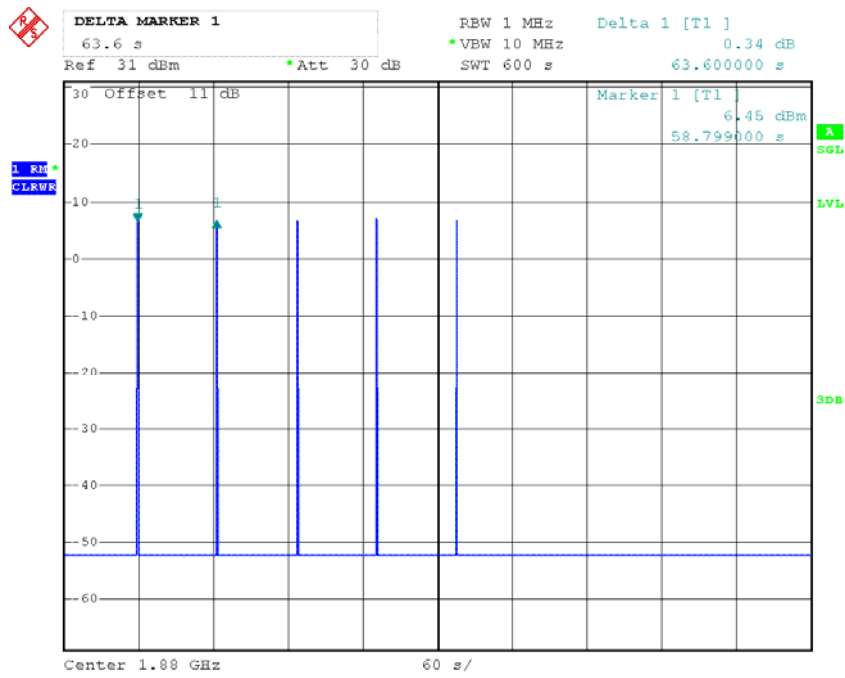


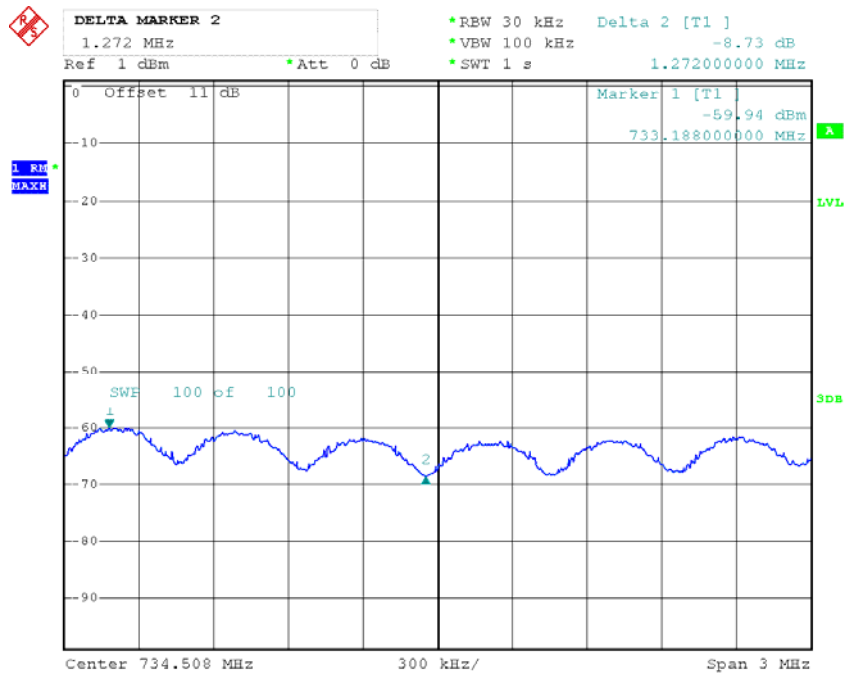


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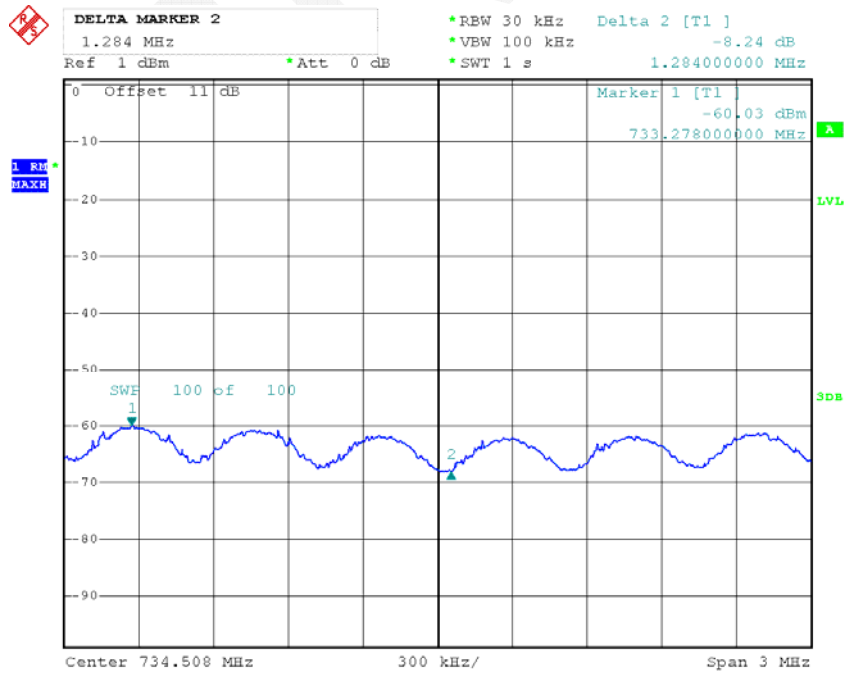
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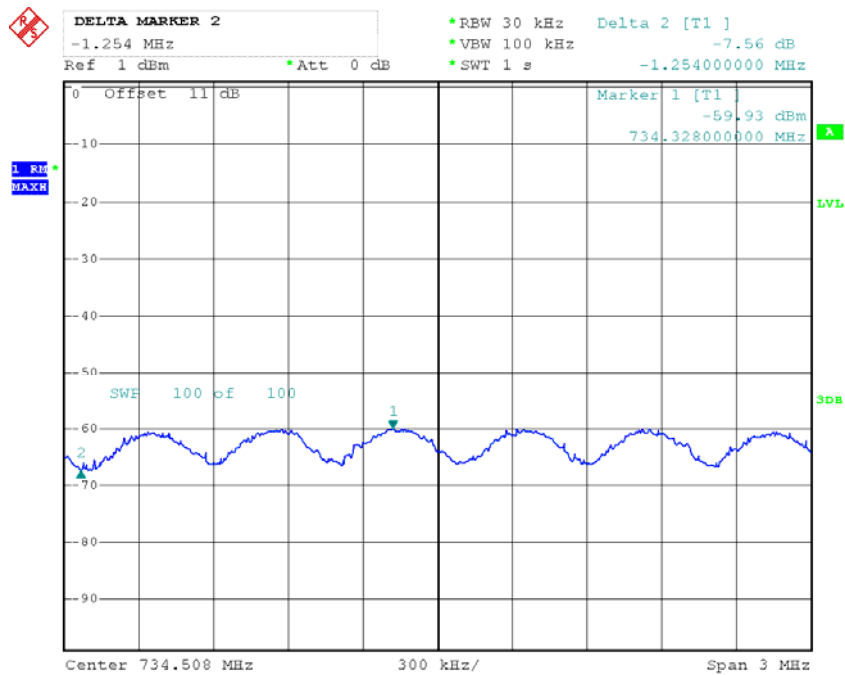
Lower 700 Band



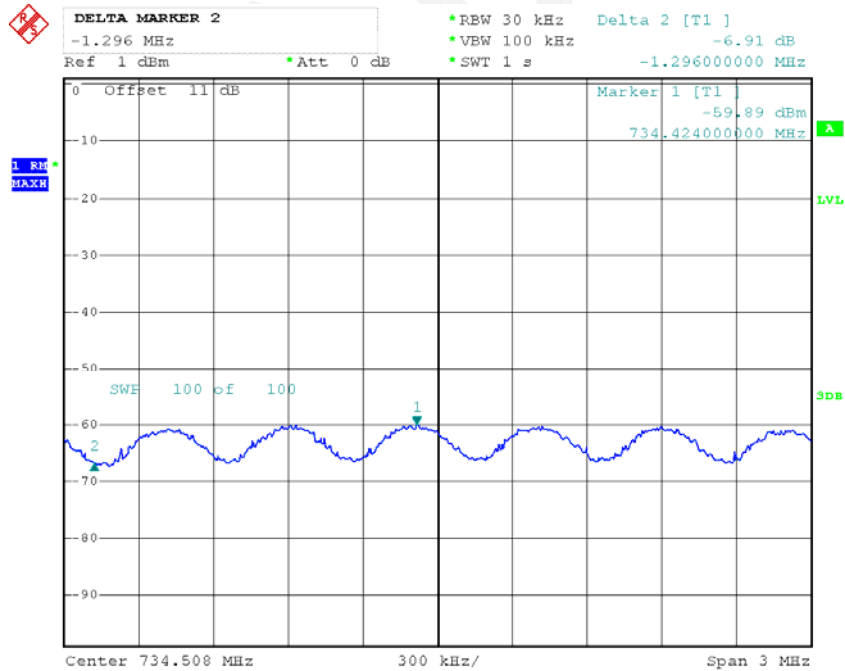
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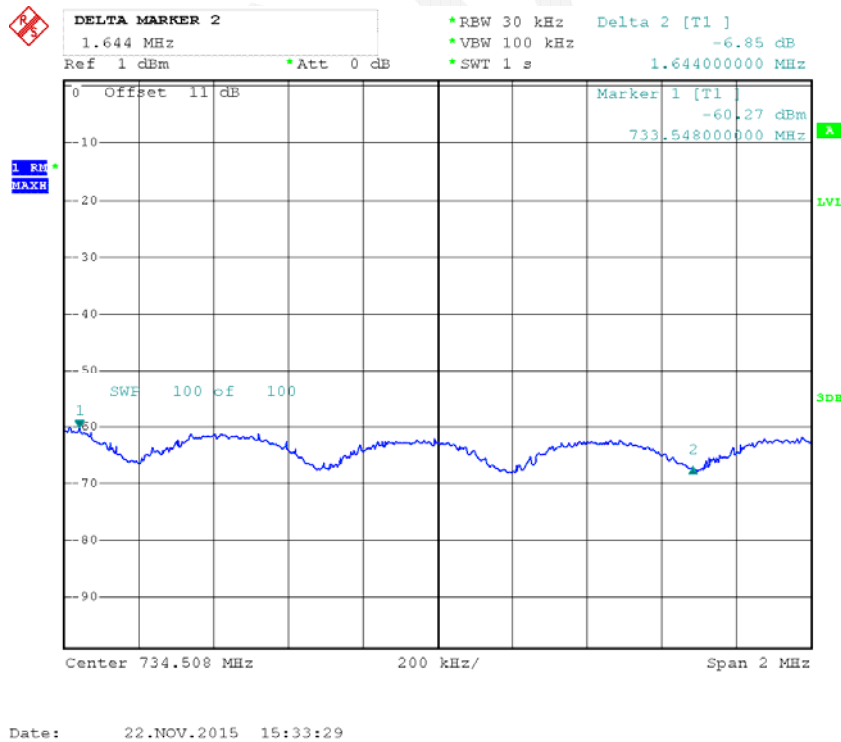
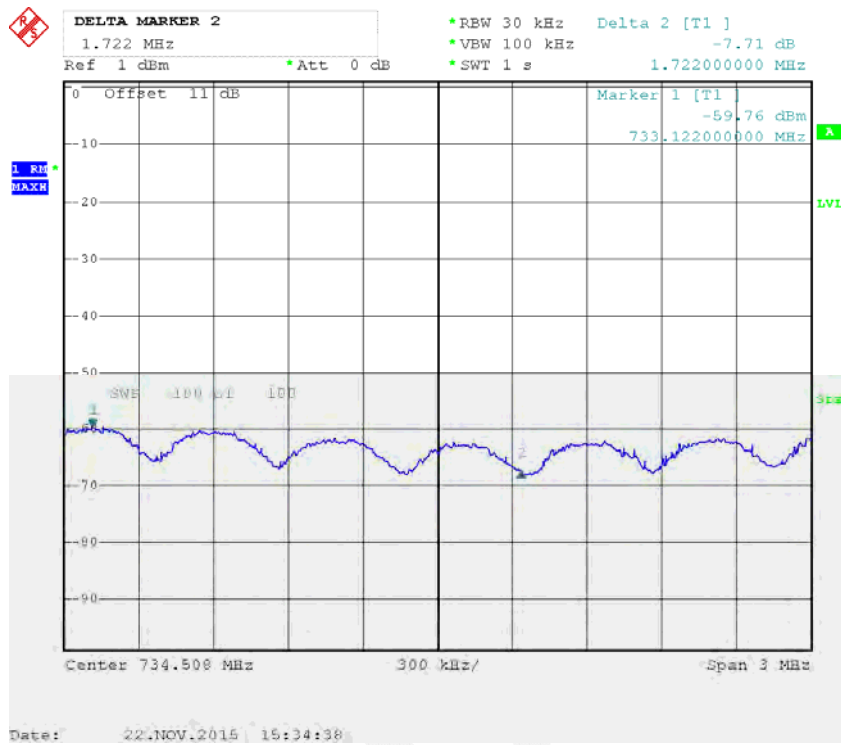
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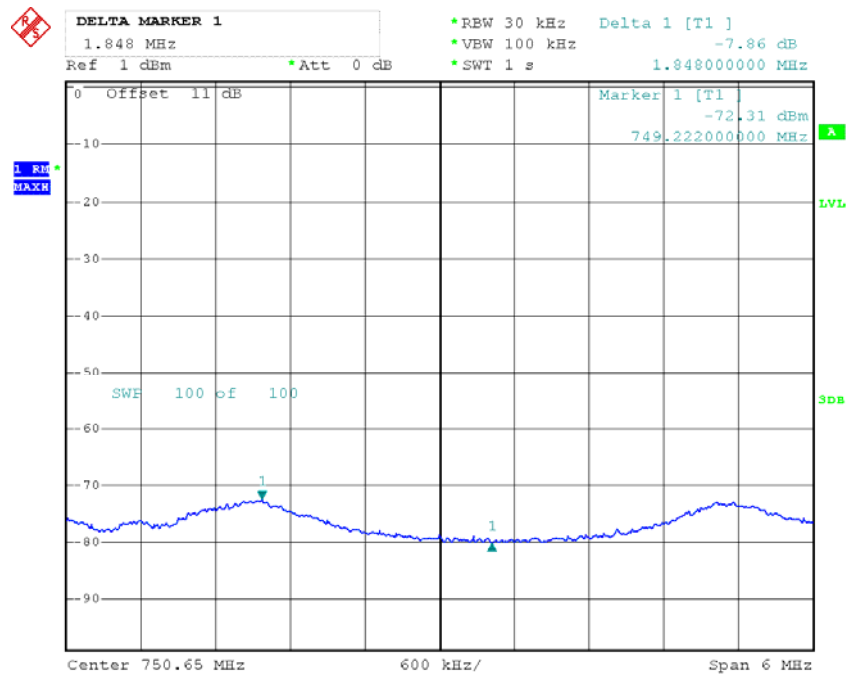
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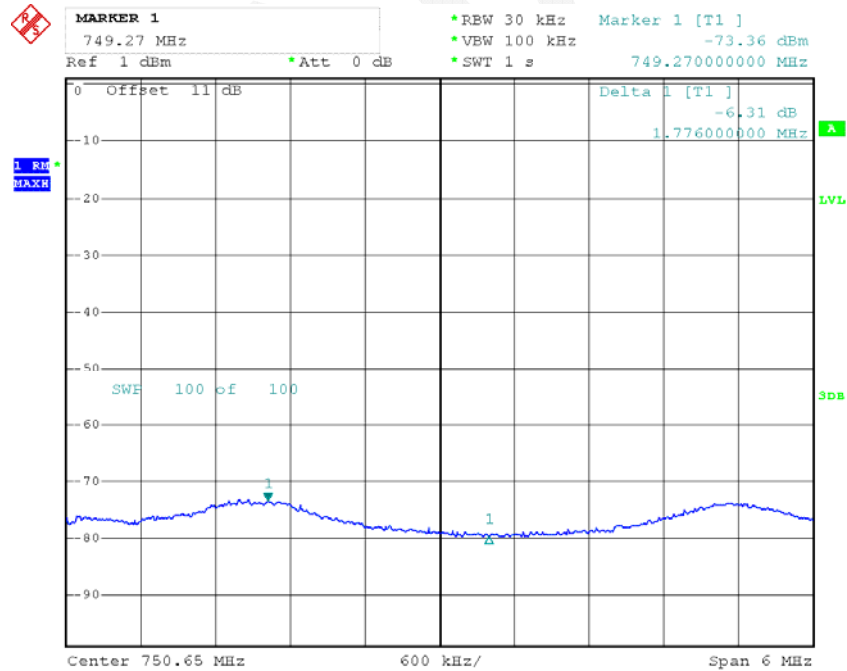
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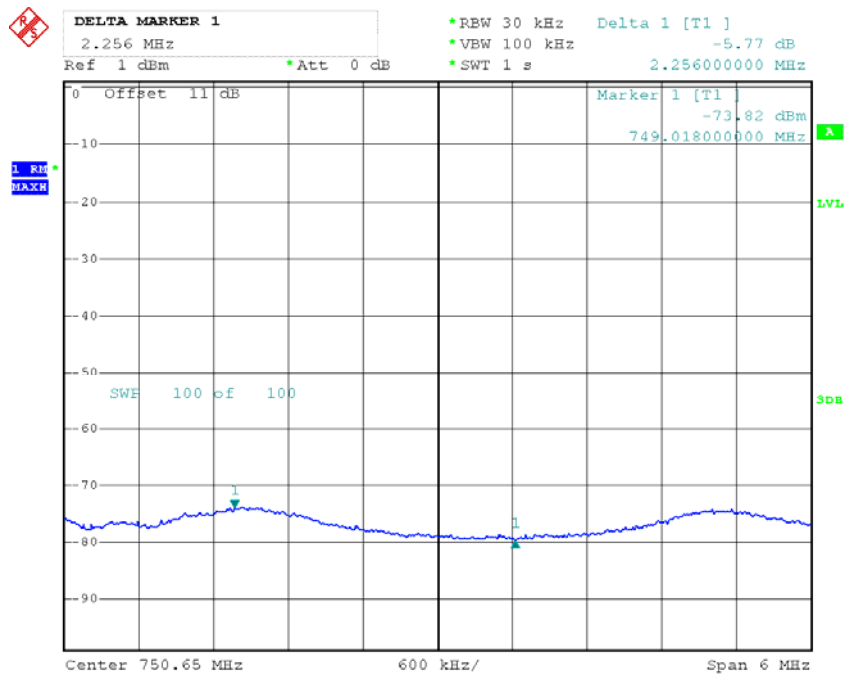
Upper 700 Band



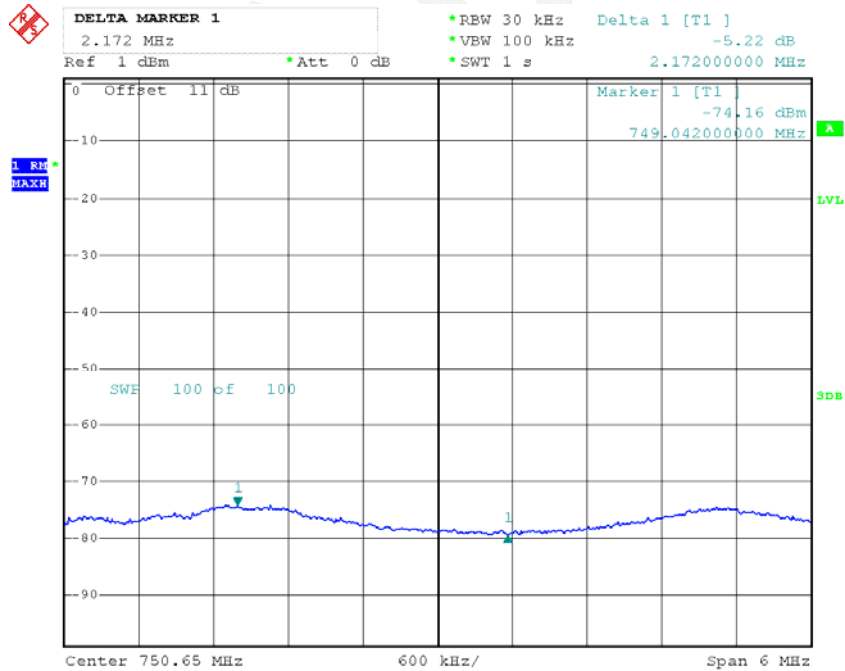
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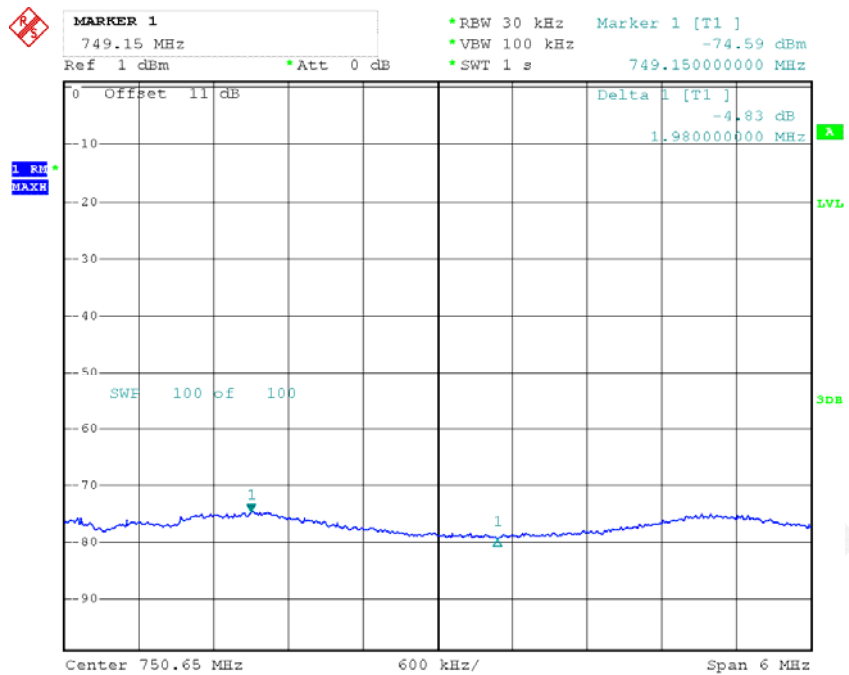
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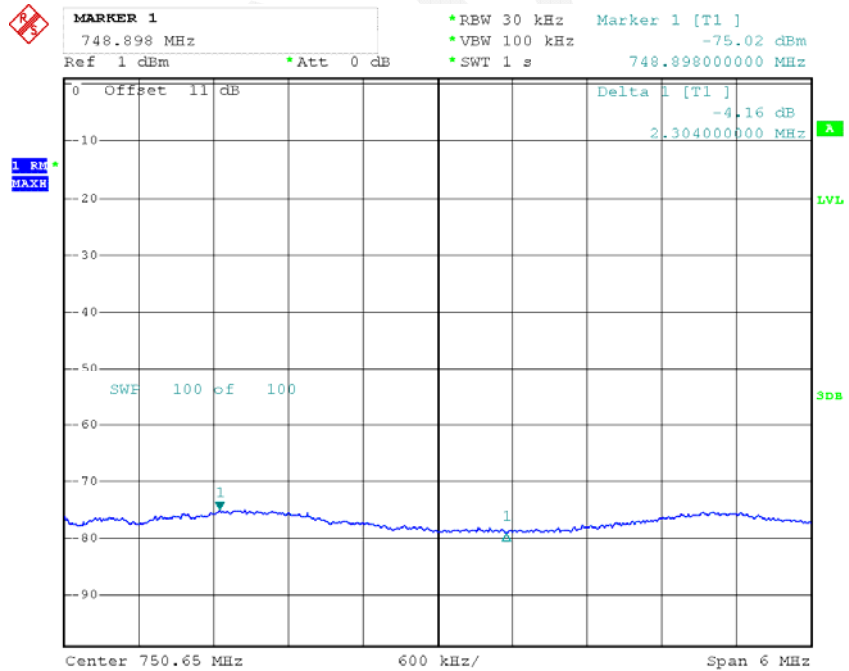
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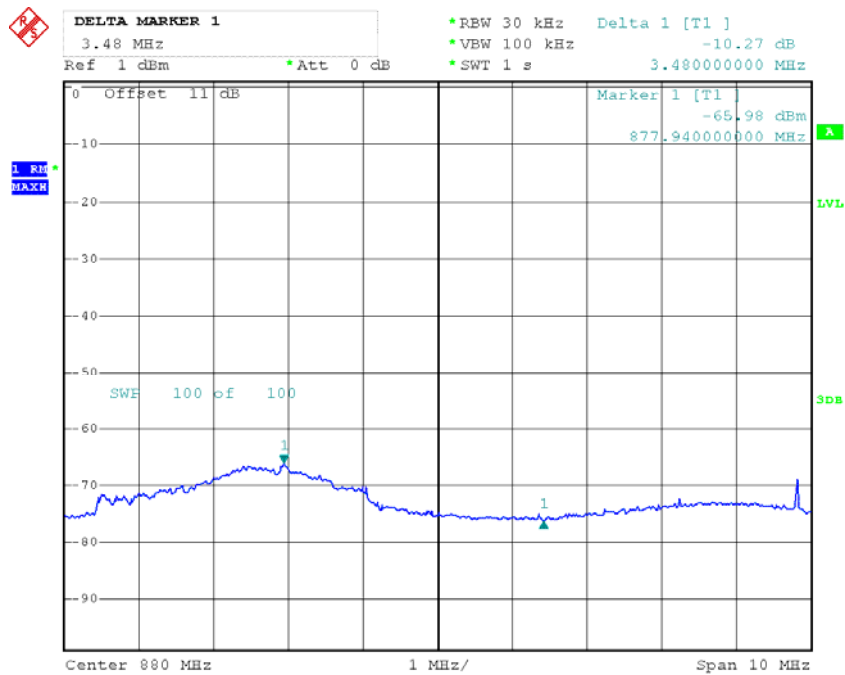


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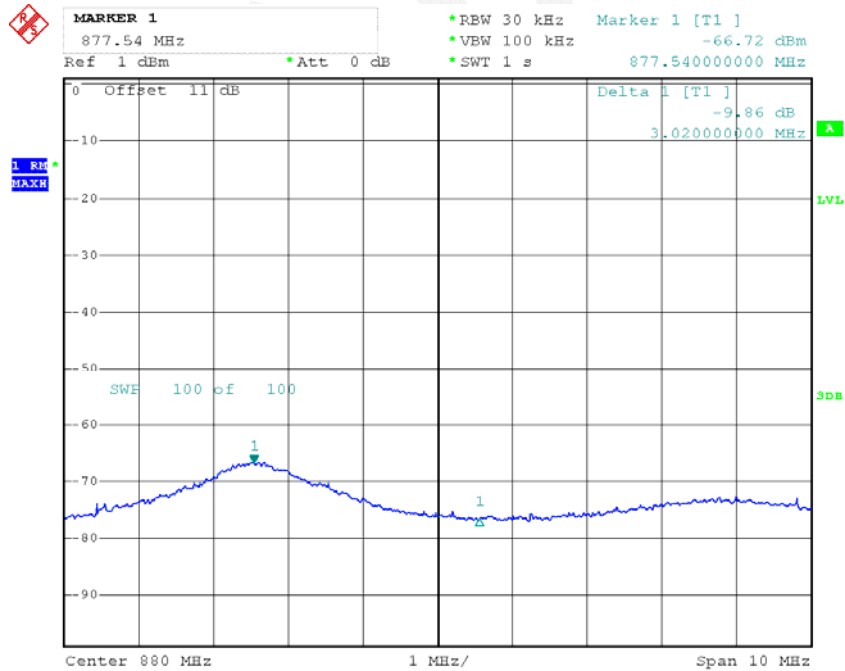


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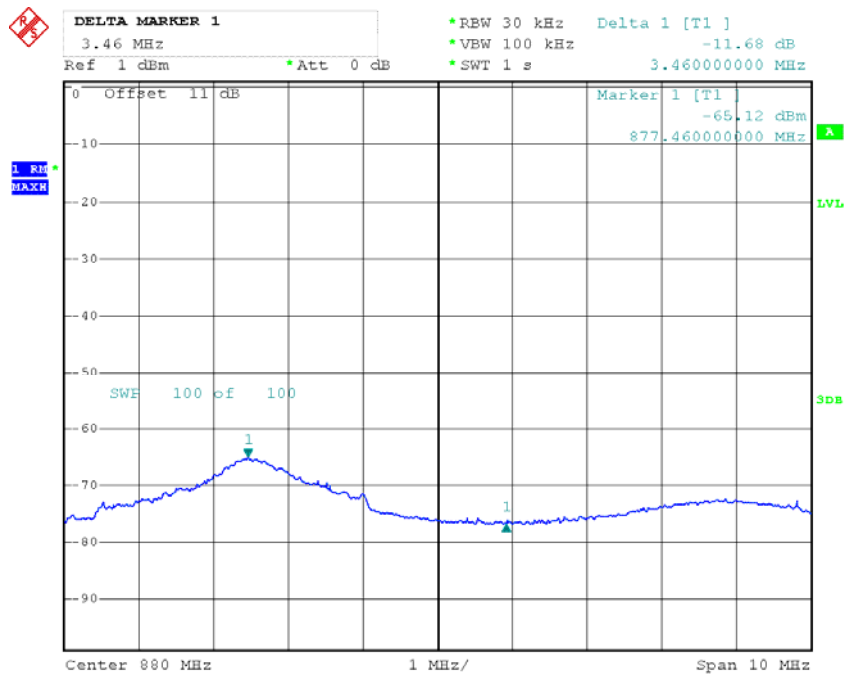
Cellular Band



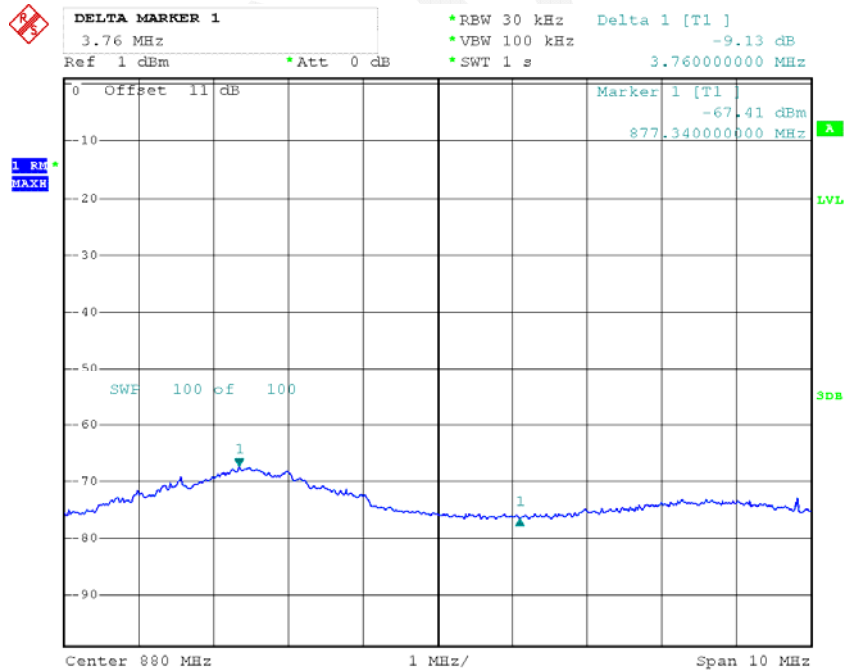
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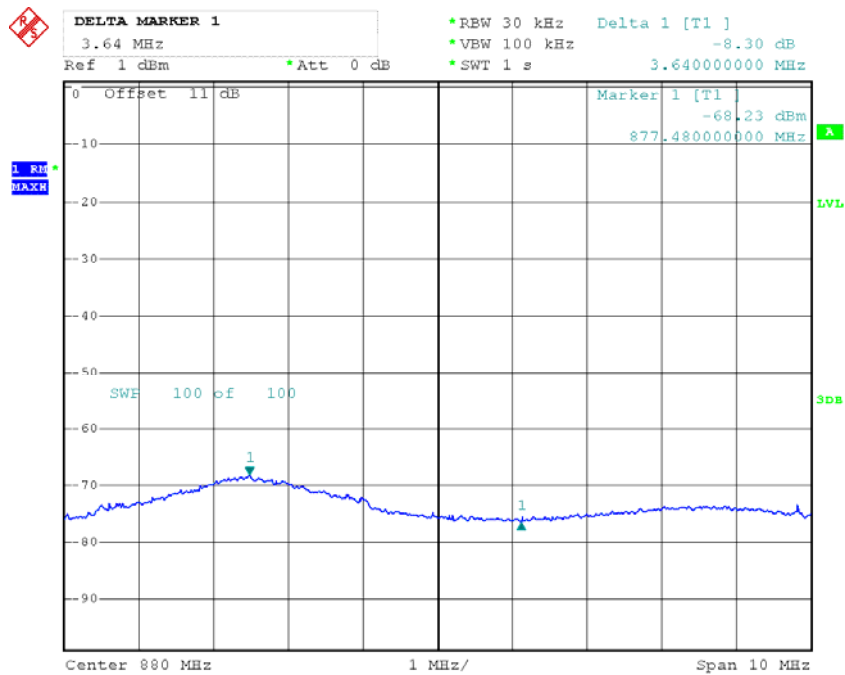
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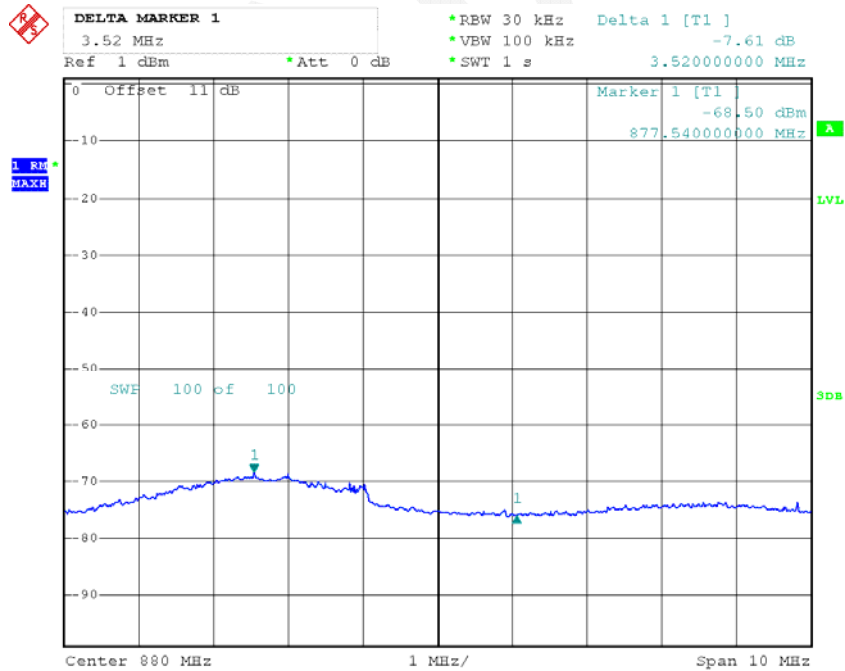
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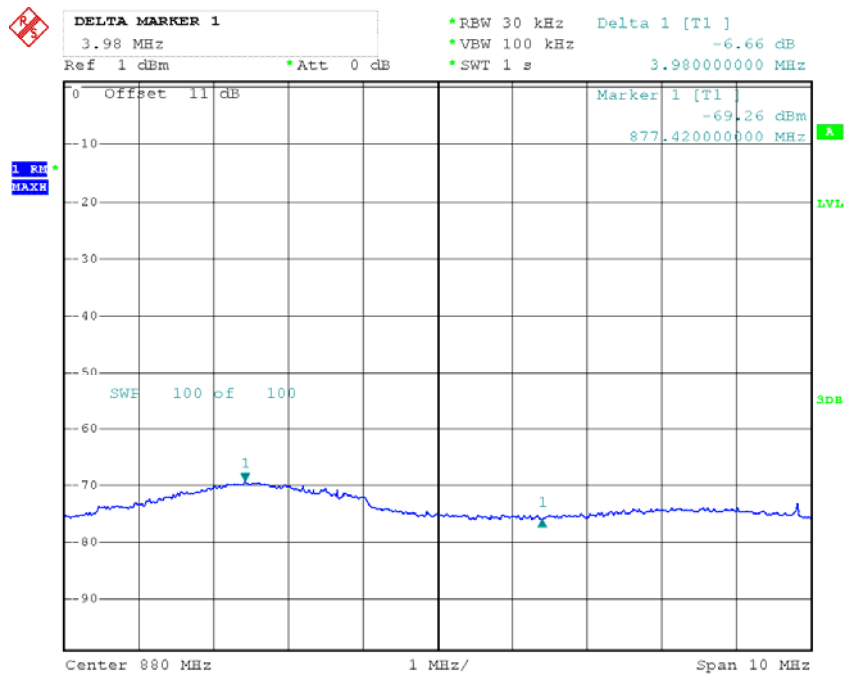
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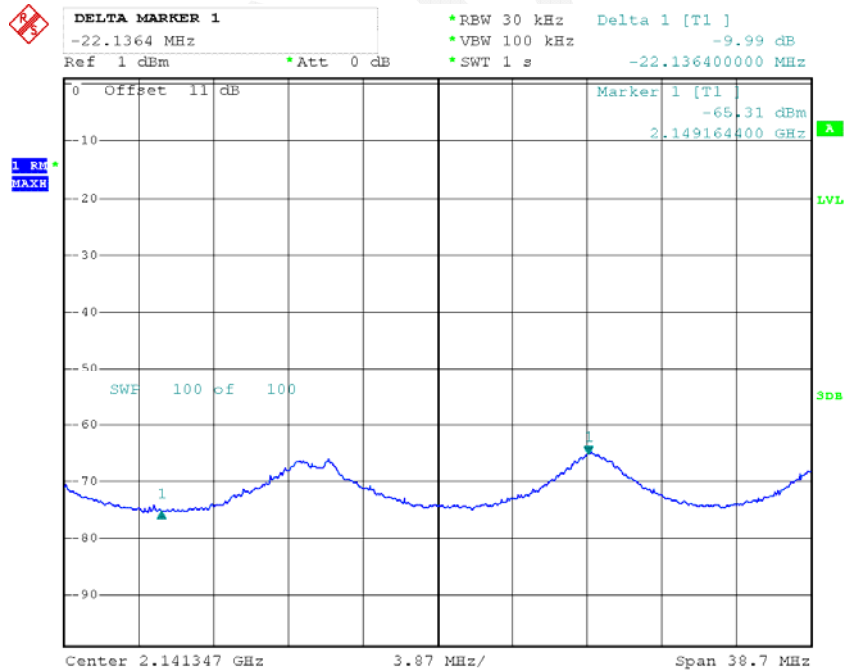
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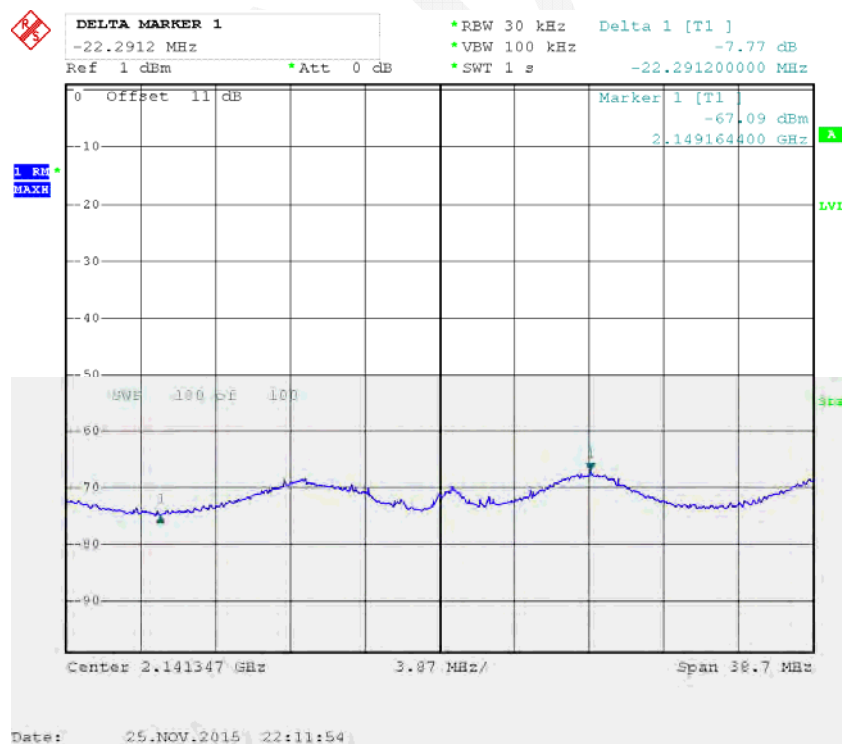
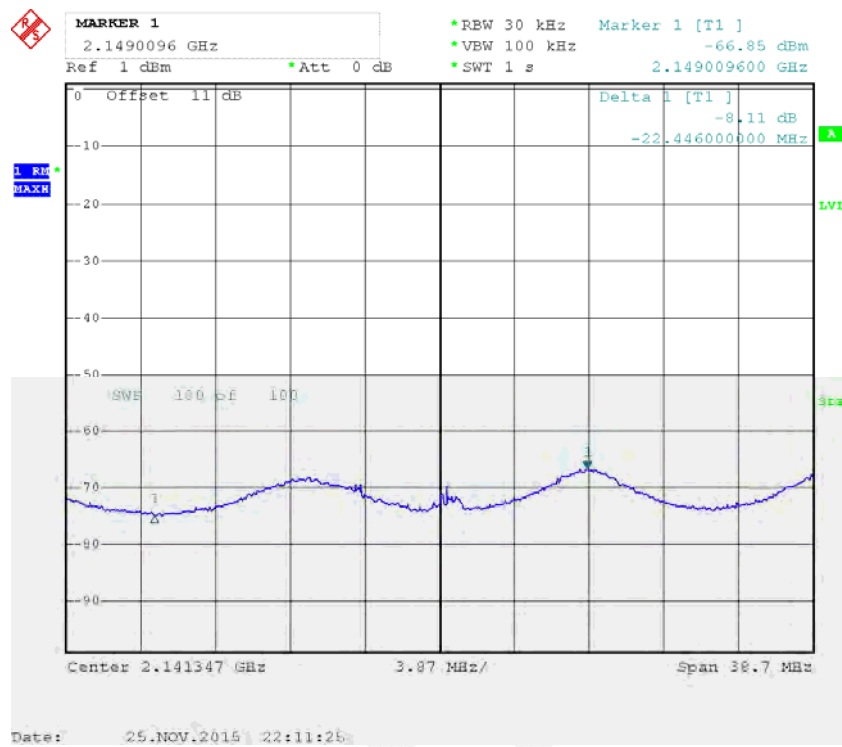


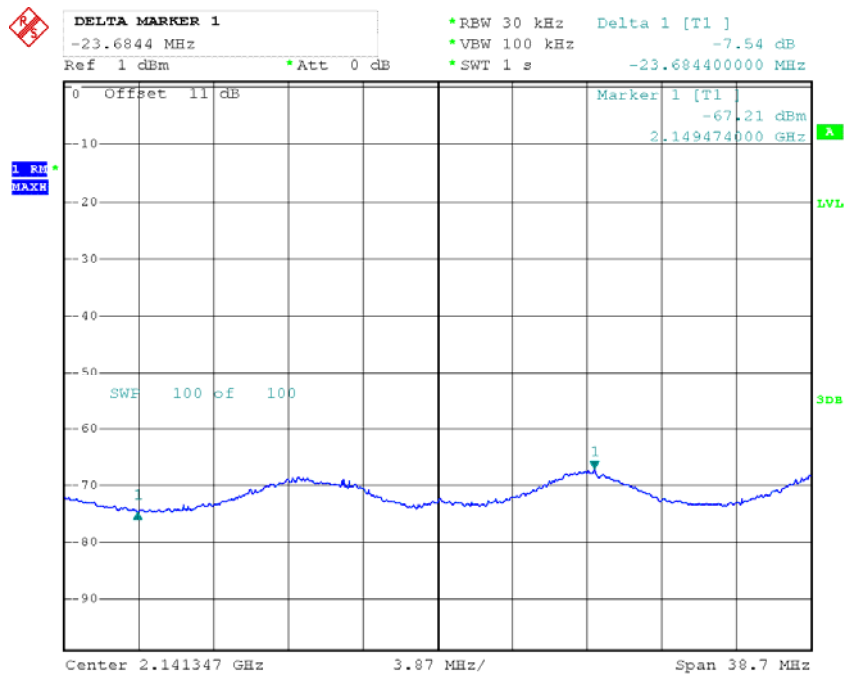
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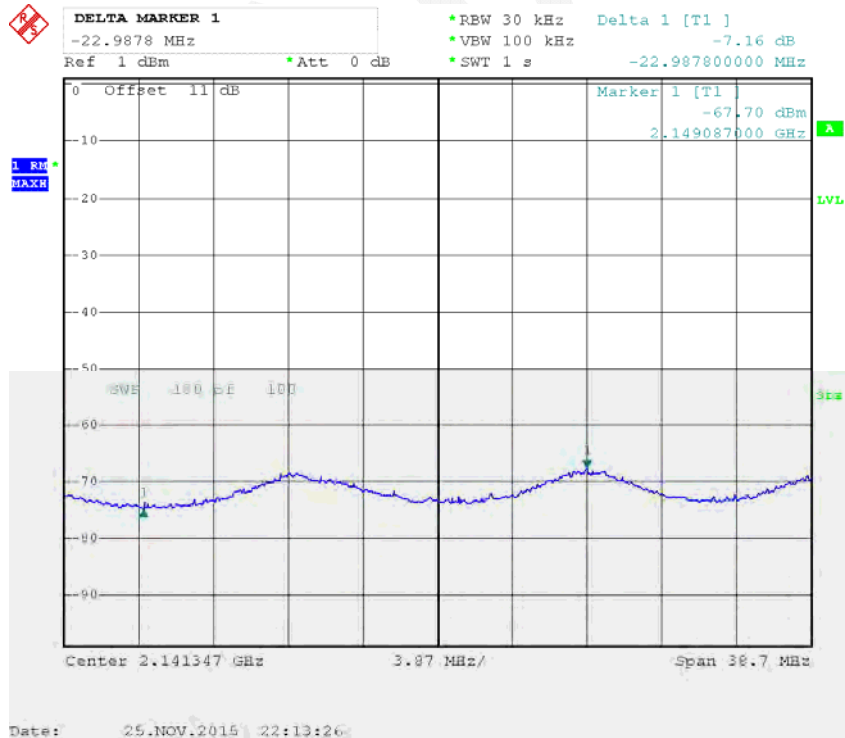
AWS Band





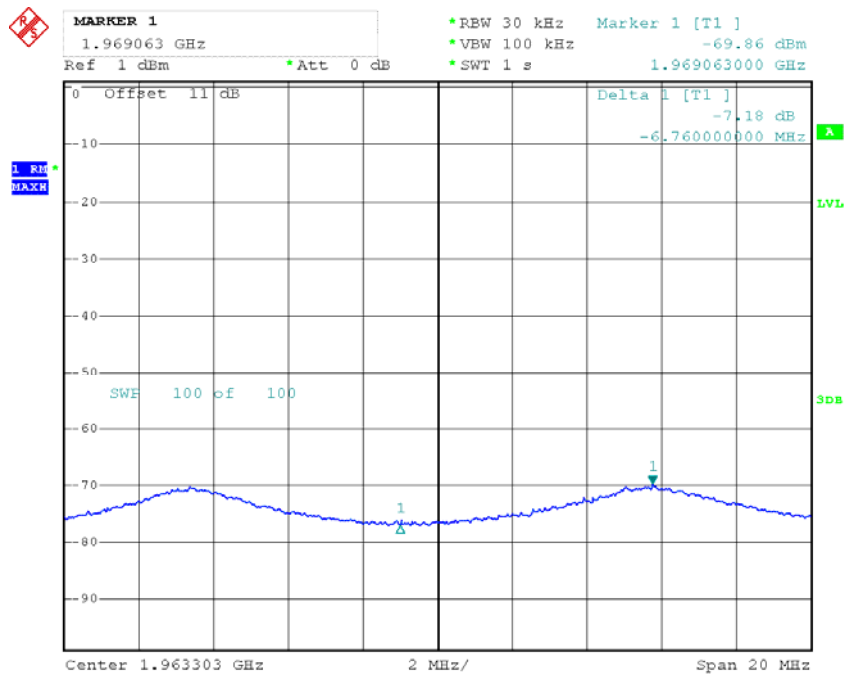


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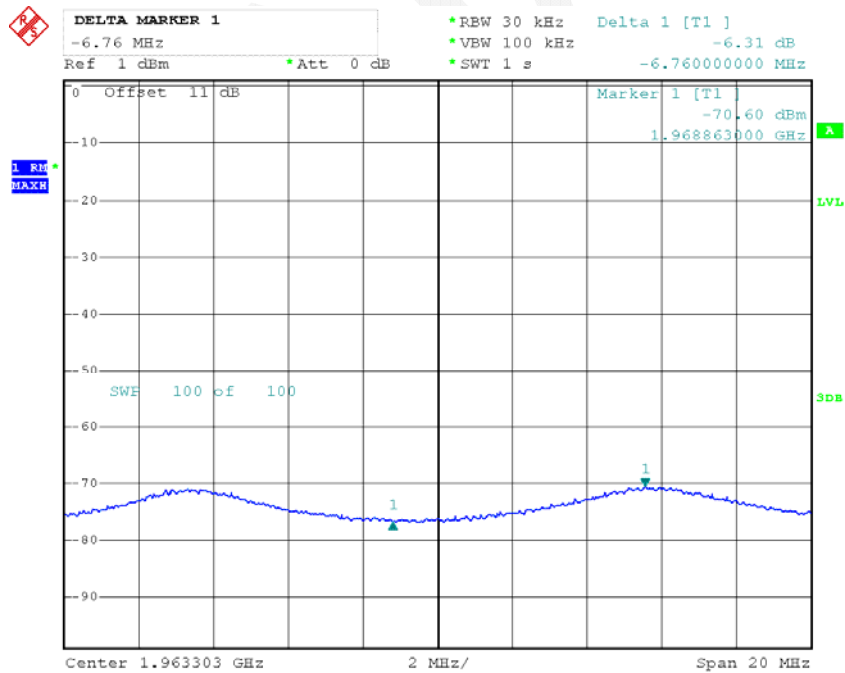


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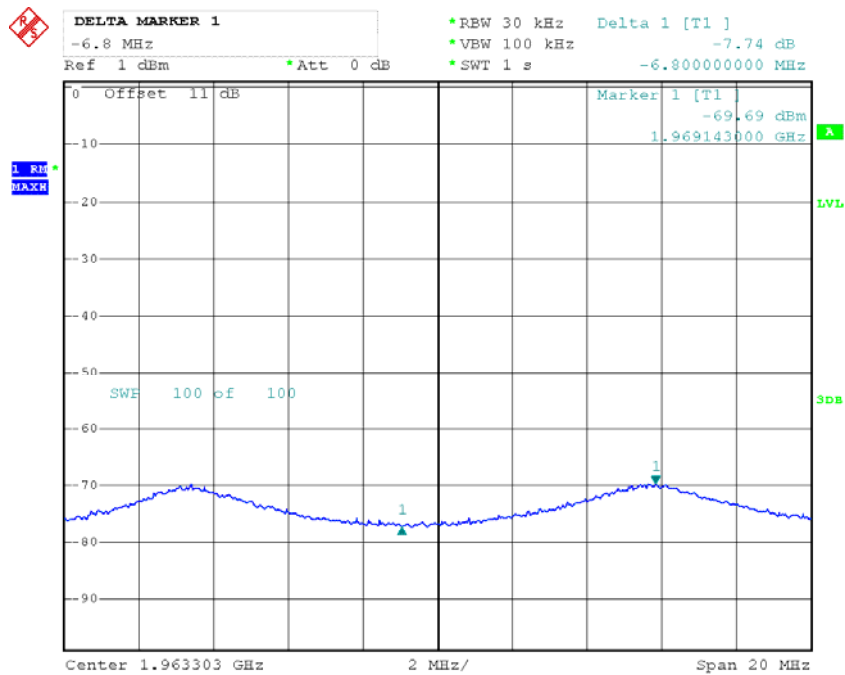
PCS Band



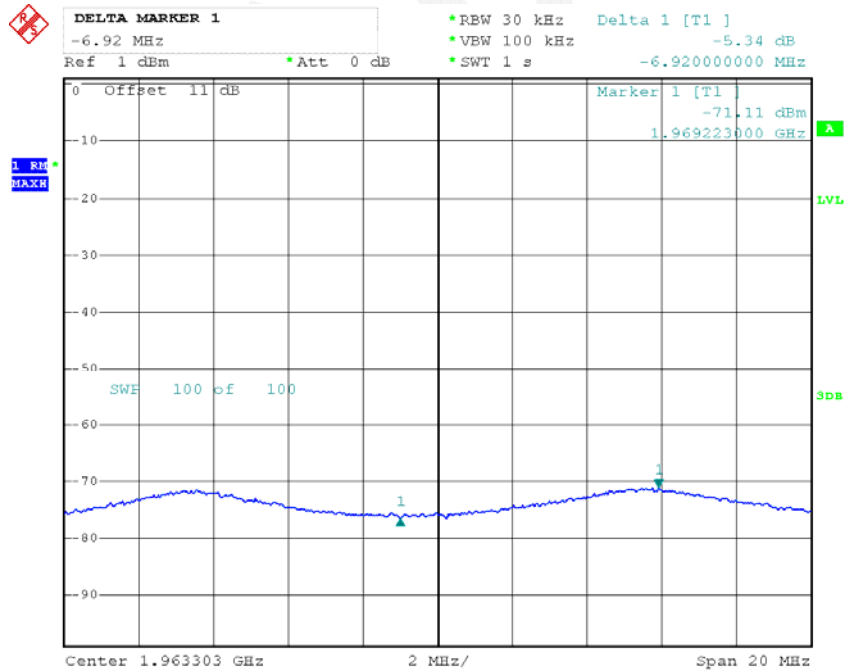
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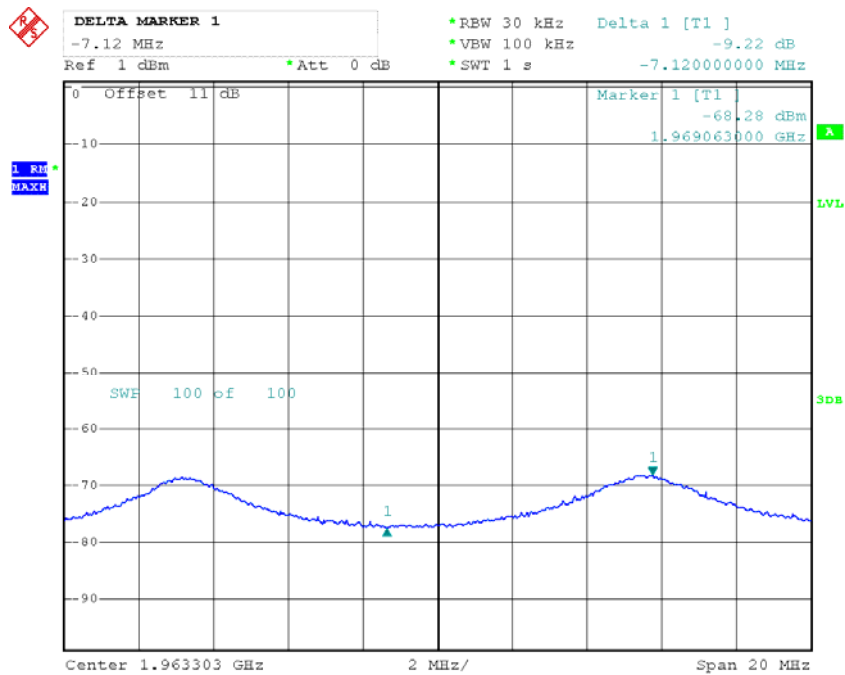
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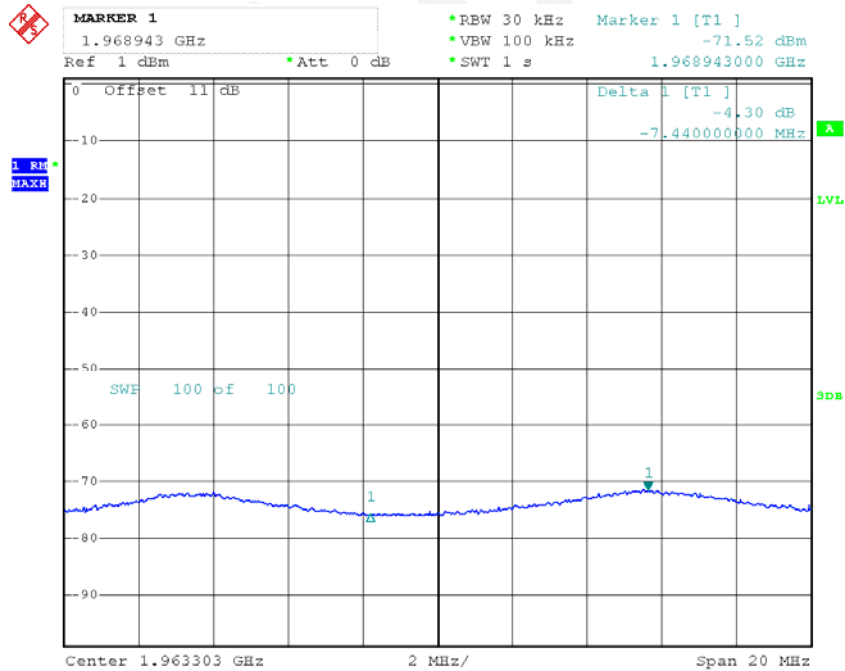
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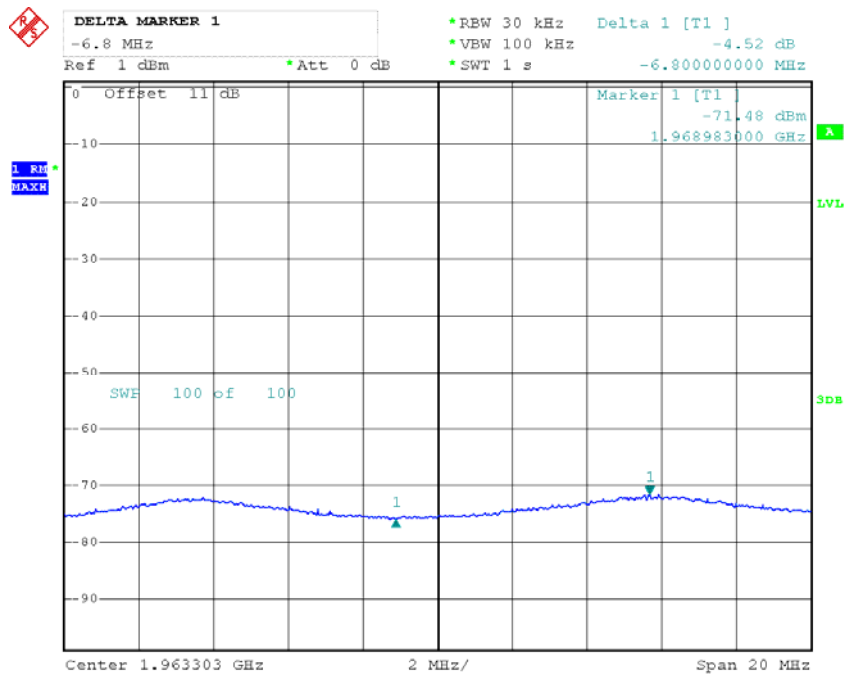
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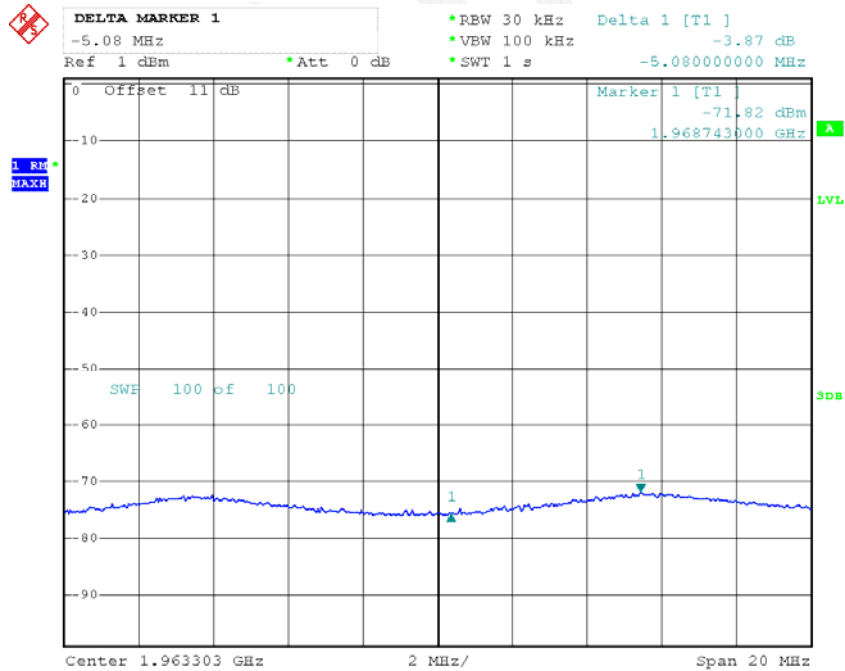
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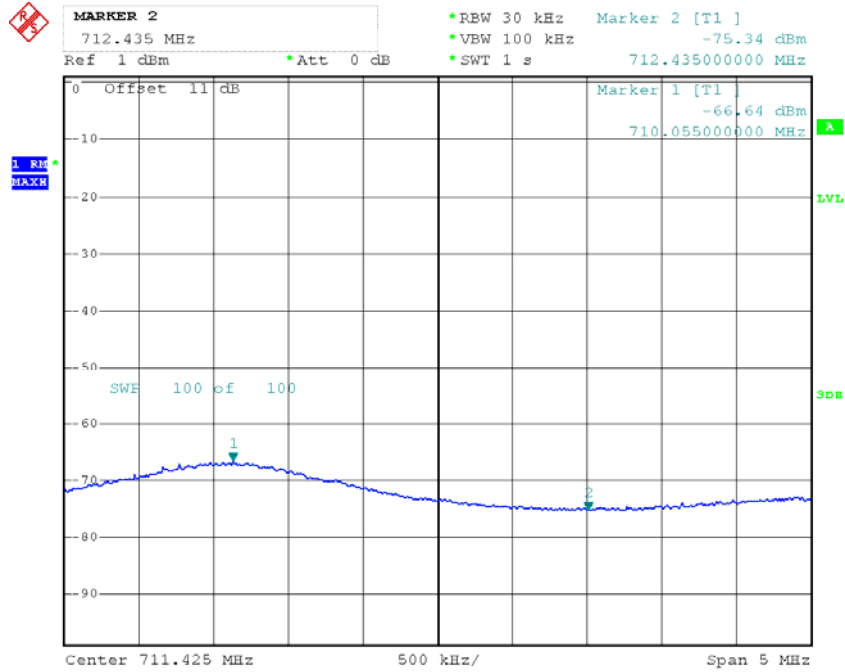
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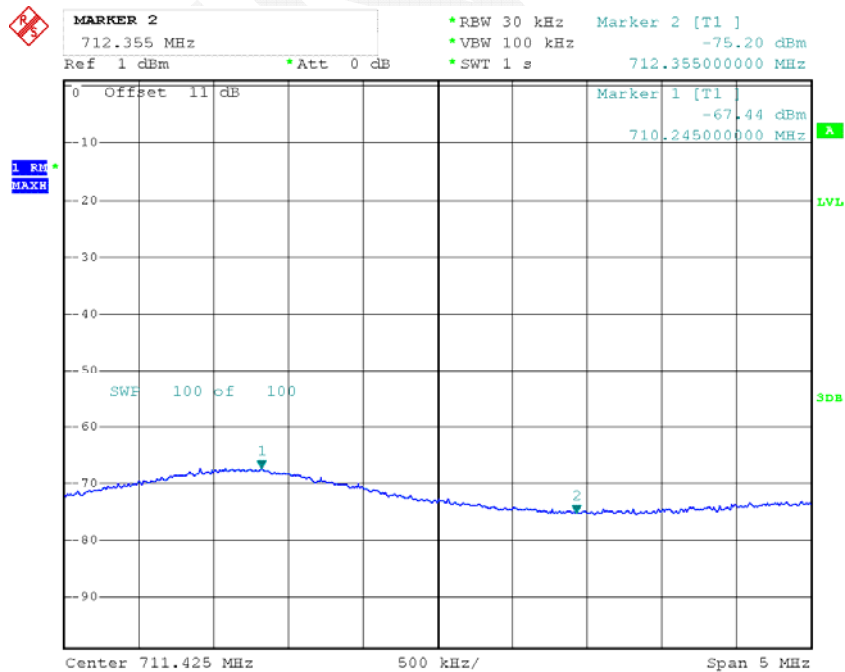
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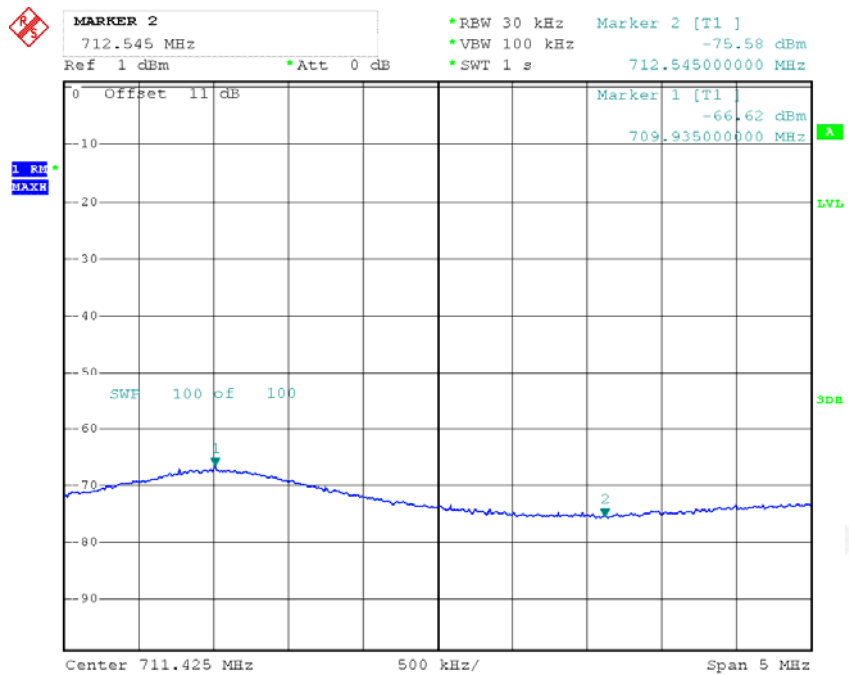
Lower 700 Band



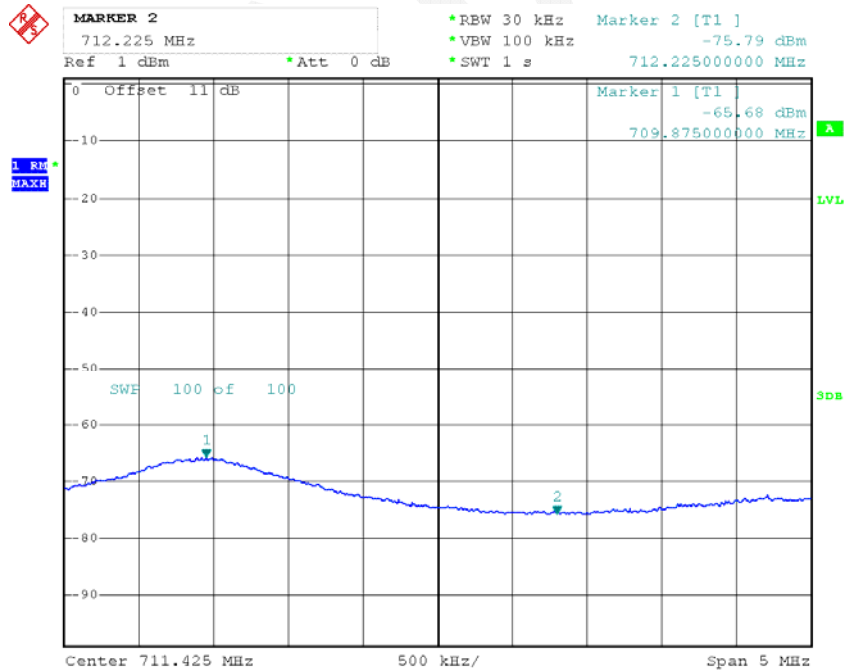
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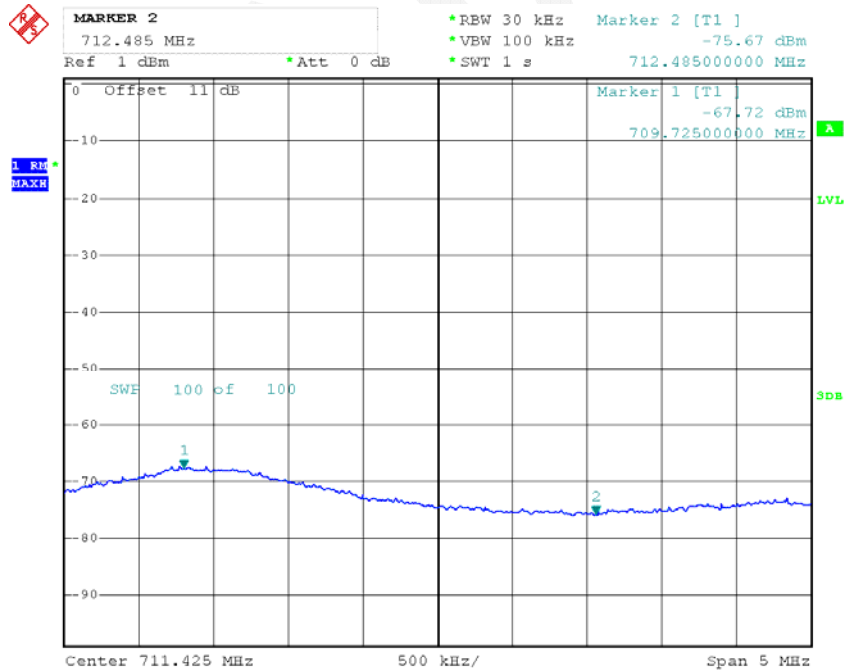
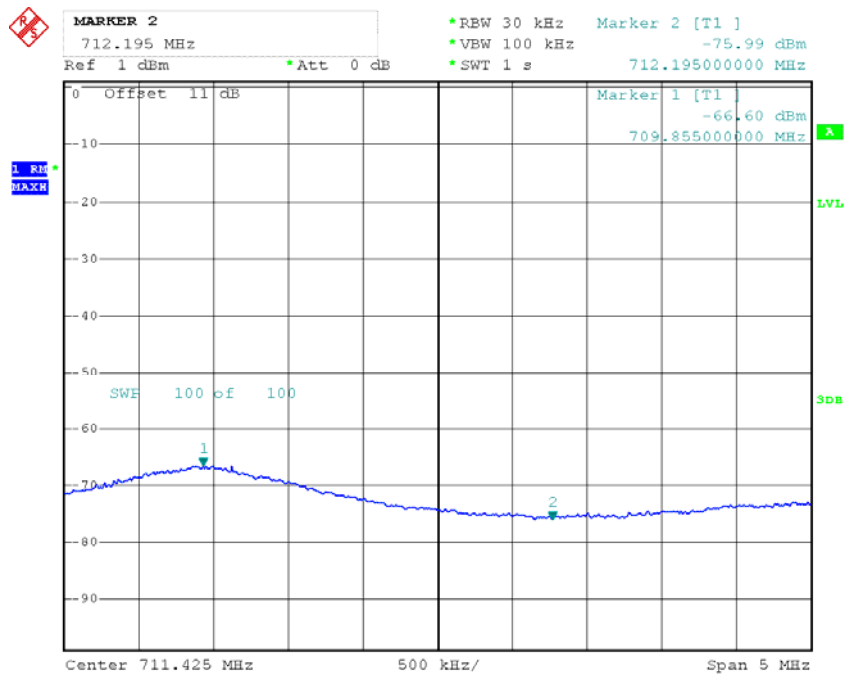
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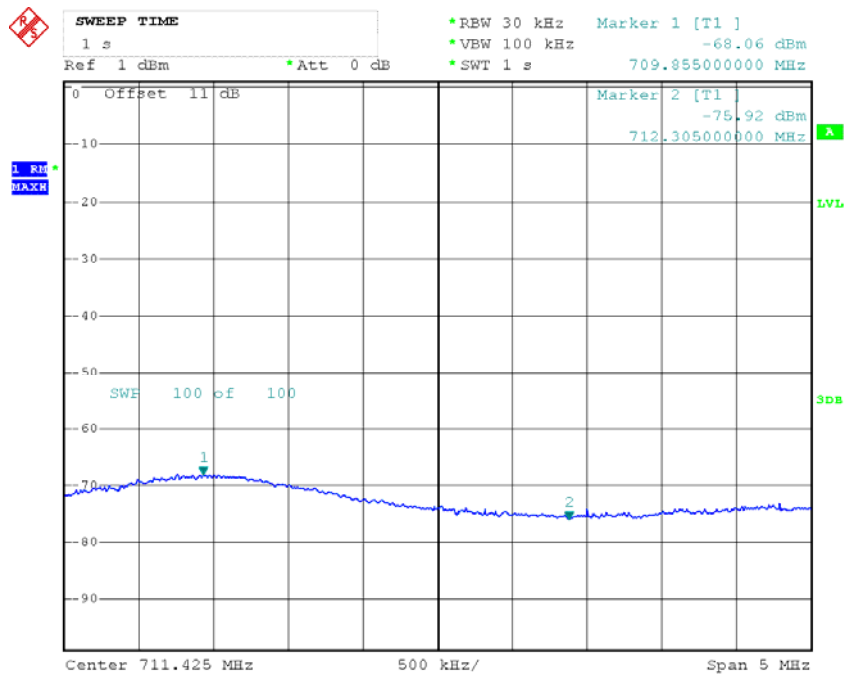


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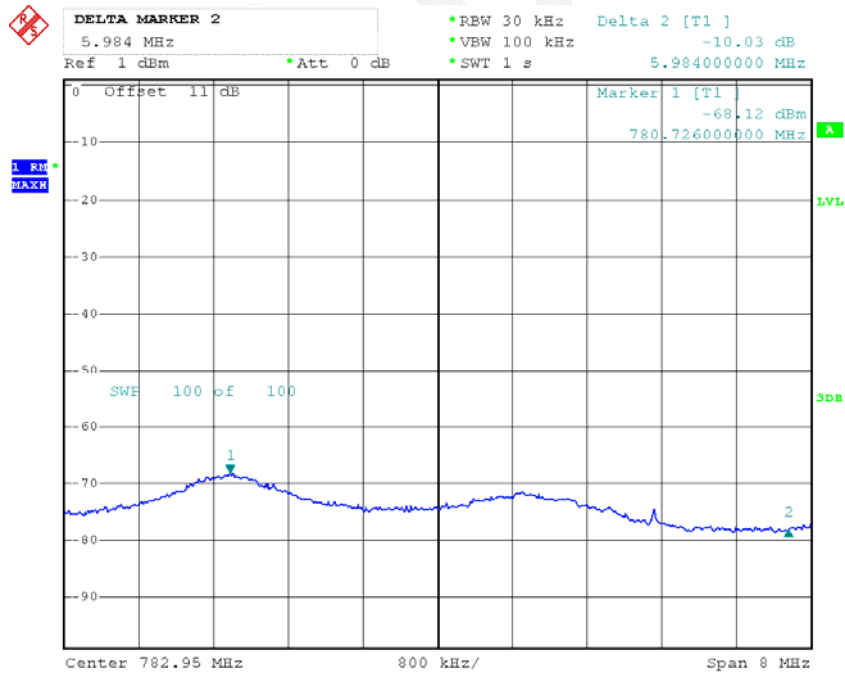
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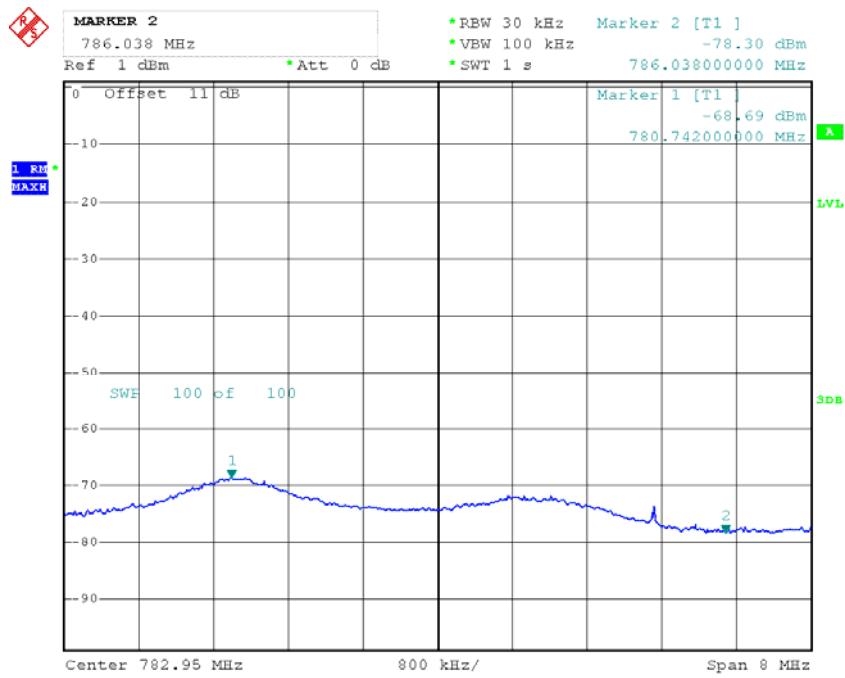


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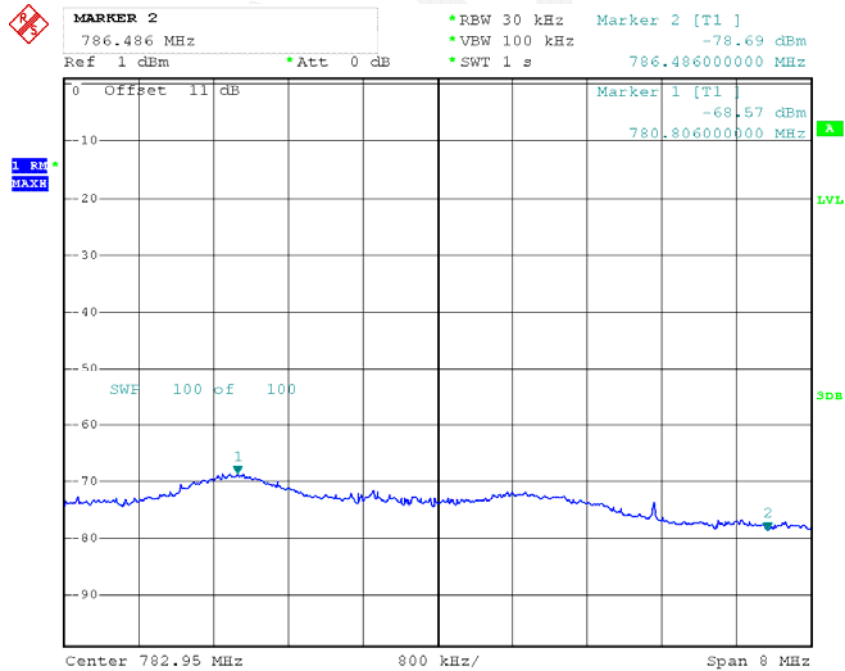
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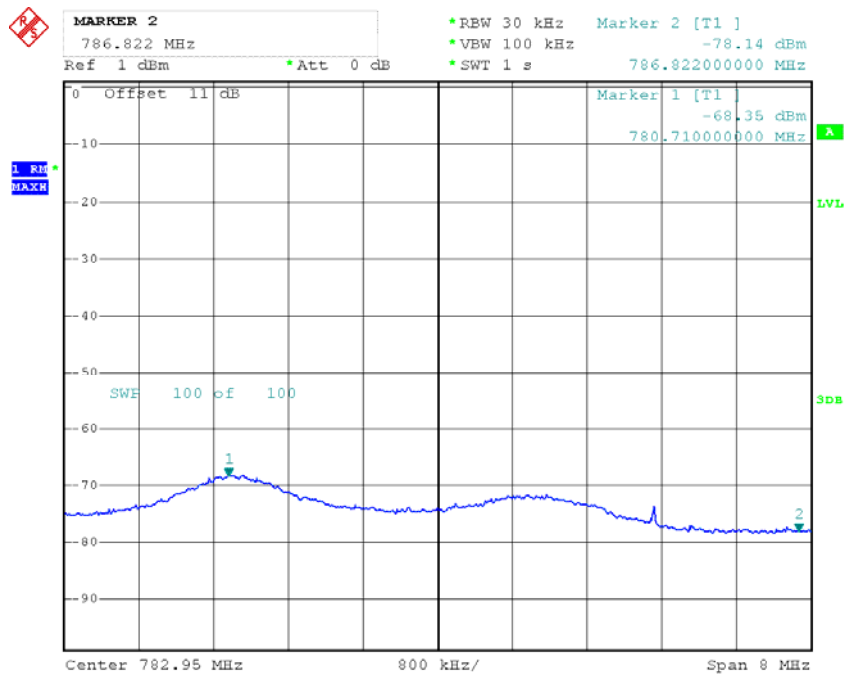
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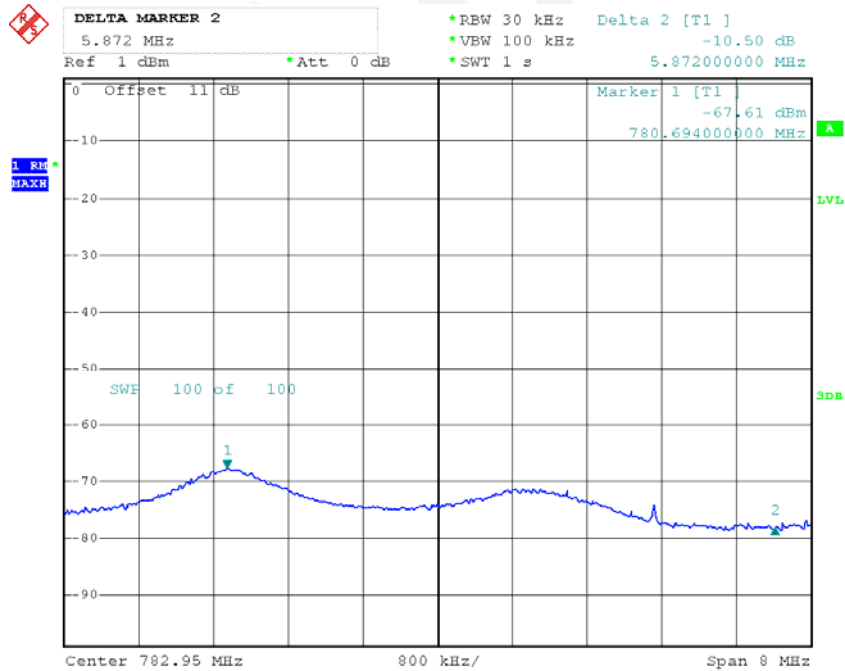
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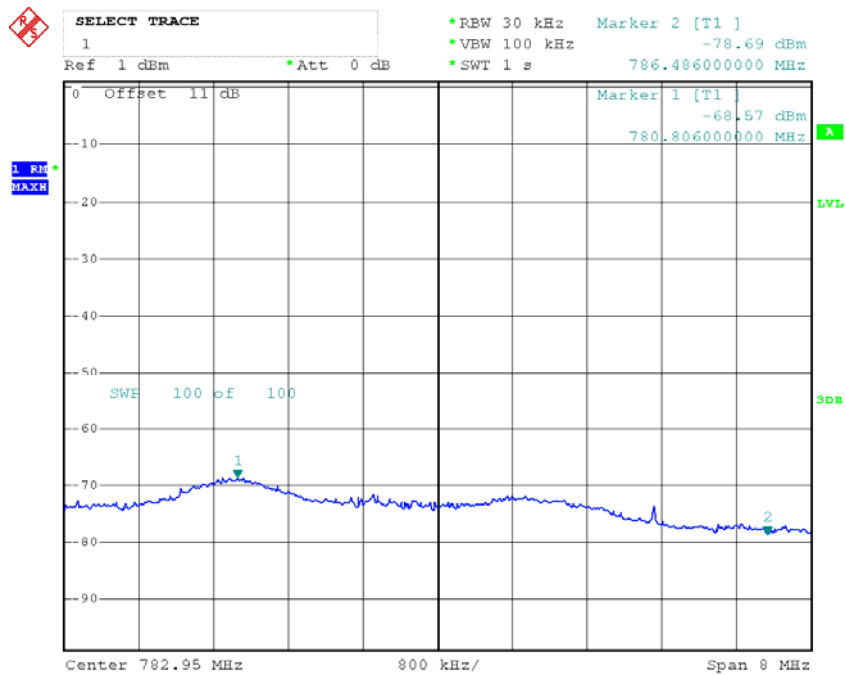
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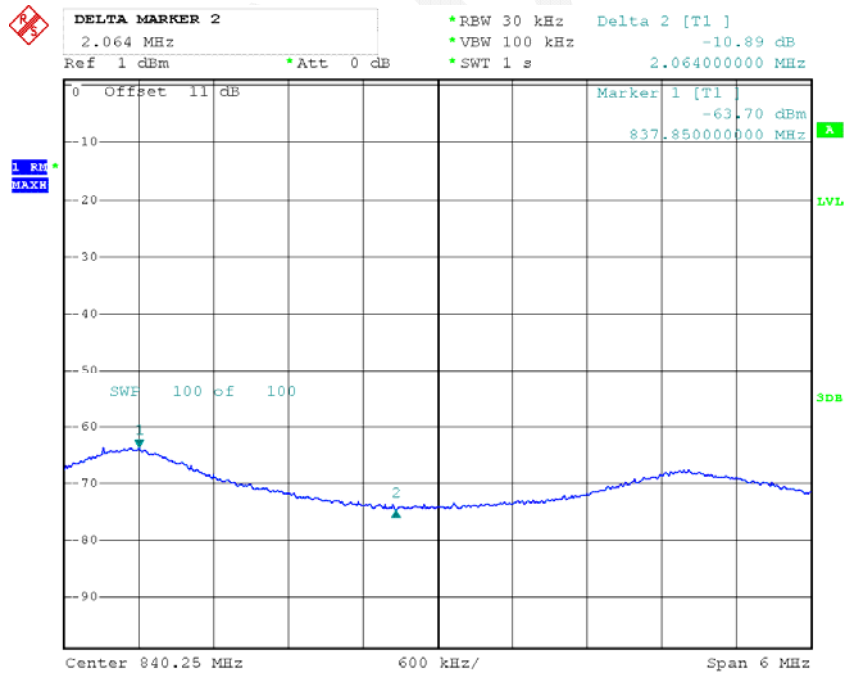


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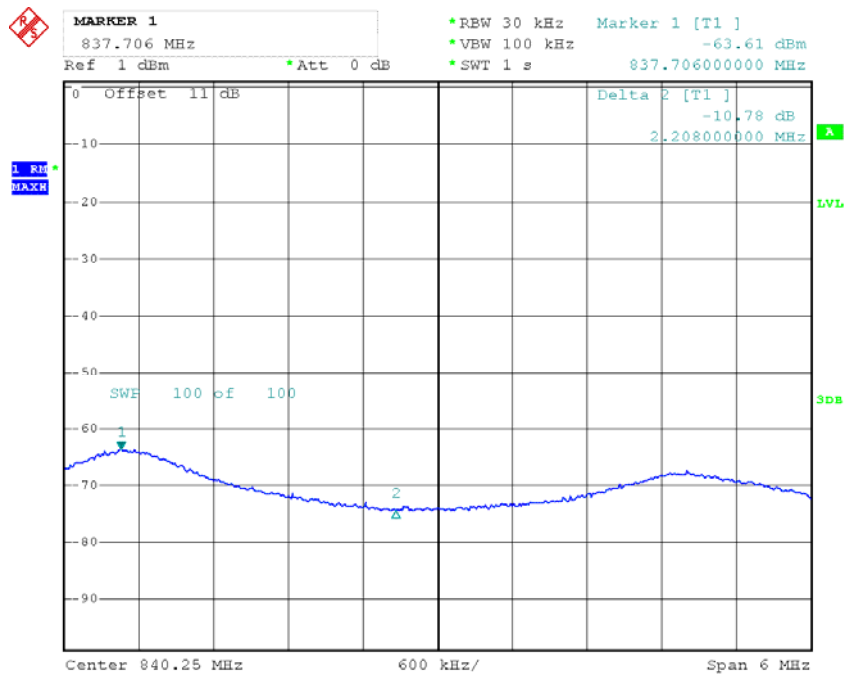


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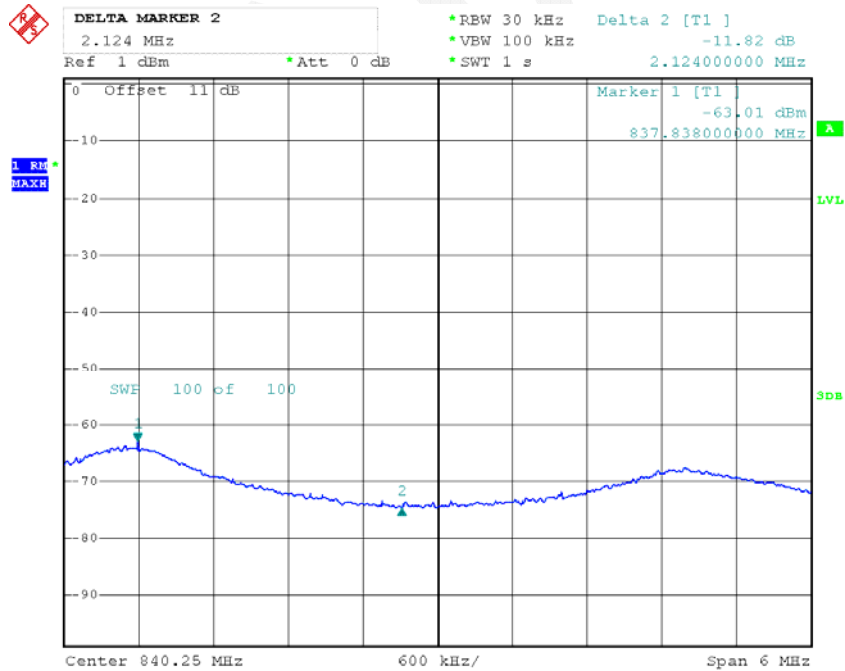
Cellular Band



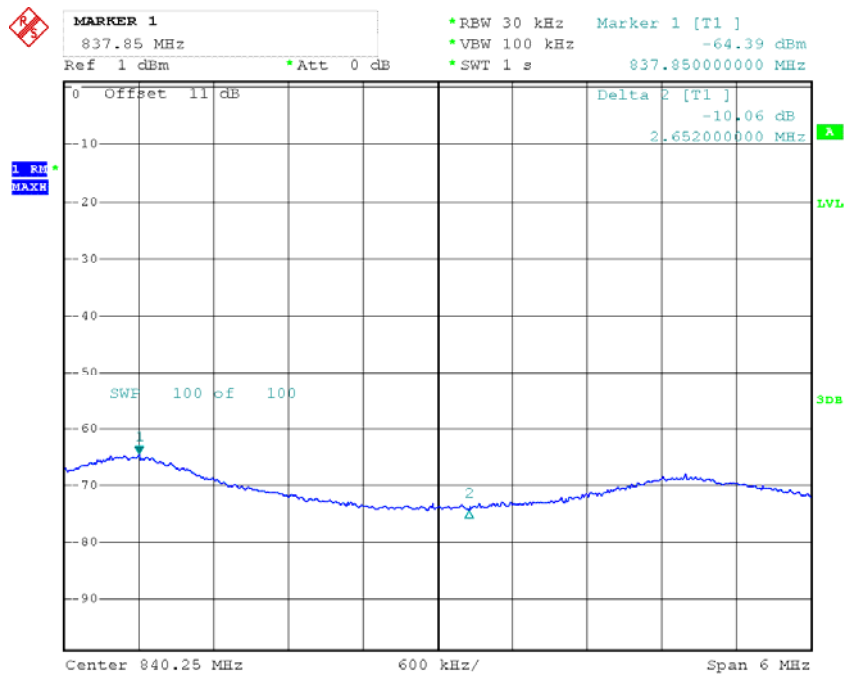
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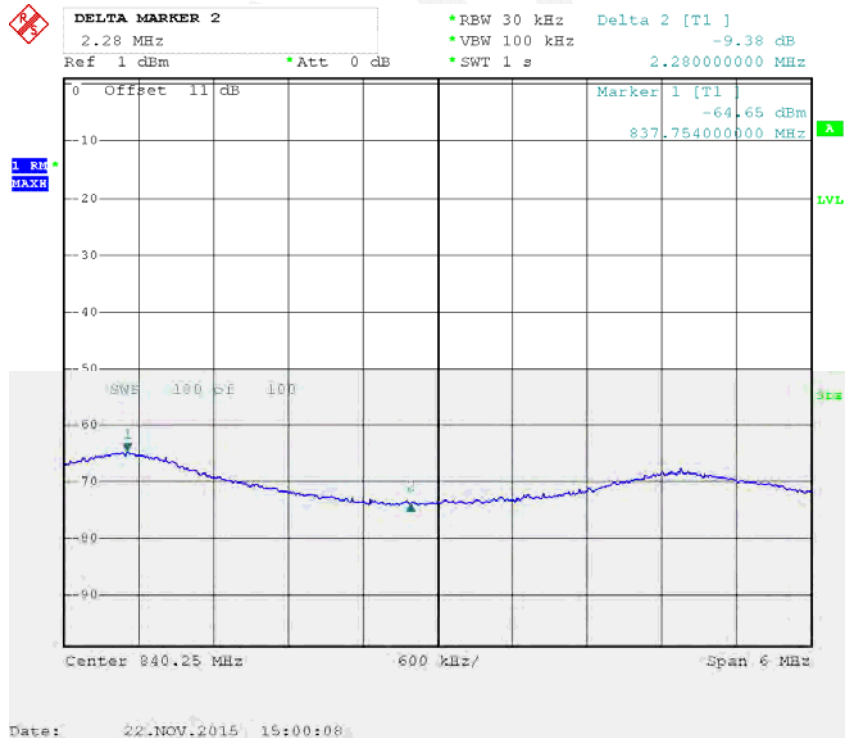
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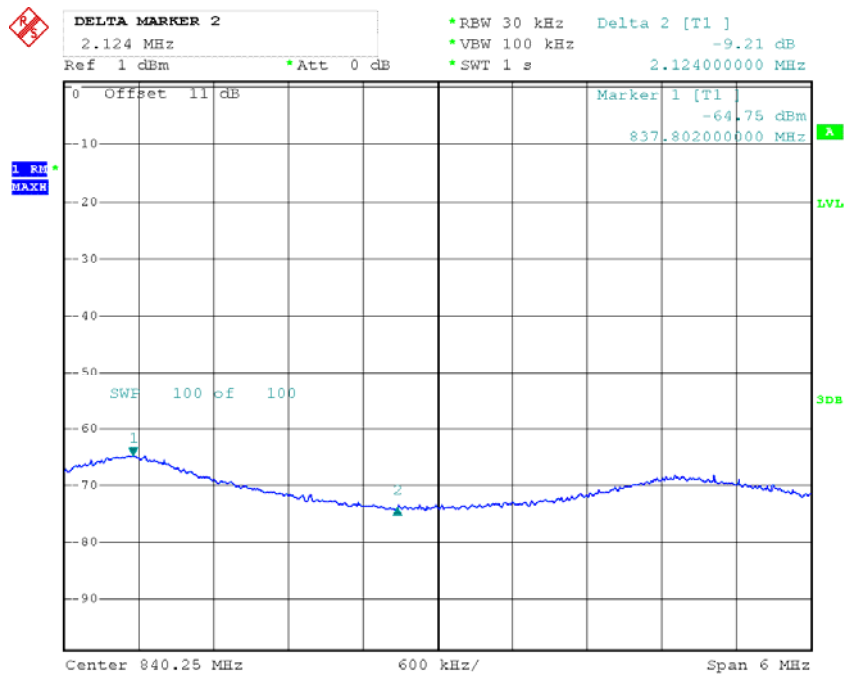
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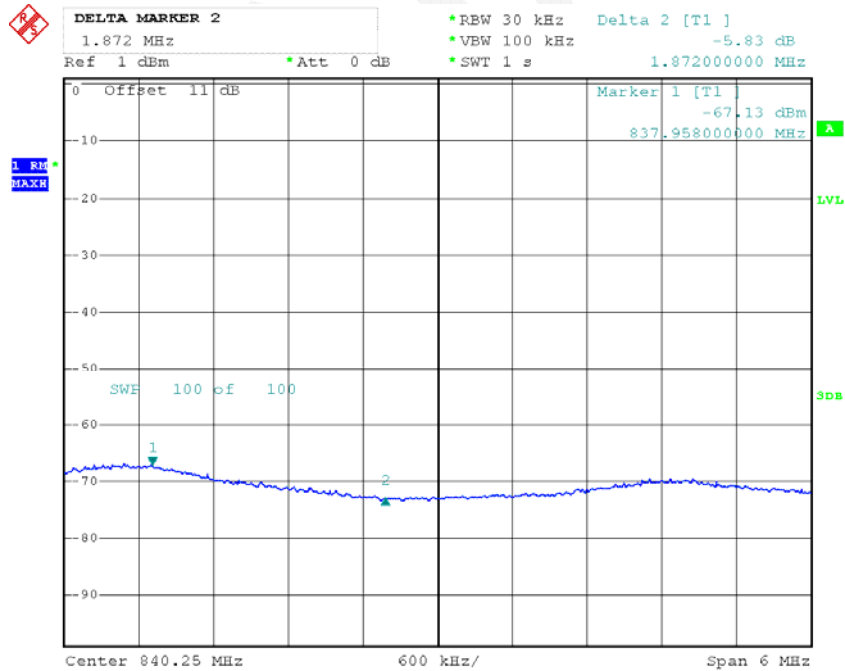
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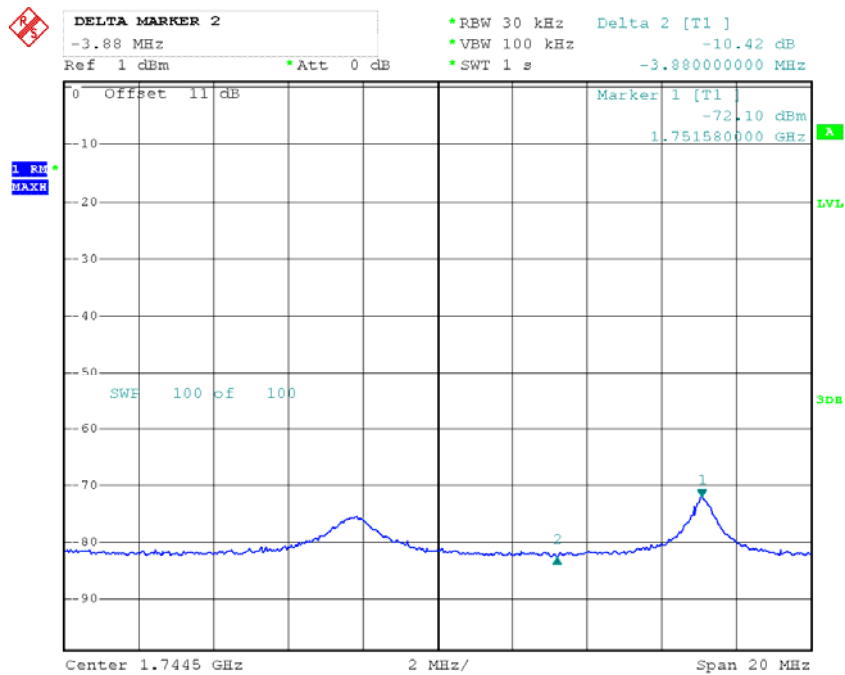


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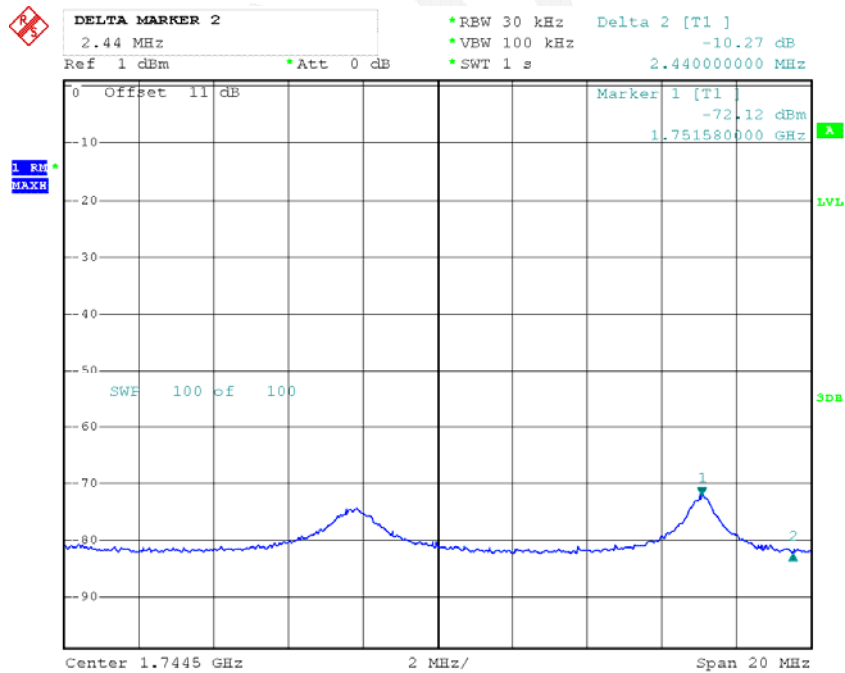


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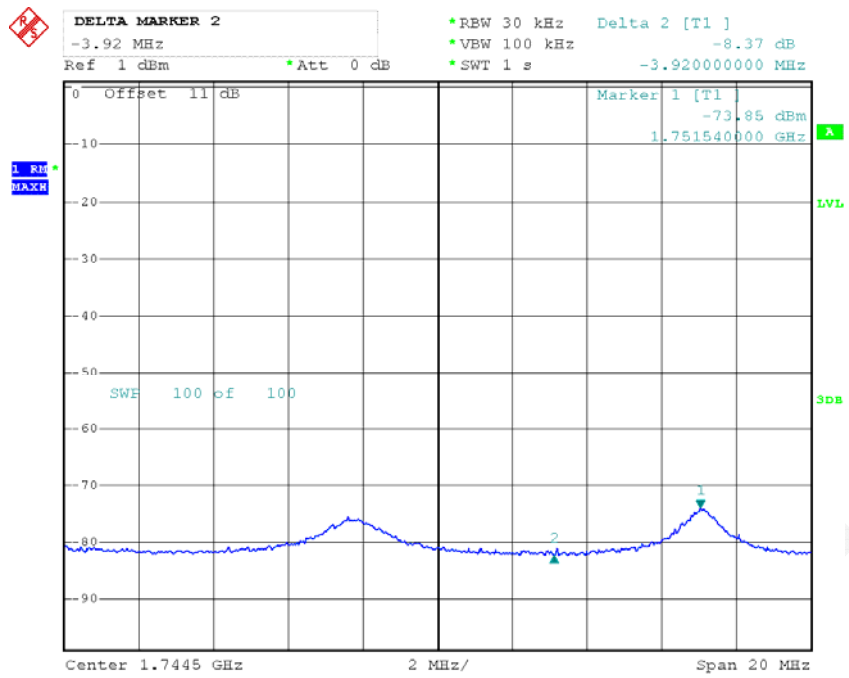
AWS Band



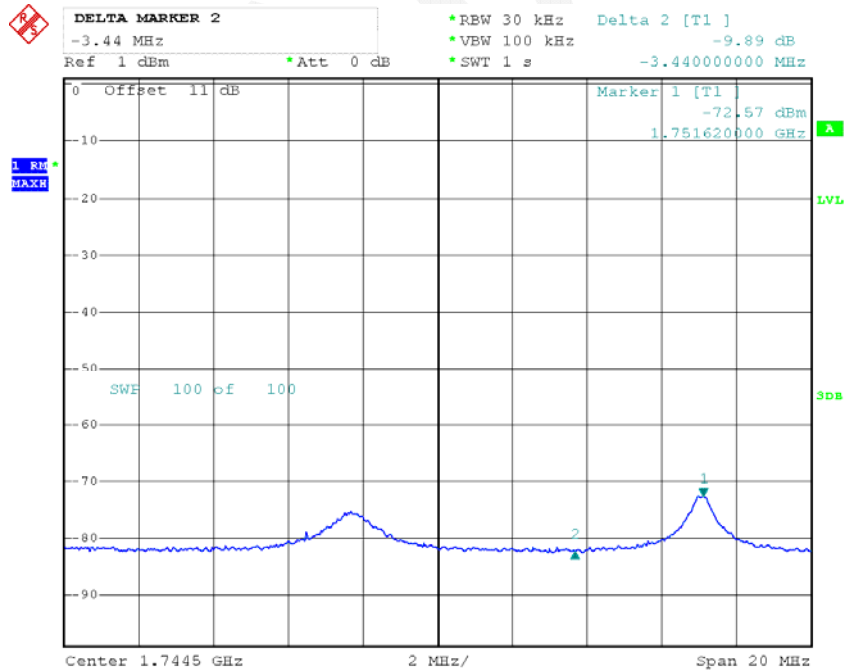
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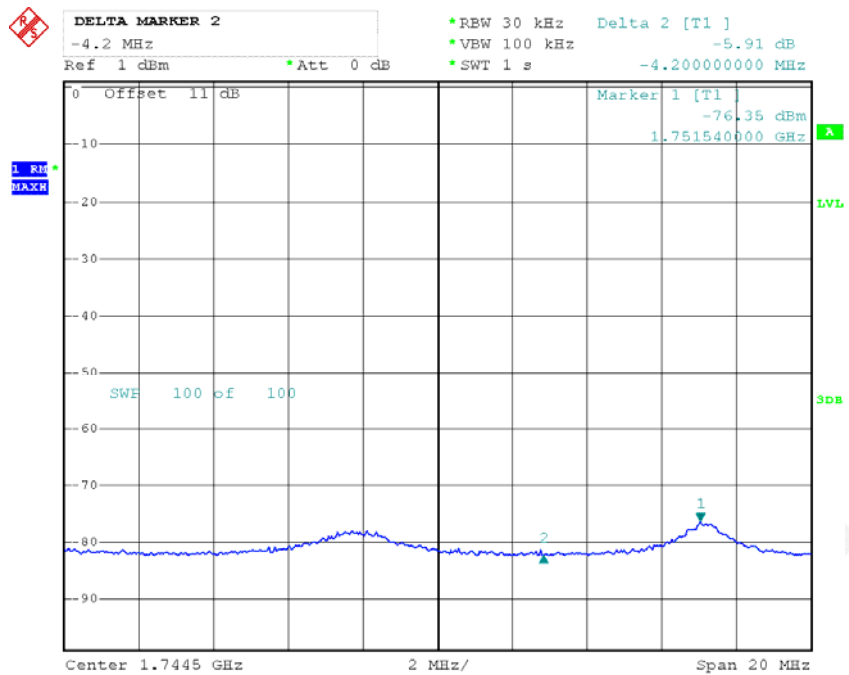
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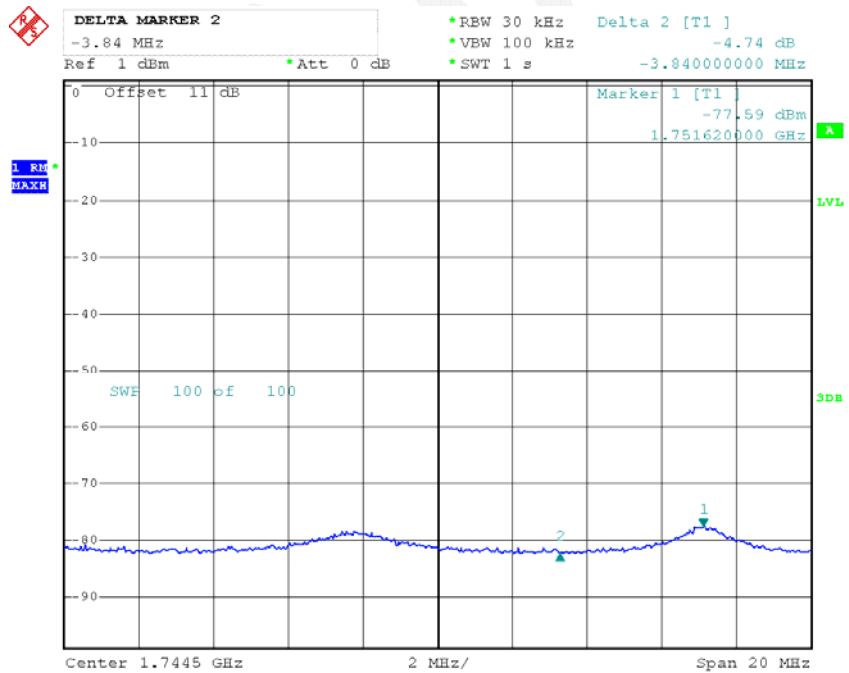
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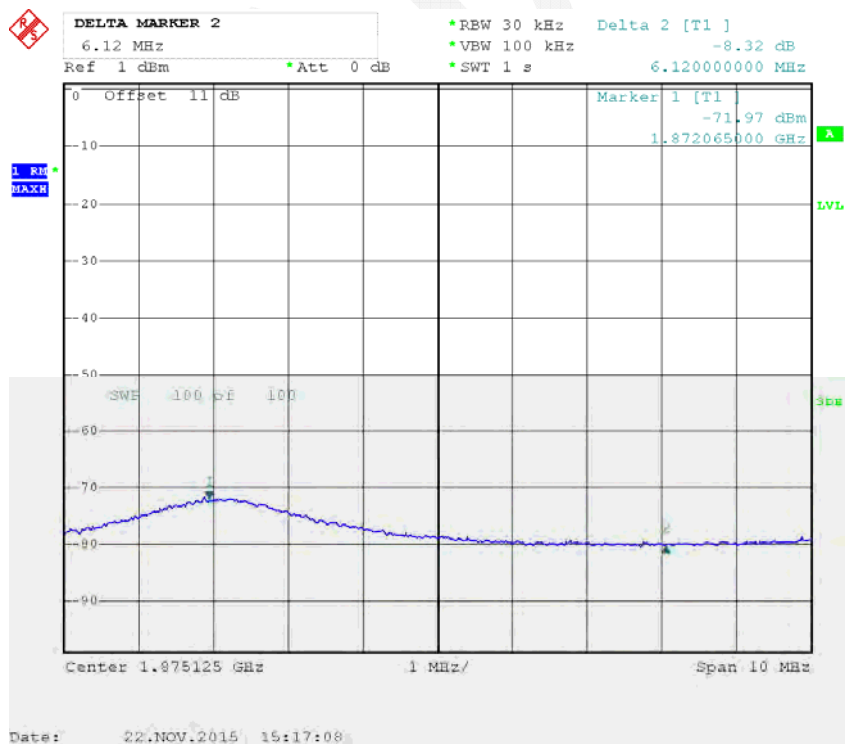
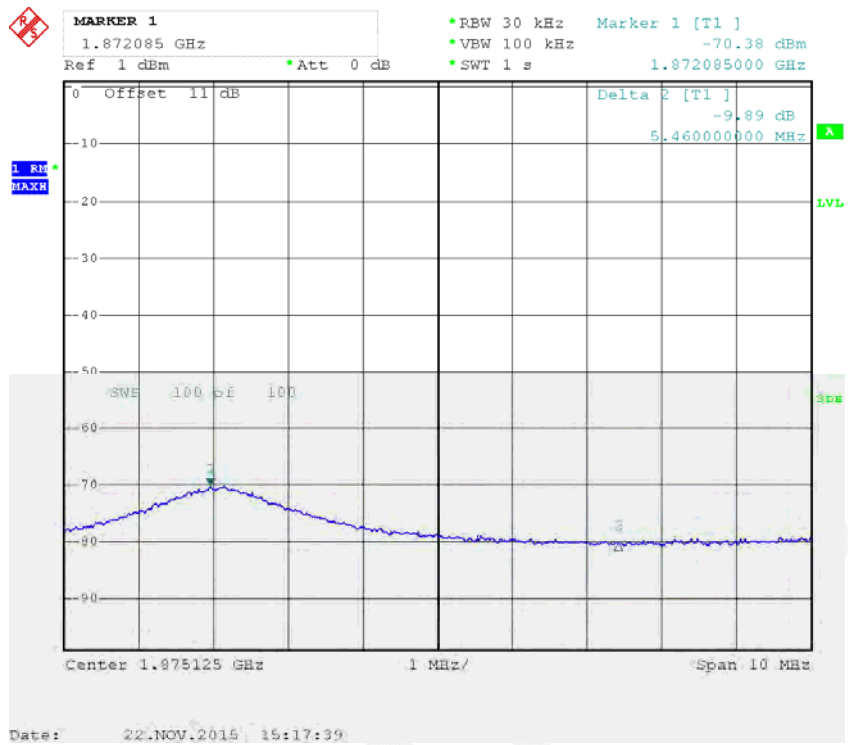


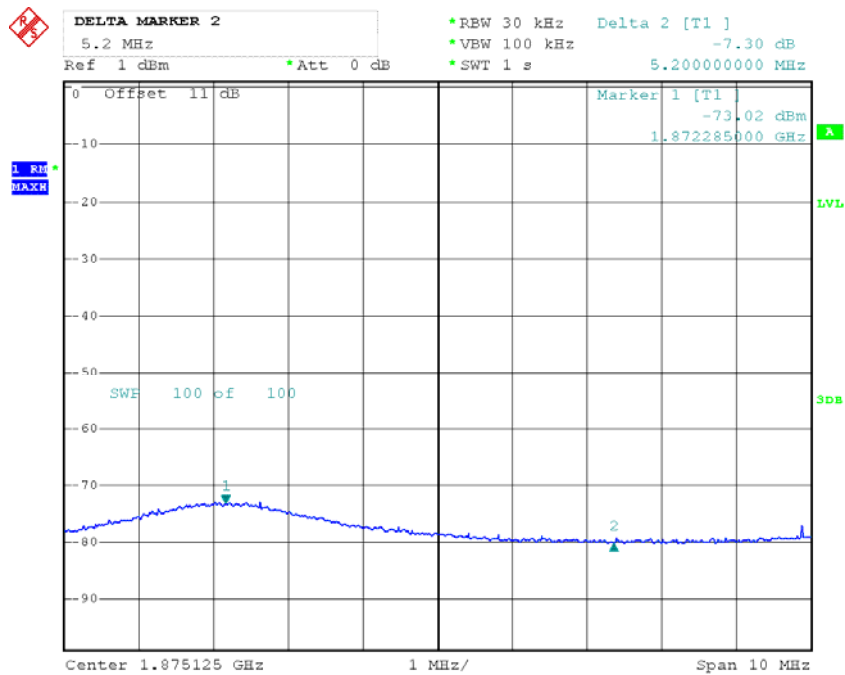
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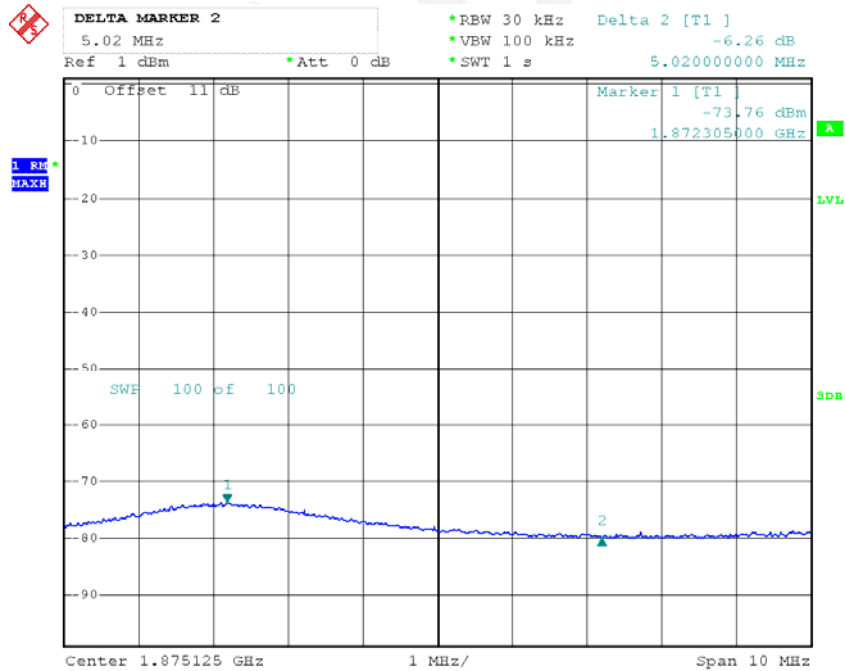
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PCS Band

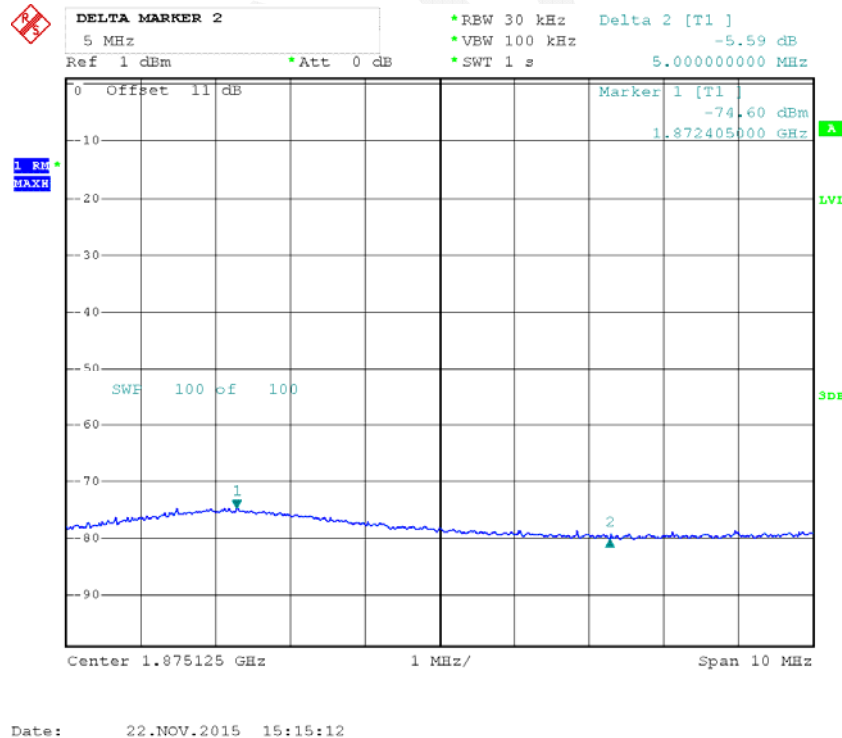
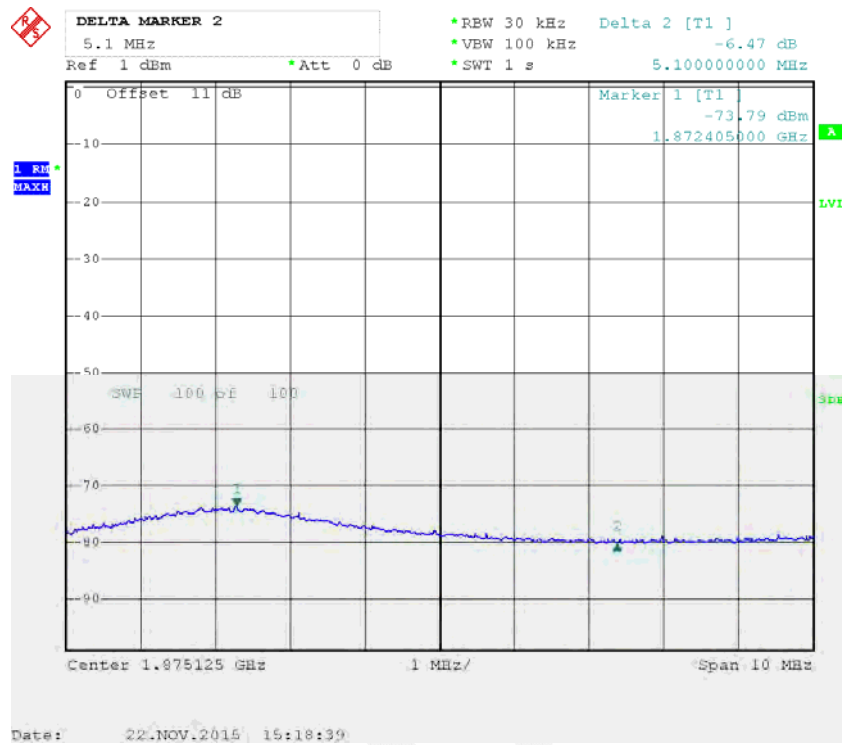




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Date: 22.NOV.2015 15:16:05



§2.1051- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standards

FCC §2.1051 *Measurements required: Spurious emissions at antenna terminals.*

§20.21(e)(8)(i)(E): Booster out of band emissions (OOBE) shall be at least 6 dB below the FCC's mobile emission limits for the supported bands of operation. Compliance to OOBE limits will utilize high peak-to-average CMRS signal types.

§22.917 (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.

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

§27.53: the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;

Test Procedure

The following procedures shall be used to demonstrate compliance to the applicable conducted spurious emissions limits as per § 2.1051.

Note: For frequencies below 1 GHz, an RBW of 1 MHz may be used in a preliminary measurement. If non-compliant emissions are detected, a final measurement shall be made with a 100 kHz RBW. Additionally, a peak detector may also be used for the preliminary measurement. If non-compliant emissions are detected then a final measurement of these emissions shall be made with the power averaging (RMS) detector.

- a) Connect the EUT to the test equipment as shown in **Figure 1**. Begin with the uplink output connected to the spectrum analyzer.
- b) Configure the signal generator for AWGN with a 99% occupied bandwidth of 4.1 MHz with a center frequency corresponding to the center of the CMRS band under test.
- c) Set the signal generator amplitude to the level determined in the power measurement procedure in 7.2.
- d) Turn on the signal generator RF output and measure the spurious emission power levels with an appropriate measurement instrument as follows.
 - 1) Set RBW = measurement bandwidth specified in the applicable rule section for the operational frequency band under consideration (see Annex A for relevant cross-references). Note that many of the individual rule sections permit the use of a narrower RBW (typically $\geq 1\%$ of the emission bandwidth) to enhance measurement accuracy, but the result must then be integrated over the specified measurement bandwidth.
 - 2) Set VBW = $3 \times$ RBW.
 - 3) Select the power averaging (RMS) detector. (See above note regarding the use of a peak detector for preliminary measurements.)
 - 4) Sweep time = auto-couple.
 - 5) Set the analyzer start frequency to the lowest radio frequency signal generated in the equipment, without going below 9 kHz, and the stop frequency to the lower band/block edge frequency minus 100 kHz or 1 MHz, as specified in the applicable rule part. Note that the number of measurement points in each sweep

must be $\geq (2 \times \text{span/RBW})$ which may require that the measurement range defined by the start and stop frequencies above be subdivided, depending on the available number of measurement points provided by the spectrum analyzer. Trace average at least 10 traces in power averaging (i.e., RMS) mode.

6) Use the peak marker function to identify the highest amplitude level over each measured frequency range. Record the frequency and amplitude and capture a plot for inclusion in the test report.

7) Reset the analyzer start frequency to the upper band/block edge frequency plus 100 kHz or 1 MHz, as specified in the applicable rule part, and the analyzer stop frequency to $10 \times$ the highest frequency of the fundamental emission. Note that the number of measurement points in each sweep must be $\geq (2 \times \text{span/RBW})$ which may require that the measurement range defined by the start and stop frequencies above be subdivided, depending on the available number of measurement points provided by the spectrum analyzer.

8) Use the peak marker function to identify the highest amplitude level over each of the measured frequency ranges. Record the frequency and amplitude and capture a plot for inclusion in the test report.

e) Repeat 7.6b) through 7.6d) for each supported frequency band of operation.

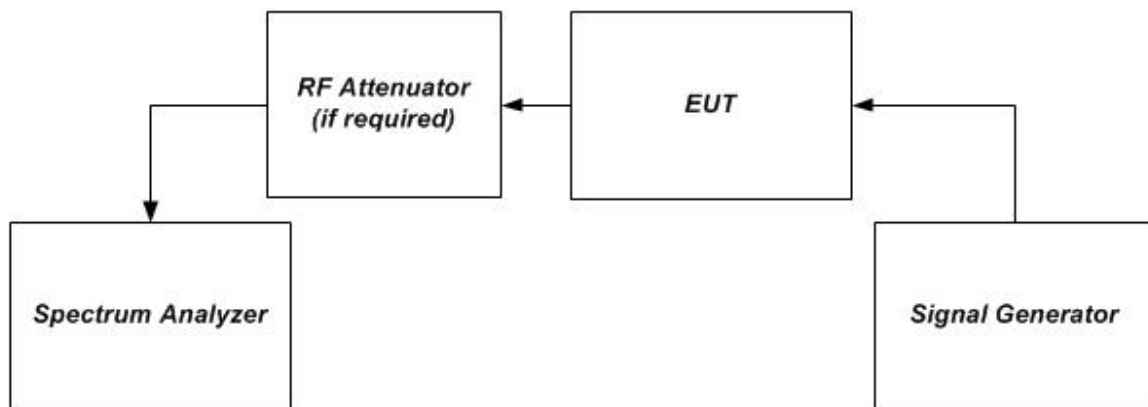


Figure 1 – Band verification test instrumentation setup

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
R & S	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2014-12-19	2015-12-19
Agilent	MXG Vector Signal Generator	N5182B	MY51350142	2015-03-30	2016-03-29

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	25.2°C
Relative Humidity:	43 %
ATM Pressure:	101.8 kPa

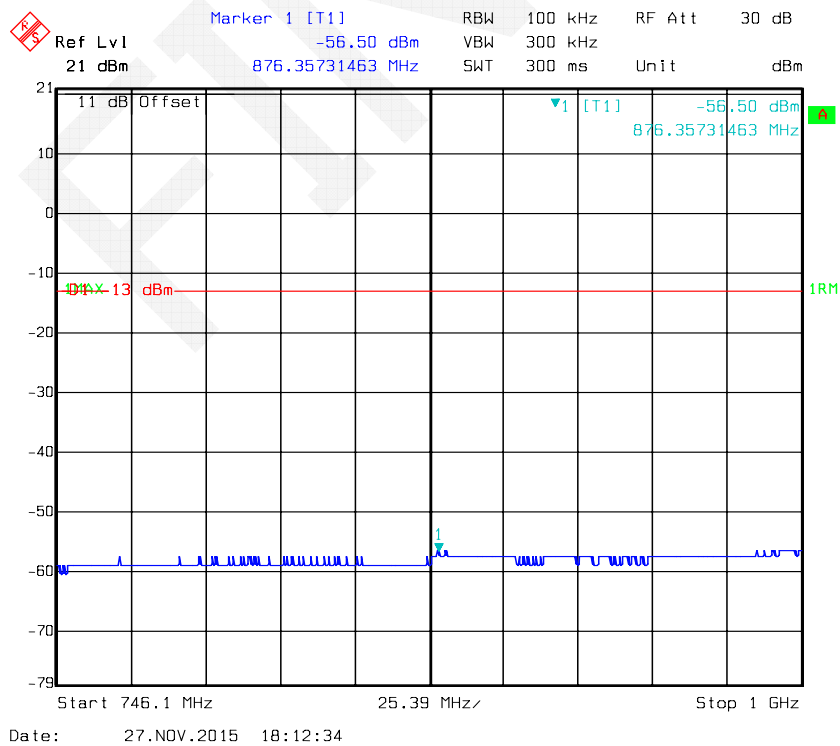
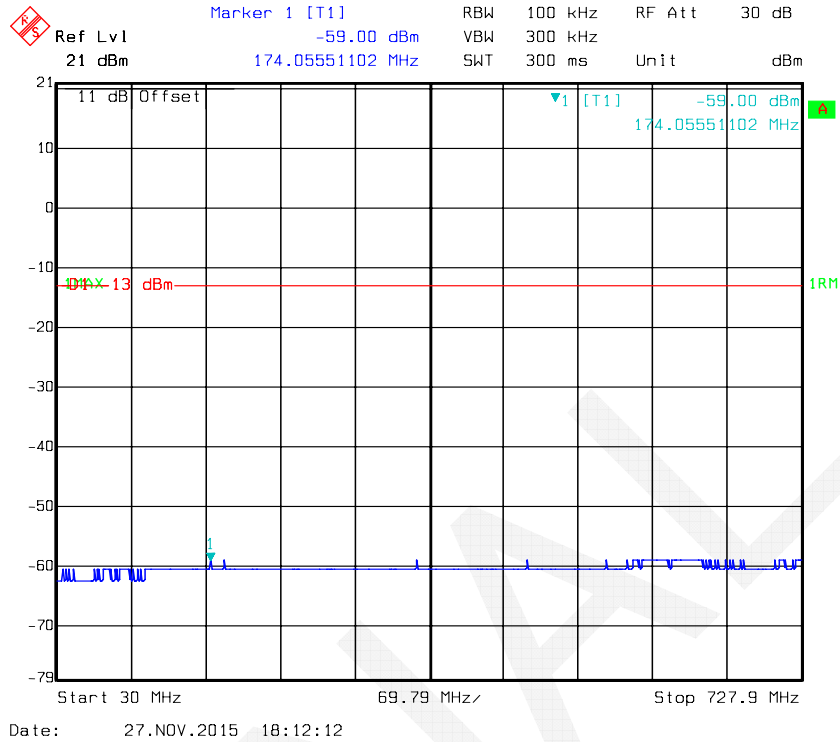
The testing was performed by Dean Liu on 2015-11-27.

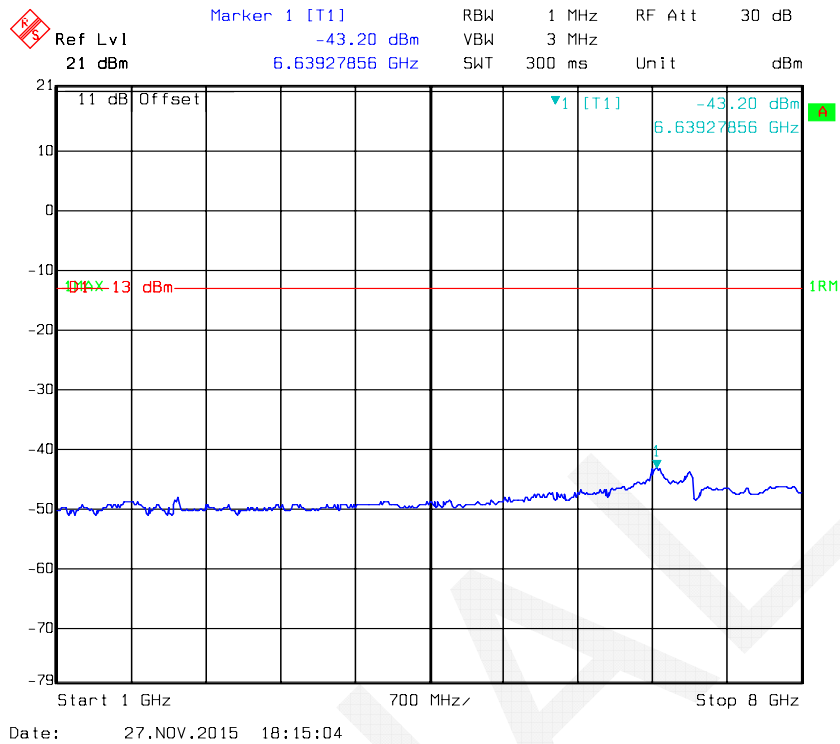
Test Result: Compliance.

*Note: mobile emission limits for the supported bands of operation is $43 + 10 \log(P)$ dB=-13dBm, the out of band emissions (OOBE) shall be at least 6 dB below the FCC's mobile emission limits(-19dBm), the emissions compliance the emission limits **-19dBm**, Please refer to the following plots.*

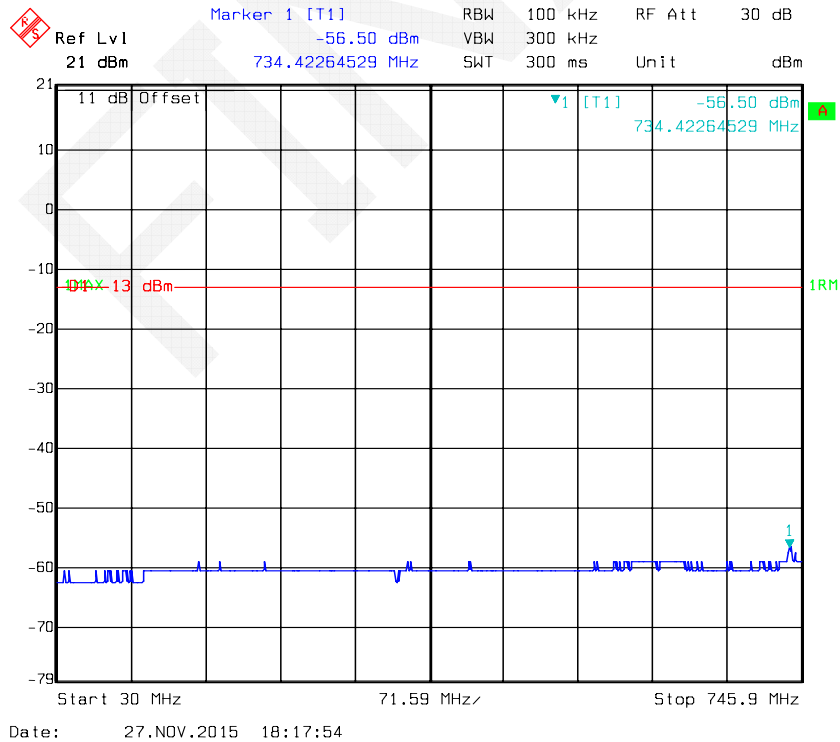
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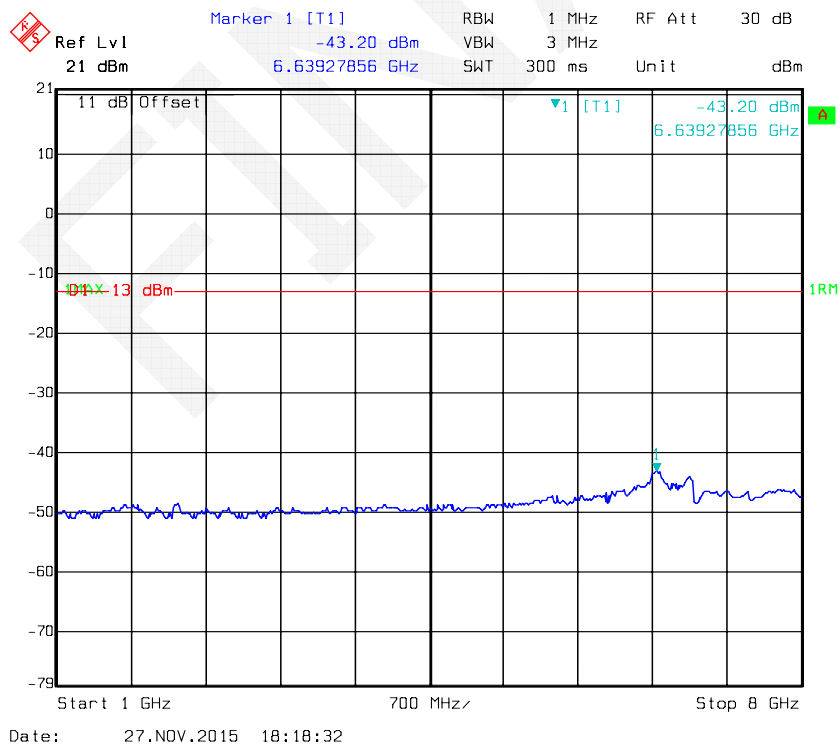
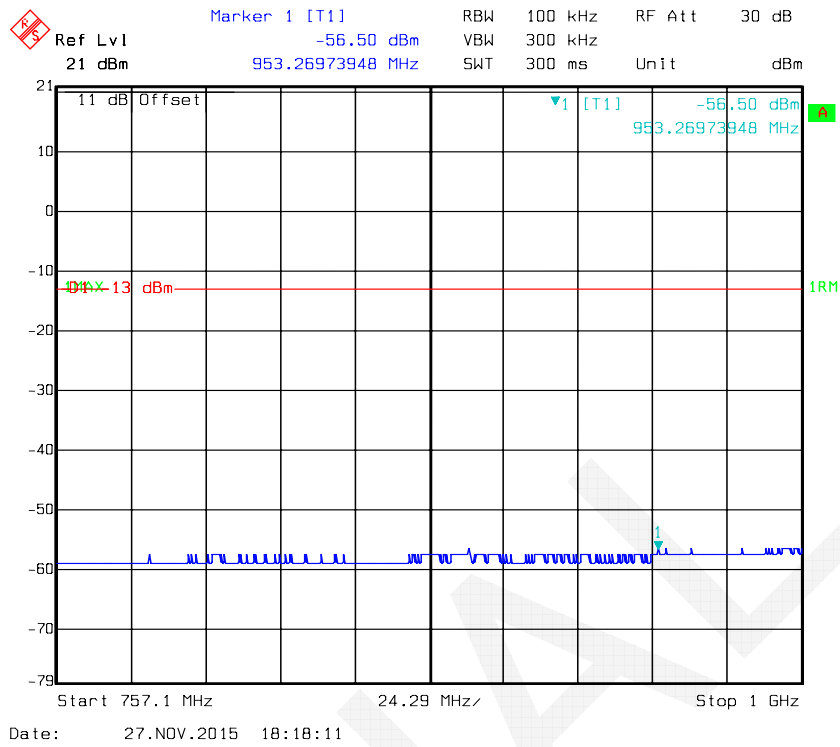
Lower 700 Band



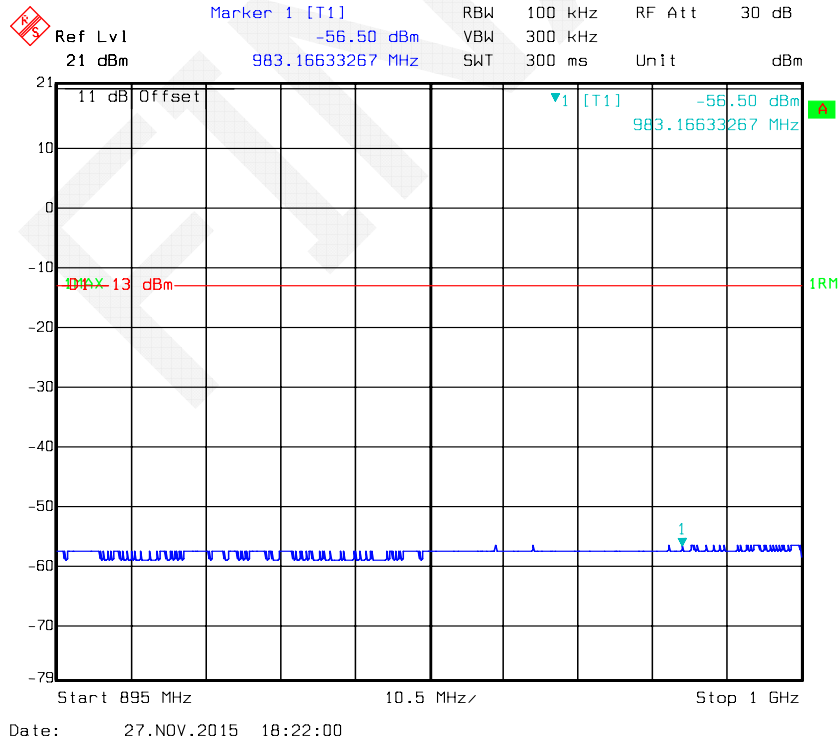
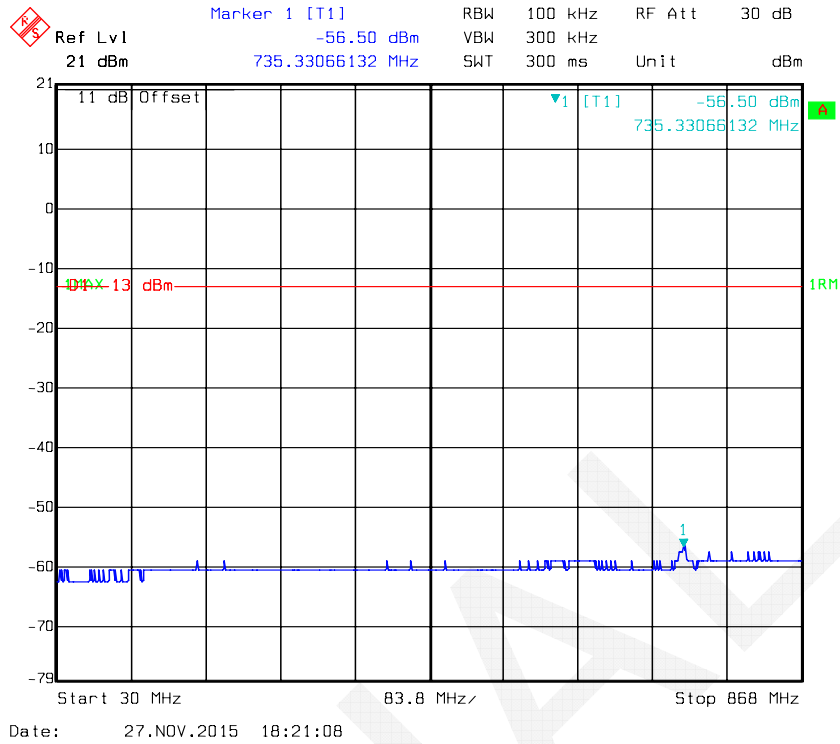


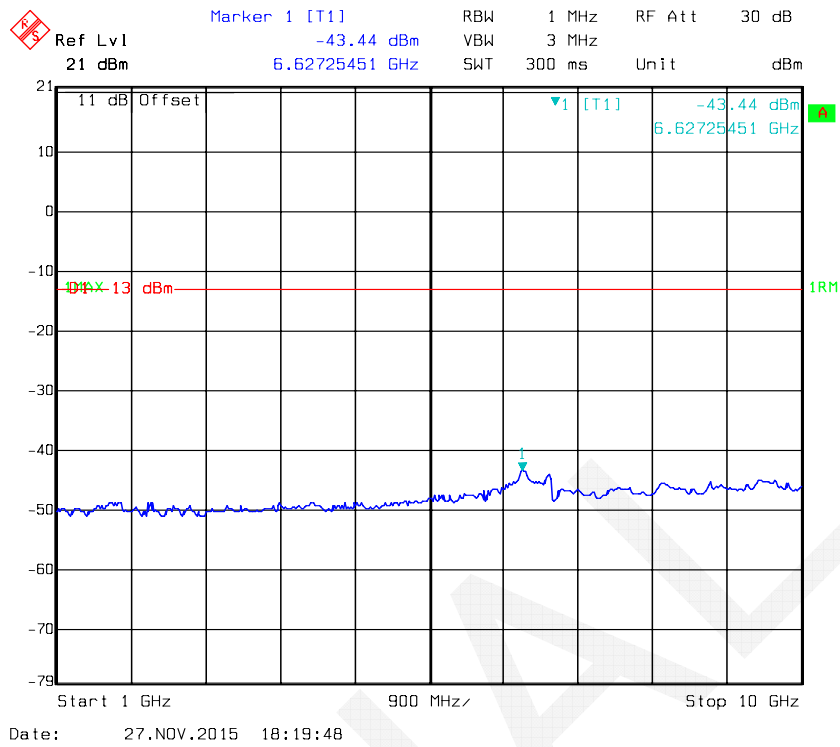
Upper 700 Band



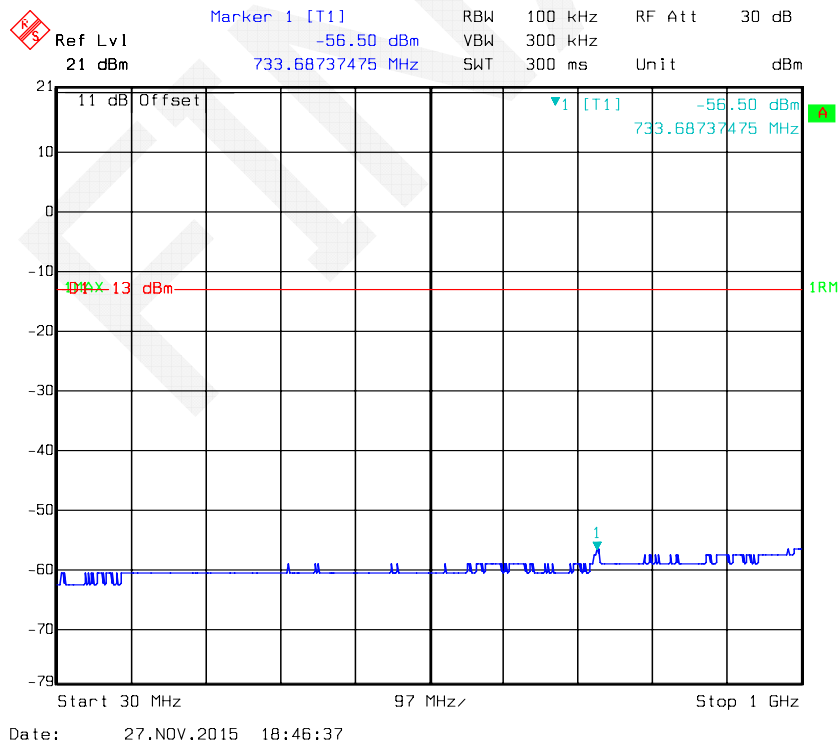


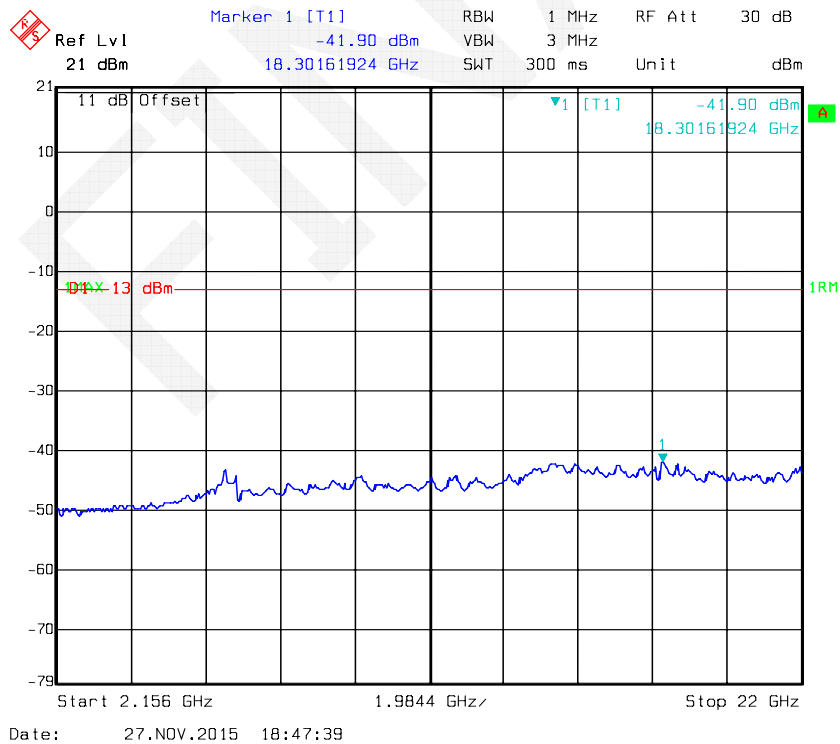
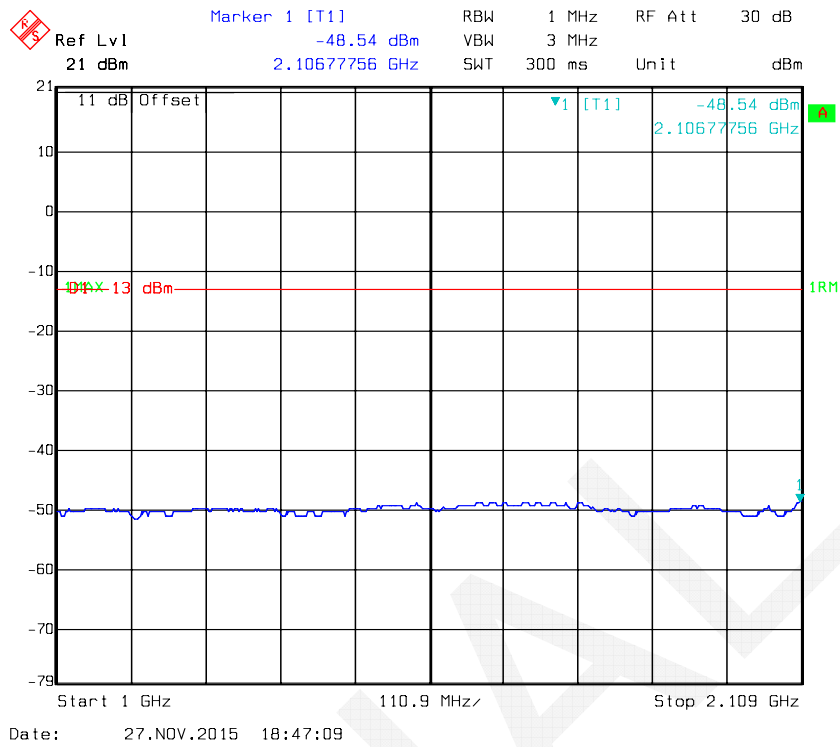
Cellular Band





AWS Band





Ref Lvl 21 dBm

Marker 1 [T1] -56.50 dBm 733.68737475 MHz

RBW 100 kHz RF Att 30 dB

VBW 300 kHz

SWT 300 ms Unit dBm

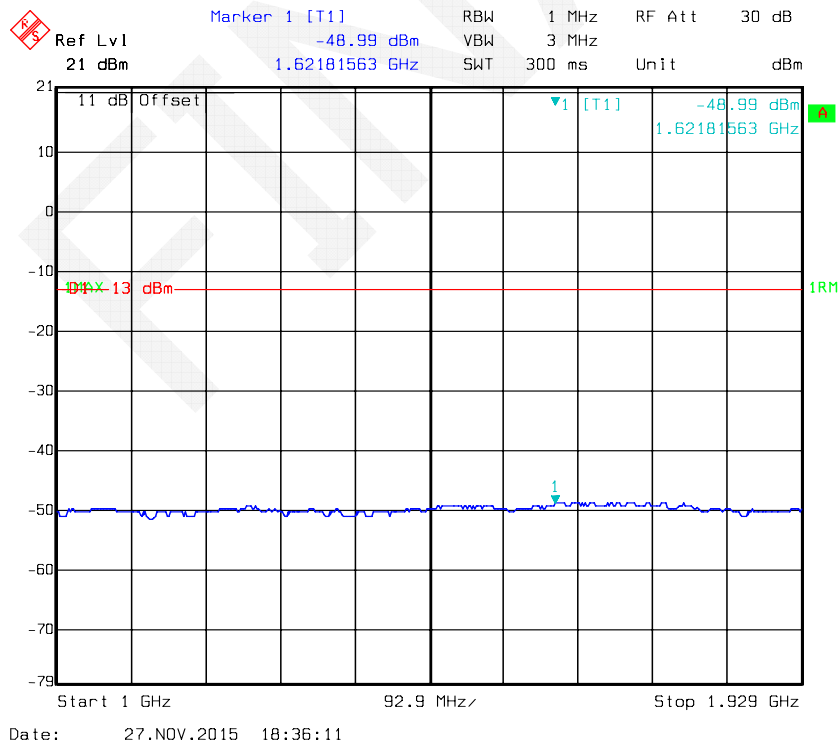
11 dB Offset

1 [T1] -56.50 dBm 733.68737475 MHz

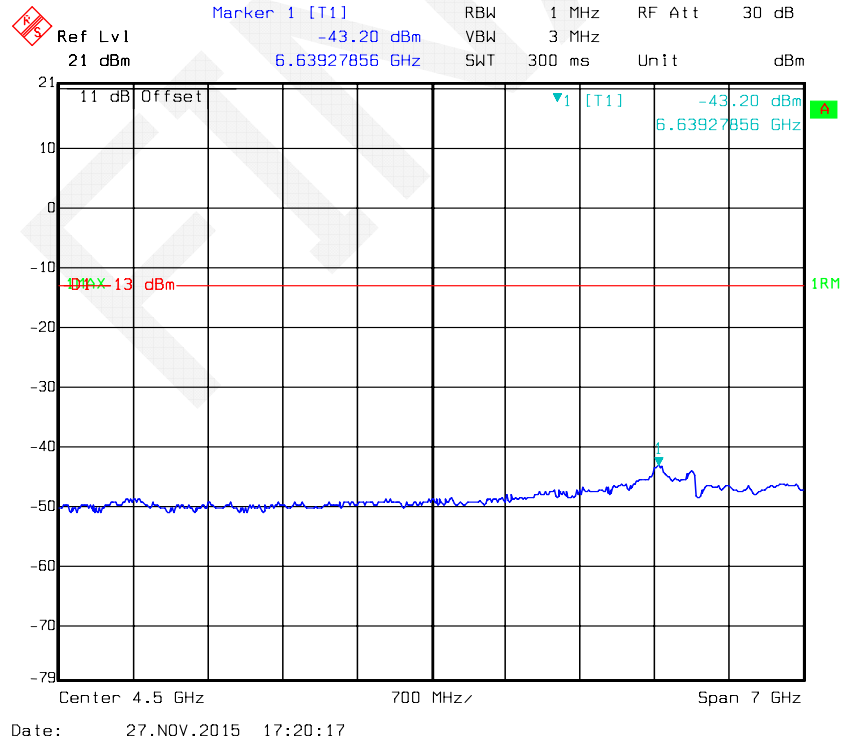
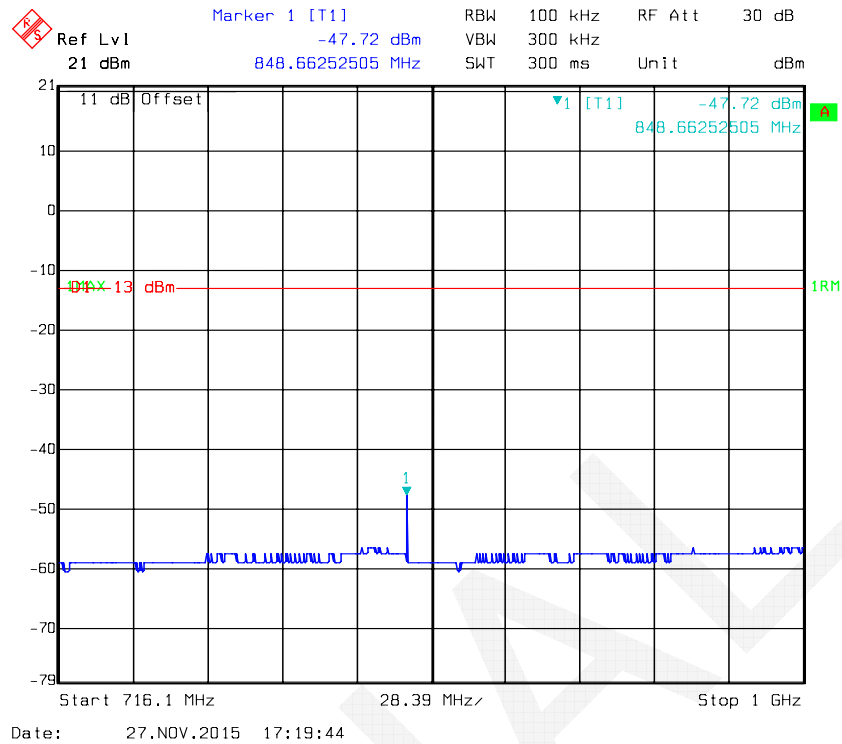
-13 dBm

Start 30 MHz 97 MHz/ Stop 1 GHz

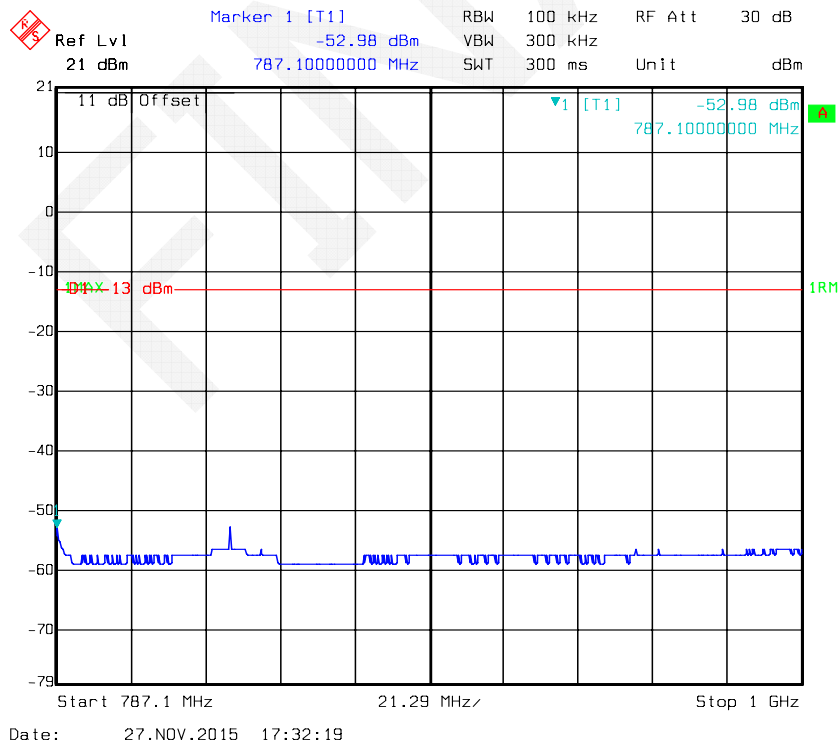
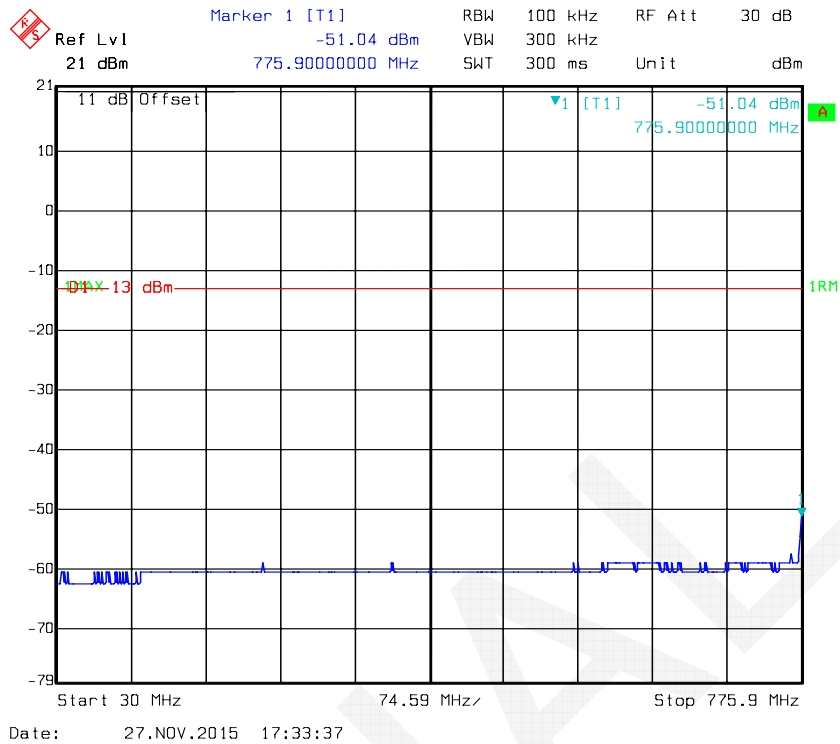
Date: 27.NOV.2015 18:34:30

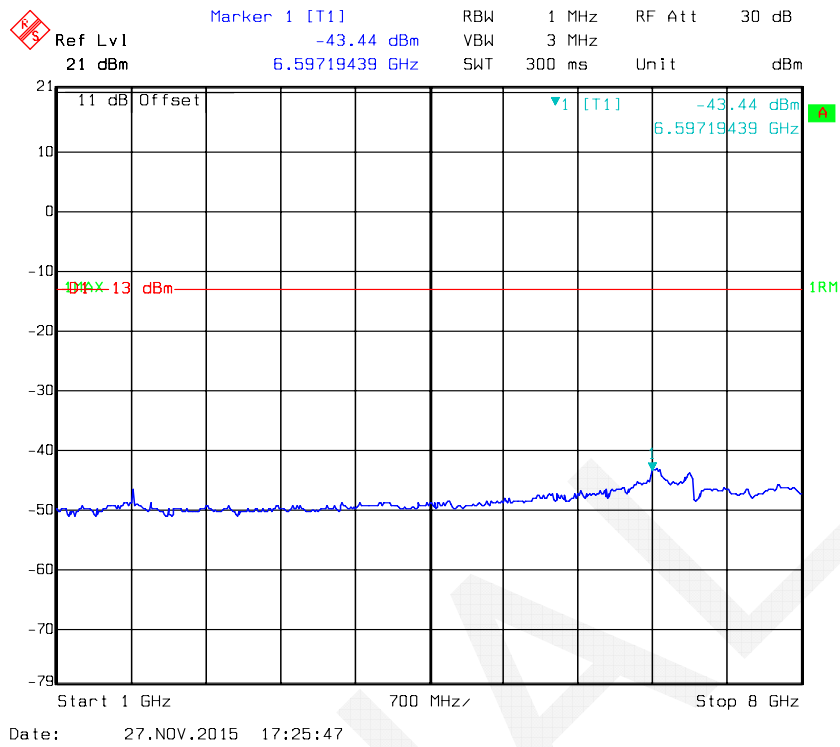




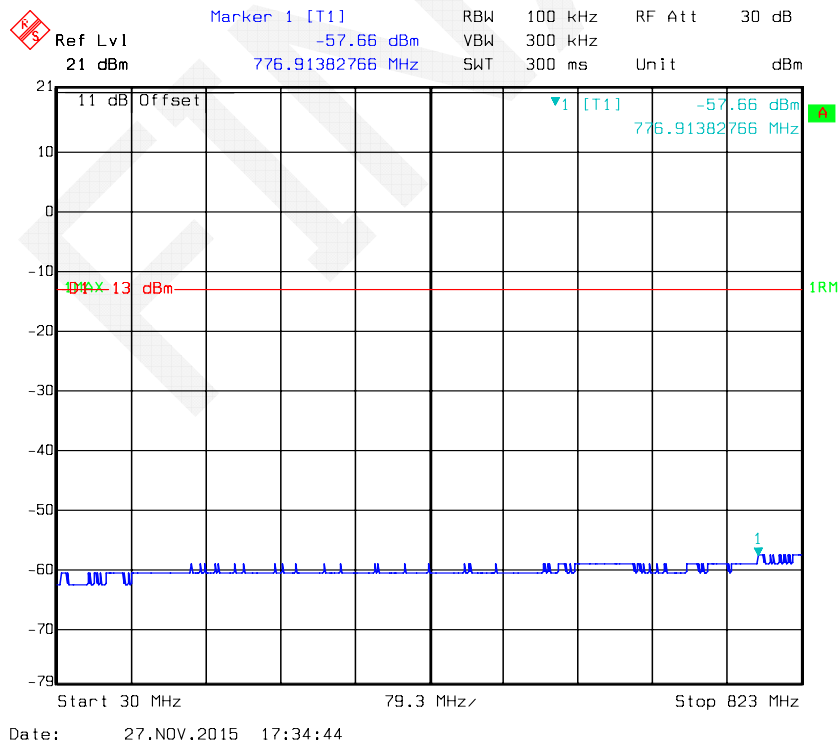


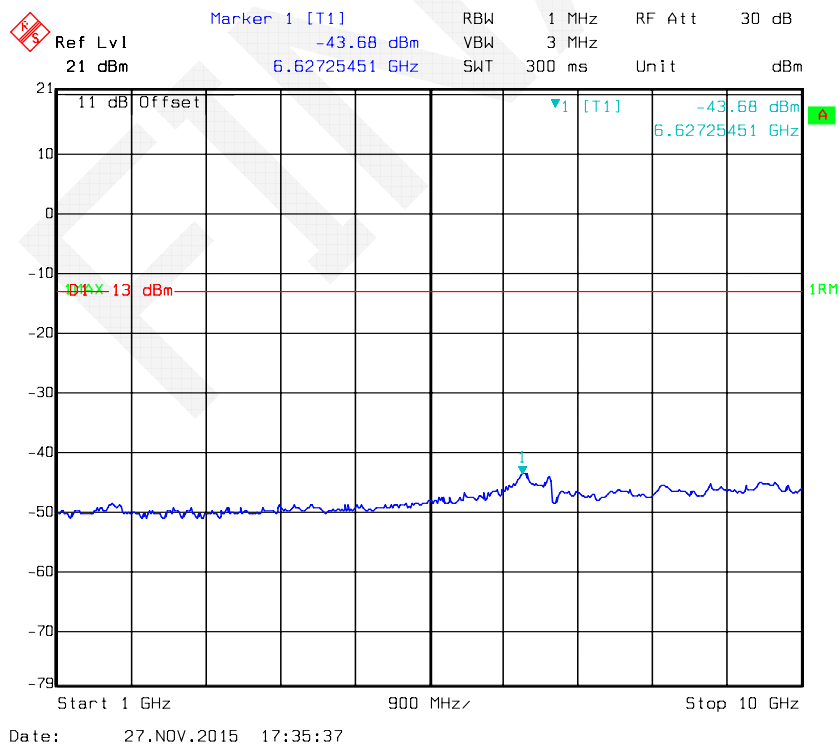
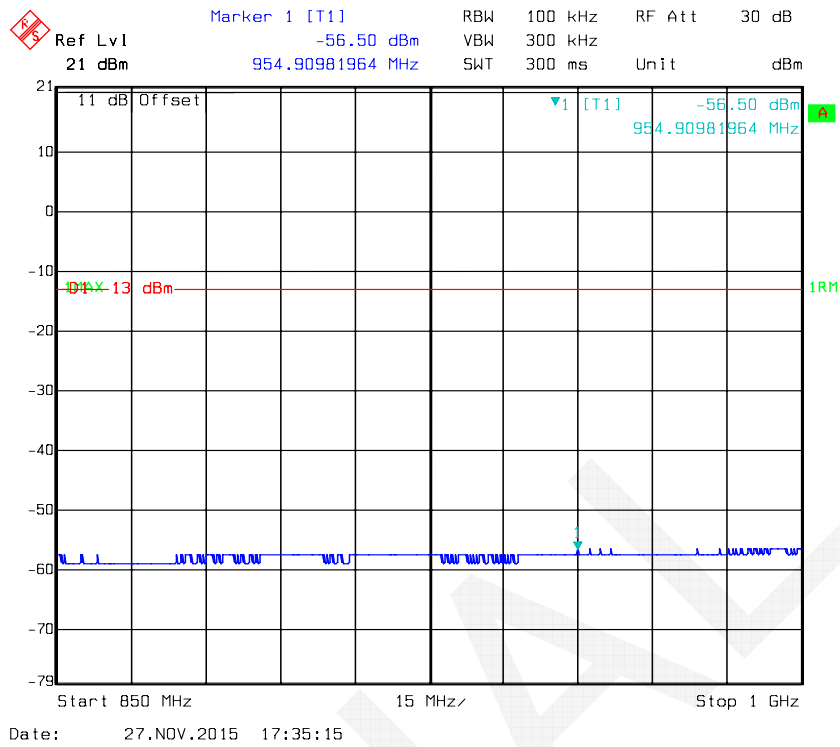
Upper 700 Band



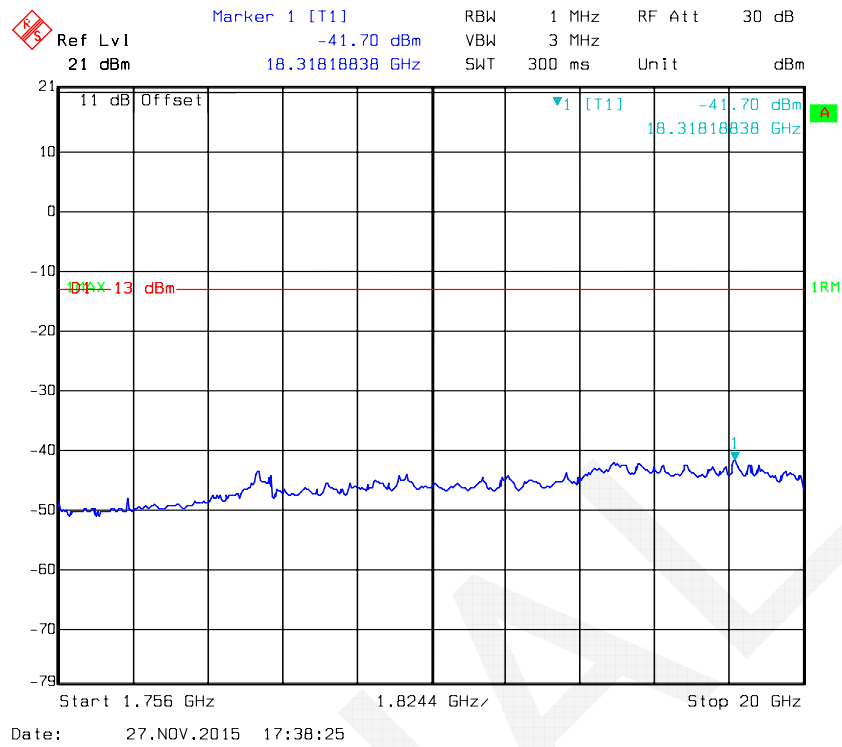


Cellular Band

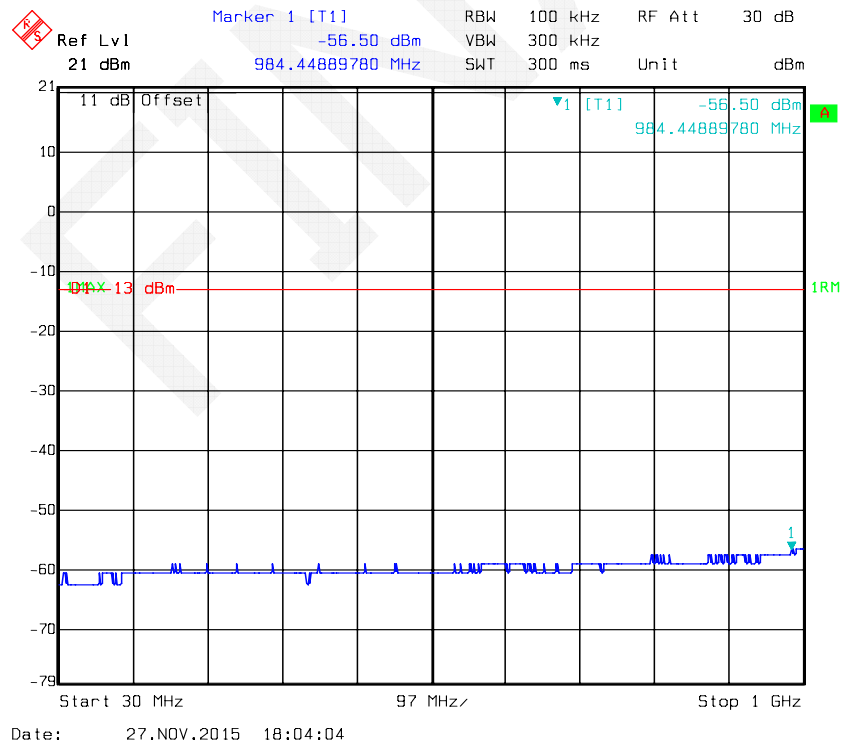


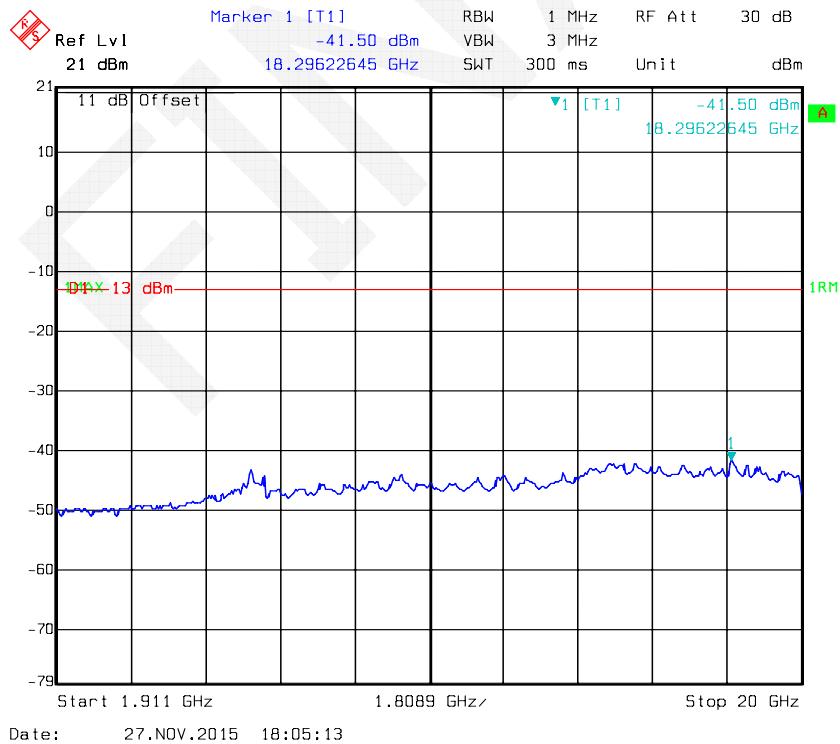
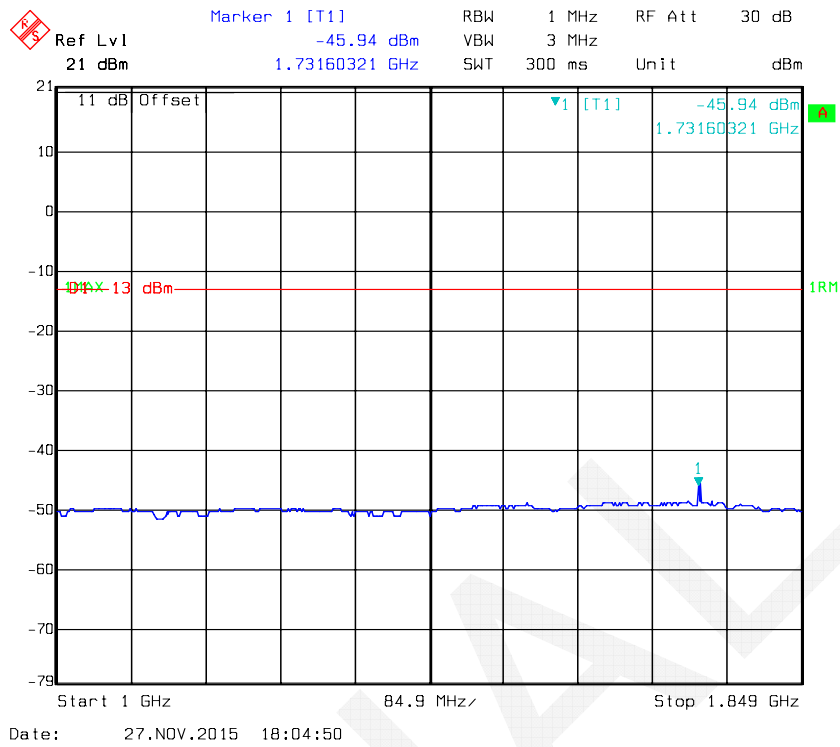






PCS Band





§ 2.1053 - RADIATED SPURIOUS EMISSIONS

Applicable Standards

§ 2.1053 *Measurements required: Field strength of spurious radiation.*

Test Procedure

This procedure is intended to satisfy the requirements specified in § 2.1053. The applicable limits are those specified for mobile emissions in the rule part appropriate to the band of operation (see Annex A).

- Place the EUT on an OATS or semi-anechoic chamber turntable 3 m from the receiving antenna. ¹²
- Connect the EUT to the test equipment as shown in **Figure 10** beginning with the uplink output.
- Set the signal generator to produce a CW signal with the frequency set to the center of the operational band under test and the power level set at P_{IN} as determined from 7.2.
- Measure the radiated spurious emissions from the EUT from lowest to the highest frequencies as specified in § 2.1057. Maximize the radiated emissions by utilizing the procedures described in Clause 8 of ANSI C63.4-2009.
- Capture the peak emissions plots using a peak detector with Max-Hold for inclusion in the test report. Tabular data is acceptable in lieu of spectrum analyzer plots.
- Repeat 7.12c) through 7.12e) for all operational bands.

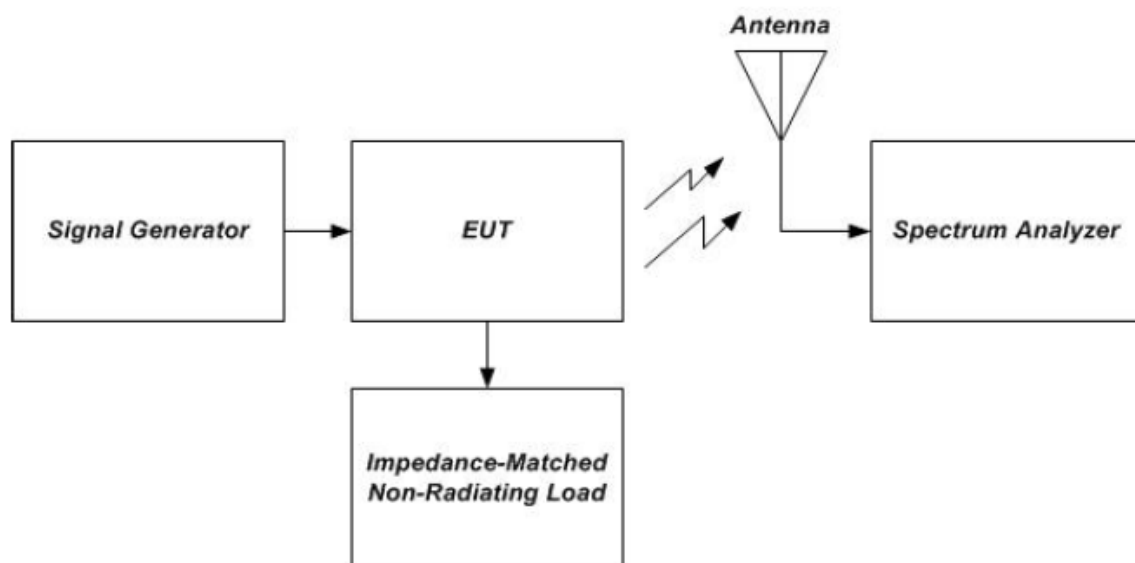


Figure 10 – Radiated spurious emissions test instrumentation setup

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2015-08-03	2016-08-02
Sunol Sciences	Antenna	JB3	A060611-3	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2015-09-01	2016-09-01
Agilent	Spectrum Analyzer	E4440A	SG43360054	2015-11-23	2016-11-22
ETS-Lindgren	Horn Antenna	3115	9808-5557	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
R&S	Spectrum Analyzer	FSP 38	100478	2015-11-23	2016-11-22
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2015-09-06	2016-09-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	24.1 °C
Relative Humidity:	69 %
ATM Pressure:	101.1 kPa

The testing was performed by Dean Liu on 2015-11-25.

Test mode: Transmitting

Uplink:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Lower 700, Test Frequency 707MHz								
1476.000	H	36.82	-64.5	9.4	1.3	-56.4	-19.0	37.4
1444.000	V	37.16	-63.8	9.2	1.4	-56.0	-19.0	37.0
1519.000	H	36.77	-64.7	9.6	1.2	-56.3	-19.0	37.3
1490.000	V	36.68	-65	9.5	1.3	-56.8	-19.0	37.8
291.900	H	49.65	-54.9	0.0	0.5	-55.4	-19.0	36.4
315.180	V	44.78	-60.7	0.0	0.5	-61.2	-19.0	42.2
Upper 700, Test Frequency 781.5MHz								
1547.000	H	37.10	-64.3	9.8	1.2	-55.7	-19.0	36.7
1476.000	V	36.49	-65	9.4	1.3	-56.9	-19.0	37.9
1827.000	H	36.39	-63.5	11.3	1.3	-53.5	-19.0	34.5
1533.000	V	36.61	-65.3	9.7	1.2	-56.8	-19.0	37.8
291.900	H	49.59	-55	0.0	0.5	-55.5	-19.0	36.5
315.180	V	44.77	-60.7	0.0	0.5	-61.2	-19.0	42.2
Cellular Band, Test Frequency 836.5MHz								
1392.000	H	36.53	-64.1	8.9	1.5	-56.7	-19.0	37.7
1350.000	V	36.53	-63.8	8.6	1.4	-56.6	-19.0	37.6
1462.000	H	36.35	-64.8	9.3	1.3	-56.8	-19.0	37.8
1519.000	V	37.35	-64.5	9.6	1.2	-56.1	-19.0	37.1
291.900	H	49.65	-54.9	0.0	0.5	-55.4	-19.0	36.4
315.180	V	44.78	-60.7	0.0	0.5	-61.2	-19.0	42.2
AWS Band, Test Frequency 1732.5MHz								
1288.000	H	36.19	-63.7	8.1	1.3	-56.9	-19.0	37.9
1406.000	V	36.57	-63.9	9.0	1.5	-56.4	-19.0	37.4
1352.000	H	36.25	-64	8.6	1.4	-56.8	-19.0	37.8
1490.000	V	36.79	-64.9	9.5	1.3	-56.7	-19.0	37.7
291.900	H	49.47	-55.1	0.0	0.5	-55.6	-19.0	36.6
315.180	V	44.64	-60.9	0.0	0.5	-61.4	-19.0	42.4
PCS Band, Test Frequency 1880MHz								
1252.000	H	37.21	-63	7.8	1.3	-56.5	-19.0	37.5
1360.000	V	36.50	-63.8	8.7	1.4	-56.5	-19.0	37.5
1324.000	H	36.28	-63.7	8.4	1.4	-56.7	-19.0	37.7
1505.000	V	36.14	-65.7	9.6	1.2	-57.3	-19.0	38.3
291.900	H	49.32	-55.2	0.0	0.5	-55.7	-19.0	36.7
315.180	V	44.51	-61	0.0	0.5	-61.5	-19.0	42.5

Downlink:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Lower 700, Test Frequency 737MHz								
1462.000	H	36.54	-64.7	9.3	1.3	-56.7	-19.0	37.7
1476.000	V	36.67	-64.8	9.4	1.3	-56.7	-19.0	37.7
1575.000	H	36.72	-64.6	10.0	1.2	-55.8	-19.0	36.8
1547.000	V	36.22	-65.7	9.8	1.2	-57.1	-19.0	38.1
291.900	H	49.63	-54.9	0.0	0.5	-55.4	-19.0	36.4
315.180	V	44.70	-60.8	0.0	0.5	-61.3	-19.0	42.3
Upper 700, Test Frequency 751.5MHz								
1505.000	H	36.15	-65.3	9.6	1.2	-56.9	-19.0	37.9
1476.000	V	36.09	-65.4	9.4	1.3	-57.3	-19.0	38.3
1841.000	H	36.29	-63.5	11.4	1.3	-53.4	-19.0	34.4
1547.000	V	36.80	-65.1	9.8	1.2	-56.5	-19.0	37.5
291.900	H	48.96	-55.6	0.0	0.5	-56.1	-19.0	37.1
315.180	V	46.02	-59.5	0.0	0.5	-60.0	-19.0	41.0
Cellular Band, Test Frequency 881.5MHz								
1496.000	H	36.46	-65	9.5	1.2	-56.7	-19.0	37.7
1336.000	V	36.33	-64	8.5	1.4	-56.9	-19.0	37.9
1561.000	H	36.66	-64.7	9.9	1.2	-56.0	-19.0	37.0
1689.000	V	36.84	-64.4	10.7	1.4	-55.1	-19.0	36.1
291.900	H	50.28	-54.3	0.0	0.5	-54.8	-19.0	35.8
315.180	V	45.33	-60.2	0.0	0.5	-60.7	-19.0	41.7
AWS Band, Test Frequency 1960MHz								
1456.000	H	36.28	-64.9	9.3	1.3	-56.9	-19.0	37.9
1364.000	V	36.15	-64.2	8.7	1.4	-56.9	-19.0	37.9
1685.000	H	36.42	-64.6	10.7	1.4	-55.3	-19.0	36.3
1743.000	V	36.60	-64.3	10.9	1.4	-54.8	-19.0	35.8
291.900	H	49.35	-55.2	0.0	0.5	-55.7	-19.0	36.7
315.180	V	47.62	-57.9	0.0	0.5	-58.4	-19.0	39.4
PCS Band, Test Frequency 2132.5MHz								
1266.000	H	36.52	-63.6	7.9	1.3	-57.0	-19.0	38.0
1304.000	V	36.27	-64.1	8.3	1.3	-57.1	-19.0	38.1
1494.000	H	36.40	-65	9.5	1.3	-56.8	-19.0	37.8
1418.000	V	35.98	-64.6	9.1	1.4	-56.9	-19.0	37.9
291.900	H	50.11	-54.4	0.0	0.5	-54.9	-19.0	35.9
315.180	V	48.02	-57.5	0.0	0.5	-58.0	-19.0	39.0

Note:

- 1) Absolute Level = SG Level - Cable loss + Antenna Gain
- 2) Margin = Limit- Absolute Level

DECLARATION LETTER**Product Similarity Declaration**

To Whom It May Concern,

We, **JDTECK INC**, hereby declare that our **Wireless Cellular Repeater**, Model Number: JDCR-LCPA-17, JDCR-LCPA-15, and JDCR-LCPA-10 are electrically identical with the Model JDCR-LCPA-17 series that was certified by **Bay Area Compliance Laboratories Corporation**. They named differently just due to different gains achieved by adjusting the potentiometers inside or DIP switches outside. However they have the same design, PCB board and work diagrams.

The JDCR-LCPA-17 repeater has a factory preset maximum output power of UL 18dBm/ DL -10dBm and maximum gain of UL 48dB/ DL 48dB. However, some users maybe want to use lower power due to different coverage. When the output power is preset at UL 18dBm / -10dBm and maximum gain of UL 45dB/ DL 48dB, then the model should be JDCR-LCPA-15; When the output power is preset at UL 18dBm / DL -10dBm and maximum gain of UL 45dB/ DL 45dB, then the model should be JDCR-LCPA-10.

We have summarized the differences in below table for your better understanding:

Item	Model Number	Max. Power UL/DL	Max. Gain UL/DL	Size(mm)
1	JDCR-LCPA-17	18dBm/-10dBm	48dB/48dB	250*250*52mm
2	JDCR-LCPA-15	18dBm/-10dBm	45dB/48dB	
3	JDCR-LCPA-10	18dBm/-10dBm	45dB/45dB	

Please contact me if there is any question.

Signature:

Dennison Jurawan

Title: Sales Manager

Date: 2015-10-23