

TEST REPORT

Applicant: EPIROC DIGITAL SAFETY SOLUTIONS SOUTH AFRICA (PTY) LTD

Address of Applicant: 51 Adriana Crescent, Gateway Business Park, Centurion, South Africa

Manufacturer/Factory: EPIROC DIGITAL SAFETY SOLUTIONS SOUTH AFRICA (PTY) LTD

Address of Manufacturer/Factory: 51 Adriana Crescent, Gateway Business Park, Centurion, South Africa

Equipment Under Test (EUT)

Product Name: Titan Pulse800

Model No.: M-001-222-03-V1

FCC ID: 2BPRY-22203V1

Applicable standards: FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22
FCC CFR Title 47 Part 27

Date of sample receipt: March 05, 2025

Date of Test: August 01, 2025-August 22, 2025

Date of report issued: August 22, 2025

Test Result : PASS *

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:



Robinson Luo

Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



2 Version

Version No.	Date	Description
00	August 22, 2025	Original

Tested By:

Jauch. Gai

Date:

August 22, 2025

Test Engineer

Prepared By:

J. Smith

Date:

August 22, 2025

Project Engineer

Check By:

Robinson

Date:

August 22, 2025

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 22.913 Part 27.50	Pass
Peak-to-Average Ratio	Part 22.913 Part 27.50	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.913(a)(1) Part 27.53(a)(1)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917(b) Part 27.53(b)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917(c) Part 27.53(b)	Pass
Out of band emission, Band Edge	Part 2.1053 Part 22.917(a)(3) Part 27.53(a)(3)	Pass
Frequency stability vs. temperature	Part 2.1055	Pass
Frequency stability vs. voltage	Part 2.1055	Pass

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. N/A: Not applicable.

5 General Information

5.1 General Description of EUT

Product Name:	Titan Pulse800
Model No.:	M-001-222-03-V1
Tested Sample(s) ID:	GTS2025020170-1
Sample(s) Status:	Engineer sample
S/N:	005:300:03:V1:00051
Support Bands:	LTE Band 5/7/12
Channel Bandwidth:	LTE Band 5: 1.4MHz; 3MHz; 5MHz; 10MHz LTE Band 7: 5MHz; 10MHz; 15MHz; 20MHz LTE Band 12: 1.4MHz; 3MHz; 5MHz; 10MHz
TX Frequency:	LTE Band 5: 824MHz-849MHz LTE Band 7: 2500MHz-2570MHz LTE band 12: 699.7~715.3MHz
Modulation type:	QPSK, 16QAM
Antenna type:	FPC Antenna
Antenna gain:	Band 5: 6.01dBi Band 7: 2.75dBi Band12:2.03 dBi
Power supply:	DC 5V

Disclaimer statement:

1. Antenna gain information provided by the customer, and the laboratory is not responsible for its authenticity.
2. The information in this section is provided by the applicant or manufacturer, GTS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

Test Frequency

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 5	1.4M	824.7 MHz	836.5 MHz	848.3 MHz
	3M	825.5 MHz	836.5 MHz	847.5 MHz
	5M	826.5 MHz	836.5 MHz	846.5 MHz
	10M	829.0 MHz	836.5 MHz	844.0 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 7	5M	2502.5 MHz	2535 MHz	2567.5 MHz
	10M	2505 MHz	2535 MHz	2565 MHz
	15M	2507.5 MHz	2535 MHz	2562.5 MHz
	20M	2510 MHz	2535 MHz	2560 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 12	1.4M	699.7 MHz	707.5 MHz	715.3 MHz
	3M	700.5 MHz	707.5 MHz	714.5 MHz
	5M	701.5 MHz	707.5 MHz	713.5 MHz
	10M	704.0 MHz	707.5 MHz	711.0 MHz

5.2 Description of Support Units

Manufacturer	Description	Model	Serial Number
GW	DC POWER SUPPLY	GPR-6030D	EF924756

5.3 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22/27 of the FCC CFR 47 Rules.

5.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on ANSI C63.26:2015 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

5.5 Deviation from Standards

None.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen 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 files.

- **ISED—Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing.

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Apr. 11, 2025	Apr. 10, 2026
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Apr. 12, 2025	Apr. 11, 2026
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	Apr. 12, 2025	Apr. 11, 2026
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	Apr. 11, 2025	Apr. 10, 2026
6	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	Jul. 01, 2025	Jun. 30, 2026
7	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov.16, 2024	Nov.15, 2025
8	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	Apr. 11, 2025	Apr. 10, 2026
9	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	Apr. 11, 2025	Apr. 10, 2026
10	Horn Antenna (18GH-40GHz)	Schwarzbeck	BBHA 9170	GTS691	Apr. 11, 2025	Apr. 10, 2026
11	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	Mar. 11, 2025	Mar. 10, 2026
12	Amplifier	/	LNA-1000-30S	GTS650	Apr. 11, 2025	Apr. 10, 2026
13	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS692	Nov. 13, 2024	Nov. 12, 2025
14	Wideband Amplifier	/	WDA-01004000-15P35	GTS602	Apr. 11, 2025	Apr. 10, 2026
15	Thermo meter	JINCHUANG	GSP-8A	GTS643	Apr. 15, 2025	Apr. 14, 2026
16	RE cable 1	GTS	N/A	GTS675	Jul. 11, 2025	Jul. 10, 2026
17	RE cable 2	GTS	N/A	GTS676	Jul. 11, 2025	Jul. 10, 2026
18	RE cable 3	GTS	N/A	GTS677	Jul. 11, 2025	Jul. 10, 2026
19	RE cable 4	GTS	N/A	GTS678	Jul. 11, 2025	Jul. 10, 2026
20	RE cable 5	GTS	N/A	GTS679	Jul. 11, 2025	Jul. 10, 2026
21	RE cable 6	GTS	N/A	GTS680	Jul. 11, 2025	Jul. 10, 2026
22	RE cable 7	GTS	N/A	GTS681	Jul. 11, 2025	Jul. 10, 2026
23	RE cable 8	GTS	N/A	GTS682	Jul. 11, 2025	Jul. 10, 2026
24	EMI Test Software	AUDIX	E3-6.100614a	GTS725	N/A	N/A

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	Apr. 11, 2025	Apr. 10, 2026
2	EMI Test Receiver	R&S	ESCI 7	GTS552	Apr. 12, 2025	Apr. 11, 2026
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	Apr. 11, 2025	Apr. 10, 2026
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	Apr. 11, 2025	Apr. 10, 2026
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	Apr. 11, 2025	Apr. 10, 2026
6	Wideband Power Meter	Keysight	N1924A	GTS673	Apr. 11, 2025	Apr. 10, 2026
7	USB RF Power Sensor	DARE	RPR3006W	GTS569	Apr. 11, 2025	Apr. 10, 2026
8	RF Switch Box	Shongyi	RFSW3003328	GTS571	Apr. 11, 2025	Apr. 10, 2026
9	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	Apr. 11, 2025	Apr. 10, 2026
10	Thermo meter	JINCHUANG	GSP-8A	GTS641	Apr. 15, 2025	Apr. 14, 2026
11	EXA Signal Analyzer	Keysight	N9010B	MY60241168	Nov. 02, 2024	Nov. 01, 2025

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	KUMAO	SF132	GTS647	Jul. 16, 2025	Jul. 15, 2026

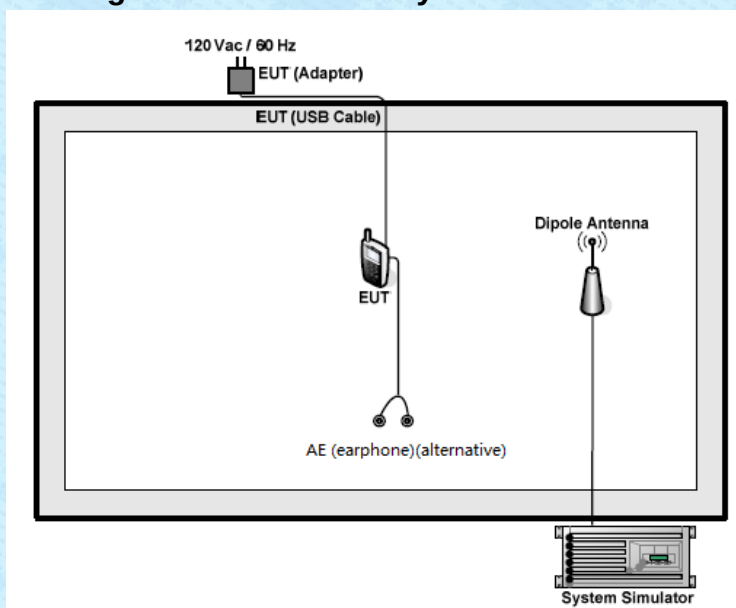
7 System test configuration

7.1 Test mode

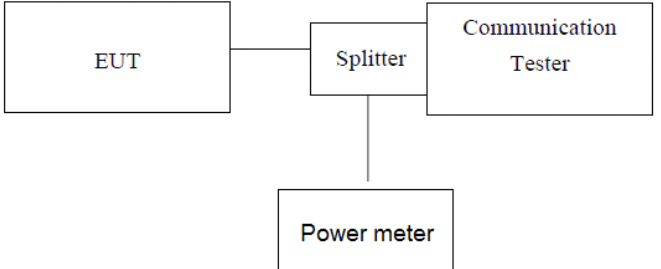
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test modes		
Band	Radiated	Conducted
LTE Band 5	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 7	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 12	■ QPSK and 16QAM link	■ QPSK and 16QAM link

7.2 Configuration of Tested System

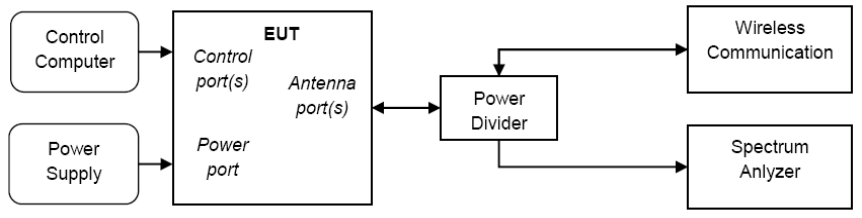


7.3 Conducted Output Power & E.R.P. & E.I.R.P.

Test Requirement:	FCC Part 2.1046, Part 22.913, Part 27.50
Test Method:	FCC KDB 971168 D01 V03r01 & ANSI C63.26
Limit:	LTE Band 5: 7W LTE Band 7: 2W LTE Band 12: 3W
Test setup:	 <i>Note: Measurement setup for testing on Antenna connector</i>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

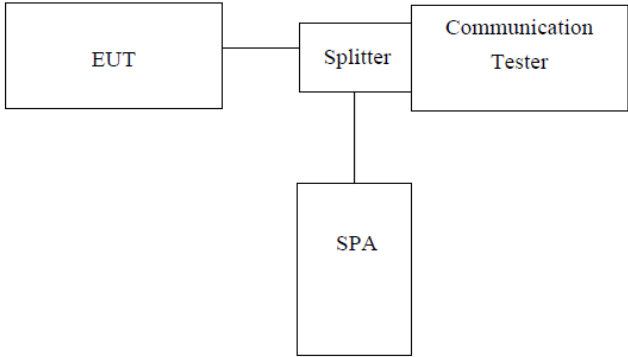
Measurement Data: The detailed test data see Appendix

7.4 Peak-to-Average Ratio

Test Requirement:	FCC Part 2.1046, Part 22.913, Part 27.50
Test Method:	FCC KDB 971168 D01 V03r01 & ANSI C63.26
Limit:	13db
Test setup:	 <pre> graph LR CC[Control Computer] --> EUT_Control[EUT Control port(s)] PS[Power Supply] --> EUT_Power[EUT Power port] EUT_Antenna[EUT Antenna port(s)] <--> PD[Power Divider] PD --> WC[Wireless Communication] PD --> SA[Spectrum Analyzer] </pre>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement data: The detailed test data see Appendix

7.5 Occupy Bandwidth

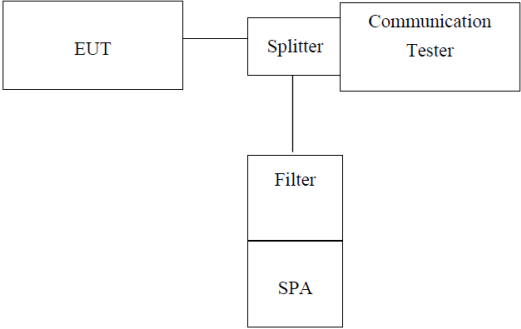
Test Requirement:	FCC Part 2.1049, Part 22.917(a), FCC Part 27.53(a)
Test Method:	FCC KDB 971168 D01 V03r01
Test setup:	 <i>Note: Measurement setup for testing on Antenna connector</i>
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% of emission BW, VBW= 3 times RBW. 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

7.6 MODULATION CHARACTERISTIC

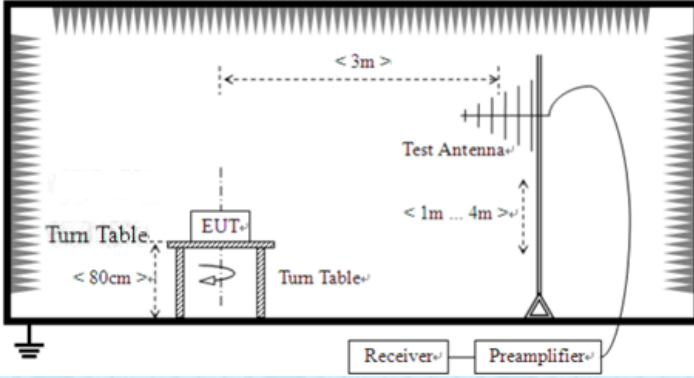
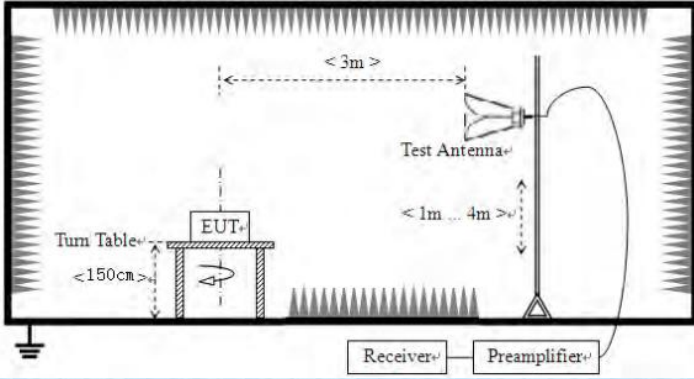
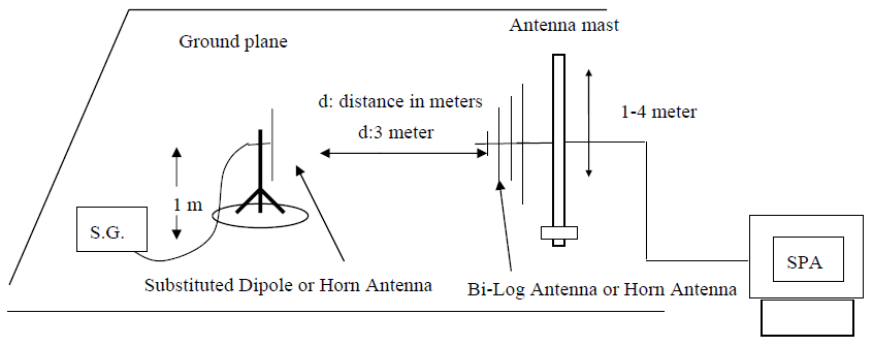
According to FCC § 2.1047(d), Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

7.7 Out of band emission at antenna terminals

Test Requirement:	FCC Part 2.1051, Part 22.917(b), Part 27.53(b)
Test Method:	FCC Part 2.1051 & FCC KDB 971168 D01 V03r01
Test setup:	 <i>Note: Measurement setup for testing on Antenna connector</i>
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

7.8 Field strength of spurious radiation measurement

Test Requirement:	FCC Part 2.1053, Part 22.917(c), Part 27.53(b)
Test Method:	FCC Part 2.1053 and ANSI C63.26:2015
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data:

All condition were test, only report worst case.

Below 1GHz

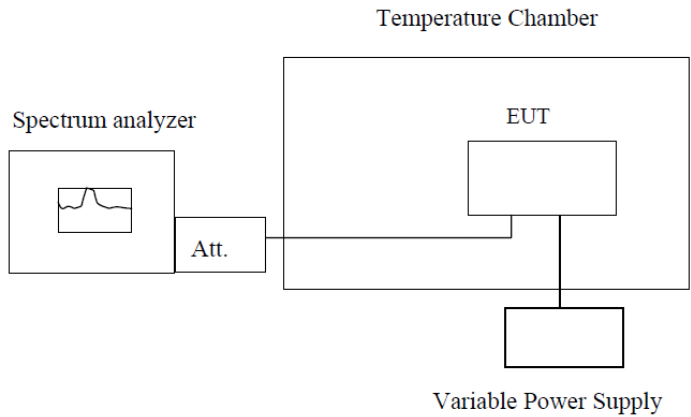
Band 5 (Lowest channel)

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
77.05	-60.63	21.65	1.00	30.00	-67.98	-13.00	-54.98	Vertical
88.03	-59.97	25.13	1.09	30.00	-63.75	-13.00	-50.75	Vertical
106.39	-65.97	25.13	1.25	30.00	-69.59	-13.00	-56.59	Vertical
145.86	-63.41	21.23	1.54	30.00	-70.64	-13.00	-57.64	Vertical
167.82	-58.37	22.36	1.67	30.00	-64.34	-13.00	-51.34	Vertical
183.84	-60.76	22.36	1.76	30.00	-66.64	-13.00	-53.64	Vertical
78.14	-65.95	21.65	1.01	30.00	-73.29	-13.00	-60.29	Horizontal
88.03	-67.97	25.13	1.09	30.00	-71.75	-13.00	-58.75	Horizontal
169.01	-52.63	22.36	1.68	30.00	-58.59	-13.00	-45.59	Horizontal
261.06	-65.60	25.13	2.18	30.00	-68.29	-13.00	-55.29	Horizontal
416.18	-74.15	28.55	2.93	30.00	-72.67	-13.00	-59.67	Horizontal
595.13	-77.60	31.51	3.70	30.00	-72.39	-13.00	-59.39	Horizontal

Above 1GHz

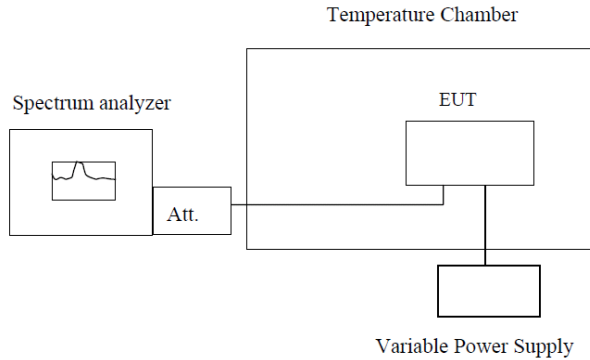
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
2292.50	-61.28	41.45	10.51	38.52	-47.84	-13.00	-34.84	Vertical
3737.75	-64.50	43.19	14.61	38.35	-45.05	-13.00	-32.05	Vertical
5136.00	-64.74	45.62	18.02	38.46	-39.56	-13.00	-26.56	Vertical
6217.00	-64.26	48.06	22.41	38.75	-32.54	-13.00	-19.54	Vertical
7650.50	-62.88	50.71	25.26	41.10	-28.01	-13.00	-15.01	Vertical
8849.00	-60.37	52.09	27.91	42.46	-22.83	-13.00	-9.83	Vertical
2104.50	-61.44	41.21	9.95	38.45	-48.73	-13.00	-35.73	Horizontal
3526.25	-61.87	42.91	14.23	38.48	-43.21	-13.00	-30.21	Horizontal
4266.50	-64.20	44.00	15.82	38.25	-42.63	-13.00	-29.63	Horizontal
5218.25	-65.40	45.85	18.29	38.49	-39.75	-13.00	-26.75	Horizontal
6745.75	-64.29	48.93	22.73	38.85	-31.48	-13.00	-18.48	Horizontal
7309.75	-63.41	50.05	23.94	39.97	-29.39	-13.00	-16.39	Horizontal

7.9 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part2.1055
Test Method:	FCC Part2.1055
Limit:	2.5ppm
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

7.10 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part2.1055
Test Method:	FCC Part2.1055
Limit:	2.5ppm
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

8 Test setup photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----