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Dates of Tests: March 20 ~ June 03, 2019
Test Report S/N: LR500111906G
Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID. **2ATAJFW0808**

APPLICANT **INFOTRON**

Equipment Class	:	**Digital Transmission System (DTS)**
Manufacturing Description	:	**Wi-Fi Internet of Things Module.**
Manufacturer	:	**INFOTRON**
Model name	:	**FW0808**
Variant Model name	:	**FB0808**
Test Device Serial No.:	:	**Identical prototype**
Rule Part(s)	:	**FCC Part 15.247 Subpart C ; ANSI C-63.4-2014** **ANSI C-63.10-2013**
Frequency Range	:	**2412 MHz ~ 2462 MHz(802.11 b/g/n/n40)**
Max. Output Power	:	**Max 23.32 dBm – Conducted(802.11 b)** **Max 22.82 dBm – Conducted(802.11 g)** **Max 23.21 dBm – Conducted(802.11 n20)** **Max 23.72 dBm – Conducted(802.11 n40)**
Data of issue	:	**June 19, 2019**

This test report is issued under the authority of:

JaBeom.Koo

Ja-Beom Koo, Manager

The test was supervised by:

Eun-Hwan Jung, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

NVLAP LAB Code.: 200723-0

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1. General information

1-1 Test Performed

Company name : LTA Co., Ltd.
Address : 243, Jubug-ri,Yangji-Myeon,Youngin-Si, Kyunggi-Do, Korea. 449-822
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Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2019-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	2021-04-11	FCC CAB
VCCI	JAPAN	C-4948,	2020-09-10	VCCI registration
VCCI	JAPAN	T-2416,	2020-09-10	VCCI registration
VCCI	JAPAN	R-4483(10 m),	2020-10-15	VCCI registration
VCCI	JAPAN	G-847	2021-12-13	VCCI registration
IC	CANADA	5799A-1	2019-11-07	IC filing
KOLAS	KOREA	NO.551	2021-08-20	KOLAS accredited Lab.

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2. Information about test item

2-1 Client & Manufacturer

Company name	:	INFOTRON
Address	:	87, Bandal-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea
Tel / Fax	:	TEL No : +82-1688-9256 / FAX No : +82-31-204-1090
	:	
	:	

2-2 Equipment Under Test (EUT)

Model name	:	FW0808
Serial number	:	Identical prototype
Date of receipt	:	June 03, 2019
EUT condition	:	Pre-production, not damaged
Antenna type	:	Pattern Antenna - Max Gain 3.71 dBi
Frequency Range	:	2412 MHz ~ 2462 MHz (802.11 b/g/n/n40)
RF output power	:	Max 23.32 dBm – Conducted(802.11 b) Max 22.82 dBm – Conducted(802.11 g) Max 23.21 dBm – Conducted(802.11 n20) Max 23.72 dBm – Conducted(802.11 n40)
Number of channels	:	11 (802.11 b/g/n) 9 (802.11 n40)
Type of Modulation	:	GFSK, CCK, DQPSK, DBPSK for DSSS, 64QAM, 16QAM, QPSK, BPSK for OFDM
Power Source	:	DC 3.7 V
Firmware Version	:	V1.0.0

2-3 Tested frequency

802.11 b/g/n	LOW	MID	HIGH
Frequency (MHz) 802.11 b/g/n	2412	2437	2462
Frequency (MHz) n40	2422	2437	2452

2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Notebook	CR720	MS-1736	MSI

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3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	6 dB Bandwidth	> 500 kHz	Conducted	N/A
15.247(b)	Transmitter Peak Output Power	< 1 Watt		N/A
15.247(d)	Transmitter Power Spectral Density	< 8 dBm @ 3 kHz		N/A
15.247(d)	Band Edge	> 20 dBc		N/A
15.209	Field Strength of Harmonics	Emission	Radiated	C
15.207	AC Conducted Emissions	Emissions	Conducted	NA
15.203	Antenna requirement	-	-	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

N/A : The product replaces this test with a certificate using an authenticated module.

→ Antenna Requirement
INFOTRON. FCC ID: 2ATAJFW0808 unit complies with the requirement of §15.203.
The antenna type is Pattern Antenna

The sample was tested according to the following specification:
*FCC Parts 15.247; ANSI C-63.4-2014
*FCC KDB Publication No. 558074 D01 v05r02
*FCC TCB Workshop 2012, April

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3.2 Technical Characteristics Test

3.2.1 6 dB Bandwidth

Procedure:

The bandwidth at 6 dB below the highest in-band spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz	Span = 5 MHz, 30 MHz
VBW = 100 kHz (VBW ≥ RBW)	Sweep = auto
Trace = max hold	Detector function = peak

Measurement Data : **N/A**

Minimum Standard:

6 dB Bandwidth > 500 kHz

Measurement Setup

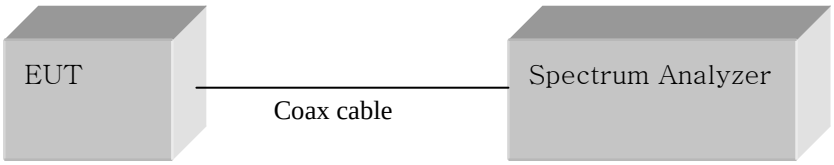

Figure 1: Measurement setup for the carrier frequency separation

3.2.2 Peak Output Power Measurement

Procedure:

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 1MHz Span = auto

VBW = 3MHz (VBW ≥ 3 * RBW) Sweep = auto

Detector function = peak

Measurement Data :N/A

Minimum Standard:

Peak output power	< 1 W

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

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3.2.3 Power Spectral Density

Procedure:

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

The spectrum analyzer is set to:

RBW = 3 kHz (3kHz≤RBW≤100kHz)	Span = 1.5 times the DTS bandwidth
VBW = 10 kHz (3 * RBW)	Sweep = auto
Detector function = peak	Trace = max hold

Measurement Data : N/A

Minimum Standard:

Power Spectral Density	< 8 dBm @ 3 kHz BW

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

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3.2.4 Band - edge

Procedure:

The bandwidth at 20 dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz	VBW = 100 kHz
Span = 40 MHz, 80 MHz	Detector function = peak
Trace = max hold	Sweep = auto

Radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a)

The spectrum analyzer is set to:

Center frequency = the highest, the lowest channels

PEAK:	RBW = VBW = 1 MHz, Sweep=Auto
Average:	RBW = 1 MHz, VBW=10 Hz, Sweep=Auto
Measurement Distance:	3 m
Polarization:	Horizontal / Vertical

Measurement Data: **N/A**

- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 20 dB lower than the highest inband spectral density. Therefore the applying equipment meets the require ment.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc

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3.2.5 Conducted Spurious Emissions

Procedure:

The test follows KDB558074. The conducted spurious emissions were measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels..

After the trace being stable, set the marker on the peak of any spurious emission recorded.

The spectrum analyzer is set to:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions

RBW = 100 kHz Sweep = auto

VBW = 100 kHz Detector function = peak

Trace = max hold

Measurement Data: **N/A**

- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 20 dB lower than the highest inband spectral density. Therefore the applying equipment meets the require ment.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

3.2.6 Radiated Spurious Emissions

Procedure:

The EUT was placed on a 0.8 m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 9 kHz ~ 10th harmonic.

RBW = 100 kHz (30 MHz ~ 1 GHz) VBW ≥ RBW

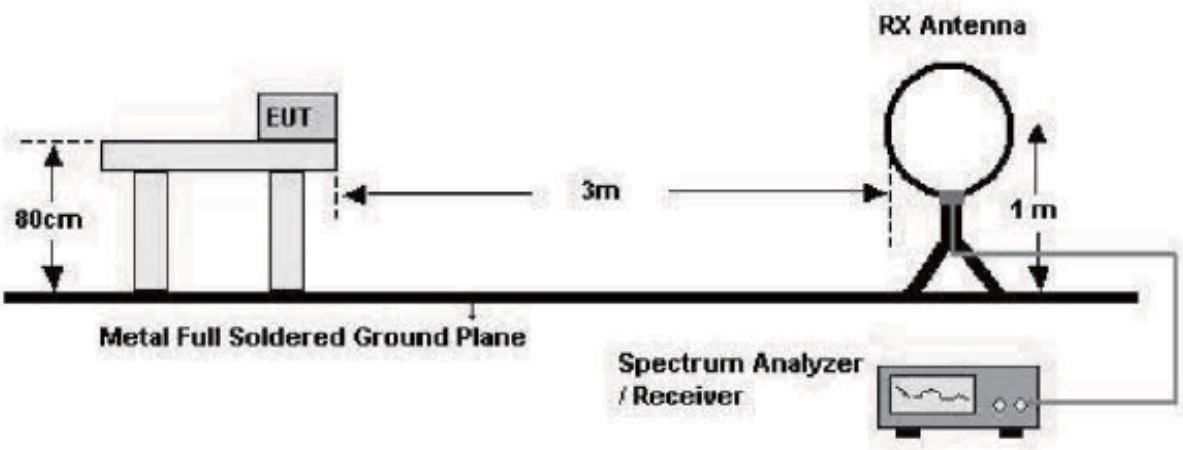
= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz Detector function = peak

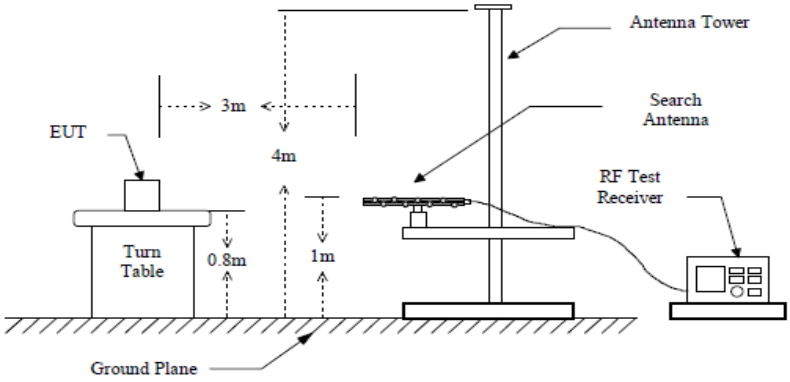
Trace = max hold Sweep = auto

Note : Attach worst-case data in accordance with ANSI C63.10-2013 6.3.4.

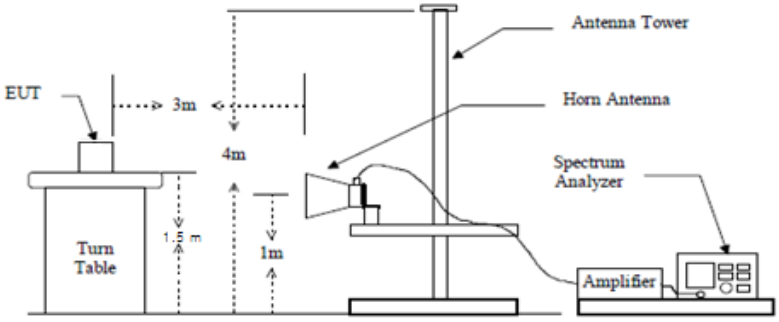
below 30 MHz



below 1 GHz (30 MHz to 1 GHz)



above 1 GHz



Measurement Data: Complies

- See next pages for actual measured data.
- No other emissions were detected at a level greater than 20 dB below limit include from 9 kHz to 30 MHz.

Minimum Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3 m
0.009 ~ 0.490	2400/F(kHz) **(@ 300 m)**
0.490 ~ 1.705	24000/F(kHz) **(@ 30 m)**
1.705 ~ 30	30**(@ 30 m)**
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-80 6 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

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Measurement Data: (9 kHz – 30 MHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp.Gain+Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
*No emissions were detected at a level greater than 20 dB below limit.											
-	-	-	-	-	-	-	-	-	-	-	-

*No emissions were detected at a level greater than 20 dB below limit.

Measurement Data : 802.11 b (Above 1 GHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4825.51	46.72	51.68	H	-15.05		54	74	31.67	36.63	22.33	37.37
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

Measurement Data : 802.11 g (Above 1 GHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
7486.61	33.76	38.94	H	-4.39		54	74	29.37	34.55	24.63	39.45
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

Measurement Data : 802.11 n (Above 1 GHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
7331.15	38.06	42.74	H	-6.30		54	74	31.76	36.44	22.24	37.56
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

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Measurement Data : 802.11 n40 (Above 1 GHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m] AV/Peak		Result [dBuV/m] AV/Peak		Margin [dB] AV / Peak	
7331.15	38.06	42.74	H	-6.30		54	74	31.76	36.44	22.24	37.56
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

Measurement Data : 802.11 b (Below 1 GHz)

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
288.38	50.96		H	-11.31		46		39.65		6.35	
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

Measurement Data : 802.11 g (Below 1 GHz)

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
288.38	49.65		H	-11.31		46		38.34		7.66	
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

Measurement Data : 802.11 n (Below 1 GHz)

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
288.14	50.74		H	-11.32		46		39.42		6.58	
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

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Measurement Data : 802.11 n40 (Below 1 GHz)

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor Antenna-Amp.Gain+Cable		Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
288.14	50.74		H	-11.32		46		39.42		6.58	
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

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Radiated Emissions (Below 1 GHz) – 802.11 b mode, Vertical

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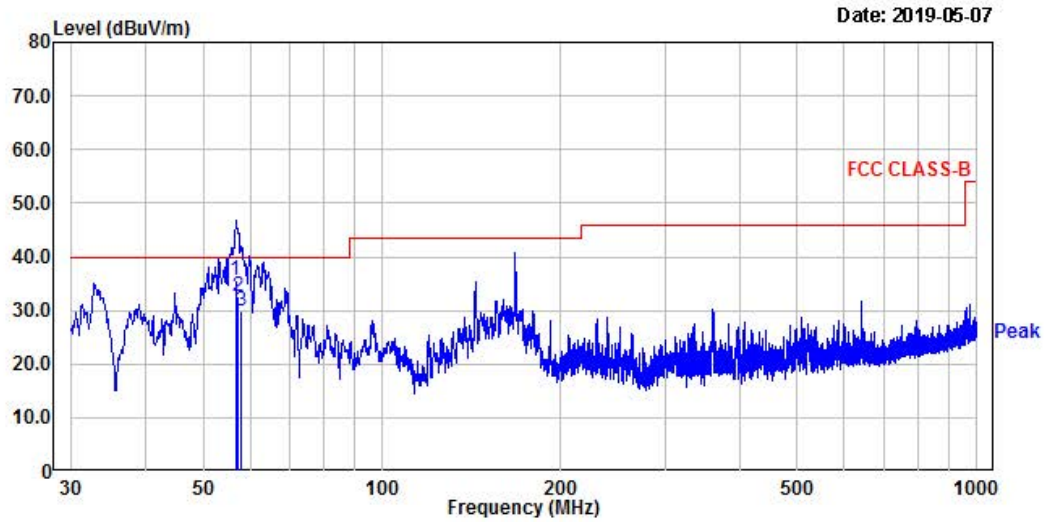
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 b Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
56.68	49.22	-13.57	35.65	40.00	4.35	100	247	vertical
57.28	46.09	-13.62	32.47	40.00	7.53	100	236	vertical
58.01	43.73	-13.74	29.99	40.00	10.01	100	247	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

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Radiated Emissions (Below 1 GHz) – 802.11 b mode, Horizontal

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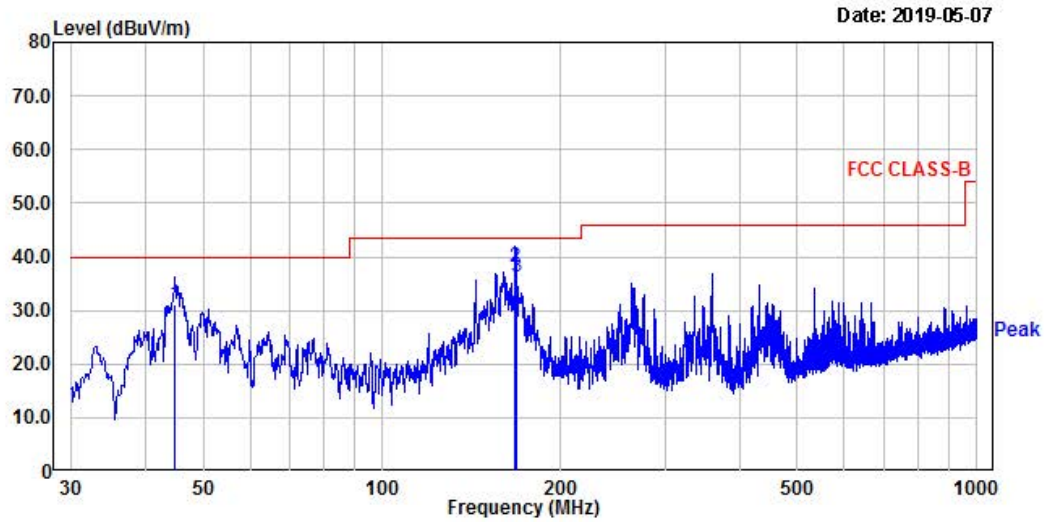
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 b Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
44.79	44.77	-13.56	31.21	40.00	8.79	400	86	horizontal
167.50	50.60	-12.65	37.95	43.50	5.55	100	115	horizontal
168.23	48.96	-12.68	36.28	43.50	7.22	100	81	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

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Radiated Emissions (Above 1 GHz) – 802.11 b mode

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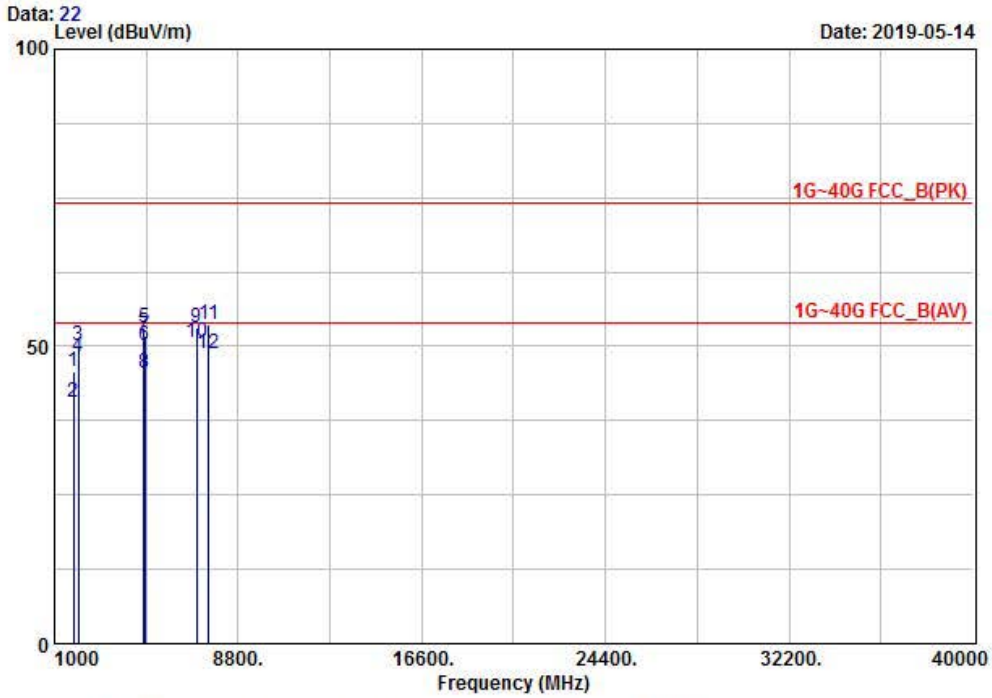
EUT/Model No.: FW0808 Test Mode: WLAN b

Tested by : Jung E H Temp/Humi: 22 / 62



	Freq MHz	Reading dBuV	C.F dB	Result PK dBuV/m	Limit dBuV/m	Margin dB	Polarity
1	1805.00	45.98	-0.19	45.79	74.00	28.21	VERTICAL
2	1805.00	40.82	-0.19	40.63	54.00	13.37	VERTICAL
3	2011.37	48.50	1.63	50.13	74.00	23.87	HORIZONTAL
4	2011.37	46.70	1.63	48.33	54.00	5.67	HORIZONTAL
5	4805.03	35.41	17.77	53.18	74.00	20.82	VERTICAL
6	4805.03	32.40	17.77	50.17	54.00	3.83	VERTICAL
7	4844.36	33.72	17.94	51.66	74.00	22.34	HORIZONTAL
8	4844.36	27.66	17.94	45.60	54.00	8.40	HORIZONTAL
9	7046.24	28.03	25.17	53.20	74.00	20.80	HORIZONTAL
10	7046.24	25.44	25.17	50.61	54.00	3.39	HORIZONTAL
11	7543.27	22.18	31.38	53.56	74.00	20.44	VERTICAL
12	7543.27	17.33	31.38	48.71	54.00	5.29	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain
Blue : Vertical Black : Horizontal

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Radiated Emissions (Below 1 GHz) – 802.11 g mode, Vertical

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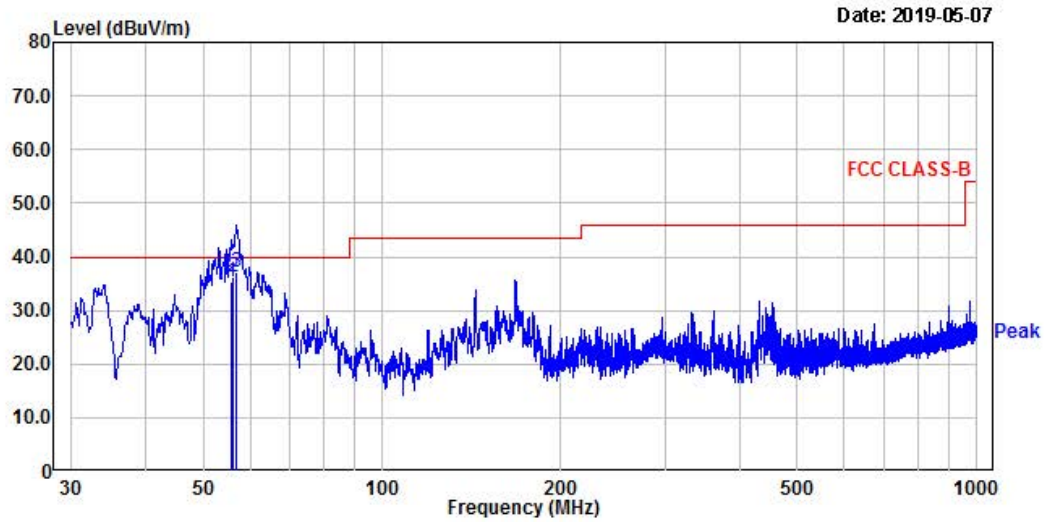
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 g Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
55.83	48.75	-13.56	35.19	40.00	4.81	100	256	vertical
56.07	49.80	-13.57	36.23	40.00	3.77	100	231	vertical
56.92	50.57	-13.56	37.01	40.00	2.99	100	220	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

- 1 -

Radiated Emissions (Below 1 GHz) – 802.11 g mode, Horizontal

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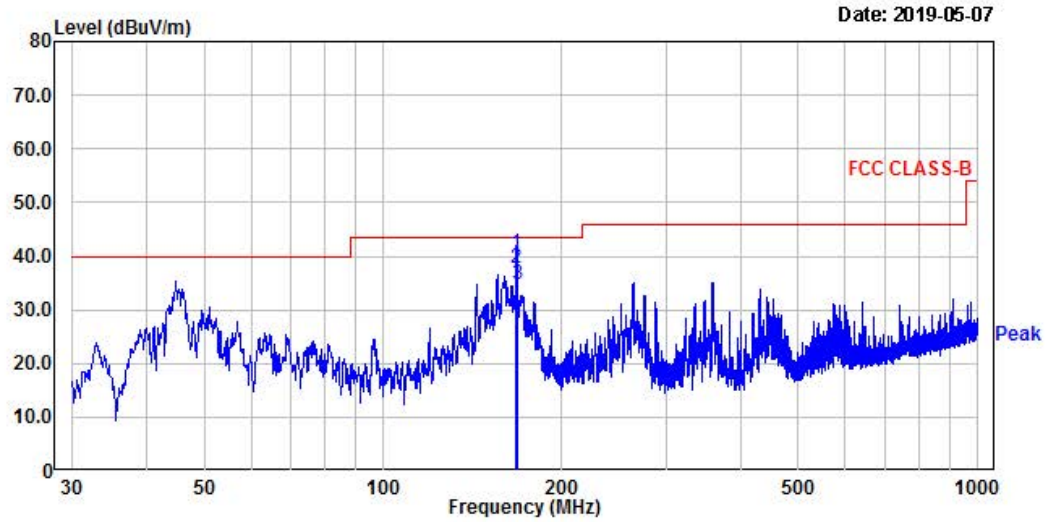
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 g Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
167.50	52.96	-12.65	40.31	43.50	3.19	100	238	horizontal
167.74	50.54	-12.67	37.87	43.50	5.63	100	250	horizontal
168.23	47.29	-12.68	34.61	43.50	8.89	100	228	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

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Radiated Emissions (Above 1 GHz) – 802.11 g mode

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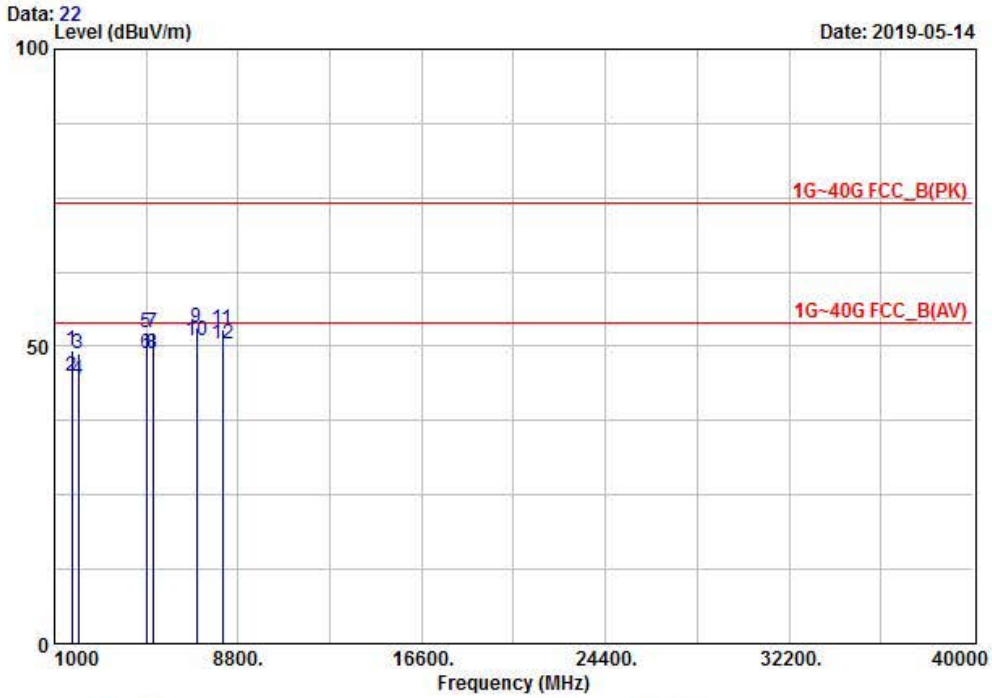
EUT/Model No.: FW0808 Test Mode: WLAN g

Tested by : Jung E H Temp/Humi: 22 / 62



	Freq MHz	Reading dBuV	C.F dB	Result PK dBuV/m	Limit dBuV/m	Margin dB	Polarity
1	1735.88	50.12	-0.77	49.35	74.00	24.65	VERTICAL
2	1735.88	45.85	-0.77	45.08	54.00	8.92	VERTICAL
3	2018.47	47.22	1.67	48.89	74.00	25.11	HORIZONTAL
4	2018.47	42.82	1.67	44.49	54.00	9.51	HORIZONTAL
5	4906.77	34.17	18.07	52.24	74.00	21.76	VERTICAL
6	4906.77	30.60	18.07	48.67	54.00	5.33	VERTICAL
7	5194.07	33.42	18.78	52.20	74.00	21.80	HORIZONTAL
8	5194.07	30.12	18.78	48.90	54.00	5.10	HORIZONTAL
9	7034.80	28.03	24.98	53.01	74.00	20.99	HORIZONTAL
10	7034.80	25.91	24.98	50.89	54.00	3.11	HORIZONTAL
11	8133.02	25.03	27.80	52.83	74.00	21.17	VERTICAL
12	8133.02	22.71	27.80	50.51	54.00	3.49	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain
Blue : Vertical Black : Horizontal

- 1 -

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Radiated Emissions (Below 1 GHz) – 802.11 n20 mode, Vertical

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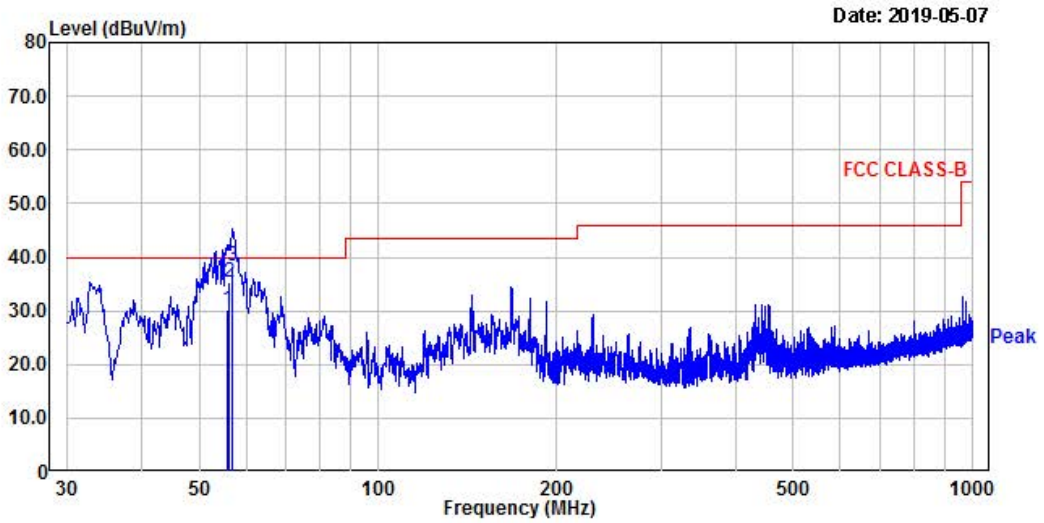
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 n20 Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
55.83	43.77	-13.56	30.21	40.00	9.79	100	290	vertical
56.19	48.74	-13.57	35.17	40.00	4.83	100	243	vertical
56.92	51.98	-13.56	38.42	40.00	1.58	100	278	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

- 1 -

Radiated Emissions (Below 1 GHz) – 802.11 n20 mode, Horizontal

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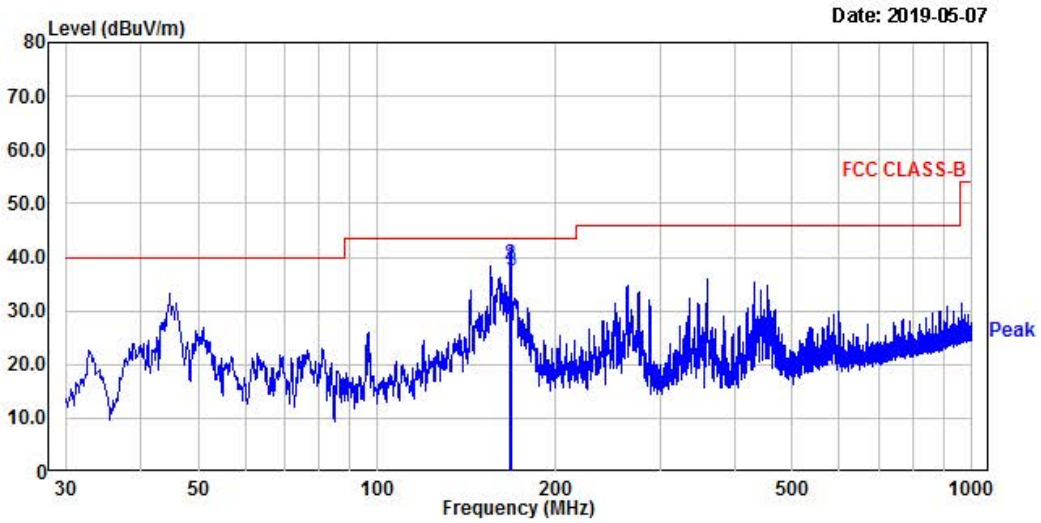
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 n20 Tested by: Jung E H



Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg	
167.62	50.86	-12.66	38.20	43.50	5.30	100	114	horizontal
167.86	51.24	-12.68	38.56	43.50	4.94	100	92	horizontal
168.10	50.24	-12.68	37.56	43.50	5.94	100	92	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

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Radiated Emissions (Above 1 GHz) – 802.11 n20 mode

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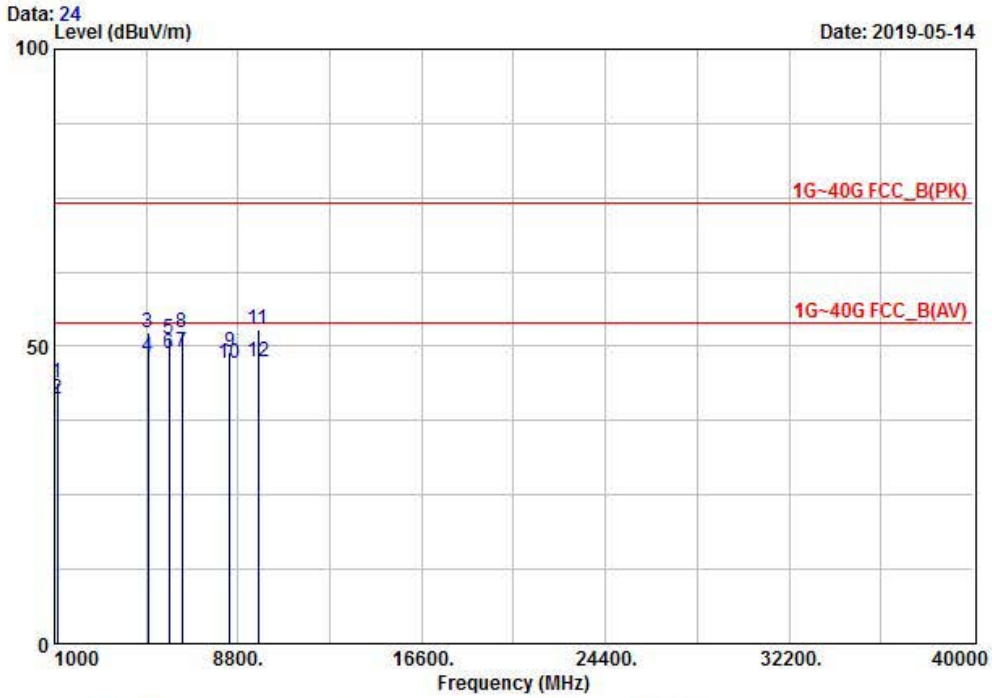
EUT/Model No.: FW0808 Test Mode: WLAN n20

Tested by : Jung E H Temp/Humi: 22 / 62



	Freq MHz	Reading dBuV	C.F dB	Result PK dBuV/m	Limit dBuV/m	Margin dB	Polarity
1	1137.53	50.27	-6.47	43.80	74.00	30.20	HORIZONTAL
2	1137.53	47.56	-6.47	41.09	54.00	12.91	HORIZONTAL
3	4974.59	34.22	18.10	52.32	74.00	21.68	VERTICAL
4	4974.59	30.16	18.10	48.26	54.00	5.74	VERTICAL
5	5874.22	30.10	21.03	51.13	74.00	22.87	HORIZONTAL
6	5874.22	27.84	21.03	48.87	54.00	5.13	HORIZONTAL
7	6433.08	27.61	21.54	49.15	54.00	4.85	HORIZONTAL
8	6433.08	30.88	21.54	52.42	74.00	21.58	HORIZONTAL
9	8442.12	20.55	28.51	49.06	74.00	24.94	VERTICAL
10	8442.12	18.59	28.51	47.10	54.00	6.90	VERTICAL
11	9633.57	23.82	29.15	52.97	74.00	21.03	VERTICAL
12	9633.57	18.37	29.15	47.52	54.00	6.48	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain
Blue : Vertical Black : Horizontal

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Radiated Emissions (Below 1 GHz) – 802.11 n40 mode, Horizontal

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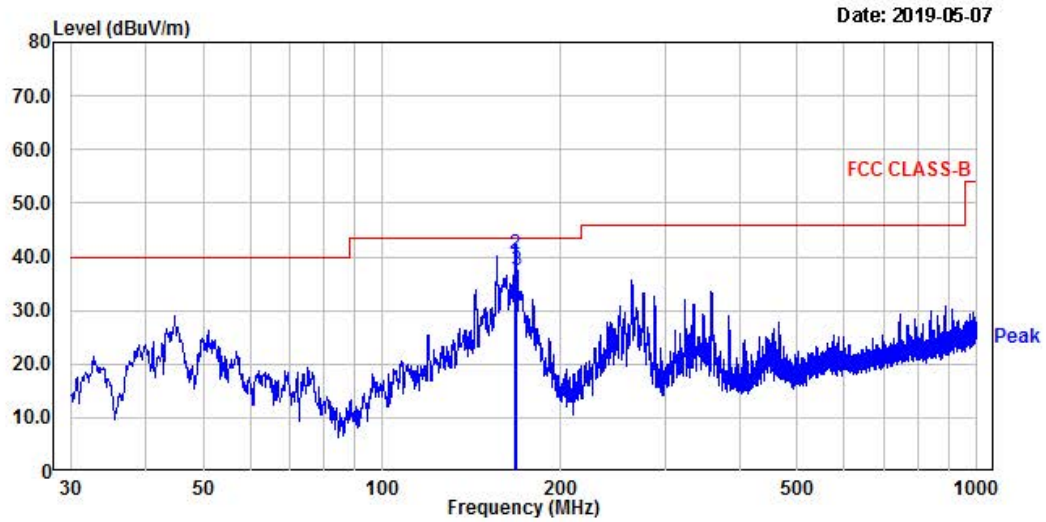
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 n40 Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
167.38	51.22	-12.64	38.58	43.50	4.92	100	94	horizontal
167.86	52.99	-12.68	40.31	43.50	3.19	100	94	horizontal
168.23	50.00	-12.68	37.32	43.50	6.18	100	94	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

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Radiated Emissions (Below 1 GHz) – 802.11 n20 mode, Vertical

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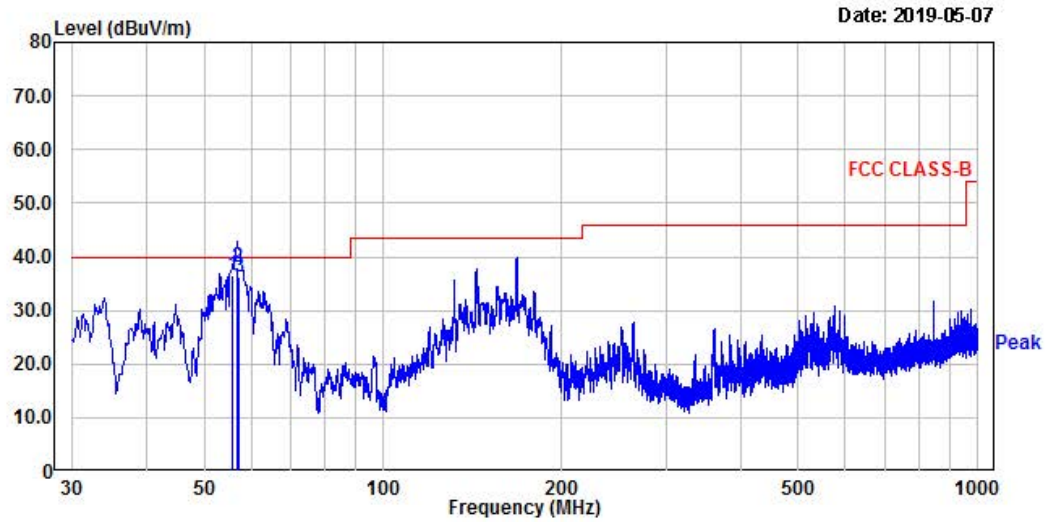
EUT/Model No.: FW0808 Temp/Humi: 23 / 36

Test Mode : 802.11 n40 Tested by: Jung E H



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
55.95	50.16	-13.56	36.60	40.00	3.40	100	94	vertical
56.80	51.47	-13.57	37.90	40.00	2.10	100	94	vertical
57.28	49.88	-13.62	36.26	40.00	3.74	100	94	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

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Radiated Emissions (Above 1 GHz) – 802.11 n40 mode

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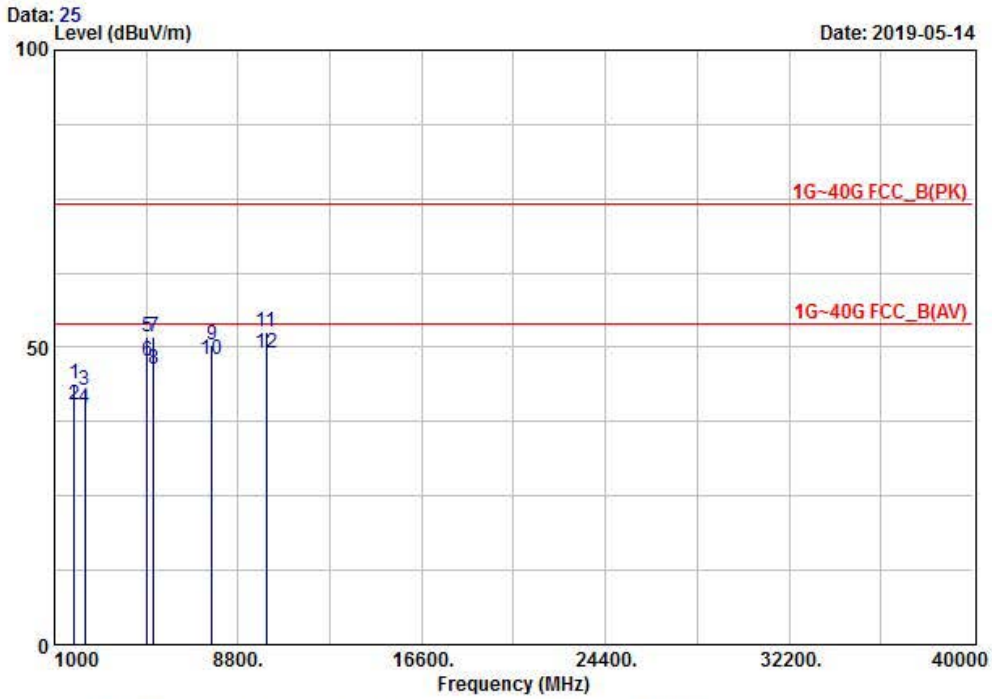
EUT/Model No.: FW0808 Test Mode: WLAN n40

Tested by : Jung E H Temp/Humi: 22 / 62



	Freq MHz	Reading dBuV	C.F dB	Result PK dBuV/m	Limit dBuV/m	Margin dB	Polarity
1	1833.05	43.82	0.09	43.91	74.00	30.09	HORIZONTAL
2	1833.05	40.25	0.09	40.34	54.00	13.66	HORIZONTAL
3	2273.59	40.25	2.52	42.77	74.00	31.23	HORIZONTAL
4	2273.59	37.18	2.52	39.70	54.00	14.30	HORIZONTAL
5	4949.22	33.71	18.00	51.71	74.00	22.29	HORIZONTAL
6	4949.22	29.64	18.00	47.64	54.00	6.36	HORIZONTAL
7	5197.39	33.03	18.80	51.83	74.00	22.17	VERTICAL
8	5197.39	27.57	18.80	46.37	54.00	7.63	VERTICAL
9	7672.39	20.26	30.21	50.47	74.00	23.53	VERTICAL
10	7672.39	17.79	30.21	48.00	54.00	6.00	VERTICAL
11	9987.56	23.33	29.27	52.60	74.00	21.40	VERTICAL
12	9987.56	19.71	29.27	48.98	54.00	5.02	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain
Blue : Vertical Black : Horizontal

- 1 -

3.2.6 AC Conducted Emissions

Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

Measurement Data: NA

Minimum Standard: FCC Part 15.207(a) / EN 55022

Class B

Frequency Range	quasi-peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

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APPENDIX

TEST EQUIPMENT USED FOR TESTS

	Use	Description	Model No.	Serial No.	Manufacturer	Interval	Nest Cal. Date
1		Signal Analyzer (9 kHz ~ 30 GHz)	FSV30	100757	R&S	1 year	2019-09-07
2		Signal Generator (~3.2 GHz)	8648C	3623A02597	HP	1 year	2020-03-20
3		SYNTHESIZED CW GENERATOR	83711B	US34490456	HP	1 year	2020-03-20
4		Attenuator (3 dB)	8491A	37822	HP	1 year	2019-09-07
5		Attenuator (10 dB)	8491A	63196	HP	1 year	2019-09-07
6	■	EMI Test Receiver (~7 GHz)	ESCI7	100722	R&S	1 year	2019-09-07
7	■	RF Amplifier (~1.3 GHz)	8447D OPT 010	2944A07684	HP	1 year	2019-09-07
8	■	RF Amplifier (1~26.5 GHz)	8449B	3008A02126	HP	1 year	2020-03-18
9	■	Horn Antenna (1~18 GHz)	3115	00114105	ETS	2 year	2020-08-04
10	■	DRG Horn (Small)	3116B	81109	ETS-Lindgren	2 year	2020-03-18
11		DRG Horn (Small)	3116B	133350	ETS-Lindgren	2 year	2020-03-18
12	■	TRILOG Antenna	VULB 9160	9160-3237	SCHWARZBECK	2 year	2021-03-20
13		Temp.Humidity Data Logger	SK-L200TH II A	00801	SATO	1 year	2020-03-20
14		Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
15		DC Power Supply	6674A	3637A01657	Agilent	-	-
17	■	Power Meter	EPM-441A	GB32481702	HP	1 year	2020-03-20
18	■	Power Sensor	8481A	3318A94972	HP	1 year	2019-09-07
19		Audio Analyzer	8903B	3729A18901	HP	1 year	2019-09-07
20		Modulation Analyzer	8901B	3749A05878	HP	1 year	2019-09-07
21		TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2019-09-07
22		Stop Watch	HS-3	812Q08R	CASIO	2 year	2020-03-18
23		LISN	KNW-407	8-1430-1	Kyoritsu	1 year	2019-09-07
24		Two-Lime V-Network	ESH3-Z5	893045/017	R&S	1 year	2020-03-18
25		UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	1 year	2020-03-18
26		Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	1 year	2020-03-18
27		Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	1 year	2020-03-18
28		OSP120 BASE UNIT	OSP120	101230	R&S	1 year	2020-03-18
29		Signal Generator(100 kHz ~ 40 GHz)	SMB100A03	177621	R&S	1 year	2020-03-18
30	■	Signal Analyzer (10 Hz ~ 40 GHz)	FSV40	101367	R&S	1 year	2020-03-18
31	■	Active Loop Antenna	FMZB 1519	1519-031	SCHWARZBECK	2 year	2021-02-26

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