ACCREDITED
CERTIFICATE #5473.03

No.:
FCCSZ2024-0037-RF2

TEST REPORT

FCC ID	:	**2AJYU-8BAE003**
NAME OF SAMPLE	:	**Wireless Module**
APPLICANT	:	**SIMCom Wireless Solutions Limited**
CLASSIFICATION OF TEST	:	**N/A**

CVC Testing Technology (Shenzhen) Co., Ltd.

Applicant	**Name: SIMCom Wireless Solutions Limited** **Address: Building 3, No.289 LinHong Road,Changning District,Shanghai,P.R.China**
Manufacturer	**Name: SIMCom Wireless Solutions Limited** **Address: Building 3, No.289 LinHong Road,Changning District,Shanghai,P.R.China**
Equipment Under Test	**Name: Wireless Module** **Model/Type: A7670G** **Trade mark: N/A** **Serial NO.: N/A** **Sampe NO.:3-1**

Date of Receipt.	**2024-05-28**	Date of Testing	**2024-05-28 ～ 2024-06-18**

Test Specification	**Test Result**
FCC 47 CFR Part 2, 27 **ANSI/TIA-603-E** **ANSI C63.26-2015**	PASS

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. Seal of CVC **Issue Date:2024-06-20**

Tested by:	Reviewed by:	Approved by:
Liang Jiatong	Mo Xianbiao	Dong Sanbi
Name Signature	Name Signature	Name Signature

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCCSZ2024-0037-RF2	Original release	2024-06-20

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2024-0037-RF2-A1	Report Only
§27.50(c)(10)	Effective Radiated Power	ERP < 3Watt	Annex A of FCCSZ2024-0037-RF2-A1	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2024-0037-RF2-A1	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2024-0037-RF2-A1	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2024-0037-RF2-A1	PASS
§2.1051 §27.53(g)	Band Edge Compliance	< 43+10log10(P[Watts])	Annex D of FCCSZ2024-0037-RF2-A1	PASS
§2.1051 §27.53(g)	Conducted Spurious Emission	< 43+10log10(P[Watts])	Annex E of FCCSZ2024-0037-RF2-A1	PASS
§2.1051 §27.53(g)	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.8	PASS

1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Due
Antenna Port Conducted Test					
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 3044	104408	1 year	2025.5.21
#4Shielding room	MORI	443	N/A	3 year	2026.5.16
Wideband radio communication tester	Rohde&Schwarz	CMW 500	168588	1 year	2025.5.25
Analog signal Generator(100kHz～12.75GHz)	Rohde&Schwarz	SMB 100A	181882	1 year	2025.5.21
Vector signal Generator(8kHz～6GHz)	Rohde&Schwarz	SMBV 100B	101846	1 year	2025.5.21
DC power supply	Rohde&Schwarz	HMC8041-G	101203	1 year	2025.5.21
RF control unit(2/3/4/5G)	Tonscend	JS0806-1	CS0300027	1 year	2025.5.21
Automatic filter bank(2/3/4G)	Tonscend	JS0806-F	CS0300028	1 year	2025.5.21
Automatic filter bank(5G)	Tonscend	JS0806-F-5G NR	N/A	1 year	2025.5.21
Temperature and humidity meter	UNI-T	A10T	C193561464	1 year	2025.5.21
Radio Communication Analyzer	Anritsu	MT8821C	6272374548	1 year	2025.1.09
Constant temperature humidity chamber	TEELONG	TL-HW-225B	20220518-01	1 year	2025.5.25
Radio Communication Test Station	Anritsu	MT8000A	6272354169	1 year	2025.1.09

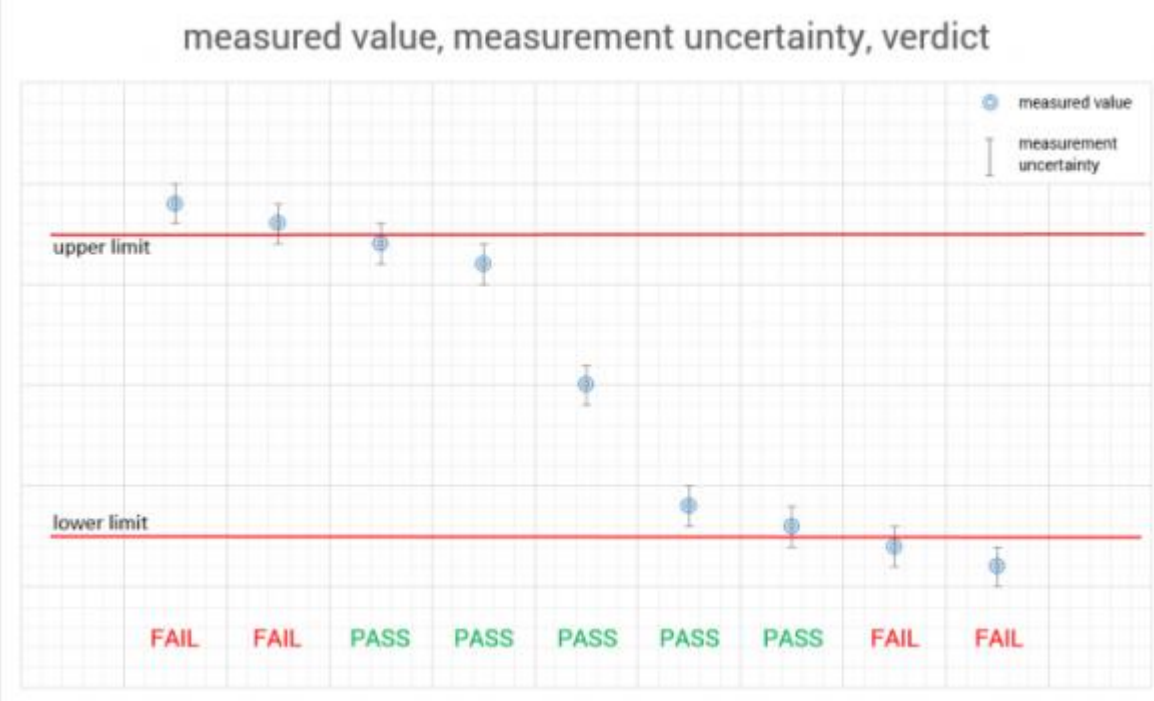
Radiated Spurious Emission Test - 3M Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. interval**	**Cal. Due**
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 40	101898	1 year	2025.5.21
EMI Test Receiver	Rohde&Schwarz	ESR3	102693	1 year	2025.5.25
Antenna(30MHz~1001MHz)	SCHWARZBECK	VULB 9168	01133	1 year	2025.2.21
Horn antenna(1GHz-18GHz)	ETS	3117	227611	1 year	2025.3.25
Horn antenna(18GHz-40GHz)	QMS	QMS-00880	22051	1 year	2025.3.25
3m anechoic chamber	MORI	966	CS0300011	3 year	2026.5.18
Filter group(RSE-BT/WiFi)	Rohde&Schwarz	WiFi /BT Variant 1	100820	1 year	2025.4.28
Filter group(RSE-Cellular)	Rohde&Schwarz	Cellular Variant 1	100768	1 year	2025.4.28
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2025.4.28
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100801	1 year	2025.4.28
Preamplifier(18Gz-40GHz)	Rohde&Schwarz	SCU-40A	101209	1 year	2025.4.28
#2 control room	MORI	433	CS0300028	3 year	2026.5.16
Temperature and humidity meter	/	C193561517	C193561517	1 year	2025.4.28

1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	Measurement Uncertainty
1	Occupied Channel Bandwidth	±1.86 %
2	RF output power, conducted	±0.9 dB
3	Power Spectral Density, conducted	±0.8 dB
4	Conducted emission test	+/-2.7 dB
5	Radiated emission 9kHz-30MHz	+/-5.6 dB
	Radiated emission 30MHz-1GHz	+/-4.6 dB
	Radiated emission 1GHz-18GHz	+/-4.4 dB
	Radiated emission 18GHz-40GHz	+/-5.1 dB
6	Temperature	±0.73 °C
7	Humidity	±3.90 %
8	Supply voltages	±0.37 %
9	Time	±0.27 %
Remark: 95% Confidence Levels, k=2.		

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed.
The measurement uncertainty is mentioned in this test report, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong.



1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab of CVC Testing Technology (Shenzhen) Co., Ltd.

Lab Address: 1301-14,16, Guanguang Road, Xinlan Community, Guanlan Street, Longhua District, Shenzhen, Guangdong, 518110, P. R. China

Post Code：518110 Tel：0755-23763060-8805
Fax：0755-23763060 E-mail：sz-kf@cvc.org.cn
FCC(Test firm designation number：CN1363)
IC(Test firm CAB identifier number：CN0137)
CNAS(Test firm designation number：L16091)

2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	Wireless Module	
BRAND	N/A	
MODEL	A7670G	
POWER SUPPLY	DC 3.8V From host unit	
LTE CATEGORY	CAT 1	
MODULATION TYPE	LTE	QPSK, 16QAM
LTE BAND	B17	
OPERATING FREQUENCY	704 ~ 716MHz	
MAXIMUM OUTPUT POWER	24.21dBm	
HARDWARE VERSION:	1.0	
SOFTWARE VERSION:	Quamtum Access Q4_Ver 1.0	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	

Remark:

1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: FCCSZ2024-0037-EUT) for detailed product photo.
4. Please refer to the antenna report.
5. Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2.2 ANTENNA TYPE AND GAIN

Mode	Band	Antenna Type	Antenna Gain(dBi)
LTE	LTE B17	External Rod Antenna	0.07

2.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

EUT CONFIGURE MODE	DESCRIPTION
-	EUT + Adapter + with WCDMA or LTE link

Test modes are chosen as the worst case configuration below for LTE

Test items	LTE Band	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1%	50%	100%	L	M	H
RF power output	17	-	-	O	O	-	-	O	O	O	O	O	O	O	O
ERP/ EIRP	17	-	-	O	O	-	-	O	O	O	O	O	O	O	O
Occupied Bandwidth	17	-	-	O	O	-	-	O	O	-	-	O	O	O	O
Band Edge Compliance	17	-	-	O	O	-	-	O	-	O	-	O	O	-	O
Peak-to-Average Power Ratio	17	-	-	O	O	-	-	O	O	O	-	O	O	O	O
Frequency Stability	17	-	-	-	O	-	-	O	-	-	-	O	O	O	O
Conducted Spurious Emission	17	-	-	O	O	-	-	O	-	O	-	-	O	O	O
Radiates Spurious Emission (Note3)	17	-	-	O	O	-	-	O	-	O	-	-	O	O	O
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing. 3. Only the worst case was shown in test report														

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RF power output	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Effective Radiated Power	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Equivalent Isotropic Radiated Power	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Frequency Stability	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Occupied Bandwidth	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Band Edge Compliance	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Conducted Spurious Emission	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan
Radiates Spurious Emission	24.6deg. C, 53%RH	DC 5V from Adapter	Liu Yuan
Peak-to-Average Power Ratio	25.3deg. C, 57%RH	DC 5V from Adapter	Liu Yuan

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR PART 2

FCC 47 CFR PART 27

KDB 971168 D01 POWER MEAS LICENSE DIGITAL SYSTEMS V03R01

ANSI/TIA-603-E

ANSI C63.26-2015

ANSI C63.4-2014

Note: All test items have been performed and recorded as per the above standards

2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support Equipment					
NO	Description	Brand	Model No.	Serial Number	Supplied by
1	Notebook	HP	HP ProBook 440 GB Notebook PC	N/A	Lab

Support Cable							
NO	Description	Quantity (Number)	Length (cm)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

3 TEST TYPES AND RESULTS

3.1 RADIATED EMISSION MEASUREMENT

3.6.1 TEST PROCEDURES

a. Substitution method is used for E.I.R.P 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.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G

c. EIRP(dBm) = S.G.POWER – TX cable loss + Antenna gain.

d. E.R.P(dBm) = E.I.P.R - 2.15dBi.

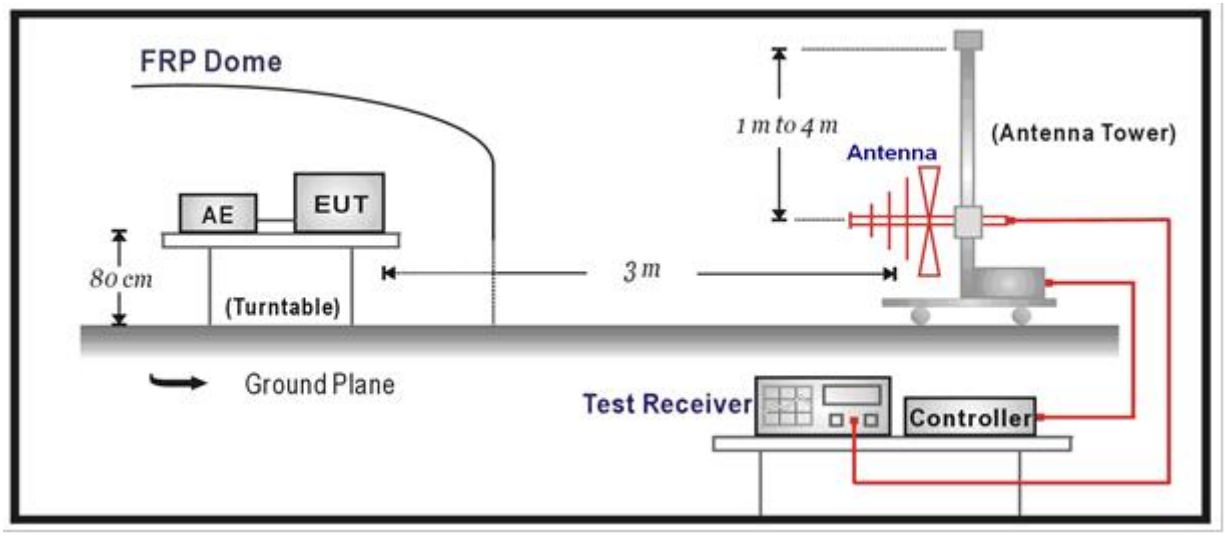
NOTE:

1.The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

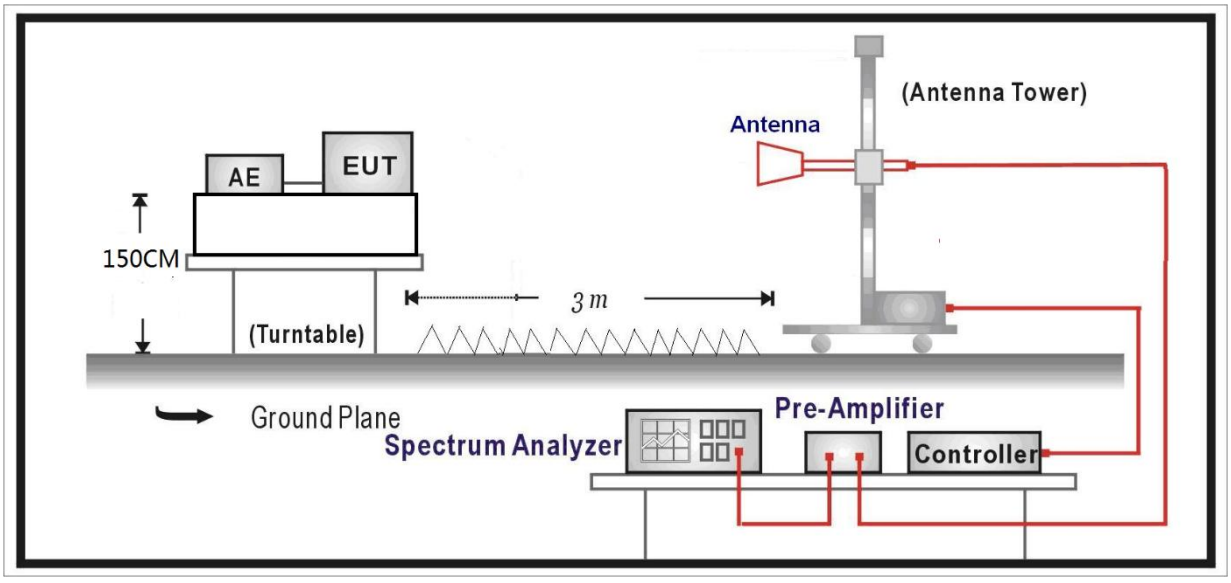
2.Only the worst case was shown in test report

3.6.2 TEST SETUP

Below 1GHz Test Setup:



Above 1GHz Test Setup:



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.6.3 TEST RESULTS

Test Mode		LTE B17-QPSK-10MHz		Channel		CH 23790	
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	65.3135	-93.65	-66.60	-13.00	53.60	27.05	316
2	159.3759	-93.61	-68.05	-13.00	55.05	25.56	132
3	612.6733	-92.51	-58.76	-13.00	45.76	33.75	11
4	1410.9022	-52.16	-49.86	-13.00	36.86	2.30	71
5	3136.9637	-60.08	-43.66	-13.00	30.66	16.42	0
6	6168.6469	-61.77	-41.17	-13.00	28.17	20.60	53
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	48.1918	-93.46	-65.05	-13.00	52.05	28.41	235
2	158.7339	-94.32	-67.97	-13.00	54.97	26.35	173
3	313.8994	-92.55	-65.51	-13.00	52.51	27.04	113
4	1410.9022	-50.25	-45.94	-13.00	32.94	4.31	295
5	3545.8746	-59.47	-45.35	-13.00	32.35	14.12	321
6	6260.396	-62.26	-42.02	-13.00	29.02	20.24	321

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] - Level [dBm]

3.2 OUT POWER MEASUREMENT

3.1.1 TEST PROCEDURES

Subclause 5.6 of Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

EIRP = PT + GT – LC, ERP= EIRP - 2.15dBi, where

PT = transmitter output power dBm;

GT = gain of the transmitting antenna dBi;

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

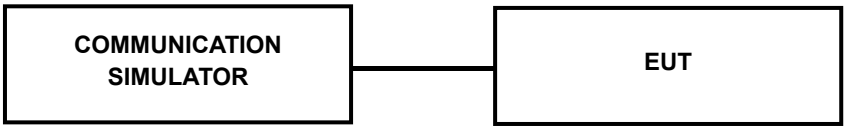
CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.2 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



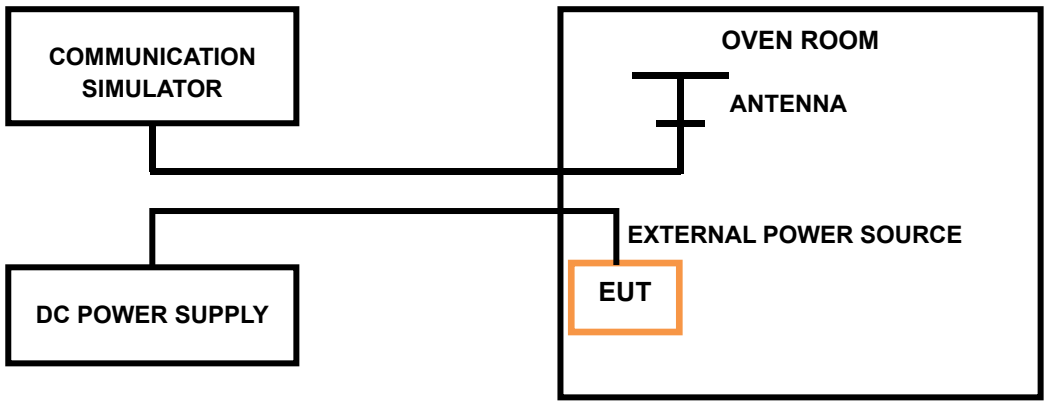
3.3 FREQUENCY STABILITY

3.2.1 TEST PROCEDURE

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.2 TEST SETUP

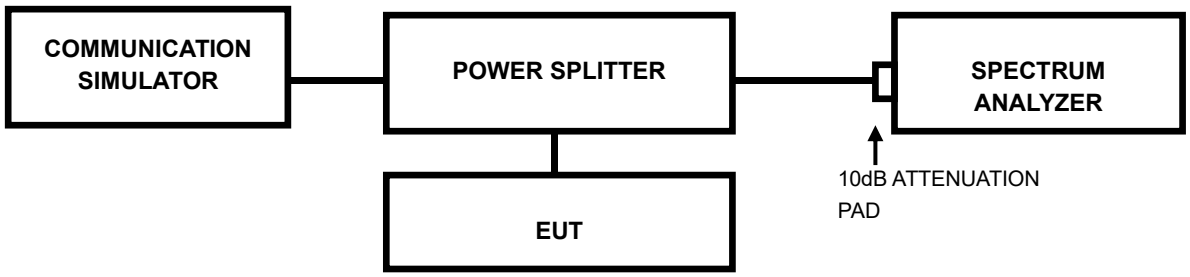


3.4 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. 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.

3.3.2 TEST SETUP



3.5 BAND EDGE MEASUREMENT

3.4.1 TEST PROCEDURES

a. All measurements were done at low and high operational frequency range.

b. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 1.4MHz).

c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz).

d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 5MHz).

e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz).

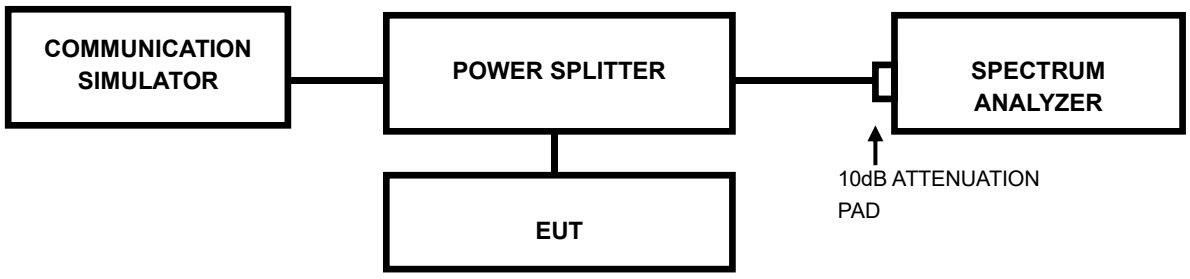
f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 600kHz. (LTE bandwidth 15MHz).

g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 300kHz and VBW of the spectrum is 1000kHz. (LTE bandwidth 20MHz).

h. Set the spectrum with RMS detector.

i. Record the AVG trace plot into the test report.

3.4.2 TEST SETUP



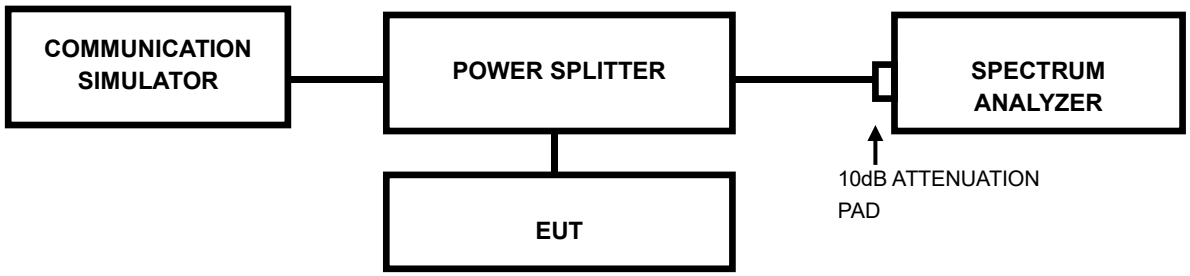
3.6 CONDUCTED SPURIOUS EMISSIONS

3.5.1 TEST PROCEDURE

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

b. Measuring frequency range is from 30 MHz up to a frequency inclouding its 10th harmocin. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.2 TEST SETUP

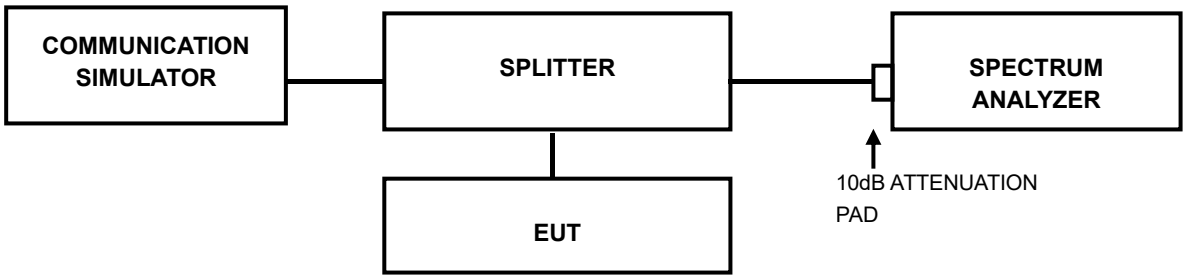


3.7 PEAK TO AVERAGE RATIO

3.7.1 TEST PROCEDURES

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

3.7.2 TEST SETUP



4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Setup Photo).

------ End of the Report ------

Important

(1) The test report is invalid without the official stamp of CVC;

(2) Any part photocopies of the test report are forbidden without the written permission from CVC;

(3) The test report is invalid without the signatures of Approval and Reviewer;

(4) The test report is invalid if altered;

(5) Objections to the test report must be submitted to CVC within 15 days.

(6) Generally, commission test is responsible for the tested samples only.

(7) As for the test result “-” or “N” means “not applicable”, “/” means “not test”, “P” means “pass” and “F” means “fail”

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