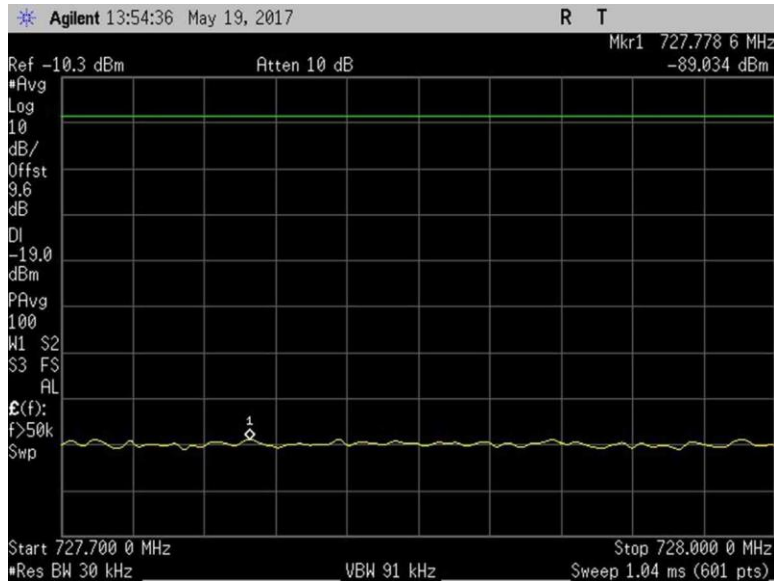


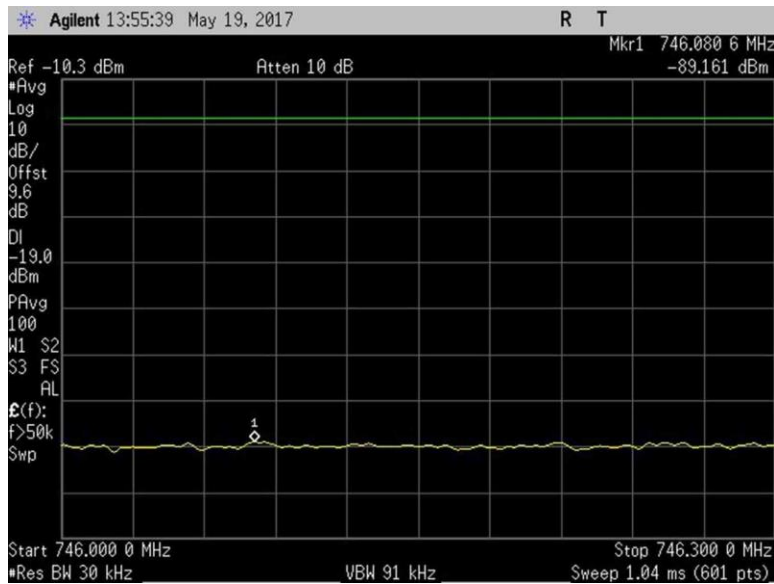
Plots

DL

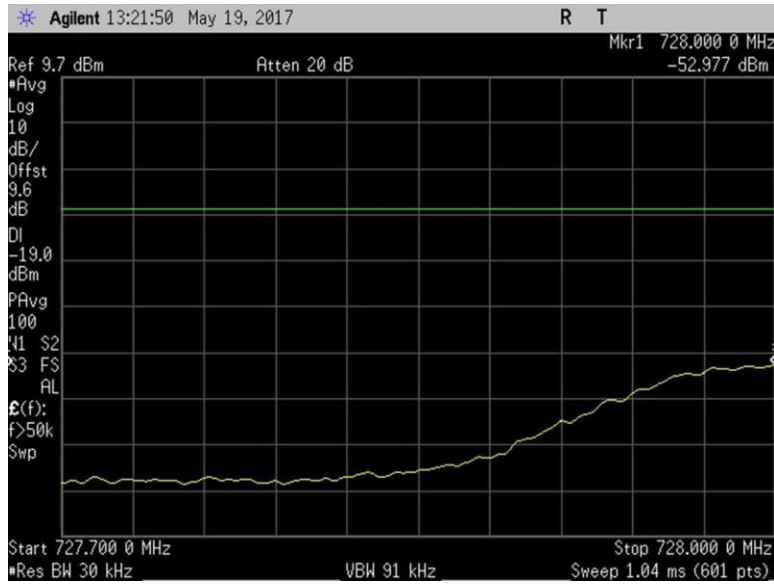
CDMA, GSM and LTE



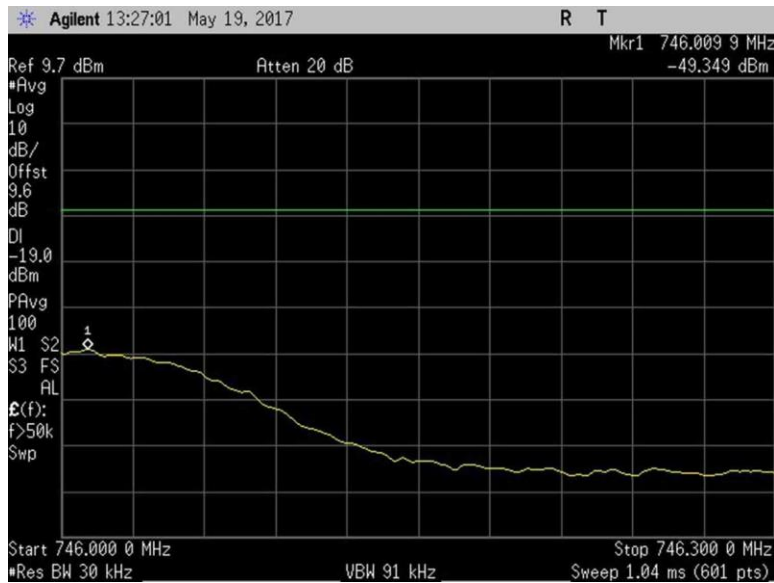
7.5_OBE_DL_728-746MHz_L_PreAGC_CDMA



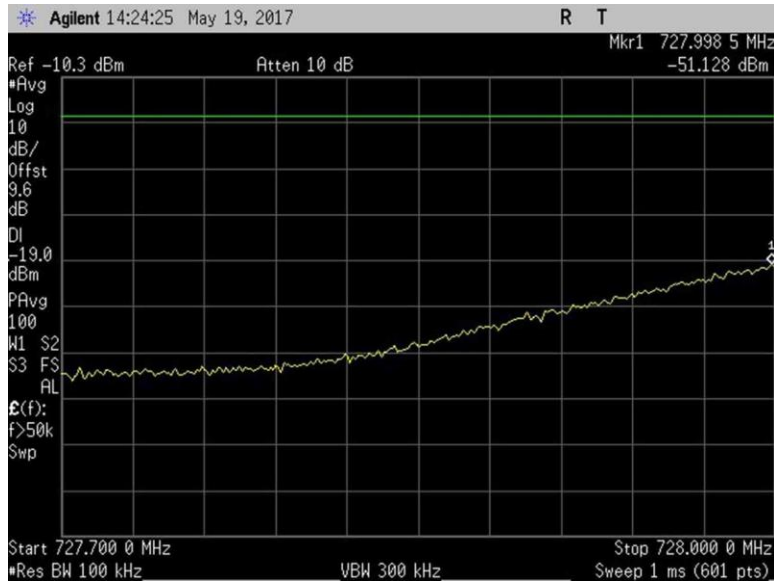
7.5_OBE_DL_728-746MHz_H_PreAGC_CDMA



7.5_OBE_DL_728-746MHz_L_PreAGC_GSM



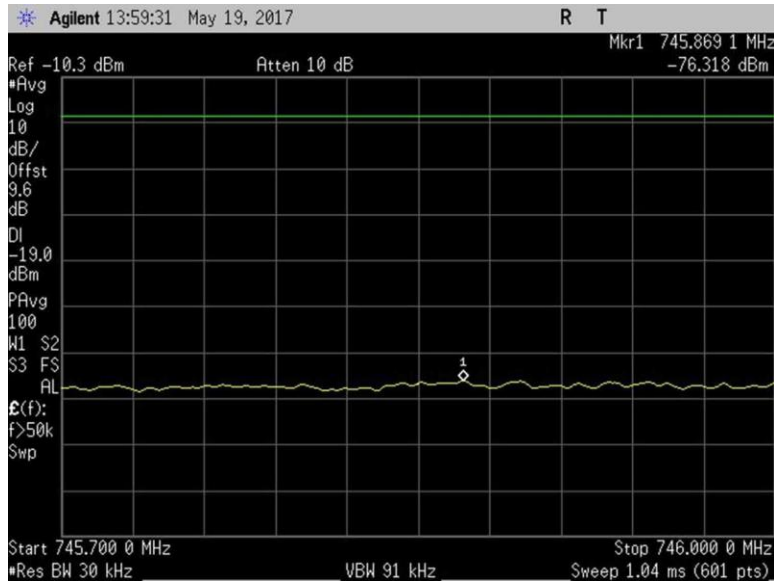
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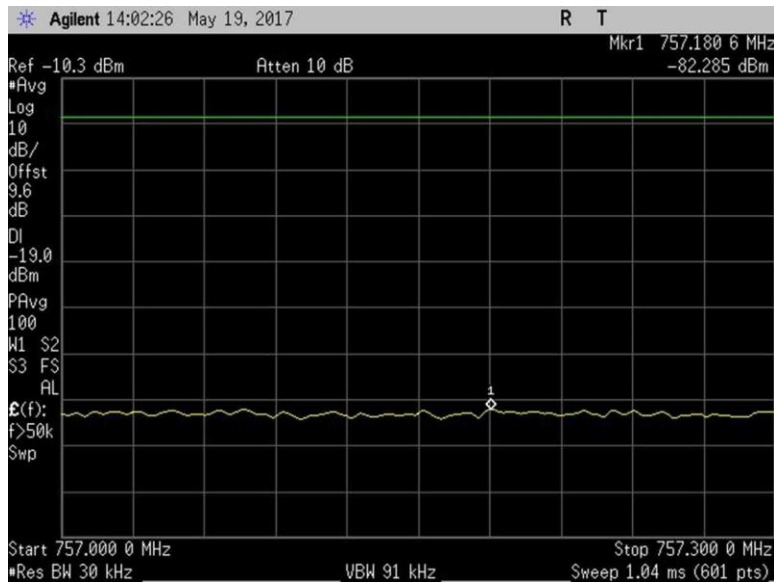
7.5_OBE_DL_728-746MHz_L_PreAGC_LTE



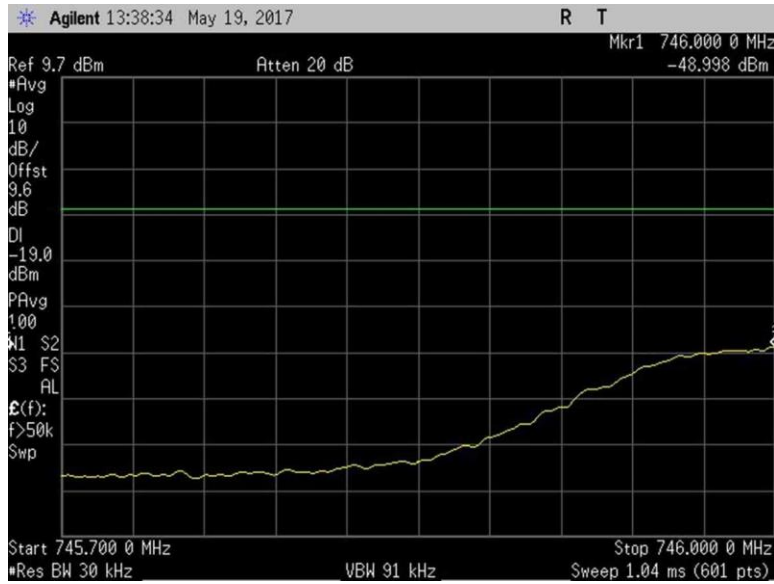
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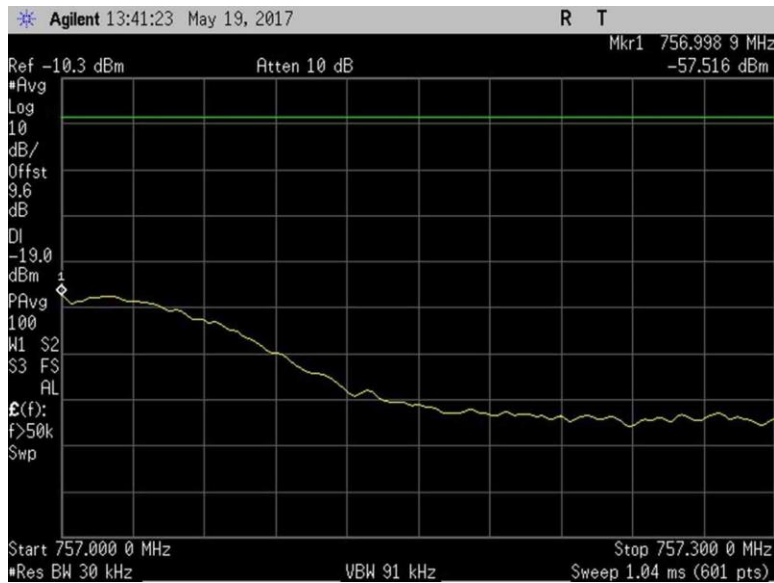
7.5_OBE_DL_746-757MHz_L_PreAGC_CDMA



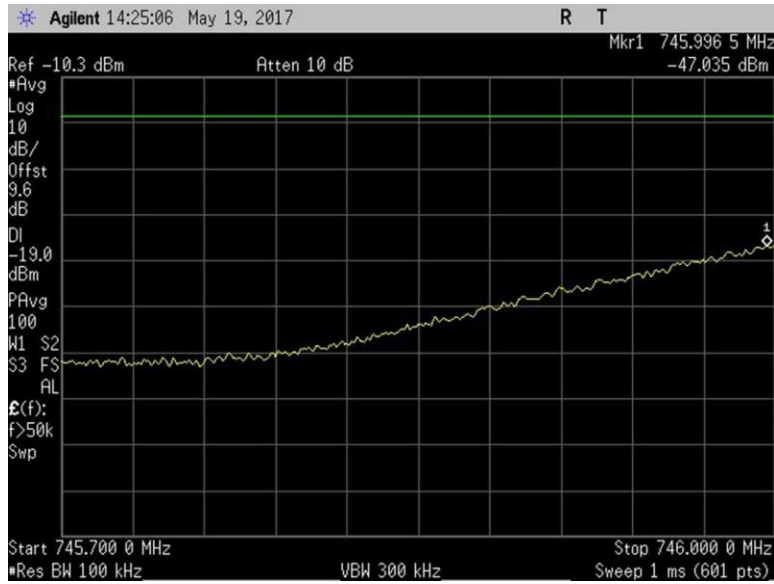
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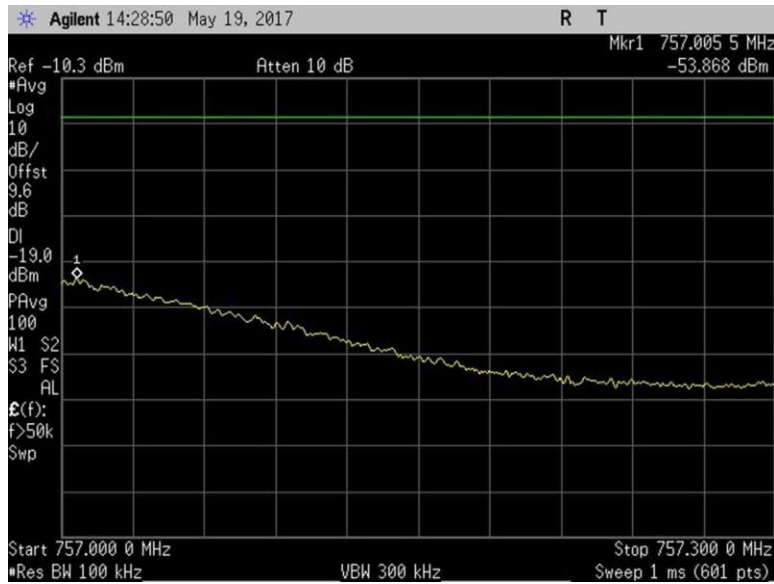
7.5_OBE_DL_746-757MHz_L_PreAGC_GSM



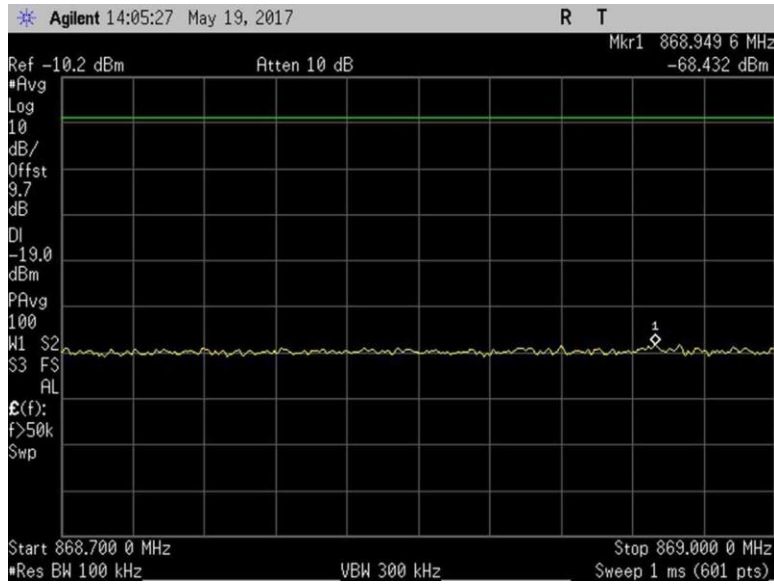
7.5_OBE_DL_746-757MHz_H_PreAGC_GSM



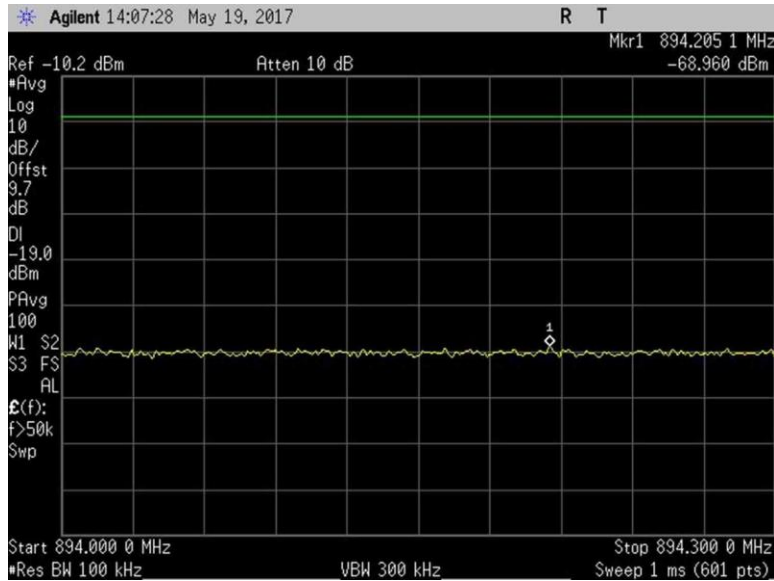
7.5_OBE_DL_746-757MHz_L_PreAGC_LTE



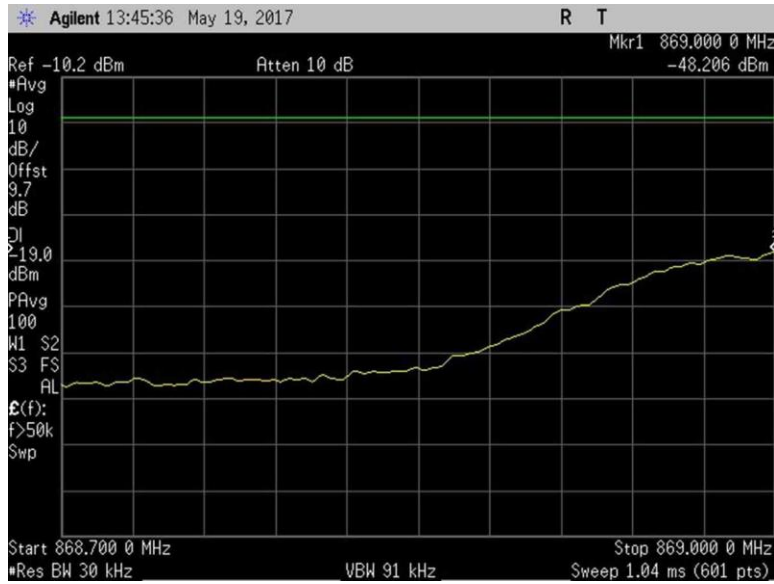
7.5_OBE_DL_746-757MHz_H_PreAGC_LTE



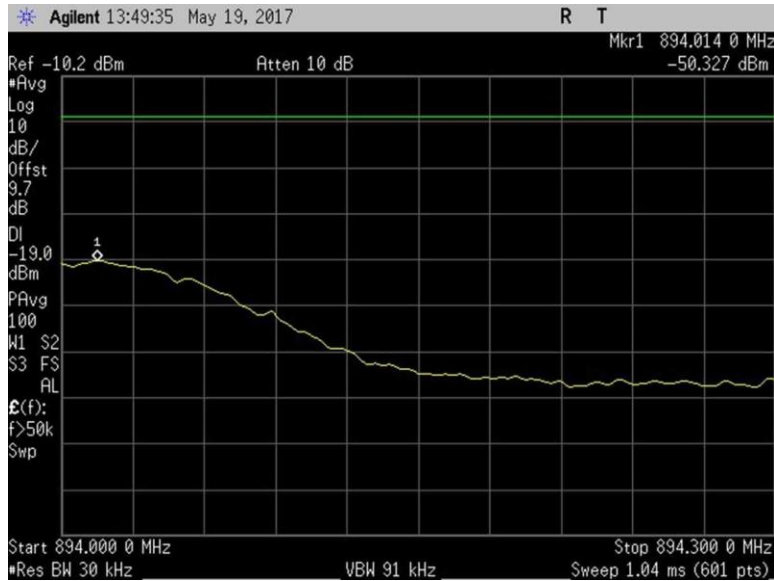
7.5_OBE_DL_869-894MHz_L_PreAGC_CDMA



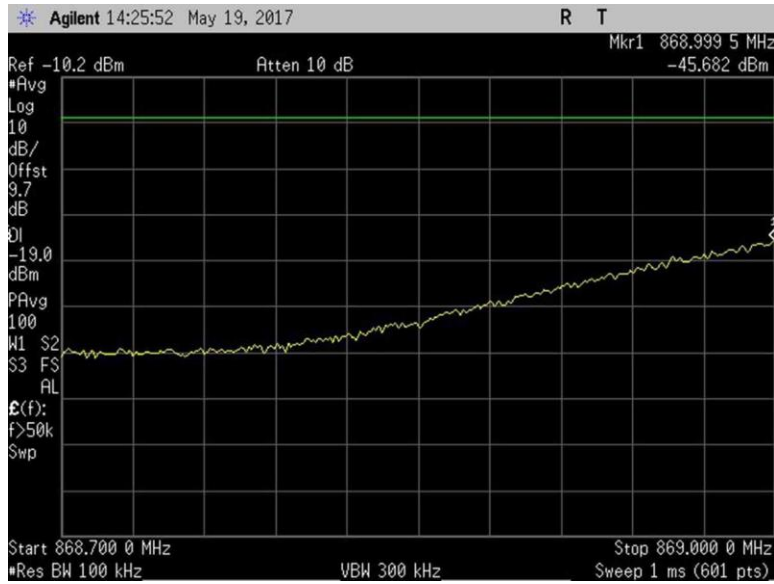
7.5_OBE_DL_869-894MHz_H_PreAGC_CDMA



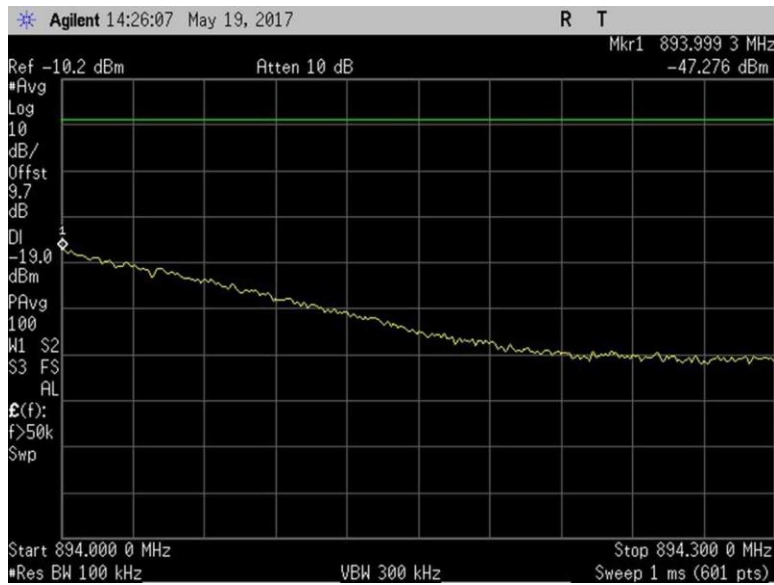
7.5_OBE_DL_869-894MHz_L_PreAGC_GSM



7.5_OBE_DL_869-894MHz_H_PreAGC_GSM

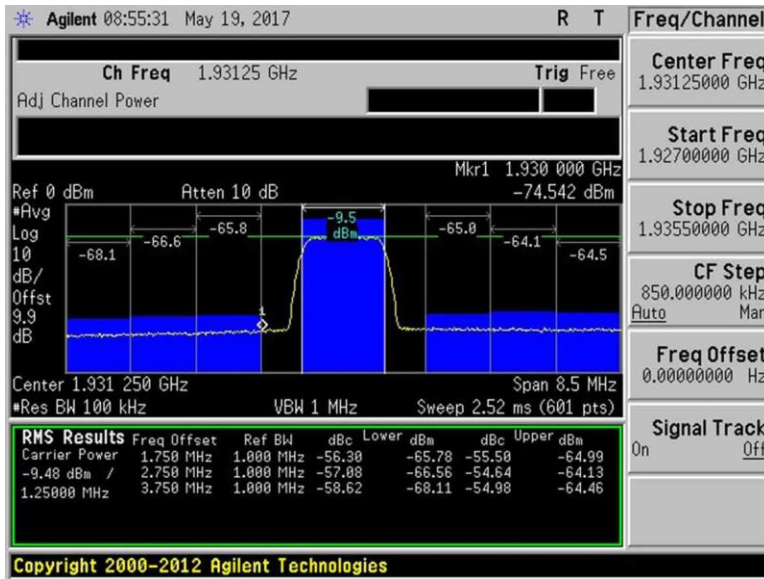


7.5_OBE_DL_869-894MHz_L_PreAGC_LTE

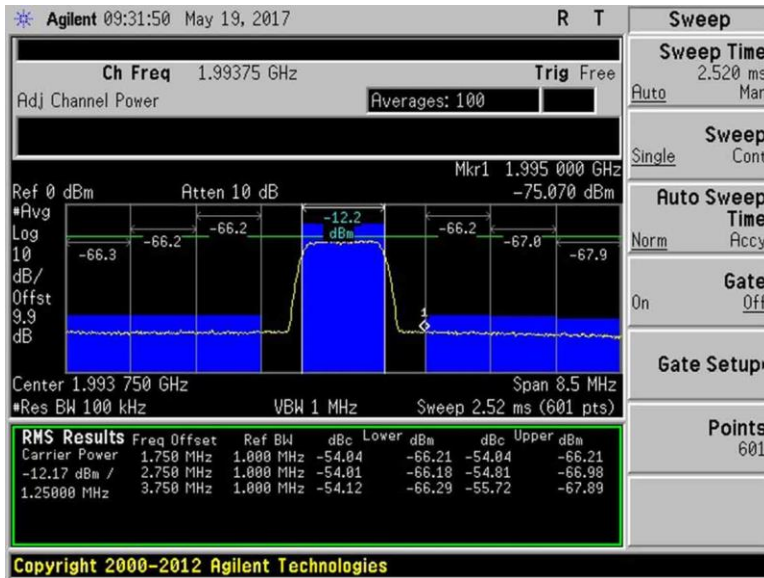


7.5_OBE_DL_869-894MHz_H_PreAGC_LTE

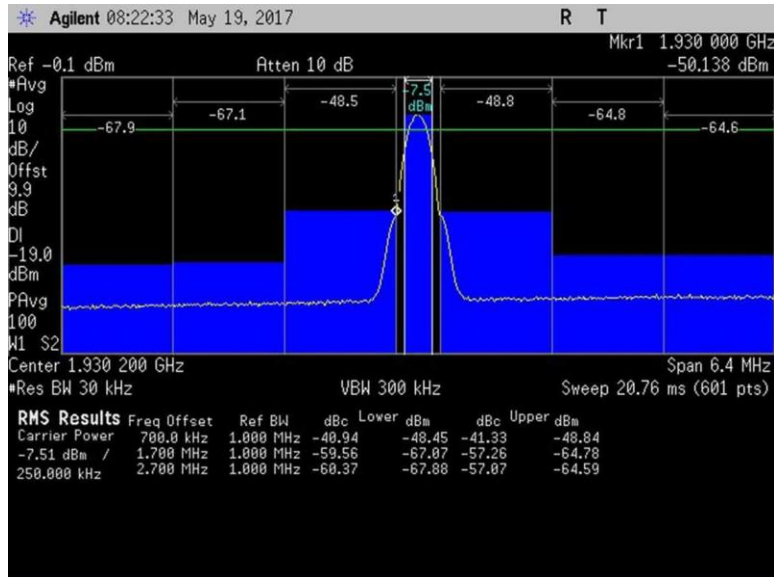
DL
CDMA, GSM and WCDMA



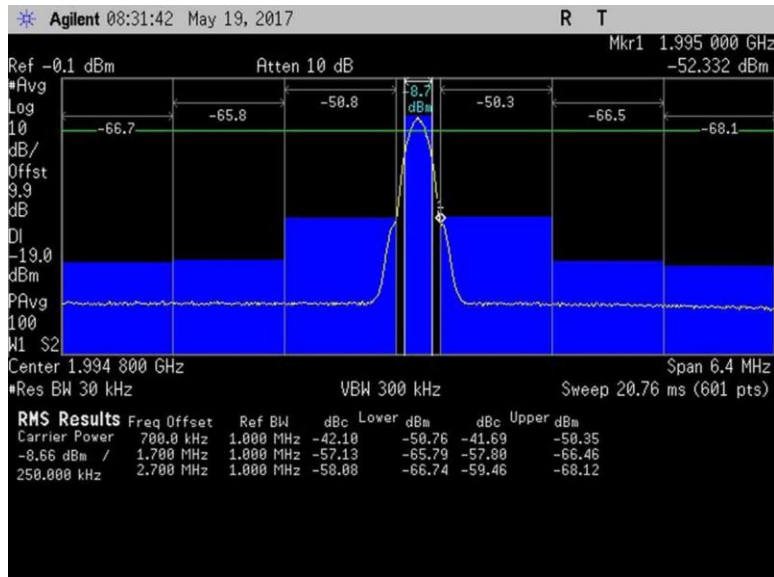
7.5_OBE_DL_1930-1995MHz_L_PreAGC_CDMA



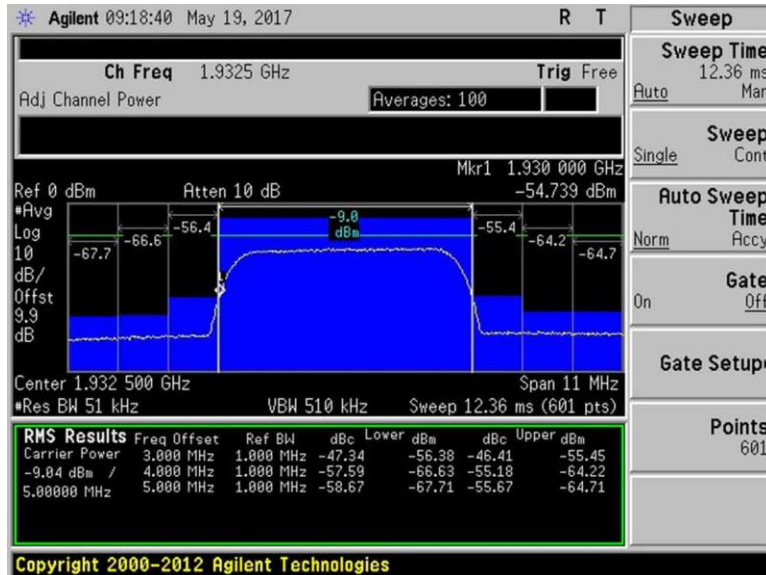
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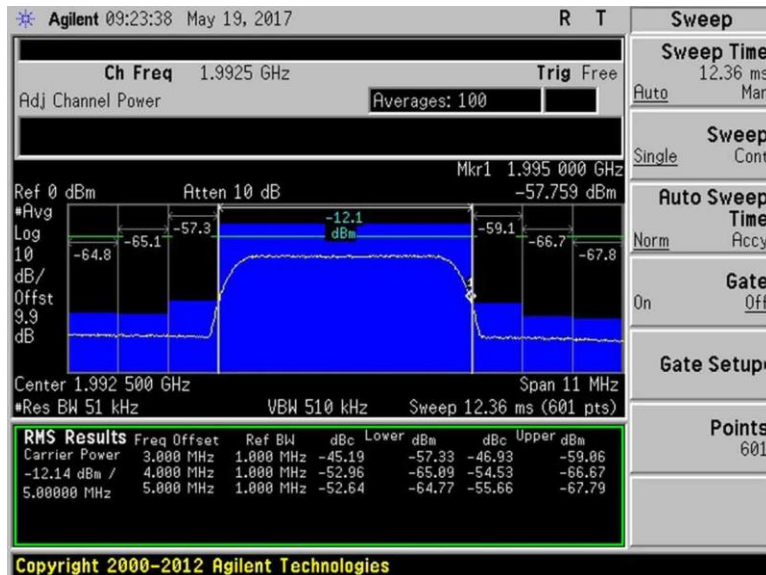
7.5_OBE_DL_1930-1995MHz_L_PreAGC_GSM



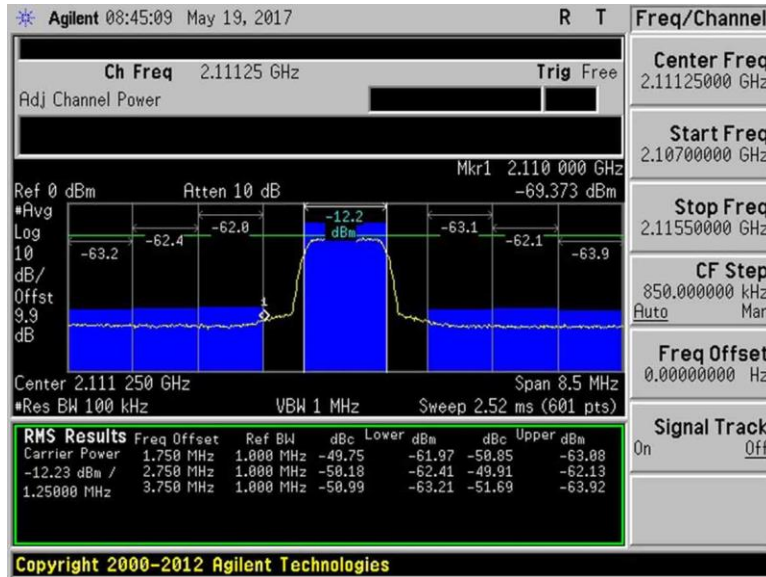
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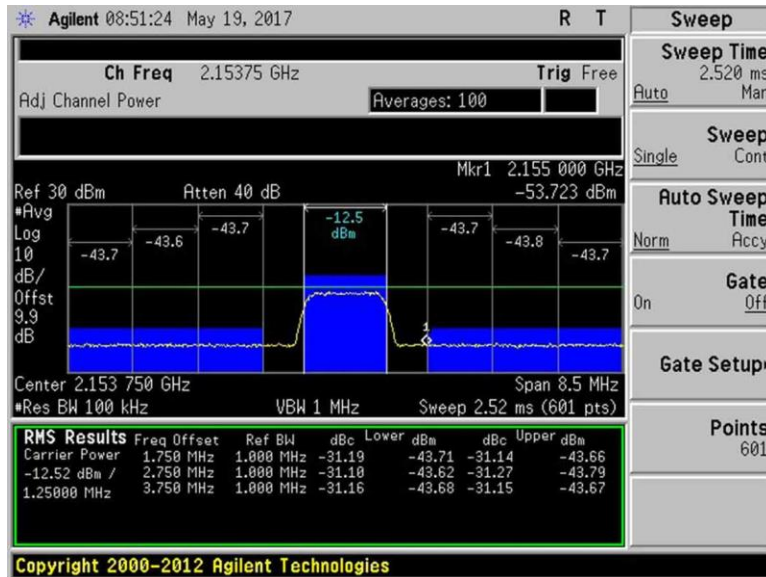
7.5_OBE_DL_1930-1995MHz_L_PreAGC_WCDMA



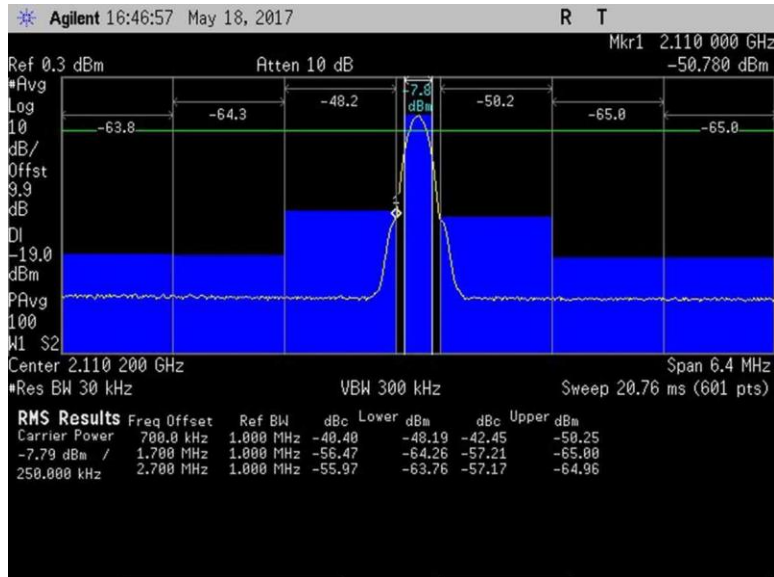
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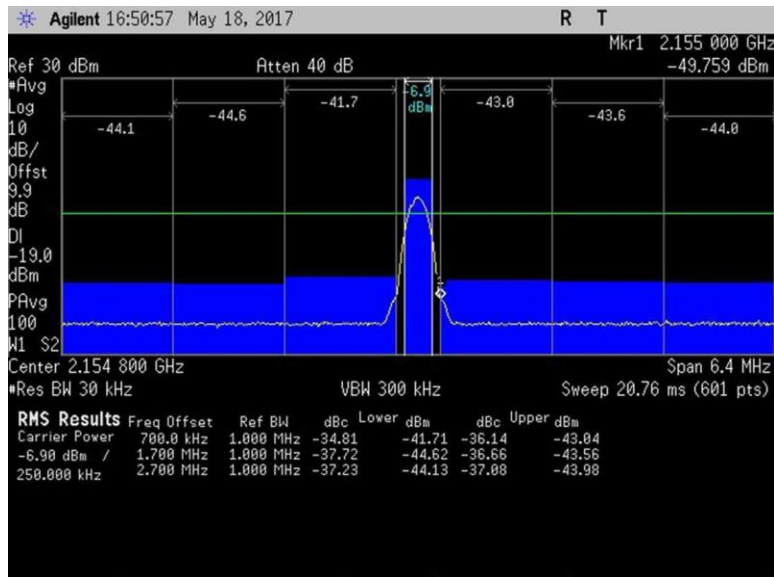
7.5_OBE_DL_2110-2155MHz_L_PreAGC_CDMA



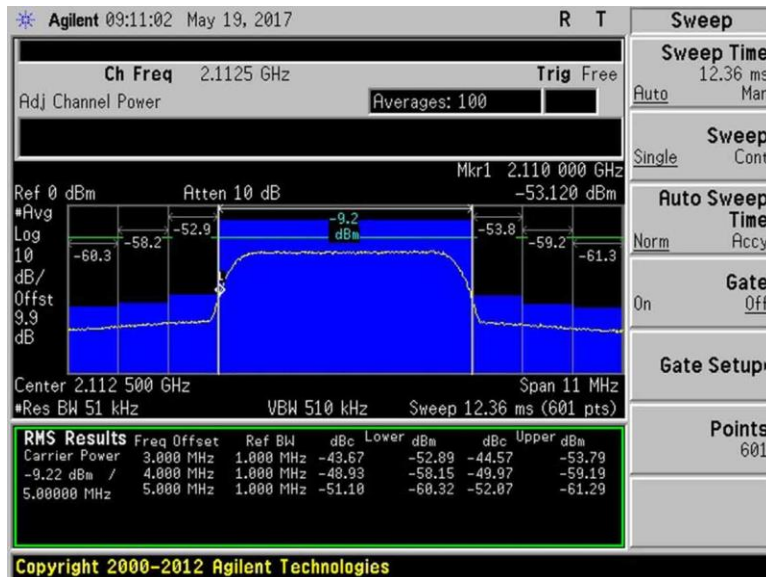
7.5_OBE_DL_2110-2155MHz_H_PreAGC_CDMA



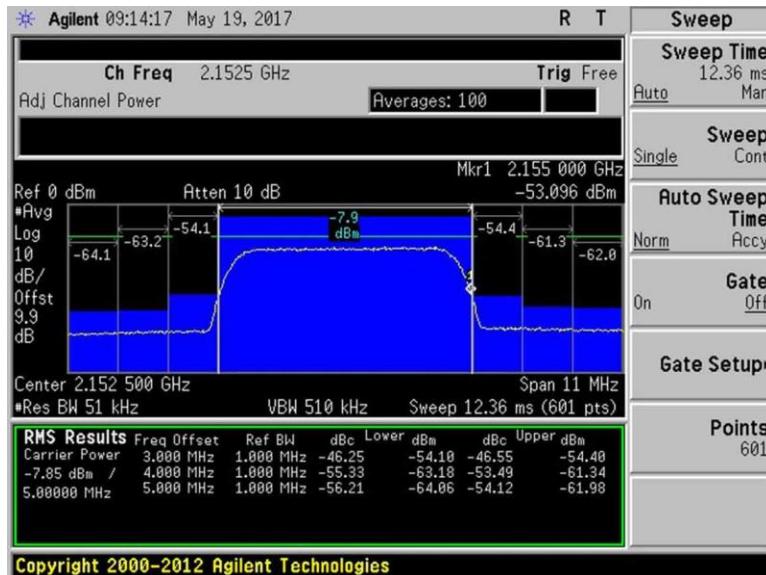
7.5_OBE_DL_2110-2155MHz_L_PreAGC_GSM



7.5_OBE_DL_2110-2155MHz_H_PreAGC_GSM

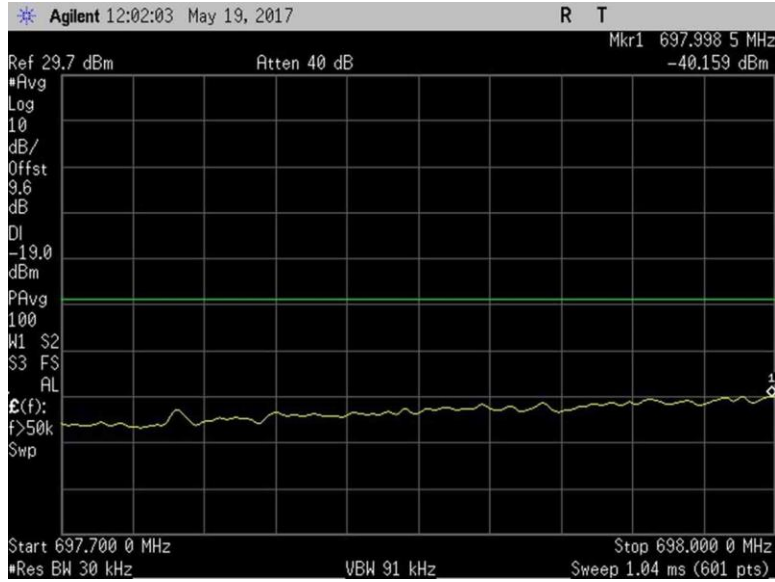


7.5_OBE_DL_2110-2155MHz_L_PreAGC_WCDMA

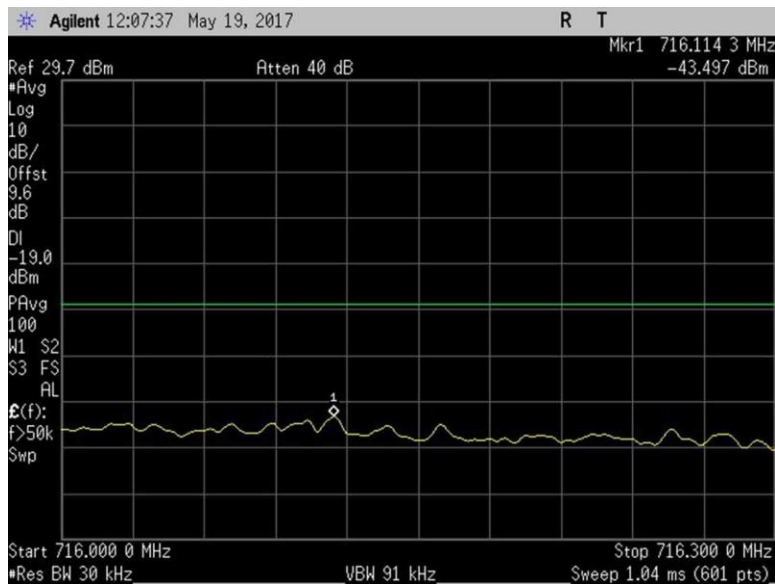


7.5_OBE_DL_2110-2155MHz_H_PreAGC_WCDMA

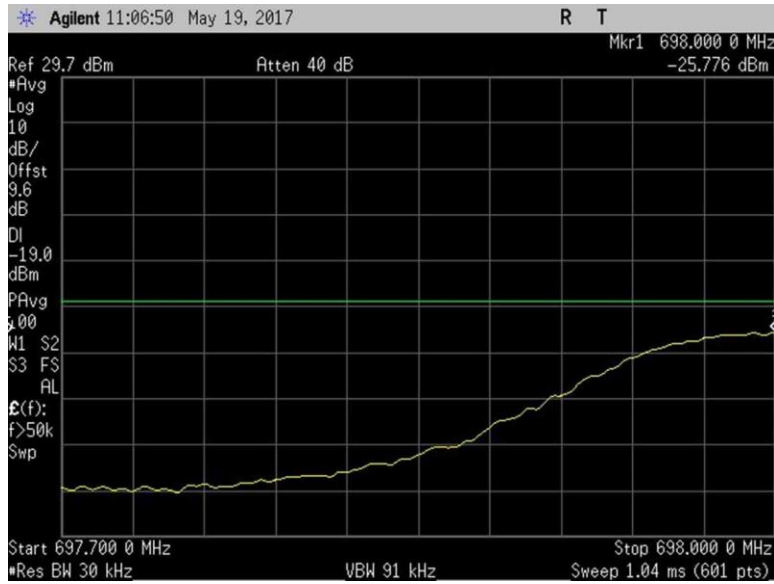
UL
CDMA, GSM and LTE



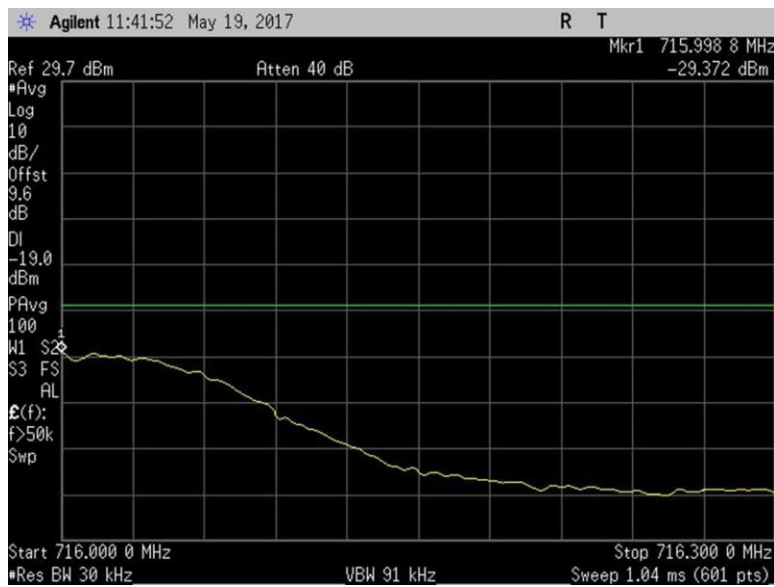
7.5_OBE_UL_698-716MHz_L_PreAGC_CDMA



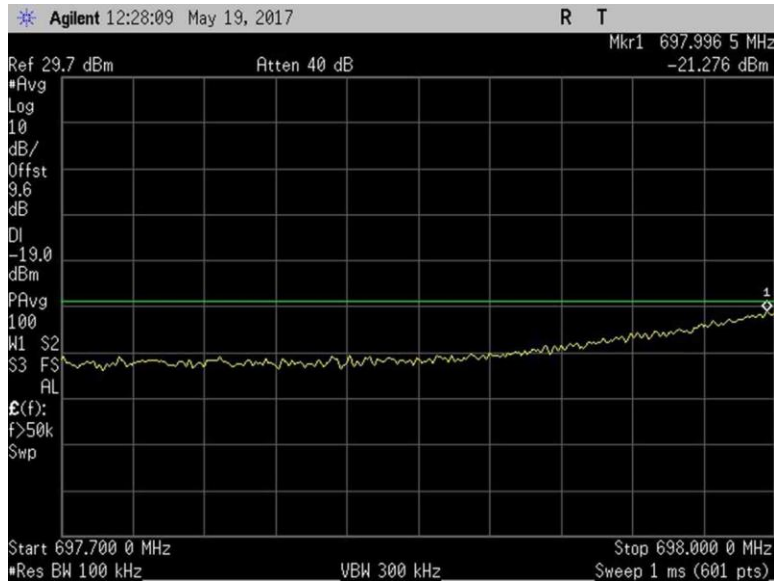
7.5_OBE_UL_698-716MHz_H_PreAGC_CDMA



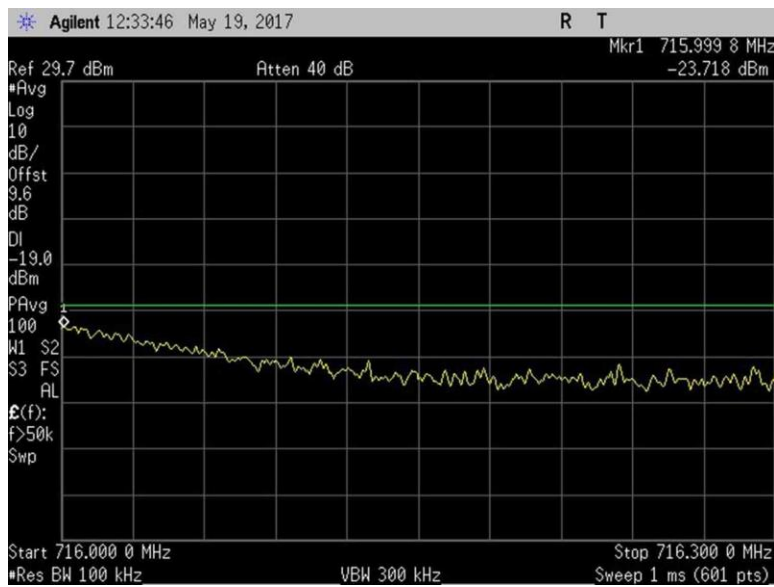
7.5_OBE_UL_698-716MHz_L_PreAGC_GSM



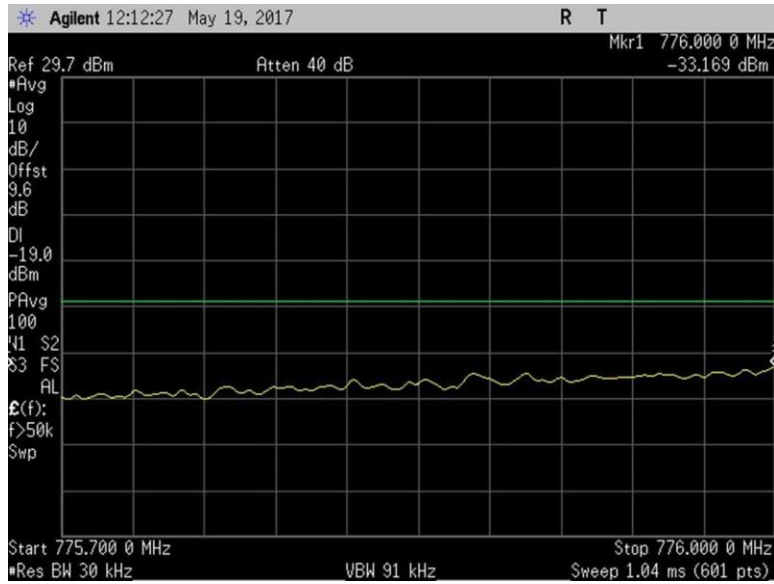
7.5_OBE_UL_698-716MHz_H_PreAGC_GSM



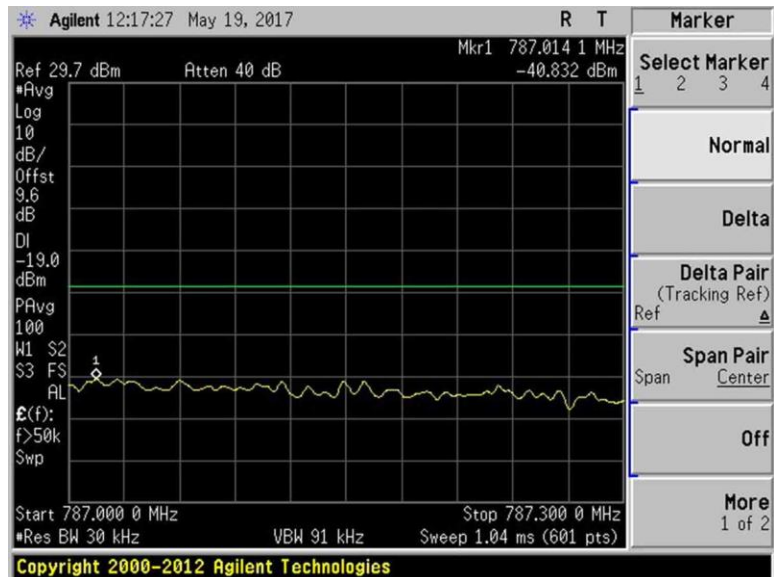
7.5_OBE_UL_698-716MHz_L_PreAGC_LTE



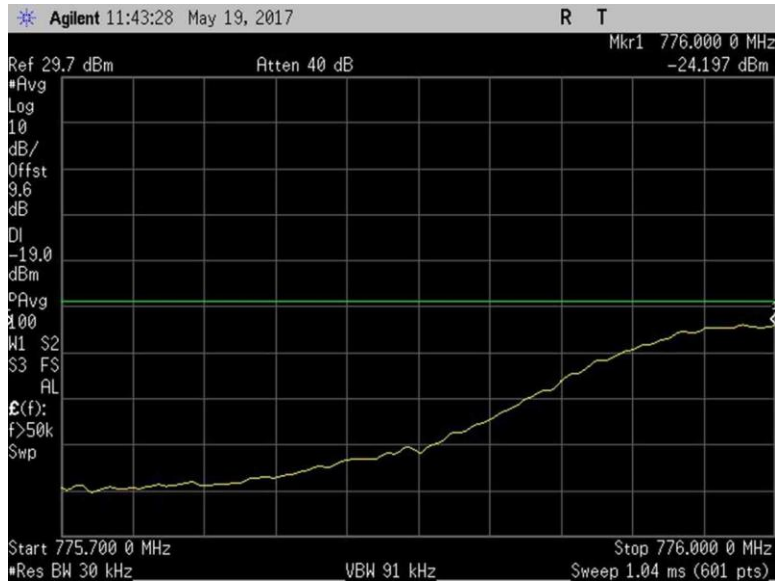
7.5_OBE_UL_698-716MHz_H_PreAGC_LTE



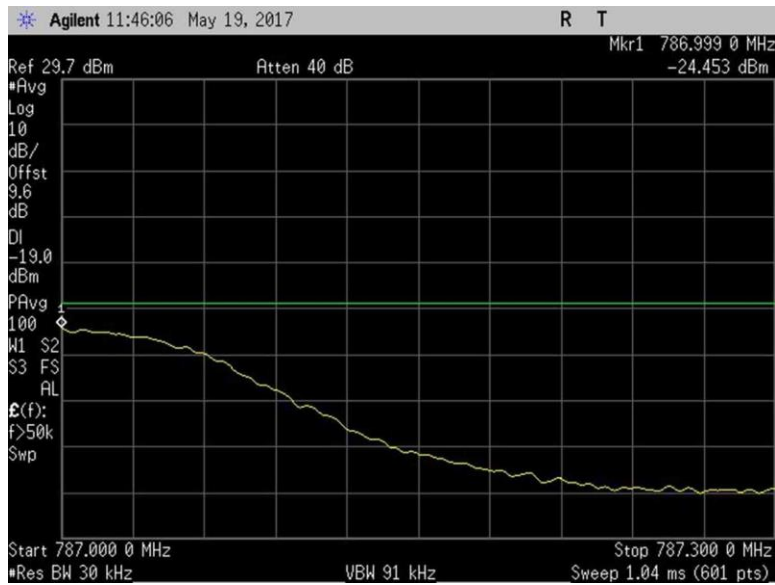
7.5_OBE_UL_776-787MHz_L_PreAGC_CDMA



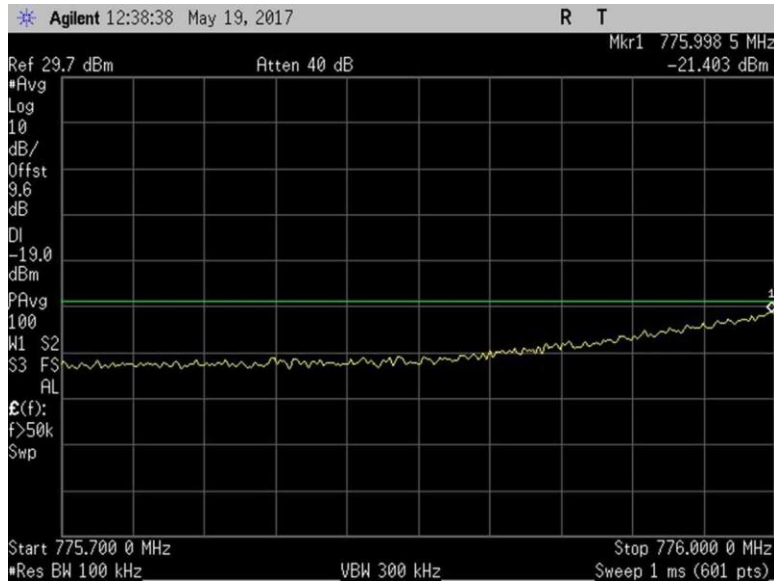
7.5_OBE_UL_776-787MHz_H_PreAGC_CDMA



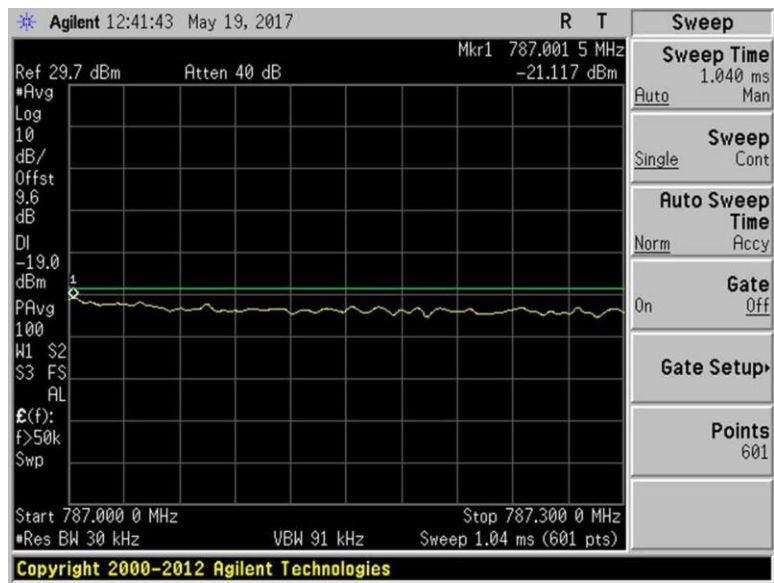
7.5_OBE_UL_776-787MHz_L_PreAGC_GSM



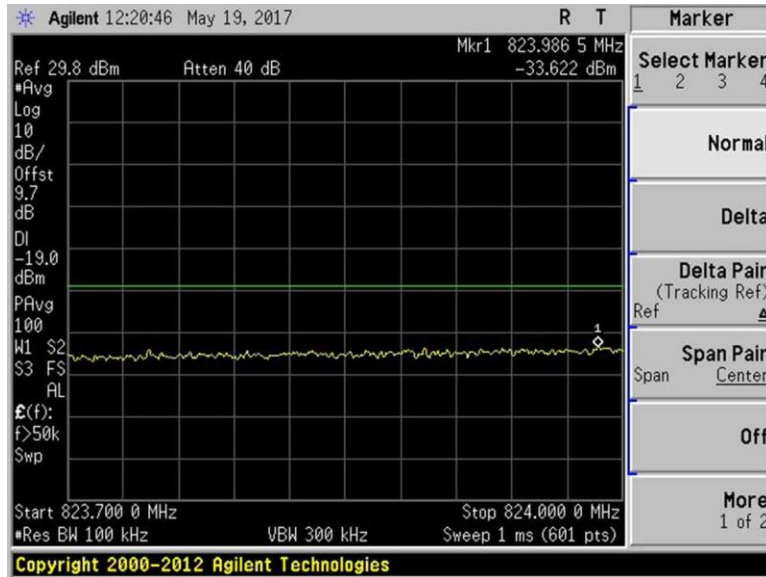
7.5_OBE_UL_776-787MHz_H_PreAGC_GSM



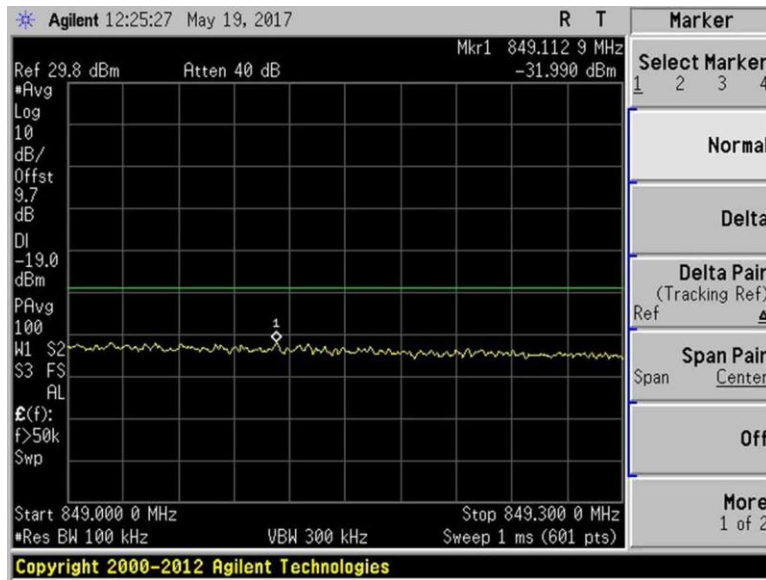
7.5_OBE_UL_776-787MHz_L_PreAGC_LTE



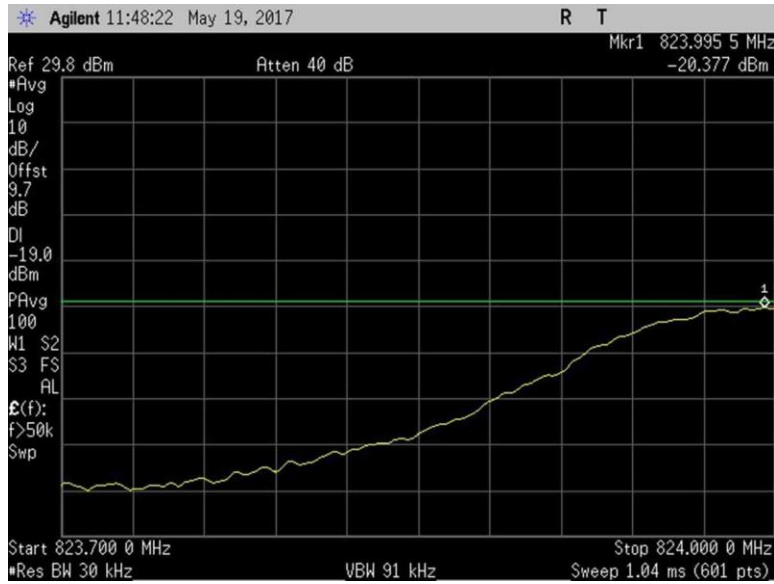
7.5_OBE_UL_776-787MHz_H_PreAGC_LTE



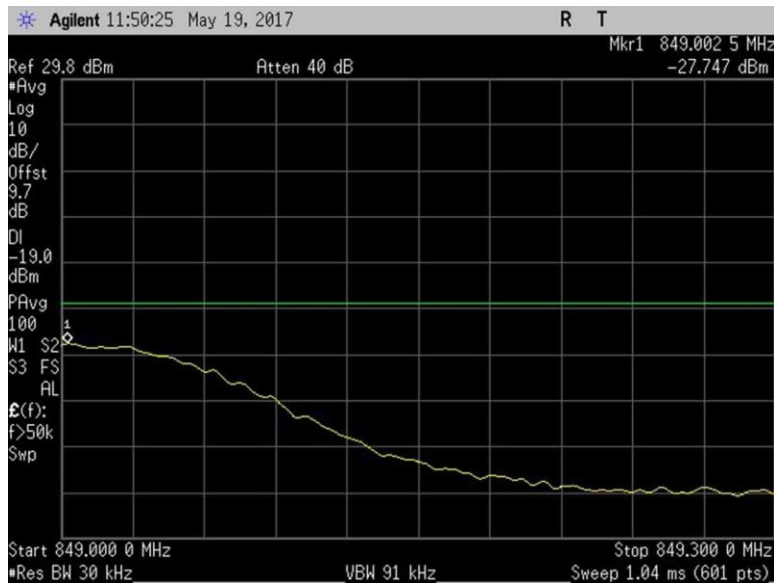
7.5_OBE_UL_824-849MHz_L_PreAGC_CDMA



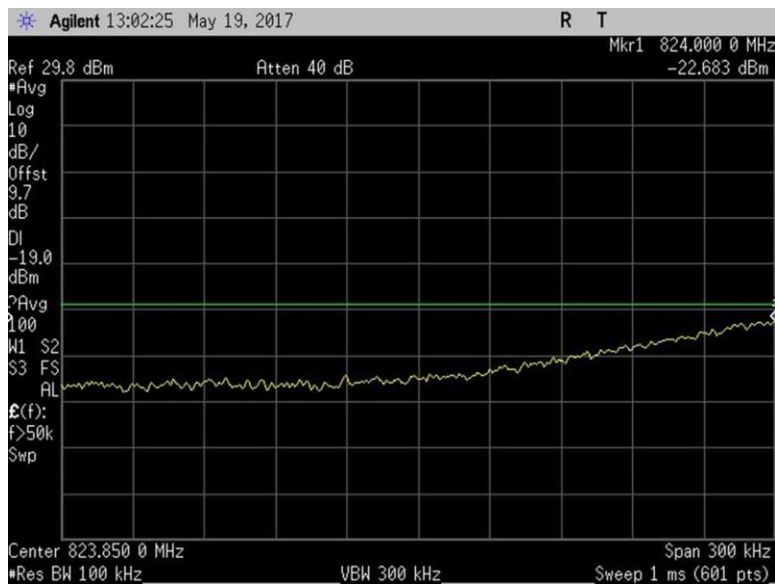
7.5_OBE_UL_824-849MHz_H_PreAGC_CDMA



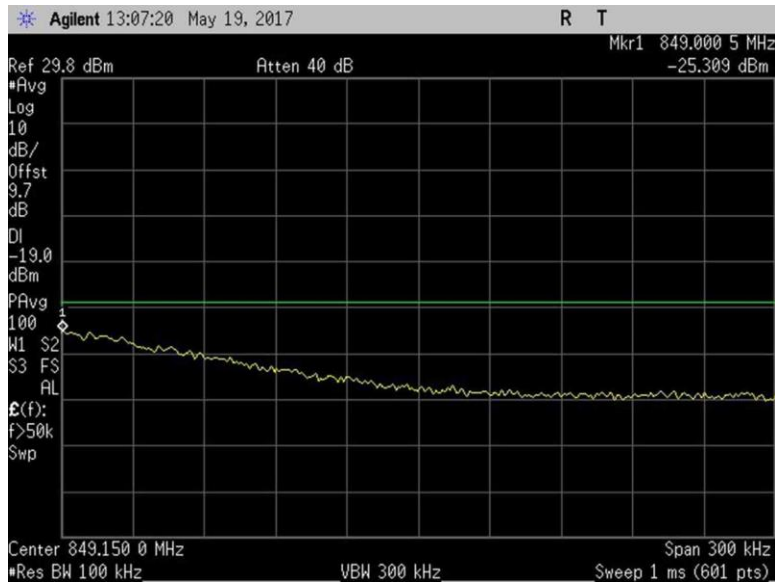
7.5_OBE_UL_824-849MHz_L_PreAGC_GSM



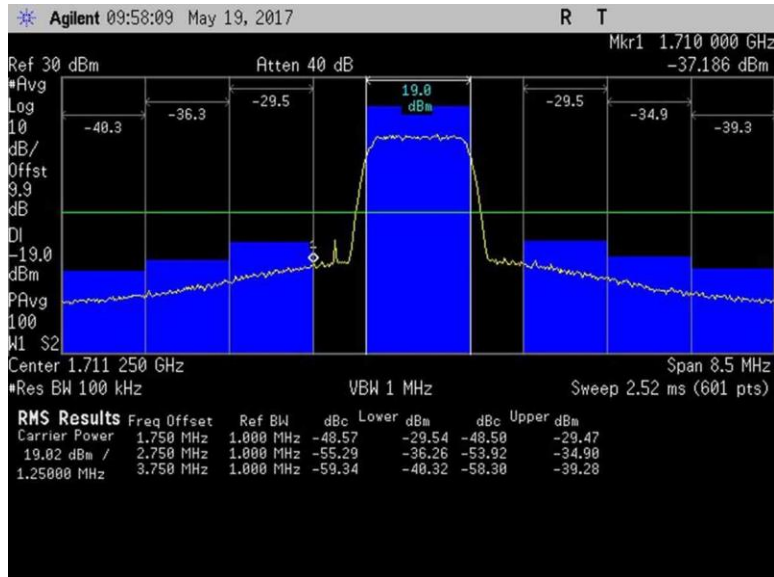
7.5_OBE_UL_824-849MHz_H_PreAGC_GSM



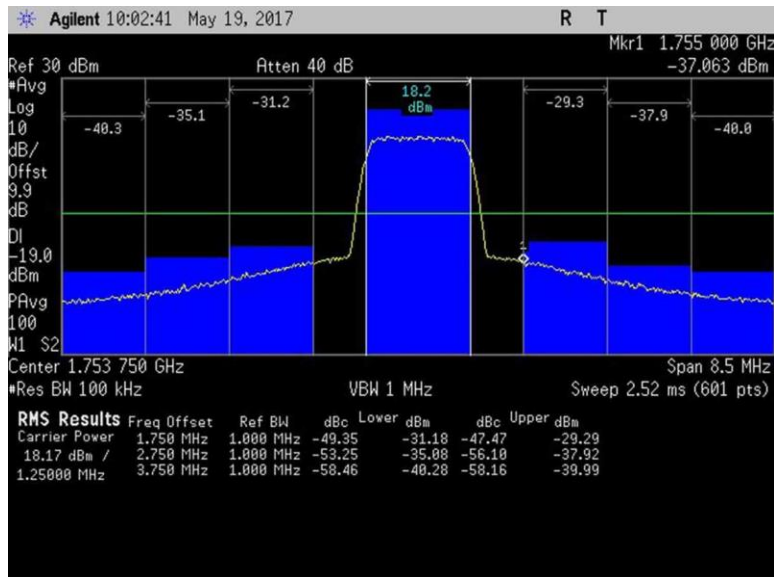
7.5_OBE_UL_824-849MHz_L_PreAGC_LTE



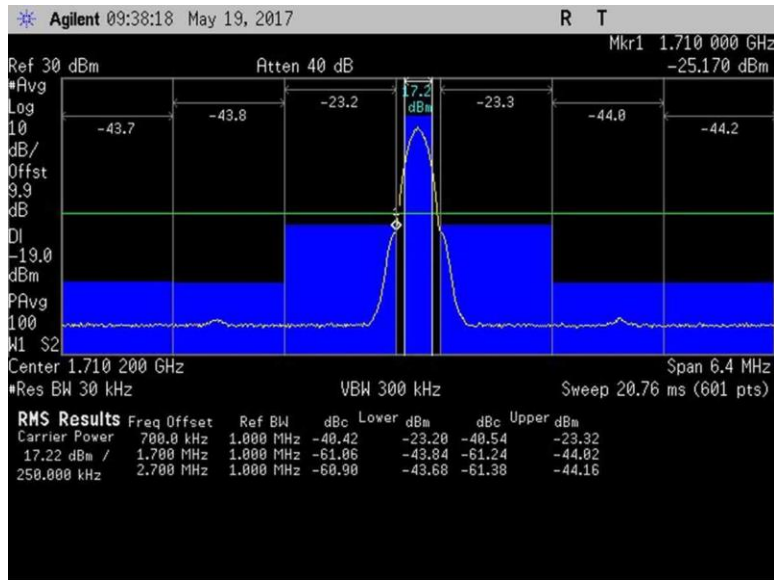
7.5_OBE_UL_824-849MHz_H_PreAGC_LTE



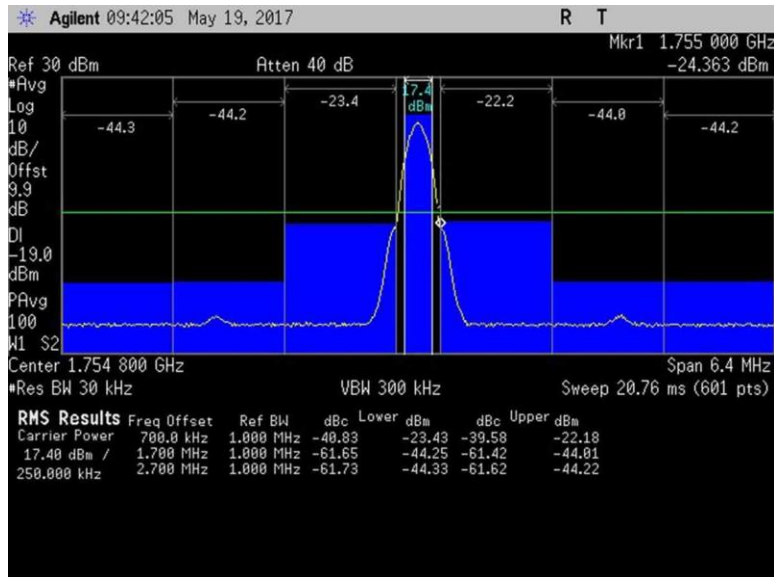
7.5_OBE_UL_1710-1755MHz_L_PreAGC_CDMA



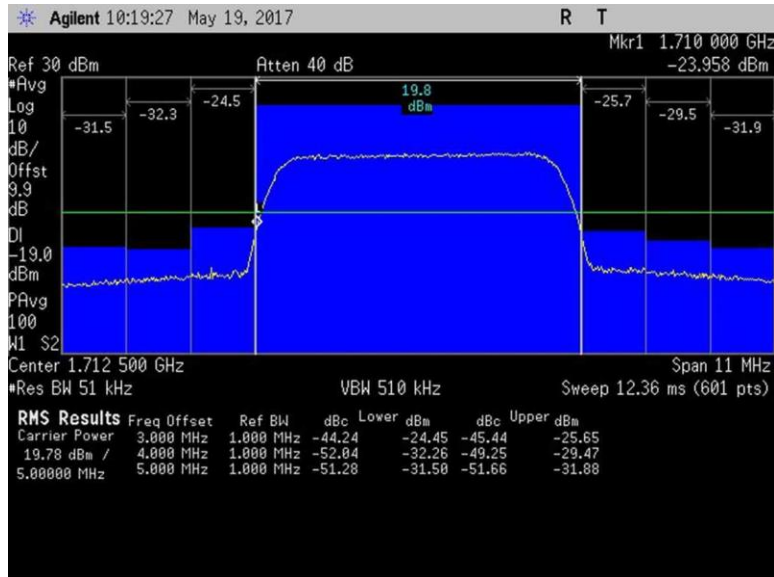
7.5_OBE_UL_1710-1755MHz_H_PreAGC_CDMA



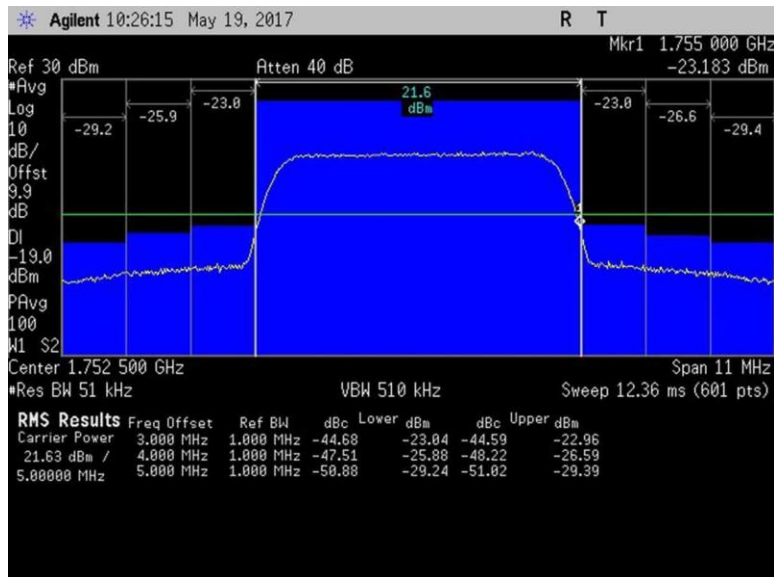
7.5_OBE_UL_1710-1755MHz_L_PreAGC_GSM



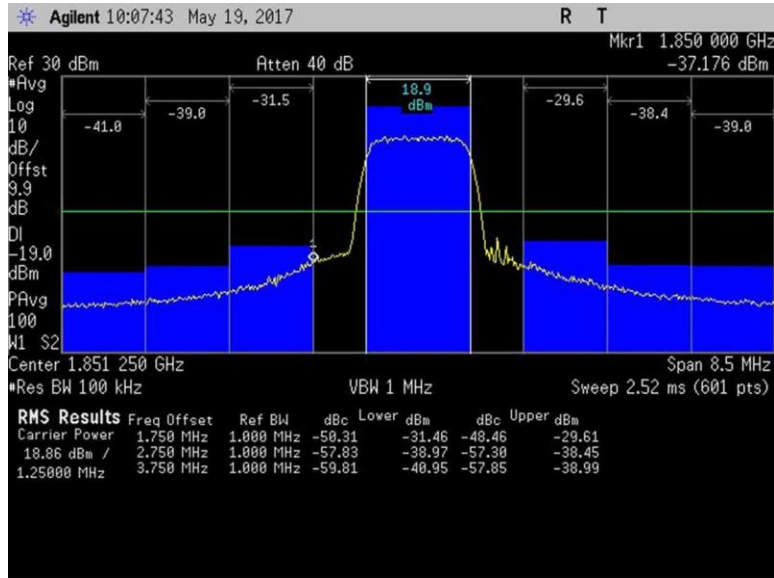
7.5_OBE_UL_1710-1755MHz_H_PreAGC_GSM



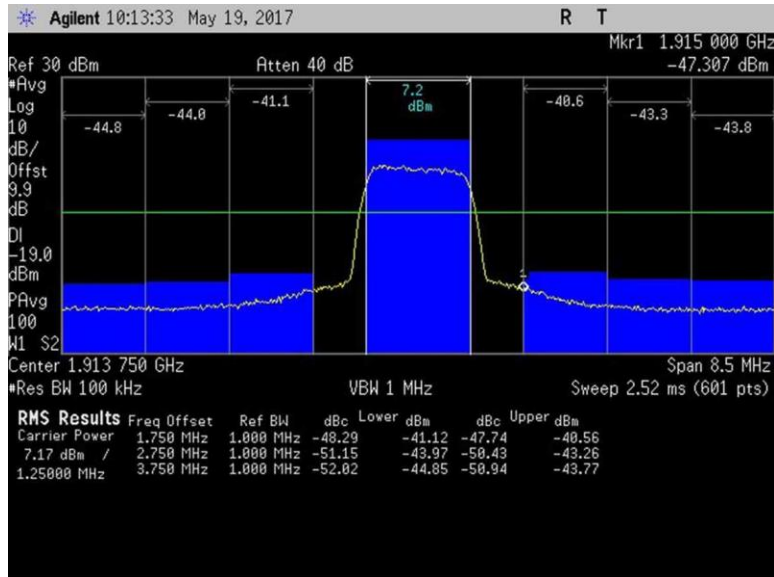
7.5_OBE_UL_1710-1755MHz_L_PreAGC_LTE



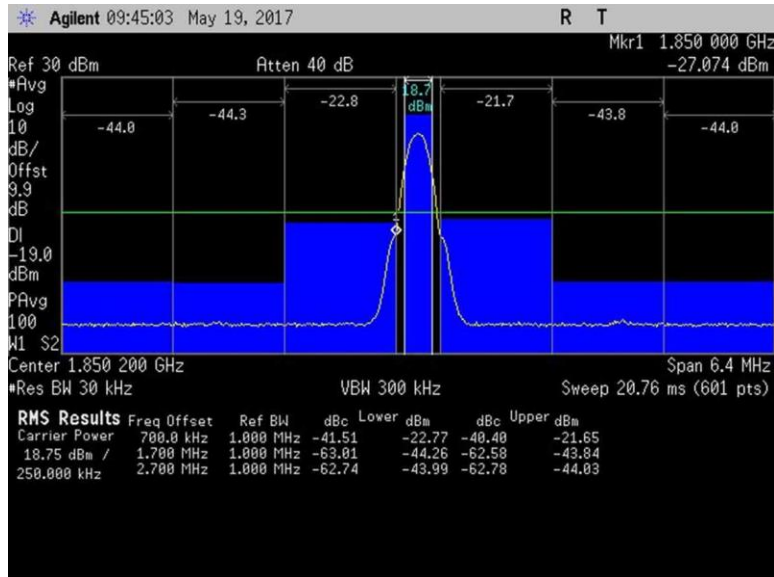
7.5_OBE_UL_1710-1755MHz_H_PreAGC_LTE



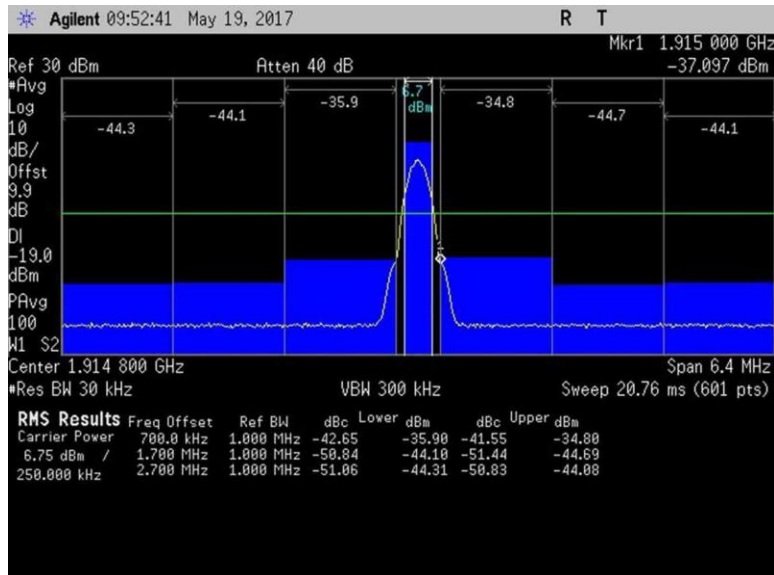
7.5_OBE_UL_1850-1915MHz_L_PreAGC_CDMA



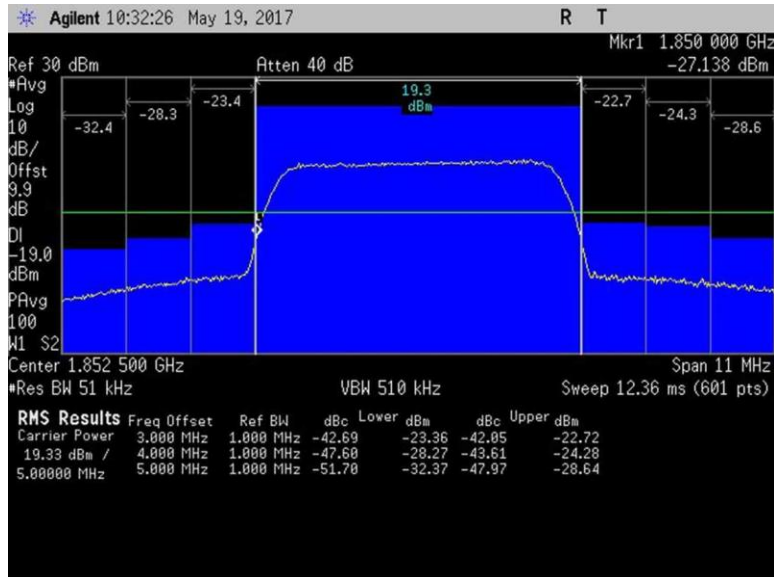
7.5_OBE_UL_1850-1915MHz_H_PreAGC_CDMA



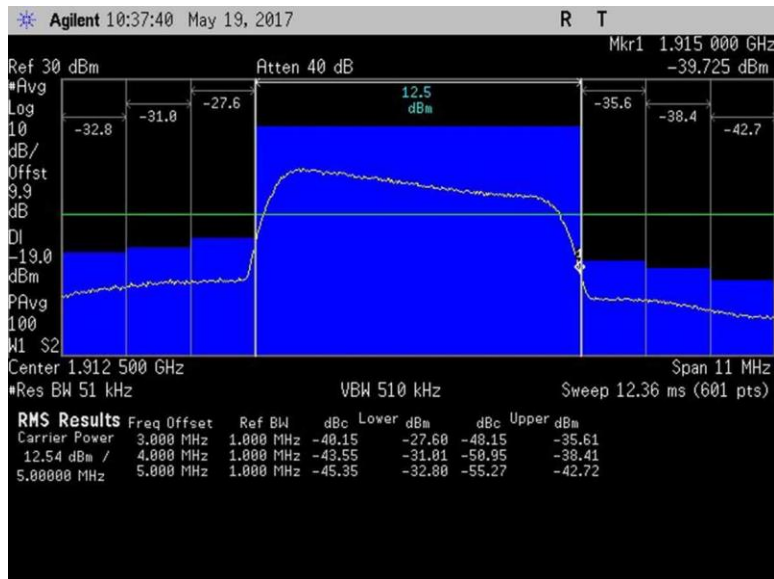
7.5_OBE_UL_1850-1915MHz_L_PreAGC_GSM



7.5_OBE_UL_1850-1915MHz_H_PreAGC_GSM



7.5_OBE_UL_1850-1915MHz_L_PreAGC_LTE



7.5_OBE_UL_1850-1915MHz_H_PreAGC_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 #: **99983** Date: 5/19/2017
 Test Type: **Conducted Emissions** Time: 15:37:00 PM
 Tested By: **Daniel Bertran** Sequence#: 1
 Software: EMITest 5.03.02

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N

Test Conditions / Notes:

The equipment under test (EUT) is a Mobile 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 FME connector and 50-ohm impedance.
 The EUT Donor port is type FME connector and 50-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

Test procedure:
 The test was performed in accordance with section 7.6 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04 Dated February 12, 2016.
 Firmware: 1.7
 Test environment conditions: Test environment conditions: 24°C, 40% Relative Humidity, 101.5kPa
 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.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN03418	Signal Generator	E4438C	7/30/2015	7/30/2017
	ANP06239	Attenuator	54A-10	8/8/2016	8/8/2018
	ANP06897	Cable	32022-29094K-29094K-48TC	12/30/2015	12/30/2017
	ANP06898	Cable	32022-29094K-29094K-48TC	12/30/2015	12/30/2017
	ANP05411	Attenuator	54A-10	1/18/2016	1/18/2018
	AN03471	Spectrum Analyzer	E4440A	1/4/2016	1/4/2018

Summary of Results

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

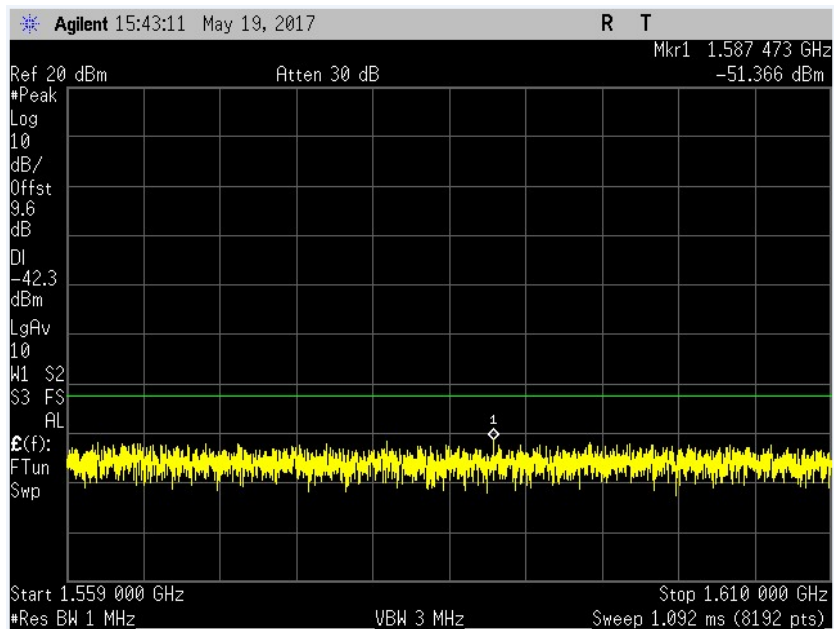
9 KHz-30 MHz

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*				
Freq (MHz)	Antenna Gain- cable loss (dBi)	Limit line EIRP (dBW/MHz)	Limit line EIRP (dBm)	Limit line EIRP corrected (dBm)
UL 776-787	-2.3	-70.0	-40	-42.3

*Used vehicle Kit number 1



LIMIT LINE FOR SPURIOUS CONDUCTED EMISSION

REQUIRED ATTENUATION = 43+10 LOG P DB

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

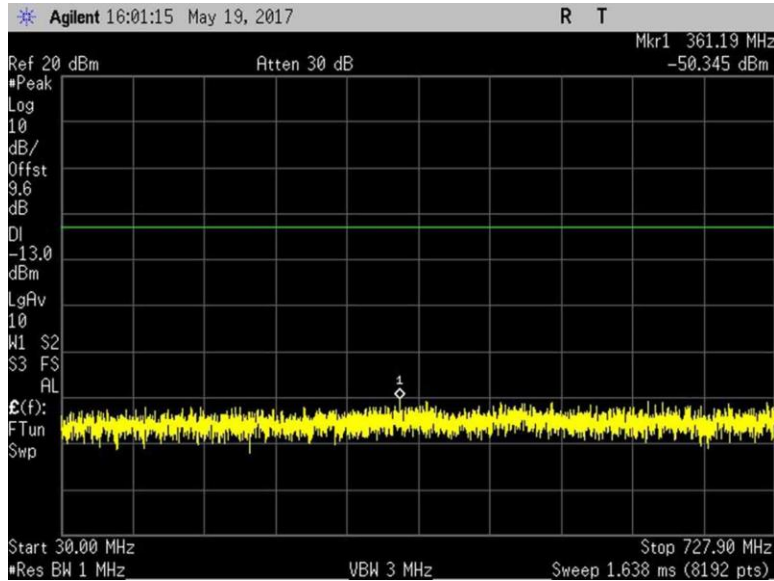
$$\begin{aligned}
 V_{dBuV} &= 20 \text{ Log } \frac{V}{1 \times 10^{-6}} \\
 &= 20 (\text{Log } V - \text{Log } 1 \times 10^{-6}) \\
 &= 20 \text{ Log } V - 20 \text{ Log } 1 \times 10^{-6} \\
 &= 20 \text{ Log } V - 20 (-6) \\
 &= 20 \text{ Log } V + 120
 \end{aligned}$$

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

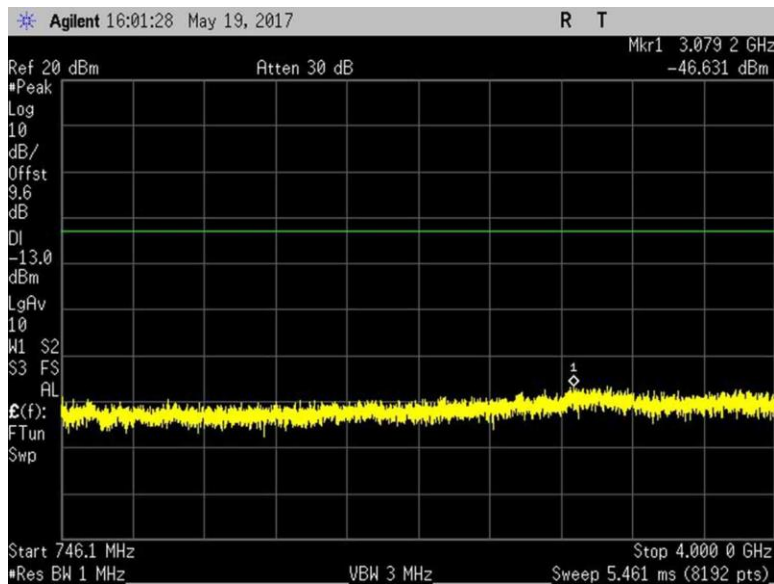
$$\begin{aligned}
 \text{Limit line} &= V_{dBuV} - \text{Attenuation} \\
 &= 20 \text{ Log } V + 120 - (43 + 20 \text{ Log } V - 10 \text{ Log } R) \\
 &= 20 \text{ Log } V + 120 - 43 - 20 \text{ Log } V + 10 \text{ Log } R \\
 &= 20 \text{ Log } V + 120 - 43 - 20 \text{ Log } V + 10 \text{ Log } R \\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

Plots

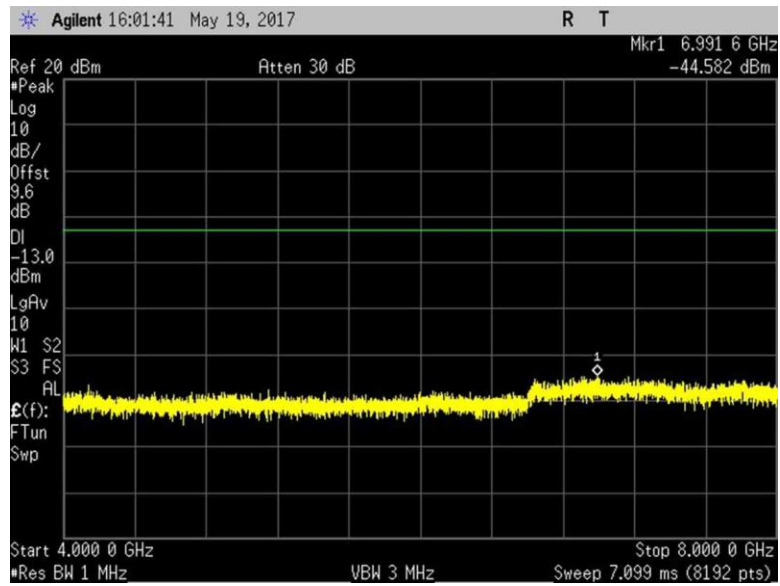
DL



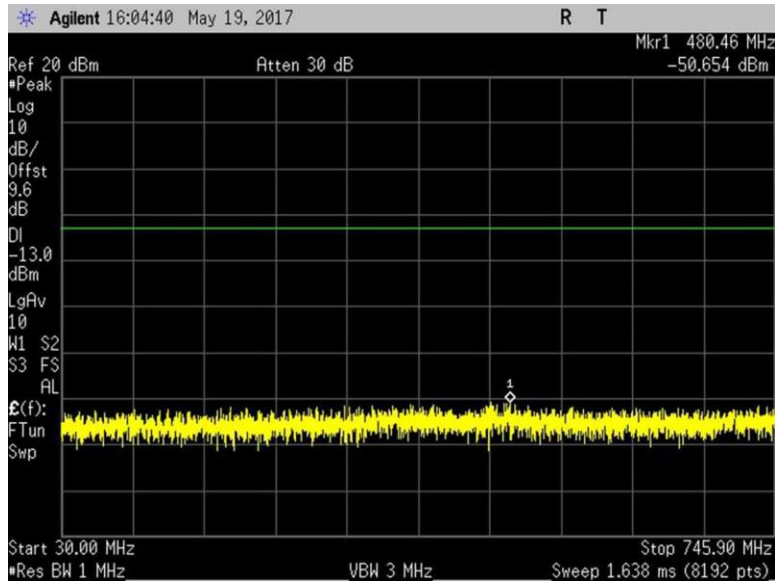
7.6_CSE_DL_728-746MHz_L



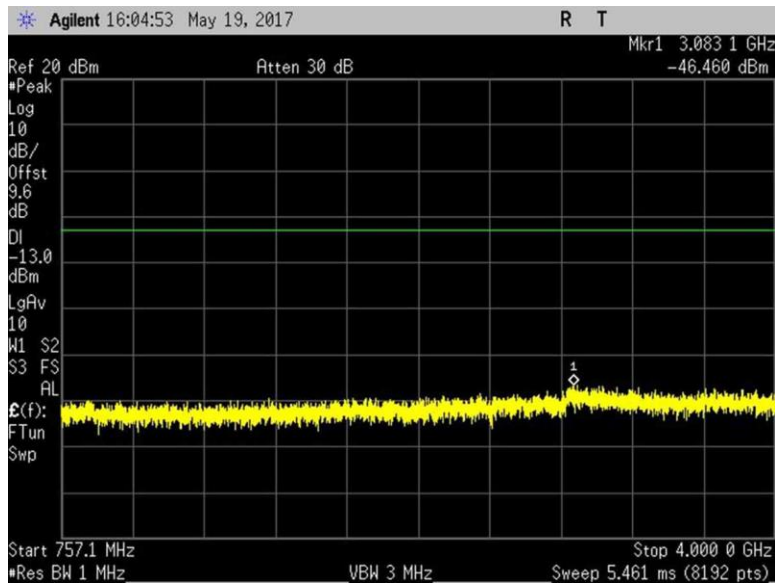
7.6_CSE_DL_728-746MHz_R1



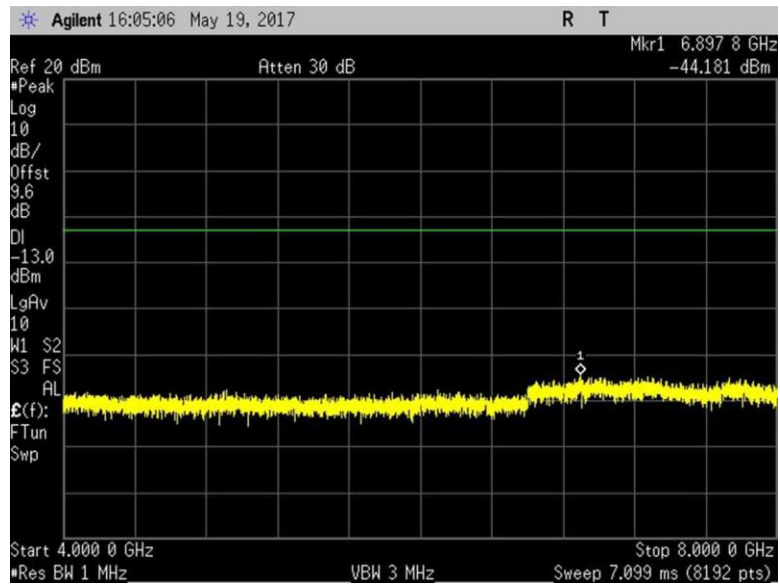
7.6_CSE_DL_728-746MHz_R2



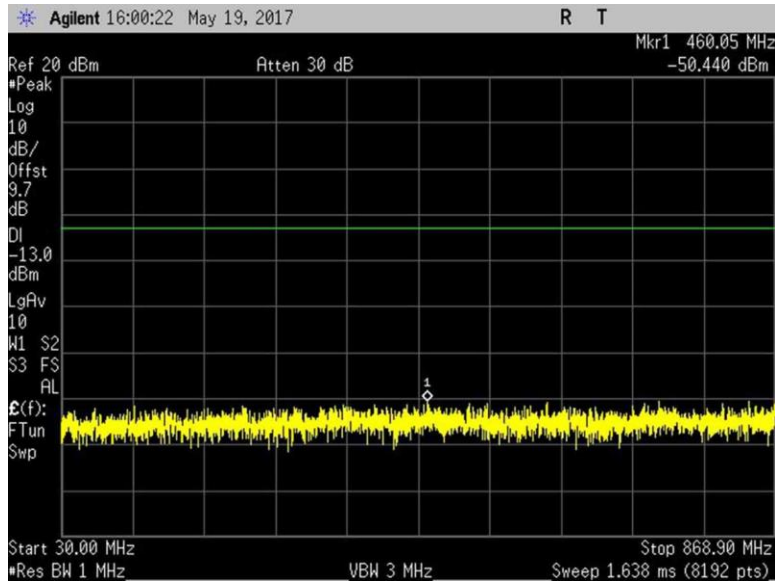
7.6_CSE_DL_746-757MHz_L



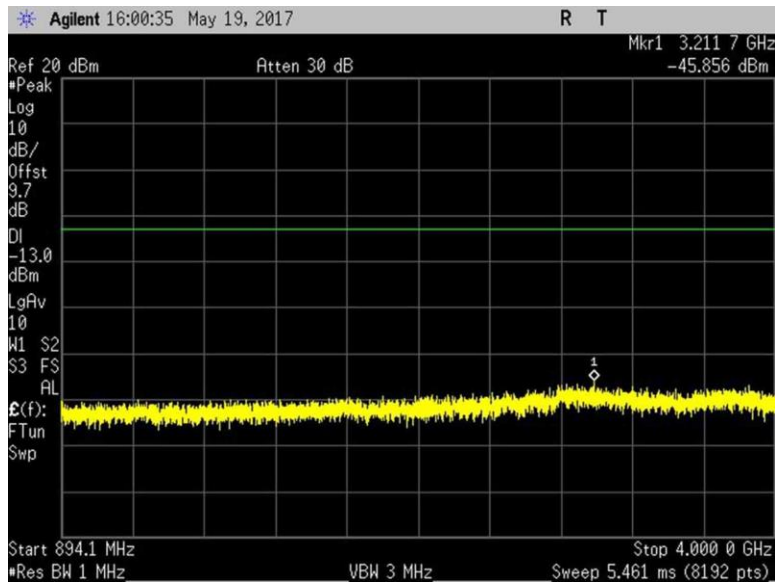
7.6_CSE_DL_746-757MHz_R1



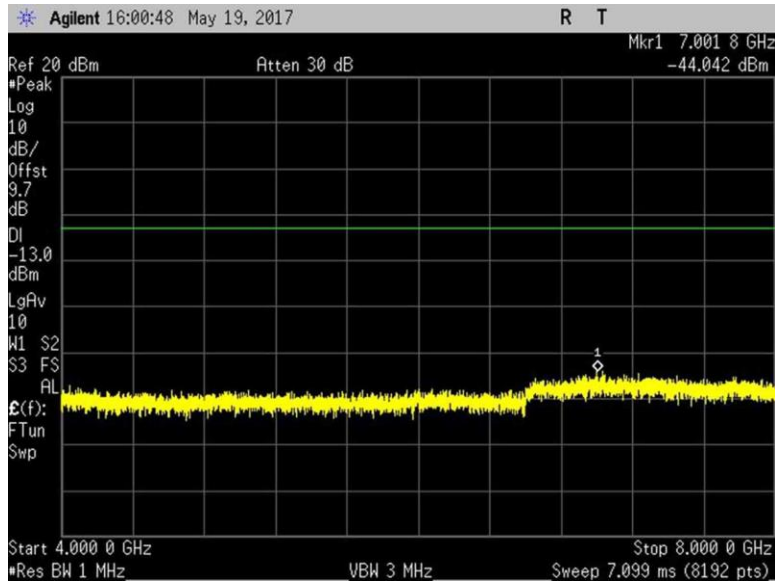
7.6_CSE_DL_746-757MHz_R2



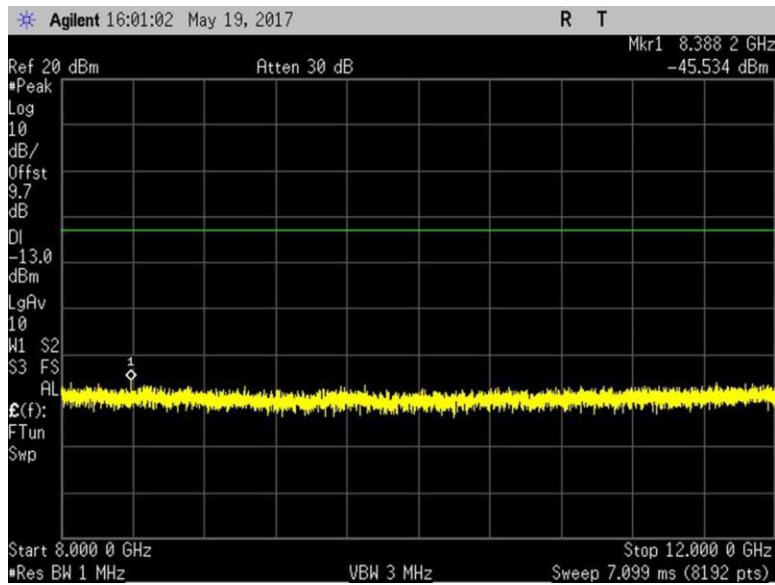
7.6_CSE_DL_869-894MHz_L



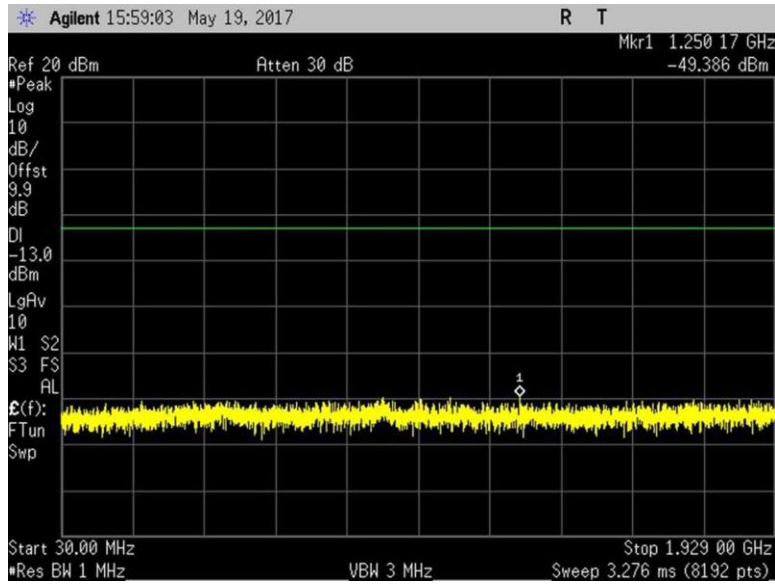
7.6_CSE_DL_869-894MHz_R1



7.6_CSE_DL_869-894MHz_R2



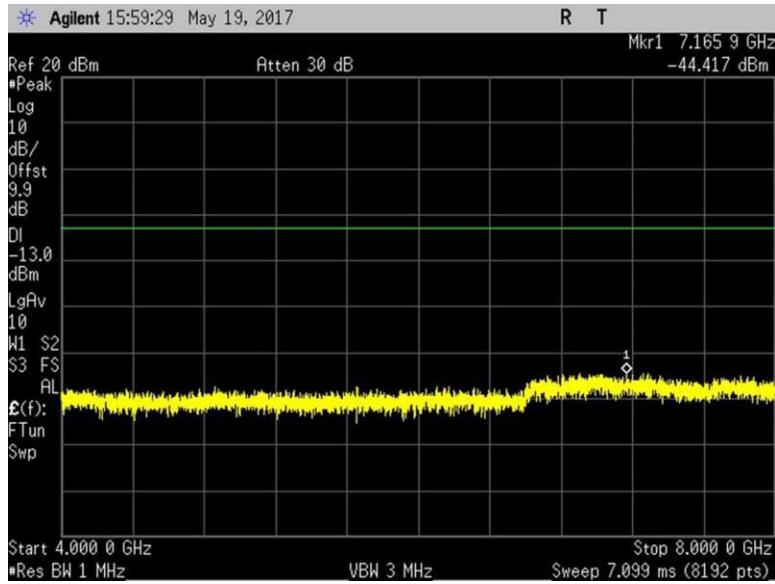
7.6_CSE_DL_869-894MHz_R3



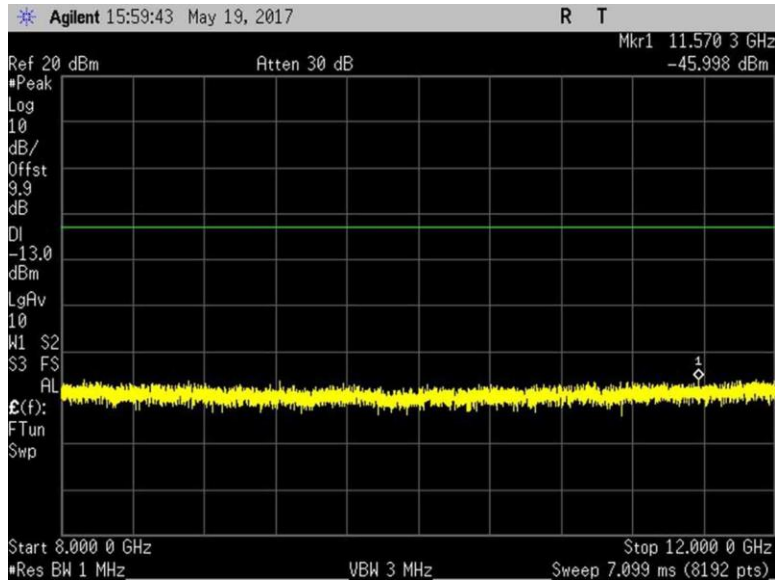
7.6_CSE_DL_1930-1995MHz_L



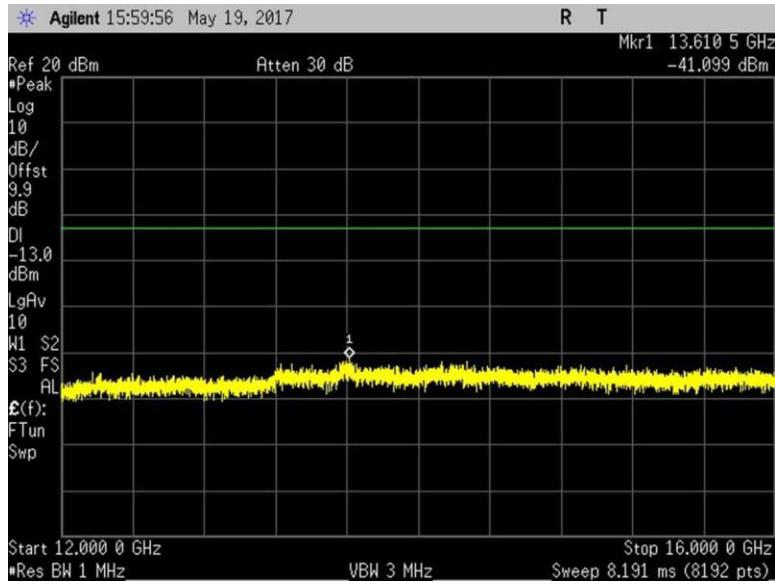
7.6_CSE_DL_1930-1995MHz_R1



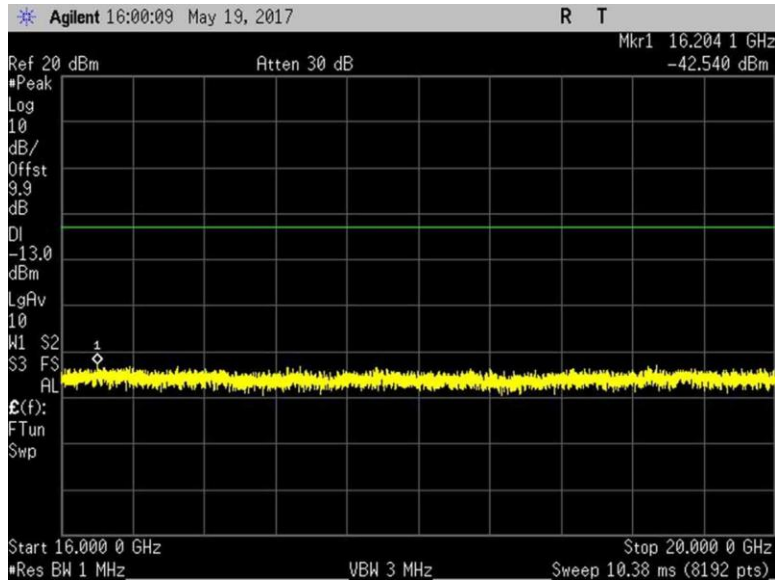
7.6_CSE_DL_1930-1995MHz_R2



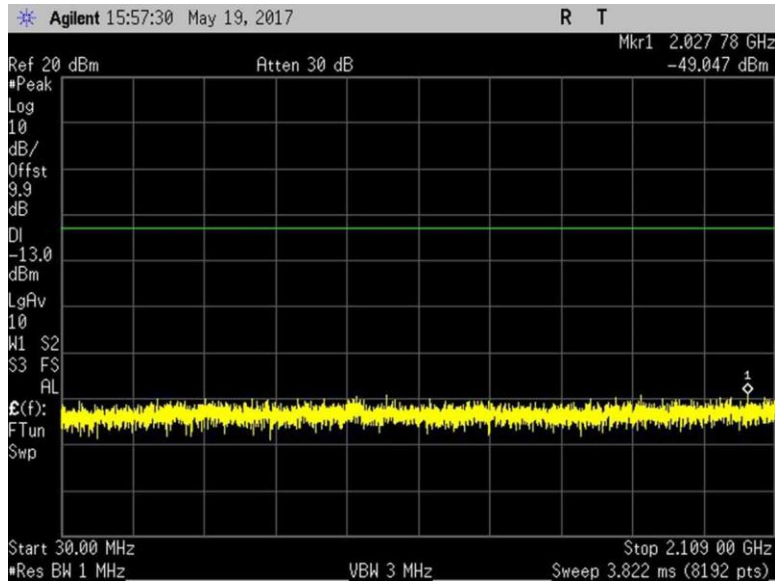
7.6_CSE_DL_1930-1995MHz_R3



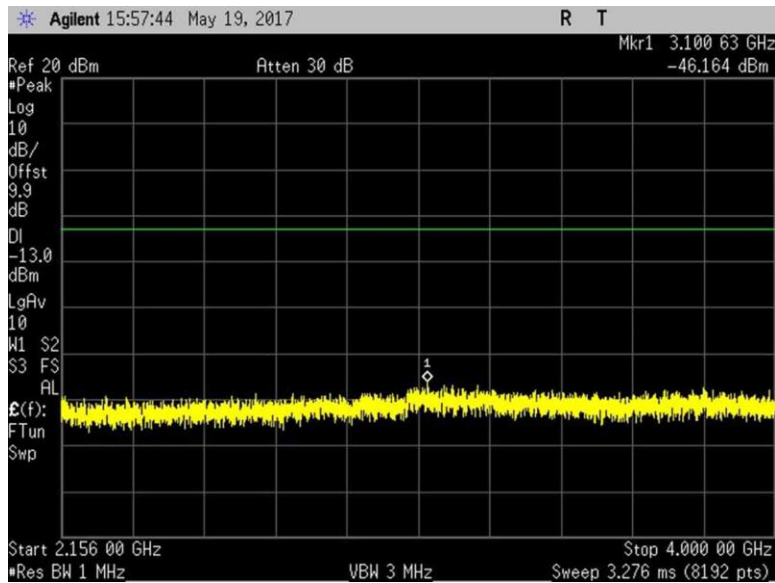
7.6_CSE_DL_1930-1995MHz_R4



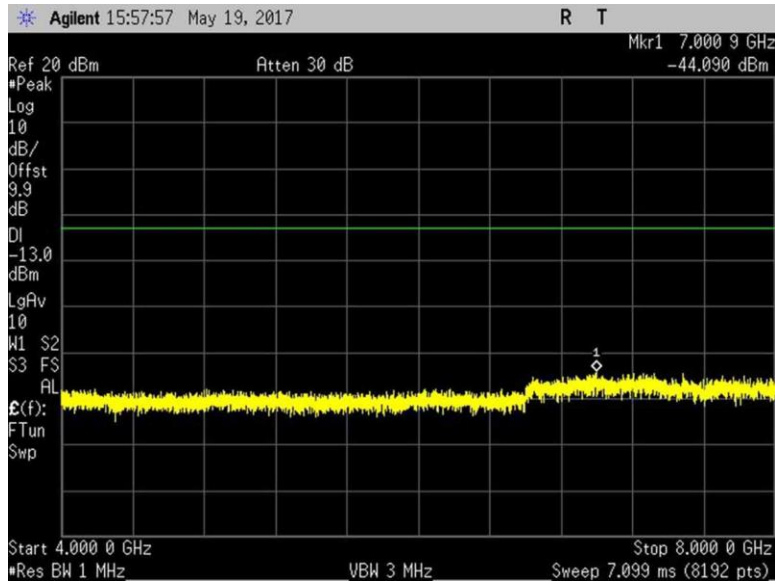
7.6_CSE_DL_1930-1995MHz_R5



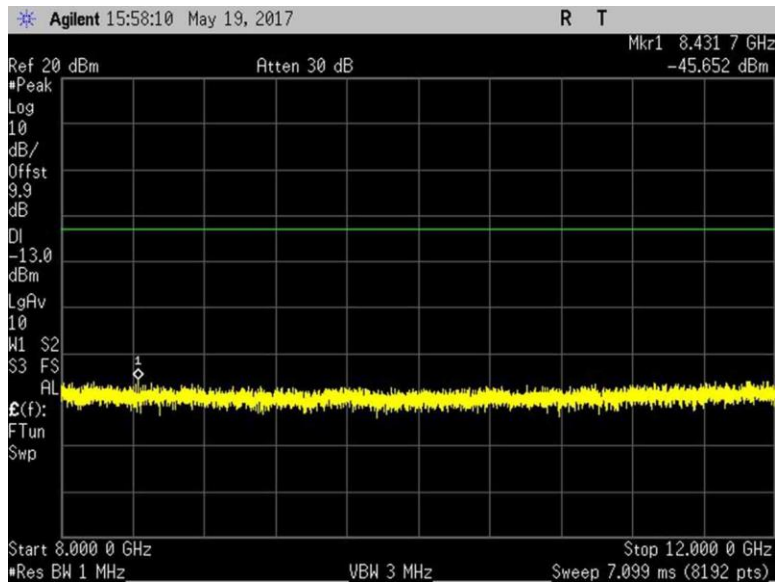
7.6_CSE_DL_2110-2155MHz_L



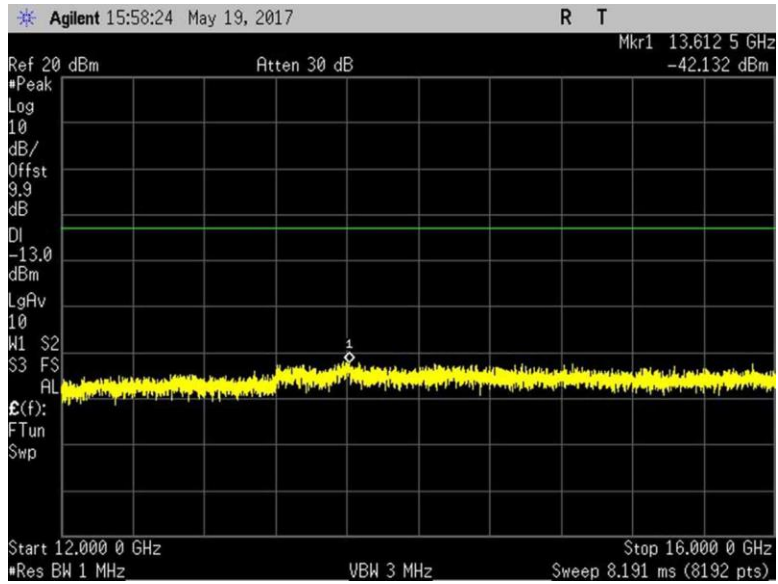
7.6_CSE_DL_2110-2155MHz_R1



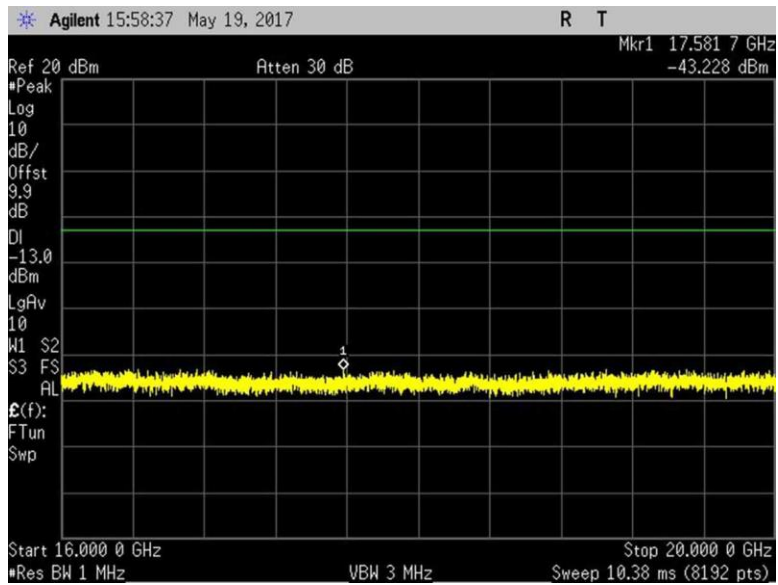
7.6_CSE_DL_2110-2155MHz_R2



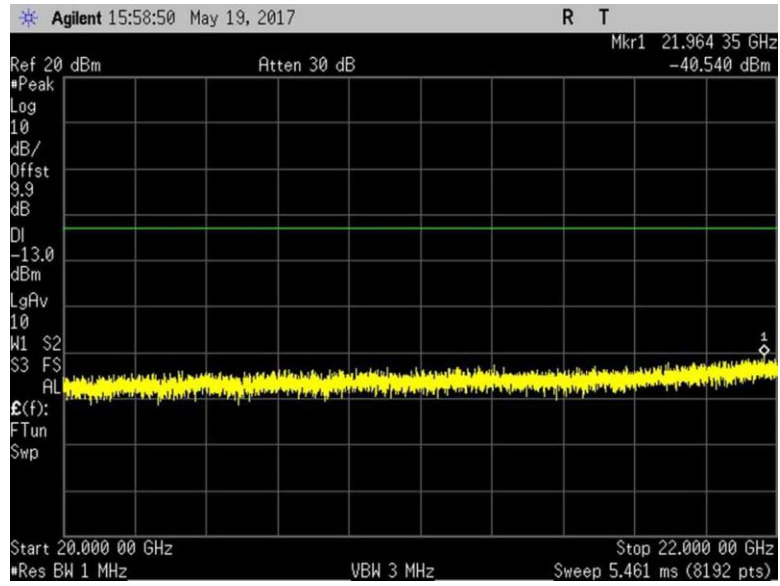
7.6_CSE_DL_2110-2155MHz_R3



7.6_CSE_DL_2110-2155MHz_R4

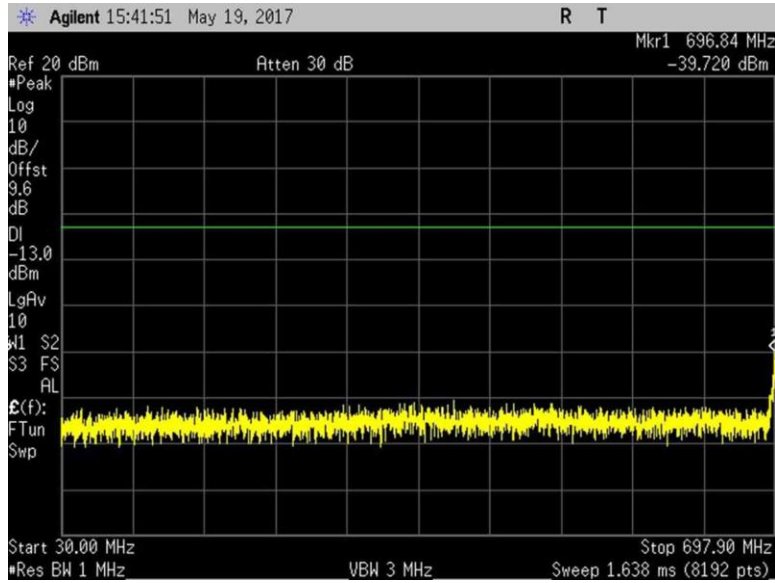


7.6_CSE_DL_2110-2155MHz_R5

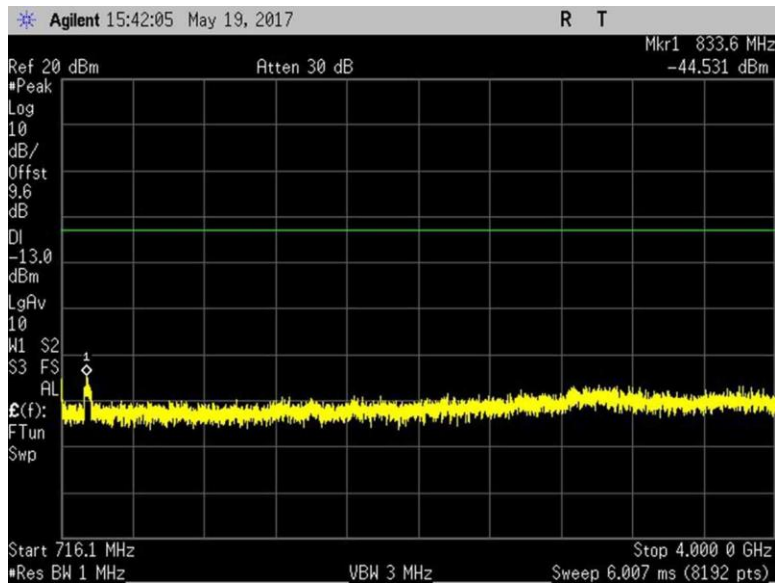


7.6_CSE_DL_2110-2155MHz_R6

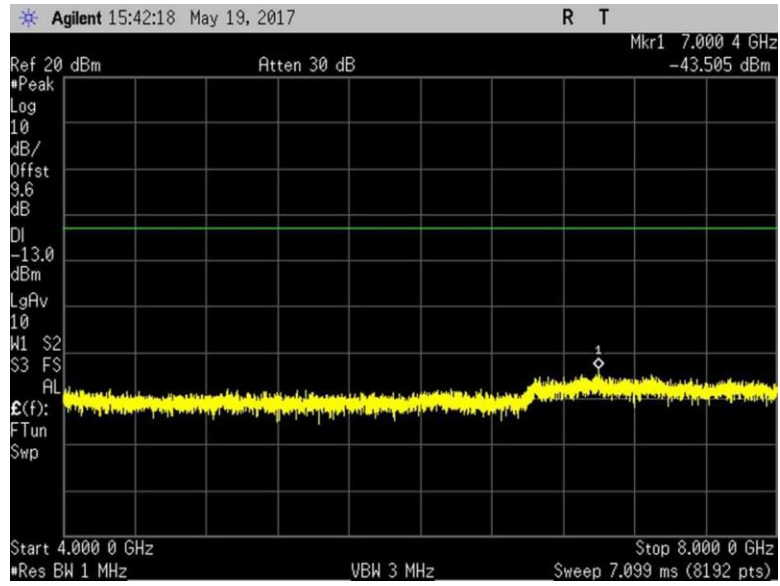
UL



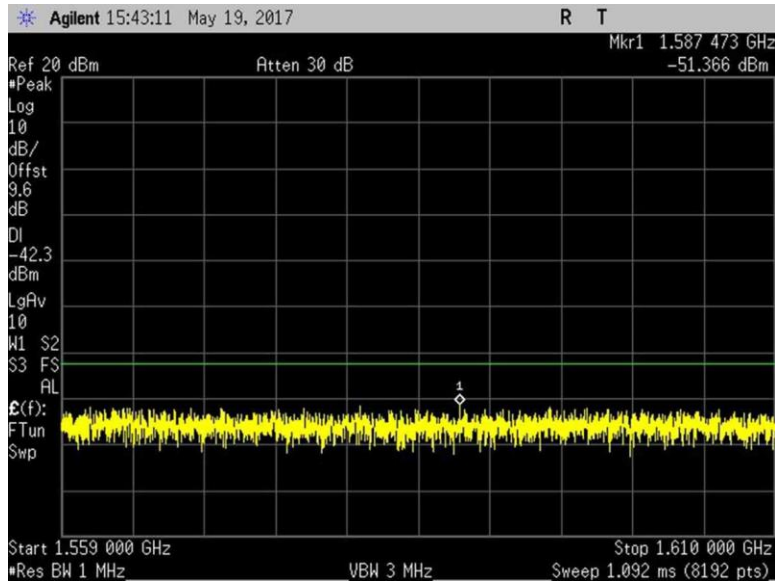
7.6_CSE_UL_698-716MHz_L



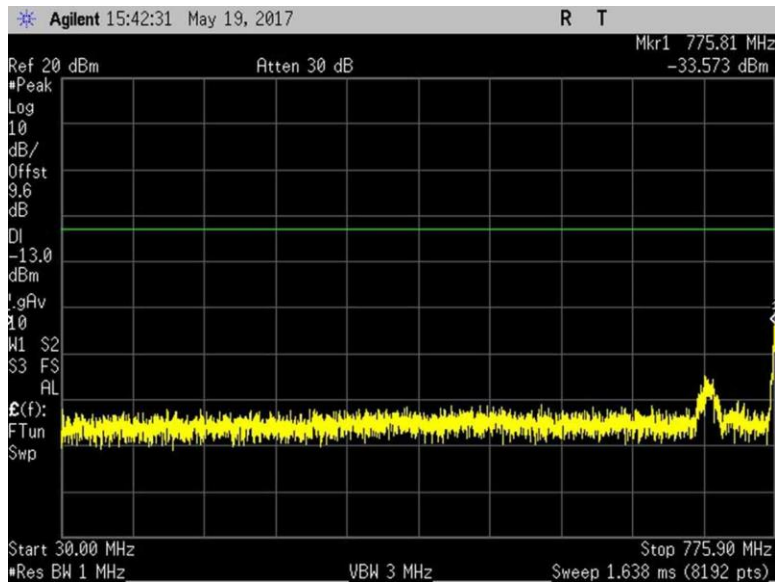
7.6_CSE_UL_698-716MHz_R1



7.6_CSE_UL_698-716MHz_R2



7.6_CSE_UL_776-787MHz_GPS



7.6_CSE_UL_776-787MHz_L