



**Shenzhen Global Test Service Co.,Ltd.**

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

## FCC PART 15 SUBPART C TEST REPORT

### FCC PART 15.250

**Report Reference No.**.....: **GTS20200611017-1-8-2**

**FCC ID**.....: **2AVNZ-TYPE-V1**

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Date of issue.....: June 11, 2020

**Representative Laboratory Name .:** **Shenzhen Global Test Service Co., Ltd.**

Address.....: No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

**Applicant's name**.....: **UBUDU SAS**

Address .....: 22 rue Tourlaque 75018 Paris, France

**Test specification** .....

Standard.....: **FCC Part 15.250**

TRF Originator.....: Shenzhen Global Test Service Co.,Ltd.

Master TRF.....: Dated 2014-12

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**Test item description** .....

Trade Mark .....: UBUDU

Manufacturer .....: UBUDU SAS

Model/Type reference.....: type V1

Listed Models .....: N/A

Modulation Type.....: Pulse Modulation, Frequency Hopping

Operation Frequency.....: From 6240MHz to 6739.2MHz

Rating .....: DC 3.7V From Battery and DC 5V From external circuit

Result.....: **PASS**

**TEST REPORT**

<b>Test Report No. :</b>	<b>GTS20200611017-1-8-2</b>	June 11, 2020
		Date of issue

Equipment under Test : SDA Tag

Model /Type : UBUDU

Listed Models : N/A

**Applicant** : **UBUDU SAS**

Address : 22 rue Tourlaque 75018 Paris, France

**Manufacturer** : **UBUDU SAS**

Address : 22 rue Tourlaque 75018 Paris, France

<b>Test Result:</b>	<b>PASS</b>
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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# **1 TEST STANDARDS**

The tests were performed according to following standards:

[FCC Rules Part 15.250](#): Operation of wideband systems within the band 5925-7250 MHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices

## 2 SUMMARY

### 2.1 General Remarks

Date of receipt of test sample	:	May.28, 2020
Testing commenced on	:	May.28, 2020
Testing concluded on	:	Jun.11, 2020

### 2.2 Product Description

Product Name:	SDA Tag
Model/Type reference:	type V1
Power supply:	DC 3.7V From Battery and DC 5V From external circuit
Adapter information (Auxiliary test supplied by test Lab)	Model: AS5010B Input: 100-240V~, 50/60Hz 0.15A Output:DC5V===1000m A
Sample ID:	GTS20200611017-1-8-2#
Operation frequency band:	6240MHz to 6739.2MHz
Center frequency:	6489.6MHZ
Modulation:	Pulse Modulation, Frequency Hopping
Channel number:	1
Antenna type:	PCB antenna
Antenna gain:	2.5dBi

### 2.3 Equipment Under Test

#### Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 3.7V From Battery and DC 5V From external circuit

### 2.4 Short description of the Equipment under Test (EUT)

This is a SDA Tag.

For more details, refer to the user's manual of the EUT.

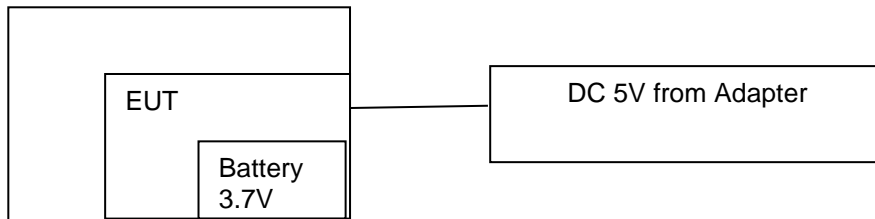
### 2.5 EUT operation mode

The Applicant provides AT command to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing .There is on channel provided to the EUT and was selected to test.

**Operation Frequency:**

Channel	Frequency (MHz)
05	6489.6

### 2.6 Block Diagram of Test Setup



### 2.7 Special Accessories

Manufacturer	Description	Model	Serial Number	Certificate
/	/	/	/	/

### 2.8 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2AVNZ-TYPE-V1** filing to comply with Section 15.250 of the FCC Part 15, Subpart C Rules.

### 2.9 Modifications

No modifications were implemented to meet testing criteria.

### 3 TEST ENVIRONMENT

#### 3.1 Address of the test laboratory

**Shenzhen Global Test Service Co.,Ltd.**

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

#### 3.2 Test Facility

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

**FCC-Registration No.: 165725**

Shenzhen Global Test Service 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.

**A2LA-Lab Cert. No.: 4758.01**

Shenzhen Global Test Service Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

**CNAS-Lab Code: L8169**

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2024.

#### 3.3 Environmental conditions

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

Radiated Emission:

Temperature:	25 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

AC Power Conducted Emission

Temperature:	25 ° C
Humidity:	46 %
Atmospheric pressure:	950-1050mbar

Conducted testing:

Temperature:	25 ° C
Humidity:	44 %
Atmospheric pressure:	950-1050mbar

### 3.4 Summary of measurement results

FCC Requirements		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.250(a)	Frequency Stability	PASS
FCC Part 15.250(b)	-10 dB Bandwidth	PASS
FCC Part 15.250(d)(1)(2)(4)(5)	Radiated emissions	PASS
FCC Part 15.250(d)(3)	Peak Power	PASS
FCC Part 15.203 & 15.250(C)	Antenna Requirement	PASS

### 3.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Global Test Service Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 3.6 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	3560.6550.08	2019/09/20	2020/09/19
LISN	R&S	ESH2-Z5	893606/008	2019/09/20	2020/09/19
EMI Test Receiver	R&S	ESPI3	101841-cd	2019/09/20	2020/09/19
EMI Test Receiver	R&S	ESC17	101102	2019/09/20	2020/09/19
Spectrum Analyzer	Agilent	N9020A	MY48010425	2019/09/20	2020/09/19
Spectrum Analyzer	R&S	FSV40	100019	2019/09/20	2020/09/19
Vector Signal generator	Agilent	N5181A	MY49060502	2019/09/20	2020/09/19
Signal generator	Agilent	E4421B	3610AO1069	2019/09/20	2020/09/19
Climate Chamber	ESPEC	EL-10KA	A20120523	2019/09/20	2020/09/19
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2019/09/23	2020/09/22
Active Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	15006	2019/10/12	2020/10/11
Bilog Antenna	Schwarzbeck	VULB9163	000976	2020/05/26	2021/05/25
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2019/09/20	2020/09/19



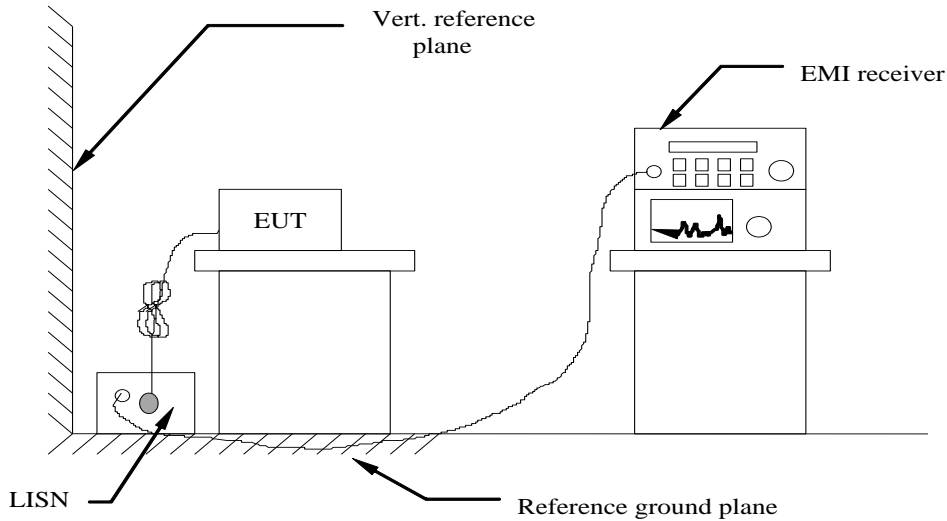
Amplifier	Schwarzbeck	BBV 9743	#202	2019/09/20	2020/09/19
Amplifier	Schwarzbeck	BBV9179	9719-025	2019/09/20	2020/09/19
Amplifier	EMCI	EMC051845B	980355	2019/09/20	2020/09/19
Temperature/Humidity Meter	Gangxing	CTH-608	02	2019/09/20	2020/09/19
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	KL142031	2019/09/20	2020/09/19
High-Pass Filter	K&L	41H10-1375/U12750-O/O	KL142032	2019/09/20	2020/09/19
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2019/09/20	2020/09/19
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2019/09/20	2020/09/19
Data acquisition card	Agilent	U2531A	TW53323507	2019/09/20	2020/09/19
Power Sensor	Agilent	U2021XA	MY5365004	2019/09/20	2020/09/19
Test Control Unit	Tonscend	JS0806-1	178060067	2019/06/20	2020/06/19
Automated filter bank	Tonscend	JS0806-F	19F8060177	2019/06/20	2020/06/19
EMI Test Software	Tonscend	JS1120-1	Ver 2.6.8.0518	/	/
EMI Test Software	Tonscend	JS1120-3	Ver 2.5.77.0418	/	/
EMI Test Software	Tonscend	JS32-CE	Ver 2.5	/	/
EMI Test Software	Tonscend	JS32-RE	Ver 2.5.1.8	/	/

Note: The Cal.Interval was one year.

## 4 TEST CONDITIONS AND RESULTS

### 4.1 AC Power Conducted Emission

#### TEST CONFIGURATION



#### TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2013
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
- 4 The EUT received DC 12V power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

#### AC Power Conducted Emission Limit

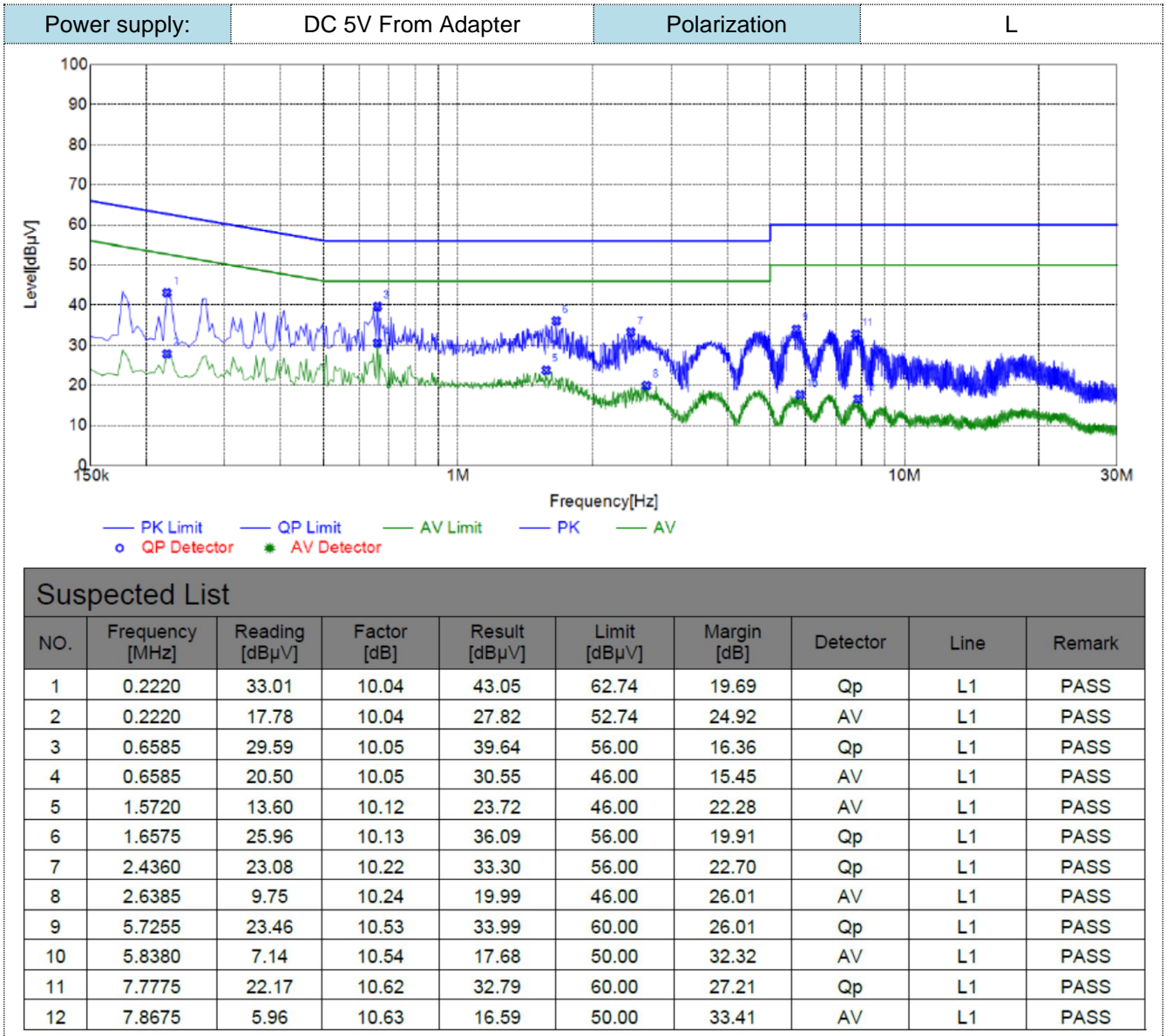
For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

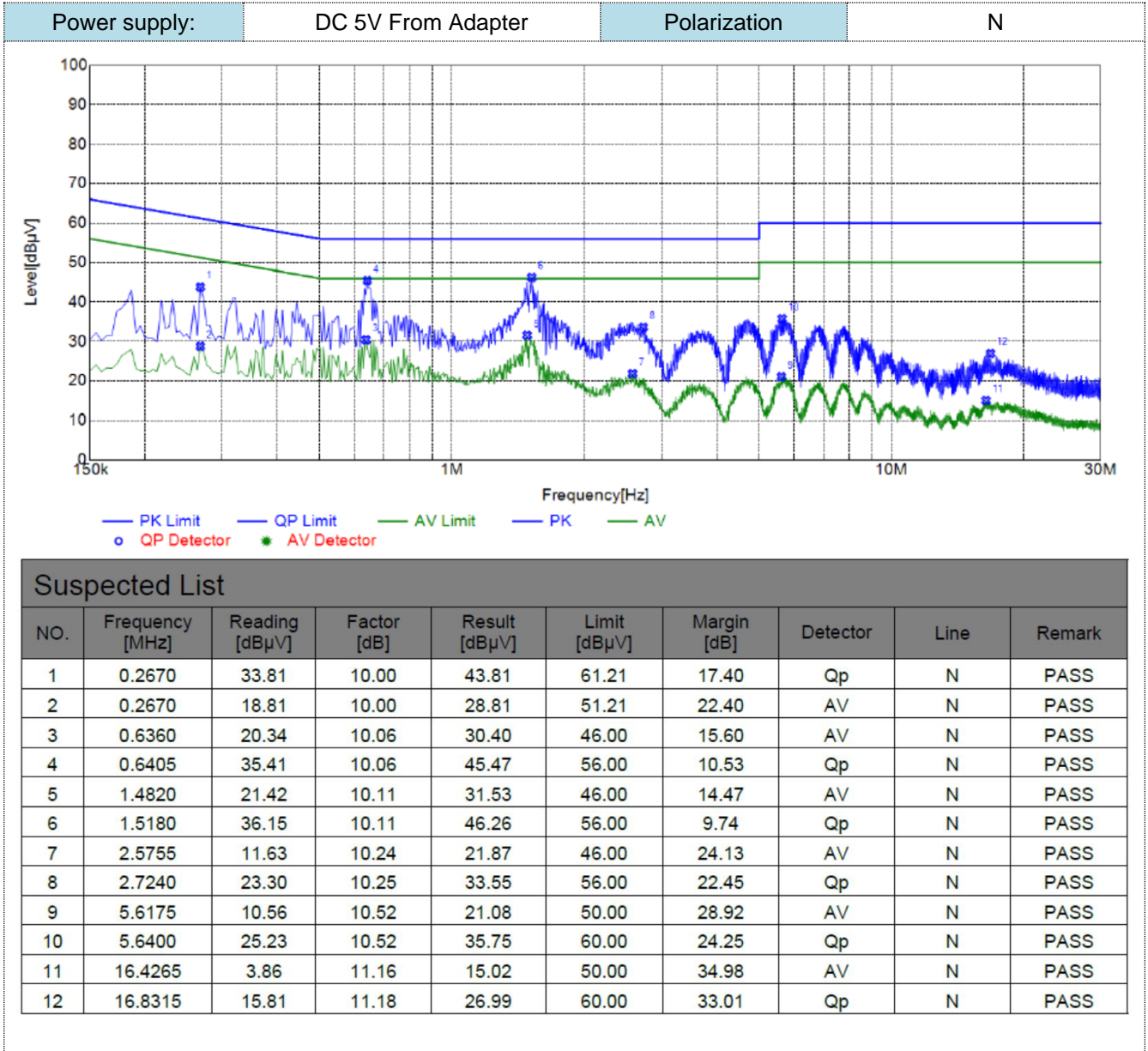
\* Decreases with the logarithm of the frequency.

**TEST RESULTS**

1. Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below



Remark: Result=Reading value+Factor,and Margin=Limit- Result

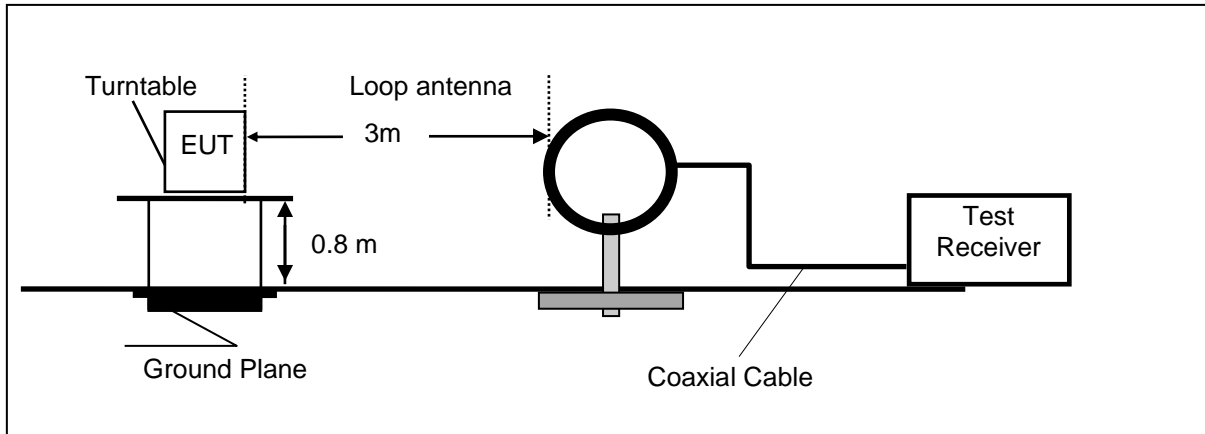


Remark: Result=Reading value+Factor,and Margin=Limit- Result

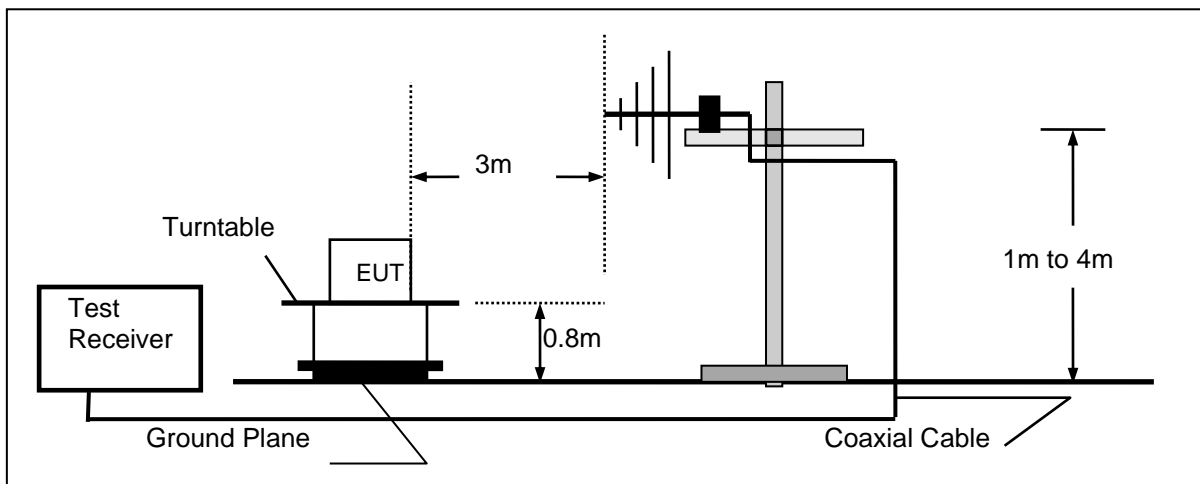
### 4.2 Radiated Emission

#### TEST CONFIGURATION

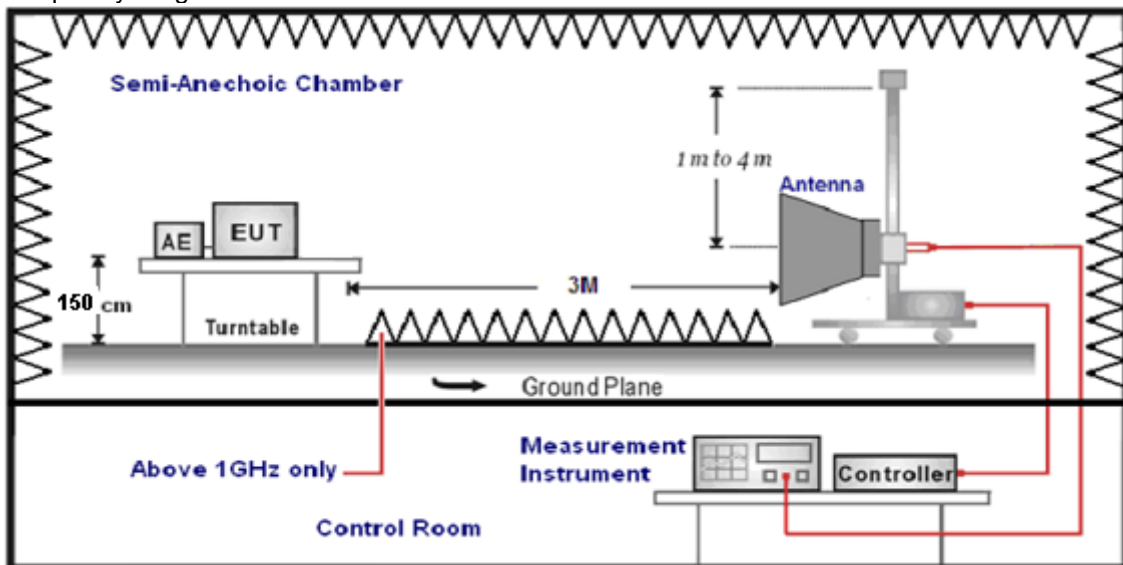
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz



**TEST PROCEDURE**

1. The EUT was placed on a turn table which is 0.8m above ground plane when testing frequency range 9 KHz –1GHz;the EUT was placed on a turn table which is 1.5m above ground plane when testing frequency range above 1GHz.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 40GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
Above 18GHz	Horn Antenna	1

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz, Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz, Sweep time=Auto	QP
30MHz-960MHz	RBW=120KHz/VBW=1000KHz, Sweep time=Auto	QP
960MHz-1610MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
1610 MHz -1990 MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
1990 MHz -3100 MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
3100 MHz -5925 MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
5925 MHz -7250 MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
7250 MHz -10600 MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
Above 10600 MHz	RBW=1MHz/VBW=3MHz, Sweep time=Auto	RMS
1164-1240	RBW=1KHz/VBW=3KHz, Sweep time=Auto	RMS
1559-1610	RBW=1KHz/VBW=3KHz, Sweep time=Auto	RMS

**RADIATION LIMIT**

- (1) The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following RMS average limits based on measurements using a 1 MHz resolution bandwidth.

Frequency in MHz	EIRP in dBm	Radiated (dBµV/m)	Measurement distance(m)
960-1610	-75.3	20	3
1610-1990	-63.3	32	3
1990-3100	-61.3	34	3
3100-5925	-51.3	44	3
5925-7250	-41.3	54	3
7250-10600	-51.3	44	3
Above 10600	-61.3	34	3

Note: EIRP convert to dBµV/m follow the formula  $EIRP = E_{meas} + 20\log(d_{meas}) - 104.7$  according to ANSI C63.10-2013.

- (2) In addition to the radiated emission limits specified in the table in paragraph (d)(1) of this section, transmitters operating under the provisions of this section shall not exceed the following RMS average limits when measured using a resolution bandwidth of no less than 1 kHz.

Frequency in MHz	EIRP in dBm	Radiated (dBµV/m)	Measurement distance(m)
1164-1240	-85.3	10	3
1559-1610	-85.3	10	3

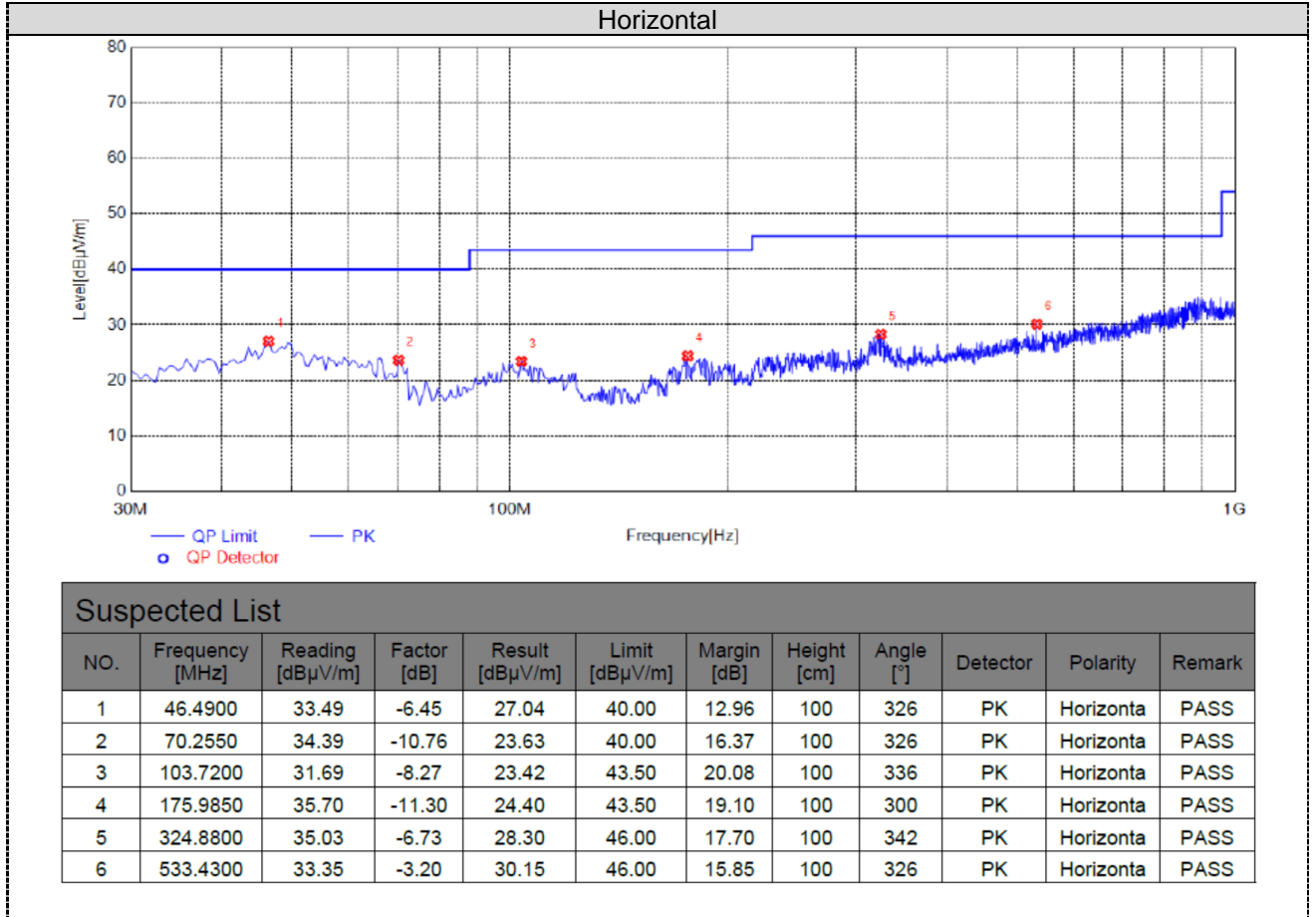
Note: EIRP convert to dBµV/m follow the formula  $EIRP = E_{meas} + 20\log(d_{meas}) - 104.7$  according to ANSI C63.10-2013.

- (3) Radiated emissions at or below 960 MHz shall not exceed the emission levels in §15.209.

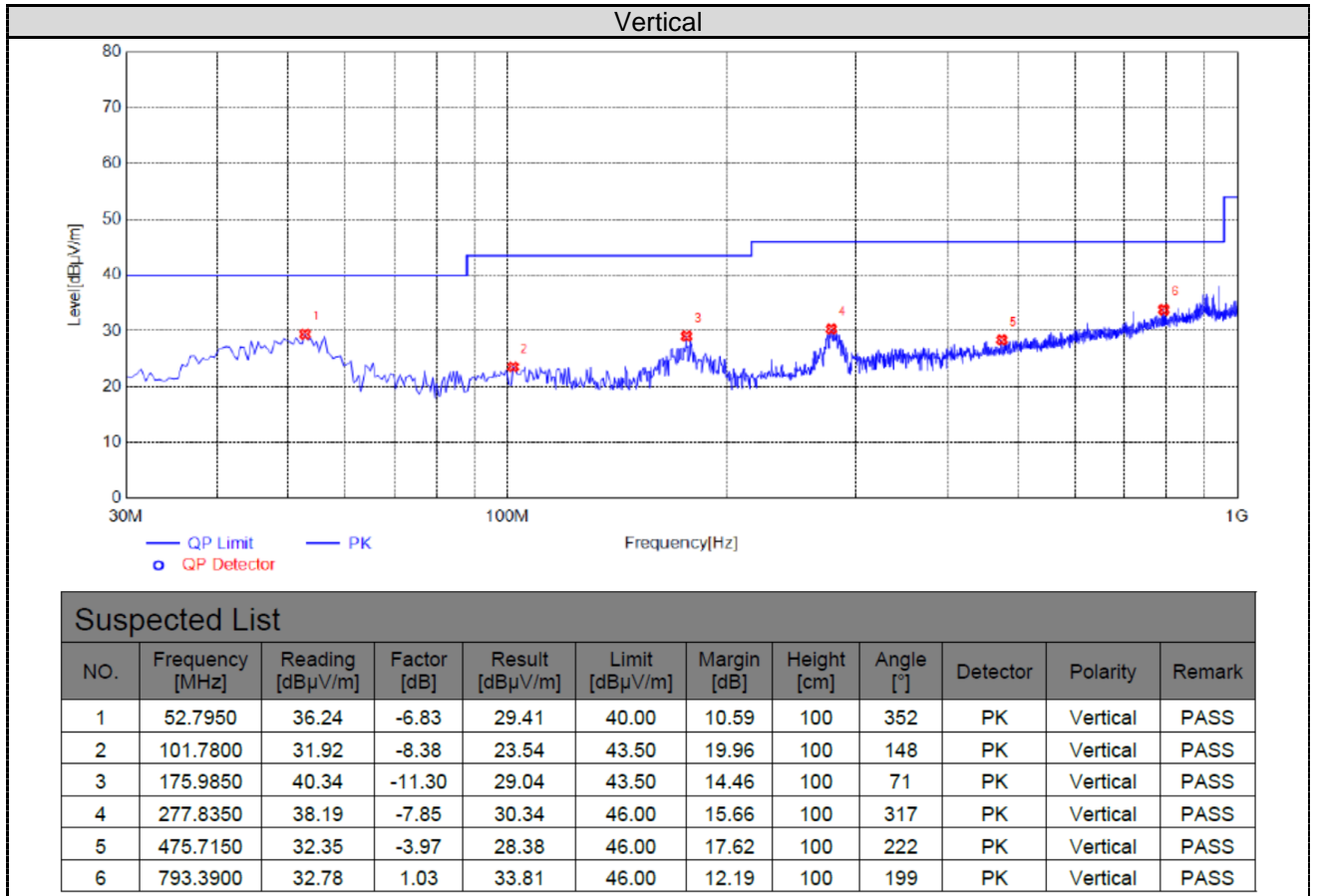
Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	$20\log(2400/F(KHz)) + 40\log(300/3)$	2400/F(KHz)
0.49-1.705	3	$20\log(24000/F(KHz)) + 40\log(30/3)$	24000/F(KHz)
1.705-30	3	$20\log(30) + 40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200

**TEST RESULTS**

For 30MHz-1GHz



Remark: Result=Reading value+Factor,and Margin=Limit- Result



Remark: Result=Reading value+Factor,and Margin=Limit- Result



## Above 960MHz

Frequency(MHz):		6489.6		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
<b>1164MHz≤f≤1240MHz &amp; 1559MHz≤f≤1610MHz</b>								
1165.27	2.68	10.00	7.32	9.99	25.33	3.39	36.03	-7.31
1173.65	1.55	10.00	8.45	8.85	25.33	3.39	36.03	-7.30
1237.45	2.74	10.00	7.26	9.74	25.49	3.49	35.99	-7.00
1562.75	3.02	10.00	6.98	9.70	25.49	3.49	35.67	-6.68
1585.50	3.86	10.00	6.14	10.00	25.71	3.81	35.65	-6.14
1606.25	1.79	10.00	8.21	7.91	25.71	3.81	35.64	-6.12
<b>F&gt;960MHz(except for above frequency range)</b>								
1255.25	10.75	20.00	9.25	17.52	25.63	3.54	35.94	-6.77
1743.50	20.75	32.00	11.25	27.09	25.63	3.54	35.51	-6.34
2455.30	18.76	34.00	15.24	20.59	28.87	4.67	35.37	-1.83
4825.58	15.44	44.00	28.56	17.79	28.87	4.67	35.89	-2.35
9875.66	18.76	44.00	25.24	0.29	38.83	11.09	31.45	18.47
11575.75	12.93	34.00	21.07	-6.51	38.83	11.09	30.48	19.44

Frequency(MHz):		6489.6		Polarity:			Vertical	
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
<b>1164MHz≤f≤1240MHz &amp; 1559MHz≤f≤1610MHz</b>								
1165.27	3.44	10.00	6.56	10.75	25.33	3.39	36.03	-7.31
1173.65	2.75	10.00	7.25	10.05	25.33	3.39	36.03	-7.30
1237.45	2.75	10.00	7.25	9.75	25.49	3.49	35.99	-7.00
1562.75	4.52	10.00	5.48	11.20	25.49	3.49	35.67	-6.68
1585.50	3.96	10.00	6.04	10.10	25.71	3.81	35.65	-6.14
1606.25	2.16	10.00	7.84	8.28	25.71	3.81	35.64	-6.12
<b>F&gt;960MHz(except for above frequency range)</b>								
1255.25	11.46	20.00	8.54	18.23	25.63	3.54	35.94	-6.77
1743.50	21.74	32.00	10.26	28.08	25.63	3.54	35.51	-6.34
2455.30	19.79	34.00	14.21	21.62	28.87	4.67	35.37	-1.83
4825.58	17.75	44.00	26.25	20.10	28.87	4.67	35.89	-2.35
9875.66	19.90	44.00	24.1	1.43	38.83	11.09	31.45	18.47
11575.75	13.02	34.00	20.98	-6.42	38.83	11.09	30.48	19.44

## REMARKS:

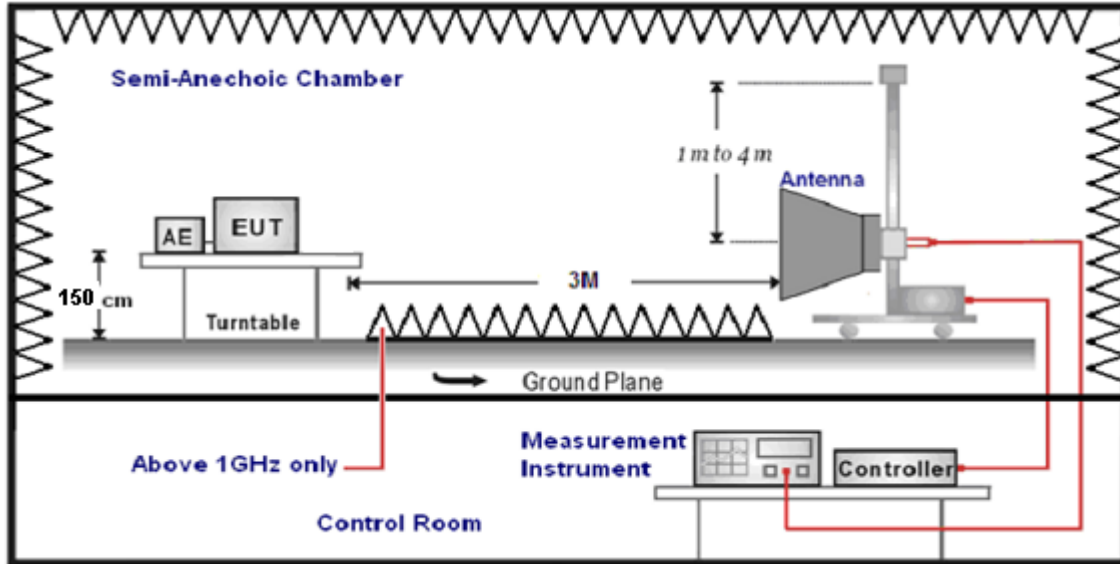
1. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)- Pre-amplifier
2. Margin value = Limit value- Emission level.

### 4.3 Peak Power

#### LIMITS

The peak EIRP limit is  $20 \log (RBW/50)$  dBm.

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. Set the EUT in Continuous transmitting mode
2. The EUT was placed on a turn table which is 1.5m above ground plane.
3. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
5889.6-7089.6	RBW=1MHz/VBW=3MHz Sweep time=Auto	Peak

**TEST RESULTS**

Frequency(MHz):		6489.6		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
6488.75	42.67	61.23	18.56	45.97	28.87	4.67	36.26	-2.72

Frequency(MHz):		6489.6		Polarity:			Vertical	
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
6489.25	44.98	61.23	16.25	47.58	28.87	4.67	36.26	-2.72

Note:

1. EIRP limit = $20\log(1\text{MHz}/50\text{MHz})=-33.97\text{dBm}$ .2. EIRP limit is convert to dBuV/m follow the formula  $\text{EIRP}=\text{E}_{\text{meas}}+20\log(\text{d}_{\text{meas}})-104.7$  according to ANSI C63.10-2013.

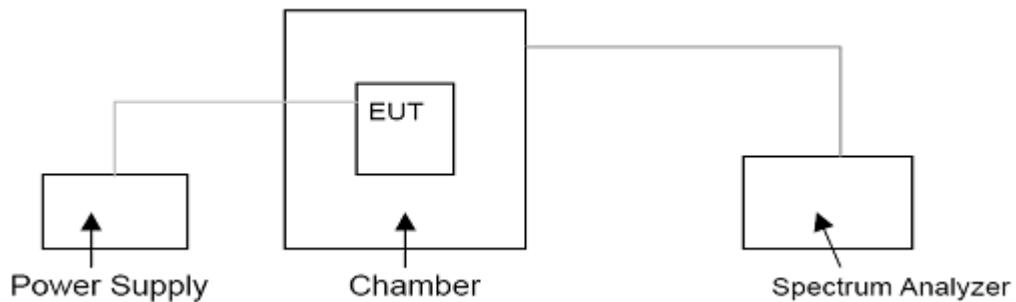
### 4.4 Frequency Stability

#### LIMITS

#### **According to FCC 15.250(a)**

The -10 dB bandwidth of a device operating under the provisions of this section must be contained within the 5925-7250 MHz band under all conditions of operation including the effects from stepped frequency, frequency hopping or other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

#### TEST CONFIGURATION



#### TEST PROCEDURE

The EUT was set in the climate chamber and connected to an external DC power supply. The RF output was directly connected to Spectrum Analyzer. The coupling loss of the additional cables was recorded and taken in account for all the measurements. After temperature stabilization (approx. 20 min for each stage), the frequency for the lower, the middle and the highest frequency range was recorded. For Frequency stability Vs. Voltage the EUT was connected to a DC power supply and the voltage was adjusted in the required ranges. The result was recorded.

#### TEST RESULTS

Voltage ( V )	Temperature (°C)	-10dB Band Edges		Limit	Result
		Lower	Upper		
3.70	-30	6139.5	6837.8	Within 5925-7250 MHz	Pass
	-20	6139.3	6837.5		
	-10	6139.2	6837.4		
	0	6139.5	6837.6		
	10	6139.4	6837.7		
	20	6139.3	6837.8		
	30	6139.2	6837.2		
	40	6139.7	6837.6		
50	6139.6	6837.4			
3.15	25	6139.2	6837.5		
4.26	25	6139.3	6837.8		

### 4.5 -10dB Bandwidth

#### Limit

According to FCC 15.250(b)

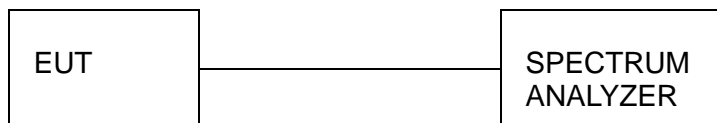
The -10 dB bandwidth of the fundamental emission shall be at least 50 MHz.

#### Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.

The -10dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 10dB.

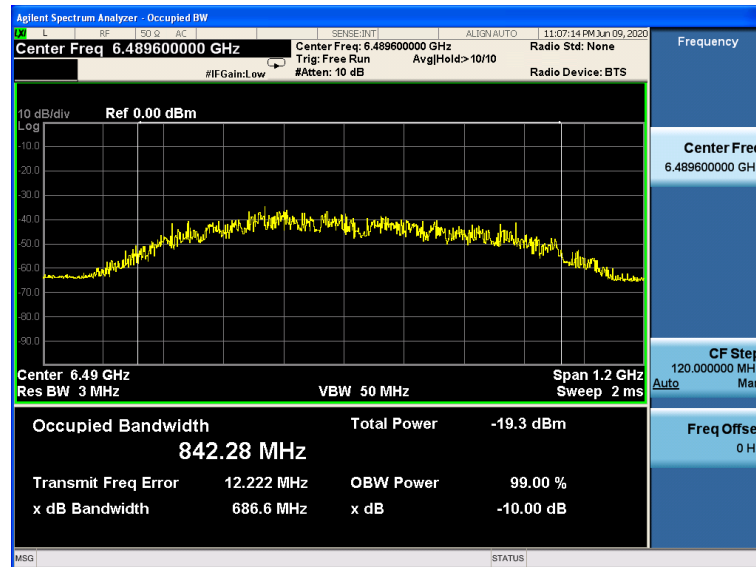
#### Test Configuration



#### Test Results

Test frequency (MHz)	10dB bandwidth (MHz)	Limit	Result
6489.6	686.6	≥50MHz	Pass

Test plot as follows:



## 4.6 Antenna Requirement

### **Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### **Refer to statement below for compliance**

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### **Antenna Connected Construction**

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2dBi.

## 5 Test Setup Photos of the EUT

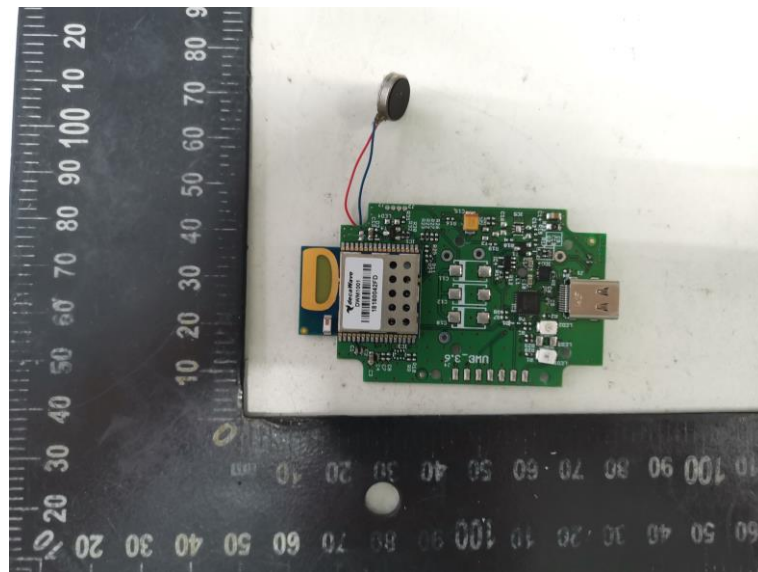
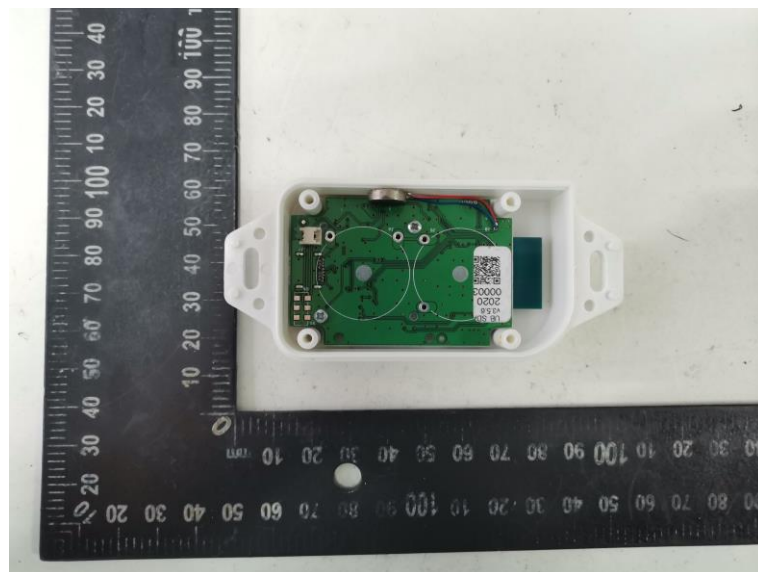
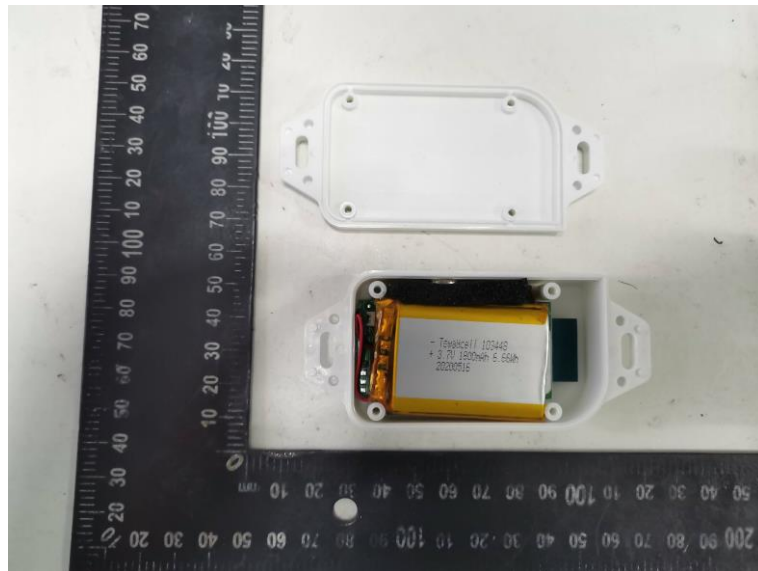


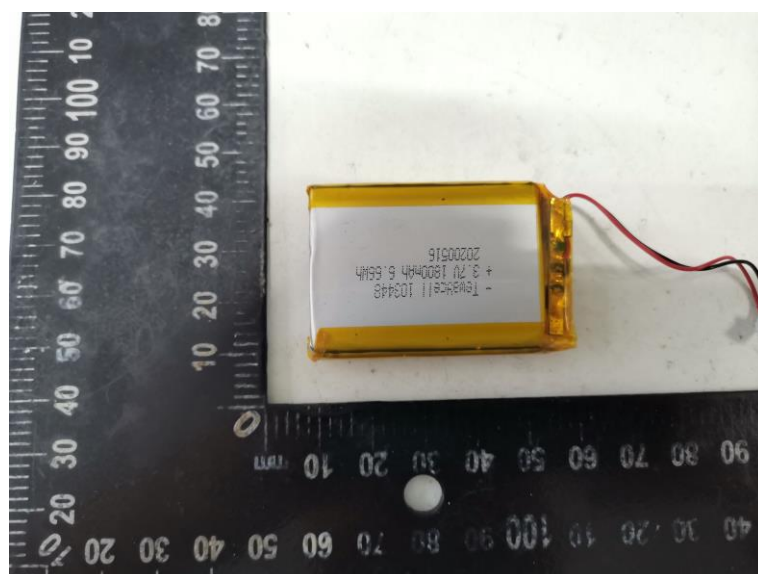
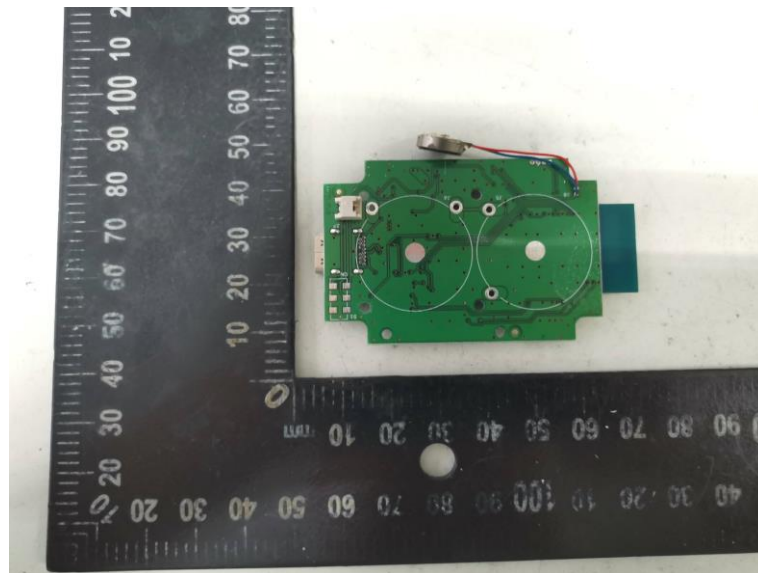
6 Photos of the EUT











\*\*\*\*\* End of Report \*\*\*\*\*