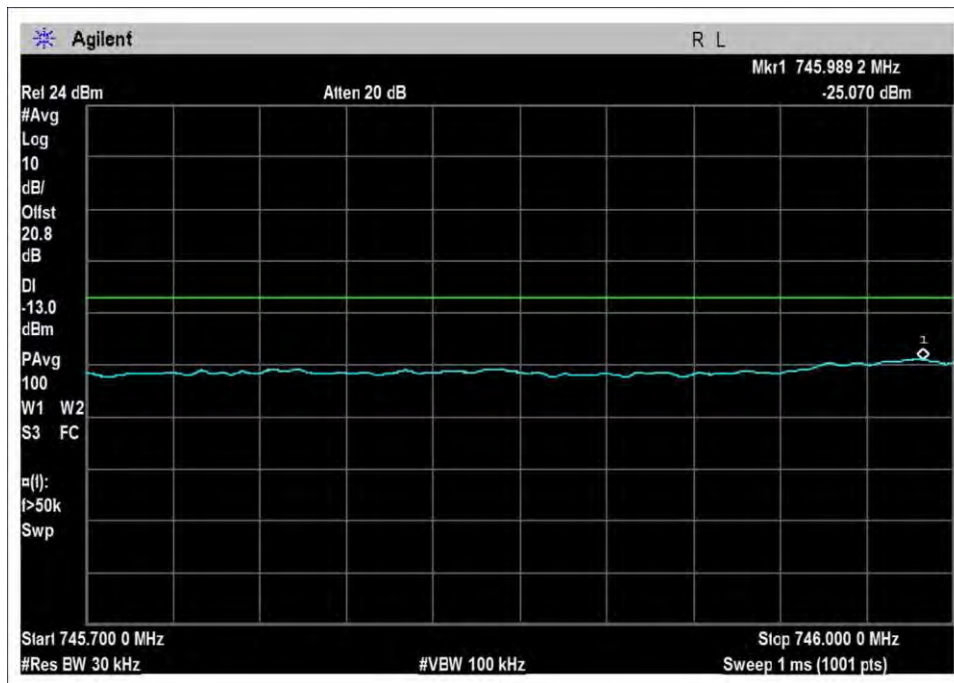
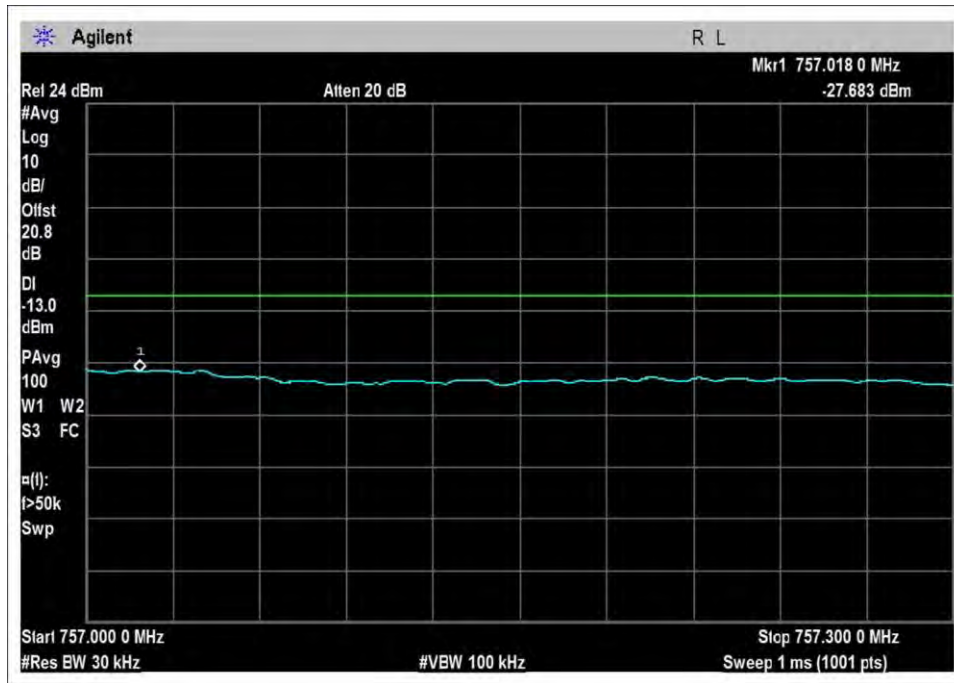


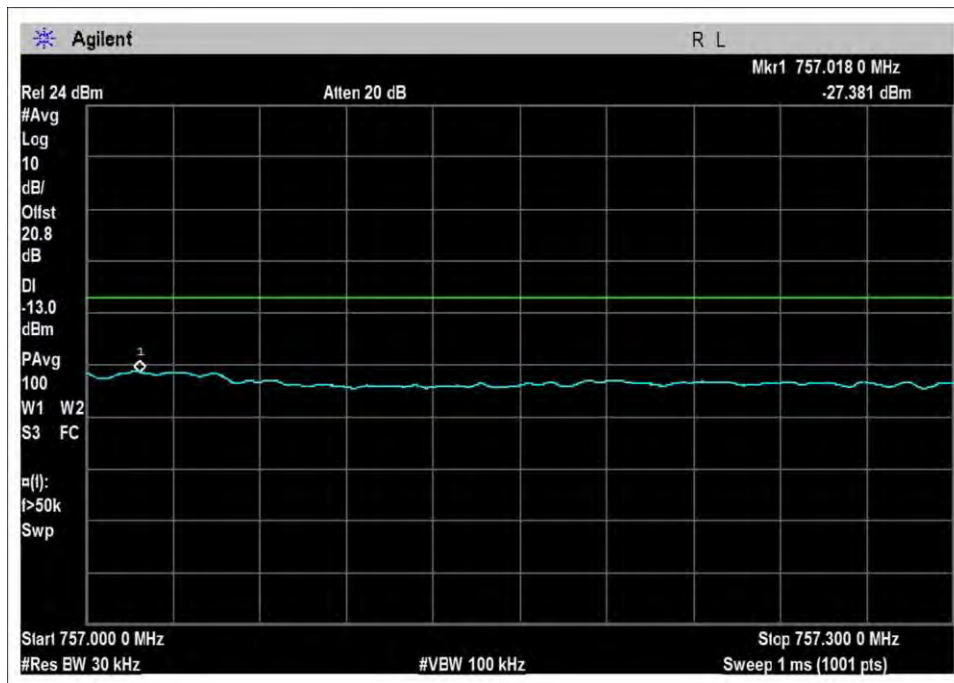
DL-746-757L-Cm-AGC+3



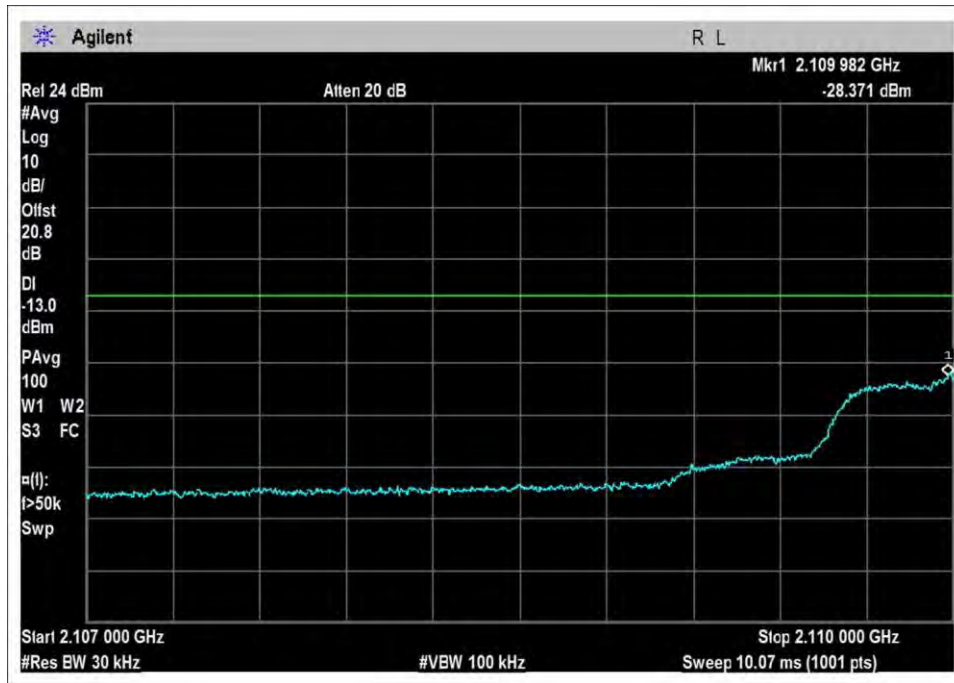
DL-746-757L-Cm-preAGC



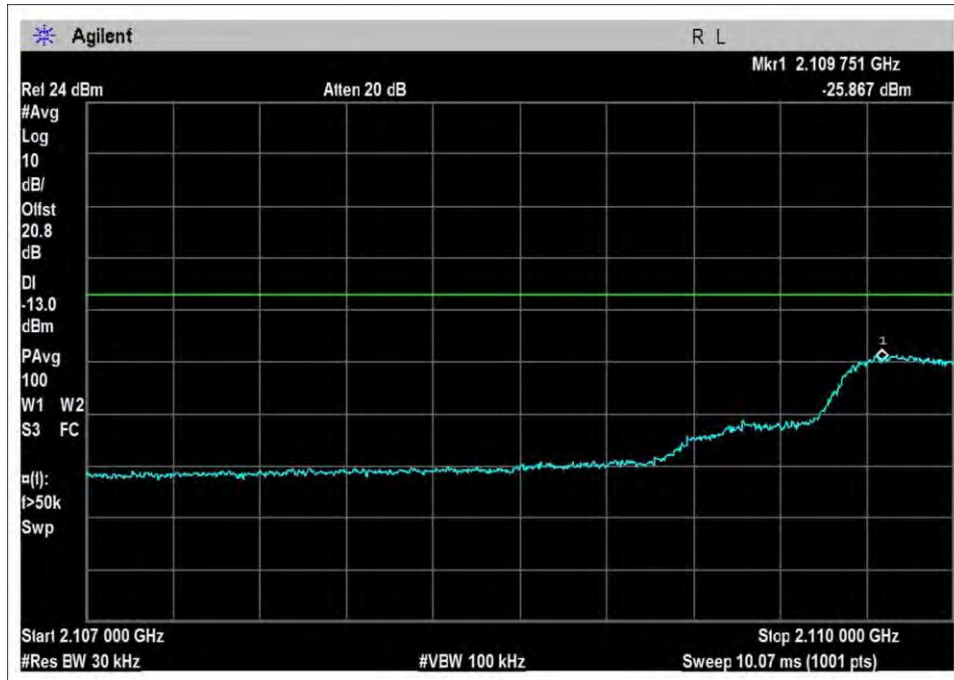
DL-746-757H-Cm-AGC+3



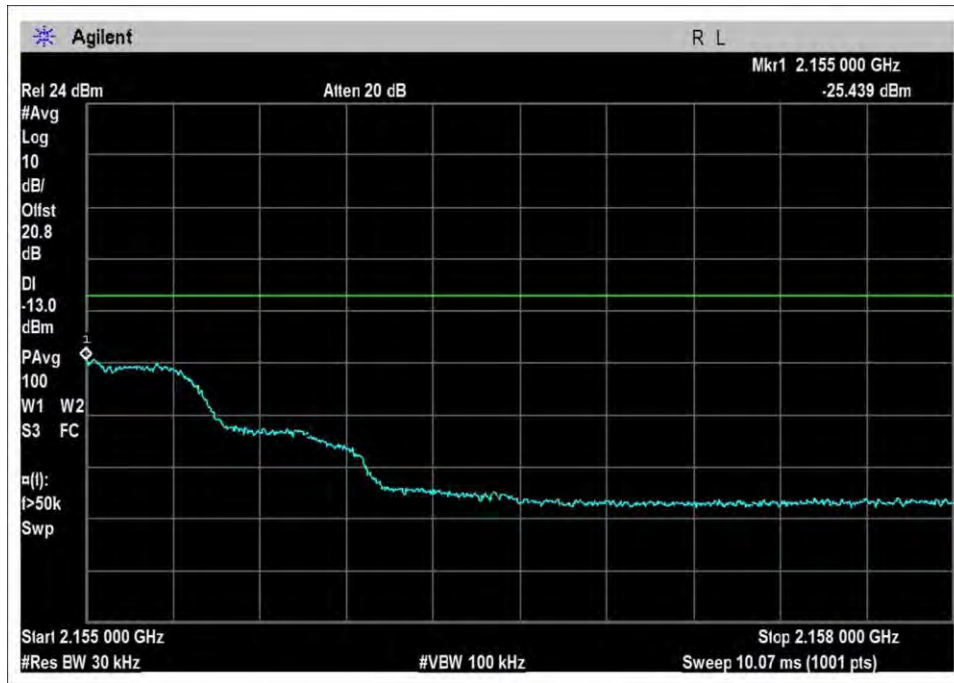
DL-746-757H-Cm-preAGC



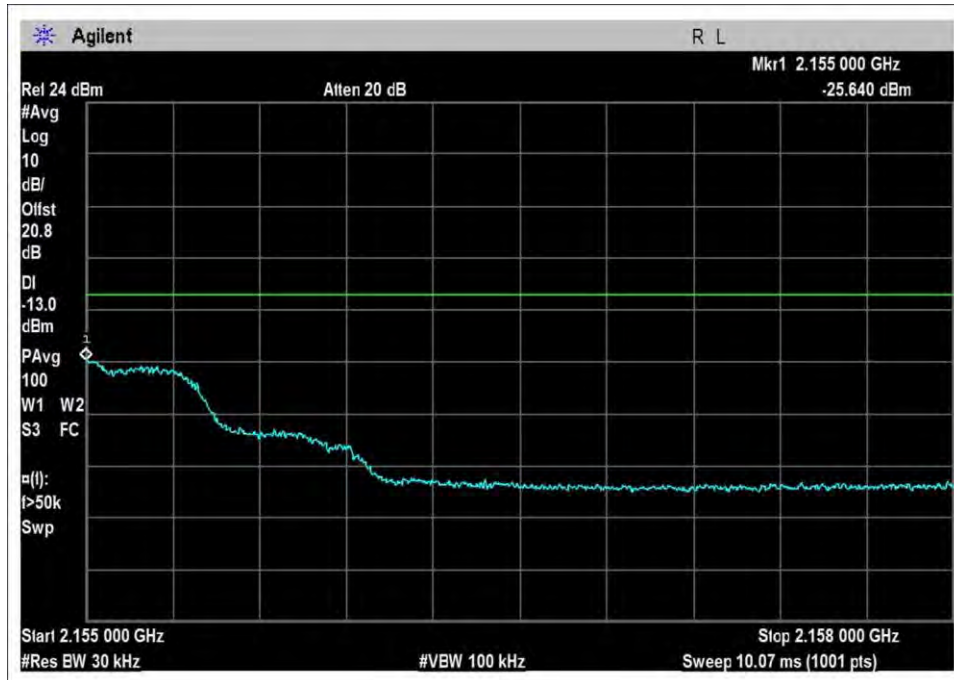
DL-2110-2155L-Cm-AGC+3



DL-2110-2155L-Cm-preAGC

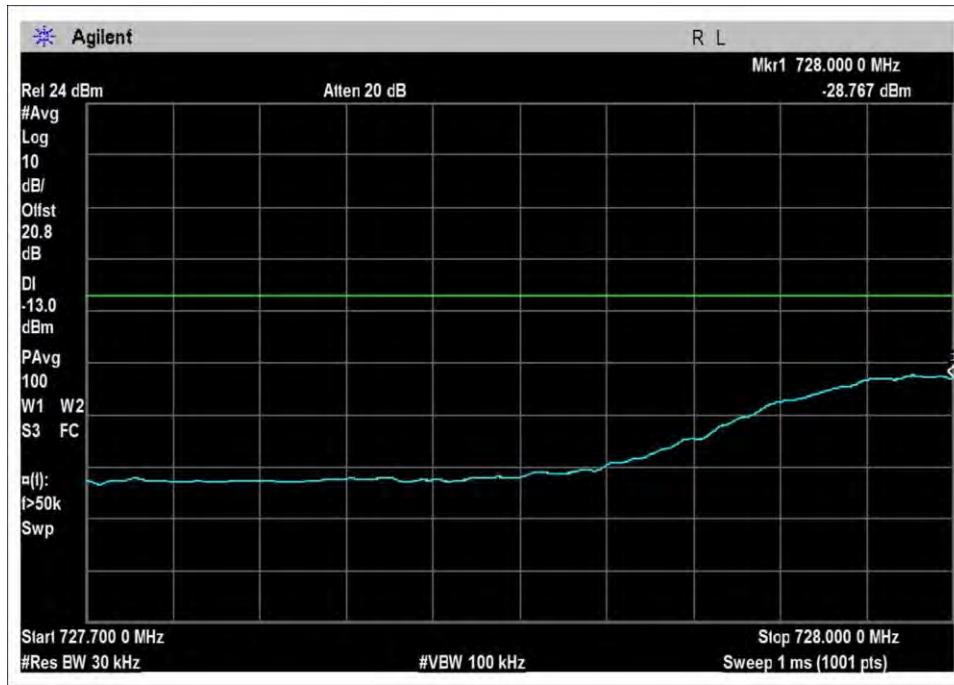


DL-2110-2155H-Cm-AGC+3

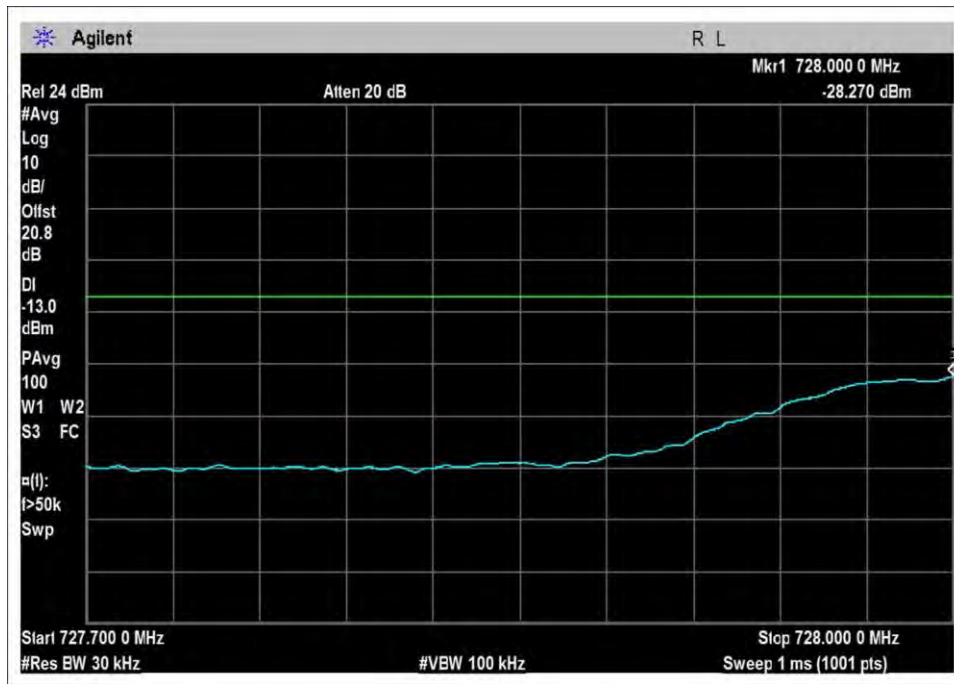


DL-2110-2155H-Cm-preAGC

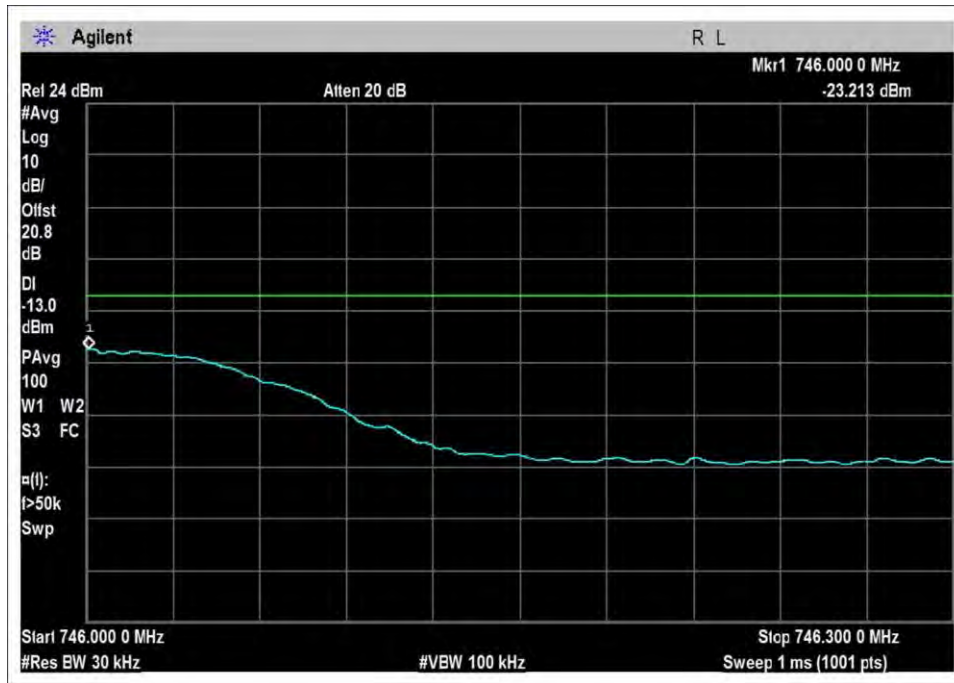
GSM – DL - Sn



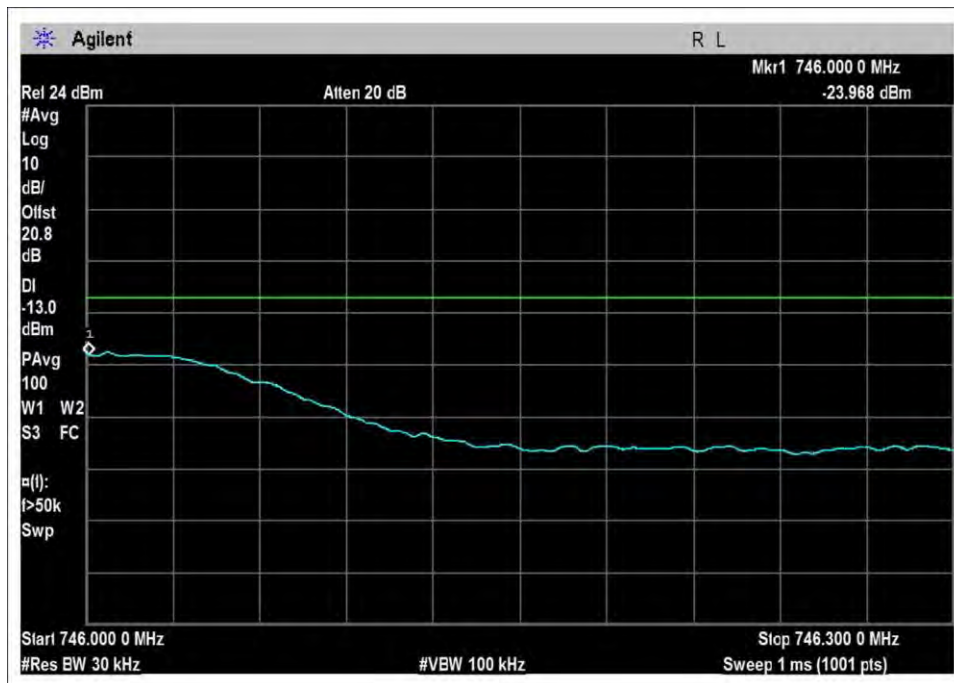
DL-728-746L-Sn-AGC+3



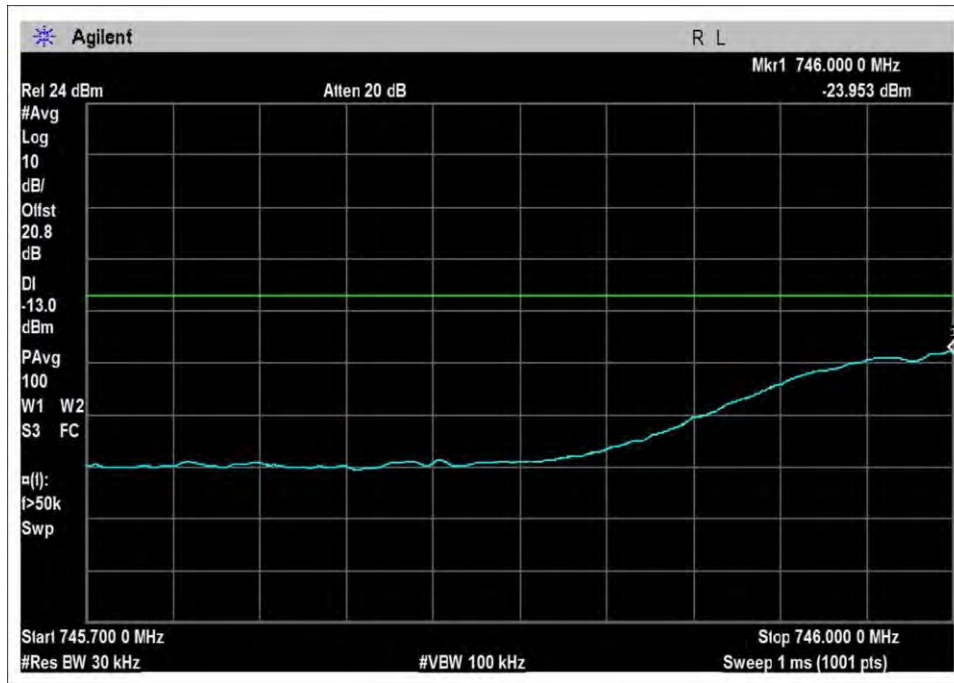
DL-728-746L-Sn-preAGC



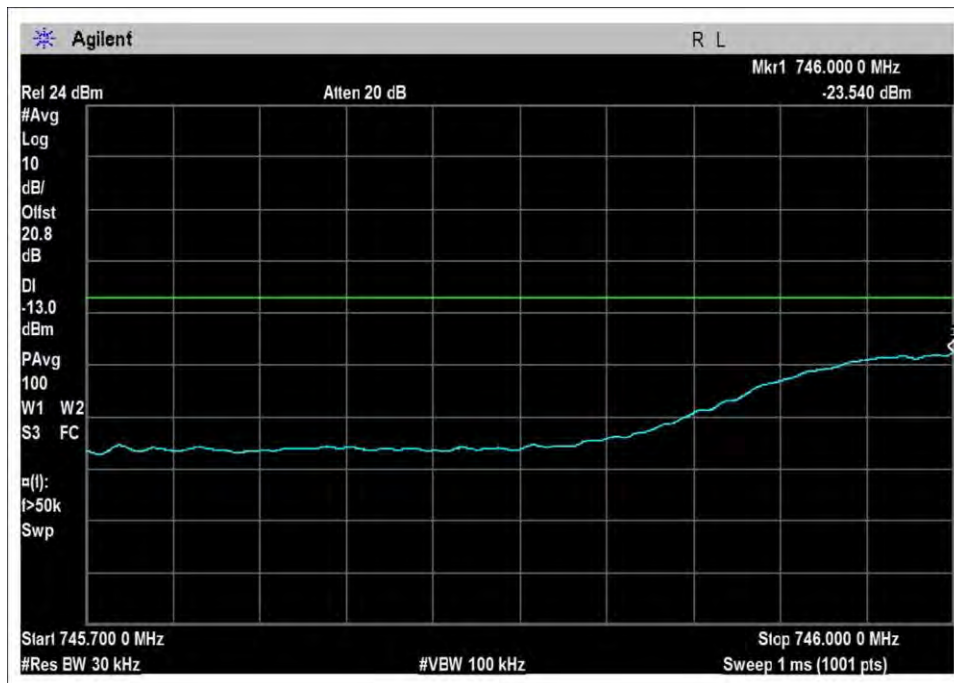
DL-728-746H-Sn-AGC+3



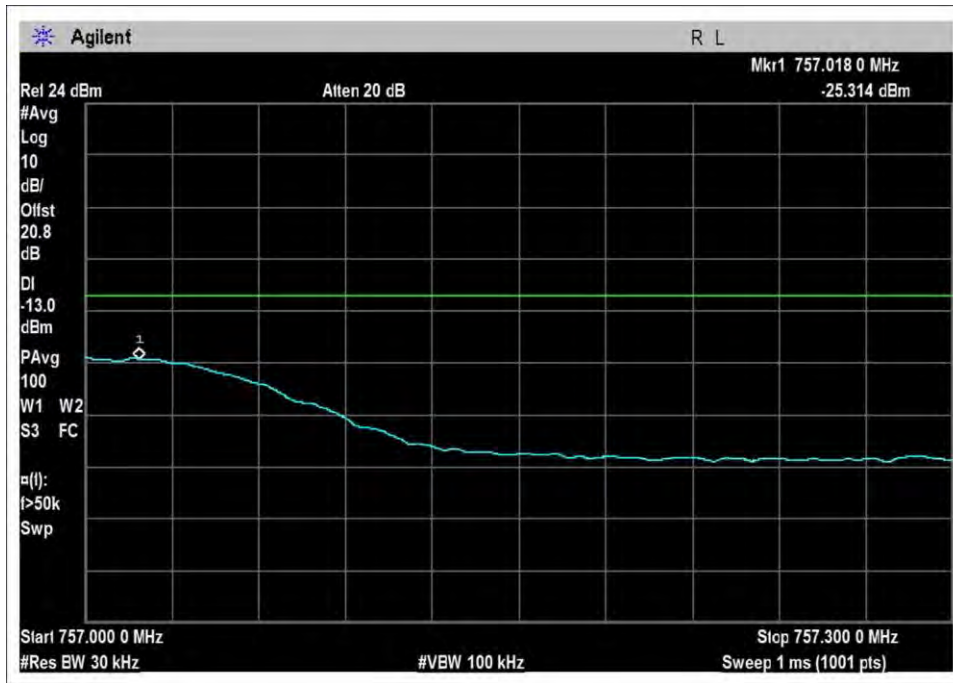
DL-728-746H-Sn-preAGC



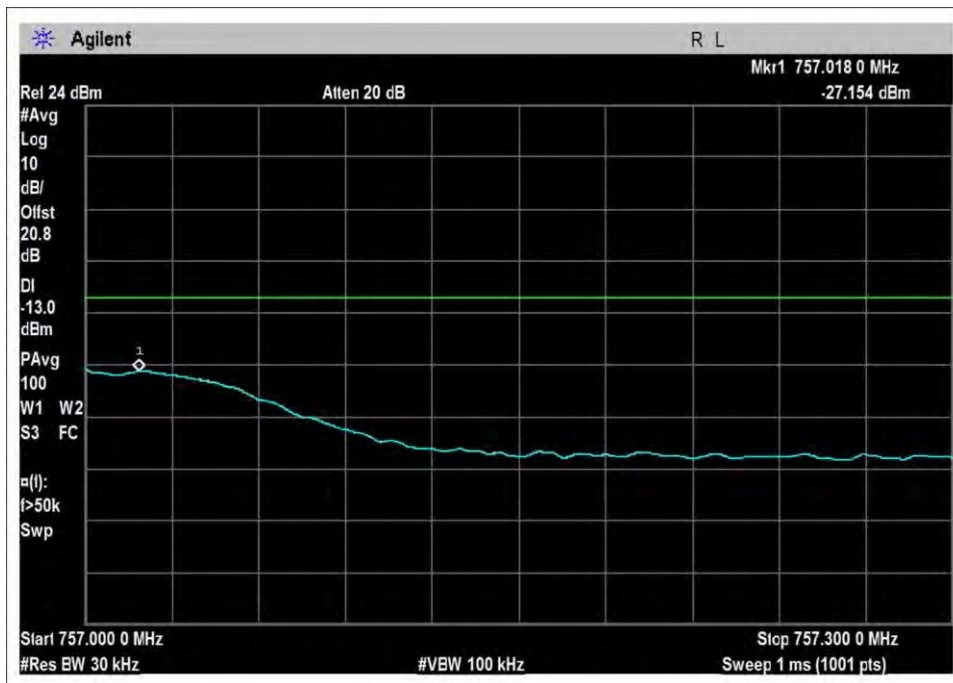
DL-746-757L-Sn-AGC+3



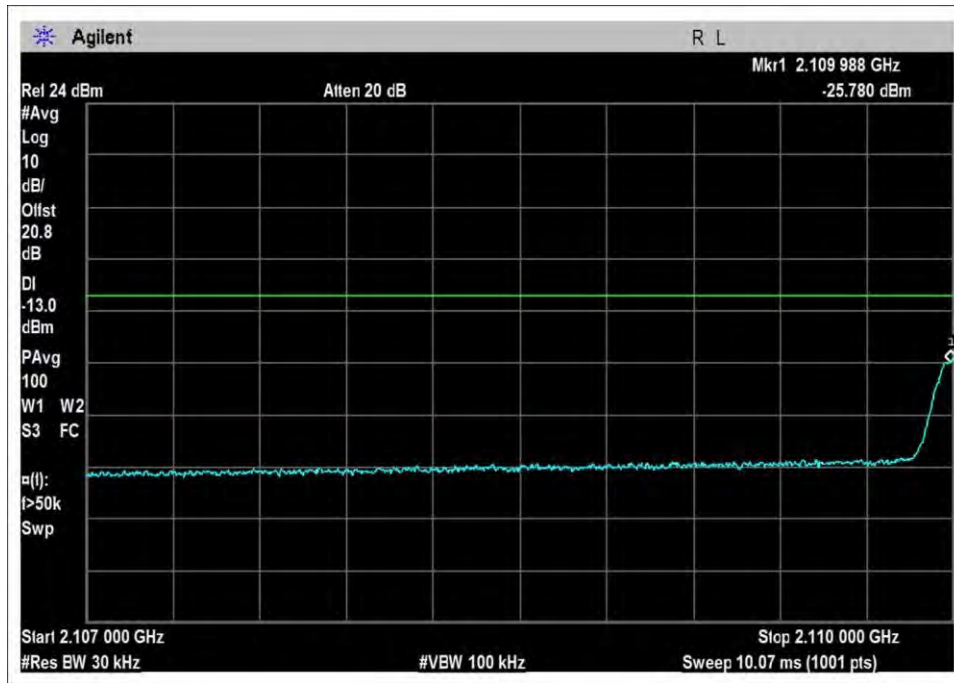
DL-746-757L-Sn-preAGC



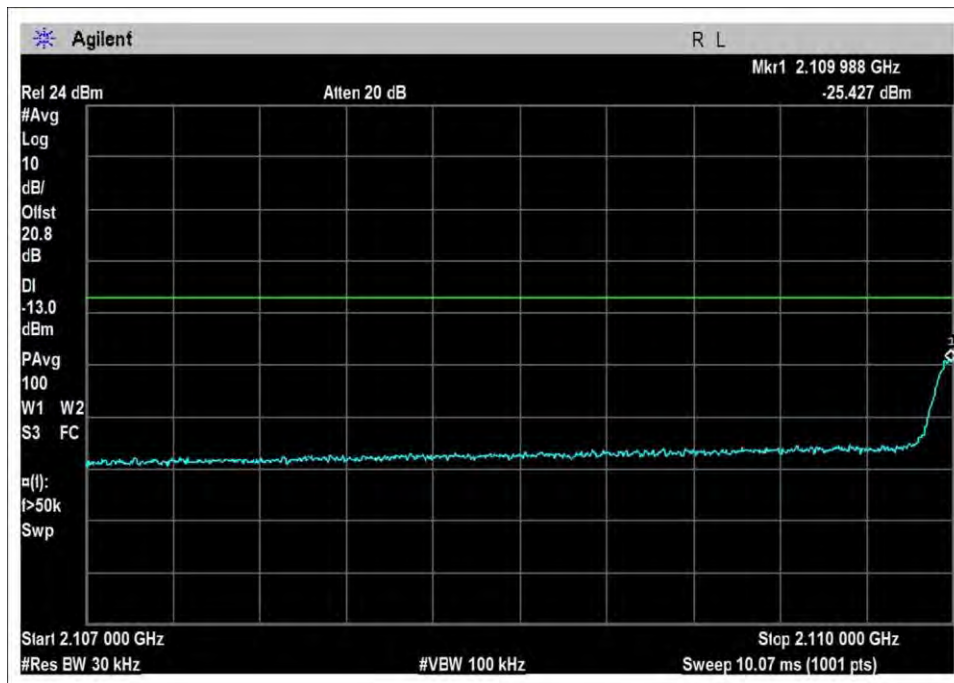
DL-746-757H-Sn-AGC+3



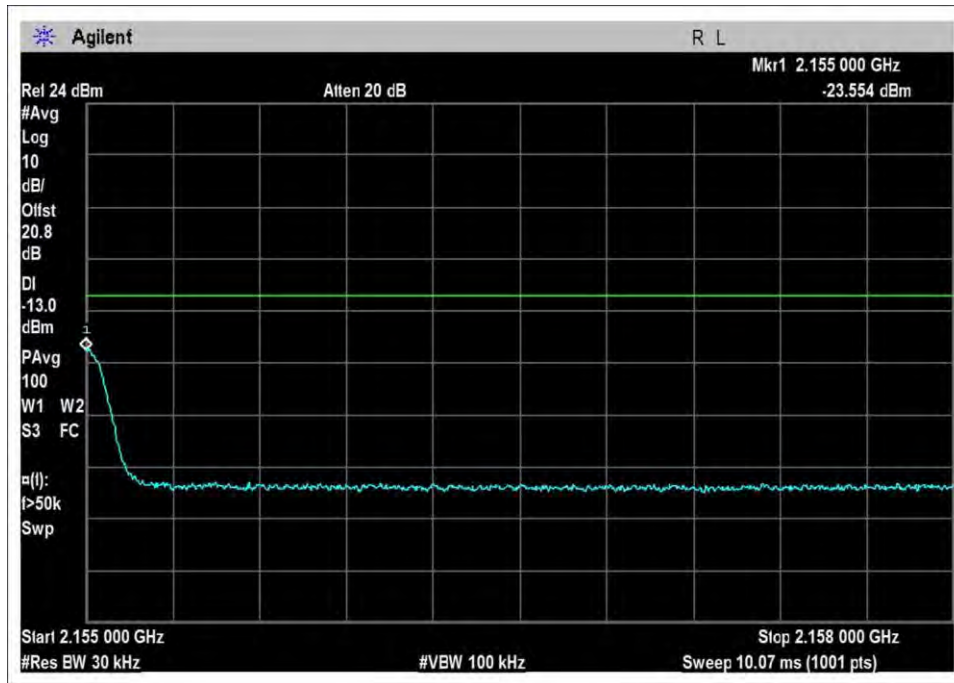
DL-746-757H-Sn-preAGC



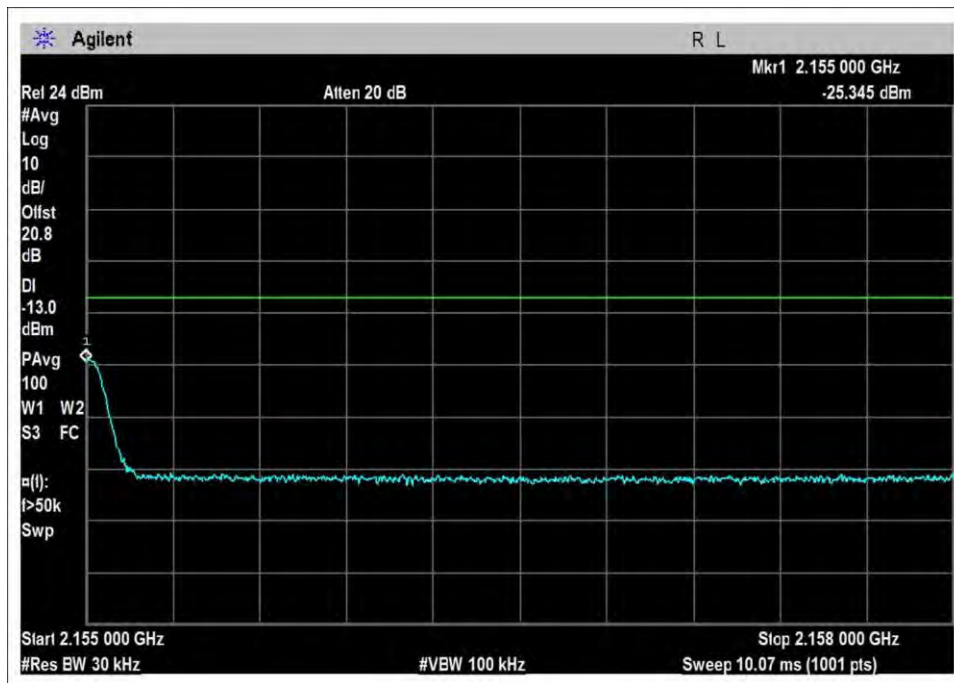
DL-2110-2155L-Sn-AGC+3



DL-2110-2155L-Sn-preAGC



DL-2110-2155H-Sn-AGC+3



DL-2110-2155H-Sn-preAGC

3.6.3 - Spurious Emissions Conducted Measurement

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **3.6.3 Spurious emissions conducted measurement**
 Work Order #: **96950** Date: 5/19/2015
 Test Type: **Conducted Power Measurement** Time: 09:10:28
 Tested By: Daniel Bertran Sequence#: 1
 Software: EMITest 5.02.00

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

<p>Configuration 1</p> <p>The equipment under test (EUT) is a single enclosure CMRS Industrial booster with a Wifi Router and TV amplifier installed. The CMRS DL signal and the Wifi Signal are combined at the diplexer and transmit via the indoor antenna. The EUT is placed on the test bench. Evaluation is performed at the Outside and Inside antenna port. The Industrial booster UL and DL power and gain parameters are initially measured with WiFi transmitting at mid channel using sequentially 802.11b, g, n20 and n40 signal. Since no significant change in measured power was observed, all other parameters are obtained with WiFi transmitting at Mid channel, 802.11b.</p> <p>UL: 1710-1755MHz, 698-716MHz, 776-787MHz DL: 2110-2155MHz, 728-746MHz, 746-757MHz</p> <p>All adjustable settings on the test sample are set at max. Software: Force 7 V1.0 Firmware: V1.0 Application: MP_TEST MFC version 1.3.8.0</p> <p>Test environment conditions: 21°C, 40% Relative Humidity, 101.5kPa</p> <p>Test procedure: The test was performed in accordance with section 3.6.3 of the FCC document: D05 Industrial Booster Basic Measurements v01 935210 Dated June 05, 2015</p> <p>Note: Lower RBW was used as applicable per rule part to show compliance in instances where accuracy can be improved.</p> <p>No emissions below 600MHz were found within 20dB of the limit. Emissions between 1GHz and 4GHz are found below the limit, excluding the WiFi transmitting at Mid channel, 802.11b at maximum power (63dB attenuator option was selected on the remote application MP_TEST MFC version 1.3.8.0).</p> <p>No emissions above 4GHz were found within 20dB of the limit.</p>

Test Equipment					
Asset #	Description	Model	Manufacturer	Cal Date	Cal Due
ANP06131	Attenuator	18N20W-20	Inmet	2/27/2014	2/27/2016
ANP05713	Attenuator	PE7015-20	Pasternack	3/24/2015	3/24/2017
ANP06709	Cable	32026-29094K-29094K-72TC	AstroLab	9/18/2014	9/18/2016
ANP06710	Cable	32026-29094K-29094K-72TC	AstroLab	9/18/2014	9/18/2016
AN03470	Spectrum Analyzer	E4440A	Agilent	12/2/2013	12/2/2015
C00087	Combiner	44000		1/9/2014	1/9/2016
ANP06711	Cable	32022-29094K-29094K-132TC	AstroLab	12/2/2013	12/2/2015

3.6.3 Conducted Spurious Emissions - Summary of Results

Pass: As summarized in plots below, the conducted spurious emissions are within limits.

30MHz-600MHz

No Conducted Spurious Emissions were found within 20dB of the limit.

600MHz-1000MHz

Operational Frequencies (MHz)	BB/NB Signal	Link	CH	Tuned Freq (MHz)	Freq Pk (MHz)	Amp Pk (dBm)	CSE Limit (dBm)	Margin (dB)
728-746	GSM	Downlink	L	728.2	727.90	-29.70	-13	16.70
728-746	AWGN	Downlink	L	730.5	727.90	-32.00	-13	19.00
728-746	AWGN	Downlink	M	737	878.40	-32.79	-13	19.79
728-746	GSM	Downlink	M	737	880.01	-31.72	-13	18.72
728-746	AWGN	Downlink	H	743.5	746.10	-28.58	-13	15.58
728-746	GSM	Downlink	H	745.8	746.10	-24.49	-13	11.49
746-757	GSM	Downlink	L	746.2	745.90	-26.53	-13	19.90
746-757	AWGN	Downlink	L	748.5	745.90	-28.78	-13	15.78
746-757	AWGN	Downlink	M	751.5	880.55	-32.23	-13	19.23
746-757	GSM	Downlink	M	751.5	879.25	-32.90	-13	19.90
746-757	AWGN	Downlink	H	754.5	879.28	-31.80	-13	18.80
746-757	GSM	Downlink	H	756.8	757.10	-26.95	-13	13.95
1710-1755	GSM	Uplink	L	1710.2	NA	NA	-13	>20dB
1710-1755	AWGN	Uplink	L	1712.5	NA	NA	-13	>20dB
1710-1755	AWGN	Uplink	M	1732.5	NA	NA	-13	>20dB
1710-1755	GSM	Uplink	M	1732.5	NA	NA	-13	>20dB
1710-1755	AWGN	Uplink	H	1752.5	NA	NA	-13	>20dB
1710-1755	GSM	Uplink	H	1754.8	NA	NA	-13	>20dB
776-787	GSM	Uplink	L	776.2	775.90	-28.16	-13	15.16
776-787	AWGN	Uplink	L	778.5	775.90	-27.22	-13	14.22
776-787	AWGN	Uplink	M	781.5	NA	NA	-13	>20dB
776-787	GSM	Uplink	M	781.5	NA	NA	-13	>20dB
776-787	AWGN	Uplink	H	784.5	787.15	-31.22	-13	18.22
776-787	GSM	Uplink	H	786.8	787.10	-22.27	-13	9.27
698-716	GSM	Uplink	L	698.2	697.90	-28.93	-13	15.93
698-716	AWGN	Uplink	L	700.5	697.70	-29.24	-13	16.24
698-716	AWGN	Uplink	M	707	716.10	-32.45	-13	19.45
698-716	GSM	Uplink	M	707	716.10	-26.82	-13	13.82
698-716	AWGN	Uplink	H	713.5	716.10	-32.45	-13	19.45
698-716	GSM	Uplink	H	715.8	716.10	-26.82	-13	13.82

600MHz-1000MHz Continued

Operational Frequencies (MHz)	BB/NB Signal	Link	CH	Tuned Freq (MHz)	Freq Pk (MHz)	Amp Pk (dBm)	CSE Limit (dBm)	Margin (dB)
2110-2155	GSM	Downlink	L	2110.2	NA	NA	-13	>20dB
2110-2155	AWGN	Downlink	L	2112.5	NA	NA	-13	>20dB
2110-2155	AWGN	Downlink	M	2132.5	NA	NA	-13	>20dB
2110-2155	GSM	Downlink	M	2132.5	NA	NA	-13	>20dB
2110-2155	AWGN	Downlink	H	2152.5	NA	NA	-13	>20dB
2110-2155	GSM	Downlink	H	2154.8	NA	NA	-13	>20dB

NA: No Conducted Spurious Emissions were found within 20dB of the limit.

1000MHz-4000MHz

Operational Frequencies (MHz)	BB/NB Signal	Link	Channel	Tuned Freq (MHz)	Freq Pk (MHz)	Amp Pk (dBm)	CSE Limit (dBm)	Margin (dB)
728-746	GSM	Downlink	L	728.2	2136.00	-25.201	-13	12.20
728-746	AWGN	Downlink	L	730.5	2136.00	-25.886	-13	12.89
728-746	AWGN	Downlink	M	737	2140.50	-22.995	-13	10.00
728-746	GSM	Downlink	M	737	2140.50	-24.649	-13	11.65
728-746	AWGN	Downlink	H	743.5	2140.50	-25.466	-13	12.47
728-746	GSM	Downlink	H	745.8	2140.50	-24.663	-13	11.66
746-757	GSM	Downlink	L	746.2	2140.50	-23.697	-13	10.70
746-757	AWGN	Downlink	L	748.5	2140.50	-24.15	-13	11.15
746-757	AWGN	Downlink	M	751.5	2140.50	-24.009	-13	11.01
746-757	GSM	Downlink	M	751.5	2140.50	-25.237	-13	12.24
746-757	AWGN	Downlink	H	754.5	2140.50	-25.096	-13	12.10
746-757	GSM	Downlink	H	756.8	2140.50	-24.302	-13	11.30
1710-1755	GSM	Uplink	L	1710.2	1890.24	-30.873	-13	17.87
1710-1755	AWGN	Uplink	L	1712.5	1890.24	-31.785	-13	18.79
1710-1755	AWGN	Uplink	M	1732.5	1890.24	-32.535	-13	19.54
1710-1755	GSM	Uplink	M	1732.5	1890.24	-31.09	-13	18.09
1710-1755	AWGN	Uplink	H	1752.5	1892.16	-31.775	-13	18.78
1710-1755	GSM	Uplink	H	1754.8	1892.16	-31.221	-13	18.22
776-787	GSM	Uplink	L	776.2	1893.70	-27.764	-13	14.76
776-787	AWGN	Uplink	L	778.5	1893.70	-28.692	-13	15.69
776-787	AWGN	Uplink	M	781.5	1893.70	-29.897	-13	16.90
776-787	GSM	Uplink	M	781.5	1891.50	-27.302	-13	14.30
776-787	AWGN	Uplink	H	784.5	1891.50	-27.987	-13	14.99
776-787	GSM	Uplink	H	786.8	1891.50	-28.643	-13	15.64
698-716	GSM	Uplink	L	698.2	1893.70	-28.595	-13	15.60
698-716	AWGN	Uplink	L	700.5	1893.70	-29.589	-13	16.59
698-716	AWGN	Uplink	M	707	1893.70	-30.407	-13	17.41
698-716	GSM	Uplink	M	707	1893.70	-29.786	-13	16.79

1000MHz-4000MHz Continued

Operational Frequencies (MHz)	BB/NB Signal	Link	Channel	Tuned Freq (MHz)	Freq Pk (MHz)	Amp Pk (dBm)	CSE Limit (dBm)	Margin (dB)
698-716	AWGN	Uplink	H	713.5	1893.70	-29.573	-13	16.57
698-716	GSM	Uplink	H	715.8	1893.70	-29.78	-13	16.78
2110-2155	GSM	Downlink	L	2110.2	1952.08	-31.226	-13	18.23
2110-2155	AWGN	Downlink	L	2112.5	2108.32	-25.251	-13	12.25
2110-2155	AWGN	Downlink	M	2132.5	1948.70	-30.747	-13	17.75
2110-2155	GSM	Downlink	M	2132.5	1948.70	-31.168	-13	18.17
2110-2155	AWGN	Downlink	H	2152.5	1950.86	-30.992	-13	17.99
2110-2155	GSM	Downlink	H	2154.8	1948.70	-30.668	-13	17.67

4000MHz-25000MHz

No Conducted Spurious Emissions were found within 20dB of the limit.

Limit line (dBuV) = V_{dBuV} - Attenuation

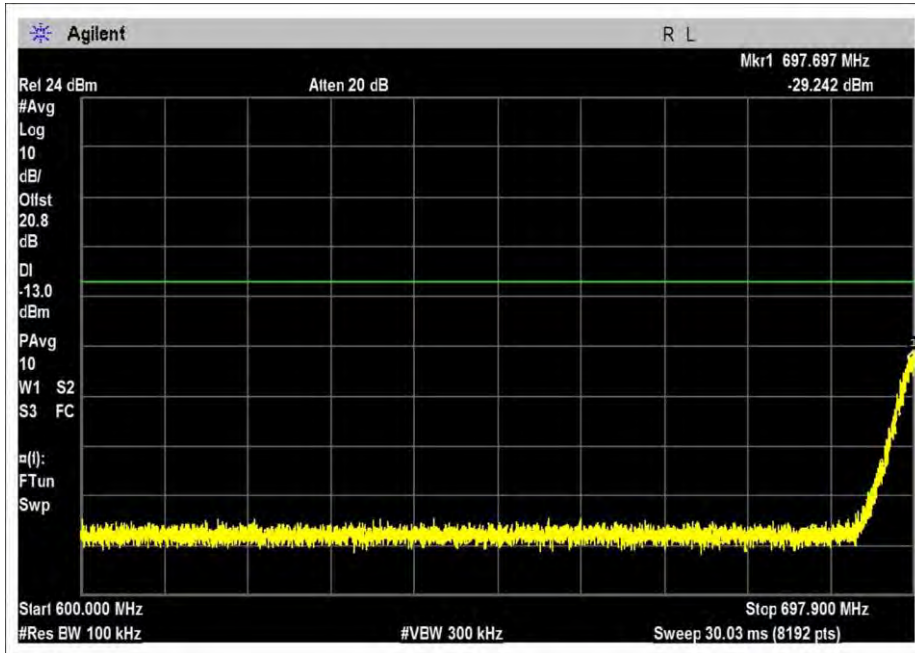
$$\begin{aligned}
 V_{dBuV} &= 20 \text{ Log } \frac{V}{1 \times 10^{-6}} \\
 &= 20 (\text{Log } V - \text{Log } 1 \times 10^{-6}) \\
 &= 20 \text{ Log } V - 20 \text{ Log } 1 \times 10^{-6} \\
 &= 20 \text{ Log } V - 20 (-6) \\
 &= 20 \text{ Log } V + 120
 \end{aligned}$$

$$\begin{aligned}
 \text{Attenuation} &= 43 + 10 \text{ Log } P \\
 &= 43 + 10 \text{ Log } \frac{V^2}{R} \\
 &= 43 + 10 (\text{Log } V^2 - \text{Log } R) \\
 &= 43 + 10 (2 \text{ Log } V - \text{Log } R) \\
 &= 43 + 20 \text{ Log } V - 10 \text{ Log } R
 \end{aligned}$$

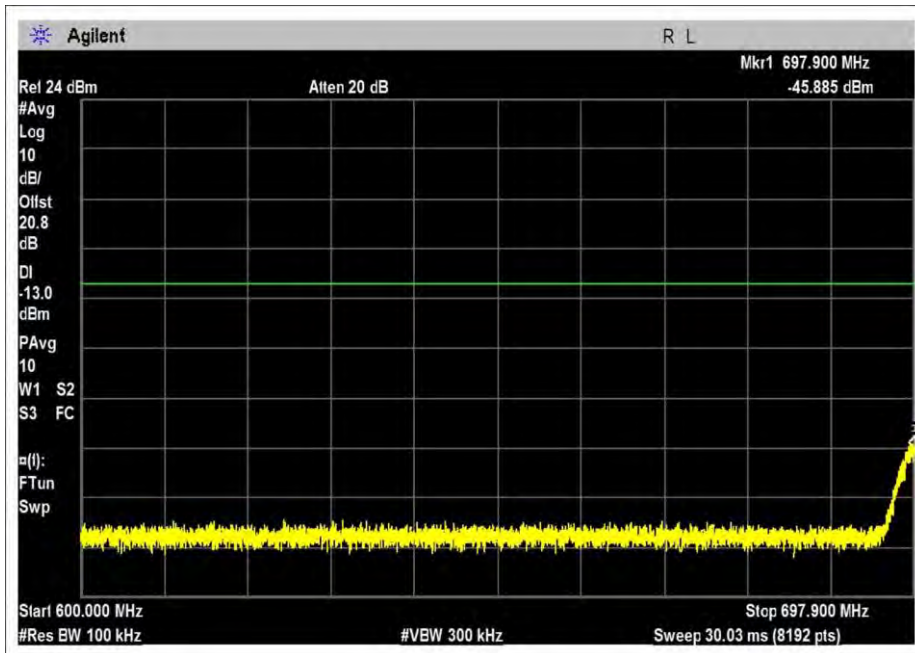
$$\begin{aligned}
 \text{Limit line} &= \mathbf{V_{dBuV} - \text{Attenuation}} \\
 &= 20 \text{ Log } V + 120 - (43 + 20 \text{ Log } V - 10 \text{ Log } R) \\
 &= 20 \text{ Log } V + 120 - 43 - 20 \text{ Log } V + 10 \text{ Log } R \\
 = & 20 \text{ Log } V + 120 - 43 - 20 \text{ Log } V + 10 \text{ Log } R \\
 &= 120 - 43 + 10 \text{ Log } 50 \quad \text{Note : } R = 50 \Omega \\
 &= 120 - 43 + 16.897 \\
 &= 94 \text{ dBuV (-13dBm) at any power level}
 \end{aligned}$$

Test Data

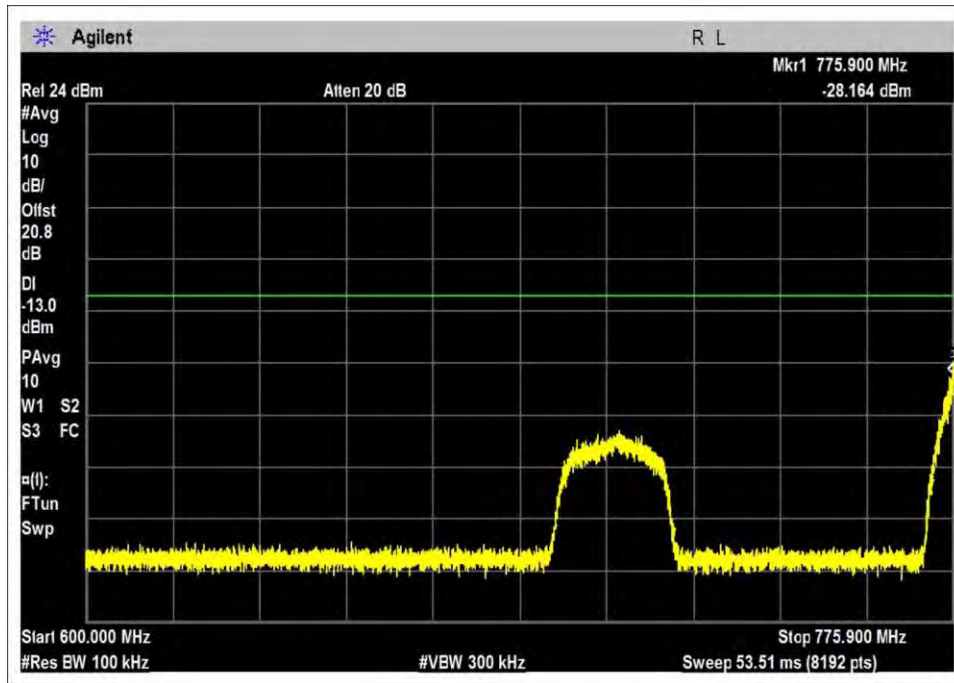
AWGN – UL / 600MHz-1GHz



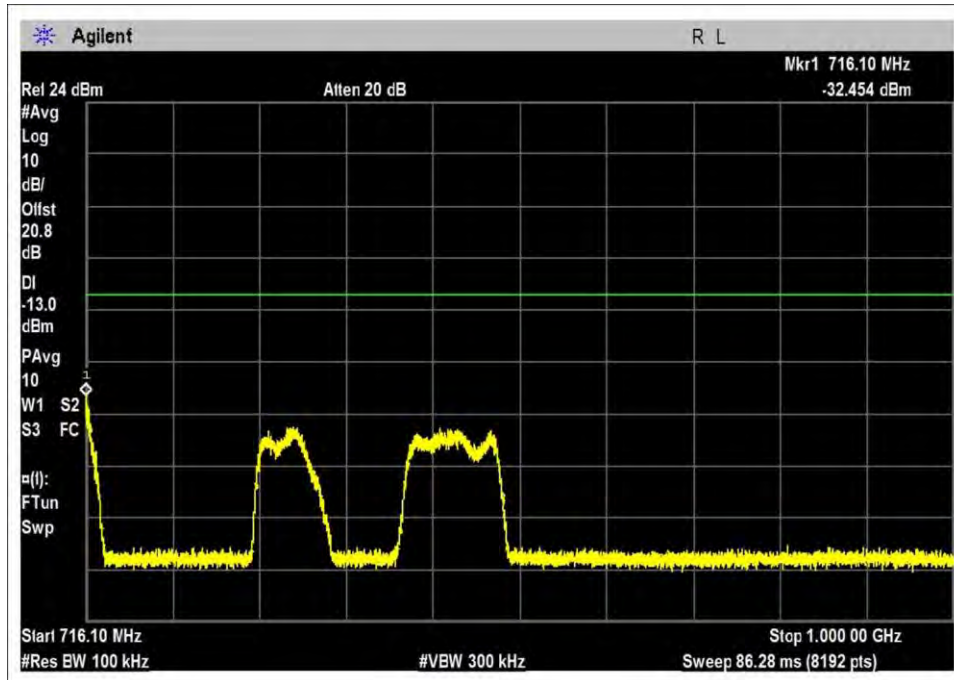
UL-698-716L-AWGN-L



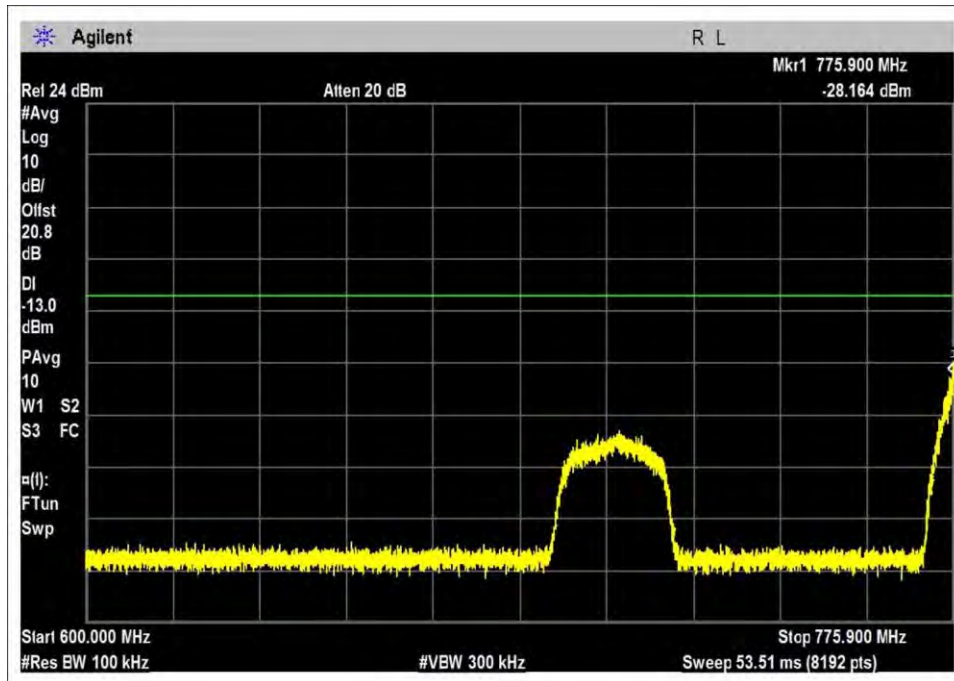
UL-698-716L-AWGN-H



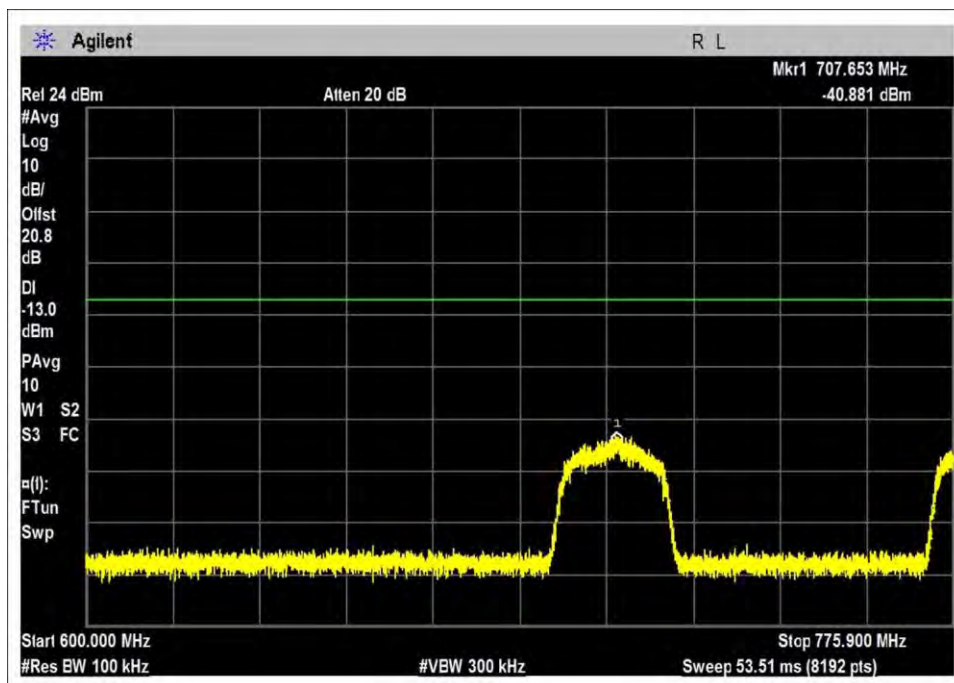
UL-698-716R-AWGN-L



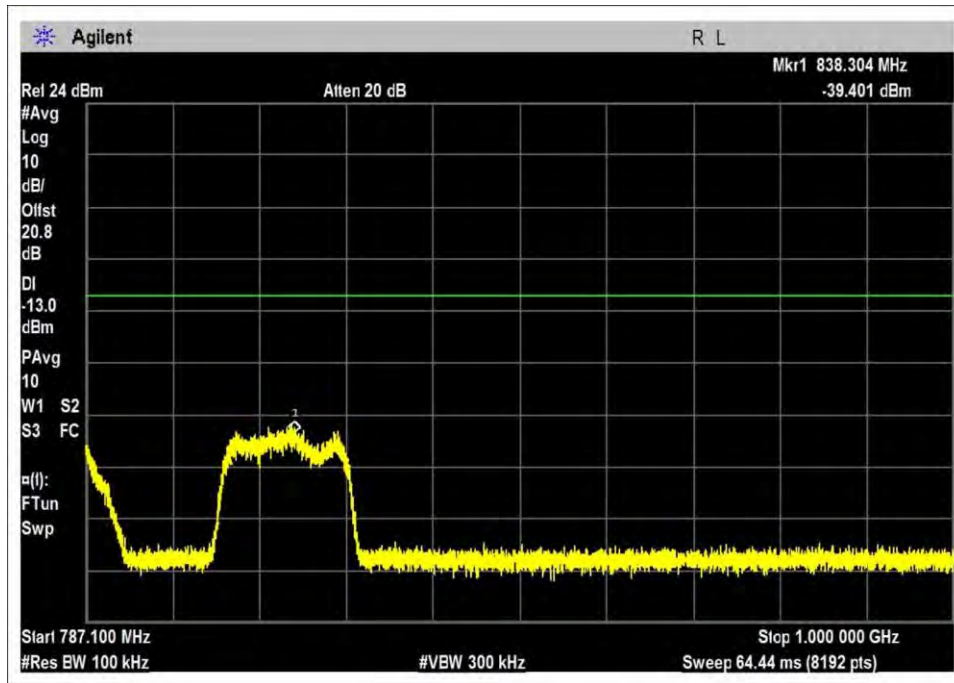
UL-698-716R-AWGN-H



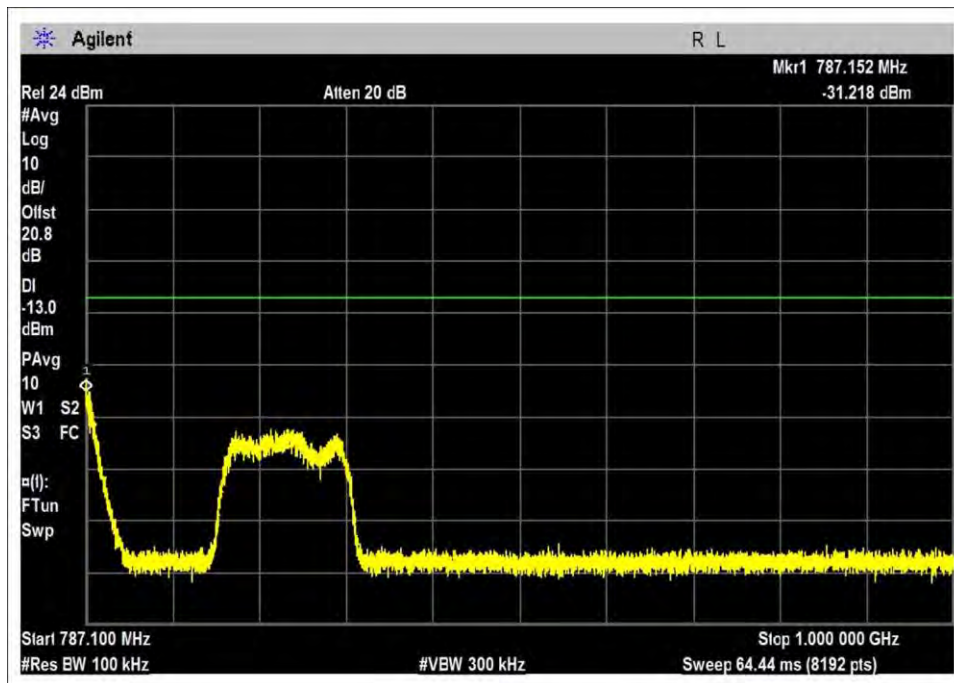
UL-776-787L-AWGN-L



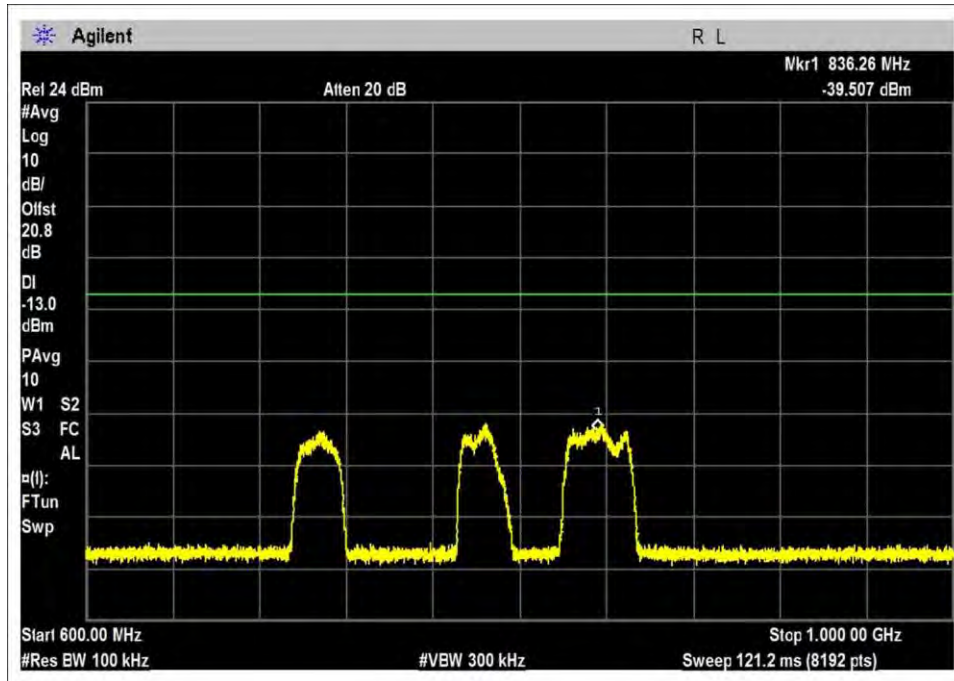
UL-776-787L-AWGN-H



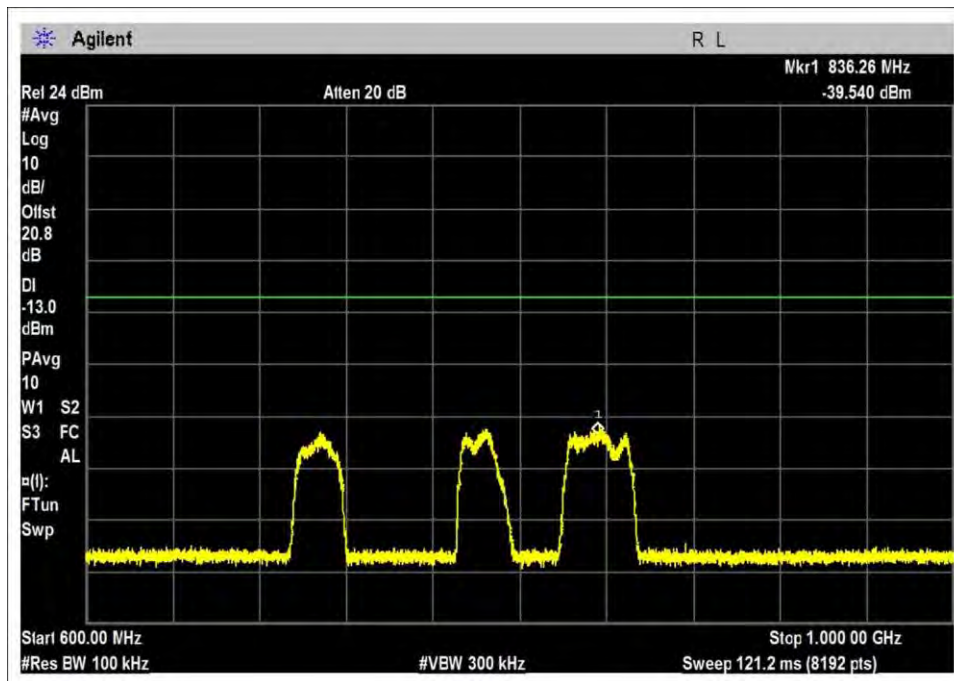
UL-776-787R-AWGN-L



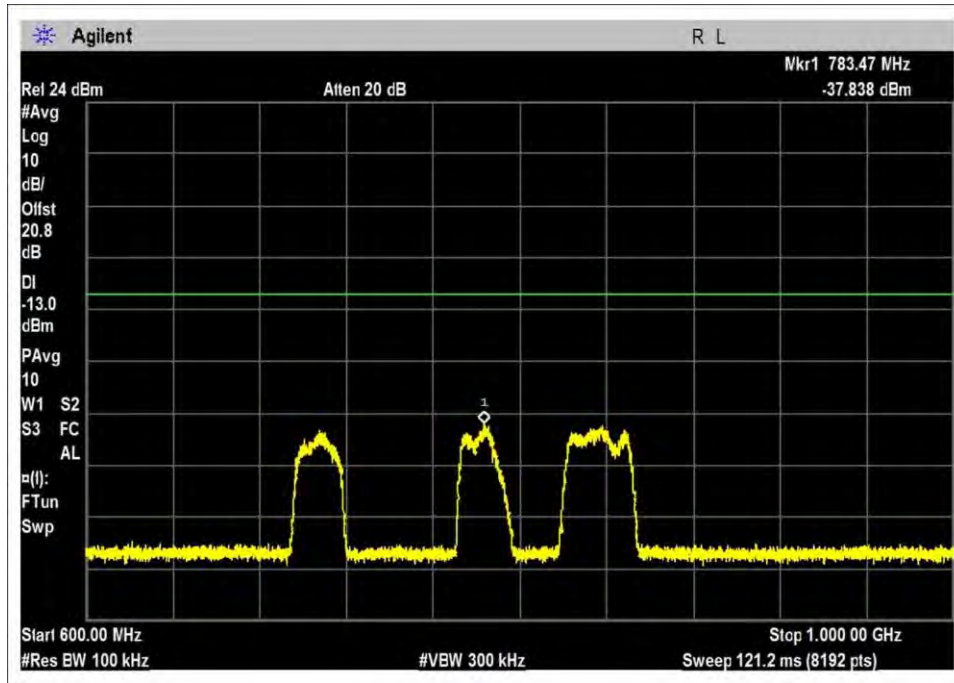
UL-776-787R-AWGN-H



UL-1710-1755-AWGN-L

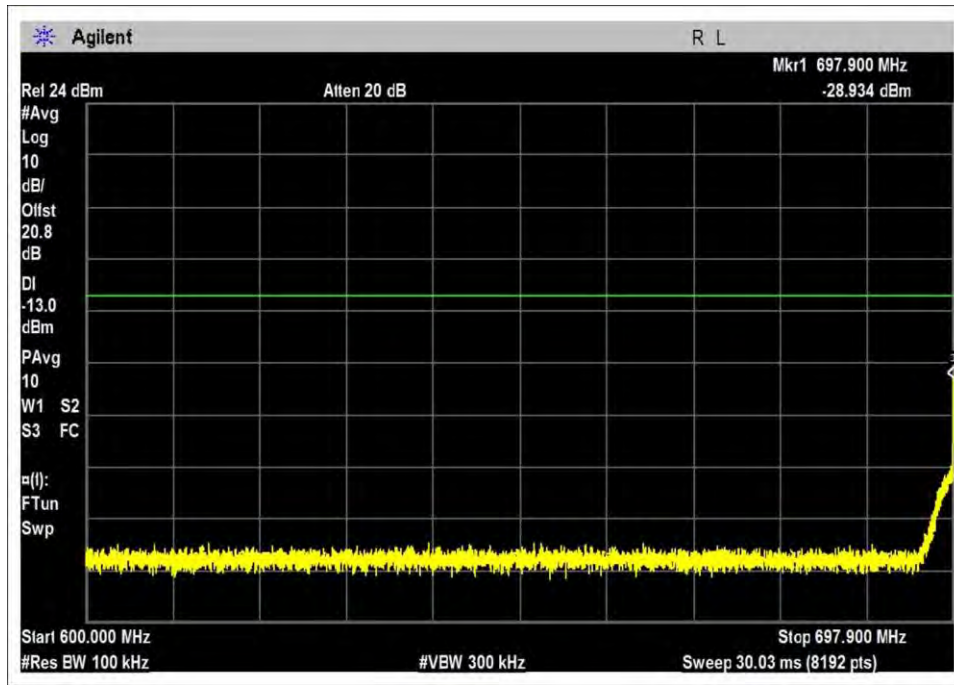


UL-1710-1755-AWGN-M

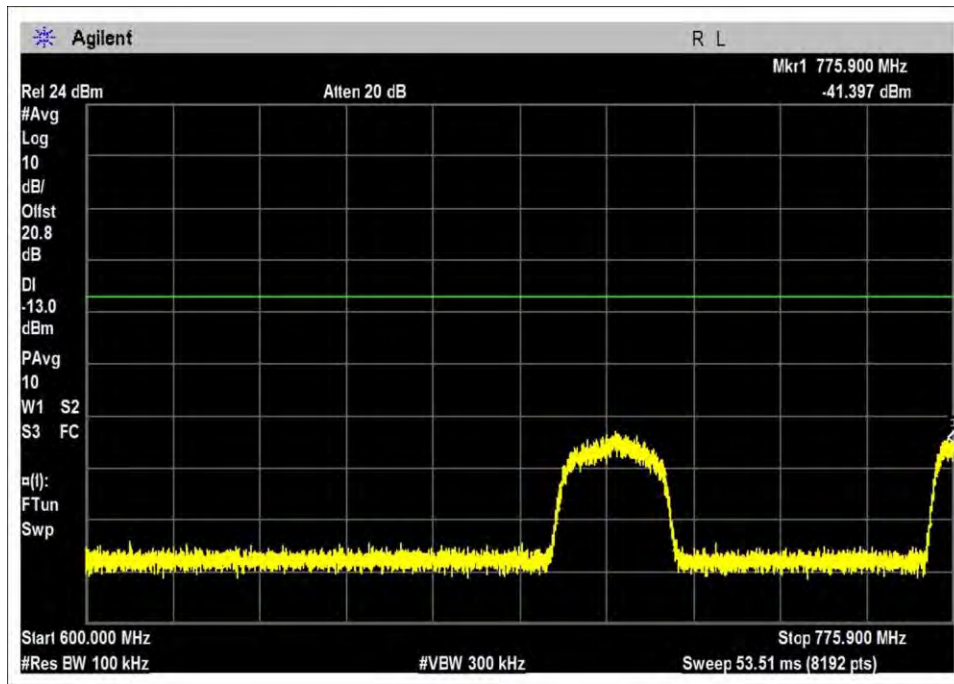


UL-1710-1755-AWGN-H

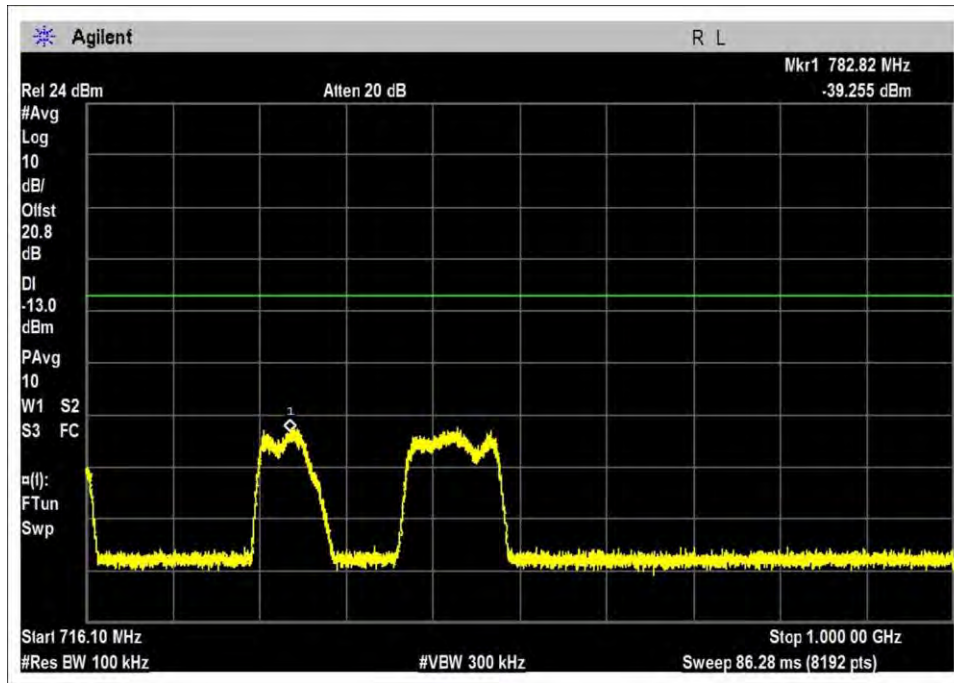
GSM – UL / 600MHz-1GHz



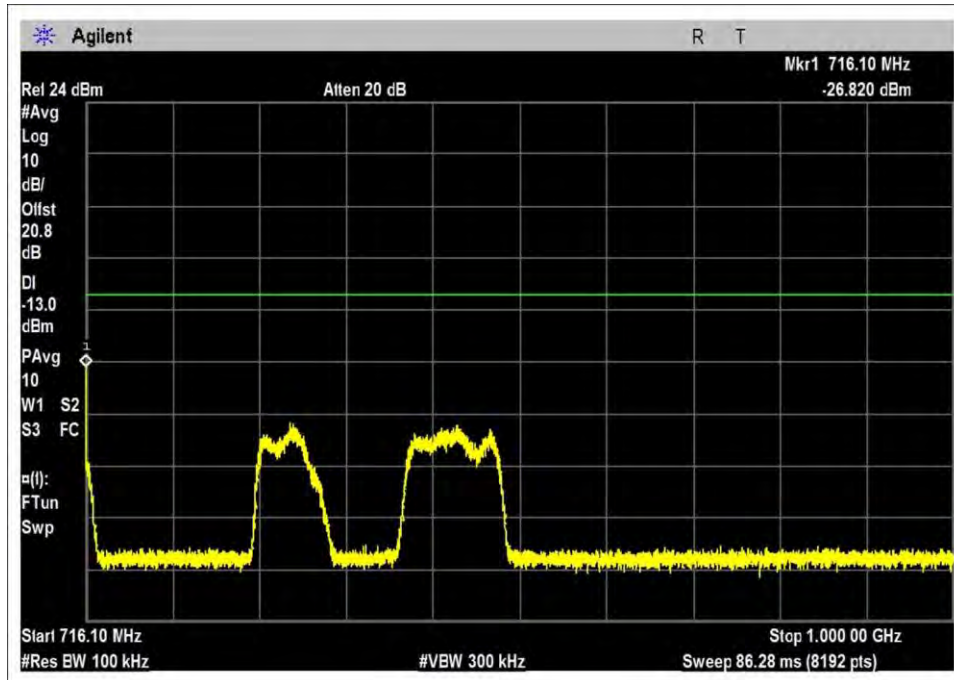
UL-698-716L-GSM-L



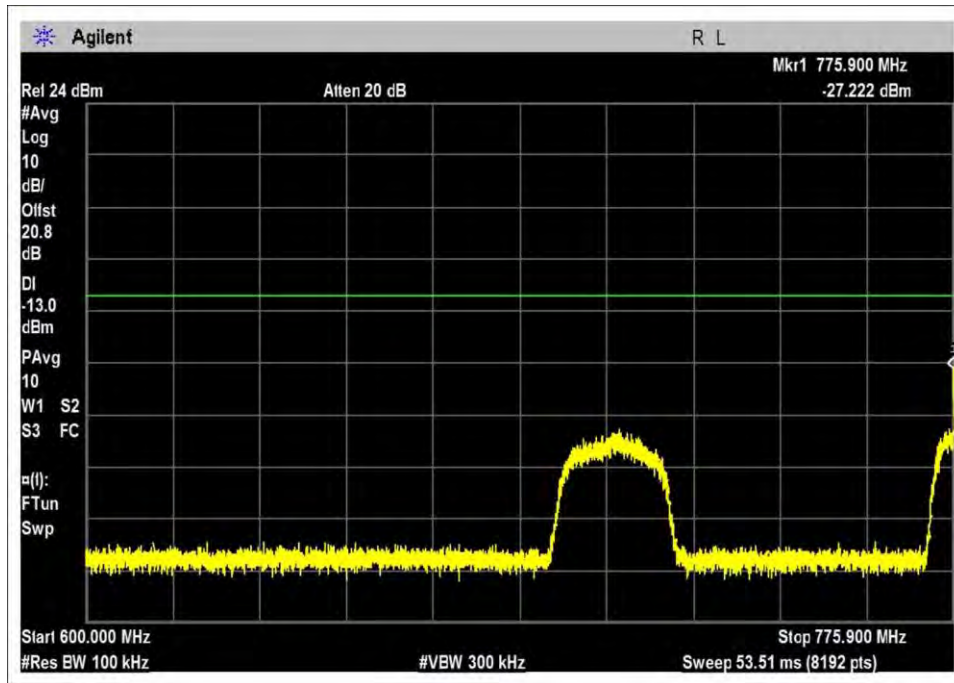
UL-698-716L-GSM-H



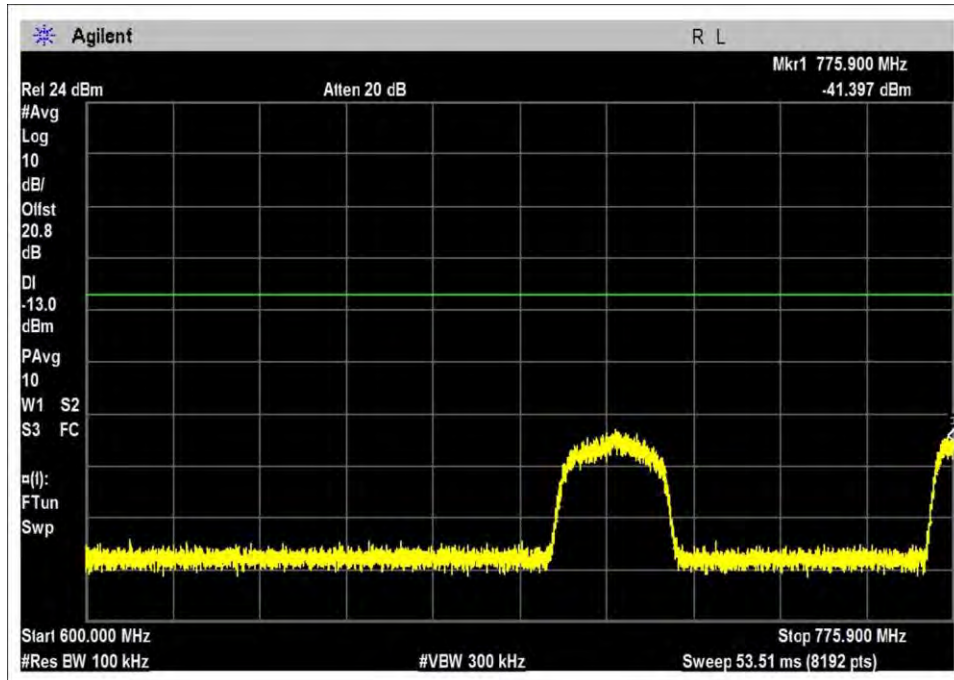
UL-698-716R-GSM-L



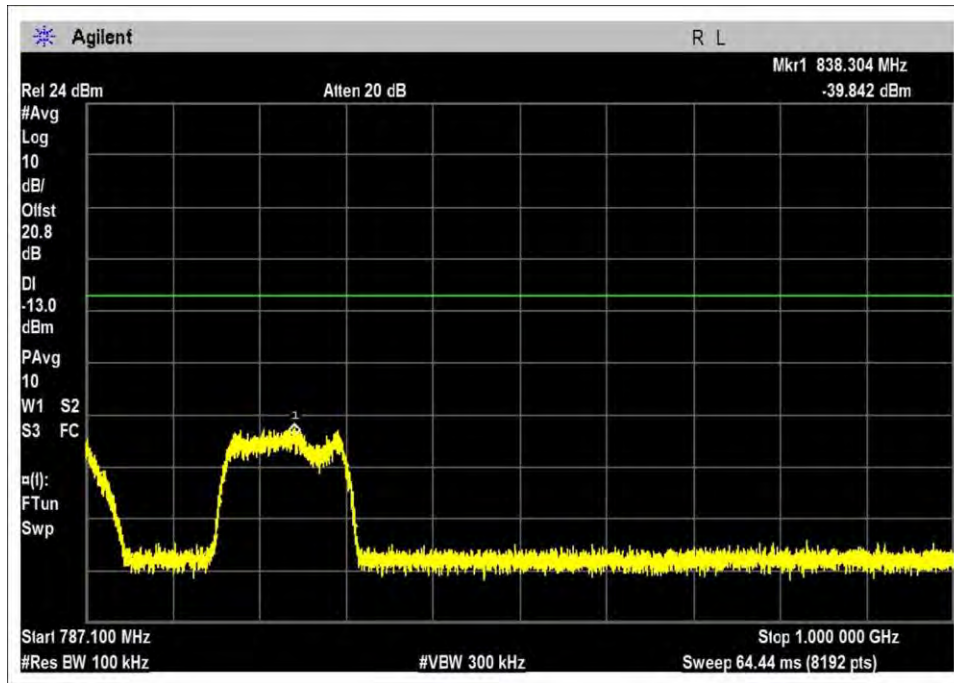
UL-698-716R-GSM-H



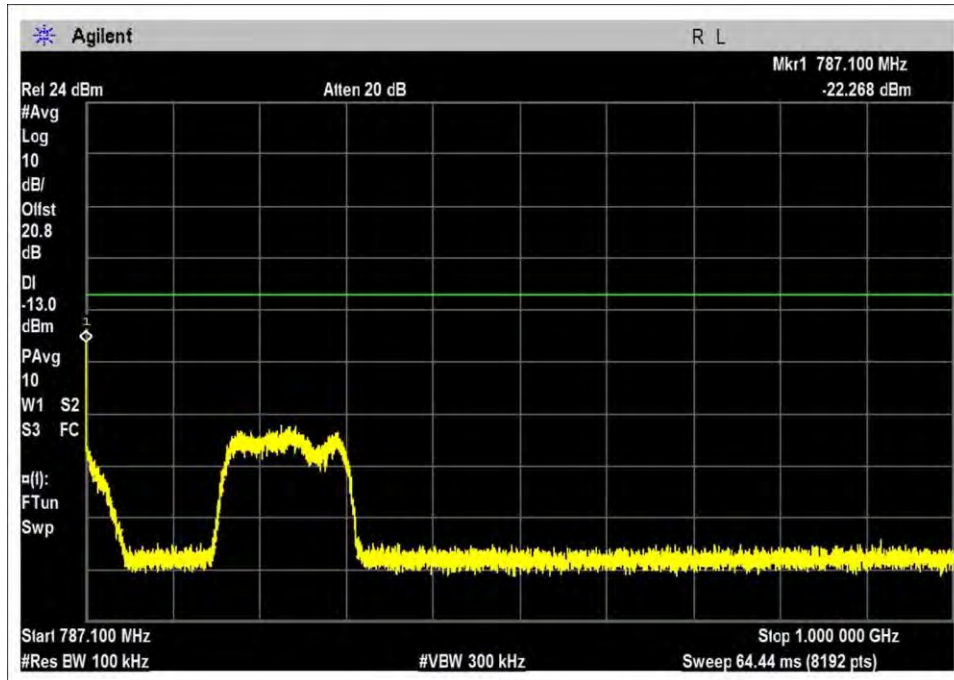
UL-776-787L-GSM-L



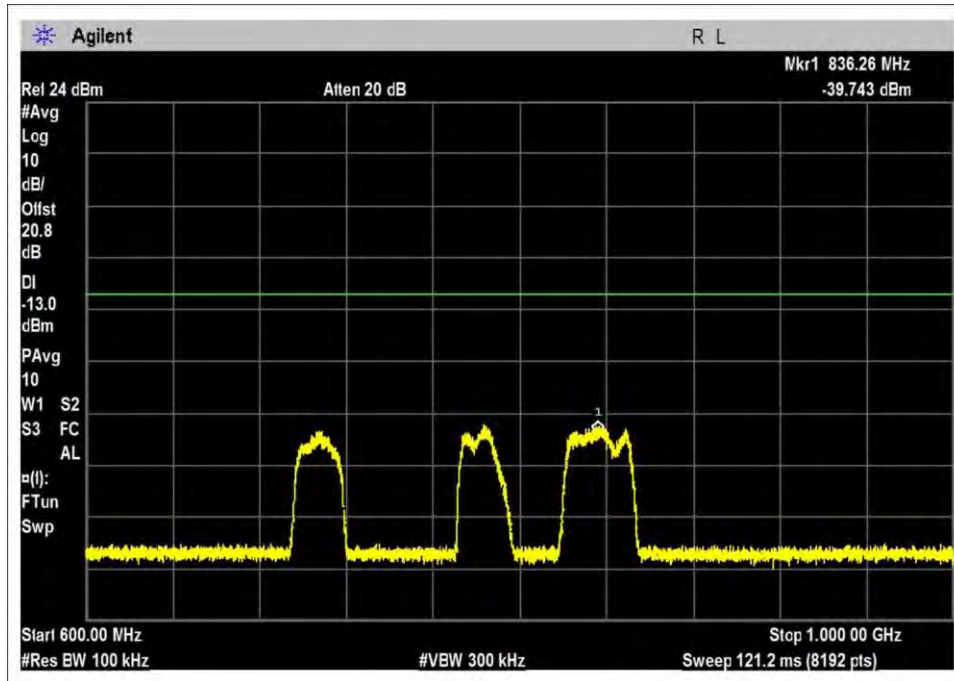
UL-776-787L-GSM-H



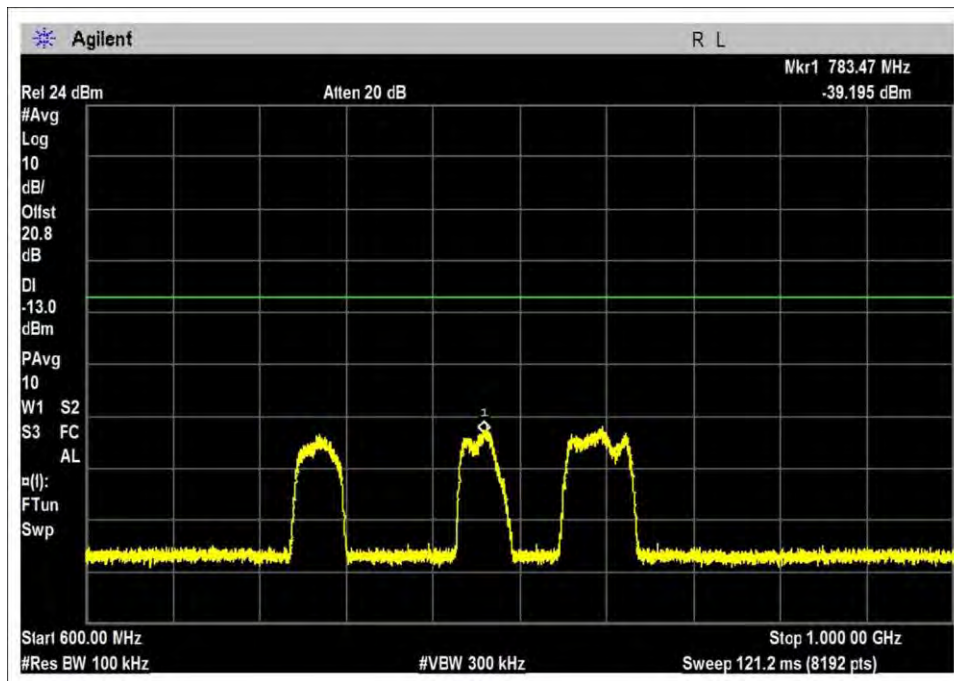
UL-776-787R-GSM-L



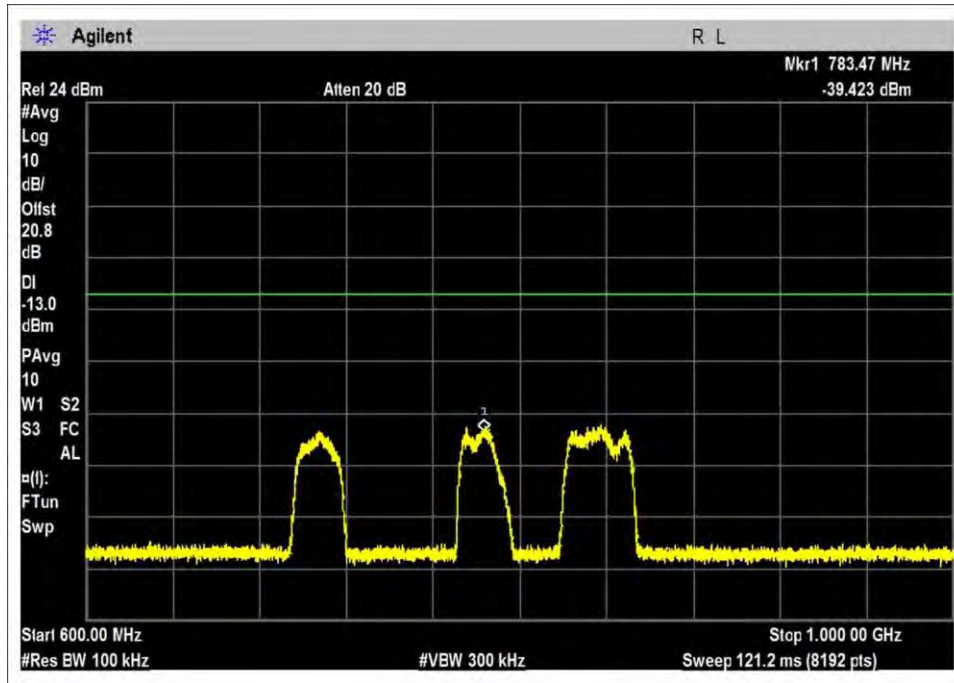
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UL-1710-1755-GSM-L

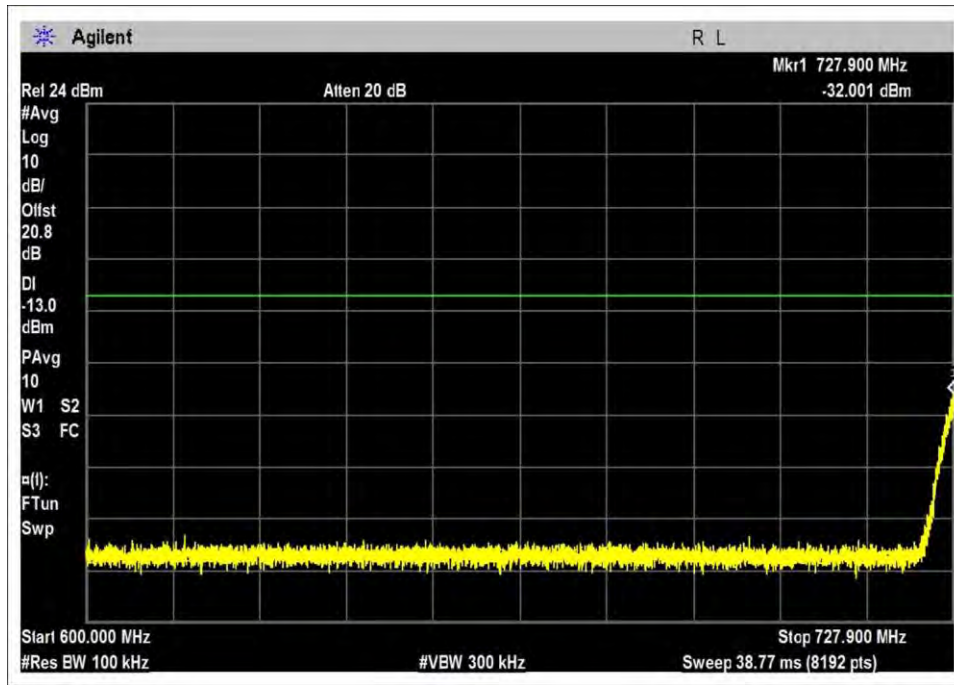


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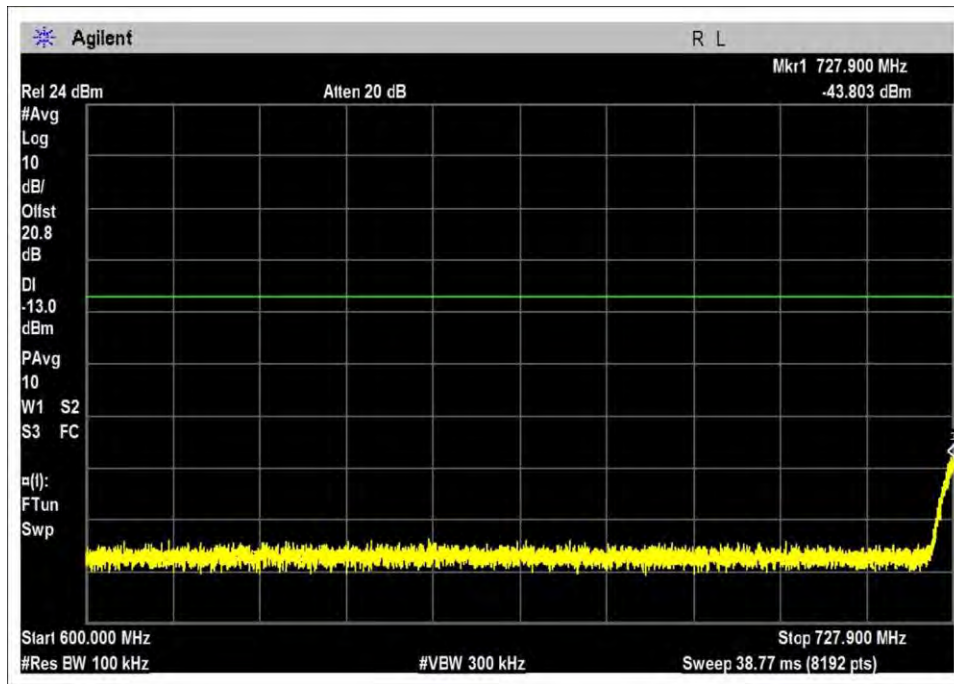


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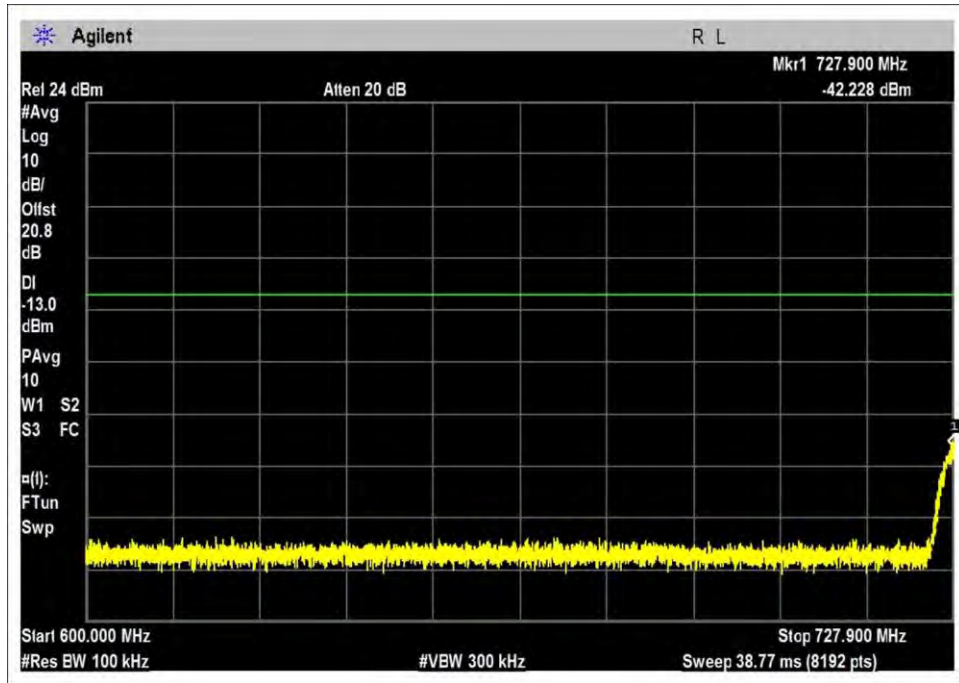
AWGN – DL / 600MHz-1GHz



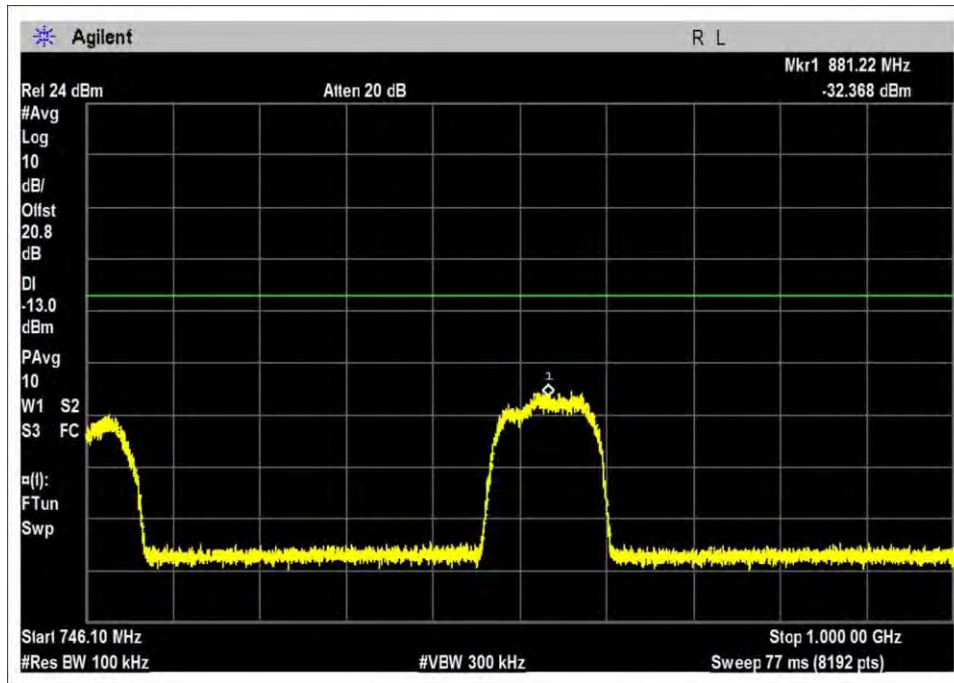
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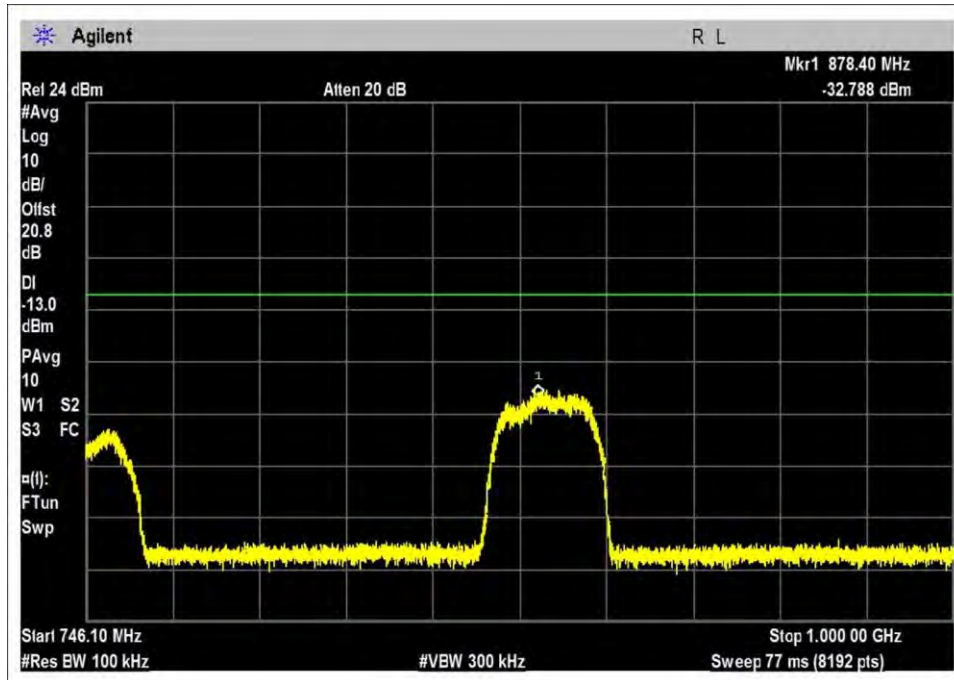
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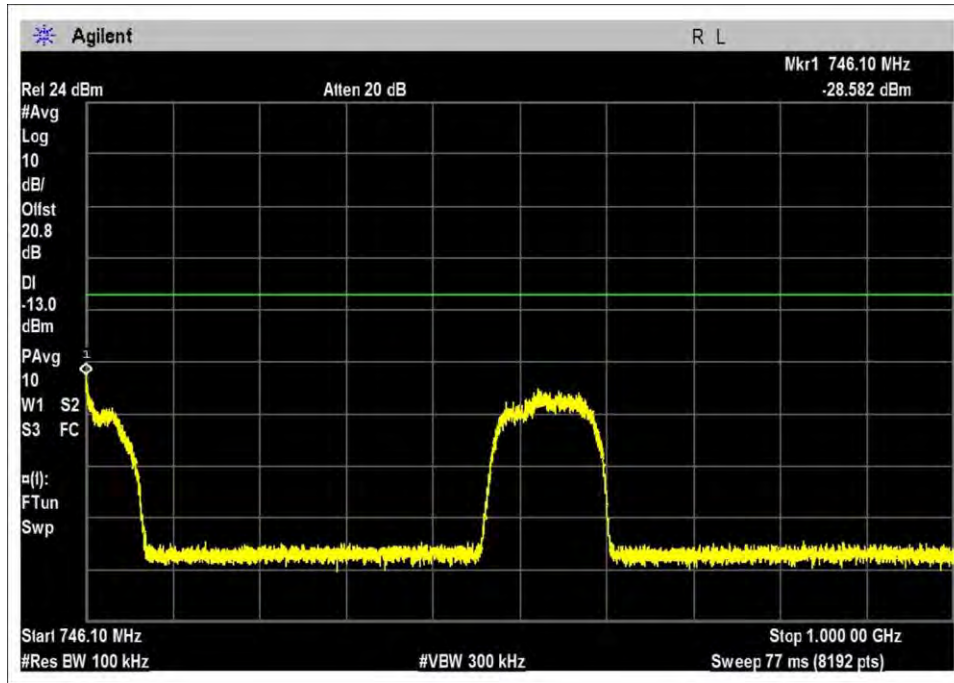
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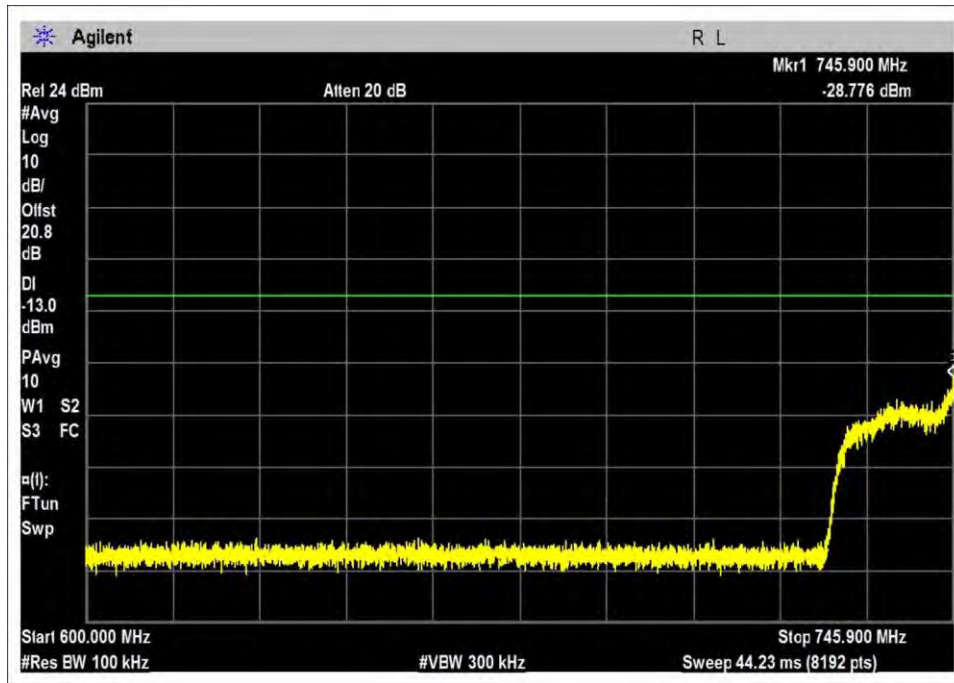
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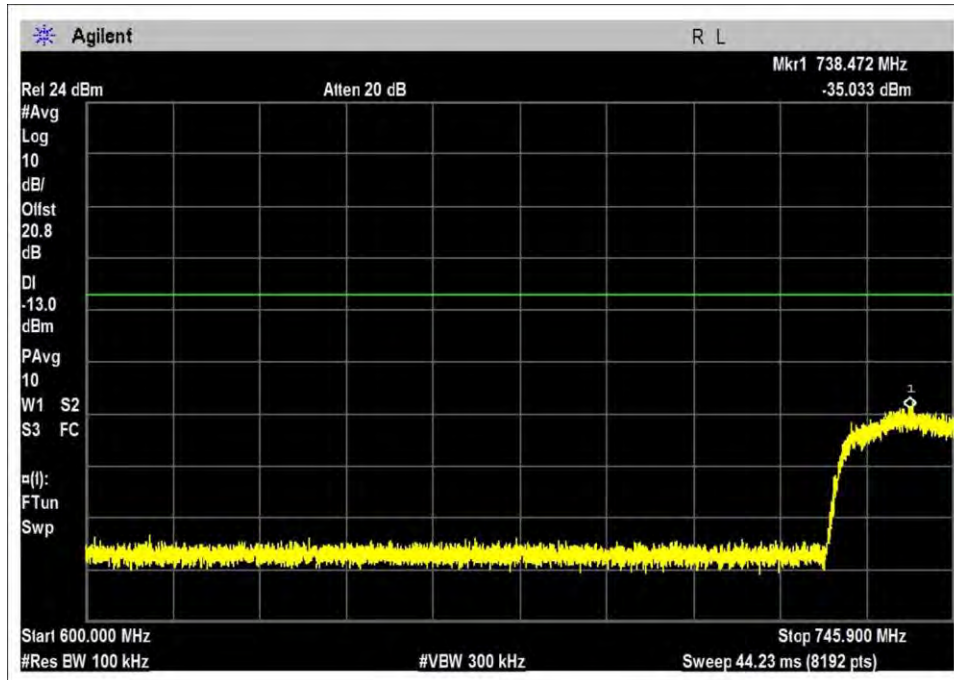
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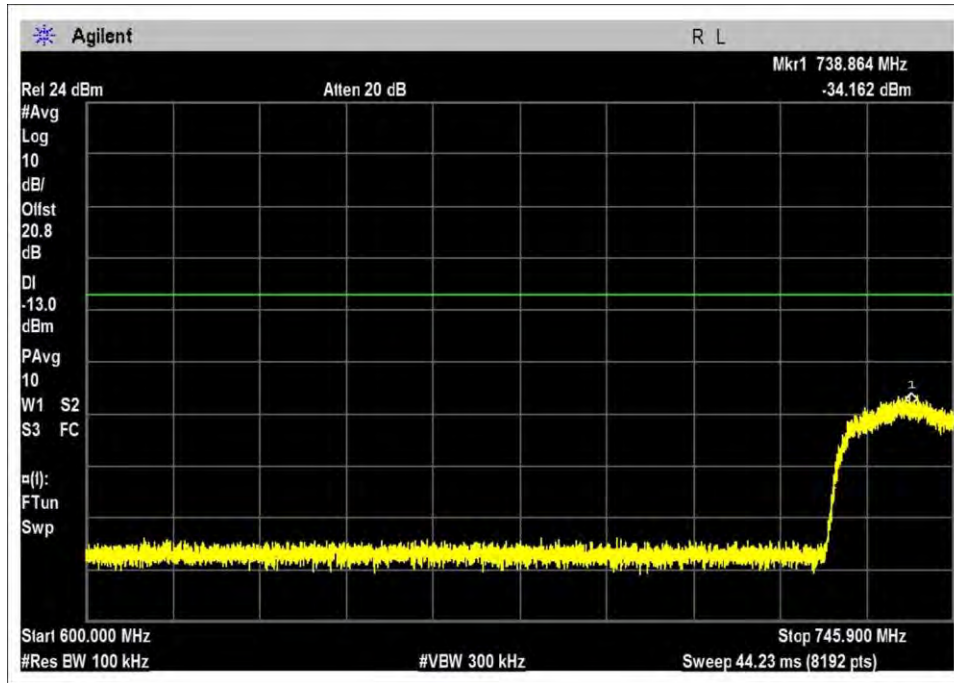
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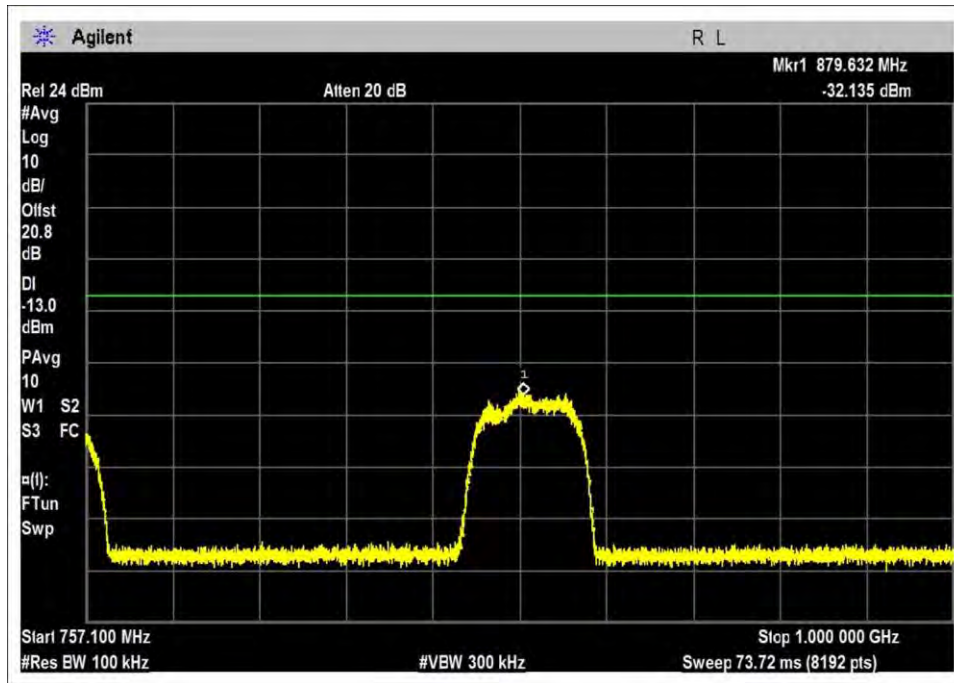
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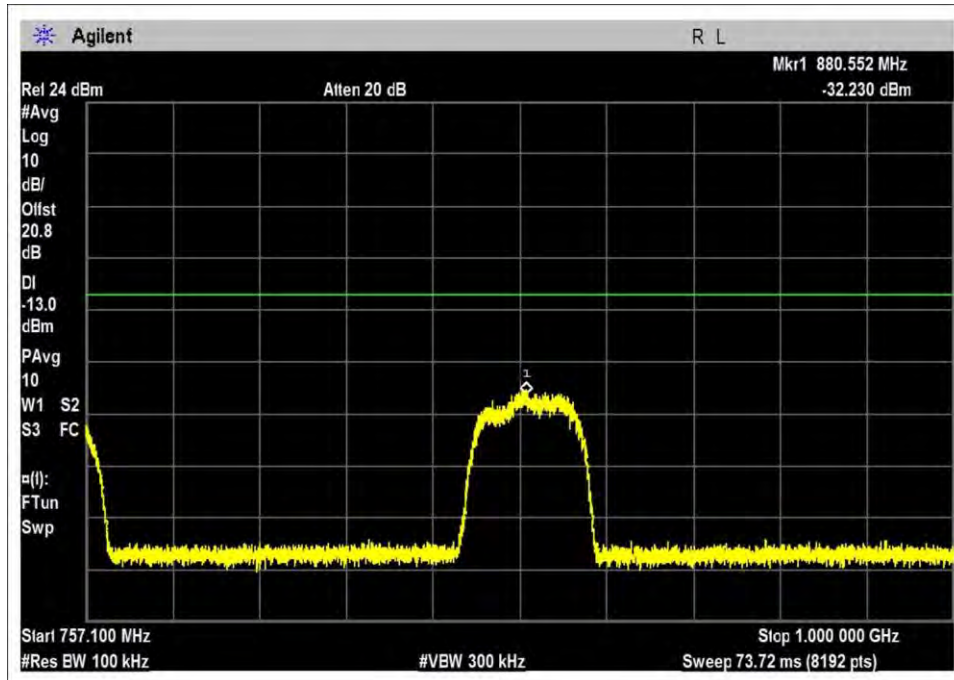
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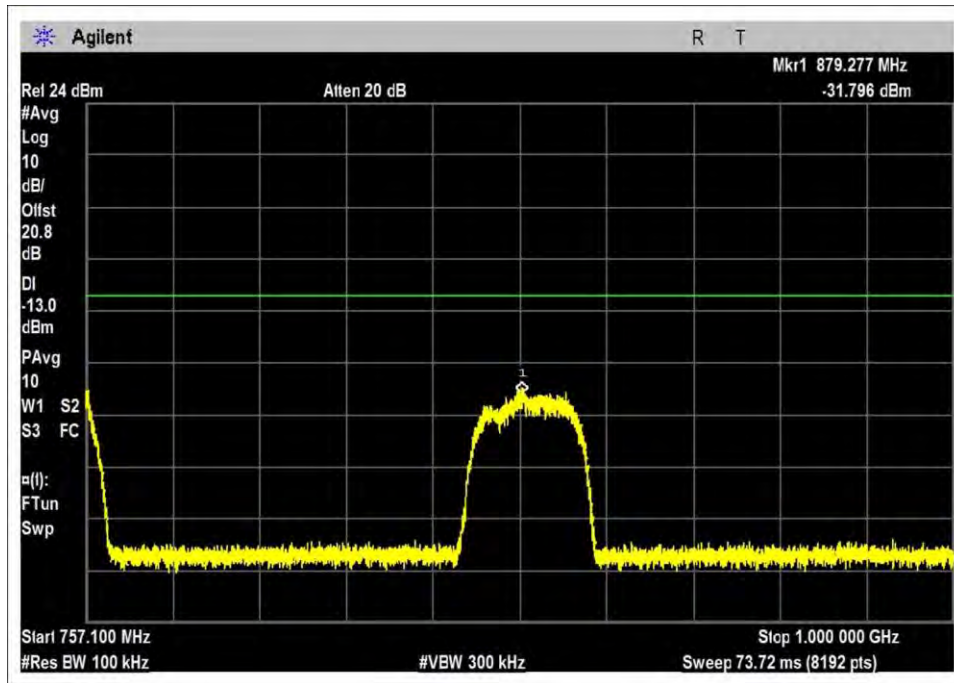
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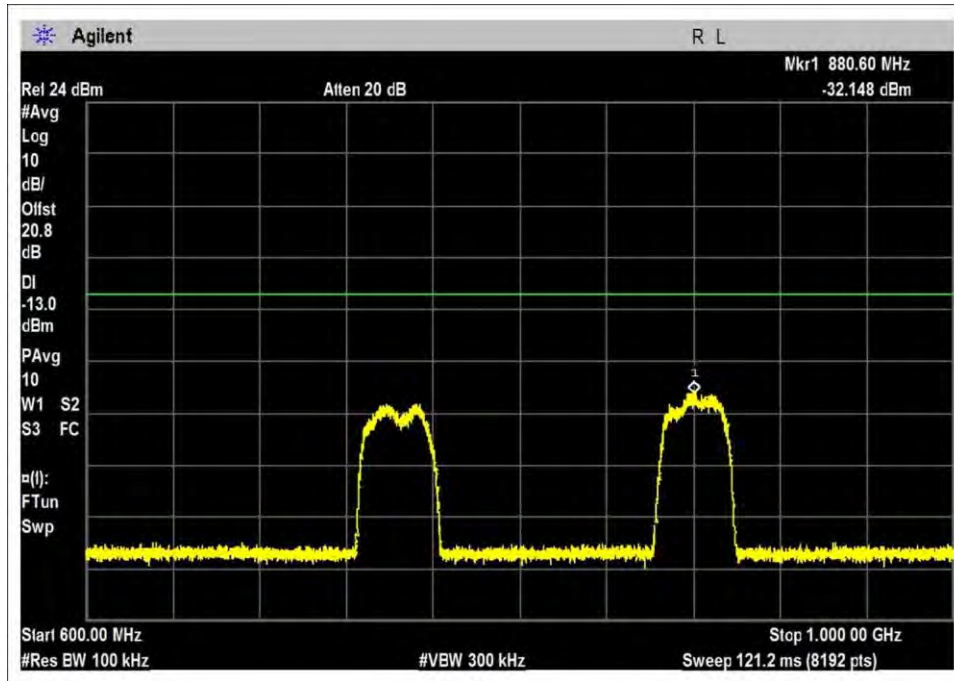
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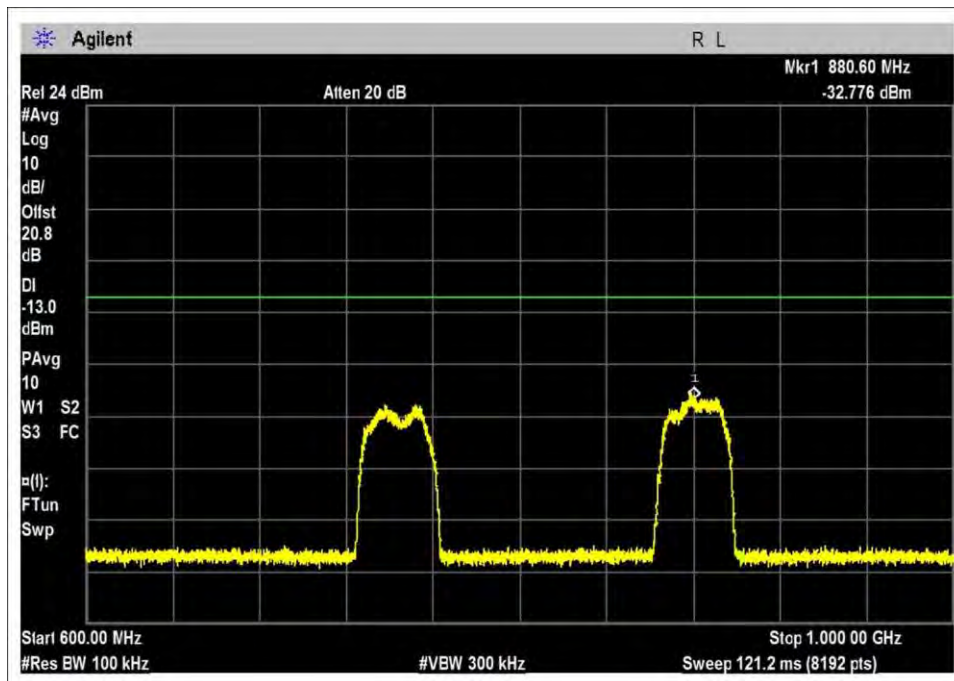
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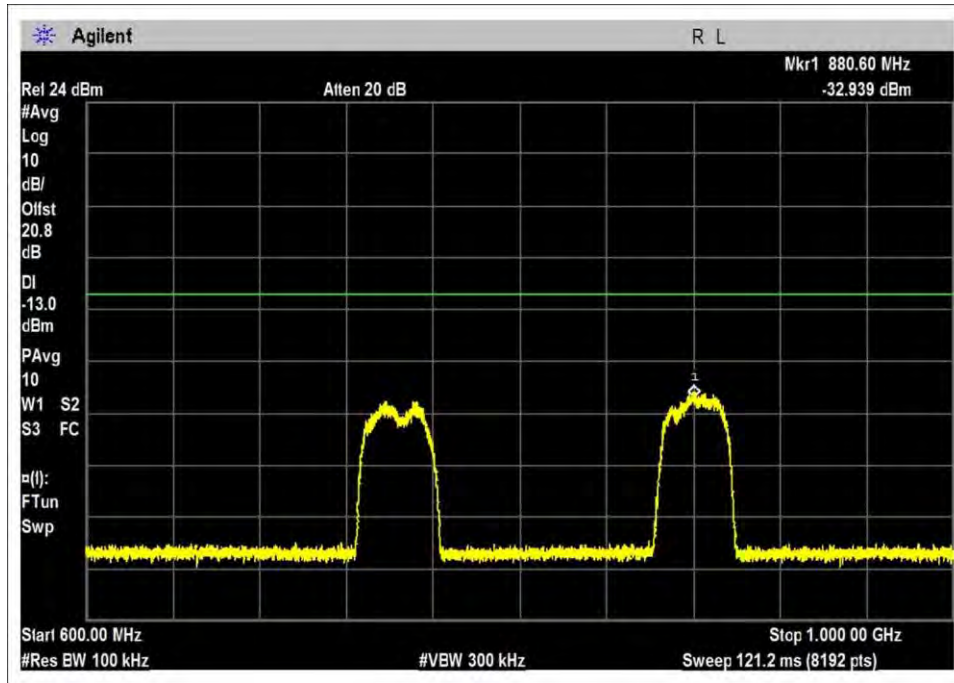
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DL-2110-2155-AWGN-L

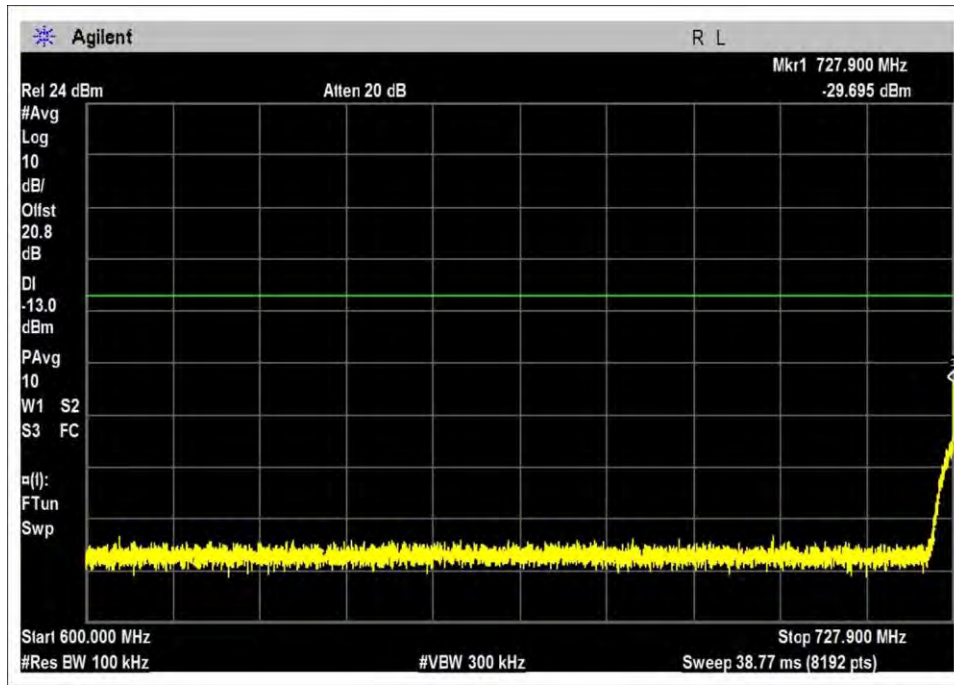


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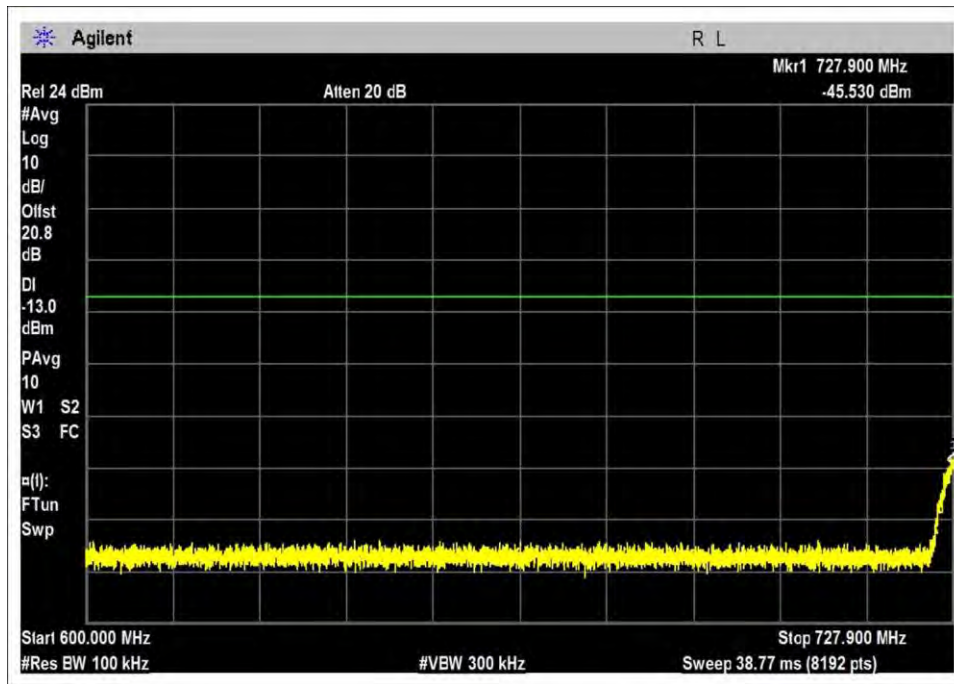


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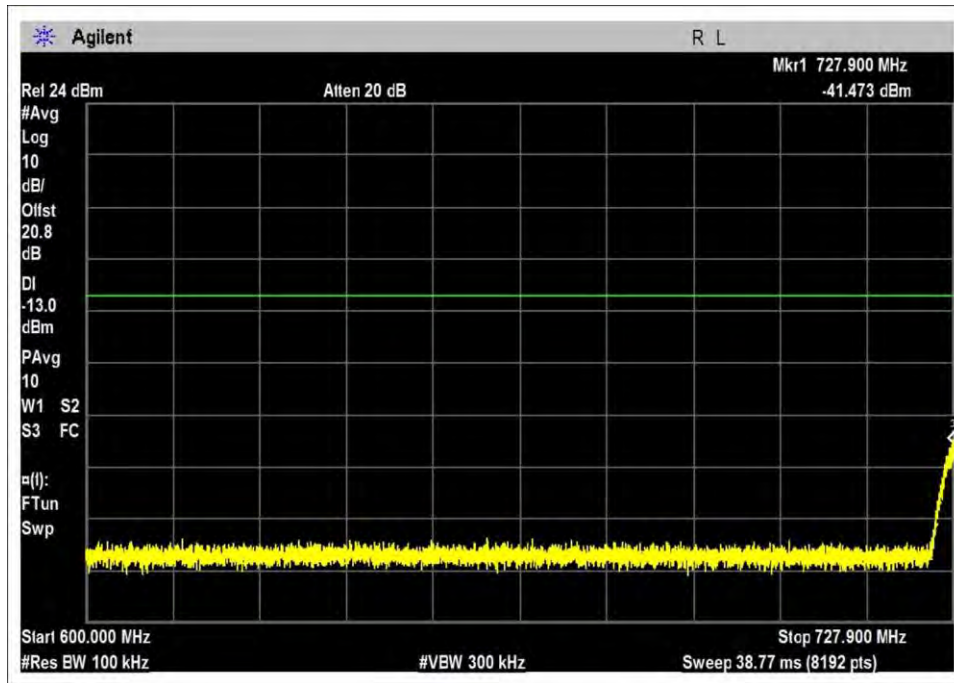
GSM-DL / 600MHz-1GHz



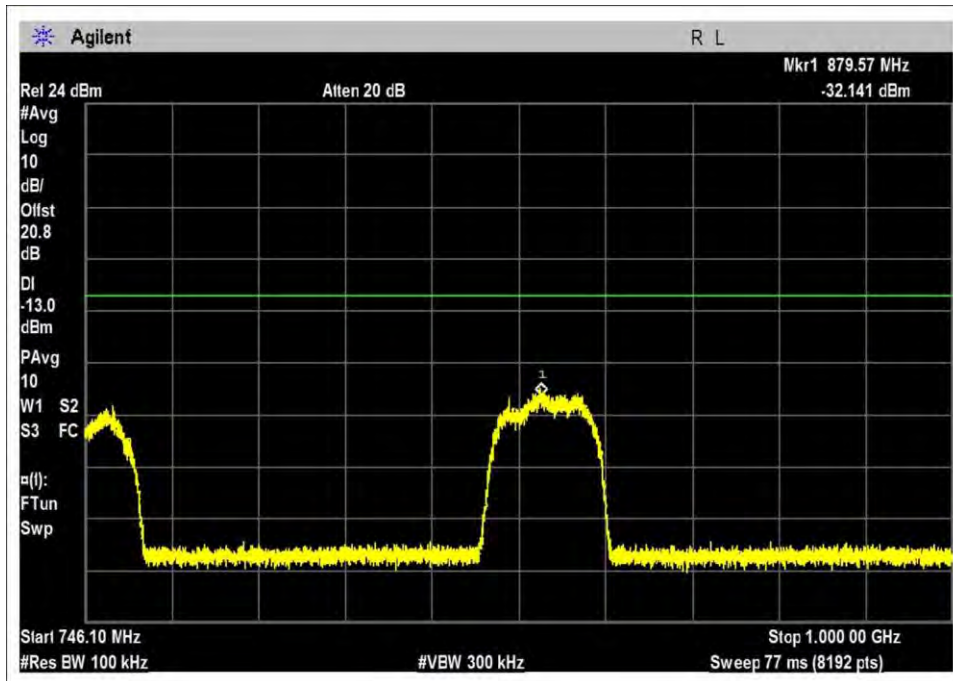
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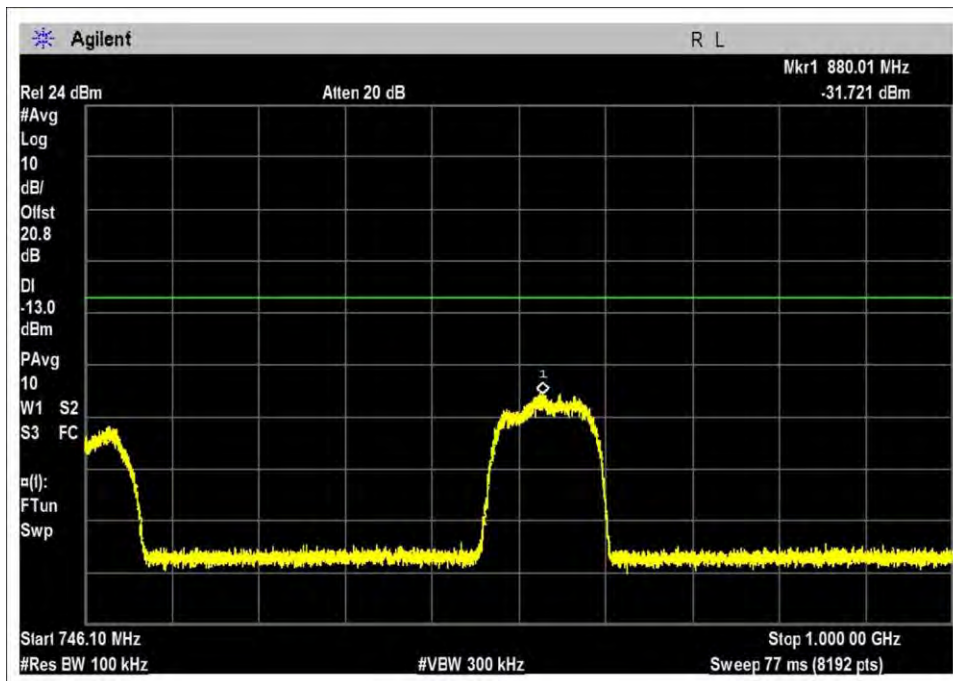
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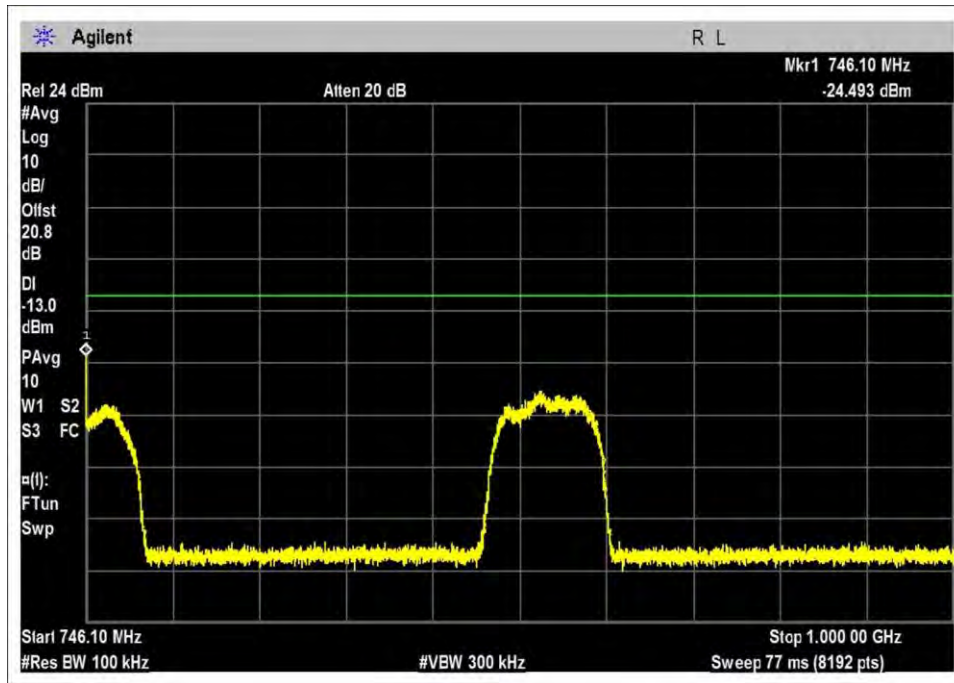
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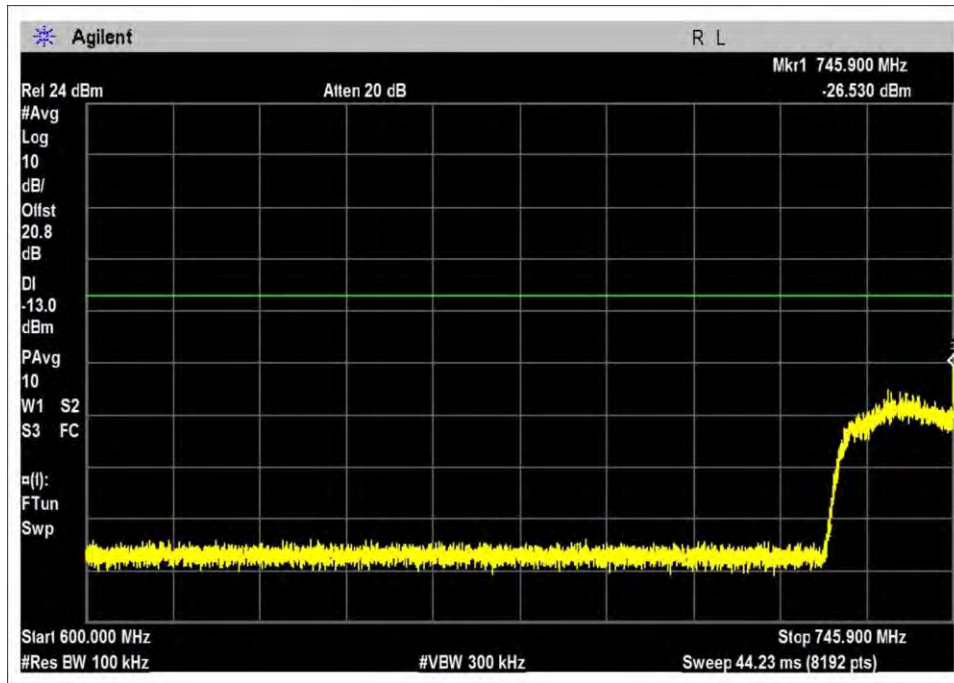
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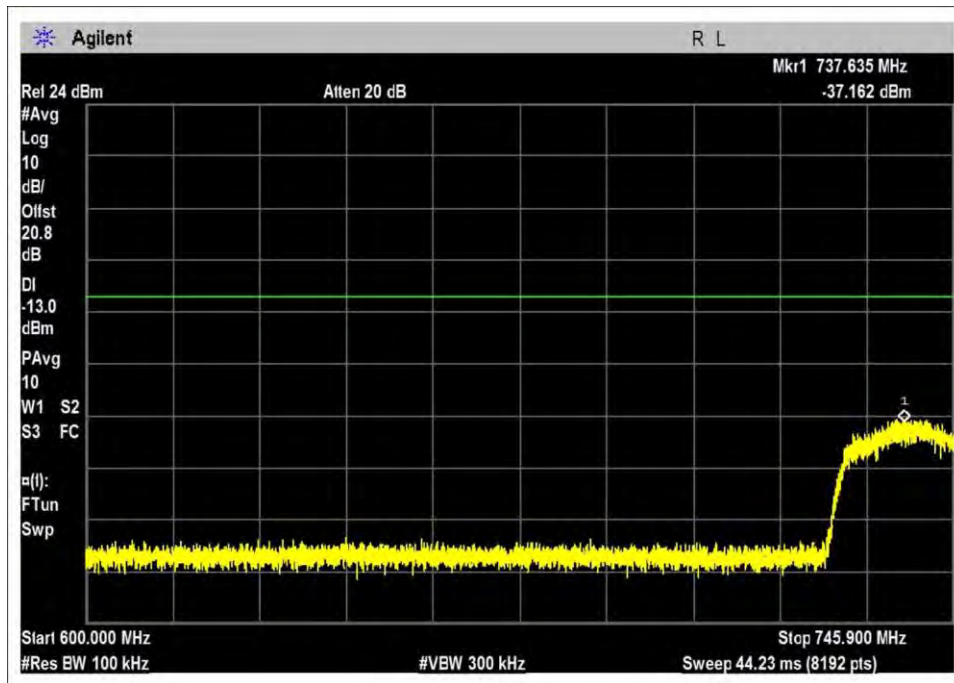
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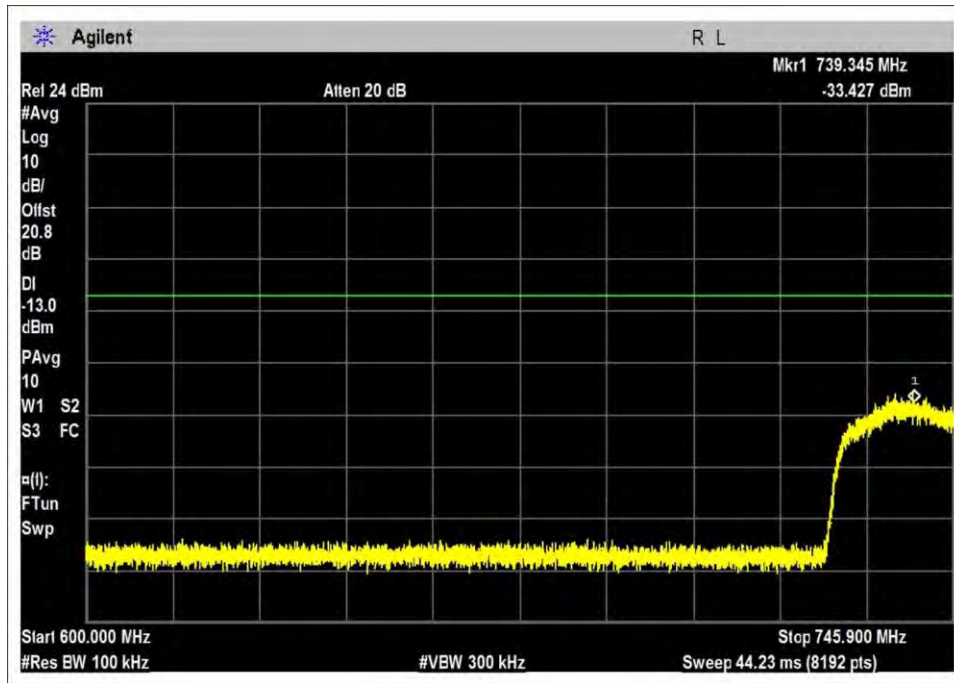
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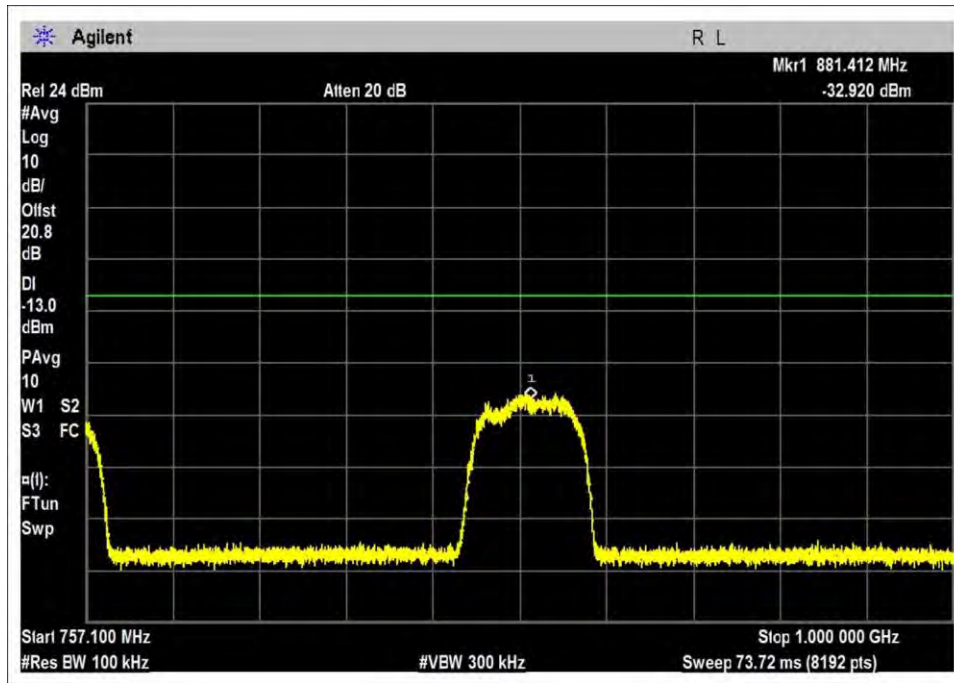
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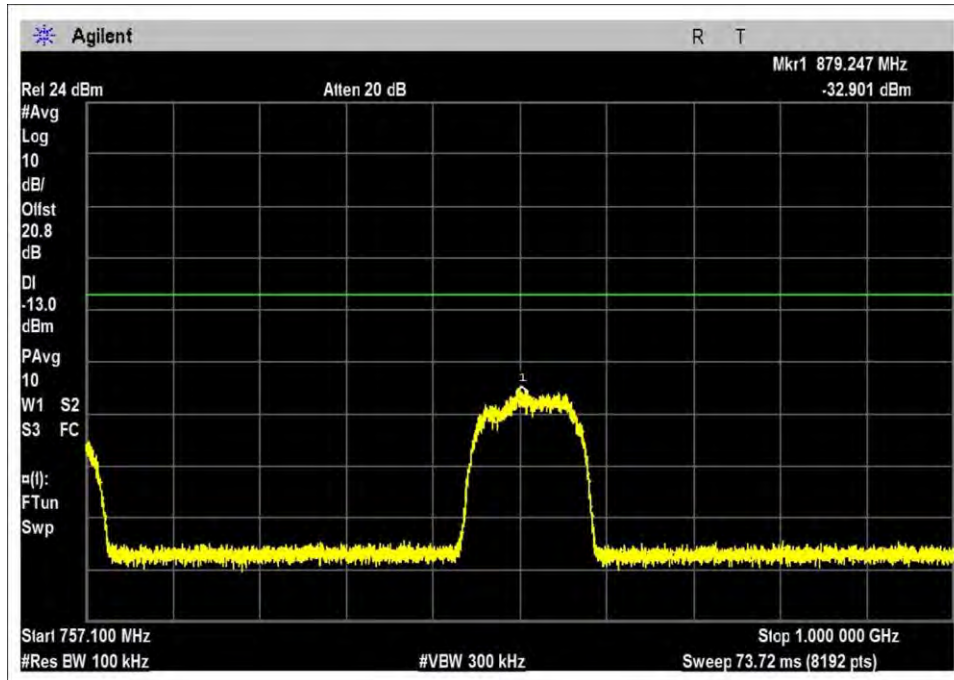
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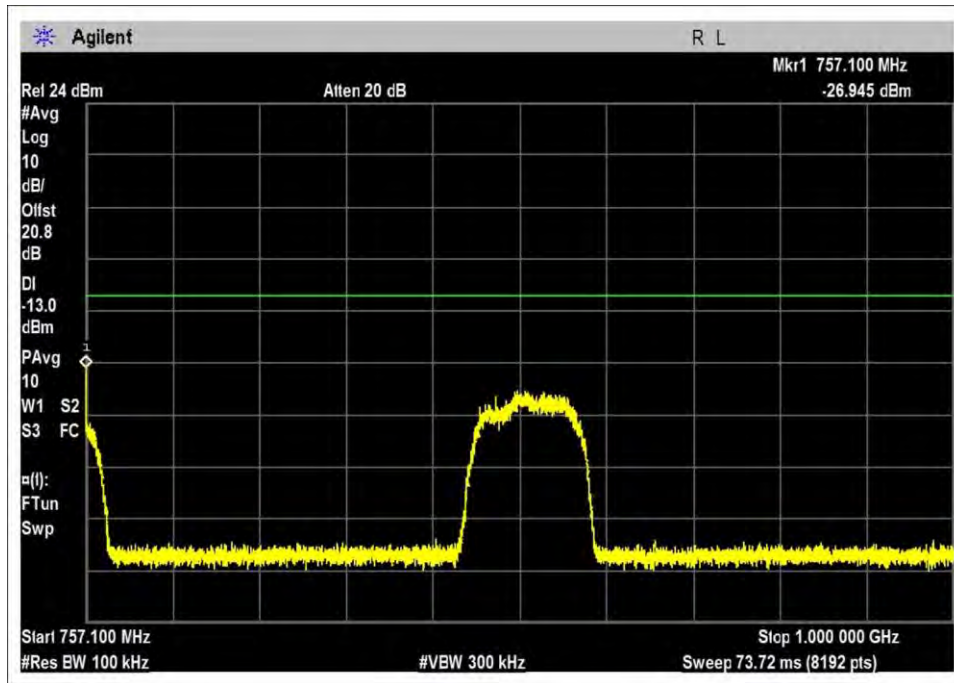
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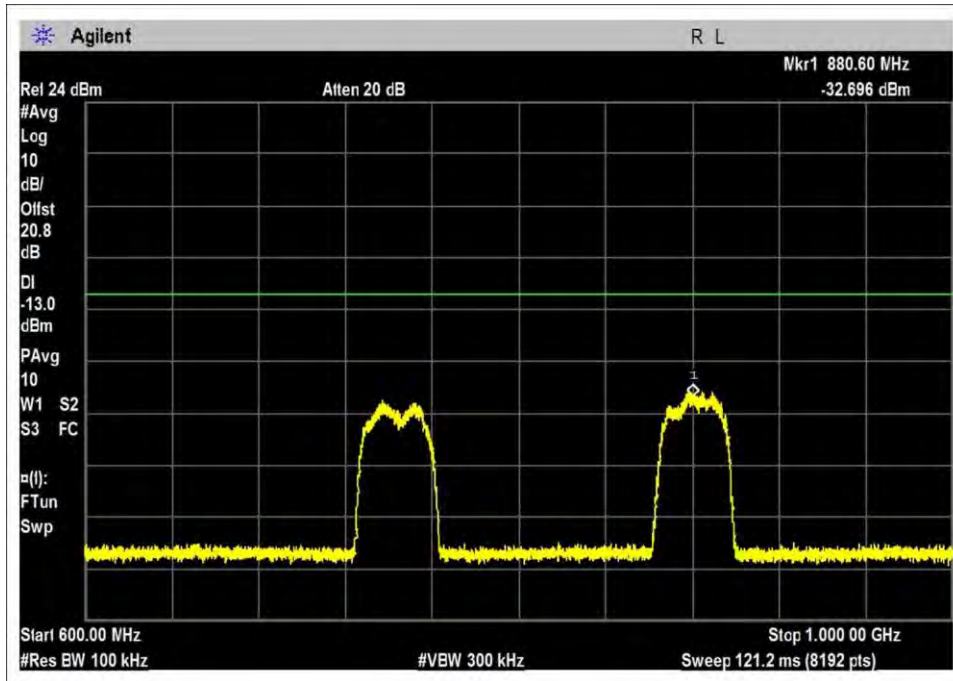
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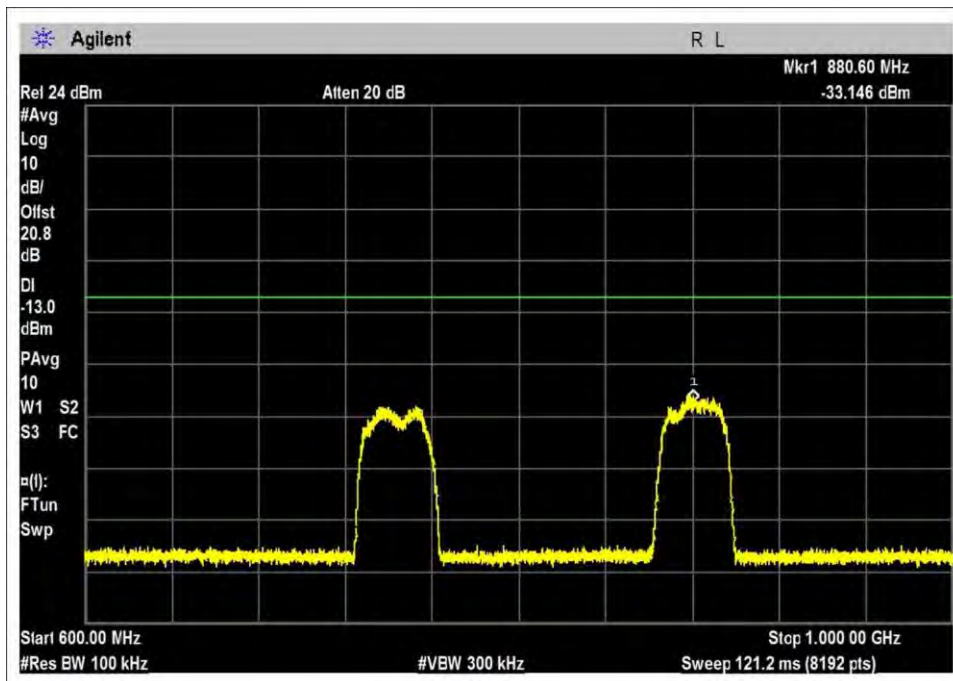
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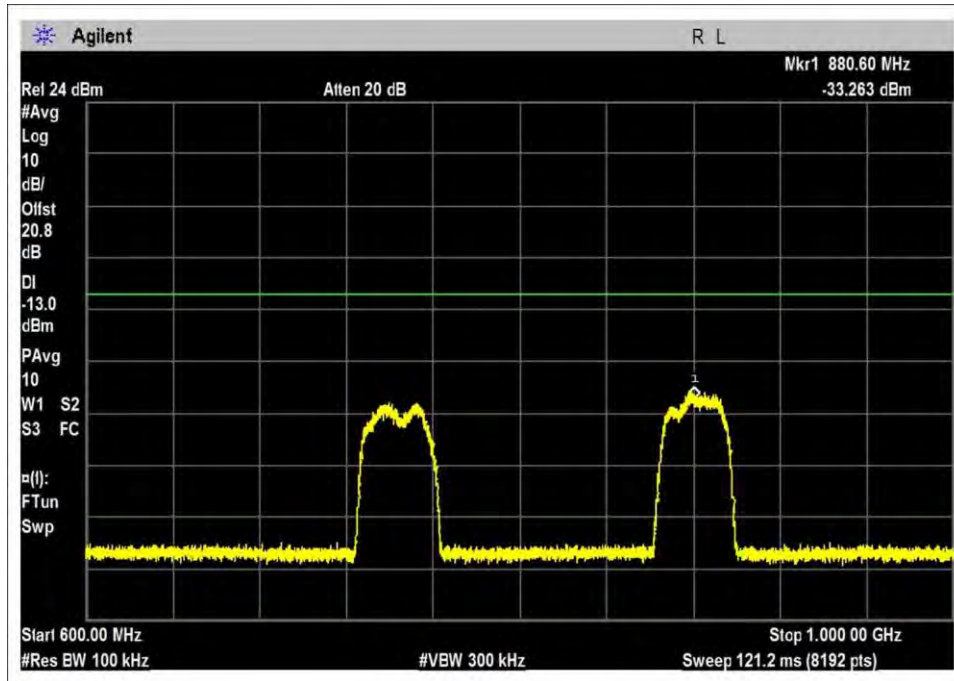
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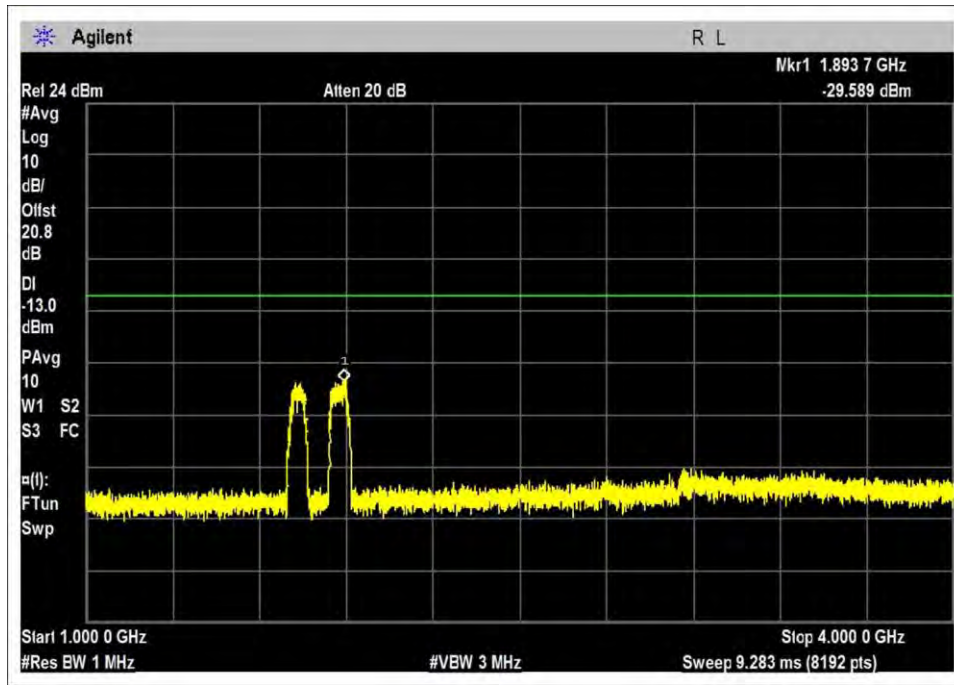


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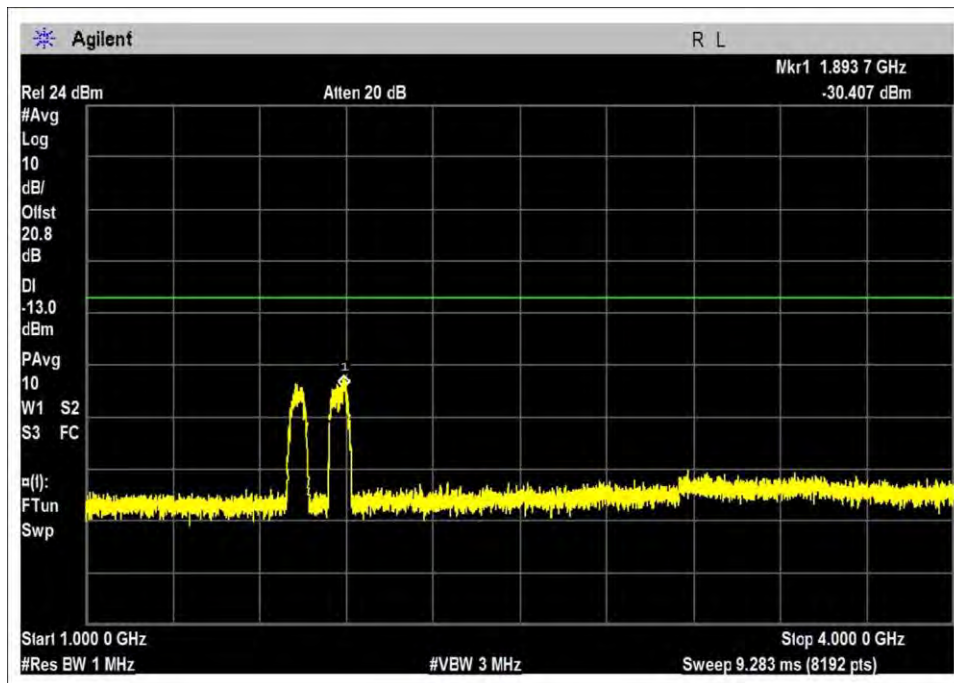


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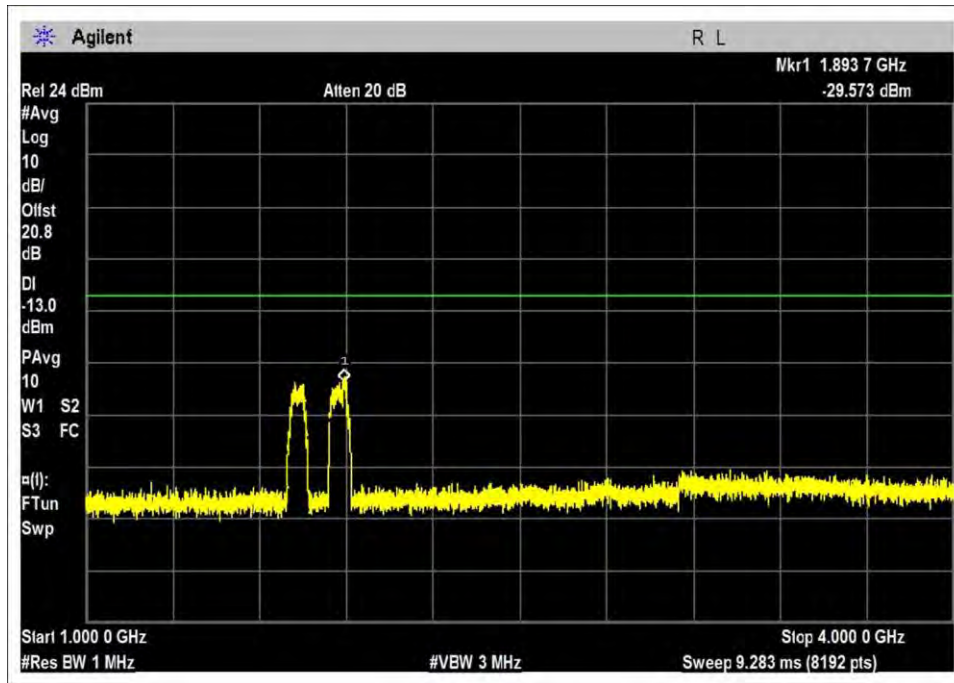
AWGN – UL - / 1-4GHz



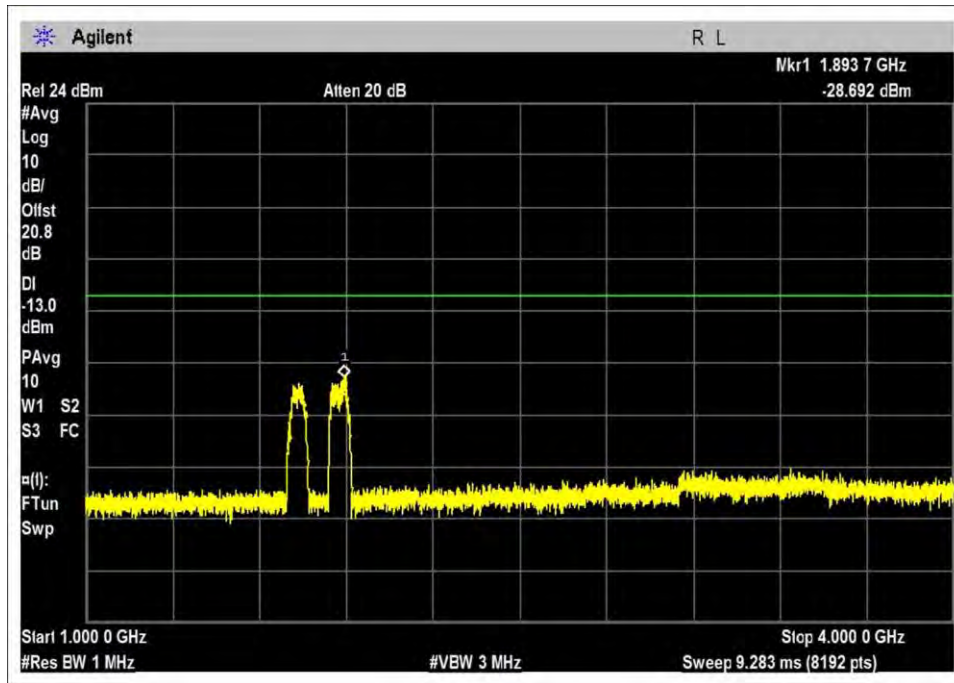
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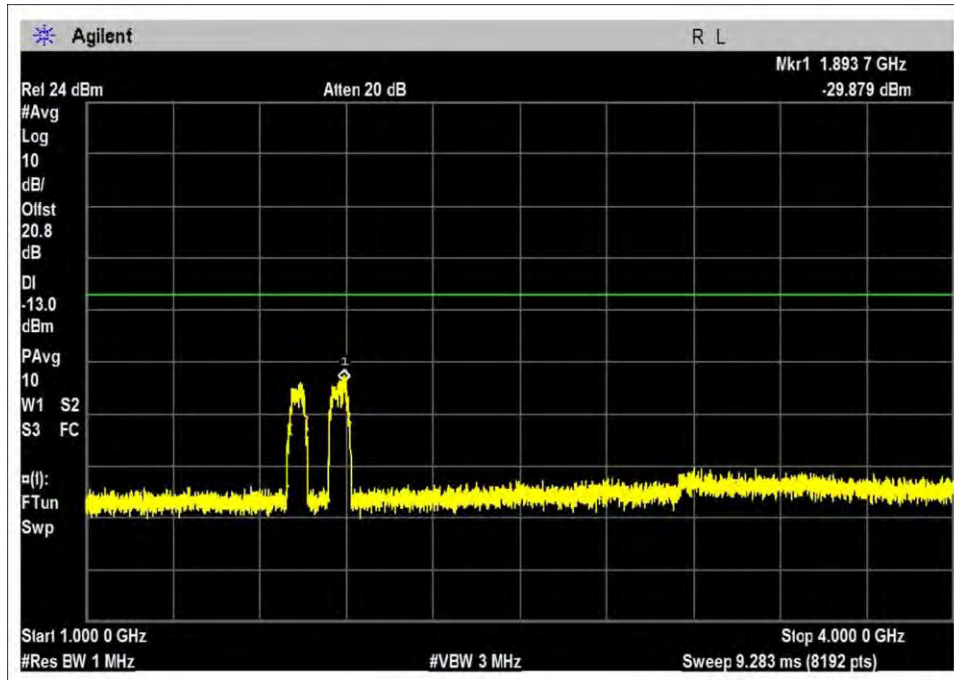
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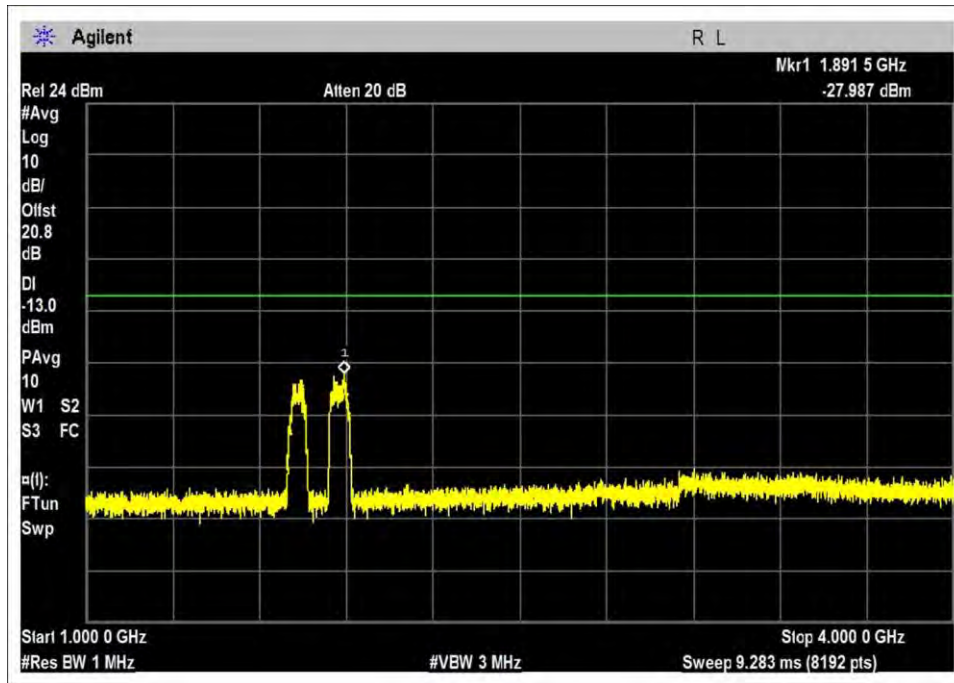
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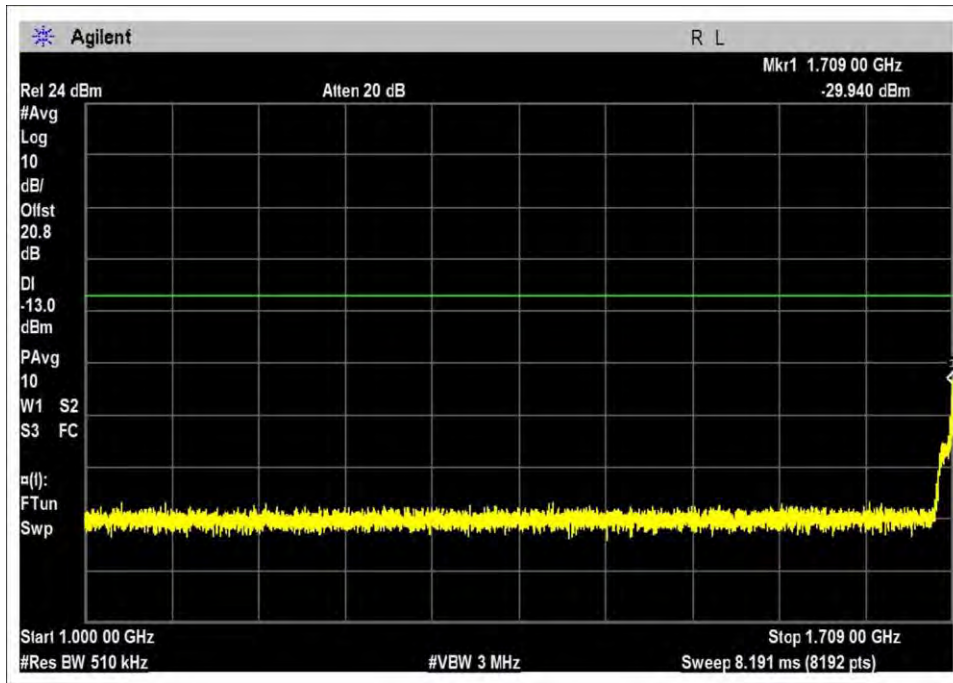
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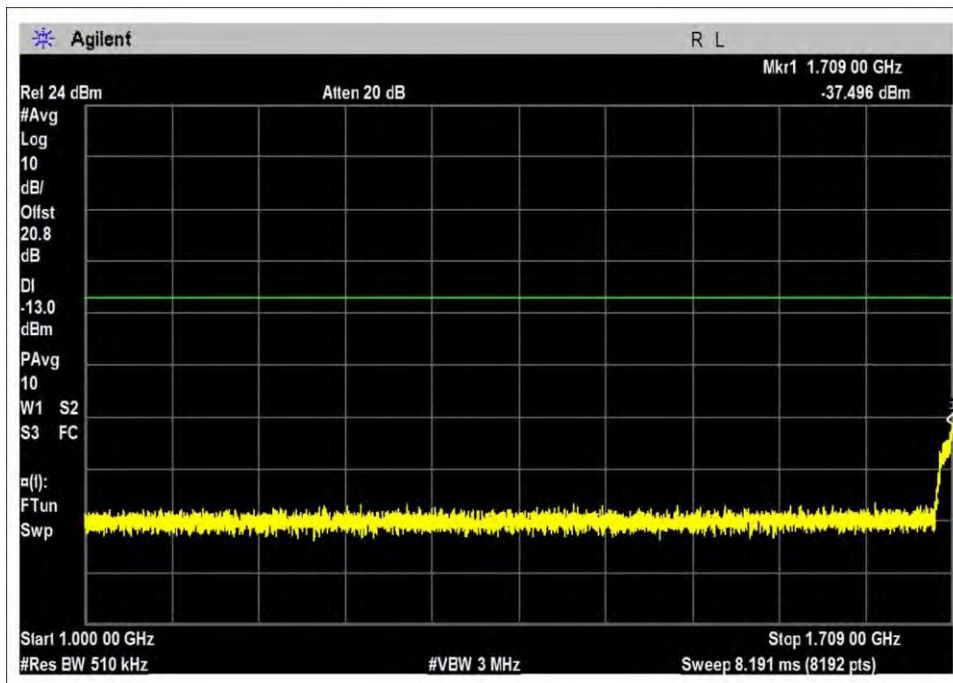
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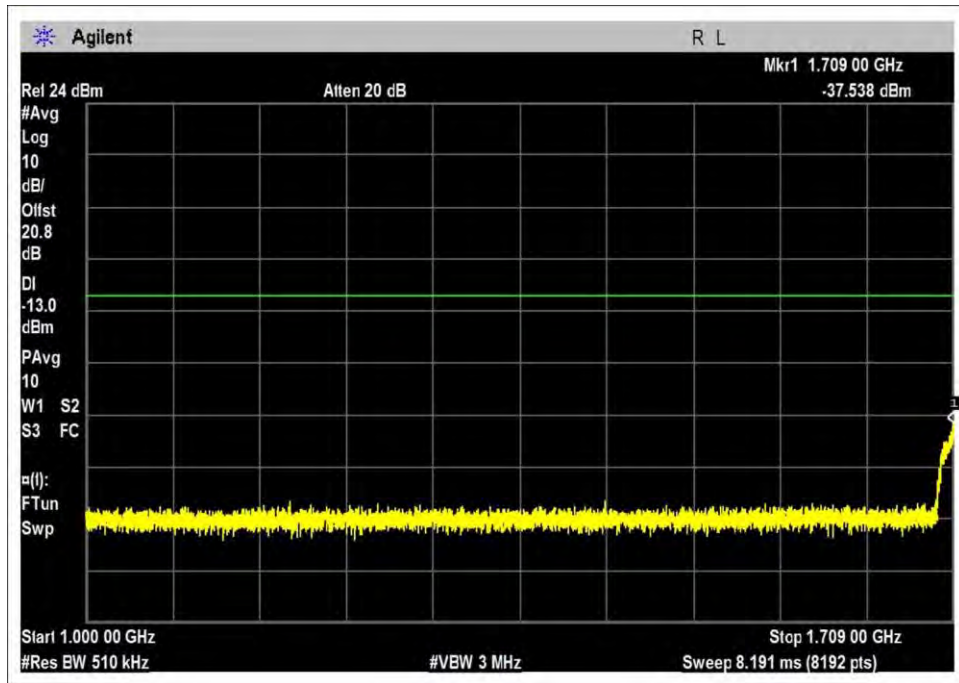
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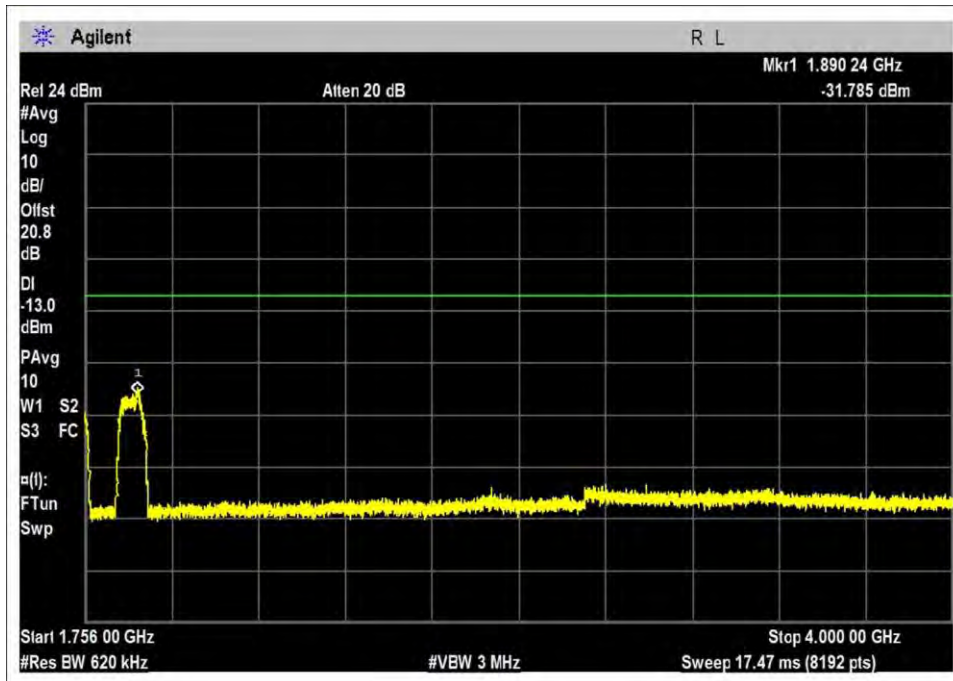
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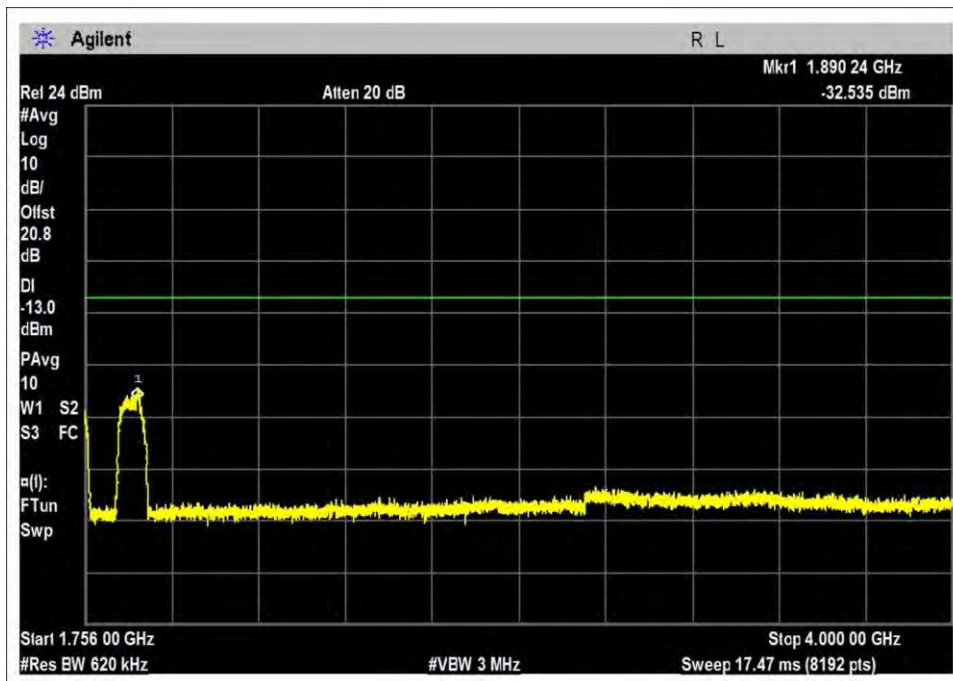
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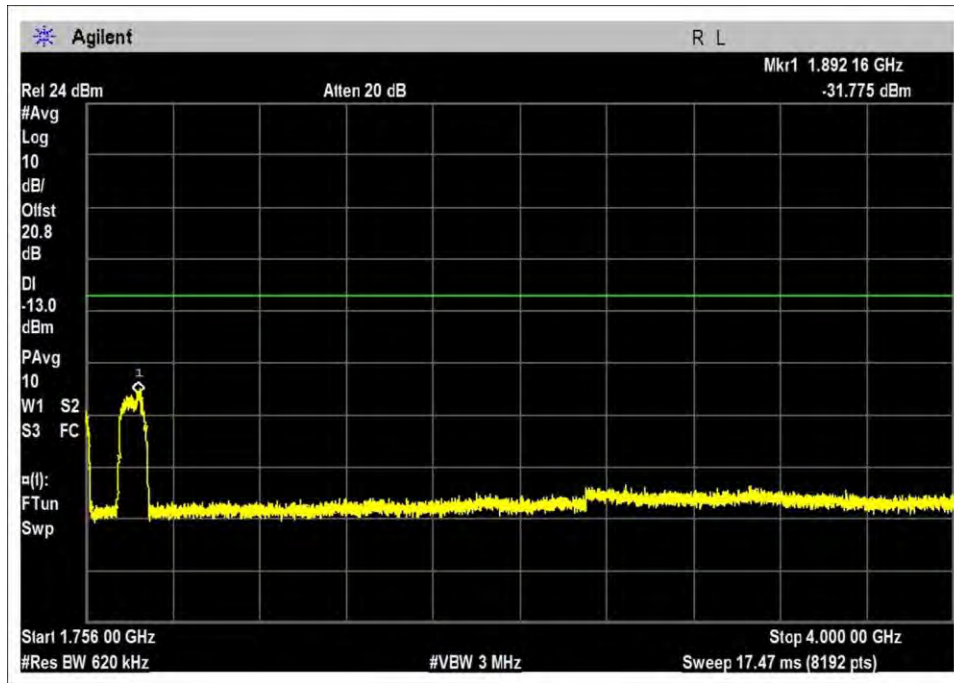
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UL-1710-1755R-AWGN-L

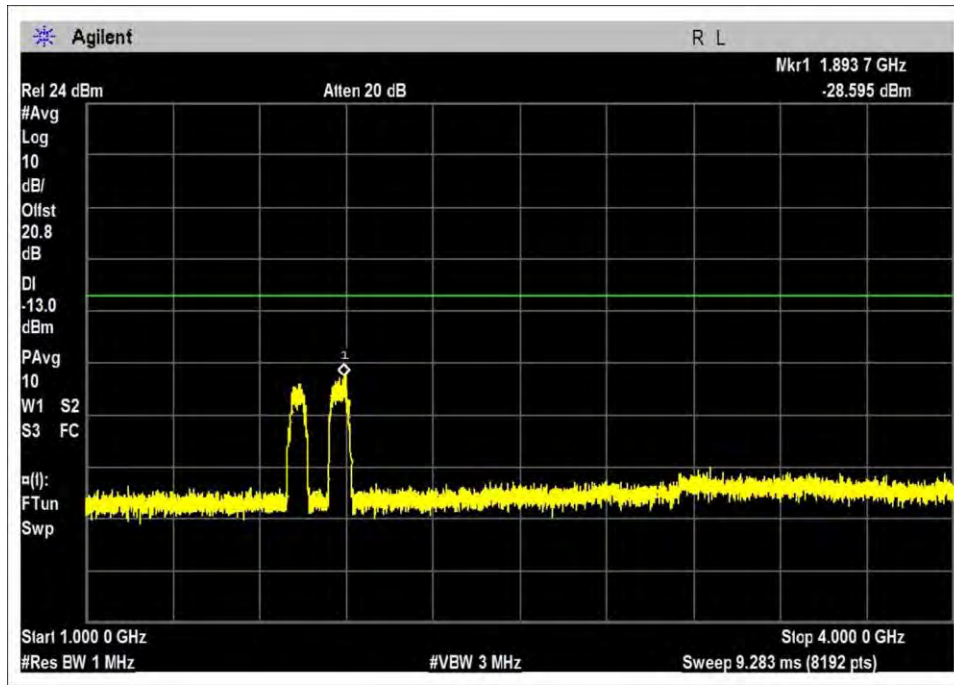


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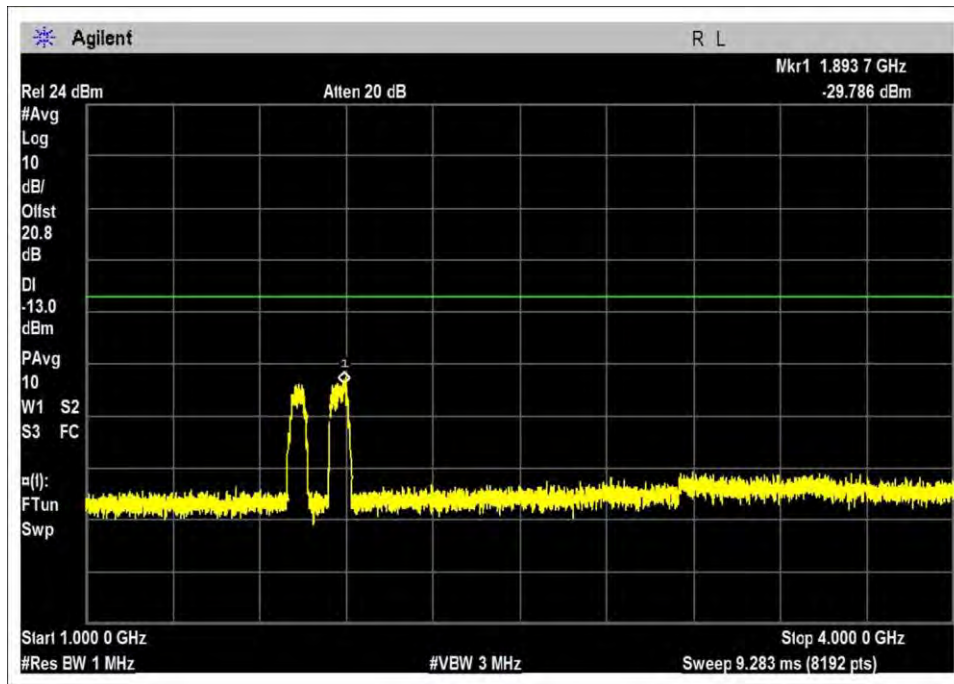


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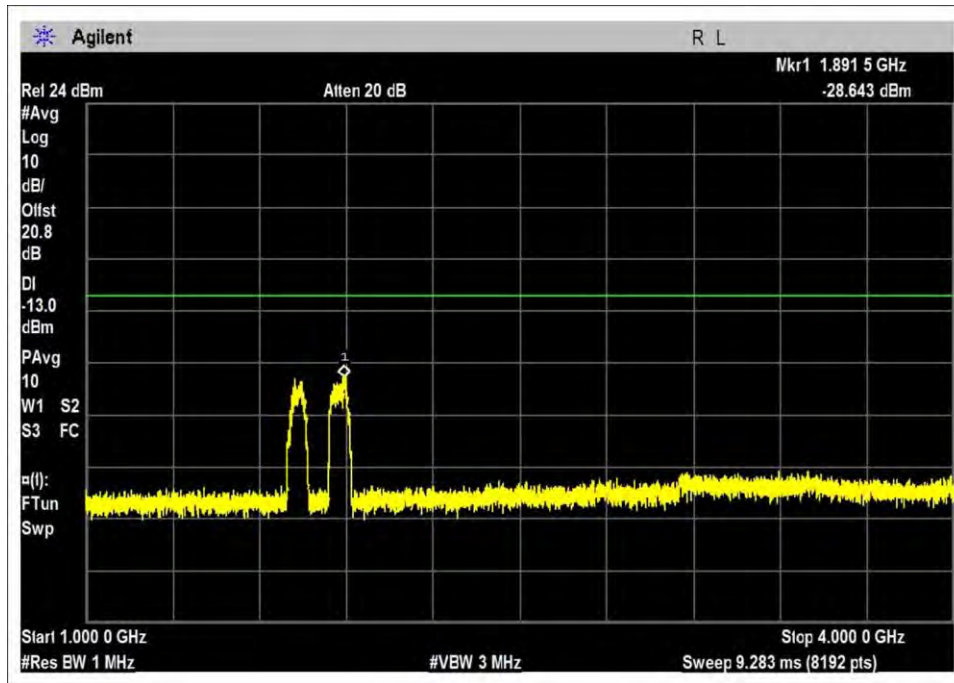
GSM – UL - / 1-4GHz



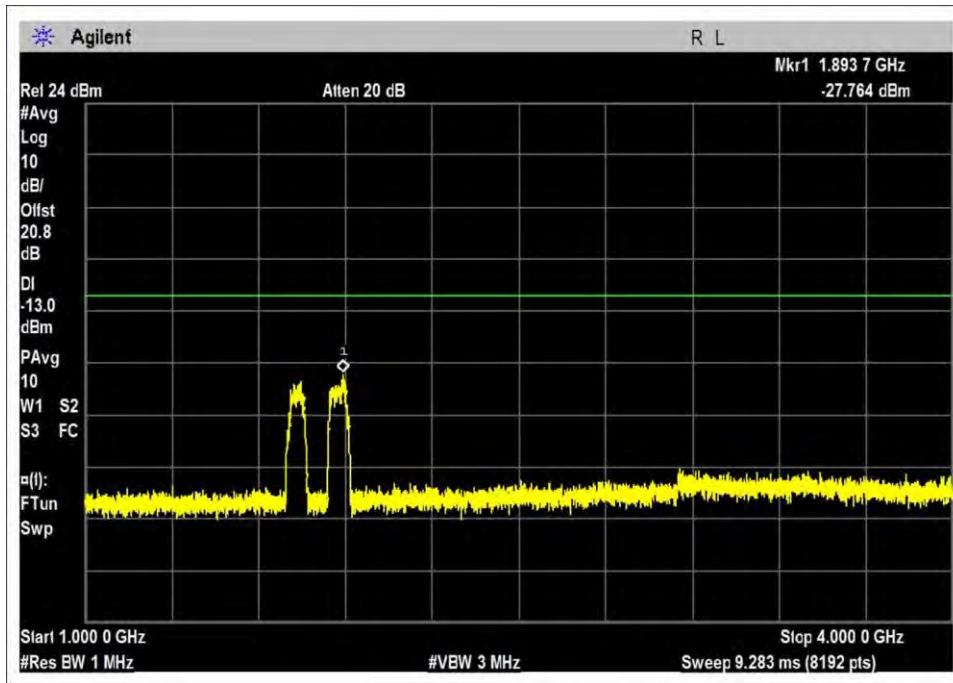
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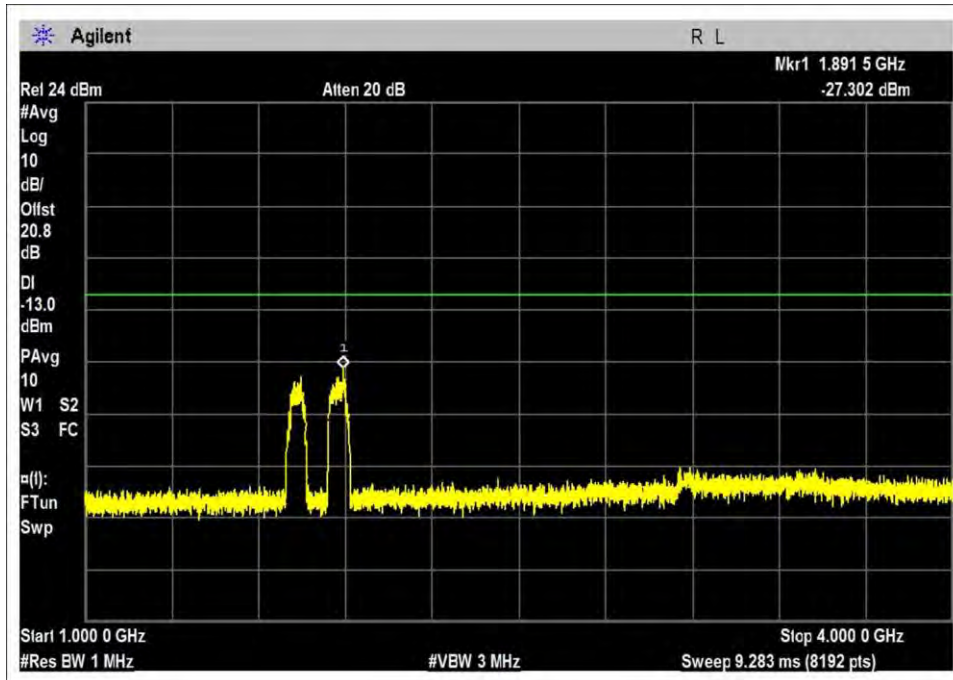
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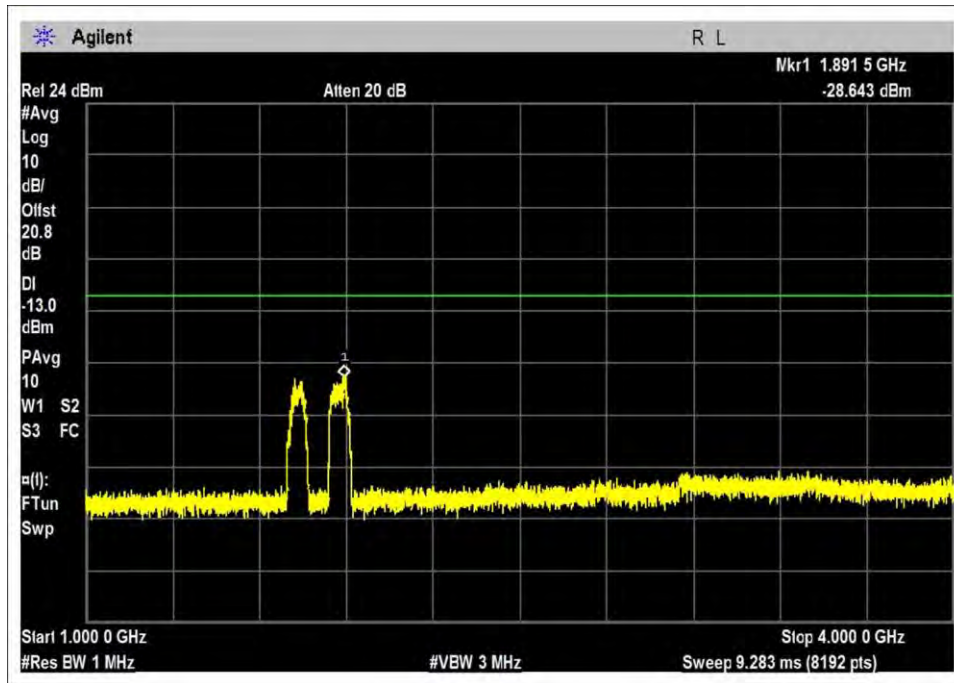
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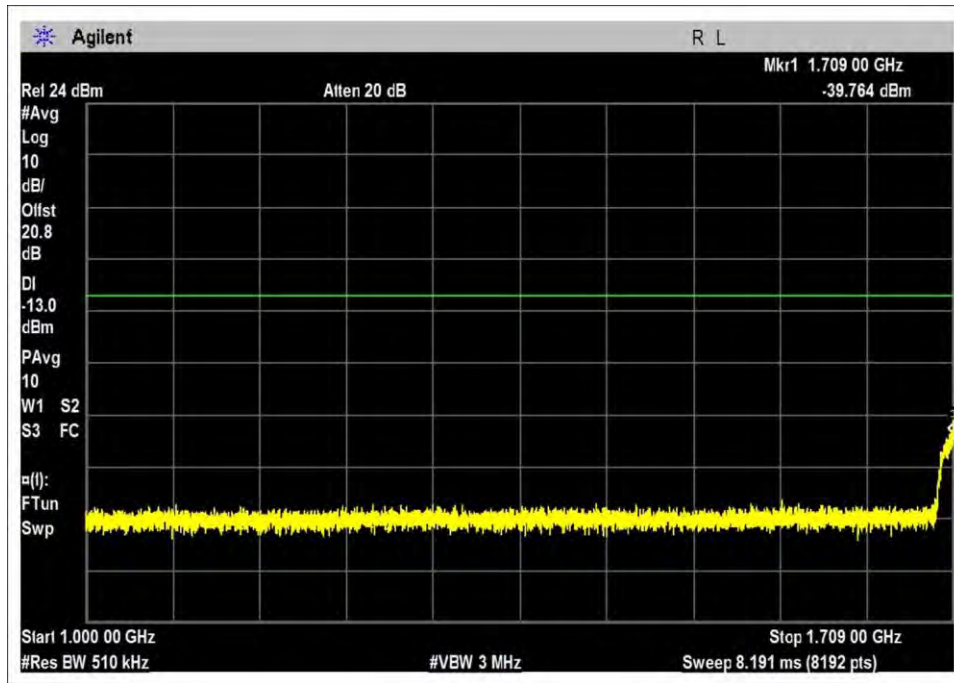
UL-776-787-GSM-L



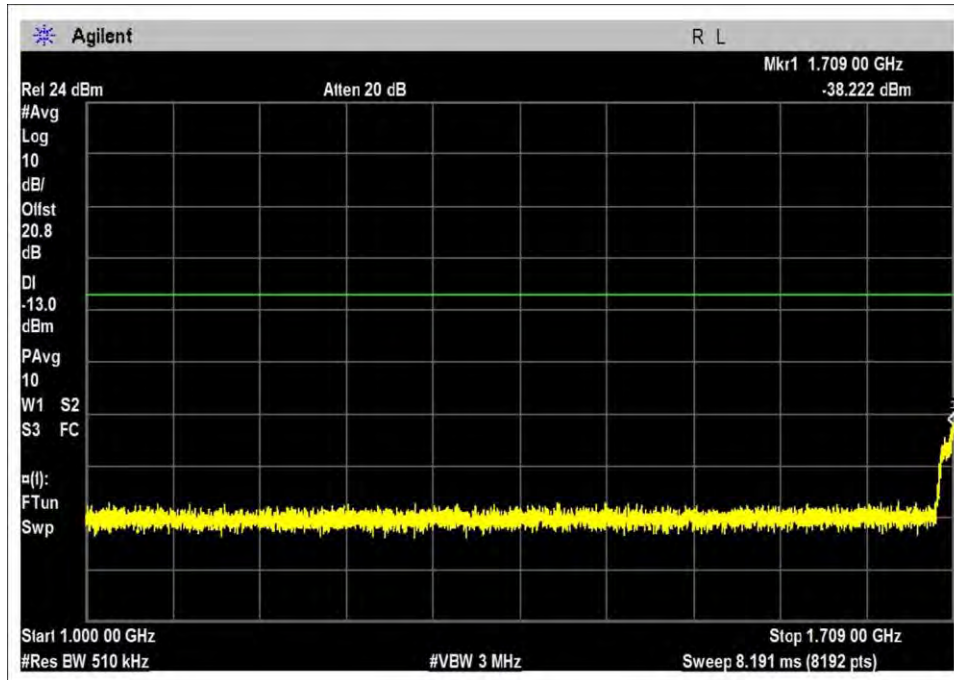
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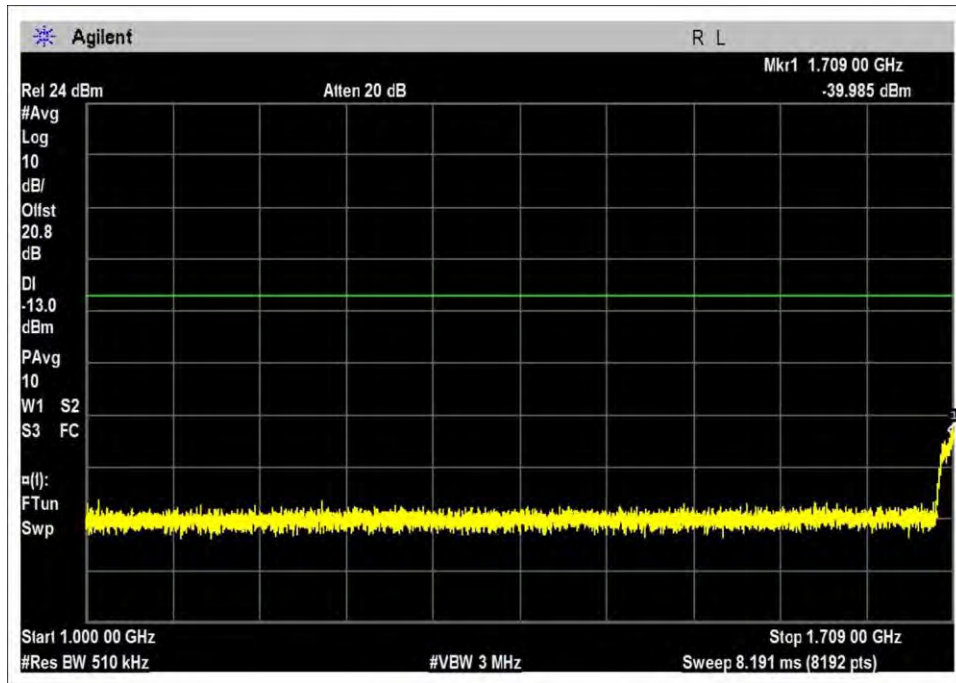
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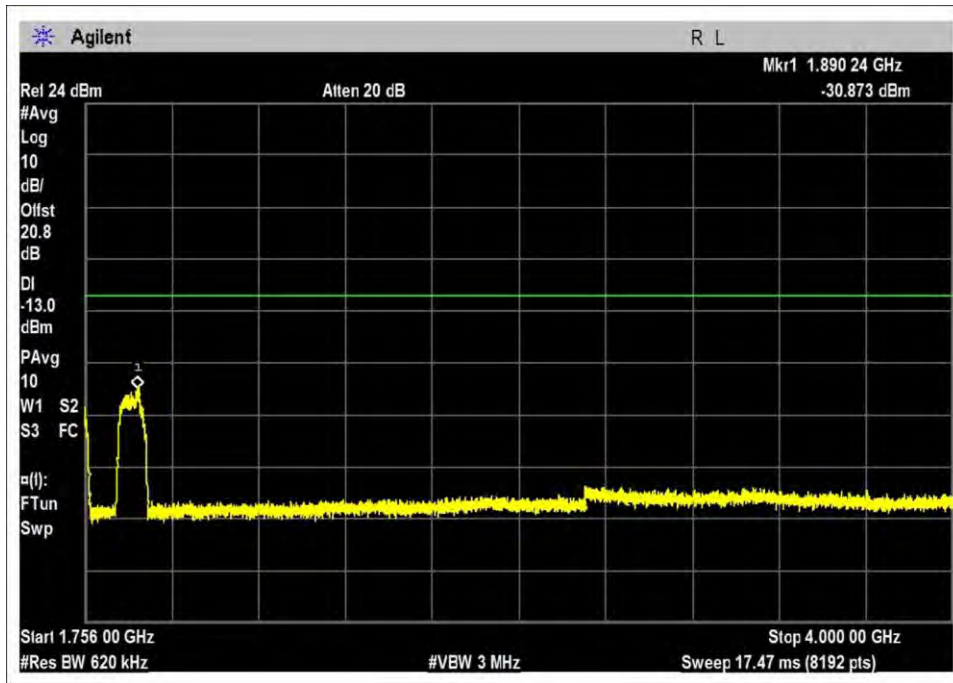
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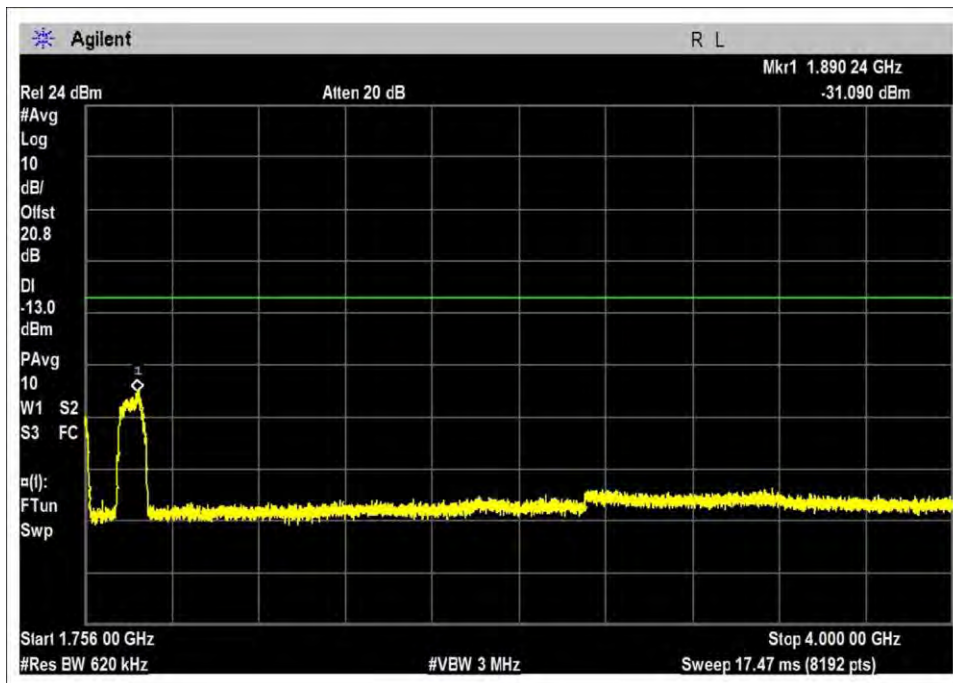
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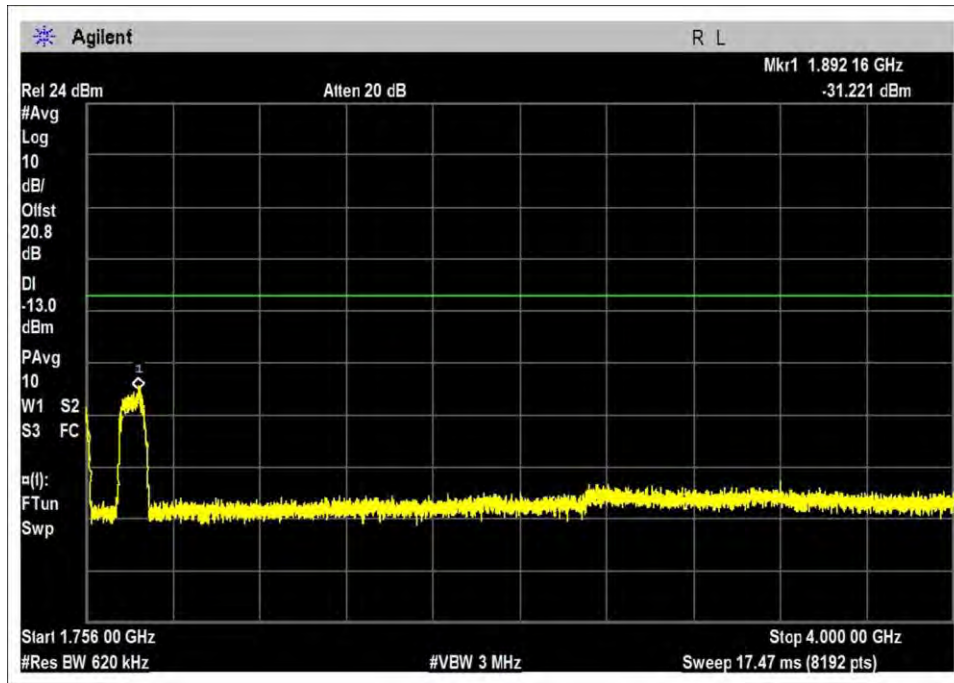
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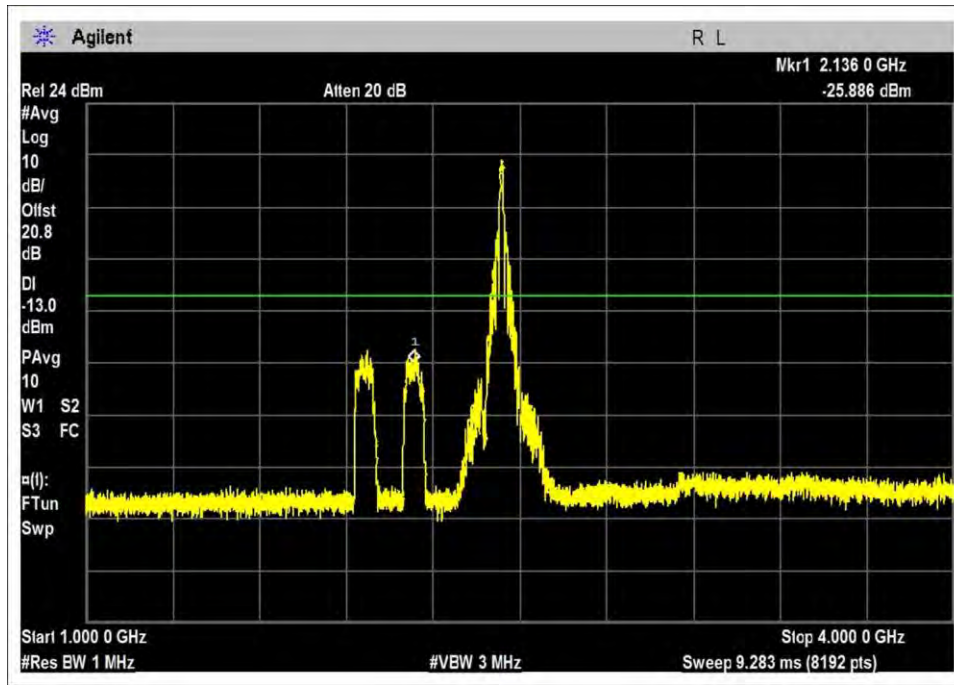


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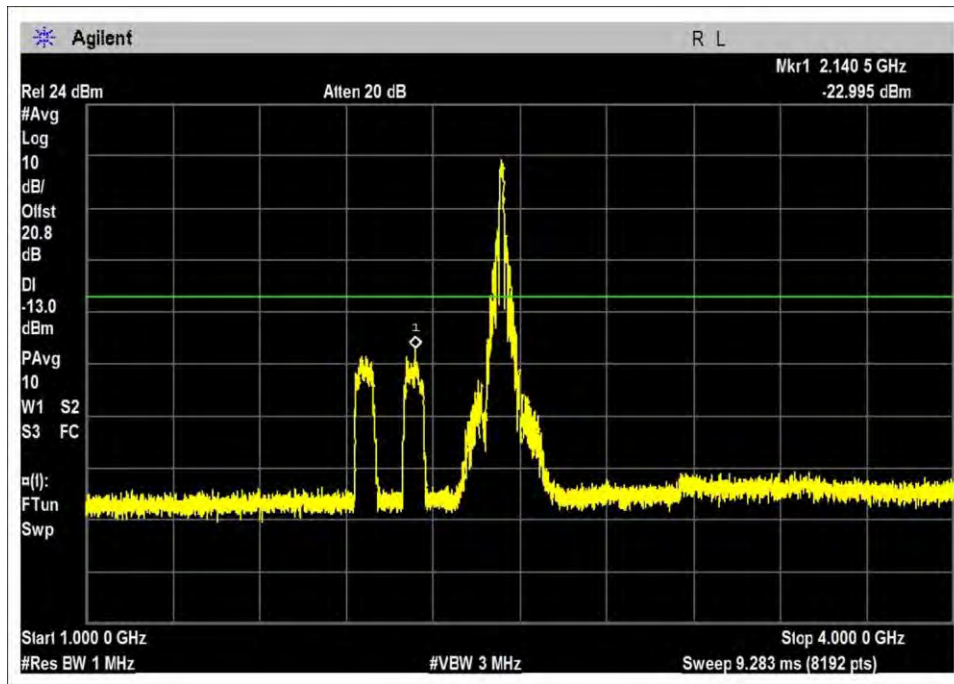


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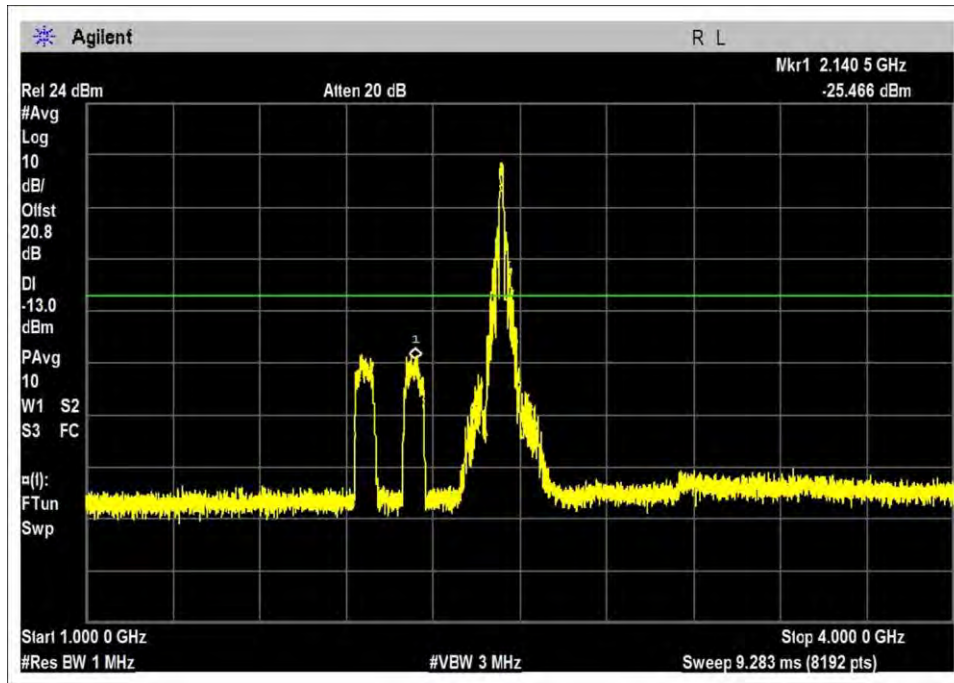
AWGN – DL - / 1-4GHz



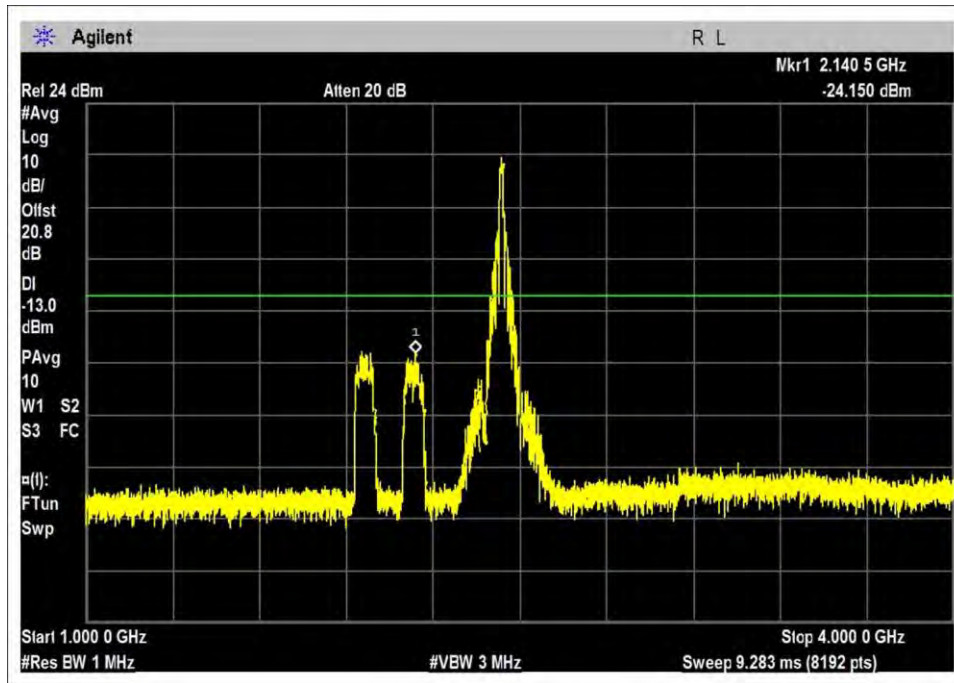
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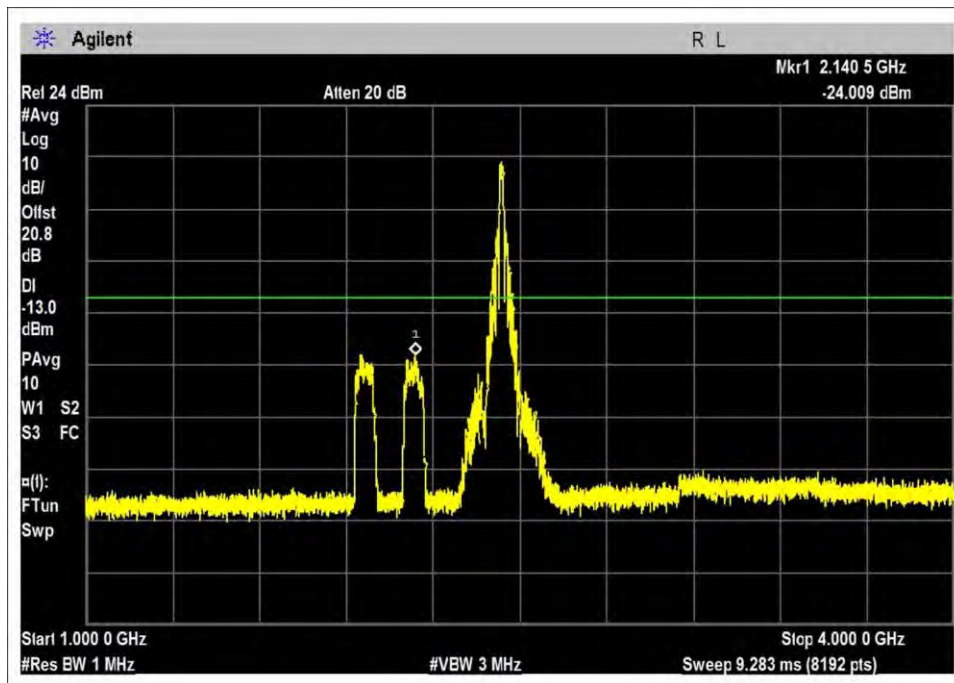
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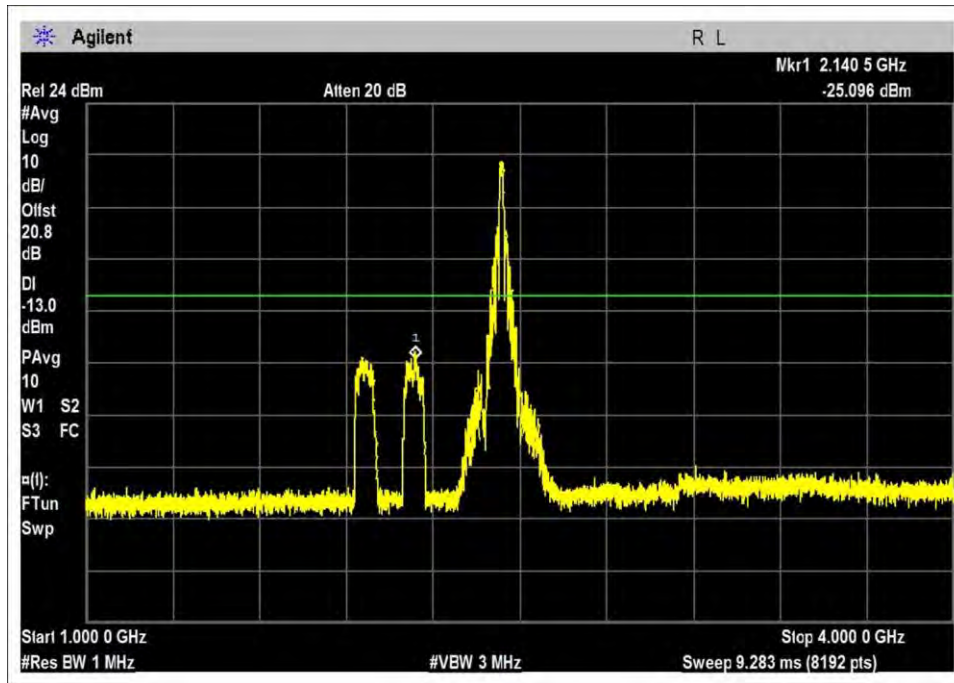
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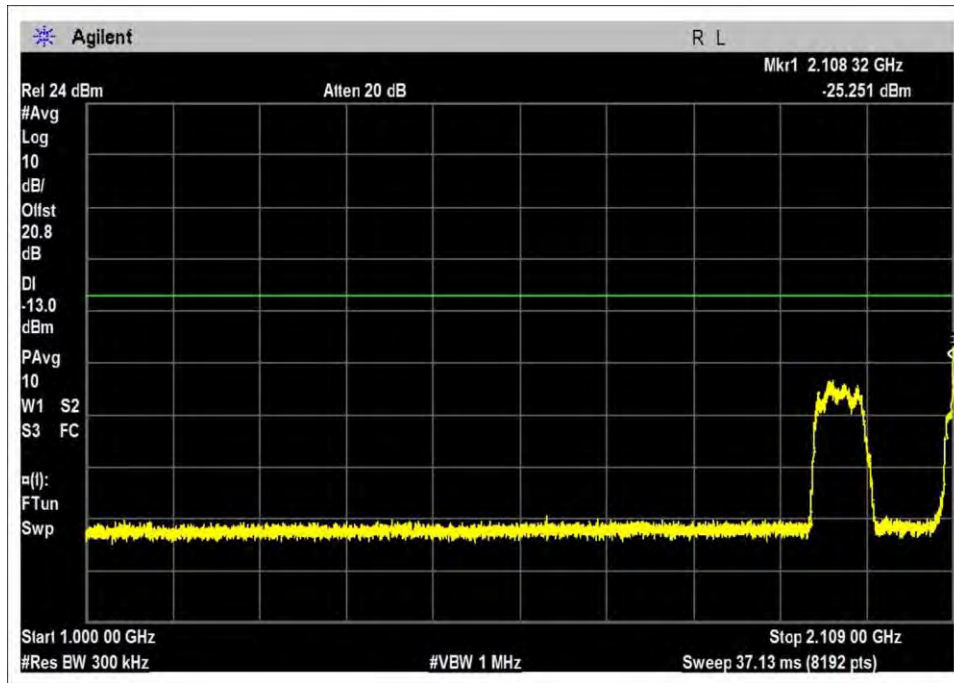
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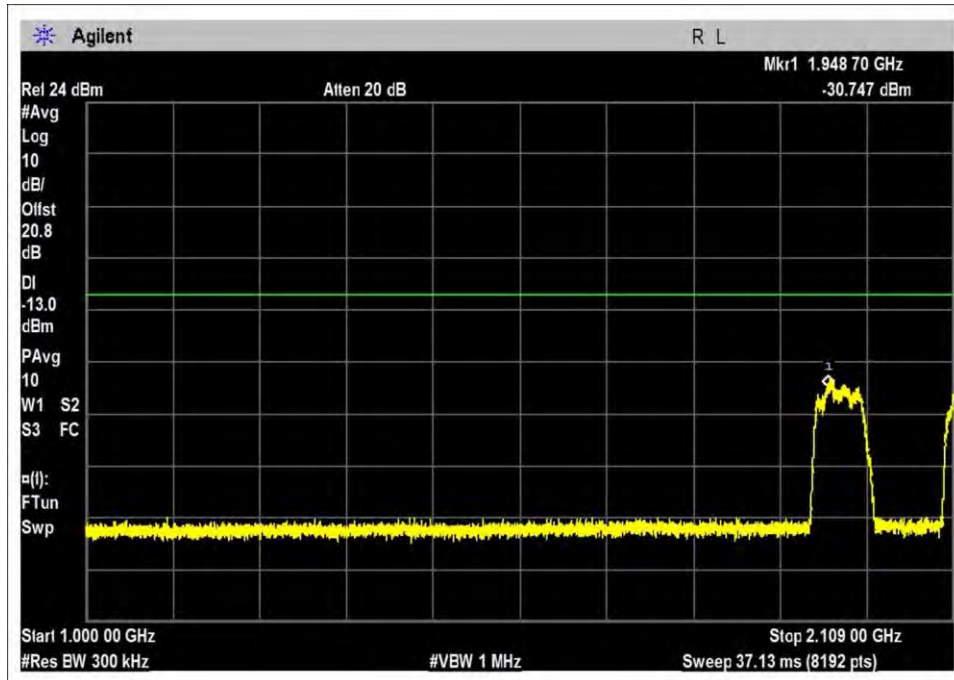
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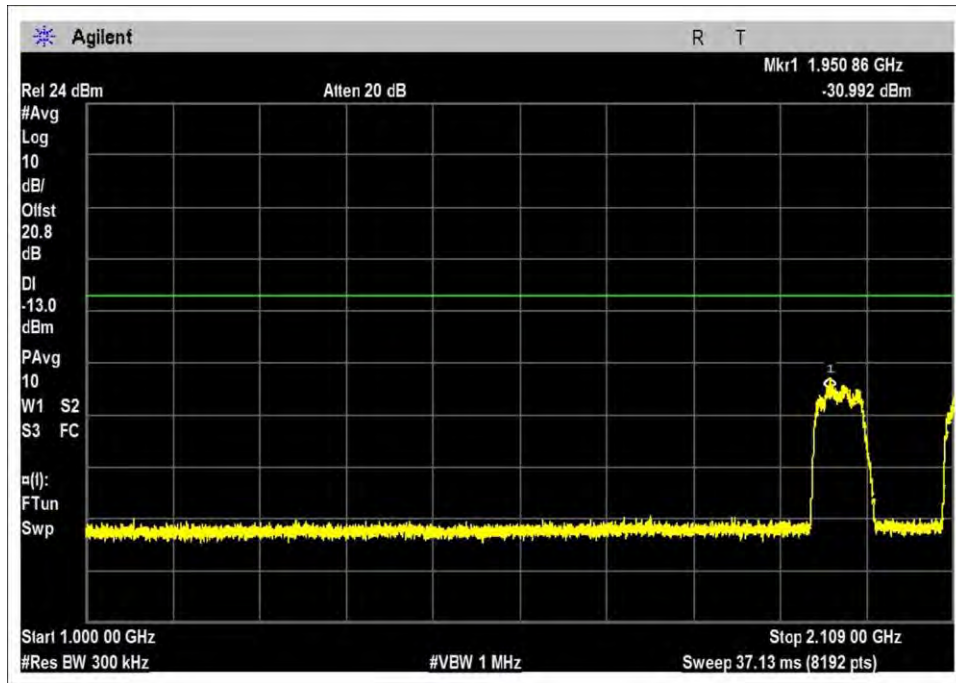
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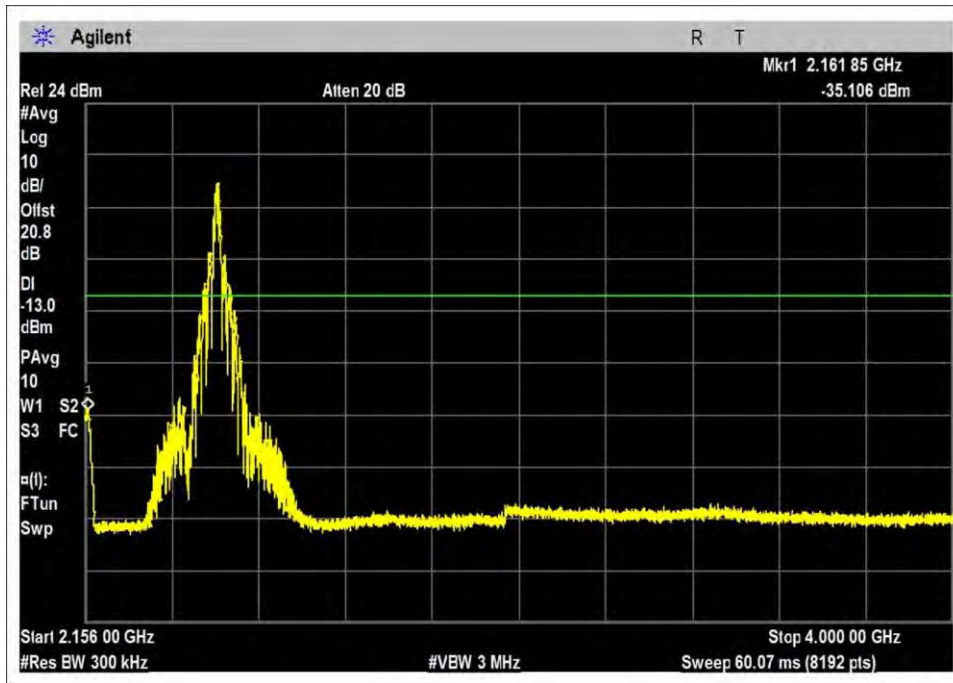
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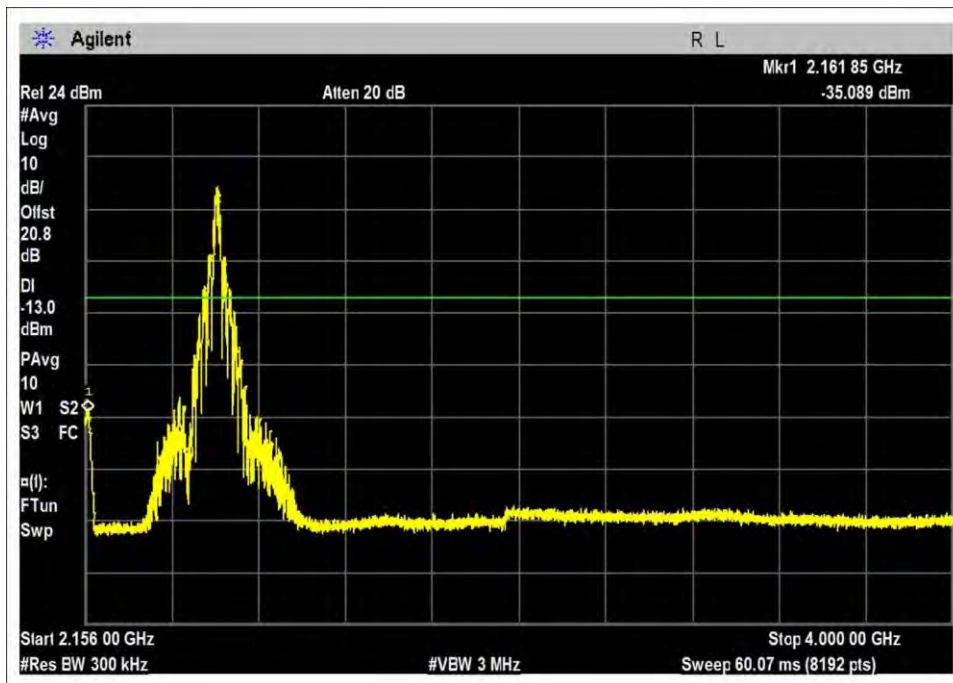
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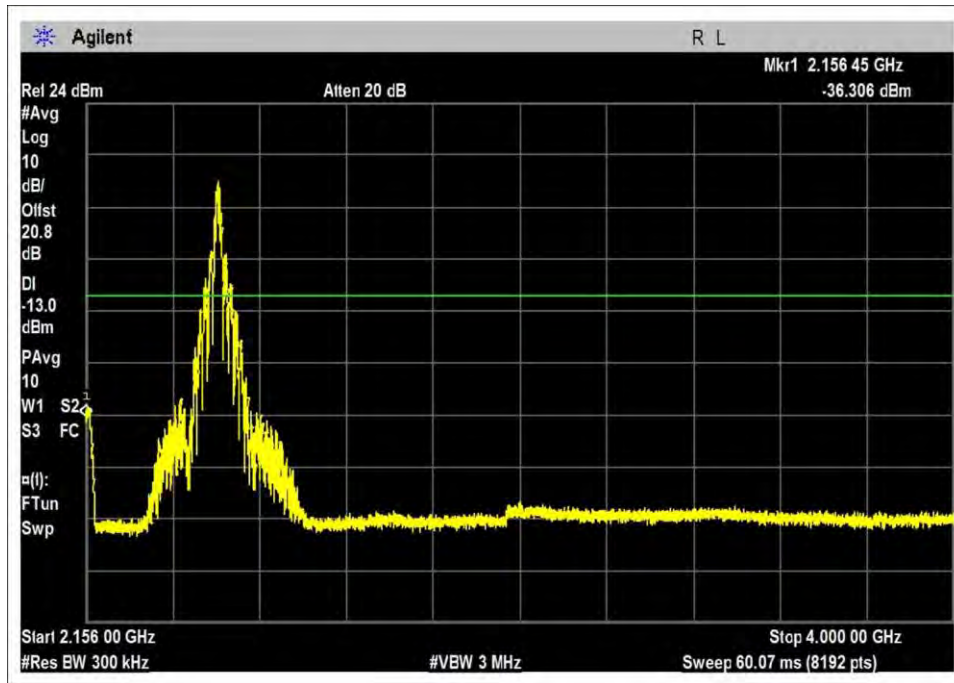
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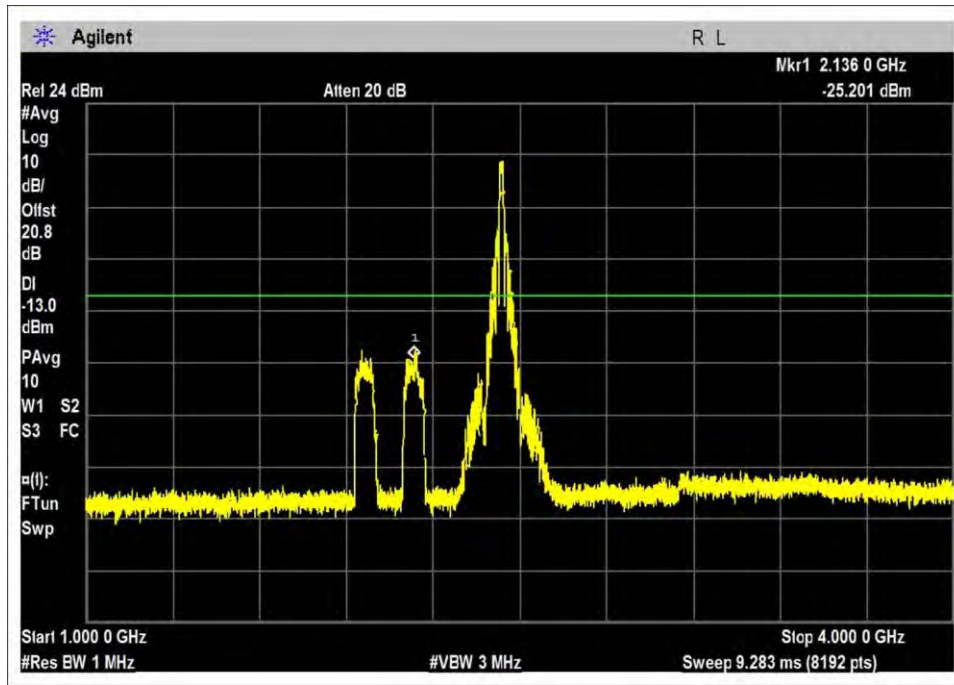


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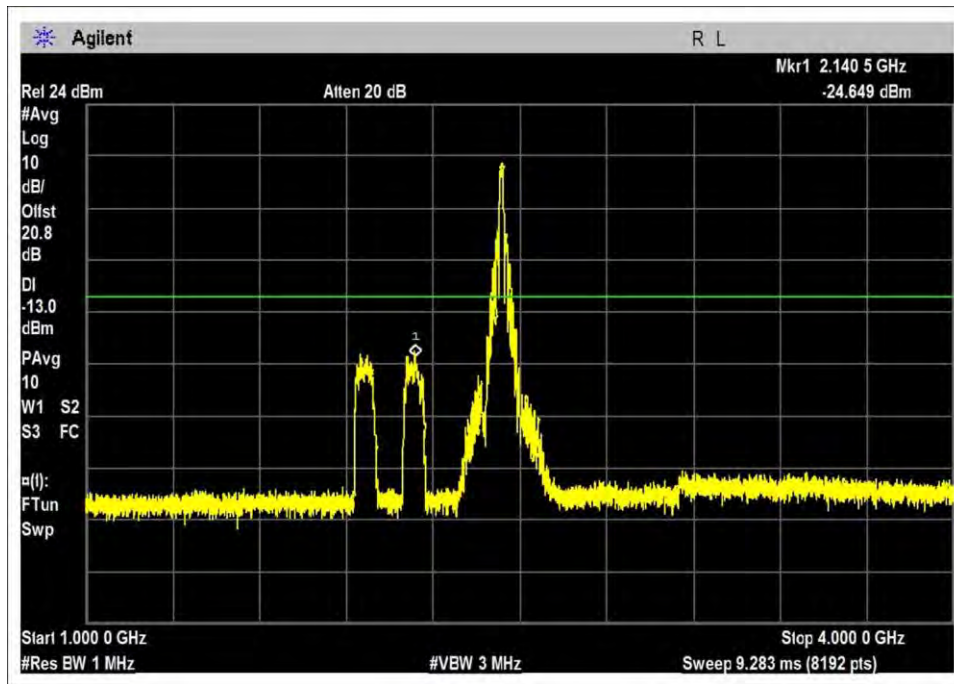


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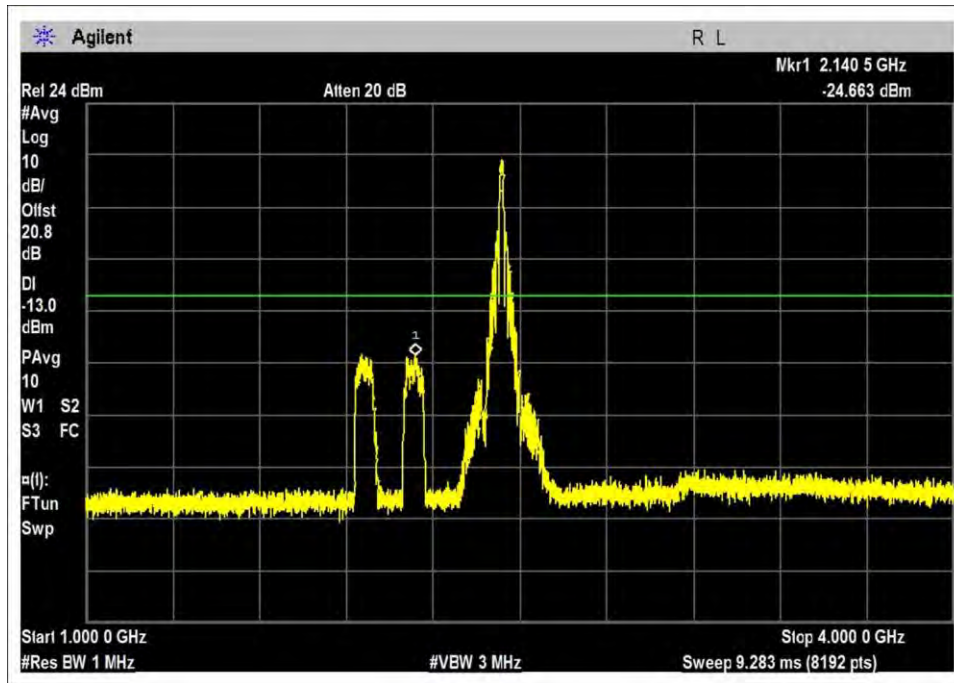
GSM – DL - / 1-4GHz



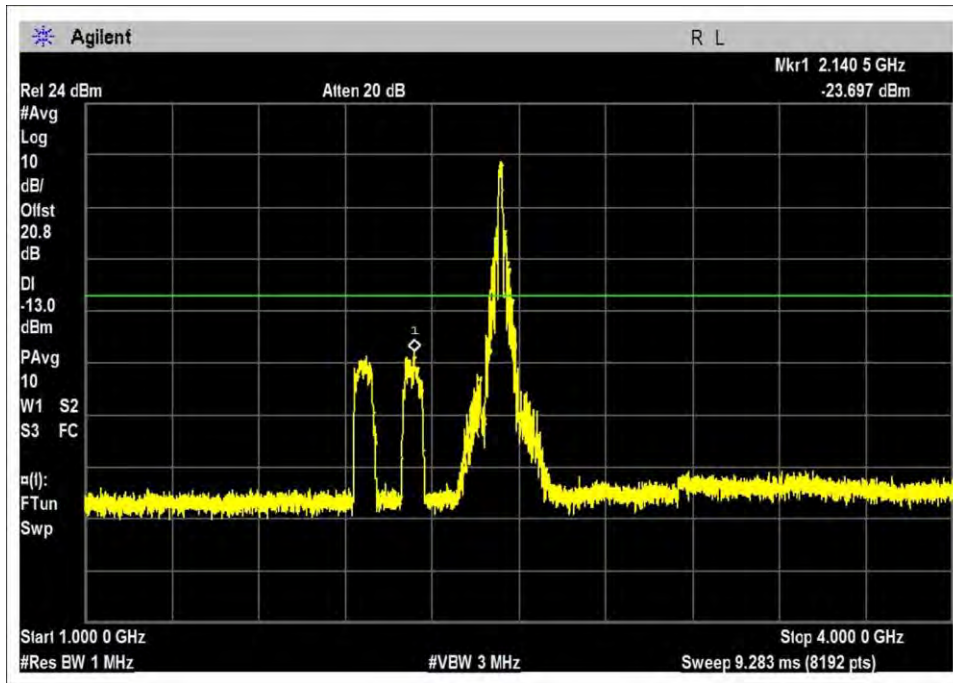
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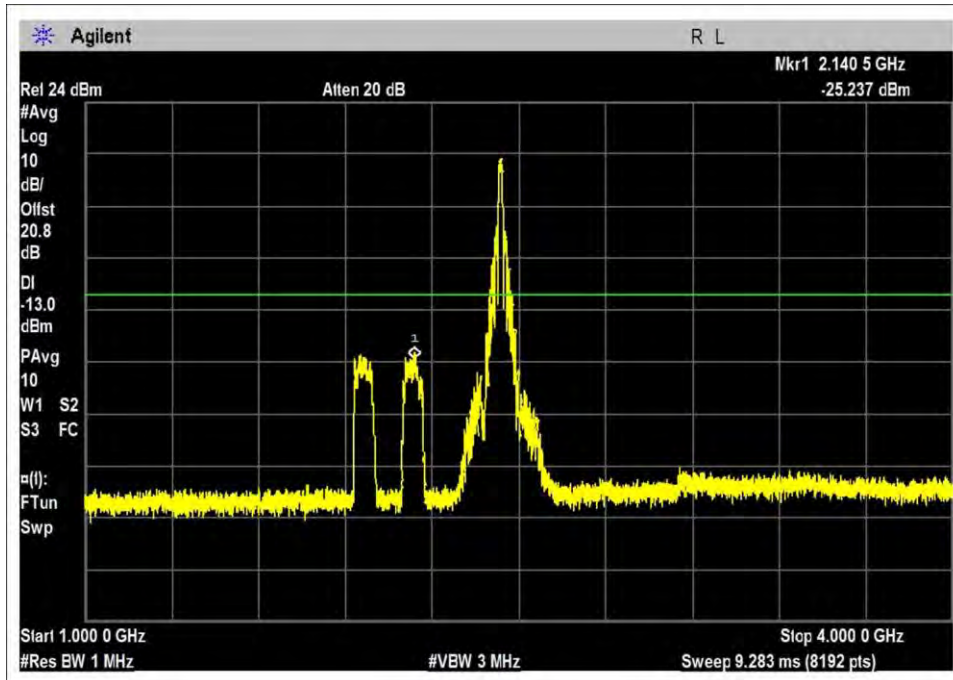
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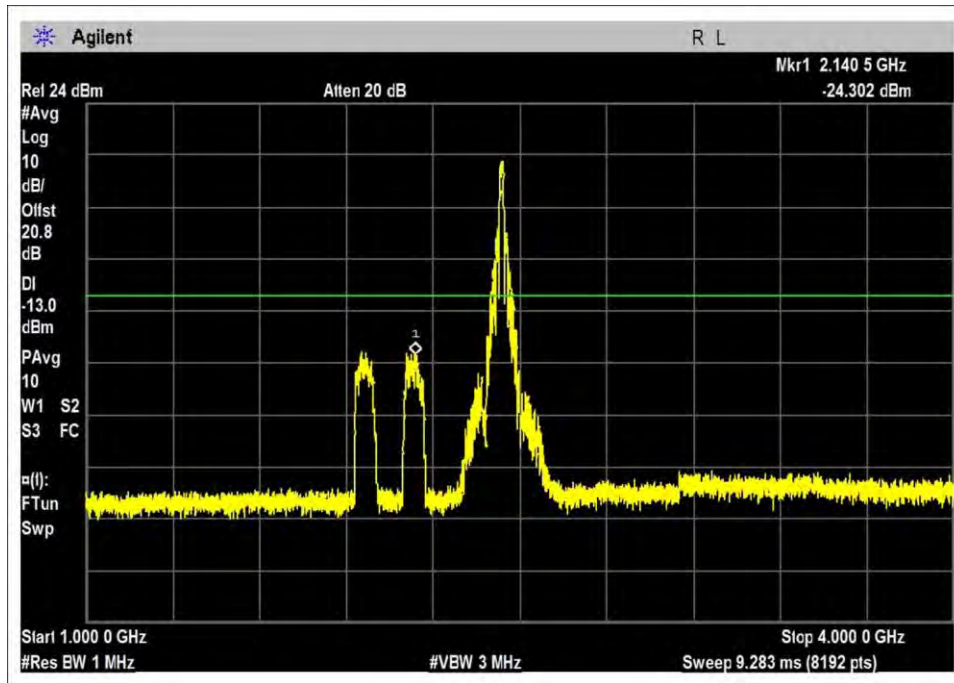
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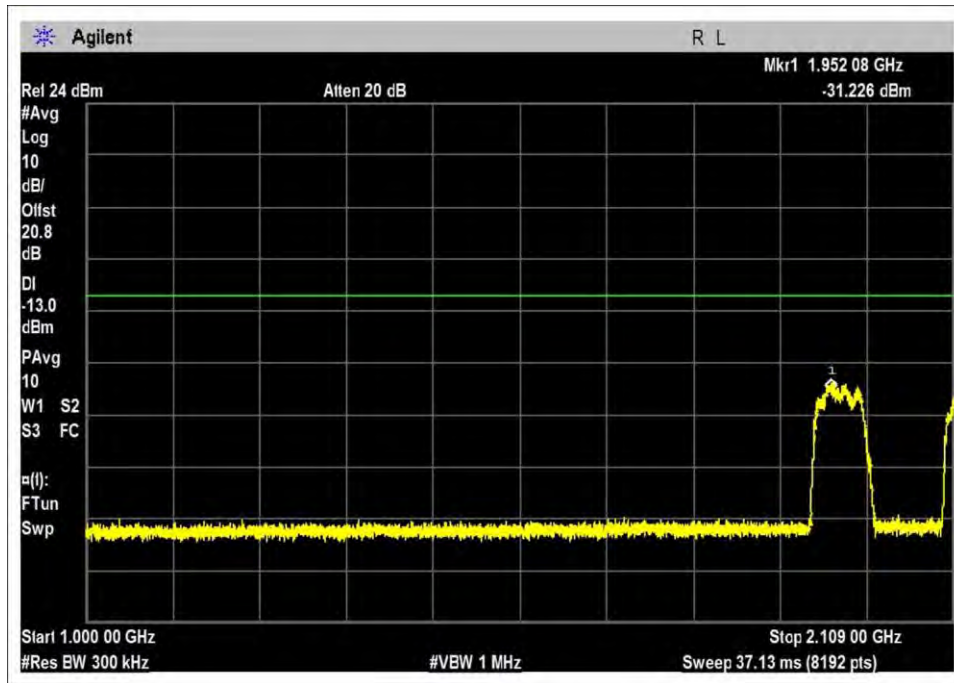
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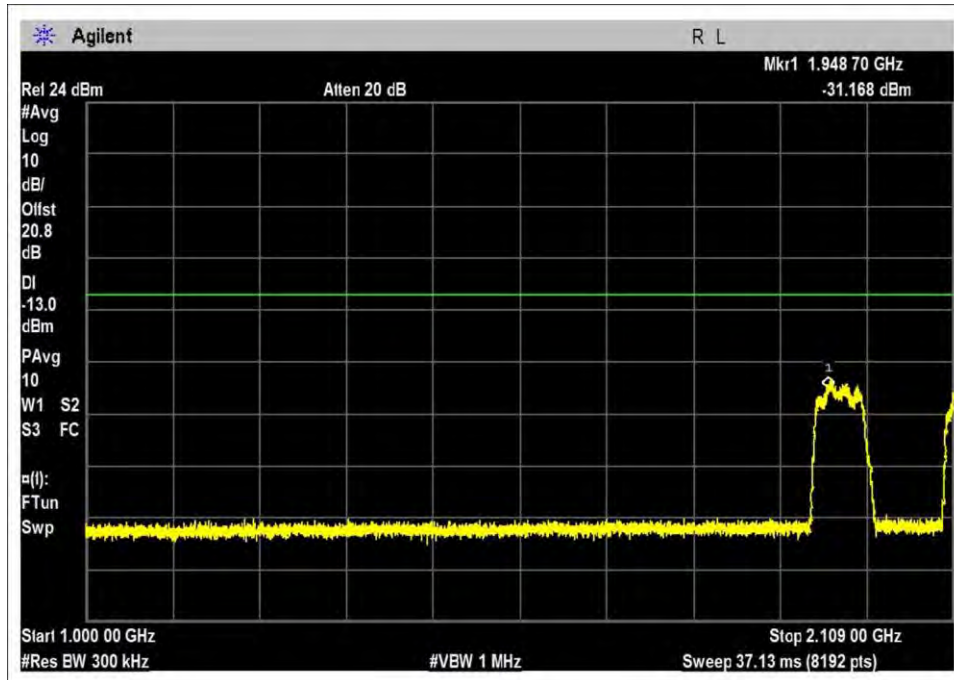
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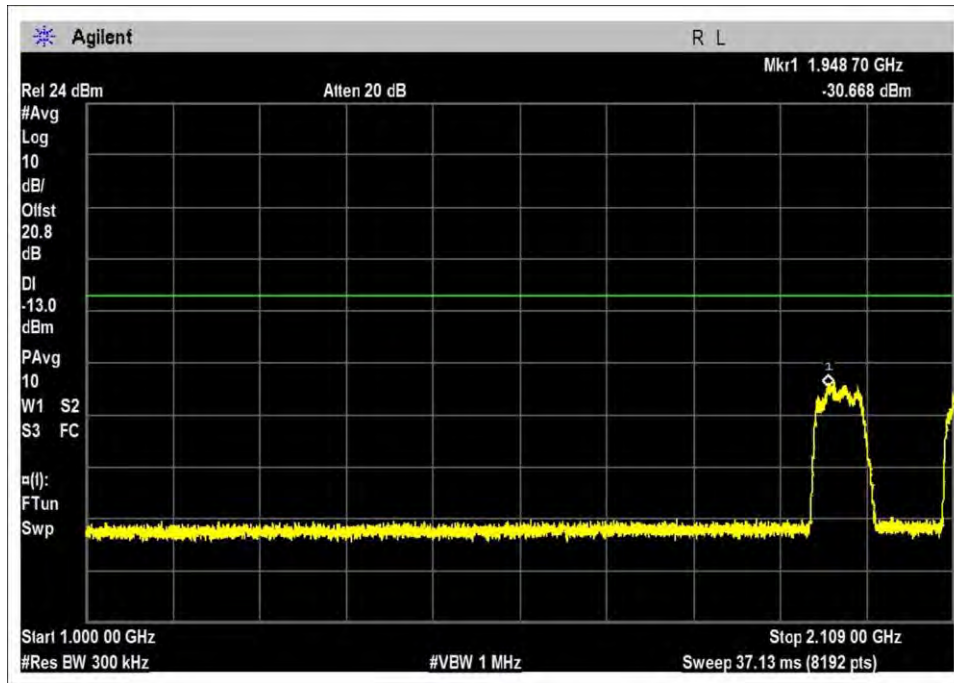
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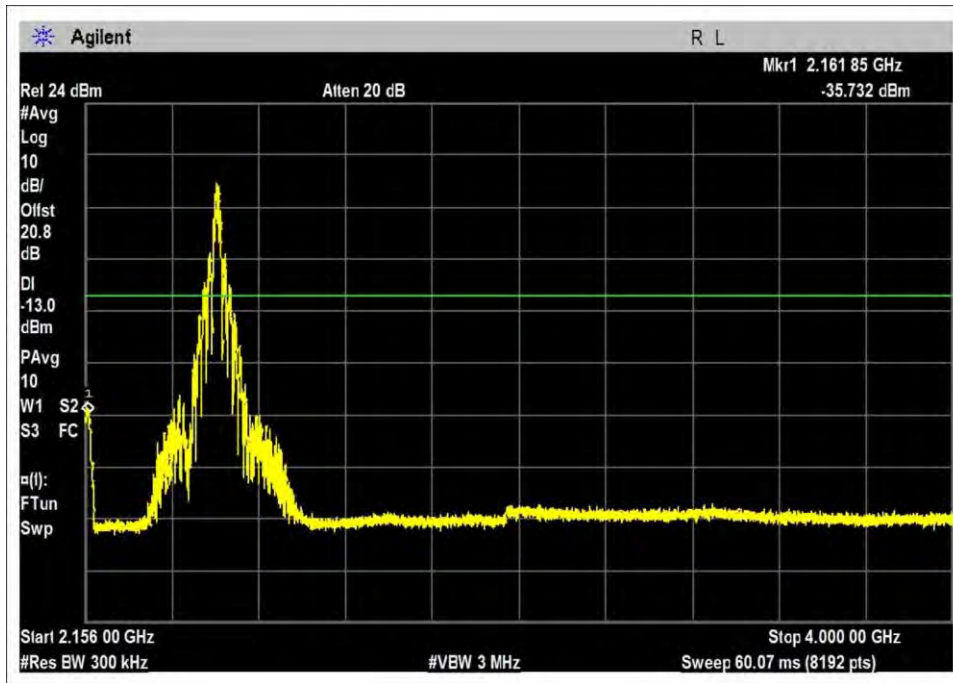
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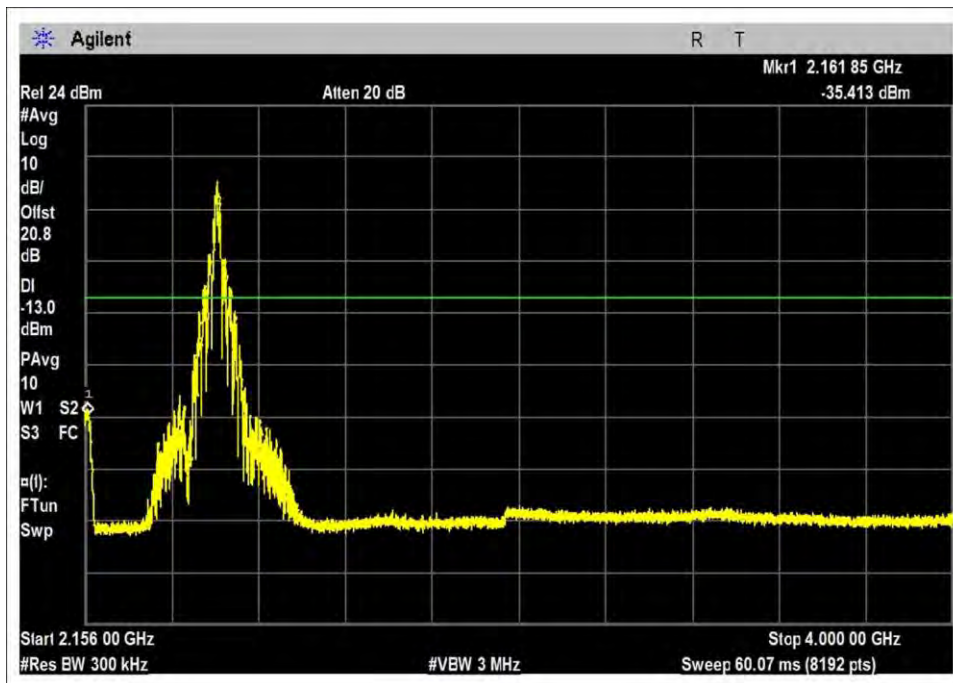
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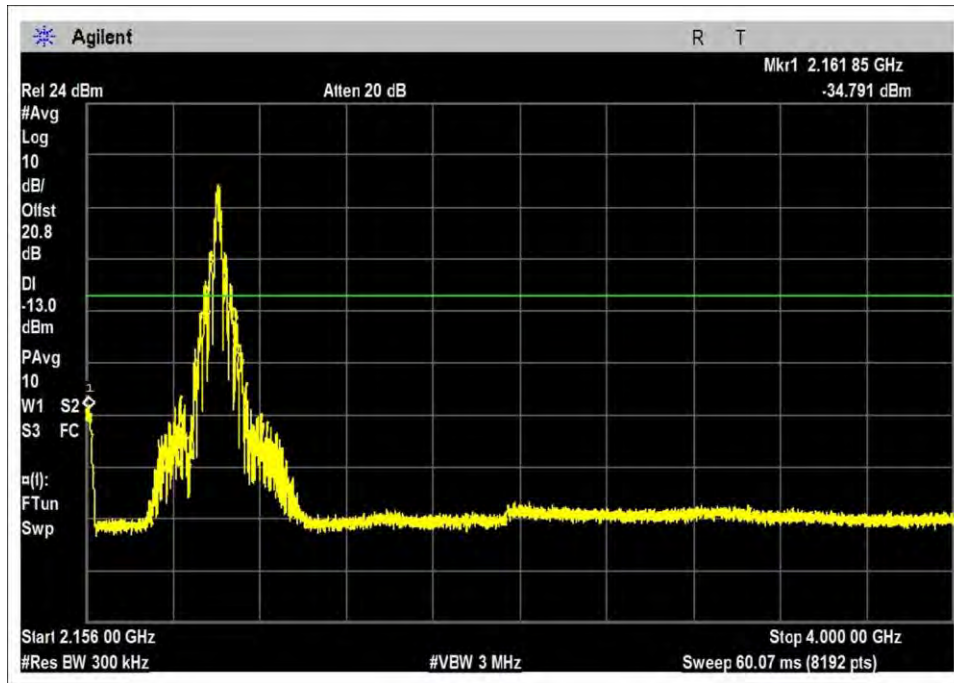
DL-2110-2155L-GSM-H



DL-2110-2155R-GSM-L



DL-2110-2155R-GSM-M



DL-2110-2155R-GSM-H

3.7 - Frequency Stability Measurements

NA: Not applicable because the EUT does not process an input signal in a manner that can influence the output signal frequency/frequencies.

3.8 – Spurious Emissions Radiated Measurements

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **47 CFR §27.53(c)(g)(h) Spurious Emissions**
 Work Order #: **96950** Date: 6/16/2015
 Test Type: **Maximized Emissions** Time: 6:07:13 PM
 Tested By: Daniel Bertran Sequence#: 62
 Software: EMITest 5.02.00

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

Configuration 3

The equipment under test (EUT) is a single enclosure CMRS Industrial booster with a WiFi Router and TV amplifier installed. The CMRS DL signal and the WiFi signal are combined at the diplexer and are transmitted via the indoor antenna in normal operation.

During testing, the (EUT) is placed on the Styrofoam table top.

A remotely located signal generator is connected to input port of EUT.

A second remotely located signal generator is connected to HDTV port of EUT with a 6MHz AWGN signal. And both HDTV output ports are terminated with a 75 ohm.

The Industrial booster UL and DL power and gain parameters are initially measured with WiFi transmitting at mid channel using sequentially 802.11b, g, n20 and n40 signal. Since no significant change in measured power was observed, all other parameters are obtained with WiFi transmitting at Mid channel, 802.11b.

Evaluation of DL path was performed with signal fed into the Outside antenna port while Inside antenna port terminated with 50 Ohm load.

Evaluation of UL path was performed with signal fed into the Inside antenna port while Outside antenna port terminated with 50 Ohm load.

Part 27
 UL: 1710-1755MHz, 698-716MHz, 776-787MHz
 DL: 2110-2155MHz, 728-746MHz, 746-757MHz

Frequency range of measurement = 9 kHz- 25GHz.
 9 kHz - 150 kHz -> RBW=200 Hz VBW=200 Hz
 150 kHz - 30 MHz -> RBW=9 kHz VBW=9 kHz
 30 MHz - 1000MHz -> RBW=120 kHz VBW=120 kHz
 1000 MHz-25000MHz -> RBW=1 MHz VBW=1 MHz

All adjustable settings on the test sample are set at max.

Test Conditions / Notes continued:

Software: Force 7 V1.0
 Firmware: V1.0
 Application: MP_TEST MFC version 1.3.8.0

Test environment conditions: 22°C, 50% Relative Humidity, 100.5kPa

Test procedure:
 The test was performed in accordance with section 3.8 of the FCC document: D05 Industrial Booster Basic Measurements v01 935210 Dated June 05, 2015.

**Note: No emissions below 30MHz were found within 20dB of the limit line.
 No emissions above 30MHz were found within 20dB of the limit line excluding emissions generated by the WiFi part which are evaluated on test report 96950-13.**

No emissions in the in the band 1559-1610MHz were found within 20dB of the limit line.

27.53 (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Test Equipment					
Asset #	Description	Model	Manufacturer	Cal Date	Cal Due
AN02157	Horn Antenna-ANSI C63.5 Calibration	3115	EMCO	12/2/2014	12/2/2016
ANP06712	Cable	32022-29094K-29094K-48TC	AstroLab	9/18/2014	9/18/2016
AN03114	Preamp	AMF-7D-00101800-30-10P	Miteq	4/22/2015	4/22/2017
ANP06126	Cable	32022-29094K-29094K-168TC	AstroLab	3/18/2015	3/18/2017
AN03302	Cable	32026-29094K-29094K-72TC	AstroLab	3/24/2014	3/24/2016
AN03471	RF Characteristics Analyzer	E4440A	Agilent	12/19/2013	12/19/2015
ANP00880	Cable	RG214U	Pasternack	6/13/2014	6/13/2016
ANP06691	Cable	PE3062-180	Pasternack	8/8/2014	8/8/2016
ANP01183	Cable	CNT-195	Andrews	9/3/2013	9/3/2015
AN00686	Preamp	8447D Opt 010	HP	5/27/2014	5/27/2016
AN00852	Biconilog Antenna	CBL 6111C	Scheffner	11/24/2014	11/24/2016
ANP00928	Cable	Various	Various	1/23/2014	1/23/2016
ANP00929	Cable	Various	Various	1/23/2014	1/23/2016
AN00432	Loop Antenna	6502	EMCO	5/8/2015	5/8/2017
AN02741	Active Horn Antenna	AMFW-5F-12001800-20-10P	Miteq	1/14/2015	1/14/2017
AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	Miteq	12/2/2014	12/2/2016

3.8 - Radiated Spurious Emissions - Summary of Results

Pass: No data provided since all emissions were found more than 20dB below the limit.

Test Data

LIMIT LINE FOR SPURIOUS RADIATED EMISSION

REQUIRED ATTENUATION = 43+10 LOG P (DB)

For radiated spurious emission measured at 3 meter test distance,

Required attenuation = 43+10 Log P_{t at 3 meter} dB
 Limit line (dBuV) = E_{dBuv} - Attenuation

E_{dBuv} = Measured field strength at 3 meter in dBuV/m

Power Density (Isotropic)

$$P_D = \frac{P_t}{4\pi r^2}$$

P_D = Power Density in Watts /m²
 P_t = Average Transmit Power
 r = Test distance

Field Intensity E (V/m)

$$E = \sqrt{P_D \times 377}$$

$$E = \frac{\sqrt{P_t \times 377}}{4\pi r^2}$$

$$E = \sqrt{\frac{P_t \times 30}{r^2}}$$

$$P_t = \left(\frac{E^2 \times r^2}{30} \right)$$

$$10 \text{ Log } P_t = 10 \text{ Log } E^2 \text{ (V/m)} + 10 \text{ Log } r^2 - 10 \text{ Log } 30$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} + 20 \text{ Log } r - 10 \text{ Log } 30$$

At 3 meter, $r = 3 \text{ m}$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} + 20 \text{ Log } 3 - 10 \text{ Log } 30$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} + 9.54 - 14.77$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} - 5.23$$

Since $20 \text{ Log } E \text{ (V/m)} = 20 \text{ Log } E \text{ (uV/m)} - 120$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (uV/m)} - 120 - 5.23$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (uV/m)} - 125.23$$

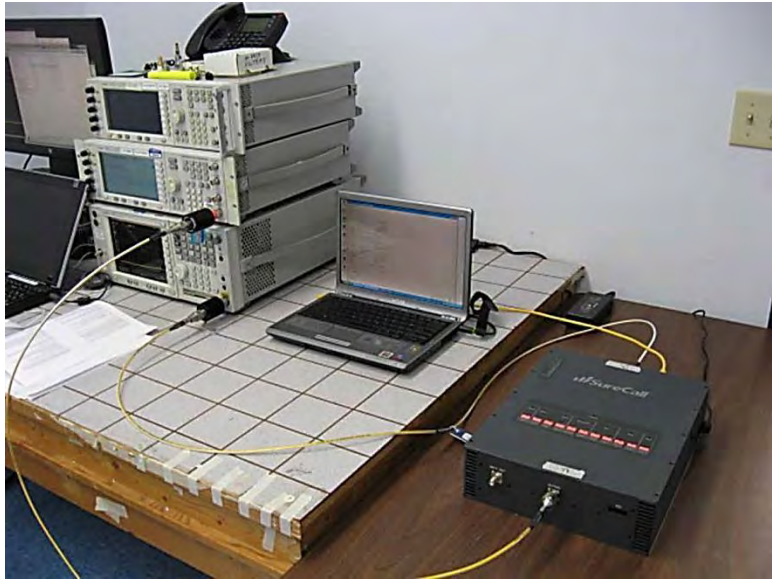
$$\begin{aligned} \text{Limit line (dBuV) at 3 meter} &= E_{\text{dBuV}} - \text{Attenuation} \\ &= E_{\text{dBuV}} - (43 + 10 \text{ Log } P_{t \text{ at 3 meter}}) \\ &= E_{\text{dBuV}} - 43 - 10 \text{ Log } P_{t \text{ at 3 meter}} \\ &= E_{\text{dBuV}} - 43 - (20 \text{ Log } E \text{ (uV/m)} - 125.23) \\ &= E_{\text{dBuV}} - 43 - 20 \text{ Log } E \text{ (uV/m)} + 125.23 \\ &= E_{\text{dBuV}} - 20 \text{ Log } E \text{ (uV/m)} + 82.23 \end{aligned}$$

Since $20 \text{ Log } E \text{ (uV/m)} = E \text{ in dBuV/m}$

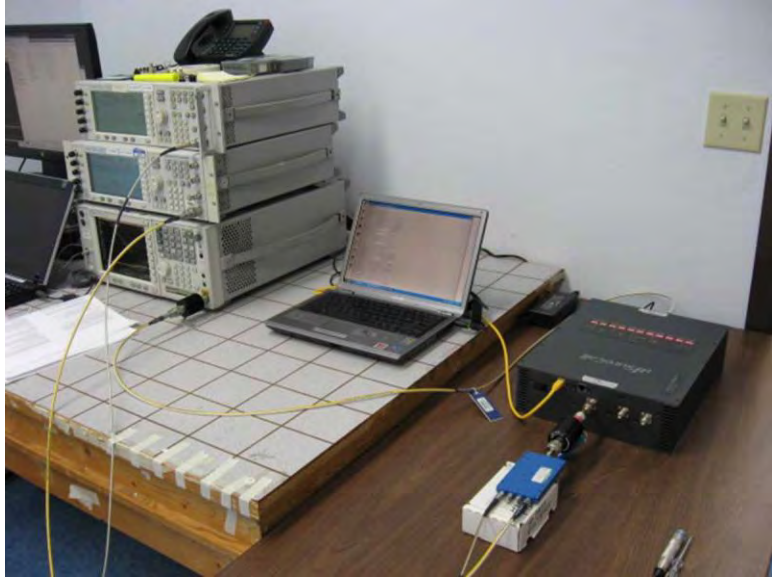
$$= E_{\text{dBuV}} - E_{\text{dBuV}} + 82.23$$

$$\text{Radiated Emission limit 3 meter} = 82.23 \text{ dBuV at any power level measured in dBuV}$$

EXHIBIT A: TEST SETUP PHOTOS



Sections 3.3, 3.4 & 3.5



Section 3.6.2 & 3.6.3



Section 3.8



Section 3.8