Huaptec

TEST REPORT FOR

Quint Band Signal Booster
Model: F20G-5S-LCD

Tested To The Following Standard:

FCC Part 20.21

Report No.: 99345-9

Date of issue: January 20, 2017

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

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.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Huaptec
5th FL, E BLDG, Sogood Science Park
Bao'an Shenzhen 518102
China

REPRESENTATIVE: April

REPORT PREPARED BY:

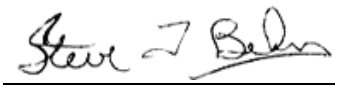
Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 99345

DATE OF EQUIPMENT RECEIPT: January 5, 2017
DATE(S) OF TESTING: January 5-13, 2017

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.



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	5.03.02
EMITest Immunity	5.03.02

Site Registration & Accreditation Information

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

SUMMARY OF RESULTS

Standard / Specification: FCC Part 20.21

KDB 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04, Feb 12, 2016		FCC Part Section Correlation		Mods	Results
Guidance Sec #	**Guidance Description**	**FCC Sec #**	**FCC Rule Description**		
7.1 a) - k)	Authorized Frequency Band Verification Test	20.21(e)(3)	Frequency Bands	NA	Pass
7.2.2 a) - k)	Maximum Power Measurement Procedure	2.1046/20.21(e)(8)(i)(D)	Power Limit	NA	Pass
7.3 a) - d)	Maximum Booster Gain Computation	20.21(e)(8)(i)(B)	Bidirectional Capabilities	NA	Pass
7.4 a) - n)	Intermodulation Product	20.21(e)(8)(i)(F)	Intermodulation Limit	NA	Pass
7.5 a) - n)	Out of Band Emissions	20.21(e)(8)(i)(E)	Out of Band Emission	NA	Pass
7.6 a) - e)	Conducted Spurious Emission	2.1051/22/24/27	Spurious emission	NA	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	NA	Pass
7.8 a) - l)	Uplink inactivity	20.21(e)(8)(i)(I)	Uplink Inactivity	NA	Pass

NA = Not Applicable

Standard / Specification: FCC Part 20.21 - continued

KDB 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04, Feb 12, 2016		FCC Part Section Correlation		Mods	Results
Guidance Sec #	**Guidance Description**	**FCC Sec #**	**FCC Rule Description**		
7.9.1 a) - l) 7.9.2 a) - f)	Variable Booster Gain Variable Uplink Gain Timing	20.21(e)(8)(i)(C) (1), (2)(i) 20.21(e)(8)(i)(H)	Booster Gain Transmit Power Off Mode	NA	Pass
7.10.a) - j)	Occupied Band Width	2.1049/22/24/27	Occupied Band Width	NA	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	NA	Pass
7.12a) - f)	Radiated Spurious Emission	2.1053/ 22/24/27	Spurious Emission	NA	Pass
7.13 a) - c)	Spectrum Block Filter[2]	NA	NA	NA	NA1

NA = Not Applicable

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

Modifications During Testing

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

Summary of Conditions
No modifications were made during testing.

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
Quint Band Signal Booster	Huaptec	F20G-5S-LCD	01
AC/DC Adapter	None	GM50-120300-F	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
None			

FCC PART 20.21

7.1 Authorized Frequency Band Verification

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170		
Customer:	Huaptec		
Specification:	**7.1 Authorized Frequency Band Verification**		
Work Order #:	**99345**	Date:	1/4/2017
Test Type:	**Conducted Emissions**	Time:	9:31:31 AM
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
Configuration 1			

Test Conditions / Notes:

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 N connector and 50-ohm impedance.
The EUT Donor port is type N 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

The test was performed in accordance with section 7.1 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04 Dated February 12, 2016.
Firmware: AF20-5S-V04

Test environment conditions:
Temperature: 18.9°C
Relative Humidity: 58%
Pressure: 101.5 kPa

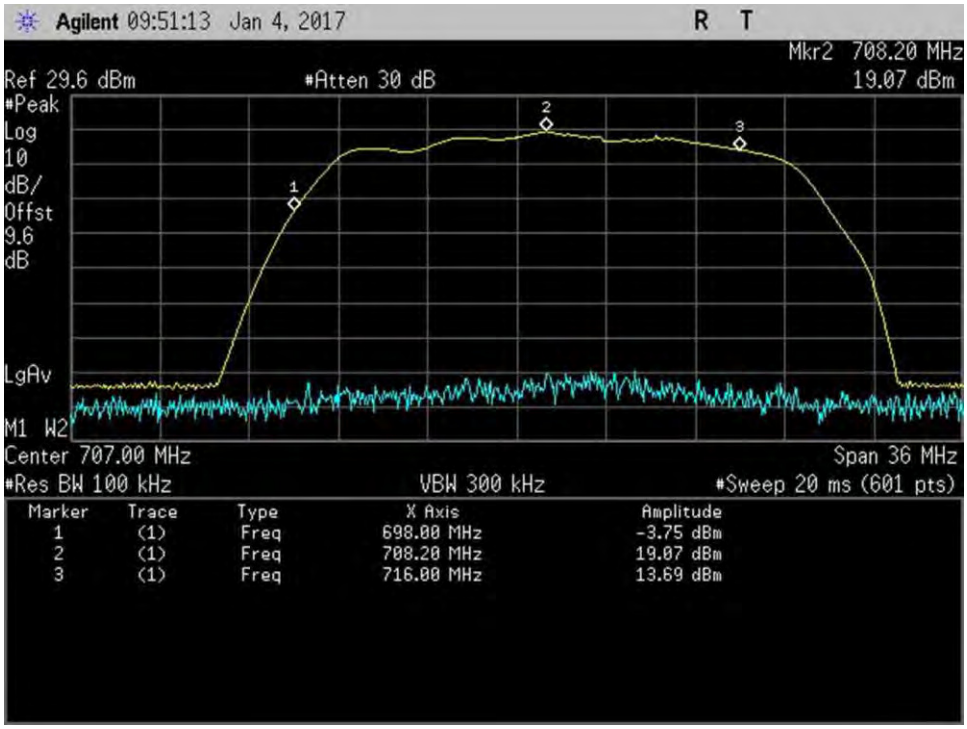
Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN03418	Signal Generator	E4438C	7/30/2015	7/30/2017
	ANP06467	Attenuator	PE7014-10	5/13/2015	5/13/2017
	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

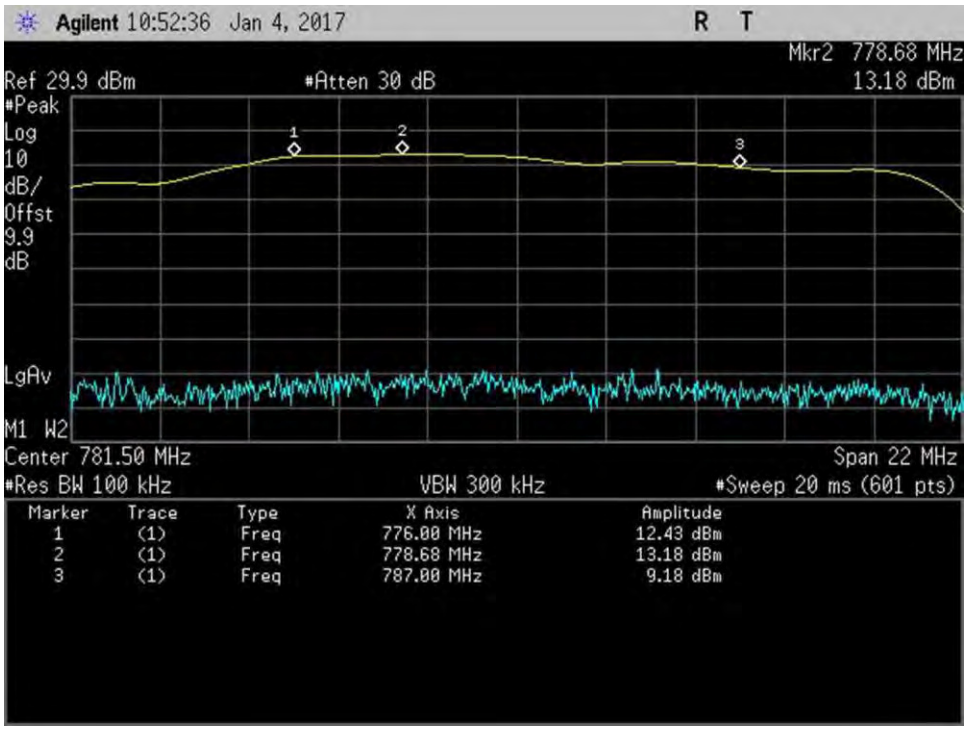
Summary of Results

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

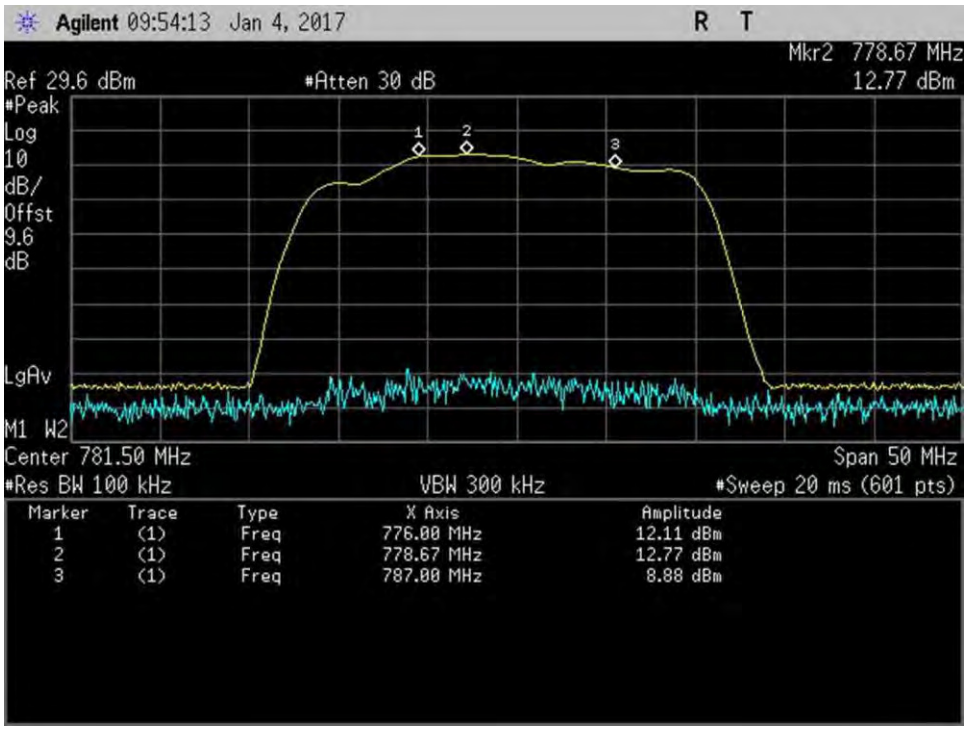
Plots



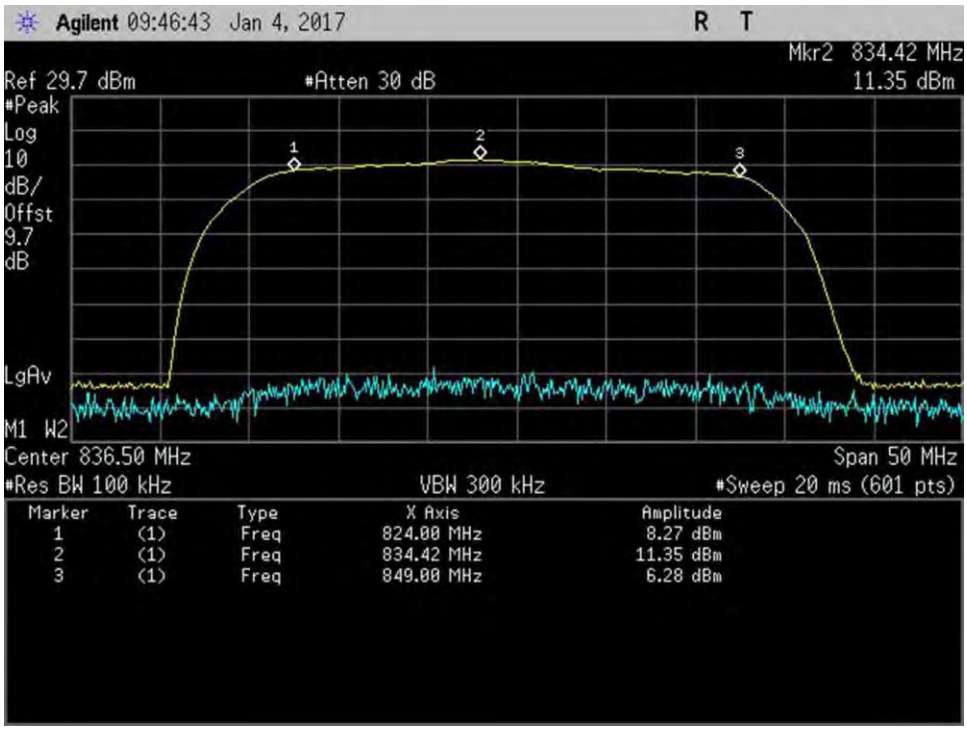
7.1_Band Verify_UL_698-716MHz



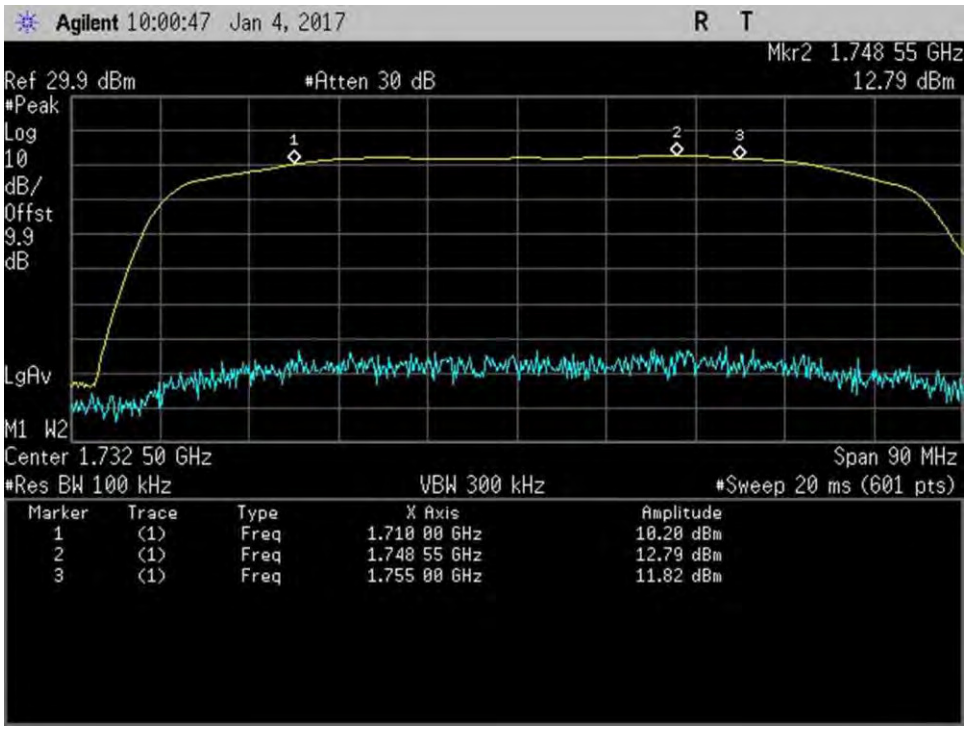
7.1_Band Verify_UL_776-787MHz



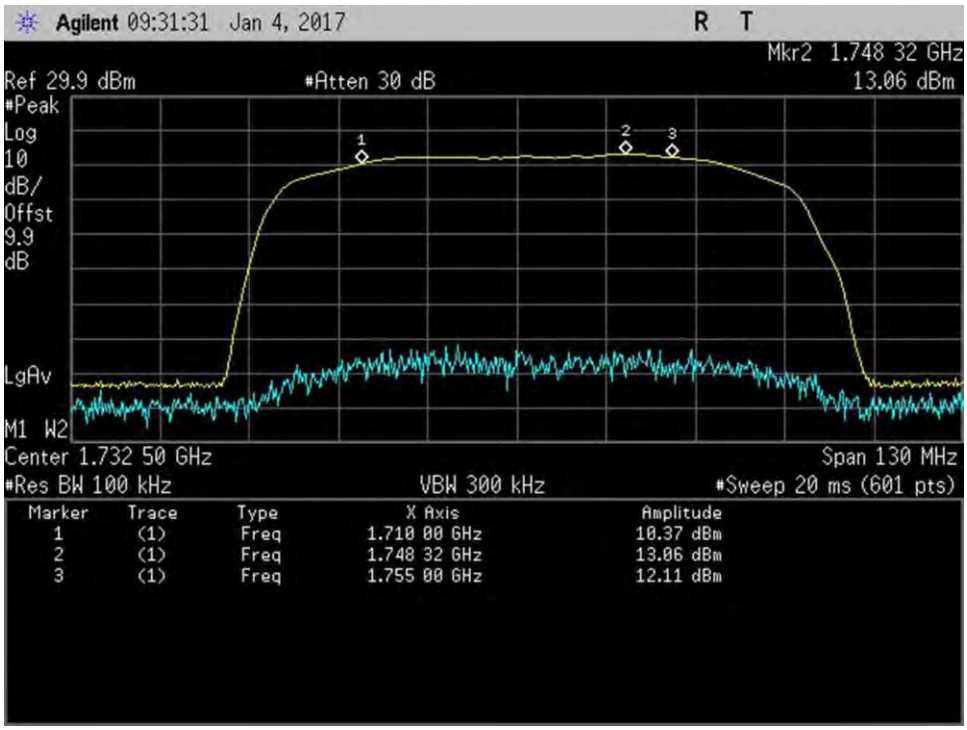
7.1_Band Verify_UL_776-787MHz_Zoom



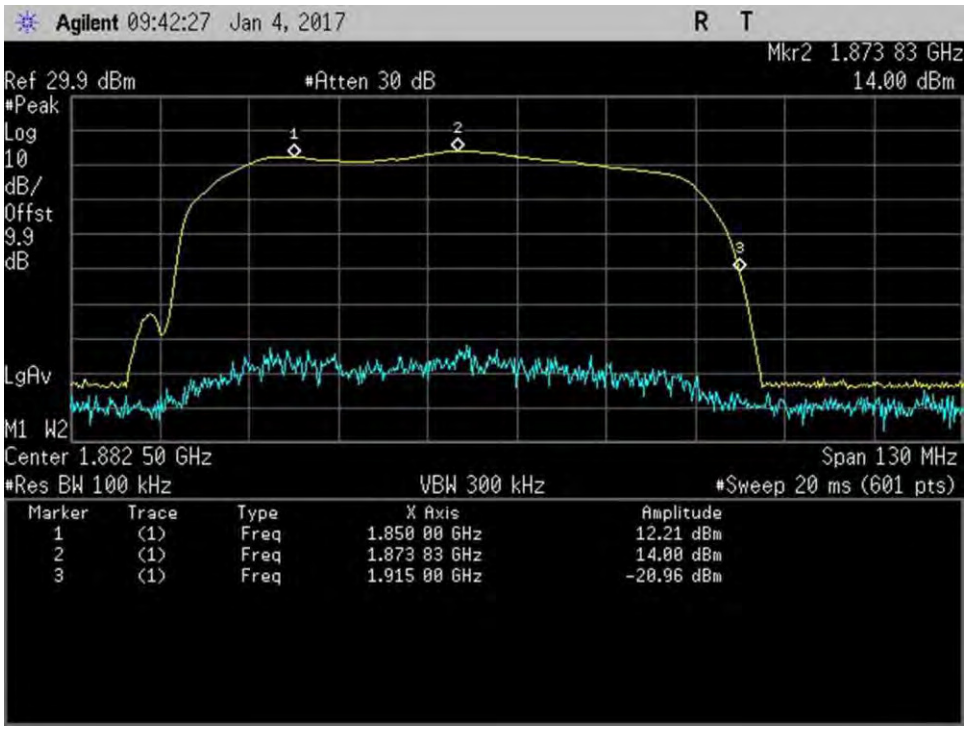
7.1_Band Verify_UL_824-849MHz



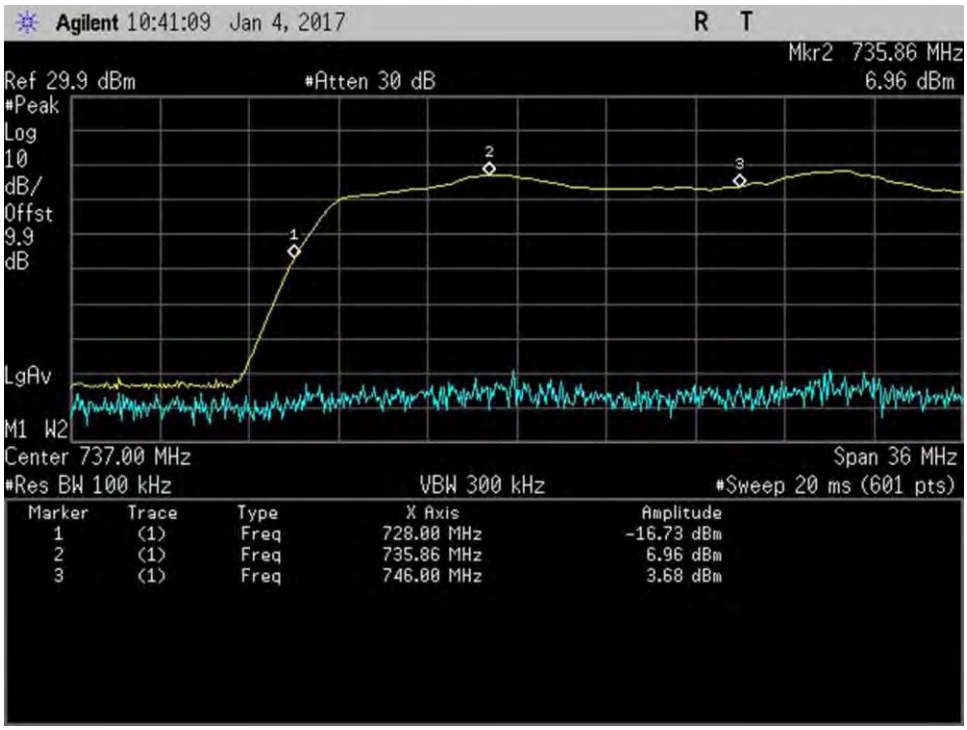
7.1_Band Verify_UL_1710-1755MHz



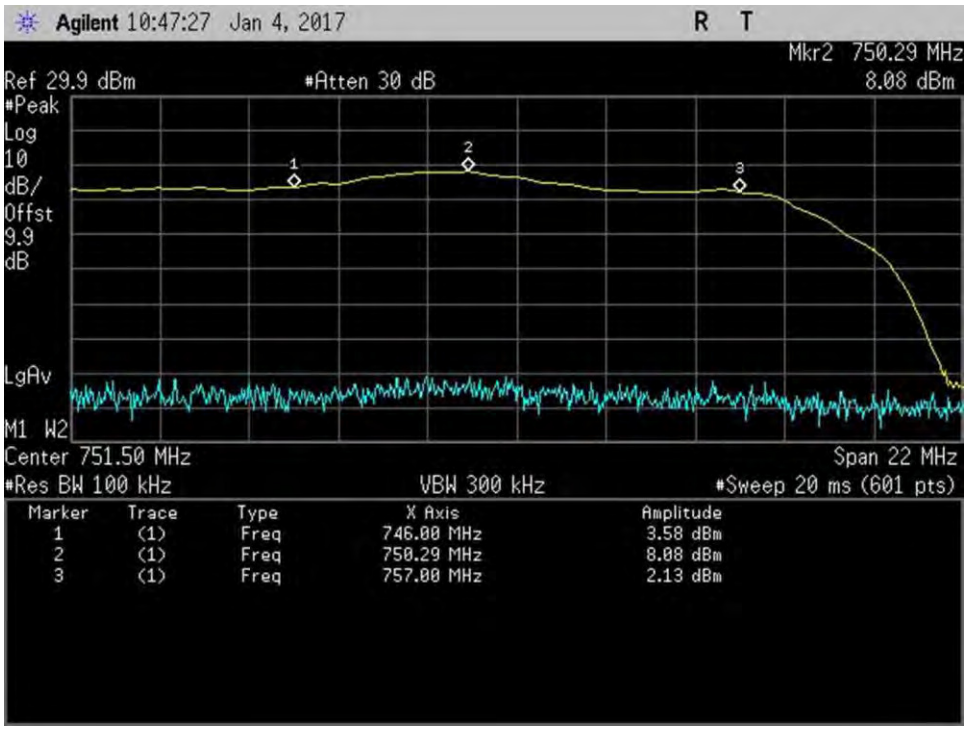
7.1_Band Verify_UL_1710-1755MHz_Zoom



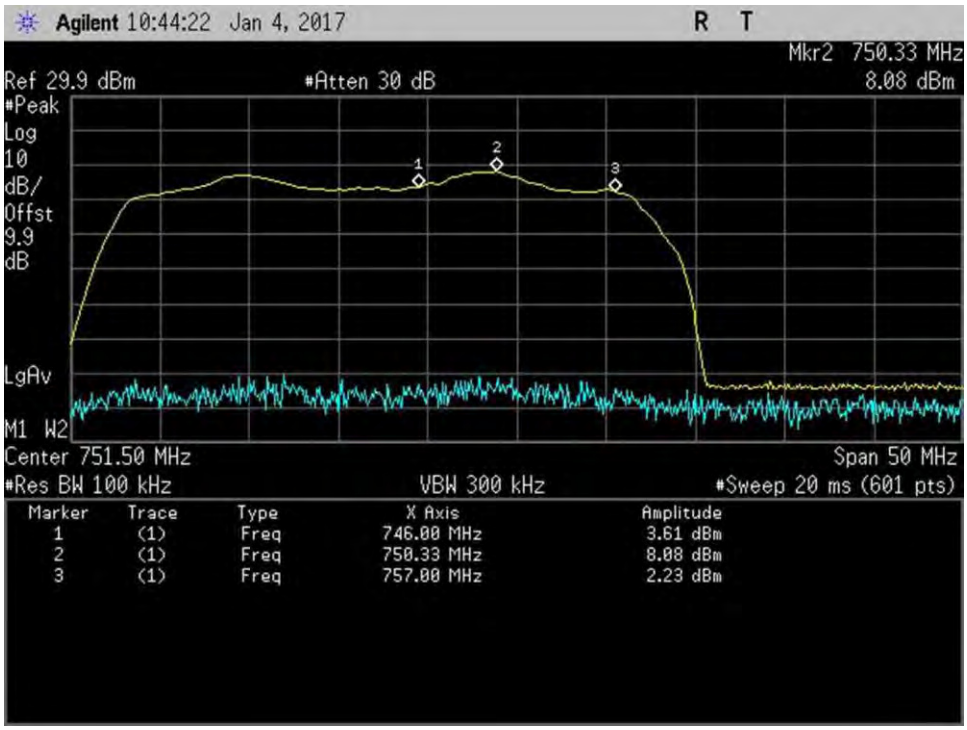
7.1_Band Verify_UL_1850-1915MHz



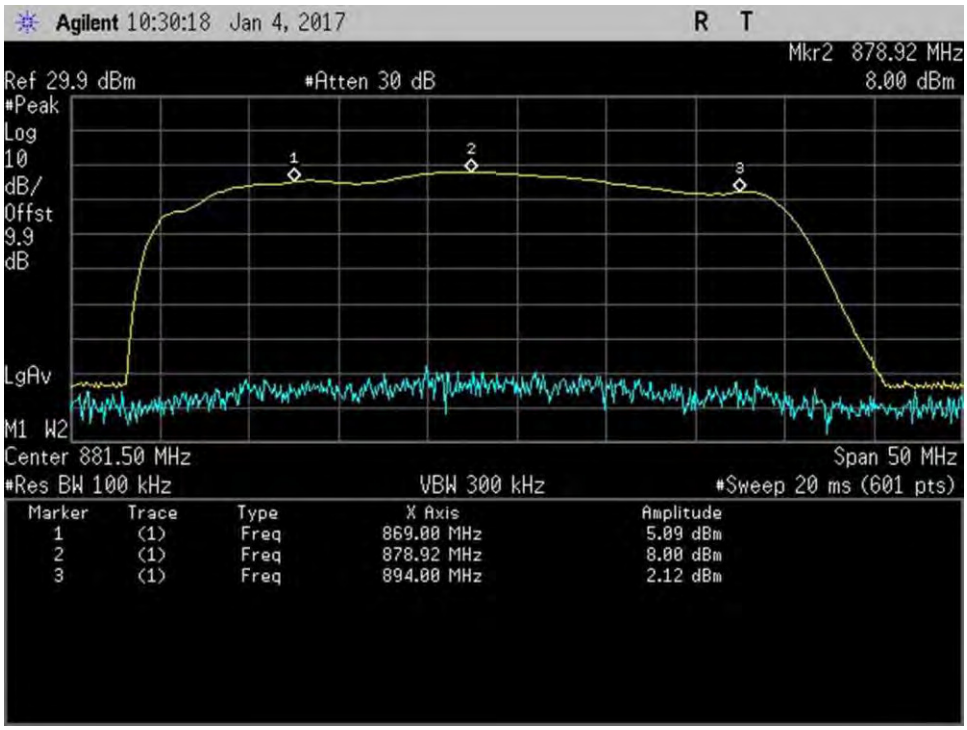
7.1_Band Verify_DL_728-746MHz



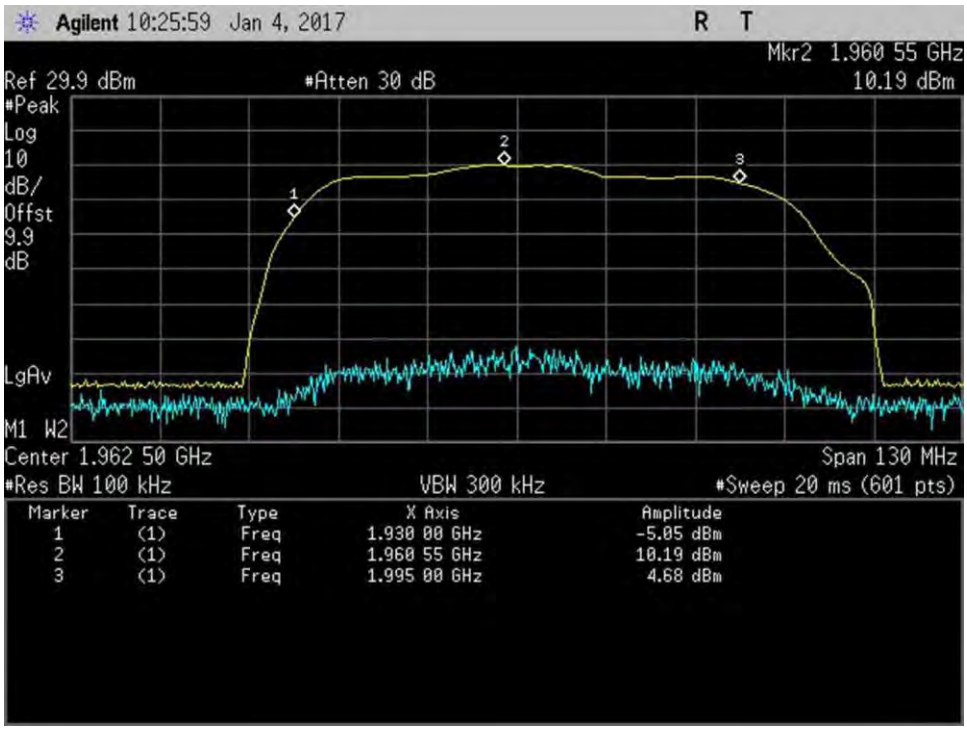
7.1_Band Verify_DL_746-757MHz



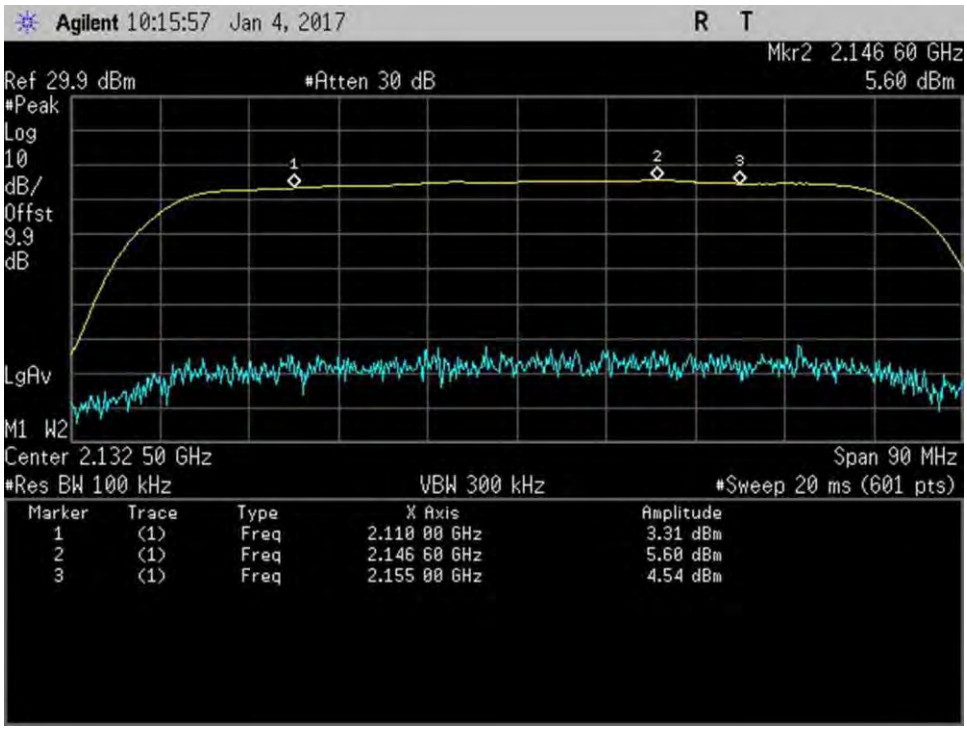
7.1_Band Verify_DL_746-757MHz_Zoom



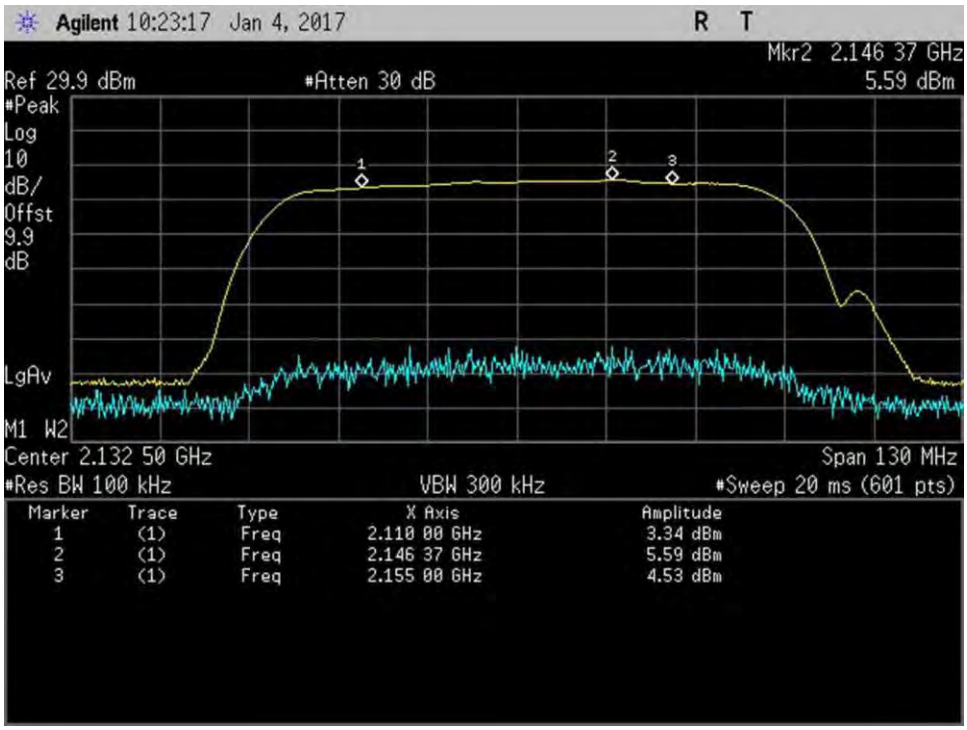
7.1_Band Verify_DL_869-894MHz



7.1_Band Verify_DL_1930-1995MHz



7.1_Band Verify_DL_2110-2155MHz



7.1_Band Verify_DL_2110-2155MHz_Zoom

7.2 and 7.3 Maximum Power and Maximum Booster Gain

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170		
Customer:	Huaptec		
Specification:	**7.2 Maximum Power Measurement** **7.3 Maximum Booster Gain**		
Work Order #:	**99345**	Date:	1/4/2017
Test Type:	**Conducted Emissions**	Time:	11:06:39 AM
Tested By:	**Daniel Bertran**	Sequence#:	1
Software:	EMITest 5.03.03		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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 N connector and 50-ohm impedance.
The EUT Donor port is type N 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

The test was performed in accordance with section 7.2 and 7.3 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04 Dated February 12, 2016.
Firmware: AF20-5S-V04

Test environment conditions:
Temperature: 18.9°C
Relative Humidity: 58%
Pressure: 101.5 kPa

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN03418	Signal Generator	E4438C	7/30/2015	7/30/2017
	ANP06467	Attenuator	PE7014-10	5/13/2015	5/13/2017
	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

The booster is to be deployed with the following antenna kits:

The antenna kitting options for model F20G-5S-LCD signal booster were done for 31 Outdoor Antenna kit options and 19 Indoor Antenna kit options. The order of the attached calculations is as follows:

Outdoor Antenna Kit Options	
1	Kit 11-100400
2	Kit 11-7550
3	Kit 11-10050
4	Kit10-3050
5	Kit10-50400
6	Kit10-5050
7	Kit10-75400
8	Kit10-100400
9	Kit10-7550
10	Kit10-10050
11	Kit 9-50400
12	Kit 9-5050
13	Kit 9-75400
14	Kit 9-100400
15	Kit 9-7550
16	Kit 9-10050
17	Kit7-3050
18	Kit7-50400
19	Kit7-5050
20	Kit7-75400
21	Kit7-100400
22	Kit7-7550
23	Kit7-10050
24	Kit5-30400
25	Kit5-3050
26	Kit5-50400
27	Kit5-5050
28	Kit5-75400
29	Kit5-10400
30	Kit5-7550
31	Kit5-10050

Indoor Antenna Kit Options	
1	Kit 52-5050-50
2	Kit 102-5050-50
3	Kit 103-7550-50
4	Kit 104-7550-50
5	Kit 72-5050-50
6	Kit 73-7550-50
7	Kit 74-7550-50
8	Kit 3-1550
9	Kit 3-30400
10	Kit 3-5050
11	Kit 3-7550
12	Kit 3-10050
13	Kit 3-30400
14	Kit 3-50400
15	Kit 3-75400
16	Kit 3-100400
17	Kit 32-50400-50
18	Kit 33-50400-50
19	Kit 34-50400-50

Outdoor Antenna kit Options

Final Output Power Limited to 30 dBm EIRP in all Frequency Bands

Uplink Frequency(MHz)	698-716	776-787	824-849	1710-1755	1850-1915
Uplink Output Power(dBm)	**22.2**	**21.6**	**20.5**	**21**	**21.5**

1. Yagi 11dbi Antenna with 100' 400 N male Kit numbers: 11-100400

Antenna Gain (dBi)	10	10	10	11	11
Coax Cable Loss (dB)	4.8	4.8	4.8	7	7
Final Gain Less Loss (dB)	5.2	5.2	5.2	4	4
Final Output Power (dBm EIRP)	**27.4**	**26.8**	**25.7**	**25**	**25.5**

2. Yagi 11dbi Antenna with 75' 5D N male Kit numbers: 11-7550

Antenna Gain (dBi)	10	10	10	11	11
Coax Cable Loss (dB)	4.6	4.6	4.6	6	6
Final Gain Less Loss (dB)	5.4	5.4	5.4	5	5
Final Output Power (dBm EIRP)	**27.6**	**27**	**25.9**	**26**	**26.5**

3. Yagi 11dbi Antenna with 100' 5D N male Kit numbers: 11-10050

Antenna Gain (dBi)	10	10	10	11	11
Coax Cable Loss (dB)	5	5	5	8	8
Final Gain Less Loss (dB)	5	5	5	3	3

4. Panel 10dbi Antenna with 30' 5D N male Kit numbers:11-3050

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	1.8	1.8	1.8	3.2	3.2
Final Gain Less Loss (dB)	4.7	4.7	4.7	6.2	6.2
Final Output Power (dBm EIRP)	**26.9**	**26.3**	**25.2**	**27.2**	**27.7**

5. Panel 10dbi Antenna with 50' 400 N male Kit numbers:11-50400

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	2.8	2.8	2.8	3.5	3.5
Final Gain Less Loss (dB)	3.7	3.7	3.7	5.9	5.9
Final Output Power (dBm EIRP)	**25.9**	**25.3**	**24.2**	**26.9**	**27.4**

6. Panel 10dbi Antenna with 50' 5D N male — Kit numbers:11-5050

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	3.5	3.5	3.5	4.4	4.4
Final Output Power (dBm EIRP)	**25.7**	**25.1**	**24**	**25.4**	**25.9**

7. Panel 10dbi Antenna with 75' 400 N male — Kit numbers:11-75400

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	3.5	3.5	3.5	4.4	4.4
Final Output Power (dBm EIRP)	**25.7**	**25.1**	**24**	**25.4**	**25.9**

8. Panel 10dbi Antenna with 100' 400 N male — Kit numbers:11-100400

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	4.8	4.8	4.8	7	7
Final Gain Less Loss (dB)	1.7	1.7	1.7	2.4	2.4
Final Output Power (dBm EIRP)	**23.9**	**23.3**	**22.2**	**23.4**	**23.9**

9. Panel 10dbi Antenna with 75' 5D N male — Kit numbers:11-7550

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	4.6	4.6	4.6	6	6
Final Gain Less Loss (dB)	1.9	1.9	1.9	3.4	3.4
Final Output Power (dBm EIRP)	**24.1**	**23.5**	**22.4**	**24.4**	**24.9**

10. Panel 10dbi Antenna with 100' 5D N male — Kit numbers:11-10050

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Coax Cable Loss (dB)	5	5	5	8	8
Final Gain Less Loss (dB)	1.5	1.5	1.5	1.4	1.4
Final Output Power (dBm EIRP)	**23.7**	**23.1**	**22**	**22.4**	**22.9**

11. Yagi 9dbi Antenna with 50' 400 N male — Kit numbers:9-50400

Antenna Gain (dBi)	8	8	8	9.5	9.5
Coax Cable Loss (dB)	2.8	2.8	2.8	3.5	3.5
Final Gain Less Loss (dB)	5.2	5.2	5.2	6	6
Final Output Power (dBm EIRP)	**27.4**	**26.8**	**25.7**	**27**	**27.5**

12. Yagi 9dbi Antenna with 50' 5D N male — Kit numbers:9-5050

Antenna Gain (dBi)	8	8	8	9.5	9.5
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	5	5	5	4.5	4.5
Final Output Power (dBm EIRP)	**27.2**	**26.6**	**25.5**	**25.5**	**26**

13. Yagi 9dbi Antenna with 75' 400 N male — Kit numbers:9-75400

Antenna Gain (dBi)	8	8	8	9.5	9.5
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	5	5	5	4.5	4.5
Final Output Power (dBm EIRP)	**27.2**	**26.6**	**25.5**	**25.5**	**26**

14. Yagi 9dbi Antenna with 100' 400 N male — Kit numbers:9-100400

Antenna Gain (dBi)	8	8	8	9.5	9.5
Coax Cable Loss (dB)	4.8	4.8	4.8	7	7
Final Gain Less Loss (dB)	3.2	3.2	3.2	2.5	2.5
Final Output Power (dBm EIRP)	**25.4**	**24.8**	**23.7**	**23.5**	**24**

15. Yagi 9dbi Antenna with 75' 5D N male — Kit numbers:9-7550

Antenna Gain (dBi)	8	8	8	9.5	9.5
Coax Cable Loss (dB)	4.6	4.6	4.6	6	6
Final Gain Less Loss (dB)	3.4	3.4	3.4	3.5	3.5
Final Output Power (dBm EIRP)	**25.6**	**25**	**23.9**	**24.5**	**25**

16. Yagi 9dbi Antenna with 100' 5D N male — Kit numbers:9-10050

Antenna Gain (dBi)	8	8	8	9.5	9.5
Coax Cable Loss (dB)	5	5	5	8	8
Final Gain Less Loss (dB)	3	3	3	1.5	1.5
Final Output Power (dBm EIRP)	**25.2**	**24.6**	**23.5**	**22.5**	**23**

17. Panel 7dbi Antenna with 30' 5D N male — Kit numbers:7-3050

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	1.8	1.8	1.8	3.2	3.2
Final Gain Less Loss (dB)	5.2	5.2	5.2	3.8	3.8
Final Output Power (dBm EIRP)	**27.4**	**26.8**	**25.7**	**24.8**	**25.3**

18. Panel 7dbi Antenna with 50' 400 N male Kit numbers:7-50400

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	2.8	2.8	2.8	3.5	3.5
Final Gain Less Loss (dB)	4.2	4.2	4.2	3.5	3.5
Final Output Power (dBm EIRP)	**26.4**	**25.8**	**24.7**	**24.5**	**25**

19. Panel 7dbi Antenna with 50' 5D N male Kit numbers:7-5050

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	4	4	4	2	2
Final Output Power (dBm EIRP)	**26.2**	**25.6**	**24.5**	**23**	**23.5**

20. Panel 7dbi Antenna with 75' 400 N male Kit numbers:7-75400

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	4	4	4	2	2
Final Output Power (dBm EIRP)	**26.2**	**25.6**	**24.5**	**23**	**23.5**

21. Panel 7dbi Antenna with 100' 400 N male Kit numbers:7-100400

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	4.8	4.8	4.8	7	7
Final Gain Less Loss (dB)	2.2	2.2	2.2	0	0
Final Output Power (dBm EIRP)	**24.4**	**23.8**	**22.7**	**21**	**21.5**

22. Panel 7dbi Antenna with 75' 5D N male Kit numbers:7-7550

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	4.6	4.6	4.6	6	6
Final Gain Less Loss (dB)	2.4	2.4	2.4	1	1
Final Output Power (dBm EIRP)	**24.6**	**24**	**22.9**	**22**	**22.5**

23. Panel 7dbi Antenna with 100' 5D N male Kit numbers:7-10050

Antenna Gain (dBi)	7	7	7	7	7
Coax Cable Loss (dB)	5	5	5	8	8
Final Gain Less Loss (dB)	2	2	2	-1	-1
Final Output Power (dBm EIRP)	**24.2**	**23.6**	**22.5**	**20**	**20.5**

24. Omni 5dbi Antenna with 30' 400 N male — Kit numbers:5-30400

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	1.1	1.1	1.1	1.8	1.8
Final Gain Less Loss (dB)	3.9	3.9	3.9	3.2	3.2
Final Output Power (dBm EIRP)	**26.1**	**25.5**	**24.4**	**24.2**	**24.7**

25. Omni 5dbi Antenna with 30' 5D N male — Kit numbers:5-3050

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	1.8	1.8	1.8	3.2	3.2
Final Gain Less Loss (dB)	3.2	3.2	3.2	1.8	1.8
Final Output Power (dBm EIRP)	**25.4**	**24.8**	**23.7**	**22.8**	**23.3**

26. Omni 5dbi Antenna with 50' 400 N male — Kit numbers:5-50400

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	2.8	2.8	2.8	3.5	3.5
Final Gain Less Loss (dB)	2.2	2.2	2.2	1.5	1.5
Final Output Power (dBm EIRP)	**24.4**	**23.8**	**22.7**	**22.5**	**23**

27. Omni 5dbi Antenna with 50' 5D N male — Kit numbers:5-5050

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	2	2	2	0	0
Final Output Power (dBm EIRP)	**24.2**	**23.6**	**22.5**	**21**	**21.5**

28. Omni 5dbi Antenna with 75' 400 N male — Kit numbers:5-75400

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	2	2	2	0	0
Final Output Power (dBm EIRP)	**24.2**	**23.6**	**22.5**	**21**	**21.5**

29. Omni 5dbi Antenna with 100' 400 N male — Kit numbers:5-10400

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	4.8	4.8	4.8	7	7
Final Gain Less Loss (dB)	0.2	0.2	0.2	-2	-2
Final Output Power (dBm EIRP)	**22.4**	**21.8**	**20.7**	**19**	**19.5**

30. Omni 5dbi Antenna with 75' 5D N male Kit numbers:5-7550

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	4.6	4.6	4.6	6	6
Final Gain Less Loss (dB)	0.4	0.4	0.4	-1	-1
Final Output Power (dBm EIRP)	**22.6**	**22**	**20.9**	**20**	**20.5**

31. Omni 5dbi Antenna with 100' 5D N male Kit numbers:5-10050

Antenna Gain (dBi)	5	5	5	5	5
Coax Cable Loss (dB)	5	5	5	8	8
Final Gain Less Loss (dB)	0	0	0	-3	-3
Final Output Power (dBm EIRP)	**22.2**	**21.6**	**20.5**	**18**	**18.5**

Indoor Antenna kit Options

Uplink Frequency(MHz)	698-716	776-787	824-849	1710-1755	1850-1915
Measured Uplink Gain(dB)	**57.80**	**59.70**	**60.80**	**64.60**	**64.50**
MSCL Minimum (dB)	36.2	37.1	37.7	43.0	43.7
6' Separation Distance Path Loss (dB)	34.7	35.6	36.2	42.5	43.2
Polarity Loss (dB)	3.0	3.0	3.0	3.0	3.0
Max Antenna Gain with Coax Loss (dB)	1.5	1.5	1.5	2.5	2.5

1. 2 Whip 5dbi Antenna with 50' 5D N male & a 50 Ohm 2-Way Splitter Kit numbers: 52-5050-50

Antenna Gain (dBi)	5.0	5.0	5.0	5.0	5.0
Splitter/Coax Loss (dB)	6.5	6.5	4.2	8	8
Final Gain Less Splitter/Coax Loss (dB)	-1.5	-1.5	0.8	-3.0	-3.0
Margin (dB)	-3.0	-3.0	-0.7	-5.5	-5.5

2. 2 Panel 10dbi Antenna with50' 5D N male & a 50 Ohm 2-Way Splitter Kit numbers:102-5050-50

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Splitter/Coax Loss (dB)	6.5	6.5	6.5	8.5	8.5
Final Gain Less Splitter/Coax Loss (dB)	0	0	0	0.9	0.9
Margin (dB)	-1.50	-1.47	-1.46	-1.58	-1.59

3. 3 Panel 10dbi Antenna with 75' 5D N male & a 50Ohm 3-Way Splitter Kit numbers:103-7550-50

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Splitter/Coax Loss (dB)	9.6	9.6	9.6	11	11
Final Gain Less Splitter/Coax Loss (dB)	-3.1	-3.1	-3.1	-1.6	-1.6
Margin (dB)	-4.60	-4.57	-4.56	-4.08	-4.09

4. 4 Panel 10dbi Antenna with 75' 5D N male & three 50 Ohm 2-Way Splitter k it numbers:104-7550-50

Antenna Gain (dBi)	6.5	6.5	6.5	9.4	9.4
Splitter/Coax Loss (dB)	10.6	10.6	10.6	12	12
Final Gain Less Splitter/Coax Loss (dB)	-4.1	-4.1	-4.1	-2.6	-2.6
Margin (dB)	-5.60	-5.57	-5.56	-5.08	-5.09

5. 2 Panel 7dbi Antenna with50' 5D N male & a 50 Ohm 2-Way Splitter Kit numbers:72-5050-50

Antenna Gain (dBi)	7	7	7	7	7
Splitter/Coax Loss (dB)	6.5	6.5	6.5	8.5	8.5
Final Gain Less Splitter/Coax Loss (dB)	0.5	0.5	0.5	-1.5	-1.5
Margin (dB)	-0.20	-0.67	-0.96	-3.98	-3.99

6. 3 Panel 7dbi Antenna with 75' 5D N male & a 50Ohm 3-Way Splitter Kit numbers:73-7550-50

Antenna Gain (dBi)	7	7	7	7	7
Splitter/Coax Loss (dB)	9.6	9.6	9.6	11	11
Final Gain Less Splitter/Coax Loss (dB)	-2.6	-2.6	-2.6	-4	-4
Margin (dB)	-3.30	-3.77	-4.06	-6.48	-6.49

7. 4 Panel 7dbi Antenna with 75' 5D N male & three 50 Ohm 2-Way Splitter k it numbers:74-7550-50

Antenna Gain (dBi)	7	7	7	7	7
Splitter/Coax Loss (dB)	10.6	10.6	10.6	12	12
Final Gain Less Splitter/Coax Loss (dB)	-3.6	-3.6	-3.6	-5	-5
Margin (dB)	-4.30	-4.77	-5.06	-7.48	-7.49

8. Omni 3dBi Antenna with 15' 5D N Male Kit numbers:3-1550

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	1.6	1.6	1.6	2	2
Final Gain Less Loss (dB)	1.4	1.4	1.4	1	1
Margin (dB)	-0.10	-0.07	-0.06	-1.48	-1.49

9. Omni 3dBi Antenna with 30' 400 N Male Kit numbers:3-30400

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	1.8	1.8	1.8	2.5	2.5
Final Gain Less Loss (dB)	1.2	1.2	1.2	0.5	0.5
Margin (dB)	-0.30	-0.27	-0.26	-1.98	-1.99

10. Omni 3dBi Antenna with 50' 5D N Male Kit numbers:3-5050

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	0	0	0	-2	-2
Margin (dB)	-1.50	-1.47	-1.46	-4.48	-4.49

11. Omni 3dBi Antenna with 75' 5D N Male — Kit numbers:3-7550

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	4.6	4.6	4.6	6	6
Final Gain Less Loss (dB)	-1.6	-1.6	-1.6	-3	-3
Margin (dB)	-3.10	-3.07	-3.06	-5.48	-5.49

12. Omni 3dBi Antenna with 100' 5D N Male — Kit numbers:3-10050

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	5	5	5	8	8
Final Gain Less Loss (dB)	-2	-2	-2	-5	-5
Margin (dB)	-3.50	-3.47	-3.46	-7.48	-7.49

13. Omni 3dBi Antenna with 30' 400 N Male — Kit numbers:3-30400

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	1.8	1.8	1.8	2.5	2.5
Final Gain Less Loss (dB)	1.2	1.2	1.2	0.5	0.5
Margin (dB)	-0.30	-0.27	-0.26	-1.98	-1.99

14. Omni 3dBi Antenna with 50' 400 N Male — Kit numbers:3-50400

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	2.8	2.8	2.8	3.5	3.5
Final Gain Less Loss (dB)	0.2	0.2	0.2	-0.5	-0.5
Margin (dB)	-1.30	-1.27	-1.26	-2.98	-2.99

15. Omni 3dBi Antenna with 75' 400 N Male — Kit numbers:3-75400

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	3	3	3	5	5
Final Gain Less Loss (dB)	0	0	0	-2	-2
Margin (dB)	-1.50	-1.47	-1.46	-4.48	-4.49

16. Omni 3dBi Antenna with 100' 400 N Male — Kit numbers:3-100400

Antenna Gain (dBi)	3	3	3	3	3
Coax Cable Loss (dB)	4.8	4.8	4.8	7	7
Final Gain Less Coax /Splitter Loss(dB)	-1.8	-1.8	-1.8	-4	-4
Margin (dB)	-3.30	-3.27	-3.26	-6.48	-6.49

17. 2 Omni 3dBi Antenna with 50' 400 N male & a 50 Ohm 2-Way Splitter Kit numbers:32-50400-50

Antenna Gain (dBi)	3	3	3	3	3
Splitter/Coax Loss (dB)	5.8	5.8	5.8	6.5	6.5
Final Gain Less Splitter/Coax Loss (dB)	-2.8	-2.8	-2.8	-3.5	-3.5
Margin (dB)	-4.30	-4.27	-4.26	-5.98	-5.99

18. 3 Omni 3dBi Antenna with 50' 400 N male & a 50 Ohm 3-Way Splitter Kit numbers:33-50400-50

Antenna Gain (dBi)	3	3	3	3	3
Splitter/Coax Loss (dB)	7.8	7.8	7.8	8.5	8.5
Final Gain Less Splitter/Coax Loss (dB)	-4.8	-4.8	-4.8	-5.5	-5.5
Margin (dB)	-6.30	-6.27	-6.26	-7.98	-7.99

19. 4 Omni 3dBi Antenna with50' 400 N male & three 50 Ohm 2-Way Splitter Kit numbers:34-50400-50

Antenna Gain (dBi)	3	3	3	3	3
Splitter/Coax Loss (dB)	8.8	8.8	8.8	9.5	9.5
Final Gain Less Splitter/Coax Loss (dB)	-5.8	-5.8	-5.8	-6.5	-6.5
Margin (dB)	-7.30	-7.27	-7.26	-8.98	-8.99

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	-43.4	21.0	64.4	-46.6	18.0	64.6
UL1850-1915	-43.0	21.5	64.5	-46.4	18.1	64.5
UL824-894	-40.3	20.5	60.8	-41.8	18.9	60.7
UL 698-716	-35.6	22.2	57.8	-39.7	18.0	57.7
UL776-787	-38.1	21.6	59.7	-41.7	18.0	59.7
DL2110-2155	-51.7	11.1	62.8	-53.1	9.4	62.5
DL1930-1995	-52.7	11.4	64.1	-54.0	9.8	63.8
DL869-894	-46.7	12.7	59.4	-49.4	10.1	59.5
DL:728-746	-46.0	10.7	56.7	-46.6	9.4	56.0
DL 746-757	-47.2	10.8	58.0	-47.3	9.9	57.2

*Fixed Booster maximum gain shall not exceed 6.5 dB + 20 Log10 (Frequency), where Frequency is the uplink mid-band frequency of the supported spectrum bands in MHz

Pulse GSM				Conducted	Conducted and EIRP
Frequency (MHz)	Output Power (dBm)	Ant Gain-Cable Loss (dBi)	EIRP (dBm)	Limit Min (dBm)	Limit Max (dBm)
UL1710-1755	21.0	6.2	27.2	17	30
UL1850-1915	21.5	6.2	27.7	17	30
UL824-894	20.5	5.4	25.9	17	30
UL 698-716	22.2	5.4	27.6	17	30
UL776-787	21.6	5.4	27.0	17	30
DL2110-2155	11.1	1	12.1	NA	17
DL1930-1995	11.4	1	12.4	NA	17
DL869-894	12.7	1.4	14.1	NA	17
DL:728-746	10.7	1.4	12.1	NA	17
DL 746-757	10.8	1.4	12.2	NA	17

4.1MHz AWGN				Conducted	Conducted and EIRP
Frequency (MHz)	Output Power (dBm)	Ant Gain- Cable Loss (dBi)	EIRP (dBm)	Limit Min (dBm)	Limit Max (dBm)
UL1710-1755	18.0	6.2	24.2	17	30
UL1850-1915	18.1	6.2	24.3	17	30
UL824-894	18.9	5.4	24.3	17	30
UL 698-716	18.0	5.4	23.4	17	30
UL776-787	18.0	5.4	23.4	17	30
DL2110-2155	9.4	1	10.4	NA	17
DL1930-1995	9.8	1	10.8	NA	17
DL869-894	10.1	1.4	11.5	NA	17
DL:728-746	9.4	1.4	10.8	NA	17
DL 746-757	9.9	1.4	11.3	NA	17

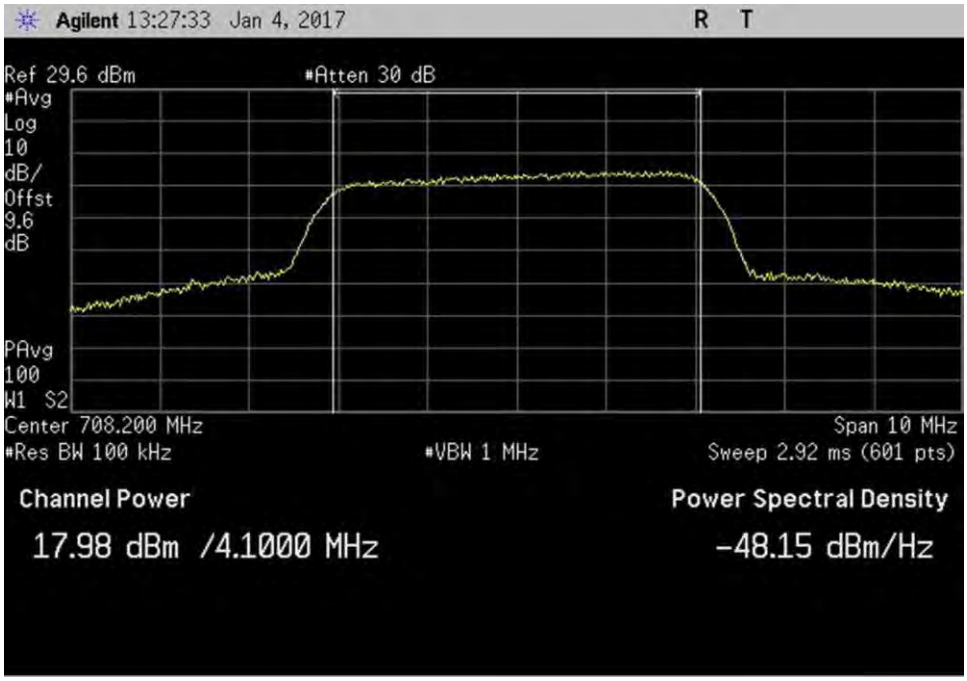
Section 5.5 power						
	Pulse GSM			4.1 MHz AWGN		
Frequency (MHz)	Input (dBm)	Output (dBm)	Gain (dB)	Input (dBm)	Output (dBm)	Gain (dB)
UL1710-1755	-25.2	21.1	46.3	-32.2	18.4	50.6
UL1850-1915	-26.2	21.6	47.8	-33.2	18.6	51.8
UL824-894	-25.0	20.7	45.7	-30.0	18.9	48.9
UL 698-716	-20.9	23.2	44.1	-23.9	19.7	43.6
UL776-787	-23.0	21.6	44.6	-26.0	19.1	45.1
DL2110-2155	-34.2	10.9	45.1	-34.2	9.4	43.6
DL1930-1995	-35.2	11.1	46.3	-36.2	9.8	46.0
DL869-894	-33.1	12.9	46.0	-32.1	10.2	42.3
DL:728-746	-31.9	11.1	43.0	-29.9	9.5	39.4
DL 746-757	-31.9	10.9	42.8	-29.9	10.2	40.1

Note: The booster went into Transmitter off mode at Max input power of -20dBm (DL). Results presented on the above tables are at 1 dB below the Transmit off RF input level.

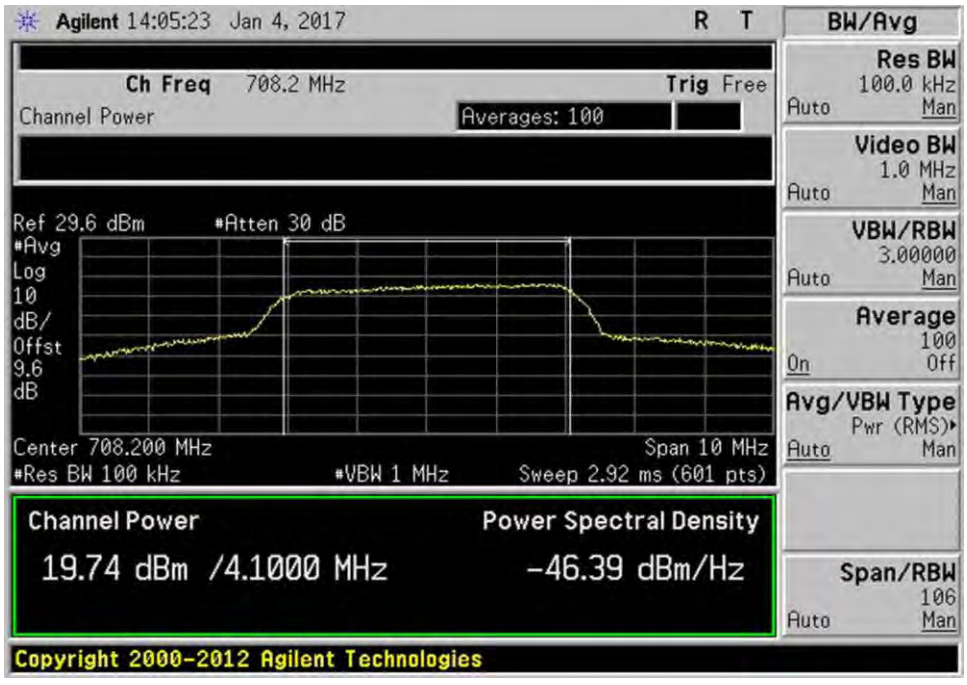
	Pulse GSM	4.1MHz AWGN	Limit (dB)
UL gain vs DL gain 1710/2110	1.6	2.2	9.0
UL gain vs DL gain 1850/1930	0.4	0.7	9.0
UL gain vs DL gain 824/869	1.4	1.2	9.0
UL gain vs DL gain 776/728	1.1	1.7	9.0
UL gain vs DL gain 776/746	1.7	2.5	9.0

Plots

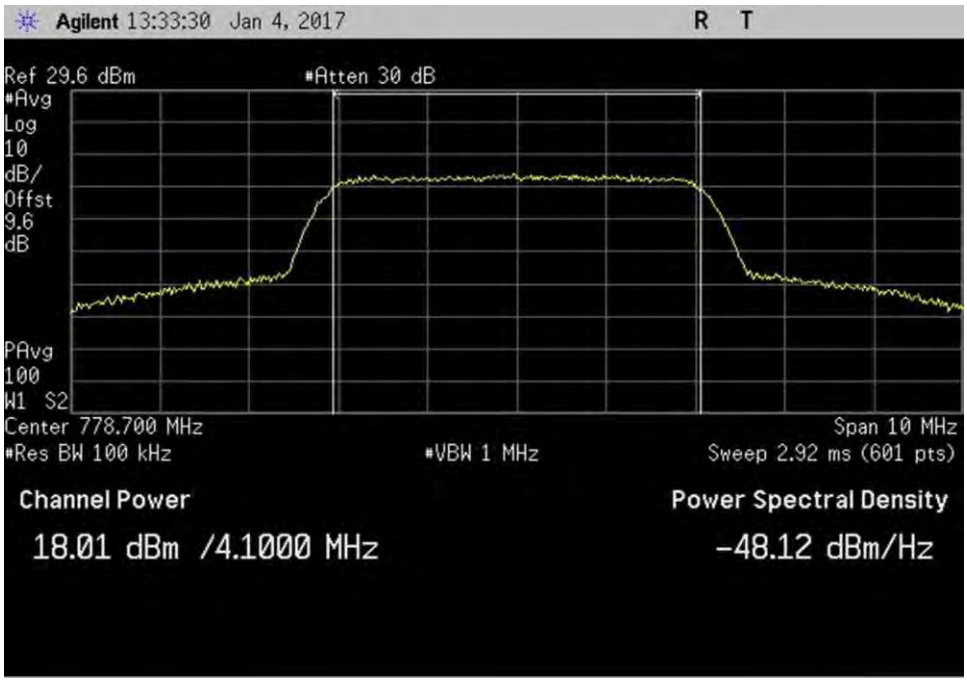
AWGN



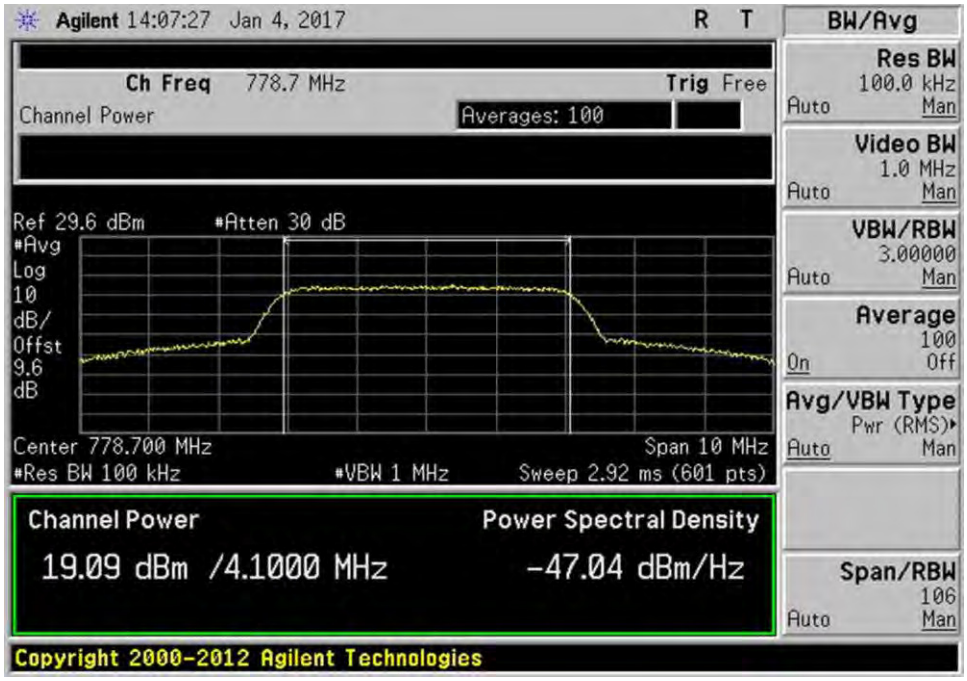
7.2_Power_UL_698-716MHz_AWGN



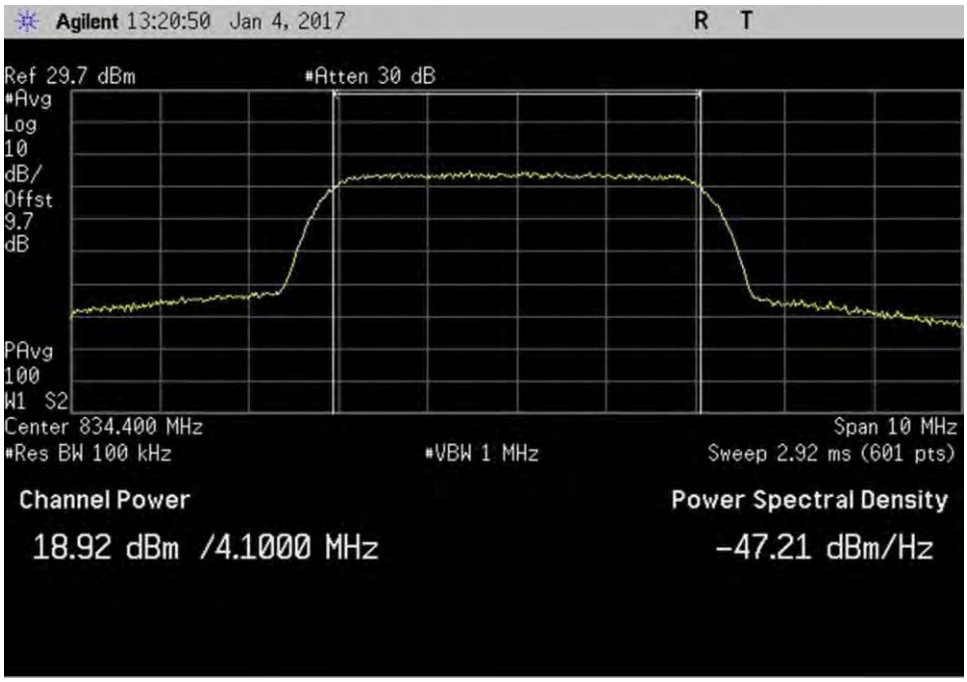
7.2_Power_UL_698-716MHz_AWGN_Max



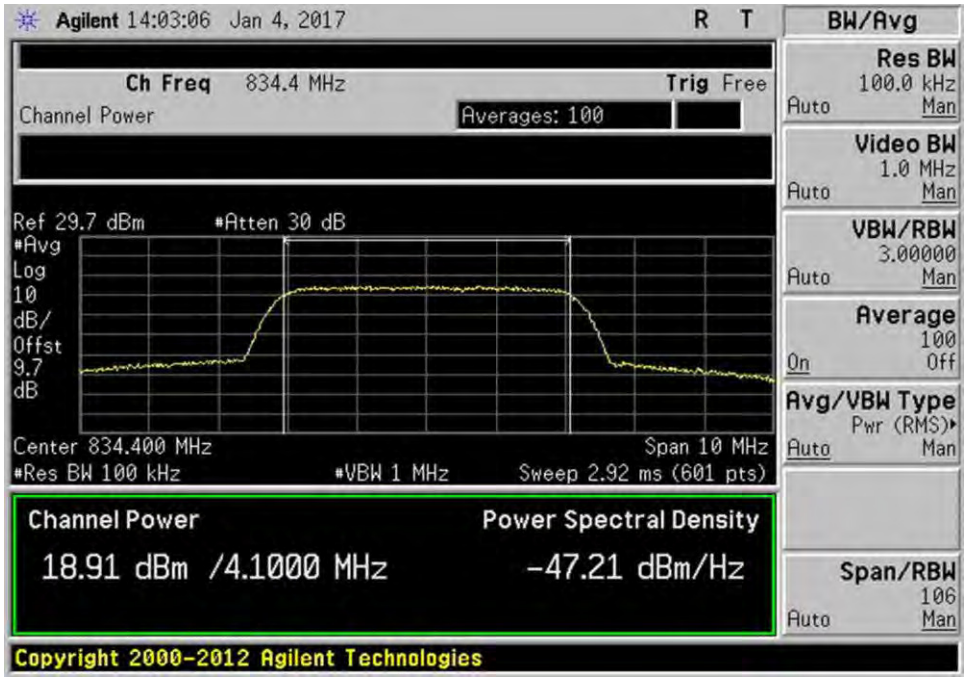
7.2_Power_UL_776-787MHz_AWGN



7.2_Power_UL_776-787MHz_AWGN_Max



7.2_Power_UL_824-849MHz_AWGN



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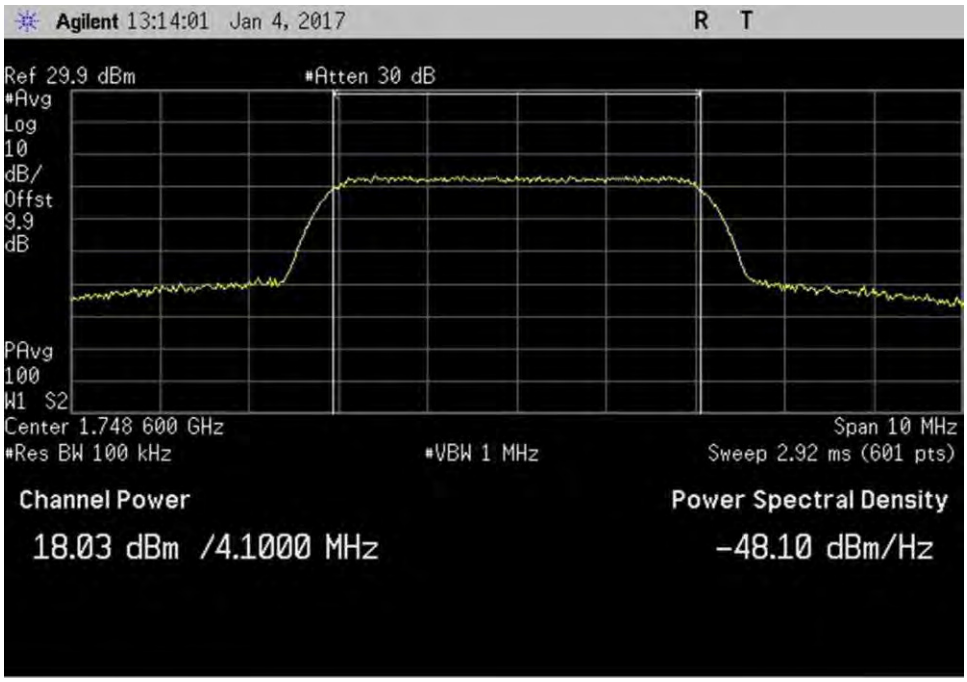
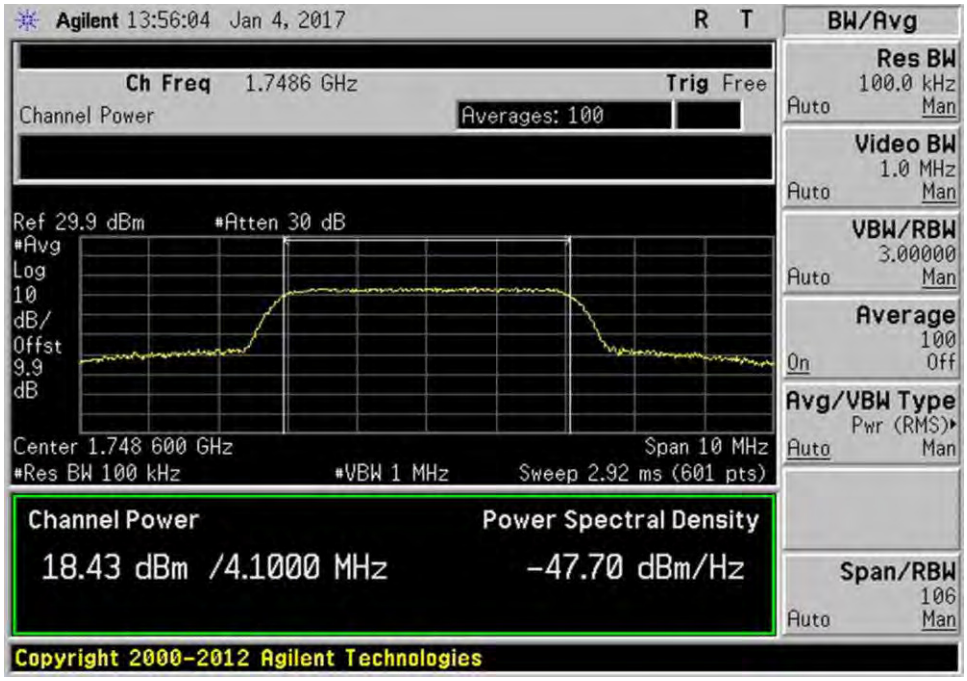


7.2_Power_UL_1710-1755MHz_AWGN



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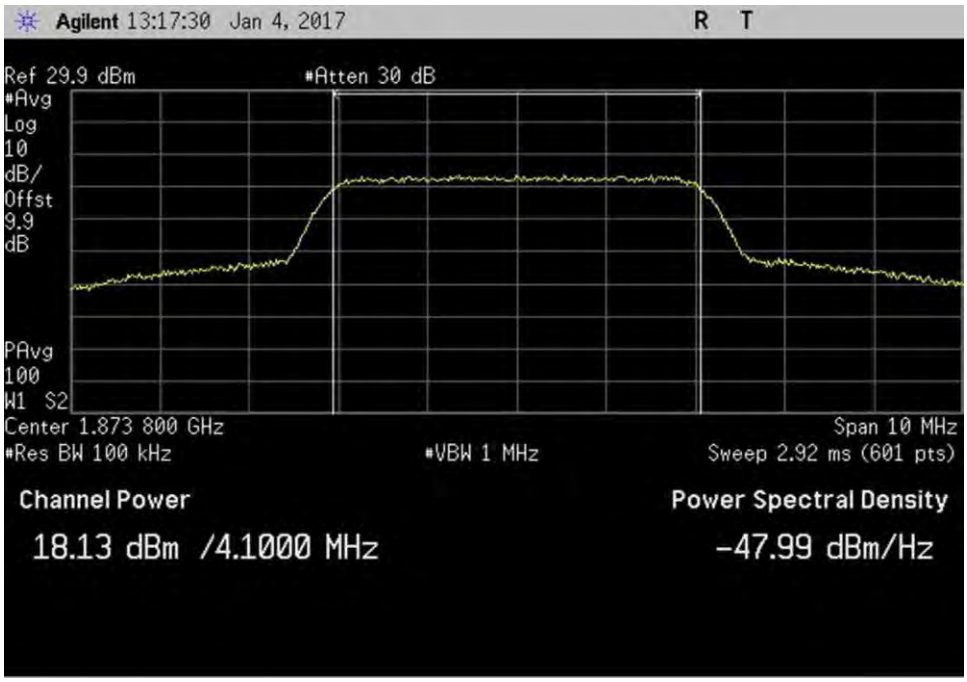
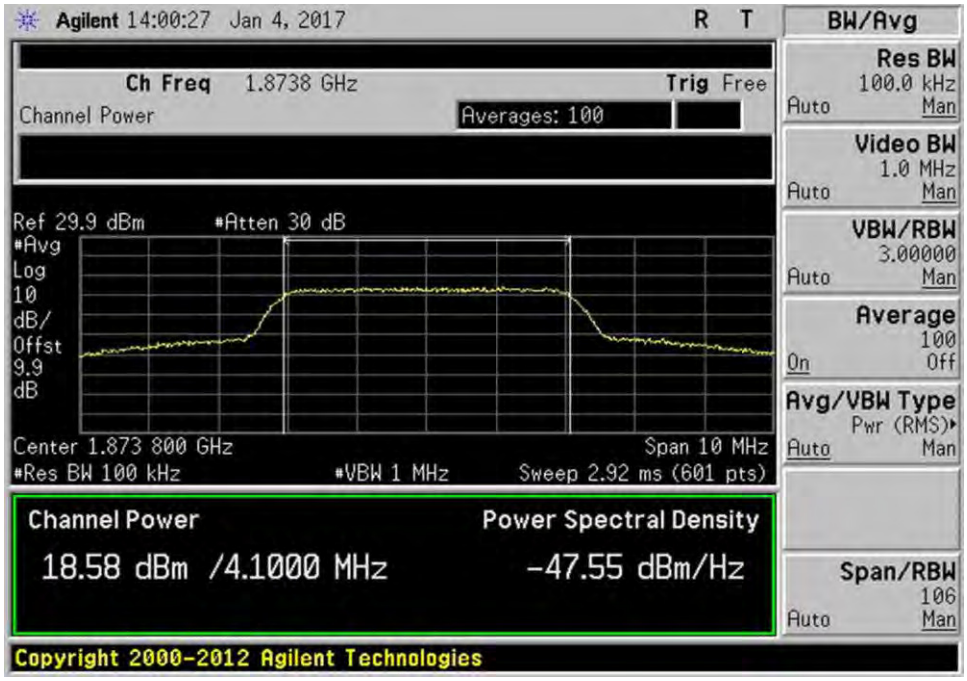
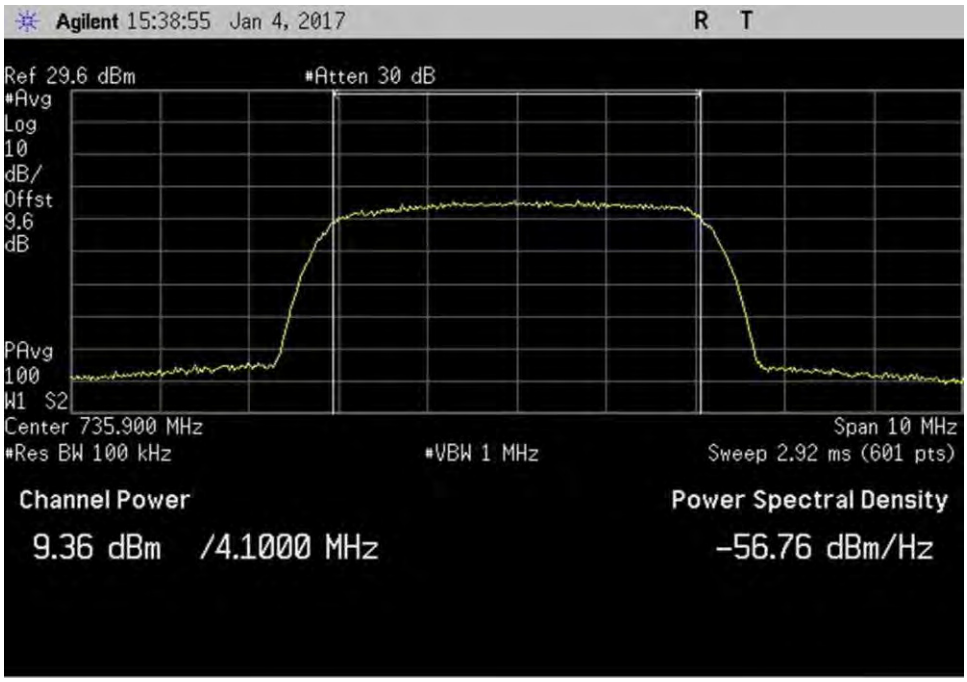


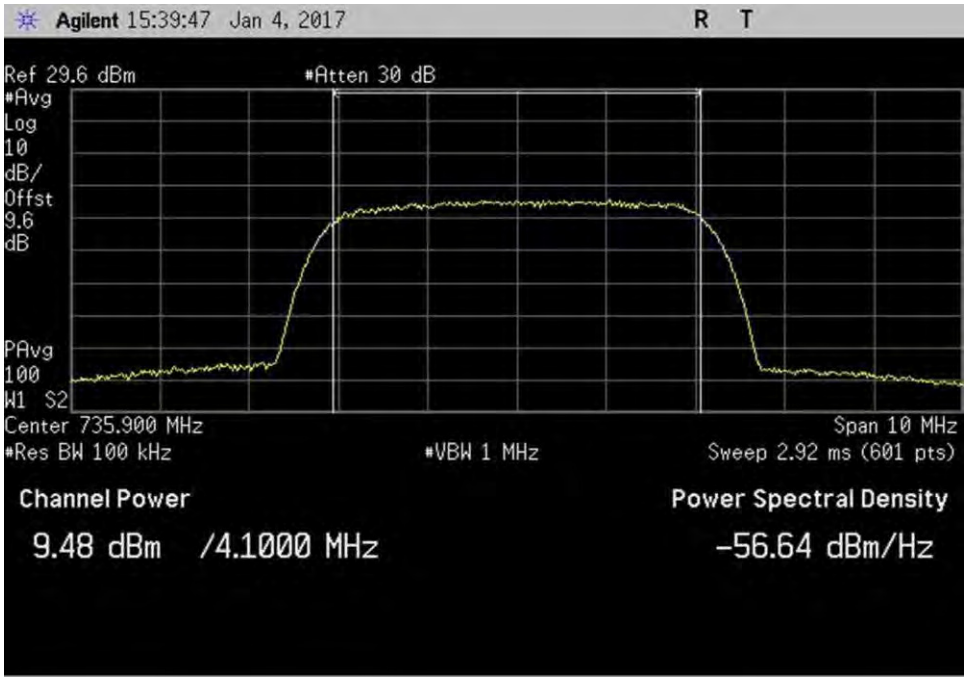
7.2_Power_UL_1850-1915MHz_AWGN



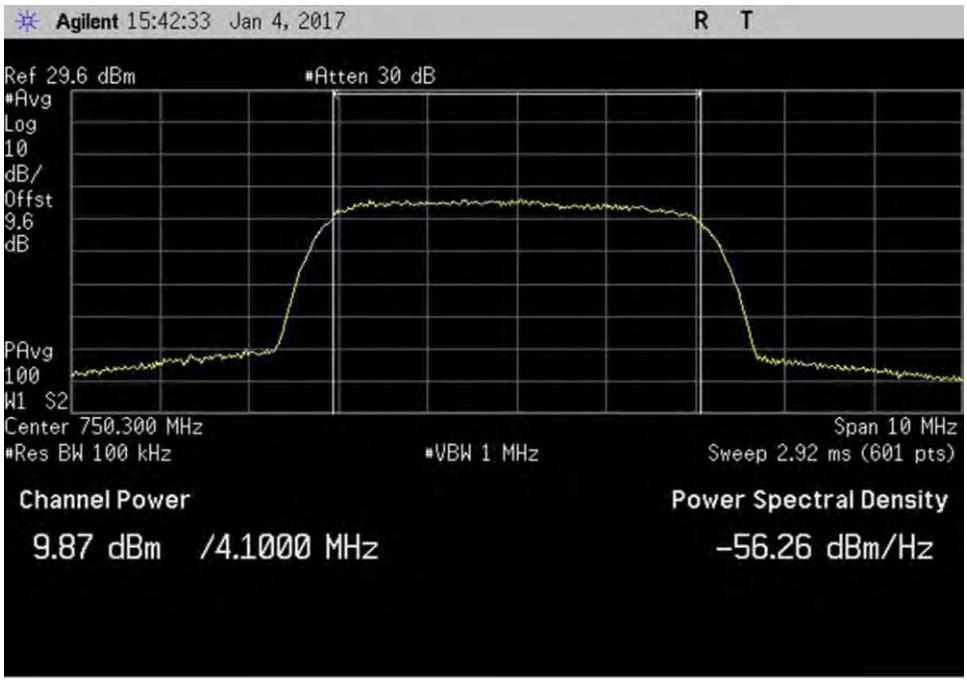
7.2_Power_UL_1850-1915MHz_AWGN_Max



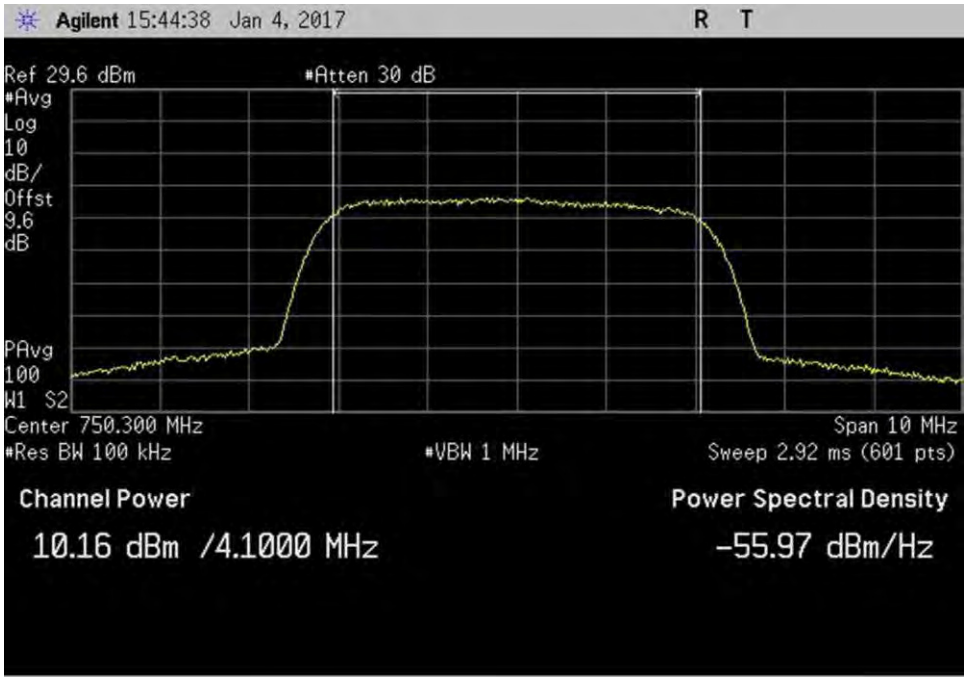
7.2_Power_DL_728-746MHz_AWGN



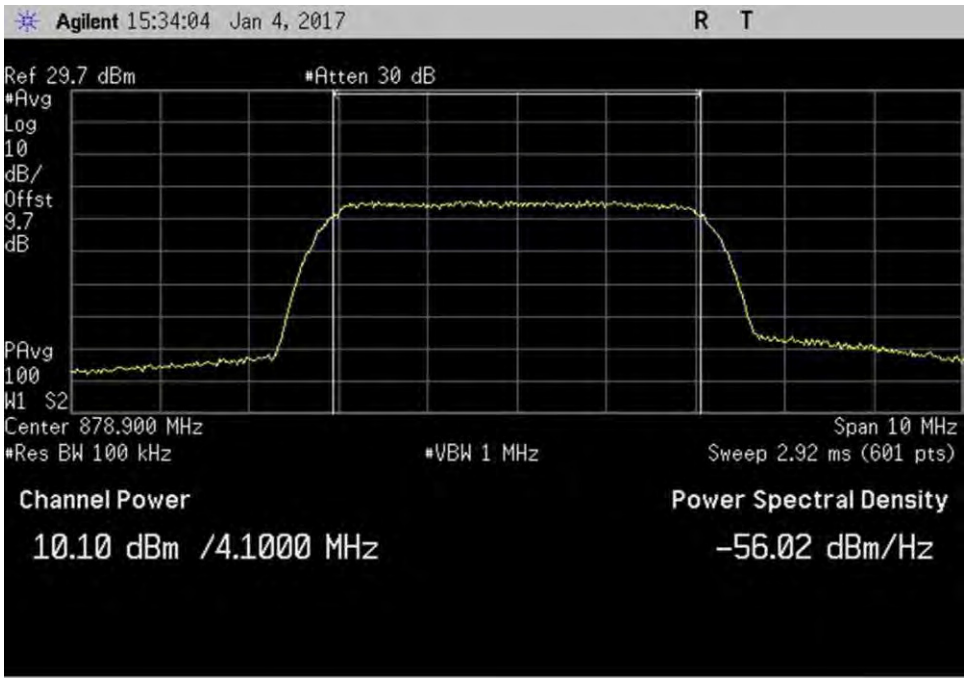
7.2_Power_DL_728-746MHz_AWGN_Max



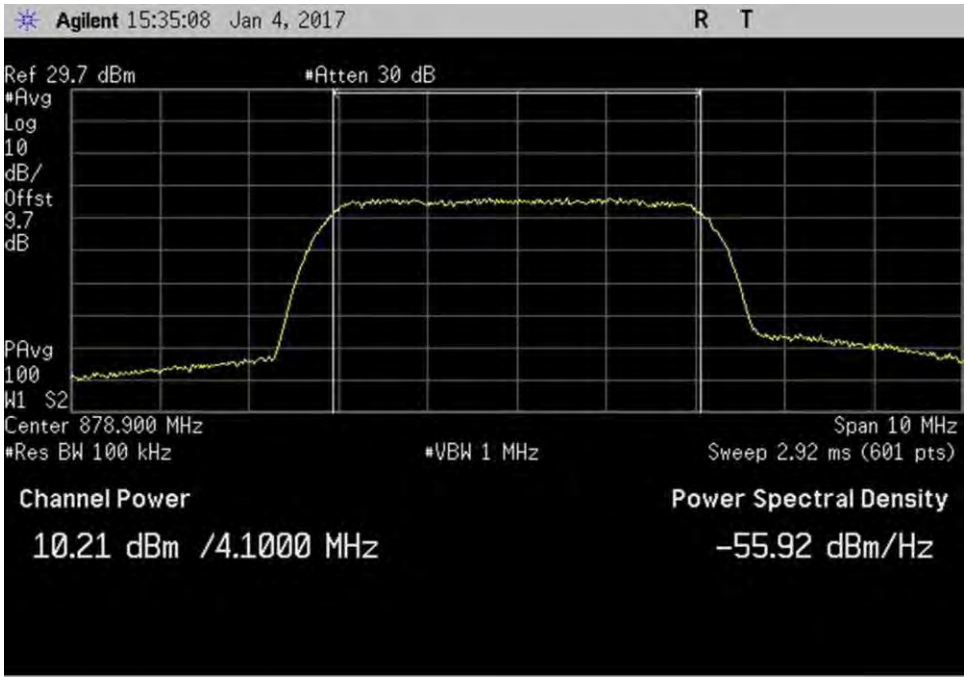
7.2_Power_DL_746-757MHz_AWGN



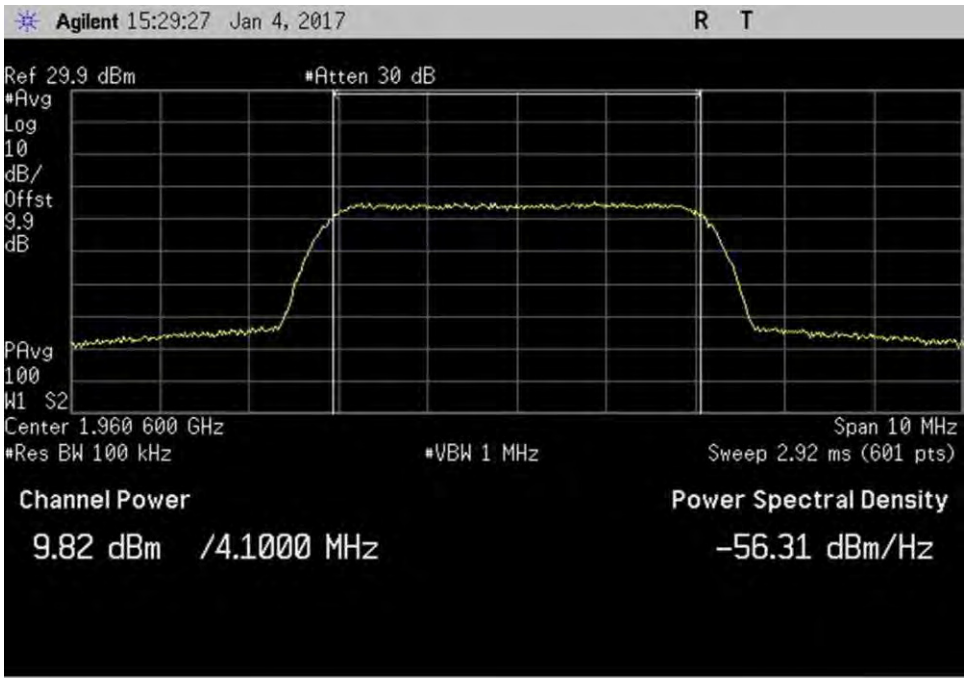
7.2_Power_DL_746-757MHz_AWGN_Max



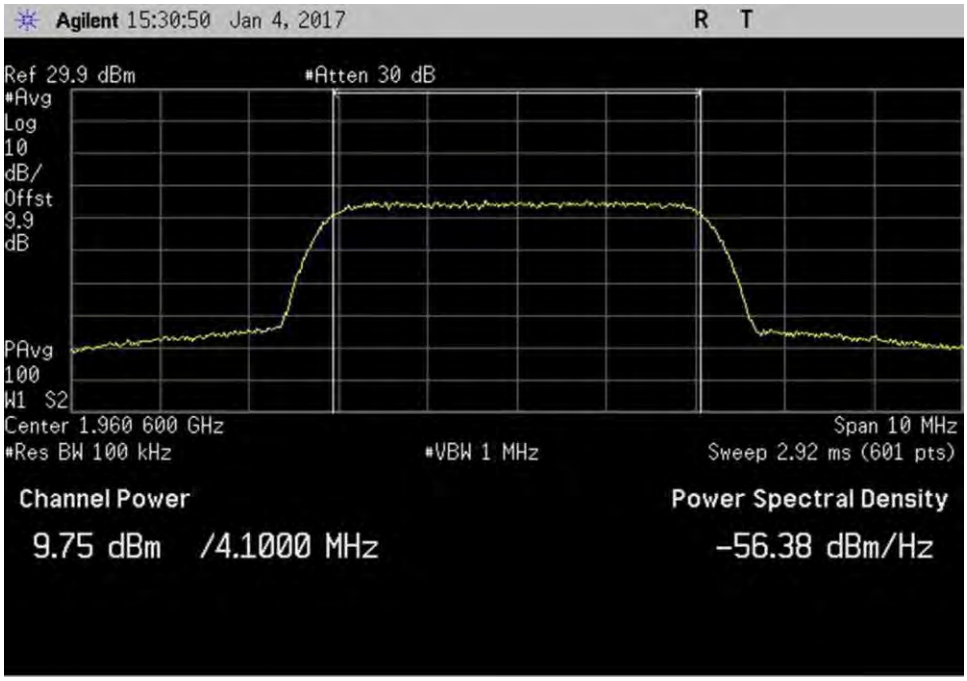
7.2_Power_DL_869-894MHz_AWGN



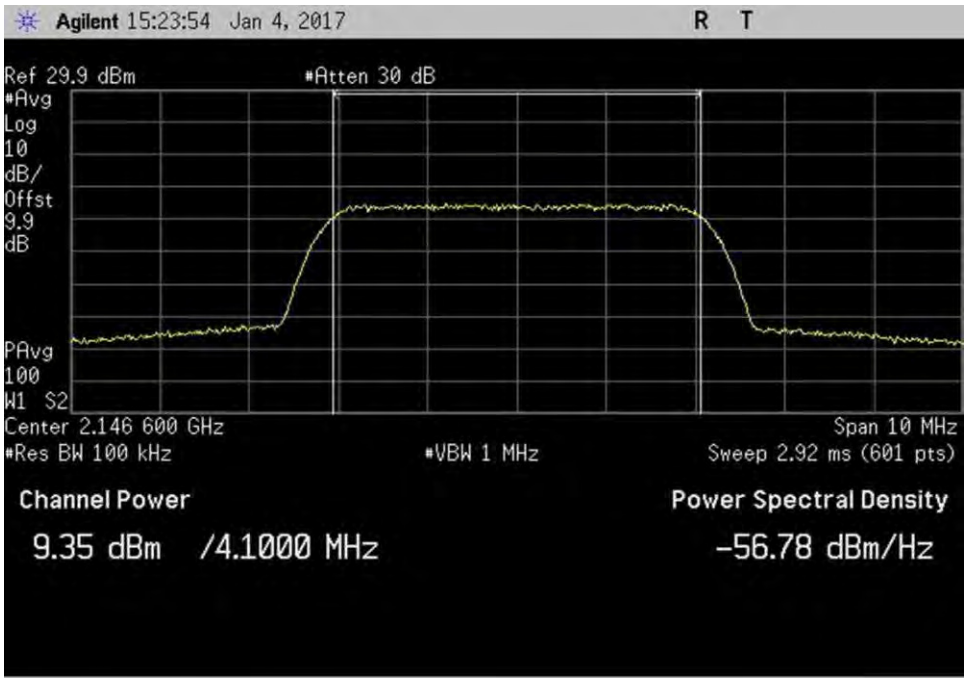
7.2_Power_DL_869-894MHz_AWGN_Max



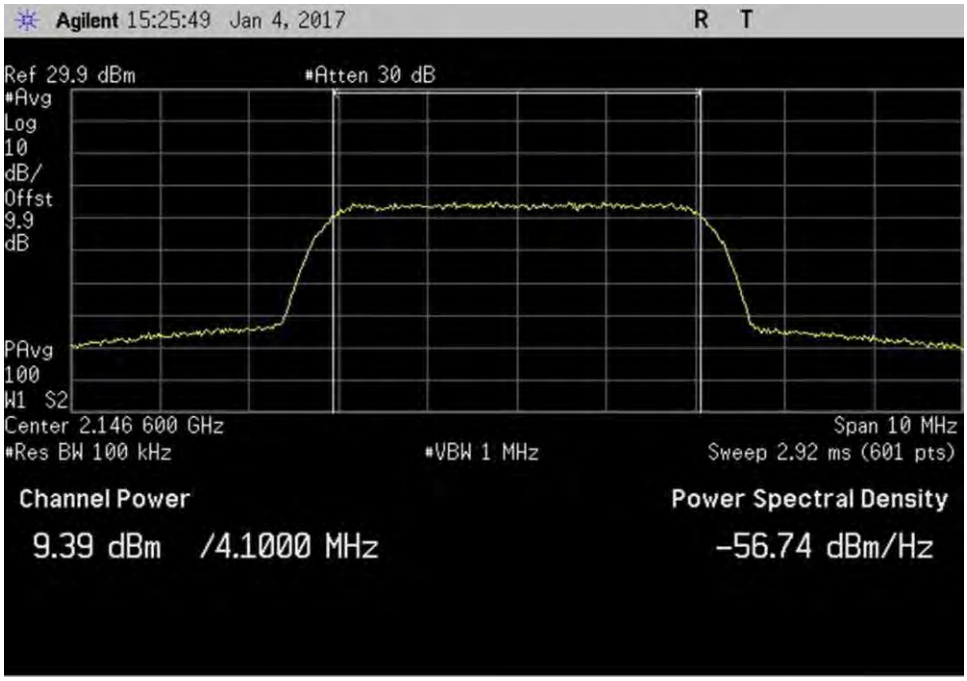
7.2_Power_DL_1930-1995MHz_AWGN



7.2_Power_DL_1930-1995MHz_AWGN_Max

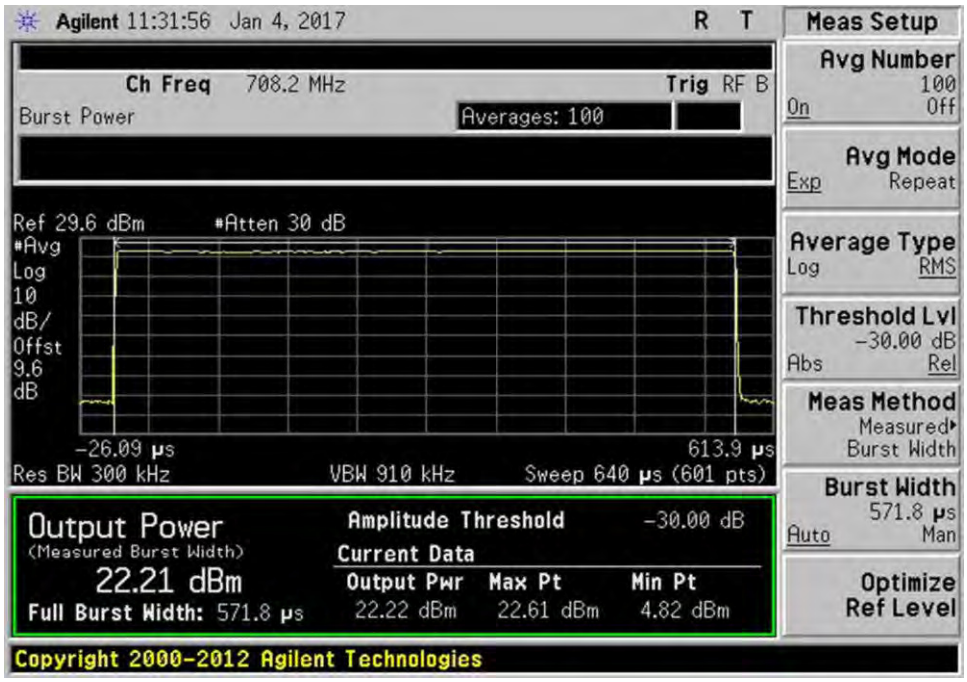


7.2_Power_DL_2110-2155MHz_AWGN

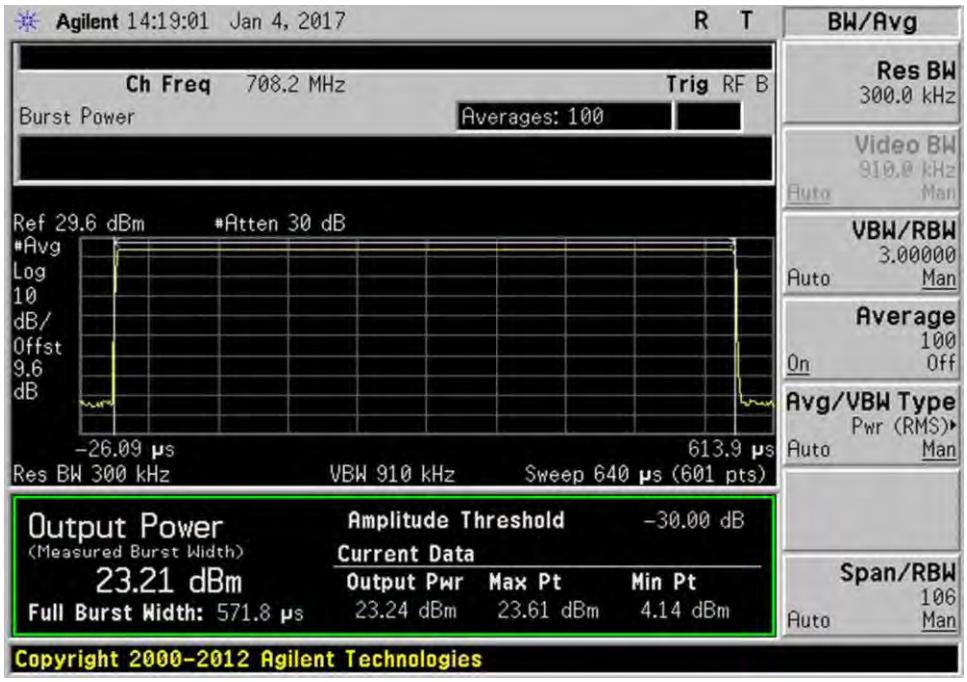


7.2_Power_DL_2110-2155MHz_AWGN_Max

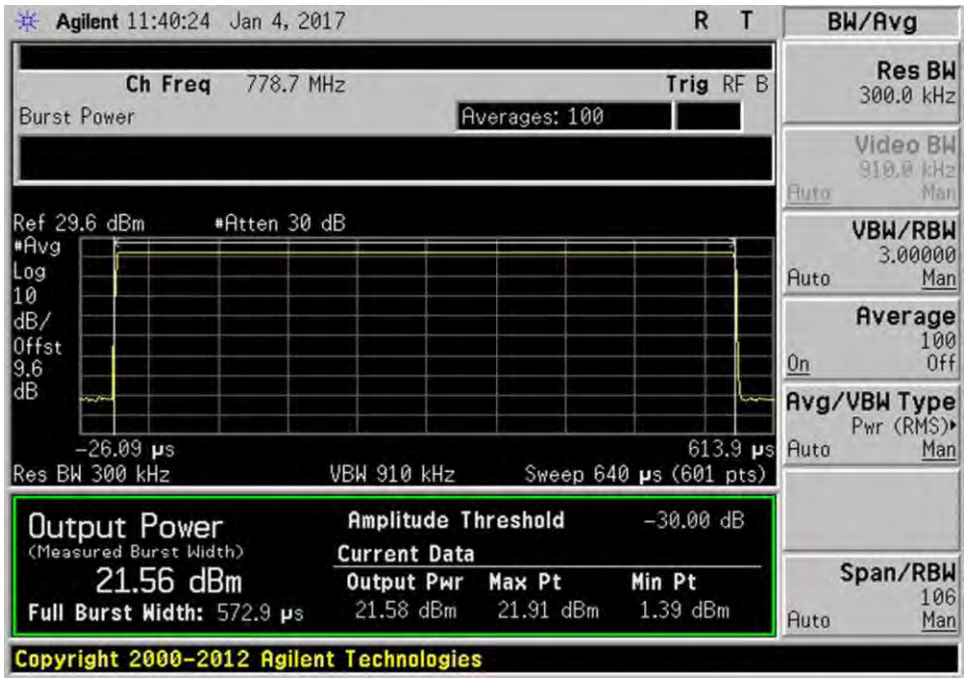
GSM



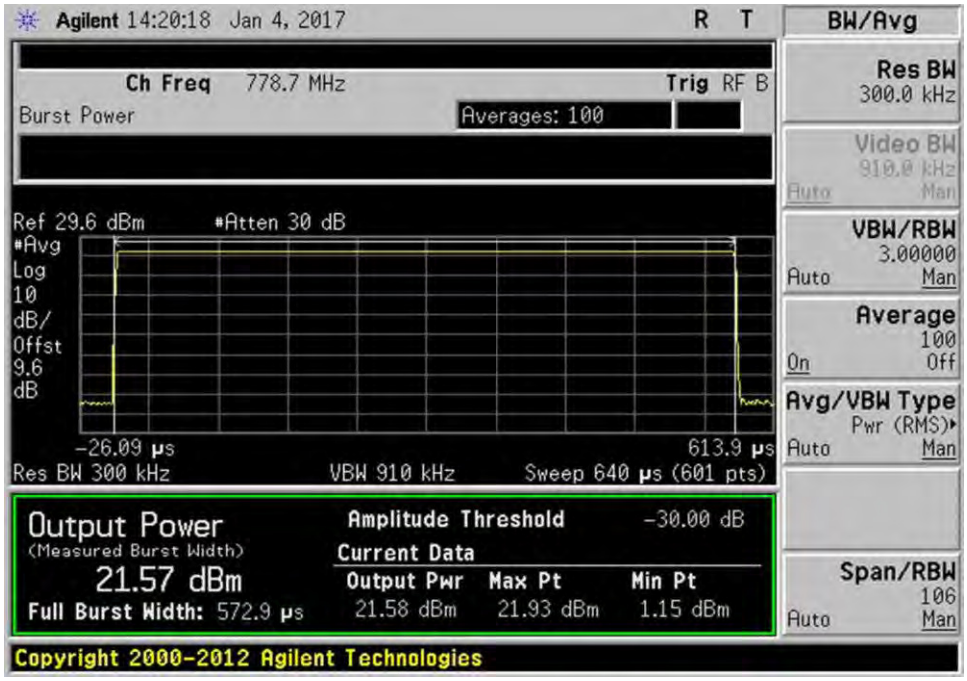
7.2_Power_UL_698-716MHz_GSM



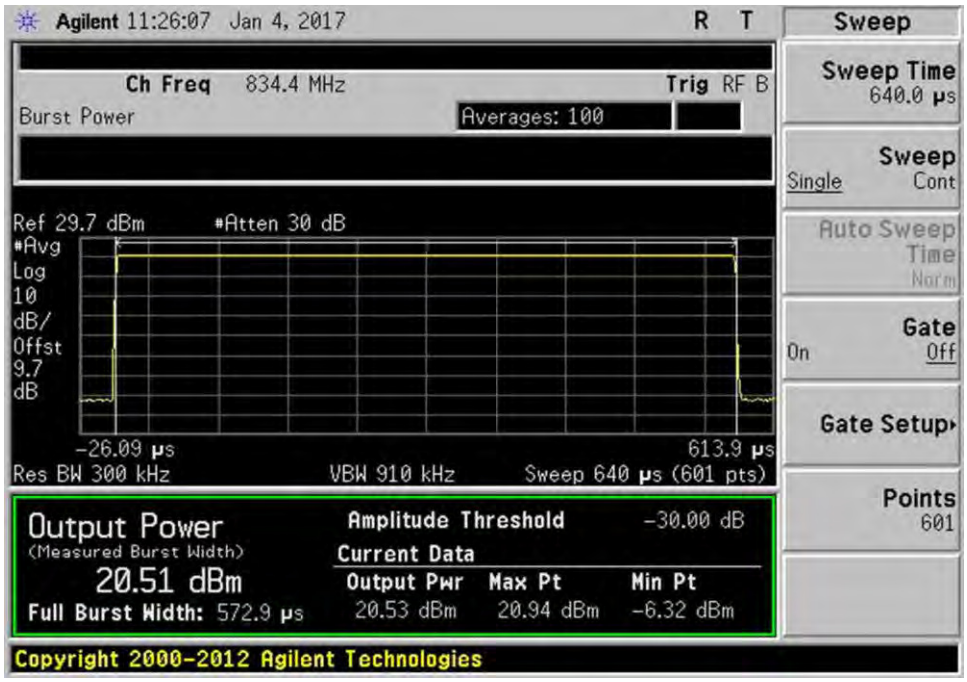
7.2_Power_UL_698-716MHz_GSM_Max



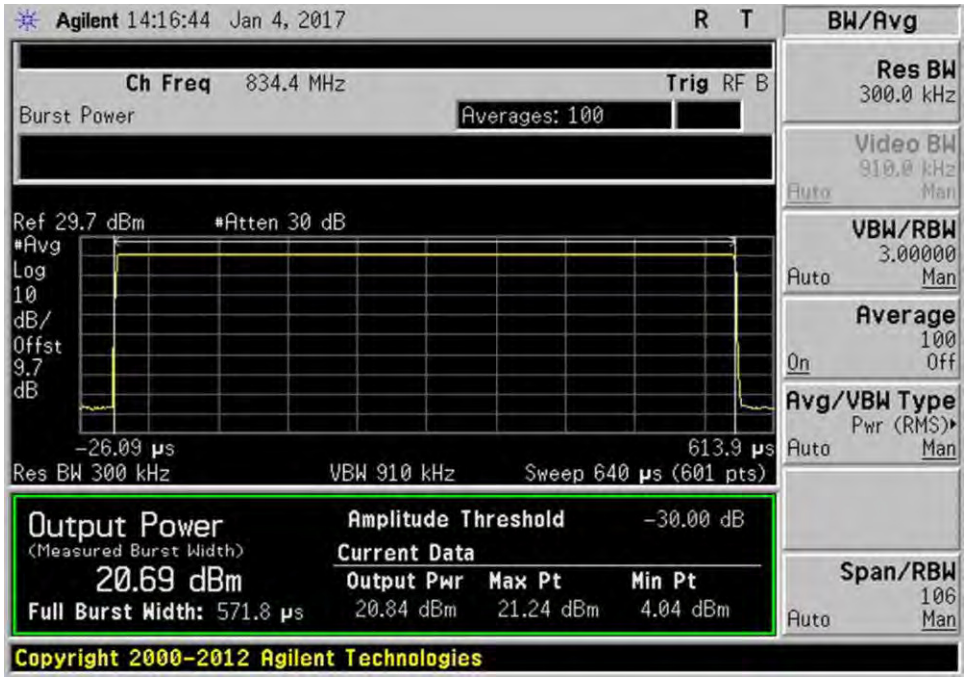
7.2_Power_UL_776-787MHz_GSM



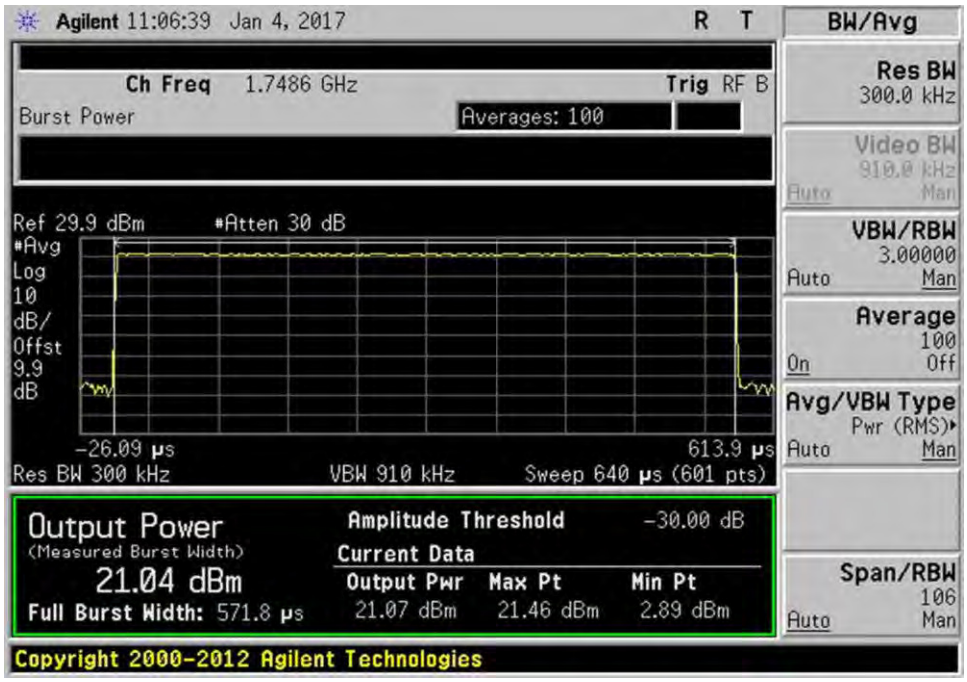
7.2_Power_UL_776-787MHz_GSM_Max



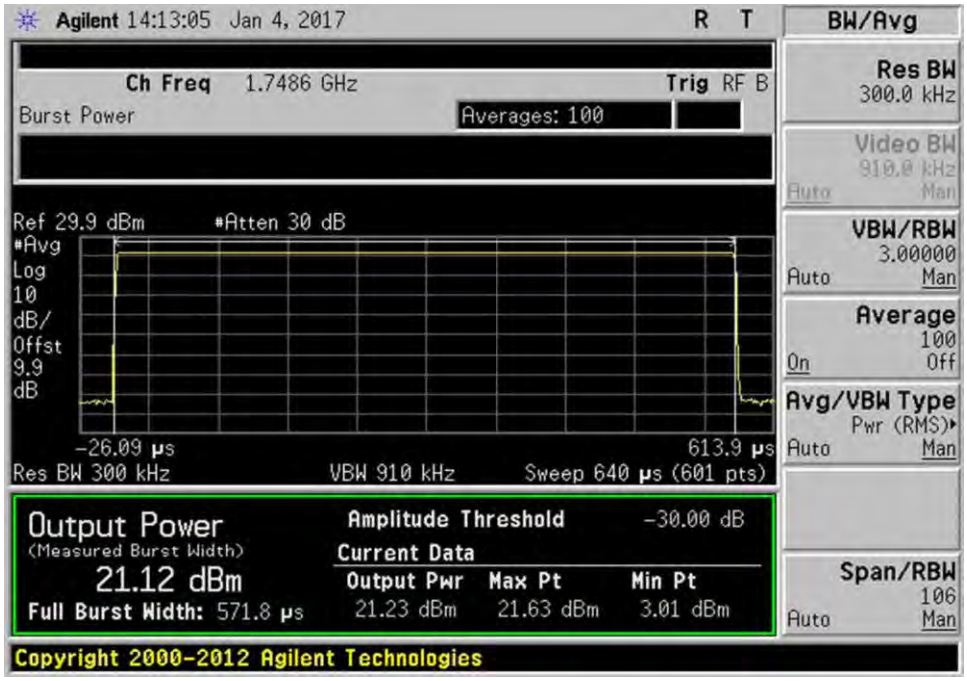
7.2_Power_UL_824-849MHz_GSM



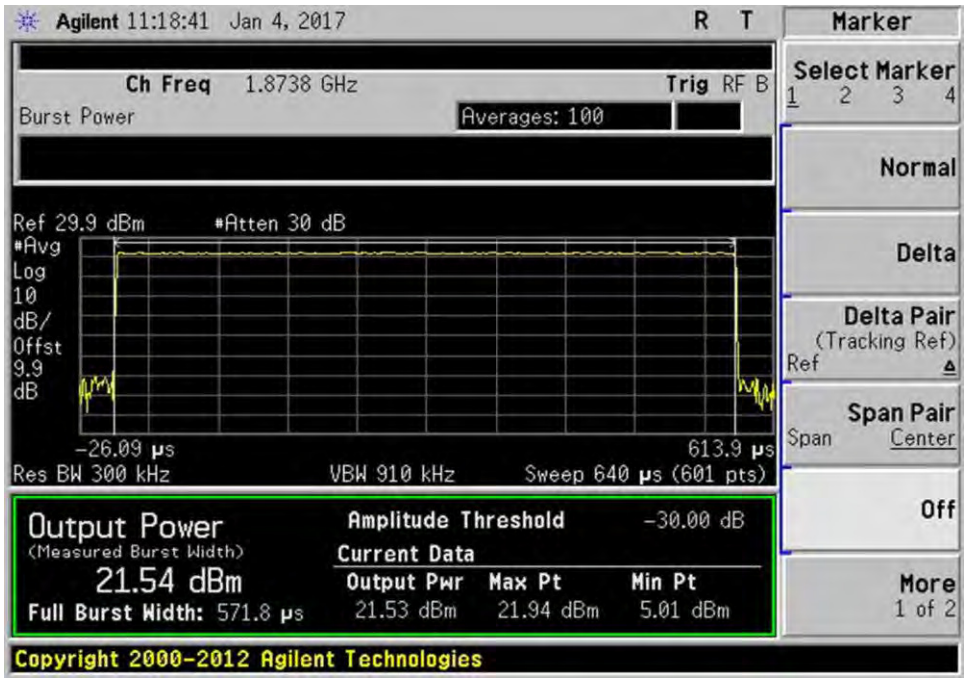
7.2_Power_UL_824-849MHz_GSM_Max



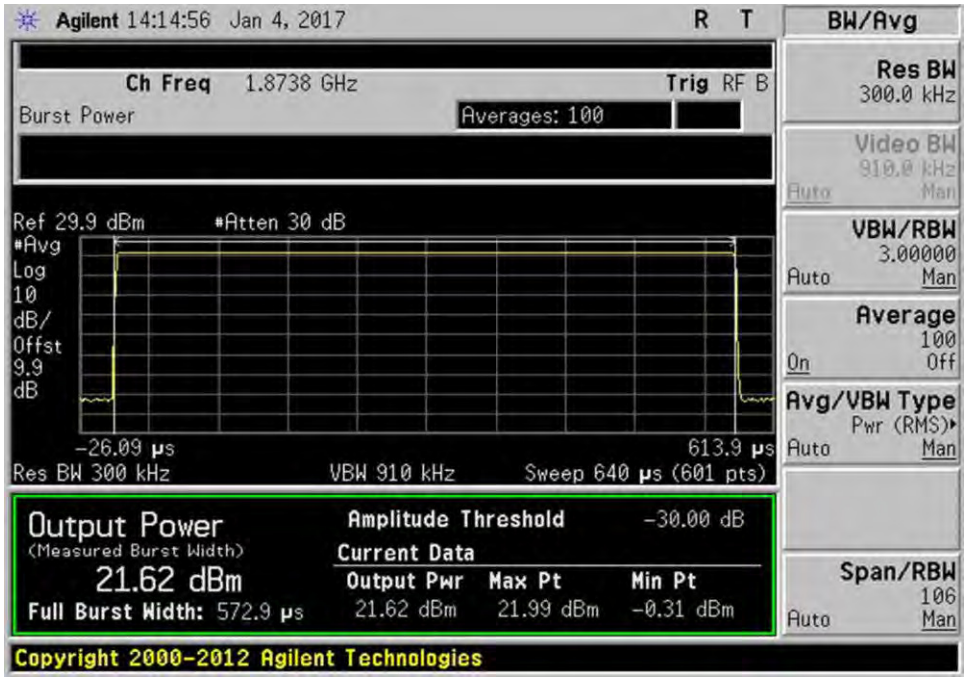
7.2_Power_UL_1710-1755MHz_GSM



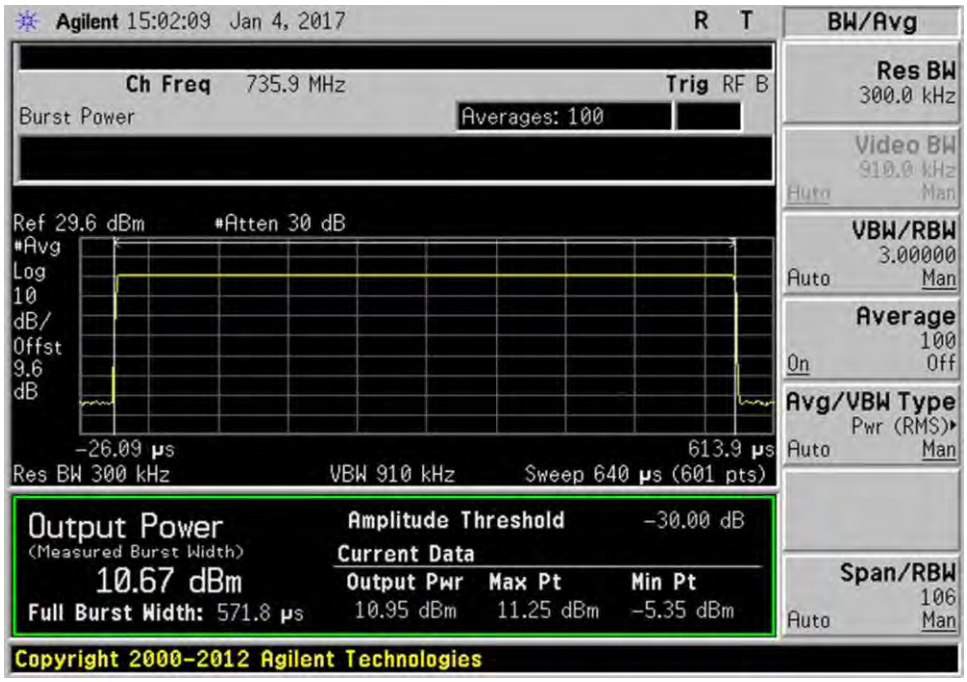
7.2_Power_UL_1710-1755MHz_GSM_Max



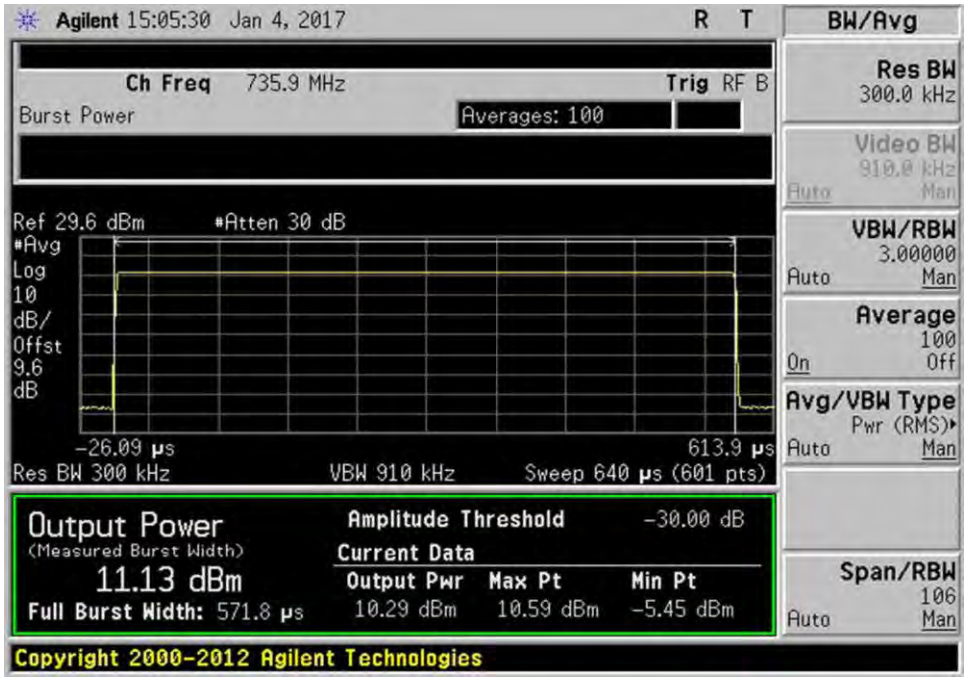
7.2_Power_UL_1850-1915MHz_GSM



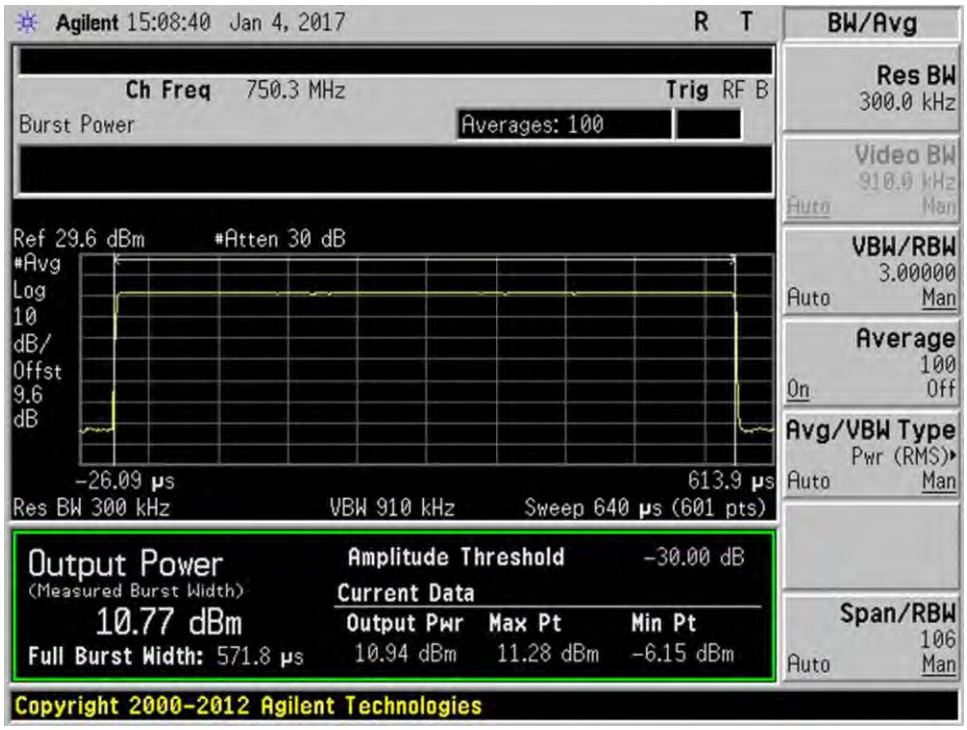
7.2_Power_UL_1850-1915MHz_GSM_Max



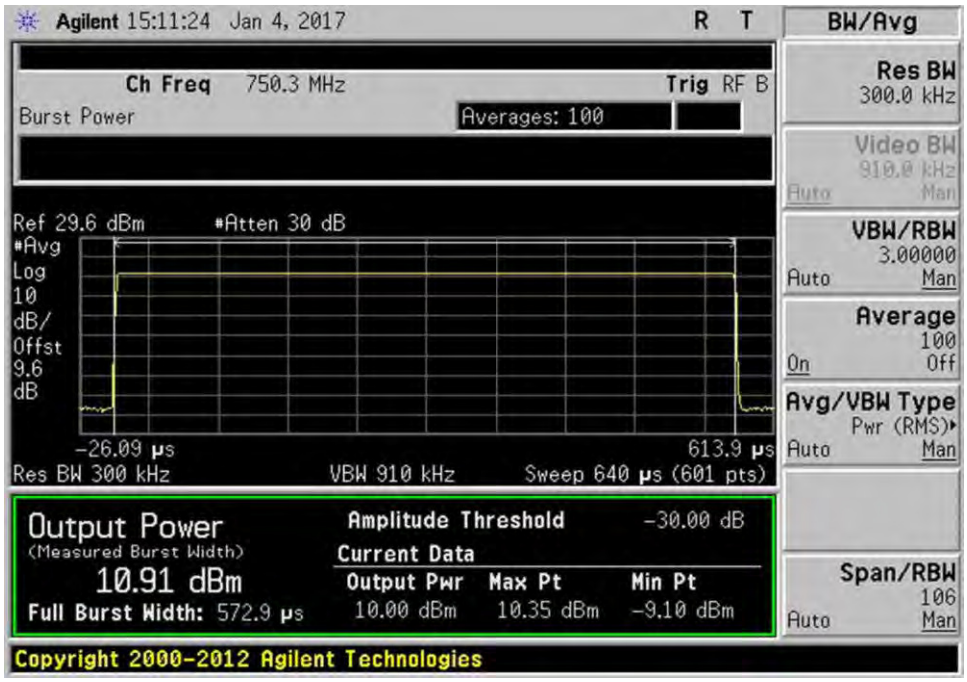
7.2_Power_DL_728-746MHz_GSM



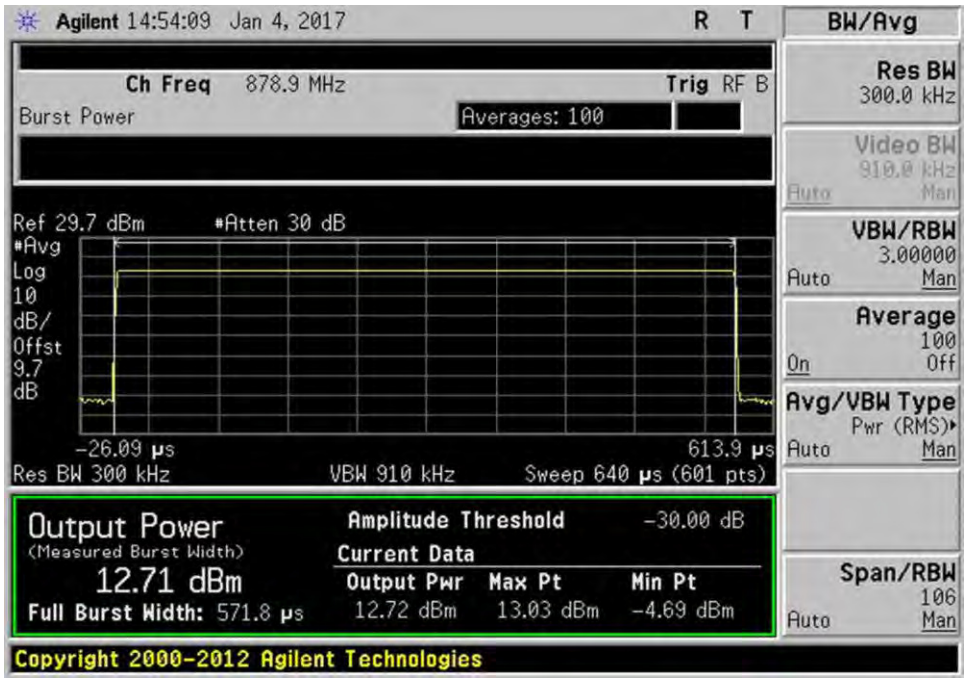
7.2_Power_DL_728-746MHz_GSM_Max



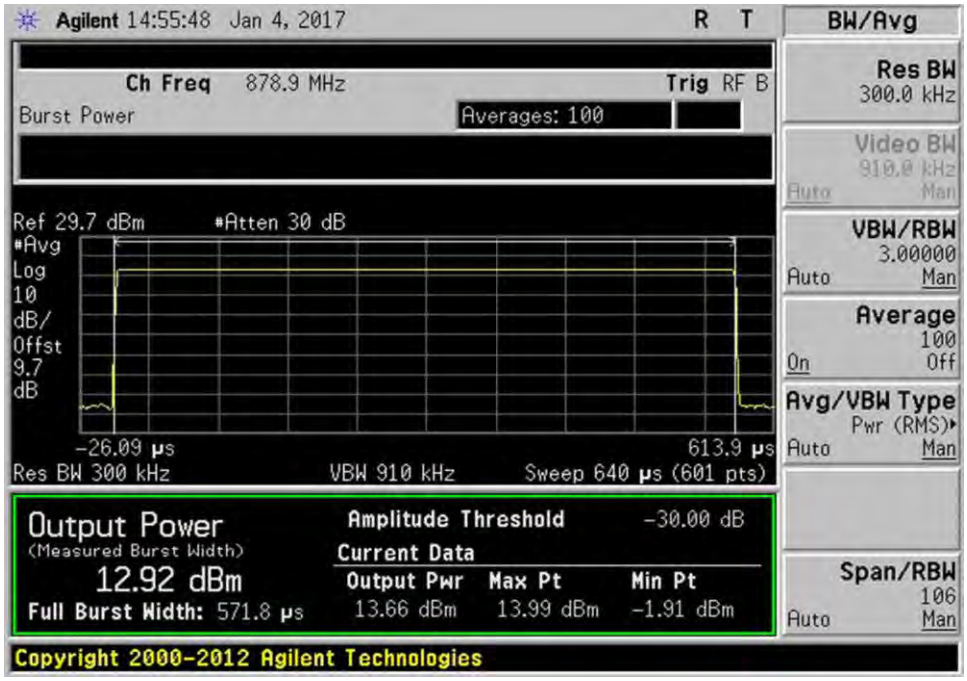
7.2_Power_DL_746-757MHz_GSM



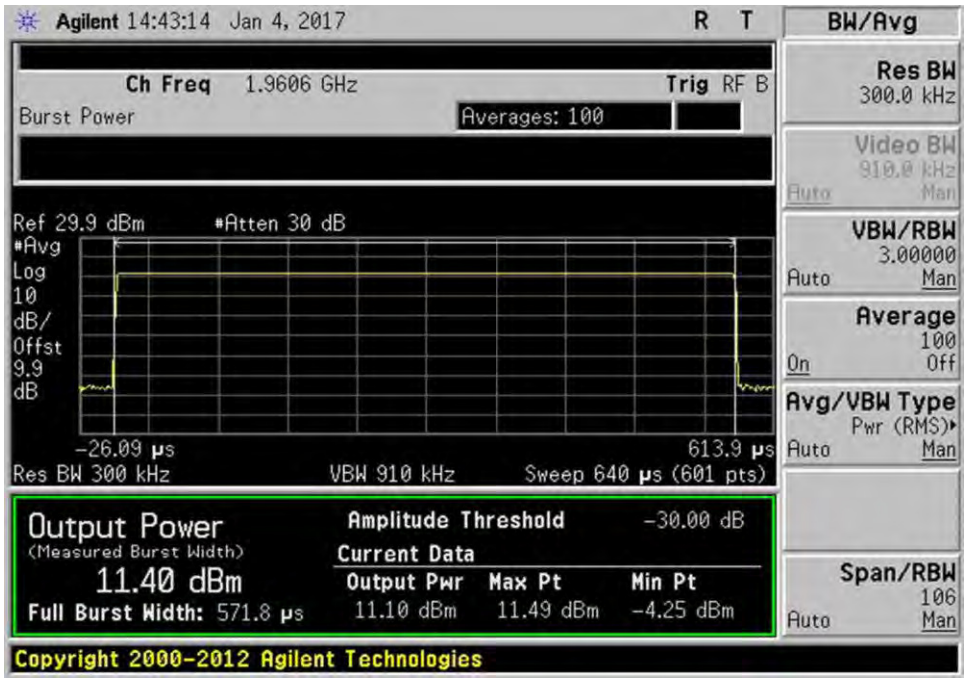
7.2_Power_DL_746-757MHz_GSM_Max



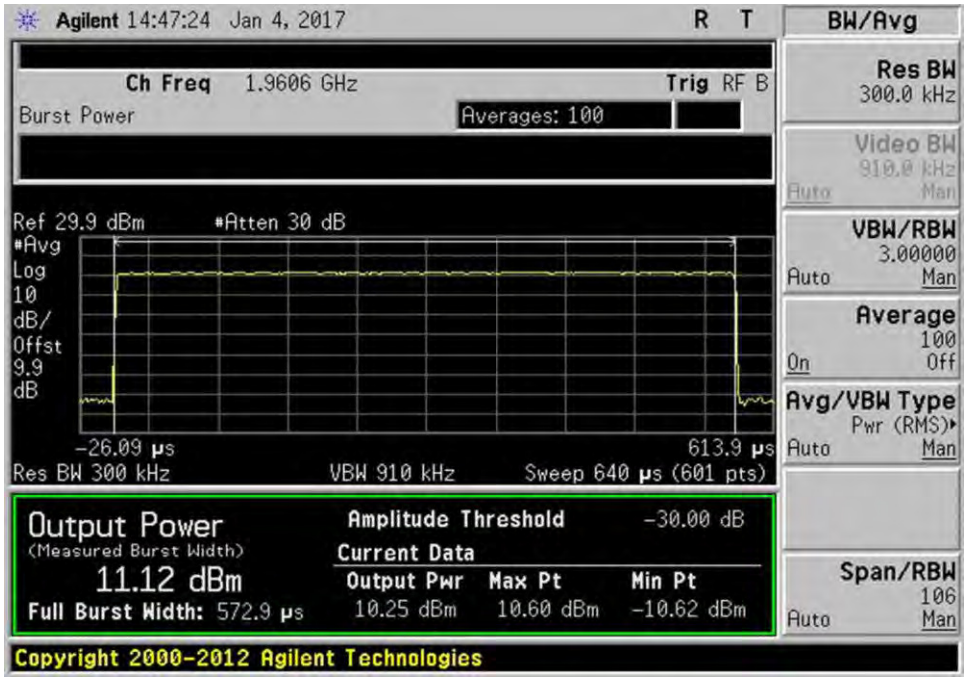
7.2_Power_DL_869-894MHz_GSM



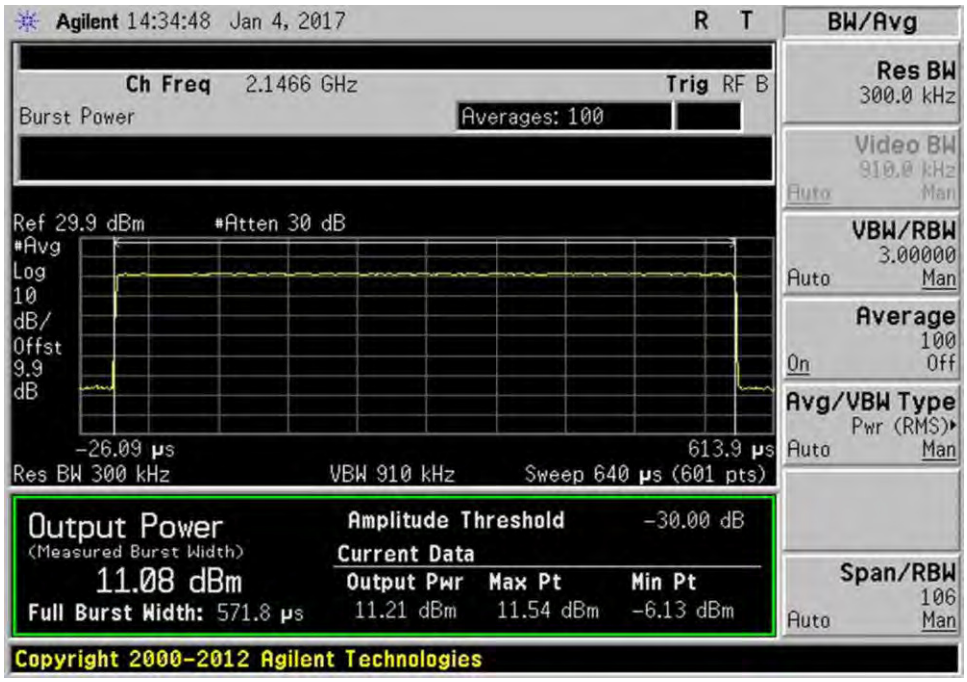
7.2_Power_DL_869-894MHz_GSM_Max



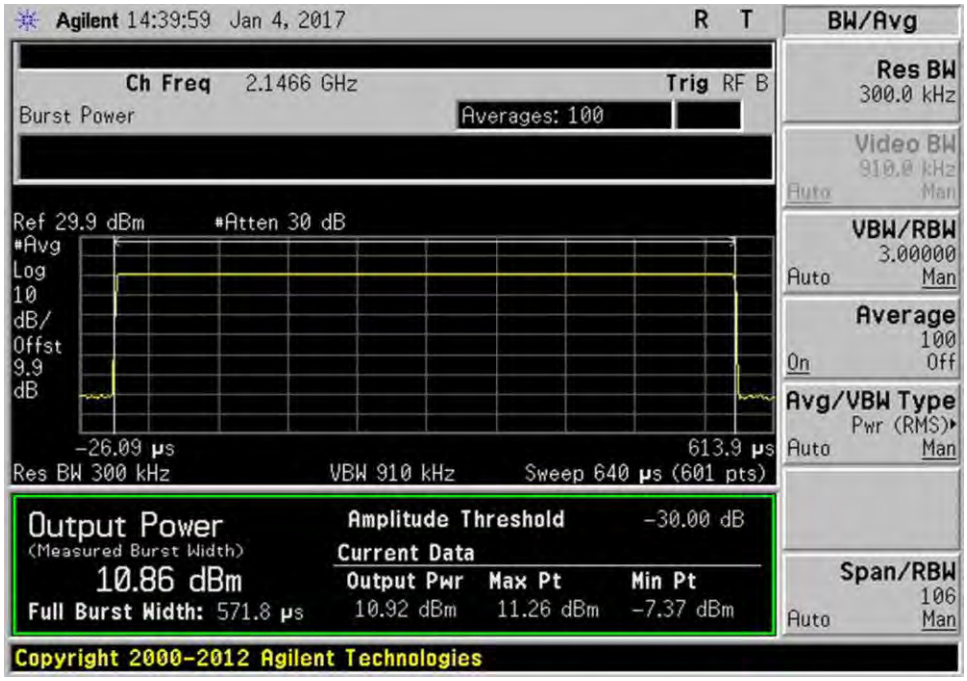
7.2_Power_DL_1930-1995MHz_GSM



7.2_Power_DL_1930-1995MHz_GSM_Max



7.2_Power_DL_2110-2155MHz_GSM



7.2_Power_DL_2110-2155MHz_GSM_Max

7.4 Intermodulation Product

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170		
Customer:	Huaptec		
Specification:	**7.4 Intermodulation Product**		
Work Order #:	**99345**	Date:	1/5/2017
Test Type:	**Conducted Emissions**	Time:	9:09:55 AM
Tested By:	**Daniel Bertran**	Sequence#:	1
Software:	EMITest 5.03.03		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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 N connector and 50-ohm impedance.
The EUT Donor port is type N 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

The test was performed in accordance with section 7.4 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04 Dated February 12, 2016.
Firmware: AF20-5S-V04

Test environment conditions:
Temperature: 19°C
Relative Humidity: 55%
Pressure: 101.8 kPa

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN03418	Signal Generator	E4438C	7/30/2015	7/30/2017
	ANP06467	Attenuator	PE7014-10	5/13/2015	5/13/2017
	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

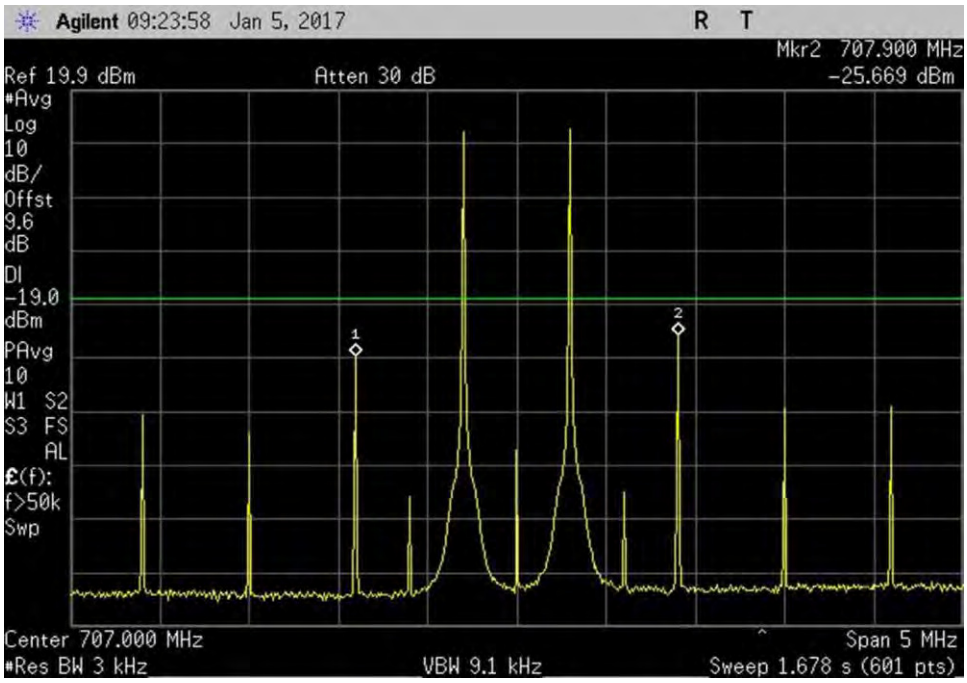
Summary of Results

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

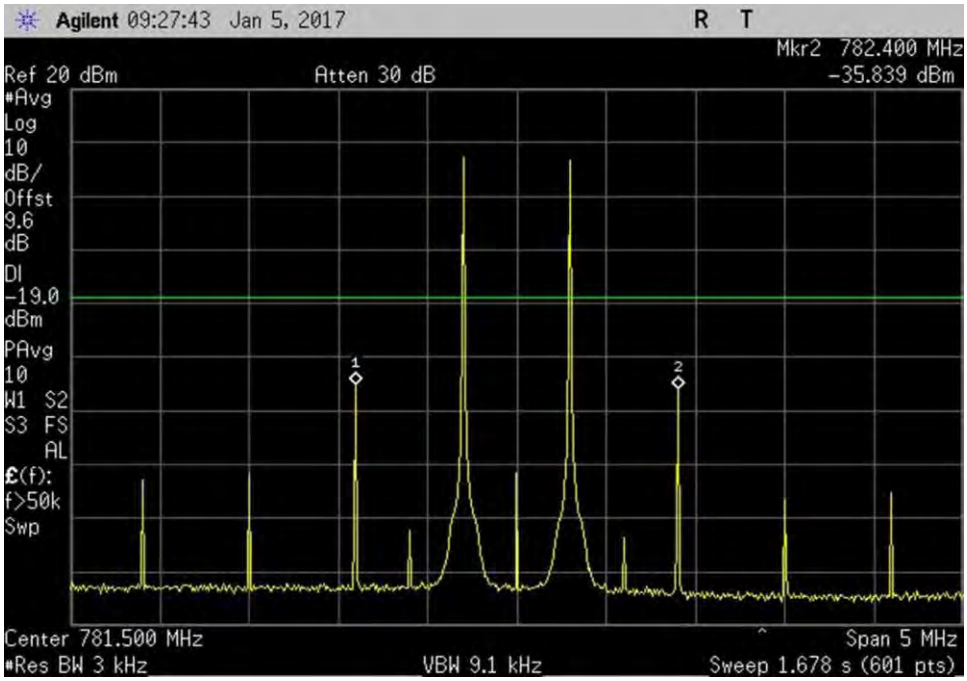
Inter Modulation Product			
Frequency (MHz)	**Pre AGC (dBm)**	**Limit (dBm)**	**Results**
UL 1710-1755	-23.0	-19	Pass
UL 1850-1915	-25.0	-19	Pass
UL 824-894	-32.2	-19	Pass
UL 698-716	-25.7	-19	Pass
UL 776-787	-35.1	-19	Pass
DL 2110-2155	-36.4	-19	Pass
DL 1930-1995	-35.6	-19	Pass
DL 869-894	-42.9	-19	Pass
DL 728-746	-45.4	-19	Pass
DL 746-757	-45.7	-19	Pass

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

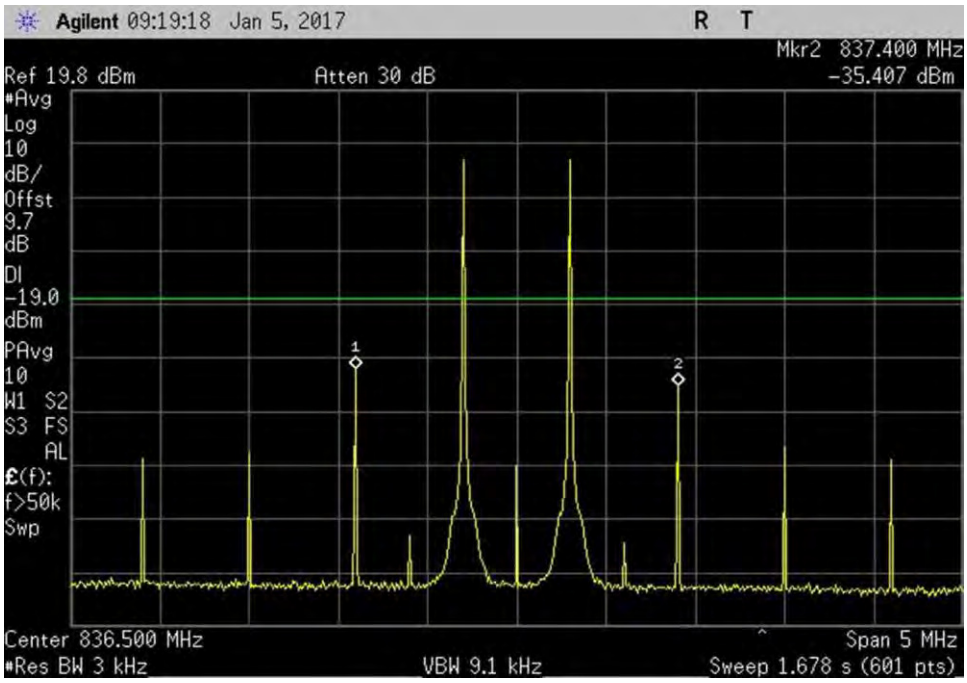
Plots



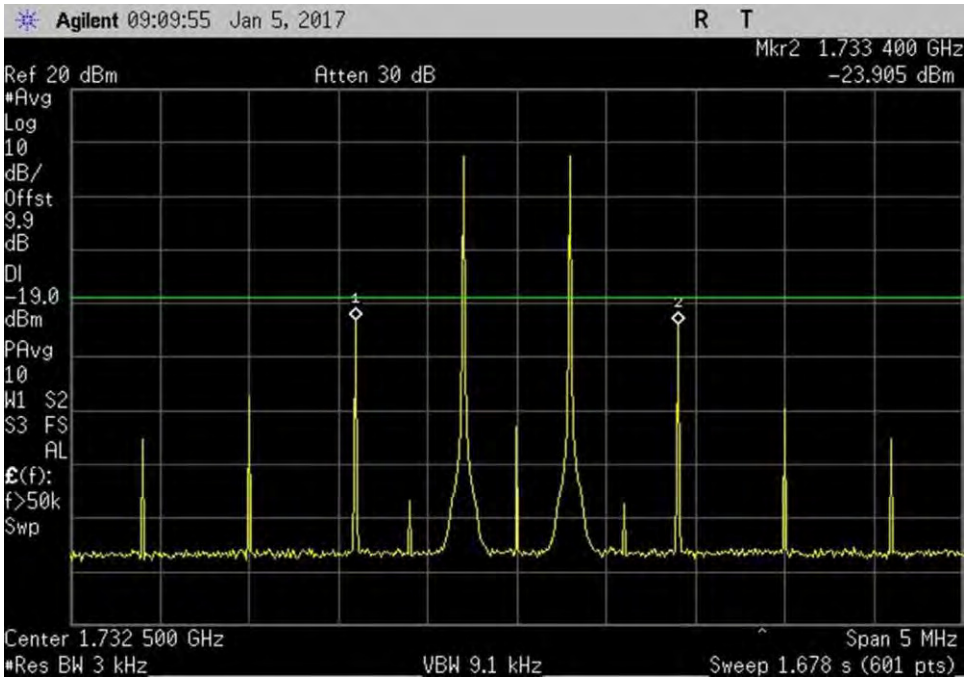
7.4_Intermod_UL_698-716MHz



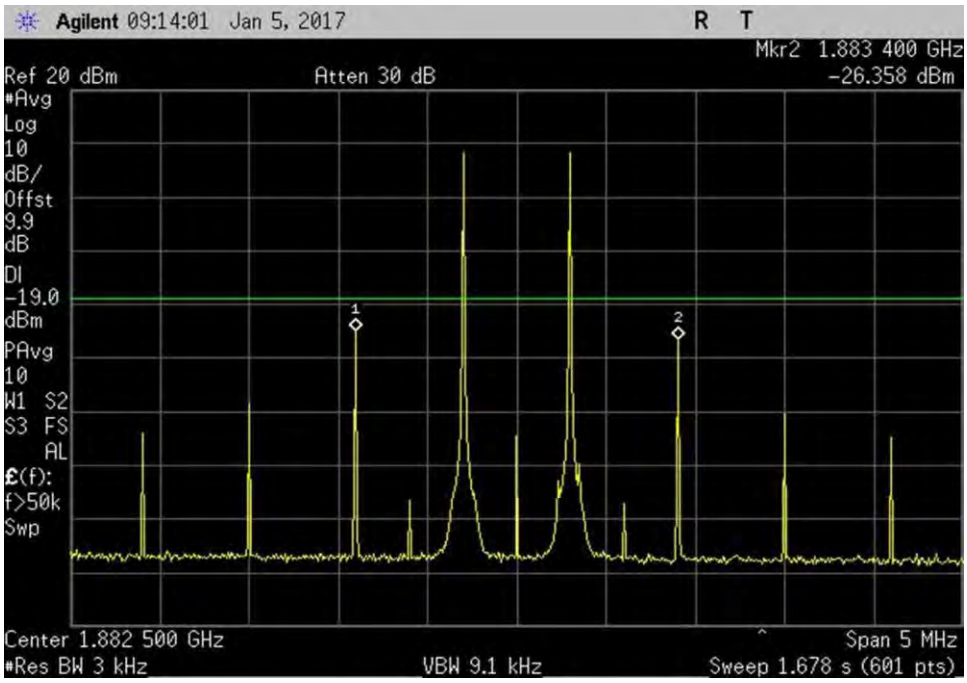
7.4_Intermod_UL_776-787MHz



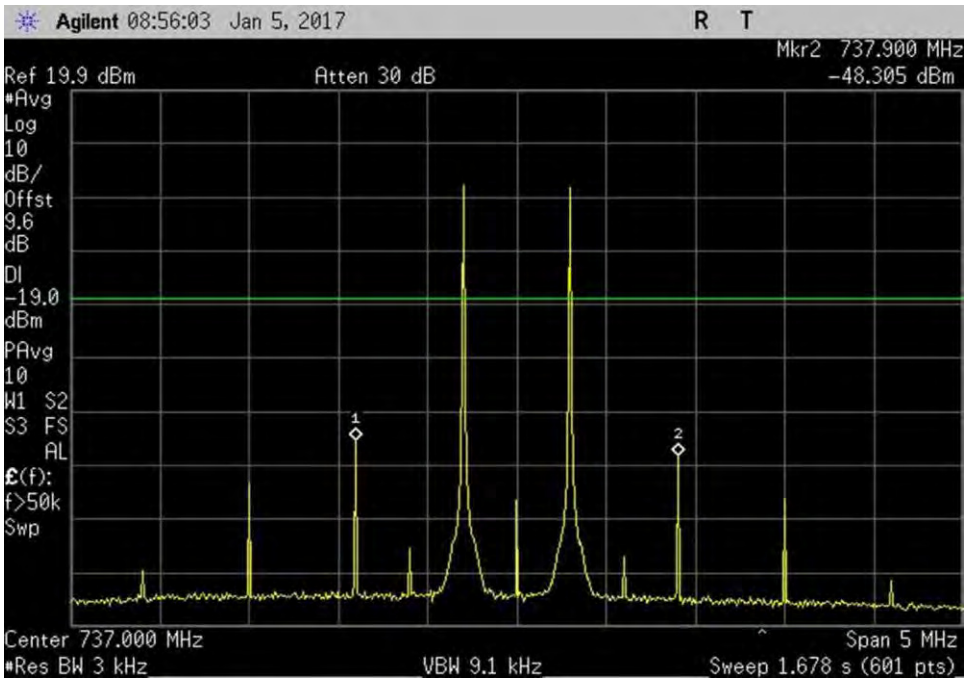
7.4_Intermod_UL_824-849MHz



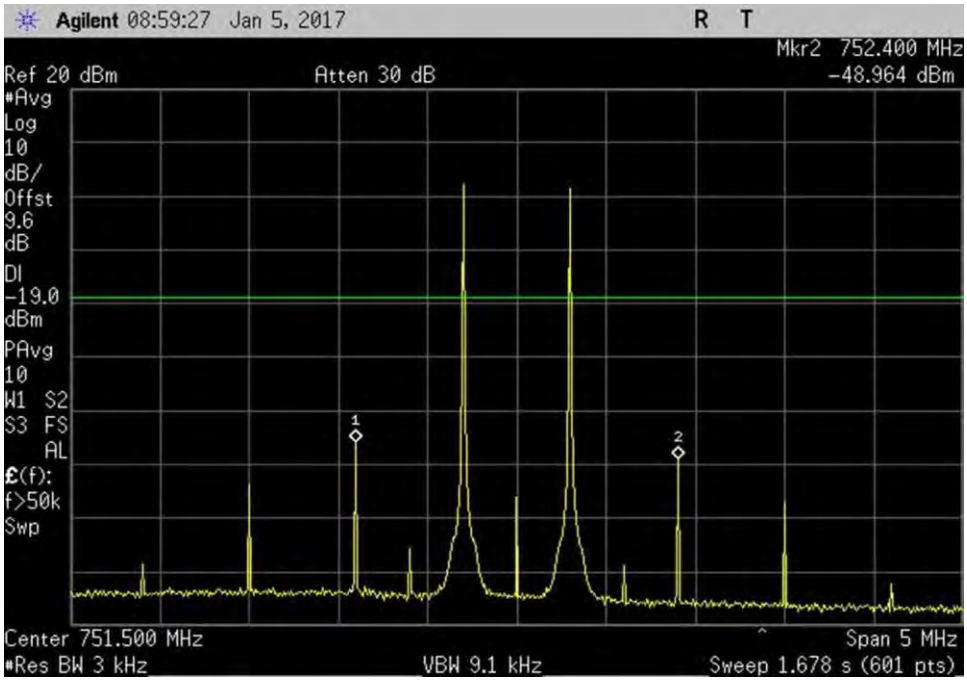
7.4_Intermod_UL_1710-1755MHz



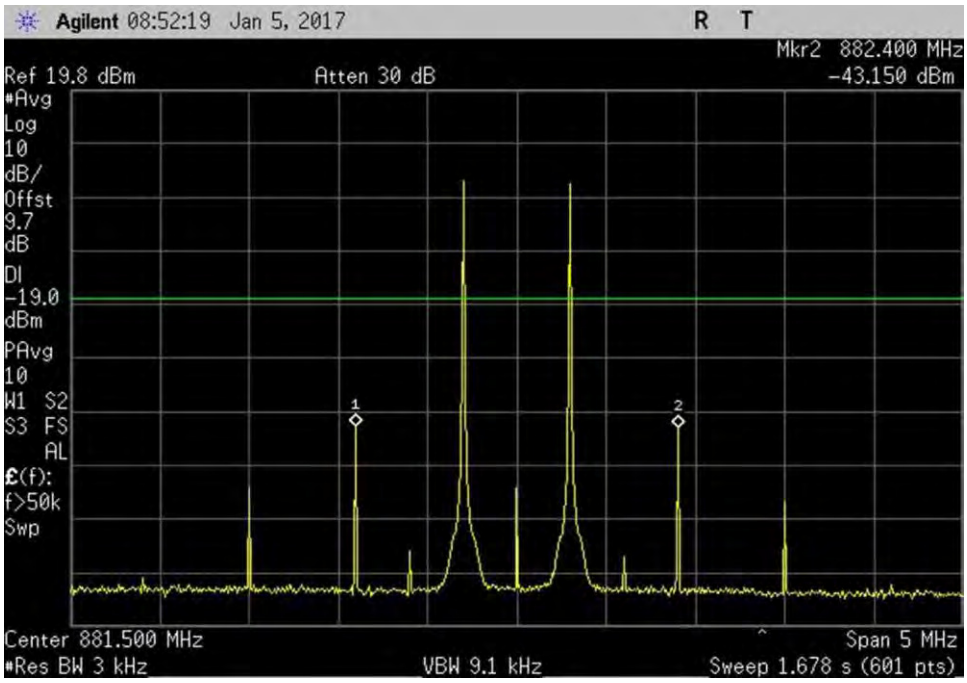
7.4_Intermod_UL_1850-1915MHz



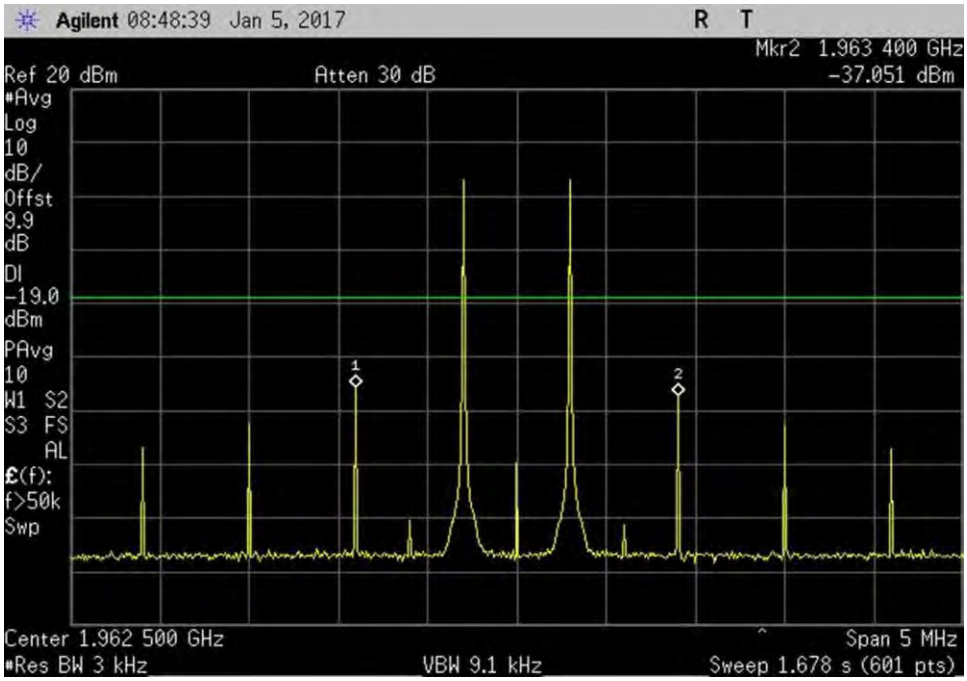
7.4_Intermod_DL_728-746MHz



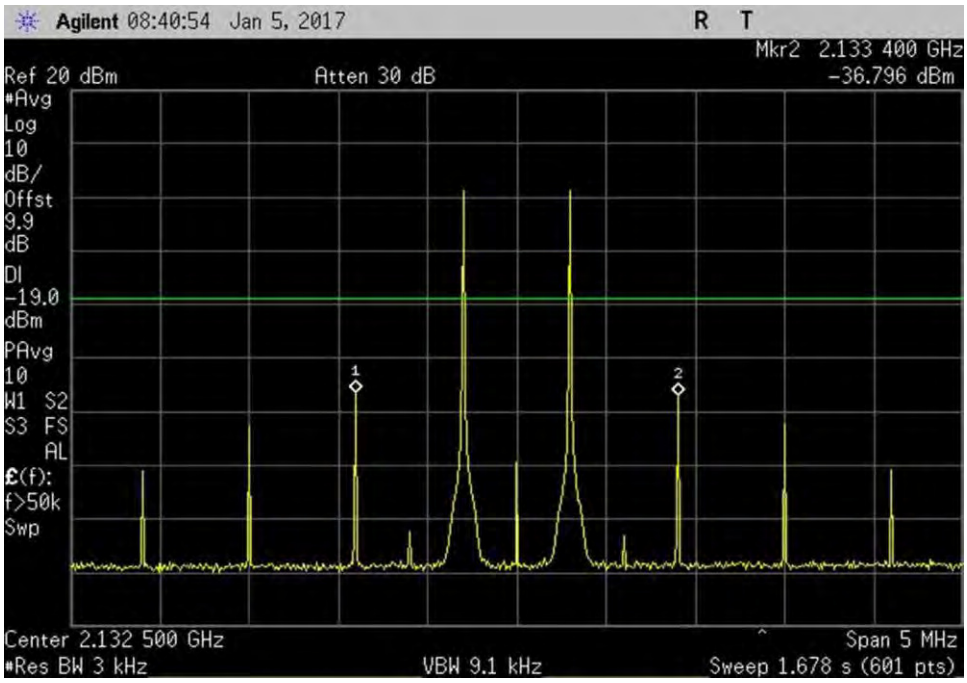
7.4_Intermod_DL_746-757MHz



7.4_Intermod_DL_869-894MHz



7.4_Intermod_DL_1930-1995MHz



7.4_Intermod_DL_2110-2155MHz

7.5 Out of Band Emissions

Test Conditions / Setup

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170		
Customer:	Huaptec		
Specification:	**7.5 Out-of-band Emissions**		
Work Order #:	**99345**	Date:	1/5/2017
Test Type:	**Conducted Emissions**	Time:	9:47:00 AM
Tested By:	**Daniel Bertran**	Sequence#:	1
Software:	EMITest 5.03.03		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

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 N connector and 50-ohm impedance.
The EUT Donor port is type N 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

The test was performed in accordance with section 7.5 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v04 Dated February 12, 2016.
Firmware: AF20-5S-V04

Test environment conditions:
Temperature: 19°C
Relative Humidity: 55%
Pressure: 101.8 kPa

Additional plots taken at 1dB before EUT shuts down and before reaching the maximum input level indicated in section 5.5 of above document.
- Maximum uplink transmitter test levels for fixed wideband consumer signal booster: +0 dBm
- The maximum downlink input level for all device types is −20 dBm

Lower RBW was used as applicable per rule part, in addition integration power function of the Spectrum Analyzers' Adjacent Channel Power tool was used to show compliance in instances where accuracy can be improved by integrating power measured in smaller RBW and linearly summed into standard bandwidth.
Used for testing the alternative test modulation types:

• CDMA (alternative 1.25 MHz AWGN*)
• LTE 5 MHz (alternative 4.1 MHz AWGN*)
*AWGN test signal, the bandwidth was measured 99% occupied bandwidth.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN03418	Signal Generator	E4438C	7/30/2015	7/30/2017
	ANP06467	Attenuator	PE7014-10	5/13/2015	5/13/2017
	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 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	-19.0	Pass	UL1710-1755	-27.5	-19.0	Pass
UL1850-1915	-26.8	-19.0	Pass	UL1850-1915	-36.7	-19.0	Pass
UL824-849	-27.5	-19.0	Pass	UL824-849	-27.5	-19.0	Pass
UL 698-716	-38.9	-19.0	Pass	UL 698-716	-23.7	-19.0	Pass
UL776-787	-28.2	-19.0	Pass	UL776-787	-29.4	-19.0	Pass
DL2110-2155	-34.3	-19.0	Pass	DL2110-2155	-34.9	-19.0	Pass
DL1930-1995	-35.4	-19.0	Pass	DL1930-1995	-33.6	-19.0	Pass
DL869-894	-35.2	-19.0	Pass	DL869-894	-36.9	-19.0	Pass
DL:728-746	-44.9	-19.0	Pass	DL:728-746	-34.5	-19.0	Pass
DL 746-757	-33.9	-19.0	Pass	DL 746-757	-35.6	-19.0	Pass

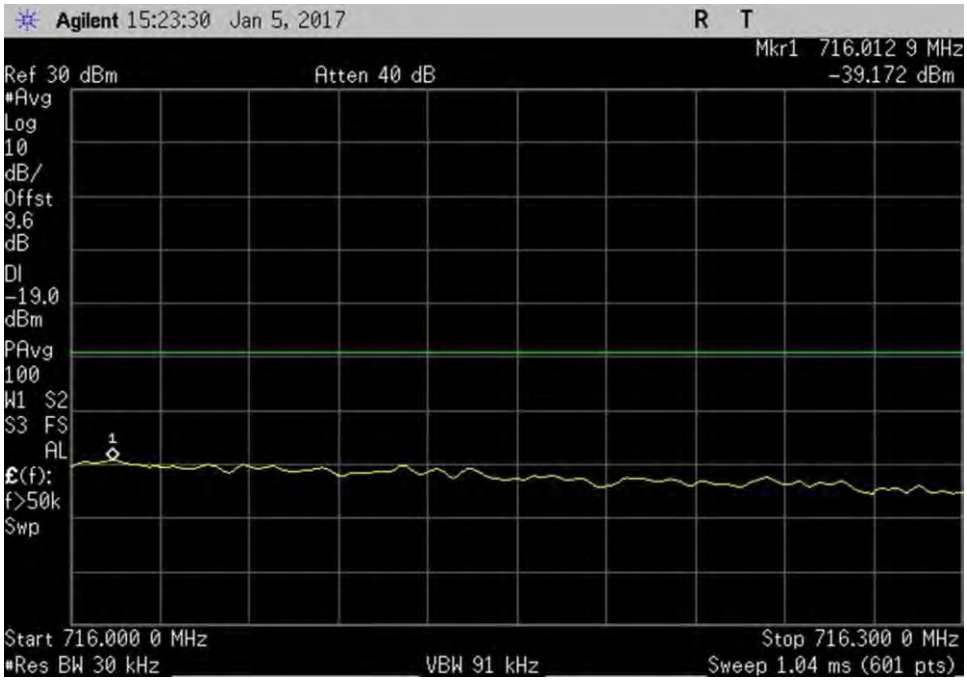
CDMA							
Low				High			
Out of Band Emission				Out of Band Emission			
Frequency (MHz)	Pre AGC	Limit (dBm)	Results	Frequency (MHz)	Pre AGC	Limit (dBm)	Results
UL1710-1755	-27.3	-19.0	Pass	UL1710-1755	-30.8	-19.0	Pass
UL1850-1915	-25.6	-19.0	Pass	UL1850-1915	-42.8	-19.0	Pass
UL824-849	-35.5	-19.0	Pass	UL824-849	-25.0	-19.0	Pass
UL 698-716	-51.2	-19.0	Pass	UL 698-716	-39.1	-19.0	Pass
UL776-787	-43.9	-19.0	Pass	UL776-787	-44.6	-19.0	Pass
DL2110-2155	-42.0	-19.0	Pass	DL2110-2155	-39.4	-19.0	Pass
DL1930-1995	-42.3	-19.0	Pass	DL1930-1995	-40.9	-19.0	Pass
DL869-894	-58.4	-19.0	Pass	DL869-894	-50.5	-19.0	Pass
DL:728-746	-58.6	-19.0	Pass	DL:728-746	-57.3	-19.0	Pass
DL 746-757	-57.3	-19.0	Pass	DL 746-757	-58.4	-19.0	Pass

LTE							
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	-20.2	-19.0	Pass	UL1710-1755	-27.3	-19.0	Pass
UL1850-1915	-26.4	-19.0	Pass	UL1850-1915	-36.2	-19.0	Pass
UL824-849	-24.9	-19.0	Pass	UL824-849	-29.5	-19.0	Pass
UL 698-716	-41.1	-19.0	Pass	UL 698-716	-31.5	-19.0	Pass
UL776-787	-23.9	-19.0	Pass	UL776-787	-29.7	-19.0	Pass
DL2110-2155	-36.8	-19.0	Pass	DL2110-2155	-34.4	-19.0	Pass
DL1930-1995	-38.9	-19.0	Pass	DL1930-1995	-36.5	-19.0	Pass
DL869-894	-39.2	-19.0	Pass	DL869-894	-38.8	-19.0	Pass
DL:728-746	-52.3	-19.0	Pass	DL:728-746	-36.2	-19.0	Pass
DL 746-757	-37.6	-19.0	Pass	DL 746-757	-38.8	-19.0	Pass

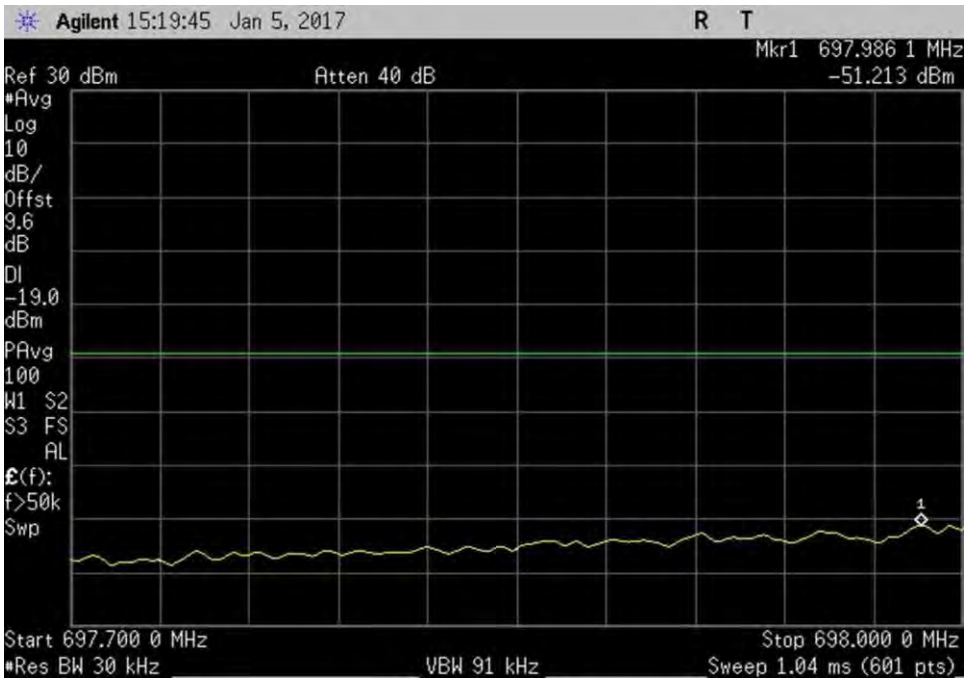
Note: The EUT also maintains compliance with the out-of-band emissions limit at input power indicated in section 5.5.

Plots

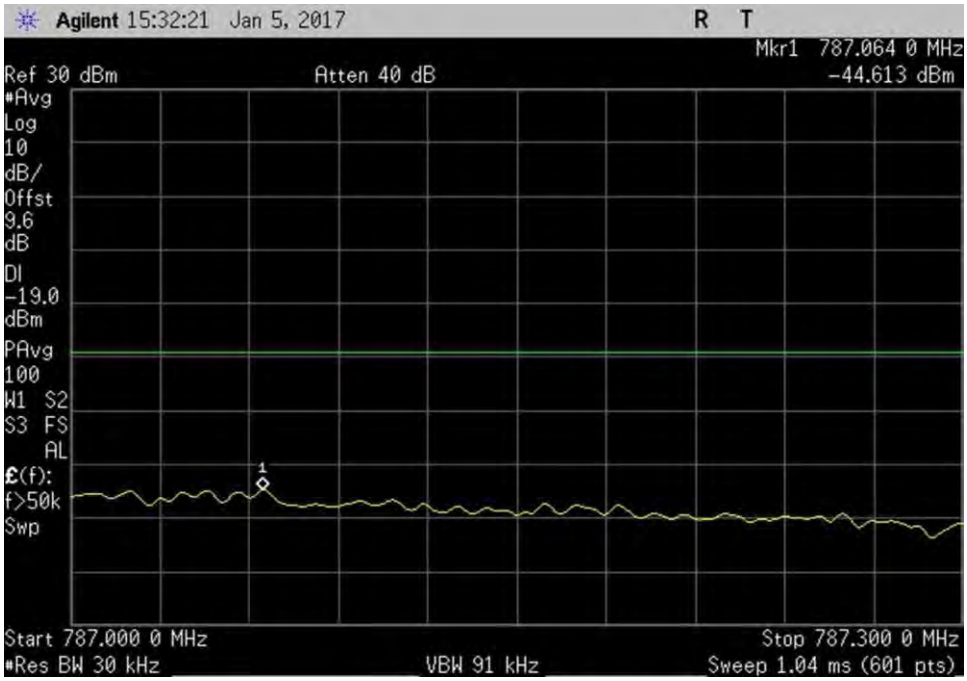
CDMA



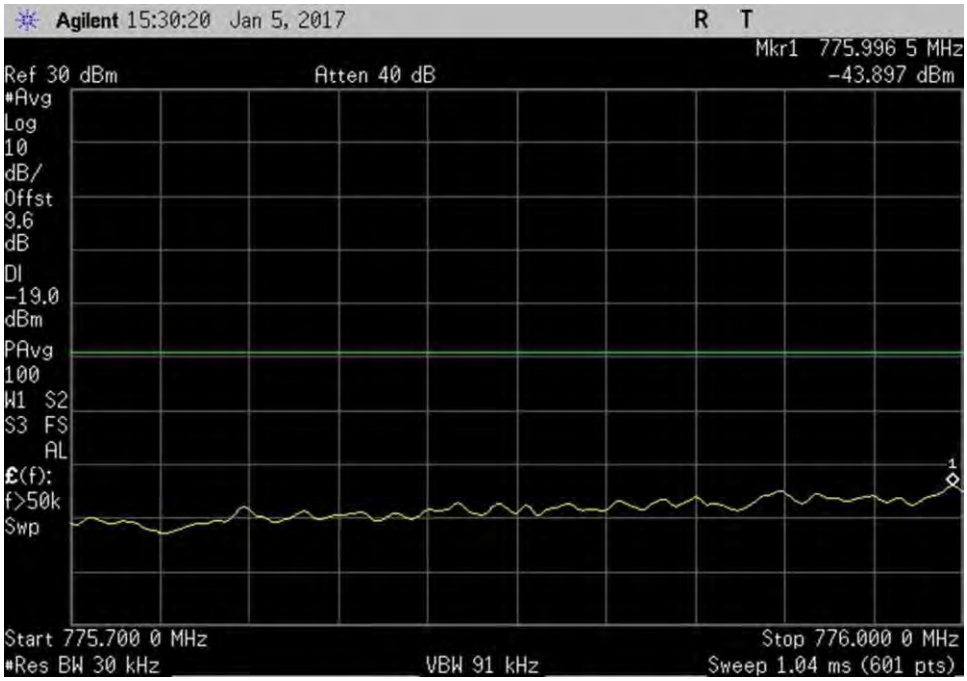
7.5_OBE_UL_698-716MHz_H_PreAGC_CDMA



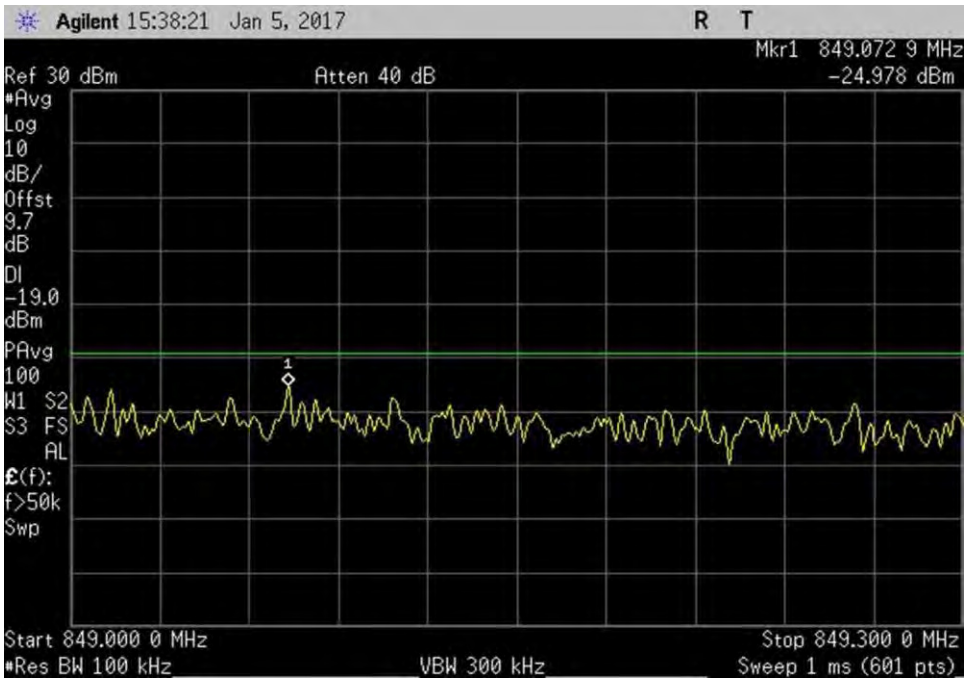
7.5_OBE_UL_698-716MHz_L_PreAGC_CDMA



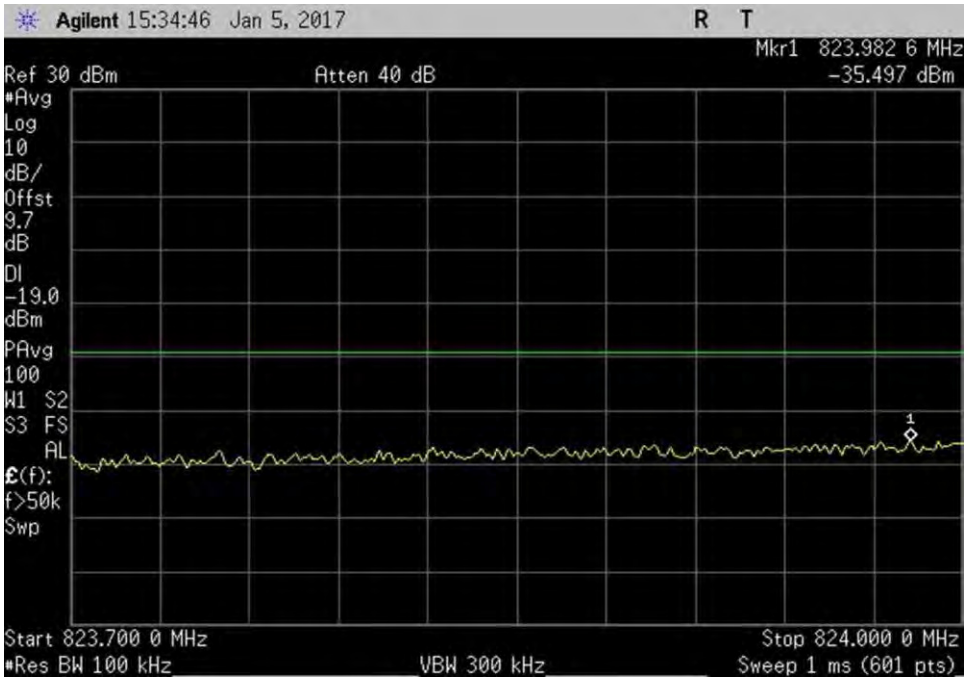
7.5_OBE_UL_776-787MHz_H_PreAGC_CDMA



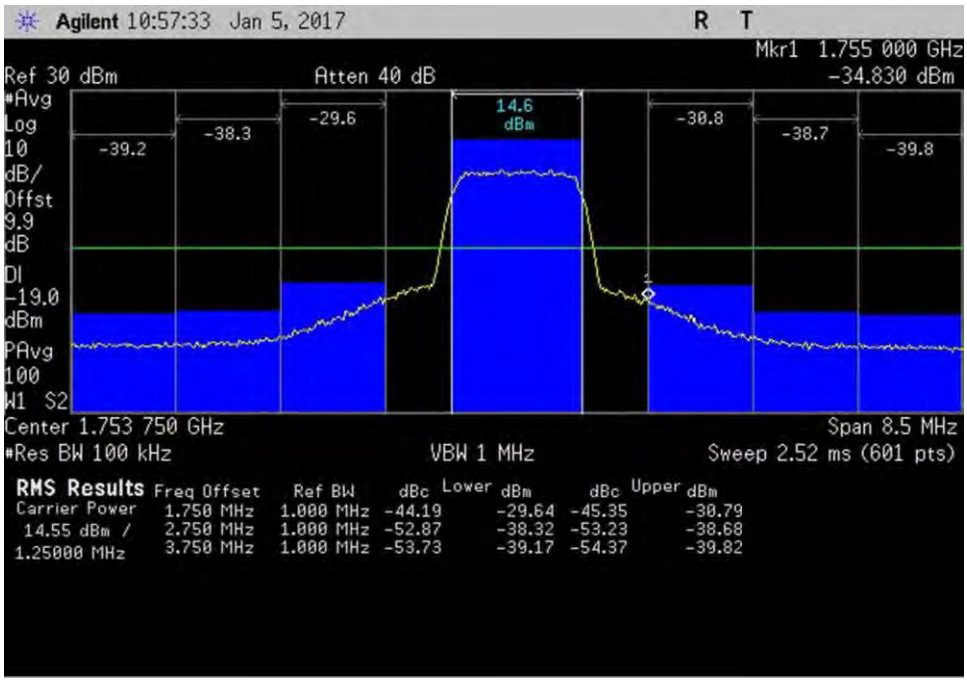
7.5_OBE_UL_776-787MHz_L_PreAGC_CDMA



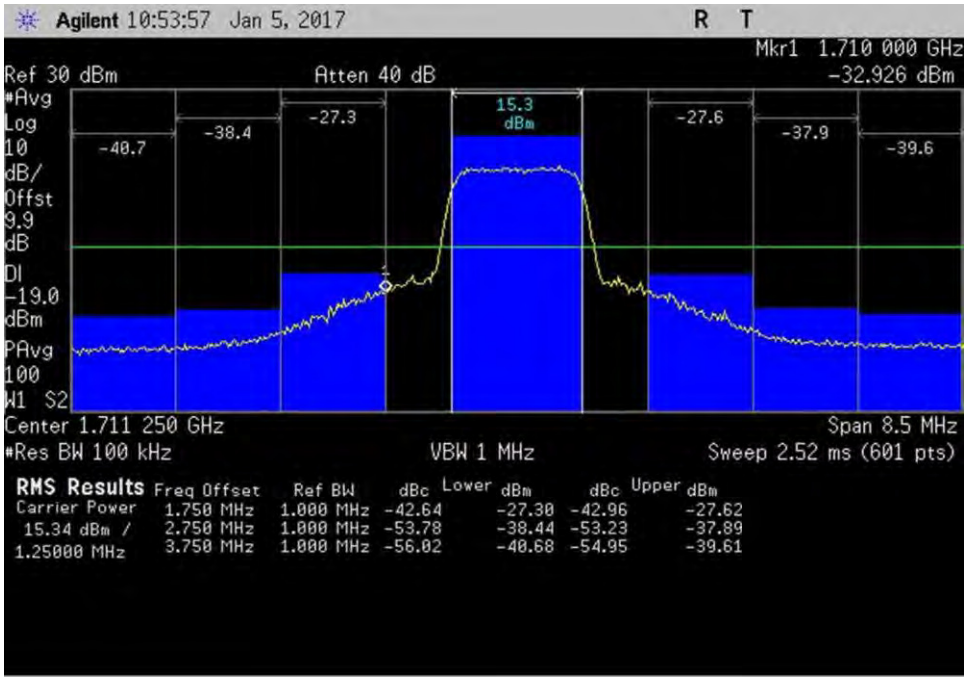
7.5_OBE_UL_824-849MHz_H_PreAGC_CDMA



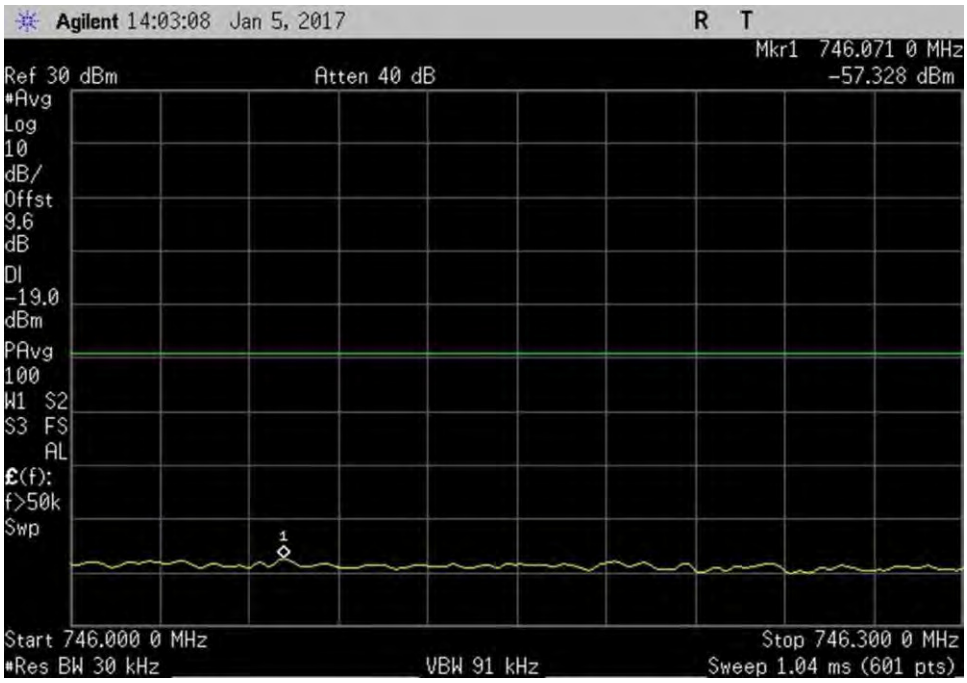
7.5_OBE_UL_824-849MHz_L_PreAGC_CDMA



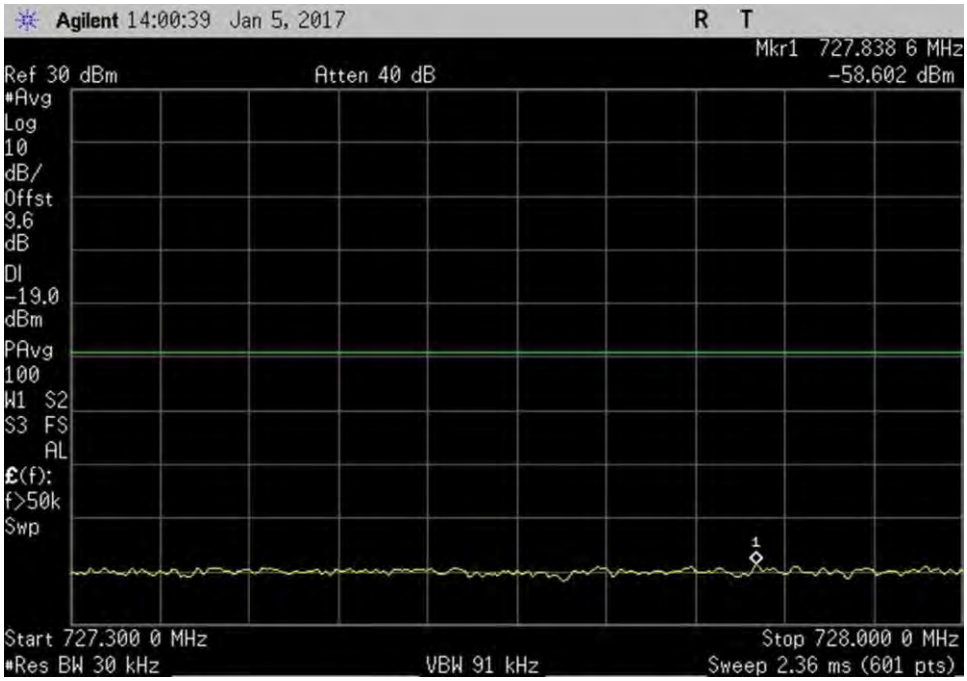
7.5_OBE_UL_1710-1755MHz_H_PreAGC_CDMA



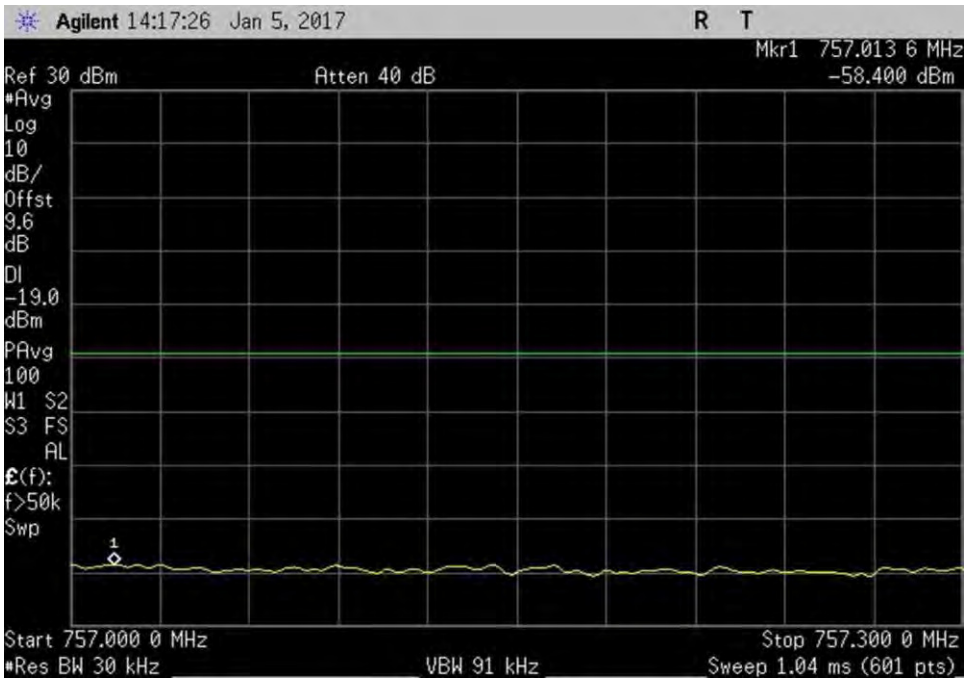
7.5_OBE_UL_1710-1755MHz_L_PreAGC_CDMA



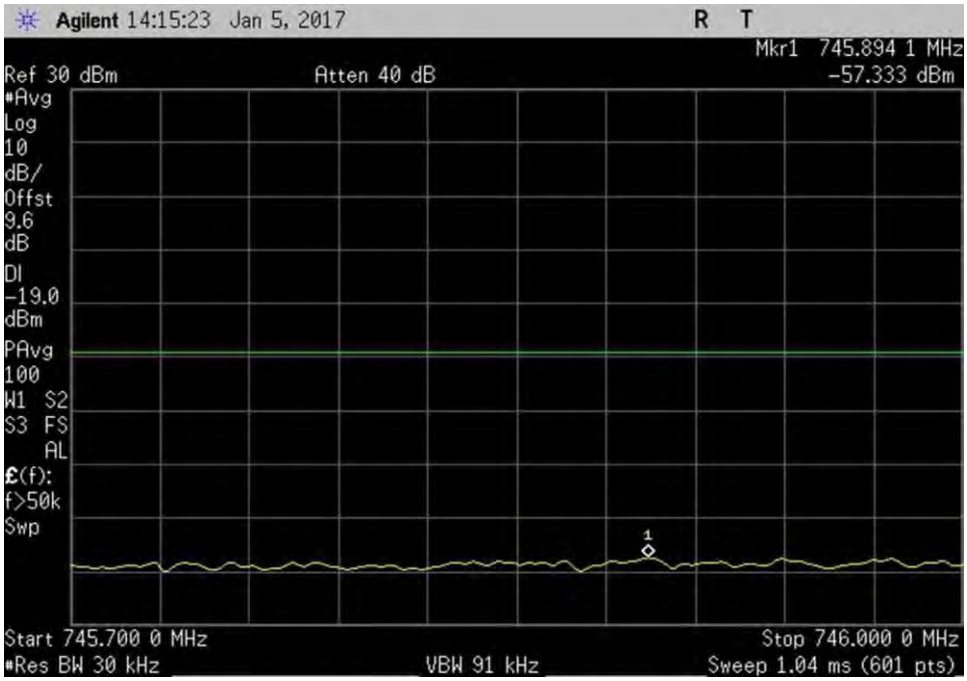
7.5_OBE_DL_728-746MHz_H_PreAGC_CDMA



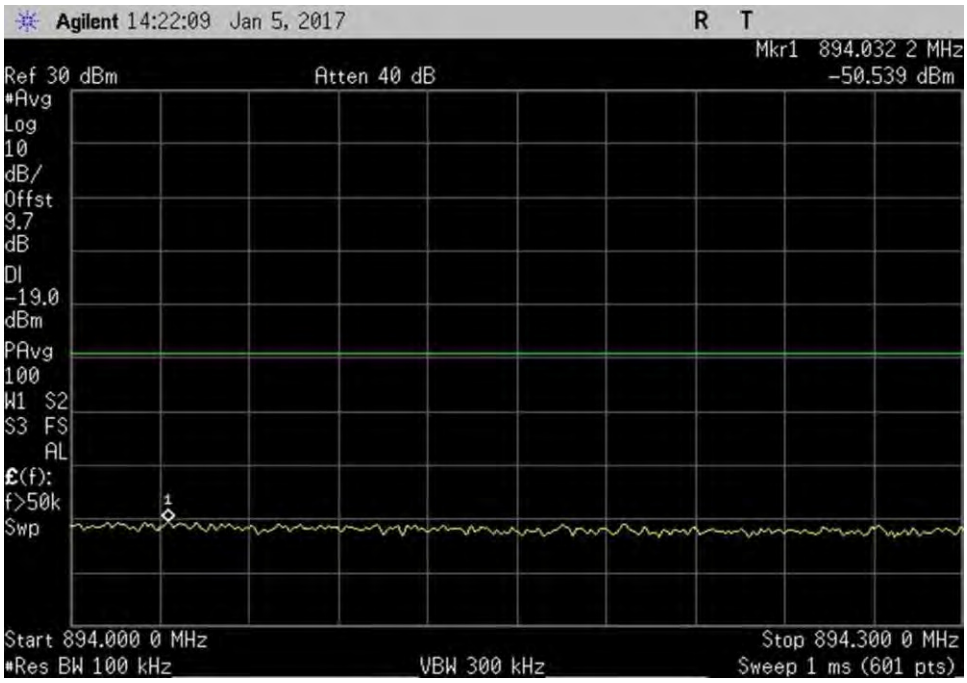
7.5_OBE_DL_728-746MHz_L_PreAGC_CDMA



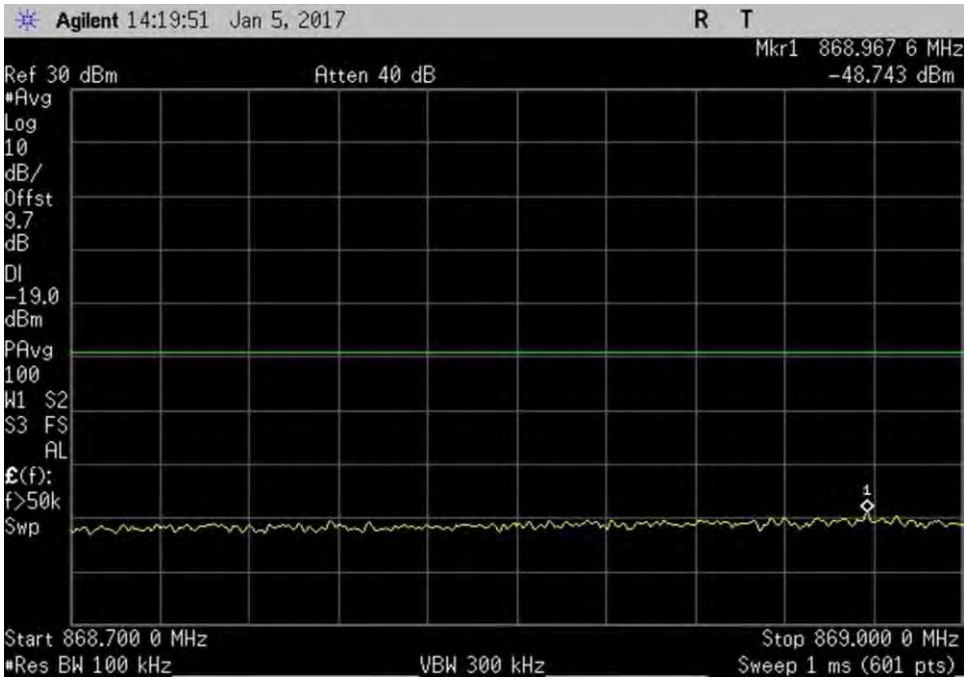
7.5_OBE_DL_746-757MHz_H_PreAGC_CDMA



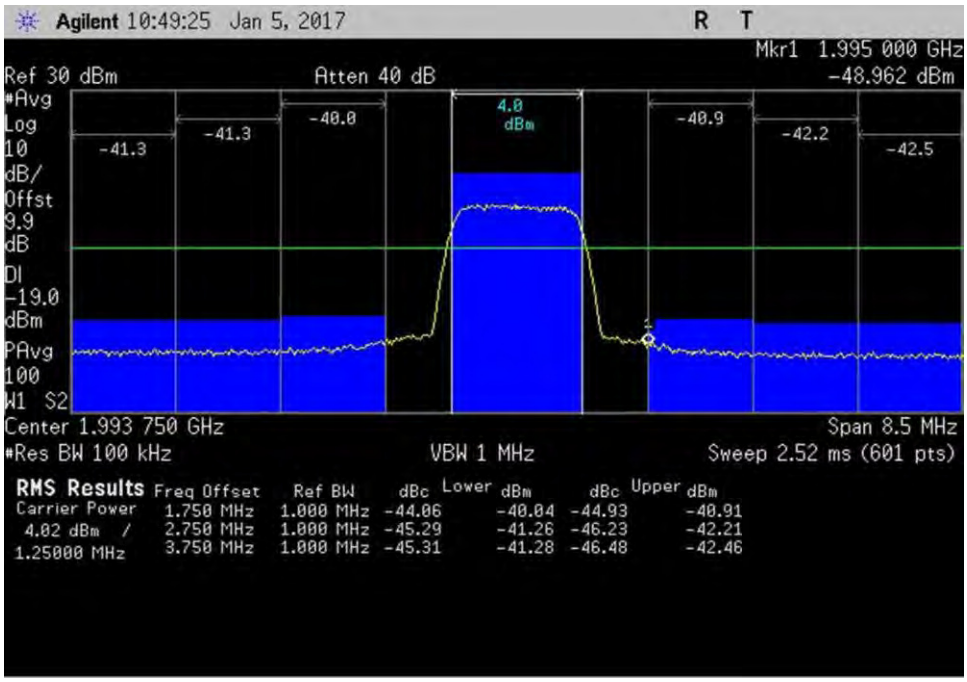
7.5_OBE_DL_746-757MHz_L_PreAGC_CDMA



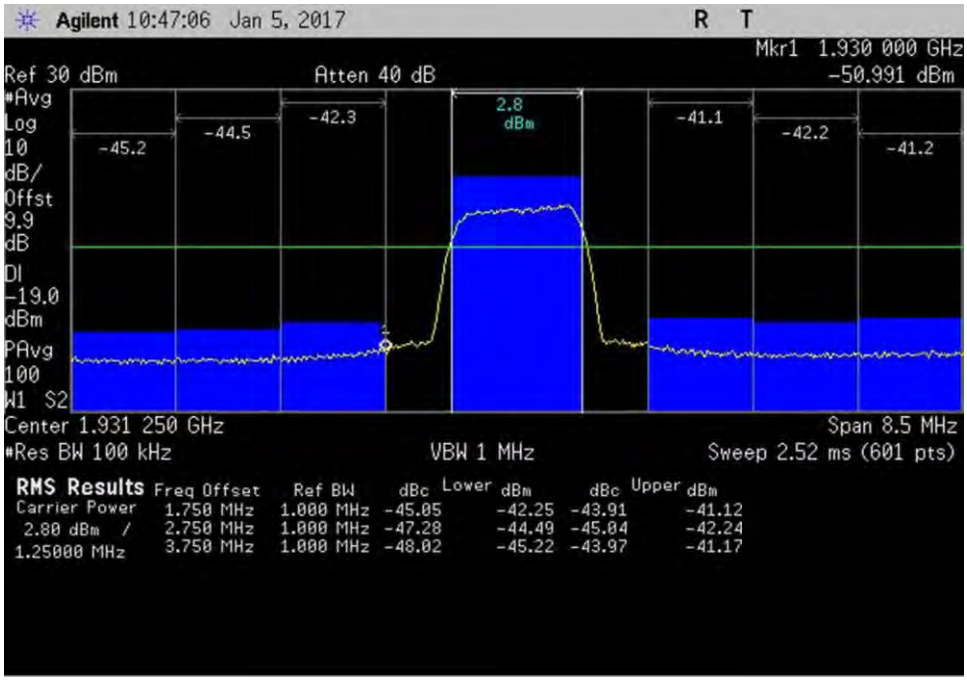
7.5_OBE_DL_869-894MHz_H_PreAGC_CDMA



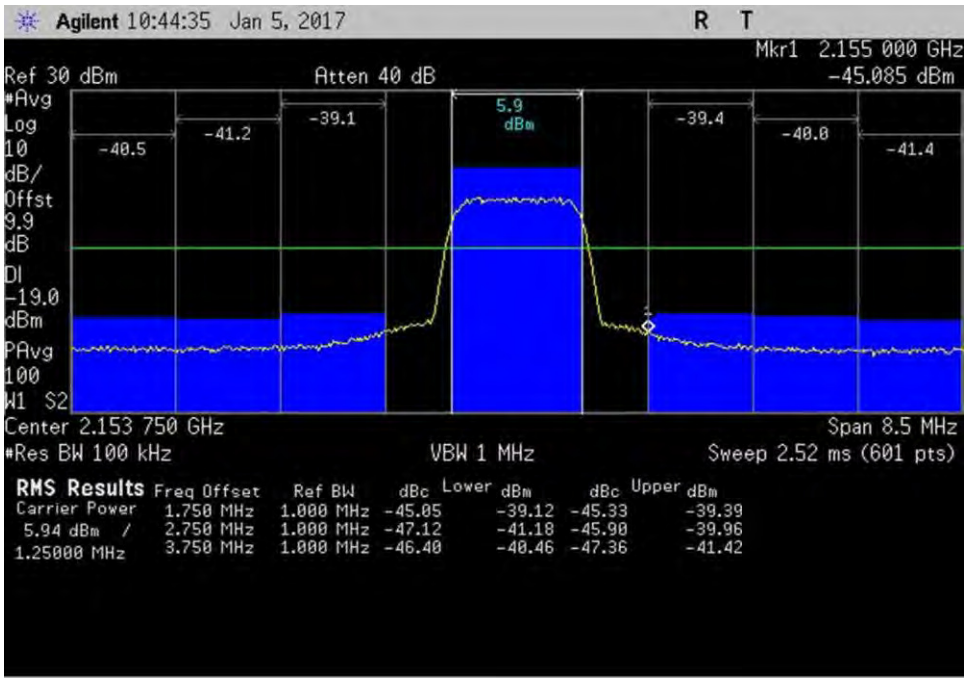
7.5_OBE_DL_869-894MHz_L_PreAGC_CDMA



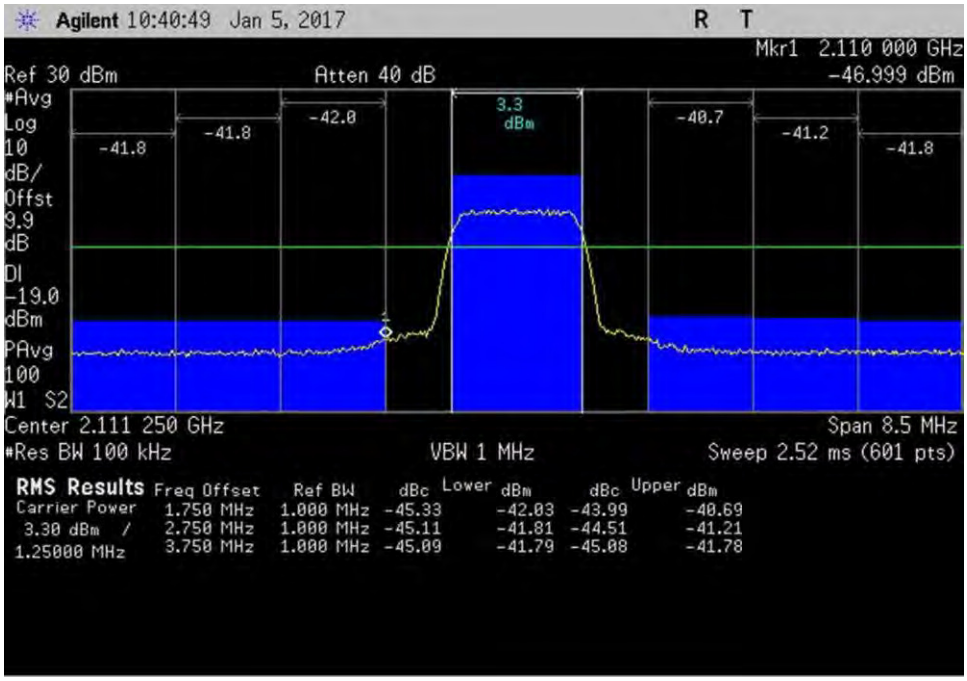
7.5_OBE_DL_1930-1995MHz_H_PreAGC_CDMA



7.5_OBE_DL_1930-1995MHz_L_PreAGC_CDMA

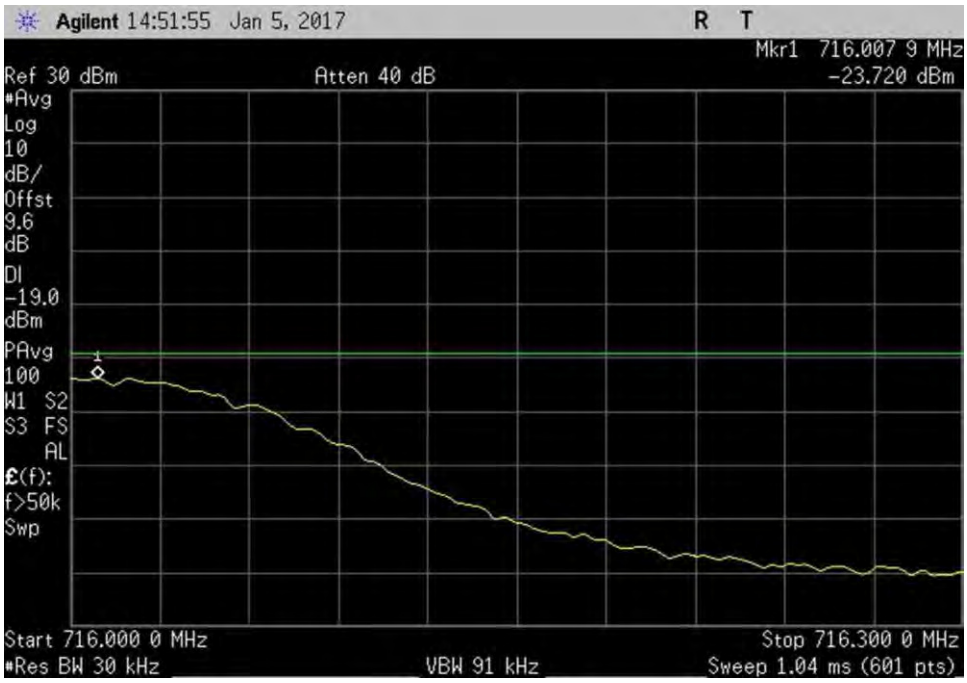


7.5_OBE_DL_2110-2155MHz_H_PreAGC_CDMA

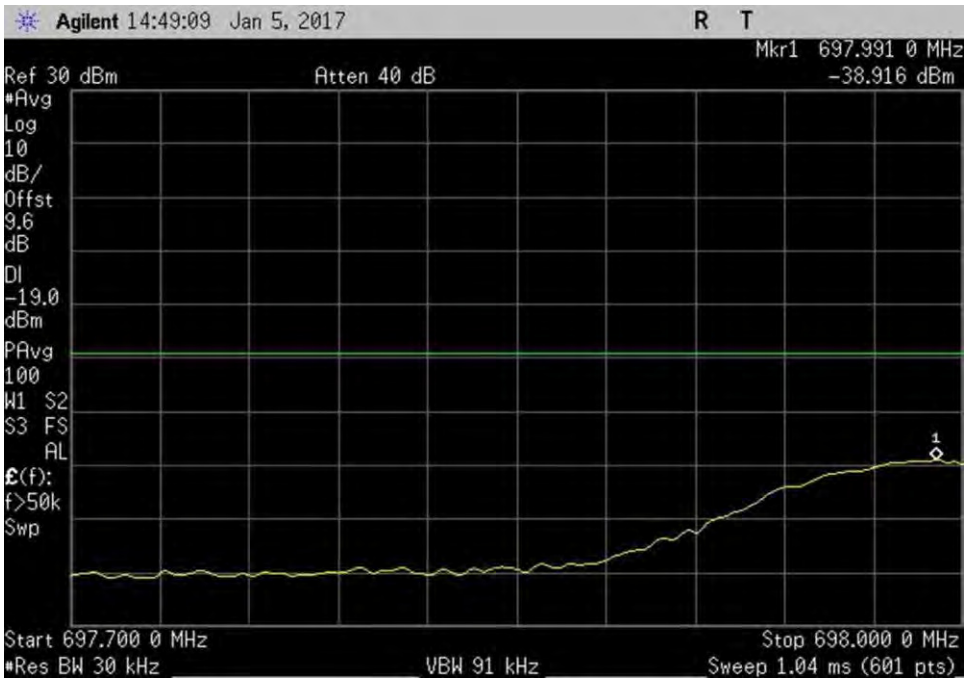


7.5_OBE_DL_2110-2155MHz_L_PreAGC_CDMA

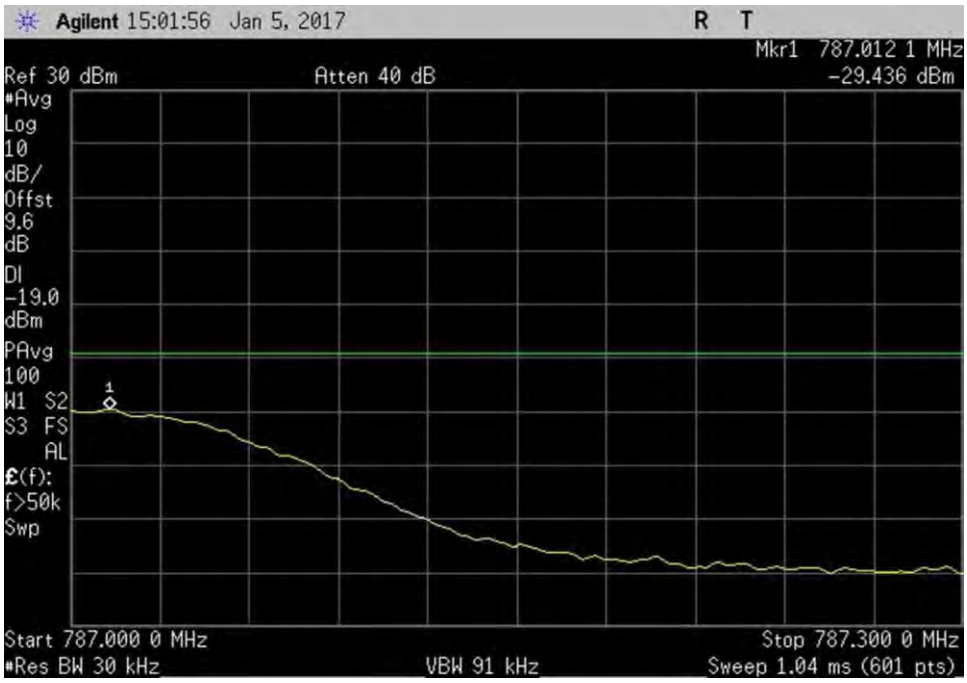
GSM



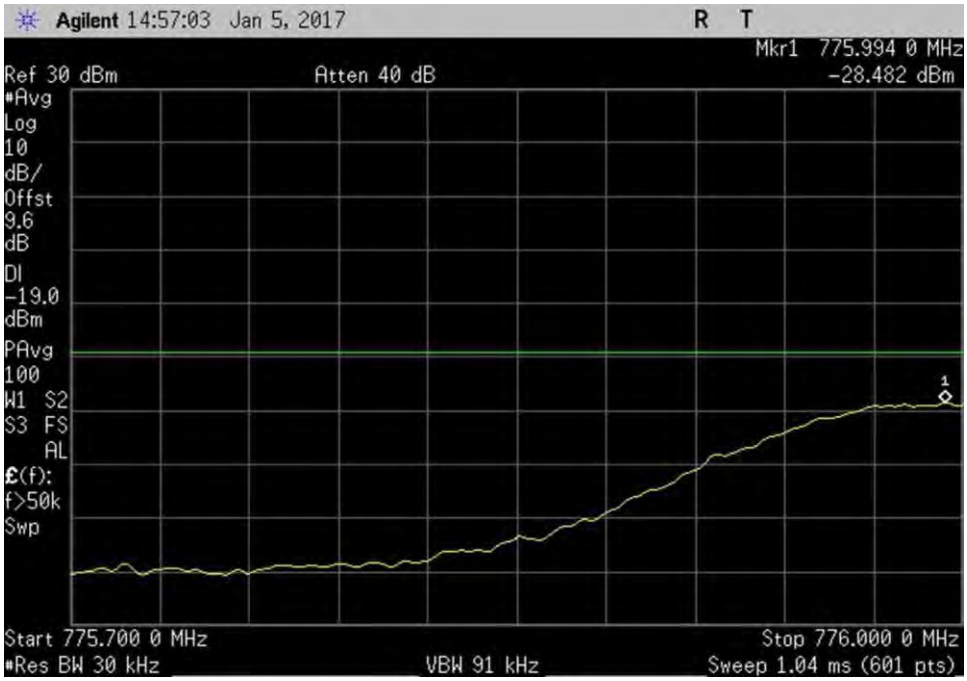
7.5_OBE_UL_698-716MHz_H_PreAGC_GSM



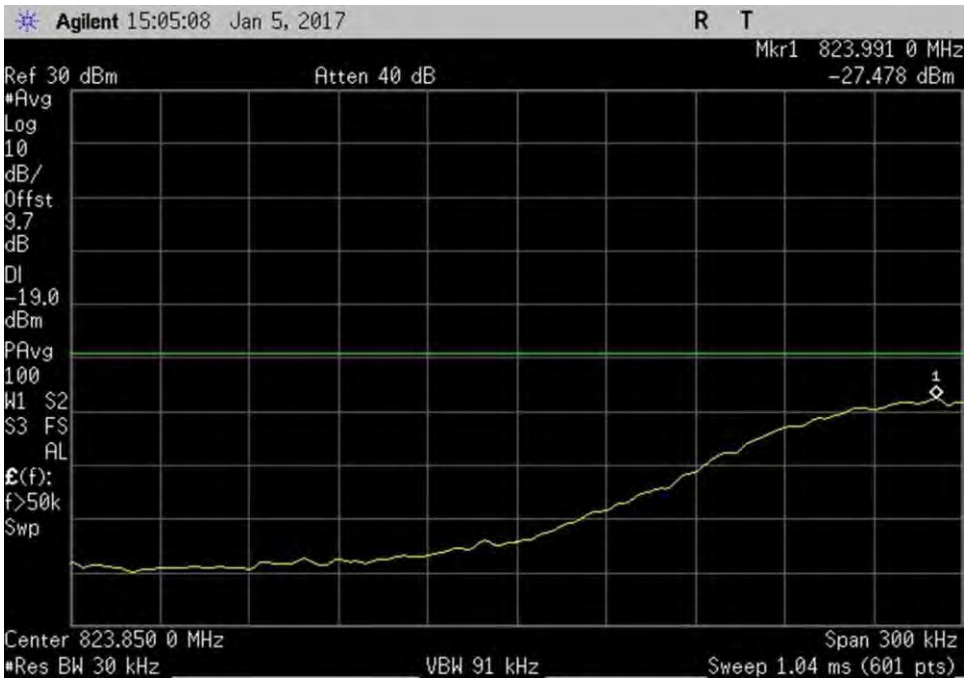
7.5_OBE_UL_698-716MHz_L_PreAGC_GSM



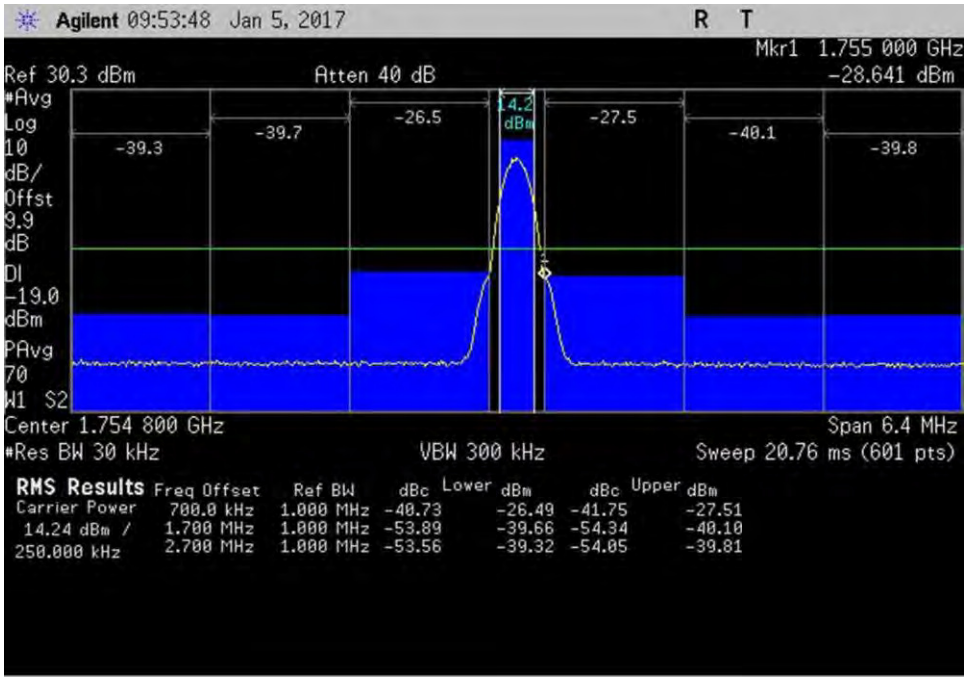
7.5_OBE_UL_776-787MHz_H_PreAGC_GSM



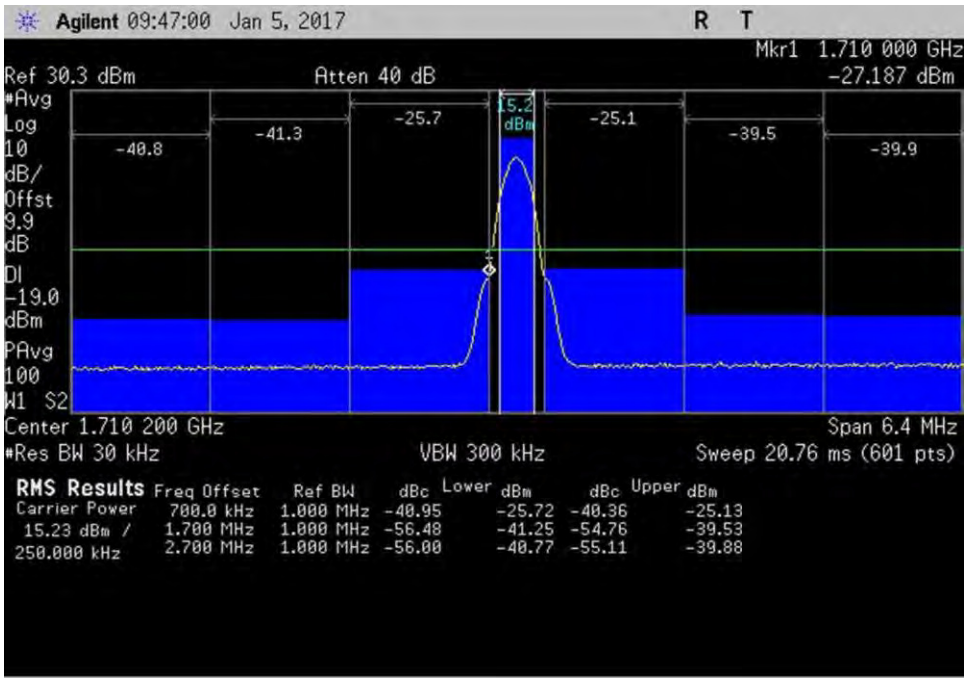
7.5_OBE_UL_776-787MHz_L_PreAGC_GSM



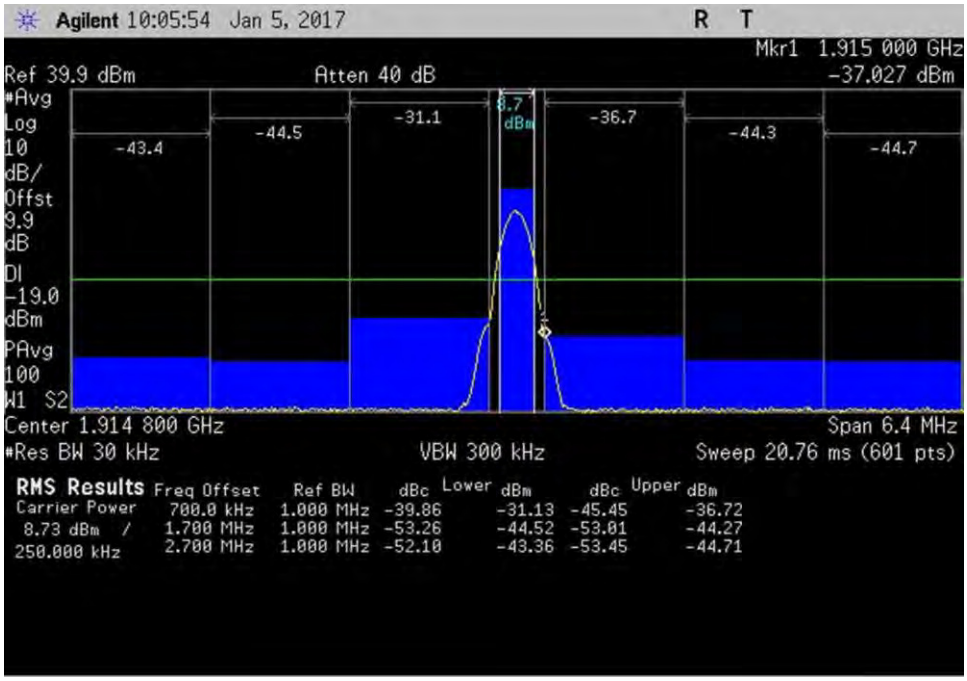
7.5_OBE_UL_824-849MHz_L_PreAGC_GSM



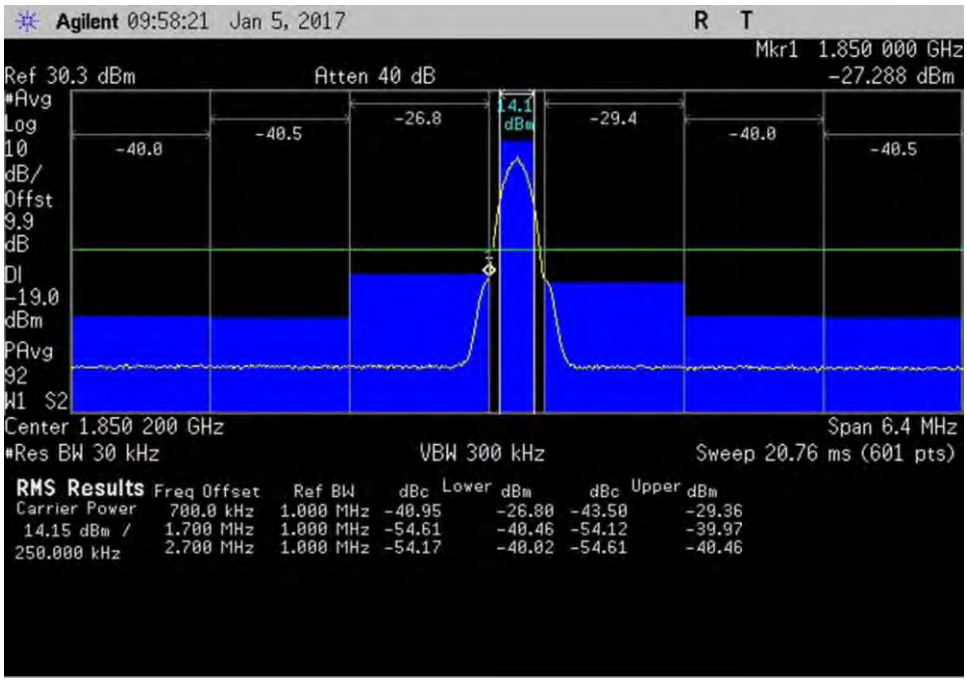
7.5_OBE_UL_1710-1755MHz_H_PreAGC_GSM



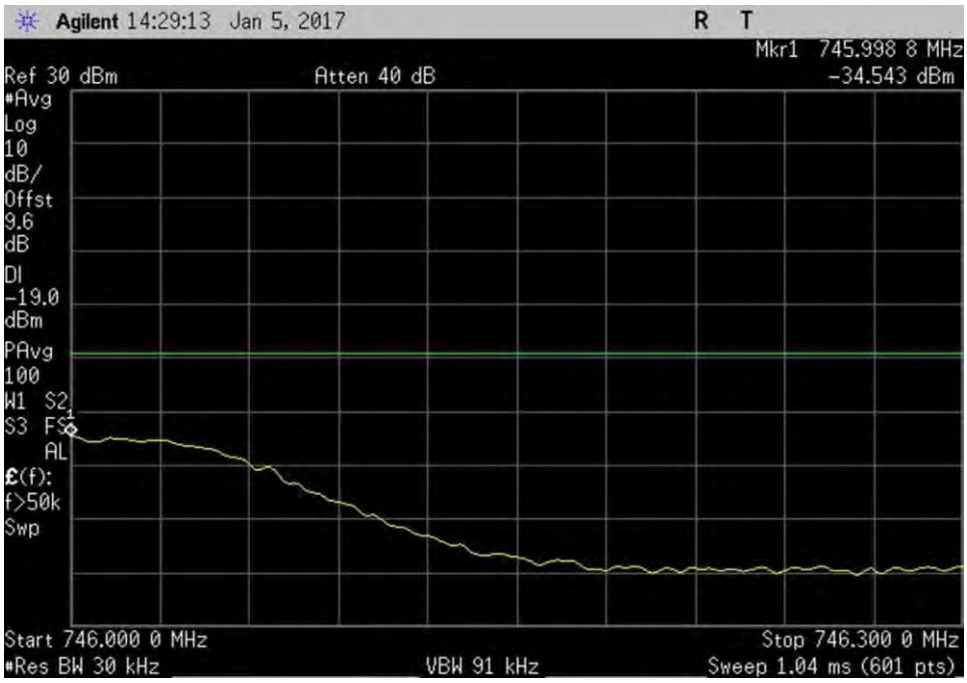
7.5_OBE_UL_1710-1755MHz_L_PreAGC_GSM



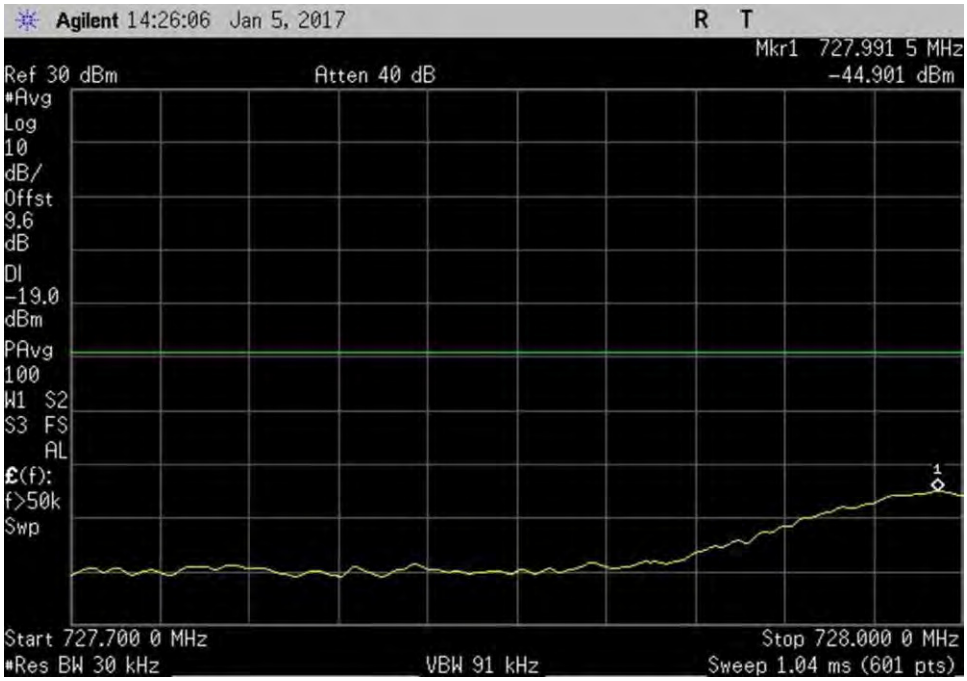
7.5_OBE_UL_1850-1915MHz_H_PreAGC_GSM



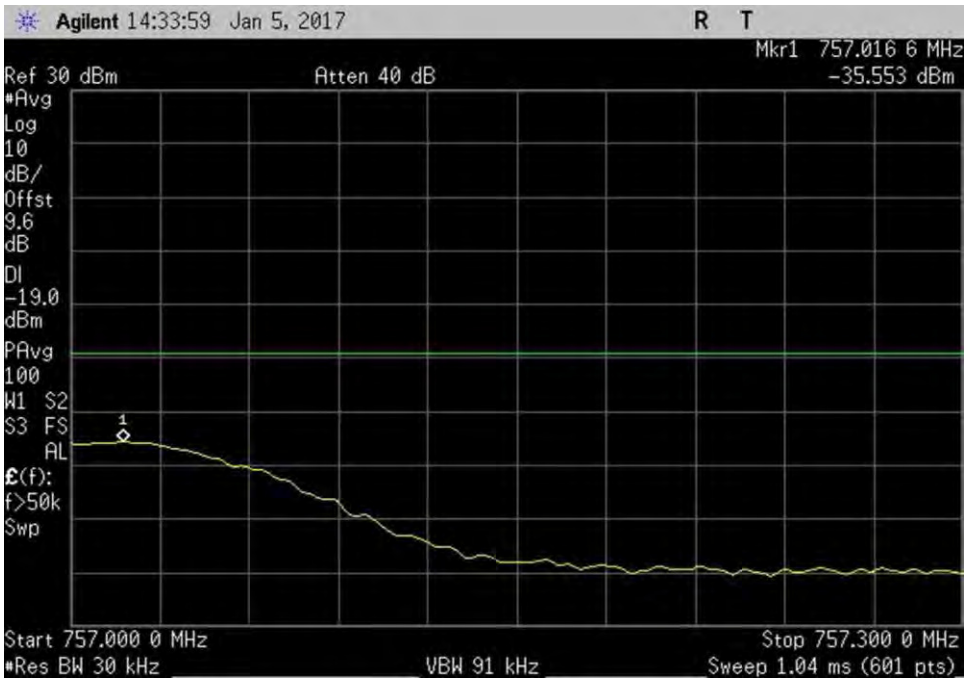
7.5_OBE_UL_1850-1915MHz_L_PreAGC_GSM



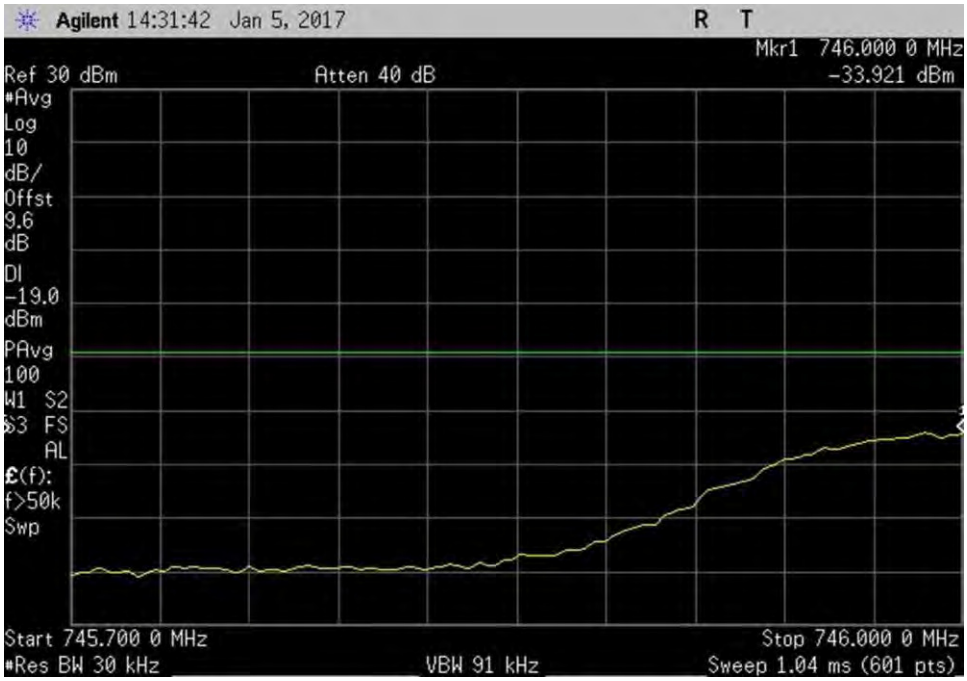
7.5_OBE_DL_728-746MHz_H_PreAGC_GSM



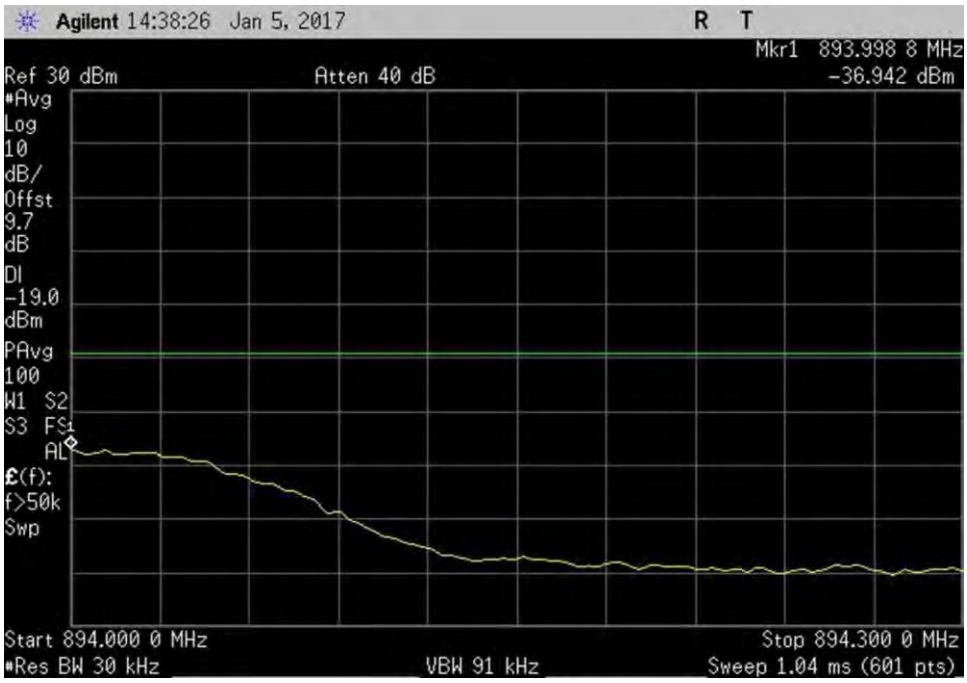
7.5_OBE_DL_728-746MHz_L_PreAGC_GSM



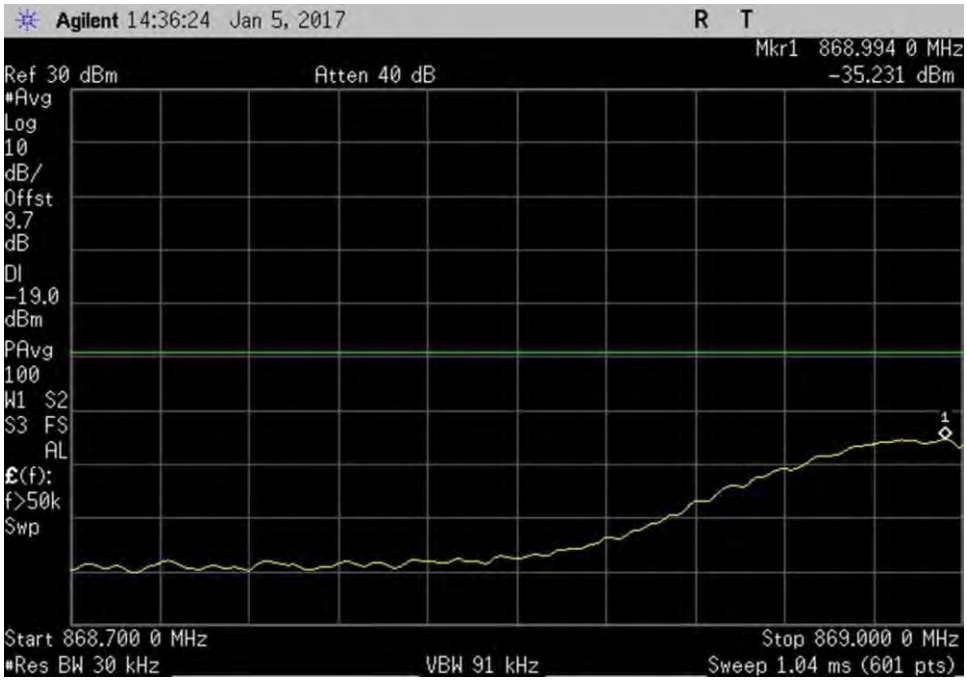
7.5_OBE_DL_746-757MHz_H_PreAGC_GSM



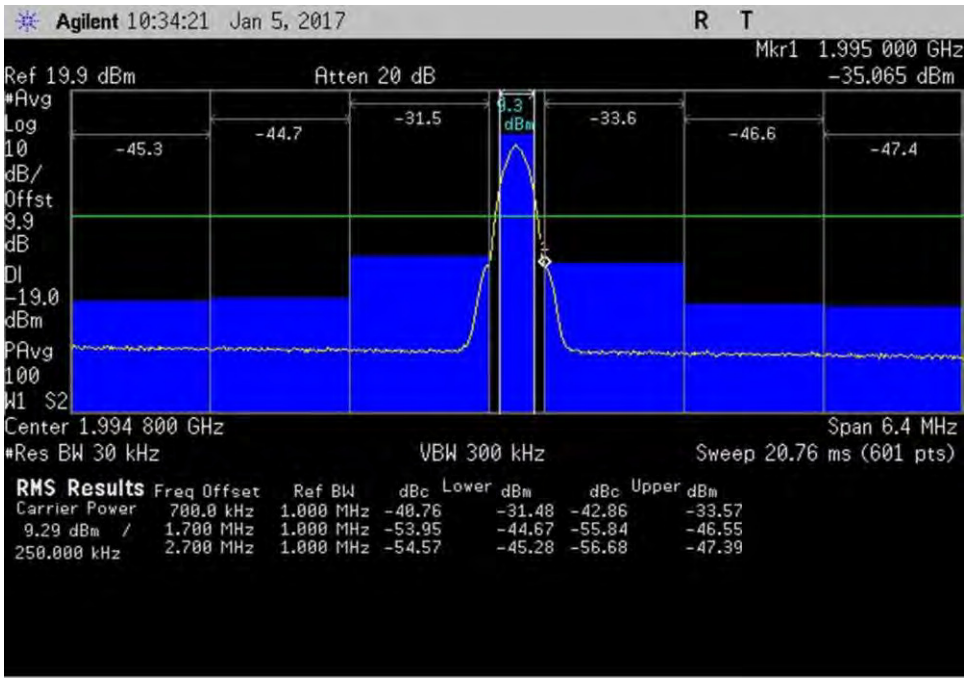
7.5_OBE_DL_746-757MHz_L_PreAGC_GSM



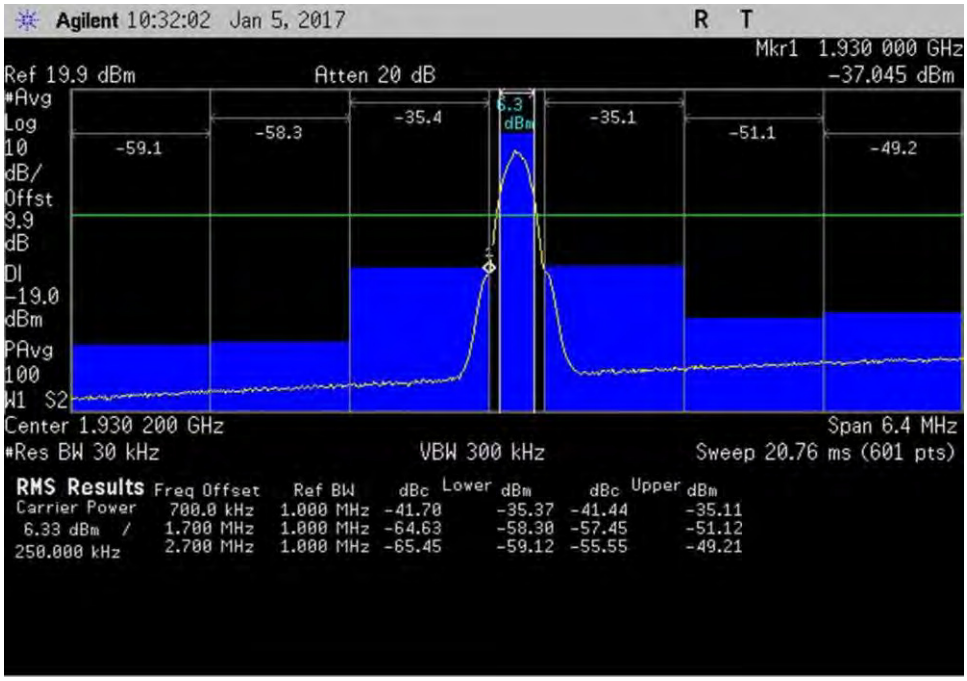
7.5_OBE_DL_869-894MHz_H_PreAGC_GSM



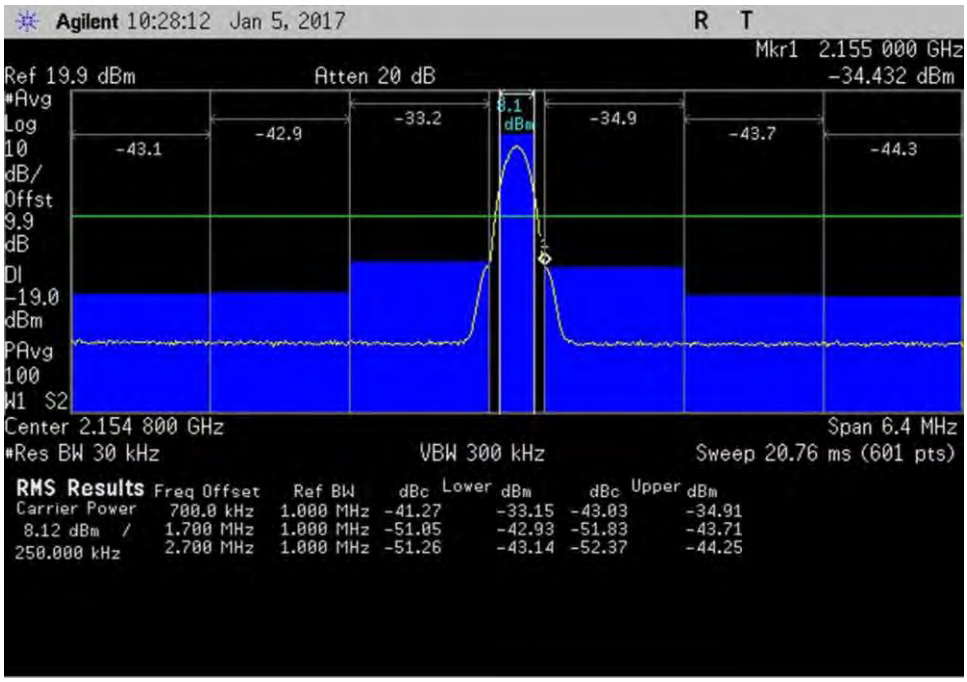
7.5_OBE_DL_869-894MHz_L_PreAGC_GSM



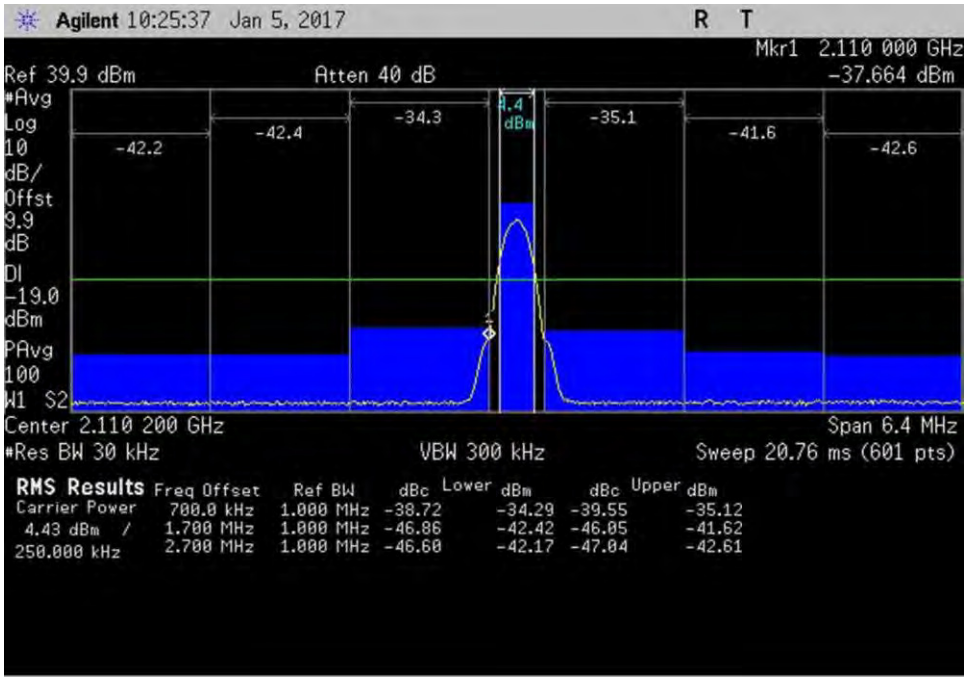
7.5_OBE_DL_1930-1995MHz_H_PreAGC_GSM



7.5_OBE_DL_1930-1995MHz_L_PreAGC_GSM

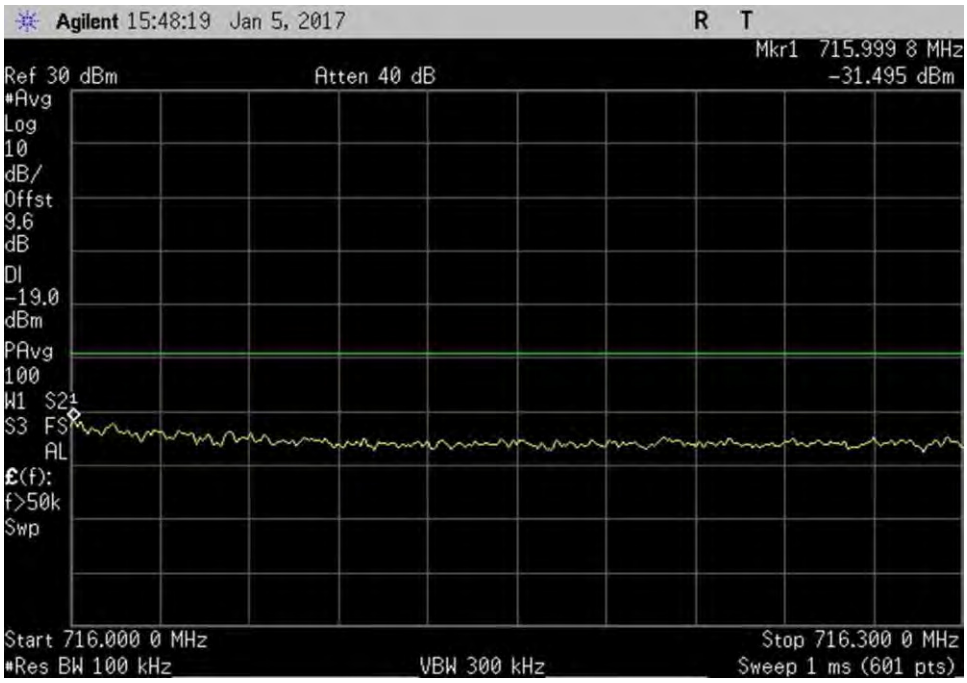


7.5_OBE_DL_2110-2155MHz_H_PreAGC_GSM

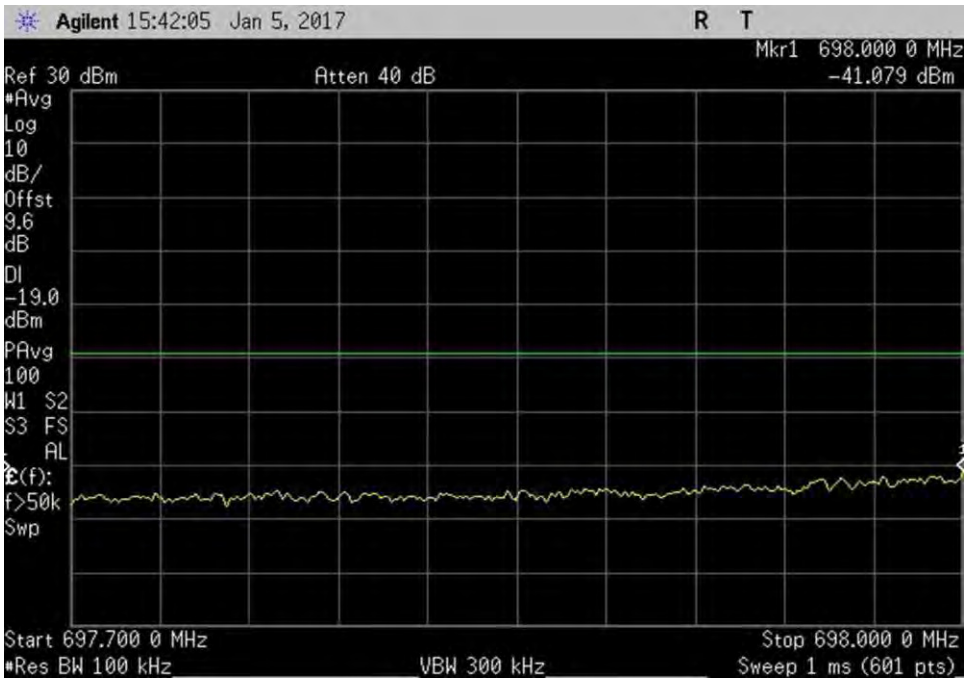


7.5_OBE_DL_2110-2155MHz_L_PreAGC_GSM

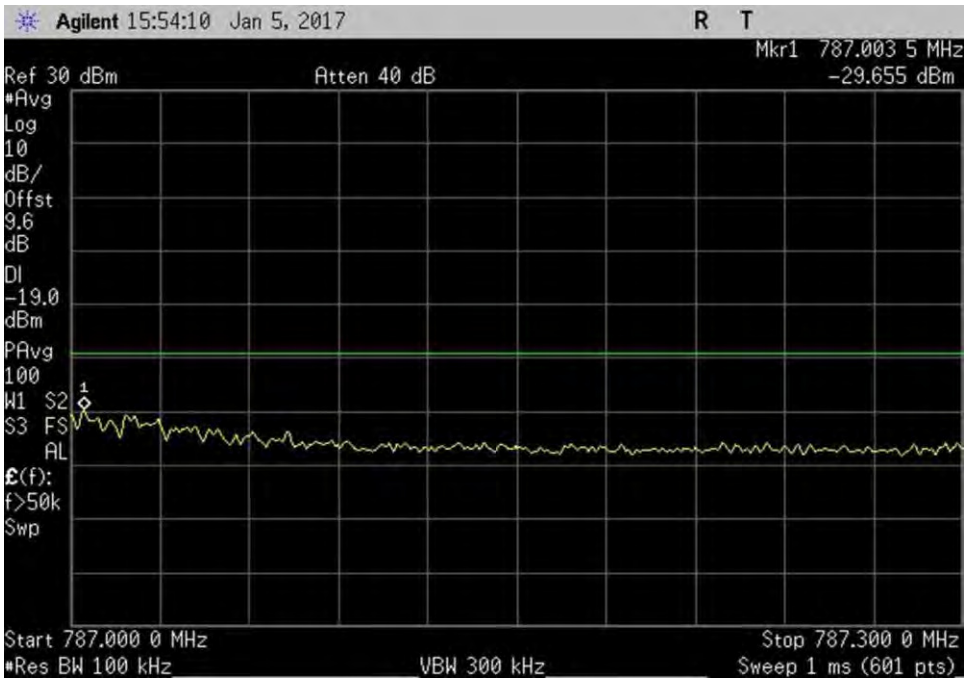
LTE



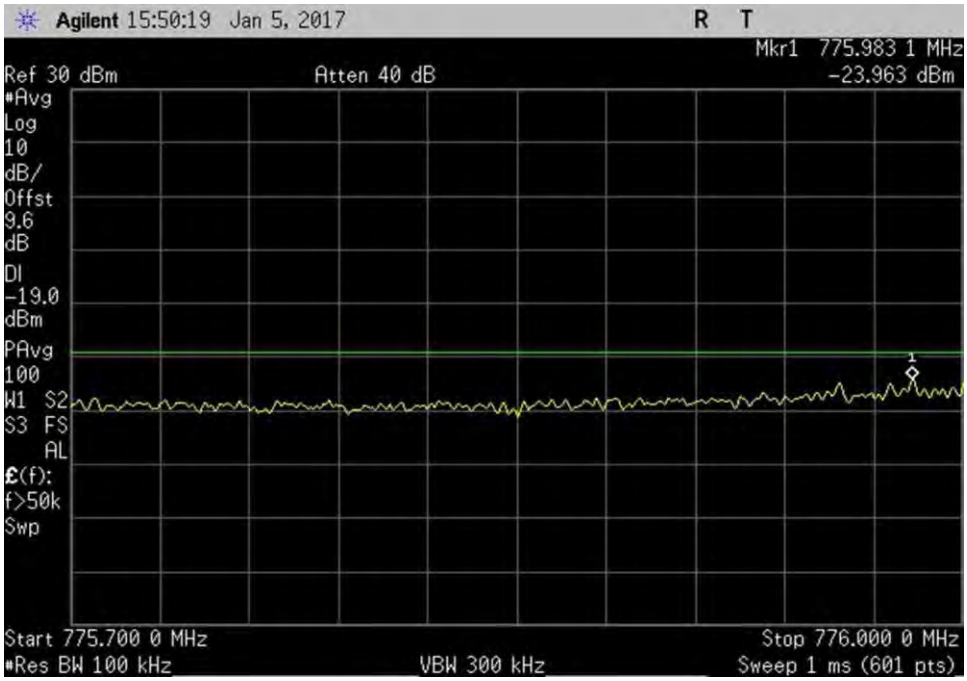
7.5_OBE_UL_698-716MHz_H_PreAGC_LTE



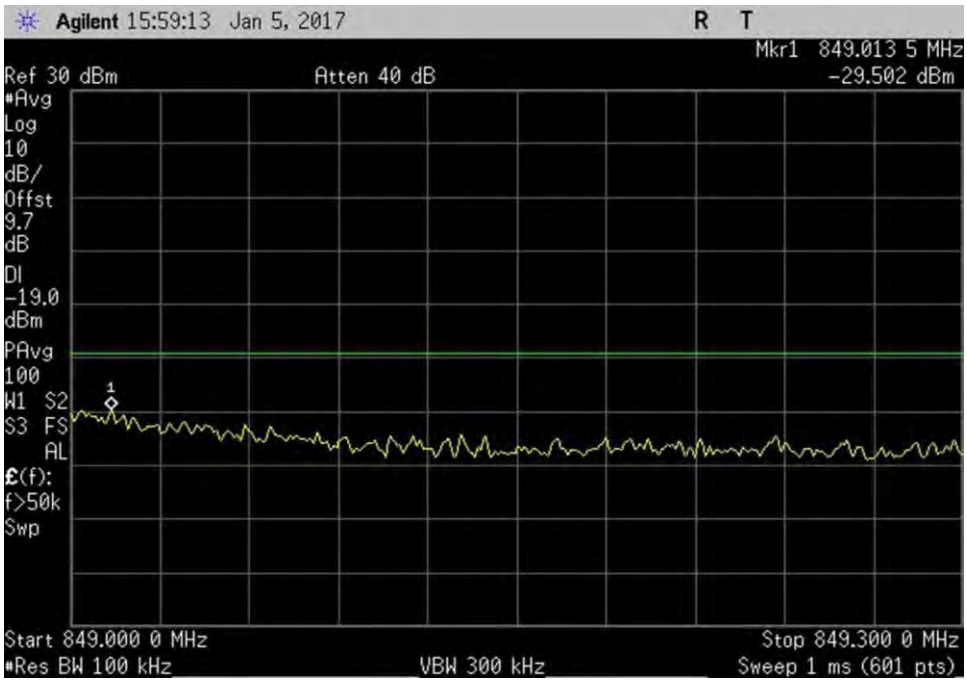
7.5_OBE_UL_698-716MHz_L_PreAGC_LTE



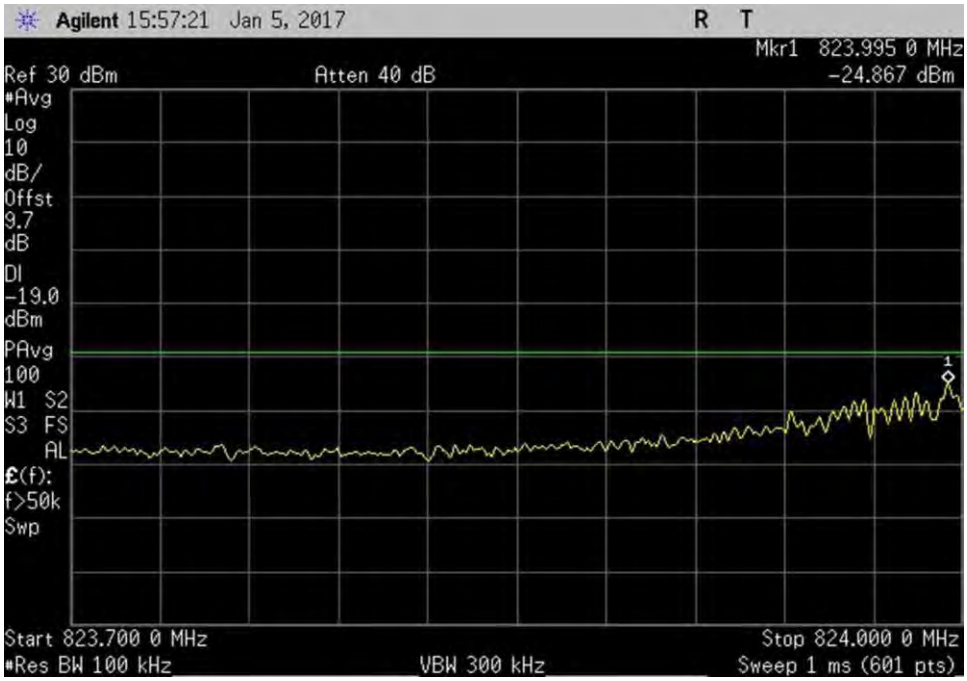
7.5_OBE_UL_776-787MHz_H_PreAGC_LTE



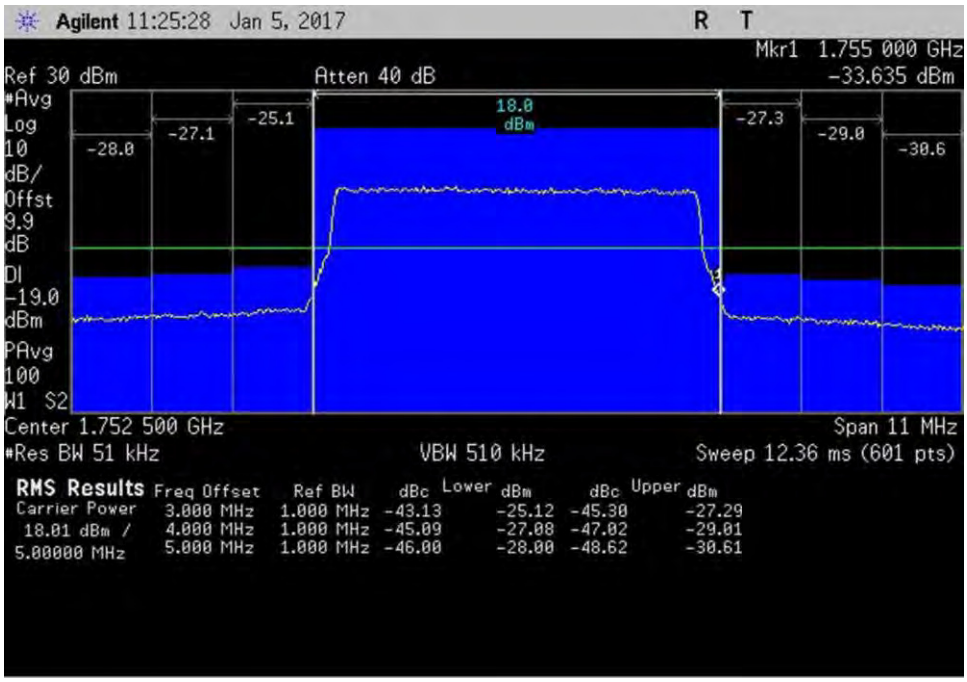
7.5_OBE_UL_776-787MHz_L_PreAGC_LTE



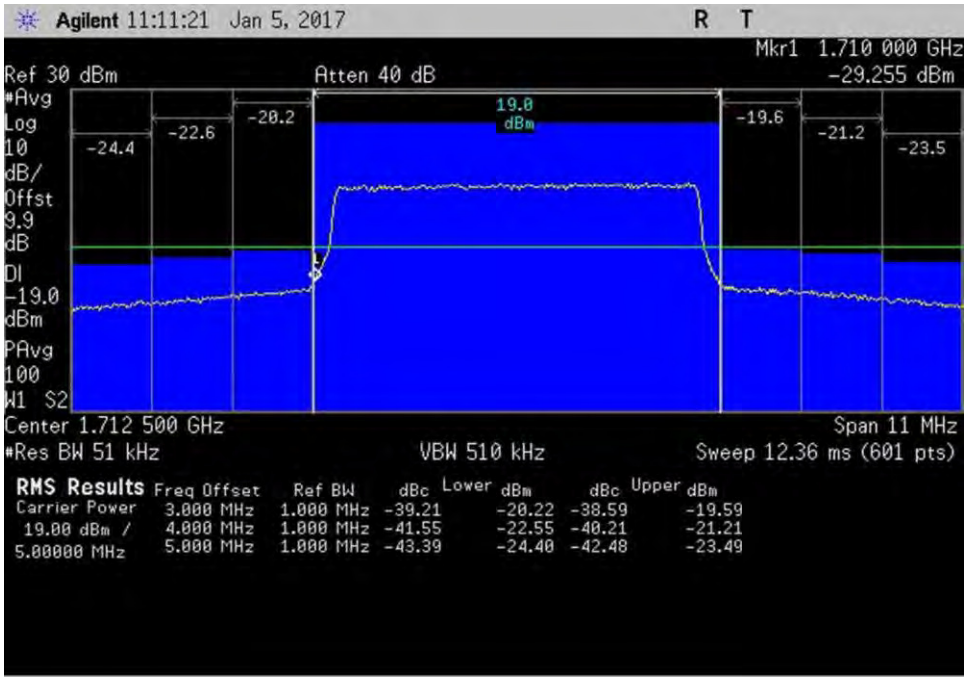
7.5_OBE_UL_824-849MHz_H_PreAGC_LTE



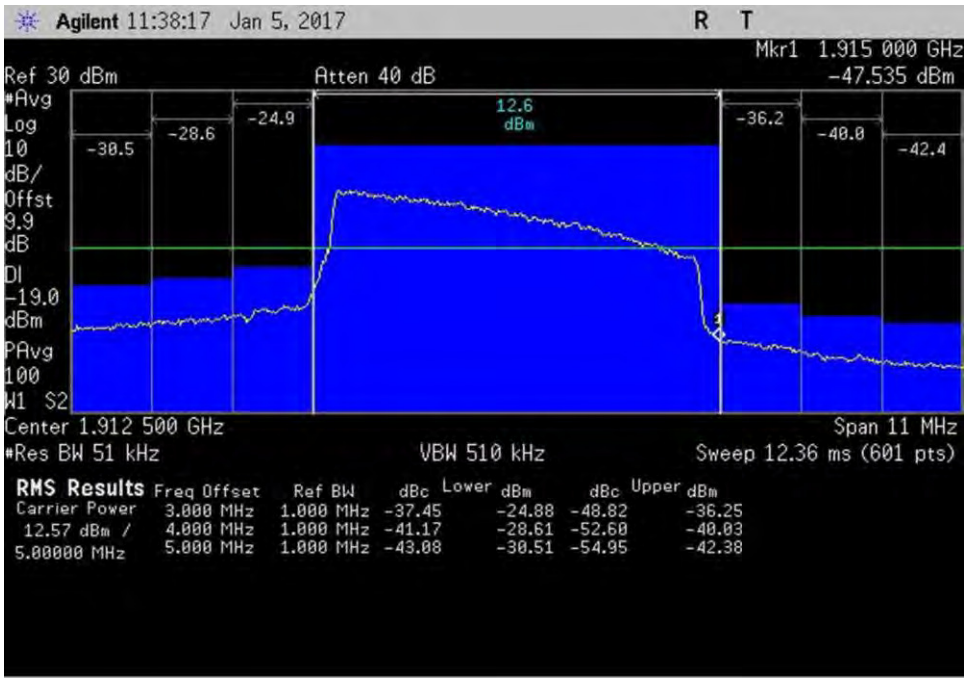
7.5_OBE_UL_824-849MHz_L_PreAGC_LTE



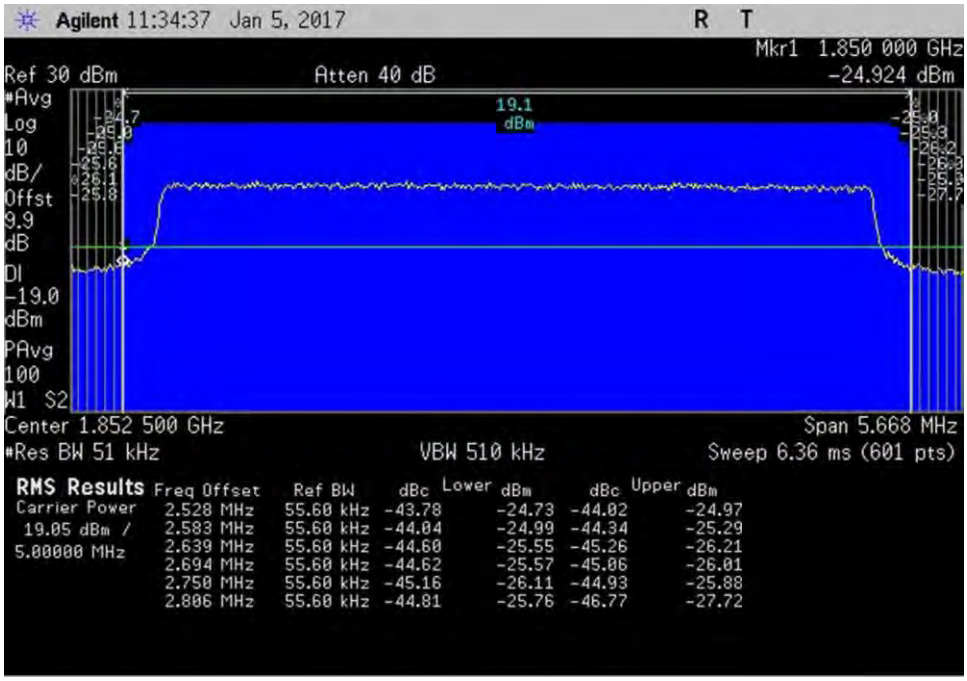
7.5_OBE_UL_1710-1755MHz_H_PreAGC_LTE



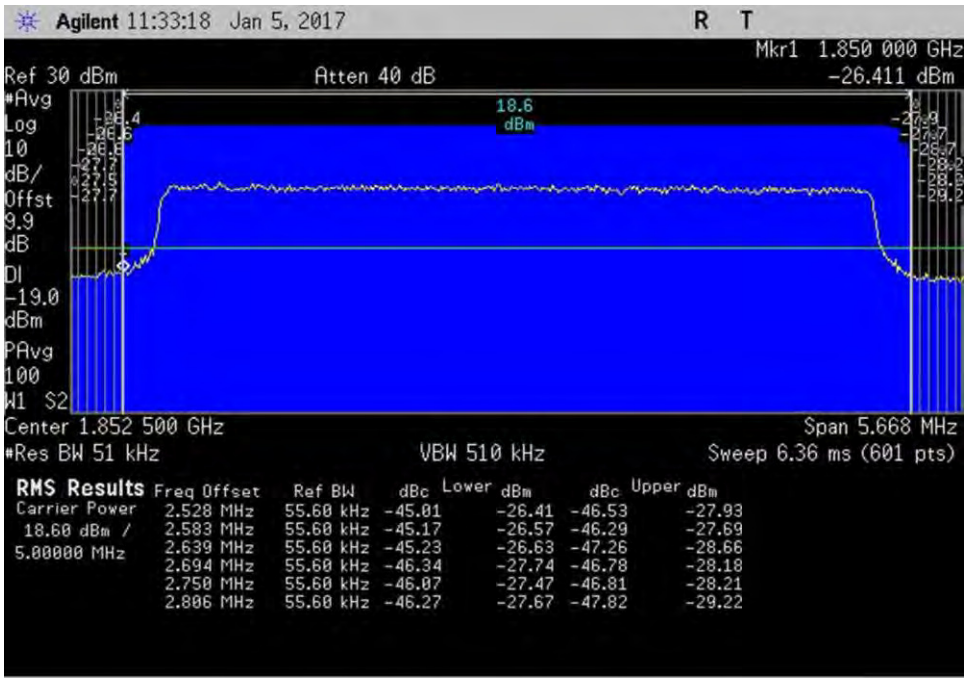
7.5_OBE_UL_1710-1755MHz_L_PreAGC_LTE



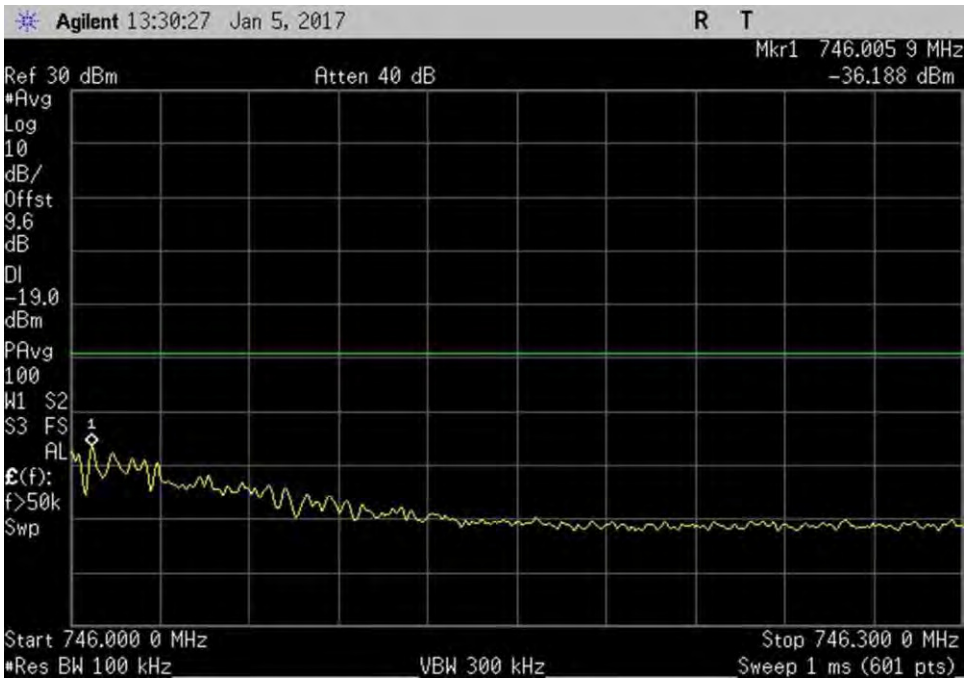
7.5_OBE_UL_1850-1915MHz_H_PreAGC_LTE



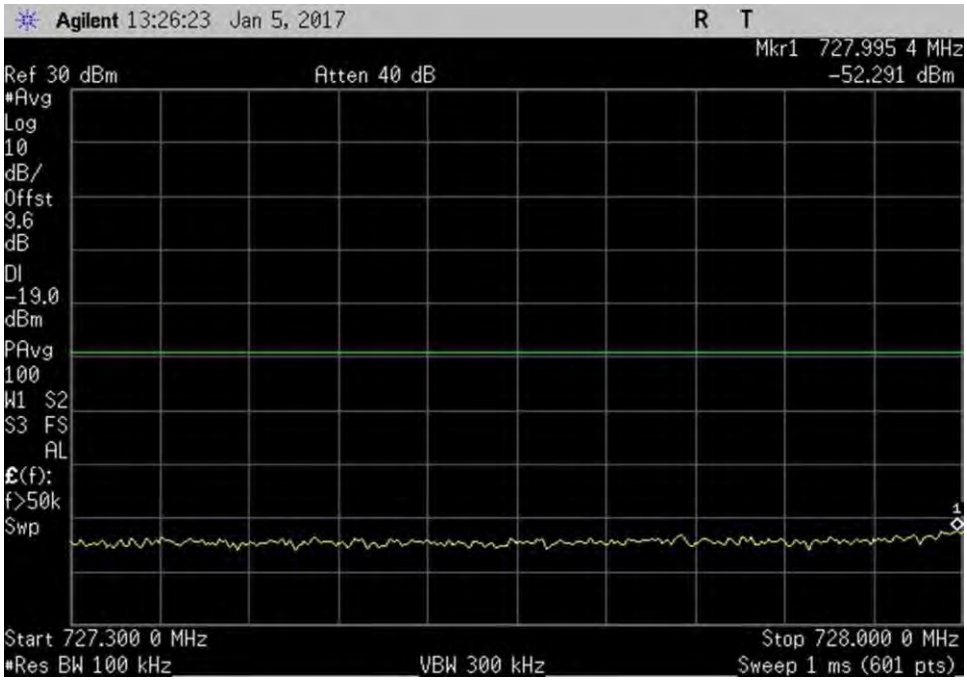
7.5_OBE_UL_1850-1915MHz_L_Max_LTE



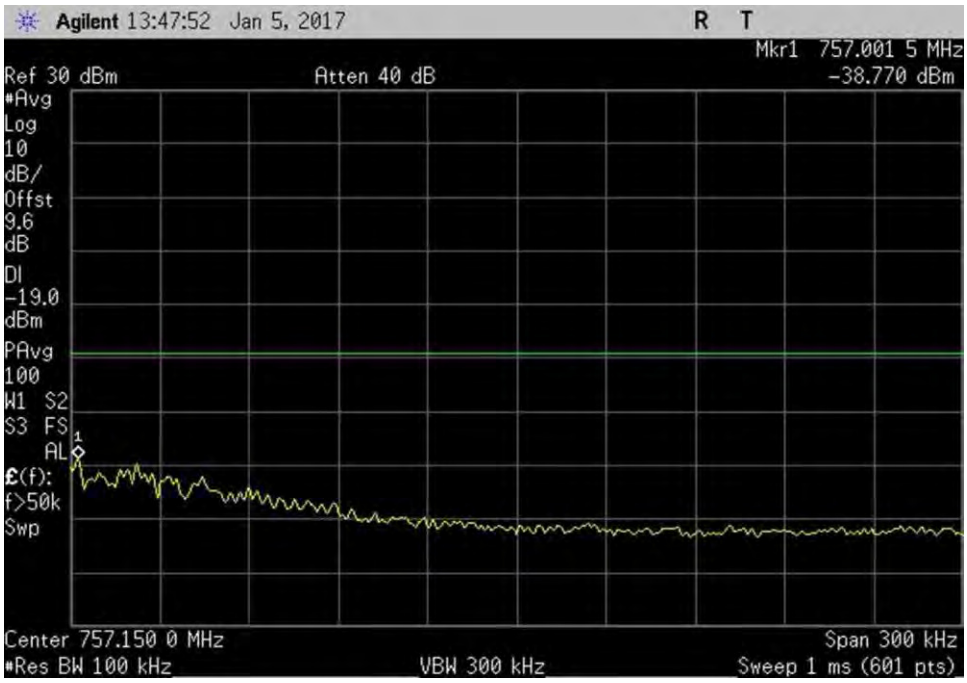
7.5_OBE_UL_1850-1915MHz_L_PreAGC_LTE



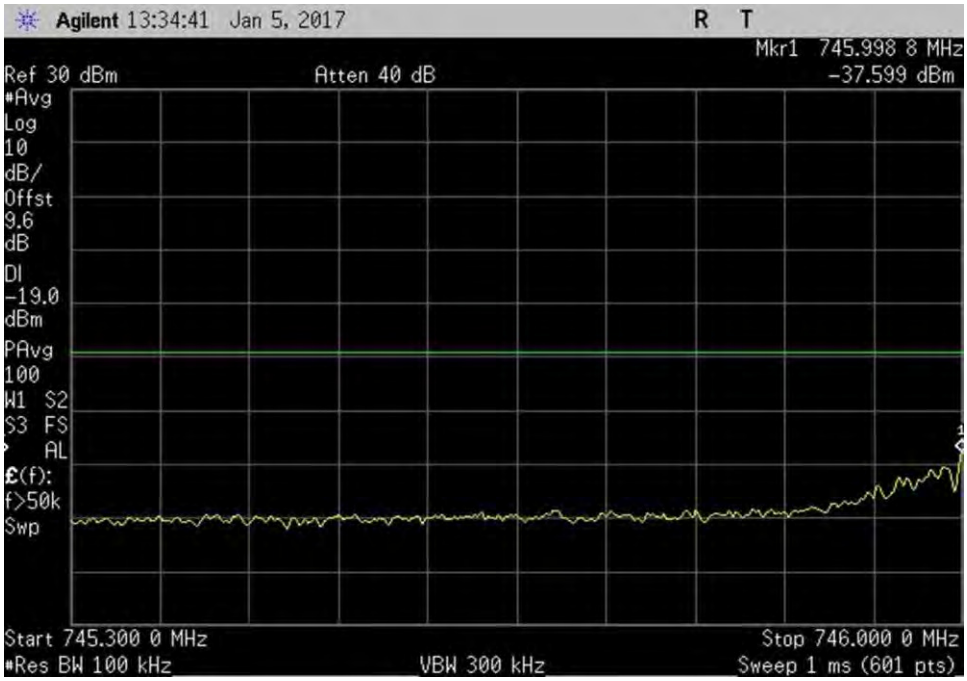
7.5_OBE_DL_728-746MHz_H_PreAGC_LTE



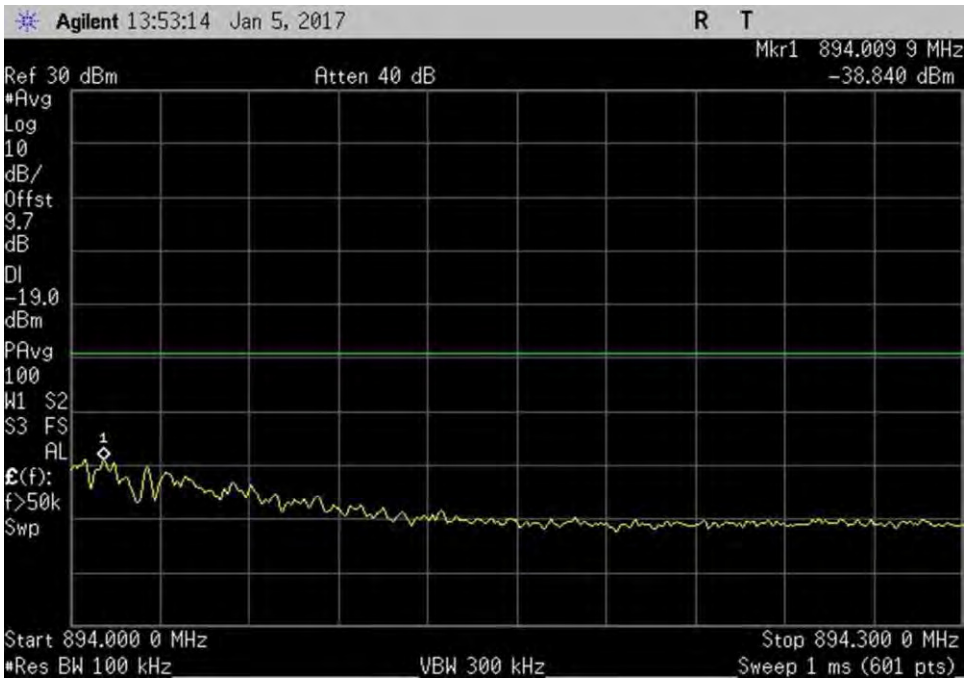
7.5_OBE_DL_728-746MHz_L_PreAGC_LTE



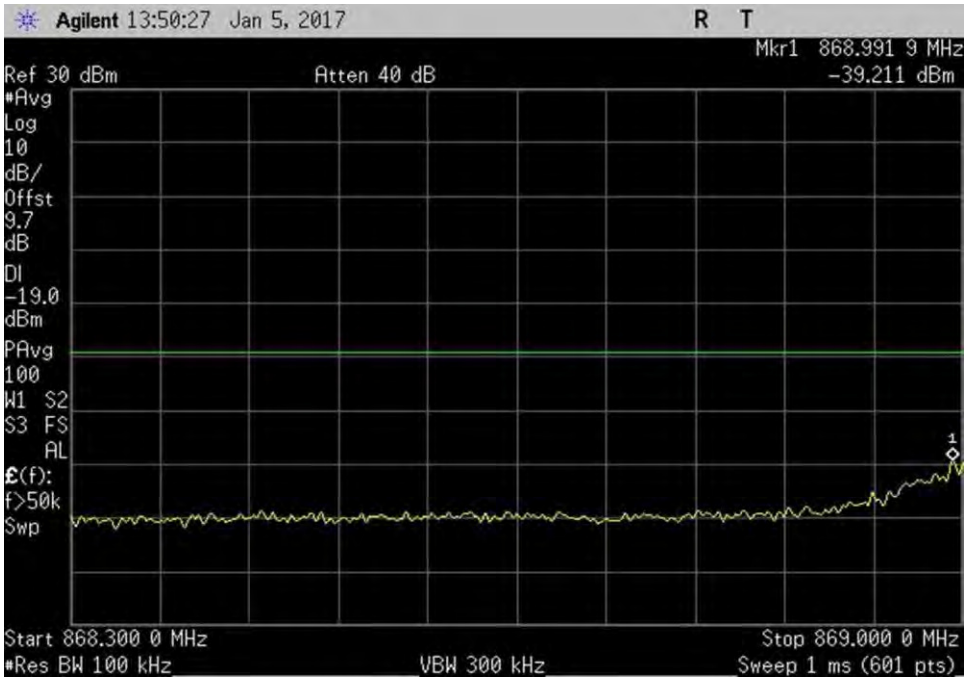
7.5_OBE_DL_746-757MHz_H_PreAGC_LTE



7.5_OBE_DL_746-757MHz_L_PreAGC_LTE



7.5_OBE_DL_869-894MHz_H_PreAGC_LTE



7.5_OBE_DL_869-894MHz_L_PreAGC_LTE