

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: EN 300 328 V2.2.2 (2019-07)

Report No.: REBARR-WTW-P23110067A-3

Product: 2TX 11be (WiFi7) BW160 + BT/BLE Combo Card

Brand: MediaTek

Model No.: MT7925B14L

Received Date: 2023/12/6

Test Date: 2024/2/29 ~ 2024/4/16

Issued Date: 2024/4/26

Applicant: MediaTek Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Approved by: Jeremy Lin, **Date:** 2024/4/26
Jeremy Lin / Project Engineer

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Prepared by : Celine Chou / Senior Specialist



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Release Control Record

Issue No.	Description	Date Issued
REBARR-WTW-P23110067A-3	Original release.	2024/4/26

1 Certificate

Product: 2TX 11be (WiFi7) BW160 + BT/BLE Combo Card

Brand: MediaTek

Test Model: MT7925B14L

Sample Status: Engineering sample

Applicant: MediaTek Inc.

Test Date: 2024/2/29 ~ 2024/4/16

Standard: EN 300 328 V2.2.2 (2019-07)

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

EN 300 328 V2.2.2		
Clause	Test Item	Result
4.3.2.2	RF Output Power	Pass
4.3.2.3	Power Spectral Density	Pass
4.3.2.4	Duty cycle, Tx-sequence, Tx-gap	Not Applicable
4.3.2.5	Medium Utilization (MU) Factor	Not Applicable
4.3.2.6	Adaptivity	Refer to Note 2
4.3.2.7	Occupied Channel Bandwidth	Pass
4.3.2.8	Transmitter Unwanted Emissions in the out-of-band Domain	Pass
4.3.2.9	Transmitter Unwanted Emissions in the Spurious Domain up to 1 GHz	Pass
4.3.2.9	Transmitter Unwanted Emissions in the Spurious Domain above 1 GHz	Pass
4.3.2.10	Receiver Spurious Emissions up to 1 GHz	Pass
4.3.2.10	Receiver Spurious Emissions above 1 GHz	Pass
4.3.2.11	Receiver Blocking	Refer to Note 1
4.3.2.12	Geo-location capability	Not Applicable

Notes:

1. Receiver blocking testing data please refer to BV CPS report no.: REBARR-WTW-P23110067-4.
2. These requirements do not apply for equipment with a maximum declared RF Output power of less than 10 dBm EIRP or for equipment when operating in a mode where the RF Output power is less than 10 dBm EIRP.
3. 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 ETSI TR 100 028-1 and ETSI TR 100 028-2:

Parameter	Uncertainty (±)
Occupied Channel Bandwidth	$1.132 \times 10^{-4} \%$
RF output power, conducted	1.371 dB
Power Spectral Density, conducted	1.371 dB
Unwanted Emissions, conducted	1.34 dB
All emissions, radiated	2.855 dB
Temperature	0.59 °C
Supply voltages	0.3%
Time	2.53%
Power Spectral Density	1.017 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	2TX 11be (WiFi7) BW160 + BT/BLE Combo Card
Brand	MediaTek
Test Model	MT7925B14L
Status of EUT	Engineering sample
Power Supply Rating	3.3Vdc from host equipment
Temperature Operating Range	-10 °C ~ 70 °C
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	1M with 1 Mbps transfer rate 1M with coded 125 kbps transfer rate 1M with coded 500 kbps transfer rate 2M with 2 Mbps transfer rate
Operating Frequency	1M: 2.402 GHz ~ 2.480 GHz 2M: 2.404 GHz ~ 2.478 GHz
Number of Channel	1M: 40 2M: 37
Output Power (e.i.r.p.)	3.29 dBm
EUT Category	Adaptive Equipment without the possibility to switch to a non-adaptive mode

Note:

1. This report is issued as a supplementary report to the original BV CPS report no.: REBARR-WTW-P23110067-4. The difference is increasing conducted power for dynamic mode. Therefore, all tests test had been re-tested except receiver blocking test. Other testing data refer to original report.
2. There are Bluetooth and WLAN (2.4GHz & 5GHz & 6GHz) technology used for the EUT.
3. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 5GHz (2TX)	Bluetooth
2	WLAN 6GHz (2TX)	Bluetooth
3	WLAN 2.4GHz (1TX)	WLAN 5GHz (1TX)
4	WLAN 2.4GHz (1TX)	WLAN 6GHz (1TX)
5	WLAN 5GHz (1TX)	WLAN 6GHz (1TX)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. 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

1. The antenna information is listed as below.

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	Chain 0	PSA	RFMTA340718EMLB302	3.18 4.92	2.4~2.4835 5.15~5.895	PIFA	i-pex(MHF)
	Chain 1	PSA	RFMTA340718EMLB302	3.18 4.92	2.4~2.4835 5.15~5.895	PIFA	i-pex(MHF)
2	Chain 0	PSA	RFMTA311020EMMB301	1.71 4.82 4.76 4.29 4.61 4.09	2.4~2.4835 5.15~5.895 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex(MHF)
	Chain 1	PSA	RFMTA311020EMMB301	1.71 4.82 4.76 4.29 4.61 4.09	2.4~2.4835 5.15~5.895 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex(MHF)
3	Chain 0	PSA	RFMTA421230IMMB701	-13.92 -13.91 -13.91 -14.46	5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex(MHF)
	Chain 1	PSA	RFMTA421230IMMB701	-13.92 -13.91 -13.91 -14.46	5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex(MHF)
4 Dynamic Gain	Chain 0	Declared antenna	-	-10.00 -9.92 -10.02 -16.52	2.4~2.4835 5.15~5.725 5.725~5.85 5.925~7.125	PIFA	i-pex(MHF)
	Chain 1	Declared antenna	-	-10.00 -9.92 -10.02 -16.52	2.4~2.4835 5.15~5.725 5.725~5.85 5.925~7.125	PIFA	i-pex(MHF)

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.3 Channel List

Coded 125 kbps, Coded 500 kbps, 1 Mbps:

40 channels are provided to this EUT:

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

2 Mbps:

37 channels are provided to this EUT:

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

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. X-axis/ Y-axis/ Z-axis Worst Condition: X-axis

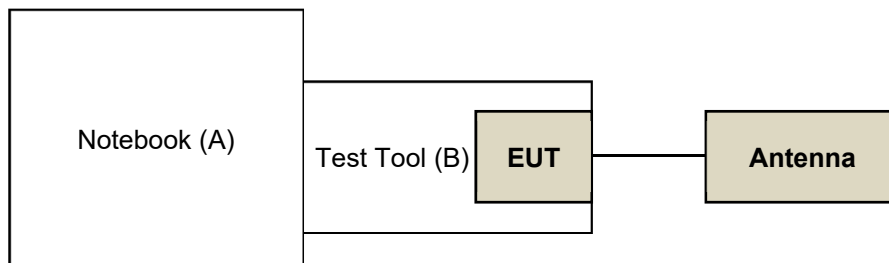
Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power / Power Spectral Density	B	BT-LE 125k	0, 19, 39	GFSK	125k/s
		BT-LE 500k	0, 19, 39	GFSK	500k/s
		BT-LE 1M	0, 19, 39	GFSK	1Mb/s
		BT-LE 2M	1, 19, 38	GFSK	2Mb/s
Occupied Channel Bandwidth	A	BT-LE 125k	0, 19, 39	GFSK	125k/s
		BT-LE 500k	0, 19, 39	GFSK	500k/s
		BT-LE 1M	0, 19, 39	GFSK	1Mb/s
		BT-LE 2M	1, 19, 38	GFSK	2Mb/s
Transmitter Unwanted Emissions in the out-of-band Domain	A	BT-LE 125k	0, 19, 39	GFSK	125k/s
		BT-LE 500k	0, 19, 39	GFSK	500k/s
		BT-LE 1M	0, 19, 39	GFSK	1Mb/s
		BT-LE 2M	1, 19, 38	GFSK	2Mb/s
Transmitter Unwanted Emissions in the Spurious Domain up to 1 GHz	A	BT-LE 125k	0	GFSK	125kb/s
		BT-LE 500k	39	GFSK	500kb/s
		BT-LE 1M	0	GFSK	1Mb/s
		BT-LE 2M	1	GFSK	2Mb/s
Transmitter Unwanted Emissions in the Spurious Domain above 1 GHz	A	BT-LE 125k	0, 39	GFSK	125kb/s
		BT-LE 500k	0, 39	GFSK	500kb/s
		BT-LE 1M	0, 39	GFSK	1Mb/s
		BT-LE 2M	1, 38	GFSK	2Mb/s
Receiver Spurious Emissions up to 1 GHz	A	Receiver	0	-	-
Receiver Spurious Emissions above 1 GHz	A	Receiver	0, 39	-	-
EUT Configure Mode:	A	Dynamic mode (EUT Maximum Conducted Power + Ant. 1)			
	B	Dynamic mode (EUT Maximum Conducted Power + Ant. 4)			

3.5 Test Program Used and Operation Descriptions

Controlling software Media Tek BT Tool.W2310 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.6 Connection Diagram of EUT and Peripheral Devices



3.7 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	DELL	E5410	1HC2XM1	N/A	Provided by Lab
B	Test Tool	Mediatek	MTK1849	NA	NA	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
Peak Power Analyzer Keysight	8990B	MY51000485	2024/1/21	2025/1/20
Temperature & Humidity Chamber Terchy	HRM-120RF	931022	2023/12/19	2024/12/18
Wideband Power Sensor Keysight	N1923A	MY58020002	2024/1/18	2025/1/17
		MY58140009	2024/1/18	2025/1/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/2/29 ~ 2024/4/16

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101504	2023/6/5	2024/6/4
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/2/29 ~ 2024/4/16

4.3 Occupied Channel Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Transmitter Unwanted Emissions in the out-of-band Domain

Refer to section 4.2 to get information of the instruments.

4.5 Transmitter Unwanted Emissions in the Spurious Domain up to 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna and Turntable controller Max-Full	MF7802	MF780208363	N/A	N/A
Antenna tower Max-Full	MFA-440H	A440H102-019	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-161	2023/10/17	2024/10/16
Preamplifier Agilent	8447D	2944A10634	2023/7/8	2024/7/7
PXA Signal Analyzer Agilent	N9030A	MY53120770	2024/3/13	2025/3/12
RF Coaxial Cable Woken	8D-FB	Cable-RF2-01	2023/7/8	2024/7/7
Signal Analyzer R&S	FSV40	100980	2023/5/3	2024/5/2
Software ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table ADT	N/A	SN30303	N/A	N/A

Notes:

1. The test was performed in HY - RF chamber 2
2. Tested Date: 2024/4/10

4.6 Transmitter Unwanted Emissions in the Spurious Domain above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna and Turntable controller Max-Full	MF7802	MF780208363	N/A	N/A
Antenna tower Max-Full	MFA-440H	A440H102-019	N/A	N/A
Horn Antenna ETS-Lindgren	3117	00034130	2023/11/12	2024/11/11
Preamplifier Agilent	8449B	3008A01976	2023/7/8	2024/7/7
PXA Signal Analyzer Agilent	N9030A	MY53120770	2024/3/13	2025/3/12
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	Cable-RF2-03(246272/4)	2023/7/8	2024/7/7
RF Coaxial Cable INFINET	CA3501-3501- G.90(3m)&CA3501- 3501-F.90(2m)	INF090(3m)*2&TCF427S(2m)*1	2023/7/8	2024/7/7
Signal Analyzer R&S	FSV40	100980	2023/5/3	2024/5/2
Software ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table ADT	N/A	SN30303	N/A	N/A

Notes:

1. The test was performed in HY - RF chamber 2
2. Tested Date: 2024/4/10

4.7 Receiver Spurious Emissions up to 1 GHz

Refer to section 4.5 to get information of the instruments.

4.8 Receiver Spurious Emissions above 1 GHz

Refer to section 4.6 to get information of the instruments.

5 Limits of Test Items

5.1 RF Output Power

Condition	Frequency Band	Limit (e.i.r.p.)
Under all test conditions	2400 ~ 2483.5 MHz	20 dBm

5.2 Power Spectral Density

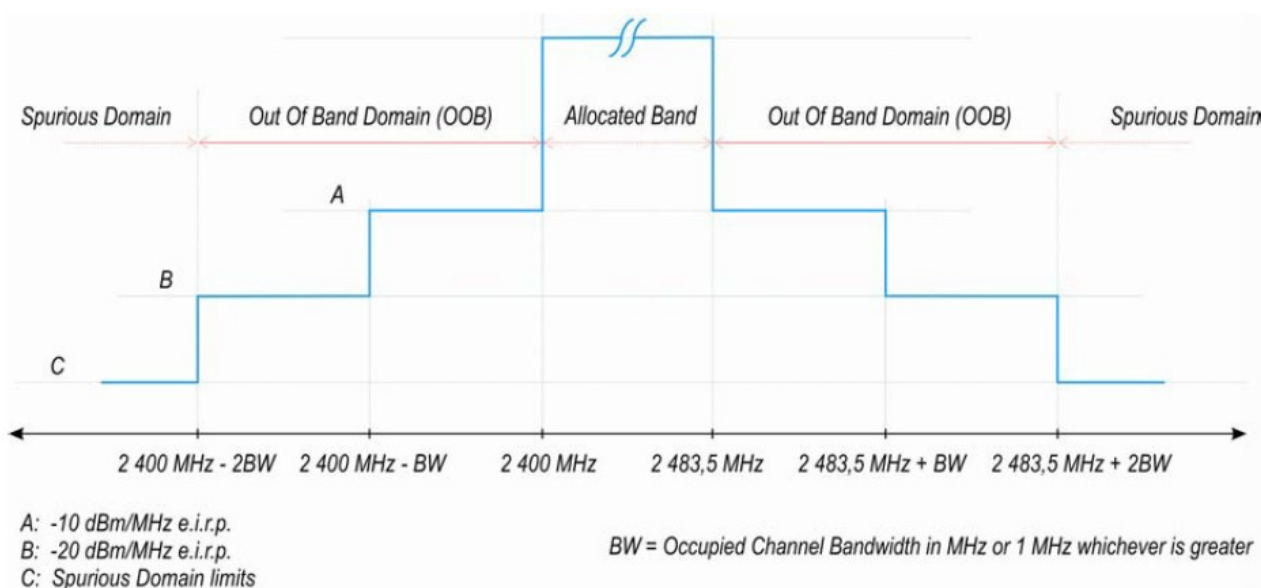
Condition	Frequency Band	Limit (e.i.r.p.)
Under normal conditions	2400 ~ 2483.5 MHz	10 dBm / 1 MHz

5.3 Occupied Channel Bandwidth

Condition		Limit
All types of equipment		Shall fall completely within the band 2400 to 2483.5 MHz.
Additional requirement	For non-adaptive non-FHSS system and e.i.r.p > 10 dBm.	Less than 20 MHz
	For non-adaptive Frequency Hopping system and e.i.r.p > 10 dBm.	Less than 5 MHz

5.4 Transmitter Unwanted Emissions in the out-of-band Domain

Condition	Limit
Under normal conditions	The transmitter unwanted emissions in the out-of-band domain shall not exceed the values provided by the mask in below figure.



5.5 Transmitter Unwanted Emissions in the Spurious Domain up to 1 GHz

Frequency Range	Maximum Power Limit	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87.5 MHz	-36 dBm	100 kHz
87.5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 694 MHz	-54 dBm	100 kHz
694 MHz to 1 GHz	-36 dBm	100 kHz

Note: These limits are e.r.p. for emissions up to 1 GHz.

5.6 Transmitter Unwanted Emissions in the Spurious Domain above 1 GHz

Frequency Range	Maximum Power Limit	Bandwidth
1 GHz to 12.75 GHz	-30 dBm	1 MHz

Note: These limits are e.i.r.p. for emissions above 1 GHz.

5.7 Receiver Spurious Emissions up to 1 GHz

Frequency Range	Maximum Power Limit	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz

Note: These limits are e.r.p. for emissions up to 1 GHz.

5.8 Receiver Spurious Emissions above 1 GHz

Frequency Range	Maximum Power Limit	Bandwidth
1 GHz to 12.75 GHz	-47 dBm	1 MHz

Note: These limits are e.i.r.p. for emissions above 1 GHz.

6 Test Arrangements

6.1 RF Output Power

Test procedure refer to chapter 5.4.2 of EN 300 328 V2.2.2.

Measurement Method	Conducted measurement
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6.2 Power Spectral Density

Test procedure refer to chapter 5.4.3 of EN 300 328 V2.2.2.

Measurement Method	Conducted measurement
Option 1: For equipment with continuous and non-continuous transmissions	

6.3 Occupied Channel Bandwidth

Test procedure refer to chapter 5.4.7 of EN 300 328 V2.2.2.

Measurement Method	Conducted measurement
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6.4 Transmitter Unwanted Emissions in the out-of-band Domain

Test procedure refer to chapter 5.4.8 of EN 300 328 V2.2.2.

Measurement Method	Conducted measurement
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6.5 Transmitter Unwanted Emissions in the Spurious Domain up to 1 GHz

Test procedure refer to chapter 5.4.9 of EN 300 328 V2.2.2.

Measurement Method	Radiated measurement
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6.6 Transmitter Unwanted Emissions in the Spurious Domain above 1 GHz

Test procedure refer to chapter 5.4.9 of EN 300 328 V2.2.2.

Measurement Method	Radiated measurement
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6.7 Receiver Spurious Emissions up to 1 GHz

Test procedure refer to chapter 5.4.10 of EN 300 328 V2.2.2.

Measurement Method	Radiated measurement
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6.8 Receiver Spurious Emissions above 1 GHz

Test procedure refer to chapter 5.4.10 of EN 300 328 V2.2.2.

Measurement Method	Radiated measurement
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7 Test Results of Test Item

7.1 RF Output Power

Input Power:	3.3 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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Test Mode B

BT-LE 125k

Channel	Frequency (MHz)	EIRP (dBm)			Limit (dBm)	Test Result
		Test Conditions				
		25 °C	-10 °C	70 °C		
0	2402	3.01	3.17	2.83	20	Pass
19	2440	3.04	3.22	2.85	20	Pass
39	2480	2.95	3.12	2.78	20	Pass

BT-LE 500k

Channel	Frequency (MHz)	EIRP (dBm)			Limit (dBm)	Test Result
		Test Conditions				
		25 °C	-10 °C	70 °C		
0	2402	3.00	3.18	2.79	20	Pass
19	2440	3.06	3.29	2.88	20	Pass
39	2480	3.01	3.22	2.84	20	Pass

BT-LE 1M

Channel	Frequency (MHz)	EIRP (dBm)			Limit (dBm)	Test Result
		Test Conditions				
		25 °C	-10 °C	70 °C		
0	2402	3.00	3.29	2.76	20	Pass
19	2440	3.01	3.26	2.73	20	Pass
39	2480	2.95	3.21	2.72	20	Pass

BT-LE 2M

Channel	Frequency (MHz)	EIRP (dBm)			Limit (dBm)	Test Result
		Test Conditions				
		25 °C	-10 °C	70 °C		
1	2404	2.96	3.25	2.68	20	Pass
19	2440	3.02	3.29	2.76	20	Pass
38	2478	2.94	3.20	2.67	20	Pass

7.2 Power Spectral Density

Input Power:	3.3 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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Test Mode B

BT-LE 125k

Channel	Frequency (MHz)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
0	2402	2.95	10	Pass
19	2440	2.98	10	Pass
39	2480	2.90	10	Pass

BT-LE 500k

Channel	Frequency (MHz)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
0	2402	2.94	10	Pass
19	2440	3.00	10	Pass
39	2480	2.95	10	Pass

BT-LE 1M

Channel	Frequency (MHz)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
0	2402	2.94	10	Pass
19	2440	2.96	10	Pass
39	2480	2.89	10	Pass

BT-LE 2M

Channel	Frequency (MHz)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
1	2404	1.77	10	Pass
19	2440	1.83	10	Pass
38	2478	1.73	10	Pass

7.3 Occupied Channel Bandwidth

Input Power:	3.3 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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Test Mode A

BT-LE 125k

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	Measured Frequencies		Service Frequency Band (MHz)	Test Result
			FL (MHz)	FH (MHz)		
0	2402	1.02	2401.50	2402.52	2400 to 2483.5	Pass
39	2480	1.03	2479.50	2480.53		Pass

Notes:

1. FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
2. FH is the highest frequency of the 99% occupied bandwidth of power envelope.

BT-LE 500k

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	Measured Frequencies		Service Frequency Band (MHz)	Test Result
			FL (MHz)	FH (MHz)		
0	2402	1.02	2401.50	2402.52	2400 to 2483.5	Pass
39	2480	1.03	2479.50	2480.53		Pass

Notes:

1. FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
2. FH is the highest frequency of the 99% occupied bandwidth of power envelope.

BT-LE 1M

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	Measured Frequencies		Service Frequency Band (MHz)	Test Result
			FL (MHz)	FH (MHz)		
0	2402	1.03	2401.50	2402.53	2400 to 2483.5	Pass
39	2480	1.04	2479.50	2480.54		Pass

Notes:

1. FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
2. FH is the highest frequency of the 99% occupied bandwidth of power envelope.

BT-LE 2M

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	Measured Frequencies		Service Frequency Band (MHz)	Test Result
			FL (MHz)	FH (MHz)		
1	2404	2.07	2402.98	2405.05	2400 to 2483.5	Pass
38	2478	2.09	2476.97	2479.06		Pass

Notes:

1. FL is the lowest frequency of the 99% occupied bandwidth of power envelope.
2. FH is the highest frequency of the 99% occupied bandwidth of power envelope.

7.4 Transmitter Unwanted Emissions in the out-of-band Domain

Input Power:	3.3 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyoung Wang
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Test Mode A

BT-LE 125k

Channel	Frequency (MHz)	Out-Of-Band Domain			Limit (dBm/MHz)	Test Result
		Frequency Range (MHz)	Worst Frequency (MHz)	Emission Level (dBm/MHz)		
0	2402	2397.96 ~ 2398.98	2398.50	-52.57	-20	Pass
		2398.98 ~ 2400	2399.50	-31.00	-10	Pass
39	2480	2483.5 ~ 2484.53	2484.50	-52.68	-10	Pass
		2484.53 ~ 2485.56	2485.50	-54.05	-20	Pass

BT-LE 500k

Channel	Frequency (MHz)	Out-Of-Band Domain			Limit (dBm/MHz)	Test Result
		Frequency Range (MHz)	Worst Frequency (MHz)	Emission Level (dBm/MHz)		
0	2402	2397.96 ~ 2398.98	2398.50	-52.61	-20	Pass
		2398.98 ~ 2400	2399.50	-30.74	-10	Pass
39	2480	2483.5 ~ 2484.53	2484.50	-52.67	-10	Pass
		2484.53 ~ 2485.56	2485.50	-54.12	-20	Pass

BT-LE 1M

Channel	Frequency (MHz)	Out-Of-Band Domain			Limit (dBm/MHz)	Test Result
		Frequency Range (MHz)	Worst Frequency (MHz)	Emission Level (dBm/MHz)		
0	2402	2397.94 ~ 2398.97	2398.50	-52.68	-20	Pass
		2398.97 ~ 2400	2399.50	-30.74	-10	Pass
39	2480	2483.5 ~ 2484.54	2484.50	-52.70	-10	Pass
		2484.54 ~ 2485.58	2485.50	-54.14	-20	Pass

BT-LE 2M

Channel	Frequency (MHz)	Out-Of-Band Domain			Limit (dBm/MHz)	Test Result
		Frequency Range (MHz)	Worst Frequency (MHz)	Emission Level (dBm/MHz)		
1	2404	2395.86 ~ 2397.93	2397.50	-55.54	-20	Pass
		2397.93 ~ 2400	2399.50	-50.11	-10	Pass
38	2478	2483.5 ~ 2485.59	2484.50	-54.49	-10	Pass
		2485.59 ~ 2487.68	2486.50	-55.43	-20	Pass

7.5 Transmitter Unwanted Emissions in the Spurious Domain up to 1 GHz

Test Mode A

BT-LE 125k

Spurious Emission Frequency Range	30 MHz ~ 1 GHz	Operating Channel	0
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
51.63	H	-71.72	-54.00	-17.72
55.06	V	-69.58	-54.00	-15.58
101.91	V	-63.89	-54.00	-9.89
103.98	H	-76.99	-54.00	-22.99
186.24	V	-78.23	-54.00	-24.23
196.94	H	-77.36	-54.00	-23.36
492.12	H	-74.18	-54.00	-20.18
493.74	V	-72.51	-54.00	-18.51
581.72	V	-71.05	-54.00	-17.05
597.70	H	-70.45	-54.00	-16.45
673.39	H	-70.67	-54.00	-16.67
674.30	V	-69.59	-54.00	-15.59

BT-LE 500k

Spurious Emission Frequency Range	30 MHz ~ 1 GHz	Operating Channel	39
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
52.60	H	-74.44	-54.00	-20.44
56.48	V	-71.65	-54.00	-17.65
101.91	V	-63.89	-54.00	-9.89
103.98	H	-76.99	-54.00	-22.99
180.61	H	-78.57	-54.00	-24.57
208.71	V	-78.54	-54.00	-24.54
492.12	H	-74.18	-54.00	-20.18
505.51	V	-72.79	-54.00	-18.79
581.72	V	-71.05	-54.00	-17.05
588.45	H	-70.75	-54.00	-16.75
650.43	V	-70.40	-54.00	-16.40
653.25	H	-70.29	-54.00	-16.29

BT-LE 1M

Spurious Emission Frequency Range	30 MHz ~ 1 GHz	Operating Channel	0
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
52.93	V	-64.17	-54.00	-10.17
59.23	H	-62.30	-54.00	-8.30
95.90	V	-62.13	-54.00	-8.13
109.61	H	-67.35	-54.00	-13.35
207.42	H	-81.00	-54.00	-27.00
208.87	V	-79.17	-54.00	-25.17
485.49	V	-73.57	-54.00	-19.57
489.60	H	-72.98	-54.00	-18.98
560.22	V	-70.88	-54.00	-16.88
578.00	H	-70.52	-54.00	-16.52
673.42	H	-70.47	-54.00	-16.47
676.98	V	-69.39	-54.00	-15.39

BT-LE 2M

Spurious Emission Frequency Range	30 MHz ~ 1 GHz	Operating Channel	1
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
52.08	V	-73.18	-54.00	-19.18
65.63	H	-66.60	-54.00	-12.60
103.88	H	-76.80	-54.00	-22.80
106.79	V	-77.78	-54.00	-23.78
195.75	H	-77.91	-54.00	-23.91
197.14	V	-78.87	-54.00	-24.87
481.26	H	-74.06	-54.00	-20.06
492.71	V	-74.07	-54.00	-20.07
594.95	H	-70.19	-54.00	-16.19
606.04	V	-71.20	-54.00	-17.20
674.10	V	-69.62	-54.00	-15.62
680.15	H	-70.13	-54.00	-16.13

7.6 Transmitter Unwanted Emissions in the Spurious Domain above 1 GHz

Test Mode A

BT-LE 125k

Spurious Emission Frequency Range	1 GHz ~ 12.75 GHz	Operating Channel	0, 39
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
0	4804.00	H	-54.38	-30.00	-24.38
	4804.00	V	-52.60	-30.00	-22.60
39	4960.00	H	-52.04	-30.00	-22.04
	4960.00	V	-54.11	-30.00	-24.11

BT-LE 500k

Spurious Emission Frequency Range	1 GHz ~ 12.75 GHz	Operating Channel	0, 39
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
0	4804.00	H	-50.68	-30.00	-20.68
	4804.00	V	-51.86	-30.00	-21.86
39	4960.00	H	-41.09	-30.00	-11.09
	4960.00	V	-49.55	-30.00	-19.55

BT-LE 1M

Spurious Emission Frequency Range	1 GHz ~ 12.75 GHz	Operating Channel	0, 39
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
0	4804.00	H	-54.17	-30.00	-24.17
	4804.00	V	-52.77	-30.00	-22.77
39	4960.00	H	-52.51	-30.00	-22.51
	4960.00	V	-53.13	-30.00	-23.13

BT-LE 2M

Spurious Emission Frequency Range	1 GHz ~ 12.75 GHz	Operating Channel	1, 38
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
1	4808.00	H	-54.27	-30.00	-24.27
	4808.00	V	-53.00	-30.00	-23.00
38	4956.00	H	-53.80	-30.00	-23.80
	4956.00	V	-53.82	-30.00	-23.82

7.7 Receiver Spurious Emissions up to 1 GHz

Test Mode A

Spurious Emission Frequency Range	30 MHz ~ 1 GHz	Operating Channel	0
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
48.33	V	-68.94	-57.00	-11.94
92.99	H	-63.59	-57.00	-6.59
147.47	V	-68.34	-57.00	-11.34
252.40	V	-73.14	-57.00	-16.14
270.63	H	-75.40	-57.00	-18.40
384.90	H	-72.81	-57.00	-15.81
394.41	V	-74.24	-57.00	-17.24
494.06	H	-74.25	-57.00	-17.25
500.34	V	-72.22	-57.00	-15.22
653.02	V	-70.21	-57.00	-13.21
670.58	H	-70.00	-57.00	-13.00
849.03	H	-67.66	-57.00	-10.66

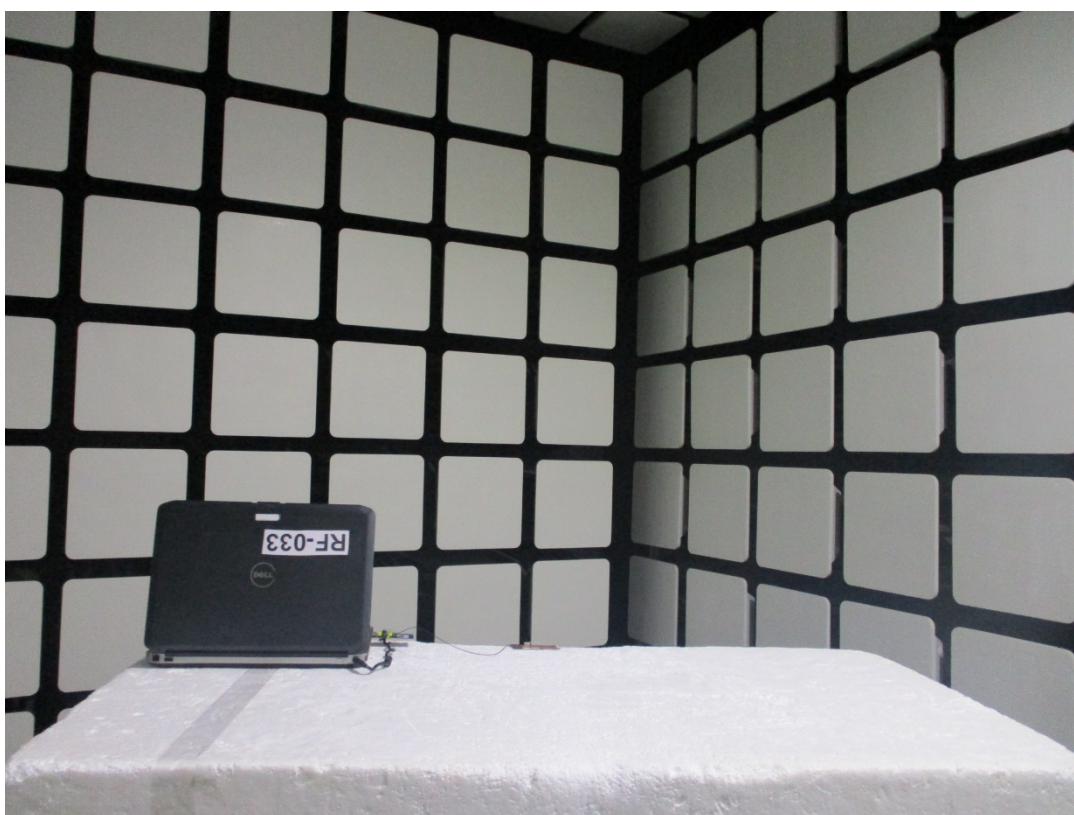
7.8 Receiver Spurious Emissions above 1 GHz

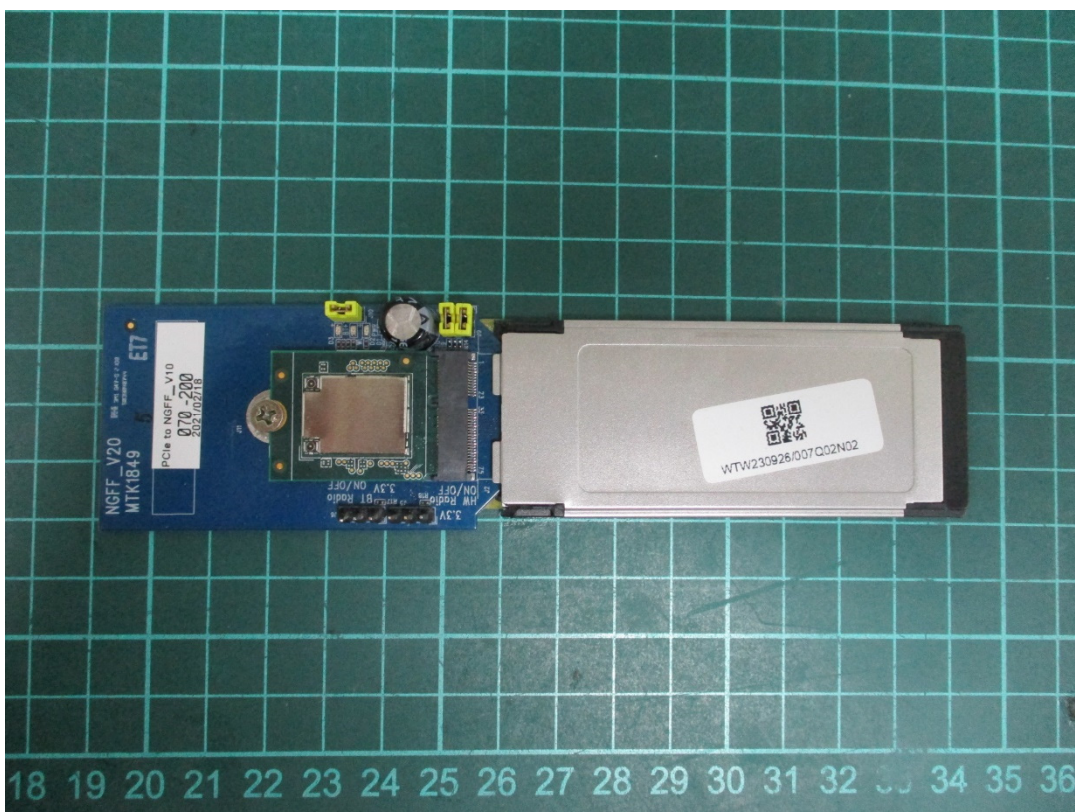
Test Mode A

Spurious Emission Frequency Range	1 GHz ~ 12.75 GHz	Operating Channel	0, 39
Input Power	230 Vac, 50 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Vanness Huang		

Spurious Emission Level					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
0	4804.00	H	-54.57	-47.00	-7.57
	4804.00	V	-53.63	-47.00	-6.63
39	4960.00	H	-55.54	-47.00	-8.54
	4960.00	V	-53.81	-47.00	-6.81

8 Pictures of Test Arrangements





Annex A-Conducted Output Power

Test Mode B

Mode	Channel	Frequency (MHz)	Conducted Average (dBm)
BT-LE 125k	0	2402	13.01
	19	2440	13.04
	39	2480	12.95
BT-LE 500k	0	2402	13.00
	19	2440	13.06
	39	2480	13.01
BT-LE 1M	0	2402	13.00
	19	2440	13.01
	39	2480	12.95
BT-LE 2M	1	2404	12.96
	19	2440	13.02
	38	2478	12.94

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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