

TEST REPORT

CERTIFICATE OF CONFORMITY

Standards: FCC CFR 47 Part 15, Subpart B, Class B
ANSI C63.4:2014

Report No.: FD201015C04 R1

Model No: MAX Adapter

Series Model: MAX-ADP-LTEA-W-T, MAX-ADP-LTEA-R-T,
MAX-ADP-LTEA-K-T, MAX-ADP-5GH-T,
MAX-ADP-5GD-T, MAX-ADP-LTE-US-T,
MAX-ADP-GLTE-G-T, Pepwave MAX Adapter,
Pepwave MAX Adapter LTEA

FCC ID: U8G-P1M00

Received Date: Oct. 15, 2020

Test Date: Feb. 11 ~ Feb. 17, 2021

Issued Date: Mar. 12, 2021

Applicant: PISMO LABS TECHNOLOGY LIMITED

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

FCC Registration /
Designation Number: 328930 / TW1050

Approved by :



Date: Mar. 12, 2021

Carl Chen / Project Engineer

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Prepared by : Christin Lee / Specialist

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Release Control Record

Issue No.	Description	Date Issued
FD201015C04	Original release.	Feb. 24, 2021
FD201015C04 R1	Adding FCC ID on page 1	Mar. 12, 2021

1 Certification

Product: PEPWAVE / peplink Wireless Product

Brand: PEPWAVE / peplink

Test Model: MAX Adapter

Series Model: MAX-ADP-LTEA-W-T, MAX-ADP-LTEA-R-T, MAX-ADP-LTEA-K-T, MAX-ADP-5GH-T,
MAX-ADP-5GD-T, MAX-ADP-LTE-US-T, MAX-ADP-GLTE-G-T,
Pepwave MAX Adapter, Pepwave MAX Adapter LTEA

Sample Status: Prototype

Applicant: PISMO LABS TECHNOLOGY LIMITED

Test Date: Feb. 11 ~ Feb. 17, 2021

Standards: FCC CFR 47 Part 15, Subpart B, Class B

ANSI C63.4:2014

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 EMC characteristics under the conditions specified in this report.

2 Summary of Test Results

FCC Part 15 Clause	Test Item	Result/Remarks	Verdict
15.107	Conducted Emissions from input power ports	Minimum passing Class B margin is -14.93 dB at 0.68200 MHz	Pass
15.109	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -4.89 dB at 37.18 MHz	Pass
	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -13.55 dB at 7074.84 MHz	Pass

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions from input power ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.14 dB
Radiated Emissions above 1 GHz	Above 1GHz	5.04 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 Description of EUT

Product	PEPWAVE / peplink Wireless Product
Brand	PEPWAVE / peplink
Test Model	MAX Adapter
Series Model	MAX-ADP-LTEA-W-T, MAX-ADP-LTEA-R-T, MAX-ADP-LTEA-K-T, MAX-ADP-5GH-T, MAX-ADP-5GD-T, MAX-ADP-LTE-US-T, MAX-ADP-GLTE-G-T, Pepwave MAX Adapter, Pepwave MAX Adapter LTEA
Model Difference	All models are electrically identical, different model names are for marketing purpose.
Sample Status	Prototype
Operating Software	NA
Power Supply Rating	5Vdc
Accessory Device	NA
Data Cable Supplied	0.92m non-shielded USB Type-C cable without core

Note: The following WWAN modules are provided to EUT.

Module	Brand	Model
WWAN Module 1	Telit	LE910C4-NF
WWAN Module 2	Sierra	MC7455
WWAN Module 3	Sierra Wireless	EM7511
WWAN Module 4	Sierra Wireless	EM7565
WWAN Module 5	Telit	LM960A18
WWAN Module 6	Thales	MV31-W
WWAN Module 7	Sierra	EM9191

3.2 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 5925MHz, provided by PISMO LABS TECHNOLOGY LIMITED, for detailed internal source, please refer to the manufacturer's specifications.

3.3 Features of EUT

The tests reported herein were performed according to the method specified by PISMO LABS TECHNOLOGY LIMITED, for detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.4 Operating Modes of EUT and Determination of Worst Case Operating Mode

The EUT is designed with AC adapter of rating 100-240Vac, 50-60Hz.

For radiated emission up to 1GHz test, the EUT has been pre-tested under following test modes, and test mode 1 was the worst case for final test.

Mode	Test Condition
1	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
2	EUT + Module 2 + LTE Band 2 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
3	EUT + Module 3 + LTE Band 48 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
4	EUT + Module 4 + LTE Band 48 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
5	EUT + Module 5 + LTE Band 48 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
6	EUT + Module 6 + LTE Band 41 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
7	EUT + Module 7 + LTE Band 7 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
8	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + Adapter, 240Vac/60Hz
9	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + N/B Link, 120Vac/60Hz

Conducted emission up to 1GHz test, the EUT has been pre-tested under following test modes, and test mode 3 was the worst case for final test.

Mode	Test Condition
1	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + Adapter, 120Vac/60Hz
2	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + Adapter, 240Vac/60Hz
3	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + N/B Link, 240Vac/60Hz

Test modes are presented in the report as below.

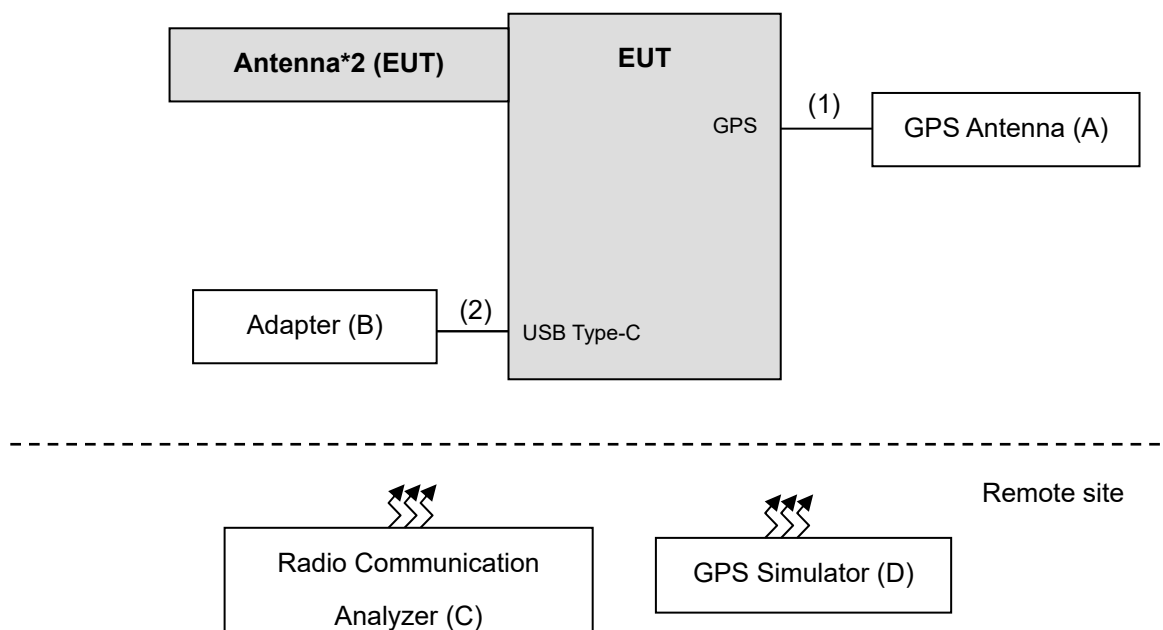
Mode	Test Condition
Conducted emission test	
-	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + N/B Link
Radiated emission test	
-	EUT + Module 1 + LTE Band 5 Link + GPS Link + USB cable + Adapter
Note: LTE Band was chosen from the worst case of Module Report.	

3.5 Test Program Used and Operation Descriptions

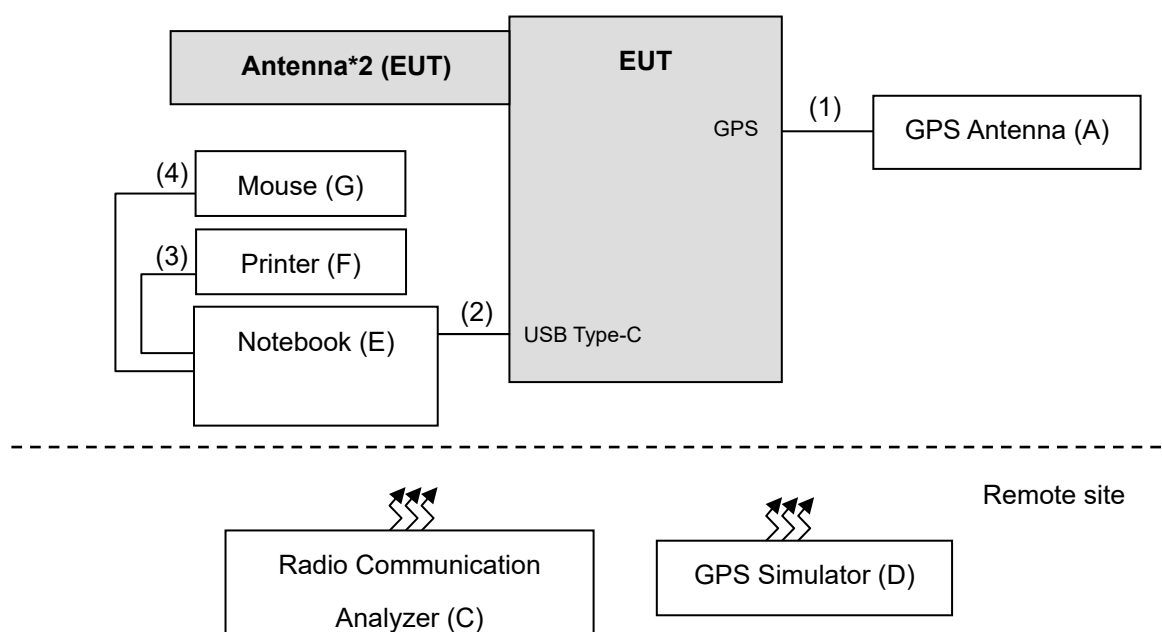
- The EUT was charged from the adapter.
- The EUT communicated data with the Radio Communication Analyzer, Communication Tester, notebook, and GPS simulator, which acted as communication partners.

3.6 Connection Diagram of EUT and Peripheral Devices

For radiated emission test:



For conducted emission test:



3.7 Configuration of Peripheral Devices and Cable Connections

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A.	GPS Antenna	NA	NA	NA	NA	-
B.	Adapter	Apple	A1720	NA	NA	-
C.	Radio Communication Analyzer	Anritsu	MT8820C	6201010284	NA	-
D.	GPS simulator	Gintung	GS-50	610493	NA	-
E.	Notebook	DELL	Latitude 5501	942VP13	FCC DoC Approved	-
F.	Printer	EPSON	T22	MEEZ070388	FCC DoC Approved	-
G.	Mouse	DELL	MOCZUL	CN-049TWY-PRC00-7 9E-02F8	FCC DoC Approved	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items C-D acted as communication partners to transfer data.

No.	Cable Descriptions	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Qty.)	Remark
1.	ANT. cable	1	5	N	0	Supplied by client
2.	USB Type-C cable	1	0.92	N	0	Accessory of EUT
3.	USB cable	1	1.8	Y	0	-
4.	USB cable	1	1.8	Y	0	-



4 Test Instruments

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

4.1 Conducted Emissions from input power ports

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Jan. 16, 2021	Jan. 15, 2022
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Con_ V7.3.7.4	NA	NA	NA

Note: 1. The test was performed in HwaYa Shielded Room 1 (Conduction 1).
2. The VCCI Site Registration No. is C-12040.

4.2 Radiated Emissions up to 1 GHz

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ (V)	ESR	101240	Oct. 30, 2020	Oct. 29, 2021
Test Receiver ROHDE & SCHWARZ (H)	ESR	101264	Apr. 16, 2020	Apr. 15, 2021
BILOG Antenna SCHWARZBECK (V)	VULB9168	9168-148	Nov. 05, 2020	Nov. 04, 2021
BILOG Antenna SCHWARZBECK (H)	VULB9168	9168-156	Nov. 05, 2020	Nov. 04, 2021
Preamplifier Sonoma (V)	310N	352924	Jun. 08, 2020	Jun. 07, 2021
Preamplifier Sonoma (H)	310N	352923	Jun. 08, 2020	Jun. 07, 2021
RF signal cable (with 5dB PAD) Times (V)	LMR-600 (18M) +LMR-400 (7M)	CABLE-CH1 (VER) -01	Sep. 04, 2020	Sep. 03, 2021
RF signal cable (with 5dB PAD) Times (H)	LMR-600 (11.8M) +LMR-400 (7M)	CABLE-CH1 (HOR) -01	Sep. 04, 2020	Sep. 03, 2021
Software BV ADT	BV ADT_Radiated_ V8.7.08	NA	NA	NA
Antenna Tower (V)	MFA-440	9707	NA	NA
Antenna Tower (H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller (V)	MF7802	074	NA	NA
Controller (H)	MF7802	08093	NA	NA

Note: 1. The test was performed in HwaYa Chamber 1.
2. The VCCI Site Registration No. is R-11893.

4.3 Radiated Emissions above 1 GHz

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ (Above 1GHz)	ESR7	101471	Mar. 11, 2020	Mar. 10, 2021
Spectrum Analyzer Agilent	E4446A	MY51100039	Dec. 01, 2020	Nov. 30, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-149	Nov. 04, 2020	Nov. 03, 2021
RF signal cable (with 5dB PAD) Times	LMR-400 (18M)	CABLE-CH2-01	Mar. 23, 2020	Mar. 22, 2021
HORN Antenna (with 4dB PAD) SCHWARZBECK	BBHA 9120 D	9120D-405	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier Agilent (Above 1GHz)	8449B	3008A01961	Sep. 04, 2020	Sep. 03, 2021
Software BV ADT	BV ADT_Radiated_ V8.7.08	NA	NA	NA
Antenna Tower BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Controller BV ADT	SC100	SC93021702	NA	NA
BandPass Filter (2.4G) MICRO-TRONICS	BRM17690-01	003	Sep. 04, 2020	Sep. 03, 2021
BandPass Filter (5G) MICRO-TRONICS	BRM50716-01	G011	Sep. 04, 2020	Sep. 03, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-100 0	170819	Sep. 04, 2020	Sep. 03, 2021
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K 50-3000	181129-1	Sep. 04, 2020	Sep. 03, 2021
RF Coaxial Cable JUNFLON+EMC	JUNFLON+EMC104- SM-SM-6000	Cable-CH2-02(MWX322 1308G003+130710)	Jan. 16, 2021	Jan. 15, 2022
Fix tool for Boresight antenna	BAF-01	2	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 2021
HORN Antenna (with 3dB PAD) SCHWARZBECK	BBHA 9170	148	Nov. 22, 2020	Nov. 21, 2021

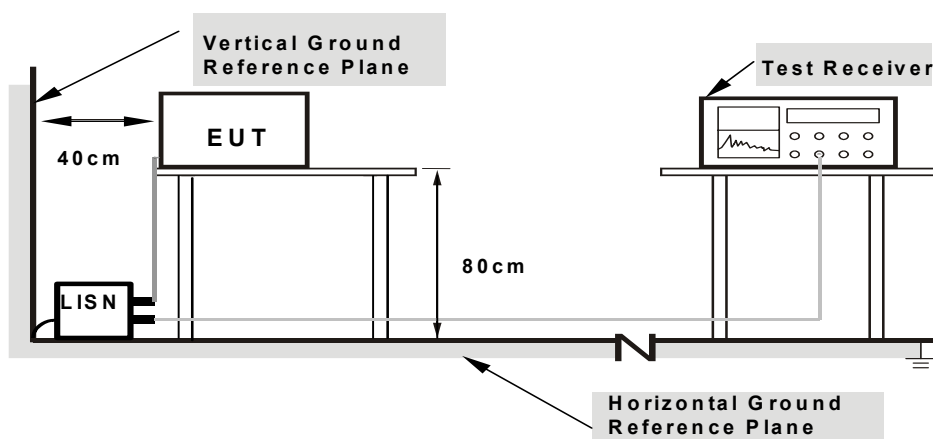
Note: 1. The test was performed in HwaYa Chamber 2 (966 Chamber 1).
2. The VCCI Site Registration No. is G-10018.

5 Test Arrangement

5.1 Conducted Emissions from input power ports

- 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/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

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



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

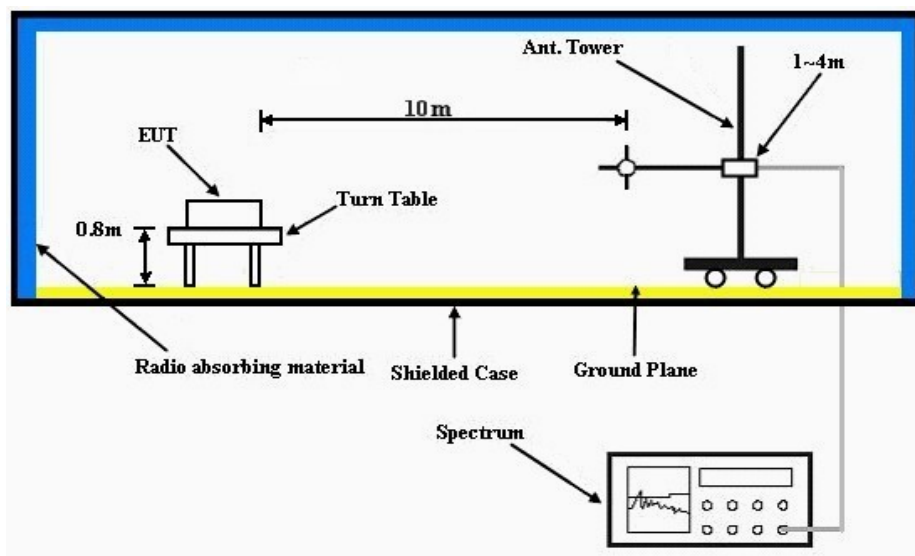
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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

5.2 Radiated Emissions up to 1 GHz

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set {re upto 1ghz 3/10 meters} away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna is a broadband antenna, and its height 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.
- 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.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is up to 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency up to 1GHz.

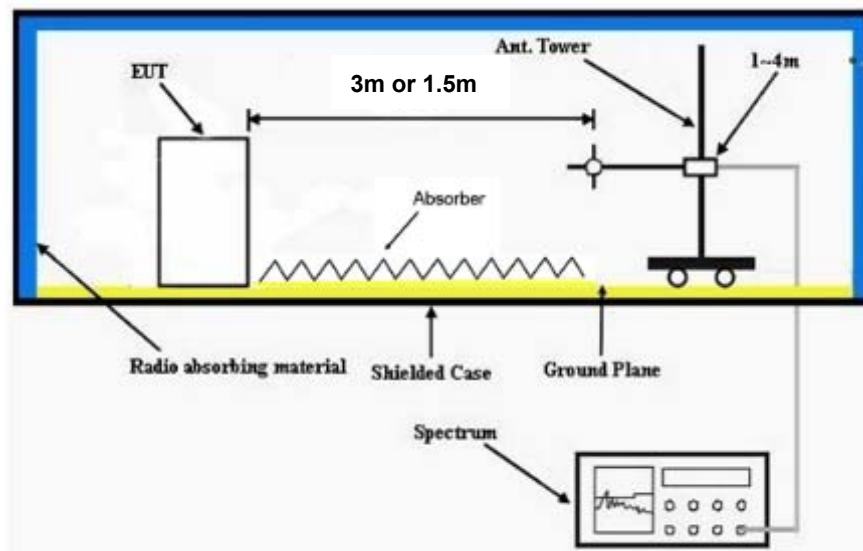


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

5.3 Radiated Emissions above 1 GHz

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- For frequency range 1GHz ~ 18GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- For frequency range 18GHz ~ 40GHz, the EUT was set 1.5 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The spectrum analyzer system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

Note: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection (PK) at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.



The test arrangement is in accordance with ANSI C63.4:2014. For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6 Limits of Emission

6.1 Conducted Emissions from input power ports

Frequency (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.5 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

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

2. The limit decreases linearly with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

6.2 Radiated Emissions up to 1 GHz

Radiated Emissions Limits at 10 meters (dBµV/m)				
Frequencies (MHz)	FCC Part 15B, Class A	FCC Part 15B, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		

Radiated Emissions Limits at 3 meters (dBμV/m)				
Frequencies (MHz)	FCC Part 15B, Class A	FCC Part 15B, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960				
960-1000	60	54	57.5	47.5

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

6.3 Radiated Emissions above 1 GHz

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

Radiated Emissions Limits at 3 meters (dBμV/m)		
Frequency range	Class A	Class B
Above 1GHz	Avg: 60 Peak: 80	Avg: 54 Peak: 74

Notes: 1. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far field of the ITE or digital apparatus under test.

7 Test Results of Emission

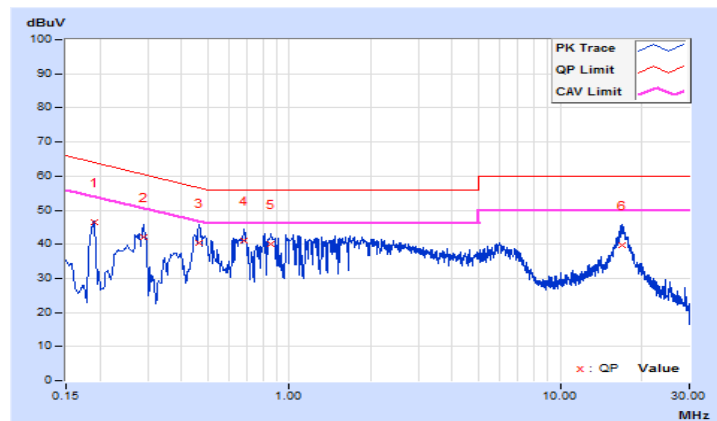
7.1 Conducted Emissions from input power ports

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240Vac, 60Hz	Environmental Conditions	20°C, 68%RH
Tested by	Slash Huang	Test Date	2021/2/17

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	0.19000	9.65	36.76	16.13	46.41	25.78	64.04	54.04	-17.63	-28.26
2	0.28982	9.66	32.53	22.36	42.19	32.02	60.53	50.53	-18.34	-18.51
3	0.46200	9.68	30.67	17.59	40.35	27.27	56.66	46.66	-16.31	-19.39
4	0.68200	9.69	31.38	17.31	41.07	27.00	56.00	46.00	-14.93	-19.00
5	0.85582	9.70	30.21	13.97	39.91	23.67	56.00	46.00	-16.09	-22.33
6	16.99800	9.78	29.89	22.22	39.67	32.00	60.00	50.00	-20.33	-18.00

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

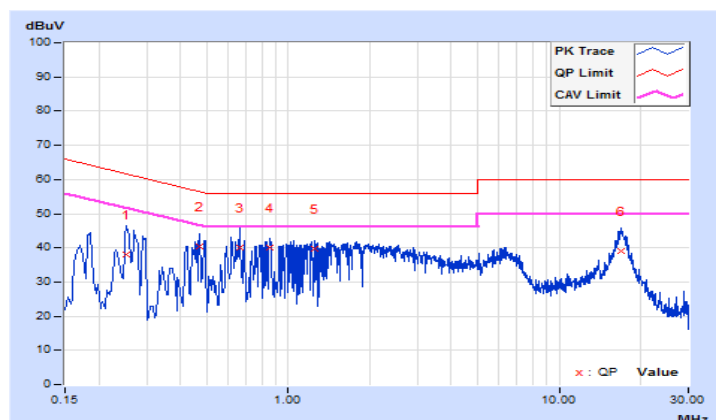


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240Vac, 60Hz	Environmental Conditions	20°C, 68%RH
Tested by	Slash Huang	Test Date	2021/2/17

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	0.25400	9.68	28.37	16.75	38.05	26.43	61.63	51.63	-23.58	-25.20
2	0.47000	9.70	30.64	15.71	40.34	25.41	56.51	46.51	-16.17	-21.10
3	0.66200	9.71	30.38	15.08	40.09	24.79	56.00	46.00	-15.91	-21.21
4	0.85400	9.72	30.28	12.25	40.00	21.97	56.00	46.00	-16.00	-24.03
5	1.25398	9.74	29.96	11.65	39.70	21.39	56.00	46.00	-16.30	-24.61
6	16.86200	9.87	29.06	21.60	38.93	31.47	60.00	50.00	-21.07	-18.53

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



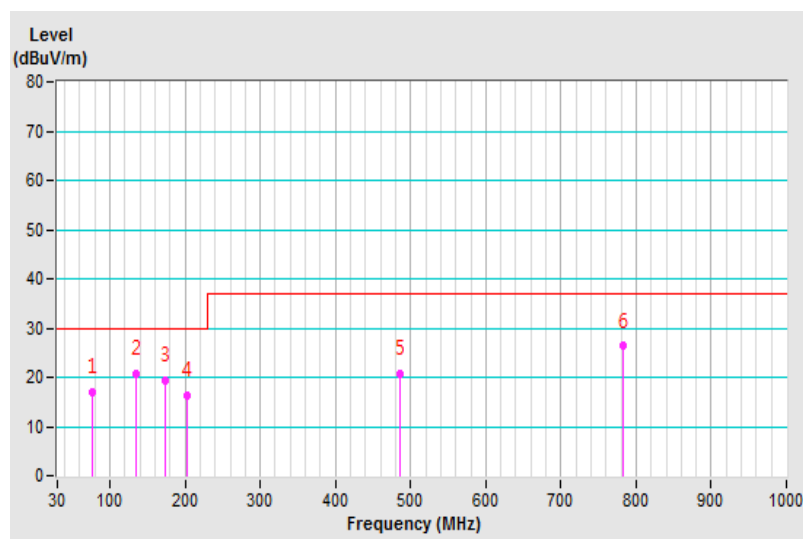
7.2 Radiated Emissions up to 1 GHz

Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Tested By	James Chang	Environmental Conditions	20°C, 64%RH
Test Date	2021/2/17		

Antenna Polarity & Test Distance : Horizontal at 10 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	75.88	16.97 QP	30.00	-13.03	3.00 H	271	33.72	-16.75
2	135.10	20.77 QP	30.00	-9.23	3.00 H	125	34.83	-14.06
3	172.65	19.35 QP	30.00	-10.65	3.50 H	131	33.06	-13.71
4	201.70	16.33 QP	30.00	-13.67	4.00 H	117	32.10	-15.77
5	486.70	20.68 QP	37.00	-16.32	2.00 H	235	28.58	-7.90
6	782.90	26.30 QP	37.00	-10.70	3.50 H	257	28.36	-2.06

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. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

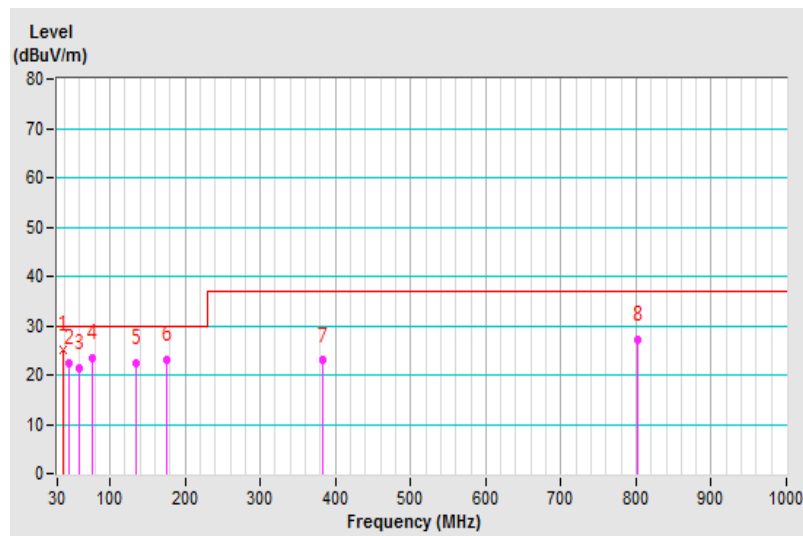


Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Tested By	James Chang	Environmental Conditions	20°C , 64%RH
Test Date	2021/2/17		

Antenna Polarity & Test Distance : Vertical at 10 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	37.18	25.11 QP	30.00	-4.89	1.50 V	114	39.71	-14.60
2	45.38	22.32 QP	30.00	-7.68	4.00 V	351	36.05	-13.73
3	59.20	21.33 QP	30.00	-8.67	3.00 V	186	35.33	-14.00
4	75.88	23.39 QP	30.00	-6.61	1.00 V	346	40.44	-17.05
5	135.15	22.44 QP	30.00	-7.56	1.00 V	137	36.62	-14.18
6	174.63	23.16 QP	30.00	-6.84	1.00 V	170	37.21	-14.05
7	383.97	22.95 QP	37.00	-14.05	1.00 V	202	32.59	-9.64
8	802.16	27.06 QP	37.00	-9.94	4.00 V	108	28.86	-1.80

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. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



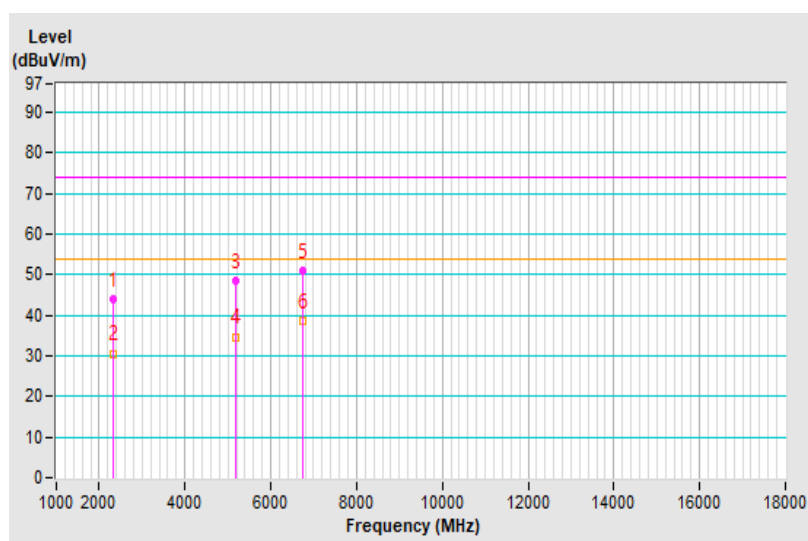
7.3 Radiated Emissions above 1 GHz

Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested By	Slash Huang	Environmental Conditions	20°C, 66%RH
Test Date	2021/2/11		

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	2340.74	44.02 PK	74.00	-29.98	1.50 H	164	42.50	1.52
2	2340.74	30.57 AV	54.00	-23.43	1.50 H	164	29.05	1.52
3	5171.65	48.36 PK	74.00	-25.64	2.00 H	182	40.22	8.14
4	5171.65	34.69 AV	54.00	-19.31	2.00 H	182	26.55	8.14
5	6742.77	51.03 PK	74.00	-22.97	1.50 H	2	38.91	12.12
6	6742.77	38.56 AV	54.00	-15.44	1.50 H	2	26.44	12.12

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. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

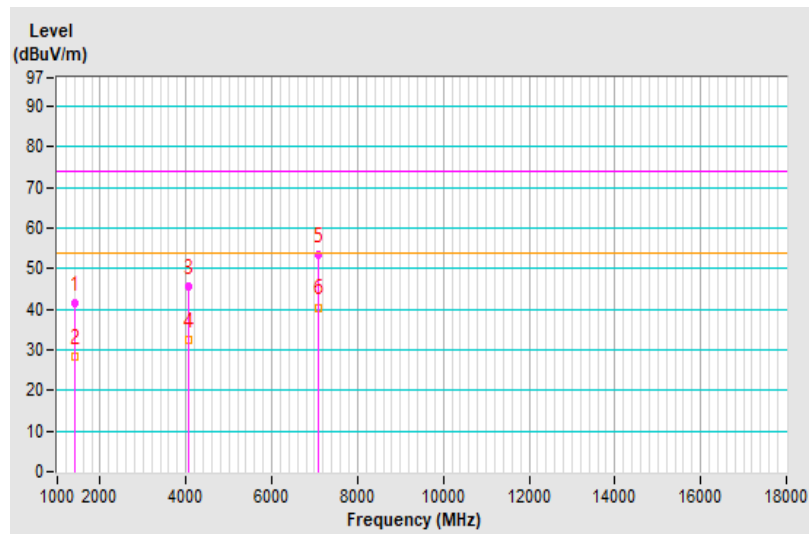


Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested By	Slash Huang	Environmental Conditions	20°C, 66%RH
Test Date	2021/2/11		

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	1413.01	41.65 PK	74.00	-32.35	1.75 V	360	43.48	-1.83
2	1413.01	28.31 AV	54.00	-25.69	1.75 V	360	30.14	-1.83
3	4075.81	45.55 PK	74.00	-28.45	1.25 V	296	40.87	4.68
4	4075.81	32.32 AV	54.00	-21.68	1.25 V	296	27.64	4.68
5	7074.84	53.23 PK	74.00	-20.77	1.50 V	218	39.12	14.11
6	7074.84	40.45 AV	54.00	-13.55	1.50 V	218	26.34	14.11

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. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

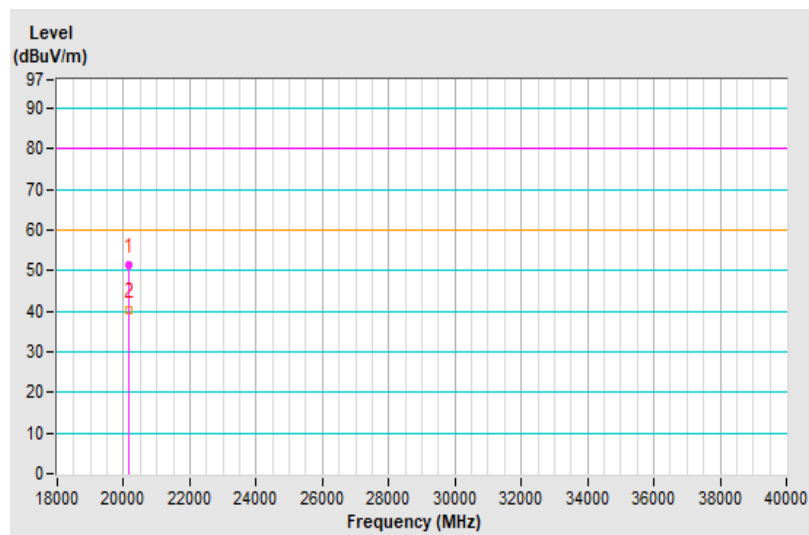


Frequency Range	18GHz ~ 40GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested By	Slash Huang	Environmental Conditions	20°C , 66%RH
Test Date	2021/2/11		

Antenna Polarity & Test Distance : Horizontal at 1.5 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	20143.25	51.18 PK	80.00	-28.82	1.01 H	359	46.77	4.41
2	20143.25	40.28 AV	60.00	-19.72	1.01 H	359	35.87	4.41

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. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

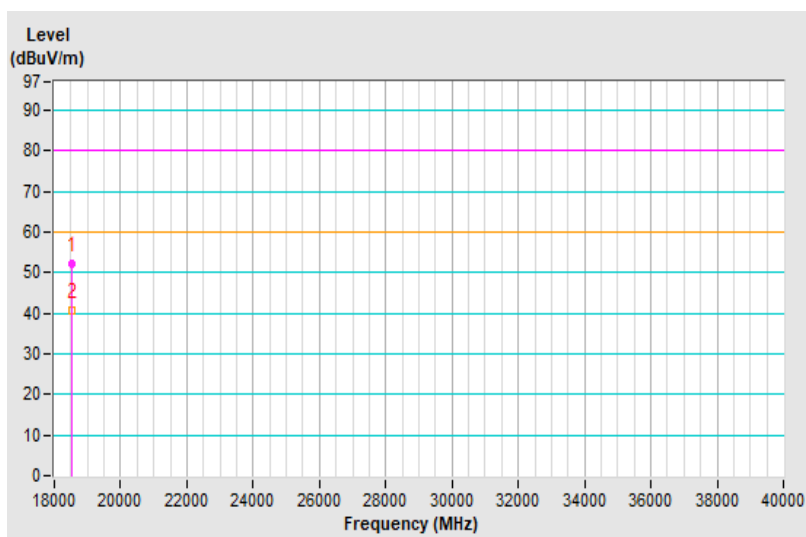


Frequency Range	18GHz ~ 40GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested By	Slash Huang	Environmental Conditions	20°C, 66%RH
Test Date	2021/2/11		

Antenna Polarity & Test Distance : Vertical at 1.5 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	18537.54	52.25 PK	80.00	-27.75	1.00 V	1	49.88	2.37
2	18537.54	40.67 AV	60.00	-19.33	1.00 V	1	38.30	2.37

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. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



8 Pictures of Test Arrangements

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

9 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 accredited and approved 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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