EMC TEST REPORT

On Behalf of

Riches hardware Co., Ltd

For

Industrial Control Switchboard

Model No. :

MNS, GCK, GCS, VFD, ATS, ACC, ACP, AP, AL, AF, APE, ALE, AD, AS, AR, AW, JXF, XM, XL-21, GGD, GGJ, DB, PDU, ODC, OSG, ODB, OTC, AH, AM, AA, AJ

Prepared for

Riches hardware Co., Ltd

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Prepared by

Shenzhen Anteng Testing Technology Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name..... :	Riches hardware Co., Ltd
Address..... :	Building 168 Guangren Road, Xintian Group, Dongya Village Committee, Ruhu Town, Huicheng Distrct, Huizhou City, Guangdong Province, China
Manufacturer's Name..... :	Riches hardware Co., Ltd
Address..... :	Building 168 Guangren Road, Xintian Group, Dongya Village Committee, Ruhu Town, Huicheng Distrct, Huizhou City, Guangdong Province, China

Product description

Product name..... :	Industrial Control Switchboard
Trade Mark..... :	M/A
Model and/or type reference . :	MNS, GCK, GCS, VFD, ATS, ACC, ACP, AP, AL, AF, APE, ALE, AD, AS, AR, AW, JXF, XM, XL-21, GGD, GGJ, DB, PDU, ODC, OSG, ODB, OTC, AH, AM, AA, AJ
Standards..... :	AS CISPR 14.1:2018

This device described above has been tested by Shenzhen An-Teng Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is compliance with the standards and its amendment requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test..... :	Oct. 13 ~ Nov. 28, 2025
Date of Issue..... :	Nov. 28, 2025
Test Result..... :	**Pass**

Tested : Aria Yan / Engineer Date : Nov. 28, 2025

Approved : Henry Tian / Engineer Date : Nov. 28, 2025

Contents

1. DESCRIPTION OF VERSION

Edition No.	Date of Revision	Revision Summary	Report Number
0	Nov. 28, 2025	Original Report	ATJC25101380005300E

2. GENERAL INFORMATION

2.1. Description of EUT

Product	Industrial Control Switchboard
Trade Mark	N/A
Model Name	MNS
Serial No.	GCK, GCS, VFD, ATS, ACC, ACP, AP, AL, AF, APE, ALE, AD, AS, AR, AW, JXF, XM, XL-21, GGD, GGJ, DB, PDU, ODC, OSG, ODB, OTC, AH, AM, AA, AJ
Model Difference	Only the model name and the color of the exterior are different.
Rated Power Supply	Input:1000V~, 50/60Hz, 4000kW Max
Rated Power	4000W
Normal Testing Voltage	1000V~, 50Hz
Configuration	☐ Table-top ☒ Floor-standing

Note:

The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2. Operating condition of EUT

Test mode	Description
1	Working
2	
3	

2.3. Test conditions

Temperature: 15-35℃

Relative Humidity: 30-60 %

Atmospheric pressure: 800hPa-1060hPa

2.4. Block diagram of EUT configuration

3. Test Summary

Requirement - Test	Test Method	Result
Mains terminal continuous disturbance voltage	AS CISPR 14.1:2018	PASS
Mains terminal discontinuous disturbance voltage/click		N/A
Continuous disturbance power		PASS
Radiated Emission		PASS

Remark:

N/A is abbreviation for Not Applicable.

Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

Additions, Deviations and Exclusions from Standards: None

Measurement uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted emission at mains ports	9kHz ~ 150kHz	3.52 dB
	150kHz ~ 30MHz	3.19 dB
Continuous disturbance voltage at telecom ports	150kHz ~ 30MHz	3.64 dB
Continuous disturbance current at telecom ports	150kHz ~ 30MHz	2.62 dB
Mains terminal discontinuous disturbance voltage/click	--	3.76 dB
Continuous disturbance power	30MHz ~ 300MHz	4.35 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.90 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.02 dB
	6GHz ~ 18GHz	5.28 dB

4. List of Test and Measurement Instruments

4.1. Conducted Emission Measurement

(Test software: EZ-EMC Ver. EMC-con3A1.1)

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Due
1	AMN	ROHDE&SCHWARZ	ESH3-Z5	831551852	2026-10-30
2	Pulse limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	2026-10-30
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCS30	834115/006	2026-10-30
4	Coaxial cable	ZDECL	Z302S	18091904	2026-10-30
5	AAN	Schwarzbeck	NTFM8158	6114	2026-10-30

4.2. Radiated Emission Measurement

(Test software: EZ-EMC Ver. FA-03A2 RE)

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	1911	2026-10-30
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	869	2026-10-30
3	Amplifier	Agilent	8449B	3008A01838	2026-10-30
4	Amplifier	HP	8447E	2945A02747	2026-10-30
5	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESPI7	100362	2026-10-30
6	Coaxial cable	ETS	RFC-SNS-100-NMS-80 NI	/	2026-10-30
7	Coaxial cable	ETS	RFC-SNS-100-NMS-20 NI	/	2026-10-30
8	Coaxial cable	ETS	RFC-SNS-100-SMS-20 NI	/	2026-10-30
9	Coaxial cable	ETS	RFC-NNS-100-NMS-300 NI	/	2026-10-30

5. Emission

5.1. Continuous conducted disturbance voltage

5.1.1. General Limits

Frequency range (MHz)	Mains ports		Associated ports			
	Disturbance voltage		Disturbance voltage		Disturbance current	
	Limits dB(mV)		Limits dB(mV)		Limits dB(mV)	
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	59 ~ 46 *	80	70	40 ~ 30 *	30 ~ 20 *
0,5 ~ 5.0	56	46	74	64	30	20
5.0 ~ 30	60	50	74	64		

Notes:

1. * means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.
2. If the quasi-peak measurements meet the average limit, the EUT shall be deemed to meet both limits and the measurements using the average detector need not be carried out.

5.1.2. Limits for mains ports of tools

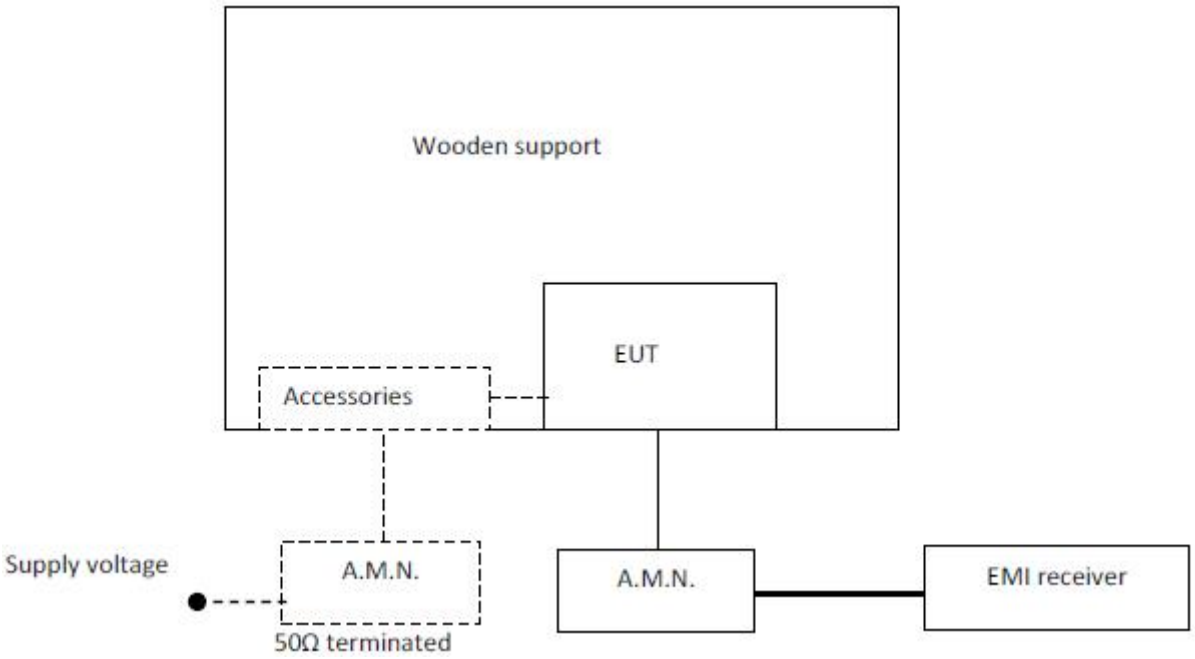
	P ≤ 700 W		700 W < P ≤ 1 000 W		P > 1 000 W	
Frequency range (MHz)	Limits dB(mV)		Limits dB(mV)		Limits dB(mV)	
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	66 ~ 59 *	59 ~ 49 *	70 ~ 63 *	63 ~ 53 *	76 ~ 69 *	69 ~ 59 *
0,5 ~ 5.0	59	49	63	53	69	59
5.0 ~ 30	64	54	68	58	74	64

Notes:

1. * means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.
2. If the quasi-peak measurements meet the average limit, the EUT shall be deemed to meet both limits and the measurements using the average detector need not be carried out.

5.1.3. Block diagram of test setup

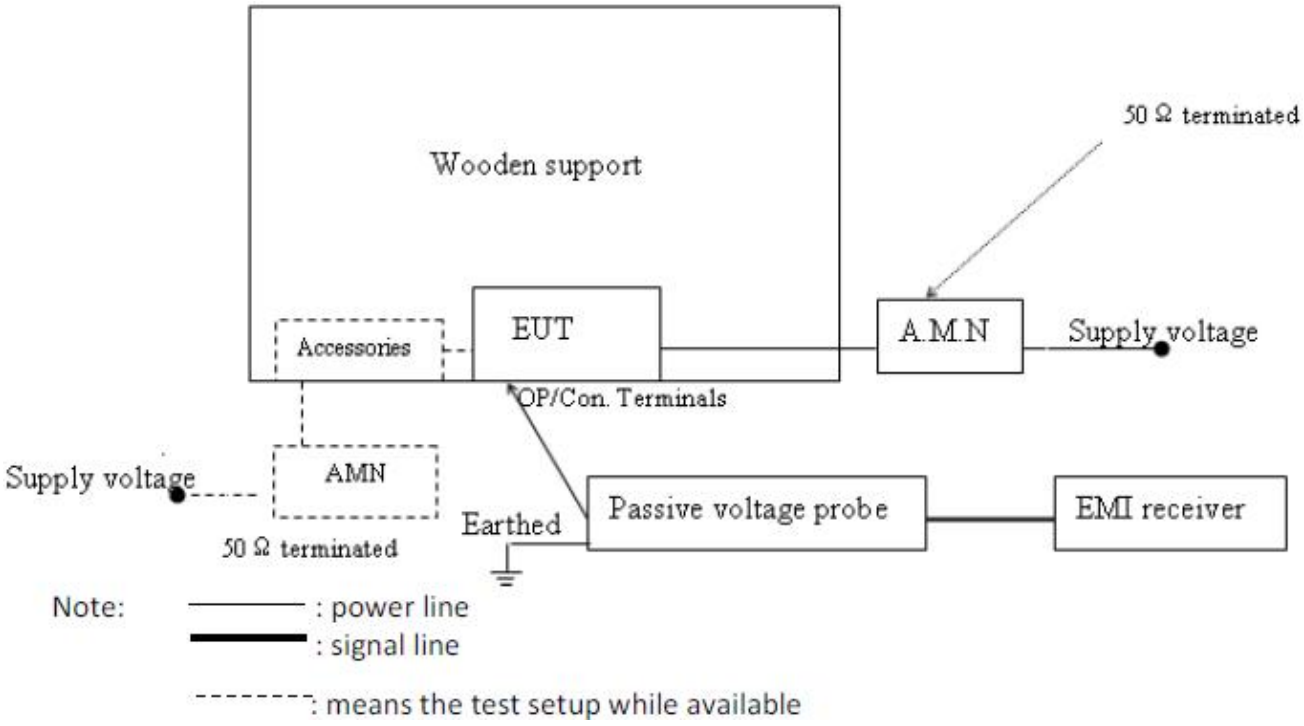
☒ At mains terminal



☐ For table top equipment, wooden support is 0.8m height table

☒ For floor standing equipment, wooden support is 0.1m height rack.

☐ At Associated ports



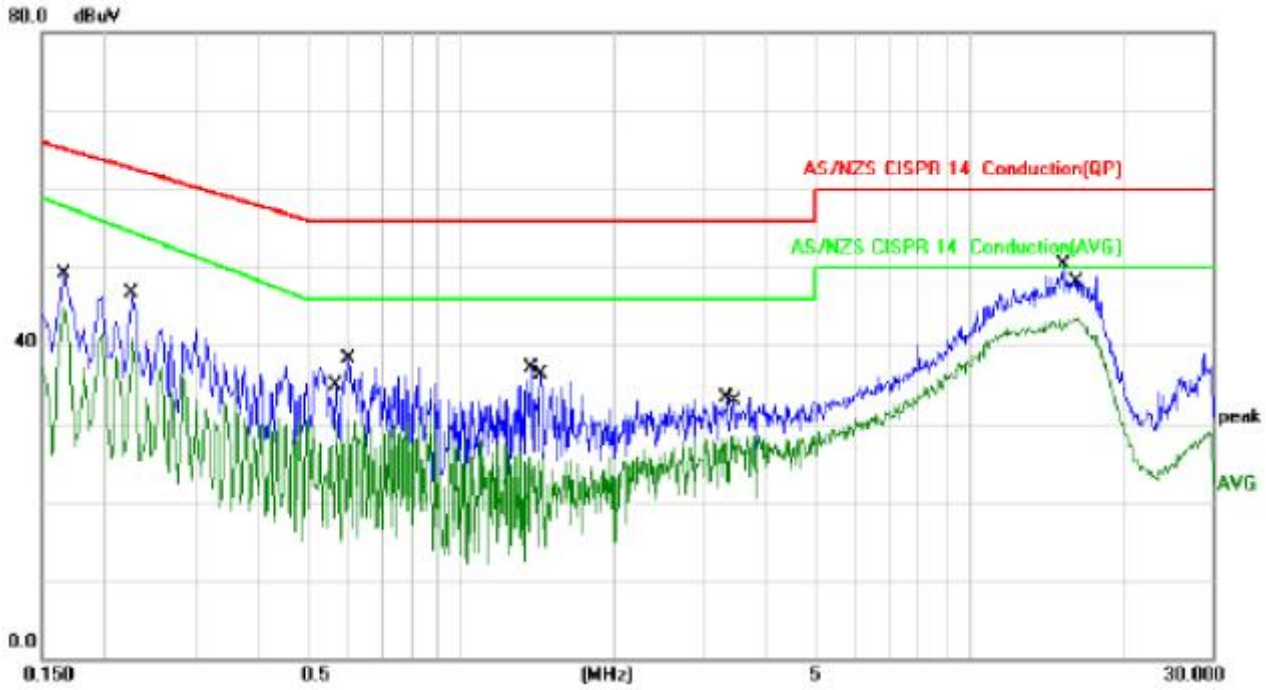
5.1.4. Test setup and test procedure

Measurement was performed in shielded room, and instruments used were according to clause 5.1 of CISPR 14-1 if applicable.
Detailed test procedure and arrangement was according to clause 5.2 of CISPR 14-1.
Measurement methods was according to clause 5.4 of CISPR 14-1.
Operation conditions of EUT was according to clause 6 of CISPR 14-1.
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9kHz.

5.1.5. Test results

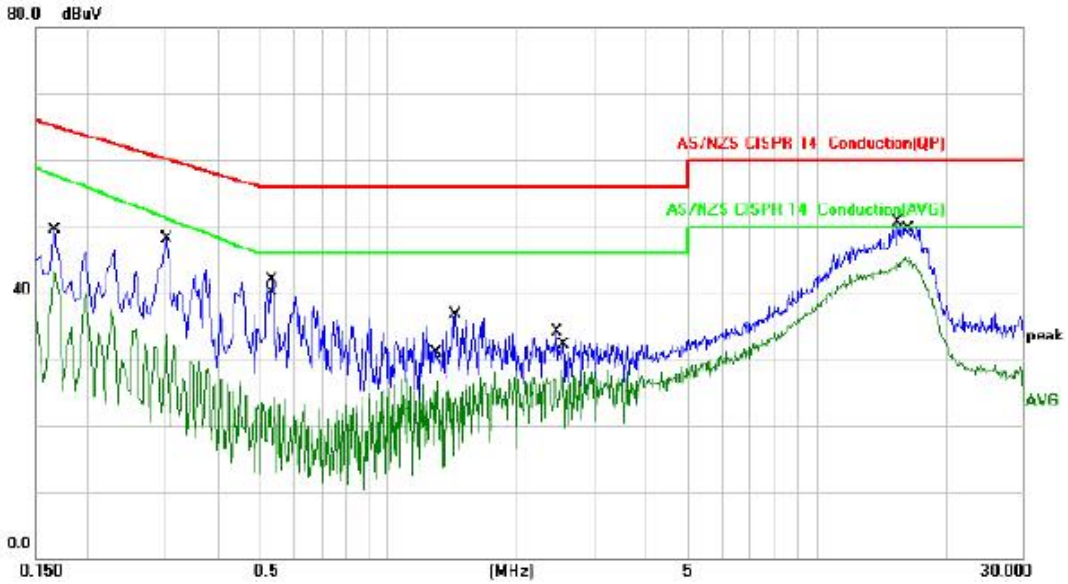
For Mains ports: Pass

L-Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	49.00	0.19	49.19	65.15	-15.96	QP
2		0.1660	44.66	0.19	44.85	57.90	-13.05	AVG
3		0.2260	46.53	0.20	46.73	62.59	-15.86	QP
4		0.2260	40.61	0.20	40.81	54.57	-13.76	AVG
5		0.5740	30.13	0.33	30.46	46.00	-15.54	AVG
6		0.6020	38.05	0.33	38.38	56.00	-17.62	QP
7		1.3740	36.86	0.24	37.10	56.00	-18.90	QP
8		1.4460	26.13	0.23	26.36	46.00	-19.64	AVG
9		3.3300	33.38	-0.04	33.34	56.00	-22.66	QP
10		3.4500	28.43	-0.04	28.39	46.00	-17.61	AVG
11		15.2900	50.35	-0.02	50.33	60.00	-9.67	QP
12	*	16.0580	43.55	-0.03	43.52	50.00	-6.48	AVG

N-Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	49.29	0.19	49.48	65.15	-15.67	QP
2		0.1660	43.07	0.19	43.26	57.90	-14.64	AVG
3		0.3020	47.70	0.31	48.01	60.19	-12.18	QP
4		0.3020	33.44	0.31	33.75	51.44	-17.69	AVG
5		0.5340	41.68	0.32	42.00	56.00	-14.00	QP
6		0.5420	23.90	0.32	24.22	46.00	-21.78	AVG
7		1.2980	26.50	0.25	26.75	46.00	-19.25	AVG
8		1.4340	36.39	0.23	36.62	56.00	-19.38	QP
9		2.4860	33.93	0.20	34.13	56.00	-21.87	QP
10		2.5460	28.08	0.20	28.28	46.00	-17.72	AVG
11		15.4260	50.76	-0.02	50.74	60.00	-9.26	QP
12	*	16.1180	45.27	-0.03	45.24	50.00	-4.76	AVG

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBuV + 12.00dB = 22.00dBuV;
Margin = 66.00dBuV – 22.00dBuV = 44.00dB.

For Associated ports: N/A

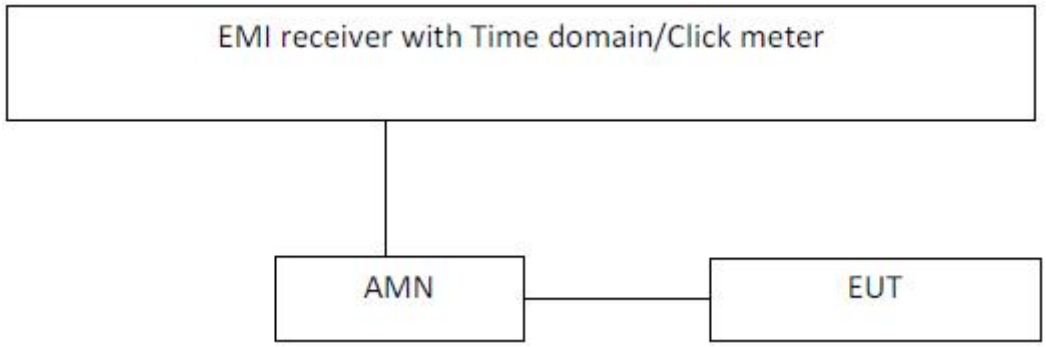
Frequency range (MHz)	Quasi-peak			Average		
	Corrected Reading (dBuV)	Limit (dBuV)	Margin (dB)	Corrected Reading (dBuV)	Limit (dBuV)	Margin (dB)
Note: * means the emission level 20dB below the relevant limit.						

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBuV + 12.00dB = 22.00dBuV;
Margin = 66.00dBuV – 22.00dBuV = 44.00dB.

5.2. Mains terminal discontinuous disturbance voltage/click

5.2.1. Block diagram of test setup



5.2.2. Test setup and test procedure

Measurement was performed in shielded room, and instruments used were according to clause 5.1 of CISPR 14-1 if applicable.
Detailed test procedure and arrangement was according to clause 5.2 of CISPR 14-1.
Measurement methods was according to clause 5.4 of CISPR 14-1.
Operation conditions of EUT was according to clause 6 of CISPR 14-1.
0.15MHz, 0.5MHz, 1.4MHz and 30MHz were spot checked, and upper quartile methods used during measurement.
The final judgment of test result was according to figure 6 of CISPR 14-1.

5.2.3. Test results

N/A

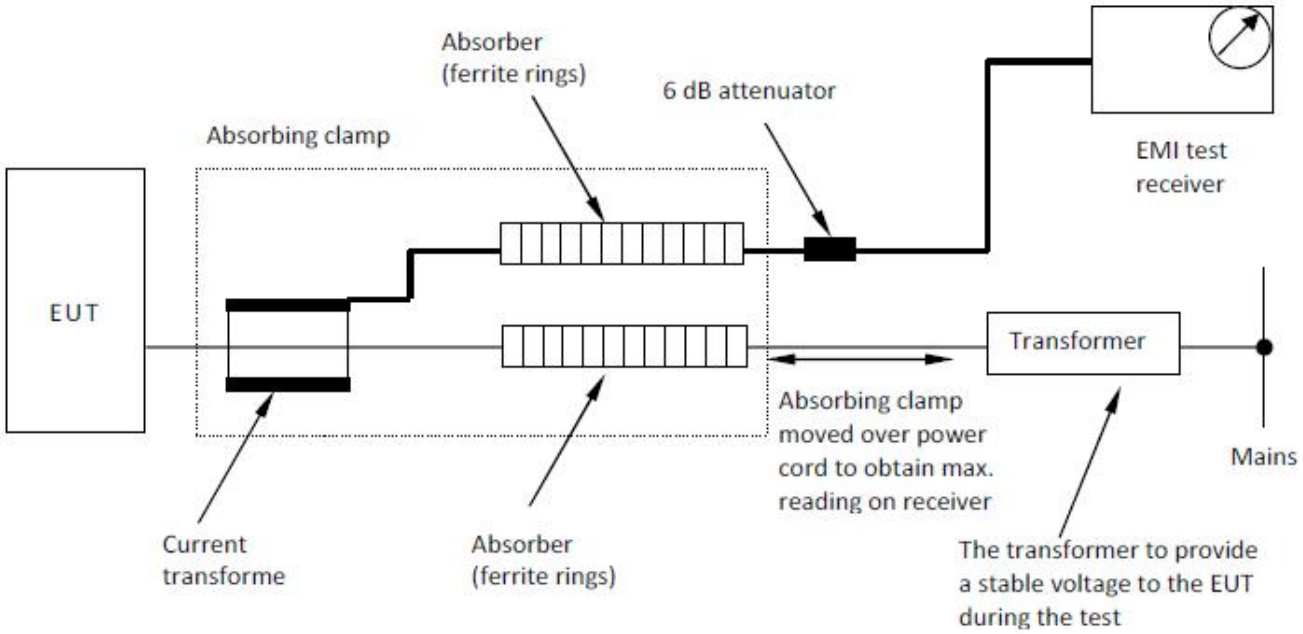
5.3. Continuous disturbance power

5.3.1. Continuous disturbance power limit

	General		P ≤ 700W		700W < P ≤ 1 000W		P > 1 000W	
Frequency range (MHz)	Limits dB(mV) Quasi-peak	Average	Limits dB(mV) Quasi-peak	Average	Limits dB(mV) Quasi-peak	Average	Limits dB(mV) Quasi-peak	Average
30-300	45-55*	35-45*	45-55*	35-45*	46-59*	39-49*	55-65*	45-55*

Notes:
1. * means the limit decreasing linearly with the logarithm of the frequency in the range 30MHz to 300MHz.
2. If the quasi-peak measurements meet the average limit, the EUT shall be deemed to meet both limits and the measurements using the average detector need not be carried out.

5.3.2. Block diagram of test set up

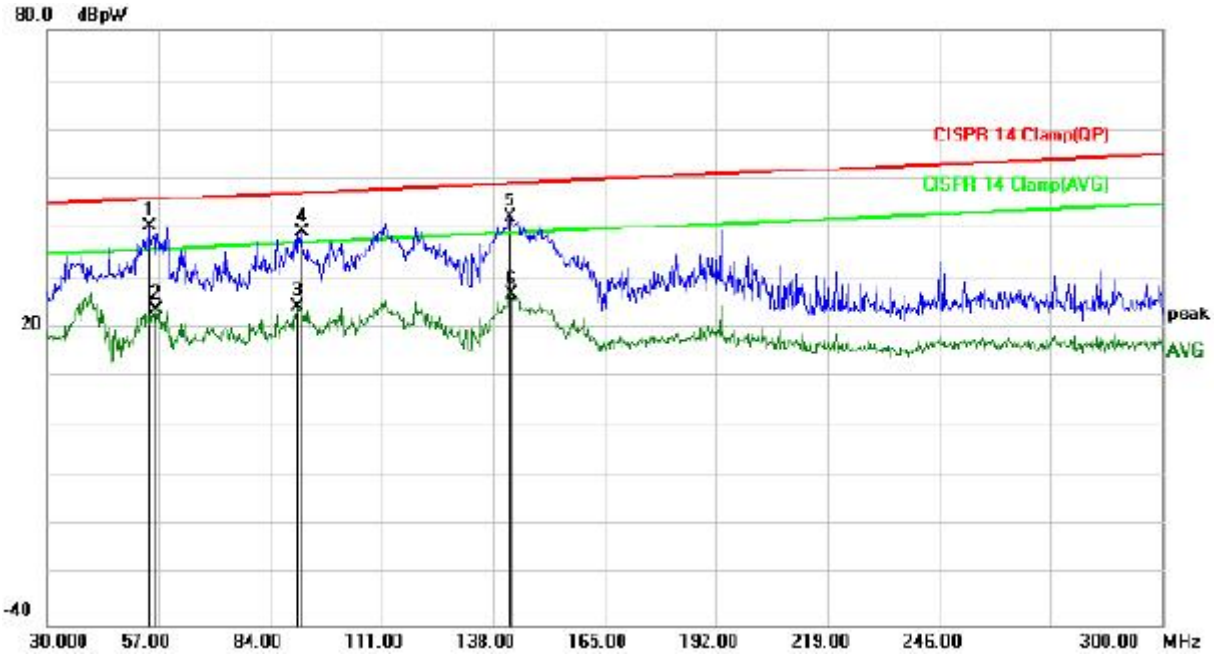


5.3.3. Test procedure

Measurement was performed in shielded room, and instruments used were according to clause 5.1 of CISPR 14-1 if applicable.
Detailed test procedure and arrangement was according to clause 5.3 of CISPR 14-1.
Measurement methods was according to clause 5.4 of CISPR 14-1.
Operation conditions of EUT was according to clause 6 of CISPR 14-1.
Frequency range 30MHz – 300MHz was checked and EMI receiver measurement bandwidth was set to 120kHz.

5.3.4. Test results

For Mains ports: Pass



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1	*	55.0399	19.31	21.37	40.68	45.93	-5.25	QP
2		56.4799	2.04	21.85	23.89	35.98	-12.09	AVG
3		90.8399	1.25	23.02	24.27	37.25	-12.98	AVG
4		91.7600	16.33	23.03	39.36	47.29	-7.93	QP
5		142.2400	18.88	23.36	42.24	49.16	-6.92	QP
6		142.5600	3.40	23.31	26.71	39.17	-12.46	AVG

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBuV + 12.00dB = 22.00dBuV;
Margin = 66.00dBuV – 22.00dBuV = 44.00dB.

For Associated ports: N/A

Frequency range (MHz)	Quasi-peak			Average		
	Corrected Reading (dBuV)	Limit (dBuV)	Margin (dB)	Corrected Reading (dBuV)	Limit (dBuV)	Margin (dB)
Note: * means the emission level 20dB below the relevant limit.						

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBuV + 12.00dB = 22.00dBuV;
Margin = 66.00dBuV – 22.00dBuV = 44.00dB.

5.4. Radiated emission

☒ As for in the disturbance power test all emission readings from the EUT are lower than the applicable limits (Table 7) reduced by the margin (Table 8) and the maximum clock frequency is less than 30MHz, the EUT is deemed to comply with the Radiated Emission requirement without test.

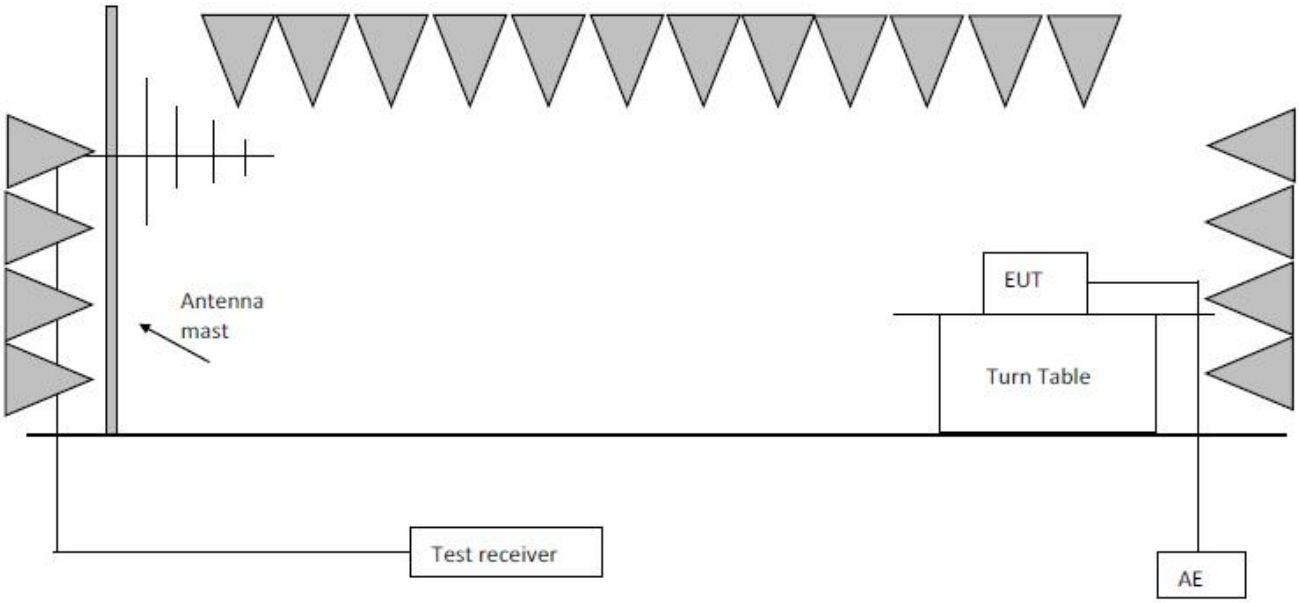
5.4.1. Limit

☐ Radiated emission limit from frequency range 30MHz – 1000MHz

Frequency (MHz)	Permitted limit in dBmV/m (Quasi-peak) of Measurement Distance 3m	Permitted limit in dBmV/m (Quasi-peak) of Measurement Distance 10m
30 ~ 230	40	30
230 ~ 300	47	37

Notes:
1. For the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.
2. The gray rows are selected items.

5.4.2. Block diagram of test set up



The measurement was applied in a semi-anechoic chamber.
Operation conditions of EUT was according to clause 6 of CISPR 14-1.
Measurement was performed according to clause 10 of CISPR 32.
Setting of EUT is according to clause 5.3.4.3 of CISPR 14-1.
The bandwidth setting on test receiver was 120kHz.
The frequency range from 30MHz to 300MHz was checked.

5.3.4. Test results

Horizontal

Vertical

Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Corrected Factor (dB/m)	Limits (dBuV/m)	Margin (dBuV/m)
Horizontal					
Vertical					

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBuV + 12.00dB = 22.00dBuV;
Margin = 66.00dBuV – 22.00dBuV = 44.00dB.

6. Photographs of EUT

Photographs of EUT

Photographs of EUT

Photographs of EUT


------ End of Report ------