EMC TEST REPORT

Applicant	Dspread Technology (Beijing) Inc
FCC ID	2AGQ6-D70
Product Type	Smart POS
Model	D70
Report No.	R2411A1678-E1V2
Issue Date	February 24, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2023)/ 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.

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

Table of Contents

Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	January 24, 2025
Rev.1	Update description.	February 19, 2025
Rev.2	Update description.	February 24, 2025
Note: This revised report (Report No.: R2411A1678-E1V2) supersedes and replaces the previously issued report (Report No.: R2411A1678-E1V1). Please discard or destroy the previously issued report and dispose of it accordingly.		

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: November 7, 2024 ~ December 9, 2024 Date of Sample Received: November 7, 2024			
1. 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:	https://www.eurofins.com/electrical-and-electronics
E-mail:	Kain.Xu@cpt.eurofinscn.com

2 General Description of Equipment Under Test

2.1 Applicant and Manufacturer Information

Applicant	Dspread Technology (Beijing) Inc
Applicant address	Rm.407, B12C, #10 (Universal Business Park), Jiuxianqiao Road, Chaoyang District, Beijing, China,100015
Manufacturer	Dspread Technology (Beijing) Inc
Manufacturer address	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	D70		
Lab internal SN	R2411A1678/S01		
HW Version	1.1.0		
SW Version	1.1.0		
Power Rating	DC 3.8V from battery		
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 ~ 2654.9	2535 ~ 2654.9

	Bluetooth	2400 ~ 2483.5	2400 ~ 2483.5
	Wi-Fi 2.4G	2400 ~ 2483.5	2400 ~ 2483.5
	Wi-Fi 5G (U-NII-1)	5150 ~ 5250	5150 ~ 5250
	Wi-Fi 5G (U-NII-2A)	5250 ~ 5350	5250 ~ 5350
	Wi-Fi 5G (U-NII-2C)	5470 ~ 5725	5470 ~ 5725
	Wi-Fi 5G (U-NII-3)	5725 ~ 5850	5725 ~ 5850
	NFC	13.56	13.56
EUT Accessory			
Battery	Manufacturer: Guangdong Fenghua New Energy Co.,Ltd. Model: F50109MA		
USB Cable	Manufacturer: ShenZhen FKY-QY Hardware&Electronics.,Ltd. Model: XC04W1000100 100cm Cable, Shielded		
Auxiliary Test Equipment			
PC	Manufacturer: DELL Model: Latitude 3301 (SN: DR6DJW2)		
Note: 1. 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 (2023)
ANSI C63.4-2014

2.4 Test Mode

Test Mode	
Mode 1	Adapter +USB cable+ Rear camera On +Receiver
Mode 2	Adapter + USB cable + play(1kHz) +Receiver
Mode 3	USB Copy (EUT with PC) + USB cable +Receiver
Mode 4	USB Copy (PC with EUT) + USB cable +Receiver
Mode 5	Battery Powered +EUT +Front Camera On +Receiver

Test Type	Test Mode	Worst Mode
Radiated Emission	Mode 1, 2, 3, 4, 5	Mode 4
Conducted Emission	Mode 1, 2, 3, 4,	Mode 4

Note:
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 3 meters. 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:

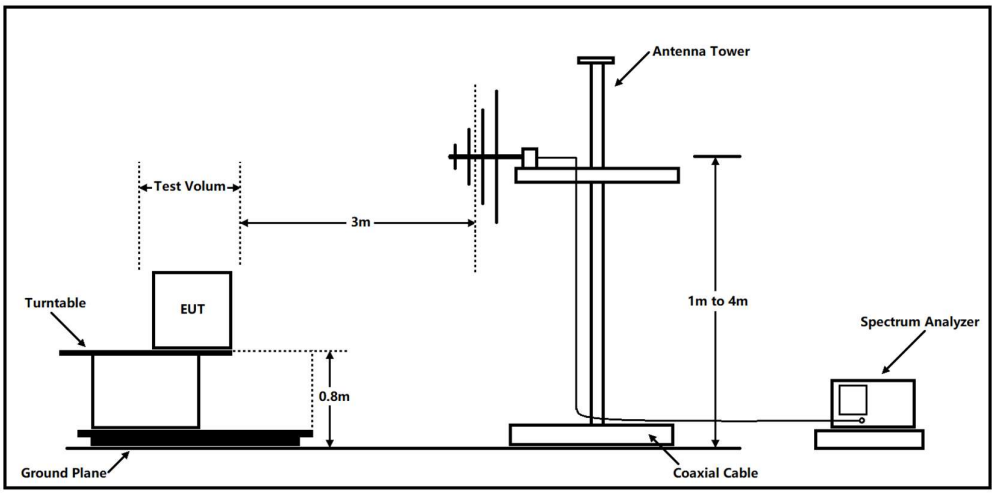
Below 1GHz:
RBW=100 kHz / VBW=300 kHz / Sweep=AUTO
Above 1GHz:
(a) PEAK Detector: RBW=1MHz / VBW=3MHz/ Sweep=AUTO
(b) AVERAGE Detector: RBW=1MHz / VBW=3MHz / Sweep=AUTO

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.

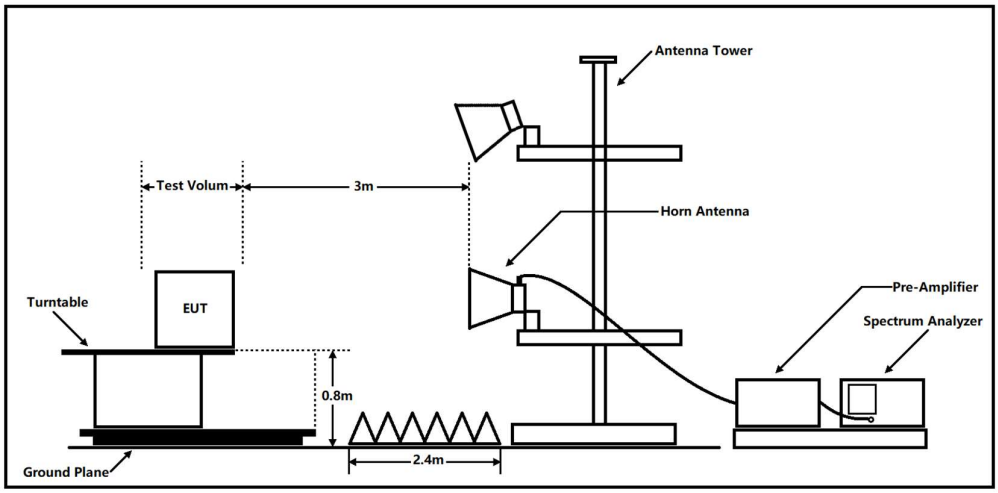
During the test, EUT is connected to a laptop via a USB cable in the case of Transfer Data mode. The EUT is used as the peripheral equipment of the PC. The data is transferred from EUT to PC; PC is connected to server via a long LAN cable.

Test Setup

Below 1GHz



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 (dBµV/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5th harmonic of the highest frequency or 40GHz, which is lower	54 74	Average Peak

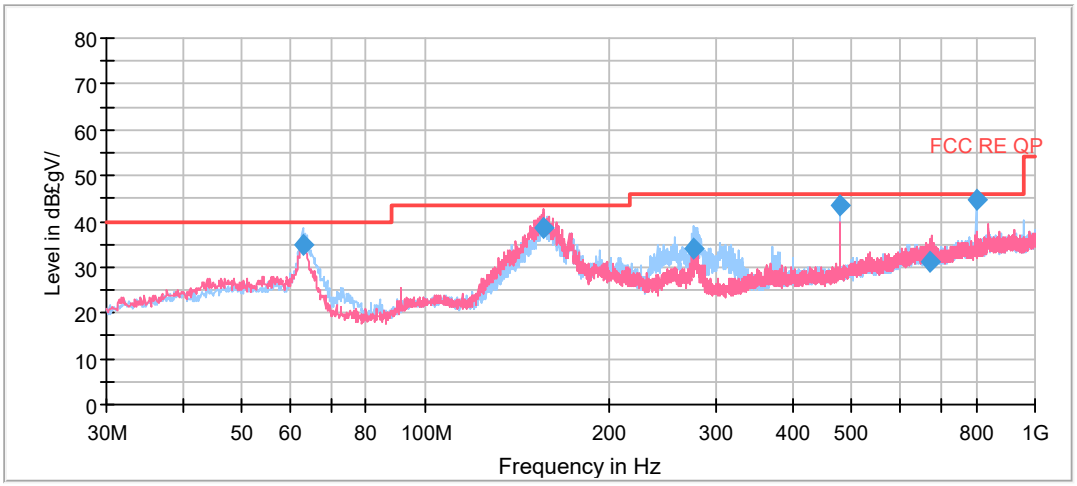
Frequency range of radiated measurements

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.
A symbol (dB V/) in the test plot below means (dBµV/m)

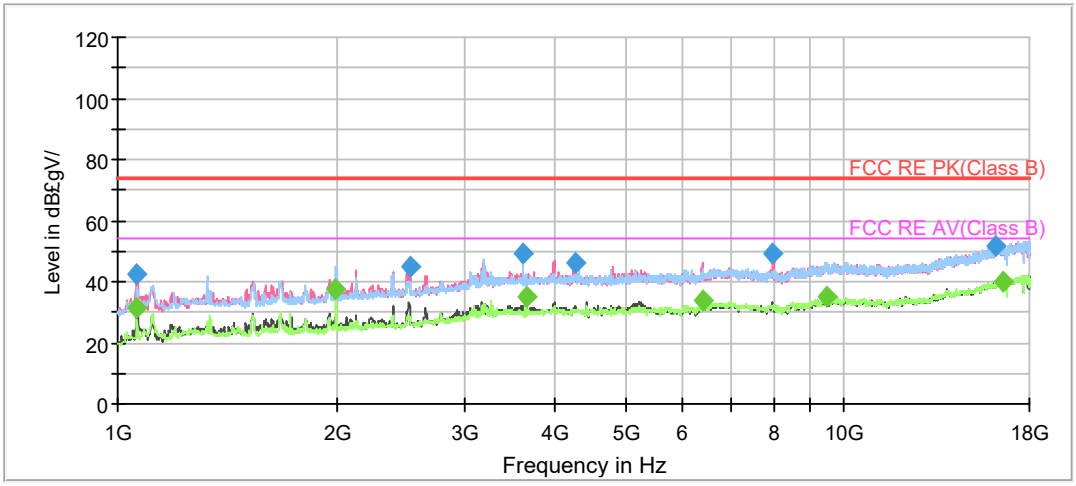
Mode 4



Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
63.300000	34.98	40.00	5.02	1000.0	225.0	H	139.0
156.22625	38.36	43.50	5.14	1000.0	100.0	V	61.0
276.25375	33.89	46.00	12.11	1000.0	109.0	H	10.0
479.99875	43.68	46.00	2.32	1000.0	100.0	H	37.0
674.36875	31.32	46.00	14.68	1000.0	100.0	V	183.0
800.05875	44.72	46.00	1.28	1000.0	109.0	H	100.0

Remark: 1. Correction Factor = Antenna factor + Insertion loss(cable loss)
2. Margin = Limit – Quasi-Peak



Radiated Emission from 1GHz to 18GHz

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1061.625000	42.60	---	74.00	31.40	500.0	200.0	V	193.0	-20.4
1063.750000	---	31.61	54.00	22.39	500.0	200.0	V	217.0	-20.3
1998.750000	---	37.47	54.00	16.53	500.0	200.0	H	237.0	-14.6
2521.500000	45.18	---	74.00	28.82	500.0	200.0	V	146.0	-12.2
3620.125000	49.51	---	74.00	24.49	500.0	200.0	H	300.0	-8.1
3647.750000	---	34.93	54.00	19.07	500.0	100.0	H	331.0	-8.0
4255.500000	46.19	---	74.00	27.81	500.0	200.0	V	56.0	-6.5
6393.250000	---	33.84	54.00	20.16	500.0	100.0	V	57.0	-4.2
7976.375000	49.01	---	74.00	24.99	500.0	200.0	V	178.0	-2.5
9476.625000	---	34.83	54.00	19.17	500.0	100.0	V	200.0	0.0
16219.25000	51.74	---	74.00	22.26	500.0	200.0	V	37.0	7.4
16593.25000	---	40.16	54.00	13.84	500.0	200.0	H	116.0	8.1

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Margin = Limit – MaxPeak / Average

3.2 Conducted Emission

Ambient Condition

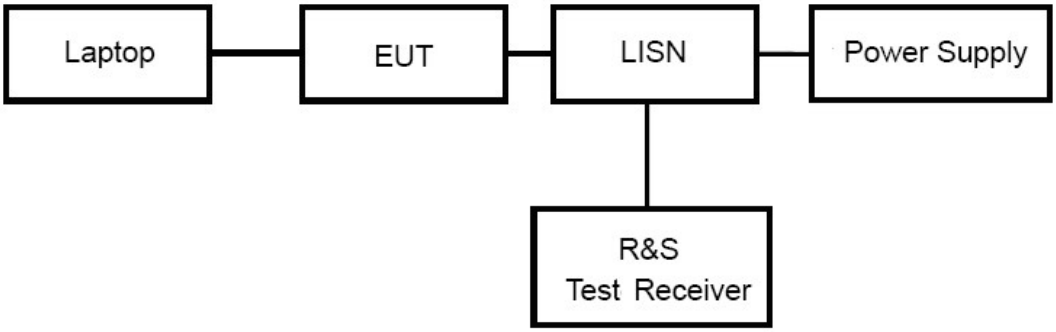
Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

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.

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; PC is connected to server via a long LAN cable.

Test Setup



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

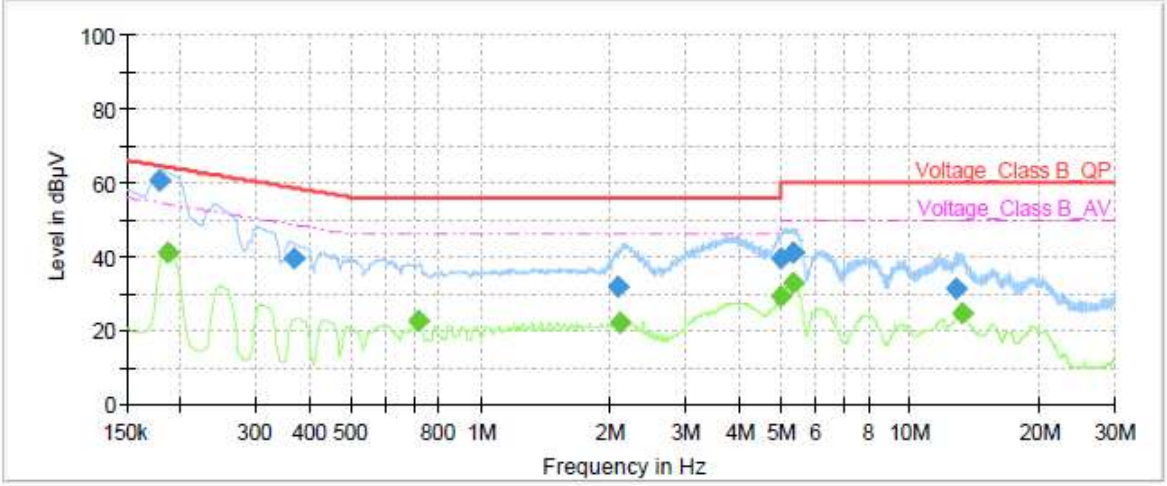
Limits

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

Following plots, Blue trace uses the peak detection; Green trace uses the average detection.

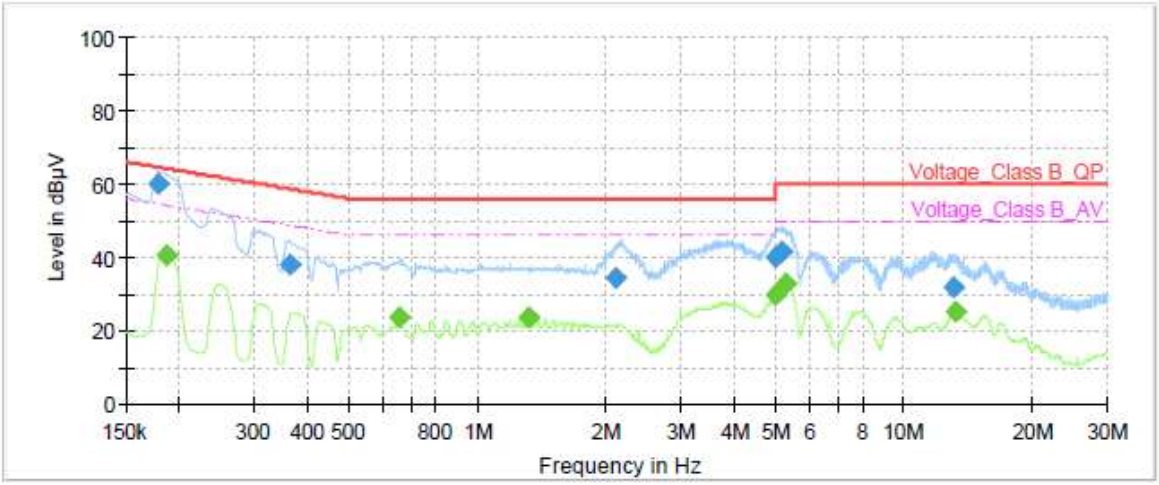


Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.18	60.35	---	64.52	4.17	1000.0	9.000	L1	ON	21.1
0.19	---	41.13	54.21	13.09	1000.0	9.000	L1	ON	21.1
0.37	39.54	---	58.59	19.05	1000.0	9.000	L1	ON	21.0
0.72	---	22.72	46.00	23.28	1000.0	9.000	L1	ON	20.6
2.08	32.02	---	56.00	23.98	1000.0	9.000	L1	ON	19.7
2.11	---	22.15	46.00	23.85	1000.0	9.000	L1	ON	19.7
4.98	---	29.28	46.00	16.72	1000.0	9.000	L1	ON	19.5
4.98	39.48	---	56.00	16.52	1000.0	9.000	L1	ON	19.5
5.34	---	32.94	50.00	17.06	1000.0	9.000	L1	ON	19.5
5.35	41.27	---	60.00	18.73	1000.0	9.000	L1	ON	19.5
12.80	31.45	---	60.00	28.55	1000.0	9.000	L1	ON	19.6
13.16	---	24.85	50.00	25.15	1000.0	9.000	L1	ON	19.6

Remark: Correct factor=cable loss + LISN factor

L line

Conducted Emission from 150 kHz to 30 MHz



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.18	59.92	---	64.52	4.60	1000.0	9.000	N	ON	21.1
0.19	---	40.29	54.21	13.93	1000.0	9.000	N	ON	21.1
0.36	38.03	---	58.64	20.61	1000.0	9.000	N	ON	21.0
0.66	---	23.81	46.00	22.19	1000.0	9.000	N	ON	20.7
1.32	---	23.48	46.00	22.52	1000.0	9.000	N	ON	20.0
2.12	34.46	---	56.00	21.54	1000.0	9.000	N	ON	19.7
4.98	---	29.93	46.00	16.08	1000.0	9.000	N	ON	19.5
4.99	40.21	---	56.00	15.79	1000.0	9.000	N	ON	19.5
5.16	41.75	---	60.00	18.25	1000.0	9.000	N	ON	19.5
5.28	---	33.04	50.00	16.96	1000.0	9.000	N	ON	19.5
13.08	31.98	---	60.00	28.02	1000.0	9.000	N	ON	19.6
13.23	---	25.16	50.00	24.84	1000.0	9.000	N	ON	19.6

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	4.17 dB	1.96
Radiated Emission 200MHz – 1GHz	4.84 dB	1.96
Radiated Emission 1GHz – 18GHz	4.35 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	ESCI3	100948	2024-05-07	2025-05-06
Signal Analyzer	R&S	FSV40	101186	2024-05-07	2025-05-06
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2023-04-16	2026-04-15
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	1023	2023-07-14	2026-07-13
Horn Antenna	SCHWARZBECK	BBHA 9120D	430	2024-07-18	2027-07-17
Amplifier	MWPA.CN	MWLA-010200G40	YQ2103039B01	2024-05-07	2025-05-06
Horn Antenna	ETS-Lindgren	3160-09	00102643	2024-09-24	2027-09-23
Amplifier	MicroWave	KLNA-18040050	220826001	2024-05-08	2025-05-07
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 ******