

FCC Test Report

Report No.: RFBHBQ-WTW-P21030022

FCC ID: 2AH7L-UPSB

Test Model: PAS600T, PAS600

Series Model: PAS600L

Received Date: Sep. 15, 2020

Test Date: Oct. 05, 2020 ~ Mar. 17, 2021

Issued Date: Mar. 19, 2021

Applicant: Schneider Electric Industries SAS

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Grenoble cedex 9

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBHBQ-WTW-P21030022	Original Release	Mar. 19, 2021

1 Certificate of Conformity

Product: EcoStruxure Panel Server

Brand: Schneider Electric

Test Model: PAS600T, PAS600

Series Model: PAS600L

Sample Status: Identical Prototype

Applicant: Schneider Electric Industries SAS

Test Date: Oct. 05, 2020 ~ Mar. 17, 2021

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :



Date: Mar. 19, 2021

Gina Liu / Specialist

Approved by :



Date: Mar. 19, 2021

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -11.42 dB at 0.626 MHz.
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -1.4 dB at 35.82 MHz.
15.247(d)	Band Edge Measurement	N/A	Refer to Note
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6 dB Bandwidth	N/A	Refer to Note
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.247(b)	Conducted Power	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

Note:

1. This report is a partial report, only test item of Radiated Emissions below 1GHz and Conducted Emission were performed for this report. Other testing data please refer to report no.: RF200605C50.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. N/A: Not applicable

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	EcoStruxure Panel Server
Brand	Schneider Electric
Test Model	PAS600T, PAS600
Series Model	PAS600L
Status of EUT	Identical Prototype
Power Supply Rating	24Vdc for PAS600L 110-240Vac, 50-60Hz and 240Vdc for PAS600T 110-277Vac, 50-60Hz and 277Vdc for PAS600
Modulation Type	GFSK
Transfer Rate	1 Mbps
Operating Frequency	2402 ~ 2480 MHz
Number of Channel	40
Output Power	3.589 mW
Antenna Type	Dipole antenna with 2.54 dBi gain Internal antenna with 4.3 dBi gain
Antenna Connector	N/A
Accessory Device	External antenna for 2.4G (Brand: Schneider Electric; Model: PASA-ANT1)
Data Cable Supplied	N/A

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to BV CPS report no.: RF200605C50. The differences compared with original report are adding model, changing the power supply and removing digital input port. Therefore, test items for conducted emission and radiated emission below 1GHz test had been re-tested in this report.
2. All models are listed as below. Model: PAS600T and PAS600 is the representative for final test.
(New model is marked in boldface.)

Brand	Model	Difference
Schneider Electric	PAS600L	Power Supply Rating: 24Vdc
	PAS600T	(1) Power Supply Rating: 110-240Vac/dc with +/-10% tolerance (2) Without digital input
	PAS600	(1) Power Supply Rating: 110 -277Vac/dc with +/-10% tolerance (2) Without digital input

3. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or User's Manual.

3.2 Description of Test Modes

40 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To		Description
	RE<1G	PLC	
A	√	√	External Antenna
B	√	√	Internal Antenna

Where **RE<1G**: Radiated Emission below 1 GHz **PLC**: Power Line Conducted Emission

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

Note: "-" means no effect.

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
A	0 to 39	39	GFSK	1
B	0 to 39	19	GFSK	1

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
A	0 to 39	39	GFSK	1
B	0 to 39	19	GFSK	1

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE<1G	25 deg. C, 65 % RH	110Vac, 60Hz; 240Vac, 60Hz; 277Vac, 60Hz; 240Vdc; 277Vdc	Han Wu; Tank Wu, Greg Lin
PLC	25 deg. C, 65 % RH	110Vac, 60Hz; 240Vac, 60Hz; 277Vac, 60Hz	Han Wu, Greg Lin

3.3 Description of Support Units

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

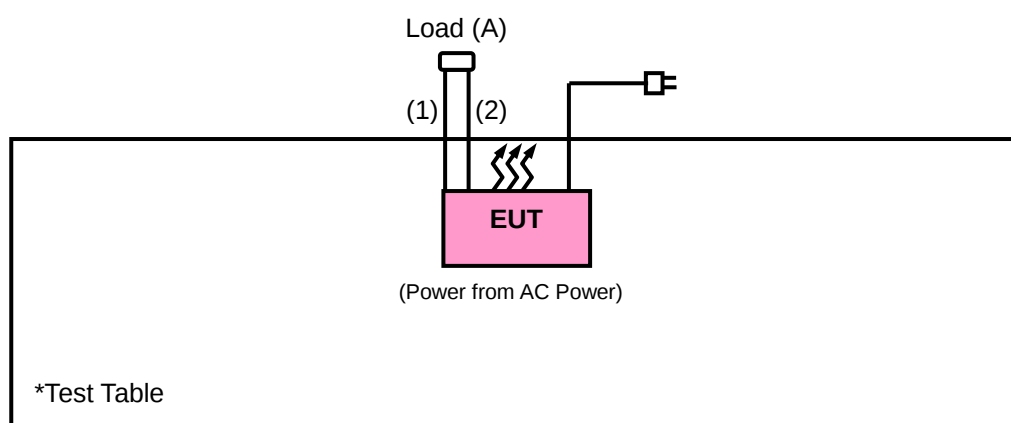
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	N/A	N/A	N/A	N/A	--

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN Cable	1	1.5	N	0	--
2.	LAN Cable	1	1.5	N	0	--

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 16, 2020	Apr. 15, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100980	Apr. 20, 2020	Apr. 19, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
			Nov. 06, 2020	Nov. 05, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 08, 2020	Jun. 07, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 18, 2020	Feb. 17, 2021
			Feb. 17, 2021	Feb. 16, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM80 00	CABLE-CH9-02 (248780+171006)	Feb. 18, 2020	Feb. 17, 2021
			Jan. 16, 2021	Jan. 15, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(25079 5/4)	Jan. 18, 2020	Jan. 17, 2021
			Jan. 16, 2021	Jan. 15, 2022
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Power Meter Anritsu	ML2495A	1232003	Dec. 30, 2019	Dec. 29, 2020
			Jan. 05, 2021	Jan. 04, 2020

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

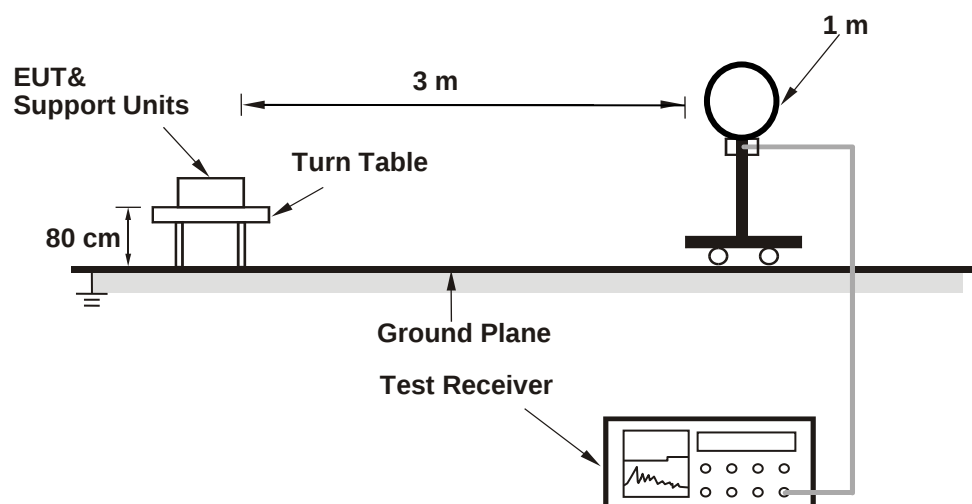
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz. (RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

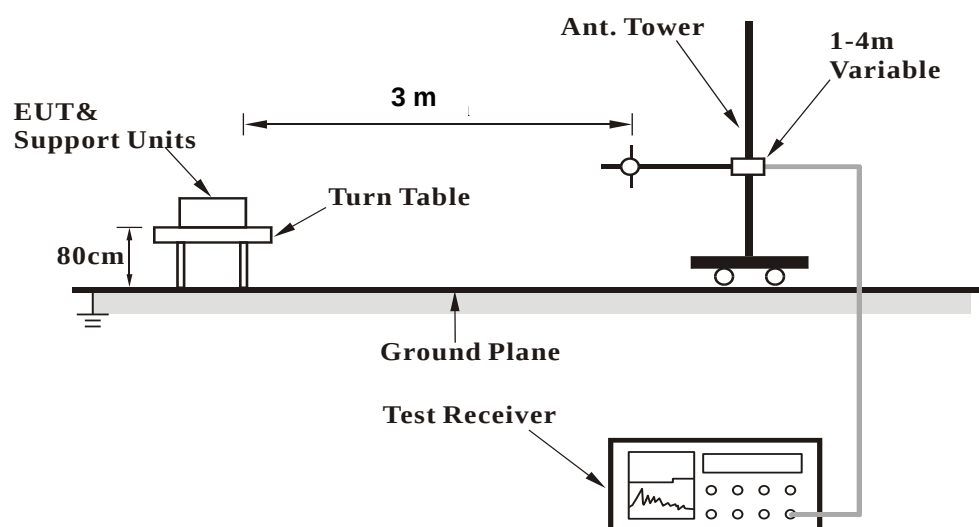
No deviation.

4.1.5 Test Set Up

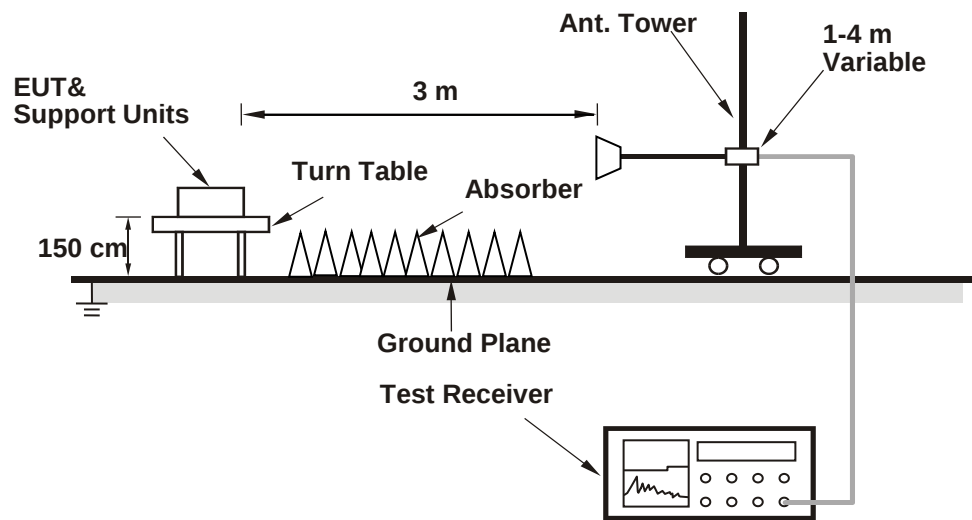
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

30 MHz ~ 1 GHz Worst-Case Data:

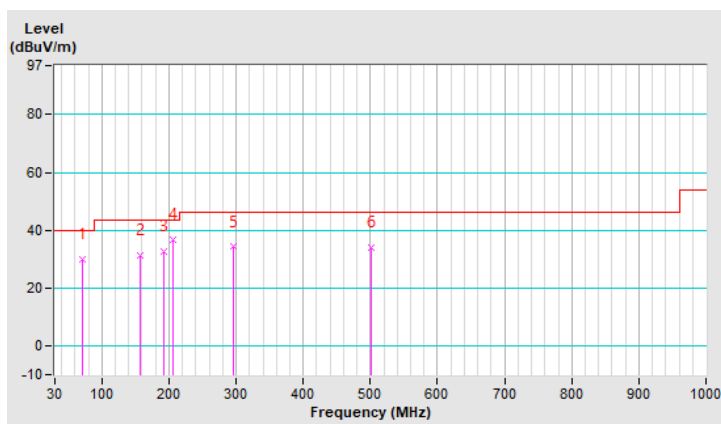
Mode A

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	110Vac, 60Hz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	70.74	29.7 QP	40.0	-10.3	1.00 H	139	40.8	-11.1
2	157.07	31.3 QP	43.5	-12.2	1.00 H	93	39.6	-8.3
3	191.99	32.5 QP	43.5	-11.0	1.00 H	90	43.8	-11.3
4	205.57	36.9 QP	43.5	-6.6	1.00 H	92	48.3	-11.4
5	295.78	34.2 QP	46.0	-11.8	1.00 H	111	41.4	-7.2
6	500.45	34.0 QP	46.0	-12.0	1.00 H	311	37.0	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

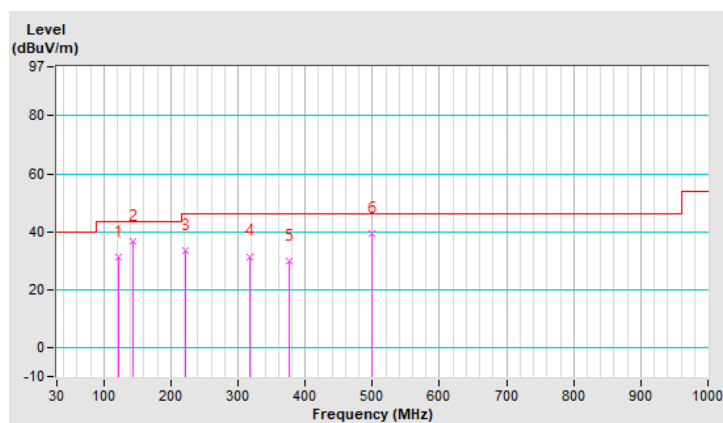


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	110Vac, 60Hz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	122.15	31.2 QP	43.5	-12.3	1.00 V	306	42.1	-10.9
2	143.49	36.6 QP	43.5	-6.9	1.00 V	6	45.5	-8.9
3	221.09	33.4 QP	46.0	-12.6	1.00 V	29	44.4	-11.0
4	317.12	31.5 QP	46.0	-14.5	1.00 V	71	38.1	-6.6
5	375.32	30.1 QP	46.0	-15.9	1.00 V	132	35.3	-5.2
6	499.48	39.6 QP	46.0	-6.4	1.00 V	165	42.6	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

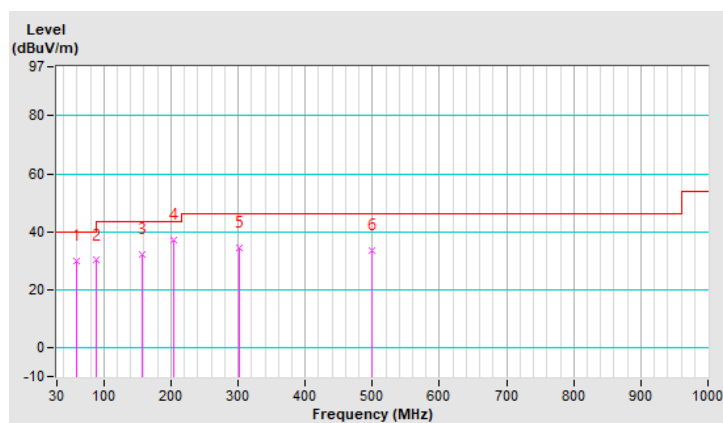


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vac, 60Hz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.07	29.9 QP	40.0	-10.1	1.00 H	87	39.6	-9.7
2	88.20	30.1 QP	43.5	-13.4	1.00 H	132	44.6	-14.5
3	157.07	32.0 QP	43.5	-11.5	1.00 H	105	40.3	-8.3
4	204.60	37.2 QP	43.5	-6.3	1.00 H	105	48.6	-11.4
5	302.57	34.4 QP	46.0	-11.6	1.00 H	110	41.4	-7.0
6	499.48	33.5 QP	46.0	-12.5	1.00 H	240	36.5	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

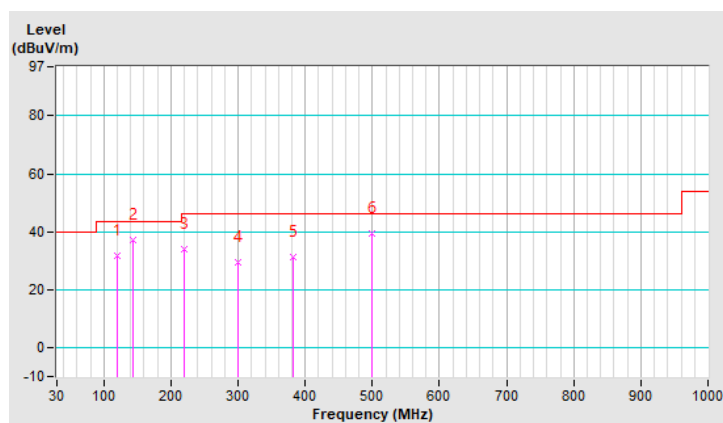


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vac, 60Hz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.21	31.9 QP	43.5	-11.6	1.00 V	278	43.0	-11.1
2	142.52	37.2 QP	43.5	-6.3	1.00 V	40	46.2	-9.0
3	220.12	34.0 QP	46.0	-12.0	1.00 V	26	44.9	-10.9
4	300.63	29.3 QP	46.0	-16.7	1.00 V	135	36.4	-7.1
5	381.14	31.1 QP	46.0	-14.9	1.00 V	130	36.3	-5.2
6	499.48	39.3 QP	46.0	-6.7	1.00 V	223	42.3	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

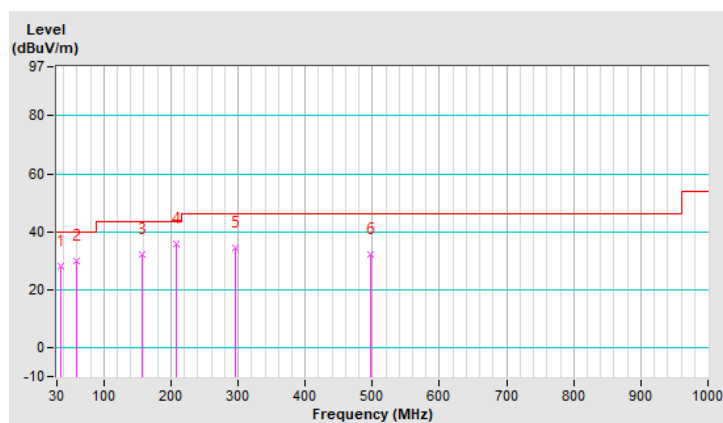


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vdc

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	28.3 QP	40.0	-11.7	1.00 H	95	38.5	-10.2
2	60.11	30.1 QP	40.0	-9.9	1.00 H	92	39.8	-9.7
3	157.55	32.3 QP	43.5	-11.2	1.00 H	116	40.7	-8.4
4	207.51	35.7 QP	43.5	-7.8	1.00 H	101	47.0	-11.3
5	296.75	34.3 QP	46.0	-11.7	1.00 H	113	41.5	-7.2
6	496.57	32.3 QP	46.0	-13.7	1.00 H	253	35.4	-3.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

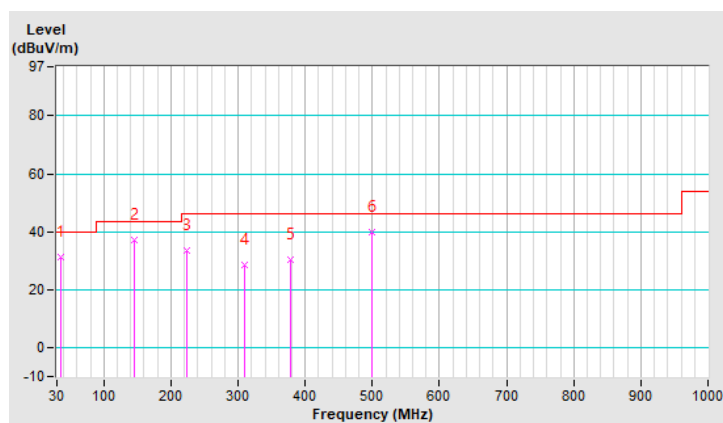


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vdc

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.82	31.2 QP	40.0	-8.8	1.00 V	1	41.6	-10.4
2	144.46	37.1 QP	43.5	-6.4	1.00 V	351	46.0	-8.9
3	224.00	33.5 QP	46.0	-12.5	1.00 V	36	44.5	-11.0
4	309.36	28.4 QP	46.0	-17.6	1.00 V	135	35.1	-6.7
5	377.26	30.2 QP	46.0	-15.8	1.00 V	123	35.4	-5.2
6	500.21	39.9 QP	46.0	-6.1	1.25 V	241	42.9	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

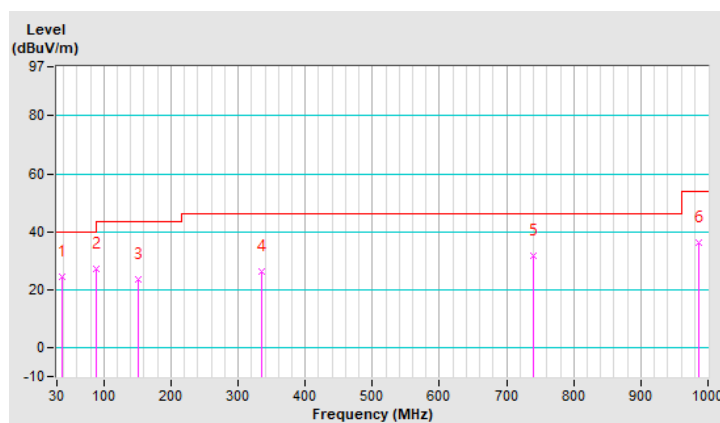


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vac, 60Hz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.76	24.6 QP	40.0	-15.4	1.50 H	79	34.5	-9.9
2	88.20	27.2 QP	43.5	-16.3	1.25 H	228	41.5	-14.3
3	152.22	23.7 QP	43.5	-19.8	1.00 H	52	32.1	-8.4
4	334.58	26.1 QP	46.0	-19.9	1.50 H	280	32.1	-6.0
5	740.04	31.9 QP	46.0	-14.1	1.25 H	90	29.8	2.1
6	986.42	36.3 QP	54.0	-17.7	1.00 H	88	30.1	6.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

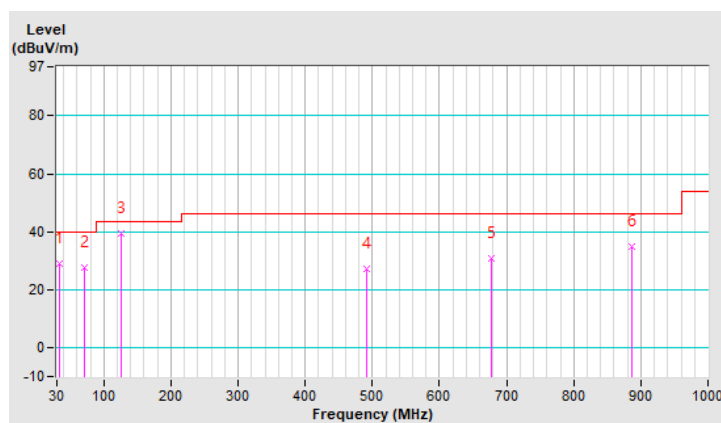


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vac, 60Hz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.88	28.8 QP	40.0	-11.2	1.25 V	161	38.9	-10.1
2	70.74	27.8 QP	40.0	-12.2	1.25 V	42	38.7	-10.9
3	125.06	39.5 QP	43.5	-4.0	1.00 V	154	49.8	-10.3
4	491.72	27.4 QP	46.0	-18.6	1.25 V	218	30.2	-2.8
5	677.96	31.0 QP	46.0	-15.0	1.50 V	27	30.3	0.7
6	887.48	34.9 QP	46.0	-11.1	1.00 V	198	30.3	4.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

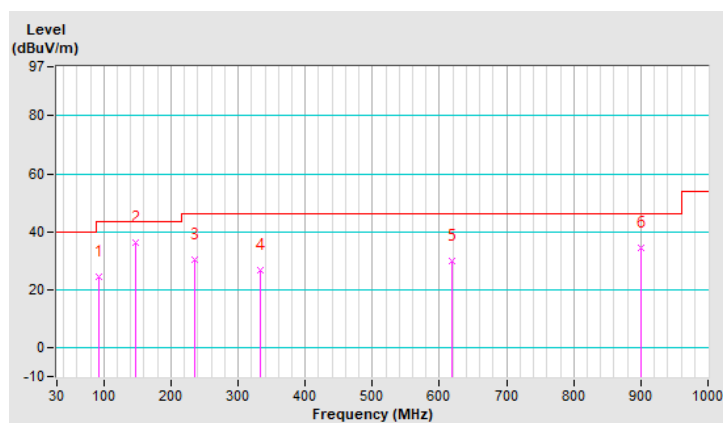


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vdc

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	92.08	24.3 QP	43.5	-19.2	1.25 H	301	38.4	-14.1
2	146.40	36.4 QP	43.5	-7.1	1.50 H	206	44.8	-8.4
3	235.64	30.5 QP	46.0	-15.5	1.00 H	121	40.1	-9.6
4	332.64	26.5 QP	46.0	-19.5	1.50 H	141	32.5	-6.0
5	617.82	30.1 QP	46.0	-15.9	1.00 H	153	30.2	-0.1
6	901.06	34.6 QP	46.0	-11.4	1.25 H	249	29.6	5.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

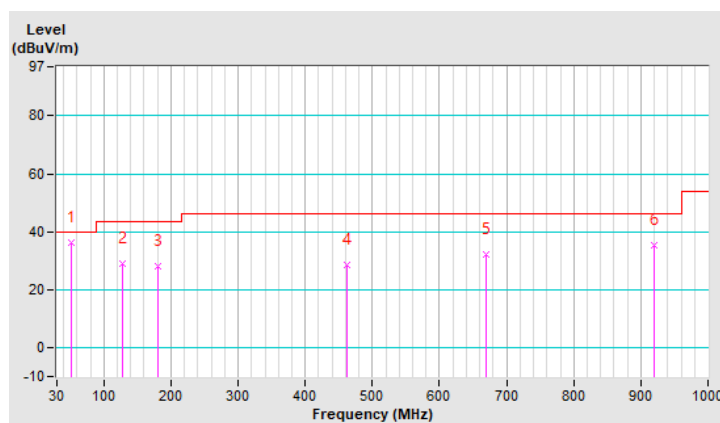


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vdc

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	51.34	36.2 QP	40.0	-3.8	1.25 V	145	45.2	-9.0
2	127.00	28.8 QP	43.5	-14.7	1.00 V	0	39.0	-10.2
3	181.32	28.0 QP	43.5	-15.5	1.50 V	83	37.9	-9.9
4	462.62	28.4 QP	46.0	-17.6	1.00 V	208	31.6	-3.2
5	670.20	32.1 QP	46.0	-13.9	1.00 V	24	31.5	0.6
6	920.46	35.4 QP	46.0	-10.6	1.25 V	111	29.9	5.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



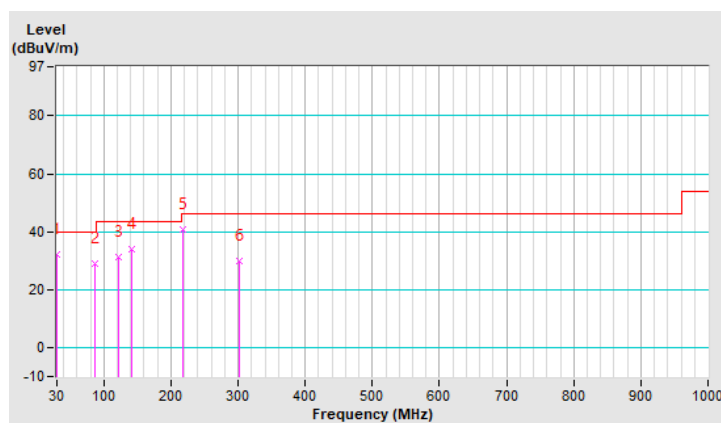
Mode B

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	110Vac, 60Hz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	32.1 QP	40.0	-7.9	1.25 H	240	42.6	-10.5
2	87.23	29.0 QP	40.0	-11.0	1.00 H	100	43.5	-14.5
3	121.18	31.2 QP	43.5	-12.3	1.25 H	353	42.2	-11.0
4	140.58	33.9 QP	43.5	-9.6	1.50 H	124	43.1	-9.2
5	218.18	40.7 QP	46.0	-5.3	1.00 H	265	51.7	-11.0
6	302.57	30.0 QP	46.0	-16.0	1.50 H	51	37.0	-7.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

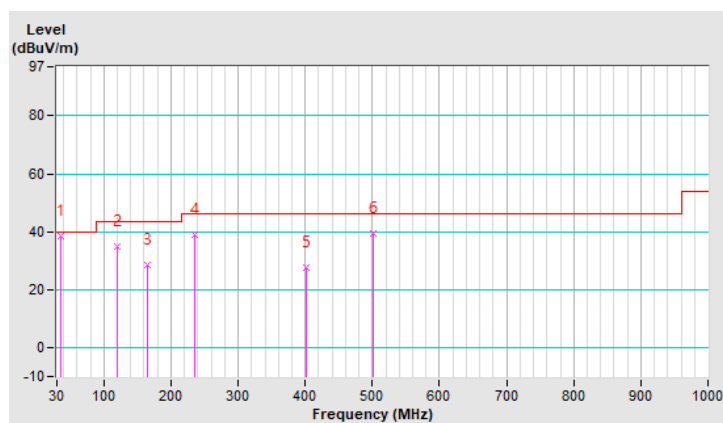


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	110Vac, 60Hz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.82	38.6 QP	40.0	-1.4	1.00 V	90	49.0	-10.4
2	120.21	34.9 QP	43.5	-8.6	1.25 V	157	46.0	-11.1
3	165.80	28.6 QP	43.5	-14.9	1.00 V	18	37.3	-8.7
4	235.64	38.9 QP	46.0	-7.1	1.25 V	254	48.9	-10.0
5	401.51	27.8 QP	46.0	-18.2	1.50 V	139	32.8	-5.0
6	500.45	39.2 QP	46.0	-6.8	1.00 V	345	42.2	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

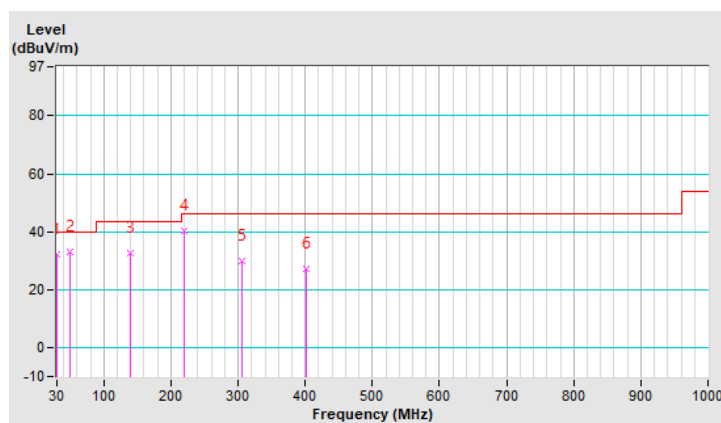


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vac, 60Hz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	32.1 QP	40.0	-7.9	1.50 H	206	42.6	-10.5
2	50.37	33.1 QP	40.0	-6.9	1.25 H	330	42.3	-9.2
3	139.61	32.6 QP	43.5	-10.9	1.00 H	90	41.8	-9.2
4	219.15	40.5 QP	46.0	-5.5	1.00 H	283	51.4	-10.9
5	306.45	30.0 QP	46.0	-16.0	1.50 H	63	36.8	-6.8
6	402.48	27.4 QP	46.0	-18.6	1.25 H	79	32.4	-5.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

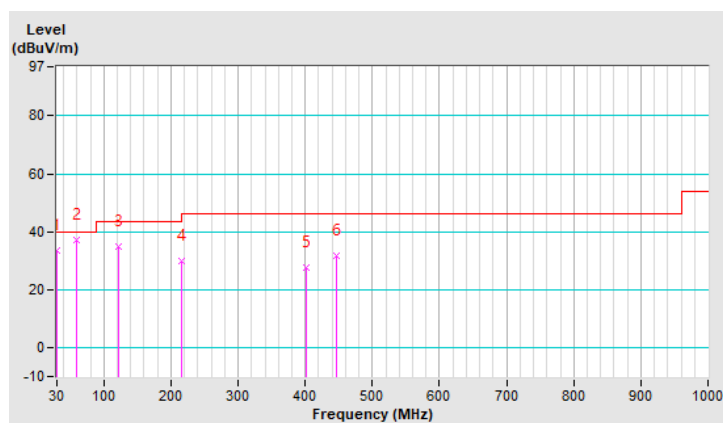


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vac, 60Hz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	33.3 QP	40.0	-6.7	1.25 V	332	43.8	-10.5
2	60.07	37.0 QP	40.0	-3.0	1.00 V	173	46.7	-9.7
3	121.18	34.7 QP	43.5	-8.8	1.00 V	157	45.7	-11.0
4	216.24	30.0 QP	46.0	-16.0	1.50 V	19	41.0	-11.0
5	402.48	27.6 QP	46.0	-18.4	1.00 V	213	32.6	-5.0
6	446.13	31.7 QP	46.0	-14.3	1.25 V	211	35.6	-3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

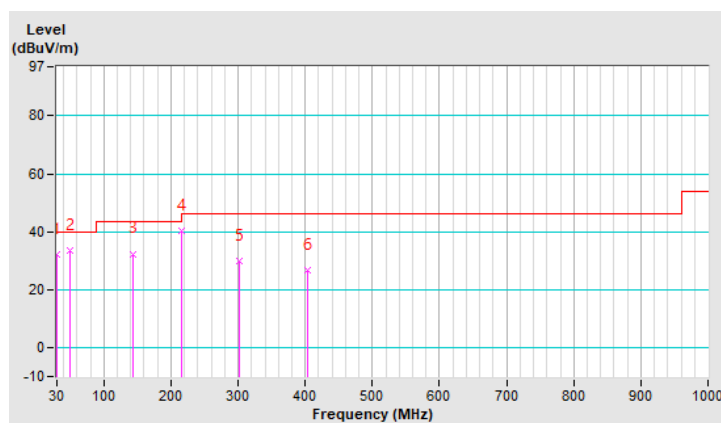


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vdc

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.29	32.3 QP	40.0	-7.7	1.50 H	211	43.0	-10.7
2	50.44	33.3 QP	40.0	-6.7	1.25 H	321	42.5	-9.2
3	142.52	32.4 QP	43.5	-11.1	1.00 H	107	41.4	-9.0
4	216.24	40.1 QP	46.0	-5.9	1.00 H	249	51.1	-11.0
5	301.60	29.9 QP	46.0	-16.1	1.00 H	60	36.9	-7.0
6	404.42	26.8 QP	46.0	-19.2	1.00 H	230	31.8	-5.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

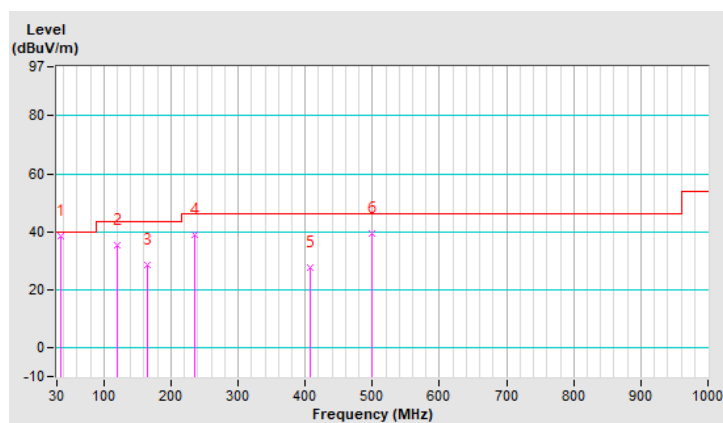


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	240Vdc

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.99	38.3 QP	40.0	-1.7	1.00 V	103	48.8	-10.5
2	120.44	35.2 QP	43.5	-8.3	1.25 V	162	46.2	-11.0
3	165.90	28.7 QP	43.5	-14.8	1.00 V	22	37.4	-8.7
4	235.12	39.0 QP	46.0	-7.0	1.25 V	268	49.0	-10.0
5	407.33	27.7 QP	46.0	-18.3	1.00 V	197	32.6	-4.9
6	500.22	39.6 QP	46.0	-6.4	1.00 V	325	42.6	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

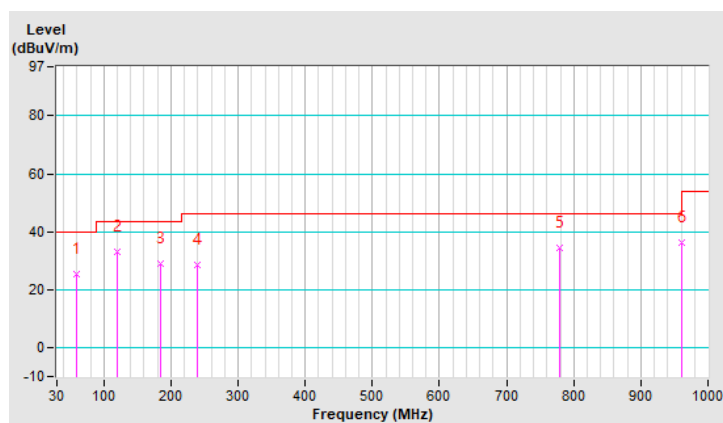


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vac, 60Hz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.10	25.4 QP	40.0	-14.6	1.00 H	108	34.7	-9.3
2	119.24	32.9 QP	43.5	-10.6	1.50 H	282	43.7	-10.8
3	185.20	29.0 QP	43.5	-14.5	1.25 H	300	39.3	-10.3
4	239.52	28.5 QP	46.0	-17.5	1.25 H	226	37.7	-9.2
5	778.84	34.5 QP	46.0	-11.5	2.00 H	272	31.5	3.0
6	961.20	36.1 QP	54.0	-17.9	1.00 H	67	30.1	6.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

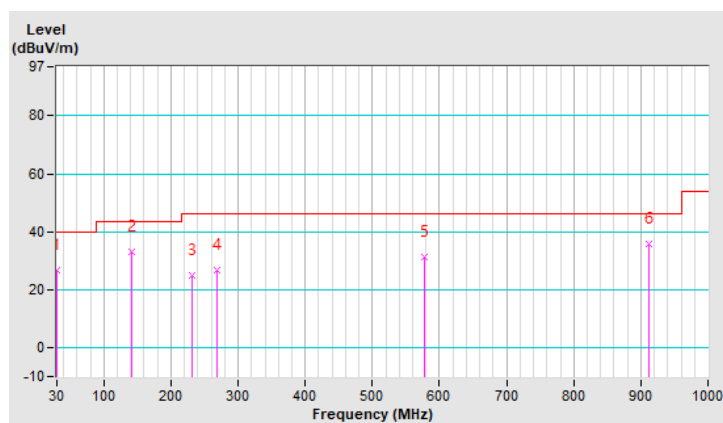


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vac, 60Hz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	26.7 QP	40.0	-13.3	1.25 V	334	37.0	-10.3
2	140.58	33.0 QP	43.5	-10.5	2.00 V	173	41.8	-8.8
3	231.76	24.8 QP	46.0	-21.2	1.00 V	162	35.0	-10.2
4	268.62	26.6 QP	46.0	-19.4	1.25 V	128	34.3	-7.7
5	577.08	31.1 QP	46.0	-14.9	1.00 V	289	32.2	-1.1
6	912.70	35.9 QP	46.0	-10.1	2.00 V	132	30.4	5.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

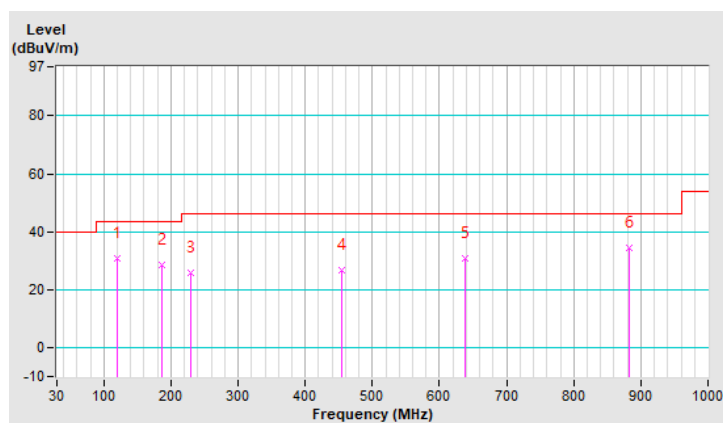


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vdc

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	119.24	30.7 QP	43.5	-12.8	1.50 H	244	41.5	-10.8
2	187.14	28.5 QP	43.5	-15.0	1.25 H	247	39.1	-10.6
3	229.82	25.8 QP	46.0	-20.2	2.00 H	208	36.3	-10.5
4	454.86	26.6 QP	46.0	-19.4	1.25 H	160	29.9	-3.3
5	639.16	30.7 QP	46.0	-15.3	1.00 H	39	30.5	0.2
6	883.60	34.5 QP	46.0	-11.5	1.00 H	239	30.0	4.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

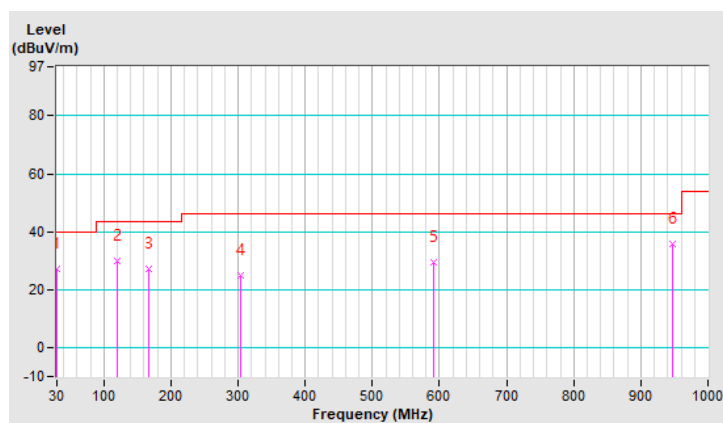


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	INPUT POWER	277Vdc

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	27.3 QP	40.0	-12.7	1.00 V	30	37.6	-10.3
2	119.24	29.8 QP	43.5	-13.7	1.50 V	191	40.6	-10.8
3	167.74	27.1 QP	43.5	-16.4	1.25 V	5	35.6	-8.5
4	303.54	24.9 QP	46.0	-21.1	1.00 V	12	31.6	-6.7
5	590.66	29.5 QP	46.0	-16.5	2.00 V	12	30.3	-0.8
6	947.62	35.7 QP	46.0	-10.3	1.00 V	304	29.9	5.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 11, 2019	Dec. 10, 2020
			Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
			Feb. 25, 2021	Feb. 24, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Conc_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

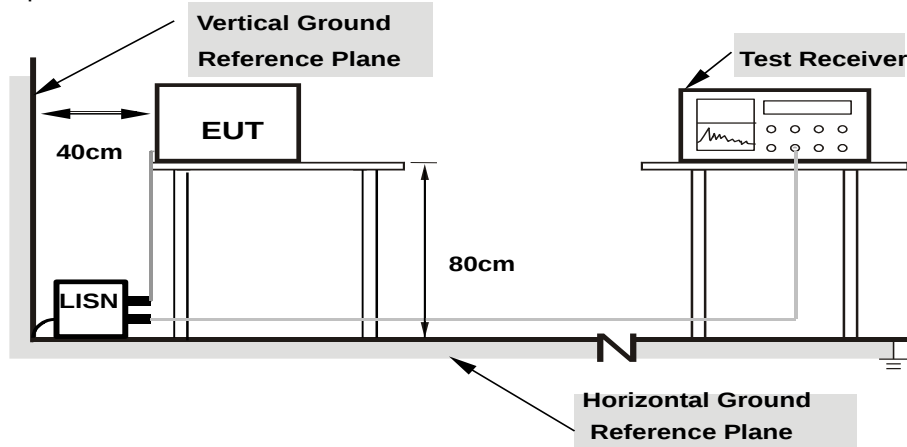
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz - 30 MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.2.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

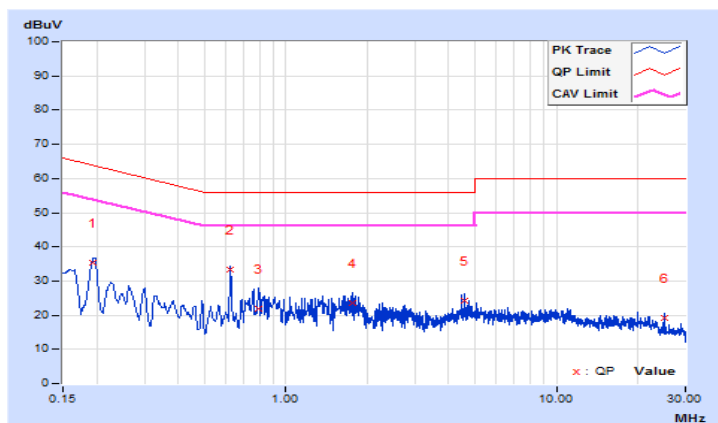
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode A		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19400	9.66	25.68	23.31	35.34	32.97	63.86	53.86	-28.52	-20.89
2	0.62600	9.66	23.54	18.89	33.20	28.55	56.00	46.00	-22.80	-17.45
3	0.79400	9.67	12.33	9.09	22.00	18.76	56.00	46.00	-34.00	-27.24
4	1.77400	9.69	13.83	10.78	23.52	20.47	56.00	46.00	-32.48	-25.53
5	4.56200	9.74	14.40	3.77	24.14	13.51	56.00	46.00	-31.86	-32.49
6	24.99800	9.84	9.25	7.92	19.09	17.76	60.00	50.00	-40.91	-32.24

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

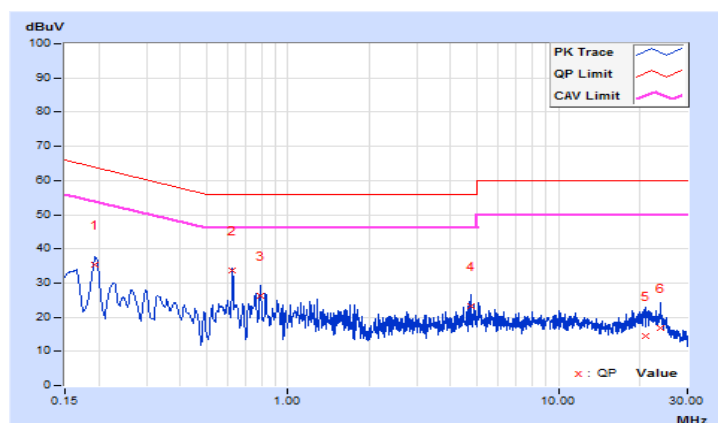


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode A		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19400	9.68	25.80	23.36	35.48	33.04	63.86	53.86	-28.38	-20.82
2	0.62600	9.68	23.96	19.14	33.64	28.82	56.00	46.00	-22.36	-17.18
3	0.79000	9.69	16.66	14.62	26.35	24.31	56.00	46.00	-29.65	-21.69
4	4.76200	9.78	13.52	4.35	23.30	14.13	56.00	46.00	-32.70	-31.87
5	20.98600	9.98	4.62	0.18	14.60	10.16	60.00	50.00	-45.40	-39.84
6	23.91400	9.97	6.83	0.06	16.80	10.03	60.00	50.00	-43.20	-39.97

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

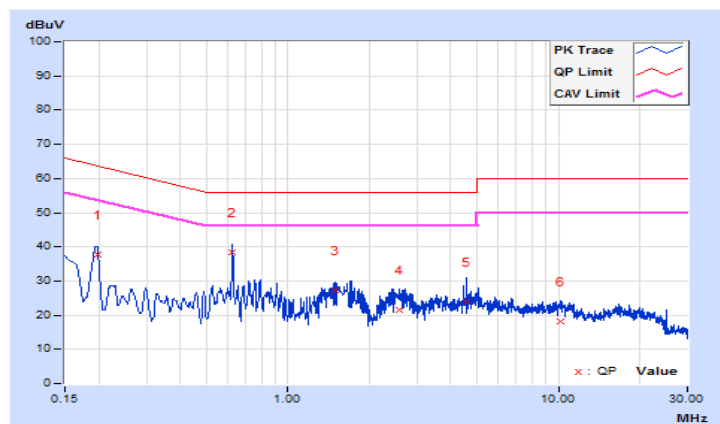


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode A		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19800	9.66	27.94	25.83	37.60	35.49	63.69	53.69	-26.09	-18.20
2	0.62600	9.66	28.89	24.90	38.55	34.56	56.00	46.00	-17.45	-11.44
3	1.50200	9.69	17.71	13.54	27.40	23.23	56.00	46.00	-28.60	-22.77
4	2.59740	9.71	11.98	6.47	21.69	16.18	56.00	46.00	-34.31	-29.82
5	4.57000	9.74	14.02	7.44	23.76	17.18	56.00	46.00	-32.24	-28.82
6	10.20600	9.79	8.27	1.51	18.06	11.30	60.00	50.00	-41.94	-38.70

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

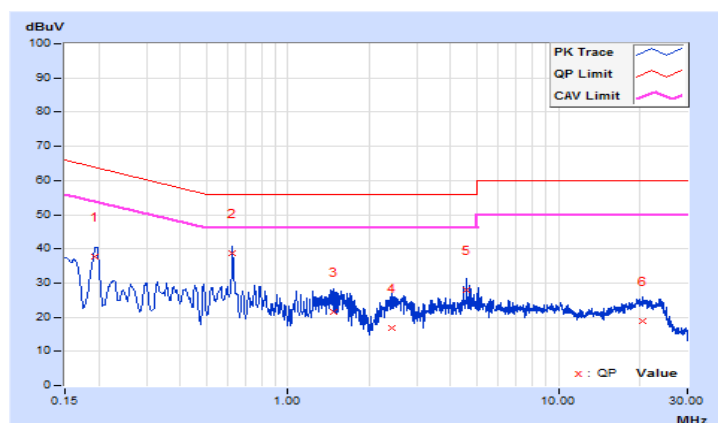


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode A		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19418	9.68	27.96	25.50	37.64	35.18	63.86	53.86	-26.22	-18.68
2	0.62600	9.68	28.93	24.90	38.61	34.58	56.00	46.00	-17.39	-11.42
3	1.47400	9.71	11.97	7.96	21.68	17.67	56.00	46.00	-34.32	-28.33
4	2.41800	9.74	7.16	1.60	16.90	11.34	56.00	46.00	-39.10	-34.66
5	4.56600	9.78	18.17	6.26	27.95	16.04	56.00	46.00	-28.05	-29.96
6	20.61800	9.98	8.72	0.49	18.70	10.47	60.00	50.00	-41.30	-39.53

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

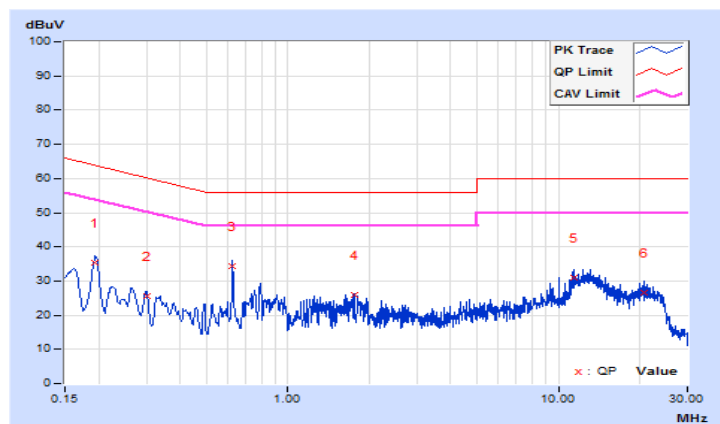


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	277Vac, 60Hz	Environmental Conditions	25°C, 75%RH
Tested by	Greg Lin	Test Date	2021/3/12
Test Mode	Mode A		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19400	9.67	25.53	23.21	35.20	32.88	63.86	53.86	-28.66	-20.98
2	0.30200	9.68	15.89	14.09	25.57	23.77	60.19	50.19	-34.62	-26.42
3	0.62600	9.70	24.52	19.31	34.22	29.01	56.00	46.00	-21.78	-16.99
4	1.77000	9.73	16.10	11.35	25.83	21.08	56.00	46.00	-30.17	-24.92
5	11.39000	9.80	21.07	17.38	30.87	27.18	60.00	50.00	-29.13	-22.82
6	20.63000	9.76	16.81	5.55	26.57	15.31	60.00	50.00	-33.43	-34.69

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

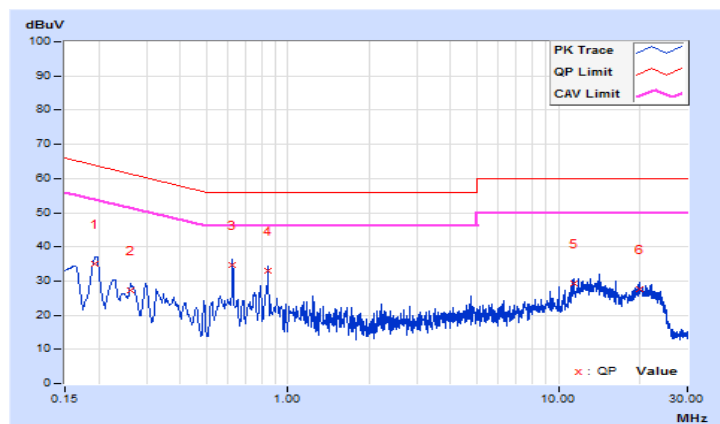


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	277Vac, 60Hz	Environmental Conditions	25°C, 75%RH
Tested by	Greg Lin	Test Date	2021/3/12
Test Mode	Mode A		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19367	9.74	25.27	23.06	35.01	32.80	63.88	53.88	-28.87	-21.08
2	0.26200	9.75	17.68	17.29	27.43	27.04	61.37	51.37	-33.94	-24.33
3	0.62600	9.77	24.84	19.32	34.61	29.09	56.00	46.00	-21.39	-16.91
4	0.84200	9.78	23.09	16.89	32.87	26.67	56.00	46.00	-23.13	-19.33
5	11.39000	9.90	19.37	11.86	29.27	21.76	60.00	50.00	-30.73	-28.24
6	20.00200	9.93	17.58	5.00	27.51	14.93	60.00	50.00	-32.49	-35.07

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

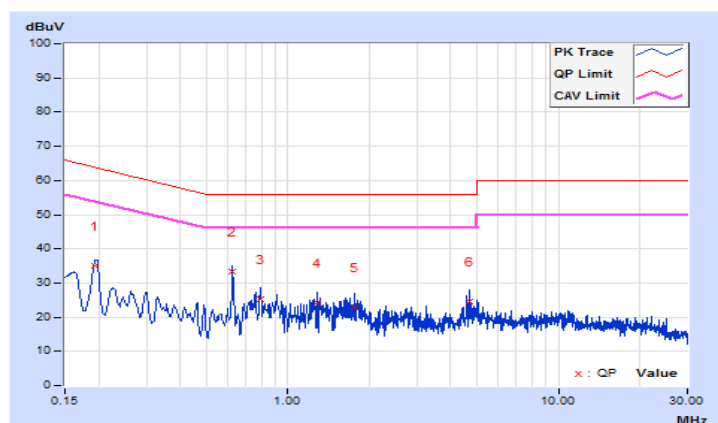


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19400	9.66	25.32	23.08	34.98	32.74	63.86	53.86	-28.88	-21.12
2	0.62600	9.66	23.55	18.88	33.21	28.54	56.00	46.00	-22.79	-17.46
3	0.79079	9.67	15.67	11.97	25.34	21.64	56.00	46.00	-30.66	-24.36
4	1.28200	9.68	14.58	11.80	24.26	21.48	56.00	46.00	-31.74	-24.52
5	1.77400	9.69	13.10	10.13	22.79	19.82	56.00	46.00	-33.21	-26.18
6	4.66600	9.75	14.95	3.52	24.70	13.27	56.00	46.00	-31.30	-32.73

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

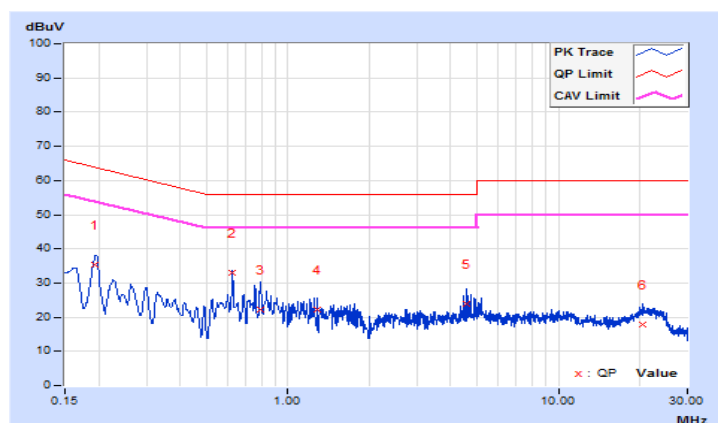


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	110Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19400	9.68	25.78	23.35	35.46	33.03	63.86	53.86	-28.40	-20.83
2	0.62550	9.68	23.15	19.51	32.83	29.19	56.00	46.00	-23.17	-16.81
3	0.79400	9.69	12.40	9.16	22.09	18.85	56.00	46.00	-33.91	-27.15
4	1.28200	9.70	12.51	10.06	22.21	19.76	56.00	46.00	-33.79	-26.24
5	4.55800	9.78	14.13	2.90	23.91	12.68	56.00	46.00	-32.09	-33.32
6	20.51800	9.98	7.88	0.52	17.86	10.50	60.00	50.00	-42.14	-39.50

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

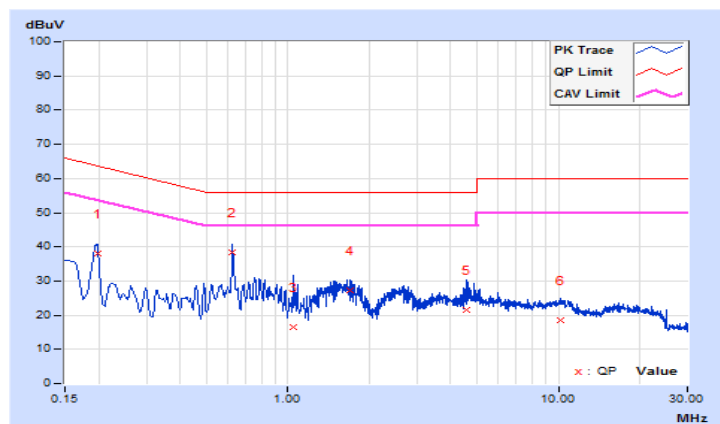


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19728	9.66	28.30	26.36	37.96	36.02	63.72	53.72	-25.76	-17.70
2	0.62600	9.66	28.79	24.75	38.45	34.41	56.00	46.00	-17.55	-11.59
3	1.05000	9.67	6.90	4.15	16.57	13.82	56.00	46.00	-39.43	-32.18
4	1.69328	9.69	17.59	13.67	27.28	23.36	56.00	46.00	-28.72	-22.64
5	4.56200	9.74	11.96	3.33	21.70	13.07	56.00	46.00	-34.30	-32.93
6	10.24200	9.79	8.85	1.84	18.64	11.63	60.00	50.00	-41.36	-38.37

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

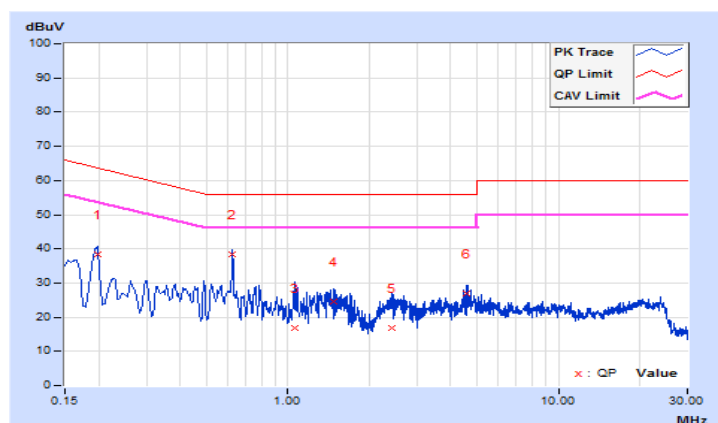


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Han Wu	Test Date	2020/10/5
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19728	9.68	28.62	26.40	38.30	36.08	63.72	53.72	-25.42	-17.64
2	0.62600	9.68	28.75	24.71	38.43	34.39	56.00	46.00	-17.57	-11.61
3	1.06200	9.69	7.22	2.29	16.91	11.98	56.00	46.00	-39.09	-34.02
4	1.47000	9.71	14.94	11.34	24.65	21.05	56.00	46.00	-31.35	-24.95
5	2.41800	9.74	7.21	1.70	16.95	11.44	56.00	46.00	-39.05	-34.56
6	4.55800	9.78	17.04	3.91	26.82	13.69	56.00	46.00	-29.18	-32.31

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

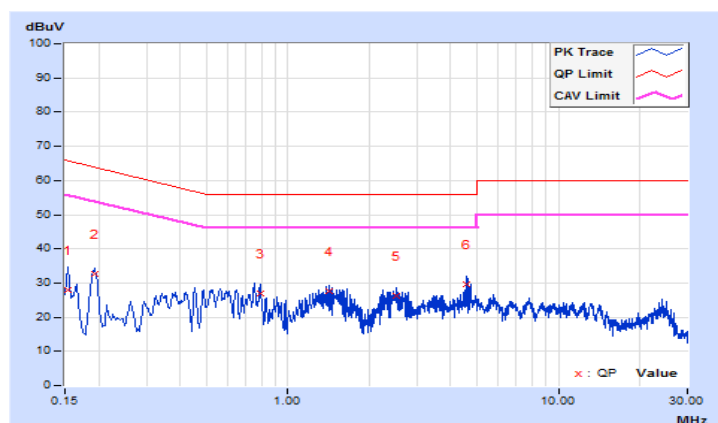


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	277Vac, 60Hz	Environmental Conditions	25°C, 75%RH
Tested by	Greg Lin	Test Date	2021/3/17
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	9.67	18.34	12.12	28.01	21.79	65.78	55.78	-37.77	-33.99
2	0.19367	9.67	22.98	20.32	32.65	29.99	63.88	53.88	-31.23	-23.89
3	0.79000	9.71	17.30	15.94	27.01	25.65	56.00	46.00	-28.99	-20.35
4	1.43000	9.72	17.73	16.43	27.45	26.15	56.00	46.00	-28.55	-19.85
5	2.52600	9.74	16.64	12.62	26.38	22.36	56.00	46.00	-29.62	-23.64
6	4.55800	9.76	19.87	12.03	29.63	21.79	56.00	46.00	-26.37	-24.21

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

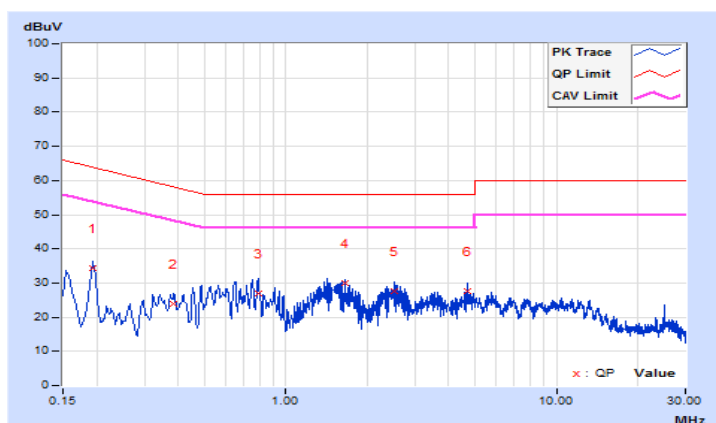


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	277Vac, 60Hz	Environmental Conditions	25°C, 75%RH
Tested by	Greg Lin	Test Date	2021/3/17
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19400	9.74	24.74	22.43	34.48	32.17	63.86	53.86	-29.38	-21.69
2	0.38600	9.76	14.07	12.34	23.83	22.10	58.15	48.15	-34.32	-26.05
3	0.79000	9.78	17.16	13.15	26.94	22.93	56.00	46.00	-29.06	-23.07
4	1.65400	9.80	20.05	18.63	29.85	28.43	56.00	46.00	-26.15	-17.57
5	2.52200	9.81	17.82	15.16	27.63	24.97	56.00	46.00	-28.37	-21.03
6	4.66600	9.83	17.82	12.47	27.65	22.30	56.00	46.00	-28.35	-23.70

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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