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 C (15.225)

Report Reference No. ..... :	**GTS20250313007-2-06**
FCC ID. ..... :	**2AYD5-I24M01**
Compiled by (position+printed name+signature) . :	File administrators Peter Xiao
Supervised by (position+printed name+signature) . :	Test Engineer Evan Ouyang
Approved by (position+printed name+signature) . :	Manager Jason Hu
Date of issue .....:	Apr.24, 2025
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.....:	**Imin Technology Pte Ltd**
Address .....:	11 Bishan Street 21 #03-05 Singapore 573943
Test specification.....**:**	
Standard.....:	**FCC Part 15 C (15.225)**
TRF Originator.....:	Shenzhen Global Test Service Co.,Ltd.
Master TRF .....:	Dated 2014-12

Test item description .....:	**POS Device**
Trade Mark.....:	iMin
Manufacturer .....:	Imin Technology Pte Ltd
Model/Type reference .....:	I24M01
List Model .....:	N/A
Modulation Type.....:	ASK
Operation Frequency .....:	13.56 MHz
Hardware Version .....:	N/A
Software Version.....:	N/A
Rating .....:	DC 7.7V by battery, Recharged by DC 9.0V
Result .....:	**PASS**

T E S T R E P O R T

Test Report No. :	**GTS20250313007-2-06**	Apr.24, 2025 Date of issue

Equipment under Test	:	POS Device
Model /Type	:	I24M01
List Model	:	N/A
Applicant	:	**Imin Technology Pte Ltd**
Address	:	11 Bishan Street 21 #03-05 Singapore 573943
Manufacturer	:	**Imin Technology Pte Ltd**
Address	:	11 Bishan Street 21 #03-05 Singapore 573943

Test Result:	**PASS**

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.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.225: RADIO FREQUENCY DEVICES.
ANSI C63.10-2020: American National Standard for Testing Unlicensed Wireless Devices

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Feb.01, 2025
Testing commenced on	:	Feb.01, 2025
Testing concluded on	:	Apr.23, 2025

2.2. Product Description

Product Name:	POS Device
Trade Mark:	iMin
Model/Type reference:	I24M01
List Model:	N/A
Model Declaration	N/A
Power supply:	DC 7.7V by battery, Recharged by DC 9.0V
Hardware Version	N/A
Software Version	N/A
Sample ID	GTS20250313007-2-1#& GTS20250313007-2-2#
Bluetooth	
Frequency Range	2402MHz ~ 2480MHz
Channel Number	79 channels for Bluetooth (DSS) 40 channels for Bluetooth (DTS)
Channel Spacing	1MHz for Bluetooth (DSS) 2MHz for Bluetooth (DTS)
Modulation Type	GFSK, π/4-DQPSK, 8-DPSK for Bluetooth (DSS) GFSK for Bluetooth (DTS)
2.4GWLAN	
WLAN Operation frequency	IEEE 802.11b:2412-2462MHz IEEE 802.11g:2412-2462MHz IEEE 802.11n HT20:2412-2462MHz
WLAN Modulation Type	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)
Channel number:	11 Channel for IEEE 802.11b/g/n(HT20)
Channel separation:	5MHz
WIFI(5.2G/5.3G/5.7G Band)	
Frequency Range	5180MHz ~ 5240MHz, 5260MHz ~ 5320MHz, 5500MHz ~ 5700MHz
Channel Number	4 Channels for 20MHz bandwidth(5180-5240MHz) 4 Channels for 20MHz bandwidth(5260-5320MHz) 11 Channels for 20MHz bandwidth(5500-5700MHz) 2 channels for 40MHz bandwidth(5190~5230MHz) 2 channels for 40MHz bandwidth(5270~5310MHz) 5 Channels for 40MHz bandwidth(5510-5670MHz) 1 channels for 80MHz bandwidth(5210MHz) 1 channels for 80MHz bandwidth(5290MHz) 2 Channels for 80MHz bandwidth(5530-5610MHz)
Modulation Type	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ac VHT20: OFDM (256QAM,64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ac VHT40: OFDM (256QAM,64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ac VHT80: OFDM (256QAM,64QAM,16QAM, QPSK,BPSK)
WIFI (5.8G Band)	
Frequency Range	5745MHz ~ 5825MHz

Channel Number	5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ac VHT20: OFDM (256QAM,64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ac VHT40: OFDM (256QAM,64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ac VHT80: OFDM (256QAM,64QAM,16QAM, QPSK,BPSK)
Antenna Description	Internal Antenna, 2.00dBi(Max.) for 2.4G Band and 2.00dBi(Max.) for 5G Band
2G	
Support Band	GPRS850/GPRS1900/EDGE850/EDGE1900
Release Version	R99
GPRS Class	Class 12
EGPRS Class	Class 12
GPRS/EDGE Multislot Class	GPRS/EDGE: Multi-slot Class 12
Type Of Modulation	GMSK for GPRS; GMSK/8PSK for EGPRS
Antenna Description	Internal Antenna; -3.37dBi (max.) For GPRS850/EDGE850; 2.51dBi (max.) For GPRS1900/EDGE1900;
3G	
UMTS Operation Frequency Band	UMTS FDD Band 2(1850 MHz -1910MHz) UMTS FDD Band 5(824 MHz -849MHz)
WCDMA Release Version	R7
HSDPA Release Version	Release 5
HSUPA Release Version	Release 6
HSPA+ Release Version	Release 7
Modulation Type	QPSK for UMTS
Antenna Description	Internal Antenna; 2.51dBi (max.) For WCDMA Band 2; -3.37dBi (max.) For WCDMA Band 5;
LTE	
LTE Operation Frequency Band	E-UTRA Band 2(1850 MHz -1910MHz) E-UTRA Band 4(1710 MHz -1755MHz) E-UTRA Band 5(824 MHz -849MHz) E-UTRA Band 7(2500 MHz -2570MHz) E-UTRA Band 12(699 MHz -716MHz) E-UTRA Band 13(777 MHz -787MHz) E-UTRA Band 14(788 MHz -798MHz) E-UTRA Band 17(704 MHz -716MHz) E-UTRA Band 25(1850 MHz -1915MHz) E-UTRA Band 26(814 MHz -824MHz) E-UTRA Band 26(824 MHz -849MHz) E-UTRA Band 41(2496 MHz -2690MHz) E-UTRA Band 66(1710 MHz -1780MHz)
LTE Release Version	R10
Type Of Modulation	QPSK/16QAM
Antenna Description	Internal Antenna; 2.51dBi (max.) For LTE Band 2; 1.78dBi (max.) For LTE Band 4;

	-3.37dBi (max.) For LTE Band 5; 2.87dBi (max.) For LTE Band 7; -7.38dBi (max.) For LTE Band 12; -3.98dBi (max.) For LTE Band 13; -4.62dBi (max.) For LTE Band 14; -7.38dBi (max.) For LTE Band 17; 2.51dBi (max.) For LTE Band 25; -3.37dBi (max.) For LTE Band 26; 2.87dBi (max.) For LTE Band 41; 2.57dBi (max.) For LTE Band 66;
RFID(13.56MHz) (Optional)	
Frequency Range	13.56MHz
Channel Number	1
Modulation Type	ASK
Antenna Description	Internal Antenna, 0dBi (Max.)
GPS(RX)	Support
Remark:The I24M01 model has 3 versions; Version A: With a scanning head (Manufacturer: ZEBRA) ; Version B: With a scanning head (Manufacturer: Newland) Version C: No scanning head;	

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	○	230V / 50 Hz	○	120V / 60Hz
		○	12 V DC	○	24 V DC
		●	Other (specified in blank below)		

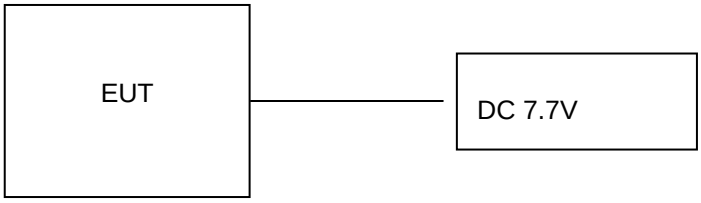
DC 7.7V

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

This is a mobile POS Device.

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

2.5. Block Diagram of Test Setup



2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2AYD5-I24M01** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.7. EUT Exercise Software

N/A

2.8. Special Accessories

Manufacturer	Description	Model	Serial Number	Certificate
SHENZHEN TIANYIN ELECTRONICS CO.,LTD.	Adapter	TPD-203A120167UF01	--	SDOC
--	Swift2-Ultra·Dock	I24M0122	--	SDOC

2.9. External I/O Cable

I/O Port Description	Quantity	Cable
DC IN Port	1	1.2M, Unscreened Cable

2.10. 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

3.2. Test Facility

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

CNAS (No. CNAS 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: 2019 General Requirements) for the Competence of Testing and Calibration Laboratories.
A2LA (Certificate No. 4758.01)
Shenzhen Global Test Service Co., Ltd. has been assessed by the American Association for Laboratory Accreditation (A2LA). Certificate No. 4758.01.
Industry Canada Registration Number. is 24189.
FCC Designation Number is CN1234.
FCC Registered Test Site Number is165725.

3.3. Environmental conditions

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

Temperature:	-20-50 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. 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)

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

3.5. Summary of measurement results

Applied Standard: FCC Part 15 Subpart C			
Test Items	**FCC Rules**	**Test Sample**	**Result**
Line Conducted Emissions	§15.207(a)	GTS20250313007-2-1#	PASS
Field Strength of Fundamental Emissions	§15.225(a)(b)(c)	GTS20250313007-2-1#	PASS
Radiated Emissions	§15.225(d) & §15.209	GTS20250313007-2-2#	PASS
20dB Bandwidth	§ 15.215	GTS20250313007-2-1#	PASS
Frequency Stability	§15.225(e)	GTS20250313007-2-1#	PASS
Antenna Requirement	§15.203	GTS20250313007-2-1#	PASS

Remark:
1. The measurement uncertainty is not included in the test result.
2. NA = Not Applicable; NP = Not Performed
3. Note 1 – Test results inside test report;
4. Note 2 – Test results in other test report (SAR Report).
5. We tested all test mode and recorded worst case in report

3.6. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	CYBERTEK	EM5040A	E1850400105	2024/07/15	2025/07/14
LISN	R&S	ESH2-Z5	893606/008	2024/07/15	2025/07/14
EMI Test Receiver	R&S	ESPI3	101841-cd	2024/07/15	2025/07/14
EMI Test Receiver	R&S	ESCI7	101102	2024/07/15	2025/07/14
Spectrum Analyzer	Agilent	N9020A	MY48010425	2024/07/15	2025/07/14
Spectrum Analyzer	R&S	FSV40-N	101800	2024/07/15	2025/07/14
Vector Signal generator	Agilent	N5181A	MY49060502	2024/07/15	2025/07/14
Signal generator	Agilent	N5182A	3610AO1069	2024/07/15	2025/07/14
Climate Chamber	ESPEC	EL-10KA	A20120523	2024/07/15	2025/07/14
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2024/12/16	2025/12/15
Active Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	15006	2024/07/15	2025/07/14
Bilog Antenna	Schwarzbeck	VULB9163	000976	2024/07/15	2025/07/14
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2024/07/15	2025/07/14
Amplifier	SKET	LAPA_30M01G-32	SK20240104001	2025/01/21	2026/01/20
Amplifier	EMCI	EMC012645SE	980340	2025/01/21	2026/01/20
Amplifier	Schwarzbeck	BBV9179	9719-025	2025/01/21	2026/01/20
Temperature/Humidity Meter	Gangxing	CTH-608	02	2024/07/15	2025/07/14
High-Pass Filter	HUBER+SUHNER	RG214	RE01	2024/07/15	2025/07/14
High-Pass Filter	HUBER+SUHNER	RG214	RE02	2024/07/15	2025/07/14
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2024/07/15	2025/07/14
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2024/07/15	2025/07/14
Data acquisition card	Agilent	U2531A	TW53323507	2024/07/15	2025/07/14
Power Sensor	Agilent	U2021XA	MY5365004	2024/07/15	2025/07/14
Test Control Unit	Tonscend	JS0806-1	178060067	2024/07/15	2025/07/14
Automated filter bank	Tonscend	JS0806-F	19F8060177	2024/07/15	2025/07/14
Wireless Commnunication Tester	Rohde&Schwarz	CMW500	125408	2024/07/15	2025/07/14
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. RADIATED MEASUREMENT

4.1. Standard Applicable

According to §15.209/ §15.205

15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
\1\ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293.	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(\2\)
13.36-13.41			

\1\ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

\2\ Above 38.6

According to §15.247 (d): 20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.2. Measuring Instruments and Setting

Please refer to equipment list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10^{th} carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

4.3. Test Procedures

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Premeasurement:

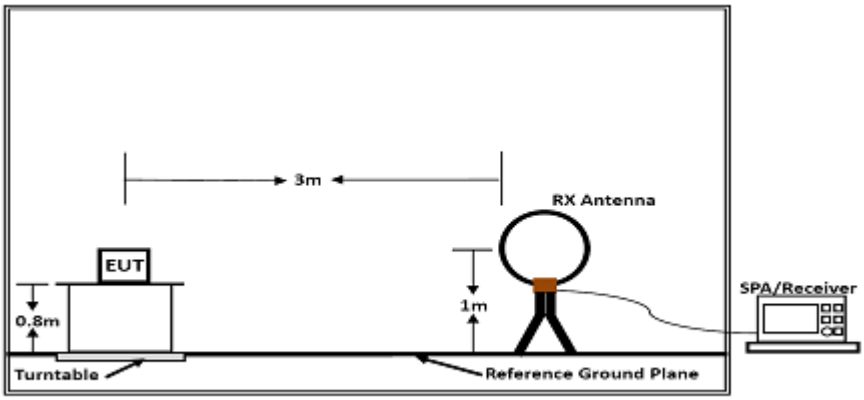
--- The antenna is moved spherical over the EUT in different polarizations of the antenna.

Final measurement:

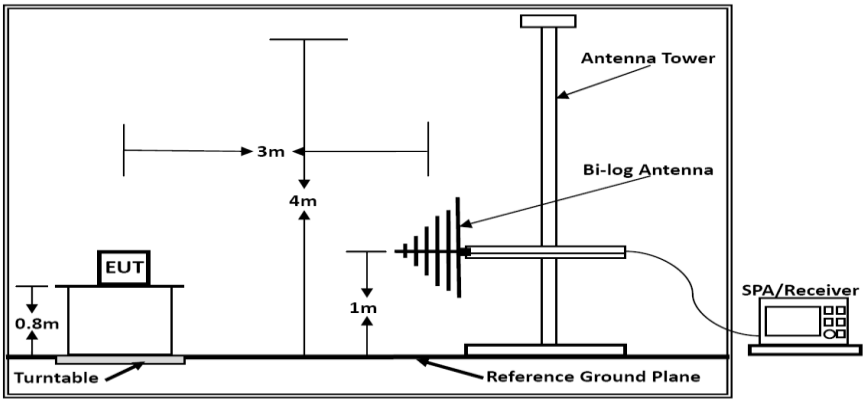
--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

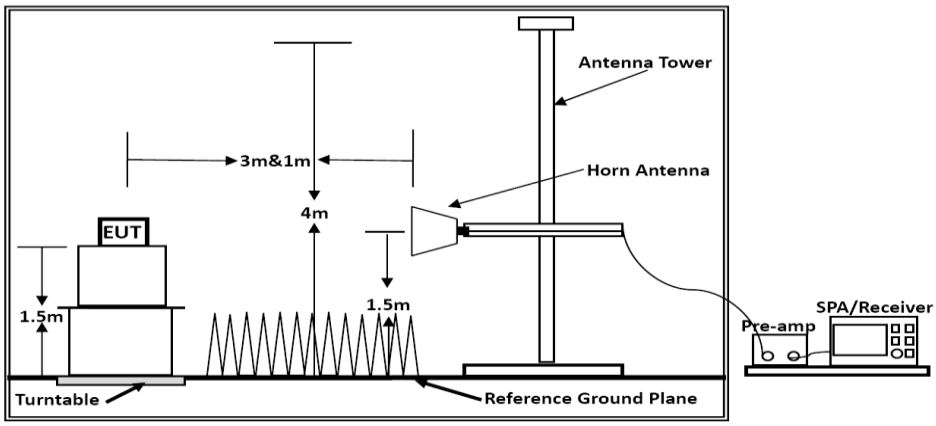
4.4. Test Setup Layout



Below 30MHz



Below 1GHz



Above 1GHz

Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

4.5. Test Results

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Evan Ouyang	Configurations	NFC

PASS.

The test data please refer to following page:

9 KHz~30MHz

Freq. MHz	Reading dBuV	Factor dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark
0.20	33.32	20.54	53.86	101.55	47.69	QP
0.88	32.78	20.48	53.26	81.55	28.30	QP
2.00	24.21	20.30	44.51	69.54	25.03	QP
4.97	34.32	20.32	54.64	69.54	14.90	QP
13.56	88.10	20.18	108.28	124.00	7.88	QP
15.04	36.75	20.12	56.87	69.54	12.67	QP
22.04	34.41	19.94	54.35	69.54	15.19	QP
26.00	27.62	19.95	47.57	69.54	21.97	QP

*Note: Emission Level= Reading Level + Factor

Factor= Antenna Factor + Cable Loss

Margin = Emission Level Limit – Measured Values

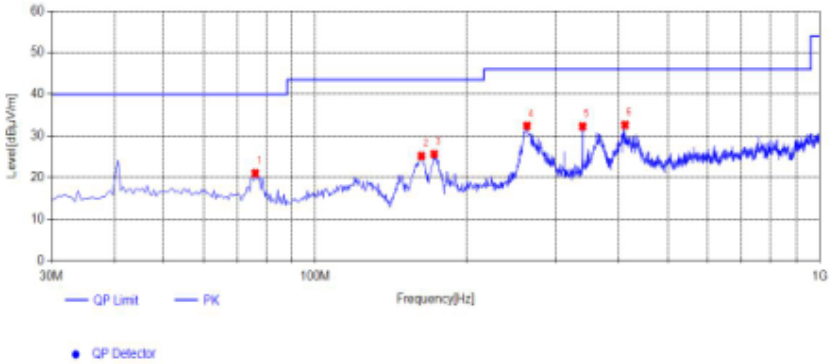
"--" means noise floor.

NOTE: All the modes have been tested and recorded worst mode in the report(Version A).

30MHz ~ 1GHz
Version A:

Horizontal

Test Graph



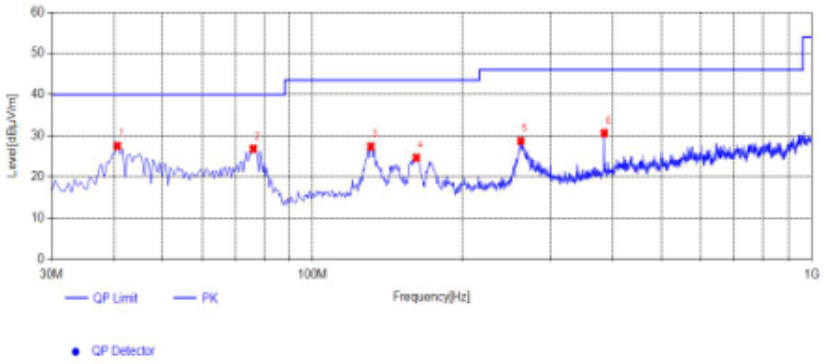
Suspected List											
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	76.075	35.26	-14.23	21.03	40.00	18.97	100	211	PK	Horizonta	PASS
2	162.405	38.24	-13.05	25.19	43.50	18.31	100	16	PK	Horizonta	PASS
3	172.105	38.30	-12.66	25.64	43.50	17.86	100	33	PK	Horizonta	PASS
4	262.8	40.60	-8.17	32.43	46.00	13.57	100	321	PK	Horizonta	PASS
5	338.945	38.76	-6.45	32.31	46.00	13.69	100	284	PK	Horizonta	PASS
6	411.21	37.58	-4.93	32.65	46.00	13.35	100	258	PK	Horizonta	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



Suspected List											
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	40.67	39.38	-11.85	27.53	40.00	12.47	100	274	PK	Vertical	PASS
2	76.075	41.06	-14.23	26.83	40.00	13.17	100	337	PK	Vertical	PASS
3	130.88	41.06	-13.68	27.38	43.50	16.12	100	66	PK	Vertical	PASS
4	161.435	37.79	-13.12	24.67	43.50	18.83	100	161	PK	Vertical	PASS
5	261.345	36.95	-8.22	28.73	46.00	17.27	100	290	PK	Vertical	PASS
6	384.05	36.21	-5.58	30.63	46.00	15.37	100	56	PK	Vertical	PASS

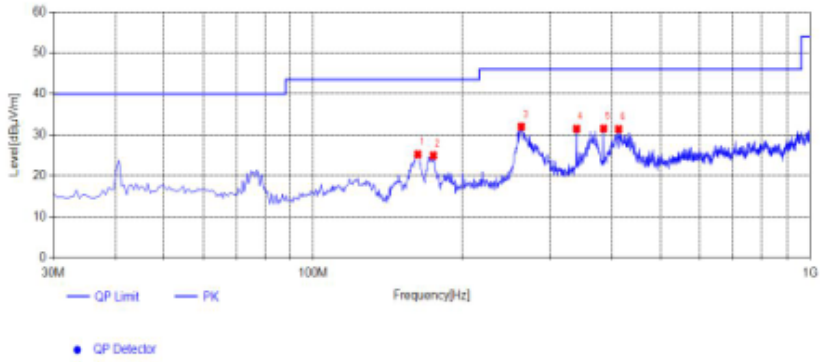
Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Version B:

Horizontal

Test Graph



Suspected List

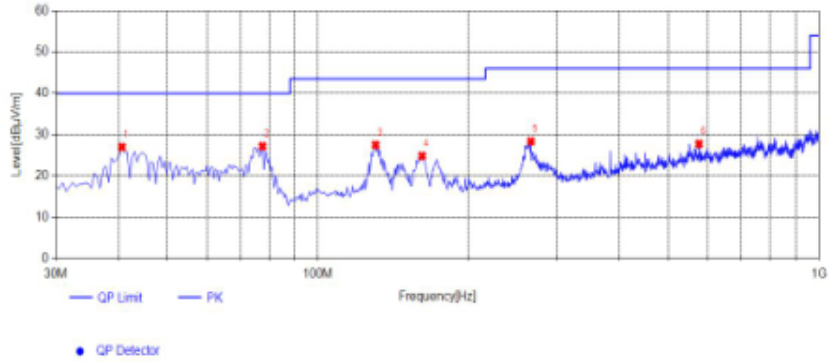
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	162.405	38.30	-13.05	25.25	43.50	18.25	100	29	PK	Horizonta	PASS
2	174.53	37.53	-12.56	24.97	43.50	18.53	100	19	PK	Horizonta	PASS
3	262.315	40.19	-8.18	32.01	46.00	13.99	100	327	PK	Horizonta	PASS
4	338.945	37.94	-6.45	31.49	46.00	14.51	100	261	PK	Horizonta	PASS
5	384.05	37.13	-5.58	31.55	46.00	14.45	100	178	PK	Horizonta	PASS
6	411.695	36.33	-4.91	31.42	46.00	14.58	100	85	PK	Horizonta	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



Suspected List

NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	40.67	38.83	-11.85	26.98	40.00	13.02	100	231	PK	Vertical	PASS
2	77.53	41.50	-14.30	27.20	40.00	12.80	100	264	PK	Vertical	PASS
3	130.395	41.12	-13.63	27.49	43.50	16.01	100	294	PK	Vertical	PASS
4	161.435	37.96	-13.12	24.84	43.50	18.66	100	168	PK	Vertical	PASS
5	266.195	36.40	-8.03	28.37	46.00	17.63	100	202	PK	Vertical	PASS
6	576.11	28.67	-0.91	27.76	46.00	18.24	100	78	PK	Vertical	PASS

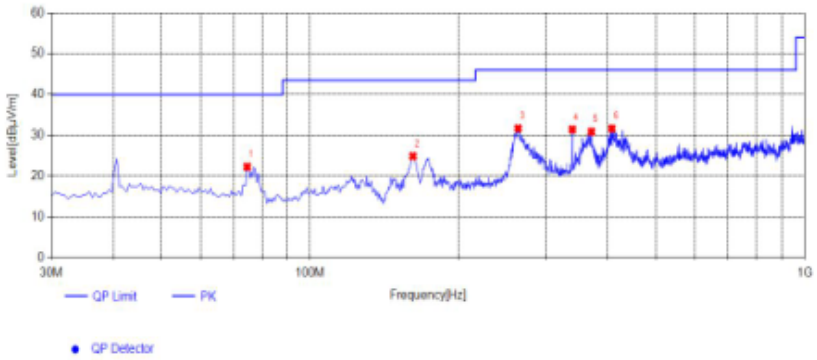
Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Version C:

Horizontal

Test Graph



Suspected List

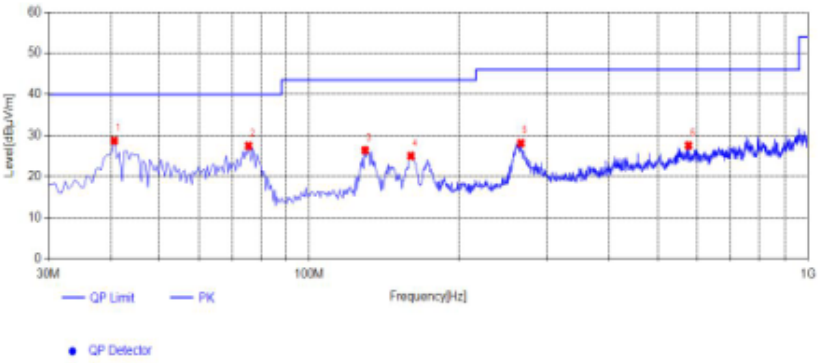
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	74.62	36.43	-14.14	22.29	40.00	17.71	100	356	PK	Horizonta	PASS
2	161.435	38.01	-13.12	24.89	43.50	18.61	100	35	PK	Horizonta	PASS
3	263.285	39.85	-8.14	31.71	46.00	14.29	100	320	PK	Horizonta	PASS
4	338.945	37.89	-6.45	31.44	46.00	14.56	100	58	PK	Horizonta	PASS
5	370.47	36.66	-5.77	30.89	46.00	15.11	100	257	PK	Horizonta	PASS
6	407.33	36.75	-5.08	31.67	46.00	14.33	100	277	PK	Horizonta	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



Suspected List

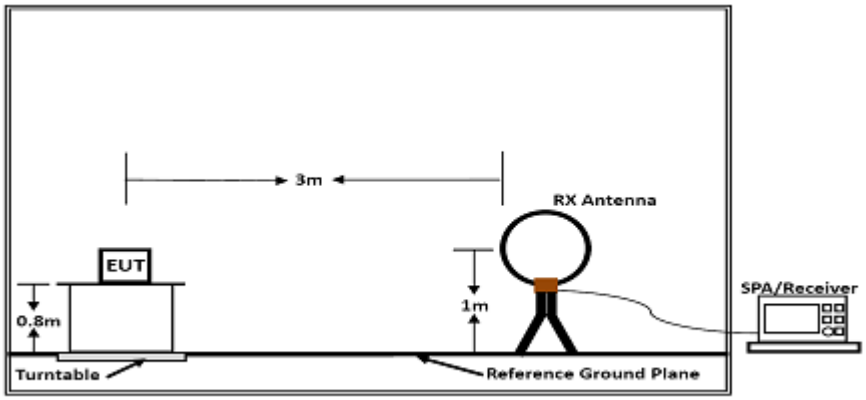
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	40.67	40.58	-11.85	28.73	40.00	11.27	100	293	PK	Vertical	PASS
2	75.59	41.68	-14.21	27.47	40.00	12.53	100	349	PK	Vertical	PASS
3	129.425	39.97	-13.54	26.43	43.50	17.07	100	2	PK	Vertical	PASS
4	159.98	38.25	-13.21	25.04	43.50	18.46	100	33	PK	Vertical	PASS
5	265.71	36.19	-8.05	28.14	46.00	17.86	100	296	PK	Vertical	PASS
6	576.11	28.49	-0.91	27.58	46.00	18.42	100	2	PK	Vertical	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

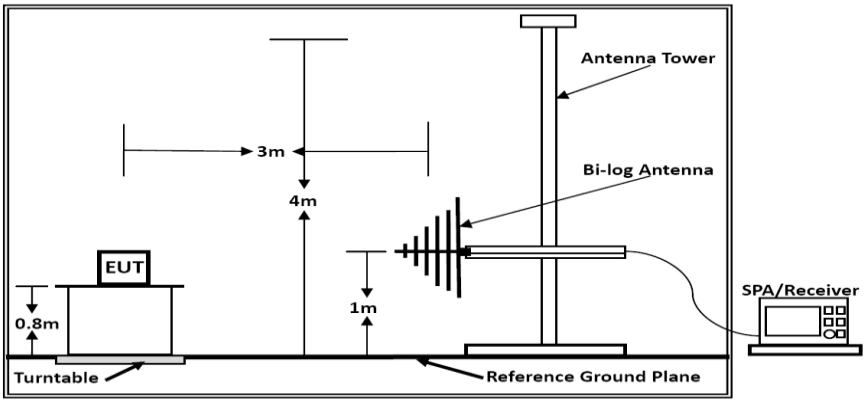
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

5. FIELD STRENGTH OF FUNDAMENTAL EMISSIONS AND MASK MEASUREMENT

5.1. Block Diagram of Test Setup



Below 30MHz



Below 1GHz

5.2. Field strength of fundamental emissions limit and Mask limit

The field strength of fundamental emissions shall not exceed 15848 microvolts/meter at 30 meters. The emissions limit in this paragraph is based on measurement instrumentation employing a QP detector.

Frequencies (MHz)	Field Strength (microvolts/meter)	Field Strength (dBμV/m) at 10m	Field Strength (dBμV/m) at 3m
13.553 ~ 13.567MHz	15848 at 30m	103.08 (QP)	124 (QP)

Mask Limit:

Frequency (MHz)	Limit (dBuV/m)	Distance (m)
1.705-13.110	69.5	3
13.110-13.410	80.5	3
13.410-13.553	90.5	3
13.553-13.567	124.0	3
13.567-13.710	90.5	3
13.710-14.010	80.5	3
14.010-30.000	69.5	3

5.3. Test Results

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Evan Ouyang	Configurations	NFC

PASS.

The test data please refer to following page:

	Freq.(MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin dB	Remark
1	13.22	35.79	20.18	55.97	80.50	24.53	QP
2	13.48	30.89	20.18	51.07	90.50	39.43	QP
3	13.56	88.10	20.18	108.28	124.00	7.88	QP
4	13.57	30.79	20.18	50.97	90.50	39.53	QP
5	13.61	29.42	20.18	49.60	90.50	40.90	QP
6	14.73	29.67	21.18	50.85	81.50	30.65	QP

*Note: Factor= Antenna Factor + Cable Loss

Emission level (dBμV/m) = 20 log Emission level (μV/m).

Measured distance is 3m.

All emissions emit from non-NFC function of digital unintentional emissions. All NFC's spurious emissions are below 20dB of limits.

NOTE: All the modes have been tested and recorded worst mode in the report(Version A).

6. BANDWIDTH OF THE OPERATING FREQUENCY

6.1. Standard Applicable

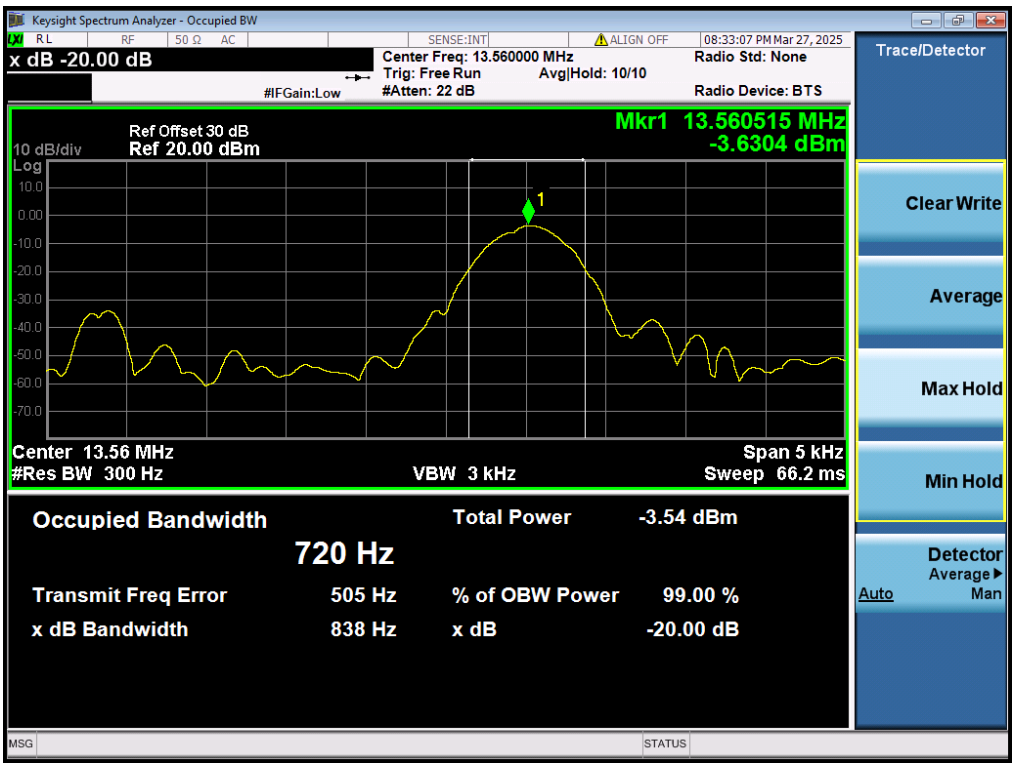
Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band (13.553 ~ 13.567MHz).

6.2. Test Result

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Evan Ouyang	Configurations	NFC

Carrier Frequency (MHz)	20dB Bandwidth (KHz)	F_L (MHz)	F_H (MHz)
13.56	0.838	13.979515	13.141515

Please refer to the test plot:



7. FREQUENCY STABILITY MEASUREMENT

7.1. Standard Applicable

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a full charged battery.

7.2. Test Result

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Evan Ouyang	Configurations	NFC

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency (MHz)	Deviation (KHz)	Deviation (ppm)	Limit (ppm)
DC 8.4V	13.560023	0.023	1.67	100
DC 7.7V	13.560031	0.031	2.31	100
DC 6.9V	13.560047	0.047	3.50	100

Temperature vs. Frequency Stability

Temperature (℃)	Measurement Frequency (MHz)	Deviation (KHz)	Deviation (ppm)	Limit (ppm)
-20	13.560054	0.054	3.99	100
-10	13.560062	0.062	4.58	100
0	13.560037	0.037	2.71	100
10	13.560044	0.044	3.25	100
20	13.560019	0.019	1.43	100
30	13.560038	0.038	2.78	100
40	13.560042	0.042	3.10	100
50	13.560031	0.031	2.31	100

8. LINE CONDUCTED EMISSIONS

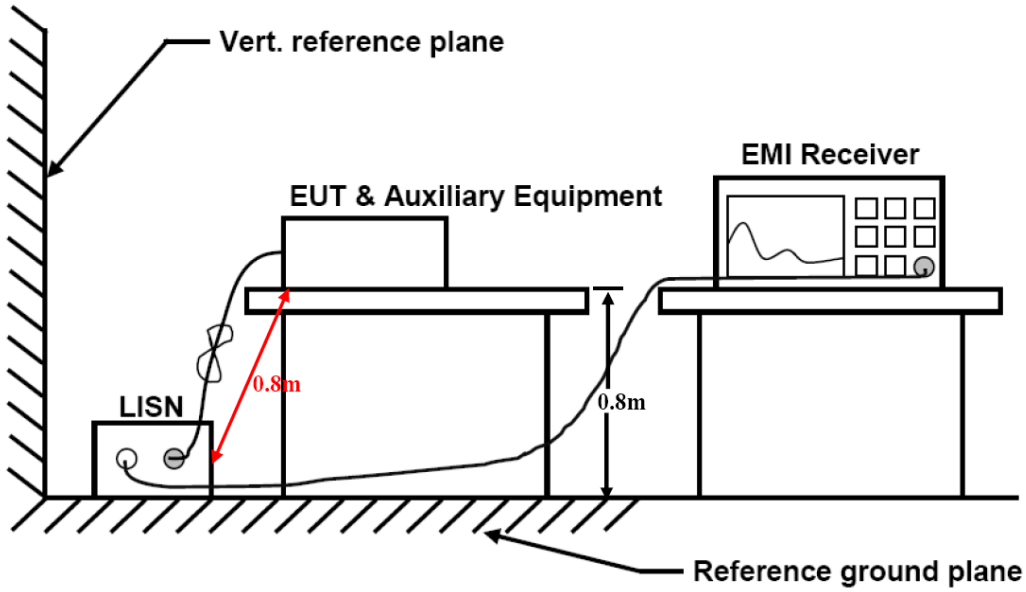
8.1. Standard Applicable

According to §15.207(a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range are listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

* Decreasing linearly with the logarithm of the frequency

8.2. Block Diagram of Test Setup



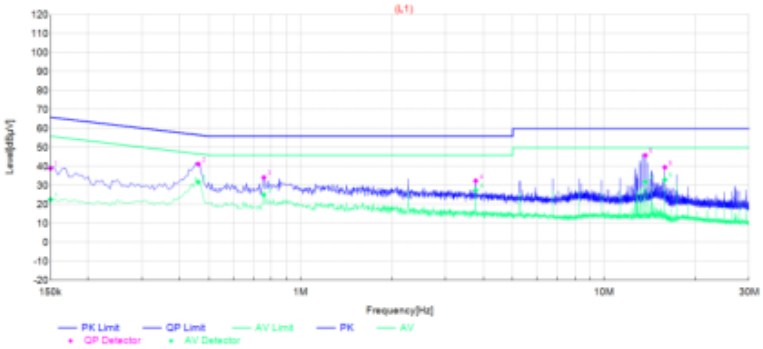
8.3. Test Results

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Evan Ouyang	Configurations	NFC

Version A:

Power supply:	AC 120V/60Hz	Polarization	L

Test Graph



Final Data List

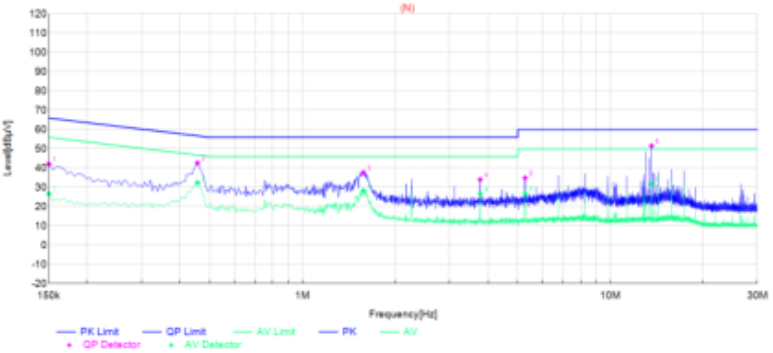
NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.15	28.70	12.25	10.35	39.05	22.60	66.00	56.00	26.95	33.40	L1	PASS
2	0.4605	31.10	21.61	10.23	41.33	31.84	56.68	46.68	15.35	14.84	L1	PASS
3	0.7575	23.96	14.82	10.24	34.20	25.06	56.00	46.00	21.80	20.94	L1	PASS
4	3.777	22.14	17.17	10.36	32.50	27.53	56.00	46.00	23.50	18.47	L1	PASS
5	13.6725	35.01	21.15	10.88	45.89	32.03	60.00	50.00	14.11	17.97	L1	PASS
6	15.855	28.46	21.94	11.14	39.60	33.08	60.00	50.00	20.40	16.92	L1	PASS

Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N

Test Graph



Final Data List

NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.15	31.76	16.37	10.35	42.11	26.72	66.00	56.00	23.89	29.28	N	PASS
2	0.456	32.47	22.28	10.22	42.69	32.50	56.77	46.77	14.08	14.27	N	PASS
3	1.5765	27.50	18.09	10.24	37.74	28.33	56.00	46.00	18.26	17.67	N	PASS
4	3.777	23.67	16.34	10.36	34.03	26.70	56.00	46.00	21.97	19.30	N	PASS
5	5.2845	24.52	16.54	10.38	34.90	26.92	60.00	50.00	25.10	23.08	N	PASS
6	13.605	40.66	20.80	10.88	51.54	31.68	60.00	50.00	8.46	18.32	N	PASS

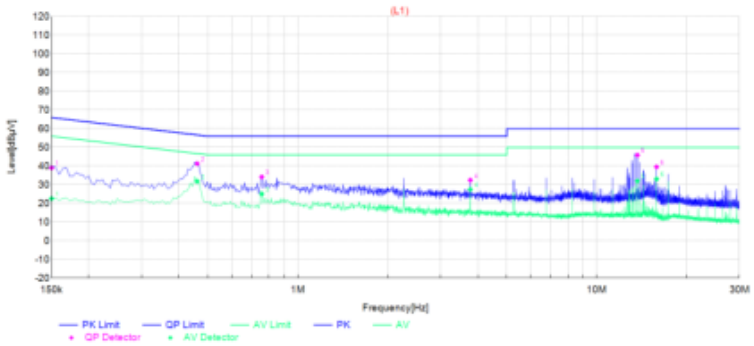
Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Version B:

Power supply:	AC 120V/60Hz	Polarization	L

Test Graph



Final Data List

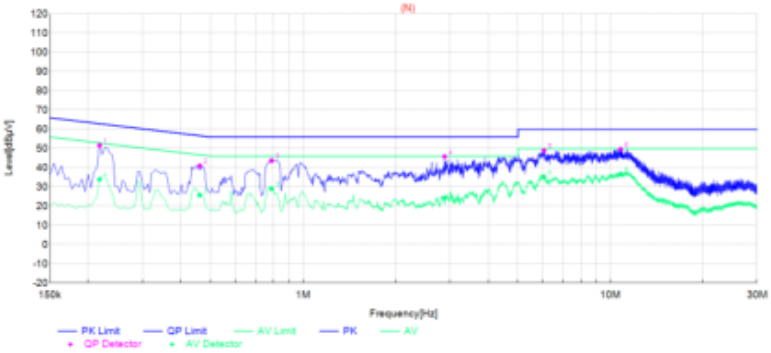
NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.15	28.70	12.25	10.35	39.05	22.60	66.00	56.00	26.95	33.40	L1	PASS
2	0.4605	31.10	21.61	10.23	41.33	31.84	56.68	46.68	15.35	14.84	L1	PASS
3	0.7575	23.96	14.82	10.24	34.20	25.06	56.00	46.00	21.80	20.94	L1	PASS
4	3.777	22.14	17.17	10.36	32.50	27.53	56.00	46.00	23.50	18.47	L1	PASS
5	13.6725	35.01	21.15	10.88	45.89	32.03	60.00	50.00	14.11	17.97	L1	PASS
6	15.855	28.46	21.94	11.14	39.60	33.08	60.00	50.00	20.40	16.92	L1	PASS

Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N

Test Graph



Final Data List

NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.2175	41.54	23.80	10.14	51.68	33.94	62.91	52.91	11.23	18.97	N	PASS
2	0.4605	30.83	15.54	10.23	41.06	25.77	56.68	46.68	15.62	20.91	N	PASS
3	0.789	33.48	18.80	10.25	43.73	29.05	56.00	46.00	12.27	16.95	N	PASS
4	2.886	35.48	13.87	10.33	45.81	24.20	56.00	46.00	10.19	21.80	N	PASS
5	6.0765	38.51	24.75	10.49	49.00	35.24	60.00	50.00	11.00	14.76	N	PASS
6	10.7925	38.97	26.05	10.70	49.67	36.75	60.00	50.00	10.33	13.25	N	PASS

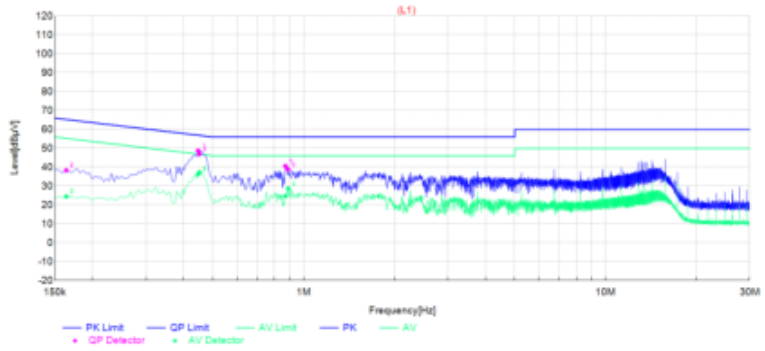
Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Version C:

Power supply:	AC 120V/60Hz	Polarization	L

Test Graph



Final Data List

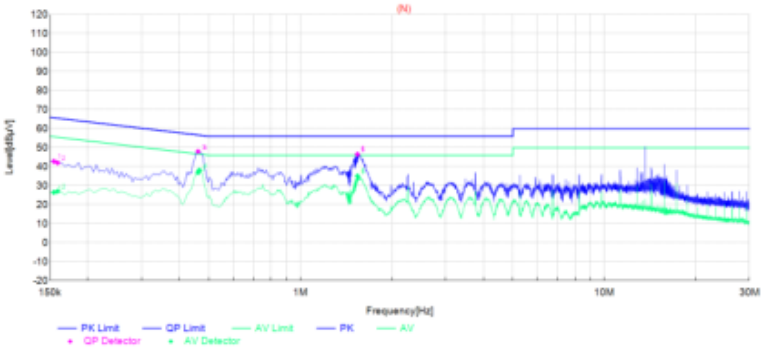
NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.1635	28.05	14.22	10.29	38.34	24.51	65.28	55.28	26.94	30.77	L1	PASS
2	0.1635	28.68	14.66	10.29	38.97	24.95	65.28	55.28	26.31	30.33	L1	PASS
3	0.447	38.53	26.11	10.21	48.74	36.32	56.93	46.93	8.19	10.61	L1	PASS
4	0.4515	36.76	27.03	10.22	46.98	37.25	56.85	46.85	9.87	9.60	L1	PASS
5	0.87	30.34	14.44	10.23	40.57	24.67	56.00	46.00	15.43	21.33	L1	PASS
6	0.888	28.58	18.48	10.23	38.81	28.71	56.00	46.00	17.19	17.29	L1	PASS

Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N

Test Graph



Final Data List

NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.1545	32.48	16.19	10.33	42.81	26.52	65.75	55.75	22.94	29.23	N	PASS
2	0.159	31.76	16.74	10.31	42.07	27.05	65.52	55.52	23.45	28.47	N	PASS
3	0.4605	37.77	26.66	10.23	48.00	36.89	56.68	46.68	8.68	9.79	N	PASS
4	0.465	37.39	27.94	10.23	47.62	38.17	56.60	46.60	8.98	8.43	N	PASS
5	1.5405	36.31	24.89	10.24	46.55	35.13	56.00	46.00	9.45	10.87	N	PASS
6	1.5405	36.78	25.12	10.24	47.02	35.36	56.00	46.00	8.98	10.64	N	PASS

Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

9. ANTENNA REQUIREMENTS

9.1. Standard Applicable

According to antenna requirement of §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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

9.2. Antenna Connected Construction

9.2.1. Standard Applicable

According to § 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.

9.2.2. Antenna Connector Construction

The gains of antenna used for transmitting is 0dBi, and the antenna is a Loop antenna connect to PCB board and no consideration of replacement. Please see EUT photo for details.

9.2.3. Results: Compliance.

10. TEST SETUP PHOTOS OF THE EUT

Photo of Radiated Emissions Measurement

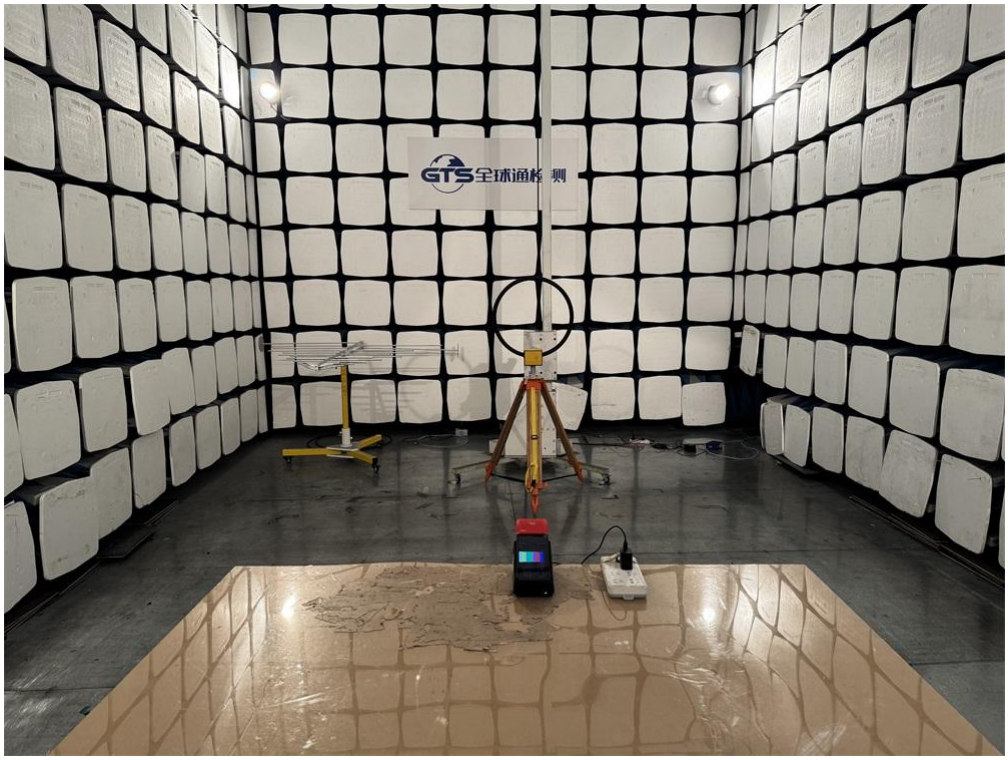


Fig. 1

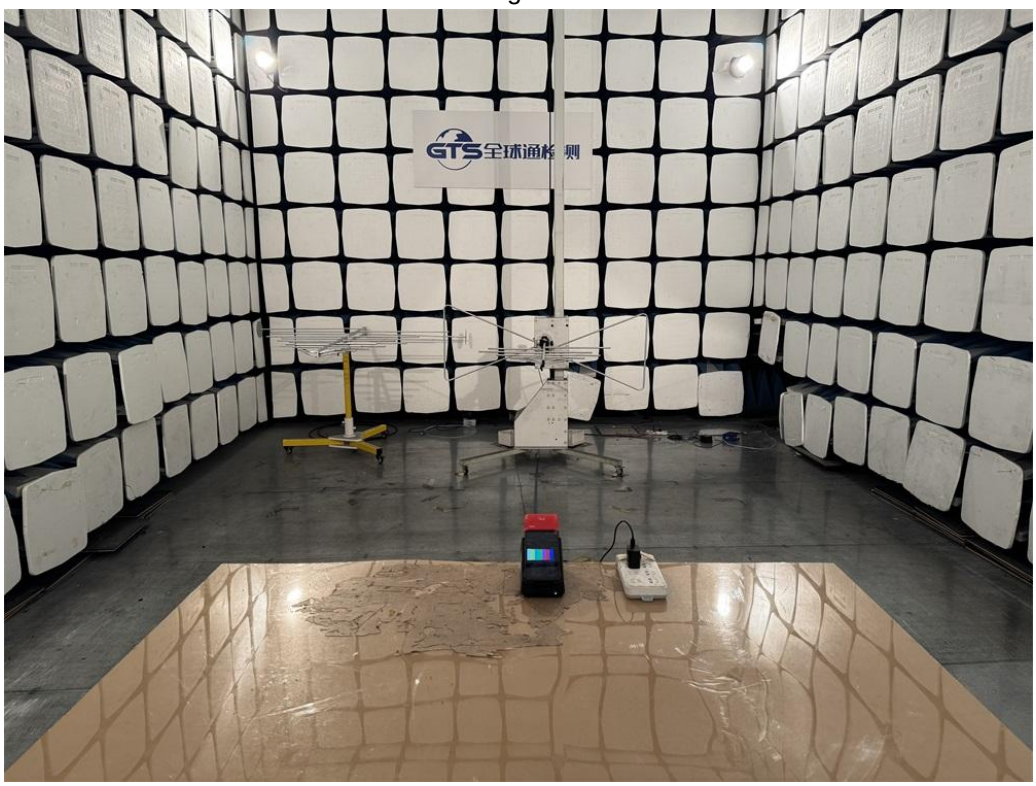


Fig. 2

Photo of Conducted Emission Measurement

Fig. 3

11. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Reference to the **GTS20250313007-2-01.**

.....End of Report.....