

Cellphone-Mate, Inc.

TEST REPORT FOR

**5 Band Consumer Booster, Model: Flare 3
DC Power Supply, Model: GME18A-050300FUR**

Tested to The Following Standard:

FCC Part 20.21 / 22 / 24 / 27

Report No.: 100825-13

Date of issue: February 12, 2018



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

TABLE OF CONTENTS

Administrative Information	4
Test Report Information	4
Report Authorization	4
Test Facility Information	5
Software Versions	5
Site Registration & Accreditation Information	5
Summary of Results	6
Modifications During Testing	7
Conditions During Testing	7
Equipment Under Test	8
General Product Information	8
FCC Part 20.21/22/24/27	9
General Test Setup	9
7.1 Authorized Frequency Band Verification	10
Summary of Results	10
7.2 Maximum Power / 7.3 Maximum Gain	16
Summary of Results	17
7.4 Intermodulation Product	40
Summary of Results	41
7.5 Out of Band Emissions	47
Summary of Results	48
7.6 Conducted Spurious Emissions	81
Summary of Results	82
7.7 Noise limit	107
Summary of Results	108
7.7.1 Maximum Transmitter Noise Power Level	113
7.7.2 Variable UL Noise Timing	118
7.8 Uplink Inactivity	121
Summary of Results	122
7.9 Booster Gain Limit	125
Summary of Results	126
7.9.1 Maximum Gain	130
7.9.2 Variable uplink Gain Timing	130

7.10 Occupied Band Width	133
Summary of Results	134
7.11 Oscillation Detection	185
Summary of Results	187
7.11.2 Oscillation Restart Tests	189
7.12 Radiated Spurious Emissions	199
Summary of Results	201
Exhibit A: Test Setup Photos	203
Supplemental Information.....	209
Measurement Uncertainty	209
Emissions Test Details.....	209

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Cellphone-Mate, Inc.
48346 Milmont Drive
Fremont, CA 94538

Representative: Dennis Findley
Customer Reference Number: CKC01052018

DATE OF EQUIPMENT RECEIPT:**DATE(S) OF TESTING:****REPORT PREPARED BY:**

Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 100825

January 18, 2018

January 18, 2018 –January 30, 2018

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

A handwritten signature in black ink that reads "Steve Behm". The signature is written in a cursive style and is positioned above a horizontal line.

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
1120 Fulton Place
Fremont, CA 94539

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.11
EMITest Immunity	5.03.10

Site Registration & Accreditation Information

Location	NIST CB #	TAIWAN	CANADA	FCC	JAPAN
Fremont, CA	US0082	SL2-IN-E-1148R	3082B-1	US1023	A-0149

SUMMARY OF RESULTS

Standard / Specification: FCC Part 20.21/22/24/27

KDB #935210 DO3 Wideband Consumer Signal Booster Measurement Guidance

v04r01, October 27, 2017

Correlation Matrix & Results					
Guidance Section	Guidance Description	FCC Section	FCC Rule Description	Mods	Results
7.1 a) - k)	Authorized Frequency Band Verification Test	20.21(e)(3)	Frequency Bands	Mod. #1 and #2	Pass
7.2.2 a) - k)	Maximum Power Measurement Procedure	2.1046/20.21(e)(8)(i)(D)	Power Limit	Mod. #1 and #2	Pass
7.3 a) - d)	Maximum Booster Gain Computation	20.21(e)(8)(i)(B)	Bidirectional Capabilities	Mod. #1 and #2	Pass
7.4 a) - n)	Intermodulation Product	20.21(e)(8)(i)(F)	Intermodulation Limit	Mod. #1 and #2	Pass
7.5 a) - n)	Out of Band Emissions	20.21(e)(8)(i)(E)	Out of Band Emission	Mod. #1 and #2	Pass
7.6 a) - e)	Conducted Spurious Emission	2.1051/22/24/27	Spurious emission	Mod. #1 and #2	Pass
7.7.1 a) - g) 7.7.1 h) - n) 7.7.2 a) - g)	Noise Limit Procedure Variable Noise Variable Noise Timing	20.21(e)(8)(i)(A)(2)(i) 20.21(e)(8)(i)(A)(1) 20.21(e)(8)(i)(H)	Noise Limits Transmit Power Off Mode	Mod. #1 and #2	Pass
7.8 a) - l)	Uplink inactivity	20.21(e)(8)(i)(I)	Uplink Inactivity	Mod. #1 and #2	Pass

Standard / Specification: FCC Part 20.21/22/24/27 - continued

Correlation Matrix & Results					
Guidance Section	Guidance Description	FCC Section	FCC Rule Description	Mods	Results
7.9.1 a) - l)	Variable Booster Gain	20.21(e)(8)(i)(C) (1), (2)(i)	Booster Gain	Mod. #1 and #2	Pass
7.9.2 a) - f)	Variable Uplink Gain Timing	20.21(e)(8)(i)(H)	Transmit Power Off Mode		
7.10.a) - j)	Occupied Band Width	2.1049/22/24/27	Occupied Band Width	Mod. #1 and #2	Pass
7.11.2 a) - r) 7.11.3 a) - h) 7.11.4 a) - h) (alternate to 7.11.3)	Anti-Oscillation	20.21(e)(8)(ii)(A)	Anti-Oscillation	Mod. #1 and #2	Pass
7.12a) - f)	Radiated Spurious Emission	2.1053/ 22/24/27	Spurious Emission	Mod. #1 and #2	Pass
7.13 a) - c)	Spectrum Block Filter	NA	NA	NA	NA ¹

NA = Not Applicable

NA¹ = Not applicable because the EIT does not employ a spectrum block filter.

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
Modification #1: Adjust the firmware to bring down 0.1dB for output power.
Modification #2: Replace a new pre-am on Band 776MHz-787MHz.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
5 Band Consumer Booster	Cellphone-Mate, Inc.	Flare 3	01
DC Power Supply	GME	GME18A-050300FUR	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
None			

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Type of Equipment	Zone Enhancer
Operating Frequency Range:	UL: 824-849MHz DL: 869-894MHz UL: 1850-1915MHz DL: 1930-1995MHz UL: 1710-1755MHz, 698-716MHz, 777-787MHz DL: 2110-2155MHz, 728-746MHz, 746-756MHz
OBW and Emissions Type(s):	GXW (GSM) G7W (EDGE) F9W(CDMA) F9W(WCDMA) W7D (LTE) G7D (LTE) See table below for OBW
Modulation Type(s):	0.3 GMSK (GSM) 3p/8 8-PSK (EDGE) QPSK (CDMA) BPSK/QPSK (WCDMA) OFDM (LTE)
Number of TX Chains:	1
Antenna Type(s) and Gain:	Dedicated, See antenna kitting information
Beamforming Type:	NA
Antenna Connection Type:	UL: 75 Ohm/ FME DL: 50 Ohm/ FME
Nominal Input Voltage:	12VDC
Firmware / Software used for Test:	SC_Flare_V2_0 version 2.0

FCC PART 20.21/22/24/27

General Test Setup

Summary of Conditions

The equipment under test (EUT) is a Fixed Wideband Consumer Booster.
The EUT is placed on the test bench.
Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.
The EUT Server port is a type SMA 50-ohm impedance.
The EUT Donor port is type F 75-ohm impedance.

Part 22

UL: 824-849MHz

DL: 869-894MHz

Part 24

UL: 1850-1915MHz

DL: 1930-1995MHz

Part 27

UL: 1710-1755MHz, 698-716MHz, 776-787MHz

DL: 2110-2155MHz, 728-746MHz, 746-757MHz

Firmware: SC_Flare_V2_0 version 2.0

Test Procedure: 935210 D03 Signal Booster Measurements v04r01, October 27, 2017.

Modification #1 and #2 were in place during testing.

7.1 Authorized Frequency Band Verification

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.1 Authorized Frequency Band Verification**
 Work Order #: **100825** 1/18/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu Song Nguyenpham/Eddie Wong**
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions: Temperature: 23.5°C Relative Humidity: 46% Pressure: 102.5 kPa Modification #1 and #2 were in place during testing

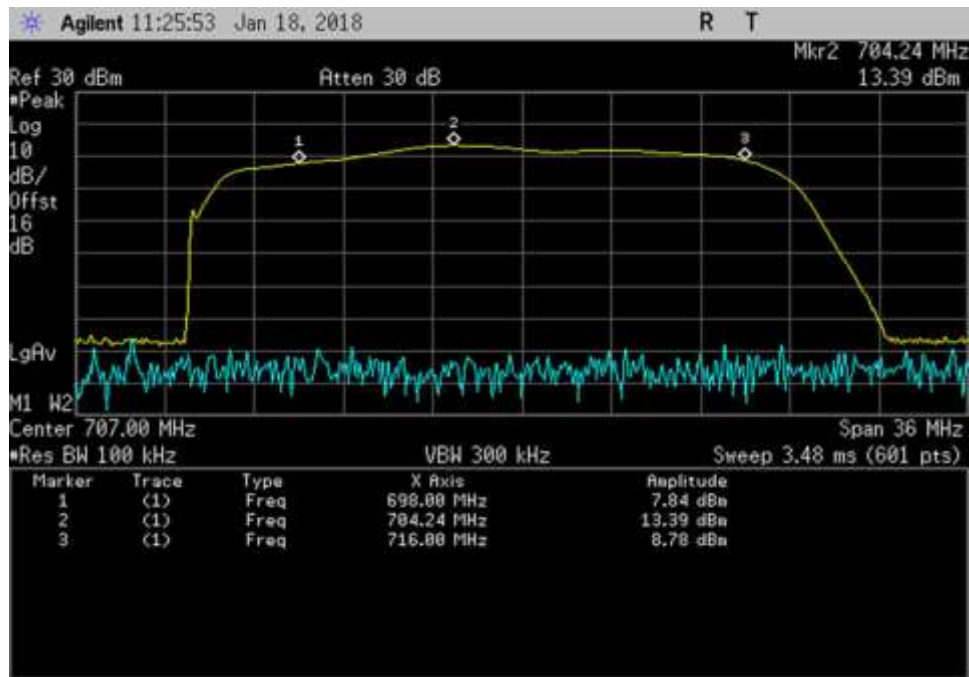
Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/18/2016	1/18/2018
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019

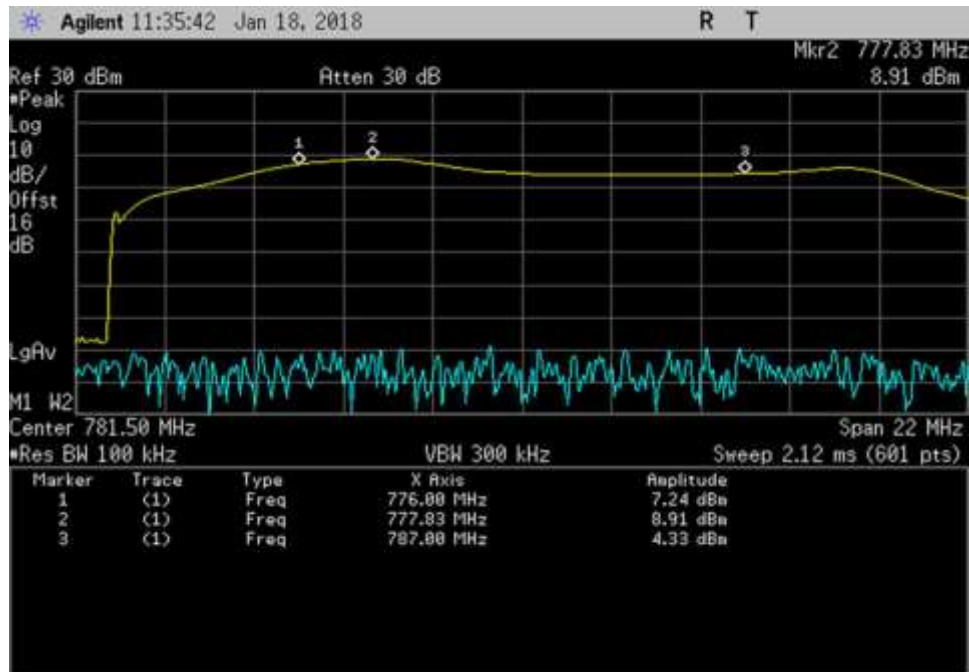
Summary of Results

Pass: The plots below show the device only operates on the CMRS frequency bands authorized for use by the NPS.

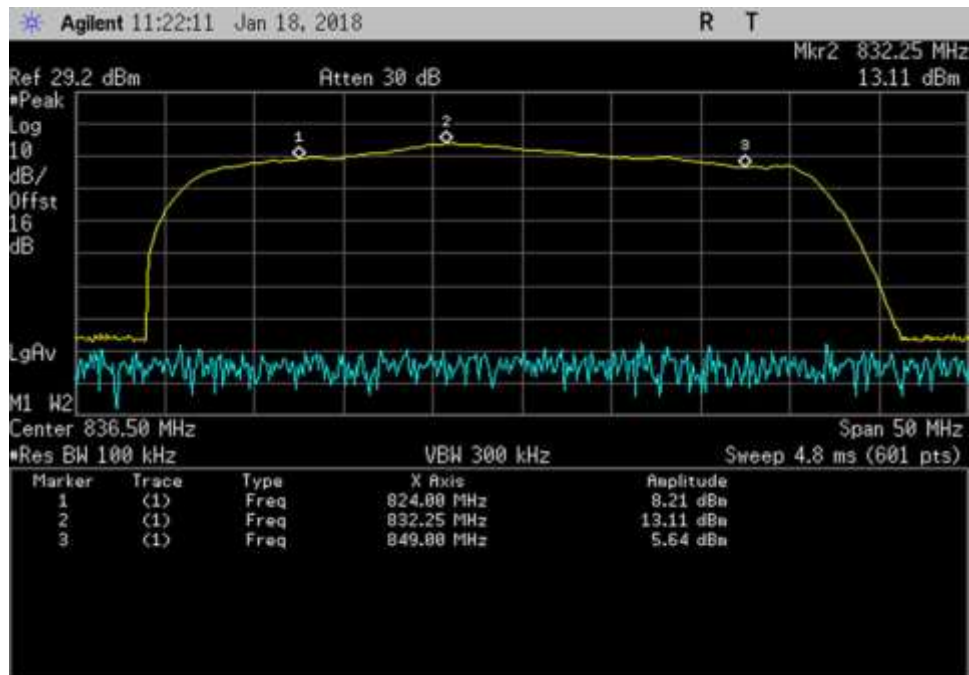
Plots



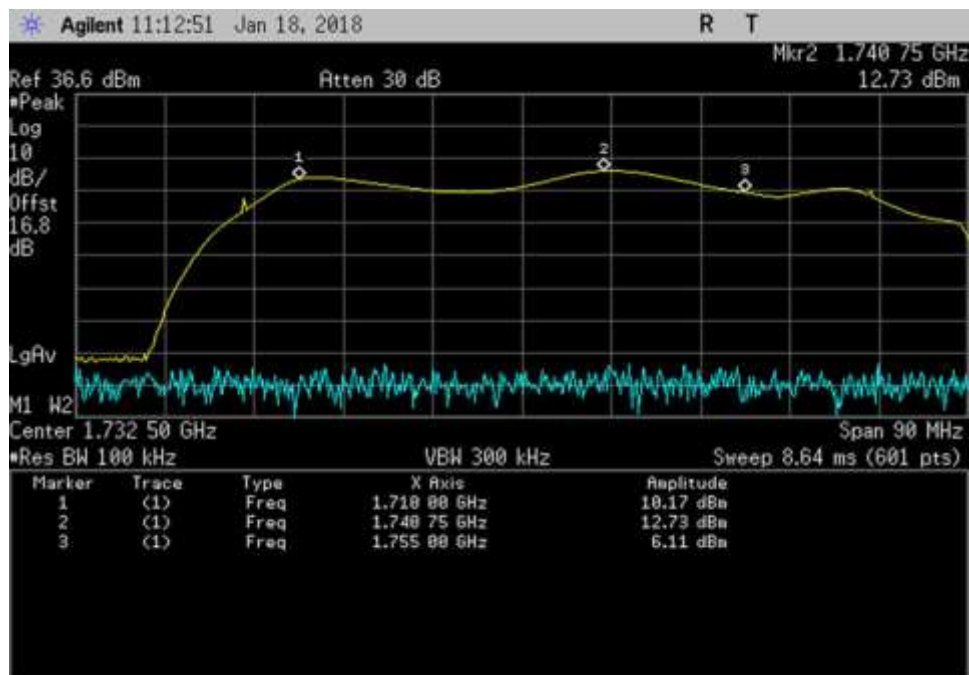
UL_698-704.24MHz



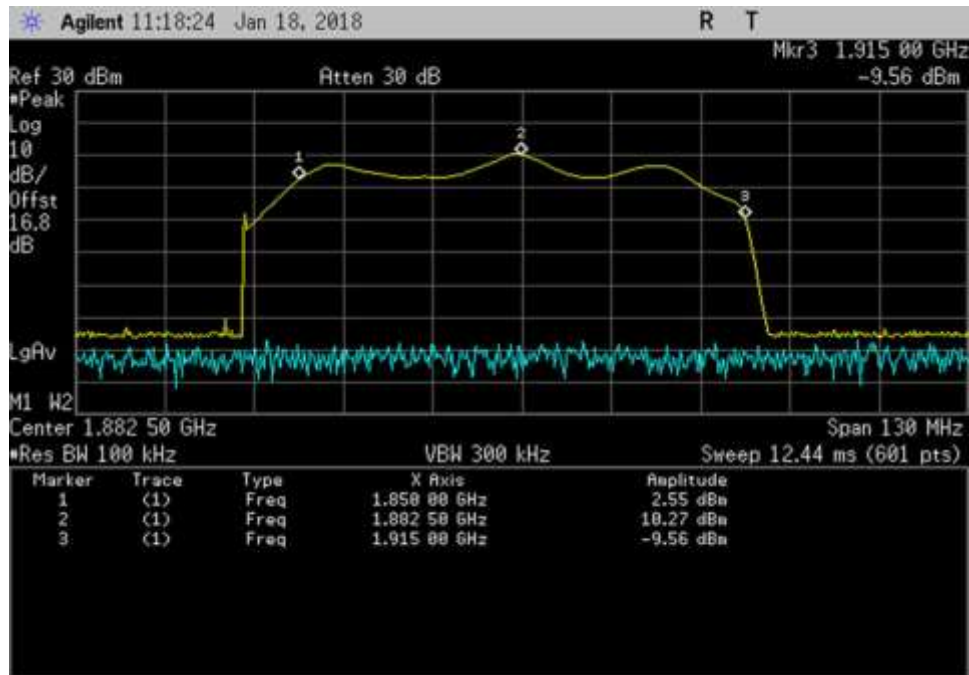
UL_776-777.83MHz



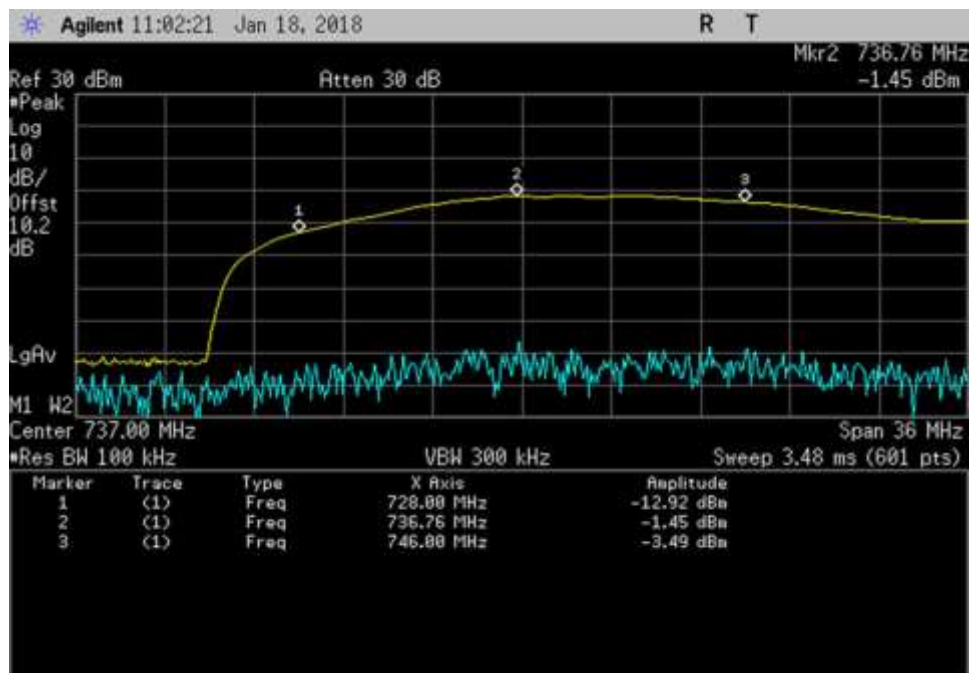
UL_ 824- 832.25MHz



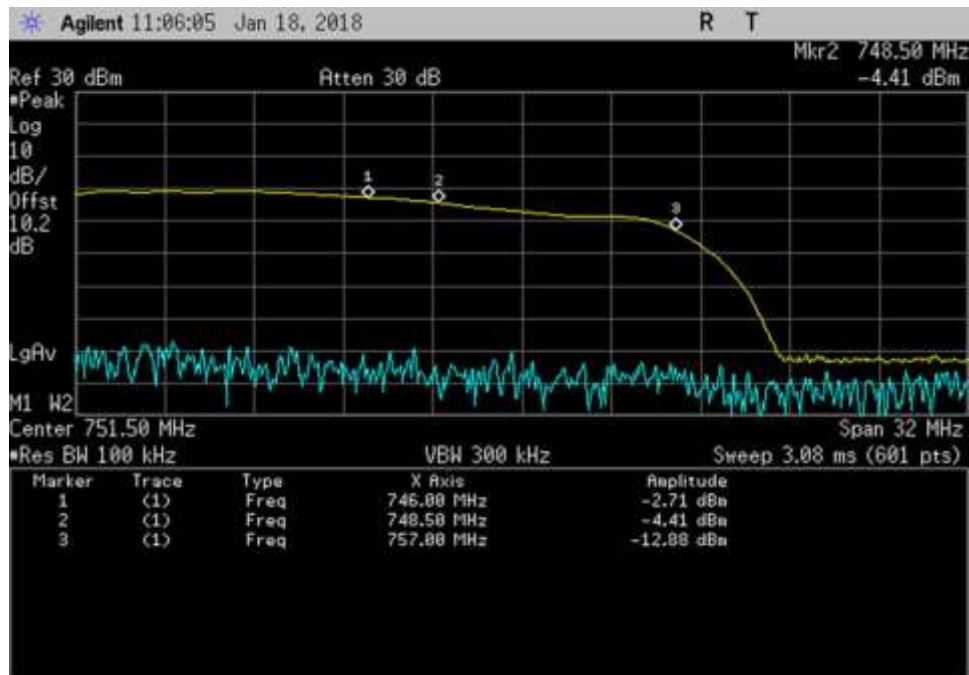
UL_ 1710- 1740.75MHz



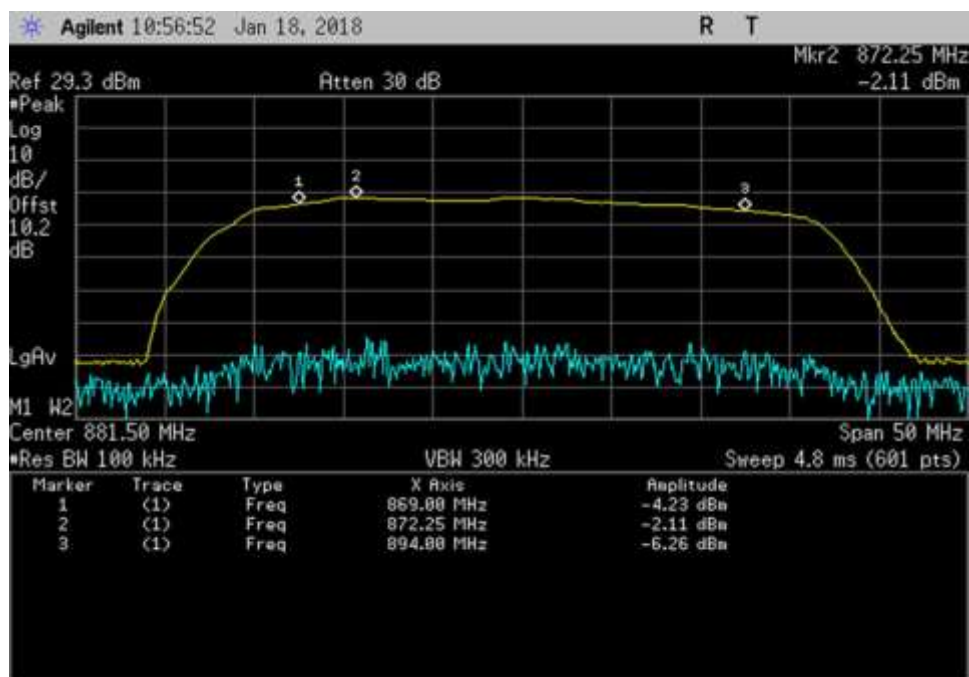
UL_ 1850- 1882.5MHz



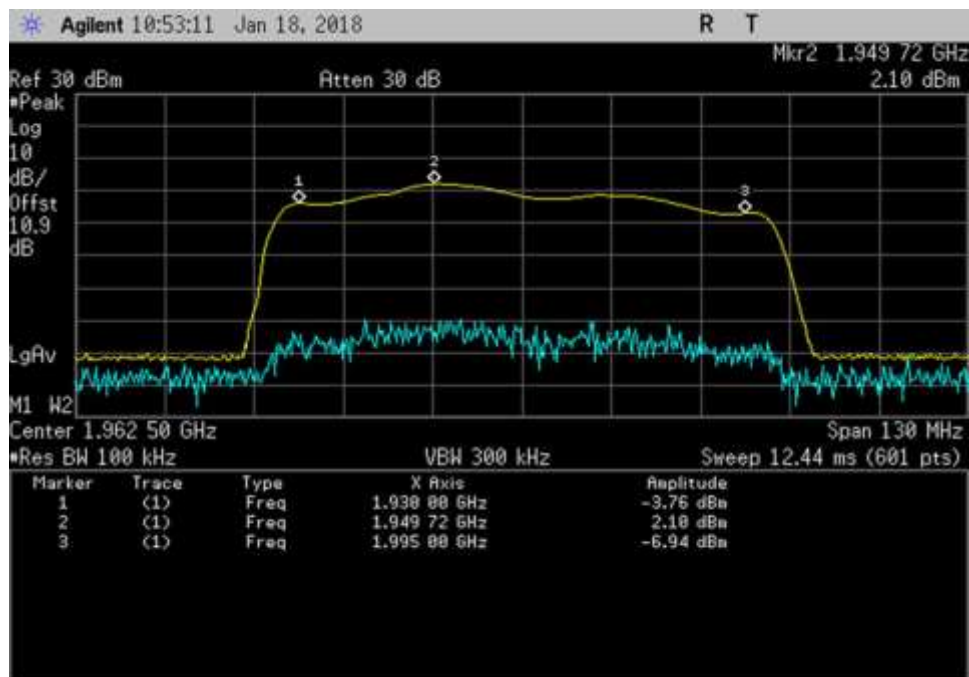
DL_ 728- 736.76MHz



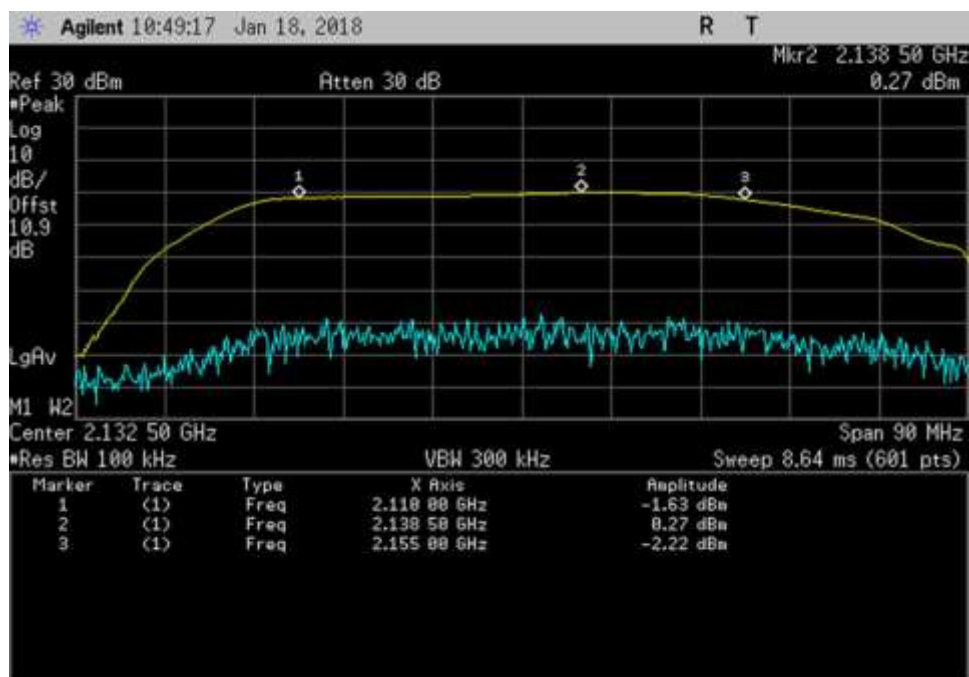
DL_ 746- 748.5MHz



DL_ 869- 872.25MHz



DL_ 1930- 1949.72MHz



DL_ 2110- 2138.5MHz

7.2 Maximum Power / 7.3 Maximum Gain

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.2 Maximum Power Measurement**
7.3 Maximum Booster Gain
 Work Order #: **100825** 1/18/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu Song Nguyenpham/Eddie Wong**
 Software: **EMITest 5.03.11**

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions:
 Temperature: 23.5°C
 Relative Humidity: 46%
 Pressure: 102.5 kPa

Modification #1 and #2 were in place during testing.

Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/18/2016	1/18/2018
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019

Summary of Results

Pass: as summarized in table below, measured EIRP, Gain and UL/DL gain ratio are within limits.

Pre AGC				Pre AGC		
	Pulse GSM			4.1 MHz AWGN		
Frequency (MHz)	Input (dBm)	Output (dBm)	Gain (dB)	Input (dBm)	Output (dBm)	Gain (dB)
UL1710-1755	-49.5	20.0	69.5	-49.0	19.4	68.4
UL1850-1915	-49.5	22.1	71.6	-45.8	21.6	67.4
UL824-894	-39.3	25.3	64.6	-36.6	26.0	62.6
UL 698-716	-36.8	25.0	61.8	-37.1	25.2	62.3
UL776-787	-38.6	22.1	60.7	-38.4	20.5	58.9
DL2110-2155	-55.2	12.5	67.7	-57.0	10.4	67.4
DL1930-1995	-57.2	11.2	68.4	-60.4	8.2	68.6
DL869-894	-51.2	11.8	63.0	-50.8	10.9	61.7
DL:728-746	-47.5	14.5	62.0	-50.7	10.7	61.4
DL 746-757	-45.8	11.8	57.6	-49.4	8.5	57.9

Pulse GSM					Conducted	Conducted and EIRP
Frequency (MHz)	Output Power (dBm)	*Ant Gain (dBi)	Cable Loss (dBi)	EIRP (dBm)	Limit Min (dBm)	Limit Max (dBm)
UL1710-1755	20.0	10	6.22	23.8	17	30
UL1850-1915	22.1	10	6.42	25.7	17	30
UL824-894	25.3	8	3.95	29.4	17	30
UL 698-716	25.0	8	3.32	29.7	17	30
UL776-787	22.1	8	3.32	26.8	17	30
DL2110-2155	12.5	4	0	16.5	NA	17
DL1930-1995	11.2	4	0	15.2	NA	17
DL869-894	11.8	3	0	14.8	NA	17
DL:728-746	14.5	2.5	0	17.0	NA	17
DL 746-757	11.8	2.5	0	14.3	NA	17

4.1MHz AWGN					Conducted	Conducted and EIRP
Frequency (MHz)	Output Power (dBm)	*Ant Gain (dBi)	Cable Loss (dBi)	EIRP (dBm)	Limit Min (dBm)	Limit Max (dBm)
UL1710-1755	19.4	10	6.22	23.1	17	30
UL1850-1915	21.6	10	6.42	25.2	17	30
UL824-894	26.0	8	3.95	30.0	17	30
UL 698-716	25.2	8	3.32	29.9	17	30
UL776-787	20.5	8	3.32	25.2	17	30
DL2110-2155	10.4	4	0	14.4	NA	17
DL1930-1995	8.2	4	0	12.2	NA	17
DL869-894	10.9	3	0	13.9	NA	17
DL:728-746	10.7	2.5	0	13.2	NA	17
DL 746-757	8.5	2.5	0	11.0	NA	17

* Antenna gain and cable losses indicated from the antenna kitting Flare i3.

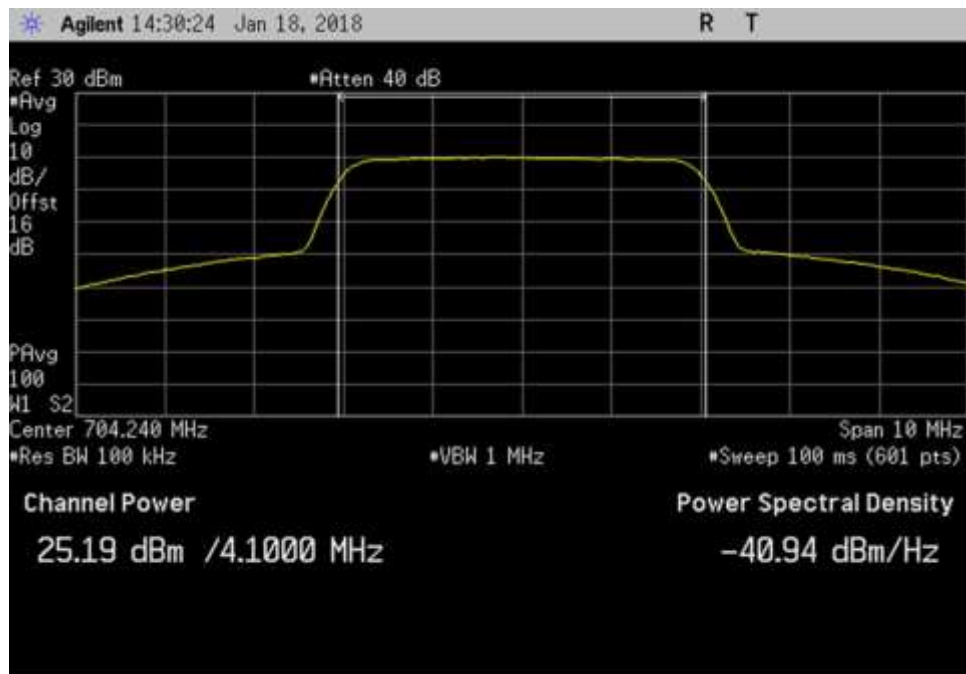
Section 5.5 power						
	Pulse GSM			4.1 MHz AWGN		
Frequency (MHz)	Input (dBm)	Output (dBm)	Gain (dB)	Input (dBm)	Output (dBm)	Gain (dB)
UL1710-1755	-41.9	20.1	62.0	-43.2	19.4	62.6
UL1850-1915	-44.1	22.2	66.3	-40.3	21.7	62.0
UL824-894	-31.3	25.3	56.6	-28.9	26.0	54.9
UL 698-716	-31.8	25.0	56.8	-29.3	25.3	54.6
UL776-787	-31.2	22.0	53.2	-32.2	20.5	52.7
DL2110-2155	-43.2	12.6	55.8	-44.9	10.4	55.3
DL1930-1995	-47.3	11.3	58.6	-50.7	8.4	59.1
DL869-894	-37.9	11.9	49.8	-39.3	11.0	50.3
DL:728-746	-37.9	14.4	52.3	-40.4	10.9	51.3
DL 746-757	-35.7	11.9	47.6	-39.3	8.5	47.8

Note: The booster went into Transmitter off mode at Max input power in accordance with section 5.5. Results presented on the above table are at 1 dB below the Transmit off RF input level.

UL gain vs DL gain	Pulse GSM (dB)	4.1MHz AWGN (dB)	Limit (dB)
UL gain vs DL gain 1710/2110	1.8	1.0	9.0
UL gain vs DL gain 1850/1930	3.2	-1.2	9.0
UL gain vs DL gain 824/869	1.6	0.9	9.0
UL gain vs DL gain 776/728	-0.2	0.9	9.0
UL gain vs DL gain 776/746	3.1	1.1	9.0

Plots

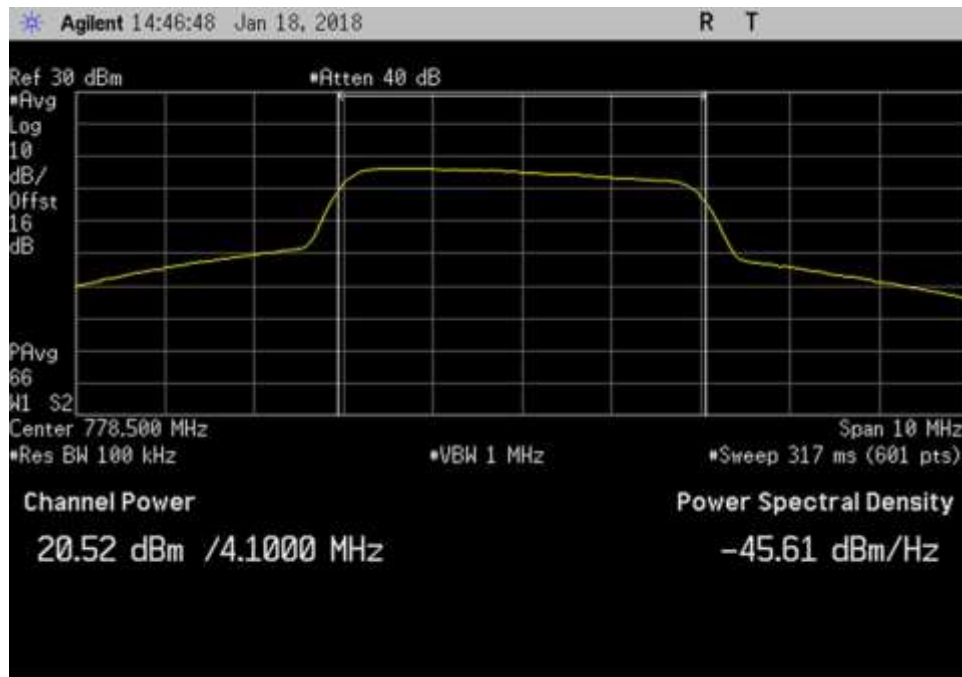
AWGN



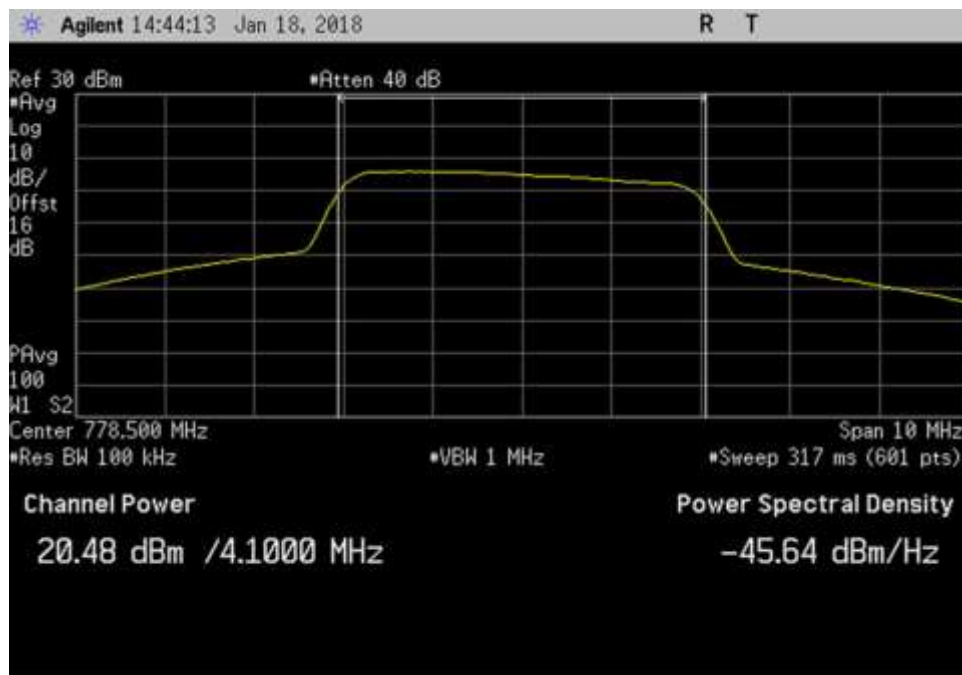
704.24MHz_AWGN



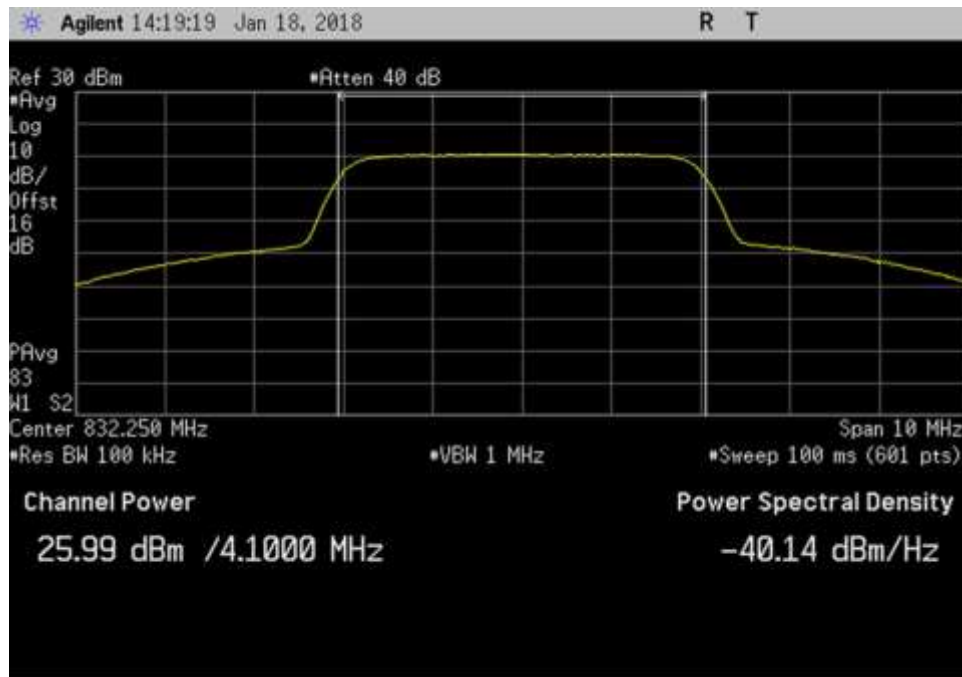
704.24MHz_AWGN_Max



778.5MHz_AWGN



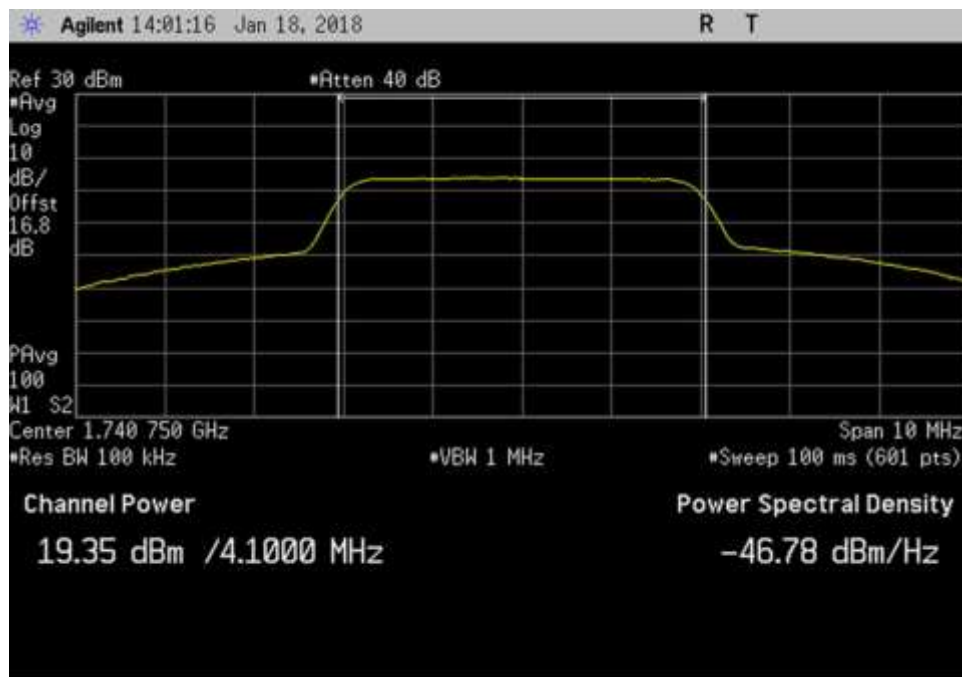
778.5MHz_AWGN_Max



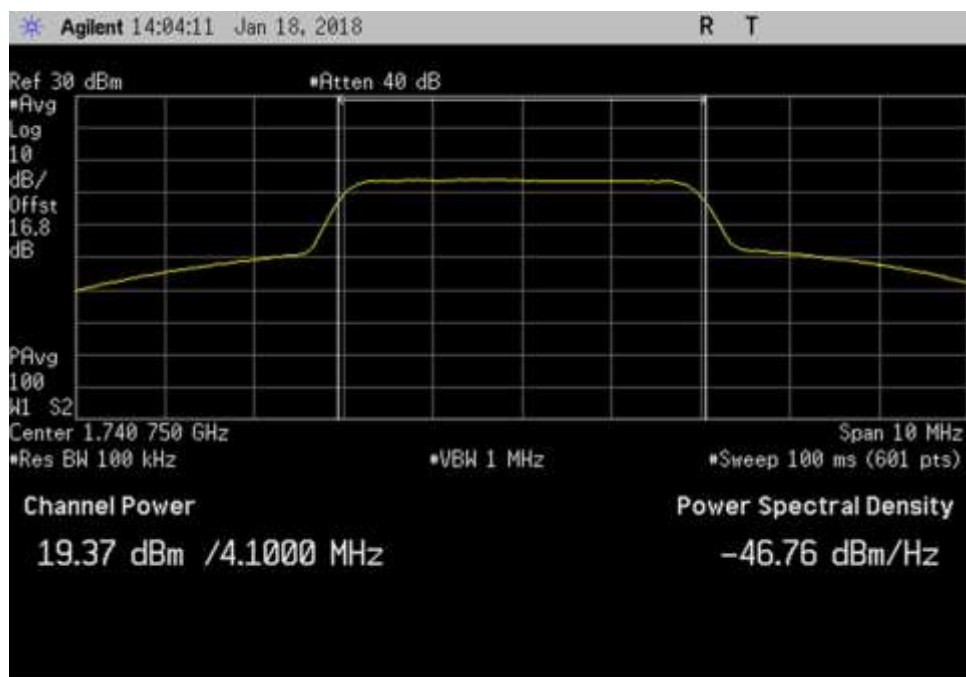
832.25MHz_AWGN



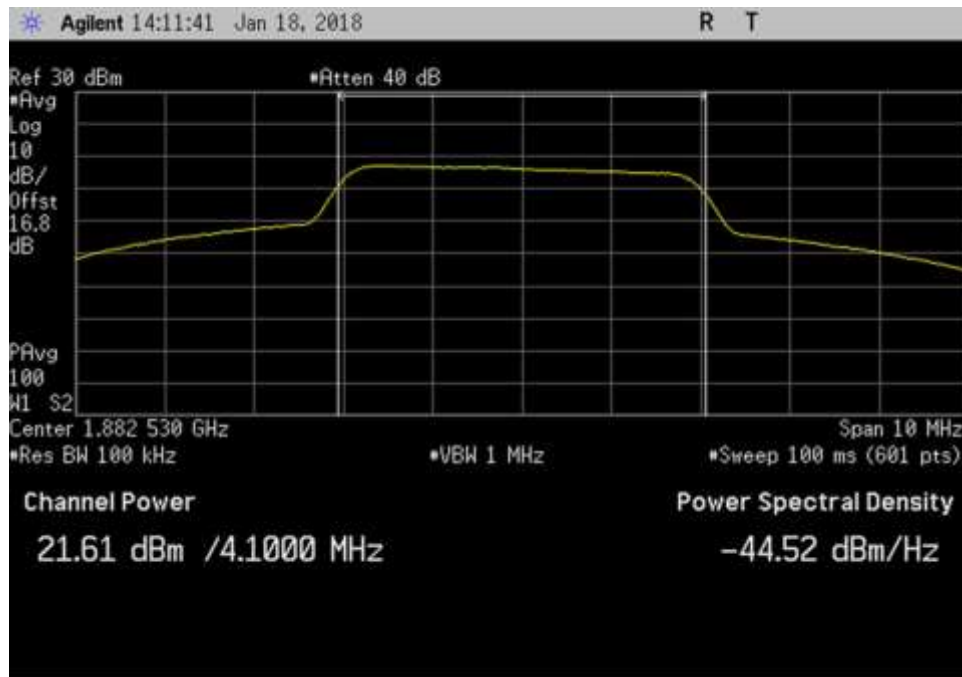
832.25MHz_AWGN_Max



1740.75MHz_AWGN



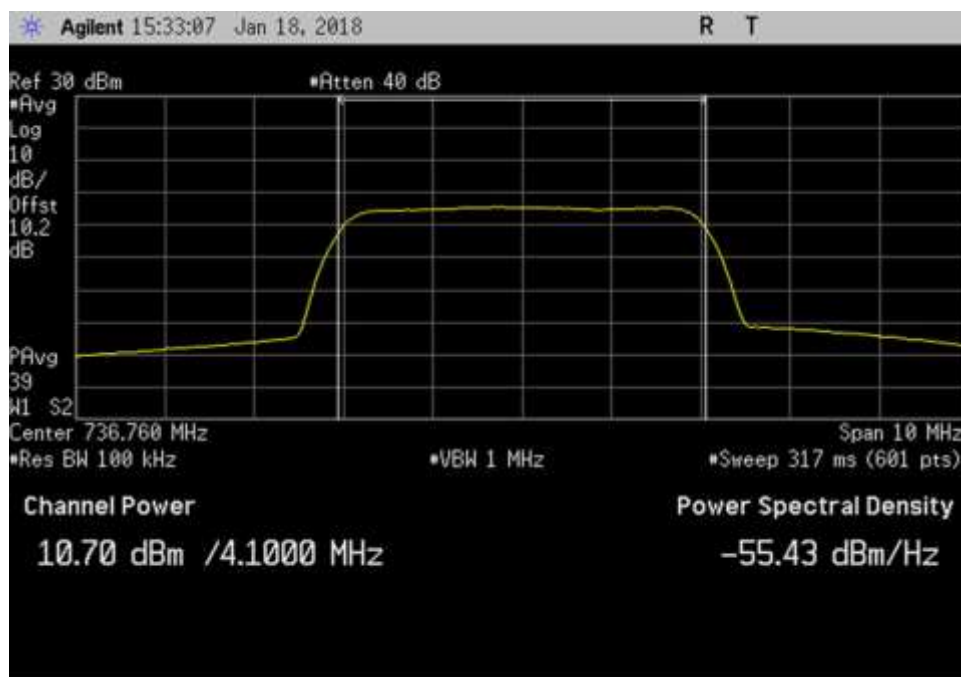
UL_ 1740.75MHz_AWGN_Max



1882.53MHz_AWGN



UL_ 1882.53MHz_AWGN_Max



DL_736.76MHz_AWGN



DL_736.76MHz_AWGN_Max



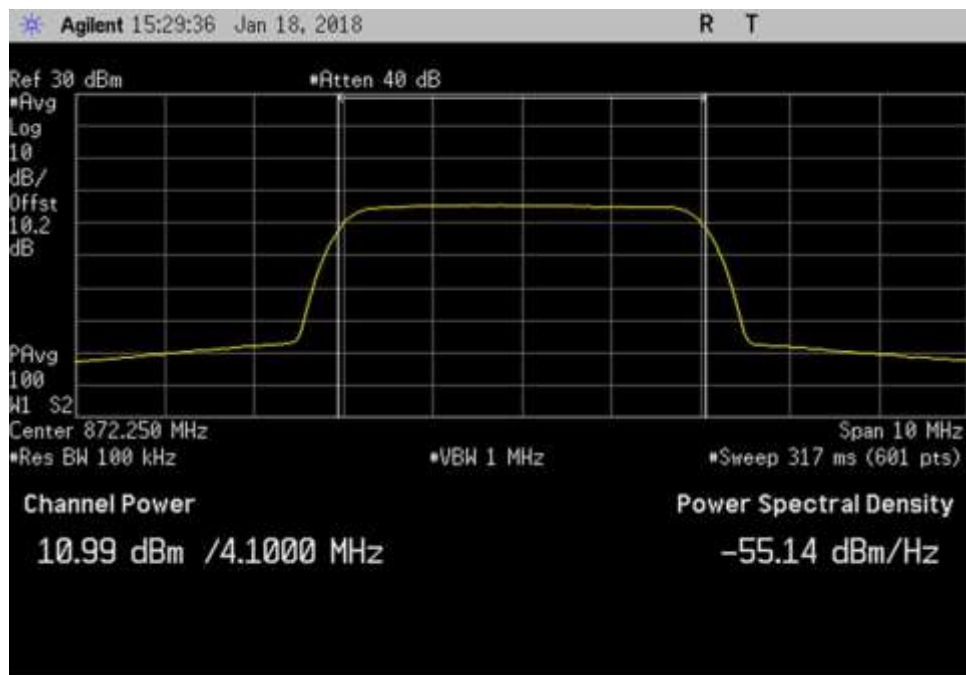
DL_748.5MHz_AWGN



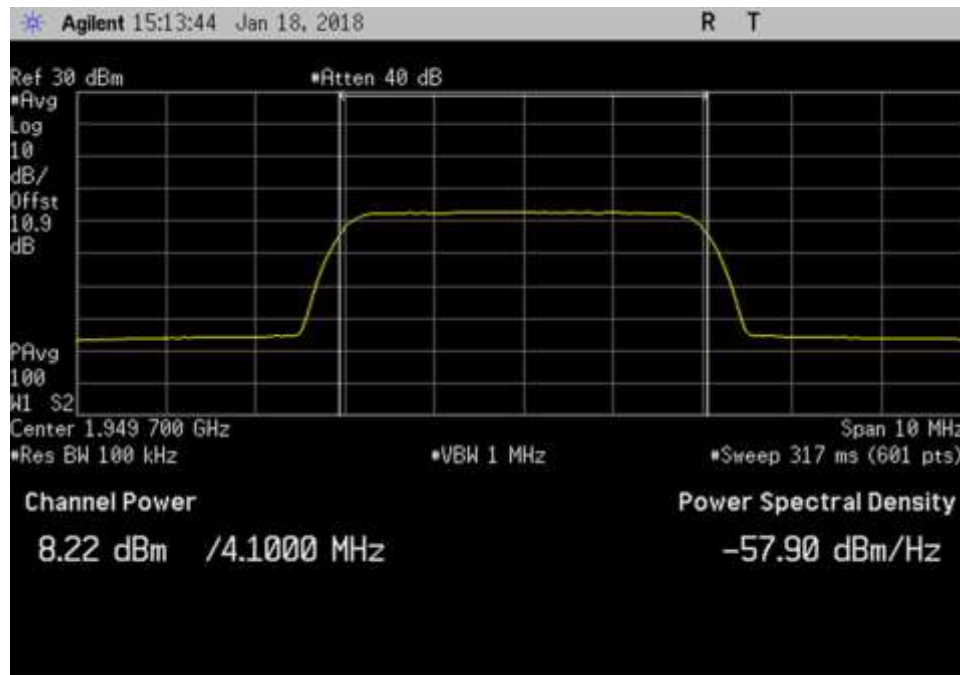
DL_748.5MHz_AWGN_Max



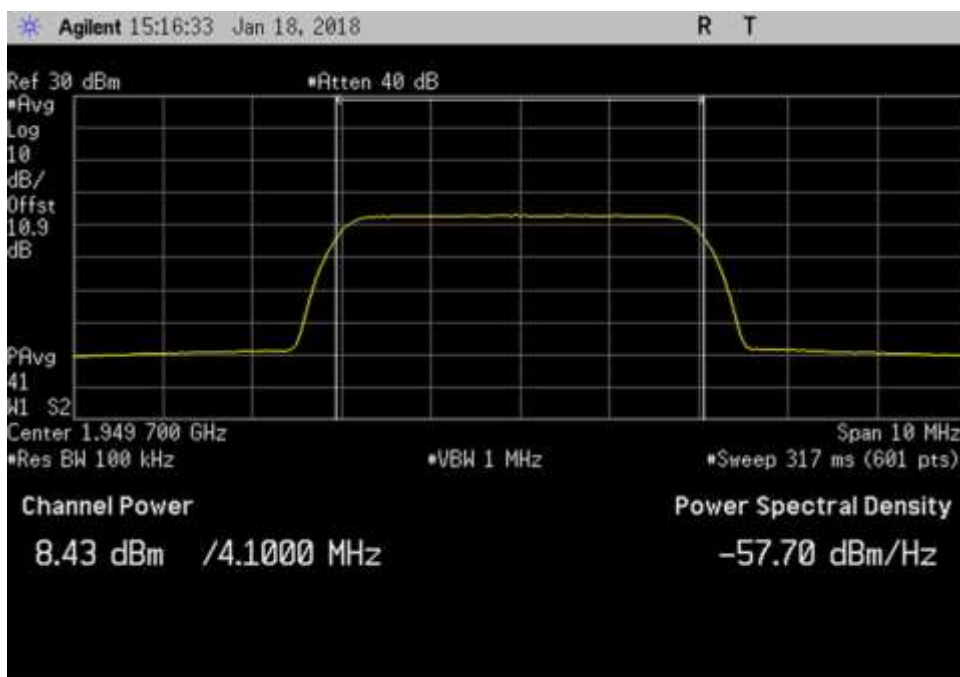
DL_872.25MHz_AWGN



DL_872.25MHz_AWGN_Max



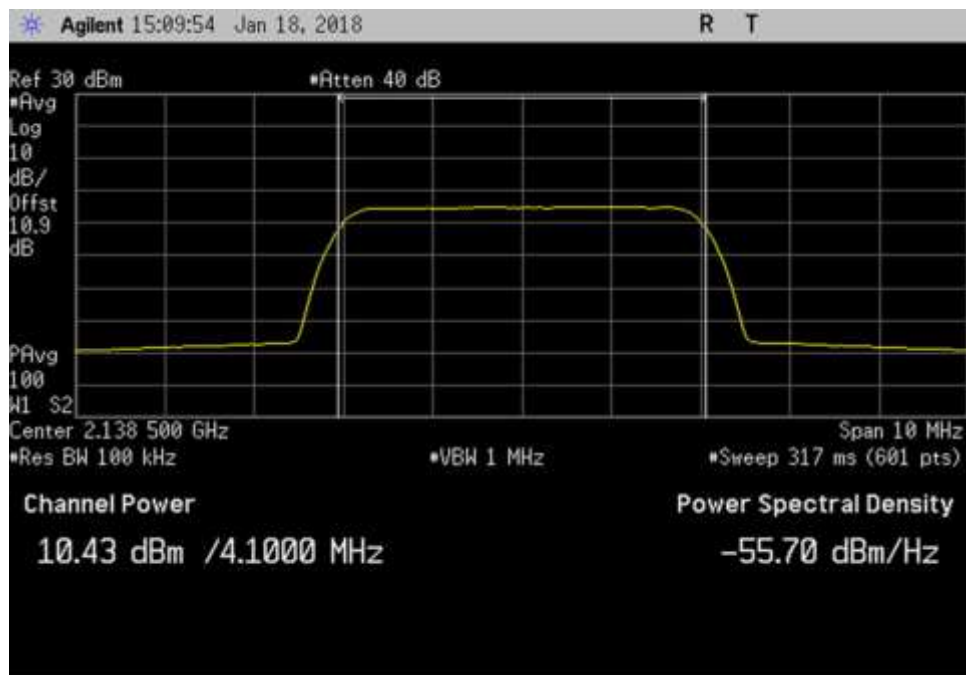
DL_1949.7MHz_AWGN



DL_1949.7MHz_AWGN_Max

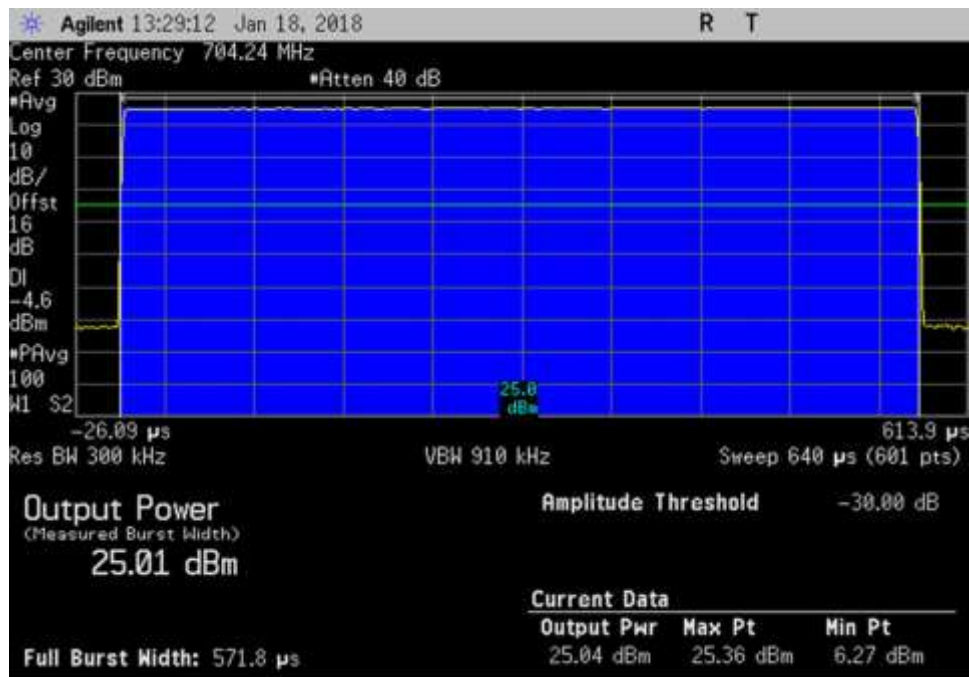


DL_2138.5MHz_AWGN

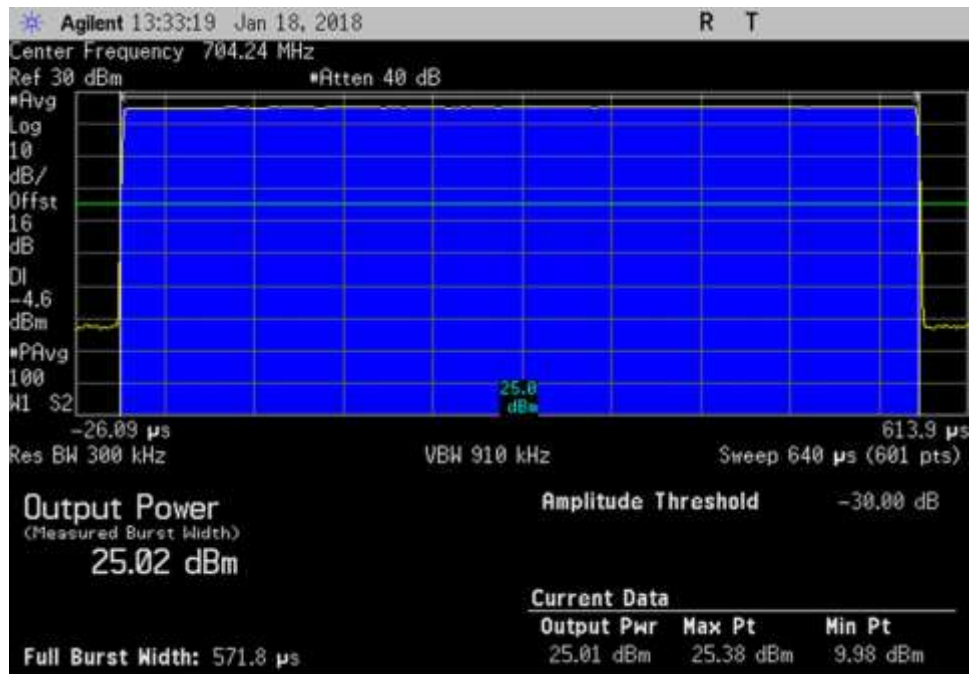


DL_2138.5MHz_AWGN_Max

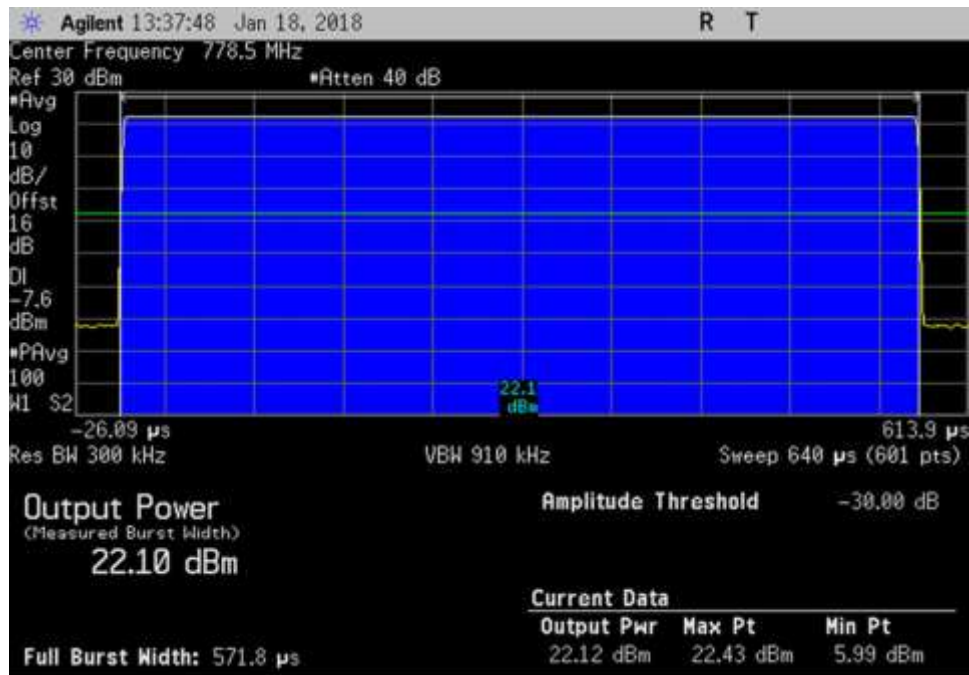
GSM



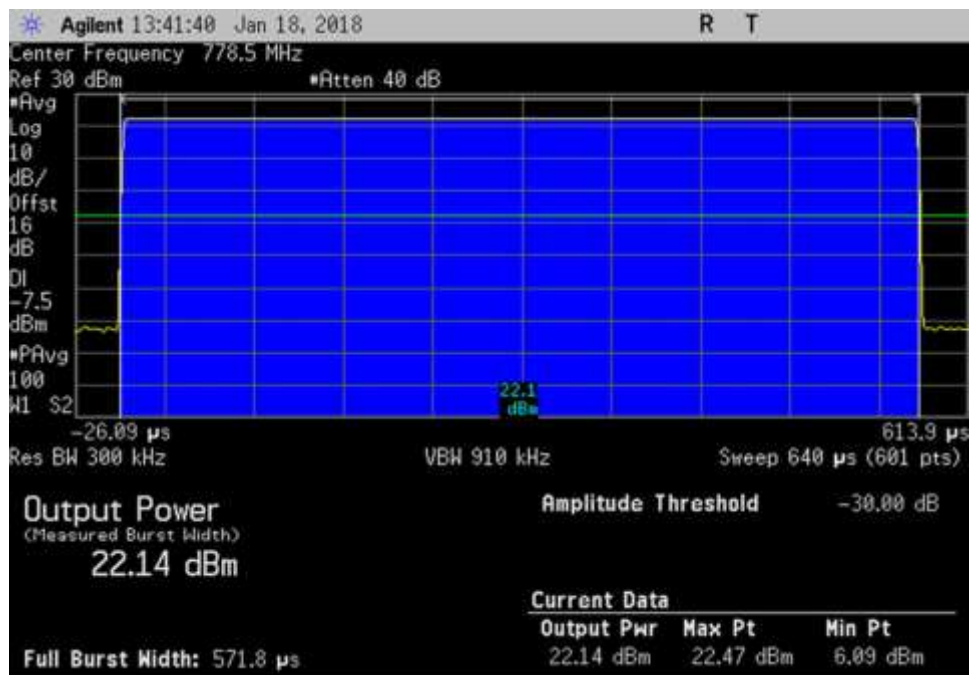
UL_704.24MHz_GSM



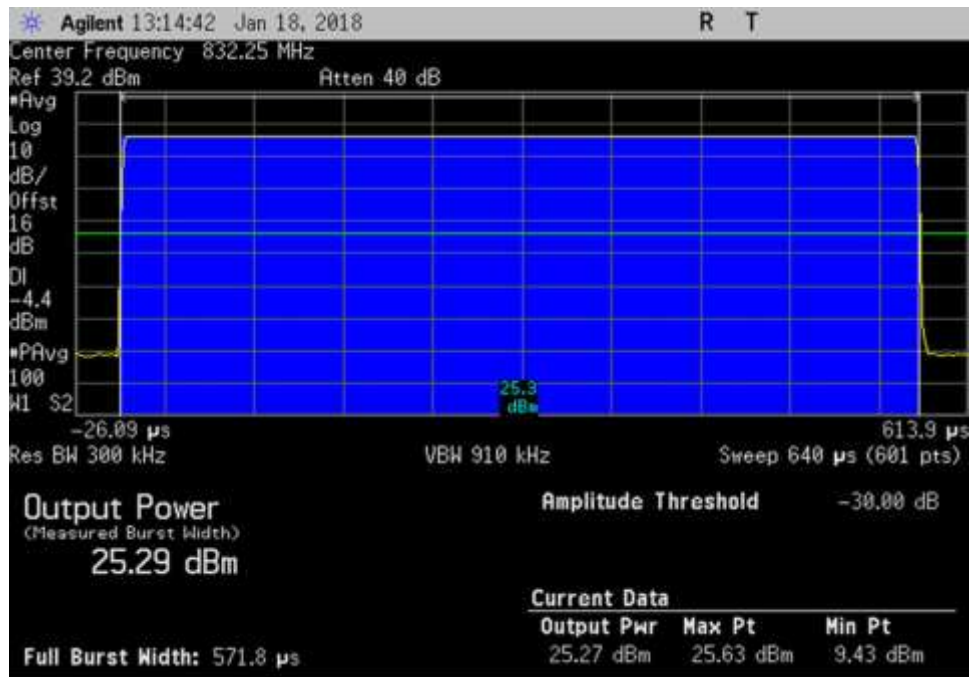
UL_704.24MHz_GSM_Max



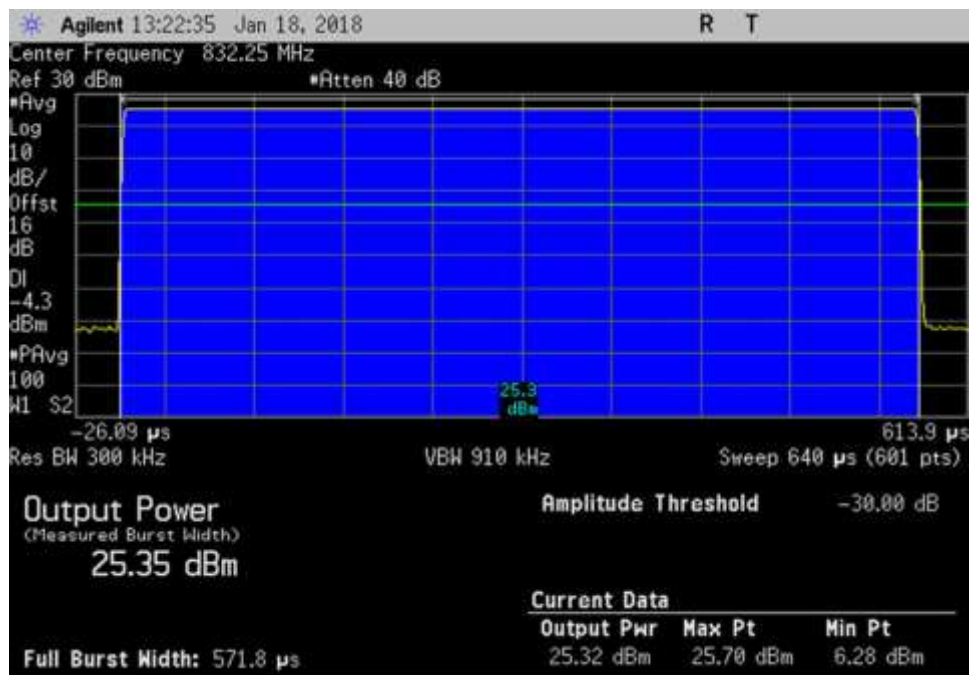
UL_778.5MHz_GSM



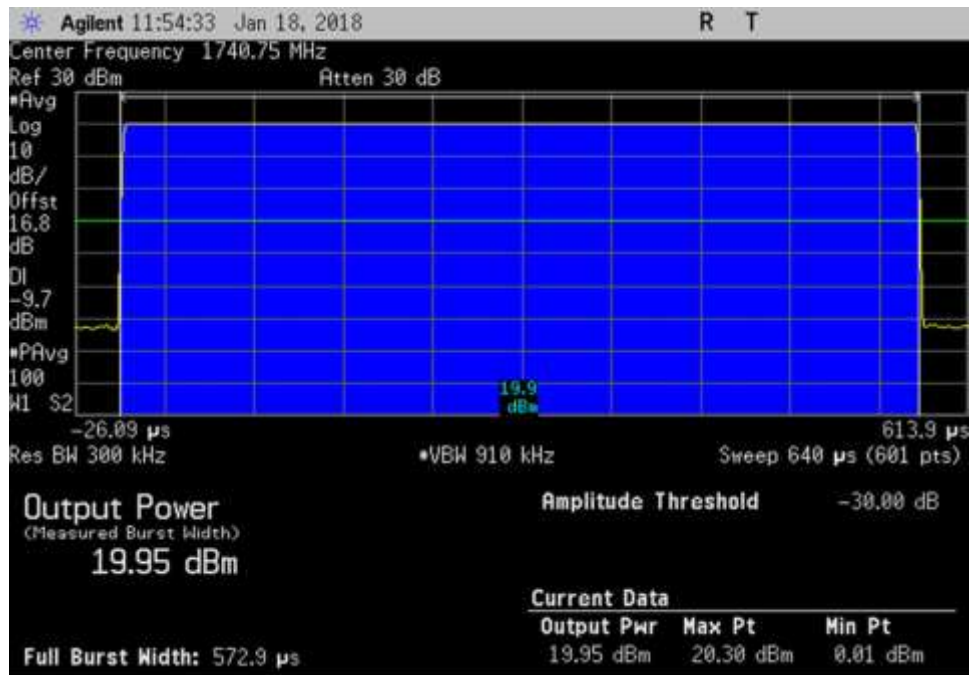
UL_778.5MHz_GSM_Max



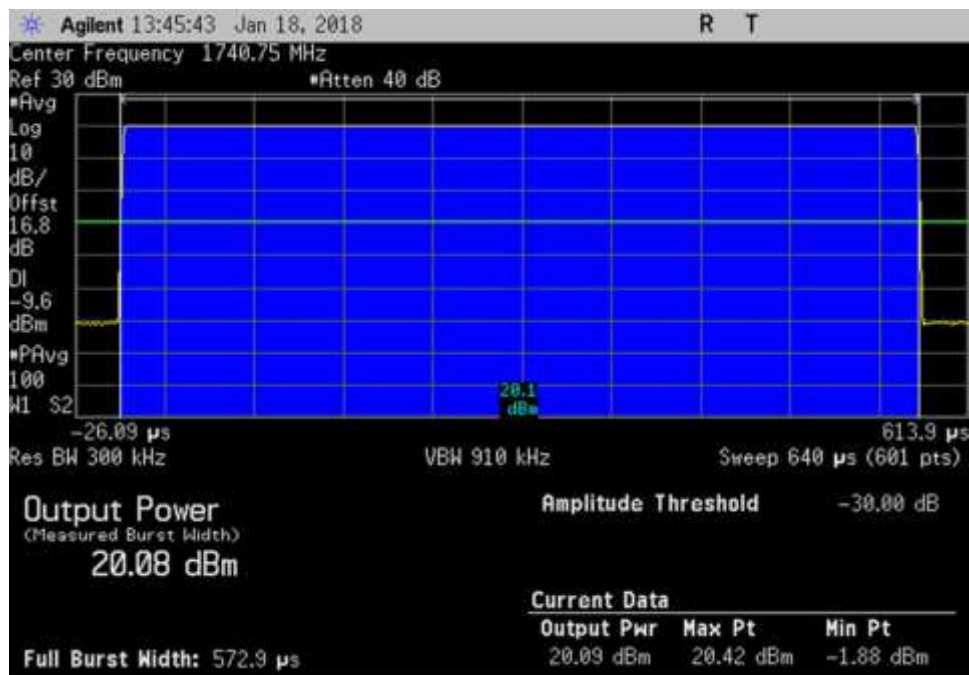
UL_ 832.25MHz_GSM



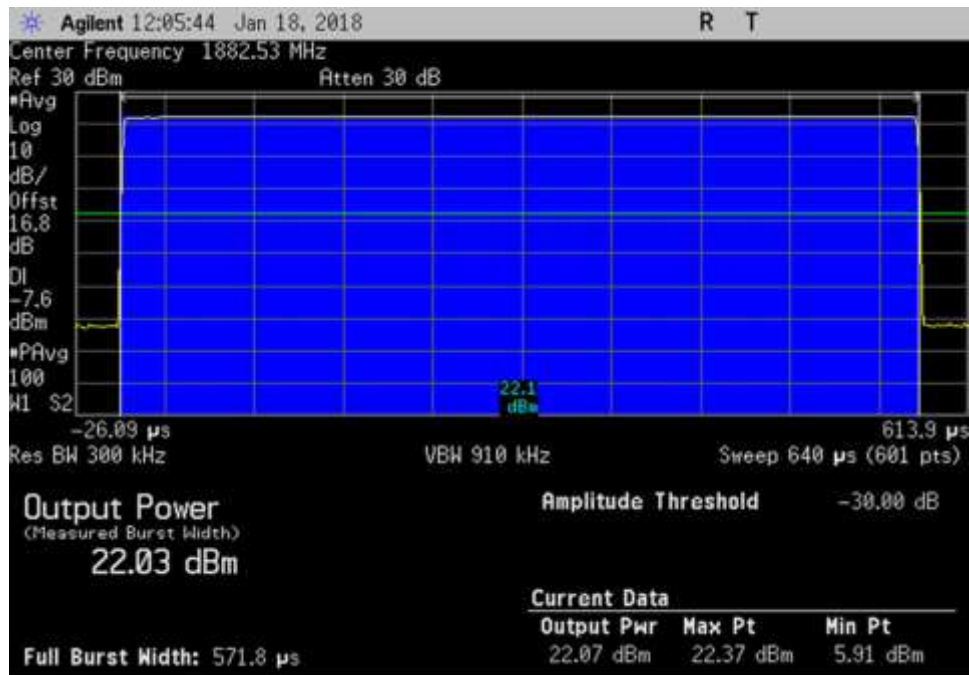
UL_ 832.25MHz_GSM_Max



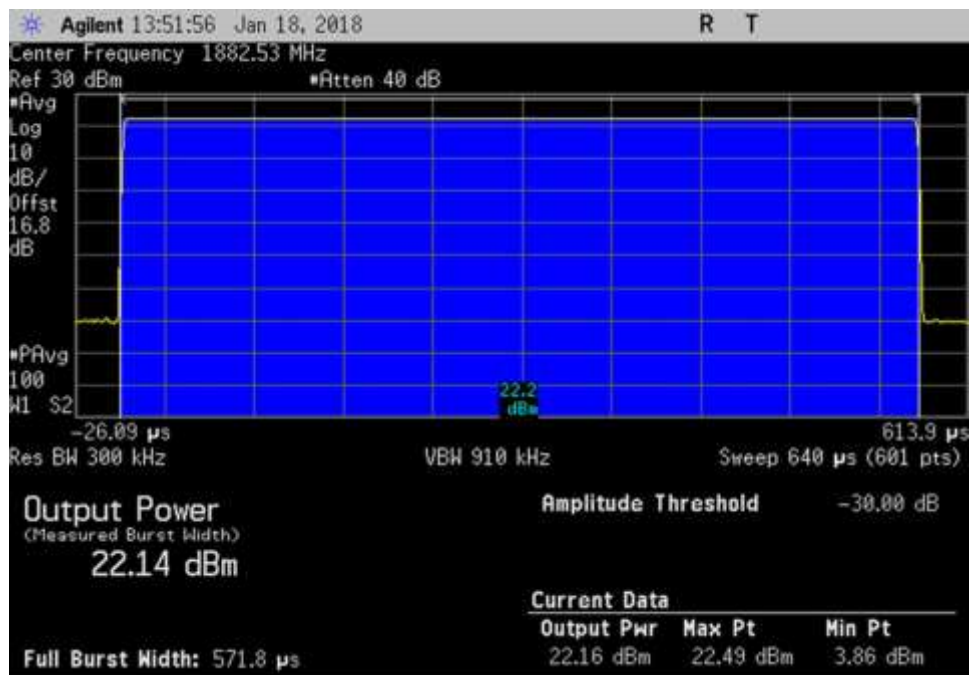
UL_1740.75MHz_GSM



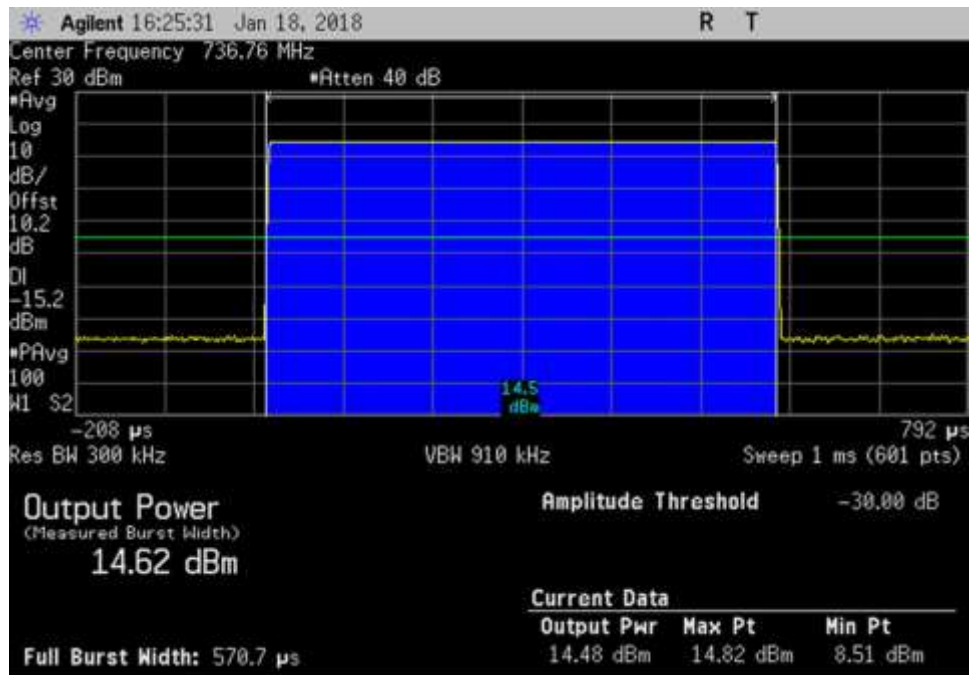
UL_1740.75MHz_GSM_Max



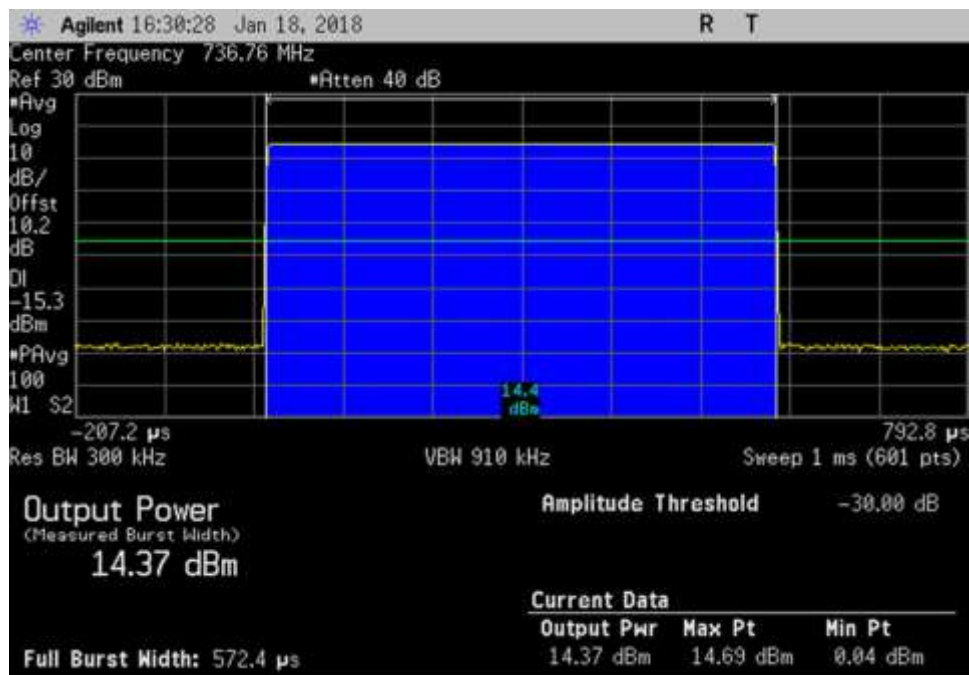
UL_1882.53MHz_GSM



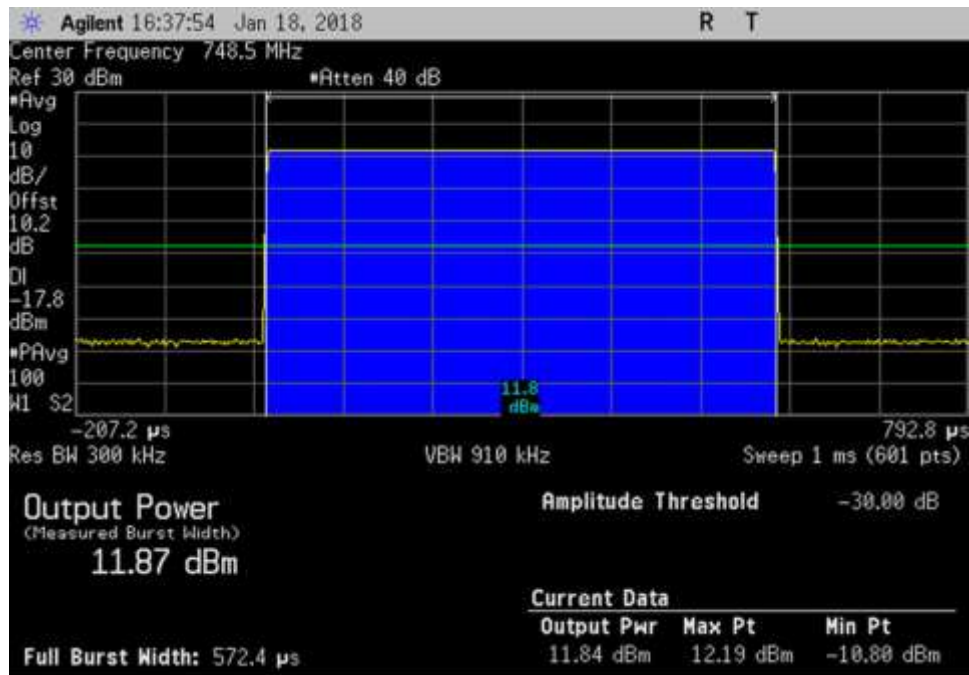
UL_1882.53MHz_GSM_Max



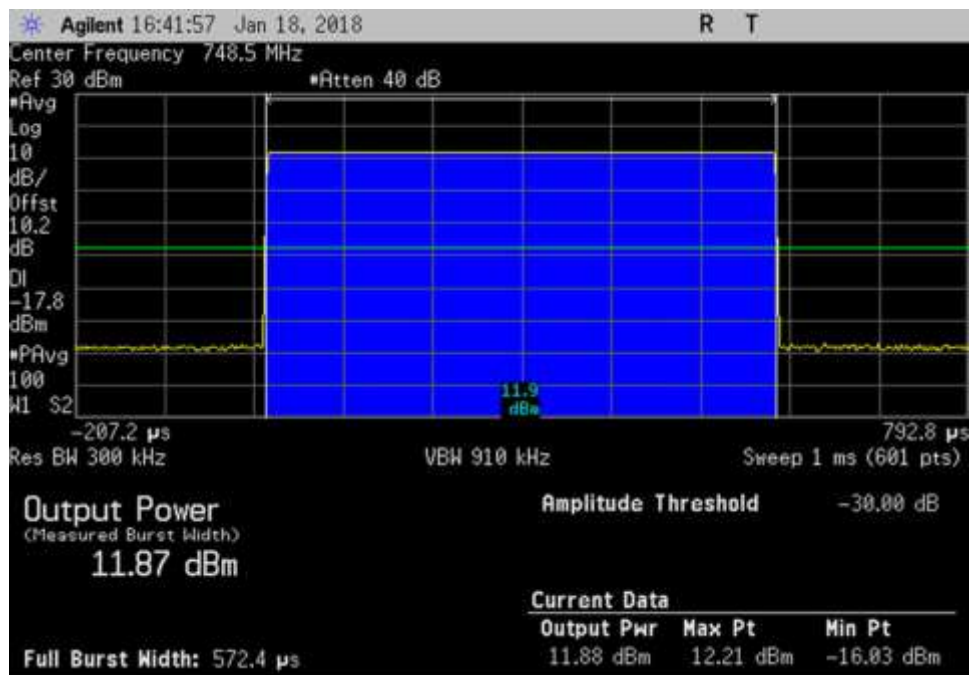
DL_736.76MHz_GSM



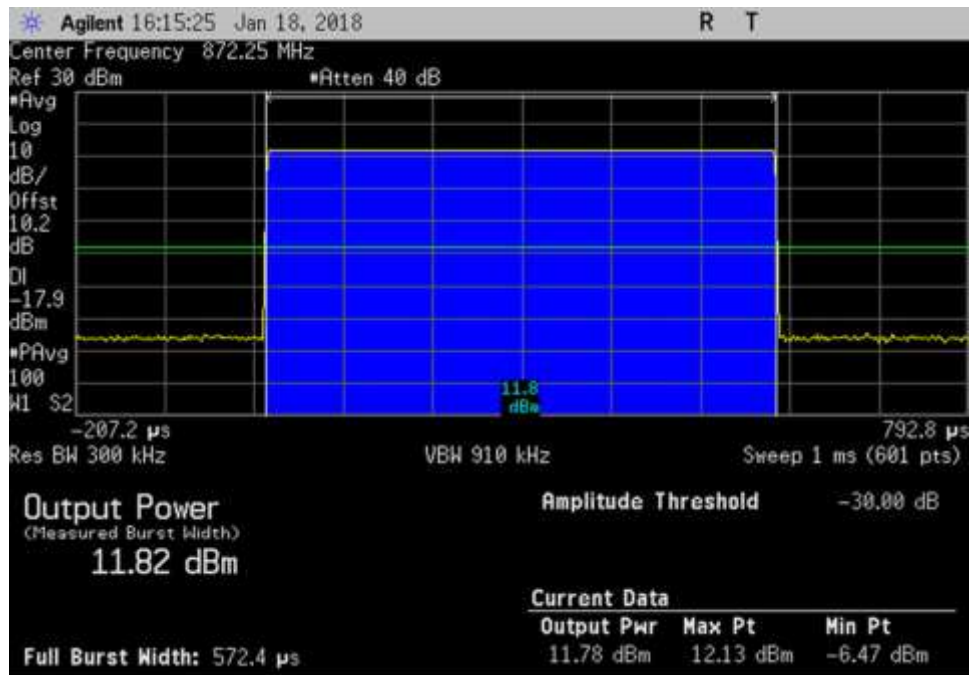
DL_736.76MHz_GSM_Max



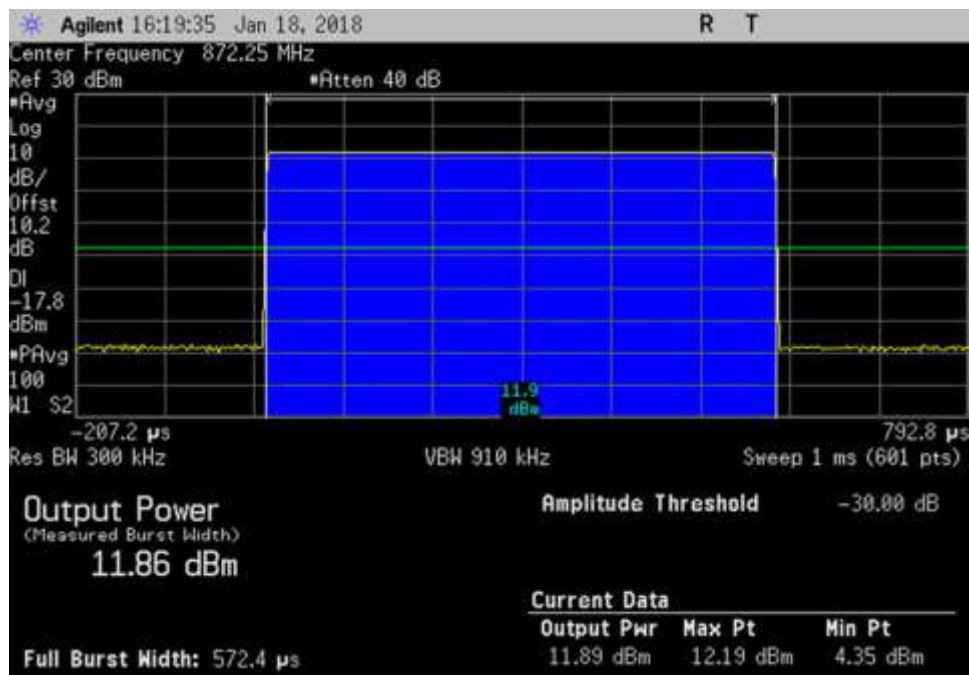
DL_748.5MHz_GSM



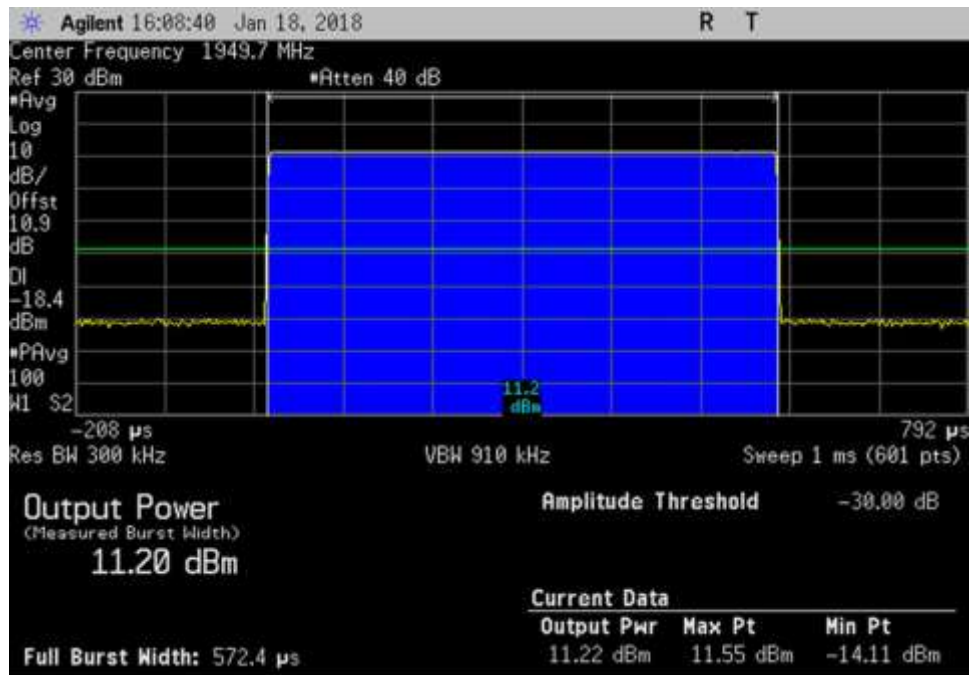
DL_748.5MHz_GSM_Max



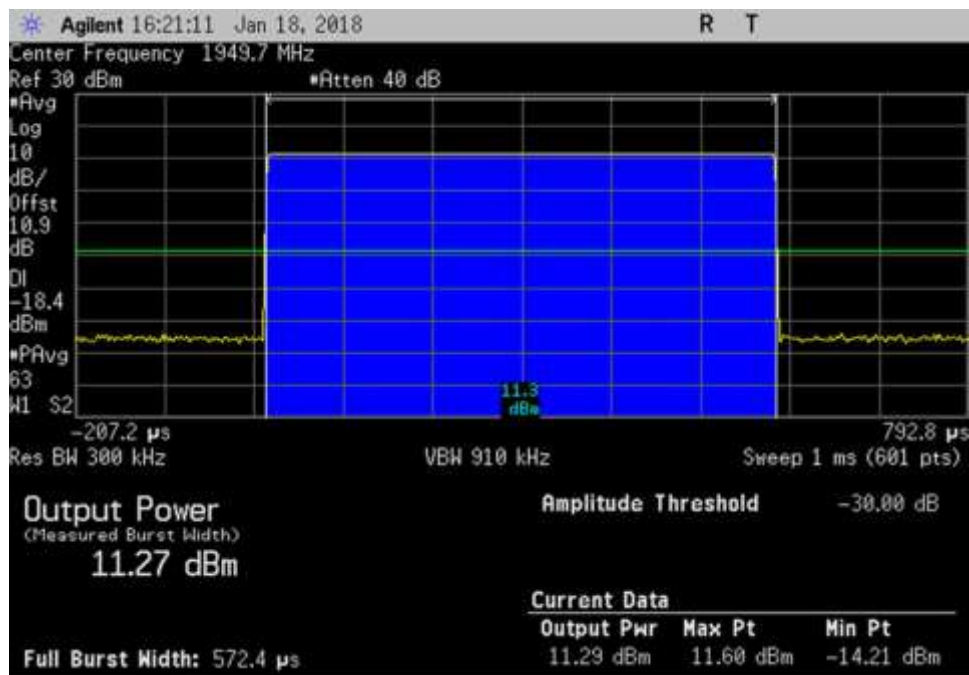
DL_872.25MHz_GSM



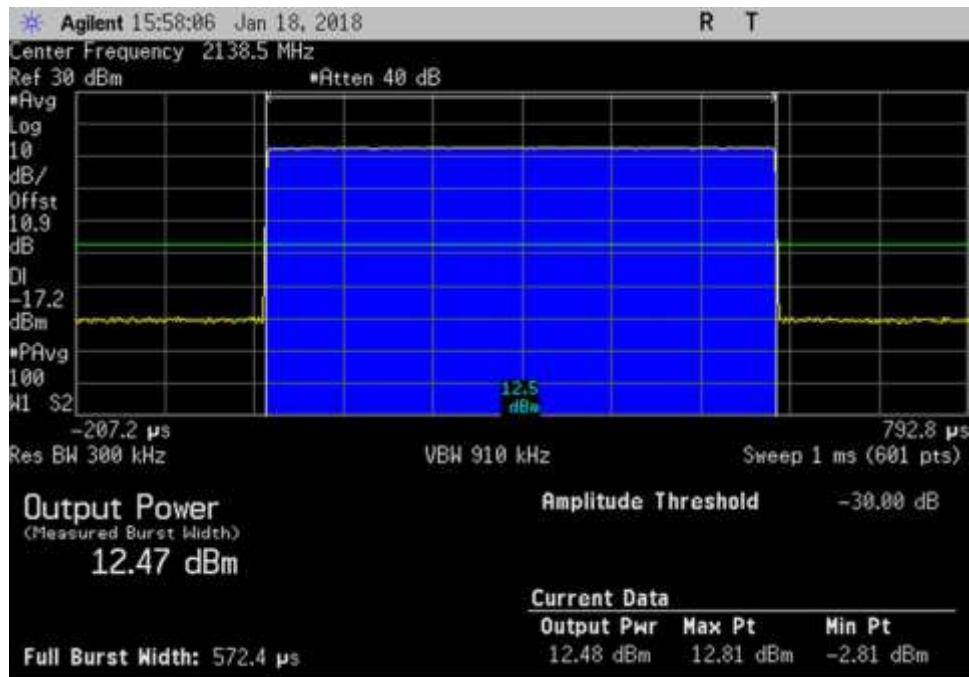
DL_872.25MHz_GSM_Max



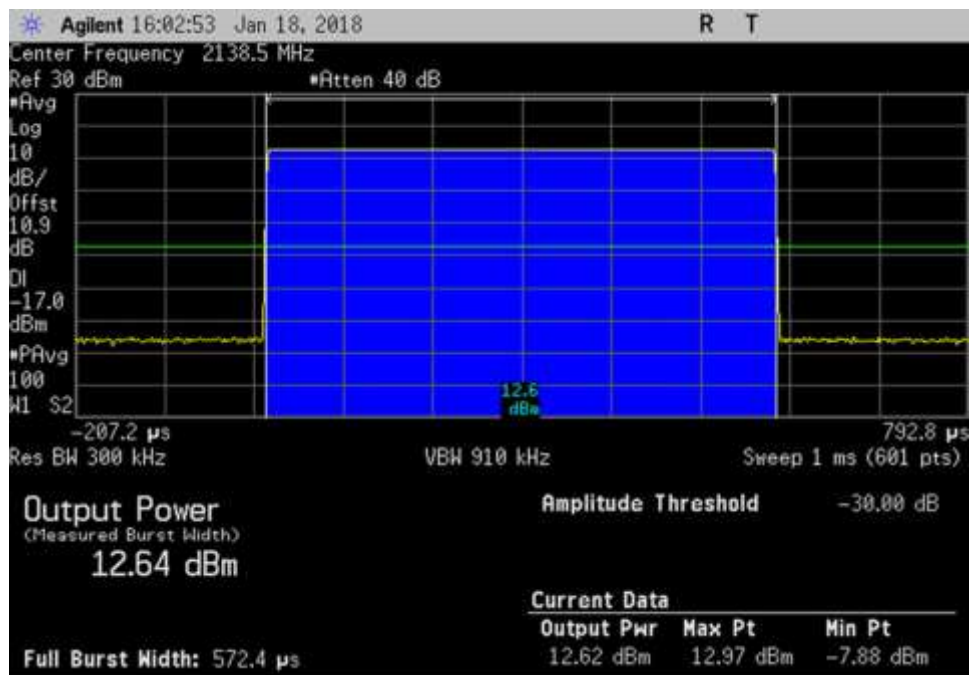
DL_1949.7MHz_GSM



DL_1949.7MHz_GSM_Max



DL_2138.5MHz_GSM



DL_2138.5MHz_GSM_Max

7.4 Intermodulation Product

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.4 Intermodulation Product**
 Work Order #: **100825** 1/19/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu S. Nguyenpham/ Eddie Wong**
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions:
 Temperature: 23.5°C
 Relative Humidity: 41%
 Pressure: 102.1 kPa

Modification #1 and #2 were in place during testing.

Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/19/2018	1/19/2020
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019

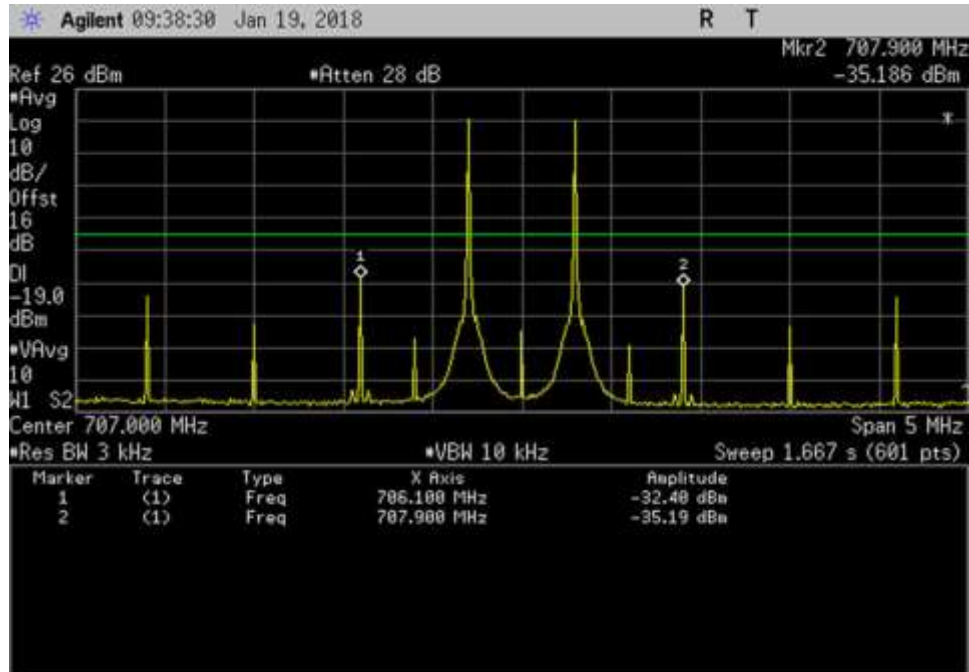
Summary of Results

Pass: As shown on the plots, all intermodulation products are measured below -19dbm limit.

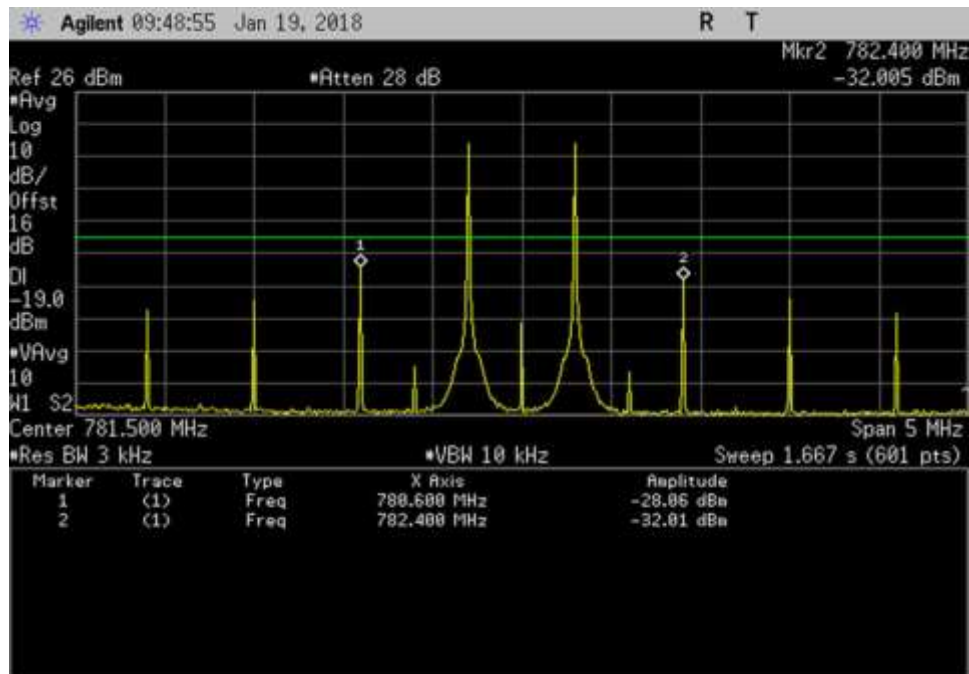
Inter Modulation Product			
Frequency (MHz)	Pre AGC (dBm)	Limit (dBm)	Results
UL 1710-1755	-33.4	-19	Pass
UL 1850-1915	-26.4	-19	Pass
UL 824-894	-20.8	-19	Pass
UL 698-716	-32.4	-19	Pass
UL 776-787	-28.0	-19	Pass
DL 2110-2155	-39.8	-19	Pass
DL 1930-1995	-47.7	-19	Pass
DL 869-894	-45.3	-19	Pass
DL 728-746	-36.1	-19	Pass
DL 746-757	-38.4	-19	Pass

Note: The EUT maintains compliance with the intermodulation limit at input power of AGC+10dB

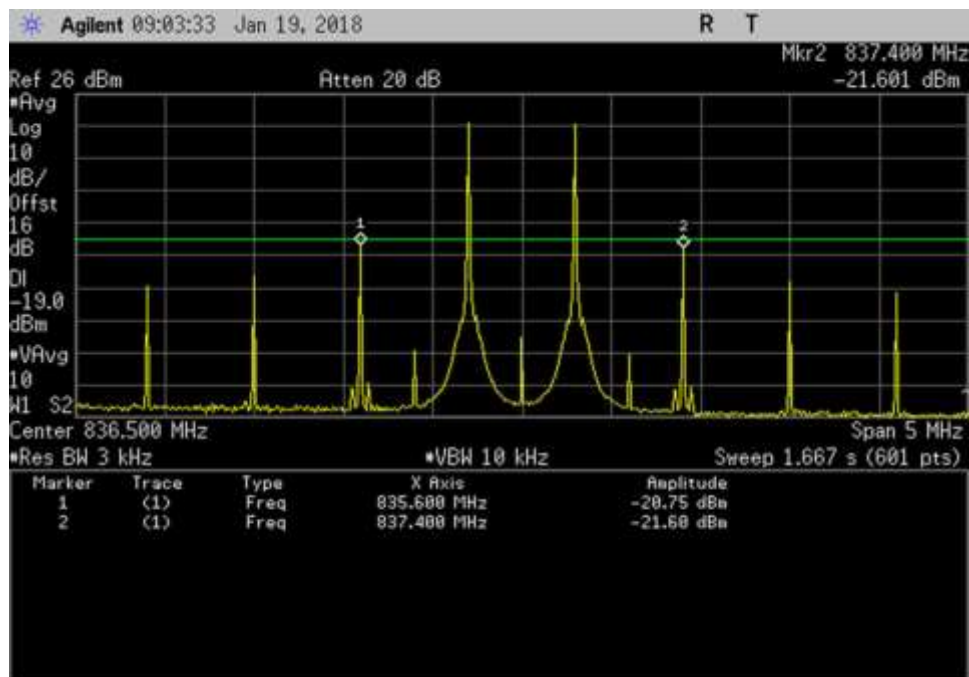
Plots



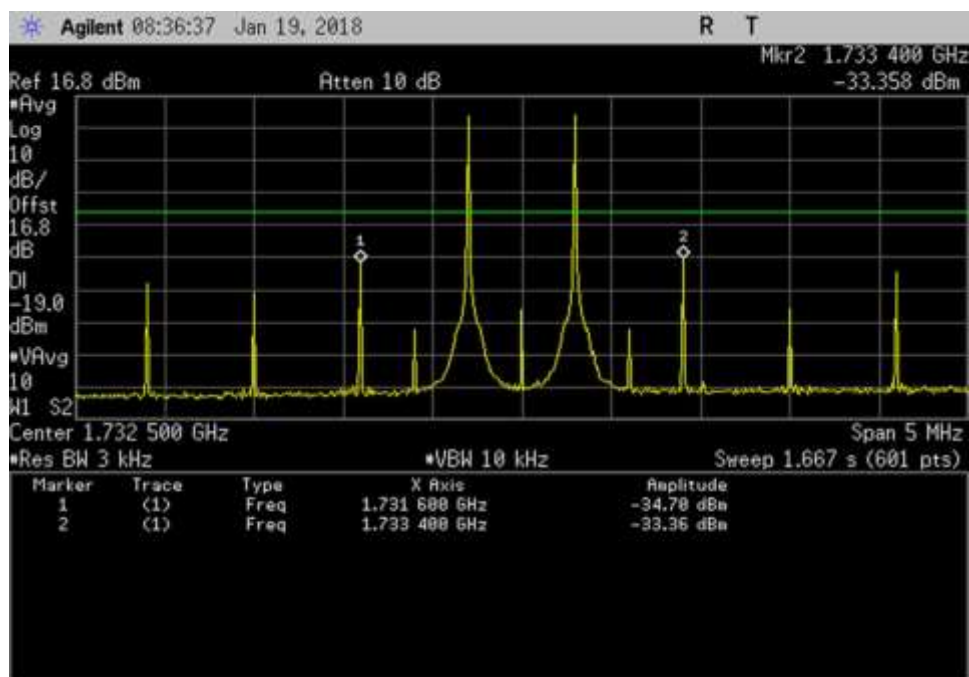
UL_707MHz



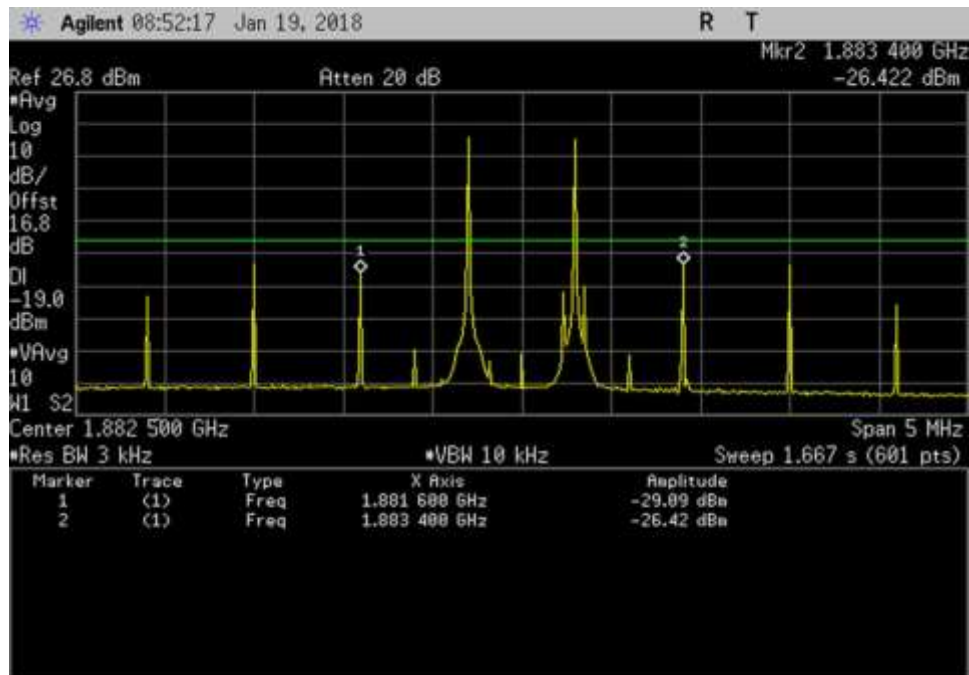
UL_781.5MHz



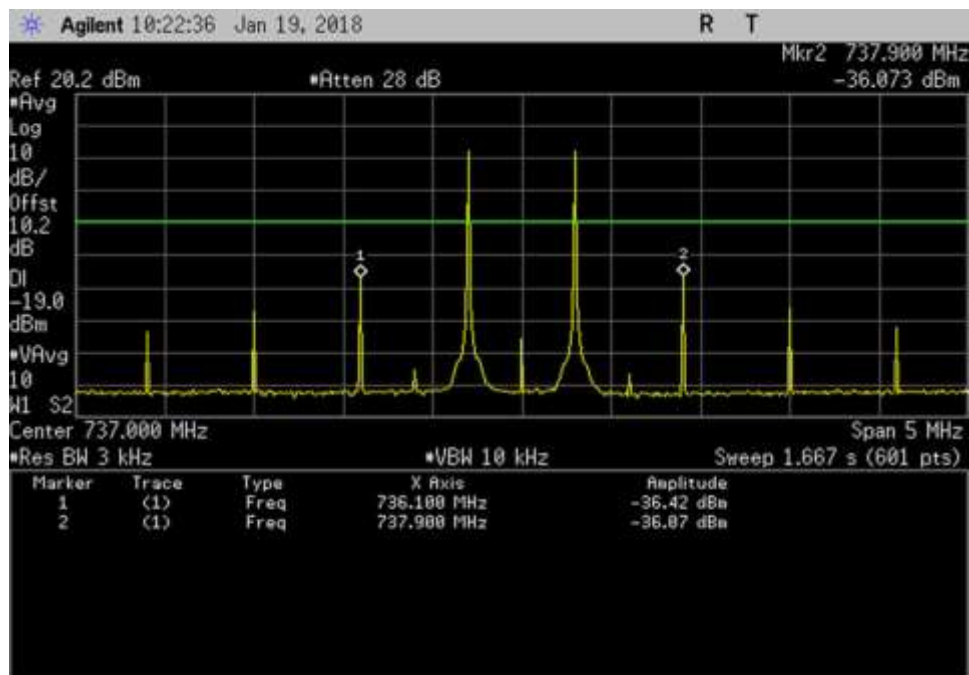
UL_ 836.5MHz



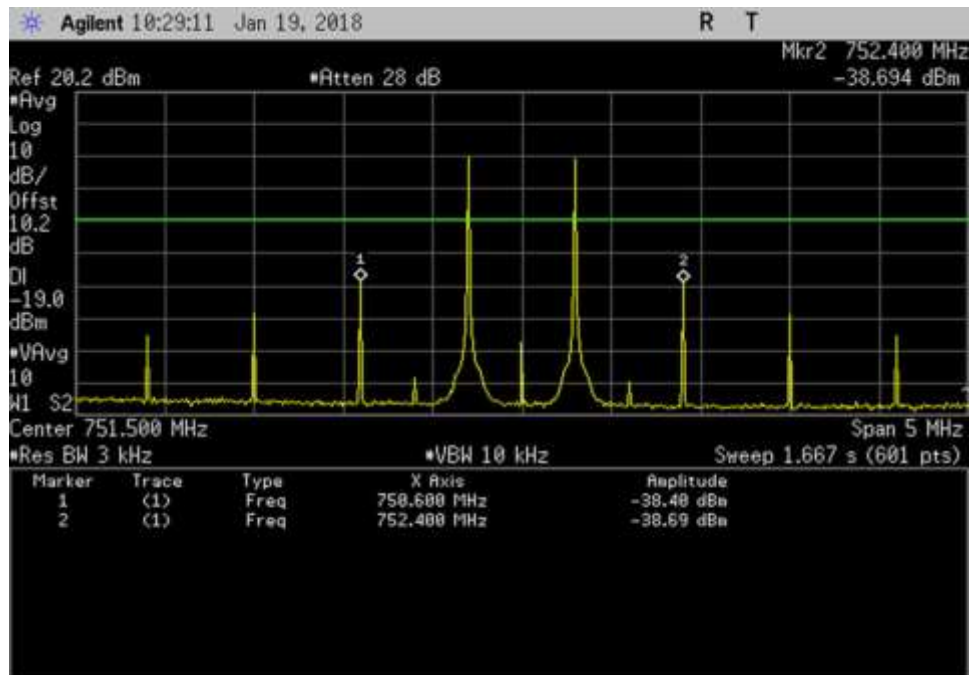
UL_ 1732.5MHz



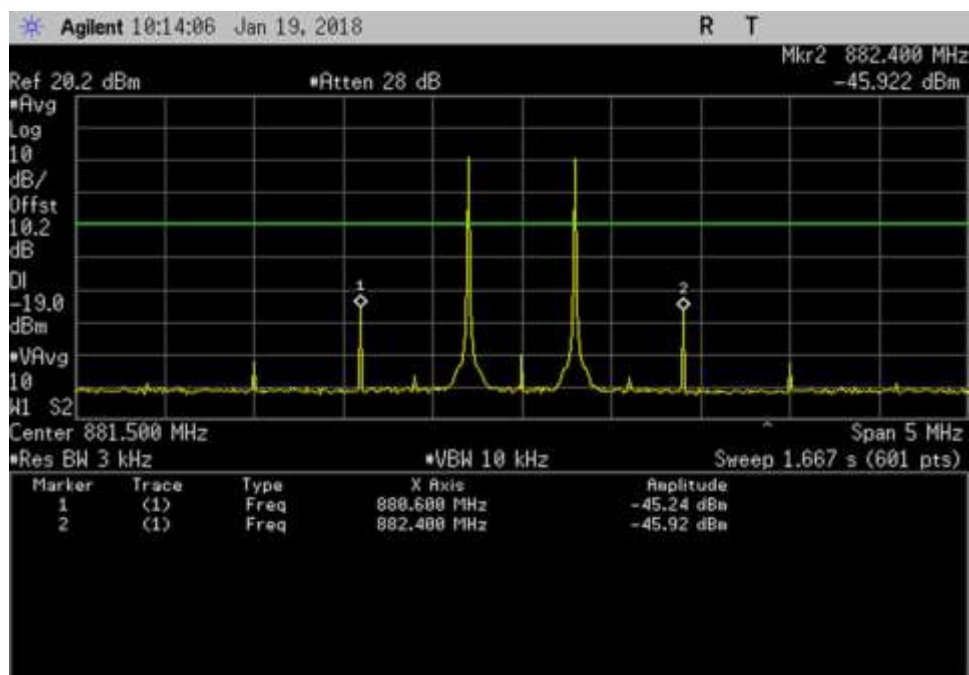
UL_ 1882.5MHz



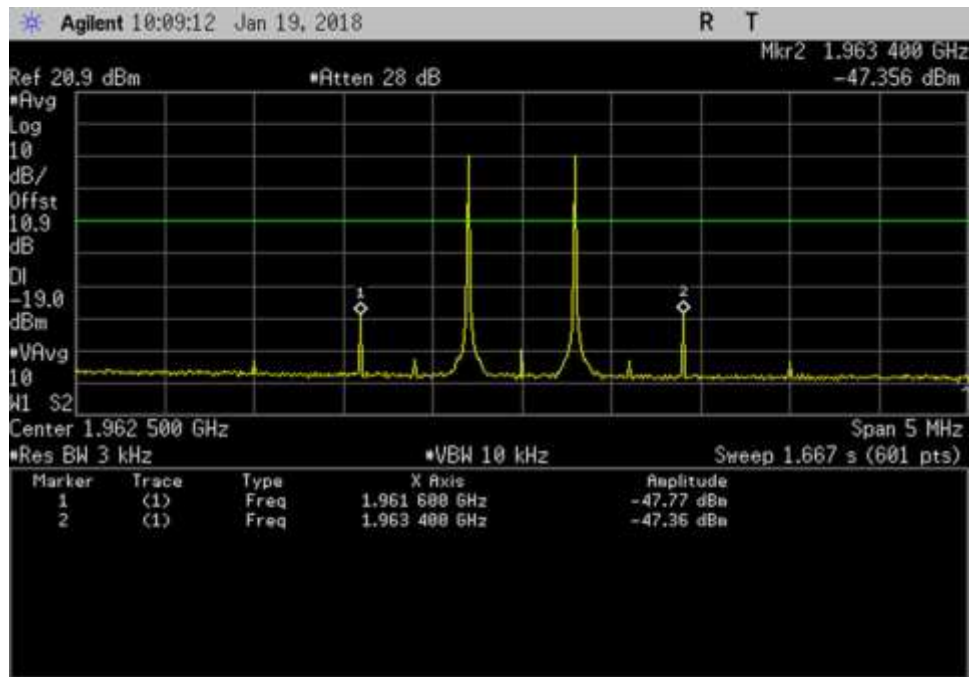
DL_ 737MHz



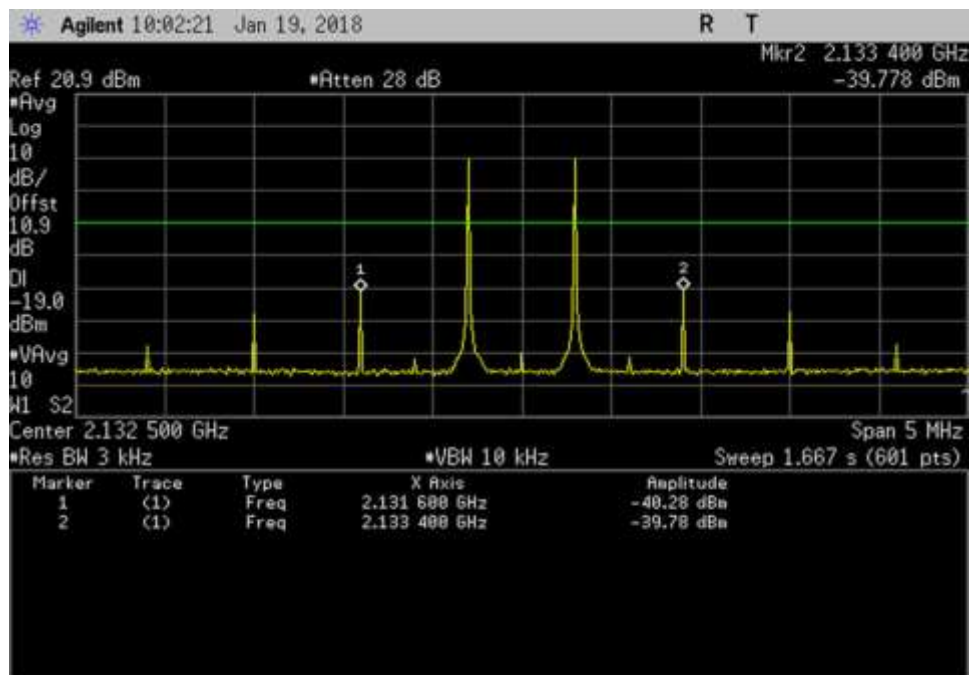
DL_ 751.5MHz



DL_ 881.5MHz



DL_1962.5MHz



DL_2132.5MHz

7.5 Out of Band Emissions

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.5 Out-of-band Emissions**
 Work Order #: **100825** 1/19/2018 – 1/30/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu Song Nguyenpham**
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions:
 Temperature: 21.0°C – 23.5°C
 Relative Humidity: 41% - 45%
 Pressure: 102.1 kPa

Modification #1 and #2 were in place during testing.

Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/19/2018	1/19/2020
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019

Summary of Results

Pass: As indicated in plots below, all OBE are under the limit of -19dBm.

GSM

Low				High			
Out of Band Emission				Out of Band Emission			
Frequency (MHz)	Pre AGC	Limit (dBm)	Results	Frequency (MHz)	Pre AGC	Limit (dBm)	Results
UL1710-1755	-25.7	-19	Pass	UL1710-1755	-26.5	-19	Pass
UL1850-1915	-30.3	-19	Pass	UL1850-1915	-36.4	-19	Pass
UL824-849	-22.4	-19	Pass	UL824-849	-22.1	-19	Pass
UL 698-716	-22.2	-19	Pass	UL 698-716	-22.9	-19	Pass
UL776-787	-23.9	-19	Pass	UL776-787	-29.1	-19	Pass
DL2110-2155	-35.9	-19	Pass	DL2110-2155	-34.1	-19	Pass
DL1930-1995	-37.8	-19	Pass	DL1930-1995	-36.9	-19	Pass
DL869-894	-36.1	-19	Pass	DL869-894	-38.0	-19	Pass
DL:728-746	-48.4	-19	Pass	DL:728-746	-45.0	-19	Pass
DL 746-757	-37.8	-19	Pass	DL 746-757	-41.2	-19	Pass

CDMA (alternative 1.25 MHz AWGN)

Low				Hi			
Out of Band Emission				Out of Band Emission			
Frequency (MHz)	Pre AGC	Limit (dBm)	Results	Frequency (MHz)	Pre AGC	Limit (dBm)	Results
UL1710-1755	-19.7	-19	Pass	UL1710-1755	-25.5	-19	Pass
UL1850-1915	-21.7	-19	Pass	UL1850-1915	-45.2	-19	Pass
UL824-849	-32.9	-19	Pass	UL824-849	-23.8	-19	Pass
UL 698-716	-26.4	-19	Pass	UL 698-716	-25.7	-19	Pass
UL776-787	-23.0	-19	Pass	UL776-787	-38.9	-19	Pass
DL2110-2155	-46.0	-19	Pass	DL2110-2155	-44.7	-19	Pass
DL1930-1995	-48.7	-19	Pass	DL1930-1995	-49.9	-19	Pass
DL869-894	-44.0	-19	Pass	DL869-894	-47.0	-19	Pass
DL:728-746	-52.8	-19	Pass	DL:728-746	-52.1	-19	Pass
DL 746-757	-53.1	-19	Pass	DL 746-757	-57.5	-19	Pass

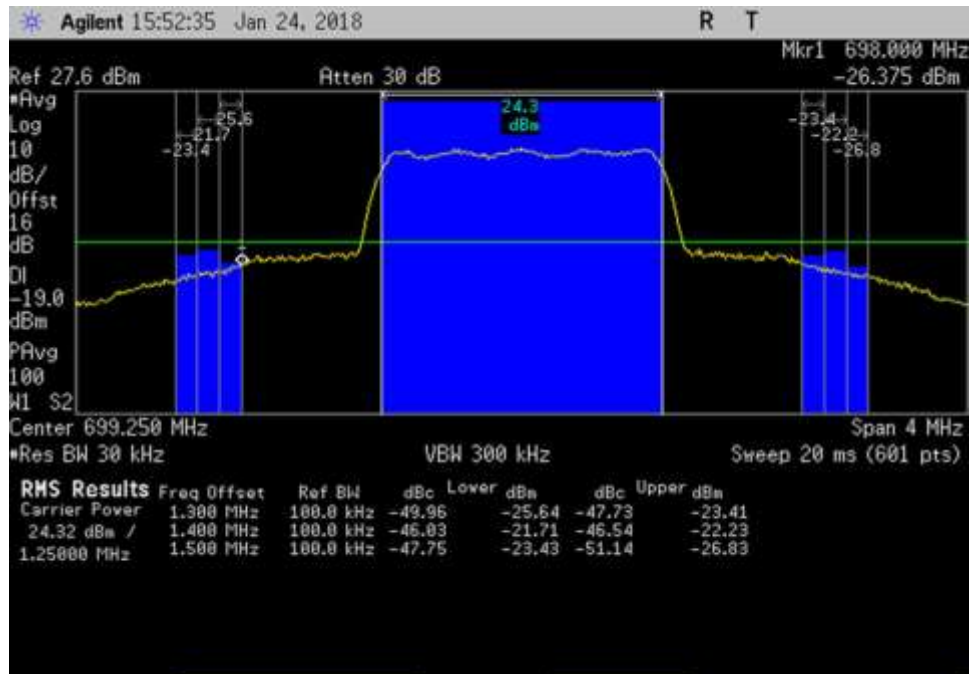
LTE (alternative 4.1MHz AWGN)

Low					Hi			
Out of Band Emission					Out of Band Emission			
Frequency (MHz)	Pre AGC	Limit (dBm)	Results		Frequency (MHz)	Pre AGC	Limit (dBm)	Results
UL1710-1755	-28.6	-19	Pass		UL1710-1755	-29.0	-19	Pass
UL1850-1915	-29.4	-19	Pass		UL1850-1915	-43.6	-19	Pass
UL824-849	-26.2	-19	Pass		UL824-849	-28.1	-19	Pass
UL 698-716	-29.3	-19	Pass		UL 698-716	-26.6	-19	Pass
UL776-787	-26.2	-19	Pass		UL776-787	-36.3	-19	Pass
DL2110-2155	-41.4	-19	Pass		DL2110-2155	-42.2	-19	Pass
DL1930-1995	-41.9	-19	Pass		DL1930-1995	-42.8	-19	Pass
DL869-894	-44.3	-19	Pass		DL869-894	-43.7	-19	Pass
DL:728-746	-48.4	-19	Pass		DL:728-746	-45.0	-19	Pass
DL 746-757	-45.4	-19	Pass		DL 746-757	-50.6	-19	Pass

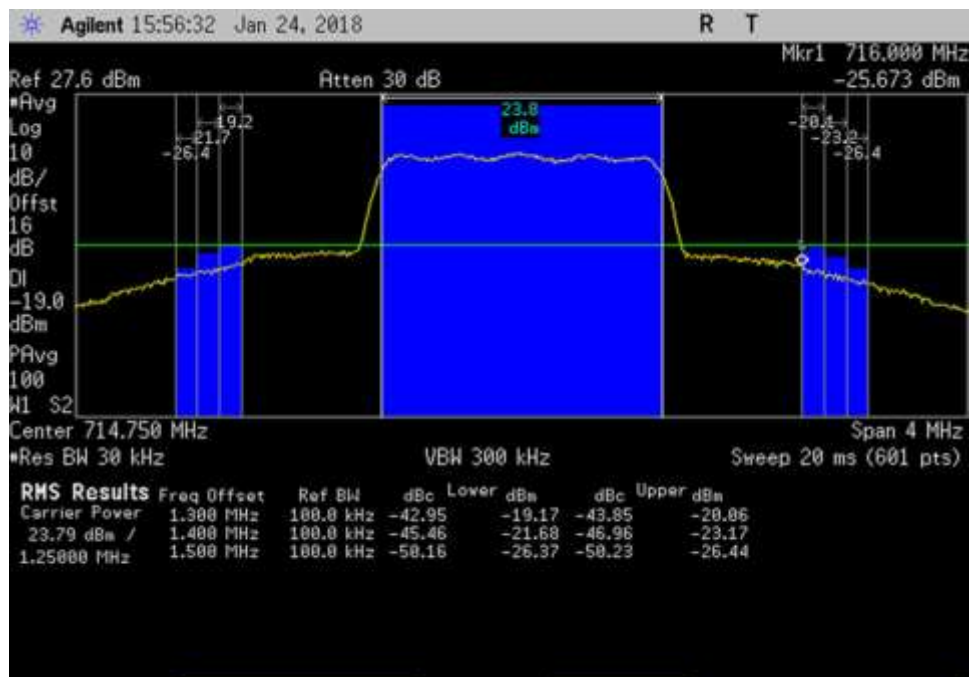
Note: The EUT also maintains compliance with the out-of-band emissions limit at input power indicated in section 5.5.

Plots

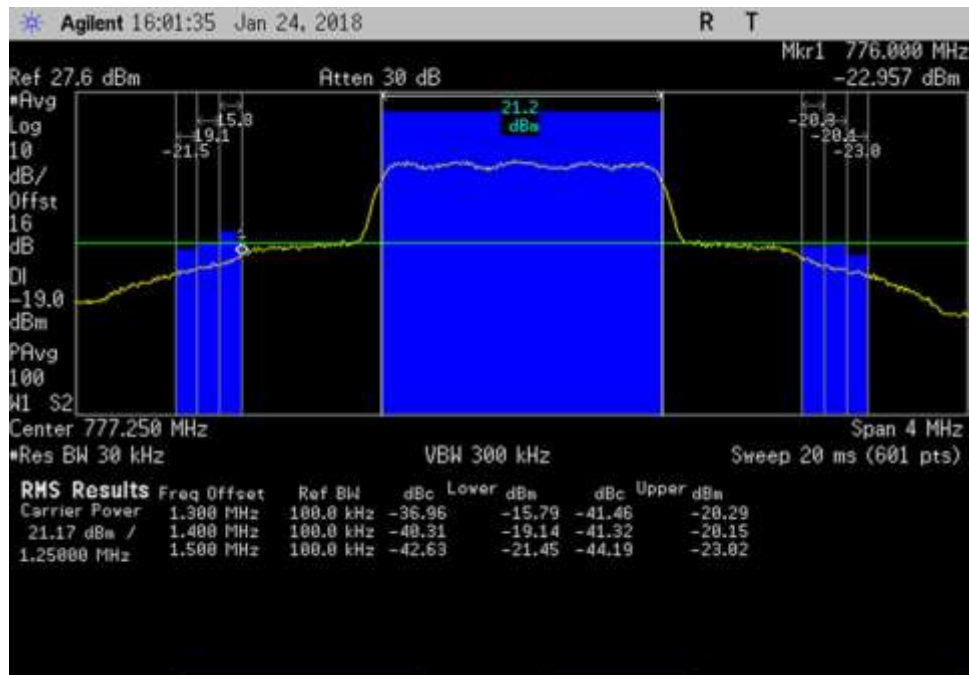
CDMA



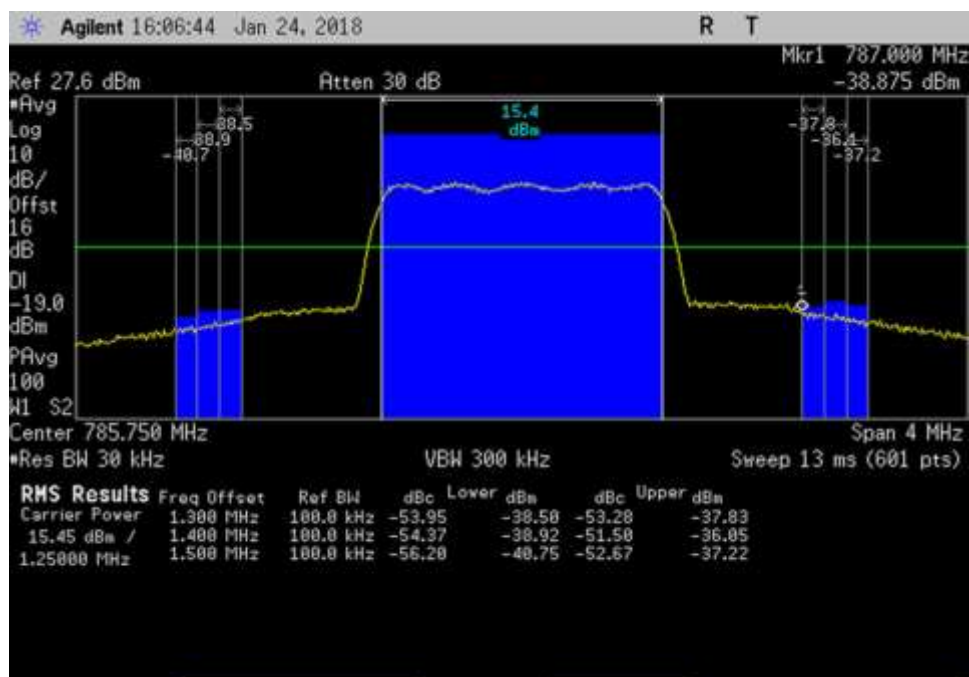
UL_ 697.25- 701.25MHz_CDMA



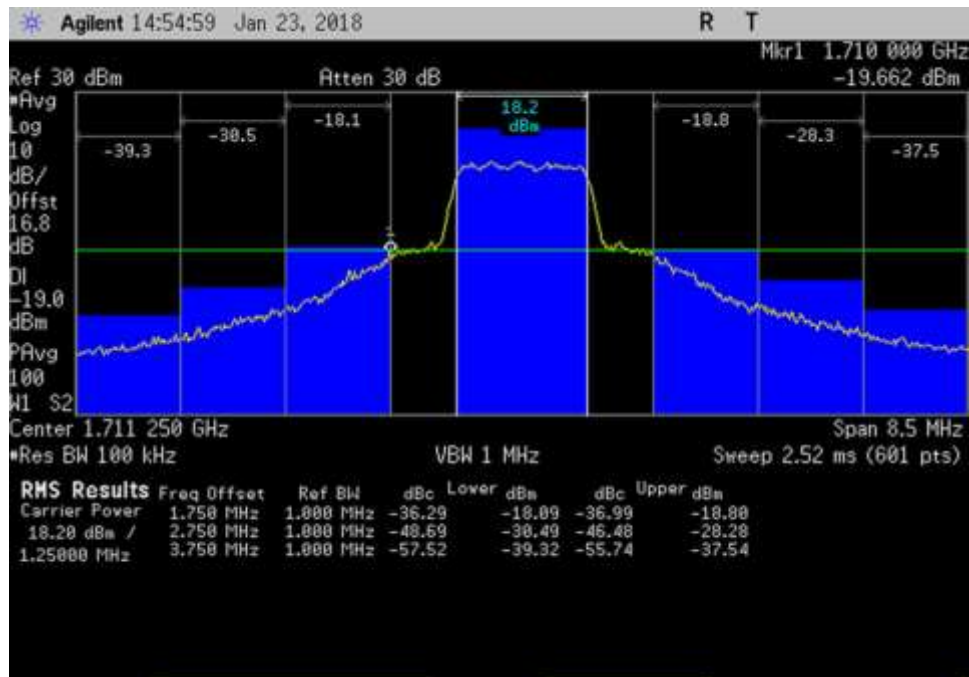
UL_ 712.75- 716.75MHz_CDMA



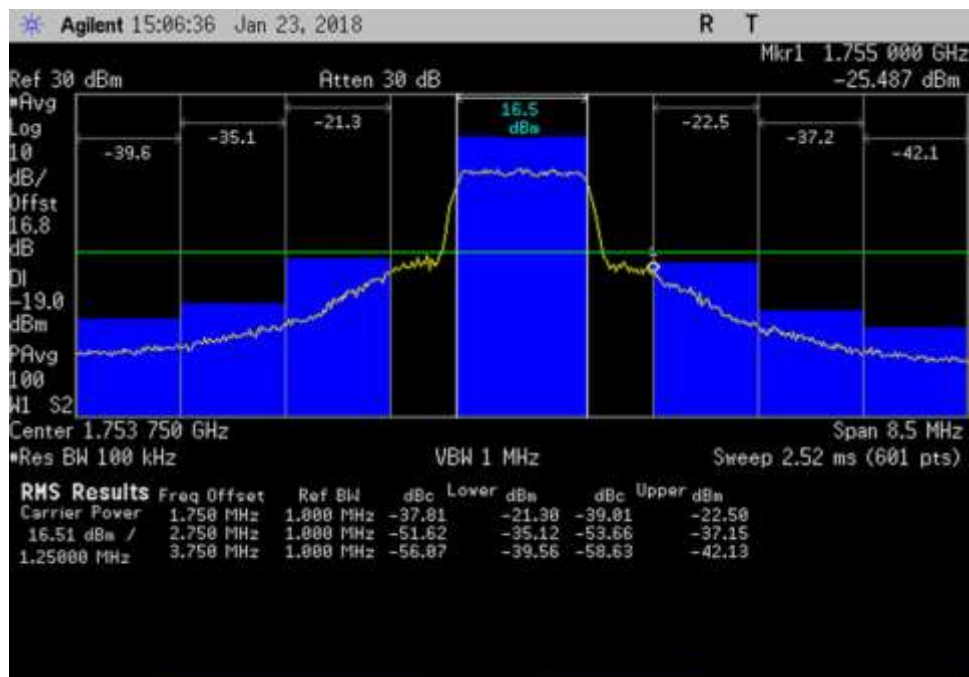
UL_ 775.25- 779.25MHz_CDMA



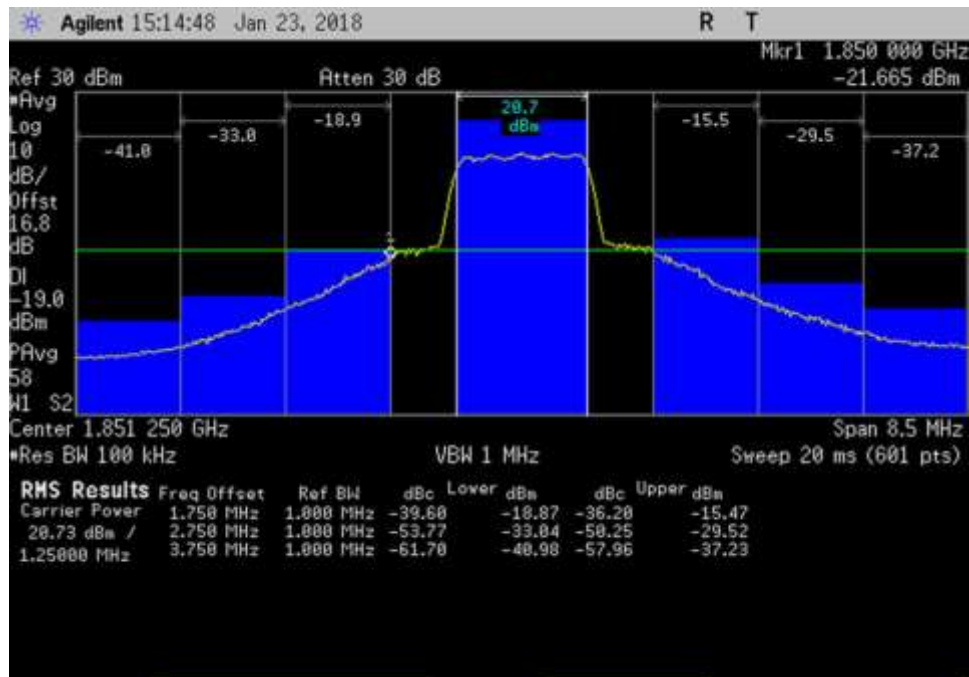
UL_ 783.75- 787.75MHz_CDMA



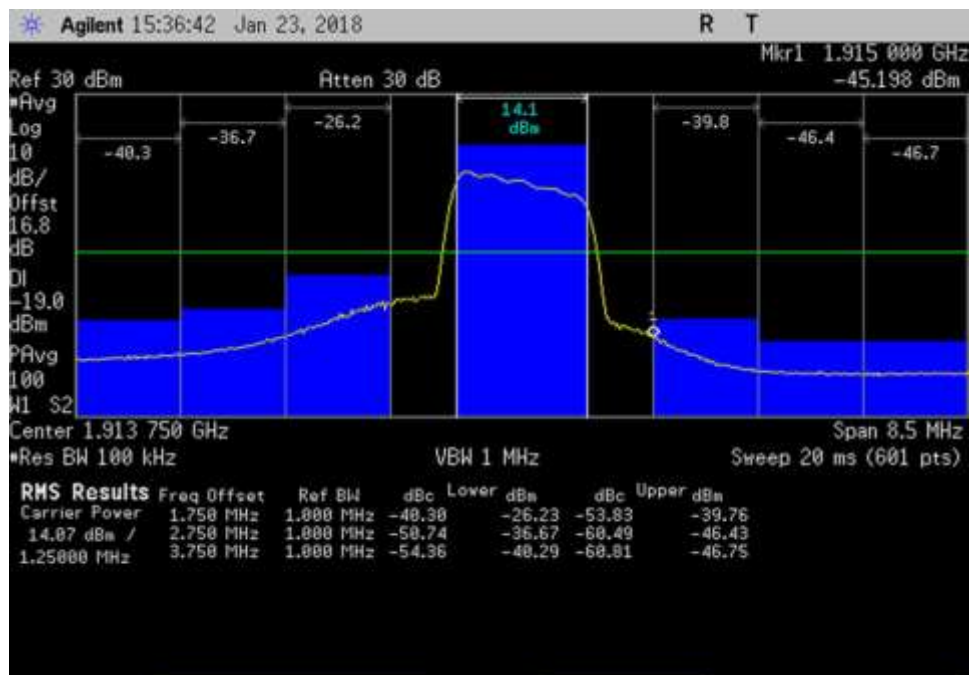
UL_1707- 1715.5MHz_CDMA



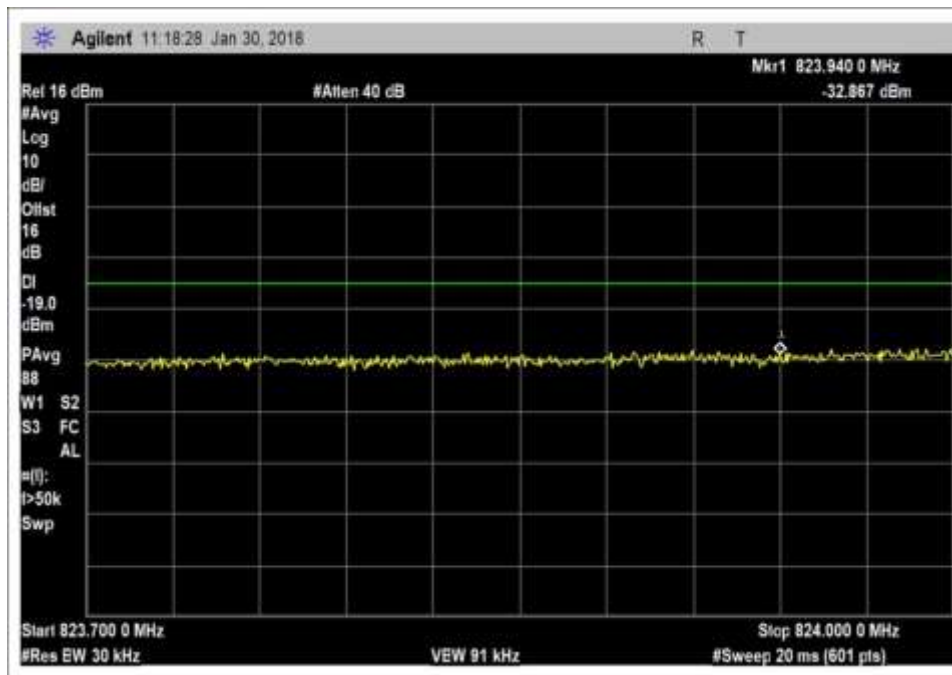
UL_1749.5- 1758MHz_CDMA



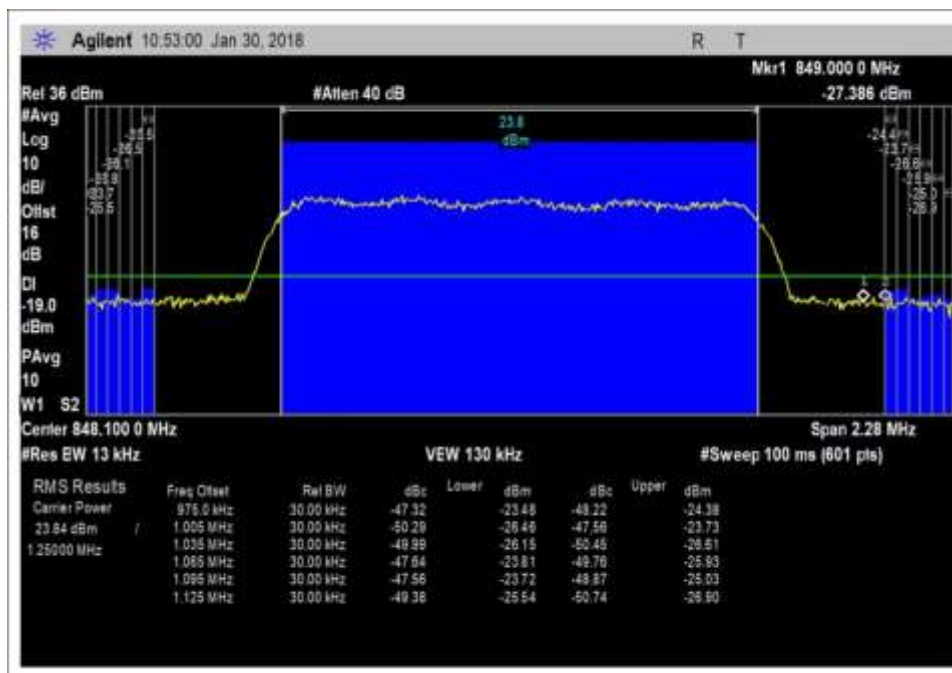
UL_1847-1855.5MHz_CDMA



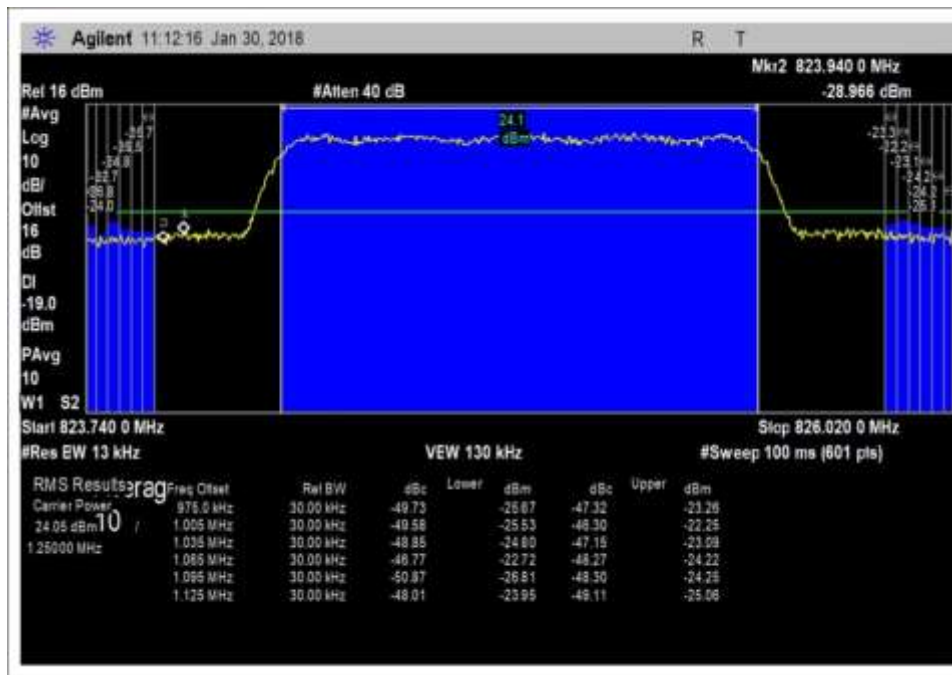
UL_1909.5-1918MHz_CDMA



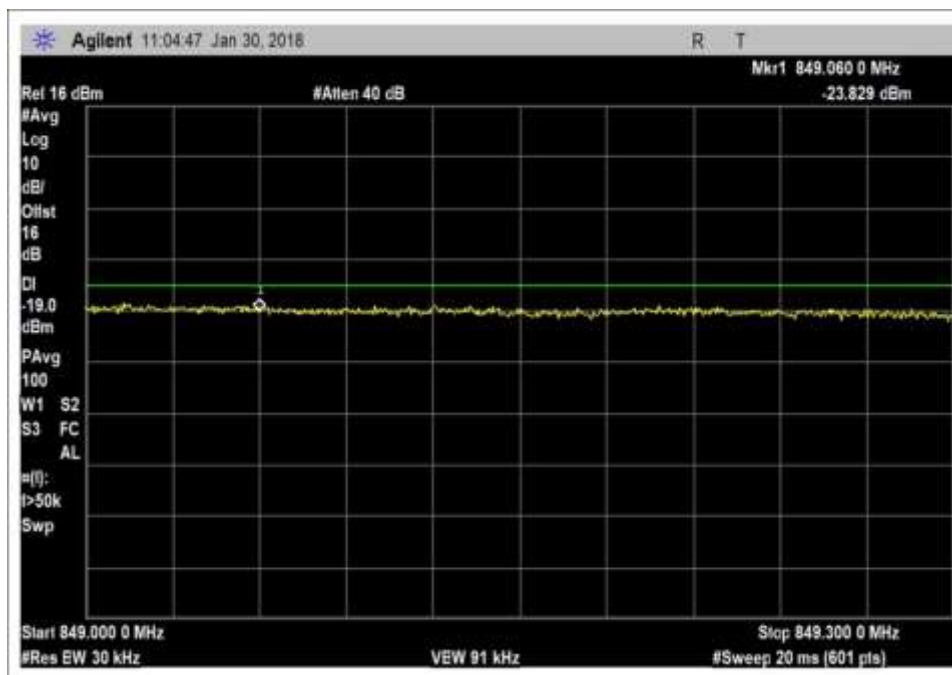
UL_824-849MHz_CDMA_rbw_30Khz preagc_L.



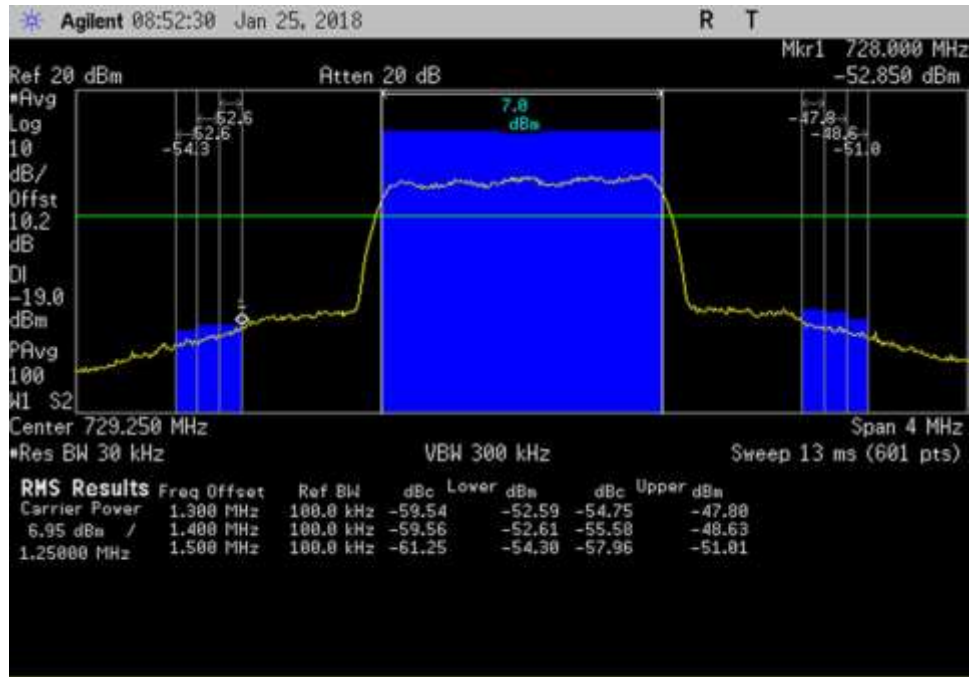
UL_824-849MHz_CDMA_rbw_30Khz_ACP_pre_agc_H



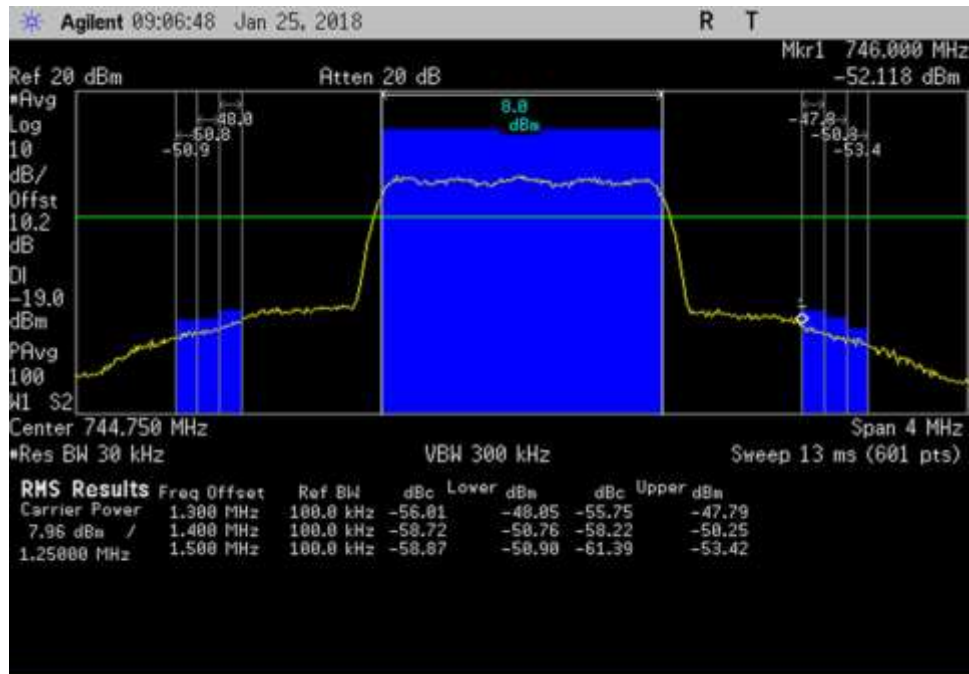
UL_824-849MHz_CDMA_rbw_30Khz_ACP_pre_agc_L_revB



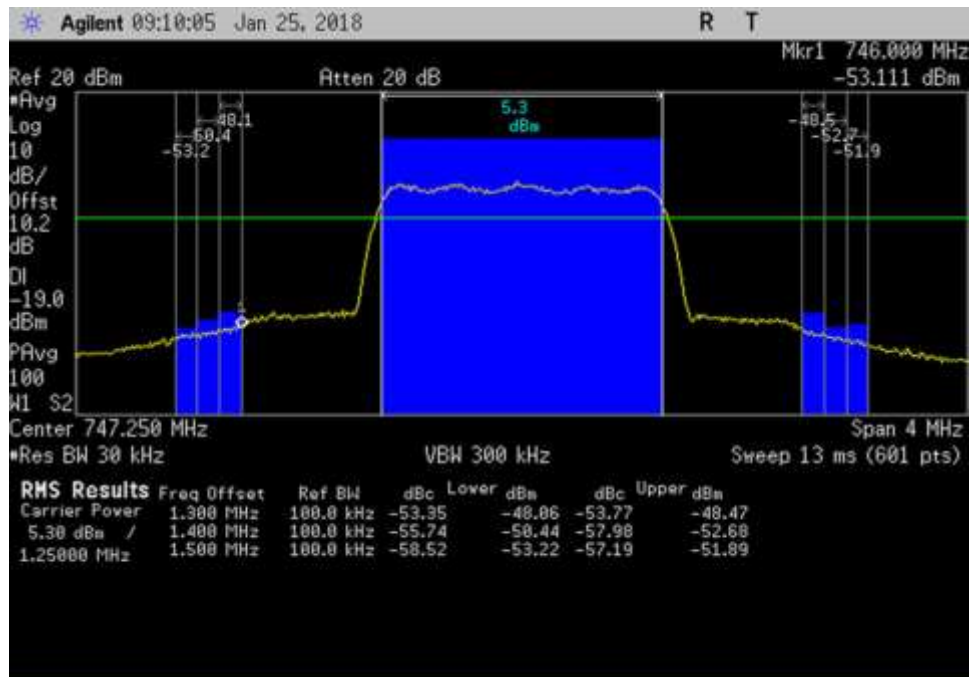
UL_824-849MHz_CDMA_rbw_30Khz_pre agc_H



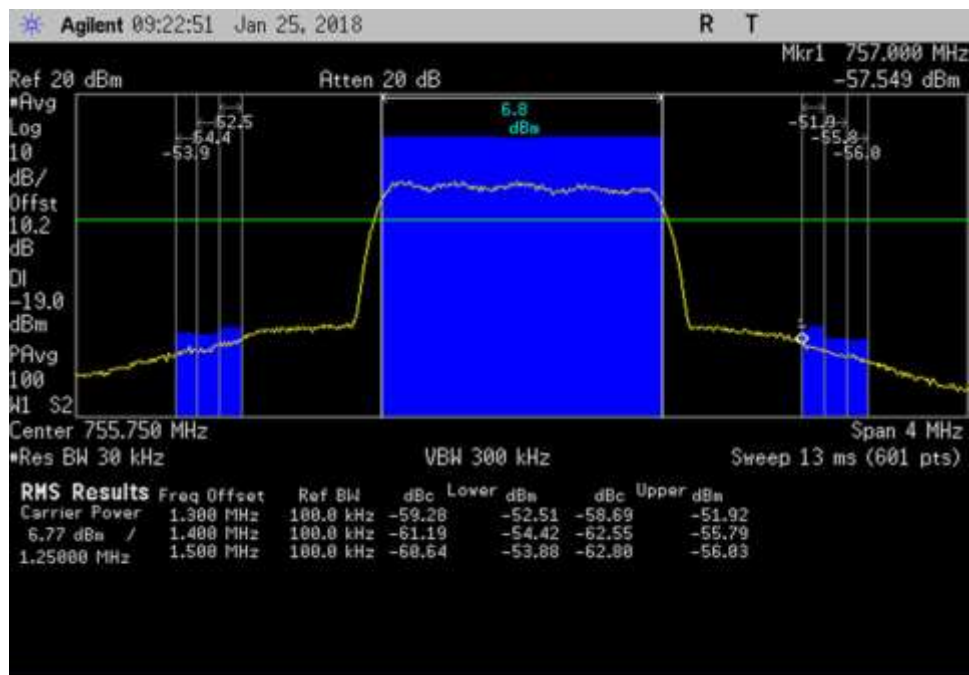
DL_ 727.25- 731.25MHz_CDMA



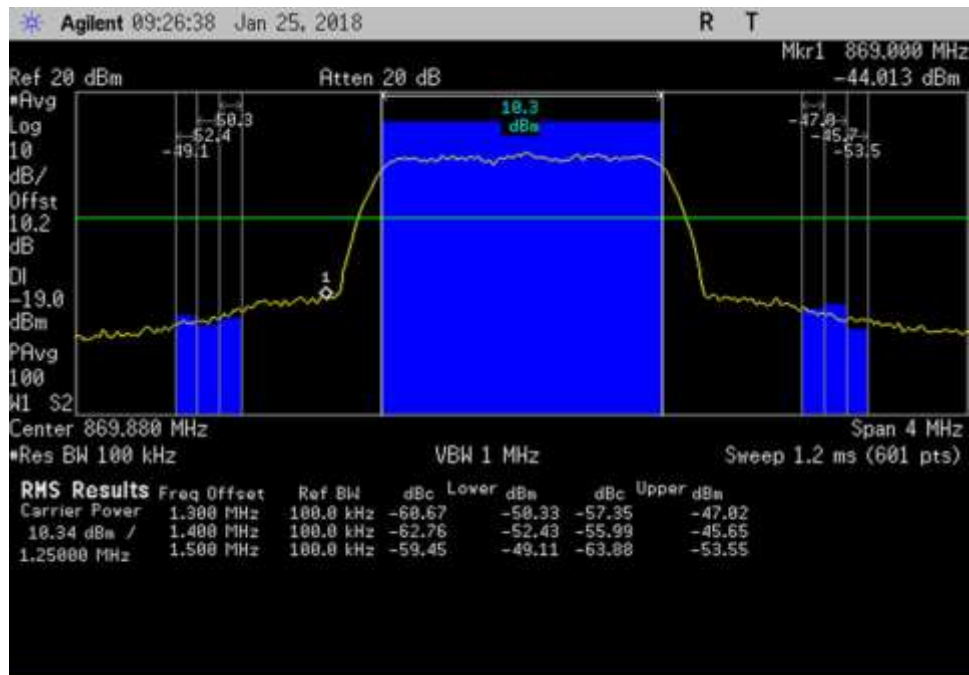
DL_ 742.75- 746.75MHz_CDMA



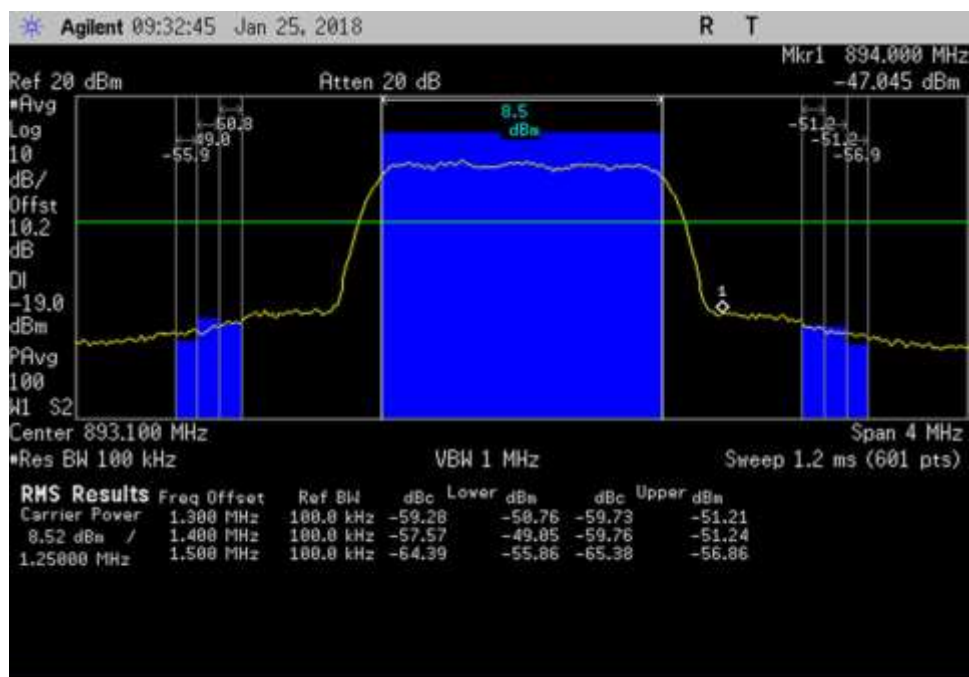
DL_745.25-749.25MHz_CDMA



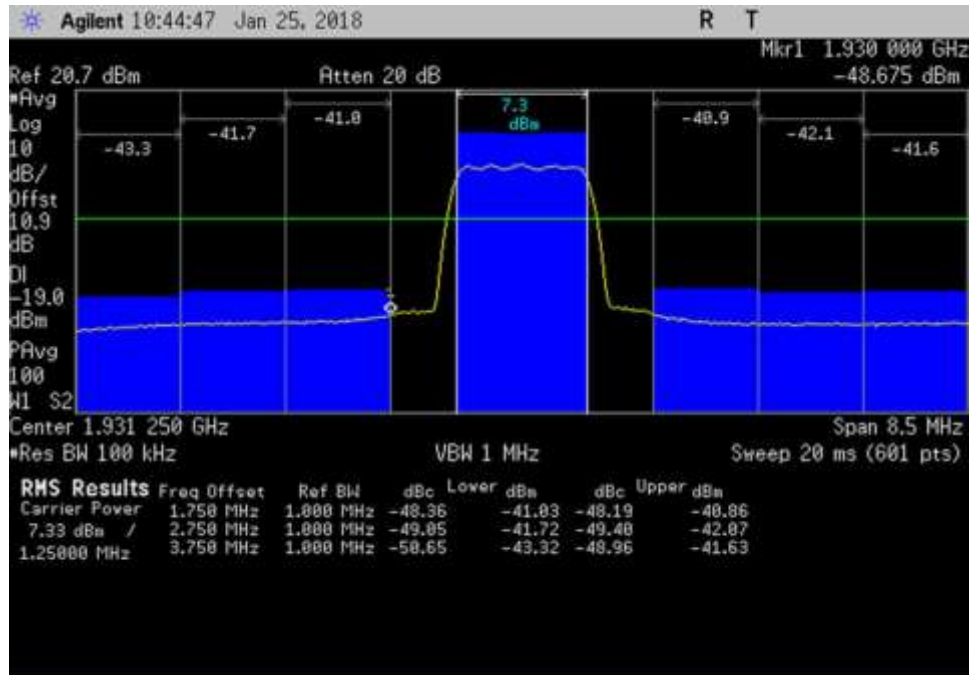
DL_753.75-757.75MHz_CDMA



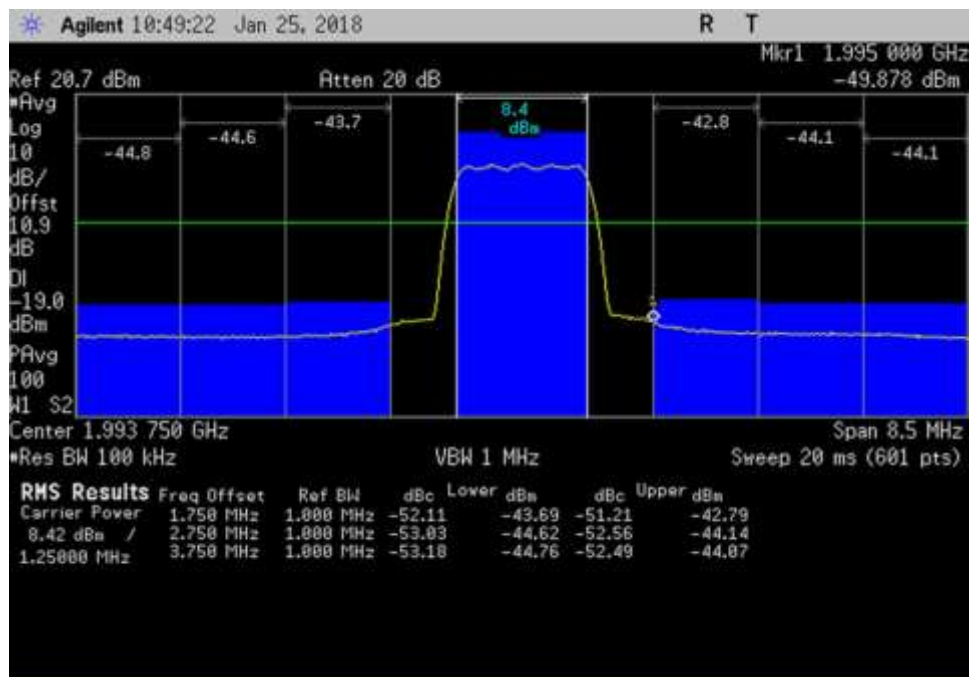
DL_867.88-871.88MHz_CDMA



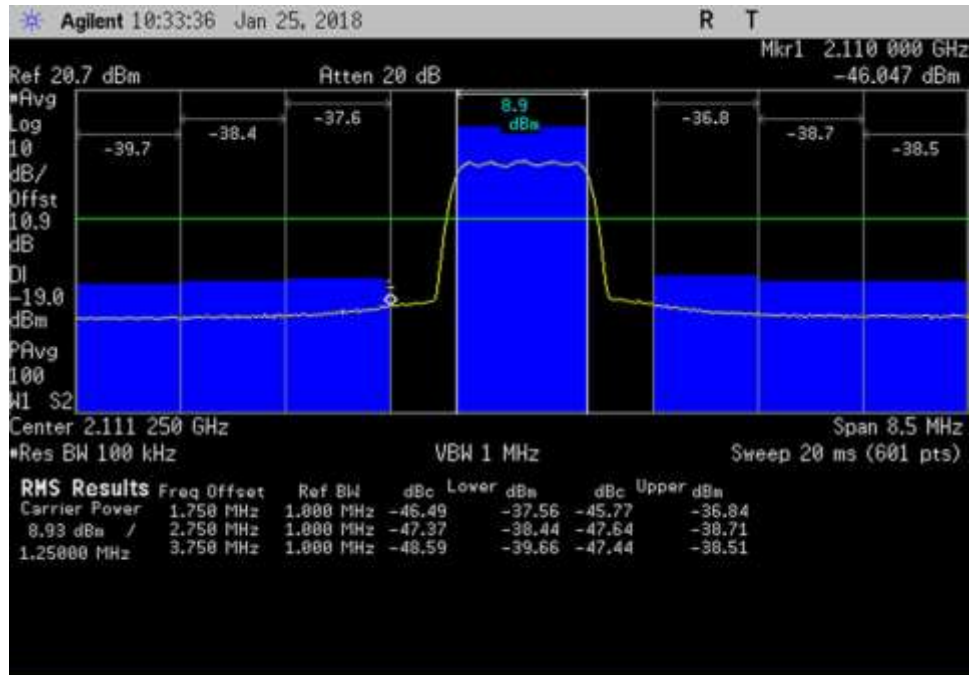
DL_891.1-895.1MHz_CDMA



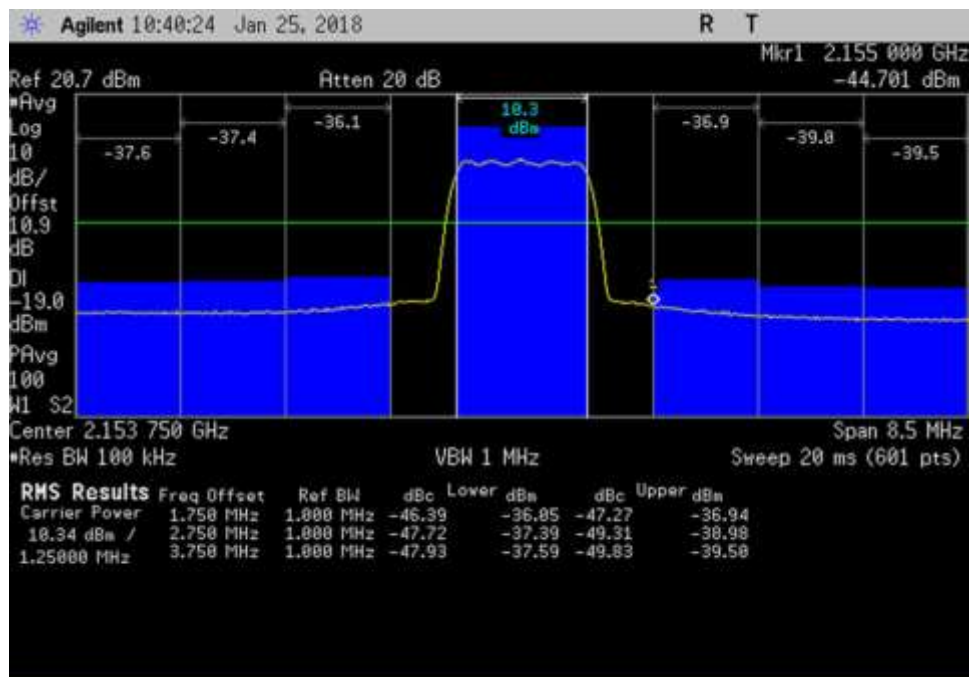
DL_1927- 1935.5MHz_CDMA



DL_1989.5- 1998MHz_CDMA

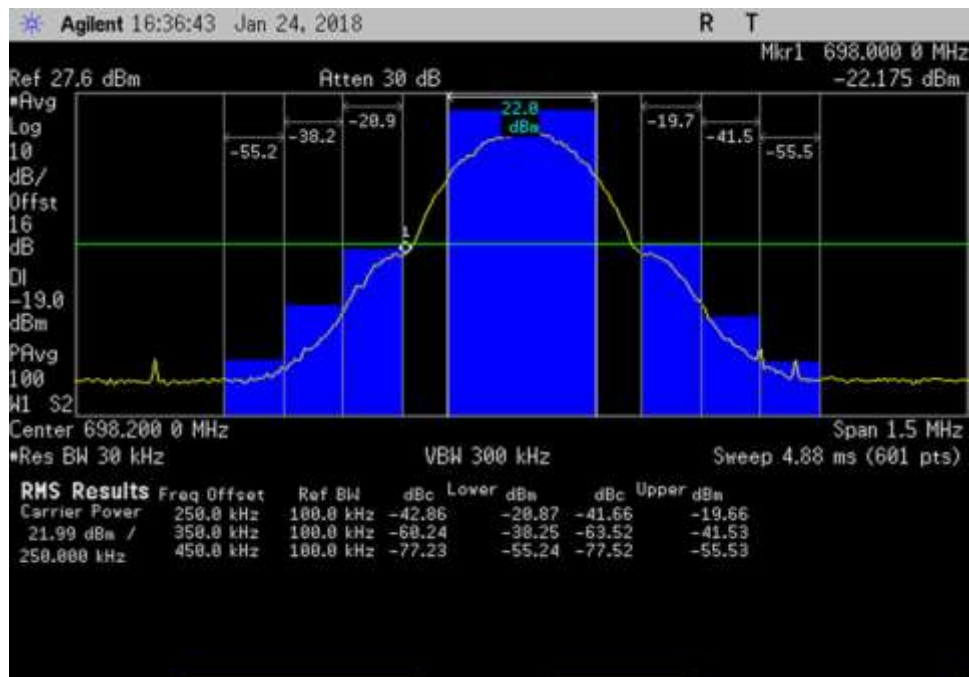


DL_2107- 2115.5MHz_CDMA

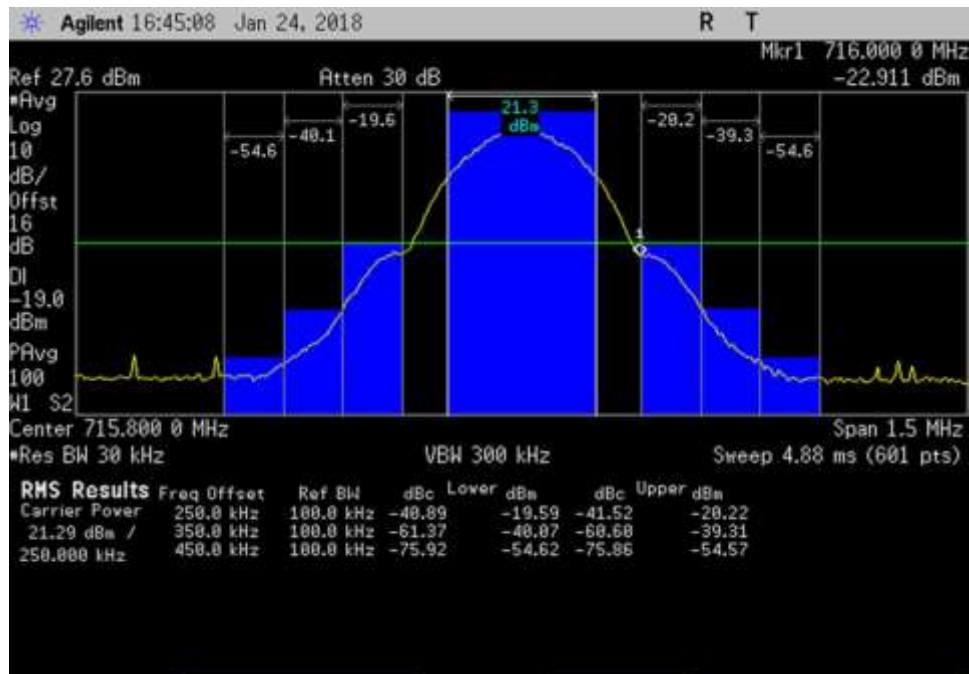


DL_2149.5- 2158MHz_CDMA

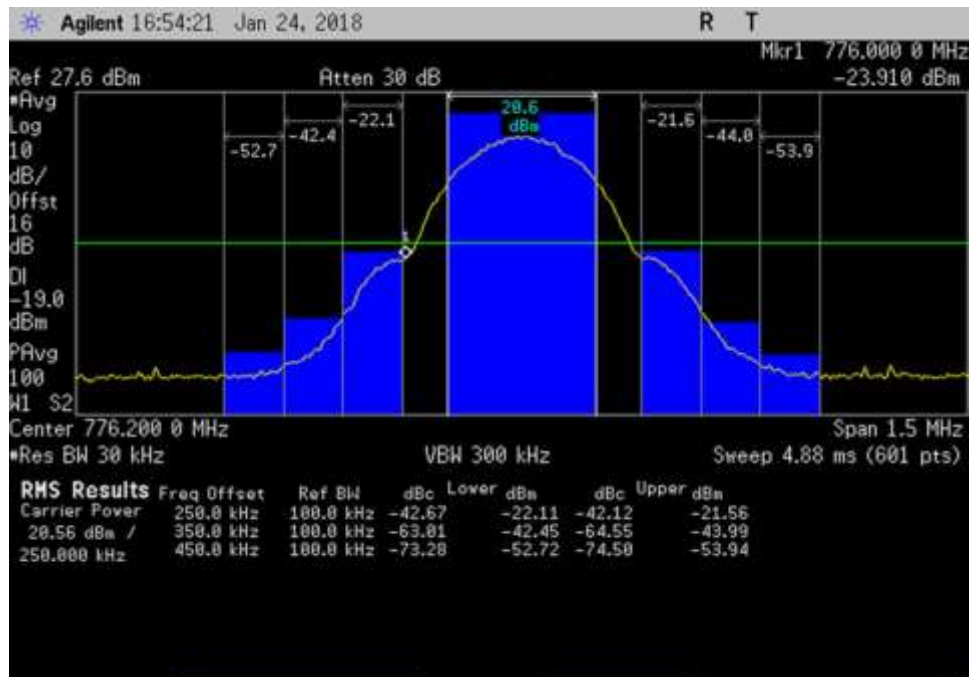
GSM



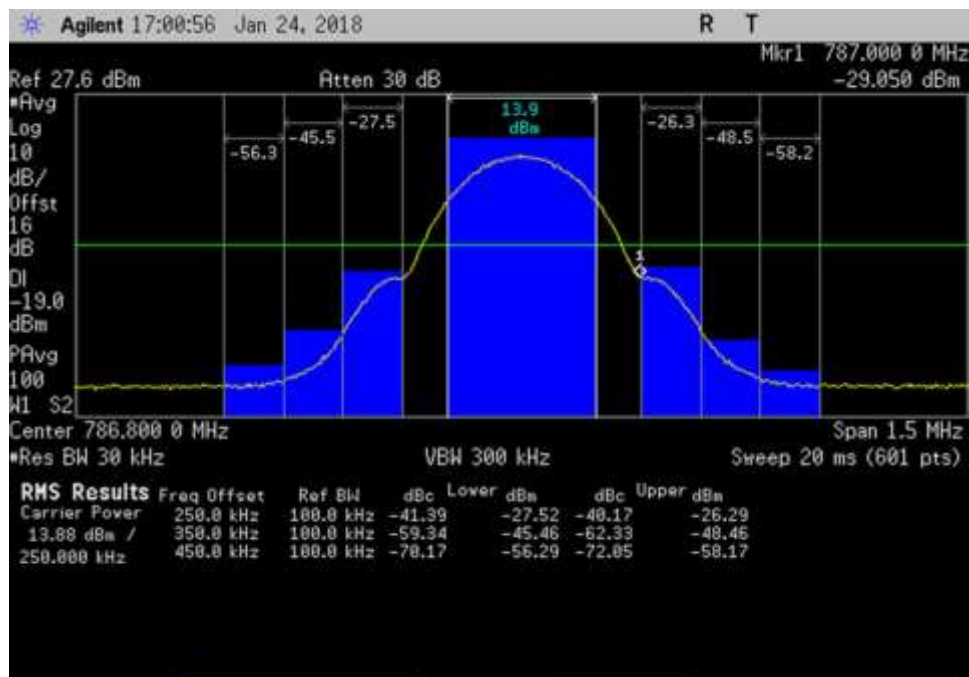
UL_ 697.45- 698.95MHz_GSM



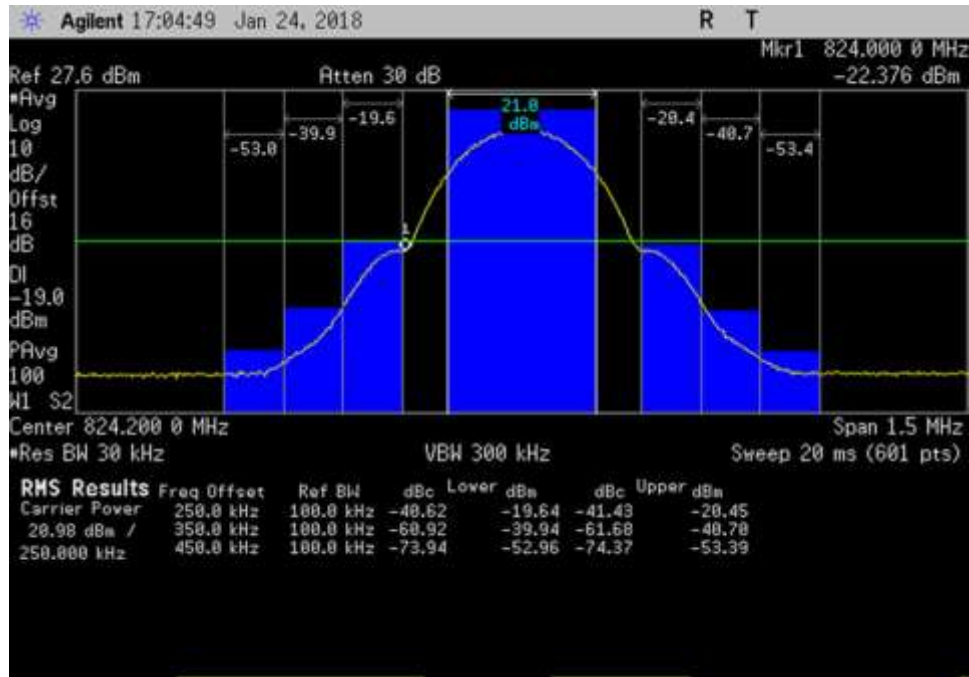
UL_ 715.05- 716.55MHz_GSM



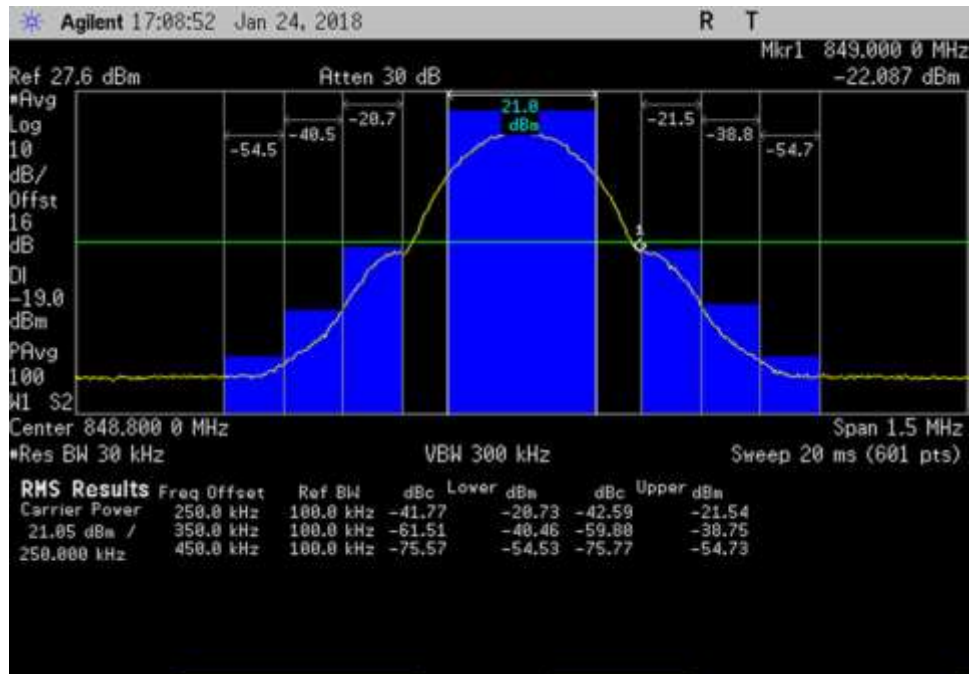
UL_775.45-776.95MHz_GSM



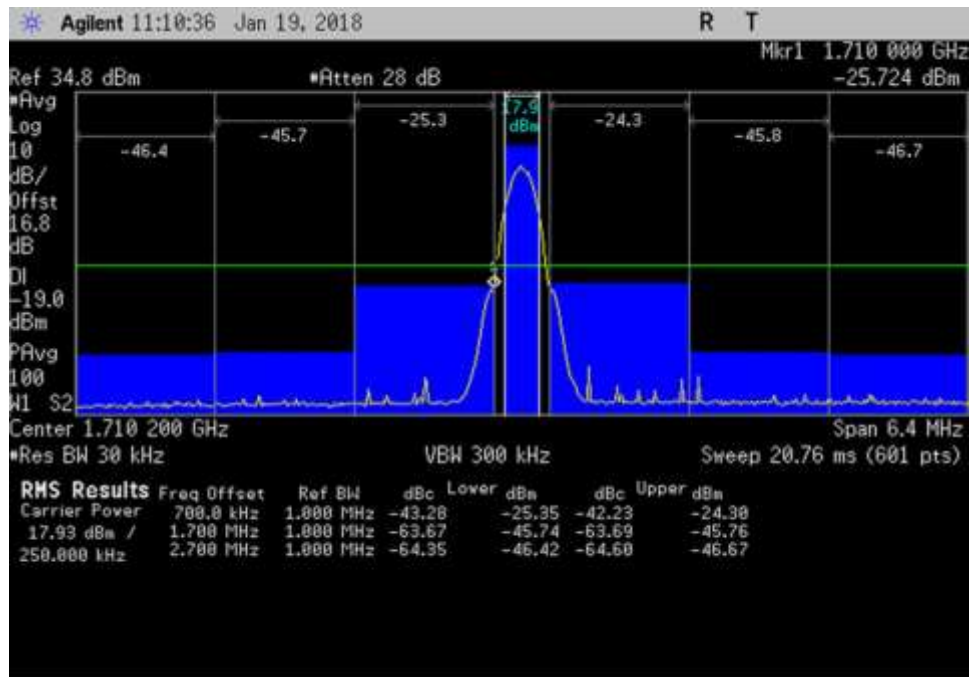
UL_786.05-787.55MHz_GSM



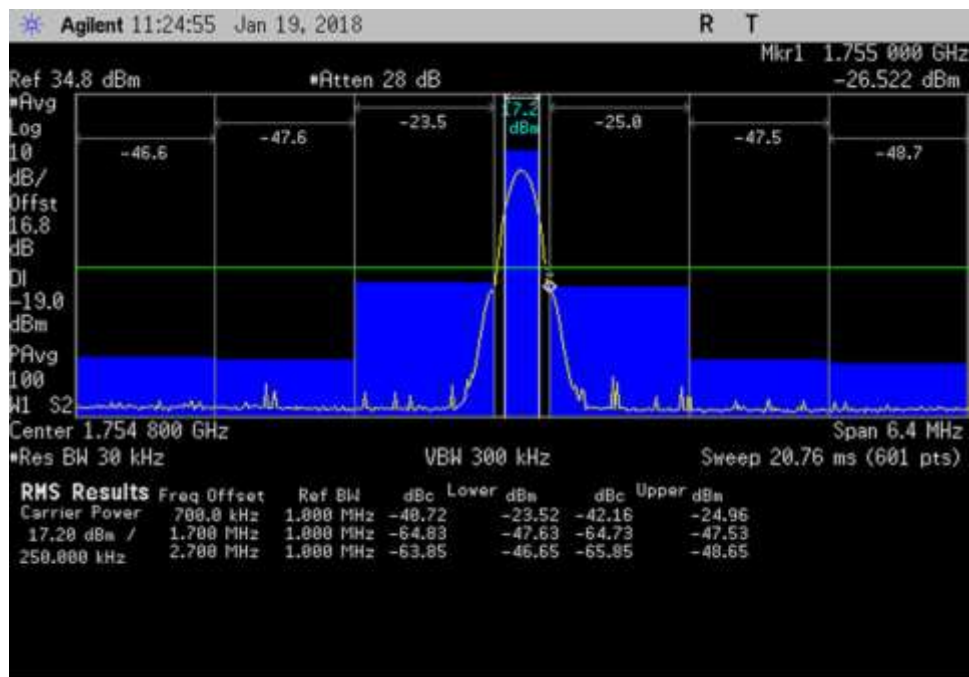
UL_ 823.45- 824.95MHz_GSM



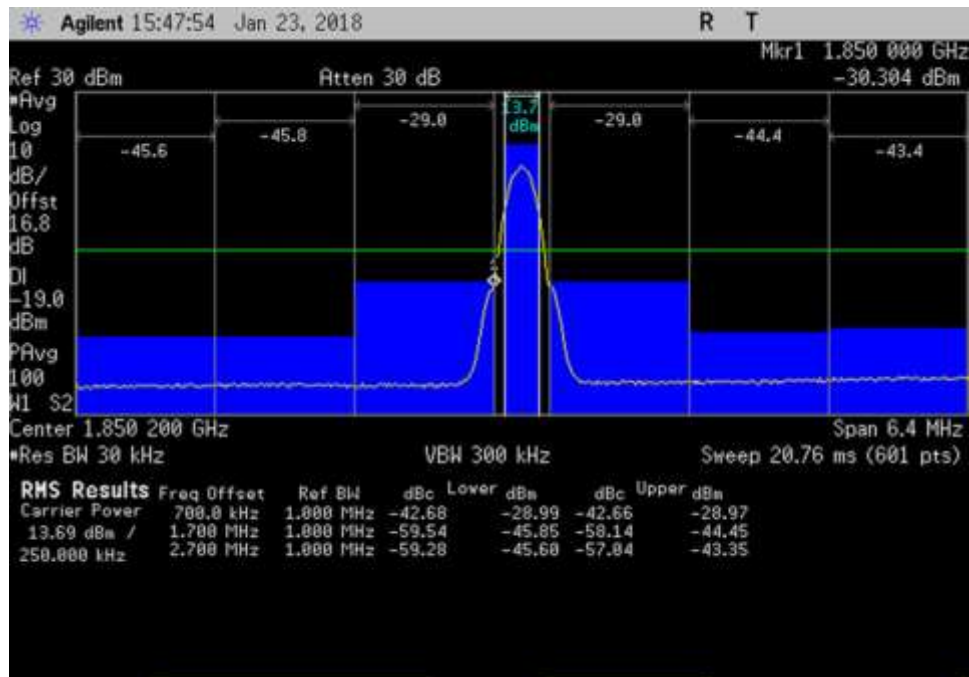
UL_ 848.05- 849.55MHz_GSM



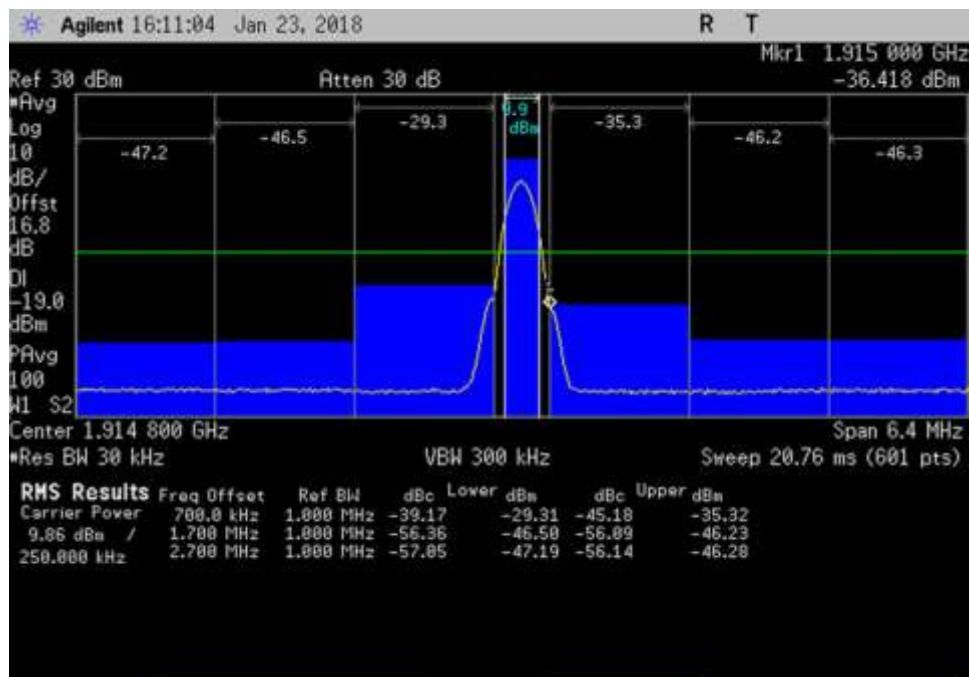
UL_1707- 1713.4MHz_GSM



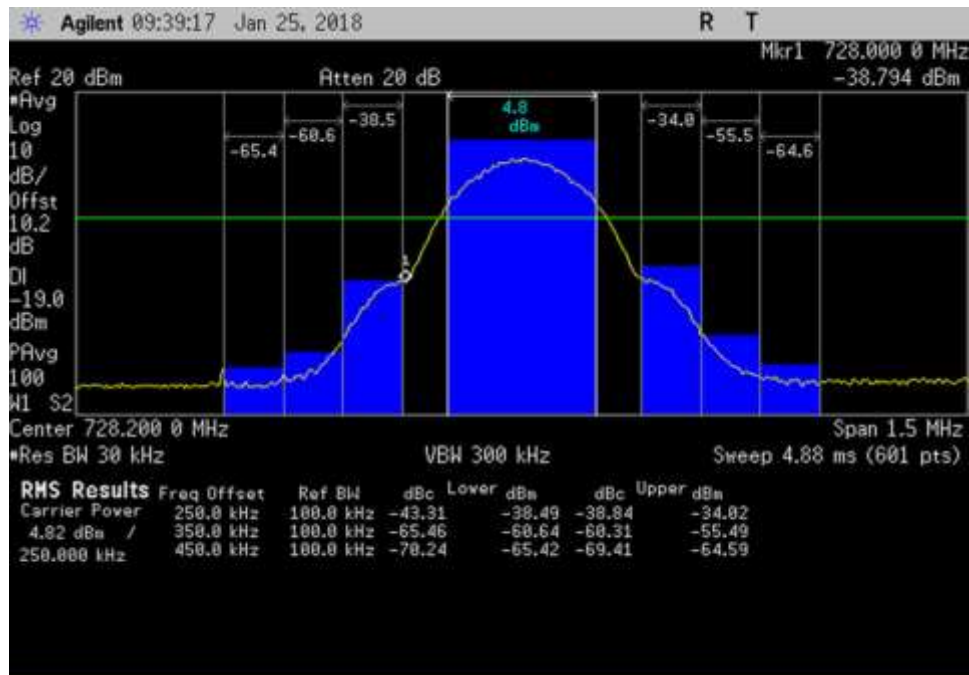
UL_1751.6- 1758MHz_GSM



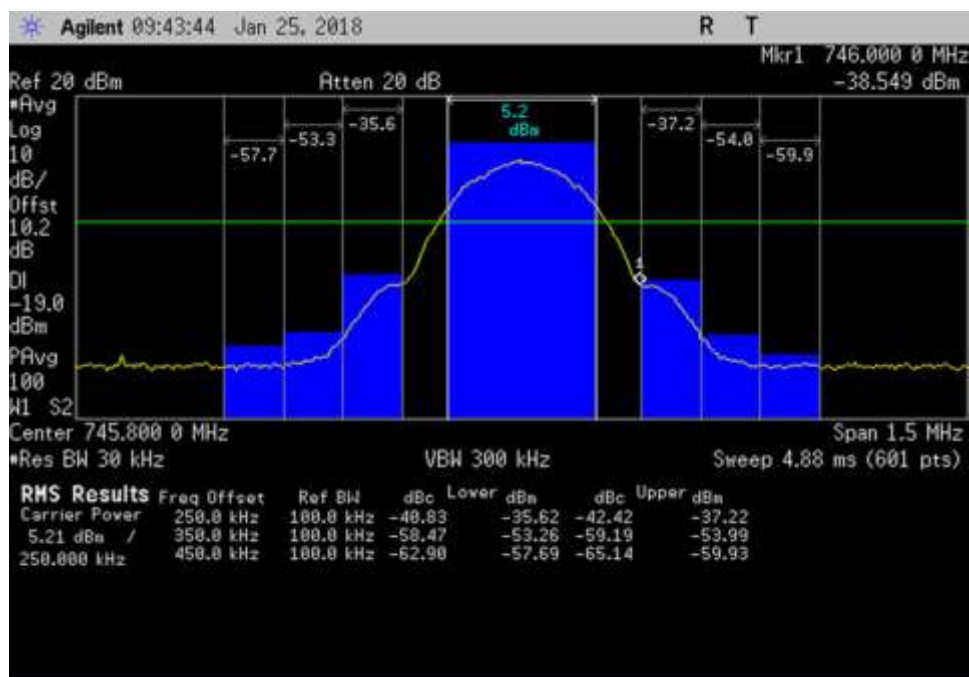
UL_1847- 1853.4MHz_GSM



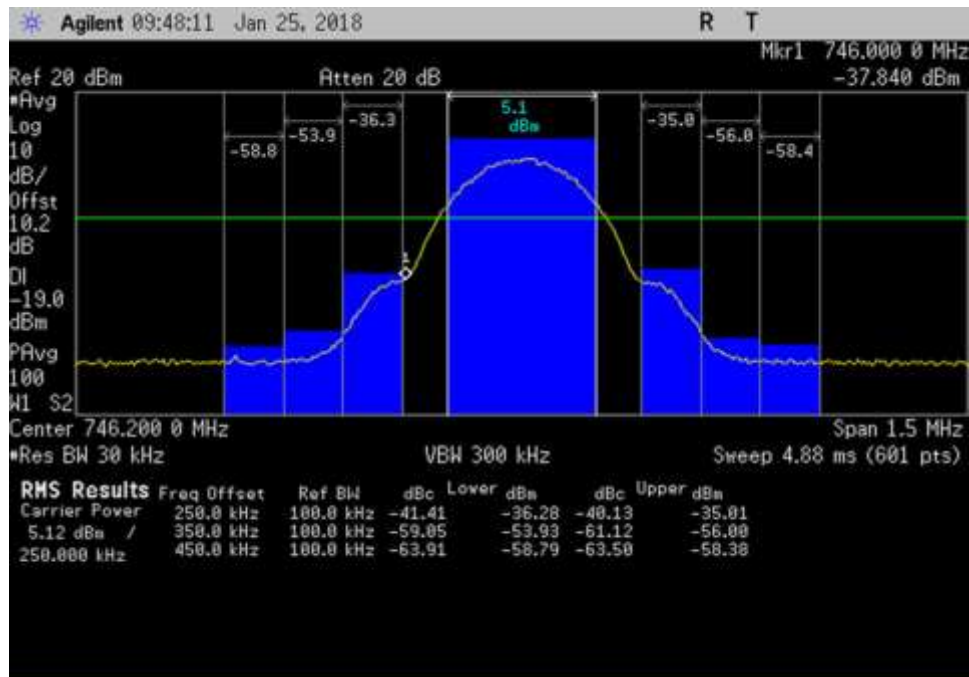
UL_1911.6- 1918MHz_GSM



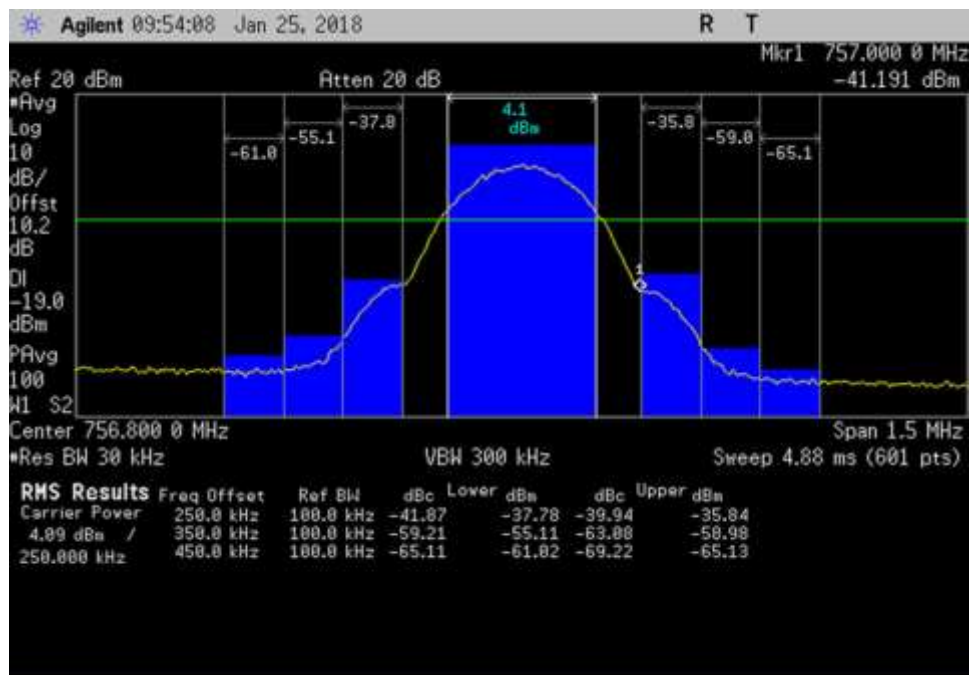
DL_727.45-728.95MHz_GSM



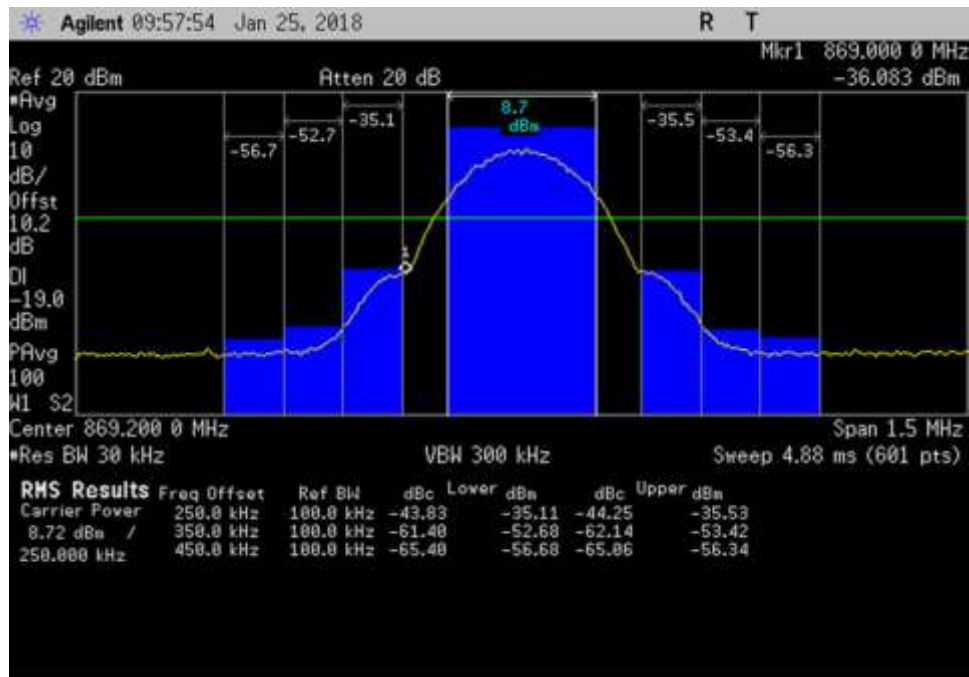
DL_745.05-746.55MHz_GSM



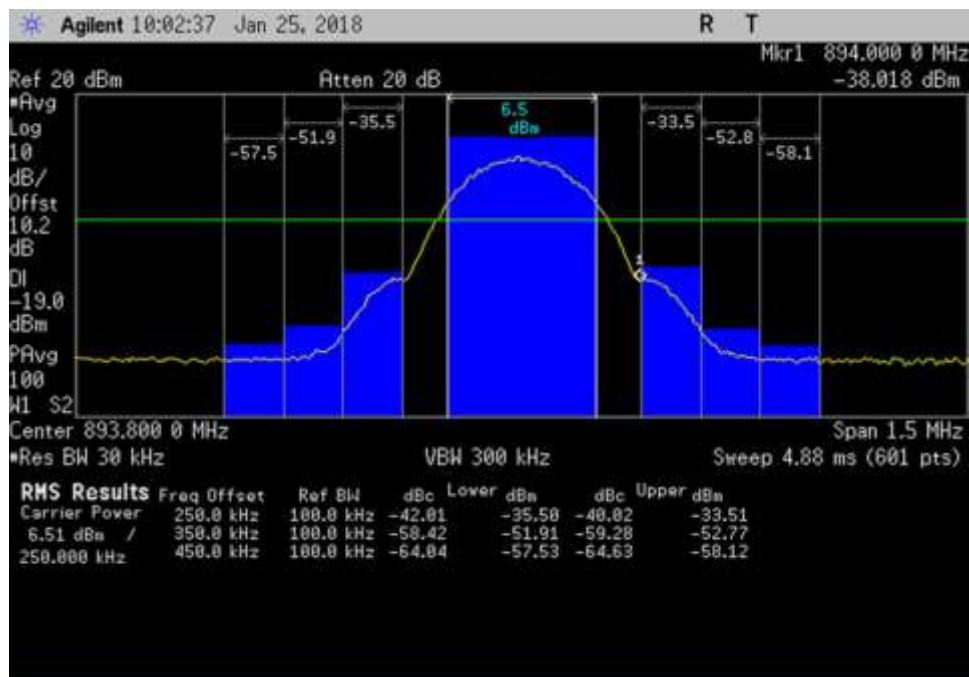
DL_745.45-746.95MHz_GSM



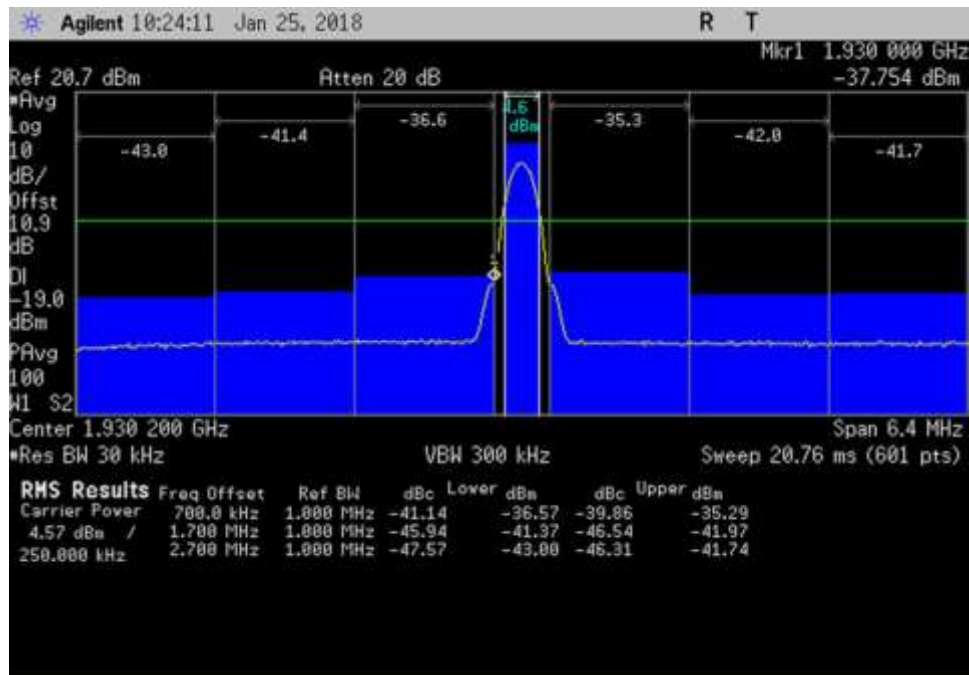
DL_756.05-757.55MHz_GSM



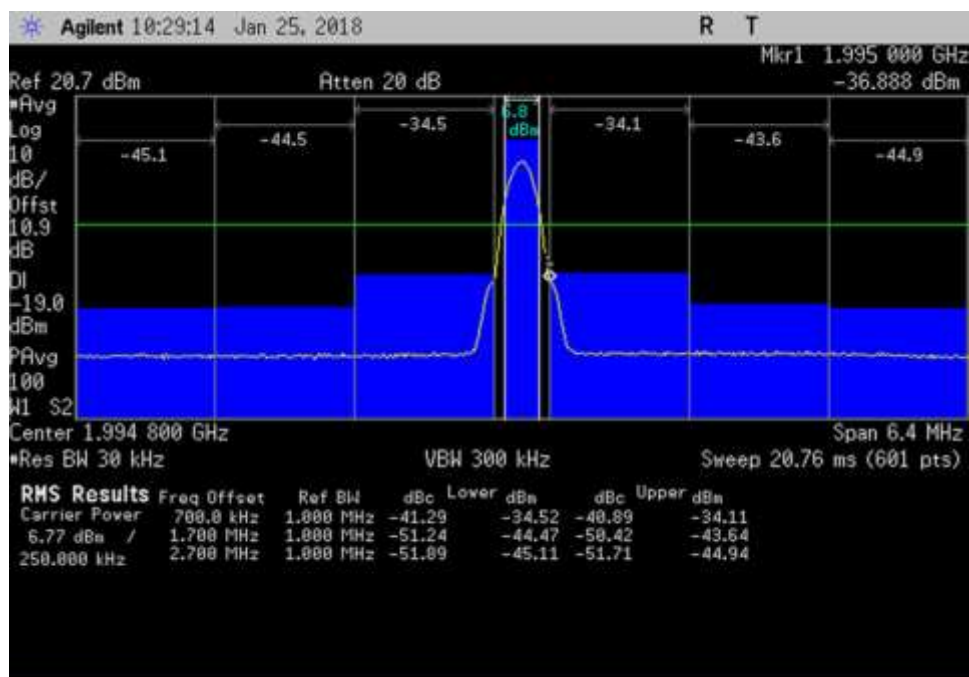
DL_ 868.45- 869.95MHz_GSM



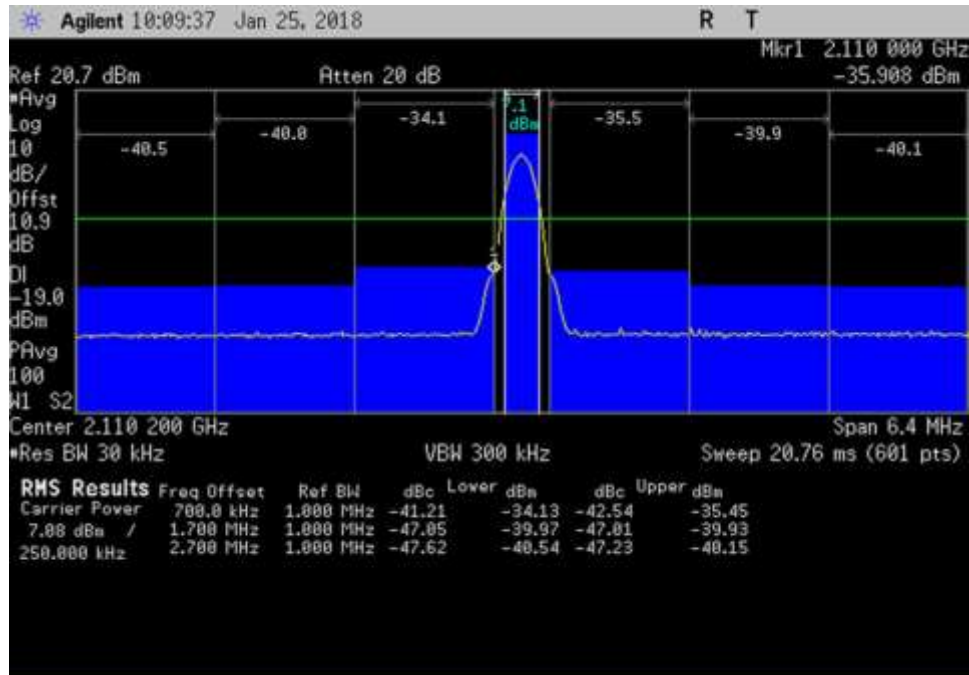
DL_ 893.05- 894.55MHz_GSM



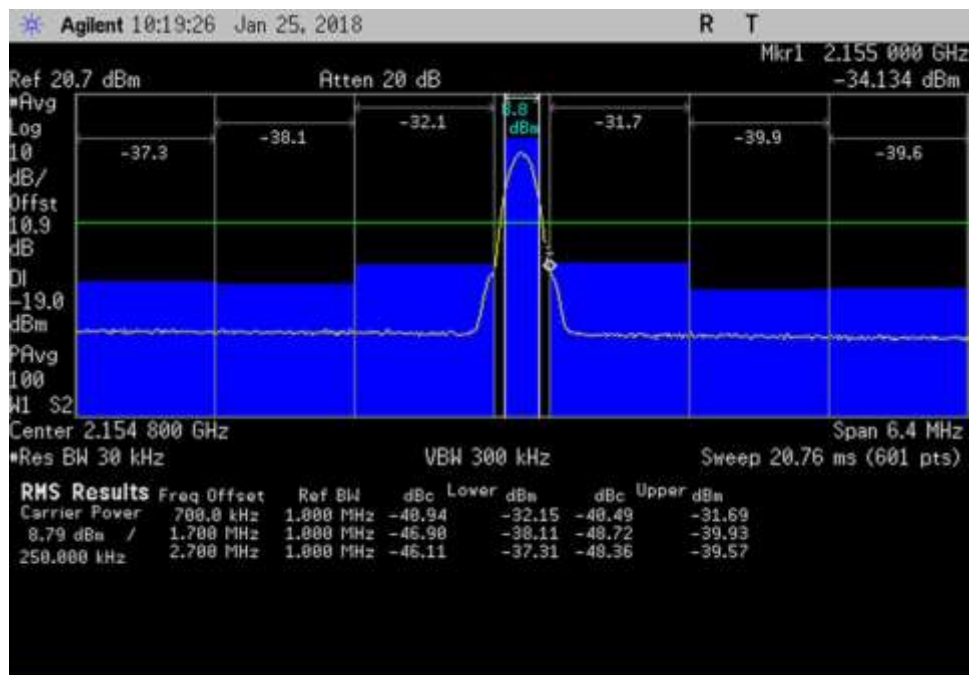
DL_1927-1933.4MHz_GSM



DL_1991.6-1998MHz_GSM

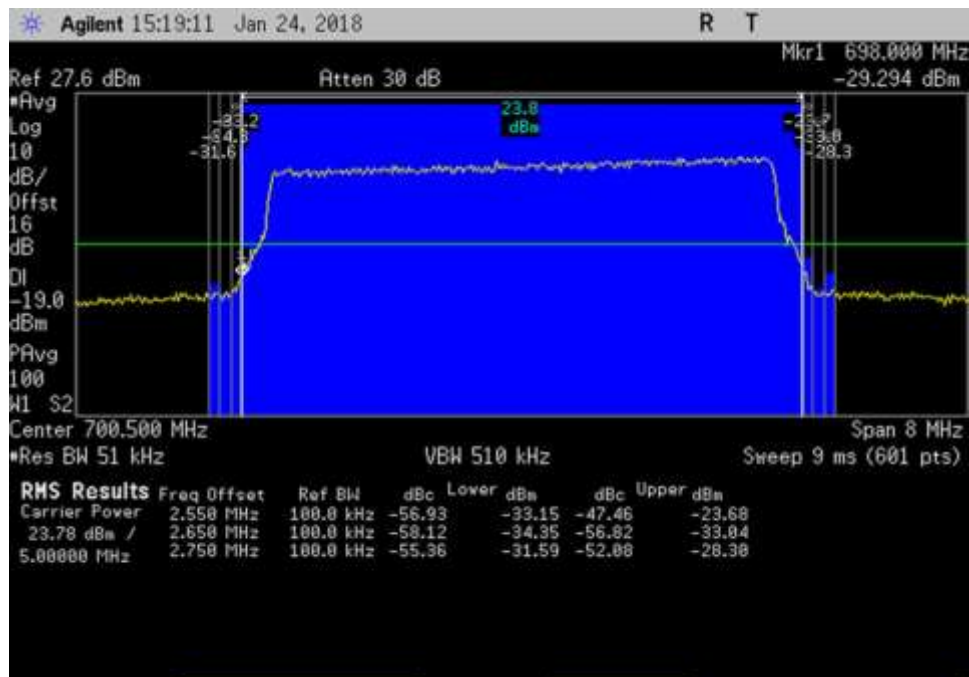


DL_2107- 2113.4MHz_GSM

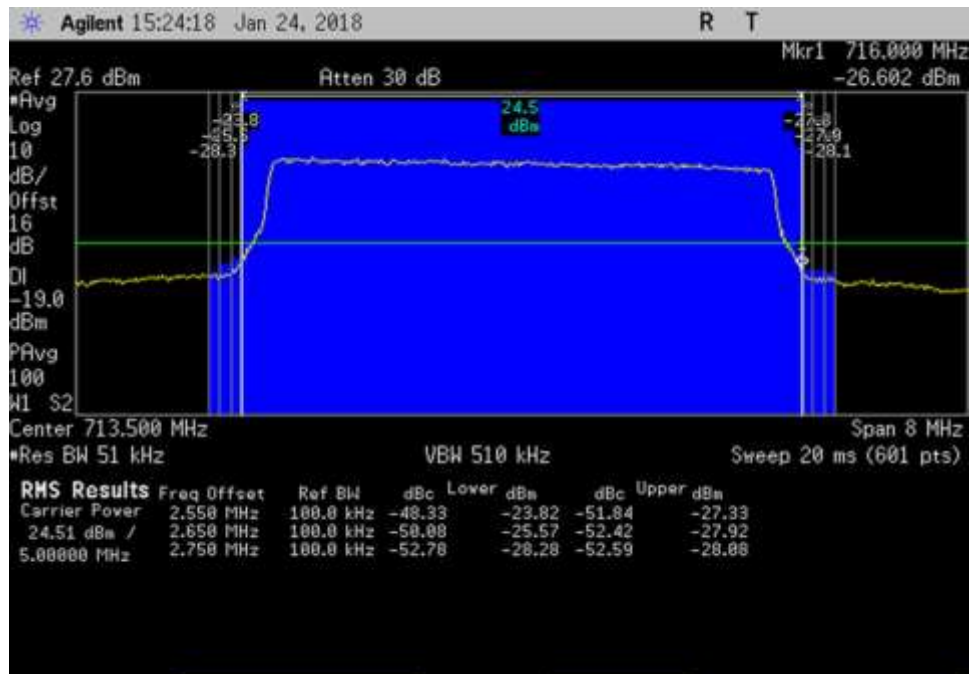


DL_2151.6- 2158MHz_GSM

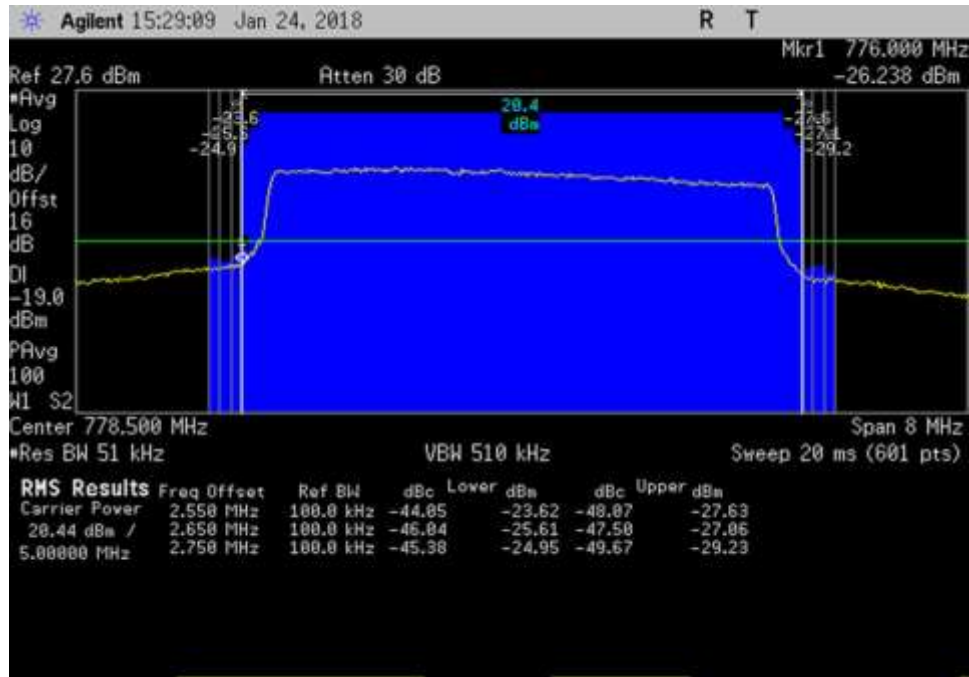
LTE



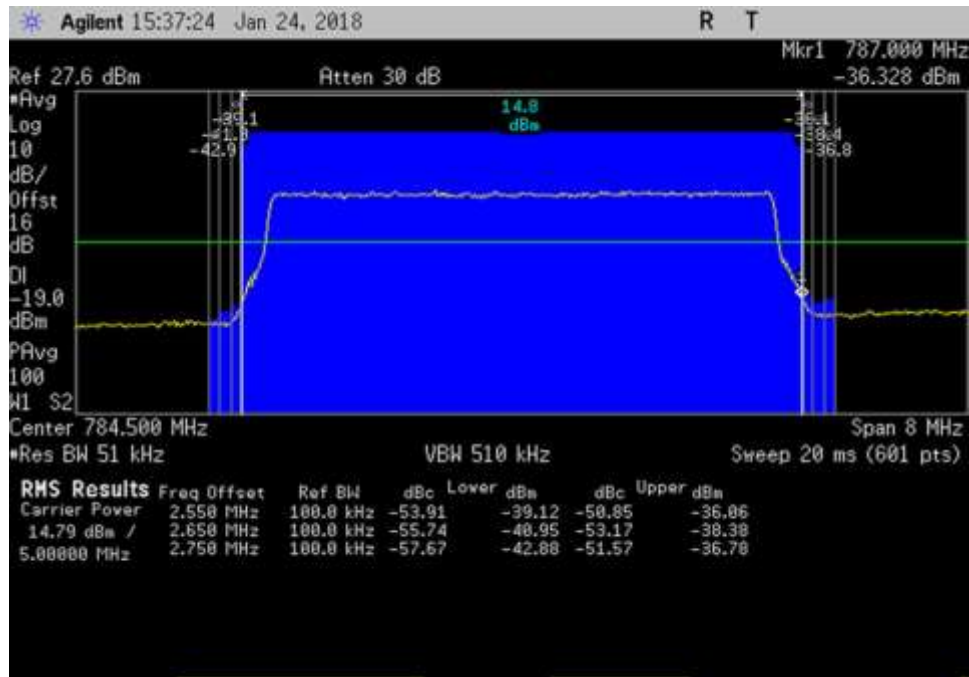
UL_ 696.5- 704.5MHz_LTE



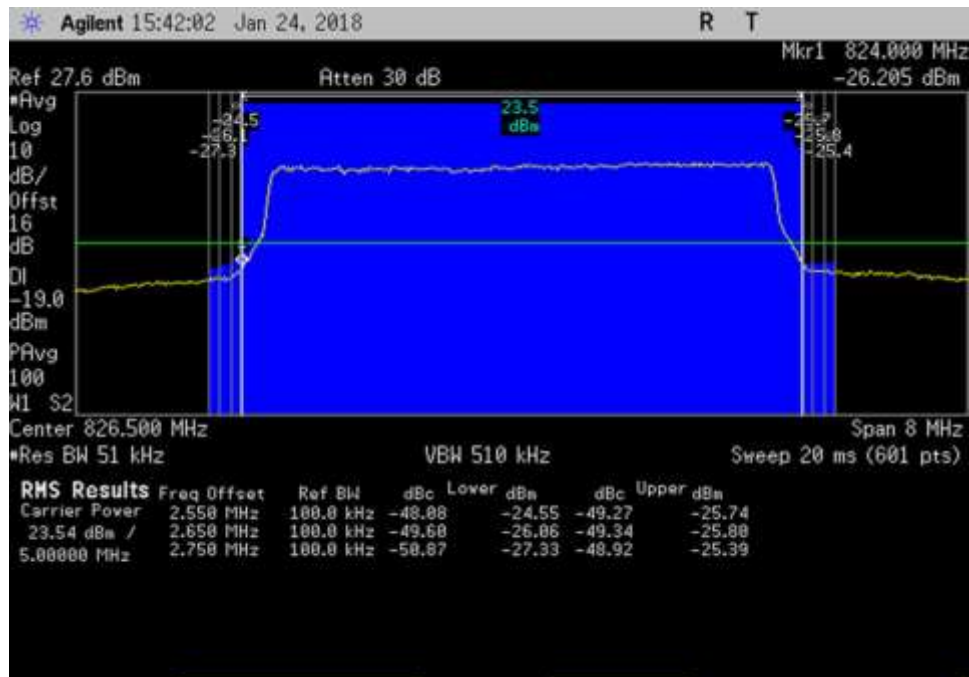
UL_ 709.5- 717.5MHz_LTE



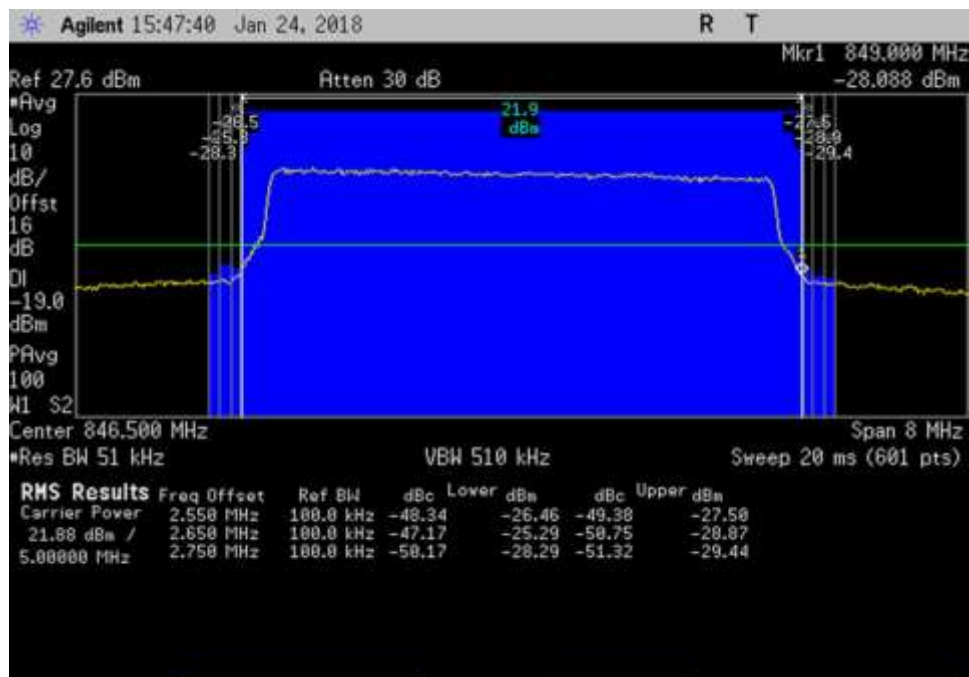
UL_ 774.5- 782.5MHz_LTE



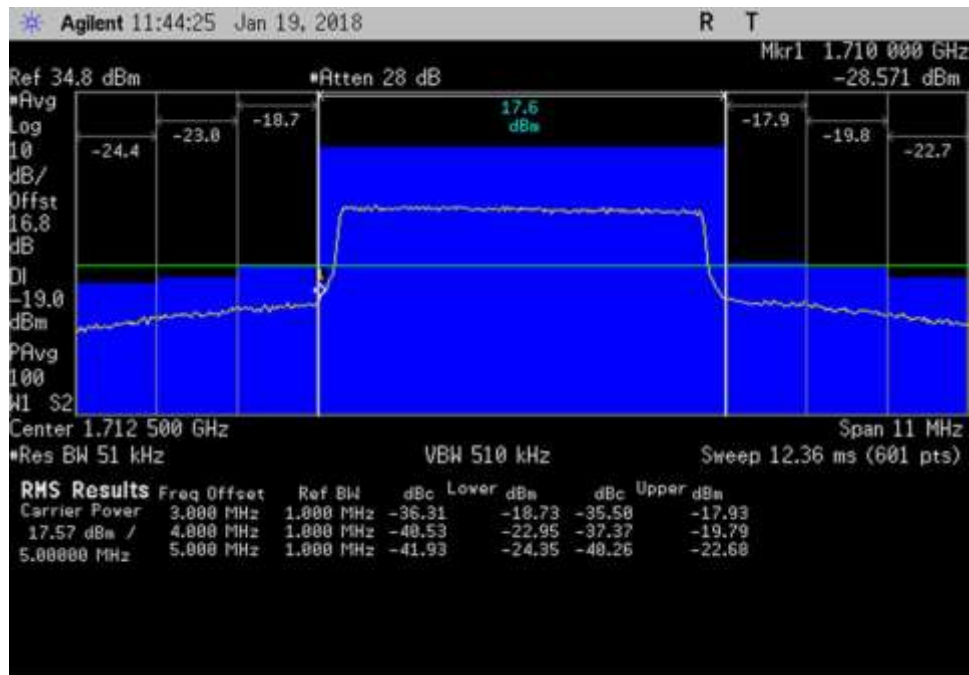
UL_ 780.5- 788.5MHz_LTE



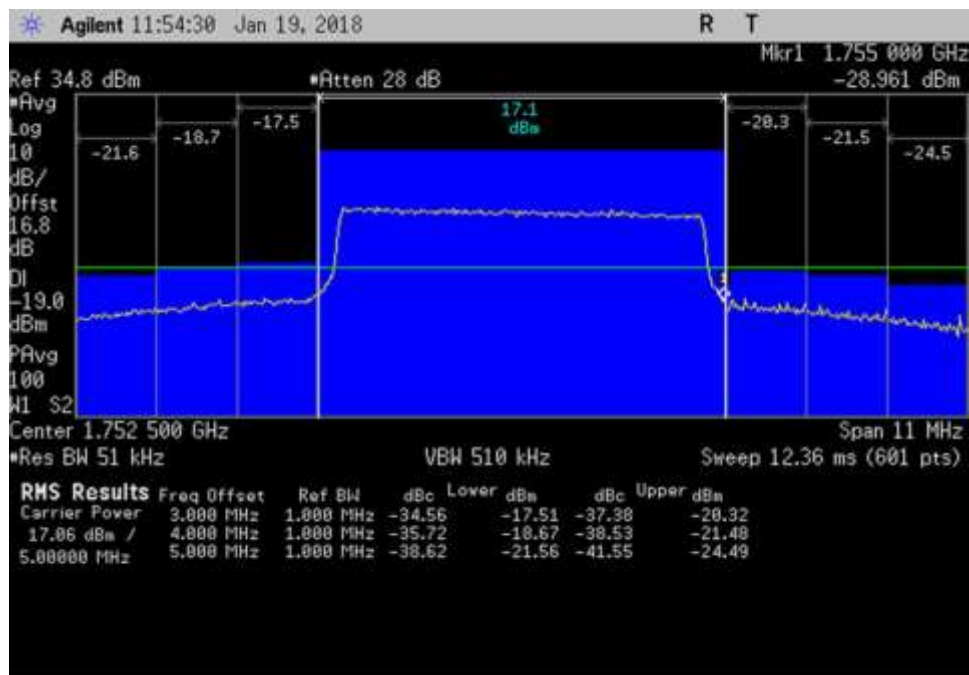
UL_ 822.5- 830.5MHz_LTE



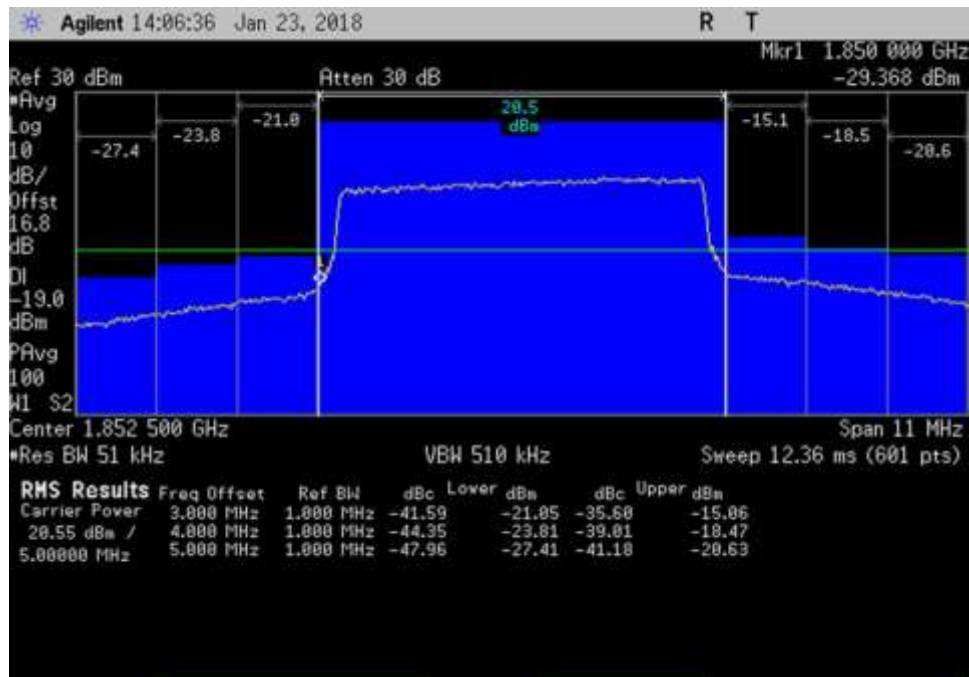
UL_ 842.5- 850.5MHz_LTE



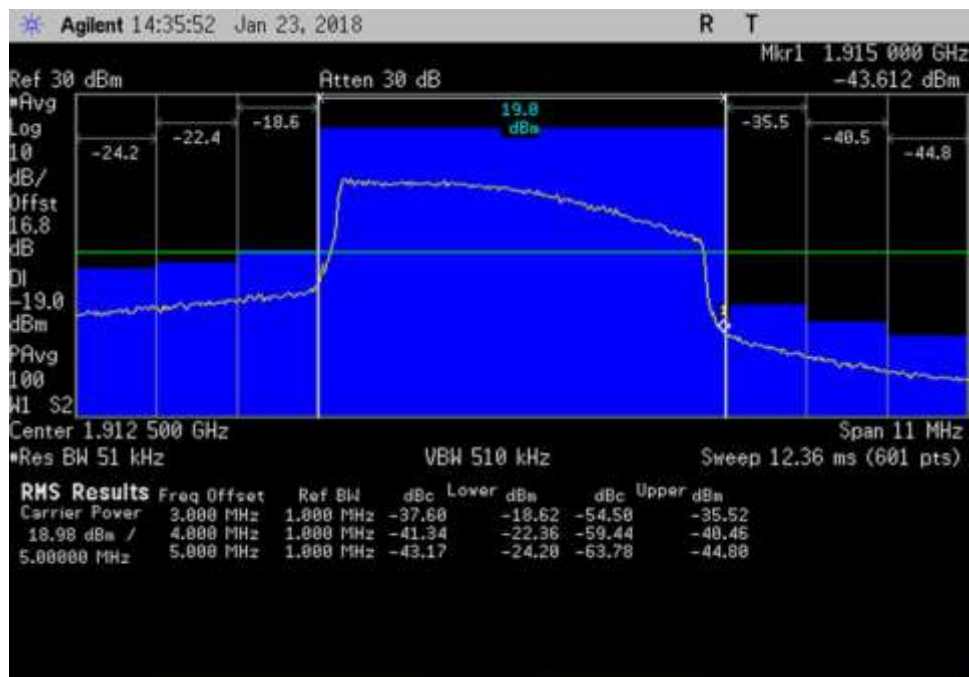
UL_1707-1718MHz_LTE



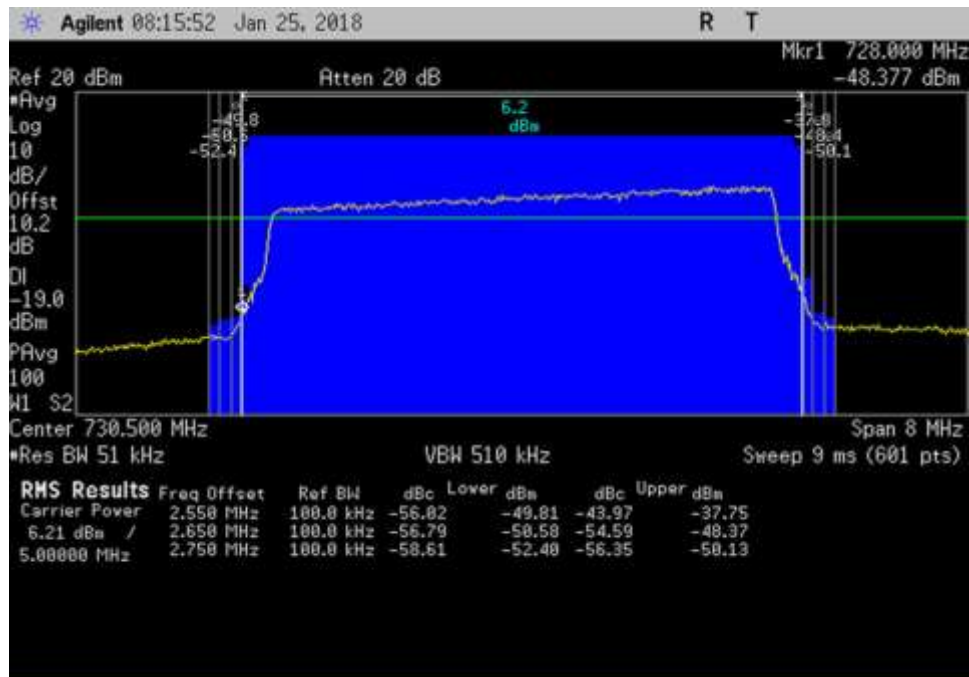
UL_1747-1758MHz_LTE



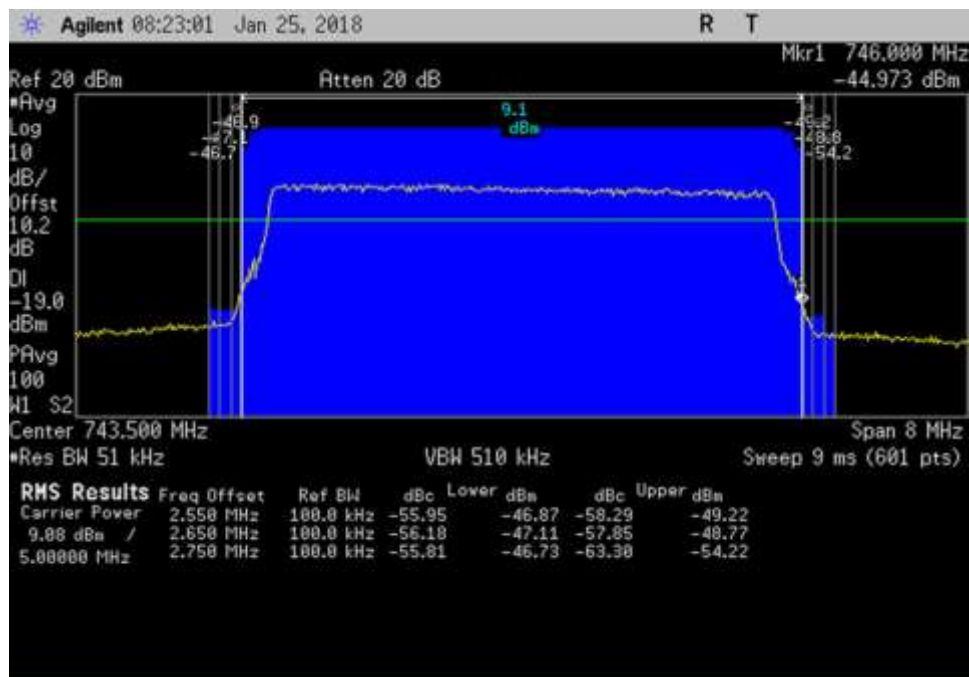
UL_1847-1858MHz_LTE



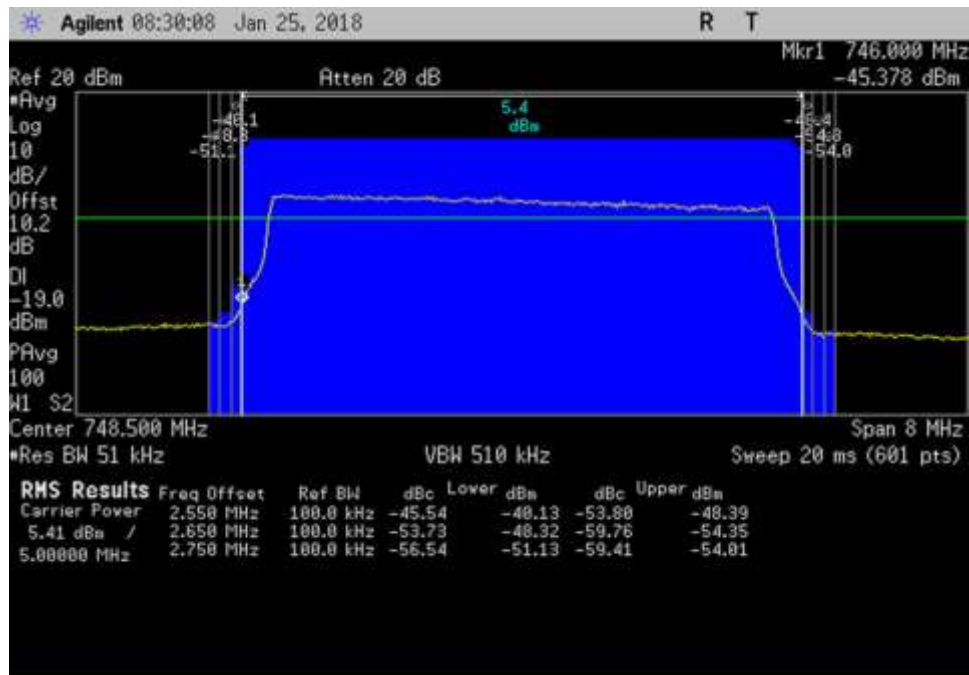
UL_1907-1918MHz_LTE



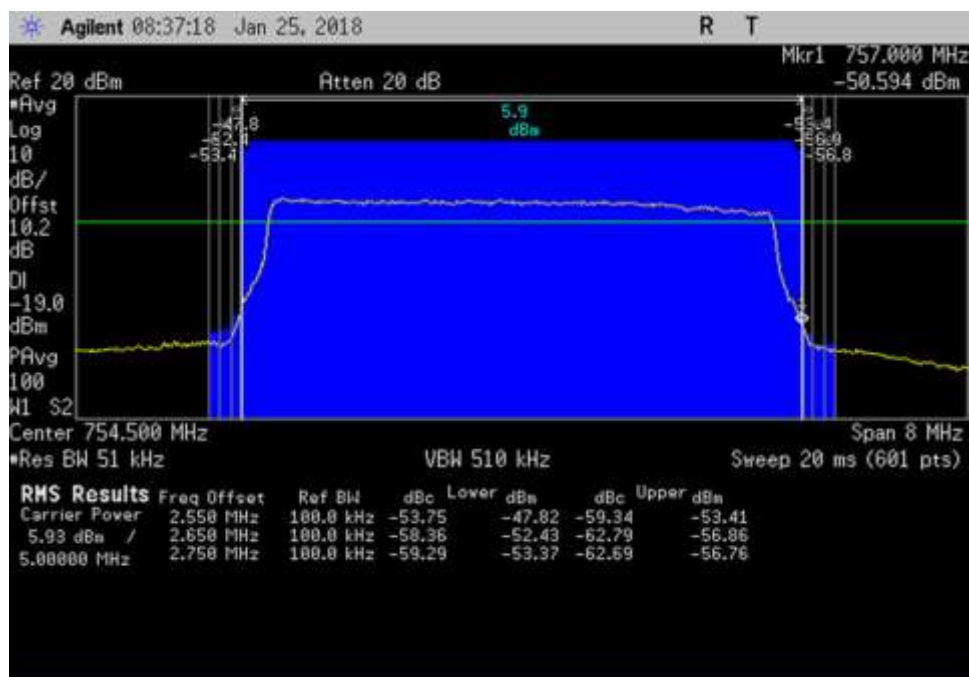
DL_ 726.5- 734.5MHz_LTE



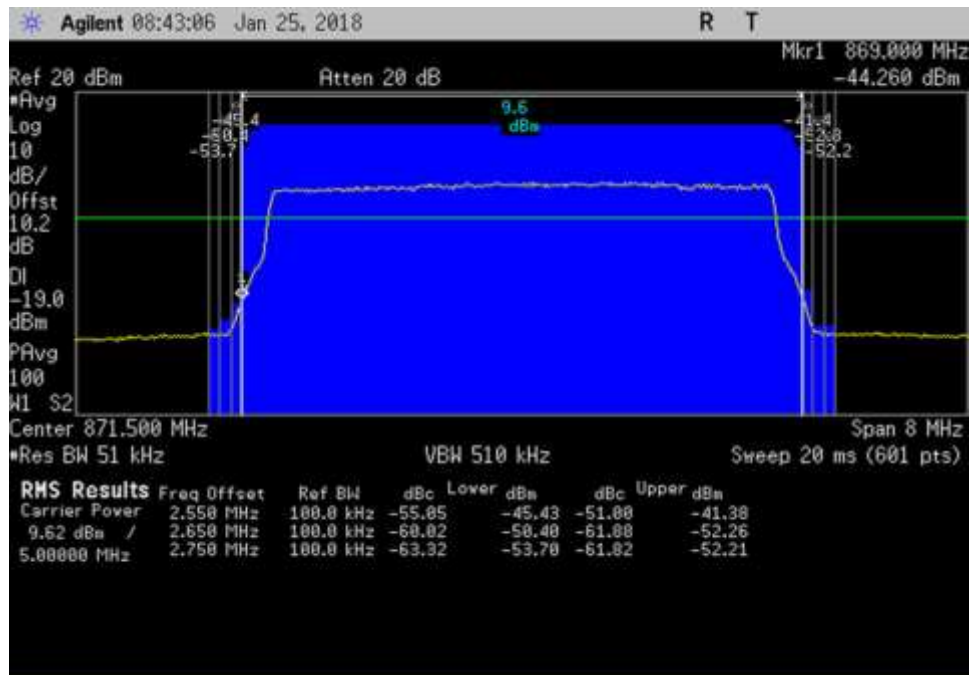
DL_ 739.5- 747.5MHz_LTE



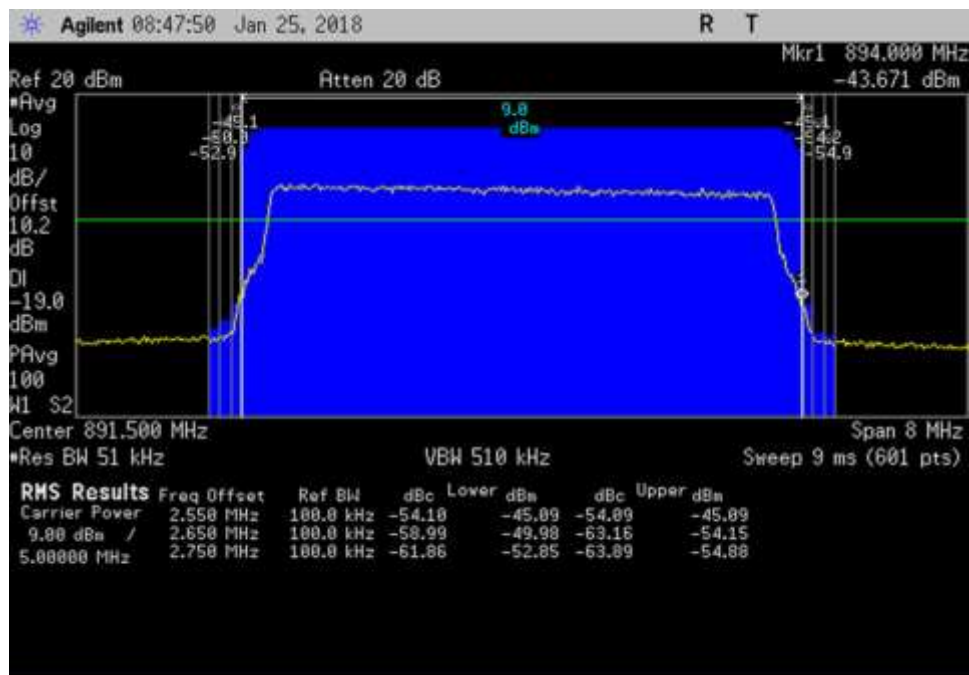
DL_ 744.5- 752.5MHz_LTE



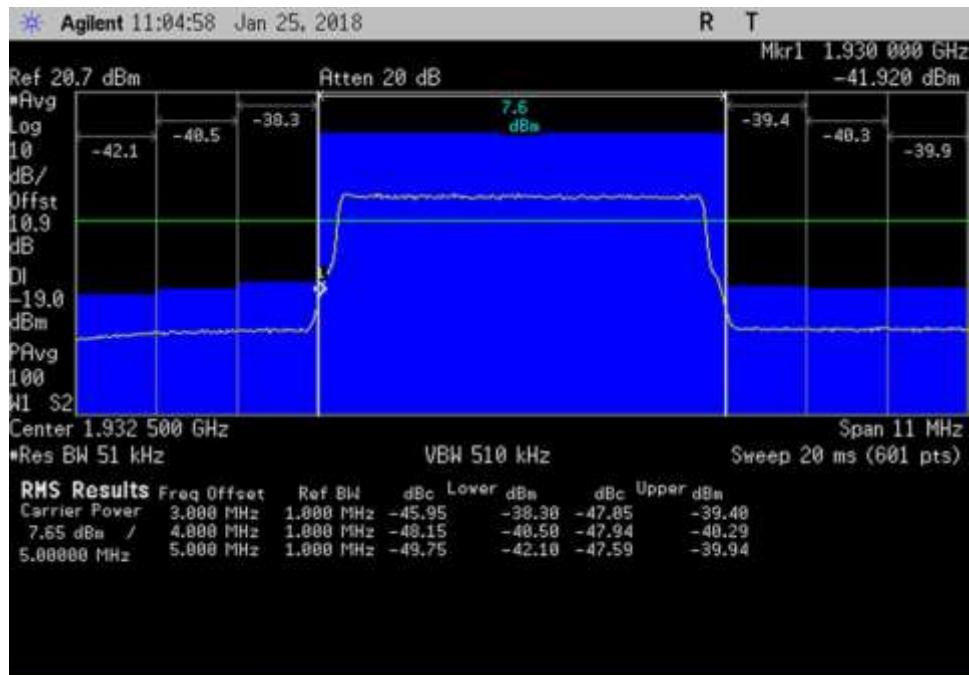
DL_ 750.5- 758.5MHz_LTE



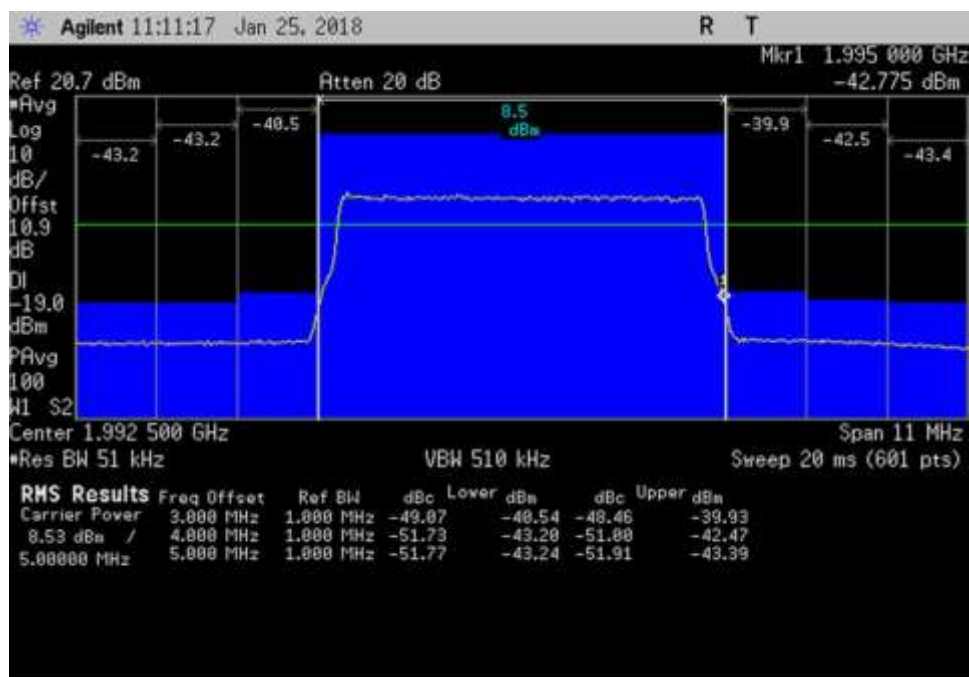
DL_867.5-875.5MHz_LTE



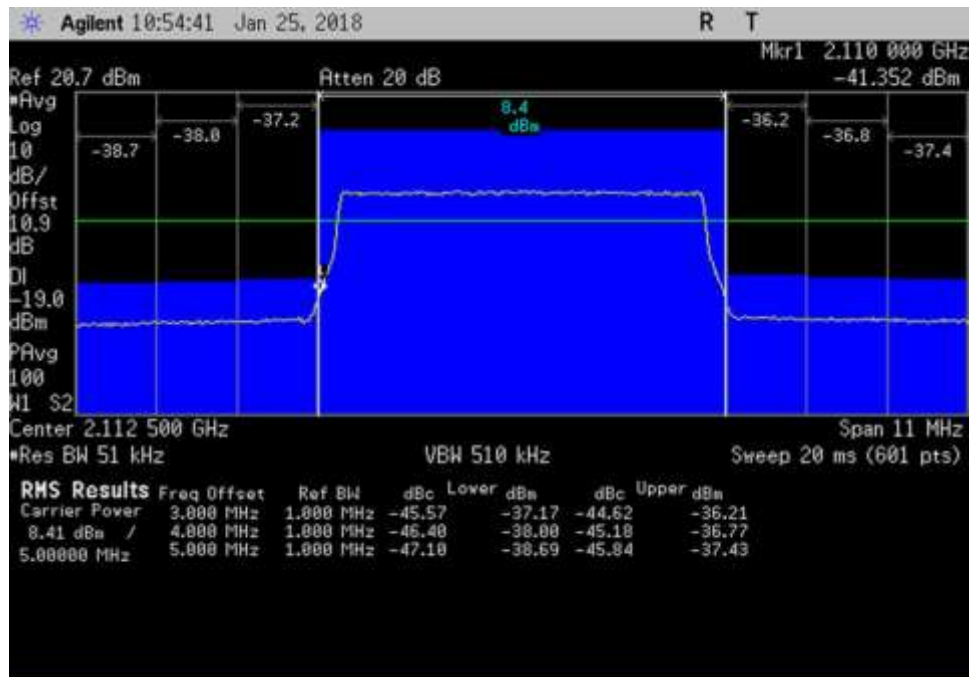
DL_887.5-895.5MHz_LTE



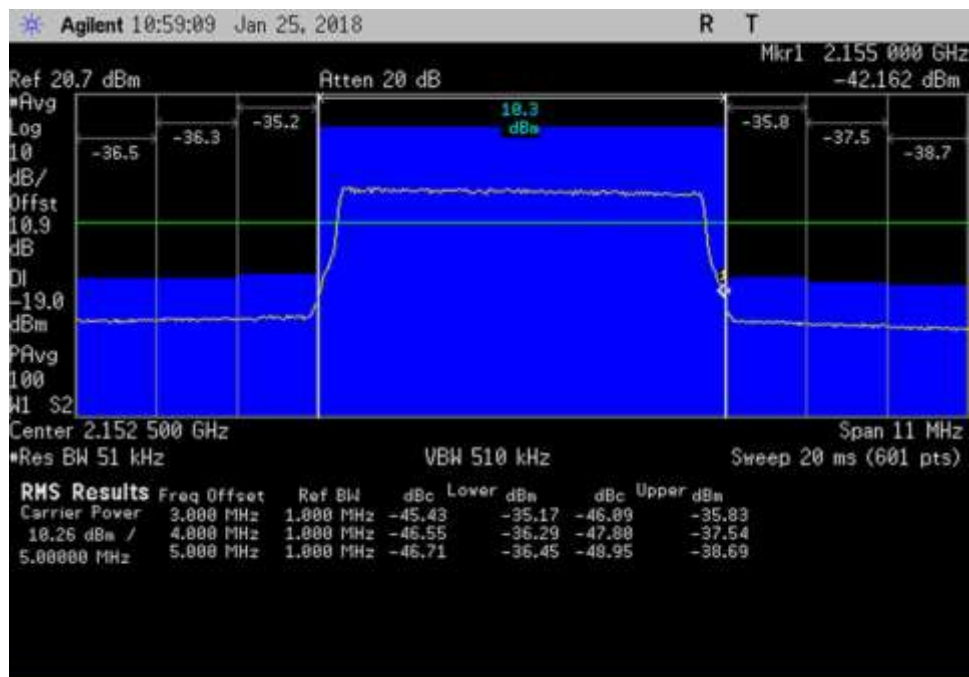
DL_ 1927- 1938MHz_LTE



DL_ 1987- 1998MHz_LTE



DL_2107- 2118MHz_LTE



DL_2147- 2158MHz_LTE

7.6 Conducted Spurious Emissions

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.6 Conducted Spurious Emissions / 47 CFR §2.1051 Spurious Emissions at Antenna Terminals**
 Work Order #: **100825** 1/25/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu S Nguyenpham/Eddie Wong**
 Software: **EMITest 5.03.11**

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions:
 Temperature: 20.5°C
 Relative Humidity: 40%
 Pressure: 102 kPa
 Frequency range of measurement = 9kHz- 22GHz.
 9 kHz - 150 kHz -> RBW= 200Hz VBW= 200Hz
 150 kHz - 30 MHz -> RBW= 9kHz VBW= 9kHz
 30 MHz - 1000MHz -> RBW*= 1MHz VBW= 3MHz
 1000 MHz - 22000MHz ->RBW= 1MHz VBW= 3MHz

*Note: As specified on 7.6 Conducted spurious emissions test procedure of 935210 D03 Signal Booster Measurements v04, 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.

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.

Modification #1 and #2 were in place during testing.

Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/19/2018	1/19/2020
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019

Summary of Results

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

9 kHz-30 MHz

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

Per section 27.53 (f), the 1559-1610 band was also investigated and found emission within limits using applied correction (see calculation below).

Limit Line Calculation*					
Frequency (MHz)	Antenna Gain cable loss (dBi)		Limit line EIRP (dBW/MHz)	Limit line EIRP (dBm)	Limit line EIRP corrected (dBm)
UL 776-787	-0.52		-70.0	-40	-40.52

LIMIT LINE FOR SPURIOUS CONDUCTED EMISSION

$$\text{REQUIRED ATTENUATION} = 43 + 10 \log P \text{ DB}$$

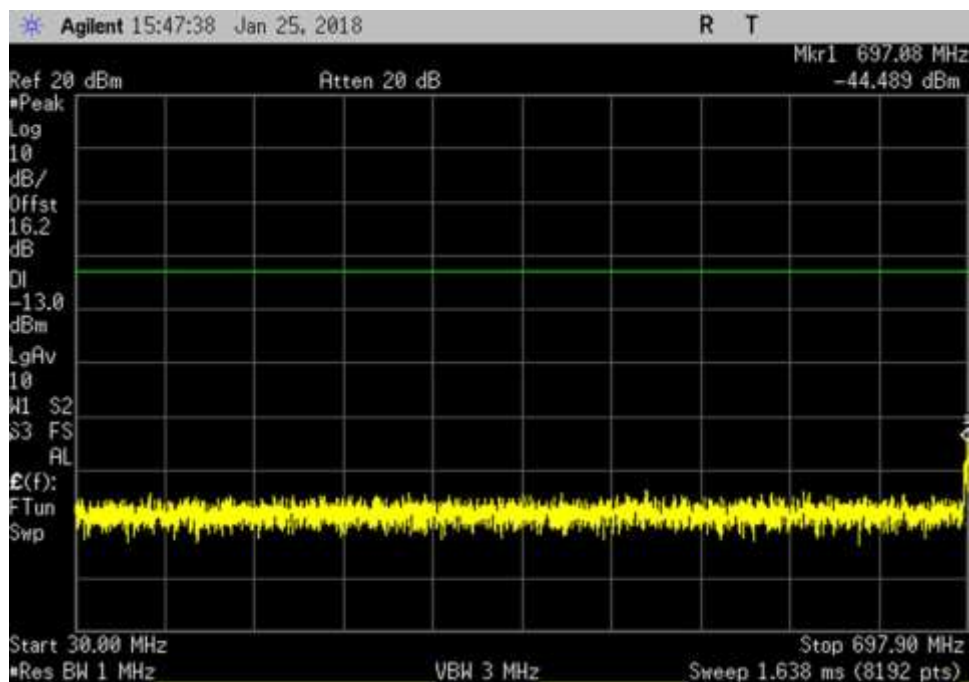
$$\text{Limit line (dBuV)} = V_{\text{dBuV}} - \text{Attenuation}$$

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

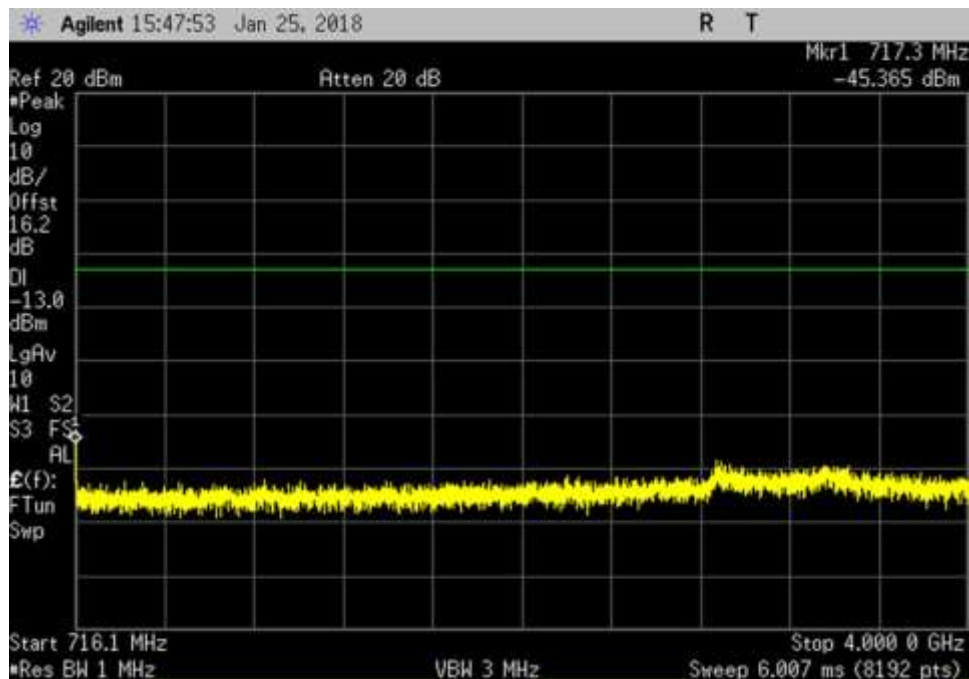
$$\begin{aligned} \text{Attenuation} &= 43 + 10 \log P \\ &= 43 + 10 \log \frac{V^2}{R} \\ &= 43 + 10 (\log V^2 - \log R) \\ &= 43 + 10 (2 \log V - \log R) \\ &= 43 + 20 \log V - 10 \log R \end{aligned}$$

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

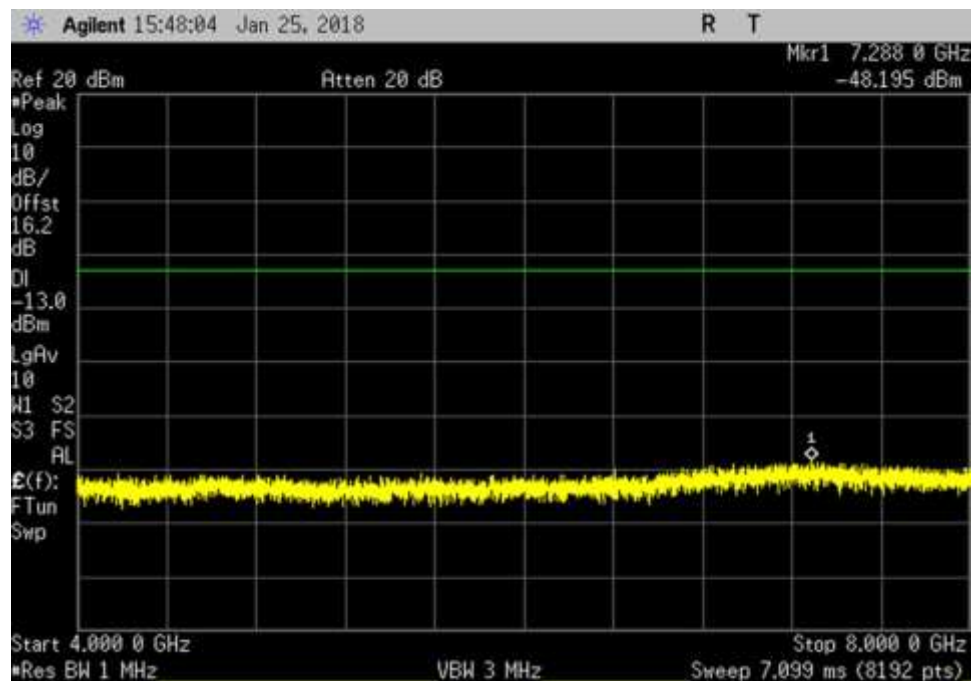
Plots



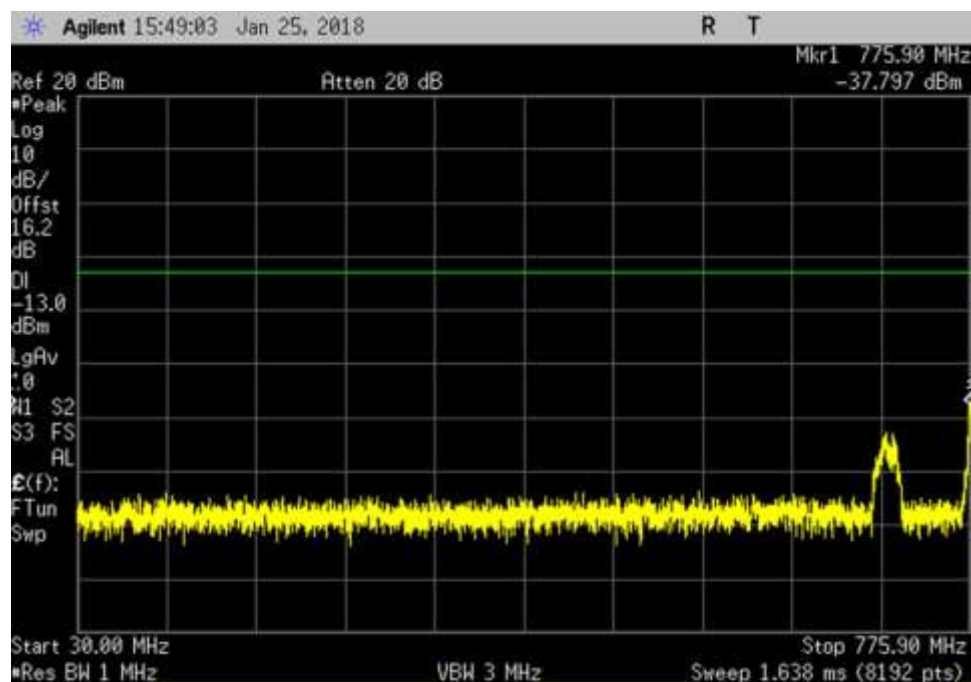
UL_30- 697.9MHz_AWGN



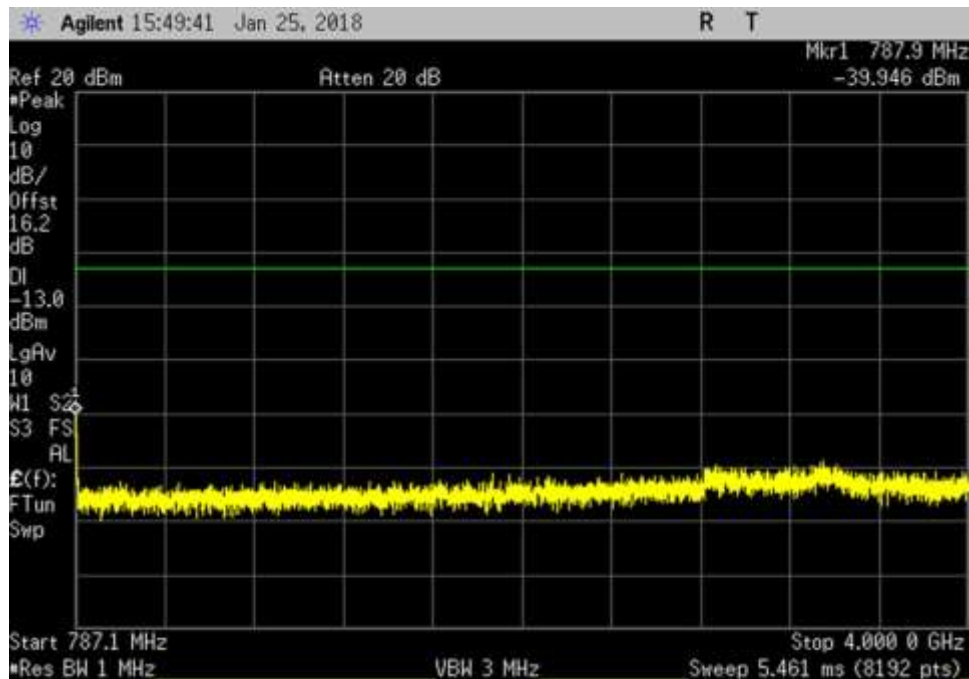
UL_716.1- 4000MHz_AWGN



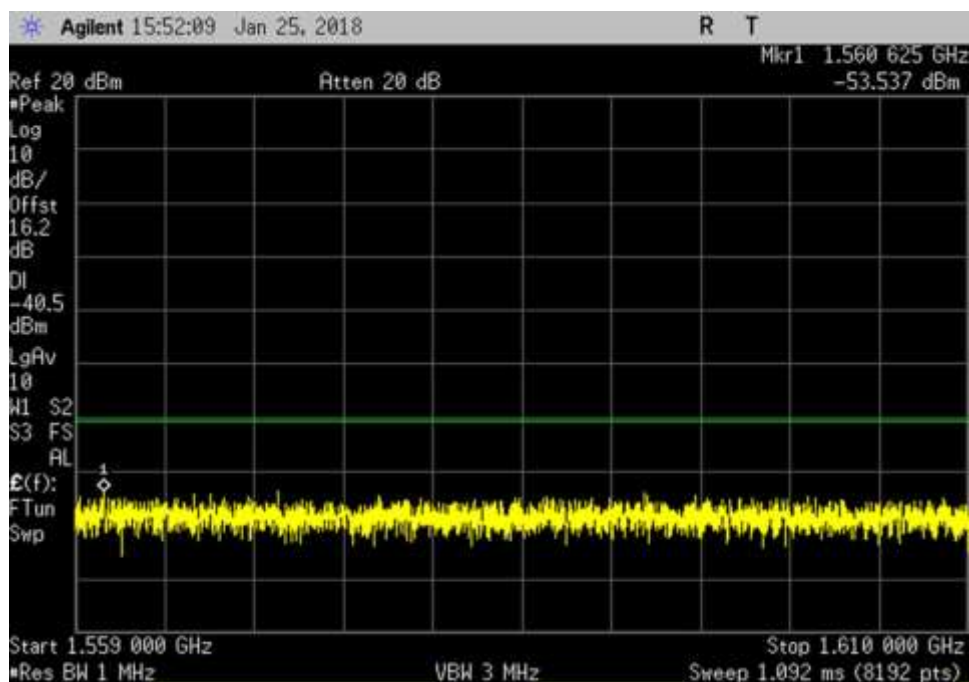
UL_ 4000- 8000MHz_AWGN



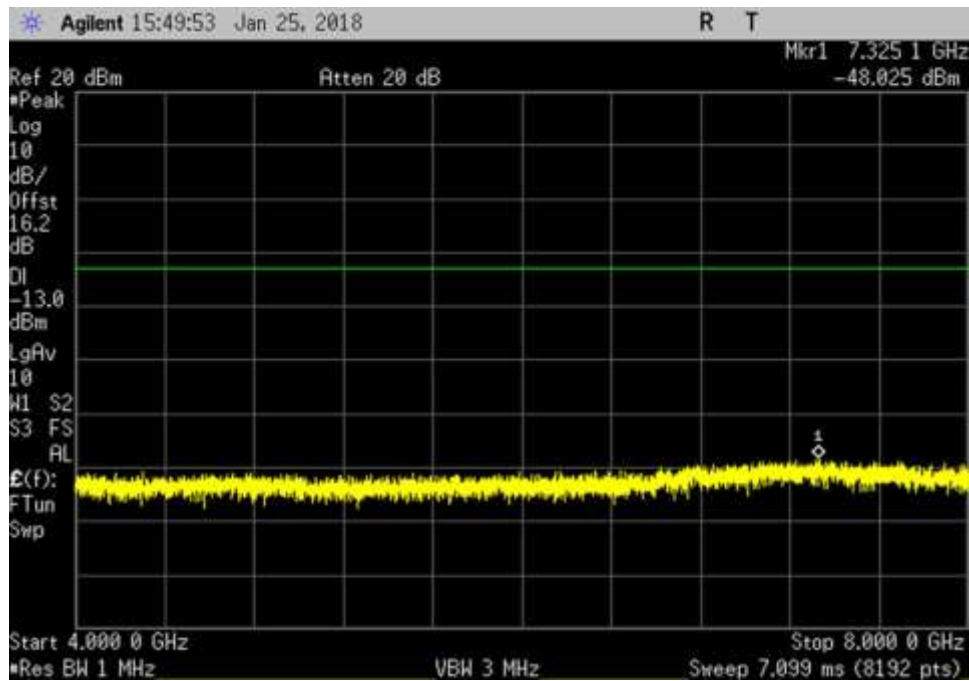
UL_ 30- 775.9MHz_AWGN



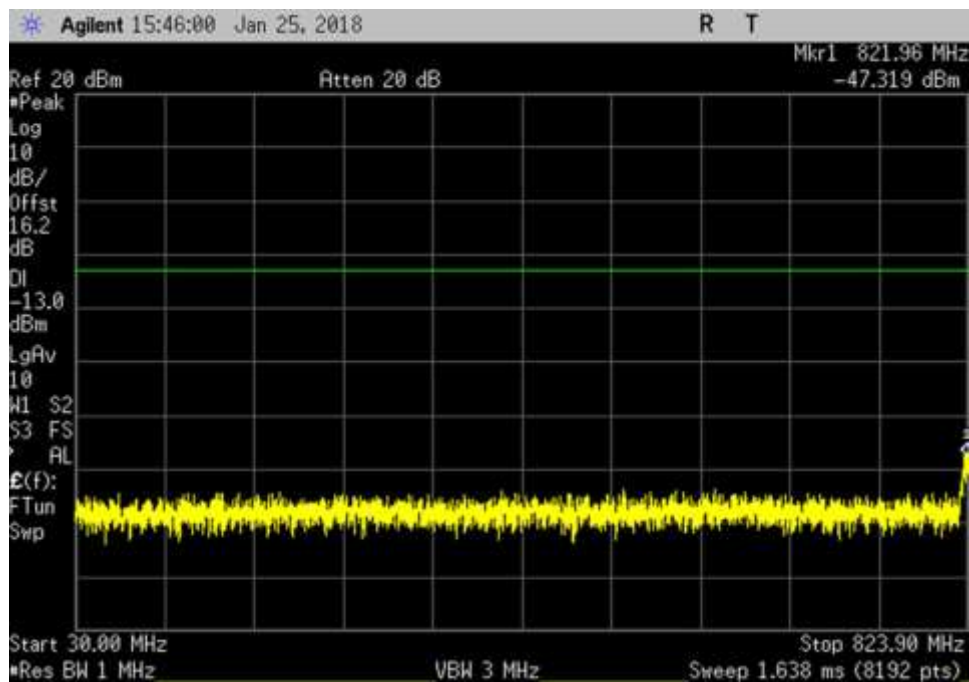
UL_ 787.1- 4000MHz_AWGN



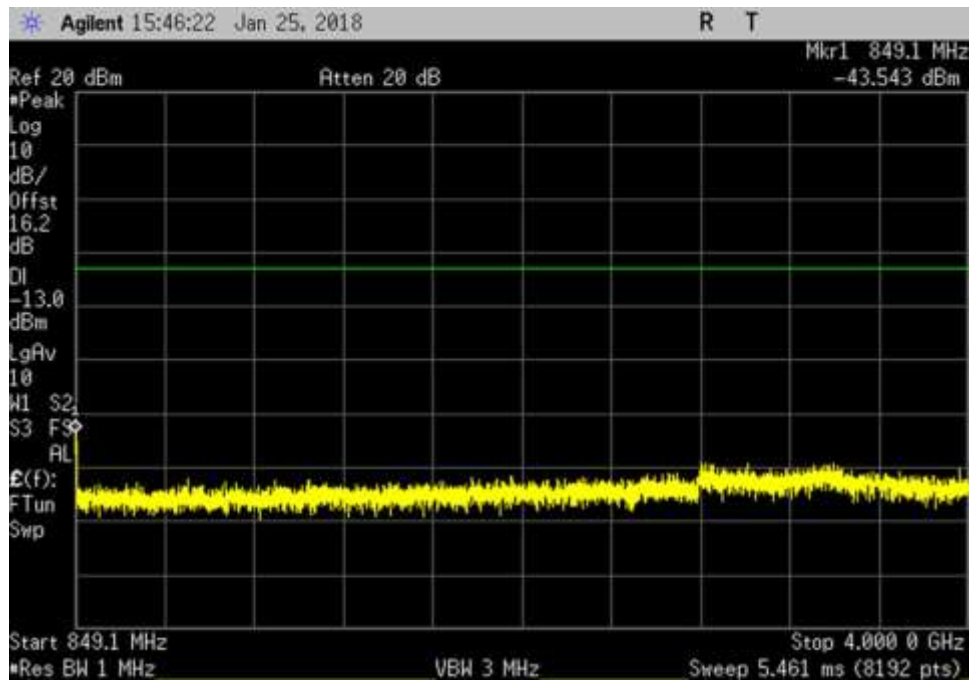
UL_ 1559- 1610MHz_AWGN



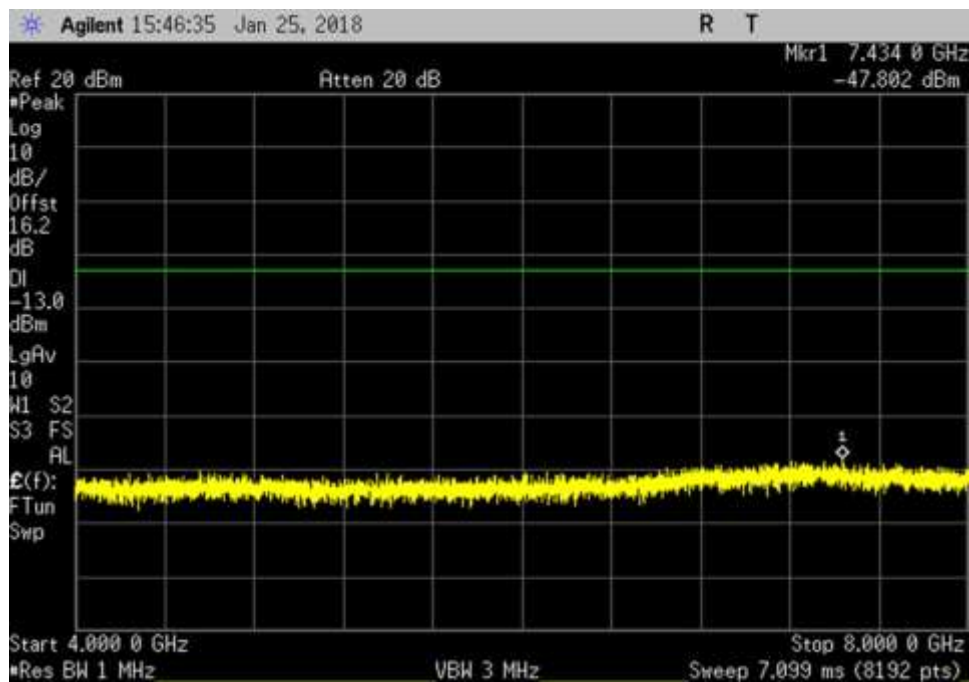
UL_ 4000- 8000MHz_AWGN



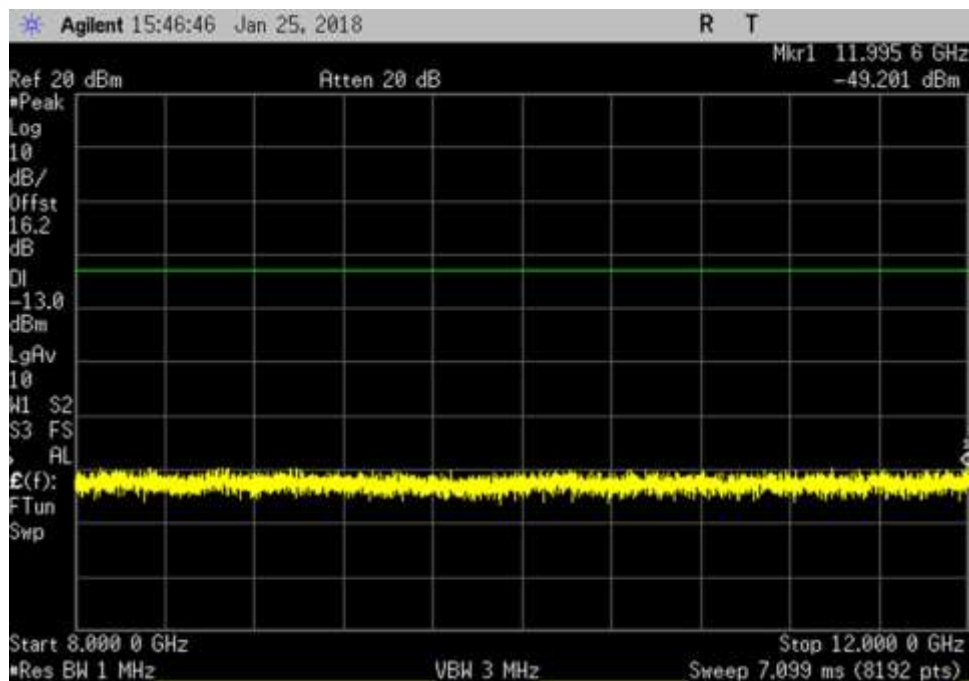
UL_ 30- 823.9MHz_AWGN



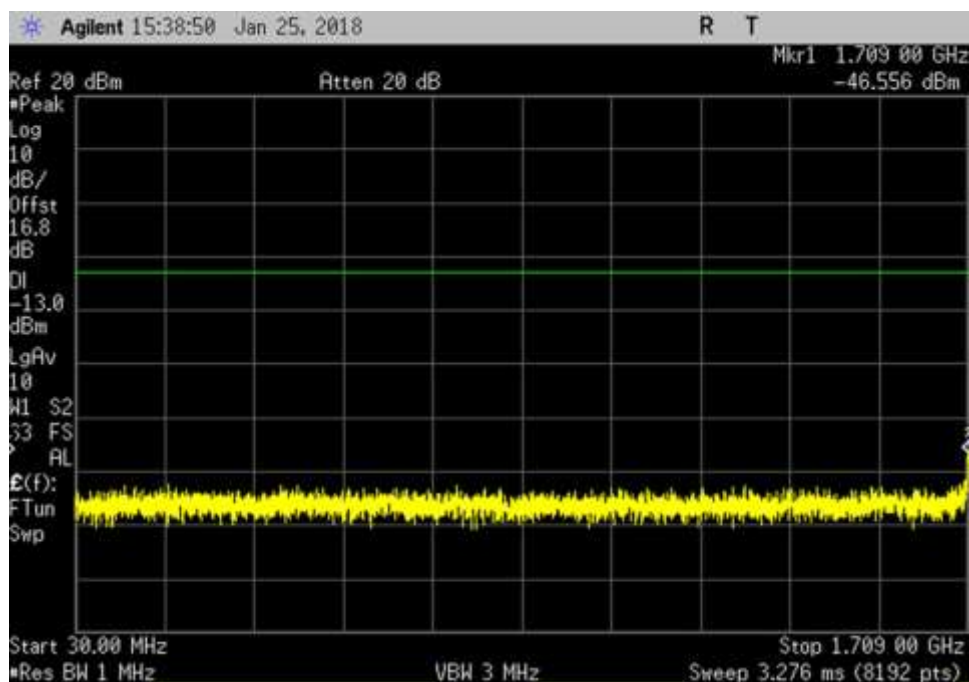
UL_ 849.1- 4000MHz_AWGN



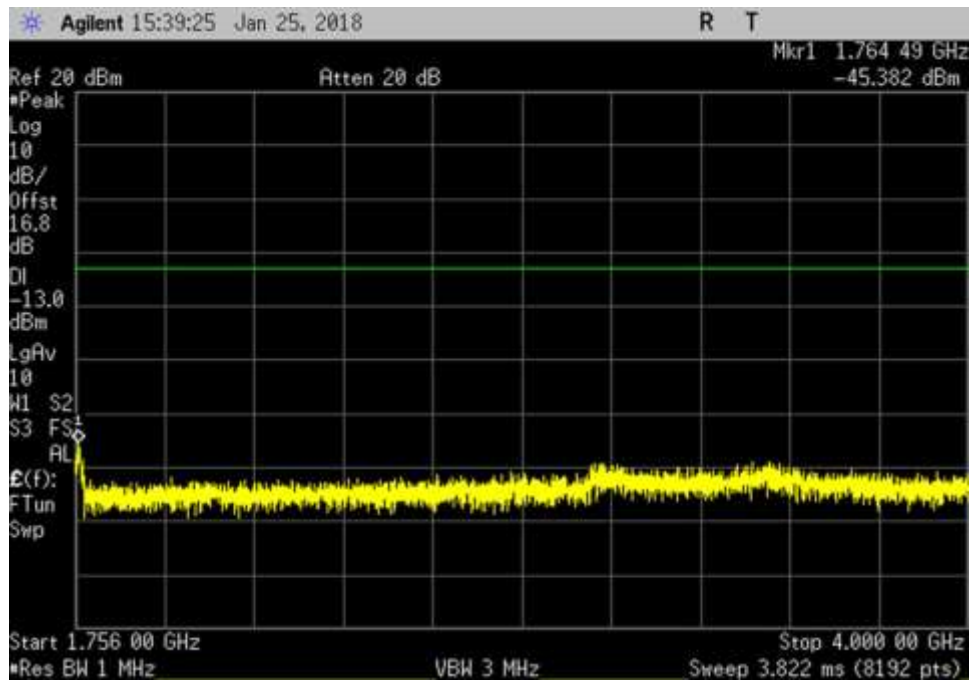
UL_ 4000- 8000MHz_AWGN



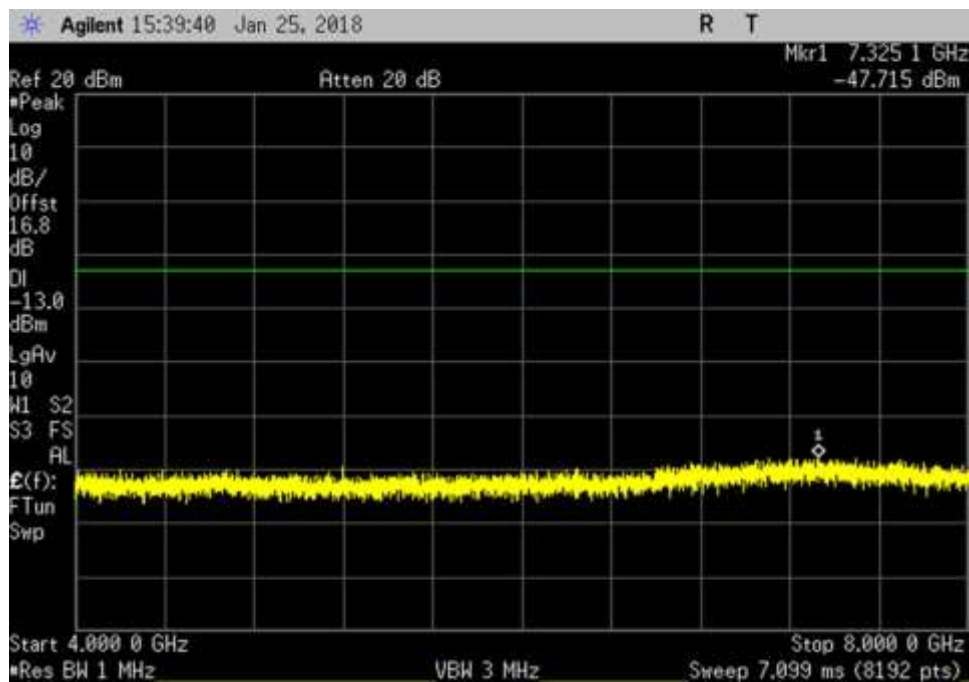
UL_ 8000- 12000MHz_AWGN



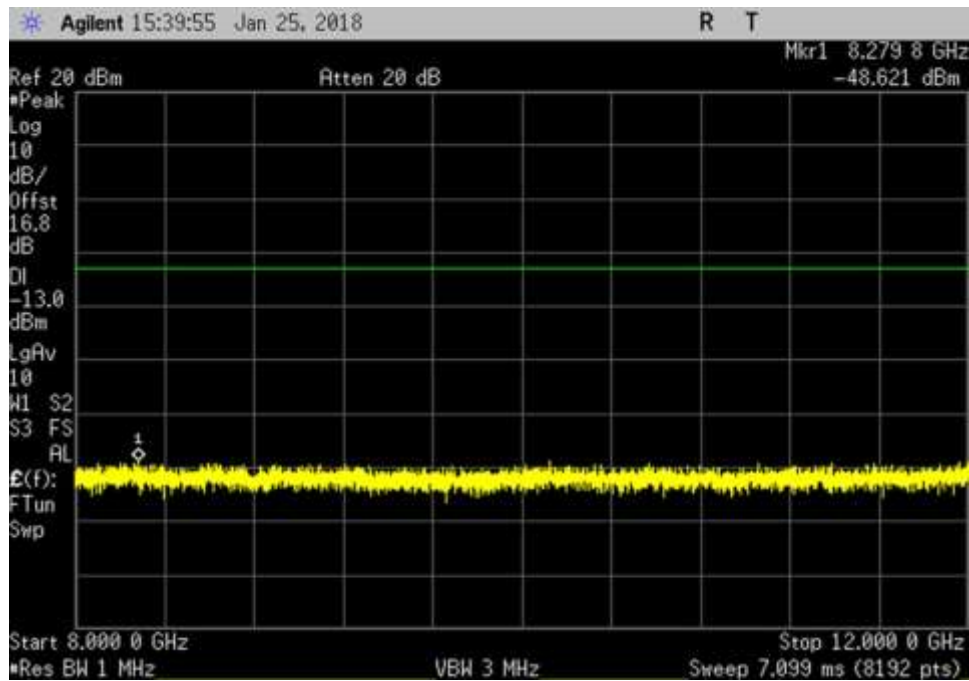
UL_ 30- 1709MHz_AWGN



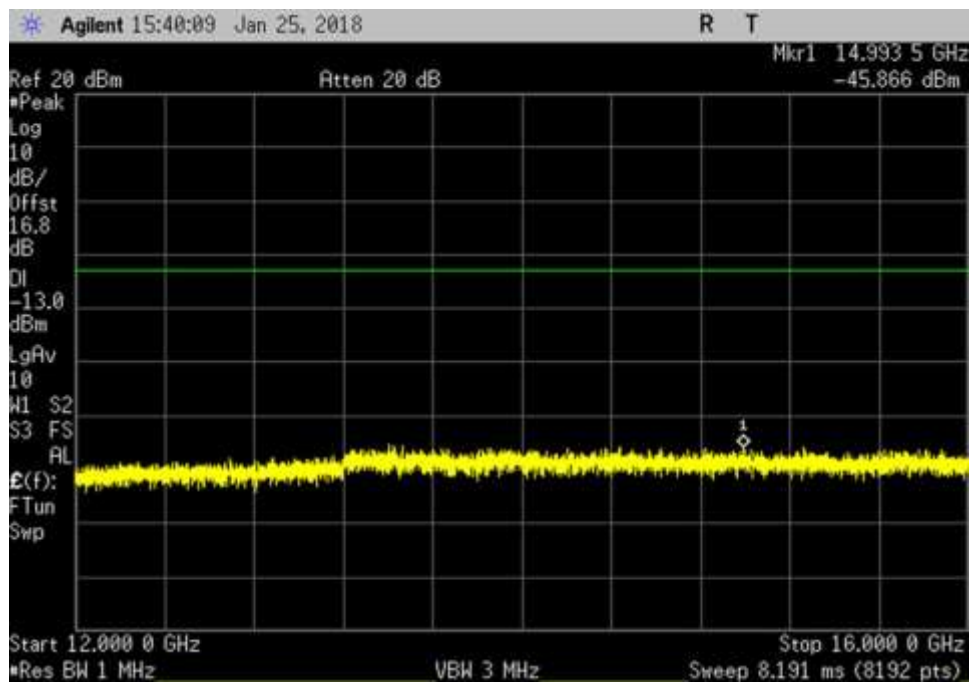
UL_1756-4000MHz_AWGN



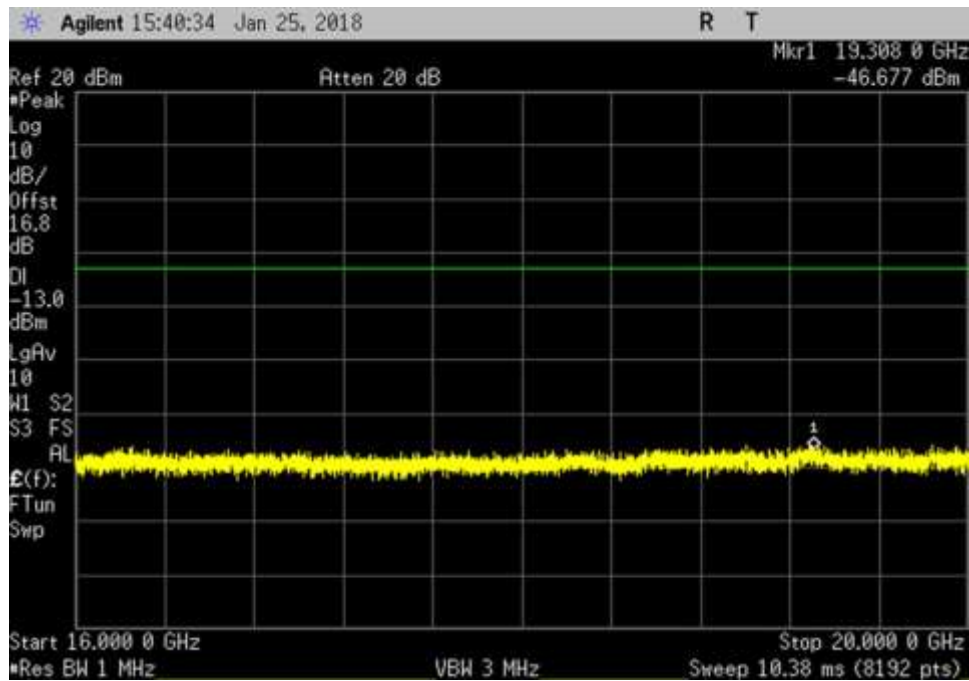
UL_4000-8000MHz_AWGN



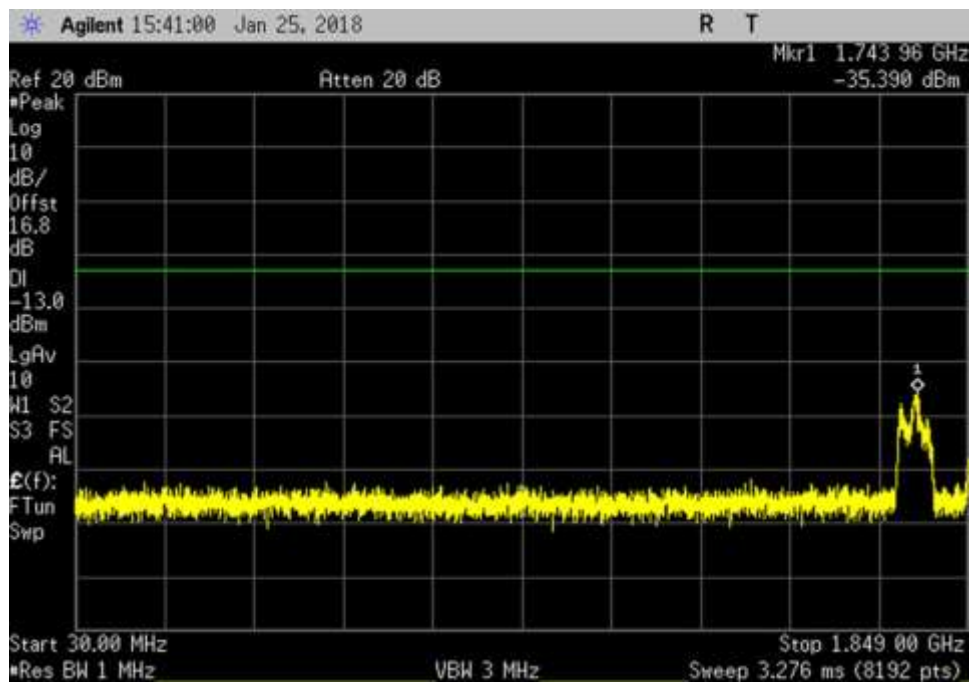
UL_ 8000- 12000MHz_AWGN



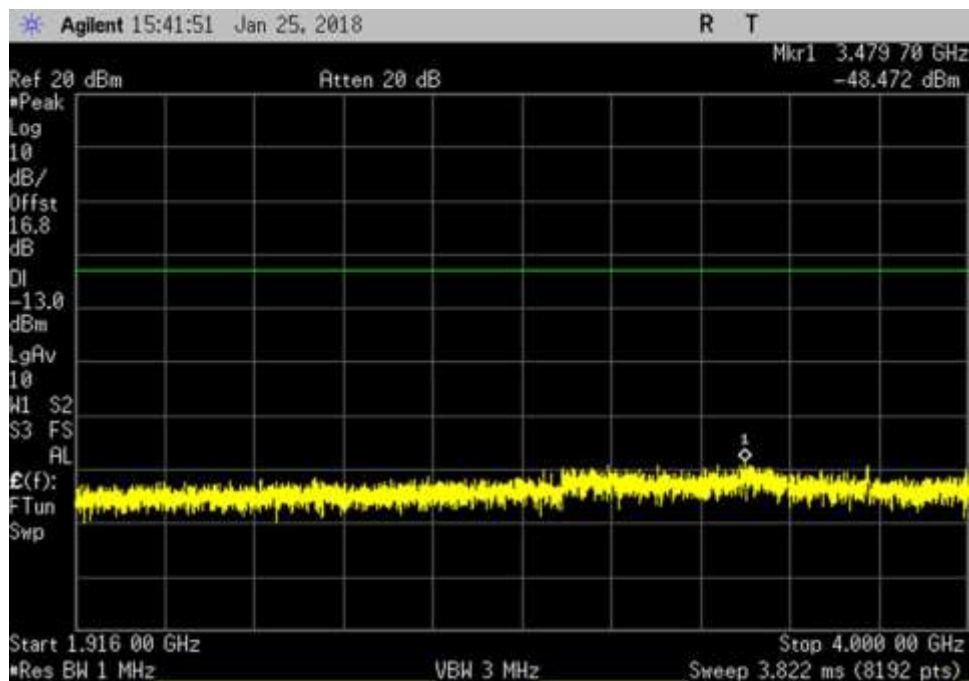
UL_ 12000- 16000MHz_AWGN



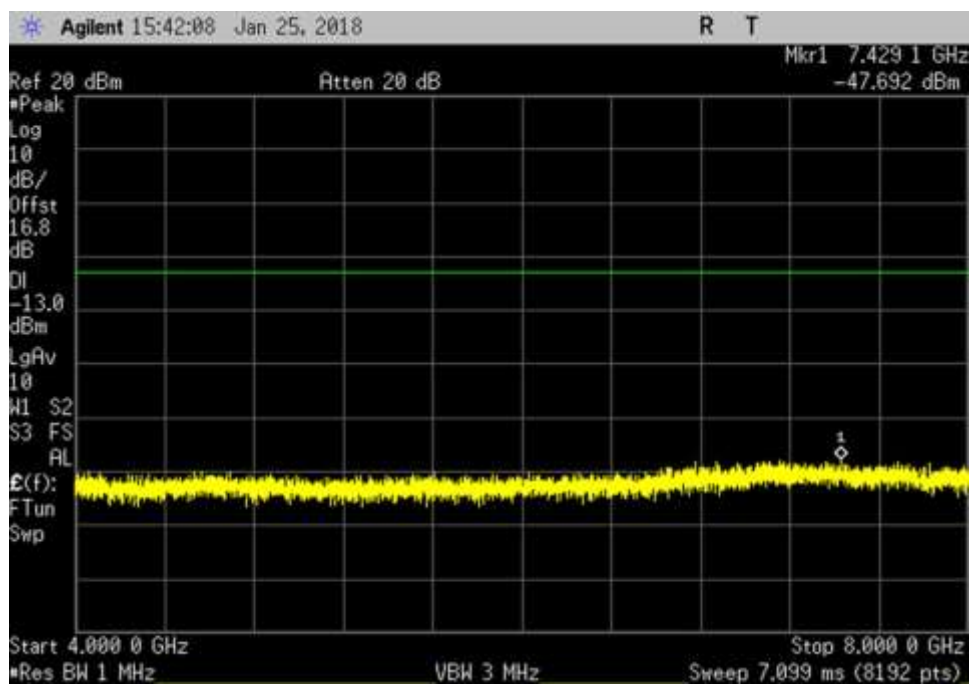
UL_ 16000- 20000MHz_AWGN



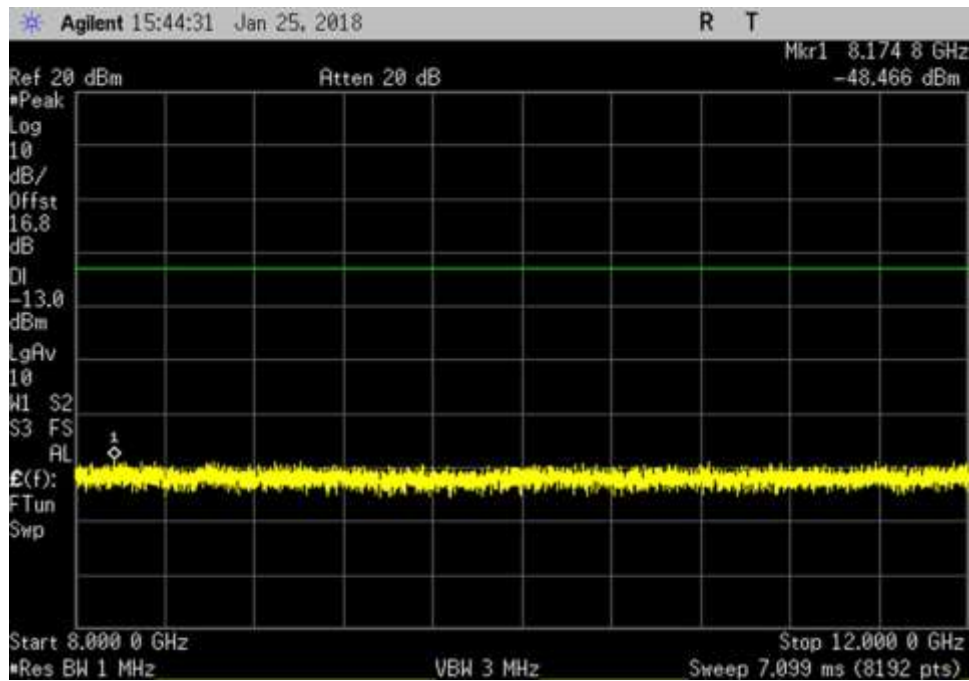
UL_ 30- 1849MHz_AWGN



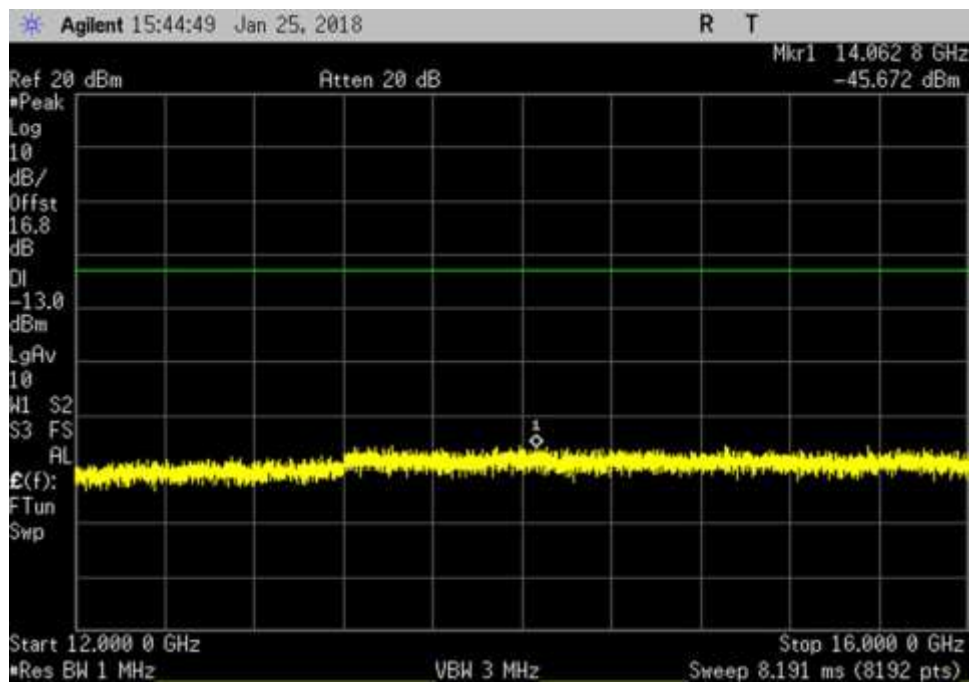
UL_ 1916- 4000MHz_AWGN



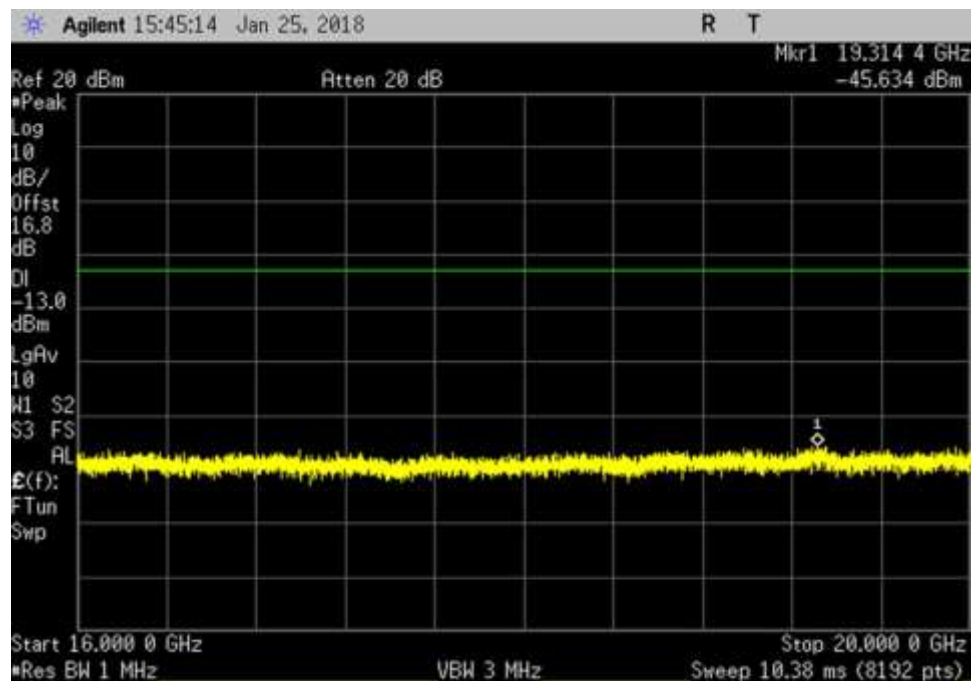
UL_ 4000- 8000MHz_AWGN



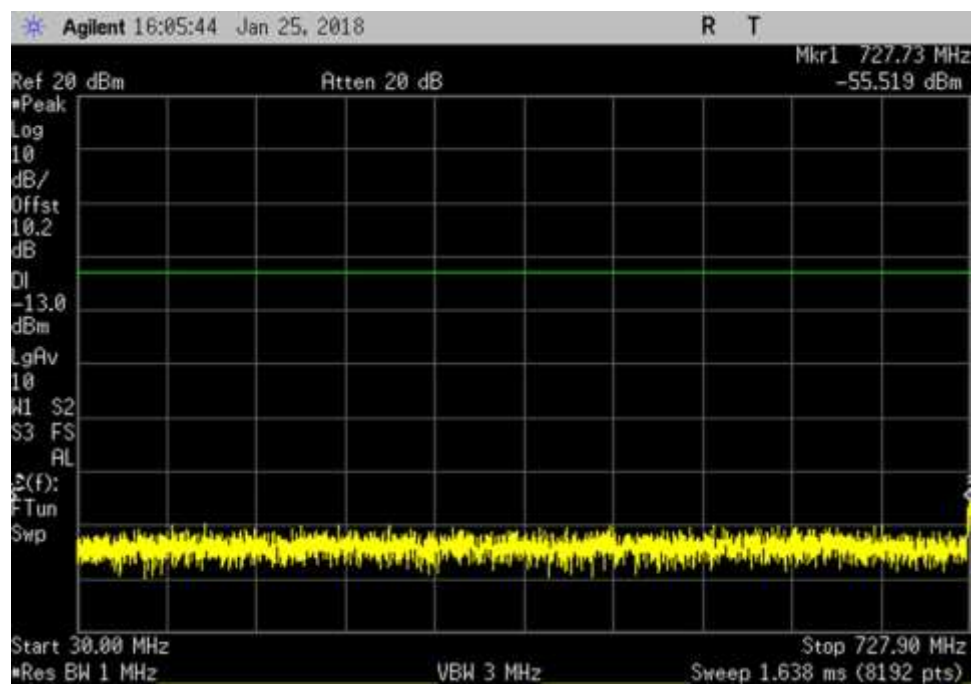
UL_ 8000- 12000MHz_AWGN



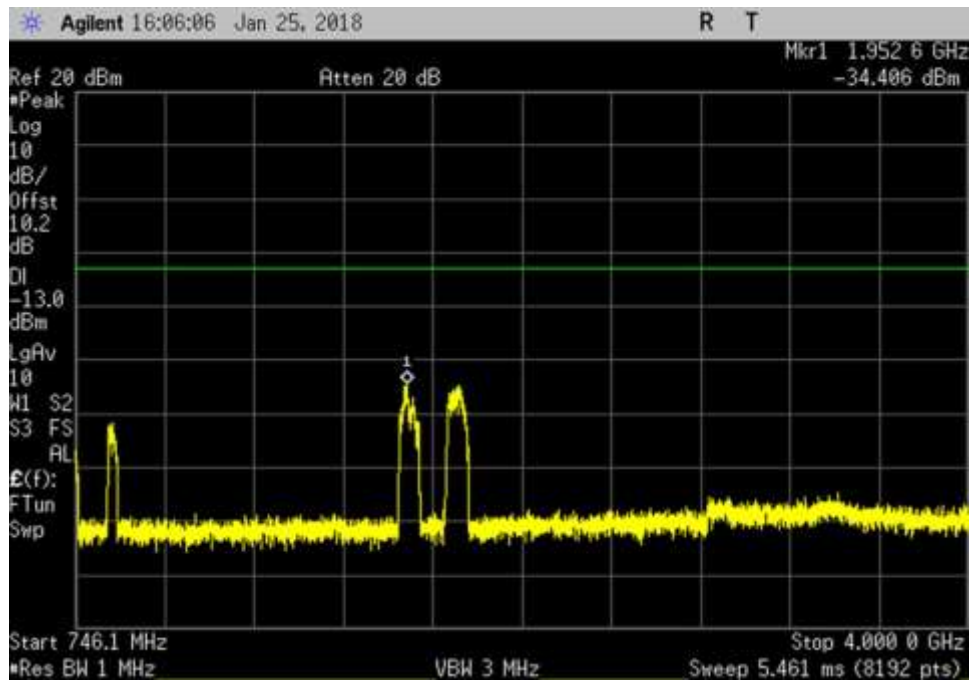
UL_ 12000- 16000MHz_AWGN



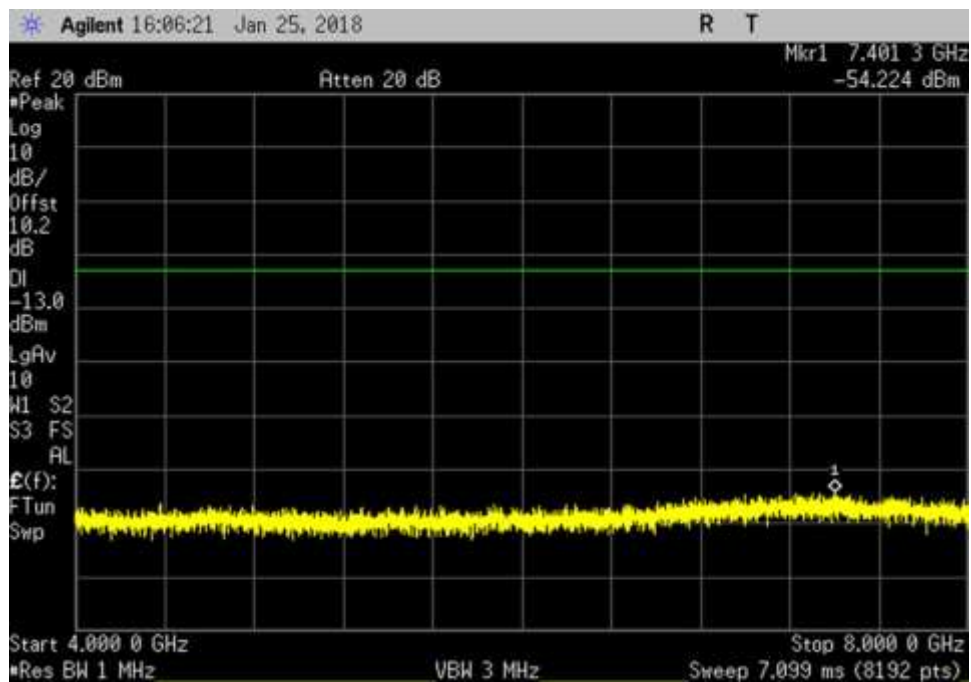
UL_ 16000- 20000MHz_AWGN



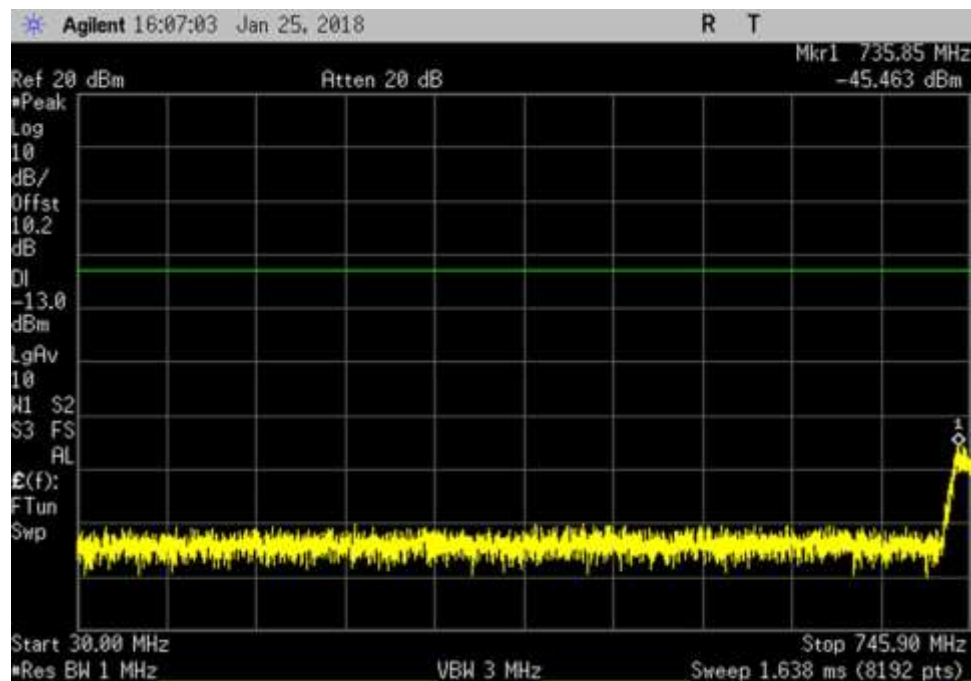
DL_ 30- 727.9MHz_AWGN



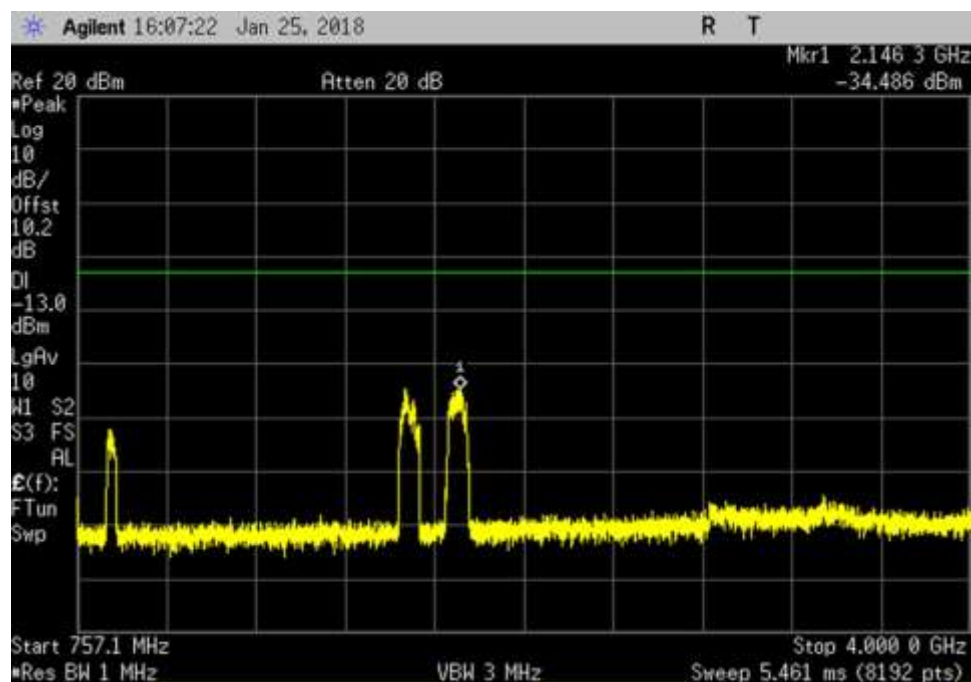
DL_ 746.1- 4000MHz_AWGN



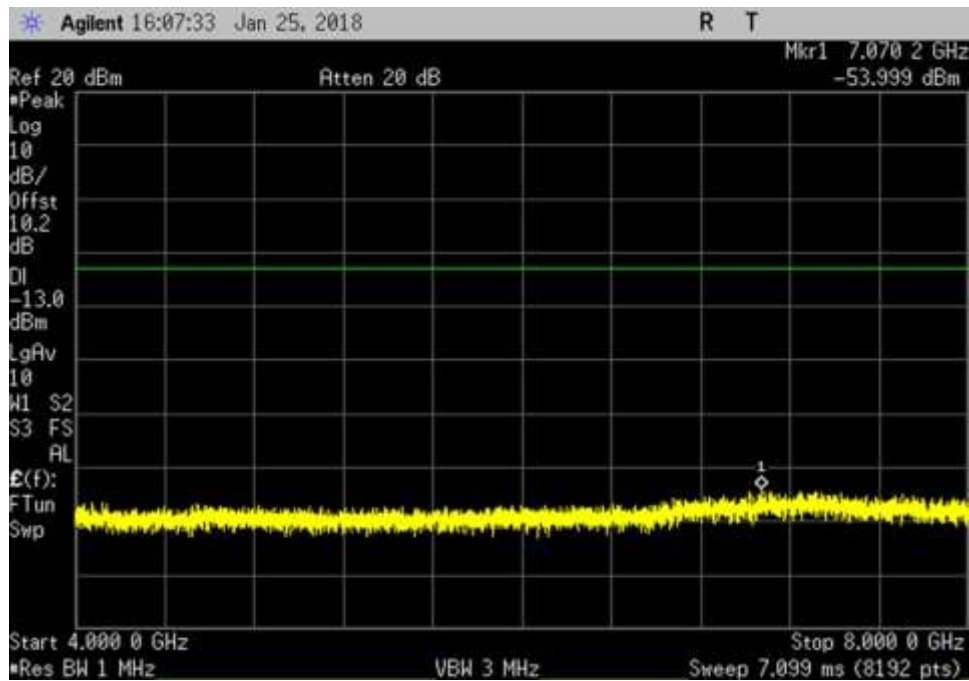
DL_ 4000- 8000MHz_AWGN



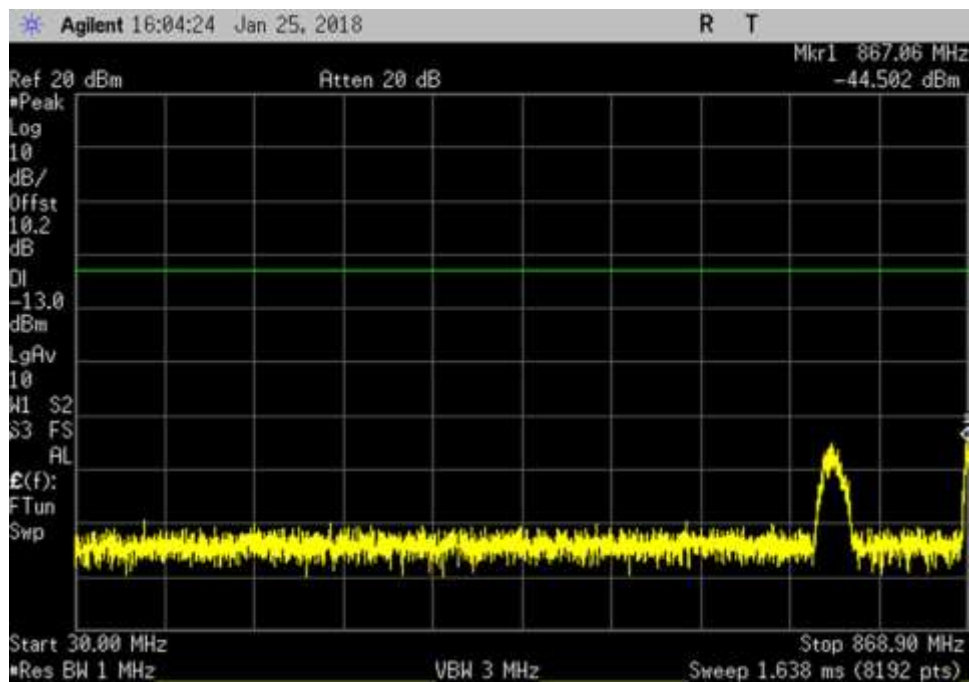
DL_ 30- 745.9MHz_AWGN



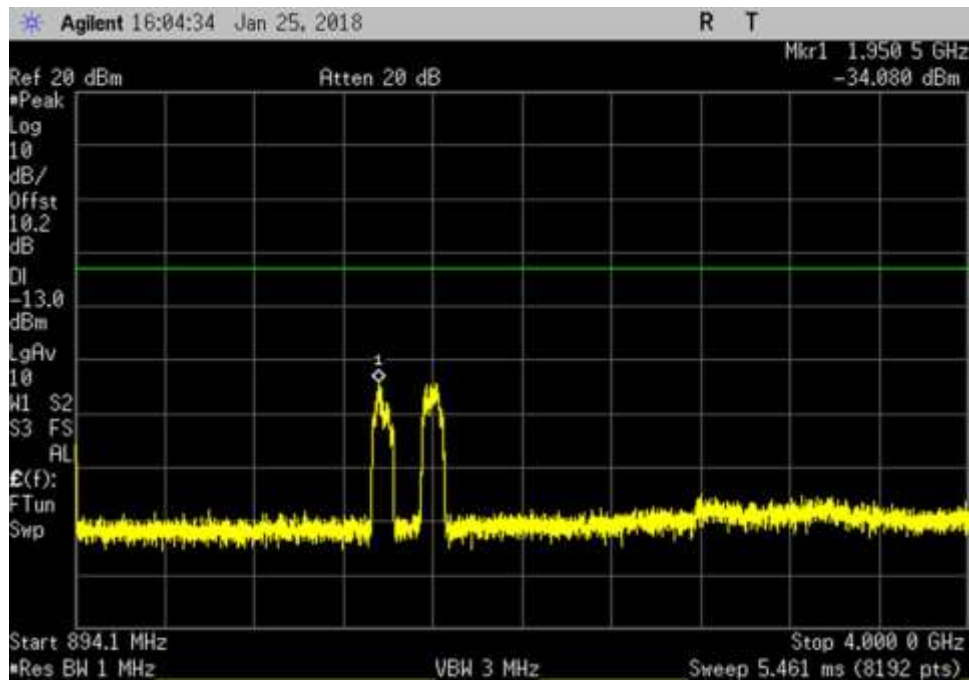
DL_ 757.1- 4000MHz_AWGN



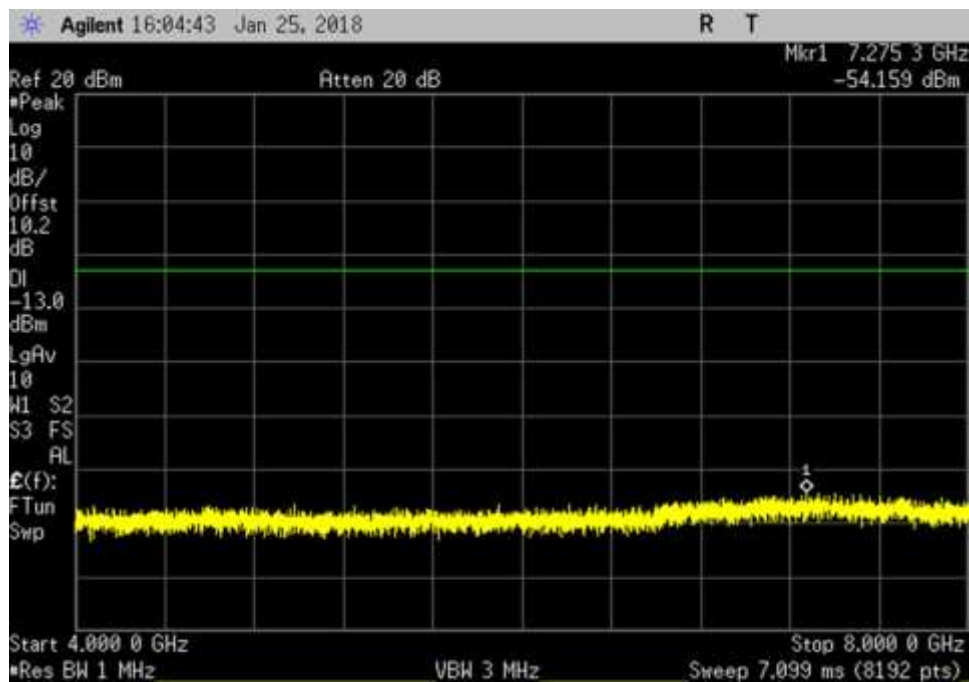
DL_ 4000- 8000MHz_AWGN



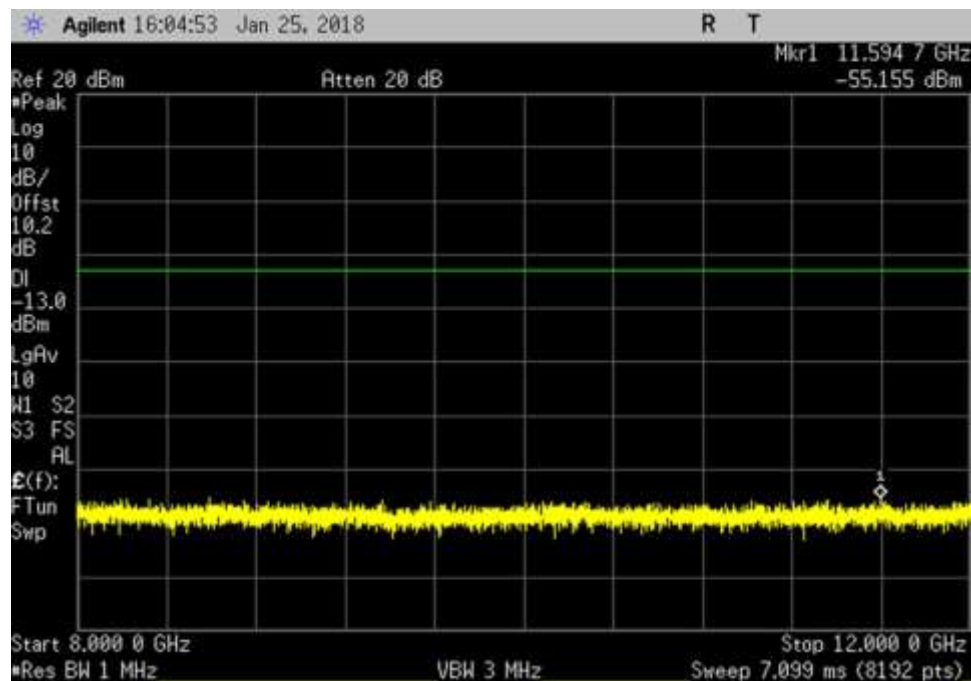
DL_ 30- 868.9MHz_AWGN



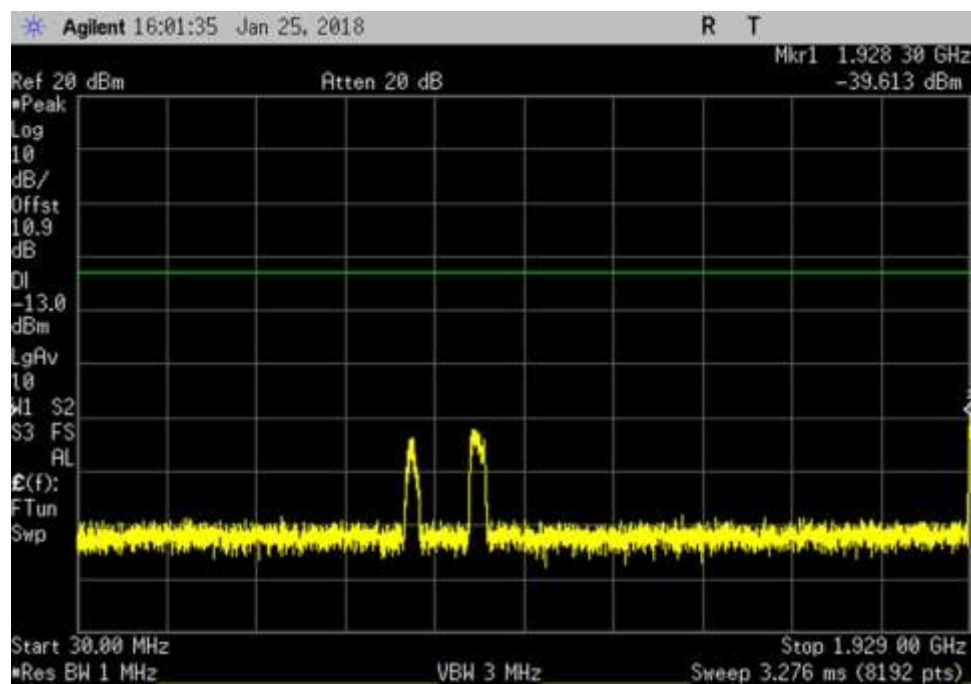
DL_ 894.1- 4000MHz_AWGN



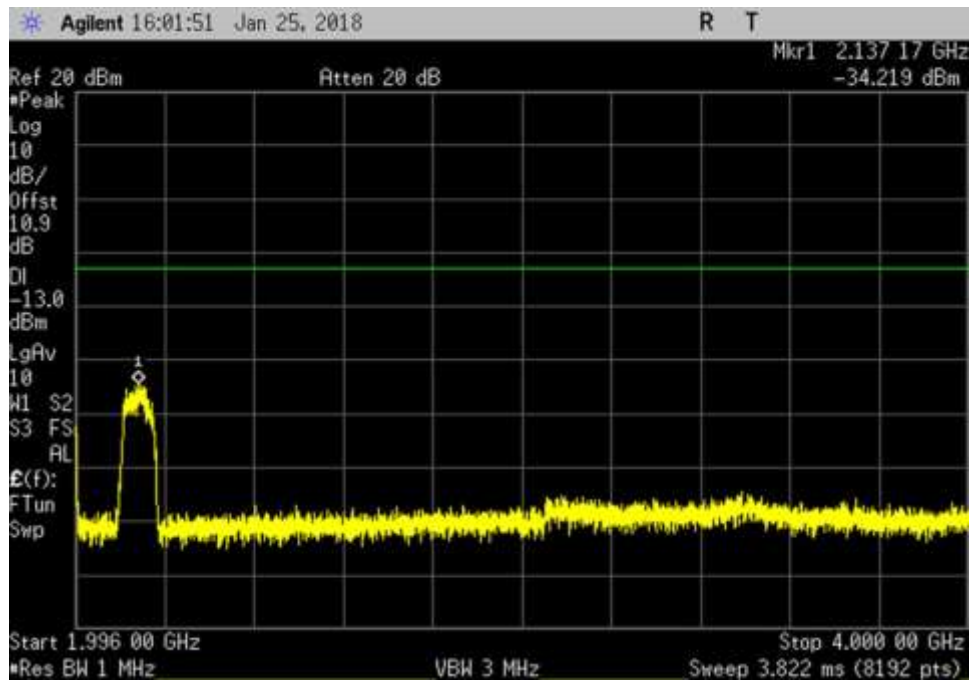
DL_ 4000- 8000MHz_AWGN



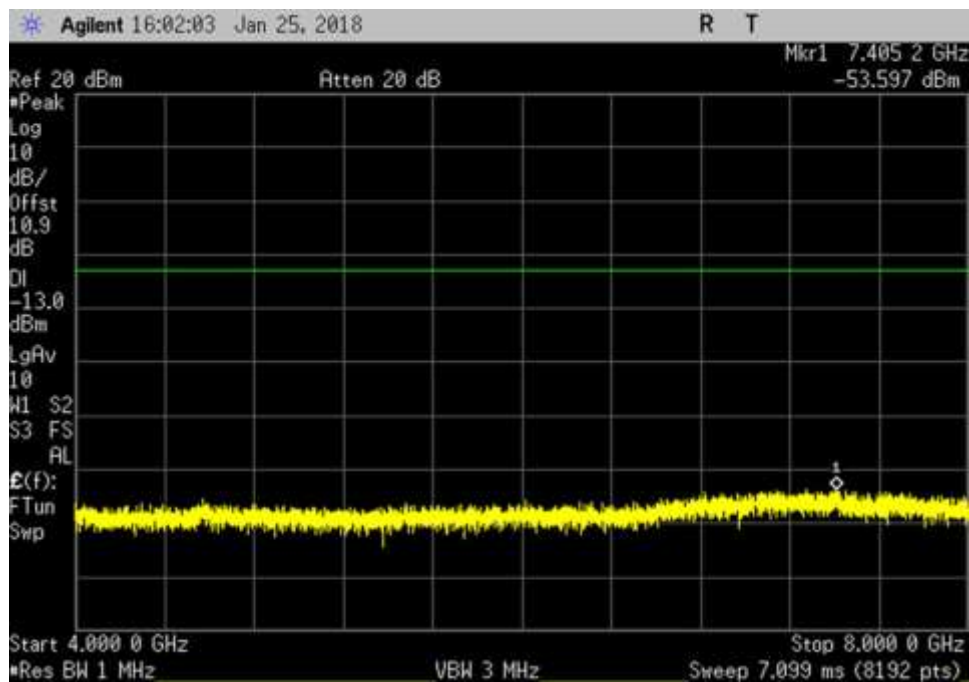
DL_ 8000- 12000MHz_AWGN



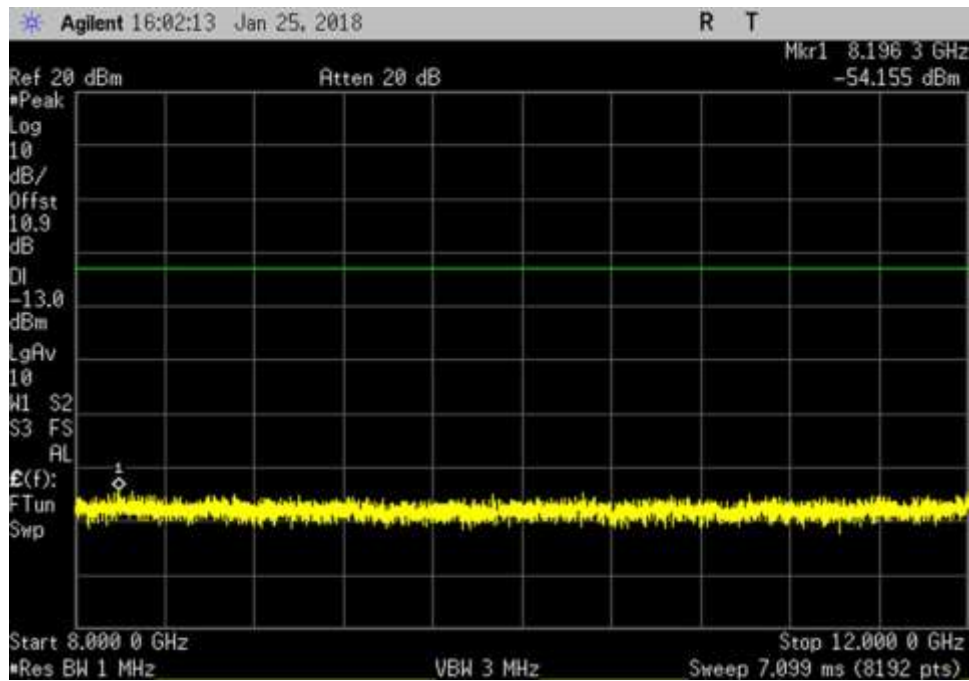
DL_ 30- 1929MHz_AWGN



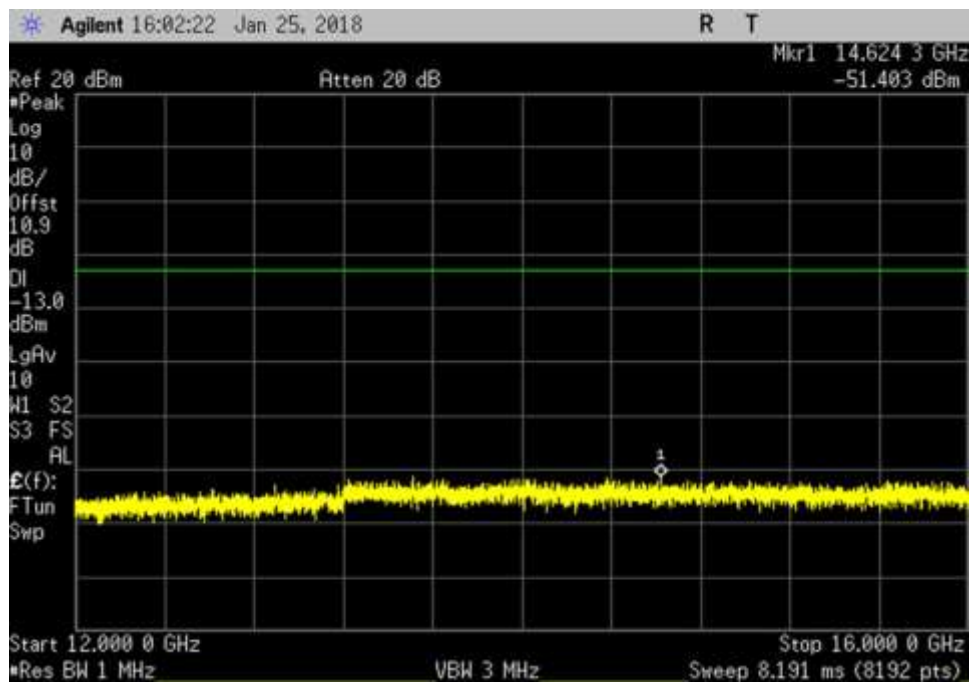
DL_1996- 4000MHz_AWGN



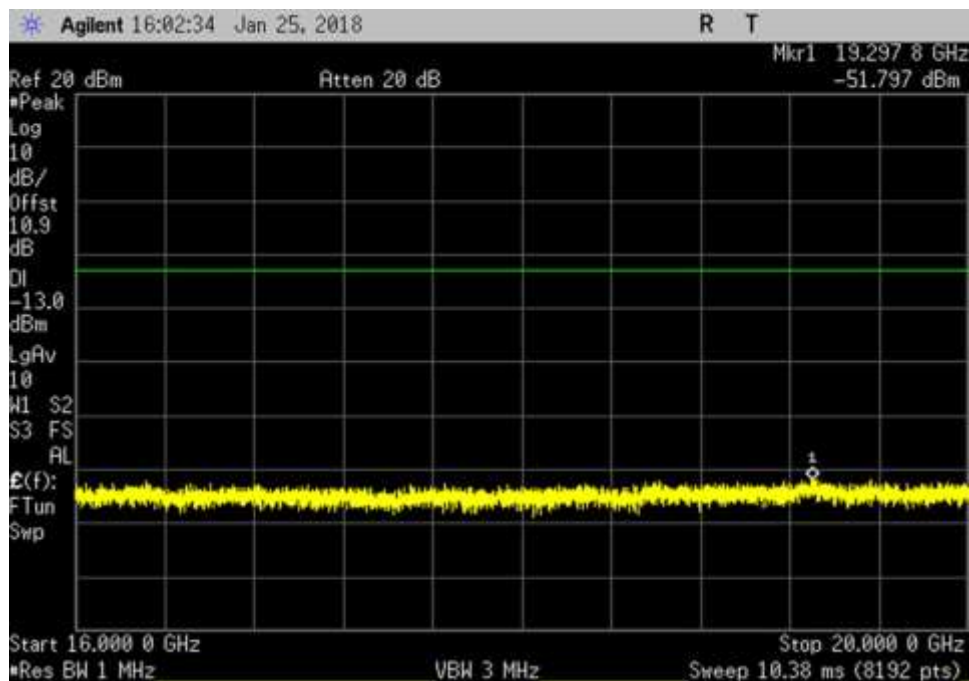
DL_4000- 8000MHz_AWGN



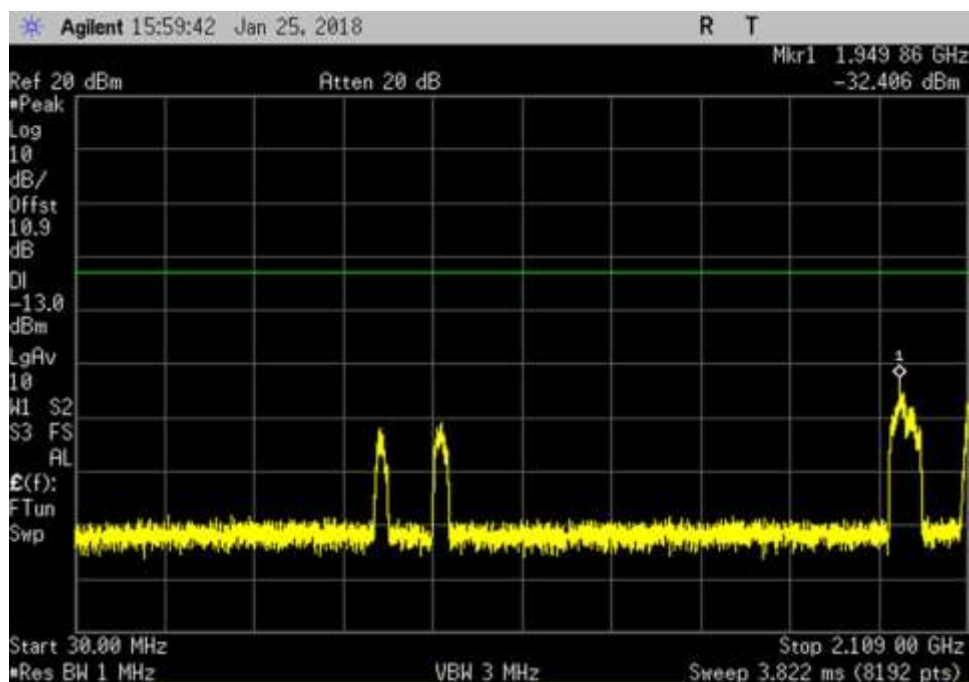
DL_ 8000- 12000MHz_AWGN



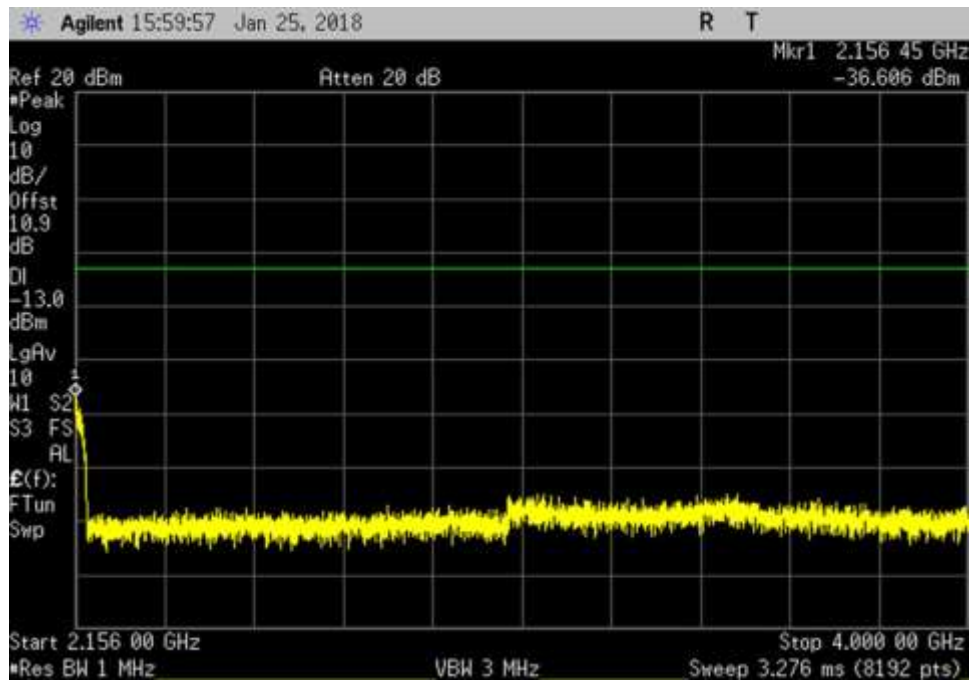
DL_ 12000- 16000MHz_AWGN



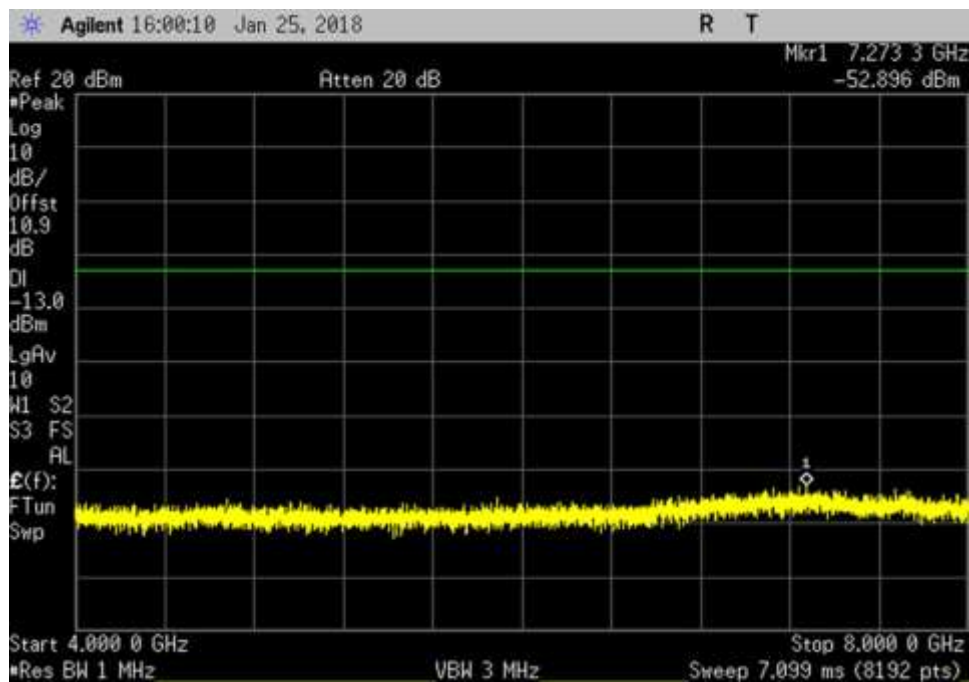
DL_ 16000- 20000MHz_AWGN



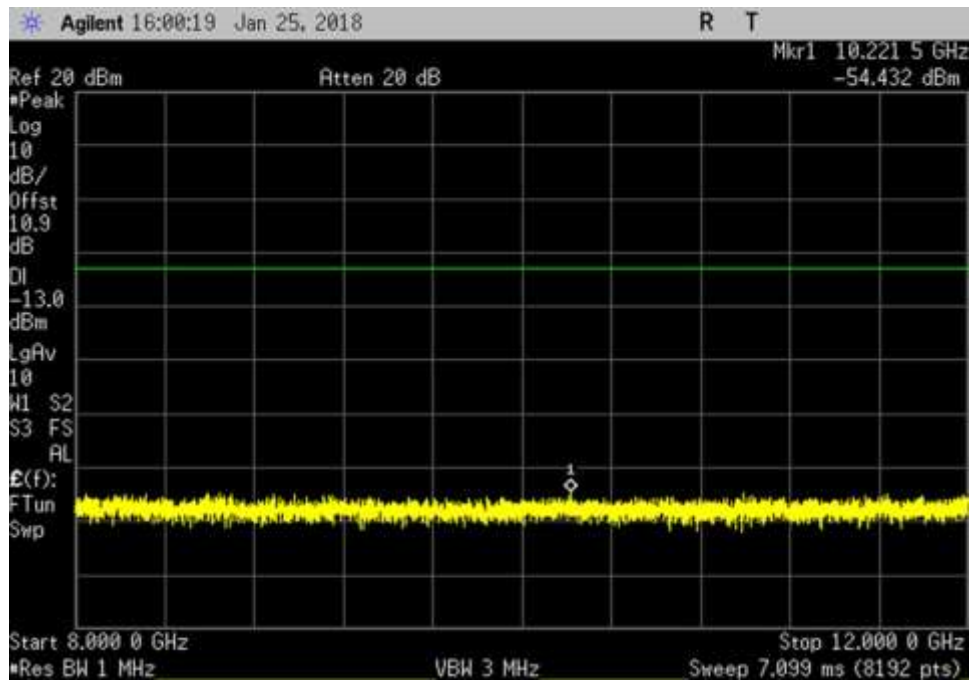
DL_ 30- 2109MHz_AWGN



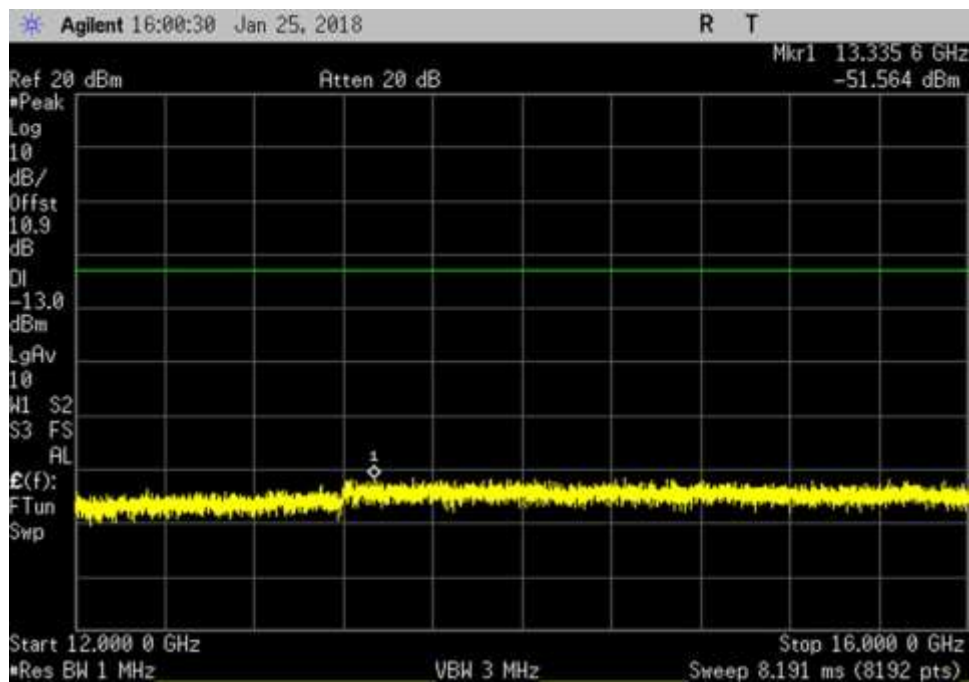
DL_ 2156- 4000MHz_AWGN



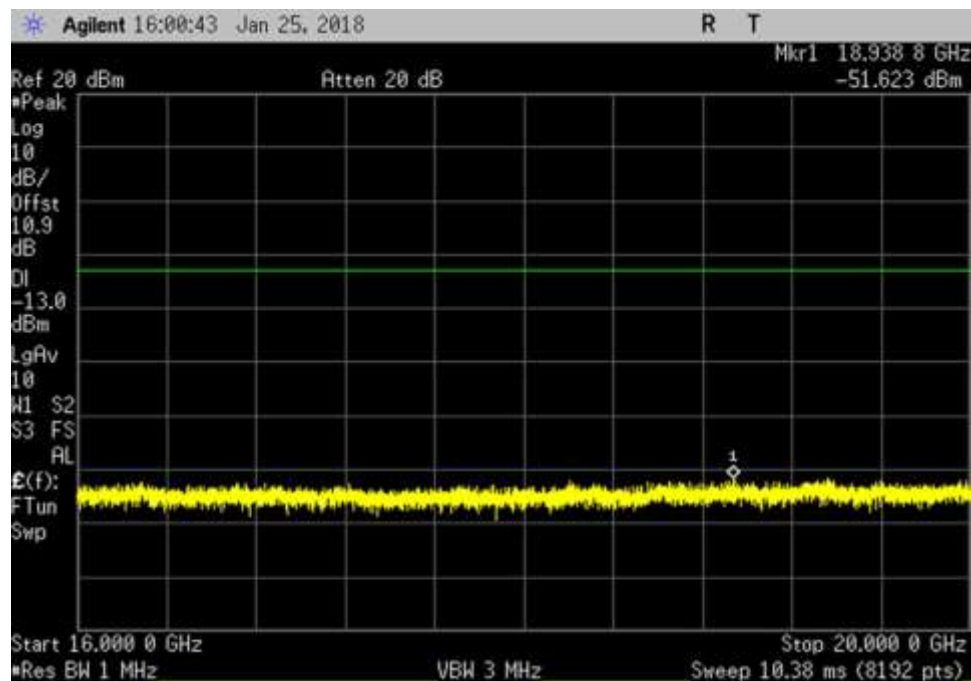
DL_ 4000- 8000MHz_AWGN



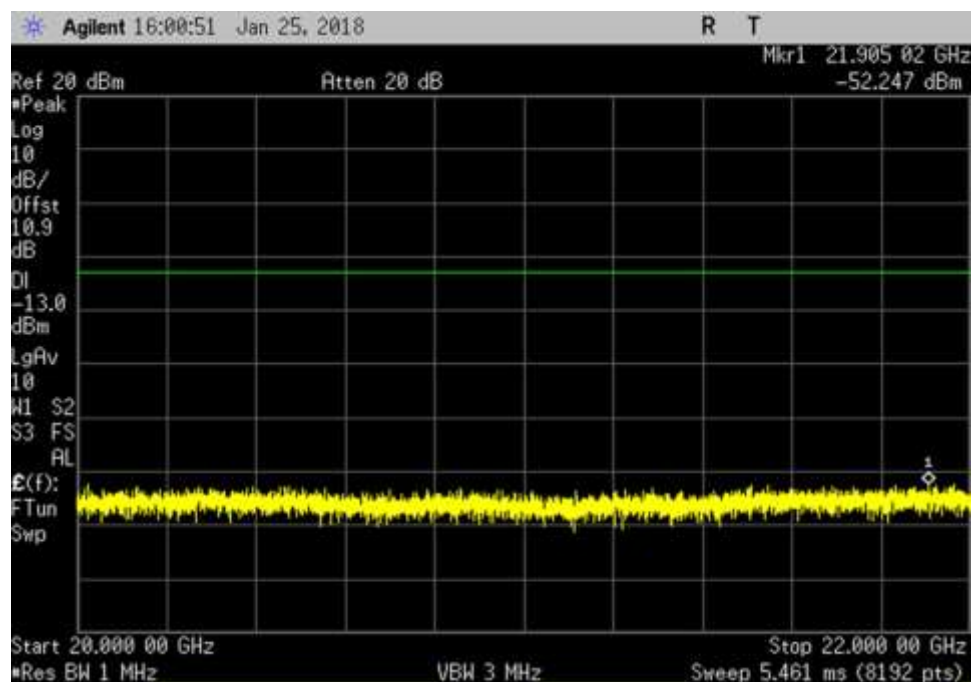
DL_ 8000- 12000MHz_AWGN



DL_ 12000- 16000MHz_AWGN



DL_ 16000- 20000MHz_AWGN



DL_ 20000- 22000MHz_AWGN

7.7 Noise limit

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.7 Noise Limit (Maximum Transmitter Noise Power Level / Variable UL Noise Timing)**
 Work Order #: **100825** Date: 1/20/2018 – 1/25/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu Song Nguyenpham/Eddie Wong**
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions:
 Temperature: 20.5°C -22°C
 Relative Humidity: 40%
 Pressure: 102 kPa

7.7.1 Maximum Transmitter Noise Power Level
 Per figure 3, input port was terminated with 50 Ohm Pasternack load (MN: PE6187 and SN: 1443).
 Input donor port was terminated with 50 Ohm Pasternack load via a 75/50 Ohm impedance matching pad.

7.7.2 Variable UL Noise Timing
 Per figure 4, server port was terminated with 50 Ohm Pasternack load (MN: PE6187 and SN: 1443).

Modification #1 and #2 were in place during testing.

Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/19/2018	1/19/2020
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019
C00082	Directional Coupler	MECA Electronics, Inc.	722-10-1.500V	9/18/2017	9/18/2019

Summary of Results

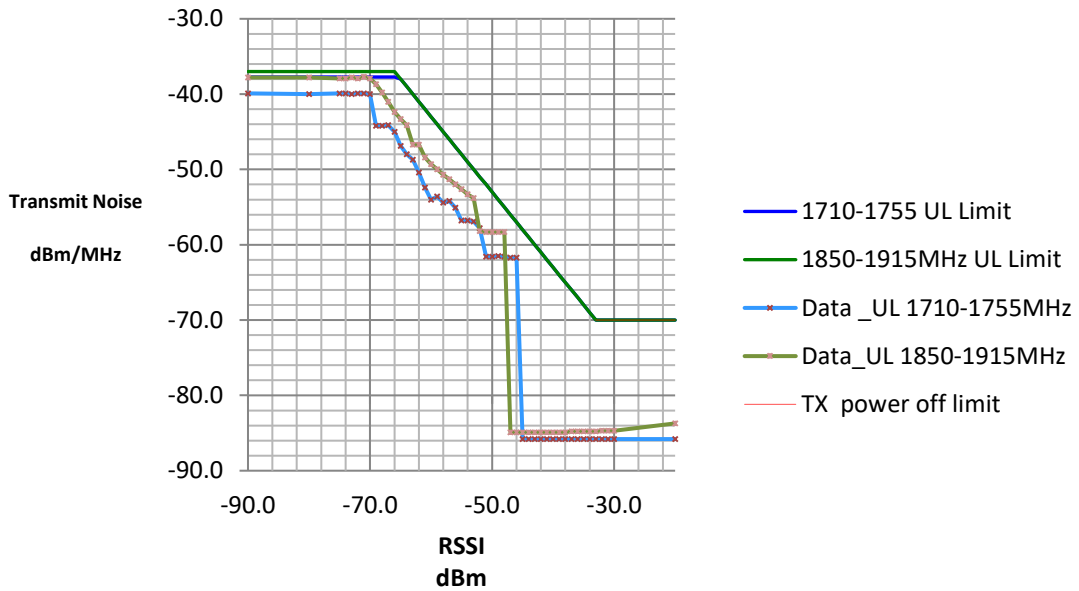
7.7.1 Maximum transmitter noise power level

- 7.7.1 a-g: Maximum transmitter noise with 50-ohm shielded load

Maximum Noise Power			
Frequency	Measured	Limit	Margin
MHz	dBm./MHz	dBm/MHz	
UL 1710-1755	-40.0	-37.7	-2.3
UL 1850-1915	-38.2	-37.0	-1.2
UL 824-849	-49.7	-44.1	-5.6
UL 698-716	-50.1	-45.5	-4.6
UL 776-787	-50.0	-44.6	-5.4
DL 2110-2155	-37.74	-37.70	-0.04
DL 1930-1995	-37.26	-37.00	-0.26
DL 869-894	-44.47	-44.10	-0.37
DL 728-746	-46.40	-45.50	-0.90
DL 746-757	-45.79	-44.60	-1.19

- 7.7.1 h-n: Maximum transmitter noise when varying the DL signal generator output level with a 4.1MHz AWGN signal

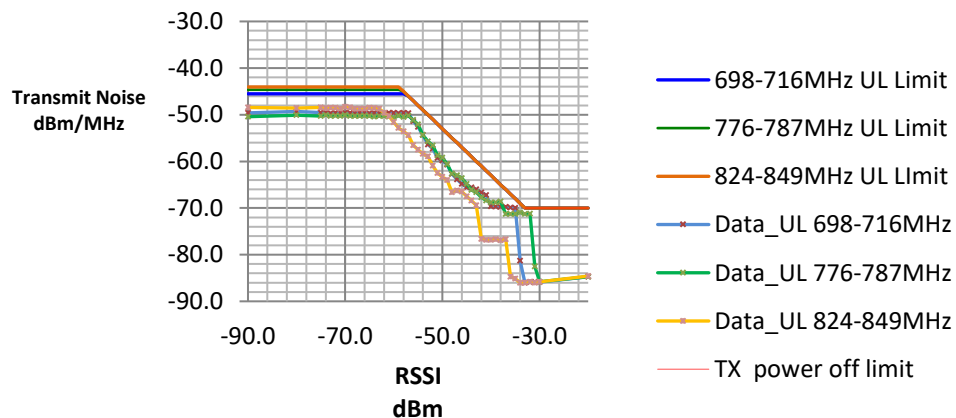
7.7 Booster UL Noise Limit



1710.0 - 1755.0MHz					
		Limit			Margin
RSSI	Measured	RSSI	Fixed Booster	TX off	
(dBm)	Noise (dBm/MHz)	Dependent	Limit		
-90.0	-39.9		-37.7		-2.2
-80.0	-40.0		-37.7		-2.3
-47.0	-61.7	-56.0			-5.7
-46.0	-61.7	-57.0			-4.7
-32.0	-85.8			-70	-15.8
-31.0	-85.8			-70	-15.8

1850.0 --1915.0MHz					
		Limit			Margin
RSSI	Measured	RSSI	Fixed Booster	TX off	
(dBm)	Noise (dBm/MHz)	Dependent	Limit		
-71.0	-37.7		-37.0		-0.7
-90.0	-37.8		-37.0		-0.8
-48.0	-58.3	-55.0			-3.3
-53.0	-53.8	-50.0			-3.8
-20.0	-83.7			-70	-13.7
-30.0	-84.7			-70	-14.7

7.7 Booster UL Noise Limit



824.0-849.0MHz					
		Limit			Margin
RSSI	Measured	RSSI	Fixed Booster	TX off	
(dBm)	Noise (dBm/MHz)	Dependent	Limit		
-70.0	-48.3		-44.1		-4.2
-90.0	-48.4		-44.1		-4.3
-57.0	-54.4	-46.0			-8.4
-58.0	-53.6	-45.0			-8.6
-20.0	-84.6			-70	-14.6
-32.0	-85.8			-70	-15.8

698.0 - 716.0MHz					
		Limit			Margin
RSSI	Measured	RSSI	Fixed Booster	TX off	
(dBm)	Noise (dBm/MHz)	Dependent	Limit		
-80.0	-49.3		-45.5		-3.8
-75.0	-49.5		-45.5		-4.0
-35.0	-70.0	-68.0			-2.0
-36.0	-69.9	-67.0			-2.9
-20.0	-84.7			-70	-14.7
-31.0	-85.8			-70	-15.8

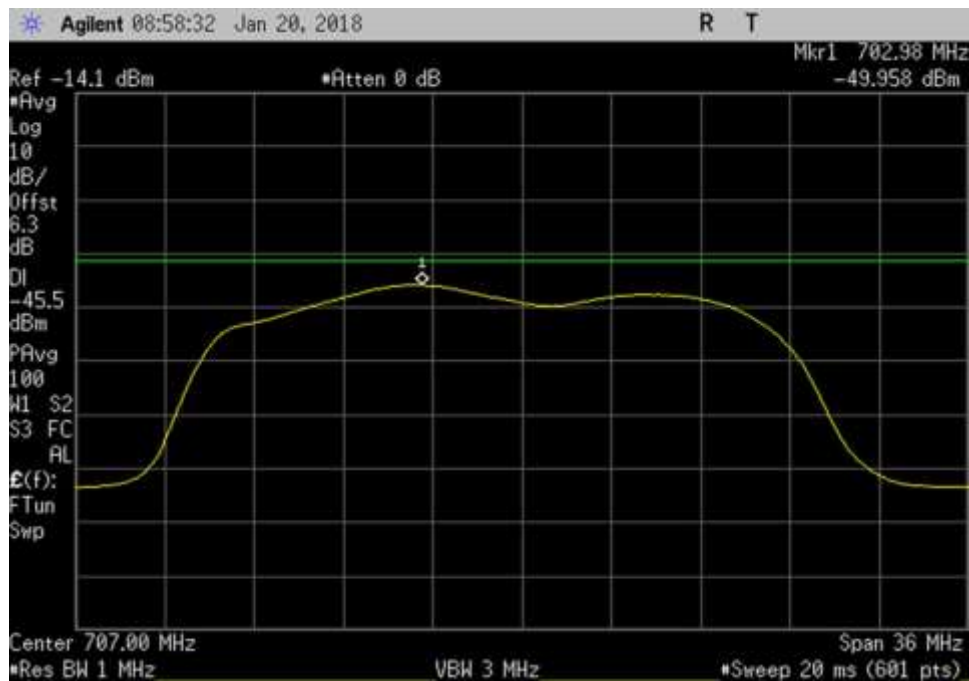
776.0 - 787.0MHz					
		Limit			Margin
RSSI	Measured	RSSI	Fixed Booster	TX off	
(dBm)	Noise (dBm/MHz)	Dependent	Limit		
-80.0	-50.1		-44.6		-5.5
-74.0	-50.1		-44.6		-5.5
-33.0	-71.3	-70.0			-1.3
-34.0	-70.9	-69.0			-1.9
-32.0	-71.2			-70	-1.2
-31.0	-82.5			-70	-12.5

7.7.2 Variable uplink noise timing

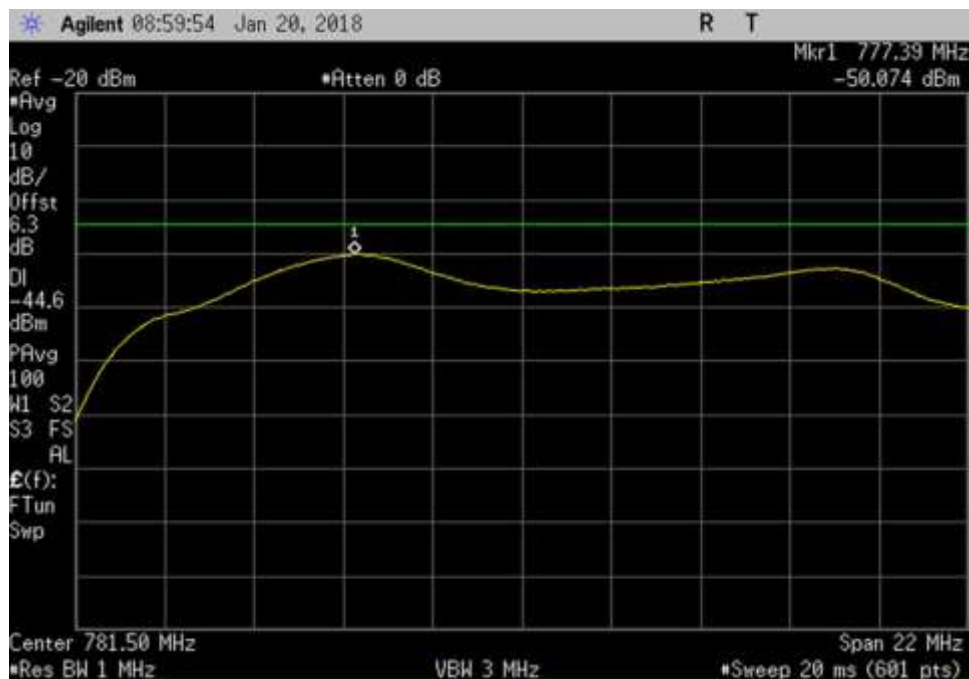
Uplink Noise timing		
Frequency	Measured	Limit
MHz	Sec	sec
UL1710-1755	0.88	3.00
UL1850-1915	1.62	3.00
UL824-849	0.88	3.00
UL 698-716	0.73	3.00
UL776-787	0.13	3.00

7.7.1 Maximum Transmitter Noise Power Level

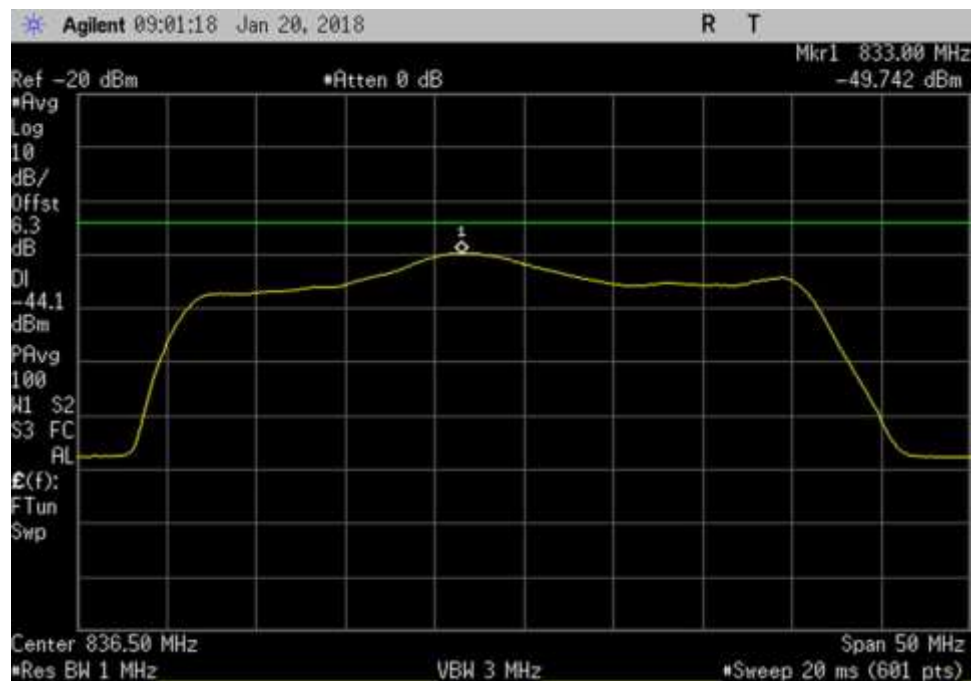
Plots



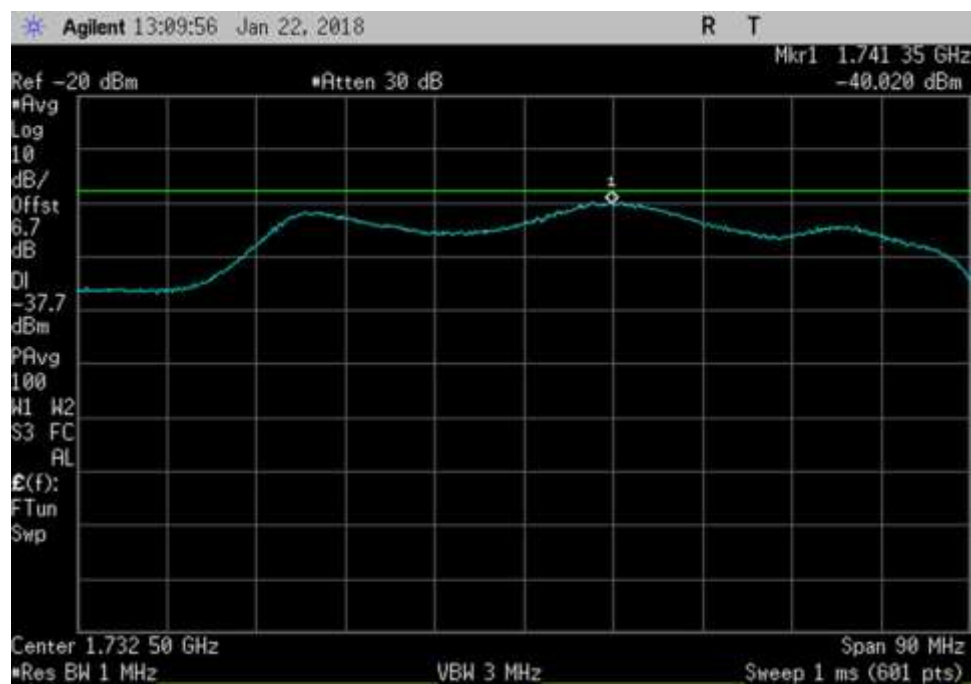
UL_707MHz



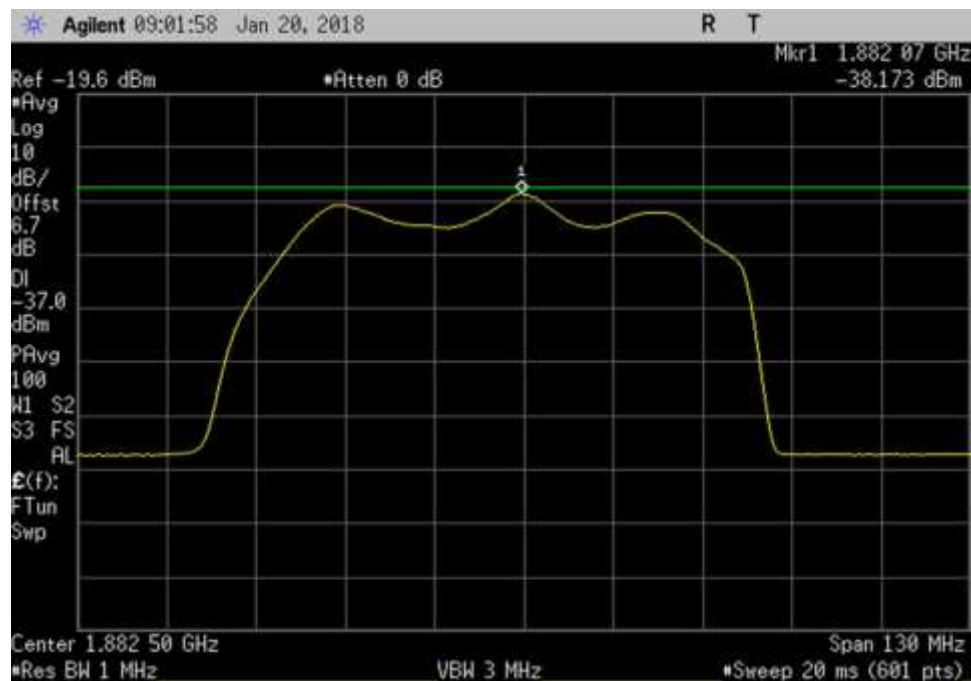
UL_781.5MHz



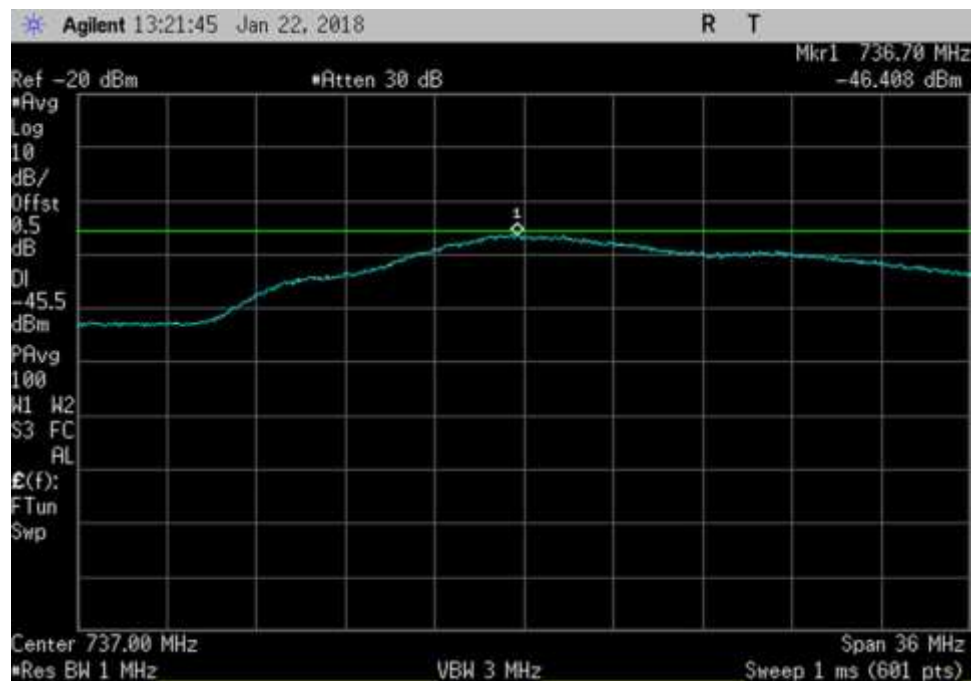
UL_836.5MHz



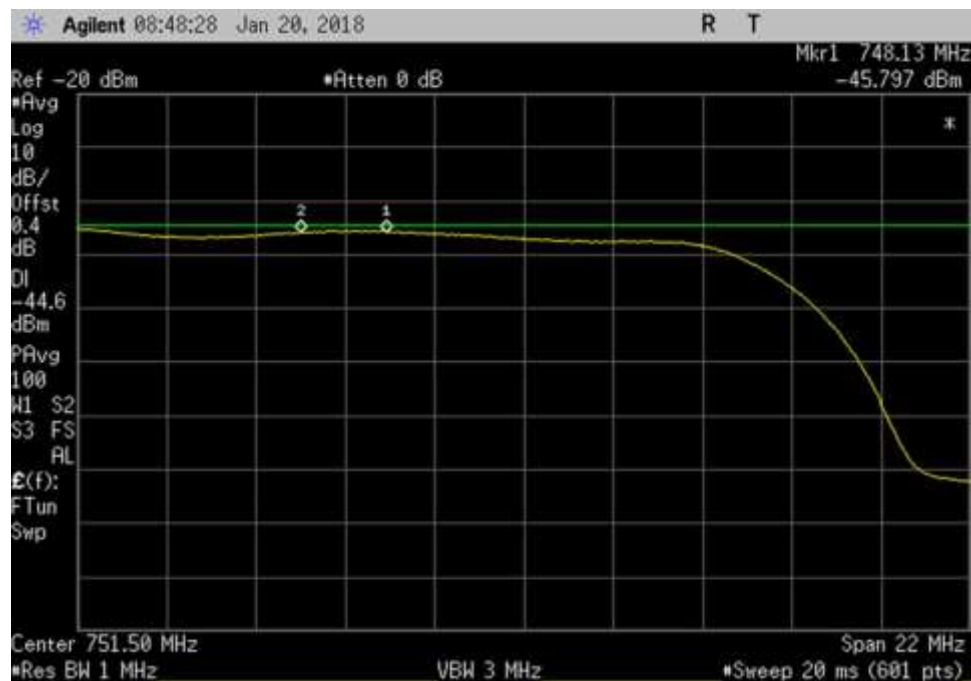
UL_1732.5MHz



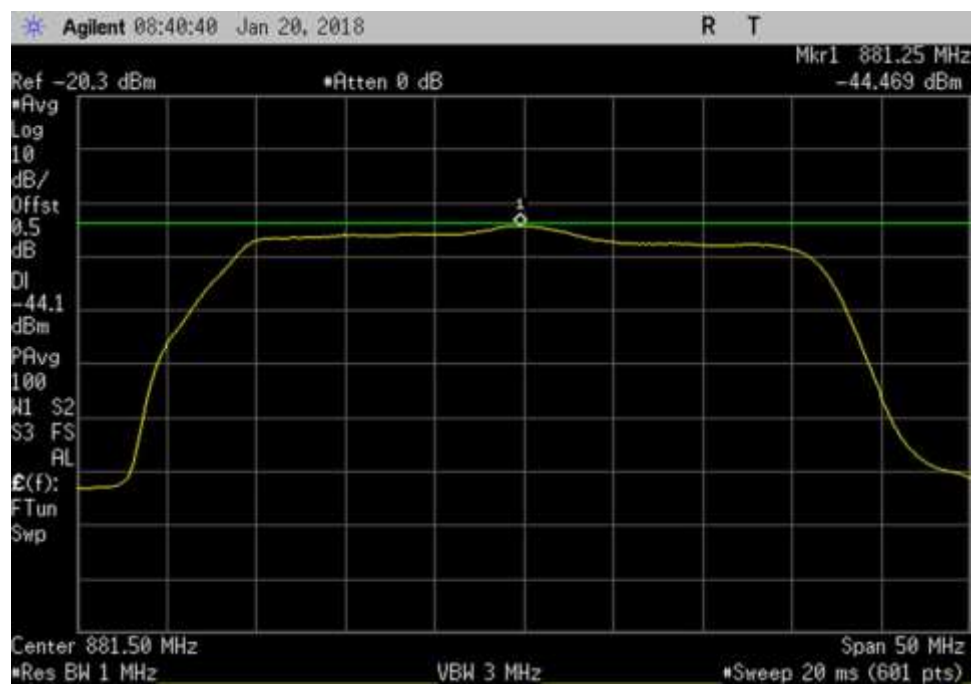
UL_ 1882.5MHz



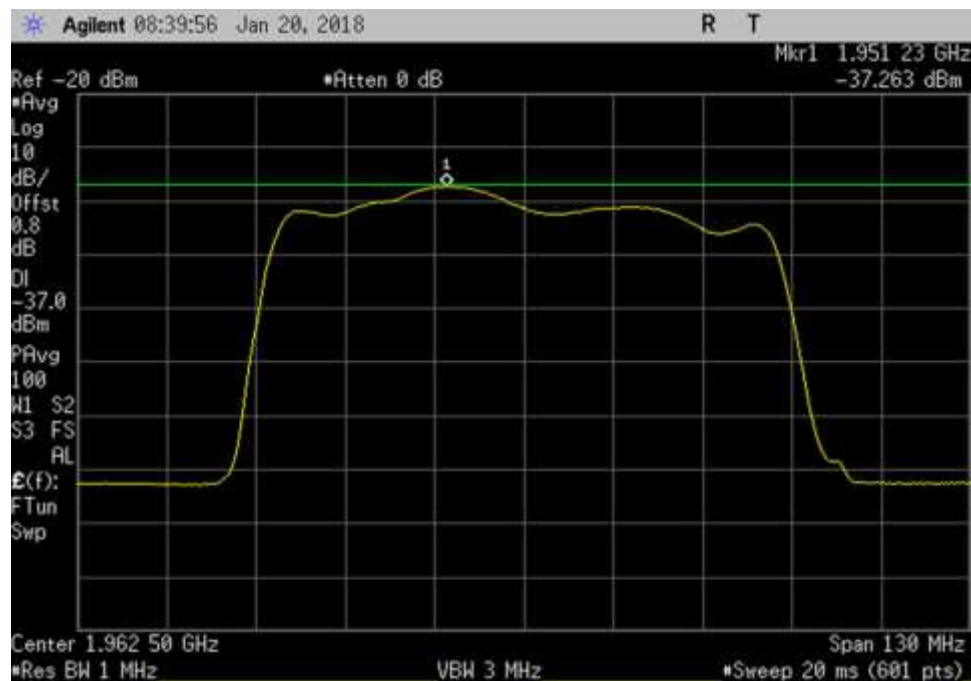
DL_ 737MHz



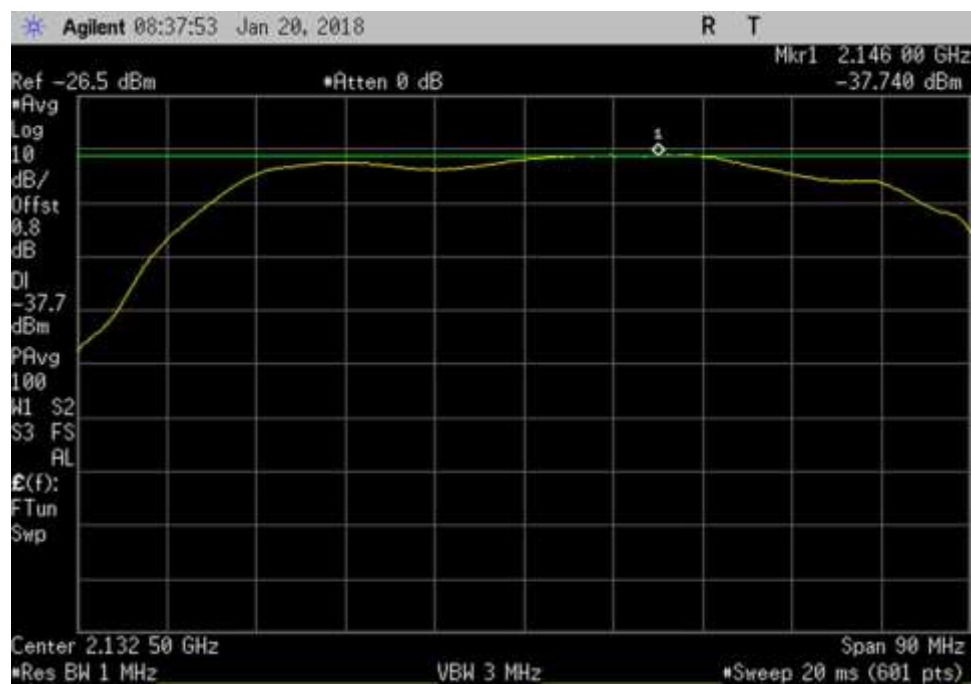
DL_751.5MHz



DL_881.5MHz



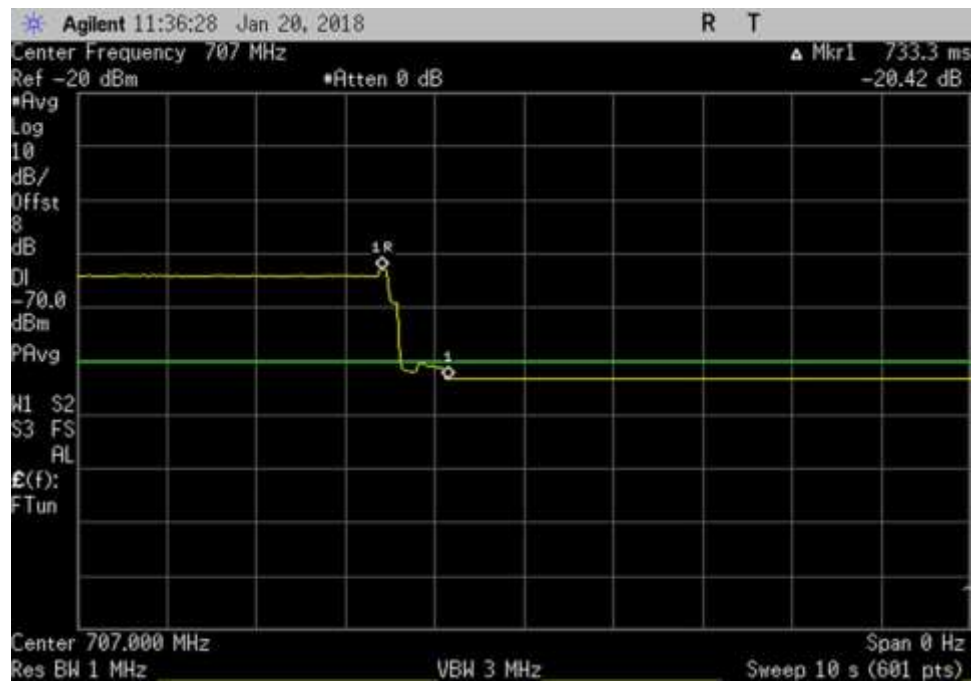
DL_1962.5MHz



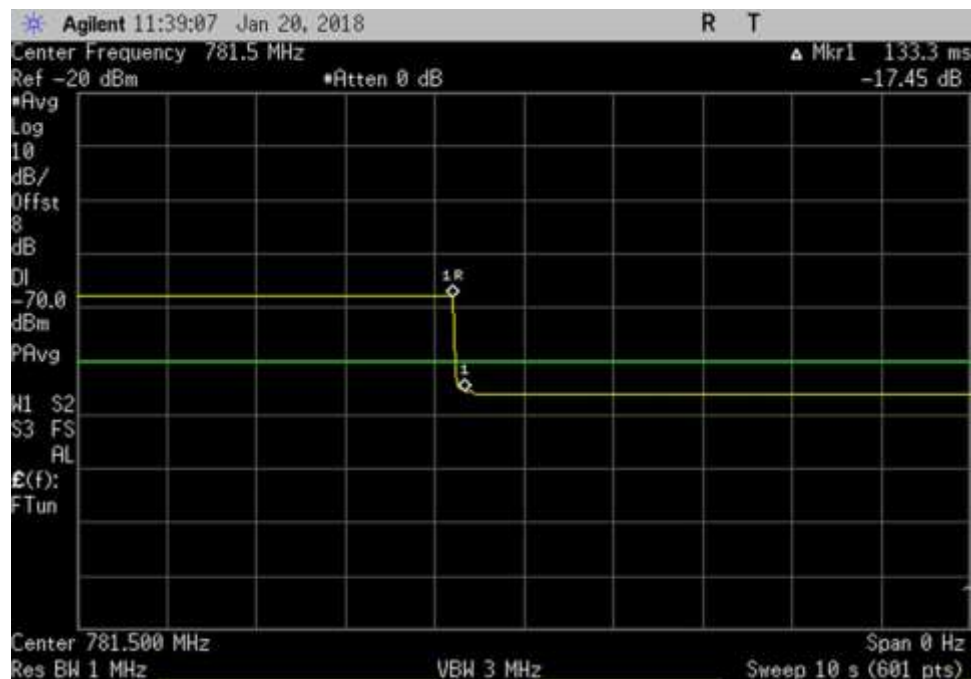
DL_2132.5MHz

7.7.2 Variable UL Noise Timing

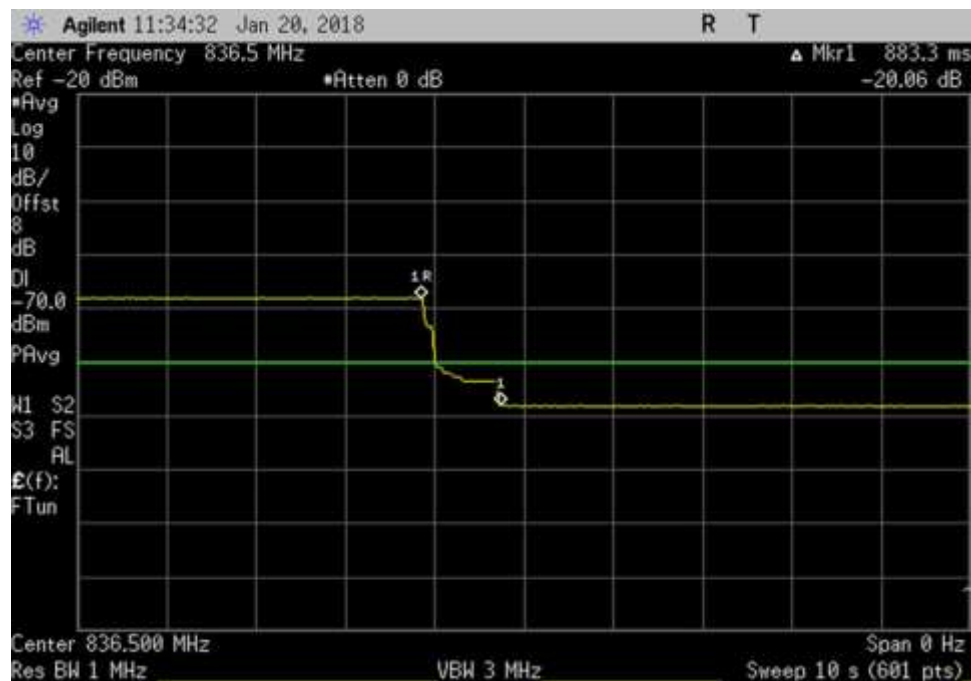
Plots



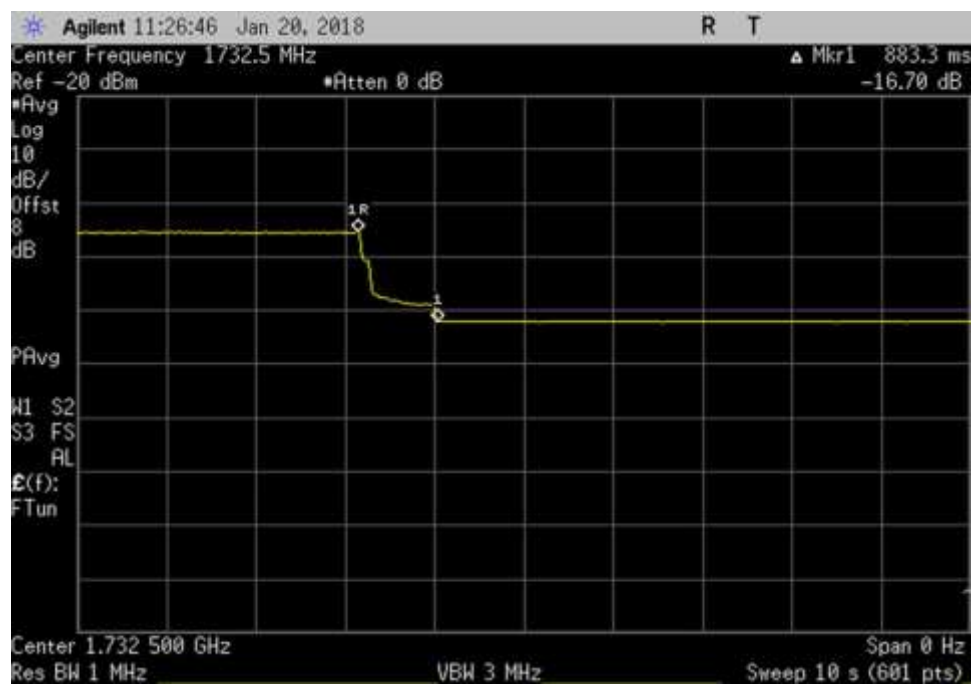
UL_707MHz_UL Time



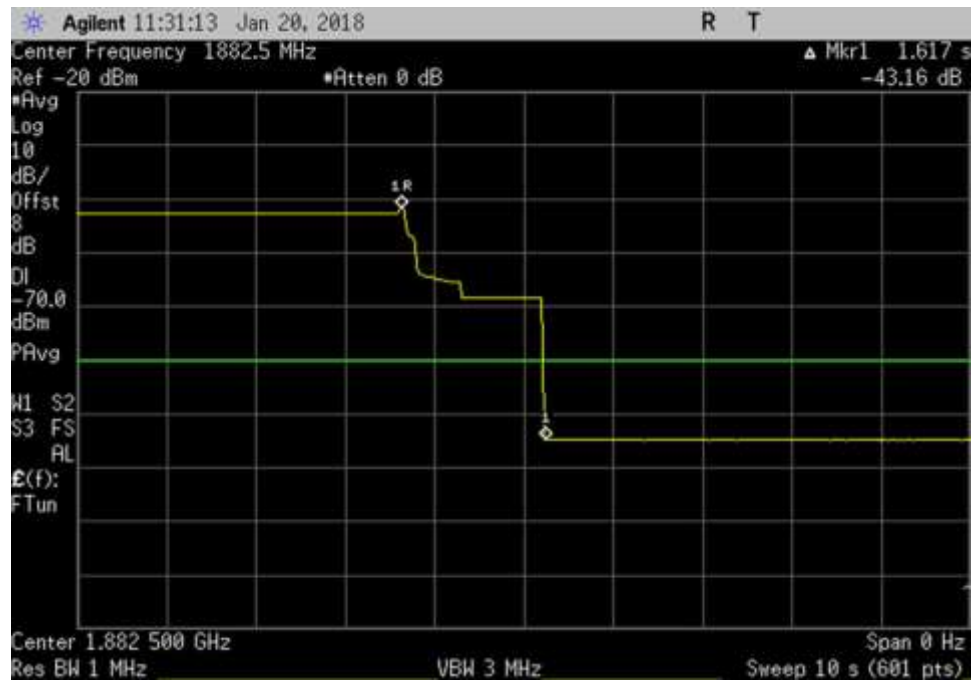
UL_781.5MHz_UL Time



UL_836.5MHz_UL Time



UL_1732.5MHz_Uplink Timing



UL_ 1882.5MHz_UL Time

7.8 Uplink Inactivity

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.8 Uplink Inactivity**
 Work Order #: **100825** Date: 1/19/2018 – 1/21/2018
 Test Type: **Conducted Emissions**
 Tested By: **Hieu Song Nguyenpham**
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test environment conditions: Temperature: 22°C - 23.5°C Relative Humidity: 40% - 46% Pressure: 102kPa - 102.5 kPa Modification #1 and #2 were in place during testing.
--

Test Equipment:

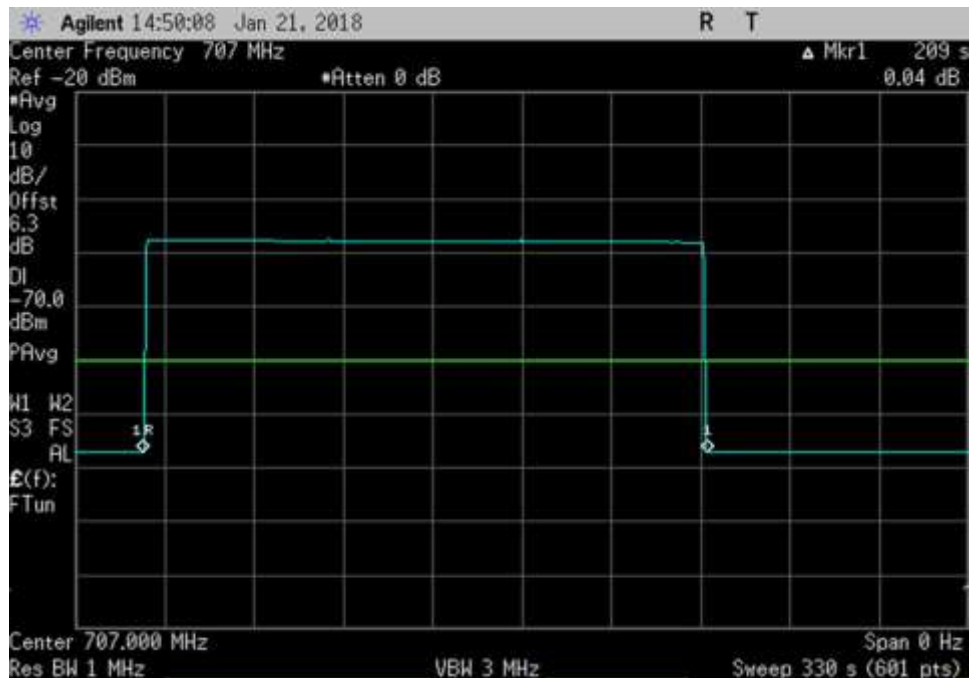
Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
P05411	Attenuator	Weinschel	54A-10	1/19/2018	1/19/2020
P07192	Cable	Astro	32022-29094K-29094K-48TC	10/9/2017	10/9/2019
P07191	Cable	Astro	32022-29094K-29094K-48TC	10/30/2017	10/30/2019
03418	Signal Generator	Agilent	E4438C	6/19/2017	6/19/2019
03470	Spectrum Analyzer	Agilent	E4440A	1/3/2018	1/3/2020
P06909	Attenuator	Pasternack	PE7083	12/20/2017	12/20/2019

Summary of Results

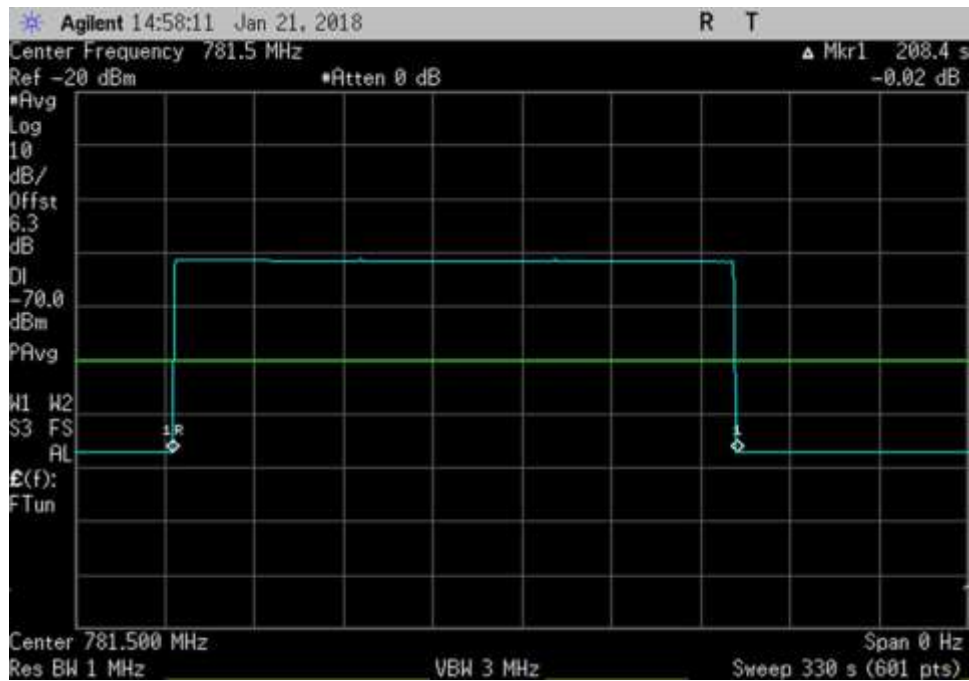
Pass: As demonstrated, when the booster is not serving an active device connection after 5 minutes the uplink noise power does not exceed -70dBm/MHz

Uplink Inactivity		
Frequency	Measured	Limit
MHz	Min	Min
UL1710-1755	3.5	5.0
UL1850-1915	3.5	5.0
UL824-849	3.4	5.0
UL 698-716	3.5	5.0
UL776-787	3.5	5.0

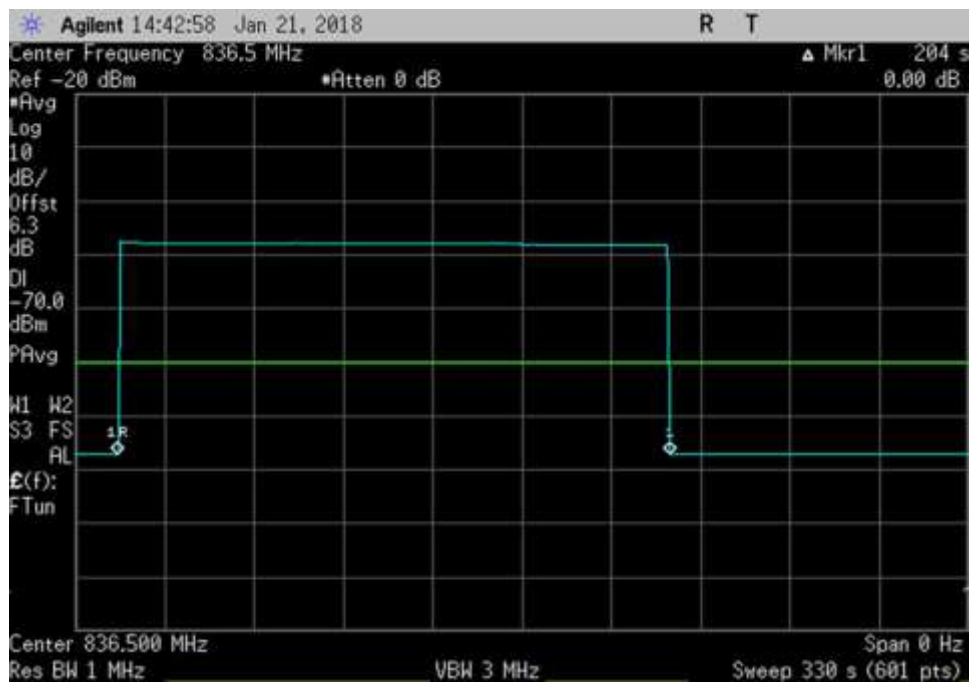
Plots



UL_707MHz



UL_ 781.5MHz



UL_ 836.5MHz