Test Report

EN 60601-1-2: 2015

for

Electromagnetic Compatibility

of

Product： **TR220M Series Medical Switch Adapter**

Trade Name： N/A

Model Number： TR220MA120; TR220MA240; TR220MA360; TR220MA480; TR220MA560; TR220MB120; TR220MB240; TR220MB360; TR220MB480; TR220MB560

Prepared for

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Remark:
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The test results in the report only to the tested sample.

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Statement of Compliance

Applicant:	Cincon Electronics Co., Ltd.
Manufacturer:	1. Cincon Electronics Co., Ltd. 2. Dongguan Cincon Electronics Limited
Product:	TR220M Series Medical Switch Adapter
Model No.:	TR220MA120; TR220MA240; TR220MA360; TR220MA480; TR220MA560; TR220MB120; TR220MB240; TR220MB360; TR220MB480; TR220MB560
Test Power Voltage:	230 Vac, 50 Hz
Date of Final Test:	Jun. 26, 2020
Revision of Report:	Rev. 01

Measurement Procedures and Standards Used：

☒ EN 60601-1-2: 2015

Reference Basic Standards：

Emission:

☒ CISPR 11: 2015+A1: 2016
☒ EN 55011: 2016+A1: 2017
☒ IEC 61000-3-2: 2014
☒ IEC 61000-3-3: 2013

Immunity:

☒ IEC 61000-4-2: 2008
☒ IEC 61000-4-3: 2020
☒ 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: 2004+A1: 2017

Deviations From the Basic Standards：

N/A

The measurement results in this test report were performed at Interocean EMC Technology Corp. The responsibility of measurement result is only subject to the tested sample.
This report shows the EUT is technically compliance with the above official standards.
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Report Issued: 2020/07/19

Prepared by: Peter Su (Peter Su) Approved: Edison Lee (Edison Lee)

1 General Information

1.1 Description of Equipment Under Test

Product	:	TR220M Series Medical Switch Adapter
Model Number	:	TR220MA120; TR220MA240; TR220MA360; TR220MA480; TR220MA560; TR220MB120; TR220MB240; TR220MB360; TR220MB480; TR220MB560
Applicant	:	**Cincon Electronics Co., Ltd.** No.8-1 Fu Kung Rd. Fu Hsing Park, Fu Hsing Hsiang, Chang Hua Hsien, Taiwan, R.O.C.
Manufacturer	:	**1. Cincon Electronics Co., Ltd.** No.8-1 Fu Kung Rd. Fu Hsing Park, Fu Hsing Hsiang, Chang Hua Hsien, Taiwan, R.O.C. **2. Dongguan Cincon Electronics Limited** No.1, Jing Xiang Rd., DongCheng Foreign Trade Industrial Park, ZhuShan, DongCheng District, DongGuan, GuangDong, 523128 P.R. China
Software/ Firmware version	:	N/A
Prototype or Production Version	:	PVT
Description of Basic safety and essential performance	:	Power supply support.
How to monitor the basic safety and essential performance during the test	:	Observe output power voltage on Un ± 2 %.
Patient-coupled Description	:	N/A
Interconnection Cables	:	N/A
Solution for EMC Test	:	N/A
Applicability / Tests not Performed	:	N/A
Power Supply	:	Input: 80~264 Vac Output: The detail specification, please see “Specifications” as below page. Power Cable: Non-shielded, Un-detachable, 1.2 m, with core
Operational Highest Frequency	:	100 kHz
Receipt date of EUT	:	Jun. 04, 2021
Date of Test	:	Jun. 18 ~ 26, 2021

Units Tested Description : 1.) The test models are "**TR220MA120; TR220MA240; TR220MA360; TR220MA480; R220MA560; TR220MB120; TR220MB240; TR220MB360; TR220MB480; TR220MB560**", and included in this report.
Applicant designates "**TR220MA240; TR220MB240**" as functionally most representative for testing.

2.) The differences of all models included in this report are provided by the applicant, and the lab disclaims any liability related to reporting, if incorrect, from such provision.
The difference for all models included in this report, please see "Specifications Description" as below page.

3.) For more detailed specification about EUT, please refer to the user's manual.

1.2 Specifications Description

MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE 1	VOLTAGE ACCURACY NOTE 2	LINE REGULATION NOTE 3	LOAD REGULATION NOET 4	% EFF. (Typ.) NOET 5
TR220MA120	12 V	16.67 A	120 mV	± 2.0 %	± 1 %	± 4 %	91 %
TR220MA240	24 V	9.17 A	200 mV	± 2.0 %	± 1 %	± 4 %	93 %
TR220MA360	36 V	6.11 A	200 mV	± 2.0 %	± 1 %	± 4 %	93 %
TR220MA480	48 V	4.58 A	200 mV	± 2.0 %	± 1 %	± 4 %	94 %
TR220MA560	56 V	3.93 A	200 mV	± 2.0 %	± 1 %	± 4 %	94 %
TR220MB120	12 V	16.67 A	120 mV	± 2.0 %	± 1 %	± 4 %	91 %
TR220MB240	24 V	9.17 A	200 mV	± 2.0 %	± 1 %	± 4 %	93 %
TR220MB360	36 V	6.11 A	200 mV	± 2.0 %	± 1 %	± 4 %	93 %
TR220MB480	48 V	4.58 A	200 mV	± 2.0 %	± 1 %	± 4 %	94 %
TR220MB560	56 V	3.93 A	200 mV	± 2.0 %	± 1 %	± 4 %	94 %

***PART NUMBER:**

Series		Output Voltage	DC Plug Type	Cable Type	Cable Length
TR220M	X	XXX	-XXXX	E	XXX
220W Medical Adapter	A: Class I B: Class II	120: 12V 240: 24V 360: 36V 480: 48V 560: 56V	-	E: UL2464 with OVP	12V : 950mm with DIN Plug 24V : 1220mm with DIN Plug 36V : 1800mm with DC Jack 48V : 1800mm with DC Jack 56V : 1800mm with DC Jack

1.3 Details of Tested Supporting System

1.3.1 LOAD (Model No.: TR220MA120)

FULL LOAD WATT : 200.04 W (12 Vdc, 16.67 A)

1.3.2 LOAD (Model No.: TR220MA240)

FULL LOAD WATT : 220.08 W (24 Vdc, 9.17 A)

1.3.3 LOAD (Model No.: TR220MA360)

FULL LOAD WATT : 219.96 W (36 Vdc, 6.11 A)

1.3.4 LOAD (Model No.: TR220MA480)

FULL LOAD WATT : 219.84 W (48 Vdc, 4.58 A)

1.3.5 LOAD (Model No.: TR220MA560)

FULL LOAD WATT : 220.08 W (56 Vdc, 3.93 A)

1.3.6 LOAD (Model No.: TR220MB120)

FULL LOAD WATT : 200.04 W (12 Vdc, 16.67 A)

1.3.7 LOAD (Model No.: TR220MB240)

FULL LOAD WATT : 220.08 W (24 Vdc, 9.17 A)

1.3.8 LOAD (Model No.: TR220MB360)

FULL LOAD WATT : 219.96 W (36 Vdc, 6.11 A)

1.3.9 LOAD (Model No.: TR220MB480)

FULL LOAD WATT : 219.96 W (48 Vdc, 4.58 A)

1.3.10 LOAD (Model No.: TR220MB560)

FULL LOAD WATT : 220.08 W (56 Vdc, 3.93 A)

1.3.11 Test Cable

Power Cable : Non-shielded, Detachable, 1.8 m, w/o core

1.4 Measurement Uncertainty

Item	Value
Conduction 1:	
Conducted Emission - AMN (9 kHz to 30 MHz)	3.0 dB
Conducted Emission - AAN (ISN T800) (150 kHz to 30 MHz)	3.3 dB
Conducted Emission - CP (9 kHz to 30 MHz)	3.1 dB
Radiated Emission - LAS (2 m Loop) (9 kHz to 30 MHz)	3.3 dB
Antenna Power (30 MHz to 2150 MHz)	2.1 dB
Conduction 2:	
Conducted Emission - VP (9 kHz to 30 MHz)	2.5 dB
Disturbance Power (30 MHz to 300 MHz)	4.1 dB
OATS 1:	
Radiated Emission Test (30 MHz to 200 MHz)	4.6 dB
Radiated Emission Test (200 MHz to 1 GHz)	4.8 dB
OATS 3:	
Radiated Emission Test (30 MHz to 200 MHz)	4.8 dB
Radiated Emission Test (200 MHz to 1 GHz)	4.8 dB
Chamber 3:	
Radiated Emission Test (9 kHz to 30 MHz)	3.2 dB
Radiated Emission Test (30 MHz to 200 MHz)	4.6 dB
Radiated Emission Test (200 MHz to 1 GHz) (Antenna: without tilting)	5.9 dB
Radiated Emission Test (1 GHz to 6 GHz)	4.9 dB
Induced Current Density (20 kHz to 10 MHz)	1.9 dB
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%	

1.5 Summary of Test Results

1.5.1 Test program according EN 60601-1-2 (Emissions Test)

Emission test equipment intended	
☐	CISPR 11, Group 1, Class A
☒	CISPR 11, Group 1, Class B
☐	CISPR 11, Group 2, Class A
☐	CISPR 11, Group 2, Class B
☐	CISPR 11, Group 2, induction cooking
☐	CISPR 14-1
☐	CISPR 32, Class A
☐	CISPR 32, Class B
☐	CISPR 25
☐	RTCA DO-160G
This product complies with CISPR 11 by client requires.	

Report Clause	Phenomenon	Application	Reference Clause(s)	Reference Standard	Result
2	Conducted Emissions	Mains Power Port	7.3	EN 60601-1-2	PASS
3	Radiated Emissions	Enclosure Port	7.3	EN 60601-1-2	PASS
4	Harmonic Current Emissions	AC Power Port	7.3	IEC 61000-3-2	PASS
5	Voltage Changes, Voltage Fluctuations and Flicker Emissions	AC Power Port	7.3	IEC 61000-3-3	PASS

1.5.2 Test program according EN 60601-1-2 (Immunity Test)

Immunity test equipment intended	
☐	Professional healthcare facility environment
☒	HOME HEALTHCARE environment
☐	Special environment

Special environment specification
N/A

Report Clause	Phenomenon	Application	Reference Clause(s)	Reference Standard	Result
7	Electrostatic Discharge	Enclosure Port	8	IEC 61000-4-2	PASS
8	Radiated RF EM Fields	Enclosure Port	8	IEC 61000-4-3	PASS
9	RF Wireless Communications Equipment	Enclosure Port	8		PASS
10	Electrical Fast Transients / Bursts	AC Power Port	8	IEC 61000-4-4	PASS
11	Surges	AC Power Port	8	IEC 61000-4-5	PASS
12	Conducted Disturbances Induced by RF Fields	AC Power Port	8	IEC 61000-4-6	PASS
13	Power Frequency Magnetic Fields	Enclosure Port	8	IEC 61000-4-8	PASS
14	Voltage Dips and Interruptions	AC Power Port	8	IEC 61000-4-11	PASS
	Transient Conduction Along Supply Lines	DC Power Port	8	ISO 7637-2	Not Applicable

1.6 Measured Mode

1.6.1 For Emission test are as following

- Mode 1: Full Load Mode (Model No.: TR220MA120)
- Mode 2: Full Load Mode (Model No.: TR220MA240)
- Mode 3: Full Load Mode (Model No.: TR220MA360)
- Mode 4: Full Load Mode (Model No.: TR220MA480)
- Mode 5: Full Load Mode (Model No.: TR220MA560)
- Mode 6: Full Load Mode (Model No.: TR220MB120)
- Mode 7: Full Load Mode (Model No.: TR220MB240)
- Mode 8: Full Load Mode (Model No.: TR220MB360)
- Mode 9: Full Load Mode (Model No.: TR220MB480)
- Mode 10: Full Load Mode (Model No.: TR220MB560)

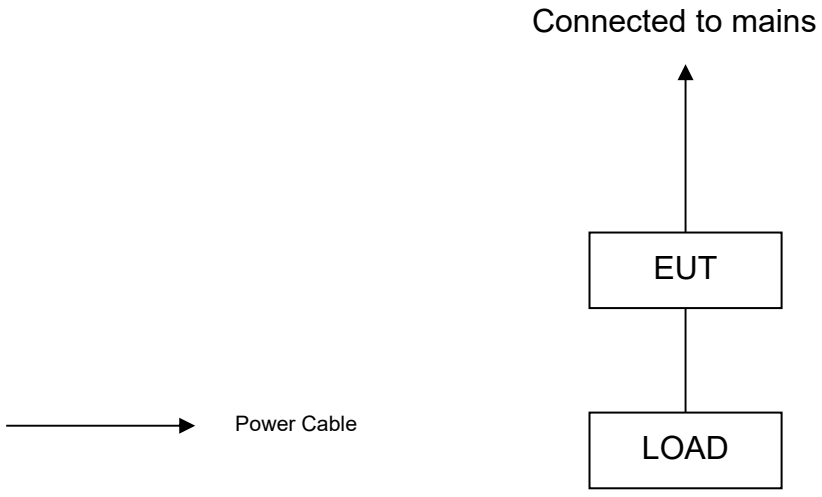
1.6.2 For Harmonic & Flicker test

- Mode 2: Full Load (Model No.: TR220MA240)
- Mode 7: Full Load (Model No.: TR220MB240)

1.6.3 For Immunity test

- Mode 2: Full Load (Model No.: TR220MA240)
- Mode 7: Full Load (Model No.: TR220MB240)

1.7 Configuration of EUT Setup



1.8 Test Step of EUT

1.8.1 Set the EUT and peripheral as above.

1.8.2 Turn on the power of all equipments.

1.8.3 Confirm all functions are normal.

1.8.4 Execute the test.

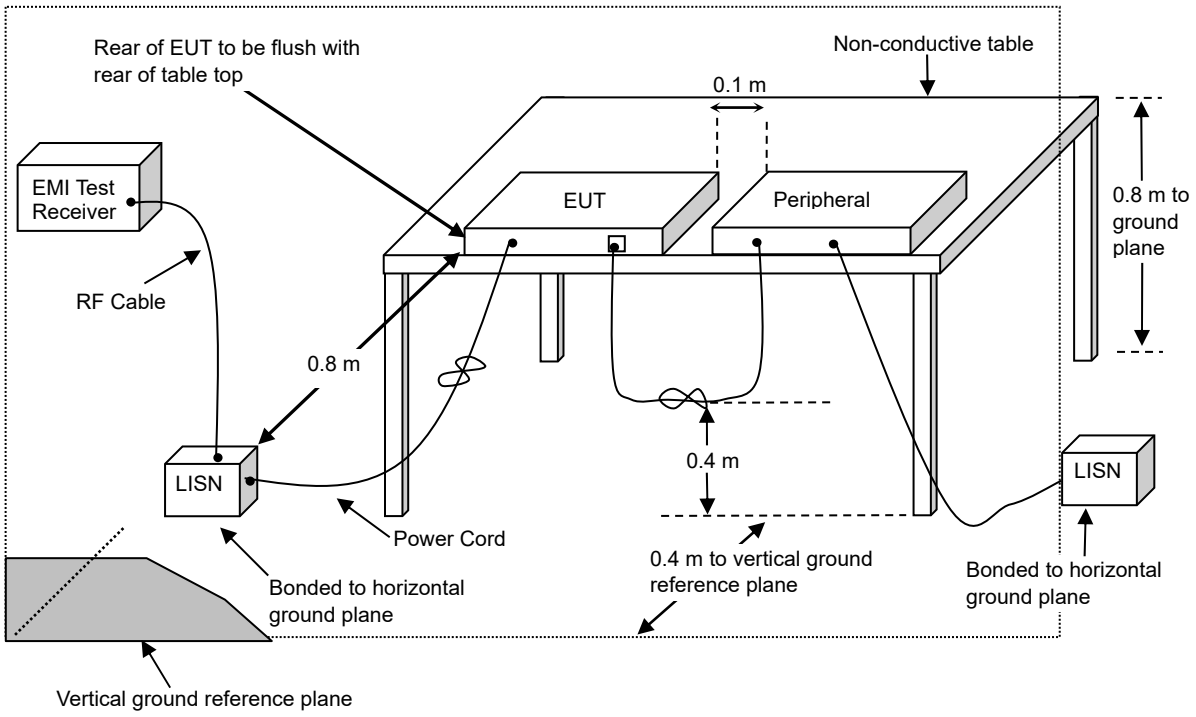
2 Power Line Conducted Emission Measurement

2.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100127	2021/11/17
RF Cable	IETC	CBL68	CBL68	2022/01/22
Pulse Limiter	R&S	ESH3-Z2	8360836/026	2022/01/22
L.I.S.N.	Schwarzbeck	NNLK8121	8121417	2022/03/08
L.I.S.N.	Schaffner	MN2050D	1598	2021/08/04
Measurement Software	AUDIX-e3			

Note: The above equipments are within the valid calibration period.

2.2 Block Diagram of Test Configuration



2.3 Conducted Limit

CISPR 11

Frequency (MHz)	☐ Group 1, Class A (dB μV)		☒ Group 1, Class B (dB μV)	
	Q.P. (Quasi-Peak)	A.V. (Average)	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 to 0.50	79	66	66 to 56	56 to 46
0.50 to 5.0	73	60	56	46
5.0 to 30	73	60	60	50

2.4 Instrument Configuration

2.4.1 Set the EMI test receiver frequency range from 150 kHz to 30 MHz.

2.4.2 Set the EMI test receiver bandwidth at 9 kHz.

2.4.3 Set the EMI test receiver detector as Quasi-Peak (Q.P.) and Average (AV).

2.5 Configuration of Measurement

2.5.1 The EUT was placed on a non-conductive table whose total height equaled 80 cm and vertical conducting plane located 40 cm to the rear of the EUT.

2.5.2 The EUT was connected to the main power through Line Impedance Stabilization Networks (LISN). This setup provided a 50 ohm / 50 μH coupling impedance for the measuring equipment. The auxiliary equipment was also connected to the main power through a LISN that provided a 50 ohm/50 μH coupling impedance with 50 ohm termination. (Refer to the block diagram of the test setup and photographs.)

2.5.3 The conducted disturbance was measured between the phase lead and the reference ground, and between the neutral lead and reference ground. The initial testing identified the frequency that has the highest disturbance relative to the limit while operating the EUT in typical modes of operation and cable positions in a test setup representative of typical system configuration.

2.5.4 The identification of the frequency of highest disturbance with respect to the limit was found by investigating disturbances at a number of significant frequencies. The probable frequency of maximum disturbance had been found and that the associated cable and EUT configuration and mode of operation had been identified.

2.6 Test Result

PASS.

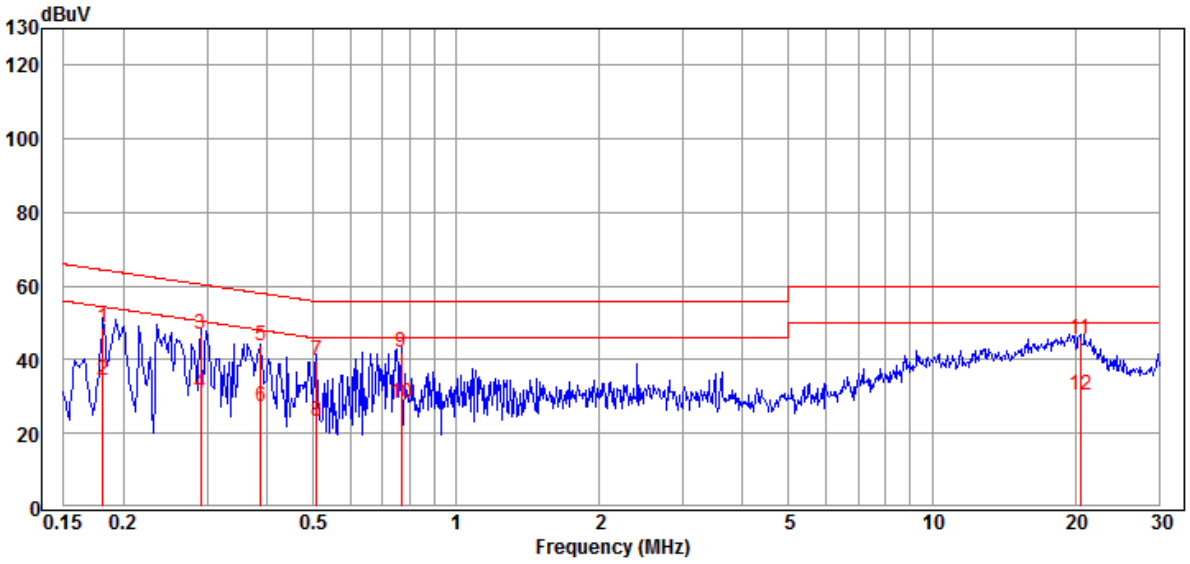
The final test data is shown as following pages.

Factor = Insertion Loss + Cable Loss
Level = Reading + Factor
Margin = Level - Limit

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA120
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 1: Full Load Mode (Model No.: TR220MA120)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:289 2021-06-21

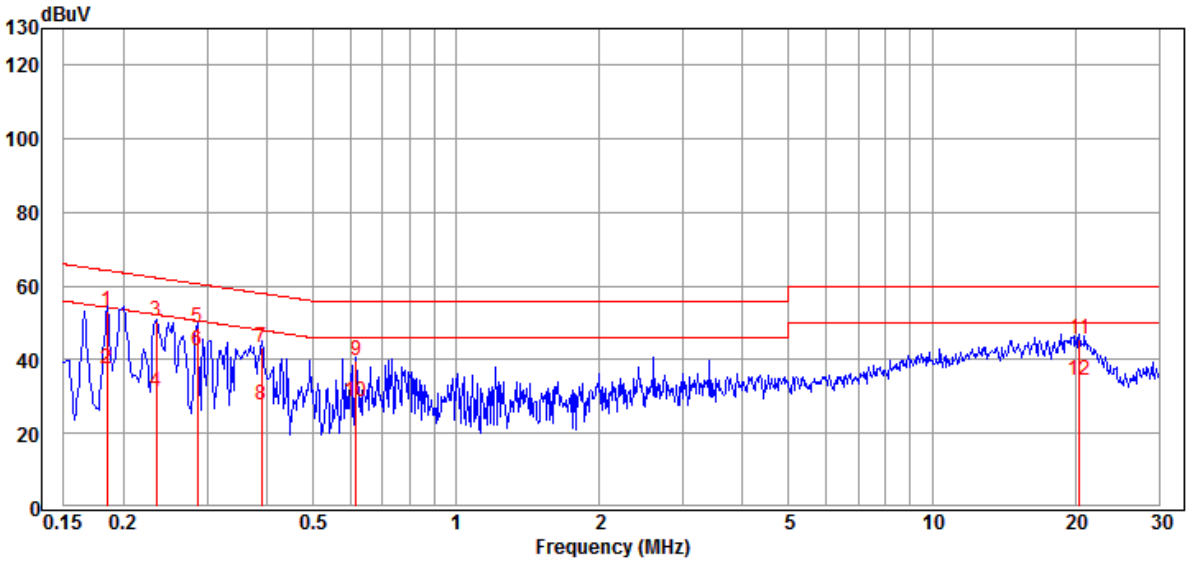


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1815	39.00	9.90	48.90	64.42	-15.52	QP
2	0.1815	24.62	9.90	34.52	54.42	-19.90	Average
3	0.2909	36.77	9.92	46.69	60.50	-13.81	QP
4	0.2909	21.00	9.92	30.92	50.50	-19.58	Average
5	0.3893	33.81	9.90	43.71	58.08	-14.37	QP
6	0.3893	17.13	9.90	27.03	48.08	-21.05	Average
7	0.5101	30.08	9.88	39.96	56.00	-16.04	QP
8	0.5101	13.21	9.88	23.09	46.00	-22.91	Average
9	0.7670	32.31	9.90	42.21	56.00	-13.79	QP
10	0.7670	18.28	9.90	28.18	46.00	-17.82	Average
11	20.4860	34.97	10.74	45.71	60.00	-14.29	QP
12	20.4860	19.82	10.74	30.56	50.00	-19.44	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA120
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 1: Full Load Mode (Model No.: TR220MA120)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:290 2021-06-21

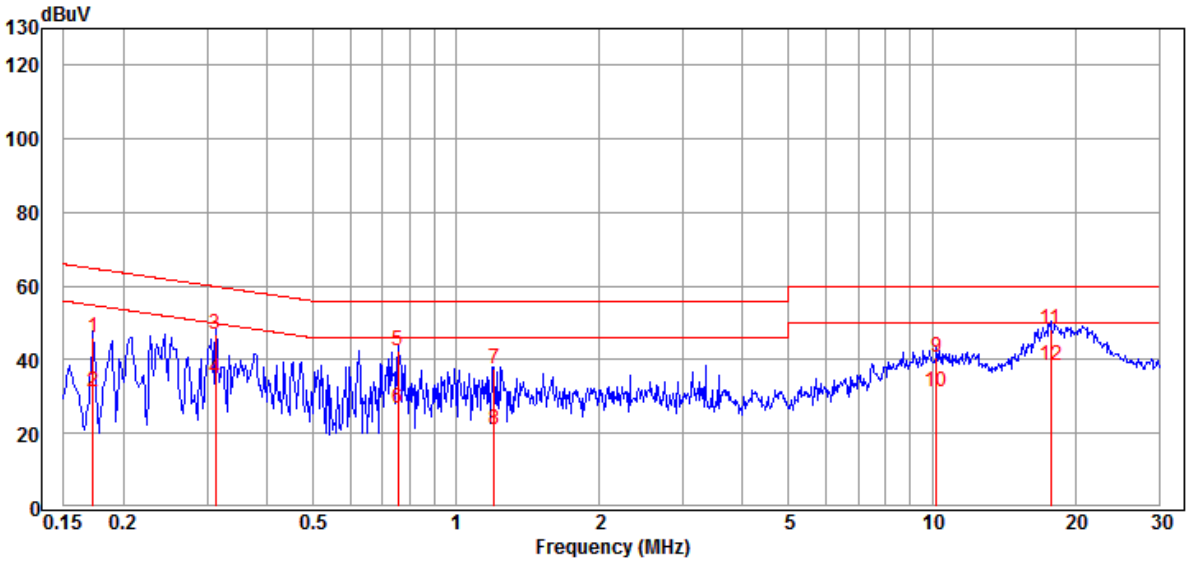


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1854	43.21	9.89	53.10	64.24	-11.14	QP
2	0.1854	27.82	9.89	37.71	54.24	-16.53	Average
3	0.2353	40.66	9.89	50.55	62.26	-11.71	QP
4	0.2353	21.51	9.89	31.40	52.26	-20.86	Average
5	0.2863	38.77	9.90	48.67	60.63	-11.96	QP
6	0.2863	32.58	9.90	42.48	50.63	-8.15	Average
7	0.3914	33.51	9.88	43.39	58.03	-14.64	QP
8	0.3914	17.96	9.88	27.84	48.03	-20.19	Average
9	0.6173	29.93	9.87	39.80	56.00	-16.20	QP
10	0.6173	18.53	9.87	28.40	46.00	-17.60	Average
11	20.3770	35.54	10.19	45.73	60.00	-14.27	QP
12	20.3770	24.10	10.19	34.29	50.00	-15.71	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA240
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 2: Full Load Mode (Model No.: TR220MA240)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:291 2021-06-21

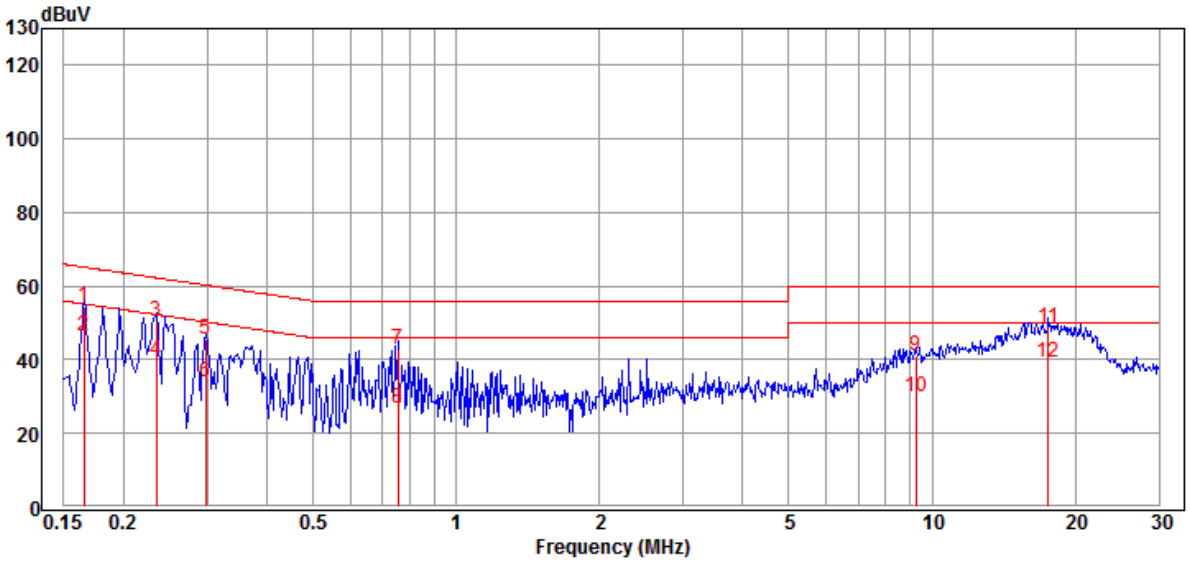


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1731	35.91	9.89	45.80	64.81	-19.01	QP
2	0.1731	21.24	9.89	31.13	54.81	-23.68	Average
3	0.3133	36.84	9.92	46.76	59.88	-13.12	QP
4	0.3133	25.03	9.92	34.95	49.88	-14.93	Average
5	0.7549	32.41	9.90	42.31	56.00	-13.69	QP
6	0.7549	17.09	9.90	26.99	46.00	-19.01	Average
7	1.2030	27.79	9.91	37.70	56.00	-18.30	QP
8	1.2030	10.89	9.91	20.80	46.00	-25.20	Average
9	10.2330	30.43	10.36	40.79	60.00	-19.21	QP
10	10.2330	20.78	10.36	31.14	50.00	-18.86	Average
11	17.7550	37.68	10.63	48.31	60.00	-11.69	QP
12	17.7550	27.63	10.63	38.26	50.00	-11.74	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA240
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 2: Full Load Mode (Model No.: TR220MA240)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:292 2021-06-21

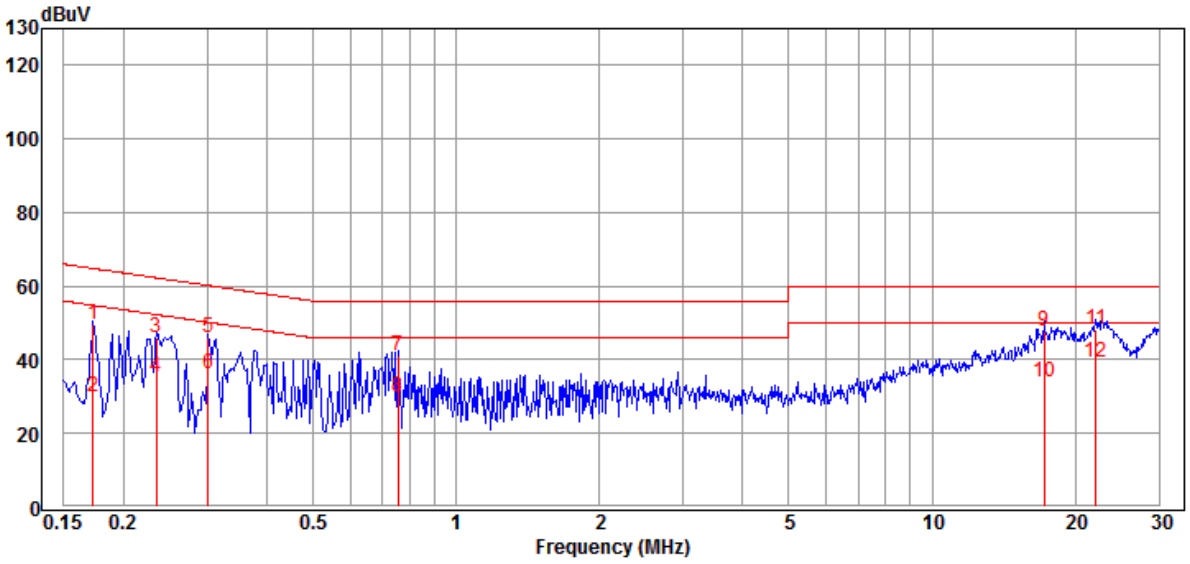


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1659	44.73	9.88	54.61	65.16	-10.55	QP
2	0.1659	36.46	9.88	46.34	55.16	-8.82	Average
3	0.2353	40.62	9.89	50.51	62.26	-11.75	QP
4	0.2353	30.01	9.89	39.90	52.26	-12.36	Average
5	0.2987	35.67	9.90	45.57	60.28	-14.71	QP
6	0.2987	24.02	9.90	33.92	50.28	-16.36	Average
7	0.7549	33.09	9.87	42.96	56.00	-13.04	QP
8	0.7549	16.83	9.87	26.70	46.00	-19.30	Average
9	9.2530	30.89	10.10	40.99	60.00	-19.01	QP
10	9.2530	19.86	10.10	29.96	50.00	-20.04	Average
11	17.5680	38.48	10.17	48.65	60.00	-11.35	QP
12	17.5680	29.34	10.17	39.51	50.00	-10.49	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA360
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 3: Full Load Mode (Model No.: TR220MA360)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:293 2021-06-21

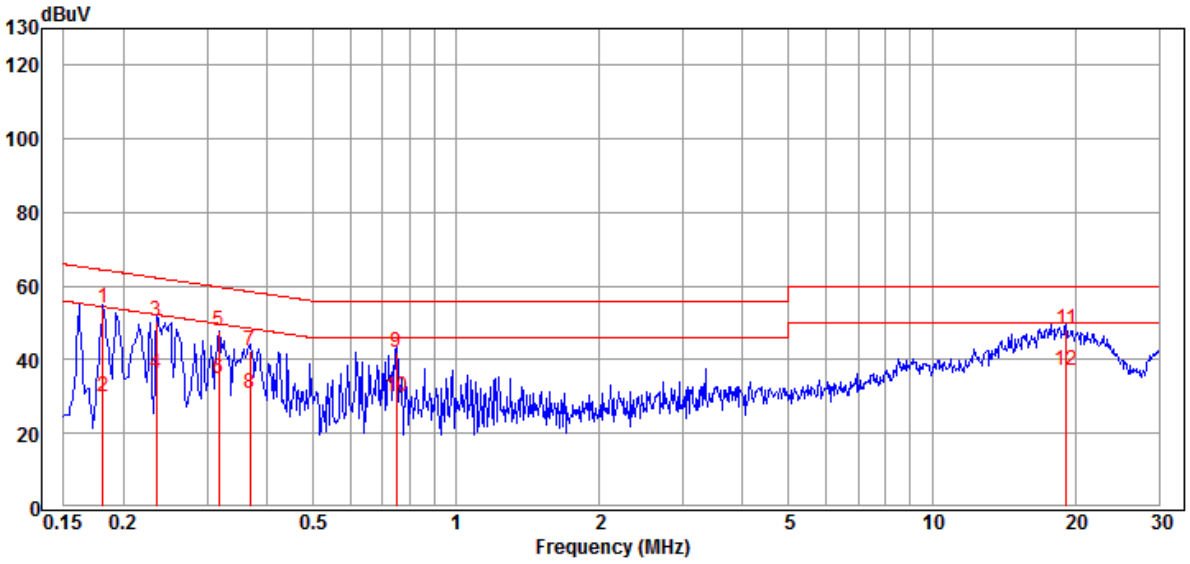


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1731	39.90	9.89	49.79	64.81	-15.02	QP
2	0.1731	20.11	9.89	30.00	54.81	-24.81	Average
3	0.2353	36.05	9.90	45.95	62.26	-16.31	QP
4	0.2353	25.26	9.90	35.16	52.26	-17.10	Average
5	0.3019	35.98	9.92	45.90	60.19	-14.29	QP
6	0.3019	26.21	9.92	36.13	50.19	-14.06	Average
7	0.7549	31.10	9.90	41.00	56.00	-15.00	QP
8	0.7549	19.88	9.90	29.78	46.00	-16.22	Average
9	17.1990	37.18	10.61	47.79	60.00	-12.21	QP
10	17.1990	23.40	10.61	34.01	50.00	-15.99	Average
11	22.0630	37.27	10.83	48.10	60.00	-11.90	QP
12	22.0630	28.33	10.83	39.16	50.00	-10.84	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA360
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 3: Full Load Mode (Model No.: TR220MA360)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:294 2021-06-21

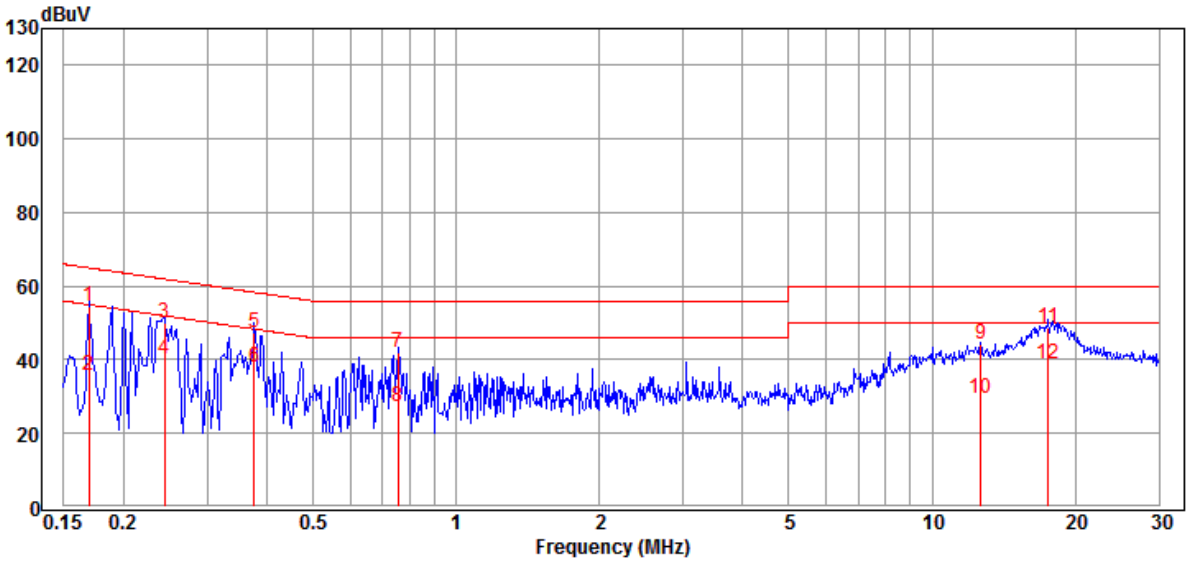


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1815	44.13	9.89	54.02	64.42	-10.40	QP
2	0.1815	20.12	9.89	30.01	54.42	-24.41	Average
3	0.2353	40.56	9.89	50.45	62.26	-11.81	QP
4	0.2353	26.25	9.89	36.14	52.26	-16.12	Average
5	0.3183	38.07	9.90	47.97	59.75	-11.78	QP
6	0.3183	25.01	9.90	34.91	49.75	-14.84	Average
7	0.3692	32.47	9.88	42.35	58.52	-16.17	QP
8	0.3692	20.99	9.88	30.87	48.52	-17.65	Average
9	0.7509	31.96	9.87	41.83	56.00	-14.17	QP
10	0.7509	19.88	9.87	29.75	46.00	-16.25	Average
11	19.1220	37.99	10.18	48.17	60.00	-11.83	QP
12	19.1220	26.68	10.18	36.86	50.00	-13.14	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA480
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 4: Full Load Mode (Model No.: TR220MA480)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:295 2021-06-21

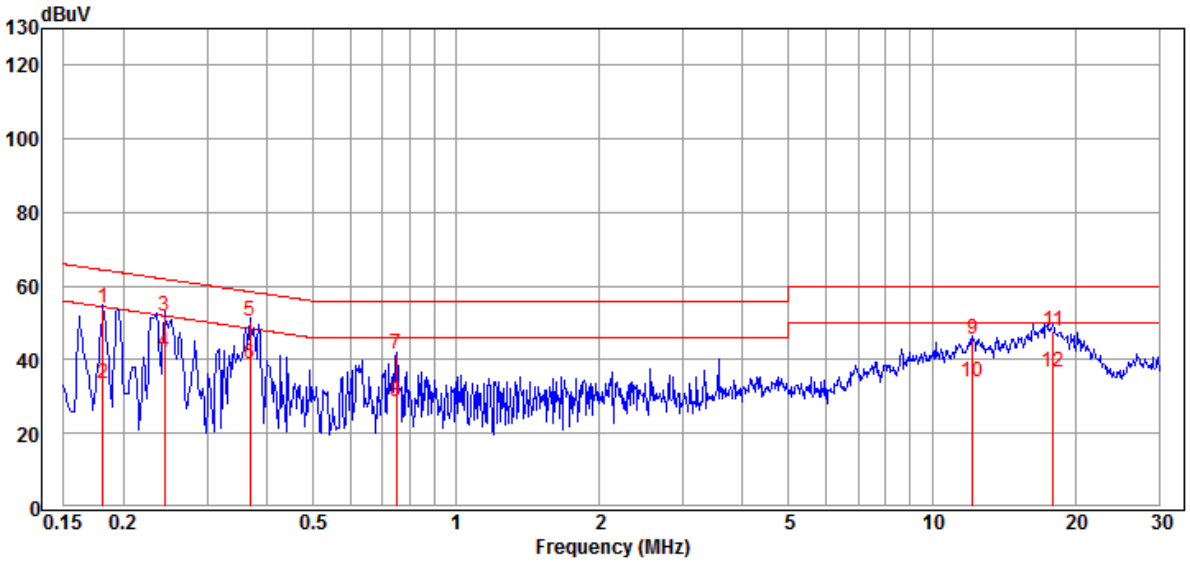


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1694	44.71	9.89	54.60	64.99	-10.39	QP
2	0.1694	25.78	9.89	35.67	54.99	-19.32	Average
3	0.2442	40.27	9.90	50.17	61.95	-11.78	QP
4	0.2442	30.10	9.90	40.00	51.95	-11.95	Average
5	0.3771	37.65	9.90	47.55	58.34	-10.79	QP
6	0.3771	27.98	9.90	37.88	48.34	-10.46	Average
7	0.7549	32.01	9.90	41.91	56.00	-14.09	QP
8	0.7549	17.24	9.90	27.14	46.00	-18.86	Average
9	12.6490	33.68	10.45	44.13	60.00	-15.87	QP
10	12.6490	18.88	10.45	29.33	50.00	-20.67	Average
11	17.5680	38.25	10.62	48.87	60.00	-11.13	QP
12	17.5680	28.44	10.62	39.06	50.00	-10.94	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA480
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 4: Full Load Mode (Model No.: TR220MA480)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:296 2021-06-21

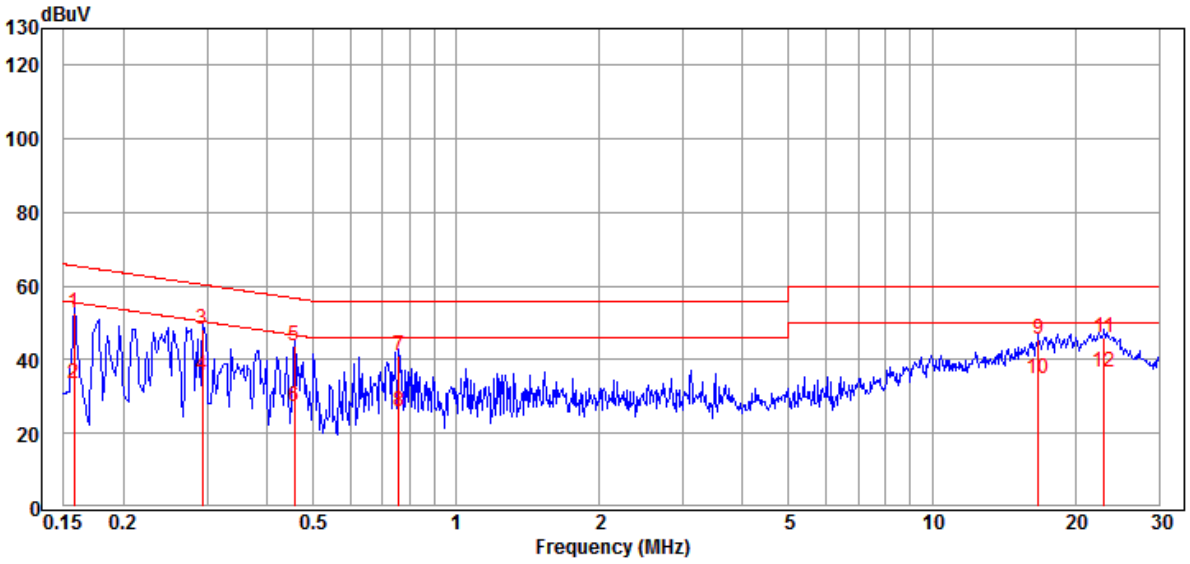


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1815	44.27	9.89	54.16	64.42	-10.26	QP
2	0.1815	23.63	9.89	33.52	54.42	-20.90	Average
3	0.2442	42.12	9.89	52.01	61.95	-9.94	QP
4	0.2442	31.99	9.89	41.88	51.95	-10.07	Average
5	0.3692	40.48	9.88	50.36	58.52	-8.16	QP
6	0.3692	29.16	9.88	39.04	48.52	-9.48	Average
7	0.7509	31.61	9.87	41.48	56.00	-14.52	QP
8	0.7509	18.89	9.87	28.76	46.00	-17.24	Average
9	12.1880	35.28	10.14	45.42	60.00	-14.58	QP
10	12.1880	23.64	10.14	33.78	50.00	-16.22	Average
11	17.9440	37.71	10.17	47.88	60.00	-12.12	QP
12	17.9440	26.34	10.17	36.51	50.00	-13.49	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA560
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 5: Full Load Mode (Model No.: TR220MA560)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:297 2021-06-21

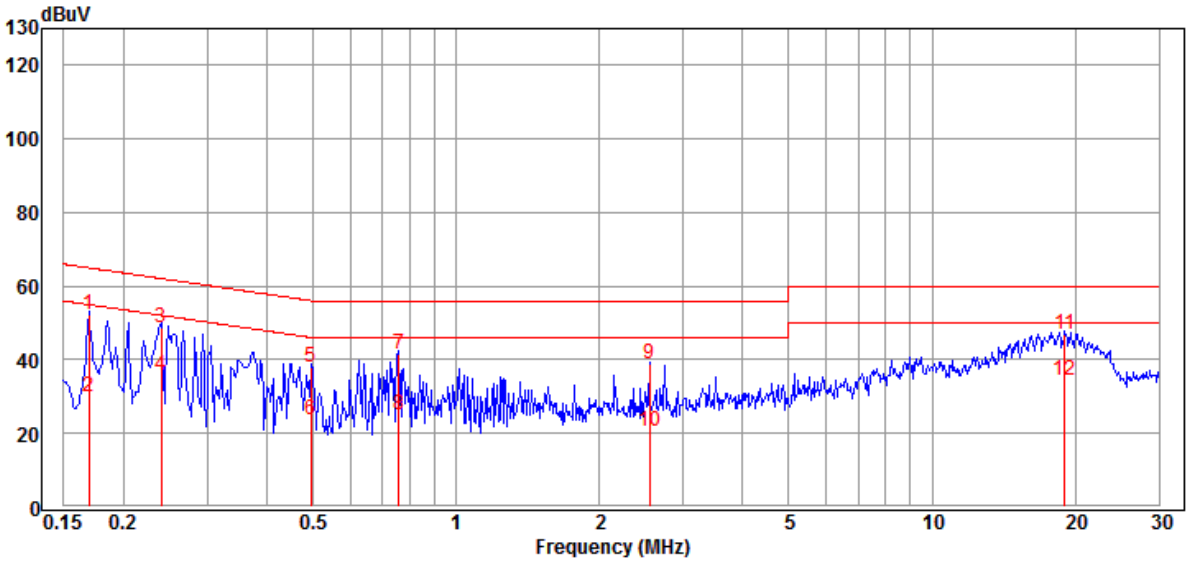


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1582	42.91	9.89	52.80	65.56	-12.76	QP
2	0.1582	23.55	9.89	33.44	55.56	-22.12	Average
3	0.2940	38.35	9.92	48.27	60.41	-12.14	QP
4	0.2940	25.75	9.92	35.67	50.41	-14.74	Average
5	0.4588	33.74	9.89	43.63	56.71	-13.08	QP
6	0.4588	17.27	9.89	27.16	46.71	-19.55	Average
7	0.7589	31.31	9.90	41.21	56.00	-14.79	QP
8	0.7589	15.91	9.90	25.81	46.00	-20.19	Average
9	16.7500	35.06	10.59	45.65	60.00	-14.35	QP
10	16.7500	24.39	10.59	34.98	50.00	-15.02	Average
11	23.0180	34.93	10.89	45.82	60.00	-14.18	QP
12	23.0180	25.95	10.89	36.84	50.00	-13.16	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MA560
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 5: Full Load Mode (Model No.: TR220MA560)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:298 2021-06-21

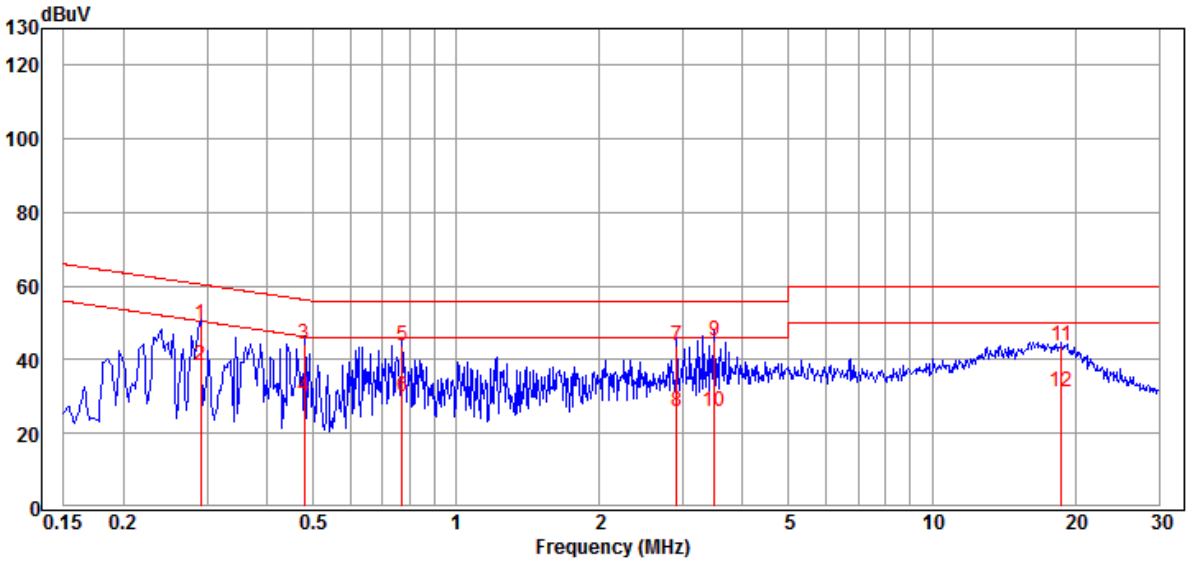


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1694	42.28	9.88	52.16	64.99	-12.83	QP
2	0.1694	20.26	9.88	30.14	54.99	-24.85	Average
3	0.2404	38.85	9.89	48.74	62.08	-13.34	QP
4	0.2404	25.98	9.89	35.87	52.08	-16.21	Average
5	0.4967	27.94	9.86	37.80	56.05	-18.25	QP
6	0.4967	13.82	9.86	23.68	46.05	-22.37	Average
7	0.7589	31.57	9.87	41.44	56.00	-14.56	QP
8	0.7589	14.97	9.87	24.84	46.00	-21.16	Average
9	2.5540	28.74	9.91	38.65	56.00	-17.35	QP
10	2.5540	10.75	9.91	20.66	46.00	-25.34	Average
11	19.0210	36.62	10.18	46.80	60.00	-13.20	QP
12	19.0210	24.18	10.18	34.36	50.00	-15.64	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB120
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 6: Full Load Mode (Model No.: TR220MB120)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:299 2021-06-21

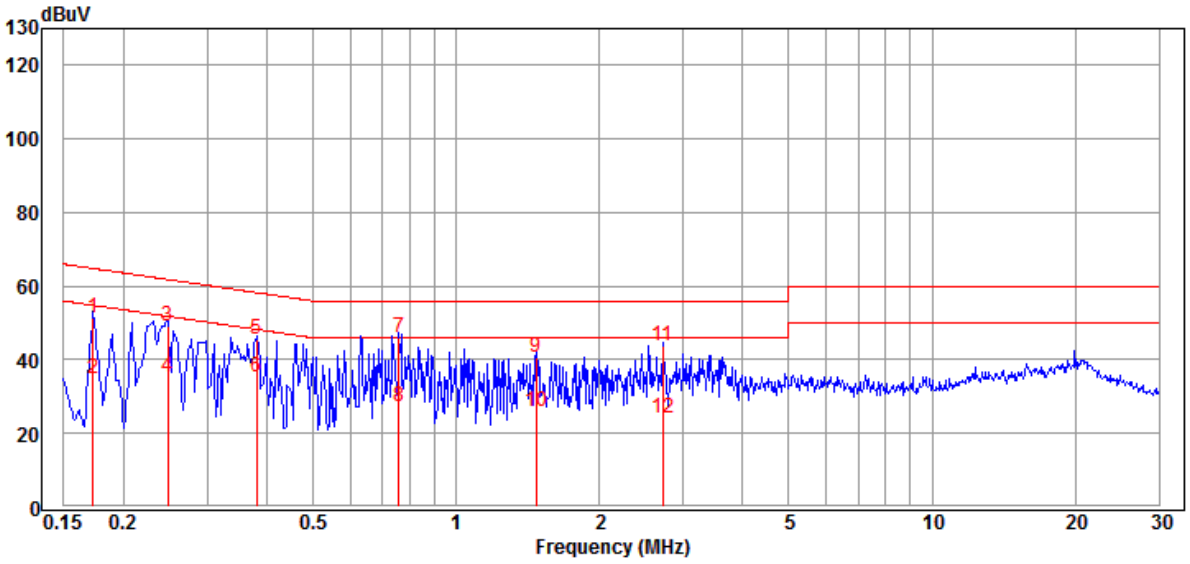


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.2909	39.57	9.92	49.49	60.50	-11.01	QP
2	0.2909	28.60	9.92	38.52	50.50	-11.98	Average
3	0.4812	34.28	9.88	44.16	56.32	-12.16	QP
4	0.4812	19.91	9.88	29.79	46.32	-16.53	Average
5	0.7711	33.75	9.90	43.65	56.00	-12.35	QP
6	0.7711	19.82	9.90	29.72	46.00	-16.28	Average
7	2.9150	33.77	9.98	43.75	56.00	-12.25	QP
8	2.9150	15.87	9.98	25.85	46.00	-20.15	Average
9	3.4910	35.28	10.01	45.29	56.00	-10.71	QP
10	3.4910	15.68	10.01	25.69	46.00	-20.31	Average
11	18.7210	33.22	10.66	43.88	60.00	-16.12	QP
12	18.7210	20.66	10.66	31.32	50.00	-18.68	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB120
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 6: Full Load Mode (Model No.: TR220MB120)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:300 2021-06-21

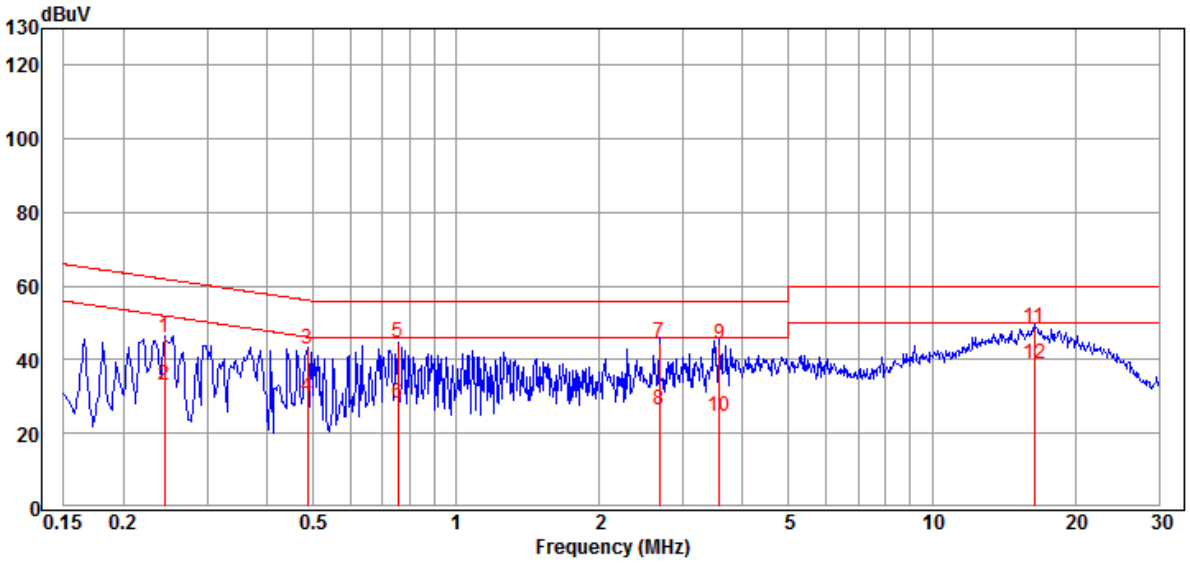


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.1731	41.60	9.88	51.48	64.81	-13.33	QP
2	0.1731	24.93	9.88	34.81	54.81	-20.00	Average
3	0.2481	39.44	9.89	49.33	61.82	-12.49	QP
4	0.2481	25.45	9.89	35.34	51.82	-16.48	Average
5	0.3811	35.55	9.88	45.43	58.25	-12.82	QP
6	0.3811	25.29	9.88	35.17	48.25	-13.08	Average
7	0.7589	36.04	9.87	45.91	56.00	-10.09	QP
8	0.7589	17.22	9.87	27.09	46.00	-18.91	Average
9	1.4720	30.76	9.89	40.65	56.00	-15.35	QP
10	1.4720	15.84	9.89	25.73	46.00	-20.27	Average
11	2.7210	34.07	9.92	43.99	56.00	-12.01	QP
12	2.7210	14.43	9.92	24.35	46.00	-21.65	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB240
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 7: Full Load Mode (Model No.: TR220MB240)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:301 2021-06-21

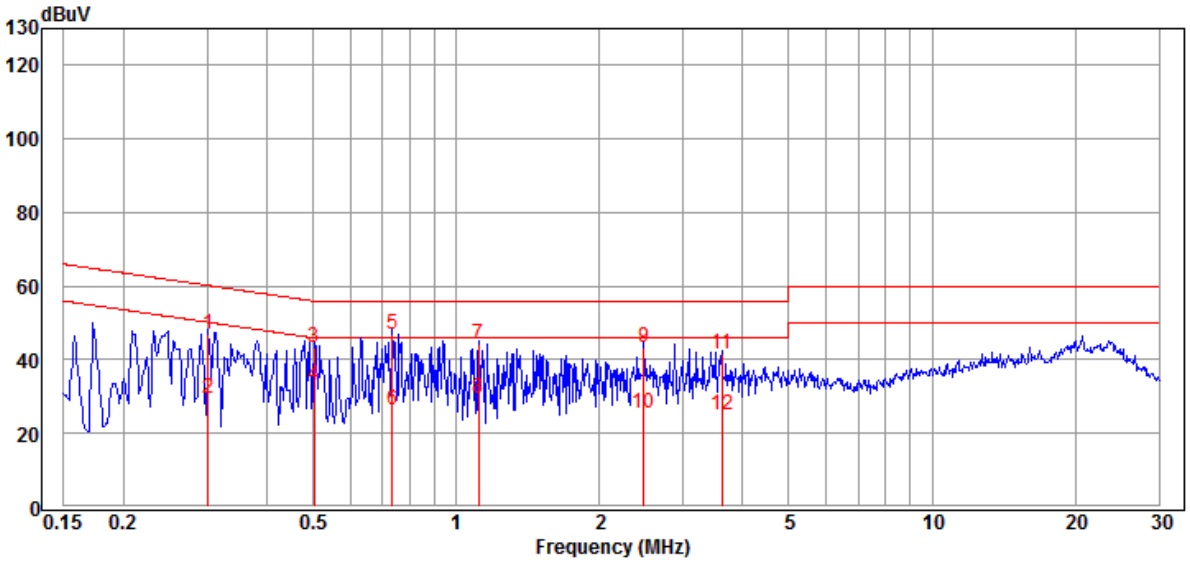


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.2442	36.10	9.90	46.00	61.95	-15.95	QP
2	0.2442	23.28	9.90	33.18	51.95	-18.77	Average
3	0.4889	32.84	9.88	42.72	56.19	-13.47	QP
4	0.4889	20.04	9.88	29.92	46.19	-16.27	Average
5	0.7549	34.93	9.90	44.83	56.00	-11.17	QP
6	0.7549	18.20	9.90	28.10	46.00	-17.90	Average
7	2.6780	34.91	9.98	44.89	56.00	-11.11	QP
8	2.6780	16.34	9.98	26.32	46.00	-19.68	Average
9	3.5840	34.24	10.01	44.25	56.00	-11.75	QP
10	3.5840	14.67	10.01	24.68	46.00	-21.32	Average
11	16.3980	38.34	10.57	48.91	60.00	-11.09	QP
12	16.3980	28.50	10.57	39.07	50.00	-10.93	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB240
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 7: Full Load Mode (Model No.: TR220MB240)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:302 2021-06-21

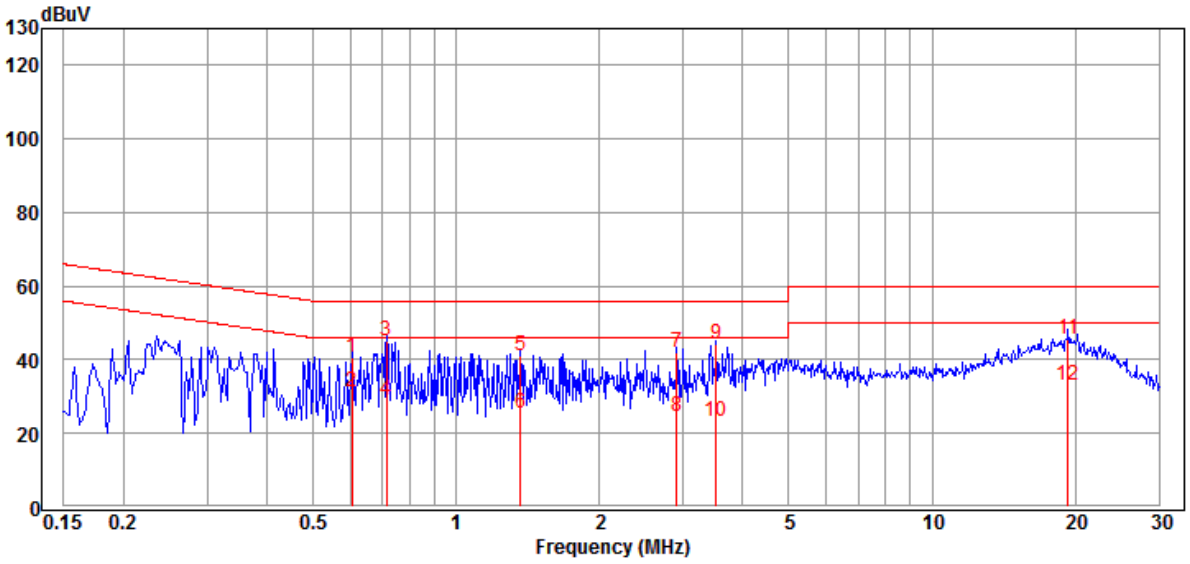


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.3019	36.98	9.90	46.88	60.19	-13.31	QP
2	0.3019	19.48	9.90	29.38	50.19	-20.81	Average
3	0.5047	33.38	9.86	43.24	56.00	-12.76	QP
4	0.5047	23.13	9.86	32.99	46.00	-13.01	Average
5	0.7352	36.90	9.87	46.77	56.00	-9.23	QP
6	0.7352	16.69	9.87	26.56	46.00	-19.44	Average
7	1.1170	34.28	9.88	44.16	56.00	-11.84	QP
8	1.1170	19.62	9.88	29.50	46.00	-16.50	Average
9	2.4870	33.43	9.91	43.34	56.00	-12.66	QP
10	2.4870	15.44	9.91	25.35	46.00	-20.65	Average
11	3.6230	31.46	9.94	41.40	56.00	-14.60	QP
12	3.6230	14.88	9.94	24.82	46.00	-21.18	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB360
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 8: Full Load Mode (Model No.: TR220MB360)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:303 2021-06-21

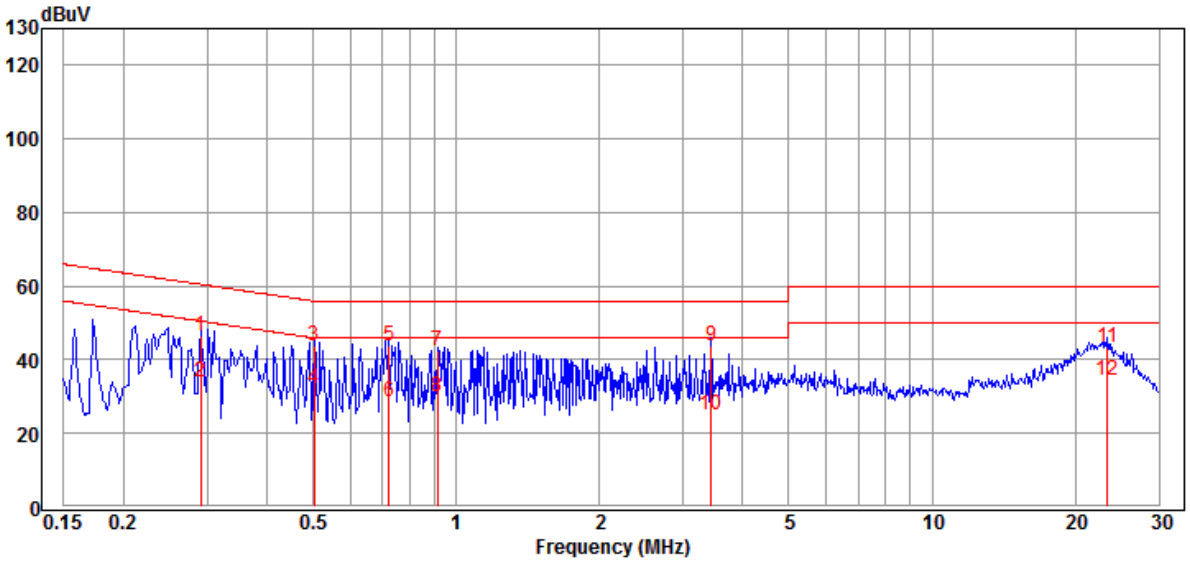


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.6043	30.95	9.89	40.84	56.00	-15.16	QP
2	0.6043	21.57	9.89	31.46	46.00	-14.54	Average
3	0.7160	35.05	9.90	44.95	56.00	-11.05	QP
4	0.7160	19.16	9.90	29.06	46.00	-16.94	Average
5	1.3670	31.27	9.91	41.18	56.00	-14.82	QP
6	1.3670	15.40	9.91	25.31	46.00	-20.69	Average
7	2.9150	31.90	9.98	41.88	56.00	-14.12	QP
8	2.9150	14.46	9.98	24.44	46.00	-21.56	Average
9	3.5280	34.06	10.01	44.07	56.00	-11.93	QP
10	3.5280	13.17	10.01	23.18	46.00	-22.82	Average
11	19.3260	34.70	10.69	45.39	60.00	-14.61	QP
12	19.3260	22.54	10.69	33.23	50.00	-16.77	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB360
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 8: Full Load Mode (Model No.: TR220MB360)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:304 2021-06-21

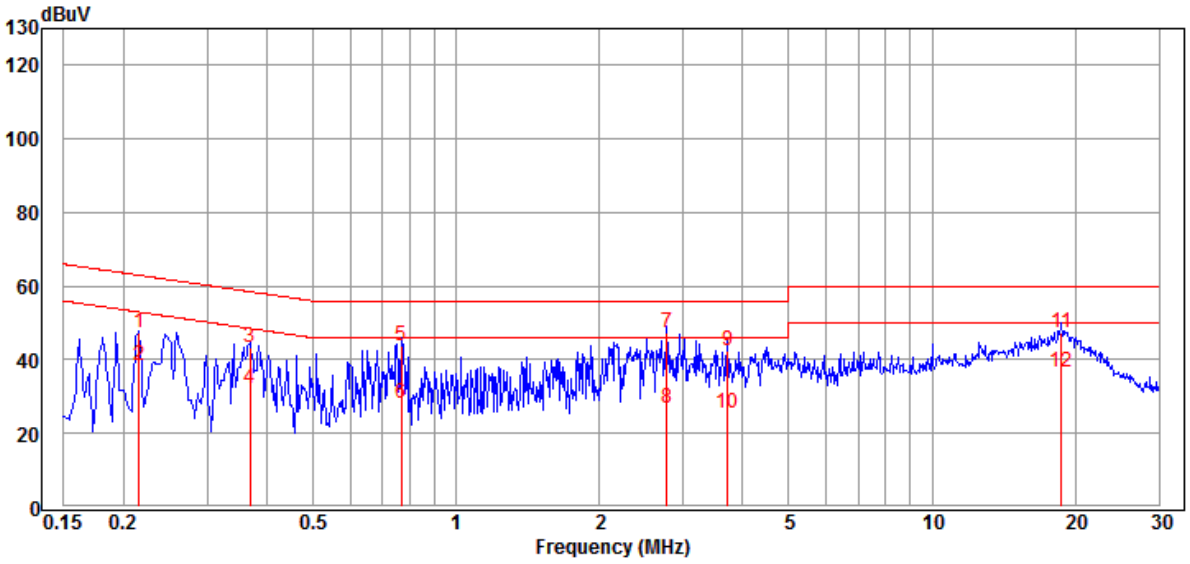


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.2909	36.61	9.90	46.51	60.50	-13.99	QP
2	0.2909	24.00	9.90	33.90	50.50	-16.60	Average
3	0.5047	34.10	9.86	43.96	56.00	-12.04	QP
4	0.5047	22.21	9.86	32.07	46.00	-13.93	Average
5	0.7236	34.01	9.87	43.88	56.00	-12.12	QP
6	0.7236	18.83	9.87	28.70	46.00	-17.30	Average
7	0.9136	32.76	9.88	42.64	56.00	-13.36	QP
8	0.9136	20.20	9.88	30.08	46.00	-15.92	Average
9	3.4360	33.96	9.94	43.90	56.00	-12.10	QP
10	3.4360	14.86	9.94	24.80	46.00	-21.20	Average
11	23.3870	33.05	10.24	43.29	60.00	-16.71	QP
12	23.3870	24.12	10.24	34.36	50.00	-15.64	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB480
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 9: Full Load Mode (Model No.: TR220MB480)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:305 2021-06-21

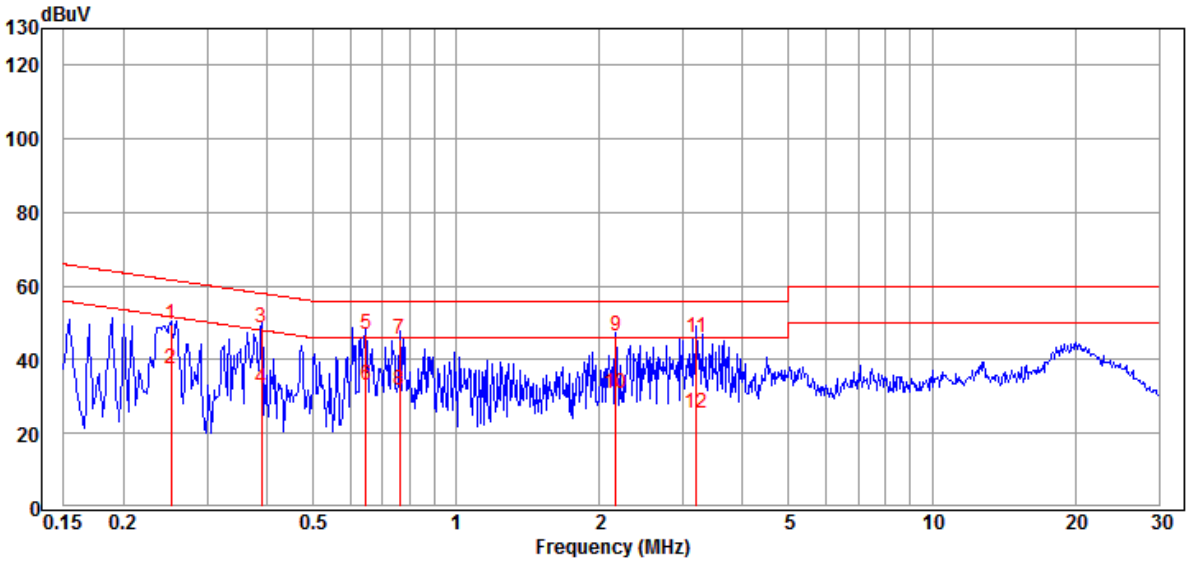


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.2162	37.48	9.90	47.38	62.96	-15.58	QP
2	0.2162	28.56	9.90	38.46	52.96	-14.50	Average
3	0.3692	33.32	9.90	43.22	58.52	-15.30	QP
4	0.3692	22.17	9.90	32.07	48.52	-16.45	Average
5	0.7670	33.77	9.90	43.67	56.00	-12.33	QP
6	0.7670	18.20	9.90	28.10	46.00	-17.90	Average
7	2.7790	37.59	9.98	47.57	56.00	-8.43	QP
8	2.7790	17.02	9.98	27.00	46.00	-19.00	Average
9	3.7200	32.54	10.02	42.56	56.00	-13.44	QP
10	3.7200	15.60	10.02	25.62	46.00	-20.38	Average
11	18.7210	36.92	10.66	47.58	60.00	-12.42	QP
12	18.7210	25.94	10.66	36.60	50.00	-13.40	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB480
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 9: Full Load Mode (Model No.: TR220MB480)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:306 2021-06-21

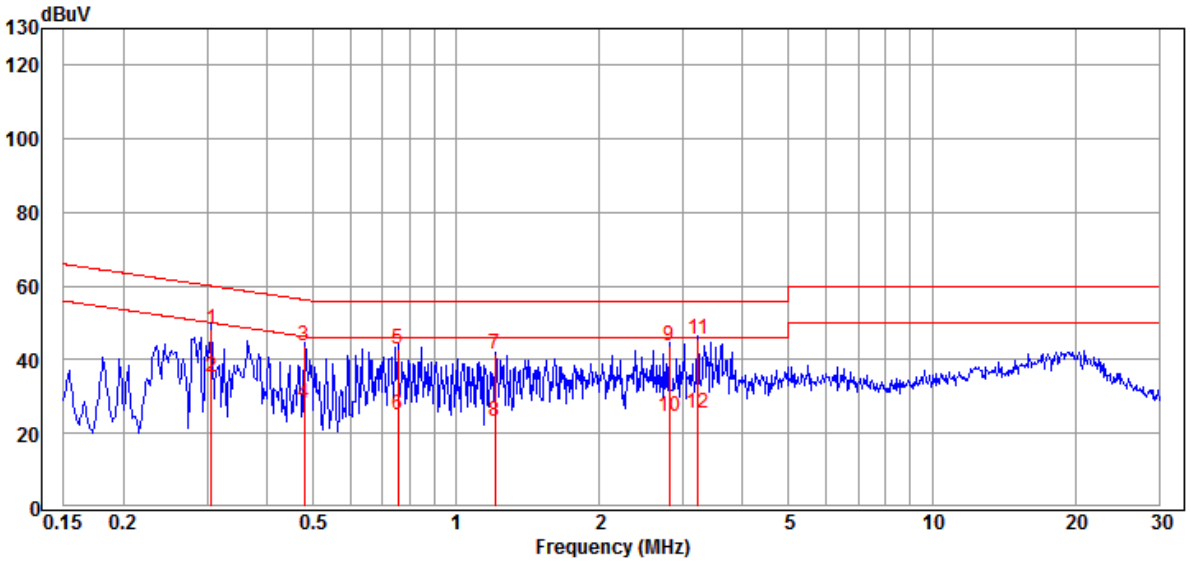


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.2521	39.62	9.89	49.51	61.69	-12.18	QP
2	0.2521	27.85	9.89	37.74	51.69	-13.95	Average
3	0.3914	38.62	9.88	48.50	58.03	-9.53	QP
4	0.3914	22.27	9.88	32.15	48.03	-15.88	Average
5	0.6474	37.09	9.87	46.96	56.00	-9.04	QP
6	0.6474	23.07	9.87	32.94	46.00	-13.06	Average
7	0.7630	35.57	9.87	45.44	56.00	-10.56	QP
8	0.7630	21.78	9.87	31.65	46.00	-14.35	Average
9	2.1670	36.48	9.90	46.38	56.00	-9.62	QP
10	2.1670	20.95	9.90	30.85	46.00	-15.15	Average
11	3.2070	35.92	9.93	45.85	56.00	-10.15	QP
12	3.2070	15.41	9.93	25.34	46.00	-20.66	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB560
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 10: Full Load Mode (Model No.: TR220MB560)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Line
TEMP/HUM: 27.6°C / 42%

Data:307 2021-06-21

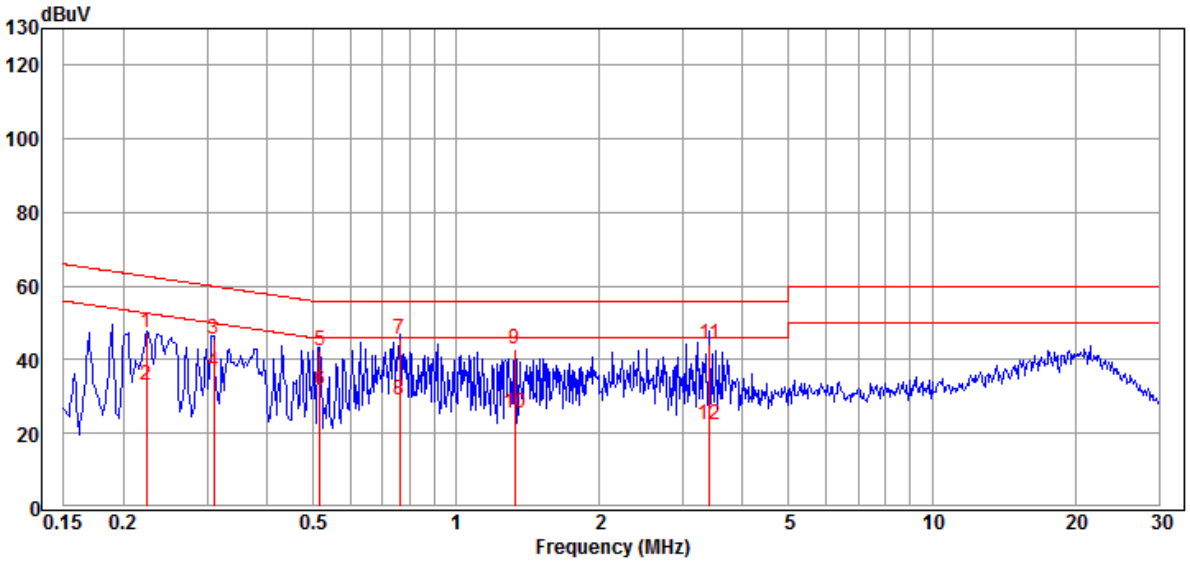


Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.3067	38.17	9.92	48.09	60.06	-11.97	QP
2	0.3067	25.30	9.92	35.22	50.06	-14.84	Average
3	0.4812	33.80	9.88	43.68	56.32	-12.64	QP
4	0.4812	18.05	9.88	27.93	46.32	-18.39	Average
5	0.7549	32.93	9.90	42.83	56.00	-13.17	QP
6	0.7549	14.98	9.90	24.88	46.00	-21.12	Average
7	1.2100	31.64	9.91	41.55	56.00	-14.45	QP
8	1.2100	13.42	9.91	23.33	46.00	-22.67	Average
9	2.8090	33.78	9.98	43.76	56.00	-12.24	QP
10	2.8090	14.62	9.98	24.60	46.00	-21.40	Average
11	3.2240	35.38	10.00	45.38	56.00	-10.62	QP
12	3.2240	15.60	10.00	25.60	46.00	-20.40	Average

CLIENT: Cincon Electronics Co., Ltd.
EUT: TR220M Series Medical Switch Adapter
MODEL: TR220MB560
RATING: AC 230V/50Hz
COMMENT: Test Mode: Mode 10: Full Load Mode (Model No.: TR220MB560)

OPERATOR: Amber
TEST SITE: Conducted 1
POLARIZATION: Neutral
TEMP/HUM: 27.6°C / 42%

Data:308 2021-06-21



Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.2244	37.28	9.89	47.17	62.66	-15.49	QP
2	0.2244	23.20	9.89	33.09	52.66	-19.57	Average
3	0.3100	35.67	9.90	45.57	59.97	-14.40	QP
4	0.3100	26.55	9.90	36.45	49.97	-13.52	Average
5	0.5182	32.53	9.86	42.39	56.00	-13.61	QP
6	0.5182	21.76	9.86	31.62	46.00	-14.38	Average
7	0.7630	35.61	9.87	45.48	56.00	-10.52	QP
8	0.7630	19.14	9.87	29.01	46.00	-16.99	Average
9	1.3310	33.10	9.88	42.98	56.00	-13.02	QP
10	1.3310	15.54	9.88	25.42	46.00	-20.58	Average
11	3.4170	34.14	9.94	44.08	56.00	-11.92	QP
12	3.4170	12.39	9.94	22.33	46.00	-23.67	Average

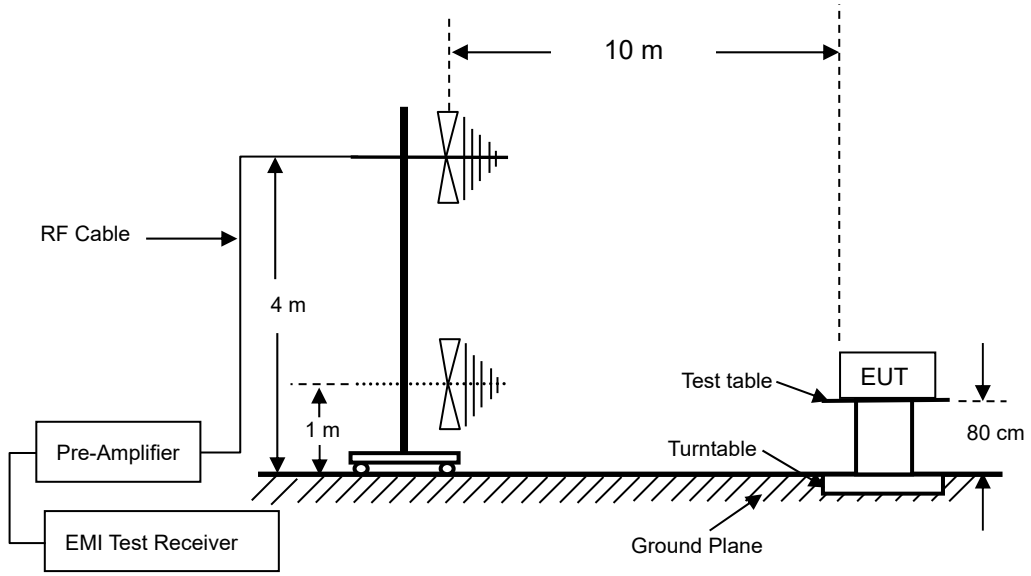
3 Radiated Emission Measurement (Below 1 GHz)

3.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	830245/027	2022/06/09
Biconical Antenna	Schwarzbeck	VHA 9103 & BBA 9106	VHA 9103-2418	2021/08/09
Log Antenna	Schwarzbeck	UHALP 9108-A	9108-A 0739	2021/08/09
Pre-Amplifier	Agilent	8447D	2944A09703	2022/01/22
RF Cable	EMCI	EMC8D-NM-NM-25000	140105	2022/01/22
RF Cable	Mini-Circuits	CBL-3FL-NMNM	CBL56	2022/01/22
Microwave Switch	IETC	IETC-MS	IETC-MS-02	2022/01/22
Measurement Software	AUDIX-e3			

Note: The above equipments are within the valid calibration period.

3.2 Block Diagram of Test Configuration



3.3 Radiated Limit

CISPR 11

Frequency (MHz)	☐ Group 1, Class A	☒ Group 1, Class B
	Quasi-Peak dB(μV/m)	Quasi-Peak dB(μV/m)
30 to 230	40.0	30.0
230 to 1000	47.0	37.0

3.4 Instrument Configuration

3.4.1 Set the EMI test receiver frequency range from 30 MHz to 1000 MHz.

3.4.2 Set the EMI test receiver bandwidth at 120 kHz.

3.4.3 Set the EMI test receiver detector as Quasi-Peak (Q.P.).

3.5 Configuration of Measurement

3.5.1 The EUT was placed on a non-conductive table whose total height equaled 80 cm. The turntable can rotate 360 degree to determine the position of the maximum emission level.

3.5.2 The EUT was set 10 meters away from the receiving antenna that was mounted on a non-conductive mast. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level.

3.5.3 The initial testing identified the frequency that has the highest disturbance relative to the limit while operating the EUT in typical modes of operation and cable positions in a test setup representative of typical system configuration.

3.5.4 The identification of the frequency of highest emission with respect to the limit was found by investigating emissions at a number of significant frequencies. The probable frequency of maximum emission had been found and that the associated cable and EUT configuration and mode of operation had been identified.

3.6 Test Result

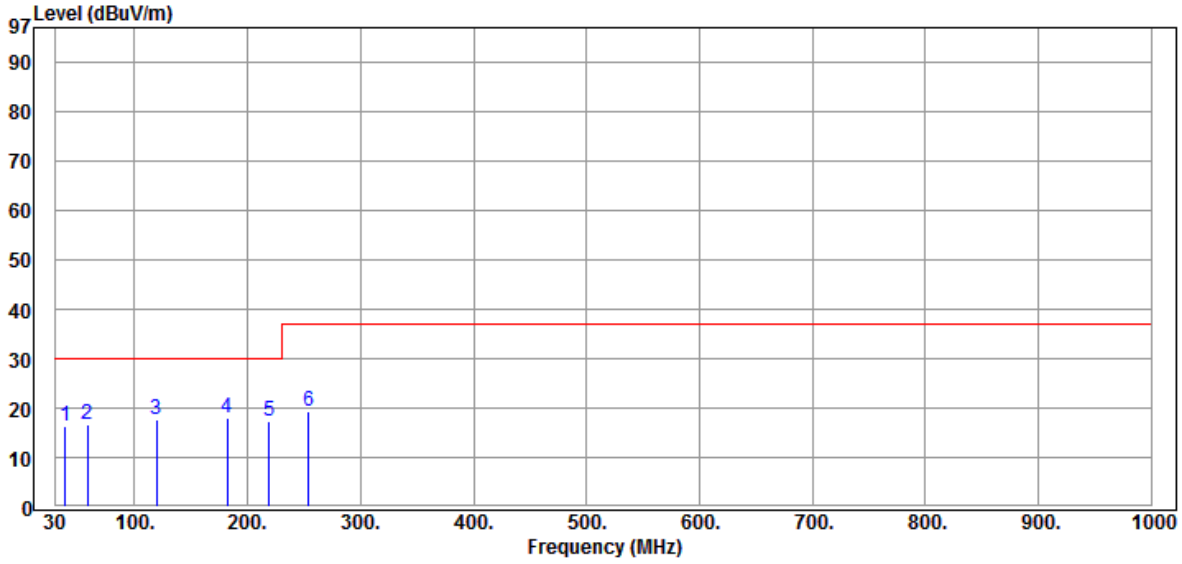
PASS.

The final test data is shown as following pages.

Factor = Antenna Factor + Cable Loss - Preamplifier Gain
Level = Reading + Factor
Margin = Level - Limit

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR : Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE : OATS 1
MODEL: TR220MA120	TEST DISTANCE : 10m
RATING: AC 230V/50Hz	POLARIZATION : HORIZONTAL
COMMENT: Test Mode: Mode 1: Full Load Mode (Model No.: TR220MA120)	TEMP/HUM : 24.6℃/50%

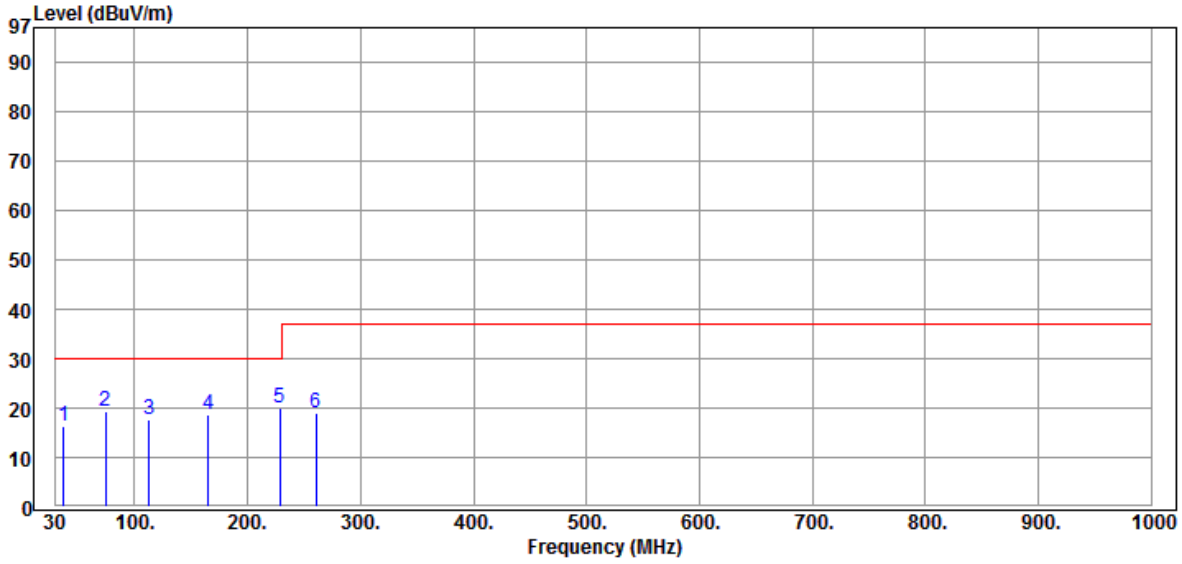
Data:245 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	38.600	31.20	-14.79	16.41	30.00	-13.59	QP
2	58.100	37.50	-20.98	16.52	30.00	-13.48	QP
3	119.600	33.50	-15.78	17.72	30.00	-12.28	QP
4	182.001	30.10	-12.25	17.85	30.00	-12.15	QP
5	219.300	27.79	-10.43	17.36	30.00	-12.64	QP
6	254.010	28.90	-9.55	19.35	37.00	-17.65	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR : Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE : OATS 1
MODEL: TR220MA120	TEST DISTANCE : 10m
RATING: AC 230V/50Hz	POLARIZATION : VERTICAL
COMMENT: Test Mode: Mode 1: Full Load Mode (Model No.: TR220MA120)	TEMP/HUM : 24.6℃/50%

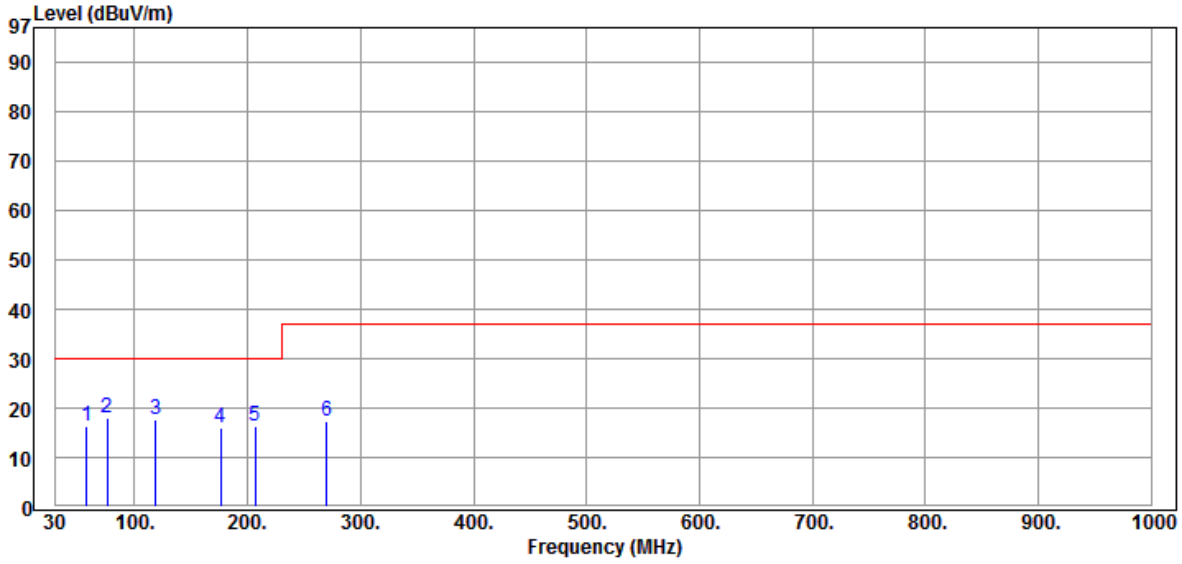
Data:244 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	37.300	30.60	-14.24	16.36	30.00	-13.64	QP
2	74.637	42.10	-22.65	19.45	30.00	-10.55	QP
3	113.097	34.20	-16.67	17.53	30.00	-12.47	QP
4	165.130	31.80	-13.26	18.54	30.00	-11.46	QP
5	228.800	30.11	-10.09	20.02	30.00	-9.98	QP
6	260.900	28.39	-9.49	18.90	37.00	-18.10	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MA240	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 2: Full Load Mode (Model No.: TR220MA240)	TEMP/HUM	: 24.6℃/50%

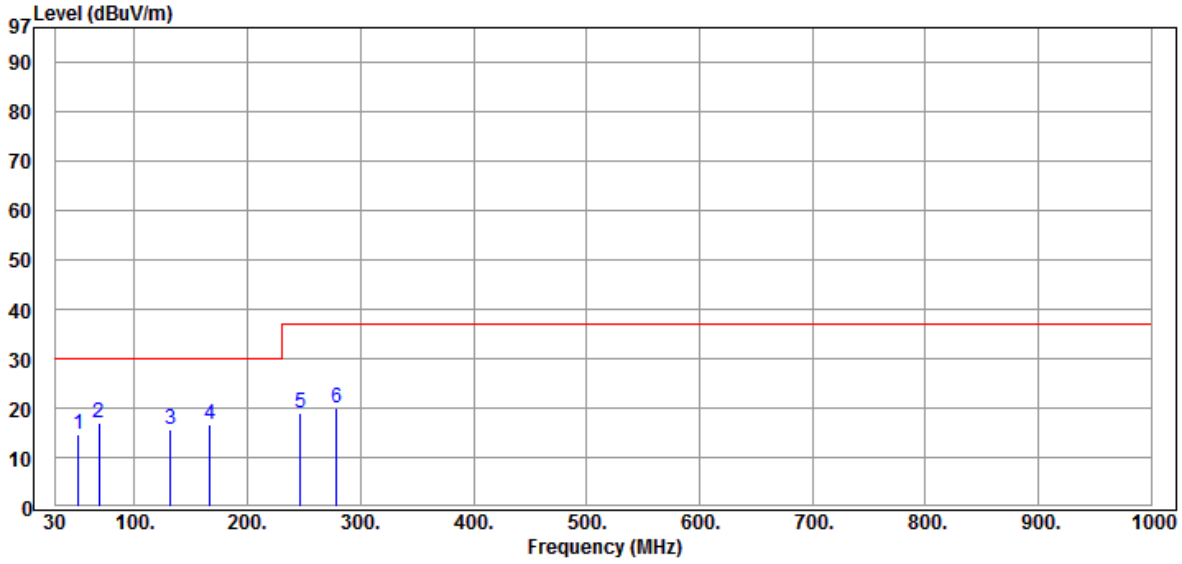
Data:249 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	57.304	37.10	-20.78	16.32	30.00	-13.68	QP
2	75.401	40.61	-22.64	17.97	30.00	-12.03	QP
3	118.801	33.71	-15.90	17.81	30.00	-12.19	QP
4	176.305	28.60	-12.70	15.90	30.00	-14.10	QP
5	206.804	27.10	-10.68	16.42	30.00	-13.58	QP
6	270.010	26.60	-9.18	17.42	37.00	-19.58	QP

CLIENT: Cincon Electronics Co., Ltd.		OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter		TEST SITE	: OATS 1
MODEL: TR220MA240		TEST DISTANCE	: 10m
RATING: AC 230V/50Hz		POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 2: Full Load Mode (Model No.: TR220MA240)		TEMP/HUM	: 24.6℃/50%

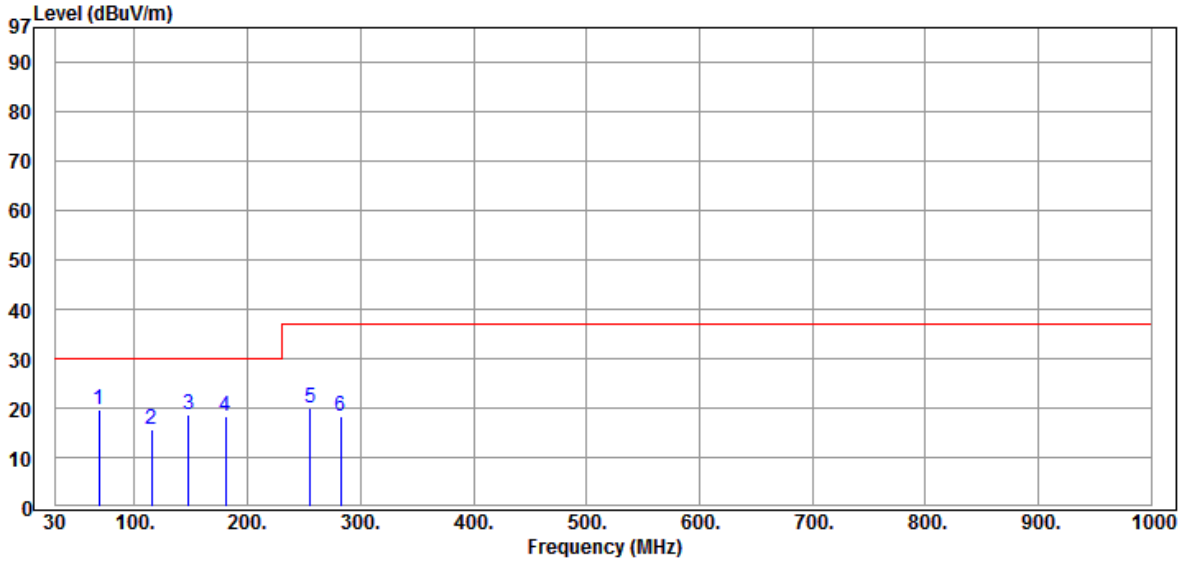
Data:248 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	50.201	33.61	-18.96	14.65	30.00	-15.35	QP
2	68.601	39.49	-22.59	16.90	30.00	-13.10	QP
3	131.501	30.70	-14.98	15.72	30.00	-14.28	QP
4	166.840	29.90	-13.19	16.71	30.00	-13.29	QP
5	246.803	28.71	-9.67	19.04	37.00	-17.96	QP
6	278.901	28.30	-8.41	19.89	37.00	-17.11	QP

CLIENT: Cincon Electronics Co., Ltd.		OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter		TEST SITE	: OATS 1
MODEL: TR220MA360		TEST DISTANCE	: 10m
RATING: AC 230V/50Hz		POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 3: Full Load Mode (Model No.: TR220MA360)		TEMP/HUM	: 24.6℃/50%

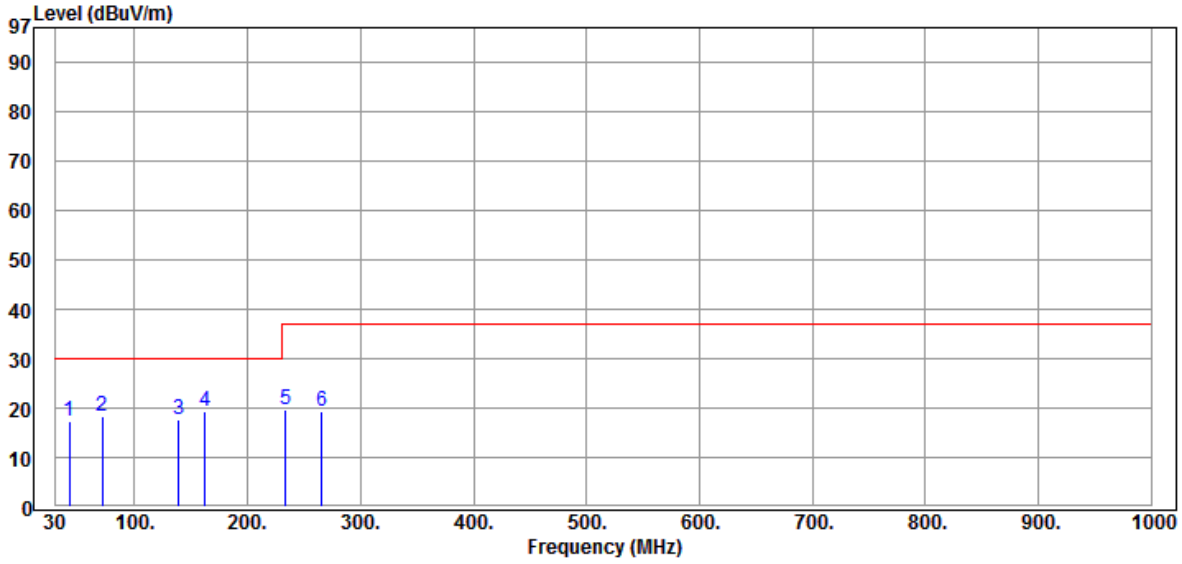
Data:253 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	68.301	42.30	-22.56	19.74	30.00	-10.26	QP
2	115.010	32.20	-16.41	15.79	30.00	-14.21	QP
3	148.002	32.81	-14.19	18.62	30.00	-11.38	QP
4	180.706	30.81	-12.41	18.40	30.00	-11.60	QP
5	255.704	29.50	-9.54	19.96	37.00	-17.04	QP
6	282.704	26.50	-8.13	18.37	37.00	-18.63	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MA360	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 3: Full Load Mode (Model No.: TR220MA360)	TEMP/HUM	: 24.6℃/50%

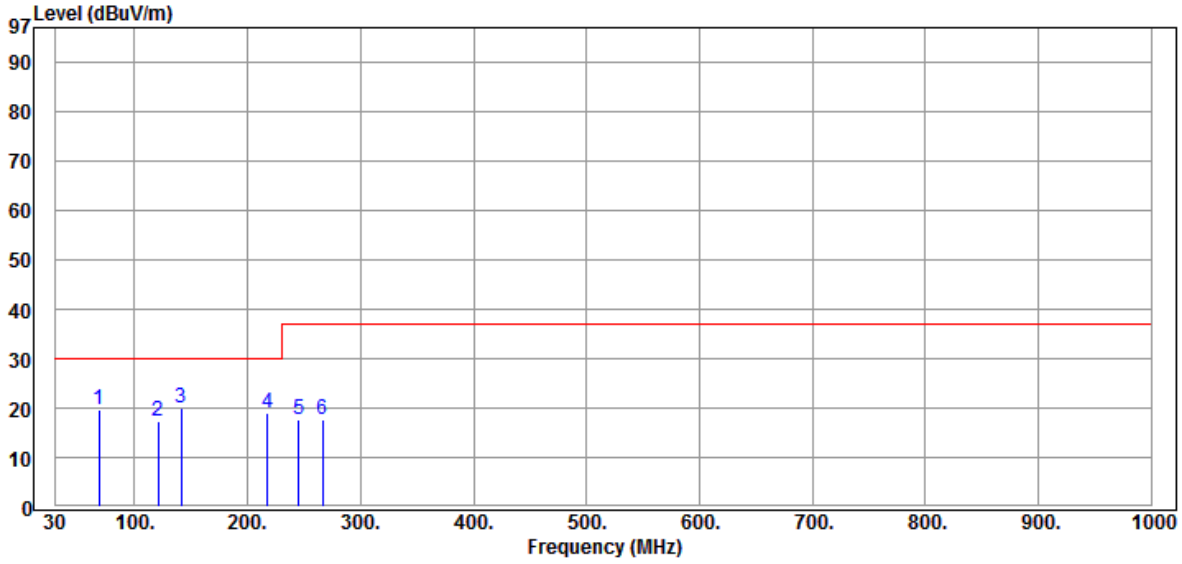
Data:252 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	41.900	33.29	-16.05	17.24	30.00	-12.76	QP
2	71.504	41.20	-22.74	18.46	30.00	-11.54	QP
3	139.104	32.21	-14.53	17.68	30.00	-12.32	QP
4	162.002	32.61	-13.40	19.21	30.00	-10.79	QP
5	234.001	29.60	-9.97	19.63	37.00	-17.37	QP
6	265.401	28.79	-9.33	19.46	37.00	-17.54	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MA480	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 4: Full Load Mode (Model No.: TR220MA480)	TEMP/HUM	: 24.6℃/50%

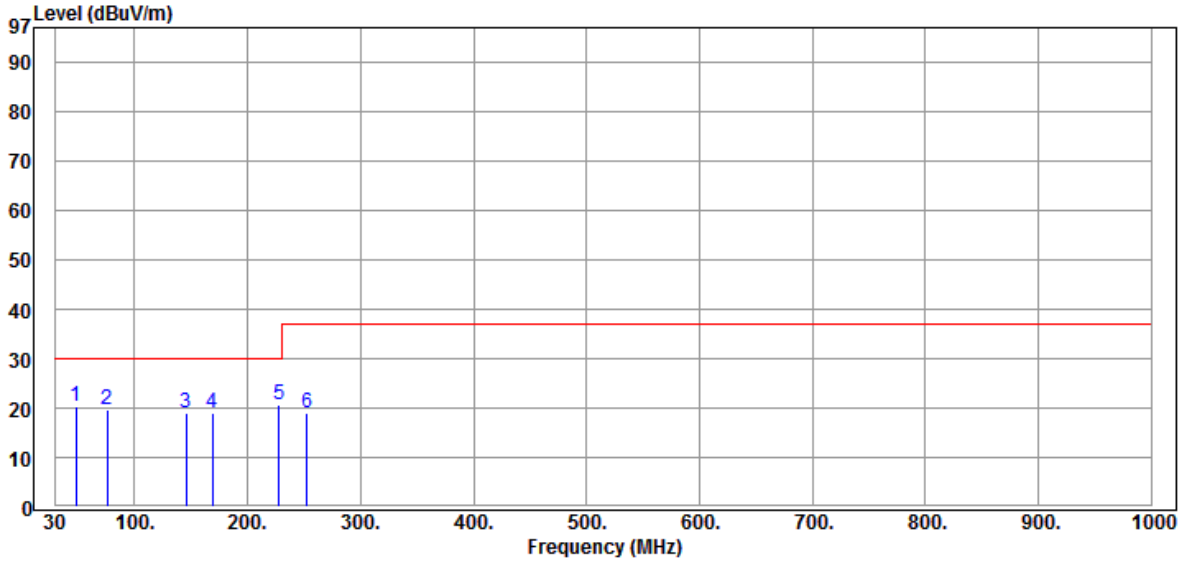
Data:257 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	68.401	42.30	-22.57	19.73	30.00	-10.27	QP
2	121.203	33.10	-15.65	17.45	30.00	-12.55	QP
3	141.200	34.49	-14.42	20.07	30.00	-9.93	QP
4	217.703	29.59	-10.46	19.13	30.00	-10.87	QP
5	245.203	27.40	-9.71	17.69	37.00	-19.31	QP
6	266.801	26.80	-9.29	17.51	37.00	-19.49	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MA480	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 4: Full Load Mode (Model No.: TR220MA480)	TEMP/HUM	: 24.6℃/50%

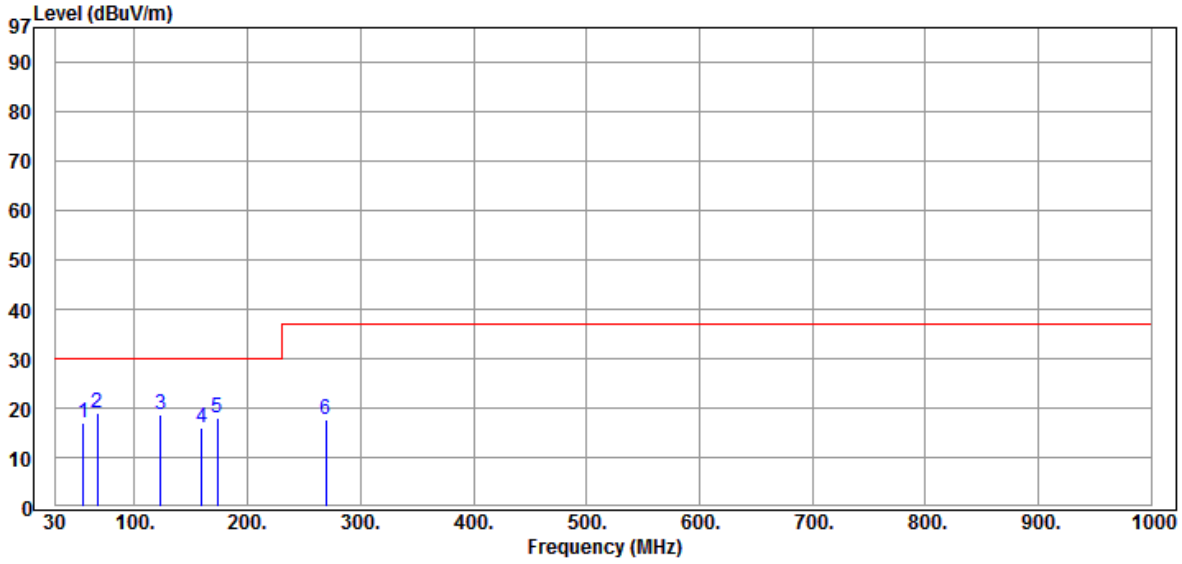
Data:256 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	48.402	38.79	-18.33	20.46	30.00	-9.54	QP
2	75.604	42.30	-22.63	19.67	30.00	-10.33	QP
3	145.802	33.20	-14.26	18.94	30.00	-11.06	QP
4	169.023	32.11	-13.10	19.01	30.00	-10.99	QP
5	227.903	30.79	-10.10	20.69	30.00	-9.31	QP
6	252.503	28.59	-9.55	19.04	37.00	-17.96	QP

CLIENT: Cincon Electronics Co., Ltd.		OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter		TEST SITE	: OATS 1
MODEL: TR220MA560		TEST DISTANCE	: 10m
RATING: AC 230V/50Hz		POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 5: Full Load Mode (Model No.: TR220MA560)		TEMP/HUM	: 24.6℃/50%

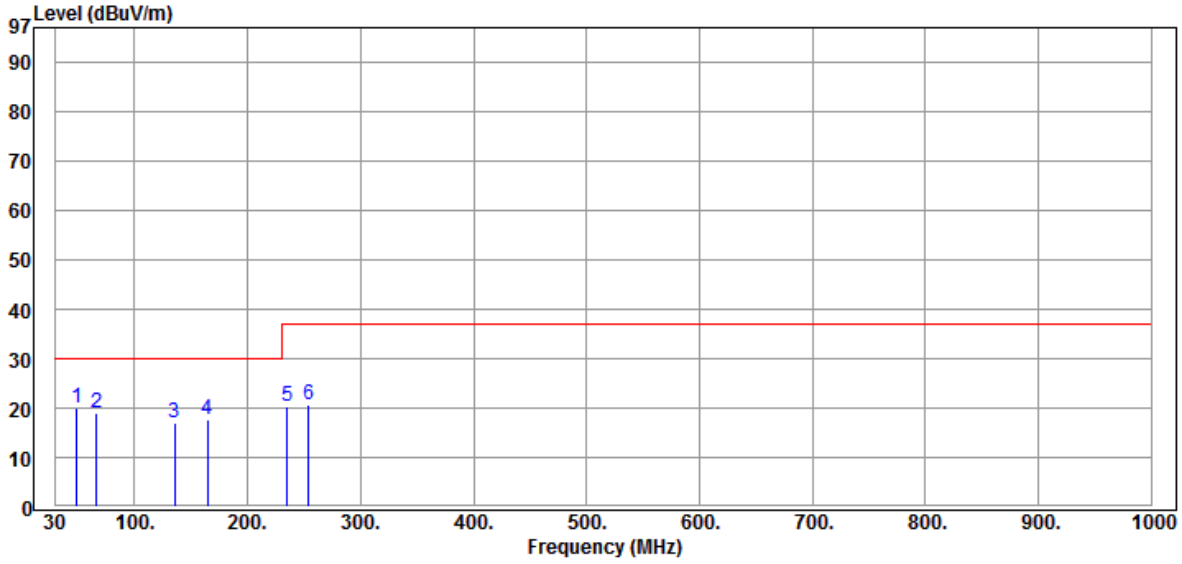
Data:261 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	54.303	36.90	-20.01	16.89	30.00	-13.11	QP
2	66.806	41.40	-22.36	19.04	30.00	-10.96	QP
3	122.906	34.30	-15.54	18.76	30.00	-11.24	QP
4	159.101	29.70	-13.54	16.16	30.00	-13.84	QP
5	173.001	30.90	-12.88	18.02	30.00	-11.98	QP
6	269.104	26.90	-9.21	17.69	37.00	-19.31	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MA560	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 5: Full Load Mode (Model No.: TR220MA560)	TEMP/HUM	: 24.6℃/50%

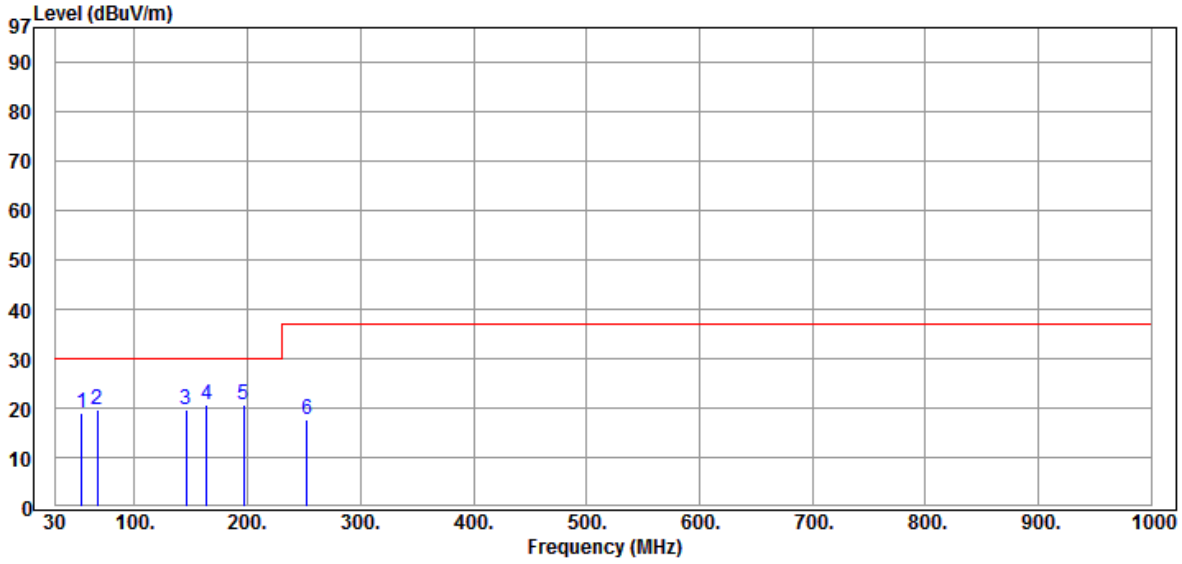
Data:260 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	48.900	38.40	-18.51	19.89	30.00	-10.11	QP
2	66.201	41.30	-22.28	19.02	30.00	-10.98	QP
3	135.104	31.81	-14.77	17.04	30.00	-12.96	QP
4	164.501	30.79	-13.28	17.51	30.00	-12.49	QP
5	234.914	30.40	-9.95	20.45	37.00	-16.55	QP
6	254.103	30.10	-9.55	20.55	37.00	-16.45	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MB120	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 6: Full Load Mode (Model No.: TR220MB120)	TEMP/HUM	: 24.6℃/50%

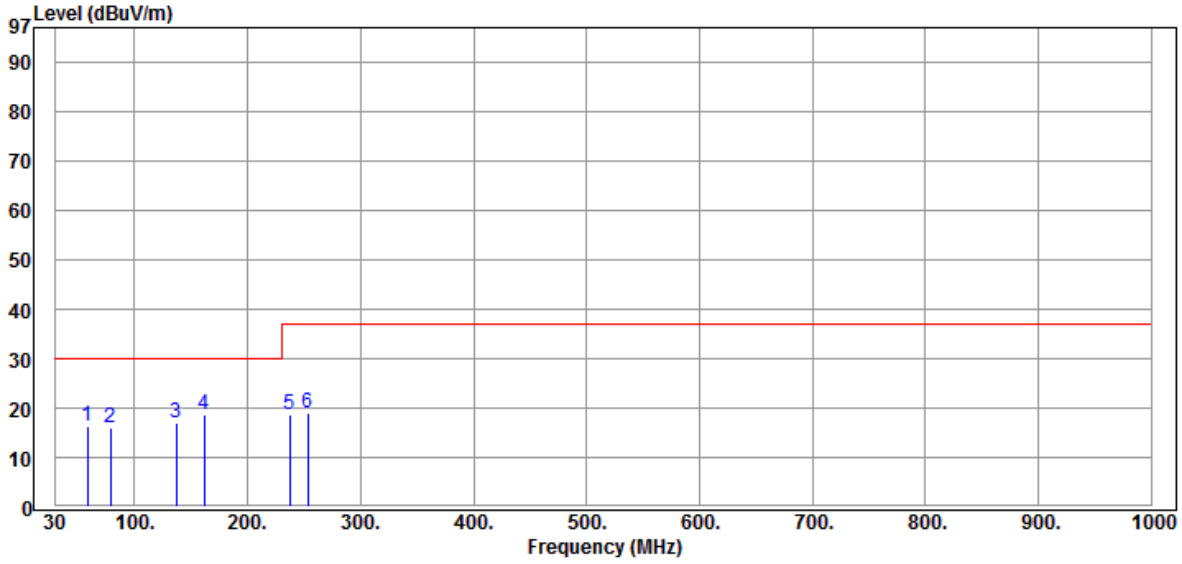
Data:265 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	53.500	38.79	-19.79	19.00	30.00	-11.00	QP
2	67.300	42.21	-22.44	19.77	30.00	-10.23	QP
3	145.300	33.89	-14.27	19.62	30.00	-10.38	QP
4	163.700	34.10	-13.32	20.78	30.00	-9.22	QP
5	196.900	31.50	-10.99	20.51	30.00	-9.49	QP
6	252.500	27.11	-9.57	17.54	37.00	-19.46	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MB120	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 6: Full Load Mode (Model No.: TR220MB120)	TEMP/HUM	: 24.6℃/50%

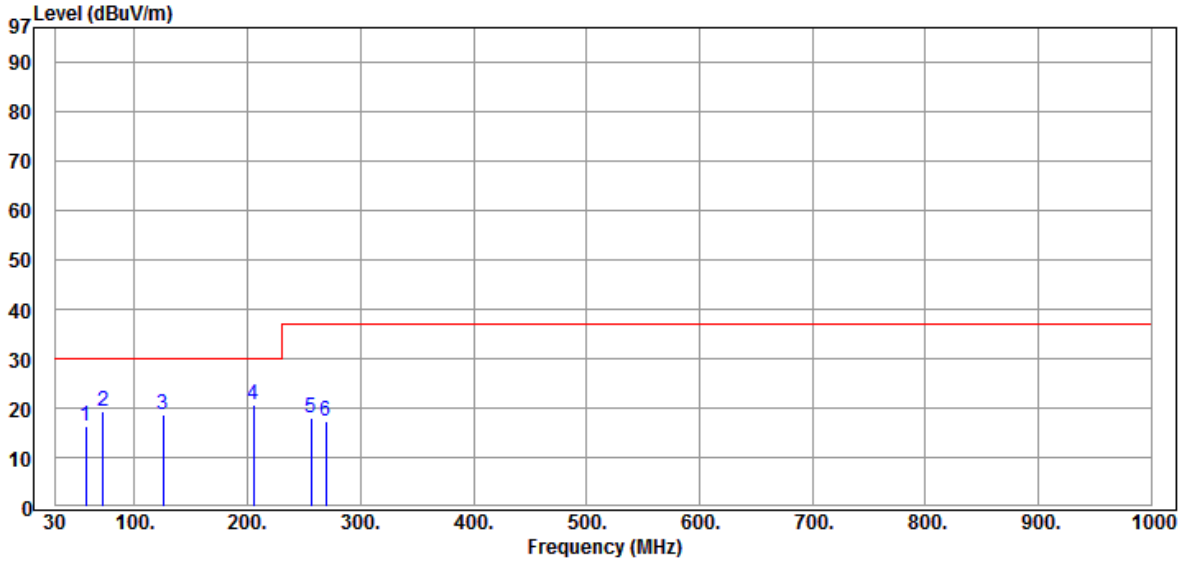
Data:264 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	58.601	37.29	-21.10	16.19	30.00	-13.81	QP
2	78.300	38.49	-22.55	15.94	30.00	-14.06	QP
3	136.900	31.49	-14.65	16.84	30.00	-13.16	QP
4	161.305	32.20	-13.42	18.78	30.00	-11.22	QP
5	237.406	28.59	-9.90	18.69	37.00	-18.31	QP
6	253.001	28.60	-9.56	19.04	37.00	-17.96	QP

CLIENT: Cincon Electronics Co., Ltd.		OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter		TEST SITE	: OATS 1
MODEL: TR220MB240		TEST DISTANCE	: 10m
RATING: AC 230V/50Hz		POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 7: Full Load Mode (Model No.: TR220MB240)		TEMP/HUM	: 24.6℃/50%

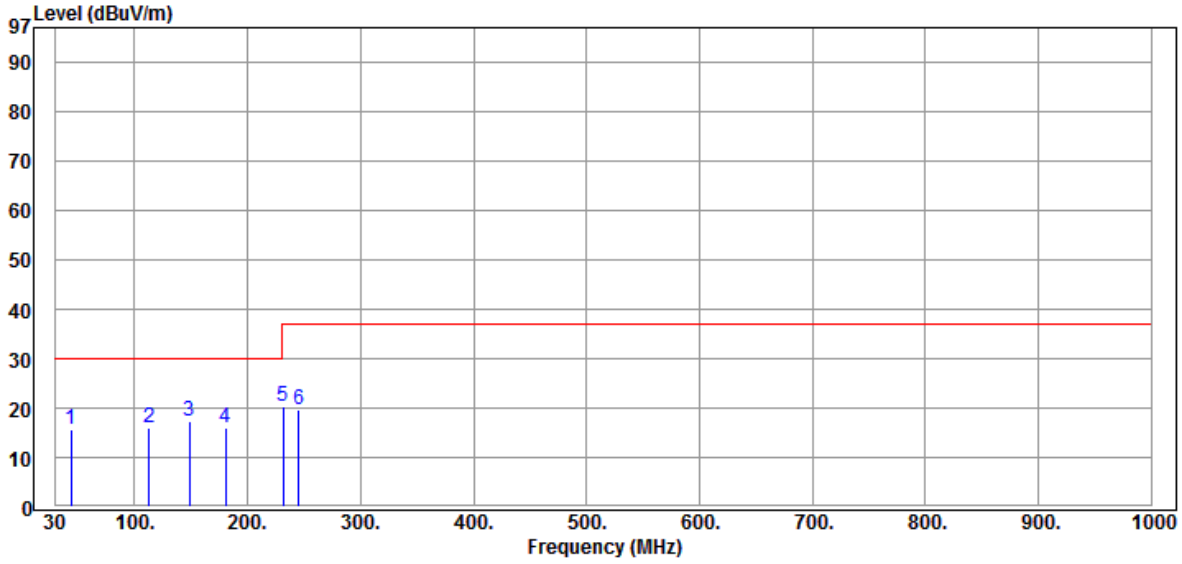
Data:269 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	57.001	36.90	-20.70	16.20	30.00	-13.80	QP
2	71.804	42.20	-22.73	19.47	30.00	-10.53	QP
3	124.902	34.10	-15.41	18.69	30.00	-11.31	QP
4	205.204	31.30	-10.73	20.57	30.00	-9.43	QP
5	256.604	27.40	-9.54	17.86	37.00	-19.14	QP
6	269.204	26.60	-9.21	17.39	37.00	-19.61	QP

CLIENT: Cincon Electronics Co., Ltd.		OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter		TEST SITE	: OATS 1
MODEL: TR220MB240		TEST DISTANCE	: 10m
RATING: AC 230V/50Hz		POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 7: Full Load Mode (Model No.: TR220MB240)		TEMP/HUM	: 24.6℃/50%

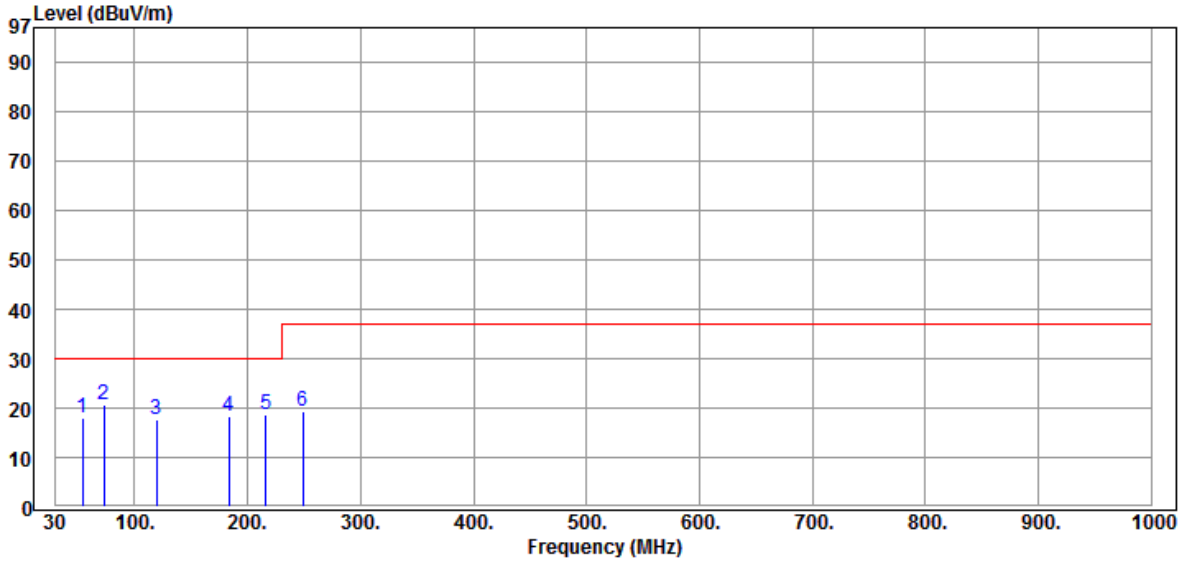
Data:268 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	43.501	32.40	-16.62	15.78	30.00	-14.22	QP
2	113.204	32.70	-16.65	16.05	30.00	-13.95	QP
3	148.501	31.40	-14.16	17.24	30.00	-12.76	QP
4	180.700	28.51	-12.41	16.10	30.00	-13.90	QP
5	231.604	30.39	-10.01	20.38	37.00	-16.62	QP
6	245.601	29.39	-9.69	19.70	37.00	-17.30	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MB360	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 8: Full Load Mode (Model No.: TR220MB360)	TEMP/HUM	: 24.6℃/50%

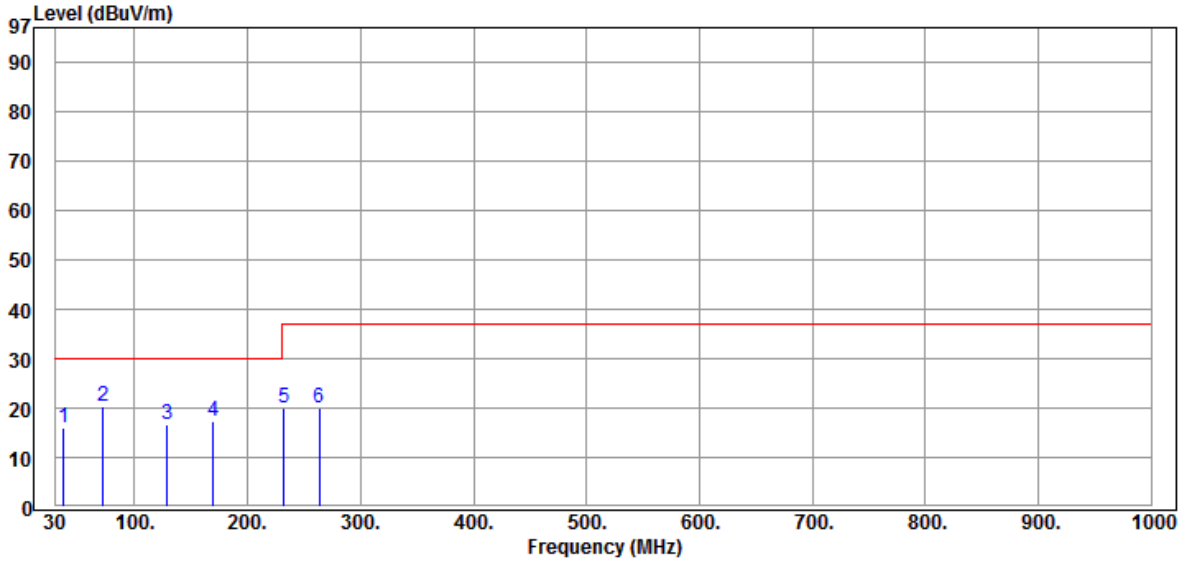
Data:273 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	54.005	37.90	-19.93	17.97	30.00	-12.03	QP
2	72.806	43.30	-22.70	20.60	30.00	-9.40	QP
3	119.401	33.60	-15.81	17.79	30.00	-12.21	QP
4	183.700	30.40	-12.04	18.36	30.00	-11.64	QP
5	216.001	29.11	-10.50	18.61	30.00	-11.39	QP
6	249.011	28.90	-9.60	19.30	37.00	-17.70	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MB360	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 8: Full Load Mode (Model No.: TR220MB360)	TEMP/HUM	: 24.6℃/50%

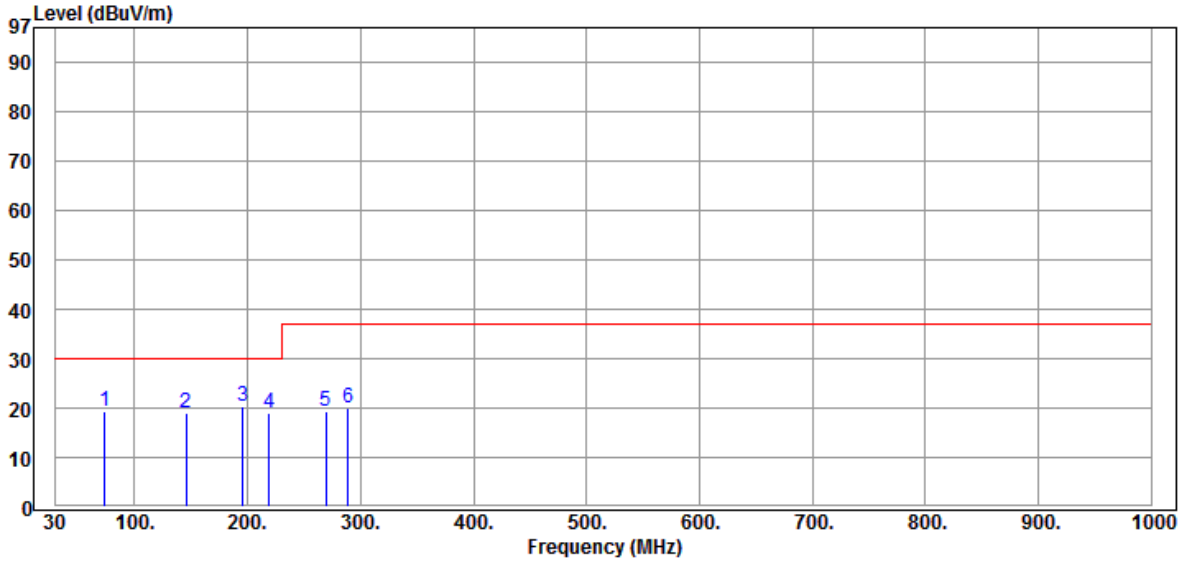
Data:272 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	37.025	30.10	-14.12	15.98	30.00	-14.02	QP
2	72.185	43.20	-22.72	20.48	30.00	-9.52	QP
3	128.802	31.80	-15.15	16.65	30.00	-13.35	QP
4	169.804	30.40	-13.06	17.34	30.00	-12.66	QP
5	232.175	30.10	-10.01	20.09	37.00	-16.91	QP
6	263.722	29.40	-9.40	20.00	37.00	-17.00	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE	: OATS 1
MODEL: TR220MB480	TEST DISTANCE	: 10m
RATING: AC 230V/50Hz	POLARIZATION	: HORIZONTAL
COMMENT: Test Mode: Mode 9: Full Load Mode (Model No.: TR220MB480)	TEMP/HUM	: 24.6℃/50%

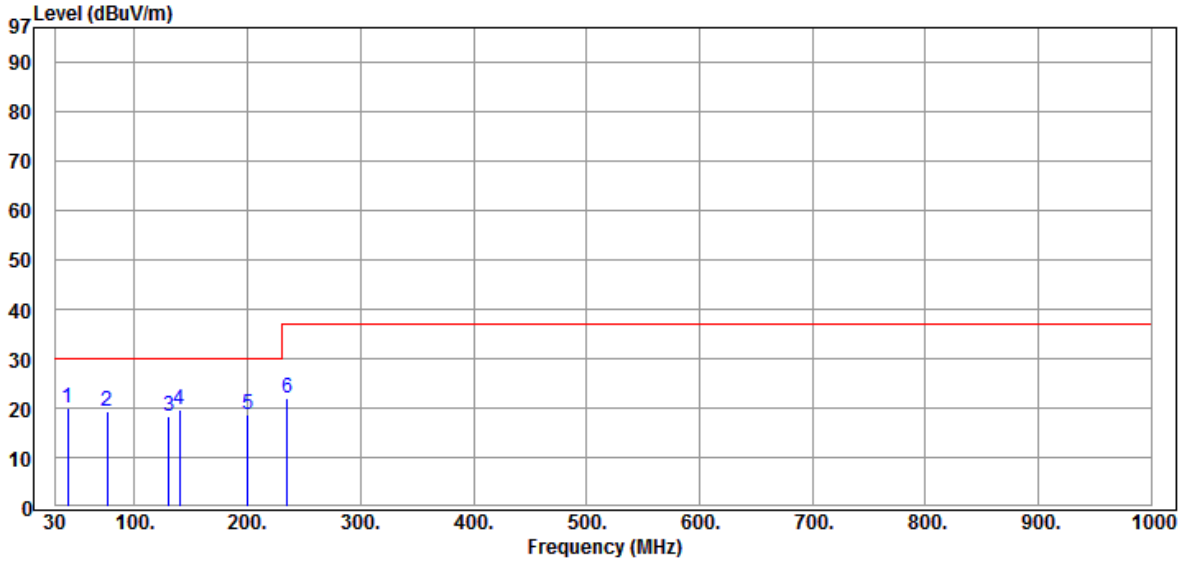
Data:277 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	73.501	42.10	-22.69	19.41	30.00	-10.59	QP
2	145.301	33.19	-14.27	18.92	30.00	-11.08	QP
3	195.500	31.39	-11.04	20.35	30.00	-9.65	QP
4	219.002	29.40	-10.44	18.96	30.00	-11.04	QP
5	269.101	28.40	-9.21	19.19	37.00	-17.81	QP
6	289.201	27.59	-7.72	19.87	37.00	-17.13	QP

CLIENT: Cincon Electronics Co., Ltd.		OPERATOR	: Peter
EUT: TR220M Series Medical Switch Adapter		TEST SITE	: OATS 1
MODEL: TR220MB480		TEST DISTANCE	: 10m
RATING: AC 230V/50Hz		POLARIZATION	: VERTICAL
COMMENT: Test Mode: Mode 9: Full Load Mode (Model No.: TR220MB480)		TEMP/HUM	: 24.6℃/50%

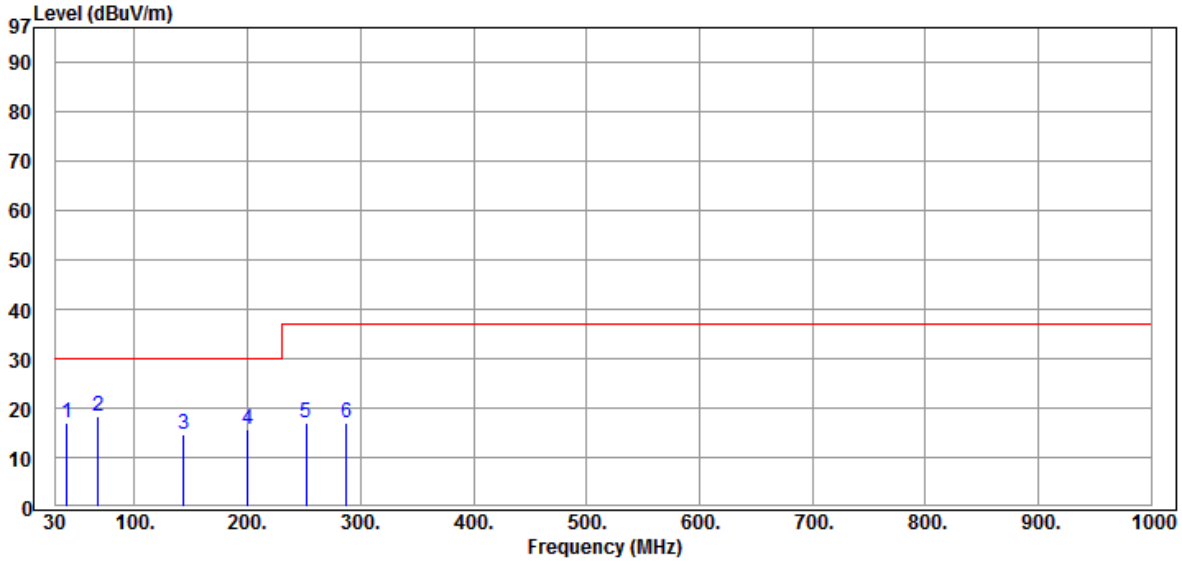
Data:276 2021-06-18



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	41.103	35.90	-15.78	20.12	30.00	-9.88	QP
2	75.403	42.11	-22.64	19.47	30.00	-10.53	QP
3	130.001	33.40	-15.07	18.33	30.00	-11.67	QP
4	140.010	34.10	-14.47	19.63	30.00	-10.37	QP
5	200.100	29.40	-10.87	18.53	30.00	-11.47	QP
6	234.904	31.80	-9.95	21.85	37.00	-15.15	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR : Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE : OATS 1
MODEL: TR220MB560	TEST DISTANCE : 10m
RATING: AC 230V/50Hz	POLARIZATION : HORIZONTAL
COMMENT: Test Mode: Mode 10: Full Load Mode (Model No.: TR220MB560)	TEMP/HUM : 25.2℃/53%

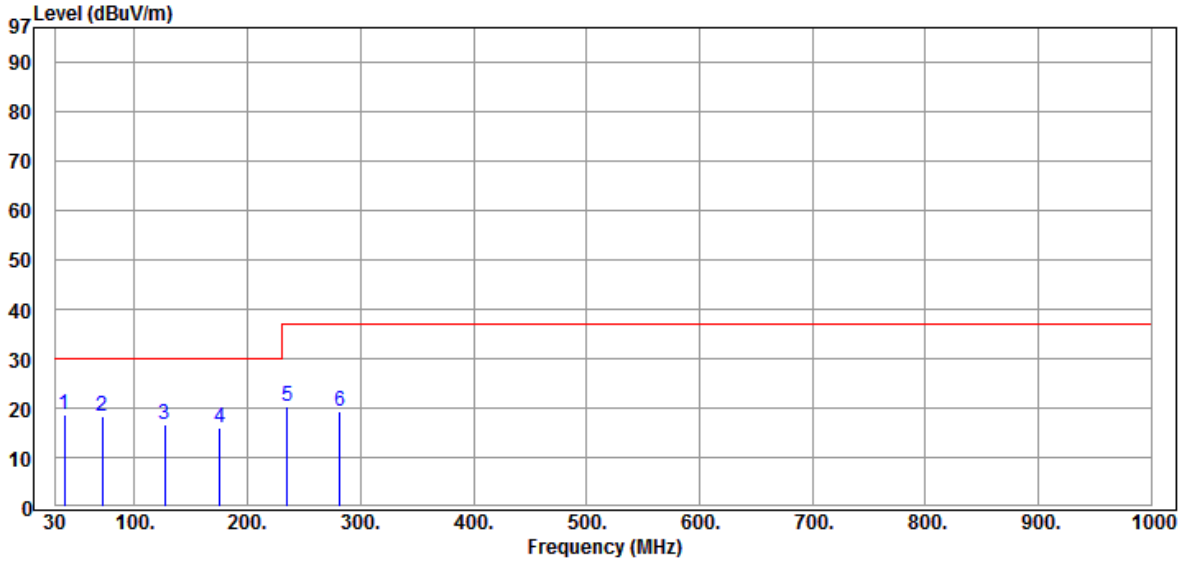
Data:281 2021-06-21



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	40.101	32.40	-15.43	16.97	30.00	-13.03	QP
2	67.804	40.80	-22.49	18.31	30.00	-11.69	QP
3	143.105	28.89	-14.35	14.54	30.00	-15.46	QP
4	200.101	26.40	-10.87	15.53	30.00	-14.47	QP
5	251.900	26.60	-9.56	17.04	37.00	-19.96	QP
6	287.600	24.90	-7.83	17.07	37.00	-19.93	QP

CLIENT: Cincon Electronics Co., Ltd.	OPERATOR : Peter
EUT: TR220M Series Medical Switch Adapter	TEST SITE : OATS 1
MODEL: TR220MB560	TEST DISTANCE : 10m
RATING: AC 230V/50Hz	POLARIZATION : VERTICAL
COMMENT: Test Mode: Mode 10: Full Load Mode (Model No.: TR220MB560)	TEMP/HUM : 25.2℃/53%

Data:280 2021-06-21



Item Mark	Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark
1	38.100	33.40	-14.58	18.82	30.00	-11.18	QP
2	71.302	41.11	-22.75	18.36	30.00	-11.64	QP
3	126.400	31.90	-15.31	16.59	30.00	-13.41	QP
4	175.300	28.70	-12.75	15.95	30.00	-14.05	QP
5	234.990	30.40	-9.95	20.45	37.00	-16.55	QP
6	281.900	27.60	-8.18	19.42	37.00	-17.58	QP

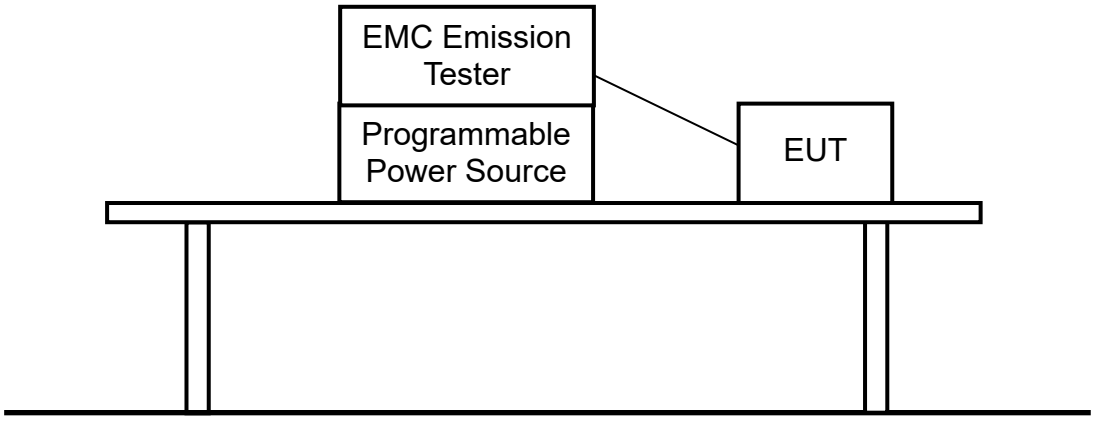
4 Harmonic Current Emission Measurement (IEC 61000-3-2)

4.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMC Emission Tester	EMC PARTNER	HAR1000-1P	105	2022/06/01
Programmable Power Source	N4L	N4A03-M	91J-11832	2022/06/01

Note: The above equipments are within the valid calibration period.

4.2 Block Diagram of Test Configuration



4.3 Test Limits

☒ **Class A Equipment**

Harmonic order (n)	Maximum permissible harmonic current (A)
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15 ≤ n ≤ 39	0.15 15 / n
Even harmonics	
2	1.08
4	0.43
6	0.30
8 ≤ n ≤ 40	0.23 8 / n

☐ **Class B equipment**

For Class B equipment, the harmonics of the input current shall not exceed the values given in Class A equipment multiplied by a factor of 1.5.

☐ **Class C equipment**

Harmonic order (n)	**Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency** %
2 3 5 7 9 11 ≤ n ≤ 39 (odd harmonics only)	2 30. λ * 10 7 5 3
* λ is the circuit power factor	

☐ **Class D equipment**

Harmonic order (n)	**Maximum permissible harmonic current Per watt** (mA/W)	**Maximum permissible harmonic current** (A)
3 5 7 9 11 13 ≤ n ≤ 39 (odd harmonics only)	3.4 1.9 1.0 0.5 0.35 3.85/n	2.30 1.14 0.77 0.40 0.33 See Class A equipment

4.4 Configuration of Measurement

4.4.1 The EUT with power analyzer was in series and supplied from a power source with the same nominal voltage and frequency as the rated supply voltage.

4.4.2 Set the output of the power analyzer to the rated voltage and frequency of EUT (230 V, 50 Hz).

4.4.3 The EUT was classified by clause 5. of IEC 61000-3-2.

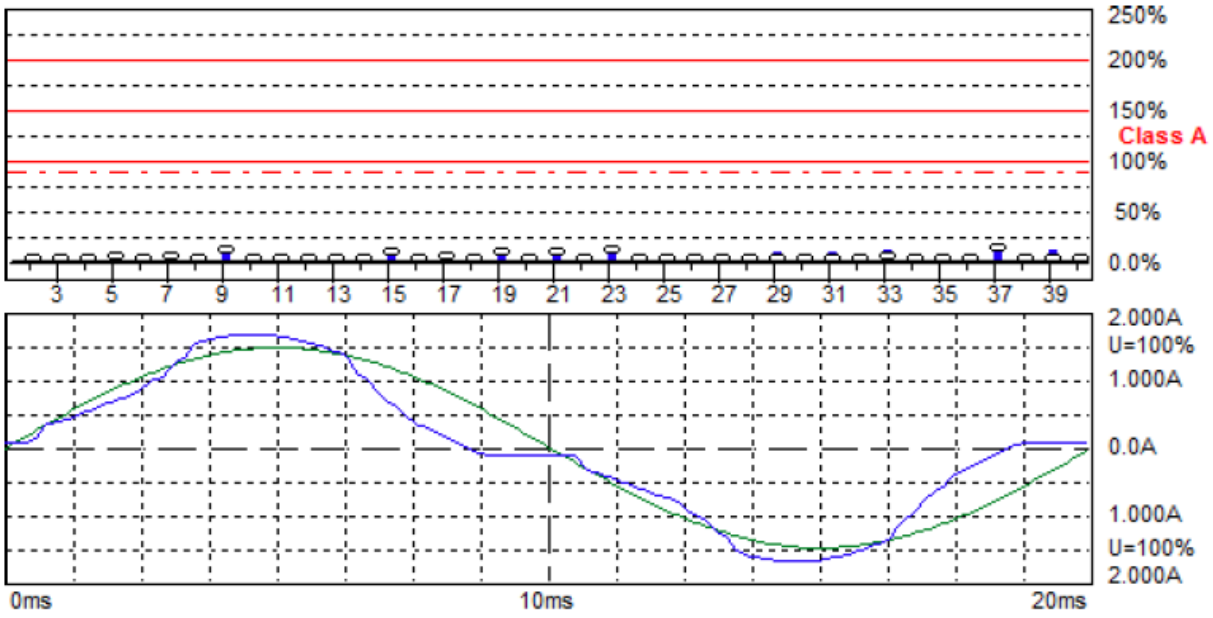
4.5 Test Result

PASS.

The measured result is shown as following pages.

Mode 2: Full Load Mode (Model No.: TR220MA240)

Operator	Peter
EUT	TR220M Series Medical Switch Adapter
Model Number	TR220MA240
Temp./Humi.	T:25.6'C / 55%



Harmonic Emission - IEC 61000-3-2 , EN 61000-3-2 , (EN60555-2) 2021/6/23 下午 04:42:28

Urms =	228.7	V	P =	217.5	W	THC =	0.275	A	Range: 2 A
Irms =	1.006	A	pf =	0.946					V-nom: 230 V
									TestTime: 10 min (100%)

TR220M Series Medical Switch Adapter **Test completed, Result: PASSED**

T:25.6'C / 55%

HAR-1000 EMC-Partner

```
Full Bar  : Actual Values
Empty Bar : Maximum Values
Blue : Current , Green : Voltage , Red : Failed
```

Measurement

Cincon Electronics Co., Ltd. Date : 2021/6/23 pm 04:42:28 V5.0

File :

Operator	Peter
EUT	TR220M Series Medical Switch Adapter
Model Number	TR220MA240
Temp./Humi.	T:25.6'C / 55%

Urms =	228.7V	Freq =	49.987	Range:	2 A
Irms =	1.006A	Ipk =	1.681A	cf =	1.671
P =	217.5W	S =	230.1VA	pf =	0.946
THDi =	28.4 %	THDu =	0.20 %	Class A	

Test - Time : 10min (100 %)

Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Irms [A]	Imax [A]	Limit [A]	Status
1	50	0.9693	0.9681	0.9712		
2	100	0.0000	0.0021	0.0038	1.0800	
3	150	0.2676	0.2676	0.2681	2.3000	
4	200	0.0000	0.0009	0.0011	0.4300	
5	250	0.0296	0.0295	0.0298	1.1400	
6	300	0.0000	0.0006	0.0012	0.3000	
7	350	0.0321	0.0317	0.0325	0.7700	
8	400	0.0000	0.0005	0.0007	0.2300	
9	450	0.0370	0.0372	0.0372	0.4000	
10	500	0.0000	0.0004	0.0006	0.1840	
11	550	0.0000	0.0050	0.0057	0.3300	
12	600	0.0000	0.0004	0.0007	0.1533	
13	650	0.0000	0.0040	0.0045	0.2100	
14	700	0.0000	0.0004	0.0006	0.1314	
15	750	0.0111	0.0111	0.0114	0.1500	
16	800	0.0000	0.0004	0.0005	0.1150	
17	850	0.0046	0.0061	0.0062	0.1324	
18	900	0.0000	0.0004	0.0005	0.1022	
19	950	0.0082	0.0083	0.0084	0.1184	
20	1000	0.0000	0.0004	0.0005	0.0920	
21	1050	0.0080	0.0079	0.0083	0.1071	
22	1100	0.0000	0.0004	0.0005	0.0836	
23	1150	0.0082	0.0083	0.0084	0.0978	
24	1200	0.0000	0.0002	0.0004	0.0767	
25	1250	0.0000	0.0033	0.0038	0.0900	
26	1300	0.0000	0.0004	0.0005	0.0708	
27	1350	0.0000	0.0015	0.0018	0.0833	
28	1400	0.0000	0.0004	0.0005	0.0657	
29	1450	0.0000	0.0055	0.0056	0.0776	
30	1500	0.0000	0.0004	0.0004	0.0613	
31	1550	0.0000	0.0044	0.0045	0.0726	
32	1600	0.0000	0.0004	0.0005	0.0575	
33	1650	0.0024	0.0057	0.0062	0.0682	
34	1700	0.0000	0.0004	0.0005	0.0541	
35	1750	0.0000	0.0021	0.0022	0.0643	
36	1800	0.0000	0.0004	0.0005	0.0511	
37	1850	0.0071	0.0068	0.0074	0.0608	
38	1900	0.0000	0.0004	0.0005	0.0484	
39	1950	0.0000	0.0056	0.0059	0.0577	
40	2000	0.0000	0.0005	0.0006	0.0460	

Calculation of Individual Harmonic Limits

Fixed Limits for **Class A**:

Order	Limits in Ampere			
	90%	100%	150%	200%
2	0.9720	1.0800	1.6199	2.1599
3				
4	0.3870	0.4301	0.6451	0.8601
5	1.0260	1.1400	1.7100	2.2800
6	0.2700	0.3000	0.4501	0.6001
7	0.6930	0.7700	1.1550	1.5400
8	0.2070	0.2300	0.3450	0.4600
9	0.3600	0.4000	0.6000	0.8000
10	0.1656	0.1840	0.2759	0.3679
11	0.2970	0.3300	0.4949	0.6599
12	0.1380	0.1533	0.2300	0.3066
13	0.1890	0.2100	0.3149	0.4199
14	0.1183	0.1315	0.1972	0.2629
15	0.1350	0.1500	0.2250	0.3000
16	0.1035	0.1150	0.1725	0.2300
17	0.1191	0.1323	0.1985	0.2646
18	0.0920	0.1022	0.1533	0.2043
19	0.1066	0.1184	0.1776	0.2368
20	0.0828	0.0920	0.1381	0.1841
21 *	0.0965	0.1072	0.1608	0.2144
22	0.0753	0.0836	0.1254	0.1672
23 *	0.0880	0.0978	0.1467	0.1956
24	0.0690	0.0767	0.1150	0.1533
25 *	0.0810	0.0900	0.1349	0.1799
26	0.0637	0.0708	0.1062	0.1416
27 *	0.0750	0.0834	0.1251	0.1667
28	0.0591	0.0657	0.0985	0.1313
29 *	0.0699	0.0776	0.1165	0.1553
30	0.0552	0.0613	0.0919	0.1226
31 *	0.0654	0.0726	0.1089	0.1453
32	0.0517	0.0575	0.0862	0.1150
33 *	0.0614	0.0682	0.1024	0.1365
34	0.0487	0.0541	0.0811	0.1082
35 *	0.0579	0.0643	0.0965	0.1287
36	0.0460	0.0511	0.0767	0.1023
37 *	0.0547	0.0608	0.0912	0.1216
38	0.0436	0.0485	0.0727	0.0969
39 *	0.0520	0.0577	0.0866	0.1155
40	0.0414	0.0460	0.0690	0.0920

EUT is PASSED if:
- all Average values of the Individual Harmonic Currents (Iavg) are below 100% of the Individual Limits.
- all Maximum values of the Individual Harmonic Currents (Imax) are below 150% of the Individual Limits.

Exceptions:
These exceptions are mutually exclusive and cannot be used together.

1) All Maximum values of the Individual Harmonic Currents (Imax)

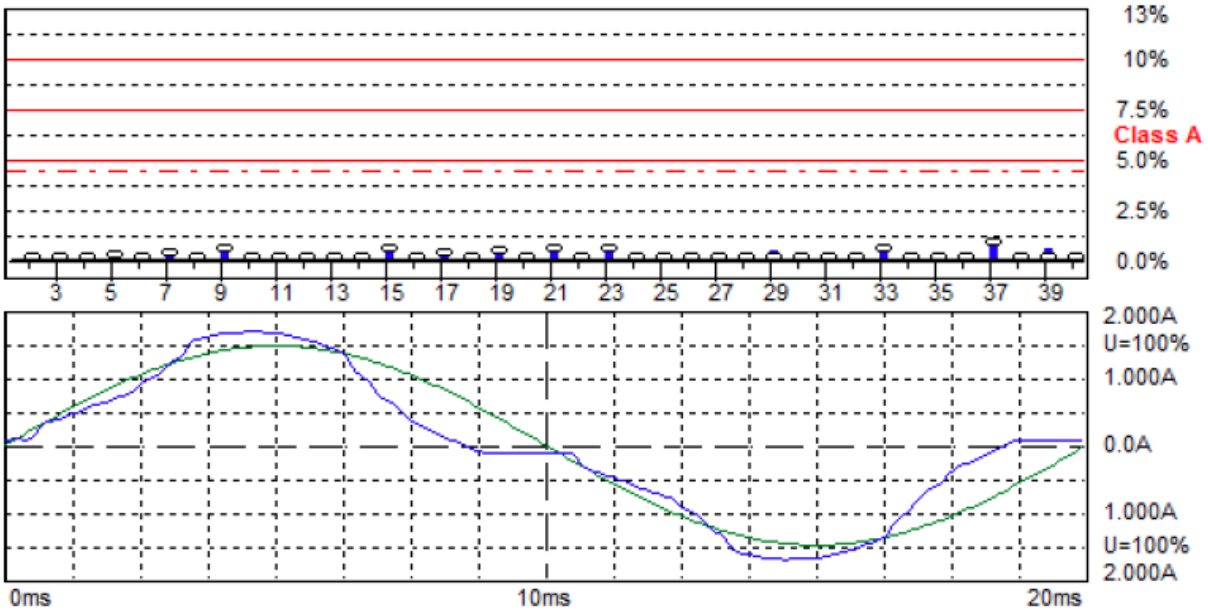
```
   are below 200% of the Individual Limits if :
     EUT belongs to Class A
     AND excursion beyond 150% lasts less than 10% of observation
        time with a maximum of 10 minutes
     AND the average value of the corresponding harmonic current
        over the entire observation period is less than 90% of
        applicable limits

2)
- Average values of some Individual Harmonic Currents ( marked with "*" )
  may be up to 150% if the Partial Harmonic Current (PHC)
  is lower than the PHC which is calculated from the Limit Currents:
  Actual PHC                       = 0.0137A
  PHC calculated from Limit values = 0.2514A

- Individual Harmonic Currents less than 5mA or less than 0.6% of Irms
  ( which is 0.006*1.006 = 0.006A) are disregaded.
```

Definitions of Abbreviations

```
Urms      ***    Actual total Voltage in Volt RMS
Irms      ***    Actual total Current in Ampere RMS
Ipk       ***    Actual Peak value of the Current in Ampere
cf        ***    Actual Crest Factor (Ipk/Irms)
P         ***    Actual Active Power in Watt
S         ***    Actual Apparent Power in VA (Urms*Irms)
pf        ***    Actual Power Factor (P/S)
THDi      ***    Actual Total Harmonic Current Distortion in %
THDu      ***    Actual Total Harmonic Voltage Distortion in %
THC       ***    Actual Total Harmonic Current in Ampere
PHC       ***    Actual Partial Harmonic Current in Ampere

Individual measurements for 2nd to 40th order:

Iavg             Average value of the Individual Harmonic Current
                 in Ampere RMS
Irms      ***    Actual Individual Harmonic Current
                 in Ampere RMS
Imax             Maximum Individual Harmonic Current
                 in Ampere RMS
Limit Irms       Individual Limit (100%) for the selected Class
                 in Ampere RMS

General :
- Maximum and Average values are calculatet over the full test-time
- The values marked with "***" are actual values which could vary
  during test-time and are taken at the time of protocol printout.
- The individual measurements are taken over every 200ms
  and smoothed with an 1,5second filter.
```

Mode 7: Full Load Mode (Model No.: TR220MB240)

Operator	Peter
EUT	TR220M Series Medical Switch Adapter
Model Number	TR220MB240
Temp./Humi.	T:25.6'C / 55%



Harmonic Emission - IEC 61000-3-2 , EN 61000-3-2 , (EN60555-2) 2021/6/23 下午 03:56:55

Urms =	228.7	V	P =	219.2	W	THC =	0.278	A	Range:	2 A
Irms =	1.014	A	pf =	0.945					V-nom:	230 V
									TestTime:	10 min (100%)

TR220M Series Medical Switch Adapter **Test completed, Result: PASSED**

T:25.6'C / 55%

HAR-1000 EMC-Partner

```
Full Bar  : Actual Values
Empty Bar : Maximum Values
Blue : Current , Green : Voltage , Red : Failed
```

Measurement

Cincon Electronics Co., Ltd. Date : 2021/6/23 pm 03:56:55 V5.0

File :

Operator Peter
EUT TR220M Series Medical Switch Adapter
Model Number TR220MB240
Temp./Humi. T:25.6'C / 55%

Urms = 228.7V Freq = 49.987 Range: 2 A
Irms = 1.014A Ipk = 1.694A cf = 1.671
P = 219.2W S = 231.9VA pf = 0.945
THDi = 28.5 % THDu = 0.20 % Class A

Test - Time : 10min (100 %)

Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Irms [A]	Imax [A]	Limit [A]	Status
1	50	0.9752	0.9757	0.9800		
2	100	0.0000	0.0018	0.0022	1.0800	
3	150	0.2705	0.2710	0.2710	2.3000	
4	200	0.0000	0.0007	0.0009	0.4300	
5	250	0.0302	0.0300	0.0305	1.1400	
6	300	0.0000	0.0004	0.0005	0.3000	
7	350	0.0333	0.0328	0.0338	0.7700	
8	400	0.0000	0.0004	0.0005	0.2300	
9	450	0.0359	0.0361	0.0361	0.4000	
10	500	0.0000	0.0004	0.0005	0.1840	
11	550	0.0000	0.0050	0.0057	0.3300	
12	600	0.0000	0.0004	0.0005	0.1533	
13	650	0.0000	0.0028	0.0035	0.2100	
14	700	0.0000	0.0004	0.0004	0.1314	
15	750	0.0119	0.0118	0.0121	0.1500	
16	800	0.0000	0.0004	0.0004	0.1150	
17	850	0.0059	0.0063	0.0065	0.1324	
18	900	0.0000	0.0005	0.0005	0.1022	
19	950	0.0079	0.0083	0.0082	0.1184	
20	1000	0.0000	0.0004	0.0005	0.0920	
21	1050	0.0089	0.0089	0.0093	0.1071	
22	1100	0.0000	0.0004	0.0005	0.0836	
23	1150	0.0077	0.0078	0.0079	0.0978	
24	1200	0.0000	0.0004	0.0004	0.0767	
25	1250	0.0000	0.0039	0.0045	0.0900	
26	1300	0.0000	0.0004	0.0005	0.0708	
27	1350	0.0000	0.0028	0.0031	0.0833	
28	1400	0.0000	0.0004	0.0005	0.0657	
29	1450	0.0000	0.0045	0.0048	0.0776	
30	1500	0.0000	0.0005	0.0005	0.0613	
31	1550	0.0000	0.0037	0.0037	0.0726	
32	1600	0.0000	0.0004	0.0005	0.0575	
33	1650	0.0073	0.0074	0.0077	0.0682	
34	1700	0.0000	0.0005	0.0005	0.0541	
35	1750	0.0000	0.0012	0.0015	0.0643	
36	1800	0.0000	0.0004	0.0005	0.0511	
37	1850	0.0093	0.0093	0.0096	0.0608	
38	1900	0.0000	0.0005	0.0005	0.0484	
39	1950	0.0000	0.0056	0.0059	0.0577	
40	2000	0.0000	0.0005	0.0005	0.0460	

Calculation of Individual Harmonic Limits

Fixed Limits for **Class A**:

Order		Limits in Ampere			
		90%	100%	150%	200%
2		0.9720	1.0800	1.6199	2.1599
3					
4		0.3870	0.4301	0.6451	0.8601
5		1.0260	1.1400	1.7100	2.2800
6		0.2700	0.3000	0.4501	0.6001
7		0.6930	0.7700	1.1550	1.5400
8		0.2070	0.2300	0.3450	0.4600
9		0.3600	0.4000	0.6000	0.8000
10		0.1656	0.1840	0.2759	0.3679
11		0.2970	0.3300	0.4949	0.6599
12		0.1380	0.1533	0.2300	0.3066
13		0.1890	0.2100	0.3149	0.4199
14		0.1183	0.1315	0.1972	0.2629
15		0.1350	0.1500	0.2250	0.3000
16		0.1035	0.1150	0.1725	0.2300
17		0.1191	0.1323	0.1985	0.2646
18		0.0920	0.1022	0.1533	0.2043
19		0.1066	0.1184	0.1776	0.2368
20		0.0828	0.0920	0.1381	0.1841
21	*	0.0965	0.1072	0.1608	0.2144
22		0.0753	0.0836	0.1254	0.1672
23	*	0.0880	0.0978	0.1467	0.1956
24		0.0690	0.0767	0.1150	0.1533
25	*	0.0810	0.0900	0.1349	0.1799
26		0.0637	0.0708	0.1062	0.1416
27	*	0.0750	0.0834	0.1251	0.1667
28		0.0591	0.0657	0.0985	0.1313
29	*	0.0699	0.0776	0.1165	0.1553
30		0.0552	0.0613	0.0919	0.1226
31	*	0.0654	0.0726	0.1089	0.1453
32		0.0517	0.0575	0.0862	0.1150
33	*	0.0614	0.0682	0.1024	0.1365
34		0.0487	0.0541	0.0811	0.1082
35	*	0.0579	0.0643	0.0965	0.1287
36		0.0460	0.0511	0.0767	0.1023
37	*	0.0547	0.0608	0.0912	0.1216
38		0.0436	0.0485	0.0727	0.0969
39	*	0.0520	0.0577	0.0866	0.1155
40		0.0414	0.0460	0.0690	0.0920

EUT is PASSED if:
- all Average values of the Individual Harmonic Currents (Iavg) are below 100% of the Individual Limits.
- all Maximum values of the Individual Harmonic Currents (Imax) are below 150% of the Individual Limits.

Exceptions:
These exceptions are mutually exclusive and cannot be used together.

1) All Maximum values of the Individual Harmonic Currents (Imax)

```
   are below 200% of the Individual Limits if :
     EUT belongs to Class A
     AND excursion beyond 150% lasts less than 10% of observation
        time with a maximum of 10 minutes
     AND the average value of the corresponding harmonic current
        over the entire observation period is less than 90% of
        applicable limits

2)
- Average values of some Individual Harmonic Currents ( marked with "*" )
  may be up to 150% if the Partial Harmonic Current (PHC)
  is lower than the PHC which is calculated from the Limit Currents:
  Actual PHC                        = 0.0167A
  PHC calculated from Limit values = 0.2514A

- Individual Harmonic Currents less than 5mA or less than 0.6% of Irms
  ( which is 0.006*1.014 = 0.006A) are disregaded.
```

Definitions of Abbreviations

```
Urms      ***    Actual total Voltage in Volt RMS
Irms      ***    Actual total Current in Ampere RMS
Ipk       ***    Actual Peak value of the Current in Ampere
cf        ***    Actual Crest Factor (Ipk/Irms)
P         ***    Actual Active Power in Watt
S         ***    Actual Apparent Power in VA (Urms*Irms)
pf        ***    Actual Power Factor (P/S)
THDi      ***    Actual Total Harmonic Current Distortion in %
THDu      ***    Actual Total Harmonic Voltage Distortion in %
THC       ***    Actual Total Harmonic Current in Ampere
PHC       ***    Actual Partial Harmonic Current in Ampere

Individual measurements for 2nd to 40th order:

Iavg             Average value of the Individual Harmonic Current
                 in Ampere RMS
Irms      ***    Actual Individual Harmonic Current
                 in Ampere RMS
Imax             Maximum Individual Harmonic Current
                 in Ampere RMS
Limit Irms       Individual Limit (100%) for the selected Class
                 in Ampere RMS

General :
- Maximum and Average values are calculatet over the full test-time
- The values marked with "***" are actual values which could vary
  during test-time and are taken at the time of protocol printout.
- The individual measurements are taken over every 200ms
  and smoothed with an 1,5second filter.
```

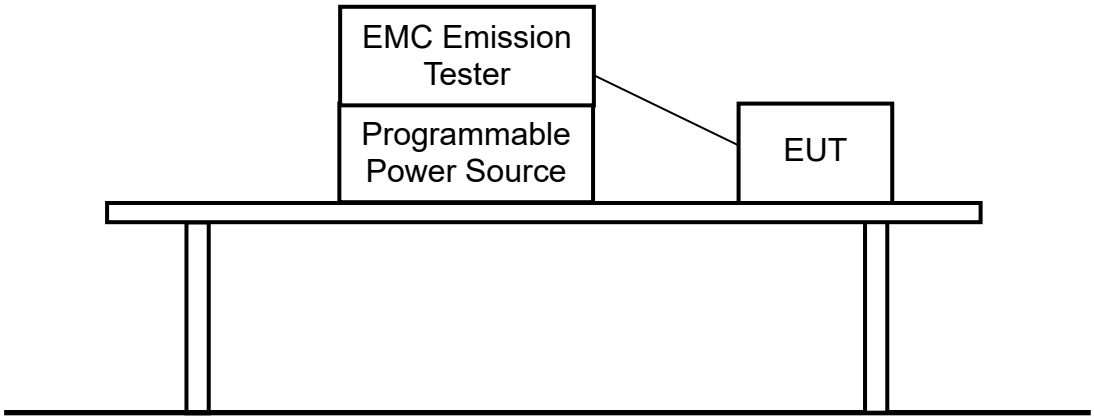
5 Voltage Fluctuations and Flicker Measurement (IEC 61000-3-3)

5.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMC Emission Tester	EMC PARTNER	HAR1000-1P	105	2022/06/01
Programmable Power Source	N4L	N4A03-M	91J-11832	2022/06/01

Note: The above equipments are within the valid calibration period.

5.2 Block Diagram of Test Configuration



5.3 Test Limits

The following limits apply:

- the value of P_{st} shall not be greater than 1.0;
- the value of P_{lt} shall not be greater than 0.65;
- the relative steady-state voltage change, d_{c}, shall not exceed 3.3 %;
- the maximum relative voltage change, d_{max}, shall not exceed 4 %;
- the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms.

5.4 Configuration of Measurement

5.4.1 The EUT with power analyzer is in series and supplied from a power source with the same nominal voltage and frequency as the rated supply voltage.

5.4.2 Set the output of the power analyzer to the rated voltage and frequency of EUT (230 V, 50 Hz).

5.4.3 Select the test time of observation period for short-term (T_p = 10 min) and long-term (T_p = 2 hrs). The test result was collected and analyzed by the computer.

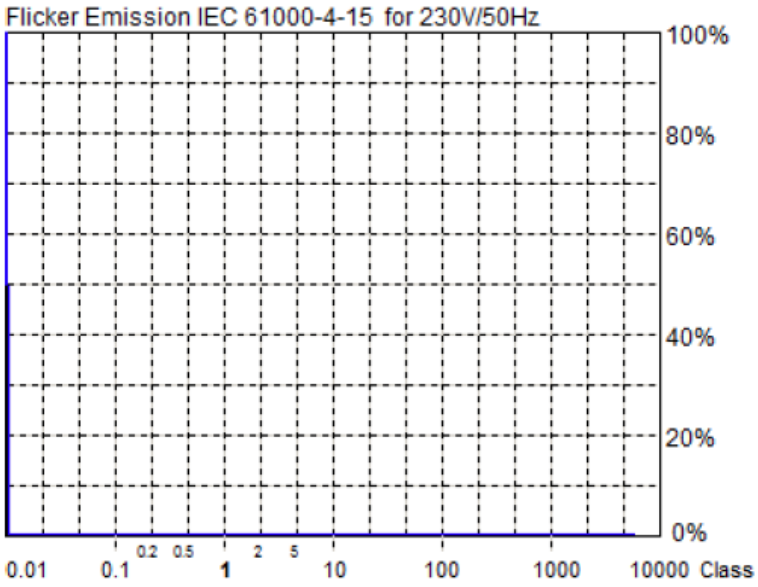
5.5 Test Result

PASS.

The measured result is shown as following pages.

Mode 2: Full Load Mode (Model No.: TR220MA240)

Operator	Peter
EUT	TR220M Series Medical Switch Adapter
Model Number	TR220MA240
Temp./Humi.	T:25.6'C / 55%



Actual Flicker (Fli):	**0.00**
Short-term Flicker (Pst):	**0.07**
Limit (Pst):	1.00
Long-term Flicker (Plt):	**0.07**
Limit (Plt):	0.65
Maximum Relative Volt. Change (dmax):	**0.00%**
Limit (dmax):	4.00%
Relative Steady-state Voltage Change (dc):	**0.01%**
Limit (dc):	3.30%
Tmax 3.30% (dt):	**0.00ms**
Limit (dt>Lim):	500ms

Flicker Emission - IEC 61000-3-3 , EN 61000-3-3

2021/6/23 下午 04:55:28

Urms =	228.3	V	P =	217.2	W
Irms =	1.006	A	pf =	0.946	

Range:	2 A
V-nom:	230 V
TestTime:	10 min (100%)

TR220M Series Medical Switch Adapter **Test completed, Result: PASSED**

T:25.6'C / 55%

HAR-1000 EMC-Partner

Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Measurement

```
Cincon Electronics Co., Ltd.            Date : 2021/6/23 pm 04:55:28 V5.0

File :

Operator                        Peter
EUT                             TR220M Series Medical Switch Adapter
Model Number                    TR220MA240
Temp./Humi.                     T:25.6'C / 55%

Urms =  228.3V  Freq =  49.987  Range:  2 A
Irms =  1.006A  Ipk  =  1.741A  cf    =  1.731
P    =  217.2W  S    =  229.7VA pf    =  0.946

Test - Time :   1 x 10min = 10min       ( 100 %)

LIN (Line Impedance Network) :   L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits :        Plt  :  0.65    Pst   : 1.00
                dmax :  4.00 %  dc    : 3.30 %
                dtLim:  3.30 %  dt>Lim: 500ms

Test completed, Result: PASSED

        dmax
        [%]
1       0.000
```

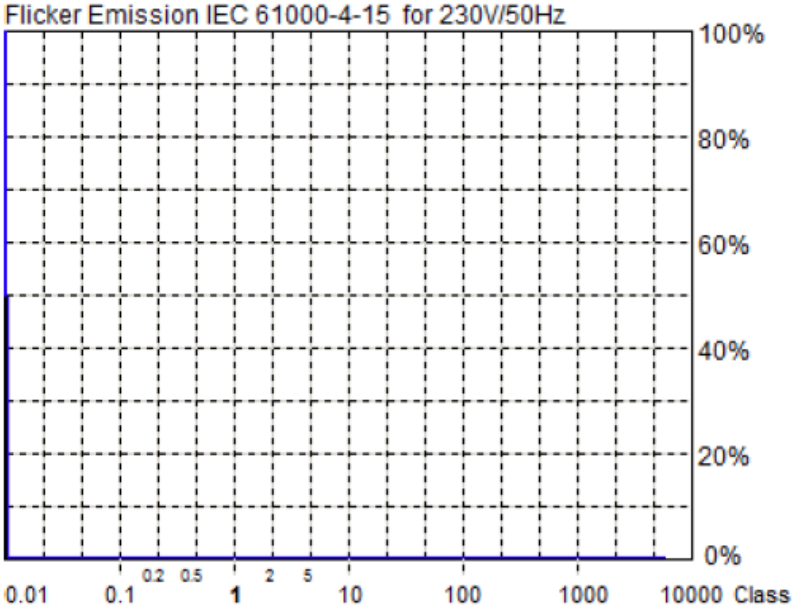
Definitions of Abbreviations

```
Urms      ***    Actual total Voltage in Volt RMS
Irms      ***    Actual total Current in Ampere RMS
Ipk       ***    Actual Peak value of the Current in Ampere
cf        ***    Actual Crest Factor (Ipk/Irms)
P         ***    Actual Active Power in Watt
S         ***    Actual Apparent Power in VA (Urms*Irms)
pf        ***    Actual Power Factor (P/S)

Plt              Long term Flicker over all Pst cycles

For every Pst-cycle:

dmax             Maximum voltage changes between two steady state conditions

General :
- The values marked with "***" are actual values which could vary
  during test-time and are taken at the time of protocol printout.
```

Mode 7: Full Load Mode (Model No.: TR220MB240)

Operator	Peter
EUT	TR220M Series Medical Switch Adapter
Model Number	TR220MB240
Temp./Humi.	T:25.6'C / 55%

Flicker Emission IEC 61000-4-15 for 230V/50Hz



Actual Flicker (Fli):	**0.00**
Short-term Flicker (Pst):	**0.07**
Limit (Pst):	1.00
Long-term Flicker (Plt):	**0.07**
Limit (Plt):	0.65
Maximum Relative Volt. Change (dmax):	**0.00%**
Limit (dmax):	4.00%
Relative Steady-state Voltage Change (dc):	**0.00%**
Limit (dc):	3.30%
Tmax 3.30% (dt):	**0.00ms**
Limit (dt>Lim):	500ms

Flicker Emission - IEC 61000-3-3 , EN 61000-3-3

2021/6/23 下午 04:10:08

Urms =	228.3	V	P =	219.2	W
Irms =	1.016	A	pf =	0.945	

Range:	2 A
V-nom:	230 V
TestTime:	10 min (100%)

TR220M Series Medical Switch Adapter **Test completed, Result: PASSED**

T:25.6'C / 55%

HAR-1000 EMC-Partner

Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Measurement

```
Cincon Electronics Co., Ltd.            Date : 2021/6/23 pm 04:10:08 V5.0

File :

Operator                          Peter
EUT                               TR220M Series Medical Switch Adapter
Model Number                      TR220MB240
Temp./Humi.                       T:25.6'C / 55%

Urms =  228.3V  Freq =  50.000  Range:  2 A
Irms =  1.016A  Ipk  =  1.698A  cf    =  1.672
P    =  219.2W  S    =  231.9VA pf    =  0.945

Test - Time :   1 x 10min = 10min       ( 100 %)

LIN (Line Impedance Network) :   L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits :        Plt  :  0.65    Pst   : 1.00
                dmax :  4.00 %  dc    : 3.30 %
                dtLim:  3.30 %  dt>Lim: 500ms

Test completed, Result: PASSED

        dmax
        [%]
1       0.000
```

Definitions of Abbreviations

```
Urms      ***    Actual total Voltage in Volt RMS
Irms      ***    Actual total Current in Ampere RMS
Ipk       ***    Actual Peak value of the Current in Ampere
cf        ***    Actual Crest Factor (Ipk/Irms)
P         ***    Actual Active Power in Watt
S         ***    Actual Apparent Power in VA (Urms*Irms)
pf        ***    Actual Power Factor (P/S)

Plt              Long term Flicker over all Pst cycles

For every Pst-cycle:

dmax             Maximum voltage changes between two steady state conditions

General :
- The values marked with "***" are actual values which could vary
  during test-time and are taken at the time of protocol printout.
```

---

6 Performance Criteria of Immunity Test

Monitor method

Observe output power voltage on Un ± 2 %.

Pass / Fail judgment:

Pass: Observe output power voltage on Un ± 2 %.

Fail: Condition other than pass occurs.

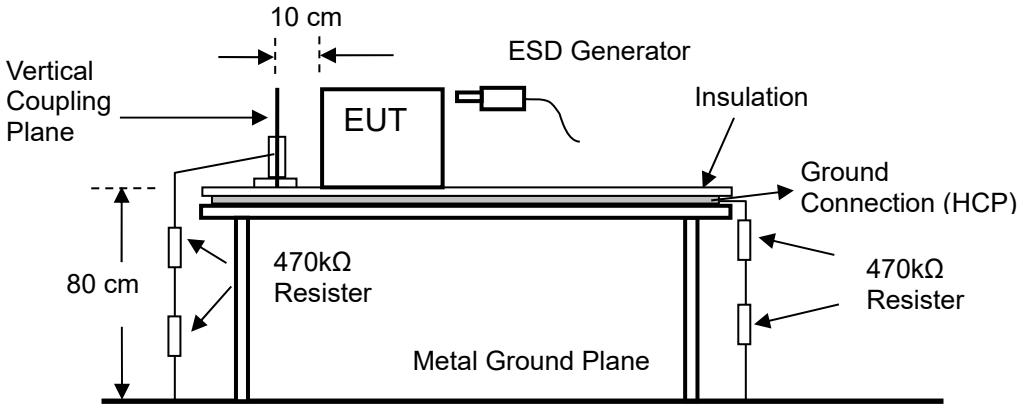
7 Electrostatic Discharge Immunity Test (IEC 61000-4-2)

7.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
ESD Simulator	EMC PARTNER	ESD3000	276	2022/03/02

Note: The above equipments are within the valid calibration period.

7.2 Block Diagram of Test Configuration



7.3 Test Requirement

IEC 61000-4-2 (EN 60601-1-2) require:

☒ Enclosure Port
☐ Patient Coupling Port
☐ Signal input/output parts Port

Air discharge: ± 2 kV; ± 4 kV; ± 8 kV; ± 15 kV
Contact discharge: ± 8 kV
Performance criterion: **PASS**

7.4 Configuration of Measurement

7.4.1 The test setup consists of the test generator, EUT and auxiliary instrumentation necessary to perform direct and indirect application of discharges to the EUT in the following manner:

a) Contact discharge to the conductive surfaces and to coupling planes;
b) Air discharge at insulating surfaces.

7.4.2 The EUT shall be arranged in accordance with the manufacturer's instructions for installation.

7.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/22

Temperature: 23.9 ℃； Humidity: 42 %； Atmospheric: 982 hPa； Test Engineer: Amber

Mode 2: Full Load Mode (Model No.: TR220MA240)

Air discharge ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV
Contact discharge ± 2 kV, ± 4 kV, ± 6 kV, ± 8 kV
Indirect discharge (HCP) ± 2 kV, ± 4 kV, ± 6 kV, ± 8 kV
Indirect discharge (VCP) ± 2 kV, ± 4 kV, ± 6 kV, ± 8 kV
Performance criterion: **PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)

Air discharge ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV
Contact discharge ± 2 kV, ± 4 kV, ± 6 kV, ± 8 kV
Indirect discharge (HCP) ± 2 kV, ± 4 kV, ± 6 kV, ± 8 kV
Indirect discharge (VCP) ± 2 kV, ± 4 kV, ± 6 kV, ± 8 kV
Performance criterion: **PASS**

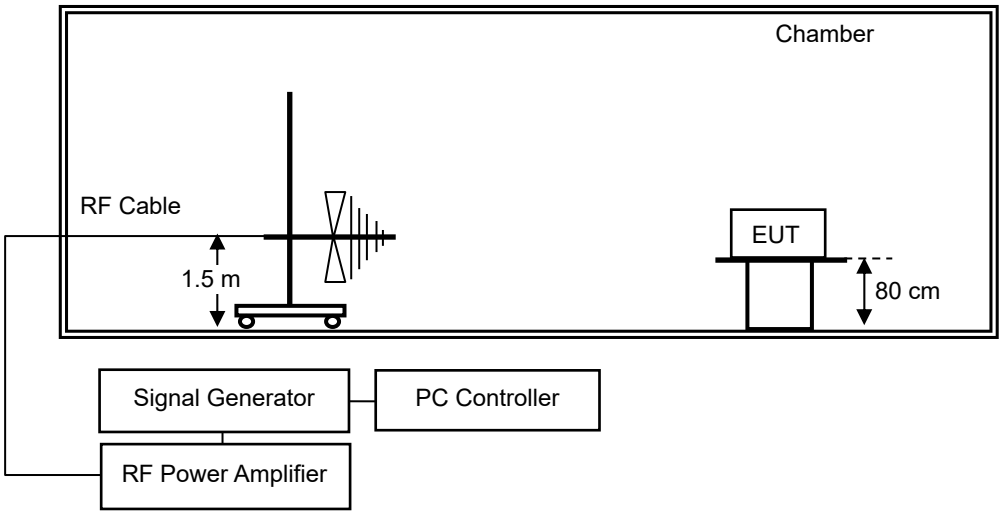
8 Radio- Frequency, Electromagnetic Field Immunity Test (IEC 61000-4-3)

8.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
Signal Generator	KEYSIGHT	N5171B	MY53051802	2022/03/09
Power Amplifier	R&K	A080M102-5555R	B30850	2022/04/17
Power Amplifier	R&K	A701M402-4747R	B35850	2022/04/17
Log Antenna	Schwarzbeck	VULP 9118 G Special	9118GS912	2022/04/17
Horn Antenna	Schwarzbeck	BBHA 9120 E	BBHA9120E 586	2022/04/17

Note: The above equipments are within the valid calibration period.

8.2 Block Diagram of Test Configuration



8.3 Test Requirement

IEC 61000-4-3 (EN 60601-1-2) require:

☐ Professional healthcare facility environment:

Enclosure Port

The frequency steps: 1 %, Log sweep, Dwell time: 3.0 sec.

Frequency range: **80** to **2700** MHz, Field strength: **3** V/m, 80 % AM (1 kHz)

Performance criterion: **PASS**

☒ HOME HEALTHCARE ENVIRONMENT:

Enclosure Port

The frequency steps: 1 %, Log sweep, Dwell time: 3.0 sec.

Frequency range: **80** to **2700** MHz, Field strength: **10** V/m, 80 % AM (1 kHz)

Performance criterion: **PASS**

8.4 Configuration of Measurement

8.4.1 Before testing, the intensity of the established field strength was checked by placing the field sensor at a calibration grid point, and with the field generating antenna and cables in the same positions as used for the calibration, the forward and reverse power were measured. The forward power needed to give the calibrated field was evaluated.

8.4.2 The EUT was placed on a non-metallic table 0.8 m above the reference ground plane (RGP) and was operated according to its specified operating mode.

8.4.3 Ferrite tiles/ absorbers were placed on the RGP between the EUT and the antenna to reduce the reflections from the RGP.

8.4.4 The distance between antenna and EUT is 1 meter.

8.4.5 During the test EUT performance has been monitoring by CCD camera.

8.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/26

Temperature: 25.9 ℃； Humidity: 51 %； Atmospheric: 996 hPa； Test Engineer: Scott

Mode 2: Full Load Mode (Model No.: TR220MA240)
Frequency range: **80** to **2700** MHz, Field strength: **10** V/m, 80 % AM (1 kHz),
Performance criterion: **PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)
Frequency range: **80** to **2700** MHz, Field strength: **10** V/m, 80 % AM (1 kHz),
Performance criterion: **PASS**

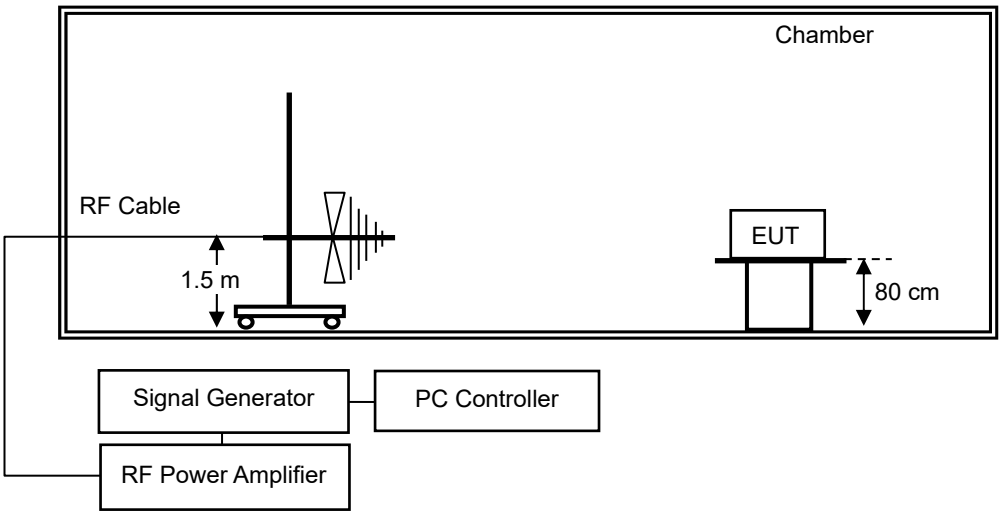
9 RF Wireless Communications Equipment Immunity Test (IEC 61000-4-3)

9.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
Signal Generator	KEYSIGHT	N5171B	MY53051802	2022/03/09
Power Amplifier	R&K	A080M102-5555R	B30850	2022/04/17
Power Amplifier	R&K	A701M402-4747R	B35850	2022/04/17
Power Amplifier	R&K	GA252M602-4747R	B60243	2022/04/17
Log Antenna	Schwarzbeck	VULP 9118 G Special	9118GS912	2022/04/17
Horn Antenna	Schwarzbeck	BBHA 9120 E	BBHA9120E 586	2022/04/17

Note: The above equipments are within the valid calibration period.

9.2 Block Diagram of Test Configuration



9.3 Test Requirement

IEC 61000-4-3 (EN 60601-1-2) require:

Test frequency (MHz)	Band (MHz)	Service	Modulation	Immunity Test Level (V/m)
385	380 - 390	TETRA 400	Pulse modulation 18 Hz	27
450	430 - 470	GMRS 460, FRS 460	FM ± 5 kHz deviation 1 kHz sine	28
710	704 - 787	LTE Band 13, 17	Pulse modulation 217 Hz	9
745				
780				
810	800 - 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation 18 Hz	28
870				
930				
1720	1700 - 1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation 217 Hz	28
1845				
1970				
2450	2400 - 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217 Hz	28
5240	5100 - 5800	WLAN 802.11 a/n	Pulse modulation 217 Hz	9
5500				
5785				
Performance criterion: **PASS**				

9.4 Configuration of Measurement

9.4.1 Before testing, the intensity of the established field strength was checked by placing the field sensor at a calibration grid point, and with the field generating antenna and cables in the same positions as used for the calibration, the forward and reverse power were measured. The forward power needed to give the calibrated field was evaluated.

9.4.2 The EUT was placed on a non-metallic table 0.8 m above the reference ground plane (RGP) and was operated according to its specified operating mode.

9.4.3 Ferrite tiles/ absorbers were placed on the RGP between the EUT and the antenna to reduce the reflections from the RGP.

9.4.4 The distance between antenna and EUT is 1 meter.

9.4.5 During the test EUT performance has been monitoring by CCD camera.

9.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/26

Temperature: 25.9 ℃； Humidity: 51 %； Atmospheric: 996 hPa； Test Engineer: Scott

Mode 2: Full Load Mode (Model No.: TR220MA240)

Frequency Range (MHz)	E.U.T. Position (Angle)	Ant. Polarity (Hor. or Ver.)	Modulate	Field Strength (Modulated)		Results (Criterion)
385	0°, 90°, 180°, 270°	H、V	PM 18 Hz	27	(V/m)	**PASS**
450	0°, 90°, 180°, 270°	H、V	FM	28	(V/m)	**PASS**
710, 745, 780	0°, 90°, 180°, 270°	H、V	PM 217 Hz	9	(V/m)	**PASS**
810, 870, 930	0°, 90°, 180°, 270°	H、V	PM 18 Hz	28	(V/m)	**PASS**
1720, 1845, 1970, 2450	0°, 90°, 180°, 270°	H、V	PM 217 Hz	28	(V/m)	**PASS**
5240, 5500, 5785	0°, 90°, 180°, 270°	H、V	PM 217 Hz	9	(V/m)	**PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)

Frequency Range (MHz)	E.U.T. Position (Angle)	Ant. Polarity (Hor. or Ver.)	Modulate	Field Strength (Modulated)		Results (Criterion)
385	0°, 90°, 180°, 270°	H、V	PM 18 Hz	27	(V/m)	**PASS**
450	0°, 90°, 180°, 270°	H、V	FM	28	(V/m)	**PASS**
710, 745, 780	0°, 90°, 180°, 270°	H、V	PM 217 Hz	9	(V/m)	**PASS**
810, 870, 930	0°, 90°, 180°, 270°	H、V	PM 18 Hz	28	(V/m)	**PASS**
1720, 1845, 1970, 2450	0°, 90°, 180°, 270°	H、V	PM 217 Hz	28	(V/m)	**PASS**
5240, 5500, 5785	0°, 90°, 180°, 270°	H、V	PM 217 Hz	9	(V/m)	**PASS**

10 Electrical Fast Transient/Burst Immunity Test (IEC 61000-4-4)

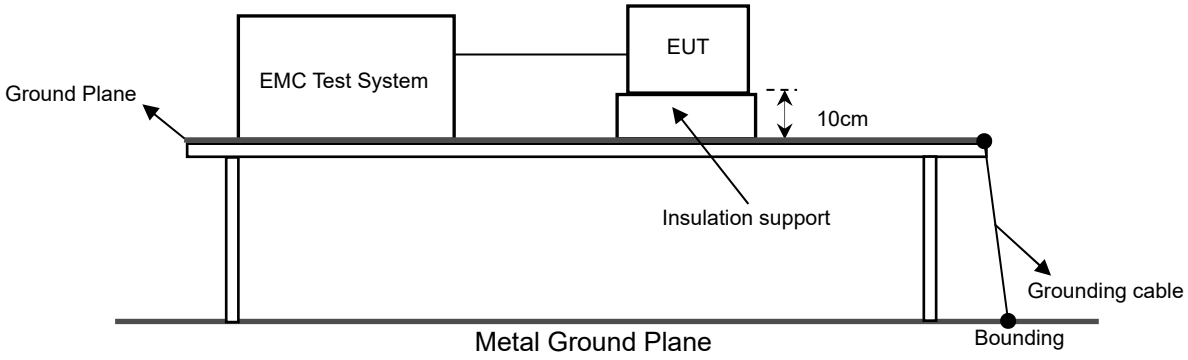
10.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMC Test System	EMC PARTNER	TRANSIENT-2000	812	2022/01/12

Note: The above equipments are within the valid calibration period.

10.2 Block Diagram of Test Configuration

For Power Ports.



10.3 Test Requirement

IEC 61000-4-4 (EN 60601-1-2) require:

100 kHz Repetition frequency

☒ ± 2.0 kV input AC power port.

☐ ± 2.0 kV input DC power port.

☐ ± 1.0 kV signal input/output parts port.

Performance criterion: **PASS**

10.4 Configuration of Measurement

10.4.1 The EUT and the auxiliary equipment were placed on a wooden table of 0.8 meters height. The size of ground plane is greater than 1 m×1 m and project beyond the EUT by at least 0.1 m on all sides. The ground plane is connected to the protective earth.

10.4.2 The EUT was connected to the power mains through a coupling device that directly couples the EFT interference signal. Each of the Line, Neutral and Protective Earth (PE) conductors was impressed with burst noise for 1 minute. Both the voltage polarities were applied for each test level. The length of power cord between the coupling device and the EUT was less than 1 meter.

10.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/22

Temperature: 22.8 ℃； Humidity: 53 %； Atmospheric: 982 hPa； Test Engineer: Amber

Mode 2: Full Load Mode (Model No.: TR220MA240)

☒ ± 2.0 kV input AC power port: Line
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Neutral
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Line + Neutral
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: PE
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Line + PE
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Neutral + PE
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Line + Neutral + PE
Performance criterion: **PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)

☒ ± 2.0 kV input AC power port: Line
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Neutral
Performance criterion: **PASS**

☒ ± 2.0 kV input AC power port: Line + Neutral
Performance criterion: **PASS**

11 Surge Immunity Test (IEC 61000-4-5)

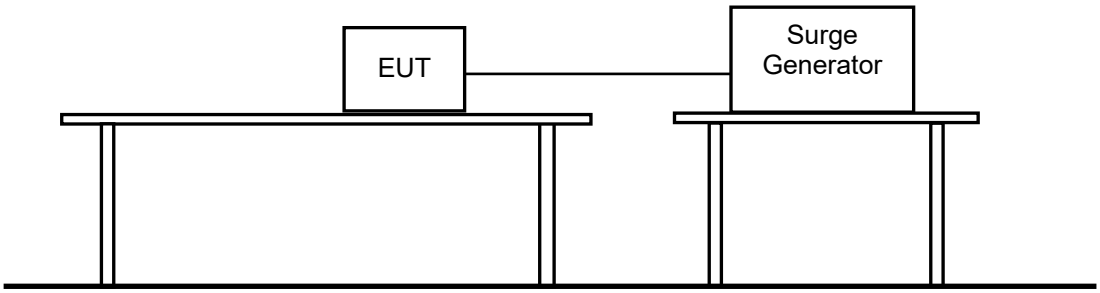
11.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
Surge Generator	KeyTek	EMC Pro	0003234	2022/01/11

Note: The above equipments are within the valid calibration period.

11.2 Block Diagram of Test Configuration

For Power Ports.



11.3 Test Requirement

IEC 61000-4-5 (EN 60601-1-2) require:

(Mode 2)

☒ Input AC power port: ☒ Line to line: ± 1.0 kV (peak), 1.2/50 (8/20) Tr/Th μs
☒ Line to ground: ± 2.0 kV (peak), 1.2/50 (8/20) Tr/Th μs

(Mode 7)

☒ Input AC power port: ☒ Line to line: ± 1.0 kV (peak), 1.2/50 (8/20) Tr/Th μs
☐ Line to ground: ± 2.0 kV (peak), 1.2/50 (8/20) Tr/Th μs

☐ Input DC power port: ☐ Line to line: ± 1.0 kV (peak), 1.2/50 (8/20) Tr/Th μs
☐ Line to ground: ± 2.0 kV (peak), 1.2/50 (8/20) Tr/Th μs

☐ Signal input/output parts Port: Line to ground: ± 2.0 kV (peak), 1.2/50 (8/20) Tr/Th μs

Performance criterion: **PASS**

11.4 Configuration of Measurement

11.4.1 The EUT and support units were located on a wooden table 0.8 m away from ground floor.

11.4.2 The EUT was connected to the power mains through a coupling device that directly couples the Surge interference signal.

11.4.3 The surges were applied line to line and line(s) to earth. When testing line to earth the test voltage was applied successively between each of the lines and earth. Steps up to the test level specified increased the test voltage. All lower levels including the selected test level were tested. The polarity of each surge level included positive and negative test pulses.

11.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/23

Temperature: 24.3 ℃； Humidity: 50 %； Atmospheric: 999 hPa； Test Engineer: Peter

Mode 2: Full Load Mode (Model No.: TR220MA240)

☒ ± 0.5 kV (peak) Input AC power port: Line to line
Performance criterion: **PASS**

☒ ± 1.0 kV (peak) Input AC power port: Line to line
Performance criterion: **PASS**

☒ ± 0.5 kV (peak) Input AC power port: Line to ground
Performance criterion: **PASS**

☒ ± 1.0 kV (peak) Input AC power port: Line to ground
Performance criterion: **PASS**

☒ ± 2.0 kV (peak) Input AC power port: Line to ground
Performance criterion: **PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)

☒ ± 0.5 kV (peak) Input AC power port: Line to line
Performance criterion: **PASS**

☒ ± 1.0 kV (peak) Input AC power port: Line to line
Performance criterion: **PASS**

12 Radio- Frequency, Conducted Disturbances Immunity Test (IEC 61000-4-6)

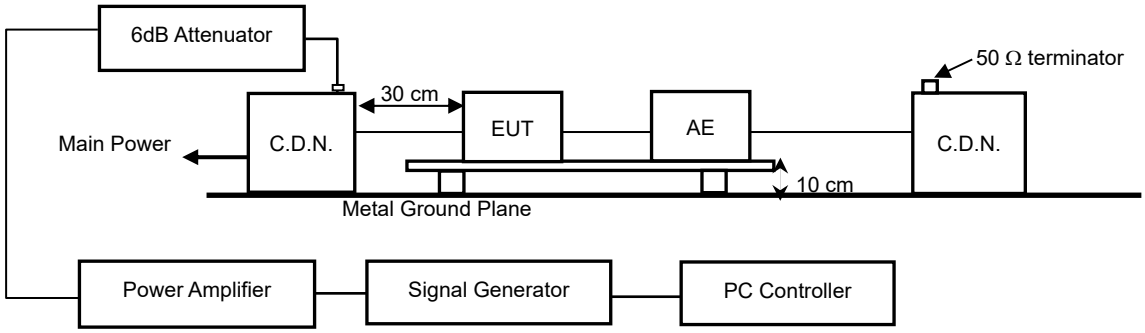
12.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
Signal Generator	Marconi Instruments	2024	112246/087	2022/03/09
RF Power Amplifier	R&K	A009K101-5050R	B30850	2022/03/13
Attenuator	Microwave Device Inc.	MA-5250/6N	001052	2022/03/13
C.D.N	SCHAFFNER	M216	16394	2022/03/10
C.D.N	FCC	FCC-801-M3-25A	01030	2022/03/10
C.D.N	FCC	FCC-801-16A	2045	N.C.R.

Note: The above equipments are within the valid calibration period.

12.2 Block Diagram of Test Configuration

For Power Ports.



12.3 Test Requirement

IEC 61000-4-6 (EN 60601-1-2) require:

☐ Professional healthcare facility environment:

The frequency steps: 1 %, Log sweep, Dwell time: 3.0 sec.
Frequency Range is from **0.15 to 80** MHz, Field strength: **3** V, 80 % AM (1 kHz);
In ISM bands between **0.15 and 80** MHz, Field strength: **6** V, 80 % AM (1 kHz)

☐ Input AC power port.
☐ Input DC power port.
☐ Patient Coupling port.
☐ Signal input/output parts port.

Performance criterion: **PASS**

☒ HOME HEALTHCARE ENVIRONMENT:

The frequency steps: 1 %, Log sweep, Dwell time: 3.0 sec.
Frequency Range is from **0.15 to 80** MHz, Field strength: **3** V, 80 % AM (1 kHz);
In ISM and amateur radio bands between **0.15 and 80** MHz, Field strength: **6** V, 80 % AM (1 kHz)

☒ Input AC power port.
☐ Input DC power port.
☐ Patient Coupling port.

☐ Signal input/output parts port.

Performance criterion: **PASS**

12.4 Configuration of Measurement

12.4.1 The EUT was placed on a table of is 0.1 m height. In Shielding room A Ground reference plane was placed on the table and a 0.1 meter insulating support was inserted between the EUT and Ground reference plane.

12.4.2 The EUT was connected to the power mains through a Coupling and Decoupling Networks (CDN).

12.4.3 The test was 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 were terminated by a 50 Ω terminator.

12.4.4 The frequency range was swept from 150 kHz to 80 MHz. Using the signal levels established during the setting process, and without the disturbance signal 80 % amplitude modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or to switch coupling devices as necessary. The rate of sweep was less than 1.5×10^{-3} decades/s. And the step size of the frequency sweep was also less than 1 % of the start and thereafter

1 % of the preceding frequency value. The dwell time at each frequency was more than the time necessary for the EUT to be excited, and able to respond.

12.4.5 The EUT was fully excised during the testing and all the selected excise modes were fully interrogated for susceptibility.

12.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/22

Temperature: 22.7 ℃； Humidity: 45 %； Atmospheric: 982 hPa； Test Engineer: Amber

Mode 2: Full Load Mode (Model No.: TR220MA240)

Frequency range: **0.15** to **80** MHz, Field strength: **3** V, 80 % AM (1 kHz),

☒ Input AC power port.

Performance criterion: **PASS**

In ISM bands between **0.15** to **80** MHz, Field strength: **6** V, 80 % AM (1 kHz),

(The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz.)

☒ Input AC power port.

Performance criterion: **PASS**

In amateur radio bands between **0.15** to **80** MHz, Field strength: **6** V, 80 % AM (1 kHz),
(The amateur radio bands between 0.15 MHz and 80 MHz are 1.8 MHz to 2.0 MHz, 3.5 MHz to 4.0 MHz, 5.3 MHz to 5.4 MHz, 7 MHz to 7.3 MHz, 10.1 MHz to 10.15 MHz, 14 MHz to 14.2 MHz, 18.07 MHz to 18.17 MHz, 21.0 MHz to 21.4 MHz, 24.89 MHz to 24.99 MHz, 28.0 MHz to 29.7 MHz and 50.0 MHz to 54.0 MHz.)

☒ Input AC power port.
Performance criterion: **PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)
Frequency range: **0.15** to **80** MHz, Field strength: **3** V, 80 % AM (1 kHz),

☒ Input AC power port.
Performance criterion: **PASS**

In ISM bands between **0.15** to **80** MHz, Field strength: **6** V, 80 % AM (1 kHz),
(The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz.)

☒ Input AC power port.
Performance criterion: **PASS**

In amateur radio bands between **0.15** to **80** MHz, Field strength: **6** V, 80 % AM (1 kHz),
(The amateur radio bands between 0.15 MHz and 80 MHz are 1.8 MHz to 2.0 MHz, 3.5 MHz to 4.0 MHz, 5.3 MHz to 5.4 MHz, 7 MHz to 7.3 MHz, 10.1 MHz to 10.15 MHz, 14 MHz to 14.2 MHz, 18.07 MHz to 18.17 MHz, 21.0 MHz to 21.4 MHz, 24.89 MHz to 24.99 MHz, 28.0 MHz to 29.7 MHz and 50.0 MHz to 54.0 MHz.)

☒ Input AC power port.
Performance criterion: **PASS**

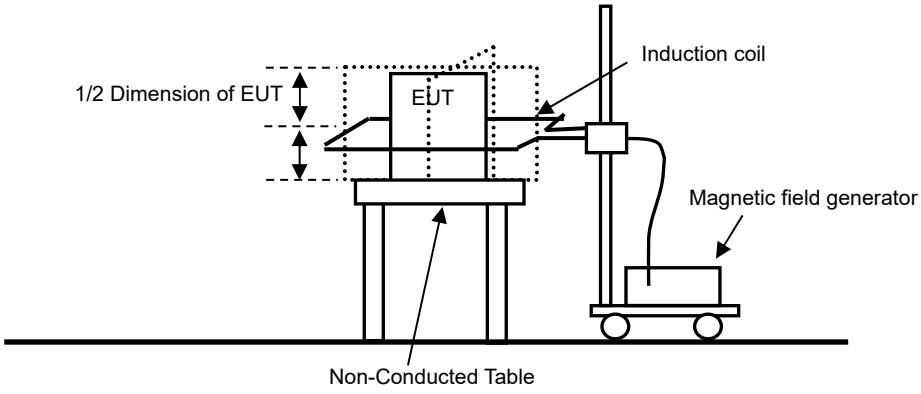
13 Power Frequency Magnetic Field Immunity Test (IEC 61000-4-8)

13.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
Magnetic field generator	PMM	PMM1008	0000J00301	2022/04/13

Note: The above equipments are within the valid calibration period.

13.2 Block Diagram of Test Configuration



13.3 Test Requirement

IEC 61000-4-8 (EN 60601-1-2) require:

Enclosure Port

Power Frequency is **50** or **60** Hz.

Magnetic field strength: **30** A/m

Performance criterion: **PASS**

13.4 Configuration of Measurement

13.4.1 The equipment is configured and connected to satisfy its functional requirements.

13.4.2 All cables shall be exposed to the magnetic field for 1 m of their length.

13.4.3 Different induction coils may be selected for testing in the different orthogonal directions.

13.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/22

Temperature: 24.9 ℃； Humidity: 55 %； Atmospheric: 982 hPa； Test Engineer: Amber

Mode 2: Full Load Mode (Model No.: TR220MA240)

Power Frequency is **50** Hz, Magnetic field strength: **30** A/m

Observation time: 1 minute

Direction X:

Performance criterion: **PASS**

Direction Y:

Performance criterion: **PASS**

Direction Z:

Performance criterion: **PASS**

Mode 7: Full Load Mode (Model No.: TR220MB240)

Power Frequency is **50** Hz, Magnetic field strength: **30** A/m

Observation time: 1 minute

Direction X:

Performance criterion: **PASS**

Direction Y:

Performance criterion: **PASS**

Direction Z:

Performance criterion: **PASS**

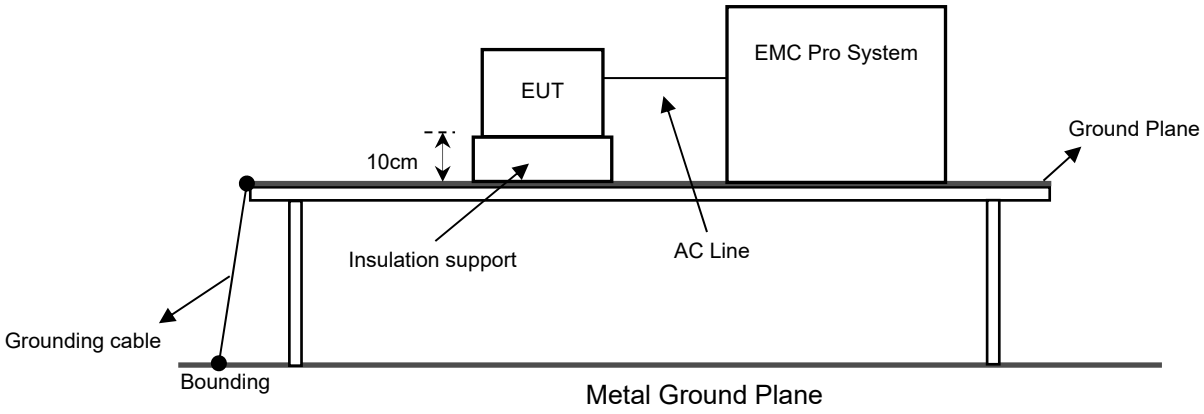
14 Voltage Dips, Short Interruptions Immunity Test (IEC 61000-4-11)

14.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMC Pro System	KeyTek	EMC Pro	0003231	2022/05/02
AC Source	Chroma	6530	3447	2022/03/30

Note: The above equipments are within the valid calibration period.

14.2 Block Diagram of Test Configuration



14.3 Requirement

IEC 61000-4-11 (EN 60601-1-2) require:

Input AC power port.

Voltage Dips: **0** % U_T, 0.5 cycle, At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°

Voltage Dips: **0** % U_T, 1 cycle, Single phase: At 0°

Voltage Dips: **70** % U_T, 25 cycle (50 Hz) or 30 cycle (60 Hz), Single phase: At 0°

Short Interruptions: **0** % U_T, 250 cycle (50 Hz) or 300 cycle (60 Hz) , At 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315° and 360°

Performance criterion: **PASS**

14.4 Configuration of Measurement

14.4.1 The power cord was used as supplied by the manufacturer. The EUT was connected to the line output of the Voltage Dips and Interruption Generator.

14.4.2 The EUT was tested for (I) 100 % voltage dip of supplied voltage with duration of 0.5 Cycle, (II) 100 % voltage dip of supplied voltage and duration 1 Cycle, (III) 30 % voltage dip of supplied voltage and duration 25 Cycle. All of the dip tests were carried out for a sequence of three voltage dips with intervals of 10 seconds, (VI) 100 % voltage interruption of supplied voltage with duration of 250 Cycle was followed, which was a sequence of three voltage interruptions with intervals of 10 seconds.

14.5 Test Result

PASS.

The performance criterion after tested EN 60601-1-2:

Test Date: 2021/06/22

Temperature: 22.8 ℃； Humidity: 53 %； Atmospheric: 982 hPa； Test Engineer: Amber

Mode 2: Full Load Mode (Model No.: TR220MA240)

Input Voltage: 100 Vac, 50 Hz

☒ Voltage Dips: **0** % U_T, 0.5 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **0** % U_T, 1 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **70** % U_T, 25 cycle
Performance criterion: **PASS**

☒ Short Interruptions: **0** % U_T, 250 cycle
Performance criterion: **PASS ***

Note: "*" During the 0% voltage drop interruption measurement, the EUT power supply will be turned off, but the EUT will automatically recover after the measurement.

Input Voltage: 240 Vac, 50 Hz

☒ Voltage Dips: **0** % U_T, 0.5 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **0** % U_T, 1 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **70** % U_T, 25 cycle
Performance criterion: **PASS**

☒ Short Interruptions: **0** % U_T, 250 cycle
Performance criterion: **PASS ***

Note: "*" During the 0% voltage drop interruption measurement, the EUT power supply will be turned off, but the EUT will automatically recover after the measurement.

Mode 7: Full Load Mode (Model No.: TR220MB240)

Input Voltage: 100 Vac, 50 Hz

☒ Voltage Dips: **0** % U_T, 0.5 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **0** % U_T, 1 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **70** % U_T, 25 cycle
Performance criterion: **PASS**

☒ Short Interruptions: **0** % U_T, 250 cycle
Performance criterion: **PASS ***

Note: "*" During the 0% voltage drop interruption measurement, the EUT power supply will be turned off, but the EUT will automatically recover after the measurement.

Input Voltage: 240 Vac, 50 Hz

☒ Voltage Dips: **0** % U_T, 0.5 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **0** % U_T, 1 cycle
Performance criterion: **PASS**

☒ Voltage Dips: **70** % U_T, 25 cycle
Performance criterion: **PASS**

☒ Short Interruptions: **0** % U_T, 250 cycle
Performance criterion: **PASS ***

Note: "*" During the 0% voltage drop interruption measurement, the EUT power supply will be turned off, but the EUT will automatically recover after the measurement.

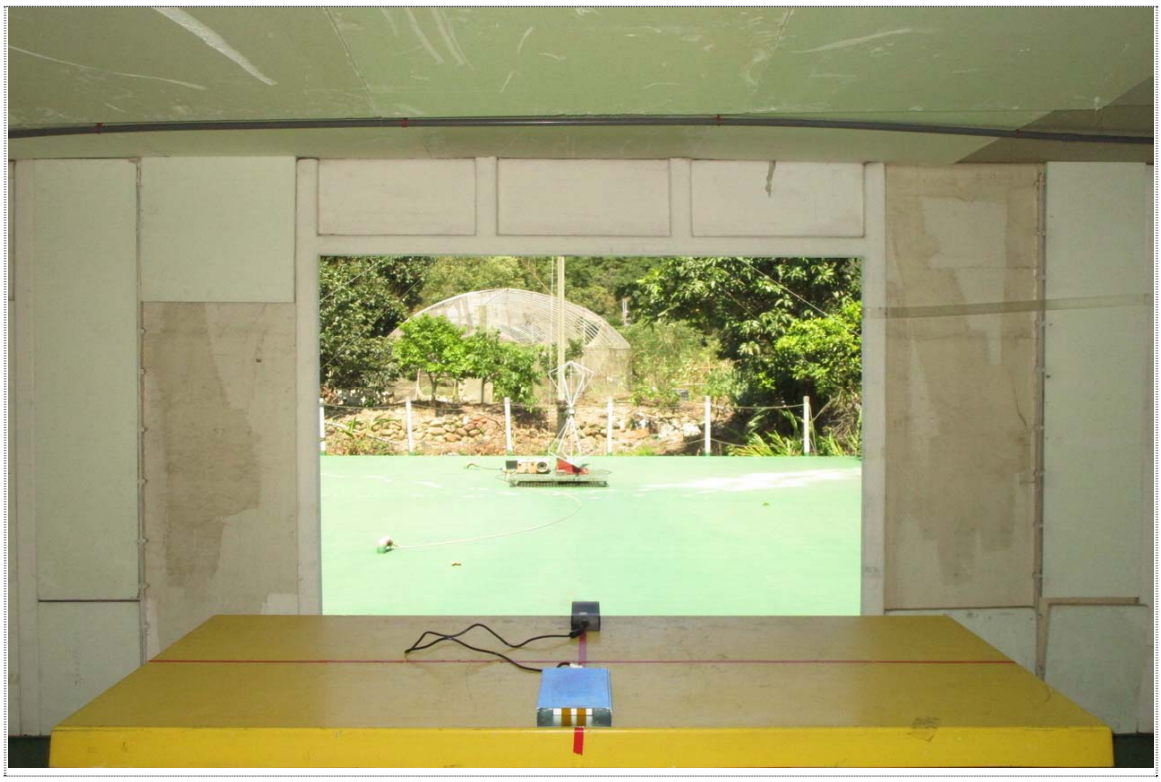
15 Photographs of Test

15.1 Conducted Emission Measurement

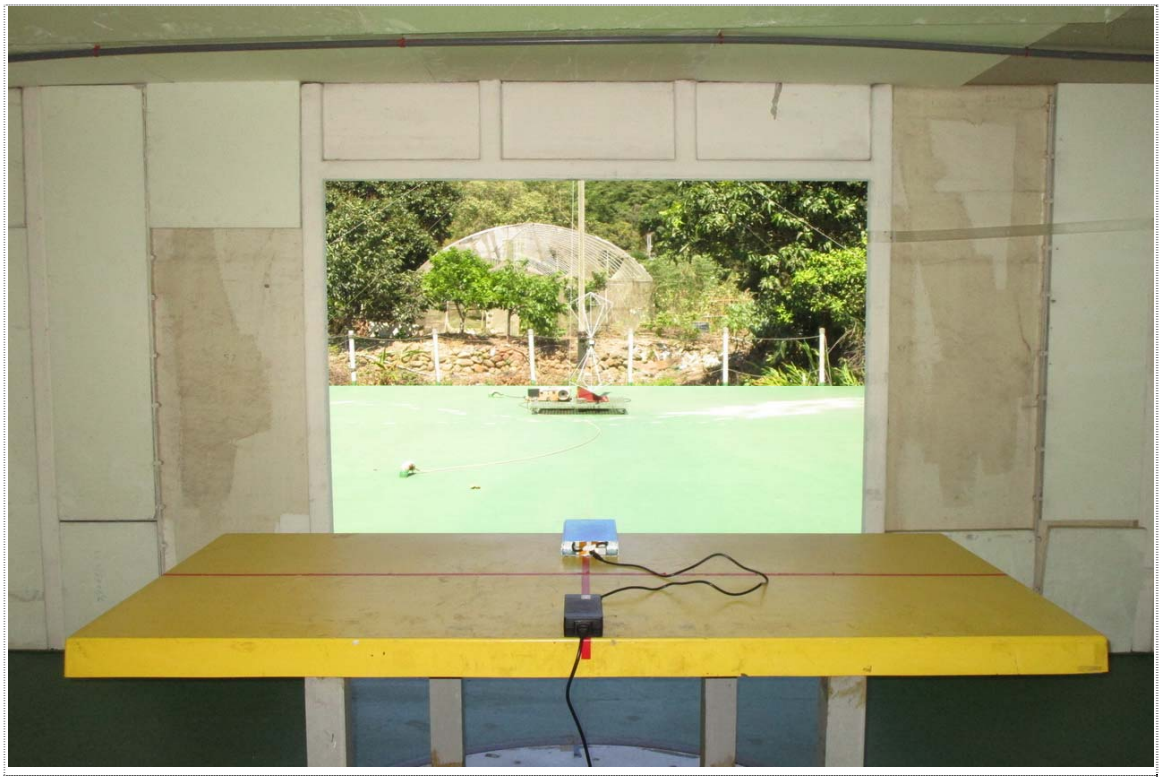
Front View

Rear View

15.2 Radiated Emission Measurement

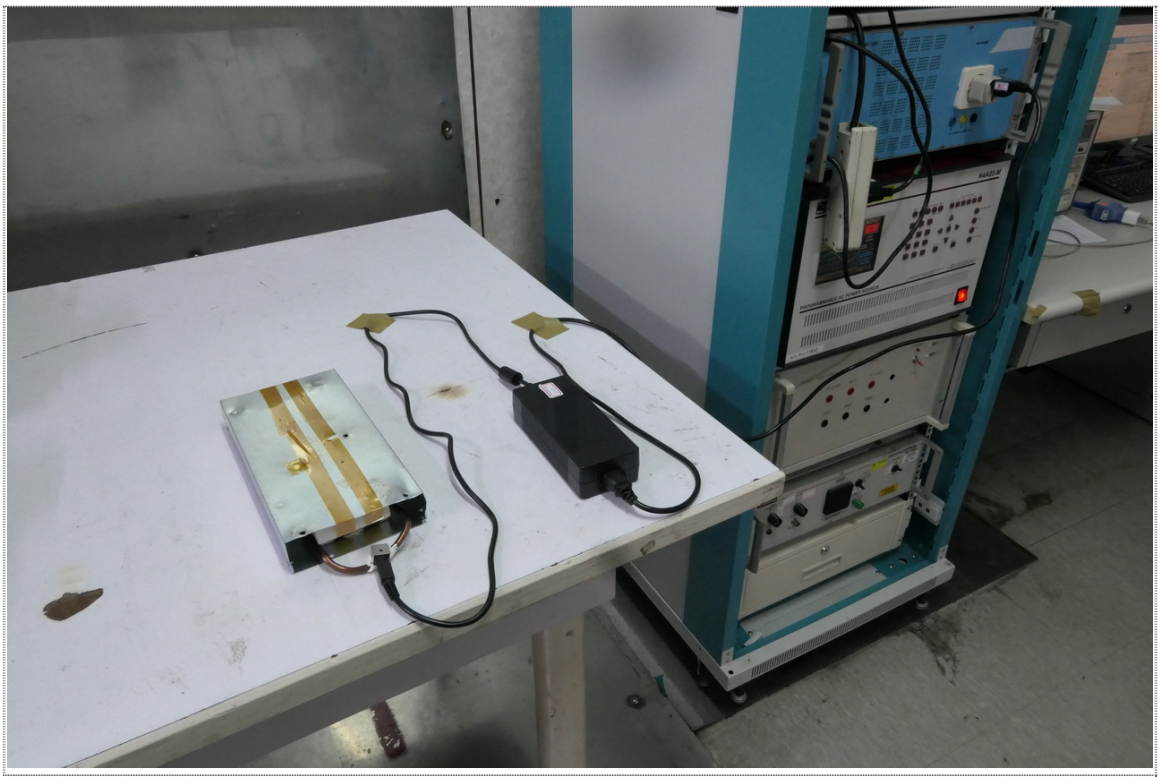


Front View

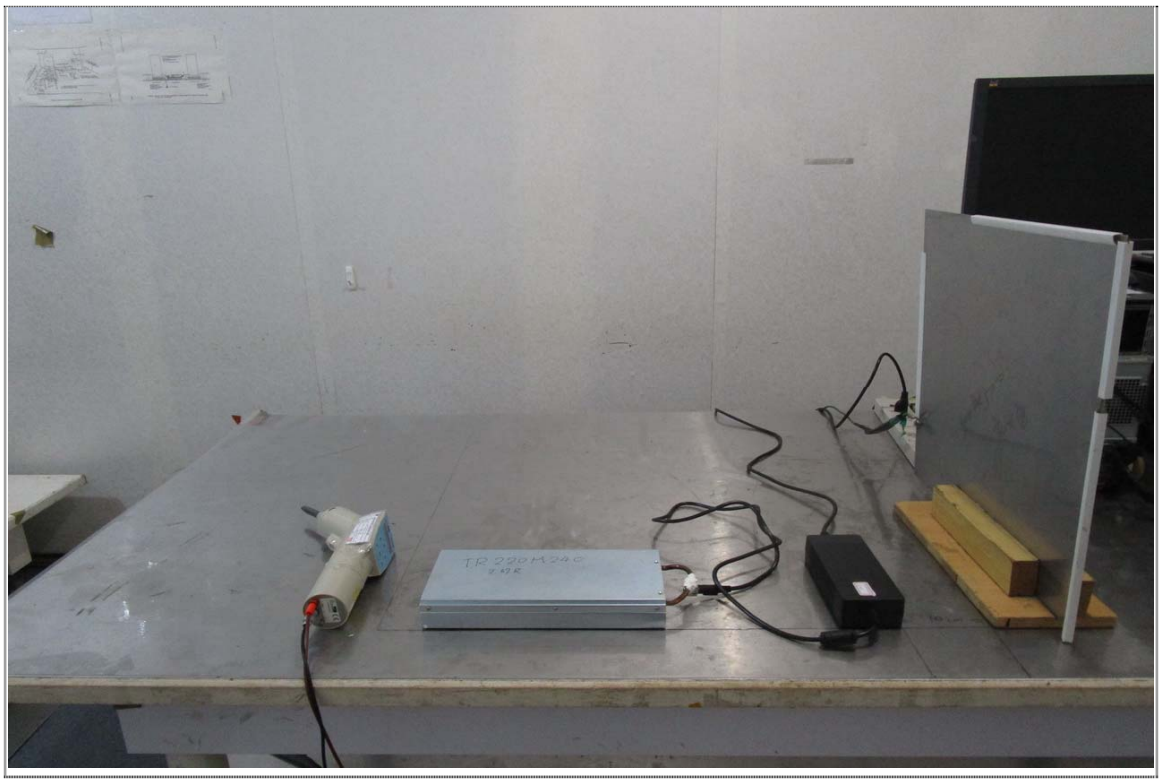


Rear View

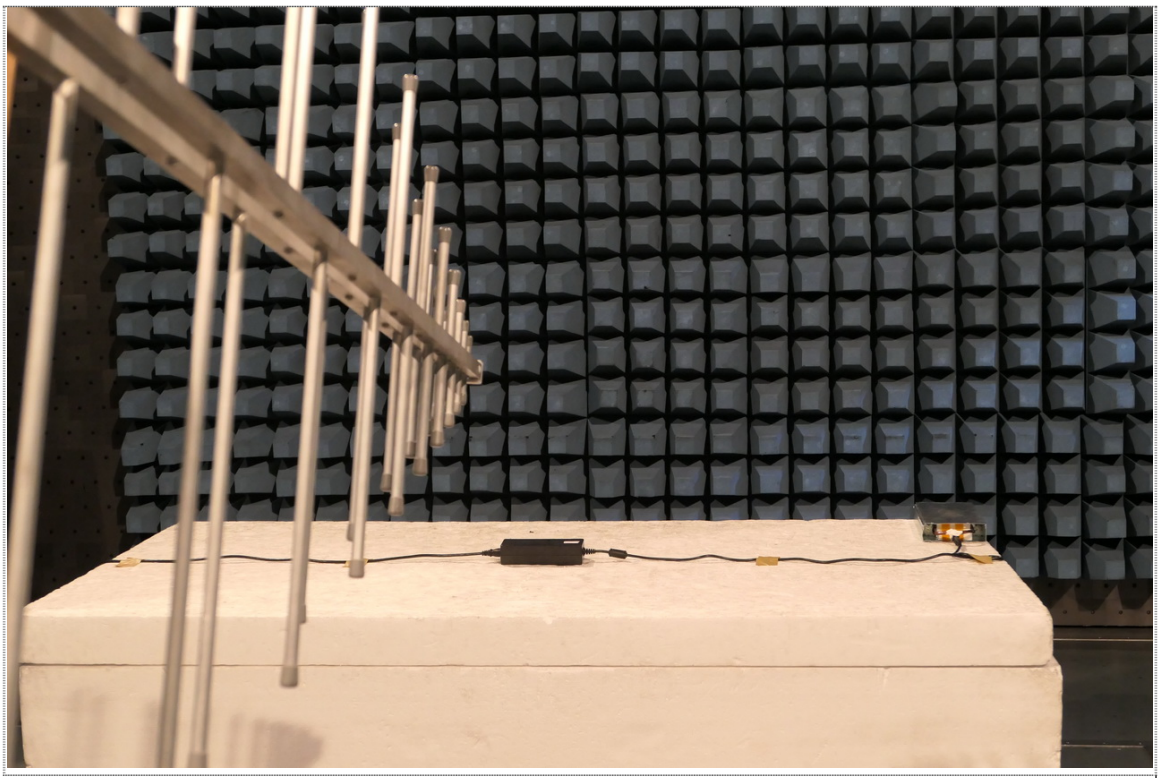
15.3 Voltage Fluctuations and Flicker Measurement



15.4 Electrostatic Discharge Immunity Test (IEC 61000-4-2)

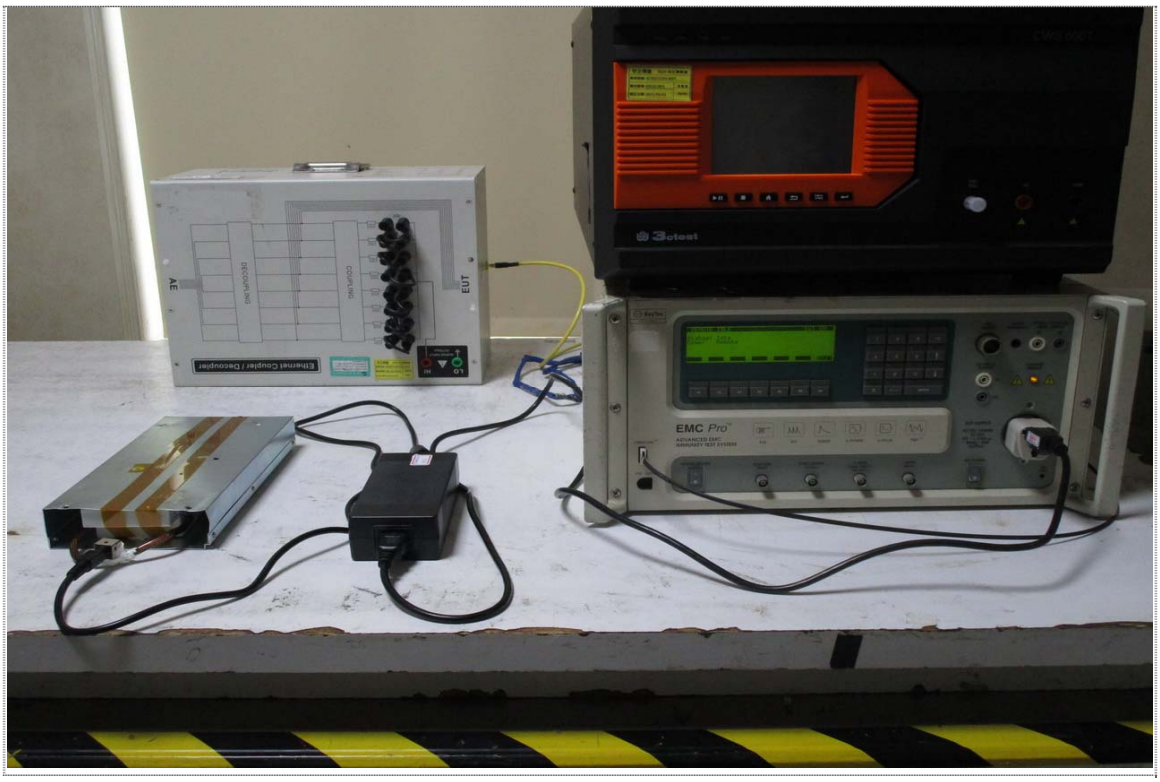


15.5 Radio-Frequency, Electromagnetic Field Immunity Test (IEC 61000-4-3)

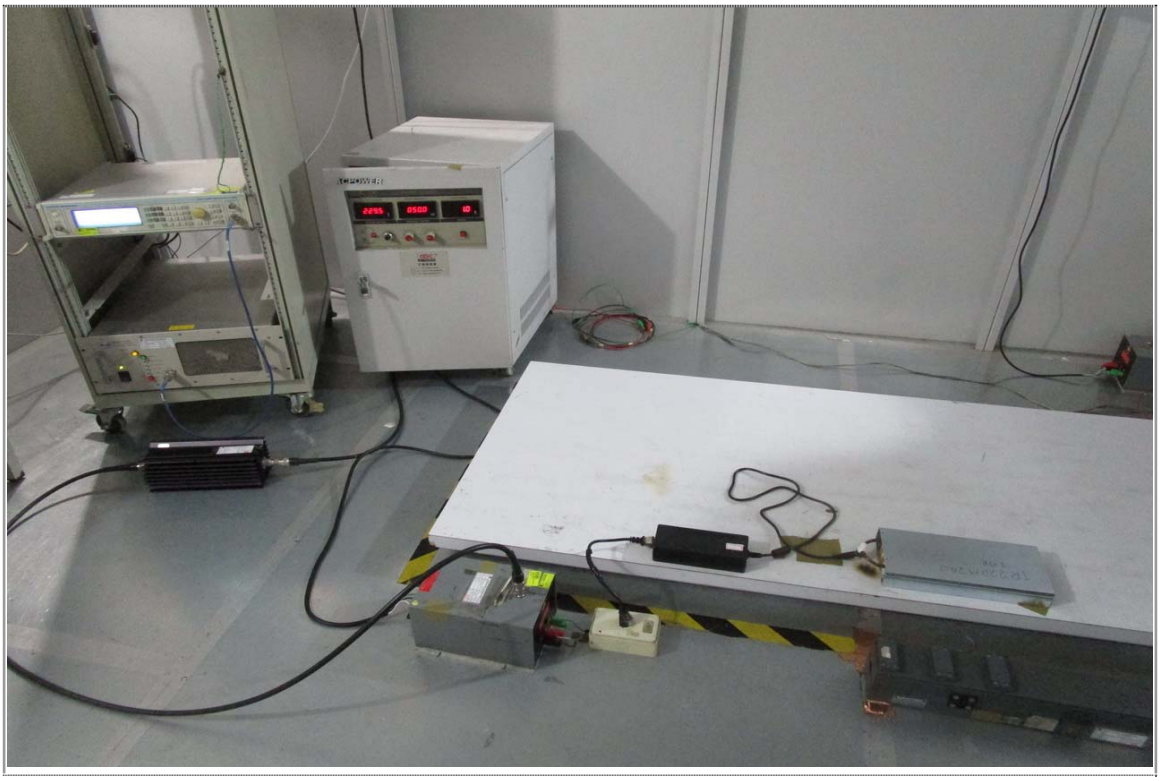


15.6 Electrical Fast Transient/Burst Immunity Test (IEC 61000-4-4)

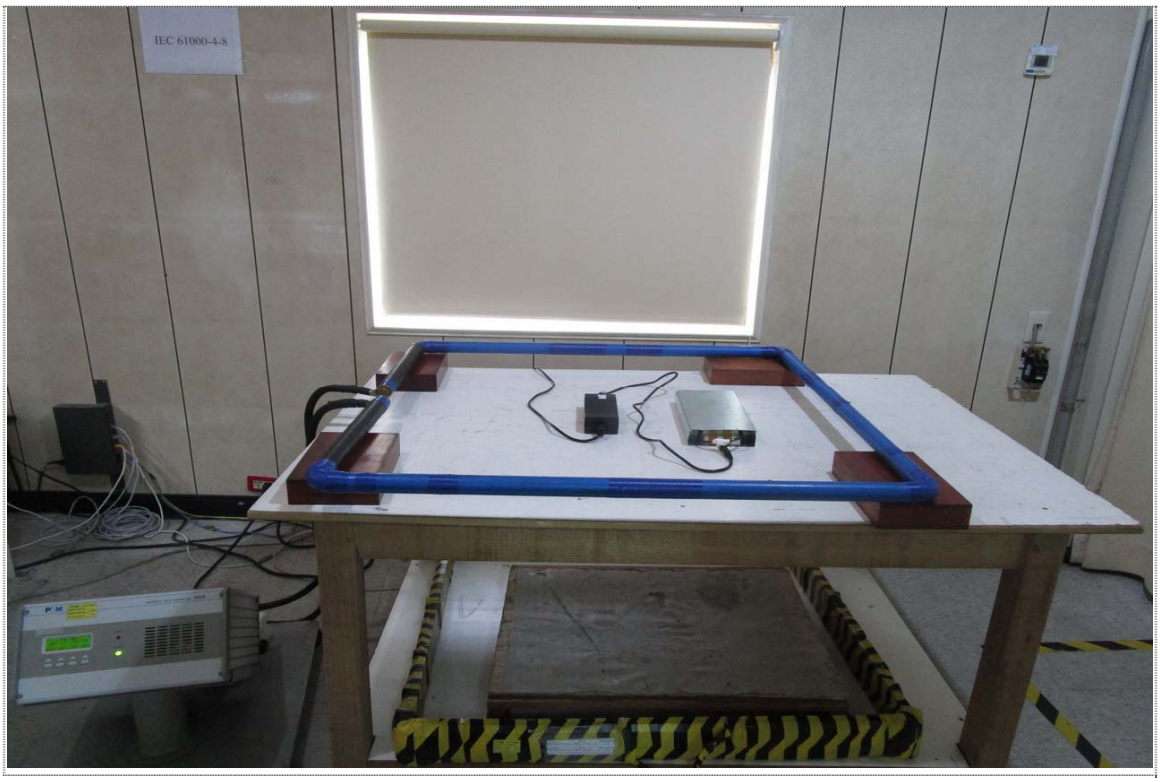
15.7 Surge Immunity Test (IEC 61000-4-5)



15.8 Radio-Frequency, Conducted Disturbances Immunity Test (IEC 61000-4-6)



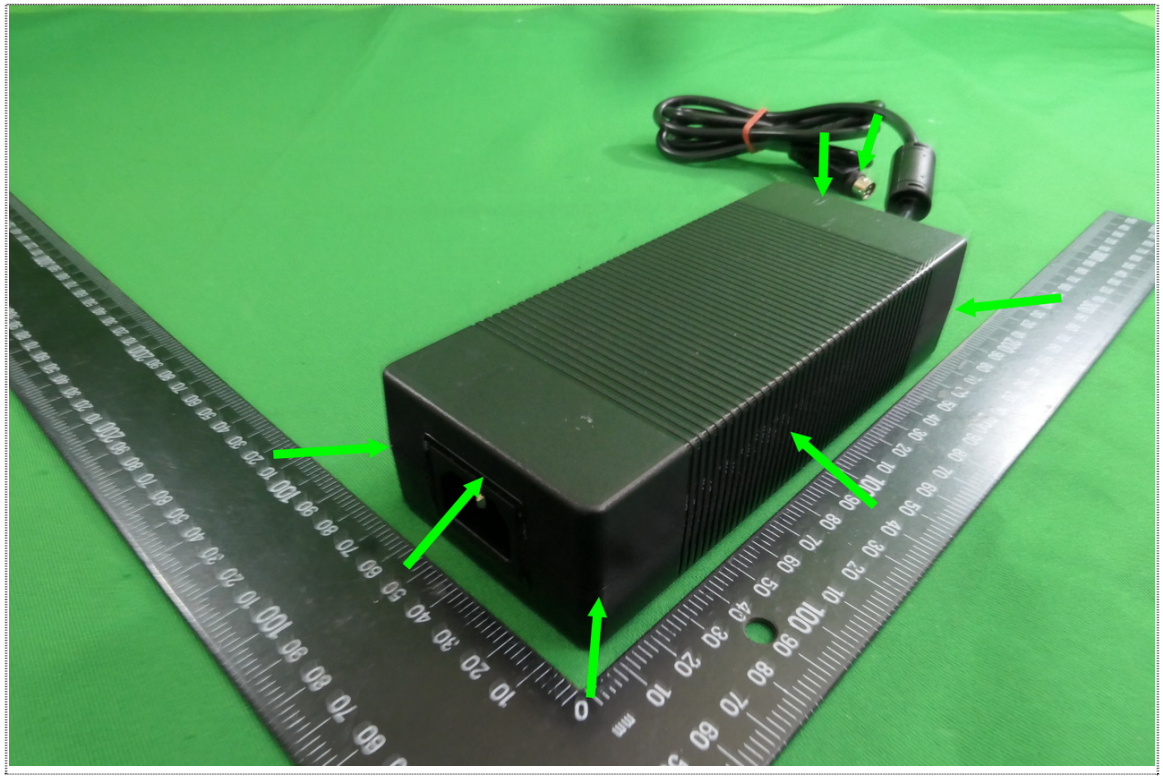
15.9 Power Frequency Magnetic Field Immunity Test (IEC 61000-4-8)



15.10 Voltage Dips, Short Interruptions Immunity Test (IEC 61000-4-11)

15.11 Electrostatic Discharge Test Point

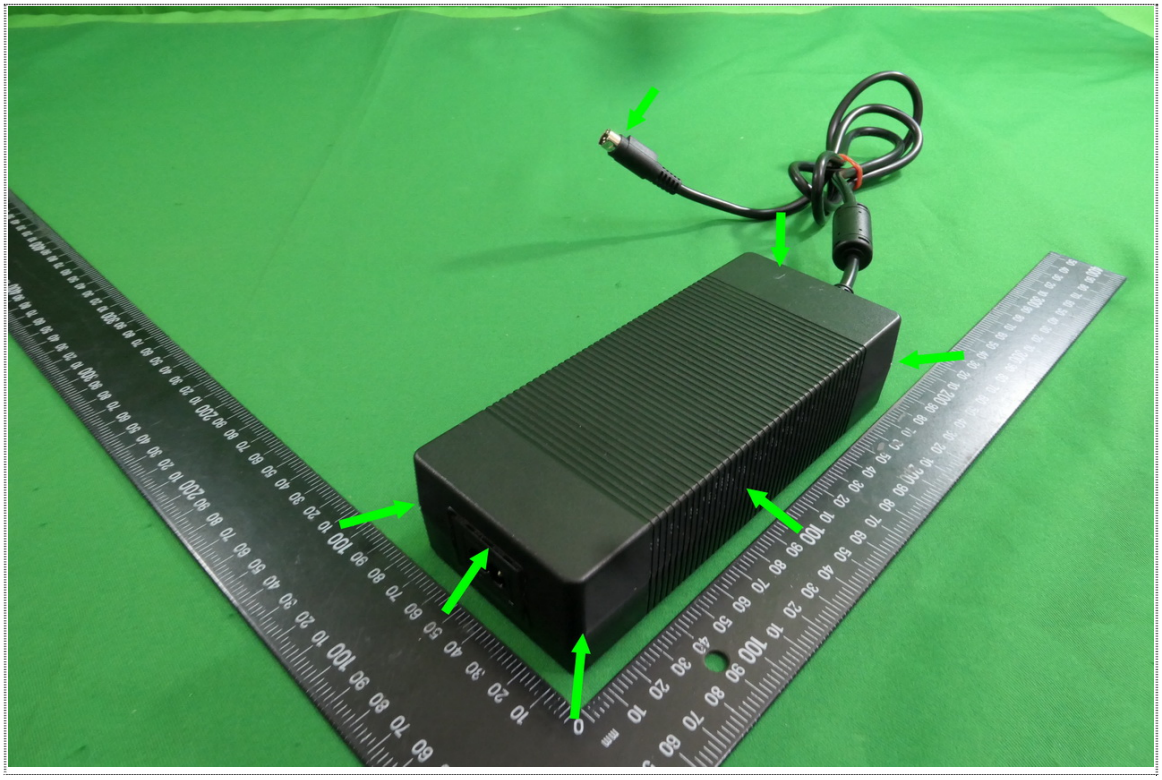
15.11.1 Model No.: TR220MA240



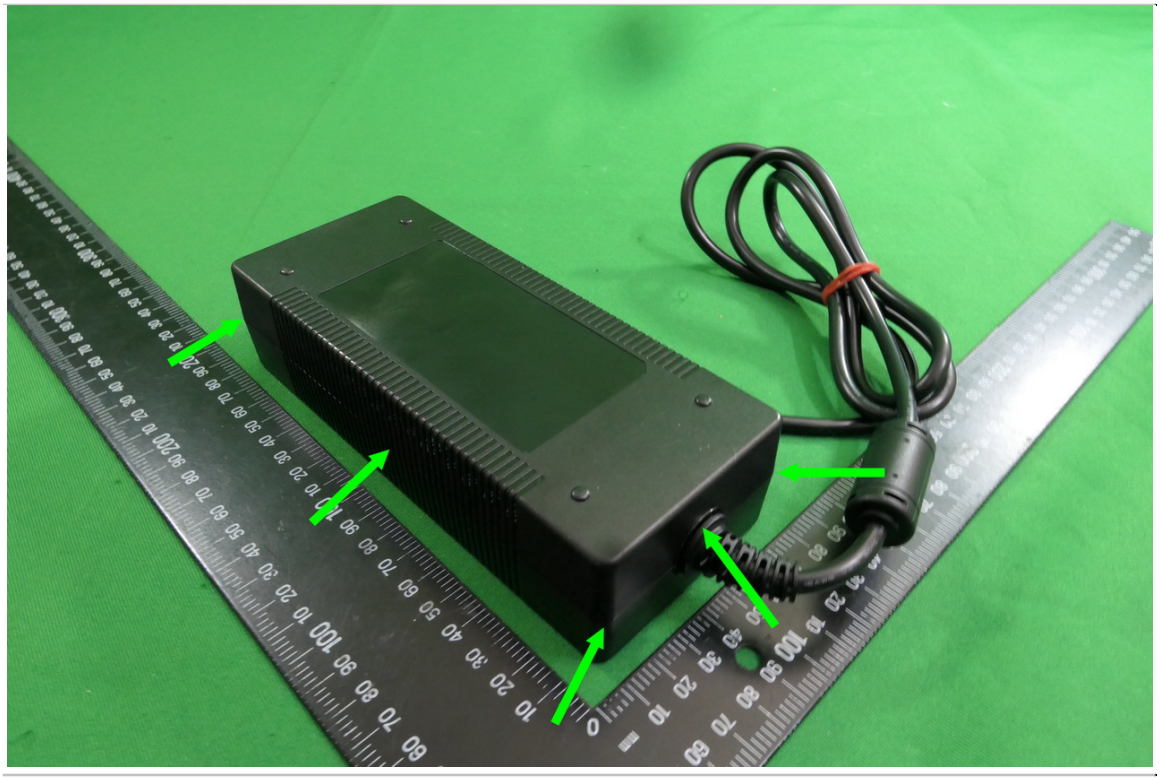
View of Discharge Point -1 (Green: Air Discharge)

View of Discharge Point -2 (Green: Air Discharge)

15.11.2 Model No.: TR220MB240



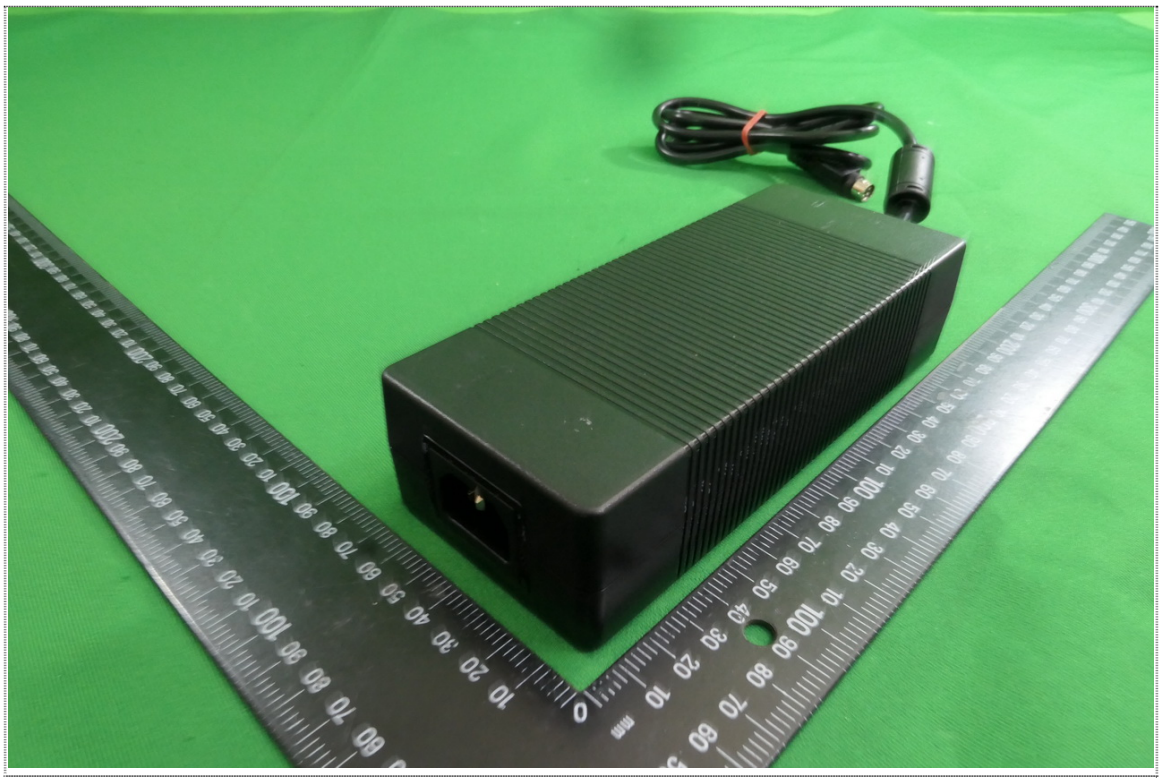
View of Discharge Point -1 (Green: Air Discharge)



View of Discharge Point -2 (Green: Air Discharge)

16 Photographs of EUT

16.1 Model No.: TR220MA Series

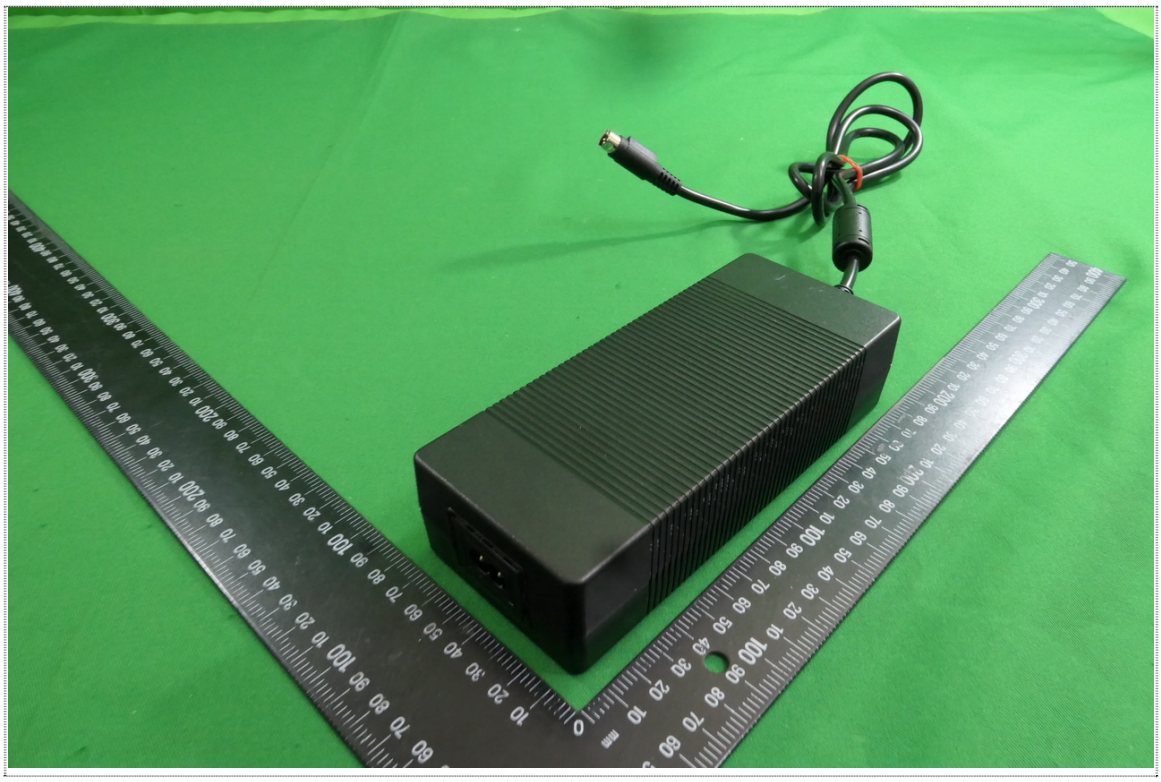


Front View of EUT

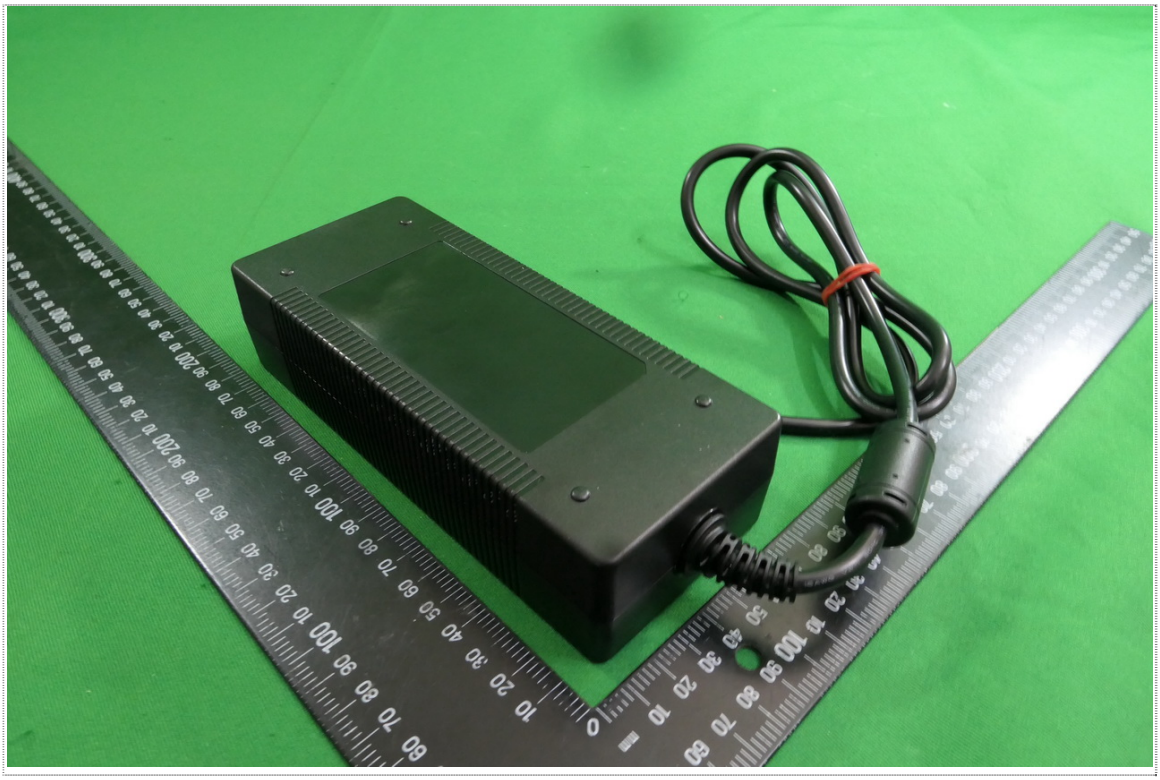
Rear View of EUT

View of I/O Port

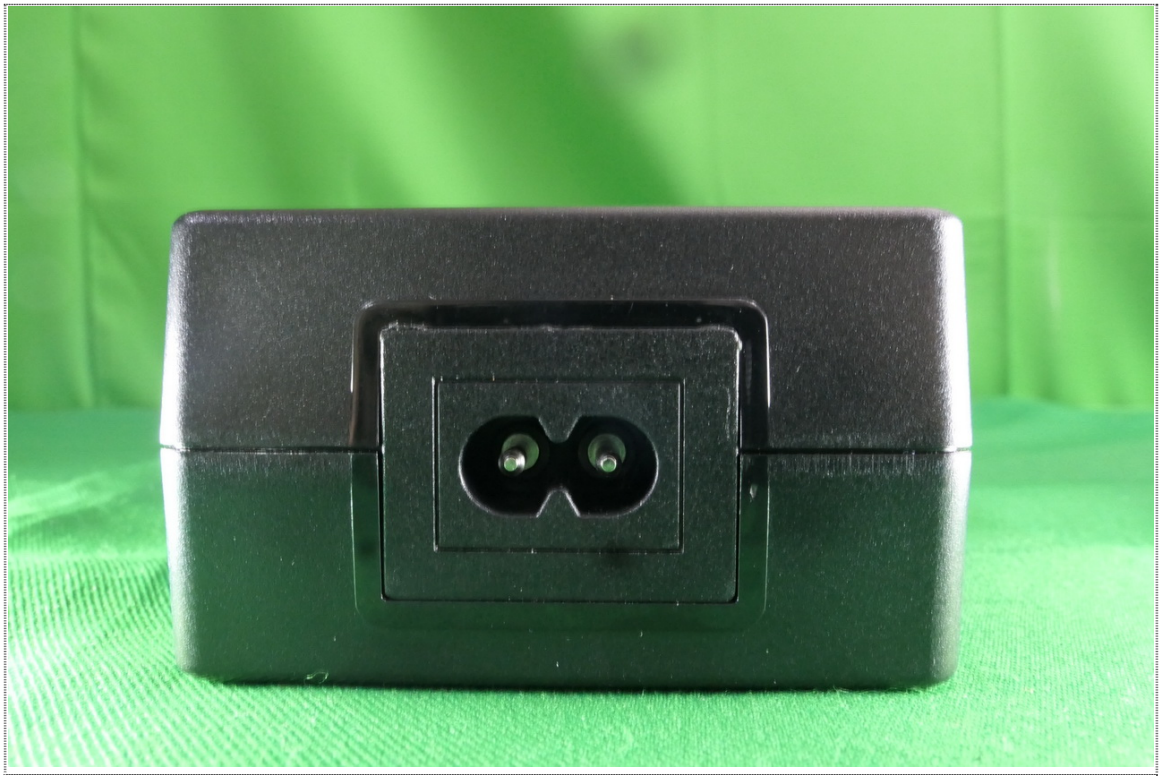
16.2 Model No.: TR220MB Series



Front View of EUT



Rear View of EUT



View of I/O Port