

TEST REPORT

REPORT NUMBER:25B02W000009-001

ON

Type of Equipment: Cloud POS Printer

Type of Designation: NT320

Brand Name: SUNMI

Manufacturer: Shanghai Sunmi Technology Co.,Ltd.

FCC ID: 2AH25NT320

ACCORDING TO

FCC Part 15, Subpart B, ICES-003 Issue 7

Chongqing Academy of Information and Communications Technology

Month date, year

Jun.26th, 2025

Signature

Zhou Jin

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.



Report No.: 25B02W000009-001

Revision Version

Report Number	Revision	Date
25B02W000009-001	00	2025-06-26

Chongqing Academy of Information and Communication Technology

Address: No. 8, Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China, 401336
Tel: 0086-23-88069965 FAX: 0086-23-88608777

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1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC Registration Number:	CN1239
Address:	No.19 EastRoad,Xiantao Big-data Valley,Yubei District, Chongqing,People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

1.2. Testing Environment

Normal Temperature:	15-35°C
Relative Humidity:	30-60%RH

1.3. Project data

Testing Start Date:	2025-04-23
Testing End Date:	2025-05-14

1.4. Signature

2025-06-23

Li Runhao
(Prepared this test report)

Date

2025-06-23

Xiao Yu
(Reviewed this test report)

Date

2025-06-26

Zhou Jin
Director of the laboratory
(Approved this test report)

Date

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2. Client Information

2.1. Applicant Information

Company Name:	Shanghai Sunmi Technology Co.,Ltd.
Address /Post:	Room 505,No.388,Song Hu Road,Yang Pu District,Shanghai,China
City:	Shanghai
Country:	China
Telephone:	+86 13510126210
Fax:	N/A
Email:	chan.yang@sunmi.com
Contact Person:	Emma Yang

2.2. Manufacturer Information

Company Name:	Shanghai Sunmi Technology Co.,Ltd.
Address /Post:	Room 505,No.388,Song Hu Road,Yang Pu District,Shanghai,China
City:	Shanghai
Country:	China
Telephone:	+86 13510126210
Fax:	N/A
Email:	chan.yang@sunmi.com
Contact Person:	Emma Yang

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3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	Cloud POS Printer
Model name	NT320
Brand name	SUNMI
Power Rating	DC 5V from USB
Highest frequency range	5825 MHz
Supported Radio Technology and Bands	2.4G WLAN 802.11b,g,n,ax 5G WLAN 802.11a,n,ac,ax BT5.4 BR/EDR/BLE

Note: Photographs of EUT are shown in ANNEX B of this test report.

3.2. Internal Identification of EUT used during the test

EUT ID	SN or IMEI	HW Version	SW Version	Date of receipt
25B02W000009#S1	N507D53S10160	80CC_MB_X2600_V5.0	V4.1.17	2025-04-18

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Note
C2	USB Cable	N/A
Q1	Notebook PC	Lenovo X1 Carbon
Q2	CashBox	N/A
C3	LAN Cable	N/A
A1	PC Adapter	N/A

*AE ID: is used to identify the test sample in the lab internally.

AE Information is provided by the customer.

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4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title
FCC Part 15, Subpart B	Unintentional Radiators
ANSI C63.4-2014	Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ICES-003 Issue 7	Information Technology Equipment (Including Digital Apparatus)-Limits and Methods of Measurement

5. Test Equipments Utilized

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	Test Receiver	ESR 3	101382	03	3.48 SP2	R&S	2025-06-28
2	Test Receiver	ESW 26	101382	00	1.50 SP1	R&S	2025-06-28
3	Ultra-wideband Log Periodic Antenna	VULB 9163	9163-586	--	--	Schwarzbeck	2026-10-28
4	Double Ridged Guide Antenna	9120D	9120D-1083	--	--	Schwarzbeck	2026-11-08
5	Fully-Anechoic Chamber	FAC5	--	--	--	TDK	2027-11-04
6	Semi-Anechoic Chamber	SAC-10	--	--	--	TDK	2027-11-05
7	2-Line V-Network	ENV216	102368	--	--	R&S	2026-05-23
8	Test Receiver	ESU 40	100350	01	4.43 SP3	R&S	2025-06-28
9	Amplifier1	SCU-08F1	8320027	--	--	R&S	--
10	Amplifier2	SCU-18F	180093	--	--	R&S	--

Test software

No.	Name	version	SN	Manufacture
1	EMC32	V 9.26.01	--	R&S
2	EMC32	V10.20.01	--	R&S
3	EMC32	V10.40.10	--	R&S

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6. Test Results

6.1. Summary of Test Results

FCC Rules	IC Rules	Name of Test	Result
15.109	3.2.2	Radiated Emission	Pass
15.107	3.2.1	AC Conducted Emission	Pass
Note: The NT320, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a new product for testing.			

7. Test Results

7.1. Radiated Emission

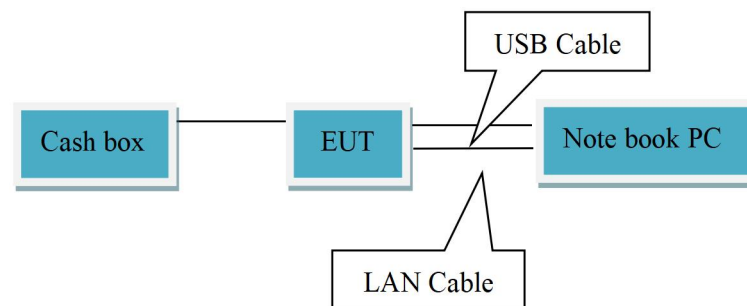
Specifications:	15.109 / 3.2.2
DUT Serial Number:	25B02W000009#S1:N507D53S10160
Date of Tests	2025-04-23-2025-05-14
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60%
Operation Mode	30MHz-18GHz frequency range: Mode 1: Full system+ Print+ C2+ Q1+ Q2+ C3 Mode 2: Full system+ Cash Box Open+ C2+ Q1+ Q2+C3
Test Results:	Pass
Note: 1. The worst case of radiated emission for 30MHz-1GHz is Mode 2 and for 1GHz -18GHz is Mode 2. 2. Full system: The EUT is connected to the Note book PC for power supply via a USB cable. Meanwhile, the Note book PC controls the EUT to be in the printing working state or the cash box to be open through instructions. Meanwhile, the computer and the EUT realize the functions of receiving and sending packages through LAN cable.	

Limit Level Construction (Except for Class A digital devices):

Frequency Range (MHz)	Quasi-Peak (dBμV/m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Frequency Range (MHz)	Peak (dBuV/m)	Average (dBμV/m)
Above 1000	74	54

EUT Setup:

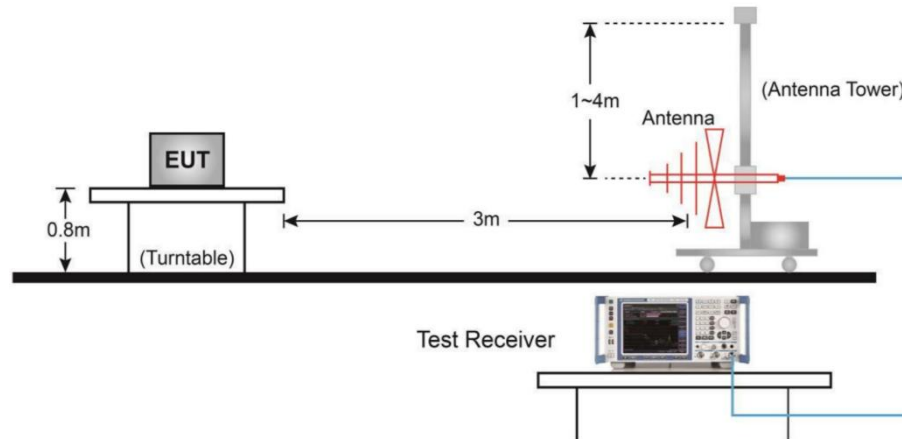


Mode 1-2

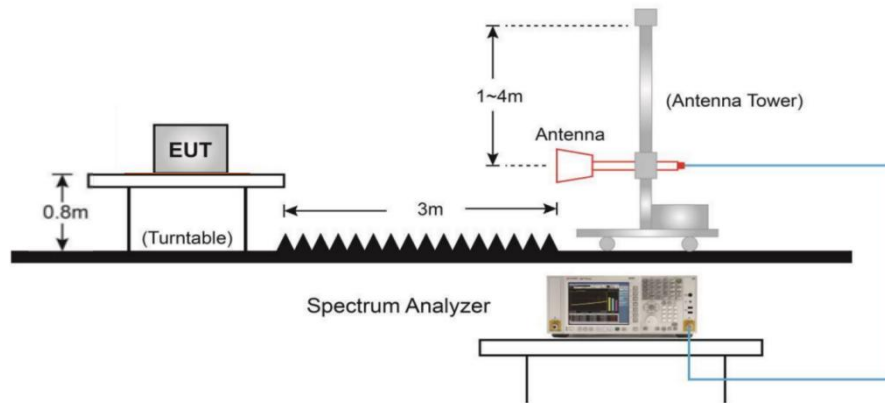
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Below 1GHz Test Setup



Above 1GHz Test Setup



Test Method:

For 30-1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement. Tested in accordance with the procedures of ANSI C63.4-2014, section 8.3.

For 1000-18000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a fully-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degrees and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement. Tested in accordance with the procedures of ANSI C63.4-2014, section 8.3.

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Test Result:

Test mode: ALL modes, Only the worst case test data was reported.

A “reference path loss” is established and Corr is the attenuation of “reference path loss”, and including the factor of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

$\text{Corr (dB/m)} = \text{Cable loss (dB)} + \text{Antenna Factor (dB/m)} - \text{Preamplifier gain (dB)}$

$\text{Result (dB}\mu\text{V/m)} = \text{PMea (dB}\mu\text{V)} + \text{Corr (dB/m)}$

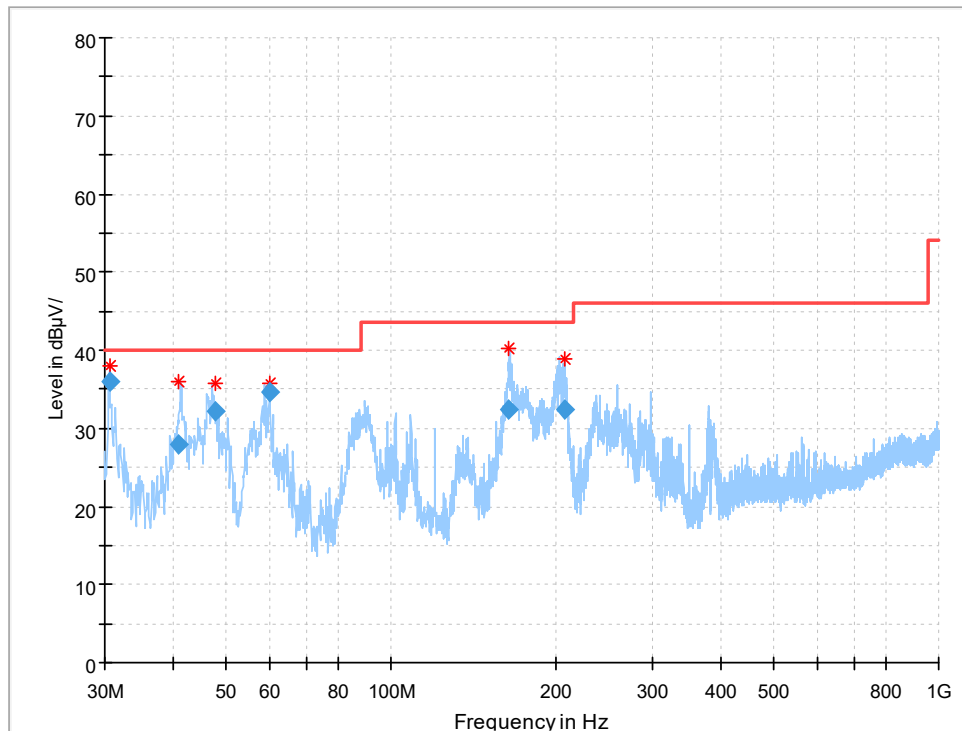
Uncertainty Measurement:

Item	Uncertainty	
Expanded Uncertainty (30MHz-150MHz)	3.12dB (k=2) (H)	3.38dB (k=2) (V)
Expanded Uncertainty (150MHz-1000MHz)	2.87dB (k=2) (H)	4.09dB (k=2) (V)
Expanded Uncertainty (1GHz-6GHz)	4.84dB (k=2)	
Expanded Uncertainty (6GHz-18GHz)	4.52dB (k=2)	
Expanded Uncertainty (18GHz-26GHz)	6.19dB (k=2)	
Expanded Uncertainty (26GHz-40GHz)	6.03dB (k=2)	

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Test Data



Final_Result

RE 30MHz-1GHz_Mode 2

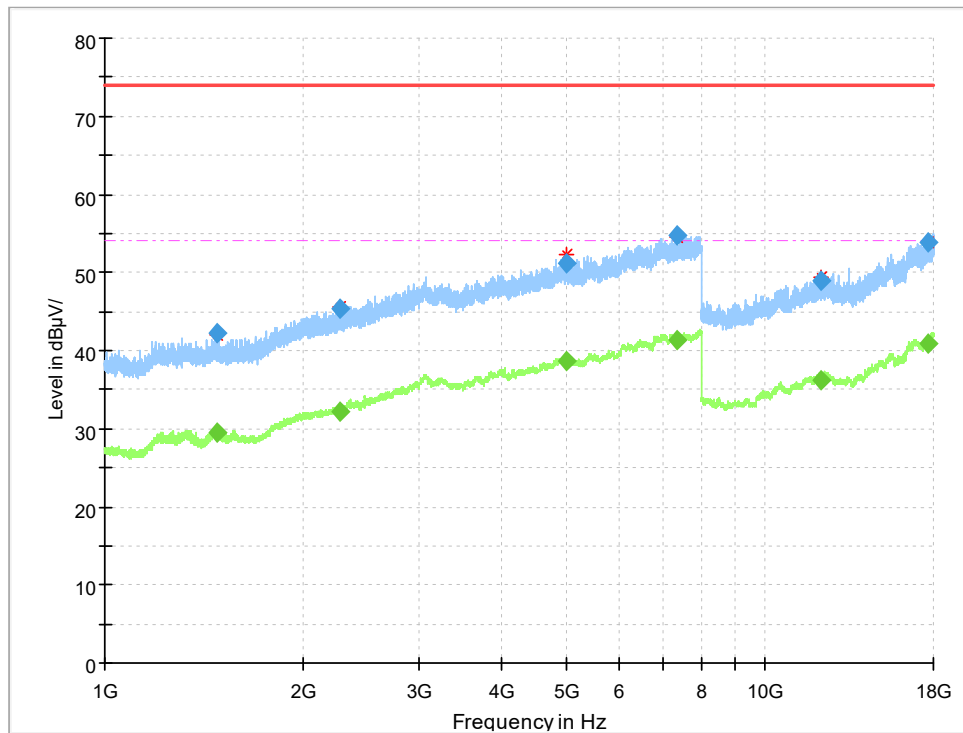
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.618186	35.87	40.00	4.13	100.0	V	26.0	-16.0
40.855560	27.89	40.00	12.11	100.0	V	282.0	-12.8
47.766960	32.08	40.00	7.92	100.0	V	282.0	-11.3
60.205880	34.72	40.00	5.28	100.0	V	106.0	-12.8
163.957720	32.48	43.50	11.02	100.0	V	236.0	-15.5
207.040440	32.45	43.50	11.05	200.0	H	269.0	-12.8

Note:

- Both H polarization and V polarization are tested.
- The test uses a limit of FCC Part 15B Class B, which also meets the requirements of the ICES-003 limit.

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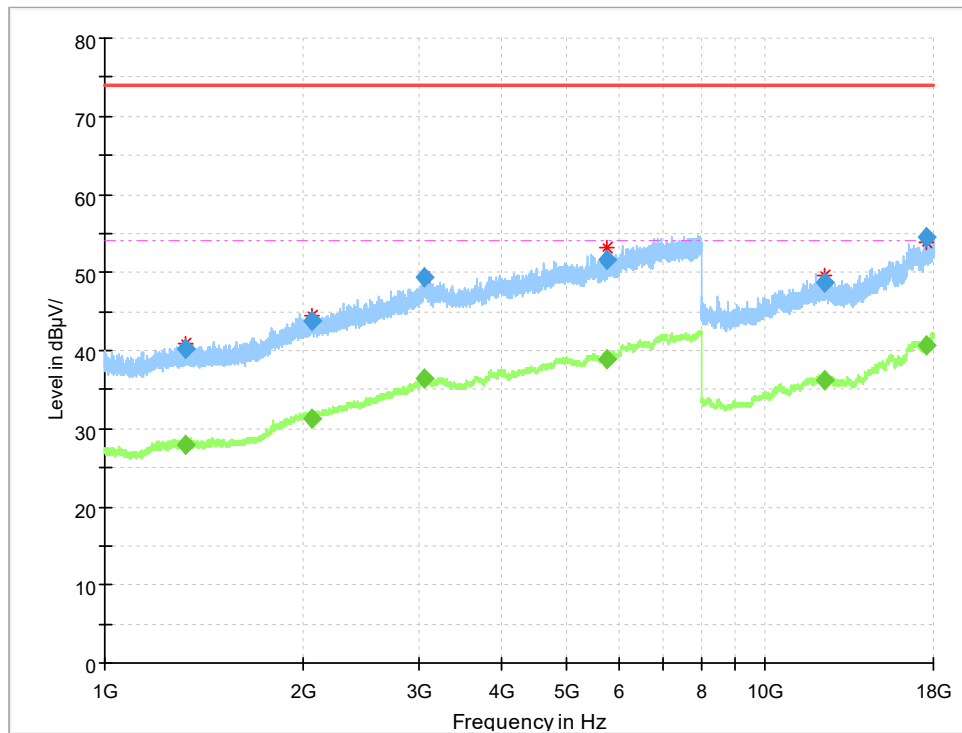
Final_Result

RE 1GHz-18GHz_Mode 2_H

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1483.352500	---	29.52	54.00	24.48	100.0	H	101.0	2.3
1483.352500	42.13	---	74.00	31.87	100.0	H	101.0	2.3
2271.798750	---	32.21	54.00	21.79	215.0	H	0.0	7.4
2271.798750	45.37	---	74.00	28.63	215.0	H	0.0	7.4
4998.945000	51.24	---	74.00	22.76	115.0	H	160.0	15.9
4998.945000	---	38.56	54.00	15.44	115.0	H	160.0	15.9
7382.730000	54.74	---	74.00	19.26	115.0	H	305.0	20.7
7382.730000	---	41.25	54.00	12.75	115.0	H	305.0	20.7
12194.271250	---	36.24	54.00	17.76	215.0	H	30.0	15.6
12194.271250	49.02	---	74.00	24.98	215.0	H	30.0	15.6
17680.910000	---	40.82	54.00	13.18	215.0	H	294.0	22.7
17680.910000	53.91	---	74.00	20.09	215.0	H	294.0	22.7

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Final_Result

RE 1GHz-18GHz_Mode 2_V

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1328.907500	40.16	---	74.00	33.84	215.0	V	354.0	2.1
1328.907500	---	27.94	54.00	26.06	215.0	V	354.0	2.1
2056.026250	---	31.24	54.00	22.76	103.0	V	0.0	6.5
2056.026250	43.86	---	74.00	30.14	103.0	V	0.0	6.5
3051.960000	49.32	---	74.00	24.68	115.0	V	163.0	12.5
3051.960000	---	36.38	54.00	17.62	115.0	V	163.0	12.5
5752.275000	---	38.88	54.00	15.12	100.0	V	352.0	17.3
5752.275000	51.73	---	74.00	22.27	100.0	V	352.0	17.3
12282.406250	---	36.09	54.00	17.91	115.0	V	251.0	15.9
12282.406250	48.61	---	74.00	25.39	115.0	V	251.0	15.9
17581.830000	---	40.76	54.00	13.24	102.0	V	135.0	22.4
17581.830000	54.56	---	74.00	19.44	102.0	V	135.0	22.4

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7.2. Conducted Emission

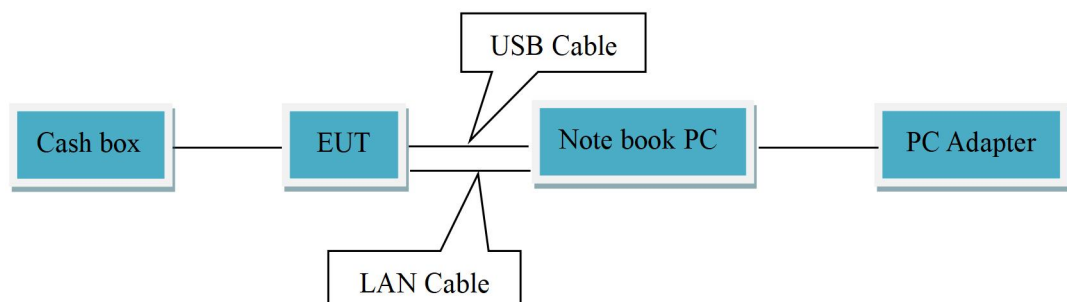
S1 (Main supply):

Specifications:	15.107 / 3.2.1
DUT Serial Number:	25B02W000009#S1:N507D53S10160
Date of Tests	2025-04-23
Test conditions:	Ambient Temperature:15°C-30°C Relative Humidity:30%-60%
Operation Mode	Mode 3: Full system+ Print+ C2+Q1+Q2+ C3+ A1 Mode 4: Full system+ Cash Box Open+ C2+ Q1+ Q2+ C3+ A1
Test Results:	Pass
Note: 1. The worst case of AC conducted emission is Mode 3. 2. Full system: The EUT is connected to the Note book PC for power supply via a USB cable. Meanwhile, the Note book PC controls the EUT to be in the printing working state or the cash box to be open through instructions. Meanwhile, the computer and the EUT realize the functions of receiving and sending packages through LAN cable.	

Limit Level Construction:

Frequency Range (MHz)	Conducted 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		

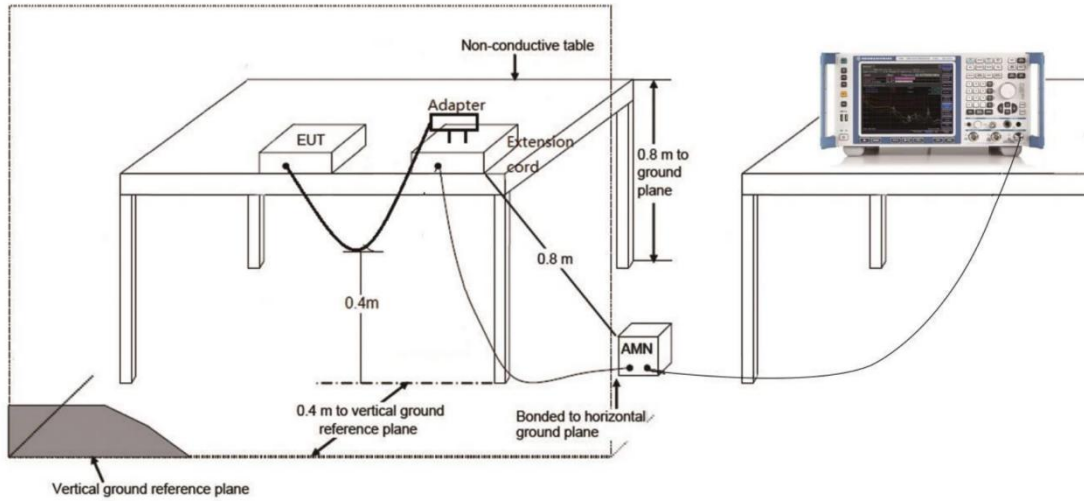
EUT Setup:



Mode 3-4

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Test Method:

For equipment that 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 with the band 150 kHz to 30MHz shall not exceed the limits. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. Tested in accordance with the procedures of ANSI C63.4-2014, section 7.

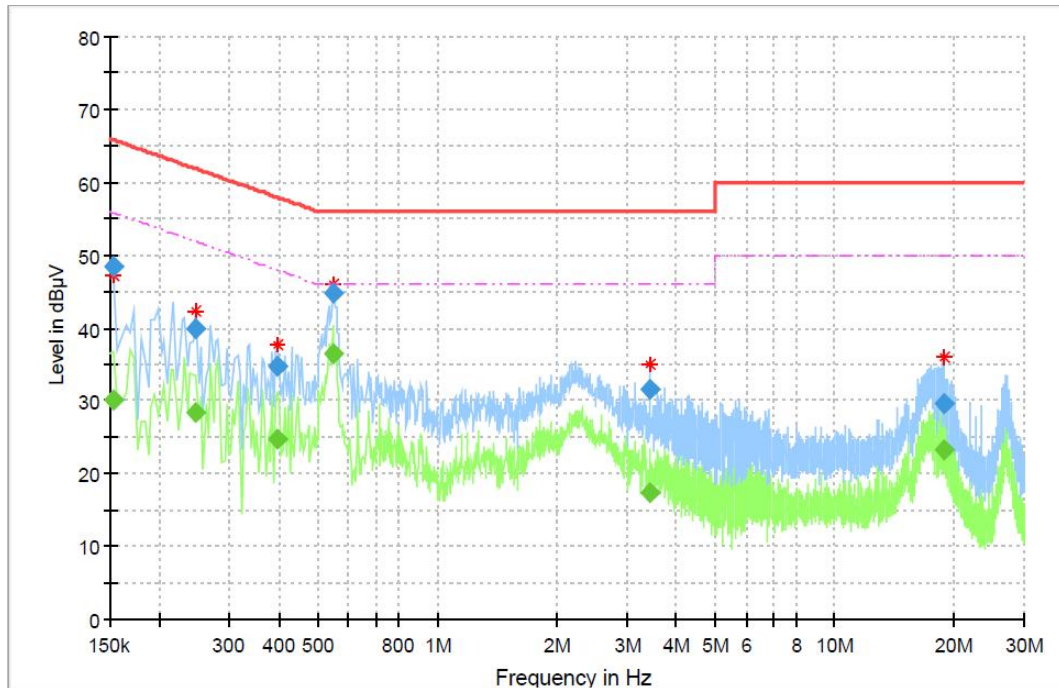
Uncertainty Measurement:

The measurement uncertainty (150kHz-30MHz) is 1.97 dB (k=2).

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Test Data



CE 150kHz-30MHz Mode 1

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.153731	---	30.02	15000.0	9.000	L1	ON	9.9	25.78	55.80
0.153731	48.35	---	15000.0	9.000	L1	ON	9.9	17.45	65.80
0.247013	---	28.44	15000.0	9.000	N	ON	10.2	23.42	51.86
0.247013	39.90	---	15000.0	9.000	N	ON	10.2	21.96	61.86
0.396263	---	24.61	15000.0	9.000	N	ON	10.1	23.32	47.93
0.396263	34.76	---	15000.0	9.000	N	ON	10.1	23.17	57.93
0.549244	---	36.50	15000.0	9.000	N	ON	10.1	9.50	46.00
0.549244	44.66	---	15000.0	9.000	N	ON	10.1	11.34	56.00
3.422306	---	17.34	15000.0	9.000	N	ON	9.8	28.66	46.00
3.422306	31.54	---	15000.0	9.000	N	ON	9.8	24.46	56.00
18.761475	---	23.16	15000.0	9.000	N	ON	9.8	26.84	50.00
18.761475	29.72	---	15000.0	9.000	N	ON	9.8	30.28	60.00

L1 and N is all have been tested, the result of them is synthesized in the above data diagram.

Emission level (quasi-peak or Average peak) (dBμV) = Raw value by receiver (dBμV) + Corr (Insertion loss+ cable loss) (dB)

The raw value is used to calculate by software which is not shown in the sheet.

Margin (dB) = limit value (dBμV) – emission level (dBμV).

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Annex A EUT Photos

See the document "25B02W000009-External Photos".

See the document "25B02W000009-Internal Photos".

Test photo See the document "25B02W000009_EMC Test Setup Photos".

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Annex B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

*****END OF REPORT*****

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