RF TEST REPORT

Report No.:	SET2023-00841
Product Name:	Fault Circuit Indicator
Model No.:	JYZ-HW-GSM
FCC ID:	2A9ZW-JYZ-HW-GSM
Applicant:	Four-Faith Smart Power Technology Co., Ltd.
Address:	11 / F, building A06, phase III, software park, Jimei District, Xiamen City
Dates of Testing:	12/21/2022 - 01/11/2023
Issued by:	CCIC Southern Testing Co., Ltd.
Lab Location:	Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China. **Tel**：86 755 26627338 **Fax**：86 755 26627238

Test Report

Product .....:	Fault Circuit Indicator
Brand Name.....:	Four-Faith
Trade Name .....:	Four-Faith
Applicant.....:	Four-Faith Smart Power Technology Co., Ltd.
Applicant Address .....:	11 / F, building A06, phase III, software park, Jimei District, Xiamen City
Manufacturer .....:	Four-Faith Electronic Technology Co., Ltd.
Manufacturer Address .....:	Fifth Floor, No. 11-8, Butang Middle Road, Xiamen Torch High-tech Zone (Tongxiang) Industrial Base
Test Standards .....:	47 CFR Part 2/22/24/27
Test Result.....:	Pass

Tested by .....: Kim Li 2023.01.13

Kim Li, Test Engineer

Reviewed by .....: Chris You 2023.01.13

Chris You, Senior Engineer

Approved by .....: Hou Tao 2023.01.13

Tao Hou, Manager

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Change History		
Issue	Date	Reason for change
1.0	2023.01.13	First edition

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Fault Circuit Indicator	
Model No.	JYZ-HW-GSM	
Hardware Version	MB-JYZ-HW-GSM V1.0	
Software Version	JYZ_GSM-D_232_FF85900000052250_v0.0.6_20220701.bin	
EUT supports Radios application	LTE Band 2/4/5/28/66	
Frequency Range(Tx)	LTE Band 2: 1850MHz~1910MHz LTE Band 4: 1710MHz~1755MHz LTE Band 5: 824MHz~849MHz LTE Band 28: 703MHz~748MHz LTE Band 66: 1710MHz~1780MHz	
Channel Bandwidth	LTE Band 2: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 4: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 5: 1.4MHz/3MHz/5MHz/10MHz LTE Band 28: 3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 66: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz	
Modulation Type	QPSK/16QAM/64QAM(downlink only)	
Maximum ERP/EIRP	LTE Band 2: 22.38dBm LTE Band 4: 22.22dBm LTE Band 5: 21.85dBm LTE Band 28: 18.85dBm LTE Band 66: 22.25dBm	
Antenna Type	Internal Antenna	
Antenna gain	LTE Band 2: -0.91 dBi	LTE Band 4: -1.45 dBi
	LTE Band 5: -0.74 dBi	LTE Band 28: -2.93 dBi
	LTE Band 66: -1.45 dBi	
Power supply	DC 3.2V from battery	

Note: The report data quoted the conduction data of module FCC ID: 2AJYU-8PY A001, and retested the radiation emission spurious, and updated the ERP/EIRP data.

1.2. Maximum ERP/EIRP and Emission Designator

Band	Type of Modulation	BW (MHz)	Emission Designator	Maximum EIRP(W)
LTE Band 2	QPSK	1.4	1M07G7D	0.171
LTE Band 2	16QAM	1.4	1M08W7D	0.140
LTE Band 2	QPSK	3	2M69G7D	0.173
LTE Band 2	16QAM	3	2M69W7D	0.144
LTE Band 2	QPSK	5	4M48G7D	0.163
LTE Band 2	16QAM	5	4M48W7D	0.141
LTE Band 2	QPSK	10	8M91G7D	0.169
LTE Band 2	16QAM	10	8M88W7D	0.172
LTE Band 2	QPSK	15	13M4G7D	0.163
LTE Band 2	16QAM	15	4M92W7D	0.151
LTE Band 2	QPSK	20	17M8G7D	0.169
LTE Band 2	16QAM	20	5M00W7D	0.143
LTE Band 4	QPSK	1.4	1M08G7D	0.164
LTE Band 4	16QAM	1.4	1M08W7D	0.139
LTE Band 4	QPSK	3	2M68G7D	0.159
LTE Band 4	16QAM	3	2M68W7D	0.146
LTE Band 4	QPSK	5	4M50G7D	0.157
LTE Band 4	16QAM	5	4M48W7D	0.130
LTE Band 4	QPSK	10	8M94G7D	0.162
LTE Band 4	16QAM	10	8M86W7D	0.148
LTE Band 4	QPSK	15	13M3G7D	0.167
LTE Band 4	16QAM	15	4M92W7D	0.145
LTE Band 4	QPSK	20	17M8G7D	0.158
LTE Band 4	16QAM	20	4M98W7D	0.151
LTE Band 66	QPSK	1.4	1M10G7D	0.159
LTE Band 66	16QAM	1.4	1M10W7D	0.136
LTE Band 66	QPSK	3	2M68G7D	0.152
LTE Band 66	16QAM	3	2M69W7D	0.129
LTE Band 66	QPSK	5	4M47G7D	0.155

LTE Band 66	16QAM	5	4M47W7D	0.140
LTE Band 66	QPSK	10	8M91G7D	0.168
LTE Band 66	16QAM	10	4M88W7D	0.153
LTE Band 66	QPSK	15	13M4G7D	0.157
LTE Band 66	16QAM	15	4M93W7D	0.153
LTE Band 66	QPSK	20	17M9G7D	0.166
LTE Band 66	16QAM	20	4M99W7D	0.150

Band	Type of Modulation	BW (MHz)	Emission Designator	Maximum ERP(W)
LTE Band 5	QPSK	1.4	1M08G7D	0.153
LTE Band 5	16QAM	1.4	1M08W7D	0.125
LTE Band 5	QPSK	3	2M68G7D	0.144
LTE Band 5	16QAM	3	2M69W7D	0.124
LTE Band 5	QPSK	5	4M47G7D	0.139
LTE Band 5	16QAM	5	4M47W7D	0.129
LTE Band 5	QPSK	10	8M94G7D	0.146
LTE Band 5	16QAM	10	8M89W7D	0.135
LTE Band 28	QPSK	3	2M68G7D	0.070
LTE Band 28	16QAM	3	2M68W7D	0.066
LTE Band 28	QPSK	5	4M47G7D	0.064
LTE Band 28	16QAM	5	4M47W7D	0.056
LTE Band 28	QPSK	10	8M91G7D	0.077
LTE Band 28	16QAM	10	4M86W7D	0.063
LTE Band 28	QPSK	15	13M4G7D	0.067
LTE Band 28	16QAM	15	4M88W7D	0.058
LTE Band 28	QPSK	20	17M7G7D	0.066
LTE Band 28	16QAM	20	4M99W7D	0.062

1.3. Test Standards and Results

The purpose of the report is to conduct testing according to the following FCC certification standards:

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22	Public Mobile Services
3	47 CFR Part 24	Personal Communications Services
4	47 CFR Part 27	Miscellaneous Wireless Communications Services
5	47 CFR Part 90	Private Land Mobile Radio Services
6	KDB 971168 D01 Power Meas License Digital Systems v03r01	Measurement Guidance For Certification of Licensed Digital Transmitters
7	KDB 412172 D01 Determining ERP and EIRP v01r01	Guidelines for Determining the Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) of an RF Transmitting Systems
8	ANSI/TIA-603-E-2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
9	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

Test detailed items/section required by FCC rules and results are as below:

No.	FCC Rule	Description	Result
1	2.1046	Conducted Output Power	PASS Remark 2
2	22.913 (d) 24.232 (d) 27.50 (d)(5)	Peak to Average Radio	PASS Remark 2
3	24.232 (c) 27.50 (d)(4)	Equivalent Isotropic Radiated Power	PASS Remark 2
	22.913 (a)(5) 27.50 (c)(10)	Effective Radiated Power	PASS Remark 2
4	2.1049	Occupied Bandwidth	PASS Remark 2
5	2.1051 22.917 (a) 24.238 (a) 27.53 (h) 27.53 (g)	Conducted Spurious Emission and Conducted Band Edge	PASS Remark 2
6	2.1053 22.917 (a) 24.238 (a) 27.53 (h) 27.53 (g)	Radiated Spurious Emission	PASS
7	2.1055 22.355 24.235 27.54	Frequency Stability	PASS Remark 2

Remark:

1. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
2. Test data refer to the chip report FCC ID: 2AJYU-8PY A001.

1.4. Laboratory Facilities

FCC-Registration No.: 406086

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until April 19th, 2023.

ISED Registration: 11185A-1

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Jun. 30th, 2023.

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

1.5. Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (℃):	15℃- 35℃
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa

2. 47 CFR Part 2 Requirements

2.1. Conducted Output Power and ERP/EIRP

2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4/66.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 28.

According to KDB 412172 D01 Determining ERP and EIRP v01r01.

EIRP = P_T + $_{GT}$ - L_C, ERP = EIRP - 2.15, where

P_T = transmitter output power in dBm;

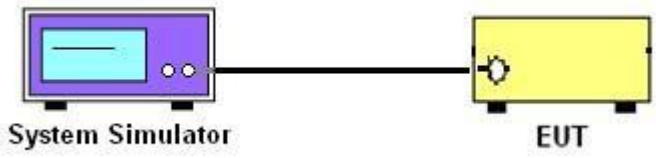
G_T = gain of the transmitting antenna in dBi;

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

2.1.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.1.3. Test Setup



2.1.4. Test Procedures

1. The transmitter output port was connected to the system simulator.

2. Set EUT at maximum power through system simulator.

3. Select lowest, middle, and highest channels for each band and different modulation.

4. Measure and record the power level from the system simulator.

2.1.5. Test Results of Conducted Output Power and ERP/EIRP

LTE Band 2 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18607	18900	19193			
			1850.7MHz	1880.0MHz	1909.3MHz			
QPSK	1	0	23.06	22.73	22.99	-0.91	22.34	33.00
	1	2	23.17	22.81	23.25			
	1	5	23.09	22.79	23.02			
	6	0	22.02	21.84	22.14			
16QAM	1	0	21.75	22.20	21.91	-0.91	21.47	33.00
	1	2	22.36	22.38	22.01			
	1	5	22.10	22.28	22.06			
	6	0	21.03	20.93	21.20			
LTE Band 2 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18615	18900	19185			
			1851.5MHz	1880.0MHz	1908.5MHz			
QPSK	1	0	23.09	22.83	23.29	-0.91	22.38	33.00
	1	8	22.89	22.68	23.14			
	1	15	23.02	22.75	23.08			
	15	0	21.97	21.85	22.11			
16QAM	1	0	22.28	22.10	21.85	-0.91	21.59	33.00
	1	8	22.20	22.20	21.72			
	1	15	22.26	22.50	21.81			
	15	0	21.10	20.88	21.18			
LTE Band 2 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18625	18900	19175			
			1852.5MHz	1880.0MHz	1907.5MHz			
QPSK	1	0	23.03	22.79	23.01	-0.91	22.12	33.00
	1	13	22.99	22.84	22.94			
	1	24	22.78	22.81	22.91			
	25	0	22.01	21.83	22.32			
16QAM	1	0	22.01	22.28	22.08	-0.91	21.48	33.00
	1	13	21.97	22.28	22.18			
	1	24	21.81	22.39	22.04			
	25	0	21.23	21.01	21.20			

LTE Band 2 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18650	18900	19150			
			1855.0MHz	1880.0MHz	1905.0MHz			
QPSK	1	0	22.92	22.86	23.20	-0.91	22.29	33.00
	1	25	22.91	22.99	22.22			
	1	49	22.86	22.78	23.00			
	50	0	22.20	22.02	22.22			
16QAM	1	0	22.37	22.36	22.72	-0.91	22.36	33.00
	1	25	22.41	22.32	23.27			
	1	49	22.30	22.46	22.60			
	27	0	22.12	22.27	22.31			
LTE Band 2 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18675	18900	19125			
			1857.5MHz	1880.0MHz	1902.5MHz			
QPSK	1	0	22.95	22.80	22.87	-0.91	22.11	33.00
	1	38	22.94	22.83	23.02			
	1	74	22.83	22.84	22.65			
	75	0	22.35	22.33	22.05			
16QAM	1	0	22.33	22.28	22.64	-0.91	21.78	33.00
	1	38	22.29	22.46	22.69			
	1	74	22.10	22.41	22.50			
	27	0	22.02	22.17	22.27			
LTE Band 2 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18700	18900	19100			
			1860.0MHz	1880.0MHz	1900.0MHz			
QPSK	1	0	22.97	22.60	22.62	-0.91	22.27	33.00
	1	50	23.14	22.84	23.18			
	1	99	22.97	22.83	22.70			
	100	0	21.88	22.31	22.08			
16QAM	1	0	22.30	22.24	21.84	-0.91	21.56	33.00
	1	50	21.95	22.47	22.10			
	1	99	21.60	22.24	22.04			
	27	0	21.43	22.05	22.06			

LTE Band 4 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19957	20175	20393			
			1710.7MHz	1732.5MHz	1754.3MHz			
QPSK	1	0	23.35	23.31	23.12	-1.45	22.15	30.00
	1	2	23.39	23.42	23.60			
	1	5	23.53	23.41	23.50			
	6	0	22.26	22.52	22.22			
16QAM	1	0	22.45	22.62	22.23	-1.45	21.42	30.00
	1	2	22.63	22.86	22.87			
	1	5	22.57	22.85	22.60			
	6	0	21.37	21.42	21.32			
LTE Band 4 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19965	20175	20385			
			1711.5MHz	1732.5MHz	1753.5MHz			
QPSK	1	0	23.46	23.30	23.26	-1.45	22.01	30.00
	1	8	23.15	23.13	23.27			
	1	15	23.15	23.33	23.39			
	15	0	22.20	22.32	22.18			
16QAM	1	0	21.79	22.57	22.88	-1.45	21.65	30.00
	1	8	21.78	22.55	22.51			
	1	15	22.23	22.59	23.10			
	15	0	21.21	21.30	21.30			
LTE Band 4 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19975	20175	20375			
			1712.5MHz	1732.5MHz	1752.5MHz			
QPSK	1	0	23.28	23.20	23.19	-1.45	21.97	30.00
	1	13	23.00	23.30	23.04			
	1	24	23.24	23.23	23.42			
	25	0	22.24	22.31	22.21			
16QAM	1	0	21.66	22.60	22.29	-1.45	21.15	30.00
	1	13	21.51	22.19	22.06			
	1	24	21.81	22.55	22.26			
	25	0	21.30	21.36	21.33			

LTE Band 4 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20000	20175	20350			
			1715.0MHz	1732.5MHz	1750.0MHz			
QPSK	1	0	23.23	23.47	23.38	-1.45	22.09	30.00
	1	25	23.35	23.54	23.35			
	1	49	23.11	23.11	23.33			
	50	0	22.35	22.51	22.50			
16QAM	1	0	22.47	22.62	22.87	-1.45	21.71	30.00
	1	25	22.24	22.40	23.16			
	1	49	22.02	22.14	23.01			
	50	0	22.13	21.97	22.78			
LTE Band 4 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20025	20175	20325			
			1717.5MHz	1732.5MHz	1747.5MHz			
QPSK	1	0	23.67	23.40	23.43	-1.45	22.22	30.00
	1	38	23.51	23.37	23.23			
	1	74	23.50	22.94	23.24			
	75	0	22.90	22.58	22.77			
16QAM	1	0	22.91	23.00	22.43	-1.45	21.60	30.00
	1	38	22.85	22.91	22.87			
	1	74	22.95	22.91	22.66			
	27	0	22.42	23.05	22.41			
LTE Band 4 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20050	20175	20300			
			1720.0MHz	1732.5MHz	1745.0MHz			
QPSK	1	0	23.18	23.30	23.36	-1.45	21.99	30.00
	1	50	23.44	23.39	23.44			
	1	99	23.21	23.41	22.91			
	100	0	22.53	22.66	22.73			
16QAM	1	0	22.84	23.23	22.39	-1.45	21.78	30.00
	1	50	22.94	23.09	22.42			
	1	99	22.50	22.79	22.40			
	27	0	22.13	22.56	22.18			

LTE Band 5 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20407	20525	20643			
			824.7MHz	836.5MHz	848.3MHz			
QPSK	1	0	24.62	24.14	24.22	-0.74	21.85	38.45
	1	2	24.74	24.43	24.55			
	1	5	24.68	24.42	24.20			
	6	0	23.41	23.36	23.36			
16QAM	1	0	23.67	23.72	23.38	-0.74	20.97	38.45
	1	2	23.68	23.86	23.23			
	1	5	23.61	23.81	23.28			
	6	0	22.44	22.48	22.41			
LTE Band 5 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20415	20525	20635			
			825.5MHz	836.5MHz	847.5MHz			
QPSK	1	0	24.42	24.29	24.20	-0.74	21.57	38.45
	1	8	24.28	24.46	24.19			
	1	15	24.35	24.40	24.08			
	15	0	23.38	23.30	23.41			
16QAM	1	0	23.60	23.72	23.01	-0.74	20.93	38.45
	1	8	23.26	23.82	23.00			
	1	15	23.62	23.75	22.89			
	15	0	22.24	22.57	22.33			
LTE Band 5 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20425	20525	20625			
			826.5MHz	836.5MHz	846.5MHz			
QPSK	1	0	24.22	24.29	24.16	-0.74	21.44	38.45
	1	13	24.26	24.33	24.32			
	1	24	24.09	24.30	24.30			
	25	0	23.40	23.25	23.50			
16QAM	1	0	22.70	23.68	22.95	-0.74	21.09	38.45
	1	13	22.68	23.90	22.64			
	1	24	22.70	23.98	22.86			
	25	0	22.59	22.50	22.41			

LTE Band 5 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20450	20525	20600			
			829.0MHz	836.5MHz	844.0MHz			
QPSK	1	0	24.24	24.36	24.21	-0.74	21.64	38.45
	1	25	24.51	24.53	24.37			
	1	49	24.34	24.18	23.99			
	50	0	23.51	23.25	23.19			
16QAM	1	0	23.20	23.52	23.84	-0.74	21.30	38.45
	1	25	23.61	24.19	23.71			
	1	49	23.21	23.64	23.78			
	50	0	22.78	23.15	23.24			

LTE Band 28 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			27225	27435	27644			
			704.5MHz	725.5MHz	746.5MHz			
QPSK	1	0	23.47	23.35	23.04	-2.93	18.46	33.77
	1	8	23.41	23.21	22.95			
	1	15	23.54	23.26	23.11			
	15	0	22.50	22.35	22.00			
16QAM	1	0	23.18	23.16	21.66	-2.93	18.17	33.77
	1	8	23.23	22.99	21.73			
	1	15	23.25	22.60	22.21			
	15	0	21.51	21.37	21.19			
LTE Band 28 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			27235	27435	27634			
			705.5MHz	725.5MHz	745.5MHz			
QPSK	1	0	22.86	22.78	22.96	-2.93	18.09	33.77
	1	13	23.09	23.05	23.03			
	1	24	22.94	23.02	23.17			
	25	0	22.08	22.17	22.04			
16QAM	1	0	21.33	21.52	22.32	-2.93	17.47	33.77
	1	13	21.41	22.29	22.29			
	1	24	21.66	22.26	22.55			
	25	0	21.11	21.29	21.16			
LTE Band 28 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			27260	27435	27609			
			708.0MHz	725.5MHz	743.0MHz			
QPSK	1	0	23.13	23.40	23.93	-2.93	18.85	33.77
	1	25	23.17	23.32	23.44			
	1	49	22.99	23.29	23.37			
	50	0	22.15	22.69	22.53			
16QAM	1	0	22.16	23.09	23.01	-2.93	18.01	33.77
	1	25	22.90	22.67	22.94			
	1	49	22.08	22.28	22.98			
	27	0	21.96	22.13	22.64			

LTE Band 28 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			27285	27435	27584			
			710.5MHz	725.5MHz	740.5MHz			
QPSK	1	0	23.35	23.07	22.76	-2.93	18.27	33.77
	1	38	23.24	23.06	22.93			
	1	74	23.18	22.98	22.83			
	75	0	22.44	22.51	22.09			
16QAM	1	0	22.10	22.66	22.41	-2.93	17.62	33.77
	1	38	23.23	22.60	22.70			
	1	74	22.54	22.44	22.52			
	27	0	22.04	22.13	22.30			
LTE Band 28 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			27315	27435	27559			
			713.5MHz	725.5MHz	738.0MHz			
QPSK	1	0	22.73	23.03	23.24	-2.93	18.17	33.77
	1	50	22.77	23.25	23.24			
	1	99	22.94	23.01	23.01			
	100	0	22.30	22.21	22.30			
16QAM	1	0	22.64	21.31	22.50	-2.93	17.90	33.77
	1	50	22.70	21.91	22.98			
	1	99	22.71	21.81	22.30			
	27	0	22.13	21.68	22.10			

LTE Band 66 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			131979	132322	132665			
			1710.7MHz	1745.0MHz	1779.3MHz			
QPSK	1	0	23.46	23.09	23.28	-1.45	22.01	30.00
	1	2	23.26	23.24	23.34			
	1	5	23.18	23.11	23.30			
	6	0	22.42	22.15	22.39			
16QAM	1	0	21.89	22.62	22.01	-1.45	21.32	30.00
	1	2	22.61	22.77	22.31			
	1	5	22.02	22.67	22.30			
	6	0	21.44	21.32	21.50			
LTE Band 66 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	IRP Limit (dBm)
			131987	132322	132657			
			1711.5MHz	1745.0MHz	1778.5MHz			
QPSK	1	0	23.07	23.19	23.28	-1.45	21.83	30.00
	1	8	23.01	23.14	23.22			
	1	15	23.22	23.25	23.16			
	15	0	22.22	22.15	22.44			
16QAM	1	0	22.38	22.56	22.30	-1.45	21.11	30.00
	1	8	22.30	22.38	22.26			
	1	15	22.40	22.43	21.97			
	15	0	21.16	21.35	21.44			
LTE Band 66 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			131997	132322	132647			
			1712.5MHz	1745.0MHz	1777.5MHz			
QPSK	1	0	23.16	23.22	23.29	-1.45	21.90	30.00
	1	13	23.13	23.35	23.27			
	1	24	23.12	23.31	23.30			
	25	0	22.29	22.47	22.55			
16QAM	1	0	21.35	22.80	22.90	-1.45	21.45	30.00
	1	13	22.04	22.59	22.83			
	1	24	22.15	22.63	22.72			
	25	0	21.35	22.72	21.51			

LTE Band 66 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			132022	132322	132622			
			1715.0MHz	1745.0MHz	1775.0MHz			
QPSK	1	0	22.76	23.37	23.24	-1.45	22.25	30.00
	1	25	23.33	23.40	23.70			
	1	49	23.39	22.76	23.40			
	50	0	22.42	22.51	22.61			
16QAM	1	0	22.33	23.09	22.60	-1.45	21.84	30.00
	1	25	23.29	23.22	22.81			
	1	49	22.11	22.01	22.11			
	27	0	22.03	22.05	21.97			
LTE Band 66 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			132047	132322	132597			
			1717.5MHz	1745.0MHz	1772.5MHz			
QPSK	1	0	22.83	23.26	23.06	-1.45	21.95	30.00
	1	38	23.26	23.34	23.40			
	1	74	23.30	22.60	23.27			
	75	0	22.90	22.51	22.76			
16QAM	1	0	22.18	23.01	22.90	-1.45	21.85	30.00
	1	38	22.78	22.76	23.30			
	1	74	23.10	21.80	22.81			
	27	0	22.13	21.76	22.36			
LTE Band 66 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			132072	132322	132572			
			1720.0MHz	1745.0MHz	1770.0MHz			
QPSK	1	0	22.67	23.65	23.02	-1.45	22.20	30.00
	1	50	23.55	23.55	23.57			
	1	99	23.33	22.47	23.23			
	100	0	22.53	22.46	22.42			
16QAM	1	0	21.87	22.66	22.20	-1.45	21.75	30.00
	1	50	23.20	22.21	22.10			
	1	99	22.78	21.67	22.21			
	27	0	22.42	21.42	22.06			

Note: The conducted output power data reference module FCC ID: 2AJYU-8PY A001 reports the test data and only updates the ERP/EIRP data.

2.2. Radiated Spurious Emission

2.2.1. Requirement

The radiated spurious emission was measured by substitution method according to ANSI/TIA-603-E-2016.

For Band 2 & 4 & 5 & 28 & 66:

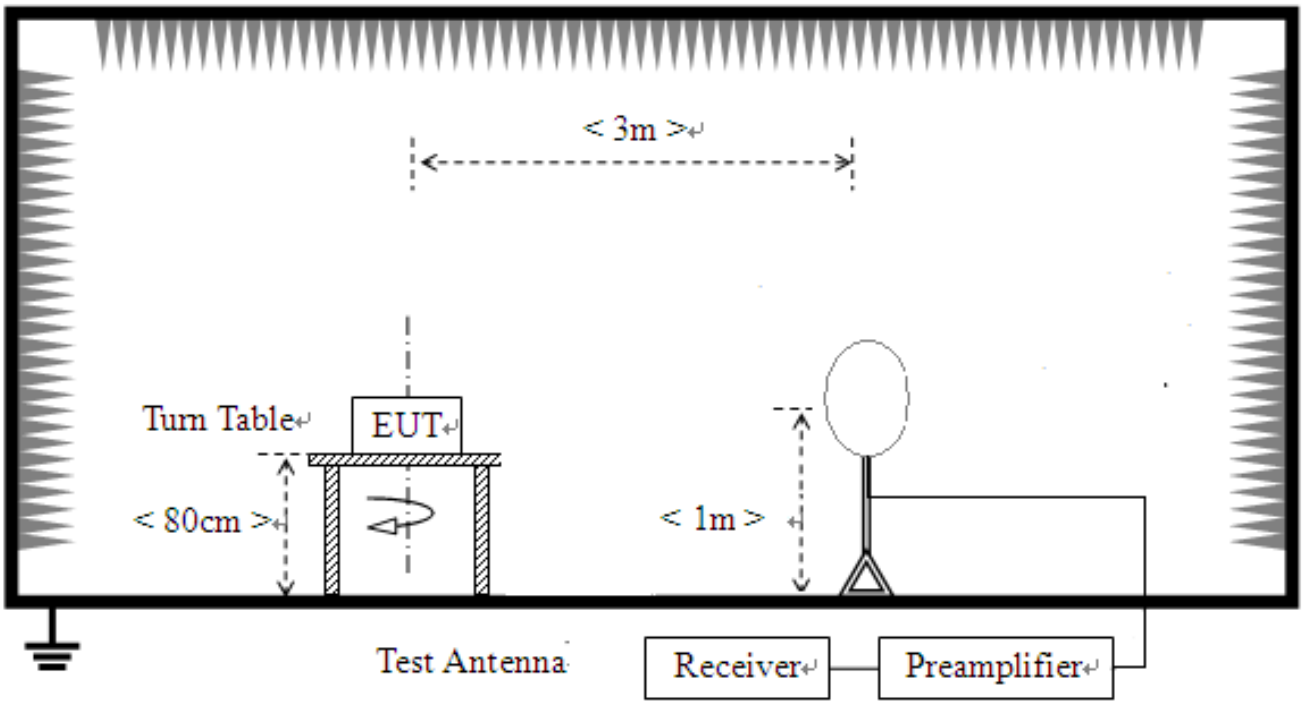
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

2.2.2. Measuring Instruments

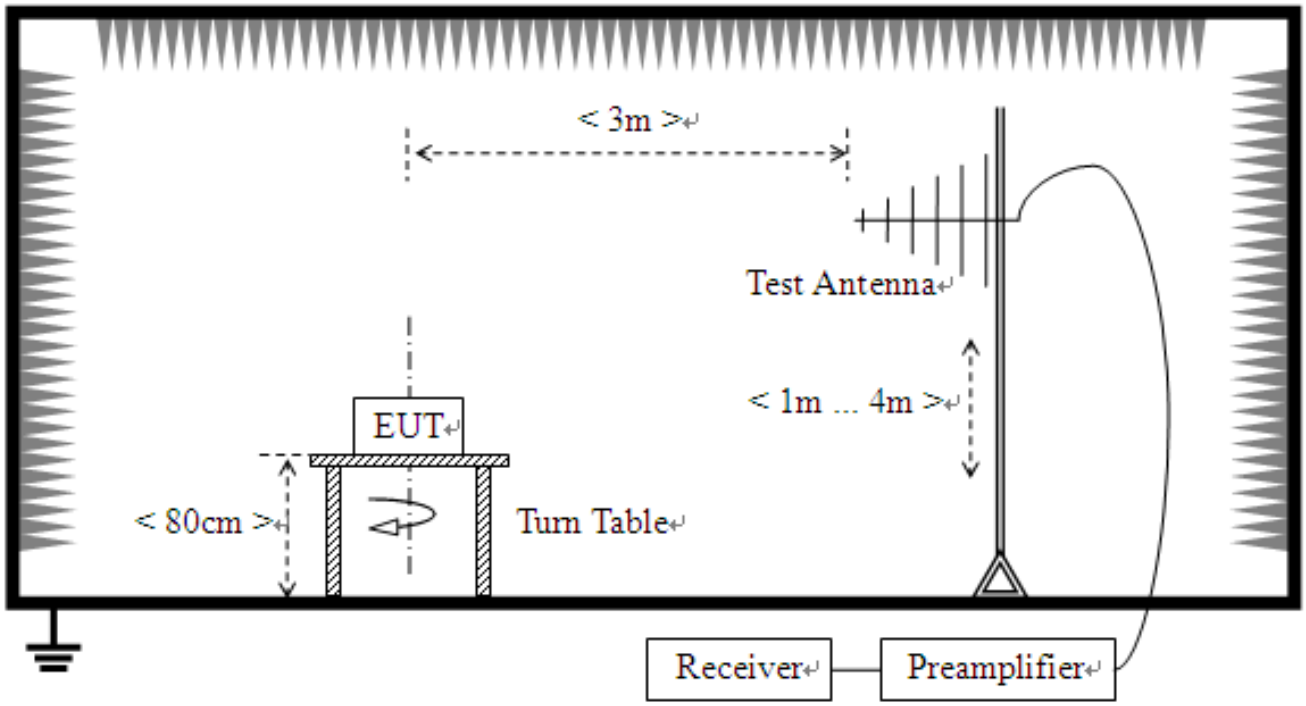
The measuring equipment is listed in the section 3 of this test report.

2.2.3. Test Setup

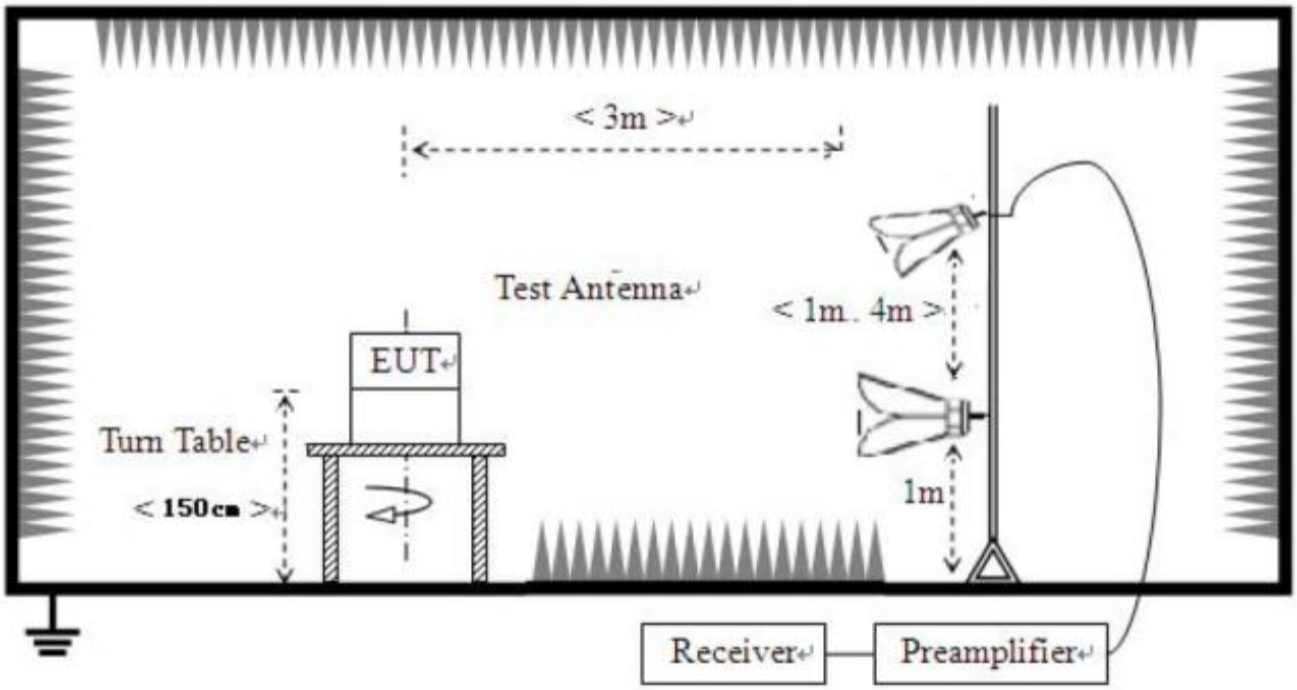
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.2.4. Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter (for below 1GHz) / 1.5 meters (for above 1GHz) above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
11. All Spurious Emission tests were performed in X, Y, Z axis direction and low, middle, high channel. And only the worst axis test condition was recorded in this test report.
12. The spectrum is measured from 9 kHz to the 10^{th} harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
13. The maximum RB configurations of the Radiated Spurious Emissions as RB Size full, RB Offset 0.

2.2.5. Test Result of Radiated Spurious Emission

Note: 1. The emission levels of above 18GHz are lower than the limit 20dB and not show in test report.

Note: 2. Absolute Level = Reading Level + Factor

LTE Band 2 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	30.485	-94.90	-71.02	-25.00	46.02	23.88	Horizontal
2	499.965	-99.88	-67.23	-25.00	42.23	32.65	Horizontal
3	776.9	-98.85	-63.37	-25.00	38.37	35.48	Horizontal
4	5167.4	-54.53	-40.10	-25.00	15.10	14.43	Horizontal
5	7209.58	-53.86	-35.79	-25.00	10.79	18.07	Horizontal
6	10129.4	-54.01	-32.40	-25.00	7.40	21.61	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	31.94	-93.00	-71.73	-25.00	46.73	21.27	Vertical
2	41.64	-94.07	-74.14	-25.00	49.14	19.93	Vertical
3	65.89	-94.27	-73.54	-25.00	48.54	20.73	Vertical
4	4887.8	-54.40	-39.66	-25.00	14.66	14.74	Vertical
5	7001.72	-53.73	-36.91	-25.00	11.91	16.82	Vertical
6	9664.26	-54.35	-33.61	-25.00	8.61	20.74	Vertical

LTE Band 4 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	31.94	-98.02	-74.49	-13.00	61.49	23.53	Horizontal
2	67.345	-95.41	-76.06	-13.00	63.06	19.35	Horizontal
3	502.39	-100.04	-67.40	-13.00	54.40	32.64	Horizontal
4	4551.2	-54.04	-42.03	-13.00	29.03	12.01	Horizontal
5	7100.33	-54.89	-37.54	-13.00	24.54	17.35	Horizontal
6	10279.2	-54.59	-32.83	-13.00	19.83	21.76	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	69.285	-95.15	-74.02	-13.00	61.02	21.13	Vertical
2	102.75	-98.09	-73.91	-13.00	60.91	24.18	Vertical
3	762.35	-97.79	-61.92	-13.00	48.92	35.87	Vertical
4	5337	-54.50	-40.64	-13.00	27.64	13.86	Vertical
5	7159.56	-55.24	-37.48	-13.00	24.48	17.76	Vertical
6	9519.65	-54.02	-33.85	-13.00	20.85	20.17	Vertical

LTE Band 5 QPSK 10MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	30.485	-94.60	-70.72	-13.00	57.72	23.88	Horizontal
2	66.86	-92.34	-72.98	-13.00	59.98	19.36	Horizontal
3	90.14	-92.94	-73.74	-13.00	60.74	19.20	Horizontal
4	2855.4	-50.99	-45.28	-13.00	32.28	5.71	Horizontal
5	4610	-52.93	-40.26	-13.00	27.26	12.67	Horizontal
6	7405.37	-53.63	-34.55	-13.00	21.55	19.08	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	31.94	-92.88	-71.61	-13.00	58.61	21.27	Vertical
2	41.64	-93.22	-73.29	-13.00	60.29	19.93	Vertical
3	118.755	-94.06	-71.31	-13.00	58.31	22.75	Vertical
4	4781.4	-54.01	-39.55	-13.00	26.55	14.46	Vertical
5	7586.78	-53.30	-34.24	-13.00	21.24	19.06	Vertical
6	11055.1	-54.44	-31.11	-13.00	18.11	23.33	Vertical

LTE Band 28 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	43.095	-93.38	-72.54	-13.00	59.54	20.84	Horizontal
2	170.165	-94.71	-72.68	-13.00	59.68	22.03	Horizontal
3	344.765	-98.86	-70.13	-13.00	57.13	28.73	Horizontal
4	3026.6	-52.88	-45.56	-13.00	32.56	7.32	Horizontal
5	4821.4	-52.91	-38.17	-13.00	25.17	14.74	Horizontal
6	7407.96	-53.93	-34.84	-13.00	21.84	19.09	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	74.135	-87.41	-65.84	-13.00	52.84	21.57	Vertical
2	107.6	-95.50	-71.76	-13.00	58.76	23.74	Vertical
3	170.165	-94.68	-74.72	-13.00	61.72	19.96	Vertical
4	2075.9	-51.30	-49.41	-13.00	36.41	1.89	Vertical
5	3109.8	-51.50	-44.32	-13.00	31.32	7.18	Vertical
6	7534.46	-54.14	-34.95	-13.00	21.95	19.19	Vertical

LTE Band 66 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	340.885	-99.57	-71.07	-13.00	58.07	28.50	Horizontal
2	504.815	-99.27	-66.65	-13.00	53.65	32.62	Horizontal
3	659.53	-98.99	-64.17	-13.00	51.17	34.82	Horizontal
4	4718.4	-52.62	-39.03	-13.00	26.03	13.59	Horizontal
5	6952.6	-53.46	-36.42	-13.00	23.42	17.04	Horizontal
6	10889.8	-56.87	-33.71	-13.00	20.71	23.16	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	99.355	-97.89	-73.53	-13.00	60.53	24.36	Vertical
2	649.83	-97.28	-64.32	-13.00	51.32	32.96	Vertical
3	874.385	-97.42	-61.16	-13.00	48.16	36.26	Vertical
4	5047.2	-53.75	-39.36	-13.00	26.36	14.39	Vertical
5	8582.4	-53.64	-35.46	-13.00	22.46	18.18	Vertical
6	10013.8	-54.41	-33.00	-13.00	20.00	21.41	Vertical

3. List of measuring equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Receiver	ROHDE&SCHWARZ	ESW26	A180502935	2022.07.21	2023.07.20
2	5M Anechoic Chamber	Albatross	SAC-5MAC 12.8x6.8x6.4m	A0304210	2019.03.25	2023.03.24
3	Loop Antenna	Schwarz beck	HFH2-Z2	A0304220	2022.05.02	2025.05.01
4	Broadband antenna (30MHz~1GHz)	R&S	HL562	A0304224	2020.06.19	2023.06.18
5	EMI Horn Ant. (1-18G)	ETC	1209	A150402241	2021.01.02	2024.01.01
6	Horn antenna (18GHz~26.5GHz)	AR	AT4510	A0804450	2020.06.19	2023.06.18
7	Amplifier 30M~1GHz	MILMEGA	80RF1000-10004	A140101634	2020.09.22	2023.09.21
8	Amplifier 1G~18GHz	MILMEGA	AS0104R-800/400	A160302517	2022.12.13	2023.12.12
9	Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2022.03.25	2023.03.24
10	Test Receiver	R&S	ESIB7	A0501375	2022.04.18	2023.04.17
11	Broadband Ant.	2786	ETC	A150402240	2021.09.16	2024.03.03
12	3M Anechoic Chamber	Albatross	SAC-3MAC 9*6*6m	A0412375	2019.03.26	2023.03.25
13	Temperature chamber	TABAI	PS-232	A8708054	2022.08.18	2023.08.17
14	Wideband Radio Communication tester	R&S	CMW500	A130101034	2021.01.26	2023.01.25
15	Wideband Radio Communication tester	R&S	CMW500	A150802214	2022.06.17	2023.06.16
16	Test Receiver	KEYSIGHT	N9038A	A141202036	2022.07.21	2023.07.20
17	LISN	ROHDE&SCHWARZ	ENV216	A140701847	2022.07.21	2023.07.20
18	Cable	MATCHING PAD	W7	/	2022.07.21	2023.07.20

4. Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence . The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150kHz~30MHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	2.8dB

Uncertainty of Radiated Emission Measurement (9kHz~30MHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	3.5dB

Uncertainty of Radiated Emission Measurement (30MHz~1GHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	3.91dB

Uncertainty of Radiated Emission Measurement (1GHz~18GHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	4.5dB

Uncertainty of Radiated Emission Measurement (18GHz~40GHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	4.9dB

Uncertainty of RF Conducted Measurement (9kHz~40GHz)

Measuring Uncertainty for a level of confidence of 95%(U=2Uc(y))	1.2dB

** END OF REPORT **