

FCC 47 CFR PART 27

RF Test Report

Product Type : Mobile Hotspot
Applicant : Netgear Inc.
Address : 350 East Plumeria Drive, San Jose, CA 95134
Trade name : NETGEAR
Model No. : AC810S-300
Test Specification : FCC 47 CFR PART 27 SUBPART L
ANSI/TIA-603-D 2010
Application Purpose : Original
Receive Date : Jul. 13, 2015
Test Period : Aug. 14 ~ Oct. 02, 2015
Issue Date : Nov. 24, 2015

Issue by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
Taoyuan County 334, Taiwan R.O.C.
Tel : +886-3-2710188 / Fax : +886-3-2710190



Taiwan Accreditation Foundation accreditation number: 1330

Note: This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp. This document may be altered or revised by A Test Lab Techno Corp. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, or any government agencies. The test results in the report only apply to the tested sample.

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Nov. 02, 2015	Initial Issue	
01	Nov. 24, 2015	Revised report information.	Joyce Liao

Verification of Compliance

Issued Date: 11/24/2015

Product Type : Mobile Hotspot
Applicant : Netgear Inc.
Address : 350 East Plumeria Drive, San Jose, CA 95134
Trade Name : NETGEAR
Model Number : AC810S-300
FCC ID : PY3AC810S
EUT Rated Voltage : DC 5V, 1A
Test Voltage : 120 Vac / 60 Hz, DC 3.50 / DC 3.80 / DC 4.35
Applicable Standard : FCC 47 CFR PART 27 SUBPART L
ANSI/TIA-603-D 2010

Application Purpose : Original

Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
Taoyuan County 334, Taiwan R.O.C.
Tel : +886-3-2710188 / Fax : +886-3-2710190



Taiwan Accreditation Foundation accreditation number: 1330
<http://www.atl-lab.com.tw/e-index.htm>

A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By : Fly Lu Reviewed By : Eric Ou Yang
(Manager) (Fly Lu) (Testing Engineer) (Eric Ou Yang)

TABLE OF CONTENTS

1	General Information	6
1.1.	EUT Description	6
1.2.	Mode of Operation.....	7
1.3.	EUT Exercise Software	7
1.4.	Configuration of Test System Details	8
1.5.	Test Site Environment	8
1.6.	Summary of Test Result	9
2	RF Output Power Test	10
2.1.	Limit.....	10
2.2.	Test Instruments	10
2.3.	Test Setup.....	10
2.4.	Test Procedure	11
2.5.	Uncertainty	11
2.6.	Test Result.....	12
3	Effective Radiated Power / Equivalent Isotropic Radiated Power Test.....	13
3.1.	Limit.....	13
3.2.	Test Instruments	13
3.3.	Test Setup.....	14
3.4.	Test Procedure	15
3.5.	Uncertainty	15
3.6.	Test Result.....	16
4	Peak to Average Ratio Test.....	17
4.1.	Limit.....	17
4.2.	Test Instruments	17
4.3.	Setup	17
4.4.	Test Procedure	18
4.5.	Uncertainty	18
4.6.	Test Result.....	18
4.7.	Test Graphs	19
5	Emission Bandwidth & Occupied Bandwidth Test.....	20
5.1.	Limit.....	20
5.2.	Test Instruments	20
5.3.	Setup	20
5.4.	Test Procedure	20
5.5.	Uncertainty	21
5.6.	Test Result.....	21

6	Band Edge Test	23
6.1.	Limit	23
6.2.	Test Instruments	23
6.3.	Setup	23
6.4.	Test Procedure	24
6.5.	Uncertainty	24
6.6.	Test Result.....	25
7	Conducted Spurious Emission Test	26
7.1.	Limit	26
7.2.	Test Instruments	26
7.3.	Setup	26
7.4.	Test Procedure	27
7.5.	Uncertainty	27
7.6.	Test Result.....	27
8	Field Strength of Spurious Radiation Test.....	46
8.1.	Limit	46
8.2.	Test Instruments	46
8.3.	Setup	47
8.4.	Test Procedure	48
8.5.	Uncertainty	48
8.6.	Test Result.....	49
9	Frequency Stability (Temperature & Voltage Variation) Test.....	50
9.1.	Limit	50
9.2.	Test Instruments	50
9.3.	Setup	50
9.4.	Test Procedure	50
9.5.	Uncertainty	51
9.6.	Test Result.....	51

1 General Information

1.1. EUT Description

Applicant		Netgear Inc.			
Applicant Address		350 East Plumeria Drive, San Jose, CA 95134			
Manufacturer		Netgear Inc.			
Manufacturer Address		350 East Plumeria Drive, San Jose, CA 95134			
Product Type		Mobile Hotspot			
Trade Name		NETGEAR			
Model Number		AC810S-300			
IMEI No.		351639070006457			
Hardware Version		DV3.2			
Software Version		11.02.00.00			
FCC ID		PY3AC810S			
Mode	WCDMA (RMC 12.2K)/ HSDPA/ HSUPA/	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation
		IV	1712.4 ~ 1752.6	2112.4 ~ 2152.6	QPSK
Type of Antenna		Internal PIFA type			
Antenna Gain (dBi)		2.0 dBi			
Max. RF Output Power		25.58 dBm / 0.361 W			
Max. EIRP		21.87 dBm / 0.154 W			

Power adapter List				
Power adapter (1)	Trade Name	NETGEAR	Model Number	MU05BT050100-A1
	I/P: 100-240VAC, 50/60Hz, 0.15A			
	O/P: 5VDC, 1A			
Power adapter (2)	Trade Name	NETGEAR	Model Number	AD2038F20
	I/P: 100-240VAC, 50/60Hz, 0.13A			
	O/P: 5.0VDC, 1.0A			

1.2. Mode of Operation

ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: WCDMA Band IV Link Mode

Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

The device used two models of adapter, adapter number: AD2038F20 is worst case to perform testing.

Tested System Details

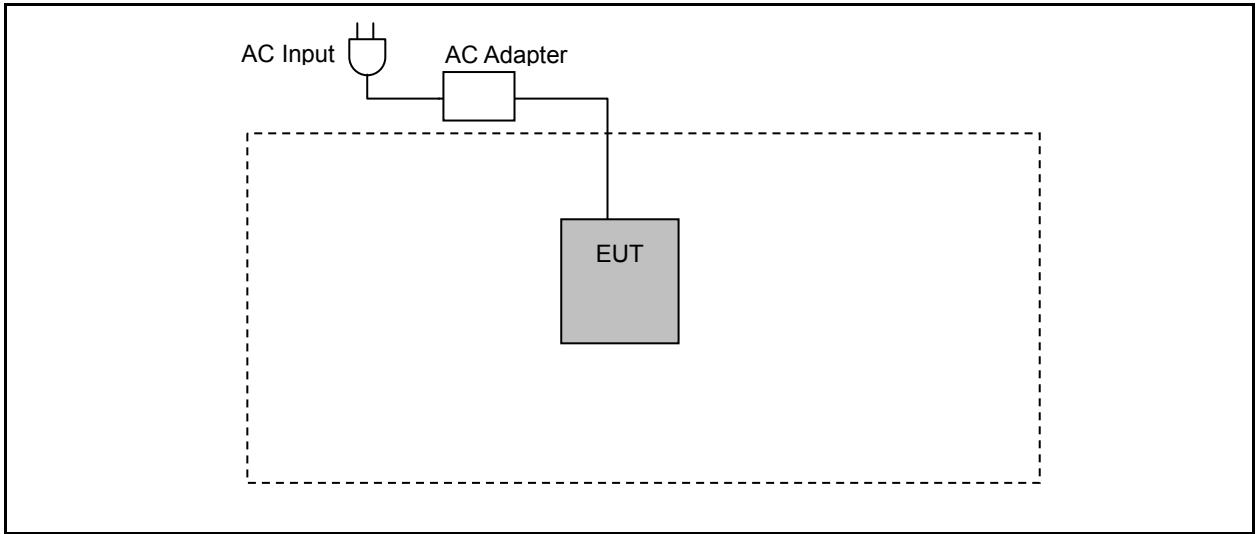
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	109369	N/A

1.3. EUT Exercise Software

1.	Setup the EUT and Base Station (CMU200) as shown on 1.4.
2.	Turn on the power of all equipment.

1.4. Configuration of Test System Details



1.5. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

1.6. Summary of Test Result

FCC Rule	Description	Result
§2.1046	Conducted Output Average Power	Pass
§27.50(d)(2)	Equivalent Isotropic Radiated Power / Equivalent Radiated Power	Pass
§2.1055 §27.54	Frequency Stability	Pass
§2.1049 §27.53(g)	Emission Bandwidth & Occupied Bandwidth	Pass
§27.50(d)	Peak to average ratio	Pass
§27.53(g)	Band Edge	Pass
§2.1051 §27.53(g)	Conducted Spurious Emissions	Pass
§2.1053 §27.53(g)	Radiated Spurious Emissions	Pass

2 RF Output Power Test

2.1. Limit

N/A

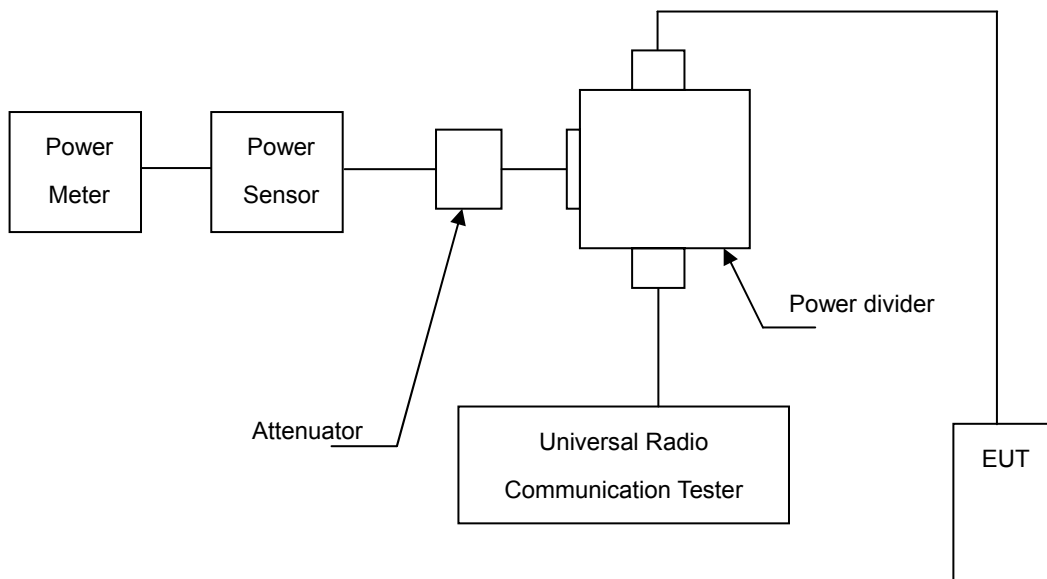
2.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	10/21/2014	(2)
Single Channel PK Power Sensor	Agilent	N1911A	MY45101619	12/15/2014	(1)
Wideband Power Meter	Agilent	N1921A	MY45241957	12/15/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

2.3. Test Setup



2.4. Test Procedure

The measurement is made according to as follows:

1. The transmitter output was connected to power meter and base station through power divider.
2. Set base station for EUT at WCDMA Band IV, power level was set to maximum.
3. Select lowest, middle, and highest channels for each band.

HSDPA Data Devices setup

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1,2)}$	CM (dB) ⁽³⁾	MRP (dB) ⁽³⁾
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	12/15 ⁽⁴⁾	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note

1. Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
2. For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$ and $\Delta_{CQI} = 24/15$ with $\beta_{hs} = 24/15 * \beta_c$
3. CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
4. For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Table 1. Setup for Release 5 HSDPA

2.5. Uncertainty

The measurement uncertainty is defined as for RF output power measurement is 1.2 dB.

2.6. Test Result

Model Number	AC810S-300					
Test Item	RF Output Power					
Date of Test	08/14/2015				Test Site	TE05
Bands	Sub-Test	Frequency (MHz)	Average Power		Peak Power	
			(dBm)	(W)	(dBm)	(W)
WCDMA IV (RMC 12.2K)	-----	1712.4	22.29	0.169	25.44	0.350
		1732.6	22.49	0.177	25.58	0.361
		1752.6	22.11	0.163	25.40	0.347
HSDPA IV	1	1712.4	20.43	0.110	23.53	0.225
		1732.6	20.68	0.117	23.75	0.237
		1752.6	20.78	0.120	24.09	0.256
	2	1712.4	20.39	0.109	23.49	0.223
		1732.6	20.57	0.114	23.64	0.231
		1752.6	20.71	0.118	24.02	0.252
	3	1712.4	19.88	0.097	22.98	0.199
		1732.6	20.07	0.102	23.14	0.206
		1752.6	20.18	0.104	23.49	0.223
	4	1712.4	19.84	0.096	22.94	0.197
		1732.6	20.01	0.100	23.08	0.203
		1752.6	20.03	0.101	23.34	0.216
HSUPA IV	1	1712.4	19.89	0.097	22.97	0.198
		1732.6	20.11	0.103	23.16	0.207
		1752.6	20.22	0.105	23.51	0.224
	2	1712.4	19.21	0.083	22.29	0.169
		1732.6	19.25	0.084	22.30	0.170
		1752.6	19.32	0.086	22.61	0.182
	3	1712.4	18.17	0.066	21.23	0.133
		1732.6	18.73	0.075	21.77	0.150
		1752.6	19.18	0.083	22.48	0.177
	4	1712.4	19.23	0.084	22.31	0.170
		1732.6	19.28	0.085	22.33	0.171
		1752.6	19.35	0.086	22.65	0.184
	5	1712.4	20.33	0.108	23.38	0.218
		1732.6	20.34	0.108	23.42	0.220
		1752.6	20.37	0.109	23.66	0.232

Note: The testing result was used peak detector.

3 Effective Radiated Power / Equivalent Isotropic Radiated Power Test

3.1. Limit

For FCC Part 27.50(d)(2): The EIRP of mobile transmitters are limited to 1 watt for 1710~1755 MHz.

3.2. Test Instruments

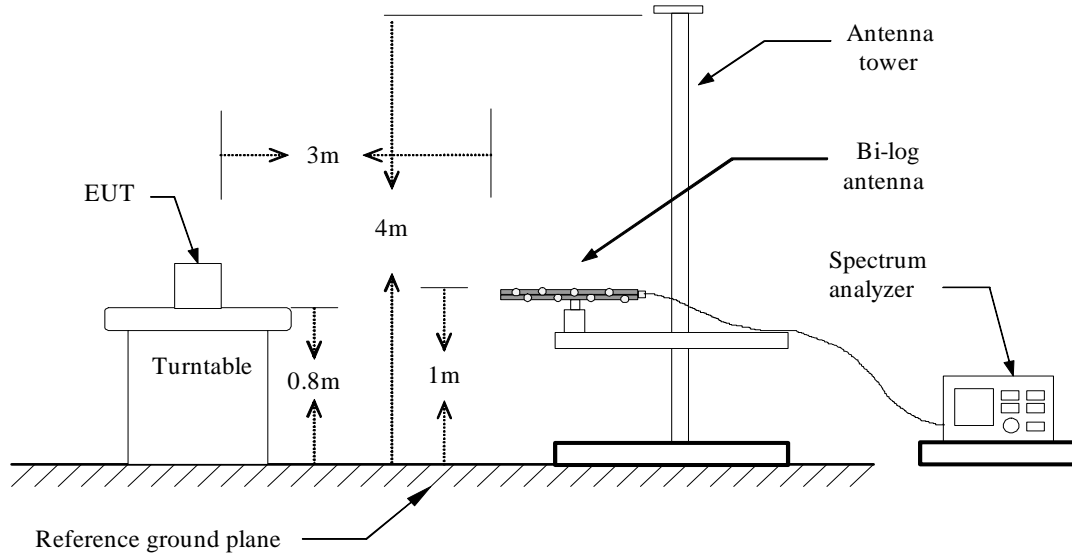
3 Meter Chamber					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	08/11/2015	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/12/2015	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/06/2015	(1)
Test Site	ATL	TE01	888001	08/27/2015	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

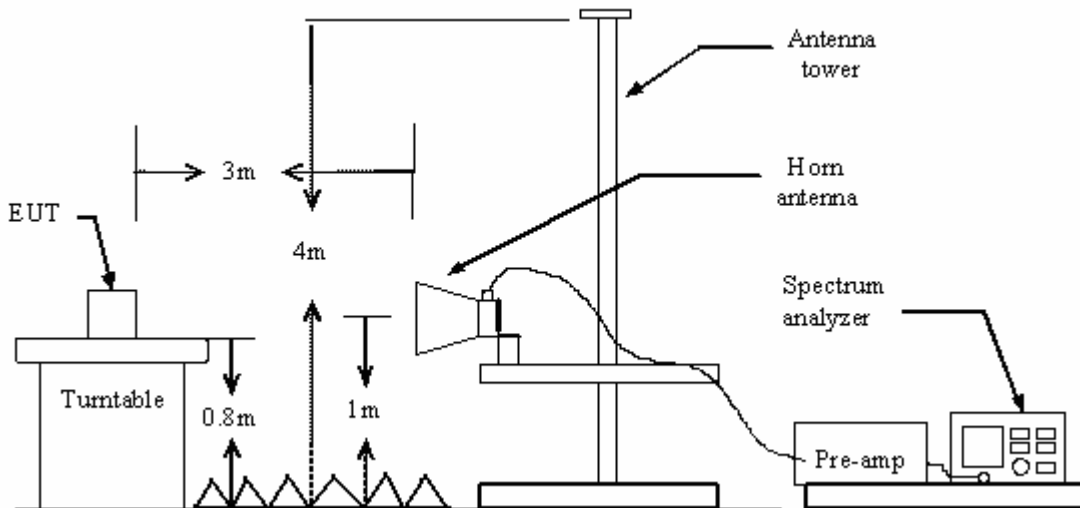
Note: N.C.R. = No Calibration Request.

3.3. Test Setup

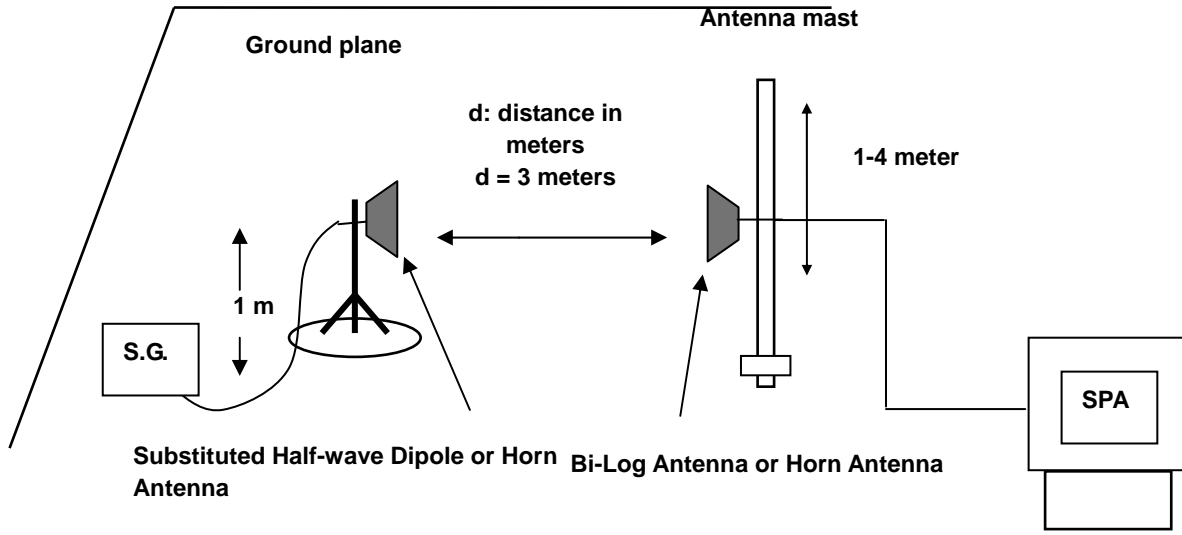
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



3.4. Test Procedure

The measurement is made according to as follows:

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 5MHz (refer to Note) and the average bandwidth was set to 5MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

Note: 1. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.

2. For AMPS, GSM, CDMA, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

3.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is ± 3.072 dB.

3.6. Test Result

Model Number	AC810S-300						
Test Item	E.I.R.P.						
Test Mode	Mode 1						
Date of Test	08/29/2015				Test Site	TE01	
Bands	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction factor (dB)	E.I.R.P.		Limit (W)
					(dBm)	(W)	
WCDMA IV (RMC 12.2K)	1712.4	H	7.77	10.05	17.82	0.061	< 1
		V	11.49	10.07	21.56	0.143	< 1
	1732.6	H	7.64	10.05	17.69	0.059	< 1
		V	11.81	10.06	21.87	0.154	< 1
	1752.6	H	6.49	10.04	16.53	0.045	< 1
		V	11.48	10.04	21.52	0.142	< 1

Note: 1. ERP/EIRP = Read Level + Correction factor.

2. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.

3. For AMPS, GSM, CDMA, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

4 Peak to Average Ratio Test

4.1. Limit

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

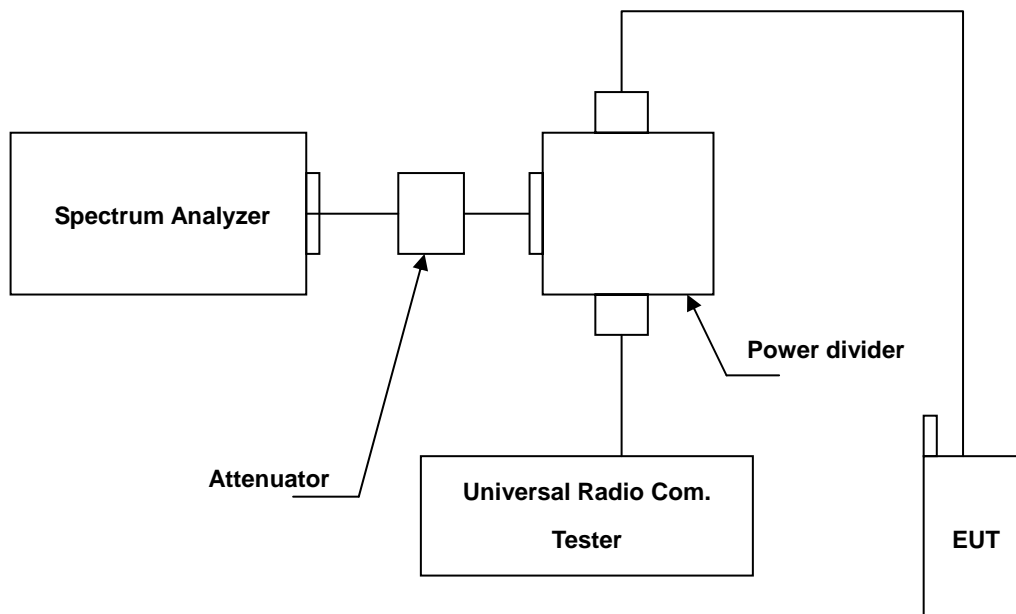
4.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2015	(1)
Wideband Radio Communication Test	R & S	CMW500	103168	11/05/2014	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	----
Power divider	Agilent	87302C	3239A00760	N.C.R.	----
Test Site	ATL	TE05	TE05	N.C.R.	----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

4.3. Setup



4.4. Test Procedure

The measurement is made according to FCC rules part 27:

- a. Set resolution/measurement bandwidth signal's occupied bandwidth;
- b. Set the number of counts to a value that stabilizes the measured CCDF curve;
- c. Record the maximum PAPR level associated with a probability of 0.1%.

4.5. Uncertainty

The measurement uncertainty is defined as for Conducted Power measurement is 1.2 dB.

4.6. Test Result

Model Number	AC810S-300				
Test Item	Peak to Average Ratio				
Test Mode	Mode 1				
Date of Test	10/01/2015			Test Site	TE05
Bands	Channel	Frequency (MHz)	Peak to Average Ratio (dB)	Limit (dB)	
WCDMA IV	1312	1712.4	2.87	< 13	
	1413	1732.6	2.87	< 13	
	1513	1752.6	2.86	< 13	

4.7. Test Graphs

Mode 1																	
1712.4 MHz	<p>Agilent Spectrum Analyzer - Power Stat CDDP</p> <p>Center Freq: 1.712400000 GHz Trig: Free Run #Att: 40 dB</p> <p>Average Power 22.30 dBm 53.45 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>1.70 dB</td></tr> <tr><td>1.0 %</td><td>2.52 dB</td></tr> <tr><td>0.1 %</td><td>2.87 dB</td></tr> <tr><td>0.01 %</td><td>2.99 dB</td></tr> <tr><td>0.001 %</td><td>3.06 dB</td></tr> <tr><td>0.0001 %</td><td>3.10 dB</td></tr> <tr><td>Peak</td><td>3.12 dB</td></tr> <tr><td></td><td>25.42 dBm</td></tr> </table> <p>Info BW 5.0000 MHz</p> <p>Center Freq: 1.712400000 GHz CF Step: 5.000000 MHz Freq Offset: 0 Hz</p>	10.0 %	1.70 dB	1.0 %	2.52 dB	0.1 %	2.87 dB	0.01 %	2.99 dB	0.001 %	3.06 dB	0.0001 %	3.10 dB	Peak	3.12 dB		25.42 dBm
10.0 %	1.70 dB																
1.0 %	2.52 dB																
0.1 %	2.87 dB																
0.01 %	2.99 dB																
0.001 %	3.06 dB																
0.0001 %	3.10 dB																
Peak	3.12 dB																
	25.42 dBm																
1732.6 MHz	<p>Agilent Spectrum Analyzer - Power Stat CDDP</p> <p>Center Freq: 1.732600000 GHz Trig: Free Run #Att: 40 dB</p> <p>Average Power 22.46 dBm 53.37 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>1.70 dB</td></tr> <tr><td>1.0 %</td><td>2.53 dB</td></tr> <tr><td>0.1 %</td><td>2.87 dB</td></tr> <tr><td>0.01 %</td><td>3.00 dB</td></tr> <tr><td>0.001 %</td><td>3.07 dB</td></tr> <tr><td>0.0001 %</td><td>3.12 dB</td></tr> <tr><td>Peak</td><td>3.13 dB</td></tr> <tr><td></td><td>25.59 dBm</td></tr> </table> <p>Info BW 5.0000 MHz</p> <p>Center Freq: 1.732600000 GHz CF Step: 5.000000 MHz Freq Offset: 0 Hz</p>	10.0 %	1.70 dB	1.0 %	2.53 dB	0.1 %	2.87 dB	0.01 %	3.00 dB	0.001 %	3.07 dB	0.0001 %	3.12 dB	Peak	3.13 dB		25.59 dBm
10.0 %	1.70 dB																
1.0 %	2.53 dB																
0.1 %	2.87 dB																
0.01 %	3.00 dB																
0.001 %	3.07 dB																
0.0001 %	3.12 dB																
Peak	3.13 dB																
	25.59 dBm																
1752.6 MHz	<p>Agilent Spectrum Analyzer - Power Stat CDDP</p> <p>Center Freq: 1.752600000 GHz Trig: Free Run #Att: 40 dB</p> <p>Average Power 22.09 dBm 53.31 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>1.69 dB</td></tr> <tr><td>1.0 %</td><td>2.52 dB</td></tr> <tr><td>0.1 %</td><td>2.86 dB</td></tr> <tr><td>0.01 %</td><td>2.99 dB</td></tr> <tr><td>0.001 %</td><td>3.05 dB</td></tr> <tr><td>0.0001 %</td><td>3.09 dB</td></tr> <tr><td>Peak</td><td>3.10 dB</td></tr> <tr><td></td><td>25.19 dBm</td></tr> </table> <p>Info BW 5.0000 MHz</p> <p>Center Freq: 1.752600000 GHz CF Step: 5.000000 MHz Freq Offset: 0 Hz</p>	10.0 %	1.69 dB	1.0 %	2.52 dB	0.1 %	2.86 dB	0.01 %	2.99 dB	0.001 %	3.05 dB	0.0001 %	3.09 dB	Peak	3.10 dB		25.19 dBm
10.0 %	1.69 dB																
1.0 %	2.52 dB																
0.1 %	2.86 dB																
0.01 %	2.99 dB																
0.001 %	3.05 dB																
0.0001 %	3.09 dB																
Peak	3.10 dB																
	25.19 dBm																

5 Emission Bandwidth & Occupied Bandwidth Test

5.1. Limit

The Occupied Bandwidth Limit:

N/A.

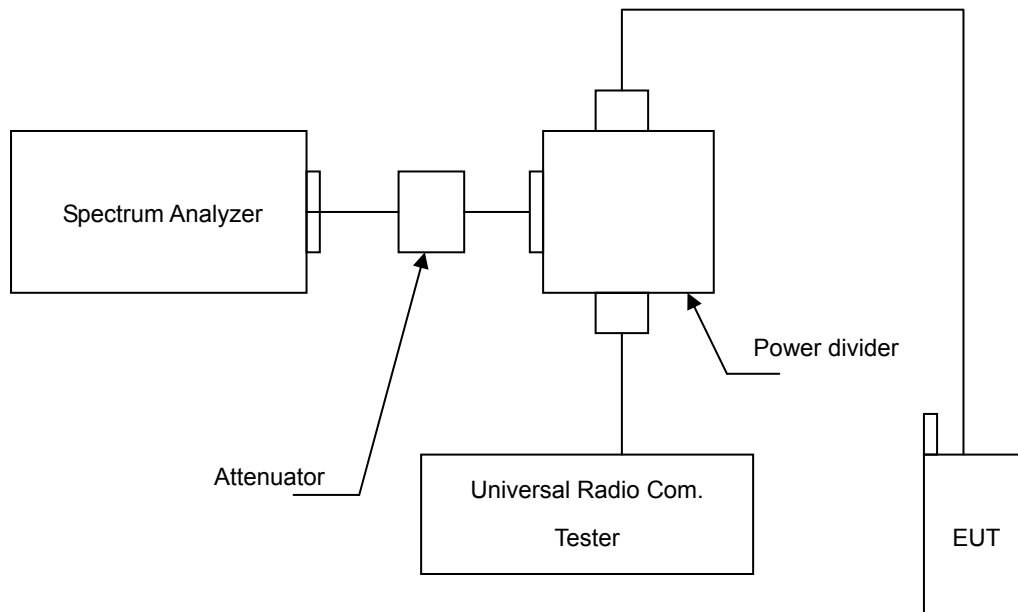
5.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	10/21/2014	(2)
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2015	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	-----
Power Divider	Agilent	87302C	3239A00760	N.C.R.	-----
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

5.3. Setup



5.4. Test Procedure

The measurement is made according to FCC rules part 27:

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers was measured.

5.5. Uncertainty

The measurement uncertainty is defined as $\pm 10\text{Hz}$

5.6. Test Result

Model Number	AC810S-300				
Test Item	Emission Bandwidth & Occupied Bandwidth				
Test Mode	Mode 1				
Date of Test	08/17/2015			Test Site	TE05
Channel No.	Frequency (MHz)	-26dB Bandwidth (MHz)	99 % Bandwidth (MHz)	Limit	Note
1312	1712.4	4.761	4.1417	N/A	RBW:100kHz , VBW:300kHz
1413	1732.6	4.759	4.1283	N/A	RBW:100kHz , VBW:300kHz
1513	1752.6	4.710	4.1451	N/A	RBW:100kHz , VBW:300kHz

Mode 1	
1712.4 MHz	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.7124 GHz Trig Free</p> <p>Center Freq 1.71240000 GHz</p> <p>Start Freq 1.70740000 GHz</p> <p>Stop Freq 1.71740000 GHz</p> <p>CF Step 1.00000000 MHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 14.3 dB</p> <p>Center 1.712 40 GHz Span 10 MHz</p> <p>Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1417 MHz</p> <p>Occ BM % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error 13.276 kHz</p> <p>x dB Bandwidth 4.761 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>
1732.6 MHz	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.7326 GHz Trig Free</p> <p>Center Freq 1.73260000 GHz</p> <p>Start Freq 1.72760000 GHz</p> <p>Stop Freq 1.73760000 GHz</p> <p>CF Step 1.00000000 MHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 14.3 dB</p> <p>Center 1.732 60 GHz Span 10 MHz</p> <p>Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1283 MHz</p> <p>Occ BM % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error 673.802 Hz</p> <p>x dB Bandwidth 4.759 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>
1752.6 MHz	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.7526 GHz Trig Free</p> <p>Center Freq 1.75260000 GHz</p> <p>Start Freq 1.74760000 GHz</p> <p>Stop Freq 1.75760000 GHz</p> <p>CF Step 1.00000000 MHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 14.3 dB</p> <p>Center 1.752 60 GHz Span 10 MHz</p> <p>Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1451 MHz</p> <p>Occ BM % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error 2.403 kHz</p> <p>x dB Bandwidth 4.710 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>

6 Band Edge Test

6.1. Limit

The Band Edge Limit:

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 $43 + 10\log(P)$ dB.

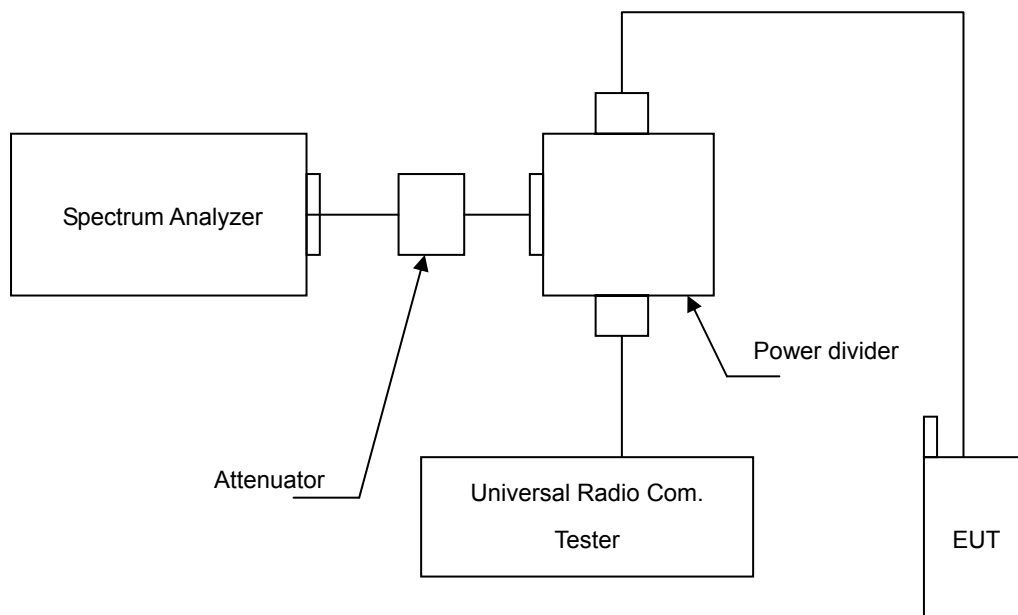
6.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	10/21/2014	(2)
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2015	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	----
Power Divider	Agilent	87302C	3239A00760	N.C.R.	----
Test Site	ATL	TE05	TE05	N.C.R.	----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

6.3. Setup



6.4. Test Procedure

The measurement is made according to FCC rules part 27:

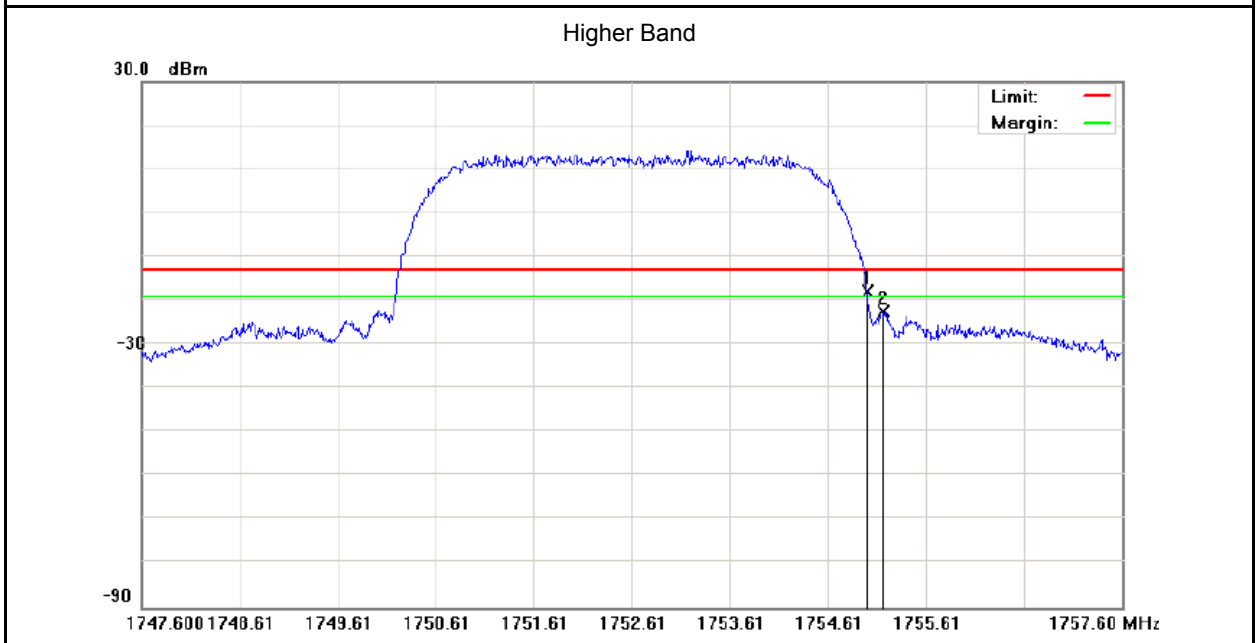
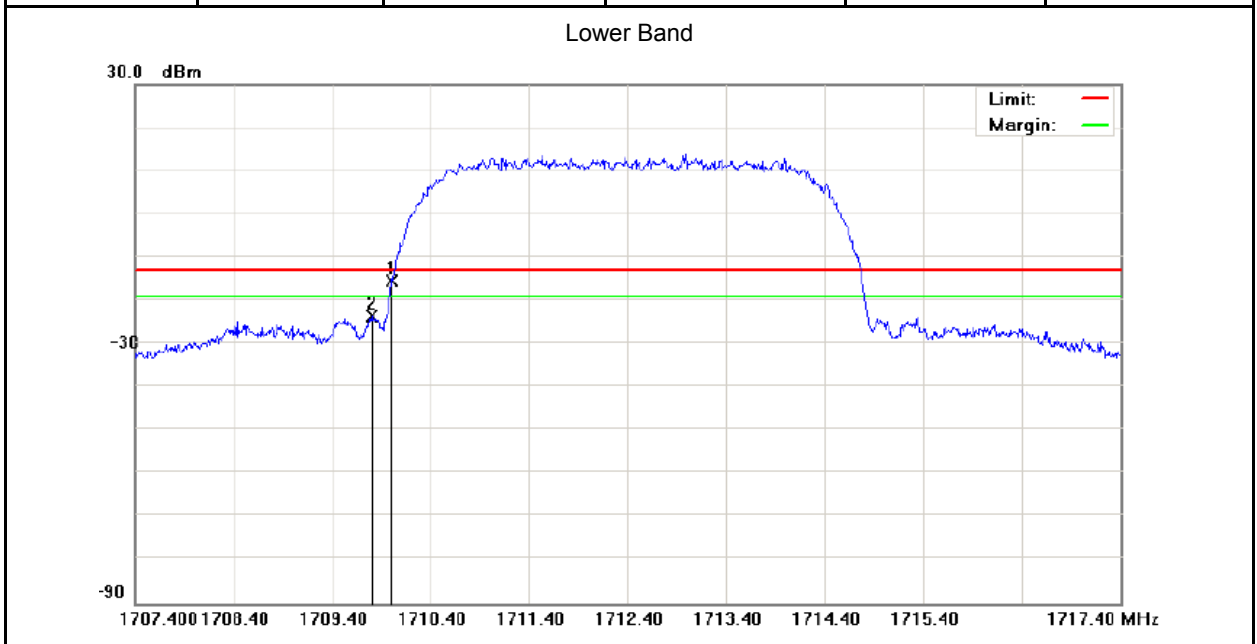
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The band edge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.
3. The band edge setting:RB=51 kHz; VB=160 kHz for WCDMA Band IV.

6.5. Uncertainty

The measurement uncertainty is defined as $\pm 10\text{Hz}$

6.6. Test Result

Model Number	AC810S-300				
Test Item	Band Edge				
Test Mode	Mode 1				
Date of Test	08/14/2015	Test Site		TE05	
Band	Channel	Frequency (MHz)	Band Edge (dBm)	Limit (dBm)	Result
Lower	1312	1710.00	-15.48	-13	Pass
Higher	1513	1755.00	-17.97	-13	Pass



7 Conducted Spurious Emission Test

7.1. Limit

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 $43 + 10\log(P)$ dB.

7.2. Test Instruments

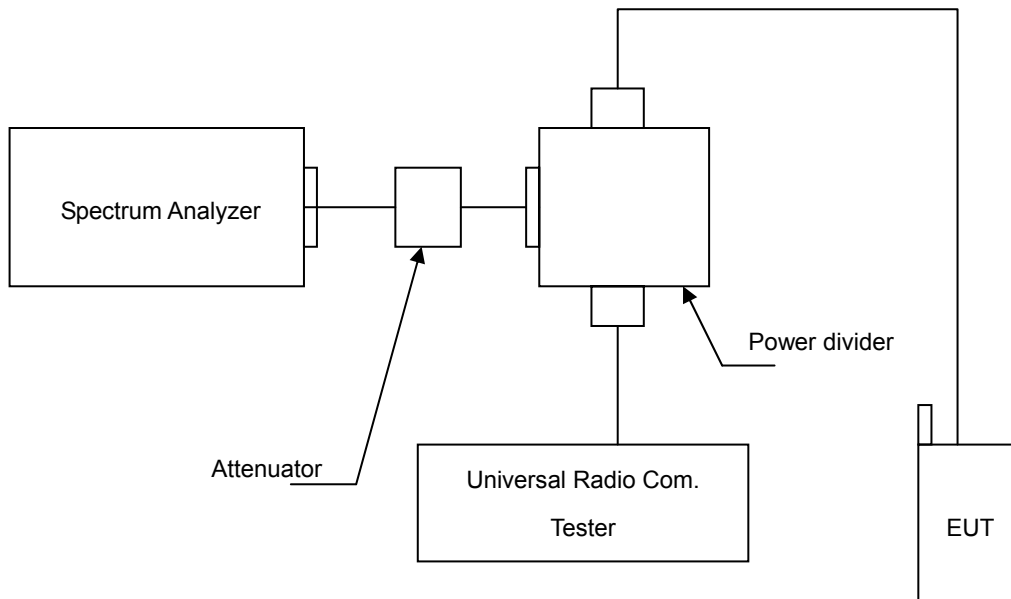
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	10/21/2014	(2)
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2015	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	----
Power Divider	Agilent	87302C	3239A00760	N.C.R.	----
Test Site	ATL	TE05	TE05	N.C.R.	----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

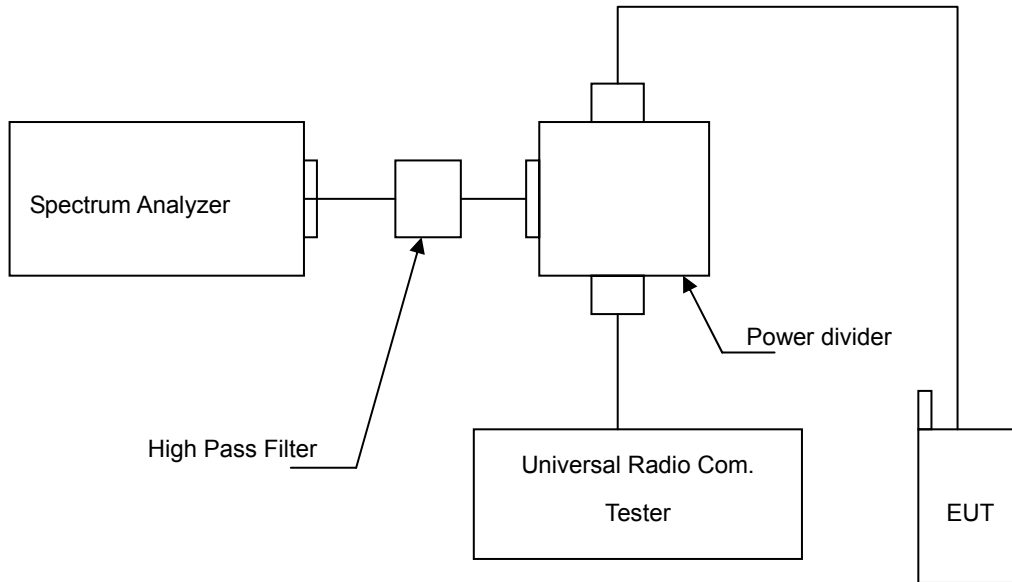
Note: N.C.R. = No Calibration Request.

7.3. Setup

Below 2.8GHz



Above 2.8GHz



7.4. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.
4. Test setting at WCDMA Band IV RB=1MHz, VB=1MHz.

7.5. Uncertainty

The measurement uncertainty is evaluated as ± 2.24 dB.

7.6. Test Result

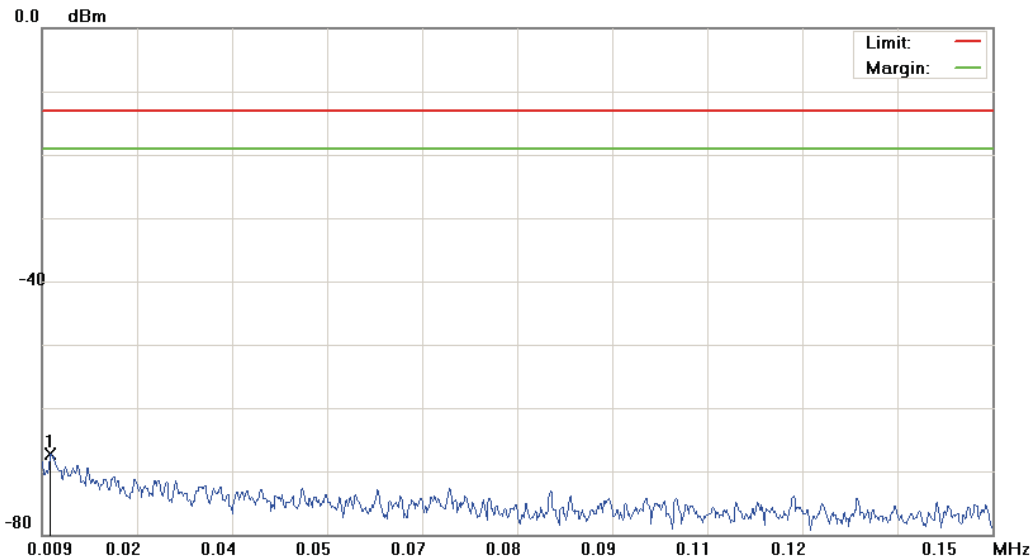
Model Number	AC810S-300		
Test Item	Conducted Spurious Emission		
Test Mode	Mode 1		
Date of Test	08/14/2015	Test Site	TE05

File :AC810-300(CH1312)

Data :#1

Date: 2015/8/14

Time: 下午 04:10:43



Site: site #1

Limit: FCC Part 27 conducted(9k-26.5G)

EUT: Mobile Hotspot

M/N: AC810S-300

Mode: WCDMA Band IV

Note:

Polarization: Conducted Power

Power: DC 3.8V

Distance:

Temperature: 26 °C

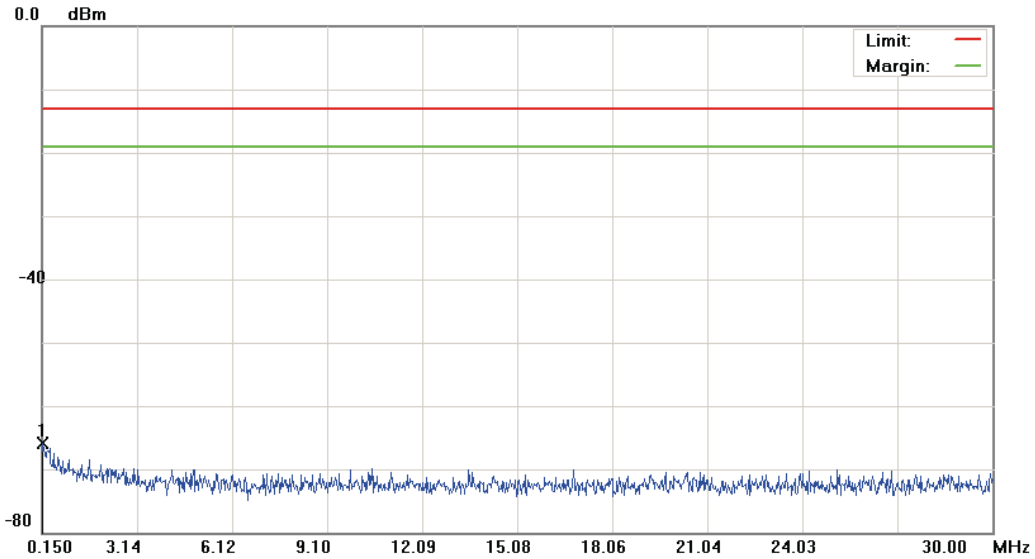
Humidity: 55 %

RBW: 1 KHz VBW: 3 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree		
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.0103	-78.60	11.34	-67.26	-13.00	-54.26	peak			

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1312) Data :#2 Date: 2015/8/14 Time: 下午 04:11:07



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 10 KHz VBW: 30 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	0.1798	-78.44	12.45	-65.99	-13.00	-52.99	peak	

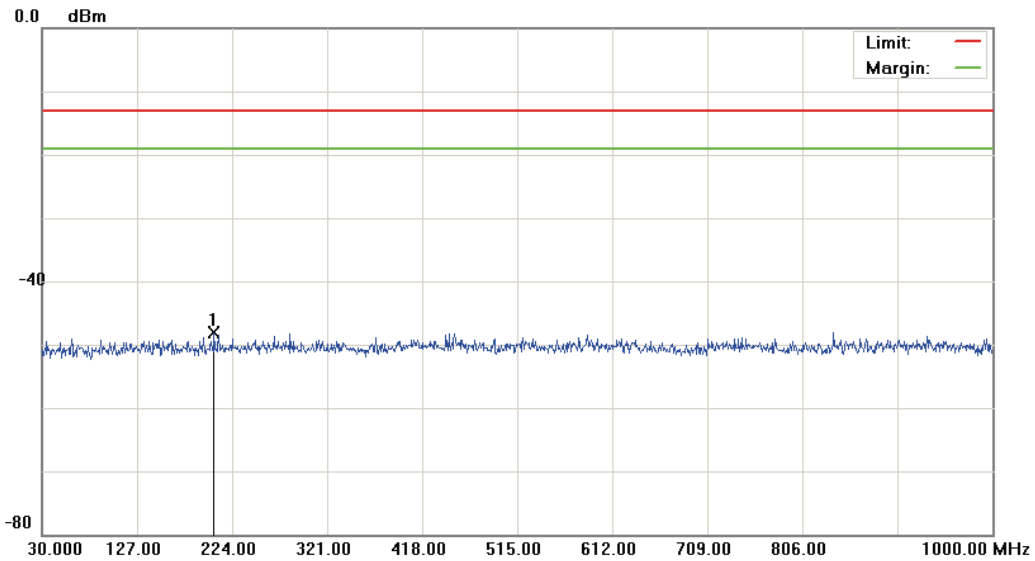
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1312)

Data :#3

Date: 2015/8/14

Time: 下午 04:11:31



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 100 KHz VBW: 300 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB	cm	degree		
1	*	205.5700	-61.31	13.22	-48.09	-13.00	-35.09			peak	

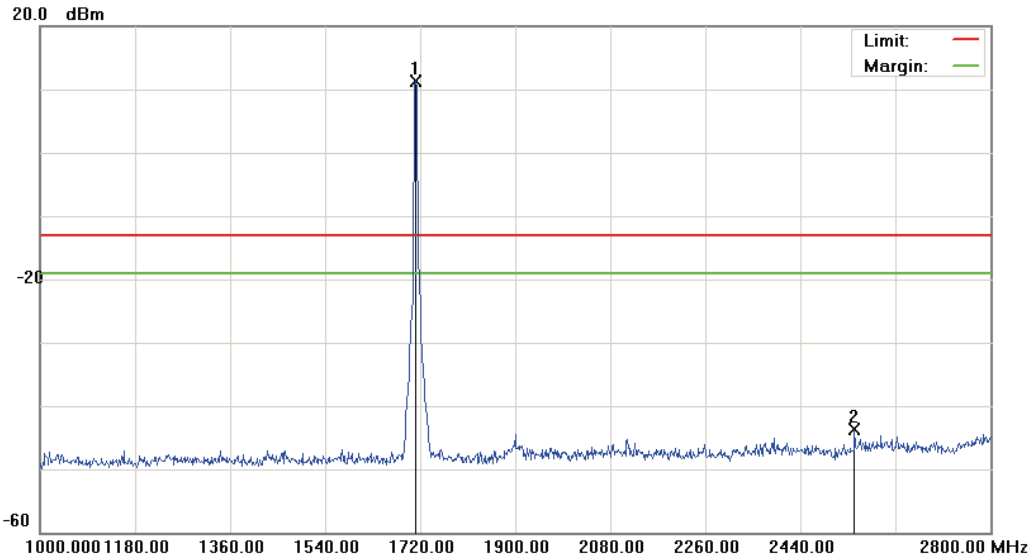
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1312)

Data :#4

Date: 2015/8/14

Time: 下午 04:22:56

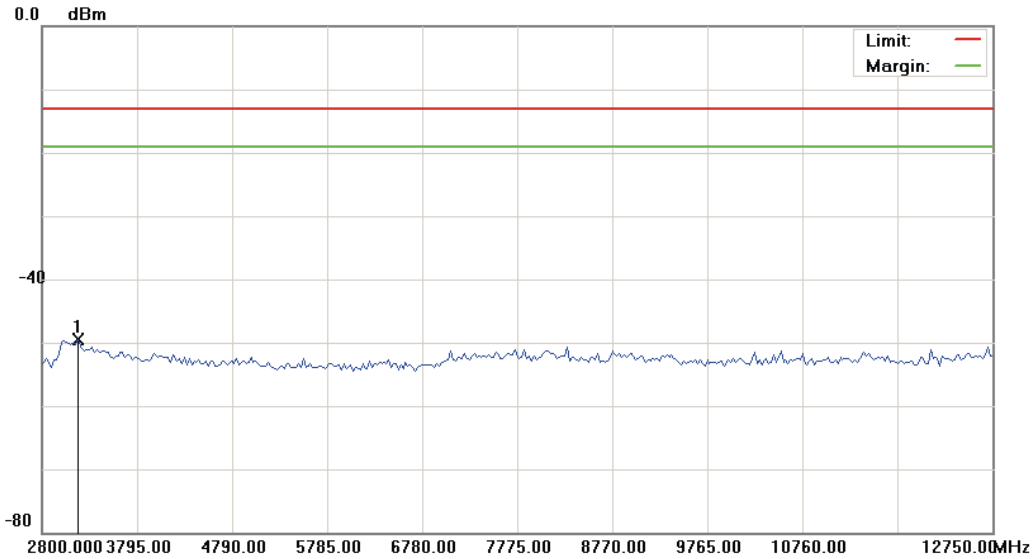


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1711.000	7.01	4.35	11.36	-13.00	24.36	peak		Tx
2		2542.600	-48.74	5.07	-43.67	-13.00	-30.67	peak		

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1312) Data :#5 Date: 2015/8/14 Time: 下午 04:37:37

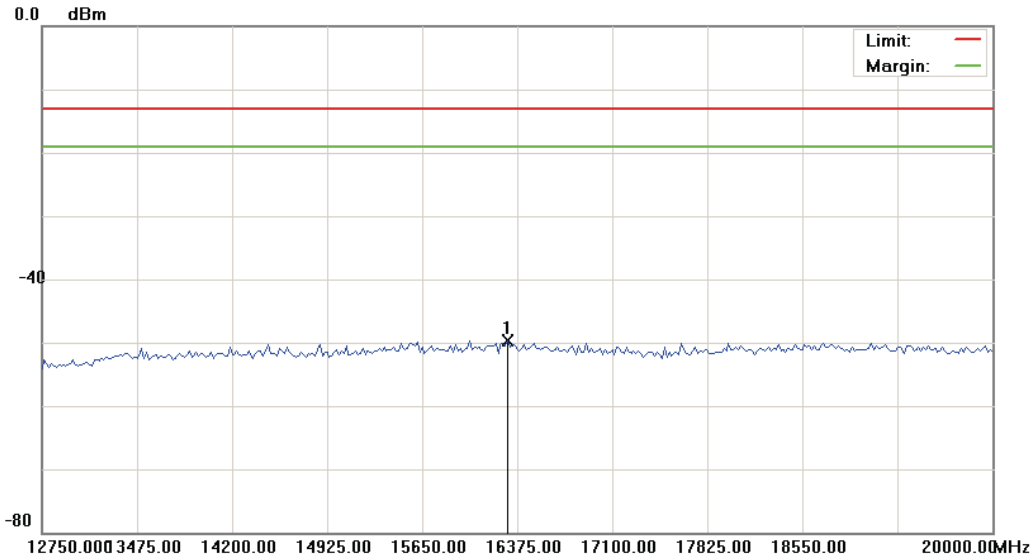


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	3173.125	-54.70	5.25	-49.45	-13.00	-36.45	peak	

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1312) Data :#6 Date: 2015/8/14 Time: 下午 04:37:56

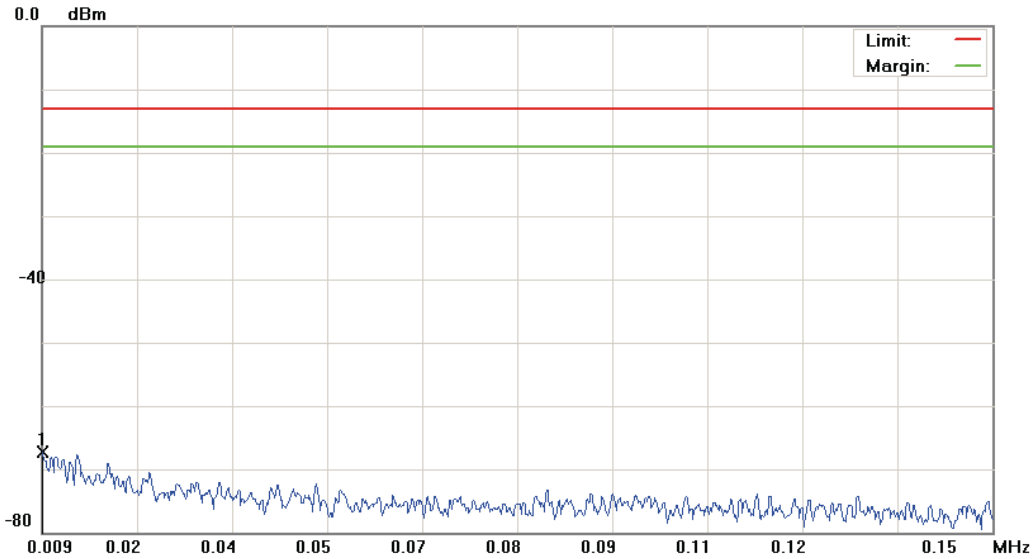


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	16302.500	-56.02	6.38	-49.64	-13.00	-36.64	peak	

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1413) Data :#1 Date: 2015/8/14 Time: 下午 04:12:31

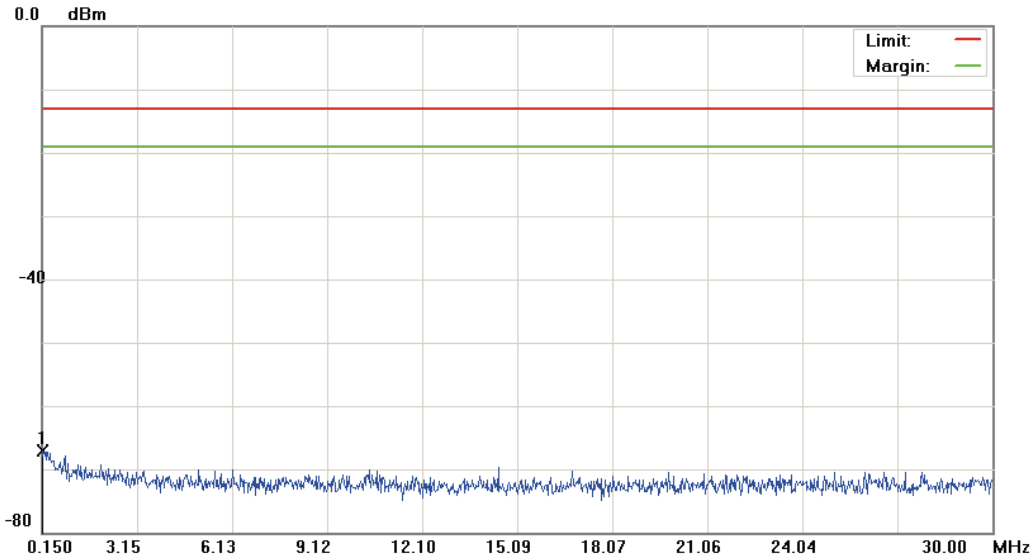


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1 KHz VBW: 3 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	0.0090	-78.64	11.32	-67.32	-13.00	-54.32	peak	

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1413) Data :#2 Date: 2015/8/14 Time: 下午 04:12:55



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 10 KHz VBW: 30 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	0.1650	-79.65	12.46	-67.19	-13.00	-54.19	peak	

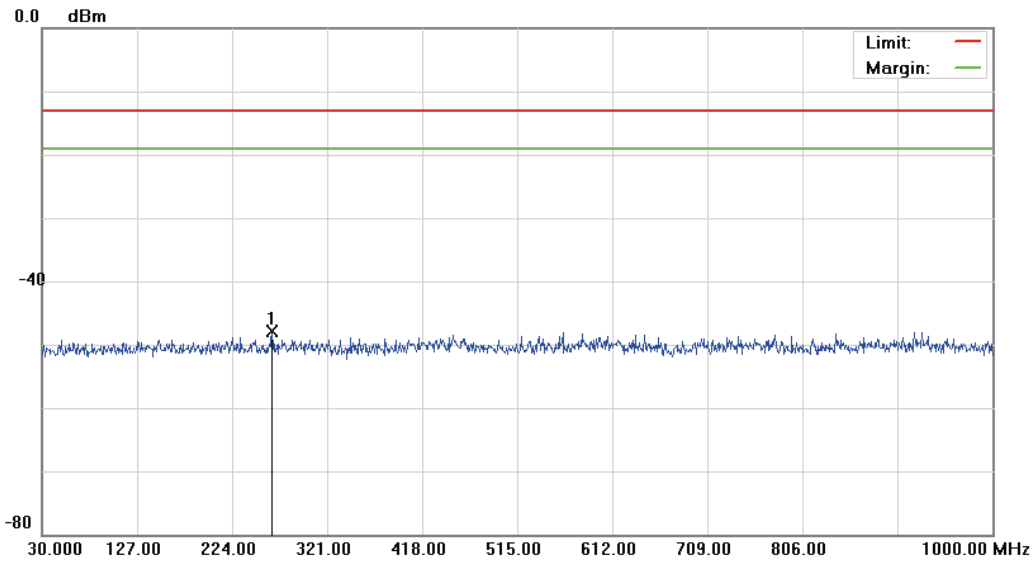
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1413)

Data :#3

Date: 2015/8/14

Time: 下午 04:13:19

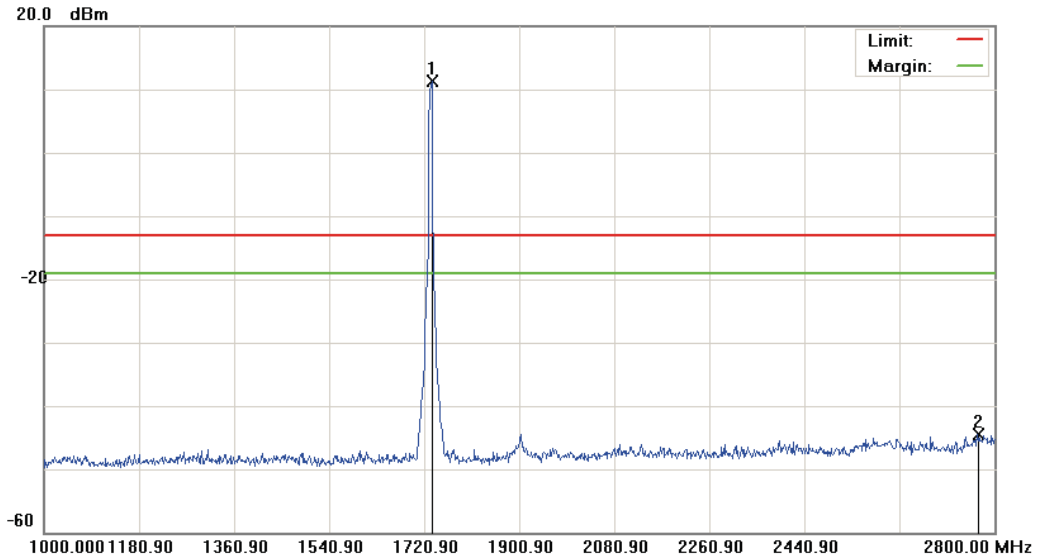


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 100 KHz VBW: 300 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	264.7400	-61.23	13.31	-47.92	-13.00	-34.92	peak	

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1413) Data :#4 Date: 2015/8/14 Time: 下午 04:24:42

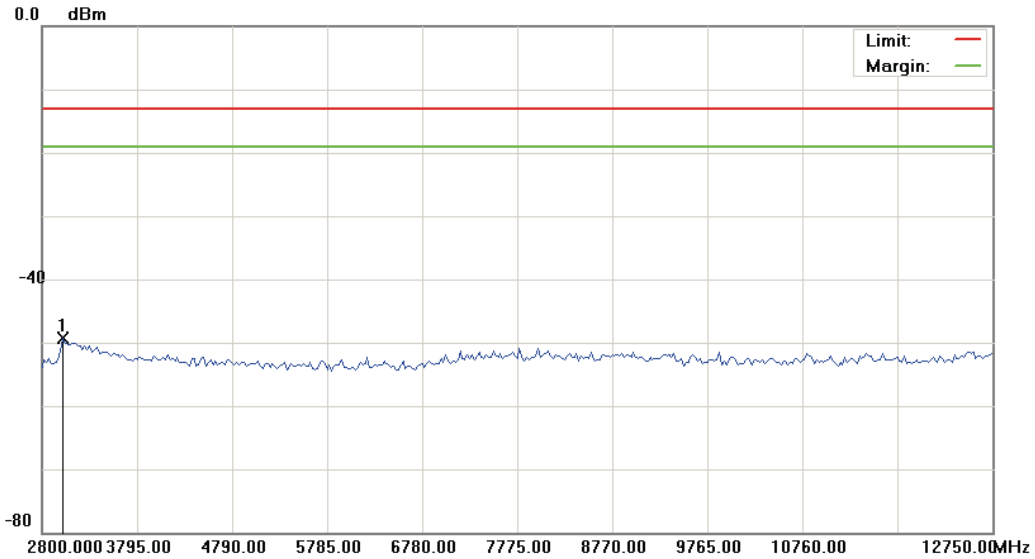


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1734.400	6.72	4.60	11.32	-13.00	24.32	peak		Tx
2		2768.500	-50.22	5.72	-44.50	-13.00	-31.50	peak		

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1413) Data :#5 Date: 2015/8/14 Time: 下午 04:38:55



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	3023.875	-54.85	5.48	-49.37	-13.00	-36.37	peak		

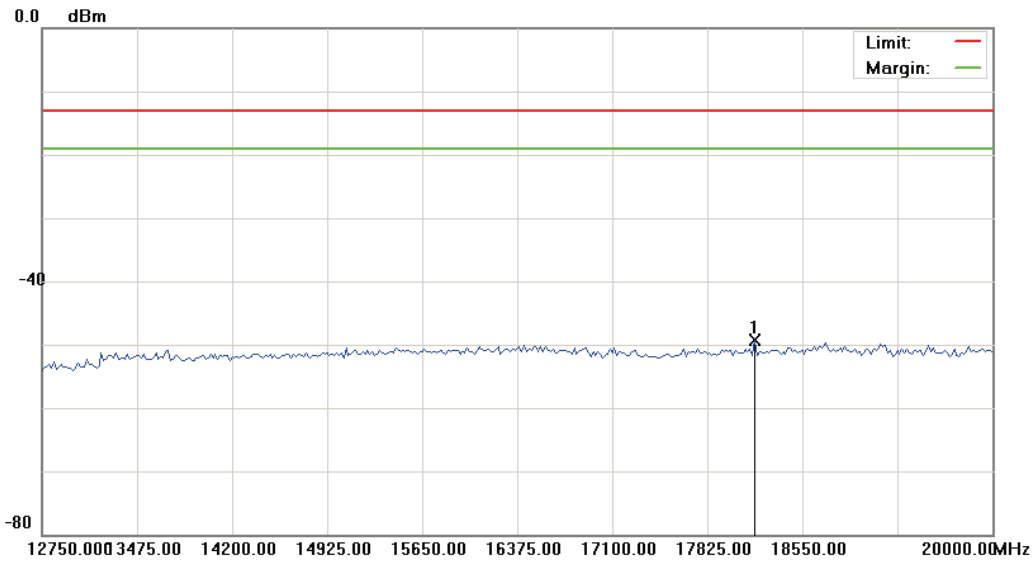
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1413)

Data :#6

Date: 2015/8/14

Time: 下午 04:39:15



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	18187.500	-56.29	6.92	-49.37	-13.00	-36.37	peak	

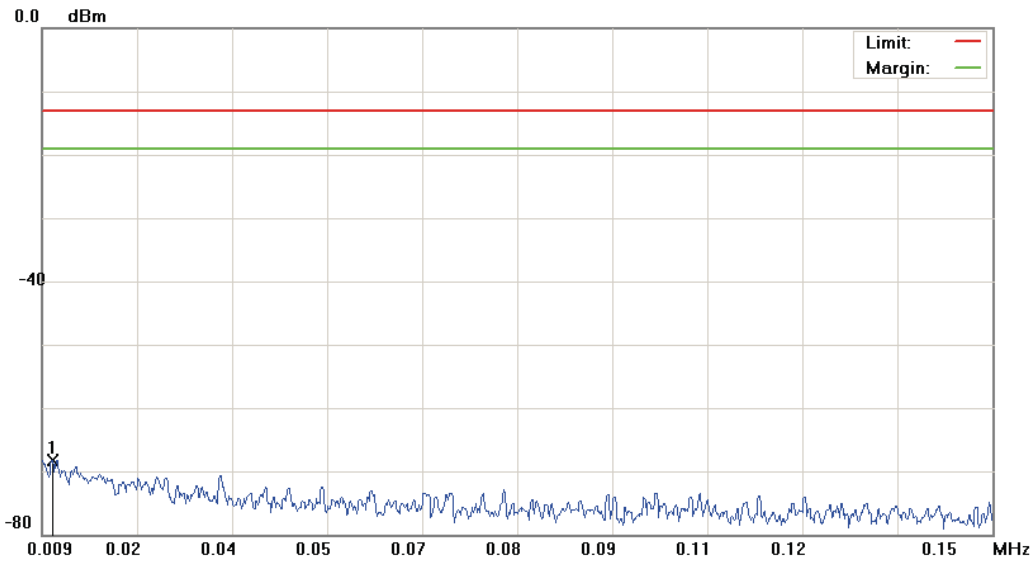
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1513)

Data :#1

Date: 2015/8/14

Time: 下午 04:14:27



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1 KHz VBW: 3 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm degree
1	*	0.0105	-79.70	11.34	-68.36	-13.00	-55.36	peak	

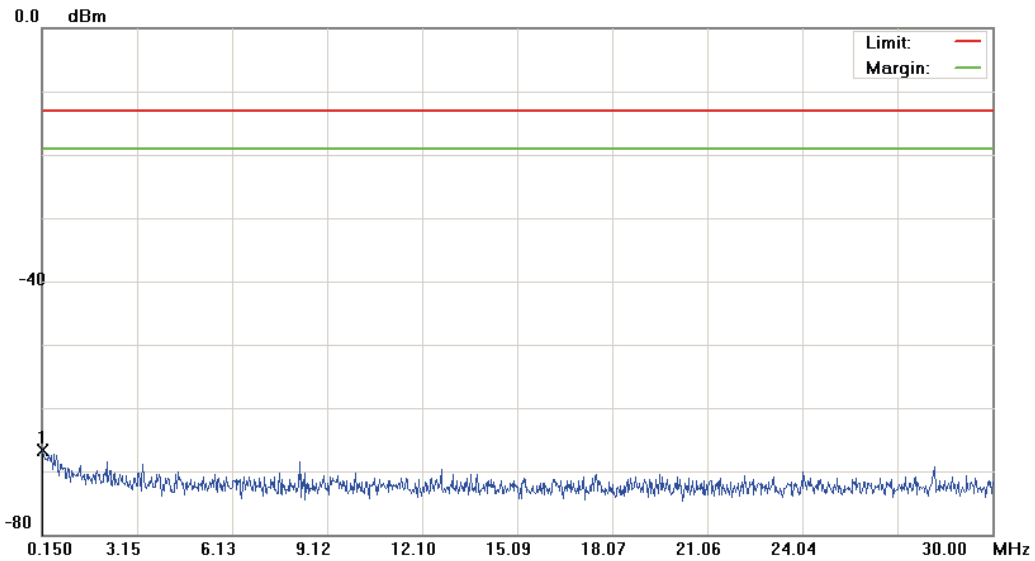
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1513)

Data :#2

Date: 2015/8/14

Time: 下午 04:14:51



Site: site #1

Limit: FCC Part 27 conducted(9k-26.5G)

EUT: Mobile Hotspot

M/N: AC810S-300

Mode: WCDMA Band IV

Note:

Polarization: Conducted Power

Power: DC 3.8V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 10 KHz VBW: 30 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	0.1650	-79.21	12.46	-66.75	-13.00	-53.75	peak	

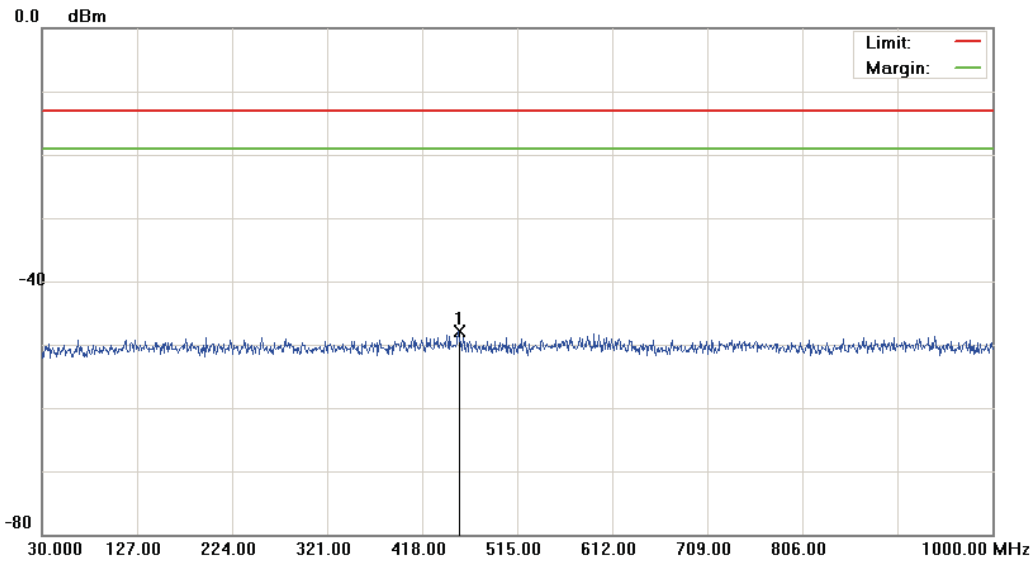
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1513)

Data :#3

Date: 2015/8/14

Time: 下午 04:15:15



Site: site #1

Limit: FCC Part 27 conducted(9k-26.5G)

EUT: Mobile Hotspot

M/N: AC810S-300

Mode: WCDMA Band IV

Note:

Polarization: Conducted Power

Power: DC 3.8V

Distance:

Temperature: 26 °C

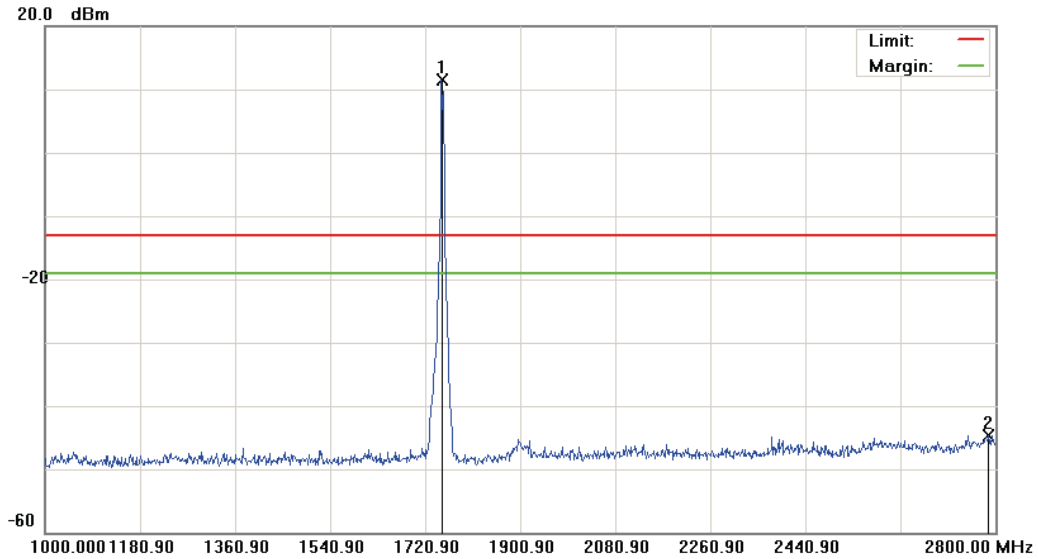
Humidity: 55 %

RBW: 100 KHz VBW: 300 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	455.3450	-61.14	13.22	-47.92	-13.00	-34.92	peak	

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1513) Data :#4 Date: 2015/8/14 Time: 下午 04:26:17

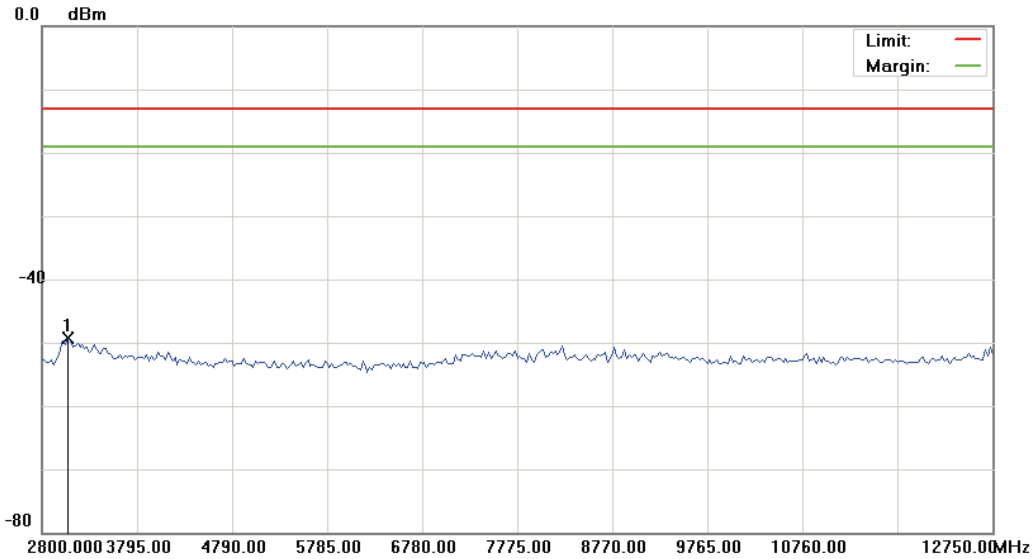


Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1751.500	6.88	4.63	11.51	-13.00	24.51	peak		Tx
2		2787.400	-50.58	5.89	-44.69	-13.00	-31.69	peak		

*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1513) Data :#5 Date: 2015/8/14 Time: 下午 04:39:58



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB	cm	degree		
1	*	3073.625	-54.69	5.40	-49.29	-13.00	-36.29			peak	

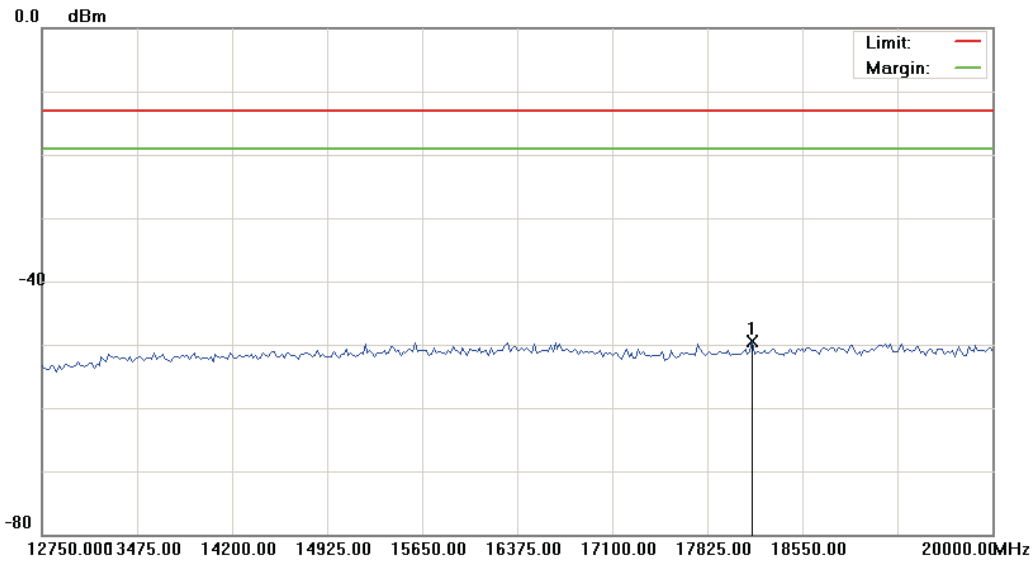
*:Maximum data x:Over limit !:over margin

File :AC810-300(CH1513)

Data :#6

Date: 2015/8/14

Time: 下午 04:40:18



Site: site #1	Polarization: Conducted Power	Temperature: 26 °C
Limit: FCC Part 27 conducted(9k-26.5G)	Power: DC 3.8V	Humidity: 55 %
EUT: Mobile Hotspot	Distance:	RBW: 1000 KHz VBW: 3000 KHz
M/N: AC810S-300		
Mode: WCDMA Band IV		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	18169.375	-56.46	6.92	-49.54	-13.00	-36.54	peak	

*:Maximum data x:Over limit !:over margin

8 Field Strength of Spurious Radiation Test

8.1. Limit

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 $43 + 10\log(P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

8.2. Test Instruments

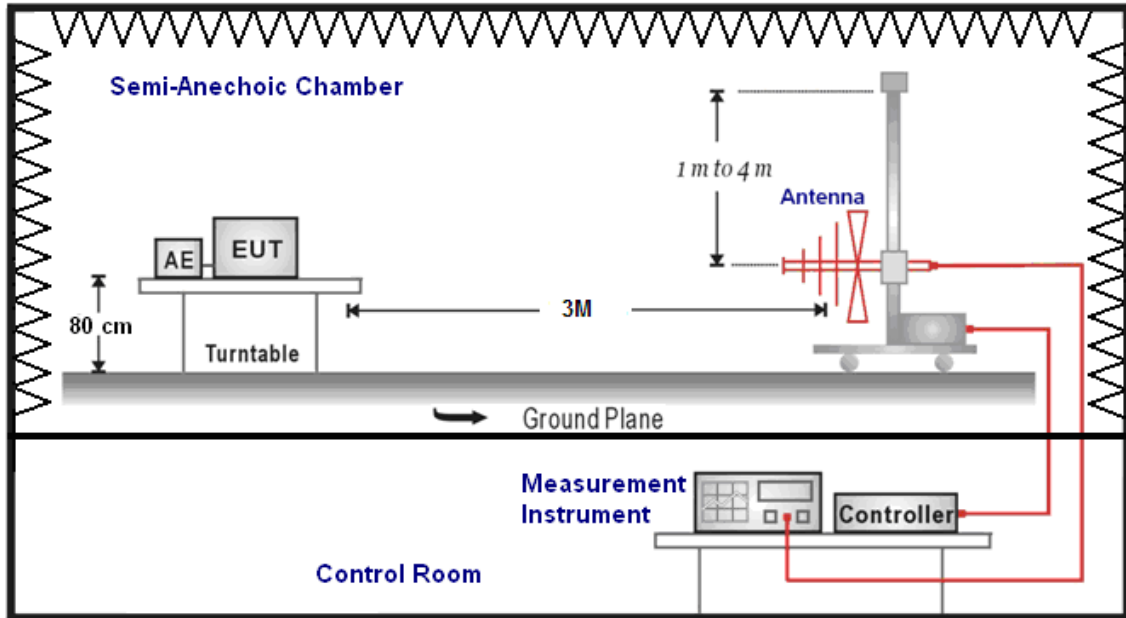
3 Meter Chamber					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	08/11/2015	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/12/2015	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/06/2015	(1)
Test Site	ATL	TE01	888001	08/27/2015	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

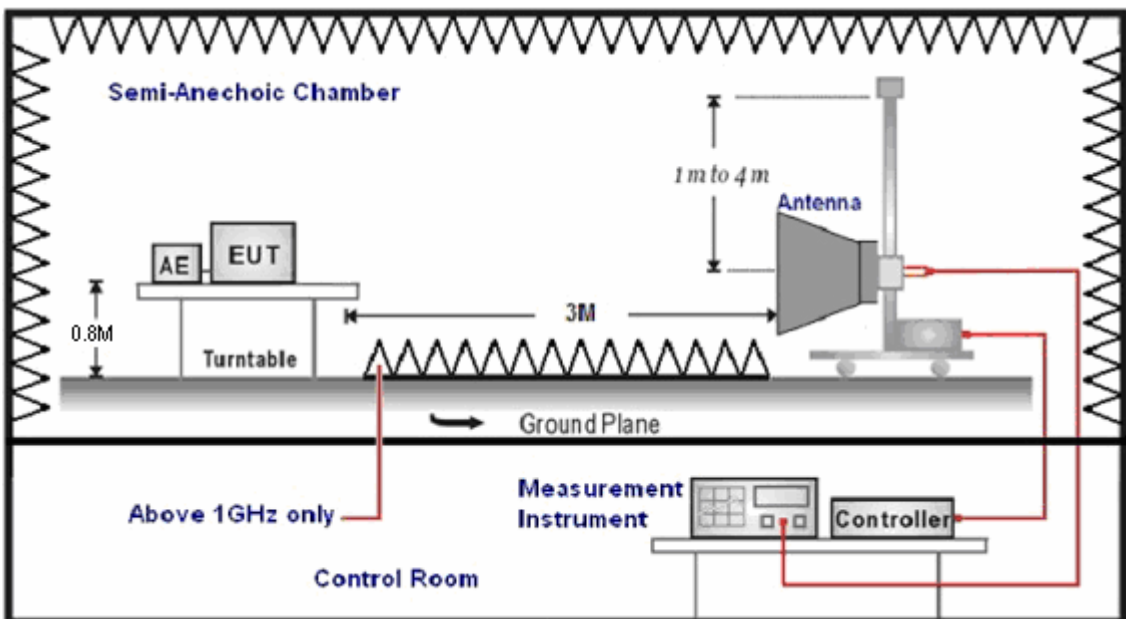
Note: N.C.R. = No Calibration Request.

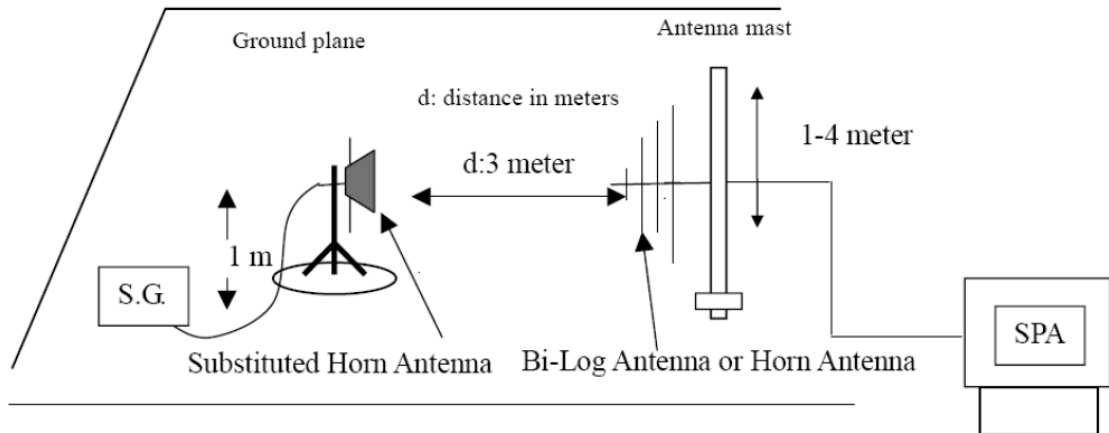
8.3. Setup

Below 1GHz



Above 1GHz





8.4. Test Procedure

- a. The EUT was set up for the maximum power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range). RWB and VBW is 1MHz for LTE and 5MHz for WCDMA mode.
- b. Radiation Emission measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G. to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- d. $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e. $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$

8.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is $\pm 3.072 \text{ dB}$.

8.6. Test Result

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	AC810S-300	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	1	Date:	08/29/2015
Frequency:	1712.4 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
8044.000	-77.14	27.33	-49.81	-13.00	-36.81	peak	H
7468.000	-75.93	26.90	-49.03	-13.00	-36.03	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	AC810S-300	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	1	Date:	08/29/2015
Frequency:	1732.6 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
7636.000	-76.39	27.11	-49.28	-13.00	-36.28	peak	H
7360.000	-74.28	26.57	-47.71	-13.00	-34.71	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	AC810S-300	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	1	Date:	08/29/2015
Frequency:	1752.6 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
7684.000	-75.53	27.15	-48.38	-13.00	-35.38	peak	H
6580.000	-75.49	24.67	-50.82	-13.00	-37.82	peak	V

9 Frequency Stability (Temperature & Voltage Variation) Test

9.1. Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

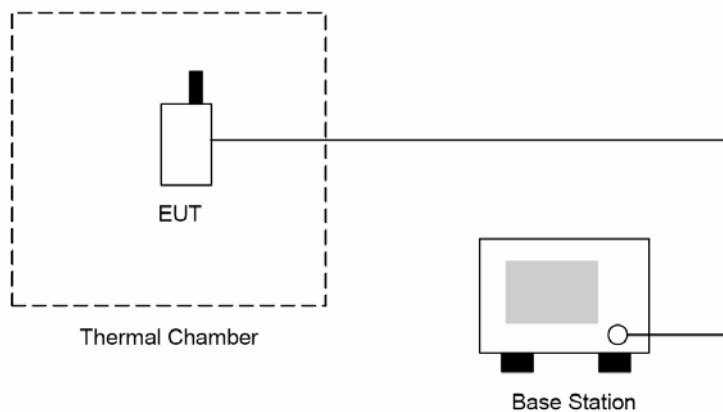
9.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	10/21/2014	(2)
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	04/27/2015	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

9.3. Setup



9.4. Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected as the following section.
5. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
6. The temperature tests were performed for the worst case.
7. Test data was recorded.

9.5. Uncertainty

The measurement uncertainty is defined as for Frequency Stability (Temperature Variation) measurement is $\pm 10\text{Hz}$.

9.6. Test Result

Model Number	AC810S-300					
Test Item	Frequency Stability (Temperature & Voltage Variation)					
Test Mode	Mode 1					
Date of Test	10/02/2015				Test Site	TE05
Level	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
Normal	3.80	-30	-1.42	-0.001	± 2.5	Pass
Normal	3.80	-20	4.55	0.003	± 2.5	Pass
Normal	3.80	-10	-7.28	-0.004	± 2.5	Pass
Normal	3.80	0	-5.4	-0.003	± 2.5	Pass
Normal	3.80	10	-1.27	-0.001	± 2.5	Pass
Battery full point	4.35	20	8.55	0.005	± 2.5	Pass
Normal	3.80	20	-2.51	-0.001	± 2.5	Pass
Battery cut-off point	3.50	20	7.65	0.004	± 2.5	Pass
Normal	3.80	30	1.43	0.001	± 2.5	Pass
Normal	3.80	40	-2.38	-0.001	± 2.5	Pass
Normal	3.80	50	-7.69	-0.004	± 2.5	Pass