



No.:
FCCSZ2025-0073-RF2

TEST REPORT

FCC ID : 2ADUBQUADTRACKPRO

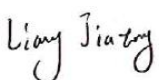
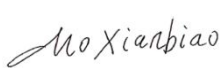
NAME OF SAMPLE : Wireless positioning terminals

APPLICANT : Tianjin RoamWiFi Technology Co.,Ltd

CLASSIFICATION OF TEST : N/A

CVC Testing Technology (Shenzhen) Co., Ltd.



Applicant	Tianjin RoamWiFi Technology Co.,Ltd	
Address	2018 Zhong Tian Road , Block 16 Unit 429, Ready built office, Tianjin Eco-city, Tianjin China	
Manufacturer	Tianjin RoamWiFi Technology Co.,Ltd	
Address	2018 Zhong Tian Road , Block 16 Unit 429, Ready built office, Tianjin Eco-city, Tianjin China	
Product Name	Wireless positioning terminals	
Brand Name	FIROAM	
Model Name	QuadTrack Pro	
Additional Model	N/A	
Date of Receipt.	Jul 19, 2025	
Date of testing	Jul 19, 2025 ~ Aug. 15, 2025	
Sample No.	202506128448-1	
Standard(s)	FCC 47 CFR Part 2,22,24,27,90 ANSI/TIA-603-E, ANSI C63.26-2015	
CONCLUSION:	The equipment under test was found to comply with the requirements of the standard(s) applied. Seal of CVC Issue Date: Sep. 4, 2025	
Compiled by: Liang Jiatong	Reviewed by: Mo Xianbiao	Approved by: Dong Sanbi
Signature: 	Signature: 	Signature: 

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCCSZ2025-0073-RF2	Original release	Sep. 04, 2025



1 SUMMARY OF TEST RESULTS

1.1 LTE BAND 2/ LTE BAND 25

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF3-A1&A8	Report Only
§24.232(c)	Equivalent Isotropic Radiated Power	EIRP < 2Watt	Annex A of FCCSZ2025-0073-RF3-A1&A8	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2025-0073-RF3-A1&A8	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF3-A1&A8	PASS
§2.1055 24.235	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2025-0073-RF3-A1&A8	PASS
§2.1051 §24.238(a)	Band Edge Compliance	< 43+10log10(P[Watts])	Annex D of FCCSZ2025-0073-RF3-A1&A8	PASS
§2.1051 §24.238(a)	Conducted Spurious Emission	< 43+10log10(P[Watts])	Annex E of FCCSZ2025-0073-RF3-A1&A8	PASS
§2.1051 §24.238(a)	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS



1.2 LTE BAND 4/ LTE BAND 66/

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF2-A4&A11&A12	Report Only
§27.50(d)(4)	Equivalent Isotropic Radiated Power	EIRP < 1Watt	Annex A of FCCSZ2025-0073-RF2-A4&A11&A12	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2025-0073-RF2-A4&A11&A12	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF2-A4&A11&A12	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2025-0073-RF2-A4&A11&A12	PASS
§2.1051 §27.53(h)	Band Edge Compliance	< 43+10log10(P[Watts])	Annex D of FCCSZ2025-0073-RF2-A4&A11&A12	PASS
§2.1051 §27.53(h)	Conducted Spurious Emission	< 43+10log10(P[Watts])	Annex E of FCCSZ2025-0073-RF2-A4&A11&A12	PASS
§2.1051 §27.53(h)	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS



1.3 LTE BAND 5/ LTE BAND 26 (824~849MHz)

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF3-A3	Report Only
§22.913(a)(5)	Equivalent Radiated Power	EIRP < 7Watt	Annex A of FCCSZ2025-0073-RF3-A3	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2025-0073-RF3-A3	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF3-A3	PASS
§2.1055 §22.355	Frequency Stability	< 2.5 ppm	Annex F of FCCSZ2025-0073-RF3-A3	PASS
§2.1051 §22.917	Band Edge Compliance	< 43+10log10(P[Watts])	Annex D of FCCSZ2025-0073-RF3-A3	PASS
§2.1051 §22.917	Conducted Spurious Emission	< 43+10log10(P[Watts])	Annex E of FCCSZ2025-0073-RF3-A3	PASS
§2.1051 §22.917	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS



1.4 LTE BAND 7/ LTE BAND 38/ LTE BAND 41

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF3-A4&A11&A12	Report Only
§27.50(h)(2)	Equivalent Isotropic Radiated Power	EIRP < 2Watt	Annex A of FCCSZ2025-0073-RF3-A4&A11&A12	PASS
§2.1049	Occupied Bandwidth	>1MHz	Annex C of FCCSZ2025-0073-RF3-A4&A11&A12	PASS
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF3-A4&A11&A12	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2025-0073-RF3-A4&A11&A12	PASS
§2.1051 §27.53(m4)	Band Edge Compliance	For mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least: (i) 40 + 10 log ₁₀ p from the channel edges to 5 MHz away (ii) 43 + 10 log ₁₀ p between 5 MHz and X MHz from the channel edges, and (iii) 55 + 10 log ₁₀ p at X MHz and beyond from the channel edges In addition, the attenuation shall not be less than 43 + 10 log(p) on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log ₁₀ p at or below 2490.5 MHz	Annex D of FCCSZ2025-0073-RF3-A4&A11&A12	PASS
§2.1051 §27.53(m4)	Conducted Spurious Emission		Annex E of FCCSZ2025-0073-RF3-A4&A11&A12	PASS
§2.1051 §27.53(m4)	Radiates Spurious Emission		See section 3.1	PASS



1.5 LTE BAND 12/ LTE BAND 17

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF3-A5&A7	Report Only
§27.50(c)(10)	Effective Radiated Power	ERP < 3Watt	Annex A of FCCSZ2025-0073-RF3-A5&A7	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2025-0073-RF3-A5&A7	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF3-A5&A7	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2025-0073-RF3-A5&A7	PASS
§2.1051 §27.53(g)	Band Edge Compliance	< 43+10log10(P[Watts])	Annex D of FCCSZ2025-0073-RF3-A5&A7	PASS
§2.1051 §27.53(g)	Conducted Spurious Emission	< 43+10log10(P[Watts])	Annex E of FCCSZ2025-0073-RF3-A5&A7	PASS
§2.1051 §27.53(g)	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS



1.6 LTE BAND 13

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF3-A6	Report Only
§27.50(c)(10)	Effective Radiated Power	ERP < 3Watt	Annex A of FCCSZ2025-0073-RF3-A6	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2025-0073-RF3-A6	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF3-A6	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2025-0073-RF3-A6	PASS
§2.1051 §27.53(c)	Band Edge Compliance	The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10log10(P[Watts]) Additional unwanted emissions limits: a) For all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least: 65 + 10 log10 p (watts), dB, for mobile and portable equipment. b) The e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and -80 dBW for discrete emission with bandwidth less than 700 Hz.	Annex D of FCCSZ2025-0073-RF3-A6	PASS
§2.1051 §27.53(c)	Conducted Spurious Emission		Annex E of FCCSZ2025-0073-RF3-A6	PASS
§2.1051 §27.53(c) §27.53(f)	Radiates Spurious Emission		See section 3.1	PASS



1.7 LTE BAND BAND 26 (814~824MHz)

FCC PART SECTION	TEST TYPE AND LIMIT	LIMIT	Report Section	RESULT
§2.1046	Conducted power output	---	Annex A of FCCSZ2025-0073-RF3-A9	Report Only
§90.635(b)	Equivalent Radiated Power	ERP < 100Watt	Annex A of FCCSZ2025-0073-RF3-A9	PASS
§2.1049	Occupied Bandwidth	---	Annex C of FCCSZ2025-0073-RF3-A9	Report Only
---	Peak-to-Average Power Ratio	<13 dB	Annex B of FCCSZ2025-0073-RF3-A9	PASS
§2.1055 §90.213	Frequency Stability	Within authorized bands of operation/frequency block.	Annex F of FCCSZ2025-0073-RF3-A9	PASS
§2.1051 §90.691	Band Edge Compliance	< 43+10log10(P[Watts])	Annex D of FCCSZ2025-0073-RF3-A9	PASS
§2.1051 §90.691	Conducted Spurious Emission	< 43+10log10(P[Watts])	Annex E of FCCSZ2025-0073-RF3-A9	PASS
§2.1051 §90.691	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS



2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT NAME	Wireless positioning terminals			
BRAND NAME	FIROAM			
MODEL NAME	QuadTrack Pro			
ADDITIONAL MODEL	N/A			
MODEL DIFFERENCES	N/A			
POWER SUPPLY	1. DC 3.8V (1*3.8V battery) 2. DC 5V 1A from adapter			
POWER CLASS FOR LTE	PC3			
MODULATION TYPE	LTE	QPSK,16QAM		
OPERATING FREQUENCY AND MAXIMUM OUTPUT POWER	Band	TX(MHz)	RX(MHz)	Maximum Output Power to Antenna (dBm)
	LTE B2	1850 ~ 1910	1930 ~ 1990	24.02
	LTE B4	1710 ~ 1755	2110 ~ 2155	25.04
	LTE B5	824 ~ 849	869 ~ 894	24.48
	LTE B7	2500 ~ 2570	2620 ~ 2690	23.88
	LTE B12	699 ~ 716	729 ~ 746	24.00
	LTE B13	777 ~ 787	746 ~ 756	24.38
	LTE B17	704 ~ 716	734 ~ 746	24.24
	LTE B25	1850 ~ 1915	1930 ~ 1995	24.59
	LTE B26	814 ~ 824	859 ~ 869	24.16
		824 ~ 849	869 ~ 894	24.81
	LTE B38	2570 ~ 2620	2570 ~ 2620	24.82
	LTE B41	2496 ~ 2690	2496 ~ 2690	24.51
	LTE B66	1710 ~ 1780	2110 ~ 2180	24.95
ANTENNA TYPE (Remark 3)	See section 2.3			
HARDWARE VERSION:	PCB-RM01-V1.4/20250509			
SOFTWARE VERSION:	SDK:BC78UM_V2.01_250331, APP:#RM01##BSJGTKS20107#250617_Jun 17 2025_10:22:0			
I/O PORTS	Refer to User's Manual.			
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. 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 DESCRIPTION OF ACCESSORIES

N/A



2.3 ANTENNA TYPE AND GAIN

Mode	Band	TX(MHz)	RX(MHz)	Antenna Type	Antenna	Antenna Gain
LTE	LTE B2	1850 ~ 1910	1930 ~ 1990	FPC Antenna	ANT0	-1.67
	LTE B4	1710 ~ 1755	2110 ~ 2155	FPC Antenna	ANT0	-1.04
	LTE B5	824 ~ 849	869 ~ 894	FPC Antenna	ANT0	-2.08
	LTE B7	2500 ~ 2570	2620 ~ 2690	FPC Antenna	ANT0	-0.54
	LTE B12	699 ~ 716	729 ~ 746	FPC Antenna	ANT0	-1.42
	LTE B13	777 ~ 787	746 ~ 756	FPC Antenna	ANT0	-2.64
	LTE B17	704 ~ 716	734 ~ 746	FPC Antenna	ANT0	-1.42
	LTE B25	1850 ~ 1915	1930 ~ 1995	FPC Antenna	ANT0	-1.67
	LTE B26	814 ~ 824	859 ~ 869	FPC Antenna	ANT0	-2.64
		824 ~ 849	869 ~ 894	FPC Antenna	ANT0	-2.08
	LTE B38	2570 ~ 2620	2570 ~ 2620	FPC Antenna	ANT0	-2.64
	LTE B41	2496 ~ 2690	2496 ~ 2690	FPC Antenna	ANT0	-0.54
	LTE B66	1710 ~ 1780	2110 ~ 2180	FPC Antenna	ANT0	-0.74



2.4 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 LTE link

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

Test items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
RF power output	2	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	5	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	12	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	13	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	17	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	25	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	26	O	O	O	O	O	-	O	O	-	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	41	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	66	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
Test items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
ERP/ EIRP (Note3)	2	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	5	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	12	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	13	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	17	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	25	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	26	O	O	O	O	O	-	O	O	-	O	O	O	O	O	O



	38	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	41	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	66	O	O	O	O	O	O	O	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 items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
Occupied Bandwidth	2	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	5	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	12	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	13	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	17	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	25	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	26	O	O	O	O	O	-	O	O	-	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	41	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	66	O	O	O	O	O	O	O	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 items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
Band Edge Compliance	2	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	5	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	12	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	13	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	17	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	25	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	26	O	O	O	O	O	-	O	O	-	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	41	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	66	O	O	O	O	O	O	O	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 items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
Peak-to-Average Power Ratio	2	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	5	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	12	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	13	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	17	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	25	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	26	O	O	O	O	O	-	O	O	-	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	41	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	66	O	O	O	O	O	O	O	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 items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
Frequency Stability	2	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	4	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	5	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	12	O	O	O	O	-	-	O	O	-	O	O	O	O	O	O
	13	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	17	-	-	O	O	-	-	O	O	-	O	O	O	O	O	O
	25	O	O	O	O	O	O	O	O	-	O	O	O	O	O	O
	26	O	O	O	O	O	-	O	O	-	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	41	-	-	O	O	O	O	O	O	-	O	O	O	O	O	O
	66	O	O	O	O	O	O	O	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 items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
Conducted Spurious Emission	2	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
	4	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
	5	O	O	O	O	-	-	O	-	-	O	-	-	O	O	O
	7	-	-	O	O	O	O	O	-	-	O	-	-	O	O	O
	12	O	O	O	O	-	-	O	-	-	O	-	-	O	O	O
	13	-	-	O	O	-	-	O	-	-	O	-	-	O	O	O
	17	-	-	O	O	-	-	O	-	-	O	-	-	O	O	O
	25	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
	26	O	O	O	O	O	-	O	-	-	O	-	-	O	O	O
	38	-	-	O	O	O	O	O	-	-	O	-	-	O	O	O
	41	-	-	O	O	O	O	O	-	-	O	-	-	O	O	O
	66	O	O	O	O	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 items	LTE	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	1%	50%	100%	L	M	H
Radiates Spurious Emission (Note3)	2	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
	4	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
	5	O	O	O	O	-	-	O	-	-	O	-	-	O	O	O
	7	-	-	O	O	O	O	O	-	-	O	-	-	O	O	O
	12	O	O	O	O	-	-	O	-	-	O	-	-	O	O	O
	13	-	-	O	O	-	-	O	-	-	O	-	-	O	O	O
	17	-	-	O	O	-	-	O	-	-	O	-	-	O	O	O
	25	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
	26	O	O	O	O	O	-	O	-	-	O	-	-	O	O	O
	38	-	-	O	O	O	O	O	-	-	O	-	-	O	O	O
	41	-	-	O	O	O	O	O	-	-	O	-	-	O	O	O
	66	O	O	O	O	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	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Effective Radiated Power	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Equivalent Isotropic Radiated Power	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Frequency Stability	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Occupied Bandwidth	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Band Edge Compliance	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Conducted Spurious Emission	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan
Radiates Spurious Emission	24.5deg. C, 58%RH	DC 5V 1A from adapter	Liu Yuan
Peak-to-Average Power Ratio	25.5deg. C, 55%RH	DC 5V 1A from adapter	Liu Yuan



2.5 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 22,24,27,90

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

2.6 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	N/A	N/A		N/A	N/A	N/A	
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

**2.7 LIST OF TEST AND MEASUREMENT INSTRUMENTS**

Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Day	Cal. Due
Antenna Port Conducted Test (WWAN)						
Spectrum Analyzer	R&S	FSVA 3044	CS030004	1 year	2025/05/22	2026/05/21
Comprehensive Test Instrument	R&S	CMW 500	CS0300012	1 year	2025/06/06	2026/06/05
Analog signal Generator	R&S	SMB 100A	CS0300016	1 year	2025/04/23	2026/04/22
Vector signal Generator	R&S	SMBV 100B	CS0300018	1 year	2025/04/23	2026/04/22
DC power supply	R&S	HMC8041-G	CS0300025	1 year	2025/04/23	2026/04/22
RF control unit(2/3/4/5G)	Tonscend	JS0806-1	CS0300027	1 year	2025/04/23	2026/04/22
Automatic filter bank(2/3/4G/5G)	Tonscend	JS0806-F	CS0300028	1 year	2025/04/23	2026/04/22
Digital multimeter	FLUKE	18B+	CS0200056	1 year	2025/05/22	2026/05/21
Power splitter	Anritsu	K240CPOWERDIVIDER	012334	1 year	2025/06/06	2026/06/05
Comprehensive Test Instrument	R&S	CMW 500	123970	1 year	2025/01/01	2025/12/31
#4Shielding room	MORI	443	CS0300010	3 year	2023/05/17	2026/05/16
Constant temperature humidity chamber	TEELONG	TL-HW-225B	20220518-01	1 year	2025/06/06	2026/06/05
4G Comprehensive Test Instrument	Anritsu	MT8821C	CS0300034	1 year	2025/01/08	2026/01/07
5G Comprehensive Test Instrument	Anritsu	MT8000A	CS0300035	1 year	2025/01/08	2026/01/07
Power splitter	Anritsu	K240CPOWERDIVIDER	012334	1 year	2025/06/06	2026/06/05
Radiation Spurious Test - 3M Chamber #2						
Spectrum Analyzer	R&S	FSV 40	CS0300001	1 year	2025/04/23	2026/04/22
Spectrum Analyzer	R&S	FSVA 3044	CS0300004	1 year	2025/05/22	2026/05/21
EMI Test Receiver	R&S	ESR3	CS0300005	1 year	2025/05/22	2026/05/21
Horn antenna(1GHz-18GHz)	ETS-Lindgren	3117	CS0300007	1 year	2025/03/29	2026/03/28
Horn antenna(18GHz-40GHz)	STEATITE	QMS-00880	CS0300008	1 year	2025/03/22	2026/03/21
Automatic control unit(RSE)	R&S	OSP220	CS0300019	1 year	2025/06/06	2026/06/05
Filter group(RSE-BT/WiFi)	R&S	WiFi/BT Variant 1	CS0300020	1 year	2025/04/23	2026/04/22
Filter group(RSE-Cellular)	R&S	Cellular Variant 1	CS0300021	1 year	2025/04/23	2026/04/22
Preamplifier(1GHz-18GHz)	R&S	SCU18F	CS0300031-1	1 year	2025/04/23	2026/04/22
Preamplifier(1GHz-18GHz)	R&S	SCU-18F	CS0300031	1 year	2025/04/23	2026/04/22
Comprehensive Test Instrument	R&S	CMW 500	CS0300033	1 year	2025/05/23	2026/05/22
Antenna(30MHz~1001MHz)	SCHWARZBECK	VULB9168	CS0200006	1 year	2025/01/23	2026/01/22
Preamplifier(1GHz-18GHz)	R&S	SCU-01F	CS0200042	1 year	2025/04/23	2026/04/22
Preamplifier(18GHz-40GHz)	R&S	SCU40A	CS0200045	1 year	2025/04/23	2026/04/22
Antenna tower	Max-Full	MFA-515DBSN	1308650	N/A	N/A	N/A
Attenuator	boyang	BY--N-2W-5dB	/	1 year	2025/01/23	2026/01/22
Temperature and humidity meter	yuhuaize	/	WK0001	1 year	2025/04/29	2026/04/28
#2 control room	MORI	433	CS0300028	3 year	2023/05/17	2026/05/16
3m anechoic chamber	MORI	966	CS0300011	3 year	2023/05/17	2026/05/16



Radiation Spurious Test - 3M Chamber #1						
EMI Test Receiver	Rohde&Schwarz	ESR 26	101718	1 year	2025/05/22	2026/05/21
Loop antenna (8.3k~30MHz)	Rohde&Schwarz	HFH2-Z2E	100951	1 year	2025/06/19	2026/06/18
Antenna(30MHz~1000MHz)	SCHWARZBECK	VULB 9168	1132	1 year	2025/02/28	2026/02/27
3m anechoic chamber	MORI	966	N/A	1 year	2025/05/19	2026/05/18
Preamplifier(10kHz-1GHz)	Rohde&Schwarz	SCU-01F	100298	1 year	2025/04/23	2026/04/22
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2025/04/23	2026/04/22
#1 control room	MORI	433	/	3year	2023/05/17	2026/05/16
Temperature and humidity meter	/	C193561473	C193561473	1 year	2025/04/29	2026/04/28

2.8 TEST LOCATION

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

Address: No. 1301-14&16, Guanguang Road, Xinlan Community, Guanlan Subdistrict, Longhua District, Shenzhen, Guangdong, 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)

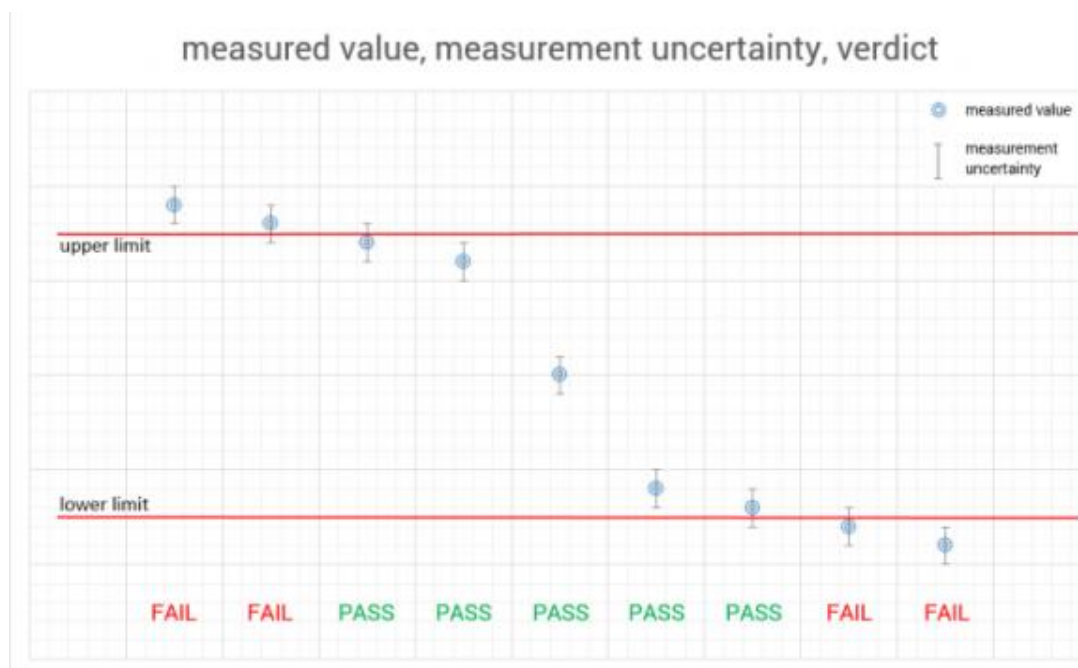
2.9 MEASUREMENT UNCERTAINTY

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	$\pm 1.86\%$
2	RF output power, conducted	$\pm 0.9\text{ dB}$
3	Power Spectral Density, conducted	$\pm 0.8\text{ dB}$
4	Conducted emission test	$\pm 2.7\text{ dB}$
5	Radiated emission 9kHz-30MHz	$\pm 5.6\text{ dB}$
	Radiated emission 30MHz-1GHz	$\pm 4.6\text{ dB}$
	Radiated emission 1GHz-18GHz	$\pm 4.4\text{ dB}$
	Radiated emission 18GHz-40GHz	$\pm 5.1\text{ dB}$
6	Temperature	$\pm 0.73\text{ }^{\circ}\text{C}$
7	Humidity	$\pm 3.90\%$
8	Supply voltages	$\pm 0.37\%$
9	Time	$\pm 0.27\%$
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.





3 TEST TYPES AND RESULTS

3.1 RADIATED EMISSION MEASUREMENT

3.1.1 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. $EIRP(dBm) = S.G.POWER - TX \text{ cable loss} + Antenna \text{ gain}.$
- d. $E.R.P(dBm) = E.I.R.P - 2.15dBi.$

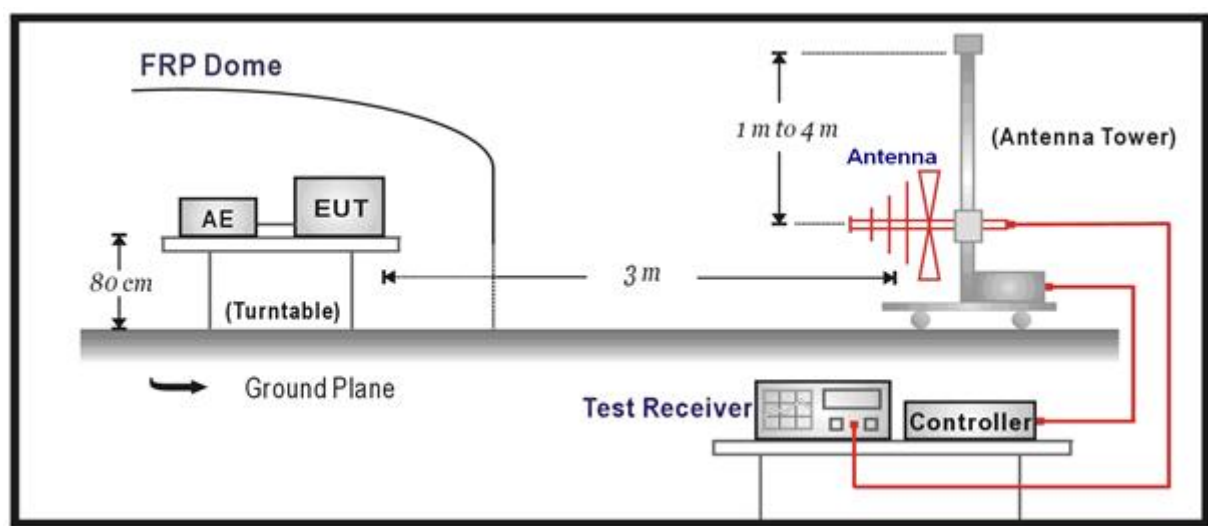
NOTE:

- 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

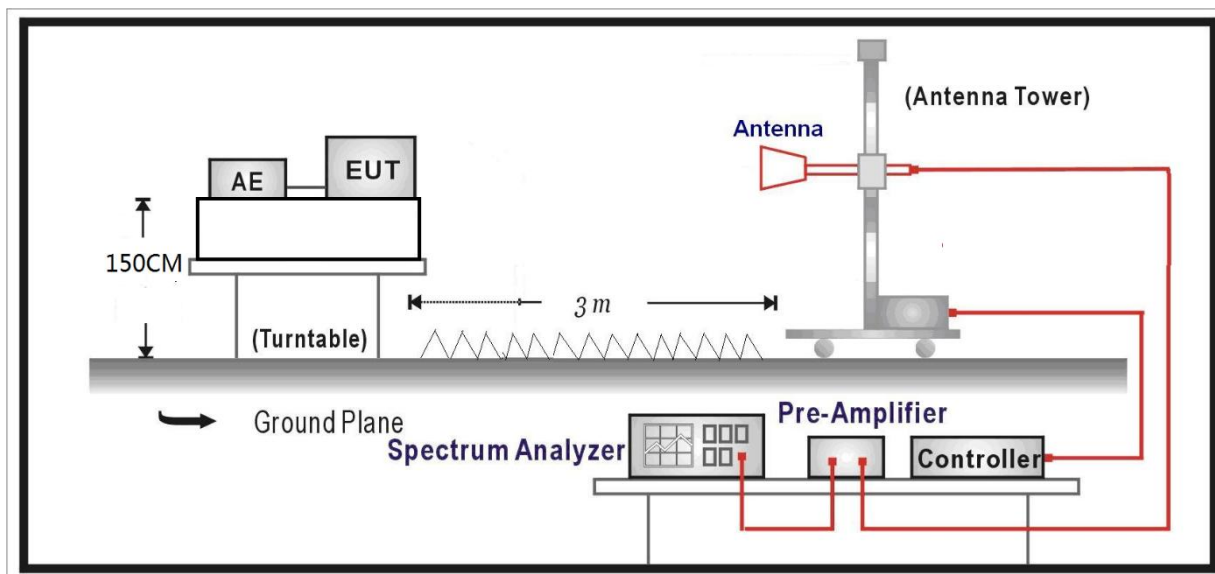
3.1.2 TEST SETUP

Test Setup step 1:

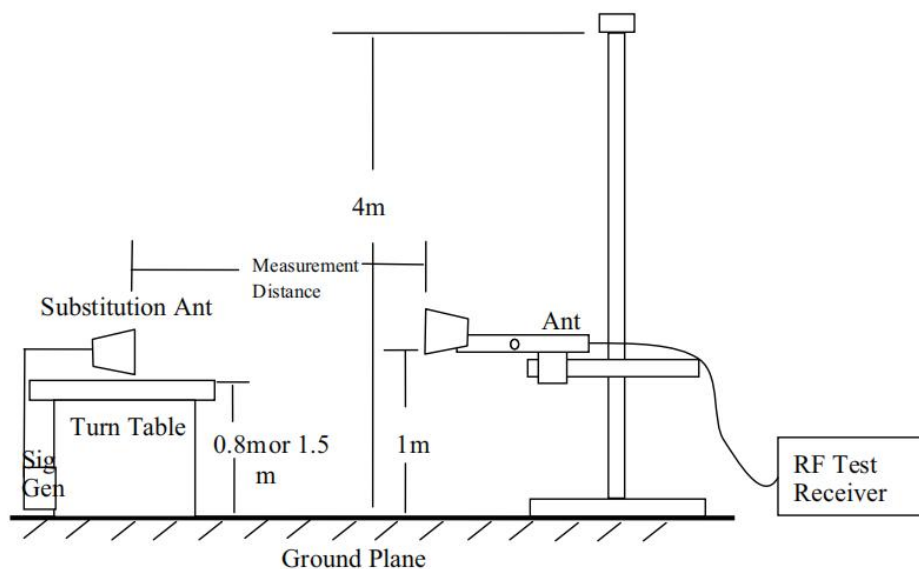
Below 1GHz Test Setup:



Above 1GHz Test Setup:



Test Setup step 2:



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).



3.1.3 TEST RESULTS - LTE

Test Mode		LTE B2-QPSK-5MHz-CH 18625-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	59.4279	-99.44	-71.93	-13.00	58.93	27.51	114
2	161.8372	-98.69	-73.21	-13.00	60.21	25.48	114
3	637.4997	-97.56	-64.47	-13.00	51.47	33.09	114
4	3751.1551	-57.42	-42.98	-13.00	29.98	14.44	195
5	7501.7102	-72.54	-54.36	-13.00	41.36	18.18	114
6	15637.5338	-90.12	-60.87	-13.00	47.87	29.25	0
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	49.2619	-99.76	-71.50	-13.00	58.50	28.26	193
2	158.8409	-99.69	-73.40	-13.00	60.40	26.29	193
3	533.8064	-98.46	-67.21	-13.00	54.21	31.25	314
4	3750.8251	-56.92	-43.18	-13.00	30.18	13.74	237
5	7501.7102	-61.80	-43.64	-13.00	30.64	18.16	195
6	9377.4077	-81.33	-61.97	-13.00	48.97	19.36	195
Remark: 1. Level (dBm) = Reading (dBm) + Factor (dB). 2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B4-QPSK-5MHz-CH 20175-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	62.3172	-99.05	-71.76	-13.00	58.76	27.29	360
2	164.9405	-98.88	-73.59	-13.00	60.59	25.29	320
3	581.1051	-98.56	-66.32	-13.00	53.32	32.24	77
4	1036.8637	-96.61	-57.83	-13.00	44.83	38.78	320
5	3456.1056	-65.41	-51.84	-13.00	38.84	13.57	116
6	13575.7876	-89.07	-62.43	-13.00	49.43	26.64	11
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	59.2139	-98.35	-71.05	-13.00	58.05	27.30	175
2	157.7708	-98.54	-72.42	-13.00	59.42	26.12	235
3	383.1353	-98.02	-70.80	-13.00	57.80	27.22	297
4	3456.1056	-62.37	-49.40	-13.00	36.40	12.97	133
5	6911.9712	-82.80	-65.17	-13.00	52.17	17.63	174
6	8640.234	-81.19	-62.00	-13.00	49.00	19.19	295
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B5-QPSK-5MHz-CH 20525-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.8892	-99.47	-72.15	-13.00	59.15	27.32	133
2	167.4017	-98.38	-73.24	-13.00	60.24	25.14	316
3	1663.7928	-43.08	-39.10	-13.00	26.10	3.98	133
4	2495.9592	-48.90	-38.05	-13.00	25.05	10.85	256
5	3328.1256	-59.65	-47.30	-13.00	34.30	12.35	71
6	4160.2921	-67.51	-52.70	-13.00	39.70	14.81	316
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	51.0811	-98.65	-70.74	-13.00	57.74	27.91	357
2	162.9073	-98.52	-72.78	-13.00	59.78	25.74	2
3	517.1127	-98.60	-67.50	-13.00	54.50	31.10	232
4	1663.7928	-52.63	-48.18	-13.00	35.18	4.45	130
5	2495.9592	-57.24	-48.20	-13.00	35.20	9.04	2
6	3328.1256	-64.46	-52.31	-13.00	39.31	12.15	70
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B7-QPSK-5MHz-CH 21100-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	45.7306	-99.65	-73.87	-25.00	48.87	25.78	277
2	468.3158	-98.81	-68.95	-25.00	43.95	29.86	360
3	4961.0561	-70.82	-52.64	-25.00	27.64	18.18	52
4	9836.0936	-82.11	-61.60	-25.00	36.60	20.51	72
5	15676.1476	-85.69	-56.35	-25.00	31.35	29.34	12
6	23600.7	-65.01	-78.64	-25.00	53.64	-13.63	152
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	56.2176	-99.29	-71.88	-25.00	46.88	27.41	0
2	139.579	-99.56	-75.94	-25.00	50.94	23.62	174
3	643.5994	-98.46	-65.00	-25.00	40.00	33.46	357
4	1691.3983	-62.14	-57.28	-25.00	32.28	4.86	357
5	7577.7678	-80.55	-61.86	-25.00	36.86	18.69	110
6	22195.8	-65.06	-78.74	-25.00	53.74	-13.68	52
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B12-QPSK-5MHz-CH 23025-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	68.2028	-88.28	-62.34	-13.00	49.34	25.94	195
2	198.2208	-90.11	-67.11	-13.00	54.11	23.00	134
3	1405.8212	-52.38	-48.60	-13.00	35.60	3.78	73
4	2109.0018	-60.33	-52.18	-13.00	39.18	8.15	73
5	2812.1824	-61.77	-51.68	-13.00	38.68	10.09	12
6	4218.5437	-68.47	-53.45	-13.00	40.45	15.02	12
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	57.5018	-99.34	-71.95	-13.00	58.95	27.39	298
2	161.7302	-98.53	-72.55	-13.00	59.55	25.98	53
3	421.8732	-98.72	-70.14	-13.00	57.14	28.58	0
4	1405.8212	-55.43	-52.42	-13.00	39.42	3.01	236
5	2109.0018	-55.28	-47.22	-13.00	34.22	8.06	236
6	6046.1892	-69.64	-49.19	-13.00	36.19	20.45	298
Remark: 1. Level (dBm) = Reading (dBm) + Factor (dB). 2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B13-QPSK-5MHz-CH 23205-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	68.2028	-88.26	-62.32	-13.00	49.32	25.94	193
2	191.6932	-89.15	-65.63	-13.00	52.63	23.52	253
3	1554.5709	-43.82	-40.30	-13.00	27.30	3.52	253
4	2332.6465	-44.52	-34.16	-13.00	21.16	10.36	133
5	3110.7221	-57.62	-46.60	-13.00	33.60	11.02	133
6	3887.7576	-67.15	-53.10	-13.00	40.10	14.05	71
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.6752	-85.90	-59.29	-13.00	46.29	26.61	55
2	139.686	-92.02	-68.39	-13.00	55.39	23.63	0
3	1554.5709	-49.07	-45.86	-13.00	32.86	3.21	297
4	2332.6465	-48.79	-39.87	-13.00	26.87	8.92	297
5	3110.7221	-65.88	-54.16	-13.00	41.16	11.72	297
6	3887.7576	-61.13	-47.03	-13.00	34.03	14.10	297
Remark: 1. Level (dBm) = Reading (dBm) + Factor (dB). 2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B17-QPSK-10MHz-CH 23790-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	68.2028	-87.28	-61.34	-13.00	48.34	25.94	192
2	198.2208	-90.76	-67.76	-13.00	54.76	23.00	70
3	399.722	-91.17	-62.48	-13.00	49.48	28.69	132
4	3756.1056	-55.42	-41.00	-13.00	28.00	14.42	177
5	7512.2412	-68.08	-49.81	-13.00	36.81	18.27	72
6	13573.4473	-85.01	-58.35	-13.00	45.35	26.66	319
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.6752	-85.90	-59.29	-13.00	46.29	26.61	49
2	126.7377	-89.10	-66.80	-13.00	53.80	22.30	357
3	432.2532	-97.90	-68.90	-13.00	55.90	29.00	357
4	1411.0222	-52.91	-49.88	-13.00	36.88	3.03	234
5	2116.2833	-44.54	-36.43	-13.00	23.43	8.11	0
6	6012.9026	-69.53	-49.09	-13.00	36.09	20.44	171
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B25-QPSK-3MHz-CH 26055-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	68.2028	-86.41	-60.47	-13.00	47.47	25.94	116
2	185.1655	-91.97	-67.98	-13.00	54.98	23.99	238
3	399.722	-90.03	-61.34	-13.00	48.34	28.69	47
4	3755.7756	-60.70	-46.28	-13.00	33.28	14.42	360
5	7512.2412	-66.03	-47.76	-13.00	34.76	18.27	174
6	13595.6796	-84.39	-57.91	-13.00	44.91	26.48	298
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.6752	-86.09	-59.48	-13.00	46.48	26.61	0
2	584.4224	-98.54	-66.60	-13.00	53.60	31.94	176
3	3756.1056	-50.13	-36.38	-13.00	23.38	13.75	11
4	5633.9934	-69.18	-50.25	-13.00	37.25	18.93	360
5	7512.2412	-62.18	-43.94	-13.00	30.94	18.24	236
6	9390.279	-78.11	-58.74	-13.00	45.74	19.37	174
Remark: 1. Level (dBm) = Reading (dBm) + Factor (dB). 2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B26-QPSK-3MHz-CH 26705-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	68.2028	-87.46	-61.52	-13.00	48.52	25.94	212
2	1653.3907	-48.81	-44.91	-13.00	31.91	3.90	134
3	2481.3963	-41.38	-30.43	-13.00	17.43	10.95	134
4	3308.3617	-55.19	-42.88	-13.00	29.88	12.31	73
5	4135.3271	-67.58	-52.94	-13.00	39.94	14.64	12
6	6030.5861	-69.39	-49.72	-13.00	36.72	19.67	272
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	47.8708	-99.87	-71.70	-13.00	58.70	28.17	73
2	155.2025	-98.71	-72.98	-13.00	59.98	25.73	256
3	1653.3907	-49.86	-45.57	-13.00	32.57	4.29	195
4	2481.3963	-54.51	-45.55	-13.00	32.55	8.96	360
5	3308.3617	-58.65	-46.47	-13.00	33.47	12.18	134
6	6033.7067	-69.55	-49.11	-13.00	36.11	20.44	73
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B38-QPSK-5MHz-CH 37775-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	68.2028	-88.98	-63.04	-25.00	38.04	25.94	195
2	198.2208	-90.09	-67.09	-25.00	42.09	23.00	258
3	451.7292	-92.44	-63.08	-25.00	38.08	29.36	195
4	5181.1881	-69.80	-51.47	-25.00	26.47	18.33	0
5	7770.8371	-78.20	-58.93	-25.00	33.93	19.27	360
6	17214.8515	-88.75	-55.93	-25.00	30.93	32.82	318
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.6752	-86.96	-60.35	-25.00	35.35	26.61	2
2	152.7413	-93.95	-68.60	-25.00	43.60	25.35	2
3	696.0346	-97.06	-62.70	-25.00	37.70	34.36	173
4	5181.1881	-64.60	-46.51	-25.00	21.51	18.09	192
5	7770.8371	-74.69	-55.57	-25.00	30.57	19.12	0
6	10362.6463	-78.11	-57.35	-25.00	32.35	20.76	294
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B41-QPSK-5MHz-CH 40620-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	47.5498	-98.16	-71.52	-25.00	46.52	26.64	317
2	120.21	-94.46	-71.44	-25.00	46.44	23.02	360
3	451.0871	-98.51	-69.17	-25.00	44.17	29.34	317
4	5177.2277	-67.99	-49.66	-25.00	24.66	18.33	112
5	7764.9865	-78.25	-58.98	-25.00	33.98	19.27	36
6	17213.6814	-89.26	-56.43	-25.00	31.43	32.83	290
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.6752	-86.89	-60.28	-25.00	35.28	26.61	0
2	126.7377	-91.14	-68.84	-25.00	43.84	22.30	112
3	5177.2277	-63.87	-45.78	-25.00	20.78	18.09	135
4	7764.9865	-73.05	-53.93	-25.00	28.93	19.12	16
5	10354.4554	-77.86	-57.13	-25.00	32.13	20.73	296
6	16623.9424	-87.20	-55.25	-25.00	30.25	31.95	48
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



Test Mode		LTE B66-QPSK-1.4MHz-CH 132322-1RB					
Horizontal							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	55.2545	-92.45	-65.68	-13.00	52.68	26.77	295
2	68.2028	-87.32	-61.38	-13.00	48.38	25.94	111
3	120.21	-92.58	-69.56	-13.00	56.56	23.02	111
4	159.1619	-97.95	-72.39	-13.00	59.39	25.56	235
5	2402.5205	-36.76	-26.03	-13.00	13.03	10.73	235
6	3481.1881	-62.13	-48.51	-13.00	35.51	13.62	197
Vertical							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	61.6752	-86.52	-59.91	-13.00	46.91	26.61	133
2	152.7413	-94.22	-68.87	-13.00	55.87	25.35	133
3	630.223	-97.29	-64.21	-13.00	51.21	33.08	254
4	3481.1881	-60.00	-47.05	-13.00	34.05	12.95	173
5	6962.2862	-77.89	-60.33	-13.00	47.33	17.56	131
6	8702.2502	-77.43	-58.20	-13.00	45.20	19.23	253
Remark:							
1. Level (dBm) = Reading (dBm) + Factor (dB).							
2. Margin (dB) = Limit (dBm) - Level (dBm)							



3.2 OUT POWER MEASUREMENT

3.2.1 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 determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$EIRP = PT + GT - LC$, $ERP = EIRP - 2.15dB_i$, where

PT = transmitter output power dBm;

GT = gain of the transmitting antenna dB_i;

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

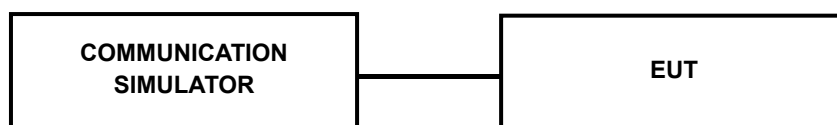
CONDUCTED POWER MEASUREMENT:

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.

3.2.2 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



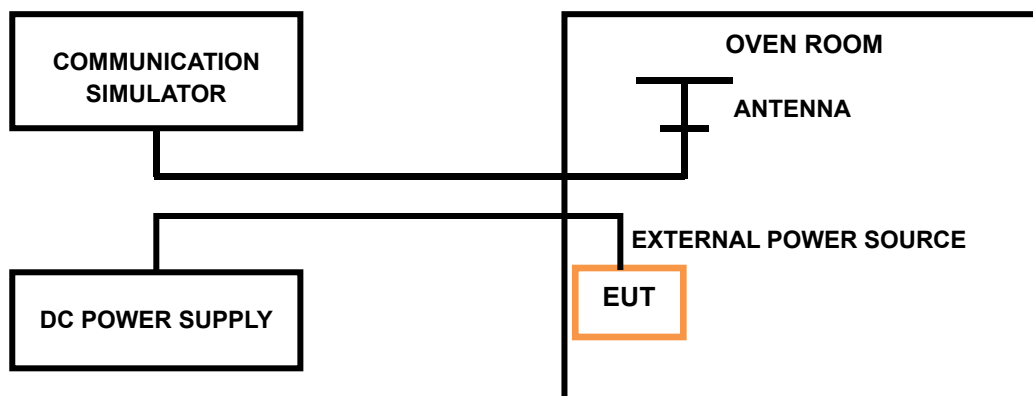
3.3 FREQUENCY STABILITY

3.3.1 TEST PROCEDURE

- 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.
- 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.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ 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.

3.3.2 TEST SETUP





3.4 OCCUPIED BANDWIDTH MEASUREMENT

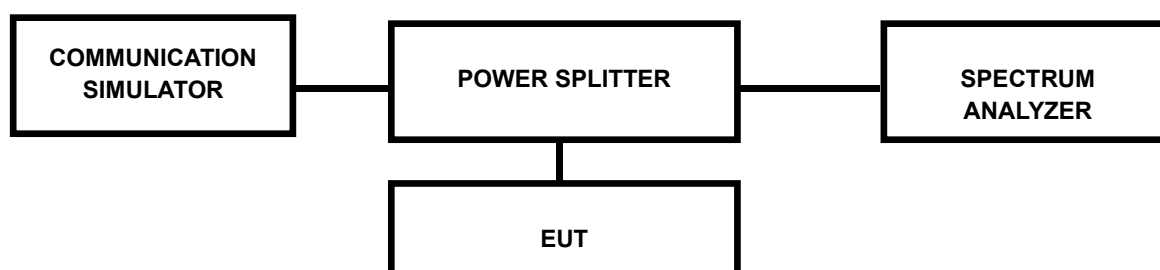
3.4.1 TEST PROCEDURES

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.

The testing follows ANSI C63.26 Section 5.4.

The EUT was connected to spectrum analyzer and system simulator via a coupling unit. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW. Set the detection mode to peak, and the trace mode to max hold. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value). Determine the '-26 dB down amplitude' as equal to (Reference Value - X). Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the ' - X dB down amplitude' determined in step 6. If a marker is below this '-X dB down amplitude' value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.4.2 TEST SETUP



3.5 BAND EDGE MEASUREMENT

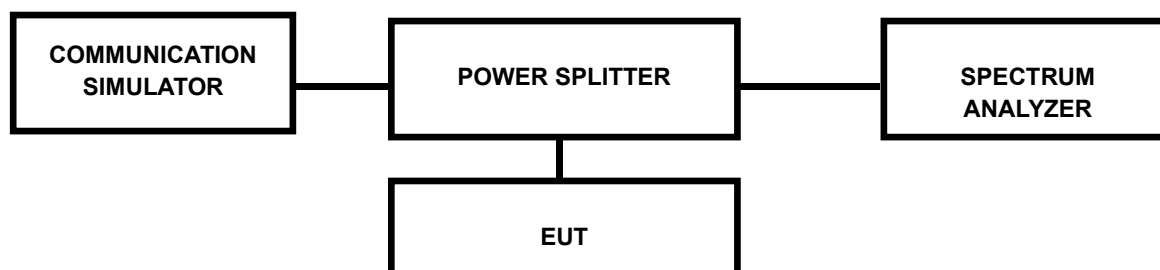
3.5.1 TEST PROCEDURES

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel). In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to RMS.

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a coupling unit.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW $\geq$ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used and the measured power was integrated over the full required measurement bandwidth of 1 MHz.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band

3.5.2 TEST SETUP

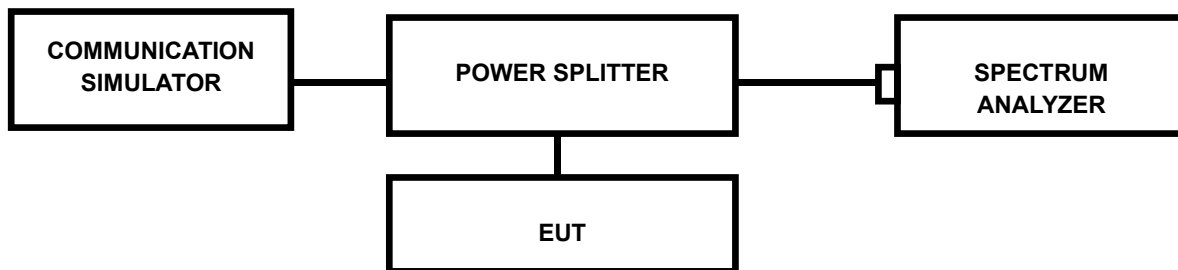


3.6 CONDUCTED SPURIOUS EMISSIONS

3.6.1 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 including its 10th harmonic. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.6.2 TEST SETUP



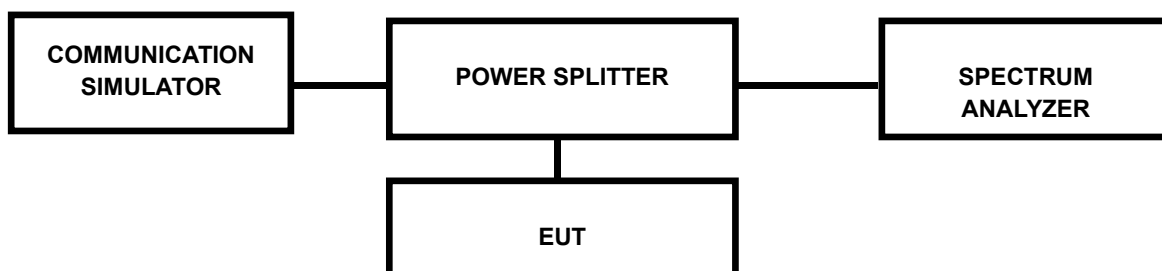


3.7 PEAK TO AVERAGE RATIO

3.7.1 TEST PROCEDURES

1. Set resolution/measurement bandwidth $\geq$ 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).



5 PHOTOGRAPHS OF THE EUT

Please refer to the attached file (External Photos report and Internal Photos).

----- 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 tester, reviewer and approver;
- (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 results apply to the samples as received. The sample information is provided by the customer and laboratory is not responsible for its authenticity;
- (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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