

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Report No.: RFCJWN-WTW-P26050592

FCC ID: 2AEUP-5DFYA8

Product: Video Doorbell

Brand: ring

Model No.: 5DFYA8

Received Date: 2026/6/5

Test Date: 2026/6/11 ~ 2026/6/22

Issued Date: 2026/7/2

Applicant: Ring LLC

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

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Test Location(2): No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

FCC Registration / 788550 / TW0003 for Test Location(1)

Designation Number: 281270 / TW0032 for Test Location(2)

Approved by: Jeremy Lin, **Date:** 2026/7/2
Jeremy Lin / Project Engineer

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Prepared by : Celia Chen / Supervisor

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Release Control Record

Issue No.	Description	Date Issued
RFCJWN-WTW-P26050592	Original release.	2026/7/2

1 Certificate

Product: Video Doorbell

Brand: ring

Test Model: 5DFYA8

Sample Status: Engineering sample

Applicant: Ring LLC

Test Date: 2026/6/11 ~ 2026/6/22

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Measurement ANSI C63.10-2020

procedure: KDB 558074 D01 15.247 Meas Guidance v05r02

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

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	N/A	Power supply is from battery.
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -7.1 dB at 943.74 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -8.9 dB at 2483.50 MHz
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX not a standard connector.

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 as specified in CISPR 16-4-2:

Parameter	Specification	Uncertainty (±)
RF Output Power	-	1.371 dB
Power Spectral Density	-	1.017 dB
6 dB Bandwidth	-	206.5 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.92 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB

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

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description

Product	Video Doorbell
Brand	ring
Test Model	5DFYA8
Status of EUT	Engineering sample
Power Supply Rating	DC 3.6V from battery
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	Up to 1 Mbps
Operating Frequency	2.402 GHz ~ 2.48 GHz
Number of Channel	40
Output Power	3.459 mW (5.39 dBm)

Note:

1. This product is designed for doors of two thicknesses (32.5-60 mm and 60-90 mm).

- ◆ EUT(Fits door thickness:32.5-60 mm)
- ◆ EUT(Fits door thickness:60-90 mm)

2. The EUT uses following accessories, which support selectable power sources as listed below.

Item	Specification		
USB Cable (Only for Battery charging) {For Battery model: 5AT3S3, 5F53E9}	Shielded 0.45m		
USB-C Cable (Only for Battery charging) {For Battery model: 6BCEAB}	Shielded 0.45m		
Item	Brand	Model	Specification
Rechargeable Lithium-ion Battery (Battery 1)	ring	5AT3S3	3.6Vdc, 5960mAh, 21.456Wh / Micro USB Input: 5Vdc, 800mA
Rechargeable Lithium-ion Battery (Battery 2)	ring	5F53E9	3.6Vdc, 5800mAh, 20.88Wh / Micro USB Input: 5Vdc, 1A
Rechargeable Lithium-ion Battery (Battery 3)	ring	6BCEAB	3.60Vdc, 9400mAh, 33.84Wh / Input: 5Vdc, 3A

3. There are Bluetooth and WLAN (2.4 GHz) technologies used for the EUT.

4. Bluetooth and WLAN (2.4 GHz) technologies cannot operate simultaneously.

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Antenna Description of EUT

The antenna information is listed as below.

Antenna Gain (dBi)	Frequency range	Antenna Type	Connector Type
1.23	2.4~2.4835GHz	Monopole	I-PEX

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.3 Channel List

40 channels are provided for BT-LE:

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

3.4 Test Mode Applicability and Tested Channel Detail

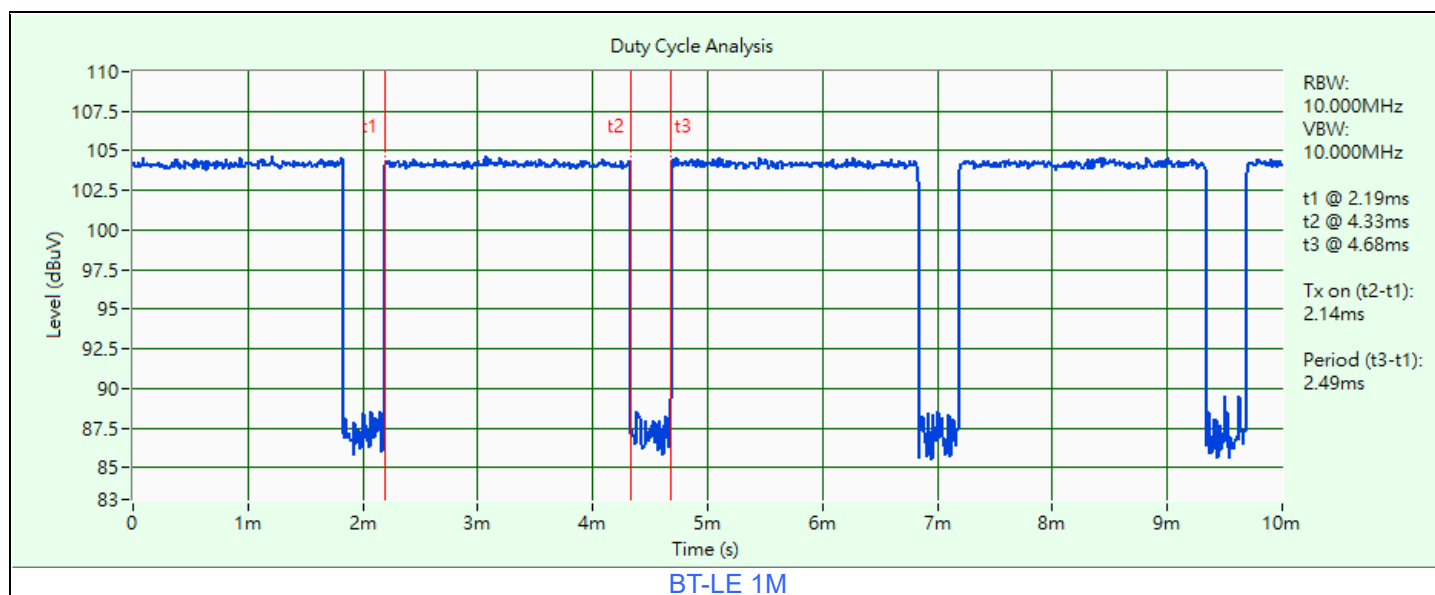
Pre-Scan:	1. EUT can be used in the following ways: XYZ 3-axis. Pre-scan in these ways and find the worst case as a representative test condition. 2. EUT has three power sources (3.6Vdc). Pre-scan these modes and find the worst case as a representative test condition
Worst Case:	1. X/ Y/ Z Worst Condition: Y-AXIS

Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	B	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
Power Spectral Density	B	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
6 dB Bandwidth / Conducted Out of Band Emissions	B	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
Unwanted Emissions below 1 GHz	B	BT-LE 1M	19	GFSK	1Mb/s
Unwanted Emissions above 1 GHz	B	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
EUT Configure Mode:	A	Battery: 5AT3S3			
	B	Battery: 5F53E9			
	C	Battery: 6BCEAB			

3.5 Duty Cycle of Test Signal

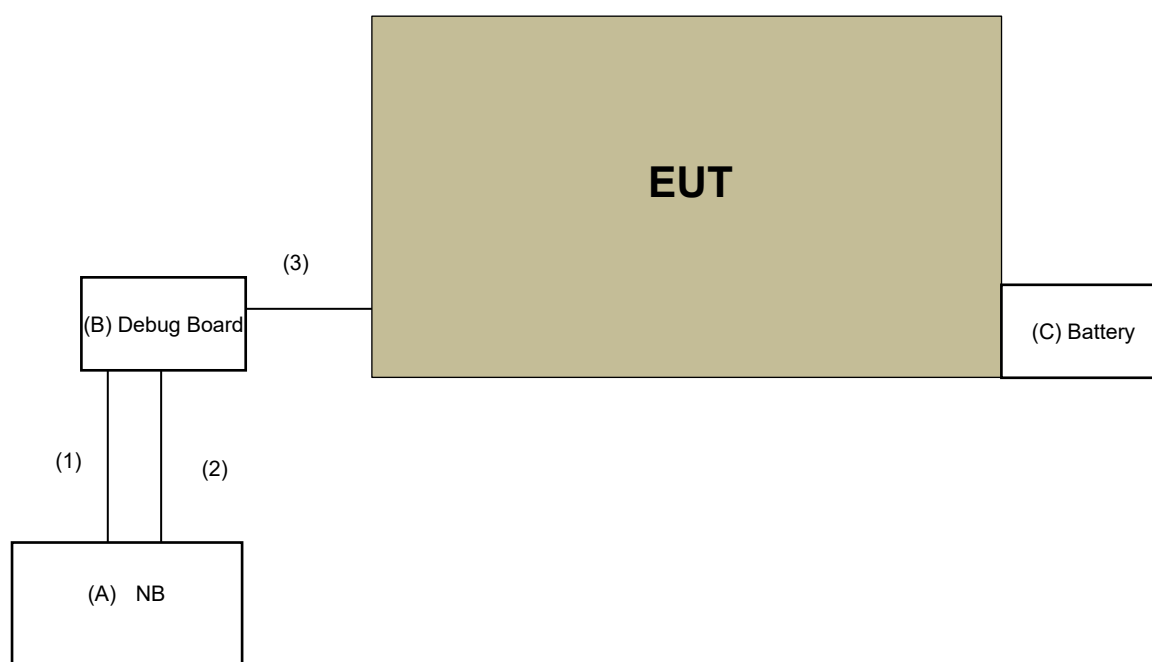
BT-LE 1M: Duty cycle = $2.14 \text{ ms} / 2.49 \text{ ms} \times 100\% = 85.9\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 0.66 \text{ dB}$



3.6 Test Program Used and Operation Descriptions

Controlling software compliance tool v1.2 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	NB	Lenovo	L470	N/A	N/A	Provided by Lab
B	Debug Board	N/A	N/A	N/A	N/A	Supplied by applicant
C	Battery	Ring	5F53E9	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	Micro USB Cable	1	1	Yes	0	Provided by Lab
2	Micro USB Cable	1	1.2	Yes	0	Provided by Lab
3	Debug FPC	1	0.12	No	0	Supplied by applicant

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 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2026/5/21	2027/5/20
Peak Power Analyzer Keysight	8990B	MY51000485	2026/1/23	2027/1/22
USB Power Sensor Anritsu	MA24408A	12994	2025/12/5	2026/12/4
Wideband Power Sensor Keysight	N1923A	MY58020002	2026/1/26	2027/1/25
		MY58140009	2026/1/26	2027/1/25

Notes:

1. The test was performed in HY - Oven room(Hwaya).
2. Tested Date: 2026/6/16

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2026/5/21	2027/5/20
MXA Signal Analyzer Keysight	N9020B	MY60110462	2026/5/5	2027/5/4
Signal & Spectrum Analyzer R&S	FSV3044	101504	2025/6/18	2026/6/17
	FSW26	102023	2025/11/14	2026/11/13
	FSW43	101582	2026/5/2	2027/5/1
Signal Analyzer R&S	FSV40	100980	2026/5/14	2027/5/13
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSU26	101645	2025/7/28	2026/7/27
	FSU43	101261	2026/5/4	2027/5/3

Notes:

1. The test was performed in HY - Oven room(Hwaya).
2. Tested Date: 2026/6/16

4.3 6 dB Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get the tested date and information of the instruments.

4.5 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower KaiTuo	N/A	N/A	N/A	N/A
Antenna Tower Controller KaiTuo	KT-2000	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-995	2025/9/17	2026/9/16
Loop Antenna TESEQ	HLA 6121	45745	2025/9/1	2026/8/31
MXE EMI Receiver Agilent	N9038A	MY52260177	2025/10/3	2026/10/2
Preamplifier EMCI	EMC330N	980783	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201245	2026/1/13	2027/1/12
	EMCCFD400-NM-NM-3000	201250	2026/1/13	2027/1/12
	EMCCFD400-NM-NM-9000	201252(with PAD)	2026/1/13	2027/1/12
Software BV ADT	ADT_Radiated_ V7.7.1.1.1	N/A	N/A	N/A
Turn Table Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208675	N/A	N/A
UXA Signal Analyzer Keysight	N9040B	MY59490105	2026/1/14	2027/1/13

Notes:

1. The test was performed in WM - 966 chamber 7(Wenming).
2. Tested Date: 2026/6/16

4.6 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower KaiTuo	N/A	N/A	N/A	N/A
Antenna Tower Controller KaiTuo	KT-2000	N/A	N/A	N/A
Horn Antenna RFSPIN	DRH18-E	210104A18E	2025/11/9	2026/11/8
Horn Antenna Schwarzbeck	BBHA 9170	9170-1048	2025/11/9	2026/11/8
MXE EMI Receiver Agilent	N9038A	MY52260177	2025/10/3	2026/10/2
Preamplifier EMCI	EMC118A45SE	980810	2025/12/24	2026/12/23
	EMC184045SE	980787	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2026/1/13	2027/1/12
		201255	2026/1/13	2027/1/12
	EMC101G-KM-KM-5000	201261	2026/1/13	2027/1/12
	EMC104-SM-SM-1000	210101	2026/1/13	2027/1/12
	EMC104-SM-SM-3000	201242	2026/1/13	2027/1/12
	EMC104-SM-SM-9000	201230	2026/1/13	2027/1/12
Software BV ADT	ADT_Radiated_ V7.7.1.1.1	N/A	N/A	N/A
Turn Table Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208675	N/A	N/A
UXA Signal Analyzer Keysight	N9040B	MY59490105	2026/1/14	2027/1/13

Notes:

1. The test was performed in WM - 966 chamber 7(Wenming).
2. Tested Date: 2026/6/11 ~ 2026/6/22

5 Limits of Test Items

5.1 RF Output Power

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

5.2 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

5.3 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

Below 20 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

5.5 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

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

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.6 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

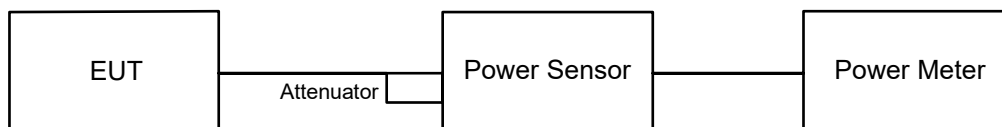
Notes:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



6.1.2 Test Procedure

Peak Power:

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.

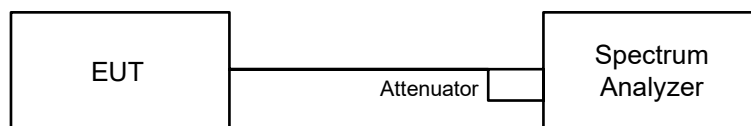
The power meter video bandwidth is greater than or equal to the DTS bandwidth and use a fast responding diode detector.

Average Power:

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.

6.2 Power Spectral Density

6.2.1 Test Setup

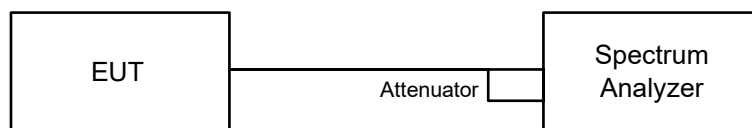


6.2.2 Test Procedure

- Set analyzer center frequency to DTS channel center frequency.
- Set the span > 1.5 times the DTS bandwidth.
- Set the RBW to: 3 kHz.
- Set the VBW $\geq 3 \times$ RBW.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

6.3 6 dB Bandwidth

6.3.1 Test Setup

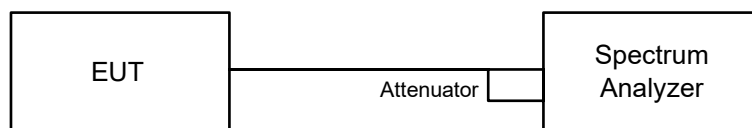


6.3.2 Test Procedure

- Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Trace mode = max-hold.
- Sweep = No faster than coupled (auto) time.
- Allow the trace to stabilize.
- Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6 dB down amplitude”. If a marker is below this “-6 dB down amplitude” value, then it shall be as close as possible to this value.

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

- Set instrument center frequency to DTS channel center frequency.
- Set the span to ≥ 1.5 times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

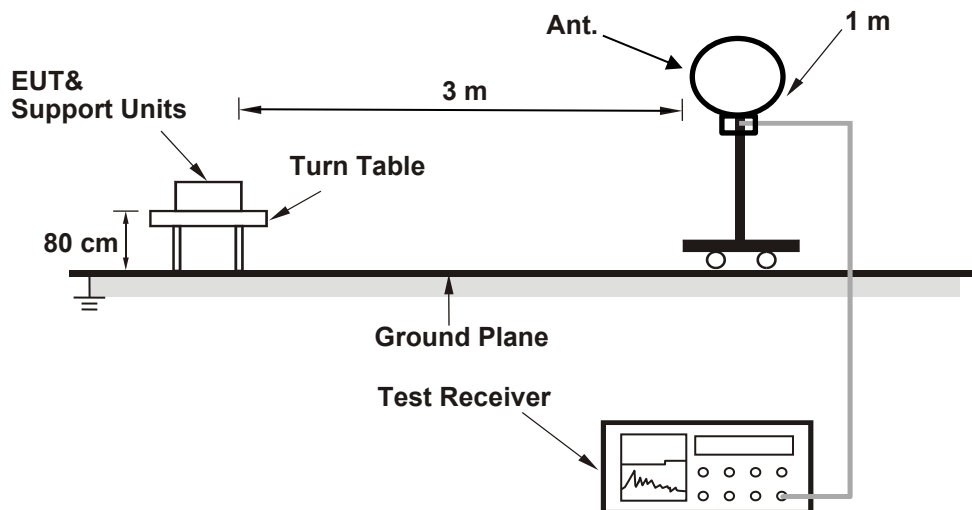
MEASUREMENT PROCEDURE OOB

- Set the center frequency and span to encompass frequency range to be measured. Note that the frequency range might need to be divided into multiple frequency ranges to retain frequency resolution.
- Set RBW = 100 kHz.
- Set VBW ≥ 300 kHz.
- Detector = peak.
- Sweep = No faster than coupled (auto) time.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

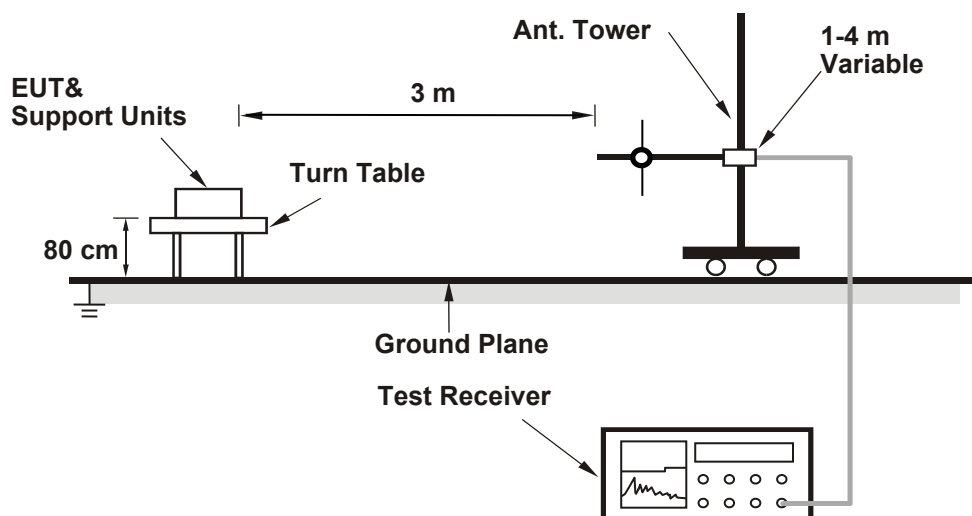
6.5 Unwanted Emissions below 1 GHz

6.5.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



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

6.5.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode (however, peak detector measurements may be used to determine compliance with QP requirements), except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

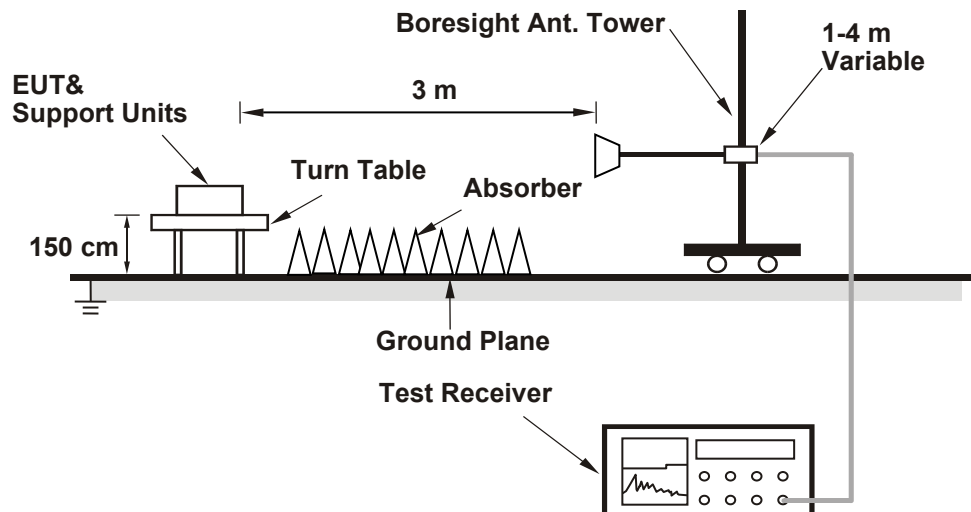
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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(QP) detect function, Average(AV) detect function, Peak(PK) detect function and specified bandwidth with maximum hold mode when the test frequencies less than or equal to 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz (however, peak detector measurements may be used to determine compliance with QP requirements).
2. All modes of operation were investigated and the worst-case emissions are reported.

6.6 Unwanted Emissions above 1 GHz

6.6.1 Test Setup



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

6.6.2 Test Procedure

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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/spectrum analyzer was set to peak and average detects 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.

Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	3.6 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
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For Peak Power

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	3.177	5.02	30	Pass
19	2440	3.459	5.39	30	Pass
39	2480	3.42	5.34	30	Pass

Note: The antenna gain is 1.23 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

For Average Power

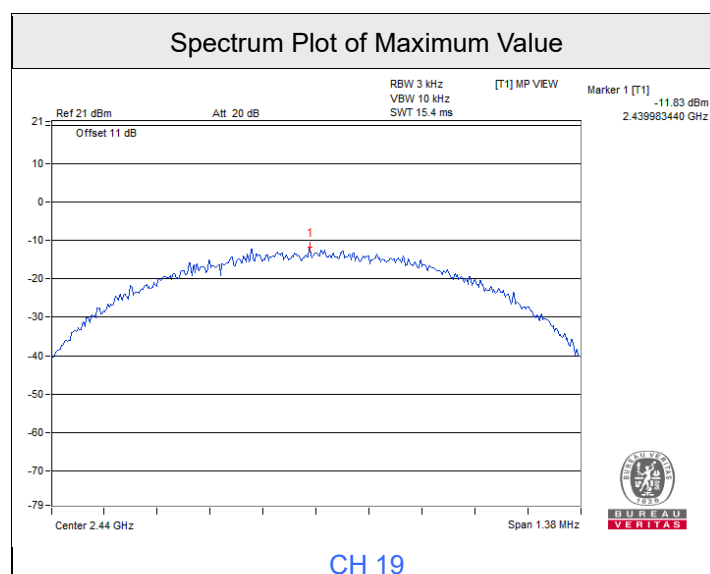
Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	3.048	4.84
19	2440	3.319	5.21
39	2480	3.258	5.13

7.2 Power Spectral Density

Input Power:	3.6 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
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Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	-12.08	8	Pass
19	2440	-11.83	8	Pass
39	2480	-11.87	8	Pass

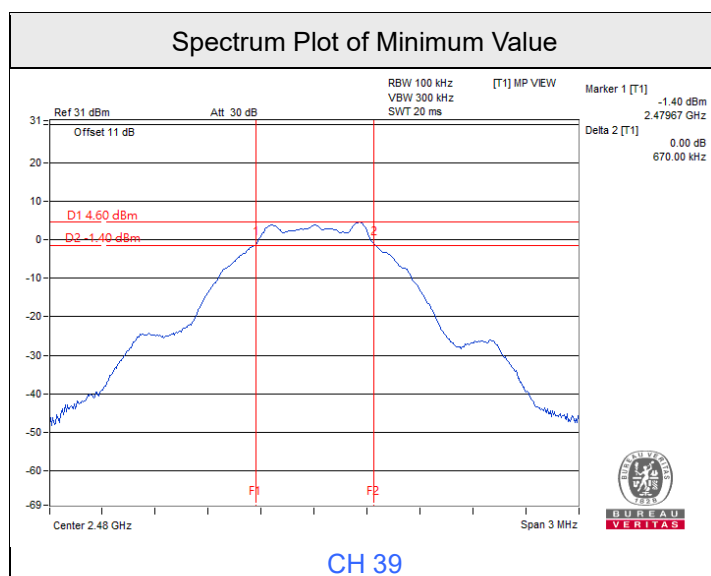
Note: The antenna gain is 1.23 dBi <= 6 dBi, so the power density limit shall not be reduced.



7.3 6 dB Bandwidth

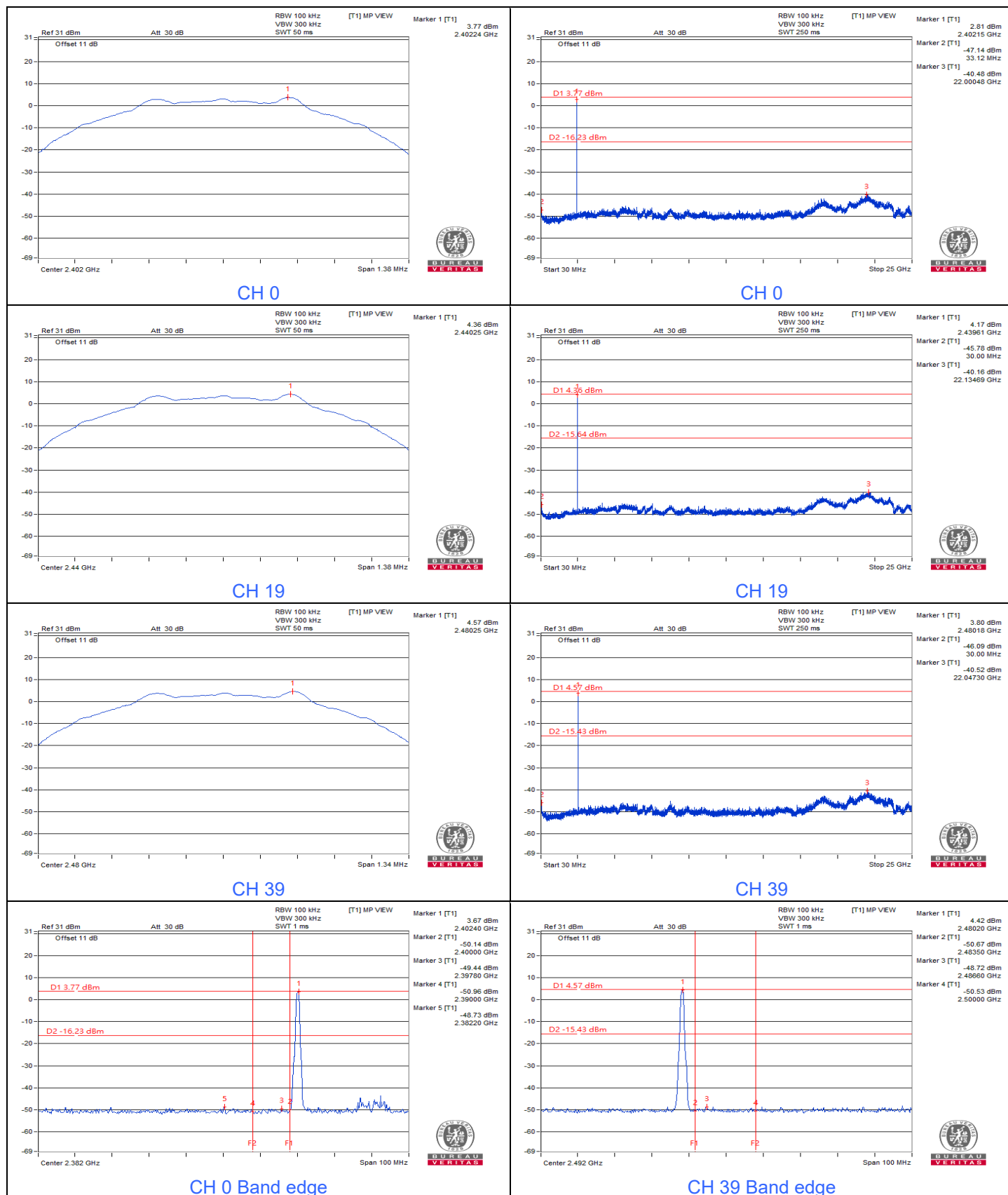
Input Power:	3.6 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
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Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
0	2402	0.69	0.5	Pass
19	2440	0.69	0.5	Pass
39	2480	0.67	0.5	Pass



7.4 Conducted Out of Band Emissions

Input Power:	3.6 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
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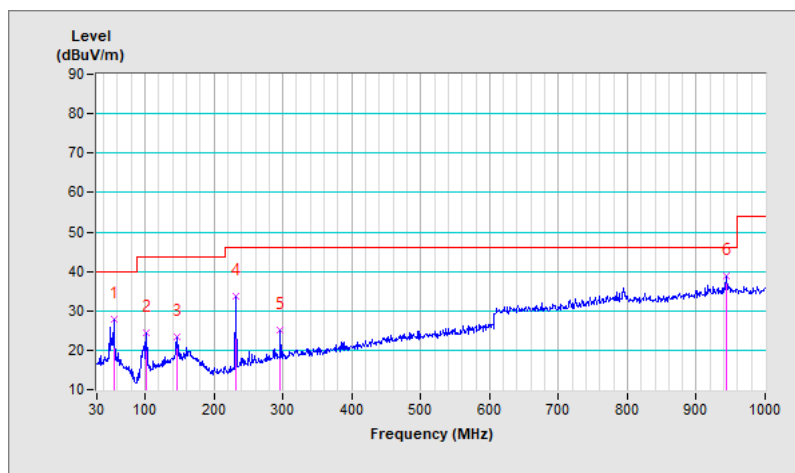
7.5 Unwanted Emissions below 1 GHz

RF Mode	BT LE-1M	Channel	CH 19 : 2440 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	3.6 Vdc	Environmental Conditions	23 °C, 67% RH
Tested By	Sian Chen		

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	54.25	27.7 QP	40.0	-12.3	1.00 H	133	40.6	-12.9
2	101.78	24.3 QP	43.5	-19.2	1.00 H	257	41.1	-16.8
3	145.43	23.3 QP	43.5	-20.2	1.00 H	255	35.8	-12.5
4	231.76	33.8 QP	46.0	-12.2	1.00 H	185	48.4	-14.6
5	296.75	25.1 QP	46.0	-20.9	1.00 H	102	36.9	-11.8
6	943.74	38.9 QP	46.0	-7.1	2.00 H	166	37.4	1.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

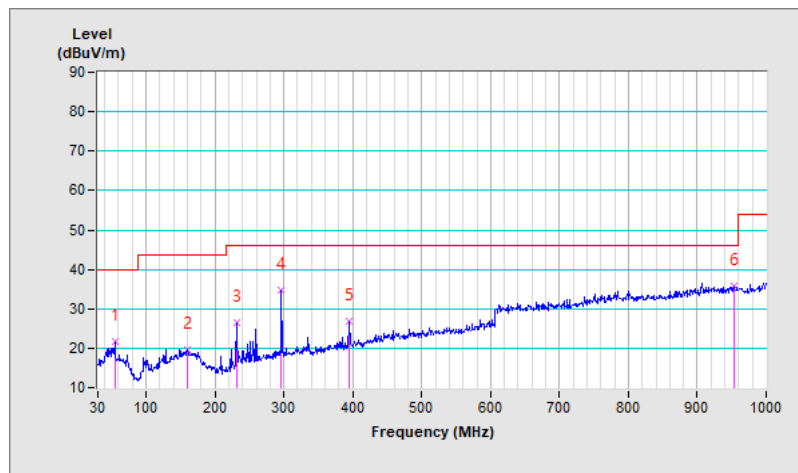


RF Mode	BT LE-1M	Channel	CH 19 : 2440 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	3.6 Vdc	Environmental Conditions	23 °C, 67% RH
Tested By	Sian Chen		

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	54.25	21.6 QP	40.0	-18.4	1.00 V	307	34.5	-12.9
2	159.01	19.5 QP	43.5	-24.0	1.00 V	156	31.7	-12.2
3	231.76	26.6 QP	46.0	-19.4	1.00 V	193	41.2	-14.6
4	296.75	34.8 QP	46.0	-11.2	1.00 V	231	46.6	-11.8
5	395.69	26.8 QP	46.0	-19.2	1.00 V	238	36.0	-9.2
6	953.44	35.7 QP	46.0	-10.3	2.00 V	96	33.9	1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



7.6 Unwanted Emissions above 1 GHz

RF Mode	BT LE-1M	Channel	CH 0 : 2402 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	3.6 Vdc	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	2390.00	56.3 PK	74.0	-17.7	2.26 H	19	24.0	32.3
2	2390.00	43.3 AV	54.0	-10.7	2.26 H	19	11.0	32.3
3	*2402.00	98.2 PK			2.26 H	19	65.9	32.3
4	*2402.00	96.6 AV			2.26 H	19	64.3	32.3
5	4804.00	48.2 PK	74.0	-25.8	1.96 H	123	44.3	3.9
6	4804.00	34.7 AV	54.0	-19.3	1.96 H	123	30.8	3.9
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	2390.00	56.2 PK	74.0	-17.8	1.48 V	246	23.9	32.3
2	2390.00	43.3 AV	54.0	-10.7	1.48 V	246	11.0	32.3
3	*2402.00	99.7 PK			1.48 V	246	67.4	32.3
4	*2402.00	98.2 AV			1.48 V	246	65.9	32.3
5	4804.00	48.6 PK	74.0	-25.4	1.89 V	32	44.7	3.9
6	4804.00	35.0 AV	54.0	-19.0	1.89 V	32	31.1	3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	BT LE-1M	Channel	CH 19 : 2440 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	3.6 Vdc	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	*2440.00	98.2 PK			2.26 H	23	65.9	32.3
2	*2440.00	96.7 AV			2.26 H	23	64.4	32.3
3	4880.00	48.1 PK	74.0	-25.9	1.96 H	123	44.4	3.7
4	4880.00	34.7 AV	54.0	-19.3	1.96 H	123	31.0	3.7
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	*2440.00	99.9 PK			1.52 V	246	67.6	32.3
2	*2440.00	98.4 AV			1.52 V	246	66.1	32.3
3	4880.00	48.5 PK	74.0	-25.5	1.86 V	34	44.8	3.7
4	4880.00	34.9 AV	54.0	-19.1	1.86 V	34	31.2	3.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	BT LE-1M	Channel	CH 39 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
Input Power	3.6 Vdc	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	*2480.00	100.5 PK			2.31 H	25	68.1	32.4
2	*2480.00	99.0 AV			2.31 H	25	66.6	32.4
3	2483.50	56.7 PK	74.0	-17.3	2.31 H	25	24.3	32.4
4	2483.50	45.1 AV	54.0	-8.9	2.31 H	25	12.7	32.4
5	4960.00	48.6 PK	74.0	-25.4	2.01 H	124	44.6	4.0
6	4960.00	35.2 AV	54.0	-18.8	2.01 H	124	31.2	4.0
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	*2480.00	101.3 PK			1.16 V	269	68.9	32.4
2	*2480.00	100.2 AV			1.16 V	269	67.8	32.4
3	2483.50	57.2 PK	74.0	-16.8	1.16 V	269	24.8	32.4
4	2483.50	45.1 AV	54.0	-8.9	1.16 V	269	12.7	32.4
5	4960.00	49.0 PK	74.0	-25.0	1.94 V	35	45.0	4.0
6	4960.00	35.4 AV	54.0	-18.6	1.94 V	35	31.4	4.0

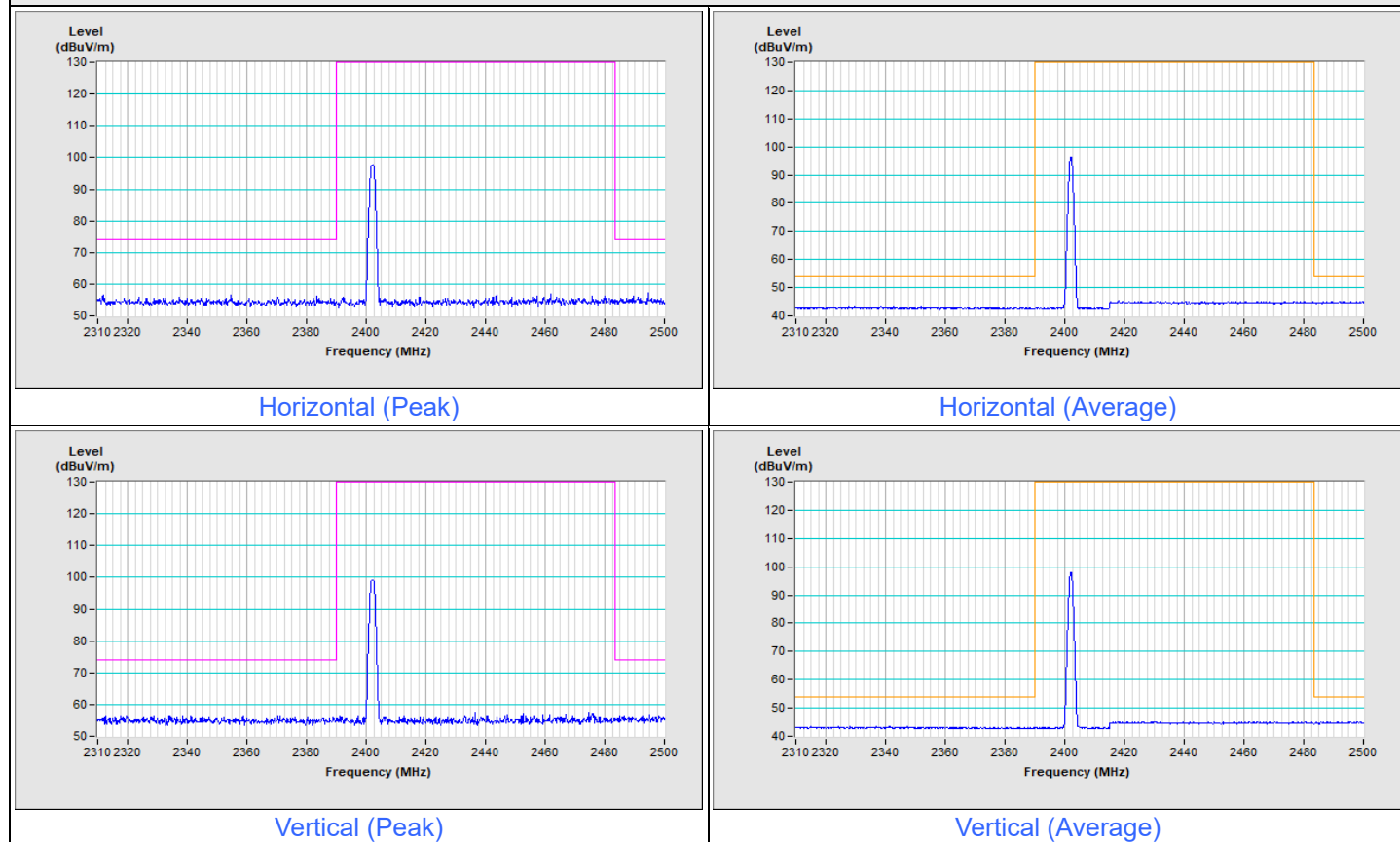
Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

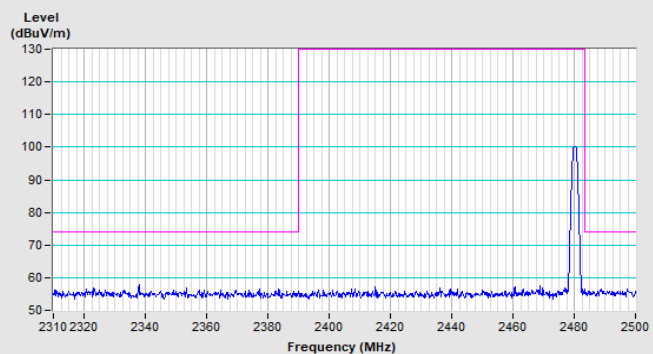
Plot of Band Edge

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
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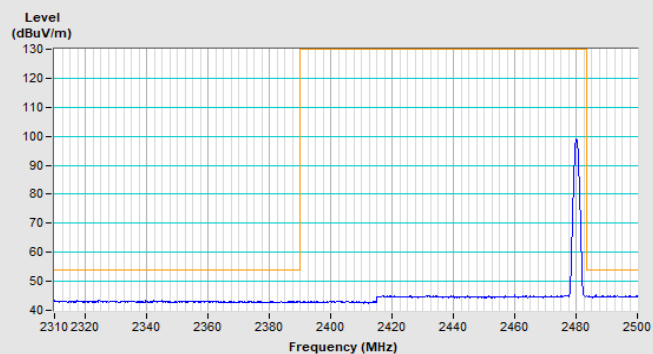
BT LE-1M Channel 0



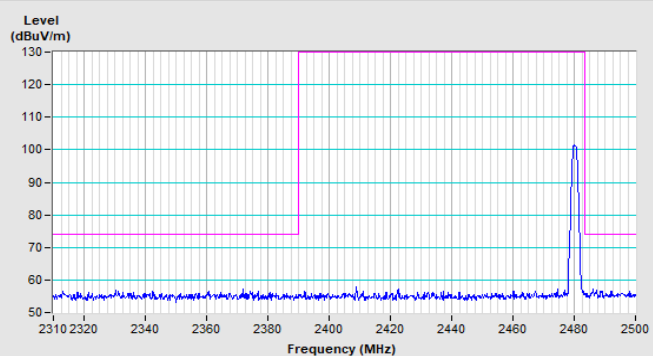
BT LE-1M Channel 39



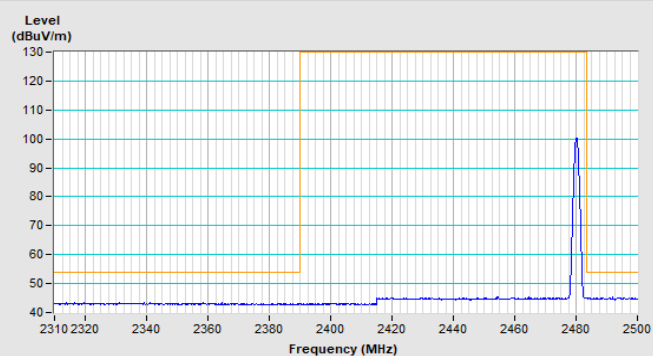
Horizontal (Peak)



Horizontal (Average)



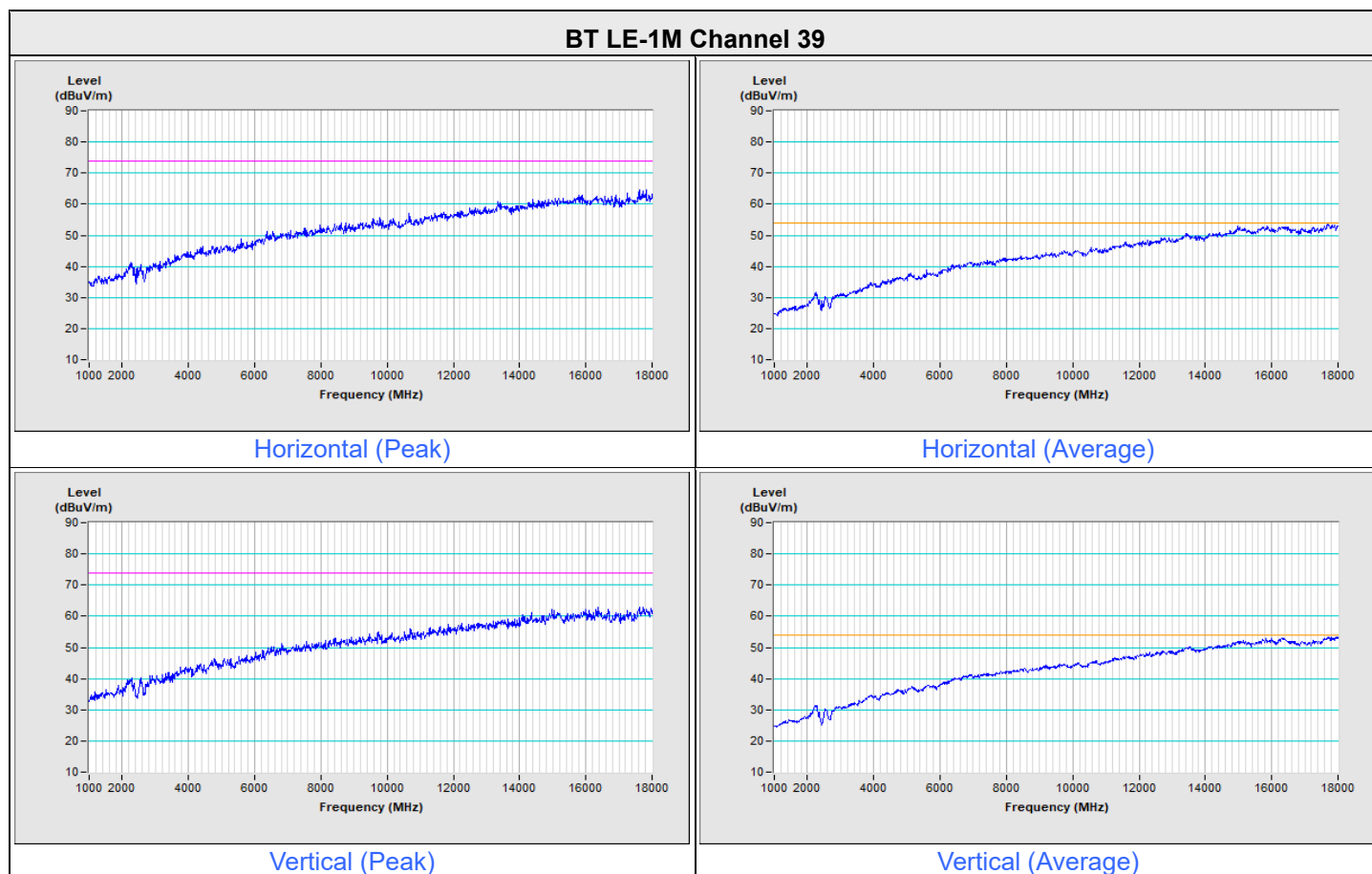
Vertical (Peak)



Vertical (Average)

Plot of Other Emission

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=510 Hz, DET=Peak
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Notes:

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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