

Project No.: TM-2307000041P
Report No.: TMXD2307002604DE Ref No.: TMXD2302000389DE

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CE EMC TEST REPORT

for

Human-machine Interface

MODEL: PM2071B51; PM2071C51; PM2070C51; PM2070B51; PM207-C21; WOP-107E-NAE; PM207-xxx1; FM207-xxx1; RM207-xxx1; KM207-xxx1; GM207-xxx1; Xpm207-xxx1; LCM207-xxx1; IPM207-xxx1; PMM207-xxx1; LKM207-xxx1; SM207-xxx1; HM207-xxx1; WM207-xxx1; UM207-xxx1; CM207-xxx1; VM207-xxx1; MHM207-xxx1; GPM207-xxx1; SPM207-xxx1 (The first x represents the number 0 or 1, "0" means LCM 800*480, "1" means LCM 1024*600; The second x represents the letters A,B,C or D, "A" represents the work gauge screen LCM (-30~70°C), "B" represents the work gauge screen LCM (-10~60°C), "C" represents the business gauge LCM (0~50°C), "D" represents the custom specification LCM; The third x represents the number 2 for build-in 2 serial ports / 3 for build-in 3 serial ports / 4 for build-in 2 serial ports & extension bus / 5 for build-in 3 serial ports & extension bus)

Issued to:

Cermate Technologies Inc.

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Issued Date: August 21, 2023

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	March 23, 2023	Initial Issue	ALL	Wendy Wang
01	August 21, 2023	Retest for model PM2070B51	ALL	Wendy Wang

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1 TEST CERTIFICATION

Product: Human-machine Interface

Model: PM2071B51; PM2071C51; PM2070C51; PM2070B51; PM207-C21; WOP-107E-NAE; PM207-xxx1; FM207-xxx1; RM207-xxx1; KM207-xxx1; GM207-xxx1; Xpm207-xxx1; LCM207-xxx1; IPM207-xxx1; PMM207-xxx1; LKM207-xxx1; SM207-xxx1; HM207-xxx1; WM207-xxx1; UM207-xxx1; CM207-xxx1; VM207-xxx1; MHM207-xxx1; GPM207-xxx1; SPM207-xxx1 (The first x represents the number 0 or 1, "0" means LCM 800*480, "1" means LCM 1024*600; The second x represents the letters A,B,C or D, "A" represents the work gauge screen LCM (-30~70℃), "B" represents the work gauge screen LCM (-10~60℃), "C" represents the business gauge LCM (0~50℃), "D" represents the custom specification LCM; The third x represents the number 2 for build-in 2 serial ports / 3 for build-in 3 serial ports / 4 for build-in 2 serial ports & extension bus / 5 for build-in 3 serial ports & extension bus)

Brand: Cermate

Applicant: **Cermate Technologies Inc.**
7F-1, No.168, Lien Cheng Rd., Chung-Ho District,
New Taipei City, Taiwan 235

Manufacturer: **Cermate Technologies Inc.**
7F-1, No.168, Lien Cheng Rd., Chung-Ho District,
New Taipei City, Taiwan 235

Tested: February 13, 2023 ~ July 27, 2023

Applicable Standards: EN IEC 61000-6-4: 2019
BS EN IEC 61000-6-4: 2019
EN IEC 61000-3-2: 2019 + A1: 2021
BS EN IEC 61000-3-2: 2019 + A1: 2021
EN 61000-3-3: 2013 + A1: 2019 + A2: 2021
BS EN 61000-3-3: 2013 + A1: 2019 + A2: 2021

EN IEC 61000-6-2: 2019
BS EN IEC 61000-6-2: 2019
IEC 61000-4-2: 2008
IEC 61000-4-3: 2020 (Ed. 4.0)
IEC 61000-4-4: 2012
IEC 61000-4-5: 2014 + A1: 2017
IEC 61000-4-6: 2013 + COR1: 2015
IEC 61000-4-8: 2009
IEC 61000-4-11: 2020 + COR1: 2020 + COR2: 2022 (Ed. 3.0)

Note

This test report can be used for CE and UKCA marking application which is based on equivalent requirements between UK and EU. It is appropriate using designated standards to provide presumption of conformity with GB law.

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 has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. 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:



Jason Lee
Section Manager

Reviewed by:



Eva Fan
Supervisor of report document dept.

2 TEST RESULT SUMMARY

EMISSION			
Standard	Item	Result	Remarks
EN IEC 61000-6-4: 2019 / BS EN IEC 61000-6-4: 2019			
CISPR 16-2-1, CISPR 16-1-2	Conducted (Power Port)	PASS	Meet limit
CISPR 32	Conducted (Wired Network ports)	PASS	Meet limit
CISPR 16-2-3	Radiated	PASS	Meet limit
EN IEC 61000-3-2: 2019 + A1: 2021 BS EN IEC 61000-3-2: 2019 + A1: 2021	Harmonic current emissions	N/A	Please see the page 65
EN 61000-3-3: 2013 + A1: 2019 + A2: 2021 BS EN 61000-3-3: 2013 + A1: 2019 + A2: 2021	Voltage fluctuations & flicker	N/A	Please see the page 67

IMMUNITY [EN IEC 61000-6-2: 2019 / BS EN IEC 61000-6-2: 2019]			
Standard	Item	Result	Remarks
IEC 61000-4-2: 2008	ESD	PASS	PM2071B51 & PM2071C51 & PM2070C51 Meets the requirements of Performance Criterion B PM2070B51: Meets the requirements of Performance Criterion A
IEC 61000-4-3: 2020 (Ed. 4.0)	RS	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-4: 2012	EFT	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-5: 2014 + A1: 2017	Surge	PASS	Meets the requirements of Performance Criterion B
IEC 61000-4-6: 2013 + COR1: 2015	CS	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-8: 2009	PFMF	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-11: 2020 + COR1: 2020 + COR2: 2022 (Ed. 3.0)	Voltage dips & voltage variations	N/A	Please see the page 107

3 EUT DESCRIPTION

Product	Human-machine Interface
Brand Name	Cermate
Model	PM2071B51; PM2071C51; PM2070C51; PM2070B51; PM207-C21; WOP-107E-NAE; PM207-xxx1; FM207-xxx1; RM207-xxx1; KM207-xxx1; GM207-xxx1; Xpm207-xxx1; LCM207-xxx1; IPM207-xxx1; PMM207-xxx1; LKM207-xxx1; SM207-xxx1; HM207-xxx1; WM207-xxx1; UM207-xxx1; CM207-xxx1; VM207-xxx1; MHM207-xxx1; GPM207-xxx1; SPM207-xxx1 (The first x represents the number 0 or 1, "0" means LCM 800*480, "1" means LCM 1024*600; The second x represents the letters A,B,C or D, "A" represents the work gauge screen LCM (-30~70℃), "B" represents the work gauge screen LCM (-10~60℃), "C" represents the business gauge LCM (0~50℃), "D" represents the custom specification LCM; The third x represents the number 2 for build-in 2 serial ports / 3 for build-in 3 serial ports / 4 for build-in 2 serial ports & extension bus / 5 for build-in 3 serial ports & extension bus)
Applicant	Cermate Technologies Inc.
Housing material	Plastic
Received Date	July 11, 2023
EUT Power Rating	24VDC from DC Power Supply
DC Power During Test	24VDC

Model Differences

Model Name	Difference	Test (Check)
PM2071B51	1024x600B Spec	<input checked="" type="checkbox"/>
PM2071C51	1024x600C Spec	<input checked="" type="checkbox"/>
PM2070C51	800x480C Spec	<input checked="" type="checkbox"/>
PM2070B51	800x480B Spec	<input checked="" type="checkbox"/>
PM207-C21; WOP-107E-NAE; PM207-xxx1; FM207-xxx1; RM207-xxx1; KM207-xxx1; GM207-xxx1; Xpm207-xxx1; LCM207-xxx1; IPM207-xxx1; PMM207-xxx1; LKM207-xxx1; SM207-xxx1; HM207-xxx1; WM207-xxx1; UM207-xxx1; CM207-xxx1; VM207-xxx1; MHM207-xxx1; GPM207-xxx1; SPM207-xxx1	<p>1. The first x represents the number 0 or 1, "0" means LCM 800*480, "1" means LCM 1024*600; The second x represents the letters A,B,C or D, "A" represents the work gauge screen LCM (-30~70℃), "B" represents the work gauge screen LCM (-10~60℃), "C" represents the business gauge LCM (0~50℃), "D" represents the custom specification LCM; The third x represents the number 2 for build-in 2 serial ports / 3 for build-in 3 serial ports / 4 for build-in 2 serial ports & extension bus / 5 for build-in 3 serial ports & extension bus)</p> <p>2. For marketing purpose only</p>	<input type="checkbox"/>

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
1. Serial Port	2	2
2. USB Port	2	2
3. LAN Port	2	2

Note.: None.

4 TEST METHODOLOGY

4.1. DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The test configuration/ modes are as the following:

Conduction Modes (Power port):

1	PM2071B51	DC Power Mode
2	PM2071C51	
3	PM2070C51	
4	PM2070B51	

Conduction Modes (Wired Network ports):

1	PM2071B51	LAN 1	10Mbps
2			100Mbps
3		LAN 2	10Mbps
4			100Mbps
5	PM2071C51	LAN 1	10Mbps
6			100Mbps
7		LAN 2	10Mbps
8			100Mbps
9	PM2070C51	LAN 1	10Mbps
10			100Mbps
11		LAN 2	10Mbps
12			100Mbps
13	PM2070B51	LAN 1	10Mbps
14			100Mbps
15		LAN 2	10Mbps
16			100Mbps

Radiation Modes:

1	PM2071B51	Normal Mode
		Normal Mode / 1-6GHz
2	PM2071C51	Normal Mode
		Normal Mode / 1-6GHz
3	PM2070C51	Normal Mode
		Normal Mode / 1-6GHz
4	PM2070B51	Normal Mode
		Normal Mode / 1-6GHz

Worst:
Conduction (Power port): Mode 4

Conduction (Wired Network ports): Mode 9

Radiation (Below 1GHz): Mode 2

Radiation (Above 1GHz): Mode 2

4.2. EUT SYSTEM OPERATION

1. All peripherals connect EUT to test.
2. Run LanTest20 to test lan port, Server IP: 192.168.10.10 (Server PC).

Note: Test program is self-repeating throughout the test.

5 SETUP OF EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF SUPPORT UNITS

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.

EUT Devices:

No.	Equipment	Model No.	Brand Name
1	Mother Board	070H0D-16 Ver1.2	Cermate
2	CPU (360MHz)	NUC972DF71YC	NUVOTON
3	Memory (DDR2-128Mbyte)	NA	Cermate
4	Storage (NAND-Flash 128MByte)	NA	Cermate

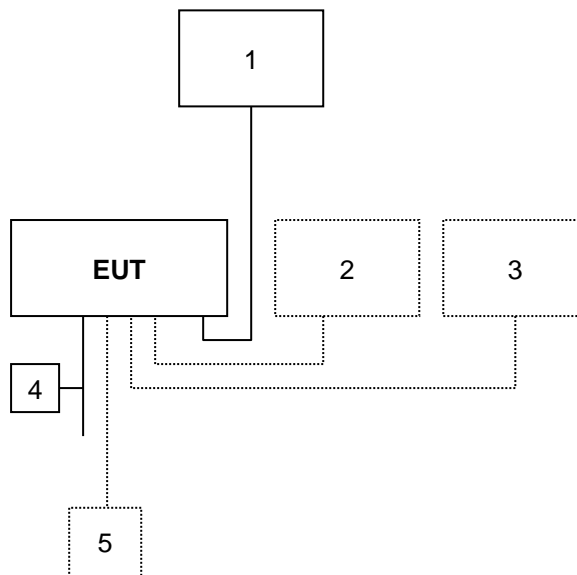
Peripherals Devices:

No.	Equipment	Model No.	Serial No.	FCC ID / BSMI ID	Brand Name	Data Cable	Power Cord
1	USB HDD	ESD240C	F48948-0017	D33193	Transcend	Shielded, 1.8m	N/A
2	Human-machine Interface	PM2071B51	N/A	N/A	CREMATE	Unshielded, 3.32m x2	Unshielded, 1.8m
3	Server PC	T3610	57TT032	R33002	Dell	Unshielded, 20m x2	Unshielded, 1.8m
4	USB Cable	N/A	N/A	N/A	N/A	Shielded, 1.7m	N/A
5	DC Power Supply	RD-125-2412	N/A	N/A	N/A	Unshielded, 1.28m	Unshielded, 1.8m

Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2. CONFIGURATION OF SYSTEM UNDER TEST



6 FACILITIES AND ACCREDITATIONS

6.1. FACILITIES

All measurement facilities used to collect the measurement data are located at CCS Taiwan Xindian Lab. at No.163-1, Jhongsheng Rd., Xindian Dist., New Taipei City, Taiwan.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4 and CISPR 16-1-5.

6.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

Taiwan	TAF
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The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions (Power port)	0.15MHz ~ 30MHz	± 2.8
Conducted emissions (Wired network ports)	0.15MHz ~ 30MHz	± 3.1
Radiated emissions	30MHz ~ 1000MHz	± 5.1
	1000MHz ~ 6000MHz	± 4.6

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Consistent with industry standard (e.g. CISPR 22: 2005, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.

The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than U_{CISPR} which is 3.8dB(AMN); 5.0dB(AAN); 5.2dB(OATS) and 5.5dB(1-6GHz) respectively. CCS values (called U_{Lab} in CISPR 16-4-2) is less than U_{CISPR} as shown in the table above. Therefore, MU need not be considered for compliance.

7 EMISSION TEST

7.1. CONDUCTED EMISSION MEASUREMENT

7.1.1. LIMITS

FREQUENCY (MHz)	dBuV	
	Quasi-peak	Average
0.15 - 0.5	79	66
0.50 - 5.0	73	60
5.0 - 30.0	73	60

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. All emanations from digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

7.1.2. TEST INSTRUMENTS

PM2071B51 & PM2071C51 & PM2070C51

Conducted Emission room # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Pulse Limiter	Schwarzbeck	VTSD 9561-F	BNC#211	03/21/2023
BNC CABLE	EMEC	EMG178	BNC#A9	03/21/2023
EMI Test Receiver	R&S	ESCI	100234	04/25/2023
LISN	Schwarzbeck	NNLK 8129	8129-286	07/20/2023
LISN(EUT)	Schwarzbeck	NSLK 8127	8127527	07/20/2023
Thermo-Hygro Meter	Wisewind	201A	SD-R038	06/21/2023
Test S/W	EZ-EMC Ver.CCS-03A1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request



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Conducted Emission room # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Pulse Limiter	Schwarzbeck	VTSD 9561-F	BNC#211	03/19/2024
BNC CABLE	EMEC	EMG178	BNC#A9	03/19/2024
EMI Test Receiver	R&S	ESCI	100234	04/18/2024
LISN	Schwarzbeck	NNLK 8129	8129-286	07/17/2024
LISN(EUT)	Schwarzbeck	NSLK 8127	8127526	07/17/2024
Thermo-Hygro Meter	Wisewind	201A	SD-R038	06/19/2024
Test S/W	EZ-EMC Ver.CCS-03A1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

7.1.3. TEST PROCEDURES

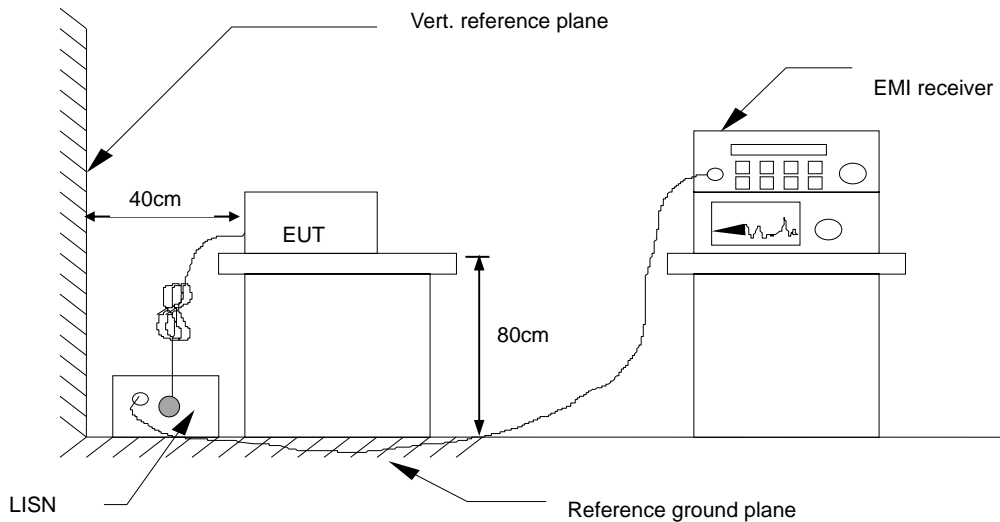
Procedure of Preliminary Test

- The EUT was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per CISPR 16-2-1, 7.4.1 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 15 cm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per CISPR 16-2-1, 7.4.1.
- All I/O cables were positioned to simulate typical actual usage as per CISPR 16-2-1, 7.4.1.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment received power from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 4.1 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission level were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

7.1.4. TEST SETUP



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

7.1.5. DATA SAMPLE

Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
x.xx	42.95	0.55	43.50	73	-29.50	Q	L1

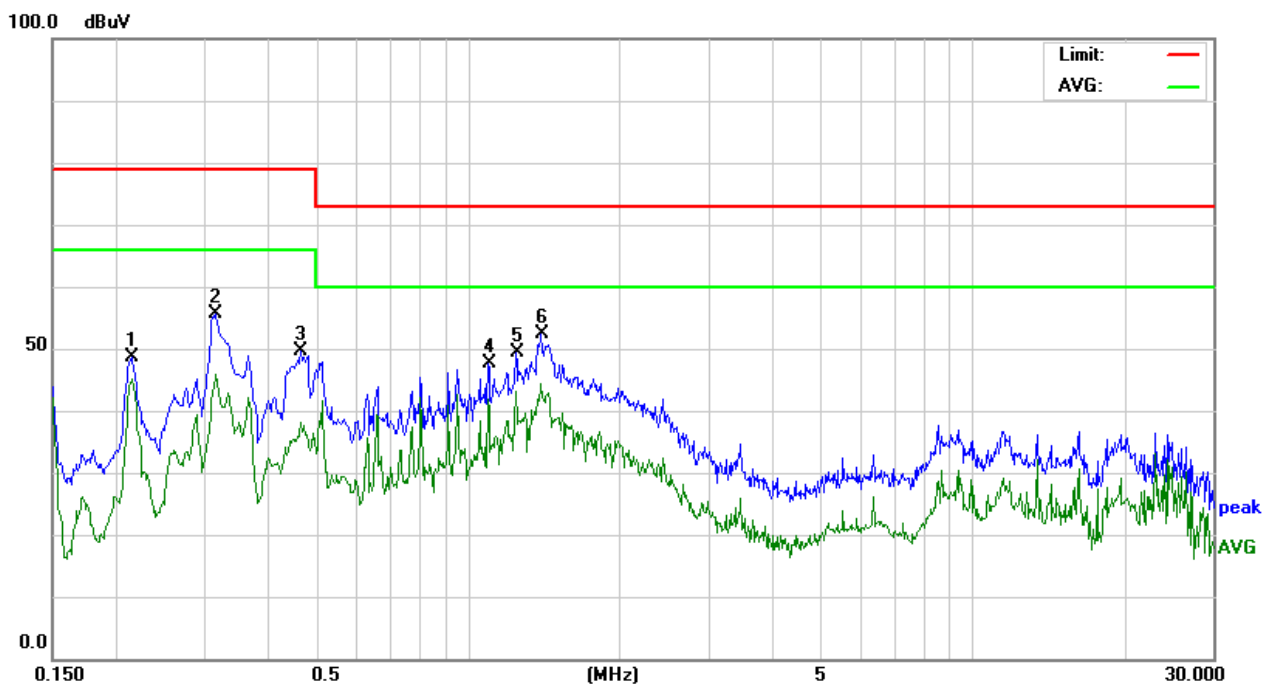
Freq.	= Emission frequency in MHz
Reading	= Uncorrected Analyzer/Receiver reading
Factor	= Insertion loss of LISN + Cable Loss + Pulse Limit
Result	= Read Level + Factor
Limit	= Limit stated in standard
Margin	= Reading in reference to limit
P	= Peak Reading
Q	= Quasi-peak Reading
A	= Average Reading
L1	= Hot side
L2	= Neutral side

Calculation Formula

Margin (dB) = Result (dBuV) – Limit (dBuV)

7.1.6. TEST RESULTS

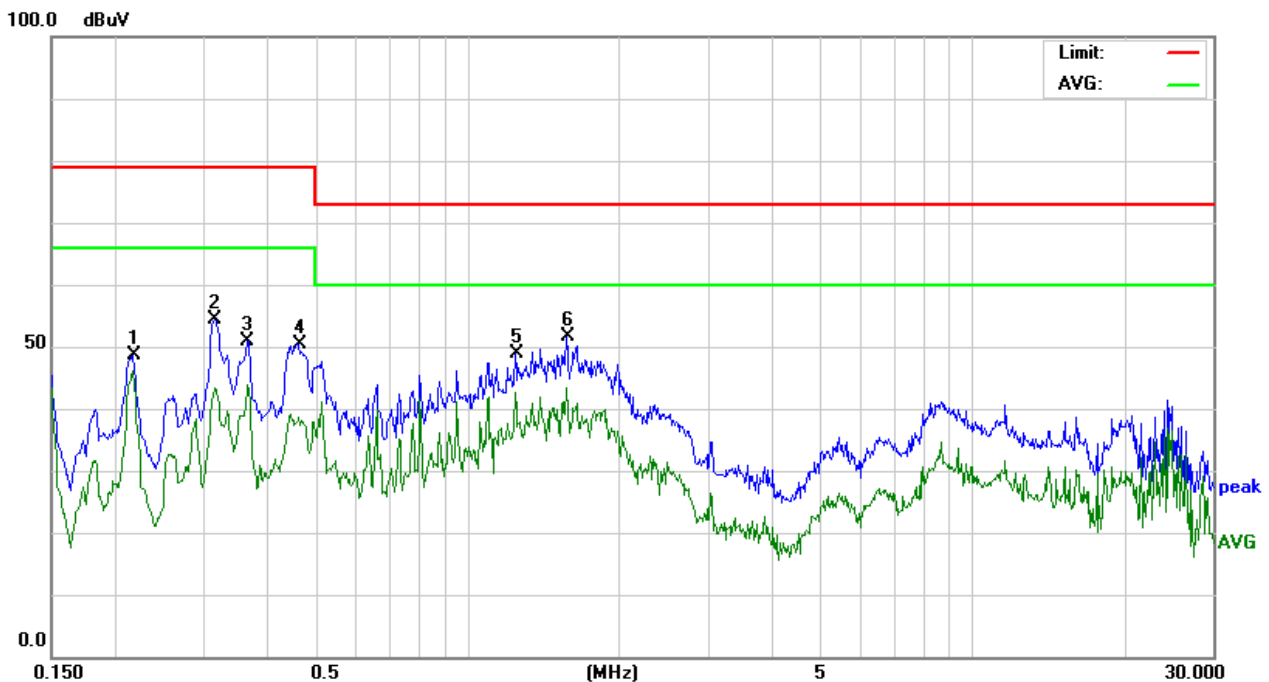
Model No.	PM2071B51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 1
Tested by	Jacky Lin	Phase	L1
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2149	38.40	10.29	48.69	79.00	-30.31	P	L1
0.3165	45.25	10.33	55.58	79.00	-23.42	P	L1
0.4661	39.24	10.34	49.58	79.00	-29.42	P	L1
1.0991	37.15	10.40	47.55	73.00	-25.45	P	L1
1.2479	38.93	10.42	49.35	73.00	-23.65	P	L1
1.3964	41.95	10.43	52.38	73.00	-20.62	P	L1

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

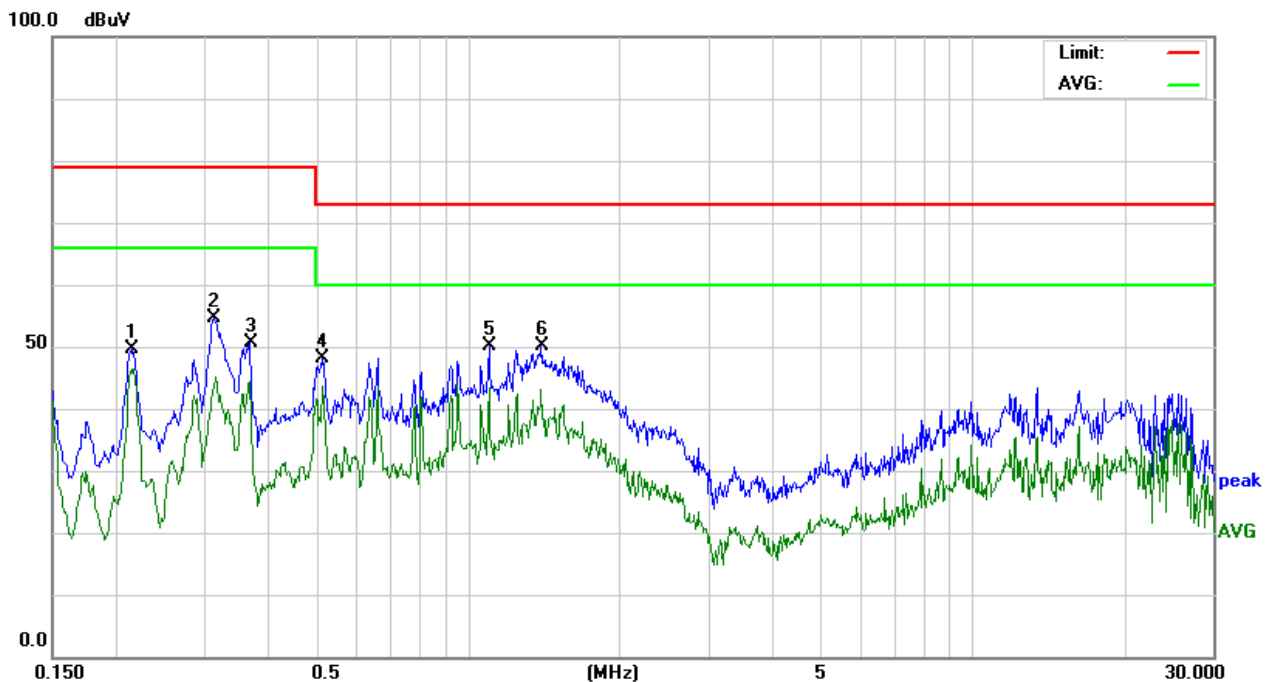
Model No.	PM2071B51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 1
Tested by	Jacky Lin	Phase	L2
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2174	38.38	10.26	48.64	79.00	-30.36	P	L2
0.3165	44.14	10.30	54.44	79.00	-24.56	P	L2
0.3672	40.62	10.29	50.91	79.00	-28.09	P	L2
0.4650	40.09	10.31	50.40	79.00	-28.60	P	L2
1.2479	38.51	10.37	48.88	73.00	-24.12	P	L2
1.5764	41.27	10.41	51.68	73.00	-21.32	P	L2

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

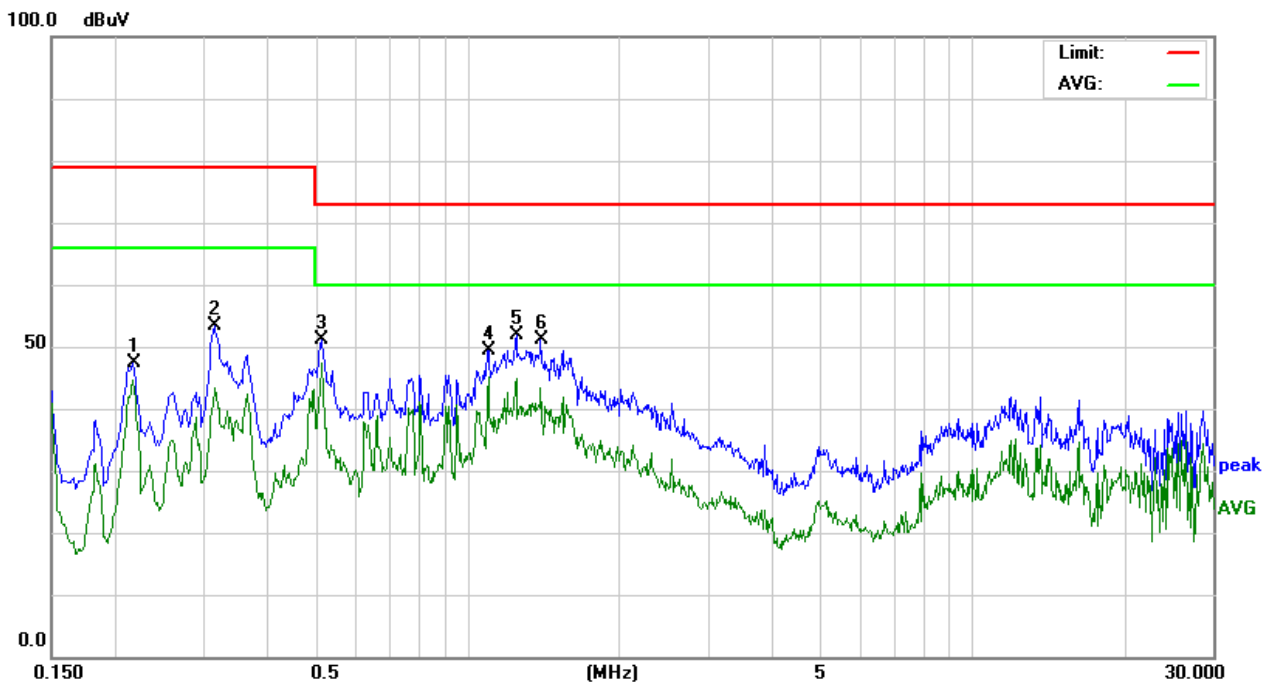
Model No.	PM2071C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 2
Tested by	Jacky Lin	Phase	L1
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2149	39.35	10.29	49.64	79.00	-29.36	P	L1
0.3130	44.41	10.33	54.74	79.00	-24.26	P	L1
0.3704	40.34	10.32	50.66	79.00	-28.34	P	L1
0.5141	37.89	10.34	48.23	73.00	-24.77	P	L1
1.1038	39.63	10.40	50.03	73.00	-22.97	P	L1
1.3964	39.69	10.43	50.12	73.00	-22.88	P	L1

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

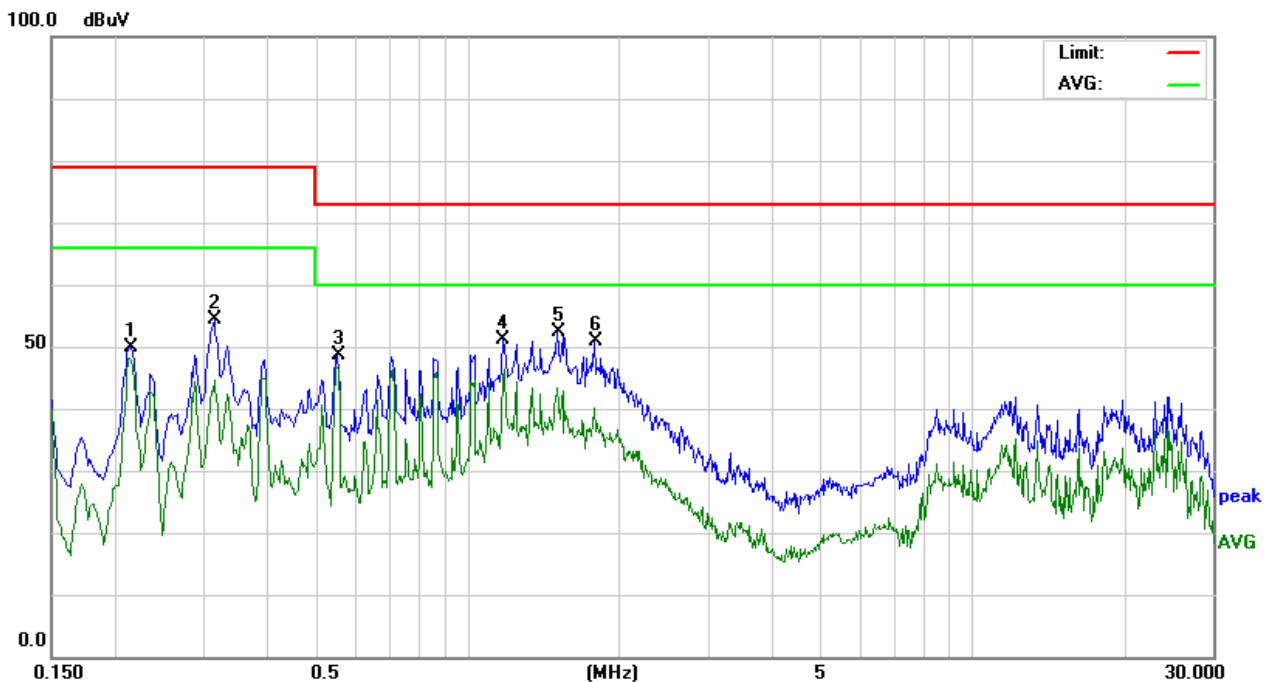
Model No.	PM2071C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 2
Tested by	Jacky Lin	Phase	L2
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2174	37.18	10.26	47.44	79.00	-31.56	P	L2
0.3165	43.03	10.30	53.33	79.00	-25.67	P	L2
0.5141	40.72	10.31	51.03	73.00	-21.97	P	L2
1.0990	39.02	10.36	49.38	73.00	-23.62	P	L2
1.2520	41.49	10.37	51.86	73.00	-21.14	P	L2
1.3964	40.63	10.39	51.02	73.00	-21.98	P	L2

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

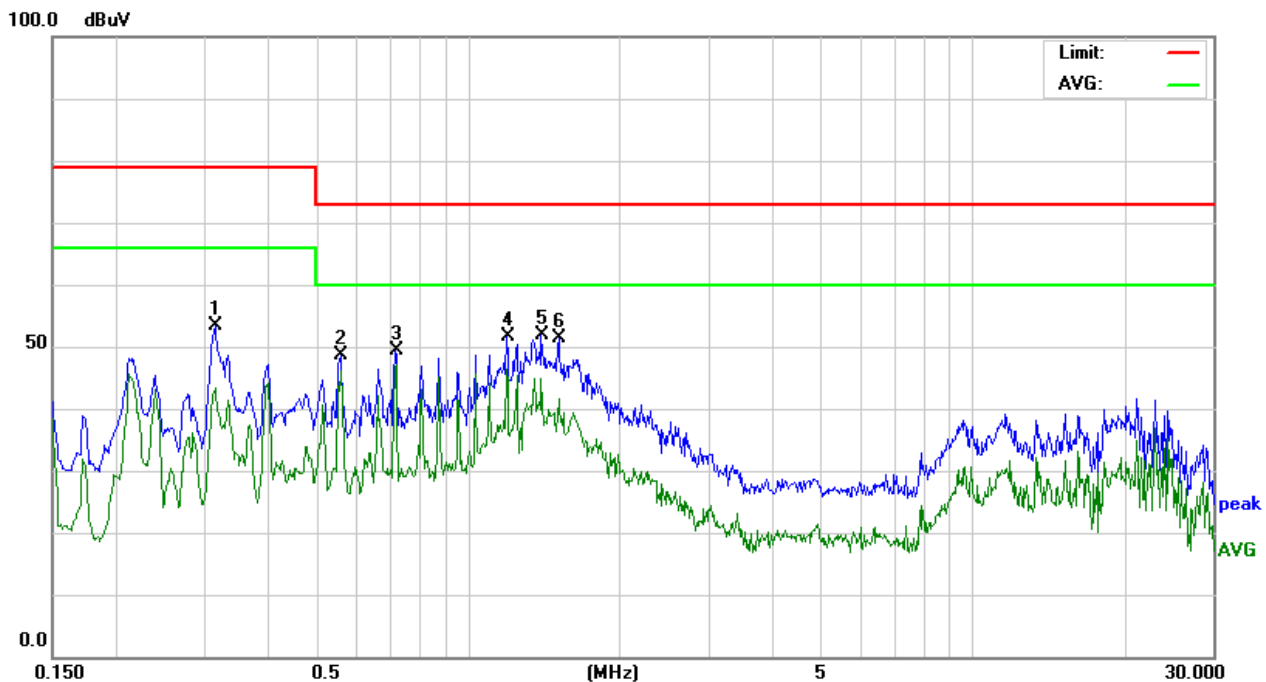
Model No.	PM2070C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 3
Tested by	Jacky Lin	Phase	L1
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2162	39.58	10.29	49.87	79.00	-29.13	P	L1
0.3165	44.01	10.33	54.34	79.00	-24.66	P	L1
0.5545	38.33	10.35	48.68	73.00	-24.32	P	L1
1.1755	40.69	10.41	51.10	73.00	-21.90	P	L1
1.5040	41.82	10.46	52.28	73.00	-20.72	P	L1
1.7834	40.47	10.47	50.94	73.00	-22.06	P	L1

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

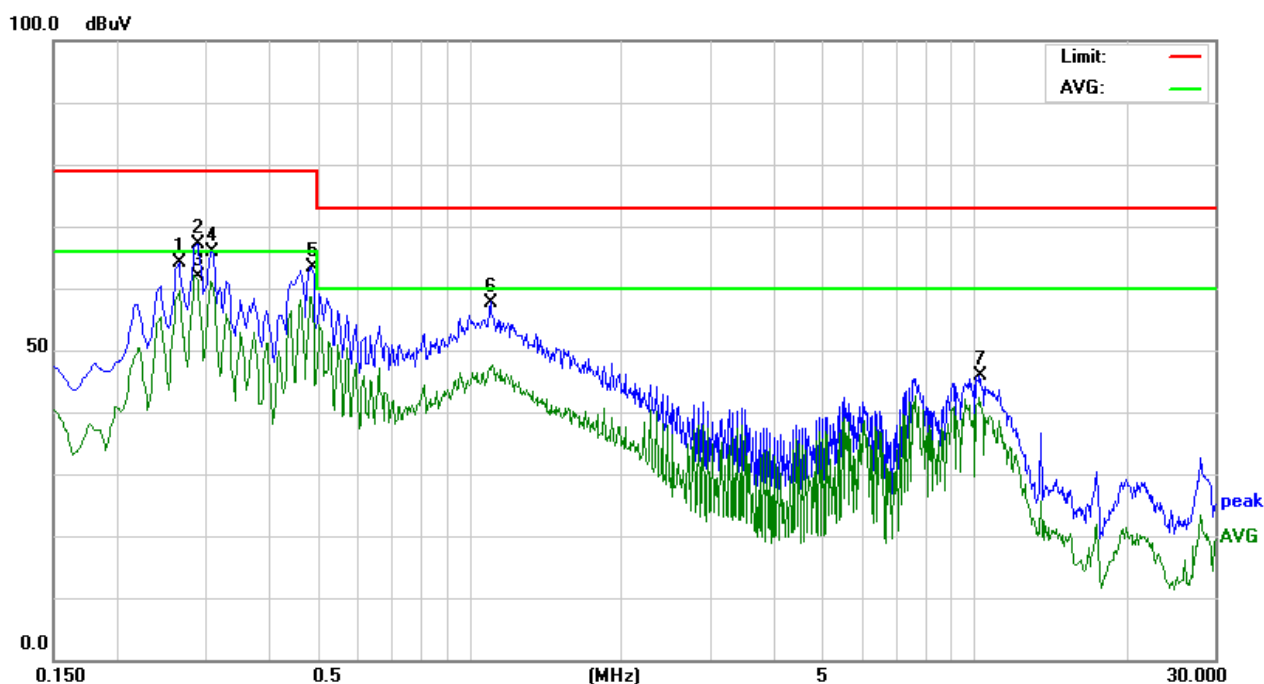
Model No.	PM2070C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 3
Tested by	Jacky Lin	Phase	L2
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.3165	43.08	10.30	53.38	79.00	-25.62	P	L2
0.5594	38.31	10.31	48.62	73.00	-24.38	P	L2
0.7167	38.98	10.34	49.32	73.00	-23.68	P	L2
1.1935	41.34	10.36	51.70	73.00	-21.30	P	L2
1.4008	41.57	10.39	51.96	73.00	-21.04	P	L2
1.5179	40.97	10.41	51.38	73.00	-21.62	P	L2

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

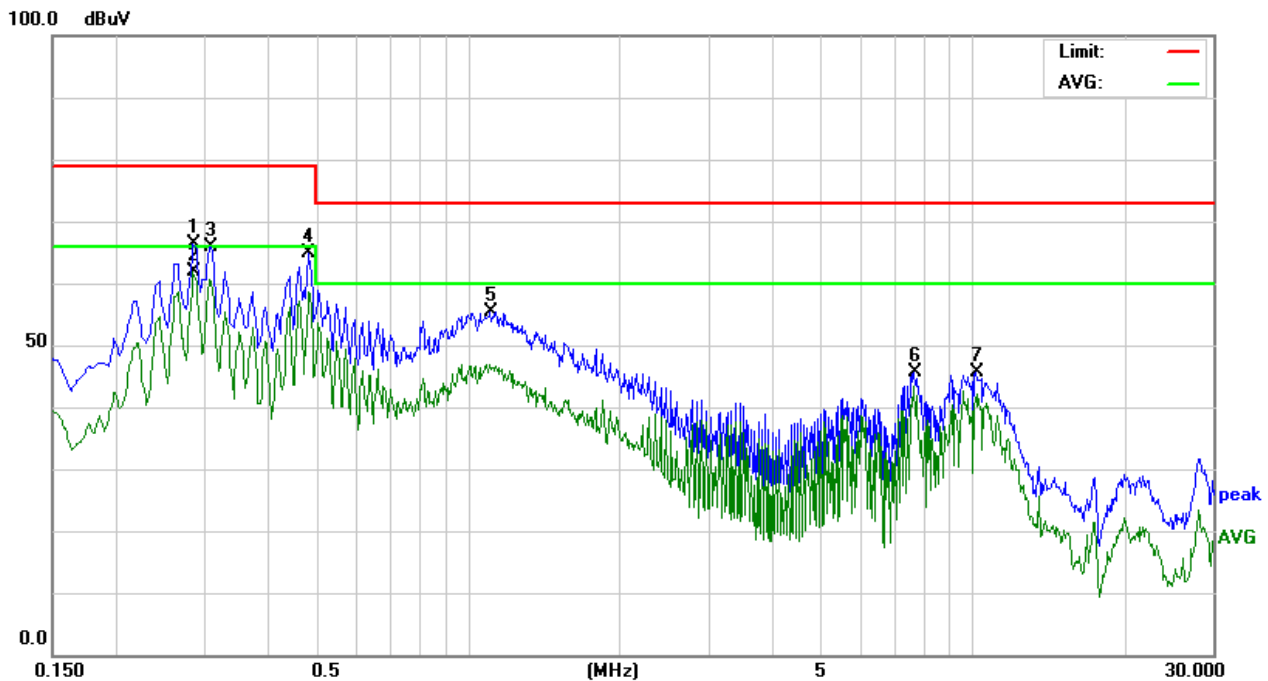
Model No.	PM2070B51	6dB Bandwidth	9 kHz
Environmental Conditions	22.3°C, 62% RH	Test Mode	Mode 4 / Worst
Tested by	Ian Su	Phase	L1
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2670	53.96	10.21	64.17	79.00	-14.83	P	L1
0.2895	56.94	10.22	67.16	79.00	-11.84	P	L1
0.2895	51.78	10.22	62.00	66.00	-4.00	A	L1
0.3075	55.70	10.22	65.92	79.00	-13.08	P	L1
0.4875	53.21	10.24	63.45	79.00	-15.55	P	L1
1.1040	47.46	10.29	57.75	73.00	-15.25	P	L1
10.2615	35.46	10.47	45.93	73.00	-27.07	P	L1

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Model No.	PM2070B51	6dB Bandwidth	9 kHz
Environmental Conditions	22.3°C, 62% RH	Test Mode	Mode 4 / Worst
Tested by	Ian Su	Phase	L2
Standard	EN IEC 61000-6-4		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.2850	56.20	10.22	66.42	79.00	-12.58	P	L2
0.2850	51.56	10.22	61.78	66.00	-4.22	A	L2
0.3075	55.67	10.22	65.89	79.00	-13.11	P	L2
0.4830	54.57	10.24	64.81	79.00	-14.19	P	L2
1.1085	45.09	10.29	55.38	73.00	-17.62	P	L2
7.6650	35.09	10.43	45.52	73.00	-27.48	P	L2
10.1355	35.09	10.46	45.55	73.00	-27.45	P	L2

Note: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

7.2. REQUIREMENTS FOR ASYMMETRIC MODE CONDUCTED EMISSIONS

7.2.1. LIMITS

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	97 ~ 87	84 ~ 74	53 ~ 43	40 ~ 30
0.5 ~ 30.0	87	74	43	30

NOTE: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

7.2.2. TEST INSTRUMENTS

PM2071B51 & PM2071C51 & PM2070C51

Conducted Emission room # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Pulse Limiter	Schwarzbeck	VTSD 9561-F	BNC#211	03/21/2023
BNC CABLE	EMEC	EMG178	BNC#A9	03/21/2023
EMI Test Receiver	R&S	ESCI	100234	04/25/2023
ISN	Teseq	ISN T800	29449	07/17/2023
LISN	Schwarzbeck	NNLK 8129	8129-286	07/20/2023
LISN(EUT)	Schwarzbeck	NSLK 8127	8127527	07/20/2023
Thermo-Hygro Meter	Wisewind	201A	SD-R038	06/21/2023
Test S/W	EZ-EMC Ver.CCS-03A1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request.



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Conducted Emission room # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Pulse Limiter	Schwarzbeck	VTSD 9561-F	BNC#211	03/19/2024
BNC CABLE	EMEC	EMG178	BNC#A9	03/19/2024
EMI Test Receiver	R&S	ESCI	100234	04/18/2024
ISN	Teseq	ISN T800	29449	07/19/2024
LISN	Schwarzbeck	NNLK 8129	8129-286	07/17/2024
LISN(EUT)	Schwarzbeck	NSLK 8127	8127526	07/17/2024
Thermo-Hygro Meter	Wisewind	201A	SD-R038	06/19/2024
Test S/W	EZ-EMC Ver.CCS-03A1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

7.2.3. TEST PROCEDURE

- Selecting AAN for unscreened cable or a current probe for screened cable to take measurement.
- The port of the EUT was connected to the remote side support equipment through the AAN/Current Probe and communication in normal condition.
- Making a overall range scan by using the test receiver controlled by controller and record at least six highest emissions for showing in the test report.
- Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- In case of measuring on the screened cable, the current limit shall be applied; otherwise the voltage limit should be applied.
- The following test modes was scanned during the preliminary test:

Modes:

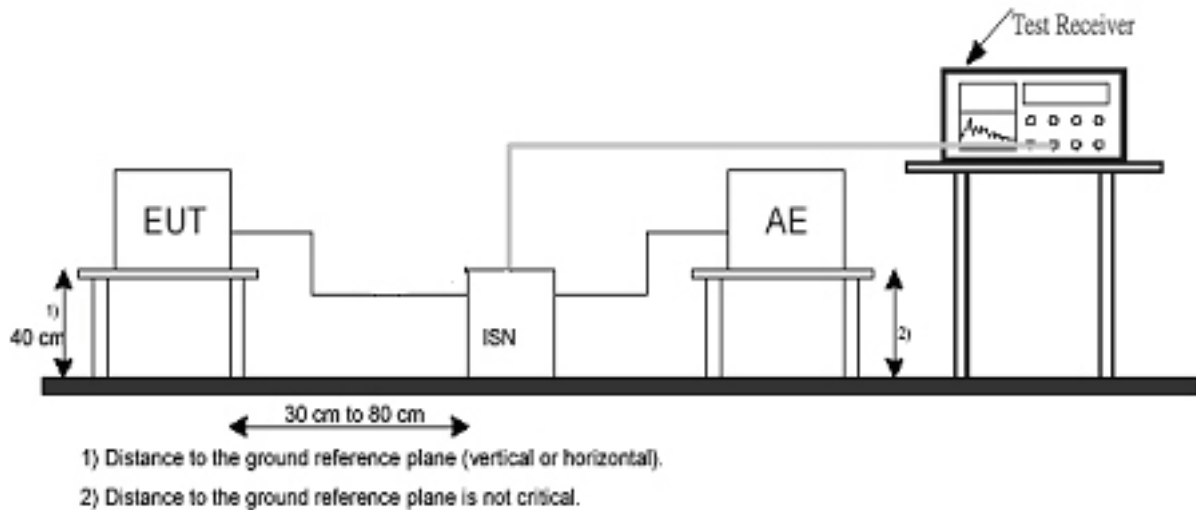
1	PM2071B51	LAN 1	10Mbps
2			100Mbps
3		LAN 2	10Mbps
4			100Mbps
5	PM2071C51	LAN 1	10Mbps
6			100Mbps
7		LAN 2	10Mbps
8			100Mbps
9	PM2070C51	LAN 1	10Mbps
10			100Mbps
11		LAN 2	10Mbps
12			100Mbps
13	PM2070B51	LAN 1	10Mbps
14			100Mbps
15		LAN 2	10Mbps
16			100Mbps

- After the preliminary scan, we found the following test mode(s) producing the highest emission level and test data of the worst case was recorded.

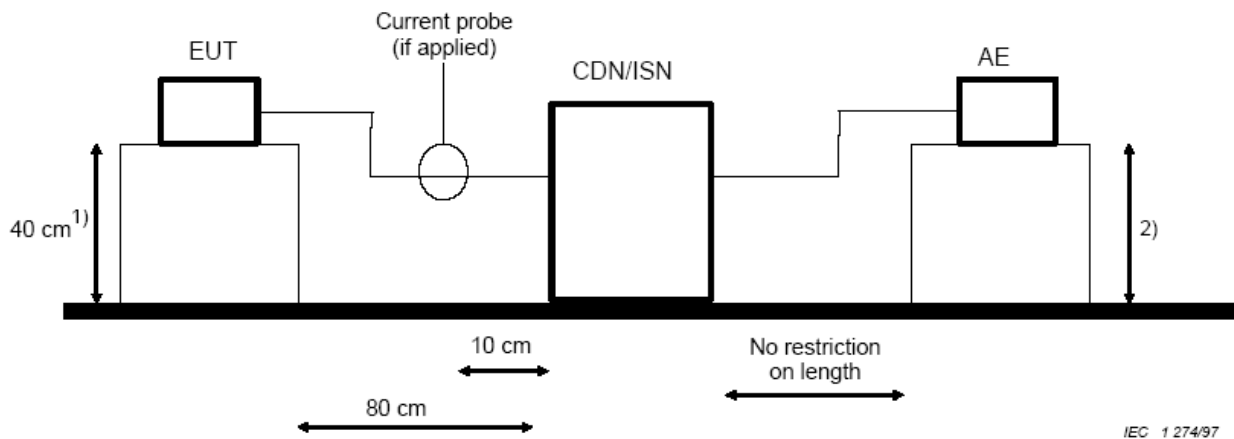
Mode: 9

7.2.4. TEST SETUP

For ISN



For Current Probe:



AE = Associated equipment
EUT = Equipment under test

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

7.2.5. DATA SAMPLE

Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
x.xx	62.95	0.55	63.50	87	-23.50	Q

Freq. = Emission frequency in MHz

Reading = Uncorrected Analyzer/Receiver reading

Factor = Insertion loss of LISN + Cable Loss + Pulse Limit

Result = Reading + Factor

Limit = Limit stated in standard

Margin = Reading in reference to limit

P = Peak Reading

Q = Quasi-peak Reading

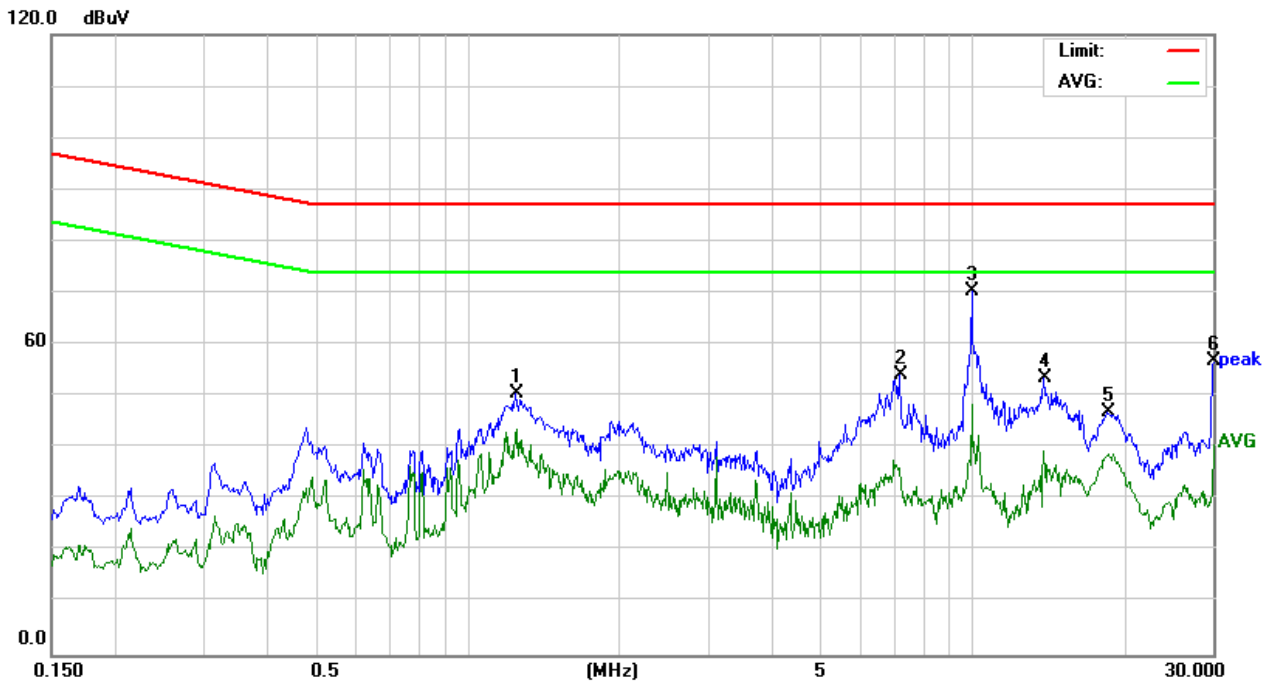
A = Average Reading

Calculation Formula

Margin (dB) = Result (dBuV) – Limit (dBuV)

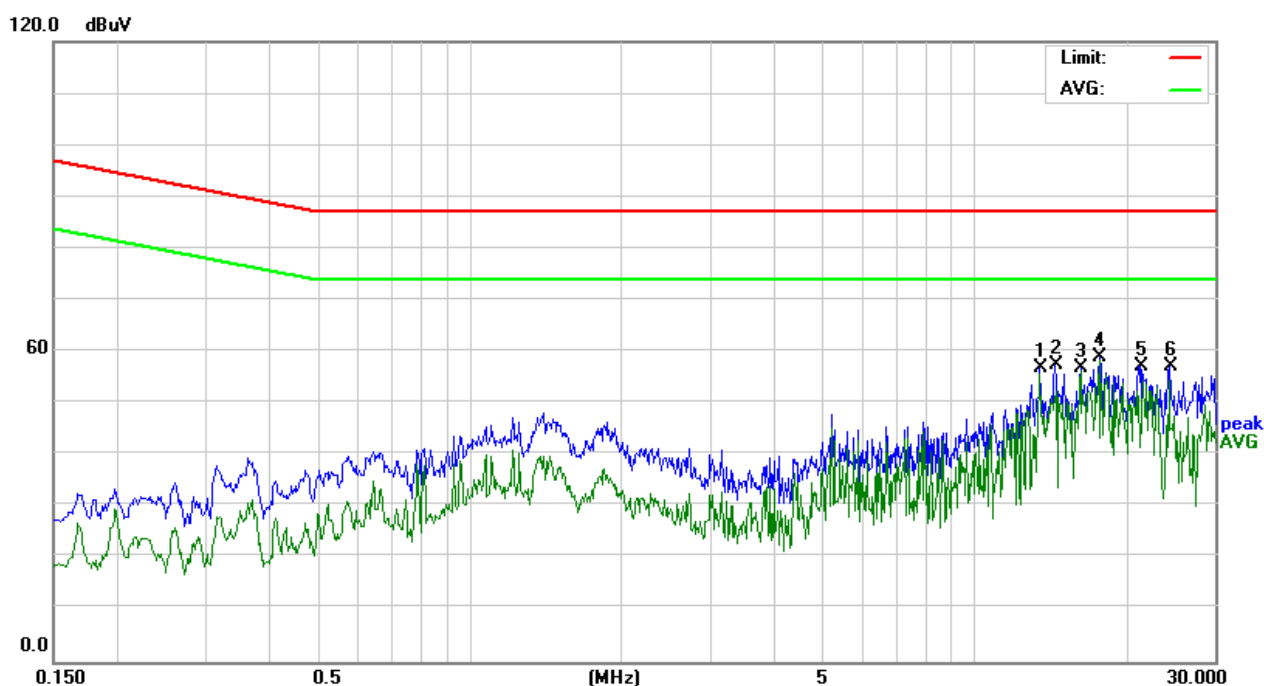
7.2.6. TEST RESULTS

Model No.	PM2071B51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 1
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



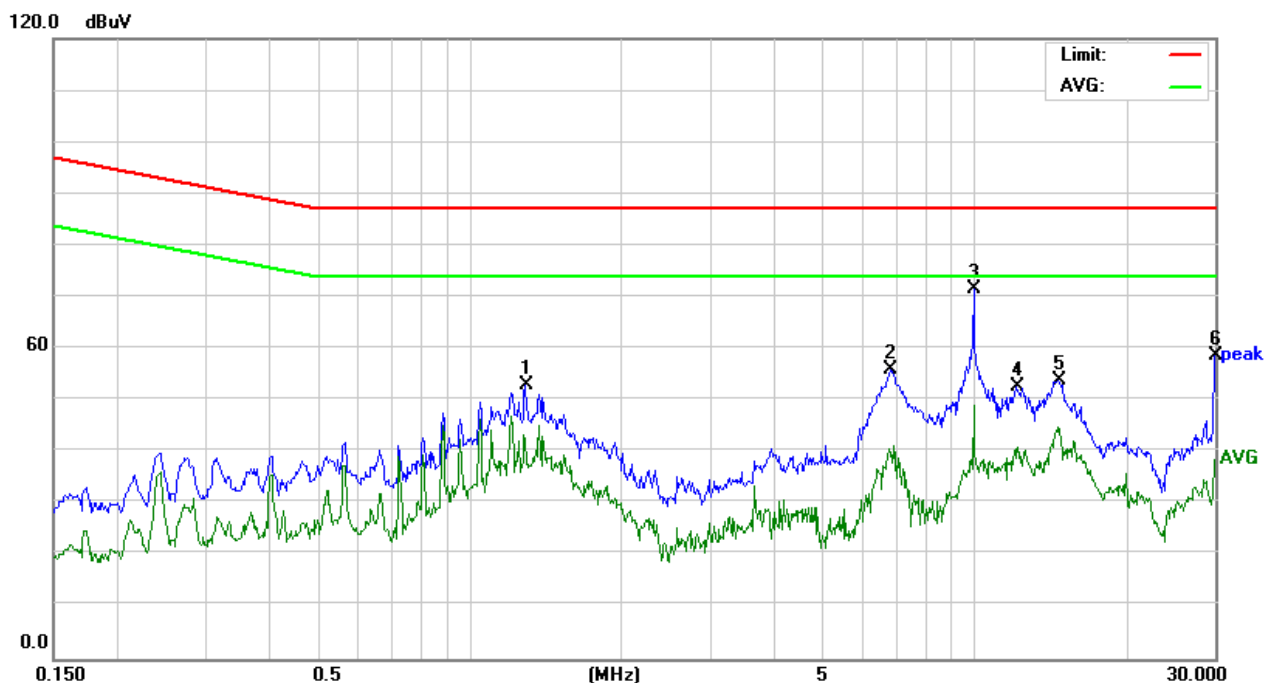
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
1.2479	30.65	19.86	50.51	87.00	-36.49	P
7.1878	34.27	19.89	54.16	87.00	-32.84	P
9.9960	50.53	19.88	70.41	87.00	-16.59	P
13.8704	33.65	20.01	53.66	87.00	-33.34	P
18.5775	26.97	20.09	47.06	87.00	-39.94	P
30.0000	36.23	20.49	56.72	87.00	-30.28	P

Model No.	PM2071B51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 2
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



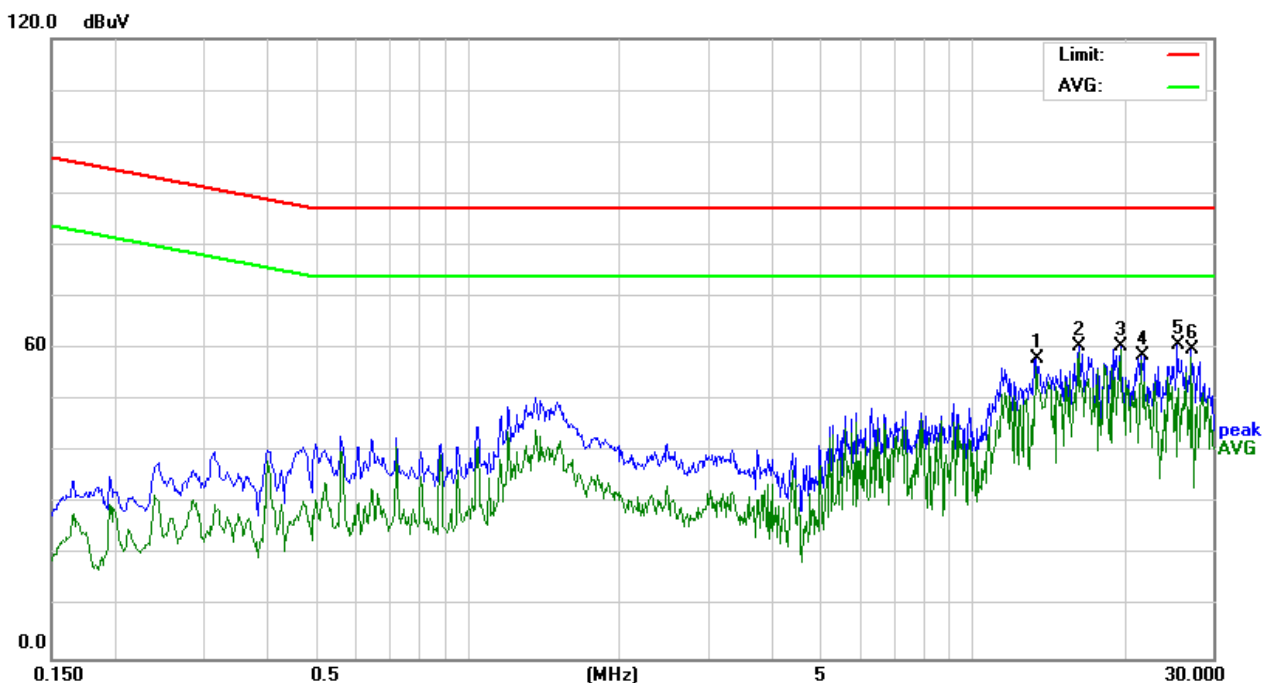
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
13.4832	36.85	19.99	56.84	87.00	-30.16	P
14.4600	37.38	20.03	57.41	87.00	-29.59	P
16.2285	36.92	20.05	56.97	87.00	-30.03	P
17.6951	38.78	20.08	58.86	87.00	-28.14	P
21.2955	36.96	20.16	57.12	87.00	-29.88	P
24.4725	37.01	20.29	57.30	87.00	-29.70	P

Model No.	PM2071B51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 3
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



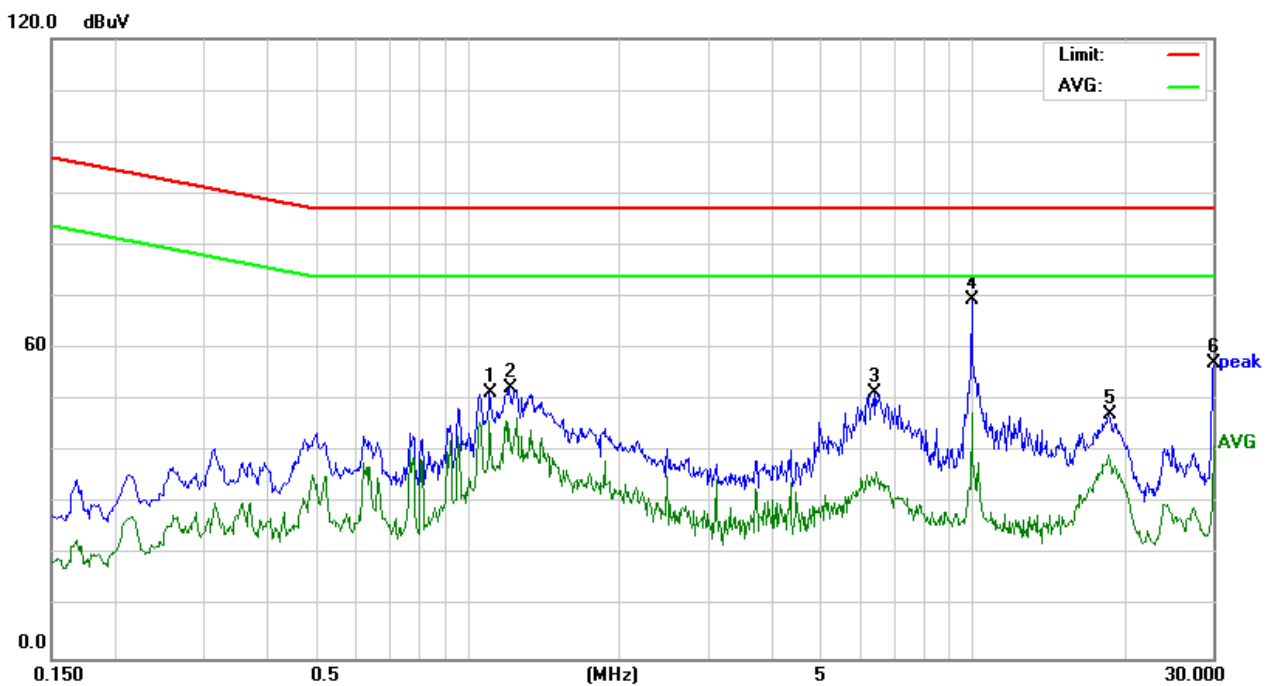
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
1.2923	33.19	19.86	53.05	87.00	-33.95	P
6.8055	36.07	19.89	55.96	87.00	-31.04	P
10.0004	51.59	19.88	71.47	87.00	-15.53	P
12.1333	32.57	19.95	52.52	87.00	-34.48	P
14.6850	33.91	20.03	53.94	87.00	-33.06	P
29.9984	38.13	20.49	58.62	87.00	-28.38	P

Model No.	PM2071B51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 4
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



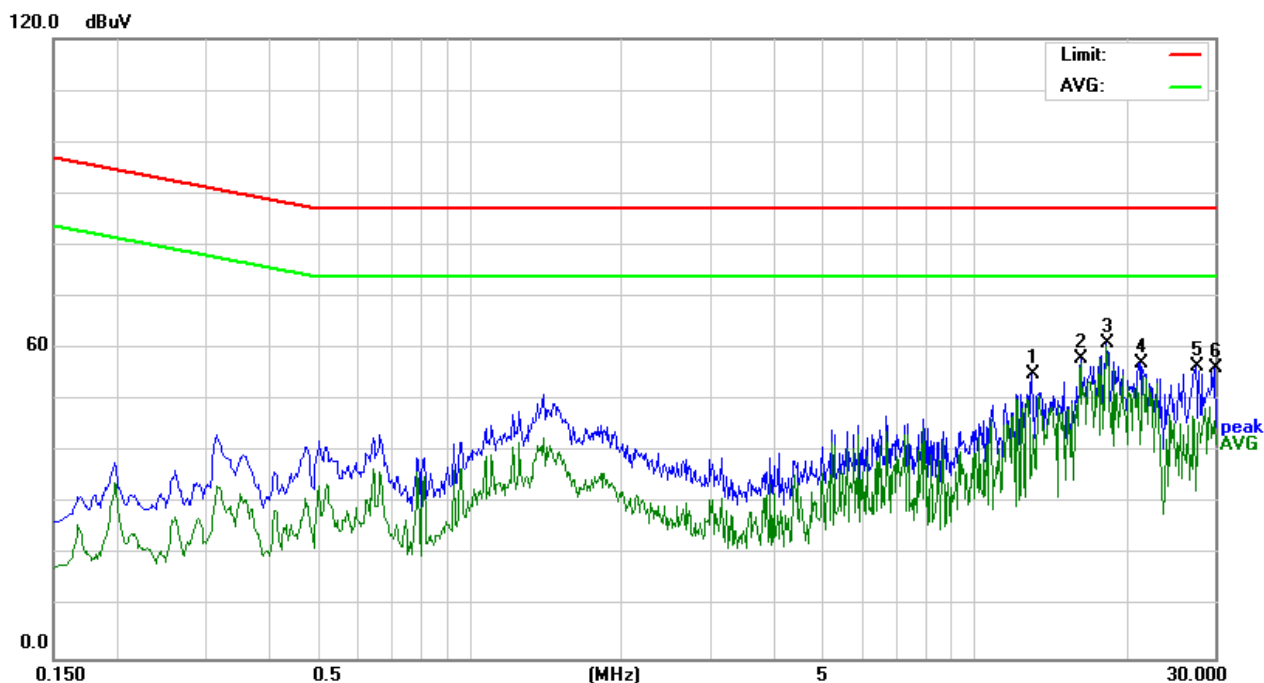
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
13.3574	38.04	19.98	58.02	87.00	-28.98	P
16.2285	40.27	20.05	60.32	87.00	-26.68	P
19.7115	40.36	20.11	60.47	87.00	-26.53	P
21.6645	38.53	20.17	58.70	87.00	-28.30	P
25.5746	40.36	20.33	60.69	87.00	-26.31	P
27.1585	39.54	20.39	59.93	87.00	-27.07	P

Model No.	PM2071C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 5
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



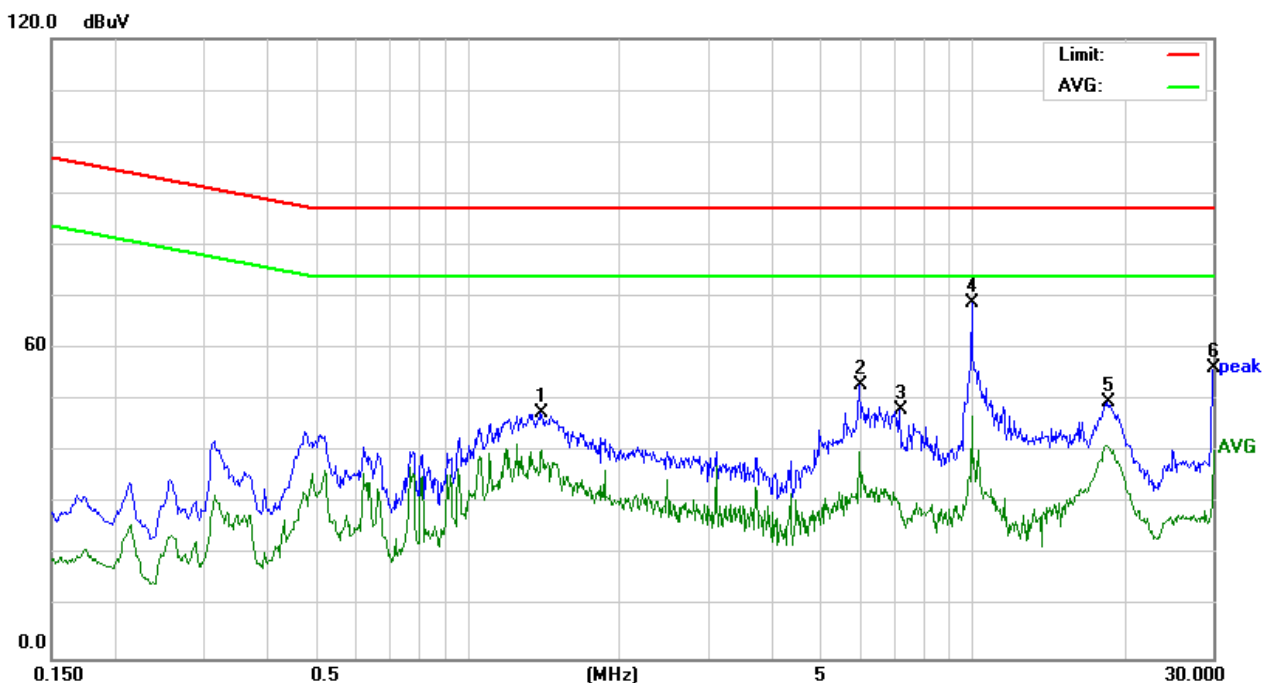
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
1.1084	31.49	19.86	51.35	87.00	-35.65	P
1.2116	32.51	19.86	52.37	87.00	-34.63	P
6.4184	31.62	19.89	51.51	87.00	-35.49	P
9.9960	49.53	19.88	69.41	87.00	-17.59	P
18.7075	27.08	20.09	47.17	87.00	-39.83	P
30.0000	36.73	20.49	57.22	87.00	-29.78	P

Model No.	PM2071C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 6
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



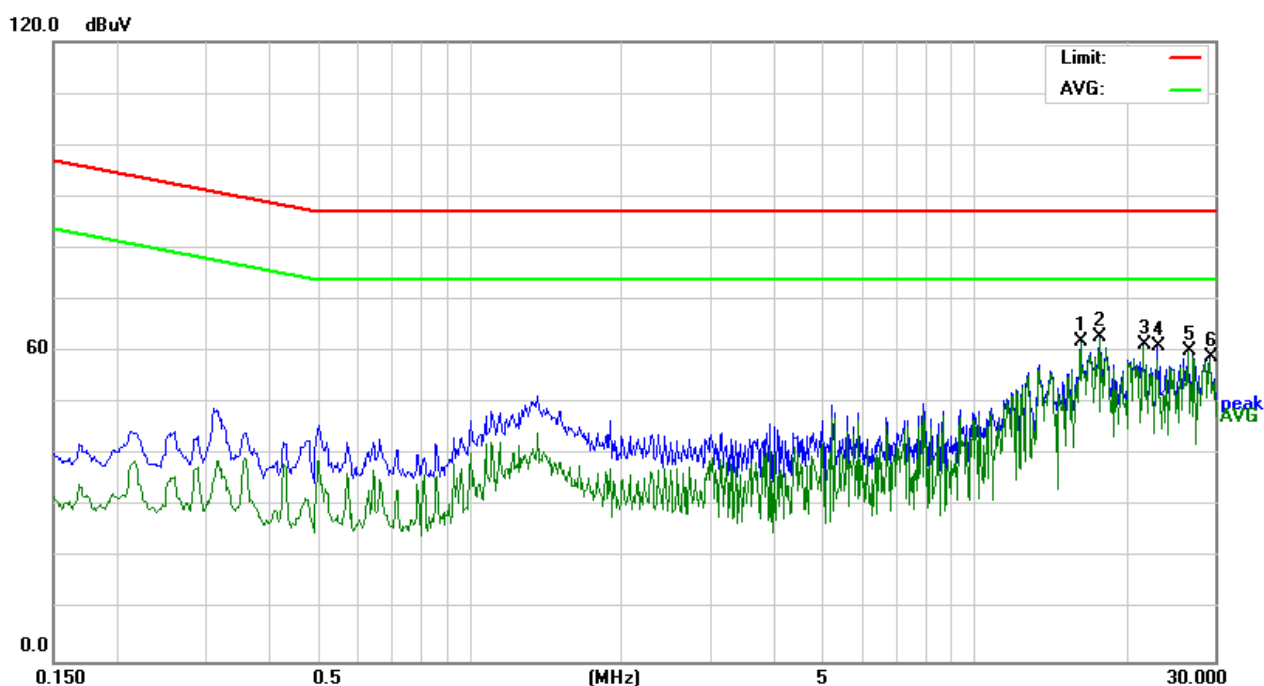
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
13.0556	34.98	19.98	54.96	87.00	-32.04	P
16.2285	37.92	20.05	57.97	87.00	-29.03	P
18.2439	40.93	20.09	61.02	87.00	-25.98	P
21.2955	36.96	20.16	57.12	87.00	-29.88	P
27.4200	36.27	20.40	56.67	87.00	-30.33	P
29.9085	35.71	20.49	56.20	87.00	-30.80	P

Model No.	PM2071C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 7
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



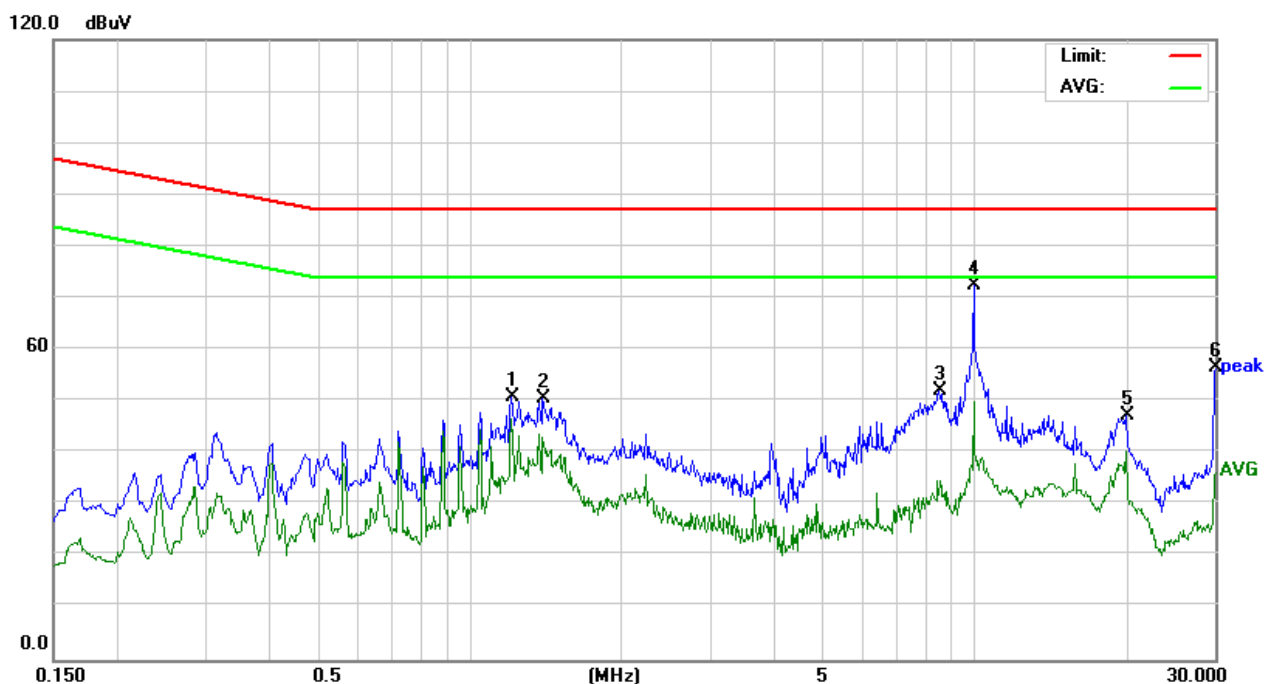
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
1.4008	27.79	19.86	47.65	87.00	-39.35	P
5.9729	33.12	19.89	53.01	87.00	-33.99	P
7.1878	28.27	19.89	48.16	87.00	-38.84	P
9.9960	49.03	19.88	68.91	87.00	-18.09	P
18.5775	29.47	20.09	49.56	87.00	-37.44	P
30.0000	35.73	20.49	56.22	87.00	-30.78	P

Model No.	PM2071C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 8
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



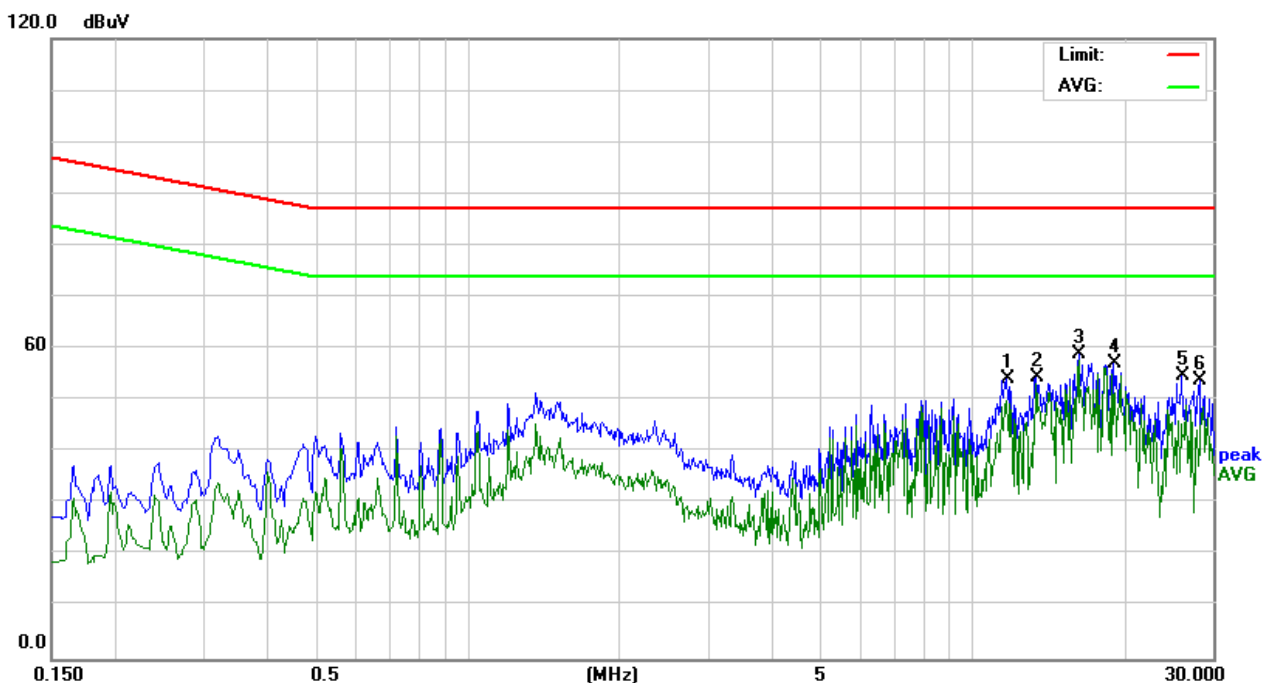
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
16.2285	41.86	20.05	61.91	87.00	-25.09	P
17.6951	42.79	20.08	62.87	87.00	-24.13	P
21.6645	41.16	20.17	61.33	87.00	-25.67	P
23.1310	40.73	20.24	60.97	87.00	-26.03	P
26.6097	39.88	20.37	60.25	87.00	-26.75	P
29.2378	38.54	20.46	59.00	87.00	-28.00	P

Model No.	PM2070C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 9 / Worst
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



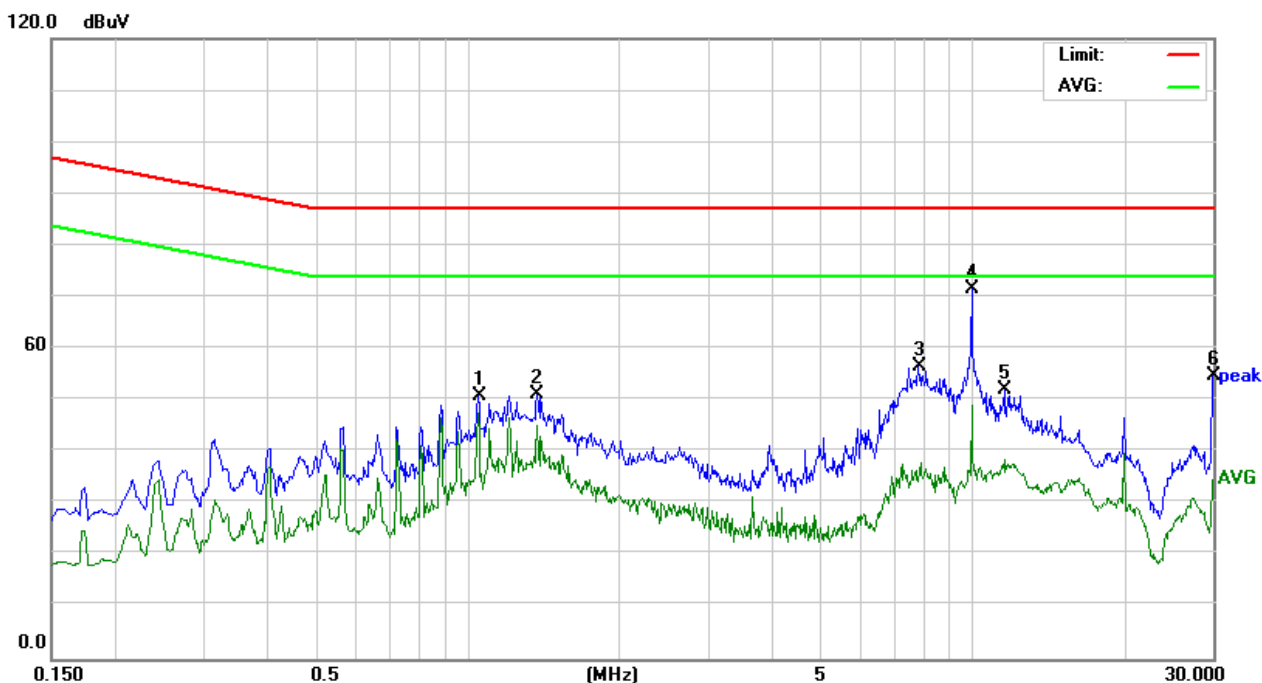
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
1.2116	31.00	19.86	50.86	87.00	-36.14	P
1.4008	30.69	19.86	50.55	87.00	-36.45	P
8.5243	32.14	19.88	52.02	87.00	-34.98	P
10.0004	52.59	19.88	72.47	87.00	-14.53	P
19.9995	27.17	20.11	47.28	87.00	-39.72	P
30.0000	36.03	20.49	56.52	87.00	-30.48	P

Model No.	PM2070C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 10
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



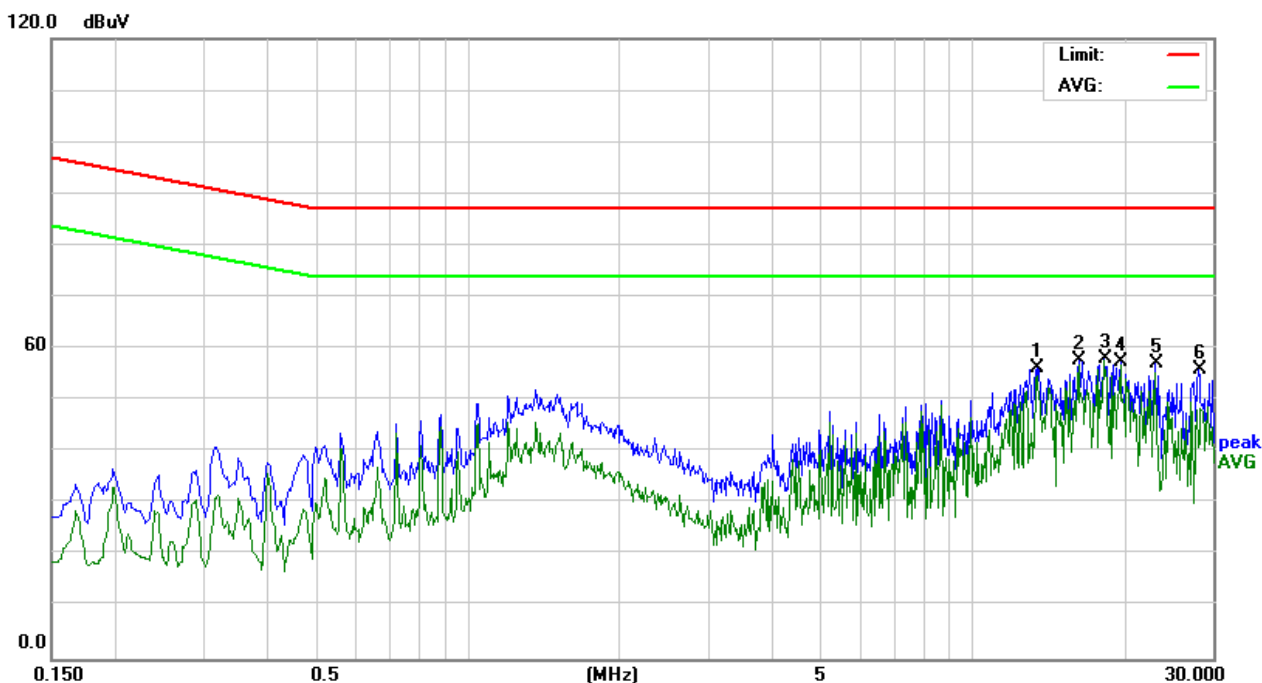
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
11.7103	34.12	19.94	54.06	87.00	-32.94	P
13.3574	34.54	19.98	54.52	87.00	-32.48	P
16.2285	38.77	20.05	58.82	87.00	-28.18	P
19.0991	37.13	20.10	57.23	87.00	-29.77	P
26.0025	34.46	20.35	54.81	87.00	-32.19	P
28.2881	33.56	20.44	54.00	87.00	-33.00	P

Model No.	PM2070C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 11
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



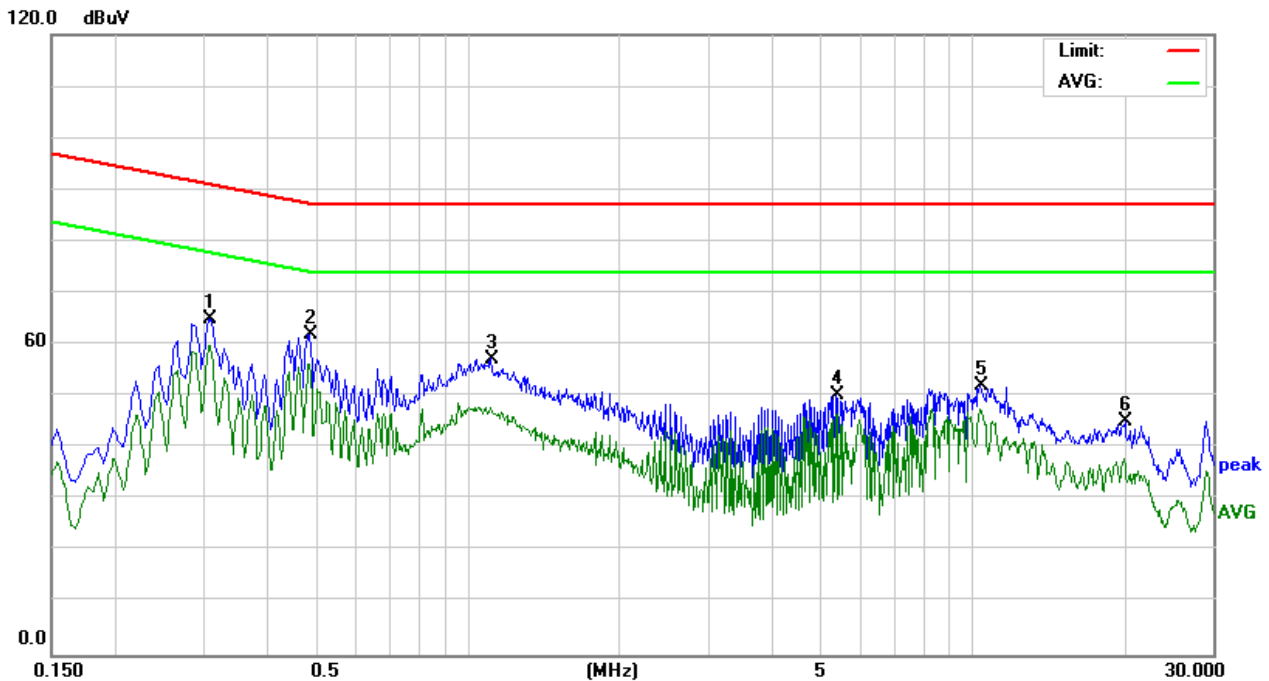
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
1.0499	30.88	19.86	50.74	87.00	-36.26	P
1.3733	31.38	19.86	51.24	87.00	-35.76	P
7.8135	36.80	19.88	56.68	87.00	-30.32	P
10.0004	51.59	19.88	71.47	87.00	-15.53	P
11.5616	32.26	19.93	52.19	87.00	-34.81	P
29.9984	34.13	20.49	54.62	87.00	-32.38	P

Model No.	PM2070C51	6dB Bandwidth	9 kHz
Environmental Conditions	25.3°C, 56% RH	Test Mode	Mode 12
Tested by	Jacky Lin	Standard	EN IEC 61000-6-4



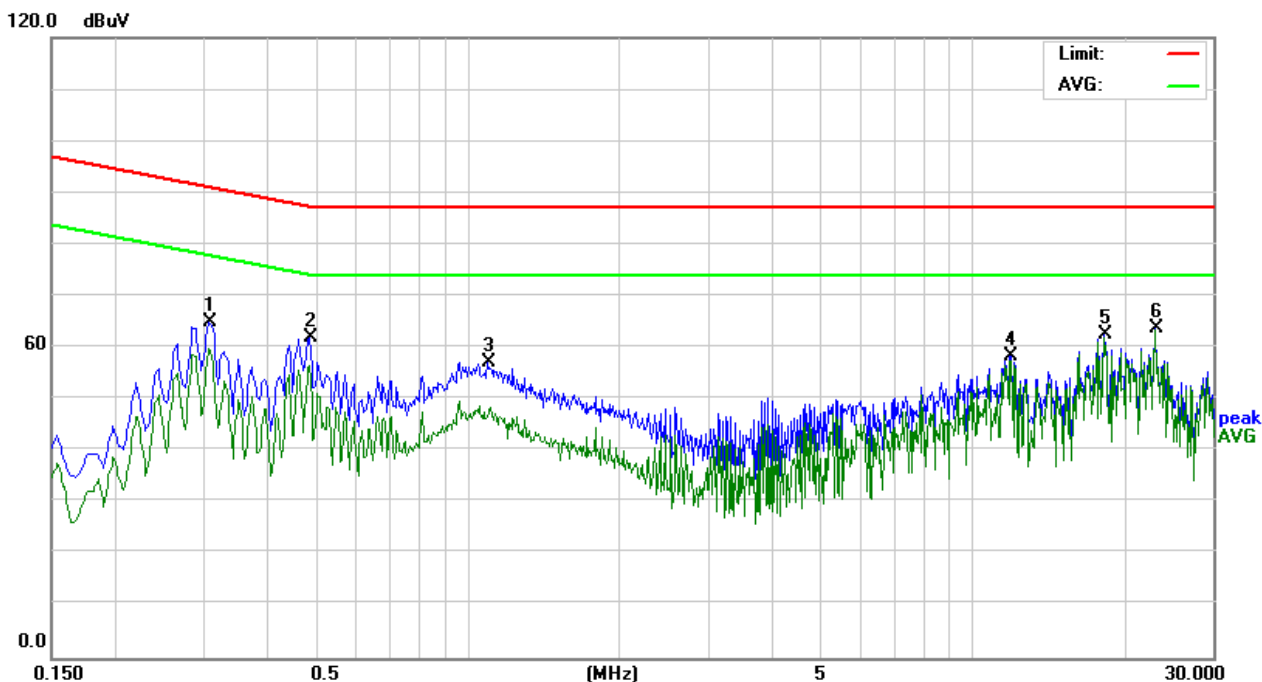
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
13.4205	36.34	19.99	56.33	87.00	-30.67	P
16.2285	37.77	20.05	57.82	87.00	-29.18	P
18.2439	38.03	20.09	58.12	87.00	-28.88	P
19.7115	37.36	20.11	57.47	87.00	-29.53	P
23.1310	36.82	20.24	57.06	87.00	-29.94	P
28.0137	35.53	20.42	55.95	87.00	-31.05	P

Model No.	PM2070B51	6dB Bandwidth	9 kHz
Environmental Conditions	22.3°C, 62% RH	Test Mode	Mode 13
Tested by	Ian Su	Standard	EN IEC 61000-6-4



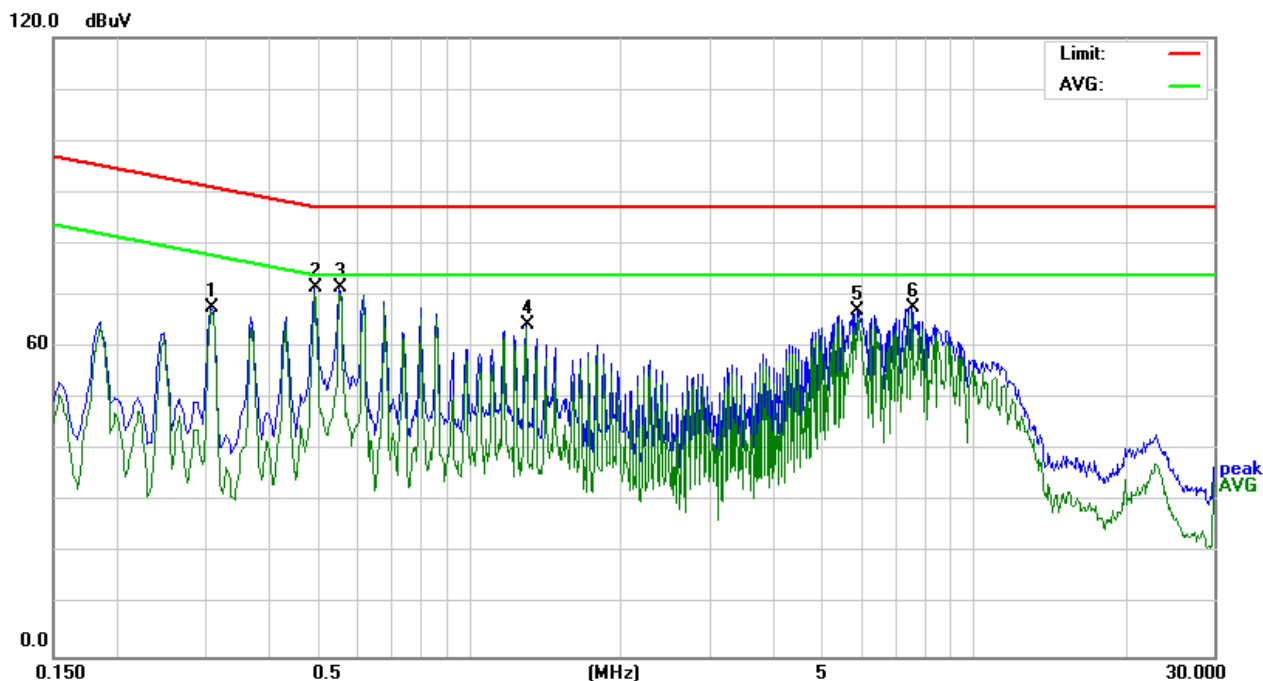
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
0.3075	44.97	20.07	65.04	91.04	-26.00	P
0.4875	41.94	19.98	61.92	87.21	-25.29	P
1.1130	37.38	19.92	57.30	87.00	-29.70	P
5.3745	30.48	19.92	50.40	87.00	-36.60	P
10.3784	32.17	19.98	52.15	87.00	-34.85	P
20.1390	25.09	20.18	45.27	87.00	-41.73	P

Model No.	PM2070B51	6dB Bandwidth	9 kHz
Environmental Conditions	22.3°C, 62% RH	Test Mode	Mode 14
Tested by	Ian Su	Standard	EN IEC 61000-6-4



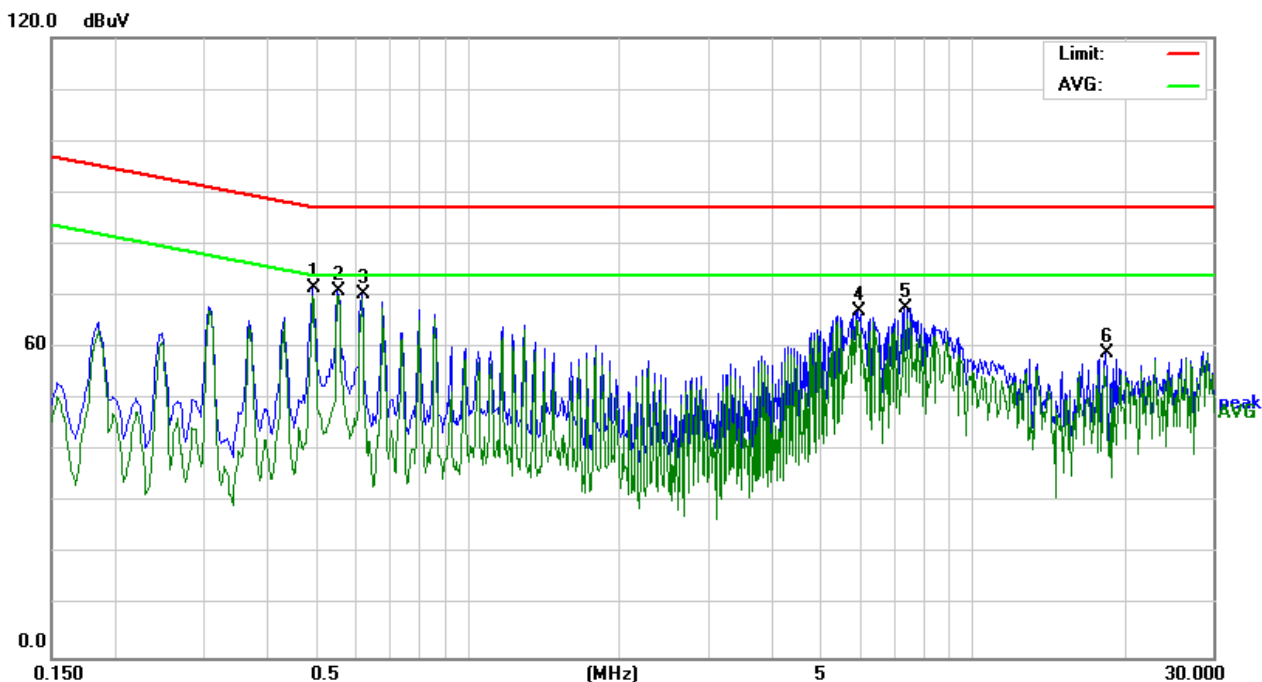
Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
0.3075	45.01	20.07	65.08	91.04	-25.96	P
0.4875	42.12	19.98	62.10	87.21	-25.11	P
1.0949	37.28	19.92	57.20	87.00	-29.80	P
11.8950	38.38	20.02	58.40	87.00	-28.60	P
18.2445	42.41	20.16	62.57	87.00	-24.43	P
23.1315	43.47	20.30	63.77	87.00	-23.23	P

Model No.	PM2070B51	6dB Bandwidth	9 kHz
Environmental Conditions	22.3°C, 62% RH	Test Mode	Mode 15
Tested by	Ian Su	Standard	EN IEC 61000-6-4



Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
0.3075	47.66	20.07	67.73	91.04	-23.31	P
0.4965	51.50	19.98	71.48	87.06	-15.58	P
0.5550	51.70	19.96	71.66	87.00	-15.34	P
1.2975	44.37	19.92	64.29	87.00	-22.71	P
5.8695	46.99	19.93	66.92	87.00	-20.08	P
7.5390	47.80	19.94	67.74	87.00	-19.26	P

Model No.	PM2070B51	6dB Bandwidth	9 kHz
Environmental Conditions	22.3°C, 62% RH	Test Mode	Mode 16
Tested by	Ian Su	Standard	EN IEC 61000-6-4



Conducted Emission Readings						
Frequency Range Investigated				150 kHz to 30 MHz		
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
0.4965	51.48	19.98	71.46	87.06	-15.60	P
0.5549	51.05	19.96	71.01	87.00	-15.99	P
0.6179	50.32	19.96	70.28	87.00	-16.72	P
5.9325	47.04	19.93	66.97	87.00	-20.03	P
7.3545	47.80	19.94	67.74	87.00	-19.26	P
18.3660	38.72	20.16	58.88	87.00	-28.12	P

7.3. RADIATED EMISSION MEASUREMENT

7.3.1. LIMITS

Below 1GHz

FREQUENCY (MHz)	dBuV/m (At 10m)
30 ~ 230	40
230 ~ 1000	47

Above 1GHz

FREQUENCY (MHz)	dBuV/m (At 3m)	
	Average	Peak
1000 ~ 3000	56	76
3000 ~ 6000	60	80

NOTE: The lower limit shall apply at the transition frequencies.

Highest frequency generated or used within the EUT or on which the EUT operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Less than 108	1000
108-500	2000
500-1000	5000
Above 1000	If the highest internal frequency of the EUT is above 1 GHz, the measurement shall be made up to 6 GHz

7.3.2. TEST INSTRUMENTS

PM2071B51 & PM2071C51 & PM2070C51

Open Area Test Site # H				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Bilog Antenna	Teseq	CBL 6112D	35411	05/17/2023
Cable	EMEC	CFD400E-LW	SD-R074	08/10/2023
EMI Test Receiver	R&S	ESCI	101340	02/03/2024
Pre-Amplifier	HP	8447D	1937A01554	09/21/2023
Thermo-Hygro Meter	Wisewind	201A	No. 03	05/17/2023
Test S/W	EZ-EMC Ver.CCS-03A1			
Above 1GHz Used				
Horn Antenna	ETS	3117	00139062	07/05/2023
Microflex Cable x 7m	EMCI	EMC107-NM-NM-7000	SD-R077	07/04/2023
K-Type Cable x 1m	EMCI	EMC101G-KM-KM-1000	SD-R075	07/04/2023
Pre-Amplifier	Com-Power	PAM-118A	551041	06/27/2023
Signal Analyzer	R&S	FSV40	101269	06/23/2023
Thermo-Hygro Meter	Wisewind	201A	SD-R046	07/31/2023
Test S/W	EZ-EMC Ver.CCS-03A1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request.



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Open Area Test Site # H				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Bilog Antenna	Teseq	CBL 6112D	35411	05/03/2024
Cable	EMEC	CFD400E-LW	SD-R074	08/10/2023
EMI Test Receiver	R&S	ESCI	101340	02/03/2024
Pre-Amplifier	HP	8447D	1937A01554	09/21/2023
Thermo-Hygro Meter	Wisewind	201A	No. 03	05/22/2024
Test S/W	EZ-EMC Ver.CCS-03A1			
Above 1GHz Used				
Horn Antenna	ETS-Lindgren	3117	00139062	06/07/2024
Microflex Cable x 7m	JMT	LF01	SD-R089	06/06/2024
K-Type Cable x 1m	JMT	LK01	SD-R087	06/06/2024
Pre-Amplifier	Com-Power	PAM-118A	551041	06/06/2024
Signal Analyzer	R&S	FSV40	101269	06/06/2024
Thermo-Hygro Meter	Wisewind	201A	SD-R046	07/31/2023
Test S/W	EZ-EMC Ver.CCS-03A1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request.

7.3.3. TEST PROCEDURE

Procedure of Preliminary Test

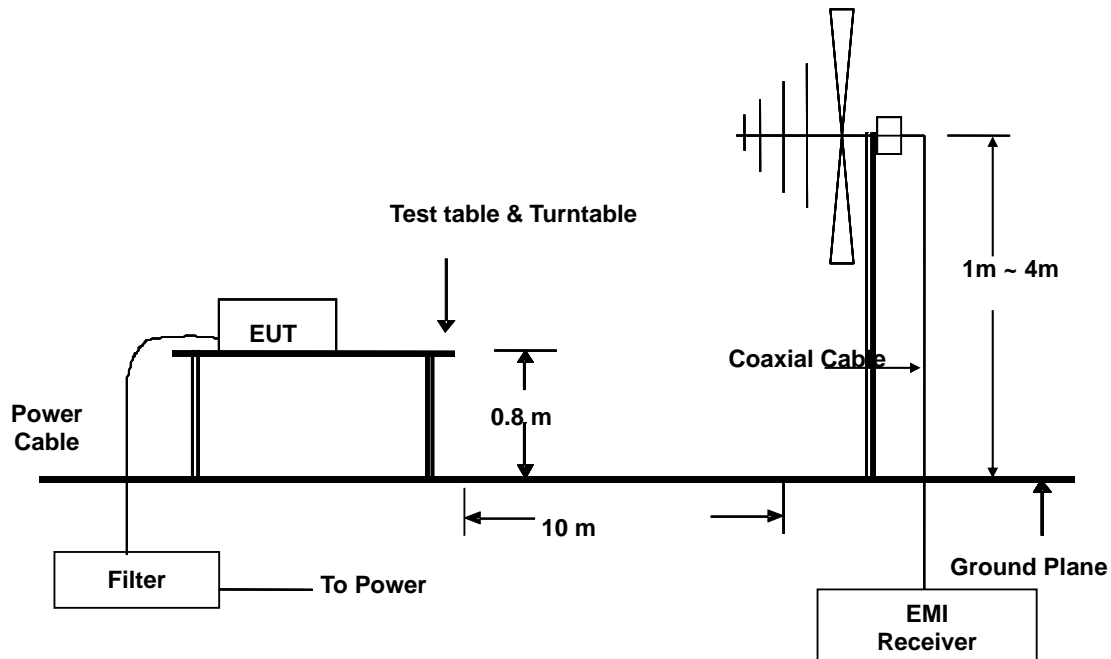
- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 15 cm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per CISPR 16-2-3.
- All I/O cables were positioned to simulate typical usage as per CISPR 16-2-3.
- The EUT received AC power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- The antenna was placed at 3 or 10 meter away from the EUT as stated in CISPR 16-2-3. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 6000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 4.1 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 4.1 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

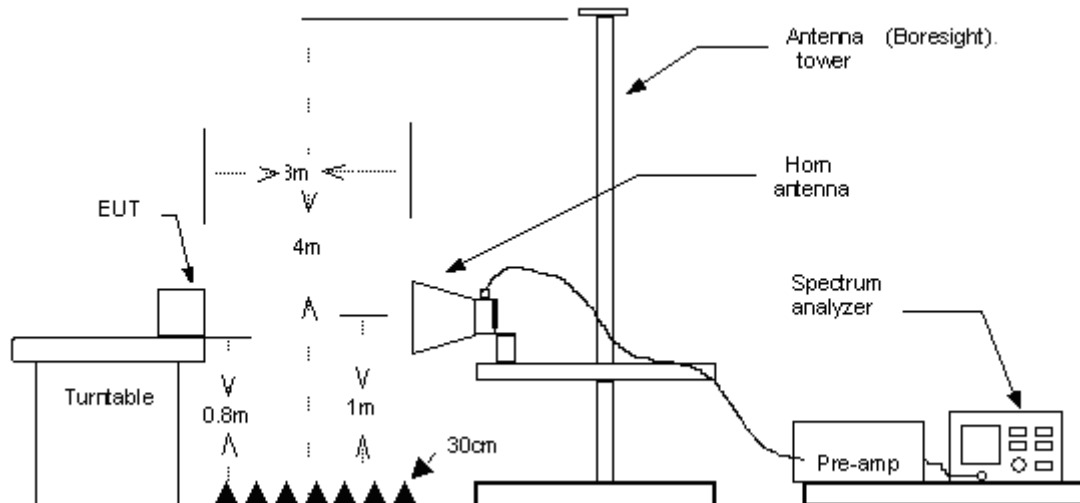
- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 6000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 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. Below 1GHz the Q.P. reading and above 1GHz the Peak and Average reading are presented.
- The test data of the worst-case condition(s) was recorded.

7.3.4. TEST SETUP

Below 1GHz



Above 1GHz



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

7.3.5. DATA SAMPLE

Below 1GHz

Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
x.xx	14.0	12.2	26.2	40	-13.8	Q	H

Above 1GHz

Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
x.xx	42.95	0.55	43.50	60	-16.50	A	H

Freq. = Emission frequency in MHz
 Reading = Uncorrected Analyzer/Receiver reading
 Factor = Antenna Factor + Cable Loss - Amplifier Gain
 Result = Reading + Factor
 Limit = Limit stated in standard
 Margin = Reading in reference to limit
 P = Peak Reading
 Q = Quasi-peak Reading
 A = Average Reading
 H = Antenna Polarization: Horizontal
 V = Antenna Polarization: Vertical

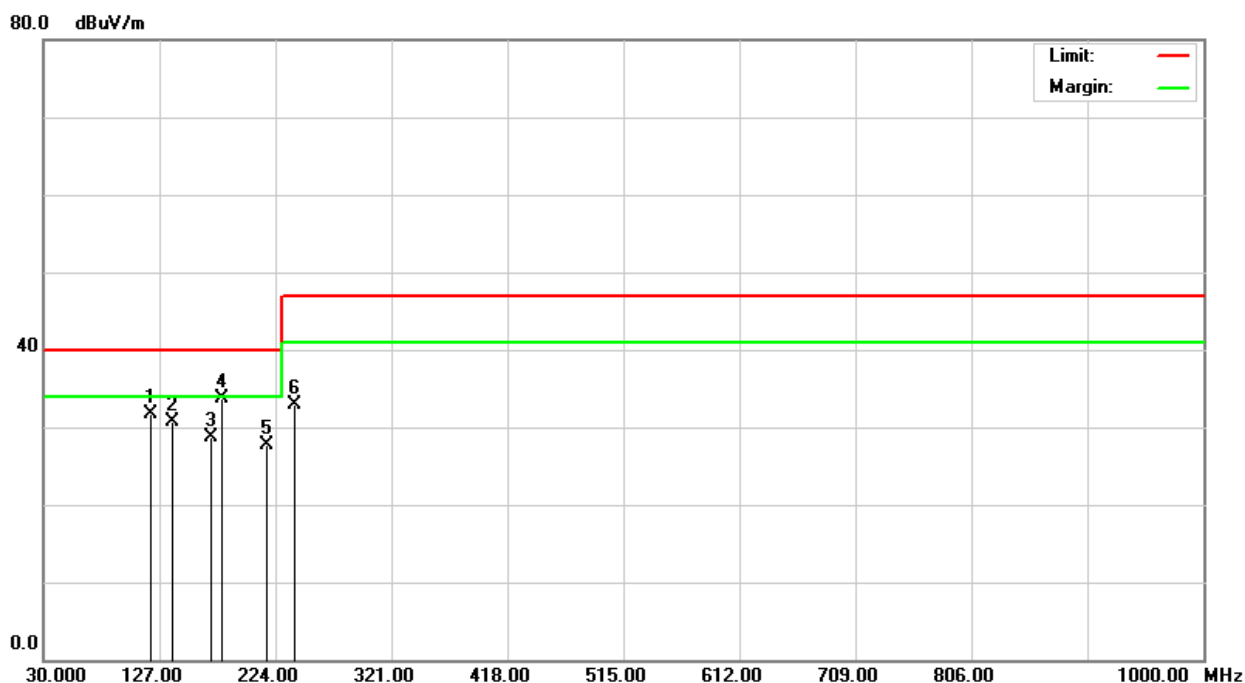
Calculation Formula

Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)

7.3.6. TEST RESULTS

Below 1GHz

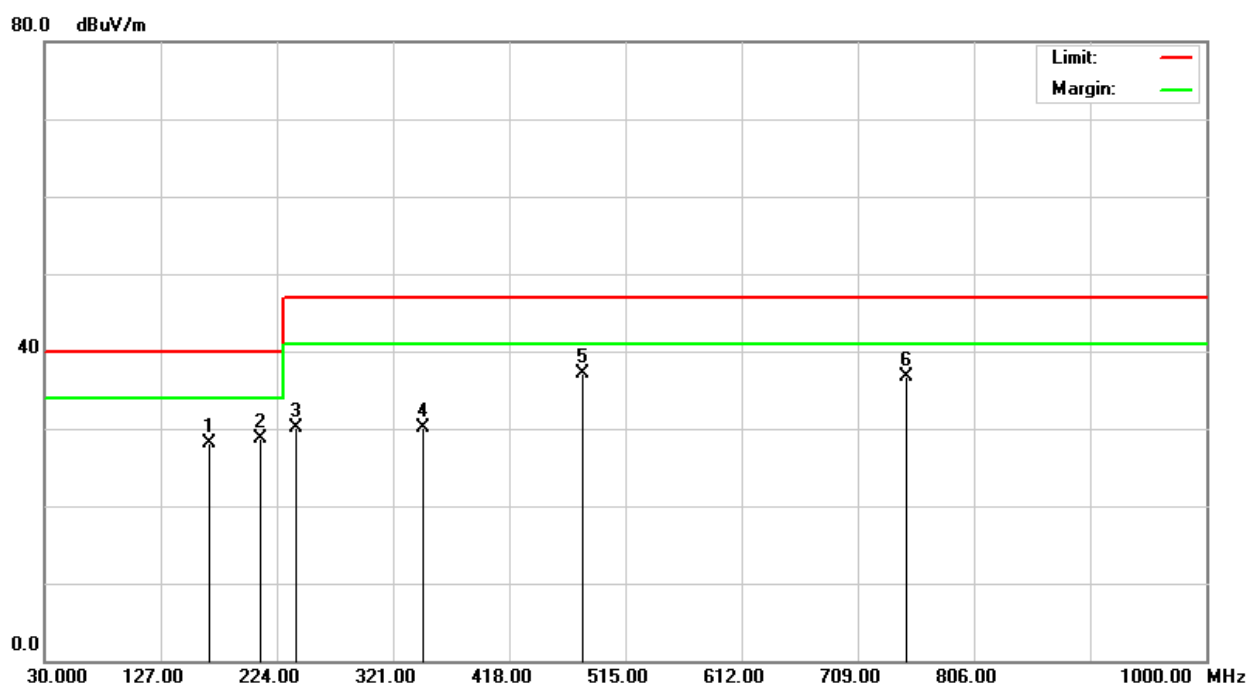
Model No.	PM2071B51	Test Mode	Mode 1
Environmental Conditions	22.3°C, 68% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Cheng
Standard	EN IEC 61000-6-4		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
120.0020	39.70	-7.91	31.79	40.00	-8.21	100	123	Q	V
138.3200	39.40	-8.68	30.72	40.00	-9.28	100	255	Q	V
170.9400	39.00	-10.37	28.63	40.00	-11.37	100	84	Q	V
180.0020	44.40	-10.72	33.68	40.00	-6.32	100	305	Q	V
216.5000	38.20	-10.57	27.63	40.00	-12.37	100	149	Q	V
240.0040	41.20	-8.38	32.82	47.00	-14.18	100	282	Q	V

Note: P= Peak Reading; Q= Quasi-peak Reading.

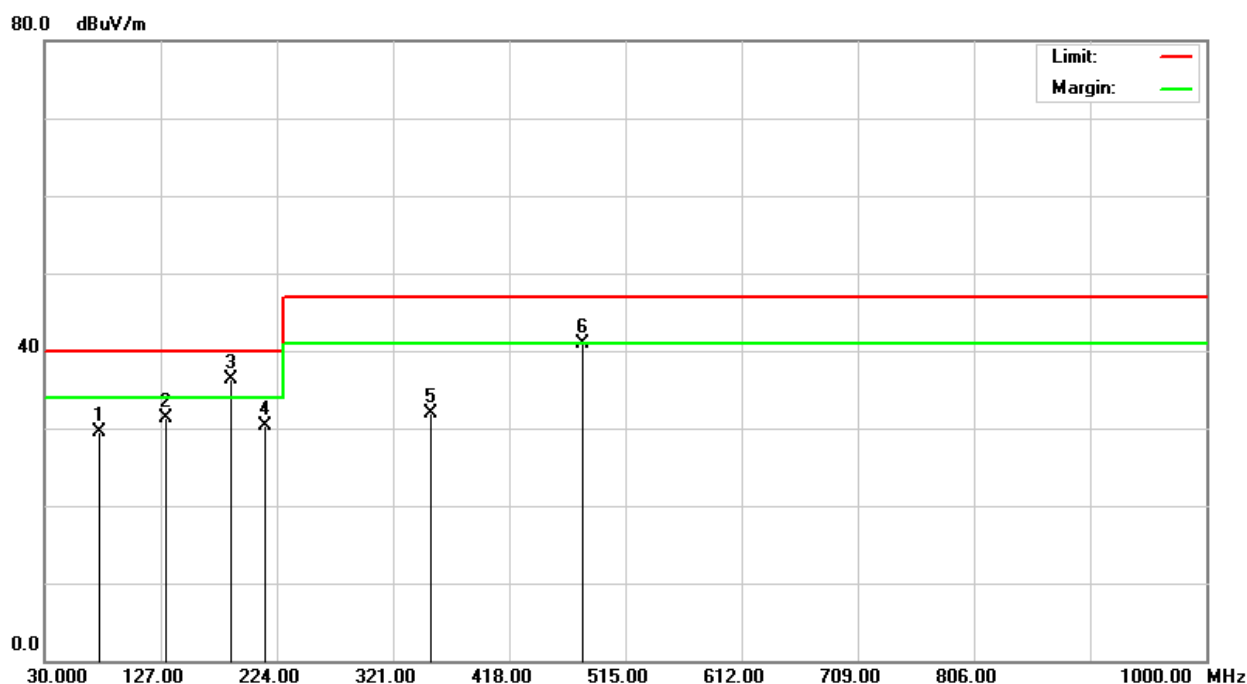
Model No.	PM2071B51	Test Mode	Mode 1
Environmental Conditions	22.3°C, 68% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Cheng
Standard	EN IEC 61000-6-4		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
167.4600	38.40	-10.29	28.11	40.00	-11.89	400	111	Q	H
210.0020	39.00	-10.39	28.61	40.00	-11.39	400	57	Q	H
240.0020	38.50	-8.38	30.12	47.00	-16.88	400	292	Q	H
345.6400	35.00	-4.84	30.16	47.00	-16.84	400	345	Q	H
480.0020	38.30	-1.19	37.11	47.00	-9.89	100	61	Q	H
750.0020	34.50	2.23	36.73	47.00	-10.27	100	206	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

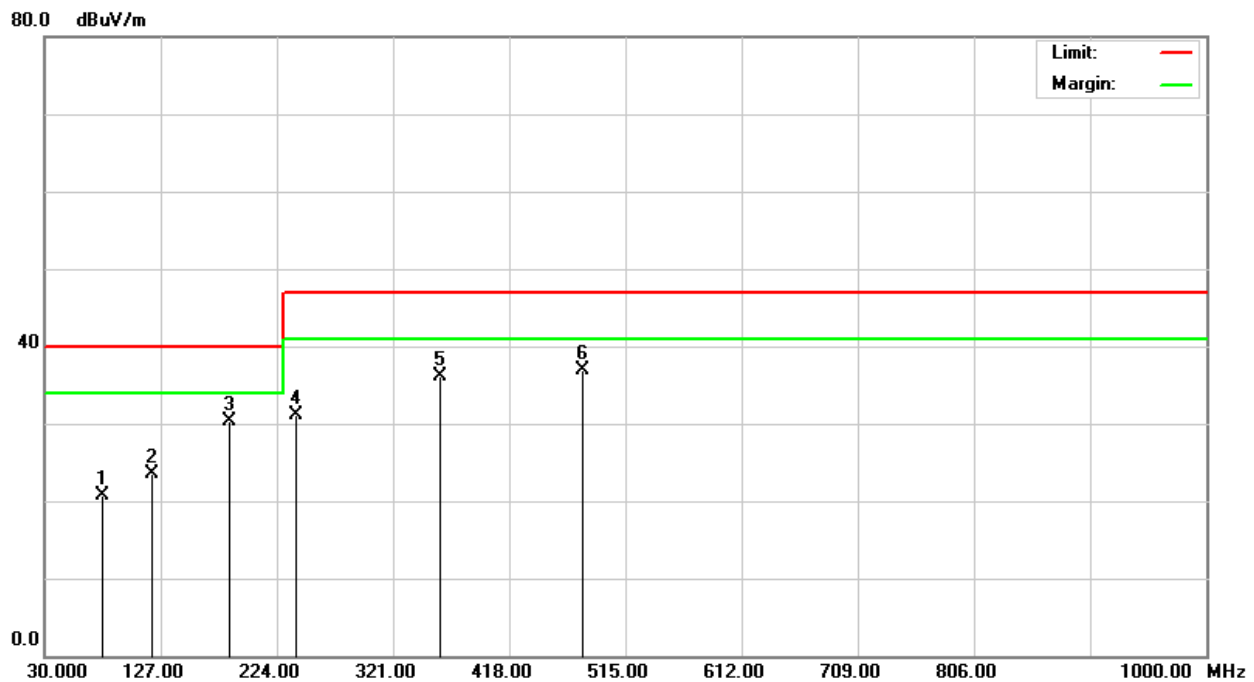
Model No.	PM2071C51	Test Mode	Mode 2 / Worst
Environmental Conditions	22.3°C, 68% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Cheng
Standard	EN IEC 61000-6-4		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
75.3399	43.50	-14.07	29.43	40.00	-10.57	100	272	Q	V
131.2800	39.50	-8.15	31.35	40.00	-8.65	100	193	Q	V
185.9600	47.30	-10.97	36.33	40.00	-3.67	100	55	Q	V
213.9600	41.00	-10.61	30.39	40.00	-9.61	100	264	Q	V
352.2600	36.50	-4.63	31.87	47.00	-15.13	100	338	Q	V
480.0020	42.00	-1.19	40.81	47.00	-6.19	400	81	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

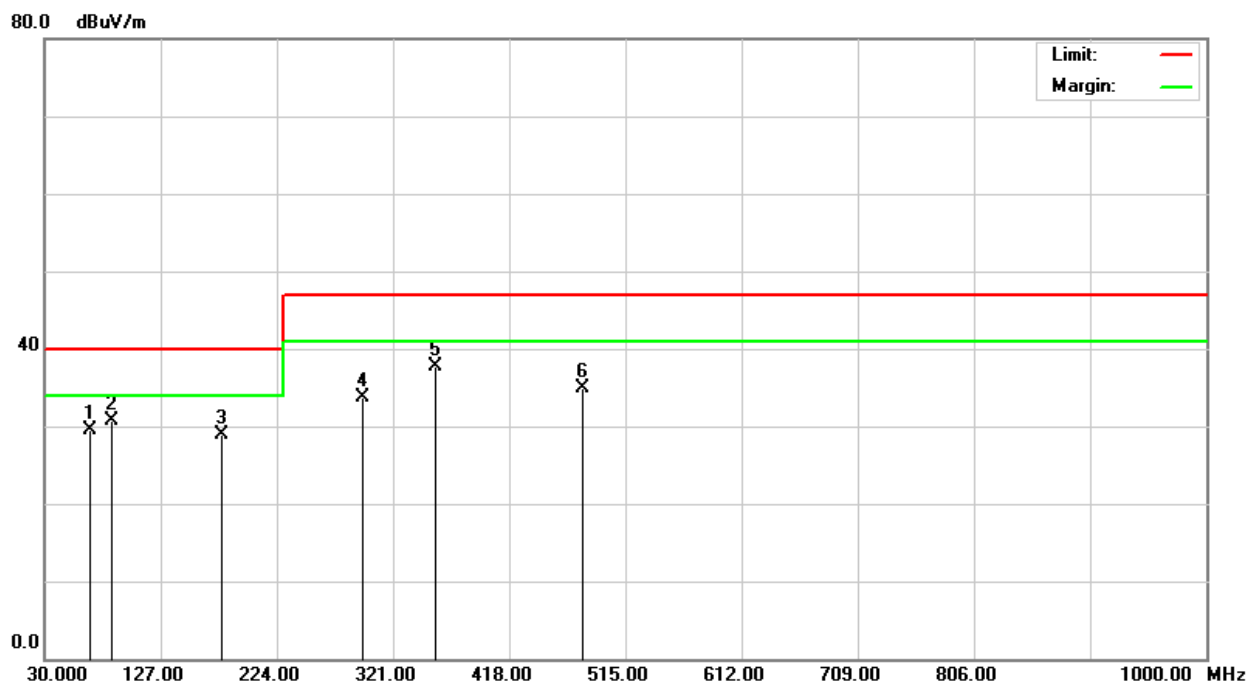
Model No.	PM2071C51	Test Mode	Mode 2 / Worst
Environmental Conditions	22.3°C, 68% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Cheng
Standard	EN IEC 61000-6-4		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
77.8600	34.60	-13.98	20.62	40.00	-19.38	400	349	Q	H
120.0020	31.50	-7.91	23.59	40.00	-16.41	400	77	Q	H
184.9800	41.10	-10.87	30.23	40.00	-9.77	400	225	Q	H
240.0040	39.40	-8.38	31.02	47.00	-15.98	400	164	Q	H
360.0020	40.30	-4.20	36.10	47.00	-10.90	400	273	Q	H
480.0000	38.10	-1.19	36.91	47.00	-10.09	100	190	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

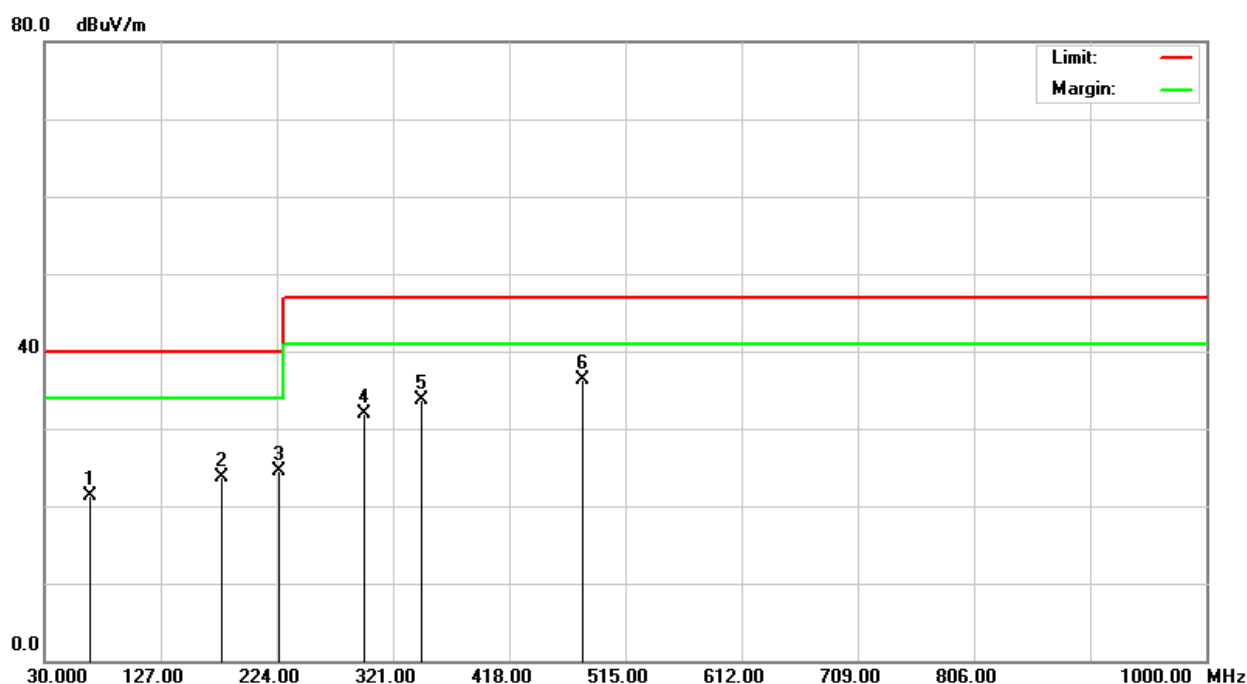
Model No.	PM2070C51	Test Mode	Mode 3
Environmental Conditions	22.3°C, 68% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Cheng
Standard	EN IEC 61000-6-4		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
68.6400	43.70	-14.13	29.57	40.00	-10.43	100	317	Q	V
85.9200	43.40	-12.74	30.66	40.00	-9.34	100	48	Q	V
177.9200	39.70	-10.71	28.99	40.00	-11.01	100	266	Q	V
295.5200	39.80	-6.06	33.74	47.00	-13.26	100	193	Q	V
357.0040	42.10	-4.39	37.71	47.00	-9.29	100	275	Q	V
480.0000	36.00	-1.19	34.81	47.00	-12.19	400	150	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Model No.	PM2070C51	Test Mode	Mode 3
Environmental Conditions	22.3°C, 68% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Cheng
Standard	EN IEC 61000-6-4		



Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
68.5800	35.50	-14.11	21.39	40.00	-18.61	400	271	Q	H
177.6600	34.40	-10.66	23.74	40.00	-16.26	400	155	Q	H
226.2800	34.30	-9.82	24.48	40.00	-15.52	400	239	Q	H
297.0200	38.00	-6.02	31.98	47.00	-15.02	400	340	Q	H
344.7400	38.50	-4.86	33.64	47.00	-13.36	400	56	Q	H
480.0020	37.40	-1.19	36.21	47.00	-10.79	100	122	Q	H

Note: P= Peak Reading; Q= Quasi-peak Reading.

Model No.	PM2070B51	Test Mode	Mode 4
Environmental Conditions	31.7°C, 64% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Ian Su
Standard	EN IEC 61000-6-4		

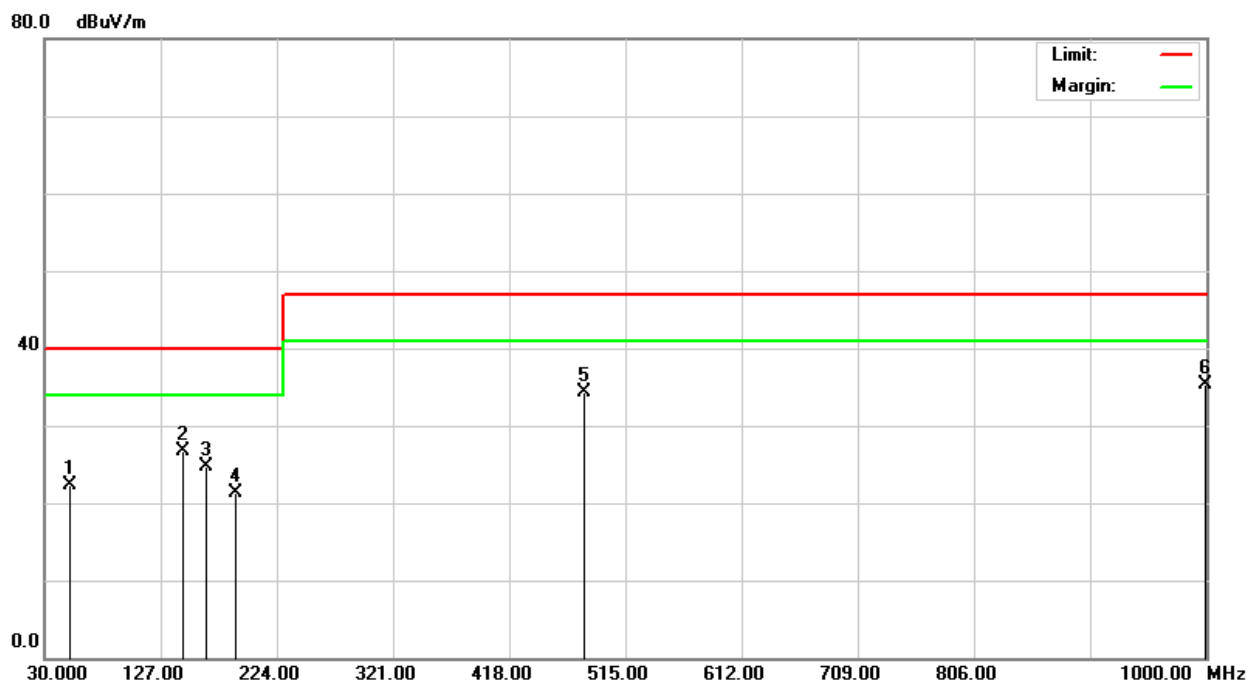


Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
32.4400	37.10	-3.22	33.88	40.00	-6.12	100	124	Q	V
75.4100	49.60	-13.72	35.88	40.00	-4.12	100	56	Q	V
239.6800	37.20	-8.22	28.98	47.00	-18.02	100	98	Q	V
352.1400	36.20	-4.63	31.57	47.00	-15.43	100	134	Q	V
480.1600	42.50	-1.09	41.41	47.00	-5.59	400	44	Q	V
690.4699	30.30	1.72	32.02	47.00	-14.98	400	174	Q	V

Note: 1. 30MHz to 1000MHz test is Applicable CISPR 22 standard.

2. P= Peak Reading; Q= Quasi-peak Reading.

Model No.	PM2070B51	Test Mode	Mode 4
Environmental Conditions	31.7°C, 64% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Ian Su
Standard	EN IEC 61000-6-4		

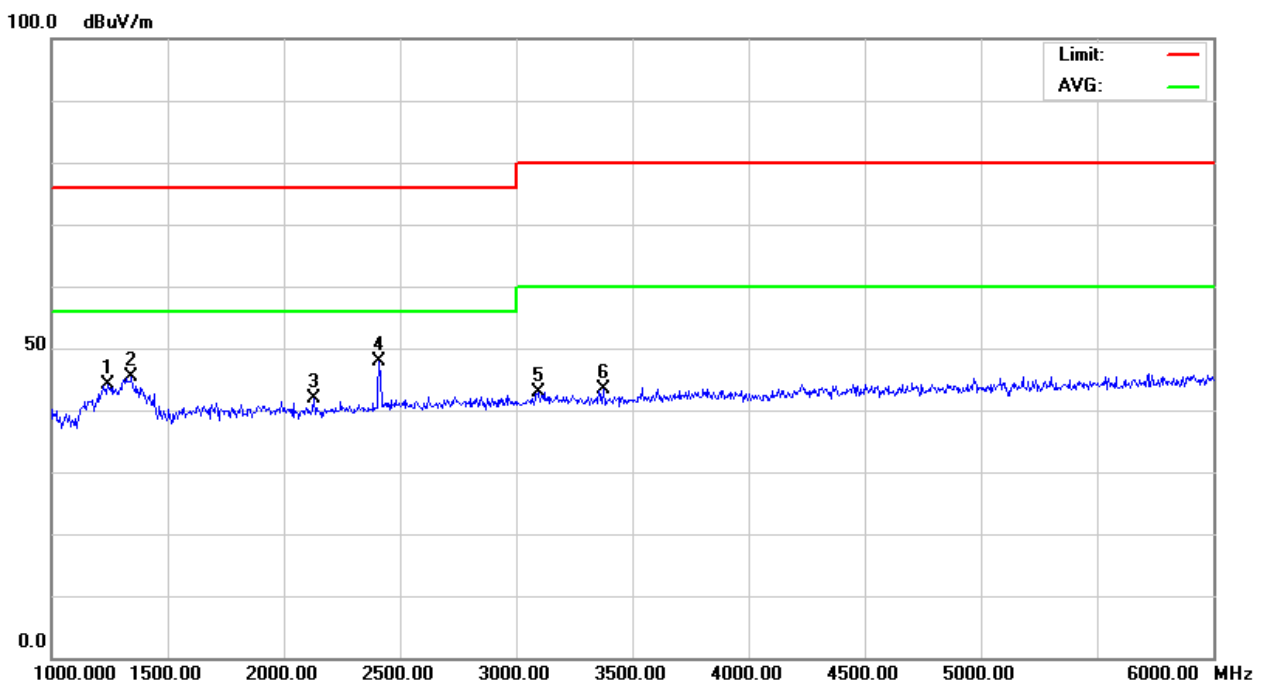


Radiated Emission Readings									
Frequency Range Investigated					30 MHz to 1000 MHz at 10m				
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Detector (P/Q)	Pol. (H/V)
51.0200	34.60	-12.31	22.29	40.00	-17.71	400	152	Q	H
145.3600	35.80	-9.14	26.66	40.00	-13.34	400	68	Q	H
165.5800	34.70	-10.04	24.66	40.00	-15.34	400	134	Q	H
189.3700	32.10	-10.70	21.40	40.00	-18.60	400	56	Q	H
480.2600	35.30	-1.08	34.22	47.00	-12.78	100	98	Q	H
999.6900	30.70	4.52	35.22	47.00	-11.78	100	114	Q	H

Note: 1. 30MHz to 1000MHz test is Applicable CISPR 22 standard.
2. P= Peak Reading; Q= Quasi-peak Reading

Above 1GHz

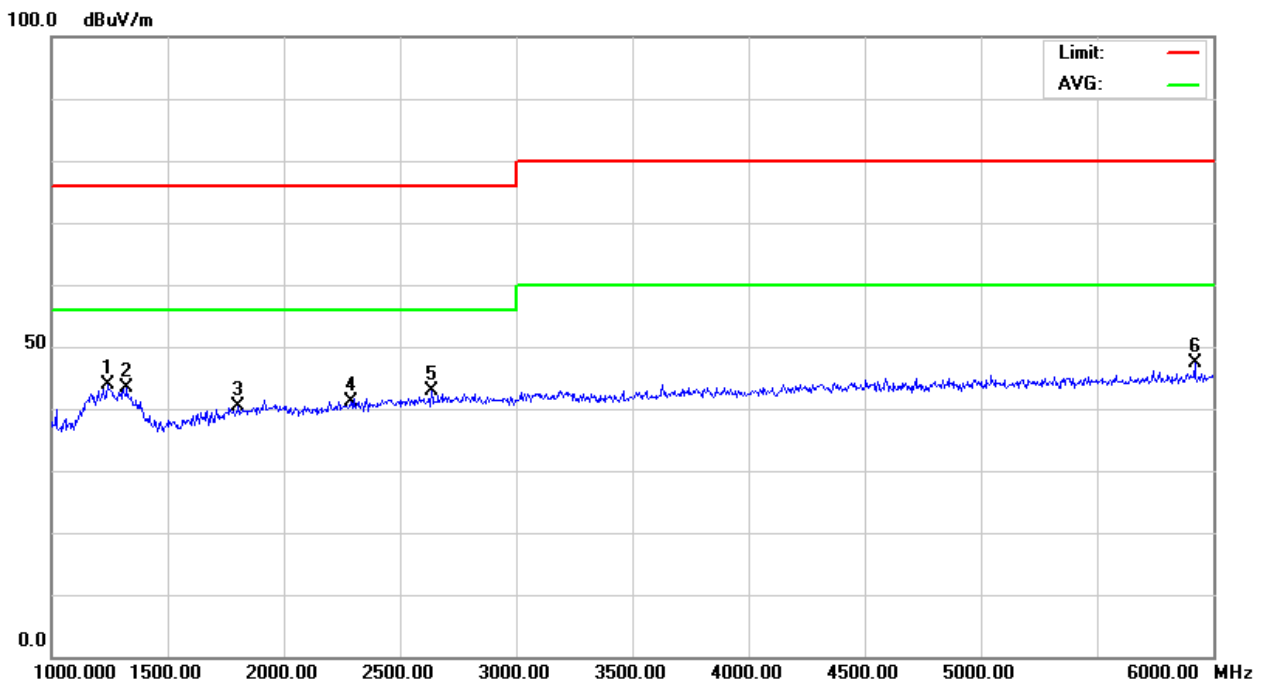
Model No.	PM2071B51	Test Mode	Mode 1
Environmental Conditions	21.6°C, 72% RH	6dB Bandwidth	1 MHz
Antenna Pole	Vertical	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Pipo Hou
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1240.000	51.70	-7.68	44.02	76.00	-31.98	P	V
1345.000	53.01	-7.74	45.27	76.00	-30.73	P	V
2130.000	47.12	-5.30	41.82	76.00	-34.18	P	V
2410.000	52.06	-4.26	47.80	76.00	-28.20	P	V
3095.000	46.26	-3.35	42.91	80.00	-37.09	P	V
3375.000	47.31	-3.85	43.46	80.00	-36.54	P	V

Note: P= Peak Reading; A= Average Reading.

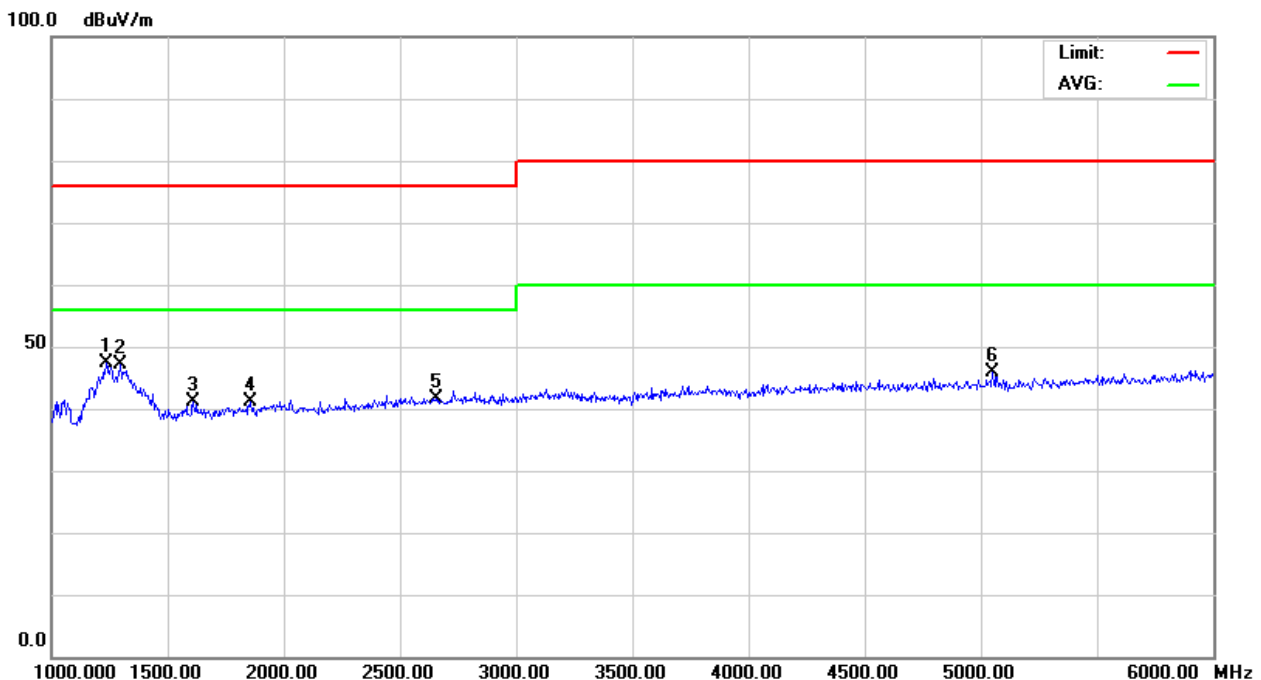
Model No.	PM2071B51	Test Mode	Mode 1
Environmental Conditions	21.6°C, 72% RH	6dB Bandwidth	1 MHz
Antenna Pole	Horizontal	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Pipo Hou
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1240.000	51.45	-7.68	43.77	76.00	-32.23	P	H
1325.000	51.01	-7.67	43.34	76.00	-32.66	P	H
1805.000	45.94	-5.46	40.48	76.00	-35.52	P	H
2290.000	45.77	-4.59	41.18	76.00	-34.82	P	H
2635.000	46.67	-3.91	42.76	76.00	-33.24	P	H
5920.000	46.98	0.39	47.37	80.00	-32.63	P	H

Note: P= Peak Reading; A= Average Reading.

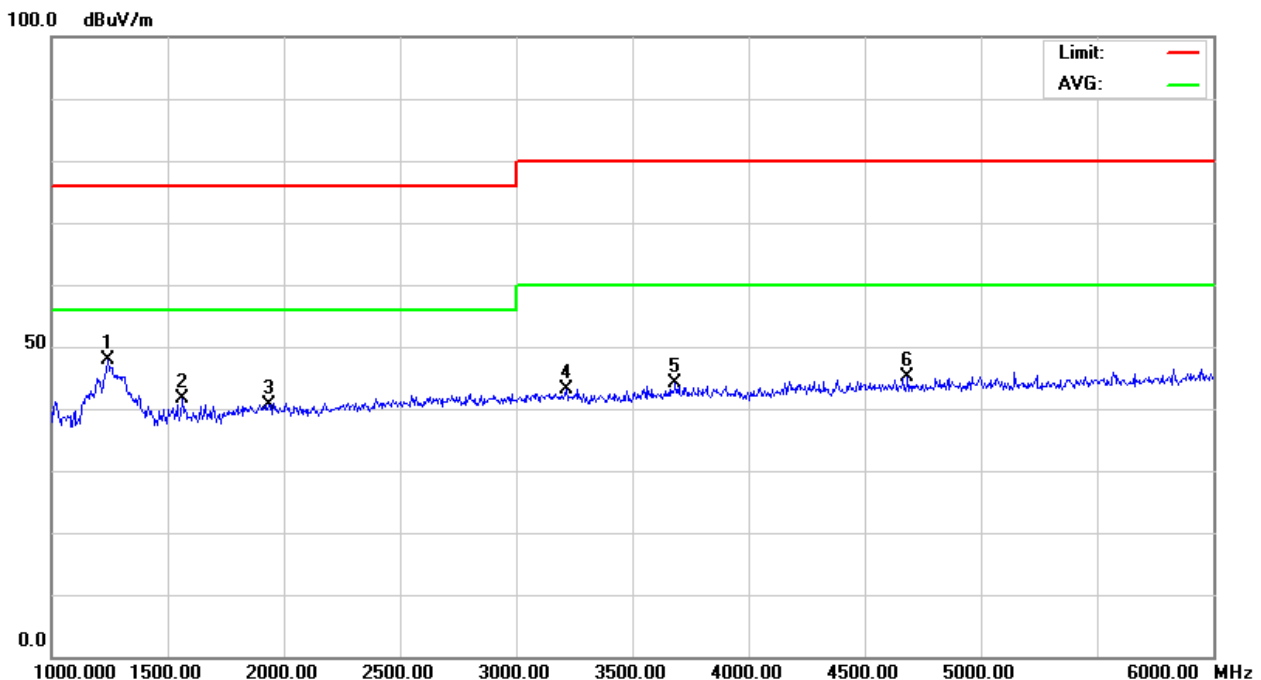
Model No.	PM2071C51	Test Mode	Mode 2 / Worst
Environmental Conditions	21.6°C, 72% RH	6dB Bandwidth	1 MHz
Antenna Pole	Vertical	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Pipo Hou
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1235.000	55.16	-7.67	47.49	76.00	-28.51	P	V
1295.000	54.79	-7.59	47.20	76.00	-28.80	P	V
1610.000	48.80	-7.63	41.17	76.00	-34.83	P	V
1855.000	46.25	-5.17	41.08	76.00	-34.92	P	V
2655.000	45.50	-3.89	41.61	76.00	-34.39	P	V
5050.000	46.80	-1.01	45.79	80.00	-34.21	P	V

Note: P= Peak Reading; A= Average Reading.

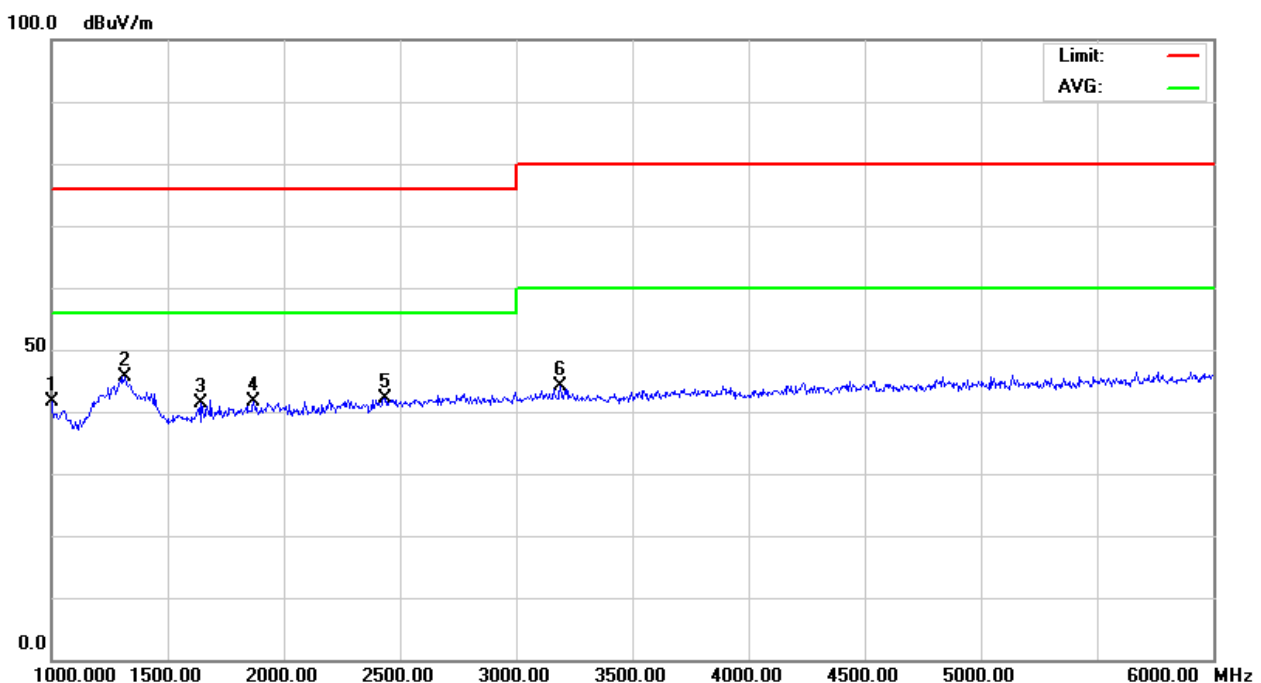
Model No.	PM2071C51	Test Mode	Mode 2 / Worst
Environmental Conditions	21.6°C, 72% RH	6dB Bandwidth	1 MHz
Antenna Pole	Horizontal	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Pipo Hou
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1245.000	55.59	-7.69	47.90	76.00	-28.10	P	H
1565.000	49.70	-7.98	41.72	76.00	-34.28	P	H
1935.000	45.42	-4.77	40.65	76.00	-35.35	P	H
3215.000	46.63	-3.48	43.15	80.00	-36.85	P	H
3685.000	47.31	-3.19	44.12	80.00	-35.88	P	H
4685.000	47.07	-1.87	45.20	80.00	-34.80	P	H

Note: P= Peak Reading; A= Average Reading.

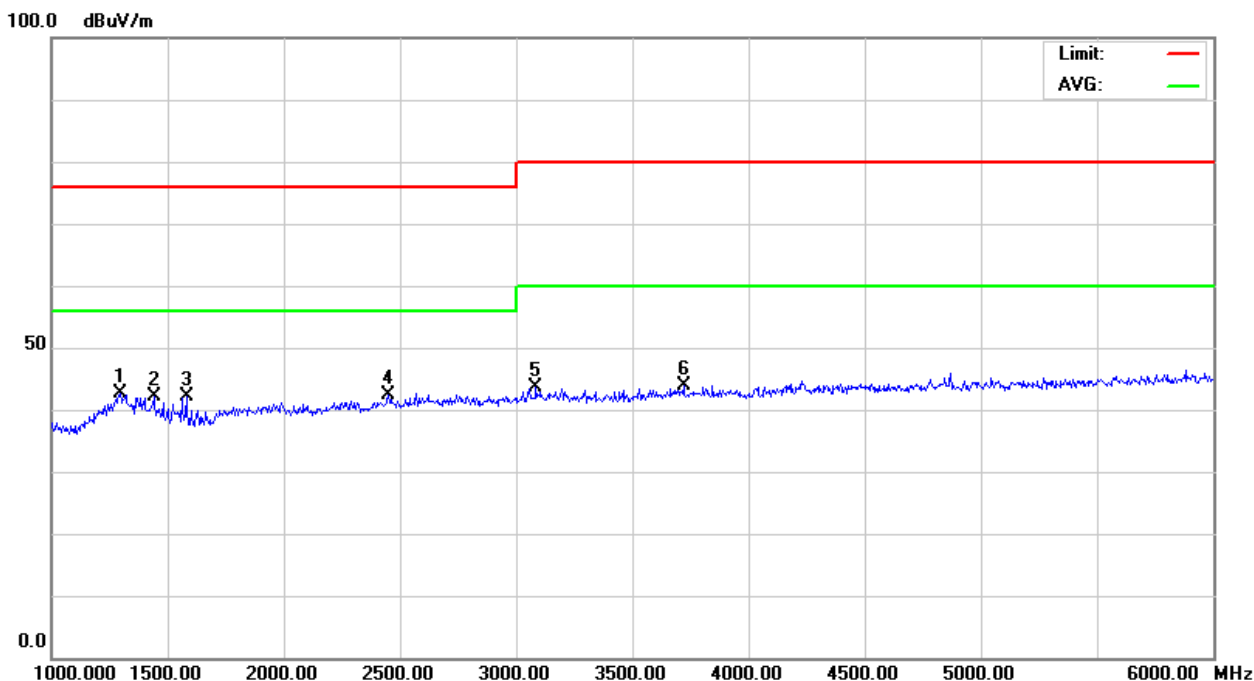
Model No.	PM2070C51	Test Mode	Mode 3
Environmental Conditions	21.6°C, 72% RH	6dB Bandwidth	1 MHz
Antenna Pole	Vertical	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Pipo Hou
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1000.000	50.31	-8.79	41.52	76.00	-34.48	P	V
1315.000	53.30	-7.63	45.67	76.00	-30.33	P	V
1645.000	48.75	-7.42	41.33	76.00	-34.67	P	V
1870.000	46.70	-5.11	41.59	76.00	-34.41	P	V
2435.000	46.24	-4.12	42.12	76.00	-33.88	P	V
3190.000	47.45	-3.44	44.01	80.00	-35.99	P	V

Note: P= Peak Reading; A= Average Reading.

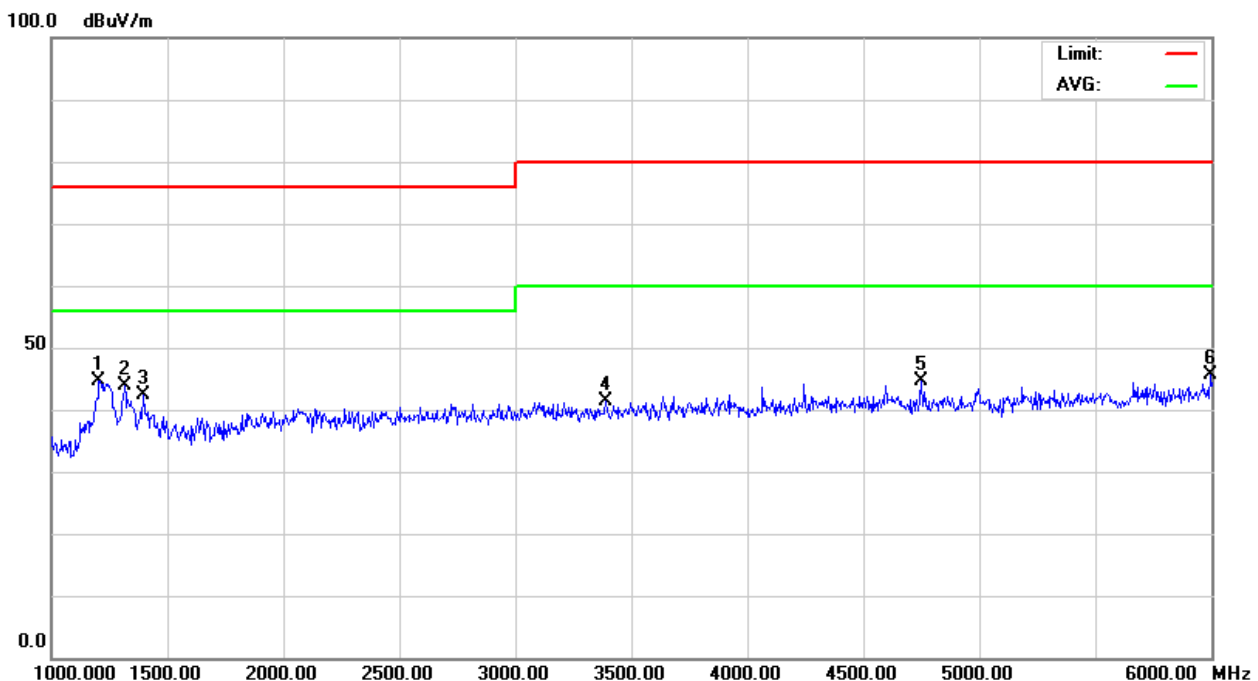
Model No.	PM2070C51	Test Mode	Mode 3
Environmental Conditions	21.6°C, 72% RH	6dB Bandwidth	1 MHz
Antenna Pole	Horizontal	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Pipo Hou
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1295.000	50.16	-7.59	42.57	76.00	-33.43	P	H
1440.000	50.59	-8.44	42.15	76.00	-33.85	P	H
1580.000	49.90	-7.85	42.05	76.00	-33.95	P	H
2450.000	46.37	-4.03	42.34	76.00	-33.66	P	H
3085.000	47.00	-3.40	43.60	80.00	-36.40	P	H
3720.000	46.88	-3.12	43.76	80.00	-36.24	P	H

Note: P= Peak Reading; A= Average Reading.

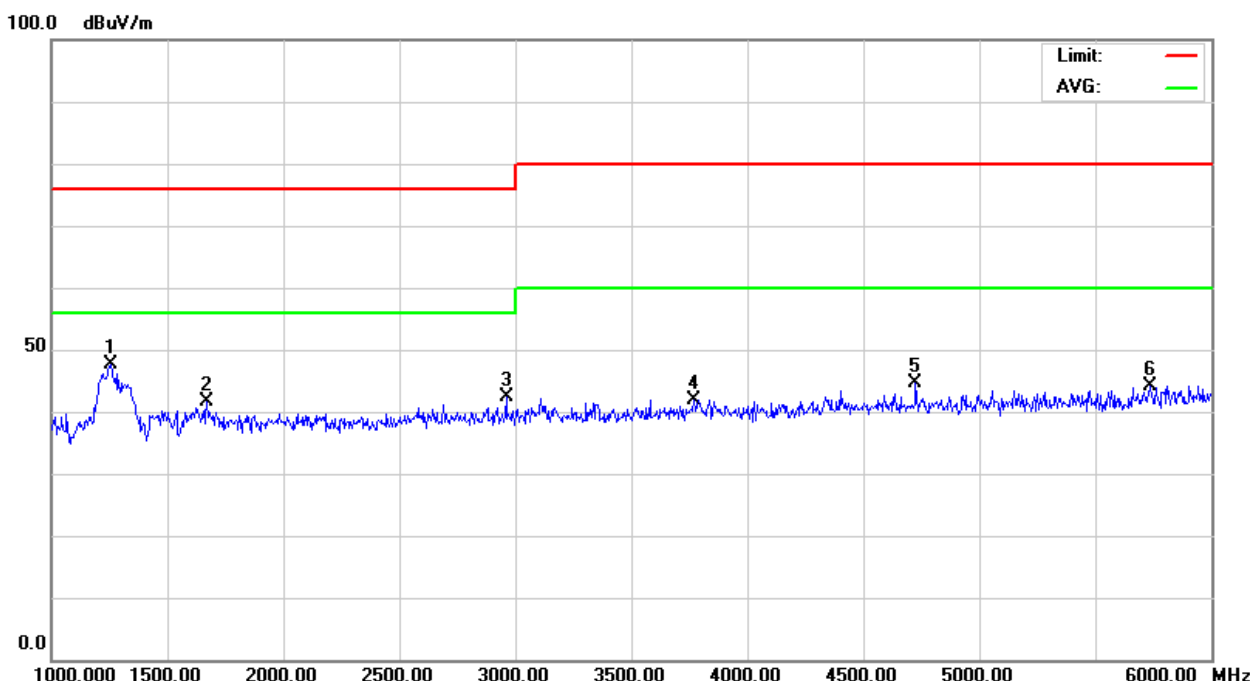
Model No.	PM2070B51	Test Mode	Mode 4
Environmental Conditions	23.4°C, 61% RH	6dB Bandwidth	1 MHz
Antenna Pole	Vertical	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Ian Su
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1205.000	53.05	-8.40	44.65	76.00	-31.35	P	V
1315.000	51.96	-8.11	43.85	76.00	-32.15	P	V
1395.000	50.82	-8.38	42.44	76.00	-33.56	P	V
3390.000	45.23	-3.87	41.36	80.00	-38.64	P	V
4750.000	46.61	-2.08	44.53	80.00	-35.47	P	V
5995.000	45.66	-0.09	45.57	80.00	-34.43	P	V

Note: P= Peak Reading; A= Average Reading.

Model No.	PM2070B51	Test Mode	Mode 4
Environmental Conditions	23.4°C, 61% RH	6dB Bandwidth	1 MHz
Antenna Pole	Horizontal	Antenna Distance	3m
Highest frequency generated or used	360MHz	Upper frequency	6000MHz
Detector Function	Peak and average.	Tested by	Ian Su
Standard	EN IEC 61000-6-4		



Radiated Emission Readings							
Frequency Range Investigated				Above 1GHz at 3m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
1255.000	55.95	-8.23	47.72	76.00	-28.28	P	H
1670.000	49.14	-7.59	41.55	76.00	-34.45	P	H
2960.000	46.53	-4.14	42.39	76.00	-33.61	P	H
3770.000	45.54	-3.68	41.86	80.00	-38.14	P	H
4725.000	46.73	-2.20	44.53	80.00	-35.47	P	H
5735.000	44.92	-0.69	44.23	80.00	-35.77	P	H

Note: P= Peak Reading; A= Average Reading.

7.4. HARMONICS CURRENT MEASUREMENT

7.4.1. LIMITS OF HARMONICS CURRENT MEASUREMENT

Limits for Class A equipment		Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current A	Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd harmonics		Odd Harmonics only		
3	2.30	3	3.4	2.30
5	1.14	5	1.9	1.14
7	0.77	7	1.0	0.77
9	0.40	9	0.5	0.40
11	0.33	11	0.35	0.33
13	0.21	13	0.30	0.21
15≤n≤39	0.15x15/n	15≤n≤39	3.85/n	0.15x15/n
Even harmonics				
2	1.08			
4	0.43			
6	0.30			
8≤n≤40	0.23x8/n			

NOTE: 1. Class A and Class D are classified according to item 7.4.3.

2. According to section 7 of EN IEC 61000-3-2 / BS EN IEC 61000-3-2, the above limits for all equipment except for lighting equipment having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

7.4.2. TEST INSTRUMENTS

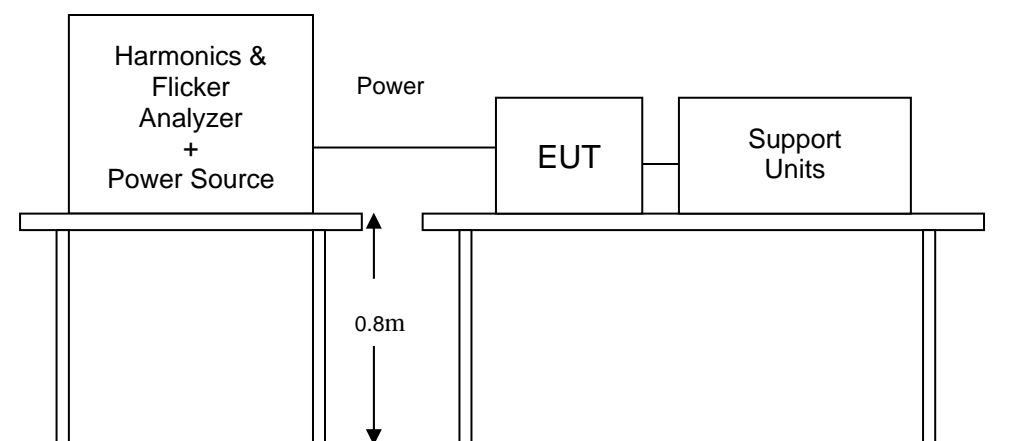
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

7.4.3. TEST PROCEDURE

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- The classification of EUT is according to section 5 of EN IEC 61000-3-2 / BS EN IEC 61000-3-2.
- The EUT is classified as follows:
 Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.
 Class B: Portable tools; Arc welding equipment which is not professional equipment.
 Class C: Lighting equipment.
 Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors; television receivers and refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).
- The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

7.4.4. TEST SETUP



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

7.4.5. TEST RESULTS

Power Consumption	N/A	Test Results	N/A
Environmental Conditions	N/A	Limits	Class <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	N/A	Tested by	N/A

NOTE: The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

7.5. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.5.1. LIMITS OF VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

TEST ITEM	LIMIT	REMARK
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3 %.
d_{max} (%)	4%	d_{max} means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

7.5.2. TEST INSTRUMENTS

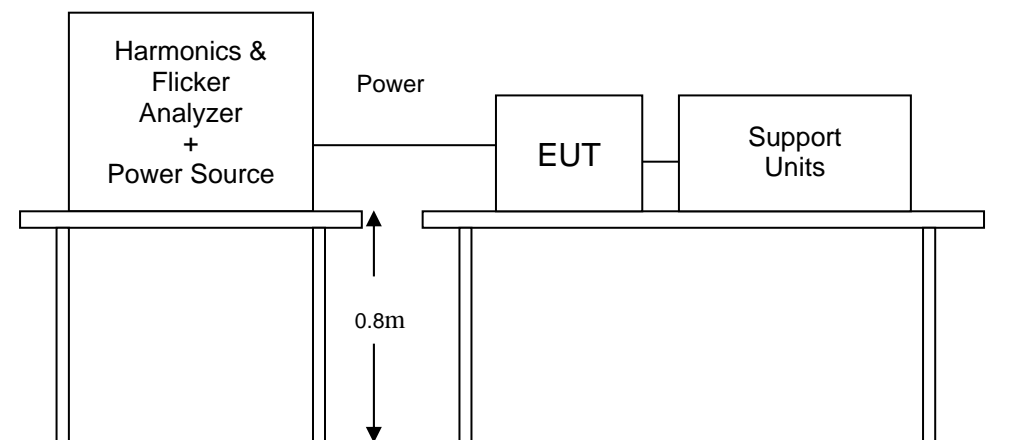
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

7.5.3. TEST PROCEDURE

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.
- During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

7.5.4. TEST SETUP



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

7.5.5. TEST RESULTS

Observation Period (Tp)	N/A	Test Mode	N/A
Environmental Conditions	N/A	Tested by	N/A

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	N/A	1.0	N/A
P _{lt}	N/A	0.65	N/A
T _{dt} (ms)	N/A	500	N/A
d _{max} (%)	N/A	4%	N/A
dc (%)	N/A	3.3%	N/A

NOTE: The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is applicable.

8 IMMUNITY TEST

8.1. GENERAL DESCRIPTION

Product Standard	EN IEC 61000-6-2: 2019 / BS EN IEC 61000-6-2: 2019	
	Test Type	Minimum Requirement
Basic Standard, Specification, and Performance Criterion required	IEC 61000-4-2	Electrostatic Discharge – ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80 ~ 1000 MHz, 10V/m, 80% AM(1kHz), 1400 ~ 6000 MHz, 3V/m, 80% AM(1kHz), Performance Criterion A
	IEC 61000-4-4	Electrical Fast Transient/Burst - EFT, AC Power Port: 2kV DC Power Port: 1kV Signal Port: 1kV Performance Criterion B According to special request by client: DC Power Port: 2kV
	IEC 61000-4-5	Surge Immunity Test: 1.2/50 μ s Open Circuit Voltage, 8/20 μ s Short Circuit Current, AC Power Port ~ line to line: 1kV, line to earth: 2kV DC Power Port ~ line to line: 0.5kV, line to earth: 1kV Signal Port ~ line to earth: 1kV Performance Criterion B
	IEC 61000-4-6	Conducted Radio Frequency Disturbances Test – CS, AC Power Port; DC Power Port; Signal Port: 0.15 ~ 80 MHz, 10Vrms, 80% AM, 1kHz, Performance Criterion A
	IEC 61000-4-8	Power frequency magnetic field immunity test 50Hz/60Hz, 30A/m Performance Criterion A
	IEC 61000-4-11	Voltage Dips: i) 0% residual for 1 cycle, Performance Criterion B ii) 40% residual for 10/12 cycles at 50/60Hz, Performance Criterion C iii) 70% residual for 25/30 cycles at 50/60Hz, Performance Criterion C Voltage Interruptions: 0% residual for 250/300 cycles at 50/60Hz Performance Criterion C

8.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION

Criteria A:	The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
Criteria B:	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
Criteria C:	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

8.3. ELECTROSTATIC DISCHARGE (ESD)

8.3.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge: 2 ; 4 ; 8 kV (Direct) Contact Discharge: 2 ; 4 kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Minimum 10 times at each test point
Discharge Mode:	Single Discharge 1 second minimum

8.3.2. TEST INSTRUMENT

PM2071B51 & PM2071C51 & PM2070C51

IMMUNITY SHIELDED ROOM				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Aneroid Barometer	SATO	7610-20	89090	08/03/2023
ESD Simulator	Teseq	NSG 438	1581	07/07/2023
Thermo-Hygro Meter	Wisewind	201A	SD-S041	12/22/2023

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

PM2070B51

IMMUNITY SHIELDED ROOM				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Aneroid Barometer	SATO	7610-20	89090	08/03/2023
ESD Simulator	Teseq	NSG 437	1812	12/18/2023
Thermo-Hygro Meter	Wisewind	201A	SD-S041	12/22/2023

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

8.3.3. TEST PROCEDURE

The discharges shall be applied in two ways:

a) Contact discharges to the conductive surfaces and coupling planes:

The EUT shall be exposed to at least 20 discharges, 10 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 10 indirect discharges to the center of the front edge of the **Horizontal Coupling Plane (HCP)**. The remaining three test points shall each receive at least 10 direct contact discharges. If no direct contact test points are available, then at least 20 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

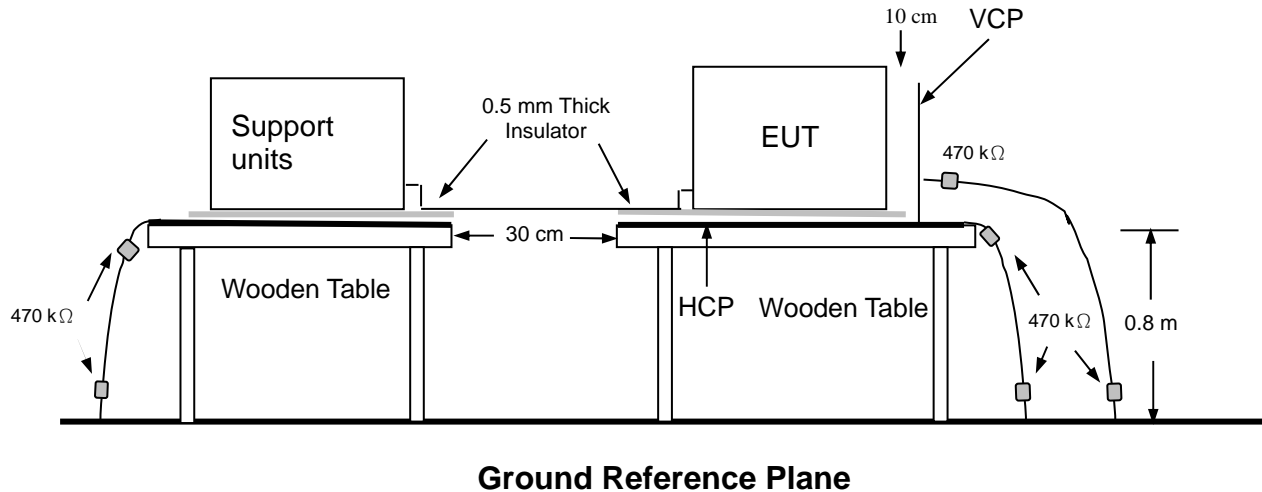
b) Air discharges at slots and apertures and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

- a) The EUT was located 0.1 m minimum from all side of the **HCP** (dimensions 1.6m x 0.8m).
- b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
- c) The time interval between two successive single discharges was at least 1 second.
- d) Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- e) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- f) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each **HCP** opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the **HCP** and perpendicular to its front edge during the discharge.
- g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **Vertical Coupling Plane (VCP)** in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

8.3.4. TEST SETUP



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

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **Ground Reference Plane**. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **Horizontal Coupling Plane** (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940k ohm total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

8.3.5. TEST RESULTS

PM2071B51

Temperature	18.6°C	Humidity	52% RH
Pressure	1006mbar	Tested By	Long Liao
Required Passing Performance		Criterion B	

Air Discharge								
Test Points	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Contact Discharge								
Test Points	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3

Discharge To Horizontal Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Discharge To Vertical Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

NOTE: 1. There was no change compared with initial operation during the test.

2. No discharge point.

3. During ±4kV contact discharge applied on EUT's bottom point, the data transmitting was paused, It could become normal after test stop

PM2071C51

Temperature	18.6°C	Humidity	52% RH
Pressure	1006mbar	Tested By	Long Liao
Required Passing Performance		Criterion B	

Air Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Contact Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Discharge To Horizontal Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Discharge To Vertical Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

NOTE: 1. There was no change compared with initial operation during the test.

2. No discharge point.

3. During ±8kV air discharge applied on EUT's back point, peripherals equipment data transmitting was paused, It could become normal after test stop.

PM2070C51

Temperature	18.6°C	Humidity	52% RH
Pressure	1006mbar	Tested By	Long Liao
Required Passing Performance		Criterion B	

Air Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Contact Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3

Discharge To Horizontal Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Discharge To Vertical Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

NOTE: 1. There was no change compared with initial operation during the test.

2. No discharge point.

3. During ±8kV air discharge applied on EUT's back point, ±4kV contact discharge applied on EUT's right and bottom point, the data transmitting was paused, It could become normal after test stop.

PM2070B51

Temperature	18.4°C	Humidity	56% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Air Discharge								
Test Points	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Contact Discharge								
Test Points	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Discharge To Horizontal Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Discharge To Vertical Coupling Plane								
Side of EUT	Test Levels			Results				
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion		Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

NOTE: 1. There was no change compared with initial operation during the test.
2. No discharge point.

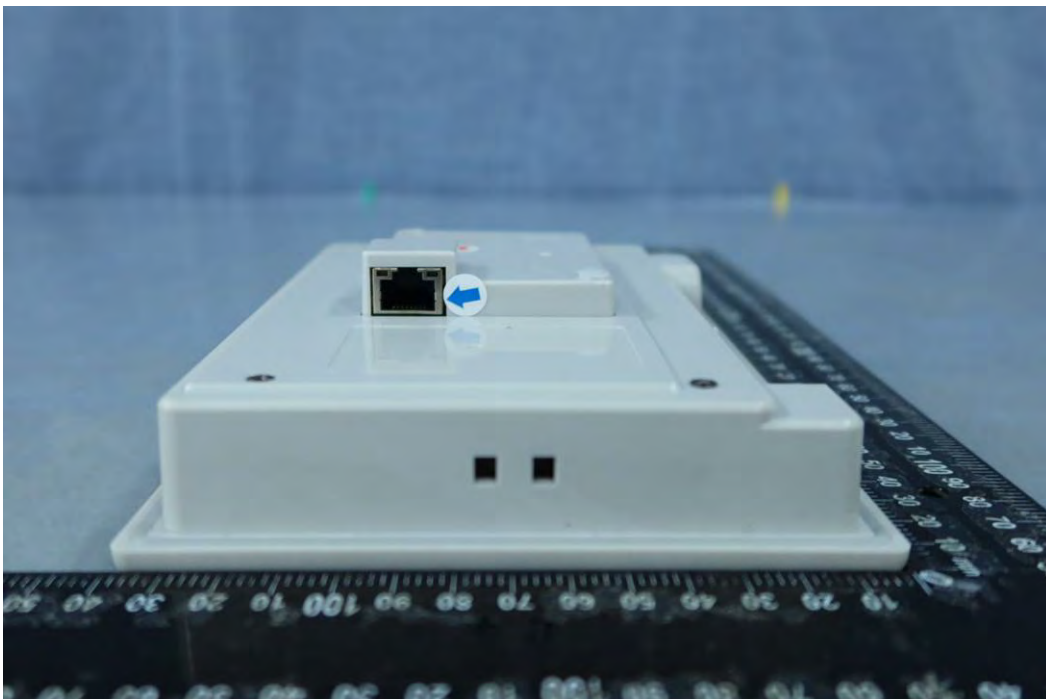
The Photo for Discharge Points of EUT

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Back



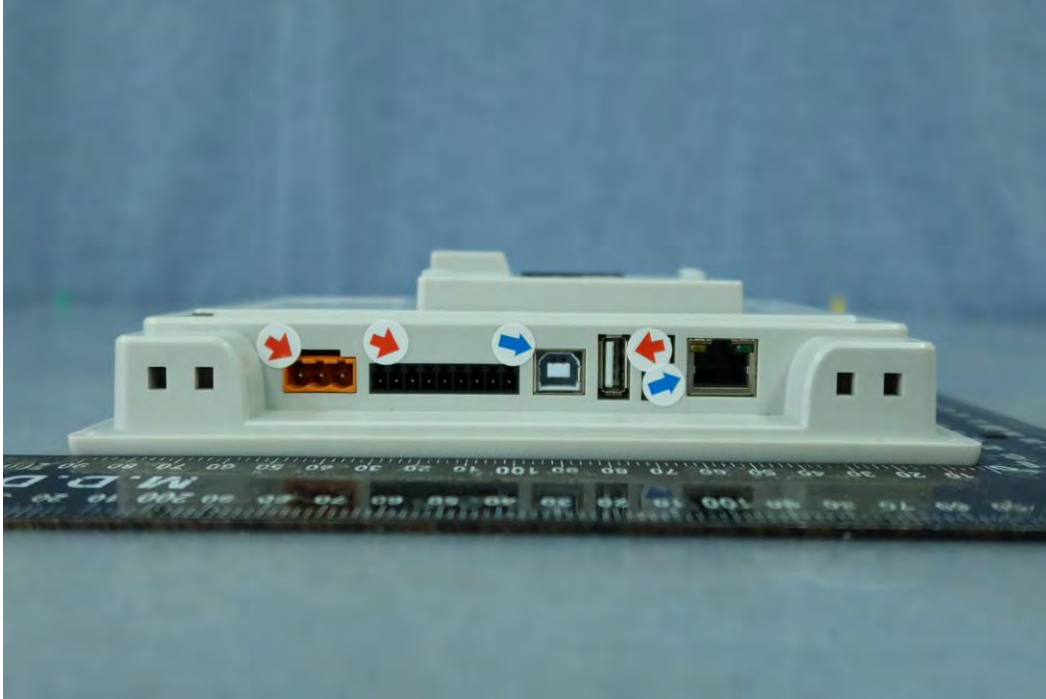
Right



Red Dot —Air Discharged

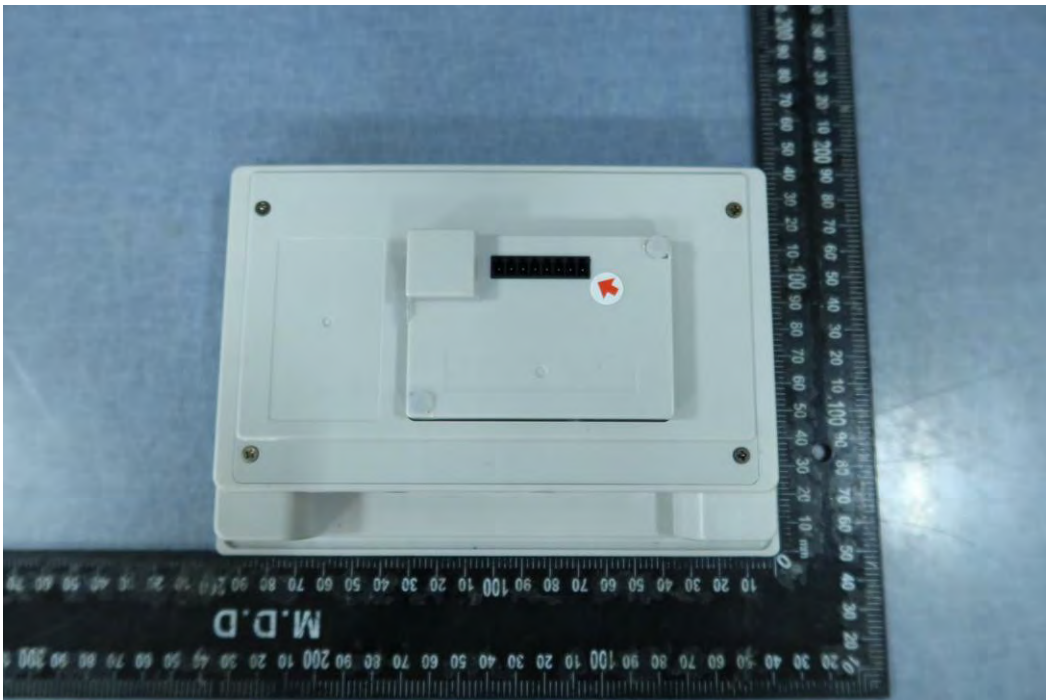
Blue Dot —Contact Discharged

Bottom



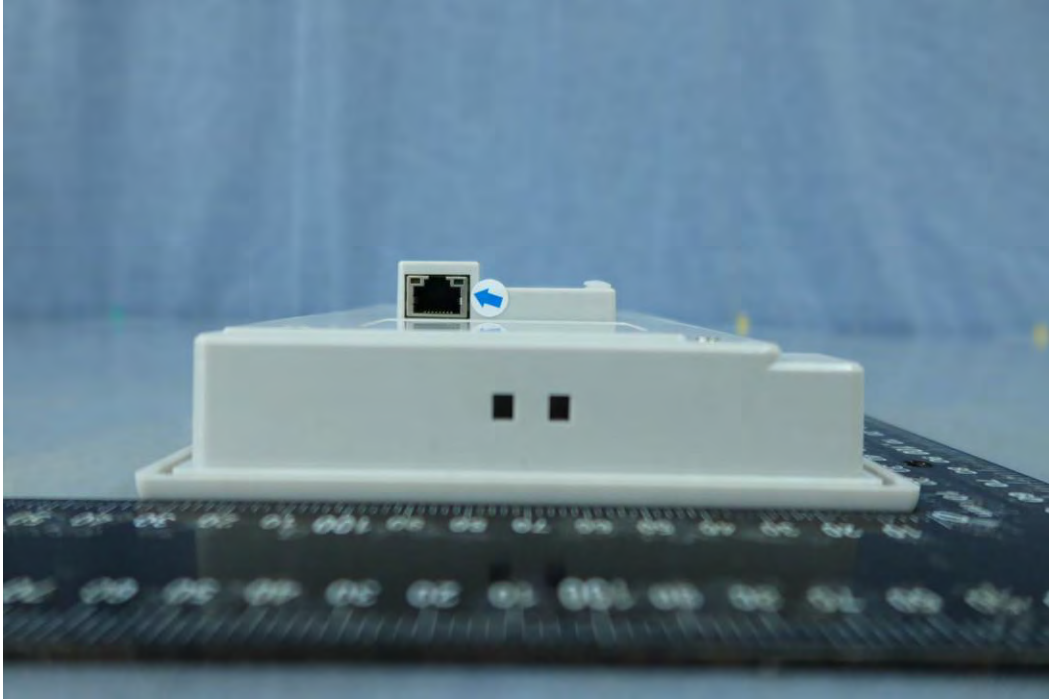
PM2071C51

Back

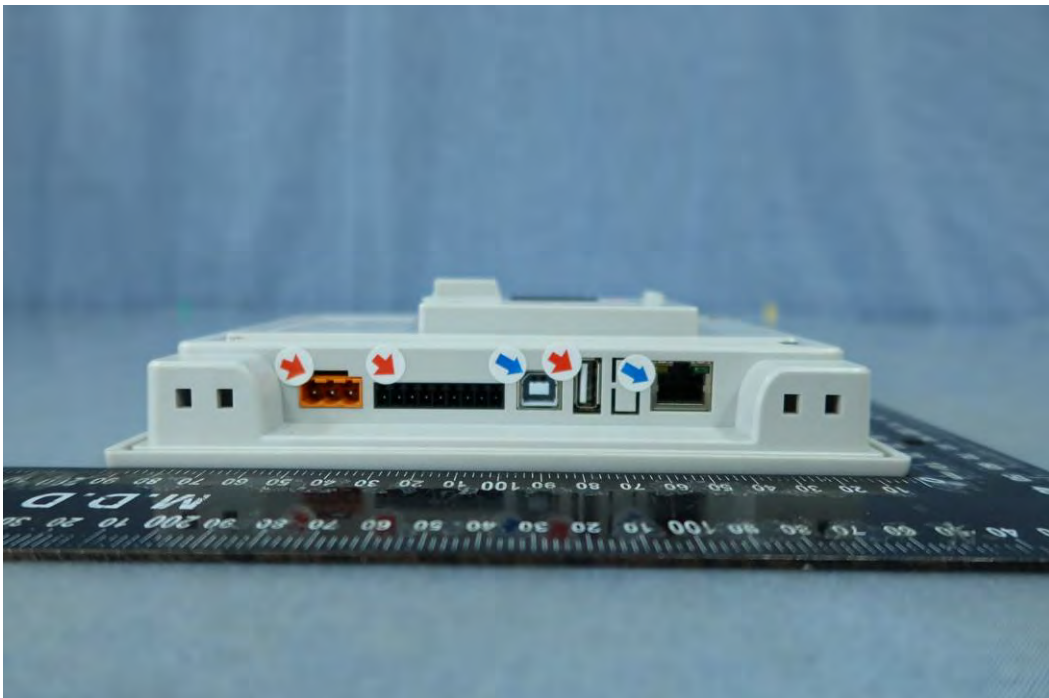


Red Dot —Air Discharged
Blue Dot —Contact Discharged

Right



Bottom



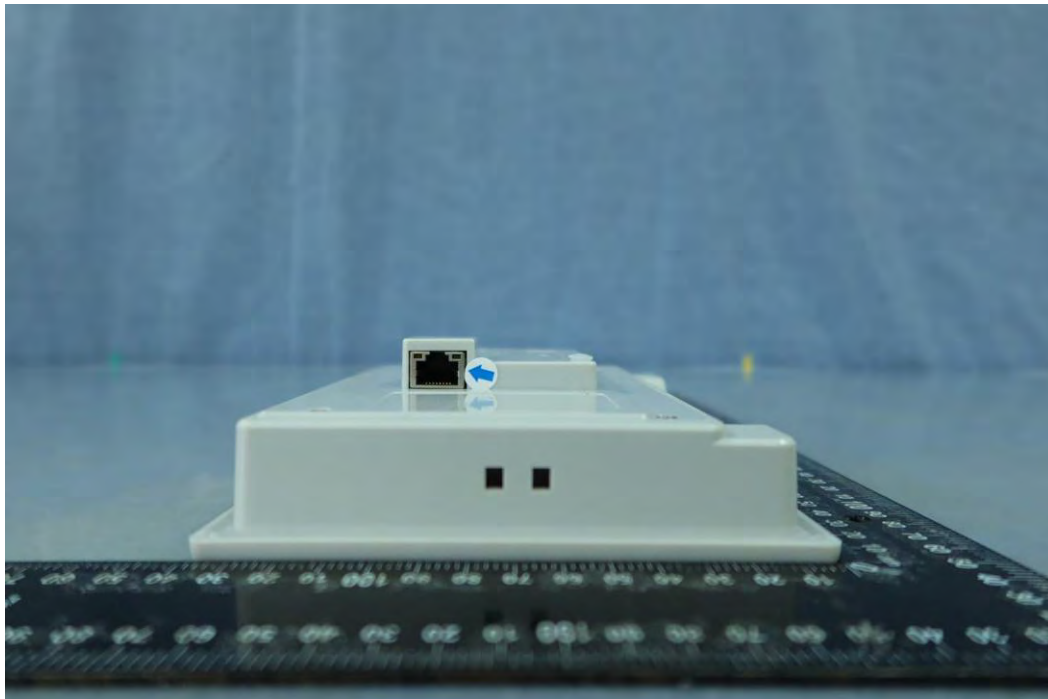
Red Dot —Air Discharged
Blue Dot —Contact Discharged

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Back

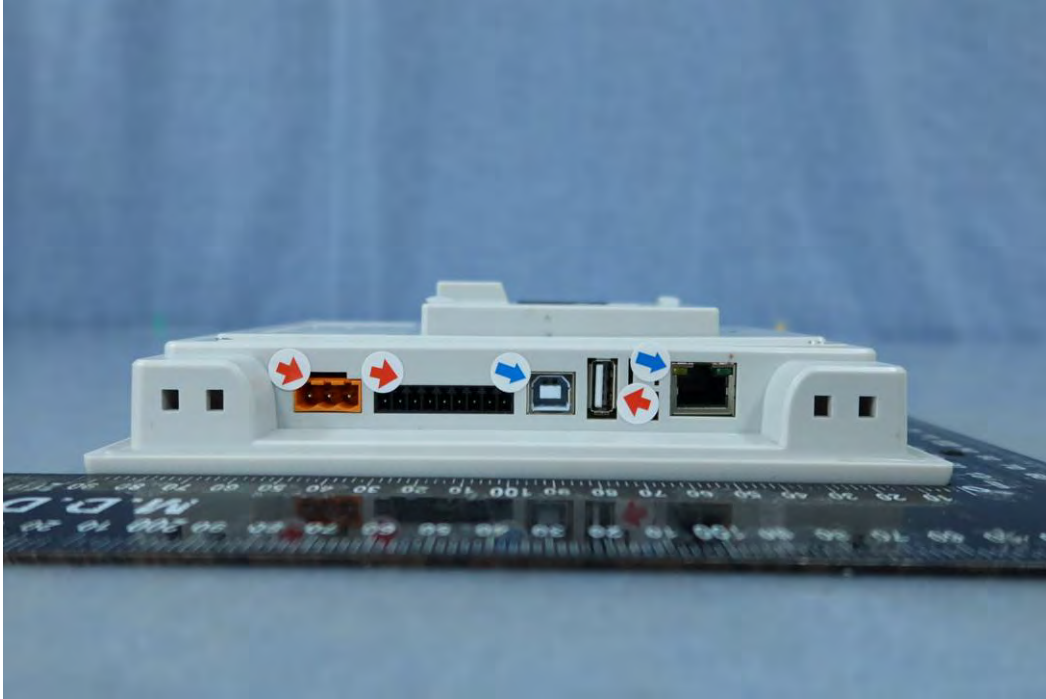


Right



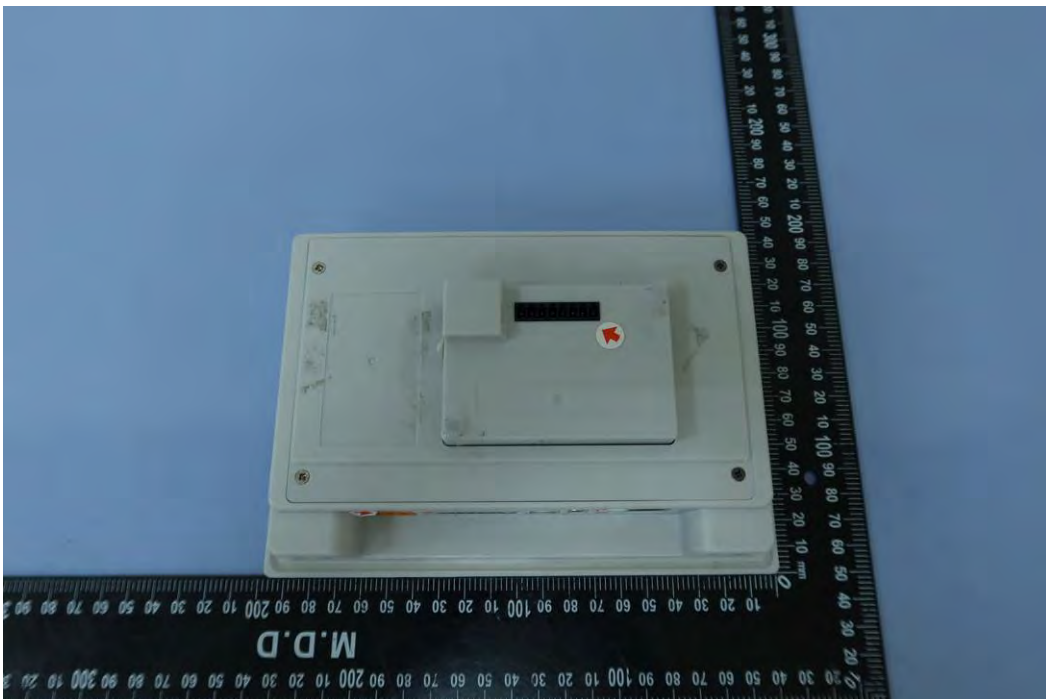
Red Dot —Air Discharged
Blue Dot —Contact Discharged

Bottom



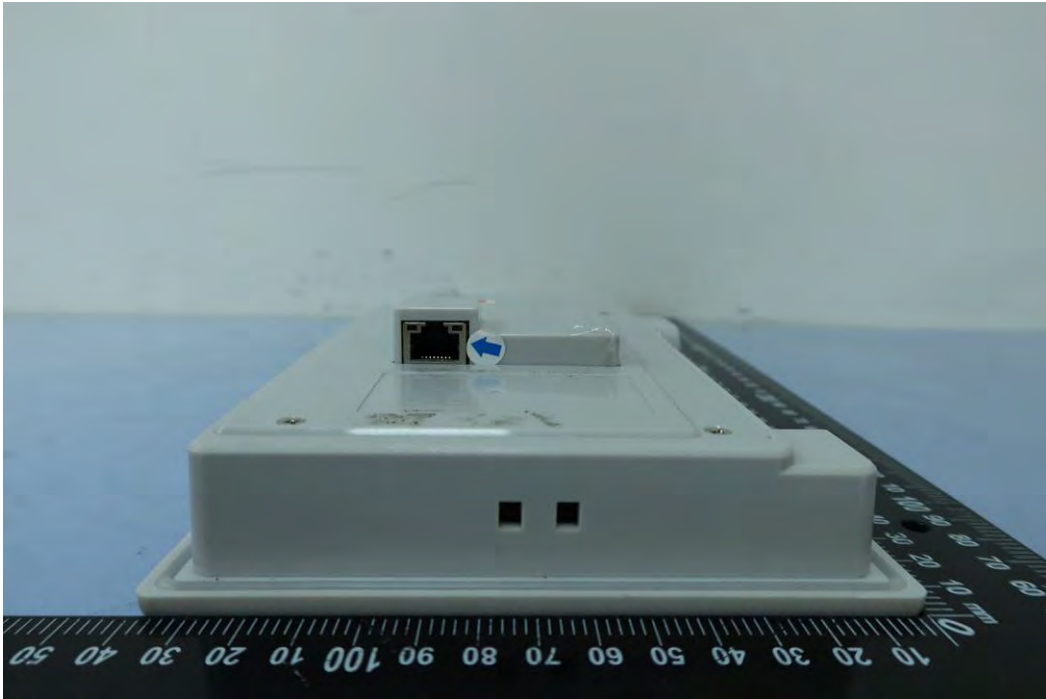
PM2070B51

Back



Red Dot —Air Discharged
Blue Dot —Contact Discharged

Right



Bottom



Red Dot —Air Discharged
Blue Dot —Contact Discharged

8.4. RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)

8.4.1. TEST SPECIFICATION

Basic Standard: IEC 61000-4-3

Frequency Range: 80 ~1000 MHz, 1400 ~6000 MHz

Field Strength: 10 V/m, 3 V/m

Modulation: 1kHz Sine Wave, 80%, AM Modulation

Frequency Step: 1 % of preceding frequency value

Polarity of Antenna: Horizontal and Vertical

Test Distance: 3 m

Antenna Height: 1.5 m

8.4.2. TEST INSTRUMENT

PM2071B51 & PM2071C51 & PM2070C51

844 RS Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Electric Field Probe	AR	FL7006	0356656	10/14/2023
Field of Calibration	CCS	Chamber#RS	80-1000MHz	02/24/2023
RF Power Meter	Boonton	4242	17419	03/06/2023
Power Sensor	Boonton	51011A-EMC	36833	03/06/2023
Power Sensor	Boonton	51011A-EMC	36834	03/06/2023
Thermo-Hygro Meter	Wisewind	N/A	SD-S019	09/28/2023
Broadband Antenna	Schwarzbeck	VUSLP 9111E	D-69250	N.C.R
Power Amplifier	Milmega	80RF1000-600	1079361	N.C.R
Signal Generator	Agilent	N5181A	MY47421336	09/03/2023
Field of Calibration	CCS	Chamber#RS	1000-6000M	02/22/2023
Microwave Antenna	Schwarzbeck	STLP 9149	767	N.C.R
Power Amplifier	Teseq	CBA6G-100D	1087370	N.C.R
Software	EmcwareVer. 2.6.0.16			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R.= No Calibration required

PM2070B51

844 RS Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Electric Field Probe	AR	FL7006	0356656	03/18/2024
Field of Calibration	CCS	Chamber#RS	80-1000MHz	02/19/2024
RF Power Meter	Boonton	4242	17419	02/13/2024
Power Sensor	Boonton	51011A-EMC	36833	02/13/2024
Power Sensor	Boonton	51011A-EMC	36834	02/13/2024
Thermo-Hygro Meter	Wisewind	N/A	SD-S019	09/28/2023
Broadband Antenna	AR	AT1080	311819	N.C.R
Power Amplifier	Teseq	CBA1G-600D	1098099	N.C.R
Analog Signal Generator	Agilent	E8257D	MY48051214	06/04/2024
Field of Calibration	CCS	Chamber#RS	1000-6000MHz	02/16/2024
Microwave Antenna	Schwarzbeck	STLP 9149	767	N.C.R
Power Amplifier	Teseq	CBA6G-100D	1087370	N.C.R
Software	EmcwareVer. 2.6.0.16			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

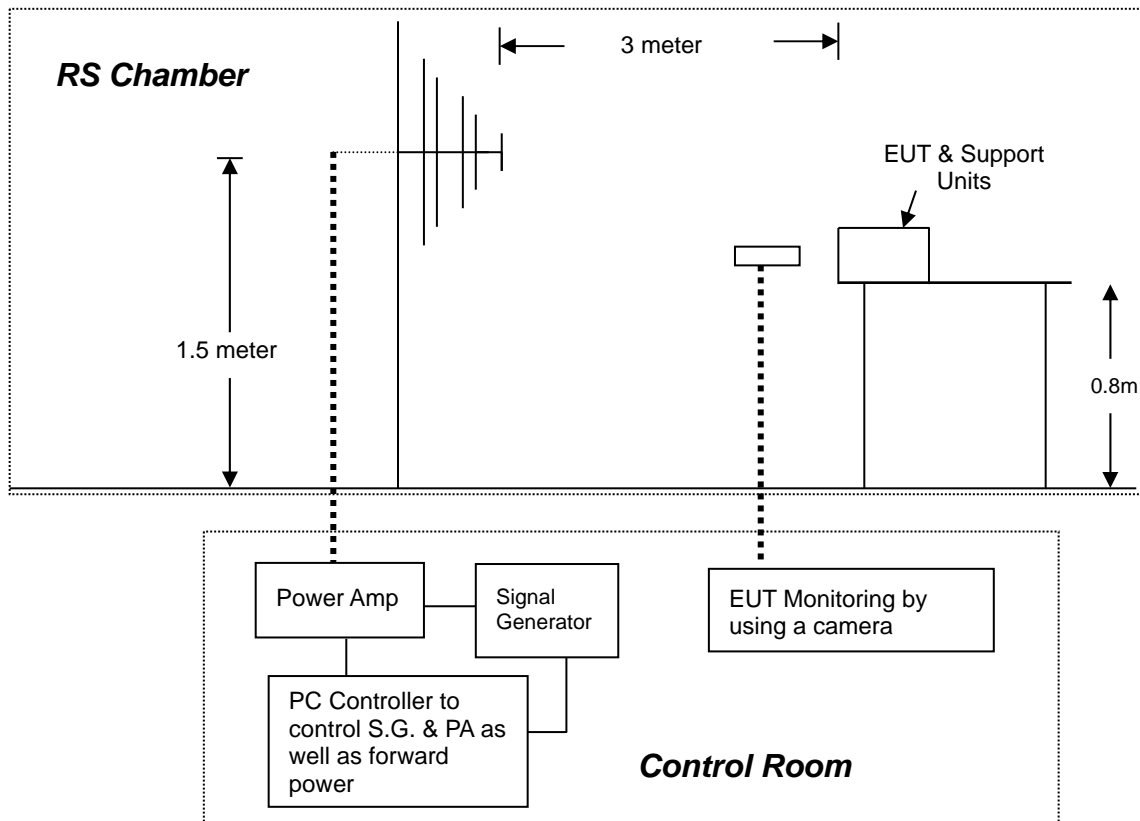
2. N.C.R.= No Calibration required.

8.4.3. TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3

- The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meter from the EUT.
- The frequency range is swept from 80~1000 MHz, 1400~6000 MHz with the signal 80% amplitude modulated with a 1kHz sine-wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s, where the frequency range is swept incrementally, the step size was 1% of preceding frequency value.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

8.4.4. TEST SETUP



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

NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

8.4.5. TEST RESULTS

PM2071B51

Temperature	22°C	Humidity	50% RH
Pressure	1005mbar	Dwell Time	3 sec.
Tested By	Pipo Hou	Required Passing Performance	Criterion A

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 1000	V&H	0	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	90	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	180	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	270	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

PM2071C51

Temperature	22°C	Humidity	50% RH
Pressure	1005mbar	Dwell Time	3 sec.
Tested By	Pipo Hou	Required Passing Performance	Criterion A

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 1000	V&H	0	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	90	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	180	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	270	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

PM2070C51

Temperature	22°C	Humidity	50% RH
Pressure	1005mbar	Dwell Time	3 sec.
Tested By	Pipo Hou	Required Passing Performance	Criterion A

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 1000	V&H	0	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	90	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	180	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	270	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

PM2070B51

Temperature	20.6°C	Humidity	54% RH
Pressure	1007mbar	Dwell Time	3 sec.
Tested By	Jacky Lin	Required Passing Performance	Criterion A

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 1000	V&H	0	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	90	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	180	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	270	10	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	0	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	90	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	180	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
1400 ~ 6000	V&H	270	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

8.5. ELECTRICAL FAST TRANSIENT (EFT)

8.5.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-4
Test Voltage:	DC Power Port: 2kV Signal/Control Line: 1kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave-shape:	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

8.5.2. TEST INSTRUMENT

PM2071B51 & PM2071C51 & PM2070C51 & PM2070B51

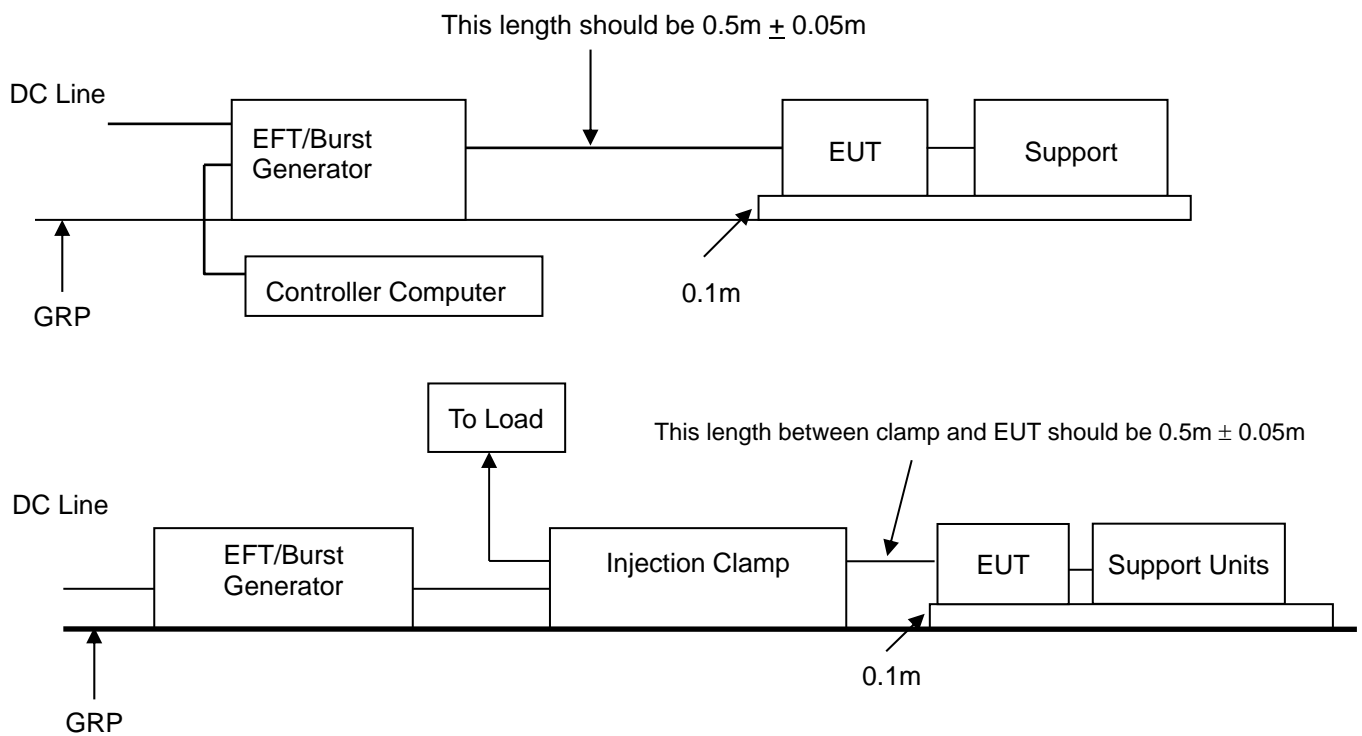
Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Capacitive Clamp	EMC-Partner	CN-EFT1000	589	02/20/2024
EMC Immunity Tester	EMC Partner	TRANSINT 2000	1117	02/21/2024
Software	GenecsVer. 3.27			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.5.3. TEST PROCEDURE

- All types of cables, including their length, and the interface port of the EUT to which they were connected.
- Both positive and negative polarity discharges were applied.
- The length of the “hot wire” from the coaxial output of the EFT generator to the terminals on the EUT should not exceed 0.5 meter.
- The duration time of each test sequential was 1 minute.
- The transient/burst waveform was in accordance with IEC 61000-4-4, 5/50ns.

8.5.4. TEST SETUP



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

NOTE:

TABLETOP EQUIPMENT

The configuration consisted of a wooden table (0.1m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

8.5.5. TEST RESULTS

PM2071B51

Temperature	22.4°C	Humidity	53% RH
Pressure	1007mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.



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Temperature	22.4°C	Humidity	53% RH
Pressure	1007mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

PM2070C51

Temperature	22.4°C	Humidity	53% RH
Pressure	1007mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

PM2070B51

Temperature	18.4°C	Humidity	56% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L – N – PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

8.6. SURGE IMMUNITY TEST

8.6.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-5
Wave-Shape:	Combination Wave 1.2/50 μ s Open Circuit Voltage 8/20 μ s Short Circuit Current
Test Voltage:	DC Power: Power Line to line: 0.5kV, line to ground: 1kV Signal Port ~ Lines to ground: 1kV
Surge Input/Output:	DC Power Line: L-N / L-PE / N-PE Signal Line: L-G
Generator Source Impedance:	2 ohm between networks 12 ohm between network and ground 42 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0°
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

8.6.2. TEST INSTRUMENT

PM2071B51 & PM2071C51 & PM2070C51 & PM2070B51

Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
CDN	EMC-Partner	CDN-UTP8	1502	02/21/2024
EMC Immunity Tester	EMC Partner	TRANSINT 2000	1117	02/21/2024
Software	GenecsVer. 3.27			

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.6.3. TEST PROCEDURE

a) For EUT power supply:

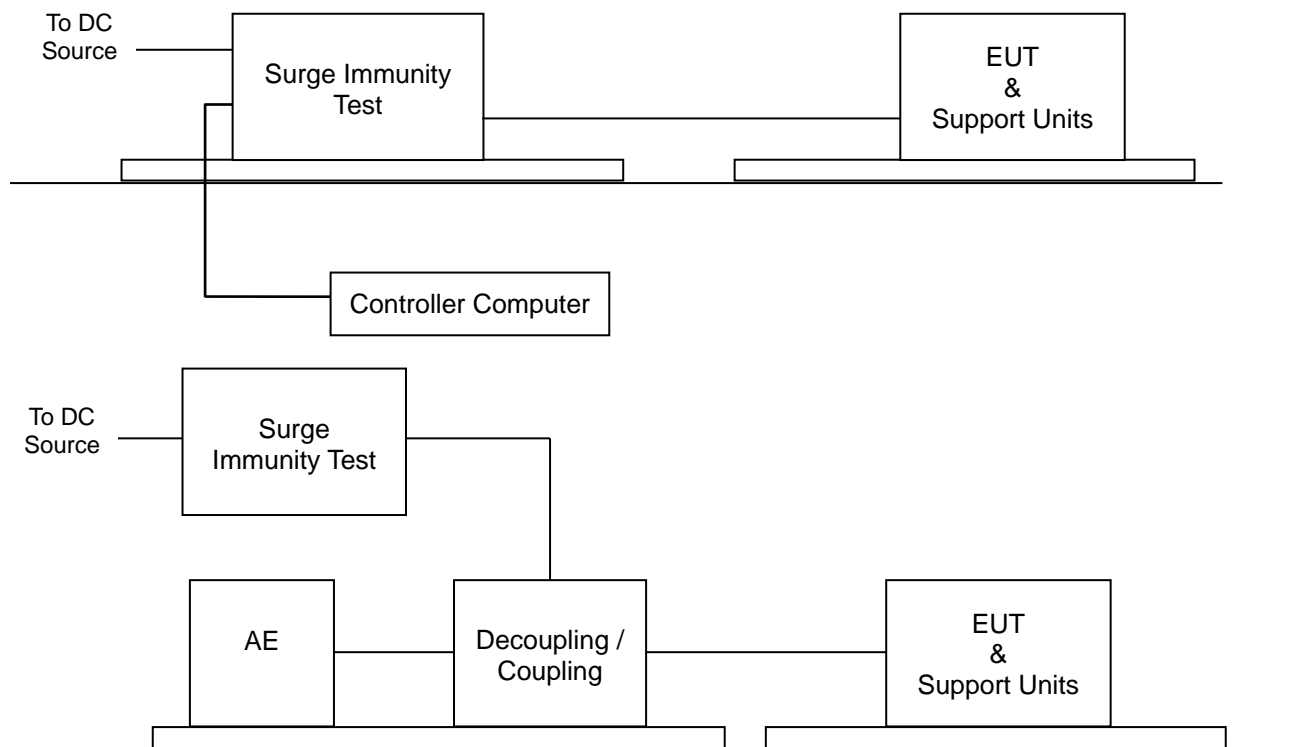
The surge is applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

b) For test applied to unshielded un-symmetrically operated interconnection lines of EUT:
The surge was applied to the lines via the capacitive coupling. The coupling / decoupling networks didn't influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

c) For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT:

The surge was applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor were not specified. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

8.6.4. TEST SETUP



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

8.6.5. TEST RESULTS

PM2071B51

Temperature	22.4°C	Humidity	53% RH
Pressure	1007mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	0.5	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

2. During the test, data accessing via signal port was paused. It could become normal after test stopped.

PM2071C51

Temperature	22.4°C	Humidity	53% RH
Pressure	1007mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	0.5	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

2. During the test, data accessing via signal port was paused. It could become normal after test stopped.

PM2070C51

Temperature	22.4°C	Humidity	53% RH
Pressure	1007mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	0.5	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

2. During the test, data accessing via signal port was paused. It could become normal after test stopped.

PM2070B51

Temperature	18.4°C	Humidity	56% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	0.5	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
LAN 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
LAN 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 1	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS
Serial 2	+/-	1	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

2. During the test, data accessing via signal port was paused. It could become normal after test stopped

8.7. CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

8.7.1. TEST SPECIFICATION

Basic Standard: IEC 61000-4-6

Frequency Range: 0.15 MHz ~ 80 MHz

Field Strength: 10 Vrms

Modulation: 1kHz Sine Wave, 80%, AM Modulation

Frequency Step: 1 % of preceding frequency value

Coupled cable: DC Power Mains, Unshielded; RJ45 Line, Unshielded;
Serial 1 Line. Unshielded; Serial 2 Line. Unshielded

Coupling device: CDN- M3 (3 wires); CDN-T4; EM-Clamp

8.7.2. TEST INSTRUMENT

PM2071B51 & PM2071C51 & PM2070C51

CS Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
CDN	Teseq	CDN S751A	46649	10/23/2023
CDN	Teseq	CDN M016	35821	10/23/2023
CDN	TESEQ	CDN T400A	28547	10/23/2023
CDN	FCC	FCC-801-M3-25A	9973	10/23/2023
Compact Immunity Test System	TESEQ	NSG 4070B-35	39581	10/25/2023
EM Clamp	SCHAFFNER	KEMZ 801	19239	10/23/2023
Software	NSG 4070 Control Program V1.2.0			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R.= No Calibration required

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CS Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
CDN	Teseq	CDN S751A	46649	10/23/2023
CDN	Teseq	CDN M016	35821	10/23/2023
CDN	TESEQ	CDN T400A	28547	10/23/2023
CDN	FCC	FCC-801-M3-25A	9973	10/23/2023
Compact Immunity Test System	TESEQ	NSG 4070B-35	39581	10/25/2023
EM Clamp	SCHAFFNER	KEMZ 801	19239	10/23/2023
Software	NSG 4070 Control Program V1.2.0			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.7.3. TEST PROCEDURE

The EUT shall be tested within its intended operating and climatic conditions.

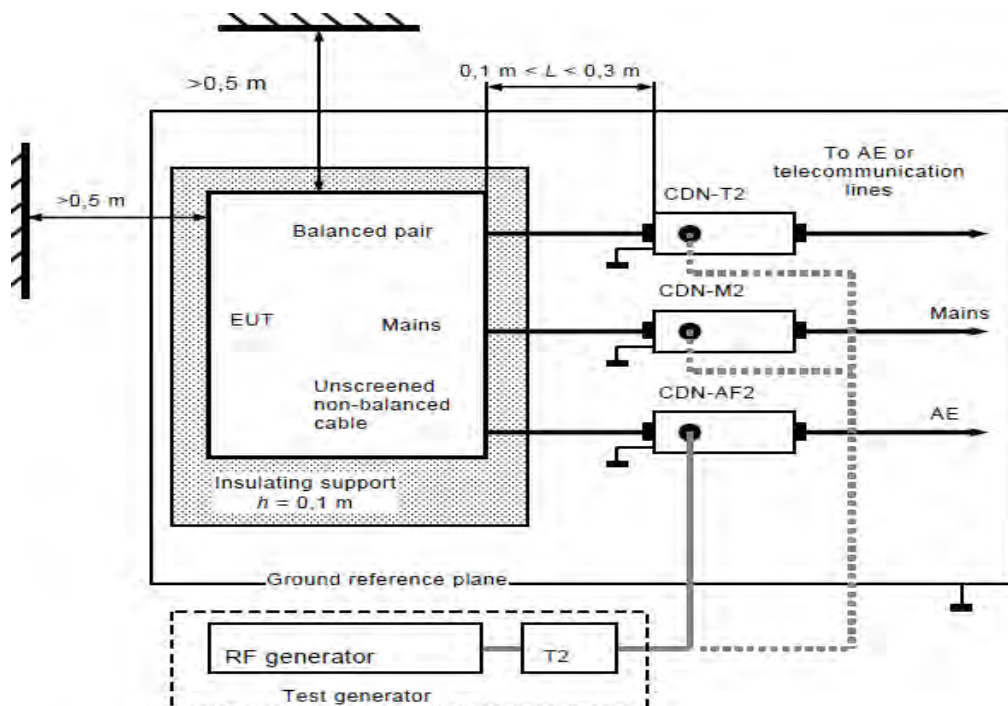
The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

The frequency range was swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal was modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate was 1.5×10^{-3} decades/s. Where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value from 150 kHz to 80 MHz.

The dwell time at each frequency was less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequency(ies) and harmonics or frequencies of dominant interest, was analyzed separately.

Attempts was made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

8.7.4. TEST SETUP



Note: 1. The CDNs and / or EM clamp used for real test depends on ports and cables configuration of EUT.
2. The EUT clearance from any metallic obstacles shall be at least 0.5m

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

NOTE:

TABLE-TOP AND FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

8.7.5. TEST RESULTS

PM2071B51

Temperature	20.5°C	Humidity	55% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion A	

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	10	DC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 1 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 2 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 1 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 2 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

PM2071C51

Temperature	20.5°C	Humidity	55% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion A	

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	10	DC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 1 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 2 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 1 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 2 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

PM2070C51

Temperature	20.5°C	Humidity	55% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion A	

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	10	DC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 1 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 2 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 1 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 2 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

PM2070B51

Temperature	19.4°C	Humidity	54% RH
Pressure	1008mbar	Tested By	Jacky Lin
Required Passing Performance		Criterion A	

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	10	DC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 1 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	LAN 2 Line (0.3m)	CDN-T4	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 1 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
0.15 ~ 80	10	Serial 2 Line (3.0m)	EM-Clamp	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

8.8. POWER FREQUENCY MAGNETIC FIELD

8.8.1. TEST SPECIFICATION

Basic Standard: IEC 61000-4-8

Frequency Range: 50Hz/60Hz

Field Strength: 30 A/m

Observation Time: 1 minute

Inductance Coil: Rectangular type, 1mx1m

8.8.2. TEST INSTRUMENT

PM2071B51 & PM2071C51 & PM2070C51

Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
5kVA Power Source	Teseq	5001IX-208-SCH	1207A03643	09/14/2023
AC/DC Clamp Meter	Fluke	353	33360025	06/27/2023
Magnetic Field Coil	Teseq	INA 703 W/ 2141	1976 / 1413	02/22/2023
Magnetic Field Meter	Sypris	4080	0247	11/27/2023
Software	Win2120Ver. 5.0			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R.= No Calibration required

PM2070B51

Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
5kVA Power Source	Teseq	5001IX-208-SCH	1207A03643	09/14/2023
AC/DC Clamp Meter	Fluke	353	33360025	06/08/2024
Magnetic Field Coil	Teseq	INA 703 W/ 2141	1976 / 1413	02/21/2024
Magnetic Field Meter	Sypris	4080	0247	11/27/2023
Software	Win2120Ver. 5.0			

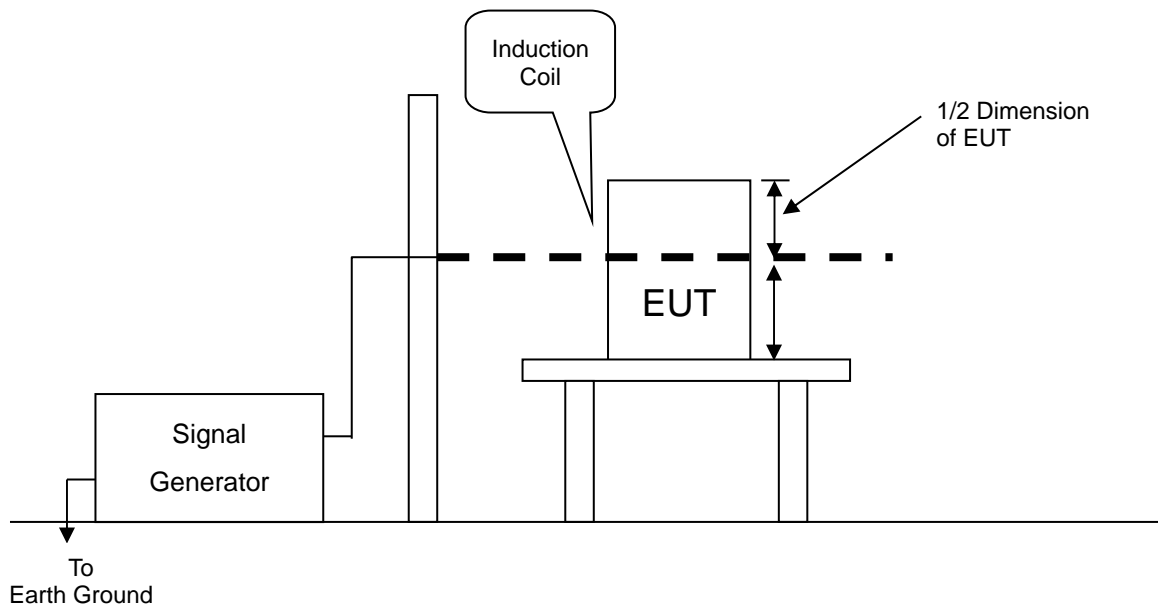
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R.= No Calibration required.

8.8.3. TEST PROCEDURE

- The equipment is configured and connected to satisfy its functional requirements. It shall be placed on the GRP with the interposition of a 0.1m-thick insulating support.
- The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.
- The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

8.8.4. TEST SETUP



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

NOTE:

TABLETOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

8.8.5. TEST RESULTS

PM2071B51

Temperature	22°C	Humidity	50% RH
Pressure	1005mbar	Tested By	Pipo Hou
Required Passing Performance		Criterion A	

DIRECTION	Field Strength (A/m)	Performance Criterion	OBSERVATION	RESULTS
X	30	A	Note	PASS
Y	30	A	Note	PASS
Z	30	A	Note	PASS

NOTE: There was no change compared with initial operation during the test.

PM2071C51

Temperature	22°C	Humidity	50% RH
Pressure	1005mbar	Tested By	Pipo Hou
Required Passing Performance		Criterion A	

DIRECTION	Field Strength (A/m)	Performance Criterion	OBSERVATION	RESULTS
X	30	A	Note	PASS
Y	30	A	Note	PASS
Z	30	A	Note	PASS

NOTE: There was no change compared with initial operation during the test.

PM2070C51

Temperature	22°C	Humidity	50% RH
Pressure	1005mbar	Tested By	Pipo Hou
Required Passing Performance		Criterion A	

DIRECTION	Field Strength (A/m)	Performance Criterion	OBSERVATION	RESULTS
X	30	A	Note	PASS
Y	30	A	Note	PASS
Z	30	A	Note	PASS

NOTE: There was no change compared with initial operation during the test.

PM2070B51

Temperature	19.4°C	Humidity	54% RH
Pressure	1008mbar	Tested By	Jack Lin
Required Passing Performance		Criterion A	

DIRECTION	Field Strength (A/m)	Performance Criterion	OBSERVATION	RESULTS
X	30	A	Note	PASS
Y	30	A	Note	PASS
Z	30	A	Note	PASS

NOTE: There was no change compared with initial operation during the test.

8.9. VOLTAGE DIP & VOLTAGE INTERRUPTIONS

8.9.1. TEST SPECIFICATION

Basic Standard: IEC 61000-4-11

Test duration time: Minimum three test events in sequence

Interval between event: Minimum 10 seconds

Phase Angle: 0° / 180°

Test cycle: 3 times

8.9.2. TEST INSTRUMENT

Immunity shielded room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

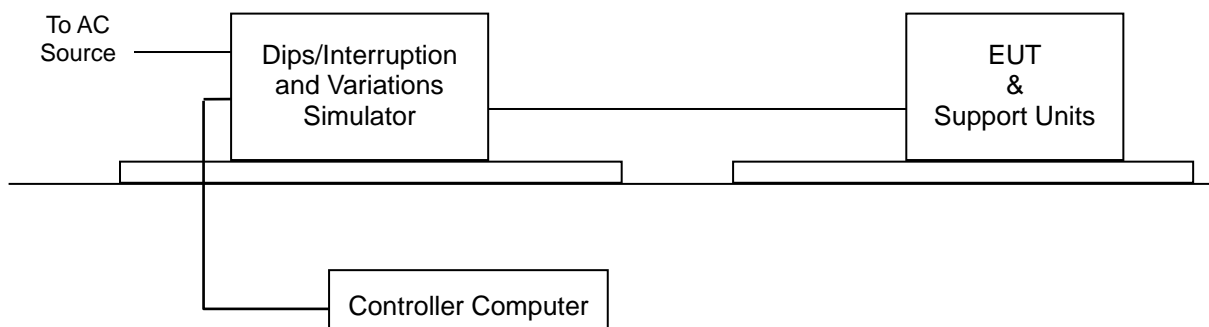
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R.= No Calibration required.

8.9.3. TEST PROCEDURE

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. Setting the parameter of tests and then perform the test software of test simulator.
3. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
4. Recording the test result in test record form.

8.9.4. TEST SETUP



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

8.9.5. TEST RESULTS

Temperature	N/A	Humidity	N/A
Pressure	N/A	Tested By	N/A
Required Passing Performance	Criterion B: 0% residual 1 cycle Criterion C: i) 40% residual 10/12 cycles at 50/60Hz ii) 70% residual 25/30 cycles at 50/60Hz iii) 0% residual for 250/300 cycles at 50/60Hz		

Test Power: 230Vac, 50Hz				
Voltage (% Residual)	Duration (Cycle)	Performance Criterion	Observation	Test Result
0	1	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
40	10	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
70	25	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
0	250	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A

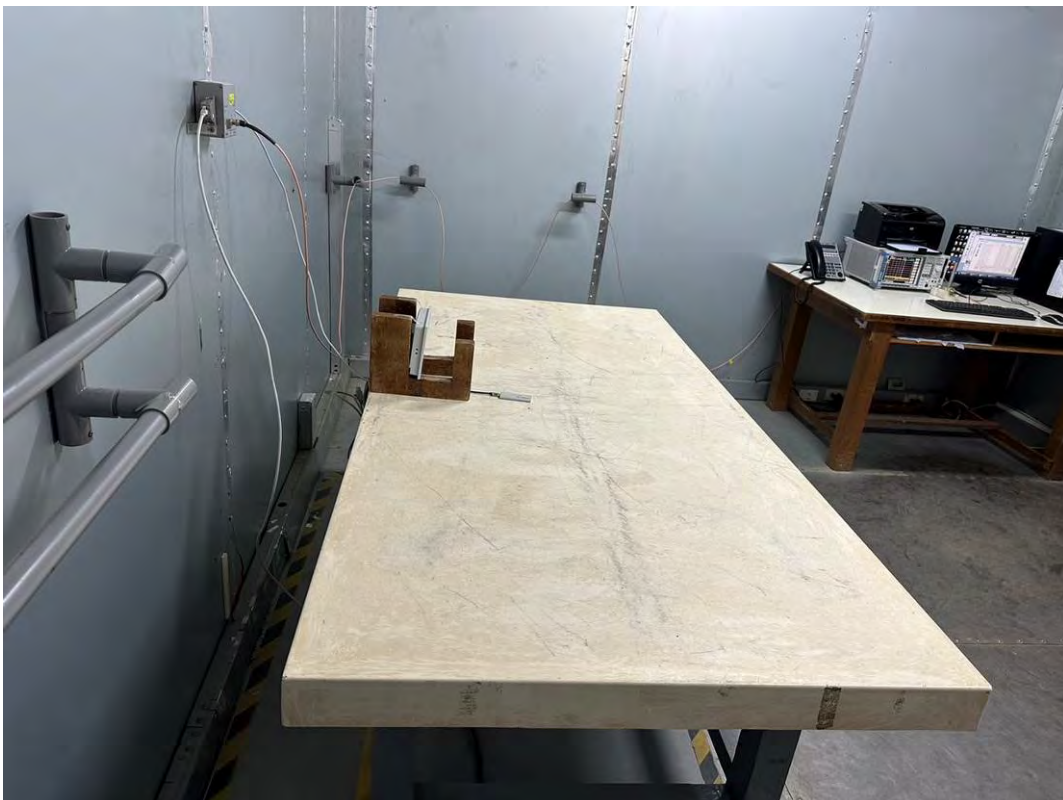
Test Power: 230Vac, 60Hz				
Voltage (% Residual)	Duration (Cycle)	Performance Criterion	Observation	Test Result
40	12	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
70	30	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A
0	300	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	N/A

NOTE: 1. The subject equipment is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

9 PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST



CONDUCTED EMISSION TEST FOR WIRED NETWORK PORTS with ISN (10Mbps & 100Mbps)



RADIATED EMISSION TEST (Below 1GHz)



RADIATED EMISSION TEST (Above 1GHz)



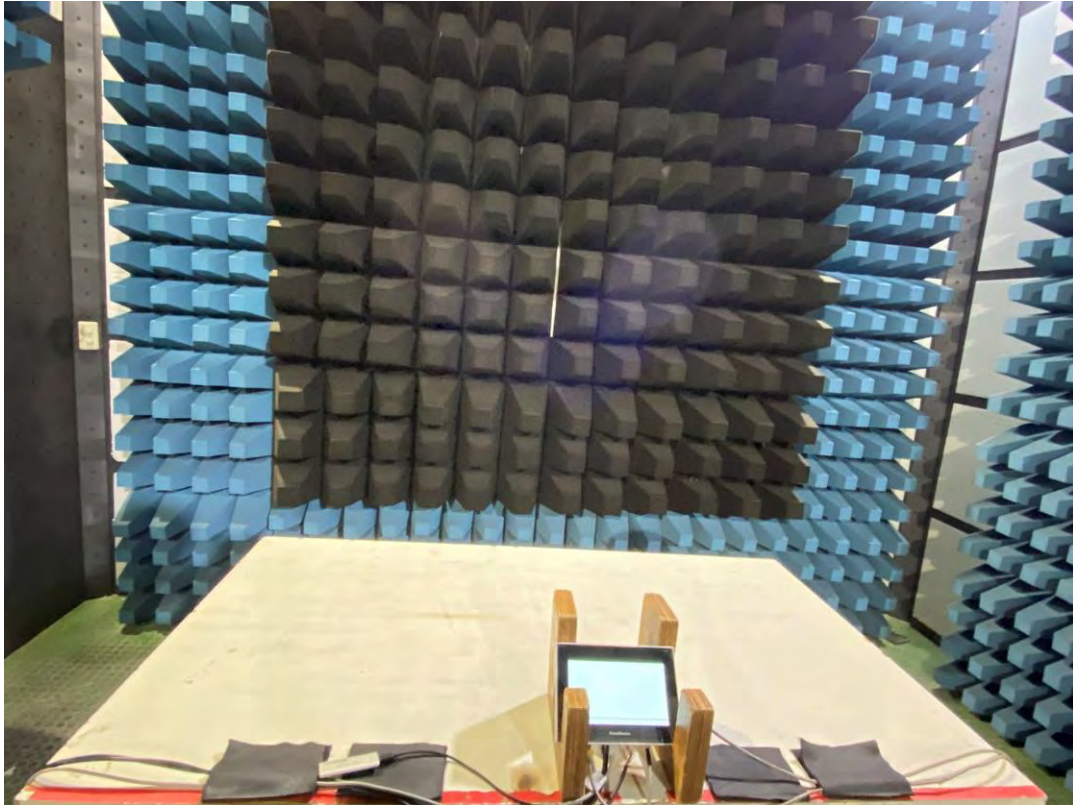
ESD Test (PM2071B51 & PM2071C51 & PM2070C51)



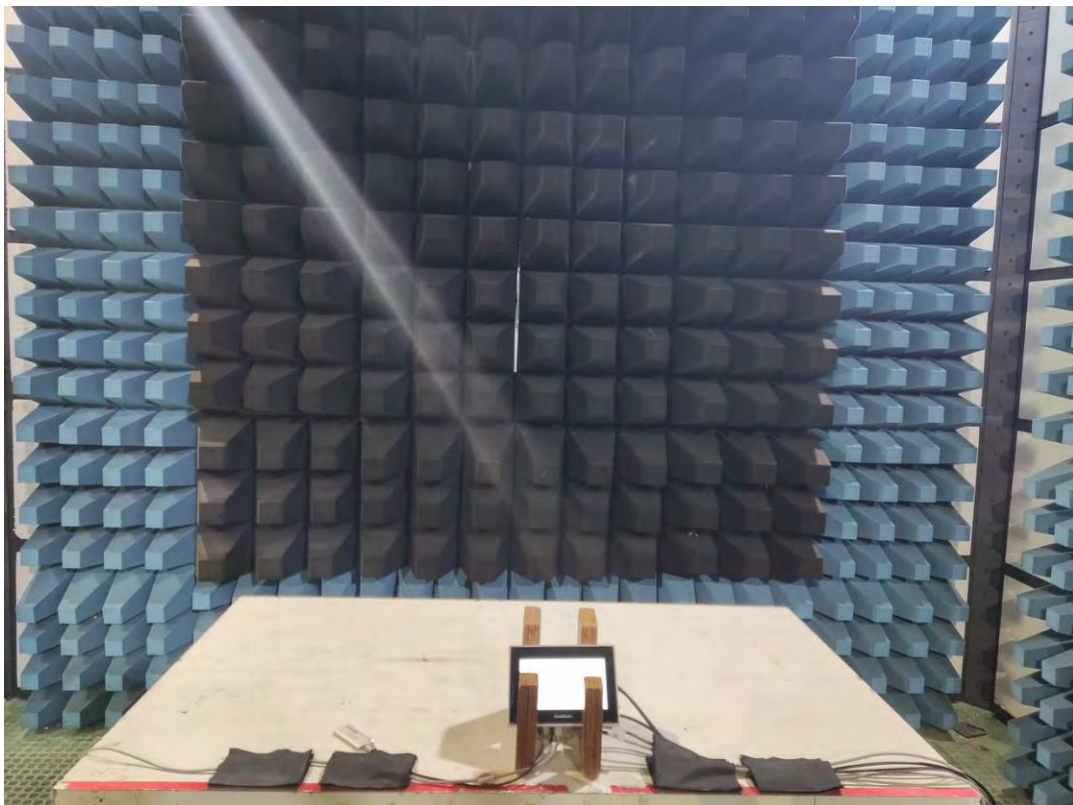
ESD Test (PM2070B51)



RS Test (PM2071B51 & PM2071C51 & PM2070C51)



RS Test (PM2070B51)



EFT Test (PM2071B51 & PM2071C51 & PM2070C51)



EFT Test (PM2070B51)



EFT For RJ45 Test (PM2071B51 & PM2071C51 & PM2070C51)



EFT For RJ45 Test (PM2070B51)



EFT For Serial 1 Test (PM2071B51 & PM2071C51 & PM2070C51)



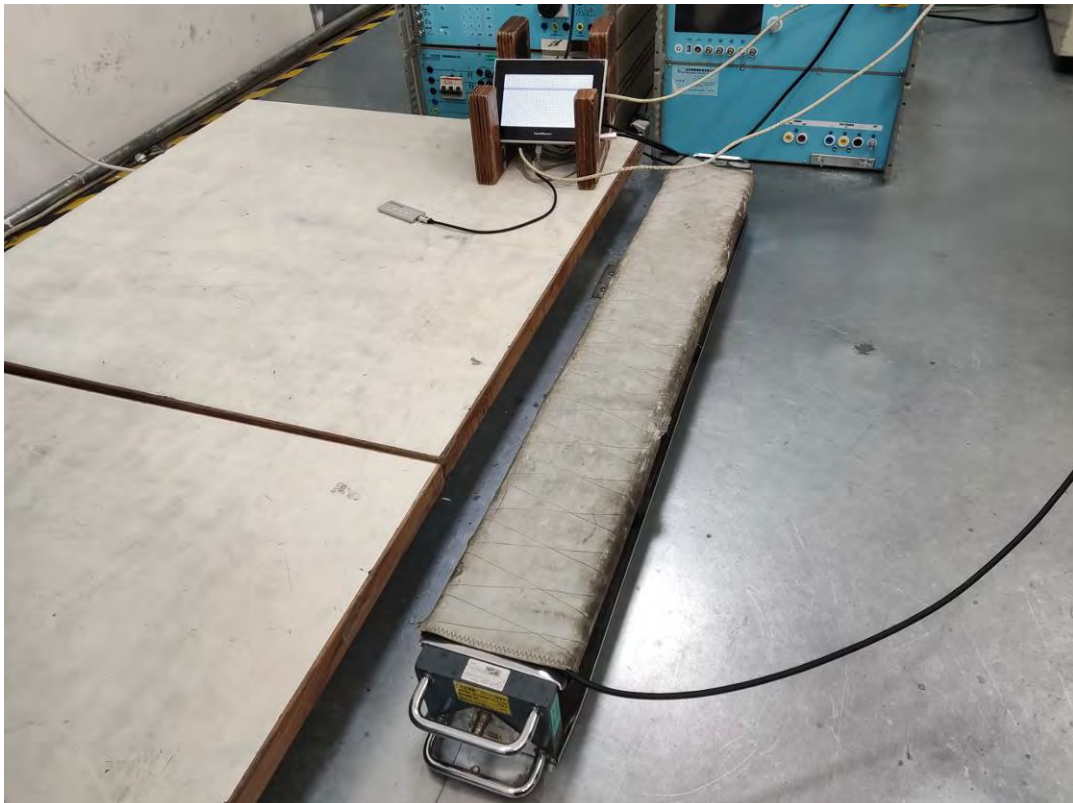
EFT For Serial 2 Test (PM2071B51 & PM2071C51 & PM2070C51)



EFT For Serial 1 Test (PM2070B51)



EFT For Serial 2 Test (PM2070B51)



Surge Test (PM2071B51 & PM2071C51 & PM2070C51)



Surge Test (PM2070B51)



Surge For RJ45 Test (PM2071B51 & PM2071C51 & PM2070C51)



Surge Test For RJ45 Test (PM2070B51)



Surge For Serial 1 Test (PM2071B51 & PM2071C51 & PM2070C51)



Surge For Serial 2 Test (PM2071B51 & PM2071C51 & PM2070C51)



Surge For Serial 1 Test (PM2070B51)



Surge For Serial 2 Test (PM2070B51)



CS Test (PM2071B51 & PM2071C51 & PM2070C51)



CS Test (PM2070B51)



CS For RJ45 Test (PM2071B51 & PM2071C51 & PM2070C51)



CS For RJ45 Test (PM2070B51)

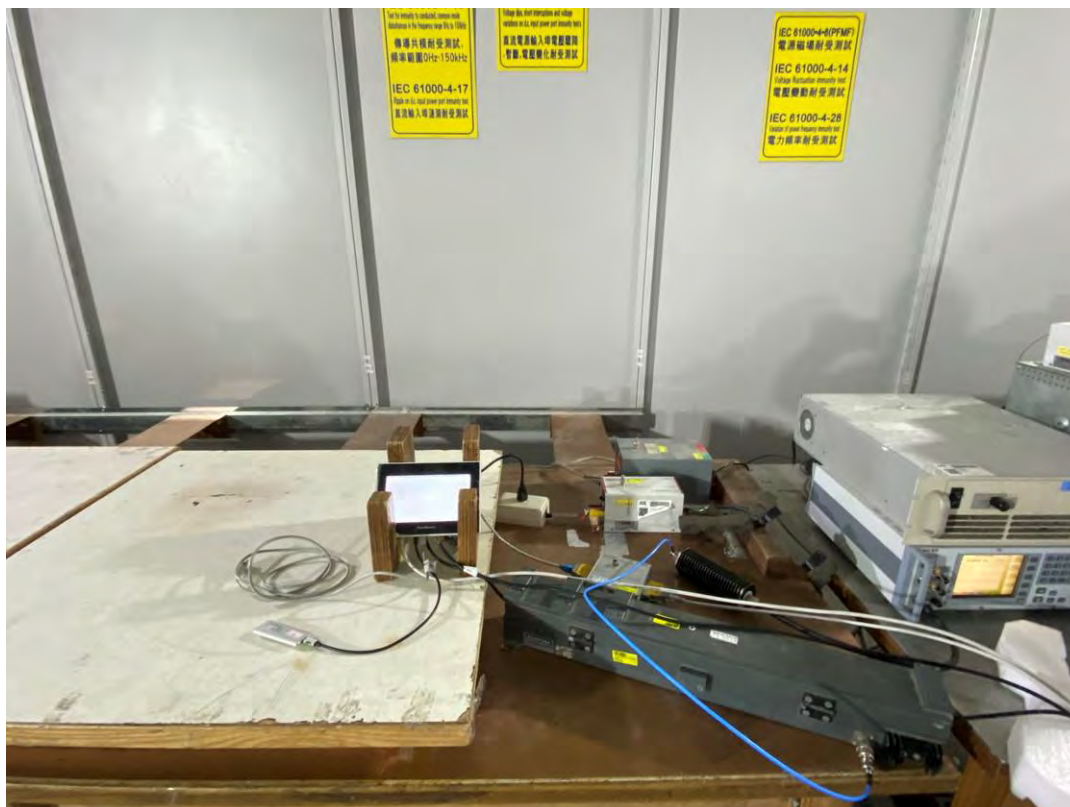


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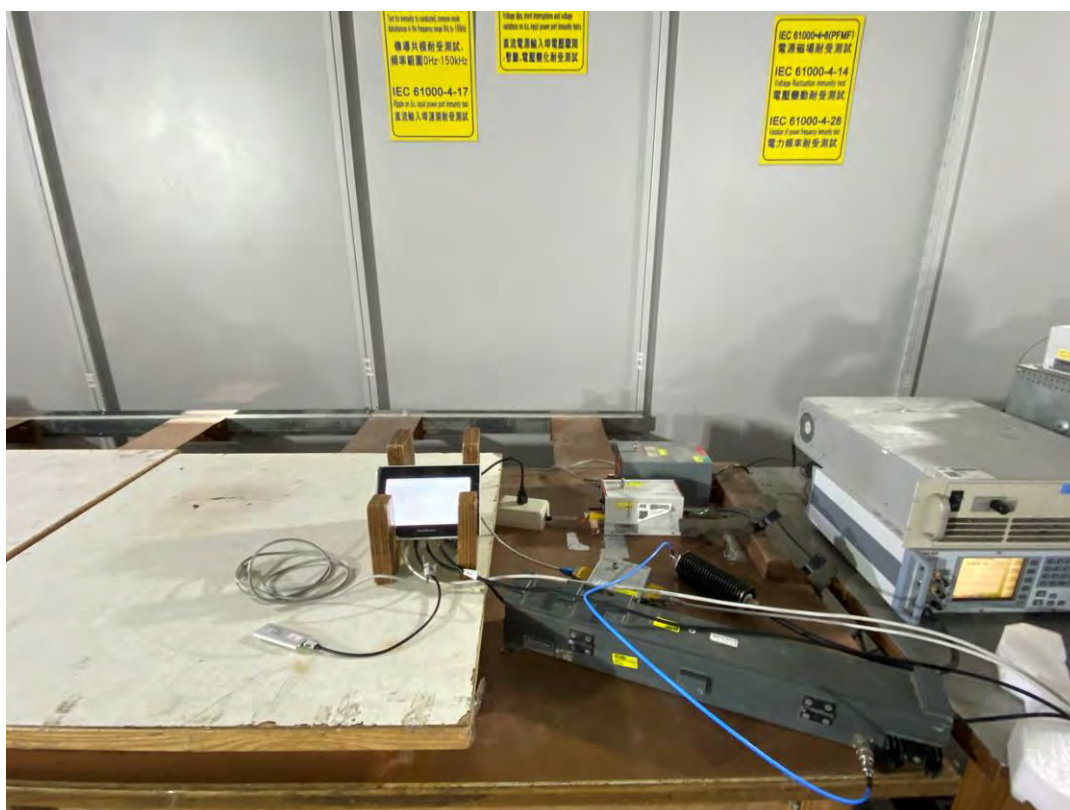
Ref No.: TMXD2302000389DE

Rev.: 01

CS For Serial 1 Test (PM2071B51 & PM2071C51 & PM2070C51)



CS For Serial 2 Test (PM2071B51 & PM2071C51 & PM2070C51)



CS For Serial 1 Test (PM2070B51)



CS For Serial 2 Test (PM2070B51)



PFMF Test (PM2071B51 & PM2071C51 & PM2070C51)

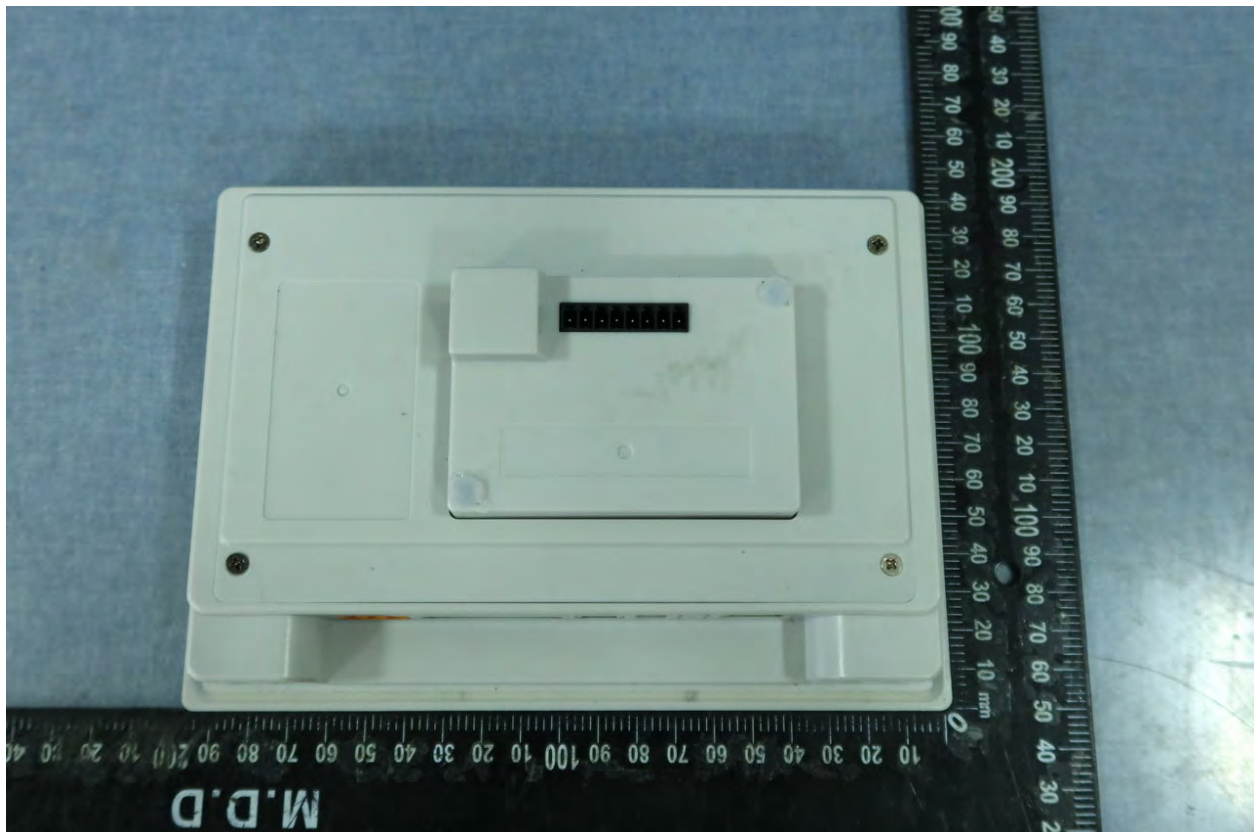


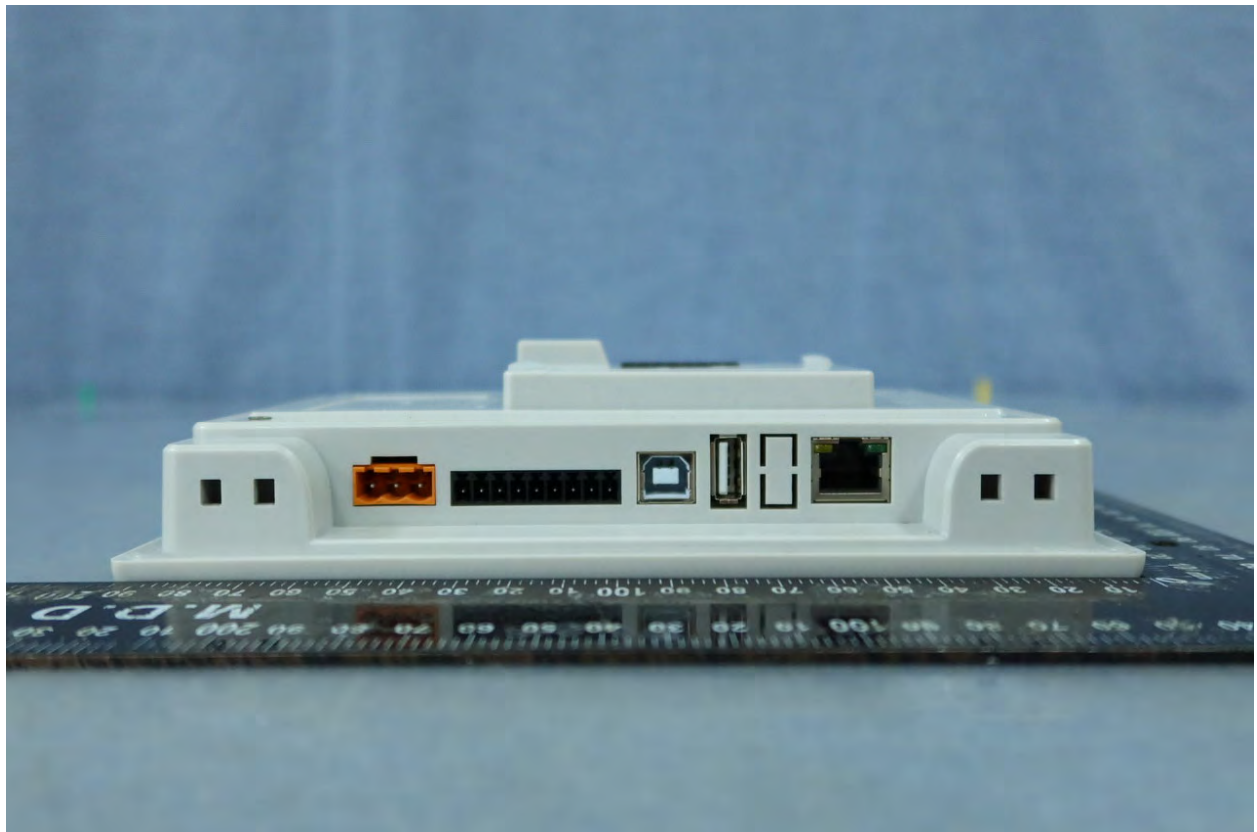
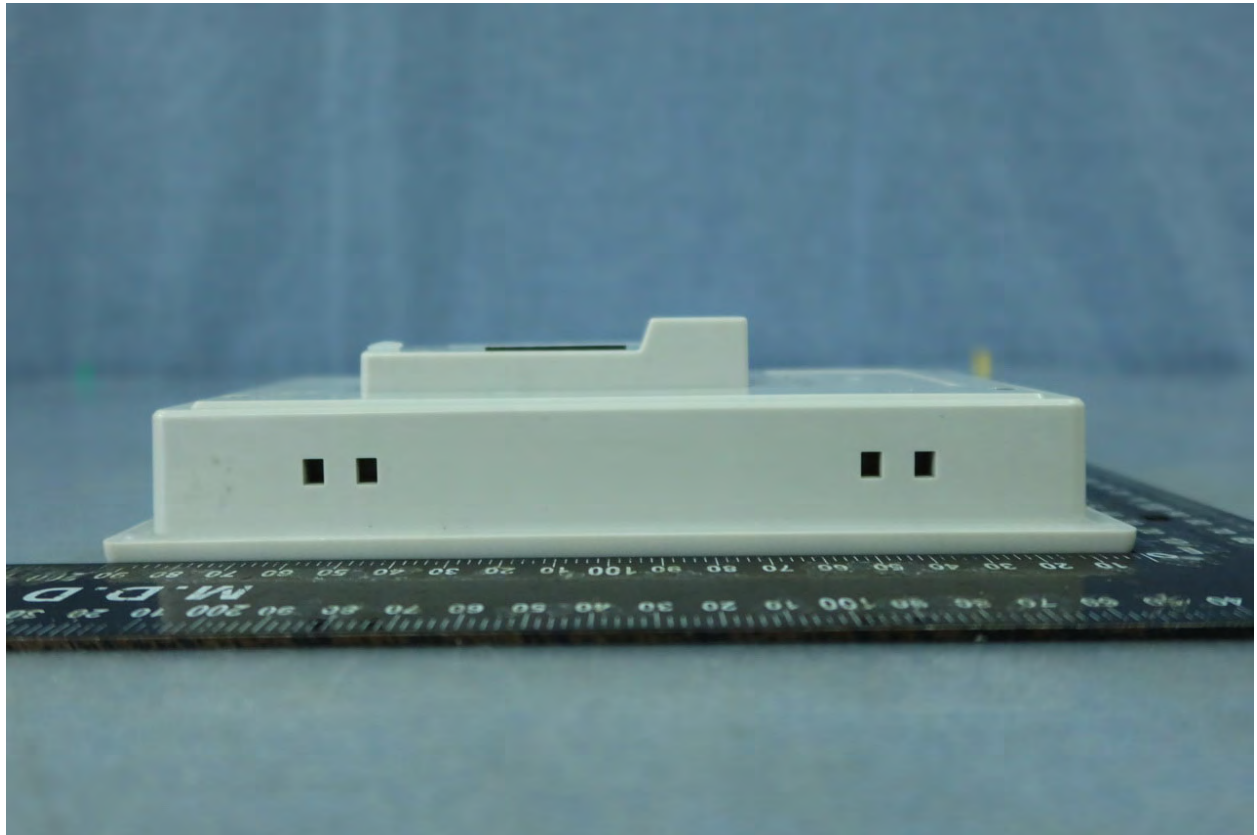
PFMF Test (PM2070B51)

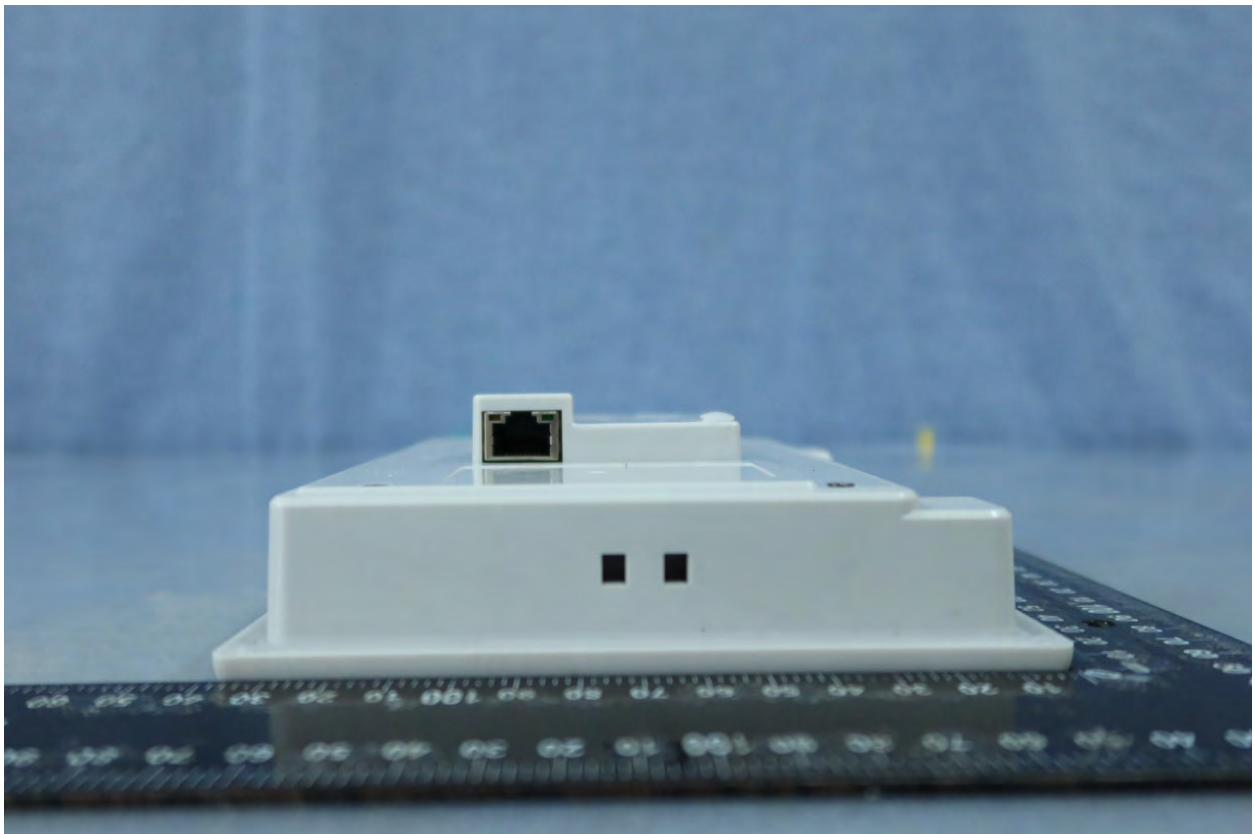
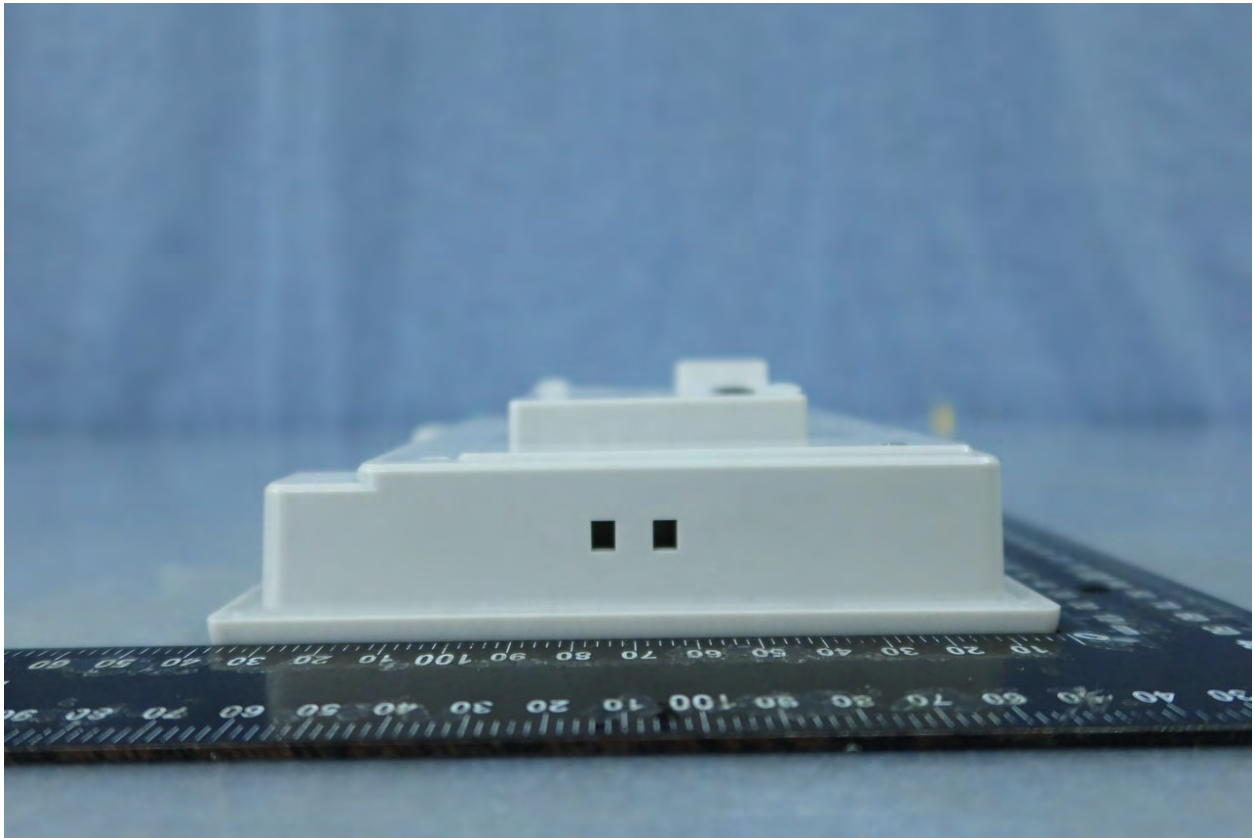


APPENDIX 1 - PHOTOGRAPHS OF EUT

Model: PM2071B51







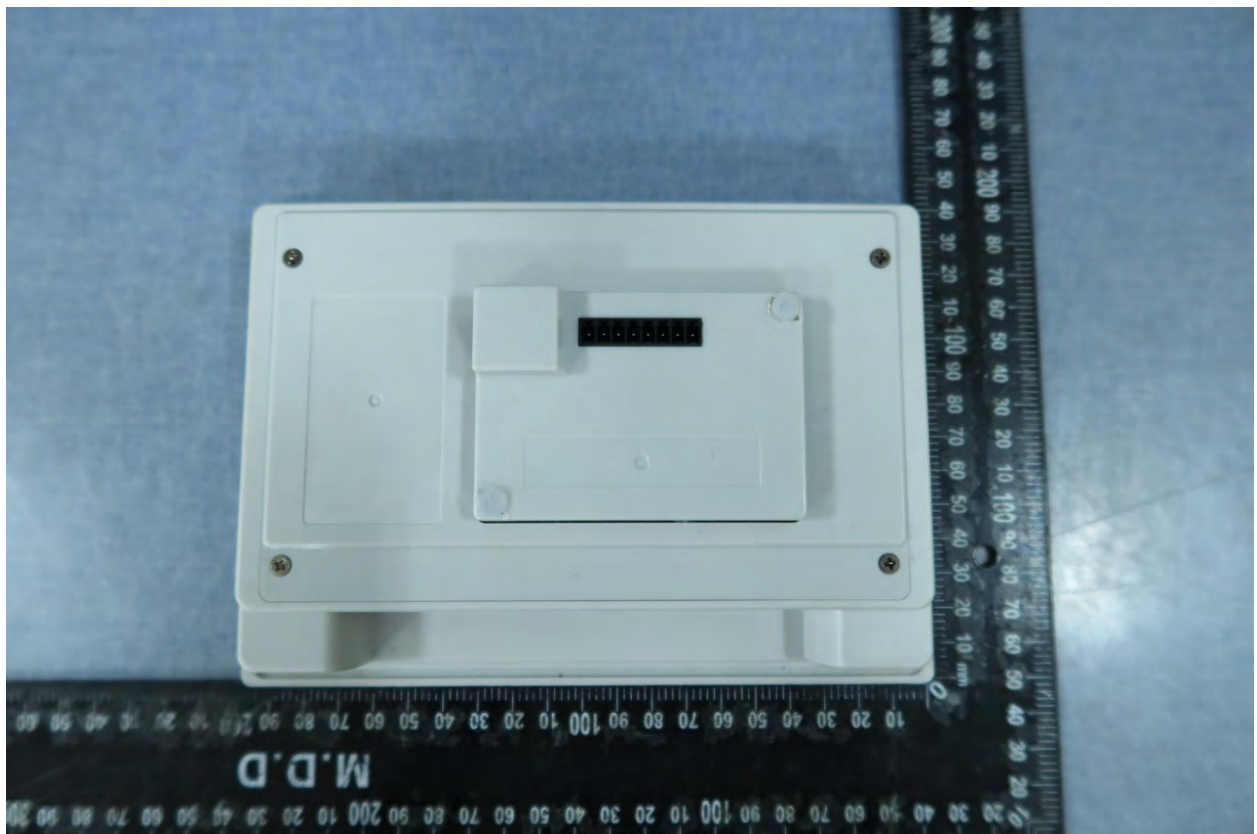
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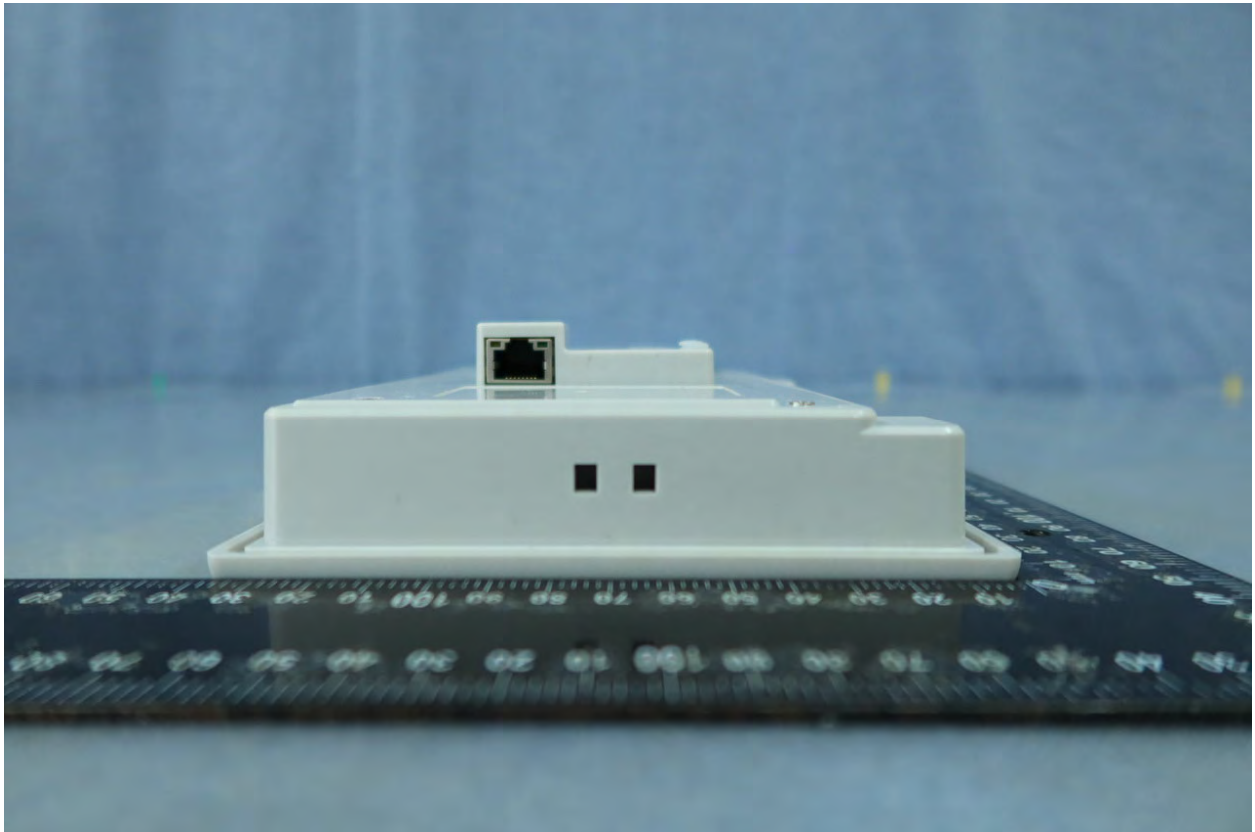
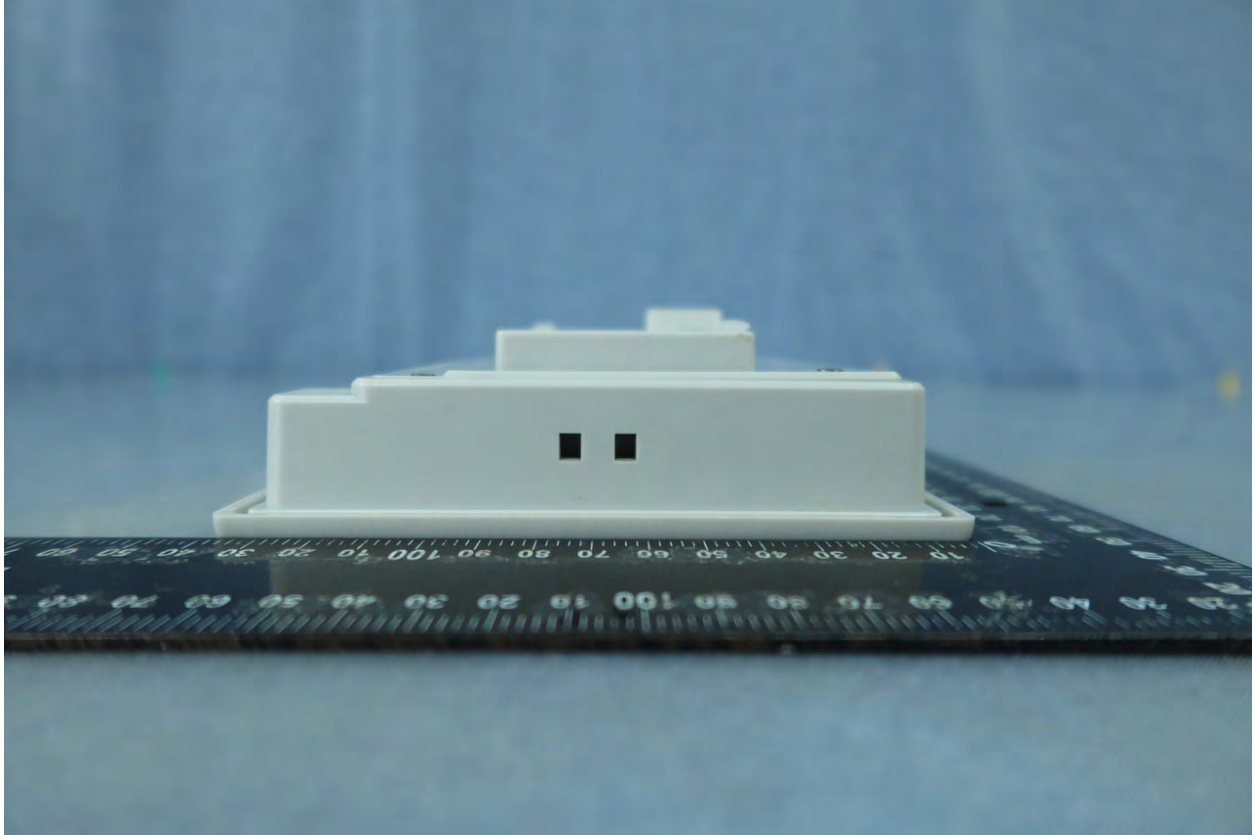
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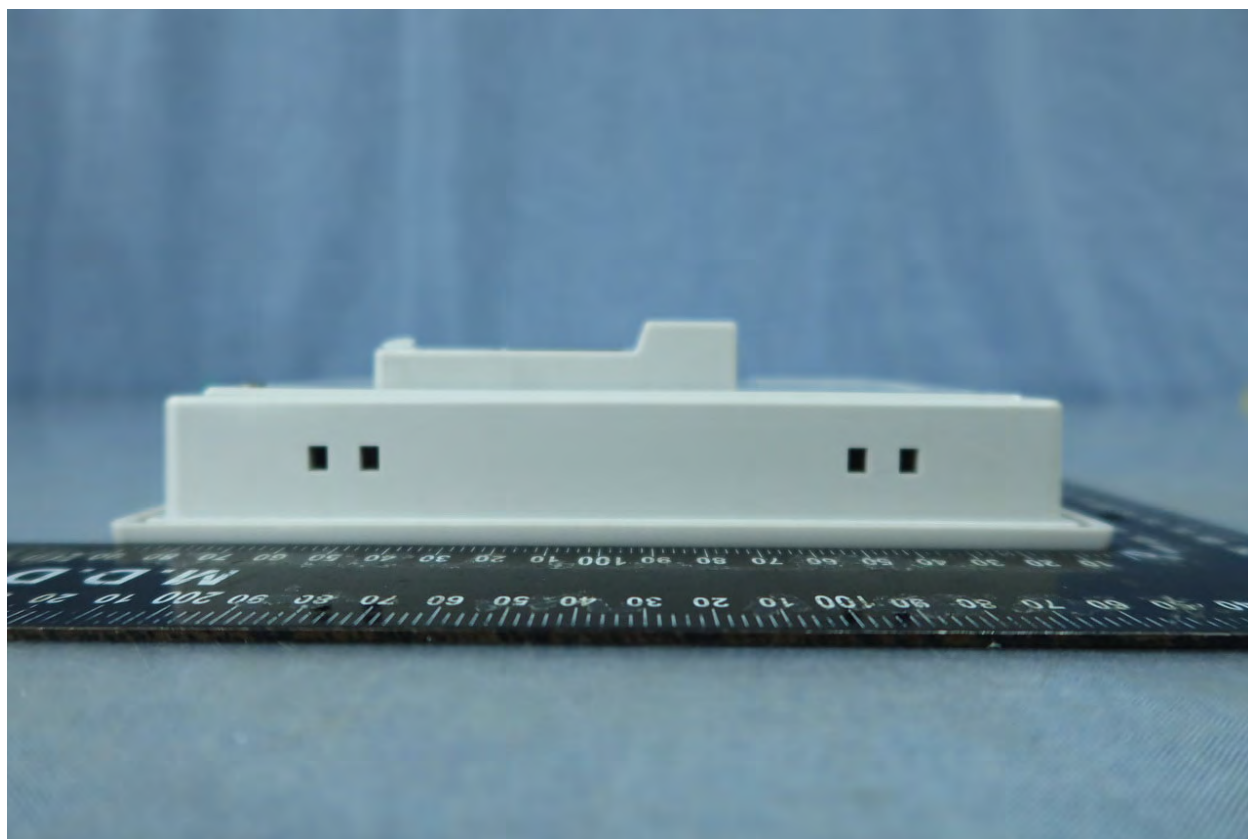
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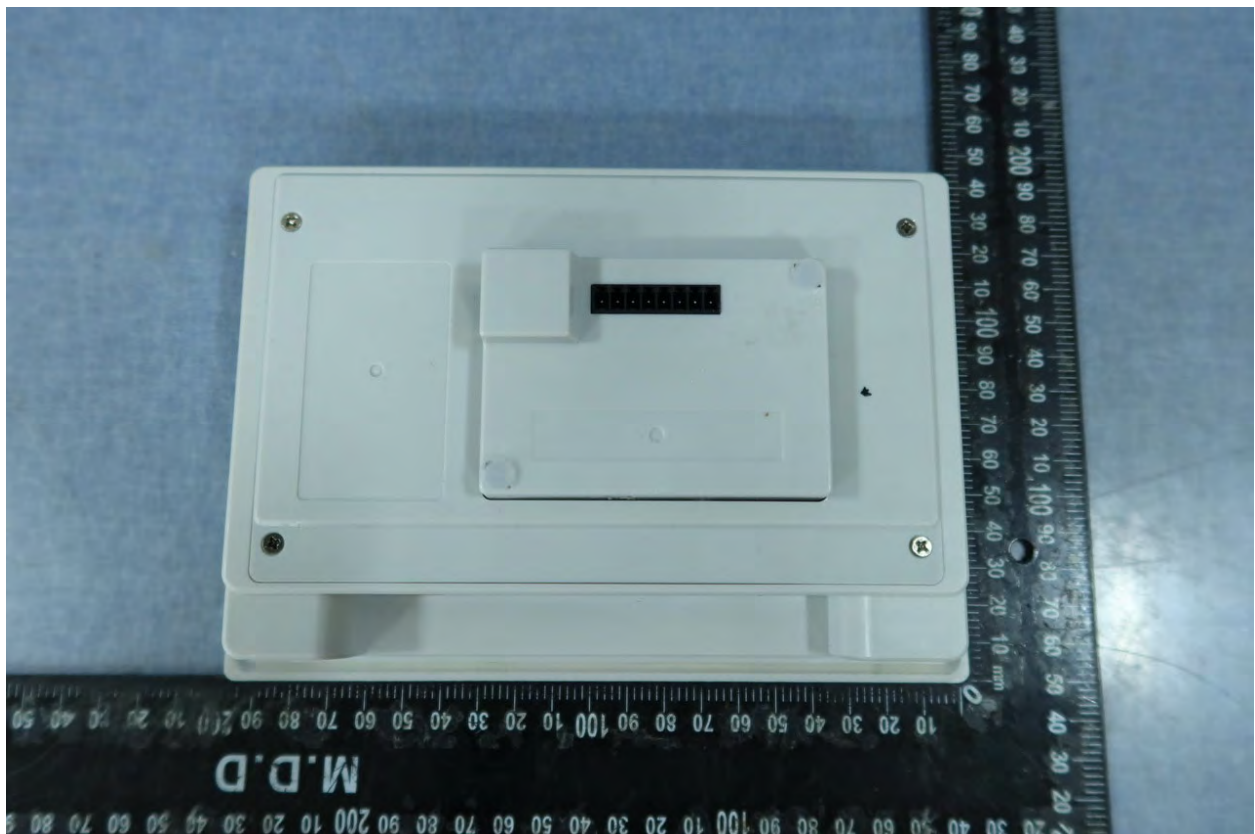
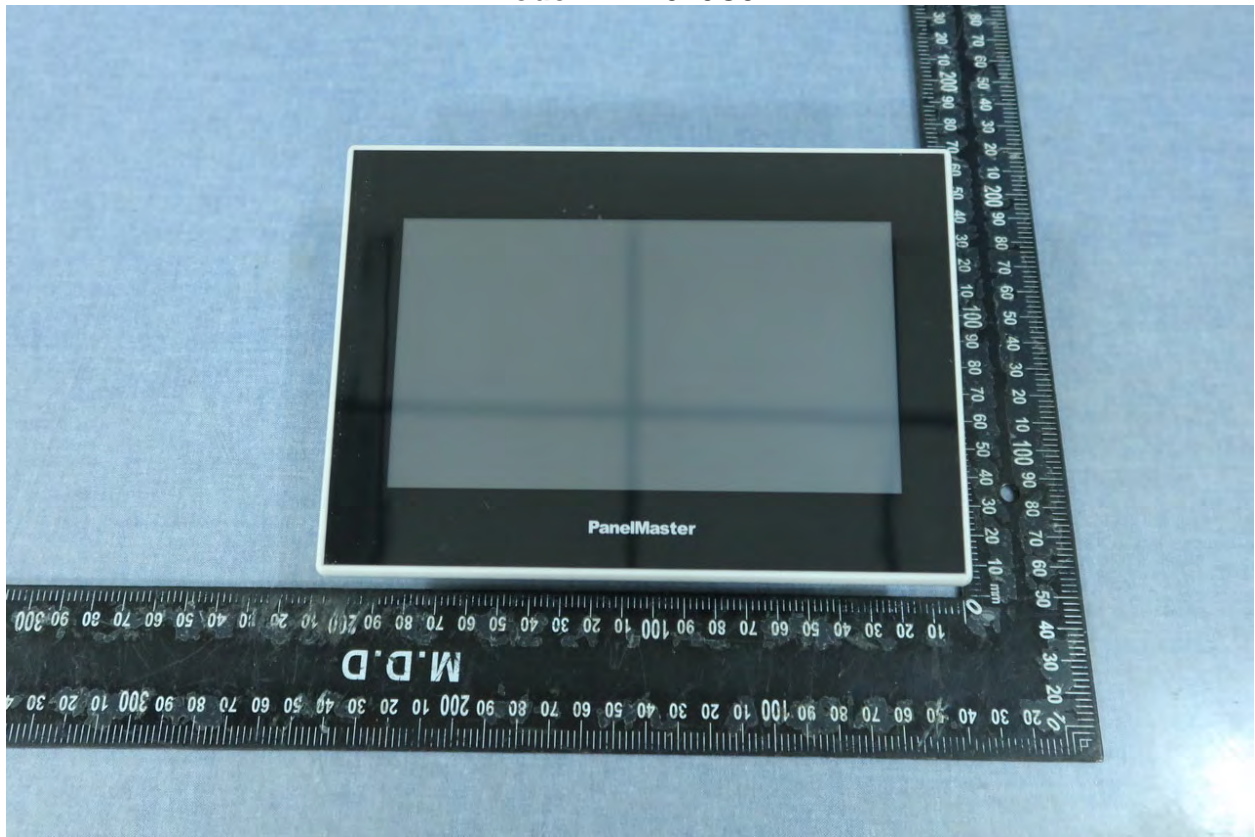
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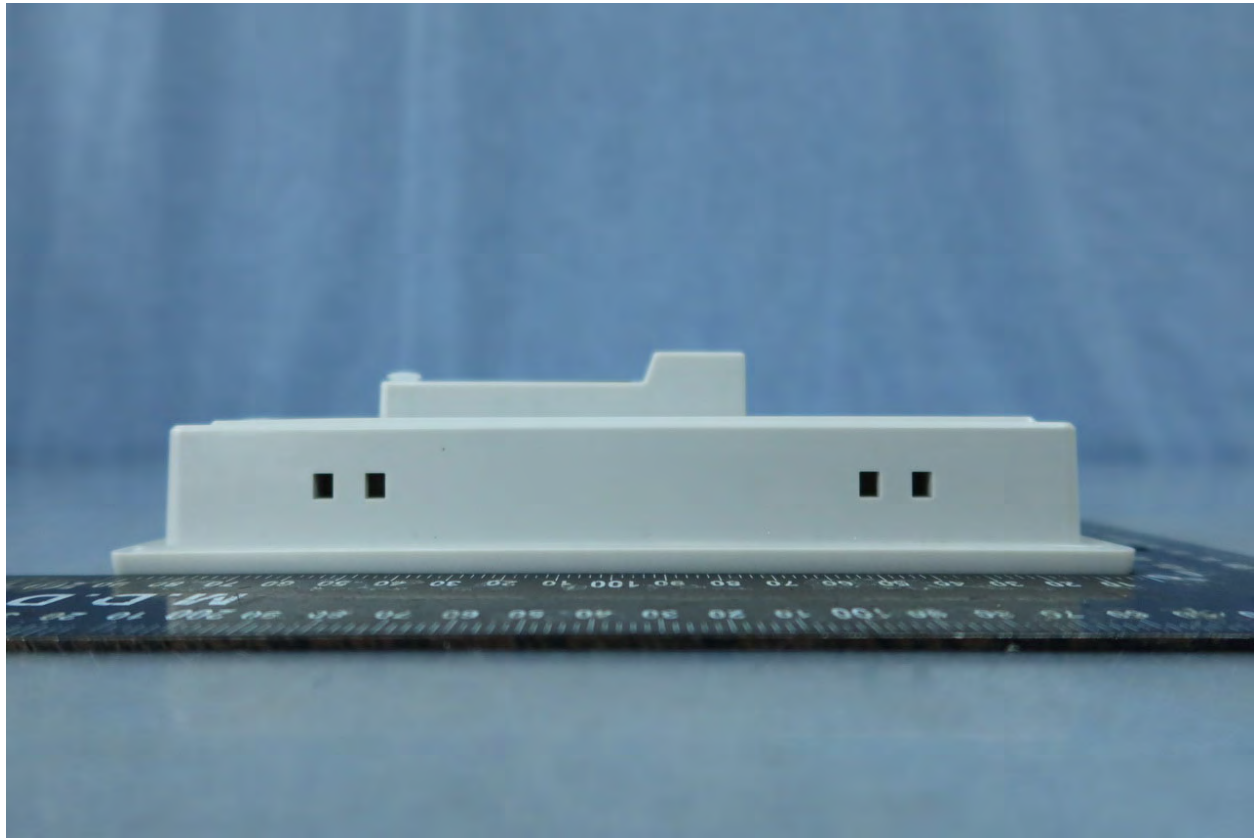
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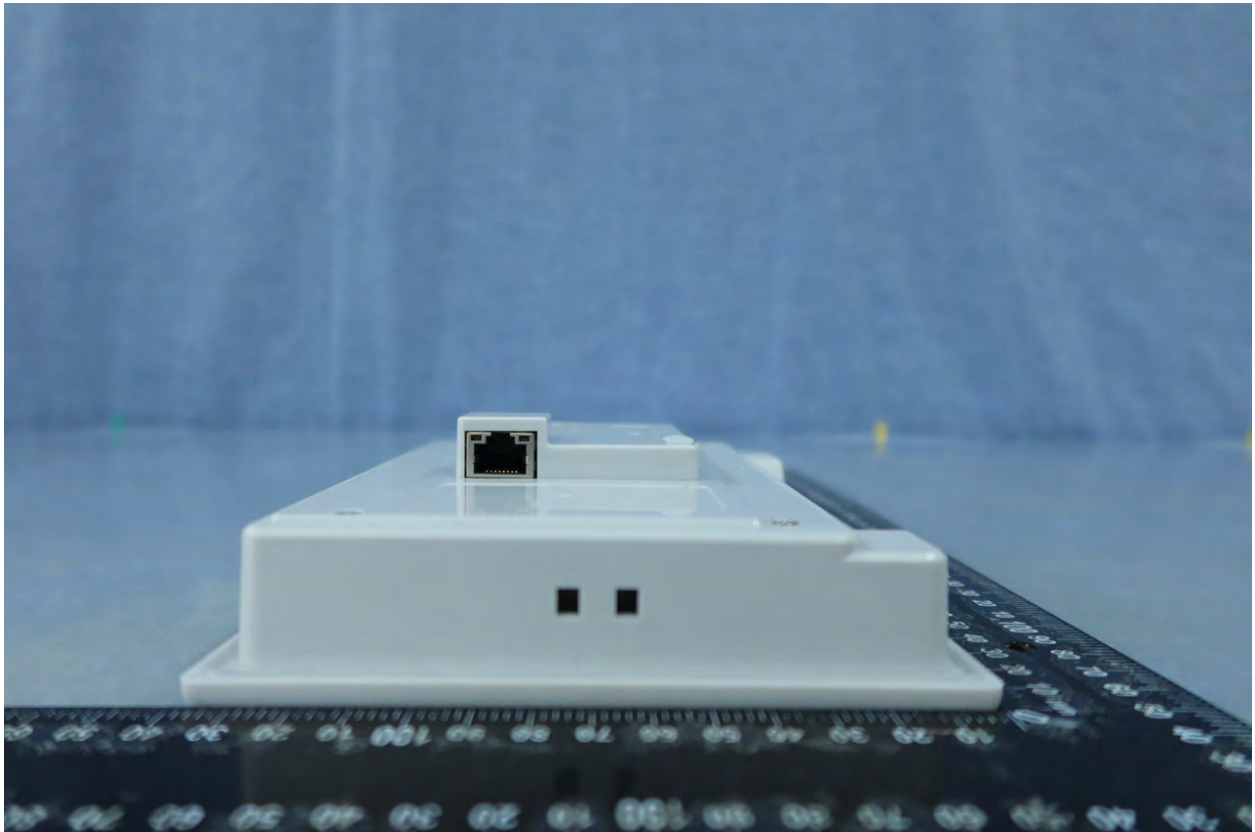
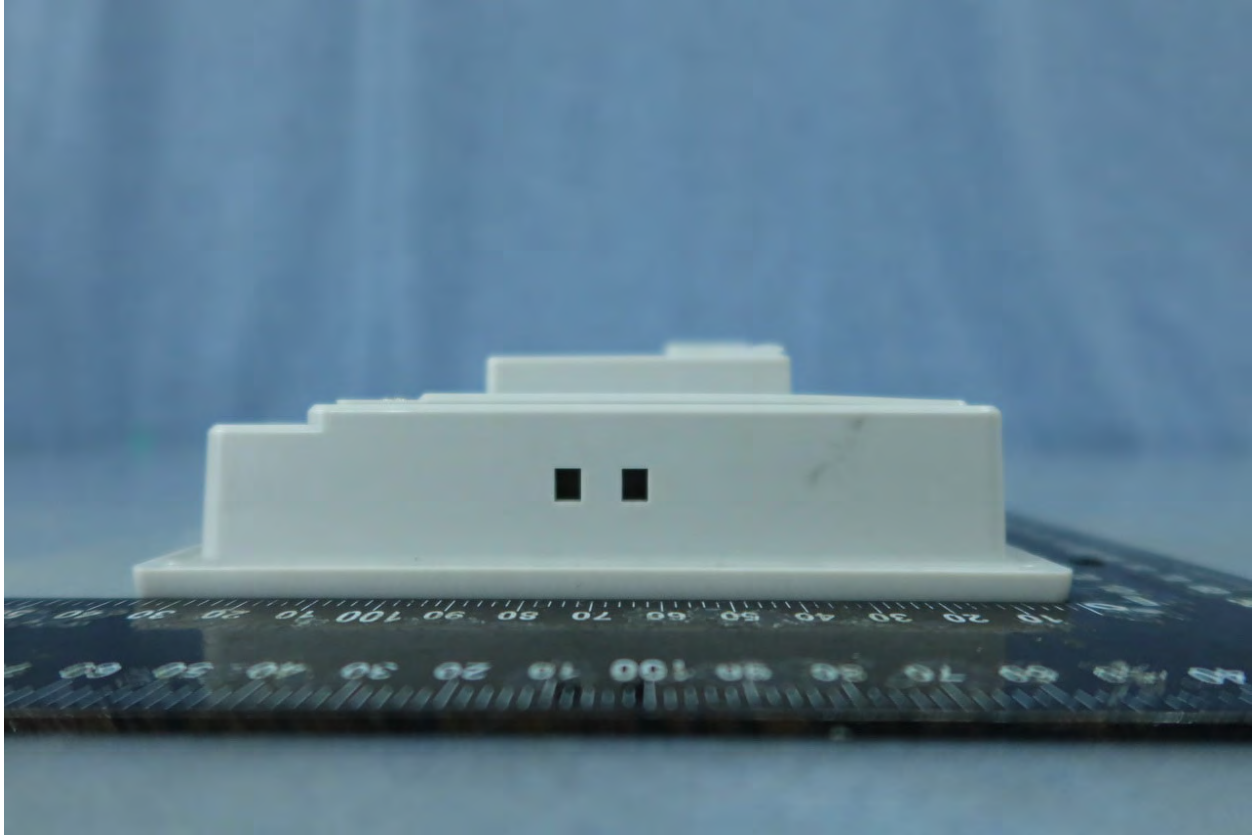
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