

## EMC TEST REPORT

<b>Applicant</b>	Dspread Technology (Beijing) Inc
<b>FCC ID</b>	2AGQ6-D20PRO
<b>Product</b>	Smart POS
<b>Model</b>	D20
<b>Report No.</b>	EFTA25020102-IE-07-E1
<b>Issue Date</b>	April 30, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2024)/ ANSI C63.4-2014**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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*Prepared by: Liu Wei*

*Approved by: Xu Kai*

**Eurofins TA Technology (Shanghai) Co., Ltd.**

*Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China*

*TEL: +86-021-50791141/2/3*

*FAX: +86-021-50791141/2/3-8000*

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### Summary of measurement results

Number	Test Case	Clause in FCC Rules	Conclusion
1	Radiated Emission	FCC Part15.109, ANSI C63.4-2014	PASS
2	Conducted Emission	FCC Part15.107, ANSI C63.4-2014	PASS
Date of Testing: March 17, 2025 ~ April 1, 2025			
Date of Sample Received: February 19, 2025			
Note: All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2 Test Facility

### **FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

### **A2LA (Certificate Number: 3857.01)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

## 1.3 Testing Location

Company:	Eurofins TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	<a href="https://www.eurofins.com/electrical-and-electronics">https://www.eurofins.com/electrical-and-electronics</a>
E-mail:	Kain.Xu@cpt.eurofinscn.com


## 2 General Description of Equipment Under Test

### 2.1 Applicant and Manufacturer Information

<b>Applicant</b>	Dspread Technology (Beijing) Inc
<b>Applicant address</b>	Rm.407, B12C, #10 (Universal Business Park), Jiuxianqiao Road, Chaoyang District, Beijing, China,100015
<b>Manufacturer</b>	Dspread Technology (Beijing) Inc
<b>Manufacturer address</b>	Rm.407, B12C, #10 (Universal Business Park), Jiuxianqiao Road, Chaoyang District, Beijing, China,100015

### 2.2 General Information

EUT Description			
Device Type	Portable Device		
Model	D20		
SN	01243020202410240001		
HW Version	2.0.0		
SW Version	2.1.1		
Power Rating	3.8V		
Connecting I/O Port(s)	Please refer to the User's Manual.		
Antenna Type	Internal Antenna		
Frequency	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824 ~ 849	869 ~ 894
	GSM 1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 5	824 ~ 849	869 ~ 894
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
	LTE Band 12	699 ~ 716	729 ~ 746
	LTE Band 17	704 ~ 716	734 ~ 746
	LTE Band 25	1850 ~ 1915	1930 ~ 1995
	LTE Band 26	814 ~ 849	859 ~ 894
	LTE Band 38	2570 ~ 2620	2570 ~ 2620

	LTE Band 41	2535 ~ 2655	2535 ~ 2655
	Bluetooth	2400 ~ 2483.5	2400 ~ 2483.5
	Bluetooth LE	2400 ~ 2483.5	2400 ~ 2483.5
	Wi-Fi 2.4GHz	2400 ~ 2483.5	2400 ~ 2483.5
	Wi-Fi 5GHz (U-NII-1)	5150 ~ 5250	5150 ~ 5250
	Wi-Fi 5GHz (U-NII-2A)	5250 ~ 5350	5250 ~ 5350
	Wi-Fi 5GHz (U-NII-3)	5725 ~ 5850	5725 ~ 5850
	NFC	13.56	13.56
EUT Accessory			
Battery	Manufacturer: Guangdong Fenghua New Energy Co.,Ltd. Model: F50022AA DC 3.8V, 2470mAh		
USB Cable	Manufacturer: ShenZhen FKY-QY Hardware&Electronics.,Ltd. Model: XC04W1000100 100cm		
Adapter	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO., LTD. Model: TPA-46B050100UU Input: 100-240V~50/60Hz 0.2A Output: 5.0V  1000mA		
Auxiliary Test Equipment			
PC	Manufacturer: Microsoft Model: 1724 (SN: 032324771953)		
Note: The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.			

## 2.3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

### Test standards

**FCC Code CFR47 Part15B (2024)**

**ANSI C63.4-2014**

## 2.4 Test Mode

Test Mode	
Mode 1	Adapter +USB cable +EUT+ Rear camera On + GSM/ WCDMA/ LTE/ Bluetooth/ Wi-Fi receiver
Mode 2	Adapter + USB cable+ EUT + play (1kHz)
Mode 3	USB Copy (EUT with PC) + USB cable
Mode 4	USB Copy (PC with EUT) + USB cable
Mode 5	Battery powered + EUT+ Rear camera On + GSM/ WCDMA/ LTE/ Bluetooth/Wi-Fi receiver
Mode 6	Battery powered + EUT + play(1kHz)

Test Type	Test Mode	Worst Mode
Radiated Emission	Mode 1~6	Mode 4
Conducted Emission	Mode 1~4	Mode 1
After technical evaluation or/and preliminary test, the test data of the worst-case condition was recorded in this report.		



### 3 Test Case Results

#### 3.1 Radiated Emission

##### Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

##### Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 10 meters below 1GHz; 3 meters for above 1GHz. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated signal level.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

Set the spectrum analyzer in the following:

Below 1GHz:

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK Detector: RBW=1MHz / VBW=3MHz/ Sweep=AUTO

(b) AVERAGE Detector: RBW=1MHz / VBW=3MHz / Sweep=AUTO

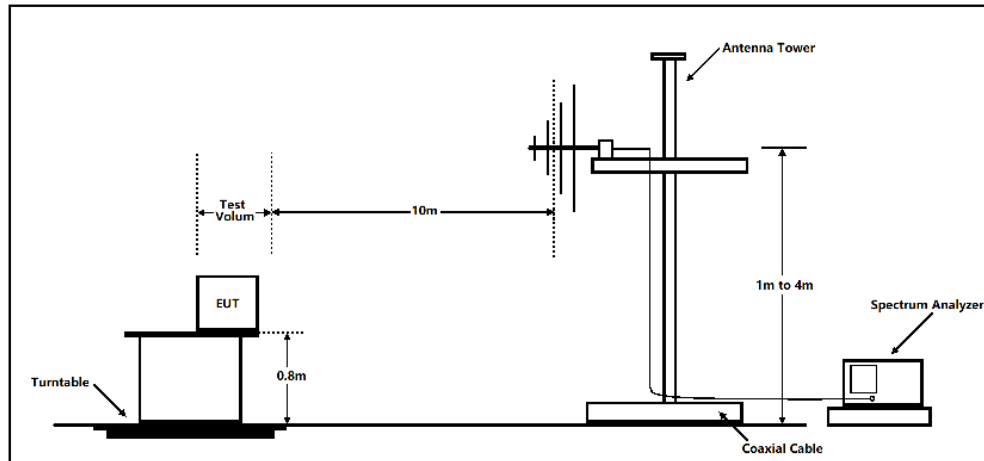
The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

During the test, EUT is connected to a laptop via a USB cable in the case of Transfer Data mode. The EUT is used as the peripheral equipment of the PC. The data is transferred from EUT to PC

## Test Setup

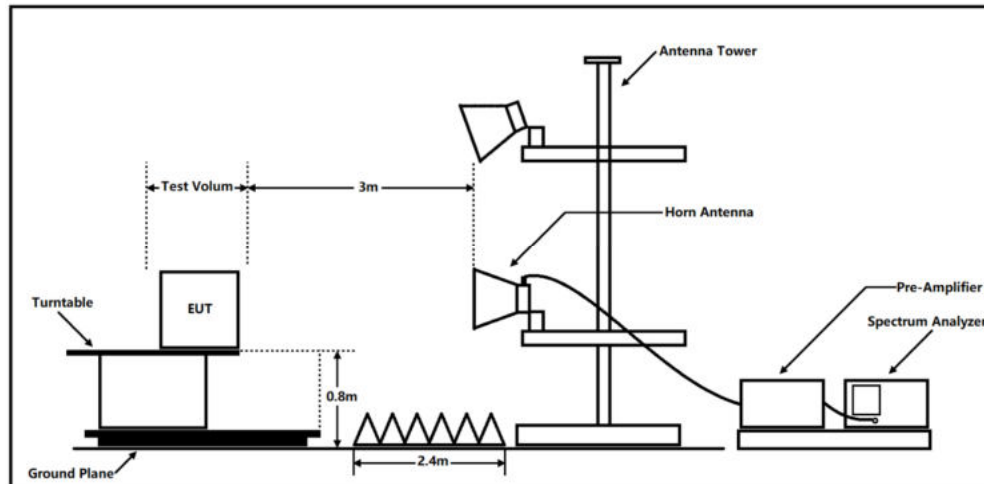
### Below 1GHz

#### Distance 10m



Note: Area side: 21m x 12m

### Above 1GHz



Note: Area side: 2.4mX3.6m

Antenna Tower meets ANSI C63.4 requirements for measurements above 1 GHz by keeping the antenna aimed at the EUT during the antenna's ascent/ descent along the antenna mast.

## Limits

### Class B

Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Detector
30 -88	30.0	Quasi-peak
88-216	33.5	Quasi-peak
216 – 960	36.0	Quasi-peak
960-1000	44.0	Quasi-peak
1000-5 <sup>th</sup> harmonic of the highest frequency or 40GHz, which is lower	54 74	Average Peak

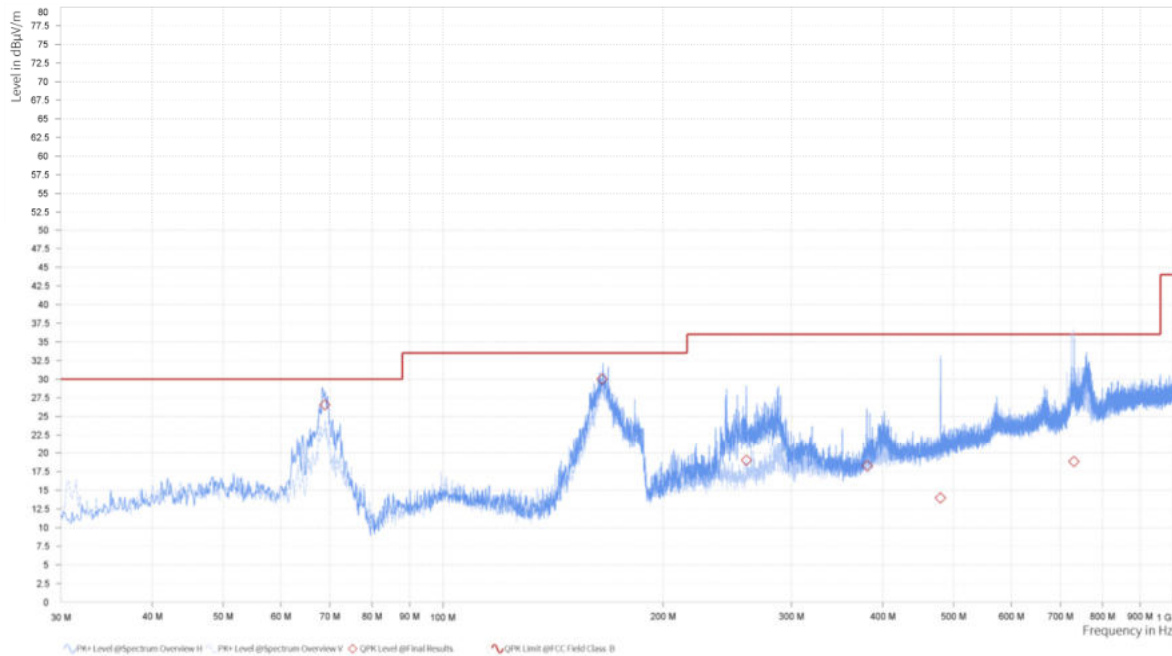
### Frequency range of radiated measurements

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

## Test Results

Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier. The Emissions in the frequency band 18GHz – 26.5GHz is more than 20dB below the limit are not reported.

The following graphs display the maximum values of horizontal and vertical by software.  
For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.



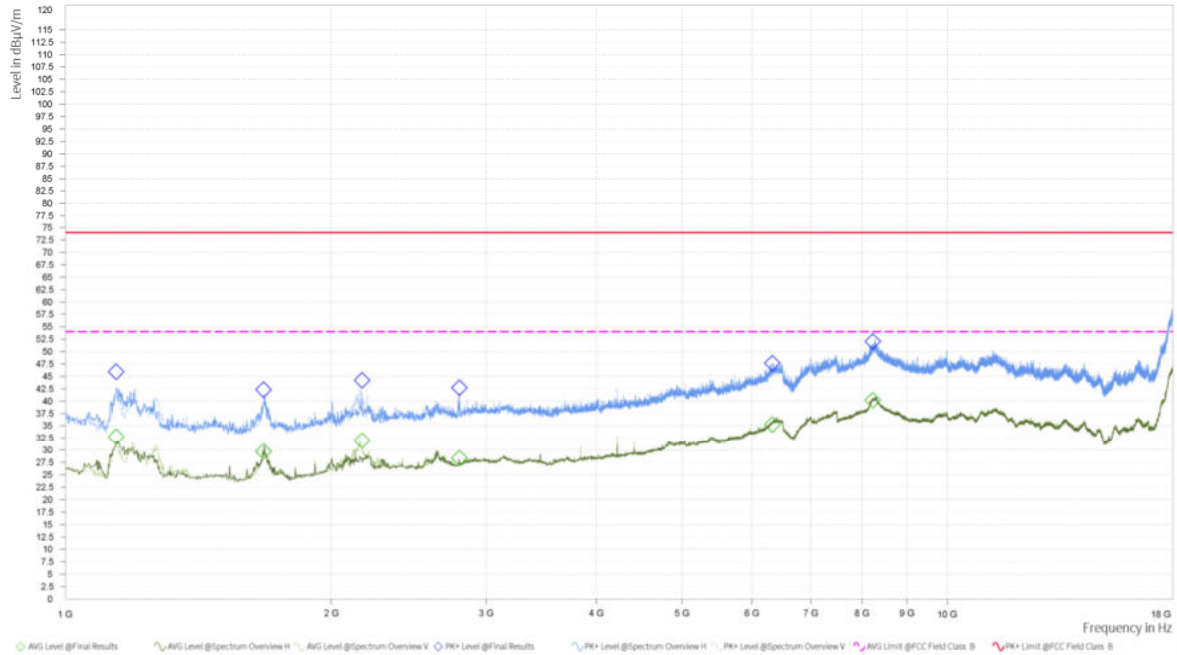
Radiated Emission from 30MHz to 1GHz

## EMI Final Results

Rg	Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	68.893	26.54	30.00	3.46	-12.17	H	346.5	1.89	120.000	1.000
1	165.167	30.00	33.5	3.50	-12.37	H	201.4	2.25	120.000	1.000
1	260.206	19.00	36.00	17.00	-8.37	H	155.9	1.89	120.000	1.000
1	380.910	18.25	36.00	17.75	-5.34	H	153.4	2.11	120.000	1.000
1	479.815	13.96	36.00	22.04	-3.45	V	126	1.14	120.000	1.000
1	730.672	18.82	36.00	17.18	0.66	V	56.3	2.25	120.000	1.000

**Remark: 1. Correction Factor = Antenna factor + Insertion loss(cable loss)**

**2. Margin = Limit – Quasi-Peak**



Radiated Emission from 1GHz to 18GHz

## EMI Final Results

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. Time [s]
1	1,142.375	45.95	74.00	28.05	32.75	54.00	21.25	-14.05	H	223.3	1.00	1.000
1	1,677.875	42.36	74.00	31.64	29.72	54.00	24.28	-12.86	V	155.6	1.00	1.000
1	2,168.750	44.20	74.00	29.80	32.01	54.00	21.99	-10.31	V	155.6	1.00	1.000
1	2,797.750	42.68	74.00	31.32	28.38	54.00	25.62	-7.84	H	139.4	1.00	1.000
1	6,333.750	47.68	74.00	26.32	35.31	54.00	18.69	3.09	H	260.7	1.00	1.000
1	8,231.375	52.02	74.00	21.98	40.23	54.00	13.77	8.25	H	24.7	2.00	1.000

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Margin = Limit – MaxPeak / Average

## 3.2 Conducted Emission

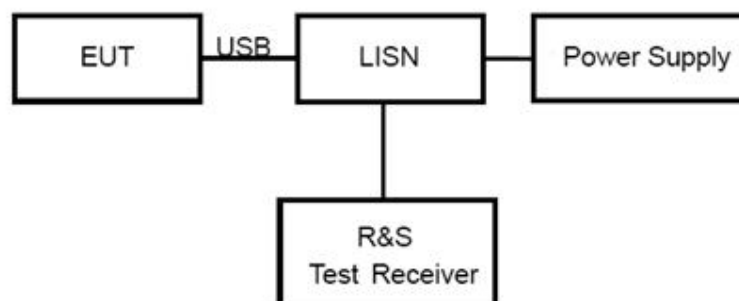
### Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

### Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

### Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage 120V/60Hz.

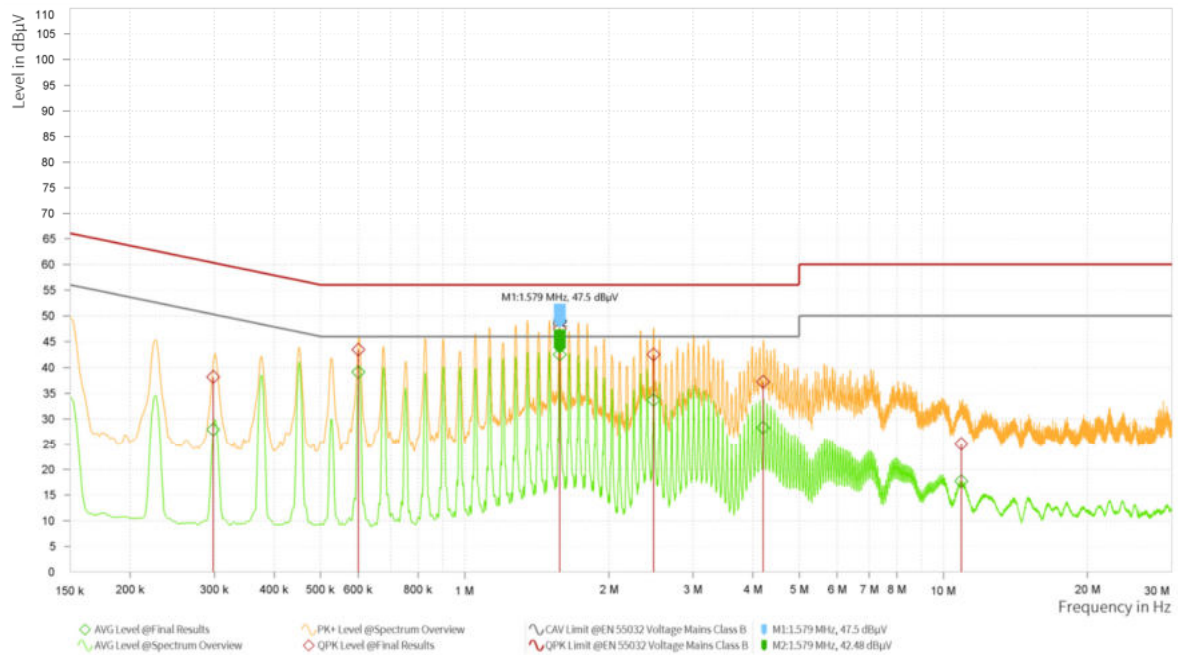
### Limits

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 to 56 *	56 to 46*
0.5 - 5	73	60	56	46
5 - 30	73	60	60	50

\*: Decreases with the logarithm of the frequency.

Note: The EUT should meet CLASS B limit.

## Test Results



## EMI Final Results

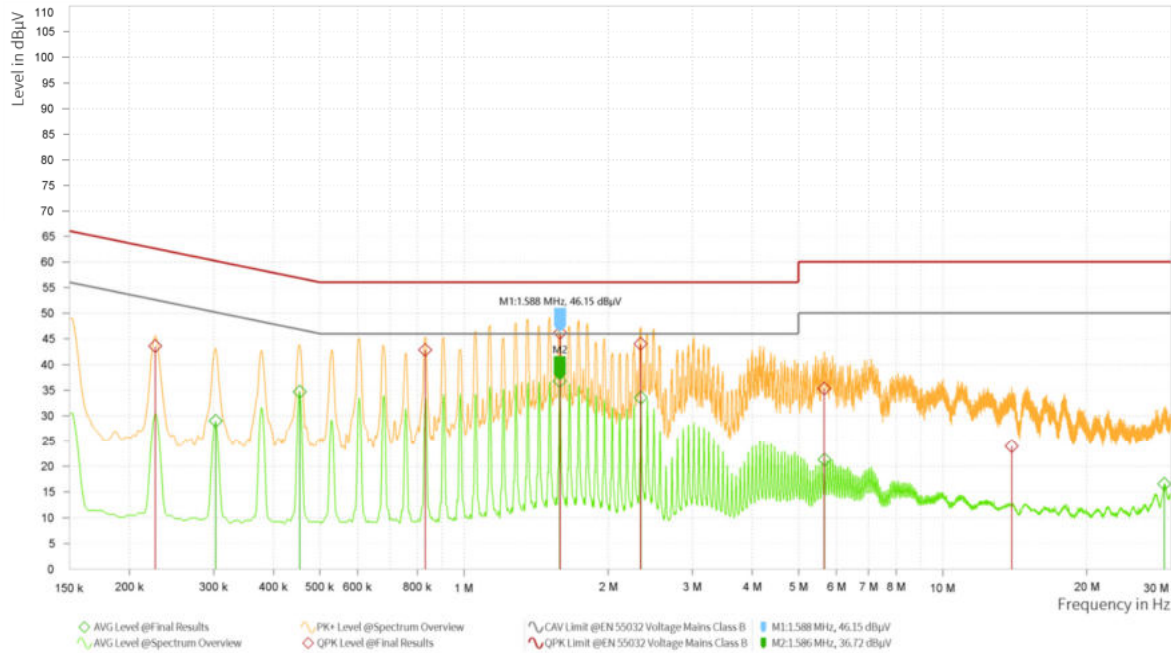
Rg	Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG: CAV Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
1	0.299	38.12	60.28	22.17	27.89	50.28	22.40	20.94	L1	9.000	1.000
1	0.600	43.47	56.00	12.53	39.10	46.00	6.90	20.68	L1	9.000	1.000
1	1.579	47.50	56.00	8.50	42.48	46.00	3.52	19.80	L1	9.000	1.000
1	2.479	42.47	56.00	13.53	33.65	46.00	12.35	19.55	L1	9.000	1.000
1	4.202	37.18	56.00	18.82	28.30	46.00	17.70	19.42	L1	9.000	1.000
1	10.907	25.07	60.00	34.93	17.67	50.00	32.33	19.41	L1	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

L line

Conducted Emission from 150 kHz to 30 MHz





## EMI Final Results

Rg	Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG: CAV Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
1	0.227	43.55	62.58	19.03				21.01	N	9.000	1.000
1	0.303				28.98	50.16	21.18	20.95	N	9.000	1.000
1	0.454				34.70	46.81	12.11	20.83	N	9.000	1.000
1	0.830	42.83	56.00	13.17				20.31	N	9.000	1.000
1	1.586				36.72	46.00	9.28	19.81	N	9.000	1.000
1	1.588	46.15	56.00	9.85				19.81	N	9.000	1.000
1	2.339	43.99	56.00	12.01				19.58	N	9.000	1.000
1	2.342				33.52	46.00	12.48	19.58	N	9.000	1.000
1	5.658	35.31	60.00	24.69				19.41	N	9.000	1.000
1	5.660				21.29	50.00	28.71	19.41	N	9.000	1.000
1	13.940	23.94	60.00	36.06				19.50	N	9.000	1.000
1	29.036				16.51	50.00	33.49	19.88	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line

Conducted Emission from 150 kHz to 30 MHz



## 4 Uncertainty Measurement

Case	Uncertainty	Factor k
Radiated Emission 30MHz – 200MHz	3.39 dB	1.96
Radiated Emission 200MHz – 1GHz	3.82 dB	1.96
Radiated Emission 1GHz – 18GHz	6.51 dB	1.96
Conducted Emission	2.57 dB	2

## 5 Main Test Instruments

Name of Equipment	Manufacturer	Type/Model	Serial Number	Calibration Date	Expiration Time
Radiated Emission					
EMI Test Receiver	R&S	ESR	102721	2024-05-07	2025-05-06
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	01615	2023-10-19	2026-10-18
Software	R&S	ELEKTRA	5.02.1	/	/
EMI Test Receiver	R&S	ESR	102389	2024-05-07	2025-05-06
Signal Analyzer	R&S	FSV40	101298	2024-05-07	2025-05-06
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	01111	2022-10-25	2025-10-24
Software	R&S	EMC32	9.26.01	/	/
Conducted Emission					
Artificial main network	R&S	ENV216	102191	2024-12-02	2026-12-01
EMI Test Receiver	R&S	ESR	101667	2024-05-07	2025-05-06
Software	R&S	EMC32	10.35.10	/	/

## **ANNEX A: The EUT Appearance**

The EUT Appearance are submitted separately.

## ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

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