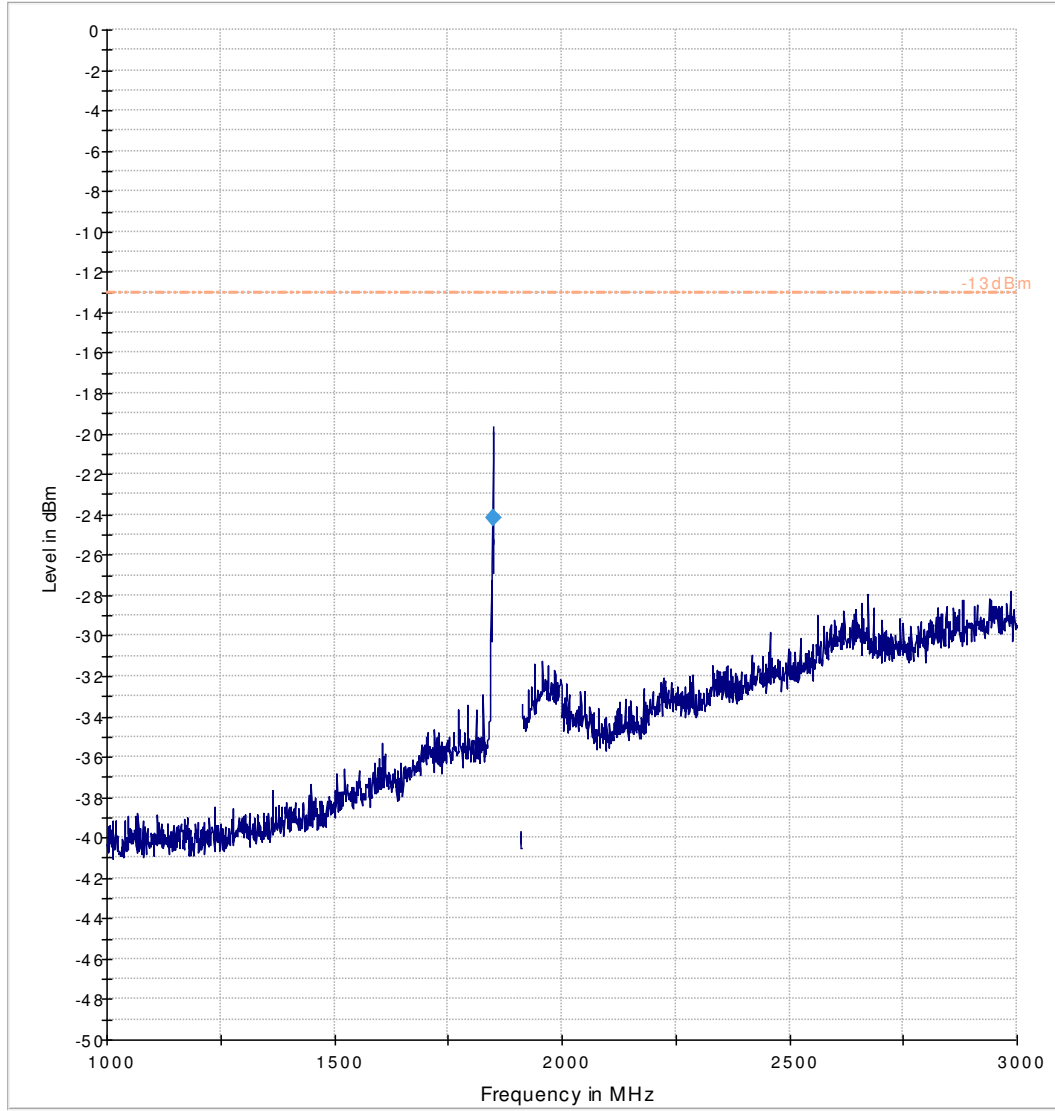
-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [3]-PK+

### 7.3.3 FDD II Radiated Plots





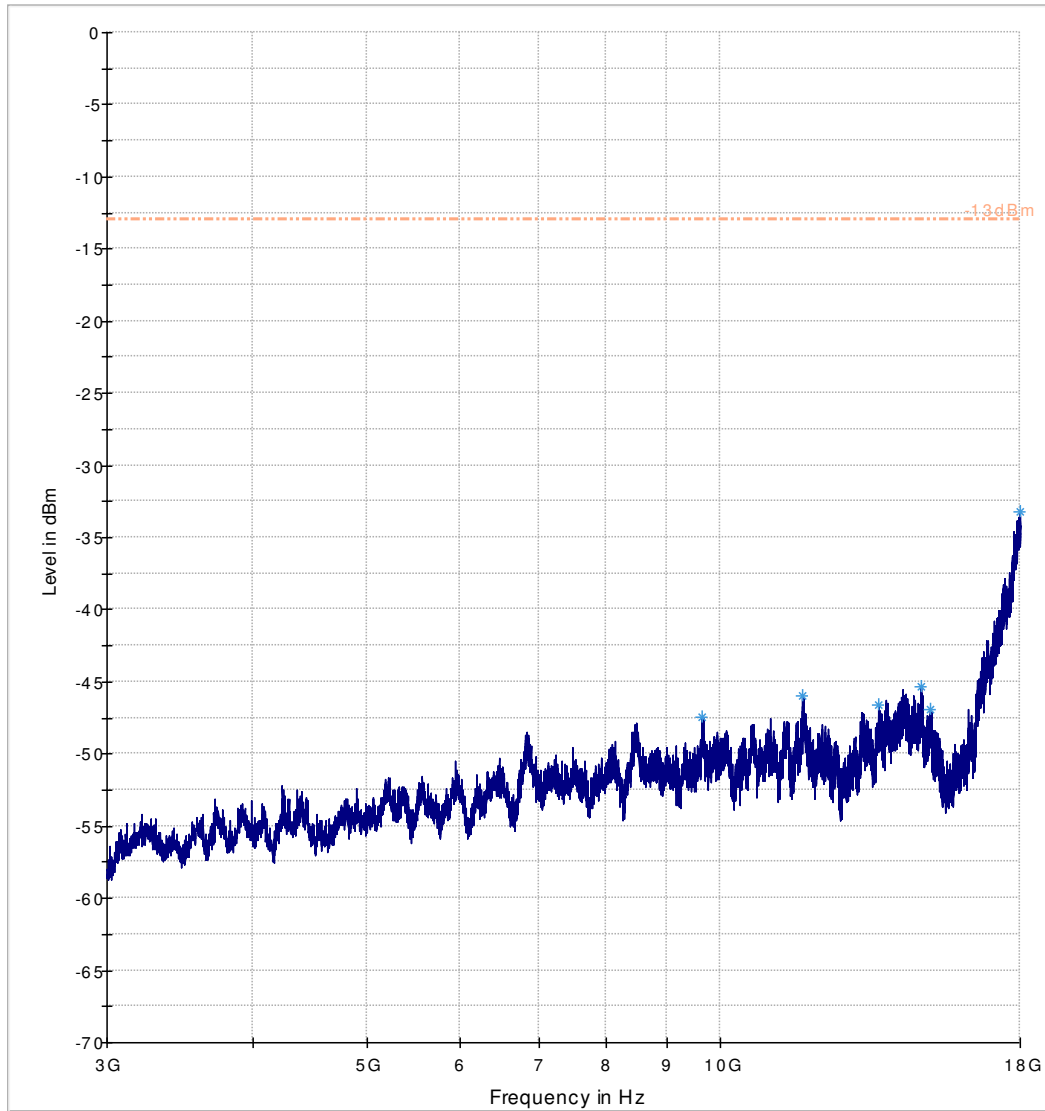
Low Channel  
1 GHz – 3GHz



-13dBm.LimitLine — Preview Result 1-PK+ ◆ Final Result 1-RMS

Low Channel

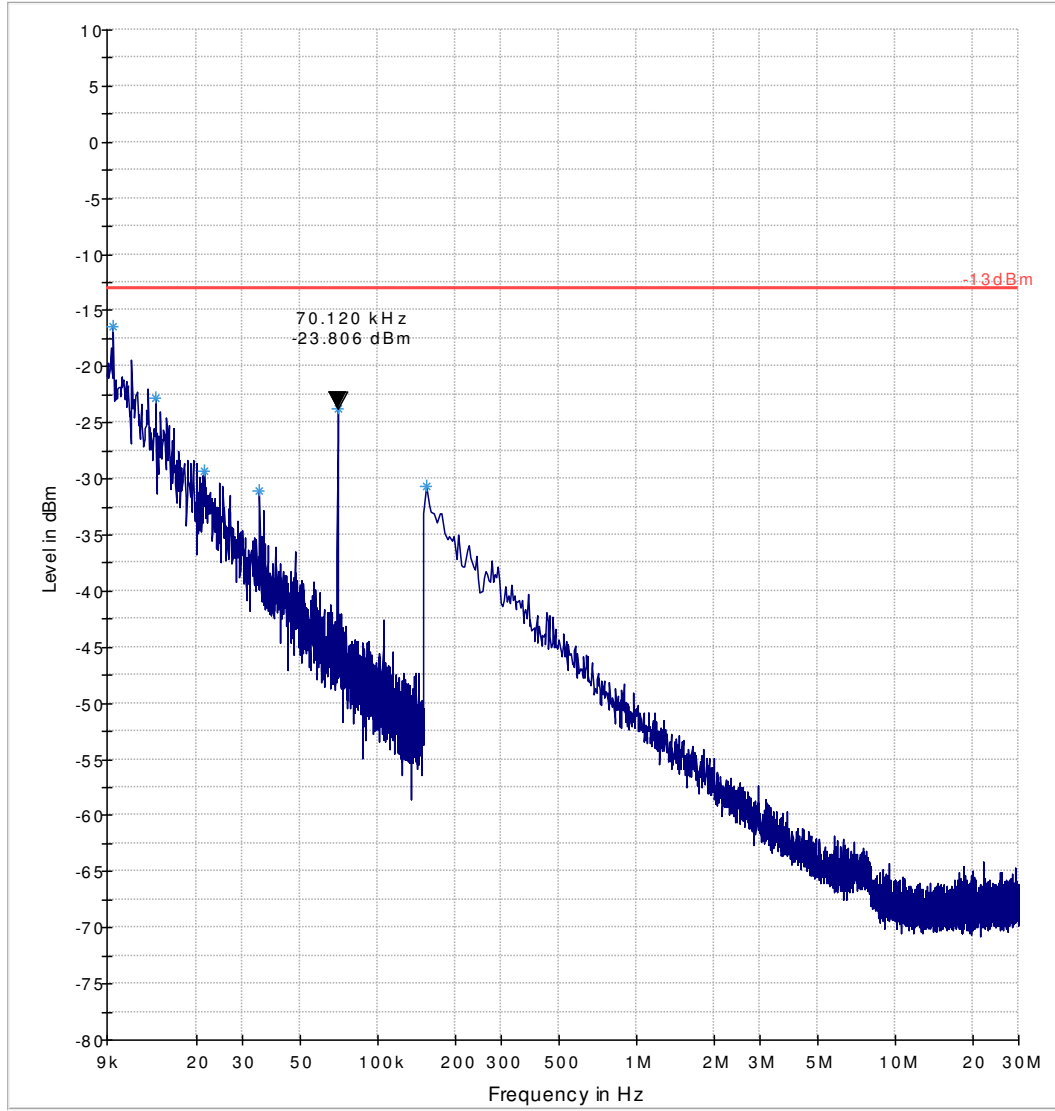
3 GHz – 18 GHz



-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [3]-PK +

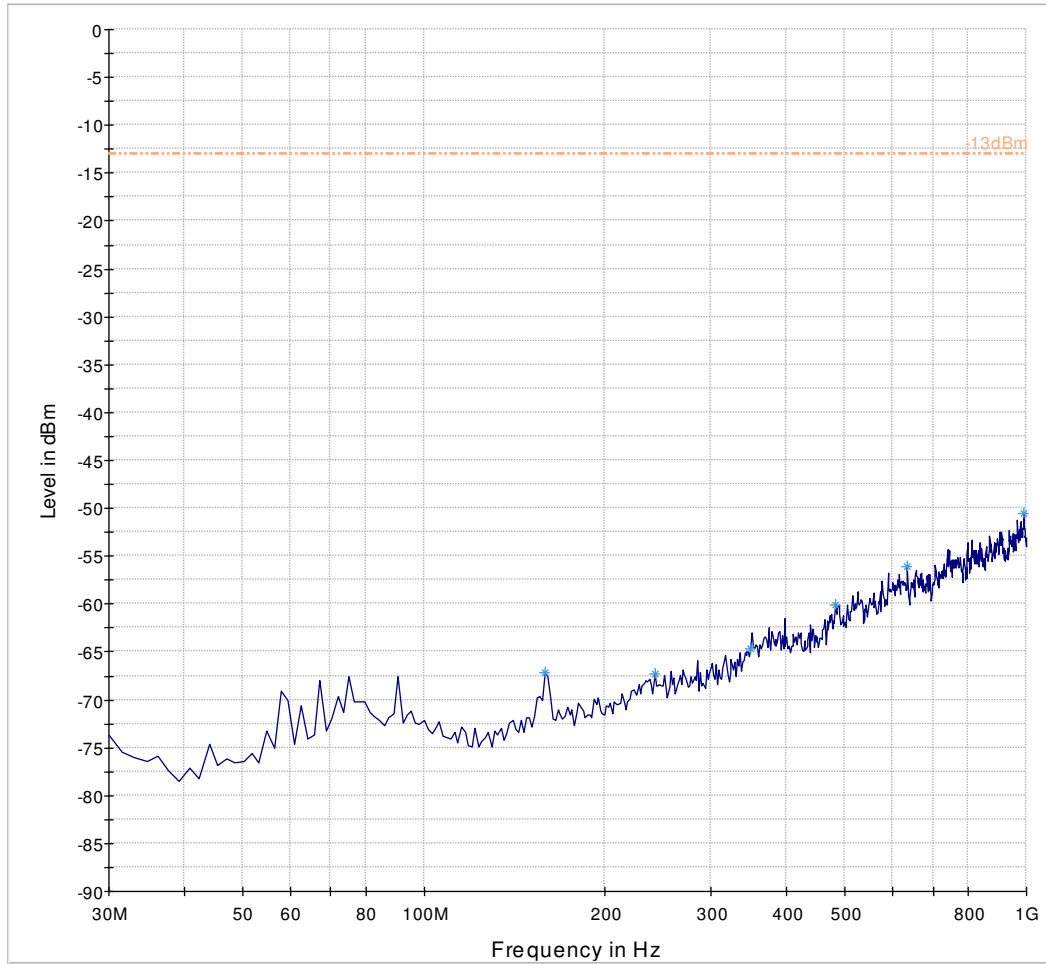
Mid Channel

9 KHz – 30 MHz



Mid Channel

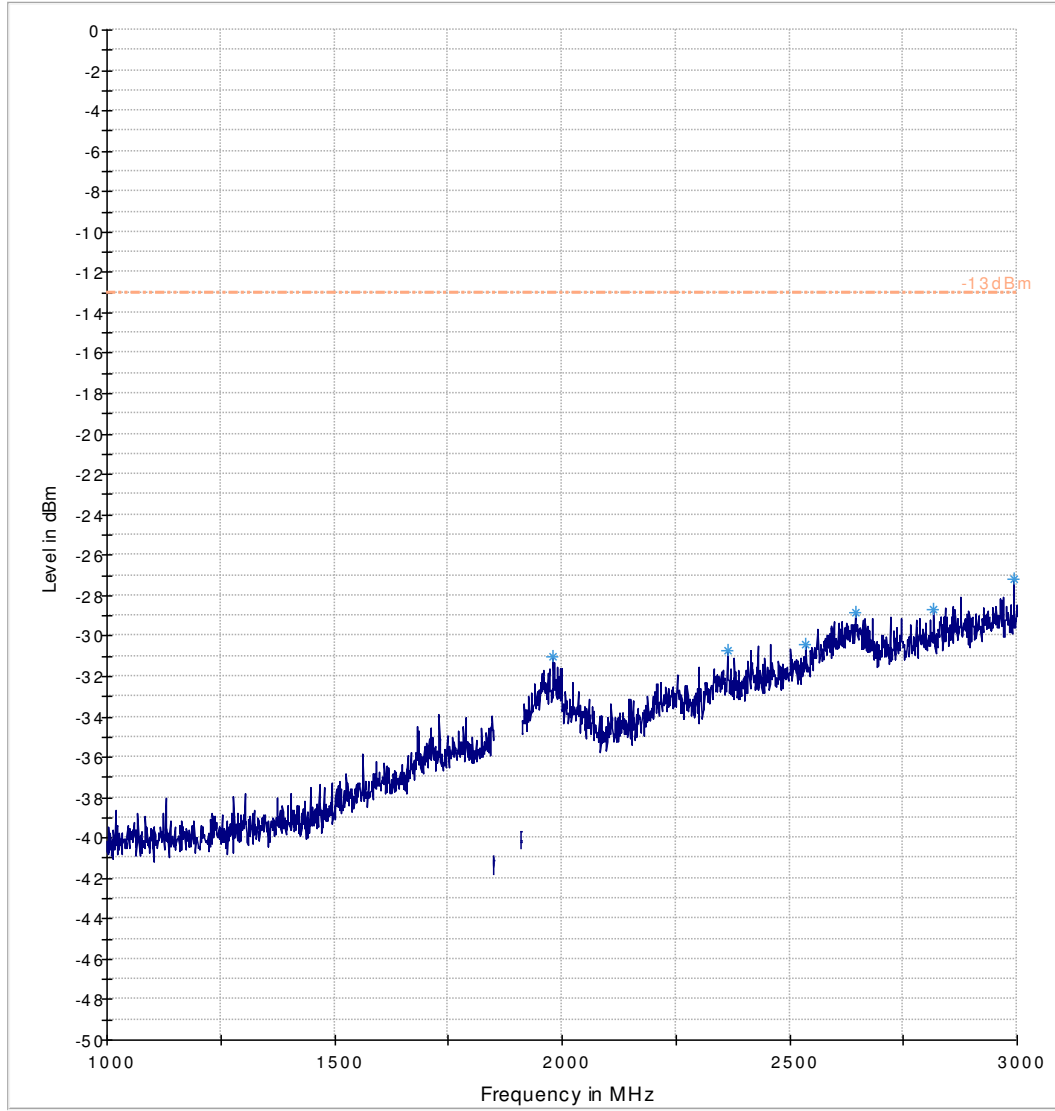
30 MHz – 1 GHz



-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+

Mid Channel

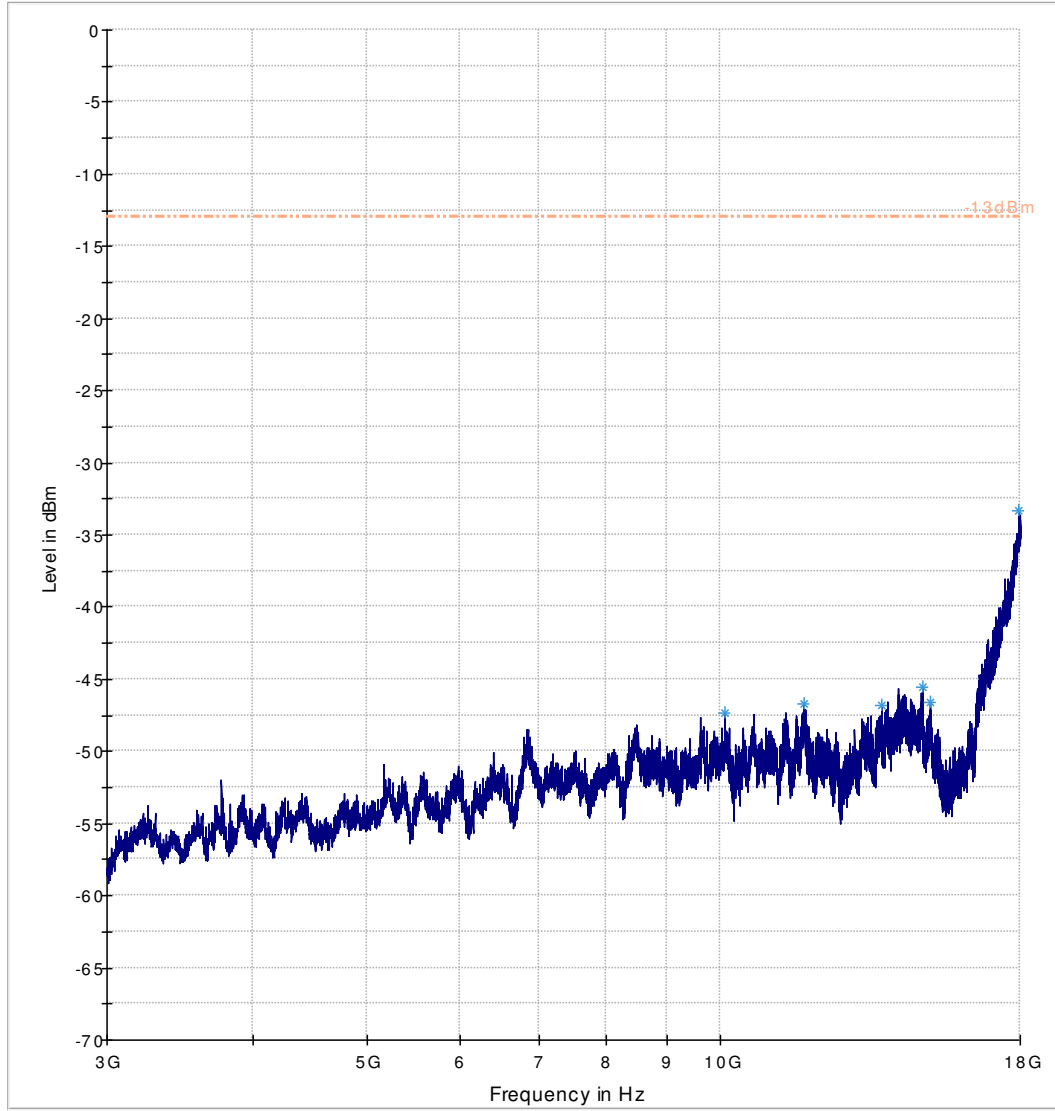
1 GHz – 3GHz



-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [2]-PK+

Mid Channel

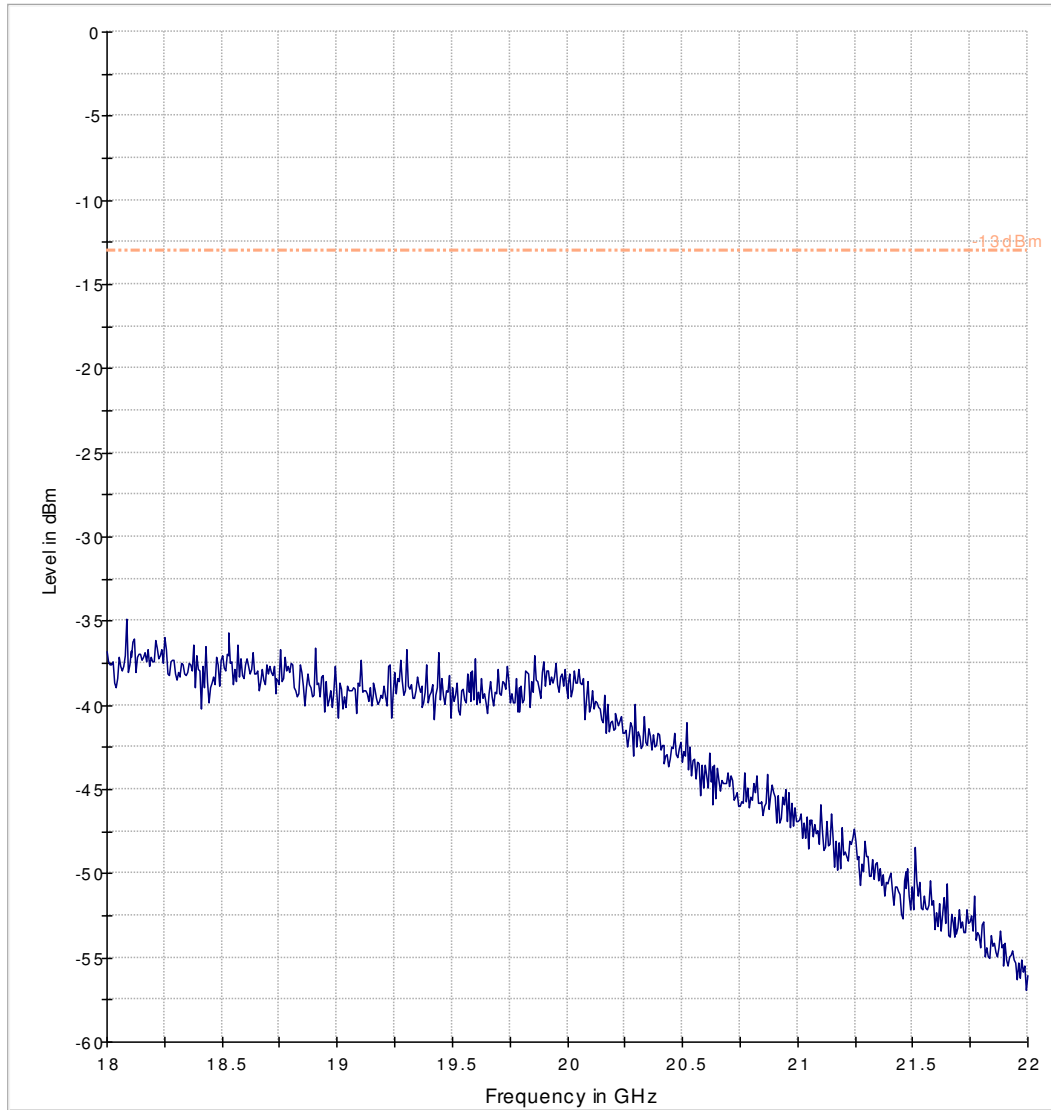
3 GHz – 18 GHz



-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [3]-PK+

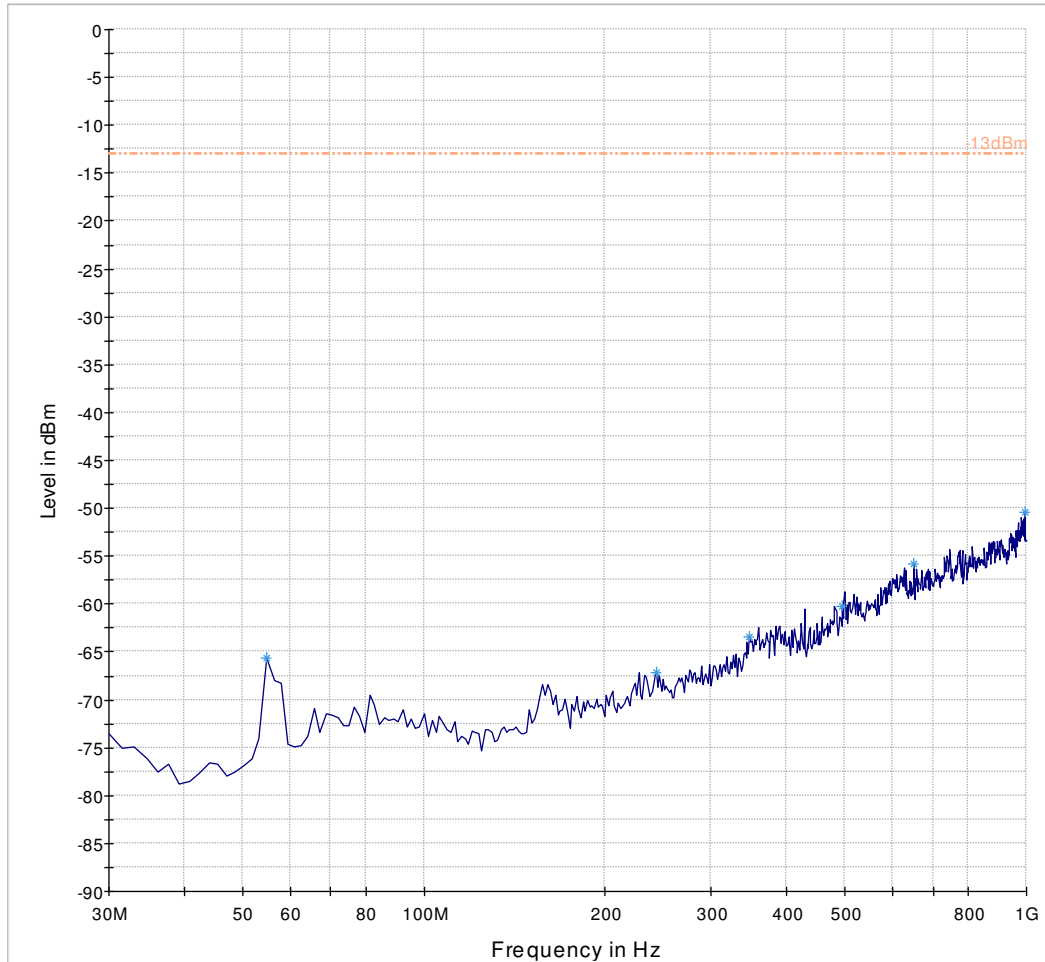
Mid Channel

18 GHz – 26 GHz



-13dBm    Preview Result 1-PK+

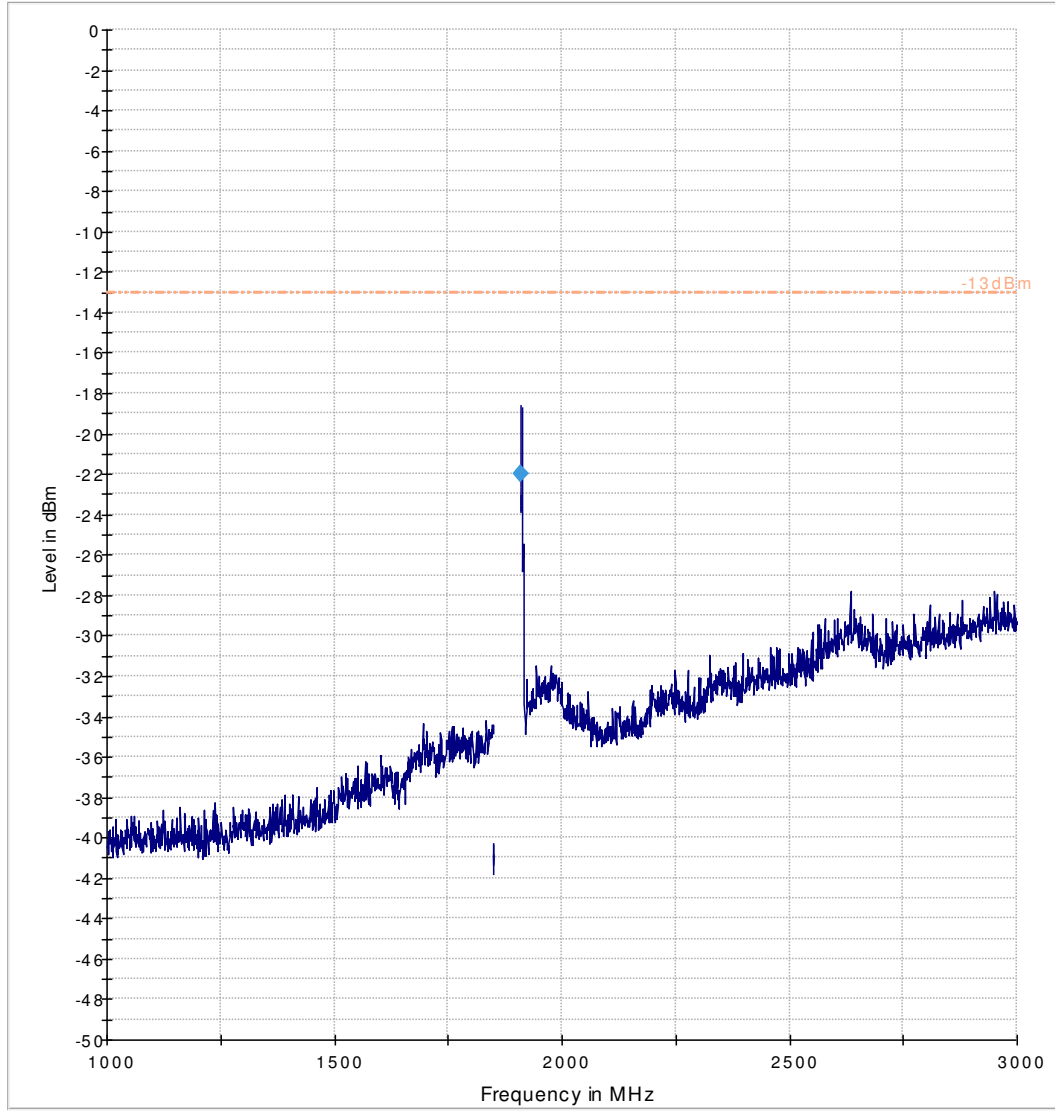
High Channel  
30 MHz – 1 GHz



-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+

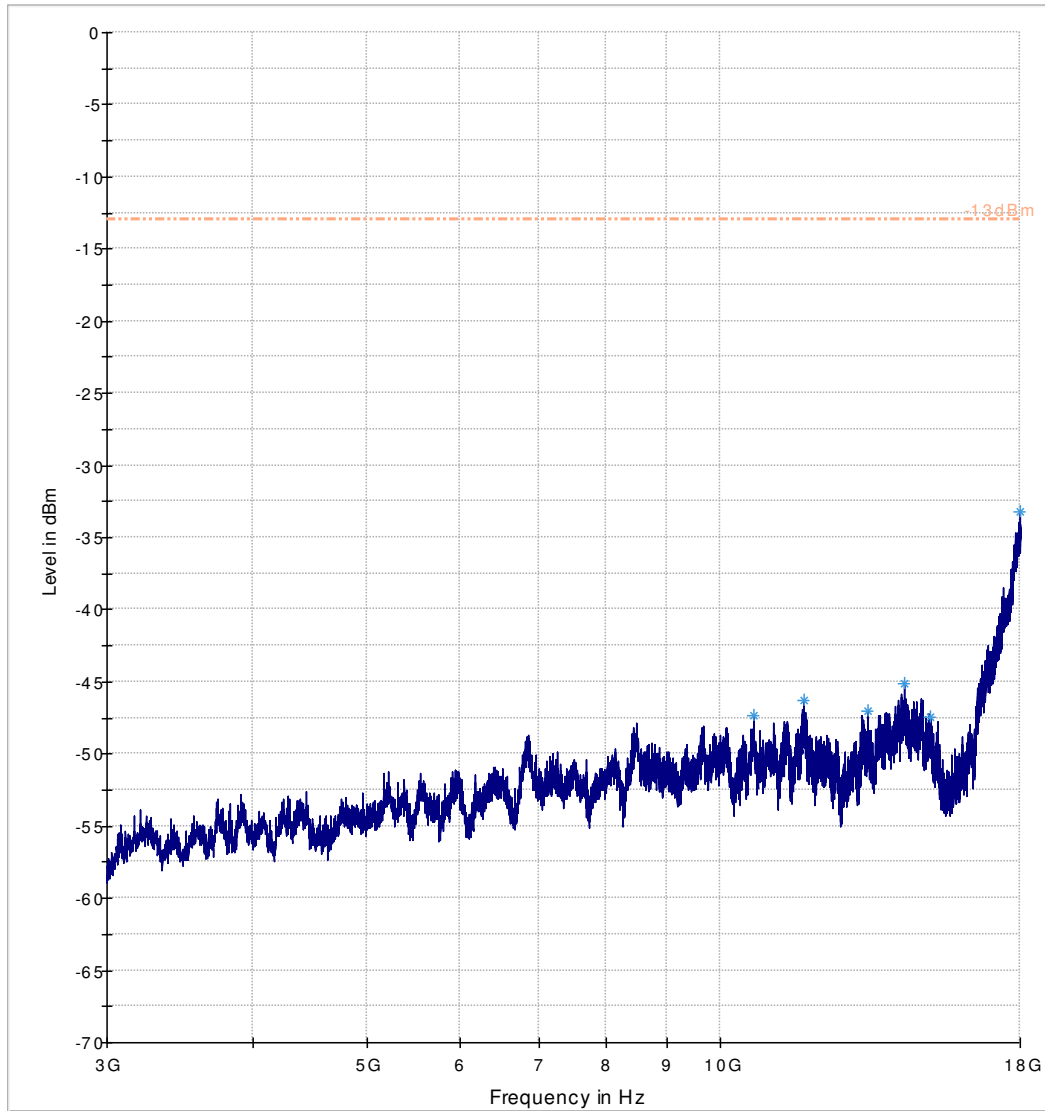


High Channel  
1 GHz - 3GHz



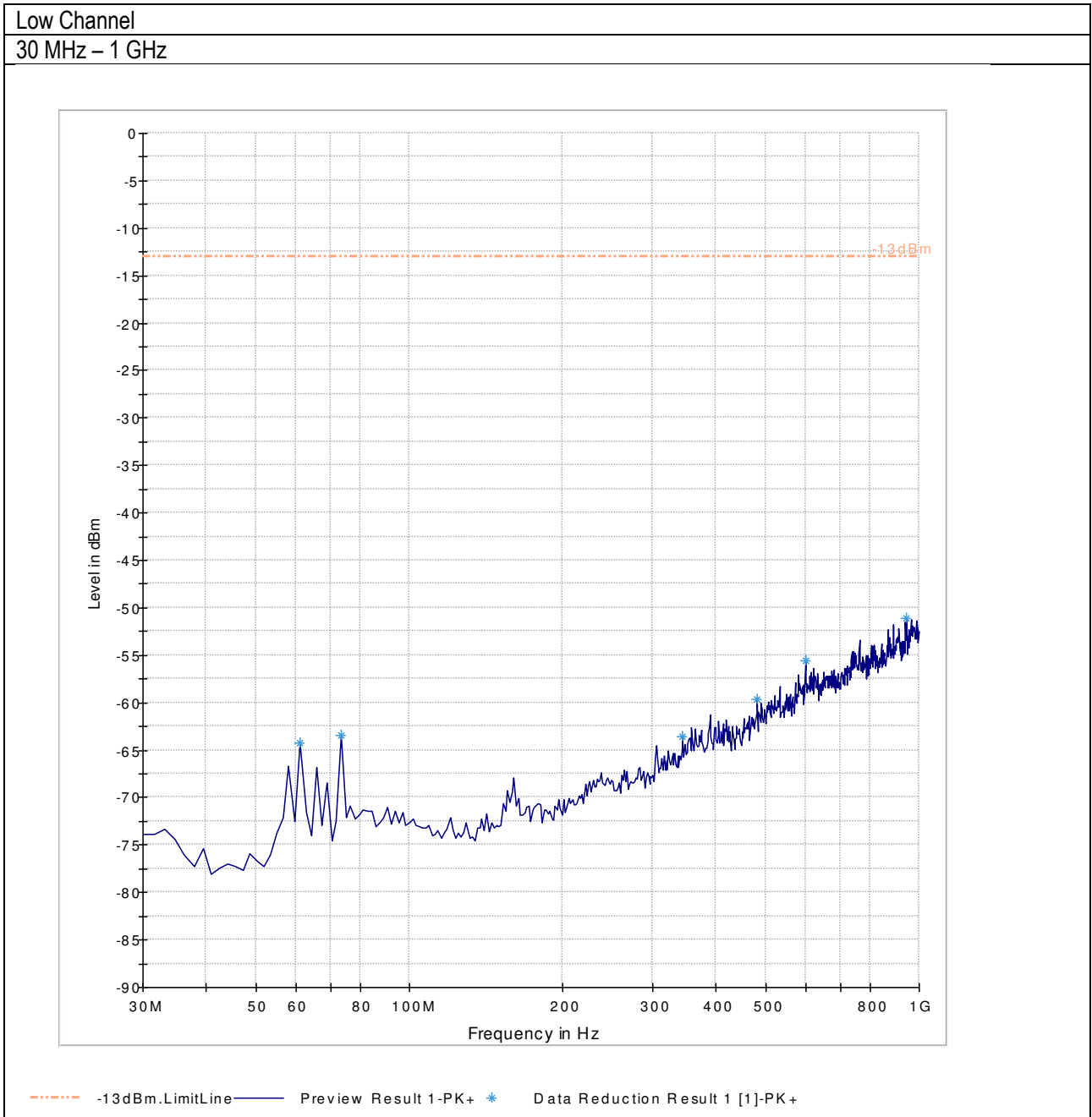
-13dBm.LimitLine — Preview Result 1-PK+ ◆ Final Result 1-RMS

High Channel  
3 GHz – 18 GHz

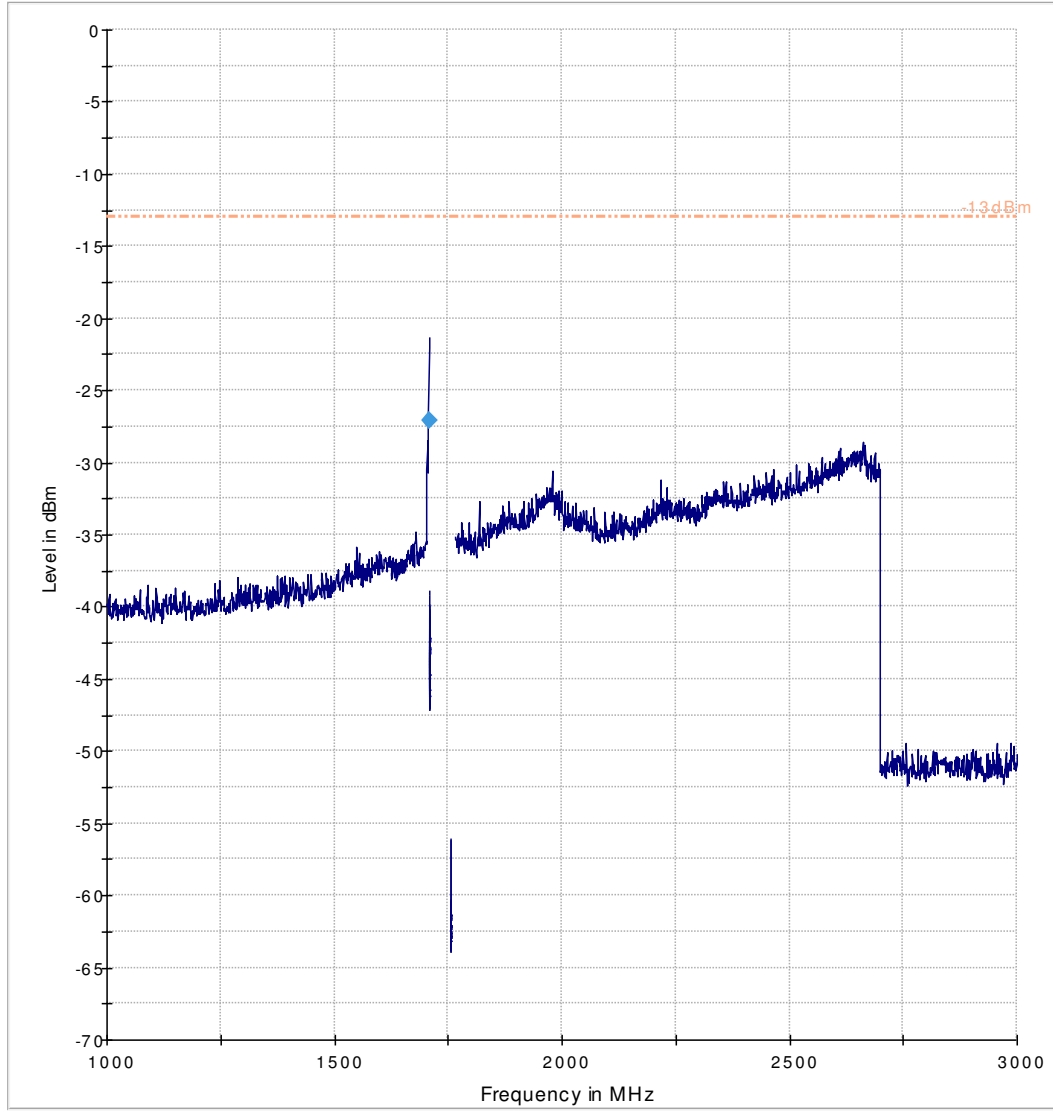


- - - - -13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [3]-PK+

### 7.3.4 FDD IV Radiated Plots

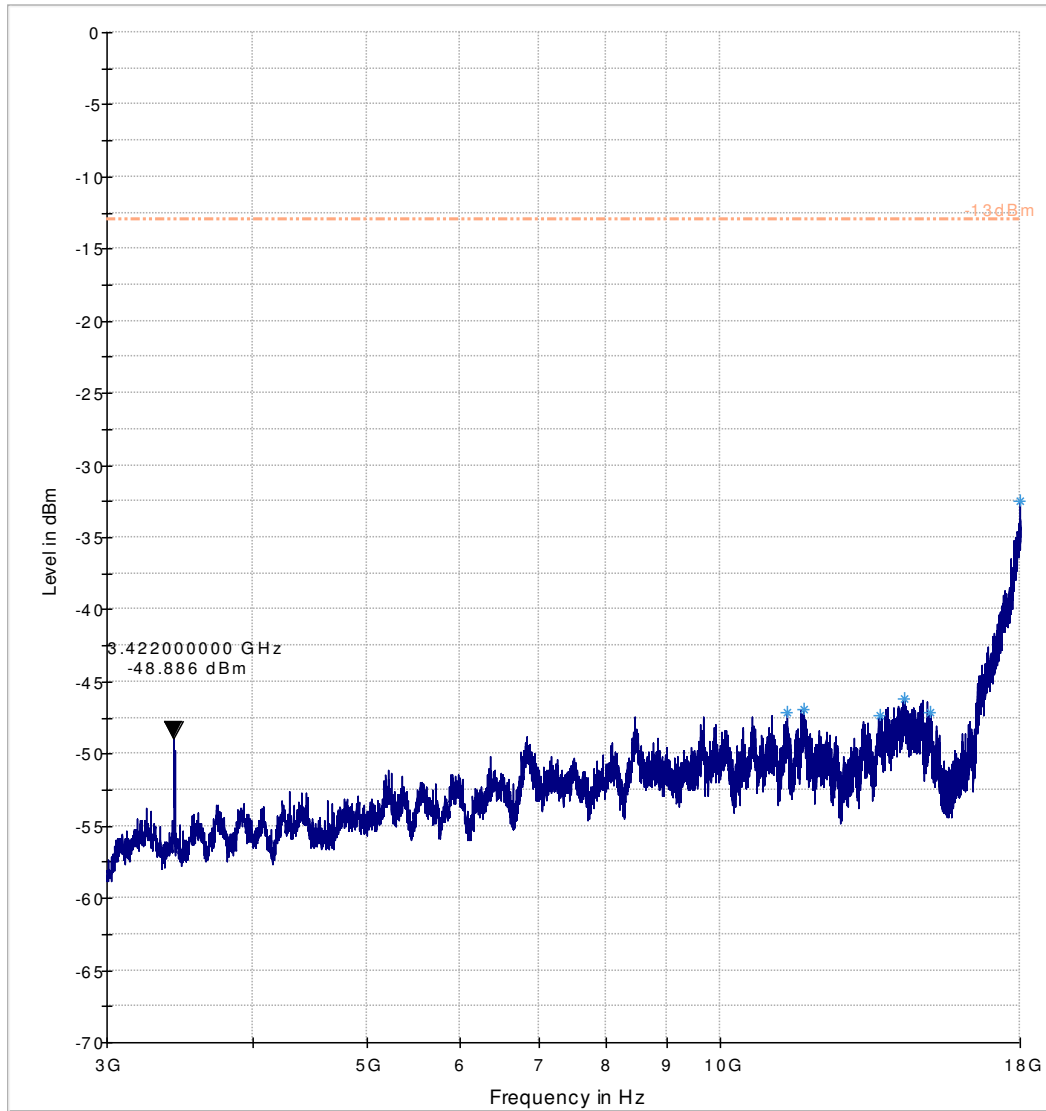


Low Channel  
1 GHz – 3GHz



-13dBm.LimitLine — Preview Result 1-PK+ ◆ Final Result 1-RMS

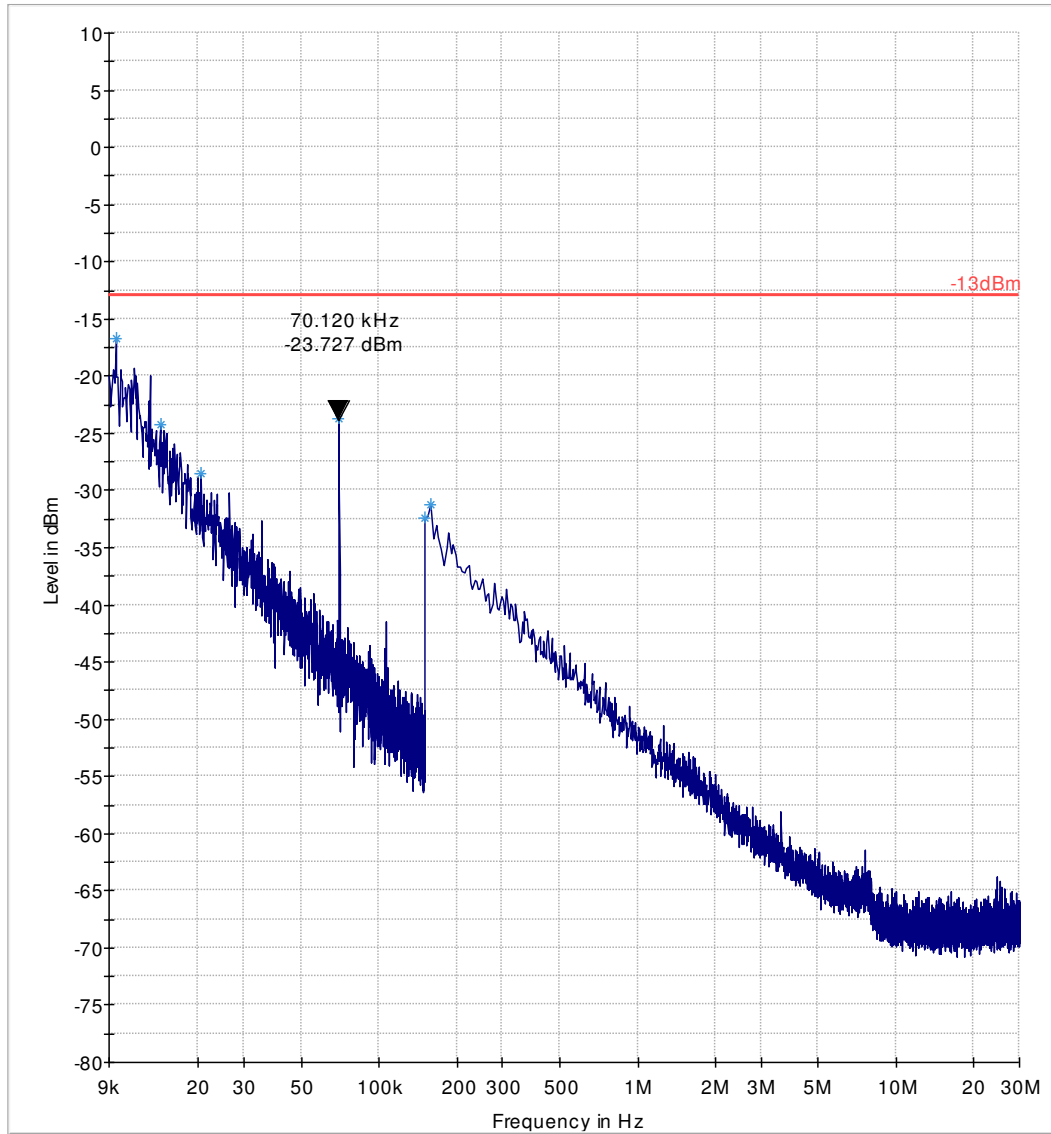
Low Channel  
3 GHz – 18 GHz



----- -13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [3]-PK+

Mid Channel

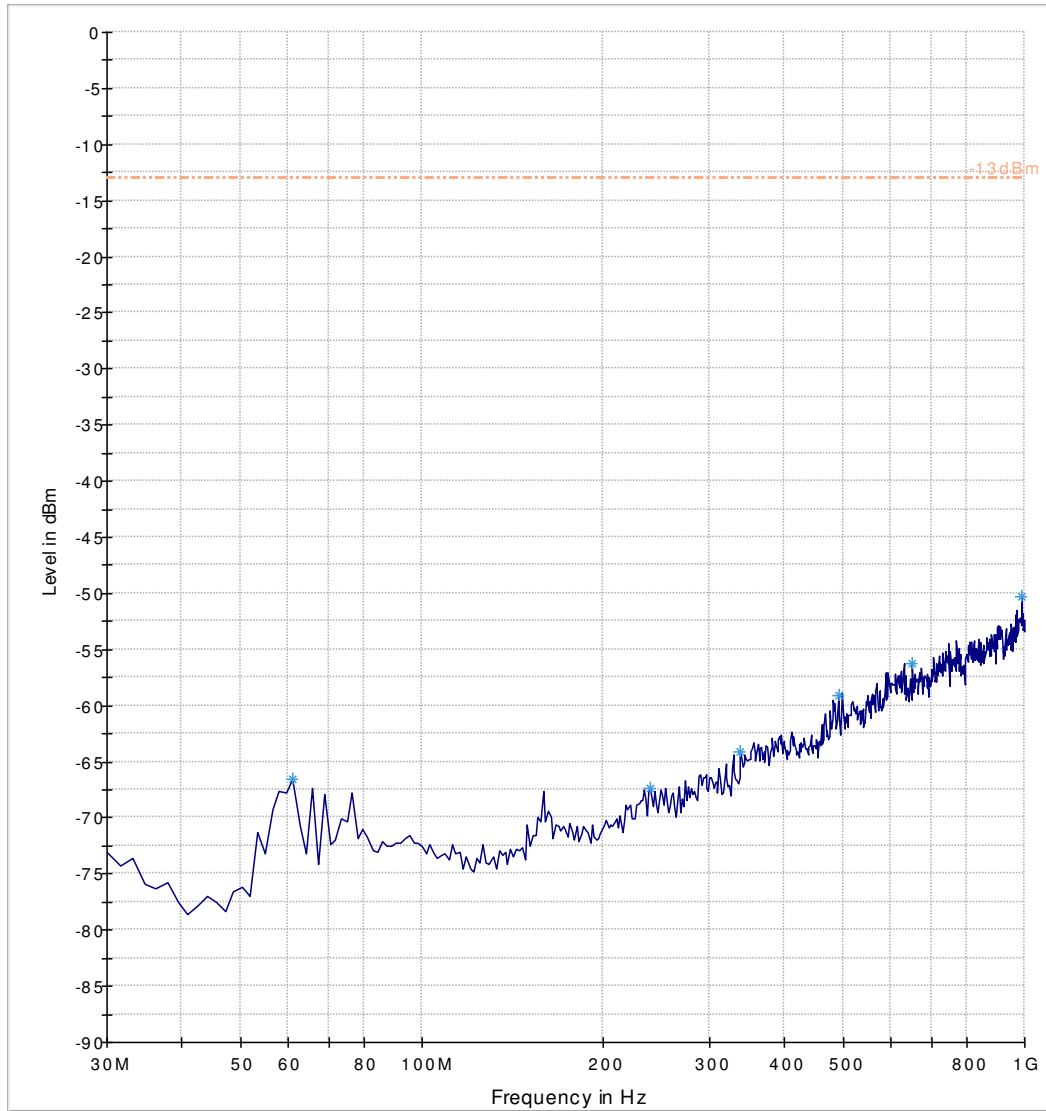
9 KHz – 30 MHz



— -13dBm    — Preview Result 1-PK+    \* Data Reduction Result 1 [1]-PK+

Mid Channel

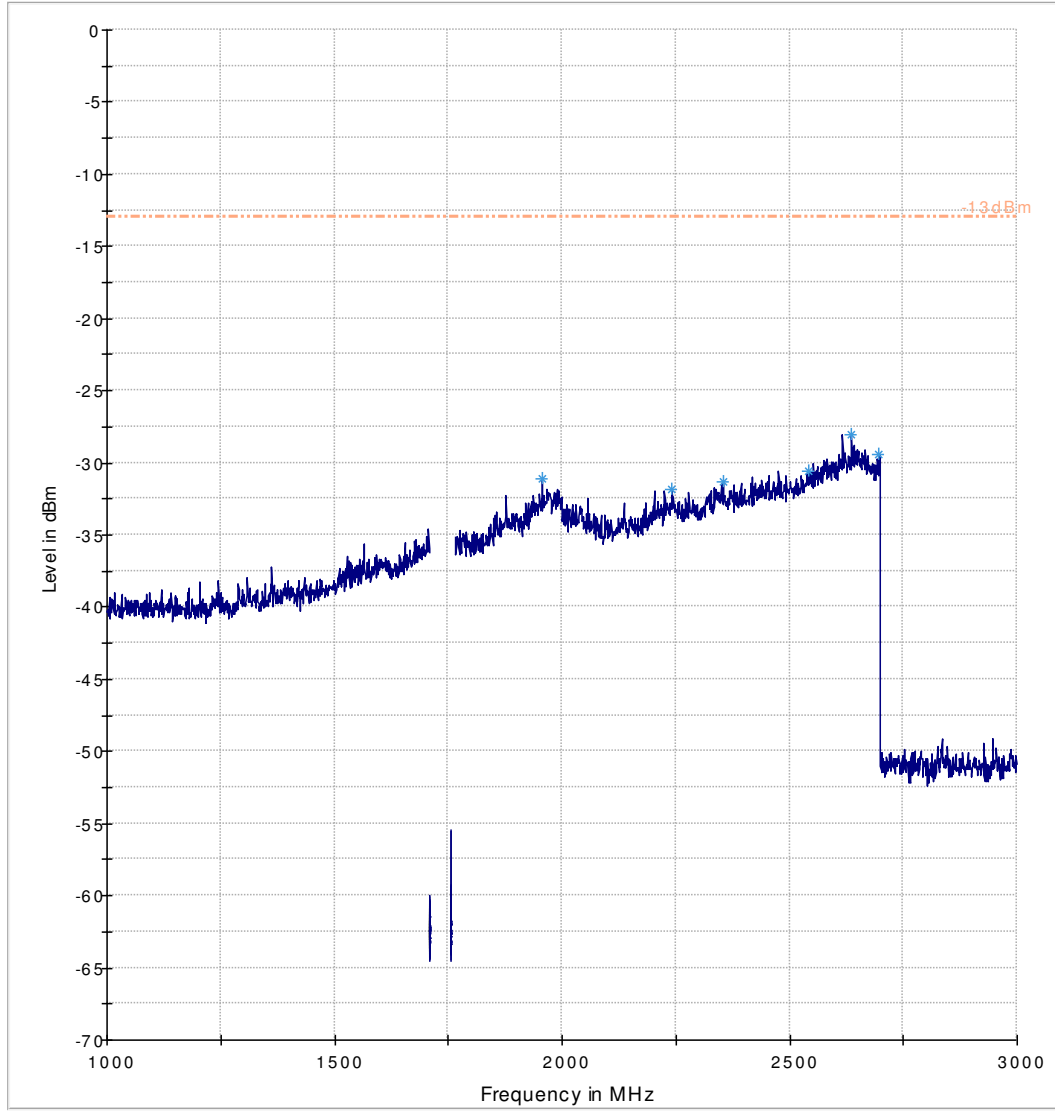
30 MHz – 1 GHz



-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [1]-PK+

Mid Channel

1 GHz – 3GHz

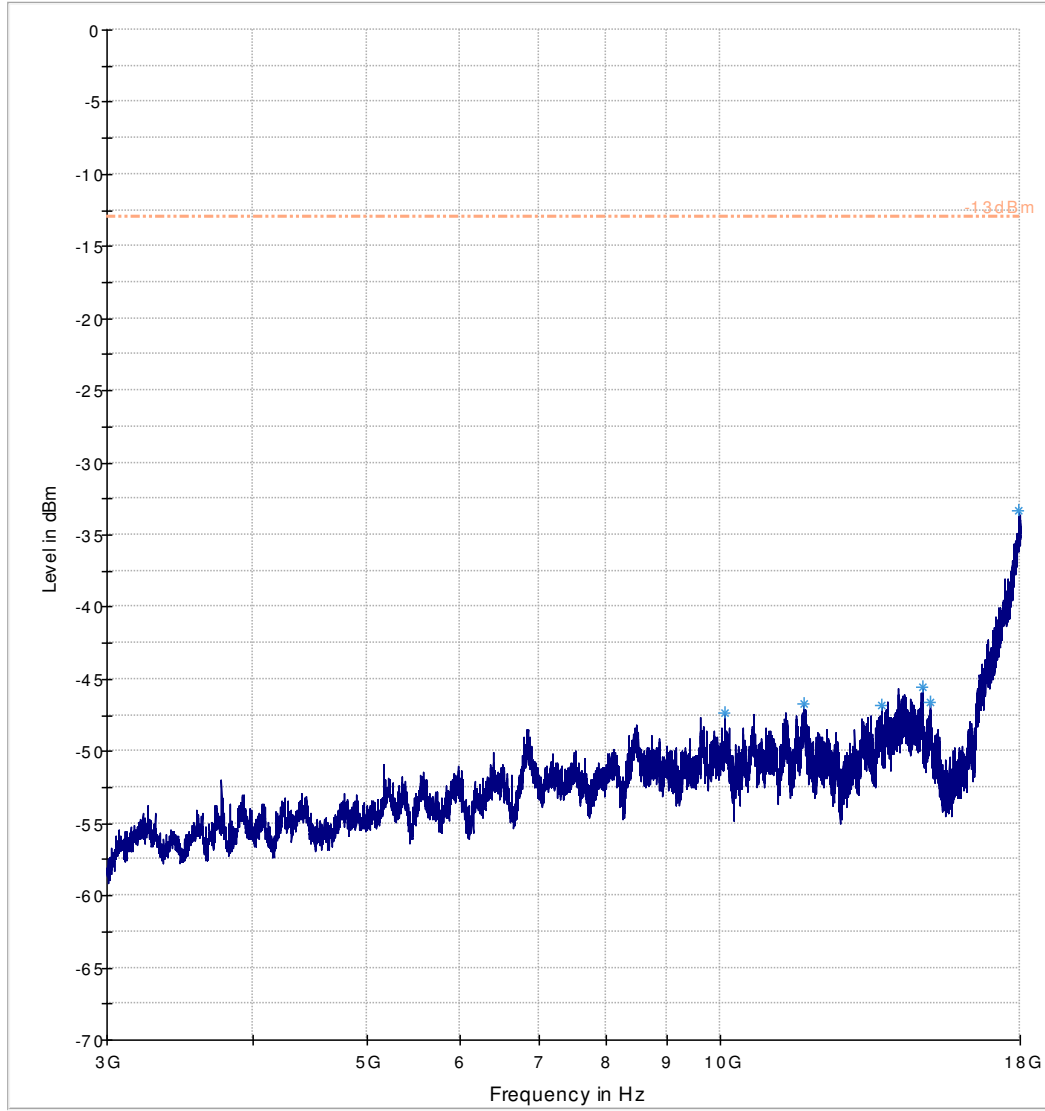


-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [2]-PK+



Mid Channel

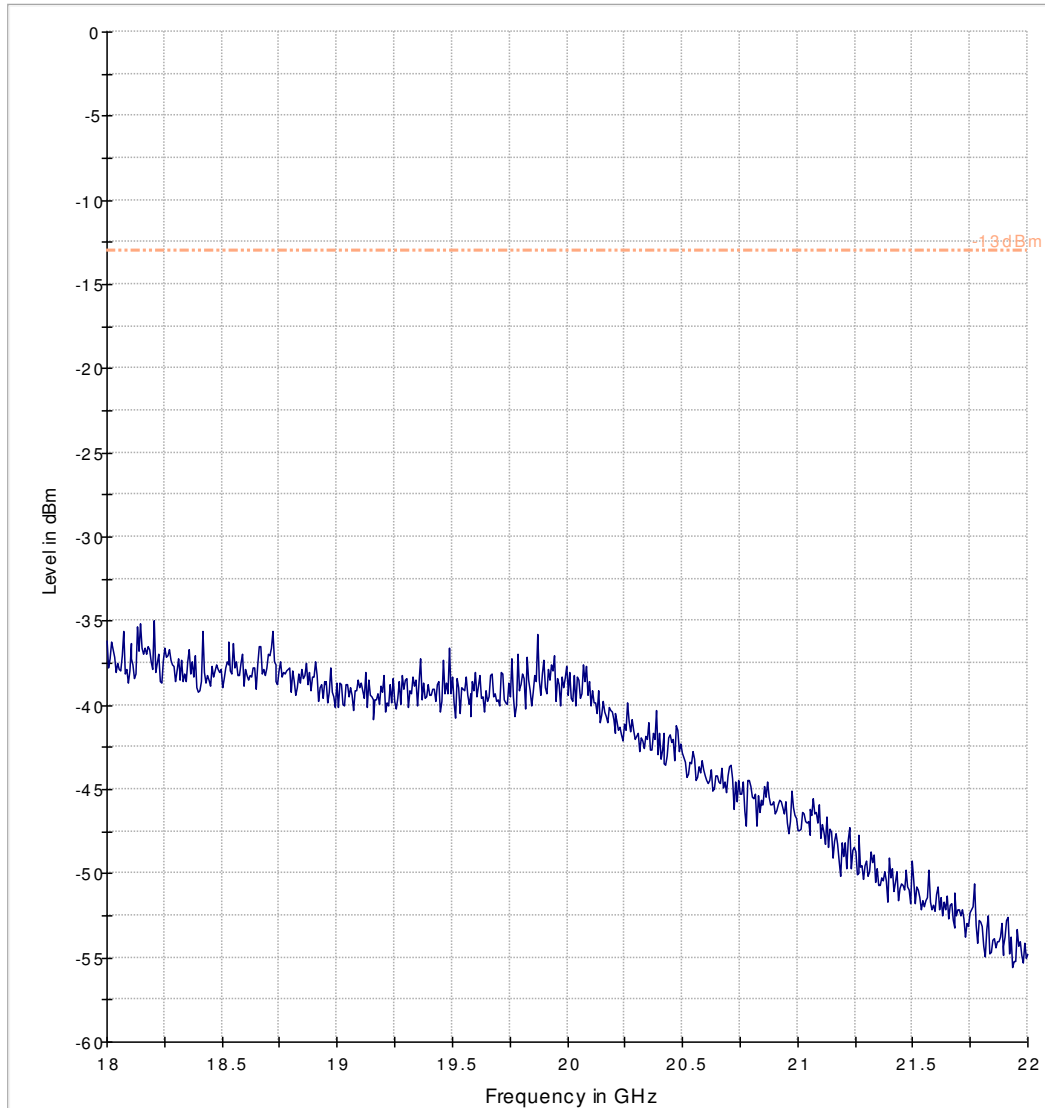
3 GHz – 18 GHz



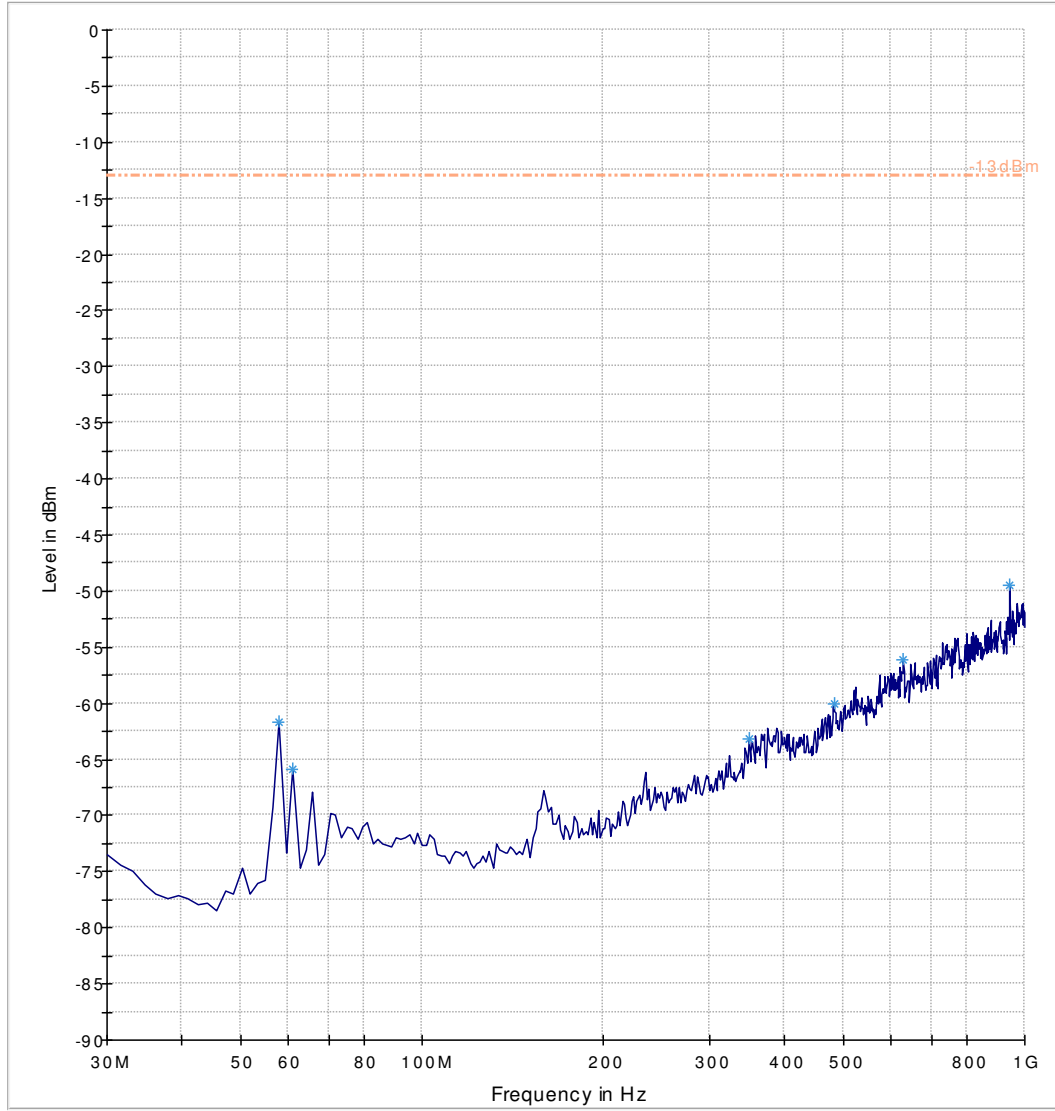
-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [3]-PK+

Mid Channel

18 GHz – 26 GHz

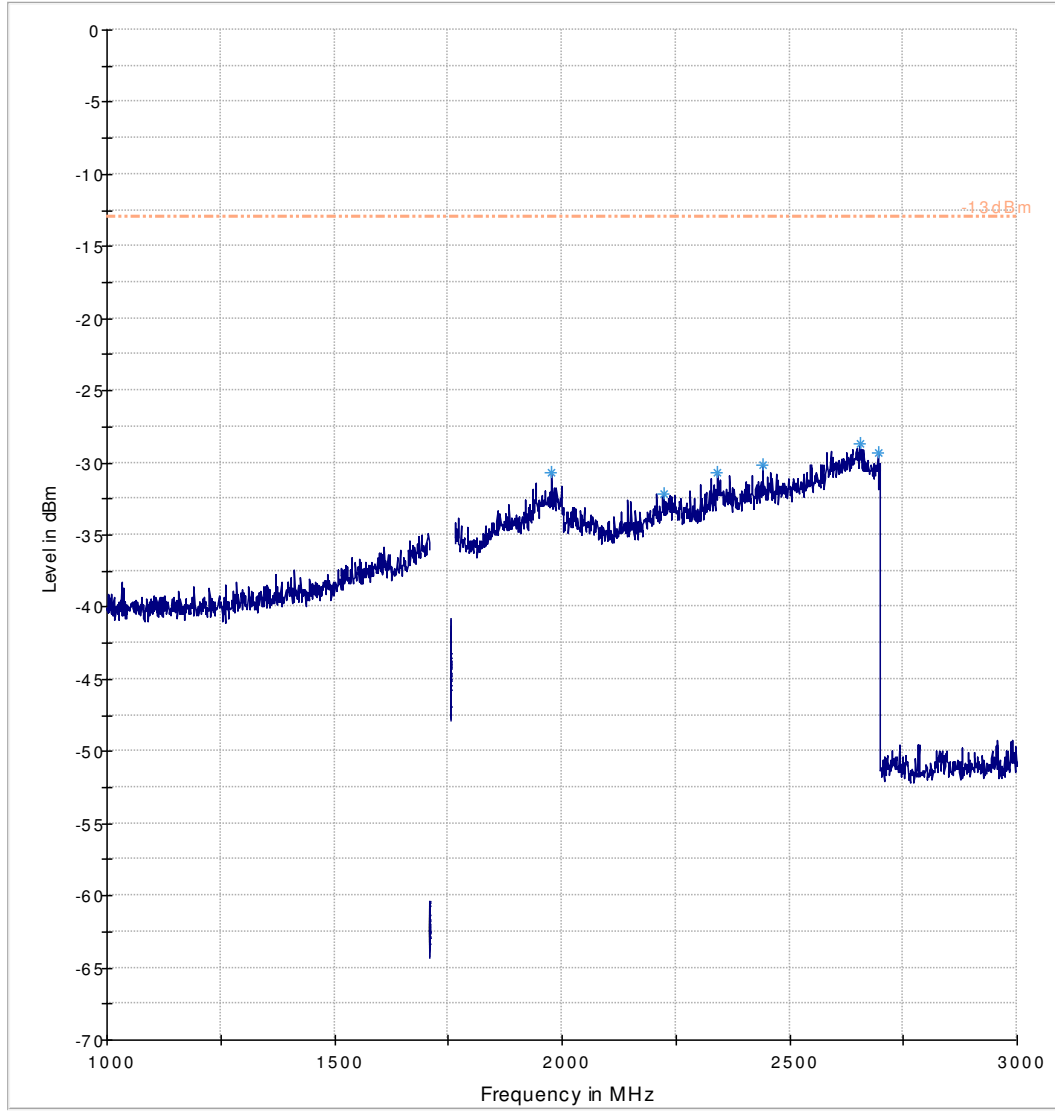


High Channel  
30 MHz – 1 GHz



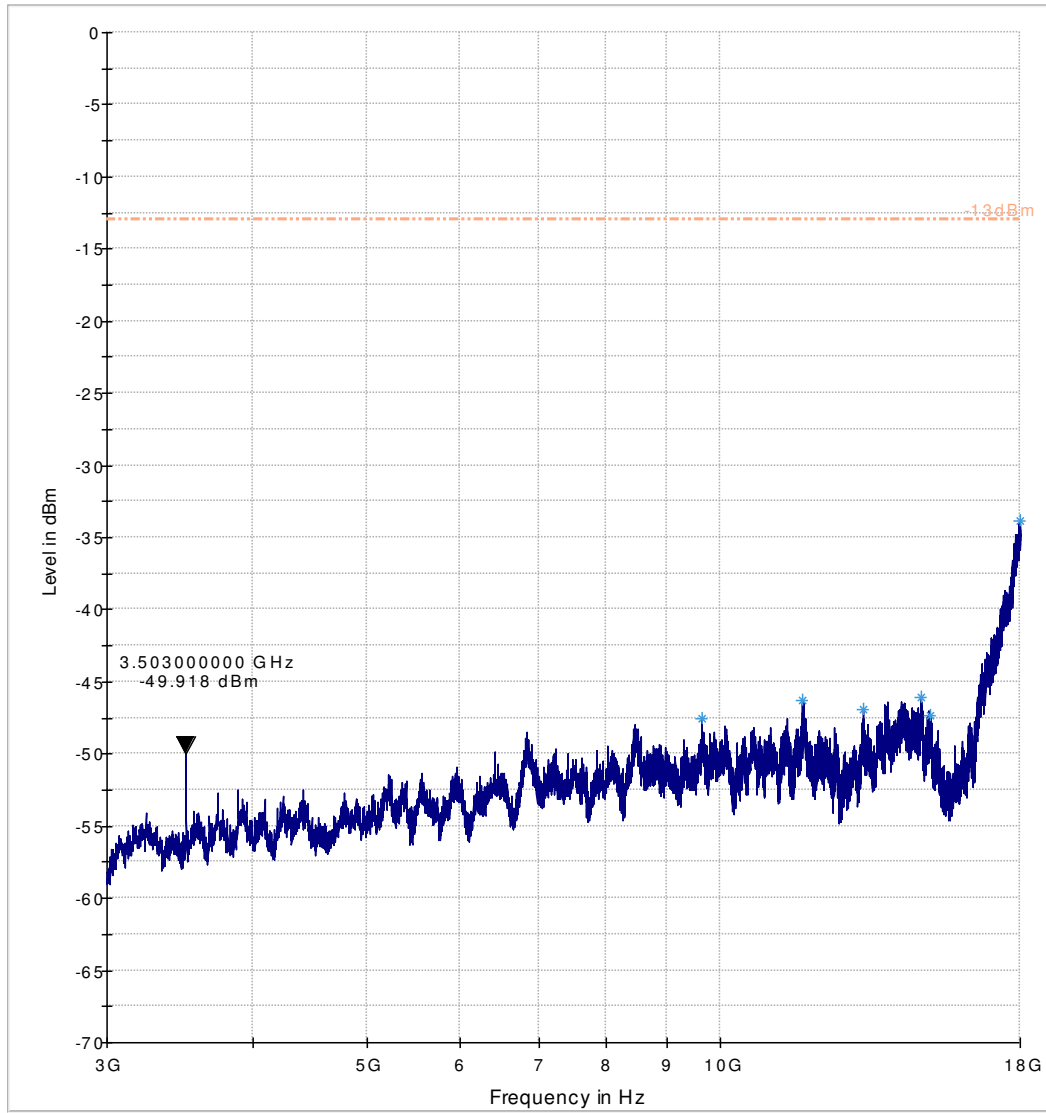
-13dBm.LimitLine Preview Result 1-PK+ \* Data Reduction Result 1 [1]-PK+

High Channel  
1 GHz - 3GHz



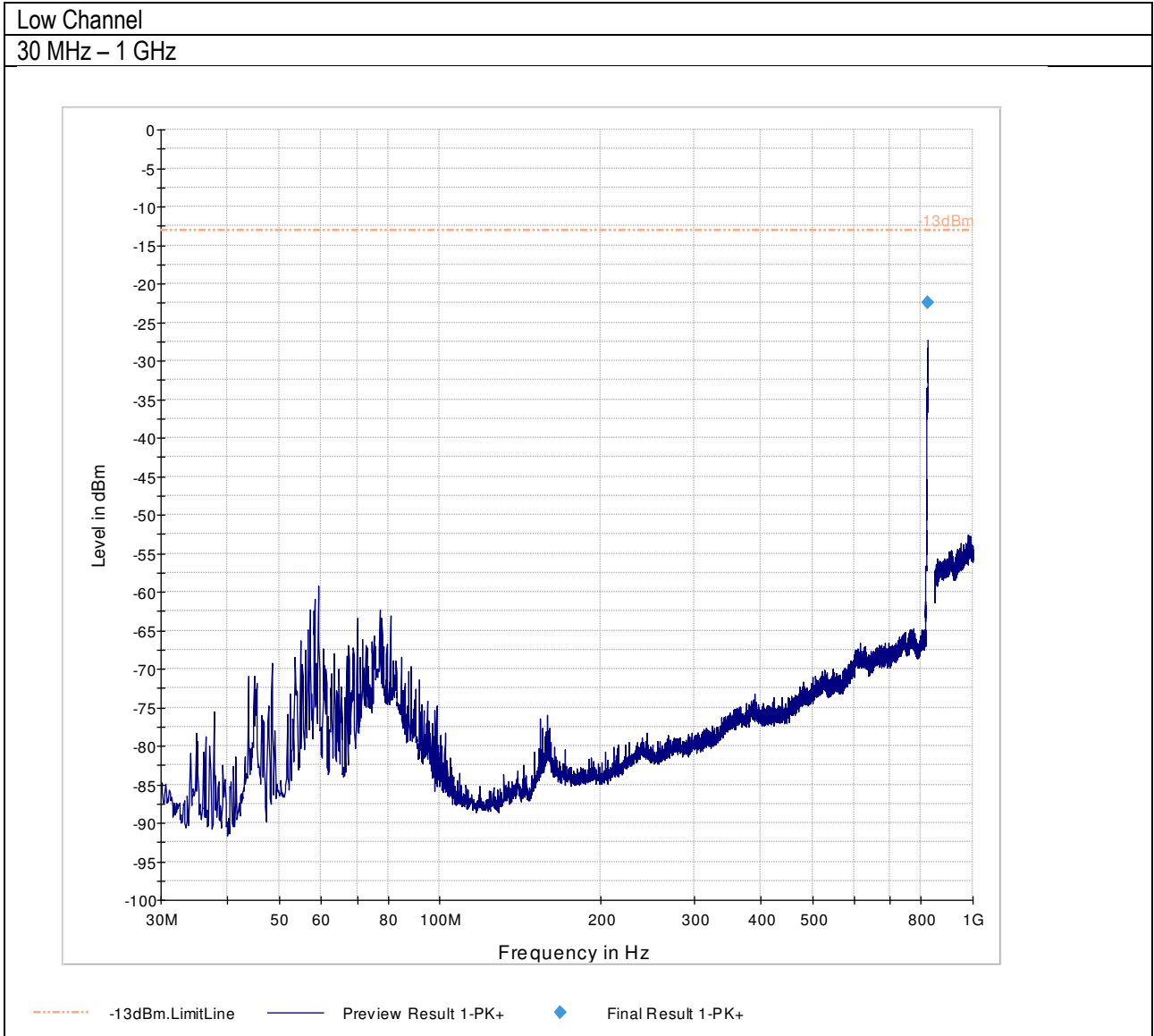
-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [2]-PK+

High Channel  
3 GHz – 18 GHz

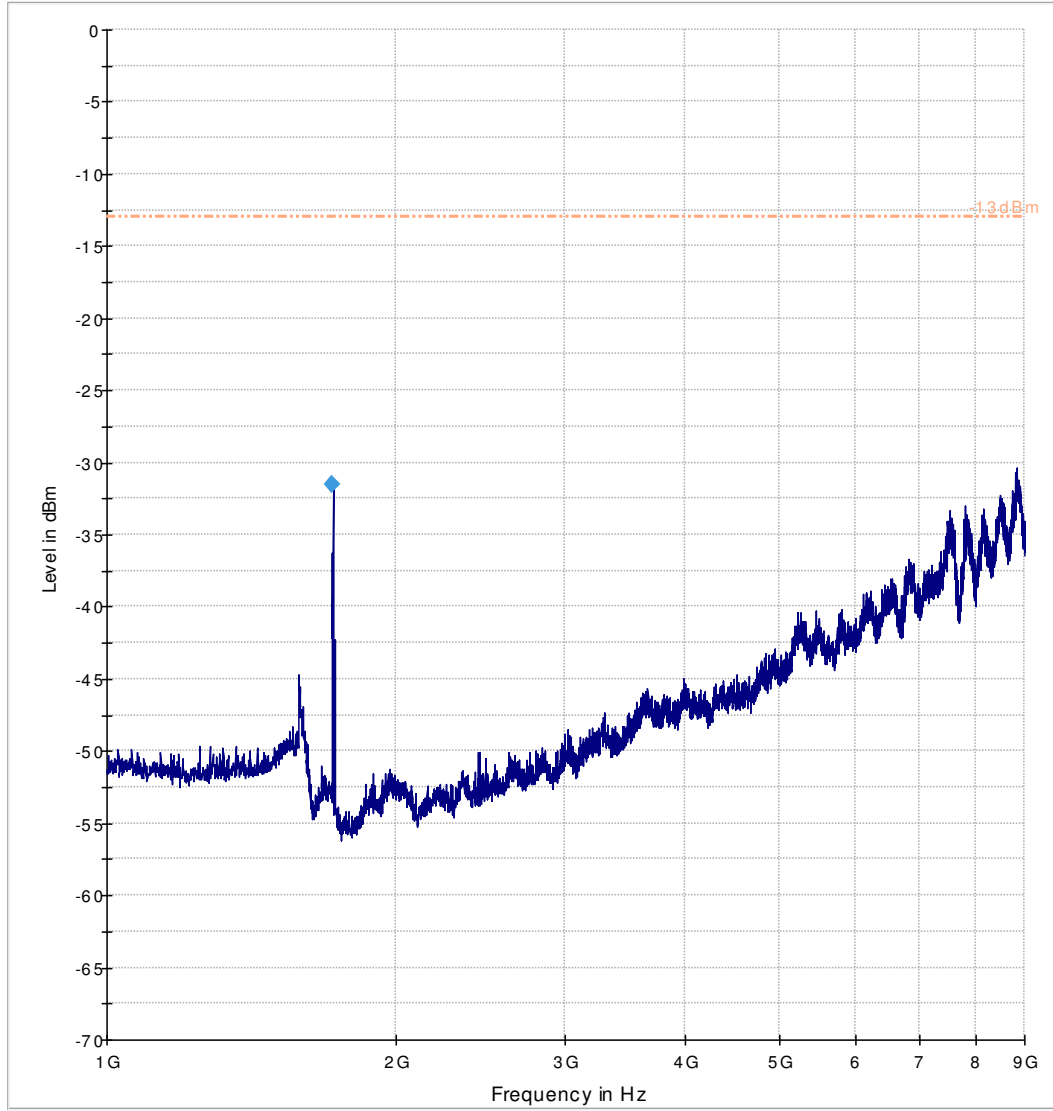


-13dBm.LimitLine — Preview Result 1-PK+ \* Data Reduction Result 1 [3]-PK+

### 7.3.5 FDD V Radiated Plots

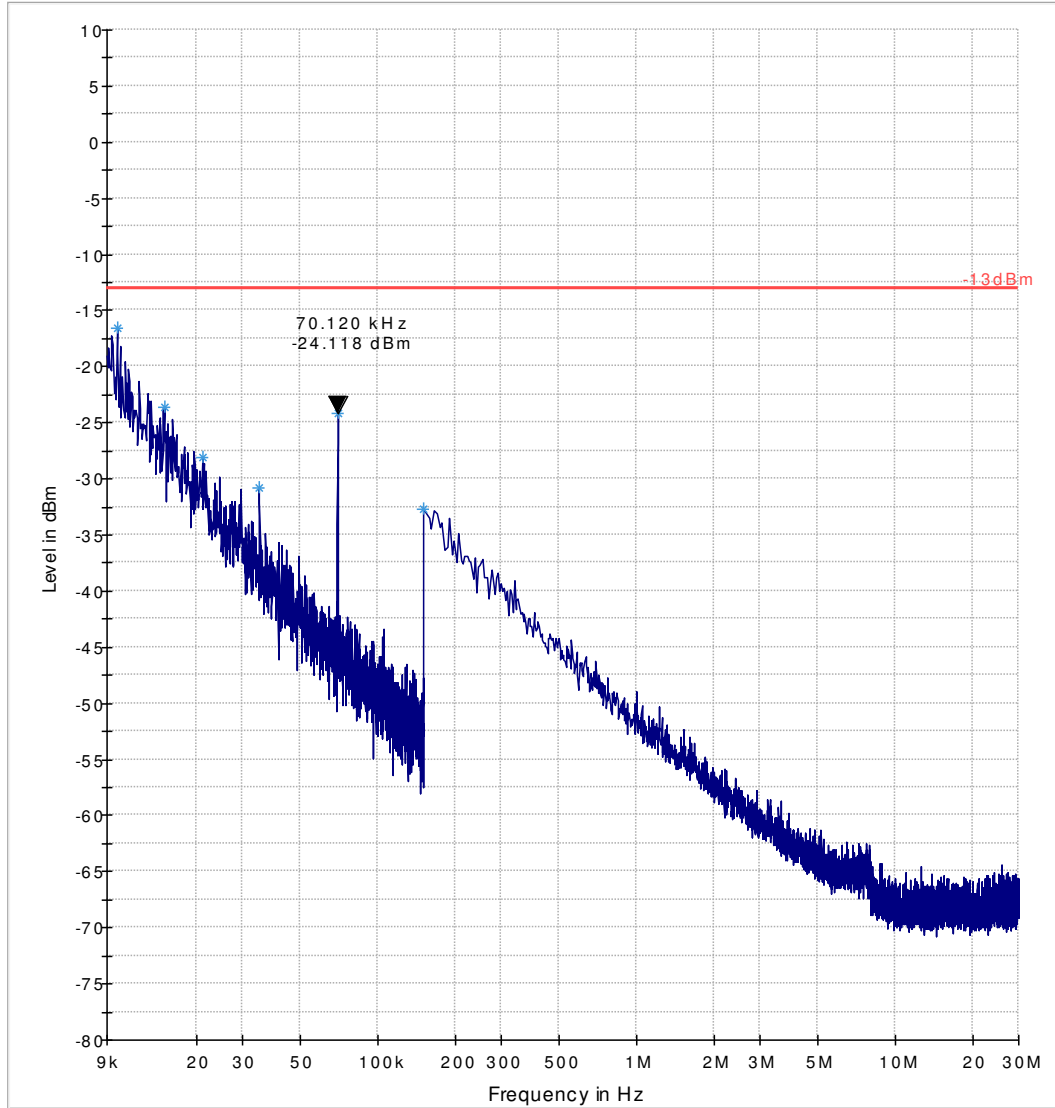


Low Channel  
1 GHz – 9GHz



Mid Channel

9 KHz – 30 MHz

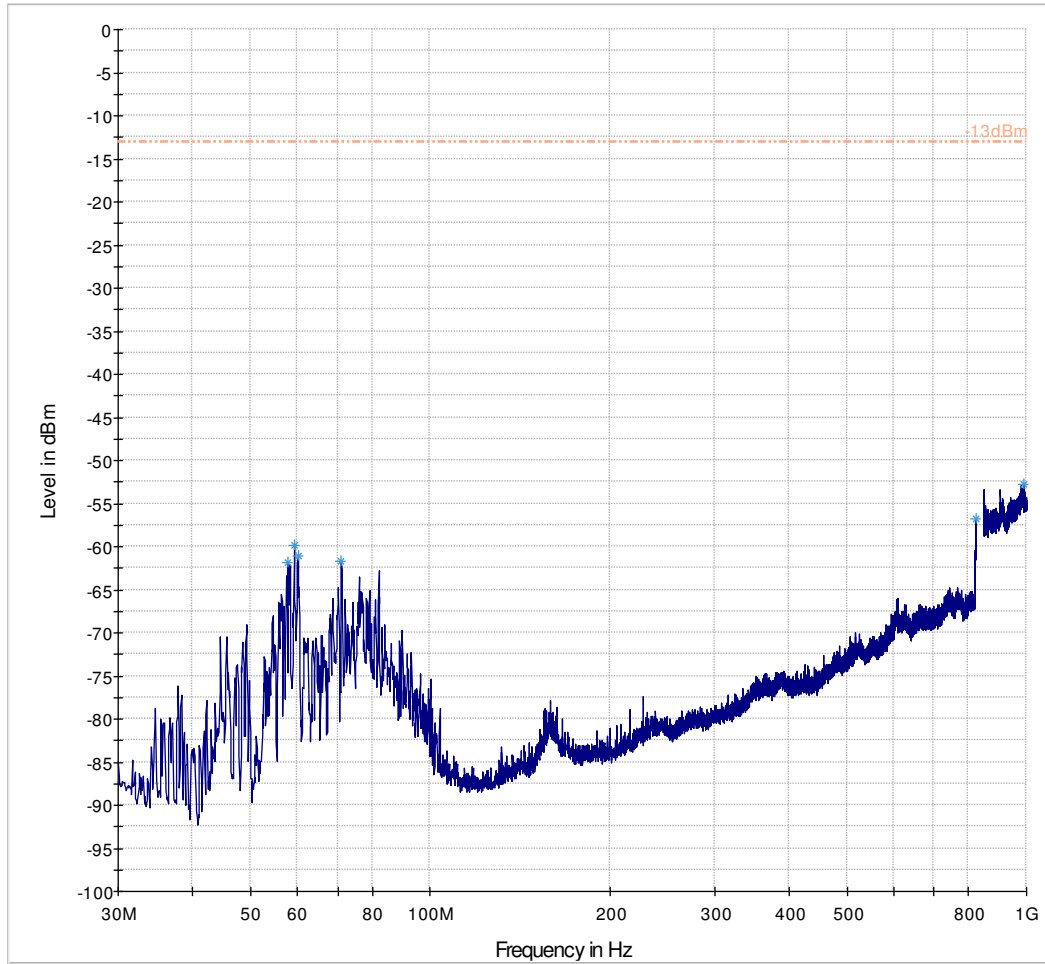


— -13dBm    — Preview Result 1-PK+    \* Data Reduction Result 1 [1]-PK+



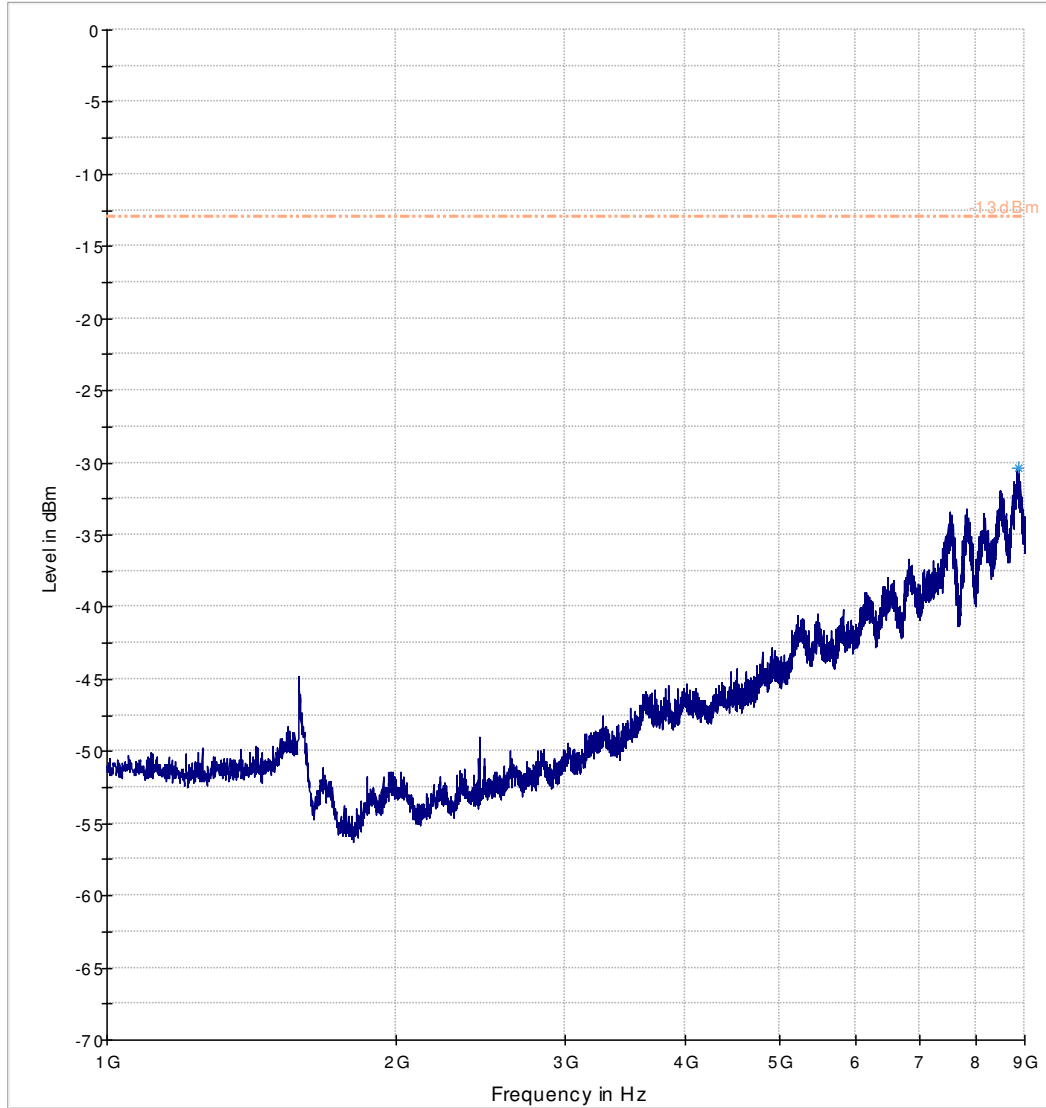
Mid Channel

30 MHz – 1 GHz



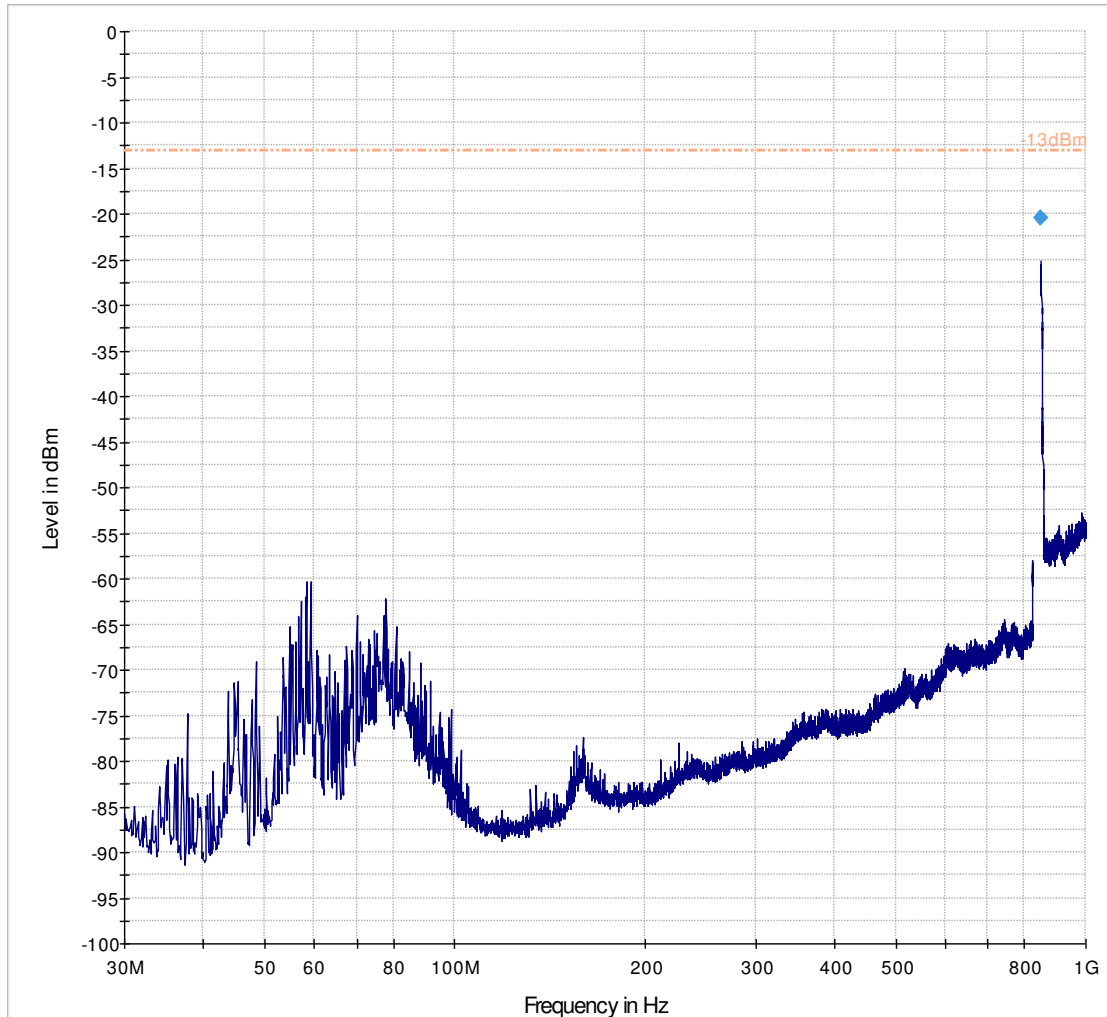
-13dBm.LimitLine    Preview Result 1-PK+    \*    Data Reduction Result 1 [1]-PK+

Mid Channel  
1 GHz – 9 GHz



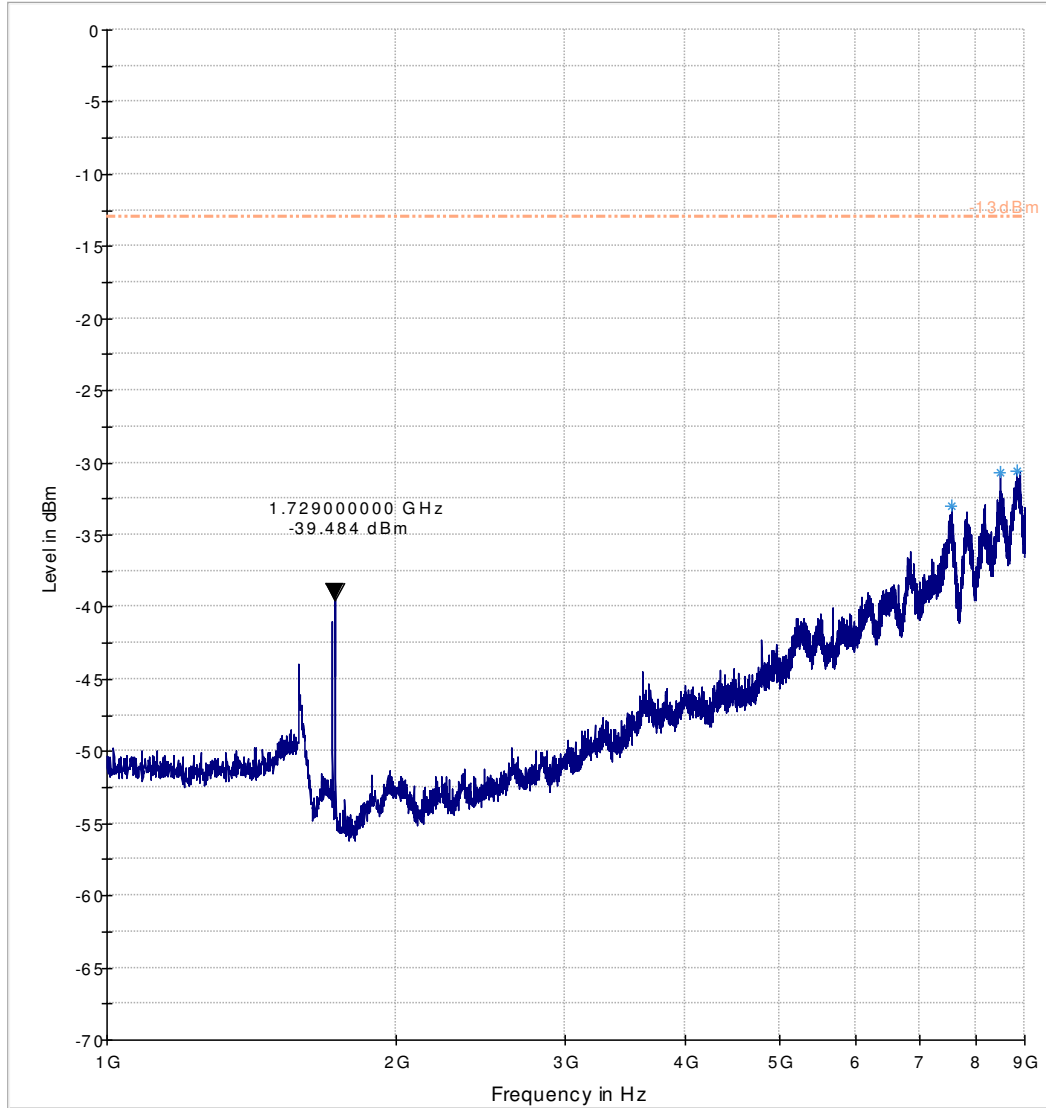
-13dBm    Preview Result 1-PK+ \*    Data Reduction Result 1 [2]-PK+

High Channel  
30 MHz – 1 GHz



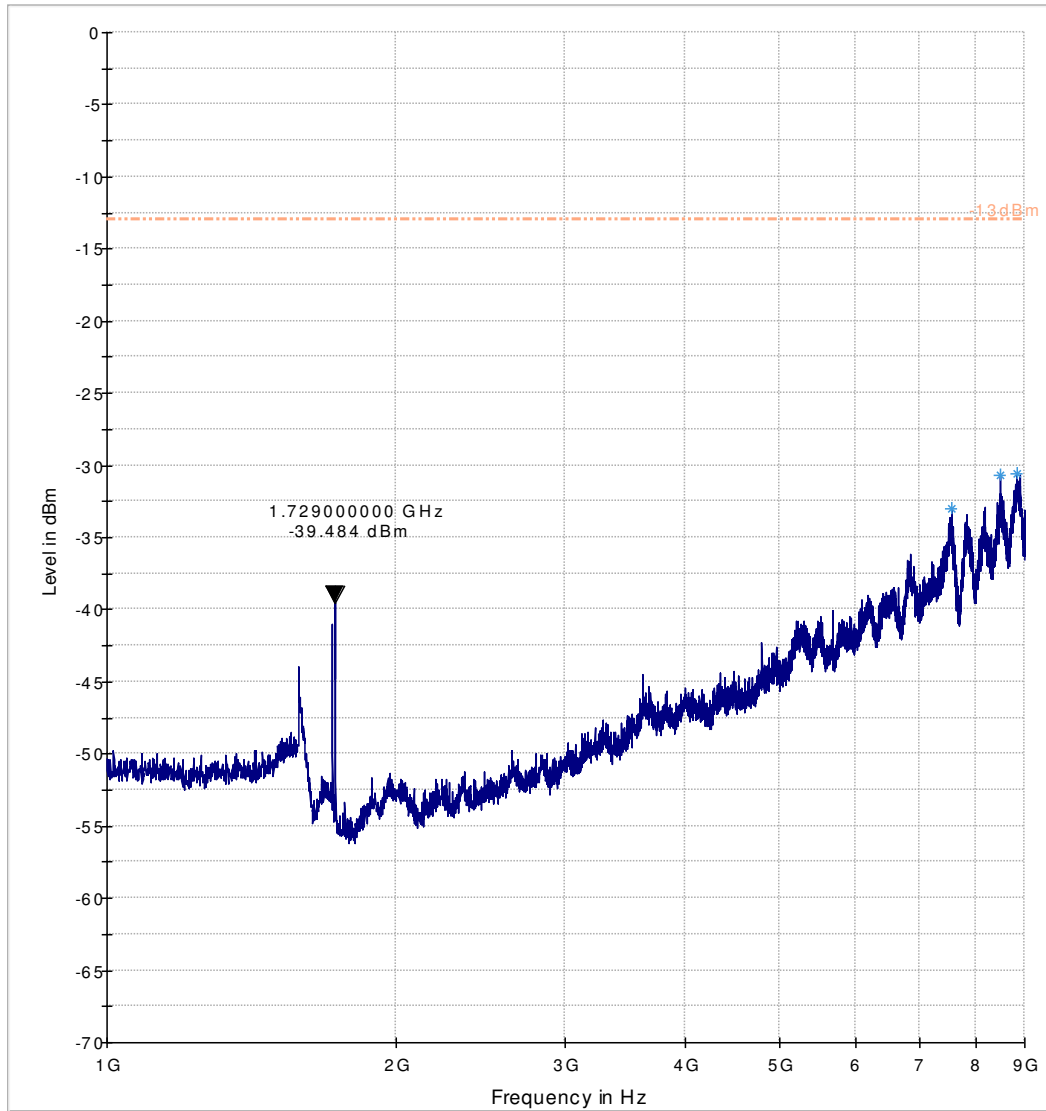
----- -13dBm.LimitLine    ——— Preview Result 1-PK+    ◆ Final Result 1-PK+

High Channel  
1 GHz - 3GHz



-13dBm    Preview Result 1-PK+    \*    Data Reduction Result 1 [2]-PK+

High Channel  
1 GHz – 9 GHz



## 8 Test Equipment and Ancillaries used for tests.

No.	Equipment Name	Manufacturer	Type/model	Serial No.	Cal Date	Cal Interval
3m Semi- Anechoic Chamber:						
	Digital Radio Comm. Tester	Rohde&Schwarz	CMU 200	101821	July 2015	2 Years
	EMC32 Measurement Software	Rohde&Schwarz	8.52.0	N/A	N/A	N/A
	Turn table	EMCO	2075	N/A	N/A	N/A
	MAPS Position Controller	ETS Lindgren	2092	0004-1510	N/A	N/A
	Antenna Mast	EMCO	2075	N/A	N/A	N/A
	Relay Switch Unit	Rohde&Schwarz	RSU	338964/001	N/A	N/A
	EMI Receiver/Analyzer	Rohde&Schwarz	ESU 40	100251	Sep 2015	1 Year
	1500MHz HP Filter	Filtek	HP12/1700	14c48	N/A	N/A
	2800 MHz HP Filter	Filtek	HP12/2800	14C47	N/A	N/A
	Pre-Amplifier	Miteq	JS40010260	340125	N/A	N/A
	Binconilog Antenna	EMCO	3142E	166067	June 2014	3 Years
	Horn Antenna	EMCO	3115	35114	Jul 2015	3 Years
	Horn Antenna	ETS Lindgren	3116	70497	Jul 2015	3 Years
	Spectrum Analyzer	Rohde&Schwarz	FSU	100189	Jun 2015	2 Years
	Loop Antenna 6512	ETS Lindgren	6512	49838	Mar 2014	3 Years
Ancillary equipment						
	Humidity Temperature Logger	Dickson	TM320	03280063	Jul 2015	2 Year
	Communication Antenna	IBP5-900/1940	Kathrein	N/A	N/A	N/A

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## 9 Revision History

Date	Report Name	Changes to Report	Report prepared by
2016-05-25	EMC_UTCFI-008-15001_FCC_22_24	First Version	James Donnellan