MIL-STD-461G

TEST REPORT

For

Product Name: SYSTEM

Model Number: AV800

Brand Name: 7starlake

Issued to

7STARLAKE Co., Ltd.
2F., No.190, Sec 2, Zhongxing Rd., Xindian Dist., New Taipei City, 23146, Taiwan.

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan
TEL: 886-2-2299-9720
FAX: 886-2-2299-9721
Issued Date: June 29, 2023

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		May 30, 2023		Initial Issue	ALL	May Lin
01		June 02, 2023		See the following Note Rev. (01)	P.6	May Lin
02		June 29, 2023		See the following Note Rev. (02)	P.30-32, P.35	May Lin

Rev (01):
1. Modify the series model, from AVR800 to AVR800-X1A.
Rev (02):
1. Revised the test results.

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1. TEST RESULT CERTIFICATION

Product:	SYSTEM
Model:	AV800
Brand:	7starlake
Applicant:	**7STARLAKE Co., Ltd.** 2F., No.190, Sec 2, Zhongxing Rd., Xindian Dist., New Taipei City, 23146, Taiwan.
Manufacturer:	**7STARLAKE Co., Ltd.** 2F., No.190, Sec 2, Zhongxing Rd., Xindian Dist., New Taipei City, 23146, Taiwan.
Tested:	May 08 ~ 22, 2023
Received Date:	May 03, 2023

Standards	
MIL-STD-461G	
Applicable Standard	**Test Result**
CE102, conducted emissions, power leads, 10 kHz to 10 MHz.	Compliant
CS101, conducted susceptibility, power leads, 30 Hz to 150 kHz.	Compliant
CS114, conducted susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz.	Compliant
CS115, conducted susceptibility, bulk cable injection, impulse excitation.	Compliant
RE102, radiated emissions, electric field, 2 MHz to 18 GHz.	Compliant
RS103, radiated susceptibility, electric field, 30 MHz to 18 GHz.	Compliant
Deviation from Applicable Standard	
N/A	
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in MIL-STD-461G. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Sam Zeng
Asst. Supervisor
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	SYSTEM
Brand Name	7starlake
Model	AV800
Serial Number	AV80000101
Series Model	AVR800-X1A
Model Discrepancy	AV800 for Global Maket, AVR800-X1A for Israel Market
Applicant	7STARLAKE Co., Ltd.

Remark:

1. For more details, please refer to the User's manual of the ESA.
2. Disclaimer: The variant model numbers / trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.

3. TEST METHODOLOGY

All tests were performed in accordance with the procedure documented in MIL-STD-461G.

4. INSTRUMENT AND CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for CE102 and RE102 Measurement

966 Chamber B				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESR 7	101479	2023-06-08
Coaxial Cable	Huber Suhner	SUCOFLEX 104PEA	32057/4PEA	2023-05-30
Coaxial Cable	Huber Suhner	SUCOFLEX 104PEA	21911/4PEA 24166/4PEA	2023-05-30
Coaxial Cable	ASTROLAB	16301	0503	2023-05-30
Active Vertical Monopole Antenna	SCHWARZBECK	VAMP 9243	477	2023-05-24
Biconical Antenna	SCHWARZBECK	VHBB 9124	366	2024-01-16
Double Ridged Waveguide Horn	ETS LINDGREN	3106B	00206645	2024-07-26
Horn Antenna	SCHWARZBECK	BBHA 9120D	D780	2023-09-15
LISN	SCHWARZBECK	NNBL8226	8226-219	2023-12-05
LISN	SCHWARZBECK	NNBL8226	8226-239	2023-12-05
Pre-Amplifier	EMCI	EMC01640A	980921	2023-12-04
Pre-Amplifier	EMCI	EMC051845SE	980695	2024-03-15
Software	EZ-EMC_5A2			

Equipment Used for CS101 Measurement

Conducted susceptibility test site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Continuous Wave Simulator For Low Frequencies	EM TEST	CWS 500E	V0606101158	2023-10-02
LISN	SCHWARZBECK	NNBL8226	8226-219	2023-12-05
LISN	SCHWARZBECK	NNBL8226	8226-239	2023-12-05
Software	ICD32 V3.54			

Equipment Used for CS114 Measurement

844 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Calibration Fixture	FCC	FCC-BCICF-1	141492	2023-05-30
Power Meter	BOONTON	4242	17572	2024-04-21
Power Sensor	BOONTON	51011A-EMC	36876	2023-06-08
Power Sensor	BOONTON	51011A-EMC	36877	2023-06-08
Signal Generator	Agilent	E8648C	4108A05773	2024-05-07
LISN	SCHWARZBECK	NNBL8226	8226-219	2023-12-05
LISN	SCHWARZBECK	NNBL8226	8226-239	2023-12-05
RF Power Amplifier	BONN	BSA 0101-250D	2113274	N.C.R.
Attenuator	Delta Ohm	09-20B 032 3dB 50ohn	R-48	N.C.R.
Current Probe	FCC	F-140	562	N.C.R.
RF Current Probe	FCC	F-65	255	2024-04-11
Software	EMCWARE 3.6.0			

Equipment Used for CS115 Measurement

Conducted susceptibility test site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Impulse Noise Simulator	NoiseKen	INS-4020	INS0621874	2024-05-07
Current Probe	FCC	F-140	562	N.C.R.
RF Current Probe	FCC	F-65	255	2024-04-11
Oscilloscope	Agilent	DSO6104A	MY44008056	2023-06-19
LISN	SCHWARZBECK	NNBL8226	8226-219	2023-12-05
LISN	SCHWARZBECK	NNBL8226	8226-239	2023-12-05

Equipment Used for RS103 Measurement

RS Chamber B				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
LISN	SCHWARZBECK	NNBL8226	8226-219	2023-12-05
LISN	SCHWARZBECK	NNBL8226	8226-239	2023-12-05
Power Meter	Agilent	E4419B	GB42420734	2023-08-04
Power sensor	HP	8481A	2702A61366	2023-08-04
Power sensor	HP	8481A	OPT001	2023-08-04
Rs Probe	narda	NBM-520/EF-1891	D-0924/E-0005	2023-11-29
Signal Generator	Keysight	N5171B	MY61253160	2023-11-23
Directional Coupler	ar	DC6280AM1	0339128	N.C.R.
Directional Coupler	ar	DC7144A	313674	N.C.R.
Directional Coupler	ar	DC7280A	320524	N.C.R.
Directional Coupler	ar	DC7450M1	320073	N.C.R.
Double Ridge Waveguide Horn	SCHWARZBECK	HWRD 750	HWRD 750-009	N.C.R.
Double Ridged Waveguide Horn	ETS LINDGREN	3106B	00206645	2024-07-26
Horn Antenna	SCHWARZBECK	9120E	899	N.C.R.
Stacked Log Periodic Antenna	SCHWARZBECK	STLP 9128 E	00190	N.C.R.
POWER AMPLIFIER	ar	1000W 10000D	339180	N.C.R.
POWER AMPLIFIER	MILMEGA	AS0825-170	1067719	N.C.R.
POWER AMPLIFIER	ar	300T2G8M1	320255	N.C.R.
POWER AMPLIFIER	ar	250T8G18M1	320246	N.C.R.
Software	EMCWARE 3.6.0			

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien Dist, New Taipei City, Taiwan.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.
Tel: 886-2-2299-9720 / Fax: 886-2-2299-9721

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support.

6.2 PHOTOGRAPHS OF EUT

See test photographs attached in Appendix II for the EUT's external structure.

6.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Battery	YUASA	115F51	0G29A1	NA	NA	NA

Remarks:

1. *All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

6.4 TEST SETUP

The equipment under test connects all cables on its ports, and turn on the software "BurnIn" during test.

7. MIL-STD-461G REQUIREMENTS

7.1 CE102, conducted emissions, power leads, 10 kHz to 10 MHz

APPLICABILITY

This requirement is applicable from 10 kHz to 10 MHz for all power leads, including returns, which obtain power from other sources not part of the EUT.

LIMIT

Conducted emissions on power leads shall not exceed the applicable values shown on Figure CE102-1.

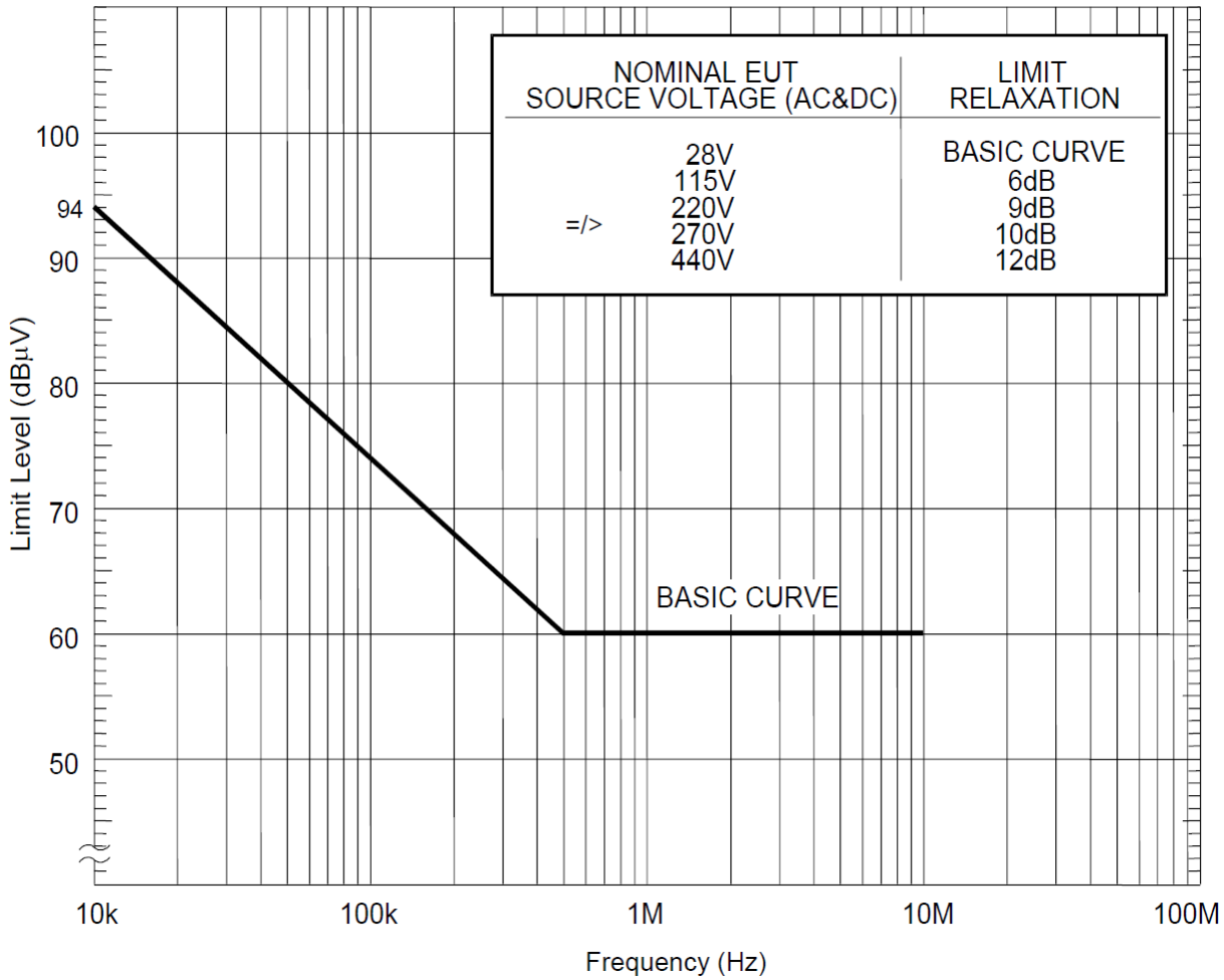


FIGURE CE102-1. CE102 limit (EUT power leads, AC and DC) for all applications.

TEST CONFIGURATION

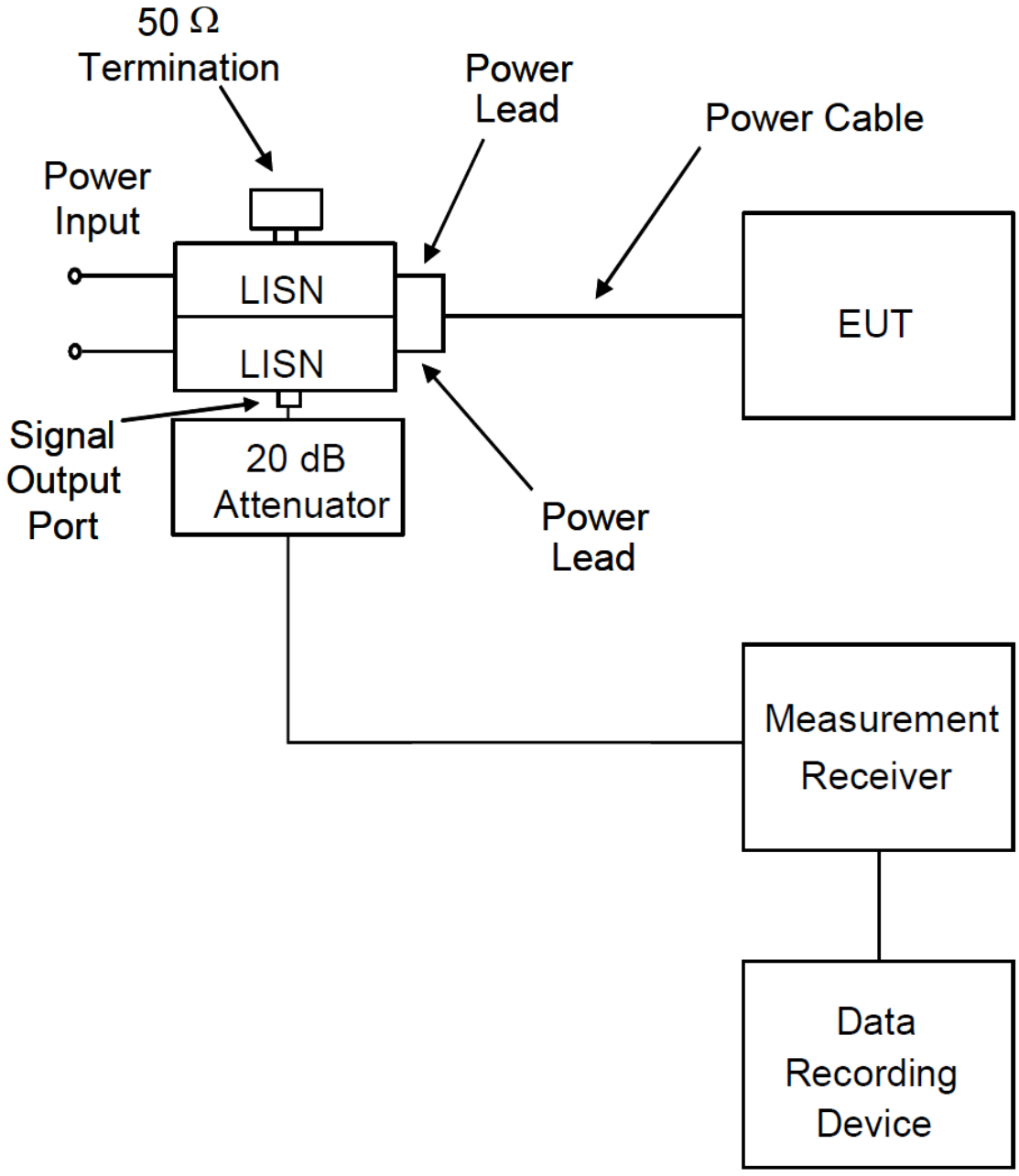


FIGURE CE102-2. Measurement setup.

TEST PROCEDURE

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL-STD-461G.

TEST RESULTS

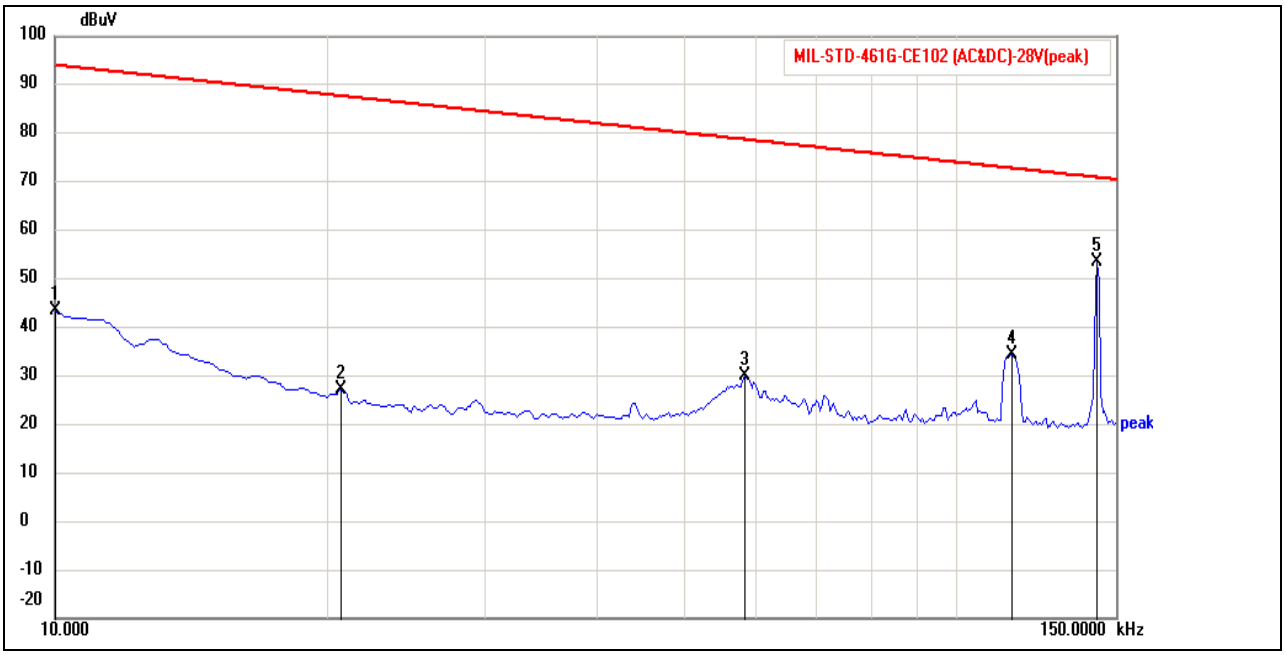
Compliant

Test Data

L1

10kHz-150kHz

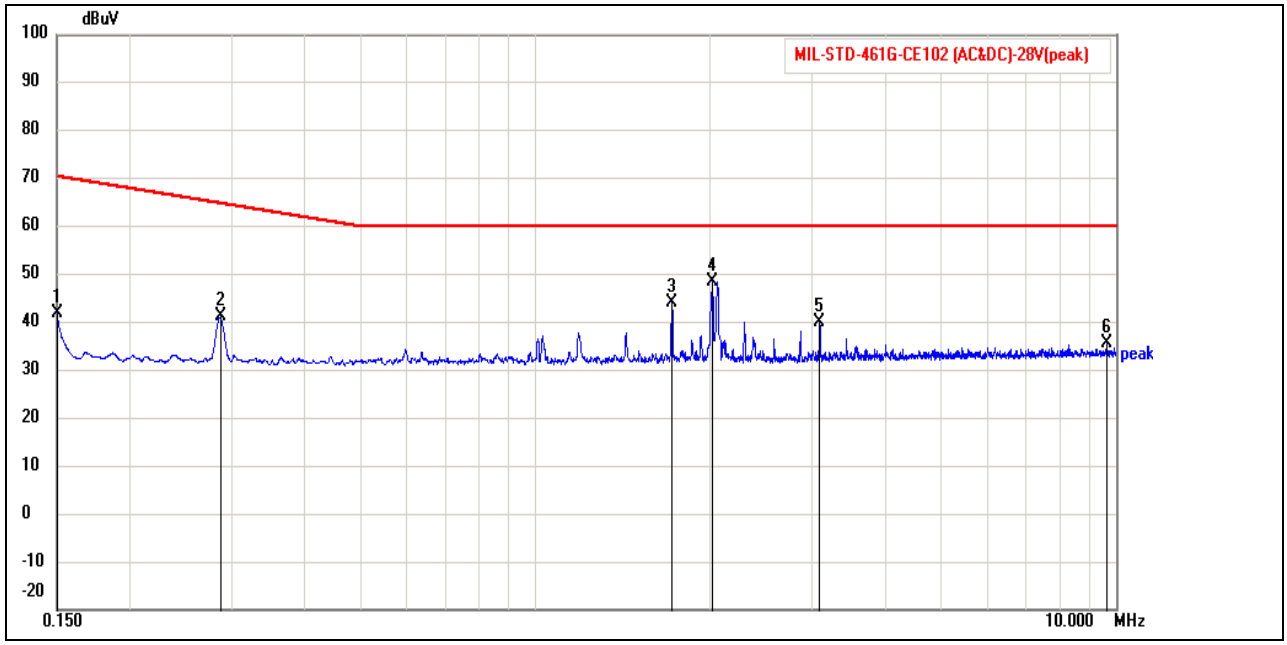
Job No.:	TMWK2305001387KA	Probe:	L1
Standard:	MIL-STD-461G-CE102 (AC&DC)-28V	Power Source:	DC24V
Test item:	Conduction Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:54:05
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:			



No.	Frequency (kHz)	Reading (dBuV)	Correction Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	10.000	17.36	25.94	43.30	94.00	-50.70	peak	P	
2	20.750	4.86	22.30	27.16	87.66	-60.50	peak	P	
3	58.250	9.37	20.64	30.01	78.68	-48.67	peak	P	
4	115.250	14.01	20.44	34.45	72.75	-38.30	peak	P	
5	143.250	33.00	20.42	53.42	70.86	-17.44	peak	P	

150kHz-10MHz

Job No.:	TMWK2305001387KA	Probe:	L1
Standard:	MIL-STD-461G-CE102 (AC&DC)-28V	Power Source:	DC24V
Test item:	Conduction Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:55:38
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:			

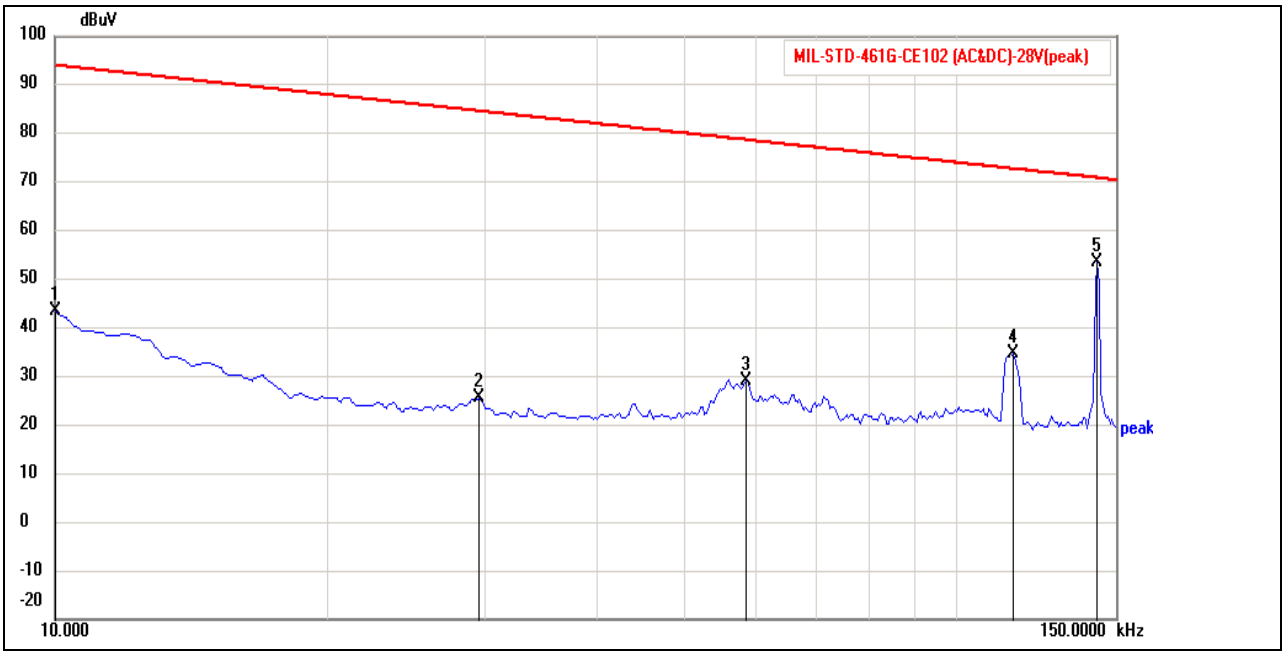


No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.150	21.52	20.41	41.93	70.46	-28.53	peak	P	
2	0.287	20.75	20.40	41.15	64.81	-23.66	peak	P	
3	1.720	23.56	20.43	43.99	60.00	-16.01	peak	P	
4	2.018	28.15	20.43	48.58	60.00	-11.42	peak	P	
5	3.092	19.48	20.45	39.93	60.00	-20.07	peak	P	
6	9.630	14.92	20.55	35.47	60.00	-24.53	peak	P	

L2

10kHz-150kHz

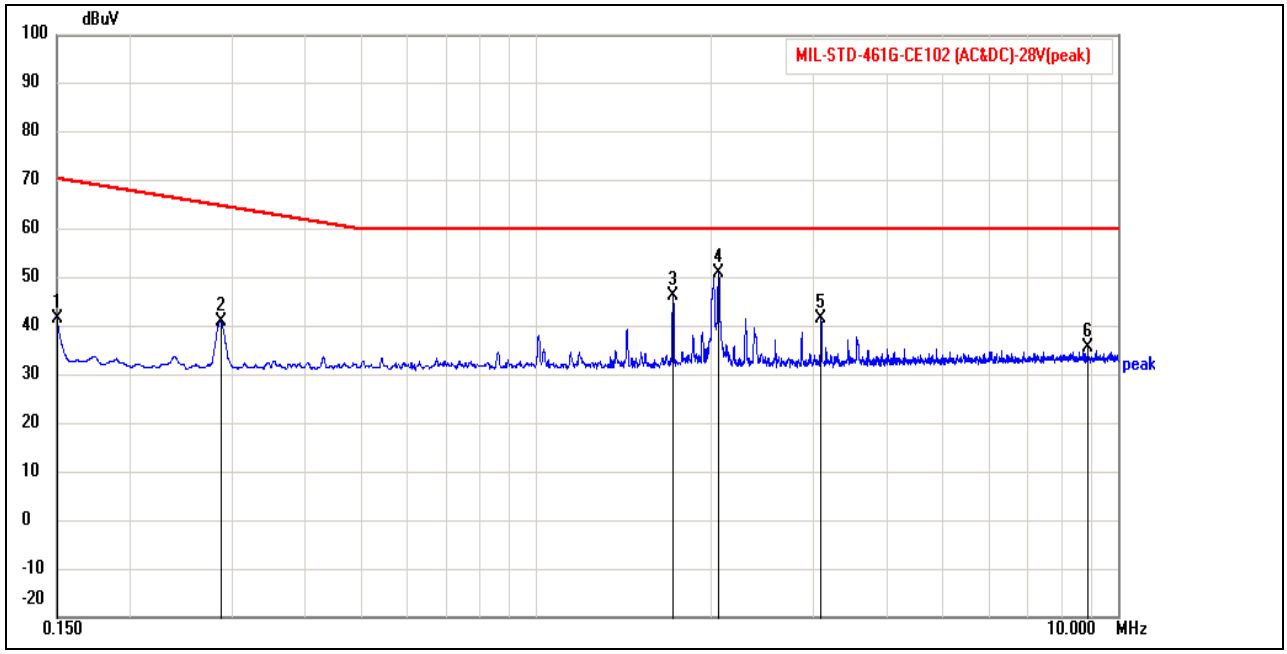
Job No.:	TMWK2305001387KA	Probe:	L2
Standard:	MIL-STD-461G-CE102 (AC&DC)-28V	Power Source:	DC24V
Test item:	Conduction Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:59:20
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:			



No.	Frequency (kHz)	Reading (dBuV)	Correction Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	10.000	17.54	25.90	43.44	94.00	-50.56	peak	P	
2	29.500	4.14	21.42	25.56	84.60	-59.04	peak	P	
3	58.500	8.40	20.67	29.07	78.65	-49.58	peak	P	
4	115.750	14.10	20.48	34.58	72.72	-38.14	peak	P	
5	143.250	33.17	20.45	53.62	70.86	-17.24	peak	P	

150kHz-10MHz

Job No.:	TMWK2305001387KA	Probe:	L2
Standard:	MIL-STD-461G-CE102 (AC&DC)-28V	Power Source:	DC24V
Test item:	Conduction Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:58:05
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:			



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.150	21.09	20.44	41.53	70.46	-28.93	peak	P	
2	0.287	20.64	20.42	41.06	64.81	-23.75	peak	P	
3	1.720	25.82	20.44	46.26	60.00	-13.74	peak	P	
4	2.060	30.51	20.44	50.95	60.00	-9.05	peak	P	
5	3.092	21.23	20.47	41.70	60.00	-18.30	peak	P	
6	8.880	14.96	20.55	35.51	60.00	-24.49	peak	P	

7.2 CS101, conducted susceptibility, power leads, 30 Hz to 150 kHz

APPLICABILITY

This requirement is applicable from 30 Hz to 150 kHz for equipment and subsystem AC, limited to current draws ≤ 30 amperes per phase, and DC input power leads, not including returns. This is also applicable to systems that draw more than 30 amps if the system has an operating frequency 150 kHz or less and an operating sensitivity of 1 μV or better (such as 0.5 μV). If the EUT is DC operated, this requirement is applicable over the frequency range of 30 Hz to 150 kHz. If the EUT is AC operated, this requirement is applicable starting from the second harmonic of the EUT power frequency and extending to 150 kHz.

LIMIT

The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification, when subjected to a test signal with voltage levels as specified on Figure CS101-1. The requirement is also met when the power source is adjusted to dissipate the power level shown on Figure CS101-2 in a 0.5 ohm load and the EUT is not susceptible.

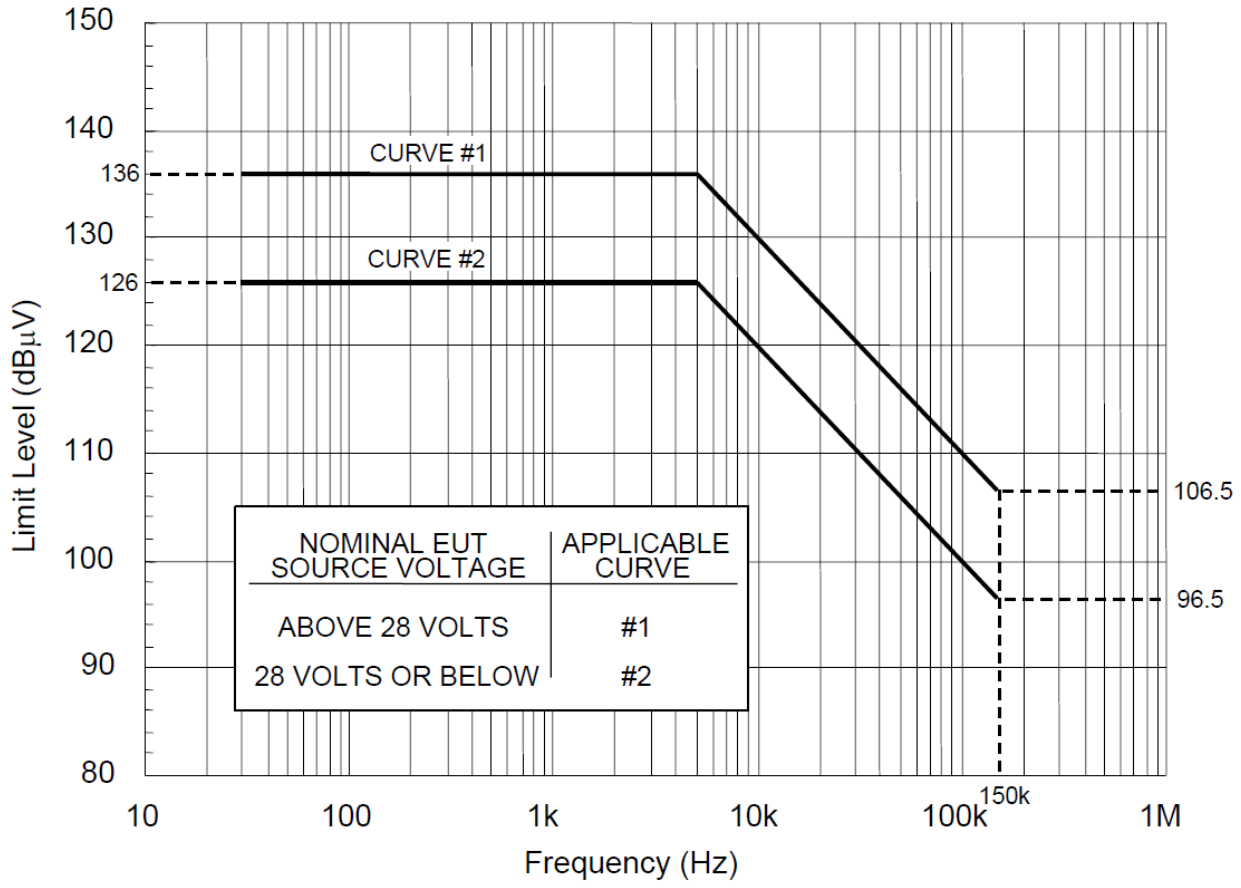


FIGURE CS101-1. CS101 voltage limit for all applications.

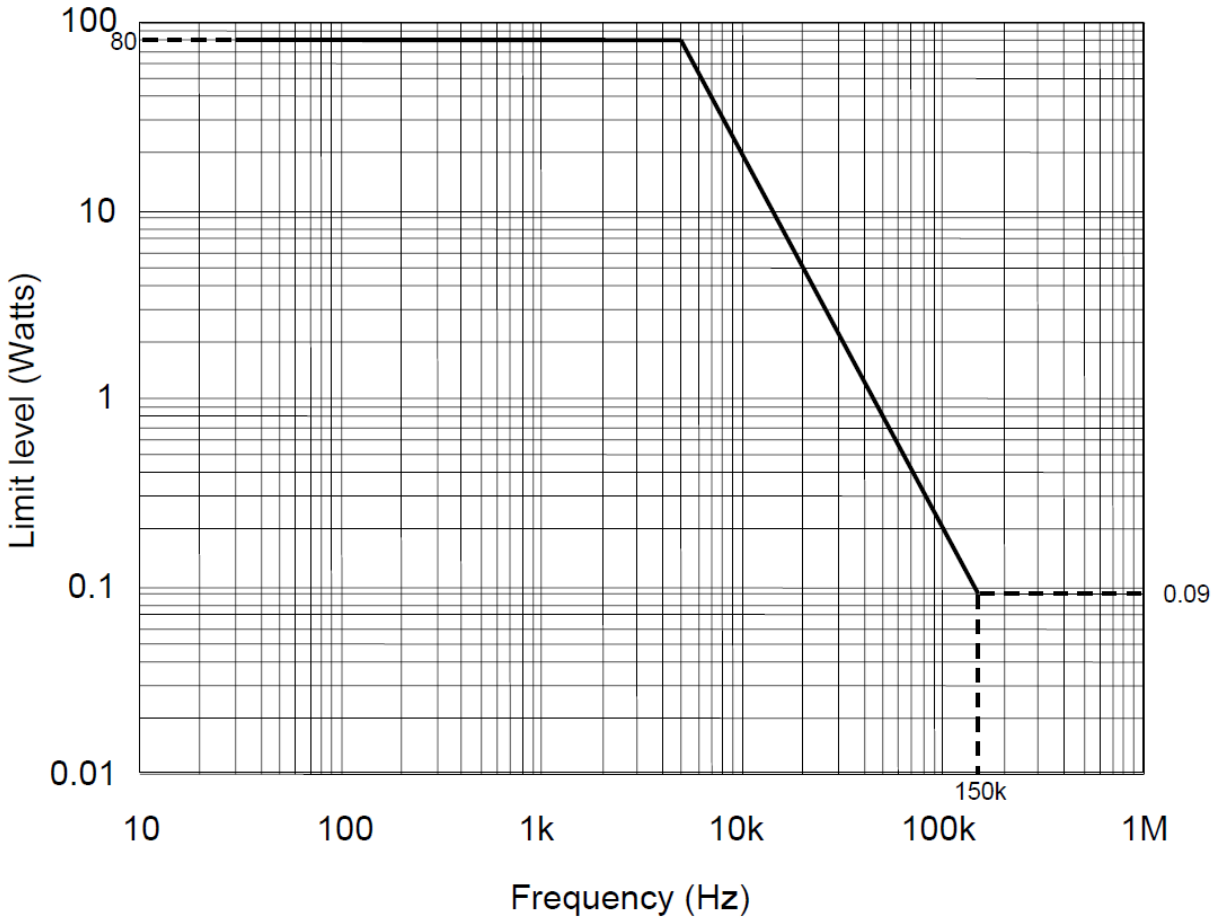


FIGURE CS101-2. CS101 power limit for all applications.

TEST CONFIGURATION

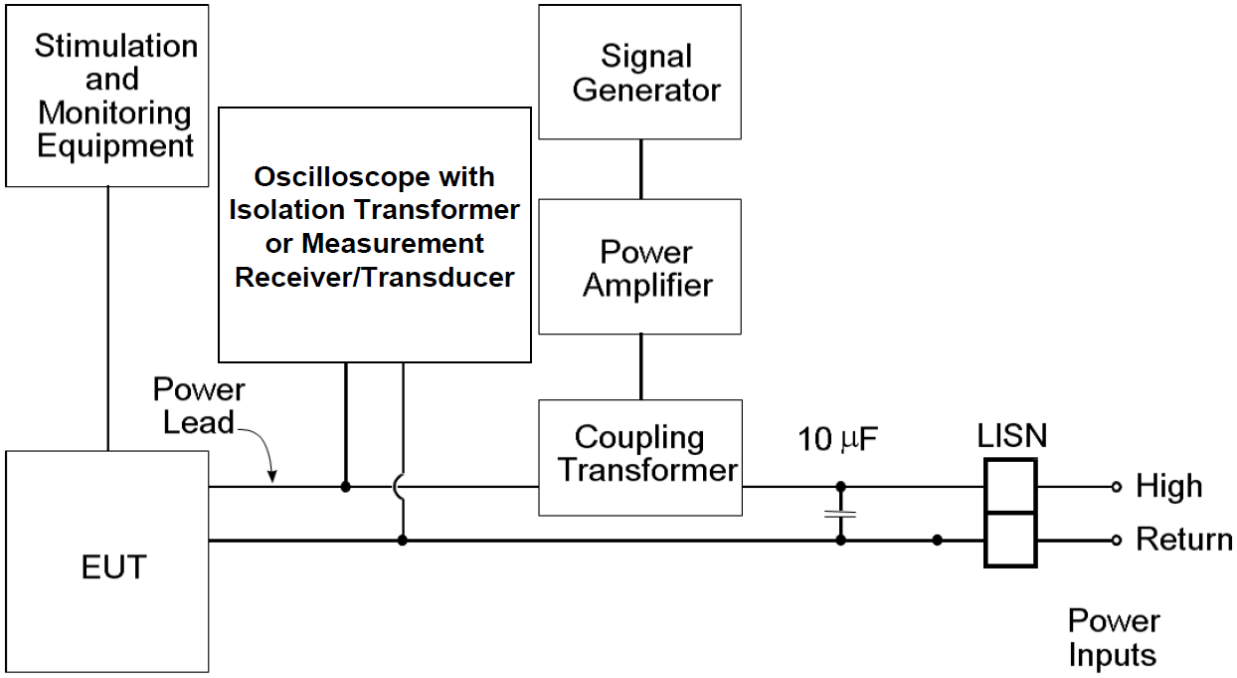


FIGURE CS101-4. Signal injection, DC or single phase AC

TEST PROCEDURE

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL-STD-461G.

TEST RESULTS

Compliant

EUT Power (DC)	Test Lines	Test Curve(#)	Limit	Test Result	Pass/Fail
24V	Power lines positive to negative terminal	2	The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification	During and after the test, EUT function is normal.	Pass

Test Data

TEST REPORT

Report No. : TMWK2305001387KA

Standard	MIL STD-461G CS101
Test object	EUT: SYSTEM M/N: AV800 DC24V
Customer	7STARLAKE Co., Ltd.
Test engineer	Eric Shan
Recorded	May 11, 2023 8:48:47 pm , with ICD 3.54.01
Test equipment	1.) EM TEST AG, CWS 500E, 153
Result file	C:\Documents and Settings\user\TM-2305000052P MIL-STD-461G AV800-X1A-24V-pass\1-data\CS101\Curve 2.prj
Comment	During and after the test, EUT function is normal.
Result	Test passed

Test Plan

Testfile

Name	voltage ripple curve2.nrm
Path	c:\emtest\icd354\standard\automotive\international\iso\MIL-STD-461G\cs 101\voltage ripple curve2.nrm
Modification date	2022/6/29 AM 10:26:42

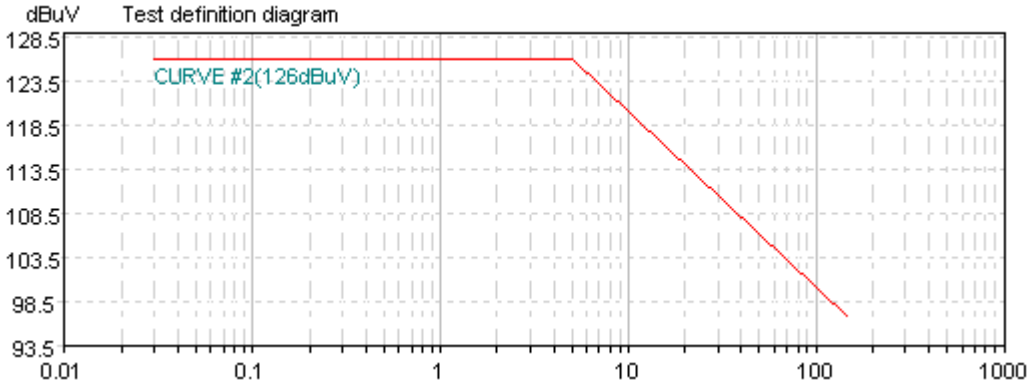
Climatic condition

Temperature	20.8
Humidity	54
Pressure	1021

Test Values

no.	title	F1 [kHz]	L1 [dBuV]	F2 [kHz]	L2 [dBuV]	F-step [kHz]	td [s]	tp [s]	Modulation
3.	CURVE #2(126dBuV)	0.030	126.0	5.000	126.0	5.0 %	3.0 s	0.0 s	CW
4.		5.000	126.0	150.000	96.5	5.0 %	3.0 s	0.0 s	CW

Diagrams



Test summary

no.	Calibration file	Tp. count	Ev. count	passed
1.	Trafo2-1 CURVE #2(126dBuV) 0_03 - 250_0 kHz, 5_0 %_1	176/177	1	no

Coupling device: 1

Model	Trafo2-1
Sno	
Note	60VAC, 50ADC max
Frequency range	0.010 .. 250.000 kHz
Port description	DC-Port

Diagrams

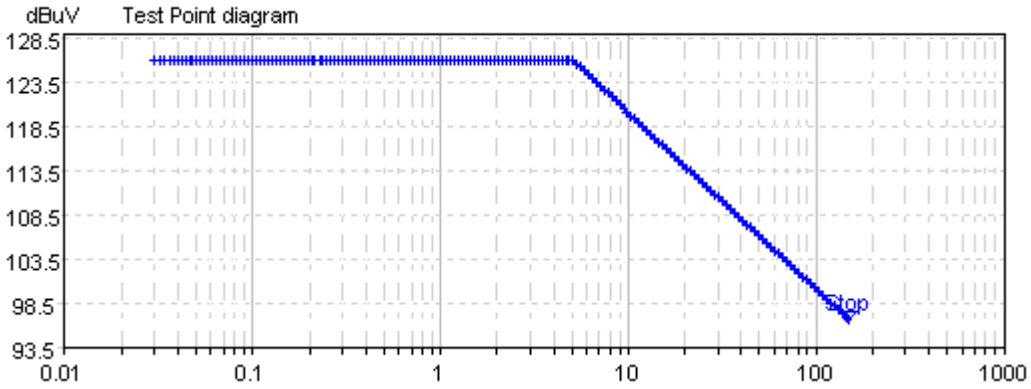


Table of events : 1

no.	Frequency [kHz]	Events	Level [dBuV]	Comment
1	150.000	Stop	9.6500E+01	

Table of Test points : 176

no.	Frequency [kHz]	Level [dBuV]
1	0.030	126.0
2	0.032	126.0
3	0.034	126.0
4	0.036	126.0
5	0.038	126.0
6	0.040	126.0
7	0.042	126.0
8	0.044	126.0
9	0.046	126.0
10	0.048	126.0
11	0.050	126.0
12	0.052	126.0
13	0.055	126.0
14	0.058	126.0
15	0.061	126.0
16	0.064	126.0
17	0.067	126.0
18	0.070	126.0
19	0.074	126.0
20	0.078	126.0
21	0.082	126.0
22	0.086	126.0
23	0.090	126.0
24	0.094	126.0
25	0.099	126.0
26	0.104	126.0

27	0.109	126.0
28	0.114	126.0
29	0.120	126.0
30	0.126	126.0
31	0.132	126.0
32	0.139	126.0
33	0.146	126.0
34	0.153	126.0
35	0.161	126.0
36	0.169	126.0
37	0.177	126.0
38	0.186	126.0
39	0.195	126.0
40	0.205	126.0
41	0.215	126.0
42	0.226	126.0
43	0.237	126.0
44	0.249	126.0
45	0.261	126.0
46	0.274	126.0
47	0.288	126.0
48	0.302	126.0
49	0.317	126.0
50	0.333	126.0
51	0.350	126.0
52	0.368	126.0
53	0.386	126.0
54	0.405	126.0
55	0.425	126.0
56	0.446	126.0
57	0.468	126.0
58	0.491	126.0
59	0.516	126.0
60	0.542	126.0
61	0.569	126.0
62	0.597	126.0
63	0.627	126.0
64	0.658	126.0
65	0.691	126.0
66	0.726	126.0
67	0.762	126.0
68	0.800	126.0
69	0.840	126.0
70	0.882	126.0
71	0.926	126.0
72	0.972	126.0
73	1.021	126.0
74	1.072	126.0
75	1.126	126.0
76	1.182	126.0
77	1.241	126.0
78	1.303	126.0
79	1.368	126.0
80	1.436	126.0
81	1.508	126.0
82	1.583	126.0
83	1.662	126.0
84	1.745	126.0
85	1.832	126.0
86	1.924	126.0
87	2.020	126.0
88	2.121	126.0
89	2.227	126.0
90	2.338	126.0
91	2.455	126.0
92	2.578	126.0
93	2.707	126.0
94	2.842	126.0
95	2.984	126.0
96	3.133	126.0
97	3.290	126.0

98	3.454	126.0
99	3.627	126.0
100	3.808	126.0
101	3.998	126.0
102	4.198	126.0
103	4.408	126.0
104	4.628	126.0
105	4.859	126.0
107	5.000	126.0
108	5.250	125.6
109	5.512	125.2
110	5.788	124.7
111	6.077	124.3
112	6.381	123.9
113	6.700	123.5
114	7.035	123.0
115	7.387	122.6
116	7.756	122.2
117	8.144	121.8
118	8.551	121.3
119	8.979	120.9
120	9.428	120.5
121	9.899	120.1
122	10.394	119.7
123	10.914	119.2
124	11.460	118.8
125	12.033	118.4
126	12.635	117.9
127	13.267	117.5
128	13.930	117.1
129	14.626	116.7
130	15.357	116.3
131	16.125	115.8
132	16.931	115.4
133	17.778	115.0
134	18.667	114.6
135	19.600	114.2
136	20.580	113.7
137	21.609	113.3
138	22.689	112.9
139	23.823	112.4
140	25.014	112.0
141	26.265	111.6
142	27.578	111.2
143	28.957	110.8
144	30.405	110.3
145	31.925	109.9
146	33.521	109.5
147	35.197	109.1
148	36.957	108.7
149	38.805	108.2
150	40.745	107.8
151	42.782	107.4
152	44.921	106.9
153	47.167	106.5
154	49.525	106.1
155	52.001	105.7
156	54.601	105.3
157	57.331	104.8
158	60.198	104.4
159	63.208	104.0
160	66.368	103.6
161	69.686	103.1
162	73.170	102.7
163	76.828	102.3
164	80.669	101.9
165	84.702	101.4
166	88.937	101.0
167	93.384	100.6
168	98.053	100.2
169	102.956	99.8

170	108.104	99.3
171	113.509	98.9
172	119.184	98.5
173	125.143	98.1
174	131.400	97.6
175	137.970	97.2
176	144.868	96.8
177	150.000	96.5

7.3 CS114, conducted susceptibility, bulk cable injection, 10 kHz to 200 MHz

APPLICABILITY

This requirement is applicable from 10 kHz to 200 MHz for all interconnecting cables, including power cables. For EUTs intended to be installed on ships or submarines, an additional common mode limit of 77 dBµA is applicable from 4 kHz to 1 MHz on complete power cables (highs and returns - common mode test).

LIMIT

The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications beyond the tolerances indicated in the individual equipment or subsystem specification, when subjected to an injection probe drive level which has been pre-calibrated to the appropriate current limit shown on Figure CS114-1 and is modulated as specified below. The appropriate limit curve on Figure CS114-1 shall be selected from Table VI. Requirements are also met if the EUT is not susceptible at forward power levels sensed by the directional coupler that are below those determined during calibration provided that the actual current induced in the cable under test is Curve 5 = 115 dBµA, Curve 4 = 103 dBµA, Curve 3 = 95 dBµA, Curve 2 = 89 dBµA and Curve 1 = 83 dBµA across the frequency range.
The requirement is not applicable for coaxial cables to antenna ports of antenna-connected receivers except for surface ships and submarines.

TABEL VI. CS114 limit curves.

PLATFORM / FREQ. RANGE		LIMIT CURVE#FROM FIGURE CS114-1							
		AIRCRAFT (EXTERNAL OR SAFETY CRITICAL)	AIRCRAFT INTERNAL	ALL SHIPS (ABOVE DECK & EXPOSED BELOW DECK) AND SUBMARINES (EXTERNAL)*	SHIPS (METALLIC) (BELOW DECKS)	SHIPS (NON-METALLIC) (BELOW DECKS)	SUBMARINE (INTERNAL)	GROUND	SPACE
4kHz to 1MHz	N	-	-	77 dBµA	77 dBµA	77 dBµA	77 dBµA	-	-
10kHz to 2MHz	A	5	5	2	2	2	1	3	3
	N	5	3	2	2	2	1	2	3
	AF	5	3	-	-	-	-	2	3
2MHz to 30MHz	A	5	5	5	2	4	1	4	3
	N	5	5	5	2	4	1	2	3
	AF	5	3	-	-	-	-	2	3
30MHz to 200MHz	A	5	5	5	2	2	2	4	3
	N	5	5	5	2	2	2	2	3
	AF	5	3	-	-	-	-	2	3

KEY: A = Army
N = Navy
AF = Air Force

* For equipment located external to the pressure hull of a submarine but within the superstructure, use SHIPS (METALLIC) (BELOW DECKS)

** For equipment located in the hangar deck of Aircraft Carriers

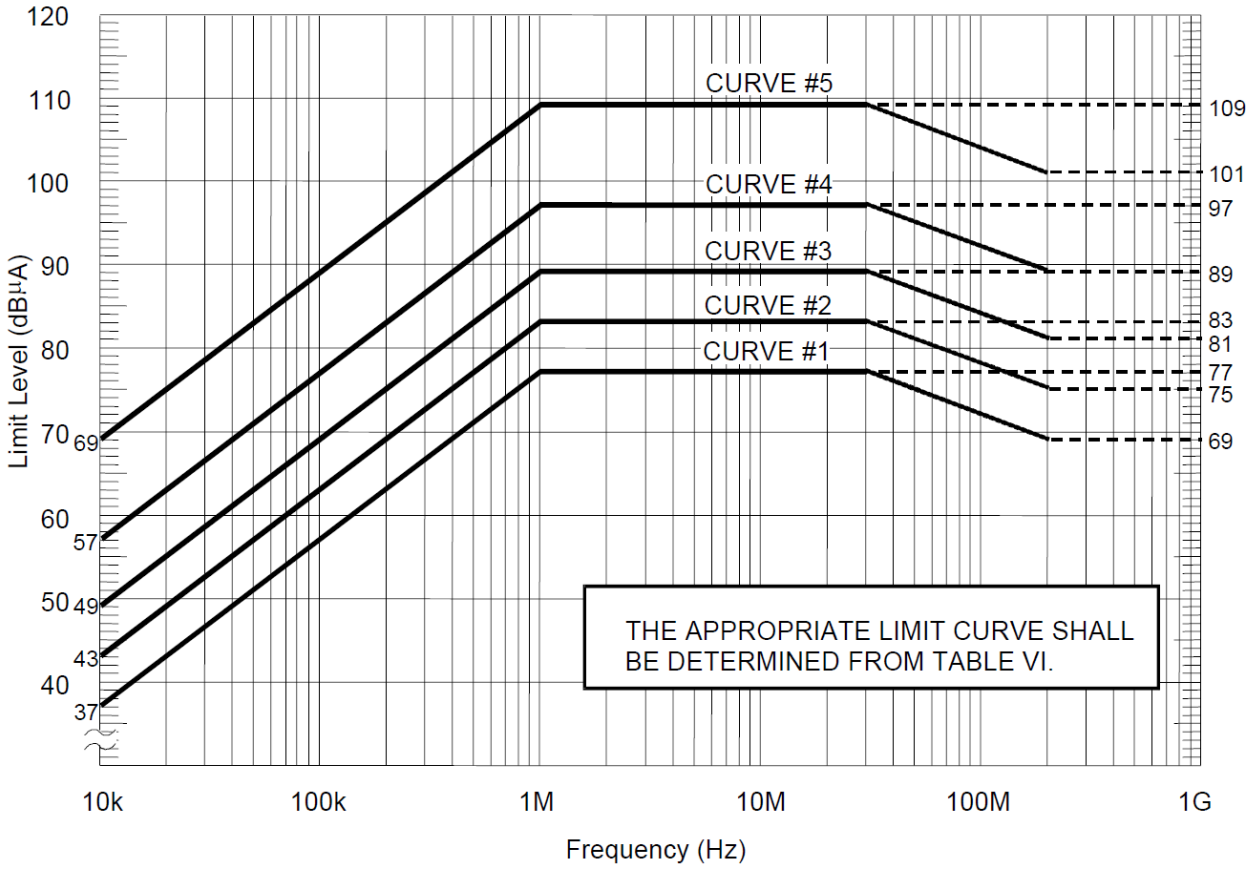


FIGURE CS114-1. CS114 calibration limit.

TEST CONFIGURATION

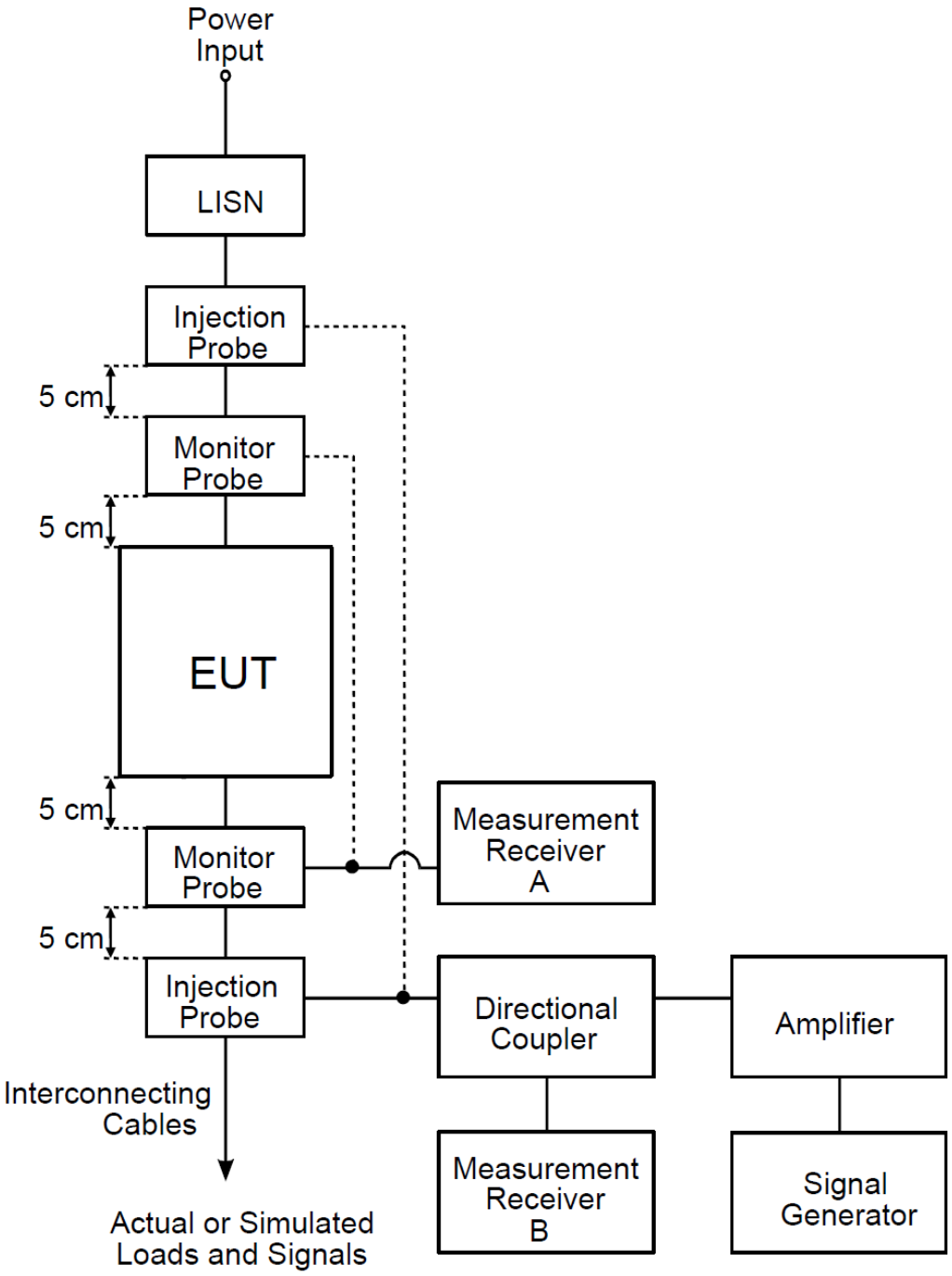


FIGURE CS114-2. Bulk cable injection evaluation

TEST PROCEDURE

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL-STD-461G.

TEST RESULTS

Compliant

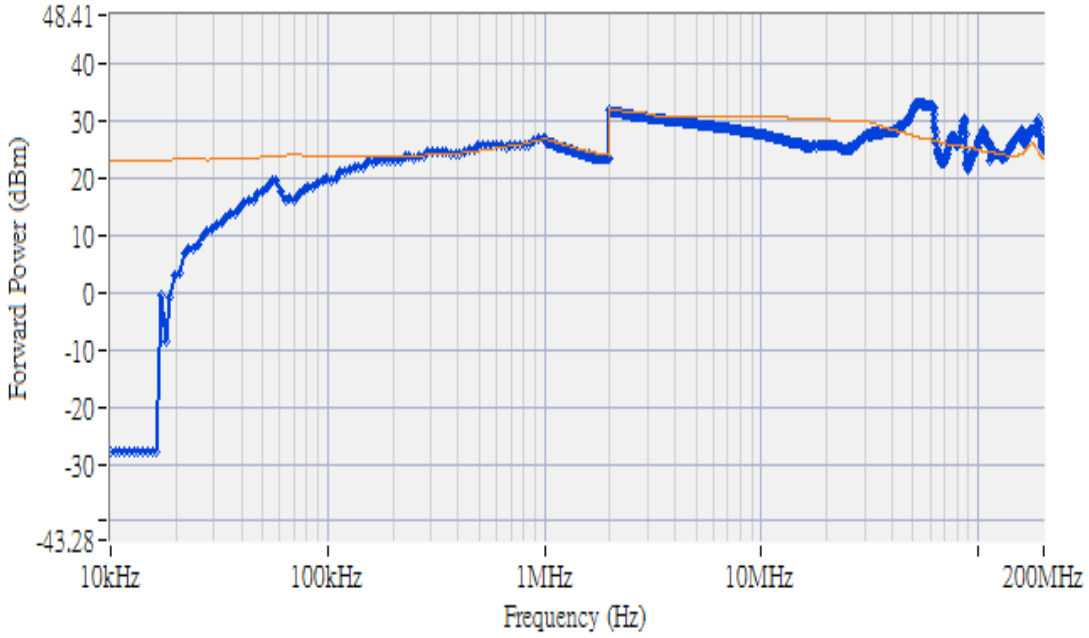
Test Line	Current Probe (Position)	Test Frequency (MHz)	Current (dBuA)	Modulation	Limit	Observation	Pass/ Fail
Connecter X4 Power IN (All)	10cm	0.01-2	49-89	PM duty cycle 50% Period 1ms	The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification	Note 1	Pass
		2-30	97			Note 1	Pass
		30-200	97-89			Note 1	Pass
Connecter X4 Power IN (Positive)	10cm	0.01-2	49-89	PM duty cycle 50% Period 1ms		Note 1	Pass
		2-30	97			Note 1	Pass
		30-200	97-89			Note 1	Pass
Connecter X1 LAN	10cm	0.01-2	49-89	PM duty cycle 50% Period 1ms		Note 1	Pass
		2-30	97			Note 1	Pass
		30-200	97-89			Note 1	Pass
Connecter X2 VGA	10cm	0.01-2	49-89	PM duty cycle 50% Period 1ms		Note 1	Pass
		2-30	97			Note 1	Pass
		30-200	97-89			Note 1	Pass
Connecter X3 USB	10cm	0.01-2	49-89	PM duty cycle 50% Period 1ms		Note 1	Pass
		2-30	97			Note 1	Pass
		30-200	97-89			Note 1	Pass

Observation:
Note 1: During and after the test, EUT function is normal.

FORWARD POWER

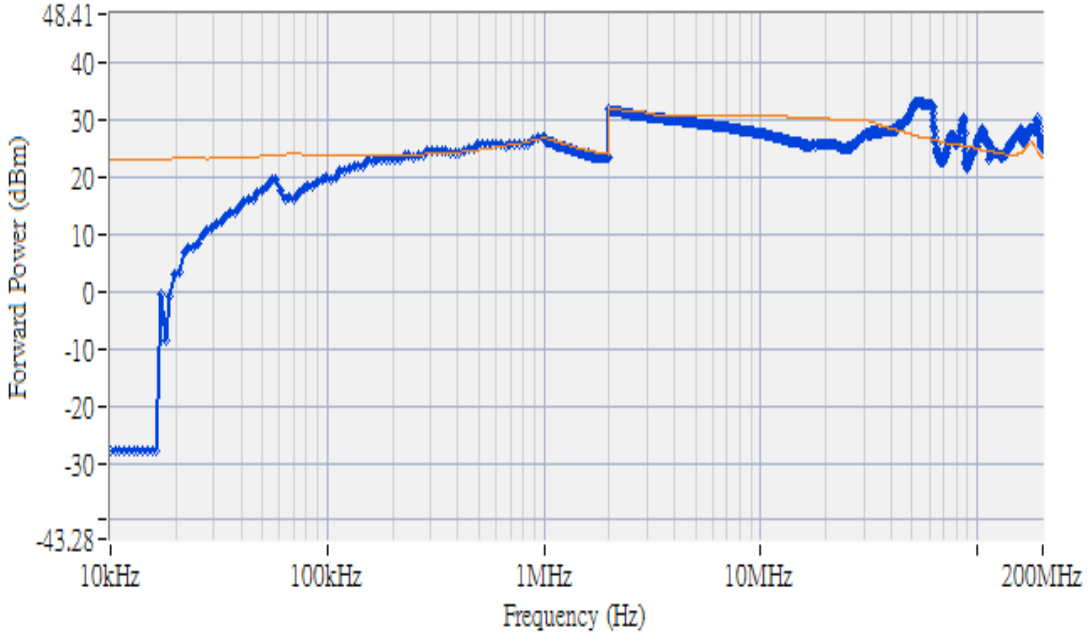
INPUT ALL CABLE

Curve #3(0.01M~2M)&4(2M~200M)-PM1kHz50%



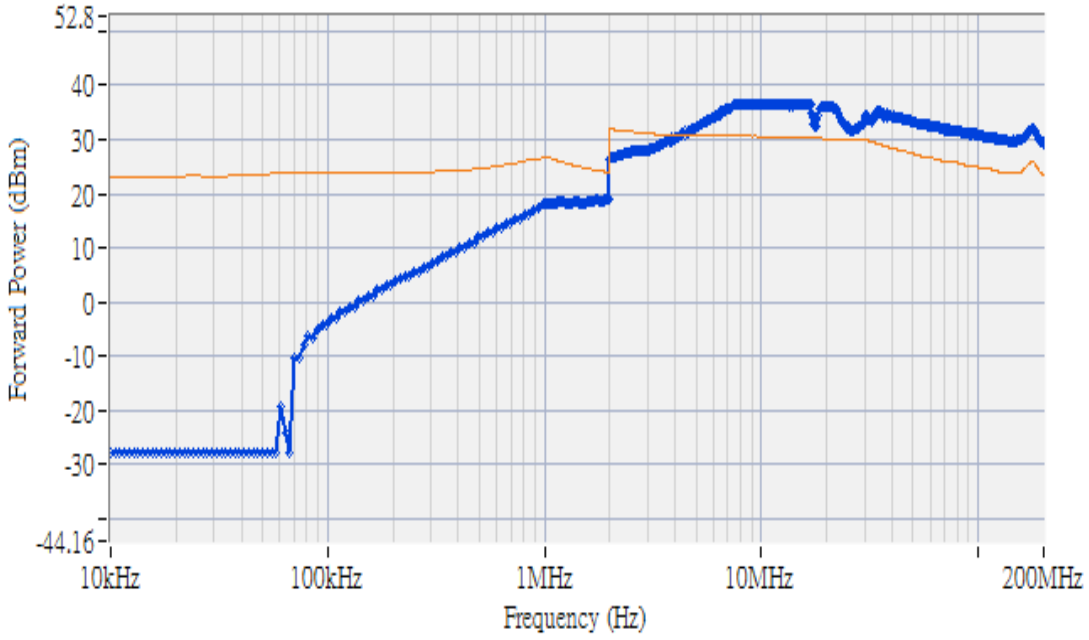
INPUT POSITIVE CABLE

Curve #3(0.01M~2M)&4(2M~200M)-PM1kHz50%



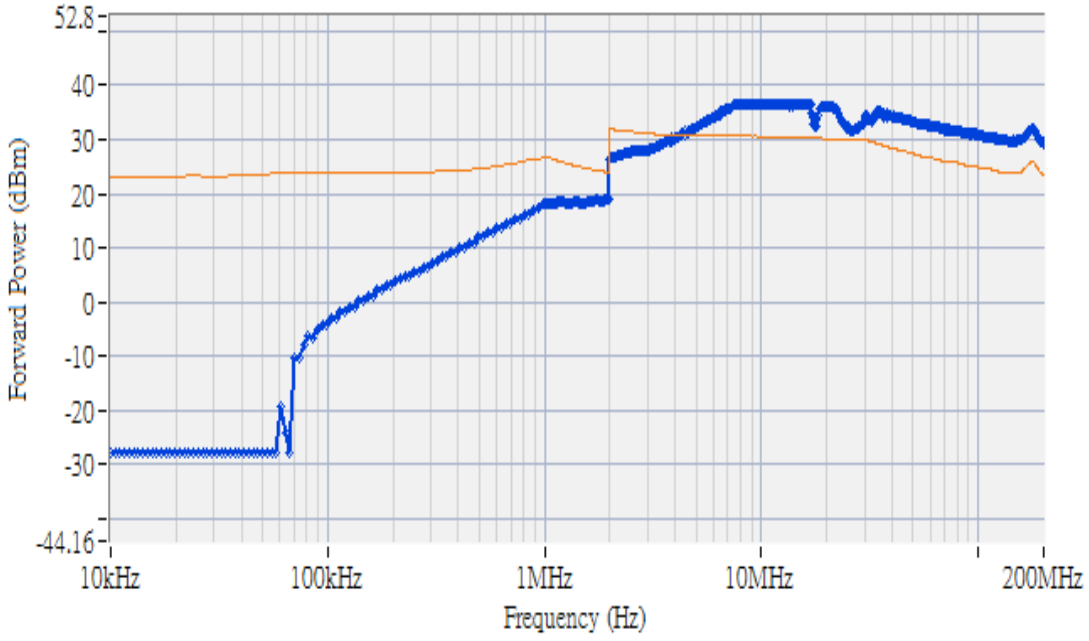
OUTPUT LAN CABLE

Curve #3(0.01M~2M)&4(2M~200M)-PM1kHz50%



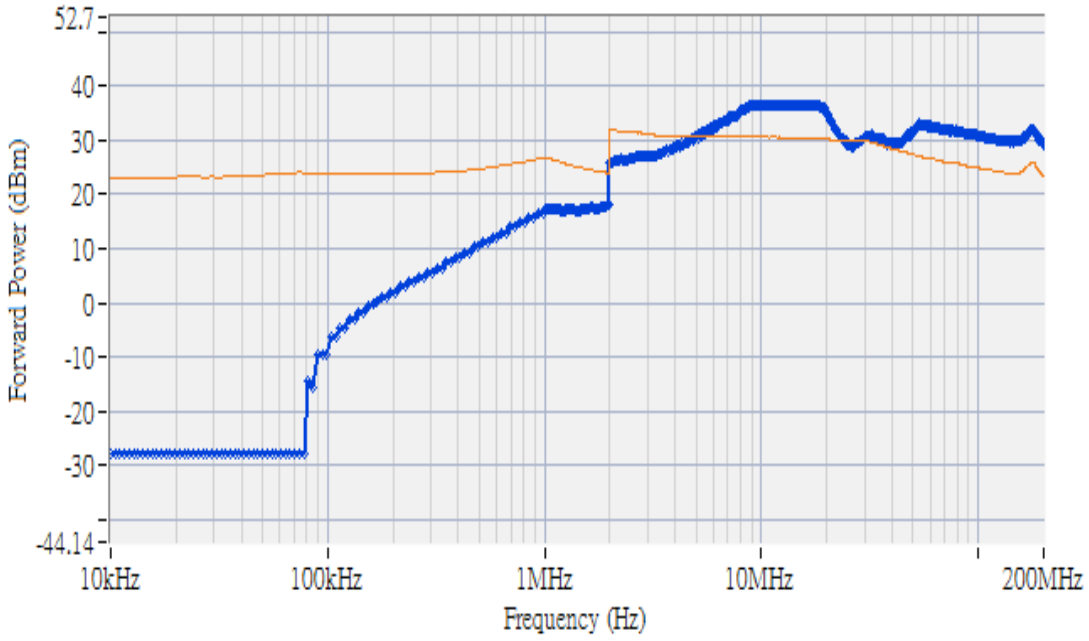
OUTPUT VGA CABLE

Curve #3(0.01M~2M)&4(2M~200M)-PM1kHz50%



OUTPUT USB CABLE

Curve #3(0.01M~2M)&4(2M~200M)-PM1kHz50%



7.4 CS115, conducted susceptibility, bulk cable injection, impulse excitation

APPLICABILITY

This requirement is applicable to all aircraft, space, and ground system interconnecting cables, including power cables. The requirement is also applicable for surface ship and submarine subsystems and equipment when specified by the procuring activity.

LIMIT

The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystems specification, when subjected to a pre-calibrated signal having rise and fall times, pulse width, and amplitude as specified in Figure CS115-1 at a 30 Hz rate for one minute.

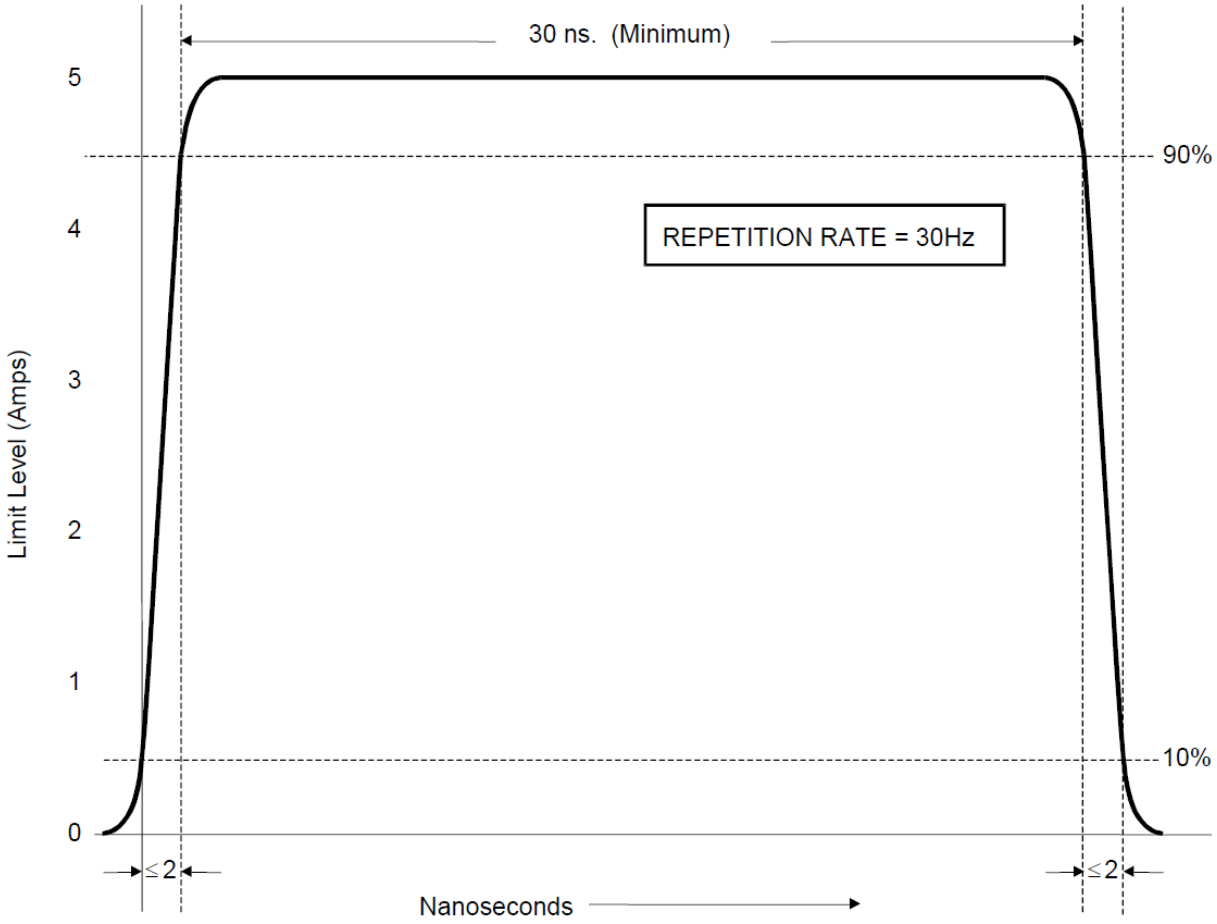


FIGURE CS115-1. CS115 signal characteristics for all applications.

TEST CONFIGURATION

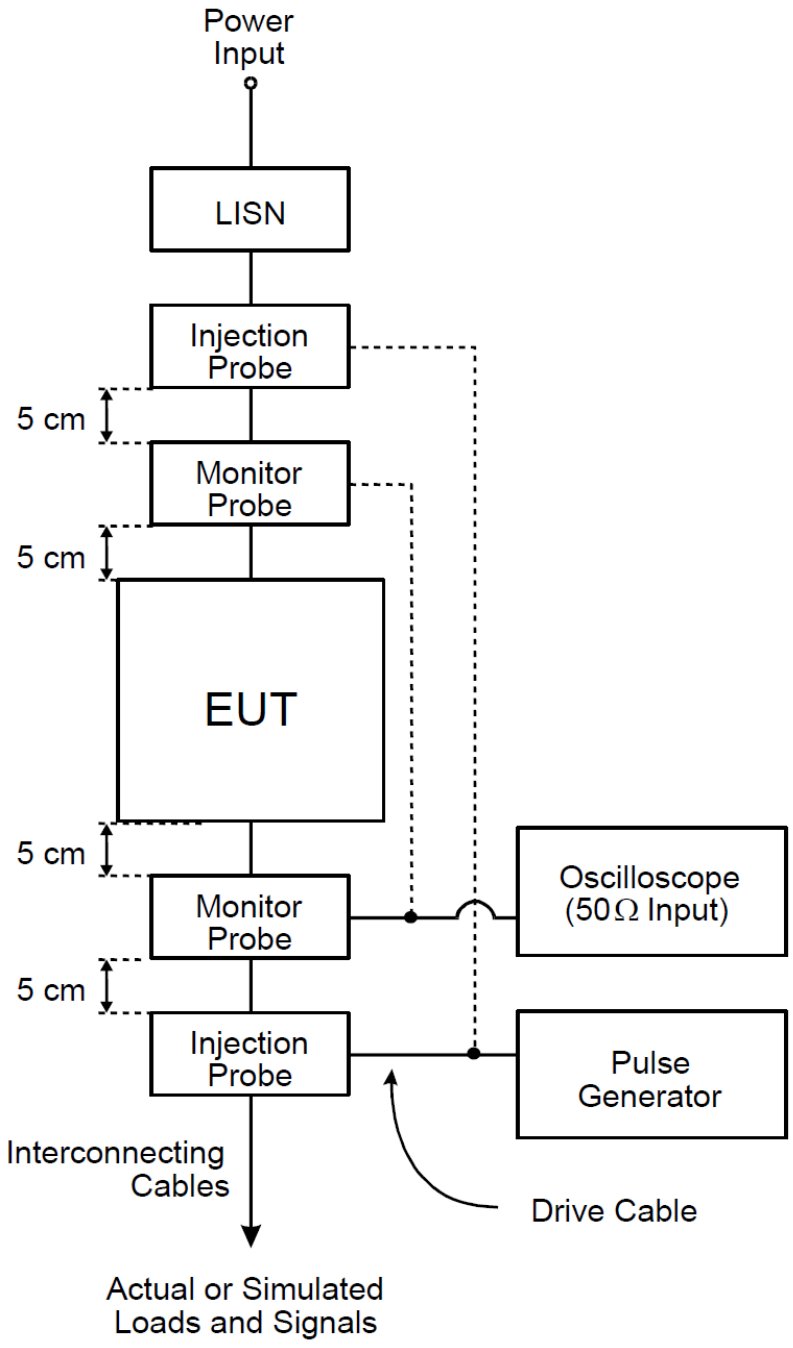


FIGURE CS115-3. Bulk cable injection.

TEST PROCEDURE

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL-STD-461G.

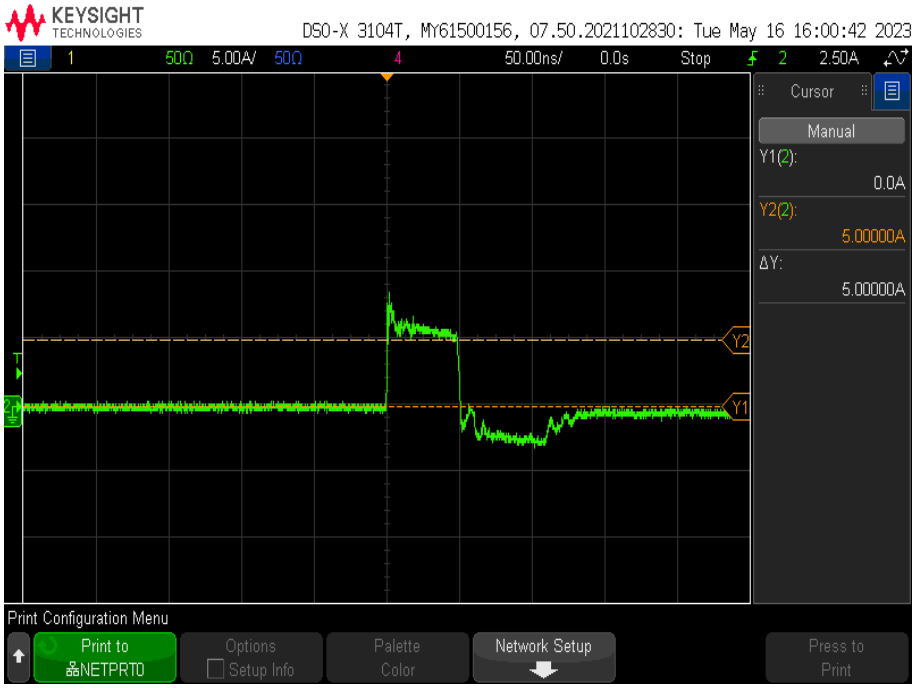
TEST RESULTS

Compliant

Test Data

Test Line	Repeat Rate (Hz)	Limit Level (Amps)	Limit	Observation	Pass/Fail
Connecter X1 LAN	30	±5	The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification	Note 1	Pass
Connecter X2 VGA	30	±5		Note 1	Pass
Connecter X3 USB	30	±5		Note 1	Pass
Connecter X4 Power IN (All)	30	±5		Note 1	Pass
Connecter X4 Power IN (Positive)	30	±5		Note 1	Pass
Observation: Note 1: During and after the test, EUT function is normal.					

Test Waveform



7.5 RE102, radiated emissions, electrical field, 2 MHz to 18 GHz

APPLICABILITY

This requirement is applicable for radiated emissions from equipment and subsystem enclosures, and all interconnecting cables. For equipment with permanently mounted antennas this requirement does not apply at the transmitter fundamental frequency and the necessary occupied bandwidth of the signal. The requirement is applicable as follows:

a. Ground 2 MHz to 18 GHz

LIMIT

Electric field emissions shall not be radiated in excess of those shown on Figures RE102-4. Above 30 MHz, the limits shall be met for both horizontally and vertically polarized fields.

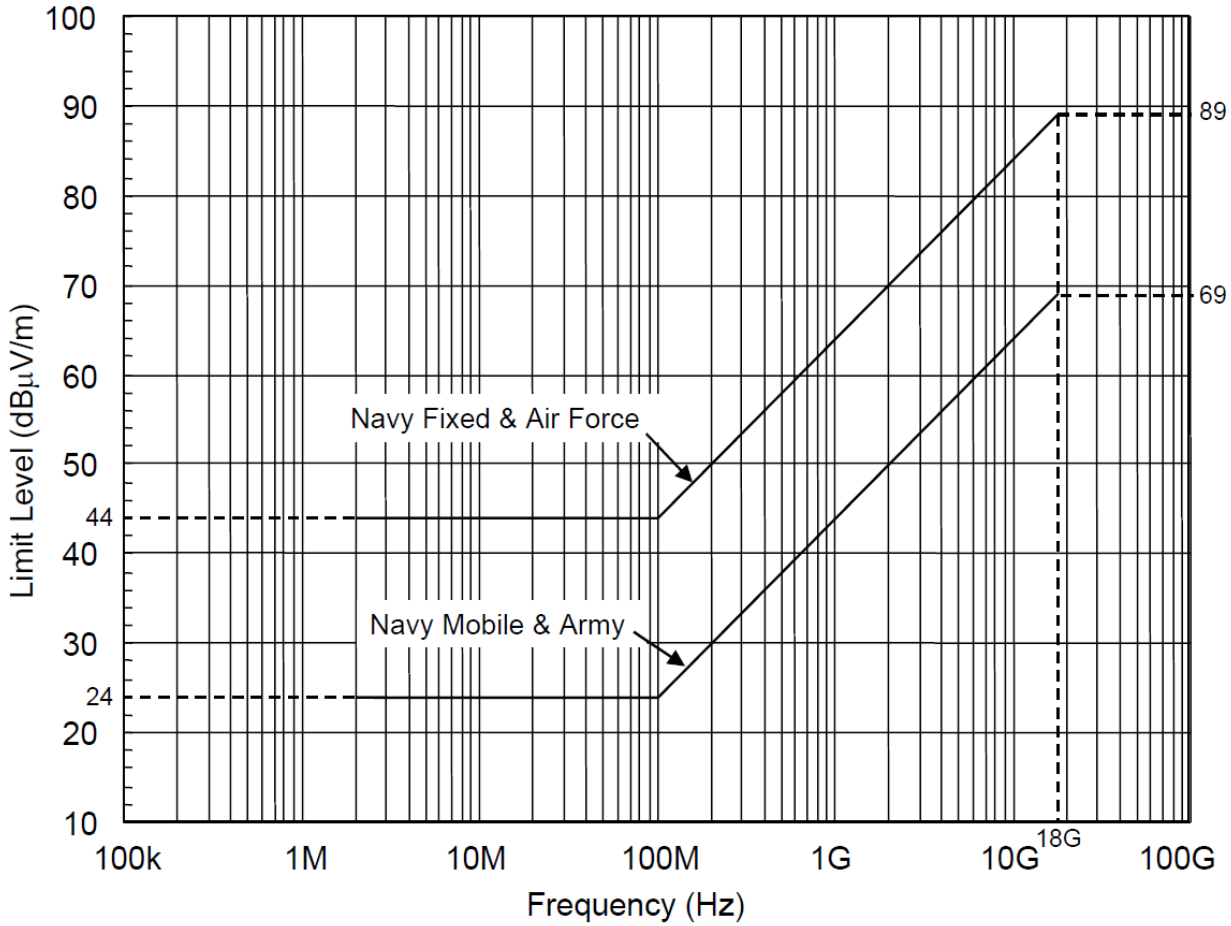


FIGURE RE102-4. RE102 limit for ground applications.

TEST CONFIGURATION

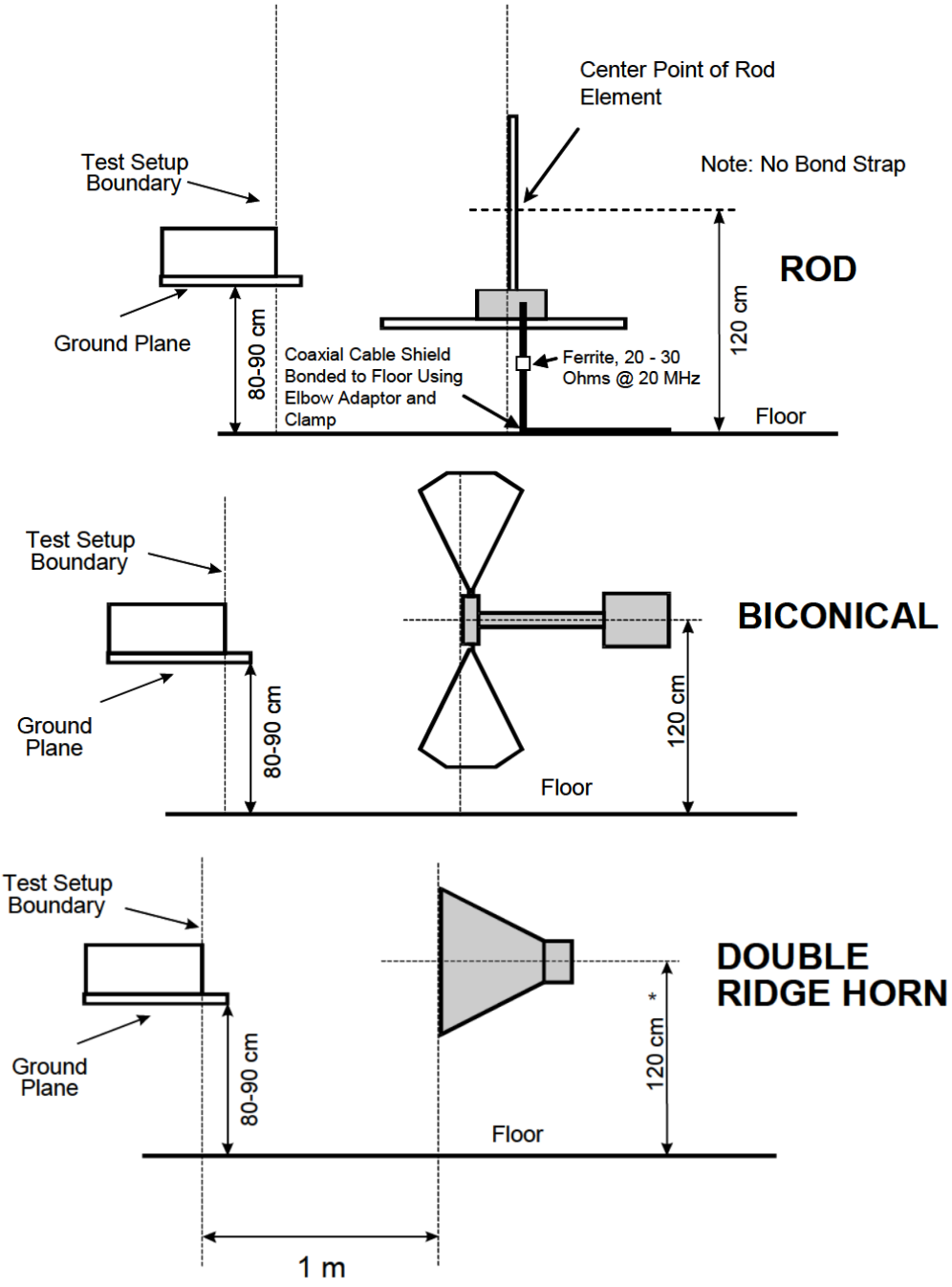


FIGURE RE102-5. Antenna positioning.

TEST PROCEDURE

The radiated emission of EUT representative of its type shall be tested by the method(s) reference to MIL-STD-461G.

TEST RESULTS

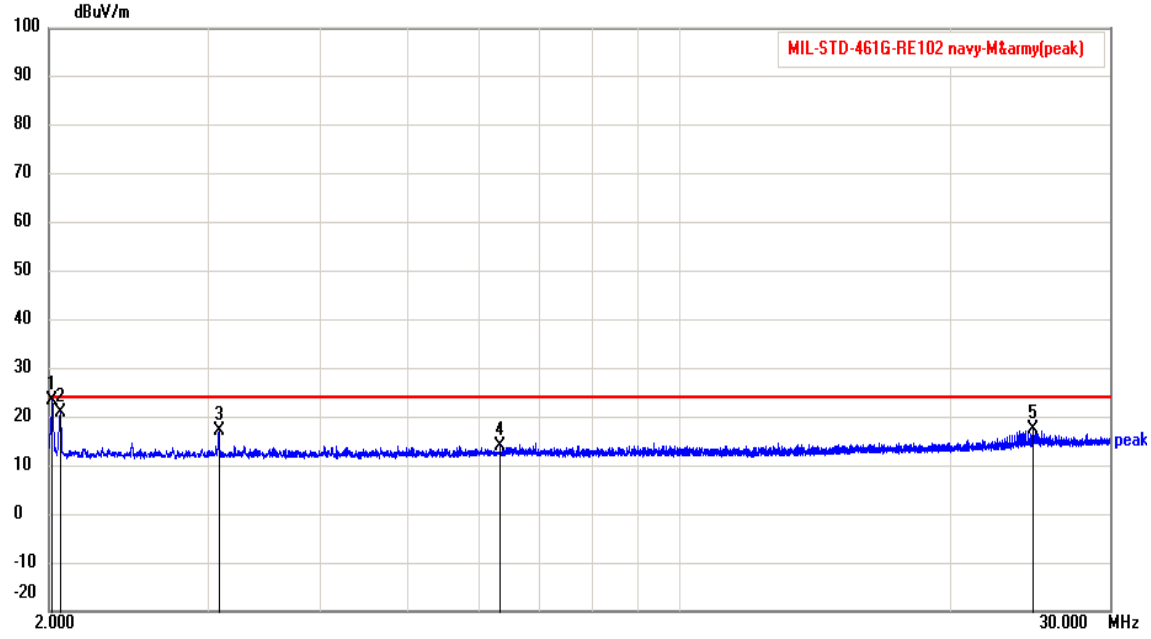
Compliant

Test Data

Antenna toward harness center

2MHz-30MHz-Vertical

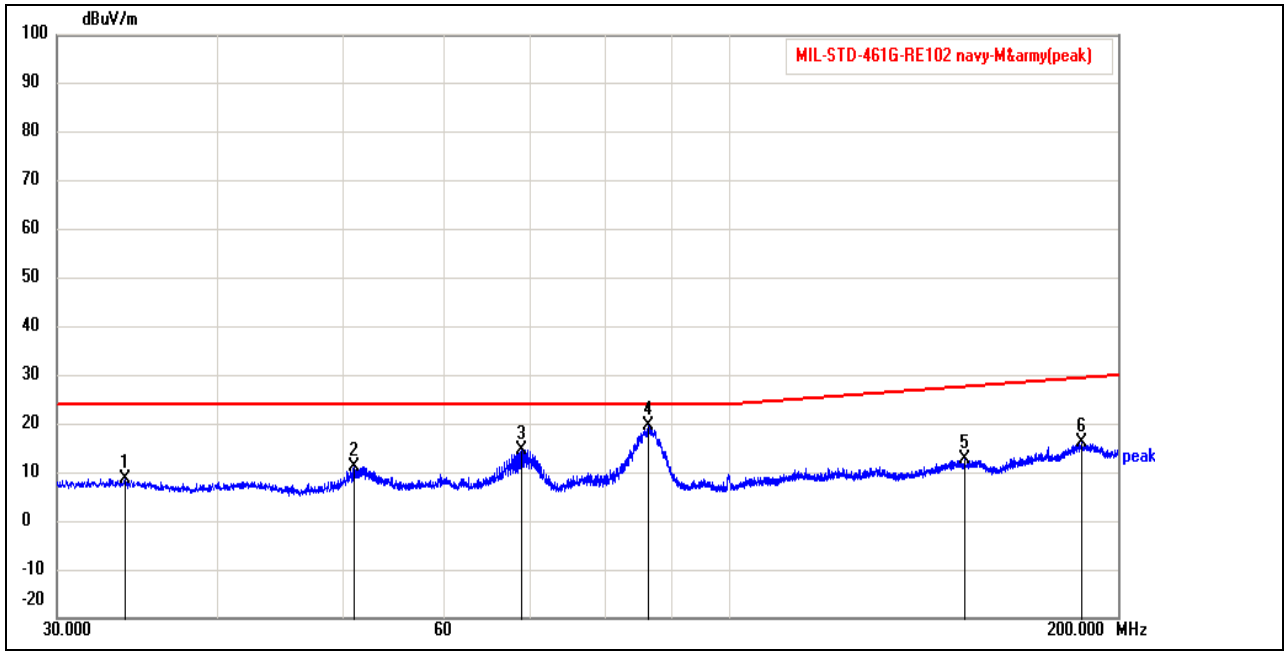
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 11:24:59
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency	Reading	Correction	Result	Limit	Margin	Detector	P/F	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)			
1	2.018	13.83	9.57	23.40	24.00	-0.60	peak	P	
2	2.060	11.22	9.56	20.78	24.00	-3.22	peak	P	
3	3.085	7.59	9.48	17.07	24.00	-6.93	peak	P	
4	6.327	4.53	9.44	13.97	24.00	-10.03	peak	P	
5	24.650	7.28	10.13	17.41	24.00	-6.59	peak	P	

30MHz-200MHz-Vertical

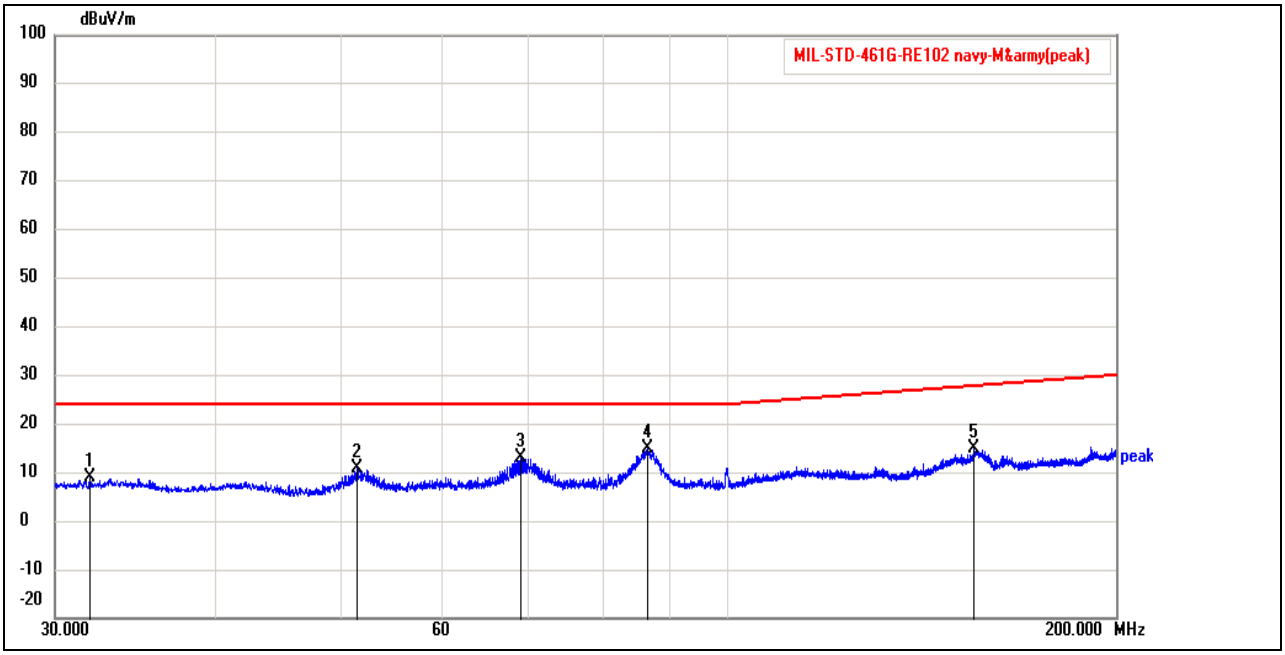
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 11:40:30
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	33.875	47.18	-38.48	8.70	24.00	-15.30	peak	P	
2	51.000	50.08	-38.92	11.16	24.00	-12.84	peak	P	
3	68.800	54.46	-39.81	14.65	24.00	-9.35	peak	P	
4	86.425	59.40	-39.77	19.63	24.00	-4.37	peak	P	
5	152.100	49.24	-36.37	12.87	27.63	-14.76	peak	P	
6	187.300	50.59	-34.45	16.14	29.44	-13.30	peak	P	

30MHz-200MHz-Horizontal

Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 11:42:52
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



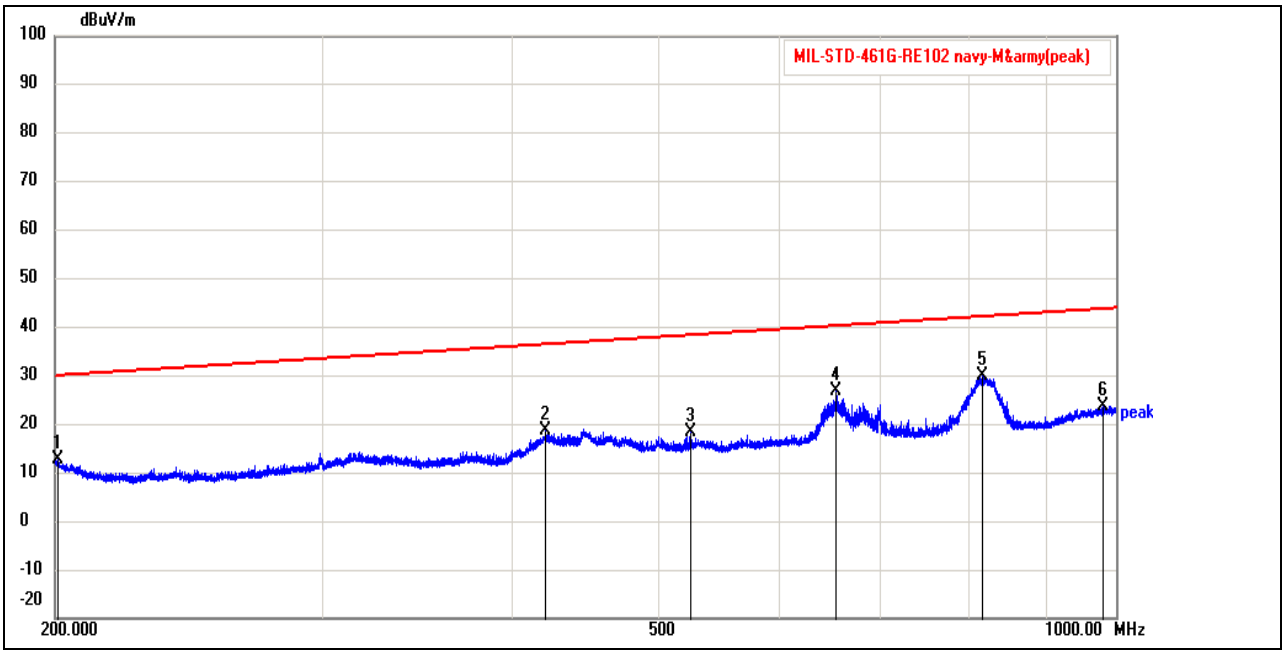
No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	31.950	47.41	-38.39	9.02	24.00	-14.98	peak	P	
2	51.450	49.85	-38.95	10.90	24.00	-13.10	peak	P	
3	69.075	52.78	-39.82	12.96	24.00	-11.04	peak	P	
4	86.500	54.80	-39.77	15.03	24.00	-8.97	peak	P	
5	155.275	51.11	-36.33	14.78	27.81	-13.03	peak	P	

Antenna toward EUT

Middle

200MHz-1GHz-Vertical

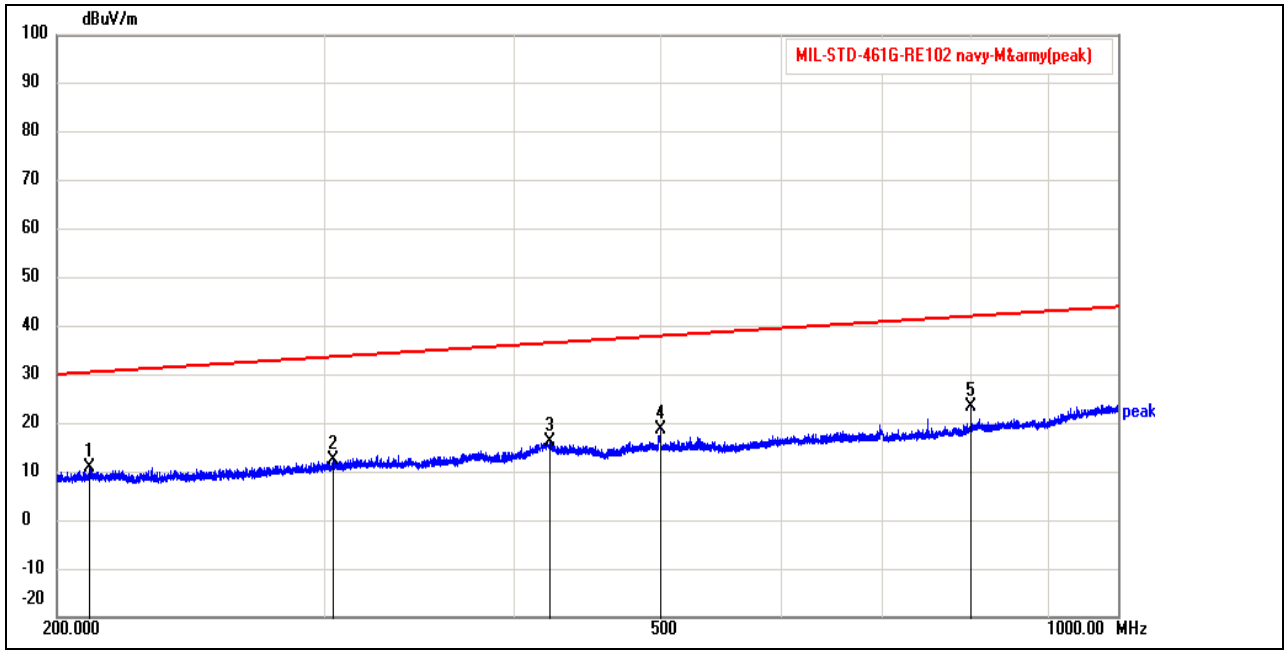
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 11:48:31
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	201.025	51.56	-38.83	12.73	30.05	-17.32	peak	P	
2	420.900	53.03	-34.46	18.57	36.45	-17.88	peak	P	
3	524.325	50.25	-31.97	18.28	38.36	-20.08	peak	P	
4	653.950	56.25	-29.56	26.69	40.27	-13.58	peak	P	
5	817.050	57.16	-27.18	29.98	42.20	-12.22	peak	P	
6	980.650	47.37	-23.57	23.80	43.78	-19.98	peak	P	

200MHz-1GHz-Horizontal

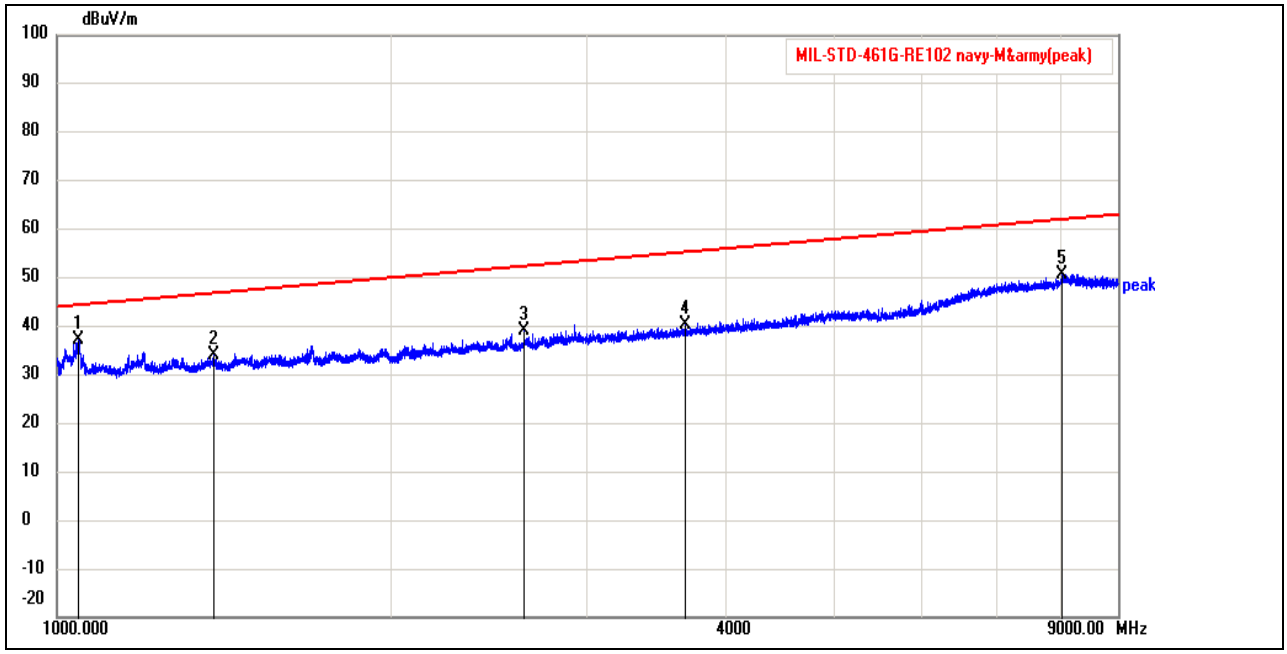
Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 11:52:04
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	210.350	49.51	-38.59	10.92	30.44	-19.52	peak	P	
2	304.100	48.87	-36.29	12.58	33.64	-21.06	peak	P	
3	422.725	50.66	-34.39	16.27	36.49	-20.22	peak	P	
4	500.000	50.34	-31.75	18.59	37.95	-19.36	peak	P	
5	800.000	50.72	-27.38	23.34	42.02	-18.68	peak	P	

1GHz-9GHz-Vertical

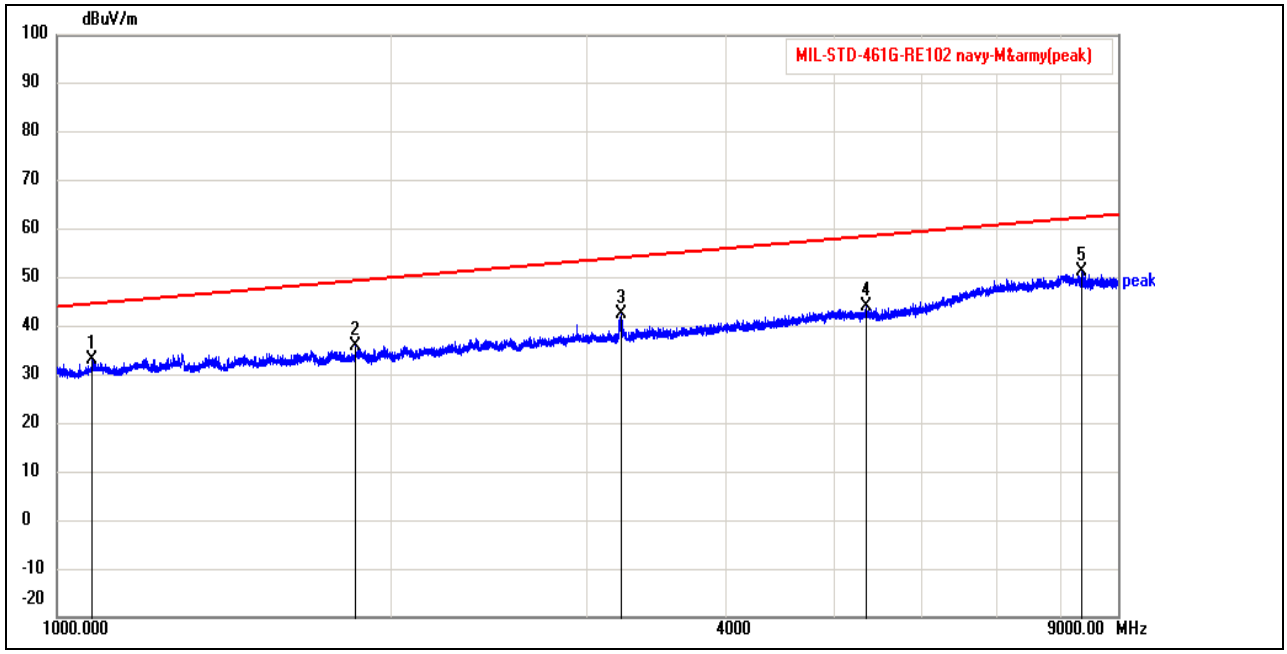
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:14:08
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1046.750	59.04	-21.76	37.28	44.35	-7.07	peak	P	
2	1384.500	54.31	-20.16	34.15	46.77	-12.62	peak	P	
3	2632.000	53.46	-14.45	39.01	52.34	-13.33	peak	P	
4	3672.250	51.22	-10.86	40.36	55.23	-14.87	peak	P	
5	8010.000	48.47	2.15	50.62	61.98	-11.36	peak	P	

1GHz-9GHz-Horizontal

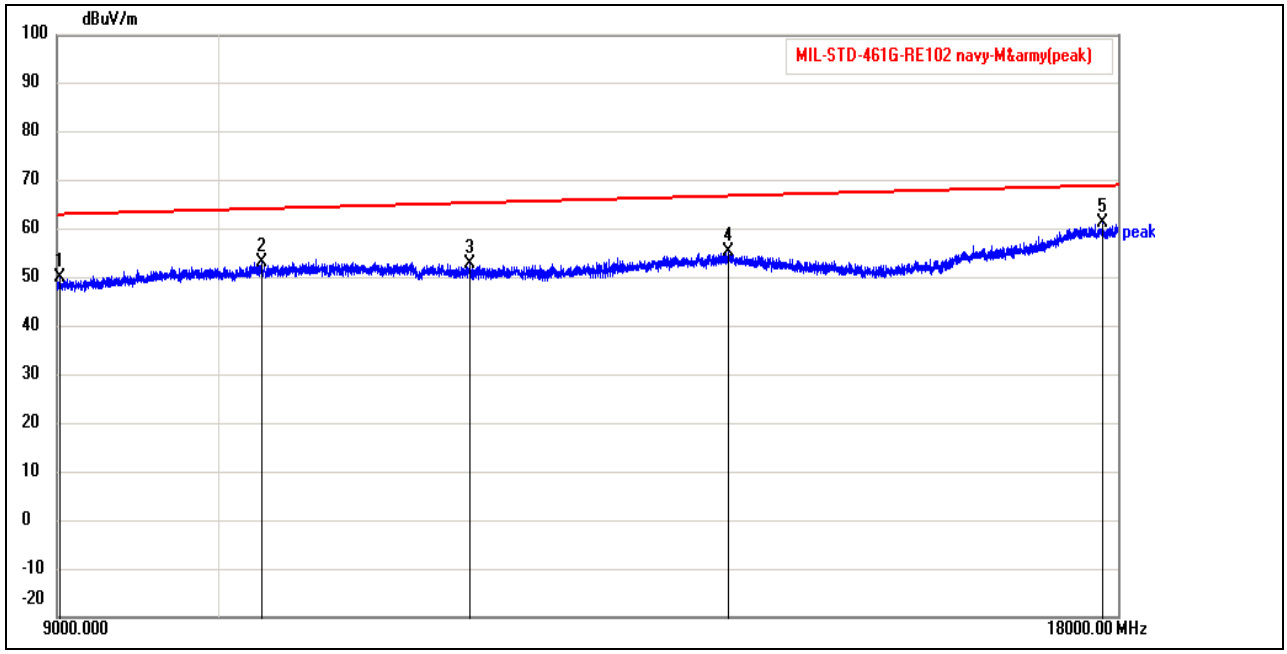
Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:23:18
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1074.500	54.65	-21.62	33.03	44.58	-11.55	peak	P	
2	1855.000	54.11	-18.32	35.79	49.31	-13.52	peak	P	
3	3219.500	54.80	-12.32	42.48	54.09	-11.61	peak	P	
4	5344.500	49.94	-5.92	44.02	58.48	-14.46	peak	P	
5	8357.250	49.59	1.75	51.34	62.35	-11.01	peak	P	

9GHz-18GHz-Vertical

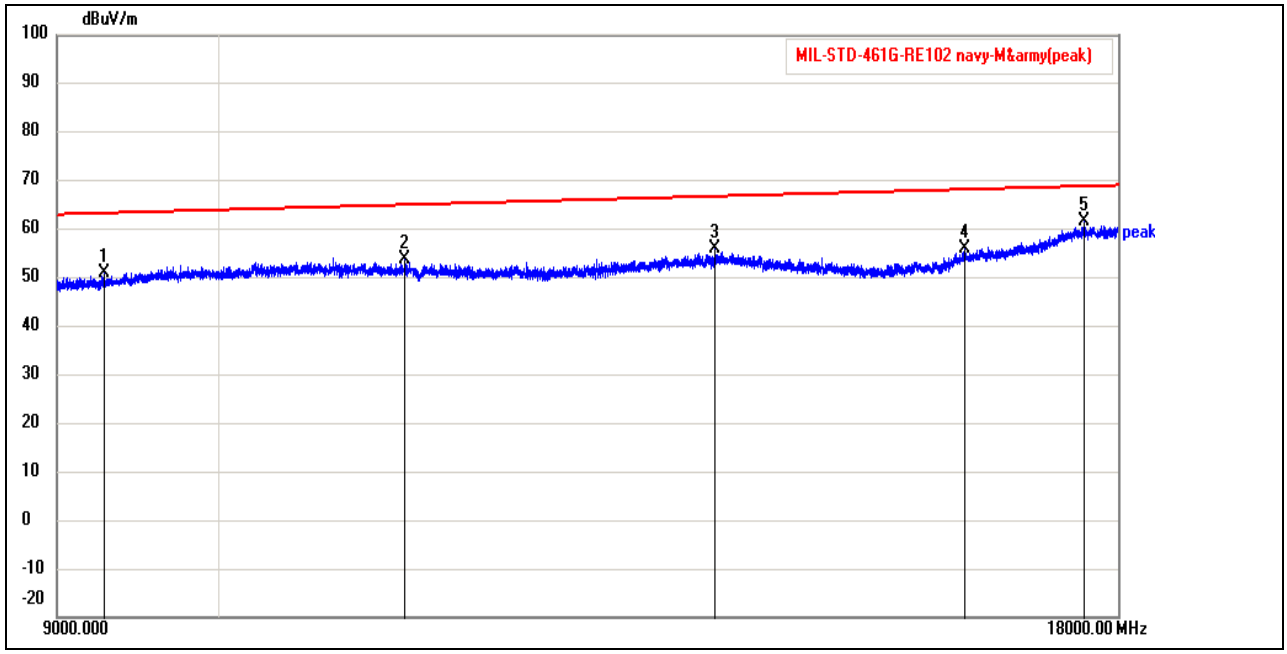
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:16:43
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	9019.250	48.64	1.46	50.10	63.01	-12.91	peak	P	
2	10286.000	49.25	3.94	53.19	64.15	-10.96	peak	P	
3	11786.250	49.22	3.59	52.81	65.33	-12.52	peak	P	
4	13957.750	48.42	7.04	55.46	66.80	-11.34	peak	P	
5	17821.500	47.15	14.04	61.19	68.91	-7.72	peak	P	

9GHz-18GHz-Horizontal

Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:24:16
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		

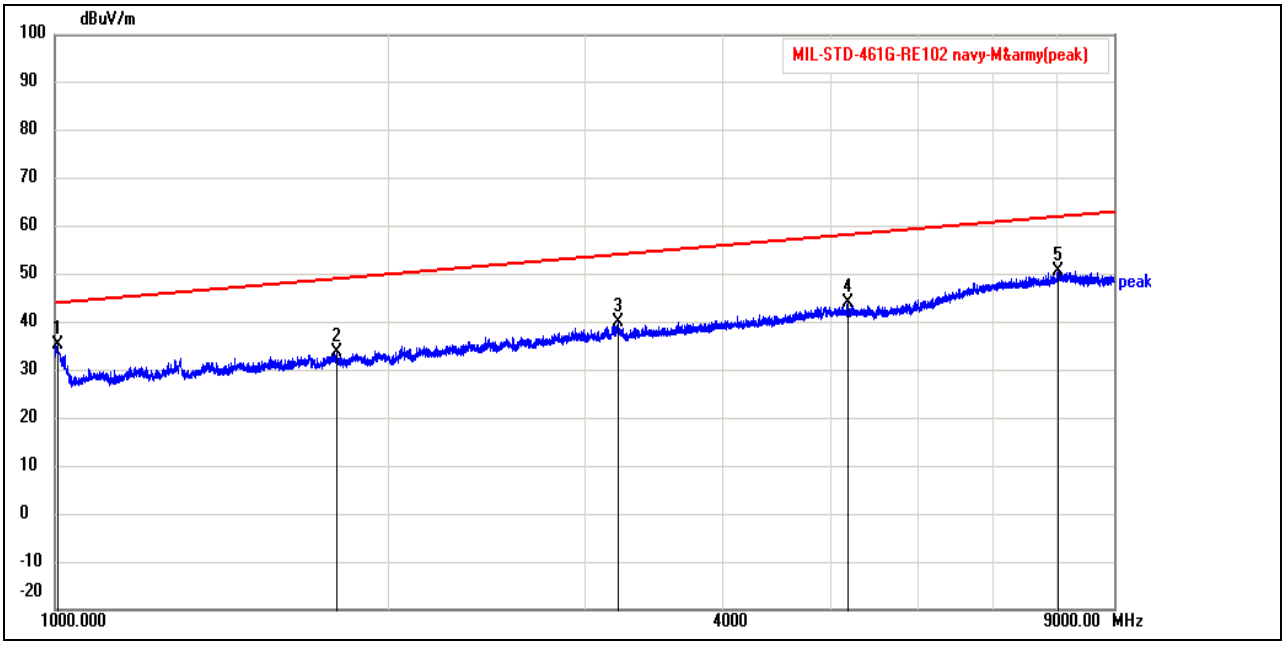


No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	9285.500	48.96	2.10	51.06	63.26	-12.20	peak	P	
2	11293.250	49.31	4.32	53.63	64.96	-11.33	peak	P	
3	13830.000	49.02	6.94	55.96	66.72	-10.76	peak	P	
4	16282.000	47.89	7.98	55.87	68.13	-12.26	peak	P	
5	17611.500	47.77	13.76	61.53	68.81	-7.28	peak	P	

Left

1GHz-9GHz-Vertical

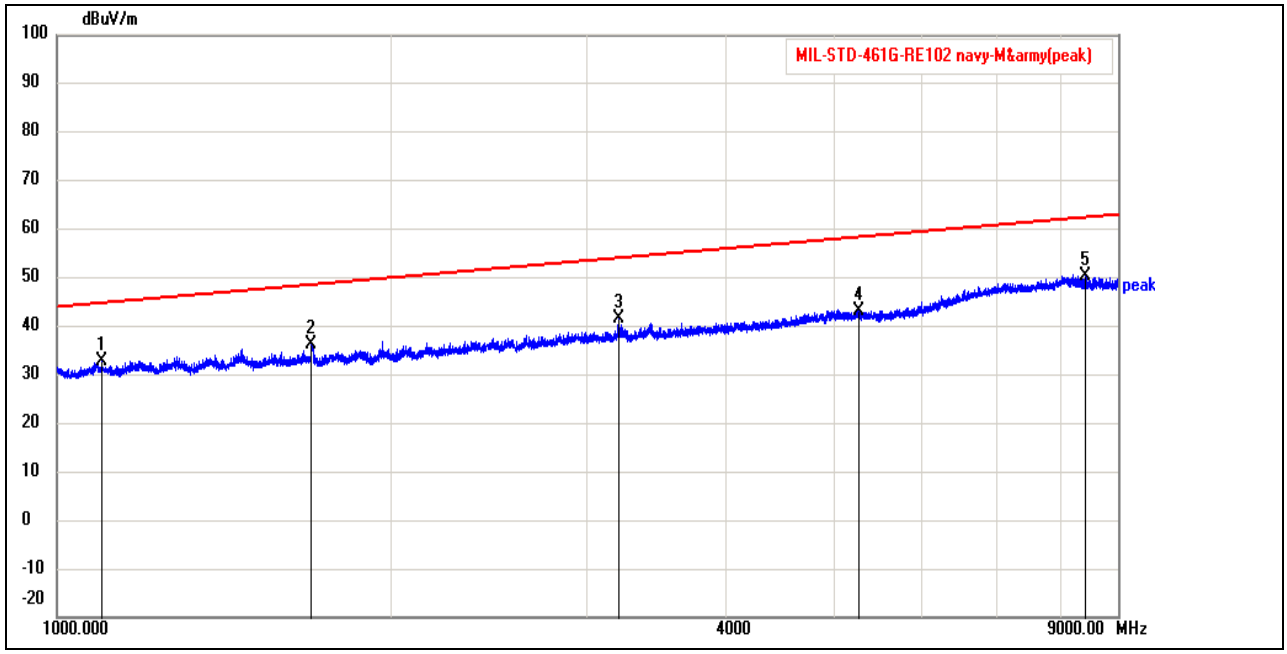
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:30:49
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1006.000	57.32	-21.94	35.38	44.01	-8.63	peak	P	
2	1793.750	52.16	-18.53	33.63	49.02	-15.39	peak	P	
3	3215.000	52.46	-12.32	40.14	54.07	-13.93	peak	P	
4	5188.750	49.84	-5.89	43.95	58.22	-14.27	peak	P	
5	8018.500	48.57	2.12	50.69	61.99	-11.30	peak	P	

1GHz-9GHz-Horizontal

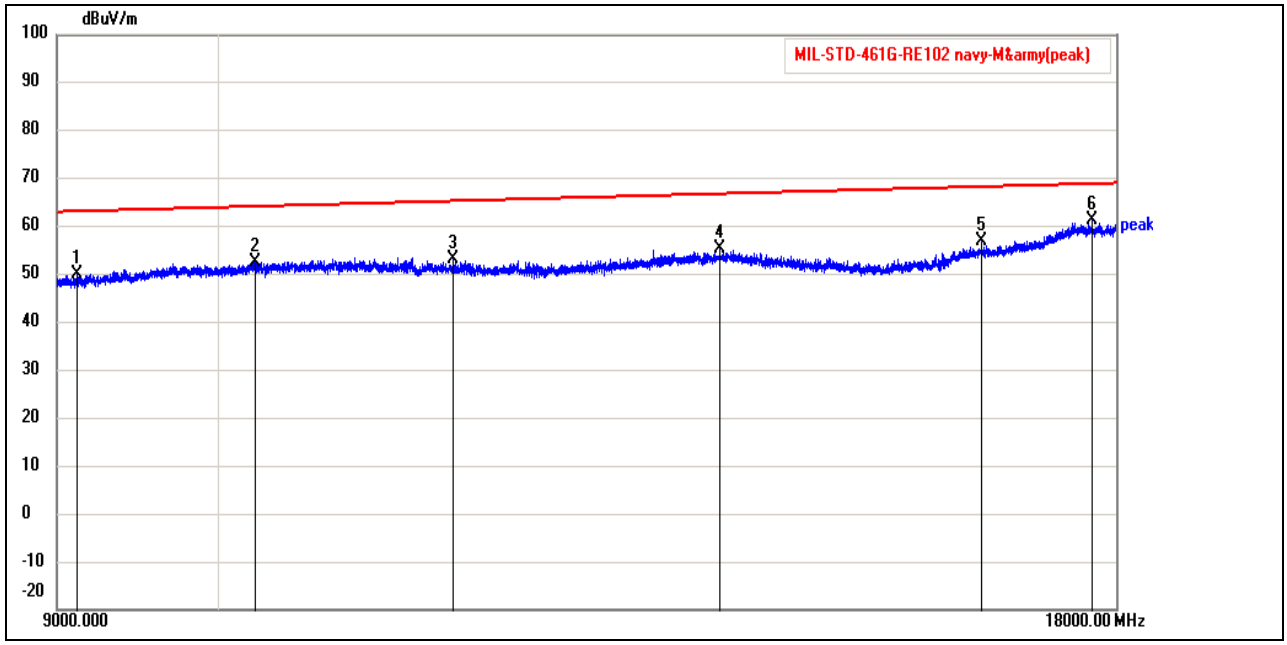
Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:28:35
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1097.500	54.22	-21.51	32.71	44.76	-12.05	peak	P	
2	1694.500	55.25	-18.91	36.34	48.52	-12.18	peak	P	
3	3201.750	53.92	-12.36	41.56	54.04	-12.48	peak	P	
4	5268.500	49.13	-5.87	43.26	58.35	-15.09	peak	P	
5	8413.750	48.65	1.70	50.35	62.41	-12.06	peak	P	

9GHz-18GHz-Vertical

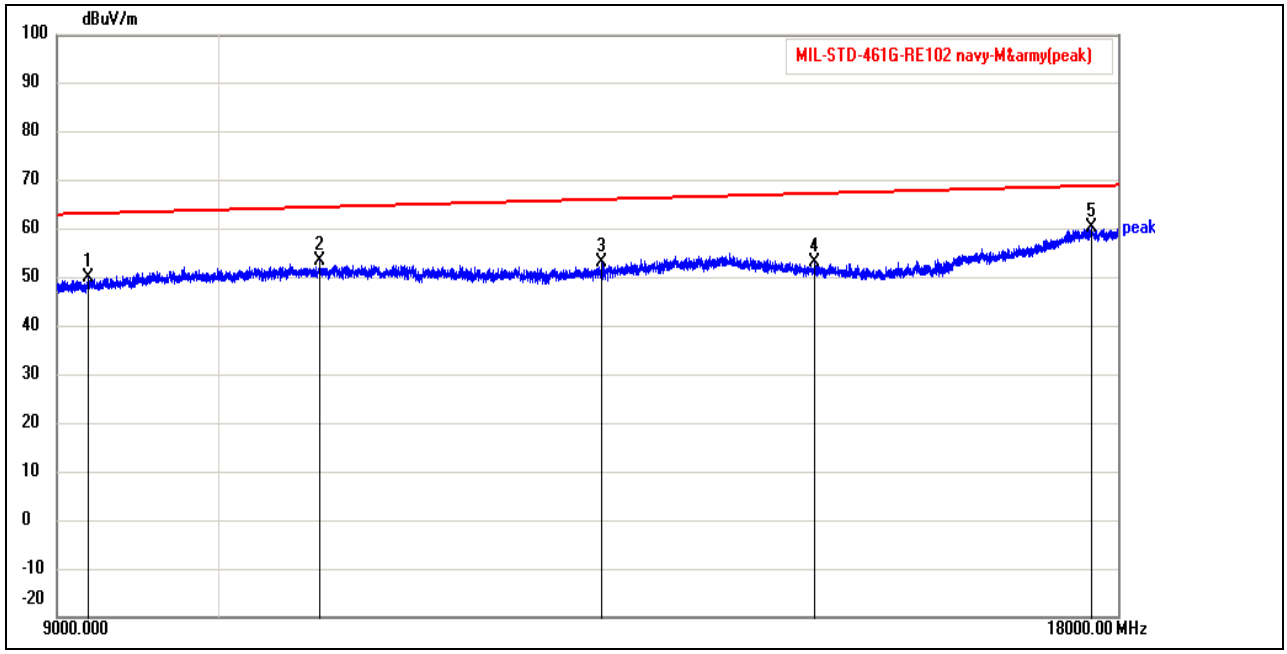
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:31:51
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	9121.000	48.24	1.73	49.97	63.11	-13.14	peak	P	
2	10245.750	48.49	4.13	52.62	64.12	-11.50	peak	P	
3	11662.500	49.43	3.68	53.11	65.24	-12.13	peak	P	
4	13889.000	48.39	6.97	55.36	66.75	-11.39	peak	P	
5	16479.000	47.72	9.19	56.91	68.23	-11.32	peak	P	
6	17716.250	47.38	13.97	61.35	68.86	-7.51	peak	P	

9GHz-18GHz-Horizontal

Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:27:31
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		

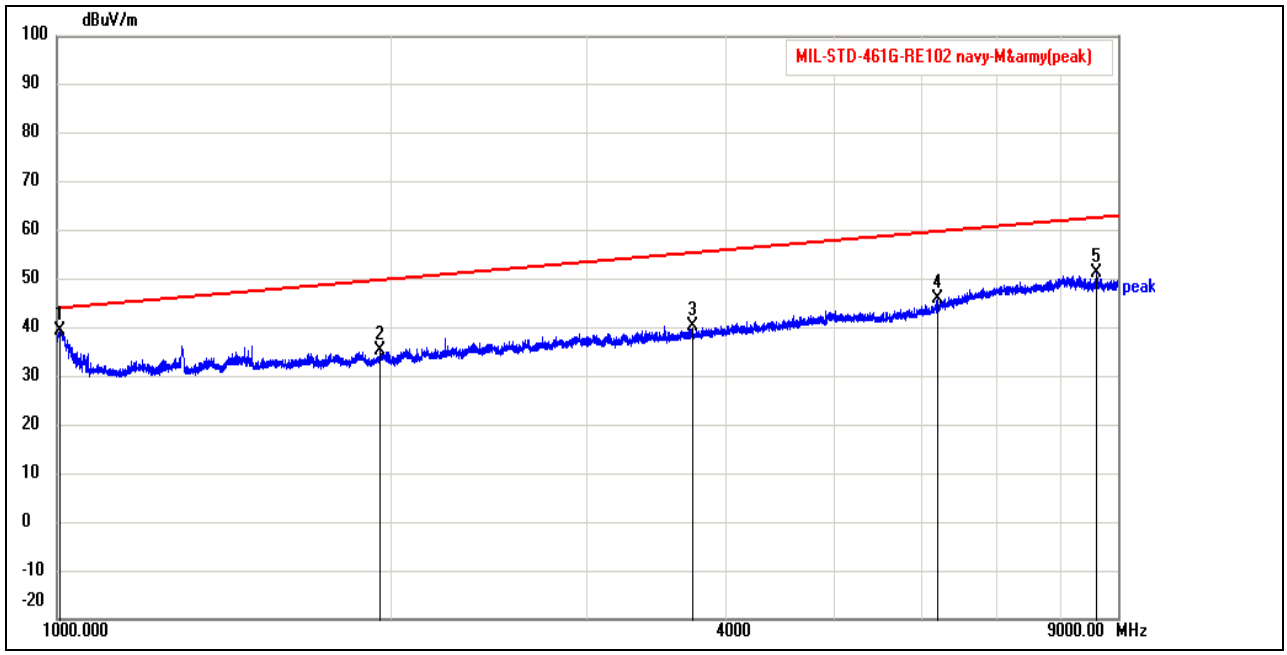


No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	9189.500	47.88	2.03	49.91	63.17	-13.26	peak	P	
2	10689.250	48.91	4.41	53.32	64.48	-11.16	peak	P	
3	12848.750	48.38	4.65	53.03	66.08	-13.05	peak	P	
4	14760.000	47.60	5.60	53.20	67.28	-14.08	peak	P	
5	17694.500	46.44	13.99	60.43	68.85	-8.42	peak	P	

Right

1GHz-9GHz-Vertical

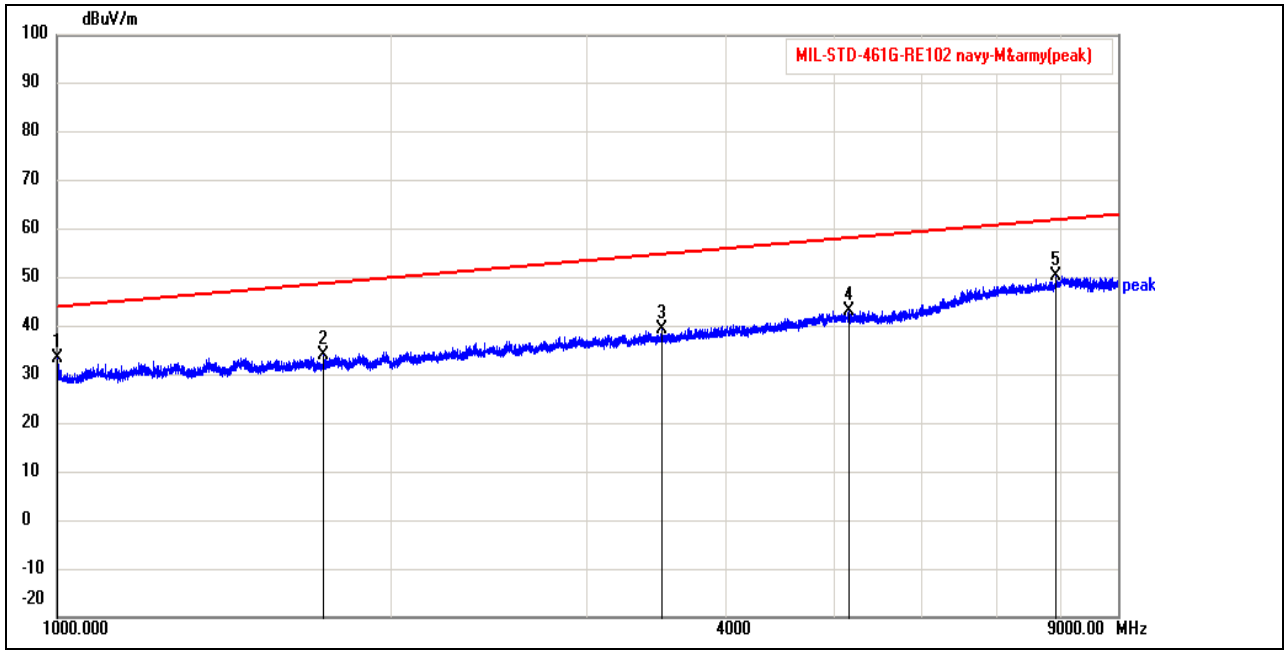
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:36:21
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1006.750	61.35	-21.94	39.41	44.01	-4.60	peak	P	
2	1955.250	53.33	-17.94	35.39	49.76	-14.37	peak	P	
3	3726.750	50.79	-10.63	40.16	55.35	-15.19	peak	P	
4	6192.750	49.31	-3.51	45.80	59.75	-13.95	peak	P	
5	8615.500	49.65	1.71	51.36	62.62	-11.26	peak	P	

1GHz-9GHz-Horizontal

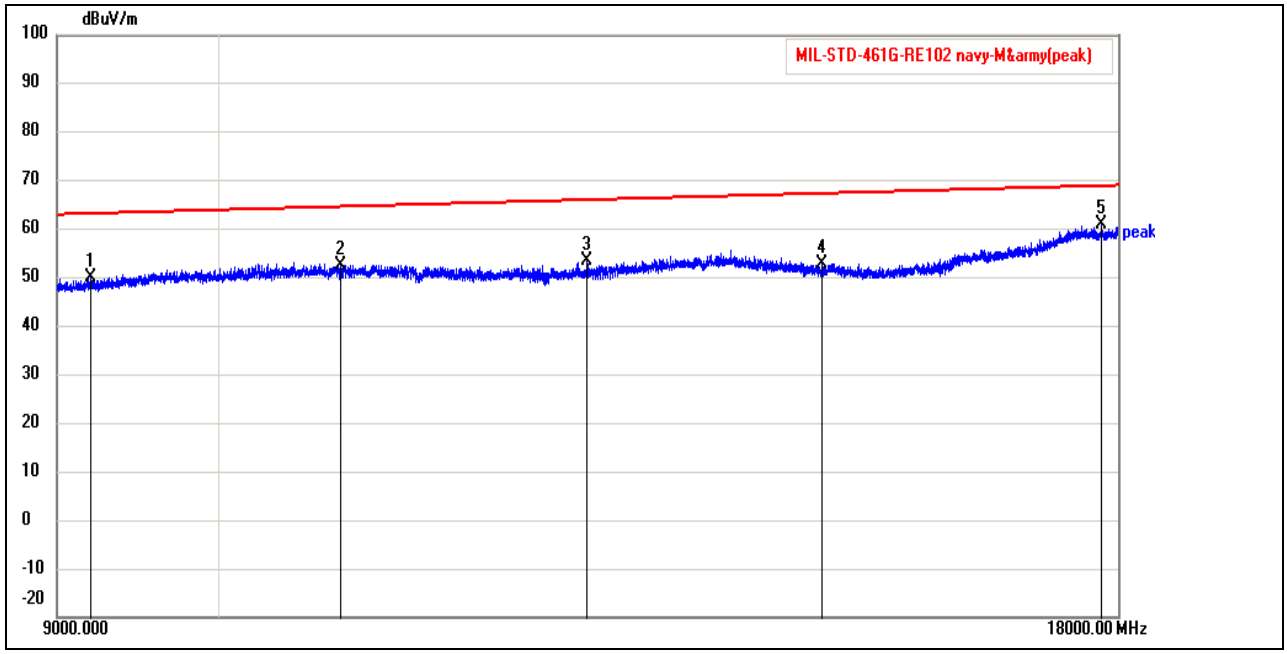
Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:39:21
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1000.000	55.26	-21.97	33.29	43.95	-10.66	peak	P	
2	1737.500	52.95	-18.75	34.20	48.74	-14.54	peak	P	
3	3497.000	51.18	-11.66	39.52	54.80	-15.28	peak	P	
4	5151.250	48.86	-5.88	42.98	58.16	-15.18	peak	P	
5	7918.250	48.40	1.79	50.19	61.88	-11.69	peak	P	

9GHz-18GHz-Vertical

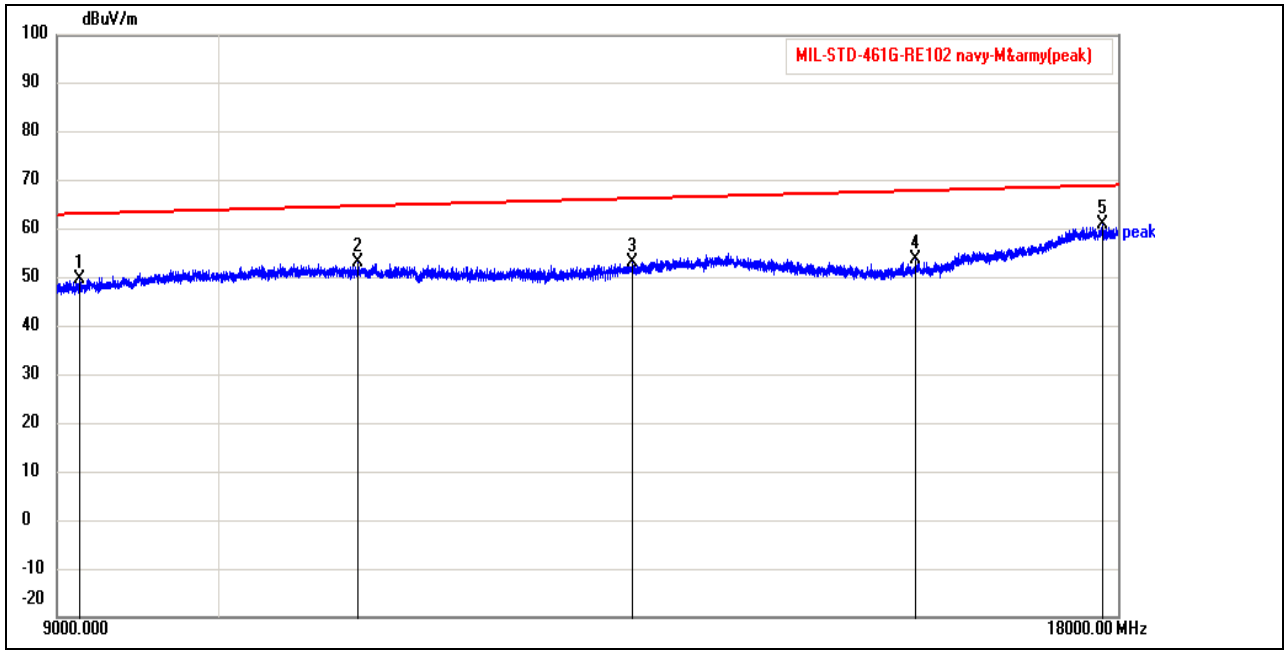
Job No.:	TMWK2305001387KA	Polarization:	Vertical
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:34:58
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	9199.500	47.88	2.10	49.98	63.18	-13.20	peak	P	
2	10834.500	48.14	4.38	52.52	64.60	-12.08	peak	P	
3	12727.750	49.25	4.26	53.51	66.00	-12.49	peak	P	
4	14838.500	47.38	5.51	52.89	67.33	-14.44	peak	P	
5	17813.250	46.74	14.11	60.85	68.91	-8.06	peak	P	

9GHz-18GHz-Horizontal

Job No.:	TMWK2305001387KA	Polarization:	Horizontal
Standard:	MIL-STD-461G-RE102 navy-M&army	Power Source:	DC24V
Test item:	Radiation Test	Date:	2023/5/11
Company:	7STARLAKE Co., Ltd.	Time:	PM 01:40:18
EUT Name:	SYSTEM	Temp.(℃)/Hum.(%):	20(℃)/50%
EUT Model:	AV800	Engineer Signature:	Jane Wang
Distance:	1m		



No.	Frequency (MHz)	Reading (dBuV)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	9138.500	47.88	1.76	49.64	63.13	-13.49	peak	P	
2	10957.500	48.64	4.47	53.11	64.70	-11.59	peak	P	
3	13111.750	47.73	5.38	53.11	66.25	-13.14	peak	P	
4	15768.500	47.88	5.85	53.73	67.85	-14.12	peak	P	
5	17816.250	47.00	14.09	61.09	68.91	-7.82	peak	P	

7.6 RS103, radiated susceptibility, electric, 30 MHz to 18 GHz

APPLICABILITY

This requirement is applicable to equipment and subsystem enclosures and all interconnecting cables. The requirement is applicable as follows:

a. 2 MHz to 30 MHz Army, Navy, and optional* for all others
b. 30 MHz to 18 GHz all
c. 18 GHz to 40 GHz optional* for all
*Required only if specified in the procurement specification

For Army and Air Force: there is no requirement at the tuned frequency of antenna-connected receivers.

LIMIT

The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification, when subjected to the radiated electric fields listed in Table XI and modulated as specified below. Up to 30 MHz, the requirement shall be met for vertically polarized fields. Above 30 MHz, the requirement shall be met for both horizontally and vertically polarized fields. Circularly polarized fields are not acceptable.
For receiver EUTs having permanently attached antennas only, unless otherwise stated in the system specification, reduced performance over the intended receiver band of operation is allowed. The receiver shall meet its performance requirements after in-band exposure to the radiated field.

Table VII. RS103 limits.

		LIMIT LEVELS (VOLTS/METER)							
PLATFORM / FREQUENCY RANGE		AIRCRFAFT (EXTERNAL OR SAFETY CRITICAL)	AIRCRAFT INTERNAL	ALL SHIPS (ABOVE DECK & EXPOSED BELOW DECK) AND SUBMARINES (EXTERNAL)*	SHIPS (METALLIC) (BELOW DECKS)	SHIPS (NON-METALLIC) (BELOW DECK)**	SUBMARINE (INTERNAL)	GROUND	SPACE
2 MHz to 30 MHz	A	200	200	200	10	50	5	50	20
	N	200	200	200	10	50	5	10	20
	AF	200	20	-	-	-	-	10	20
30 MHz to 1 GHz	A	200	200	200	10	10	10	50	20
	N	200	200	200	10	10	10	10	20
	AF	200	20	-	-	-	-	10	20
1 GHz to 18 GHz	A	200	200	200	10	10	10	50	20
	N	200	200	200	10	10	10	50	20
	AF	200	60	-	-	-	-	50	20
18 GHz to 40 GHZ	A	200	200	200	10	10	10	50	20
	N	200	60	200	10	10	10	50	20
	AF	200	60	-	-	-	-	50	20

KEY: A= Army
N= Navy
AF= Air Force

* For equipment located external to the pressure hull of a submarine but within the superstructure, use SHIPS (METALLIC) (BELOW DECK)
** For equipment located in the hanger deck of Aircraft Carriers

TEST CONFIGURATION

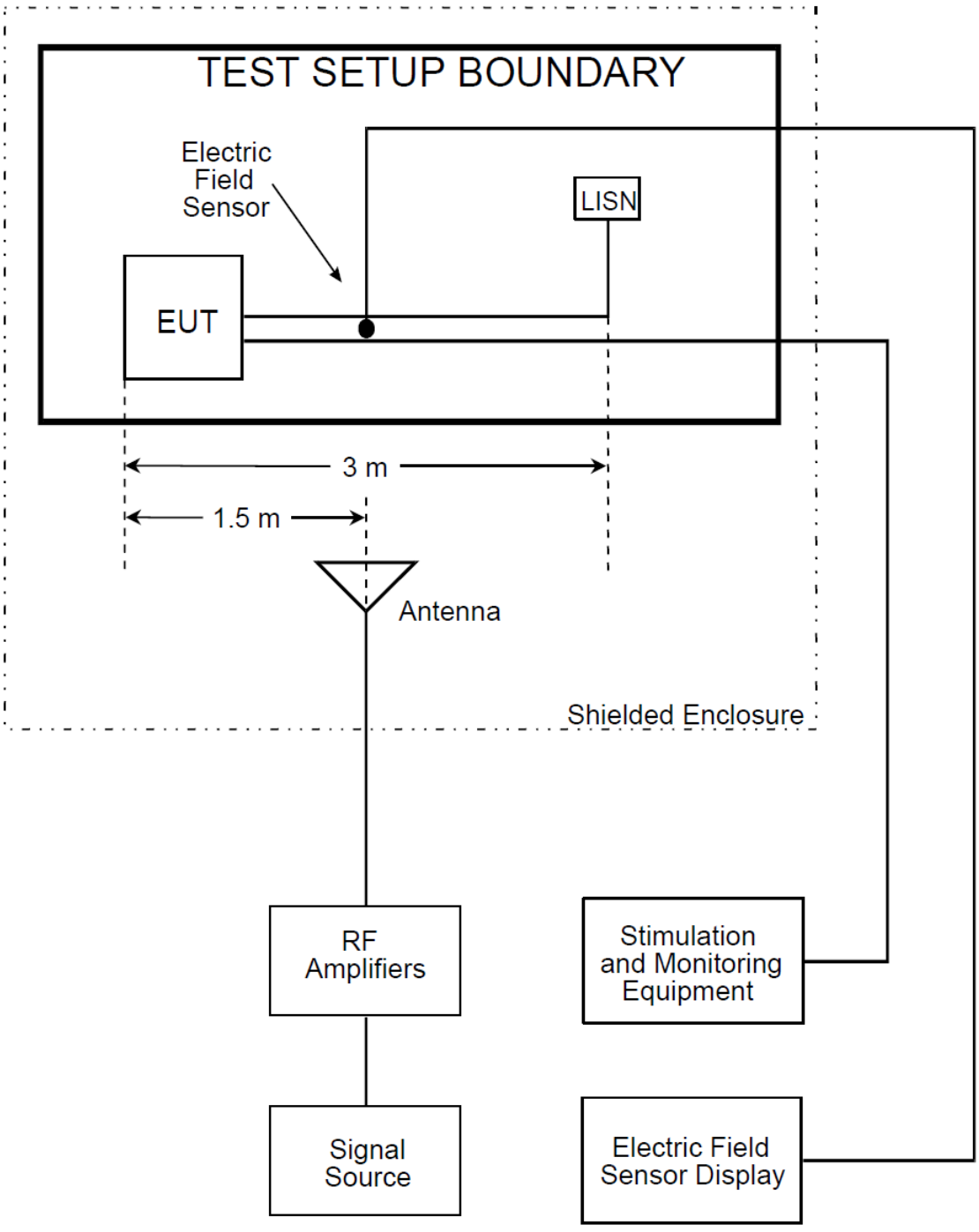


FIGURE RS103-1. Test equipment configuration.

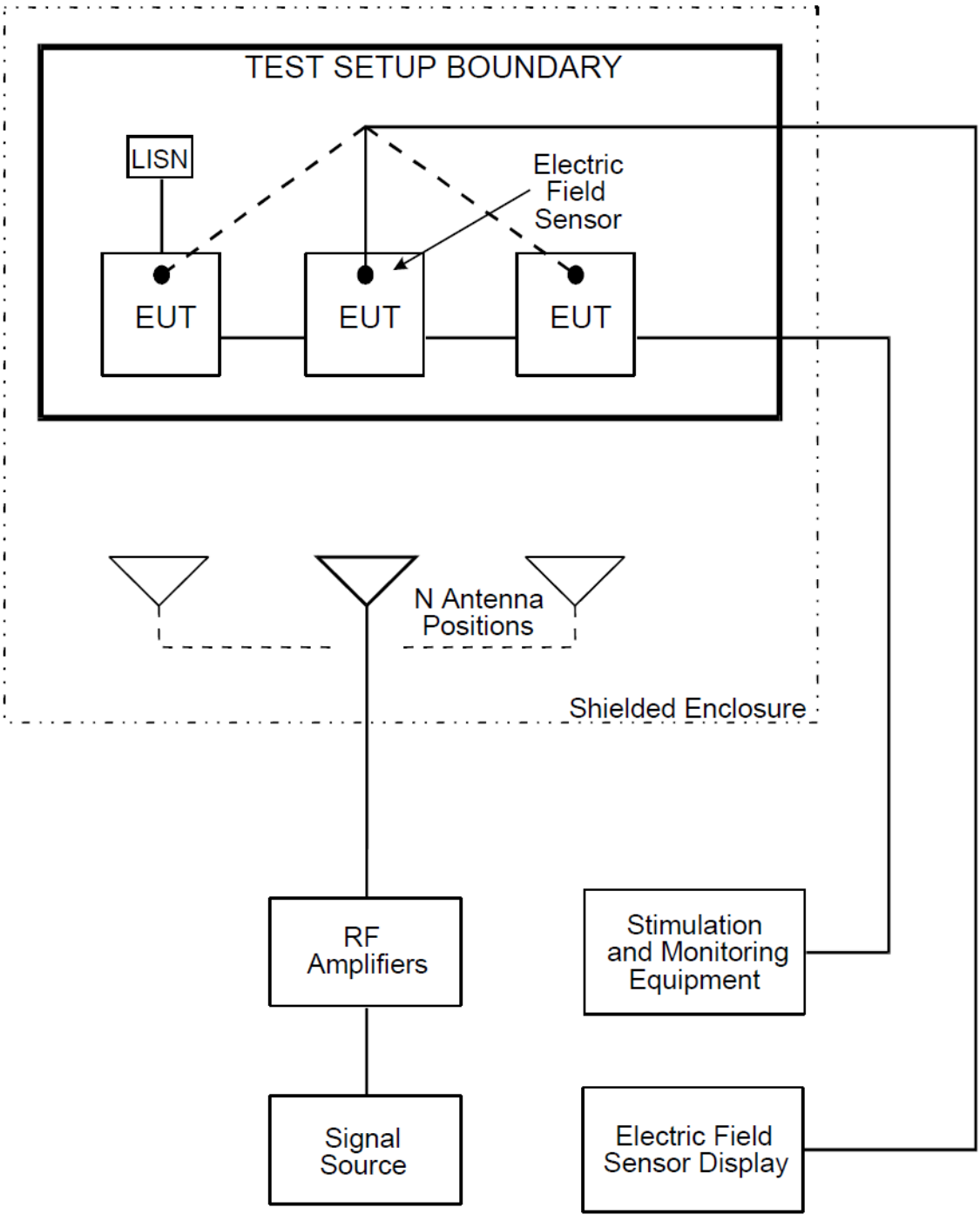


FIGURE RS103-2. Multiple test antenna locations for frequency > 200 MHz.

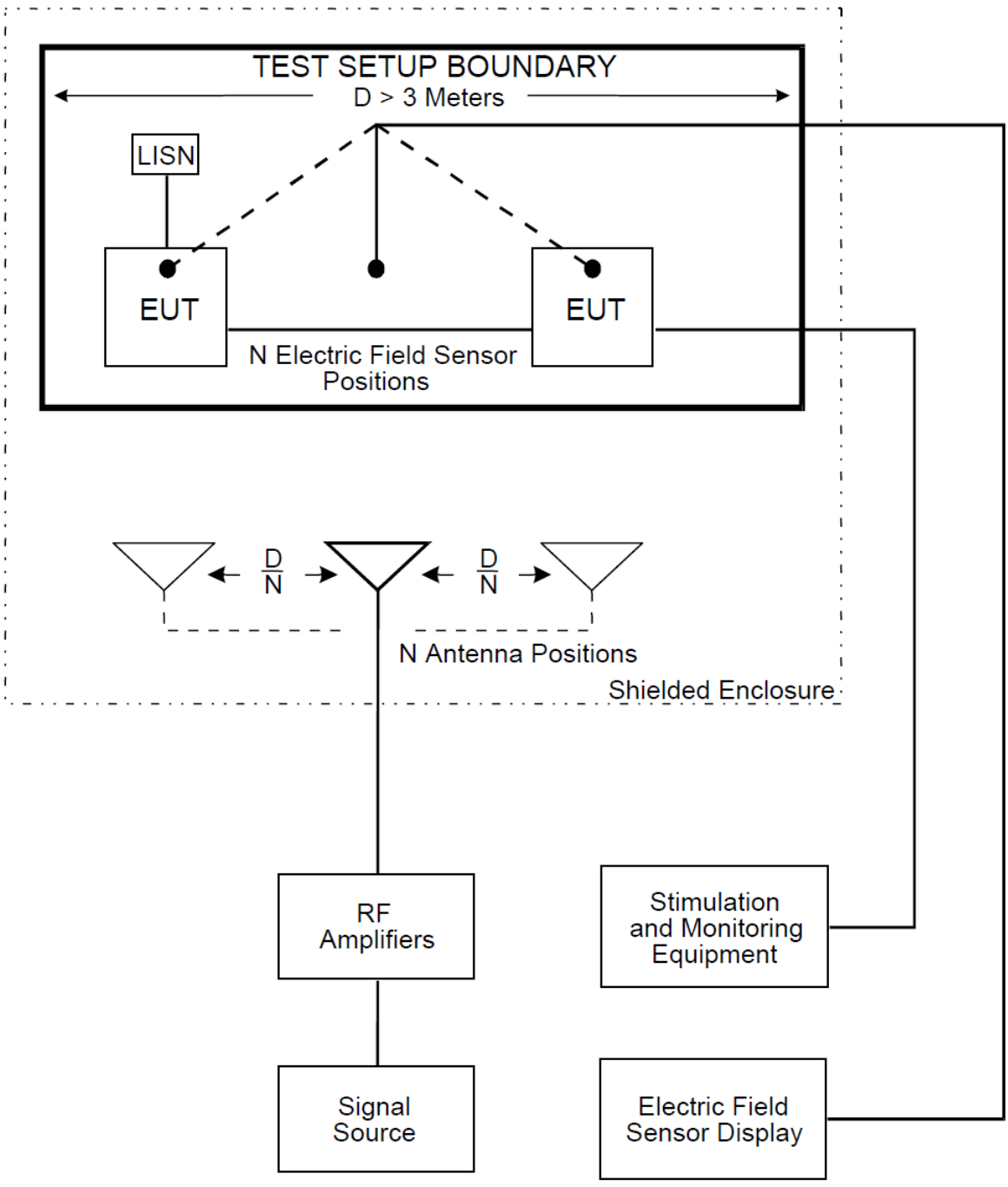


FIGURE RS103-3. Multiple test antenna locations for N positions, D > 3 meters.

TEST PROCEDURE

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL-STD-461G.

TEST RESULTS

Compliant

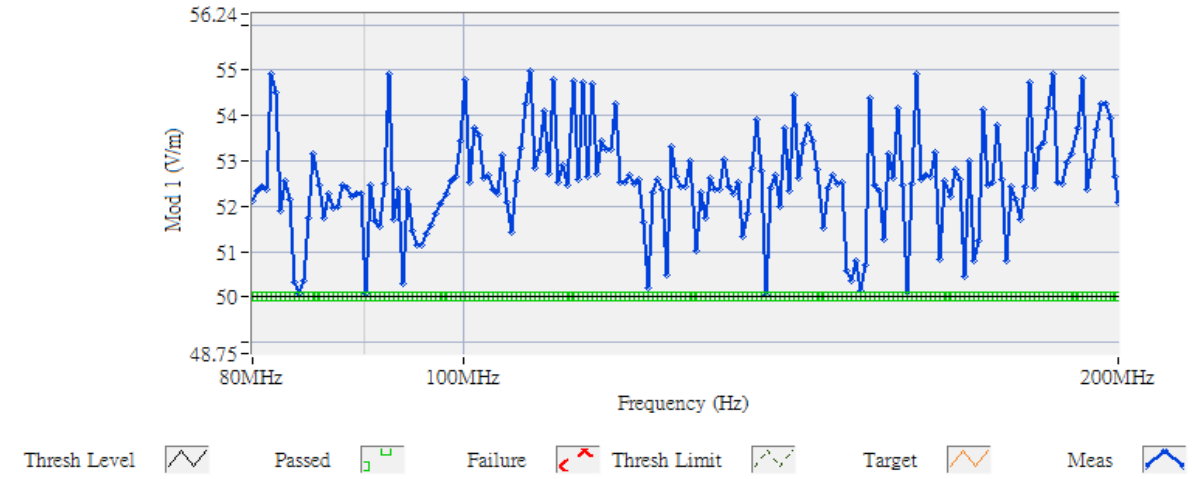
Test Frequency (MHz)	Field Strength (V/m)	Modulation	Antenna Polarity	Limit	Observation	Pass /Fail
80-200	50	PM 1kHz / 50%	V	The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification	Note 1	Pass
			H		Note 1	Pass
200-1000	50	PM 1kHz / 50%	V		Note 1	Pass
			H		Note 1	Pass
1000-4000	50	PM 1kHz / 50%	Left -V		Note 1	Pass
			Left -H		Note 1	Pass
			Middle -V		Note 1	Pass
			Middle -H		Note 1	Pass
			Right -V		Note 1	Pass
			Right -H		Note 1	Pass
4000-7500	50	PM 1kHz / 50%	Left -V		Note 1	Pass
			Left -H		Note 1	Pass
			Middle -V		Note 1	Pass
			Middle -H		Note 1	Pass
			Right -V		Note 1	Pass
			Right -H		Note 1	Pass
7500-18000	50	PM 1kHz / 50%	Left -V		Note 1	Pass
			Left -H		Note 1	Pass
			Middle -V		Note 1	Pass
			Middle -H		Note 1	Pass
			Right -V		Note 1	Pass
			Right -H		Note 1	Pass

※ V:Vertical, H:Horizontal

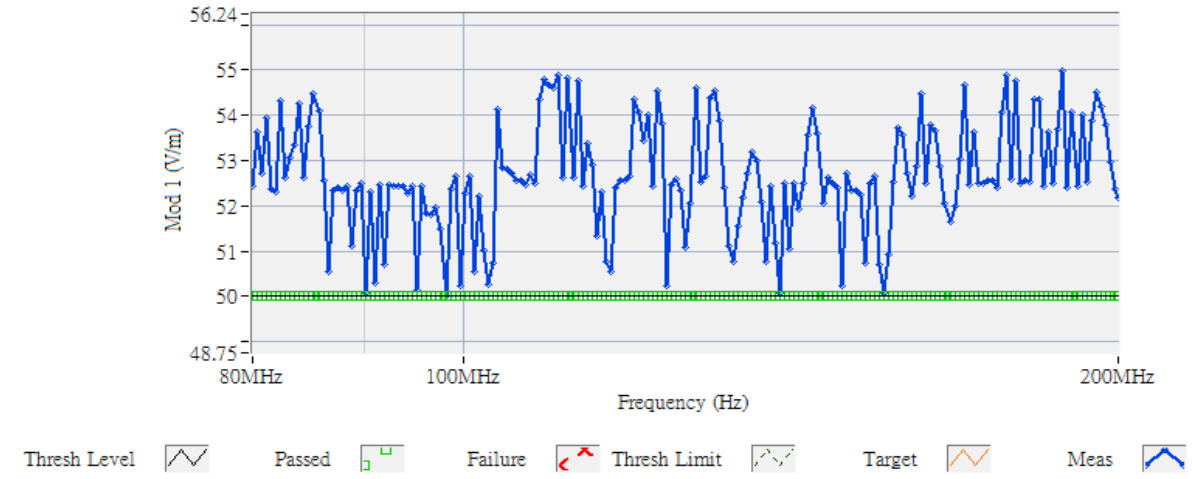
Observation:
Note 1: During and after the test, EUT function is normal.

Test field strength levels and frequency range

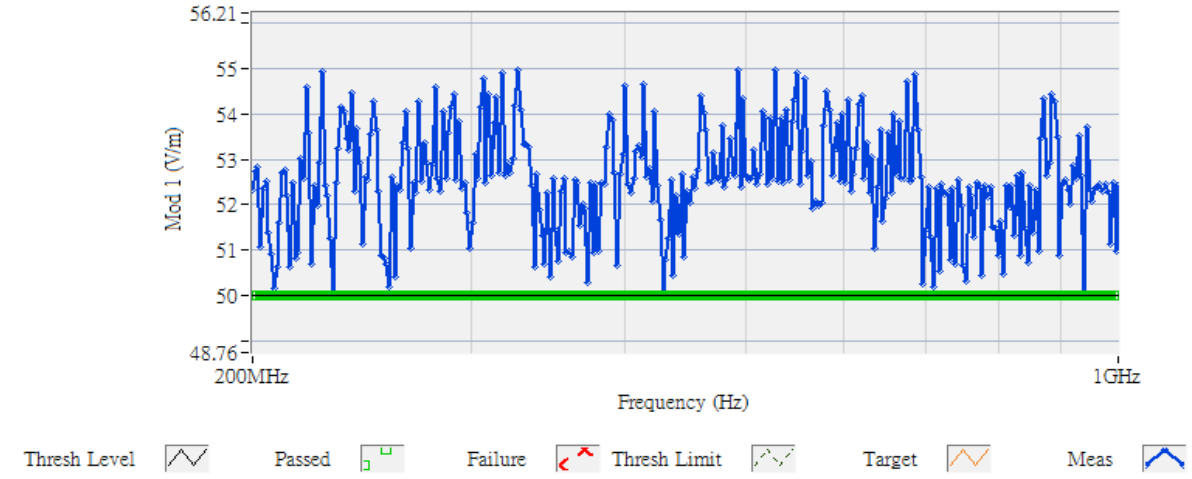
80MHz-200MHz 50V/m-Horizontal



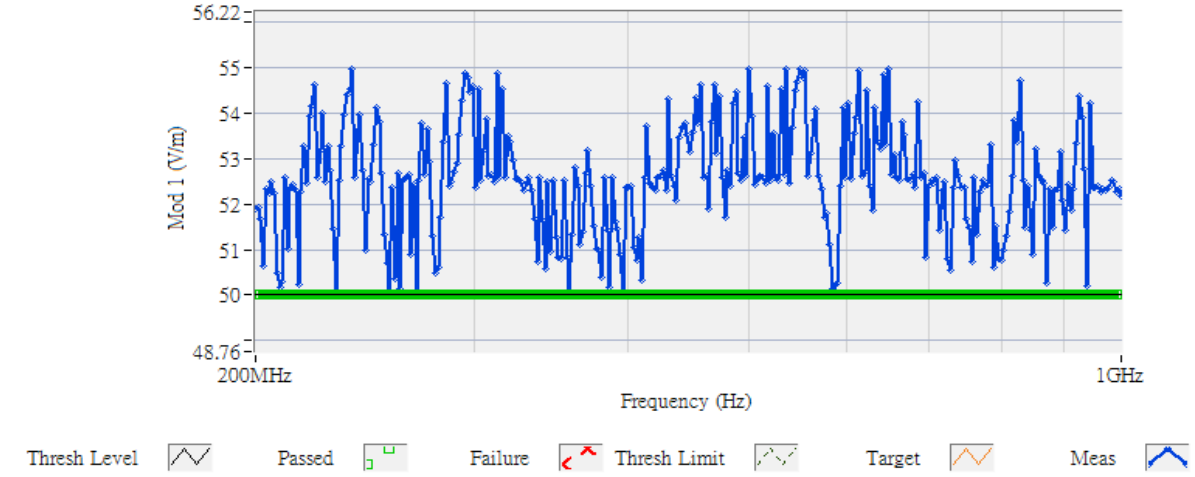
80MHz-200MHz 50V/m-Vertical



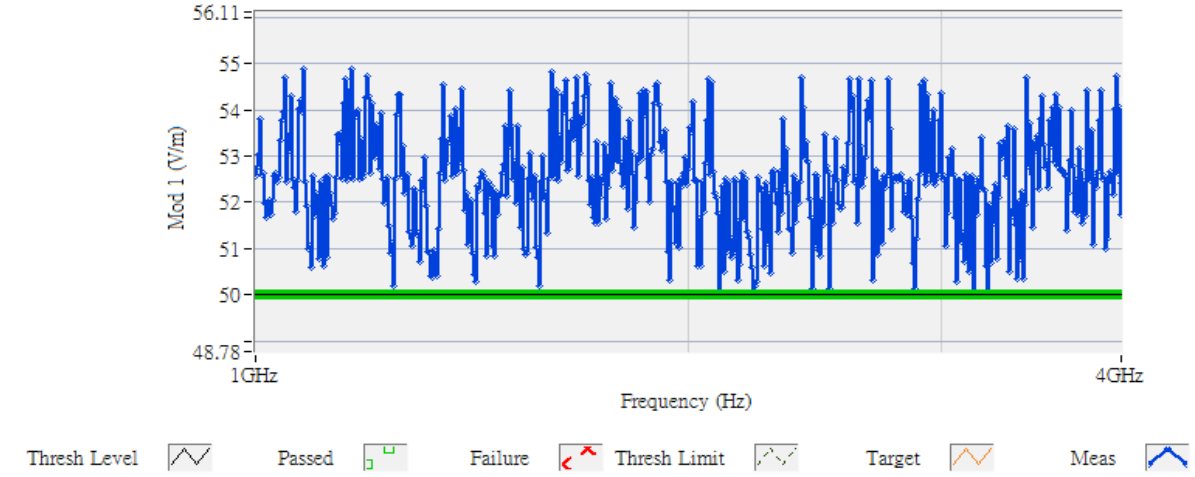
200MHz-1000MHz 50V/m-Horizontal



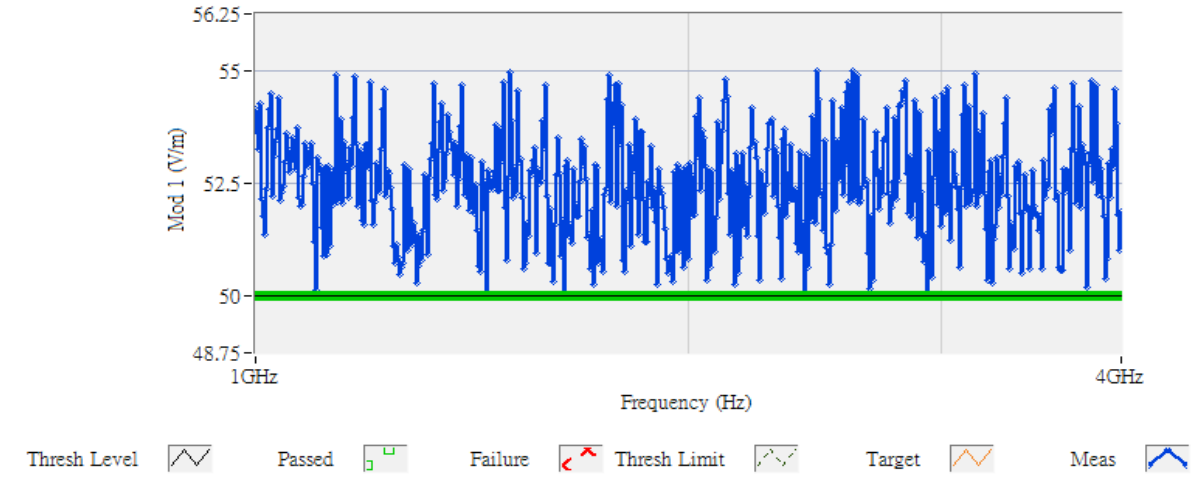
200MHz-1000MHz 50V/m-Vertical



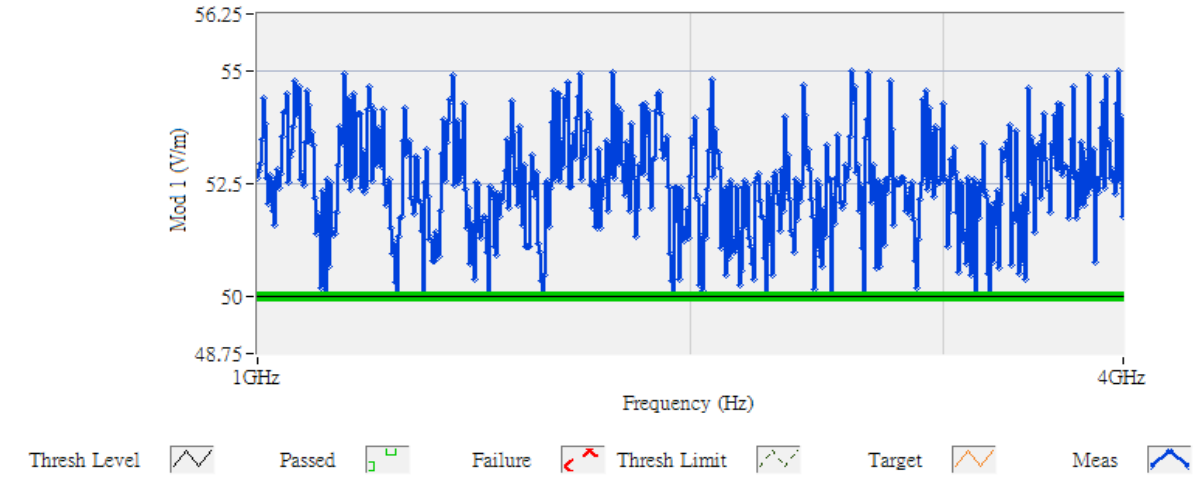
1GHz-4GHz 50V/m-Horizontal-Left



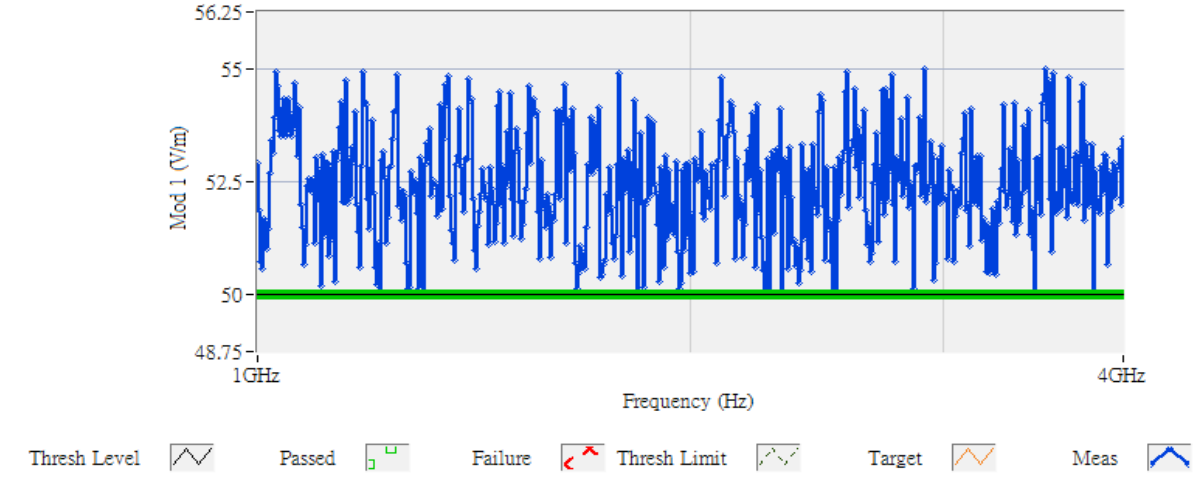
1GHz-4GHz 50V/m-Vertical-Left



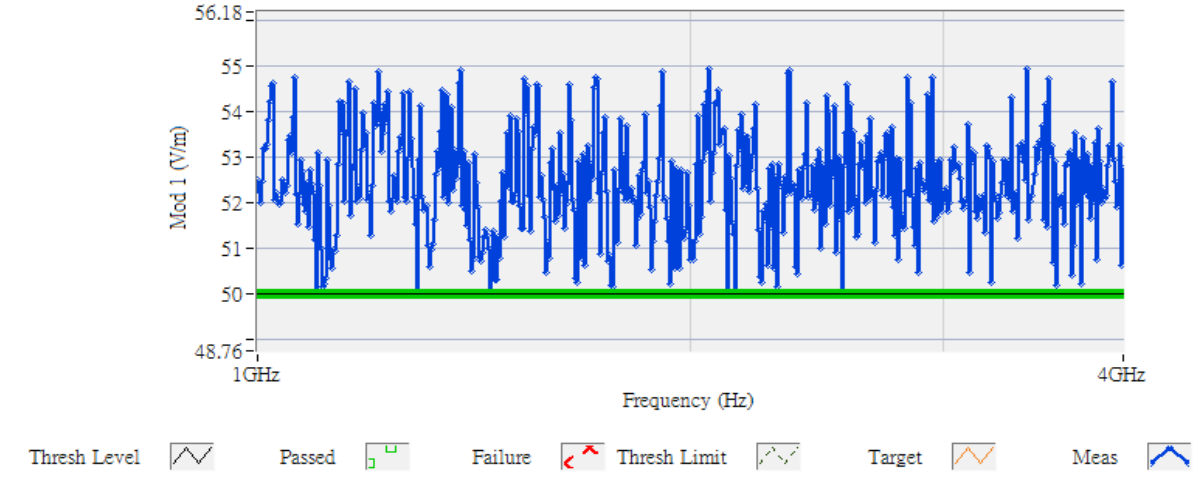
1GHz-4GHz 50V/m-Horizontal-Middle



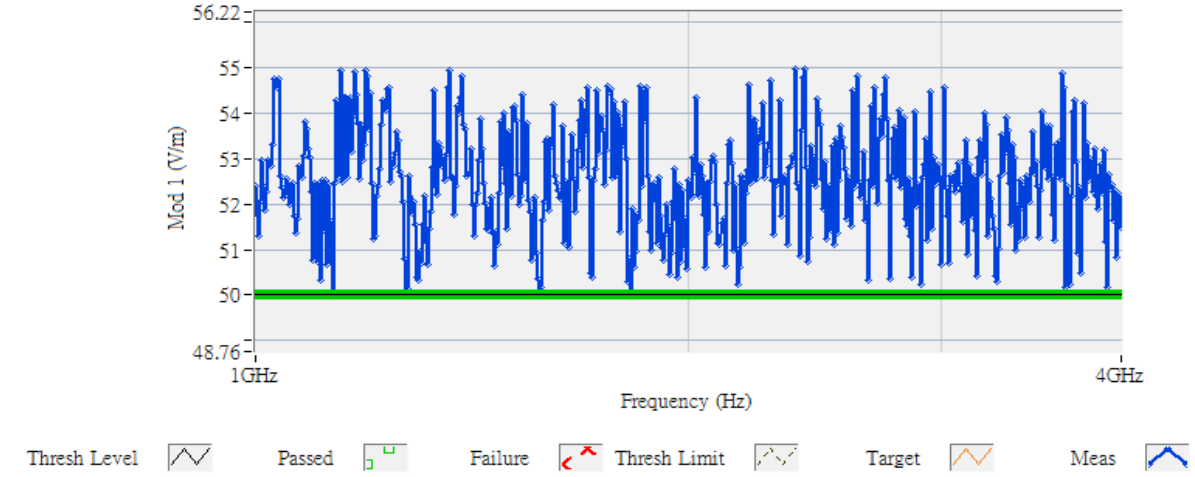
1GHz-4GHz 50V/m-Vertical-Middle



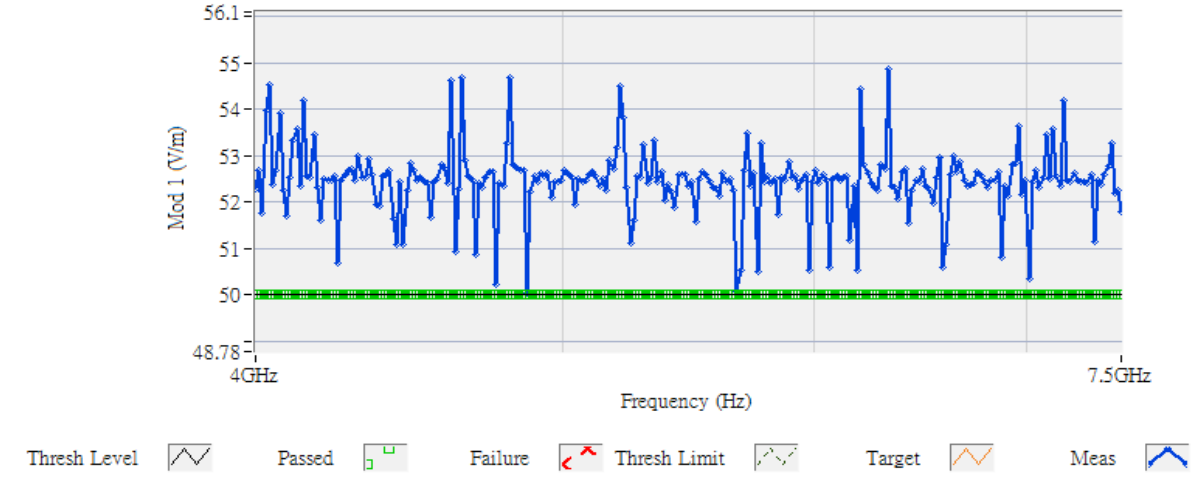
1GHz-4GHz 50V/m-Horizontal-Right



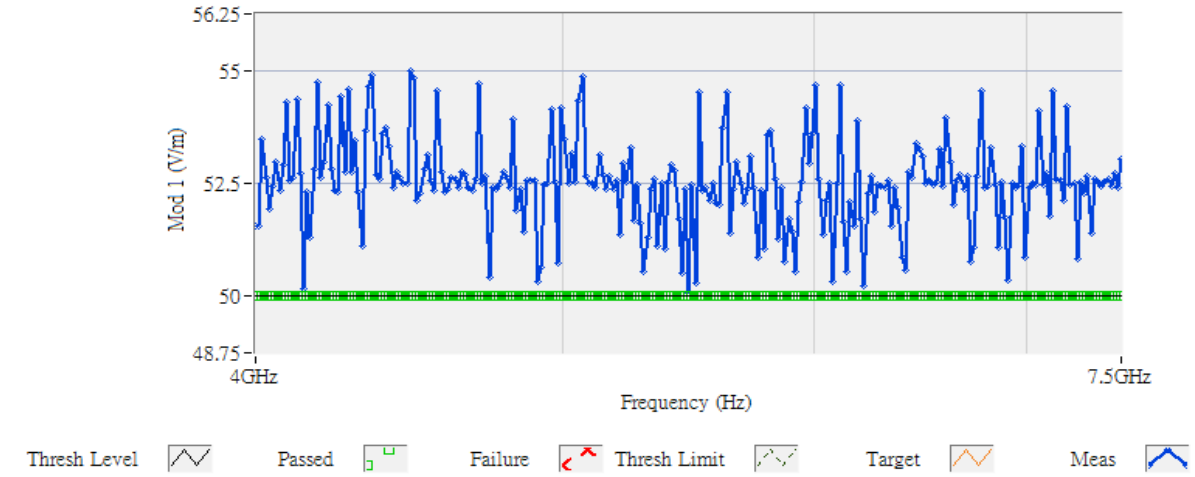
1GHz-4GHz 50V/m-Vertical-Right



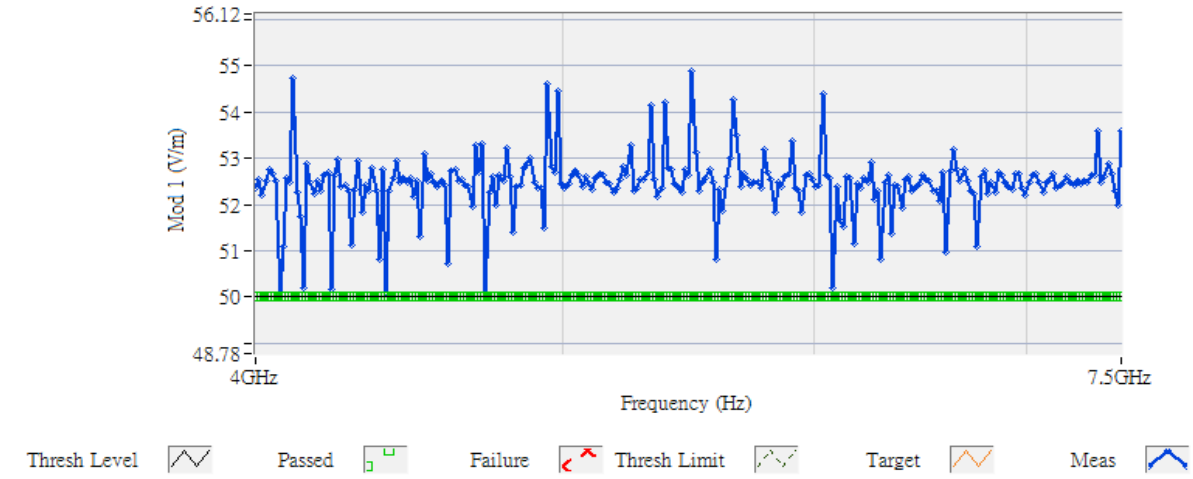
4GHz-7.5GHz 50V/m-Horizontal-Left



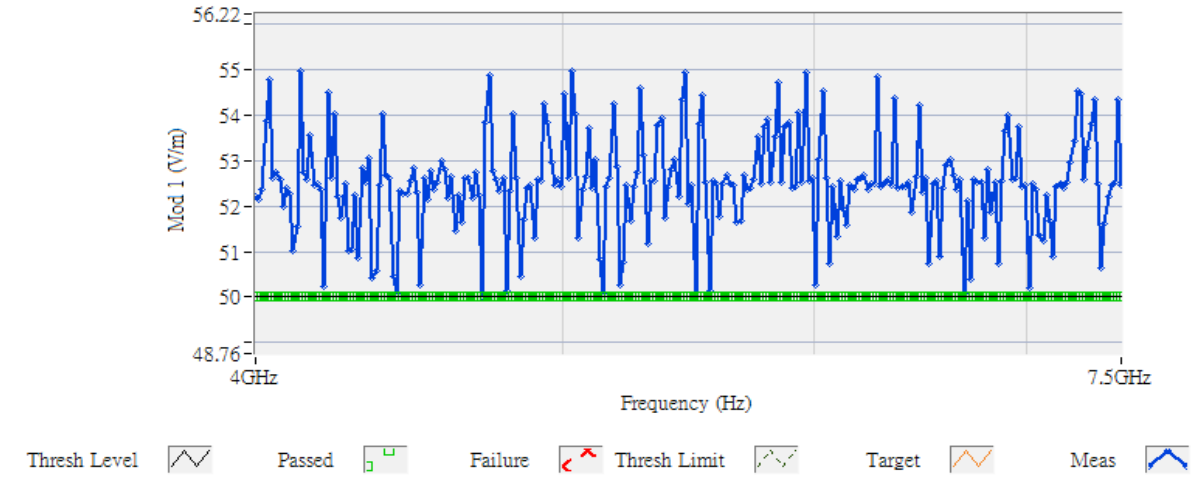
4GHz-7.5GHz 50V/m-Vertical-Left



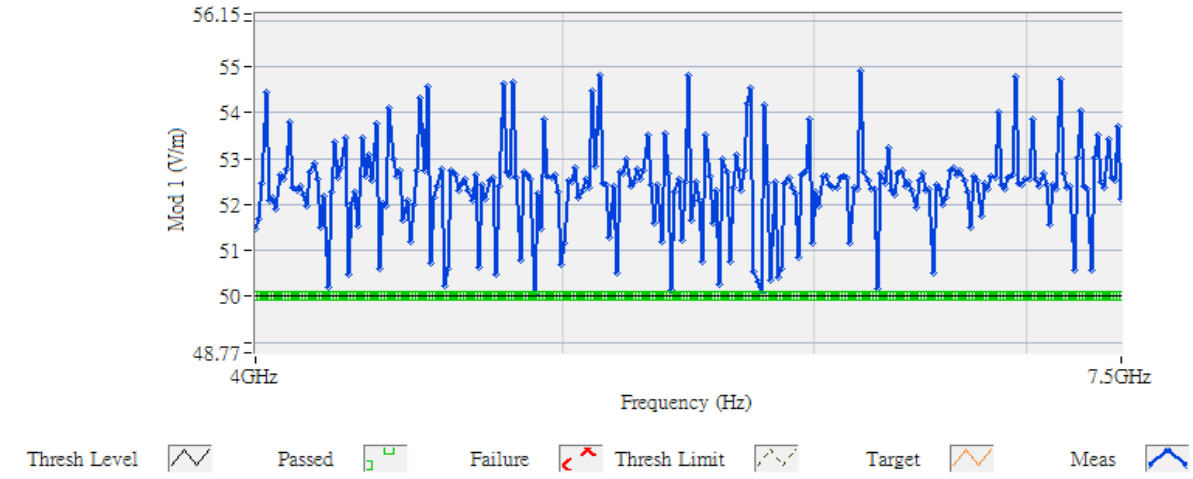
4GHz-7.5GHz 50V/m-Horizontal-Middle



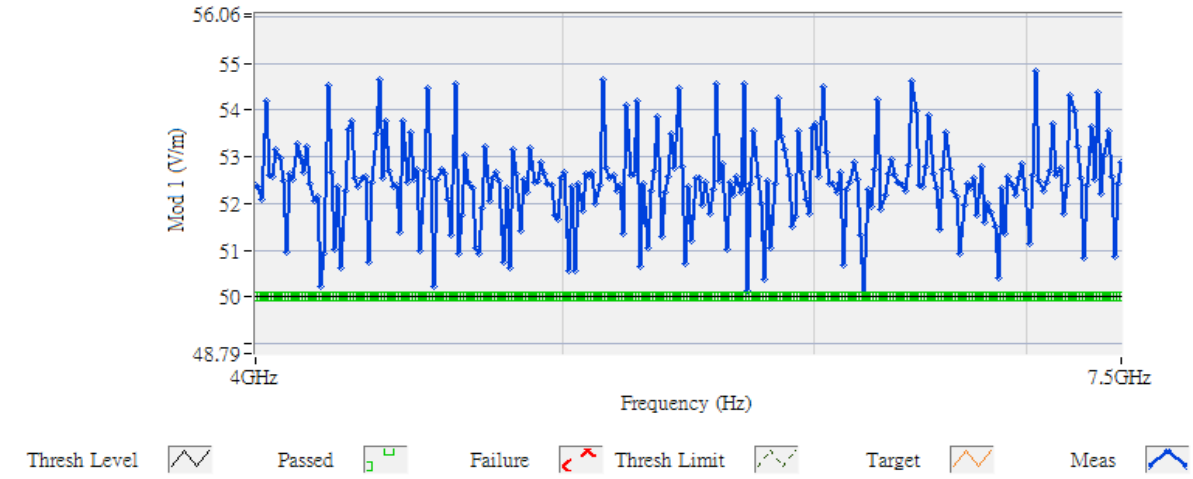
4GHz-7.5GHz 50V/m-Vertical-Middle



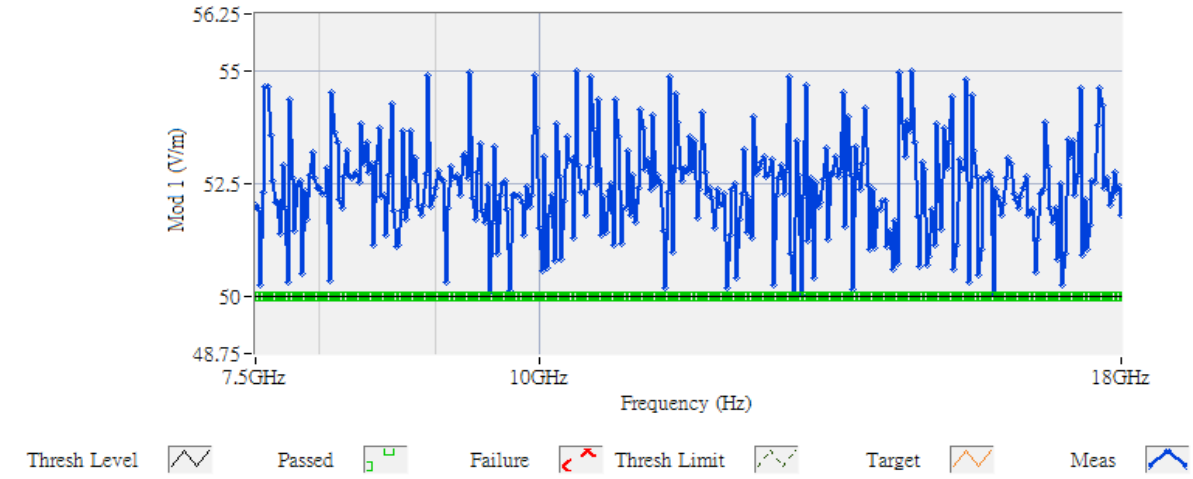
4GHz-7.5GHz 50V/m-Horizontal-Right



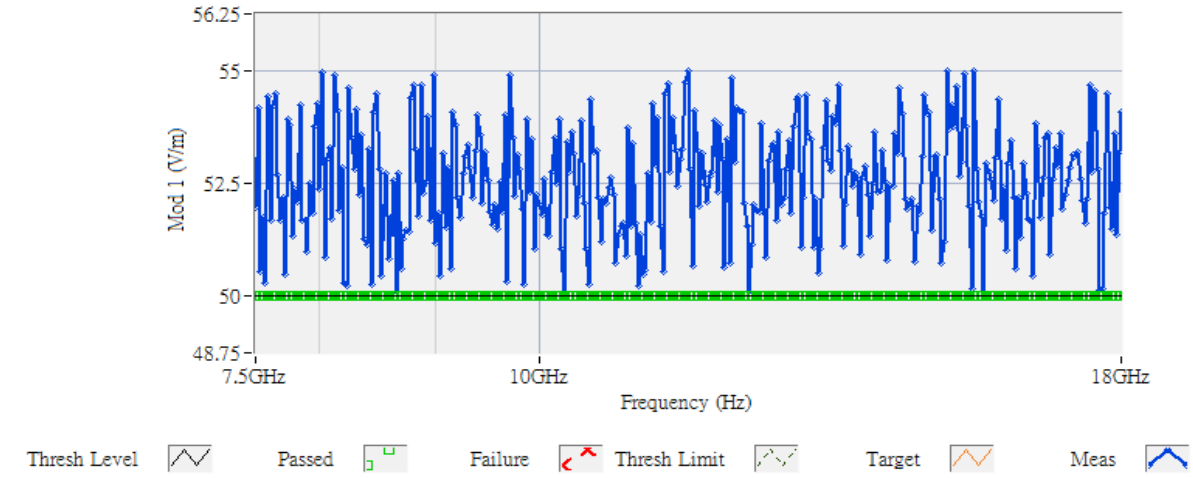
4GHz-7.5GHz 50V/m-Vertical-Right



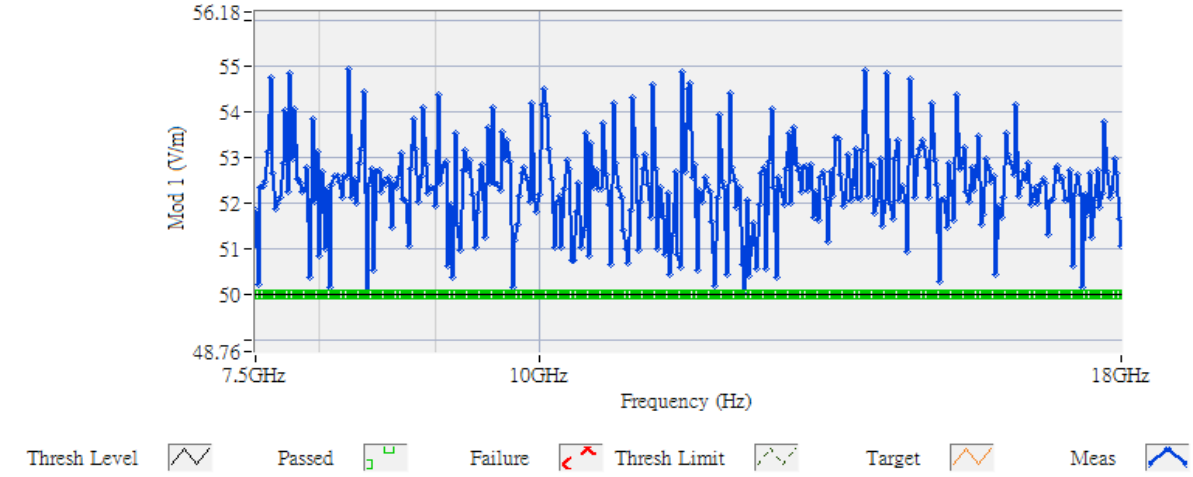
7.5GHz-18GHz 50V/m-Horizontal-Left



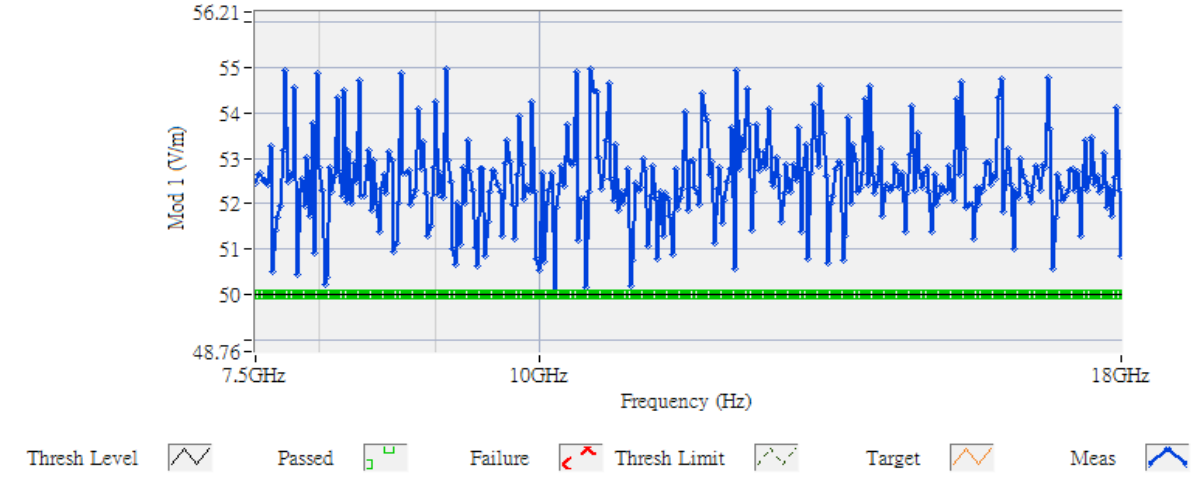
7.5GHz-18GHz 50V/m-Vertical-Left



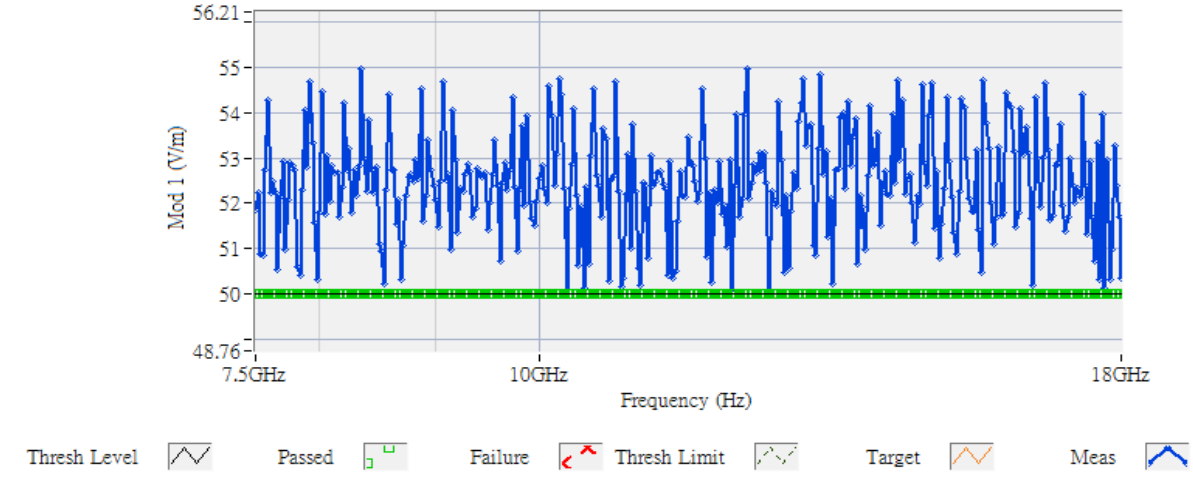
7.5GHz-18GHz 50V/m-Horizontal-Middle



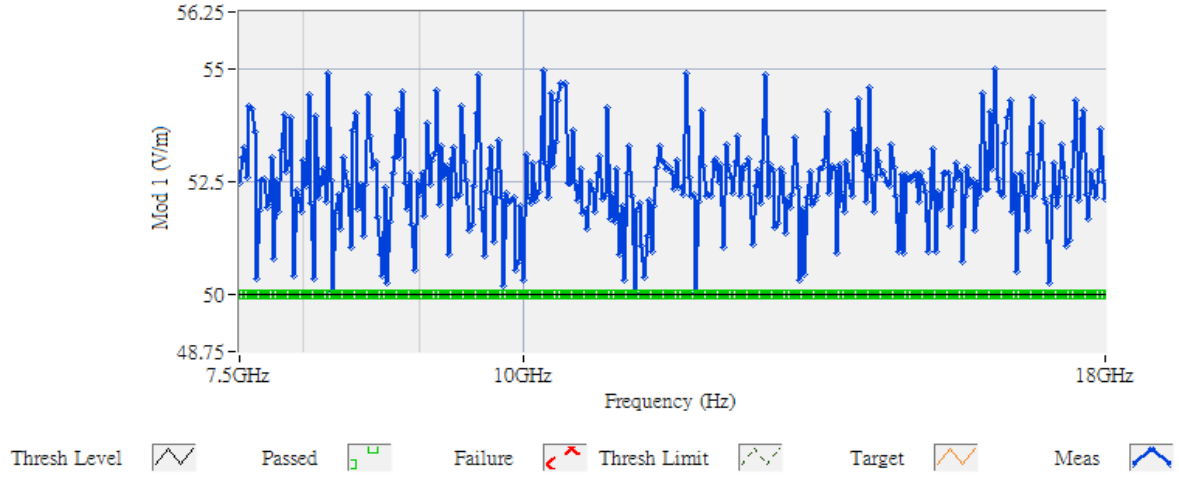
7.5GHz-18GHz 50V/m-Vertical-Middle



7.5GHz-18GHz 50V/m-Horizontal-Right



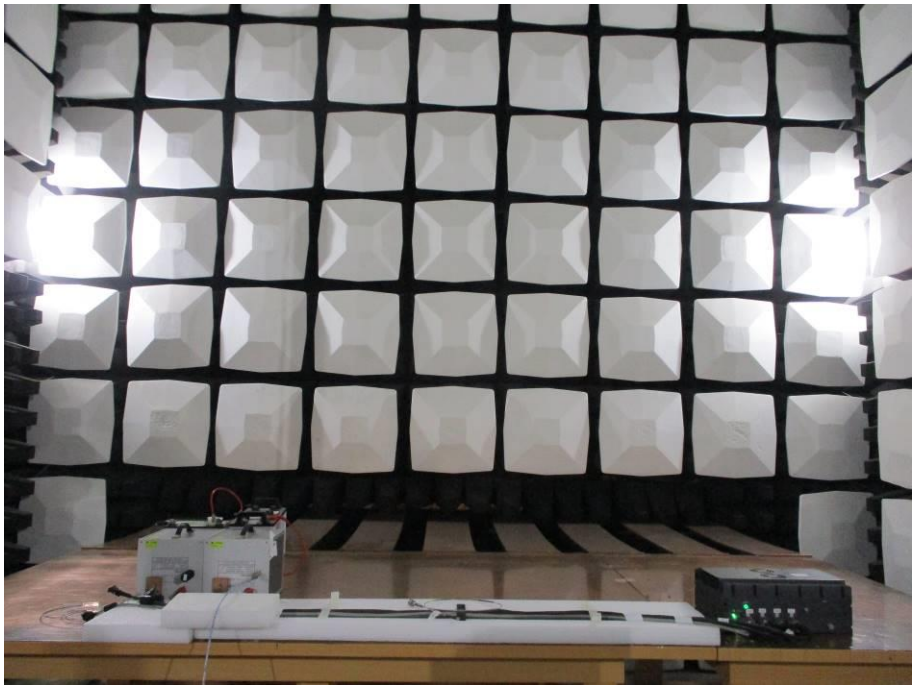
7.5GHz-18GHz 50V/m-Vertical-Right



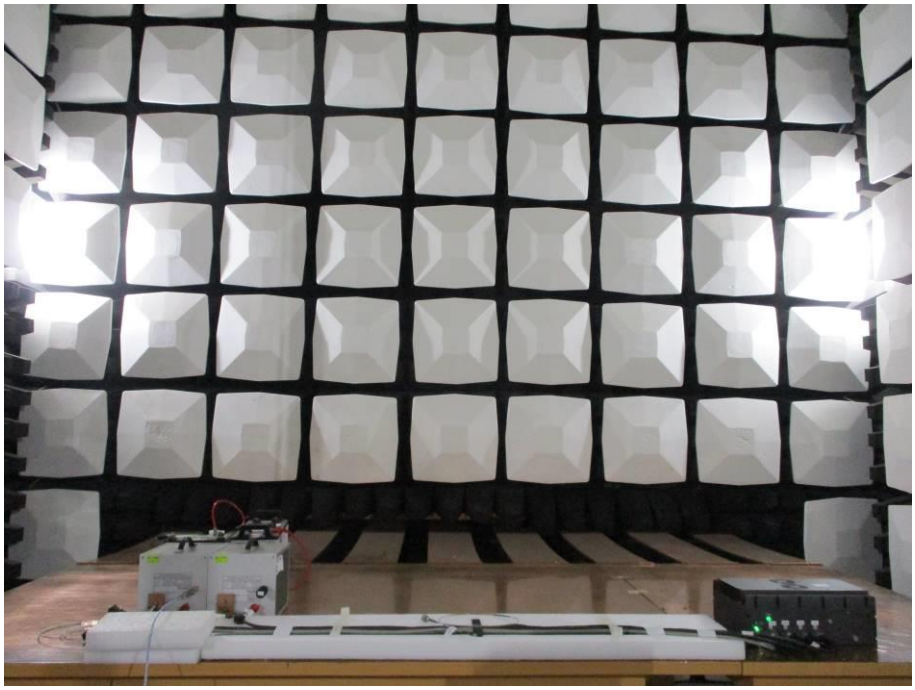
8. APPENDIX I
PHOTOGRAPHS OF TEST SETUP

CE102, conducted emissions, power leads, 10 kHz to 10 MHz.

L1



L2



CS101, conducted susceptibility, power leads, 30 Hz to 150 kHz.

CS114, conducted susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz.

Power cable

All

Positive

Onput

LAN cable

VGA cable

USB cable

CS115, conducted susceptibility, bulk cable injection, impulse excitation.

Power Cable

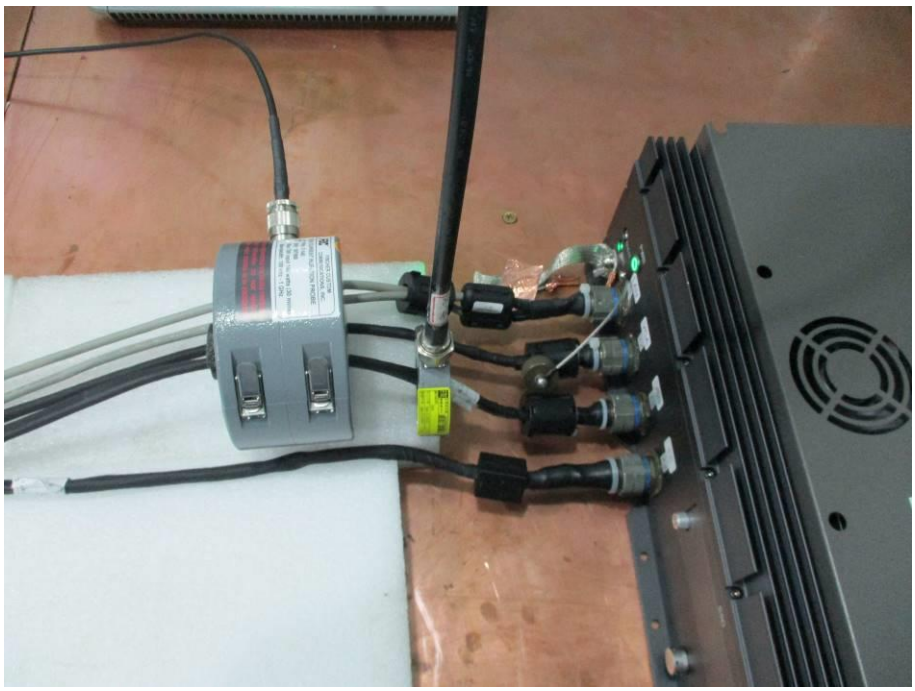
All

Positive

LAN cable

VGA cable

USB cable



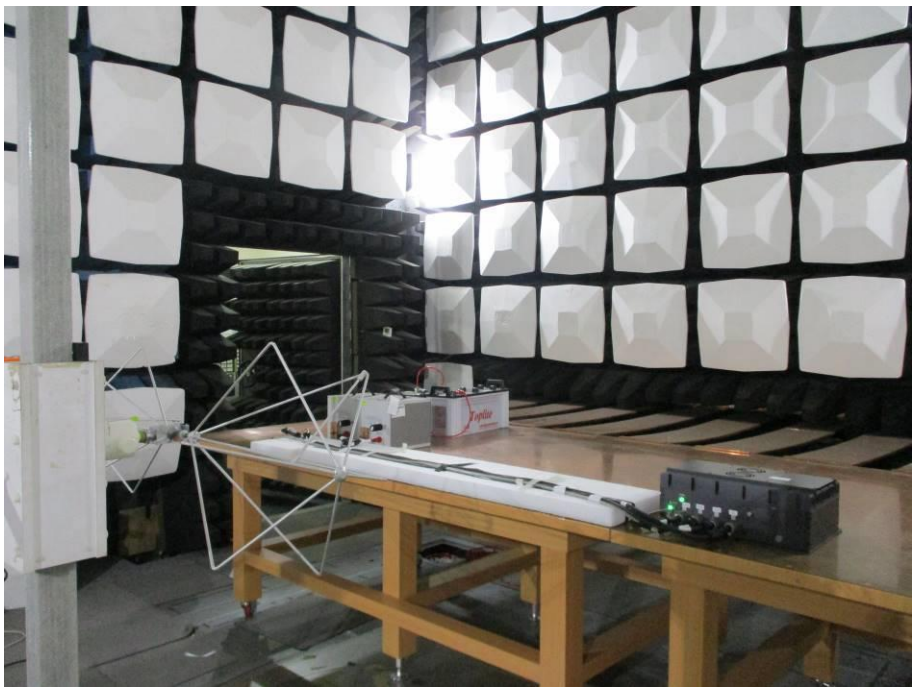
RE102, radiated emissions, electric field, 2 MHz to 18 GHz.

Antenna toward harness center

2MHz~30MHz

30MHz~200MHz Vertical

30MHz~200MHz Horizontal



Antenna toward EUT

200MHz~1GHz Vertical

200MHz~1GHz Horizontal

Left

1GHz~18GHz Vertical

1GHz~18GHz Horizontal

Right

1GHz~18GHz Vertical

1GHz~18GHz Horizontal

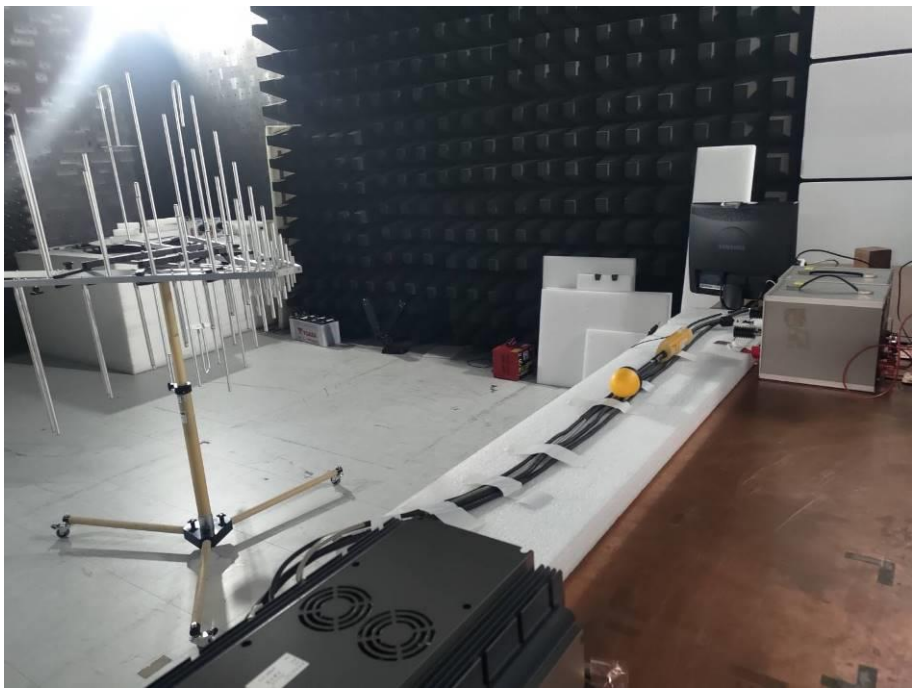
Middle

1GHz~18GHz Vertical

1GHz~18GHz Horizontal

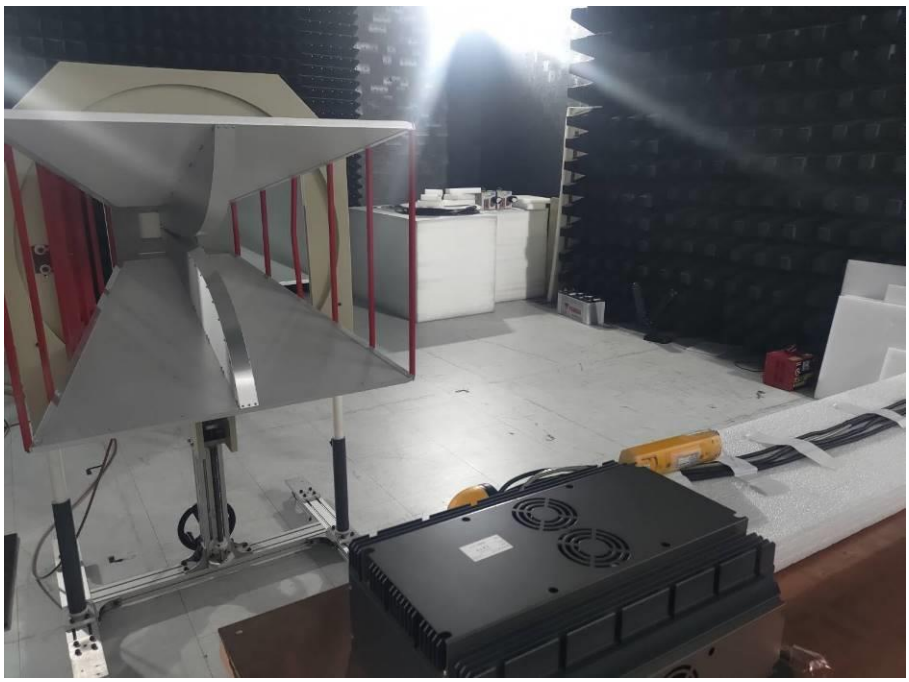
RS103, radiated susceptibility, electric field, 30 MHz to 18 GHz.

80MHz-200MHz Vertical



80MHz-200MHz Horizontal

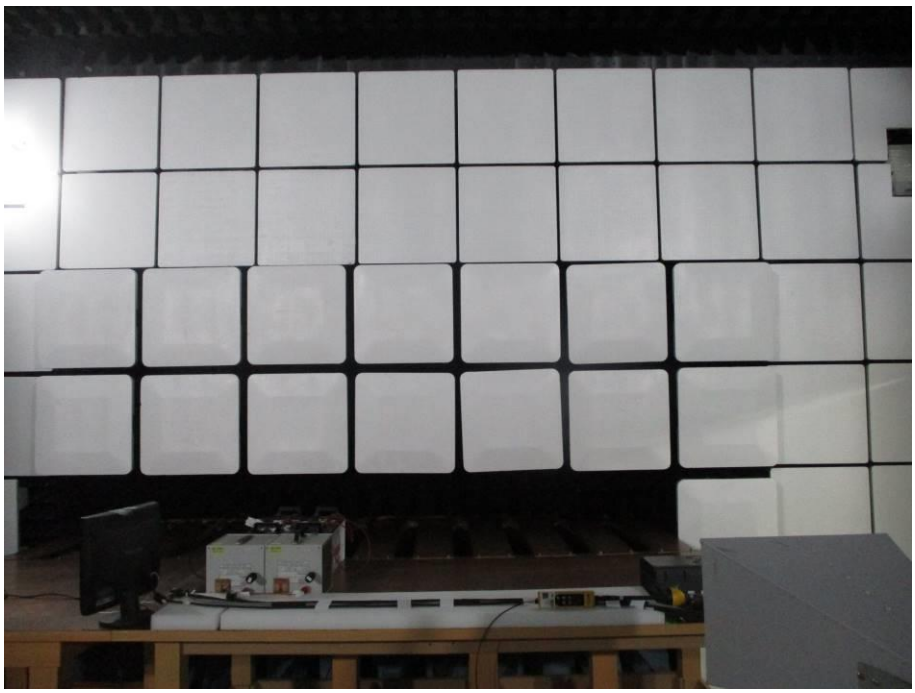
200MHz-1GHz Vertical



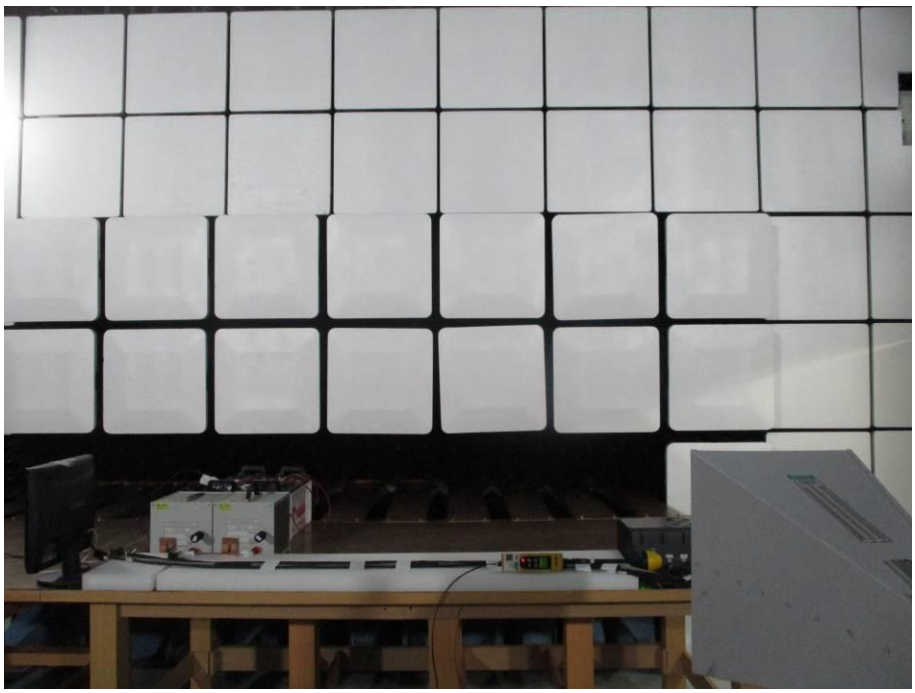
200MHz-1GHz Horizontal

Left

1GHz-7.5GHz Vertical

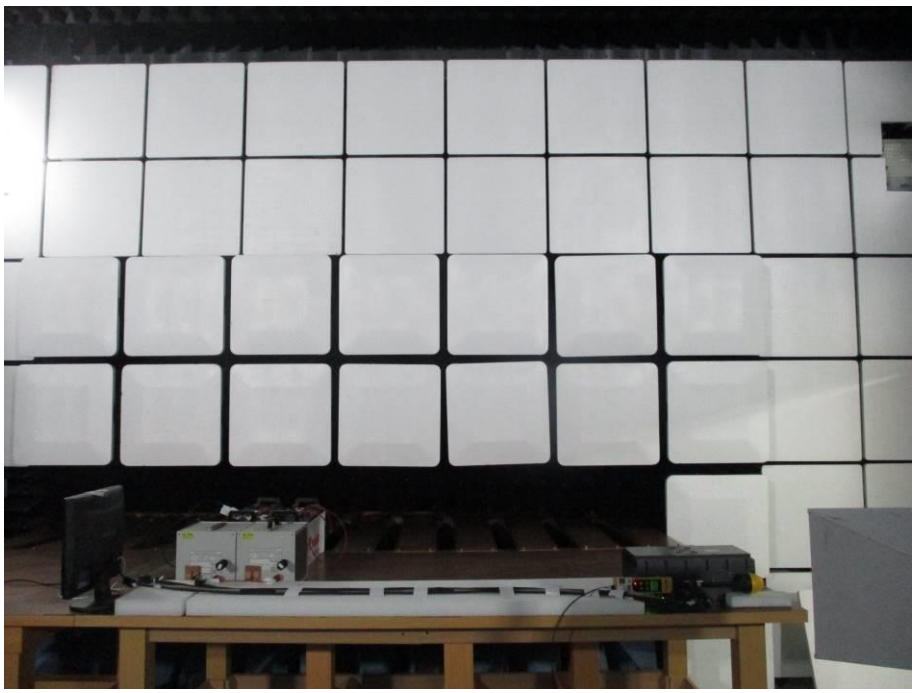


1GHz-7.5GHz Horizontal



Right

1GHz-7.5GHz Vertical



1GHz-7.5GHz Horizontal

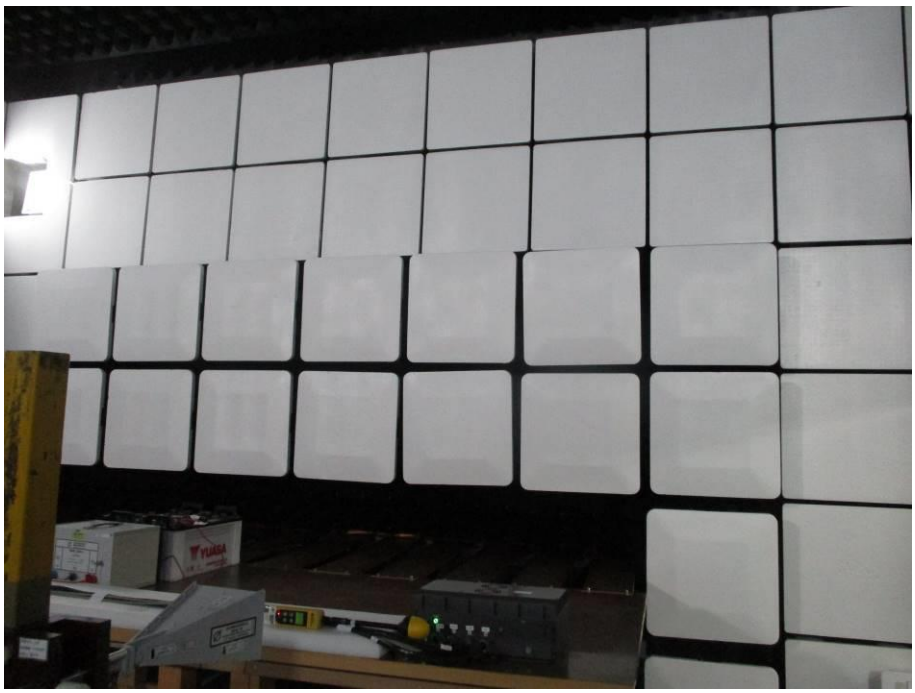
Middle

1GHz-7.5GHz Vertical

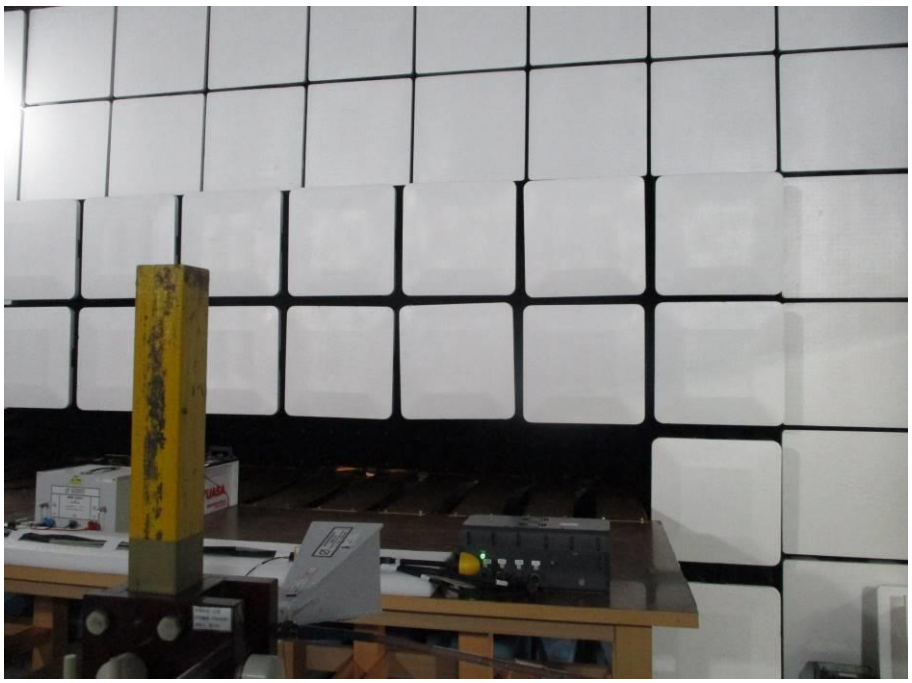
1GHz-7.5GHz Horizontal

Left

7.5GHz-18GHz Vertical

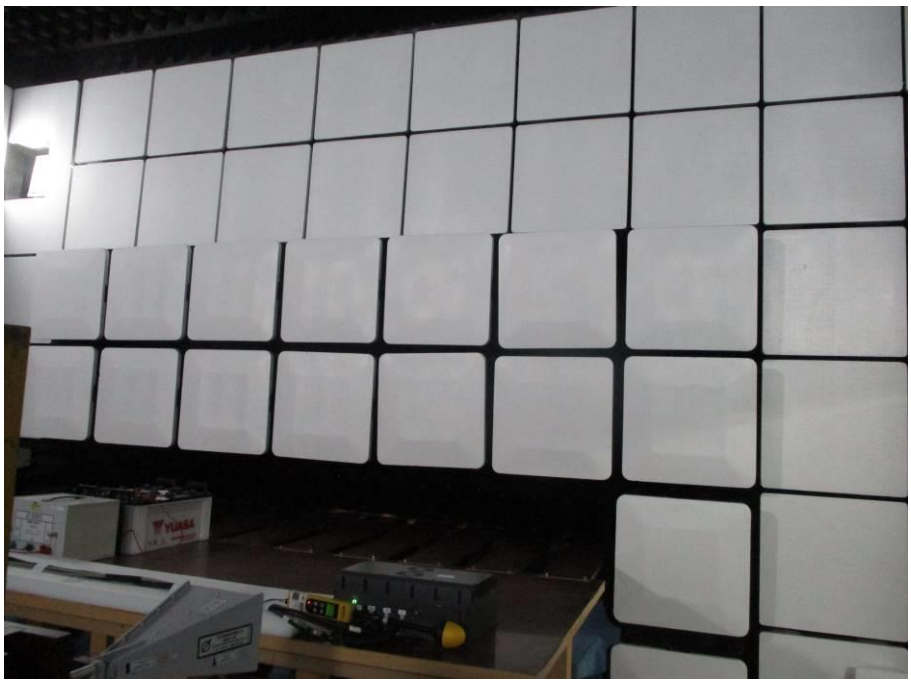


7.5GHz-18GHz Horizontal

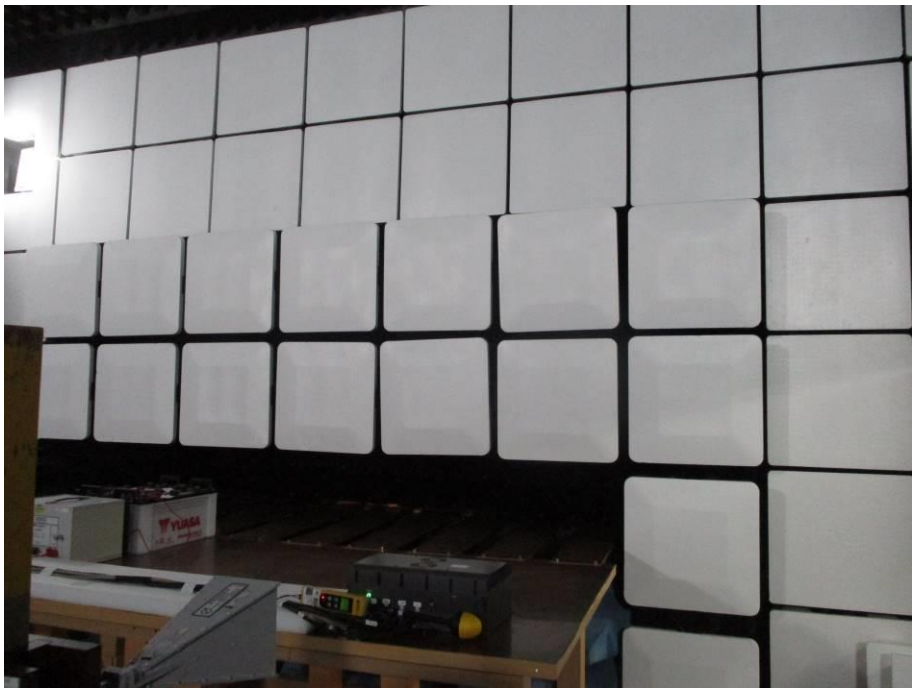


Right

7.5GHz-18GHz Vertical

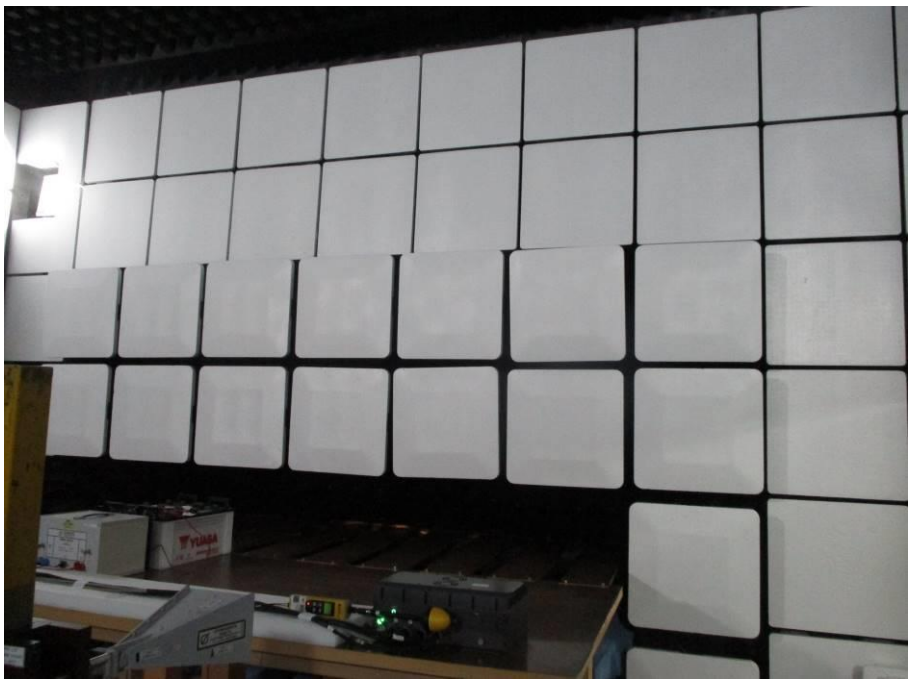


7.5GHz-18GHz Horizontal

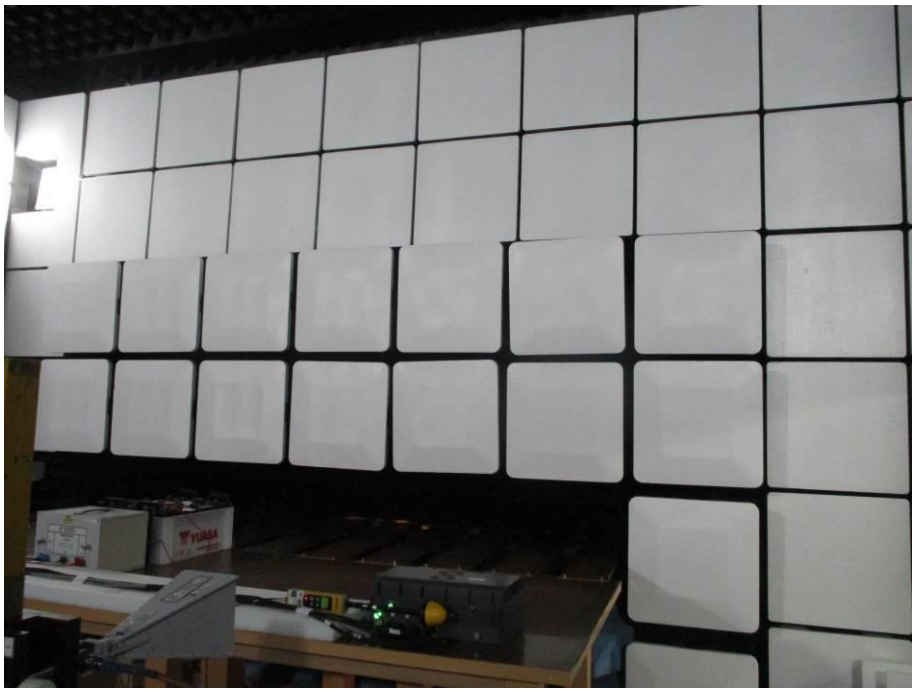


Middle

7.5GHz-18GHz Vertical



7.5GHz-18GHz Horizontal



9. APPENDIX I
EXTERNAL PHOTOGRAPHS OF EUT