



FCC Test Report

FCC Part 27M

Product Name : Module
Model No. : AR7594
FCC ID : N7NAR7594

Applicant : SIERRA WIRELESS, INC
Address : C/O 13811 WIRELESS WAY RICHMOND BC V6V 3A4,
RICHMOND BRITISH COLUMBIA

Date of Receipt : Oct. 16, 2017
Test Date : Oct. 16, 2017~ Oct. 24, 2017
Issued Date : Oct. 30, 2017
Report No. : 17A2044R-HP-US-P07V01
Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Oct. 30, 2017

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Product Name : Module
Applicant : SIERRA WIRELESS, INC
Address : C/O 13811 WIRELESS WAY RICHMOND BC V6V 3A4,
RICHMOND BRITISH COLUMBIA
Manufacturer : SIERRA WIRELESS, INC
Address : C/O 13811 WIRELESS WAY RICHMOND BC V6V 3A4,
RICHMOND BRITISH COLUMBIA
Model No. : AR7594
FCC ID : N7NAR7594
EUT Voltage : Low: 3.4V, High: 4.2V, Normal: 3.7V
Applicable Standard : FCC CFR Title 47 Part 2, TIA/EIA 603-C
FCC Part 27 Subpart M
Industry Canada RSS-GEN, Issue 4
Industry Canada RSS-199, Issue 2
Test Result : Complied
Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006,
Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: CN1199
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Approved By : 
(Engineering Manager: Harry Zhao)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
17A2044R-HP-US-P07V01	V1.0	Initial Issued Report	Oct. 30, 2017

1. General Information

1.1. EUT Description

Product Name	Module
Model No.	AR7594
EUT Voltage	Low: 3.4V, High: 4.2V, Normal: 3.7V
HW	1.0
SW	SWI9X40A_01.11.05.00
4G	
Support Band	LTE Band 7
Uplink	Band 7: 2500~2570MHz
Downlink	Band 7: 2620~2690mMHz
Type of modulation	QPSK, 16QAM
Antenna Type	Dipole
Antenna Gain	Band 7: 1.3dBi

1.2. Antenna Information

Antenna manufacturer	N/A								
Antenna Delivery	☒	1*TX+1*RX		☐	2*TX+2*RX		☐	3*TX+3*RX	
Antenna technology	☒	SISO							
	☐	MIMO	☐	Basic					
			☐	Sectorized antenna systems					
			☐	Cross-polarized antennas					
			☐	Unequal antenna gains, with equal transmit powers					
			☐	Spatial Multiplexing					
			☐	CDD					
			☐	Beam-forming					
Antenna Type	☒	External	☒	Dipole					
	☐	Internal	☐	PIFA					
			☐	PCB					
			☐	Ceramic Chip Antenna					
			☐	Metal plate type F antenna					
			☐	Cross-polarize Antenna					
	Antenna Gain #1	1.3dBi							

1.3. Mode of Operation

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

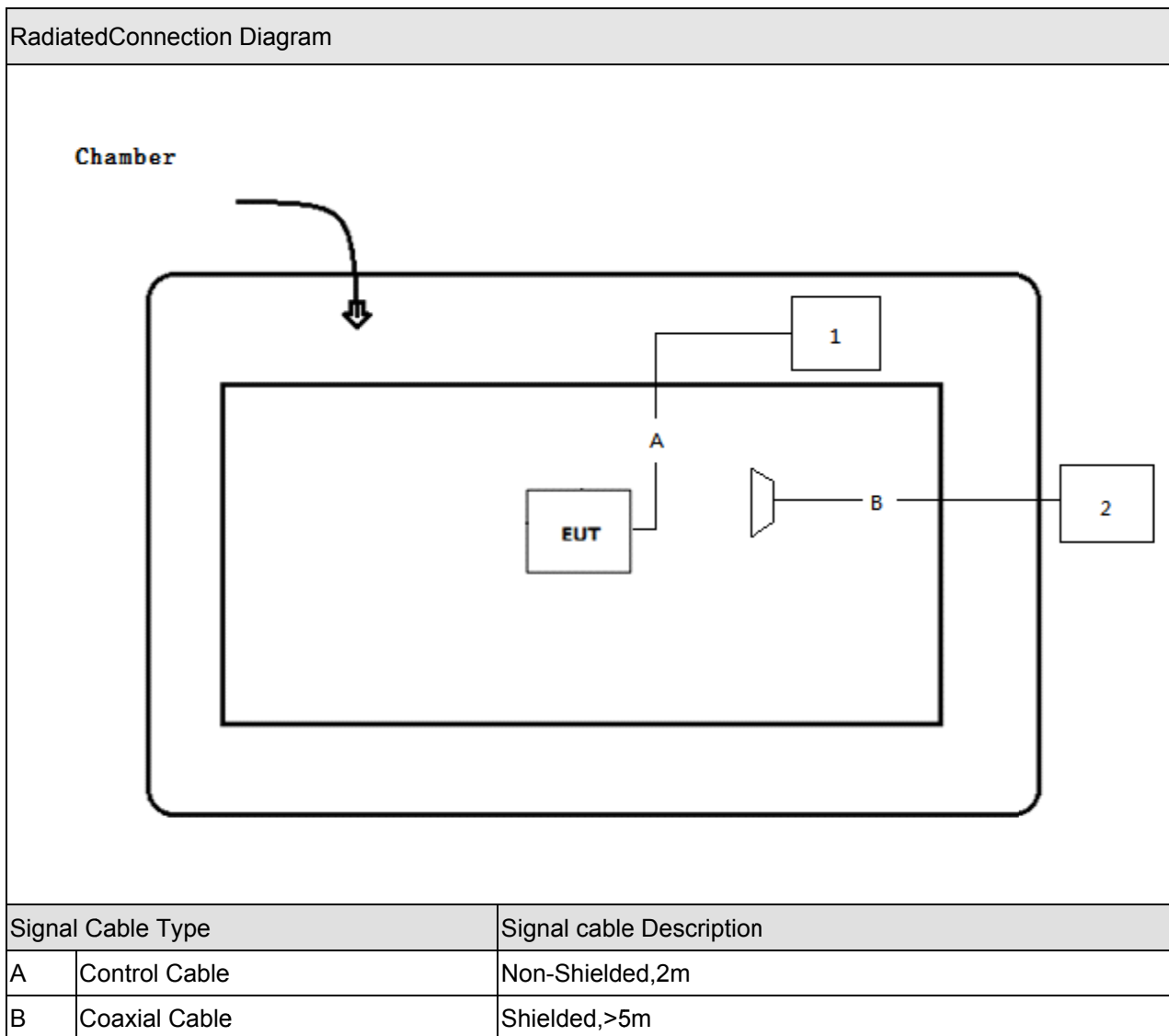
Test Mode
Mode 1 :LTE Band 7 Link
Note 1: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report. For the LTE band, we also evaluate the each channel of bandwidth, RB offset and modulation, we will choose the worst case shown on this report.

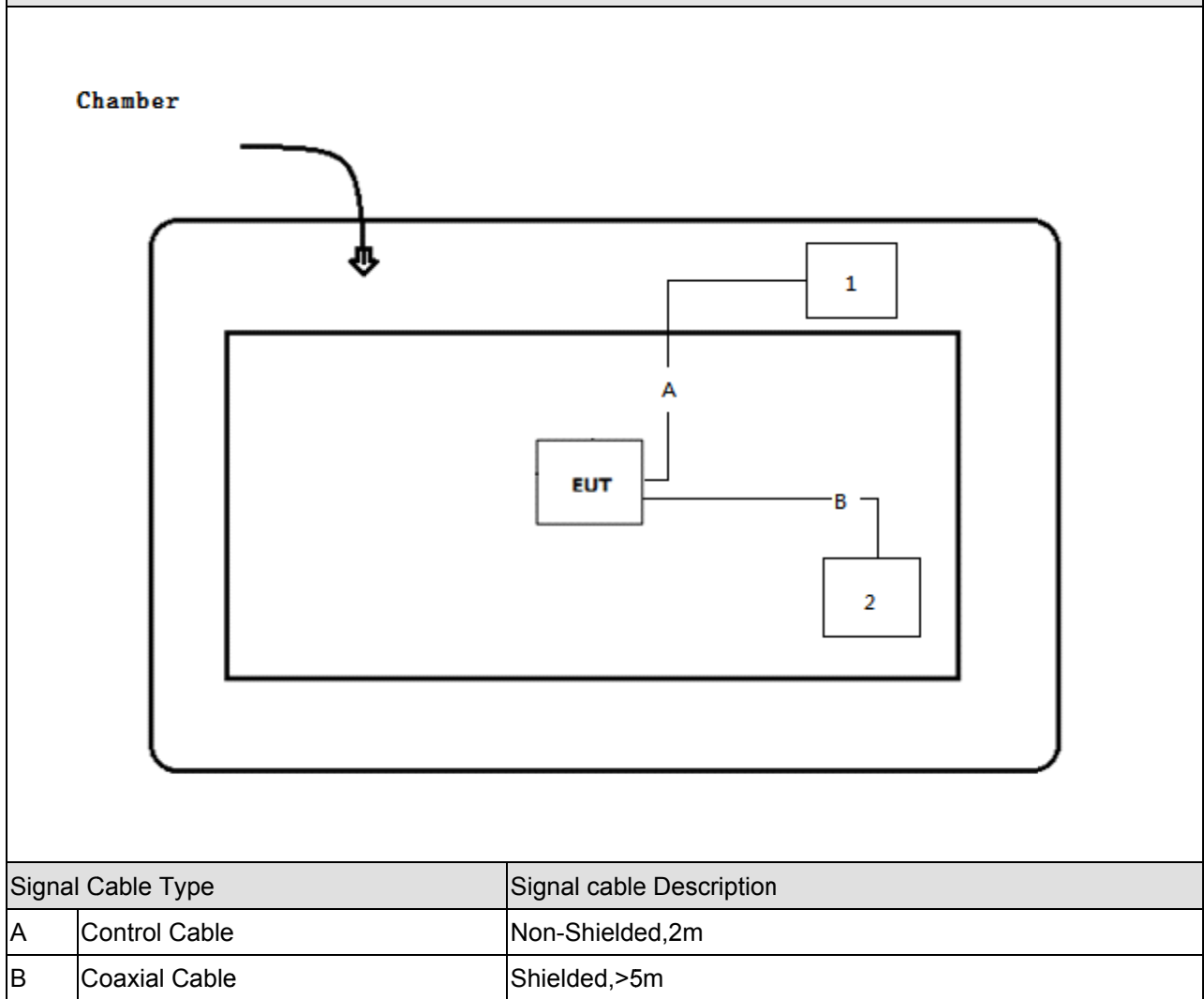
1.4. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 DC Power Supply	IDRC	CD-035-020PR	977272	N/A
2 Radio Communication Tester	Anritsu	MT8820C	6201181503	N/A

1.5. Configuration of Tested System



Conducted Connection Diagram**1.6. EUT Exercise Software**

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	EUT Communicate with MT8820C, then select channel to test.

2. Summary Technical Test

2.1. Limit and Test Result

LTE Band 7					
FCC Part 27 SubpartM					
Industry Canada RSS-199, Issue 2, Industry Canada RSS-GEN					
Test Item	FCC Reference section	Limit	IC Reference section	Limit	Result
Maximum Output Power	§2.1033 §2.1046 §27.50	Output Power < 2 Watts	§5.4	Output Power < 2 Watts	Pass
Equivalent Isotropic Radiated Power	§27.50	< 33 dBW + 10 log(X/Y)dBW + 10 log(360/beamwidth) h) dBW	§5.4	< 33 dBW + 10 log(X/Y)dBW + 10 log(360/beamwidth) h) dBW	Pass
Occupied Bandwidth	§2.1049	N/A	RSS-GEN §4.2	N/A	Pass
Conducted Band Edge Emissions	§27.53	< 5MHz: -10dBm 5MHz-X MHz:-13dBm >X MHz:-25dBm	§5.5	< 5MHz: -10dBm 5MHz-X MHz:-13dBm >X MHz:-25dBm	Pass
Spurious Radiation	§2.1053 §27.53	-25 dBm	§5.5	-25 dBm	Pass
Frequency Stability Under Temperature & Voltage Variations	§2.1055 §27.54	2.5 ppm	§5.3	2.5 ppm	Pass

2.2. Worst Data

Test Item	LTE Band	Bandwidth	Channel	Frequency	RB Size	RB Offset	Value
Maximum Output Power	7	20M	20850	2510	1	49	22.85
		15M	21350	2562.5	1	0	22.77
		10M	21400	2565	1	0	22.71
		5M	20775	2502.5	1	0	22.63
Note: The modulation of the worst data is QPSK							

Test Item	LTE Band	Bandwidth	Channel	Frequency	RB Size	RB Offset	Value
Equivalent Isotropic Radiated Power	7	20M	21350	2560	1	0	23.86
		15M	21375	2562.5	1	0	23.92
		10M	20800	2505	1	0	24.02
		5M	20775	2502.5	1	0	23.84
Note: The modulation of the worst data is QPSK							

Test Item	LTE Band	Bandwidth	Channel	Frequency	RB Size	RB Offset	Value
Occupied Bandwidth	7	20M	20850	2510	100	0	17859
		15M	20825	2507.5	75	0	13411
		10M	21100	2535	50	0	8944.2
		5M	21100	2535	15	0	4329.9
Note: The modulation of the worst data is QPSK							

Test Item	LTE Band	Bandwidth	Channel	Frequency	RB Size	RB Offset	Value
Conducted Band Edge Emissions	7	20M	20850	2510	100	0	-27.853
		15M	20825	2507.5	75	0	-24.388
		10M	21400	2565	1	0	-11.611
		5M	21425	2567.5	1	0	-10.898
Note: The modulation of the worst data is QPSK							

Test Item	LTE Band	Bandwidth	Channel	Frequency	RB Size	RB Offset	Value
Field Strength of Spurious Radiation	7	20M	21100	2535	1	0	-44.679
		15M	21375	2562.5	1	0	-44.621
		10M	21100	2535	1	0	-44.042
		5M	20775	2502.5	1	0	-43.082
Note: The modulation of the worst data is QPSK							

Test Item	LTE Band	Bandwidth	Channel	Frequency	RB Size	RB Offset	Value
Frequency Stability Under Temperature & Voltage Variations	7	20M	21100	2535	1	0	-671
Note: The modulation of the worst data is QPSK							

2.3. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	23
Humidity (%RH)	25-75	52
Barometric pressure (mbar)	860-1060	950-1000

2.4. Measurement Uncertainty

Items	Uncertainty
Maximum Output Power	±1.2 dB
Equivalent Isotropic Radiated Power	±3.2 dB
Occupied Bandwidth	±10 Hz
Conducted Band Edge Emissions	±1.2 dB
Field Strength of Spurious Radiation	±3.2 dB
Frequency Stability Under Temperature & Voltage Variations	±10 Hz

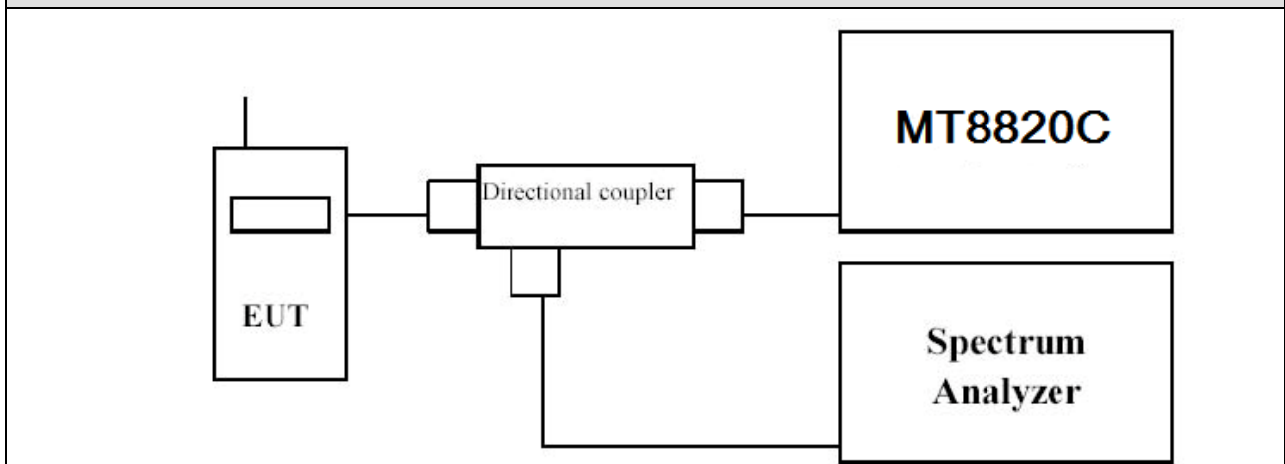
3. Maximum Output Power and Effective Isotropic Radiated Power Measurement

3.1. Test Equipment

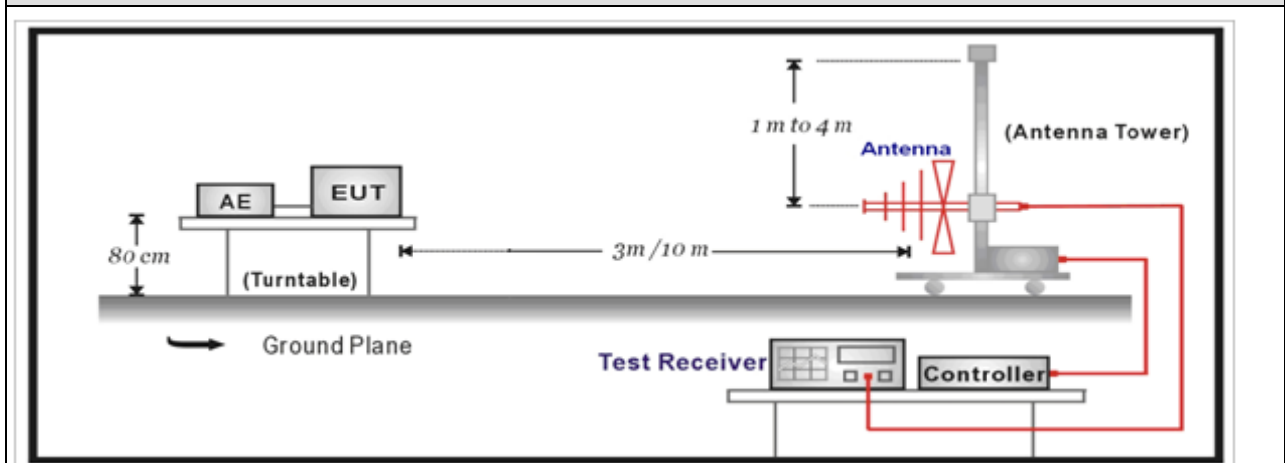
Maximum Output Power and Effective Isotropic Radiated Power Measurement / AC-5				
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2018.02.04
Radio Communication Tester	Anritsu	MT8820C	6201181503	2018.09.16
Dual Directional Coupler	Agilent	778D	20160	2018.02.04
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2018.03.28
PSG Analog Signal Generator	Agilent	E8257D	MY44321116	2018.02.04
Preamplifier	QuieTek	AP-025C	CHM-0503006	2018.04.11
Preamplifier	Miteq	NSP1800-25	1364185	2018.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2018.01.23
Half Wave Tuned Dipole Antenna	COM-POWER	AD-100	40137	2018.02.26
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2018.03.06
DRG Horn	ETS-Lindgren	3117	00167055	2018.07.23
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2018.01.05

3.2. Test Setup

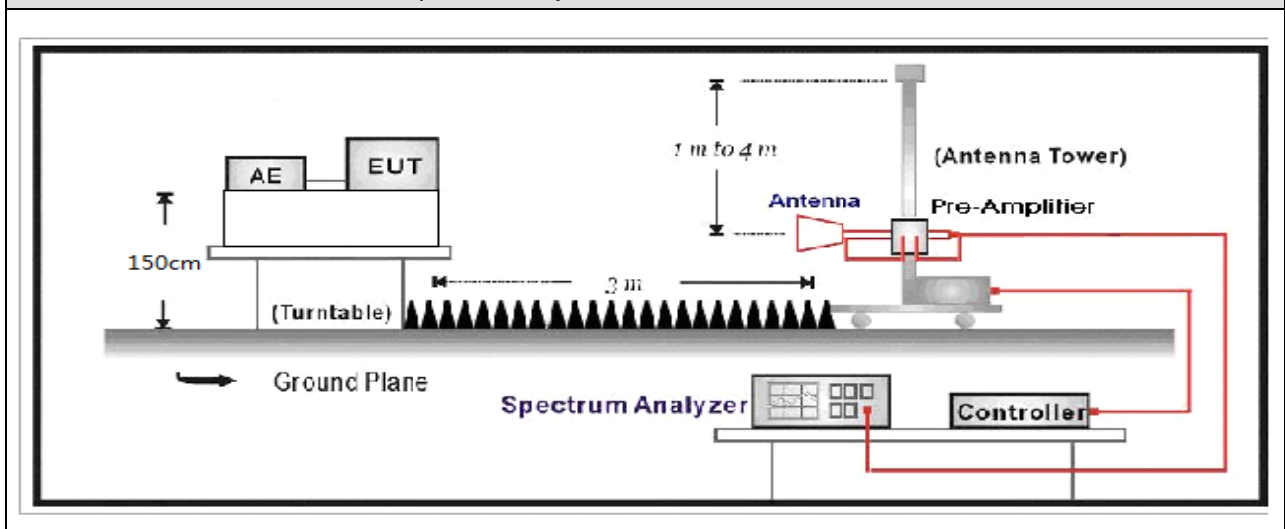
Conducted Power Measurement:



Radiated Power Measurement (Below 1G):



Radiated Power Measurement (Above 1G):



3.3. Test Procedure

Test Method for conducted power
a) The RF output of the transmitter was connected to base station simulator. b) The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. c) Set EUT at maximum average power by base station simulator. d) Measure lowest, middle, and highest channels for each bandwidth and different modulation.
Test For Effective Isotropic Radiated Power Measurement:
a) The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber. b) The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower c) LTE operating modes: use channel power function to test d) The table was rotated 360 degrees to determine the position of the highest radiated power. e) The height of the receiving antenna is adjusted to look for the maximum EIRP. f) The maximum EIRP shall be record. g) A dipole antenna was substituted in place of the EUT and was driven by a signal generator. h) The conducted power at the terminal of the dipole antenna is measured. i) Repeat step c) to step h) to get the maximum EIRP of the substitution antenna. j) $EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$. k) P_s (dBm) : Input power to substitution antenna l) G_s (dBi or dBd) : Substitution antenna Gain. m) $E_t = R_t + AF$ n) $E_s = R_s + AF$ o) AF (dB/m) : Receive antenna factor p) R_t : The highest received signal in spectrum analyzer for EUT. q) R_s : The highest received signal in spectrum analyzer for substitution antenna.

3.4. Test Result

Product	Module	Test Site	AC-5
Test Item	Maximum Output Power	Date of Test	2017/10/19
Test Mode	Mode 1: LTE Band 7 Link	Test engineer	Demon

BW [MHz]	RB Size	RB Offset	Mod	Maximum Average Power [dBm]		
				Low Ch. / Freq.	Mid Ch. / Freq.	High Ch. / Freq.
Channel				20850	21100	21350
Frequency				2510	2535	2560
20	1	0	QPSK	22.44	22.67	22.71
20	1	49		22.85	22.36	22.55
20	1	99		22.47	22.5	22.7
20	50	0		21.52	21.31	21.54
20	50	24		21.51	21.4	21.52
20	50	49		21.49	21.42	21.56
20	100	0		21.45	21.43	21.55
20	1	0	16-QAM	22.06	21.69	22.00
20	1	49		21.81	21.62	21.57
20	1	99		21.71	21.77	21.73
20	50	0		20.58	20.46	20.78
20	50	24		20.56	20.43	20.67
20	50	49		20.54	20.41	20.64
20	100	0		20.7	20.54	20,62
Channel				20825	21100	21375
Frequency				2507.5	2535	2562.5
15	1	0	QPSK	22.58	22.66	22.77
15	1	37		22.48	22.54	22.64
15	1	74		22.8	22.56	22.66
15	36	0		21.69	21.56	21.45
15	36	18		21.65	21.5	21.43
15	36	37		21.53	21.43	21.42
15	75	0		21.52	21.38	21.4
15	1	0	16-QAM	21.73	21.27	21.63
15	1	37		21.68	21.35	21.55
15	1	74		21.82	21.24	21.51

15	36	0		20.55	20.3	20.47
15	36	18		20.53	20.35	20.43
15	36	37		20.59	20.4	20.42
15	75	0		20.54	20.38	20.34
Channel				20800	21100	21400
Frequency				2505	2535	2565
10	1	0	QPSK	22.56	22.69	22.71
10	1	24		22.46	22.41	22.60
10	1	49		22.78	22.55	22.43
10	25	0		21.58	21.38	21.4
10	25	12		21.54	21.36	21.37
10	25	24		21.53	21.39	21.41
10	50	0		21.63	21.39	21.57
10	1	0	16-QAM	21.85	21.69	21.89
10	1	24		21.44	21.61	21.62
10	1	49		21.76	21.88	21.84
10	25	0		20.67	20.67	20.42
10	25	12		20.69	20.7	20.59
10	25	24		20.58	20.62	20.5
10	50	0		20.67	20.65	20.51
Channel				20775	21100	21425
Frequency				2502.5	2535	2567.5
5	1	0	QPSK	22.63	22.50	22.56
5	1	12		22.59	22.35	22.5
5	1	24		22.45	22.32	22.48
5	12	0		21.47	21.36	21.4
5	12	6		21.49	21.37	21.37
5	12	11		21.55	21.29	21.34
5	25	0		21.32	21.21	21.31
5	1	0	16-QAM	21.92	21.69	21.72
5	1	12		21.62	21.91	21.67
5	1	24		21.98	21.81	21.66
5	12	0		20.55	20.4	20.51
5	12	6		20.47	20.37	20.49
5	12	11		20.41	20.29	20.46
5	25	0		20.45	20.36	20.43

Note: All conducted measurements are based on a RMS detector.

Product	Module	Test Site	AC-5
Test Item	Effective Isotropic Radiated Power	Date of Test	2017/10/19
Test Mode	Mode 1: LTE Band 7 Link	Test engineer	Demon

LTE Band 7 Radiated Power EIRP							
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V
			RB Size	RB Offset			
7	5	QPSK	1	0	2502.5	23.84	H
7	5	QPSK	1	0	2535.0	23.65	H
7	5	QPSK	1	0	2567.5	23.81	H
7	5	QPSK	1	0	2502.5	23.82	V
7	5	QPSK	1	0	2535.0	23.63	V
7	5	QPSK	1	0	2567.5	23.79	V
7	5	16QAM	1	0	2502.5	23.01	H
7	5	16QAM	1	0	2535.0	23.15	H
7	5	16QAM	1	0	2567.5	23.11	H
7	5	16QAM	1	0	2502.5	23.05	V
7	5	16QAM	1	0	2535.0	23.08	V
7	5	16QAM	1	0	2567.5	23.12	V
7	10	QPSK	1	0	2505.0	24.02	H
7	10	QPSK	1	0	2535.0	23.83	H
7	10	QPSK	1	0	2565.0	23.98	H
7	10	QPSK	1	0	2505.0	24.05	V
7	10	QPSK	1	0	2535.0	23.81	V
7	10	QPSK	1	0	2565.0	23.95	V
7	10	16QAM	1	0	2505.0	23.15	H
7	10	16QAM	1	0	2535.0	23.08	H
7	10	16QAM	1	0	2565.0	23.11	H
7	10	16QAM	1	0	2505.0	23.14	V
7	10	16QAM	1	0	2535.0	23.17	V

7	10	16QAM	1	0	2565.0	23.13	V
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LTE Band 7 Radiated Power EIRP							
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V
			RB Size	RB Offset			
7	15	QPSK	1	0	2507.5	23.71	H
7	15	QPSK	1	0	2535.0	23.84	H
7	15	QPSK	1	0	2562.5	23.92	H
7	15	QPSK	1	0	2507.5	23.69	V
7	15	QPSK	1	0	2535.0	23.81	V
7	15	QPSK	1	0	2562.5	23.87	V
7	15	16QAM	1	0	2507.5	23.15	H
7	15	16QAM	1	0	2535.0	23.08	H
7	15	16QAM	1	0	2562.5	23.05	H
7	15	16QAM	1	0	2507.5	23.17	V
7	15	16QAM	1	0	2535.0	23.06	V
7	15	16QAM	1	0	2562.5	22.95	V
7	20	QPSK	1	0	2507.5	23.65	H
7	20	QPSK	1	0	2535.0	23.71	H
7	20	QPSK	1	0	2560.0	23.84	H
7	20	QPSK	1	0	2507.5	23.59	V
7	20	QPSK	1	0	2535.0	23.73	V
7	20	QPSK	1	0	2560.0	23.86	V
7	20	16QAM	1	0	2507.5	23.15	H
7	20	16QAM	1	0	2535.0	23.02	H
7	20	16QAM	1	0	2560.0	23.09	H
7	20	16QAM	1	0	2507.5	23.17	V
7	20	16QAM	1	0	2535.0	23.08	V
7	20	16QAM	1	0	2560.0	23.16	V

Note: For EIRP test, we have evaluated all the and RB size and Offset in each channel, we choose the worst data shown in the report.

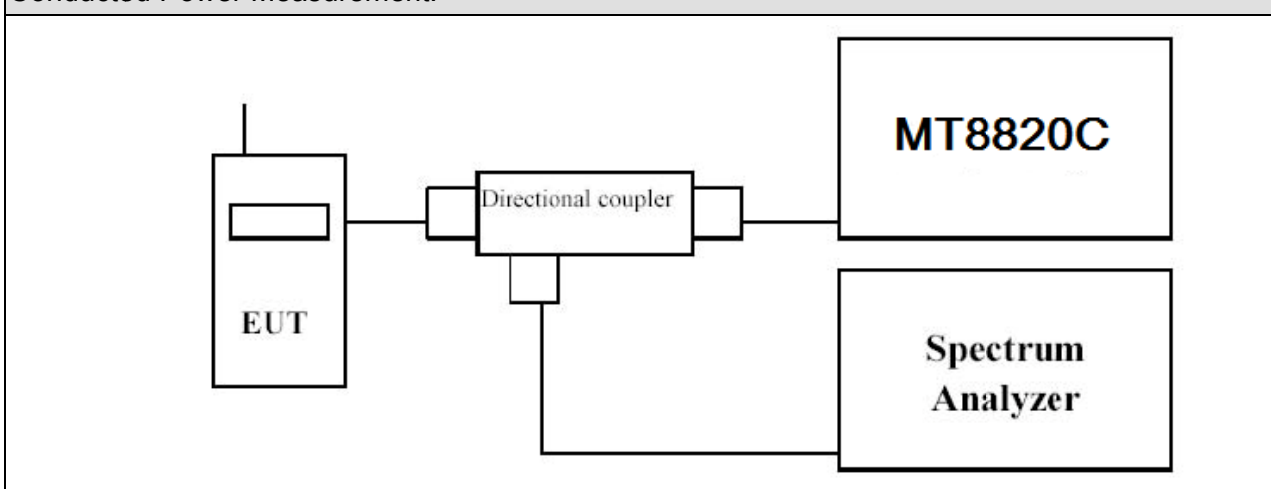
4. Peak-to-average power ratio

4.1. Test Equipment

Peak-to-average power ratio / AC-5				
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2018.02.04
Radio Communication Tester	Anritsu	MT8820C	6201181503	2018.09.16
Dual Directional Coupler	Agilent	778D	20160	2018.02.04
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2018.03.28
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC6-TH	2018.01.05

4.2. Test Setup

Conducted Power Measurement:



4.3. Test Procedure

☒ CCDF procedure for PAPR

The inherent randomness of the power peaks in a noise-like digital signal makes it difficult to quantify the peak power using traditional measurement techniques for determining the peak power of an analog signal.

The peak power of a digitally-modulated signal is predictable only on a statistical basis. Thus, for these types of signals, a statistical measurement of the peak power is necessary.

The power complementary cumulative distribution function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. The following guidelines are offered for performing a CCDF measurement.

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval as follows:
 - 1) for continuous transmissions, set to 1 ms,
 - 2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

e) Record the maximum PAPR level associated with a probability of 0.1%.

**Alternate procedure for PAPR**

Use one of the procedures presented in 4.1 to measure the total peak power and record as PPk. Use one of the applicable procedures presented 4.2 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

4.4. Test Result

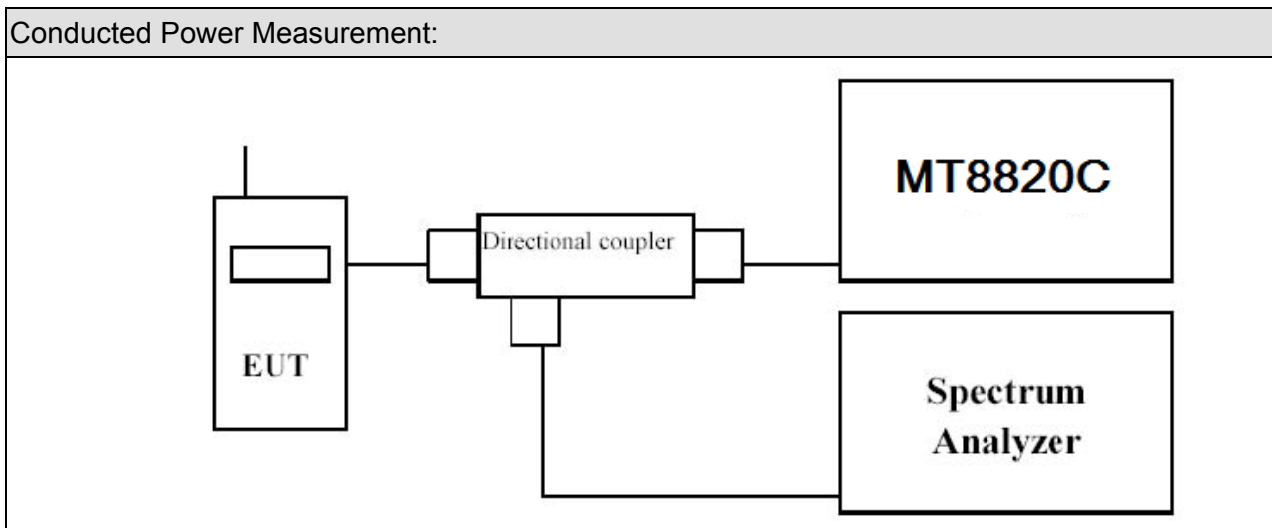
The LTE Band 7 is not application.

5. Occupied Bandwidth

5.1. Test Equipment

Occupied Bandwidth / TR-8				
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2018.02.04
Radio Communication Tester	Anritsu	MT8820C	6201181503	2018.09.16
Dual Directional Coupler	Agilent	778D	20160	2018.02.04
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2018.03.28
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC6-TH	2018.01.05

5.2. Test Setup



5.3. Test Procedure

Test Method for conducted test

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The 99% occupied bandwidth and 26 dB bandwidth of the middle channel for the highest RF powers were measured.

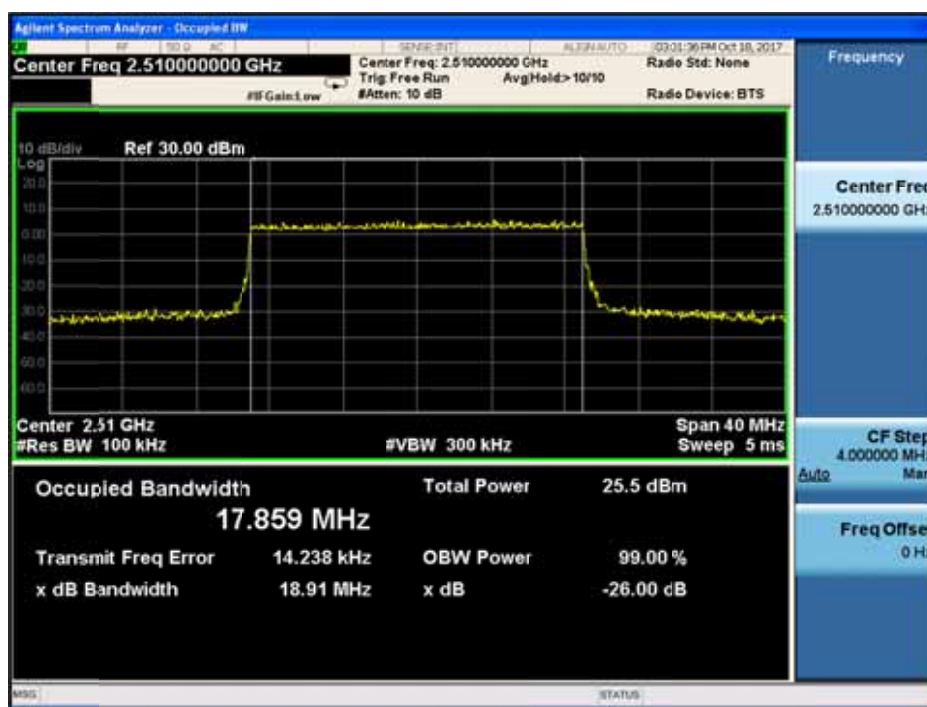
5.4. Test Result

Product	Module	Test Site	AC-5
Test Item	Occupied Bandwidth	Date of Test	2017/10/20
Test Mode	Mode 1(QPSK)	Test engineer	Demon

Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	99% Occupied Bandwidth (kHz)	-26dB Occupied Bandwidth (kHz)
LTE Band 7	20	20850	2510	17859	18910
		21100	2535	17856	18720
		21350	2560	17861	18840
	15	20825	2507.5	13411	14250
		21100	2535	13407	14310
		21400	2562.5	13395	14190
	10	20800	2505	8932.3	9493
		21100	2535	8944.2	9611
		21400	2565	8937.4	9611
	5	20775	2502.5	4321.9	4846
		21100	2535	4329.9	4809
		21425	2567.5	4328.0	4829

Note1: The worst case as below:

LTE Band 7 BW20M Channel 20850 100RB0

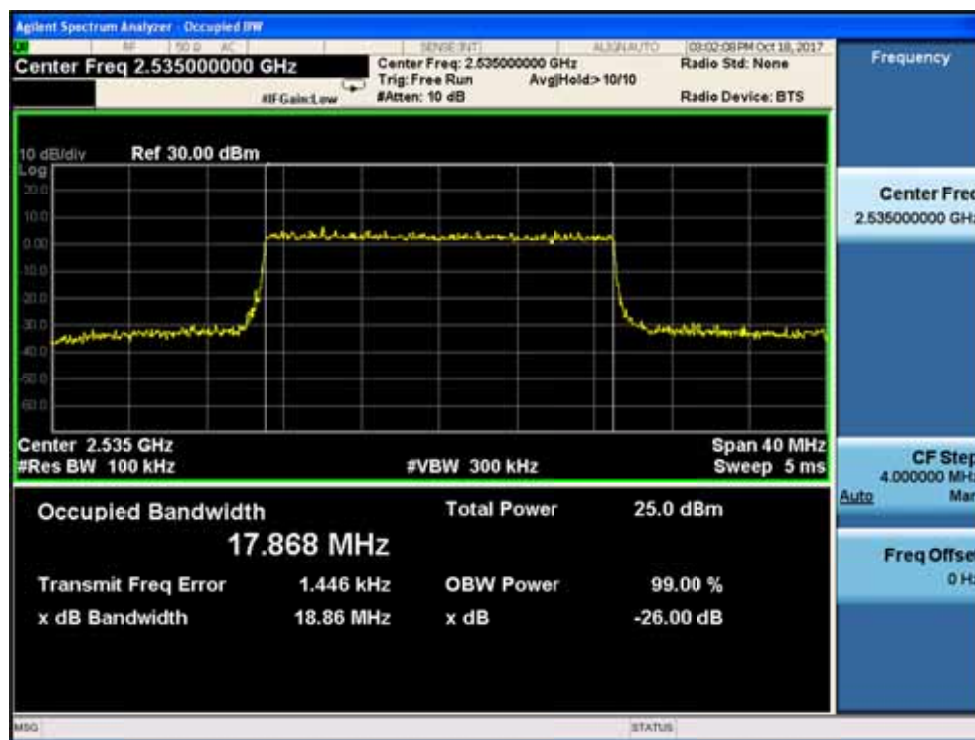


Product	Module	Test Site	AC-5
Test Item	Occupied Bandwidth	Date of Test	2017/10/20
Test Mode	Mode 1(16QAM)	Test engineer	Demon

Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	99% Occupied Bandwidth (kHz)	-26dB Occupied Bandwidth (kHz)
LTE Band 7	20	20850	2510	17865	18880
		21100	2535	17868	18860
		21350	2560	17849	18840
	15	20825	2507.5	13409	14300
		21100	2535	13399	14190
		21400	2562.5	13395	14180
	10	20800	2505	8946.1	9567
		21100	2535	8951.3	9484
		21400	2565	8946.7	9579
	5	20775	2502.5	4464.7	4879
		21100	2535	4340.2	4869
		21425	2567.5	4326.9	4830

Note1: The worst case as below:

LTE Band 7 BW20M Channel 21100 100RB0

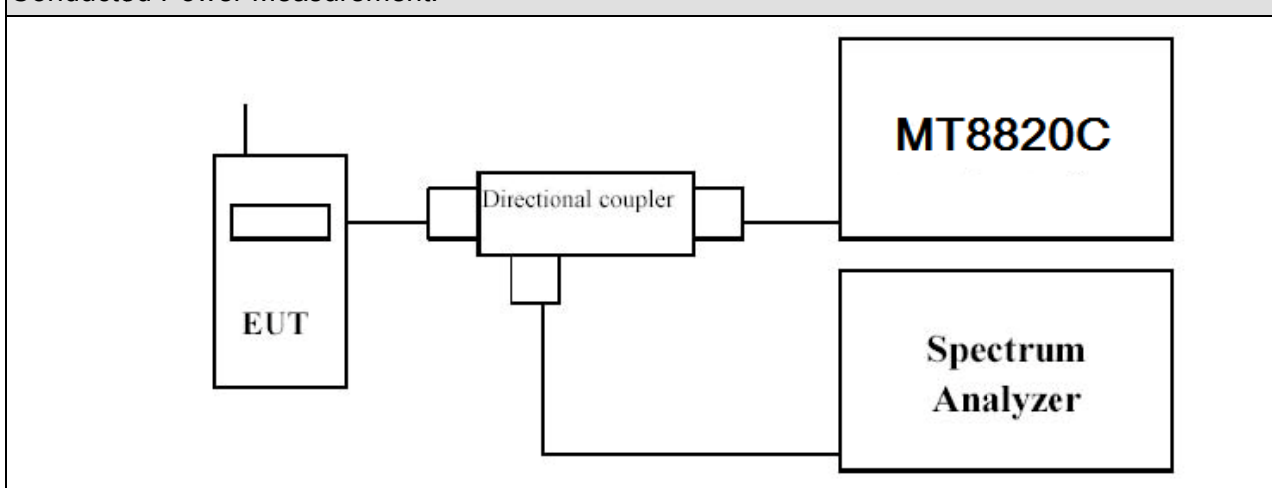


6. Conducted Band Edge

6.1. Test Equipment

Conducted Band Edge / TR-8				
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2018.02.04
Radio Communication Tester	Anritsu	MT8820C	6201181503	2018.09.16
Dual Directional Coupler	Agilent	778D	20160	2018.02.04
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2018.03.28
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC6-TH	2018.01.05

Conducted Power Measurement:



6.2. Test Procedure

Test Method for conducted test

1. The EUT was connected to spectrum analyzer and System Simulator via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The conducted spurious emission for the whole frequency range was taken.

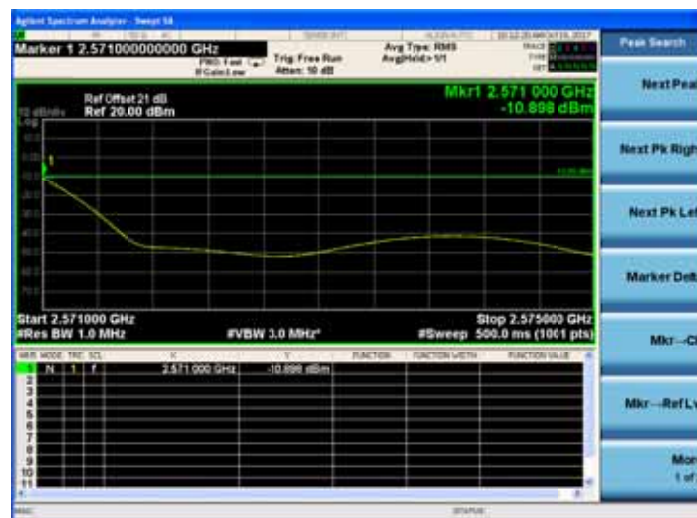
6.3. Test Result

Product	Module	Test Site	AC-5
Test Item	Conducted Band Edge	Date of Test	2017/10/20
Test Mode	Mode 1(QPSK)	Test engineer	Demon

Mode	Bandwidth (MHz)	Channel	Test Frequency (MHz)	RB	Measure Level (dBm)	Limit (dBm)	Result
LTE Band 7	20	20850	2510	1RB0	-29.649	< -10	Pass
				100RB0	-27.853	< -10	Pass
		21350	2560	1RB99	-30.789	< -10	Pass
				100RB0	-28.417	< -10	Pass
	15	20825	2507.5	1RB0	-24.862	< -10	Pass
				75RB0	-24.388	< -10	Pass
		21400	2562.5	1RB74	-25.108	< -10	Pass
				75RB0	-27.121	< -10	Pass
	10	20800	2505	1RB0	-12.053	< -10	Pass
				50RB0	-24.991	< -10	Pass
		21400	2565	1RB49	-11.611	< -10	Pass
				50RB0	-25.987	< -10	Pass
	5	20775	2502.5	1RB0	-19.767	< -10	Pass
				25RB0	-13.814	< -10	Pass
		21425	2567.5	1RB24	-10.898	< -10	Pass
				25RB0	-14.481	< -10	Pass

Note: The worst case as below:

LTE Band 7 BW5M Channel 21425 1RB24

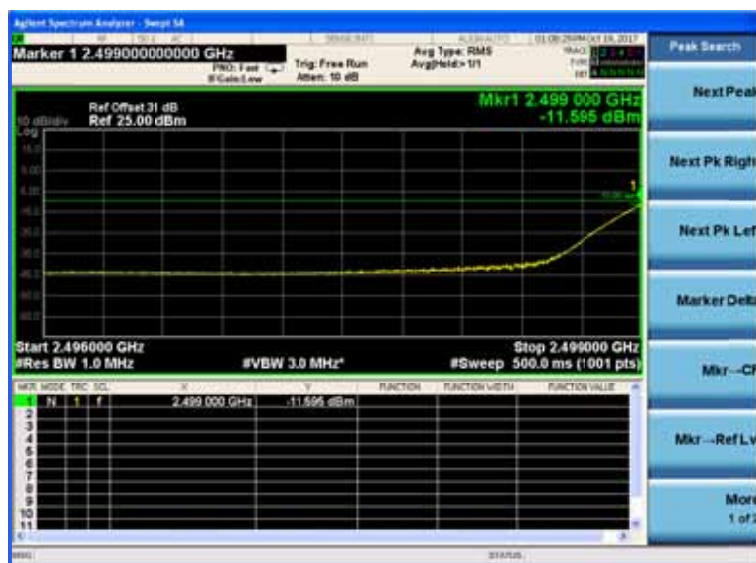


Product	Module	Test Site	AC-5
Test Item	Conducted Band Edge	Date of Test	2017/10/20
Test Mode	Mode 1(16QAM)	Test engineer	Demon

Mode	Bandwidth (MHz)	Channel	Test Frequency (MHz)	RB	Measure Level (dBm)	Limit (dBm)	Result
LTE Band 7	20	20850	2510	1RB0	-28.769	< -10	Pass
				100RB0	-27.336	< -10	Pass
		21350	2560	1RB99	-30.304	< -10	Pass
				100RB0	-31.444	< -10	Pass
	15	20825	2507.5	1RB0	-25.740	< -10	Pass
				75RB0	-24.594	< -10	Pass
		21400	2562.5	1RB74	-25.182	< -10	Pass
				75RB0	-26.189	< -10	Pass
	10	20800	2505	1RB0	-11.595	< -10	Pass
				50RB0	-22.949	< -10	Pass
		21400	2565	1RB49	-12.119	< -10	Pass
				50RB0	-27.687	< -10	Pass
	5	20775	2502.5	1RB0	-19.982	< -10	Pass
				25RB0	-20.201	< -10	Pass
		21425	2567.5	1RB24	-21.467	< -10	Pass
				25RB0	-15.354	< -10	Pass

Note: The worst case as below:

LTE Band 7 BW10M Channel 20800 1RB0



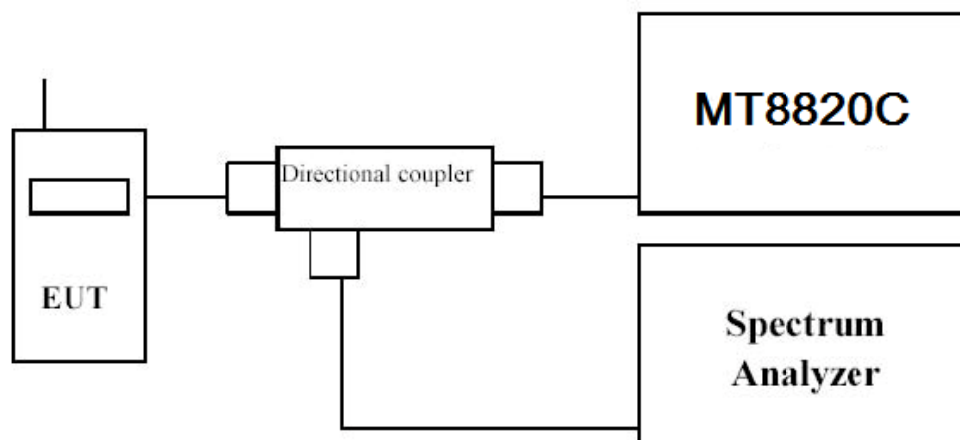
7. Spurious Emission

7.1. Test Equipment

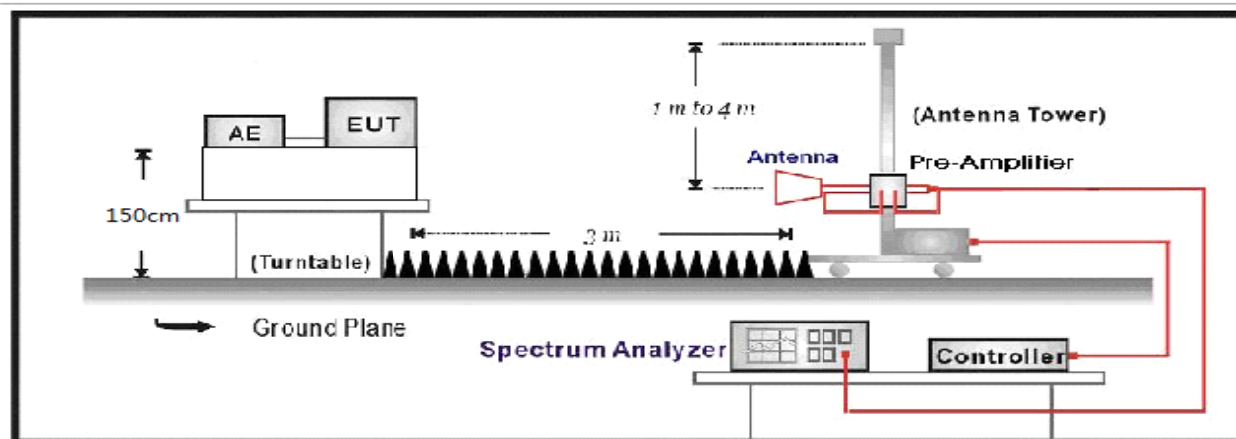
Spurious Emission / AC-5				
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2018.02.04
Radio Communication Tester	Anritsu	MT8820C	6201181503	2018.09.16
Dual Directional Coupler	Agilent	778D	20160	2018.02.04
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2018.03.28
PSG Analog Signal Generator	Agilent	E8257D	MY44321116	2018.02.04
Preamplifier	QuieTek	AP-025C	CHM-0503006	2018.04.11
Preamplifier	Miteq	NSP1800-25	1364185	2018.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2018.01.23
Half Wave Tuned Dipole Antenna	COM-POWER	AD-100	40137	2018.02.26
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2018.03.06
DRG Horn	ETS-Lindgren	3117	00167055	2018.07.23
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2018.01.05

7.2. Test Setup

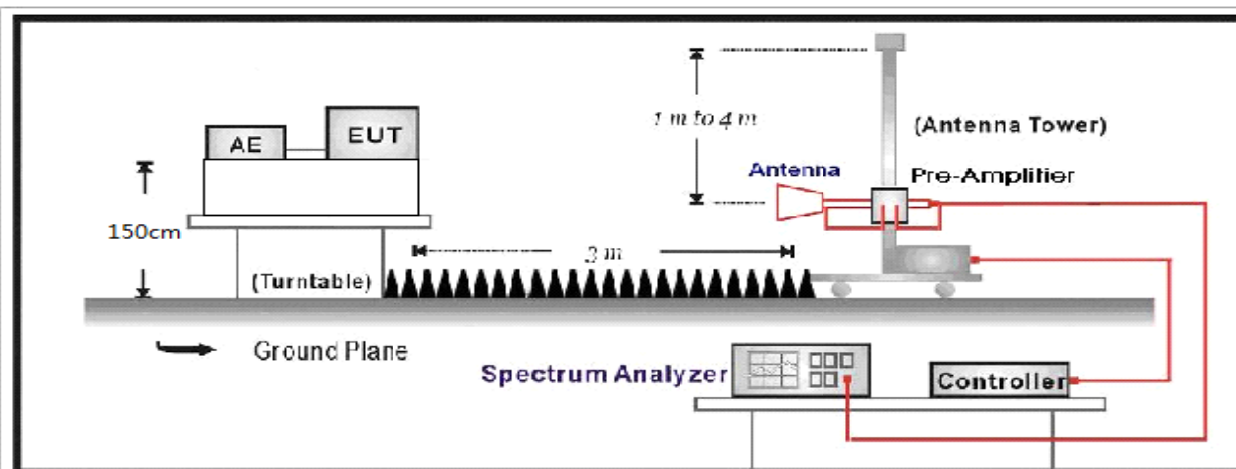
Conducted Power Measurement:



Radiated Power Measurement (Below 1G):



Radiated Power Measurement (Above 1G):



7.3. Test Procedure

Test Method for conducted power

- a) The RF output of the transmitter was connected to base station simulator.
- b) The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
- c) Set EUT at maximum average power by base station simulator.
- d) Measure lowest, middle, and highest channels for each bandwidth and different modulation.

Test For Effective Isotropic Radiated Power Measurement:

- a) The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
- b) The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower
- c) LTE operating modes: use channel power function to test
- d) The table was rotated 360 degrees to determine the position of the highest radiated power.
- e) The height of the receiving antenna is adjusted to look for the maximum EIRP.
- f) The maximum EIRP shall be record.
- g) A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
- h) The conducted power at the terminal of the dipole antenna is measured.
- i) Repeat step c) to step h) to get the maximum EIRP of the substitution antenna.
- j) $EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$.
- k) P_s (dBm) : Input power to substitution antenna
- l) G_s (dBi or dBd) : Substitution antenna Gain.
- m) $E_t = R_t + AF$
- n) $E_s = R_s + AF$
- o) AF (dB/m) : Receive antenna factor
- p) R_t : The highest received signal in spectrum analyzer for EUT.
- q) R_s : The highest received signal in spectrum analyzer for substitution antenna.

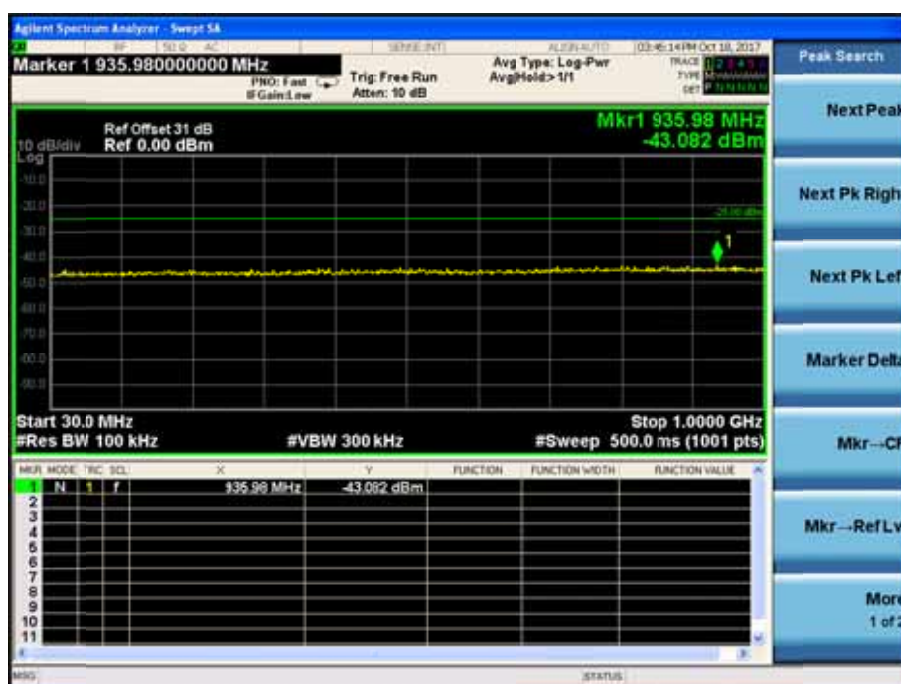
7.4. Test Result

Product	Module	Test Site	AC-5
Test Item	Conducted Spurious Emission	Date of Test	2017/10/20
Test Mode	Mode 1(QPSK)	Test engineer	Demon

Mode	Bandwidth (MHz)	Channel	Test Frequency (MHz)	RB	Measure Level (dBm)	Limit (dBm)	Result
LTE Band 7	20	20850	2510	1RB0	-45.033	< -25	Pass
		21100	2535	1RB0	-44.679	< -25	Pass
		21350	2560	1RB0	-45.164	< -25	Pass
	15	20825	2507.5	1RB0	-45.027	< -25	Pass
		21100	2535	1RB0	-45.347	< -25	Pass
		21375	2562.5	1RB0	-44.621	< -25	Pass
	10	20800	2505	1RB0	-45.015	< -25	Pass
		21100	2535	1RB0	-44.042	< -25	Pass
		21400	2565	1RB0	-45.411	< -25	Pass
	5	20775	2502.5	1RB0	-43.082	< -25	Pass
		21100	2535	1RB0	-44.101	< -25	Pass
		21425	2567.5	1RB0	-44.430	< -25	Pass

Note: The worst case as below:

LTE Band 7 BW5M Channel 20775 1RB0

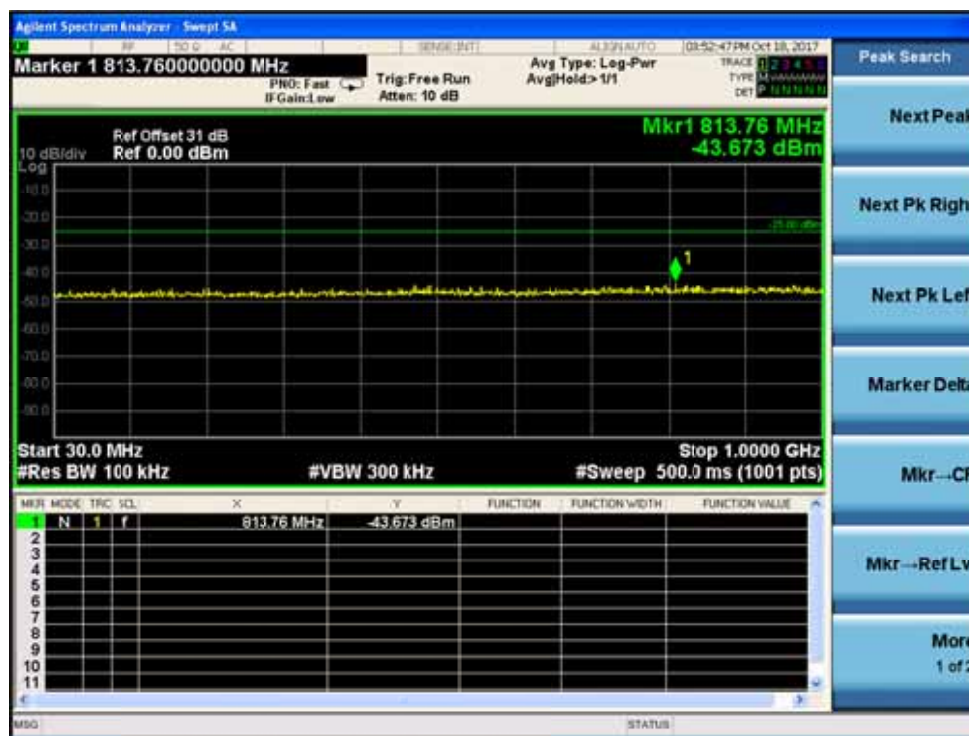


Product	Module	Test Site	AC-5
Test Item	Conducted Spurious Emission	Date of Test	2017/10/20
Test Mode	Mode 1(16QAM)	Test engineer	Demon

Mode	Bandwidth (MHz)	Channel	Test Frequency (MHz)	RB	Measure Level (dBm)	Limit (dBm)	Result
LTE Band 7	20	20850	2510	1RB0	-43.829	< -25	Pass
		21100	2535	1RB0	-44.943	< -25	Pass
		21350	2560	1RB0	-44.824	< -25	Pass
	15	20825	2507.5	1RB0	-45.738	< -25	Pass
		21100	2535	1RB0	-44.149	< -25	Pass
		21375	2562.5	1RB0	-44.768	< -25	Pass
	10	20800	2505	1RB0	-44.680	< -25	Pass
		21100	2535	1RB0	-44.354	< -25	Pass
		21400	2565	1RB0	-43.673	< -25	Pass
	5	20775	2502.5	1RB0	-45.314	< -25	Pass
		21100	2535	1RB0	-43.780	< -25	Pass
		21425	2567.5	1RB0	-44.883	< -25	Pass

Note: The worst case as below:

LTE Band 7 BW10M Channel 21400 1RB0



Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (5M/QPSK)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20775 (2502.50MHz) 1RB0								
5005	-53.876	V	-64.421	1.24	12.65	-53.011	-25	-28.011
7507.5	-59.08	V	-64.73	1.48	11.25	-54.96	-25	-29.96
5005	-52.581	H	-62.846	1.24	12.65	-51.436	-25	-26.436
7507.5	-56.864	H	-61.622	1.48	11.25	-51.852	-25	-26.852
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-55.285	V	-65.788	1.22	12.72	-54.288	-25	-29.288
7605.00	-56.818	V	-62.446	1.54	11.45	-52.536	-25	-27.536
5070.00	-57.219	H	-67.484	1.22	12.72	-55.984	-25	-30.984
7605.00	-59.251	H	-64.036	1.54	11.45	-54.126	-25	-29.126
High Channel 21425 (2567.50MHz) 1RB0								
5135.00	-55.947	V	-66.47	1.22	12.79	-54.9	-25	-29.9
7702.50	-56.917	V	-62.389	1.57	11.45	-52.509	-25	-27.509
5135.00	-57.674	H	-67.93	1.22	12.79	-56.36	-25	-31.36
7702.50	-58.01	H	-62.608	1.57	11.45	-52.728	-25	-27.728

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (5M/16QAM)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20775 (2502.50MHz) 1RB0								
5005.00	-53.452	V	-63.997	1.24	12.65	-52.587	-25	-27.587
7507.50	-58.05	V	-63.7	1.48	11.25	-53.93	-25	-28.93
5005.00	-54.413	H	-64.678	1.24	12.65	-53.268	-25	-28.268
7507.50	-59.962	H	-64.72	1.48	11.25	-54.95	-25	-29.95
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-55.356	V	-65.859	1.22	12.72	-54.359	-25	-29.359
7605.00	-58.276	V	-63.904	1.54	11.45	-53.994	-25	-28.994
5070.00	-57.786	H	-68.051	1.22	12.72	-56.551	-25	-31.551
7605.00	-59.334	H	-64.119	1.54	11.45	-54.209	-25	-29.209
High Channel 21425 (2567.50MHz) 1RB0								
5135.00	-55.389	V	-65.912	1.22	12.79	-54.342	-25	-29.342
7702.50	-56.96	V	-62.432	1.57	11.45	-52.552	-25	-27.552
5135.00	-57.243	H	-67.499	1.22	12.79	-55.929	-25	-30.929
7702.50	-59.379	H	-63.977	1.57	11.45	-54.097	-25	-29.097

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (10M/QPSK)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20800 (2505.00MHz) 1RB0								
5010.00	-53.819	V	-64.372	1.24	12.66	-52.952	-25	-27.952
7515.00	-57.793	V	-63.427	1.49	11.27	-53.647	-25	-28.647
5010.00	-55.438	H	-65.711	1.24	12.66	-54.291	-25	-29.291
7515.00	-59.637	H	-64.392	1.49	11.27	-54.612	-25	-29.612
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-56.236	V	-66.739	1.22	12.72	-55.239	-25	-30.239
7605.00	-57.805	V	-63.433	1.54	11.45	-53.523	-25	-28.523
5070.00	-56.946	H	-67.211	1.22	12.72	-55.711	-25	-30.711
7605.00	-59.876	H	-64.661	1.54	11.45	-54.751	-25	-29.751
High Channel 21400 (2565.00MHz) 1RB0								
5130.00	-55.464	V	-65.994	1.22	12.79	-54.424	-25	-29.424
7695.00	-56.928	V	-62.409	1.57	11.45	-52.529	-25	-27.529
5130.00	-57.927	H	-68.203	1.22	12.79	-56.633	-25	-31.633
7695.00	-58.042	H	-62.648	1.57	11.45	-52.768	-25	-27.768

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (10M/16QAM)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20800 (2505.00MHz) 1RB0								
5010.00	-53.249	V	-63.802	1.24	12.66	-52.382	-25	-27.382
7515.00	-58.139	V	-63.773	1.49	11.27	-53.993	-25	-28.993
5010.00	-53.396	H	-63.669	1.24	12.66	-52.249	-25	-27.249
7515.00	-59.261	H	-64.016	1.49	11.27	-54.236	-25	-29.236
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-56.556	V	-67.059	1.22	12.72	-55.559	-25	-30.559
7605.00	-57.993	V	-63.621	1.54	11.45	-53.711	-25	-28.711
5070.00	-57.053	H	-67.318	1.22	12.72	-55.818	-25	-30.818
7605.00	-59.048	H	-63.833	1.54	11.45	-53.923	-25	-28.923
High Channel 21400 (2565.00MHz) 1RB0								
5130.00	-56.391	V	-66.921	1.22	12.79	-55.351	-25	-30.351
7695.00	-56.141	V	-61.622	1.57	11.45	-51.742	-25	-26.742
5130.00	-56.435	H	-66.711	1.22	12.79	-55.141	-25	-30.141
7695.00	-56.882	H	-61.488	1.57	11.45	-51.608	-25	-26.608

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (15M/QPSK)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20825 (2507.50MHz) 1RB0								
5015.00	-55.152	V	-65.713	1.24	12.67	-54.283	-25	-29.283
7522.50	-57.71	V	-63.295	1.49	11.27	-53.515	-25	-28.515
5015.00	-55.461	H	-65.733	1.24	12.67	-54.303	-25	-29.303
7522.50	-58.123	H	-62.872	1.49	11.27	-53.092	-25	-28.092
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-57.742	V	-68.245	1.22	12.72	-56.745	-25	-31.745
7605.00	-58.349	V	-63.977	1.54	11.45	-54.067	-25	-29.067
5070.00	-55.593	H	-65.858	1.22	12.72	-54.358	-25	-29.358
7605.00	-56.191	H	-60.976	1.54	11.45	-51.066	-25	-26.066
High Channel 21375 (2562.50MHz) 1RB0								
5125.00	-56.013	V	-66.538	1.22	12.78	-54.978	-25	-29.978
7687.50	-56.531	V	-62.031	1.57	11.45	-52.151	-25	-27.151
5125.00	-56.578	H	-66.854	1.22	12.78	-55.294	-25	-30.294
7687.50	-58.609	H	-63.226	1.57	11.45	-53.346	-25	-28.346

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (15M/16QAM)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20825 (2507.50MHz) 1RB0								
5015.00	-55.22	V	-65.781	1.24	12.67	-54.351	-25	-29.351
7522.50	-57.539	V	-63.124	1.49	11.27	-53.344	-25	-28.344
5015.00	-56.747	H	-67.019	1.24	12.67	-55.589	-25	-30.589
7522.50	-58.5	H	-63.249	1.49	11.27	-53.469	-25	-28.469
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-56.279	V	-66.782	1.22	12.72	-55.282	-25	-30.282
7605.00	-57.649	V	-63.277	1.54	11.45	-53.367	-25	-28.367
5070.00	-57.972	H	-68.237	1.22	12.72	-56.737	-25	-31.737
7605.00	-57.664	H	-62.449	1.54	11.45	-52.539	-25	-27.539
High Channel 21375 (2562.50MHz) 1RB0								
5125.00	-56.635	V	-67.16	1.22	12.78	-55.6	-25	-30.6
7687.50	-57.448	V	-62.948	1.57	11.45	-53.068	-25	-28.068
5125.00	-55.17	H	-65.446	1.22	12.78	-53.886	-25	-28.886
7687.50	-57.36	H	-61.977	1.57	11.45	-52.097	-25	-27.097

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (20M/QPSK)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20850 (2510.00MHz) 1RB0								
5020.00	-56.506	V	-67.066	1.24	12.67	-55.636	-25	-30.636
7530.00	-58.698	V	-64.266	1.5	11.3	-54.466	-25	-29.466
5020.00	-57.617	H	-67.872	1.24	12.67	-56.442	-25	-31.442
7530.00	-59.42	H	-64.184	1.5	11.3	-54.384	-25	-29.384
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-56.047	V	-66.55	1.22	12.72	-55.05	-25	-30.05
7605.00	-57.863	V	-63.491	1.54	11.45	-53.581	-25	-28.581
5070.00	-57.218	H	-67.483	1.22	12.72	-55.983	-25	-30.983
7605.00	-59.298	H	-64.083	1.54	11.45	-54.173	-25	-29.173
High Channel 21350 (2560.00MHz) 1RB0								
5120.00	-57.562	V	-68.103	1.21	12.78	-56.533	-25	-31.533
7680.00	-59.497	V	-65.015	1.57	11.45	-55.135	-25	-30.135
5120.00	-55.313	H	-65.609	1.21	12.78	-54.039	-25	-29.039
7680.00	-56.57	H	-61.197	1.57	11.45	-51.317	-25	-26.317

Product	Module		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: LTE Band VII (20M/16QAM)		
Date of Test	2017/10/23	Test Site	AC-5

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20850 (2510.00MHz) 1RB0								
5020.00	-55.589	V	-66.149	1.24	12.67	-54.719	-25	-29.719
7530.00	-58.045	V	-63.613	1.5	11.3	-53.813	-25	-28.813
5020.00	-57.346	H	-67.601	1.24	12.67	-56.171	-25	-31.171
7530.00	-59.094	H	-63.858	1.5	11.3	-54.058	-25	-29.058
Middle Channel 21100 (2535.00MHz) 1RB0								
5070.00	-55.931	V	-66.434	1.22	12.72	-54.934	-25	-29.934
7605.00	-57.819	V	-63.447	1.54	11.45	-53.537	-25	-28.537
5070.00	-57.352	H	-67.617	1.22	12.72	-56.117	-25	-31.117
7605.00	-58.789	H	-63.574	1.54	11.45	-53.664	-25	-28.664
High Channel 21350 (2560.00MHz) 1RB0								
5120.00	-56.746	V	-67.287	1.21	12.78	-55.717	-25	-30.717
7680.00	-58.15	V	-63.668	1.57	11.45	-53.788	-25	-28.788
5120.00	-56.928	H	-67.224	1.21	12.78	-55.654	-25	-30.654
7680.00	-58.758	H	-63.385	1.57	11.45	-53.505	-25	-28.505

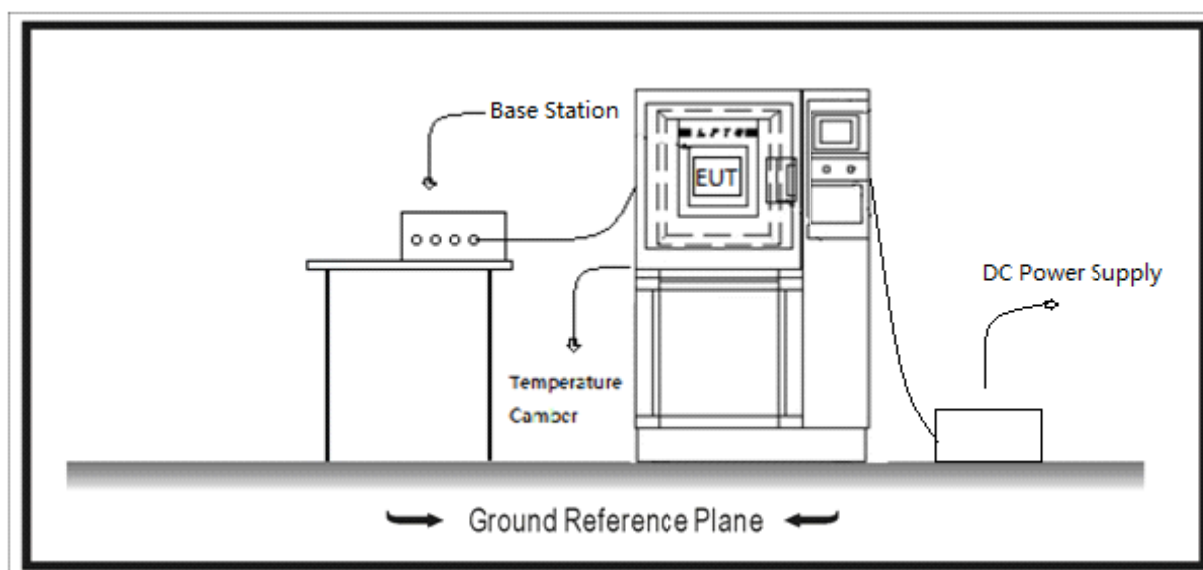
8. Frequency Stability Under Temperature & Voltage Variations

8.1. Test Equipment

Frequency Stability Under Temperature & Voltage Variations/TR-7				
Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
PSA Series Spectrum Analyzer	Agilent	E4440A	MY49420184	2018.02.04
Radio Communication Tester	Anritsu	MT8820C	6201181503	2018.09.16
Dual Directional Coupler	Agilent	778D	20160	2018.02.04
10dB Coaxial Coupler	Agilent	87300C	MY44300299	2018.03.28
DC Power Supply	IDRC	CD-035-020PR	977272	2018.09.16
Temperature & Humidity Chamber	Gaoyu	TH-1P-B	WIT-05121302	2018.01.04
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC6-TH	2018.01.05

8.2. Test Setup

For Conducted Measurement



8.3. Test Procedure

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20 operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30 . After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10 increased per stage until the highest temperature of +50 reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20 . Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

8.4. Test Result

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (5M/QPSK)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	-232	± 6337.5
-20	2535.00	141	± 6337.5
-10	2535.00	-133	± 6337.5
0	2535.00	340	± 6337.5
10	2535.00	242	± 6337.5
20	2535.00	145	± 6337.5
30	2535.00	-245	± 6337.5
40	2535.00	465	± 6337.5
50	2535.00	371	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	-235	± 6337.5
3.7	2535.00	244	± 6337.5
4.2	2535.00	-325	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (5M/16QAM)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	363	± 6337.5
-20	2535.00	-441	± 6337.5
-10	2535.00	536	± 6337.5
0	2535.00	342	± 6337.5
10	2535.00	-341	± 6337.5
20	2535.00	-252	± 6337.5
30	2535.00	467	± 6337.5
40	2535.00	655	± 6337.5
50	2535.00	549	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	469	± 6337.5
3.7	2535.00	-547	± 6337.5
4.2	2535.00	-336	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (10M/QPSK)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	-344	± 6337.5
-20	2535.00	636	± 6337.5
-10	2535.00	-532	± 6337.5
0	2535.00	551	± 6337.5
10	2535.00	-110	± 6337.5
20	2535.00	-236	± 6337.5
30	2535.00	-520	± 6337.5
40	2535.00	342	± 6337.5
50	2535.00	233	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	361	± 6337.5
3.7	2535.00	-462	± 6337.5
4.2	2535.00	547	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (10M/16QAM)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	625	± 6337.5
-20	2535.00	-524	± 6337.5
-10	2535.00	446	± 6337.5
0	2535.00	-521	± 6337.5
10	2535.00	-322	± 6337.5
20	2535.00	629	± 6337.5
30	2535.00	-671	± 6337.5
40	2535.00	542	± 6337.5
50	2535.00	548	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	456	± 6337.5
3.7	2535.00	-531	± 6337.5
4.2	2535.00	-368	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (15M/QPSK)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	358	± 6337.5
-20	2535.00	633	± 6337.5
-10	2535.00	-524	± 6337.5
0	2535.00	434	± 6337.5
10	2535.00	-541	± 6337.5
20	2535.00	-152	± 6337.5
30	2535.00	126	± 6337.5
40	2535.00	-231	± 6337.5
50	2535.00	-124	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	518	± 6337.5
3.7	2535.00	-311	± 6337.5
4.2	2535.00	229	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (15M/16QAM)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	-264	± 6337.5
-20	2535.00	-333	± 6337.5
-10	2535.00	525	± 6337.5
0	2535.00	-557	± 6337.5
10	2535.00	133	± 6337.5
20	2535.00	-211	± 6337.5
30	2535.00	175	± 6337.5
40	2535.00	-334	± 6337.5
50	2535.00	162	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	-525	± 6337.5
3.7	2535.00	412	± 6337.5
4.2	2535.00	536	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (20M/QPSK)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	289	± 6337.5
-20	2535.00	541	± 6337.5
-10	2535.00	524	± 6337.5
0	2535.00	142	± 6337.5
10	2535.00	168	± 6337.5
20	2535.00	256	± 6337.5
30	2535.00	284	± 6337.5
40	2535.00	334	± 6337.5
50	2535.00	258	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	512	± 6337.5
3.7	2535.00	484	± 6337.5
4.2	2535.00	285	± 6337.5

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE Band VII (20M/16QAM)		
Date of Test	2017/10/19	Test Site	TR7

Frequency Stability under Temperature

Temperature Interval ()	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	2535.00	412	± 6337.5
-20	2535.00	356	± 6337.5
-10	2535.00	241	± 6337.5
0	2535.00	284	± 6337.5
10	2535.00	521	± 6337.5
20	2535.00	334	± 6337.5
30	2535.00	118	± 6337.5
40	2535.00	169	± 6337.5
50	2535.00	125	± 6337.5

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.3	2535.00	256	± 6337.5
3.7	2535.00	212	± 6337.5
4.2	2535.00	362	± 6337.5

_____ The End _____