FCC

RF Test Report

Applicant	:	D Link Corporation
Product Type	:	4G LTE M2M modem
Trade Name	:	D-Link
Model Number	:	DWM-311
Test Specification	:	FCC 47 CFR PART 24E FCC 47 CFR PART 27 ANSI/TIA-603-D 2010
Application Purpose	:	Original
Receive Date	:	Jun. 28, 2016
Test Period	:	Jun. 28 ~ Jun. 30, 2016
Issue Date	:	Jul. 01, 2016

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jul. 01, 2016	Initial Issue	Snow Wang

Verification of Compliance

Issued Date: Jul. 01, 2016

Applicant	:	D Link Corporation
Product Type	:	4G LTE M2M modem
Trade Name	:	D-Link
Model Number	:	DWM-311
FCC ID	:	KA2WM311A1
EUT Rated Voltage	:	DC 5V, 1A
Test Voltage	:	120 Vac / 60 Hz
Applicable Standard	:	FCC 47 CFR PART 24E FCC 47 CFR PART 27 ANSI/TIA-603-D 2010
Test Result	:	Complied
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade District, Taoyuan City 33465, 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)

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1 General Information

1.1. EUT Description

Applicant	D Link Corporation 17595 Mt. Herrmann Fountain Valley, CA 92708 United States			
Manufacturer	D Link Corporation 17595 Mt. Herrmann Fountain Valley, CA 92708 United States			
Product Type	4G LTE M2M modem			
Trade Name	D-Link			
Model Number	DWM-311			
FCC ID	KA2WM311A1			
IMEI No.	358430050907341			
Mode	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation
LTE	2	1850 ~ 1910	1930 ~ 1990	QPSK, 16QAM
	4	1710 ~ 1755	2110 ~ 2155	QPSK, 16QAM
	13	777 ~ 787	746 ~ 756	QPSK, 16QAM
Channel Bandwidth	LTE Band 2	5MHz, 10MHz, 15MHz, 20MHz		
	LTE Band 4	5MHz, 10MHz, 15MHz, 20MHz		
	LTE Band 13	5MHz, 10MHz		
Antenna information	Type	Max. Gain (dBi)		
	LTE External Antenna	LTE Band 2	2.87 dBi	
		LTE Band 4	2.02 dBi	
		LTE Band 13	-0.65 dBi	

Frequency Band	Channel Bandwidth (MHz)	Max. RF Output Power (W)	E.R.P. /E.I.R.P. (W)	
LTE Band 2	5	0.208	0.175	(E.I.R.P.)
LTE Band 2	10	0.207	0.169	(E.I.R.P.)
LTE Band 2	15	0.210	0.171	(E.I.R.P.)
LTE Band 2	20	0.207	0.193	(E.I.R.P.)
LTE Band 4	5	0.203	0.182	(E.I.R.P.)
LTE Band 4	10	0.202	0.178	(E.I.R.P.)
LTE Band 4	15	0.202	0.185	(E.I.R.P.)
LTE Band 4	20	0.203	0.185	(E.I.R.P.)
LTE Band 13	5	0.201	0.177	(E.R.P.)
LTE Band 13	10	0.197	0.166	(E.R.P.)

Frequency Band	Channel Bandwidth (MHz)	Occupied Bandwidth (MHz)		Emission Designator	
		QPSK	16QAM	QPSK	16QAM
LTE Band 2	5	4.4629	4.4954	4M46G7D	4M50W7D
LTE Band 2	10	8.9186	8.9175	8M92G7D	8M92W7D
LTE Band 2	15	13.4056	13.3879	13M41G7D	13M39W7D
LTE Band 2	20	17.8813	17.8813	17M88G7D	17M88W7D
LTE Band 4	5	4.4671	4.4960	4M47G7D	4M50W7D
LTE Band 4	10	8.9174	8.9268	8M92G7D	8M93W7D
LTE Band 4	15	13.4176	13.3827	13M42G7D	13M38W7D
LTE Band 4	20	17.9025	17.8937	17M90G7D	17M89W7D
LTE Band 13	5	4.4656	4.4952	4M47G7D	4M50W7D
LTE Band 13	10	8.8699	8.8697	8M87G7D	8M87W7D

1.2. Mode of Operation

Three channels had been tested for each channel bandwidth.

LTE Band 2						
Channel Bandwidth	1.4MHz		3MHz		5MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	18607	1850.7	18615	1851.5	18625	1852.5
Middle CH	18900	1880.0	18900	1880.0	18900	1880.0
High CH	19193	1909.3	19185	1908.5	19175	1907.5
Channel Bandwidth	10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	18650	1855.0	18675	1857.5	18700	1860.0
Middle CH	18900	1880.0	18900	1880.0	18900	1880.0
High CH	19150	1905.0	19125	1902.5	19100	1900.0

LTE Band 4						
Channel Bandwidth	1.4MHz		3MHz		5MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	19957	1710.7	19965	1711.5	19975	1712.5
Middle CH	20175	1732.5	20175	1732.5	20175	1732.5
High CH	20393	1754.3	20385	1753.5	20375	1752.5
Channel Bandwidth	10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	20000	1715.0	20025	1717.5	20050	1720.0
Middle CH	20175	1732.5	20175	1732.5	20175	1732.5
High CH	20350	1750.0	20325	1747.5	20300	1745.0

LTE Band 13				
Channel Bandwidth	5MHz		10MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	23205	779.5	---	---
Middle CH	23230	782.0	23230	782.0
High CH	23255	784.5	---	---

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.

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission: 30MHz to 26900 MHz.

Band	Channel Bandwidth	Test Modes	
LTE Band 2	5 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 13) Link ☐ LTE(RB Size 1, RB Offset 24) Link ☐ LTE(RB Size 12, RB Offset 0) Link ☐ LTE(RB Size 12, RB Offset 6) Link ☐ LTE(RB Size 12, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 0) Link	QPSK
	10 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 25) Link ☐ LTE(RB Size 1, RB Offset 49) Link ☐ LTE(RB Size 25, RB Offset 0) Link ☐ LTE(RB Size 25, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 25) Link ☐ LTE(RB Size 50, RB Offset 0) Link	QPSK
	15 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 38) Link ☐ LTE(RB Size 1, RB Offset 74) Link ☐ LTE(RB Size 38, RB Offset 0) Link ☐ LTE(RB Size 38, RB Offset 18) Link ☐ LTE(RB Size 38, RB Offset 38) Link ☐ LTE(RB Size 75, RB Offset 0) Link	QPSK
	20 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 50) Link ☐ LTE(RB Size 1, RB Offset 99) Link ☐ LTE(RB Size 50, RB Offset 0) Link ☐ LTE(RB Size 50, RB Offset 25) Link ☐ LTE(RB Size 50, RB Offset 50) Link ☐ LTE(RB Size 100, RB Offset 0) Link	QPSK

Band	Channel Bandwidth	Test Modes	
LTE Band 4	5 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 13) Link ☐ LTE(RB Size 1, RB Offset 24) Link ☐ LTE(RB Size 12, RB Offset 0) Link ☐ LTE(RB Size 12, RB Offset 6) Link ☐ LTE(RB Size 12, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 0) Link	QPSK
	10 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 25) Link ☐ LTE(RB Size 1, RB Offset 49) Link ☐ LTE(RB Size 25, RB Offset 0) Link ☐ LTE(RB Size 25, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 25) Link ☐ LTE(RB Size 50, RB Offset 0) Link	QPSK
	15 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 38) Link ☐ LTE(RB Size 1, RB Offset 74) Link ☐ LTE(RB Size 38, RB Offset 0) Link ☐ LTE(RB Size 38, RB Offset 18) Link ☐ LTE(RB Size 38, RB Offset 38) Link ☐ LTE(RB Size 75, RB Offset 0) Link	QPSK
	20 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 50) Link ☐ LTE(RB Size 1, RB Offset 99) Link ☐ LTE(RB Size 50, RB Offset 0) Link ☐ LTE(RB Size 50, RB Offset 25) Link ☐ LTE(RB Size 50, RB Offset 50) Link ☐ LTE(RB Size 100, RB Offset 0) Link	QPSK

Band	Channel Bandwidth	Test Modes	
LTE Band 13	5 MHz	☐ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 13) Link ☑ LTE(RB Size 1, RB Offset 24) Link ☐ LTE(RB Size 12, RB Offset 0) Link ☐ LTE(RB Size 12, RB Offset 6) Link ☐ LTE(RB Size 12, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 0) Link	QPSK
	10 MHz	☑ LTE(RB Size 1, RB Offset 0) Link ☐ LTE(RB Size 1, RB Offset 25) Link ☐ LTE(RB Size 1, RB Offset 49) Link ☐ LTE(RB Size 25, RB Offset 0) Link ☐ LTE(RB Size 25, RB Offset 13) Link ☐ LTE(RB Size 25, RB Offset 25) Link ☐ LTE(RB Size 50, RB Offset 0) Link	QPSK

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.

Description	Modulation		Channel			Antenna
	QPSK	16QAM	B	M	T	1
Conducted Output Average Power	V	V	V	V	V	V
Equivalent Isotropic Radiated Power / Equivalent Radiated Power	V	V (Note)	V	V	V	V
Frequency Stability	---	V	---	V	---	V
Emission Bandwidth & Occupied Bandwidth	V	V	V	V	V	V
Peak to average ratio	V	V	---	V	---	V
Band Edge	V	---	V	---	V	V
Conducted Spurious Emissions	V	---	V	V	V	V
Radiated Spurious Emissions	V	V (Note)	V	V	V	V

V: measured

---: not measured

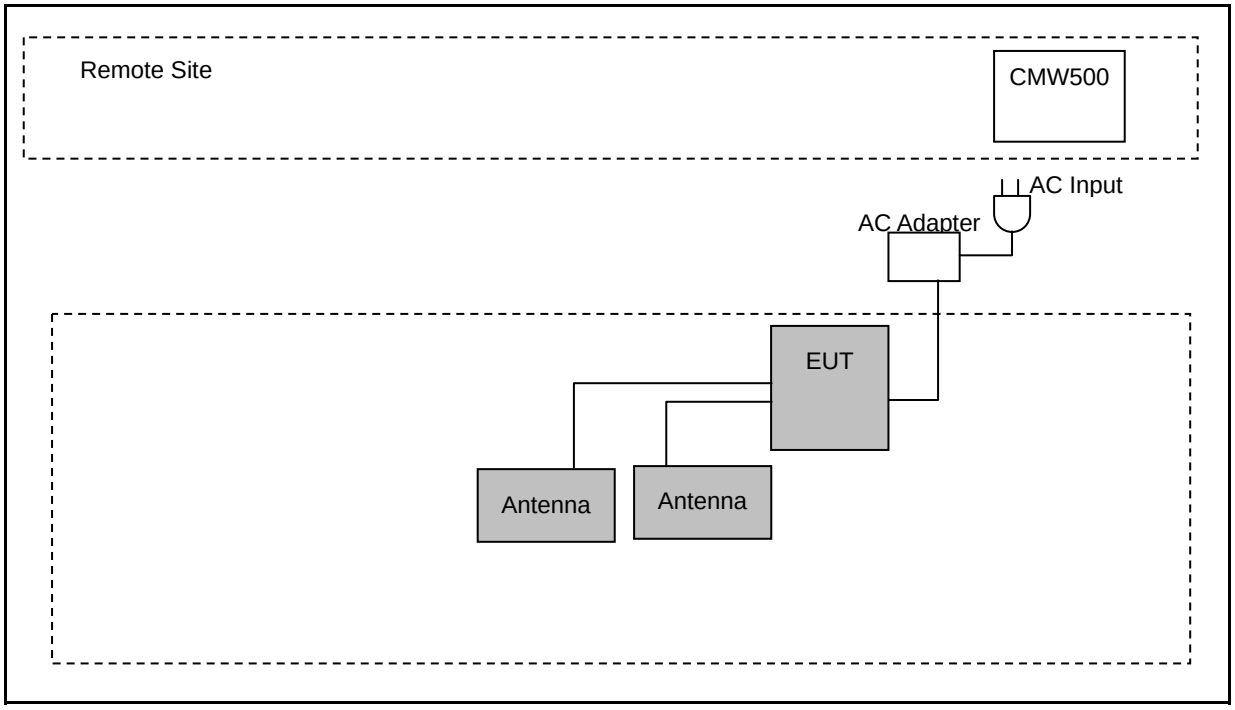
Note: Only M Channel

1.3. EUT Exercise Software

1	Setup the EUT and Base Station (CMW500) as shown on 1.4.
2	Turn on the power of all equipment.
3	EUT run test program test.

Measurement Software	
1	EZ-EMC Ver. ATL-03A1-1

1.4. Configuration of Test System Details



1.5. Test Site Environment

Items	Required (IEC 68-1)	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	Not specified
§24.232 §27. 50 KDB 971168 D01 (5.1.1)	Equivalent Isotropic Radiated Power / Equivalent Radiated Power	Pass
§2.1055 §24.235 §27. 54 KDB 971168 D01 (9)	Frequency Stability	Pass
§2.1049 KDB 971168 D01 (4.1)	Emission Bandwidth	Pass
§2.1049	Occupied Bandwidth	Not specified
§24.232 §27.50 KDB 971168 D01 (5.7.1)	Peak to average ratio	Pass
§24.238 §27.53	Band Edge	Pass
§2.1051 §24.238 §27.53 KDB 971168 D01 (6)	Conducted Spurious Emissions	Pass
§2.1053 §24.238 §27.53 KDB 971168 D01 (7)	Radiated Spurious Emissions	Pass

2 Conducted Output Average Power Test

2.1. Limit

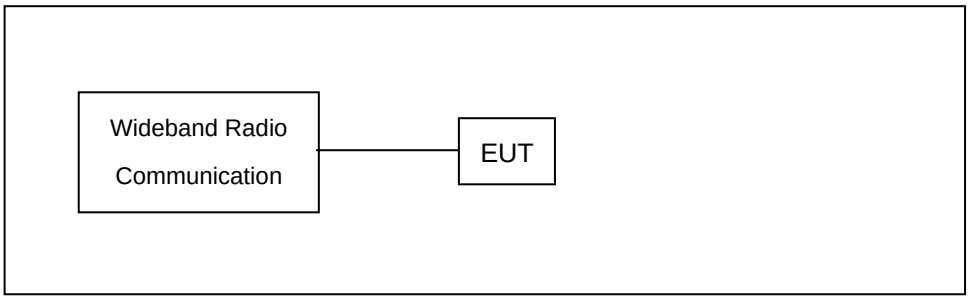
N/A

2.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Wideband Radio Communication Tester	R & S	CMW500	103168	10/30/2015	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

2.3. Test Setup



2.4. Test Procedure

a. The EUT was set up for the maximum power with simulator.

b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

2.5. Uncertainty

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

2.6. Test Result

Test Item	Conducted Output Average Power		
Date of Test	06/28/2016	Test Site	TE05

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 2	5 MHz	QPSK	18625	1852.5	1	0	**23.19**	**0.208**
					1	12	23.04	0.201
					1	24	22.78	0.190
					12	0	22.19	0.166
					12	6	22.13	0.163
					12	13	22.05	0.160
					25	0	22.05	0.160
			18900	1880.0	1	0	23.10	0.204
					1	12	22.91	0.195
					1	24	22.88	0.194
					12	0	22.18	0.165
					12	6	22.15	0.164
					12	13	22.06	0.161
					25	0	22.05	0.160
			19175	1907.5	1	0	23.14	0.206
					1	12	23.08	0.203
					1	24	22.86	0.193
					12	0	22.07	0.161
					12	6	22.05	0.160
					12	13	22.05	0.160
					25	0	22.01	0.159
		16QAM	18625	1852.5	1	0	22.30	0.170
					1	12	22.09	0.162
					1	24	21.96	0.157
					12	0	21.22	0.132
					12	6	21.13	0.130
					12	13	21.11	0.129
					25	0	21.05	0.127
			18900	1880.0	1	0	22.37	0.173
					1	12	22.15	0.164
					1	24	22.02	0.159
					12	0	21.26	0.134
					12	6	21.07	0.128
					12	13	21.01	0.126
					25	0	21.00	0.126
			19175	1907.5	1	0	22.23	0.167
					1	12	22.10	0.162
					1	24	21.91	0.155
					12	0	21.05	0.127
					12	6	21.02	0.126
					12	11	21.02	0.126
					25	0	21.01	0.126

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 2	10 MHz	QPSK	18650	1855.0	1	0	**23.15**	**0.207**
					1	24	22.95	0.197
					1	49	22.48	0.177
					25	0	22.47	0.177
					25	12	22.31	0.170
					25	25	22.25	0.168
					50	0	22.22	0.167
			18900	1880.0	1	0	23.05	0.202
					1	24	22.99	0.199
					1	49	22.65	0.184
					25	0	22.48	0.177
					25	12	22.28	0.169
					25	25	22.27	0.169
					50	0	22.19	0.166
			19150	1905.0	1	0	23.10	0.204
					1	24	22.83	0.192
					1	49	22.73	0.187
					25	0	22.33	0.171
					25	12	22.29	0.169
					25	25	22.19	0.166
					50	0	22.12	0.163
		16QAM	18650	1855.0	1	0	22.22	0.167
					1	24	22.17	0.165
					1	49	22.05	0.160
					25	0	21.36	0.137
					25	12	21.22	0.132
					25	25	21.20	0.132
					50	0	21.18	0.131
			18900	1880.0	1	0	22.07	0.161
					1	24	21.84	0.153
					1	49	21.81	0.152
					25	0	21.48	0.141
					25	12	21.33	0.136
					25	25	21.28	0.134
					50	0	21.21	0.132
			19150	1905.0	1	0	22.15	0.164
					1	24	22.11	0.163
					1	49	21.81	0.152
					25	0	21.23	0.133
					25	12	21.12	0.129
					25	25	21.08	0.128
					50	0	20.99	0.126

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 2	15 MHz	QPSK	18675	1857.5	1	0	**23.22**	**0.210**
					1	38	23.15	0.207
					1	74	23.05	0.202
					36	0	22.88	0.194
					36	18	22.82	0.191
					36	39	22.81	0.191
					75	0	22.64	0.184
			18900	1880.0	1	0	23.06	0.202
					1	38	22.95	0.197
					1	74	22.79	0.190
					36	0	22.55	0.180
					36	18	22.50	0.178
					36	39	22.49	0.177
					75	0	22.41	0.174
			19125	1902.5	1	0	23.18	0.208
					1	38	23.16	0.207
					1	74	23.15	0.207
					36	0	23.15	0.207
					36	18	22.96	0.198
					36	39	22.77	0.189
					75	0	22.76	0.189
		16QAM	18675	1857.5	1	0	22.39	0.173
					1	38	22.33	0.171
					1	74	21.90	0.155
					36	0	21.89	0.155
					36	18	21.61	0.145
					36	39	21.49	0.141
					75	0	21.43	0.139
			18900	1880.0	1	0	22.16	0.164
					1	38	22.10	0.162
					1	74	21.67	0.147
					36	0	21.66	0.147
					36	18	21.38	0.137
					36	39	21.26	0.134
					75	0	21.20	0.132
			19125	1902.5	1	0	22.26	0.168
					1	38	22.20	0.166
					1	74	21.77	0.150
					36	0	21.76	0.150
					36	18	21.48	0.141
					36	39	21.36	0.137
					75	0	21.30	0.135

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 2	20 MHz	QPSK	18700	1860.0	1	0	**23.17**	**0.207**
					1	49	23.10	0.204
					1	99	23.04	0.201
					50	0	22.31	0.170
					50	25	22.07	0.161
					50	50	22.04	0.160
					100	0	22.02	0.159
			18900	1880.0	1	0	23.06	0.202
					1	49	22.99	0.199
					1	99	22.96	0.198
					50	0	22.37	0.173
					50	25	22.36	0.172
					50	50	22.26	0.168
					100	0	22.24	0.167
			19100	1900.0	1	0	23.10	0.204
					1	49	23.06	0.202
					1	99	23.00	0.200
					50	0	22.61	0.182
					50	25	22.44	0.175
					50	50	22.37	0.173
					100	0	22.33	0.171
		16QAM	18700	1860.0	1	0	22.34	0.171
					1	49	22.12	0.163
					1	99	22.11	0.163
					50	0	21.50	0.141
					50	25	21.42	0.139
					50	50	21.30	0.135
					100	0	21.25	0.133
			18900	1880.0	1	0	22.08	0.161
					1	49	21.97	0.157
					1	99	21.76	0.150
					50	0	21.31	0.135
					50	25	21.21	0.132
					50	50	21.01	0.126
					100	0	21.00	0.126
			19100	1900.0	1	0	22.12	0.163
					1	49	22.01	0.159
					1	99	22.00	0.158
					50	0	21.56	0.143
					50	25	21.31	0.135
					50	50	21.29	0.135
					100	0	21.19	0.132

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 4	5 MHz	QPSK	19975	1712.5	1	0	**23.08**	**0.203**
					1	12	23.06	0.202
					1	24	23.01	0.200
					12	0	22.69	0.186
					12	6	22.59	0.182
					12	13	22.47	0.177
					25	0	22.28	0.169
			20175	1732.5	1	0	23.02	0.200
					1	12	22.94	0.197
					1	24	22.84	0.192
					12	0	22.19	0.166
					12	6	22.12	0.163
					12	13	22.08	0.161
					25	0	21.90	0.155
			20375	1752.5	1	0	22.95	0.197
					1	12	22.81	0.191
					1	24	22.62	0.183
					12	0	21.40	0.138
					12	6	21.40	0.138
					12	13	21.38	0.137
					25	0	21.31	0.135
		16QAM	19975	1712.5	1	0	22.23	0.167
					1	12	22.18	0.165
					1	24	21.84	0.153
					12	0	21.72	0.149
					12	6	21.61	0.145
					12	13	21.59	0.144
					25	0	20.84	0.121
			20175	1732.5	1	0	22.14	0.164
					1	12	22.08	0.161
					1	24	21.85	0.153
					12	0	21.28	0.134
					12	6	21.11	0.129
					12	13	21.05	0.127
					25	0	20.93	0.124
			20375	1752.5	1	0	22.08	0.161
					1	12	22.01	0.159
					1	24	21.56	0.143
					12	0	20.94	0.124
					12	6	20.91	0.123
					12	11	20.91	0.123
					25	0	20.87	0.122

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 4	10 MHz	QPSK	2000	1715.0	1	0	**23.06**	**0.202**
					1	24	23.01	0.200
					1	49	22.91	0.195
					25	0	22.83	0.192
					25	12	22.75	0.188
					25	25	22.71	0.187
					50	0	21.95	0.157
			20175	1732.5	1	0	23.01	0.200
					1	24	22.96	0.198
					1	49	22.94	0.197
					25	0	22.50	0.178
					25	12	22.50	0.178
					25	25	22.36	0.172
					50	0	22.16	0.164
			20350	1750.0	1	0	22.93	0.196
					1	24	22.86	0.193
					1	49	22.81	0.191
					25	0	21.80	0.151
					25	12	21.64	0.146
					25	25	21.63	0.146
					50	0	21.62	0.145
		16QAM	2000	1715.0	1	0	22.12	0.163
					1	24	22.08	0.161
					1	49	21.57	0.144
					25	0	21.31	0.135
					25	12	21.23	0.133
					25	25	21.08	0.128
					50	0	21.05	0.127
			20175	1732.5	1	0	21.91	0.155
					1	24	21.82	0.152
					1	49	21.80	0.151
					25	0	21.51	0.142
					25	12	21.49	0.141
					25	25	21.35	0.136
					50	0	21.13	0.130
			20350	1750.0	1	0	21.83	0.152
					1	24	21.75	0.150
					1	49	21.68	0.147
					25	0	20.95	0.124
					25	12	20.88	0.122
					25	25	20.86	0.122
					50	0	20.81	0.121

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 4	15 MHz	QPSK	20025	1717.5	1	0	**23.05**	**0.202**
					1	38	23.03	0.201
					1	74	22.81	0.191
					36	0	22.55	0.180
					36	18	22.54	0.179
					36	39	22.47	0.177
					75	0	22.05	0.160
			20175	1732.5	1	0	23.03	0.201
					1	38	23.01	0.200
					1	74	22.86	0.193
					36	0	22.78	0.190
					36	18	22.72	0.187
					36	39	22.46	0.176
					75	0	21.93	0.156
			20325	1747.5	1	0	22.88	0.194
					1	38	22.82	0.191
					1	74	22.76	0.189
					36	0	22.71	0.187
					36	18	22.67	0.185
					36	39	22.65	0.184
					75	0	21.84	0.153
		16QAM	20025	1717.5	1	0	22.19	0.166
					1	38	22.13	0.163
					1	74	21.72	0.149
					36	0	21.69	0.148
					36	18	21.57	0.144
					36	39	21.48	0.141
					75	0	21.21	0.132
			20175	1732.5	1	0	22.13	0.163
					1	38	22.09	0.162
					1	74	21.96	0.157
					36	0	21.93	0.156
					36	18	21.86	0.153
					36	39	21.74	0.149
					75	0	21.66	0.147
			20325	1747.5	1	0	22.06	0.161
					1	38	22.01	0.159
					1	74	21.78	0.151
					36	0	21.38	0.137
					36	18	21.13	0.130
					36	39	21.12	0.129
					75	0	21.04	0.127

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 4	20 MHz	QPSK	20050	1720.0	1	0	**23.08**	**0.203**
					1	49	23.01	0.200
					1	99	22.77	0.189
					50	0	22.71	0.187
					50	25	22.46	0.176
					50	50	22.39	0.173
					100	0	22.01	0.159
			20175	1732.5	1	0	22.94	0.197
					1	49	22.88	0.194
					1	99	22.69	0.186
					50	0	22.57	0.181
					50	25	22.52	0.179
					50	50	22.34	0.171
					100	0	21.94	0.156
			20300	1745.0	1	0	22.84	0.192
					1	49	22.76	0.189
					1	99	22.54	0.179
					50	0	22.46	0.176
					50	25	22.37	0.173
					50	50	22.25	0.168
					100	0	21.86	0.153
		16QAM	20050	1720.0	1	0	22.29	0.169
					1	49	22.25	0.168
					1	99	21.84	0.153
					50	0	21.14	0.130
					50	25	20.98	0.125
					50	50	20.95	0.124
					100	0	20.92	0.124
			20175	1732.5	1	0	22.26	0.168
					1	49	22.21	0.166
					1	99	21.89	0.155
					50	0	21.61	0.145
					50	25	20.99	0.126
					50	50	20.92	0.124
					100	0	20.87	0.122
			20300	1745.0	1	0	22.22	0.167
					1	49	22.16	0.164
					1	99	21.97	0.157
					50	0	20.95	0.124
					50	25	20.91	0.123
					50	50	20.88	0.122
					100	0	20.86	0.122

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 13	5 MHz	QPSK	23205	779.5	1	0	**23.03**	**0.201**
					1	12	23.01	0.200
					1	24	22.92	0.196
					12	0	22.17	0.165
					12	6	22.06	0.161
					12	13	21.98	0.158
					25	0	21.94	0.156
			23230	782.0	1	0	22.93	0.196
					1	12	22.90	0.195
					1	24	22.85	0.193
					12	0	21.97	0.157
					12	6	21.87	0.154
					12	13	21.84	0.153
					25	0	21.77	0.150
			23255	784.5	1	0	22.91	0.195
					1	12	22.88	0.194
					1	24	22.15	0.164
					12	0	21.93	0.156
					12	6	21.77	0.150
					12	13	21.72	0.149
					25	0	21.38	0.137
		16QAM	23205	779.5	1	0	22.13	0.163
					1	12	21.73	0.149
					1	24	21.55	0.143
					12	0	21.12	0.129
					12	6	21.08	0.128
					12	13	20.98	0.125
					25	0	20.97	0.125
			23230	782.0	1	0	21.72	0.149
					1	12	21.67	0.147
					1	24	21.56	0.143
					12	0	20.96	0.125
					12	6	20.87	0.122
					12	13	20.83	0.121
					25	0	20.81	0.121
			23255	784.5	1	0	21.71	0.148
					1	12	21.41	0.138
					1	24	21.06	0.128
					12	0	20.83	0.121
					12	6	20.74	0.119
					12	13	20.71	0.118
					25	0	20.63	0.116

Band	Channel Bandwidth	Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power	
					Size	Offset	(dBm)	(W)
LTE Band 13	10 MHz	QPSK	23230	782.0	1	0	**22.94**	**0.197**
					1	24	22.81	0.191
					1	49	22.45	0.176
					25	0	22.37	0.173
					25	12	22.16	0.164
					25	25	22.05	0.160
					50	0	21.82	0.152
		16QAM	23230	782.0	1	0	22.20	0.166
					1	24	22.05	0.160
					1	49	21.42	0.139
					25	0	21.32	0.136
					25	12	21.26	0.134
					25	25	21.04	0.127
					50	0	20.98	0.125

3 Effective Radiated Power / Equivalent Isotropic Radiated Power Test

3.1. Limit

For FCC Part 27(d)(4): The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 1 Watts.
For FCC Part 27.50(b)(9): Control stations and mobile stations transmitting in the 746-757 MHz, and 776-788 MHz bands are limited to 30 watts ERP.
For FCC Part 24.232(b): The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

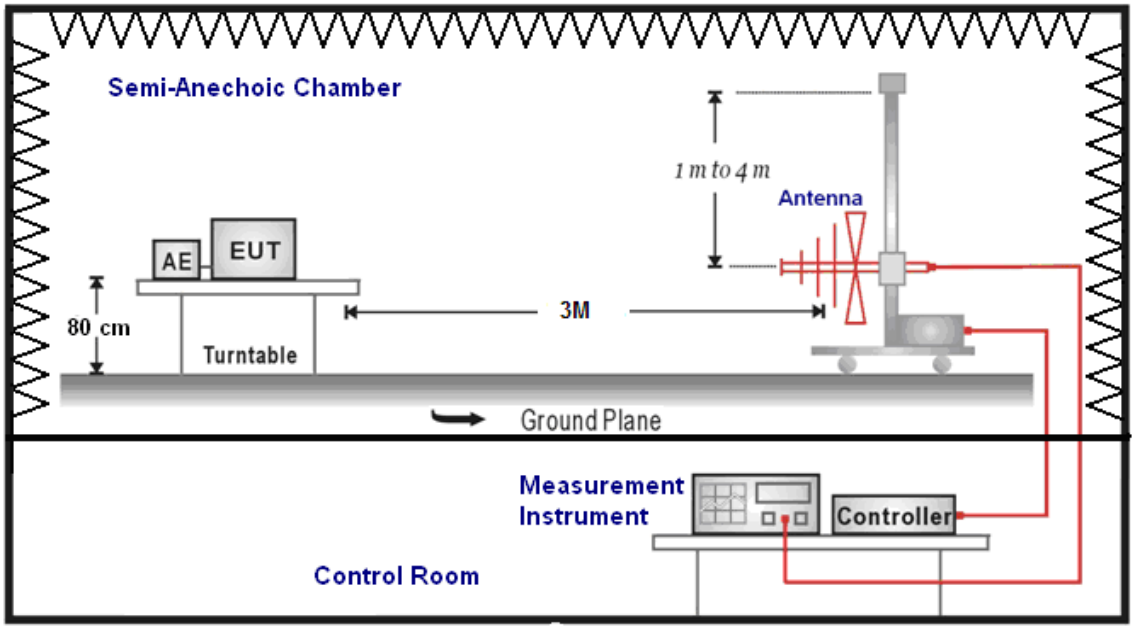
3.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/08/2016	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/08/2016	1 year
Pre Amplifier	Agilent	8449B	3008A02237	10/07/2015	1 year
Pre Amplifier	Agilent	8447D	2944A11119	01/11/2016	1 year
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	416	09/25/2015	1 year
Sleeve Dipole(CF880) (780-980MHz)	ETS	3126-880	00064344	10/06/2014	2 years
Sleeve Dipole(CF1845) (1695-1995MHz)	ETS	3126-1845	00083335	10/06/2014	2 years
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/06/2016	1 year
Horn Antenna (18~40GHz)	ETS	3116	00086467	09/01/2015	1 year
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/06/2015	1 year
Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	10/15/2015	1 year
Microwave Cable	EMCI	EMC-104-SM-SM-14000	140202	10/15/2015	1 year
Microwave Cable	EMCI	EMC104-SM-SM-600	140301	10/15/2015	1 year
Test Site	ATL	TE01	888001	08/27/2015	1 year

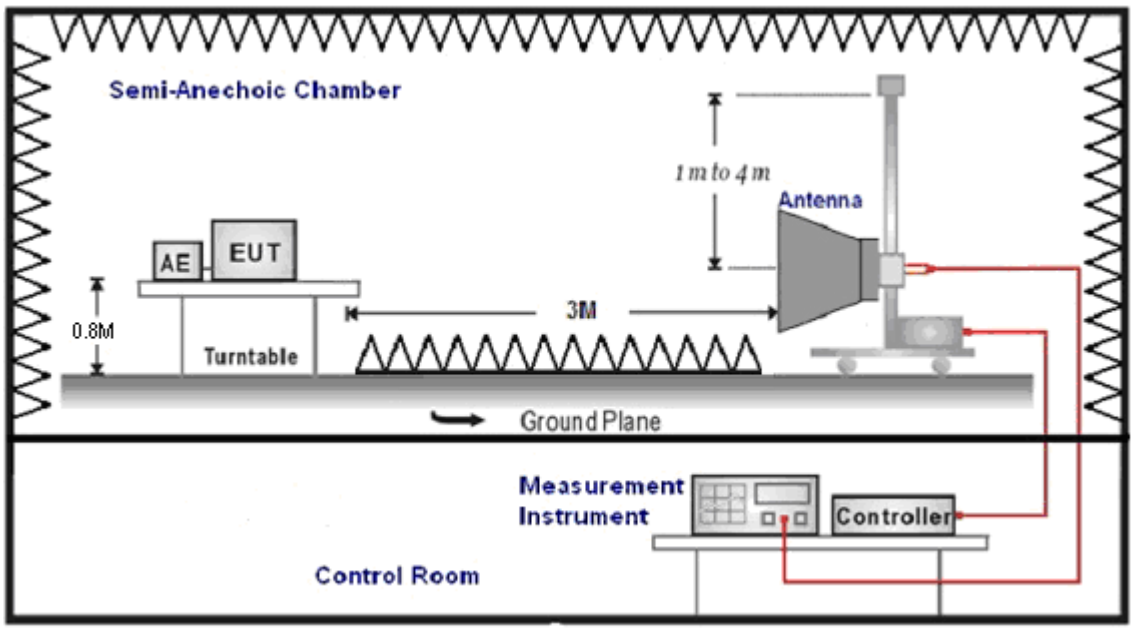
Note: N.C.R. = No Calibration Request.

3.3. Test Setup

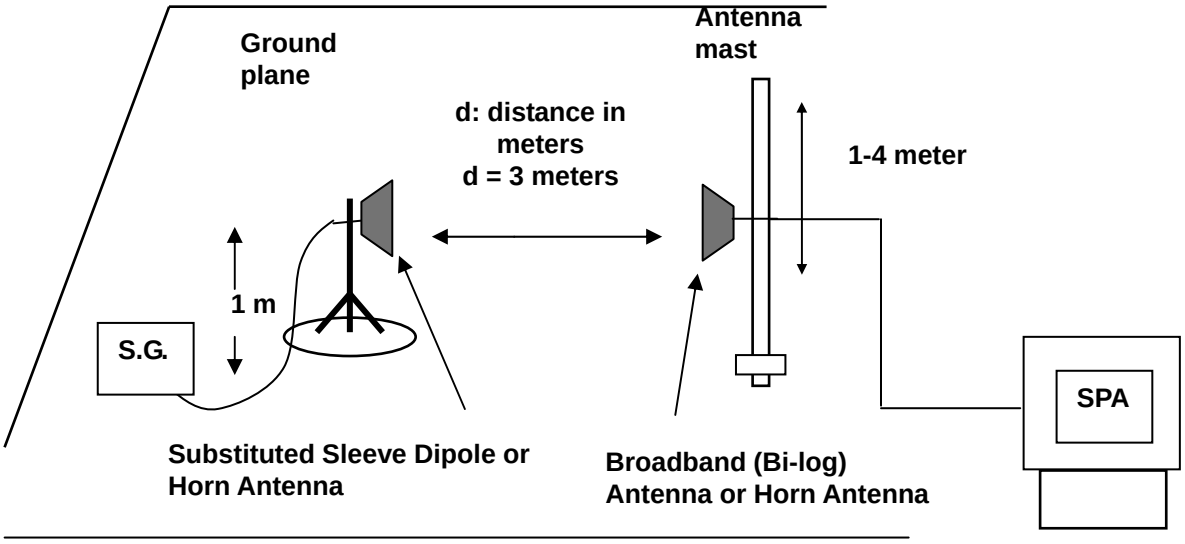
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



3.4. Test Procedure

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 5MHz for LTE mode.

b. E.I.R.P power 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 antenna (Note:1 & 2) 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. = Output power level of S.G - TX cable loss + Antenna gain of substitution horn

e. E.R.P. = E.I.R.P- 2.15 dB

Note: 1. Below 1 GHz Substituted Method Test：Sleeve dipole antenna to Bi-Log Antenna

2. Above 1 GHz Substituted Method Test：Horn antenna to Horn Antenna

3.5. Uncertainty

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

3.6. Test Result

Test Item	E.I.R.P. / E.R.P.		
Date of Test	06/28/2016~06/29/2016	Test Site	TE01

LTE Band 2								
Channel Bandwidth	Modulation	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	E.I.R.P.		Limit (W)
						(dBm)	(W)	
5 MHz	QPSK	1852.5	H	8.84	9.48	18.32	0.068	< 2
			V	12.94	9.48	**22.42**	**0.175**	< 2
		1880.0	H	9.14	9.59	18.73	0.075	< 2
			V	12.71	9.59	22.30	0.170	< 2
		1907.5	H	9.38	9.70	19.08	0.081	< 2
			V	12.62	9.70	22.32	0.171	< 2
	16QAM	1880.0	H	8.09	9.59	17.68	0.059	< 2
			V	11.62	9.59	21.21	0.132	< 2
10 M	QPSK	1855.0	H	9.22	9.48	18.70	0.074	< 2
			V	12.81	9.48	**22.29**	**0.169**	< 2
		1880.0	H	9.23	9.58	18.81	0.076	< 2
			V	12.60	9.58	22.18	0.165	< 2
		1905.0	H	9.22	9.68	18.90	0.078	< 2
			V	12.61	9.68	22.29	0.169	< 2
	16QAM	1880.0	H	8.29	9.58	17.87	0.061	< 2
			V	11.47	9.58	21.05	0.127	< 2
15 MHz	QPSK	1857.5	H	9.37	9.48	18.85	0.077	< 2
			V	12.86	9.48	**22.34**	**0.171**	< 2
		1880.0	H	8.69	9.58	18.27	0.067	< 2
			V	12.70	9.58	22.28	0.169	< 2
		1902.5	H	8.98	9.66	18.64	0.073	< 2
			V	12.58	9.66	22.24	0.167	< 2
	16QAM	1880.0	H	7.63	9.58	17.21	0.053	< 2
			V	11.62	9.58	21.20	0.132	< 2
20 MHz	QPSK	1860.0	H	9.47	9.49	18.96	0.079	< 2
			V	13.37	9.49	**22.86**	**0.193**	< 2
		1880.0	H	8.77	9.57	18.34	0.068	< 2
			V	12.95	9.56	22.51	0.178	< 2
		1900.0	H	9.11	9.64	18.75	0.075	< 2
			V	13.15	9.63	22.78	0.190	< 2
	16QAM	1880.0	H	7.71	9.56	17.27	0.053	< 2
			V	11.61	9.57	21.18	0.131	< 2

LTE Band 4								
Channel Bandwidth	Modulation	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	E.I.R.P.		Limit (W)
						(dBm)	(W)	
5 MHz	QPSK	1712.5	H	9.69	8.93	18.62	0.073	< 1
			V	13.38	8.93	22.31	0.170	< 1
		1732.5	H	9.68	9.01	18.69	0.074	< 1
			V	13.59	9.01	**22.60**	**0.182**	< 1
		1752.5	H	9.35	9.09	18.44	0.070	< 1
			V	13.30	9.09	22.39	0.173	< 1
	16QAM	1732.5	H	8.54	9.01	17.55	0.057	< 1
			V	12.33	9.01	21.34	0.136	< 1
10 M	QPSK	1715.0	H	9.71	8.93	18.64	0.073	< 1
			V	13.53	8.93	22.46	0.176	< 1
		1732.5	H	9.57	9.01	18.58	0.072	< 1
			V	13.49	9.01	**22.50**	**0.178**	< 1
		1750.0	H	9.18	9.07	18.25	0.067	< 1
			V	13.30	9.07	22.37	0.173	< 1
	16QAM	1732.5	H	8.37	9.01	17.38	0.055	< 1
			V	12.28	9.01	21.29	0.135	< 1
15 MHz	QPSK	1717.5	H	9.48	8.93	18.41	0.069	< 1
			V	13.53	8.93	22.46	0.176	< 1
		1732.5	H	9.55	8.99	18.54	0.071	< 1
			V	13.32	8.99	22.31	0.170	< 1
		1747.5	H	9.29	9.05	18.34	0.068	< 1
			V	13.63	9.05	**22.68**	**0.185**	< 1
	16QAM	1732.5	H	8.39	8.99	17.38	0.055	< 1
			V	12.24	8.99	21.23	0.133	< 1
20 MHz	QPSK	1720.0	H	9.66	8.93	18.59	0.072	< 1
			V	13.62	8.93	22.55	0.180	< 1
		1732.5	H	9.39	8.99	18.38	0.069	< 1
			V	13.68	8.98	**22.66**	**0.185**	< 1
		1745.0	H	9.89	9.03	18.92	0.078	< 1
			V	13.40	9.03	22.43	0.175	< 1
	16QAM	1732.5	H	8.31	8.98	17.29	0.054	< 1
			V	12.37	8.98	21.35	0.136	< 1

LTE Band 13								
Channel Bandwidth	Modulation	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	E.R.P.		Limit (W)
						(dBm)	(W)	
5 M	QPSK	779.5	H	10.36	8.49	18.85	0.077	< 30
			V	13.70	8.49	22.19	0.166	< 30
		782.0	H	10.57	8.54	19.11	0.081	< 30
			V	13.94	8.54	**22.48**	**0.177**	< 30
		784.5	H	10.62	8.55	19.17	0.083	< 30
			V	13.85	8.56	22.41	0.174	< 30
	16QAM	782.0	H	7.27	10.68	17.95	0.062	< 30
			V	10.54	10.69	21.23	0.133	< 30
10 MHz	QPSK	782.0	H	9.42	8.51	17.93	0.062	< 30
			V	13.71	8.50	**22.21**	**0.166**	< 30
	16QAM	782.0	H	6.19	10.66	16.85	0.048	< 30
			V	10.51	10.66	21.17	0.131	< 30

4 Frequency Stability Test

4.1. Limit

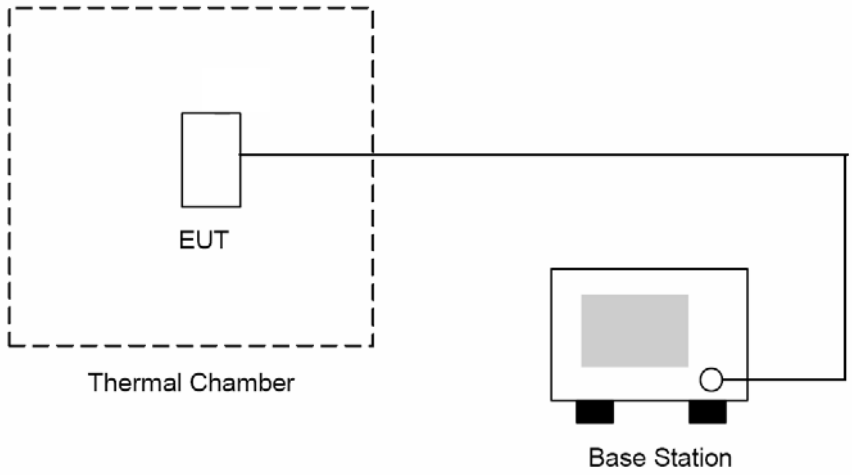
According to the FCC rule shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1) -30℃ ~ 50℃.

4.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Wideband Radio Communication Test	R & S	CMW500	103168	10/30/2015	1 year
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	04/18/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

4.3. Setup



4.4. Test Procedure

The measurement is made according to FCC rules:

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℃ 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℃ 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±5 ℃ 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.

4.5. Uncertainty

The measurement uncertainty is defined as for Frequency Stability measurement is ± 10Hz.

1

4.6. Test Result

Test Item	Frequency Stability		
Date of Test	06/29/2016	Test Site	TE05

LTE Band 2 _ 16QAM						
Voltage						
Channel Bandwidth	Frequency (MHz)	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
20 MHz	1880.0	138	20	0.99	0.001	± 1.5
		120	20	5.02	0.003	± 1.5
		102	20	15.59	0.008	± 1.5
Temperature						
Channel Bandwidth	Frequency (MHz)	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
20 MHz	1880.0	120	-20	-3.59	-0.002	± 1.5
		120	-10	8.73	0.005	± 1.5
		120	0	1.99	0.001	± 1.5
		120	10	-9.38	-0.005	± 1.5
		120	20	-1.27	-0.001	± 1.5
		120	30	-2.68	-0.001	± 1.5
		120	40	1.88	0.001	± 1.5
		120	50	0.91	0.000	± 1.5
		120	60	-10.15	-0.005	± 1.5

LTE Band 4 _ 16QAM						
Voltage						
Channel Bandwidth	Frequency (MHz)	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
20 MHz	1732.5	138	20	-0.27	0.000	± 1.5
		120	20	-6.4	-0.004	± 1.5
		102	20	1.24	0.001	± 1.5
Temperature						
Channel Bandwidth	Frequency (MHz)	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
20 MHz	1732.5	120	-20	-3.02	-0.002	± 1.5
		120	-10	6.91	0.004	± 1.5
		120	0	2.34	0.001	± 1.5
		120	10	-16.09	-0.009	± 1.5
		120	20	8.3	0.005	± 1.5
		120	30	-10.65	-0.006	± 1.5
		120	40	12.44	0.007	± 1.5
		120	50	1.13	0.001	± 1.5
		120	60	-5.75	-0.003	± 1.5

LTE Band 13 _ 16QAM						
Voltage						
Channel Bandwidth	Frequency (MHz)	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
10 MHz	782.0	138	20	3.1	0.004	± 1.5
		120	20	-1.01	-0.001	± 1.5
		102	20	-1.8	-0.002	± 1.5
Temperature						
Channel Bandwidth	Frequency (MHz)	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
10 MHz	782.0	120	-20	9.77	0.012	± 1.5
		120	-10	8.63	0.011	± 1.5
		120	0	-6.04	-0.008	± 1.5
		120	10	-0.08	0.000	± 1.5
		120	20	12.64	0.016	± 1.5
		120	30	5.73	0.007	± 1.5
		120	40	0.48	0.001	± 1.5
		120	50	-9.41	-0.012	± 1.5
		120	60	-9.13	-0.012	± 1.5

5 Emission Bandwidth & Occupied Bandwidth Test

5.1. Limit

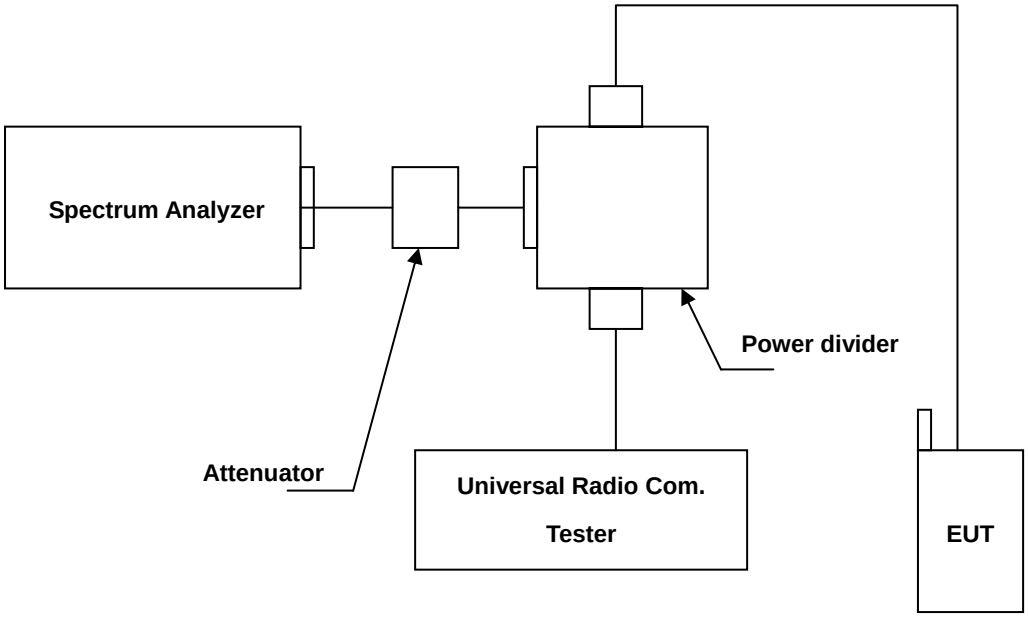
The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.
The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

5.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Spectrum Analyzer	Agilent	N9030A	MY53120541	12/14/2015	1 year
Wideband Radio Communication Test	R & S	CMW500	103168	10/30/2015	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

5.3. Setup



5.4. Test Procedure

The measurement is made according to FCC rules:

a. The EUT makes a phone call to the communication simulator. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels. (low, middle and high operational frequency range.)

b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

c. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

5.5. Uncertainty

The measurement uncertainty is defined as ± 10Hz

5.6. Test Result

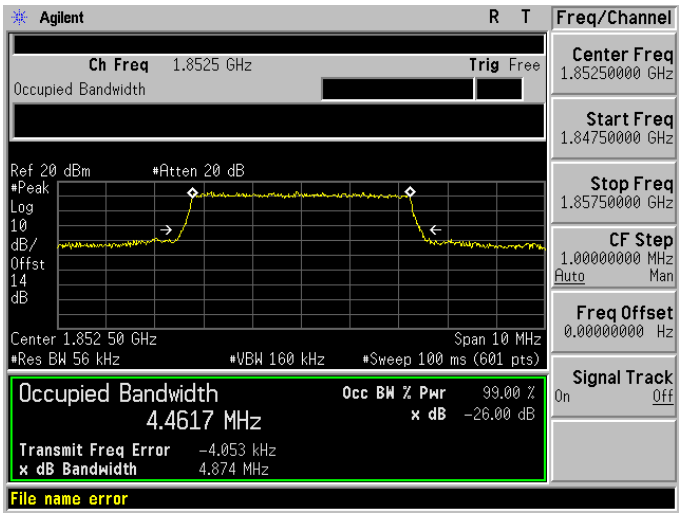
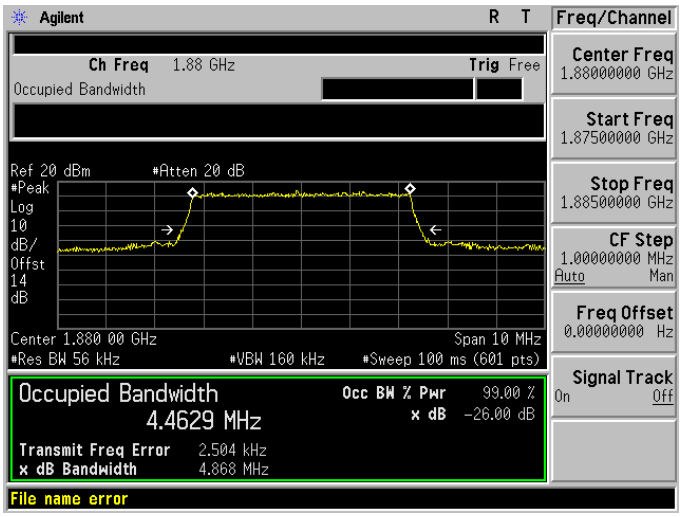
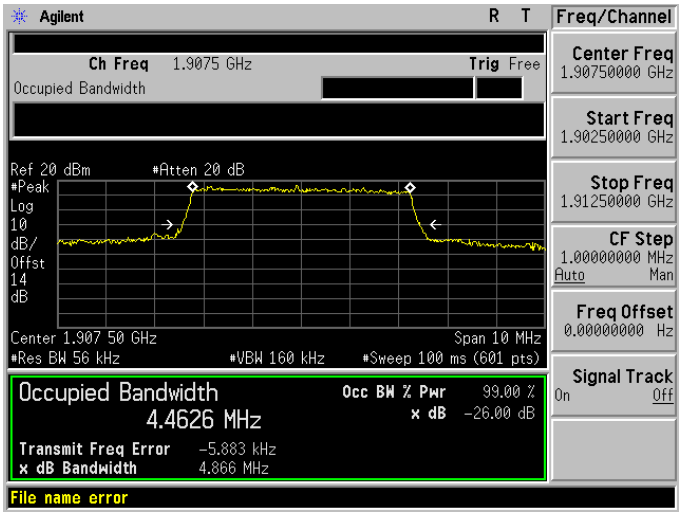
Test Item	Emission Bandwidth & Occupied Bandwidth		
Date of Test	06/28/2016	Test Site	TE05

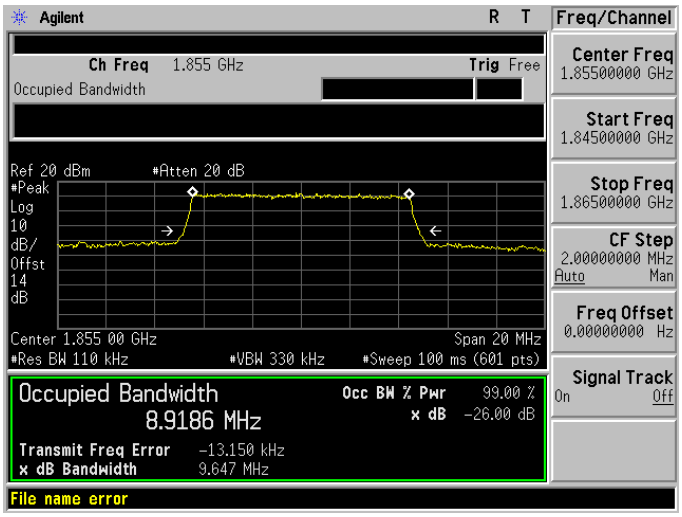
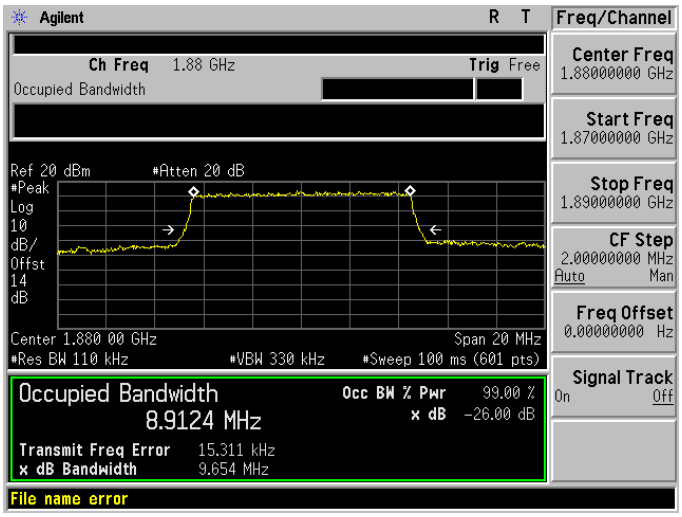
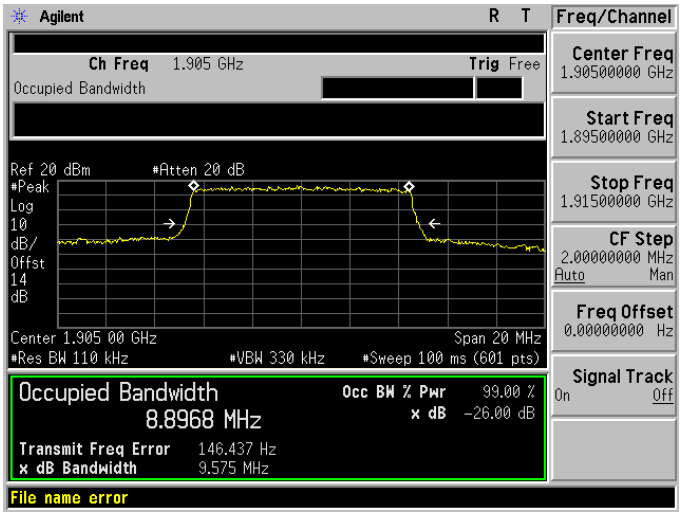
LTE Band 2				
Modulation	Channel Bandwidth	Frequency (MHz)	26dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
QPSK	5 MHz	1852.5	4.874	4.4617
		1880.0	4.868	4.4629
		1907.5	4.866	4.4626
	10 MHz	1855.0	9.647	8.9186
		1880.0	9.654	8.9124
		1905.0	9.575	8.8968
	15 MHz	1857.5	14.534	13.4056
		1880.0	14.405	13.3619
		1902.5	14.314	13.3626
	20 MHz	1860.0	19.312	17.8813
		1880.0	19.308	17.8214
		1900.0	19.074	17.8262
16QAM	5 MHz	1852.5	4.918	4.4954
		1880.0	4.914	4.4924
		1907.5	4.874	4.4900
	10 MHz	1855.0	9.702	8.9175
		1880.0	9.683	8.9151
		1905.0	9.690	8.9006
	15 MHz	1857.5	14.392	13.3879
		1880.0	14.351	13.3689
		1902.5	14.368	13.3622
	20 MHz	1860.0	19.312	17.8813
		1880.0	19.308	17.8214
		1900.0	19.074	17.8262

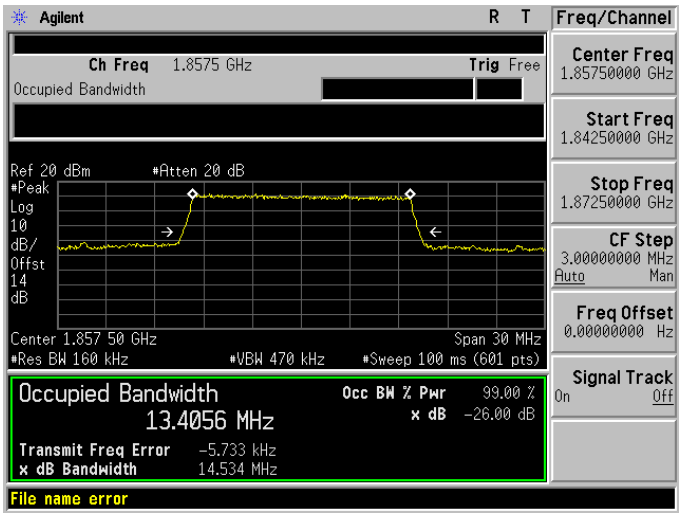
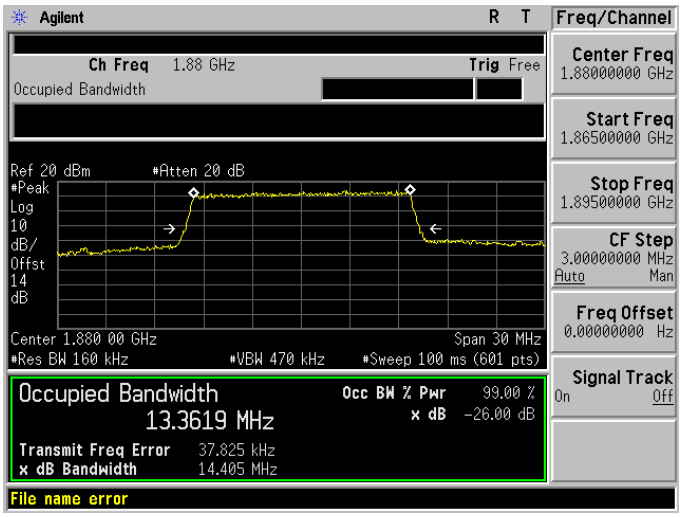
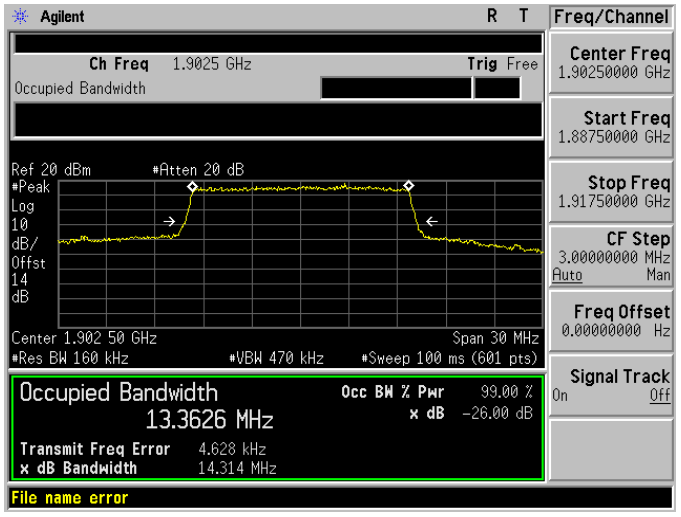
LTE Band 4				
Modulation	Channel Bandwidth	Frequency (MHz)	26dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
QPSK	5 MHz	1712.5	4.874	4.4671
		1732.5	4.860	4.4579
		1752.5	4.884	4.4638
	10 MHz	1715.0	9.601	8.9027
		1732.5	9.593	8.8946
		1750.0	9.663	8.9174
	15 MHz	1717.5	14.482	13.4176
		1732.5	14.445	13.4162
		1747.5	14.521	13.4147
	20 MHz	1720.0	19.162	17.9025
		1732.5	19.203	17.8456
		1745.0	19.250	17.8305
16QAM	5 MHz	1712.5	4.907	4.4906
		1732.5	4.935	4.4960
		1752.5	4.940	4.4943
	10 MHz	1715.0	9.618	8.9080
		1732.5	9.695	8.9092
		1750.0	9.728	8.9268
	15 MHz	1717.5	14.337	13.3827
		1732.5	14.367	13.3669
		1747.5	14.427	13.3808
	20 MHz	1720.0	19.096	17.8937
		1732.5	19.024	17.8299
		1745.0	19.118	17.8241

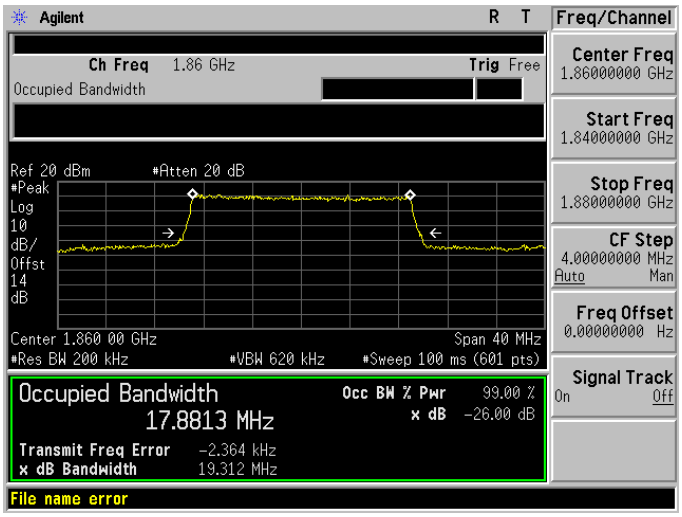
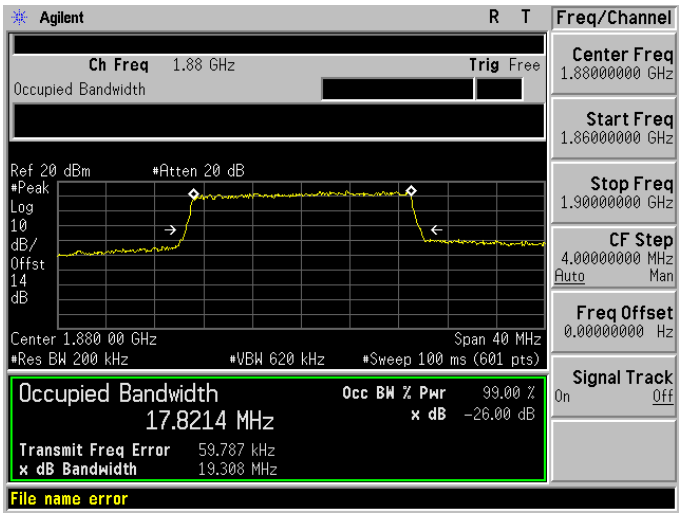
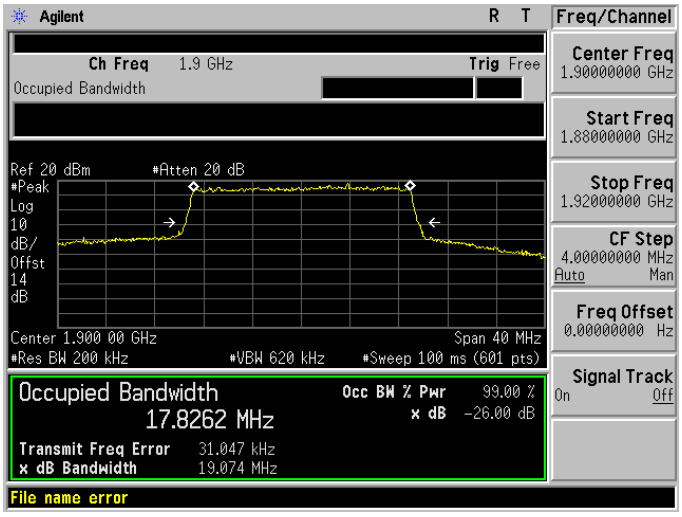
LTE Band 13				
Modulation	Channel Bandwidth	Frequency (MHz)	-26dB Bandwidth (MHz)	Occupied Bandwidth (MHz)
QPSK	5 MHz	779.5	4.881	4.4656
		782.0	4.844	4.4585
		784.5	4.840	4.4606
	10 MHz	782.0	9.580	8.8699
16QAM	5 MHz	779.5	4.898	4.4903
		782.0	4.906	4.4817
		784.5	4.865	4.4952
	10 MHz	782.0	9.630	8.8697

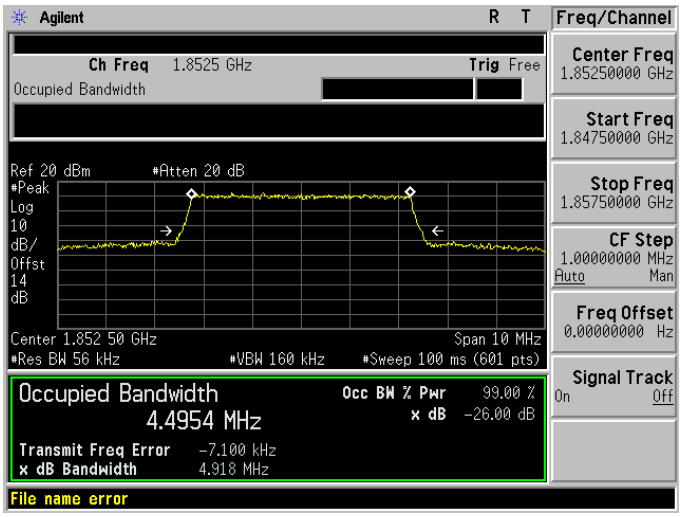
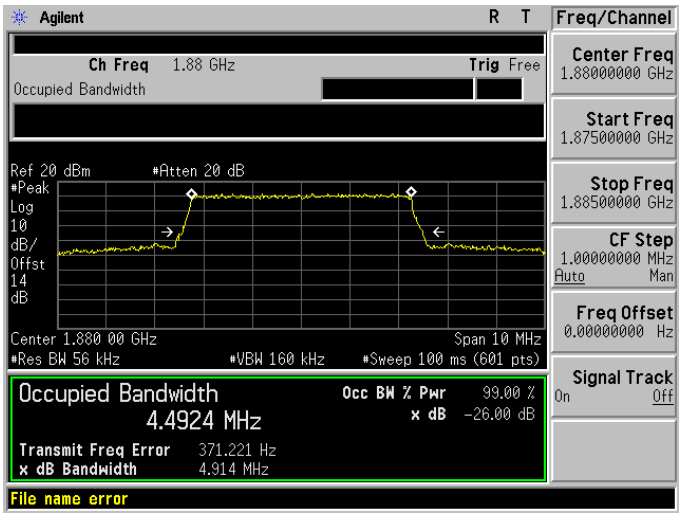
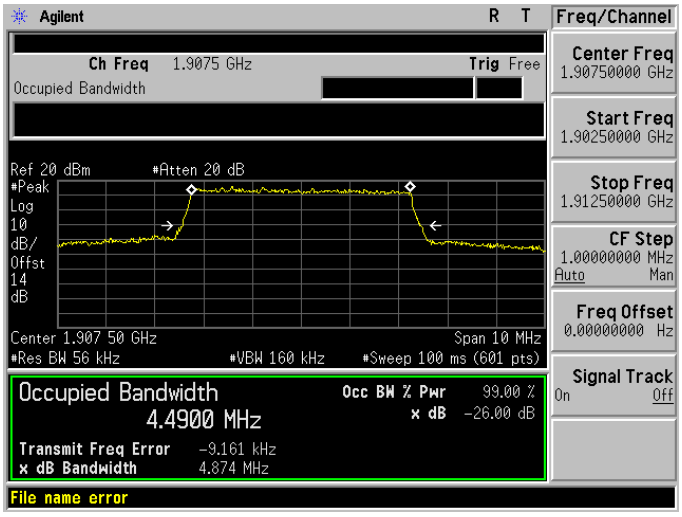
5.7. Test Graphs

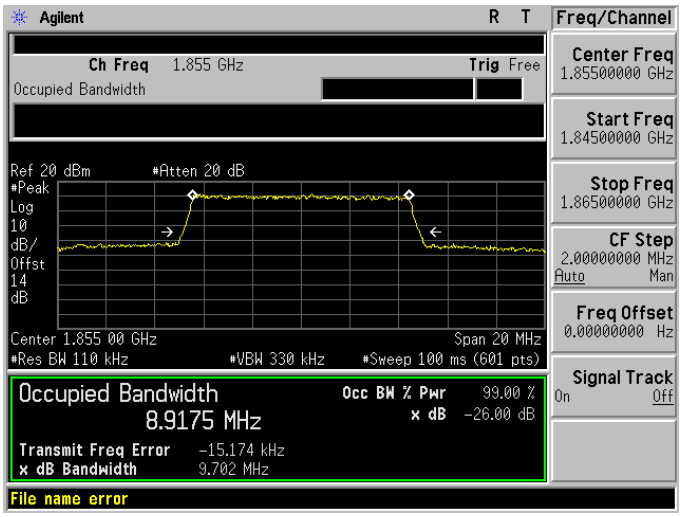
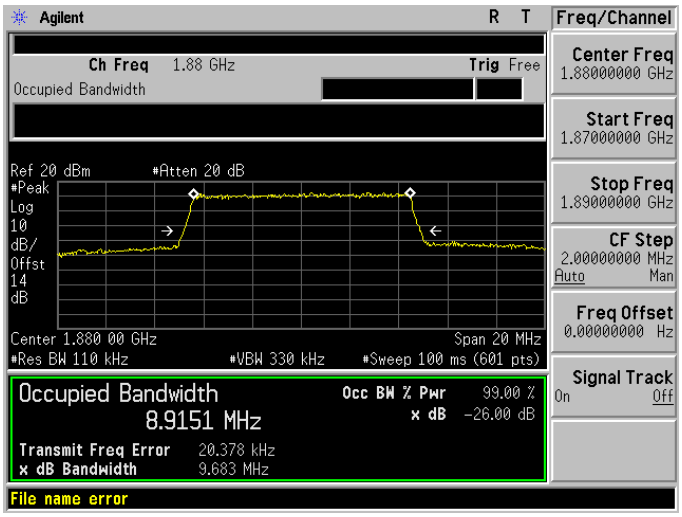
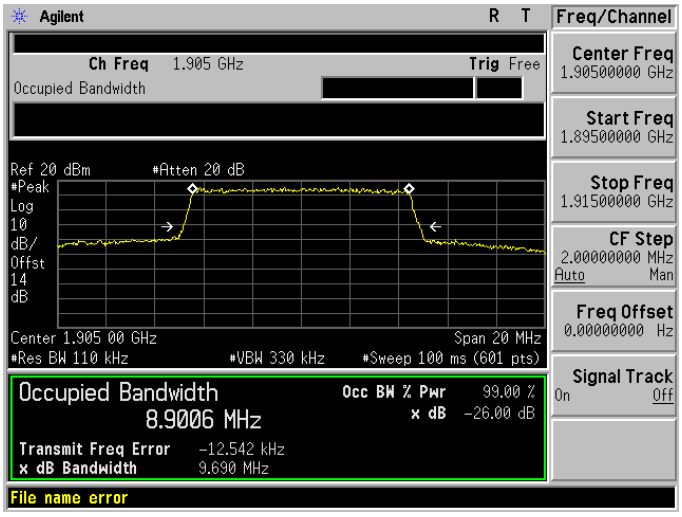
LTE Band 2 (Channel Bandwidth: 5 MHz) _ QPSK	
1852.5 MHz	
1880.0 MHz	
1907.5 MHz	

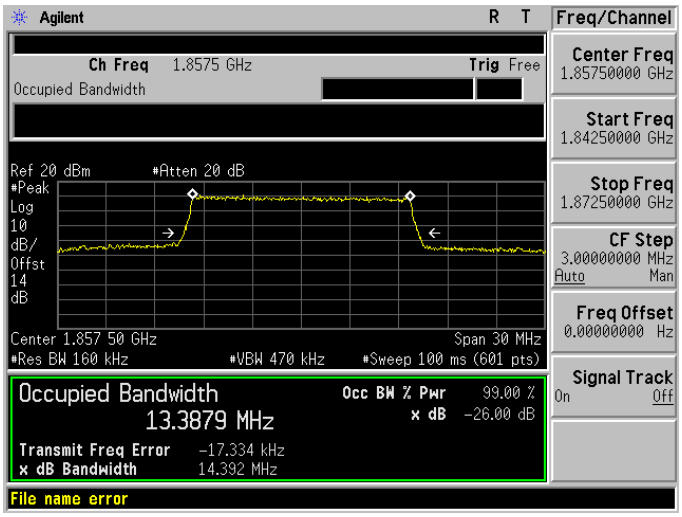
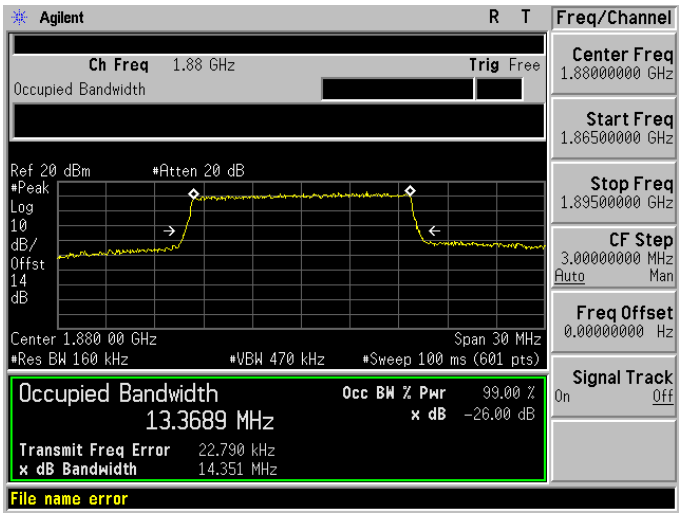
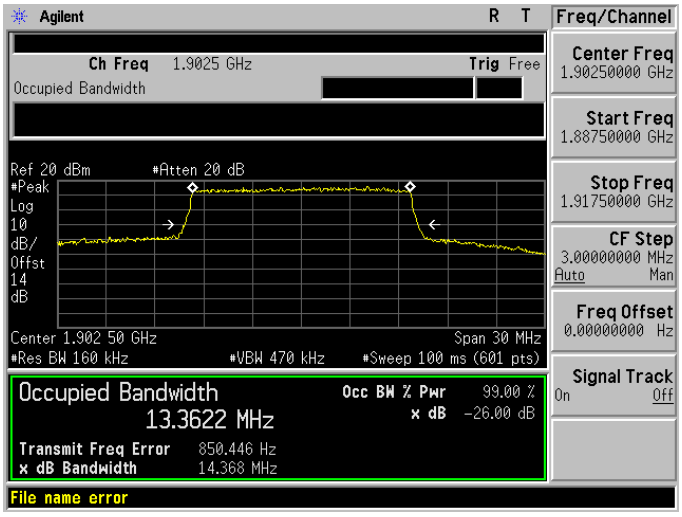
LTE Band 2 (Channel Bandwidth: 10 MHz) _ QPSK	
1855.0 MHz	
1880.0 MHz	
1905.0 MHz	

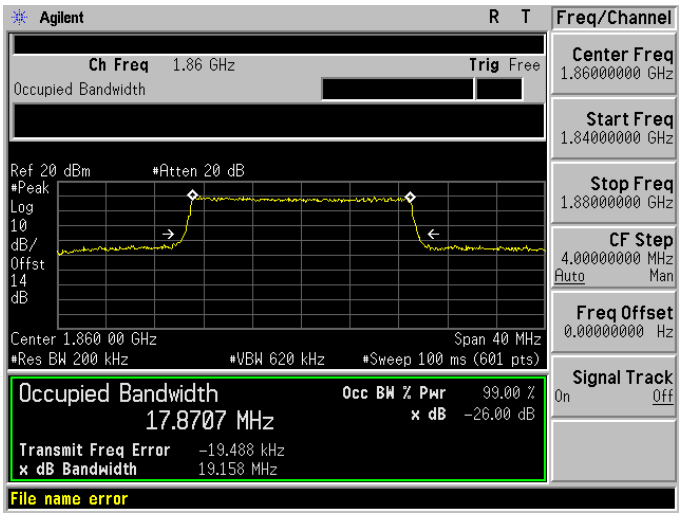
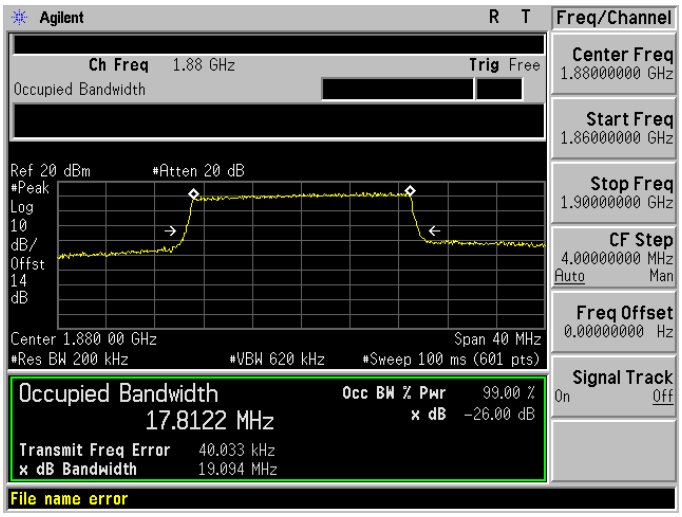
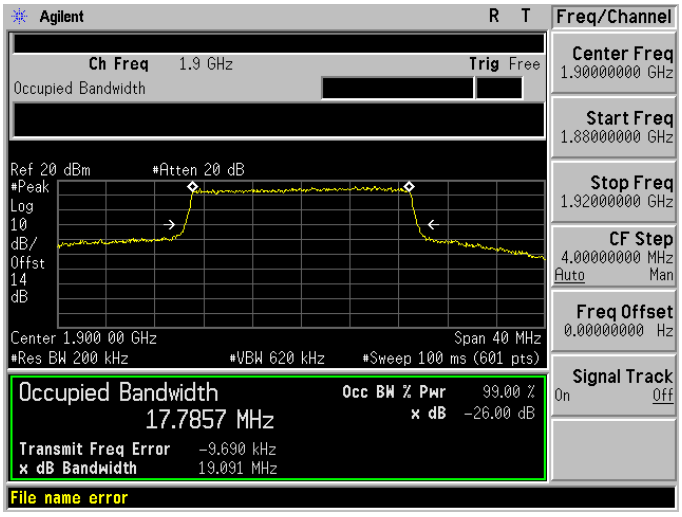
LTE Band 2 (Channel Bandwidth: 15 MHz) _ QPSK	
1857.5 MHz	
1880.0 MHz	
1902.5 MHz	

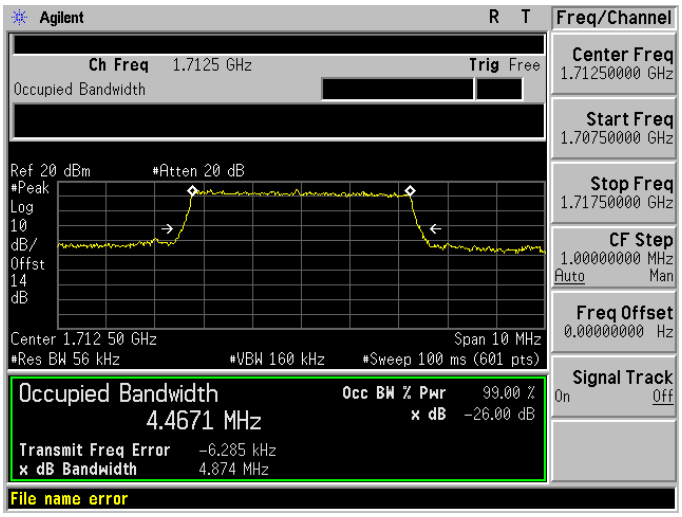
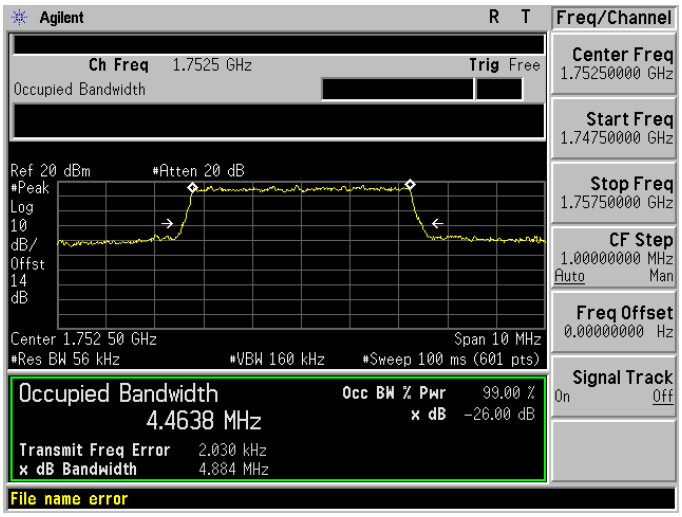
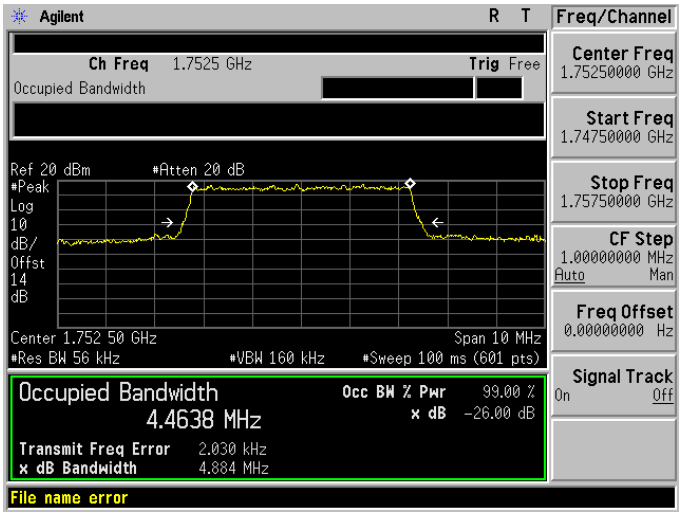
LTE Band 2 (Channel Bandwidth: 20 MHz) _ QPSK	
1860.0 MHz	
1880.0 MHz	
1900.0 MHz	

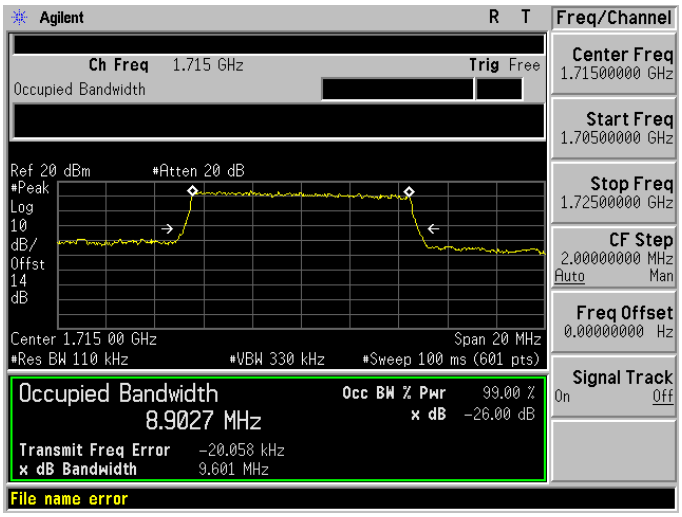
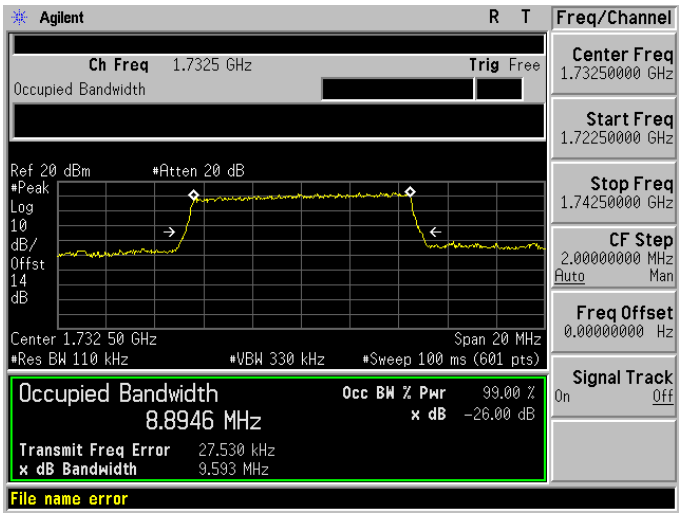
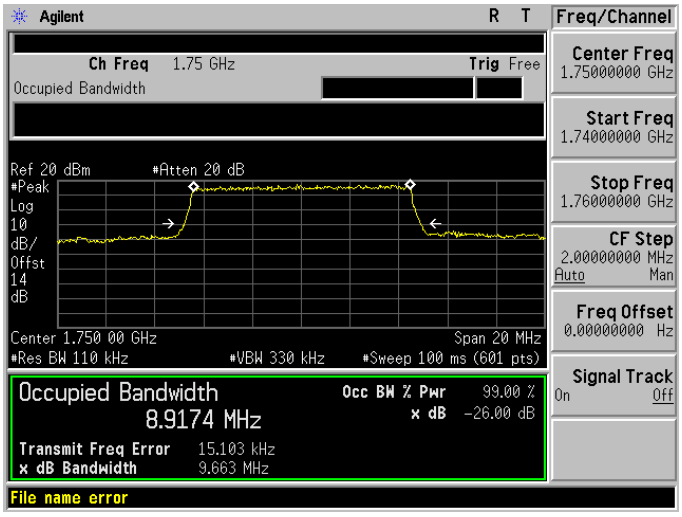
LTE Band 2 (Channel Bandwidth: 5 MHz) _ 16QAM	
1852.5 MHz	
1880.0 MHz	
1907.5 MHz	

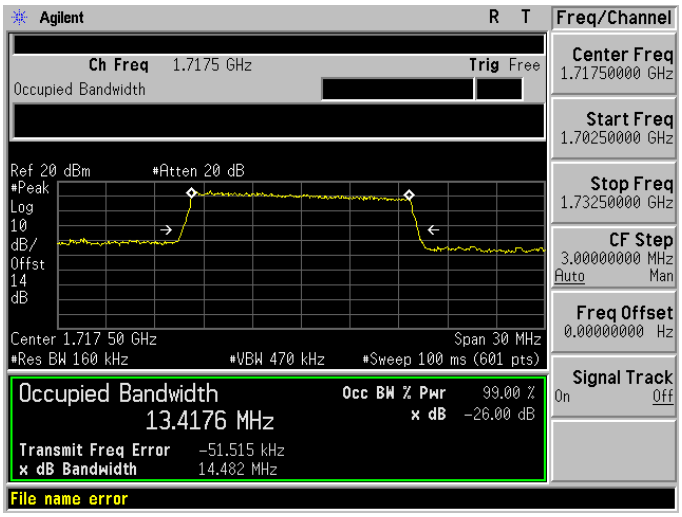
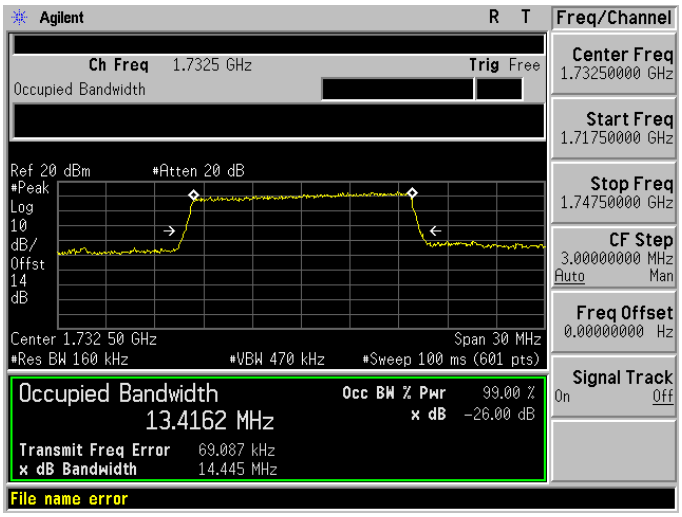
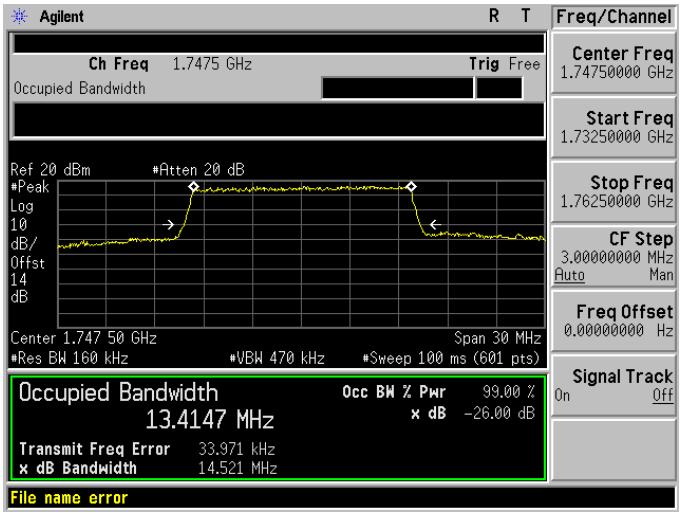
LTE Band 2 (Channel Bandwidth: 10 MHz) _ 16QAM	
1855.0 MHz	
1880.0 MHz	
1905.0 MHz	

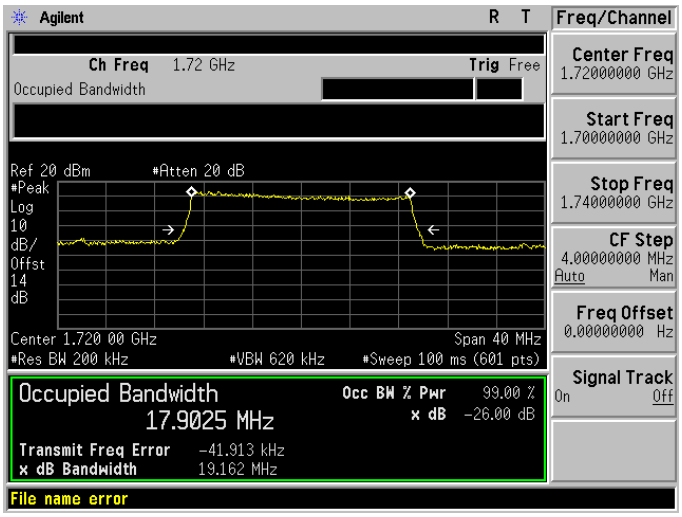
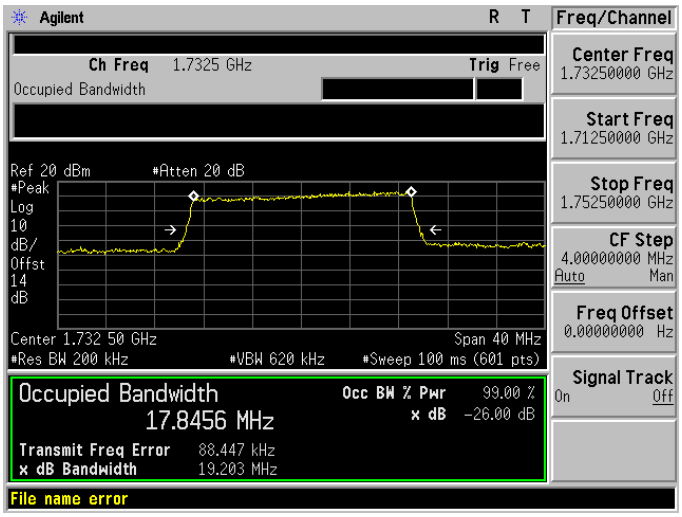
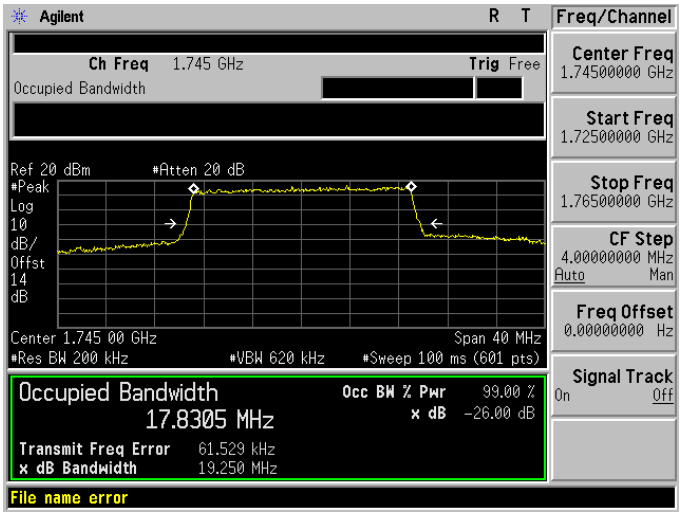
LTE Band 2 (Channel Bandwidth: 15 MHz) _ 16QAM	
1857.5 MHz	
1880.0 MHz	
1902.5 MHz	

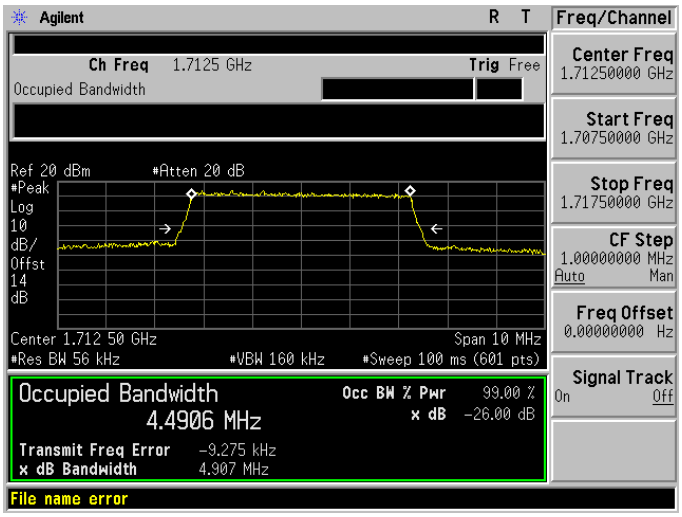
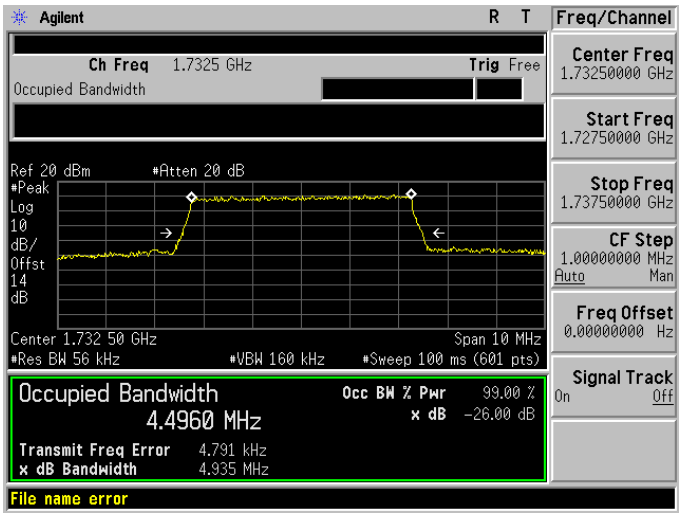
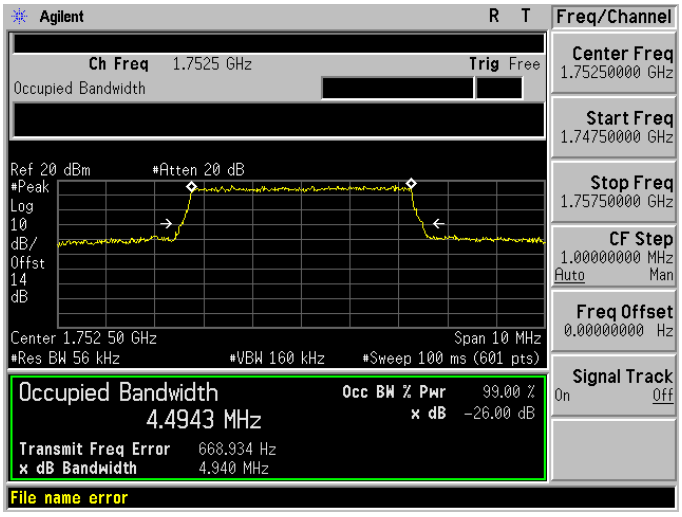
LTE Band 2 (Channel Bandwidth: 20 MHz) _ 16QAM	
1860.0 MHz	
1880.0 MHz	
1900.0 MHz	

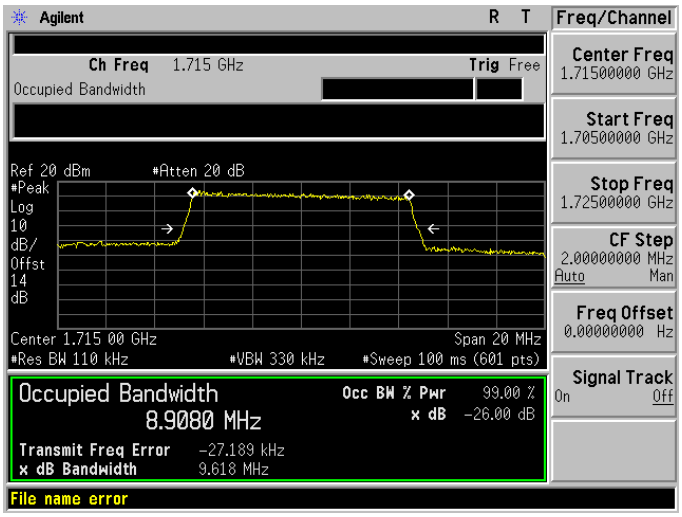
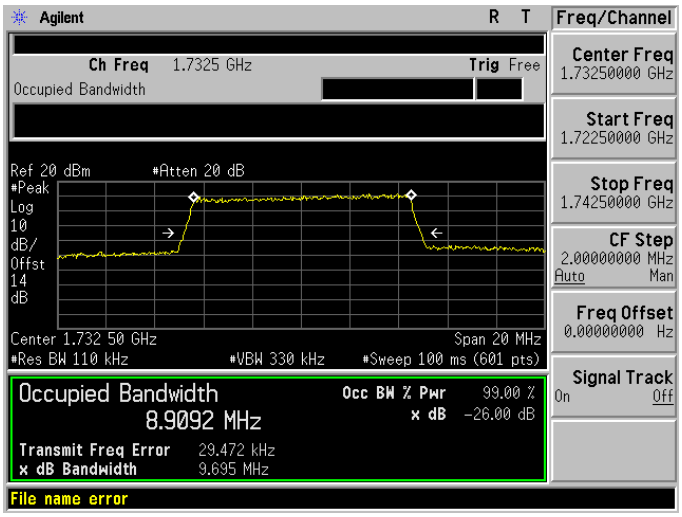
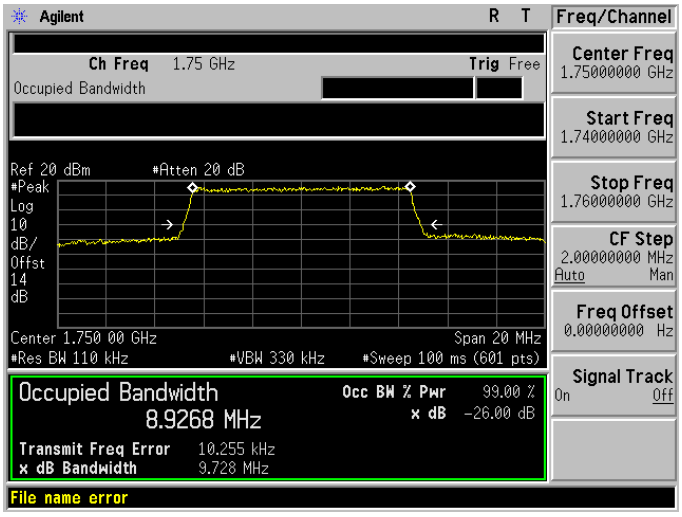
LTE Band 4 (Channel Bandwidth: 5 MHz) _ QPSK	
1712.5 MHz	
1732.5 MHz	
1752.5 MHz	

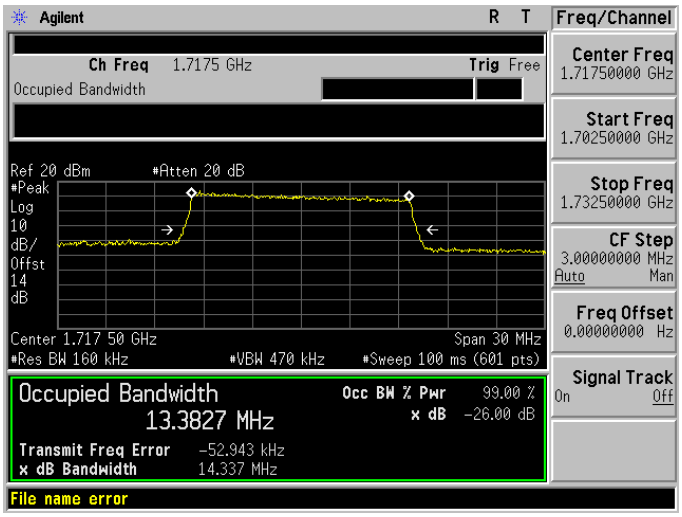
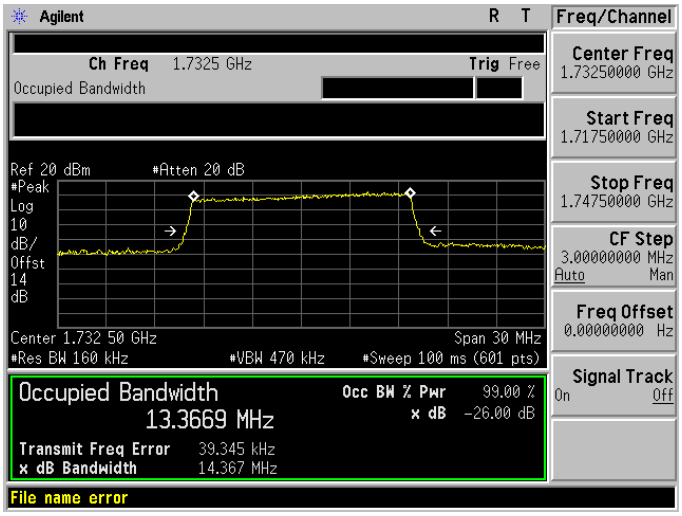
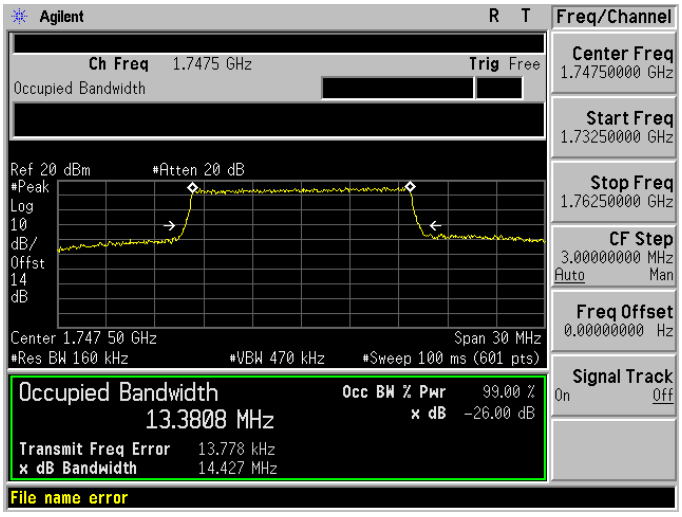
LTE Band 4 (Channel Bandwidth: 10 MHz) _ QPSK	
1715.0 MHz	
1732.5 MHz	
1750.0 MHz	

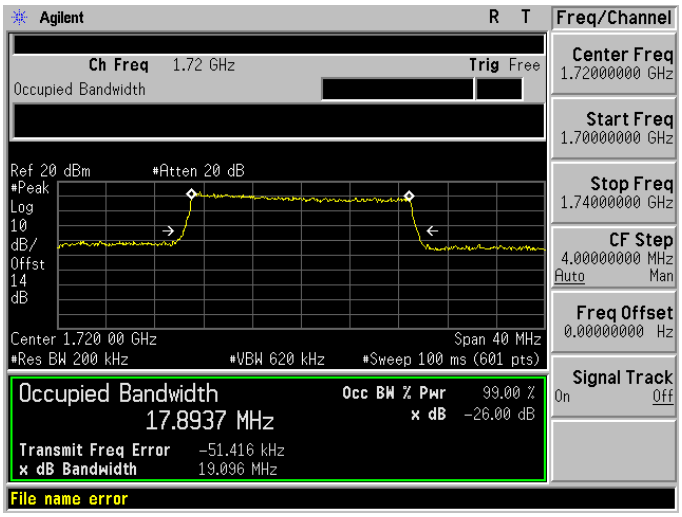
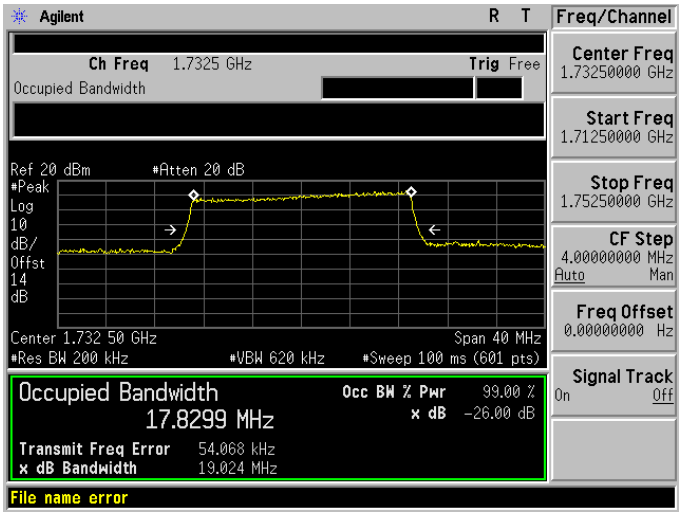
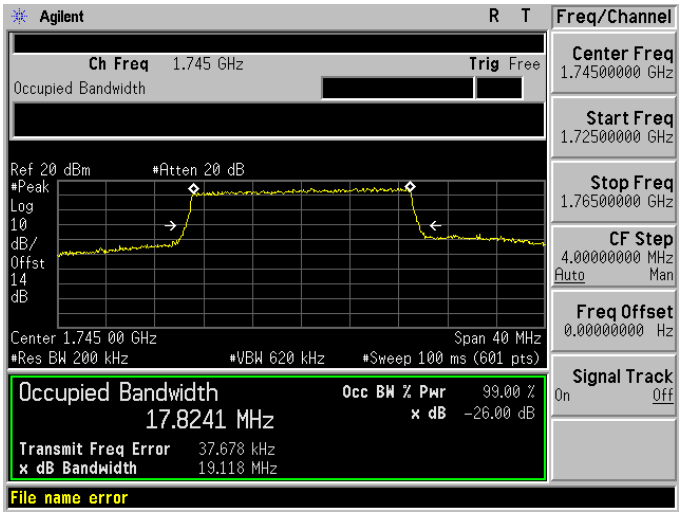
LTE Band 4 (Channel Bandwidth: 15 MHz) _ QPSK	
1717.5 MHz	
1732.5 MHz	
1747.5 MHz	

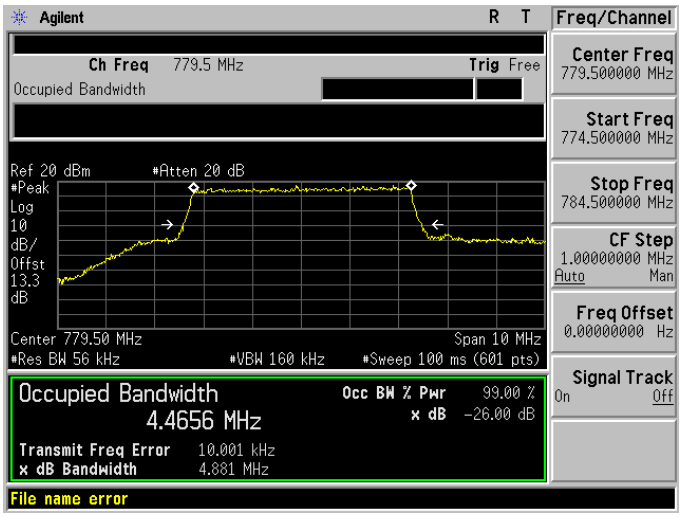
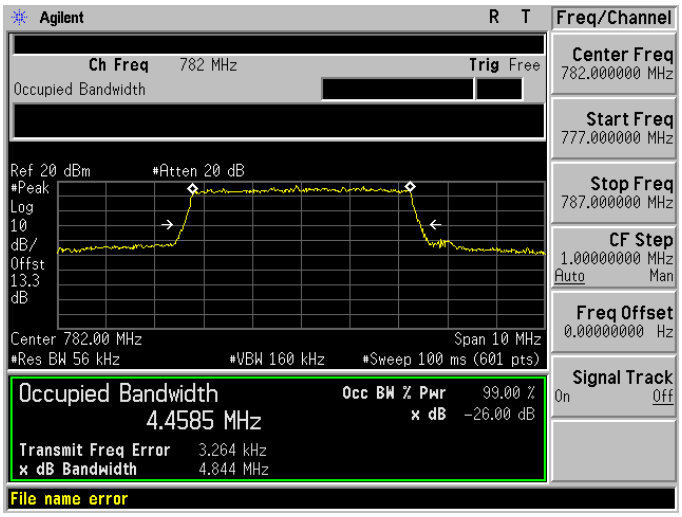
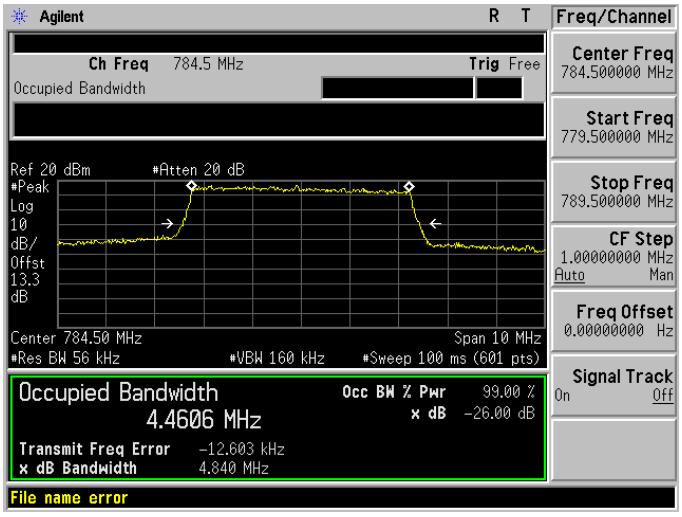
LTE Band 4 (Channel Bandwidth: 20 MHz) _ QPSK	
1720.0 MHz	
1732.5 MHz	
1745.0 MHz	

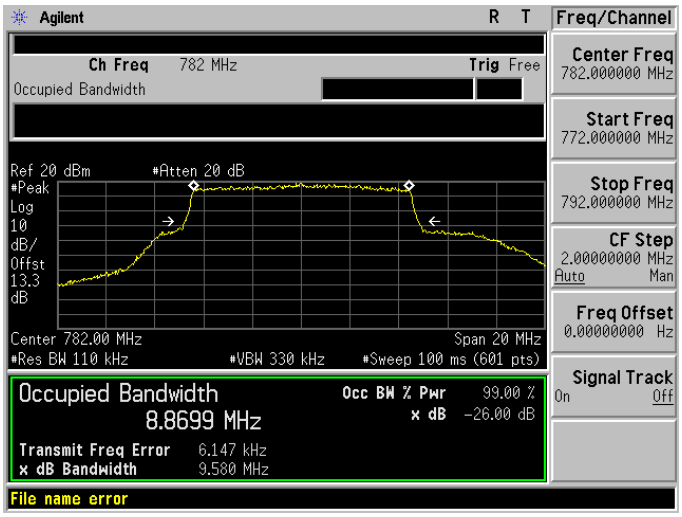
LTE Band 4 (Channel Bandwidth: 5 MHz) _ 16QAM	
1712.5 MHz	
1732.5 MHz	
1752.5 MHz	

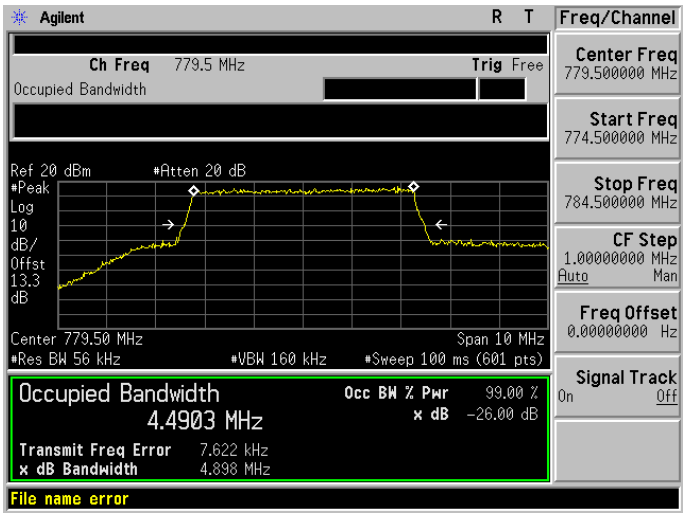
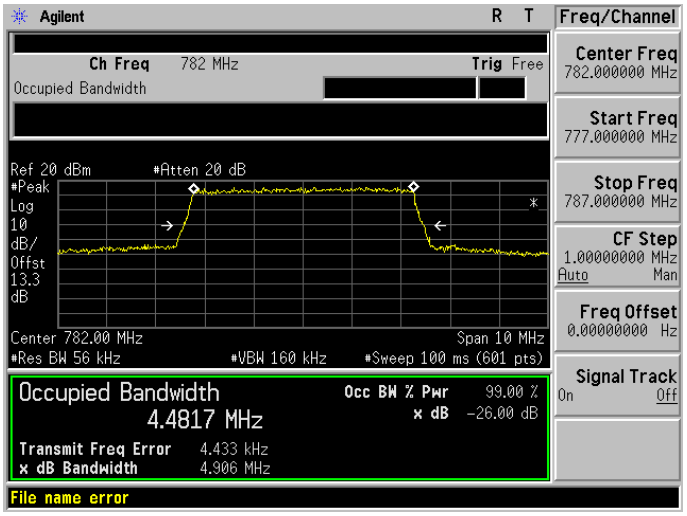
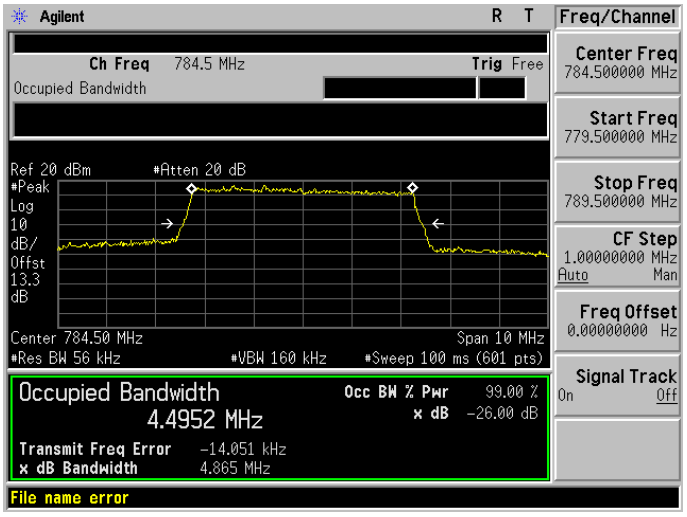
LTE Band 4 (Channel Bandwidth: 10 MHz) _ 16QAM	
1715.0 MHz	
1732.5 MHz	
1750.0 MHz	

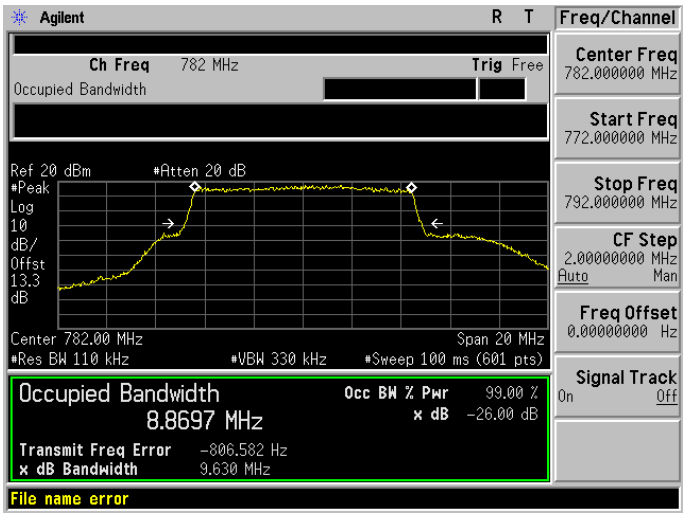
LTE Band 4 (Channel Bandwidth: 15 MHz) _ 16QAM	
1717.5 MHz	
1732.5 MHz	
1747.5 MHz	

LTE Band 4 (Channel Bandwidth: 20 MHz) _ 16QAM	
1720.0 MHz	
1732.5 MHz	
1745.0 MHz	

LTE Band 13 (Channel Bandwidth: 5 MHz) _ QPSK	
779.5 MHz	
782.0 MHz	
784.5 MHz	

LTE Band 13 (Channel Bandwidth: 10 MHz) _ QPSK	
782.0 MHz	

LTE Band 13 (Channel Bandwidth: 5 MHz) _ 16QAM	
779.5 MHz	
782.0 MHz	
784.5 MHz	

LTE Band 13 (Channel Bandwidth: 10 MHz) _ 16QAM	
782.0 MHz	

6 Peak to Average Ratio Test

6.1. Limit

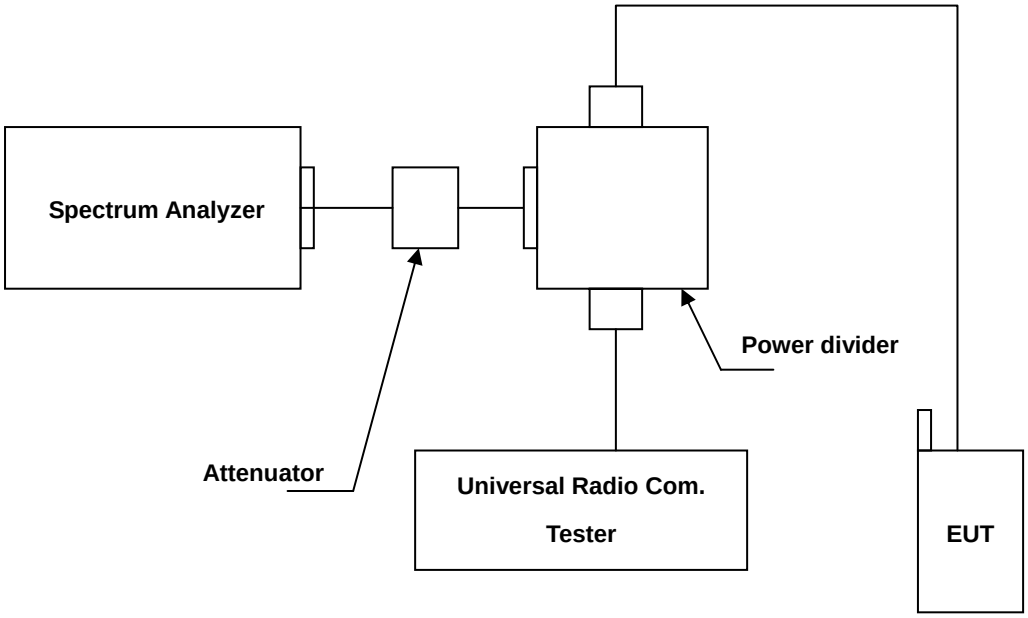
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

6.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Spectrum Analyzer	Agilent	N9030A	MY53120541	12/14/2015	1 year
Wideband Radio Communication Test	R & S	CMW500	103168	10/30/2015	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

6.3. Setup



6.4. Test Procedure

The measurement is made according to FCC rules:

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%.

6.5. Uncertainty

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

6.6. Test Result

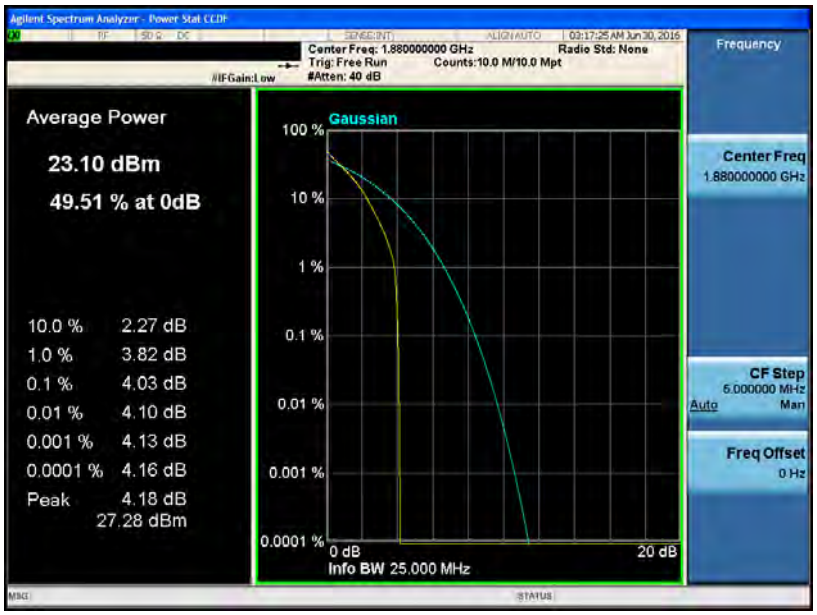
Test Item	Peak to Average Ratio		
Date of Test	06/30/2016	Test Site	TE05

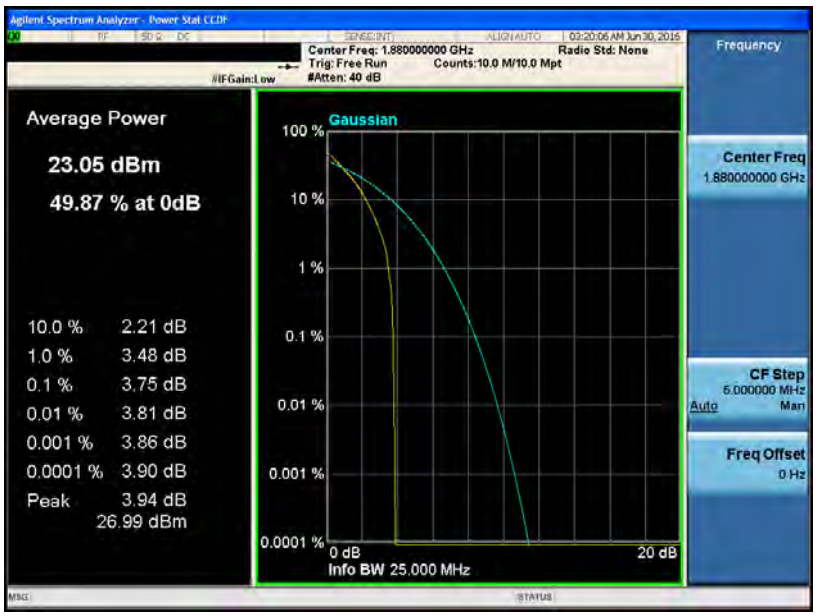
LTE Band 2				
Modulation	Channel Bandwidth	Frequency (MHz)	Peak to Average Ratio (dB)	Limit (dB)
QPSK	5 MHz	1880.0	4.03	< 13
	10 MHz	1880.0	3.75	< 13
	15 MHz	1880.0	3.24	< 13
	20 MHz	1880.0	2.97	< 13
16QAM	5 MHz	1880.0	4.93	< 13
	10 MHz	1880.0	4.69	< 13
	15 MHz	1880.0	4.31	< 13
	20 MHz	1880.0	3.73	< 13

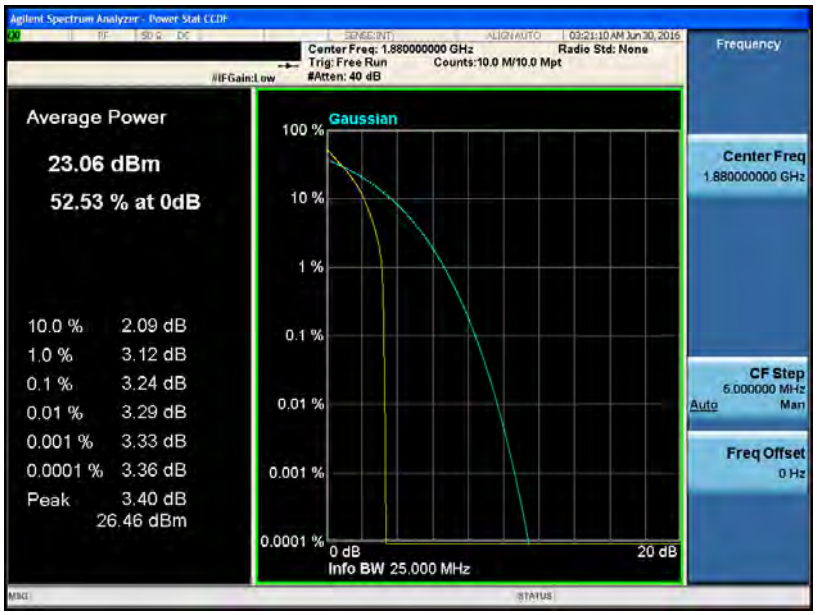
LTE Band 4				
Modulation	Channel Bandwidth	Frequency (MHz)	Peak to Average Ratio (dB)	Limit (dB)
QPSK	5 MHz	1732.5	4.04	< 13
	10 MHz	1732.5	3.79	< 13
	15 MHz	1732.5	3.58	< 13
	20 MHz	1732.5	3.27	< 13
16QAM	5 MHz	1732.5	4.17	< 13
	10 MHz	1732.5	3.67	< 13
	15 MHz	1732.5	3.62	< 13
	20 MHz	1732.5	3.46	< 13

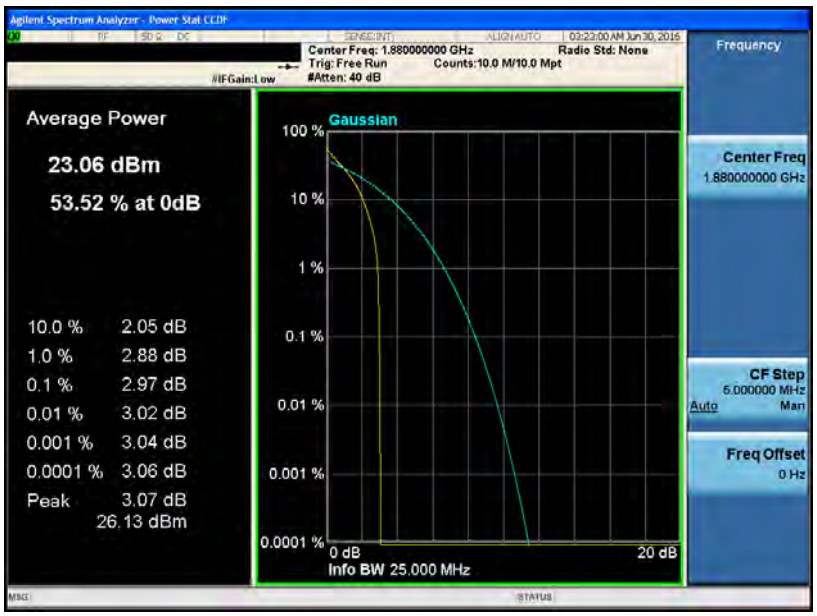
LTE Band 13				
Modulation	Channel Bandwidth	Frequency (MHz)	Peak to Average Ratio (dB)	Limit (dB)
QPSK	5 MHz	782.0	3.67	< 13
	10 MHz	782.0	3.02	< 13
16QAM	5 MHz	782.0	4.38	< 13
	10 MHz	782.0	3.88	< 13

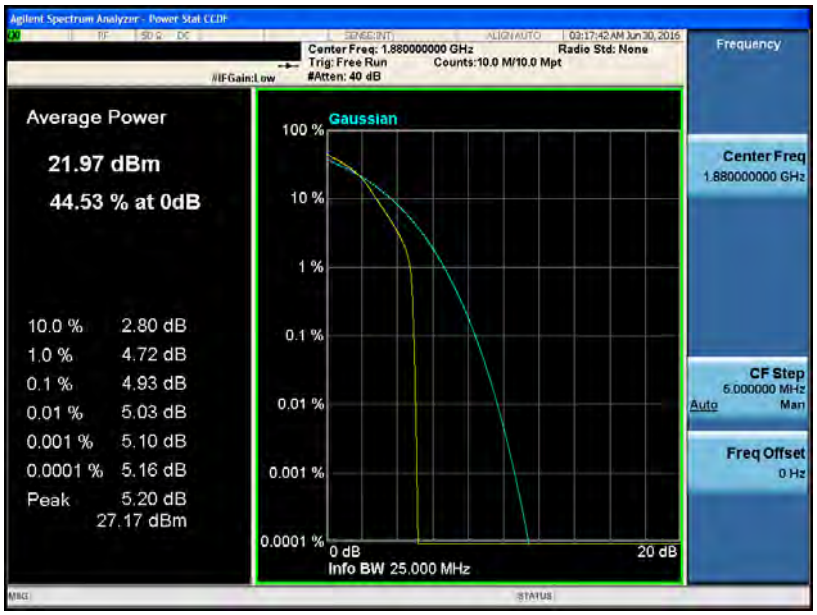
6.7. Test Graphs

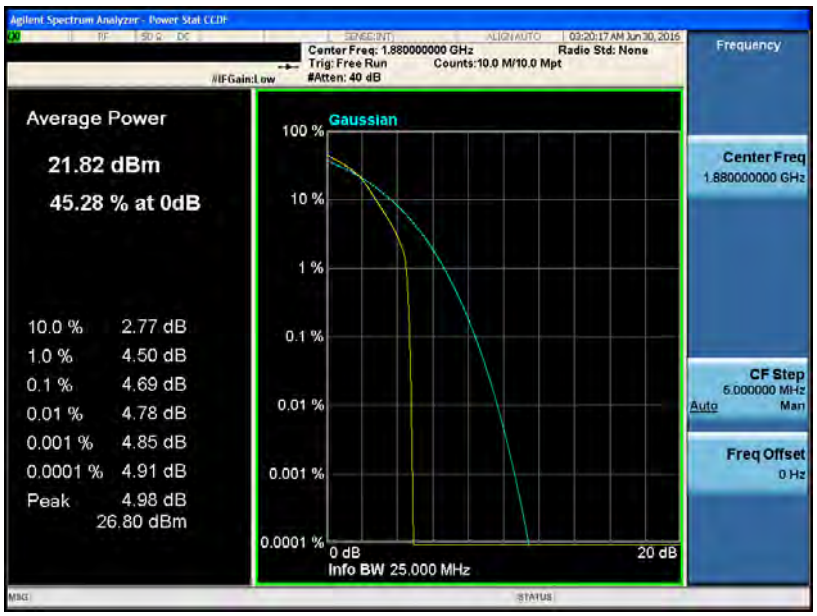
LTE Band 2 (Channel Bandwidth: 5 MHz) _ QPSK	
1880.0 MHz	

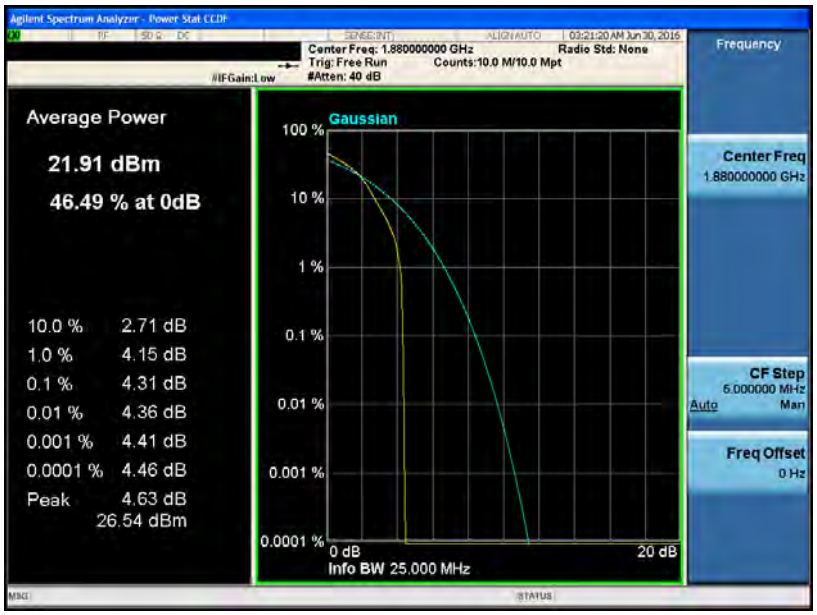
LTE Band 2 (Channel Bandwidth: 10 MHz) _ QPSK	
1880.0 MHz	

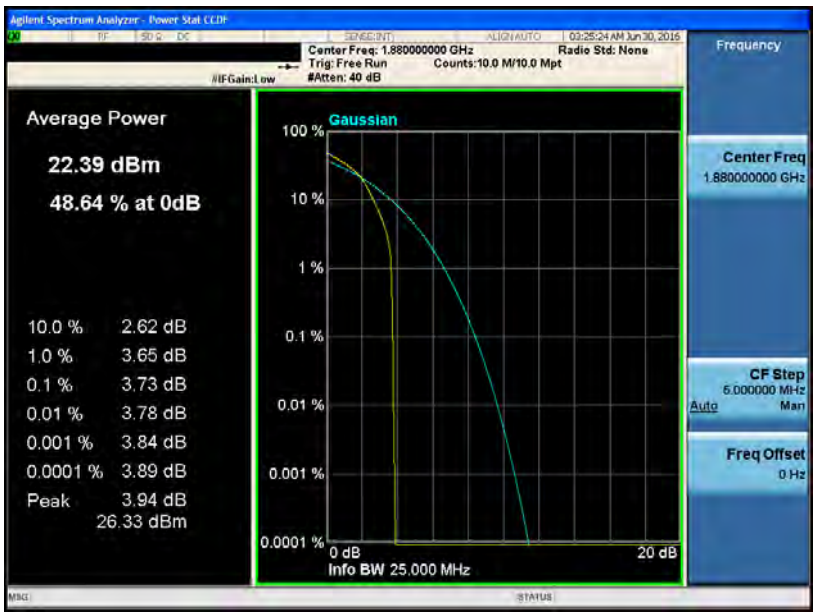
LTE Band 2 (Channel Bandwidth: 15 MHz) _ QPSK	
1880.0 MHz	

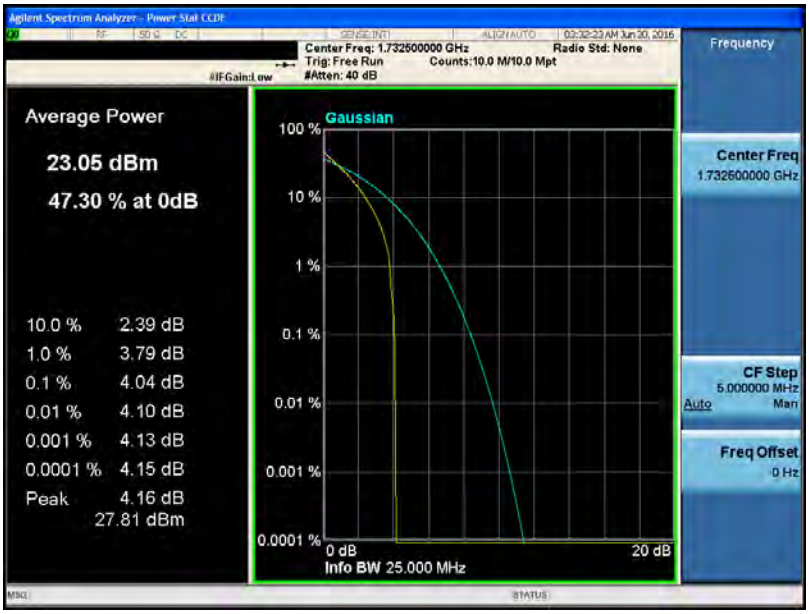
LTE Band 2 (Channel Bandwidth: 20 MHz) _ QPSK	
1880.0 MHz	

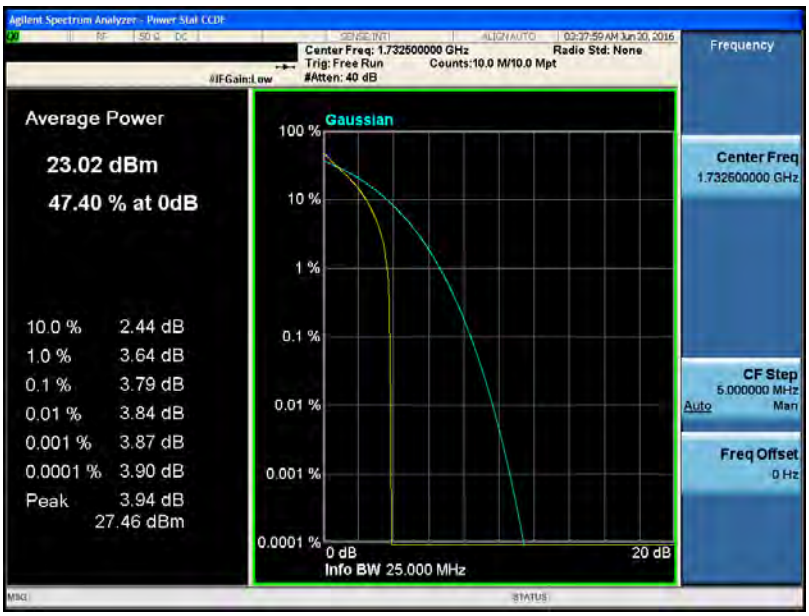
LTE Band 2 (Channel Bandwidth: 5 MHz) _ 16QAM	
1880.0 MHz	

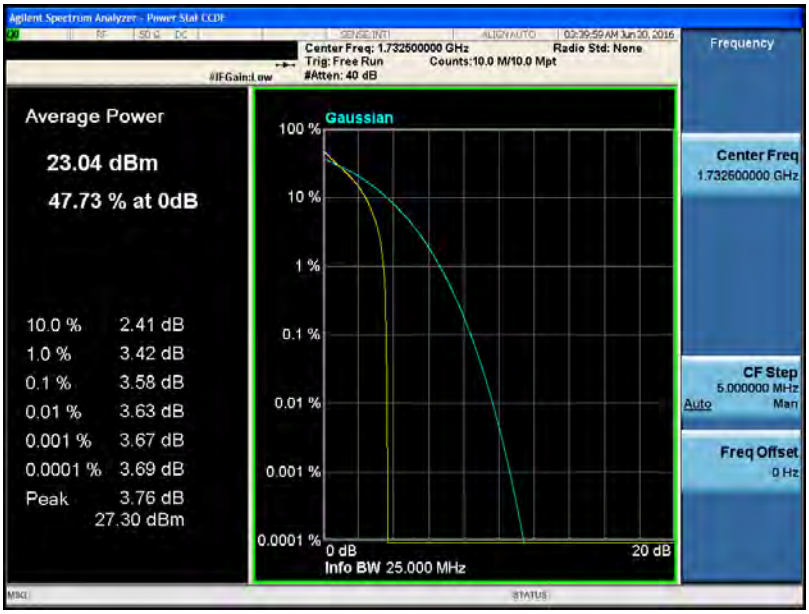
LTE Band 2 (Channel Bandwidth: 10 MHz) _ 16QAM	
1880.0 MHz	

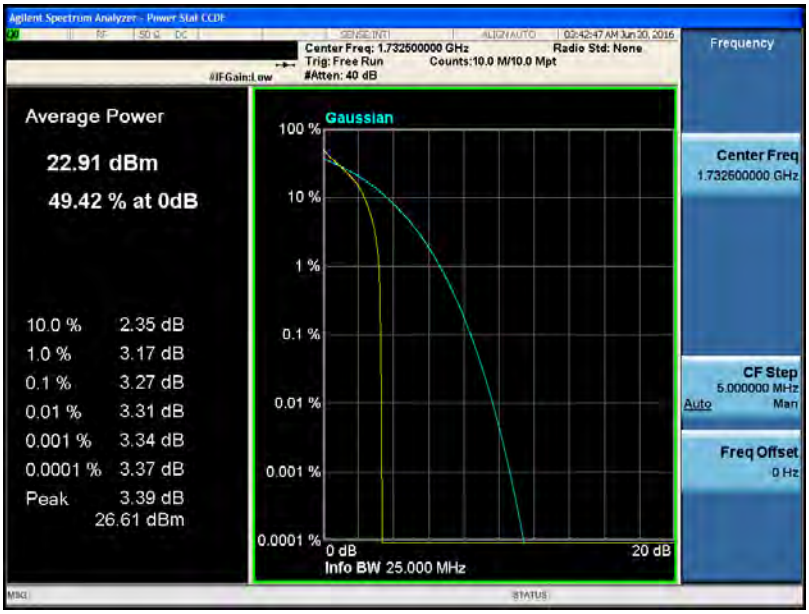
LTE Band 2 (Channel Bandwidth: 15 MHz) _ 16QAM	
1880.0 MHz	

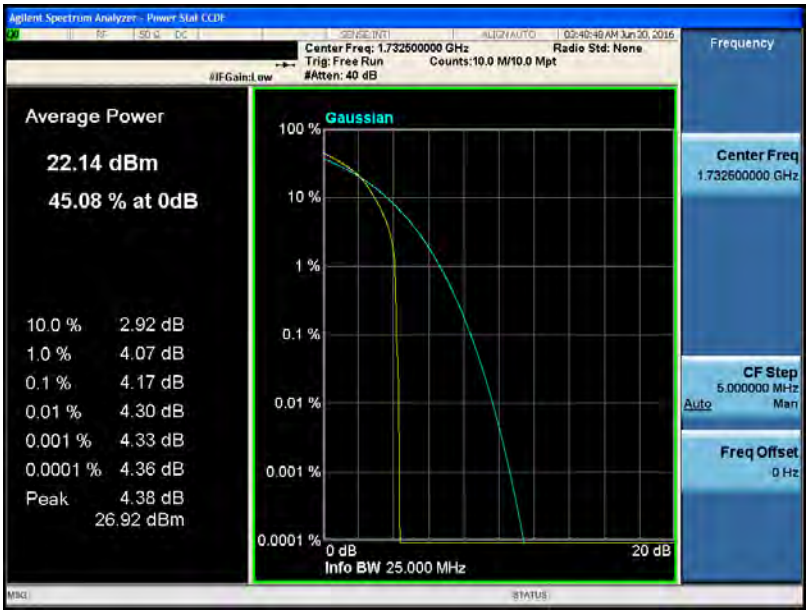
LTE Band 2 (Channel Bandwidth: 20 MHz) _ 16QAM	
1880.0 MHz	

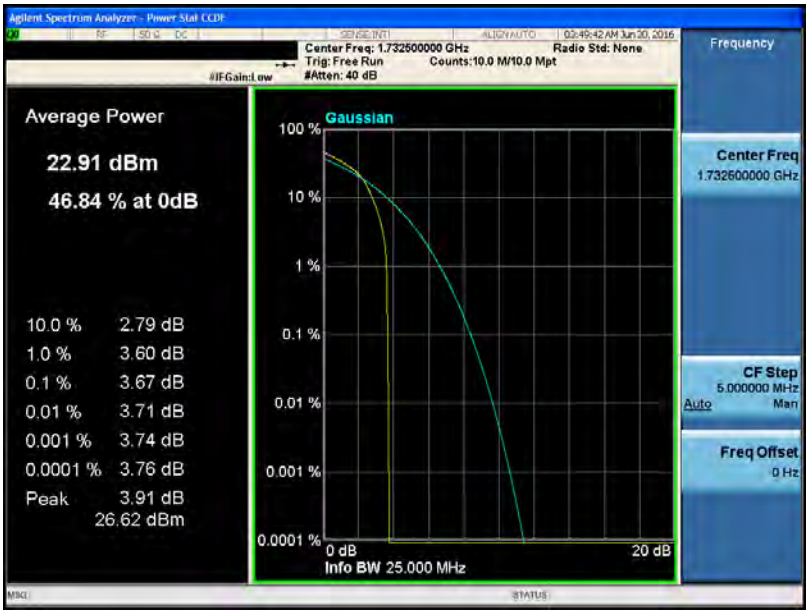
LTE Band 4 (Channel Bandwidth: 5 MHz) _ QPSK	
1732.5 MHz	

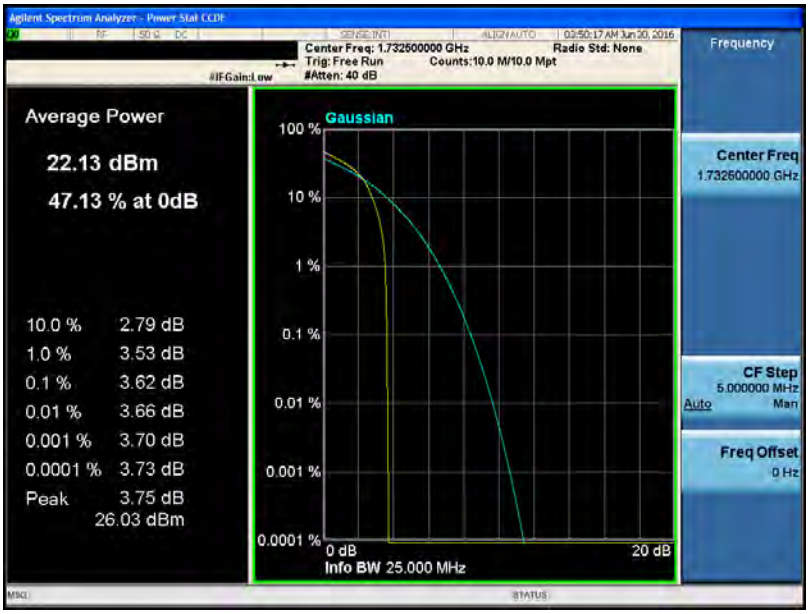
LTE Band 4 (Channel Bandwidth: 10 MHz) _ QPSK	
1732.5 MHz	

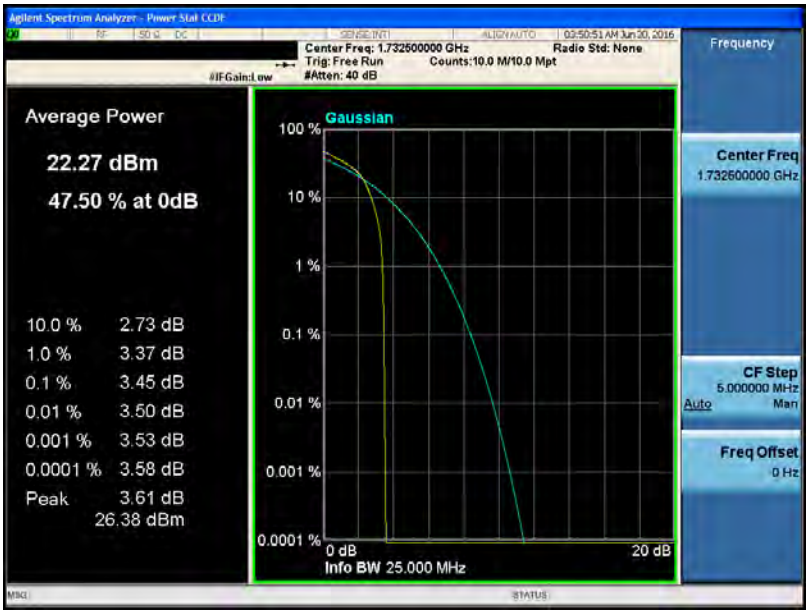
LTE Band 4 (Channel Bandwidth: 15 MHz) _ QPSK	
1732.5 MHz	

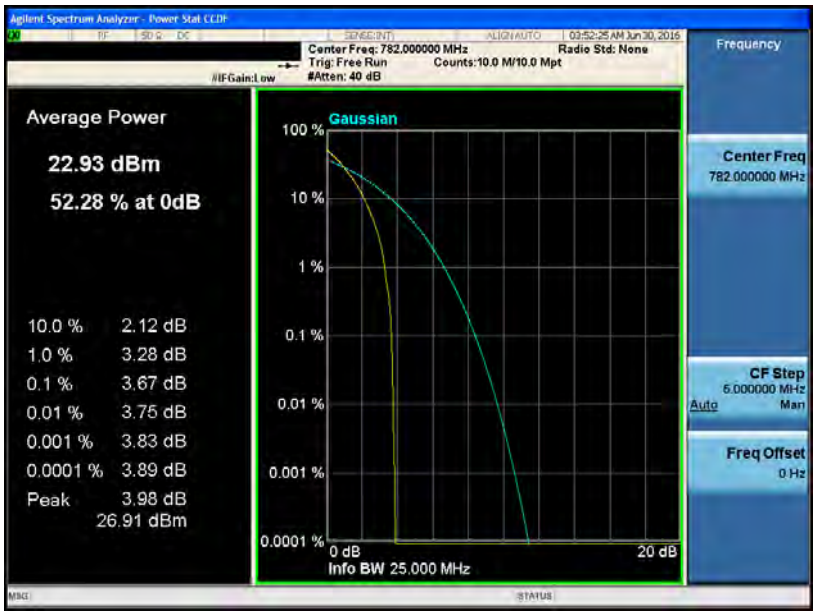
LTE Band 4 (Channel Bandwidth: 20 MHz) _ QPSK	
1732.5 MHz	

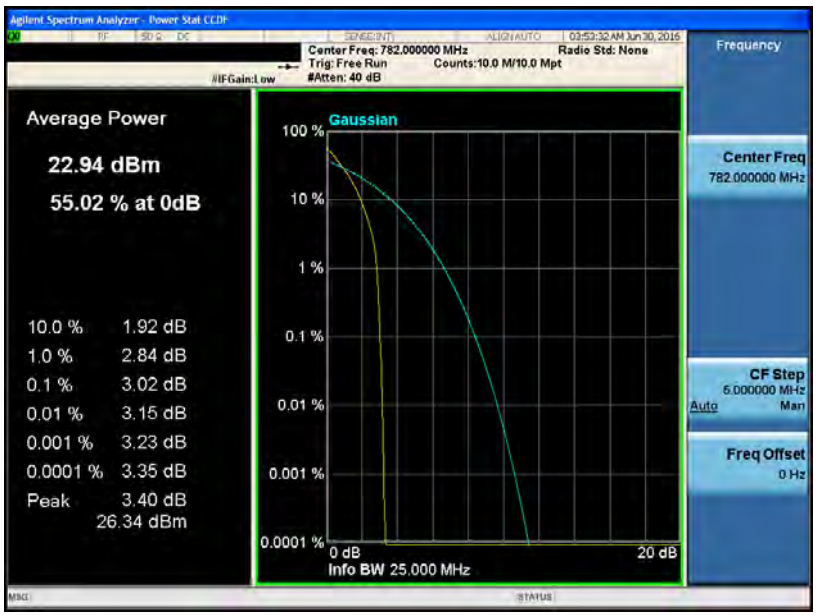
LTE Band 4 (Channel Bandwidth: 5 MHz) _ 16QAM	
1732.5 MHz	

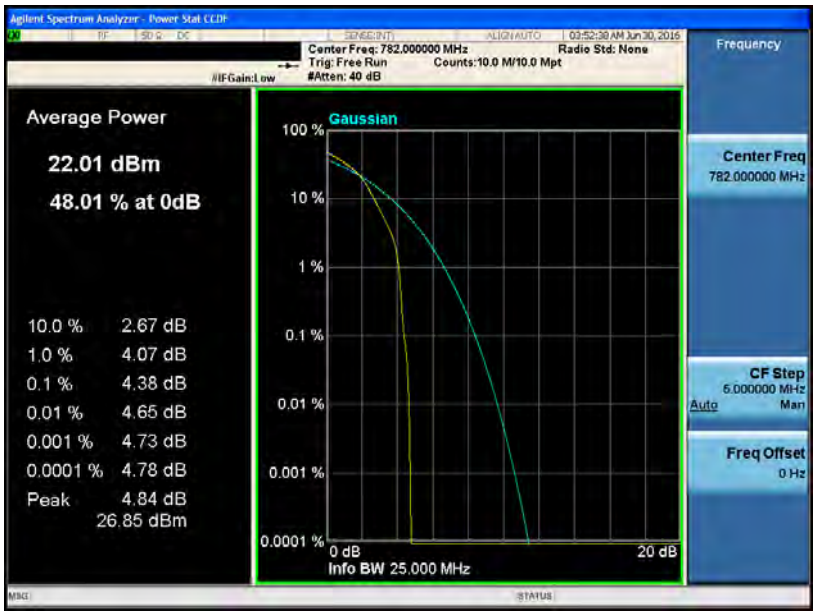
LTE Band 4 (Channel Bandwidth: 10 MHz) _ 16QAM	
1732.5 MHz	

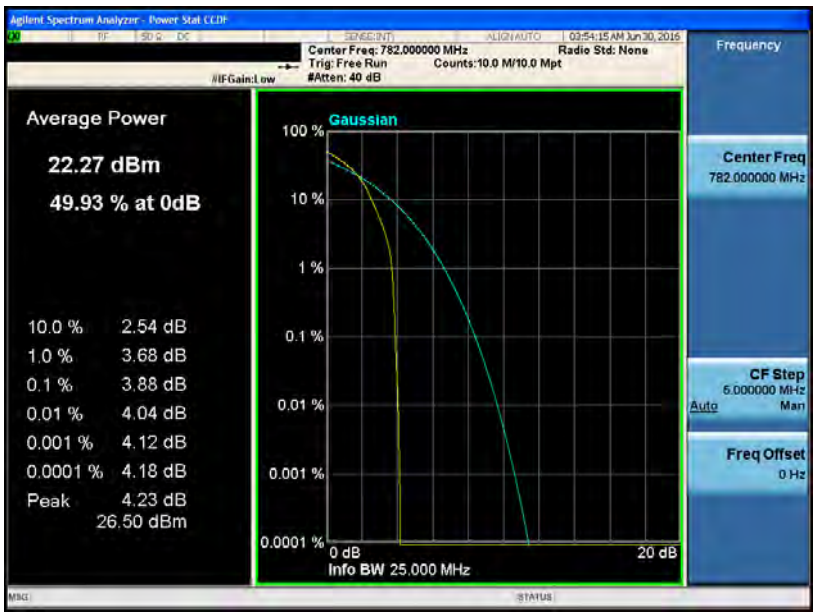
LTE Band 4 (Channel Bandwidth: 15 MHz) _ 16QAM	
1732.5 MHz	

LTE Band 4 (Channel Bandwidth: 20 MHz) _ 16QAM	
1732.5 MHz	

LTE Band 13 (Channel Bandwidth: 5 MHz) _ QPSK	
782.0 MHz	

LTE Band 13 (Channel Bandwidth: 10 MHz) _ QPSK	
782.0 MHz	

LTE Band 13 (Channel Bandwidth: 5 MHz) _ 16QAM	
782.0 MHz	

LTE Band 13 (Channel Bandwidth: 10 MHz) _ 16QAM	
782.0 MHz	

7 Band Edge Test

7.1. Limit

The Band Edge Limit:

§24.238(a), §27.53(h)

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 + 10log(P) dB.

§27.53(c)(2)

On any frequency outside the 777-787 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.

§27.53(c)(4)

On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

LTE Band 13_BW=5M				
Frequency (MHz)	RBW=10kHz Measurement (dBm)	RBW=6.25kHz Measurement (dBm)	Limit -35dBm/6.25kHz	Result
763 ~ 775	-37.62	-39.66	-35	PASS
793 ~ 805	-56.23	-58.27	-35	PASS

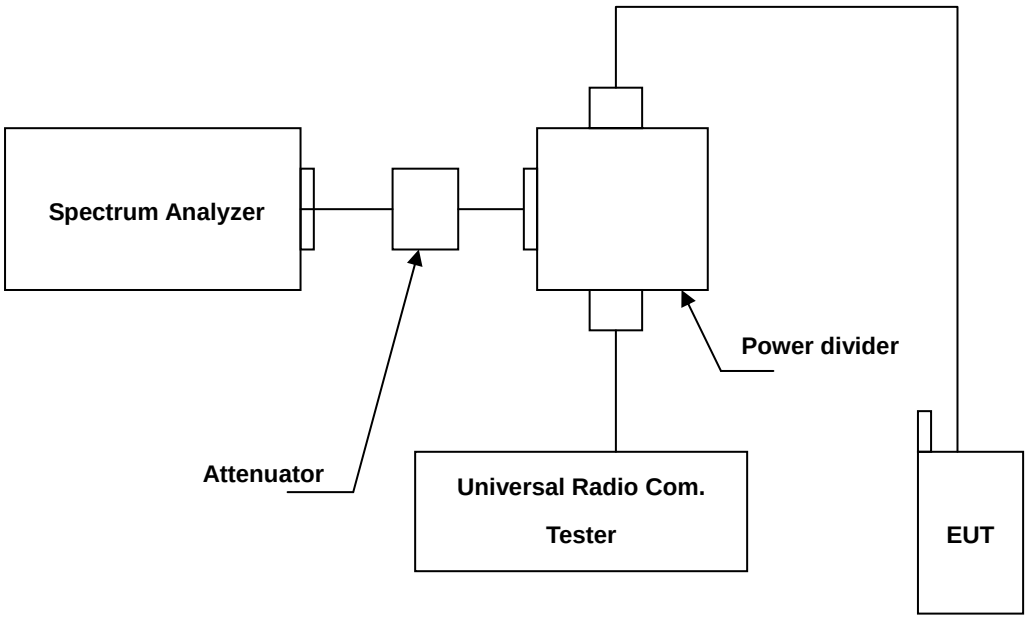
LTE Band 13_BW=10M				
Frequency (MHz)	RBW=10kHz Measurement (dBm)	RBW=6.25kHz Measurement (dBm)	Limit -35dBm/6.25kHz	Result
763 ~775	-38.71	-40.75	-35	PASS
793 ~805	-50.24	-52.28	-35	PASS

7.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Spectrum Analyzer	Agilent	N9030A	MY53120541	12/14/2015	1 year
Wideband Radio Communication Test	R & S	CMW500	103168	10/30/2015	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

7.3. Setup



7.4. Test Procedure

The measurement is made according to FCC rules:

a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.)

b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss in the transmitted path track.

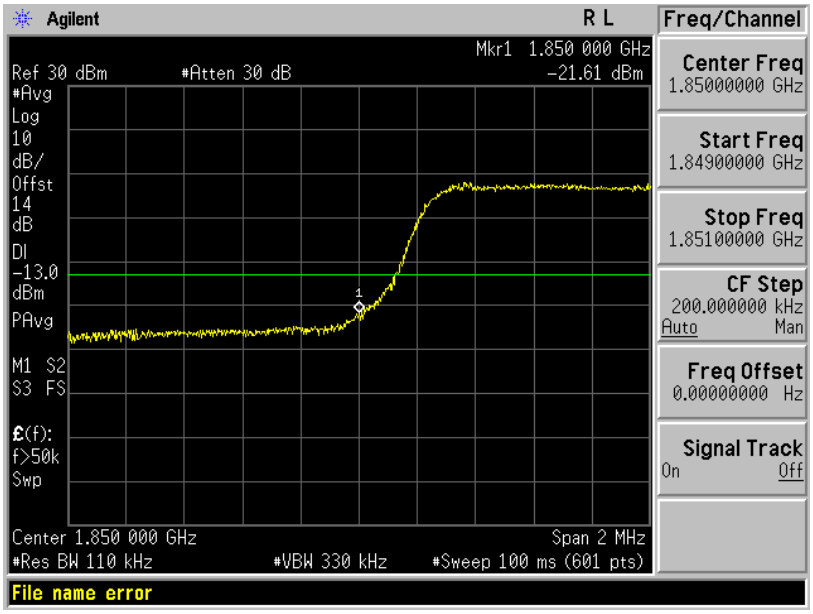
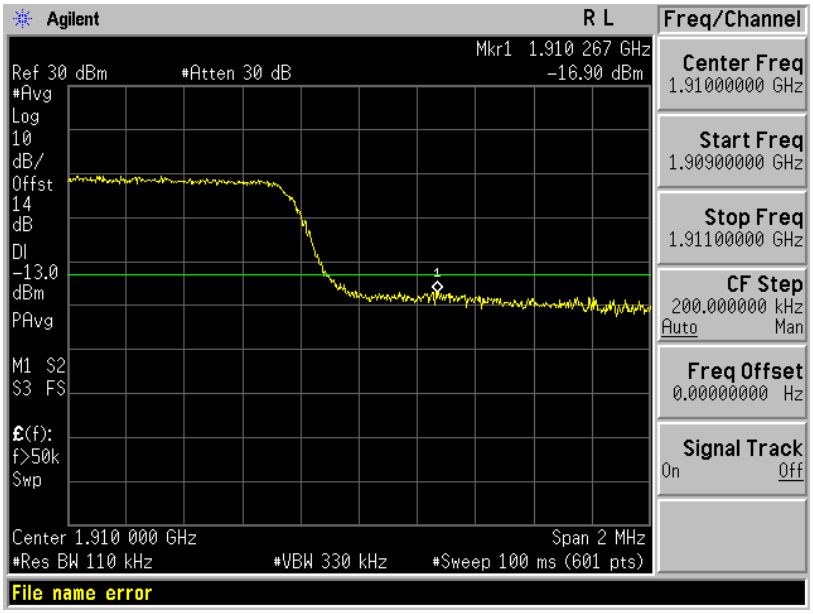
c. The center frequency of spectrum is the band edge frequency and span is 10 MHz. RB of the resolution bandwidth of at least one percent of the emission bandwidth.

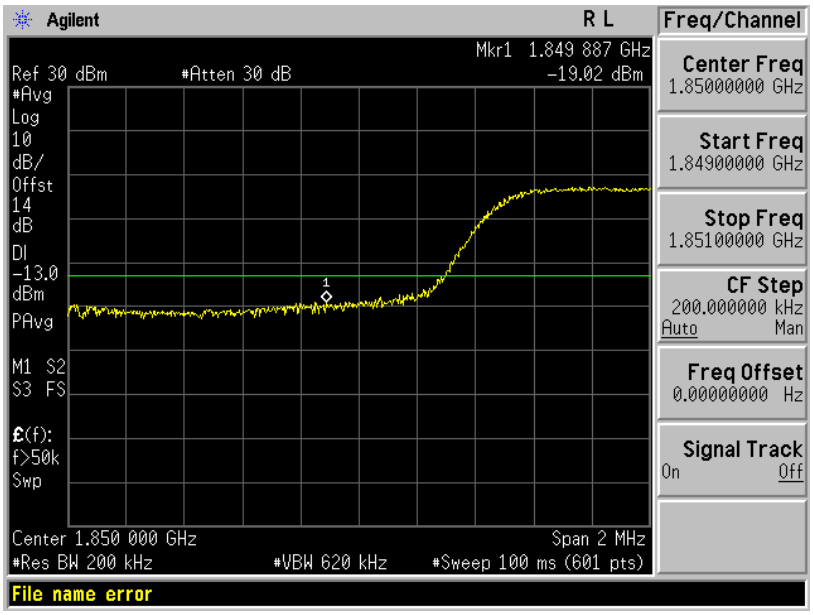
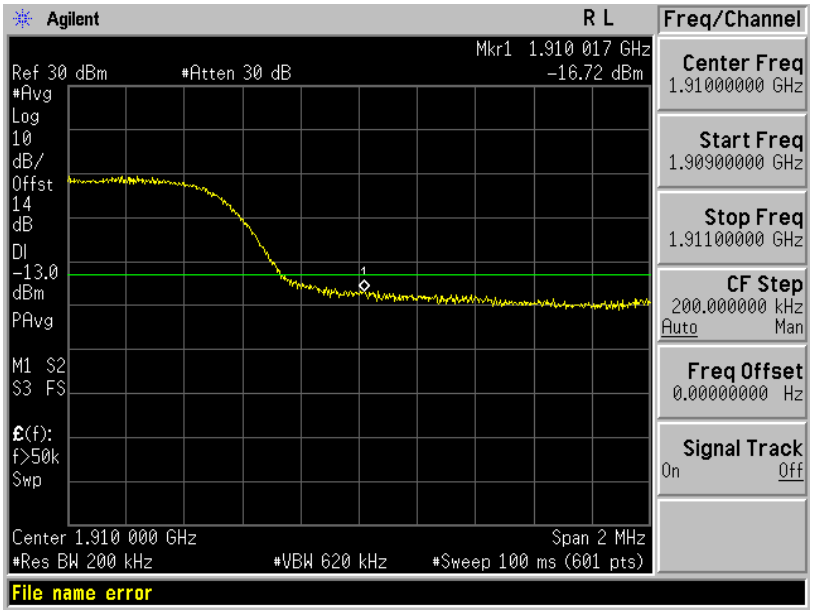
d. Record the max trace plot into the test report.

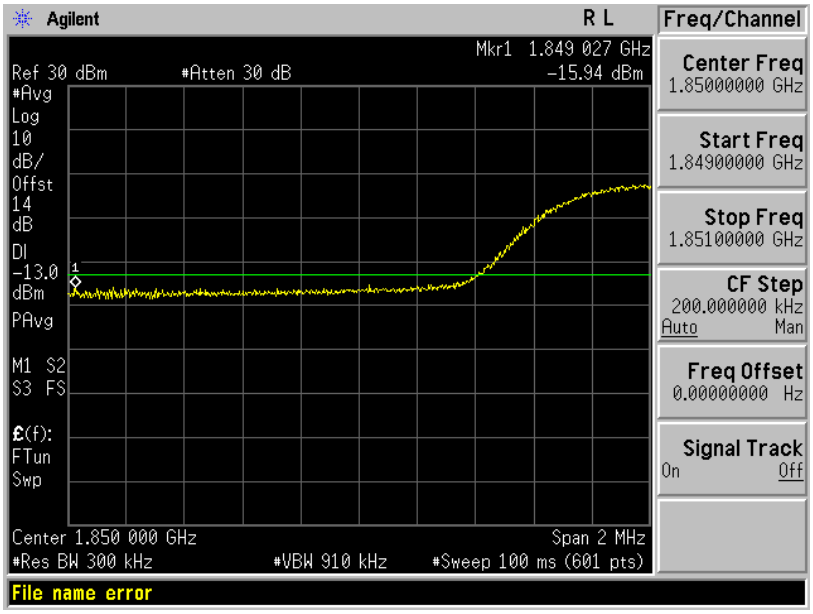
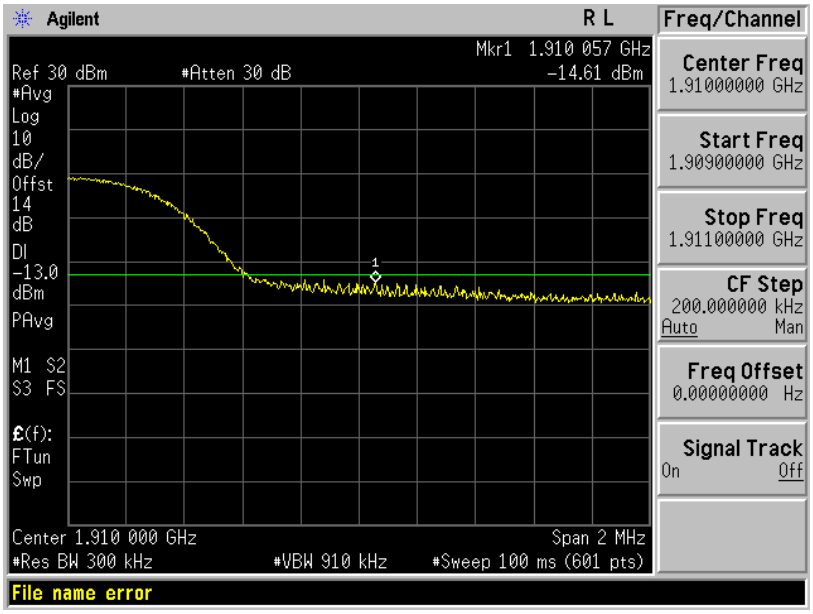
7.5. Uncertainty

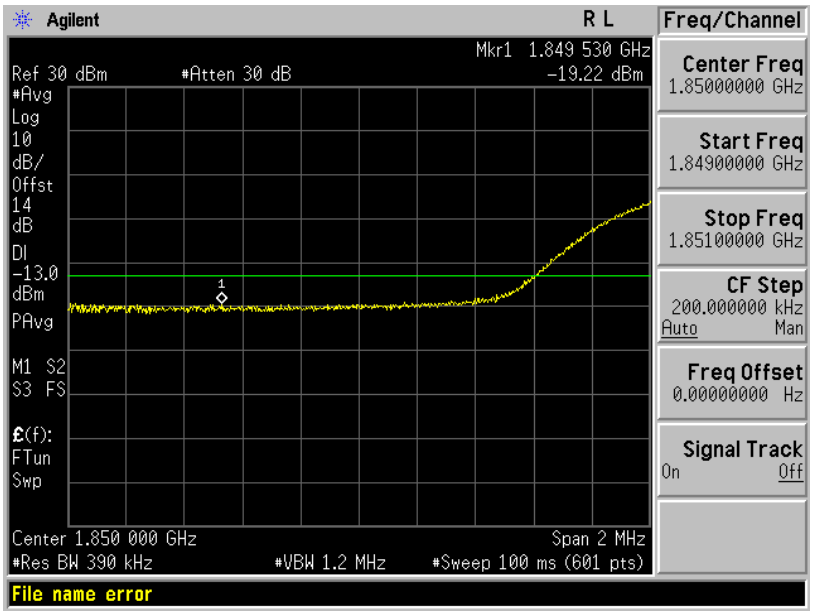
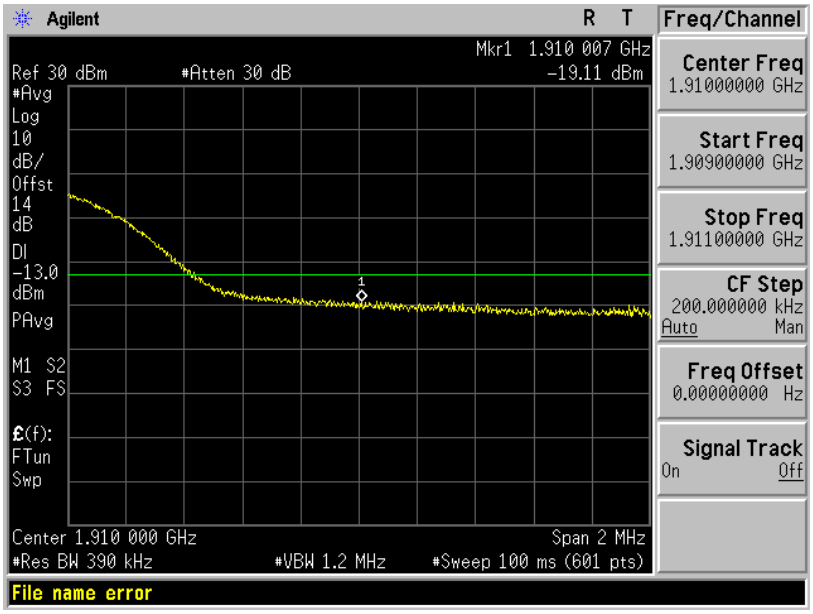
The measurement uncertainty is defined as for Conducted Power measurement is 1.2 dB.

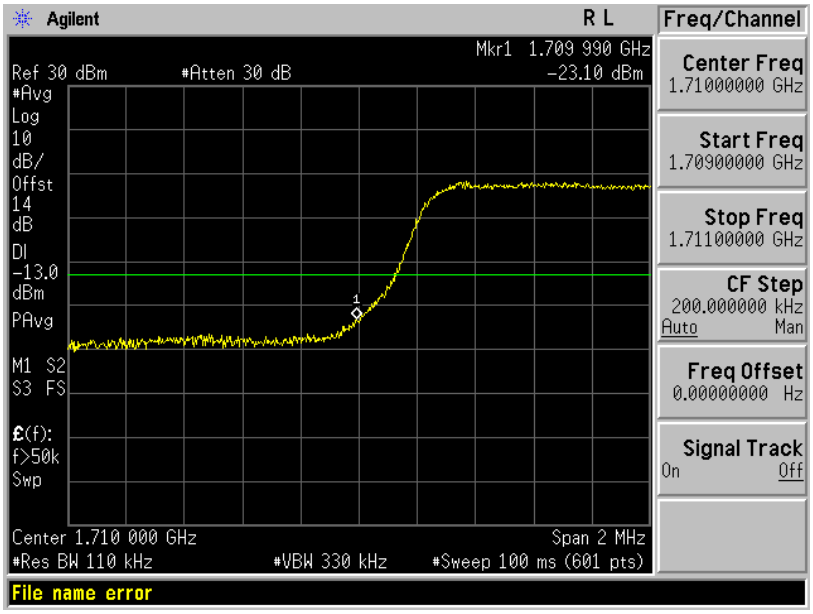
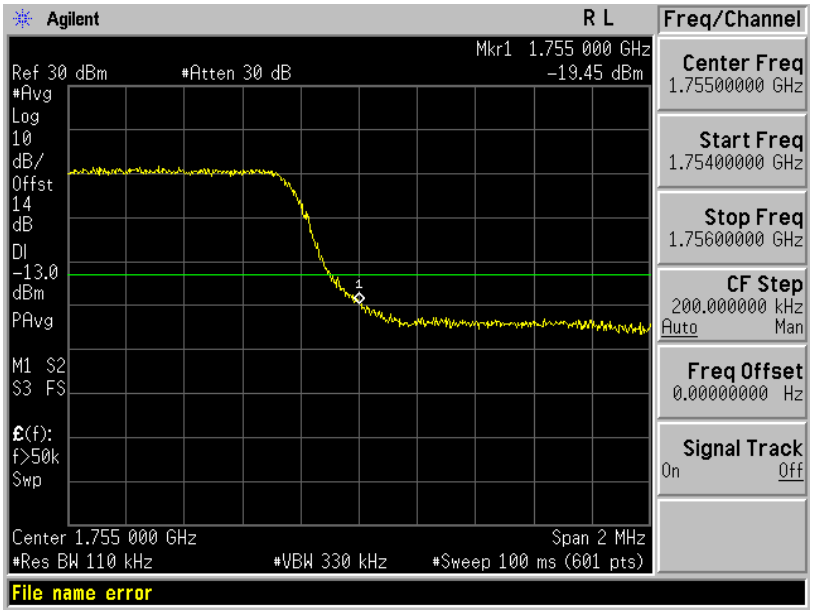
7.6. Test Result

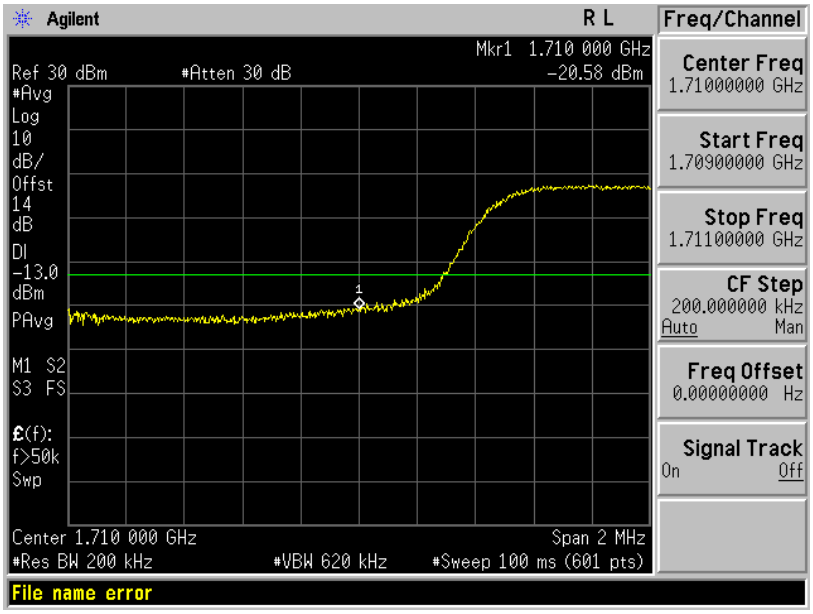
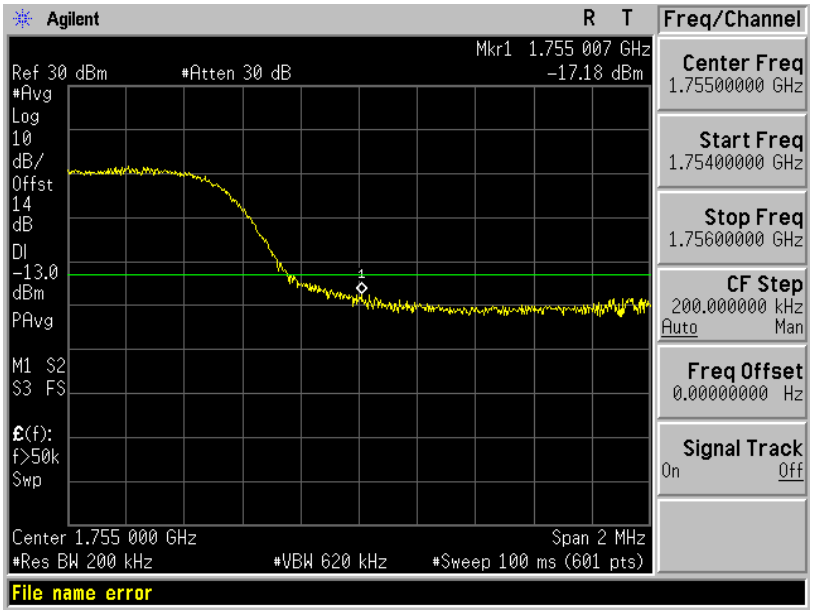
Frequency	LTE Band 2	Channel Bandwidth	5 MHz	RB Allocated	25
Lower Band Edge					
Higher Band Edge					

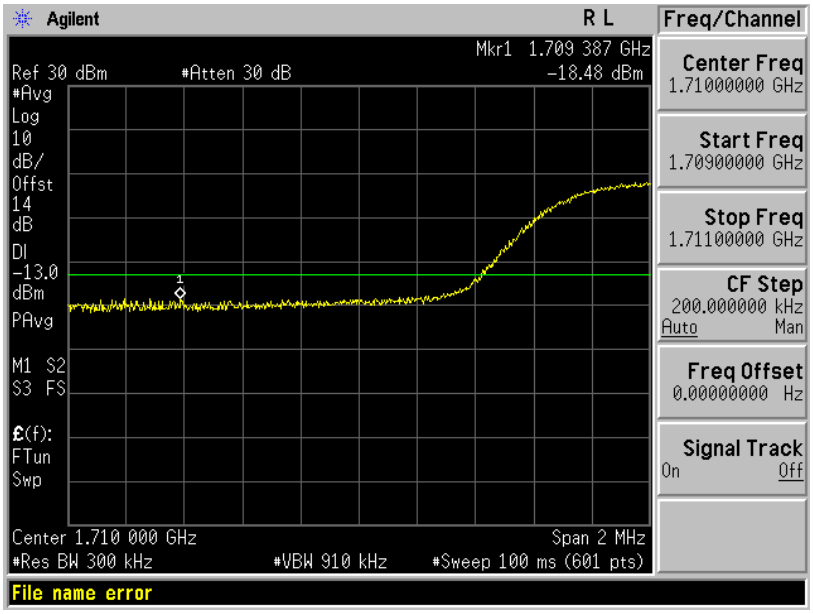
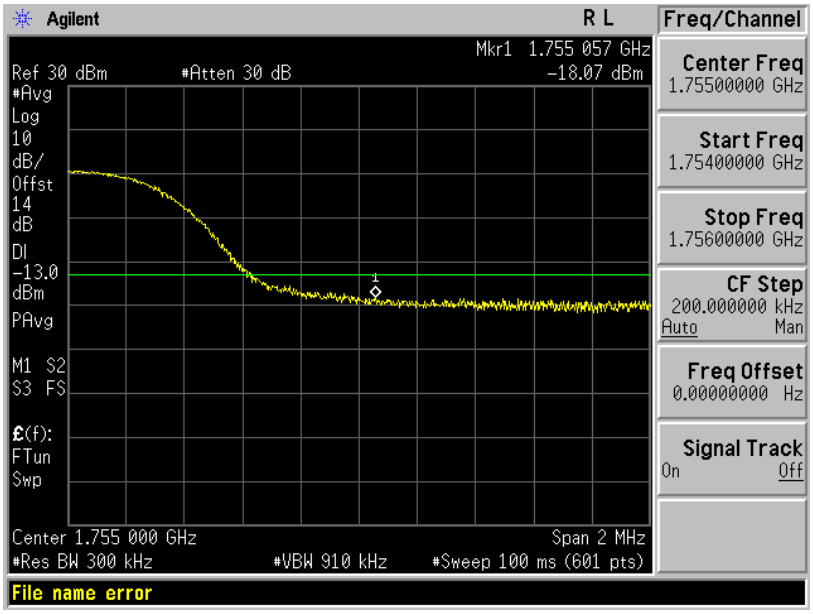
Frequency	LTE Band 2	Channel Bandwidth	10 MHz	RB Allocated	50
Lower Band Edge					
Higher Band Edge					

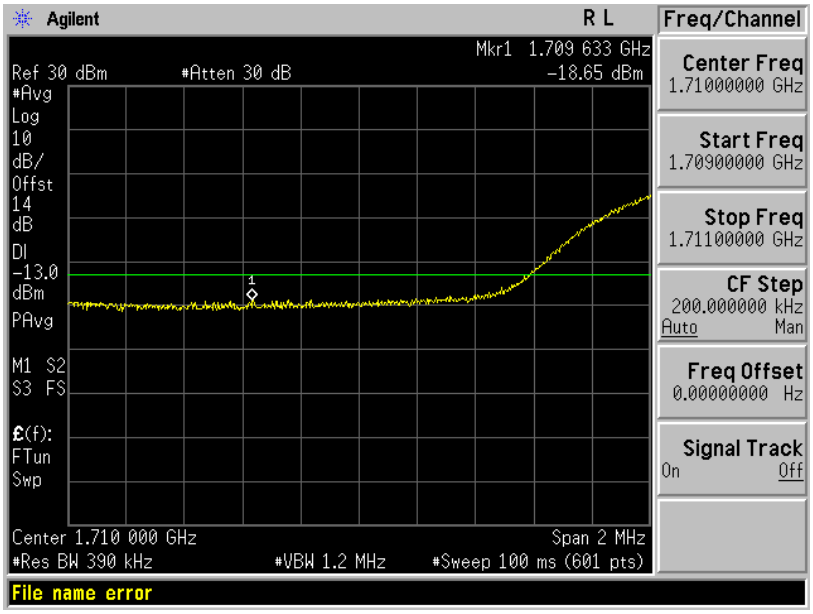
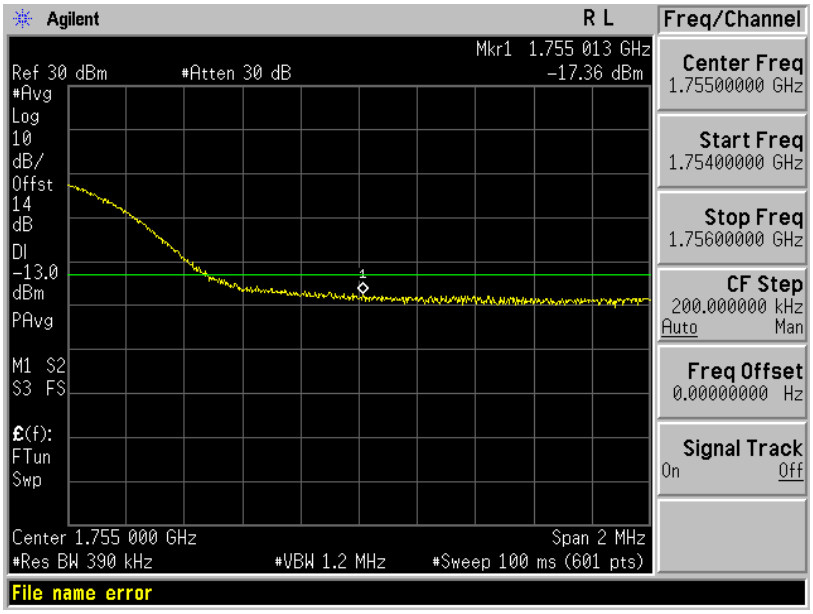
Frequency	LTE Band 2	Channel Bandwidth	15 MHz	RB Allocated	75
Lower Band Edge					
Higher Band Edge					

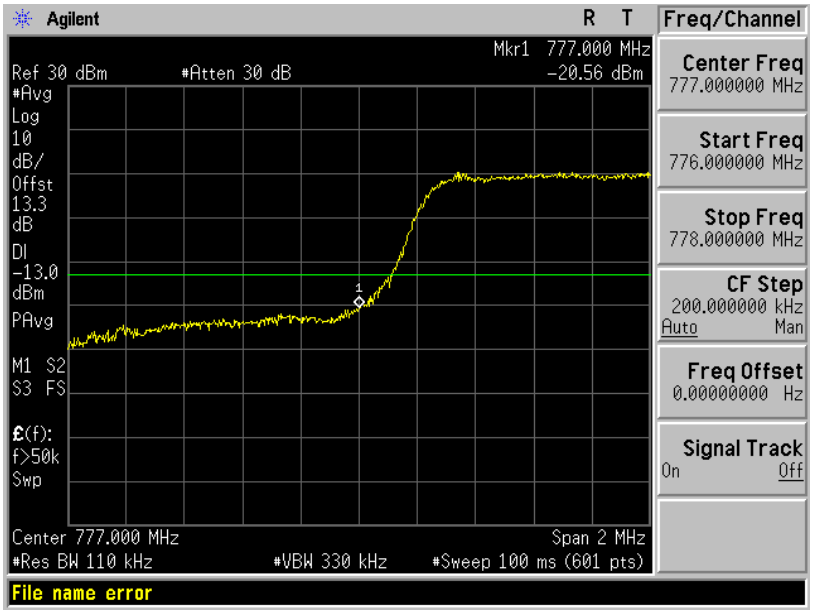
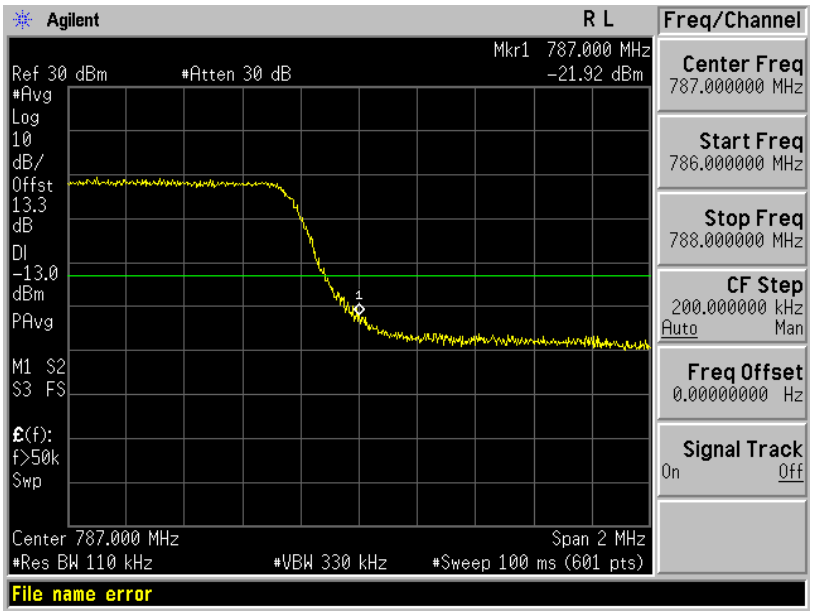
Frequency	LTE Band 2	Channel Bandwidth	20 MHz	RB Allocated	100
Lower Band Edge					
Higher Band Edge					

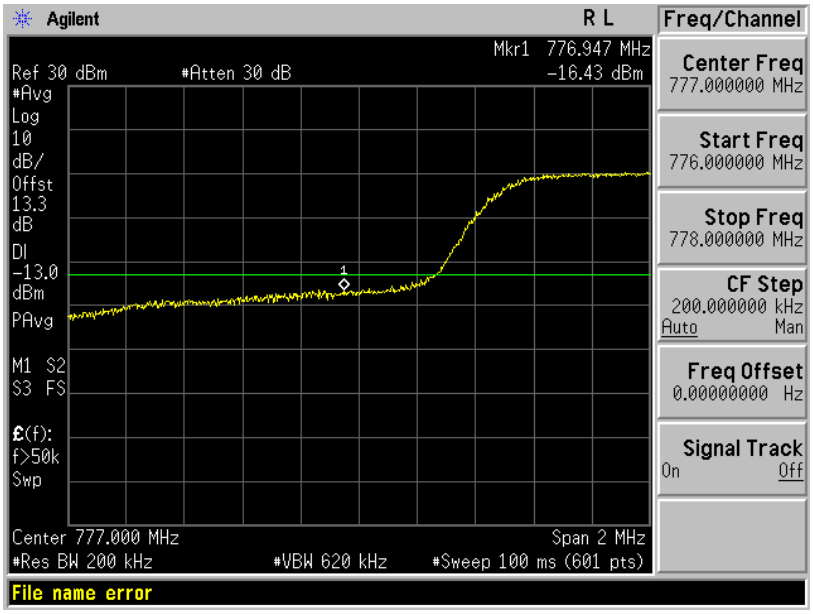
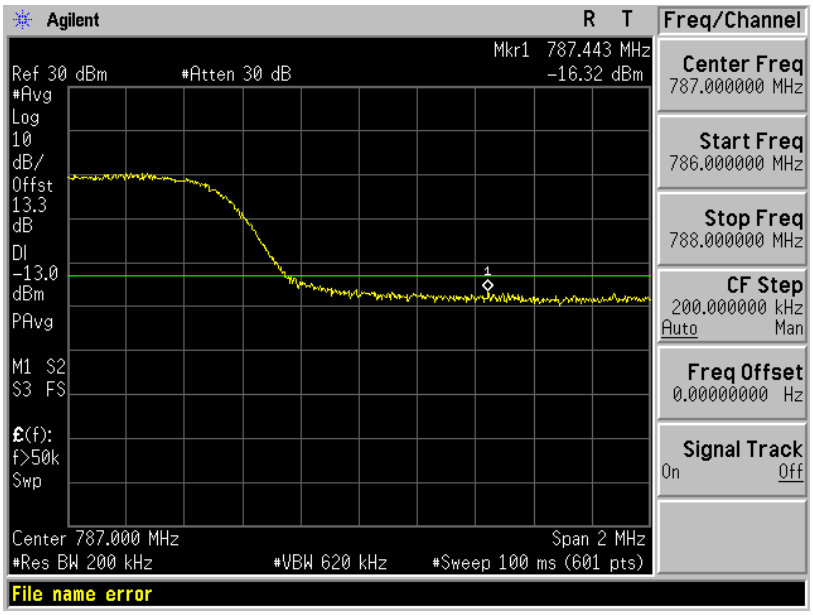
Frequency	LTE Band 4	Channel Bandwidth	5 MHz	RB Allocated	25
Lower Band Edge					
Higher Band Edge					

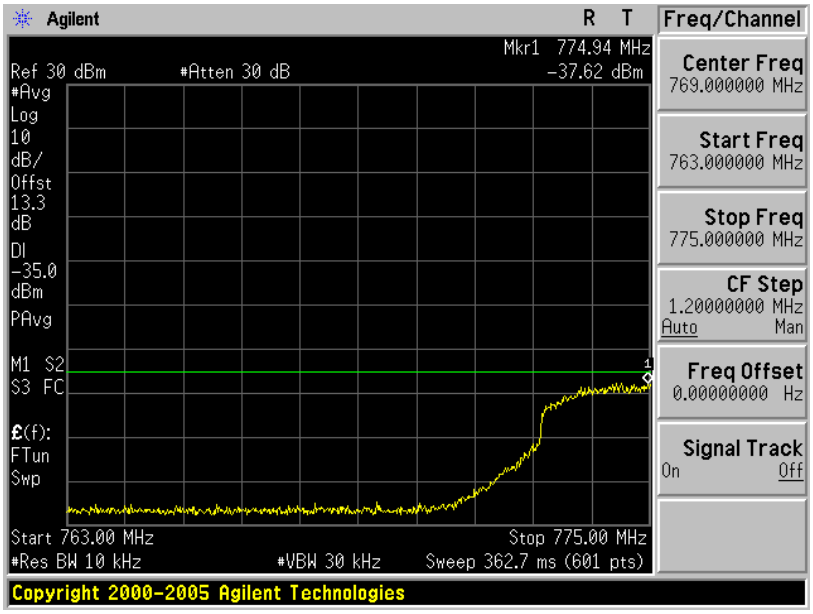
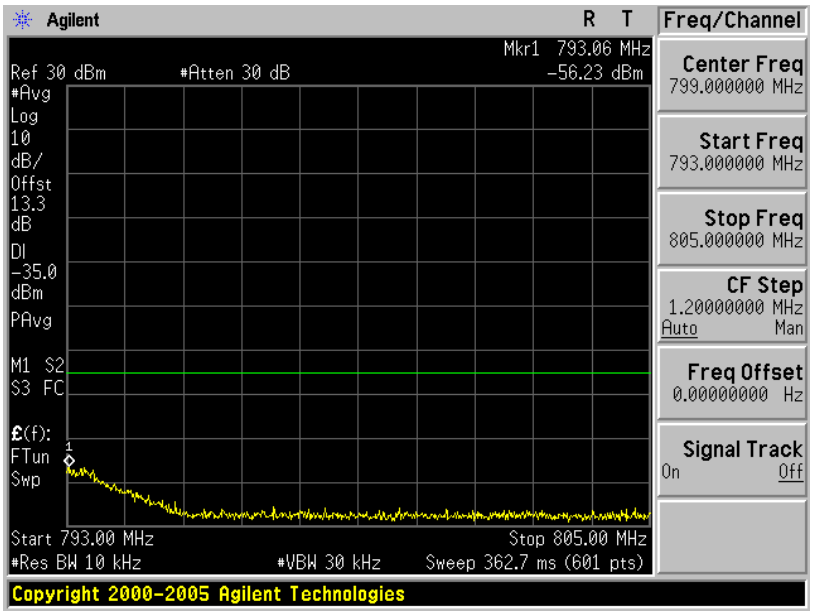
Frequency	LTE Band 4	Channel Bandwidth	10 MHz	RB Allocated	50
Lower Band Edge					
Higher Band Edge					

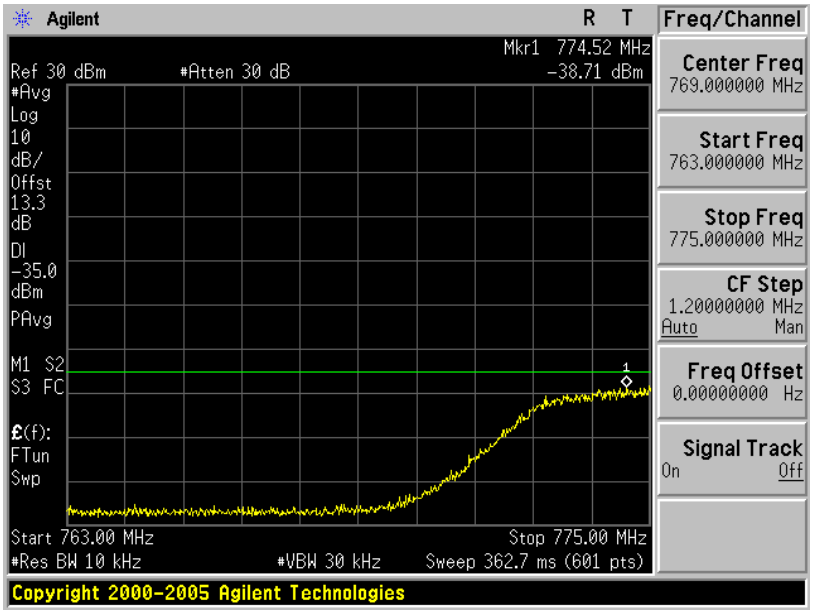
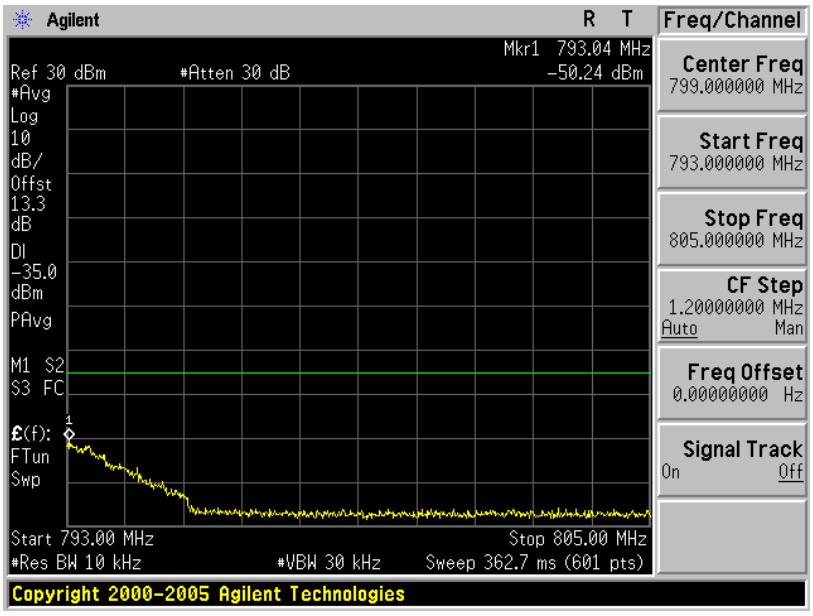
Frequency	LTE Band 4	Channel Bandwidth	15 MHz	RB Allocated	75
Lower Band Edge					
Higher Band Edge					

Frequency	LTE Band 4	Channel Bandwidth	20 MHz	RB Allocated	100
Lower Band Edge					
Higher Band Edge					

Frequency	LTE Band 13	Channel Bandwidth	5 MHz	RB Allocated	25
Res BW	100kHz				
Lower Band Edge					
Higher Band Edge					

Frequency	LTE Band 13	Channel Bandwidth	10 MHz	RB Allocated	50
Res BW	100kHz				
Lower Band Edge					
Higher Band Edge					

Frequency	LTE Band 13	Channel Bandwidth	5 MHz	RB Allocated	25
Res BW	10kHz				
Lower Band Edge					
Higher Band Edge					

Frequency	LTE Band 13	Channel Bandwidth	10 MHz	RB Allocated	50
Res BW	10kHz				
Lower Band Edge					
Higher Band Edge					

8 Conducted Spurious Emission Test

8.1. Limit

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 $\log_{10}$(P) dB. The limit of emission equal to -13dBm

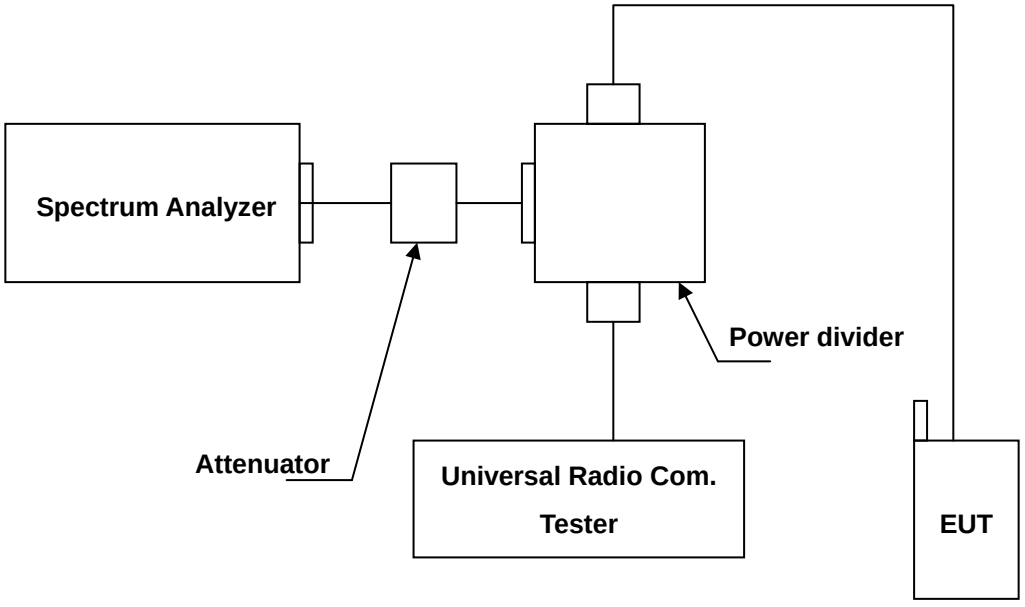
8.2. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Spectrum Analyzer	Agilent	N9030A	MY53120541	12/14/2015	1 year
Wideband Radio Communication Test	R & S	CMW500	103168	10/30/2015	1 year
Test Site	ATL	TE02	TE02	N.C.R.	-----

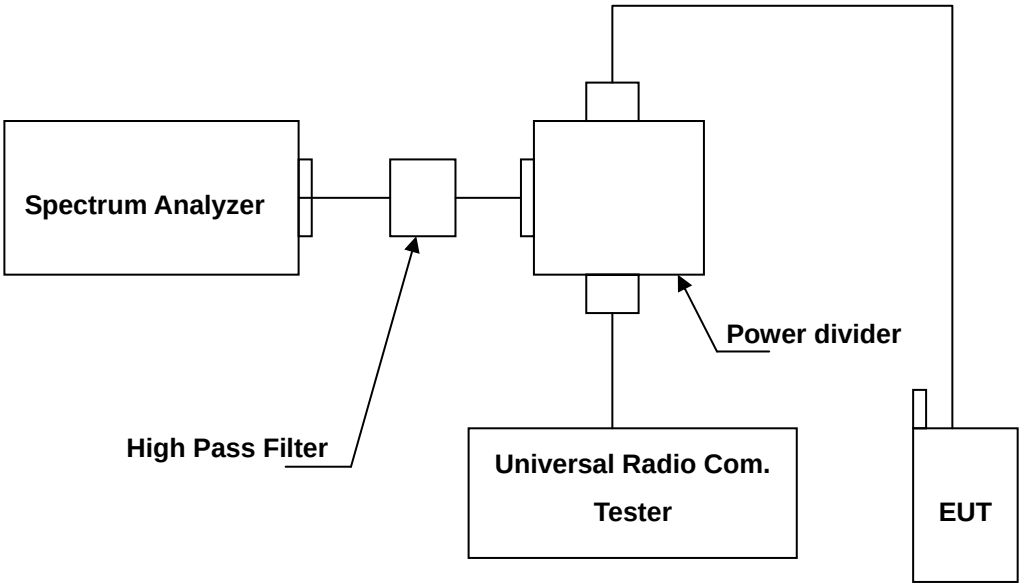
Note: N.C.R. = No Calibration Request.

8.3. Setup

Below 2.8GHz



Above 2.8GHz



8.4. Test Procedure

a. The EUT was set up for the maximum peak 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.).

b. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

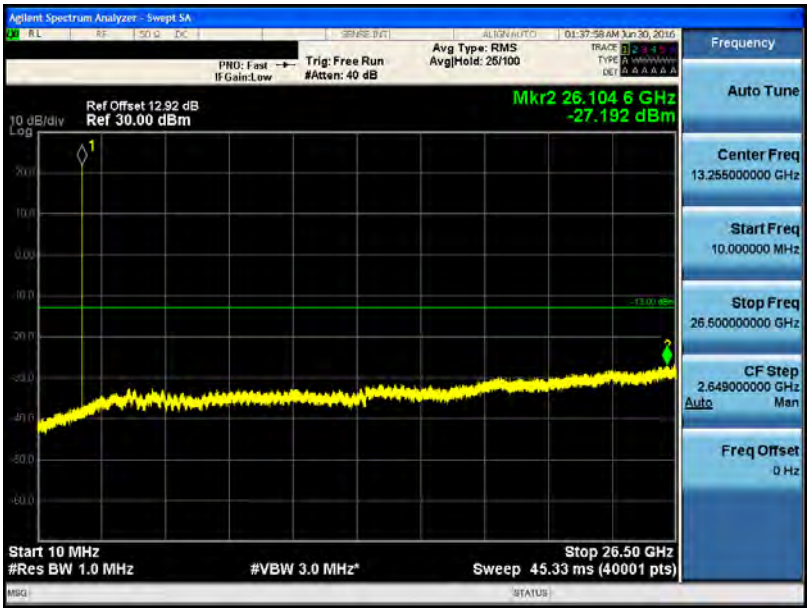
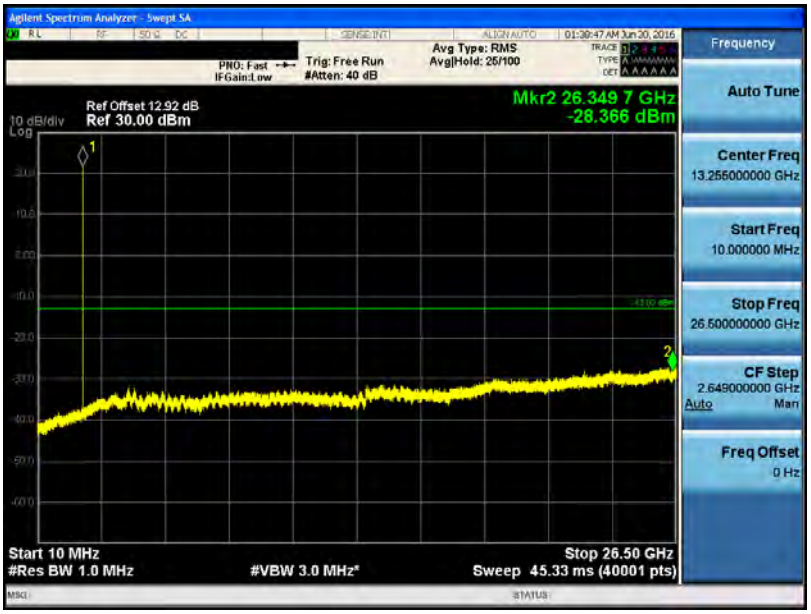
c. When the spectrum scanned from 10MHz to 2.5GHz (Band 7and Band 41: scanned from 10MHz to 4GHz), it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=1MHz.

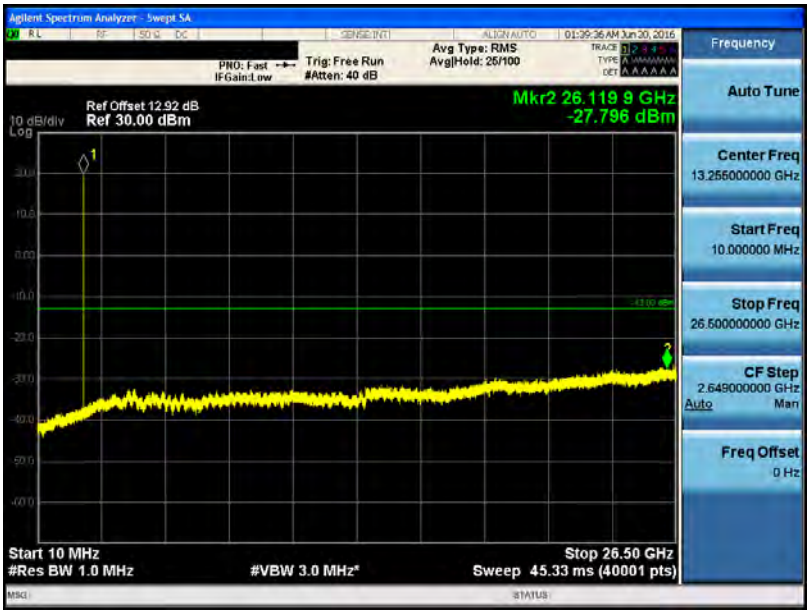
d. When the spectrum scanned from 2.5GHz to 10th harmonic (Band 7 and Band 41: scanned from 4GHz to 10th harmonic), it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=1MHz.

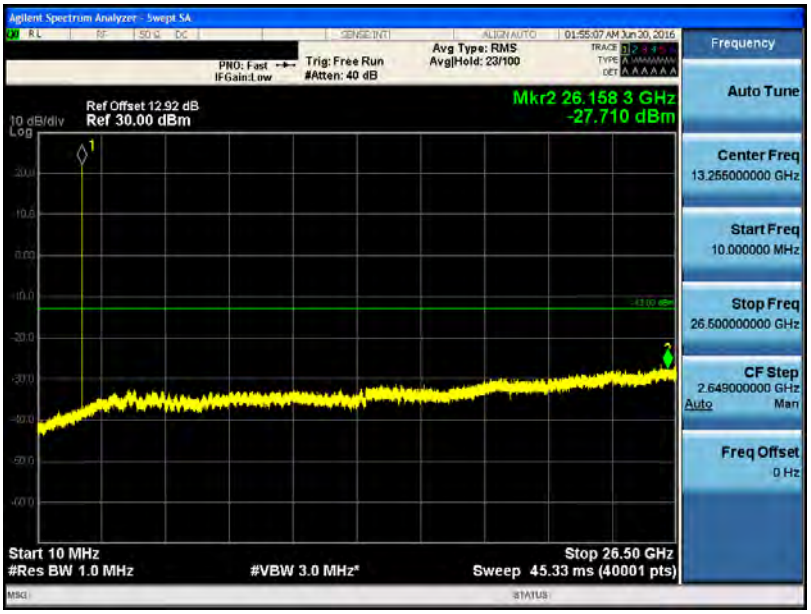
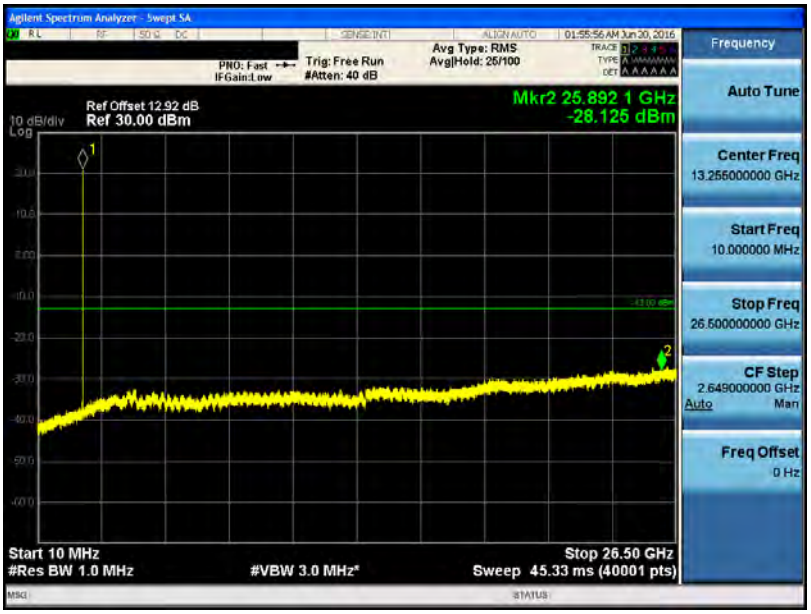
8.5. Uncertainty

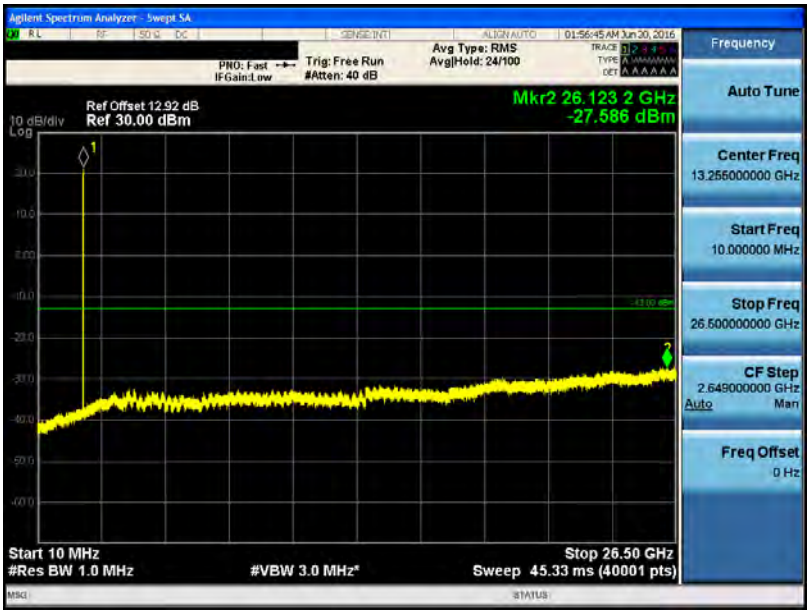
The measurement uncertainty is evaluated as ± 2.24 dB.

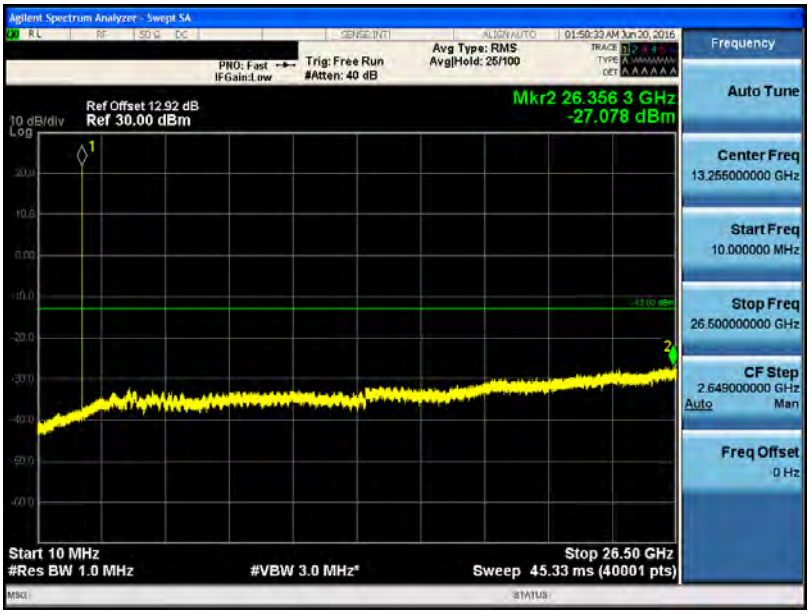
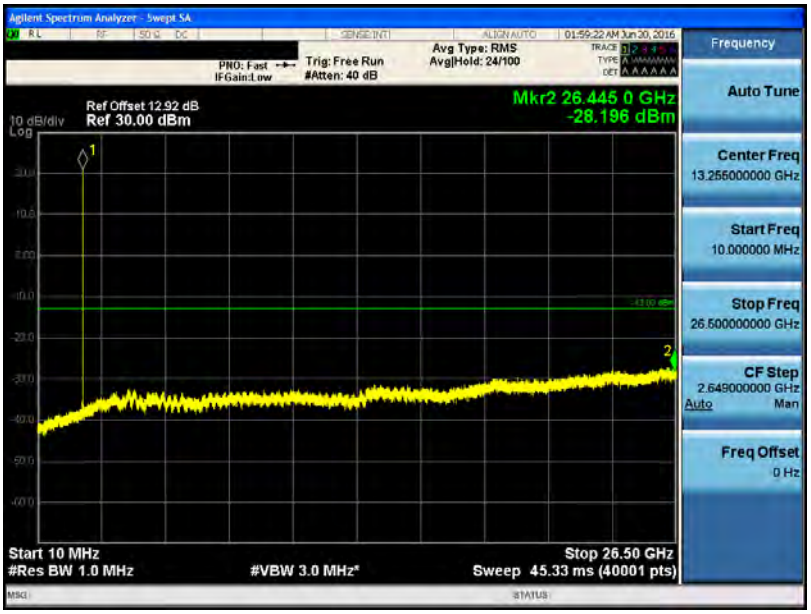
8.6. Test Graphs

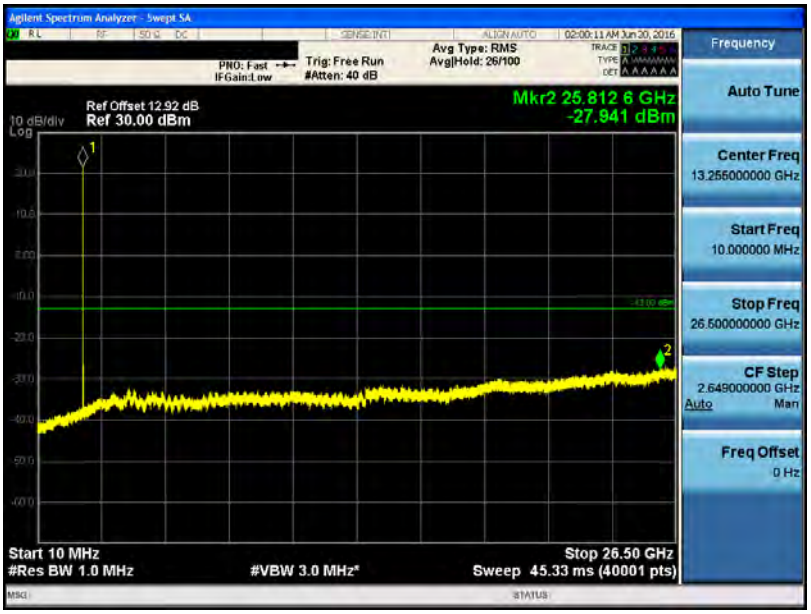
LTE Band 2 (Channel Bandwidth: 5 MHz) _ QPSK	
1852.5 MHz	
1880.0 MHz	

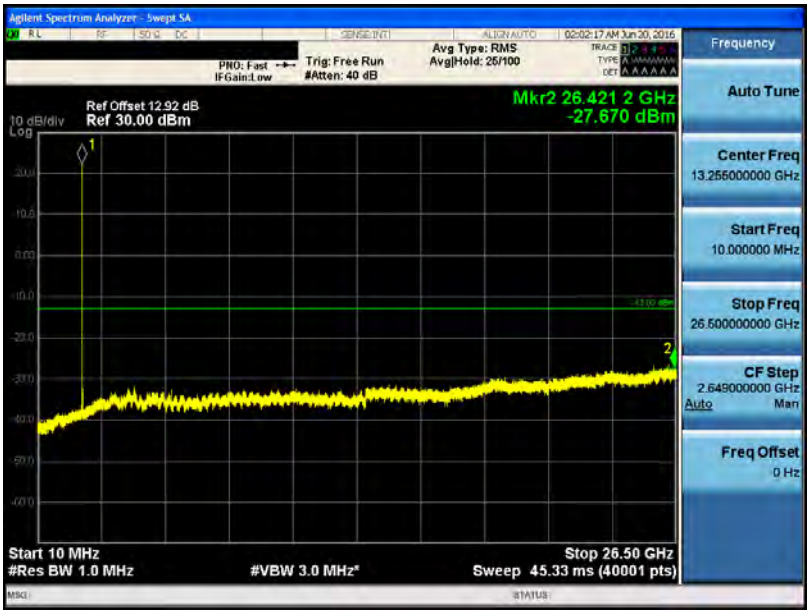
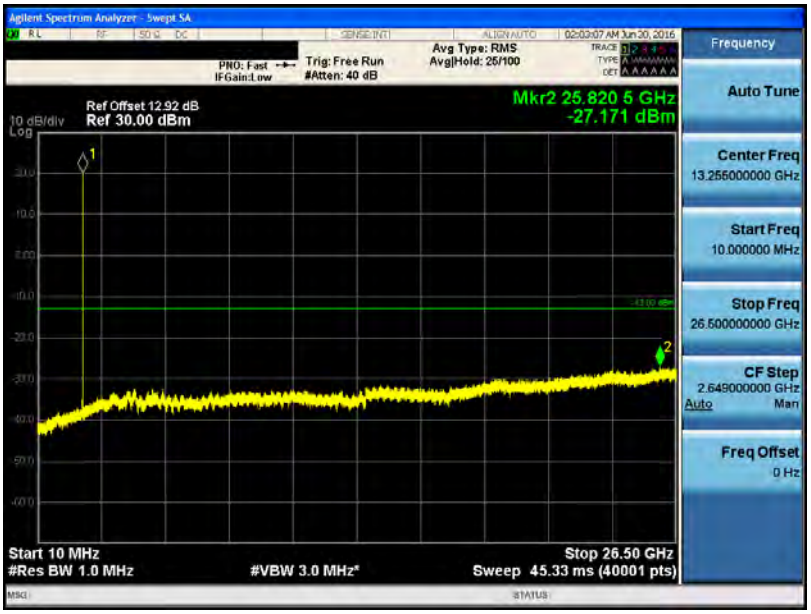
LTE Band 2 (Channel Bandwidth: 5 MHz) _ QPSK	
1907.5 MHz	

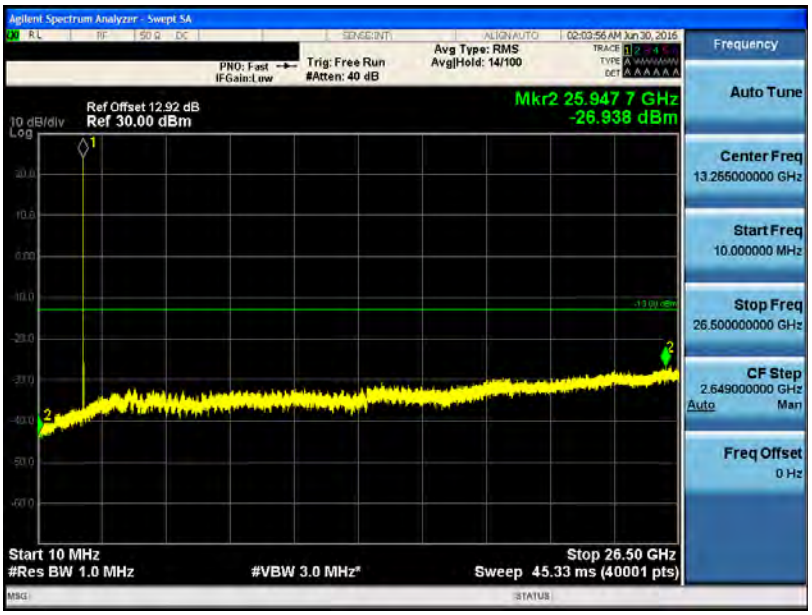
LTE Band 2 (Channel Bandwidth: 10 MHz) _ QPSK	
1855.0 MHz	
1880.0 MHz	

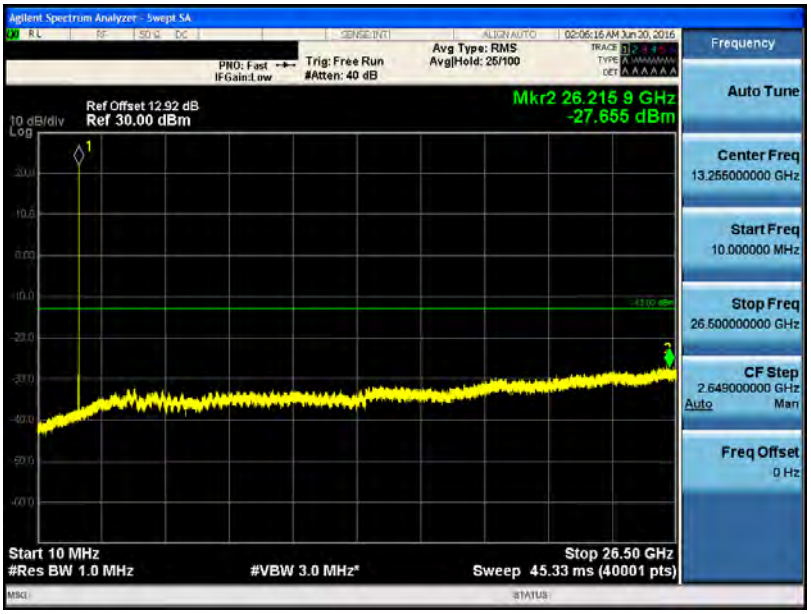
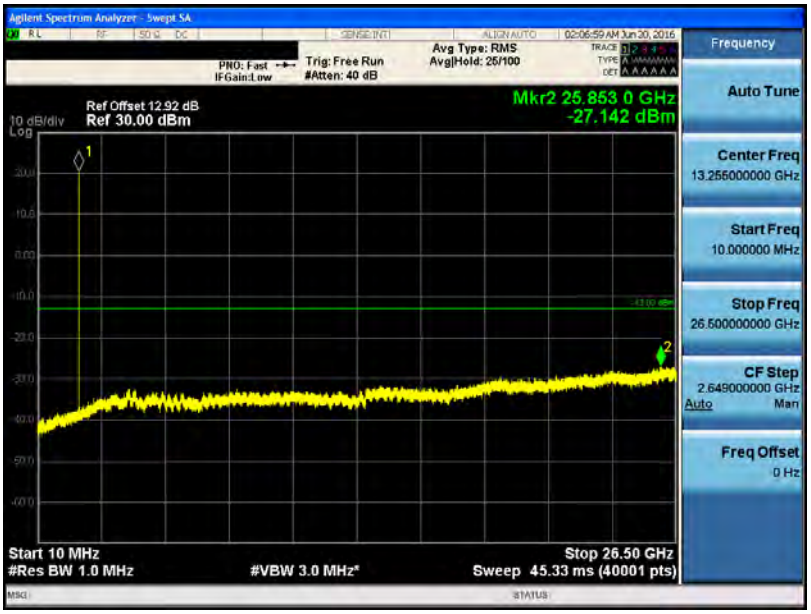
LTE Band 2 (Channel Bandwidth: 10 MHz) _ QPSK	
1905.0 MHz	

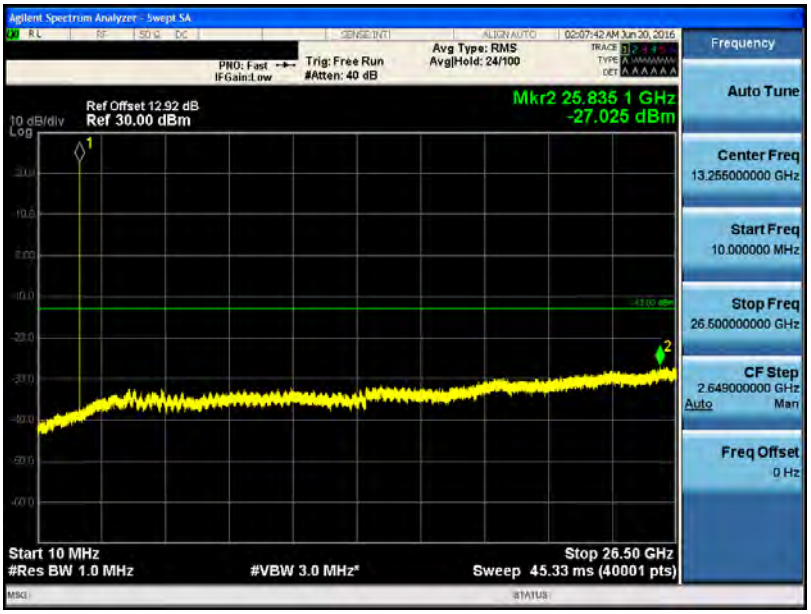
LTE Band 2 (Channel Bandwidth: 15 MHz) _ QPSK	
1857.5 MHz	
1880.0 MHz	

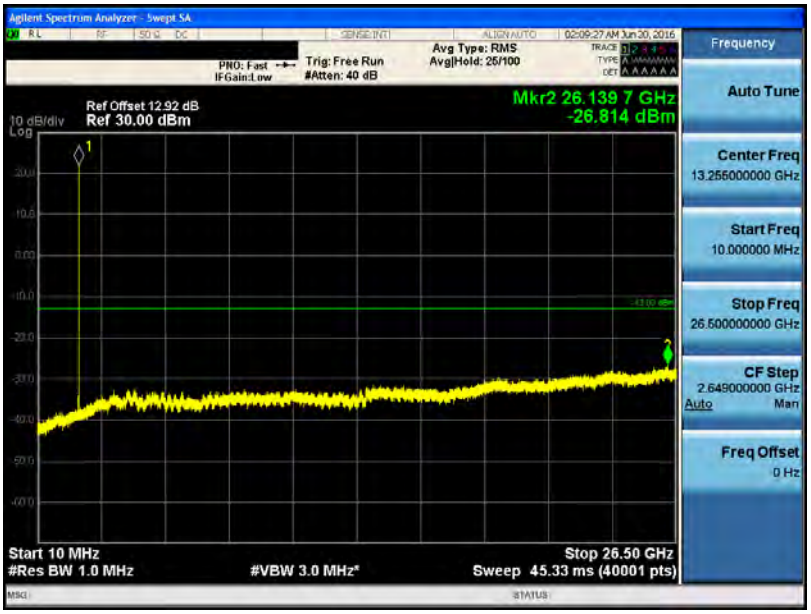
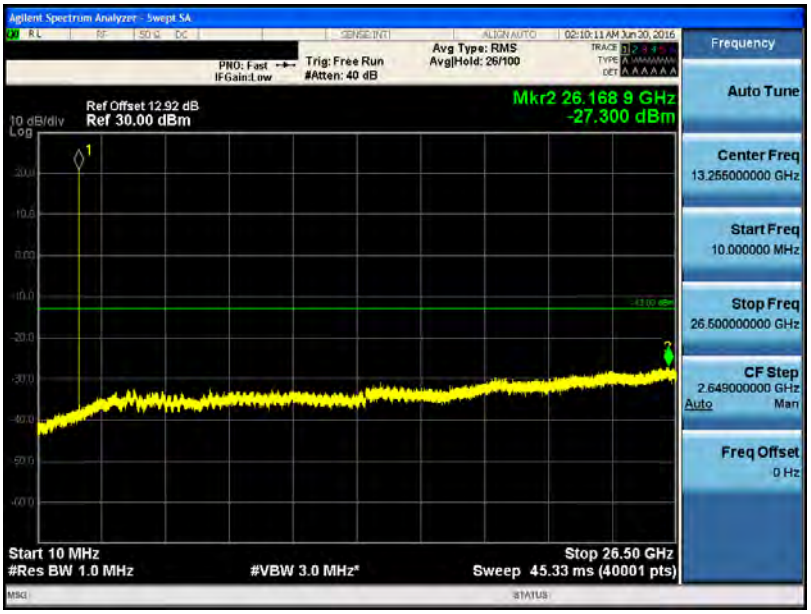
LTE Band 2 (Channel Bandwidth: 15 MHz) _ QPSK	
1902.5 MHz	

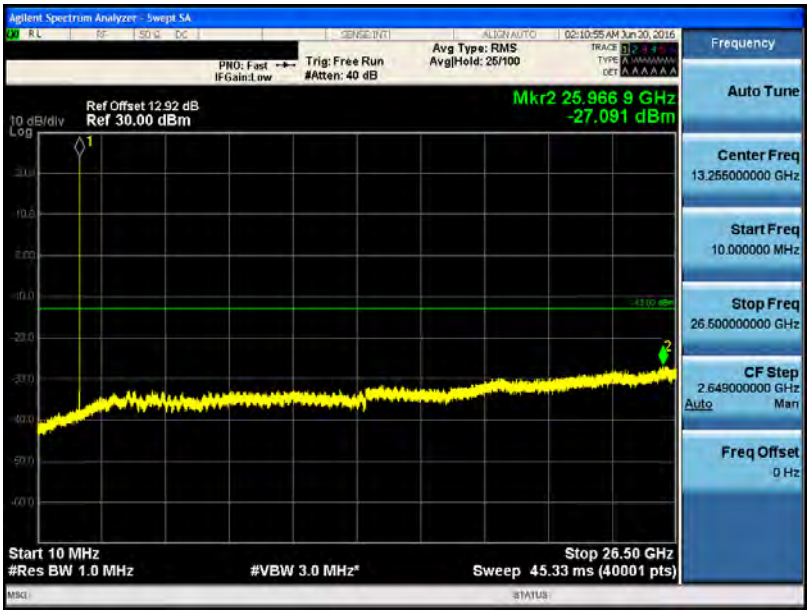
LTE Band 2 (Channel Bandwidth: 20 MHz) _ QPSK	
1860.0 MHz	
1880.0 MHz	

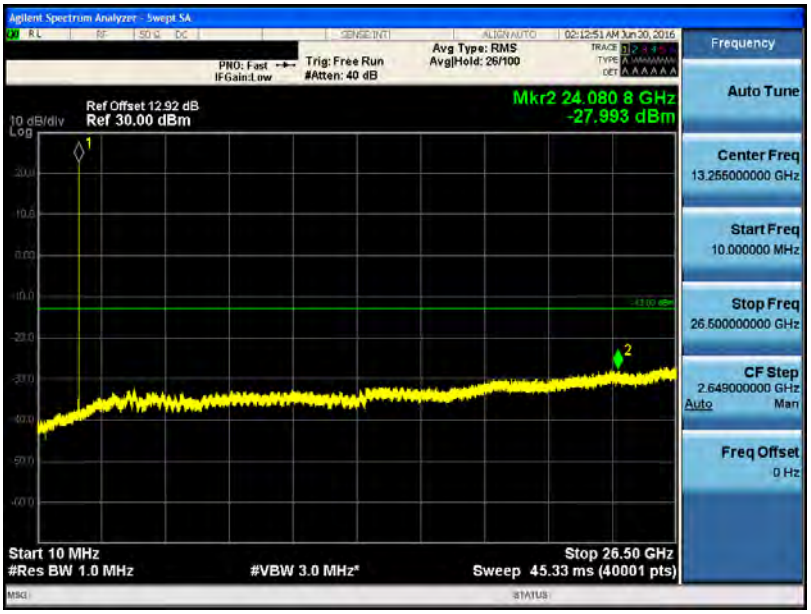
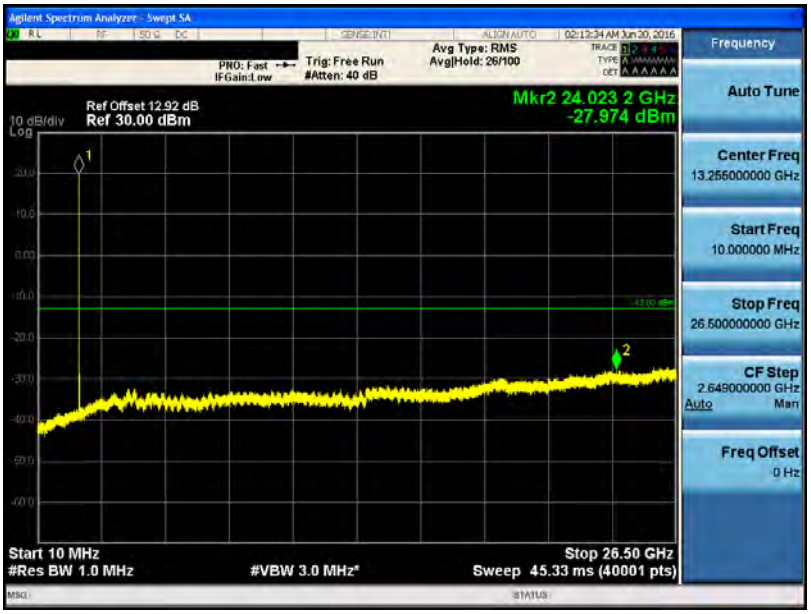
LTE Band 2 (Channel Bandwidth: 20 MHz) _ QPSK	
1900.0 MHz	

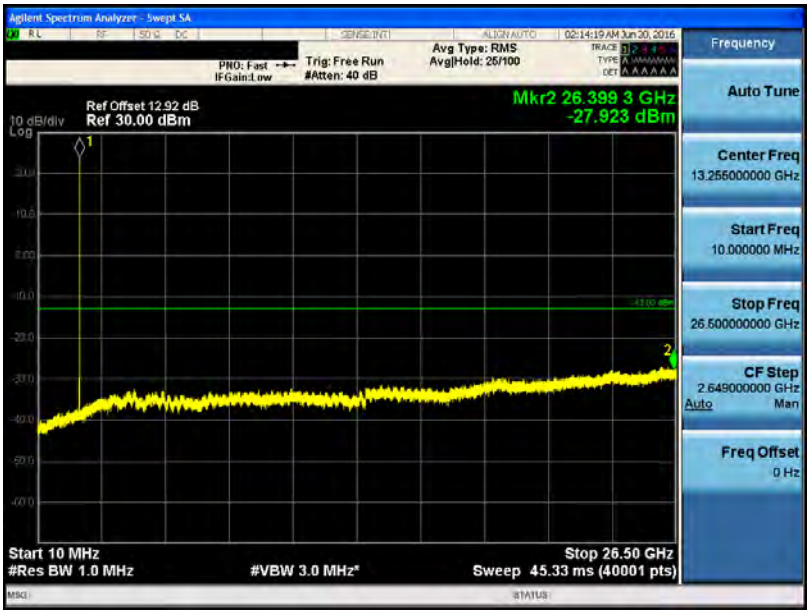
LTE Band 4 (Channel Bandwidth: 5 MHz) _ QPSK	
1712.5 MHz	
1732.5 MHz	

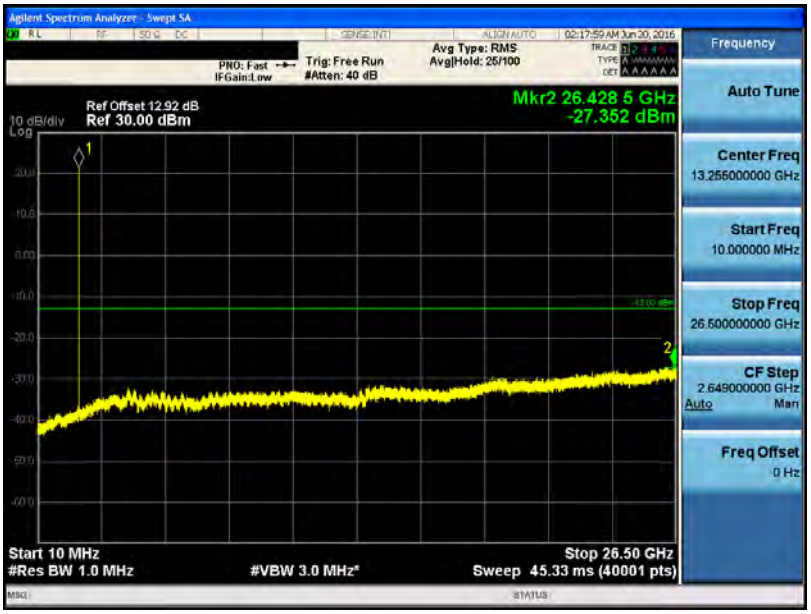
LTE Band 4 (Channel Bandwidth: 5 MHz) _ QPSK	
1752.5 MHz	

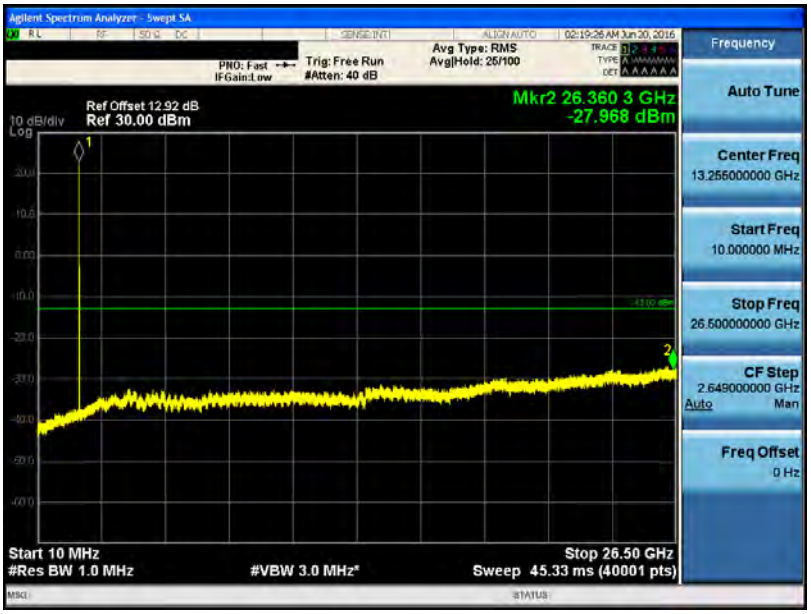
LTE Band 4 (Channel Bandwidth: 10 MHz) _ QPSK	
1715.0 MHz	
11732.5 MHz	

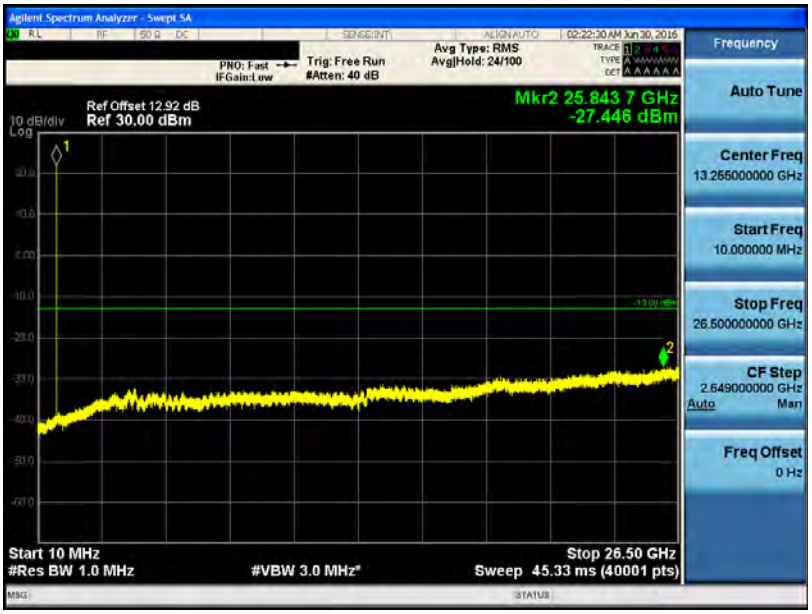
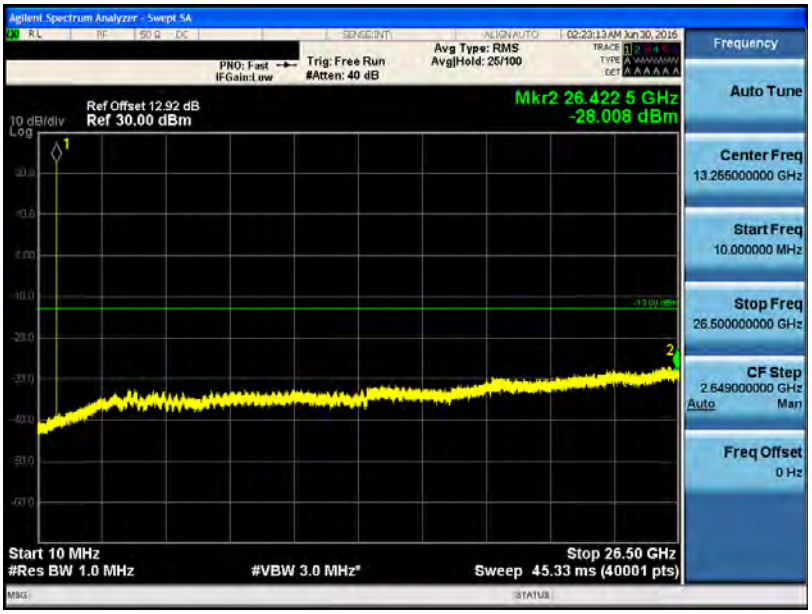
LTE Band 4 (Channel Bandwidth: 10 MHz) _ QPSK	
1750.0 MHz	

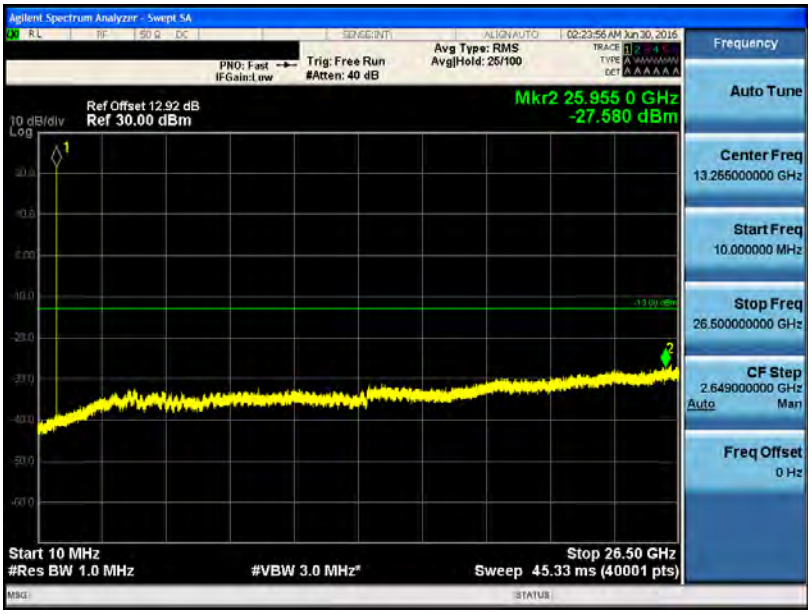
LTE Band 4 (Channel Bandwidth: 15 MHz) _ QPSK	
1717.5 MHz	
1732.5 MHz	

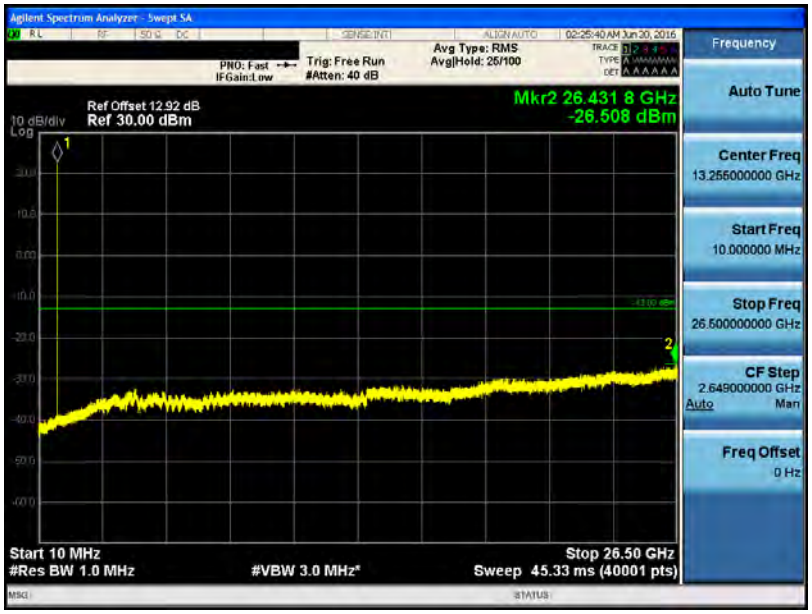
LTE Band 4 (Channel Bandwidth: 15 MHz) _ QPSK	
1747.5 MHz	

LTE Band 4 (Channel Bandwidth: 20 MHz) _ QPSK	
1720.0 MHz	
1732.5 MHz	

LTE Band 4 (Channel Bandwidth: 20 MHz) _ QPSK	
1745.0 MHz	

LTE Band 13 (Channel Bandwidth: 5 MHz) _ QPSK	
779.5 MHz	
782.0 MHz	

LTE Band 13 (Channel Bandwidth: 5 MHz) _ QPSK	
784.5 MHz	

LTE Band 13 (Channel Bandwidth: 10 MHz) _ QPSK	
782.0 MHz	

9 Radiated Emission Test

9.1. Limit

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission equal to -13dBm.

Additional, for operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz (-40dBm/MHz) equivalent isotropically radiated power (EIRP) for wideband signals.

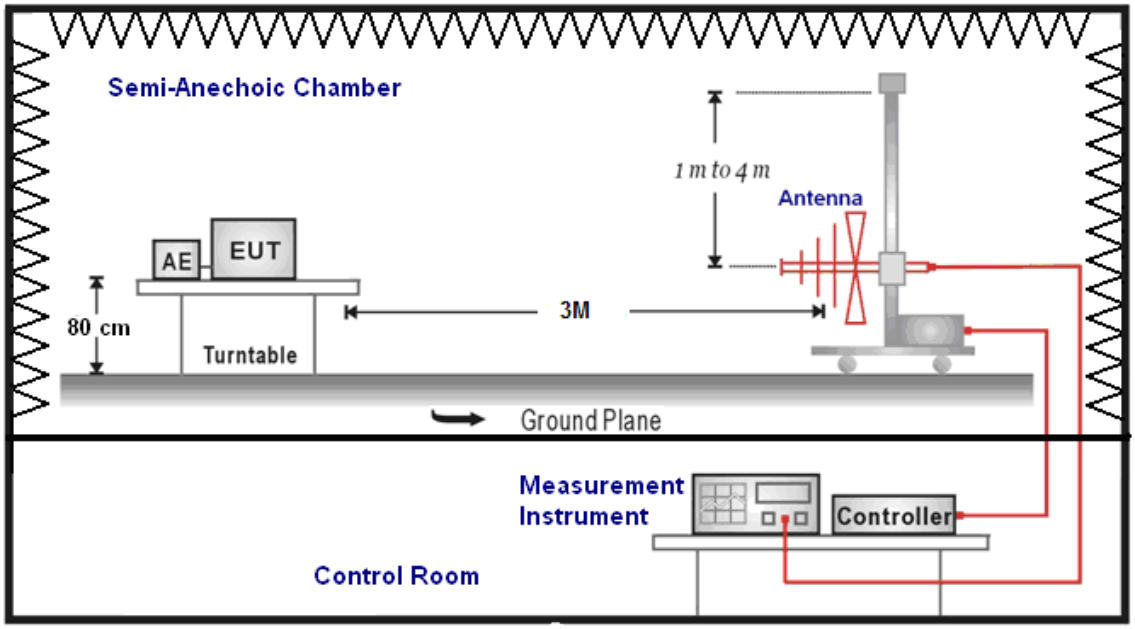
9.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/08/2016	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/08/2016	1 year
Pre Amplifier	Agilent	8449B	3008A02237	10/07/2015	1 year
Pre Amplifier	Agilent	8447D	2944A11119	01/11/2016	1 year
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	416	09/25/2015	1 year
Sleeve Dipole(CF880) (780-980MHz)	ETS	3126-880	00064344	10/06/2014	2 years
Sleeve Dipole(CF1845) (1695-1995MHz)	ETS	3126-1845	00083335	10/06/2014	2 years
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/06/2016	1 year
Horn Antenna (18~40GHz)	ETS	3116	00086467	09/01/2015	1 year
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/06/2015	1 year
Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	10/15/2015	1 year
Microwave Cable	EMCI	EMC-104-SM-SM-14000	140202	10/15/2015	1 year
Microwave Cable	EMCI	EMC104-SM-SM-600	140301	10/15/2015	1 year
Test Site	ATL	TE01	888001	08/27/2015	1 year

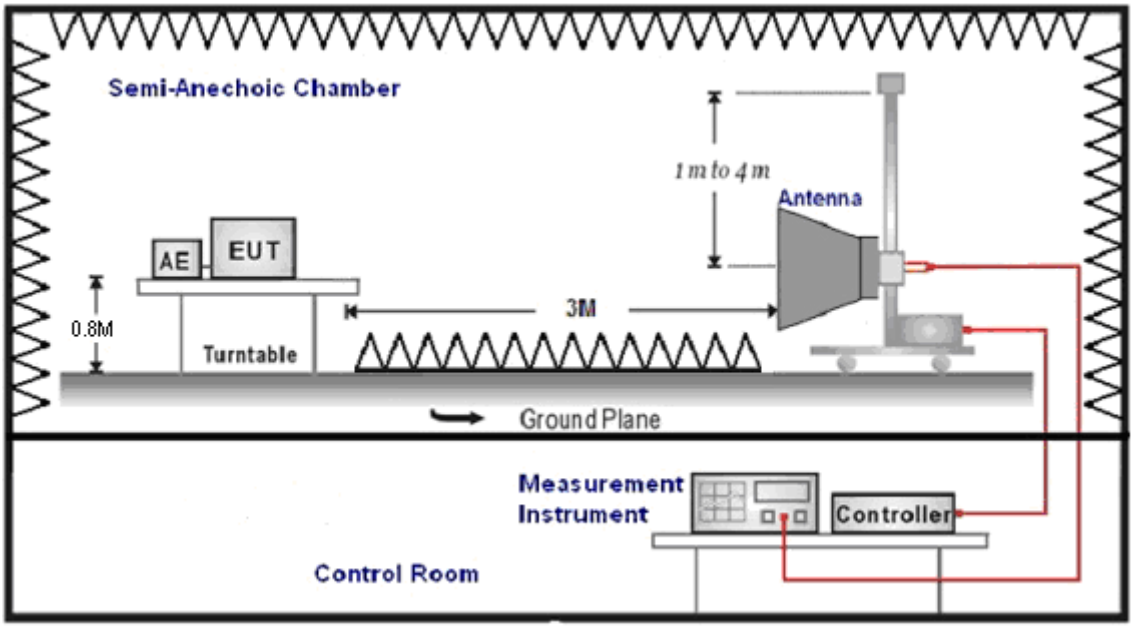
Note: N.C.R. = No Calibration Request.

9.3. Setup

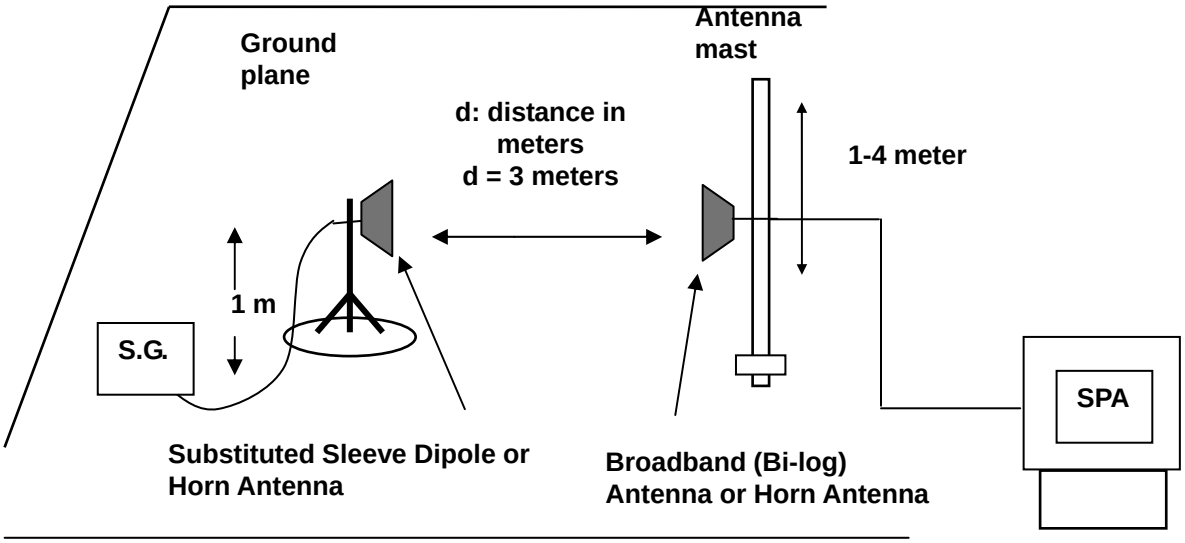
Below 1GHz



Above 1GHz



For Substituted Method Test Set-UP



9.4. 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.

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 antenna (Note:1 & 2) 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. = Output power level of S.G - TX cable loss + Antenna gain of substitution horn

e. E.R.P. = E.I.R.P- 2.15 dB

Note: 1. Below 1 GHz Substituted Method Test：Sleeve dipole antenna to Bi-Log Antenna

2. Above 1 GHz Substituted Method Test：Horn antenna to Horn Antenn

9.5. Uncertainty

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

9.6. Test Result

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1852.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	3856.000	-57.04	1.65	-55.39	-13.00	-42.39	peak	H
1	3232.000	-54.98	-0.11	-55.09	-13.00	-42.09	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4060.000	-58.67	2.00	-56.67	-13.00	-43.67	peak	H
1	3424.000	-55.60	0.74	-54.86	-13.00	-41.86	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1907.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4060.000	-56.03	2.00	-54.03	-13.00	-41.03	peak	H
1	6688.000	-60.91	8.89	-52.02	-13.00	-39.02	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1855.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4036.000	-56.90	1.95	-54.95	-13.00	-41.95	peak	H
1	4852.000	-59.38	4.05	-55.33	-13.00	-42.33	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4048.000	-58.09	1.99	-56.10	-13.00	-43.10	peak	H
1	5296.000	-59.17	4.79	-54.38	-13.00	-41.38	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1905.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	7420.000	-61.02	11.59	-49.43	-13.00	-36.43	peak	H
1	6676.000	-59.03	8.86	-50.17	-13.00	-37.17	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1857.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6556.000	-58.11	8.49	-49.62	-13.00	-36.62	peak	H
1	5152.000	-60.43	4.66	-55.77	-13.00	-42.77	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4228.000	-57.54	2.36	-55.18	-13.00	-42.18	peak	H
1	6256.000	-59.71	7.33	-52.38	-13.00	-39.38	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1902.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6484.000	-58.56	8.25	-50.31	-13.00	-37.31	peak	H
1	5236.000	-60.17	4.73	-55.44	-13.00	-42.44	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1860.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5284.000	-59.44	4.78	-54.66	-13.00	-41.66	peak	H
1	4960.000	-59.03	4.40	-54.63	-13.00	-41.63	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5296.000	-59.76	4.79	-54.97	-13.00	-41.97	peak	H
1	5068.000	-60.07	4.58	-55.49	-13.00	-42.49	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1900.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6352.000	-59.46	7.72	-51.74	-13.00	-38.74	peak	H
1	5488.000	-59.72	4.96	-54.76	-13.00	-41.76	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6340.000	-60.00	7.67	-52.33	-13.00	-39.33	peak	H
1	3856.000	-59.75	1.65	-58.10	-13.00	-45.10	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6832.000	-59.17	9.32	-49.85	-13.00	-36.85	peak	H
1	6796.000	-60.96	9.22	-51.74	-13.00	-38.74	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6448.000	-59.18	8.12	-51.06	-13.00	-38.06	peak	H
1	5308.000	-60.39	4.80	-55.59	-13.00	-42.59	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 2	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1880.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5068.000	-58.52	4.58	-53.94	-13.00	-40.94	peak	H
1	5884.000	-60.24	5.99	-54.25	-13.00	-41.25	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1712.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5524.000	-59.93	5.05	-54.88	-13.00	-41.88	peak	H
1	6208.000	-60.80	7.14	-53.66	-13.00	-40.66	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4924.000	-58.90	4.27	-54.63	-13.00	-41.63	peak	H
1	6292.000	-58.63	7.48	-51.15	-13.00	-38.15	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1752.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4828.000	-60.23	3.98	-56.25	-13.00	-43.25	peak	H
1	6208.000	-59.02	7.14	-51.88	-13.00	-38.88	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1715.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6556.000	-59.17	8.49	-50.68	-13.00	-37.68	peak	H
1	6820.000	-59.81	9.29	-50.52	-13.00	-37.52	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6484.000	-58.44	8.25	-50.19	-13.00	-37.19	peak	H
1	6172.000	-60.17	7.00	-53.17	-13.00	-40.17	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1750.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6532.000	-58.66	8.42	-50.24	-13.00	-37.24	peak	H
1	7504.000	-58.39	11.94	-46.45	-13.00	-33.45	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1717.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6292.000	-57.41	7.48	-49.93	-13.00	-36.93	peak	H
1	5152.000	-59.32	4.66	-54.66	-13.00	-41.66	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6628.000	-59.02	8.71	-50.31	-13.00	-37.31	peak	H
1	4912.000	-58.08	4.24	-53.84	-13.00	-40.84	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1747.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6004.000	-59.41	6.32	-53.09	-13.00	-40.09	peak	H
1	7360.000	-61.28	11.35	-49.93	-13.00	-36.93	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1720.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	7372.000	-61.19	11.41	-49.78	-13.00	-36.78	peak	H
1	6148.000	-59.23	6.90	-52.33	-13.00	-39.33	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6628.000	-59.96	8.71	-51.25	-13.00	-38.25	peak	H
1	5476.000	-59.93	4.95	-54.98	-13.00	-41.98	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	1745.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5968.000	-59.51	6.21	-53.30	-13.00	-40.30	peak	H
1	5380.000	-59.40	4.87	-54.53	-13.00	-41.53	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5296.000	-57.84	4.79	-53.05	-13.00	-40.05	peak	H
1	6220.000	-58.36	7.19	-51.17	-13.00	-38.17	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6028.000	-60.72	6.41	-54.31	-13.00	-41.31	peak	H
1	4972.000	-58.41	4.44	-53.97	-13.00	-40.97	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	15 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4960.000	-58.92	4.40	-54.52	-13.00	-41.52	peak	H
1	6676.000	-59.78	8.86	-50.92	-13.00	-37.92	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 4	Date:	06/29/2016
Channel Bandwidth:	20 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	1732.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5236.000	-58.84	4.73	-54.11	-13.00	-41.11	peak	H
1	6352.000	-57.14	7.72	-49.42	-13.00	-36.42	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	779.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6316.000	-57.70	7.58	-50.12	-13.00	-37.12	peak	H
1	5068.000	-58.78	4.58	-54.20	-13.00	-41.20	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5476.000	-58.92	4.95	-53.97	-13.00	-40.97	peak	H
1	5308.000	-59.83	4.80	-55.03	-13.00	-42.03	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	784.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	4804.000	-59.42	3.90	-55.52	-13.00	-42.52	peak	H
1	6736.000	-59.78	9.03	-50.75	-13.00	-37.75	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5044.000	-57.58	4.56	-53.02	-13.00	-40.02	peak	H
1	5572.000	-58.64	5.17	-53.47	-13.00	-40.47	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	6064.000	-58.89	6.57	-52.32	-13.00	-39.32	peak	H
1	7684.000	-59.60	12.44	-47.16	-13.00	-34.16	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	5164.000	-60.59	4.67	-55.92	-13.00	-42.92	peak	H
1	4852.000	-58.78	4.05	-54.73	-13.00	-41.73	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	779.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	1575.779	-56.50	-5.68	-62.18	-40.00	-22.18	peak	H
1	1584.806	-55.72	-5.66	-61.38	-40.00	-21.38	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	1588.070	-56.30	-5.64	-61.94	-40.00	-21.94	peak	H
1	1577.258	-55.99	-5.68	-61.67	-40.00	-21.67	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	784.5 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	1580.522	-55.56	-5.67	-61.23	-40.00	-21.23	peak	H
1	1583.327	-54.78	-5.66	-60.44	-40.00	-20.44	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	QPSK		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	1587.509	-55.61	-5.64	-61.25	-40.00	-21.25	peak	H
1	1591.895	-56.62	-5.63	-62.25	-40.00	-22.25	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	5 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	1576.493	-54.17	-5.68	-59.85	-40.00	-19.85	peak	H
1	1583.123	-54.29	-5.66	-59.95	-40.00	-19.95	peak	V

Standard:	FCC Part 27	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	DWM-311	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Band:	LTE Band 13	Date:	06/29/2016
Channel Bandwidth:	10 MHz	Test By:	Eric Ou Yang
Modulation Technology:	16QAM		
Frequency:	782.0 MHz		

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	1584.602	-56.17	-5.66	-61.83	-40.00	-21.83	peak	H
1	1592.201	-52.85	-5.64	-58.49	-40.00	-18.49	peak	V