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TESTING Cert No.1152.01

DATE: 13 March 2014

I.T.L. (PRODUCT TESTING) LTD.

FCC Radio Test Report

for

Corning MobileAccess

Equipment under test:

Mid Power Remote Unit

HX-5

iDEN-CELL-PCS-LTE-AWS
(LTE/AWS Section)

Written by: _____
R. Pinchuck, Documentation

Approved by: _____
A. Sharabi, Test Engineer

Approved by: _____
I. Raz, EMC Laboratory Manager

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Measurement/Technical Report for
Corning MobileAccess

Mid Power Remote Unit

HX-5

FCC ID: OJFHXP19S80A17L70

This report concerns:	Original Grant: X Class II change: Class I change:
Equipment type:	PCS Licensed Transmitter
Limits used:	47CFR Parts 2; 27

Measurement procedure used is ANSI C63.4-2003.
Substitution Method used as in ANSI/TIA-603-C: 2004

Application for Certification
prepared by:
R.Pinchuck
ITL (Product Testing) Ltd.
Kfar Bin Nun
D.N. Shimshon 99780
Israel
e-mail rpinchuck@itl.co.il

Applicant for this device:
(different from "prepared by")
Steve Blum
Corning MobileAccess
8391 Old Courthouse Rd., Suite #300
Vienna, VA. 22182
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Tel: +1-541-758-2880
Fax: +1-703-848-0260
e-mail: sblum@mobileaccess.com

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1. General Information

1.1 Administrative Information

Manufacturer:	Corning MobileAccess
Manufacturer's Address:	8391 Old Courthouse Rd. Suite #300 Vienna, VA 22182 U.S.A. Tel: +1-541-758-2880 Fax: +1-703-848-0260
Manufacturer's Representative:	Steve Blum
Equipment Under Test (E.U.T):	Mid Power Remote Unit
Equipment Model No.:	HX-5
Equipment Serial No.:	5E024C5
Date of Receipt of E.U.T:	23.02.14
Start of Test:	23.02.14
End of Test:	02.03.14
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	FCC Parts 2; 27

1.2 List of Accreditations

The EMC laboratory of I.T.L. is accredited by/registered with the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), IC File No.: 46405-4025; Site No. IC 4025B-1.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

1.3 Product Description

HX-5 is a mid-power, remote solution for the MA1000 and MA2000 Distributed Antenna Systems (DAS). It is a fiber fed, compact and scalable multi-service platform designed to complement the MA1000 and MA2000 while providing complete RF open space coverage for large-scale public venues such as campuses, stadiums, convention centers, hotels, airports and train stations. The solution can be deployed in new sites or alongside existing lower power MA1000 and MA2000 systems, sharing a common headend and element management system.

Features and Capabilities:

Multi-Service Platform: Accommodates GSM, UMTS, HSPA, LTE, EDGE, EV-DO, AWS and more. Provides MIMO configuration for LTE700 and AWS bands.

Cost-Effective High Power: Optimizes and reduces the number of antennas required to cover open areas by offering up to 33dBm (2W) composite power per frequency band.

Indoor Models: Supports either SISO or MIMO service in a single compact enclosure.

Outdoor Models: Outdoor enclosures are compliant to NEBS OSP Class 4 standards.

Operator-Grade Operation: Advanced signal handling and management ensures carrier-grade performance in multi-operator deployments.

Backwards compatible: connects to an existing MobileAccess1000 or MobileAccess 2000 deployment and shares a common headend and Element Management System (EMS) in a single deployment.

1.4 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

1.5 Test Facility

Both conducted and radiated emissions tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing November 21, 2012).
I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

1.6 Measurement Uncertainty

Conducted Emission

Conducted Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4)
0.15 – 30 MHz:
Expanded Uncertainty (95% Confidence, K=2):
± 3.44 dB

Radiated Emission

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site 30-1000MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 4.96 dB

2. System Test Configuration

2.1 Justification

The test setup was configured to closely resemble the standard installation.
The EUT consists of the HX (High Power Remote Module) which is connected with the head-end DAS equipment using fiber optic cable.
The RF source signals are represented in the setup by appropriate signal generators.
An "Exercise" SW on the computer was used to enable / disable transmission of the EUT, while the EUT output was connected to the spectrum analyzer.
Testing was performed on the following configurations:

	Band		Part	Modulation
Cell	869.0	894.0	22	GSM
	869.0	894.0	22	WCDMA
	869.0	894.0	22	LTE (1 Modulation)
iDEN	862.0	869.0	90	GSM
	862.0	869.0	90	WCDMA
	862.0	869.0	90	LTE (1 Modulation)
PCS	1930.0	1995.0	24	GSM
	1930.0	1995.0	24	WCDMA
	1930.0	1995.0	24	LTE (1 Modulation)
LTE700	728.0	758.0	27	LTE (3 Modulations)
AWS	2110.0	2155.0	27	GSM
	2110.0	2155.0	27	WCDMA
	2110.0	2155.0	27	LTE (1 Modulation)

2.2 EUT Exercise Software

The Element Management System EngGUi ver. 1.00 build 10 used for commands delivery. These commands are used to enable/disable the EUT transmission. EUT Embedded SW version 01.00 build 14.

2.3 Special Accessories

No special accessories were needed in order to achieve compliance.

2.4 Equipment Modifications

No modifications were necessary in order to achieve compliance.

2.5 Configuration of Tested System

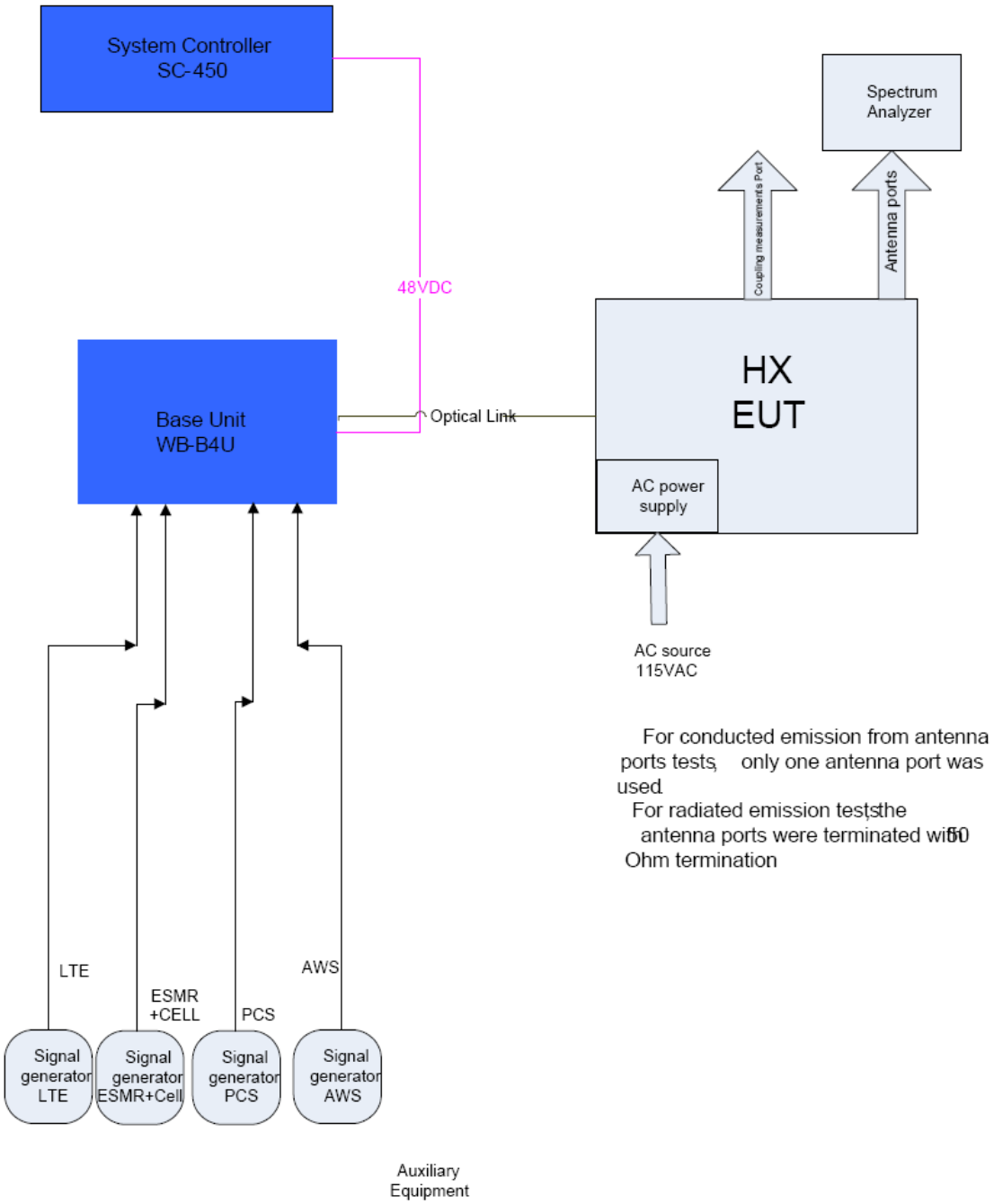

Figure 1. Test Set-up

3. Test Set-up Photos

Figure 2. Conducted Emission From AC Mains Test

Figure 3. Conducted Emission From Antenna Ports Tests

Figure 4. Radiated Emission Test

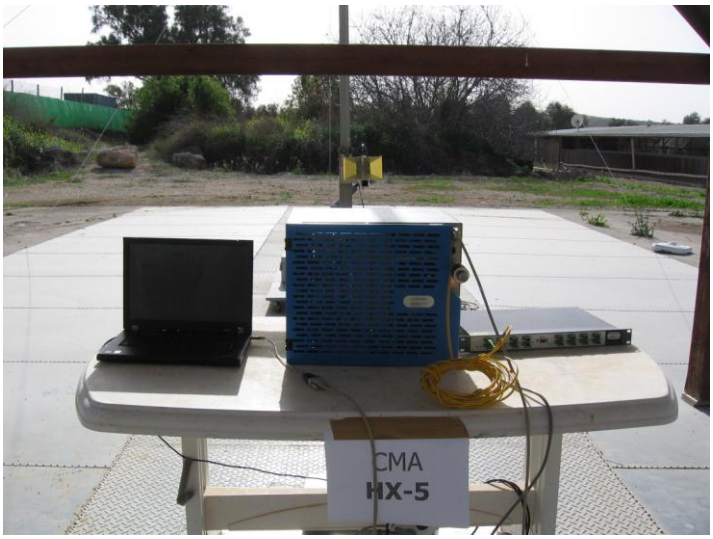

Figure 5. Radiated Emission Test

Figure 6. Radiated Emission Test

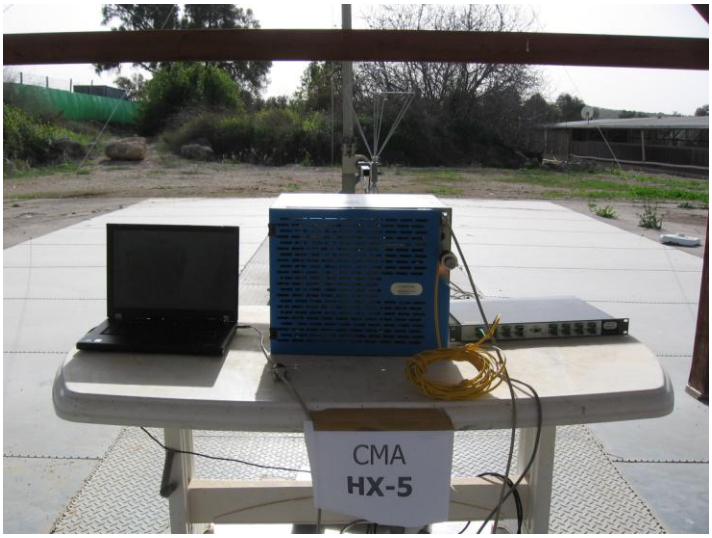

Figure 7. Radiated Emission Test

4. Peak Output Power LTE

4.1 Test Specification

FCC Part 27, Subpart C (27.50)

4.2 Test procedure

Peak Power Output must not exceed 1000W. The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator (30.6 dB) and an appropriate coaxial cable. Special attention was taken to prevent Spectrum Analyzer RF input overload. The Spectrum Analyzer was set to 100 kHz RBW.

4.3 Test Results

Modulation	Operation Frequency (MHz)	Reading (dBm)
LTE 64QAM	733	33.27
LTE 64QAM	747	33.65
LTE 64QAM	753	33.23
LTE 16QAM	733	33.28
LTE 16QAM	747	33.57
LTE 16QAM	753	33.28
LTE QPSK	733	33.24
LTE QPSK	747	33.34
LTE QPSK	753	33.16

Figure 8 Peak Output Power LTE

See additional information in Figure 9 to Figure 17.

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

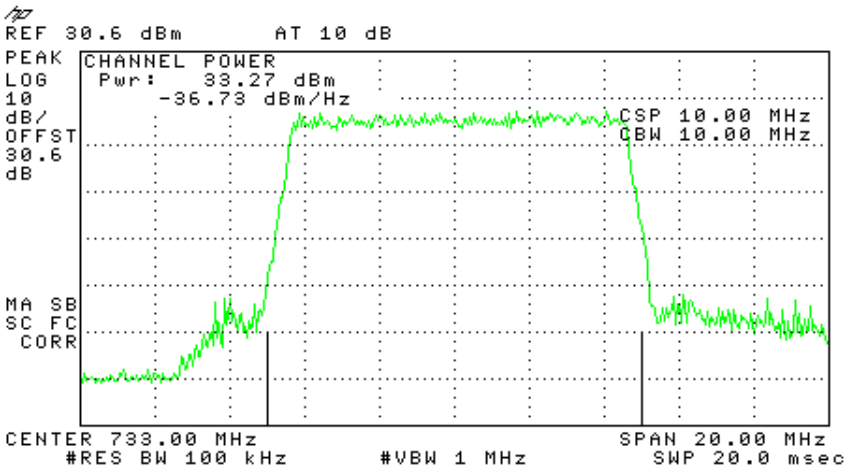

Figure 9.— 64QAM, 733 MHz

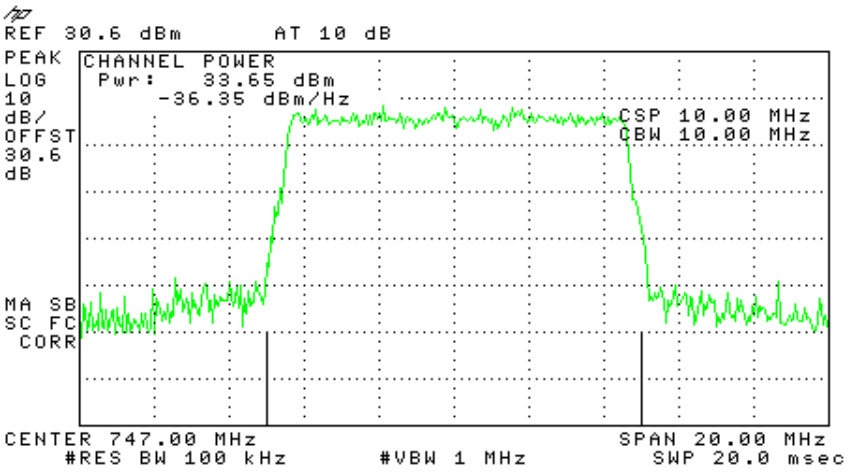

Figure 10.— 64QAM 747 MHz

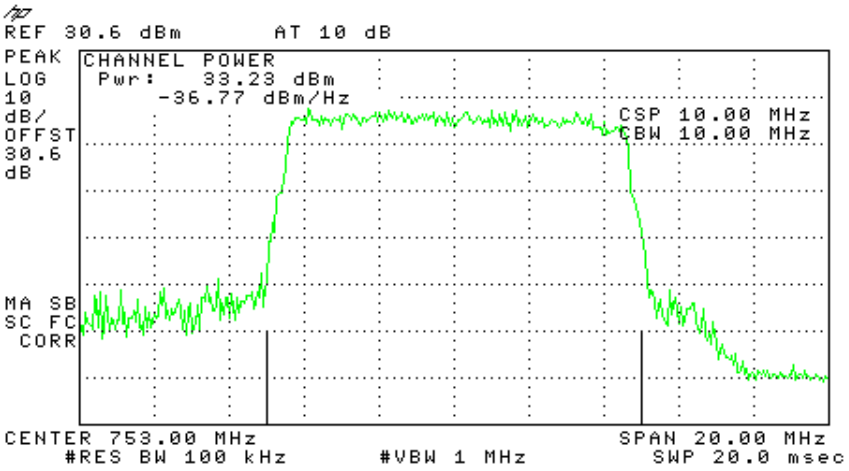

Figure 11.— 64QAM 753 MHz

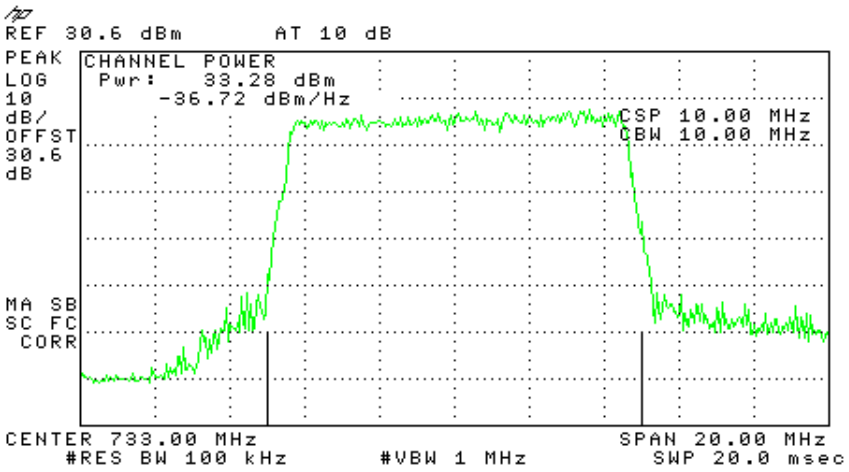

Figure 12.— 16QAM 733 MHz

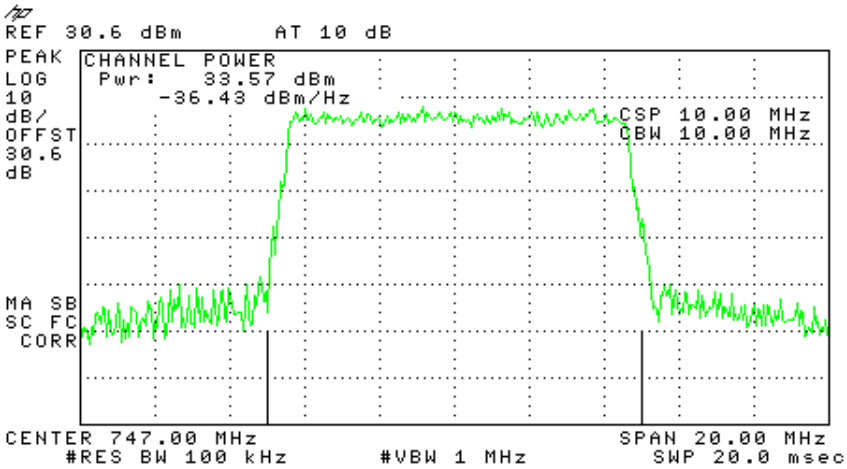

Figure 13.— 16QAM 747 MHz

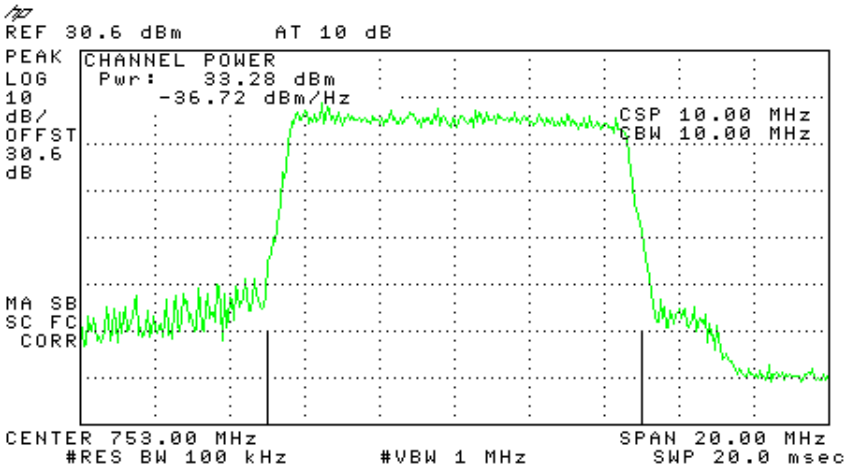

Figure 14.— 16QAM 753 MHz

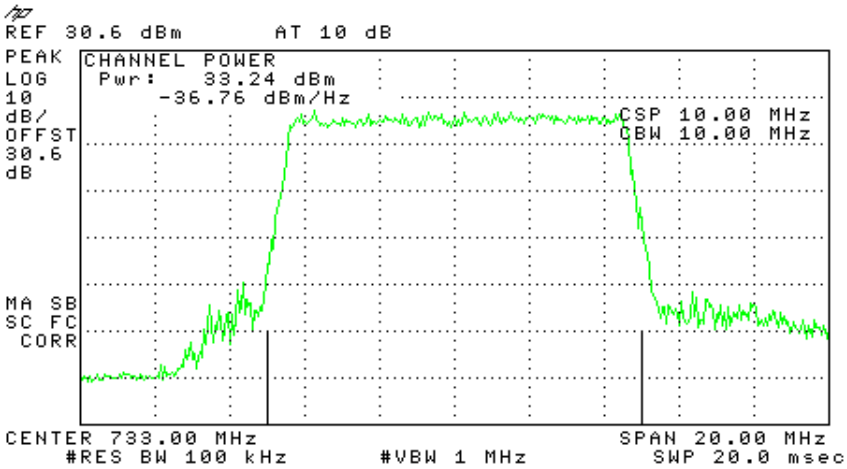

Figure 15.— QPSK 733 MHz

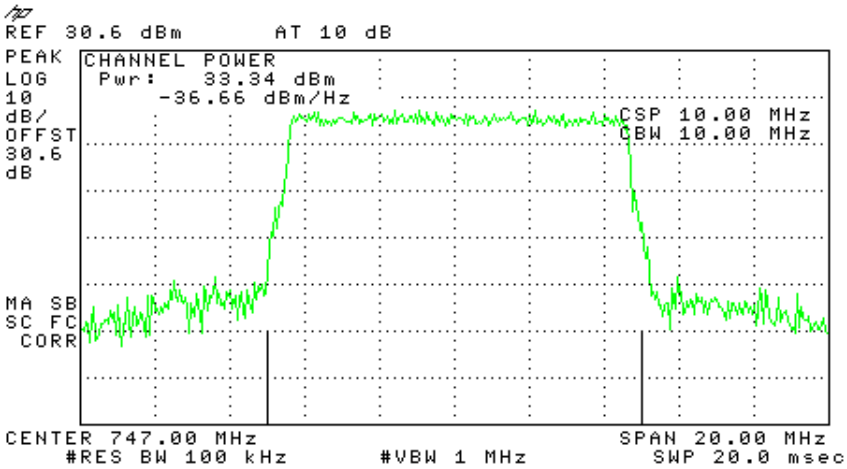

Figure 16.— QPSK 747 MHz

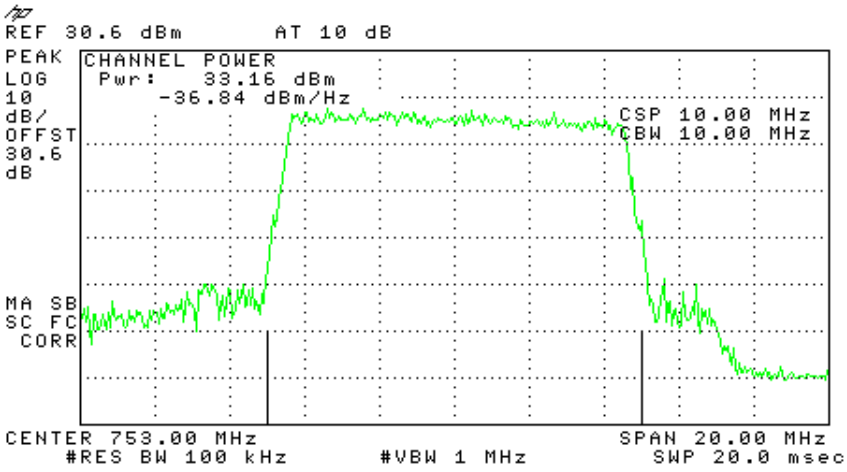

Figure 17.— QPSK 753 MHz

4.4 Test Equipment Used; Peak Output Power LTE

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28,2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 18 Test Equipment Used

5. Occupied Bandwidth LTE

5.1 Test Specification

FCC Part 2, Section 1049

5.2 Test Procedure

The E.U.T. was set to the applicable test frequency in the 728-757 MHz band. The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (at the output test) and an appropriate coaxial cable (30.6 dB). The spectrum analyzer was set to proper resolution B.W.
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limit, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.
Occupied bandwidth measured was repeated in the input terminal of the E.U.T.

5.3 Test Results

Modulation		Operating Frequency (MHz)	Reading (MHz)
LTE 64QAM	Input	733	9.65
LTE 64QAM	Output	733	9.45
LTE 64QAM	Input	747	9.65
LTE 64QAM	Output	747	9.50
LTE 64QAM	Input	753	9.40
LTE 64QAM	Output	753	9.40
LTE 16QAM	Input	733	9.45
LTE 16QAM	Output	733	9.45
LTE 16QAM	Input	747	9.50
LTE 16QAM	Output	747	9.40
LTE 16QAM	Input	753	9.40
LTE 16QAM	Output	753	9.40
LTE QPSK	Input	733	9.45
LTE QPSK	Output	733	9.50
LTE QPSK	Input	747	9.45
LTE QPSK	Output	747	9.50
LTE QPSK	Input	753	9.60
LTE QPSK	Output	753	9.40

Figure 19 Occupied Bandwidth LTE

JUDGEMENT: Passed

See additional information in Figure 20 to Figure 37.

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

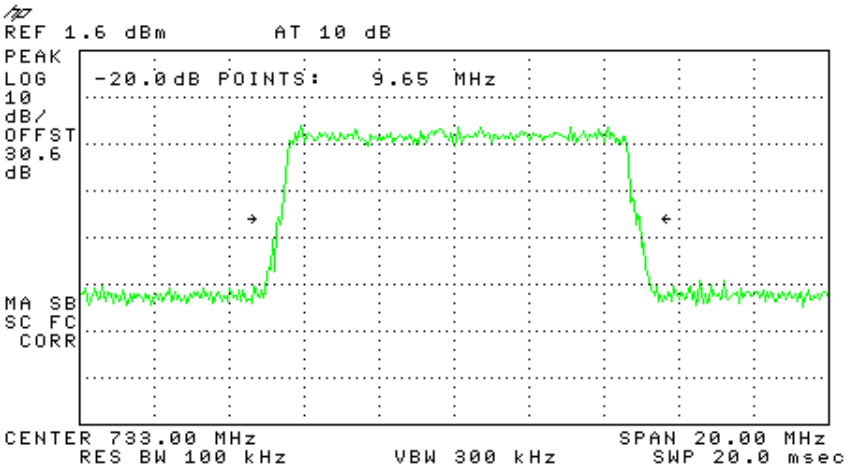

Figure 20.— 64QAM 733 MHz IN

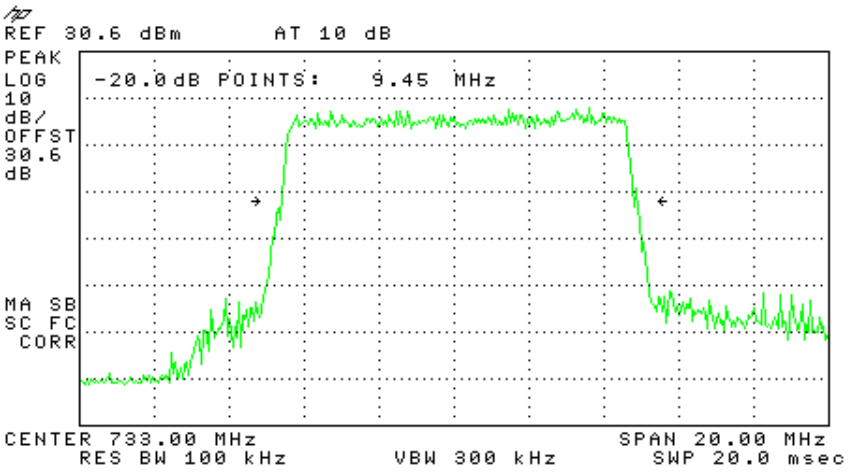

Figure 21.— 64QAM 733 MHz OUT

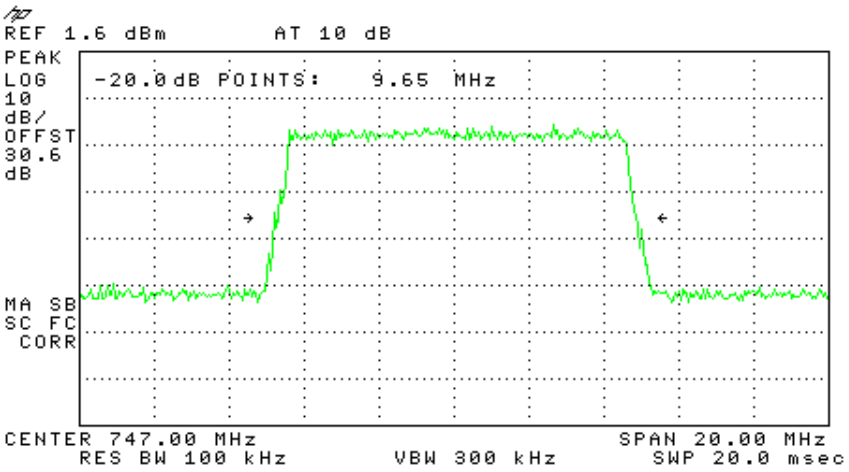

Figure 22.— 64QAM 747 MHz IN

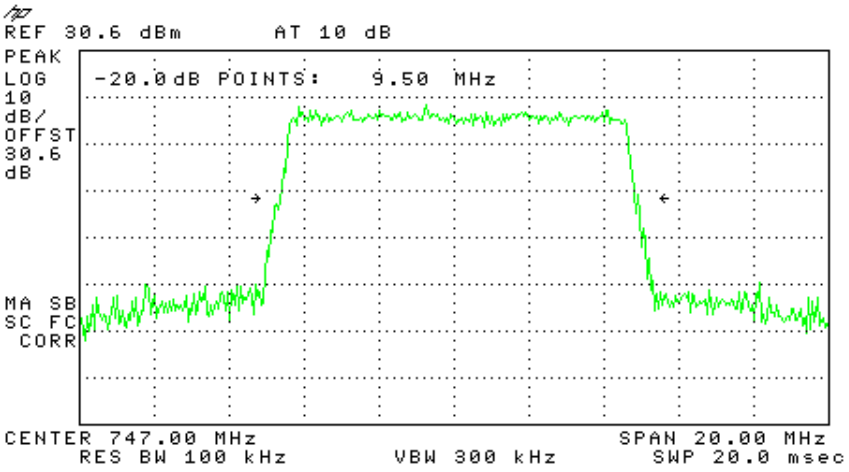

Figure 23.— 64QAM 747 MHz OUT

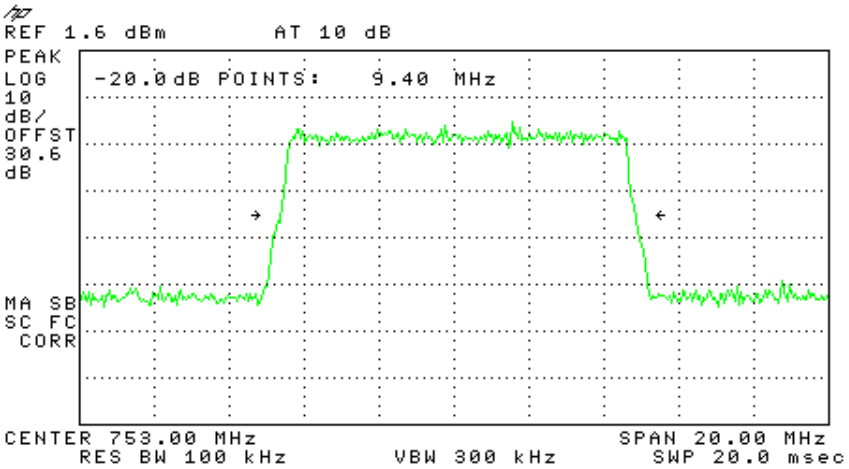

Figure 24.— 64QAM 753 MHz IN

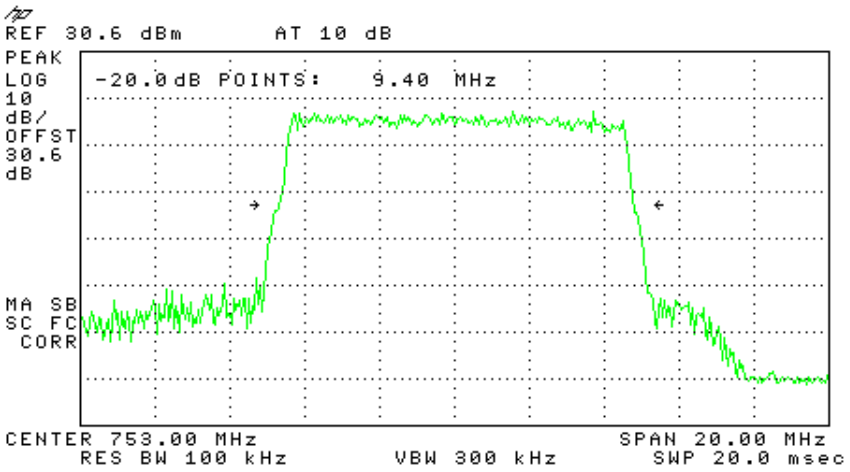

Figure 25.— 64QAM 753 MHz OUT

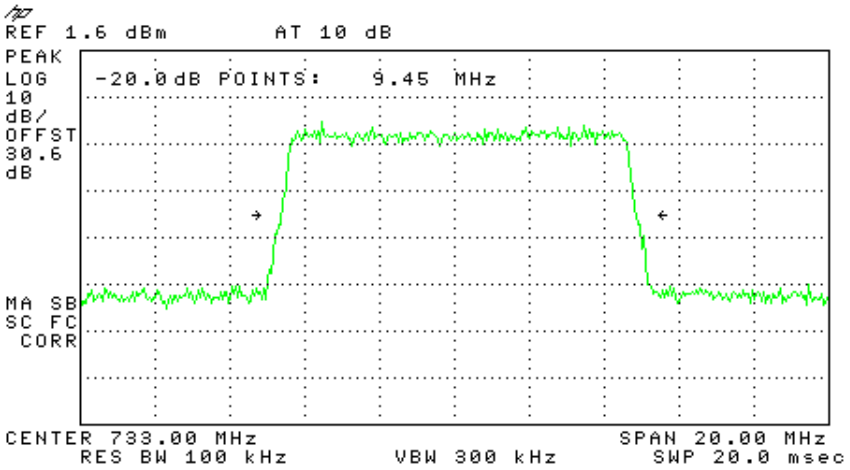

Figure 26.— 16QAM 733 MHz IN

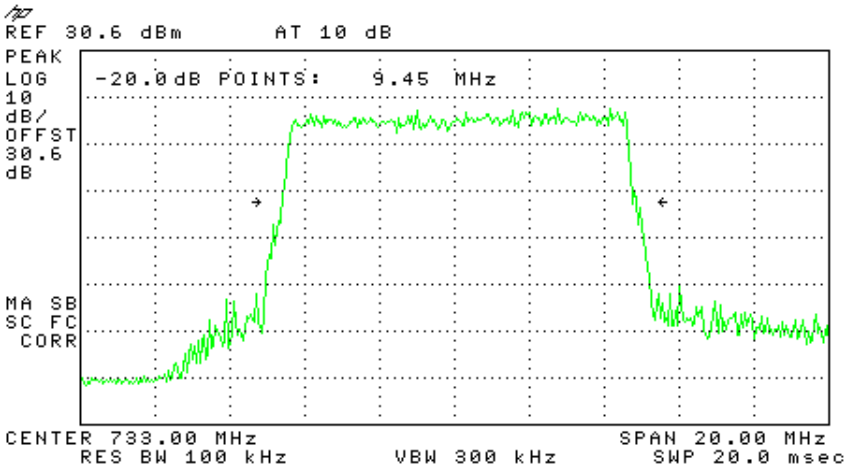

Figure 27.— 16QAM 733 MHz OUT

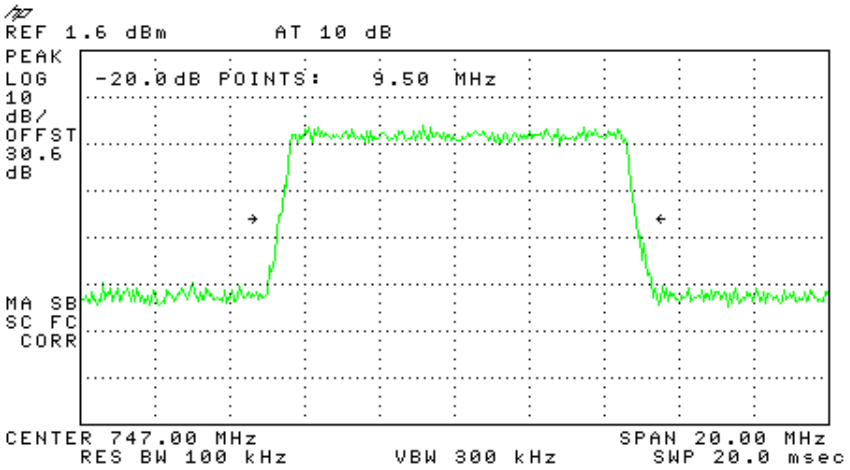

Figure 28.— 16QAM 747 MHz IN

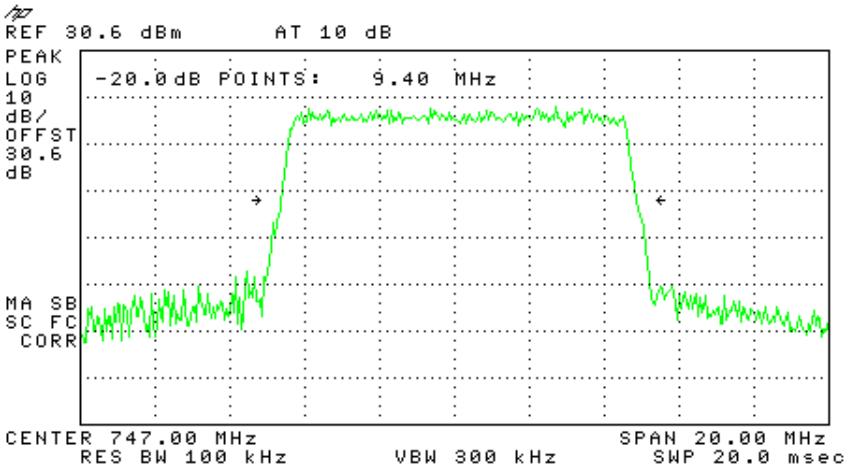

Figure 29.— 16QAM 747 MHz OUT

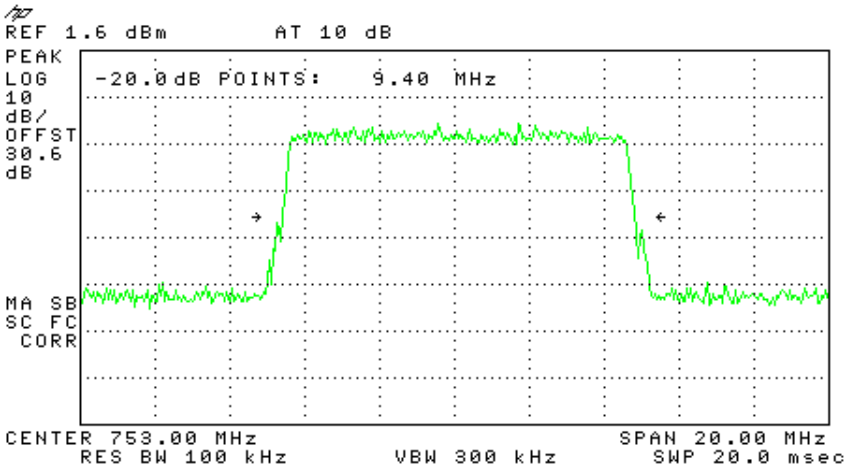

Figure 30.— 16QAM 753 MHz IN

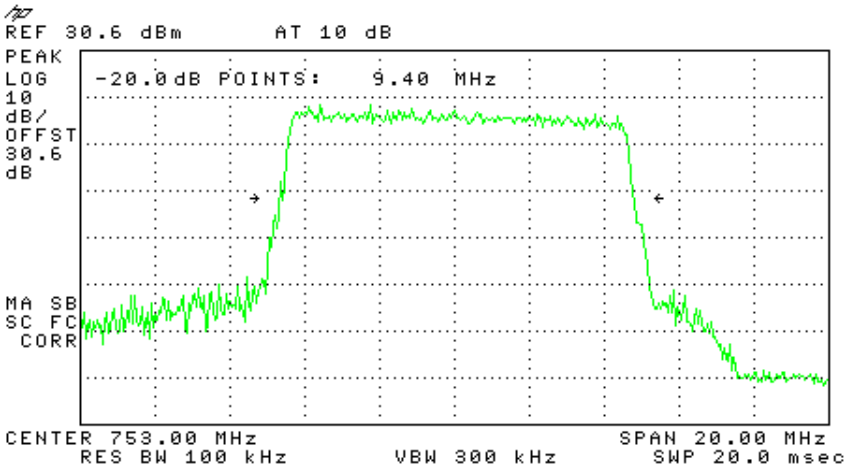

Figure 31.— 16QAM 753 MHz OUT

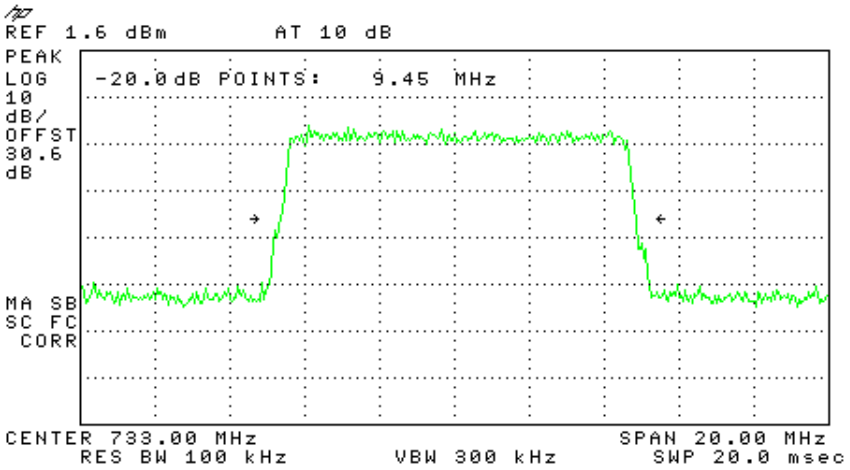

Figure 32.— QPSK 733 MHz IN

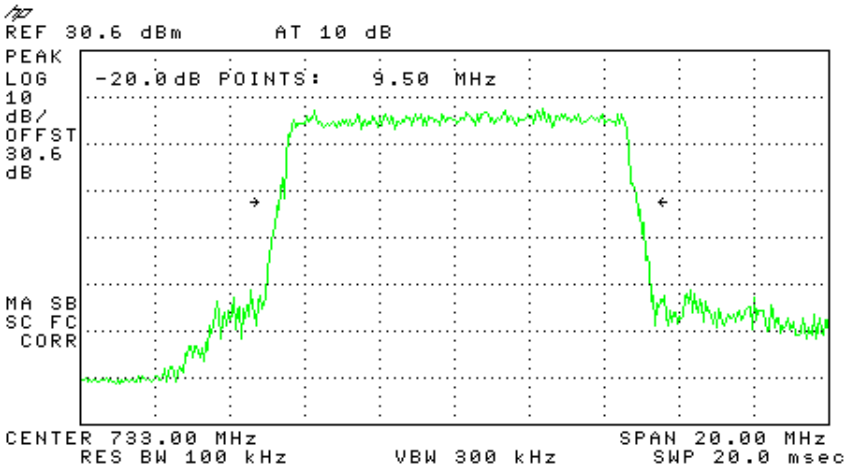

Figure 33.— QPSK 733 MHz OUT

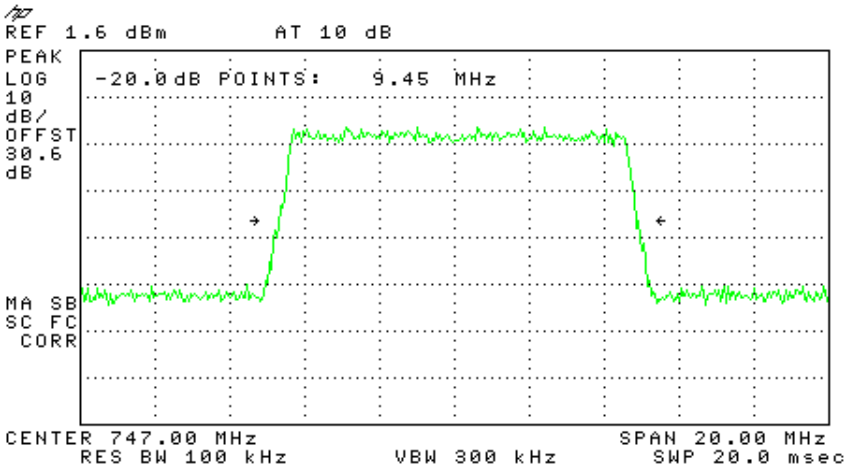

Figure 34.— QPSK 747 MHz IN

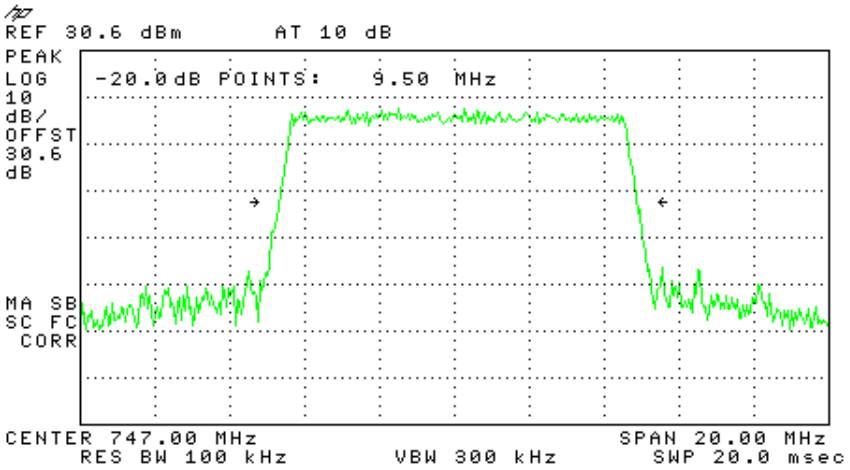

Figure 35.— QPSK 747 MHz OUT

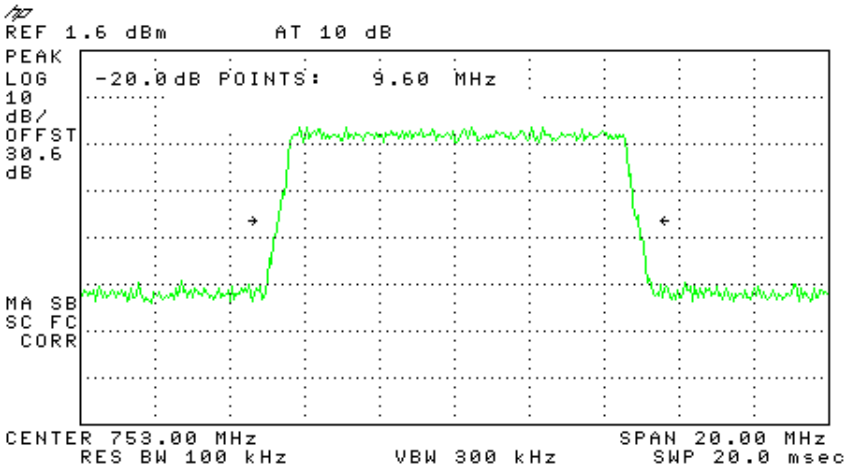

Figure 36.— QPSK 753 MHz IN

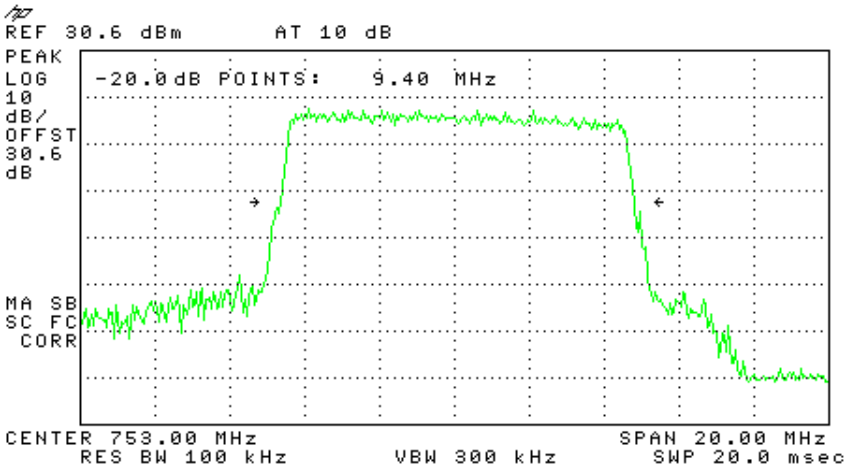

Figure 37.— QPSK 753 MHz OUT

5.4 Test Equipment Used; Occupied Bandwidth LTE –

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28,2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 38 Test Equipment Used

6. Out of Band Emissions at Antenna Terminals LTE

6.1 Test Specification

FCC Part 27, Subpart C, Sections 27.53(c)(1) (3) 27.53 (g)

6.2 Test procedure

The power of any emission outside of the authorized operating frequency ranges 728 MHz-758 MHz must be attenuated below the transmitting power (P) by a factor of 43+ 10 log (P) dB .

The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator and an appropriate coaxial cable (30.6dB). The spectrum analyzer was set to 1 kHz resolution BW for the frequency range 9.0-150.0 kHz, 10 kHz for the frequency range 150 kHz–1.0 MHz, 100 kHz for the frequency range 1.0 MHz – 30 MHz, and 1MHz for the frequency range
30 MHz - 22.0 GHz.

6.3 Test Results

Operation Frequency (MHz)	Operation (MHz)	Reading (dBm)	Specification (dBm)	Margin (dB)
733	2121	-17.0	-13.0	-4.0
747	2150	-16.0	-13.0	-3.0
753	2137	-16.8	-13.0	-3.8

Figure 39 Out of Band Emissions at Antenna Terminals Results LTE

See additional information in *Figure 40* to *Figure 42*.

JUDGEMENT: Passed by 3.0 dB

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

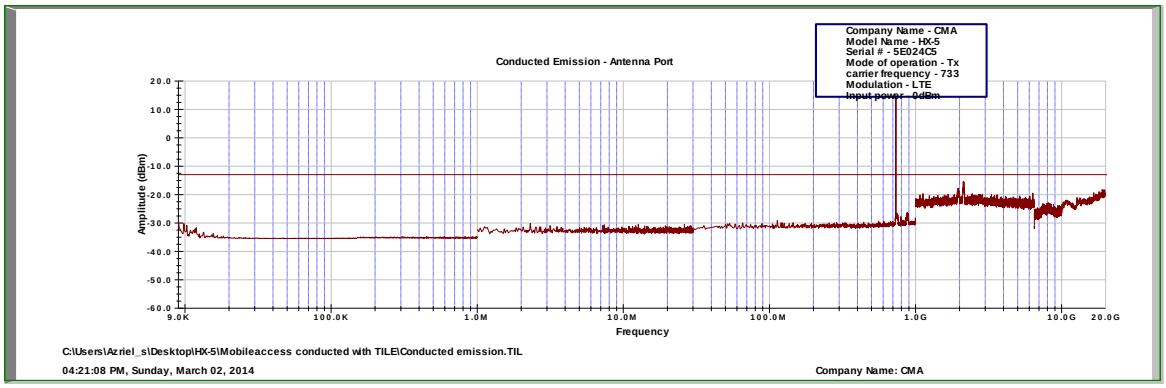

Figure 40.— 733 MHz

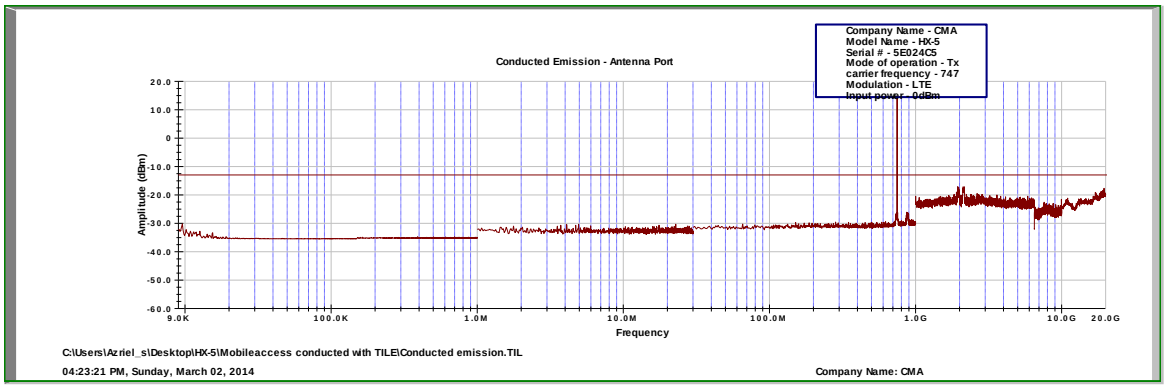

Figure 41.— 747 MHz

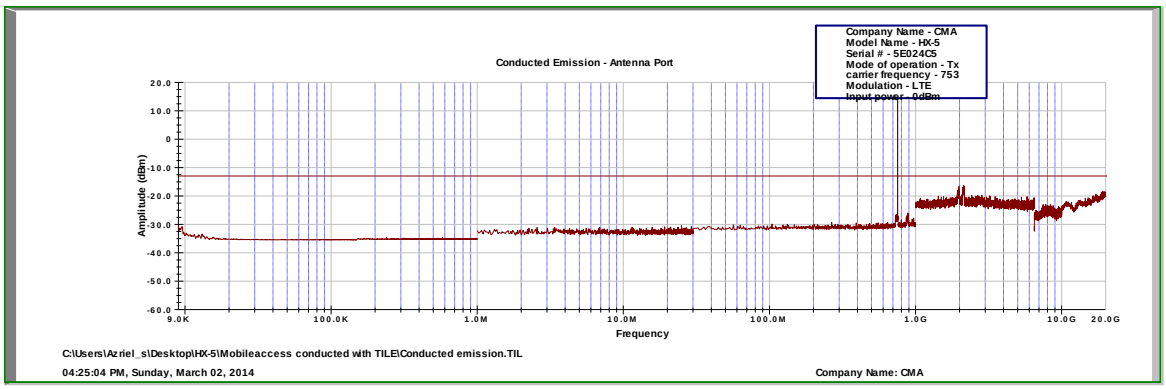

Figure 42.— 753 MHz

6.4 Test Equipment Used; Out of Band Emissions at Antenna Terminals LTE

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 43 Test Equipment Used

7. Band Edge Spectrum LTE

7.1 Test Specification

FCC Part 27, Subpart C, Section 27.53 (c)(1)

7.2 Test procedure

Enclosed are spectrum analyzer plots for the lowest operation frequency and the highest operation frequency in which the E.U.T. is planned to be used.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + log (P) dB, yielding –13dBm.
The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator and an appropriate coaxial cable (30.6 dB).
The spectrum analyzer was set to 30kHz R.B.W.

7.3 Results

	Operation Frequency (MHz)	Band Edge Frequency (MHz)	Reading (dBm)	Specification (dBm)	Margin (dB)
LTE64QAM	733.00	728.00	-18.50	-13.0	-5.50
LTE64QAM	753.00	758.00	-24.43	-13.0	-11.43
LTE16QAM	733.00	728.00	-19.87	-13.0	-6.87
LTE16QAM	753.00	758.00	-23.29	-13.0	-10.29
LTEQPSK	733.00	728.00	-20.72	-13.0	-7.72
LTEQPSK	753.00	758.00	-23.36	-13.0	-10.36

Figure 44 Band Edge Spectrum Results LTE

JUDGEMENT: Passed by 5.50 dB

See additional information in Figure 45 to Figure 50.

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A

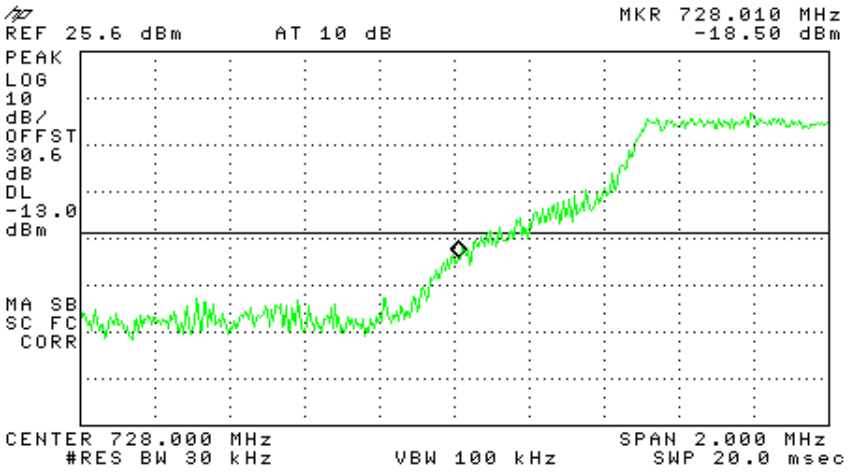

Figure 45.—64QAM 733.0 MHz

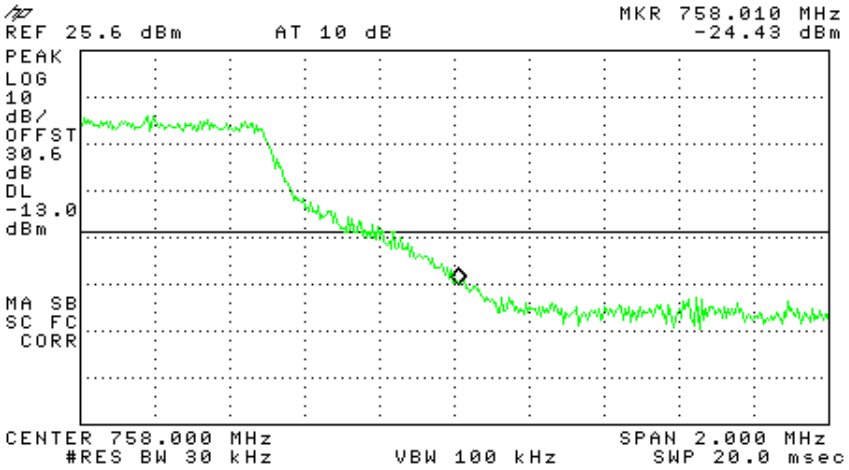

Figure 46.— 64QAM 753.0 MHz

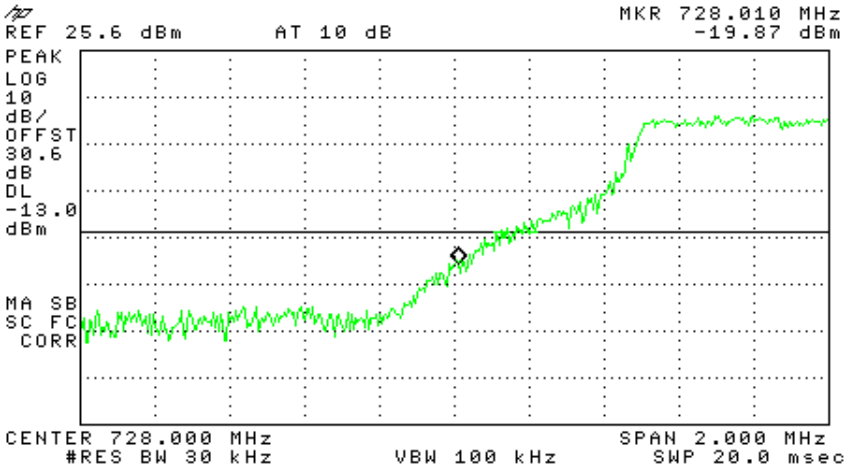

Figure 47.—16QAM 733.0 MHz

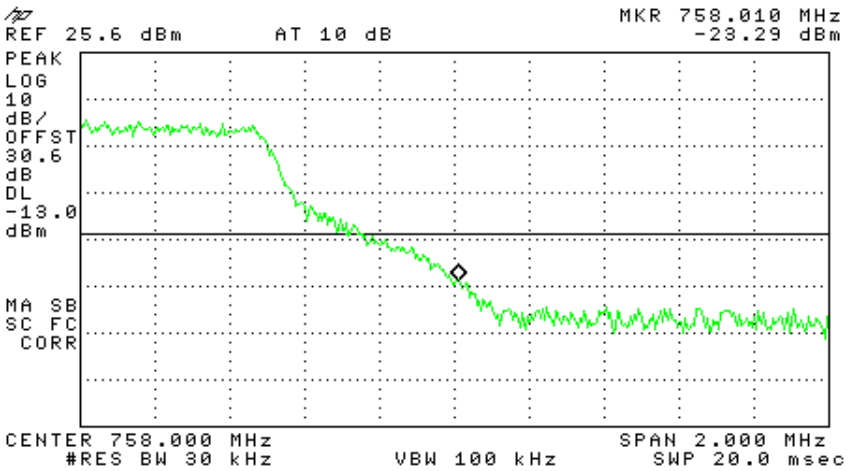

Figure 48.— 16QAM 753.0 MHz

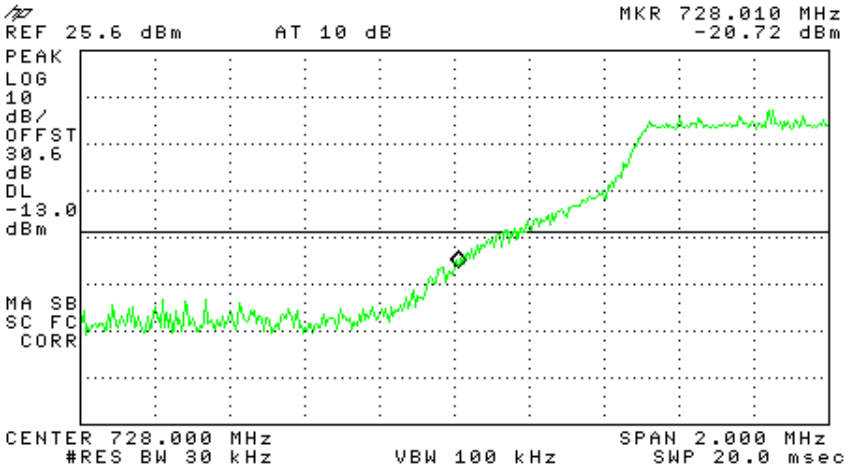

Figure 49.— QPSK 733.0 MHz

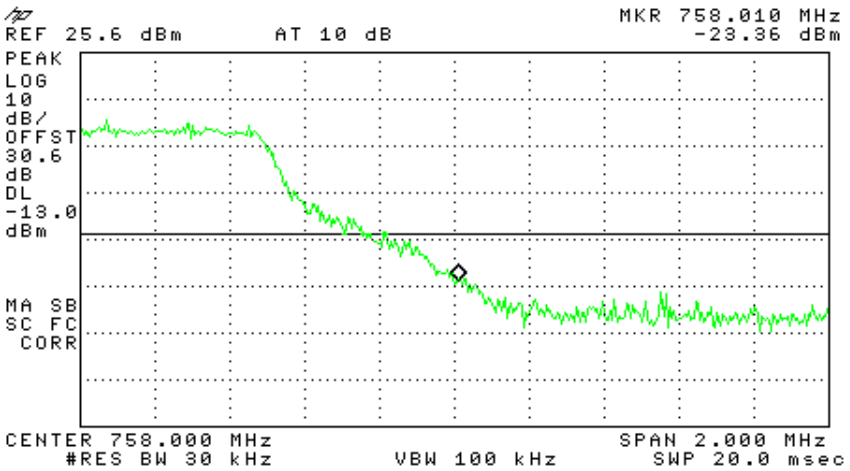

Figure 50.—QPSK 753.0 MHz

7.4 Test Equipment Used; Band Edge Spectrum LTE

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 51 Test Equipment Used

8. Spurious Radiated Emission LTE

8.1 Test Specification

FCC, Part 27, Subpart C Section 27.53 (g)

8.2 Test Procedure

The test method was based on ANSI/TIA-603-C: 2004, Section 2.2.12 Unwanted Emissions: Radiated Spurious.
The power of any emission outside of the authorized operating frequency ranges (728-758 MHz) must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB, yielding –13dBm.

(a) The E.U.T. operation mode and test set-up are as described in Section 3. A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 1.
The frequency range 9 kHz-20 GHz was scanned and the list of the highest emissions was verified and updated accordingly.
The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.
The emissions were measured at a distance of 3 meters.

(b) The E.U.T. was replaced by a substitution antenna (dipole 30MHz-1GHz, Horn Antenna above 1GHz) driven by a signal generator. The height was readjusted for maximum reading. The signal generator level was adjusted to obtain the same reading on the EMI receiver as in step (a).
The signals observed in step (a) were converted to radiated power using:
P_d(dBm) = P_g(dBm) – Cable Loss (dB) + Substitution Antenna Gain (dB)
P_d = Dipole equivalent power (result).
P_g = Signal generator output level.

8.3 Test Results

Carrier Channel (MHz)	Freq. (MHz)	Antenna Pol.	Maximum Peak Level (dBµV/m)	Signal Generator RF Output (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Effective Radiated Power Level (dBm)	Spec. (dBm)	Margin (dB)
733.00	1466	V	53.7	-47.58	5.15	7.6	-45.14	-13.0	-32.14
733.00	1466	H	53.8	-47.63	5.15	7.6	-45.18	-13.0	-32.18
747.00	1494	V	55.4	-45.89	5.15	7.6	-43.44	-13.0	-30.44
747.00	1494	H	53.5	-47.93	5.15	7.6	-45.48	-13.0	-32.48
753.00	1506	V	54.4	-46.89	5.15	7.6	-44.44	-13.0	-31.44
753.00	1506	H	54.0	-47.43	5.15	7.6	-42.83	-13.0	-29.83

Figure 52 Spurious Radiated Emission LTE

The E.U.T met the requirements of the FCC, Part 27, Subpart C, Section 27.53 (g) specifications.

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

8.4 Test Instrumentation Used, Radiated Measurements LTE

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8595E	4115A5143	January 1, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

9. Peak Output Power AWS

9.1 Test Specification

FCC Part 27, Subpart C (27.50(d))

9.2 Test procedure

The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator and an appropriate coaxial cable (loss = 30.6 dB). The E.U.T. RF output was modulated as follows:

WCDMA, GSM and LTE 10MHz 64QAM

Special attention was taken to prevent Spectrum Analyzer RF input overload.

9.3 Results

Modulation	Operation Frequency (MHz)	Reading (dBm)
GSM	2110.5	31.98
GSM	2132.5	33.79
GSM	2154.5	33.52
LTE 64QAM	2115.0	34.37
LTE 64QAM	2132.5	34.68
LTE 64QAM	2150.0	34.52
WCDMA	2112.5	34.87
WCDMA	2132.5	35.29
WCDMA	2152.5	35.67

Figure 53 Peak Output Power AWS

See additional information in Figure 54 to Figure 62.

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

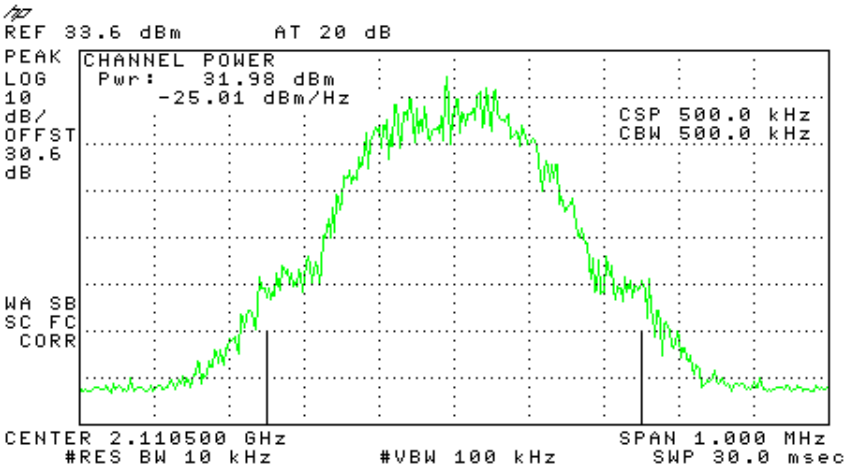

Figure 54.— GSM (2110.5 MHz)

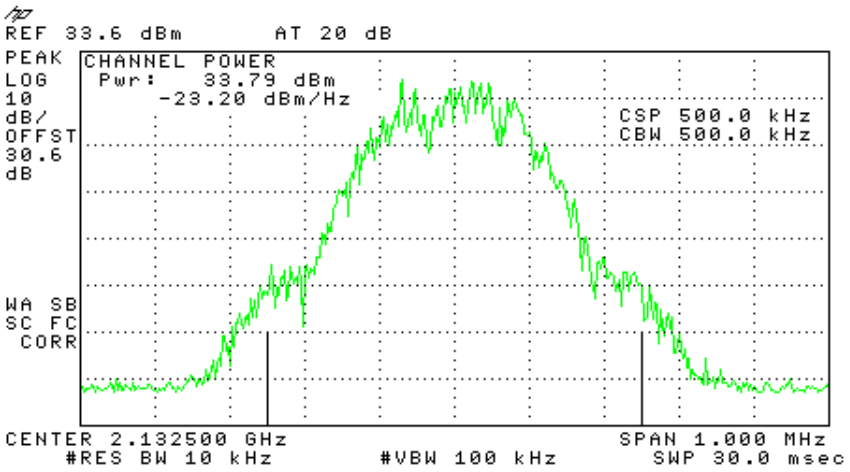

Figure 55.— GSM (2132.5 MHz)

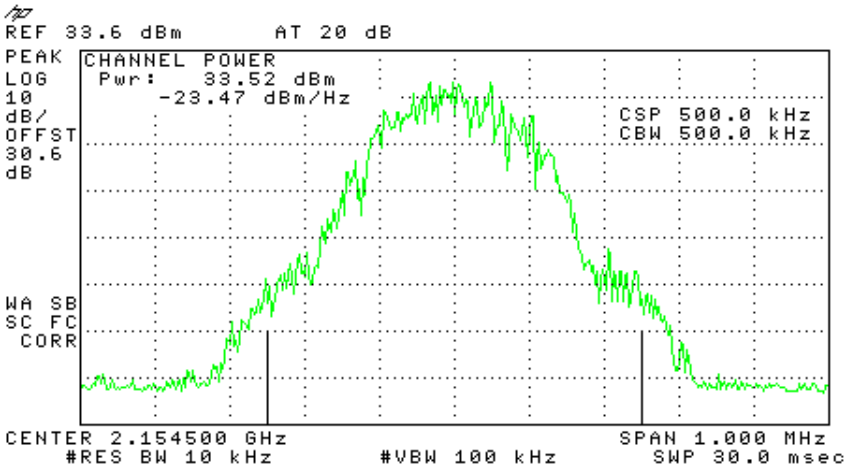

Figure 56.— GSM (2154.5 MHz)

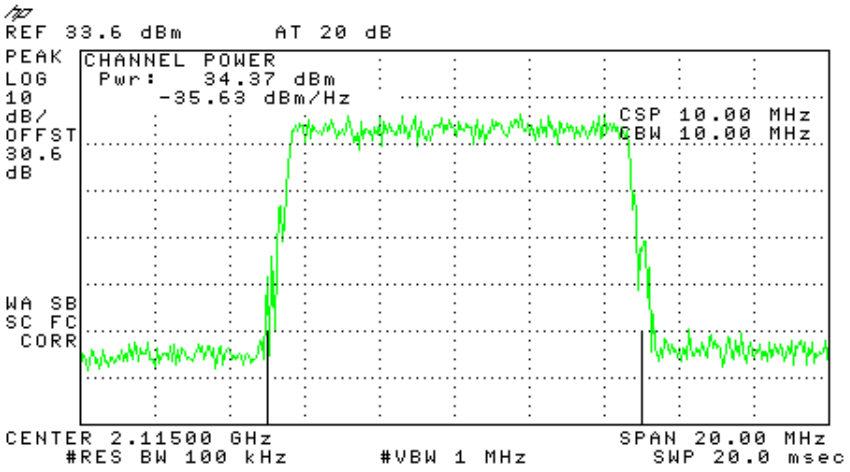

Figure 57.— LTE 64QAM(2115.0 MHz)

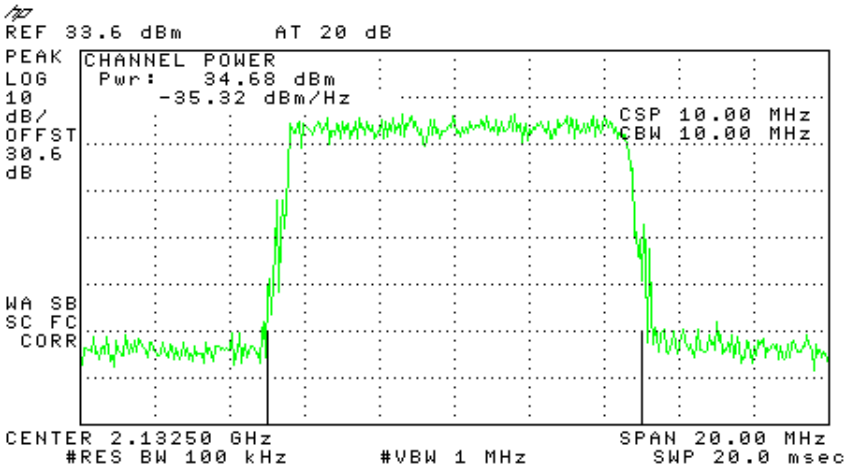

Figure 58.— LTE 64QAM (2132.5 MHz)

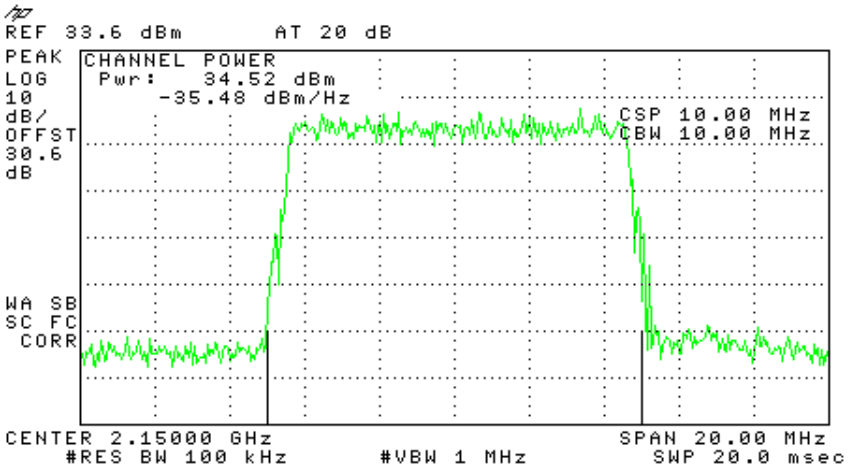

Figure 59.— LTE 64QAM (2150.0 MHz)

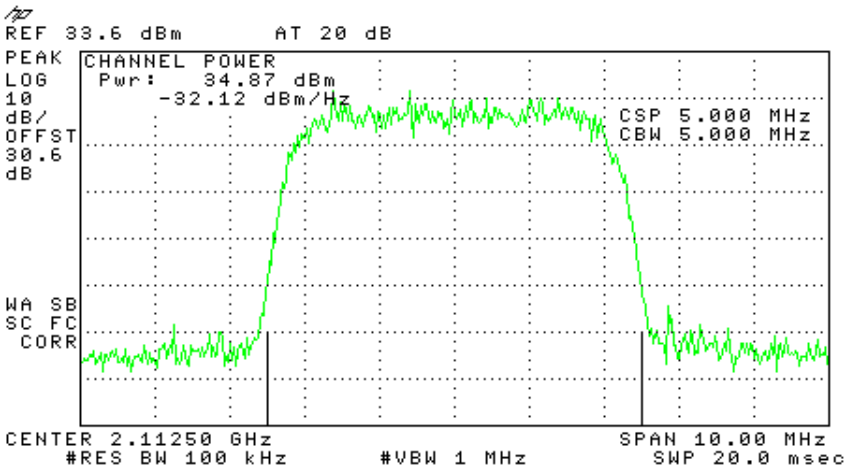

Figure 60.— W-CDMA (2112.5 MHz)

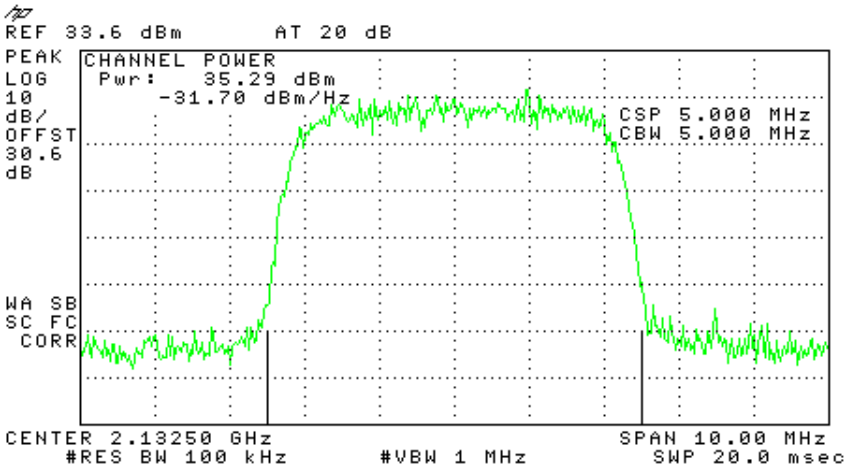

Figure 61.— W-CDMA (2132.5 MHz)

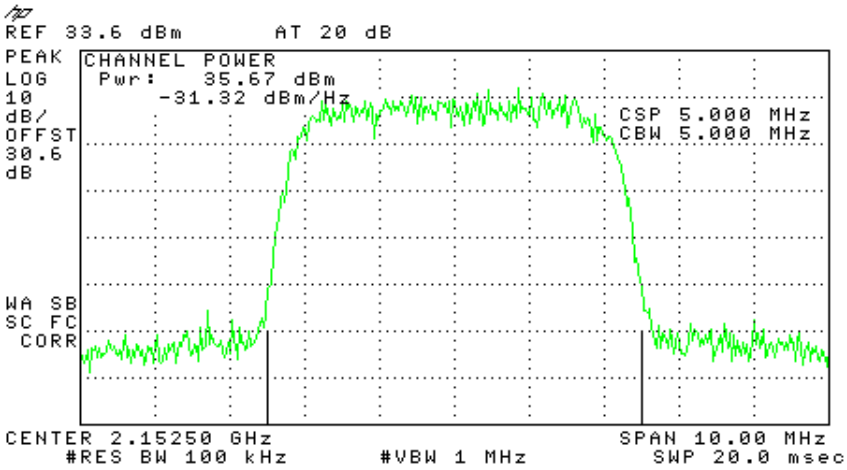

Figure 62.— W-CDMA (2152.5 MHz)

9.4 Test Equipment Used; Peak Output Power AWS

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 63 Test Equipment Used

10. Occupied Bandwidth AWS

10.1 Test Specification

FCC Part 2, Section 1049

10.2 Test Procedure

The E.U.T. was set to the applicable test frequency and modulation. The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (at the output test) and an appropriate coaxial cable. The spectrum analyzer was set to proper resolution B.W.
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limit, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.
Occupied bandwidth measured was repeated in the input terminal of the E.U.T.

10.3 Results

Modulation		Operating Frequency (MHz)	Reading (MHz)
GSM	Input	2110.5	0.305
	Output	2110.5	0.305
	Input	2132.5	0.300
	Output	2132.5	0.295
	Input	2154.5	0.305
	Output	2154.5	0.295
LTE 64QAM	Input	2115.0	9.65
	Output	2115.0	9.45
	Input	2132.5	9.50
	Output	2132.5	9.45
	Input	2150.0	9.50
	Output	2150.0	9.50
WCDMA	Input	2112.5	4.60
	Output	2112.5	4.60
	Input	2132.5	4.55
	Output	2132.5	4.55
	Input	2152.0	4.55
	Output	2152.0	4.50

Figure 64 Occupied Bandwidth AWS

See additional information in Figure 65 to Figure 82.

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature:  Date: 23.03.14

Typed/Printed Name: A. Sharabi

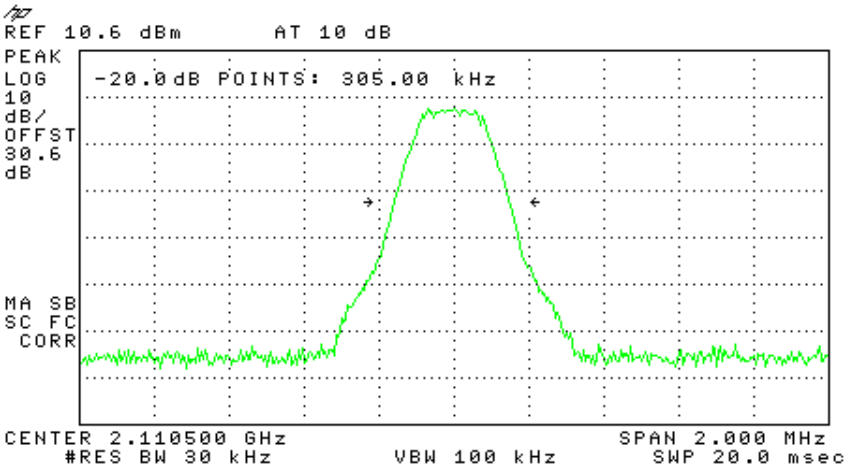

Figure 65.— GSM (2110.5 MHz) IN

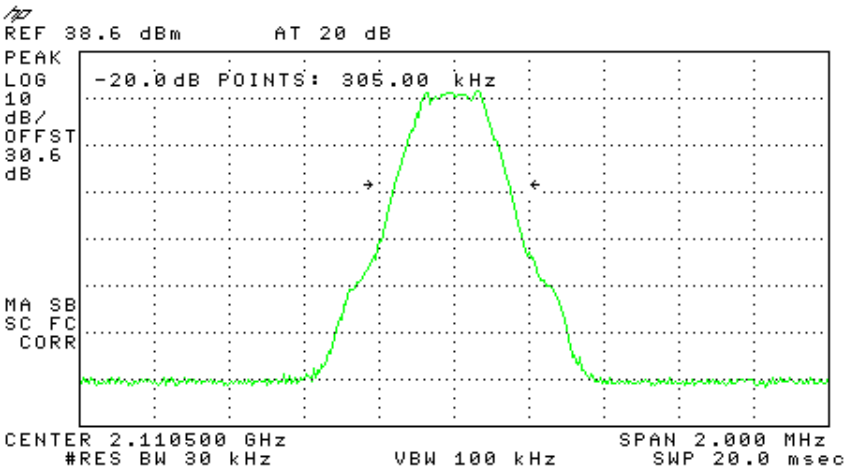

Figure 66.— GSM (2110.5 MHz) OUT

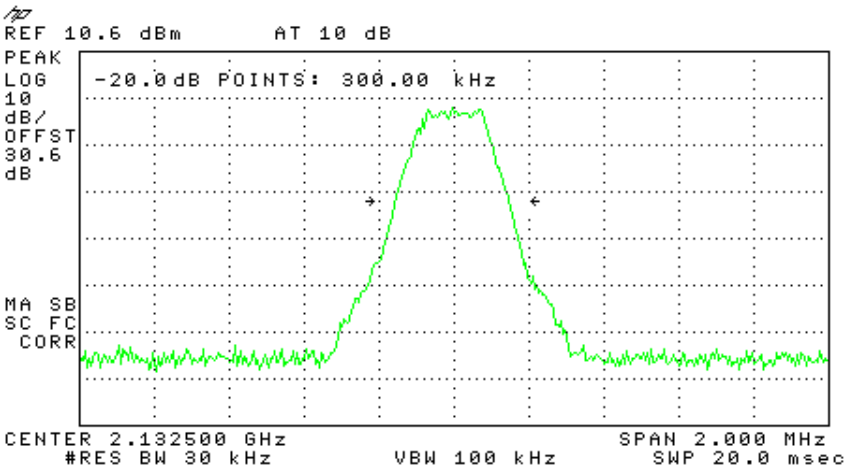

Figure 67.— GSM (2132.5 MHz) IN

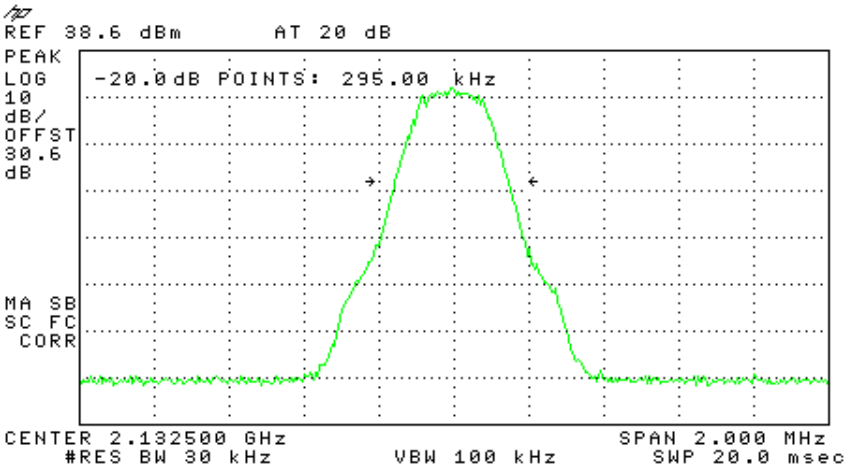

Figure 68.— GSM (2132.5 MHz) OUT

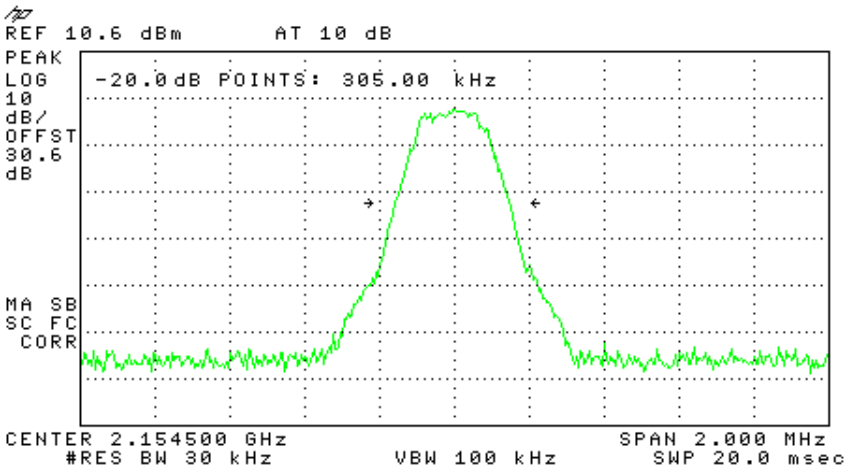

Figure 69.— GSM (2154.5 MHz) IN

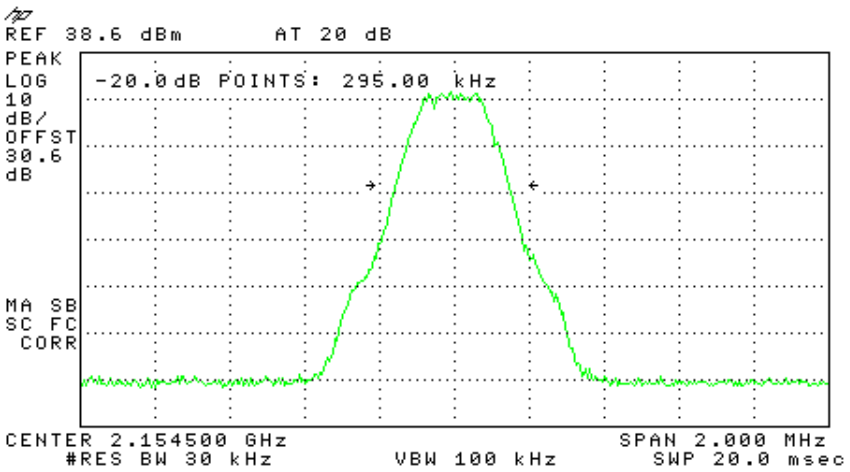

Figure 70.— GSM (2154.5 MHz) IOUT

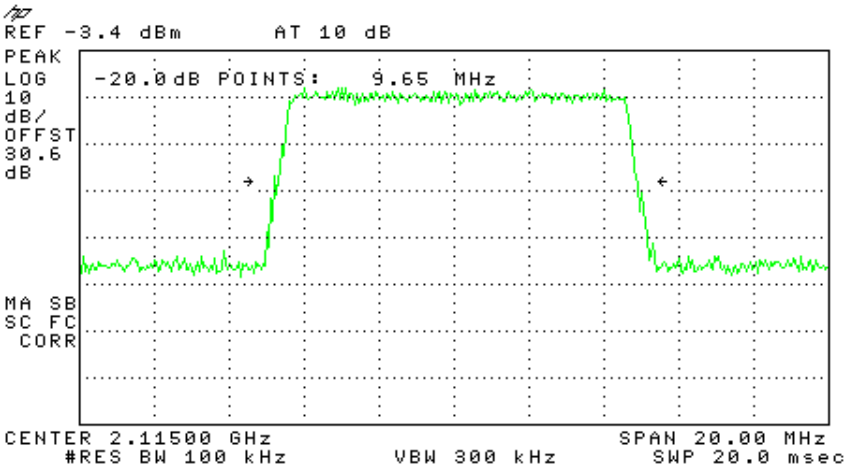

Figure 71.— LTE 64QAM(2115.0 MHz) IN

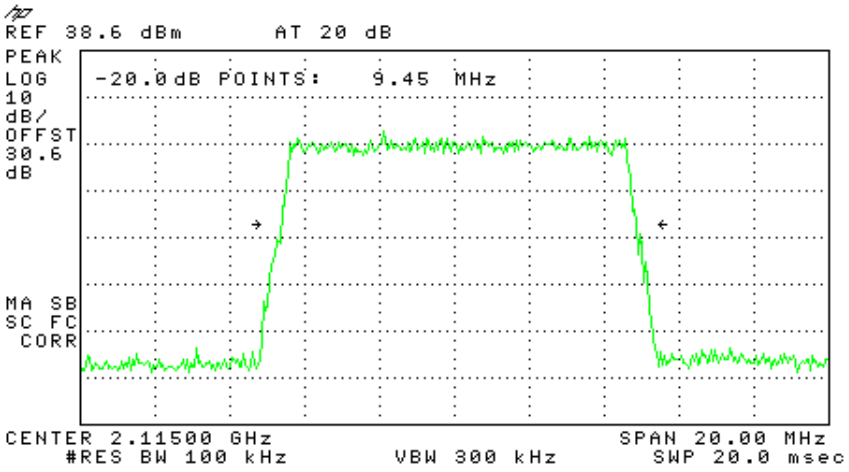

Figure 72.— LTE 64QAM (2115.0 MHz) OUT

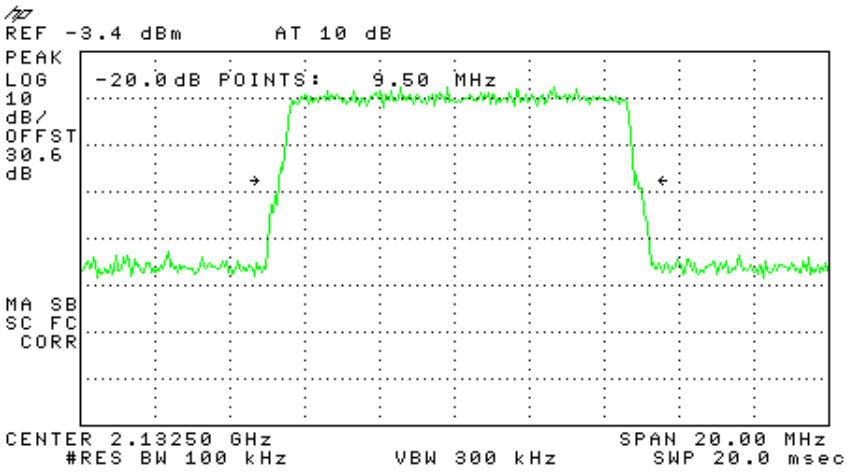

Figure 73.— LTE 64QAM (2132.5 MHz) IN

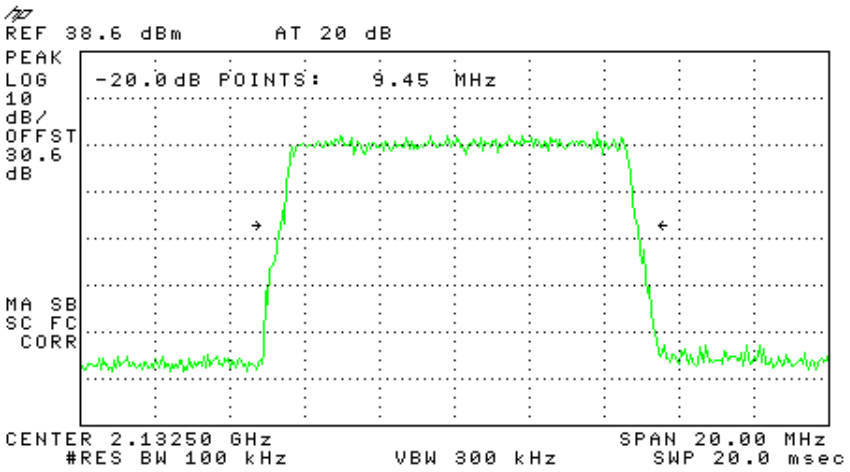

Figure 74.— LTE 64QAM (2132.5 MHz) OUT

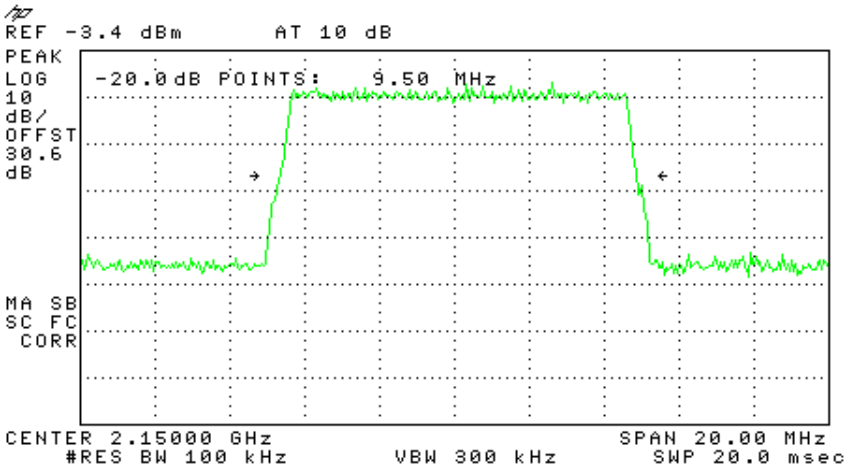

Figure 75.— LTE 64QAM (2150.0 MHz) IN

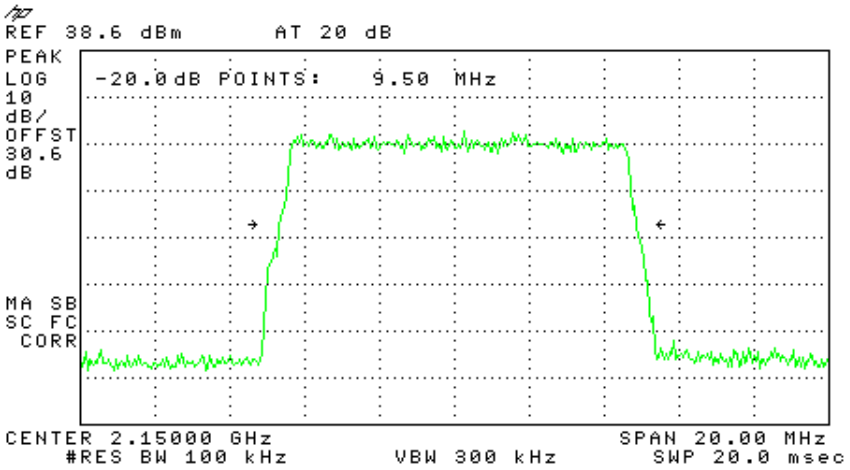

Figure 76.— LTE 64QAM (2150.0 MHz) OUT

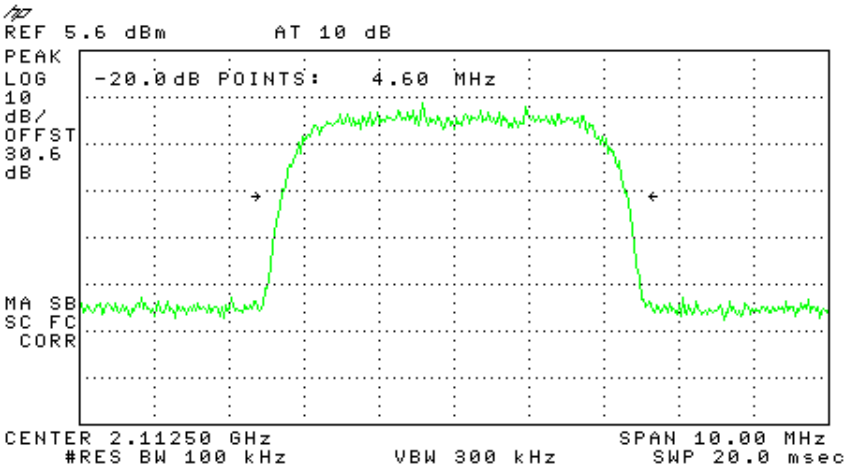

Figure 77.— W-CDMA (2112.5 MHz) IN

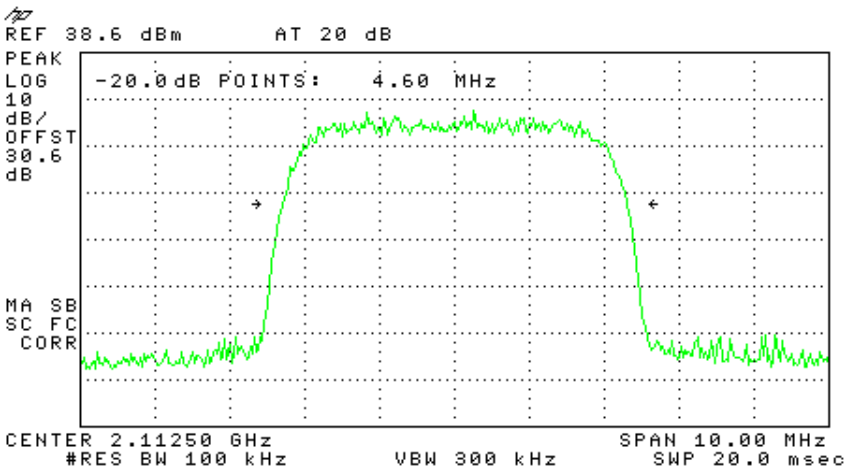

Figure 78.— W-CDMA (2112.5 MHz) OUT

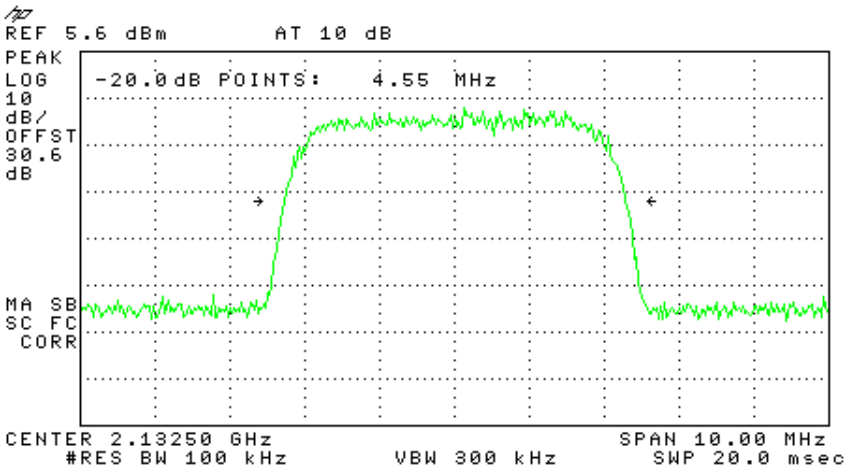

Figure 79.— W-CDMA (2132.5 MHz) IN

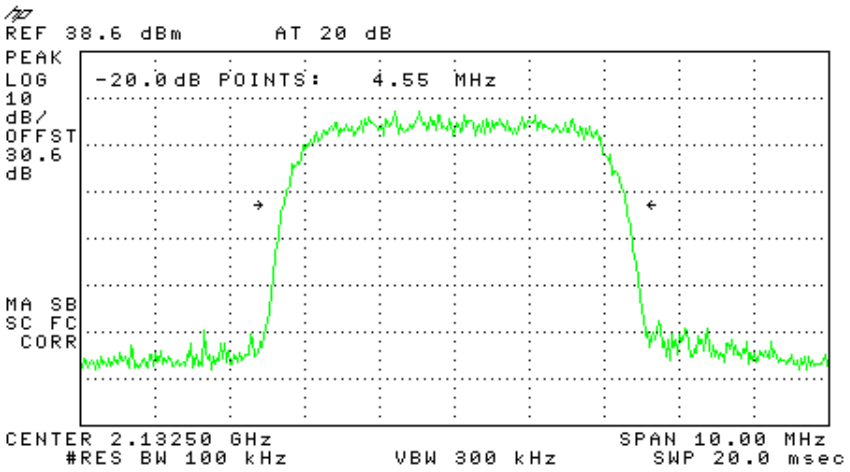

Figure 80.— W-CDMA (2132.5 MHz) OUT

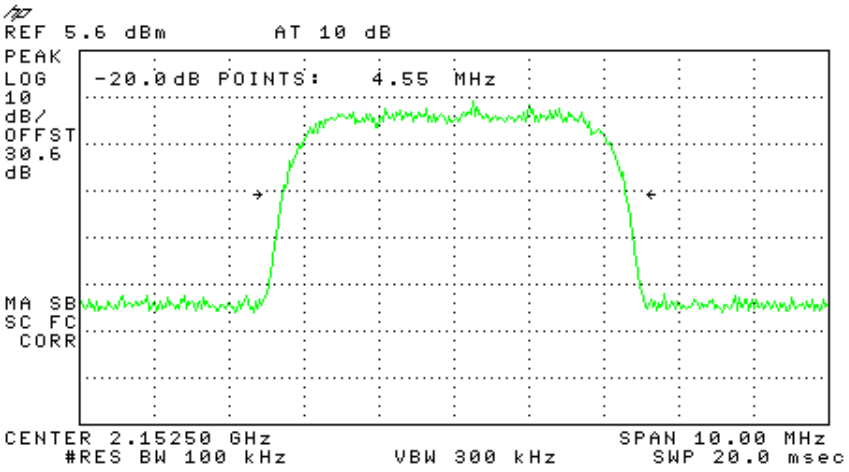

Figure 81.— W-CDMA (2152.0 MHz) IN

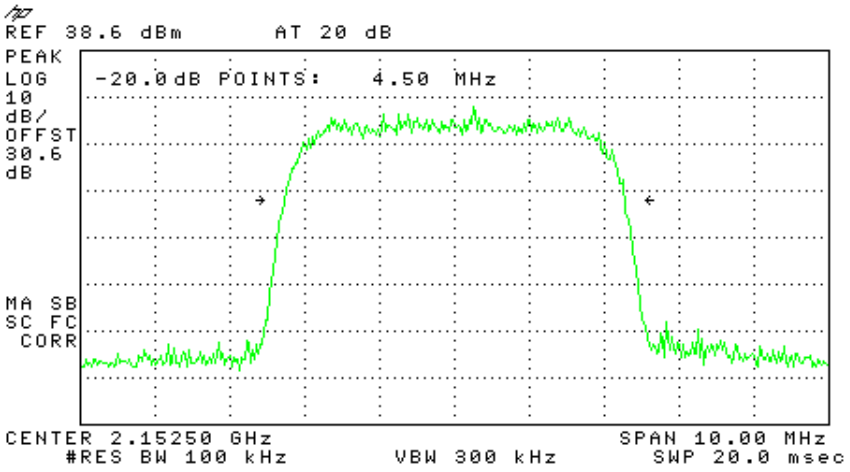

Figure 82.— W-CDMA (2152.0 MHz) OUT

10.4 Test Equipment Used; Occupied Bandwidth AWS

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 83 Test Equipment Used

11. Out of Band Emissions at Antenna Terminals AWS

11.1 Test Specification

FCC Part 27, Subpart C, Section 27.53 (g)

11.2 Test procedure

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + log (P) dB, yielding –13dBm. The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator and an appropriate coaxial cable (loss = 31.35 dB). The spectrum analyzer was set to 1 kHz resolution BW for the frequency range 9.0-150.0 kHz, 10 kHz for the frequency range 150 kHz–1.0 MHz, 100 kHz for the frequency range 1.0 MHz – 30 MHz, and 1MHz for the frequency range 30 MHz - 22.0 GHz.

11.3 Results

	Operation Frequency (MHz)	Frequency (MHz)	Reading (dBm)	Specification (dBm)	Margin (dB)
GSM	2110.5	1951	-17.3	-13.0	-4.3
	2132.5	1950	-17.0	-13.0	-4.0
	2154.5	1952	-16.4	-13.0	-3.4
LTE	2115.0	1952	-16.0	-13.0	-3.0
	2132.5	1955	-17.5	-13.0	-4.5
	2150.0	1952	-17.9	-13.0	-4.9
WCDMA	2112.5	1953	-16.2	-13.0	-3.2
	2132.5	1950	-18.0	-13.0	-5.0
	2152.5	1951	-17.4	-13.0	-4.4

Figure 84 Out of Band Emissions at Antenna Terminals Results AWS

See additional information in Figure 85 to Figure 93.

JUDGEMENT: Passed by 3.0 dB

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

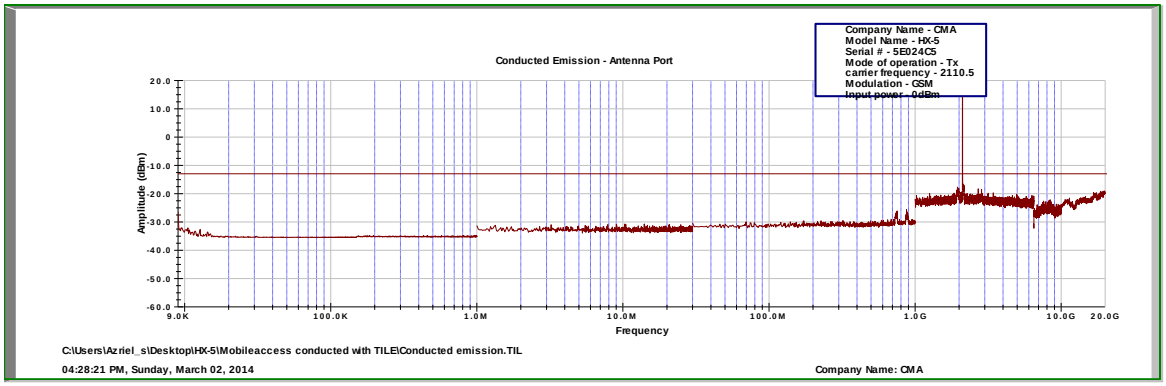

Figure 85.— 2110.50 MHz GSM

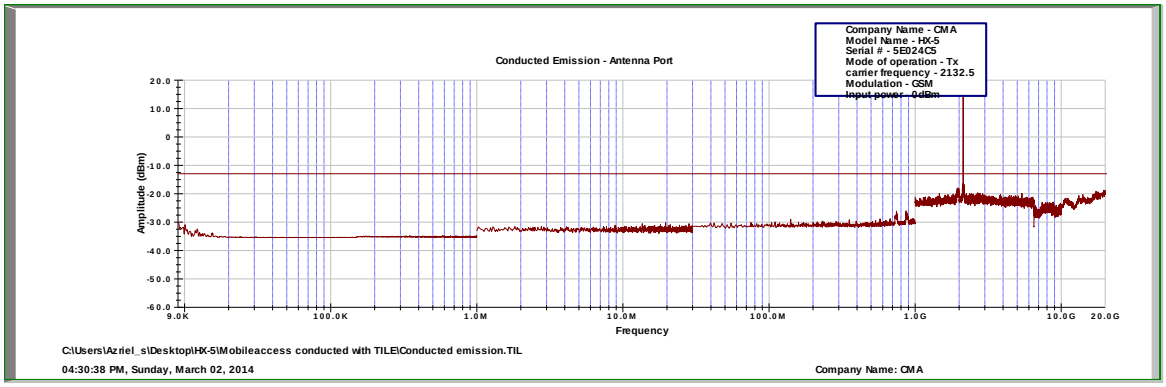

Figure 86.— 2132.50 MHz GSM

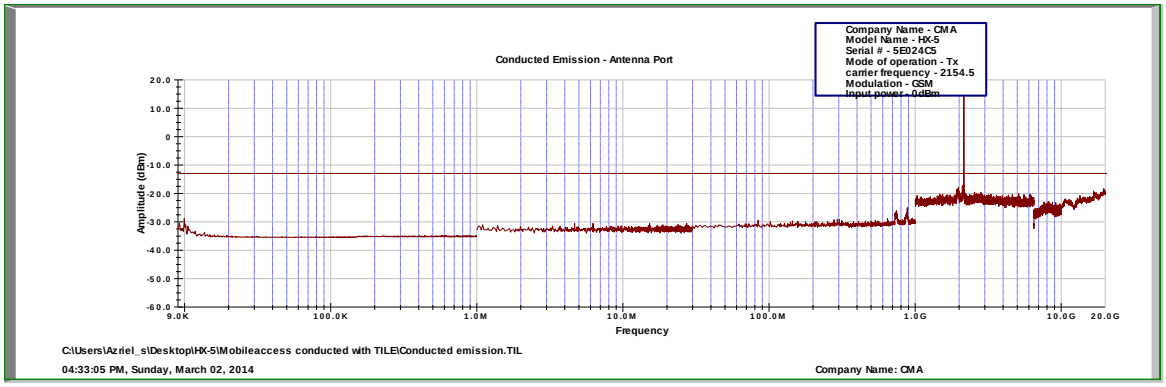

Figure 87.— 2154.50 MHz GSM

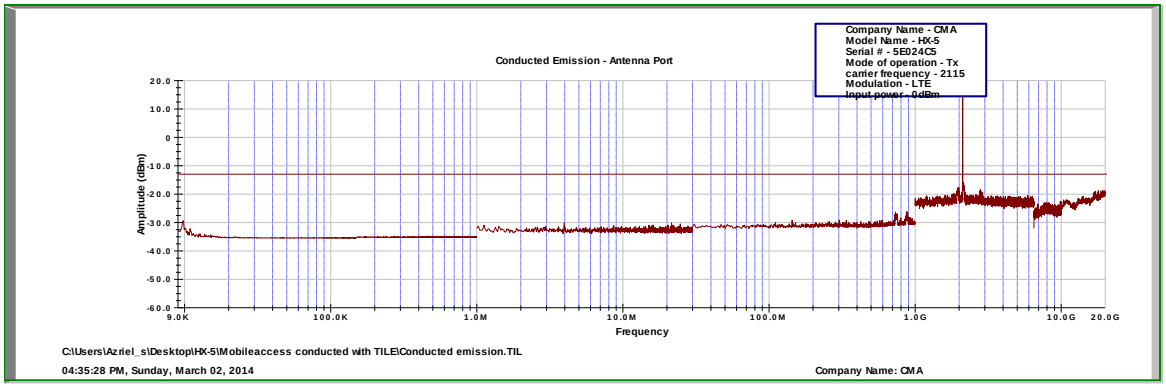

Figure 88.— 2115.00 MHz LTE

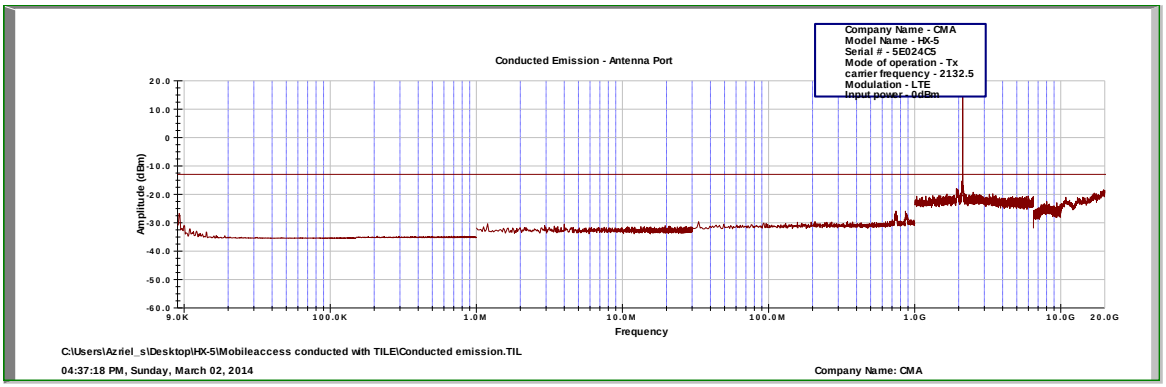

Figure 89.— 2132.50 MHz LTE

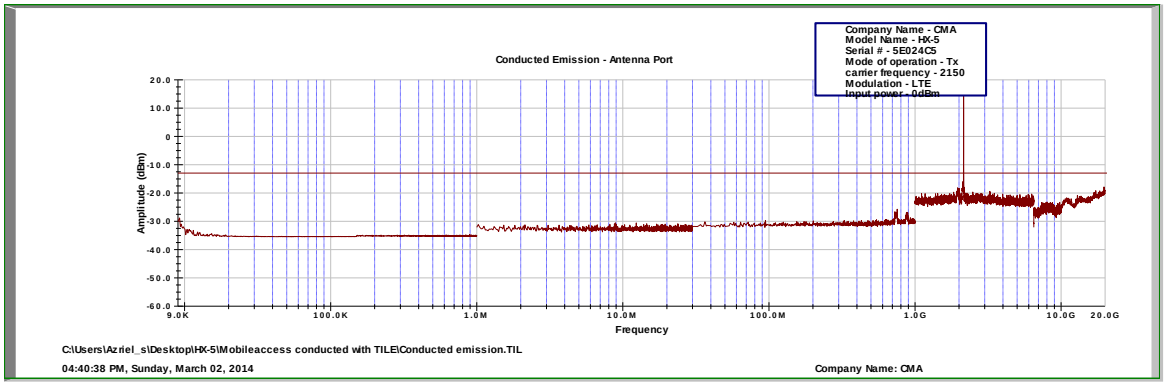

Figure 90.— 2150.00 MHz LTE

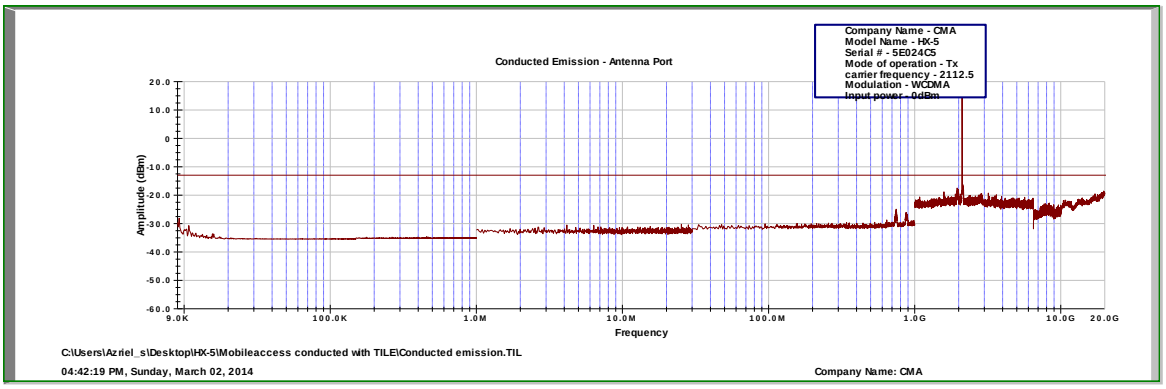

Figure 91.— 2112.50 MHz W-CDMA

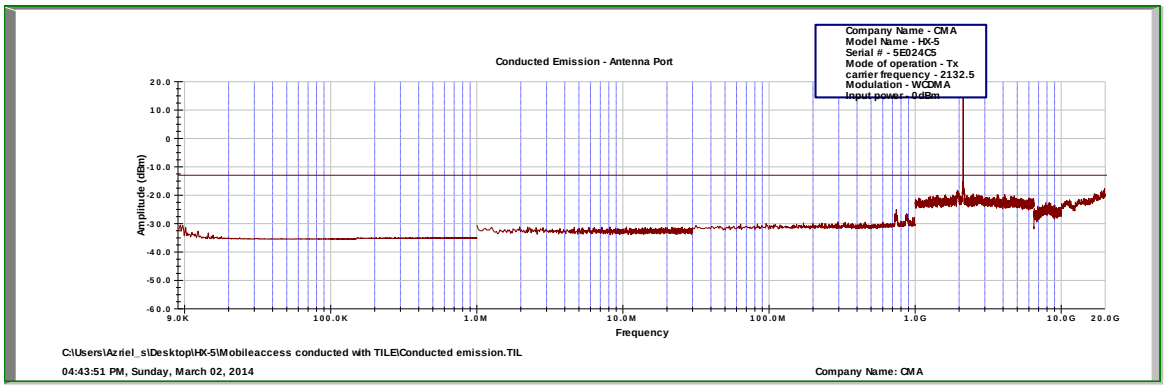

Figure 92.— 2132.50 MHz W-CDMA

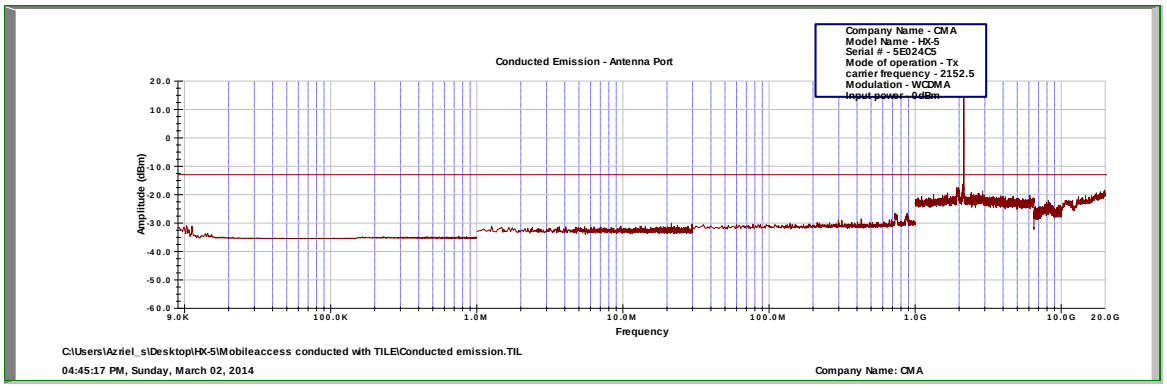

Figure 93.— 2152.50 MHz W-CDMA

11.4 Test Equipment Used. Test Equipment Used; Out of Band Emissions at Antenna Terminals AWS

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 94 Test Equipment Used

12. Band Edge Spectrum AWS

12.1 Test Specification

FCC Part 27, Subpart C, Section 27.53 (m 4-6)

12.2 Test procedure

Enclosed are spectrum analyzer plots for the lowest operation frequency and the highest operation frequency in which the E.U.T. is planned to be used.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + log (P) dB, yielding –13dBm.
The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator and an appropriate coaxial cable (loss = 30.6 dB).

12.3 Test Results

Modulation	Operation Frequency (MHz)	Band Edge Frequency (MHz)	Reading (dBm)	Specification (dBm)	Margin (dB)
GSM	2110.5	2110.00	-36.43	-13.0	-23.43
GSM	2154.5	2155.00	-37.75	-13.0	-24.75
LTE 64QAM	2115.0	2110.00	-15.94	-13.0	-2.94
LTE 64QAM	2150.0	2155.00	-18.70	-13.0	-5.70
W-CDMA	2112.5	2110.00	-26.59	-13.0	-13.59
W-CDMA	2152.5	2155.00	-23.06	-13.0	-10.06

Figure 95 Band Edge Spectrum Results AWS

See additional information in Figure 96 to Figure 101.

JUDGEMENT: Passed by 2.94 dB

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

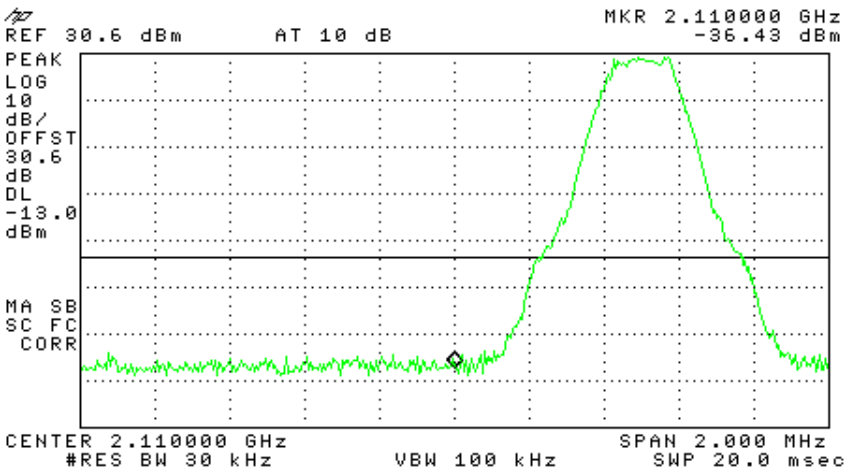

Figure 96.— GSM 2110.50 MHz

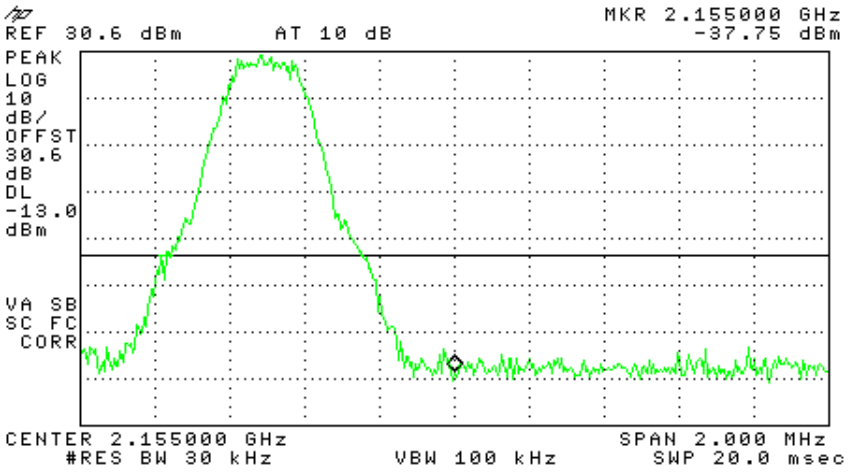

Figure 97.— GSM 2154.50 MHz

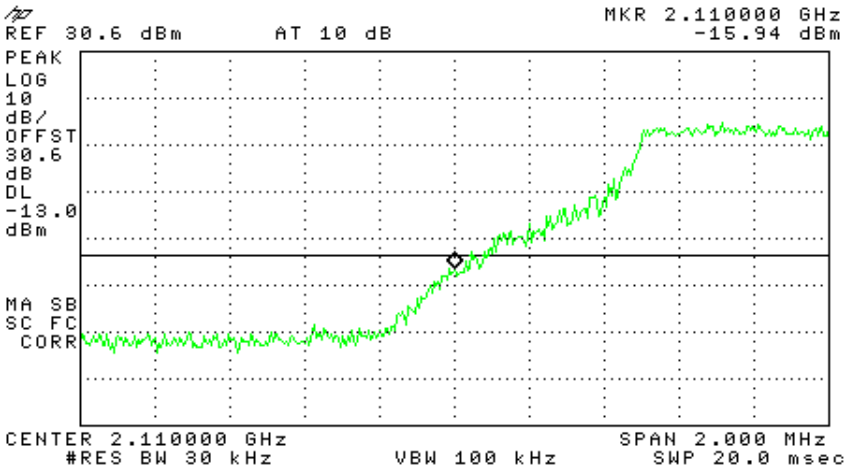

Figure 98.— LTE 64QAM 2115.00 MHz

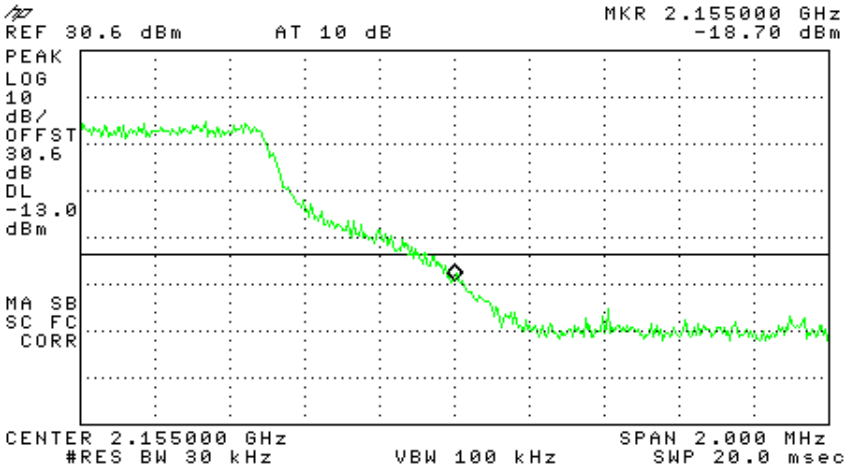

Figure 99.— LTE 64QAM 2150.00 MHz

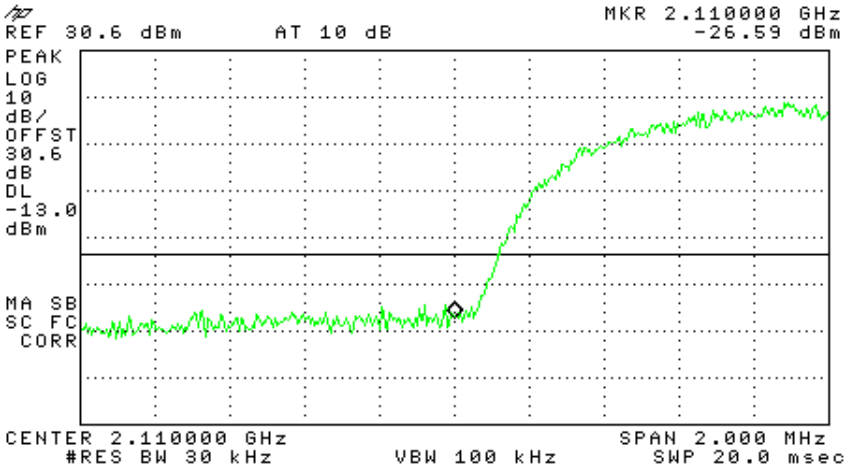

Figure 100.— W-CDMA 2112.50 MHz

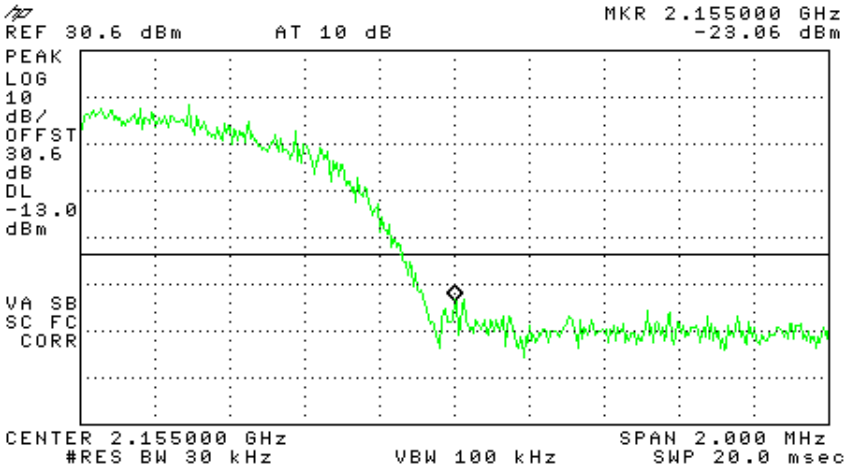

Figure 101.— W-CDMA 2152.50 MHz

12.4 Test Equipment Used; Band Edge Spectrum AWS

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8592L	386A01204	February 28, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

Figure 102 Test Equipment Used

13. Spurious Radiated Emission AWS

13.1 Test Specification

FCC, Part 27, Subpart C Section 27.53 (g)

13.2 Test Procedure

The test method was based on ANSI/TIA-603-C: 2004, Section 2.2.12 Unwanted Emissions: Radiated Spurious.
The power of any emission outside of the authorized operating frequency ranges (2110-2155 MHz) must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB, yielding –13dBm.

(a) The E.U.T. operation mode and test set-up are as described in Section 2. A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 1.
The frequency range 9 kHz-20 GHz was scanned, and the list of the highest emissions was verified and updated accordingly.
The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.
The emissions were measured at a distance of 3 meters.

(c) The E.U.T. was replaced by a substitution antenna (dipole 30MHz-1GHz, Horn Antenna above 1GHz) driven by a signal generator. The height was readjusted for maximum reading. The signal generator level was adjusted to obtain the same reading on the EMI receiver as in step (a).
The signals observed in step (a) were converted to radiated power using:
P_d(dBm) = P_g(dBm) – Cable Loss (dB) + Substitution Antenna Gain (dB)
P_d = Dipole equivalent power (result).
P_g = Signal generator output level.

13.3 Test Results

Carrier Channel (MHz)	Freq. (MHz)	Antenna Pol.	Maximum Peak Level (dBµV/m)	Signal Generator RF Output (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Effective Radiated Power Level (dBm)	Spec. (dBm)	Margin (dB)
2110.50	4221.2	V	56.2	-47.19	4.45	9.12	-42.52	-13.0	-29.52
2110.50	4221.2	H	54.0	-49.15	4.45	9.12	-44.48	-13.0	-31.48
2135.00	4270.5	V	54.7	-49.37	4.45	9.38	-44.44	-13.0	-31.44
2135.00	4270.5	H	55.0	-48.61	4.45	9.38	-43.68	-13.0	-30.68
2154.50	4309.2	V	53.0	-51.07	4.45	9.38	-46.14	-13.0	-33.14
2154.50	4309.2	H	55.4	-48.21	4.45	9.38	-43.28	-13.0	-30.28

Figure 103 Test Results Spurious Radiated Emission AWS

JUDGEMENT: Passed by 29.52 dB

The E.U.T met the requirements of the FCC, Part 27, Subpart C, Section 27.53 (g) specifications.

TEST PERSONNEL:

Tester Signature: _____ Date: 23.03.14

Typed/Printed Name: A. Sharabi

13.4 Test Instrumentation Used, Radiated Measurements AWS

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Period
Spectrum Analyzer	HP	8595E	4115A5143	January 1, 2014	1 year
Signal Generator	Agilent	N5172B ATO 10210	MY51350182	January 1, 2014	2 years
Attenuator	MCE	46-30-34	-	February 23, 2014	1 year
Cable	Avnet MTS	P-3636-603-5236	-	February 23, 2014	1 year
DC Block	MIDWEST MICROWAVE	DCDB-3624-10-NNN-02	-	N/A	N/A

14. Intermodulation

14.1 Test procedure

The test method was based on ANSI/TIA-603-C: 2004, Section 2.2.12 Unwanted Emissions: Radiated Spurious.
The power of any emission outside of the authorized operating frequency ranges (728-758; 862-894; 1930-1990; 2110-2155 MHz) must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB, yielding –13dBm.

(a) The E.U.T. operation mode and test set-up are as described in Section 2.
A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 1.

The E.U.T. was operated in Downlink mode at 4 different channels at center frequency of each band at the same time, transmitting at CW signal.

(b) The frequency range 9 kHz-25 GHz was scanned, and the list of the highest emissions was verified and updated accordingly. The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.
The emissions were measured at a distance of 3 meters.

(d) The E.U.T. was replaced by a substitution antenna (dipole 30MHz-1GHz, Horn Antenna above 1GHz) driven by a signal generator. The height was readjusted for maximum reading. The signal generator level was adjusted to obtain the same reading on the EMI receiver as in step (a).
The signals observed in step (a) were converted to radiated power using:
P_d(dBm) = P_g(dBm) – Cable Loss (dB) + Substitution Antenna Gain (dB)
P_d = Dipole equivalent power (result).
P_g = Signal generator output level.

14.2 Test Results

Carrier Channel (MHz)	Freq. (MHz)	Antenna Pol.	Maximum Peak Level (dBµV/m)	Signal Generator RF Output (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Effective Radiated Power Level (dBm)	Spec. (dBm)	Margin (dB)
2*747+881	2375	V	60.2	-40.49	7.4	8.26	-39.63	-13.0	-26.63
2*747+881	2375	H	59.5	-41.38	7.4	8.26	-40.52	-13.0	-27.52
2*747-881	613	V	44.5	-51.84	3.2	0.97	-54.07	-13.0	-41.07
2*747-881	613	H	43.5	-54.21	3.2	0.97	-56.44	-13.0	-43.44
2*881-747	1015	V	49.8	-51.99	4.2	5.4	-50.79	-13.0	-37.79
2*881-747	1015	H	48.5	-52.95	4.2	5.4	-51.75	-13.0	-38.75
2*881+747	2509	V	59.7	-41.06	7.7	8.4	-40.36	-13.0	-27.36
2*881+747	2509	H	59.4	-42.21	7.7	8.4	-41.51	-13.0	-28.51
3*747-2*881	579	V	42.7	-53.64	3.2	0.97	-55.87	-13.0	-42.87
3*747-2*881	579	H	41.5	-56.21	3.2	0.97	-58.44	-13.0	-45.44
3*881-2*747	1149	V	49.9	-51.59	4.45	5.84	-50.20	-13.0	-37.20
3*881-2*747	1149	H	50.7	-50.81	4.45	5.84	-49.42	-13.0	-36.42
2*1960-2135	1785	V	54.6	-45.19	5.6	7.66	-43.13	-13.0	-30.13
2*1960-2135	1785	H	54.7	-45.35	5.6	7.66	-43.29	-13.0	-30.29
2*2135-1960	2310	V	59.5	-42.08	7.1	8.12	-41.06	-13.0	-28.06
2*2135-1960	2310	H	58.9	-43.48	7.1	8.12	-42.46	-13.0	-29.46
3*2135-2*1960	2485	V	59.6	-41.16	7.7	8.4	-40.46	-13.0	-27.46
3*2135-2*1960	2485	H	59.2	-42.41	7.7	8.4	-41.71	-13.0	-28.71
2*2135-3*1960	1610	V	55.0	-46.0	5.3	7.62	-43.68	-13.0	-30.68
2*2135-3*1960	1610	H	54.3	-47.14	5.3	7.62	-44.82	-13.0	-31.82

Figure 104 Test Results Intermodulation

JUDGEMENT: Passed
TEST PERSONNEL:
Tester Signature: _____ Date: 23.03.14
Typed/Printed Name: A. Sharabi

14.3 Test Instrumentation Used, Radiated Measurements Intermodulation

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	January 15, 2014	1Year
RF Filter Section	HP	85420E	3705A00248	January 15, 2014	1Year
Antenna Biconical	EMCO	3104	2606	August 30, 2013	1Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	April 2, 2013	1 Year
Horn Antenna	ETS	3115	29845	March 14, 2012	2 Years
Horn Antenna	ARA	SWH-28	1007	March 30, 2014	3 Years
Low Noise Amplifier	Narda	LNA-DBS-0411N313	013	August 21, 2013	1 Year
Low Noise Amplifier	Sophia Wireless	LNA 28-B	232	August 28, 2013	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2014	1 Year
Spectrum Analyzer	HP	8564E	3442A00275	March 2, 2014	1 Year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 105 Test Equipment Used

15. APPENDIX A - CORRECTION FACTORS

15.1 Correction factors for CABLE

from EMI receiver to test antenna at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3
20.0	0.6
30.0	0.8
40.0	0.9
50.0	1.1
60.0	1.2
70.0	1.3
80.0	1.4
90.0	1.6
100.0	1.7
150.0	2.0
200.0	2.3
250.0	2.7
300.0	3.1
350.0	3.4
400.0	3.7
450.0	4.0
500.0	4.3
600.0	4.7
700.0	5.3
800.0	5.9
900.0	6.3
1000.0	6.7

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
1200.0	7.3
1400.0	7.8
1600.0	8.4
1800.0	9.1
2000.0	9.9
2300.0	11.2
2600.0	12.2
2900.0	13.0

NOTES:

1. The cable type is RG-214.

2. The overall length of the cable is 27 meters.

3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".

15.2 Correction factors for CABLE

from EMI receiver to test antenna at 3 meter range.

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

NOTES:

1. The cable type is RG-8.

2. The overall length of the cable is 10 meters.

15.3 Correction factors for CABLE

from spectrum analyzer to test antenna above 2.9 GHz

FREQUENCY (GHz)	CORRECTION FACTOR (dB)	FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.9	14.0	9.1
2.0	2.7	15.0	9.5
3.0	3.5	16.0	9.9
4.0	4.2	17.0	10.2
5.0	4.9	18.0	10.4
6.0	5.5	19.0	10.7
7.0	6.0	20.0	10.9
8.0	6.5	21.0	11.2
9.0	7.0	22.0	11.6
10.0	7.5	23.0	11.9
11.0	7.9	24.0	12.3
12.0	8.3	25.0	12.6
13.0	8.7	26.0	13.0

NOTES:

1. The cable type is SUCOFLEX 104 E manufactured by SUHNER.

2. The cable is used for measurements above 2.9 GHz.

3. The overall length of the cable is 10 meters.

15.4 Correction factors for CABLE

from EMI receiver to test antenna at 10 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3
20.0	0.8
30.0	0.9
40.0	1.2
50.0	1.4
60.0	1.6
70.0	1.8
80.0	1.9
90.0	2.0
100.0	2.1
150.0	2.6
200.0	3.2
250.0	3.8
300.0	4.2
350.0	4.6
400.0	5.1
450.0	5.3
500.0	5.6
600.0	6.3
700.0	7.0
800.0	7.6
900.0	8.0
1000.0	8.7

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
1200.0	9.8
1400.0	10.0
1600.0	11.3
1800.0	12.2
2000.0	13.1
2300.0	14.5
2600.0	15.9
2900.0	16.4

NOTES:

1. The cable type is RG-214.

2. The overall length of the cable is 34 meters.

3. The above data is located in file 34M10MO.CBL on the disk marked "Radiated Emissions Tests EMI Receiver".

15.5 Correction factors for LOG PERIODIC ANTENNA

Type LPD 2010/A
at 3 and 10 meter ranges.

Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

NOTES:

1. *Antenna serial number is 1038.*
2. *The above lists are located in file number 38M3O.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.*
3. *The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".*

15.6 Correction factors for LOG PERIODIC ANTENNA

Type SAS-200/511
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

NOTES:

1. *Antenna serial number is 253.*
2. *The above lists are located in file number SAS3M0.ANT for a 3 meter range.*
3. *The files mentioned above are located on the disk marked "Antenna Factors".*

15.7 Correction factors for BICONICAL ANTENNA

Type BCD-235/B, at 3 meter range

FREQUENCY (MHz)	AFE (dB/m)
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

NOTES:

1. Antenna serial number is 1041.

2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".

15.8 Correction factors for BICONICAL ANTENNA

Type BCD-235/B, 10 meter range

FREQUENCY (MHz)	AFE (dB/m)
30.0	12.1
40.0	10.6
50.0	10.6
60.0	8.9
70.0	8.5
80.0	9.6
90.0	9.4
100.0	9.6
110.0	10.3
120.0	10.7
130.0	12.6
140.0	12.7
150.0	12.7
160.0	13.8
170.0	13.7
180.0	14.9
190.0	13.4
200.0	13.1
210.0	14.0
220.0	14.5
230.0	15.8
240.0	16.0
250.0	16.6
260.0	16.7
270.0	18.3
280.0	18.5
290.0	19.3
300.0	20.9

NOTES:

1. *Antenna serial number is 1041.*
2. *The above list is located in file 41BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".*

15.9 Correction factors for Horn Double-Ridged Waveguide

Model: 3115, S/N 29845
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)	FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)
1.0	24.8	5.4	10.0	38.8	11.4
1.5	26.1	7.6	10.5	38.9	11.8
2.0	28.6	7.7	11.0	39.0	12.1
2.5	29.8	8.4	11.5	39.6	11.8
3.0	31.4	8.4	12.0	39.8	12.0
3.5	32.4	8.7	12.5	39.6	12.5
4.0	33.7	8.6	13.0	40.0	12.5
4.5	33.4	9.9	13.5	39.8	13.0
5.0	34.5	9.7	14.0	40.2	13.0
5.5	35.1	9.9	14.5	40.6	12.9
6.0	35.4	10.4	15.0	41.3	12.4
6.5	35.6	10.8	15.5	39.5	14.6
7.0	36.2	10.9	16.0	38.8	15.5
7.5	37.3	10.4	16.5	40.0	14.6
8.0	37.7	10.6	17.0	41.4	13.4
8.5	38.3	10.5	17.5	44.8	10.3
9.0	38.5	10.8	18.0	47.2	8.1
9.5	38.7	11.1			

15.10 Correction factors for Horn Antenna

Model: SWH-28
at 1 meter range.

FREQUENCY (GHz)	AFE (dB /m)	Gain (dB1)
18.0	40.3	16.1
19.0	40.3	16.3
20.0	40.3	16.1
21.0	40.3	16.3
22.0	40.4	16.8
23.0	40.5	16.4
24.0	40.5	16.6
25.0	40.5	16.7
26.0	40.6	16.4

15.11 Correction factors for Horn Antenna

Model: V637

FREQUENCY (GHz)	AFE (dB /m)	Gain (dB1)
26.0	43.6	14.9
27.0	43.7	15.1
28.0	43.8	15.3
29.0	43.9	15.5
30.0	43.9	15.8
31.0	44.0	16.0
32.0	44.1	16.2
33.0	44.1	16.4
34.0	44.1	16.7
35.0	44.2	16.9
36.0	44.2	17.1
37.0	44.2	17.4
38.0	44.2	17.6
39.0	44.2	17.8
40.0	44.2	18.0

15.12 Correction factors for ACTIVE LOOP ANTENNA

Model 6502
S/N 9506-2950

FREQUENCY	Magnetic Antenna Factor	Electric Antenna Factor
(MHz)	(dB)	(dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2