



시험 성적서

TEST REPORT

페이지(page) : (1) / 총(Total) (21)

성적서 번호 Report No.		ICRT-TR-E250322-0A	
신청자 Client	기관명 Name	AISOLUTION CO., LTD	
	주 소 Address	28-4, Samyang-ro 29gil, Gangbuk-gu, Seoul, 01194, Republic of Korea	
시험대상품목 Sample description		Barcode Reader with 0.5W UHF RFID Reader	
모델명 Type description		KDC1200	
정 격 Ratings		DC 3.7 V	
시험장소 Place of test		☒ 고정시험실(Permanent Testing Lab) ☐ 현장시험(On Site Testing) 주소지(Address): 112, 113 Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea	
시험기간 Date of test		21. Jan. 2025 ~ 24. Jan. 2025	
시험방법/항목 Test Method/Item		FCC Part 15 Subpart C	
시험결과 Test Results		Refer to 3. Test Summary	
확 인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성명 Eun-Hye, Kwak Name (Signature)	성명 Yong-Min, Won Name (Signature)	

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2025. 02. 04

주식회사 아이씨알 대표이사

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E250322-0A	2025.02.04	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	AISOLUTION CO., LTD
Address	28-4, Samyang-ro 29gil, Gangbuk-gu, Seoul, 01194, Republic of Korea

1.2 Manufacturer Information

Applicant	AISOLUTION CO., LTD
Address	28-4, Samyang-ro 29gil, Gangbuk-gu, Seoul, 01194, Republic of Korea

1.3 Test Laboratory Information

Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
KOLAS No.	KT652
KC & FCC	KR0165

1.4 Measurement Uncertainty

Parameter	Uncertainty	Limit
Occupied Channel Bandwidth	0.14%	±5 %
RF output power, conducted	0.85 dB	±1.5 dB
Power Spectral Density, conducted	1.44 dB	±3 dB
Unwanted Emissions, conducted	1.35 dB	±3 dB
Supply voltages	0.02%	±3 %
Time	0.58%	±5 %
All emissions, radiated (Under the 30 MHz)	2.10 dB	±6 dB
All emissions, radiated (Range 30 MHz ~ 1 GHz)	1.95 dB	±6 dB
All emissions, radiated (Above the 1 GHz)	2.47 dB	±6 dB



2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Barcode Reader with 0.5W UHF RFID Reader
Model Name	KDC1200
Additional Model Name	-
FCC ID	VH9-KDC1200
Power Supply	DC 3.7 V

2.2 Additional Information

Equipment Class	DSS - Frequency Hopping Spread Spectrum system
Device Type	Stand-alone
Operating Frequency	917.10 MHz ~ 926.90 MHz
RF Output Power	26.41 dBm
Number of Channel	50
Modulation Type	ASK
Antenna Type	Ceramic Patch Antenna
Antenna Gain	4 dBi

2.3 Modifications of EUT

- None



3. Test Summary

3.1 Test standards and results

FCC Part 15 Subpart C			
Clause	Test items	Applied	Results
§15.247 (a)(1)(i)	20 dB Bandwidth	■	N/A(Note 1)
§15.247 (a)(1)(i)	Carrier Frequency Separation	■	N/A(Note 1)
§15.247 (a)(1)(i)	Number of Hopping Frequencies	■	N/A(Note 1)
§15.247 (a)(1)(i)	Time of Occupancy (dwell Time)	■	N/A(Note 1)
§15.247 (b)(2)	Maximum Conducted Output Power	■	N/A(Note 1)
§15.247 (d)	Conducted Spurious Emission & Band edge	■	N/A(Note 1)
§15.247 (d) & §15.209 & §15.205	Radiated Spurious Emission & Band edge	■	PASS
§15.207	Power Line Conducted Emission	■	PASS

Note 1 : Not applicable because the EUT uses a certified RFID module.

※Compare the x, y, and z axes and test on the y-axis with the higher output value.

3.2 Purpose of the test

- To determine whether the equipment under test fulfills the requirements of the standards stated in section 3.1 and the provision of Article 3.2 of Directive 2014/53/EU

3.3 Test Methodology

- Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4 Configuration of Test System

- Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4.1 Radiated emission test

- Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.



3.5 Antenna requirement

- 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.

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.

And according to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Result: Pass

The transmitter has a **Ceramic Patch Antenna**. The directional gain of the antenna is **4 dBi**.



4. Test Result

4.1. 20 dB Bandwidth

4.1.1 Test procedure

ANSI C63.10-2013 Clause 6.9.2

4.1.2 Limit

§15.247 (a)(1)(i)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

4.1.3 Test data

Result : Pass

Test Result : Report Number [DRTFCC1802-0038]



4.2 Carrier Frequency Separation

4.2.1 Test procedure

ANSI C63.10-2013 Clause 7.8.2

4.2.2 Limit

§15.247 (a)(1)(i)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

4.2.3 Test data

Result : Pass

Test Result : Report Number [DRTFCC1802-0038]



4.3 Number of Hopping Frequency

4.3.1 Test procedure

ANSI C63.10-2013 Clause 7.8.3

4.3.2 Limit

15.247 (a)(1)(i)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

4.3.3 Test data

Result : Pass

Test Result : Report Number [DRTFCC1802-0038]



4.4 Time of Occupancy (dwell Time)

4.4.1 Test procedure

ANSI C63.10-2013 Clause 7.8.4

4.4.2 Limit

15.247 (a)(1)(i)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

4.4.3 Test data

Result : Pass

Test Result : Report Number [DRTFCC1802-0038]



4.5 Maximum Conducted Output Power

4.5.1 Test procedure

ANSI C63.10-2013 Clause 7.8.5

4.5.2 Limit

§15.247 (b)(2)

For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

4.5.3 Test data

Result : Pass

Test Result : Report Number [DRTFCC1802-0038]



4.6 Conducted Spurious Emission

4.6.1 Test procedure

ANSI C63.10-2013 Clause 7.8.8, 6.10.4

4.6.2 Limit

§15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

4.6.3 Test data

Result : Pass

Test Result : Report Number [DRTFCC1802-0038]



4.7 Radiated Spurious Emission

4.7.1 Test procedure

ANSI C63.10-2013 Clause 6.4, 6.5, 6.6

4.7.2 Limit

§15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

§15.209 Radiated emission limits; general requirements.(a)

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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.



§15.205 Restricted bands of operation.(a),(b)

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

Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.



4.7.3 Test data

Result : Pass

worst Mode

- Below 30 MHz

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
0.345	40.36	QP	V	19.30	59.66	96.94	37.28	
0.692	24.37	QP	V	19.30	43.67	71.02	27.35	
1.457	25.89	QP	V	19.40	45.29	64.38	19.09	
1.612	25.97	QP	V	19.40	45.37	63.47	18.10	
1.634	27.84	QP	V	19.40	47.24	63.35	16.11	
5.683	15.65	QP	V	19.60	35.25	69.54	34.29	



- 30 MHz ~ 1 GHz_Low ch

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
39.312	34.19	QP	V	-14.30	19.89	40.00	20.11	
216.046	28.71	QP	V	-15.40	13.31	46.00	32.69	
273.858	28.06	QP	V	-13.00	15.06	46.00	30.94	
293.355	26.03	QP	V	-12.70	13.33	46.00	32.67	
400.055	26.45	QP	V	-9.40	17.05	46.00	28.95	
591.824	37.54	QP	H	-6.30	31.24	46.00	14.76	

- 30 MHz ~ 1 GHz_Mid ch

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
723.356	26.58	QP	V	-3.90	22.68	46.00	23.32	
820.453	27.14	QP	V	-2.00	25.14	46.00	20.86	
828.601	24.60	QP	H	-1.90	22.70	46.00	23.30	
844.218	27.76	QP	H	-1.50	26.26	46.00	19.74	
866.528	27.70	QP	V	-1.30	26.40	46.00	19.60	
885.346	27.53	QP	H	-1.30	26.23	46.00	19.77	

- 30 MHz ~ 1 GHz_High ch

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
48.624	32.64	QP	H	-13.00	19.64	40.00	20.36	
629.751	24.81	QP	V	-6.20	18.61	46.00	27.39	
709.194	24.73	QP	H	-4.30	20.43	46.00	25.57	
778.743	24.67	QP	V	-3.20	21.47	46.00	24.53	
824.527	24.50	QP	V	-1.80	22.70	46.00	23.30	
838.204	24.48	QP	V	-1.70	22.78	46.00	23.22	



- 1 GHz Above_Low ch

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
1 834.00	56.62	PK	V	-14.60	42.02	74.00	31.98	2nd Harmonic
	51.85	AVG	V		37.25	54.00	16.75	
2 751.00	51.11	PK	V	-7.80	43.31	74.00	30.69	3rd Harmonic
	44.46	AVG	V		36.66	54.00	17.34	
3 668.50	43.68	PK	V	-5.30	38.38	74.00	35.62	4nd Harmonic
	32.62	AVG	V		27.32	54.00	26.68	

- 1 GHz Above_Mid ch

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
1 844.00	62.43	PK	V	-14.60	47.83	74.00	26.17	2nd Harmonic
	58.75	AVG	V		44.15	54.00	9.85	
2 765.50	56.10	PK	V	-8.10	48.00	74.00	26.00	3rd Harmonic
	42.19	AVG	V		34.09	54.00	19.91	
3 688.00	42.53	PK	V	-5.30	37.23	74.00	36.77	4nd Harmonic
	29.00	AVG	V		23.70	54.00	30.30	
9 784.00	37.44	PK	V	5.50	42.94	74.00	31.06	Spurious Emission
	24.15	AVG	V		29.65	54.00	24.35	

- 1 GHz Above_High ch

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
1 172.00	47.75	PK	V	-17.80	29.95	74.00	44.05	Spurious Emission
	33.89	AVG	V		16.09	54.00	37.91	
1 853.50	56.41	PK	V	-14.60	41.81	74.00	32.19	2nd Harmonic
	50.18	AVG	V		35.58	54.00	18.42	
2 780.50	56.37	PK	V	-8.80	47.57	74.00	26.43	3rd Harmonic
	60.05	AVG	V		51.25	54.00	2.75	



4.8 Power Line Conducted Emission

4.8.1 Test procedure

ANSI C63.10-2013 Clause 6.2

4.8.2 Limit

§15.207 (a)

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator 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, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

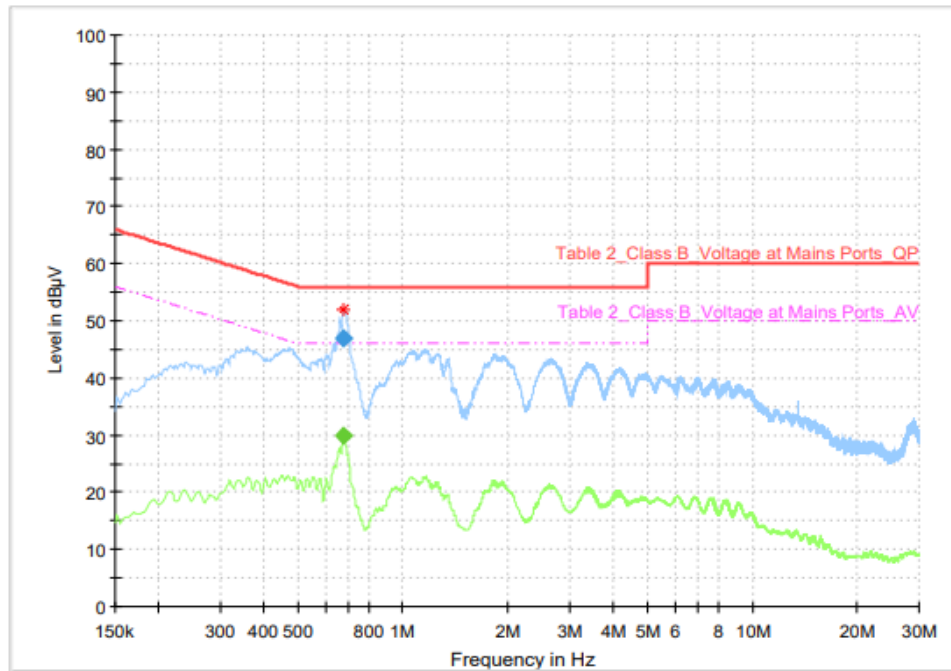
*Decreases with the logarithm of the frequency.



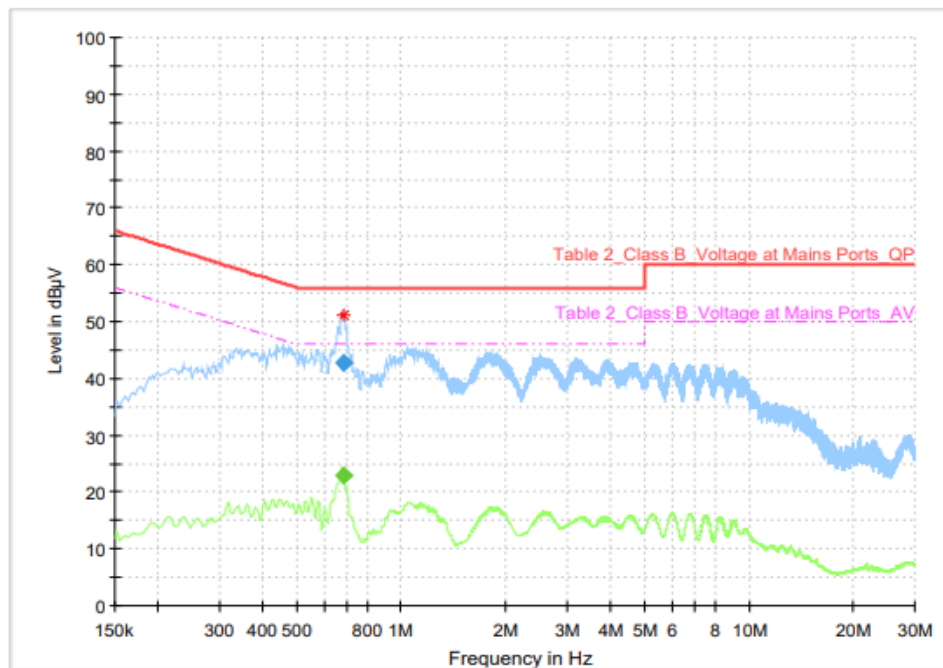
4.8.3 Test data

Result : Pass

L-Line Conducted Emission



N-Line Conducted Emission





5. Used equipment

	Description	Model Name	Manufacturer	Serial Number	Next Cal
■	SIGNAL GENERATOR	SMB100A	ROHDE & SCHWARZ	180607	2025-02-27
■	LOOP ANTENNA	HFH2-Z2	ROHDE & SCHWARZ	100271	2025-03-08
■	SPECTRUM ANALYZER	FSV40-N	ROHDE & SCHWARZ	101303	2025-02-27
■	DC BLOCK	PDCB-00012650-SMSF-2	PSATEK INC.	-	2025-03-06
■	BAND REJECTION FILTER	CTF-912M-S1	RF ONE ELECTRONICS	BRF1805C001	2025-02-27
■	DC POWER SUPPLY	XDL35-5P	XANTREX	J00385373	2025-02-27
■	TRILOG BROADBAND ANTENNA	VULB 9162	SCHWARZBECK	143	2025-04-14
■	EMI TEST RECEIVER	ESR26	ROHDE & SCHWARZ	101462	2025-03-28
■	SIGNAL CONDITIONING UNIT	SCU 08	ROHDE & SCHWARZ	100746	2025-03-28
■	DOUBLE-RIDGED HORN ANTENNA	HF907	ROHDE & SCHWARZ	102556	2025-07-25
■	SIGNAL CONDITIONING UNIT	SCU18	ROHDE & SCHWARZ	102342	2025-03-28
■	EMI TEST RECEIVER	ESR26	ROHDE & SCHWARZ	101461	2025-03-28
■	TWO-LINE V-NETWORK	ENV216	ROHDE & SCHWARZ	102195	2025-09-12
■	EMI TEST RECEIVER	ESR7	ROHDE & SCHWARZ	102034	2025-03-28

- END OF REPORT.