FCC Test Report

FCC ID	:	**POTT88**
Equipment	:	**Chiline Smart Tri-Mode Thermometer**
Model No.	:	**T88 Pro**
Brand Name	:	**Chiline**
Applicant	:	**Inventec Appliances Corp.**
Address	:	**1F, No. 37, Wugong 5th Road, Wugu District, New Taipei City, Taiwan, R.O.C.**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Jun. 15, 2022**
Tested Date	:	**Jun. 24 ~ Jul. 01, 2022**

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

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Release Record

Report No.	Version	Description	Issued Date
FR261502AE	Rev. 01	Initial issue	Oct. 26, 2022

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 0.466MHz 30.12 (Margin -16.46dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 49.66MHz 32.17 (Margin -7.83dB) - PK	Pass
15.247(b)(3)	Conducted Output Power	Power [dBm]: 0.62	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information				
Frequency Range (MHz)	**Bluetooth Mode**	**Ch. Freq. (MHz)**	**Channel Number**	**Data Rate**
2400-2483.5	V5.1 LE	2402-2480	0-39 [40]	1 Mbps
Note: Bluetooth LE (Low energy) uses GFSK modulation.				

1.1.2 Antenna Details

Ant. No.	Brand	Model	Type	Connector	Gain (dBi)
1	YAGEO	ANT3216LL11R2400A	Chip Antenna	No	3.68

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.7Vdc from battery 5Vdc from adapter

Note: The above power adapter is not bundled in market.

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	Lithium battery	Brand: KAYO Model: Inventec-KPL382944 Rating: 500mAh, 1.85Wh, 3.7Vdc
2	Temperature probe cable	Brand: Chiline Model:TPC88 0.58m non-shielded without core
3	Storage case	Being part of T88 accessary and do not sale individually.
4	Forehead thermometer probe cover	Brand: Chiline Model: HPC88
5	Forehead and Ear thermometer probe (with protective cover)	Brand: Chiline Model: HEP88
6	Charging cable (USB cable)	Brand: UTE Model: 61401.12A40 1.0m shielded without core

1.1.5 Channel List

Frequency band (MHz)				2400~2483.5			
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
37	2402	9	2422	18	2442	28	2462
0	2404	10	2424	19	2444	29	2464
1	2406	38	2426	20	2446	30	2466
2	2408	11	2428	21	2448	31	2468
3	2410	12	2430	22	2450	32	2470
4	2412	13	2432	23	2452	33	2472
5	2414	14	2434	24	2454	34	2474
6	2416	15	2436	25	2456	35	2476
7	2418	16	2438	26	2458	36	2478
8	2420	17	2440	27	2460	39	2480

1.1.6 Test Tool and Duty Cycle

Test Tool	CyBluetool, Versioin: 0.1.55.1	
Modulation Mode	Duty Cycle Of Test Signal (%)	Duty Factor (dB)
BT-LE(1Mbps)	63.10%	2.00

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)		
	2402	2440	2480
BT-LE(1Mbps)	Default	Default	Default

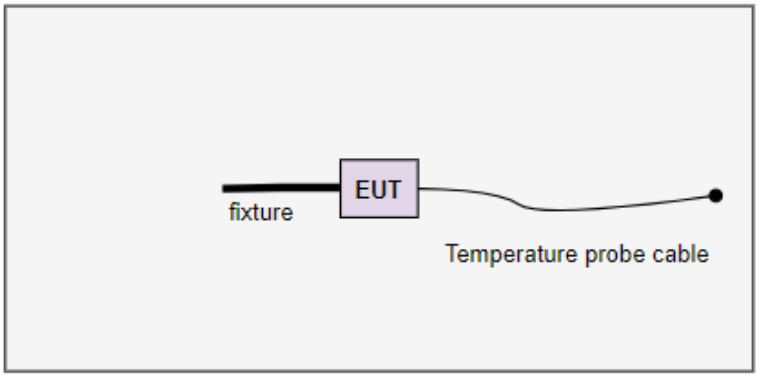
1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5400	DoC	---
2	Adapter	DAPTER TECH	ATM012T-W050VU	---	Provided by applicant.
3	Fixture	FTDI	FT232RL	---	Provided by applicant.

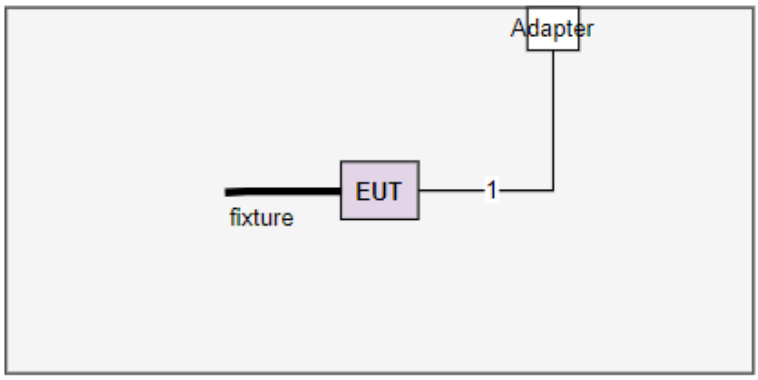
Note: The support notebook was disconnected from EUT and was removed from test table after sending command from notebook to control EUT to transmit continuously.

1.3 Test Setup Chart

Test Setup Diagram (battery mode)



Test Setup Diagram (charging mode)



No.	Signal cable / Length (m)
1	USB, 1.0m shielded.

1.4 Test Equipment List and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jun. 28, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101658	Feb. 16, 2022	Feb. 15, 2023
LISN	R&S	ENV216	101579	Apr. 21, 2022	Apr. 20, 2023
LISN (Support Unit)	SCHWARZBECK	NSLK 8127	8127667	Jan .07, 2022	Jan .06, 2023
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 19, 2021	Oct. 18, 2022
50 ohm terminal (Support Unit)	NA	50	04	May 10, 2022	May 09, 2023
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber3 / (03CH03-WS)				
Tested Date	Jun. 24, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023
Spectrum Analyzer	R&S	FSV40	101499	Mar. 08, 2022	Mar. 07, 2023
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jun. 30, 2021	Jun. 29, 2022
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 20, 2021	Dec. 19, 2022
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 11, 2022	Jan. 10, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 26, 2021	Jul. 25, 2022
Preamplifier	Agilent	83017A	MY39501309	Sep. 06, 2021	Sep. 05, 2022
Preamplifier	EMC	EMC184045B	980192	Jul. 14, 2021	Jul. 13, 2022
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 24, 2021	Sep. 23, 2022
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 24, 2021	Sep. 23, 2022
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 24, 2021	Sep. 23, 2022
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 24, 2021	Sep. 23, 2022
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 24, 2021	Sep. 23, 2022
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Jul. 01, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2022	Apr. 17, 2023
Power Meter	Anritsu	ML2495A	1241002	Nov. 07, 2021	Nov. 06, 2022
Power Sensor	Anritsu	MA2411B	1207366	Nov. 07, 2021	Nov. 06, 2022
Measurement Software	Sporton	SENSE-15247_DTS	V5.10	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.247
ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Power density	±0.583 dB
Conducted emission	±2.715 dB
AC conducted emission	±2.92 dB
Unwanted Emission ≤ 1GHz	±3.96 dB
Unwanted Emission > 1GHz	±4.51 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)
Test Site	03CH03-WS
Address of Test Site	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 333, Taiwan (R.O.C.)

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807C
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Test Configuration
AC Power Line Conducted Emissions	Charging mode	---	---
Unwanted Emissions ≤ 1GHz	BT-LE(1Mbps)	2440	---
	Charging mode	---	---
Unwanted Emissions > 1GHz Conducted Output Power 6dB bandwidth Power spectral density	BT-LE(1Mbps)	2402, 2440, 2480	---

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.
2. Two test conditions,
   a. With Temperature probe cable, and
   b. With Forehead and Ear thermometer probe
   had been covered during the pretest and found that test condition **a. With Temperature probe cable** was the worst case and was chosen for final test.

3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

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

3.1.2 Test Procedures

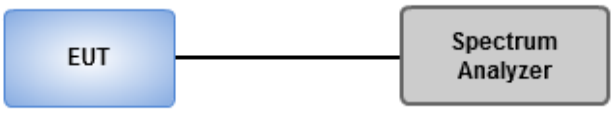
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3 Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	25°C / 66%	**Tested By**	Roger Lu

Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

Antenna gain <= 6dBi, no any corresponding reduction is in output power limit.

3.2.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.2.3 Test Setup

3.2.4 Test Results

Ambient Condition	25°C / 66%	**Tested By**	Roger Lu

Refer to Appendix B.

3.3 Power Spectral Density

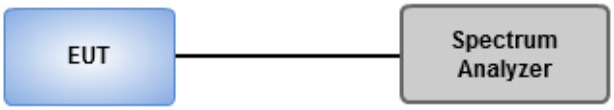
3.3.1 Limit of Power Spectral Density

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

3.3.2 Test Procedures

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = Peak, Sweep time = auto couple.
3. Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	25°C / 66%	**Tested By**	Roger Lu

Refer to Appendix C.

3.4 Unwanted Emissions in Restricted Frequency Bands

3.4.1 Limit of Unwanted Emissions in Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit
Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.4.2 Test Procedures

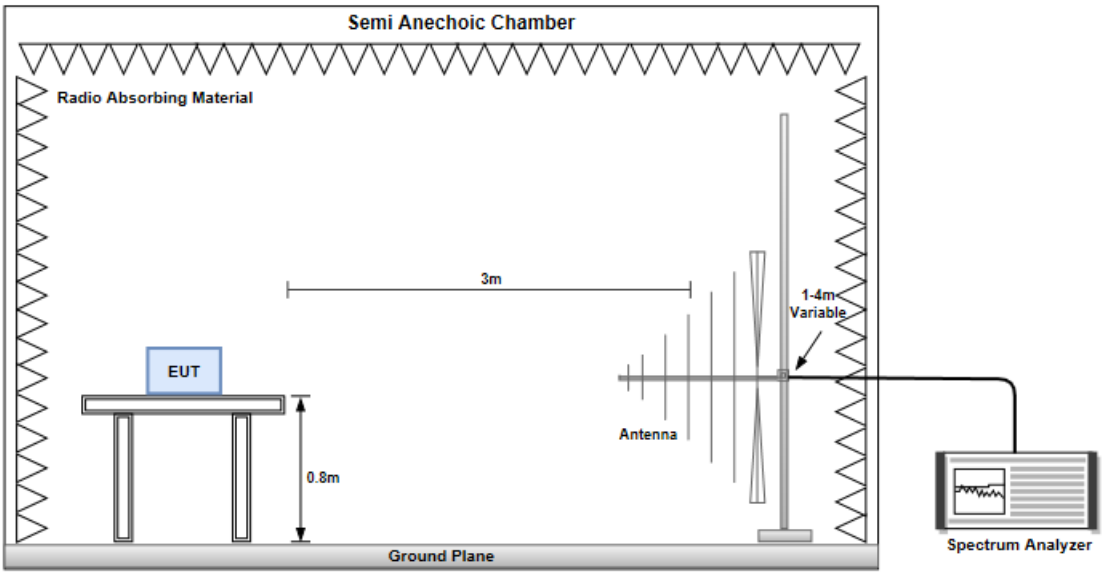
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

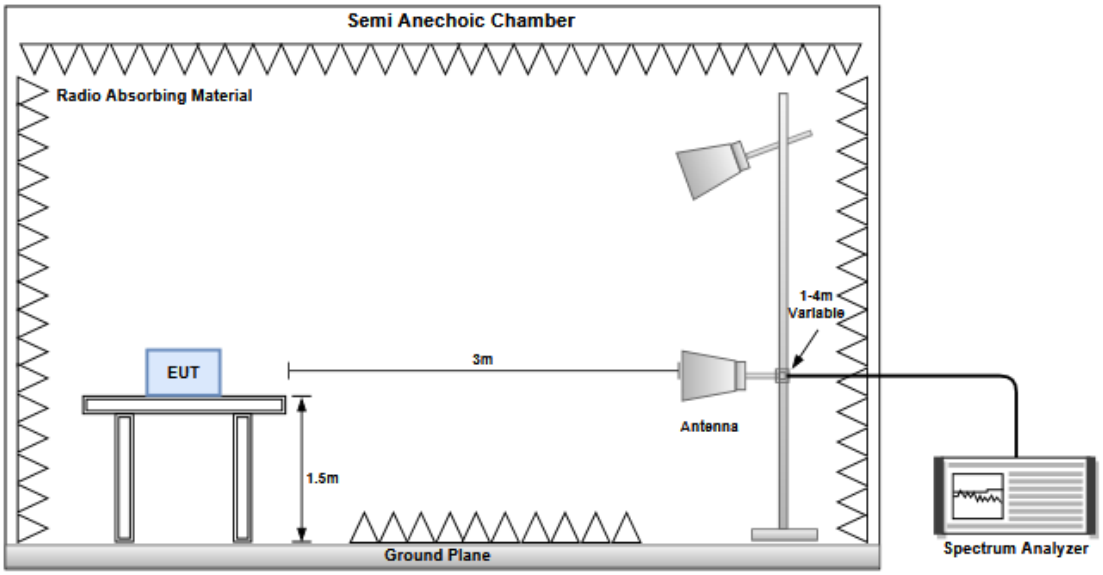
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.4.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in non-restricted Frequency Bands

3.5.1 Emissions in non-restricted frequency bands limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.5.2 Test Procedures

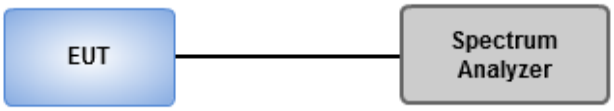
Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	25°C / 66%	**Tested By**	Roger Lu

Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

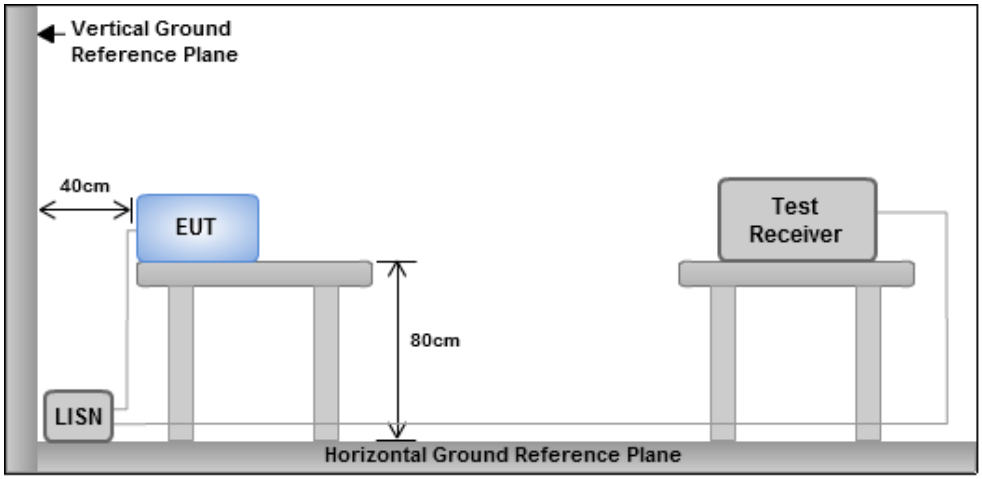
3.6.1 Limit of AC Power Line Conducted Emissions

Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.6.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V/60Hz

3.6.3 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 cm from other units and other metal planes

3.6.4 Test Results

Refer to Appendix F.

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640

No.30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan (R.O.C.)

Kwei Shan

Tel: 886-3-271-8666

No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

No.2-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 333, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

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Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	710.145k	1.053M	1M05F1D	695.652k	1.049M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

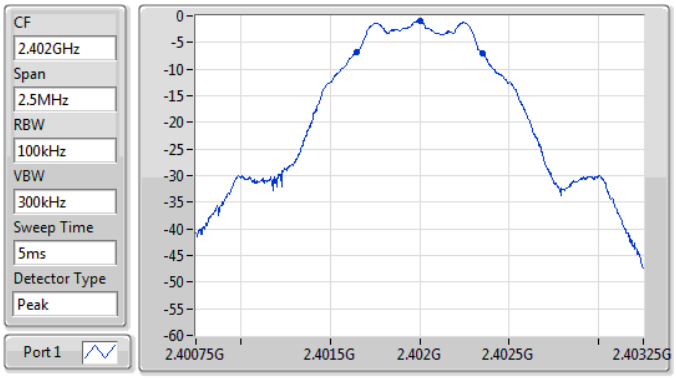
Result

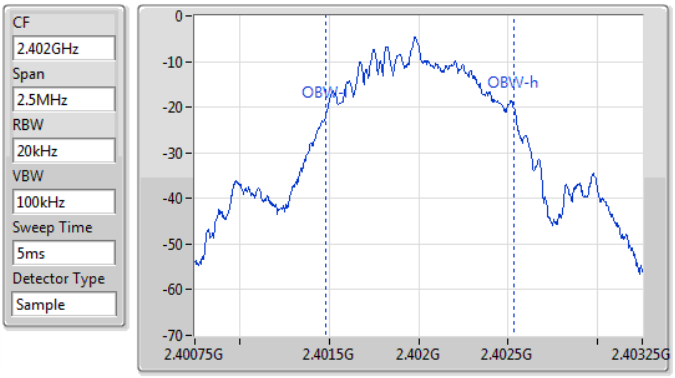
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	710.145k	1.053M
2440MHz	Pass	500k	695.652k	1.049M
2480MHz	Pass	500k	702.899k	1.049M

Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

BT-LE(1Mbps) **EBW-DTS**

2402MHz

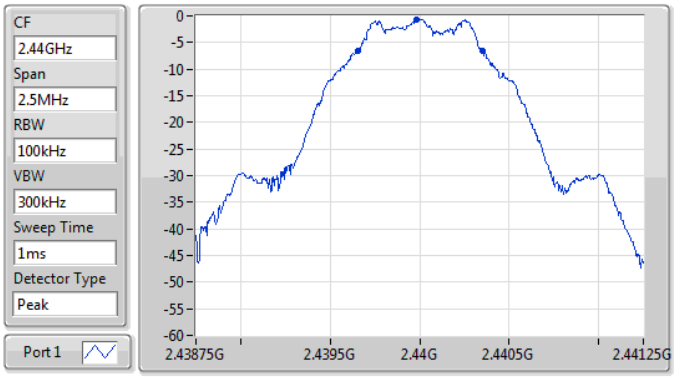


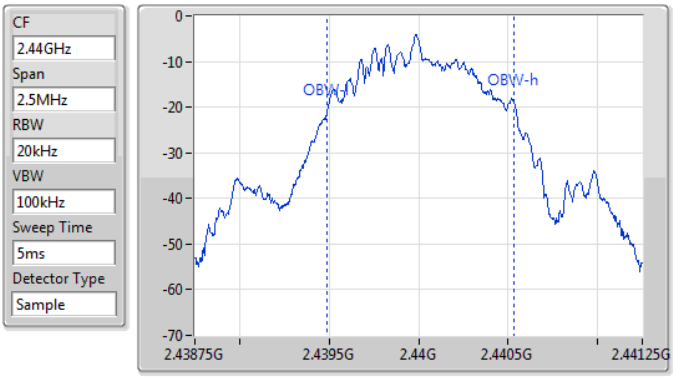


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
710.145k	2.401645G	2.402355G	1.053M	2.401479G	2.402532G	500k	1

BT-LE(1Mbps) **EBW-DTS**

2440MHz

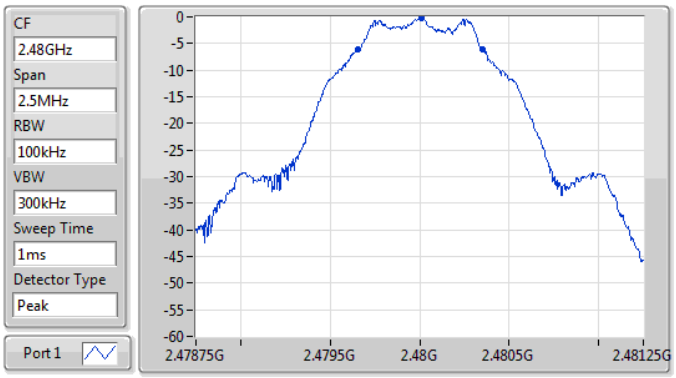


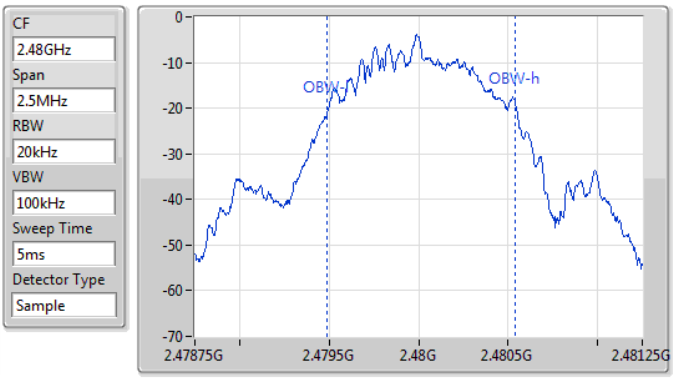


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
695.652k	2.439656G	2.440351G	1.049M	2.439486G	2.440535G	500k	1

BT-LE(1Mbps) **EBW-DTS**

2480MHz





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
702.899k	2.479652G	2.480355G	1.049M	2.47949G	2.480539G	500k	1

Summary of Peak Power

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	0.62	0.00115

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.68	0.33	30.00
2440MHz	Pass	3.68	0.49	30.00
2480MHz	Pass	3.68	0.62	30.00

Summary of Average Power

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	0.44	0.00111

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.68	0.15	-
2440MHz	Pass	3.68	0.32	-
2480MHz	Pass	3.68	0.44	-

Note: Average power is for reference only.

Summary

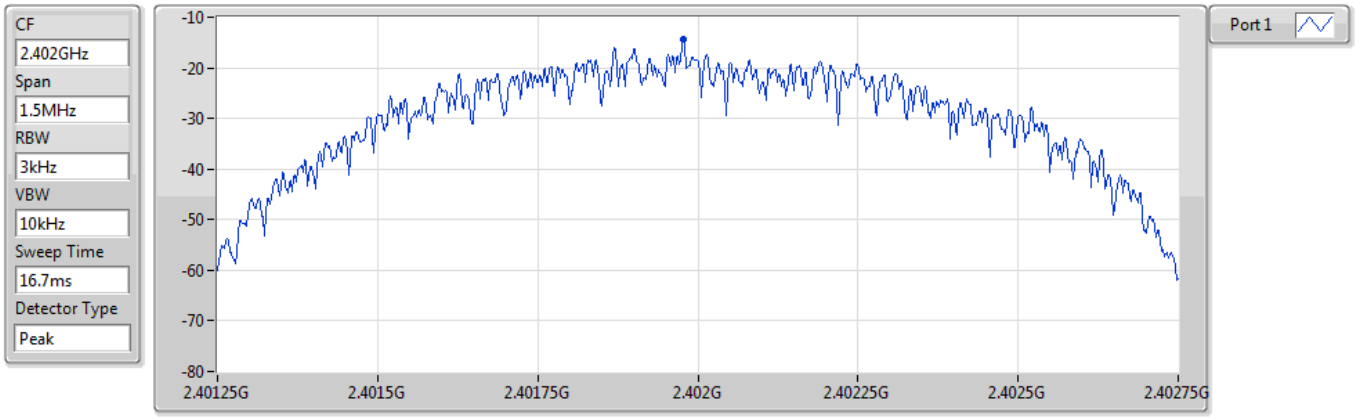
Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-13.56

Result

Mode	Result	Antenna Gain (dBi)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.68	-14.38	8.00
2440MHz	Pass	3.68	-13.97	8.00
2480MHz	Pass	3.68	-13.56	8.00

BT-LE(1Mbps) PSD

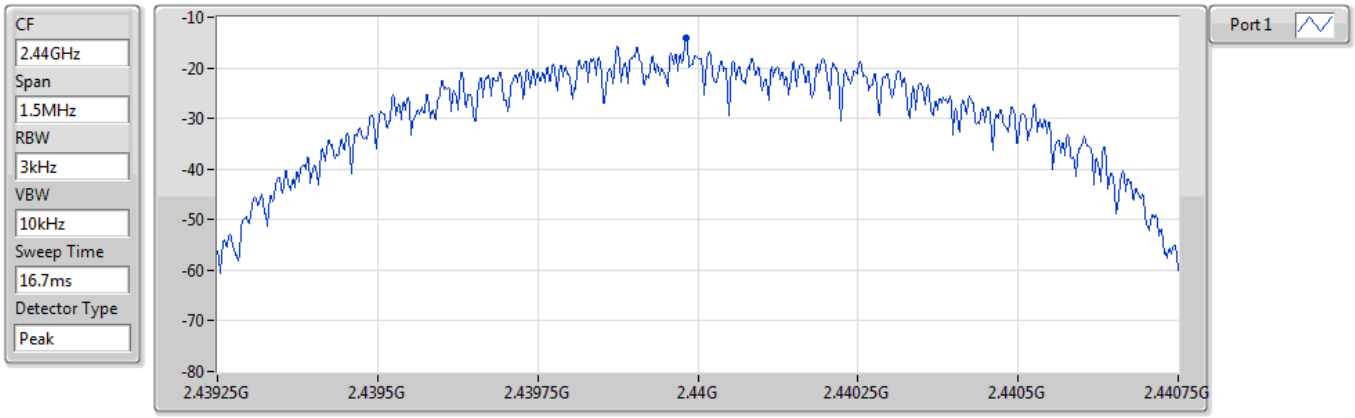
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.38	-14.38	-14.38

BT-LE(1Mbps) PSD

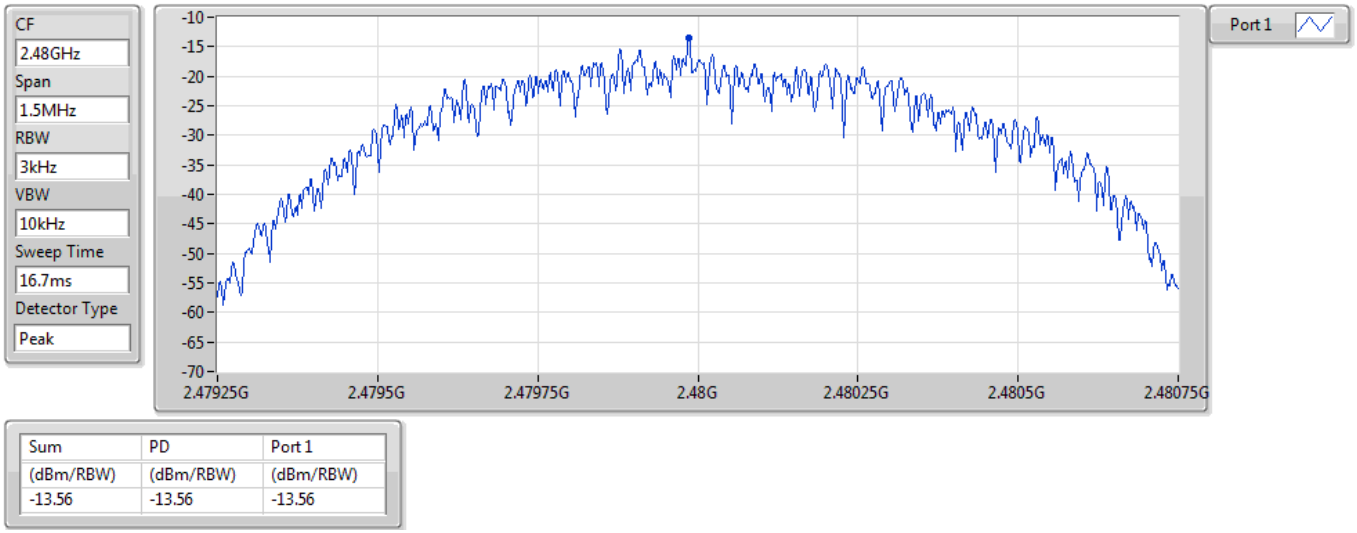
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.97	-13.97	-13.97

BT-LE(1Mbps) **PSD**

2480MHz



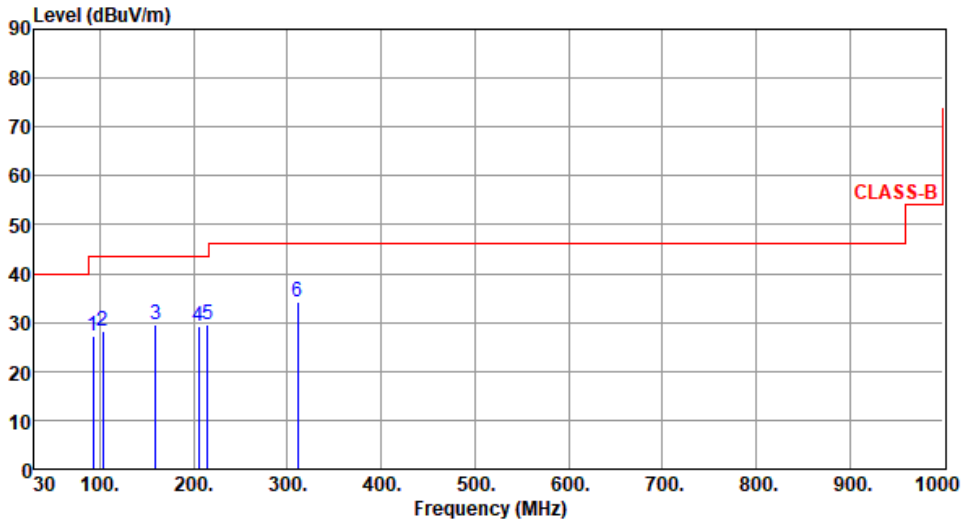
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.56	-13.56	-13.56

Battery mode

Unwanted Emissions (Below 1GHz)

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

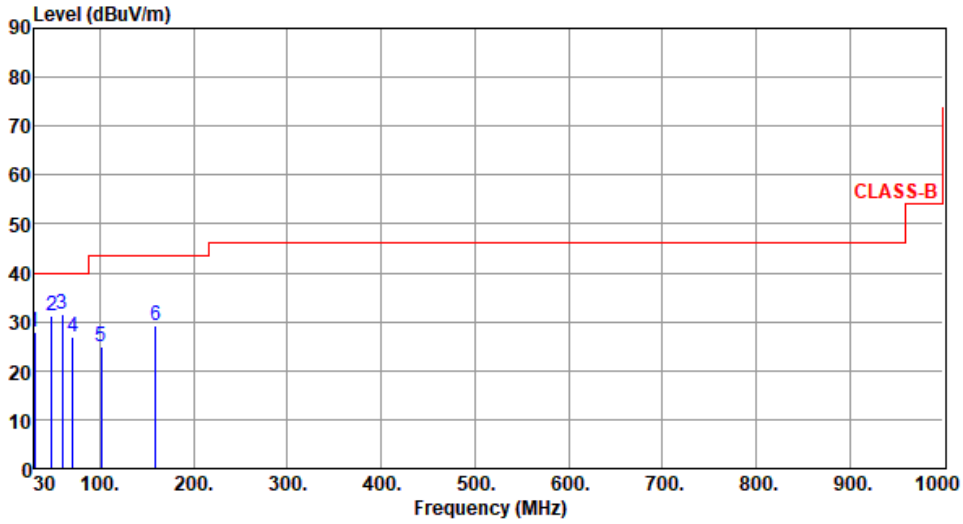


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	93.05	27.34	43.50	-16.16	41.62	-14.28	Peak	---	---
2	102.75	28.23	43.50	-15.27	40.85	-12.62	Peak	---	---
3	159.01	29.69	43.50	-13.81	38.08	-8.39	Peak	---	---
4	205.57	29.23	43.50	-14.27	40.83	-11.60	Peak	---	---
5	215.27	29.64	43.50	-13.86	41.20	-11.56	Peak	---	---
6	311.30	34.09	46.00	-11.91	41.44	-7.35	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62



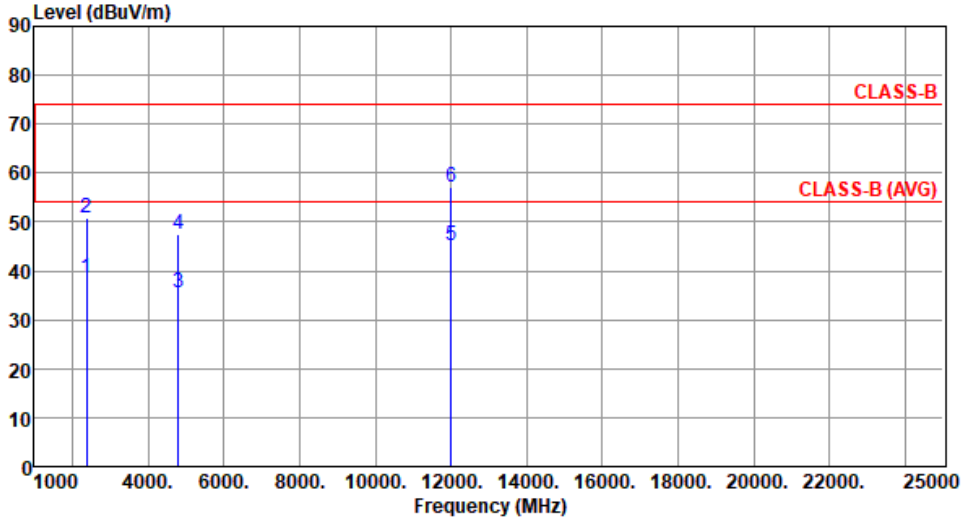
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	30.00	28.03	40.00	-11.97	38.11	-10.08	Peak	---	---
2	48.43	31.08	40.00	-8.92	39.56	-8.48	Peak	---	---
3	60.07	31.69	40.00	-8.31	40.77	-9.08	Peak	---	---
4	70.74	26.88	40.00	-13.12	37.78	-10.90	Peak	---	---
5	101.78	24.83	43.50	-18.67	37.53	-12.70	Peak	---	---
6	159.01	29.18	43.50	-14.32	37.57	-8.39	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Unwanted Emissions (Above 1GHz)

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2402
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

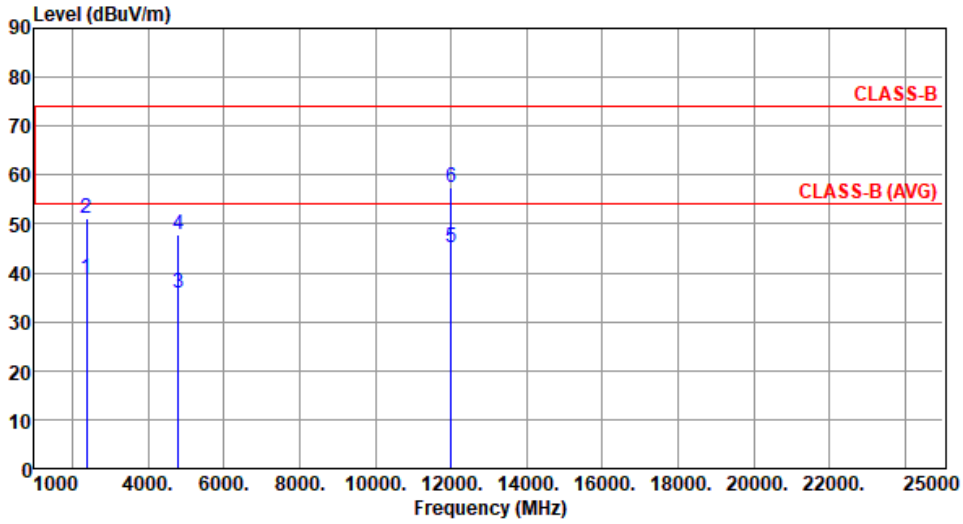


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.68	54.00	-15.32	40.17	-1.49	Average	113	320
2	2390.00	50.72	74.00	-23.28	52.21	-1.49	Peak	113	320
3	4804.00	35.64	54.00	-18.36	30.44	5.20	Average	100	105
4	4804.00	47.65	74.00	-26.35	42.45	5.20	Peak	100	105
5	12010.00	45.19	54.00	-8.81	30.45	14.74	Average	100	99
6	12010.00	57.16	74.00	-16.84	42.42	14.74	Peak	100	99

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2402
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

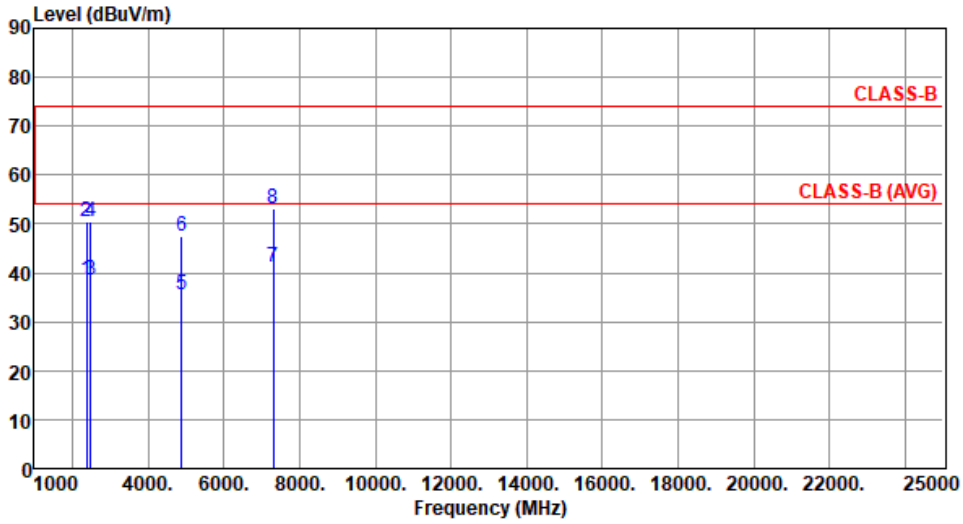


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.83	54.00	-15.17	40.32	-1.49	Average	123	125
2	2390.00	50.98	74.00	-23.02	52.47	-1.49	Peak	123	125
3	4804.00	35.76	54.00	-18.24	30.56	5.20	Average	100	66
4	4804.00	47.86	74.00	-26.14	42.66	5.20	Peak	100	66
5	12010.00	45.28	54.00	-8.72	30.54	14.74	Average	100	55
6	12010.00	57.33	74.00	-16.67	42.59	14.74	Peak	100	55

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

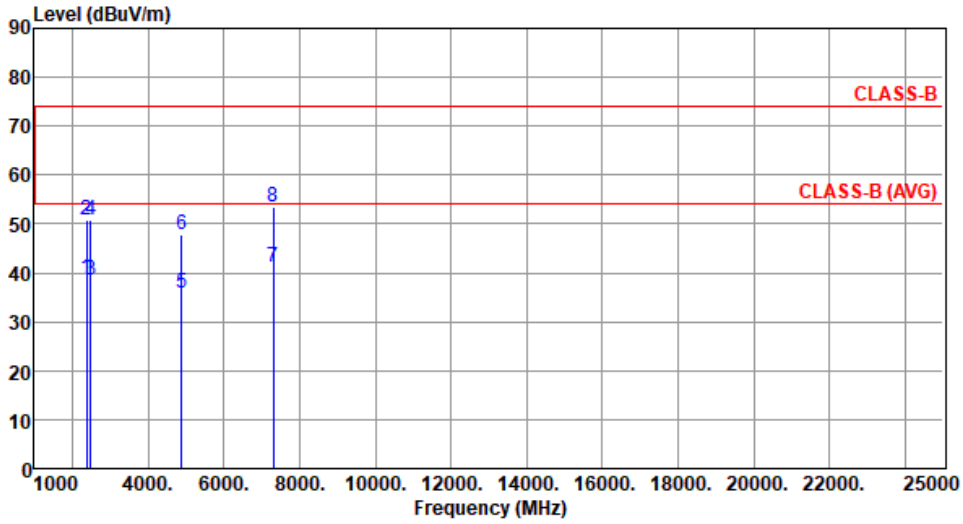


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.54	54.00	-15.46	40.03	-1.49	Average	112	326
2	2390.00	50.61	74.00	-23.39	52.10	-1.49	Peak	112	326
3	2483.50	38.52	54.00	-15.48	40.10	-1.58	Average	112	326
4	2483.50	50.59	74.00	-23.41	52.17	-1.58	Peak	112	326
5	4880.00	35.57	54.00	-18.43	30.25	5.32	Average	100	109
6	4880.00	47.53	74.00	-26.47	42.21	5.32	Peak	100	109
7	7320.00	41.04	54.00	-12.96	30.21	10.83	Average	100	101
8	7320.00	53.12	74.00	-20.88	42.29	10.83	Peak	100	101

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

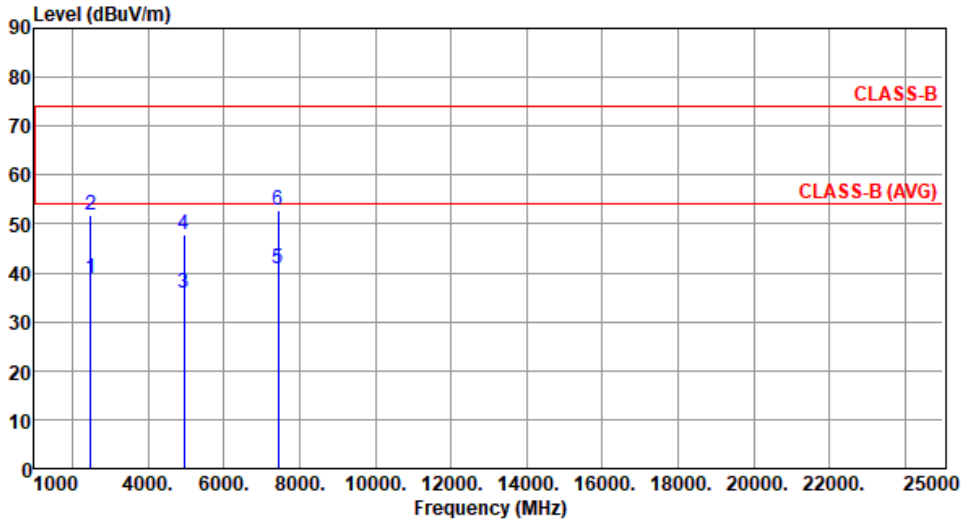


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.98	54.00	-15.02	40.47	-1.49	Average	118	124
2	2390.00	50.83	74.00	-23.17	52.32	-1.49	Peak	118	124
3	2483.50	38.67	54.00	-15.33	40.25	-1.58	Average	118	124
4	2483.50	50.81	74.00	-23.19	52.39	-1.58	Peak	118	124
5	4880.00	35.77	54.00	-18.23	30.45	5.32	Average	100	59
6	4880.00	47.84	74.00	-26.16	42.52	5.32	Peak	100	59
7	7320.00	41.33	54.00	-12.67	30.50	10.83	Average	100	63
8	7320.00	53.39	74.00	-20.61	42.56	10.83	Peak	100	63

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2480
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

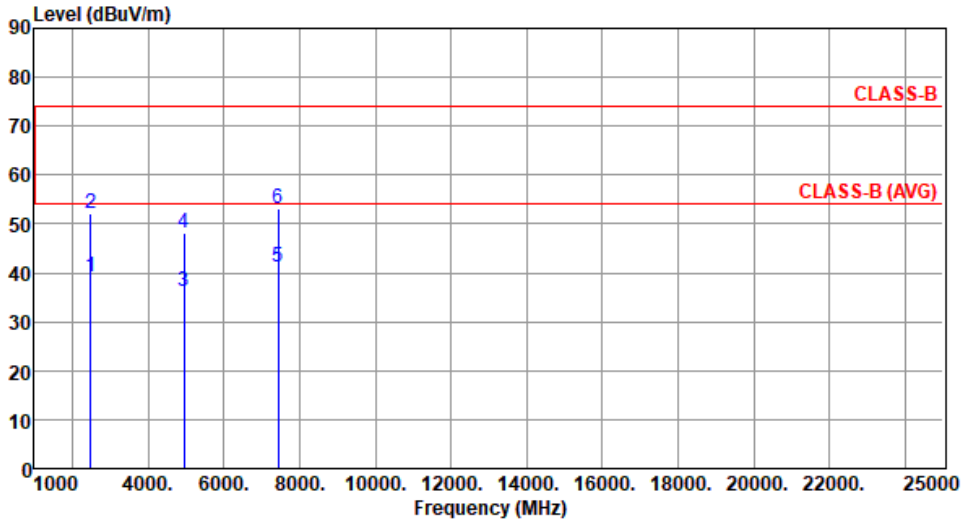


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	39.00	54.00	-15.00	40.58	-1.58	Average	115	325
2	2483.50	51.91	74.00	-22.09	53.49	-1.58	Peak	115	325
3	4960.00	35.91	54.00	-18.09	30.20	5.71	Average	100	115
4	4960.00	47.96	74.00	-26.04	42.25	5.71	Peak	100	115
5	7440.00	40.84	54.00	-13.16	30.19	10.65	Average	100	106
6	7440.00	52.88	74.00	-21.12	42.23	10.65	Peak	100	106

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2480
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):26 Humidity(%):62



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	39.08	54.00	-14.92	40.66	-1.58	Average	121	127
2	2483.50	52.19	74.00	-21.81	53.77	-1.58	Peak	121	127
3	4960.00	36.11	54.00	-17.89	30.40	5.71	Average	100	49
4	4960.00	48.23	74.00	-25.77	42.52	5.71	Peak	100	49
5	7440.00	41.04	54.00	-12.96	30.39	10.65	Average	100	53
6	7440.00	53.13	74.00	-20.87	42.48	10.65	Peak	100	53

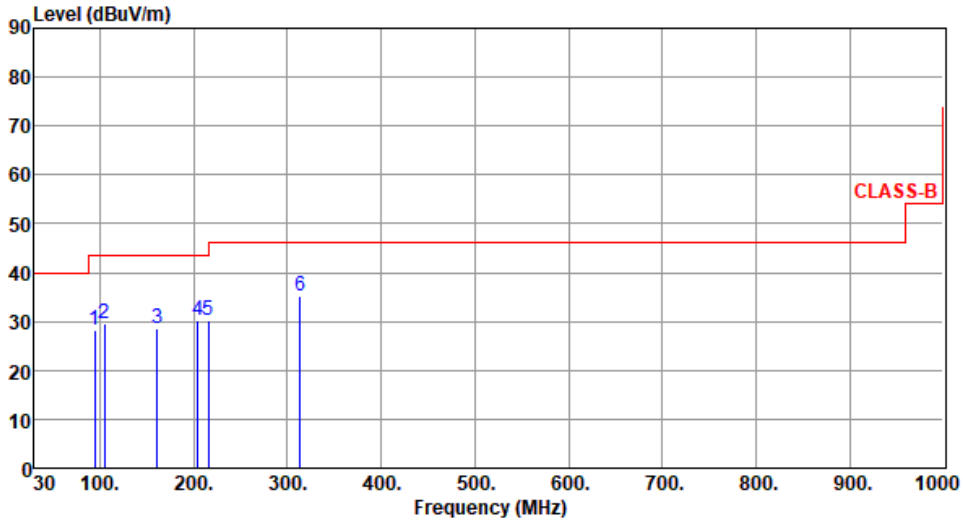
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Charging mode

Unwanted Emissions (Below 1GHz)

Mode	Charging mode
Polarization	Horizontal

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

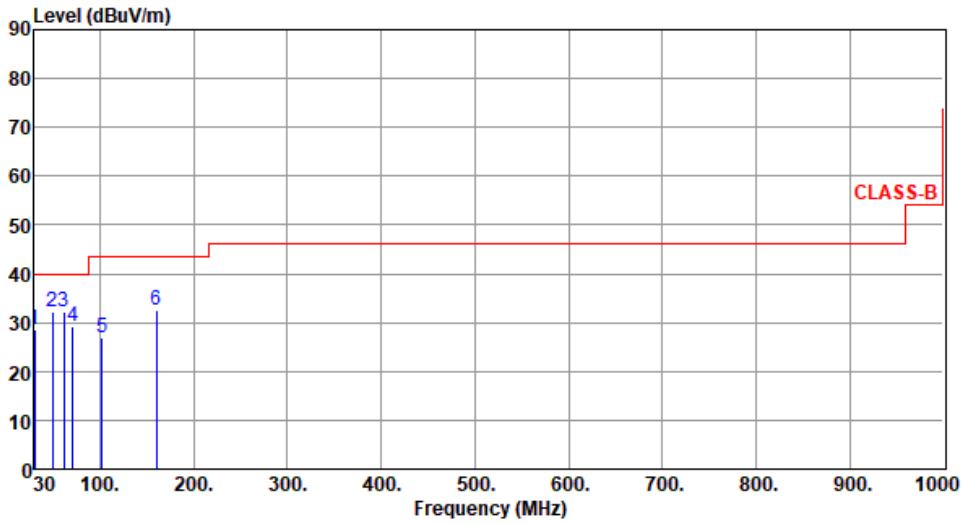


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	94.16	28.33	43.50	-15.17	42.41	-14.08	Peak	---	---
2	105.20	29.55	43.50	-13.95	41.65	-12.10	Peak	---	---
3	161.34	28.71	43.50	-14.79	37.16	-8.45	Peak	---	---
4	204.88	30.17	43.50	-13.33	41.77	-11.60	Peak	---	---
5	215.66	30.14	43.50	-13.36	41.70	-11.56	Peak	---	---
6	313.29	35.27	46.00	-10.73	42.57	-7.30	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Mode	Charging mode
Polarization	Vertical

Test By :Akun Chung Temperature(℃):26 Humidity(%):62

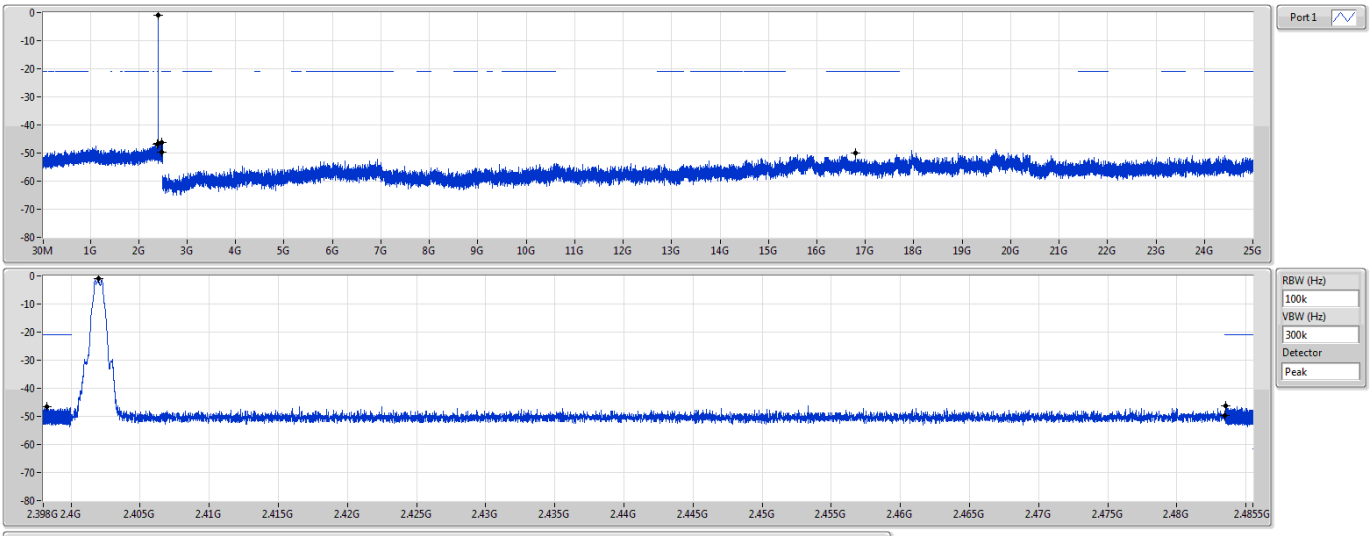


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	30.16	28.55	40.00	-11.45	38.63	-10.08	Peak	---	---
2	49.66	32.17	40.00	-7.83	40.57	-8.40	Peak	---	---
3	61.25	32.08	40.00	-7.92	41.43	-9.35	Peak	---	---
4	71.28	29.35	40.00	-10.65	40.34	-10.99	Peak	---	---
5	102.58	26.77	43.50	-16.73	39.39	-12.62	Peak	---	---
6	160.24	32.49	43.50	-11.01	40.83	-8.34	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

BT-LE(1Mbps) **CSENdB-DTS**

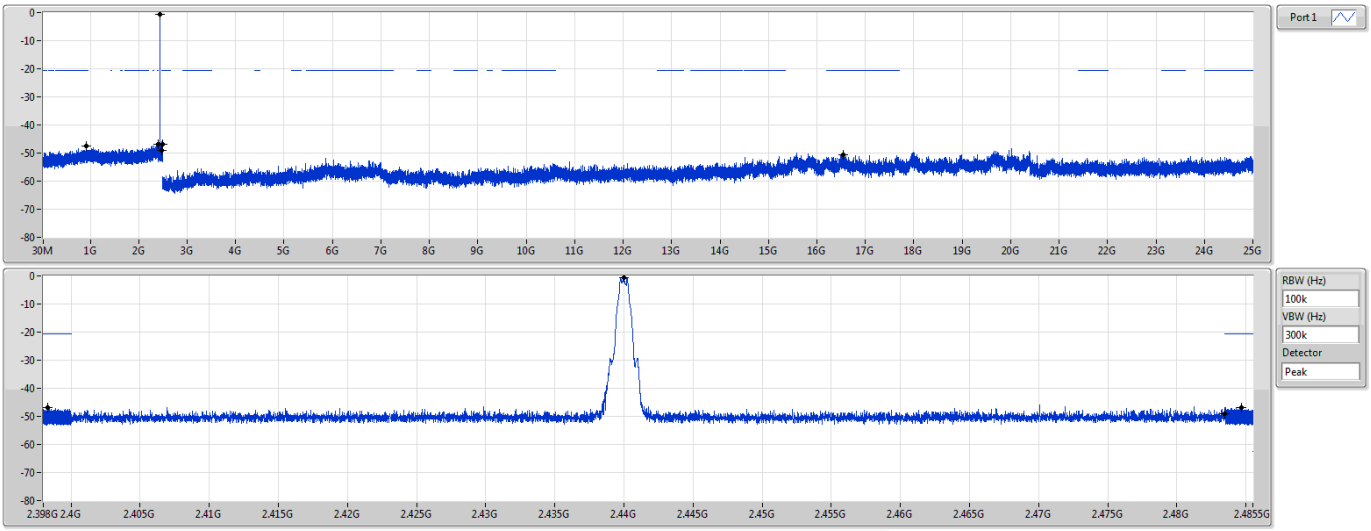
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40199G	-0.97	-20.97	2.39001G	-47.00	2.39825G	-46.58	2.4835G	-49.80	2.48351G	-46.23	16.78854G	-50.11	1

BT-LE(1Mbps) **CSENdB-DTS**

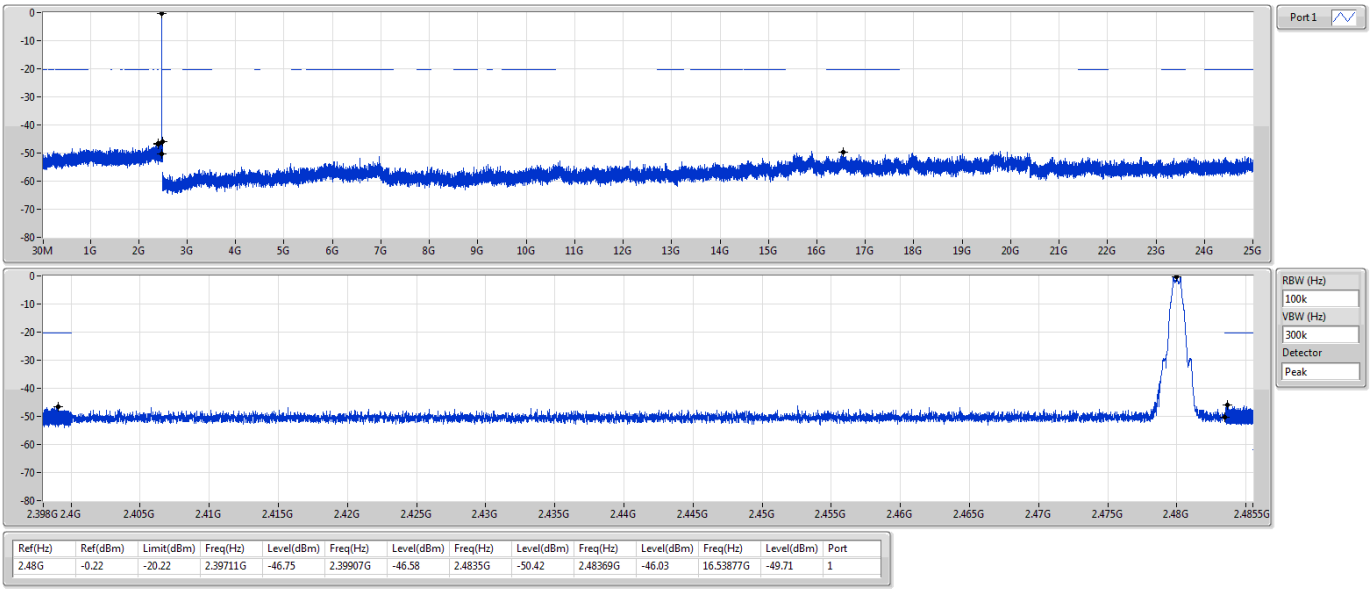
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44001G	-0.53	-20.53	923.92M	-47.51	2.39834G	-46.98	2.4835G	-48.95	2.48469G	-46.82	16.54088G	-50.63	1

BT-LE(1Mbps) **CSENdB-DTS**

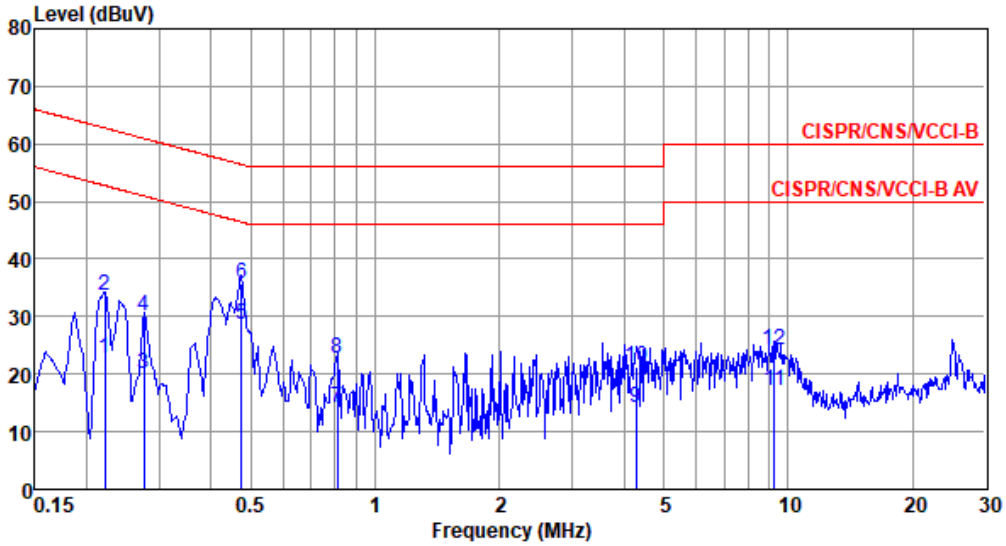
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48G	-0.22	-20.22	2.39711G	-46.75	2.39907G	-46.58	2.4835G	-50.42	2.48369G	-46.03	16.53877G	-49.71	1

Mode	Charging mode
Power Phase	Line

Test by : Joe Liao Temperature: 20℃ Humidity: 60%

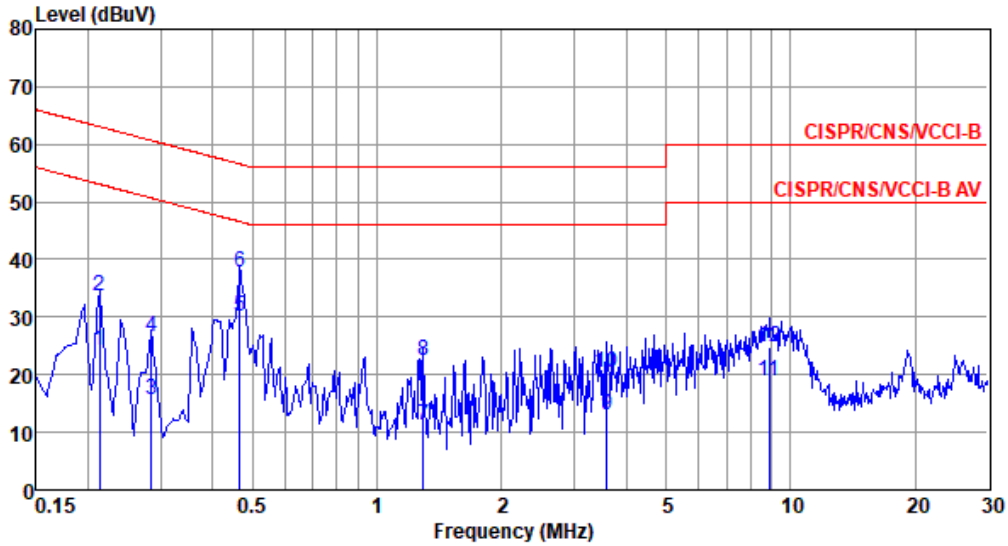


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.222	22.87	52.74	-29.87	12.87	9.68	0.08	0.24	Average
2	0.222	33.55	62.74	-29.19	23.55	9.68	0.08	0.24	QP
3	0.276	20.02	50.94	-30.92	9.98	9.68	0.08	0.28	Average
4	0.276	30.10	60.94	-30.84	20.06	9.68	0.08	0.28	QP
5*	0.474	28.61	46.45	-17.84	18.49	9.67	0.09	0.36	Average
6	0.474	35.75	56.45	-20.70	25.63	9.67	0.09	0.36	QP
7	0.809	14.29	46.00	-31.71	4.10	9.68	0.14	0.37	Average
8	0.809	22.67	56.00	-33.33	12.48	9.68	0.14	0.37	QP
9	4.292	14.08	46.00	-31.92	3.73	9.70	0.23	0.42	Average
10	4.292	21.22	56.00	-34.78	10.87	9.70	0.23	0.42	QP
11	9.253	17.03	50.00	-32.97	6.42	9.74	0.43	0.44	Average
12	9.253	24.06	60.00	-35.94	13.45	9.74	0.43	0.44	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Mode	Charging mode
Power Phase	Neutral

Test by : Joe Liao Temperature: 20℃ Humidity: 60%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.213	24.21	53.10	-28.89	14.34	9.61	0.08	0.18	Average
2	0.213	33.52	63.10	-29.58	23.65	9.61	0.08	0.18	QP
3	0.285	15.75	50.68	-34.93	5.87	9.61	0.08	0.19	Average
4	0.285	26.52	60.68	-34.16	16.64	9.61	0.08	0.19	QP
5*	0.466	30.12	46.58	-16.46	20.21	9.61	0.09	0.21	Average
6	0.466	37.65	56.58	-18.93	27.74	9.61	0.09	0.21	QP
7	1.296	11.25	46.00	-34.75	1.17	9.61	0.18	0.29	Average
8	1.296	22.29	56.00	-33.71	12.21	9.61	0.18	0.29	QP
9	3.603	13.09	46.00	-32.91	2.91	9.64	0.21	0.33	Average
10	3.603	20.31	56.00	-35.69	10.13	9.64	0.21	0.33	QP
11	8.869	18.80	50.00	-31.20	8.34	9.68	0.42	0.36	Average
12	8.869	24.92	60.00	-35.08	14.46	9.68	0.42	0.36	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).