Prüfbericht-Nr.: *Test report no.:*	CN219XQV(P15C-THREAD) 001	**Auftrags-Nr.:** *Order no.*:	238494656	Seite 1 von 27 *Page 1 of 27*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2020-11-30	
Auftraggeber: *Client:*	Eve Systems LLC 100 Pine St., Suite 1250, San Francisco CA 94111 USA			
Prüfgegenstand: *Test item:*	Eve Energy			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	20EBU4101			
Auftrags-Inhalt: *Order content*:	FCC Part 15C Test report (THREAD)			
Prüfgrundlage: *Test specification:*	FCC 47CFR Part 15: Subpart C Section 15.247			

Wareneingangsdatum: *Date of sample receipt:*	2020-11-06
Prüfmuster-Nr.: *Test sample no:*	A002977592-007 A002977592-010
Prüfzeitraum: *Testing period:*	2021-01-13 - 2021-01-21
Ort der Prüfung: *Place of testing:*	EMC/RF Taipei Testing Site
Prüflaboratorium: *Testing laboratory:*	Taipei Testing Laboratories
Prüfergebnis*: *Test result*:*	Pass

überprüft von: *reviewed by:*		**genehmigt von:** authorized by:	
Datum: *Date:* 2021-01-22		**Ausstellungsdatum:** *Issue date:* 2021-01-22	
Stellung / *Position:*	Mars Lin Senior Project Engineer	**Stellung** / *Position:*	Brenda Chen Senior Project Manager

Sonstiges / *Other:*

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TEST SUMMARY

Report Section	FCC Clause	Test Item	Result
5.1.1	15.247(b) & 15.203	Antenna Requirement	Pass
5.1.2	15.247(b)(3)	Peak Output Power	Pass
5.1.3	15.247(a)(2)	6 dB Bandwidth	Pass
5.1.4	15.247(e)	Power Spectral Density	Pass
5.1.5	15.247(d)	Conducted Spurious Emissions and Band Edges	Pass
5.1.6	15.247(d) & 15.205 & 15.209	Radiated Spurious Emissions and Band Edges	Pass
5.2.1	15.207	Mains Conducted Emission	Pass
-	FCC KDB 447498 D01 v06	RF Exposure Compliance	Refer to report no. CN219XQV(FCC-MPE) 001

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

Contents

HISTORY OF THIS TEST REPORT

Report No.	Description	Date Issued
CN219XQV(P15C-THREAD) 001	Original Release	2021-01-22

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix A - Test Result of Conducted
Appendix B - Test Result of Radiated Emissions & Mains Conducted Emission
Appendix SP - Photographs of Test Setup
Appendix EP - Photographs of EUT

Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart C Section 15.247
FCC 47CFR Part 2: Subpart J Section 2.1049
ANSI C63.10:2013
KDB 558074 D01 15.247 Meas Guidance v05r02

1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

2. Test Sites

2.1 Test Laboratory

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)
FCC Registration No.: 226631
ISED Registration No.: 25563

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of k=2 to indicate a 95% level of confidence.

Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	± 1.15 dB
Radiated Emission (30 MHz ~ 200 MHz)	± 1.30 dB
Radiated Emission (200 MHz ~ 1 GHz)	± 1.30 dB
Radiated Emission (1 GHz ~ 18 GHz)	± 1.54 dB
Radiated Emission (18 GHz ~ 40 GHz)	± 2.52 dB
Mains Conducted Emission	± 1.65 dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT is an Eve Energy. It contains a Thread compatible module enabling the user to communicate data through a Wireless interface.
For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 System Details and Ratings

Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	Eve Energy
Type Identification	20EBU4101
FCC ID	SNE-ENERG-005

Technical Specification of EUT

Item	EUT information
Operating Frequency	2405 MHz ~ 2480 MHz
Channel Spacing	5 MHz
Channel number	16
Data Rate	250kbps
Operation Voltage	110Vac, tested at 3.3Vdc
Modulation	GFSK
Maximum Output Power (mW)	6.79
Antenna Information	Refer to 5.1.1
Accessory Device	Refer to 4.4

3.3 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.4 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The test modes were adapted accordingly in reference to the instructions for use.
During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output expected by the customer and is going to be fixed on the firmware of the final end product.

Table for Parameters of Test Software Setting

Frequency (MHz)	Power Setting
2405	8
2440	8
2480	8

4.2 Carrier Frequency and Channel

Channel	Freq. (MHz)	Channel	Freq. (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

4.3 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB interface which makes it possible to control them through a test software installed on a notebook computer.
This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed as below.

Test Software	Tera Term.exe

The samples were used as follows:
A002977592-007 for radiated
A002977592-010 for conducted
Full test was applied on all test modes, but only worst case was shown.

EUT Configure Mode	Applicable To				Description
	Antenna Port Conducted Measurement	Radiated Spurious Emissions above 1 GHz	Radiated Spurious Emissions below 1 GHz	Mains Conducted Emission	
-	√	√	√	√	-

Note:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on Z-plane.
2. "-" means no effect.

Antenna Port Conducted Measurement

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2405 to 2480	2405, 2440, 2480	-

Radiated Spurious Emissions (Above 1 GHz)

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2405 to 2480	2405, 2440, 2480	-

Radiated Spurious Emissions (Below 1 GHz)

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2405 to 2480	2480	-

Mains Conducted Emission

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2405 to 2480	2480	-

Test Condition

Test Item	Ambient Temperature	Relative Humidity	Tested by
Conducted Measurement	20.8 °C	41.5 %	Stanislas Charles
Radiated Spurious Emissions above 1 GHz	15~19 °C	56.3~60.5 %	Simon Tsai
Radiated Spurious Emissions below 1 GHz	15~19 °C	56.3~60.5 %	Simon Tsai
Mains Conducted Emission	26 °C	65 %	Temo Chen

4.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Accessory of EUT

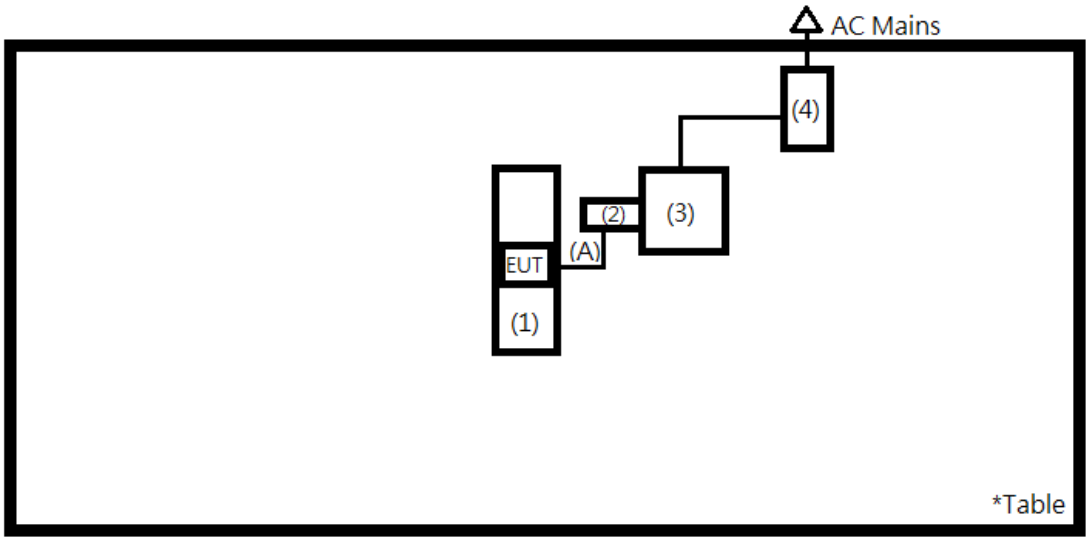
None.

Support Unit

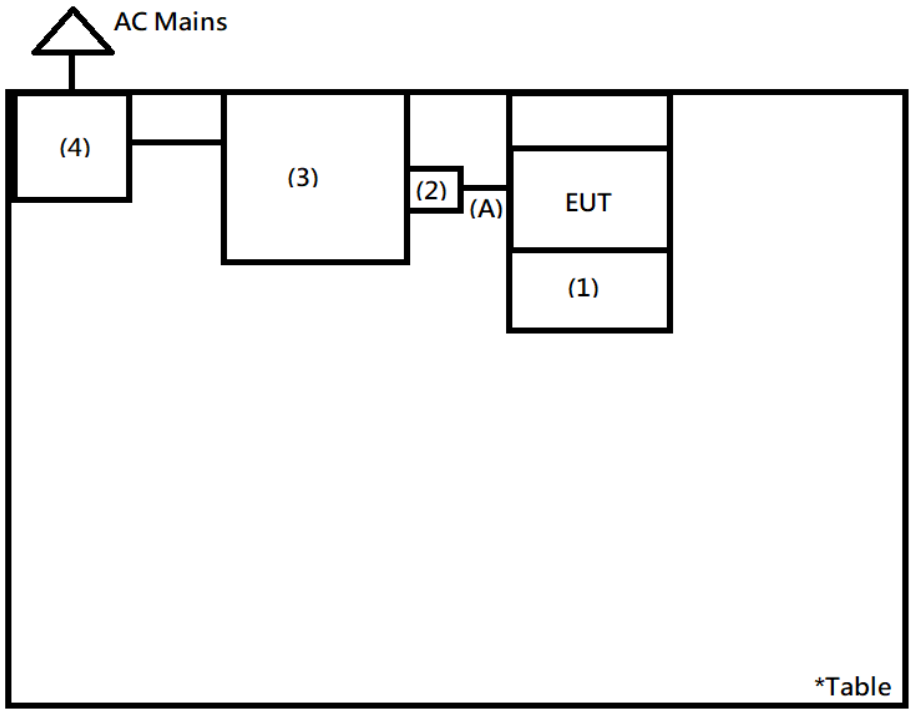
Radiated Test					
No.	Description	Brand	Model	S/N	Remark
A	Signal Cable	Dexatek	Test 001	-	15 cm non-shielded cable w/o core
1	Power Box	Wonpro	WES4	-	-
2	UART	TUV	CP2102	-	-
3	Notebook	Lenovo	TP00094A	-	-
4	Adapter	Lenovo	ADLX45YCC3A	-	180cm shielded cable w/o core
Conducted Test					
-	Notebook	HP	TPN-C139	CND93662WT	-

4.5 Test Setup Diagram

<Radiated Spurious Emissions mode>



<Mains Conducted Emission mode>



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

Requirement Use of approved antennas only

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 1.5dBi.
The antenna is a Chip Antenna soldered to the PCB with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.
Refer to EUT photo for details.

5.1.2 Peak Output Power

Limit 1 watt (30 dBm)

Kind of Test Site Shielded room

Test Setup

Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Power Meter	Anritsu	ML2495A	1901008	2020/4/6	2021/4/5	2021/1/13	2021/1/13
Power Sensor	Anritsu	MA2411B	1725269	2020/4/7	2021/4/6		

Test Procedures

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

Test Result

Peak Output Power

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	8.23	6.65	30
Middle Channel	2440	8.32	6.79	30
High Channel	2480	8.24	6.67	30

Average Power

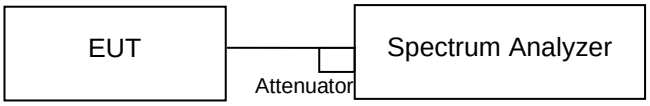
Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	8.17	6.56
Middle Channel	2440	8.25	6.68
High Channel	2480	8.17	6.56

5.1.3 6 dB Bandwidth

Limit The minimum 6 dB bandwidth shall be at least 500 kHz.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/16	2021/1/13	2021/1/13

Test Procedure

a. Set resolution bandwidth (RBW) = 100 kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results

Please refer to Appendix A.

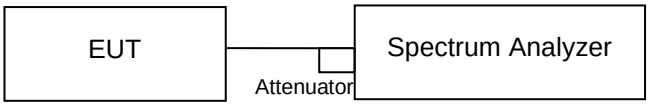
5.1.4 Power Spectral Density

Limit

The power spectral density shall not be greater than 8 dBm in any 3 kHz band.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/16	2021/1/13	2021/1/13

Test Procedure

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

Test Results

Please refer to Appendix A.

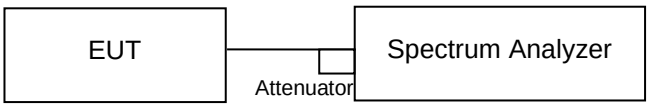
5.1.5 Conducted Spurious Emissions and Frequency Band Edges Measured in 100kHz Bandwidth

Limit

20dB (below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.)

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/16	2021/1/13	2021/1/13

Test Procedure

Measurement procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement procedure OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

Test Results

Please refer to Appendix A.

5.1.6 Radiated Spurious Emissions and Band Edges

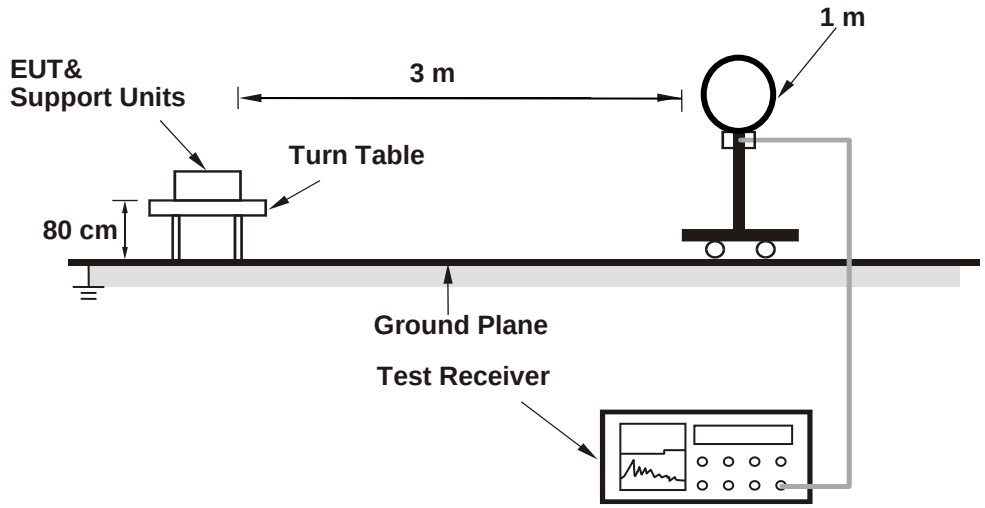
Limit

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).
Emissions radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in §15.247(d).

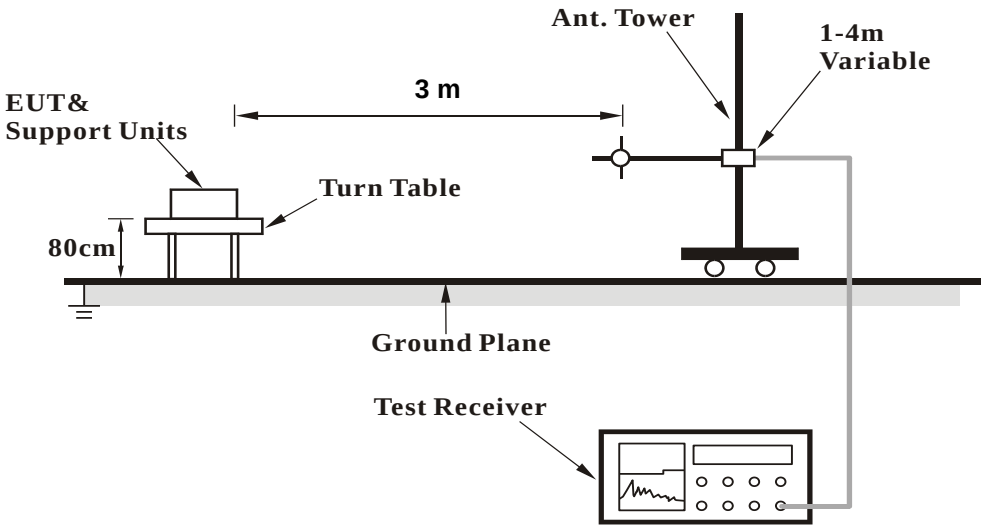
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

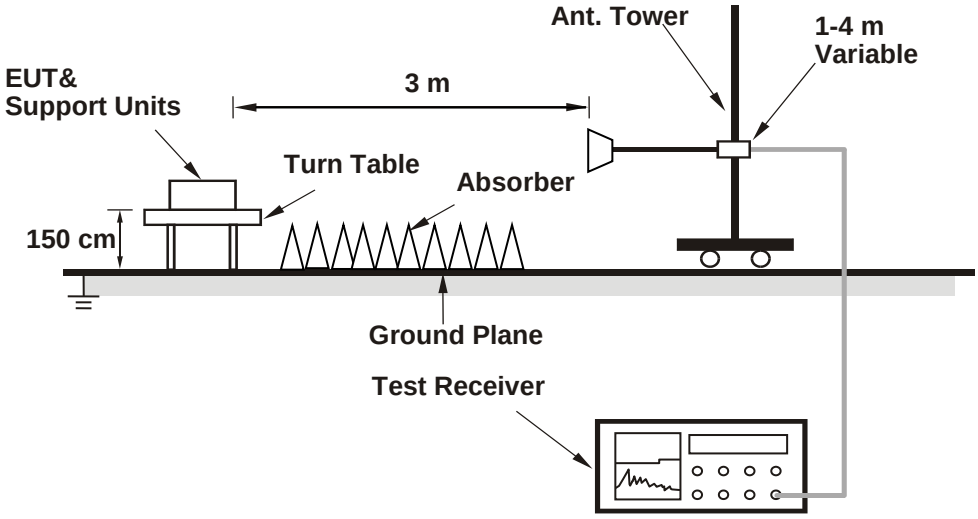
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



<Radiated Emissions above 1 GHz>



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

Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV40	101508	2020/3/16	2021/3/15
Receiver	R&S	ESR7	102108	2020/4/22	2021/4/21
Bilog Antenna	SCHWARZBECK	VULB-9168	00951	2020/2/14	2021/2/12
Horn Antenna	ETS-Lindgren	3117	00218930	2020/12/1	2021/11/30
LF-AMP	Agilent	8447D	2944A10772	2020/2/11	2021/2/9
HF-AMP + AC source	EMCI	EMC051845SE	980633	2020/2/17	2021/2/15
HF-AMP + AC source	EMCI	EMC184045SE	980657	2020/2/17	2021/2/15
Horn Antenna	SCHWARZBECK	BBHA 9170	00887	2020/4/10	2021/4/9
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104EA	800056/4EA	2020/3/25	2021/3/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	804680/4	2020/3/25	2021/3/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	MY37202/4	2020/3/25	2021/3/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	800898/2EA	2020/4/22	2021/4/21
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	800901/2EA	2020/4/22	2021/4/21
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	801027/2EA	2020/4/22	2021/4/21
Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-087	2020/9/21	2021/9/20

Test Procedures

For Radiated Emissions 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 (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) 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.
2. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated Emissions 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 ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report.

Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)
Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

Please refer to Appendix B.

5.2 Mains Emission

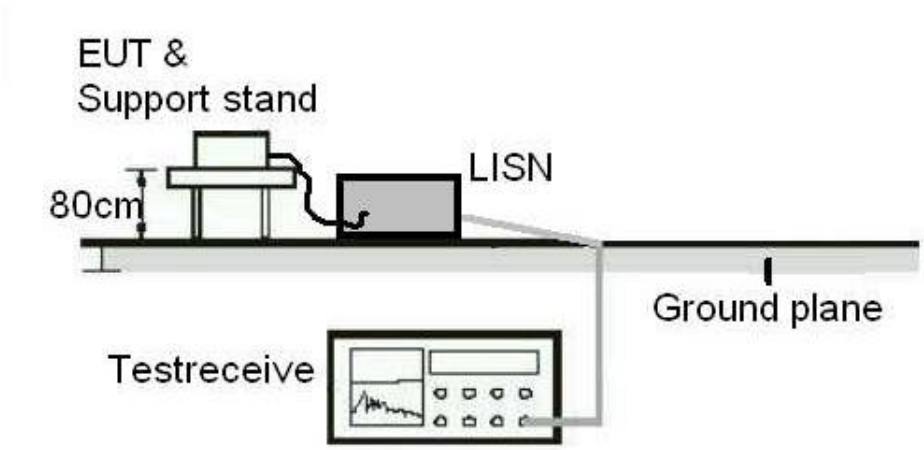
5.2.1 Mains Conducted Emission

Limit

Mains Conducted Emission as defined in §15.207 must comply with the mains conducted emission limits.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
EMI Test Receiver	Rohde & Schwarz	ESR 7	102114	2020/04/13	2021/04/13
Two-Line V-Network (for EUT)	Rohde & Schwarz	ENV216	101262	2020/08/04	2021/08/04
Pulse Limiter	Schwarzbeck	VTSD 9561 F-N	00660	2020/02/24	2021/02/24
Test Software	Audix	e3	Ver. 9	N/A	N/A

Test Procedures

a. 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.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. 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.

Test Results

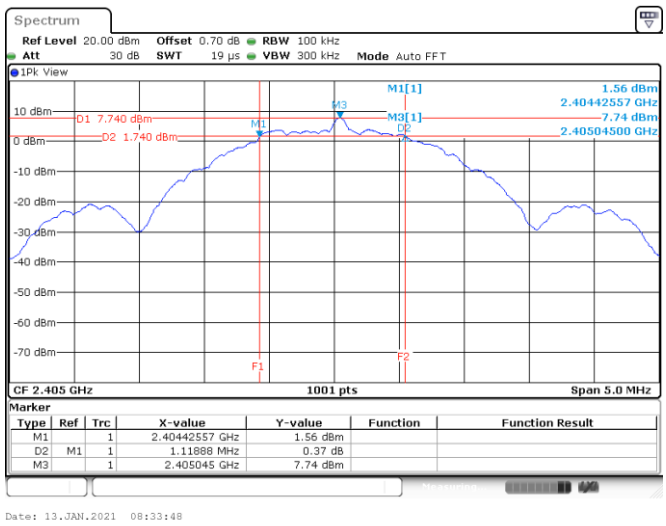
Please refer to Appendix B.

Appendix A: Test Results of Conducted Test

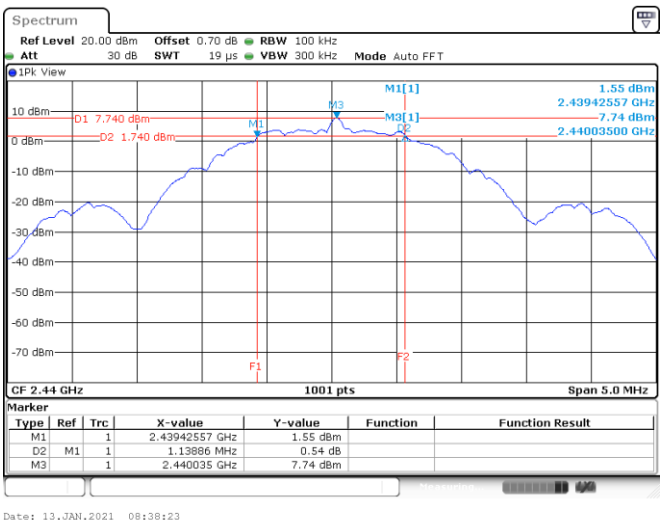
Test Result of 6 dB Bandwidth

Channel	Channel Frequency (MHz)	6 dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2405	1118.88	> 500	Pass
Middle Channel	2440	1138.86	> 500	Pass
High Channel	2480	1173.83	> 500	Pass

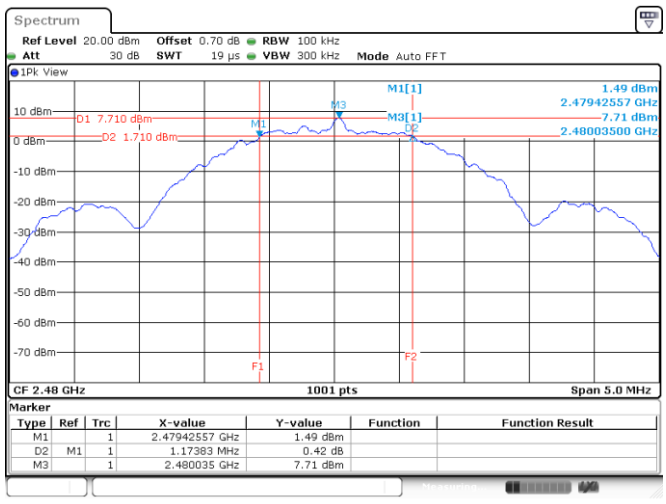
Low Channel



Middle Channel



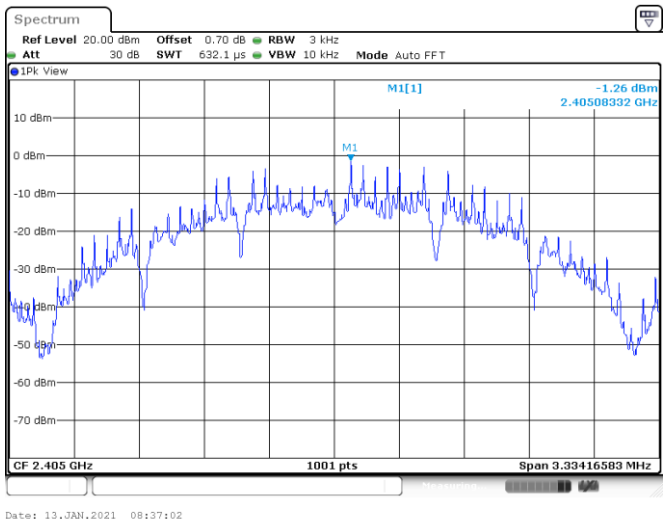
High Channel



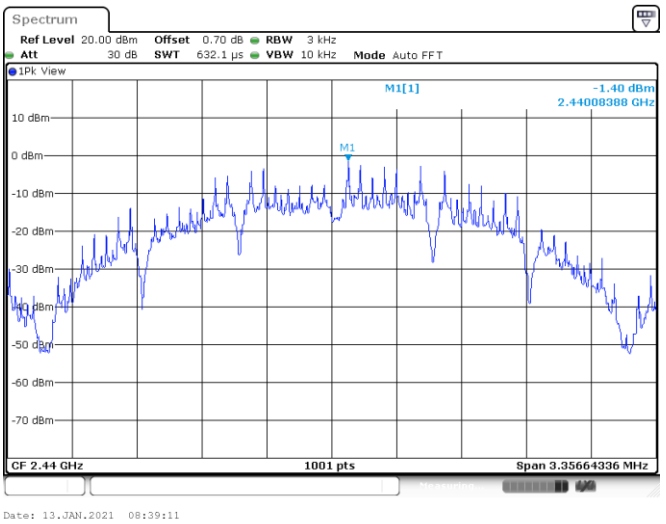
Test Result of Power Spectral Density

Channel	Channel Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low Channel	2405	-1.26	8	Pass
Middle Channel	2440	-1.40	8	Pass
High Channel	2480	-1.62	8	Pass

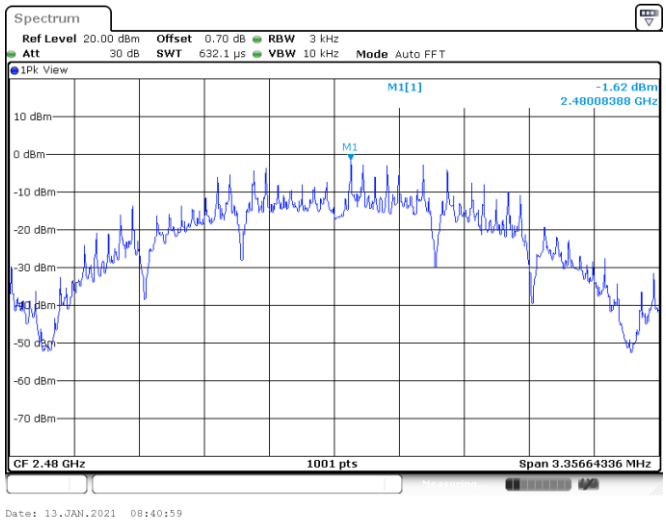
Low Channel



Middle Channel

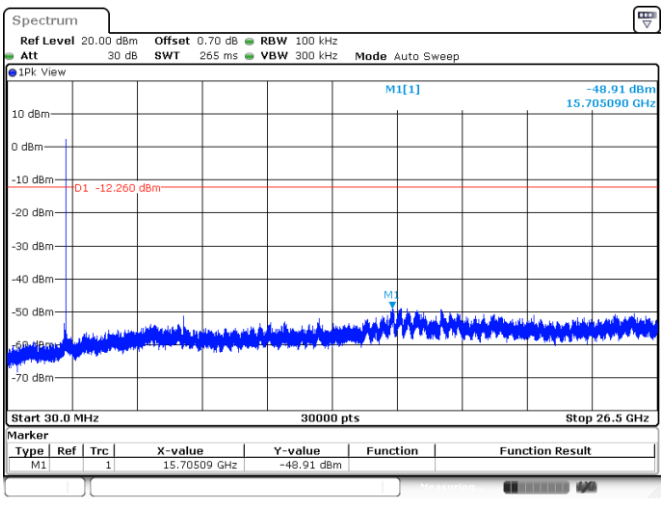


High Channel

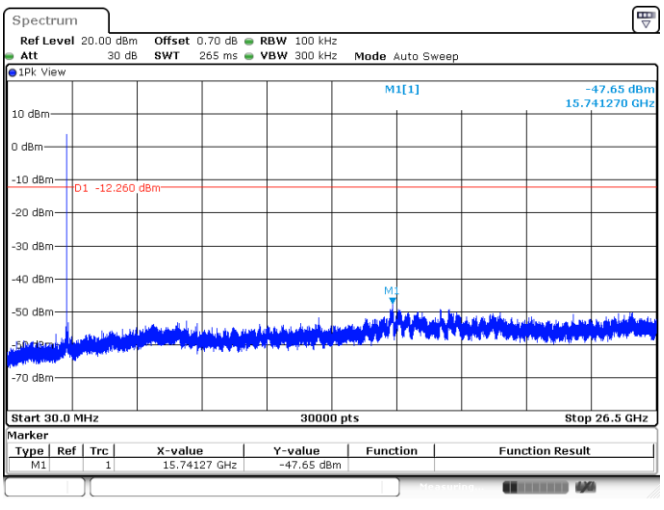


Test Result of Conducted Spurious Emissions, Tx Mode

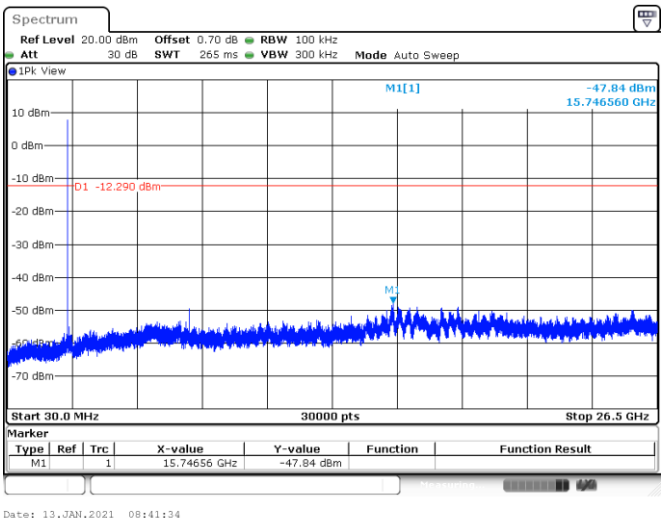
Low Channel



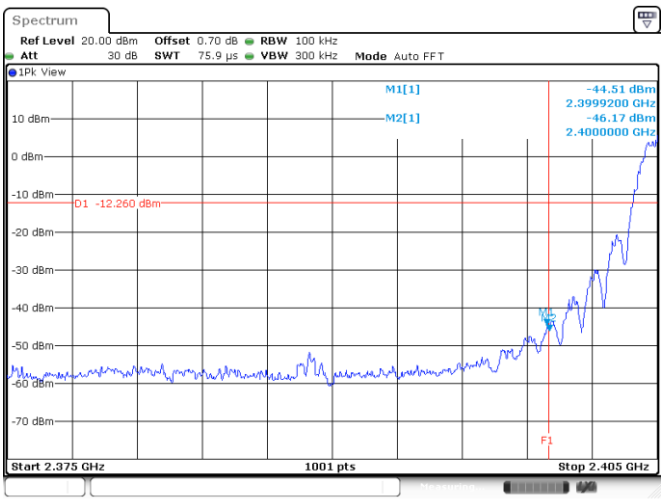
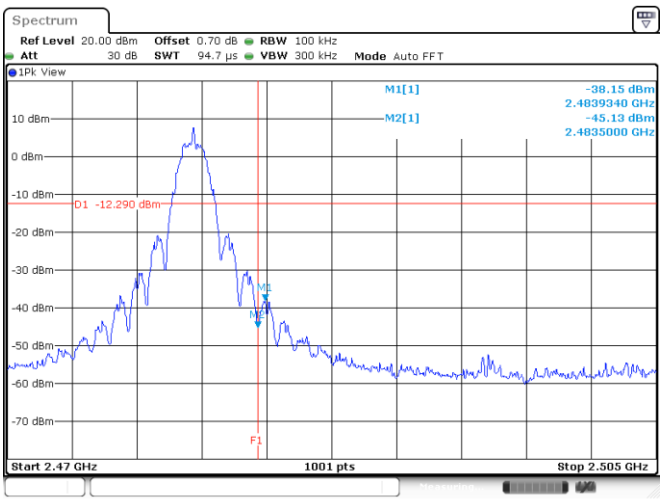
Middle Channel



High Channel



Test Result of Conducted Band Edge, Tx Mode

Low Channel	High Channel
	

Appendix B: Test Results of Radiated Spurious Emissions & Mains

Conducted Emission Test

Band Edges, 2.31GHz ~ 2.9GHz

Low Channel (Horizontal) Peak

TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
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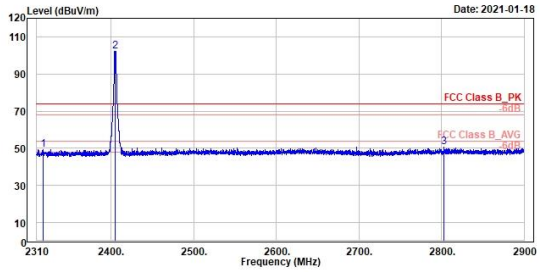
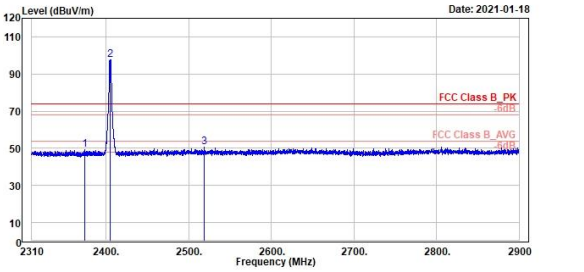


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2317.77	49.50	15.84	33.66	74.00	-24.50	286	249	Peak	Horizontal	
2 *	2405.00	102.43	68.57	33.86	74.00	28.43	286	249	Peak	Horizontal	
3	2802.94	50.58	16.47	34.11	74.00	-23.42	286	249	Peak	Horizontal	

Low Channel (Vertical) Peak

TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2373.72	49.14	15.35	33.79	74.00	-24.86	294	13	Peak	Vertical	
2 *	2405.00	97.71	63.85	33.86	74.00	23.71	294	13	Peak	Vertical	
3	2518.49	50.62	16.55	34.07	74.00	-23.38	294	13	Peak	Vertical	

Low Channel (Horizontal) Average

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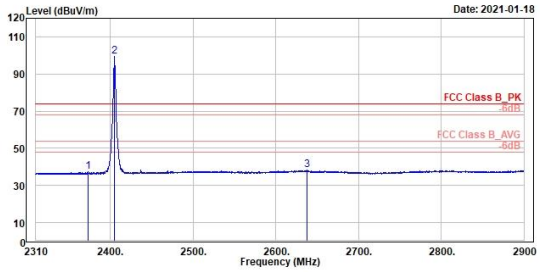

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2373.02	37.22	3.43	33.79	54.00	-16.78	286	249	Average	Horizontal	
2 *	2405.00	99.36	65.50	33.86	54.00	45.36	286	249	Average	Horizontal	
3	2638.04	38.19	4.00	34.19	54.00	-15.81	286	249	Average	Horizontal	

Low Channel (Vertical) Average

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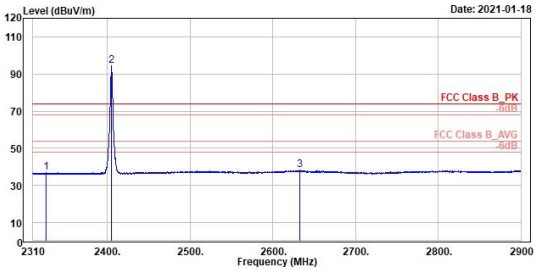
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2325.78	36.87	3.20	33.67	54.00	-17.13	294	13	Average	Vertical	
2 *	2405.00	94.24	60.38	33.86	54.00	40.24	294	13	Average	Vertical	
3	2632.50	38.11	3.90	34.21	54.00	-15.89	294	13	Average	Vertical	

Middle Channel (Horizontal) Peak

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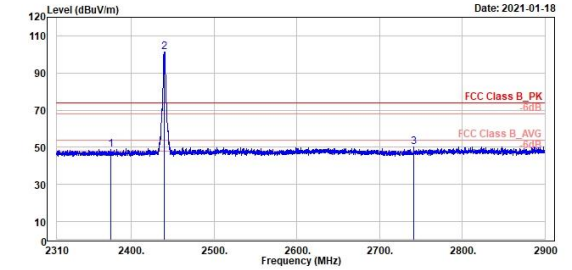
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2375.37	48.99	15.20	33.79	74.00	-25.01	282	249	Peak	Horizontal	
2 *	2440.00	101.48	67.53	33.95	74.00	27.48	282	249	Peak	Horizontal	
3	2741.34	50.23	16.15	34.08	74.00	-23.77	282	249	Peak	Horizontal	

Middle Channel (Vertical) Peak

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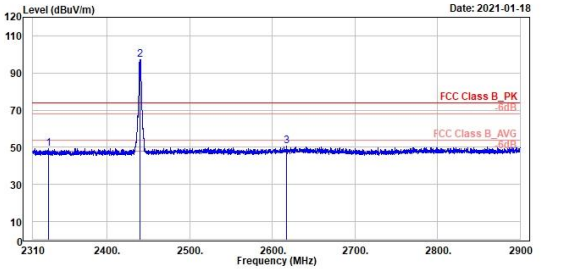
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2329.44	49.49	15.81	33.68	74.00	-24.51	290	16	Peak	Vertical	
2 *	2440.00	97.32	63.37	33.95	74.00	23.32	290	16	Peak	Vertical	
3	2617.54	50.80	16.54	34.26	74.00	-23.20	290	16	Peak	Vertical	

Middle Channel (Horizontal) Average

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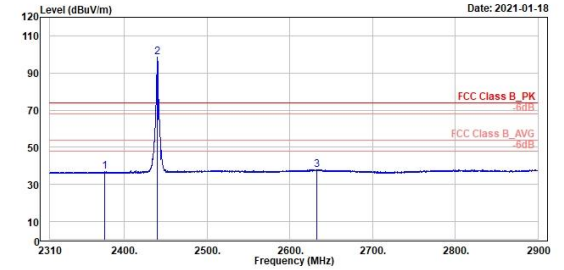
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2376.55	36.94	3.15	33.79	54.00	-17.06	282	249	Average	Horizontal	
2 *	2440.00	98.36	64.41	33.95	54.00	44.36	282	249	Average	Horizontal	
3	2632.86	38.07	3.86	34.21	54.00	-15.93	282	249	Average	Horizontal	

Middle Channel (Vertical) Average

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No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
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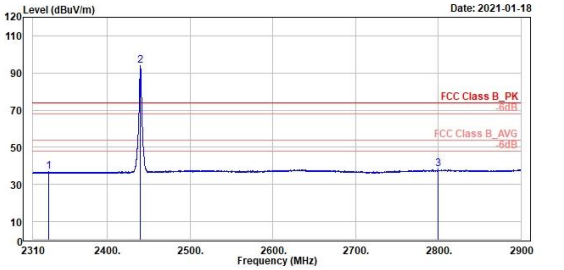

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2328.73	36.74	3.06	33.68	54.00	-17.26	290	16	Average	Vertical	
2 *	2440.00	94.12	60.17	33.95	54.00	40.12	290	16	Average	Vertical	
3	2800.23	38.12	4.02	34.10	54.00	-15.88	290	16	Average	Vertical	

High Channel (Horizontal) Peak

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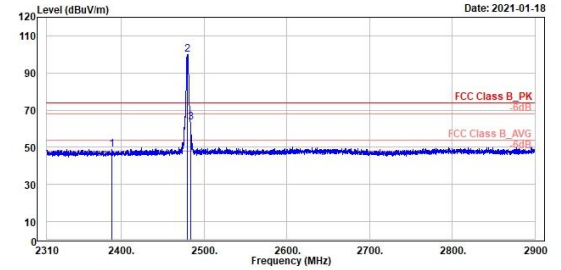
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2388.80	48.86	15.03	33.83	74.00	-25.14	271	252	Peak	Horizontal	
2 *	2480.00	99.78	65.80	33.98	74.00	25.78	271	252	Peak	Horizontal	
3	2483.50	63.28	29.30	33.98	74.00	-10.72	271	252	Peak	Horizontal	

High Channel (Vertical) Peak

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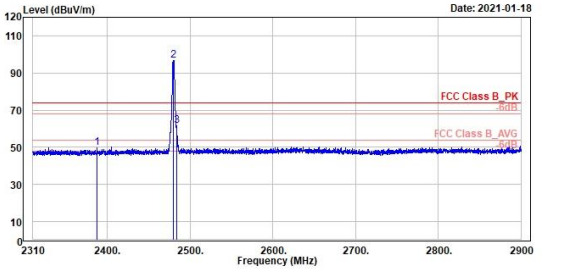
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2387.98	49.83	16.00	33.83	74.00	-24.17	303	159	Peak	Vertical	
2 *	2480.00	96.86	62.88	33.98	74.00	22.86	303	159	Peak	Vertical	
3	2483.50	61.70	27.72	33.98	74.00	-12.30	303	159	Peak	Vertical	

High Channel (Horizontal) Average

TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
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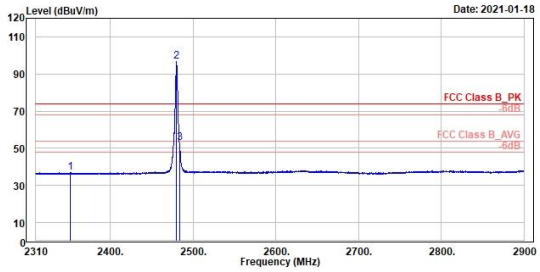
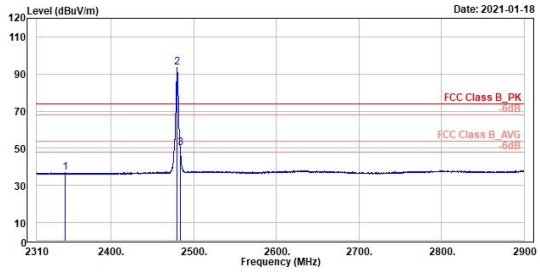


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2351.58	37.09	3.36	33.73	54.00	-16.91	271	252	Average	Horizontal	
2 *	2480.00	96.68	62.70	33.98	54.00	42.68	271	252	Average	Horizontal	
3 !	2483.50	52.99	19.01	33.98	54.00	-1.01	271	252	Average	Horizontal	

High Channel (Vertical) Average

TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322

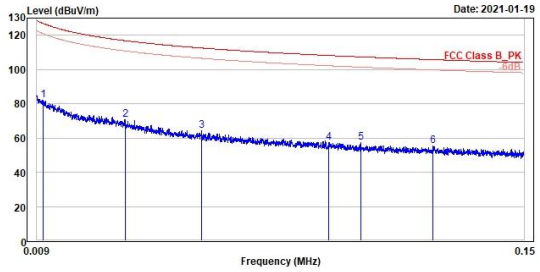


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2344.63	36.81	3.09	33.72	54.00	-17.19	303	159	Average	Vertical	
2 *	2480.00	93.69	59.71	33.98	54.00	39.69	303	159	Average	Vertical	
3 !	2483.50	50.37	16.39	33.98	54.00	-3.63	303	159	Average	Vertical	

Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

High Channel (Open) 9kHz~150kHz

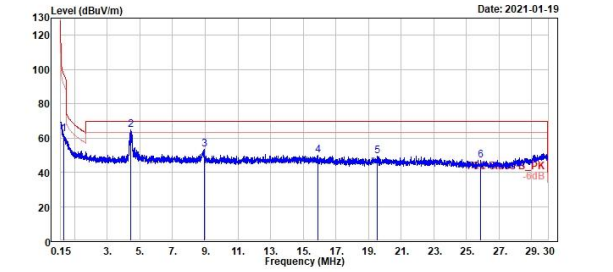
TÜV Rheinland Taiwan Ltd.
No. 458-18,Sec 2,Fenliao..Linkou Dist..New Taipei City 244. Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	0.01	82.12	3.83	78.29	126.86	-44.74	100	7	QP	Open	
2	0.03	70.80	1.50	69.30	116.83	-46.03	100	230	QP	Open	
3	0.06	64.14	0.03	64.11	112.52	-48.38	100	201	QP	Open	
4	0.09	57.25	-2.77	60.02	108.17	-50.92	100	353	QP	Open	
5	0.10	57.50	-1.59	59.09	107.36	-49.86	100	226	QP	Open	
6	0.12	55.41	-2.46	57.87	105.75	-50.34	100	346	QP	Open	

High Channel (Open) 150kHz~30MHz

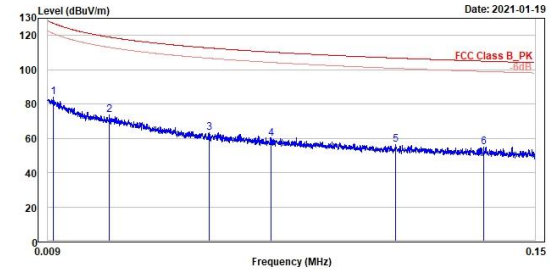
TÜV Rheinland Taiwan Ltd.
No. 458-18,Sec 2,Fenliao..Linkou Dist..New Taipei City 244. Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	0.34	62.42	12.70	49.72	97.10	-34.68	100	220	QP	Open	
2 !	4.45	64.81	26.48	38.33	69.50	-4.69	100	18	QP	Open	
3	8.93	53.28	15.48	37.80	69.50	-16.22	100	83	QP	Open	
4	15.88	49.72	12.17	37.55	69.50	-19.78	100	109	QP	Open	
5	19.54	49.67	13.33	36.34	69.50	-19.83	100	0	QP	Open	
6	25.87	46.90	12.64	34.26	69.50	-22.60	100	160	QP	Open	

High Channel (Close) 9kHz~150kHz

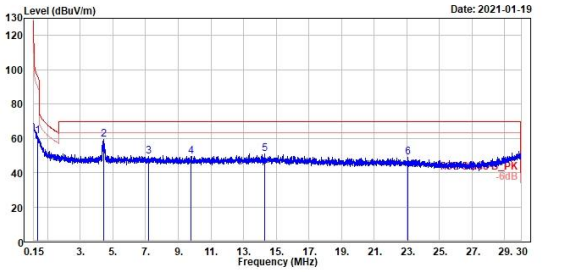
TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	0.01	84.04	5.56	78.48	127.10	-43.06	100	332	QP	Close	
2	0.03	73.78	2.46	71.32	119.04	-45.26	100	92	QP	Close	
3	0.06	63.40	-0.86	64.26	112.69	-49.29	100	38	QP	Close	
4	0.07	59.98	-1.98	61.96	110.27	-50.29	100	21	QP	Close	
5	0.11	56.26	-2.43	58.69	106.80	-50.54	100	340	QP	Close	
6	0.14	54.77	-2.44	57.21	104.98	-50.21	100	0	QP	Close	

High Channel (Close) 150kHz~30MHz

TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322

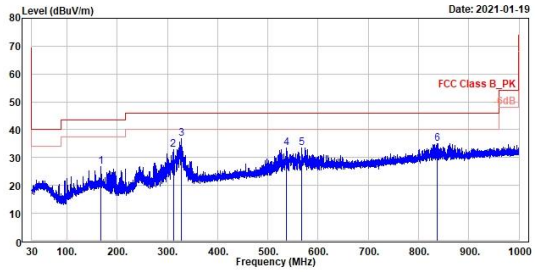


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	0.41	61.12	12.86	48.26	95.42	-34.30	100	268	QP	Close	
2	4.41	59.24	20.91	38.33	69.50	-10.26	100	59	QP	Close	
3	7.20	49.47	11.17	38.30	69.50	-20.03	100	0	QP	Close	
4	9.79	49.67	12.04	37.63	69.50	-19.83	100	111	QP	Close	
5	14.30	50.78	13.13	37.65	69.50	-18.72	100	148	QP	Close	
6	23.05	48.88	13.34	35.54	69.50	-20.62	100	301	QP	Close	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

High Channel (Horizontal)

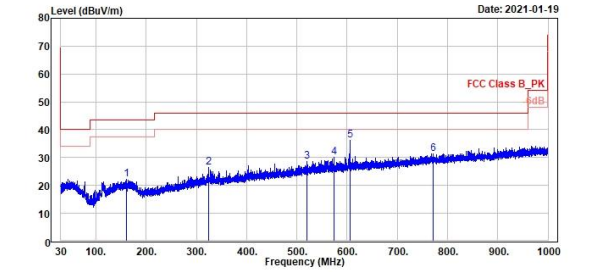
TÜV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	168.03	26.85	34.05	-7.20	43.50	-16.65	200	28	QP	Horizontal	
2	311.79	32.88	39.09	-6.21	46.00	-13.12	100	168	QP	Horizontal	
3	327.31	36.69	42.57	-5.88	46.00	-9.31	100	156	QP	Horizontal	
4	537.70	33.56	36.12	-2.56	46.00	-12.44	200	70	QP	Horizontal	
5	567.38	33.39	35.27	-1.88	46.00	-12.61	200	44	QP	Horizontal	
6	837.72	35.09	32.77	2.32	46.00	-10.91	100	58	QP	Horizontal	

High Channel (Vertical)

TÜV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel:+886-2172-1000 Fax:+886-2172-1322



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	160.76	22.07	29.50	-7.43	43.50	-21.43	303	360	QP	Vertical	
2	324.30	26.49	32.46	-5.97	46.00	-19.51	400	53	QP	Vertical	
3	519.66	28.70	31.48	-2.78	46.00	-17.30	200	126	QP	Vertical	
4	574.56	30.17	31.92	-1.75	46.00	-15.83	300	79	QP	Vertical	
5	606.57	36.34	37.41	-1.07	46.00	-9.66	100	25	QP	Vertical	
6	772.24	31.46	29.98	1.48	46.00	-14.54	300	328	QP	Vertical	

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

Low Channel (Horizontal)

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No. 458-18, Sec 2, Fenliao., Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
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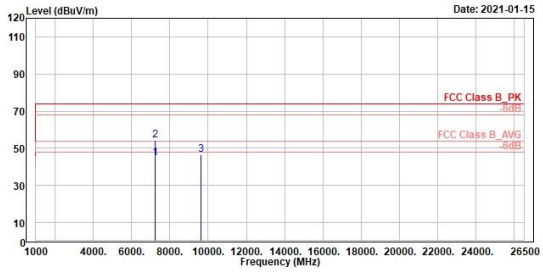

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	7215.00	44.49	51.54	-7.05	54.00	-9.51	213	126	Average	Horizontal	
2	7215.00	54.30	61.35	-7.05	74.00	-19.70	213	126	Peak	Horizontal	
3	9620.00	46.68	51.77	-5.09	74.00	-27.32	200	29	Peak	Horizontal	

Low Channel (Vertical)

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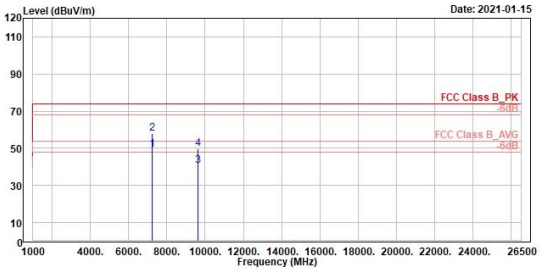

		Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	!	7215.00	49.44	56.49	-7.05	54.00	-4.56	289	118	Average	Vertical	
2		7215.00	57.94	64.99	-7.05	74.00	-16.06	289	118	Peak	Vertical	
3		9620.00	40.61	45.70	-5.09	54.00	-13.39	363	55	Average	Vertical	
4		9620.00	49.83	54.92	-5.09	74.00	-24.17	363	55	Peak	Vertical	

Middle Channel (Horizontal)	Middle Channel (Vertical)

TUV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
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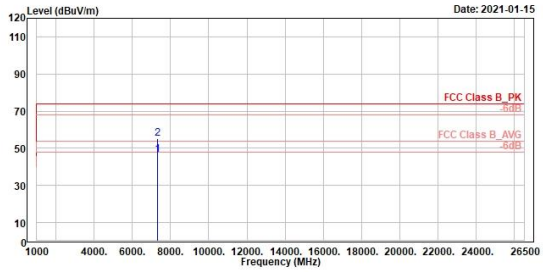

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	7320.00	46.56	53.89	-7.33	54.00	-7.44	274	144	Average	Horizontal	
2	7320.00	55.40	62.73	-7.33	74.00	-18.60	274	144	Peak	Horizontal	

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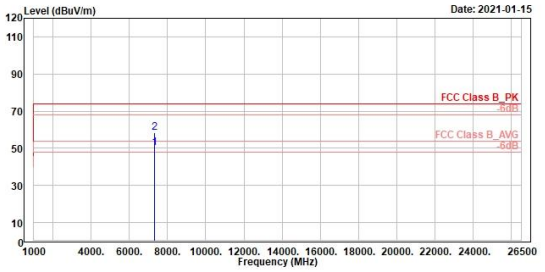

		Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
		MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	!	7320.00	50.16	57.49	-7.33	54.00	-3.84	246	116	Average	Vertical	
2		7320.00	58.54	65.87	-7.33	74.00	-15.46	246	116	Peak	Vertical	

High Channel (Horizontal)

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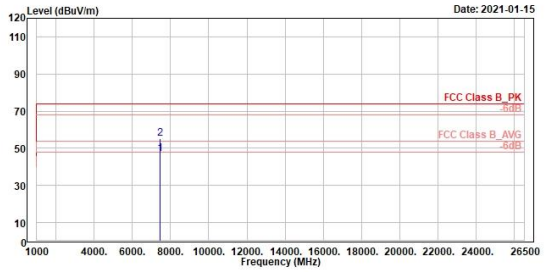

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	7440.00	46.89	54.37	-7.48	54.00	-7.11	266	143	Average	Horizontal	
2	7440.00	55.34	62.82	-7.48	74.00	-18.66	266	143	Peak	Horizontal	

High Channel (Vertical)

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No. 458-18, Sec 2, Fenliao, , Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
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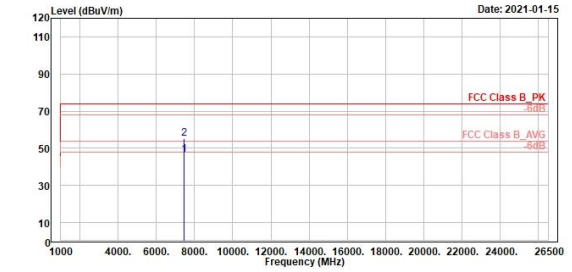

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	7440.00	46.44	53.92	-7.48	54.00	-7.56	400	226	Average	Vertical	
2	7440.00	55.13	62.61	-7.48	74.00	-18.87	400	226	Peak	Vertical	

Mains Conducted Emission, 150kHz ~ 30MHz

Worst Band

(Line)

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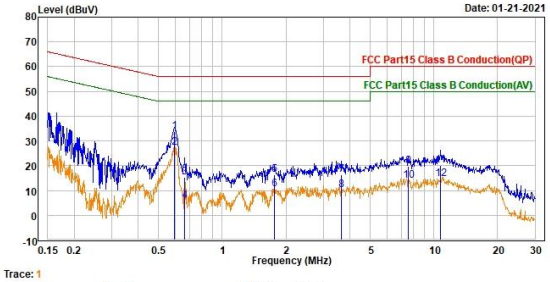

Trace: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase	Note
	MHz	dBuV	dB	dBuV	dBuV	dB			
1	0.594	33.75	0.06	33.81	56.00	-22.19	QP	line1	
2	0.594	27.37	0.06	27.43	46.00	-18.57	Average	line1	
3	0.666	15.34	0.07	15.41	56.00	-40.59	QP	line1	
4	0.666	5.67	0.07	5.74	46.00	-40.26	Average	line1	
5	1.768	16.39	0.11	16.50	56.00	-39.50	QP	line1	
6	1.768	10.36	0.11	10.47	46.00	-35.53	Average	line1	
7	3.661	16.04	0.15	16.19	56.00	-39.81	QP	line1	
8	3.661	10.09	0.15	10.24	46.00	-35.76	Average	line1	
9	7.542	19.55	0.25	19.80	60.00	-40.20	QP	line1	
10	7.542	13.74	0.25	13.99	50.00	-36.01	Average	line1	
11	10.745	19.86	0.31	20.17	60.00	-39.83	QP	line1	
12	10.745	14.45	0.31	14.76	50.00	-35.24	Average	line1	

(Neutral)

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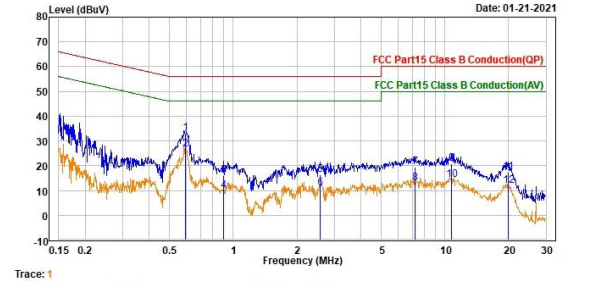

Trace: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase	Note
	MHz	dBuV	dB	dBuV	dBuV	dB			
1	0.594	33.03	0.06	33.09	56.00	-22.91	QP	neutral	
2	0.594	26.55	0.06	26.61	46.00	-19.39	Average	neutral	
3	0.902	15.77	0.08	15.85	56.00	-40.15	QP	neutral	
4	0.902	9.88	0.08	9.96	46.00	-36.04	Average	neutral	
5	2.583	16.31	0.11	16.42	56.00	-39.58	QP	neutral	
6	2.583	10.93	0.11	11.04	46.00	-34.96	Average	neutral	
7	7.248	19.04	0.24	19.28	60.00	-40.72	QP	neutral	
8	7.248	12.65	0.24	12.89	50.00	-37.11	Average	neutral	
9	10.745	20.44	0.32	20.76	60.00	-39.24	QP	neutral	
10	10.745	14.07	0.32	14.39	50.00	-35.61	Average	neutral	
11	19.836	16.75	0.50	17.25	60.00	-42.75	QP	neutral	
12	19.836	11.50	0.50	12.00	50.00	-38.00	Average	neutral	