

EMC Test Report



(Declaration of Conformity)
for
Electromagnetic Interference
of

製品: **Industrial Control Switchboard**
Product
商号: **N/A**
Trade Name
型番: **MNS, GCK, GCS, VFD, ATS, ACC, ACP, AP,**
Model Number **AL, AF, APE, ALE, AD, AS, AR, AW, JXF, XM,**
XL-21, GGD, GGJ, DB, PDU, ODC, OSG, ODB,
OTC, AH, AM, AA, AJ

申請者(Applicant)

Riches hardware Co., Ltd
Building 168 Guangren Road, Xintian Group, Dongya Village Committee, Ruhu
Town, Huicheng District, Huizhou City, Guangdong Province, China

試験場所(Testing Laboratory)

Shenzhen Anteng Testing Technology Co., Ltd
Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua
District, Shenzhen, China.

TEST RESULT CERTIFICATION

申請者: Riches hardware Co., Ltd
Applicant
住所: Building 168 Guangren Road, Xintian Group, Dongya Village Committee,
Address Ruhu Town, Huicheng District, Huizhou City, Guangdong Province, China
製造者: Riches hardware Co., Ltd
Manufacturer
住所: Building 168 Guangren Road, Xintian Group, Dongya Village Committee,
Address Ruhu Town, Huicheng District, Huizhou City, Guangdong Province, China
製品: Industrial Control Switchboard
Product name
測定基準: J55014-1(H27)
Standards

注: この装置は **ATJC** によって試験され、試験結果は、被試験機器 (EUT) が第 8 条第 1 項の要件に従っていることを示している。そして、それはレポートで識別されるテストされたサンプルだけに適用可能です。

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Note: This device described above has been tested by ATJC, and the test results show that the equipment under test (EUT) is in compliance with Paragraph 1 of Article 8 requirements. And it is applicable only to the tested sample identified in the report.

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試験日
Date (s) of performance of tests...: Oct. 13 - Nov. 28, 2025

発行日
Date of Issue.....: Nov. 28, 2025

試験結果
Test Result.....: **Pass**

試験者
Tested by : Aria Yan
Aria Yan / Engineer

日付
Date : Nov. 28, 2025

照査者
Checked by : Henry Tian
Henry Tian / Manager

日付
Date : Nov. 28, 2025

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TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
J55014-1(H27)	Conducted Emission	Class B	PASS	/
	Disturbance Power	Class B	PASS	/

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.

(2) For client's request and manual description, the test will not be executed.

TEST FACILITY

Shenzhen Anteng Testing Technology Co., Ltd

Add. : Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China.

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$ ' 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** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U ' (dB)	NOTE
CTBC01	NSI	150 KHz ~ 30MHz	3.2	

B. Disturbance Power Measurement :

Test Site	Method	Measurement Frequency Range	U '(dB)	NOTE
CTBA01	ANSI	30MHz ~ 300MHz	4.7	

GENERAL INFORMATION

GENERAL DESCRIPTION OF EUT

Equipment	Industrial Control Switchboard	
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.	
Product Description	The EUT is a Core	
	Operating frequency:	N/A
	Connecting I/O port:	N/A
Power Source	AC Mains	
Power Rating	Input:1000V~, 50/60Hz, 4000kW Max	

DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode	Running

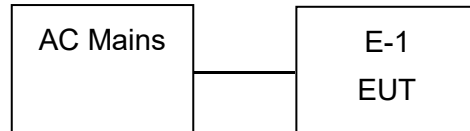
For Conducted Test	
Final Test Mode	Description
Mode	Running

For Disturbance Power Test	
Final Test Mode	Description
Mode	Running

Remark: The test was carried out in all the test modes, only the worst data are list in report.

DESCRIPTION OF TEST SETUP

Mode 1:



DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Industrial Control Switchboard	N/A	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	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	40cm	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in Length column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

MEASUREMENT INSTRUMENTS LIST

CONDUCTED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibration Due
1	EM Shield Room	C.R.T	8*4*3m	N/A	10/30/2026
2	AMN	R&S	ESH3-Z5	831551852	10/30/2026
3	Pulse limiter	R&S	ESH3Z2	357881052	10/30/2026
4	EMI test Receiver	R&S	ESCS30	834115/006	10/30/2026
5	Coaxial cable	ZDECL	Z302S-BNCJ-BNCJ-1.5M	18091904	10/30/2026

DISTURBANCE POWER TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibration Due
1	Semi-anechoic chamber	C.R.T	9*6*6m	N/A	10/30/2026
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	869	10/30/2026
3	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	1911	10/30/2026
4	Preamplifier	Agilent	8449B	3008A01838	10/30/2026
5	Amplifier	HP	8447E	2945A02747	10/30/2026
6	Coaxial cable	ZDECL	ZT26-NJ-NJ-8.5M	18091906	10/30/2026
7	Coaxial cable	ZDECL	ZT26-SMAJ-NJ-2M	18097604	10/30/2026
8	Coaxial cable	ZDECL	ZT26-NJ-NJ-0.6M	18091908	10/30/2026
9	Coaxial cable	ZDECL	ZT26-NJ-BCNJ-0.6M	18091907	10/30/2026
10	EMI test Receiver	R&S	ESPI	100362	10/30/2026

EMC EMISSION TEST

CONDUCTED EMISSION MEASUREMENT

POWER LINE CONDUCTED EMISSION

(Frequency Range 150KHz-30MHz)

Frequency Range (MHz)	At mains terminals		At load terminals and additional terminals	
	Quasi-peak (dBuV)	Average (dBuV)	Quasi-peak (dBuV)	Average (dBuV)
0.15 -0.5	66 - 56 *	56 - 46 *	80.00	70.00
0.50 -5.0	56.00	46.00	74.00	64.00
5.0 -30.0	60.00	50.00	74.00	64.00

MAINS TERMINALS OF TOOLS

Frequency Range (MHz)	Rated motor power not exceeding 700W		Rated motor power above 700W and not exceeding 1 000 W		Rated motor power above 1 000 W	
	dB (uV) Quasi-peak	dB (uV) Average**	dB (uV) Quasi-peak	dB (uV) Average**	dB (uV) Quasi-peak	dB (uV) Average**
0.15 -0.5	66.0 to 59.0*	59.0 to 49.0*	70.0 to 63.0*	63.0 to 53.0*	76.0 to 69.0*	69.0 to 59.0*
0.50 -5.0	59.0	49.0	63.0	53.0	69.0	59.0
5.0 -30.0	64.0	54.0	68.0	58.0	74.0	64.0

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) "****" If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

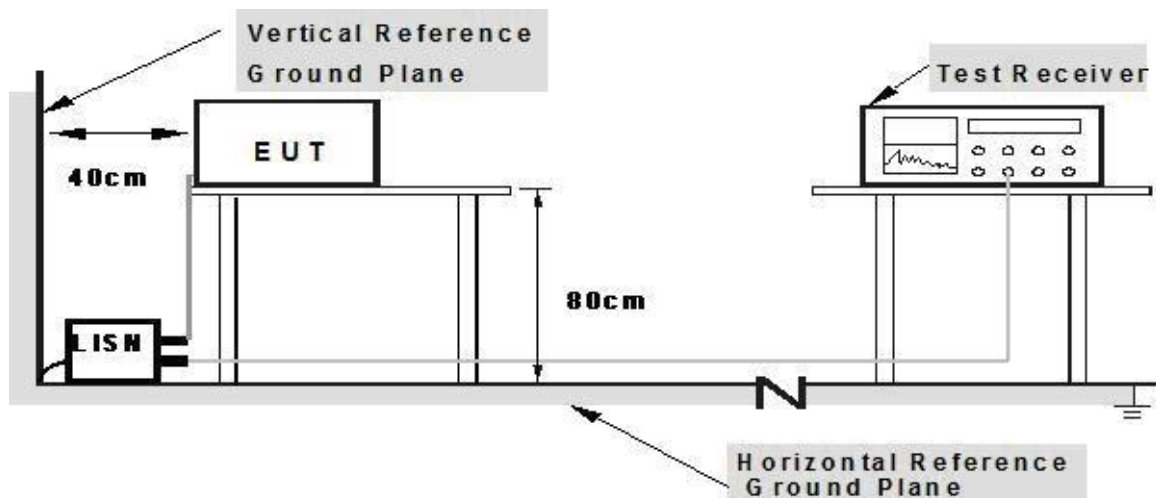
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TEST PROCEDURE

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



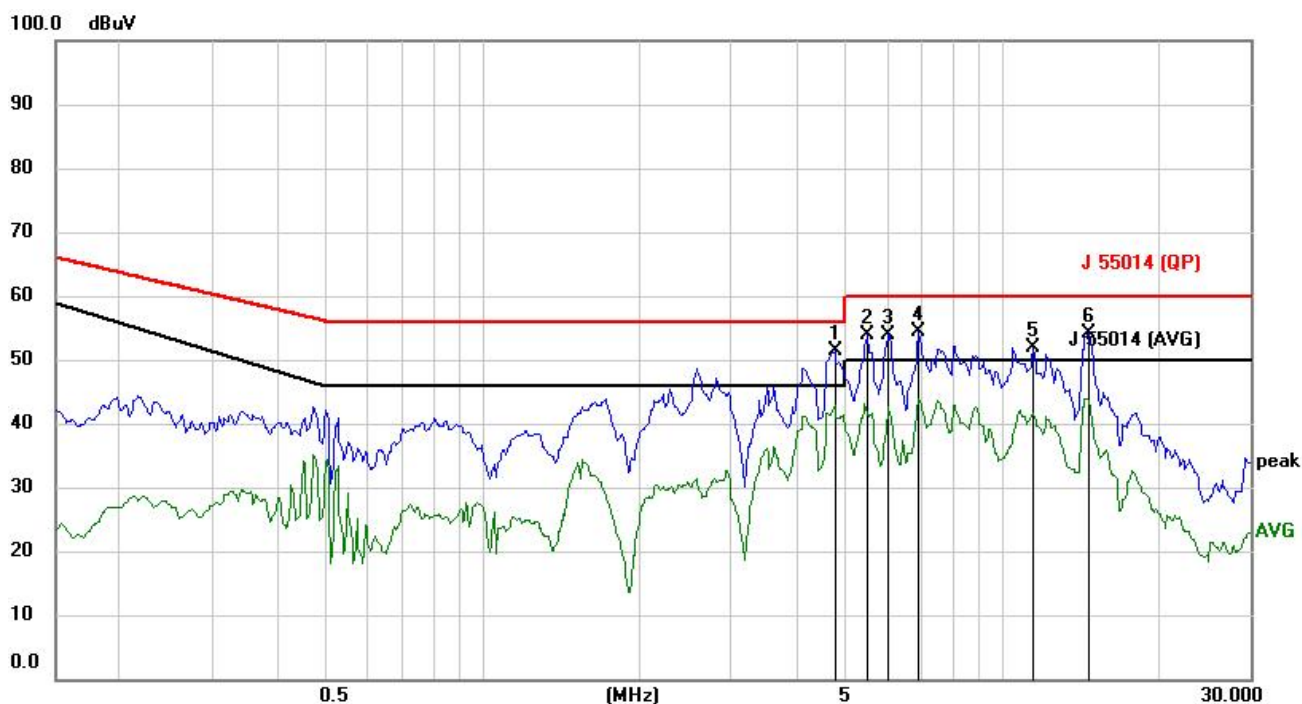
Note: 1.Support units were connected to second LISN.
2.Both of LISN s (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

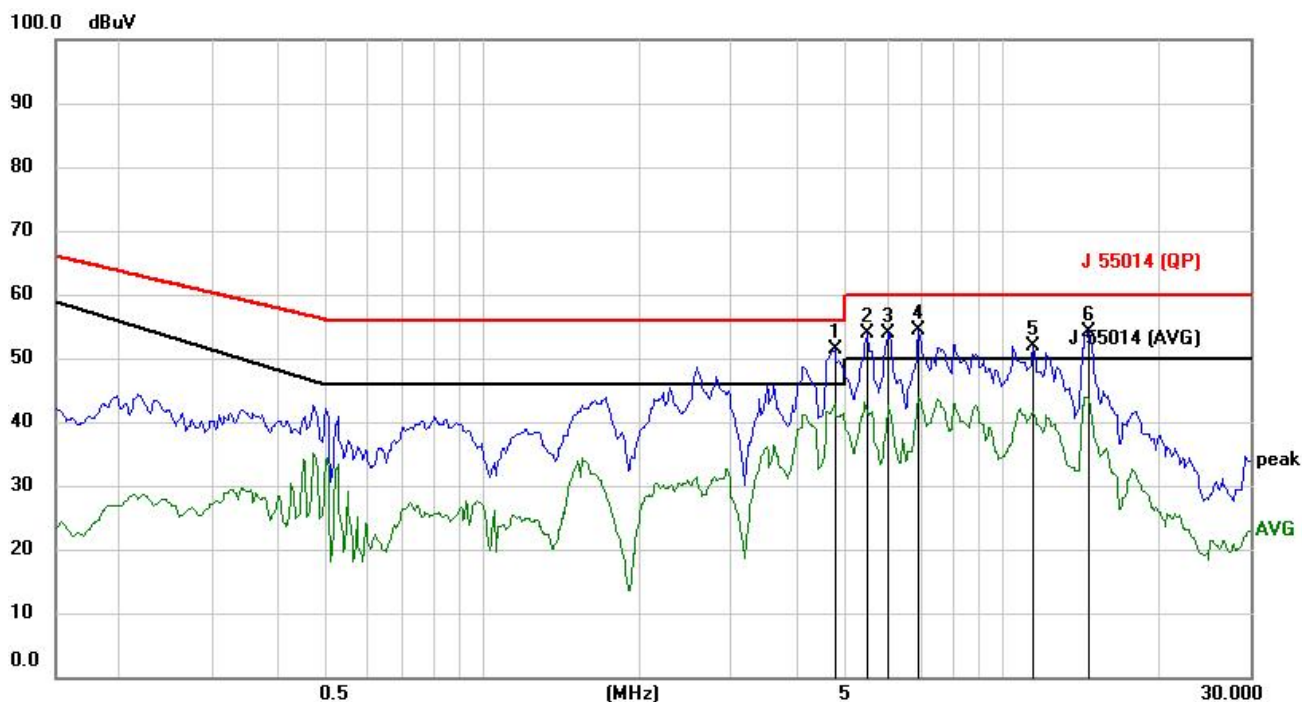
TEST RESULTS

EUT :	Industrial Control Switchboard	Model Name :	MNS
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	Nov. 28, 2025
Test Mode :	Normal operation	Phase :	L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	4.7472	40.40	11.00	51.40	56.00	-4.60	peak
2		5.4921	42.66	11.15	53.81	60.00	-6.19	peak
3		5.9990	42.68	11.24	53.92	60.00	-6.08	peak
4		6.8922	42.95	11.41	54.36	60.00	-5.64	peak
5		11.4474	40.29	11.68	51.97	60.00	-8.03	peak
6		14.6064	42.06	12.05	54.11	60.00	-5.89	peak

EUT :	Industrial Control Switchboard	Model Name :	MNS
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	Nov. 28, 2025
Test Mode :	Normal operation	Phase :	N



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	4.7472	40.40	11.00	51.40	56.00	-4.60	peak
2		5.4921	42.66	11.15	53.81	60.00	-6.19	peak
3		5.9990	42.68	11.24	53.92	60.00	-6.08	peak
4		6.8922	42.95	11.41	54.36	60.00	-5.64	peak
5		11.4474	40.29	11.68	51.97	60.00	-8.03	peak
6		14.6064	42.06	12.05	54.11	60.00	-5.89	peak

3.2. DISTURBANCE POWER MEASUREMENT

3.2.1. LIMITS

FREQUENCY (MHz)	Quasi-Peak (dBpW)	Average (dBpW)
30 ~ 300	45 – 55	35 – 45

NOTE: (1) The lower limit shall apply at the transition frequency.

3.2.2. TEST PROCEDURE

Procedure of Preliminary Test

The EUT is place on a 0.8 meters height wooden table above the ground plane, and kept at least 0.8 m from other metallic object. The straight portion of main lead would put on 6 m long testing bench of (if main lead is shorter than 6 m it should be extended) as per CISPR 14/EN 55014-1.

Any lead connecting the main appliance to an auxiliary apparatus is disconnected if this does not affect the operation of the appliance, or is isolated by means of ferrite rings (or an absorbing clamp) close to the appliance.

The EUT test program was started. Emissions were scanned and measured using a receiver connected to the absorbing clamp.

The absorbing clamp is positioned for maximum indication at each test frequency (30MHz to 300MHz), that means is clamp moved along the main lead until the maximum emission value is found.

The test mode(s) described in Item 3.1 were scanned during the preliminary test:

After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.

The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

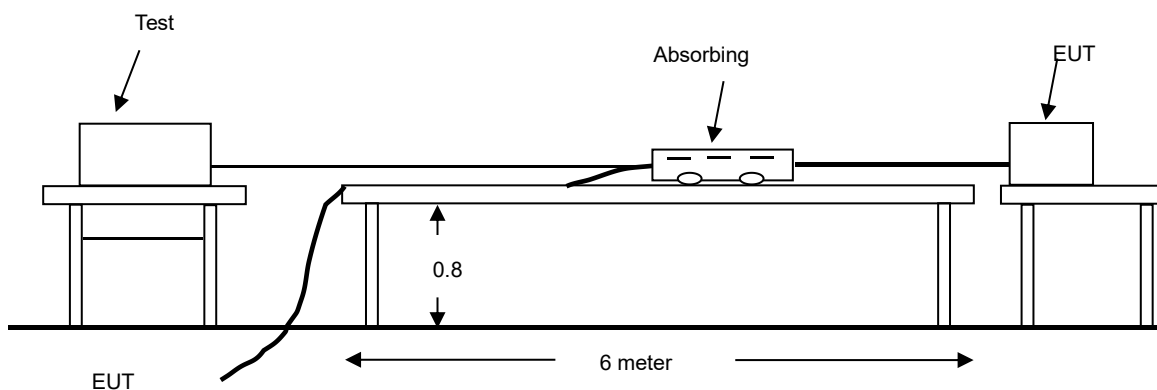
EUT and support equipment were set up on the wooden table as per step 6 of the preliminary test.

The receiver scanned from 30MHz to 300MHz. Emissions were scanned and measured to moving the absorbing clamp along the main lead until the maximum emission value is found.

Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

The test data of the worst-case condition(s) was recorded.

3.2.3. TEST SETUP



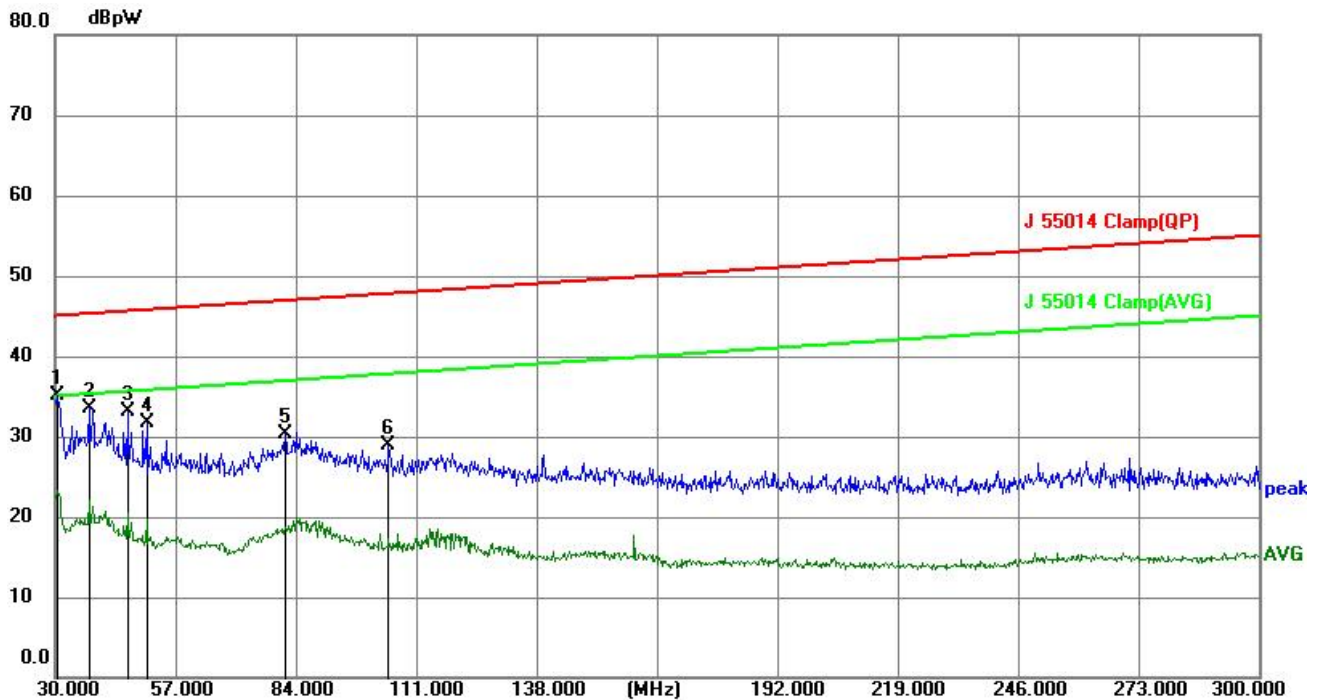
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

3.2.4 TEST RESULTS

Temperature (°C)	22~28
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Industrial Control Switchboard
M/N	MNS
Operating Mode	Normal operation
Test Results	Pass

Please refer to following diagram for individual

EUT :	Industrial Control Switchboard	Model Name :	MNS
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	Nov. 28, 2025
Test Mode :	Normal operation	Phase :	AC Line



No.	Mk.	Freq. MHz	Reading Level dBpW	Correct Factor dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector
1	*	30.6600	9.24	25.78	35.02	45.02	-10.00	peak
2		37.5600	7.46	25.97	33.43	45.28	-11.85	peak
3		46.3200	7.20	25.90	33.10	45.60	-12.50	peak
4		50.7000	6.83	24.96	31.79	45.77	-13.98	peak
5		81.6600	5.86	24.47	30.33	46.91	-16.58	peak
6		104.8800	5.30	23.54	28.84	47.77	-18.93	peak

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit

EUT PHOTO

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



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