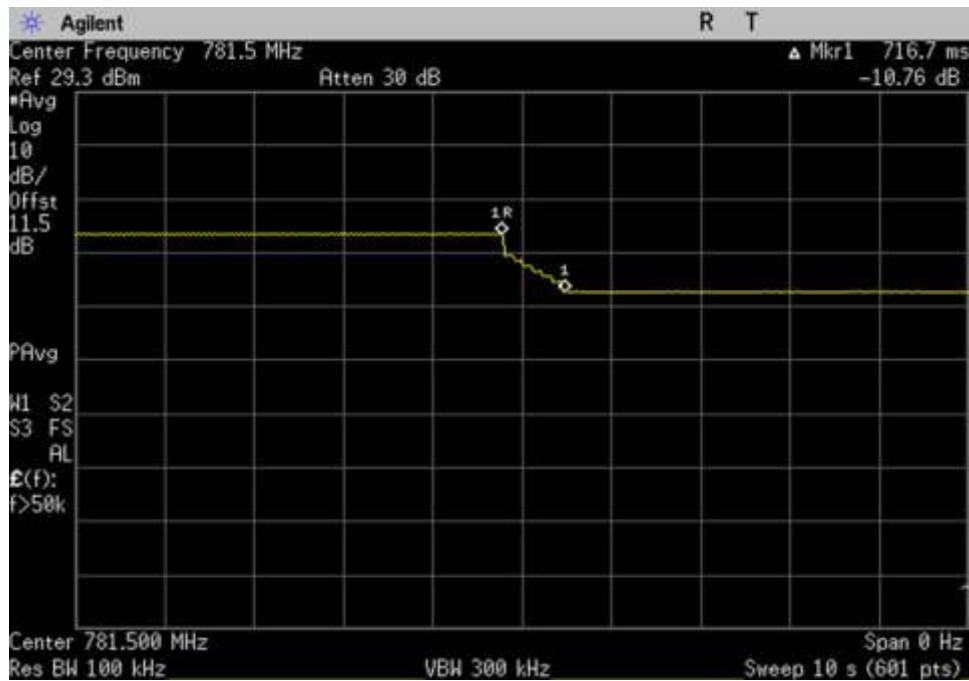
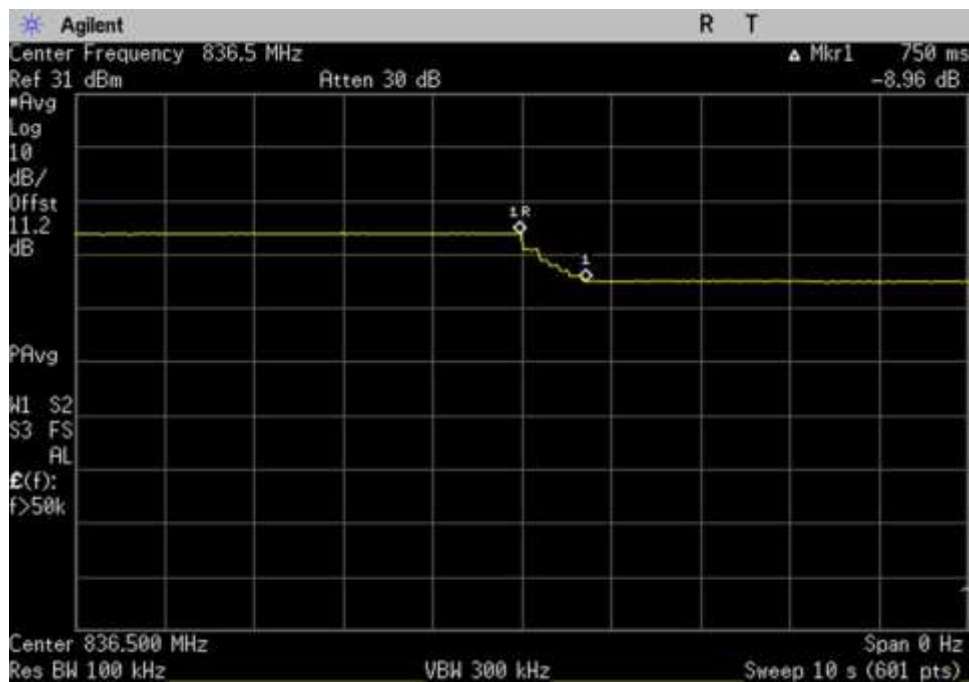
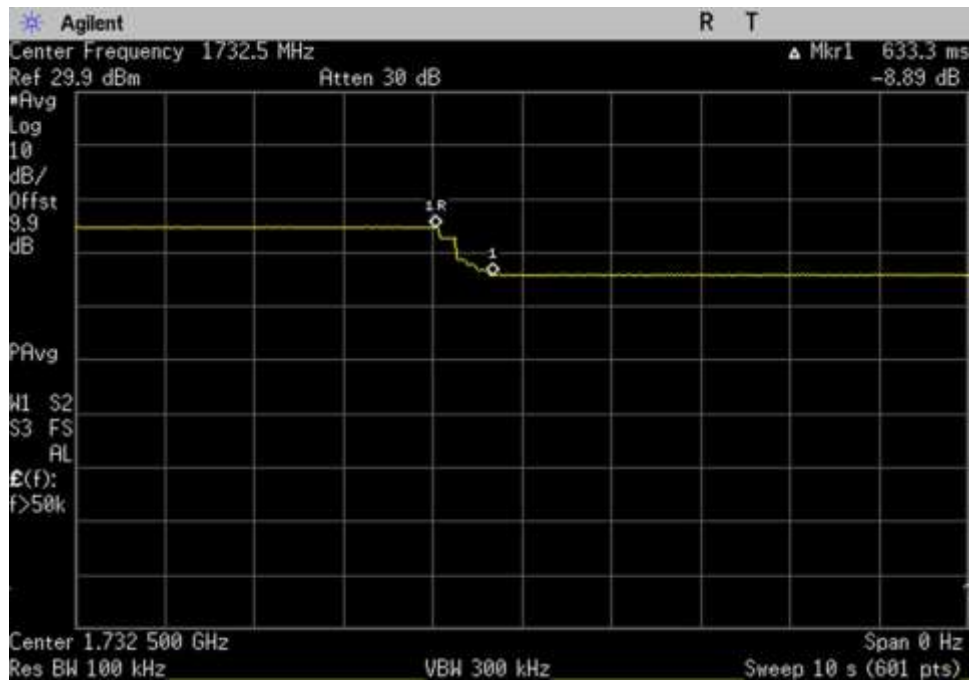




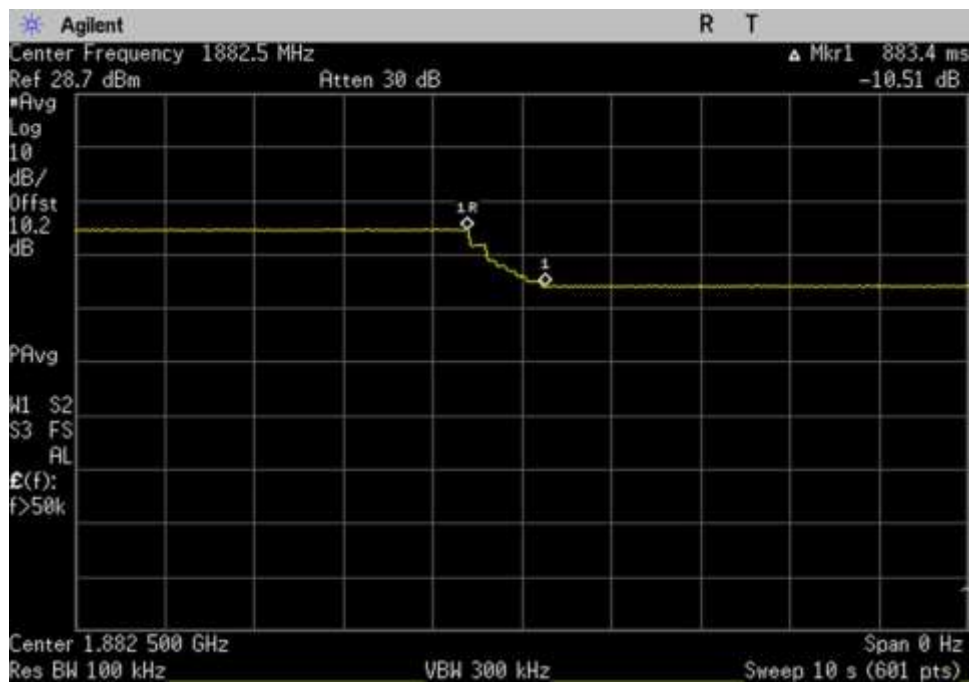
UL_776-787_ 781.5MHz



UL_824-849_ 836.5MHz



UL_1710-1755_1732.5MHz



UL_1850-1915_1882.5MHz

7.10 Occupied Band Width

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.10 Occupied Band Width / 47 CFR §2.1049 Occupied Band Width**
 Work Order #: **101623**
 Test Type: **Conducted Emissions** Date 08/23/18
 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: 21.9°C
 Relative Humidity: 46.9%
 Pressure: 100.8kPa

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

Summary of Results

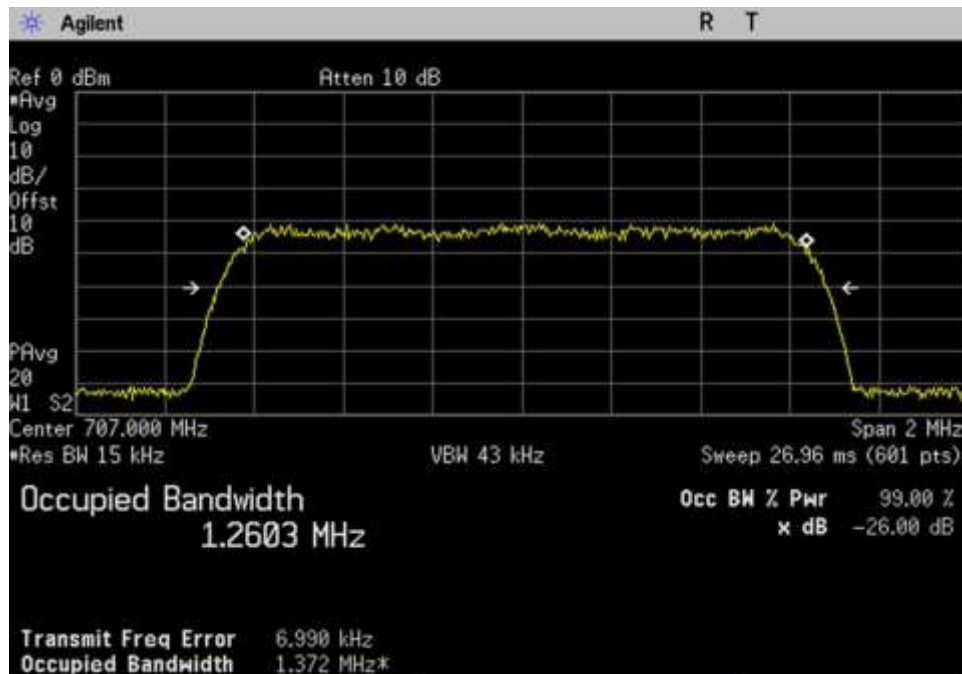
Pass: As summarized in plots and tables below, the uniformity of the output signal relative to the input signal are practically identical. Therefore, the comparison is within limits.

OBW-Input (Hz)					OBW-Output (Hz)				
EDGE	GSM	CDMA	AWGN	LTE	EDGE	GSM	CDMA	AWGN	LTE
244034	246542	1250571	4140771	4446310	247431	246895	1247708	4102315	4395610
246913	247077	1253636	4141312	4447997	243818	242784	1259690	4158130	4431034
245778	246617	1249505	4146863	4432385	244557	242842	1246969	4201612	4447107
244417	245781	1260347	4172418	4459312	244249	246624	1258729	4171483	4413157
244090	244172	1268556	4132364	4430536	245654	243448	1264637	4170061	4462335
245733	245670	1263236	4125726	4483580	244086	244675	1260151	4121447	4455668
244534	245879	1261522	4163598	4460347	243854	246126	1261410	4121748	4422740
244833	247264	1252272	4133195	4436148	244047	245146	1252929	4142044	4446714
245622	247647	1258706	4144486	4412688	243519	244454	1255666	4122587	4466448
244323	245708	1260695	4128117	4428062	244713	248508	1255406	4130902	4450146

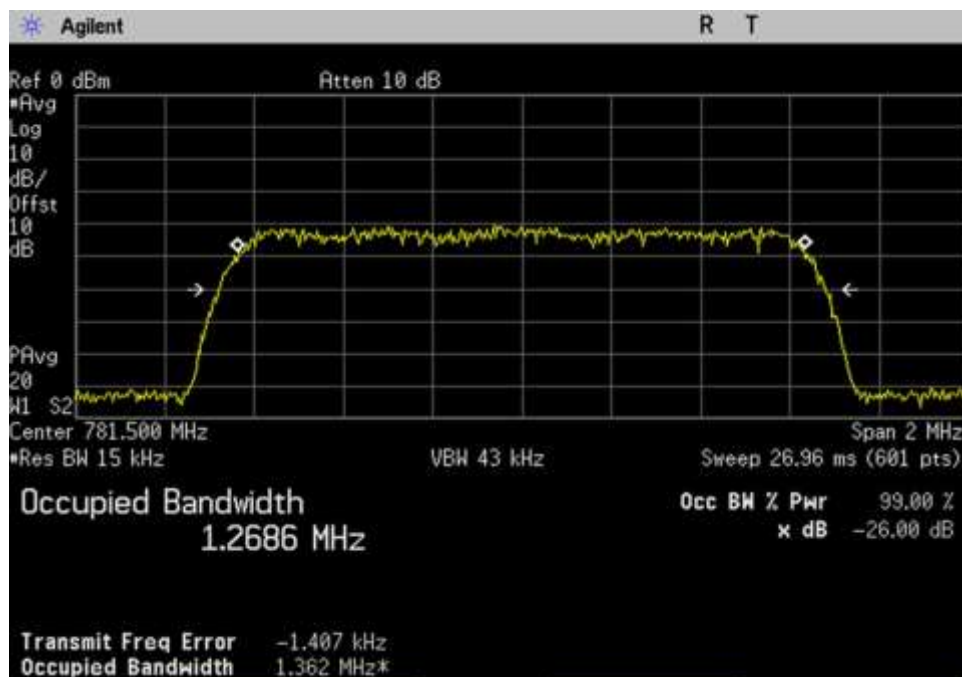
Max Difference In&Out Occupied BW 99% Pwr					
Frequency Range	EDGE	GSM	CDMA	AWGN	LTE
UL_1710-1755MHz	1.39%	0.14%	0.23%	0.93%	1.14%
UL_1850-1915MHz	1.25%	1.74%	0.48%	0.41%	0.38%
UL_824-849MHz	0.50%	1.53%	0.20%	1.32%	0.33%
UL_698-716MHz	0.07%	0.34%	0.13%	0.02%	1.04%
UL_777-787MHz	0.64%	0.30%	0.31%	0.91%	0.72%
DL_2110-2155MHz	0.67%	0.41%	0.24%	0.10%	0.62%
DL_1930-1995MHz	0.28%	0.10%	0.01%	1.01%	0.84%
DL_869-894MHz	0.32%	0.86%	0.05%	0.21%	0.24%
DL_728-746MHz	0.86%	1.29%	0.24%	0.53%	1.22%
DL_746-756MHz	0.16%	1.14%	0.42%	0.07%	0.50%

Plots

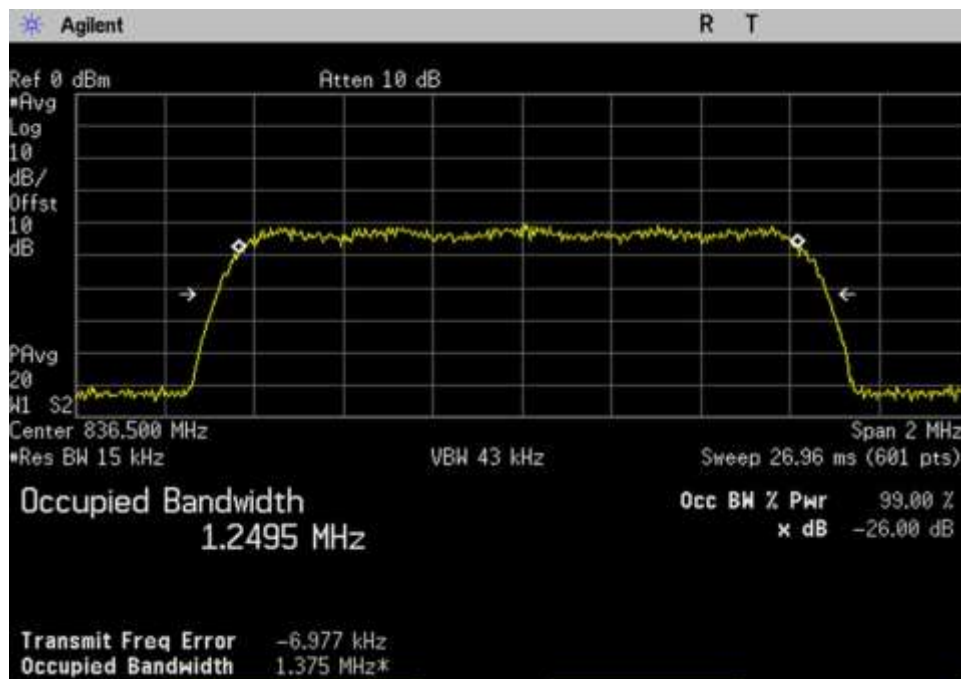
CDMA Input



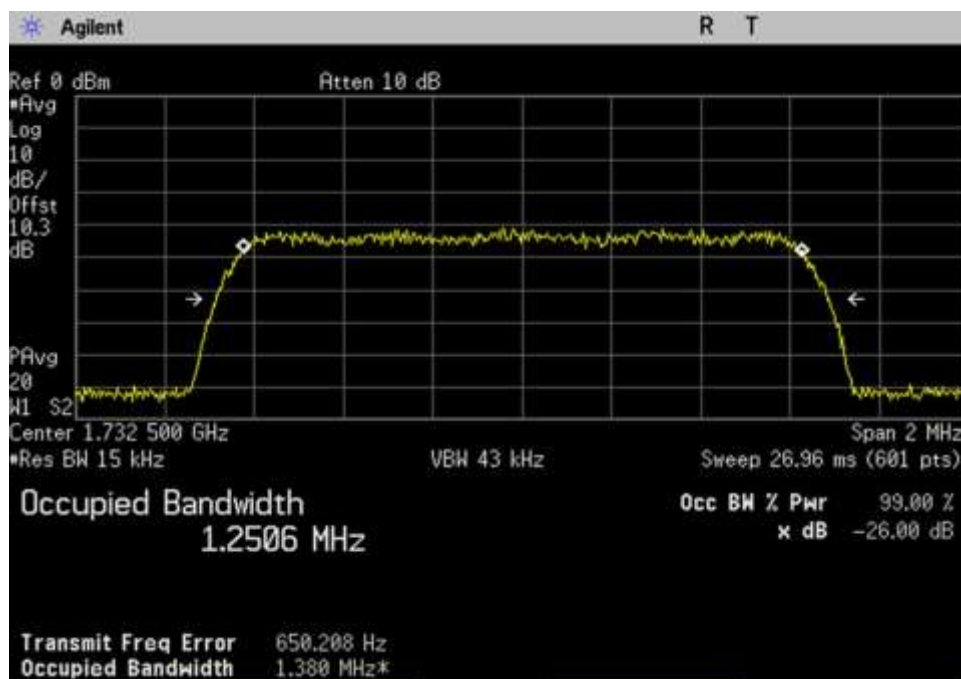
UL_698-716_CDMA_707MHz



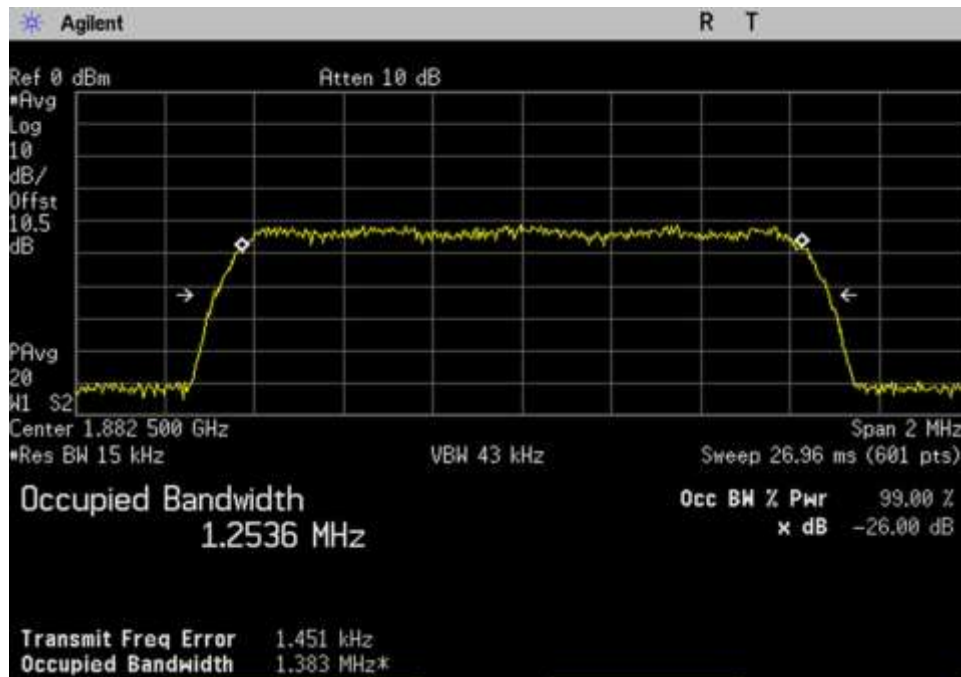
UL_776-787_CDMA_781.5MHz



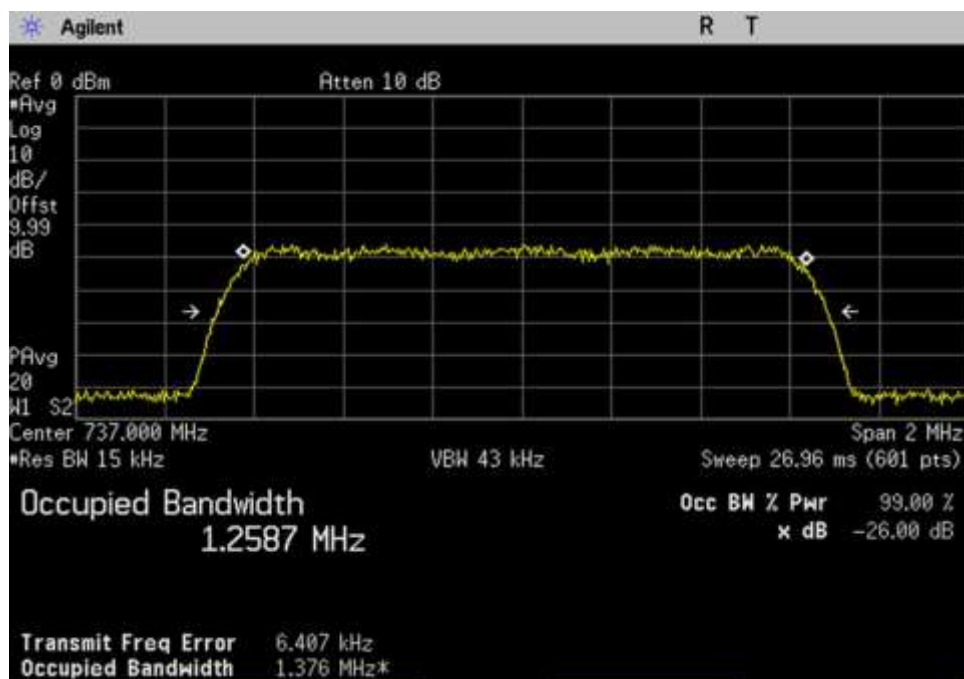
UL_824-849_CDMA_836.5MHz



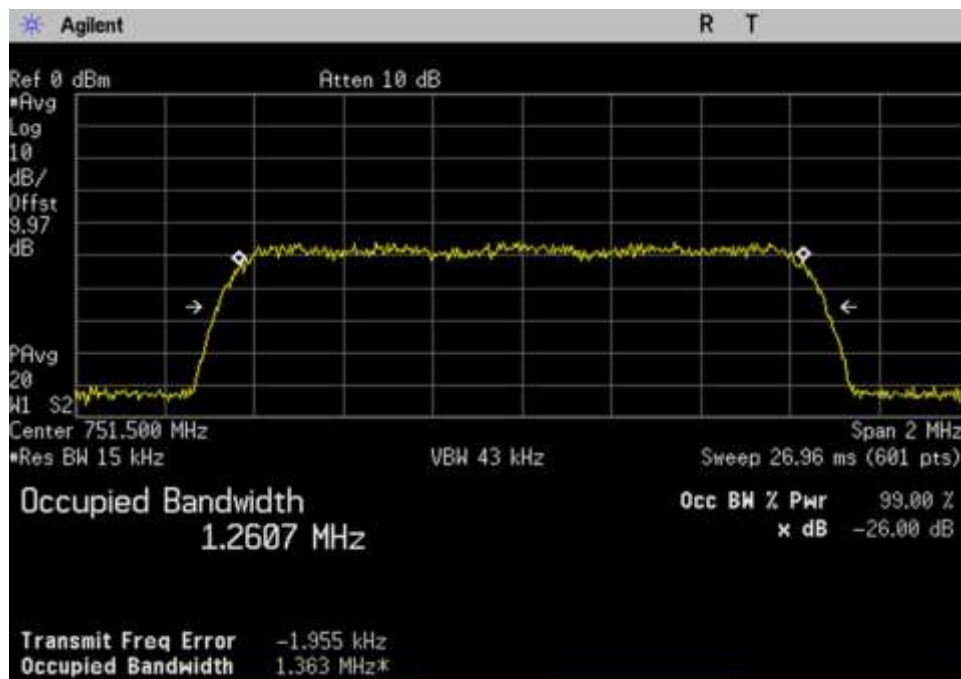
UL_1710-1755_CDMA_1732.5MHz



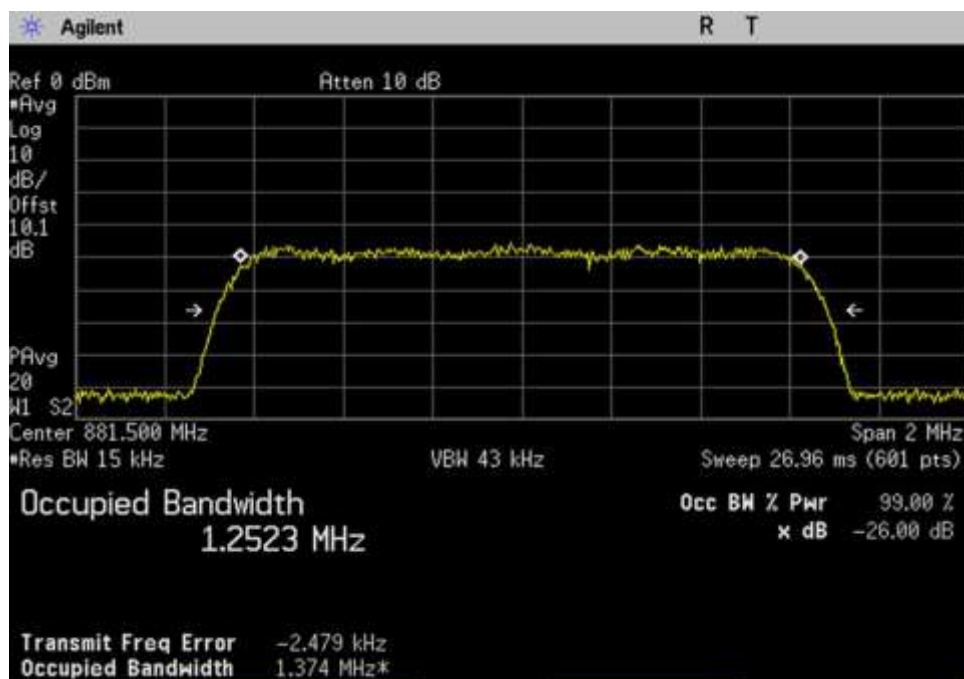
UL_1850-1915_CDMA_1882.5MHz



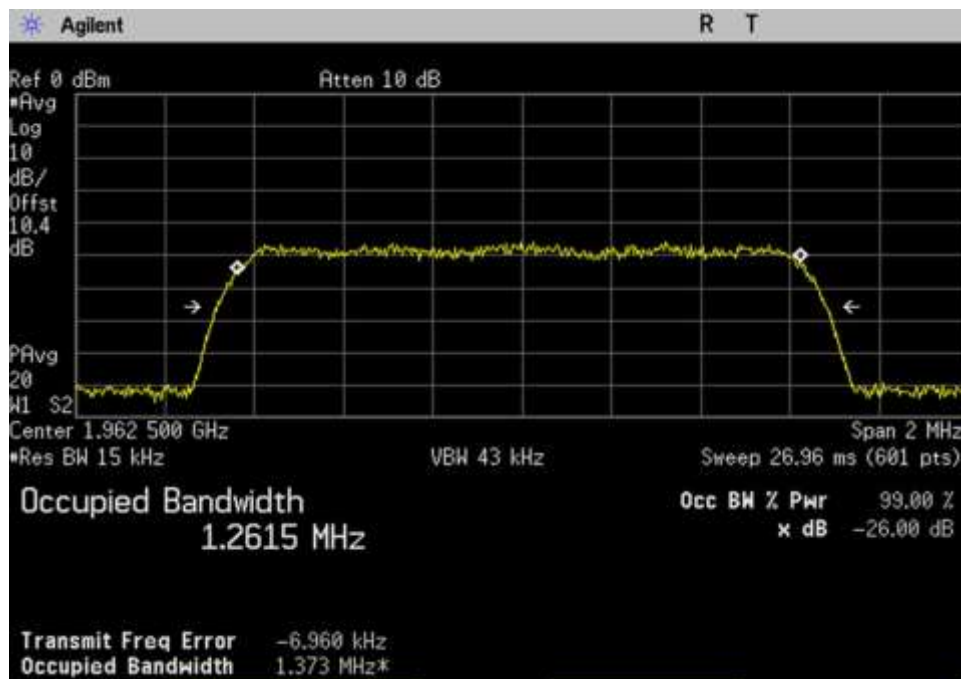
DL_728-746_CDMA_737MHz



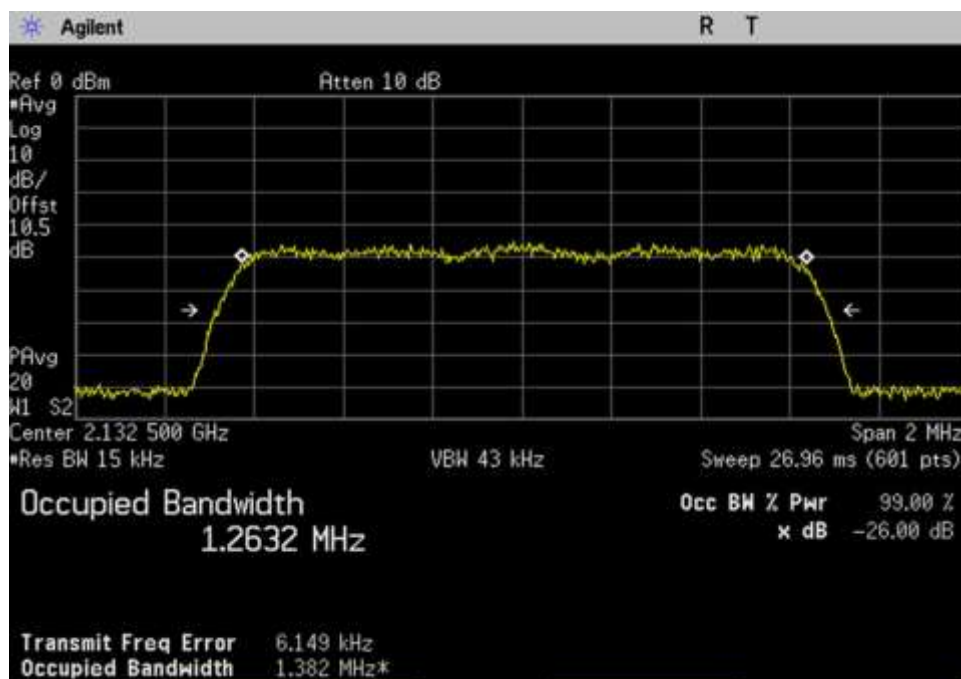
DL_746-757_CDMA_751.5MHz



DL_869-894_CDMA_881.5MHz

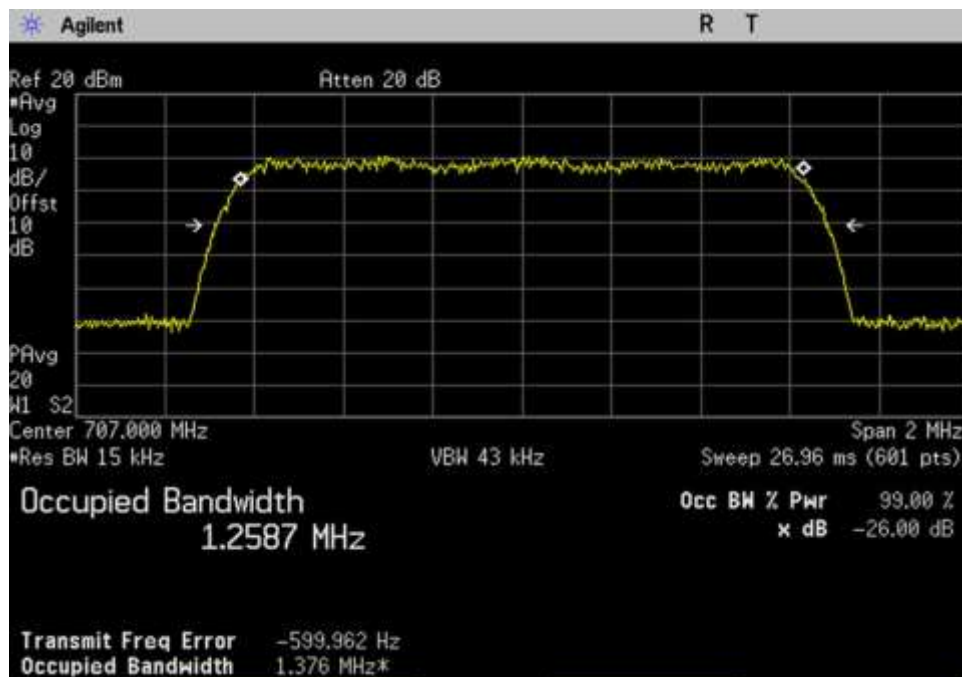


DL_1930-1995_CDMA_1962.5MHz

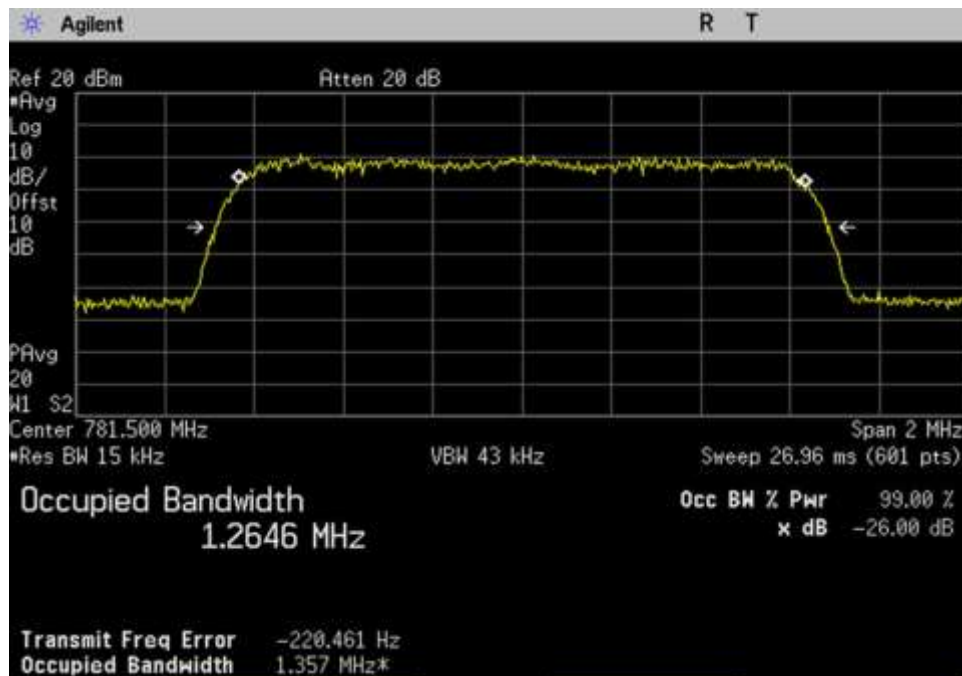


DL_2110-2155_CDMA_2132.5MHz

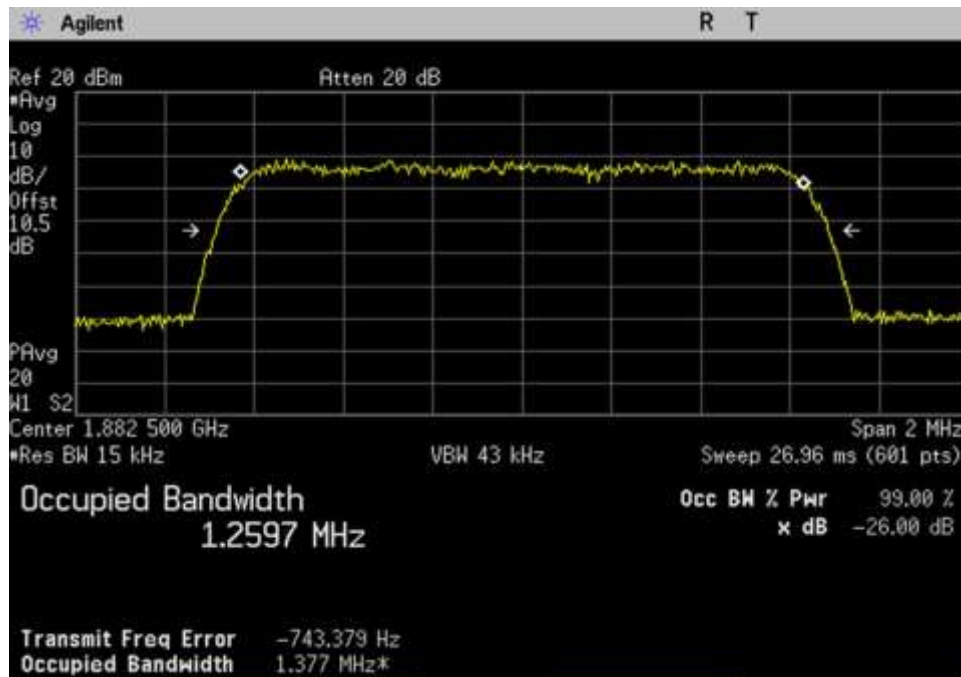
CDMA Output



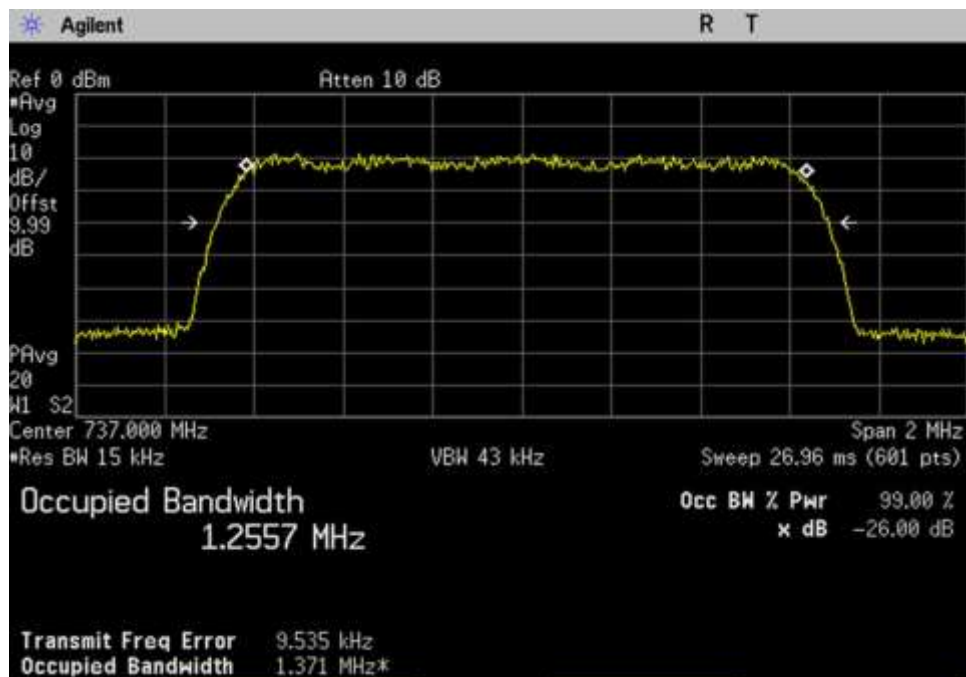
UL_698-716_CDMA_707MHz



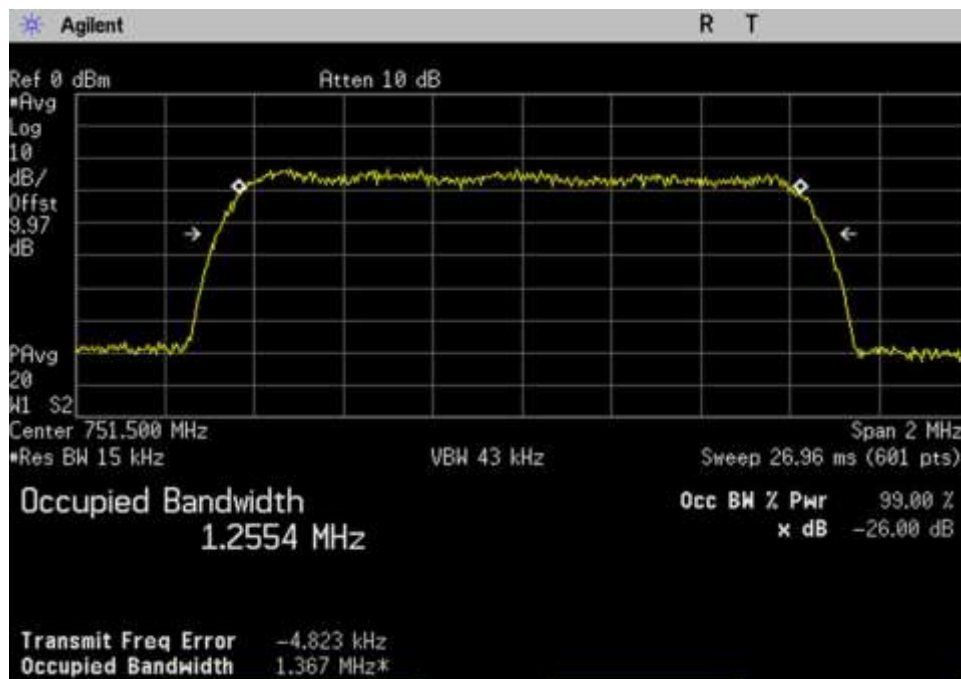
UL_776-787_CDMA_781.5MHz



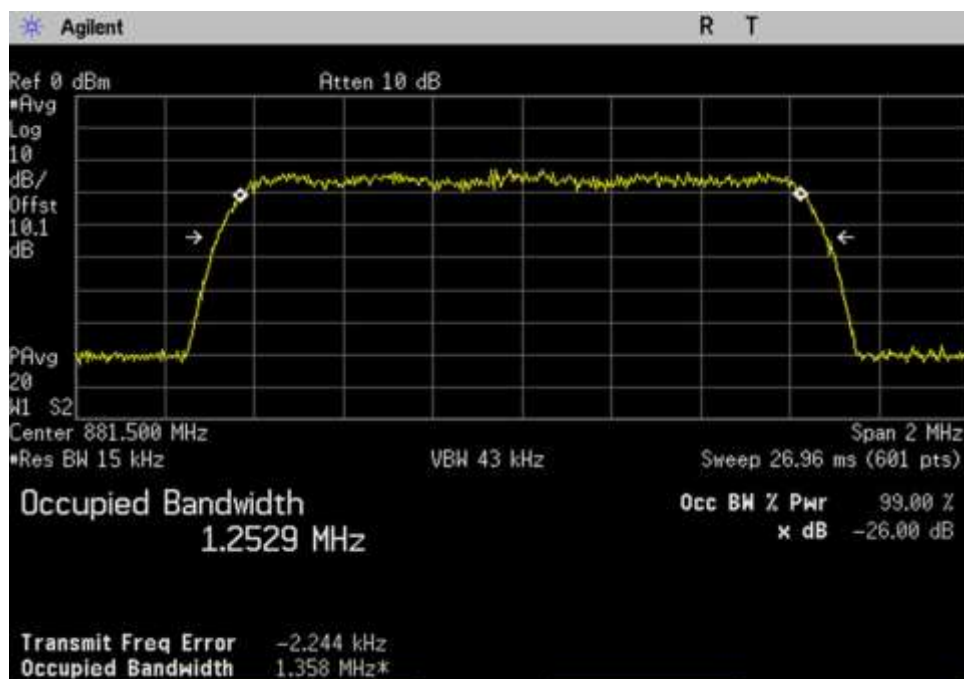
UL_1850-1915_CDMA_1882.5MHz



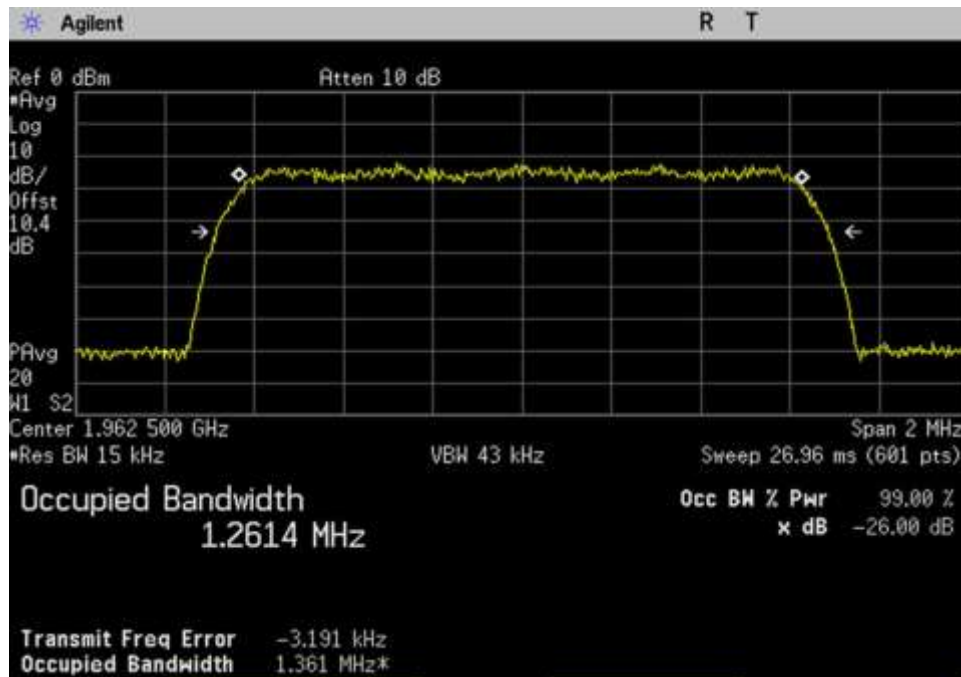
DL_728-746_CDMA_737MHz



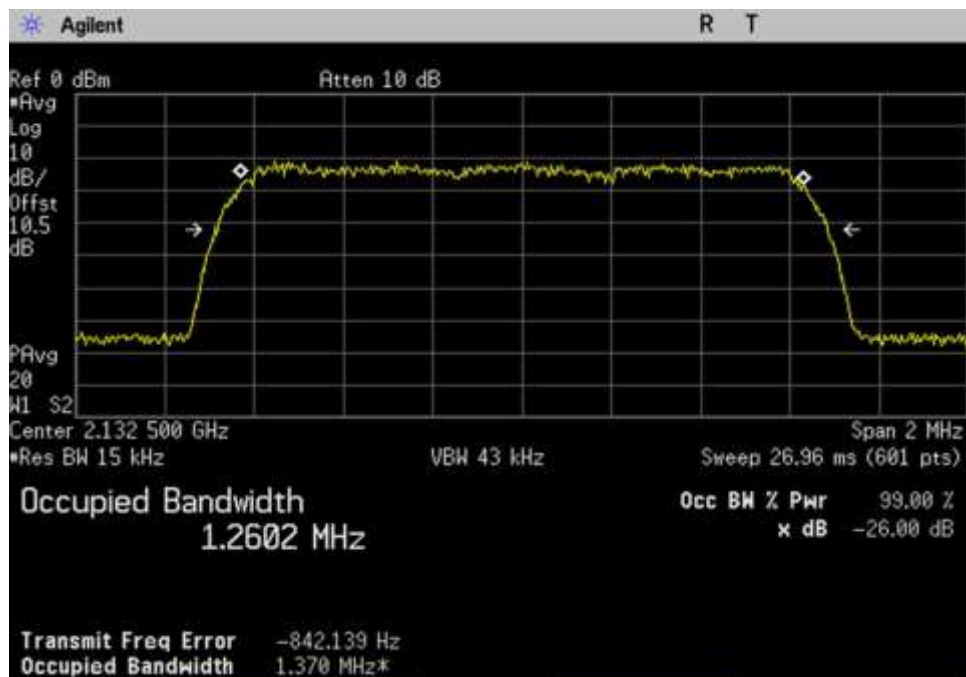
DL_746-757_CDMA_751.5MHz



DL_869-894_CDMA_881.5MHz

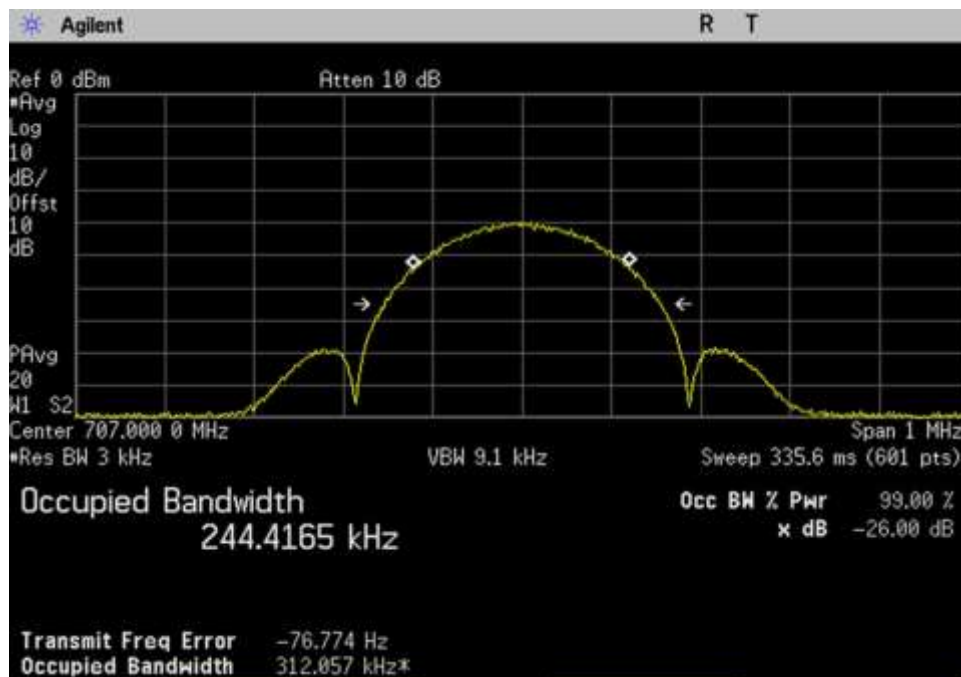


DL_1930-1995_CDMA_1962.5MHz

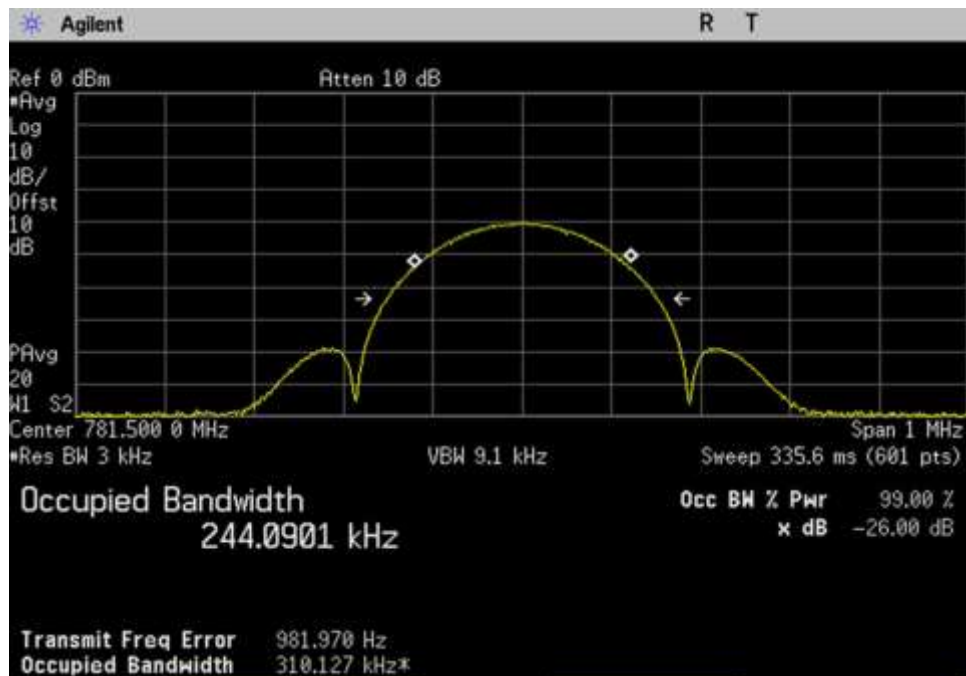


DL_2110-2155_CDMA_2132.5MHz

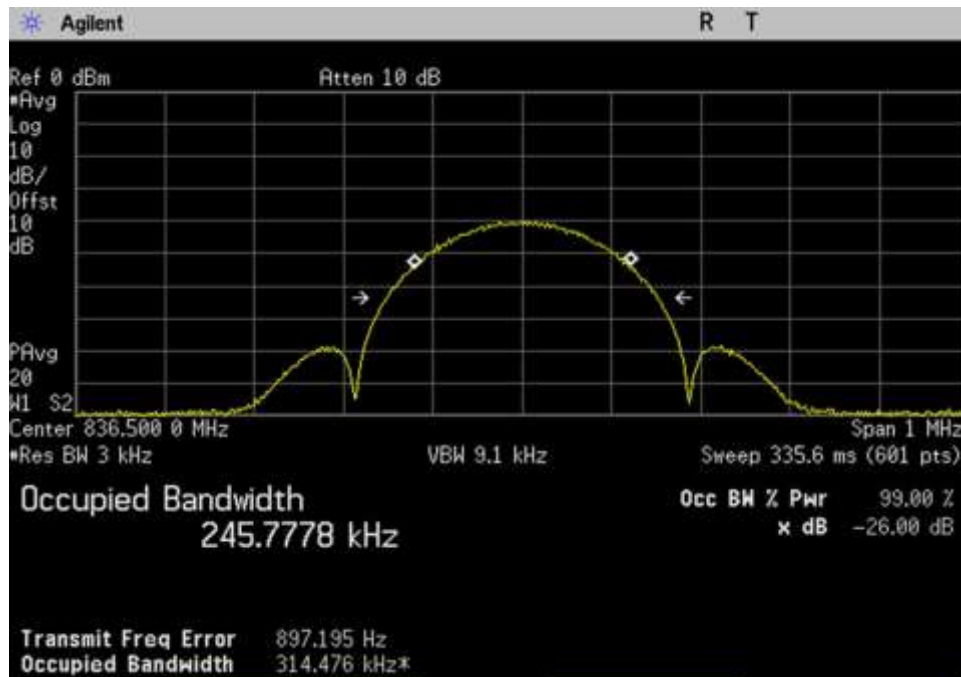
EDGE Input



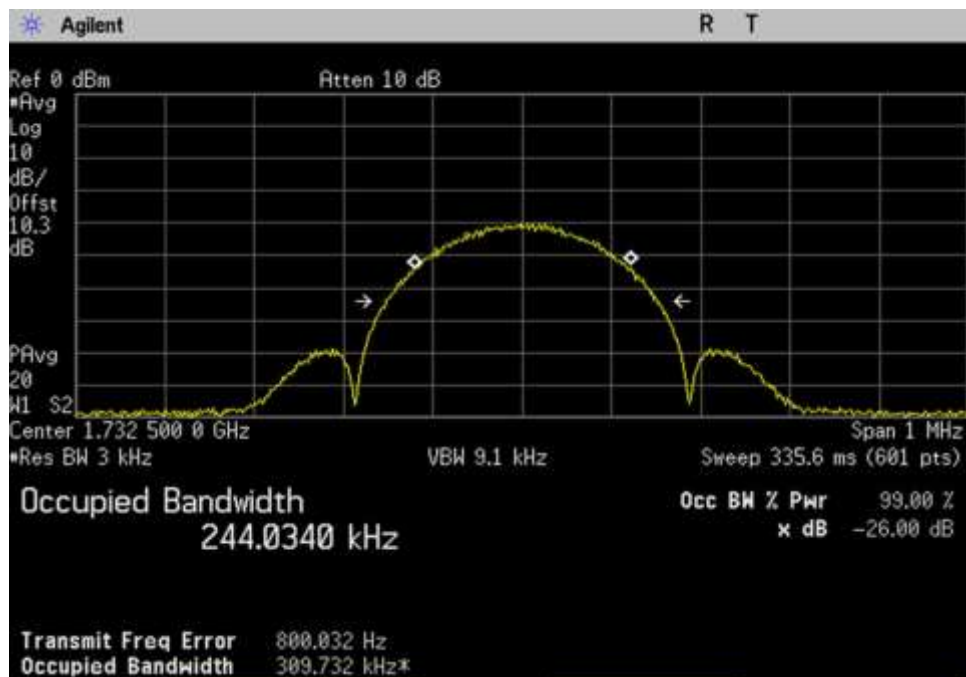
UL_698-716_EDGE_707MHz



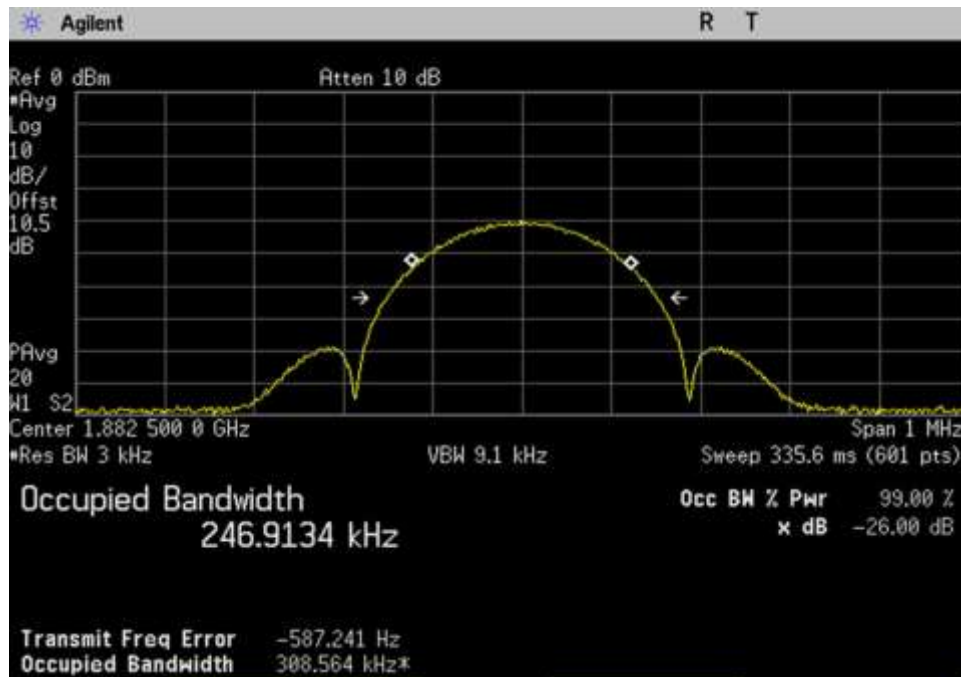
UL_776-787_EDGE_781.5MHz



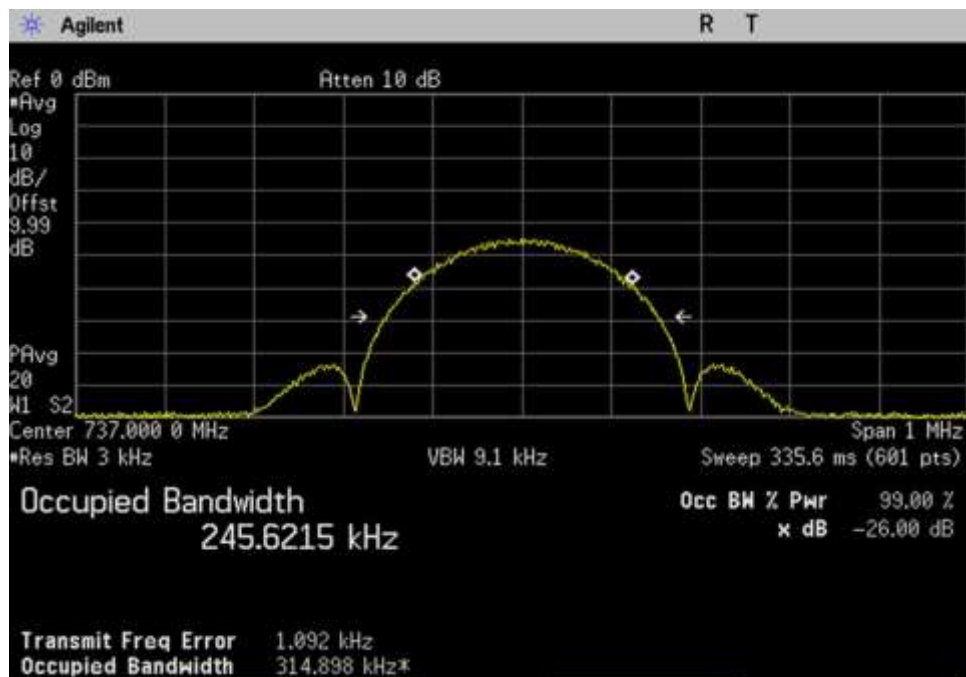
UL_824-849_EDGE_836.5MHz



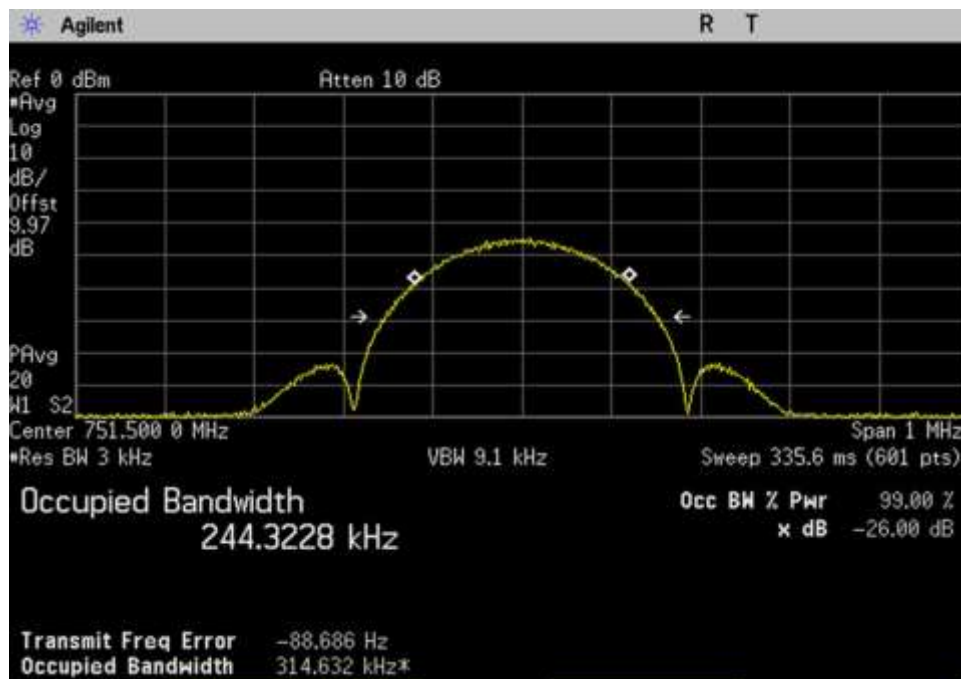
UL_1710-1755_EDGE_1732.5MHz



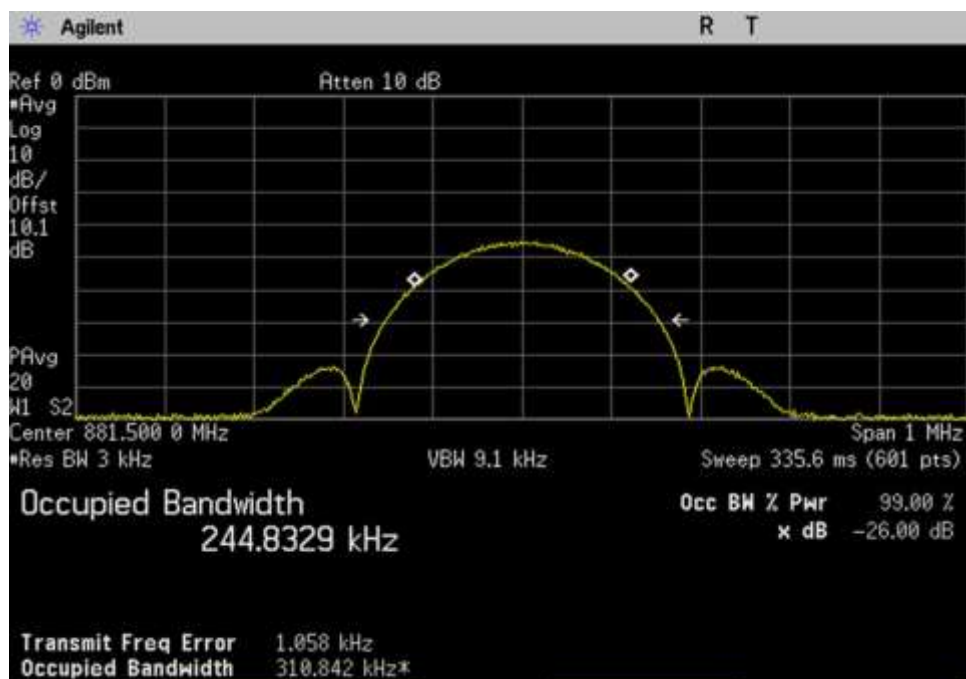
UL_1850-1915_EDGE_1882.5MHz



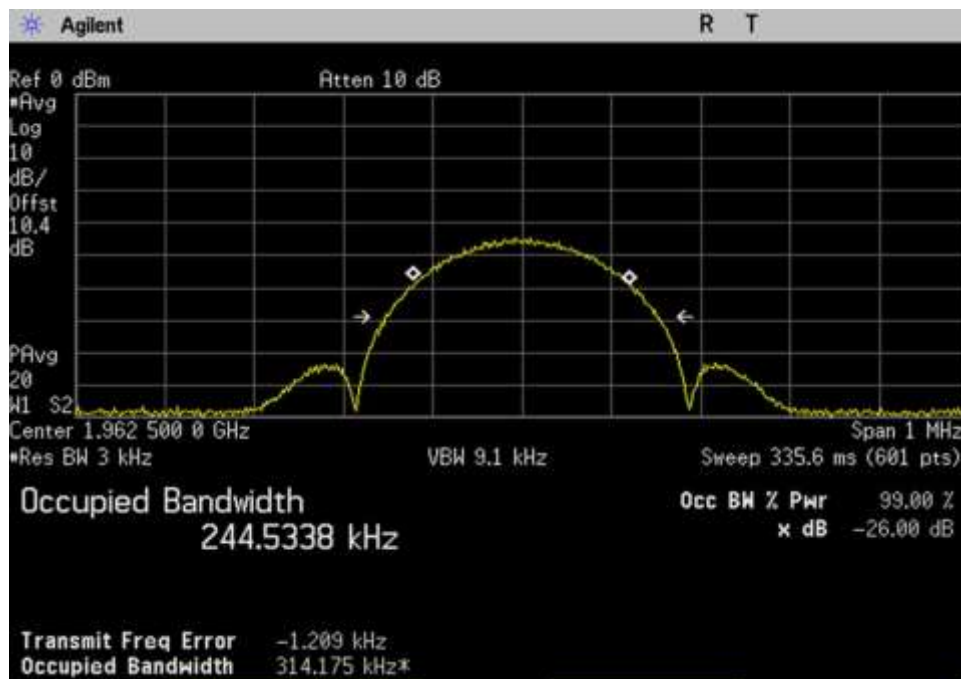
DL_728-746_EDGE_737MHz



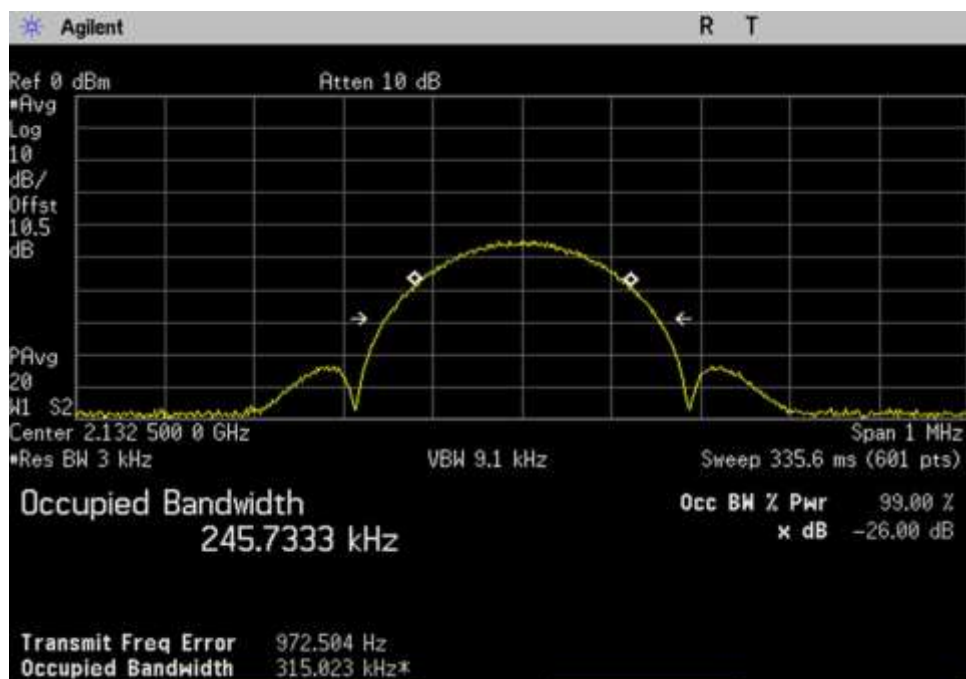
DL_746-757_EDGE_751.5MHz



DL_869-894_EDGE_881.5MHz

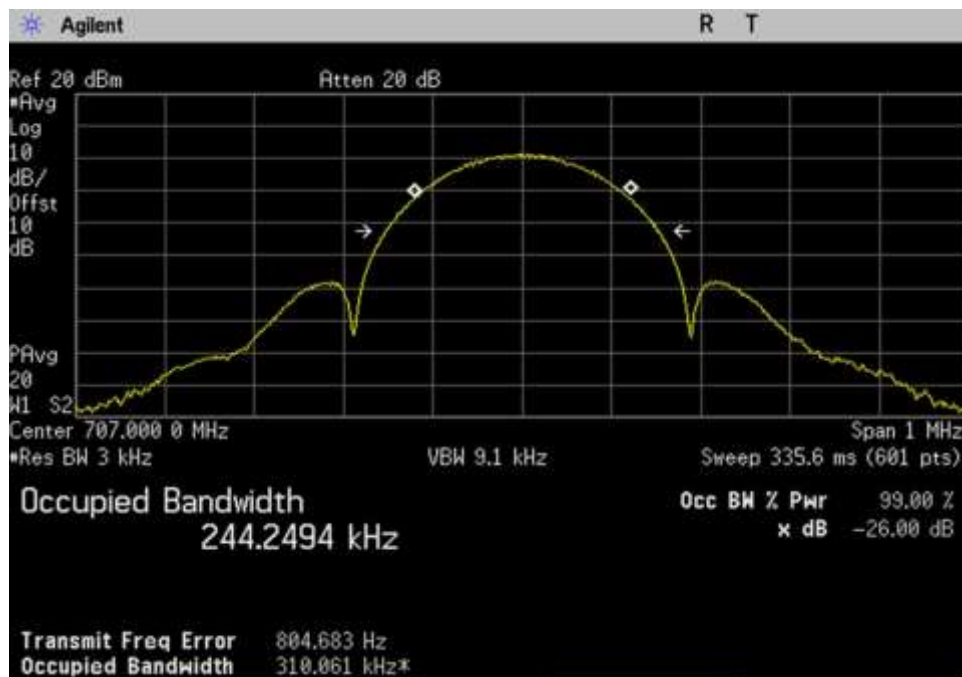


DL_1930-1995_EDGE_1962.5MHz

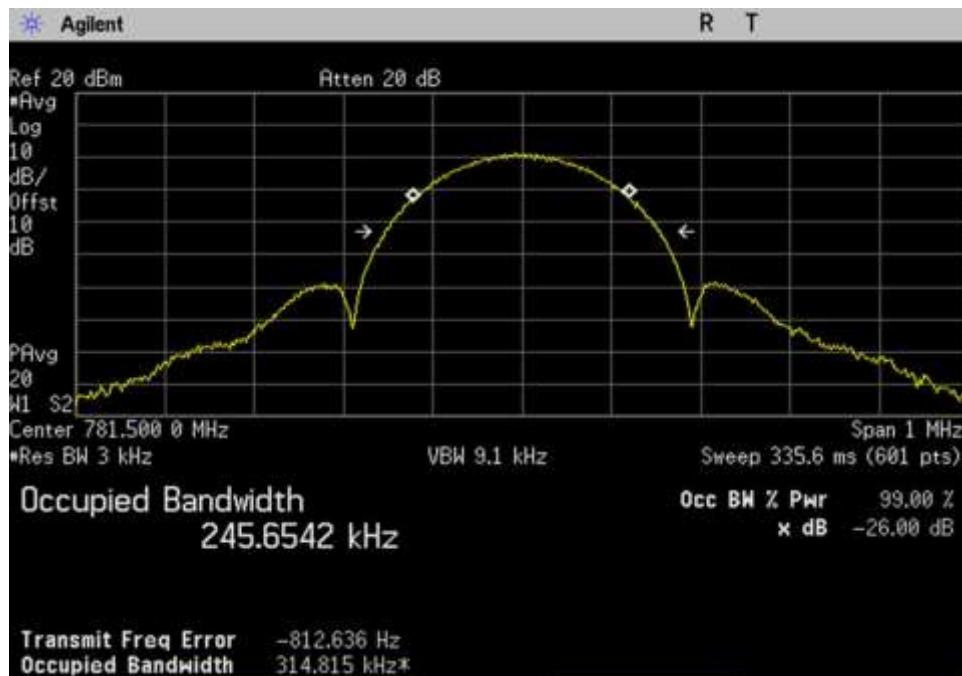


DL_2110-2155_EDGE_2132.5MHz

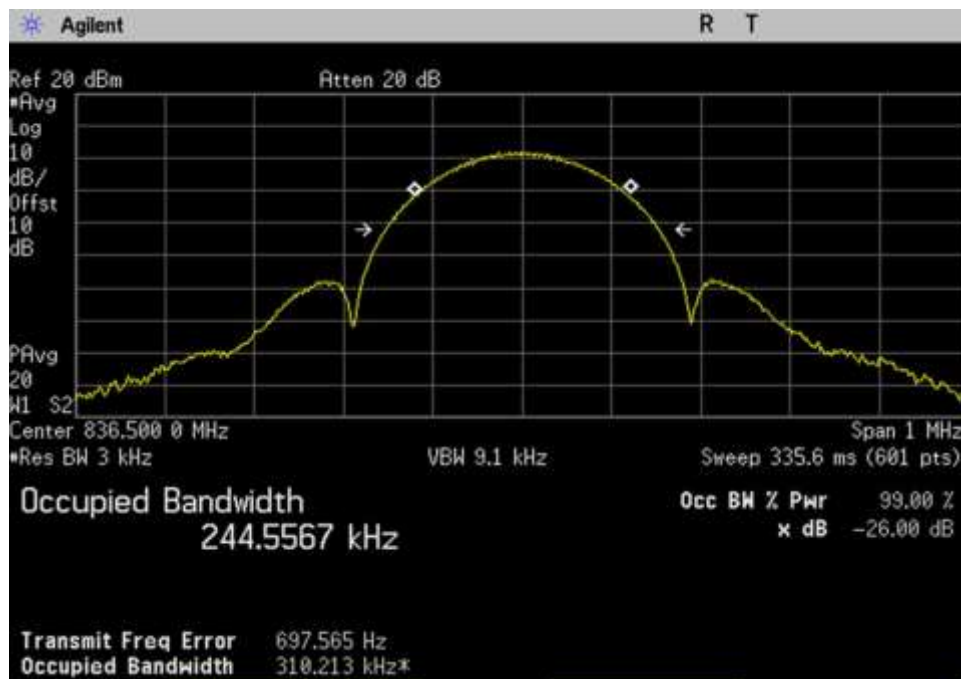
EDGE Output



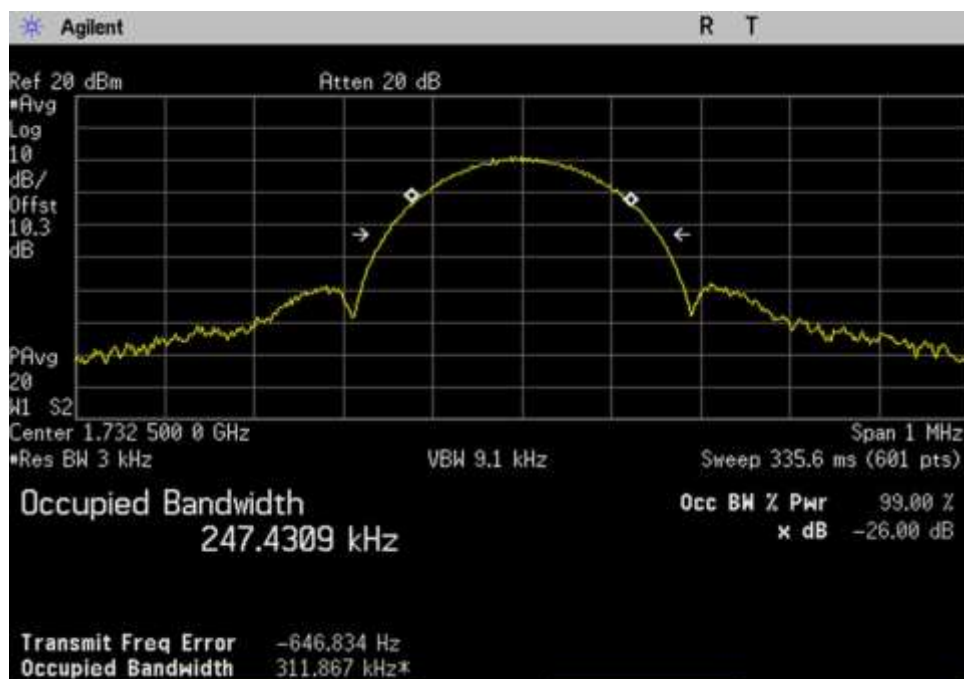
UL_698-716_EDGE_707MHz



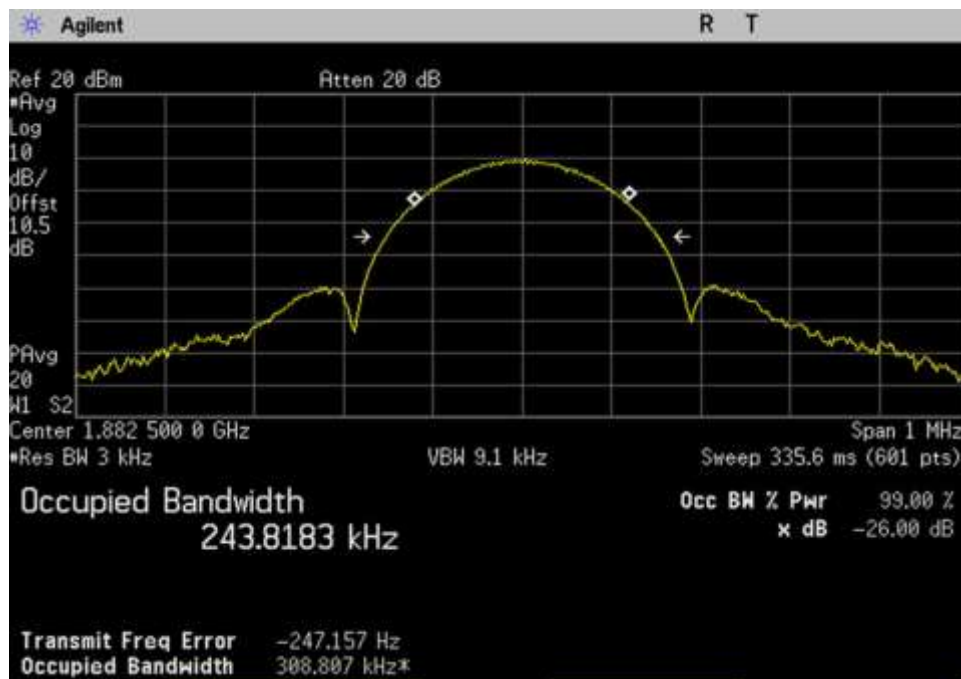
UL_776-787_EDGE_781.5MHz



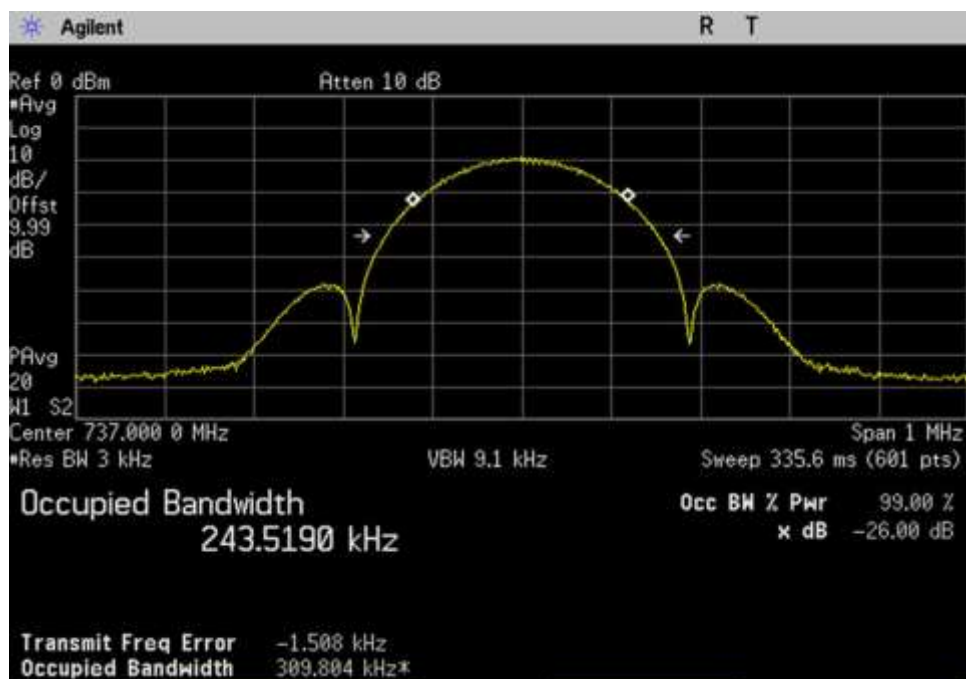
UL_824-849_EDGE_836.5MHz



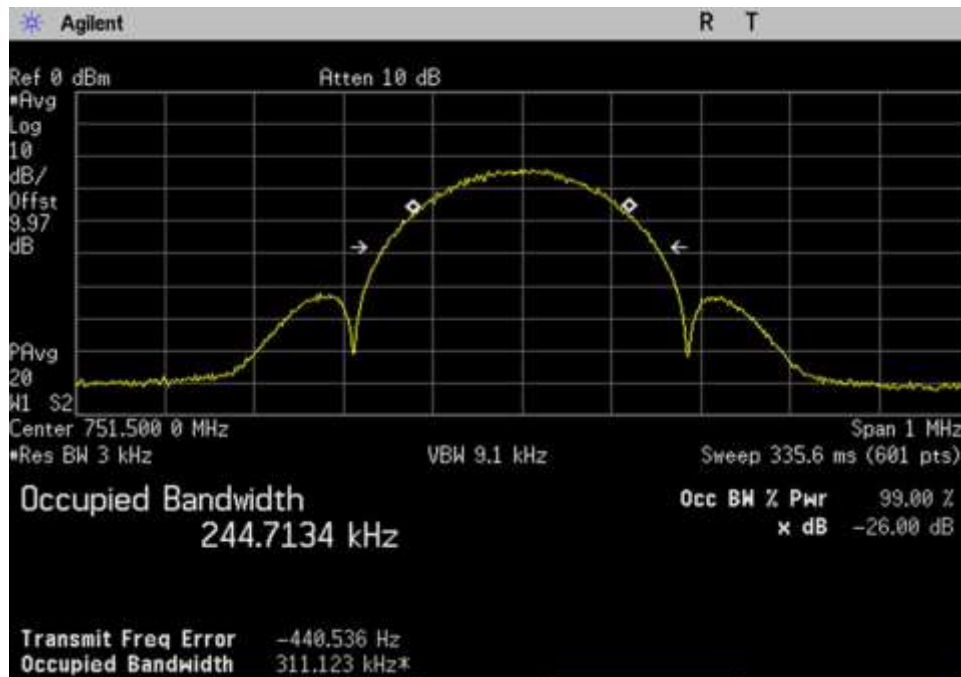
UL_1710-1755_EDGE_1732.5MHz



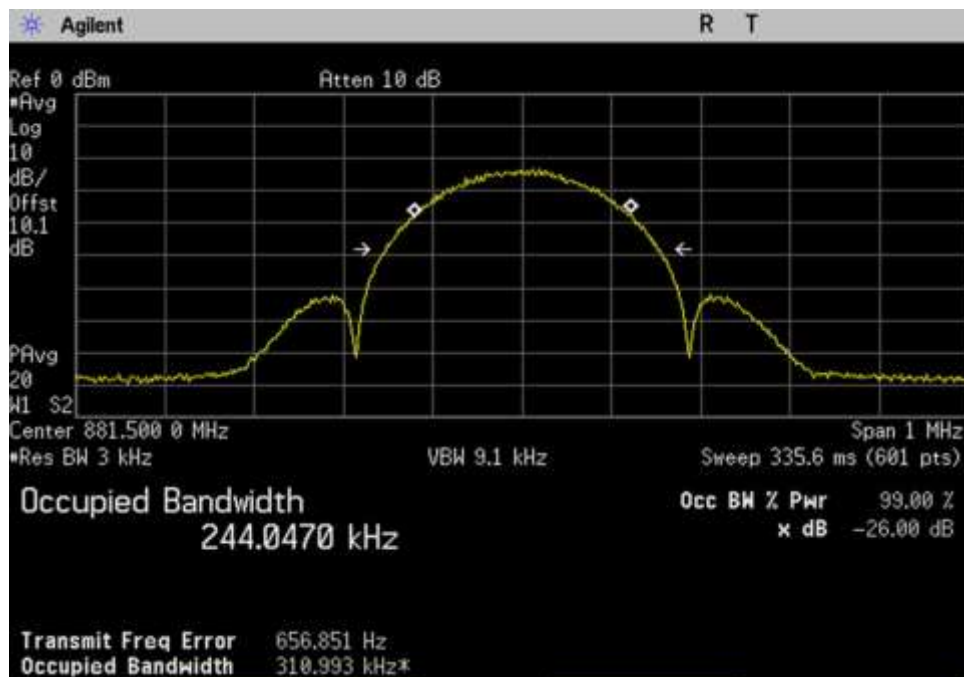
UL_1850-1915_EDGE_1882.5MHz



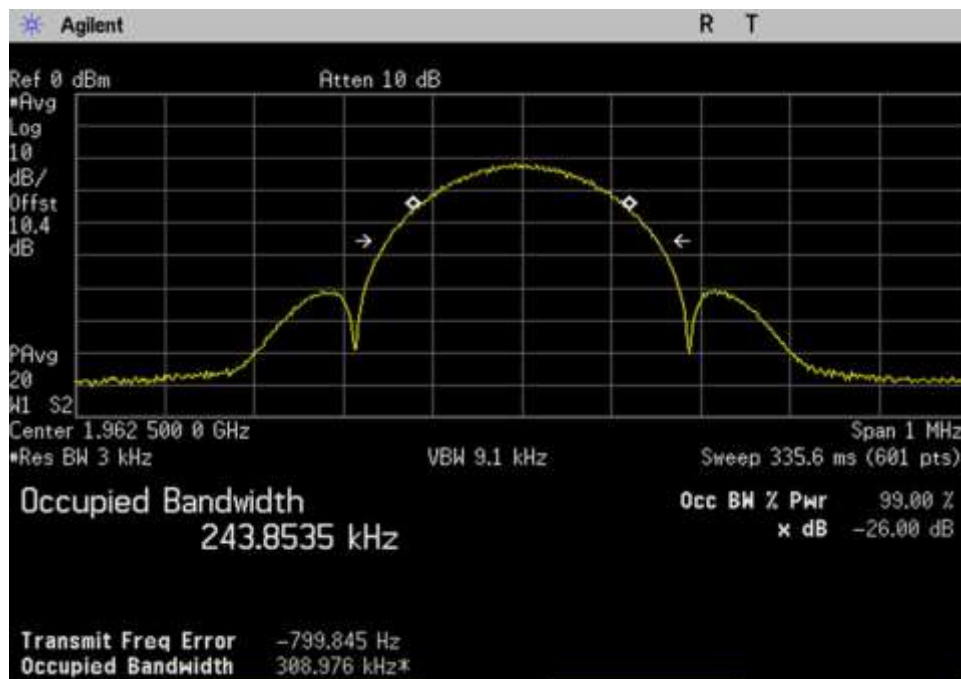
DL_728-746_EDGE_737MHz



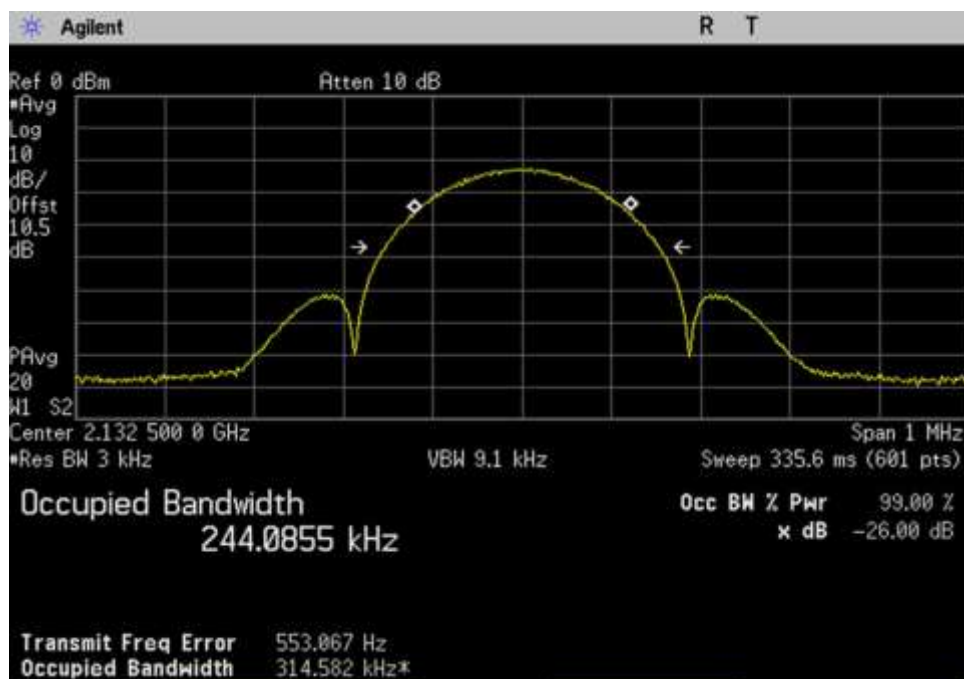
DL_746-757_EDGE_751.5MHz



DL_869-894_EDGE_881.5MHz

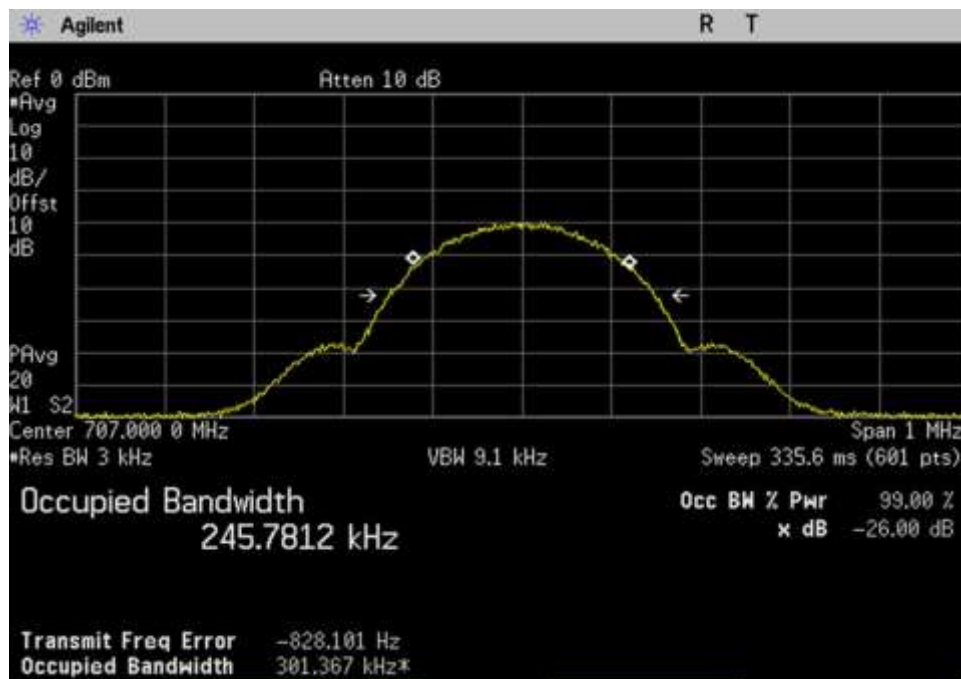


DL_1930-1995_EDGE_1962.5MHz

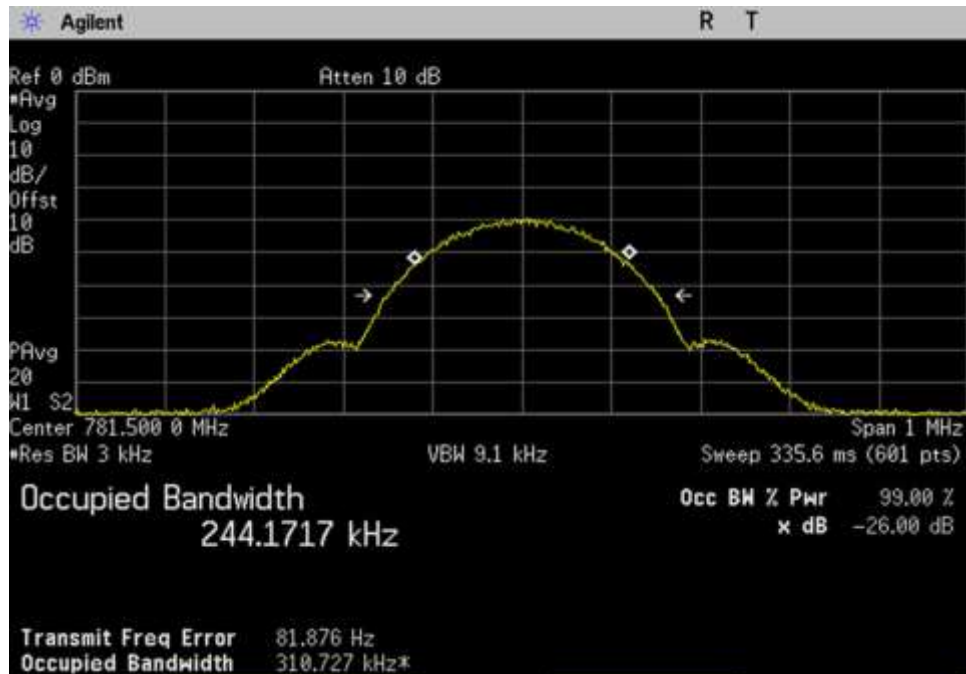


DL_2110-2155_EDGE_2132.5MHz

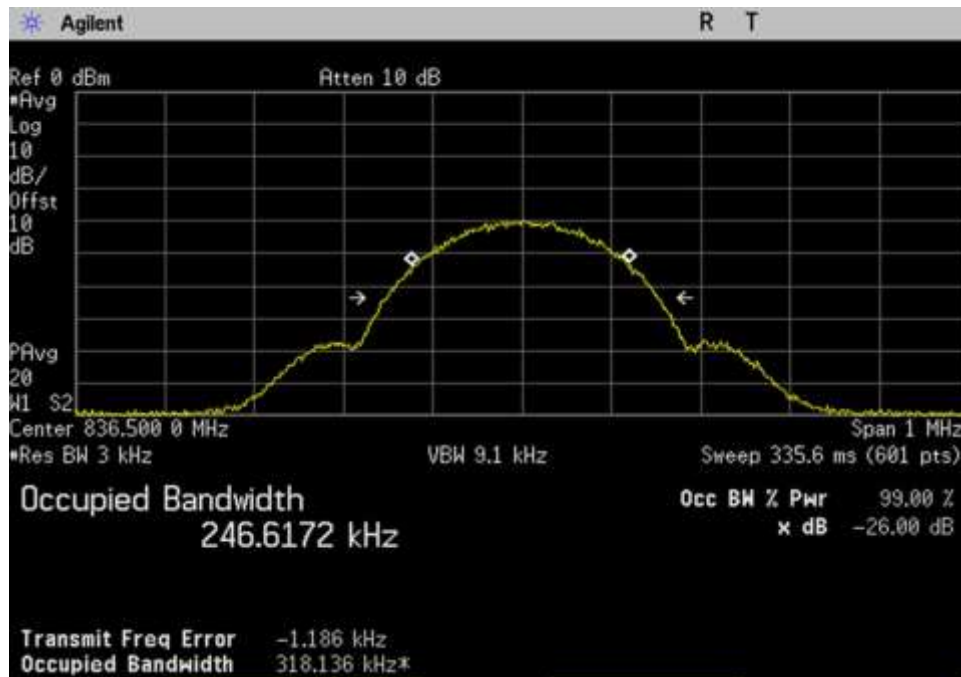
GSM Input



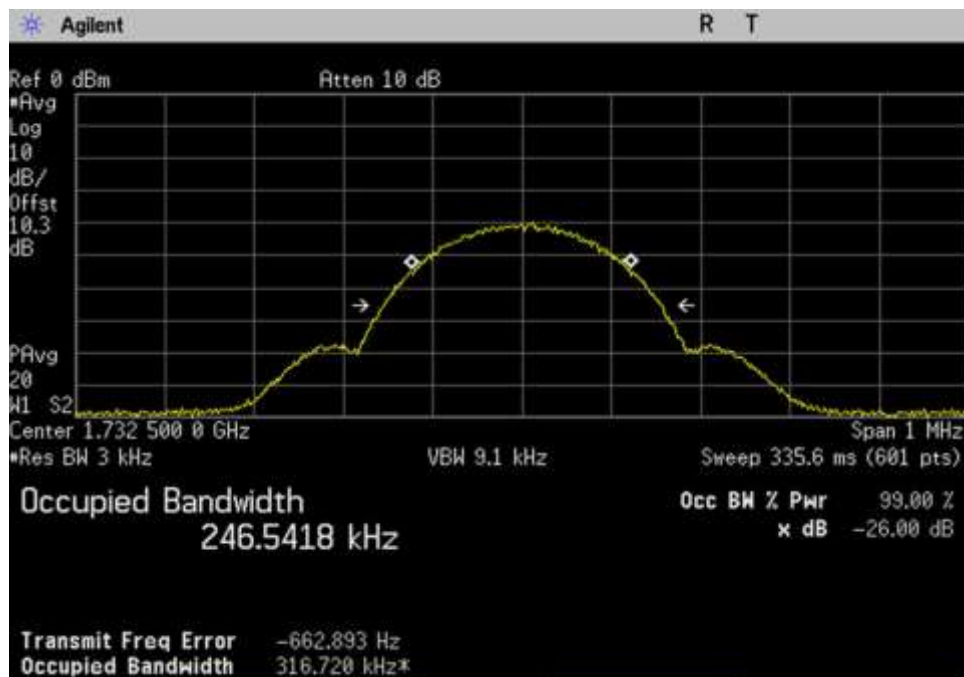
UL_698-716_GSM_ 707MHz



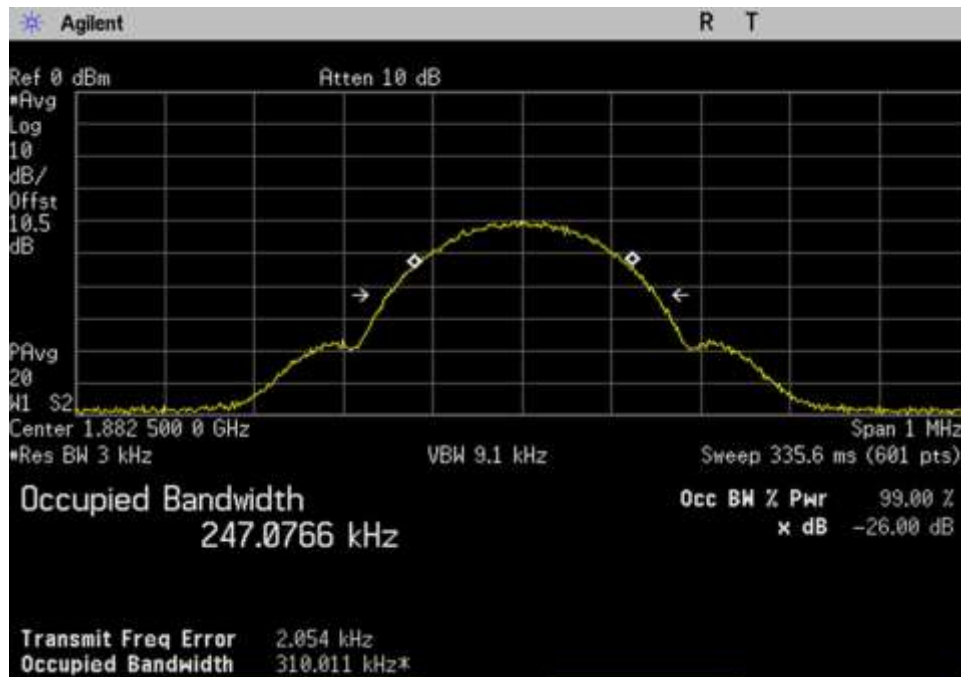
UL_776-787_GSM_ 781.5MHz



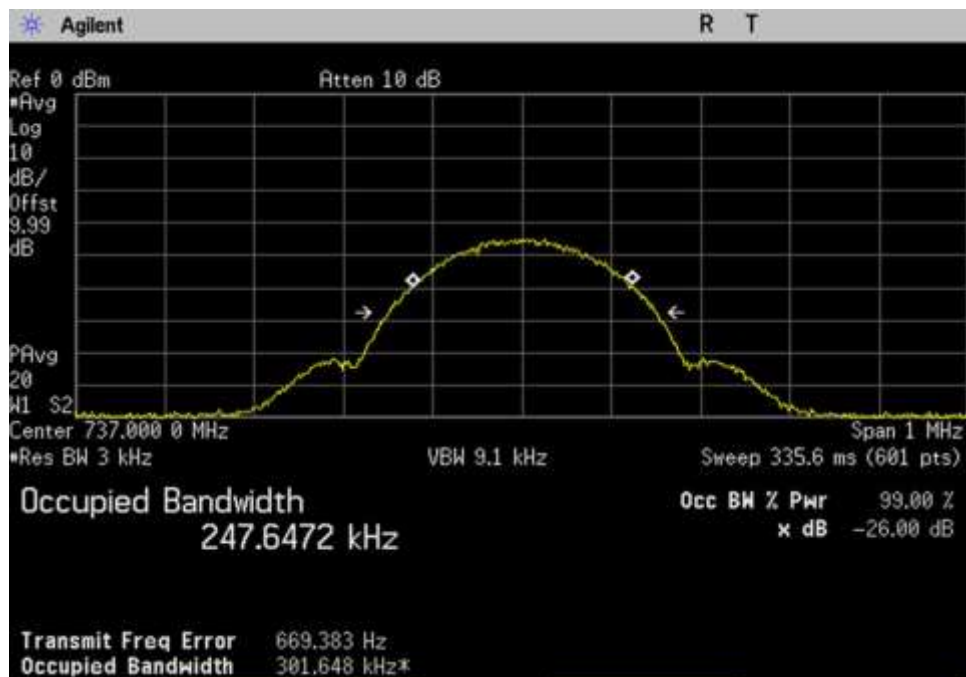
UL_824-849_GSM_836.5MHz



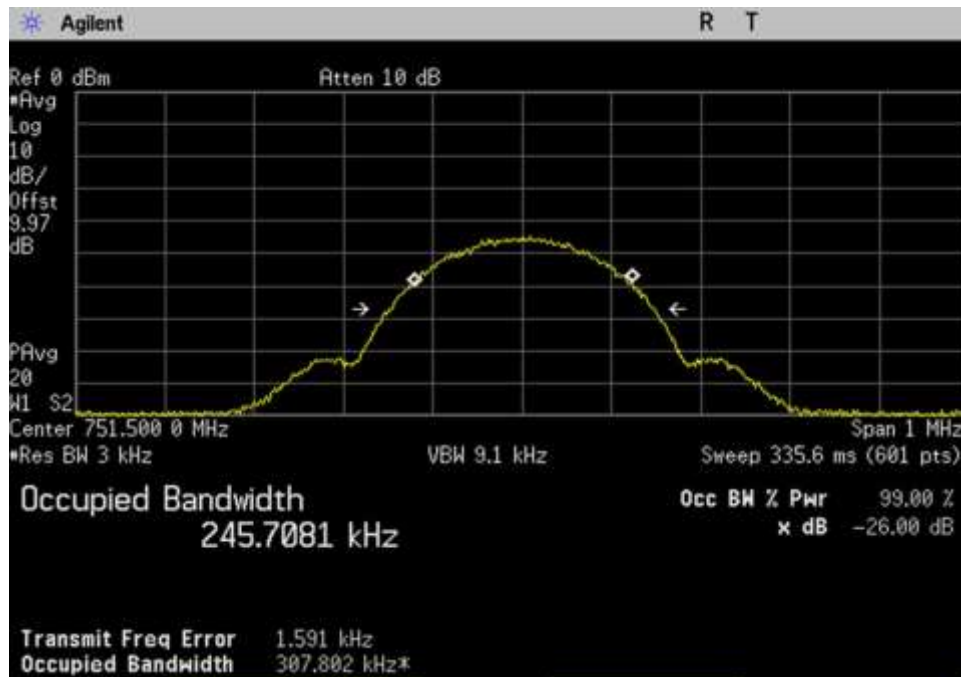
UL_1710-1755_GSM_1732.5MHz



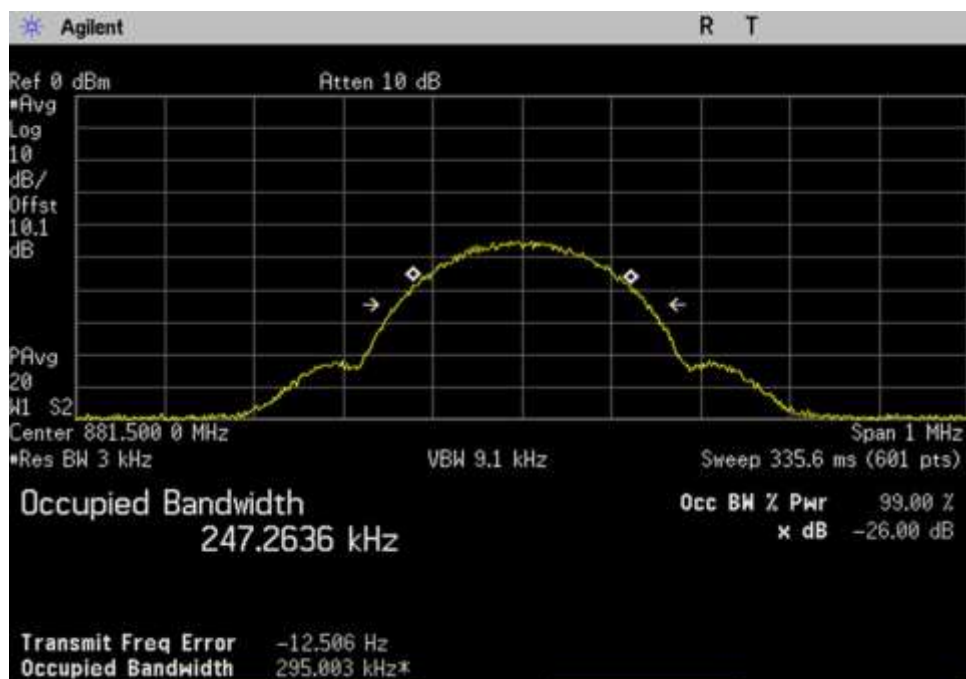
UL_1850-1915_GSM_1882.5MHz



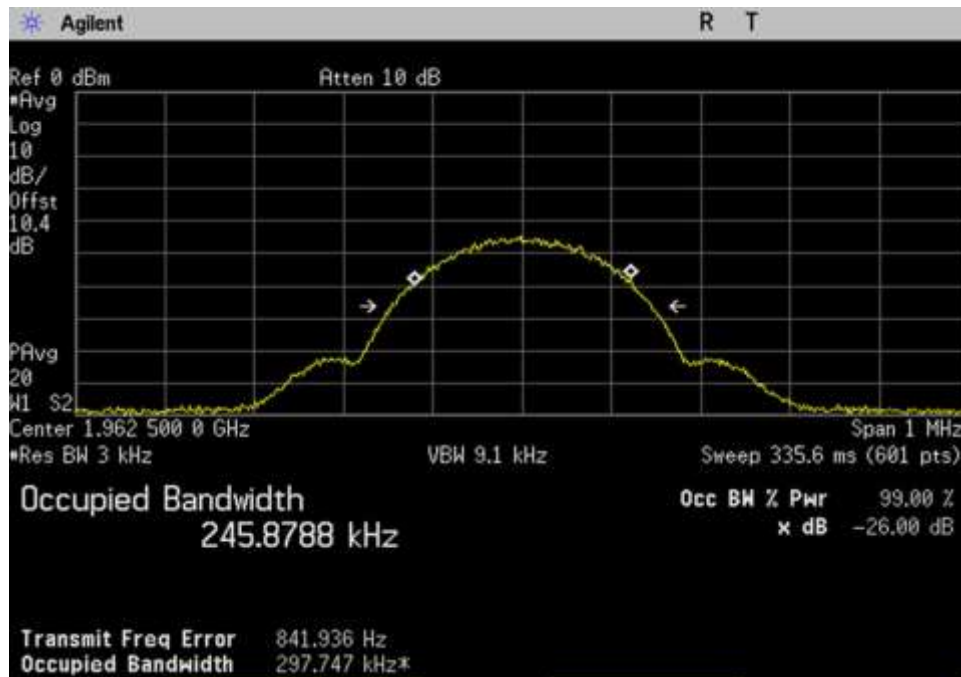
DL_728-746_GSM_737MHz



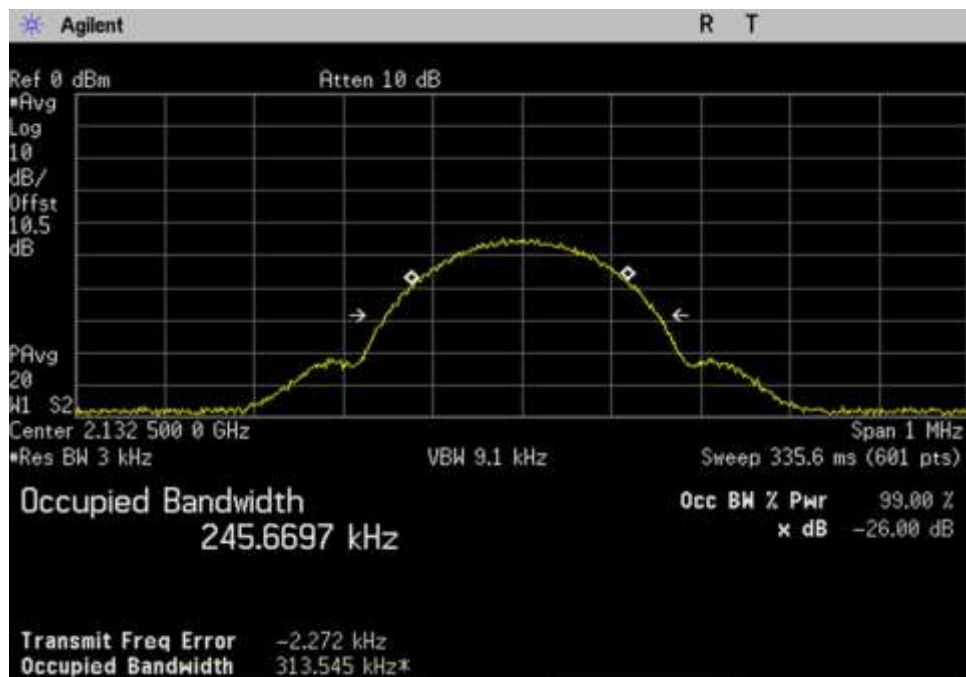
DL_746-757_GSM_751.5MHz



DL_869-894_GSM_881.5MHz

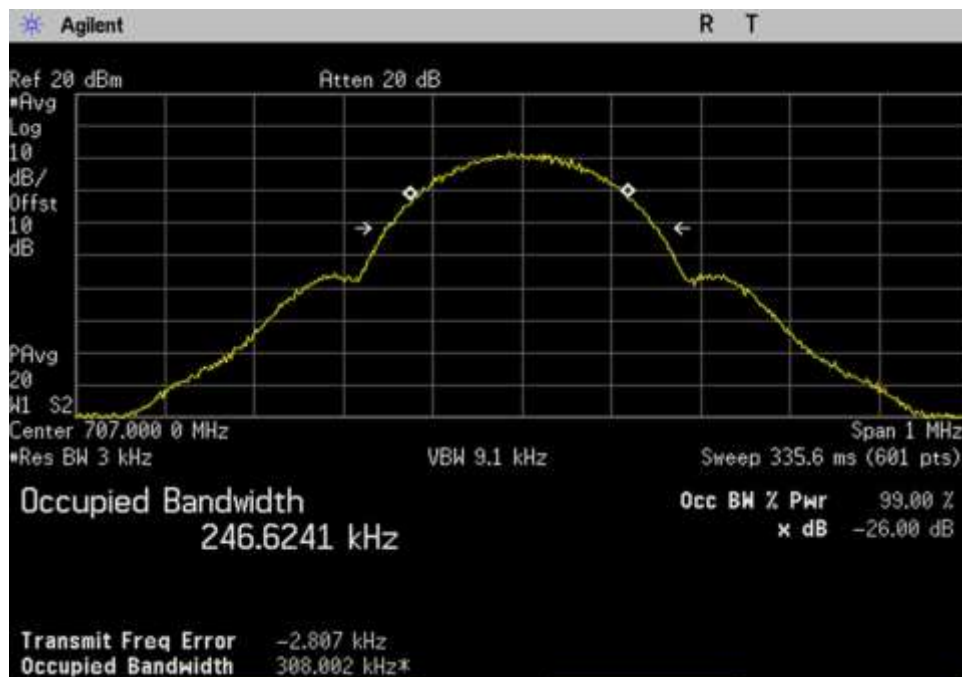


DL_1930-1995_GSM_1962.5MHz

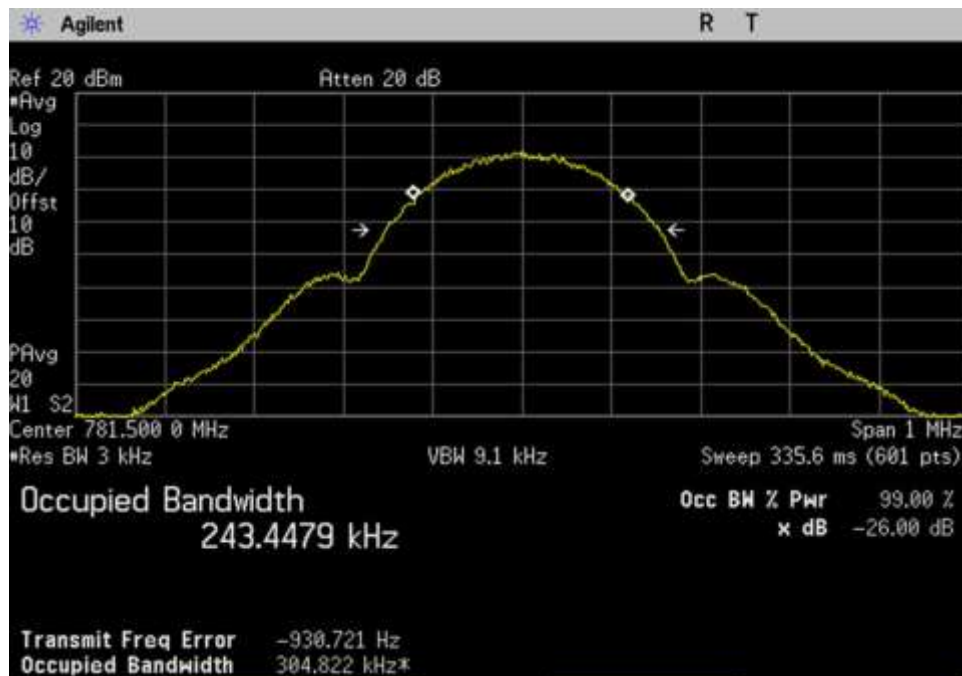


DL_2110-2155_GSM_2132.5MHz

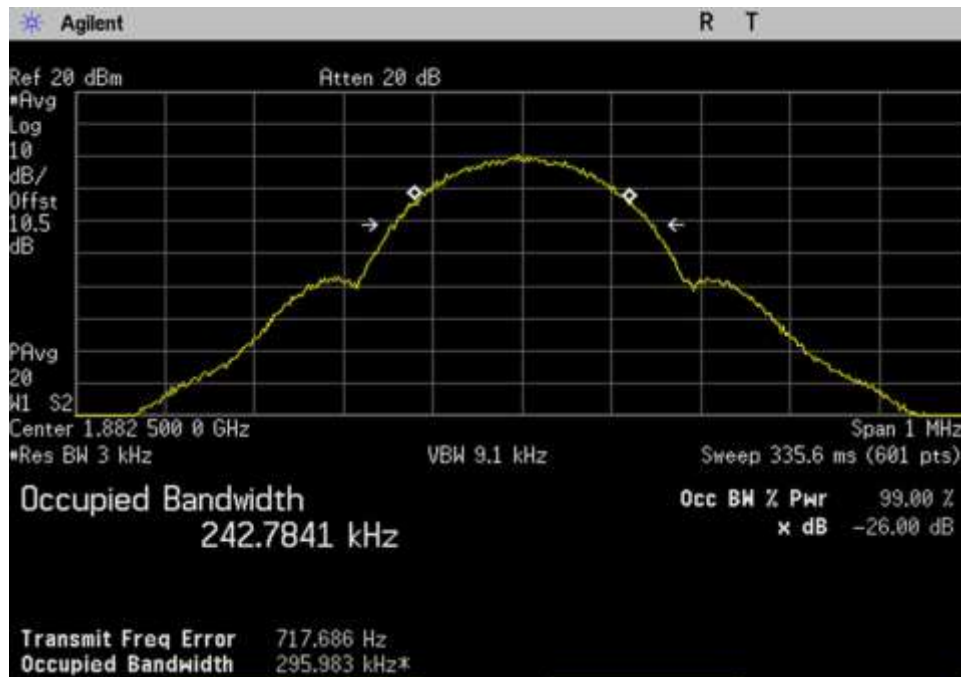
GSM Output



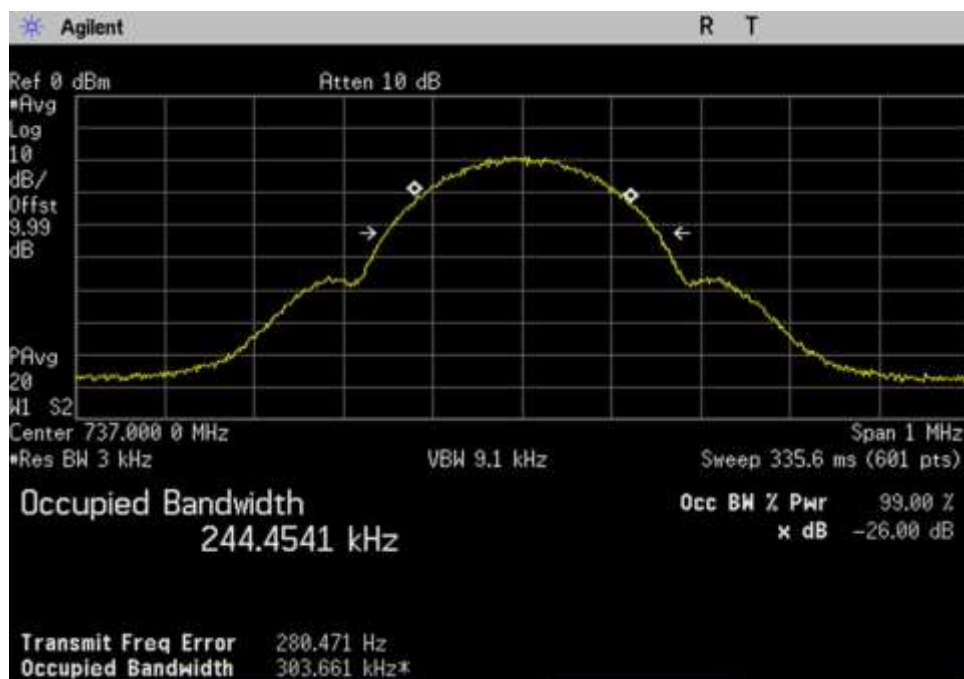
UL_698-716_GSM_707MHz



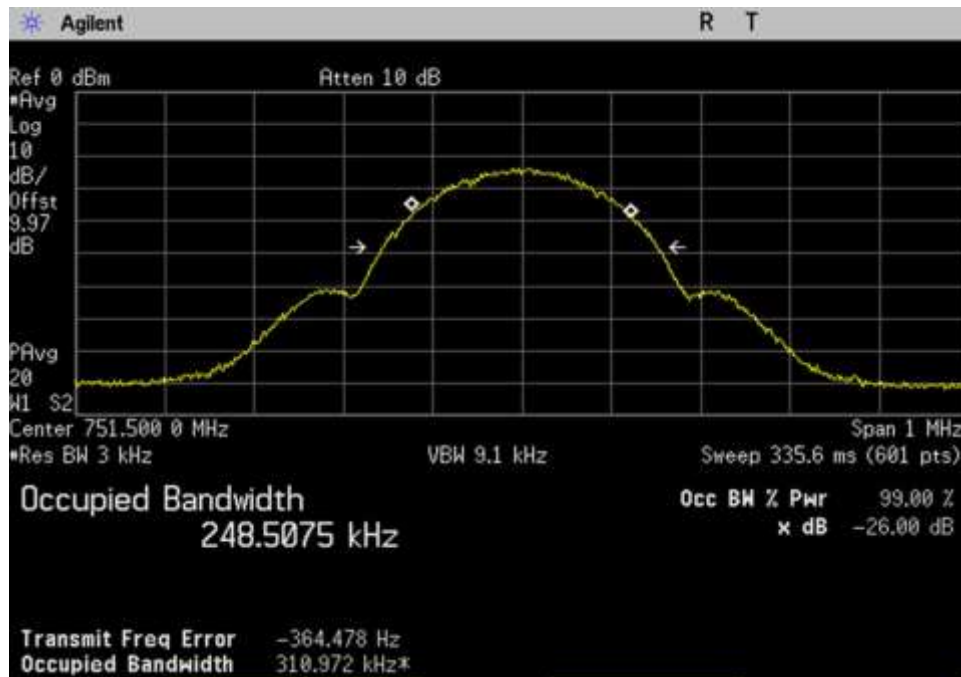
UL_776-787_GSM_781.5MHz



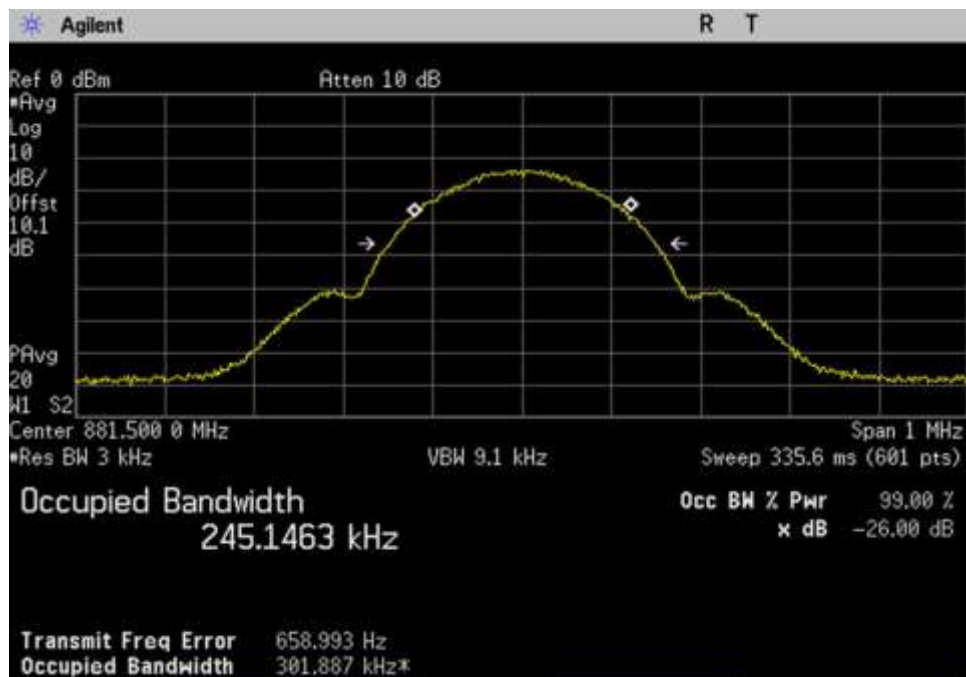
UL_1850-1915_GSM_1882.5MHz



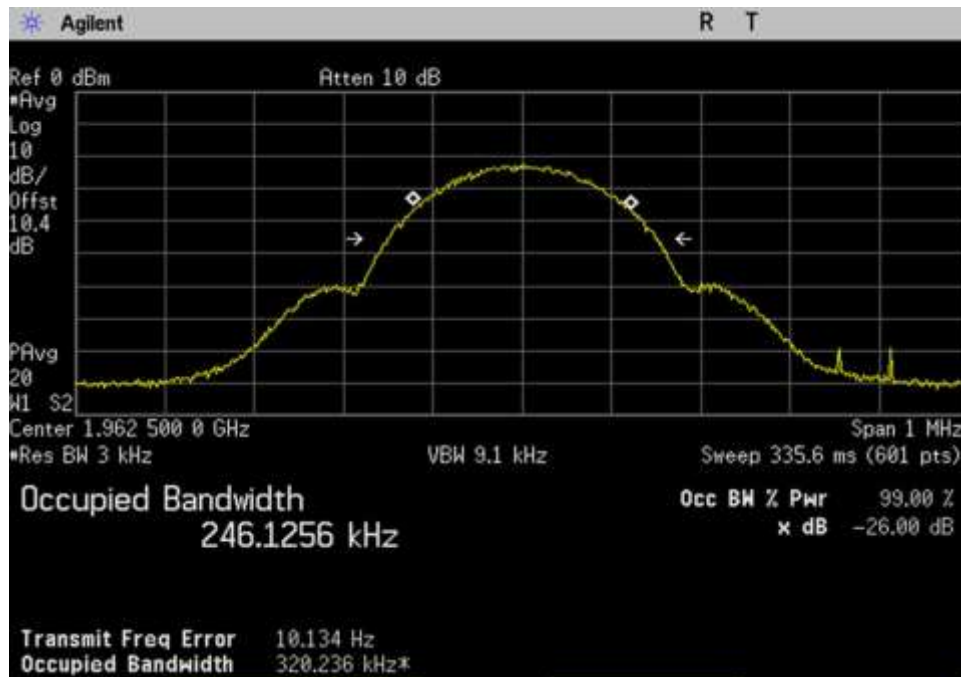
DL_728-746_GSM_737MHz



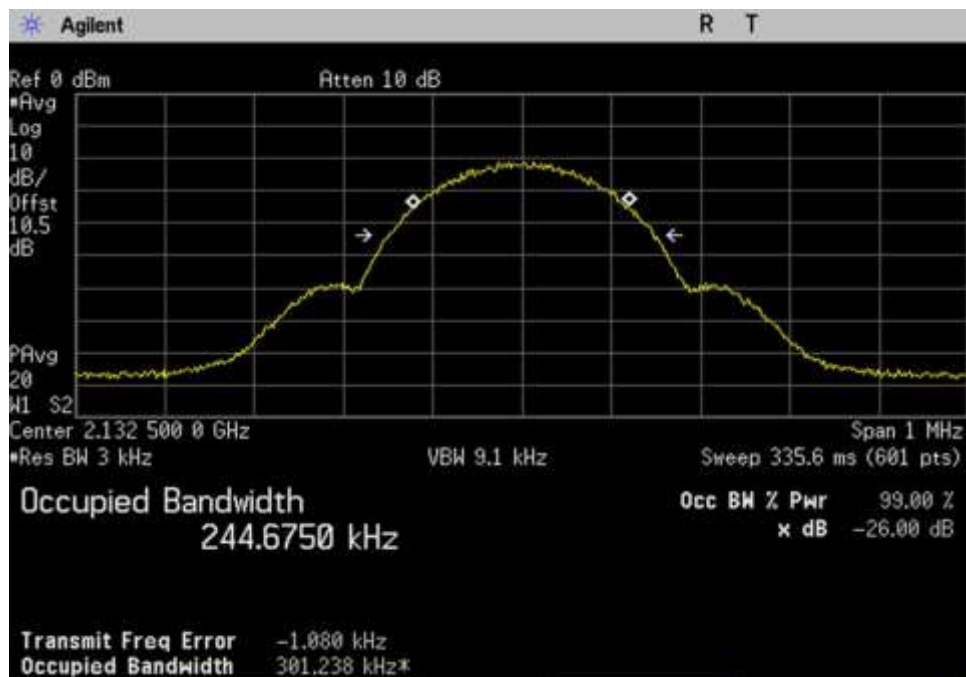
DL_746-757_GSM_751.5MHz



DL_869-894_GSM_881.5MHz

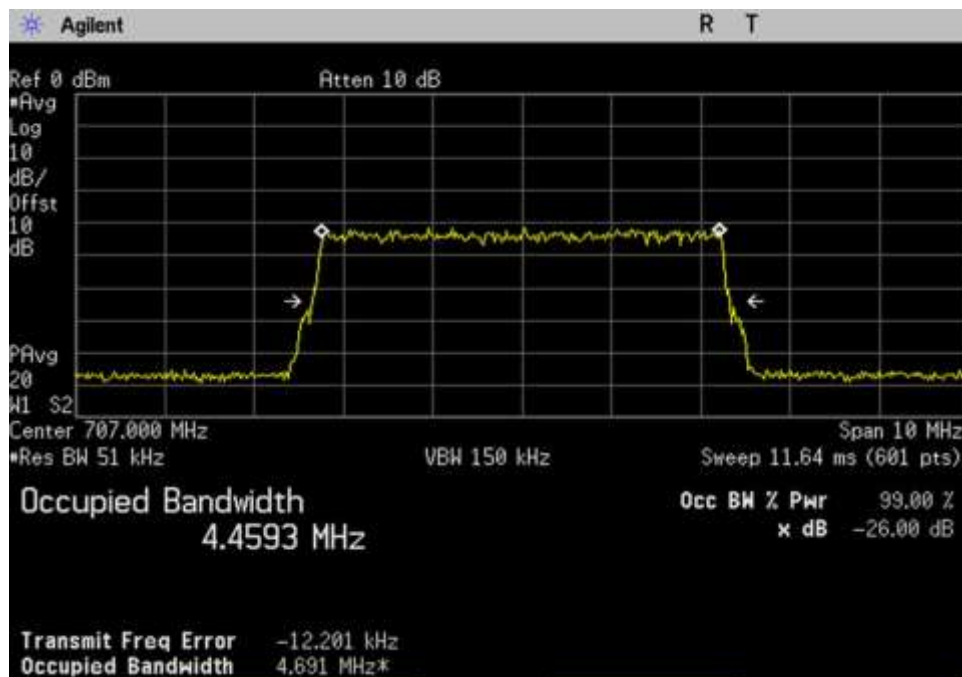


DL_1930-1995_GSM_1962.5MHz

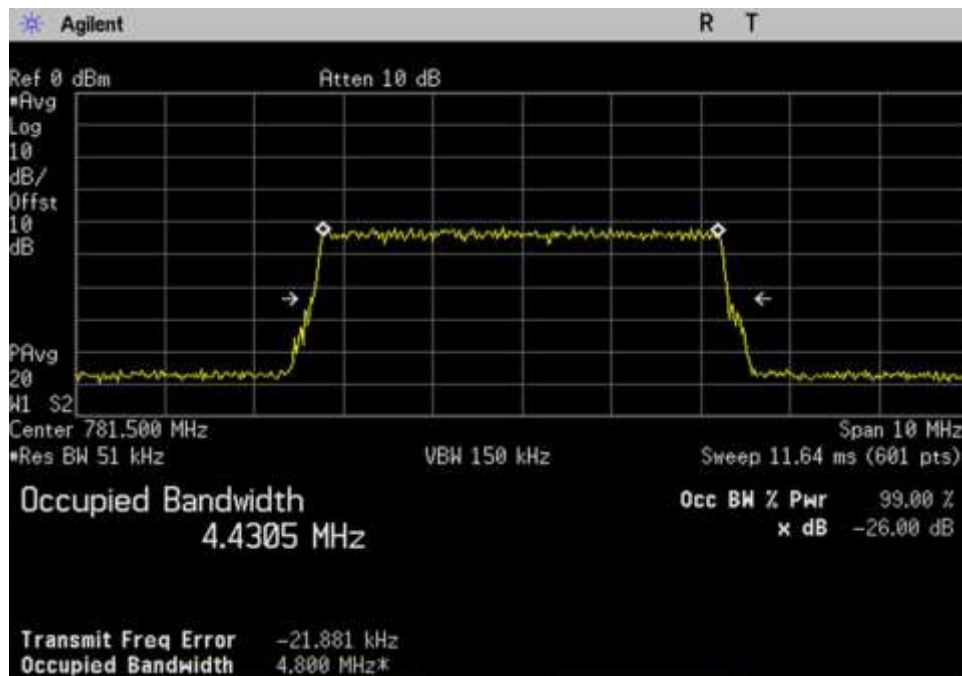


DL_2110-2155_GSM_2132.5MHz

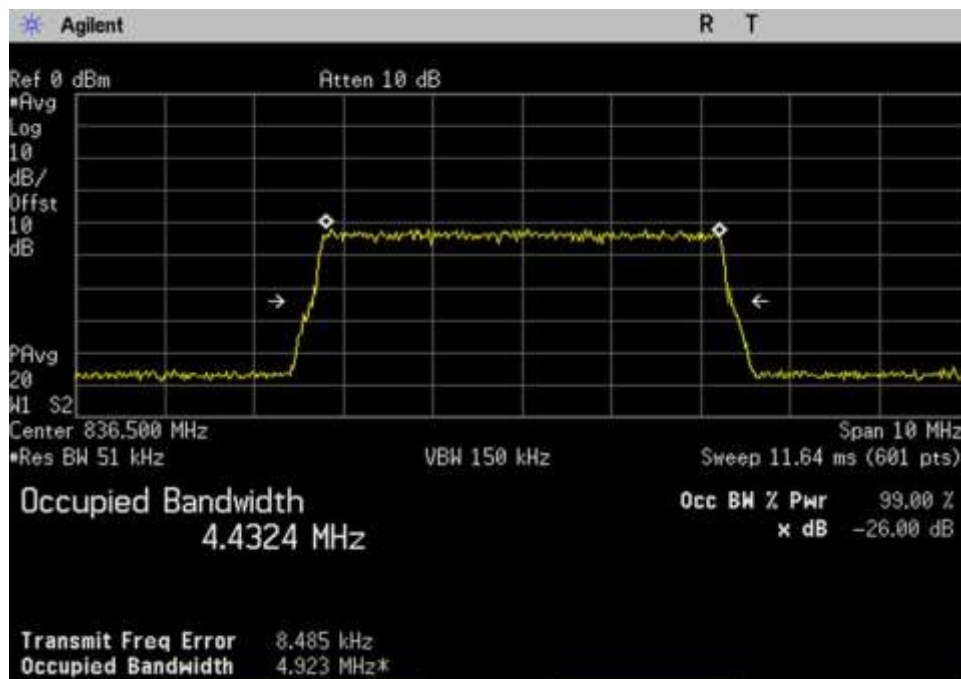
LTE Input



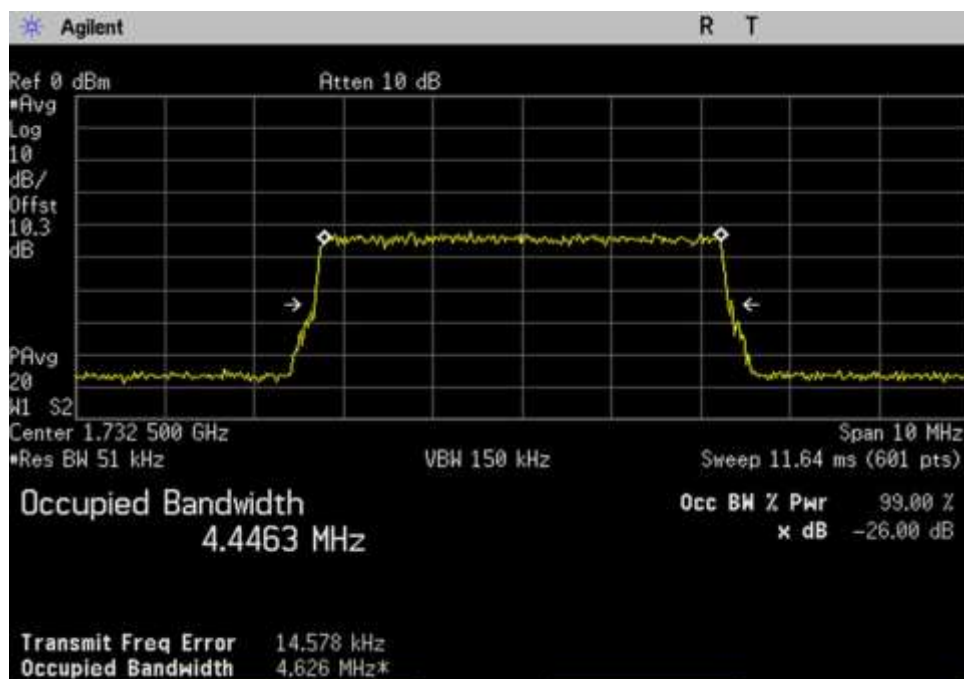
UL_698-716_LTE_707MHz



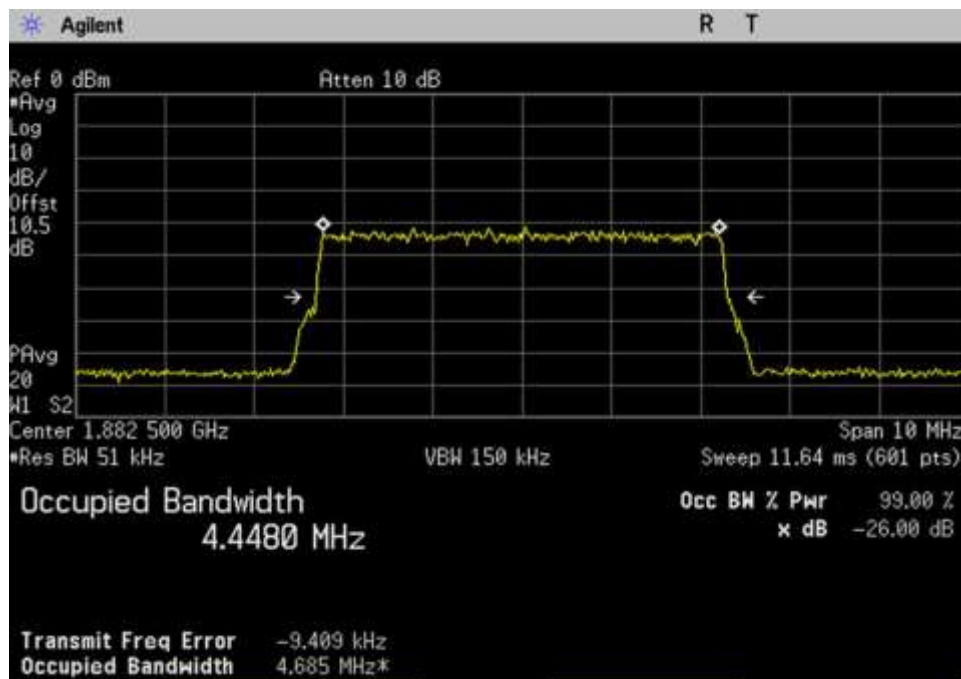
UL_776-787_LTE_781.5MHz



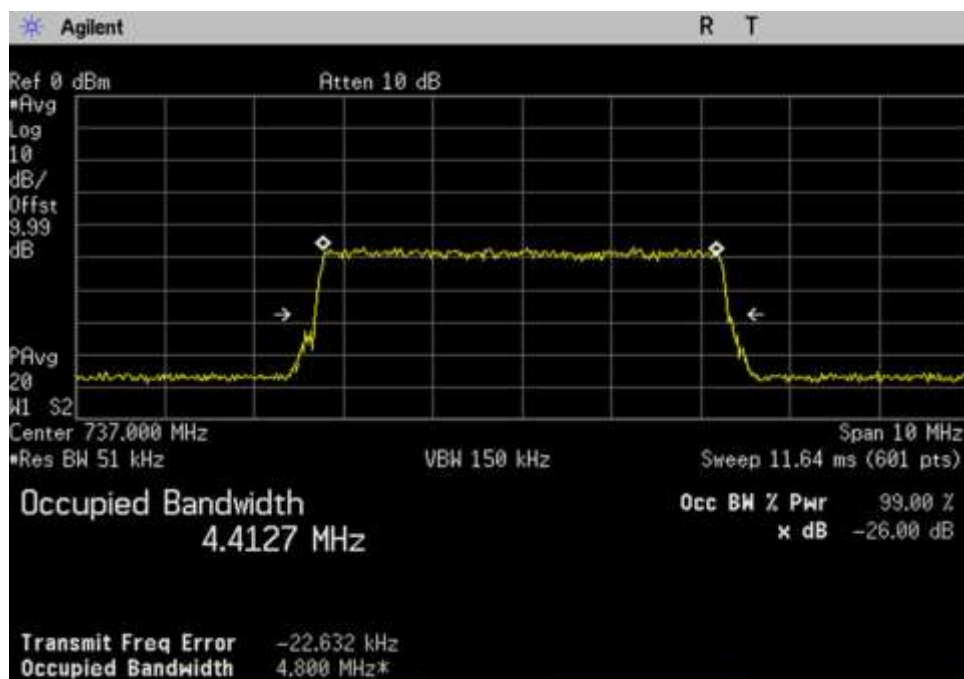
UL_824-849_LTE_836.5MHz



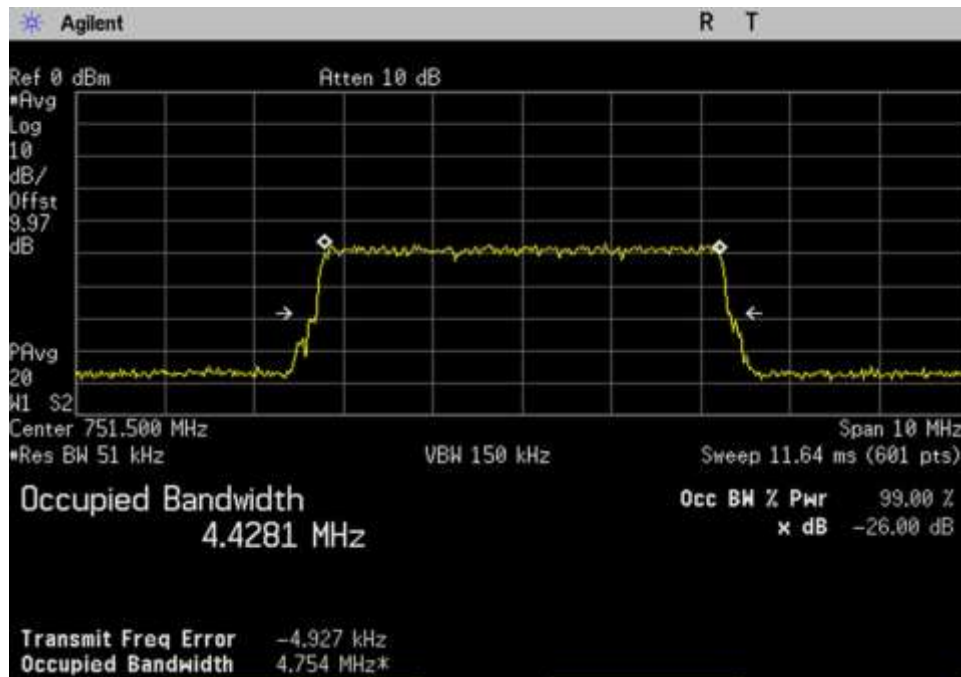
UL_1710-1755_LTE_1732.5MHz



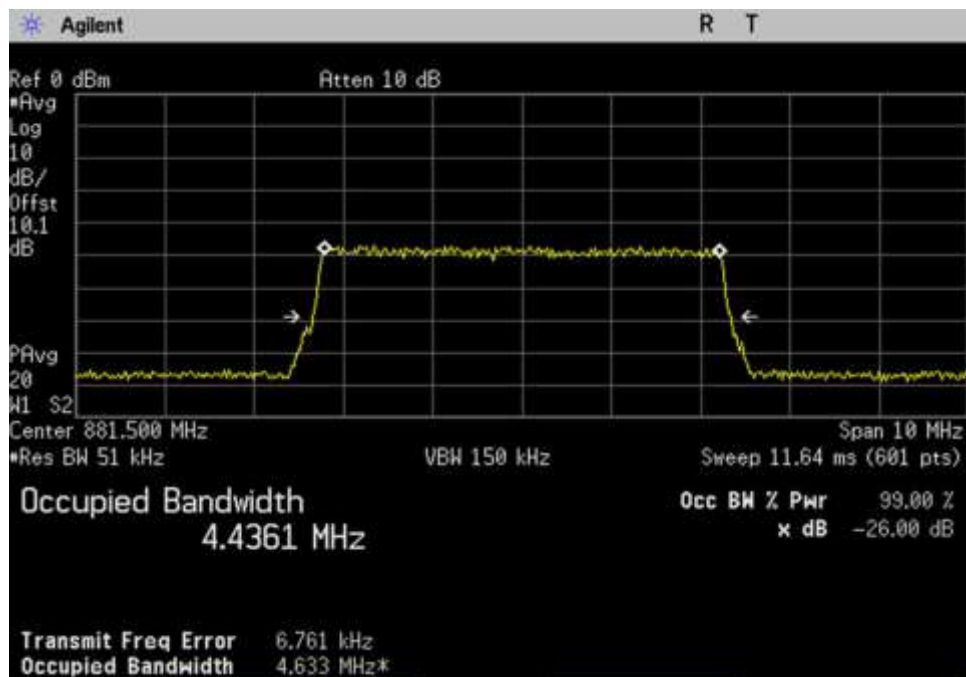
UL_1850-1915_LTE_ 1882.5MHz



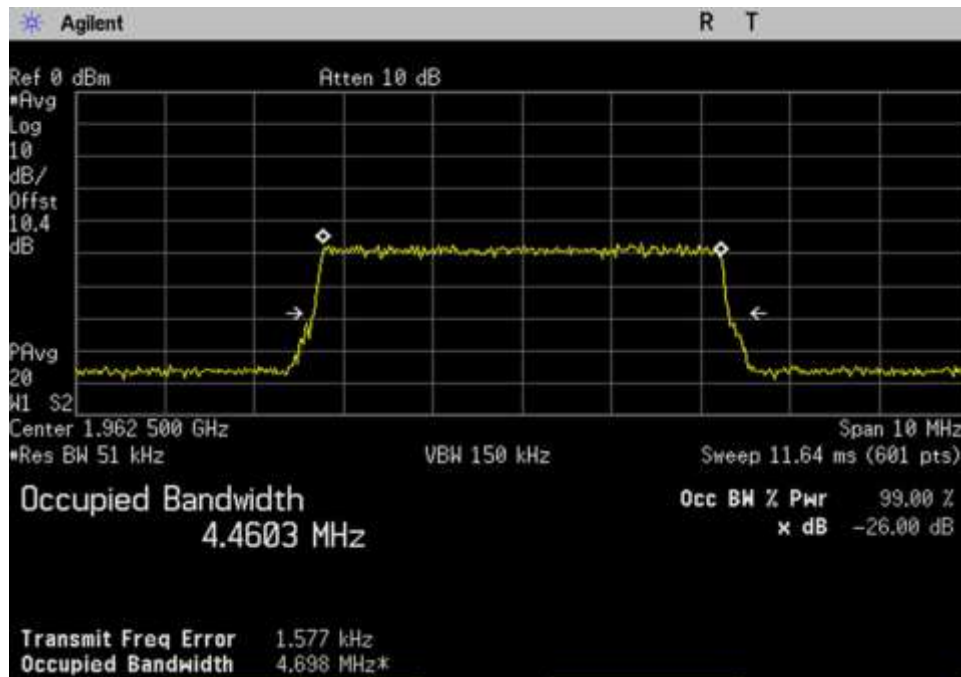
DL_728-746_LTE_ 737MHz



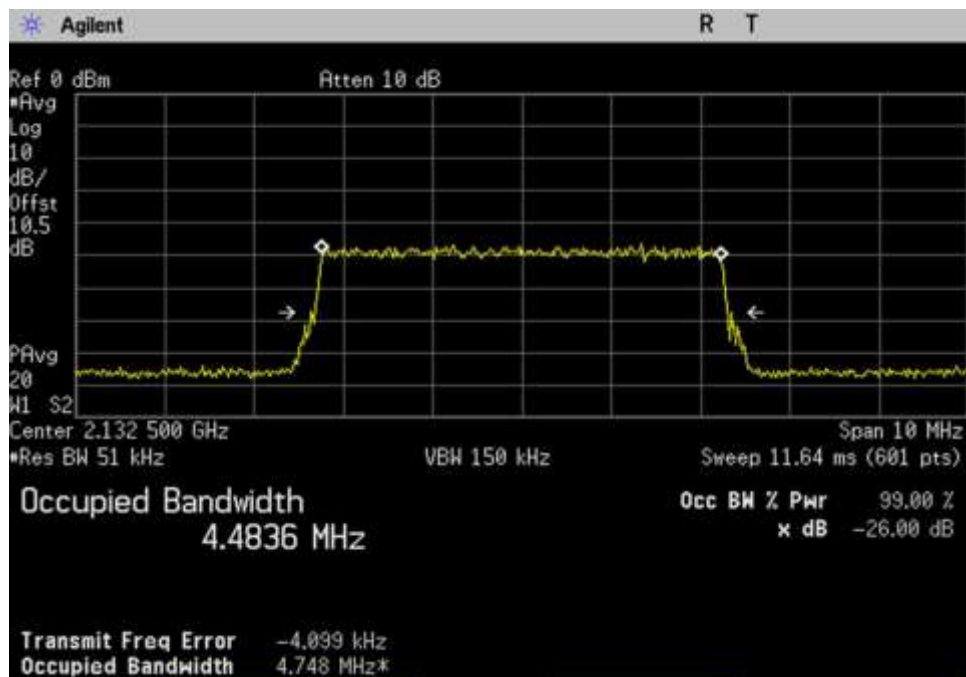
DL_746-757_LTE_751.5MHz



DL_869-894_LTE_881.5MHz

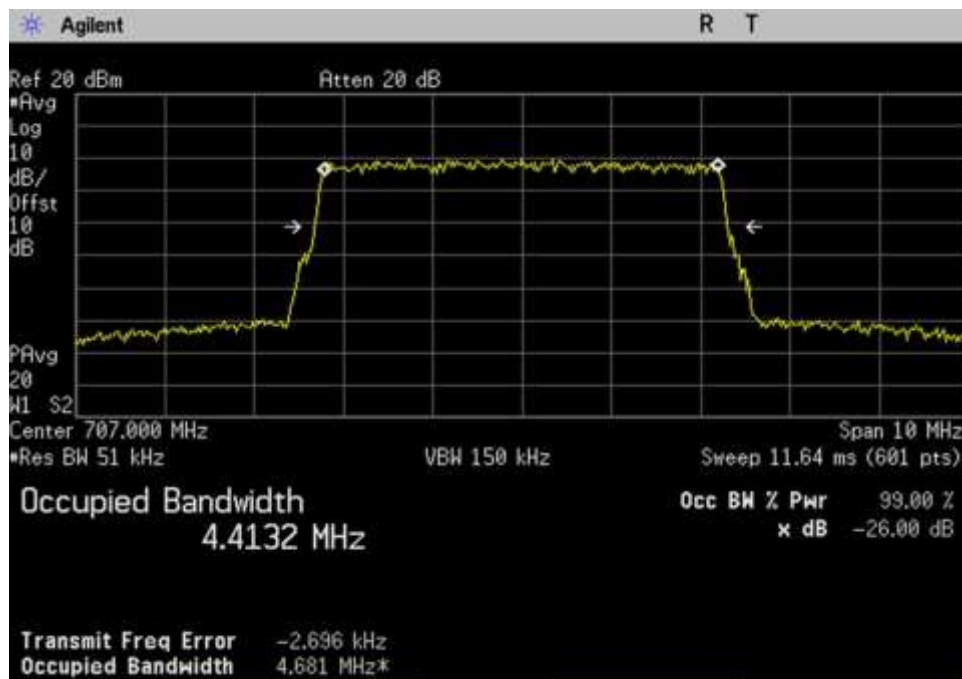


DL_1930-1995_LTE_ 1962.5MHz

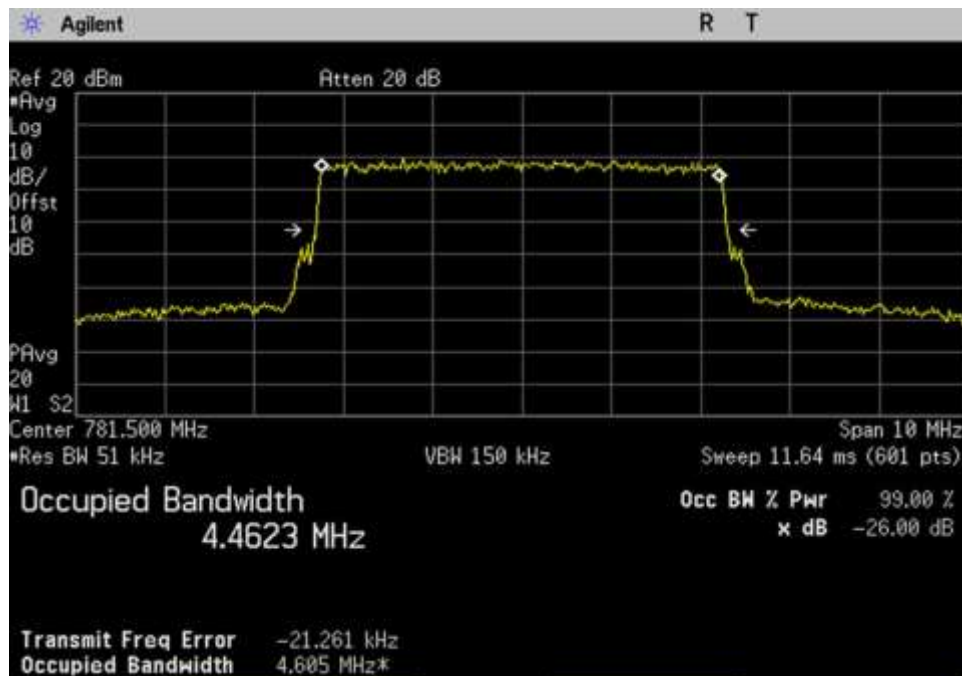


DL_2110-2155_LTE_ 2132.5MHz

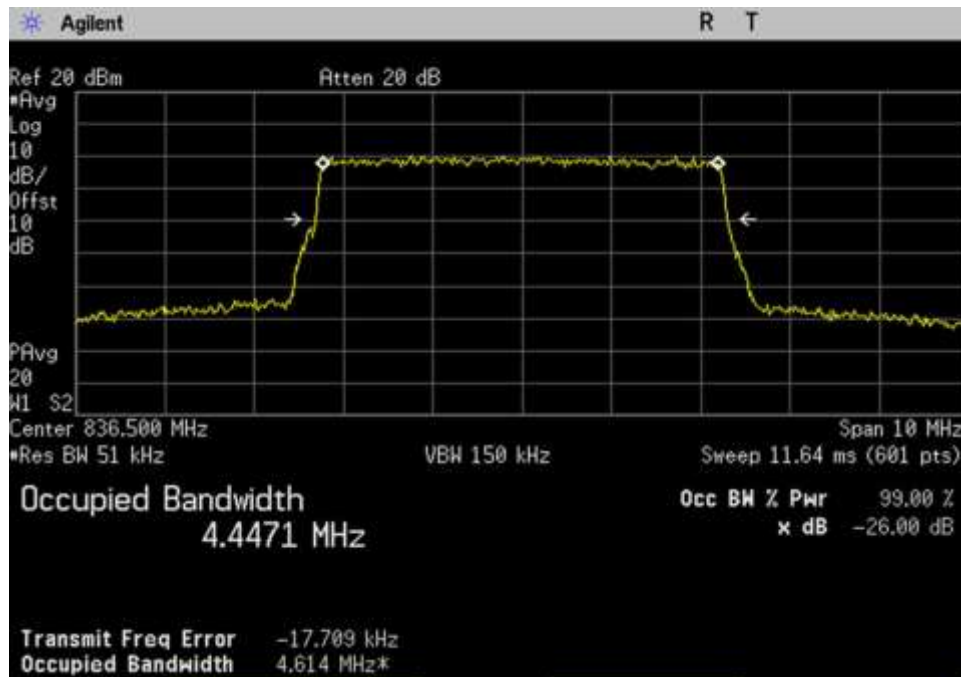
LTE Output



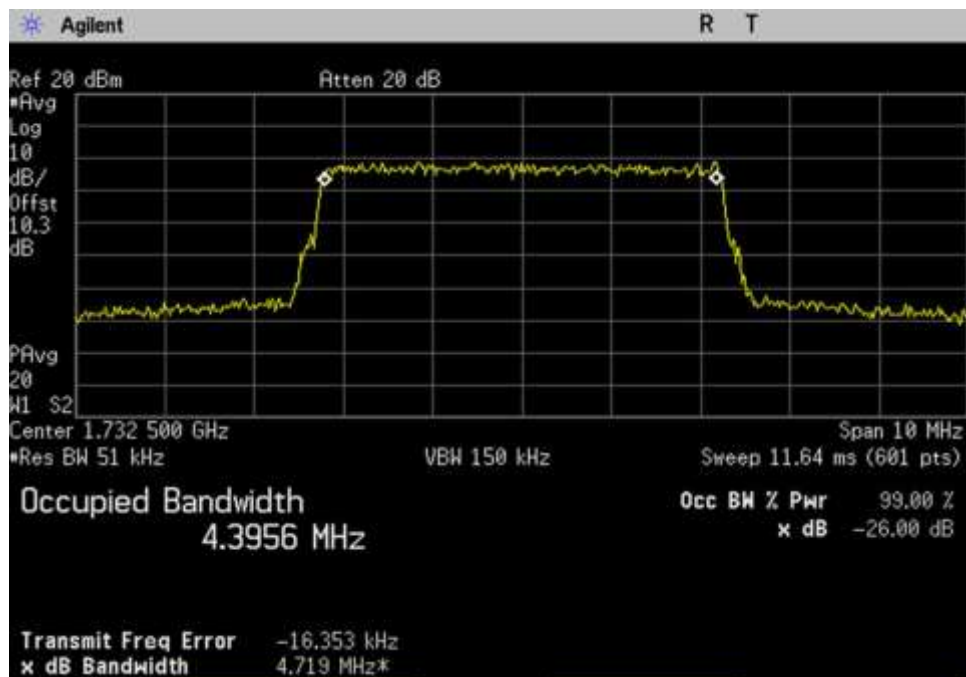
UL_698-716_LTE_ 707MHz



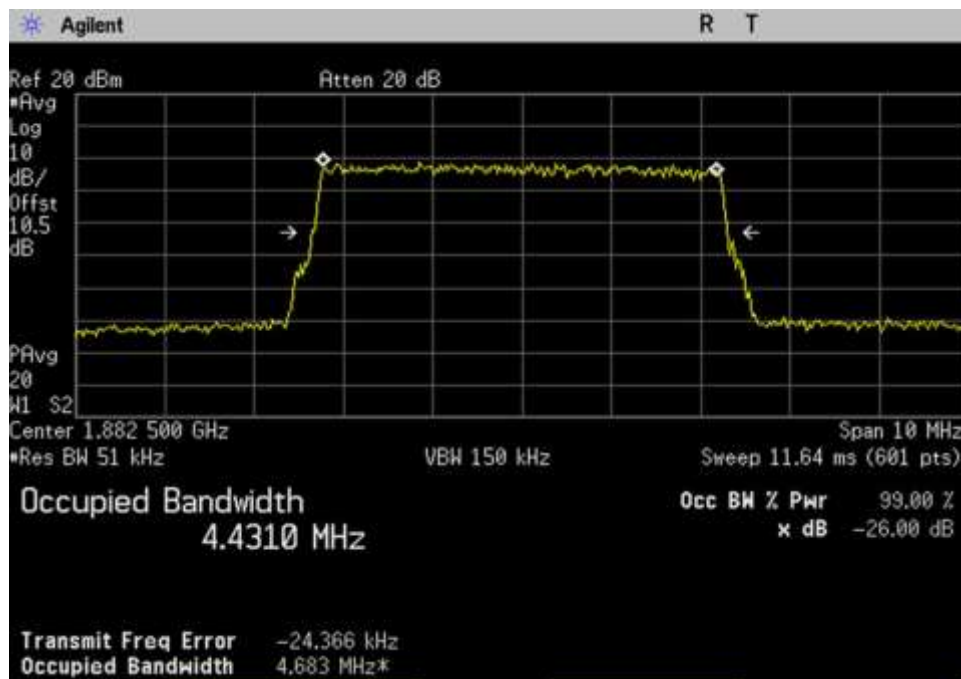
UL_776-787_LTE_ 781.5MHz



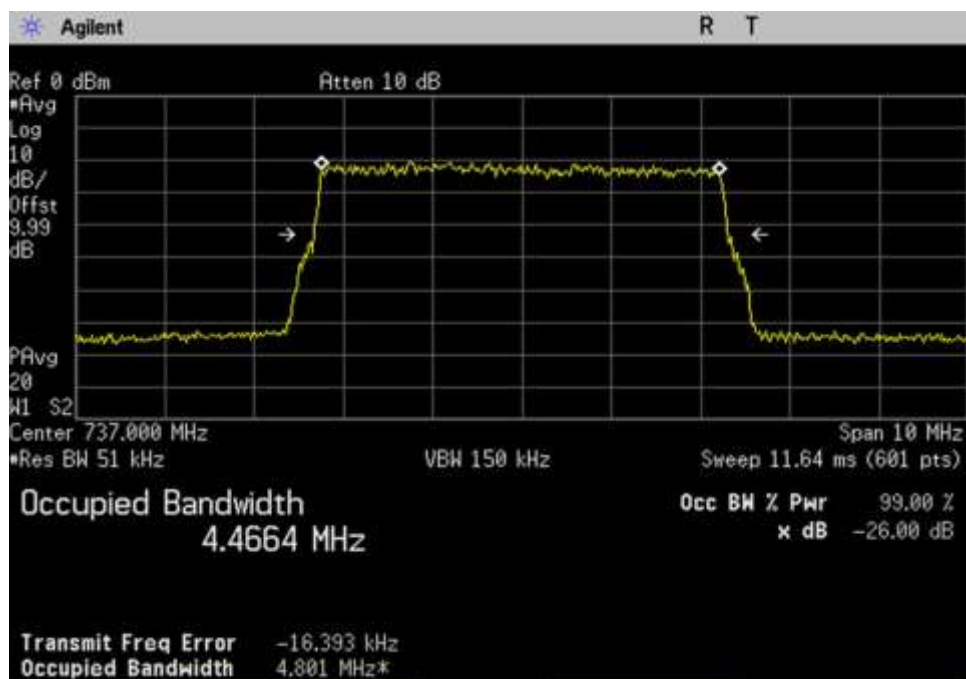
UL_824-849_LTE_836.5MHz



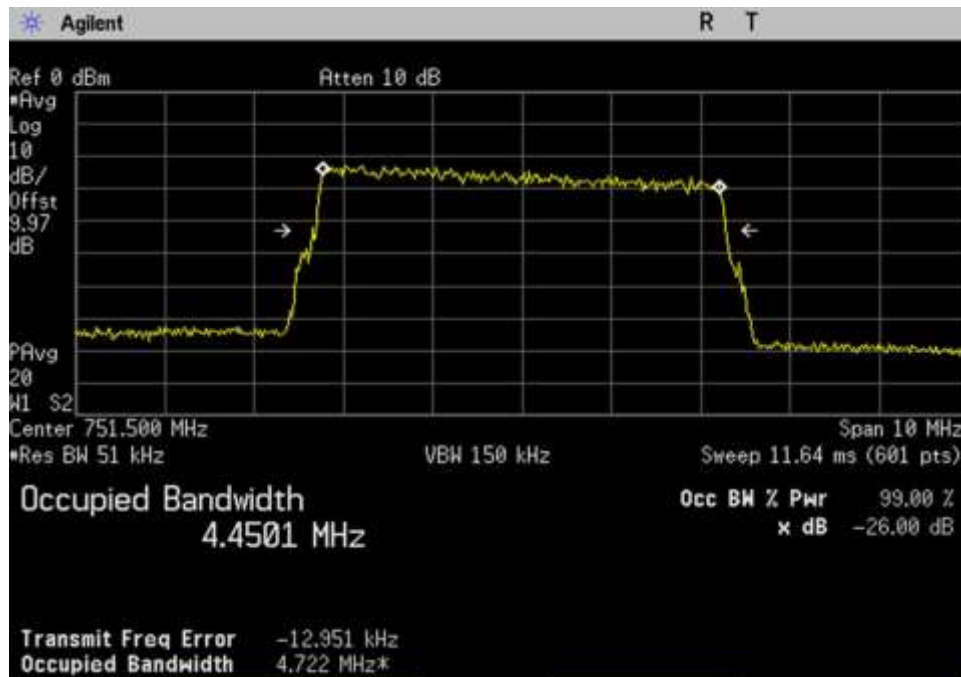
UL_1710-1755_LTE_1732.5MHz



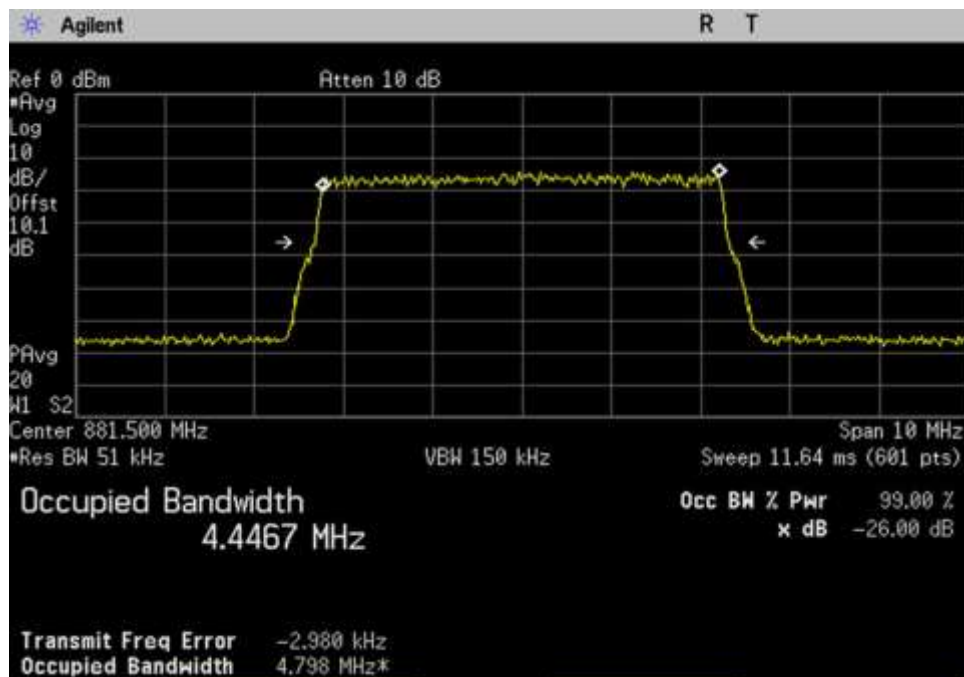
UL_1850-1915_LTE_ 1882.5MHz



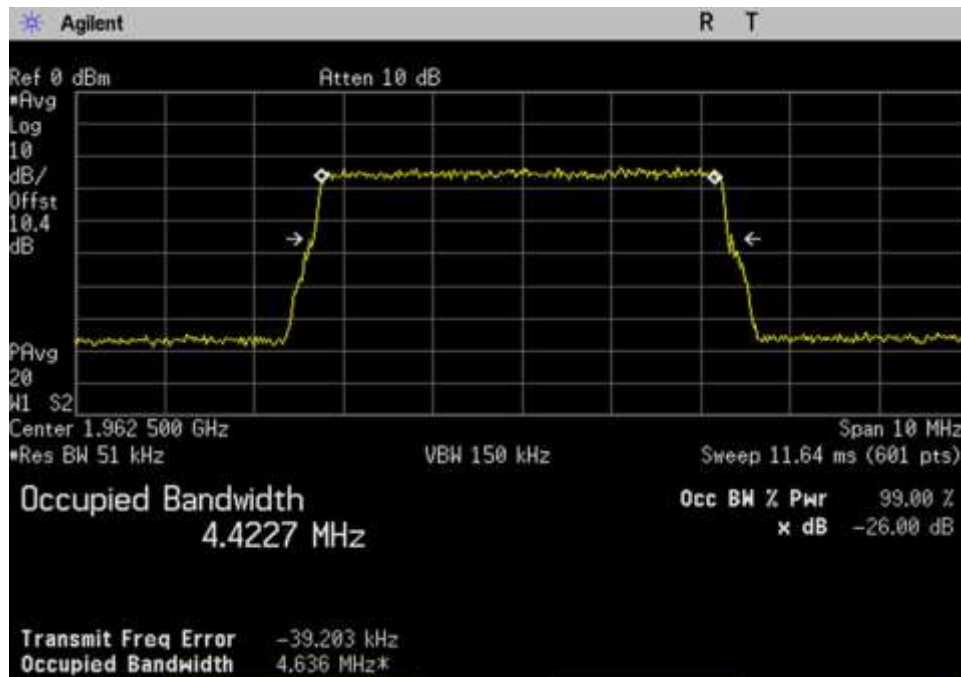
DL_728-746_LTE_ 737MHz



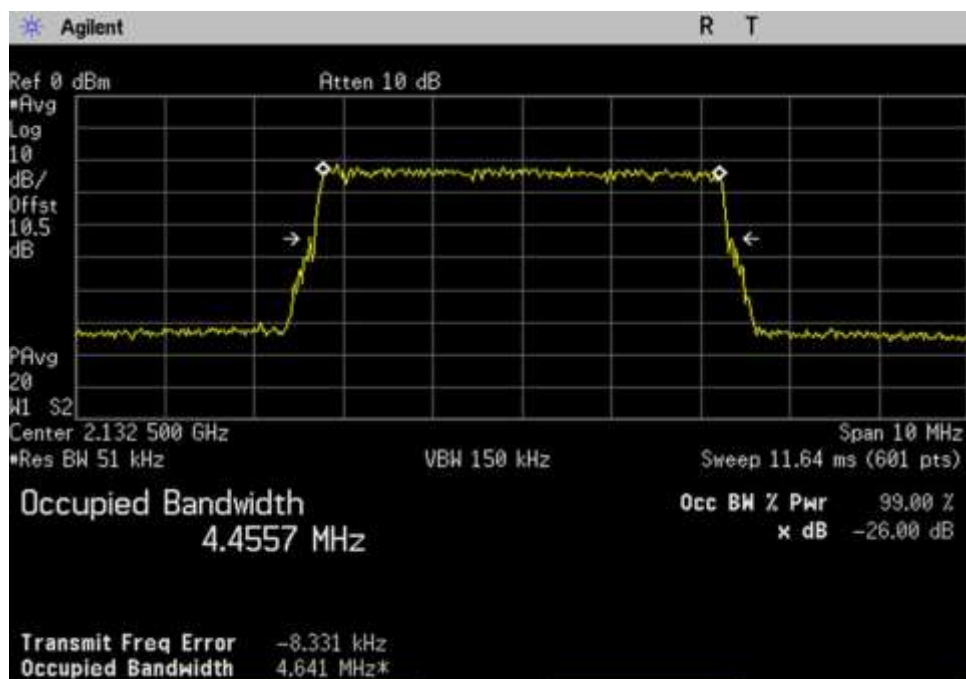
DL_746-757_LTE_751.5MHz



DL_869-894_LTE_881.5MHz

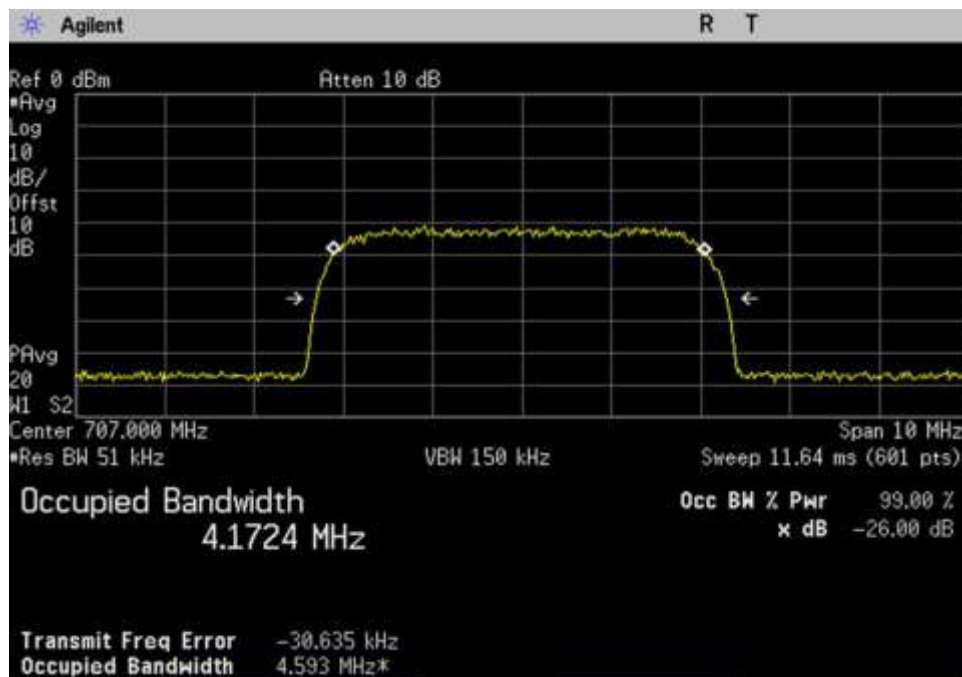


DL_1930-1995_LTE_ 1962.5MHz

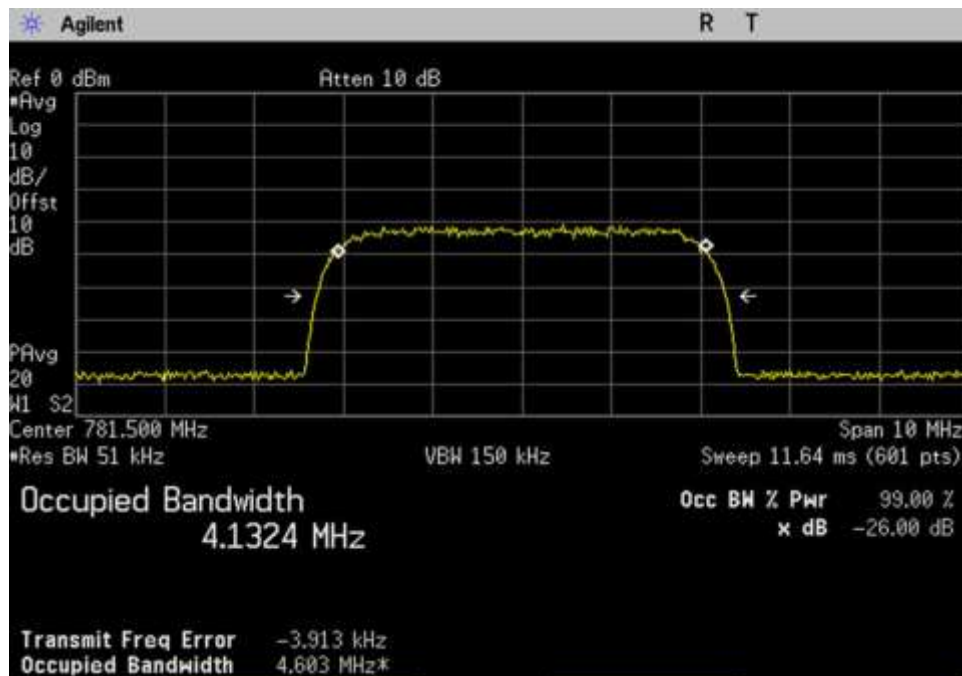


DL_2110-2155_LTE_ 2132.5MHz

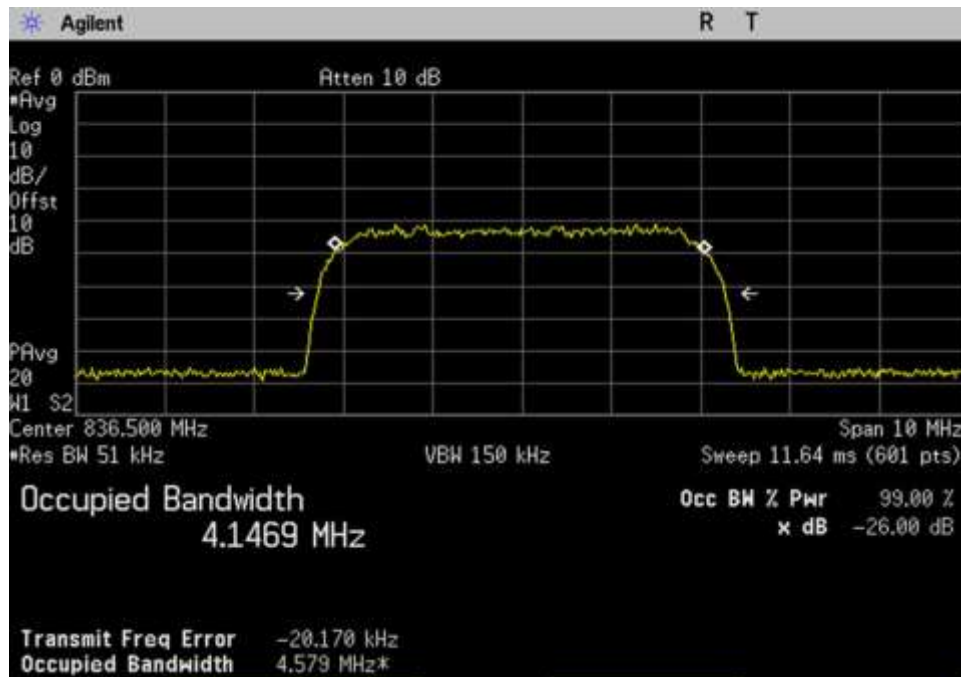
WCDMA Input



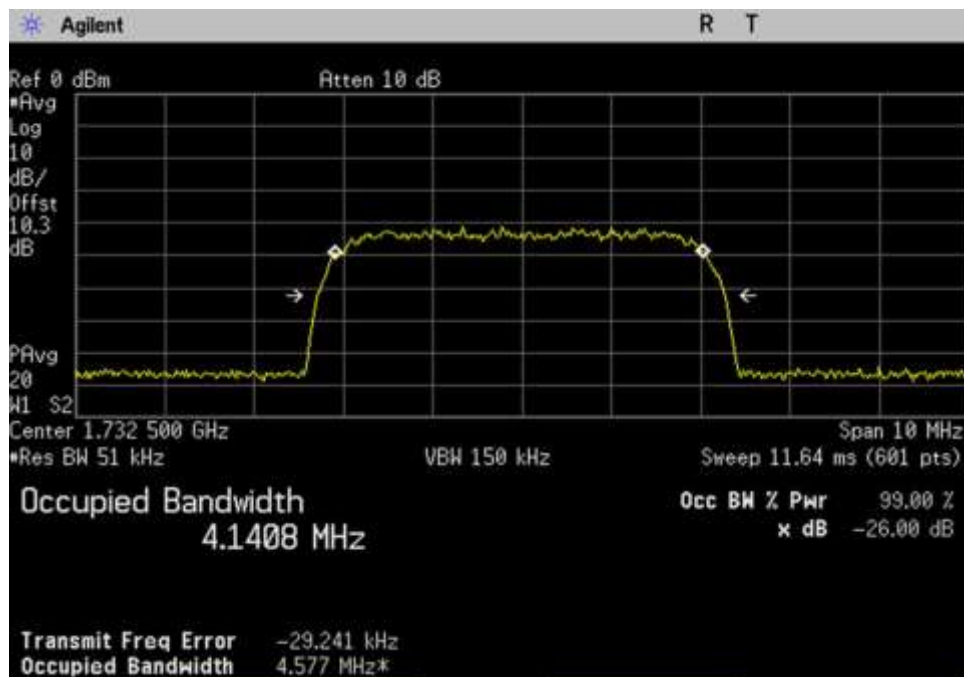
UL_698-716_WCDMA_707MHz



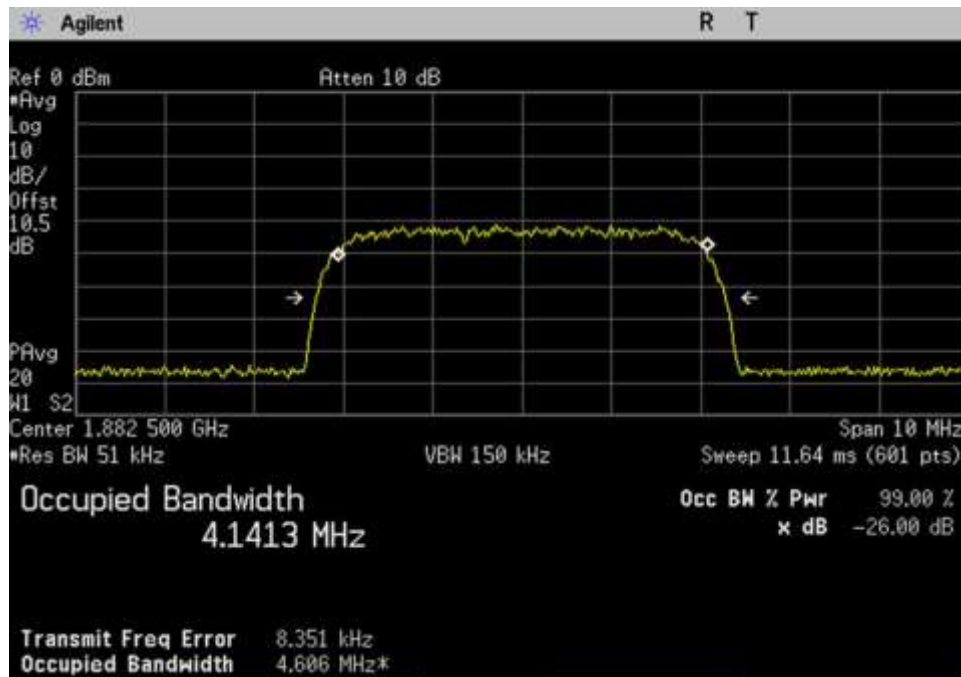
UL_776-787_WCDMA_781.5MHz



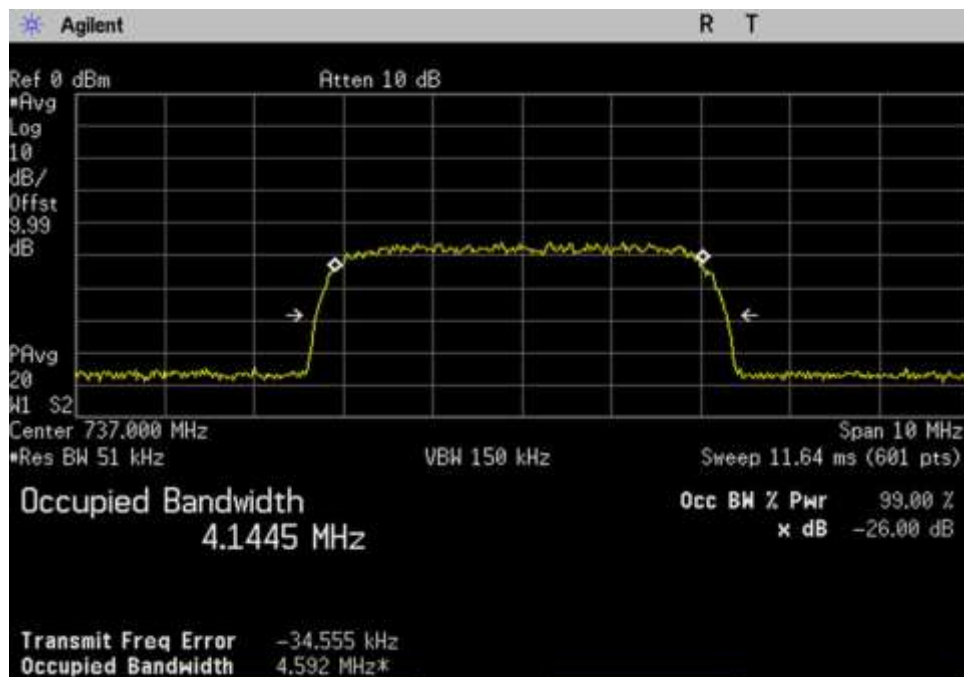
UL_824-849_WCDMA_836.5MHz



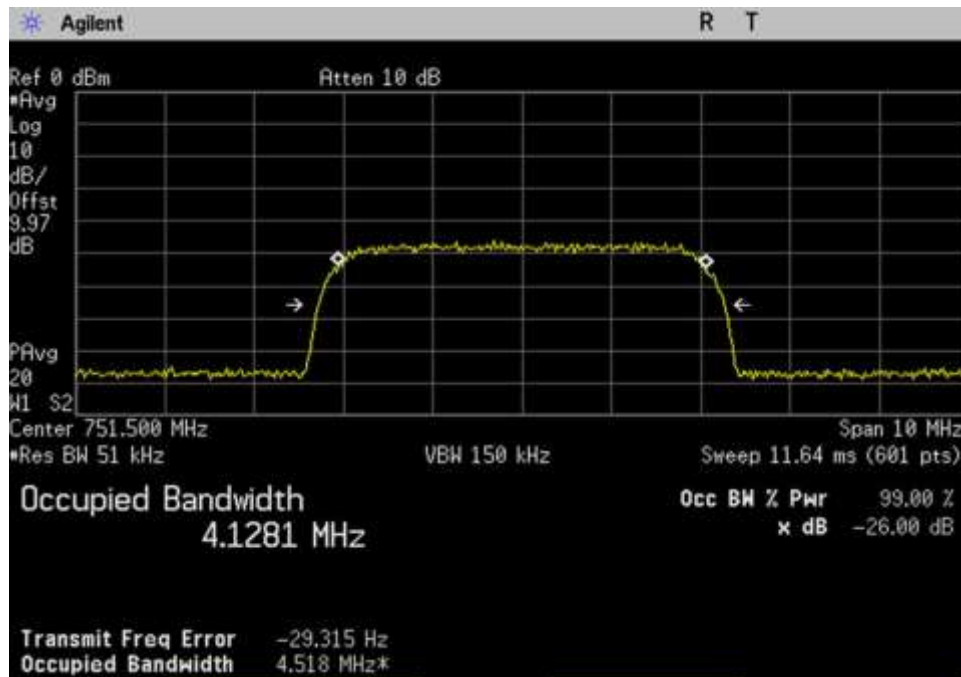
UL_1710-1755_WCDMA_1732.5MHz



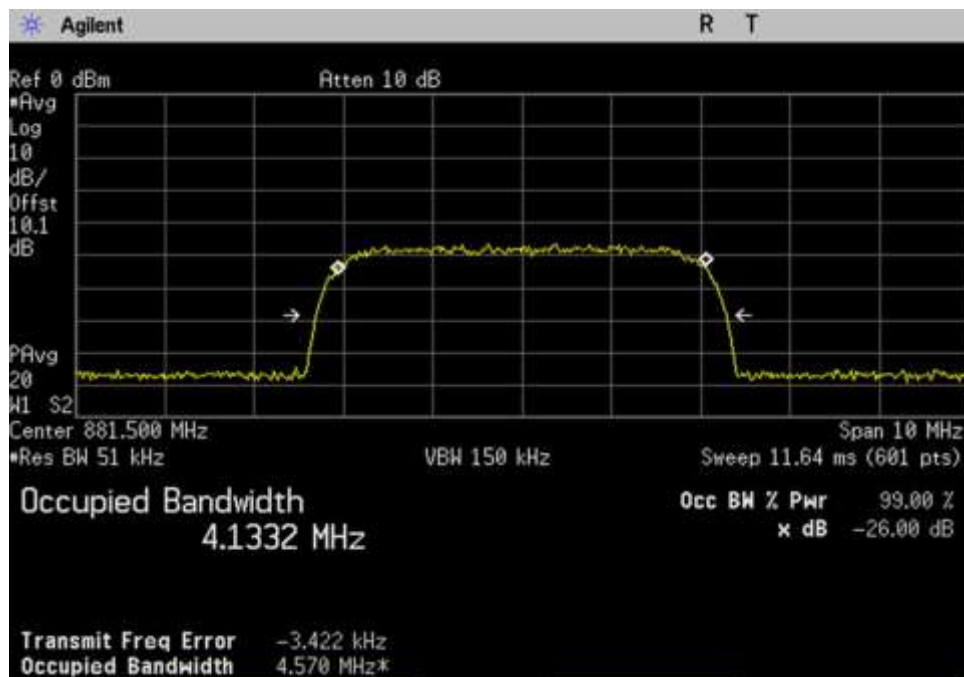
UL_1850-1915_WCDMA_1882.5MHz



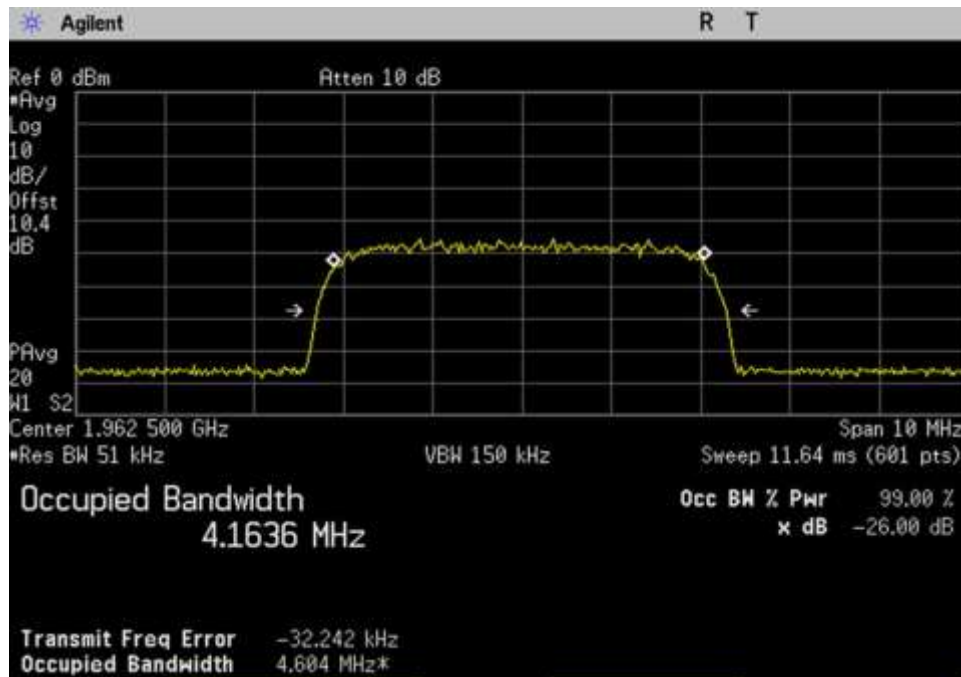
DL_728-746_WCDMA_737MHz



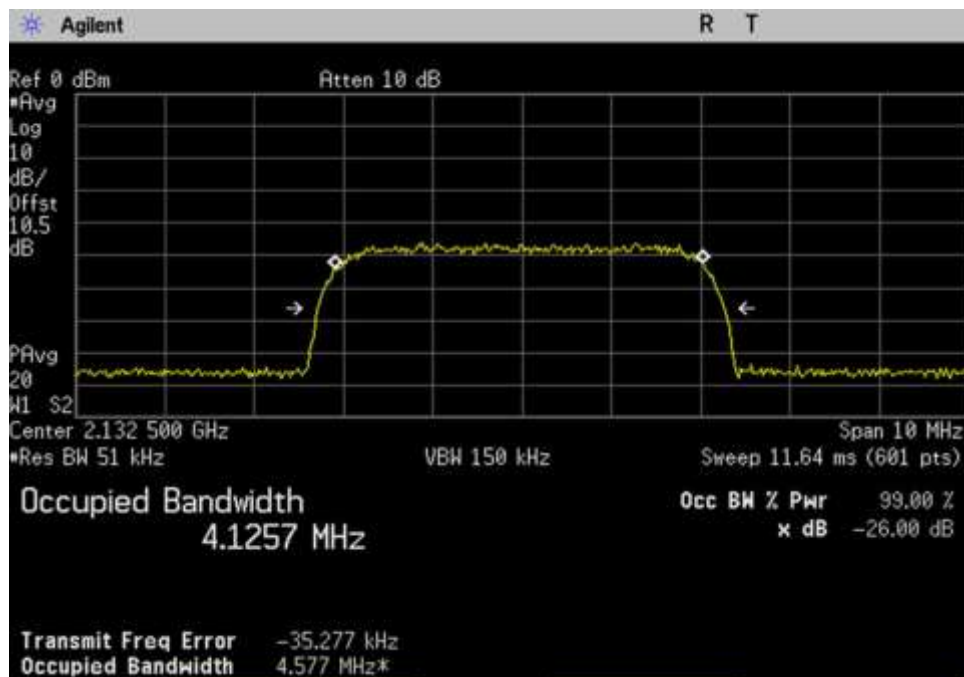
DL_746-757_WCDMA_751.5MHz



DL_869-894_WCDMA_881.5MHz

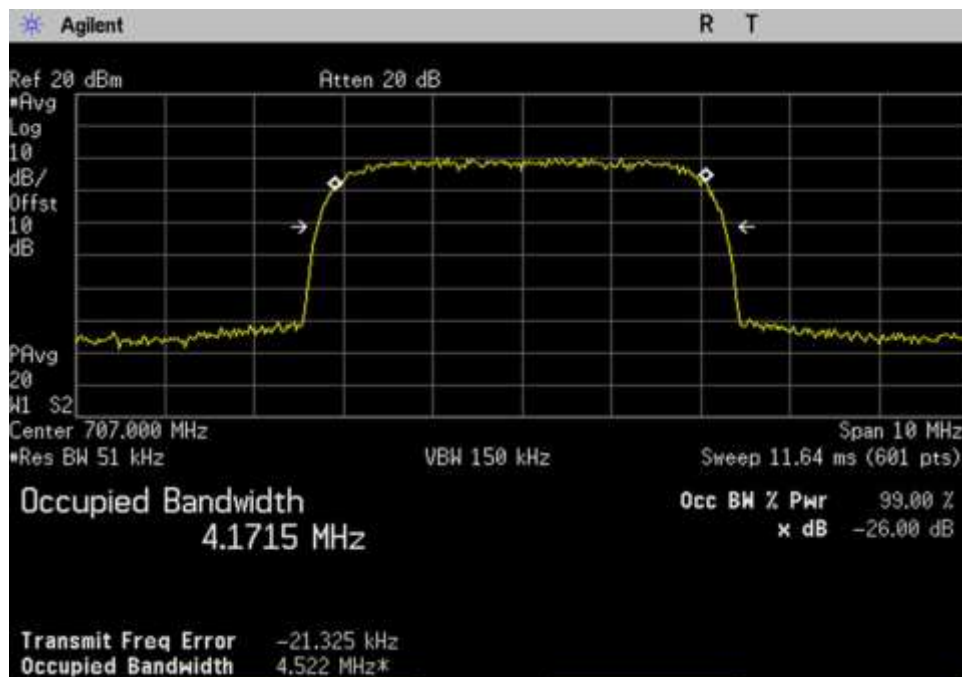


DL_1930-1995_WCDMA_ 1962.5MHz

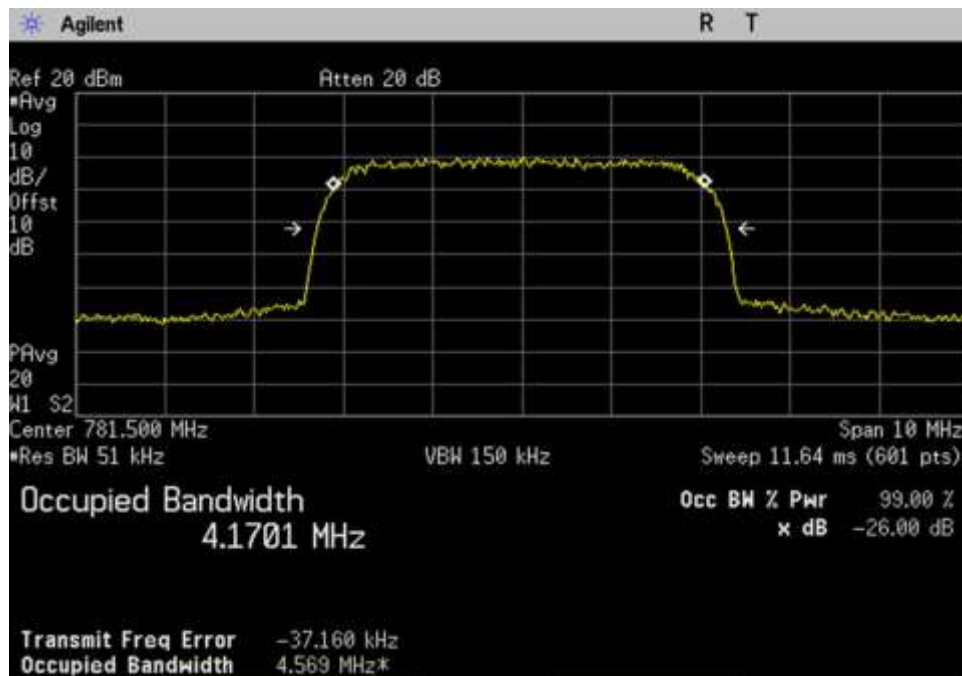


DL_2110-2155_WCDMA_ 2132.5MHz

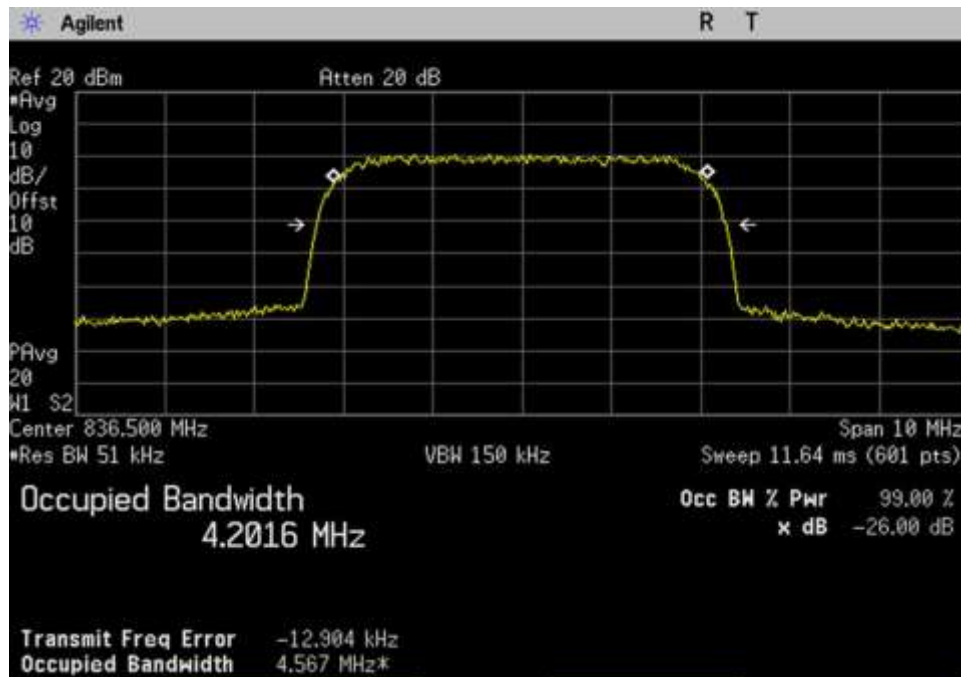
WCDMA Output



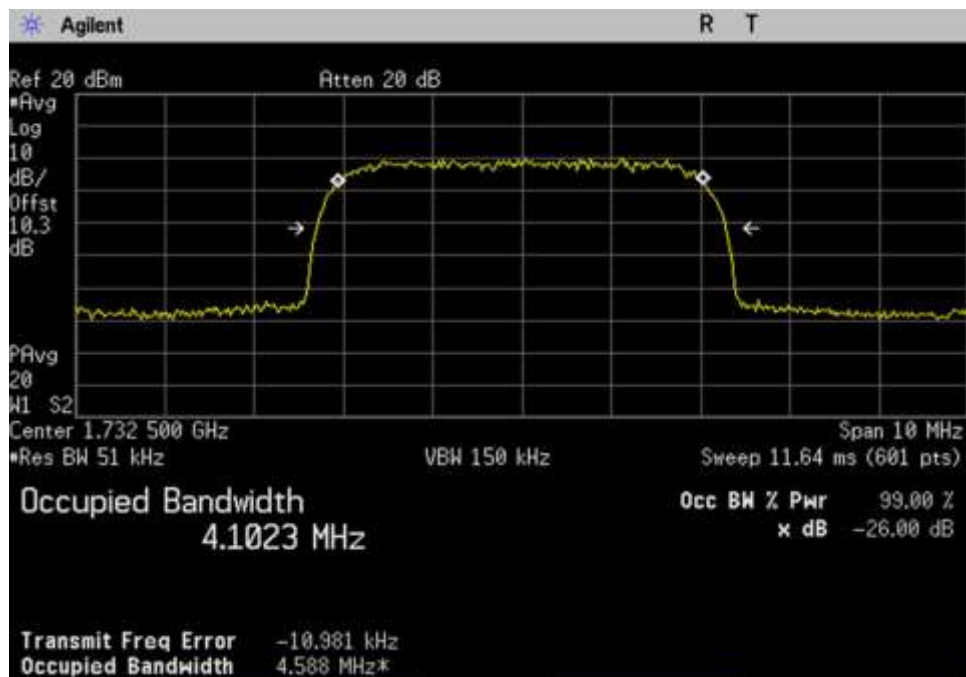
UL_698-716_WCDMA_707MHz



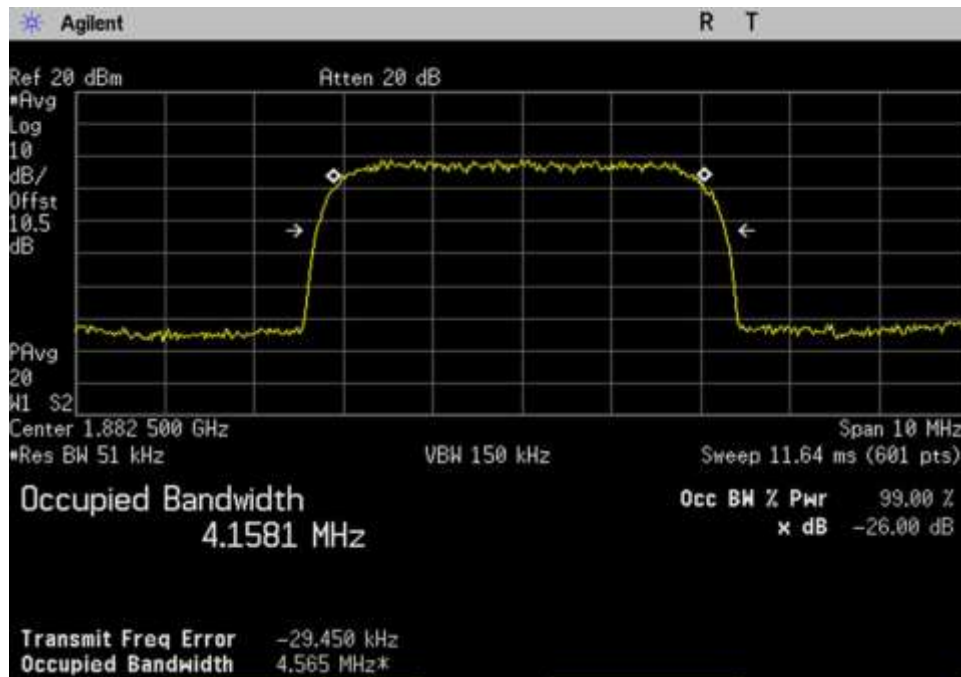
UL_776-787_WCDMA_781.5MHz



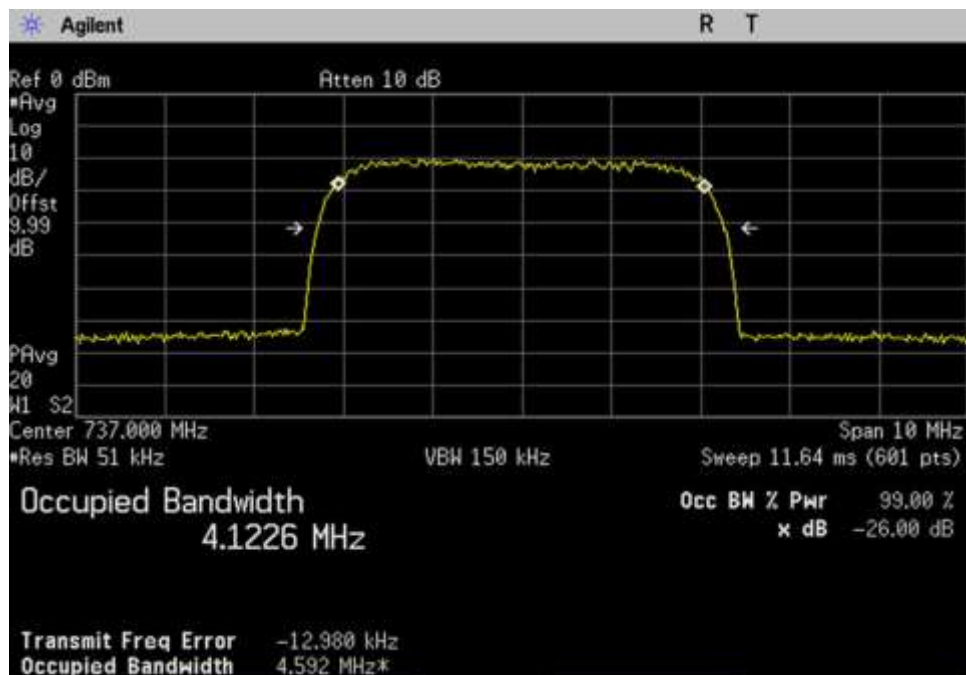
UL_824-849_WCDMA_836.5MHz



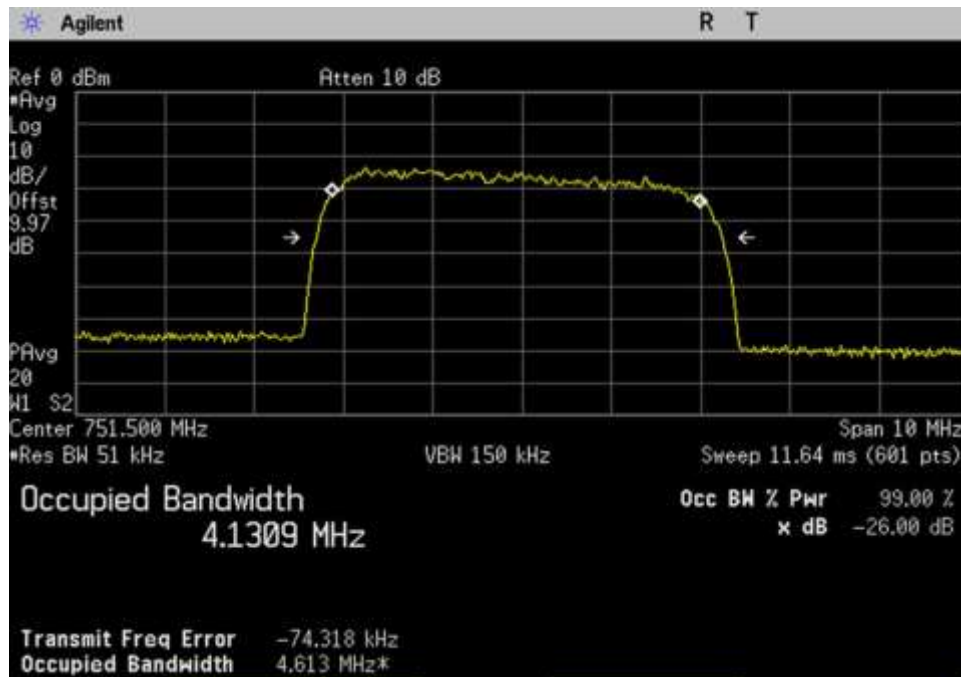
UL_1710-1755_WCDMA_1732.5MHz



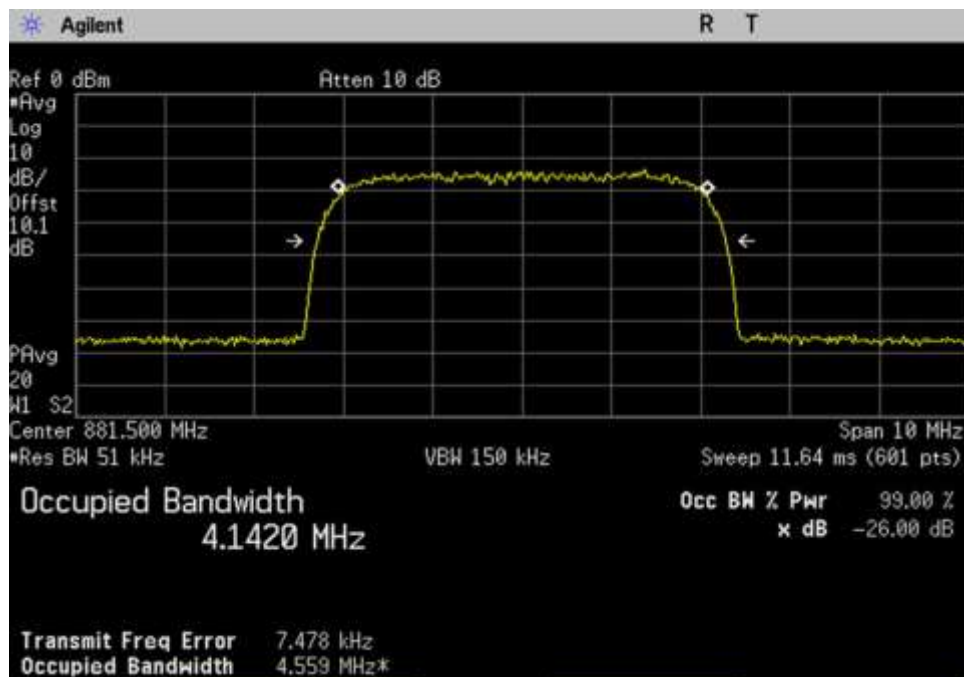
UL_1850-1915_WCDMA_1882.5MHz



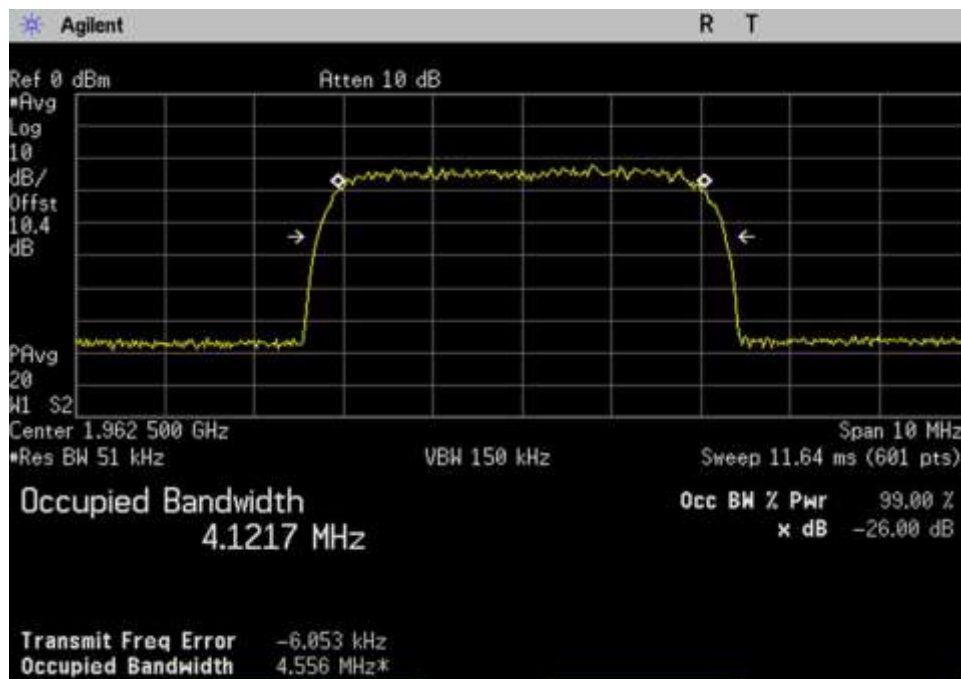
DL_728-746_WCDMA_737MHz



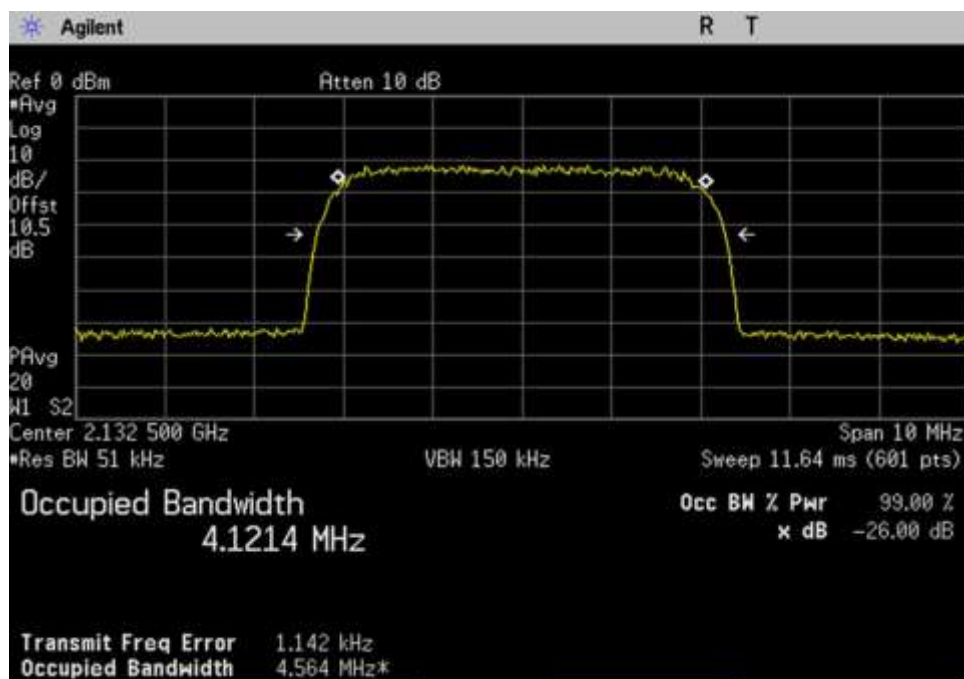
DL_746-757_WCDMA_751.5MHz



DL_869-894_WCDMA_881.5MHz



DL_1930-1995_WCDMA_1962.5MHz



DL_2110-2155_WCDMA_2132.5MHz

7.11 Oscillation Detection

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.11 Anti-Oscillation (Oscillation Restarts / Oscillation mitigation or shutdown)**
 Work Order #: **101623**
 Test Type: **Conducted Emissions** Date 08/23/18 and 08/24/18
 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:

08/23/18: Test environment conditions:

Temperature: 21.9°C
 Relative Humidity: 46.9%
 Pressure: 100.8kPa

08/24/18: Test environment conditions:

Temperature: 22.6°C
 Relative Humidity: 45.7%
 Pressure: 102.0kPa

Note: UL1850-1915MHz -AWGNL+5:

- AWGNL denotes a 4.1MHz AWGN signal (99% occupied bandwidth) tuned to the frequency of 2.5 MHz above the lower edge of the operating band 1850-1915MHz
 - +5 denotes a variable attenuator adjusted such that the insertion loss for center of band under test (isolation) between the booster's donor and server ports is 5 dB greater than the maximum gain, as recorded in the maximum gain test procedure, for the band under test.

Test Equipment:

Asset #	Description	Manufacturer	Model	Calibration Date	Cal Due Date
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
P06904	Cable	Astrolab	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
C00082	Directional Coupler	MECA Electronics, Inc.	722-10-1.500V	9/18/2017	9/18/2019
03412	Band Pass Filter	Pasternack	PE8705	8/16/2017	8/16/2019
03413	Band Pass Filter	Pasternack	PE8706	8/16/2017	8/16/2019
03414	Band Pass Filter	Pasternack	PE8707	8/16/2017	8/16/2019
03415	Band Pass Filter	Pasternack	PE8708	8/16/2017	8/16/2019
03447	Band Pass Filter	Pasternack	PE8710	8/16/2017	8/16/2019
03448	Band Pass Filter	Pasternack	PE8711	8/16/2017	8/16/2019
03446	Band Pass Filter	K & L	4FV50-707/H18-O/O	8/16/2017	8/16/2019
03467	High Pass Filter	K & L	4FV50-731/H30-O/O	8/16/2017	8/16/2019
03468	High Pass Filter	K & L	4CS10-781.5/E12.2-O/O	8/16/2017	8/16/2019
03469	High Pass Filter	K & L	4CS10-751.5/E12-O/O	8/16/2017	8/16/2019
02475	Attenuator	HP	8494B	6/8/2017	6/8/2019
03429	Attenuator	HP	8496B	11/8/2017	11/8/2019

Summary of Results

Pass: All oscillations detections and mitigations occur within 0.3 seconds in uplink bands, within 1 second in the downlink bands and the noise level is below the -70dBm/MHz limit.

7.11.2 Oscillation restart tests

Oscillation detection				Time Between restart		Number of restart	
Frequency MHz	Measured Sec	Limit Sec	Peak Level dBm	Measured Sec	Limit At least sec	Measured	Limit
UL1710-1755	0.291	0.3	27.7	69	60	1	5
UL1850-1915	0.217	0.3	25.0	67	60	1	5
UL824-894	0.283	0.3	30.8	68	60	1	5
UL 698-716	0.167	0.3	30.9	68	60	1	5
UL776-787	0.175	0.3	30.4	69	60	1	5
DL2110-2155	0.275	1.0	14.3	69	60	1	5
DL1930-1995	0.167	1.0	4.2	70	60	1	5
DL869-894	0.183	1.0	7.6	69	60	1	5
DL:728-746	0.200	1.0	17.4	68	60	1	5
DL 746-757	0.167	1.0	17.8	69	60	1	5

The booster continues to mitigate at least 1 minute before restarting. The plots demonstrate after 1 restart (the limit is 5 restart), the booster does not resume operation until manually reset.

7.11.3 Test procedure for measuring oscillation mitigation or shutdown

Max Gain Isolation dB	UL 1710-1755	UL1850-1915	UL 824-894	UL 698-716	UL 776-787	Limit dB
	Pk-Pk Difference dB	Pk-Pk Difference dB	Pk-Pk Difference dB	Pk-Pk Difference dB	Pk-Pk Difference dB	
+5dB	(13.1) *	10.8	(12.3) *	(12.2)*	10.1	12.0
+4dB	(16.1) *	(13.2) *	(15.1) *	(13.6)*	11.8	12.0
+3dB	(20.5) *	(15.4) *	(16.7) *	(16.8)*	(12.5)*	12.0
+2dB	(25.6) *	(19.1) *	(19.5) *	(20.1)*	(15.1)*	12.0
+1dB	(53.9) *	(25.1) *	(25.1) *	(27.5)*	(18.7)*	12.0
0dB	**	(41.1) *	(48.1) *	**	(24.3)*	12.0
-1dB	**	**	**	**	(83.1)*	12.0
-2dB	**	**	**	**	**	12.0
-3dB	**	**	**	**	**	12.0
-4dB	**	**	**	**	**	12.0
-5dB	**	**	**	**	**	12.0

Max Gain Isolation dB	DL 2110-2155	DL 1930-1995	DL 869-894	DL 728-746	DL 746-775	Limit dB
	Pk-Pk Difference dB	Pk-Pk Difference dB	Pk-Pk Difference dB	Pk-Pk Difference dB	Pk-Pk Difference dB	
+5dB	(12.4) *	(12.2) *	(15.1) *	11.1	11.4	12.0
+4dB	(14.5) *	(16.5) *	(17.9) *	(12.9)*	(13.4)*	12.0
+3dB	(21.6) *	(19.5) *	(22.2) *	(17.5)*	(15.3)*	12.0
+2dB	(22.1) *	(24.8) *	(31.1) *	(22.1)*	(18.6)*	12.0
+1dB	(31.1) *	**	**	(29.1)*	(22.7)*	12.0
0dB	**	**	**	**	(33.8)*	12.0
-1dB	**	**	**	**	**	12.0
-2dB	**	**	**	**	**	12.0
-3dB	**	**	**	**	**	12.0
-4dB	**	**	**	**	**	12.0
-5dB	**	**	**	**	**	12.0

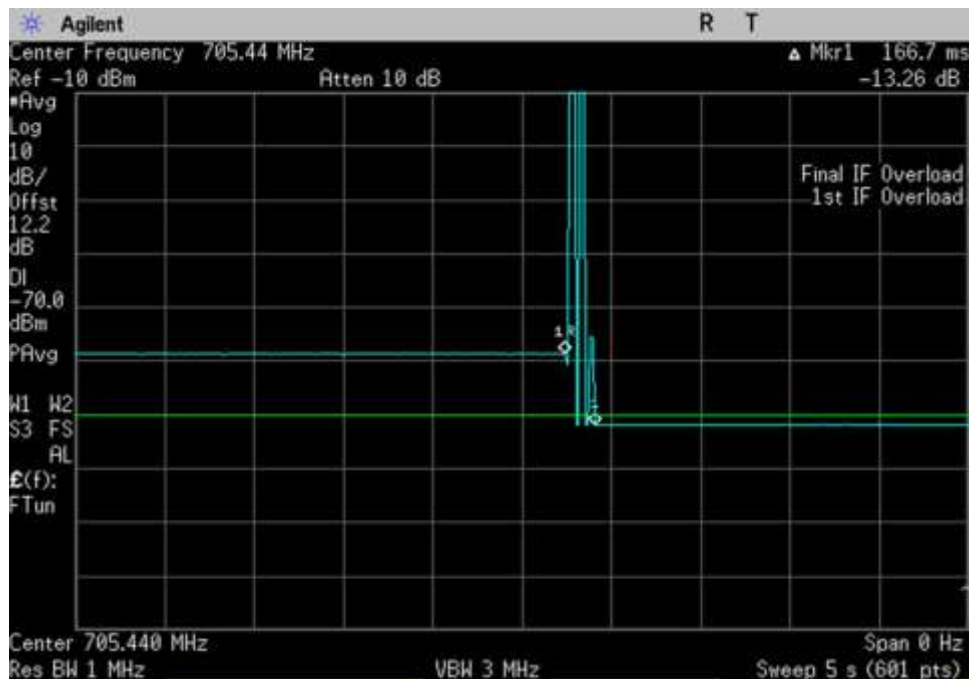
Note:

* The measured difference exceeds the limit for a period of less than 300 second before device mitigates or shuts down. The maximum recorded time prior to shutdown was 195 seconds for the Uplink bands and 196 seconds for the Downlink bands.

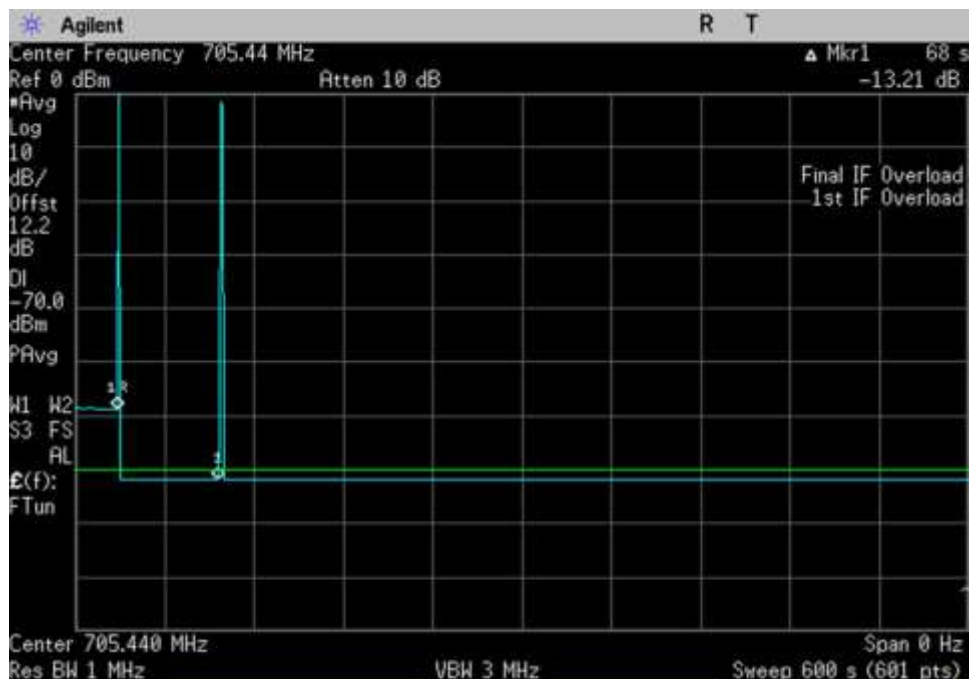
** The device shuts down immediately.

7.11.2 Oscillation Restart Tests

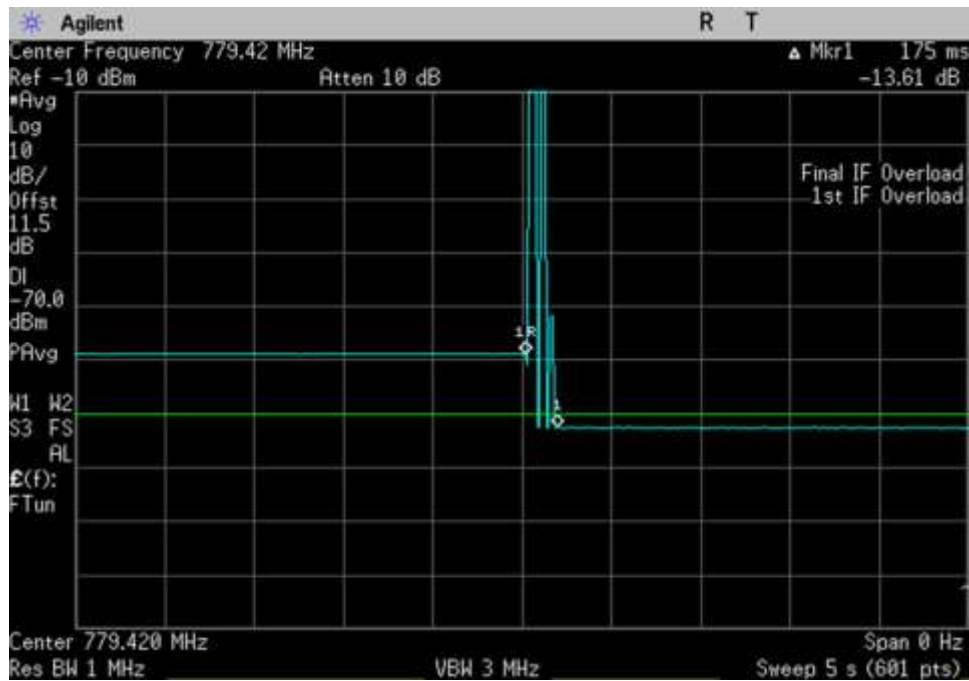
Plots



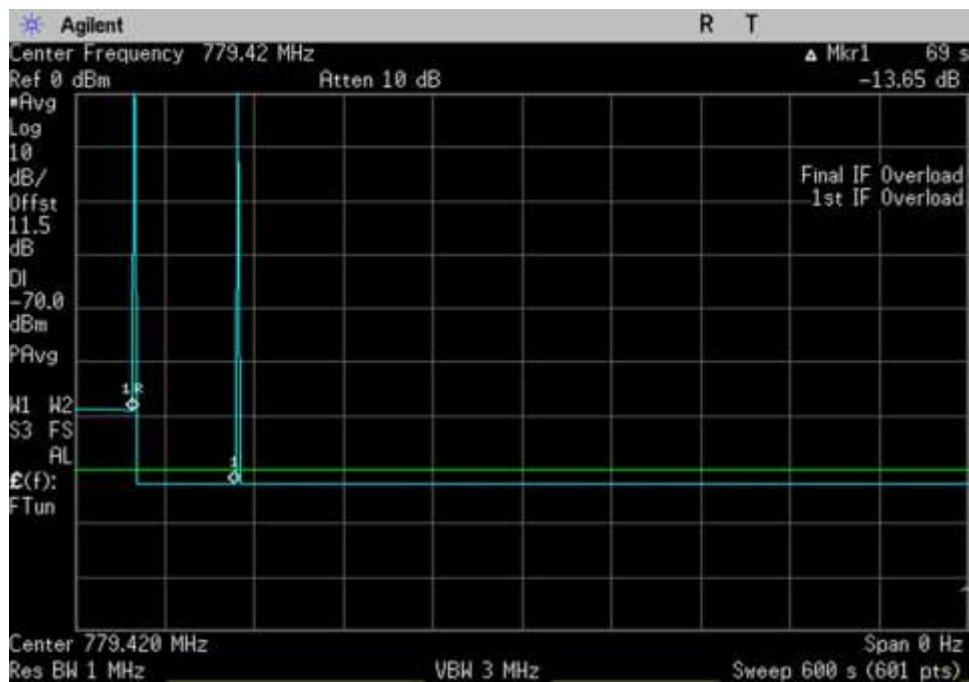
UL_698-716_ 705.44MHz



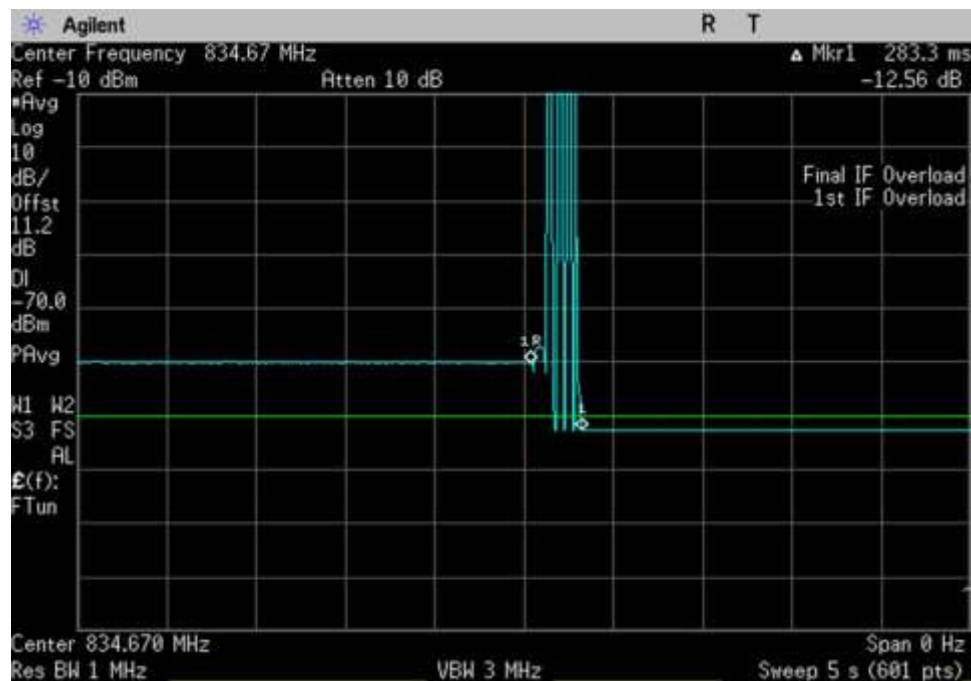
UL_698-716_600sec_ 705.44MHz



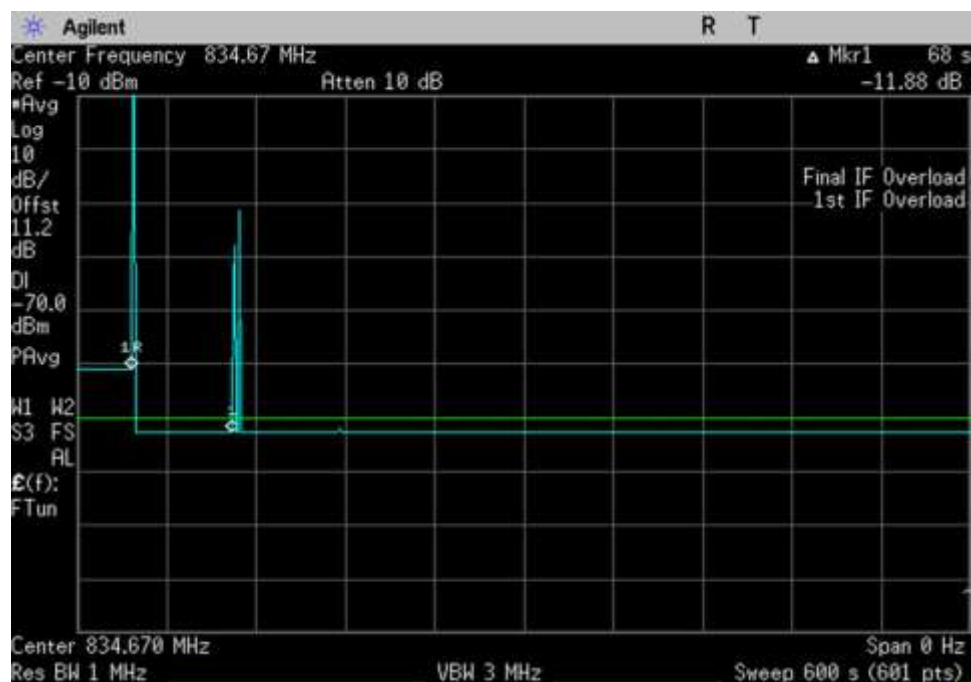
UL_776-787_779.42MHz



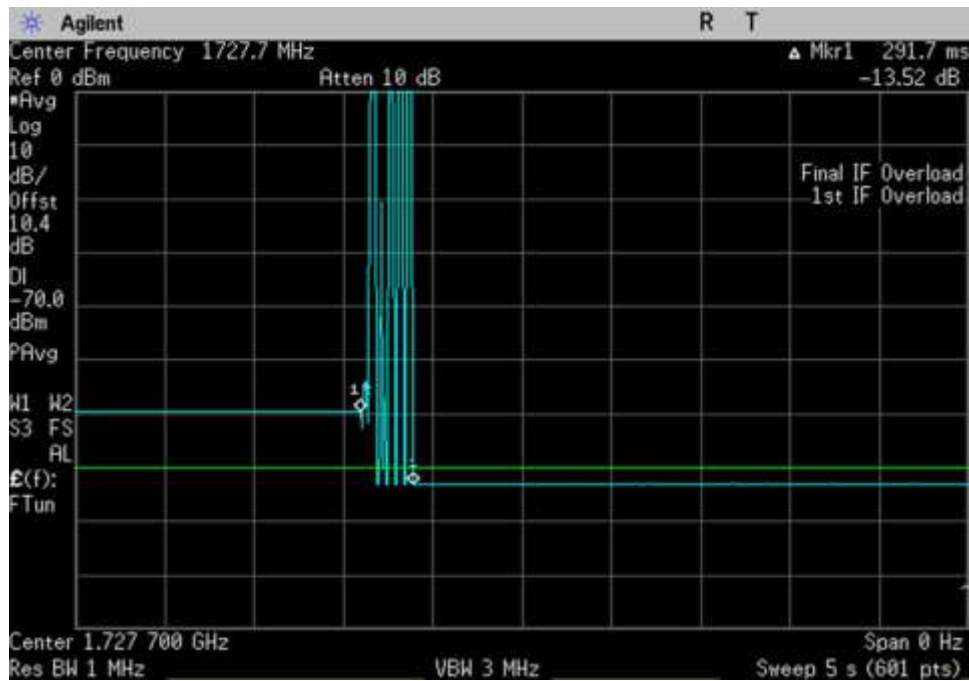
UL_776-787_600sec_779.42MHz



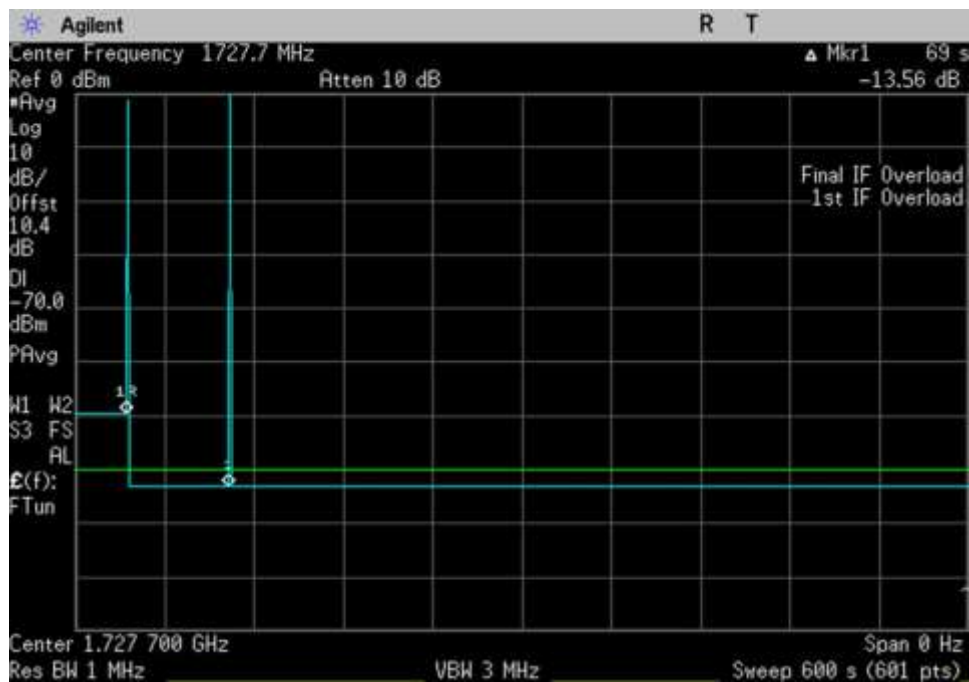
UL_824-849_ 834.67MHz



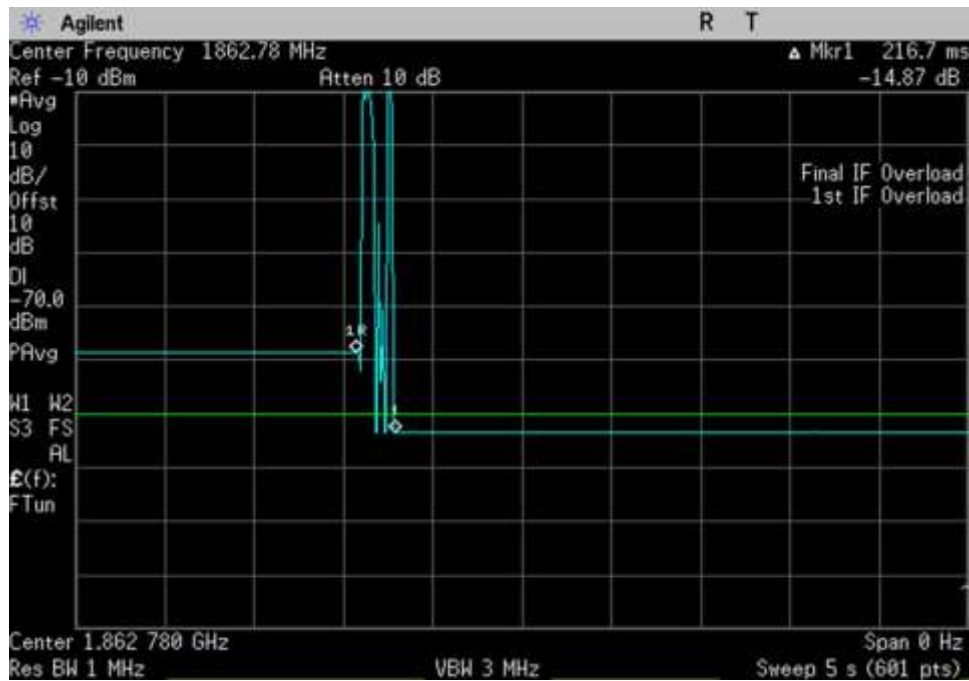
UL_824-849_600sec_ 834.67MHz



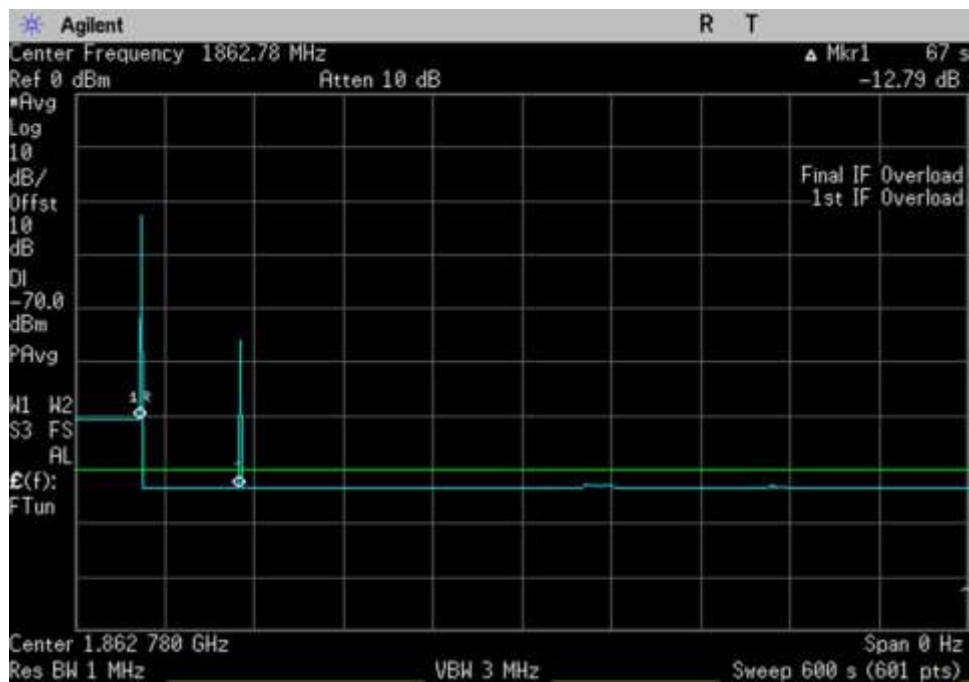
UL_1710-1755_ 1727.7MHz



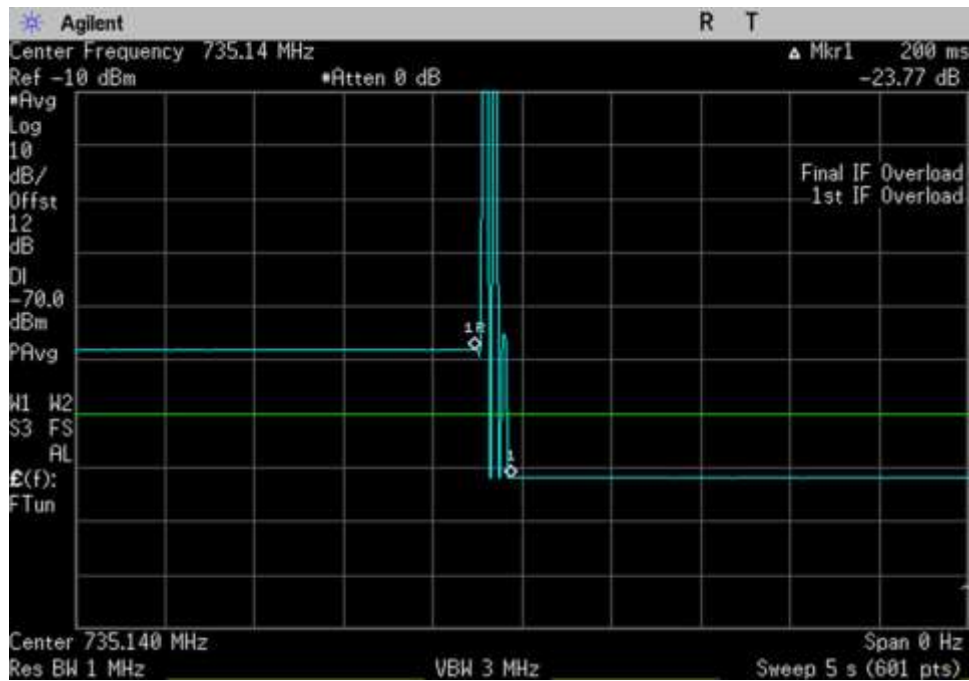
UL_1710-1755_600sec_ 1727.7MHz



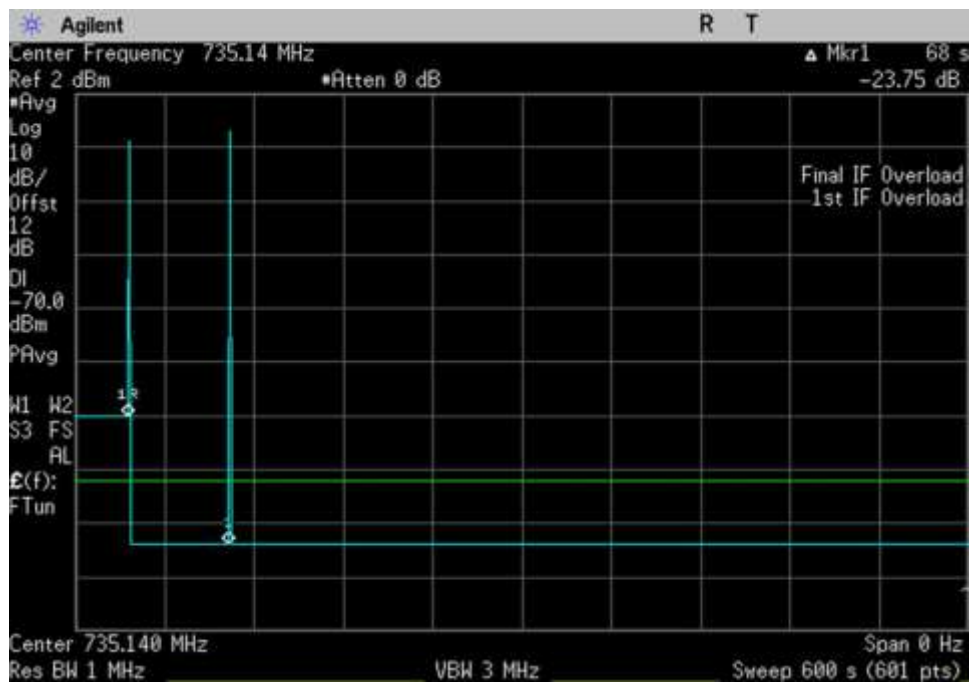
UL_1850-1915_ 1862.78MHz



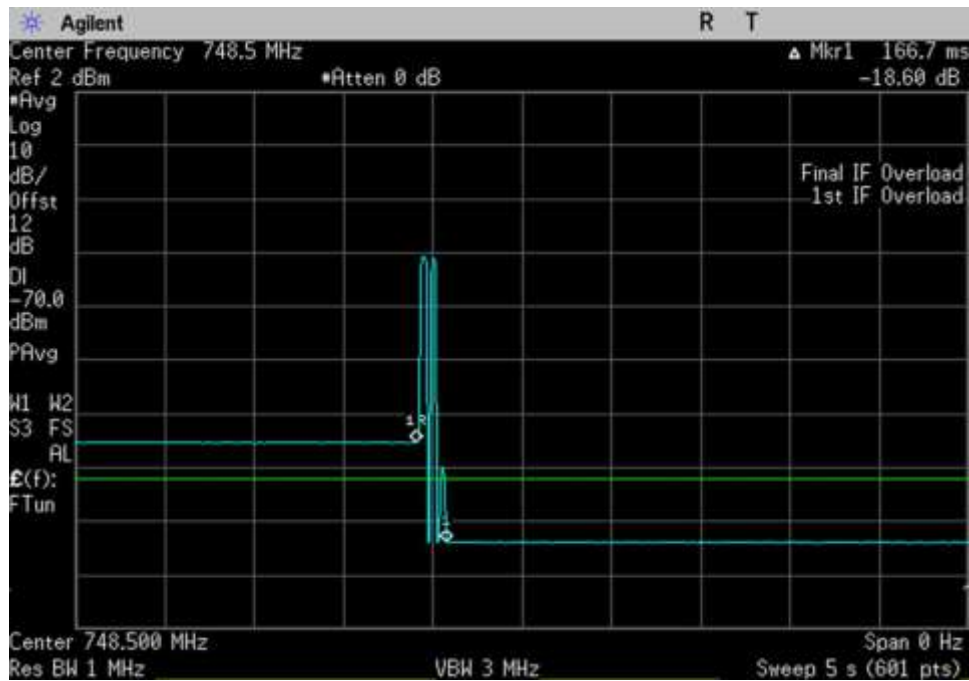
UL_1850-1915_600sec_ 1862.78MHz



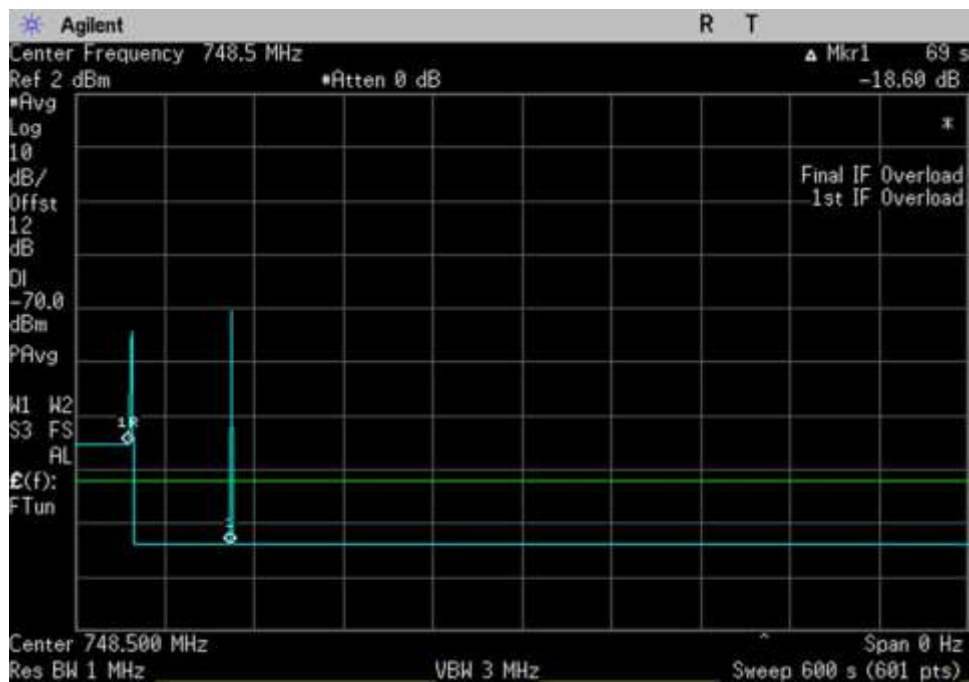
DL_728-746_ 735.14MHz



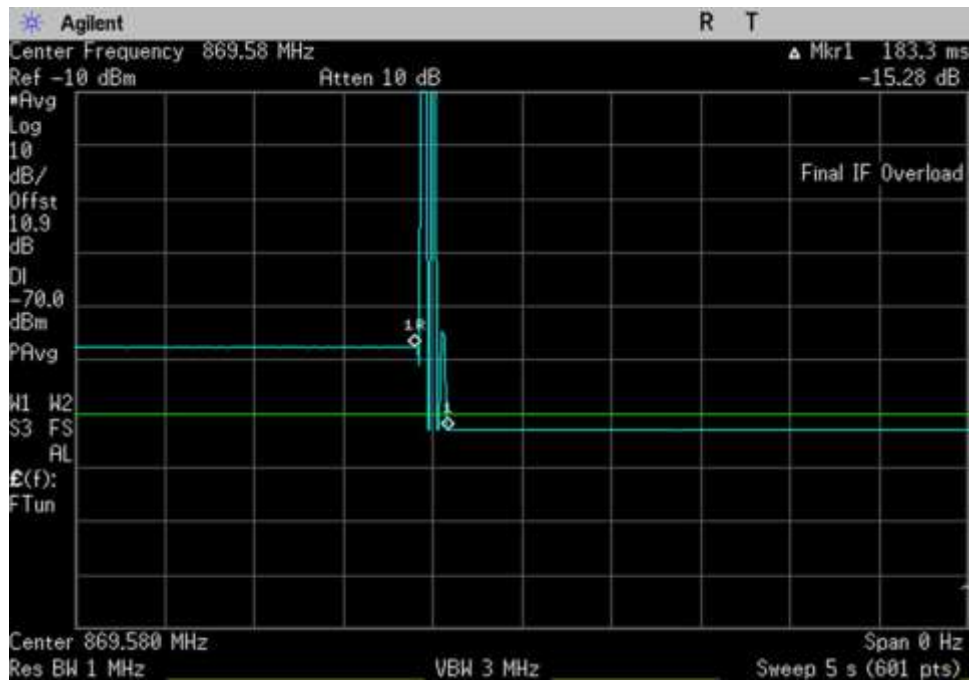
DL_728-746_600sec_ 735.14MHz



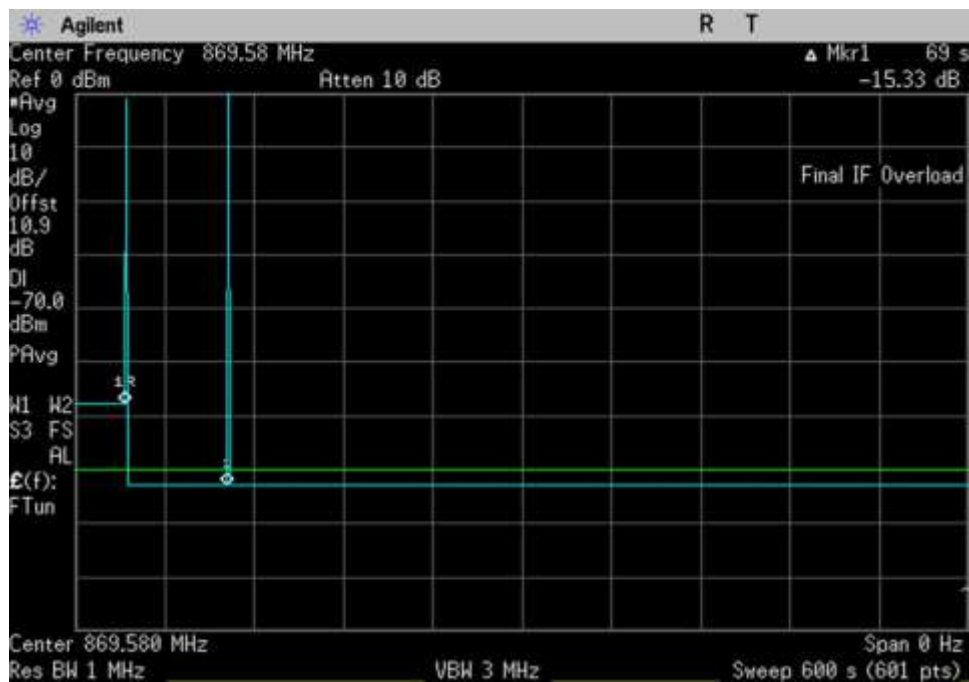
DL_746-757_ 748.5MHz



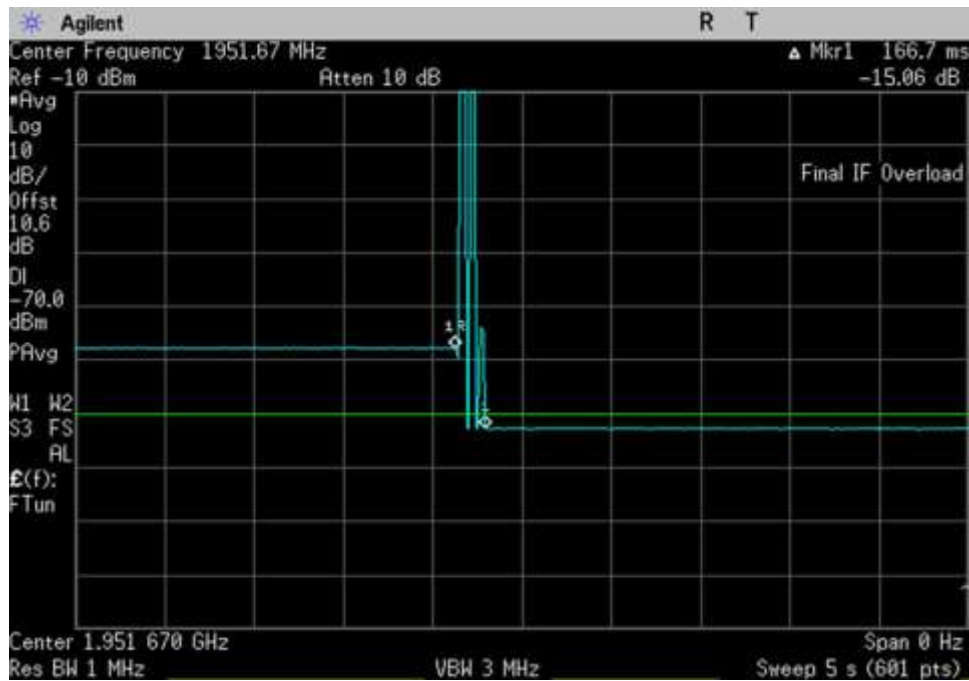
DL_746-757_600sec_ 748.5MHz



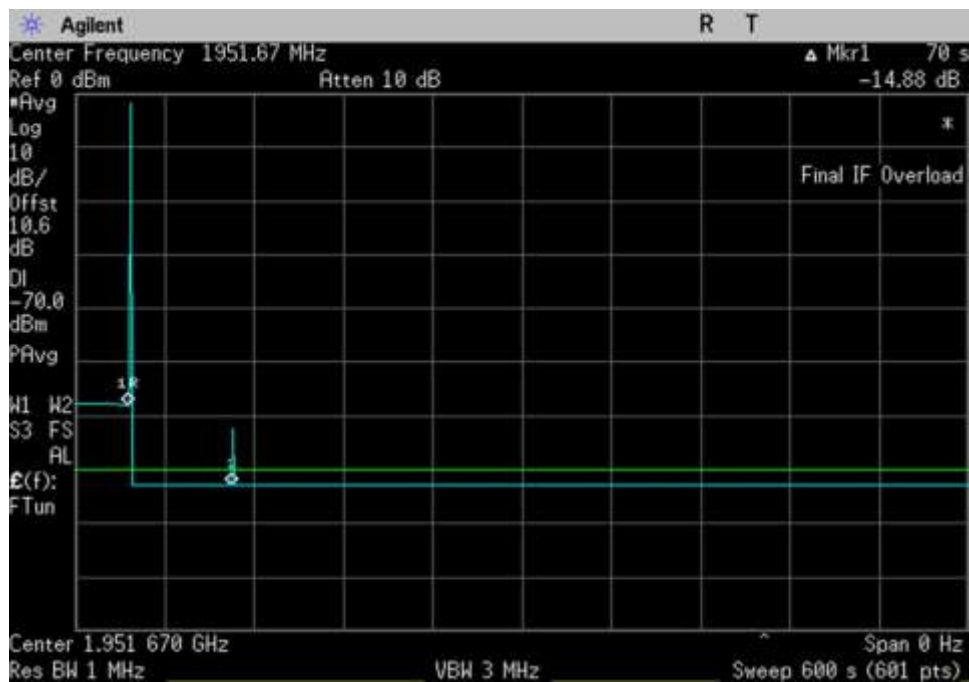
DL_869-894_ 869.58MHz



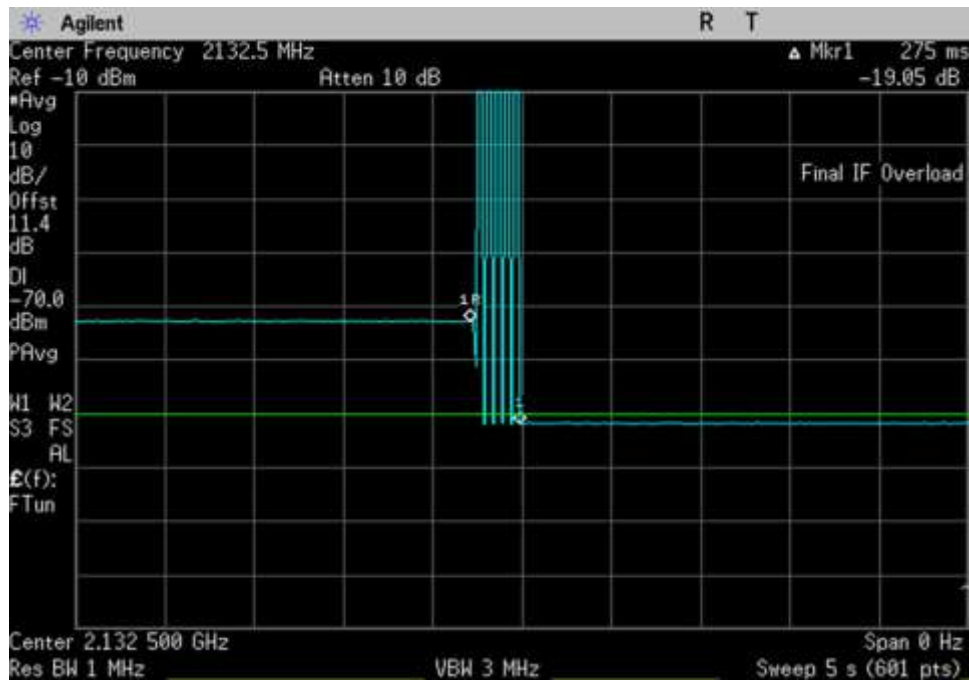
DL_869-894_600sec_ 869.58MHz



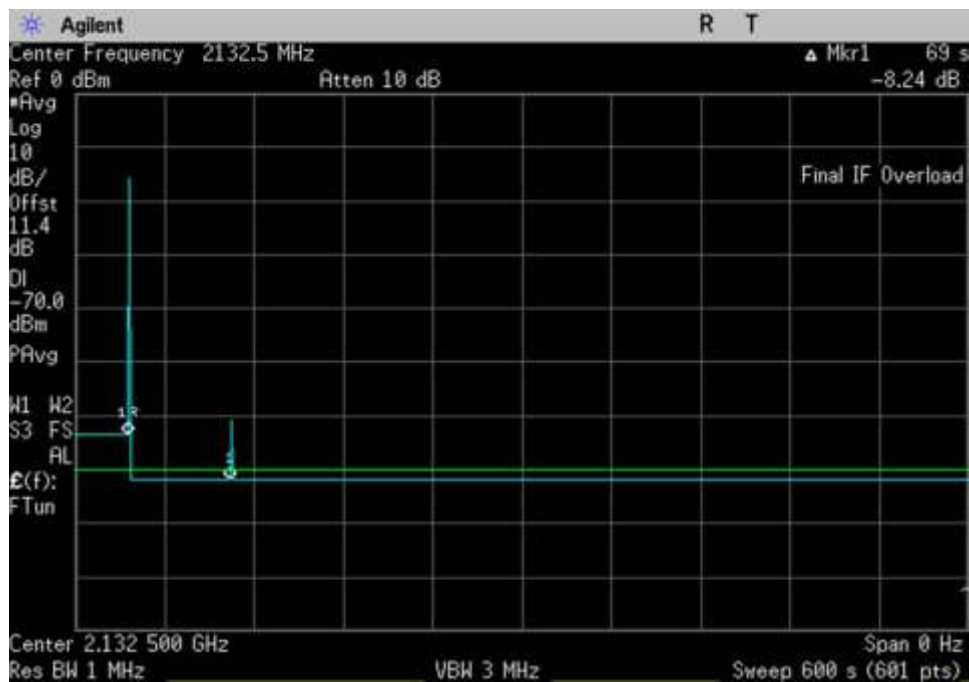
DL_1930-1995_ 1951.67MHz



DL_1930-1995_600sec_ 1951.67MHz



DL_2110-2155_ 2132.5MHz



DL_2110-2155_600sec_ 2132.5MHz

7.12 Radiated Spurious Emissions

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **7.12 Radiated Spurious Emissions**
 Work Order #: **101623** Date: 08/28/18
 Test Type: **Radiated 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: 20.6°C

Relative Humidity: 48.9%

Pressure: 101.9kPa

Frequency range of measurement = 9 kHz- 22 GHz.

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-22000MHz -RBW=1 MHz VBW=1 MHz

Note:

No spurious emissions were found within 20dB of the limit line.

Emissions in the band 1559-1610 MHz were investigated and these were not 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.

Test Equipment:

Asset #	Description	Model	Calibration Date	Cal Due Date
AN03470	Spectrum Analyzer	E4440A	1/3/2018	1/3/2020
AN01996	Biconilog Antenna	CBL6111C	11/1/2016	11/1/2018
ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
ANP00880	Cable	RG214U	5/14/2018	5/14/2020
AN00501	Preamp-TOP AMP	8447F	1/6/2017	1/6/2019
ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
AN02157	Horn Antenna-ANSI C63.5	3115	2/6/2017	2/6/2019
AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
ANP01210	Cable	FSJ1P-50A-4A	1/16/2017	1/16/2019
ANP06903	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
AN00266	Loop Antenna	6502	6/1/2018	6/1/2020
AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019

Summary of Results

Pass: **All Radiated Spurious Emissions were found with more than 20dB margin of the limit line.**

Frequency Range of measurement 9kHz – 22GHz

LIMIT LINE FOR SPURIOUS RADIATED EMISSION

$$\text{REQUIRED ATTENUATION} = 43 + 10 \log P \text{ (dB)}$$

For radiated spurious emission measured at 3 meter test distance,

$$\begin{aligned} \text{Required attenuation} &= 43 + 10 \log P_{t \text{ at 3 meter}} \text{ dB} \\ \text{Limit line (dBuV)} &= E_{\text{dBuV}} - \text{Attenuation} \end{aligned}$$

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)

$$P_t = \left(\frac{E^2 \times 30}{4\pi r^2} \right)$$

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Since } 20 \log E \text{ (uV/m)} = E \text{ in dBuV/m} = E_{\text{dBuV}} - E_{\text{dBuV}} + 82.23$$

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

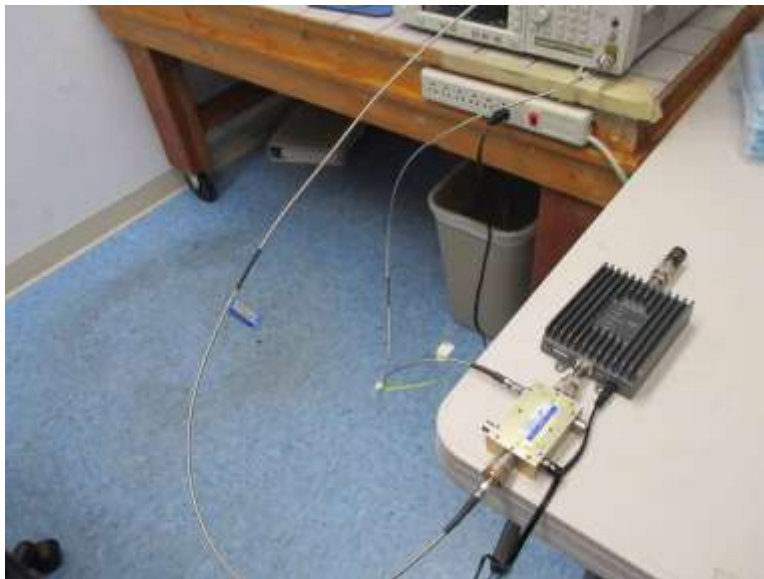
EXHIBIT A: TEST SETUP PHOTOS



Section 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.10 Test Setup



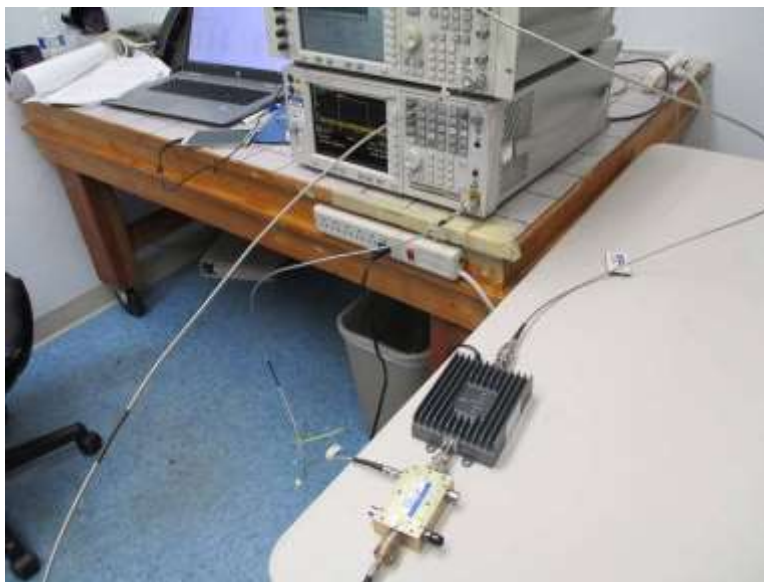
Section 7.7 Max Noise Test Setup



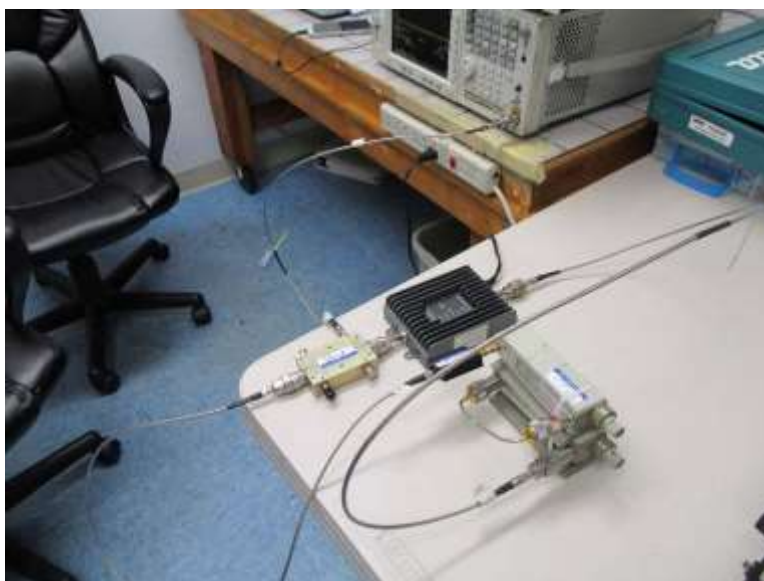
Section 7.7 Variable Noise Test Setup



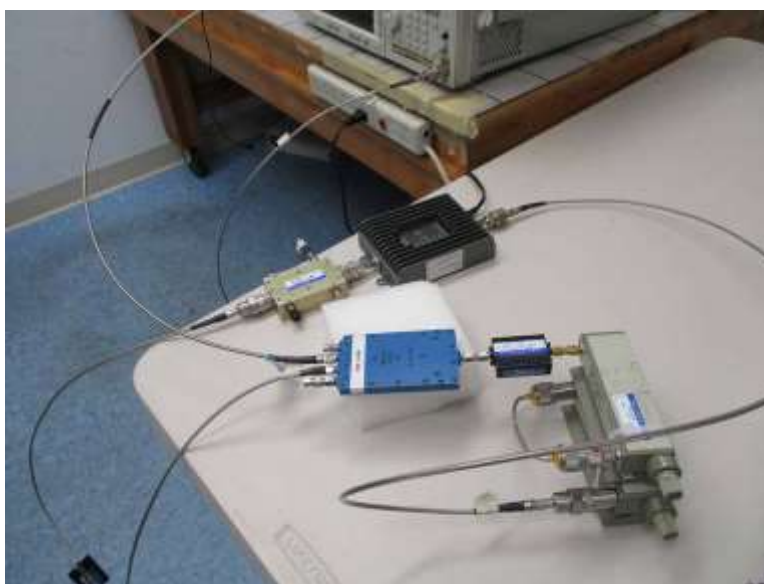
Section 7.8 Test Setup



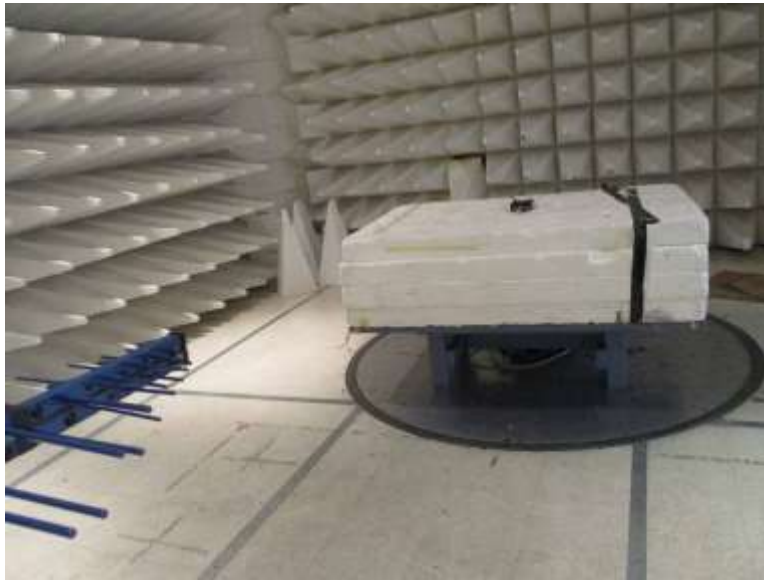
Section 7.9 Test Setup



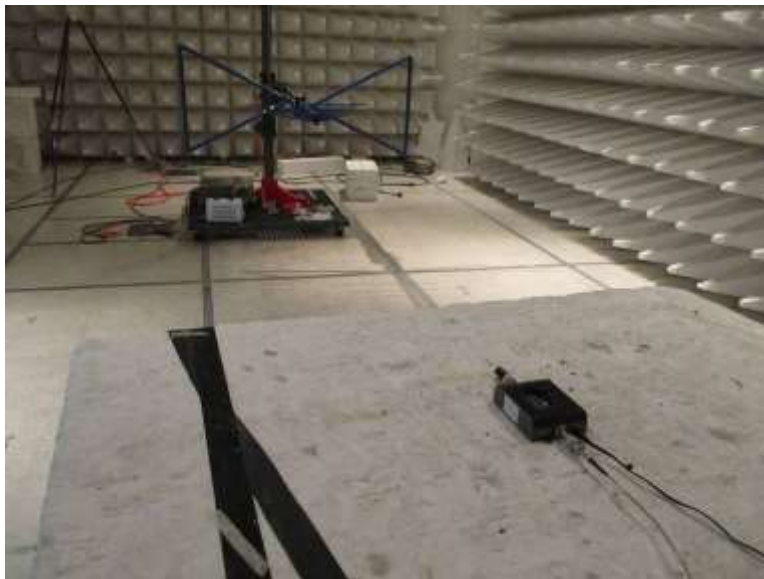
Section 7.11.2 Test Setup



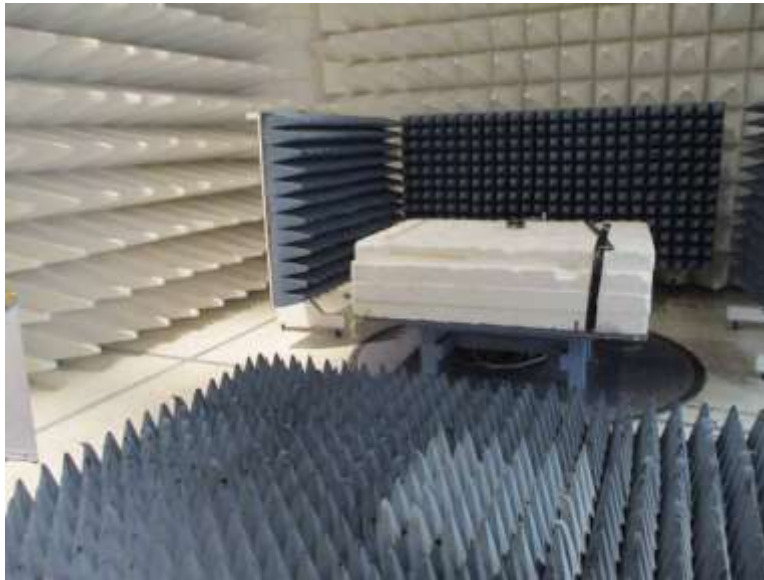
Section 7.11.3 Test Setup



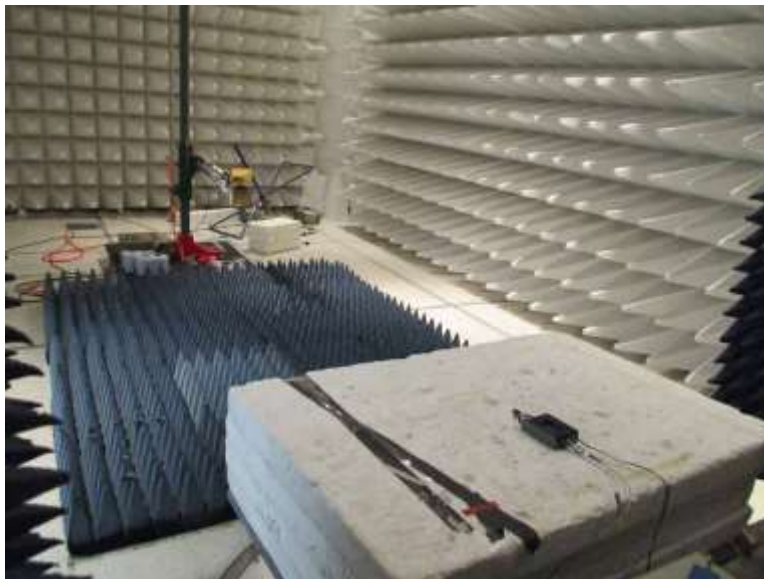
Section 7.12 Test Setup, Below 1GHz



Section 7.12 Test Setup, Below 1GHz



Section 7.12 Test Setup, Above 1GHz, Cone placement



Section 7.12 Test Setup, Above 1GHz, Cone placement