TEST REPORT

Report No.	SST2503E0234
Applicant:	Onyx International Inc.
Address of Applicant:	Room 101, Building 4, No. 202 Shiyu Road, Nansha District, Guangzhou City, Guangdong Province, China
Product Name:	E Ink Tablet PC, ePaper Tablet PC, 2-in-1 Tablet PC, Color E ink Tablet PC, Color ePaper Tablet PC, Digital Paper, Digital Writing Tablet, Note-taking Tablet
Trade Mark:	BOOX
Standard(s):	FCC CFR Title 47 Part 15 Subpart E Section 15.407 ANSI C63.10-2020
FCC ID:	XR3-TABXC
Test Report Form No:	SST-RD-7.5-02-E01(A/0)
Date of sample receipt:	2025/2/20
Date of Test:	2025/2/20 - 2025/3/17
Date of report issued:	2025/3/19

*The equipment complies with the requirements according to the standard(s) or Specification above, it is applicable only to the tested sample identified in the report.

Prepared by: Bob

Reviewed by: Tiger Chen

Approved by: Seven Zhan

GUANGDONG SET SAIL TESTING CO., LTD. *CERTIFICATE*

*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.

Revision History

Version	Description	Date of Issue
V1.0	Original	2025/3/19

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3 Test Summary

Test items	Basics standards	Result
Antenna requirement	FCC part 15.203	PASS
Automatically discontinue transmission	FCC part 15.407(c)	Pass
AC Power Line Conducted Emission	FCC part 15.207	PASS
99% Bandwidth	Report only	PASS
Emission Bandwidth	FCC part 15.407(a)	PASS
Peak Transmit Power	FCC part 15.407(a)(1)(2)	PASS
Power Spectral Density	FCC part 15.407(a) (1)(2)	PASS
Undesirable Emission	FCC part 15.407(b), 15.205/15.209	PASS
Radiated Emission	FCC part 15.205/15.209	PASS
Frequency Stability	FCC part 15.407(g)	PASS

Notes:
1: NA =Not Applicable
2: Determining compliance based on the results of the compliance measurement, not taking into account measurement uncertainty. If necessary, the applicant shall informing test lab in advance
3: Additions, Deviations and Exclusions from Standards: None.

4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:
The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Item	Uncertainty (±) (k=2, 95%)	
Output Power, Conducted	0.54	
Power Spectral Density, Conducted	1.28	
Spurious Emissions, Conducted	1.28	
Radiated Emissions(<1GHz)	9kHz~30MHz	2.6
	30MHz~1GHz	5.08
Radiated Emissions(>1GHz)	1GHz~6GHz	4.02
	6GHz~18GHz	4.62
	18GHz~40GHz	4.7
Occupied Bandwidth	1.14	
Conducted Emissions—AC mains	9kHz~150KHz	1.76
	150kHz~30MHz	2.52
Conducted Emissions—Telecom	2.64	

5 General Information

5.1 Client Information

Applicant:	Onyx International Inc.
Address of applicant:	Room 101, Building 4, No. 202 Shiyu Road, Nansha District, Guangzhou City, Guangdong Province, China
Manufacturer:	Same as applicant
Address of Manufacturer:	Same as applicant
Factory:	Same as applicant
Address of Factory:	Same as applicant

5.2 General Description of EUT

Product Name:	E Ink Tablet PC, ePaper Tablet PC, 2-in-1 Tablet PC, Color E ink Tablet PC, Color ePaper Tablet PC, Digital Paper, Digital Writing Tablet, Note-taking Tablet
Listed Models:	Tab X C, Tab X C Plus, Tab X C Pro, Tab X C Lite, Tab X Color, Tab X Color Plus, Tab X Color Pro,Tab X Color Lite, Pagebox Tab X C, Pagebox
All models were in same PCB layout and internal structure, no Electromagnetic Compatibility and radio function changed, Only the product name and appearance color difference for commercial purpose	
Test Model:	Tab X C
Test sample(s) ID:	2501200301
Sample(s) Status:	Continuously transmitter
S/N:	/
Hardware version:	/
Software version:	/
Operation Frequency:	5180MHz~5240MHz
Technical specific:	802.11a, 802.11n, 802.11ac
Supported bandwidth:	20MHz, 40MHz, 80MHz
Modulation technology:	OFDM
Antenna gain:	Refer to section 5.7 for details
Power supply:	DC 5V from AC adapter or DC 3.87V 5500mAh Li-ion battery, Qi: 3W(Max)

Channel list for 802.11							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	54	5270MHz	104	5520MHz	122	5610MHz
38	5190MHz	56	5280MHz	106	5530MHz	124	5620MHz
40	5200MHz	58	5290MHz	108	5540MHz	126	5630MHz
42	5210MHz	60	5300MHz	110	5550MHz	128	5640MHz
44	5220MHz	62	5310MHz	112	5560MHz	132	5660MHz
46	5230MHz	64	5320MHz	116	5580MHz	134	5670MHz
48	5240MHz	100	5500MHz	118	5590MHz	136	5680MHz
52	5260MHz	102	5510MHz	120	5600MHz	140	5700MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test

5.3 Test mode(s)

Mode 1:	continuously transmitting, with its lowest data rate which emit the max power level
Mode 2:	
Mode 3:	

5.4 Test Facility

The test facility is recognized, certified, or accredited by these organizations:	**FCC Accredited Lab** Test Firm Registration Number: 638130 Designation Number: CN1359
	IC Registration Lab CAB Identifier No.CN0154
	A2LA Accreditation Lab Certificate No.:7057.01

Test Performed at:	**Name** GuangDong Set Sail Testing Co., Ltd.
	Address 101, No.19, Tianxin Hudie 1st Road, Huangjiang Town, Dongguan, Guangdong, China

5.5 Description of Support Units

Device Type	Brand	Model	Series No.	Note
PC	HP	ZHAN 66P	---	---

5.6 Additional Instructions

Test Software	QRCT V4.0.0134.0
Power level setup	Default

5.7 Antenna Information

Ant	Manufacturer	Model	Antenna Type	Antenna Gain (dBi)	Note
1	Myantenna	GOTA13	PIFA	2	WiFi, BT
	Myantenna	GOTA13	PIFA	2	WiFi

All above information provided by the applicant which is fully responsible for those information.

5.8 Others

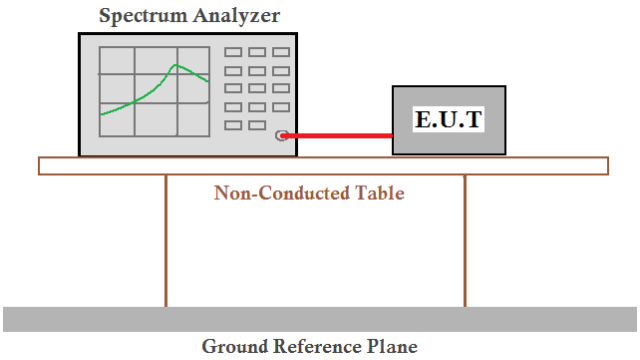
The laboratory responsible for all the information provided in the report, except those information provided by the applicant.
The applicant shall fully responsible for the information they provided.
The report would be invalid without a stamp of test laboratory and the signatures of compiler and approver.
The laboratory has not been responsible for the sampling stage; the test report merely corresponds to the test sample received.
Any objection to the test report shall submitted to the test laboratory within 15 days from the date of receipt of the report.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

6 Technical Requirement and Measurement Data

6.1 Generally requirement

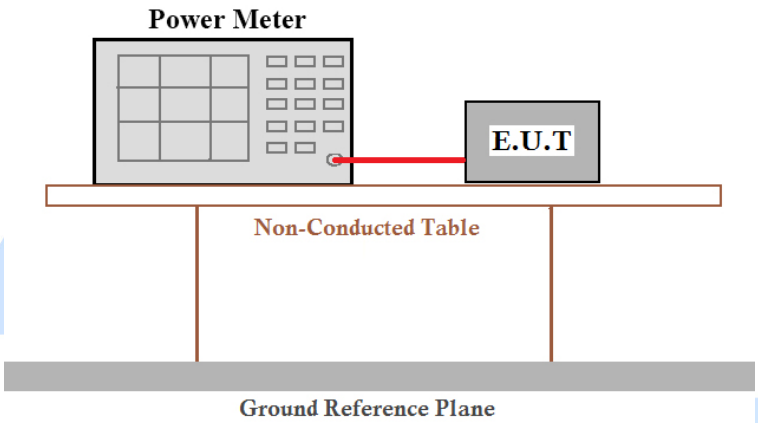
15.203 requirement:
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
15.407 requirement:
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
EUT Antenna:
Reference to the appendix II for details
15.407(c) requirement:
The applicant declares that the device (FCC Part 15 Subpart E Section 15.407) shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure.

6.2 Duty Cycle

Limit
Report for use
Block diagram of Test Setup

Test Instrument
Refer to Annex A for details
Test Procedures
The transmitter output connected to the Spectrum Analyzer. Test according to Procedure B.2 in KDB 789033 D02 v02r01. 1.RBW=8 MHz(the largest available value) 2.VBW=8 MHz(>RBW) 3.SPAN = 0 Hz 4.Detector = Peak 5.Number of points in sweep: 30001 6.Trace mode: Clear write 7.Measure T_{total} and T_{on} 8.Calculate Duty Cycle = T_{on}/T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)
Verdict
Pass

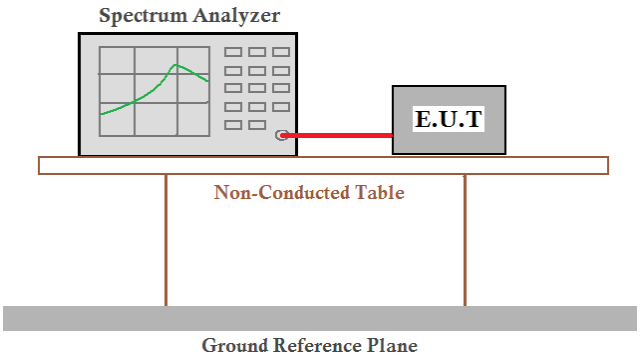
Measurement Data: The detailed test data see Appendix

6.3 Conducted Peak Output Power

Limit	
Frequency band(MHz)	Maximum conducted power
5150-5250	≤1W(30dBm) for master device
	≤250Mw(23.98dBm) for client device
5250-5350	≤250Mw(23.98dBm) for client device or 11dBm+10logB*
5470-5725	≤250Mw(23.98dBm) for client device or 11dBm+10logB*
Remark: *Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.	
Block diagram of Test Setup	
	
Test Instrument	
Refer to Annex A for details	
Test Procedures	
Test applies to ANSI C63.10:2013 & KDB 789033 D02 v02r01	
Verdict	
Pass	

Measurement Data: The detailed test data see Appendix

6.4 Emission Bandwidth

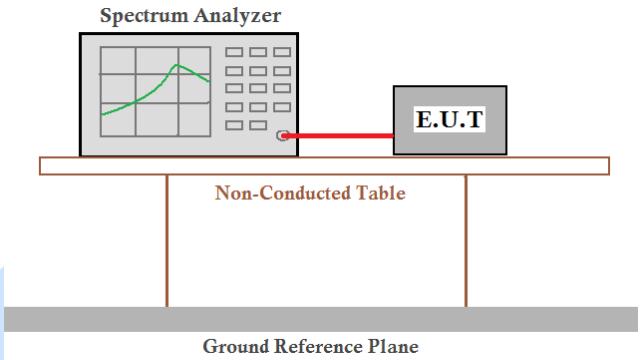
Limit
Report only
Block diagram of Test Setup

Test Instrument
Refer to Annex A for details
Test Procedures
Test applies to ANSI C63.10:2013 & KDB 789033 D02 v02r01
Verdict
Pass

Measurement Data: The detailed test data see Appendix

6.5 Power Spectral Density

Limit	
Frequency band (MHz)	Maximum power spectral density
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device

Block diagram of Test Setup



Test Instrument

Refer to Annex A for details

Test Procedures

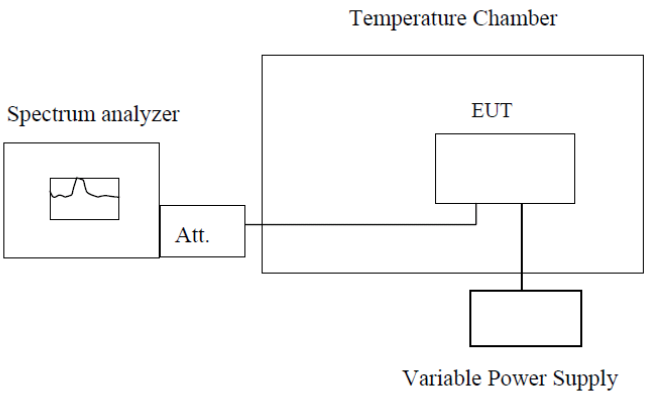
Test applies to ANSI C63.10:2013 & KDB 789033 D02 v02r01

Verdict

Pass

Measurement Data: The detailed test data see Appendix

6.6 Frequency Stability

Limit
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Block diagram of Test Setup
 **Note :** Measurement setup for testing on Antenna connector
Test Instrument
Refer to Annex A for details
Test Procedures
Test applies to ANSI C63.10:2013, FCC Part 2.1055.
Verdict
Pass

Measurement Data: The detailed test data see Appendix

6.7 Radiated Spurious Emission

Limit

Frequency (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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

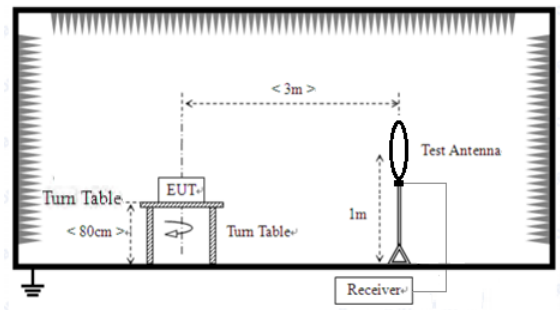
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

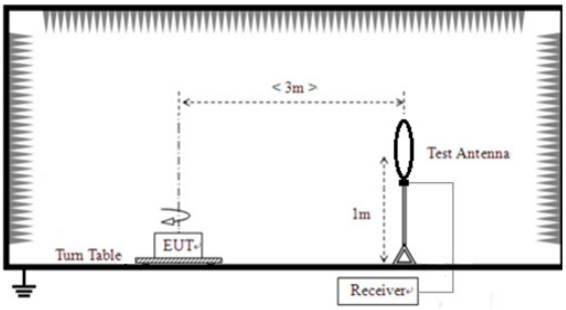
Undesirable emission limits: the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1)For transmitters operating in the 5.15–5.25 GHz band: All emissions outside of the 5.15–5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25–5.35 GHz band: All emissions outside of the 5.15–5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47–5.725 GHz band: All emissions outside of the 5.47–5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

Block diagram of Test Setup

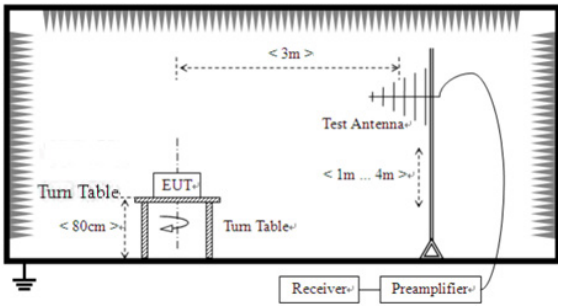
☒For table-top equipment	☐For floor standing equipment

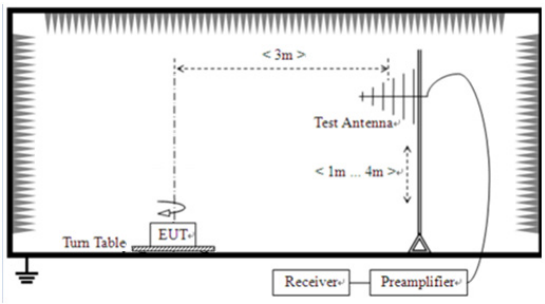
For radiated emissions from 9kHz to 30MHz

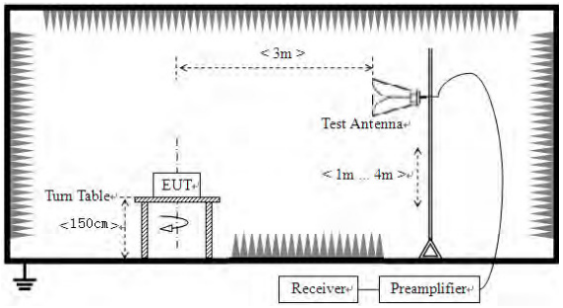
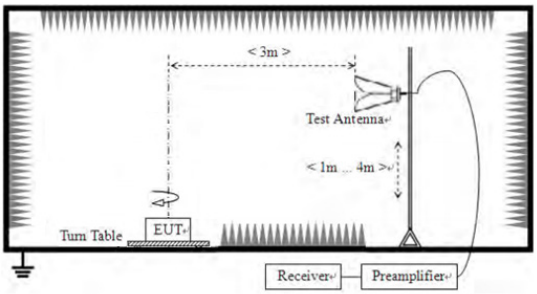




For radiated emissions from 30MHz to1GHz



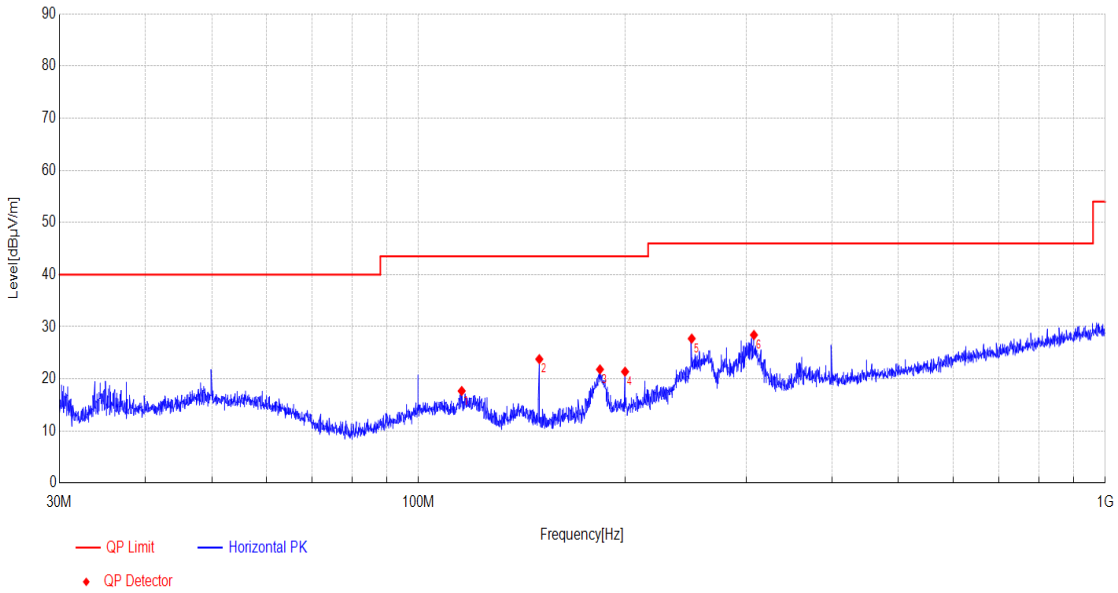


For radiated emissions above 1GHz	
	
Test Instrument	
Refer to Annex A for details	
Test Procedures	
Test applies to ANSI C63.10:2013 & KDB 789033 D02 v02r01	
Verdict	
Pass	

Note:

1. *The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.*
2. *For those undesirable emission (in the Restricted Bands and out-of-band spurious) above 1GHz, According to KDB 789033 D02 v02r01 section II.G, as an alternative, antenna-port conducted measurements in conjunction with cabinet emissions tests will be permitted to demonstrate compliance.*
3. *The undesirable spurious emission range from 26GHz to 40GHz is as low as the cabinet noise, so there is no report, refer to appendix for details.*
4. *According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:*
   E[dBuV/m] = EIRP[dBm] + 95.2;
   For example, if EIRP = -27dBm
   E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

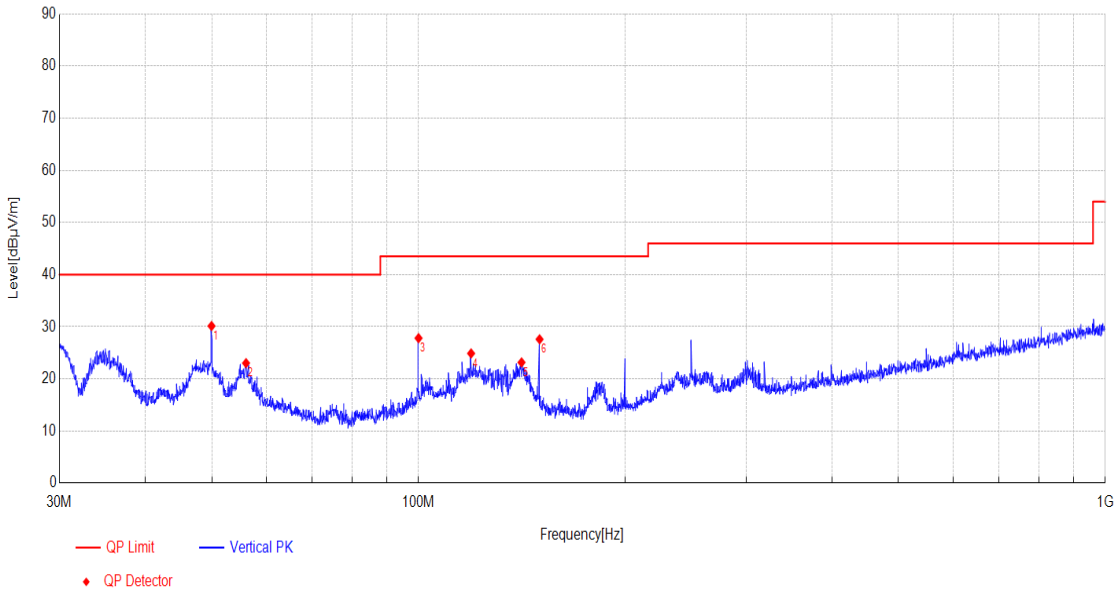
Test Result(30M~1GHz)			
Test mode	Mode 1	Polarity	Horizontal
Test voltage	AC 120V/60Hz	Temp. /Hum.	25 °C/60%



NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity	Verdict
1	115.5852	11.66	17.68	43.50	25.82	Horizontal	PASS
2	149.9505	8.99	23.78	43.50	19.72	Horizontal	PASS
3	183.7608	11.22	21.81	43.50	21.69	Horizontal	PASS
4	199.8908	12.08	21.38	43.50	22.12	Horizontal	PASS
5	249.9493	13.70	27.73	46.00	18.27	Horizontal	PASS
6	307.9219	15.45	28.42	46.00	17.58	Horizontal	PASS

Note: Final Level =Receiver Read level + Factor
Factor= Antenna Factor + Cable Loss – Preamplifier Factor
*Only the worst case report (*802.11ac(HT20) 5180MHz*)*

Test Result(30M~1GHz)			
Test mode	Mode 1	Polarity	Vertical
Test voltage	AC 120V/60Hz	Temp. /Hum.	25 °C/60%



NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity	Verdict
1	49.9626	14.27	30.15	40.00	9.85	Vertical	PASS
2	56.0902	13.82	23.03	40.00	16.97	Vertical	PASS
3	100.0229	12.29	27.82	43.50	15.68	Vertical	PASS
4	119.2902	11.08	24.88	43.50	18.62	Vertical	PASS
5	141.275	8.96	23.16	43.50	20.34	Vertical	PASS
6	150.082	9.00	27.60	43.50	15.90	Vertical	PASS

Note: Final Level =Receiver Read level + Factor
Factor= Antenna Factor + Cable Loss – Preamplifier Factor
*Only the worst case report (*802.11ac(HT20) 5180MHz*)*

6.8 Conducted Emissions

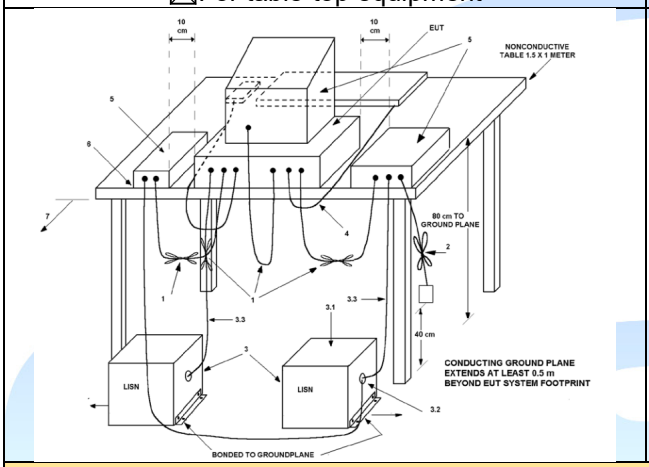
Limit

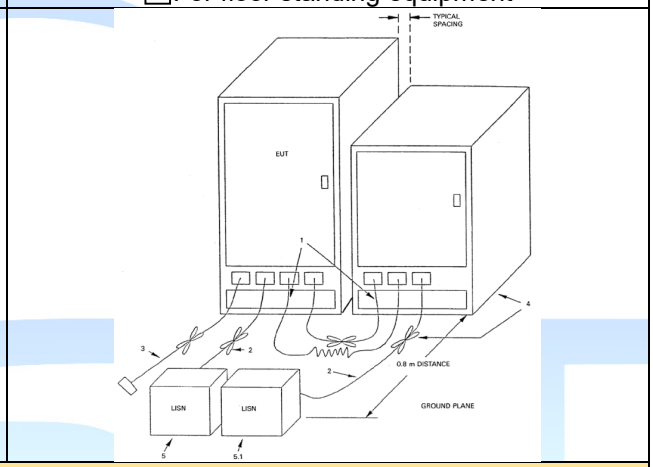
Frequency (MHz)	Quasi-peak	Average
0.15~0.50	66 to 56*	56 to 46*
0.50~5.0	56	46
5.0~30	60	50

*Decreases with the logarithm of the frequency.
If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out

Block diagram of Test Setup

☒For table-top equipment ☐For floor standing equipment





Test Instrument

Refer to Annex A for details

Test Procedures

The measurement was performed in a shield room.
Measured levels of ac power-line conducted emission shall be the radio-noise voltage from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), as terminated into a 50 Ω EMI receiver or spectrum analyzer. All radio-noise voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord or calibrated extension cord by the use of mating plugs and receptacles on the EUT and LISN, if used. The manufacturer shall test equipment with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended. For measurements using a LISN, the 50 Ω measuring port is terminated into a 50 Ω EMI receiver or spectrum analyzer. All other ports are terminated into 50 Ω loads.

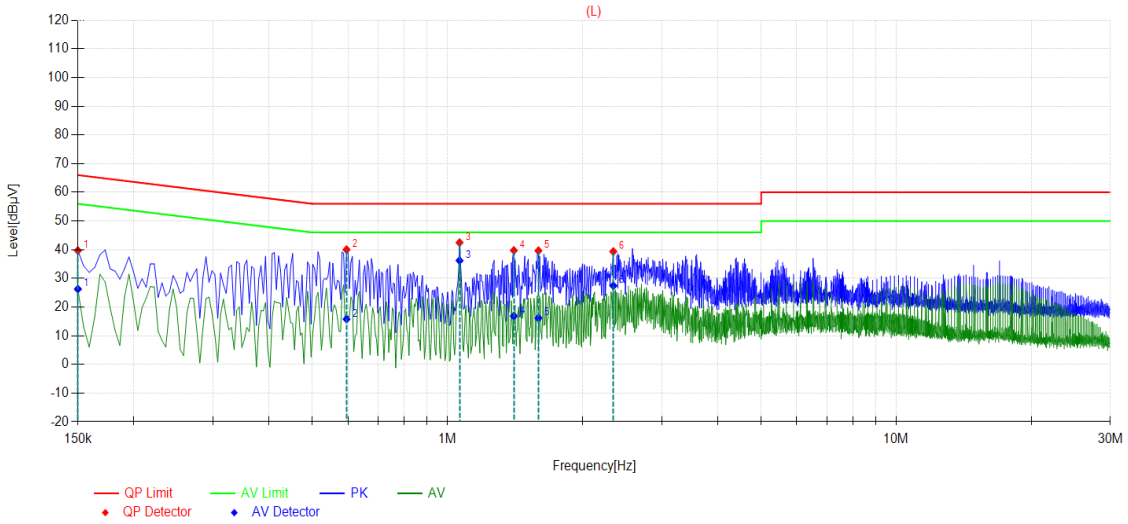
Table top devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

Verdict

Pass

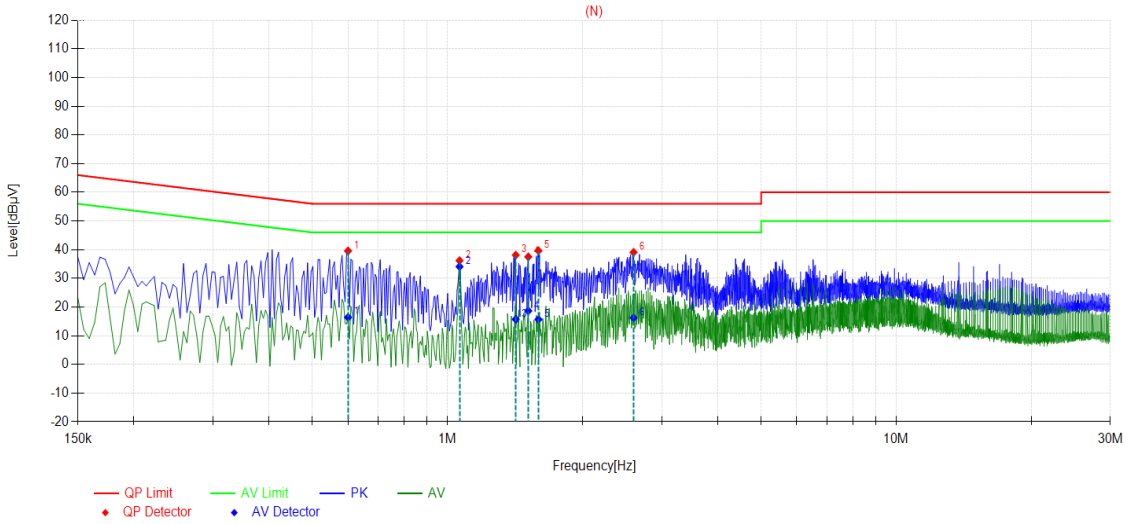
Test Result			
Test mode	Mode 1	Polarity	Line
Test voltage	AC 120V/60Hz	Temp. /Hum.	25 °C/60%



Final Data List									
NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict	Type
1	0.15	39.68	66.00	26.32	26.27	56.00	29.73	PASS	L
2	0.5955	40.01	56.00	15.99	15.79	46.00	30.21	PASS	L
3	1.0635	42.47	56.00	13.53	36.20	46.00	9.80	PASS	L
4	1.4055	39.75	56.00	16.25	16.87	46.00	29.13	PASS	L
5	1.5945	39.64	56.00	16.36	16.15	46.00	29.85	PASS	L
6	2.3415	39.35	56.00	16.65	27.42	46.00	18.58	PASS	L

Note: Final Level =Receiver Read level + Factor
Factor= LISN Factor + Cable Loss
Only the worst case report (802.11a 5180MHz)

Test Result			
Test mode	Mode 1	Polarity	Neutral
Test voltage	AC 120V/60Hz	Temp. /Hum.	25 °C/60%



Final Data List

NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict	Type
1	0.6	39.56	56.00	16.44	16.40	46.00	29.60	PASS	N
2	1.0635	36.18	56.00	19.82	34.09	46.00	11.91	PASS	N
3	1.419	38.10	56.00	17.90	15.73	46.00	30.27	PASS	N
4	1.5135	37.51	56.00	18.49	18.67	46.00	27.33	PASS	N
5	1.5945	39.62	56.00	16.38	15.68	46.00	30.32	PASS	N
6	2.598	39.09	56.00	16.91	16.25	46.00	29.75	PASS	N

Note: Final Level =Receiver Read level + Factor
Factor= LISN Factor + Cable Loss
Only the worst case report (802.11a 5180MHz)

7 Test Setup Photo

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

8 EUT Constructional Details

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

Annex A --Test Instruments list

Radiated Emission:						
Equipment No.	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. cycle**	**Cal.Date**
SST-E-SAC001	3m Semi- Anechoic Chamber	BOST	966	/	3 years	2023.01.07
SST-E-SCC001	Control Room	BOST	333	/	3 years	2023.01.07
SST-E-SAC002	Breiband TRILOG Messantenne	Schwarzbeck	VULB 9162	00556	1 year	2024.04.20
SST-E-SAC004	Broad-band Horn Antenna	Schwarzbeck	BBHA 9120 D	02783	1 year	2024.04.16
SST-E-SCC003	EMI Test Receiver	R&S	ESU 8	100372	1 year	2024.04.16
SST-E-SCC004	Amplifier	Schwarzbeck	BBV 9744	00327	1 year	2024.04.16
SST-E-SCC015	Amplifie （1-18GHz）	TSTPASS	LNA10180G45	TSAM2303003	1 year	2024.04.16
SST-E-SCC016	Amplifier（40G）	RFsystem	TRLA-180400G45B	23060801	1 year	2024.04.16
SST-E-SAC006	Broadband Horn Antenna（40G）	Schwarzbeck	BBHA9170	01306	1 year	2024.04.17
SST-E-RSC010	Spectrum analyzer	R&S	FSV40-N	/	1 year	2024.04.16
SST-E-SAC007	Loop Antenna	Schwarzbeck	FMZB 1513-60B	1513-60B 044	1 year	2024.04.17
SST-E-SAC005	5W 6dB attenuator	/	DC-6GHz	/	Internal calibration	/
SST-E-EMC006	Thermohygrometer	KTJ	TA218A	879030	1 year	2024.04.18
/	EMI Test Software	Tonscend	TS+	/	/	/

Conducted Emission						
Equipment No.	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. cycle**	**Cal.Date**
SST-E-CSC001	Shielding Room	BOST	854	/	3 year	2023.01.07
SST-E-CSC002	EMI Test Receiver	R&S	ESR3	103057	1 year	2024.04.16
SST-E-CSC003	LISN	R&S	ENV 216	102832	1 year	2024.04.16
SST-E-CSC004	ISN	R&S	NTFM 8158	00347	1 year	2024.04.16
SST-E-CSC007	Antenna port test assembly	/	DC-3GHz	/	Internal calibration	/
SST-E-EMC011	Thermohygrometer	KTJ	TA218A	879036	1 year	2024.04.18
/	EMI Test Software	Tonscend	TS+	V4.0	/	/

RF conducted						
Equipment No.	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. cycle**	**Cal.Date**
SST-E-RSC001	Shielding Room	BOST	543	/	3 year	2023.01.07
SST-E-RSC007	Spectrum analyzer	keysight	N9020A	MY51280659	1 year	2024.04.16
SST-E-RSC008	Analog signal source	Agilent	N5181A	MY48180054	1 year	2024.04.16
SST-E-RSC009	Vector signal source	keysight	N5172B	MY57281610	1 year	2024.04.16
SST-E-EMC007	Thermohygrometer	KTJ	TA218A	879032	1 year	2024.04.18
SST-E-RSC010	Spectrum analyzer	R&S	FSV40-N	/	1 year	2024.04.16
SST-E-RSC015-1	Power meter 1	TST	TST V2	/	1 year	2024.04.16
/	Test Software	TST PASS	TST PASS	V2.0	/	/
SST-S-CTH002	Temperature and humidity chamber	Guangdong fenghe	FH-TH-1000	FH24032017	1 year	2024.04.26

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