



RADIO TEST REPORT

Product : FRIDAY Remote Controller Unit

Model Name : P3700

Test Regulation : Low Power 0002 (LP0002)
10 January, 2018 revised

Received Date : Apr. 24, 2019

Test Date : Apr. 24, 2019 ~ May 22, 2019

Issued Date : October 31, 2019

Applicant : REMOTE SOLUTION CO.,LTD
326-14, Apo-Daero,Nam-Myeon,Gimcheon-Si,
Gyeongsangbuk-Do,Korea

Issued By : Underwriters Laboratories Taiwan Co., Ltd.
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd.,
Zhudong Township, Hsinchu County, Taiwan



The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report are responsible of the test sample(s) provided by the client only and are not to be used to indicate applicability to other similar products.

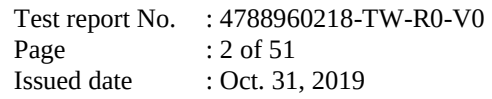
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Original Test Report No.: 4788960218-TW-R0-V0

Doc No: 17-EM-F0880 / 2.0



Table Of Contents

1. Attestation of Test Results	4
2. Summary of Test Results	5
3. Test Methodology	6
4. Facilities and Accreditation	6
5. Measurement Uncertainty	7
6. Equipment under Test	8
6.1. Description of EUT	8
6.2. Channel List	9
6.3. Test Condition	9
6.4. Description Of Available Antennas	9
6.5. Test Mode Applicability and Tested Channel Detail	10
6.6. Duty cycle	11
7. Test Equipment	12
8. Description of Test Setup	14
9. Test Results	15
9.1. 6dB Bandwidth	15
9.2. Conducted output power	18
9.3. Power Spectral Density	20
9.4. Conducted Out of Band Emission	23
9.5. Radiated Spurious Emission	28
Appendix I Radiated Band Edge Measurement	44
Appendix II Radiated Spurious Emission Measurement	48
Appendix III Radiated Spurious Emission Setup Configurations	50



1. Attestation of Test Results

APPLICANT: REMOTE SOLUTION CO.,LTD
326-14, Apo-Daero,Nam-Myeon,Gimcheon-Si, Gyeongsangbuk-Do,Korea

MANUFACTURER REMOTE SOLUTION CO.,LTD
326-14, Apo-Daero,Nam-Myeon,Gimcheon-Si, Gyeongsangbuk-Do,Korea

EUT DESCRIPTION: FRIDAY Remote Controller Unit

BRAND: FRIDAY

MODEL: P3700

SAMPLE STAGE: Identical Prototype

DATE of TESTED: Apr. 24, 2019 ~ May 22, 2018

APPLICABLE STANDARDS	
STANDARD	Test Results
Low Power 0002 (LP0002)	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Evelyn Lee
2019

Project Handler

Date : October 31, 2019

Approved and Authorized By:

Stanley Wu

Date : October 31,

Senior Project Engineer

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



2. Summary of Test Results

Summary of Test Results		
NCC Clause	Test Items	Result
3.10.1.6	6dB Bandwidth	PASS
3.10.1.2	Conducted Output Power	PASS
3.10.1.6	Power Spectral Density	PASS
3.10.1.5	Antenna Port Emission	PASS
2.7 、 2.8 3.10.1.5	Radiated Emissions and Band Edge Measurement	PASS
2.3	AC Power Conducted Emission	See Note2

Note:

1. For the Radiated Band Edge test plots were recorded in Appendix I, the Radiated Emissions test plots were recorded in Appendix II.
2. This product is powered by a DC battery, so the test is not required.



3. Test Methodology

The tests documented in this report were performed in accordance with Low Power 0002 (LP0002), KDB558074 D01 DTS Meas Guidance v05r01, KDB414788 D01 Radiated Test Site v01, ANSI C63.10-2013.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



5. Measurement Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k=2$.

Test Item	Measurement Frequency Range	K	U(dB)
RF Conducted	9 kHz - 40GHz	2	1.0
Radiated disturbance below 30MHz	9 kHz - 30 MHz	2	2.2
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	2	5.2
Radiated disturbance above 1GHz	1GHz ~ 40GHz	2	4.6



6. Equipment under Test

6.1. Description of EUT

Product	FRIDAY Remote Controller Unit
Brand Name	FRIDAY
Model Name	P3700
Operating Frequency	2402MHz ~ 2480MHz
Modulation	GFSK
Transfer Rate	Up to 2 Mbps
Number of Channel	40
Maximum Output Power	LE 1M (BT5.0): 5.98 dBm LE 2M (BT5.0): 6.80 dBm
Normal Voltage	3Vdc for battery
Hardware Version	1.0
Software Version	1.0

Note:

1. The EUT contains following accessory devices

Product	Brand	Model	Description
N/A	N/A	N/A	N/A

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



6.2. Channel List

40 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (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

6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	26°C / 62%RH	3Vdc	Apr. 24, 2019 ~ May 21, 2019	Wayne Chen
Radiated Spurious Emission	966-2	24°C / 68%RH	3Vdc	Apr. 24, 2019 ~ May 22, 2019	Wayne Chen

6.4. Description Of Available Antennas

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
Chain(0)	N/A	N/A	PCB trace	2.03

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



6.5. Test Mode Applicability and Tested Channel Detail

Test item	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions (Above 1GHz)	GFSK	0 to 39	0,19,39	1.0
				2.0
Radiated Emissions (Below 1GHz)	GFSK	0 to 39	39	1.0
Receiver Spurious Emissions	GFSK	0 to 39	39	1.0
Antenna Port Conducted Measurement	GFSK	0 to 39	0,19,39	1.0
				2.0

Note:

1. 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).
2. For below 1 GHz Transmitter radiated emission was performed with the EUT set to transmit at the channel with highest output power as worst-case.
3. For Antenna Port Conducted Measurement, this item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
4. The fundamental of the EUT was investigated in three orthogonal axes X/Y/Z, it was determined that X axis was worst-case . Therefore, all final radiated testing was performed with the EUT in X axis.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

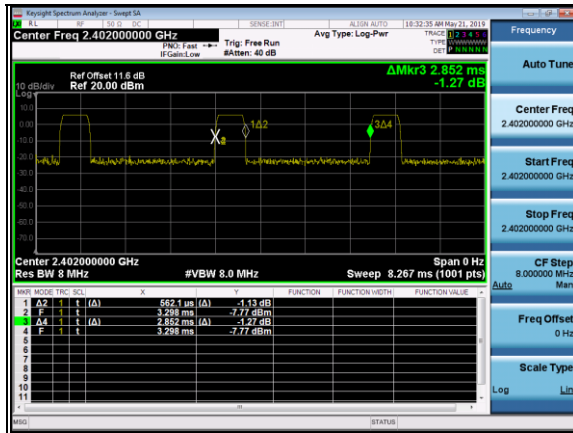
Doc No: 17-EM-F0880 / 2.0



6.6. Duty cycle

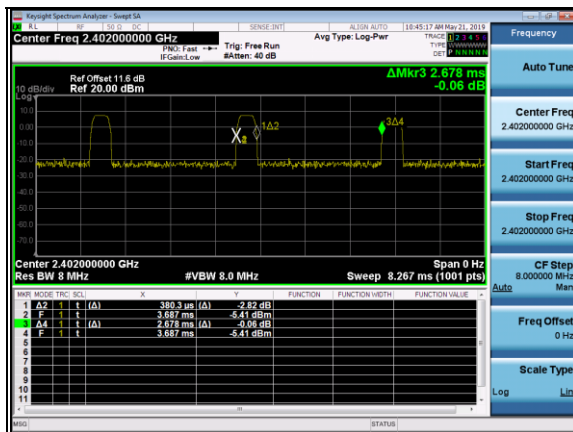
1M

Duty cycle = $0.5621 / 2.852 = 0.197$, Duty factor = $10 * \log(1/0.197) = 7.05$



2M

Duty cycle = $0.3803 / 2.678 = 0.142$, Duty factor = $10 * \log(1/0.142) = 8.48$





7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070827	Nov. 8, 2018	1 year
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	Nov. 8, 2018	1 year
Loop Antenna	ETS lindgren	6502	00213440	Dec. 11, 2018	1 year
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	Jan. 14, 2019	1 year
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	Jan. 25, 2019	1 year
Horn Antenna(18-40 GHz)	Schwarzbeck	BBHA 9170	781	Jan.16, 2019	1 year
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	Jan. 30, 2019	1 year
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	Jan. 29, 2019	1 year
Preamplifier (18-40GHz)	EMCI	EMC184040SE E	980426	Apr. 26, 2018 May 8, 2019	1 year
RF Cable (9 KHz~18 GHz)	UltraPhase & EMC Instrument	A1K50-UP0358-A1K50-1500&EMC106-NM-SM-2500/7000	170111-4&170219/170102	Jan. 29, 2019	1 year
RF Cable (18 GHz~40 GHz)	UltraPhase	K1K50-UP0264-K1K50-2500/2500/600	170214-2/170214-6/170111-1	Jan. 29, 2019	1 year

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	Nov. 8, 2018	1 year
Pulse Power Sensor	Anrisu	MA2411B	1531202	Dec. 17, 2018	1 year
Power Meter	Anrisu	ML2495A	1645002	Dec. 17, 2018	1 year
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	Nov. 14, 2018	1 year
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	Aug. 5, 2018	1 year
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	Aug. 2, 2018	1 year
Cables	Huber+Suhner	RG 214/U	FCC-BCICF-4_RF	Jan. 29, 2019	1 year

UL Software		
Description	Name	Version
Radiated measurement	EZ EMC	1.1.4.2
Conducted measurement	Keysight.TestSystem	1.0.0.0
AC power Line Conducted Emission	EZ EMC	1.1.4.2

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



8. Description of Test Setup

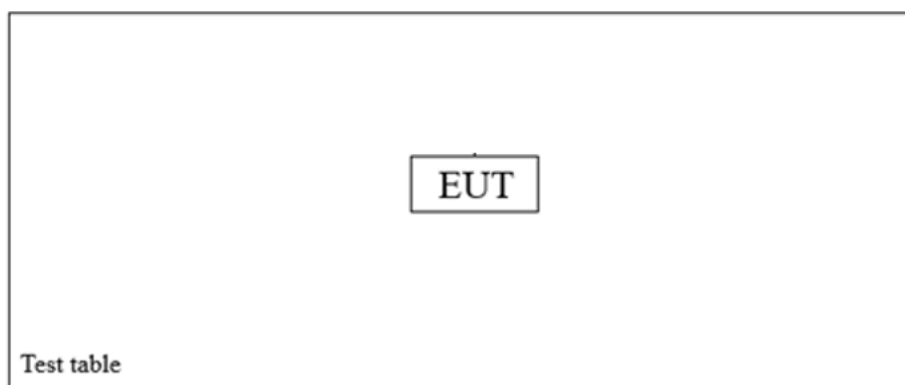
Support Equipment

Item	Equipment	Brand Name	Model Name	P/N
1	Notebook	DELL	Latitude E5470	3JFKWF2

Test Setup

Controlled using a bespoke application (EMI_TEST_v1.4) on a test Notebook. The application was used to enable a continuous transmission mode and to select the test channels, data rates, modulation schemes and power setting as required.

Setup Diagram for Test





9. Test Results

9.1. 6dB Bandwidth

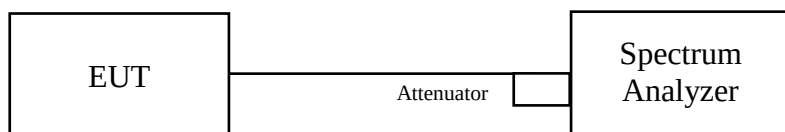
Requirements

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

Test procedure

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

Test Setup



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

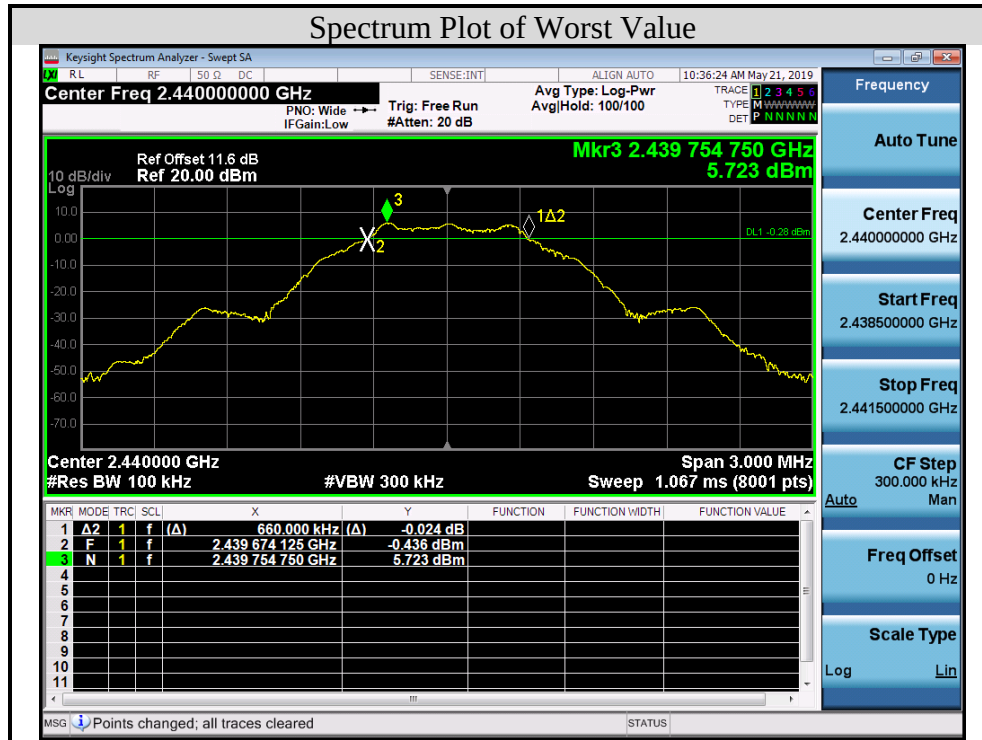
Doc No: 17-EM-F0880 / 2.0



Test Data

1M

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
0	2402	0.6615	0.5	Pass
19	2440	0.6600	0.5	Pass
39	2480	0.6638	0.5	Pass



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

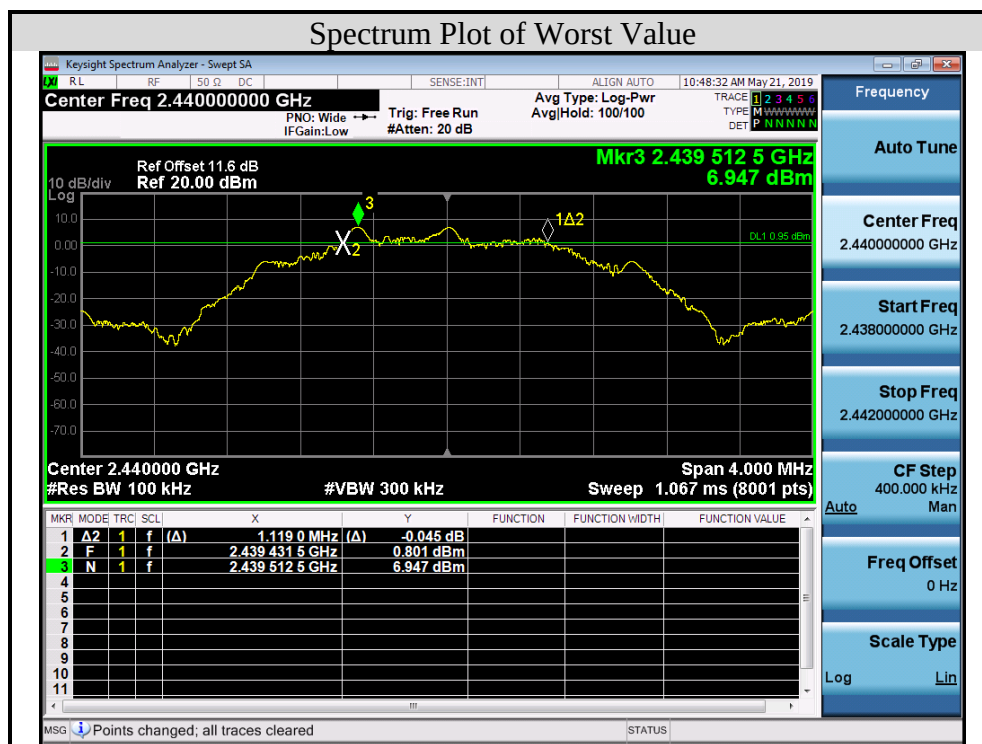
Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



2M

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
0	2402	1.1505	0.5	Pass
19	2440	1.1190	0.5	Pass
39	2480	1.1270	0.5	Pass



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



9.2. Conducted output power

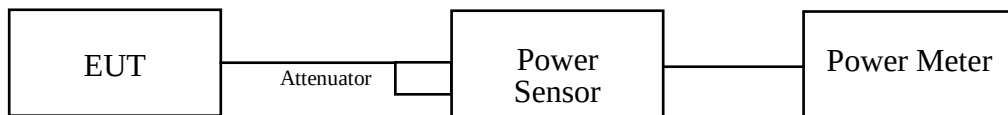
Requirements

For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

Test Procedure

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.

Test Setup



**Test Data****1M**

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
0	2402	3.38	5.29	30	Pass
19	2440	3.67	5.65	30	Pass
39	2480	3.96	5.98	30	Pass

2M

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
0	2402	4.26	6.29	30	Pass
19	2440	4.52	6.55	30	Pass
39	2480	4.79	6.80	30	Pass

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



9.3. Power Spectral Density

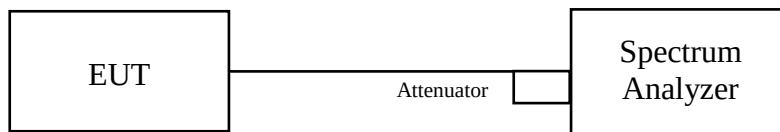
Requirements

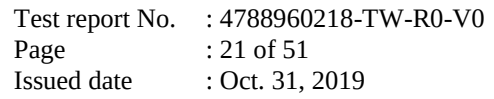
The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

Test procedure

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

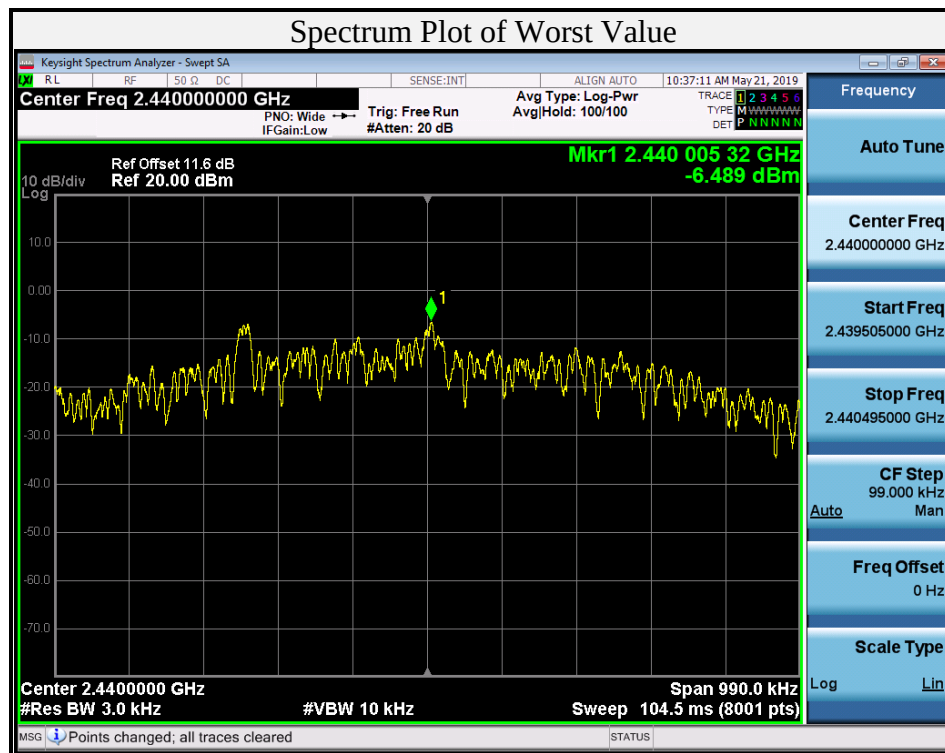
Test Setup





1M

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	2402	-6.908	8	Pass
19	2440	-6.489	8	Pass
39	2480	-6.515	8	Pass

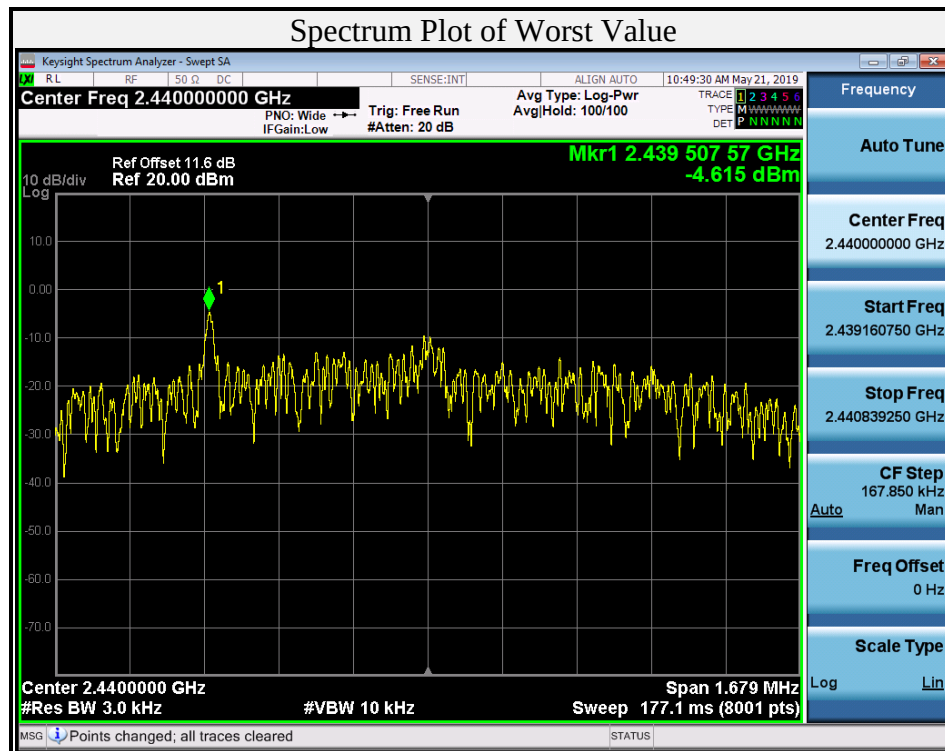


Doc No: 17-EM-F0880 / 2.0



2M

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	2402	-4.940	8	Pass
19	2440	-4.615	8	Pass
39	2480	-4.616	8	Pass



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



9.4. Conducted Out of Band Emission

Requirements

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, the attenuation shall be as below:

- (1) The attenuation shall be at least 20dB when the conducted power is measured according to Appendix II of this section, based on either an RF conducted or a radiated measurement.
- (2) The attenuation shall be at least 30dB when the conducted power is measured according to the paragraph (1) (C) of this section 3.10.1.2. In addition, radiated emissions that fall under Section 2.7 the restricted bands must also comply with the radiated emission limit specified in Section 2.8.

Test procedure

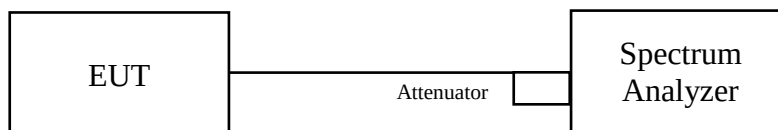
Measurement Procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement Procedure OOB

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

Test Setup



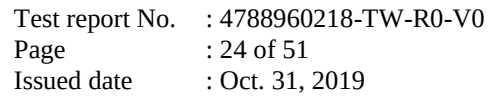
Underwriters Laboratories Taiwan Co., Ltd.

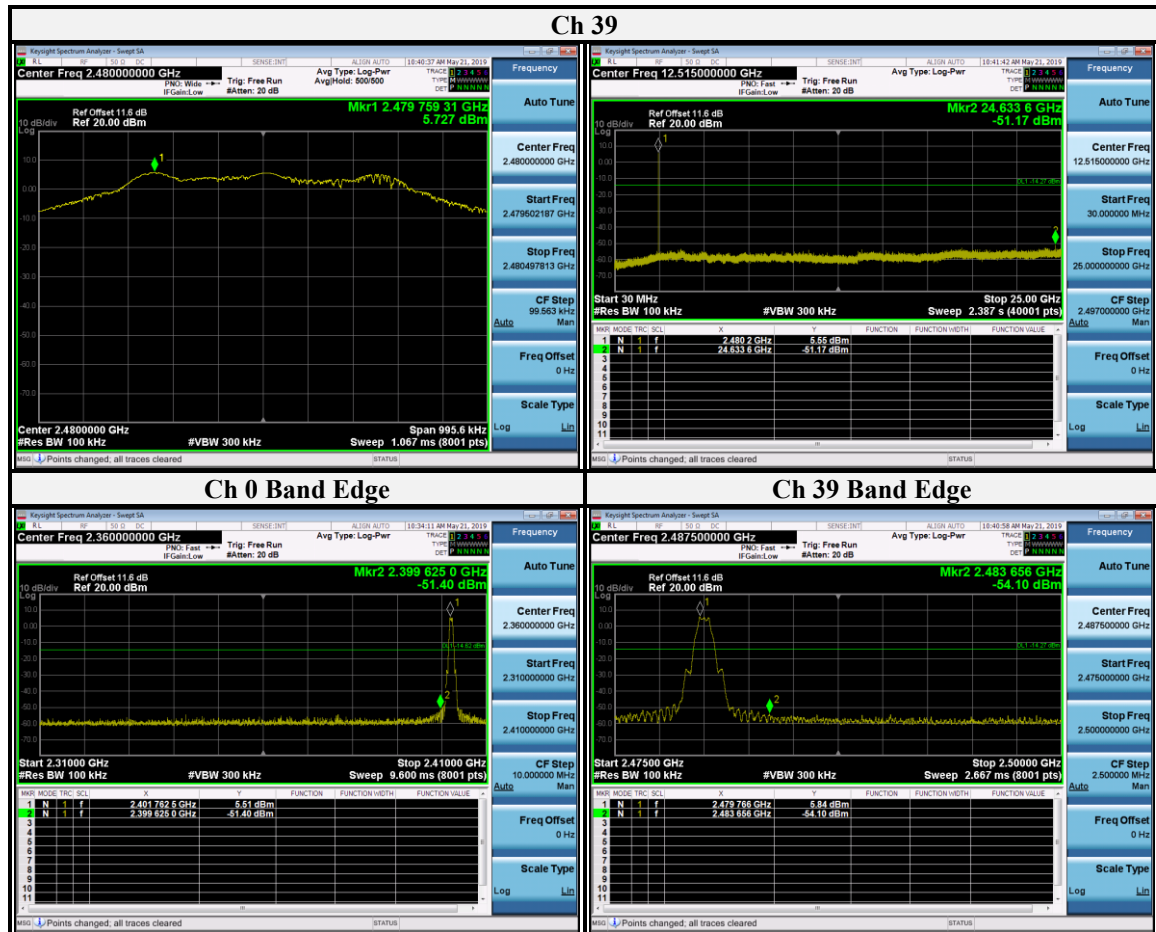
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0







2M



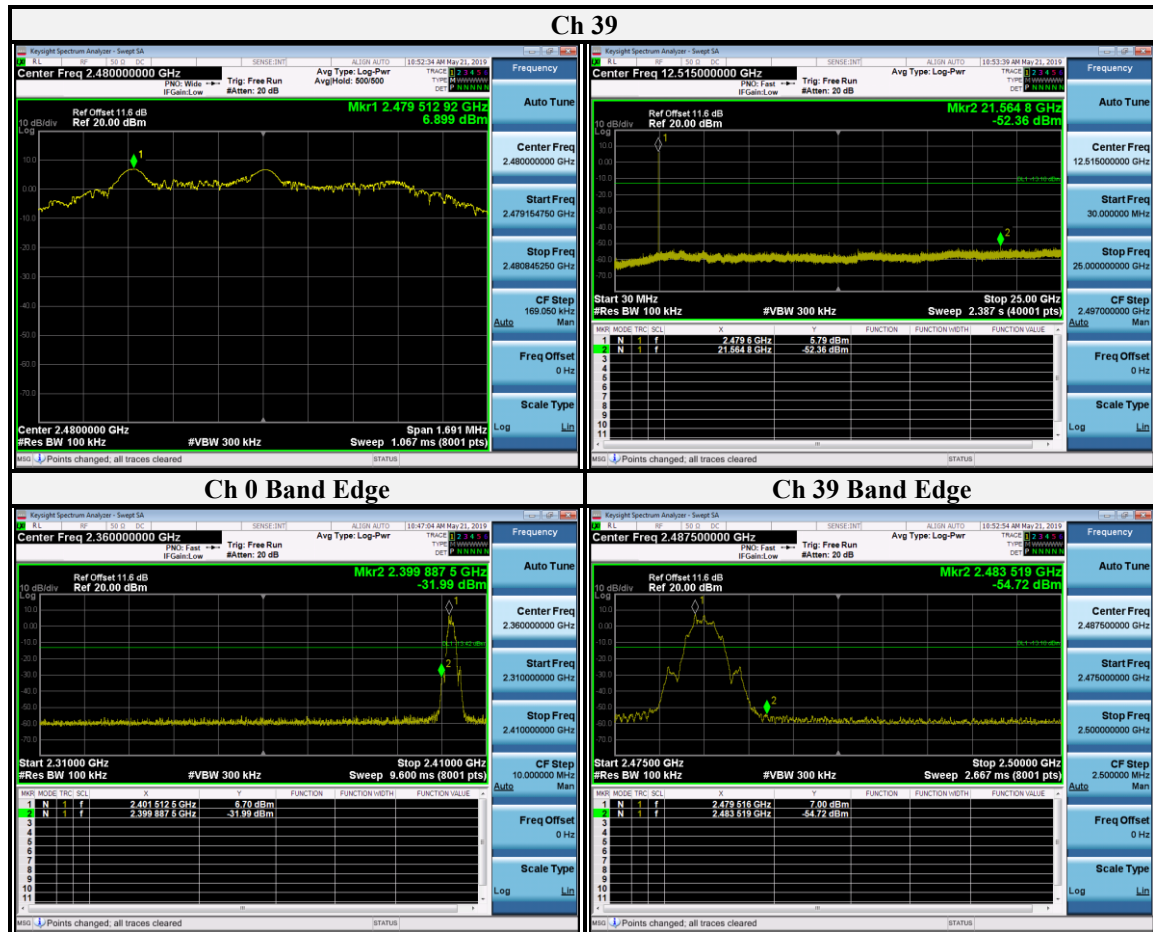
Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



9.5. Radiated Spurious Emission

Requirements

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

Frequency(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

NOTE:

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 1000MHz, 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 20dB under any condition of modulation.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Test Procedures

[For 9 kHz ~ 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, 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. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- f. The test-receiver system 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.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0

Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

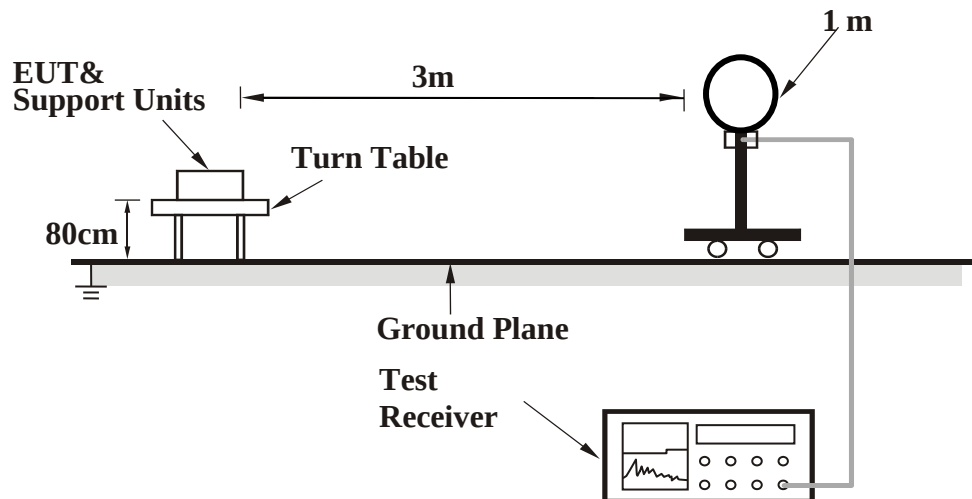
Configuration	Average	
	RBW	VBW
Bluetooth LE	1MHz	3 kHz

Note: Refer to section 6.6 for duty cycle.

- All modes of operation were investigated and the worst-case emissions are reported.

Test Setup

<Frequency Range 9 kHz ~ 30 MHz>



Underwriters Laboratories Taiwan Co., Ltd.

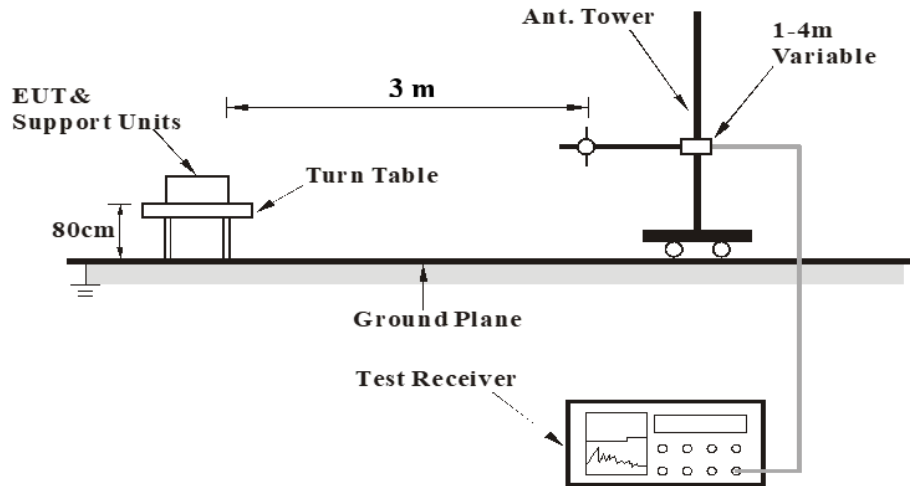
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

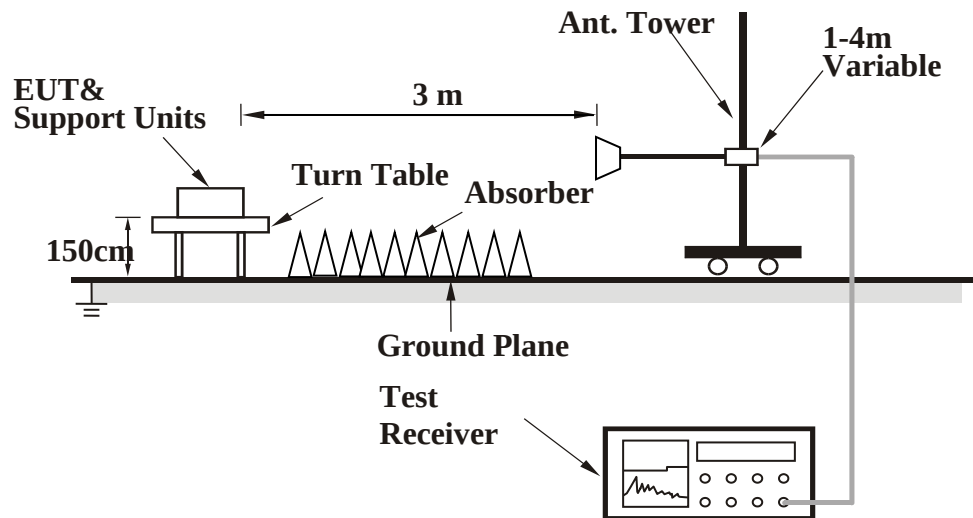
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0

<Frequency Range 30 MHz ~ 1 GHz >



<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the Appendix III.



Test Data

Transmitter

Above 1GHz Data

1M

EUT Test Condition		Measurement Detail	
Channel	Channel 0	Frequency Range	1 GHz ~ 26 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2386.820	62.38	-7.62	54.76	74.00	-19.24	peak
@	2402.087	111.64	-7.58	104.06	-	-	peak
-	2378.027	37.26	-7.64	29.62	54.00	-24.38	AVG
@	2402.033	110.64	-7.58	103.06	-	-	AVG
*	4804.000	50.07	-3.09	46.98	74.00	-27.02	peak
#	7206.000	46.60	3.56	50.16	84.06	-33.90	peak
#	9608.000	50.90	7.77	58.67	84.06	-25.39	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2380.340	54.12	-7.63	46.49	74.00	-27.51	peak
@	2401.873	101.89	-7.58	94.31	-	-	peak
-	2390.000	32.45	-7.60	24.85	54.00	-29.15	AVG
@	2402.060	101.26	-7.58	93.68	-	-	AVG
*	4804.000	47.61	-3.09	44.52	74.00	-29.48	peak
#	7206.000	51.30	3.56	54.86	74.31	-19.45	peak
#	9608.000	45.17	7.77	52.94	74.31	-21.37	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



EUT Test Condition		Measurement Detail	
Channel	Channel 19	Frequency Range	1 GHz ~ 26 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2388.707	61.90	-7.60	54.30	74.00	-19.70	peak
@	2440.147	112.22	-7.70	104.52	-	-	peak
-	2498.780	64.11	-7.58	56.53	74.00	-17.47	peak
-	2344.153	33.64	-7.67	25.97	54.00	-28.03	AVG
@	2440.120	111.01	-7.70	103.31	-	-	AVG
-	2488.033	39.40	-7.61	31.79	54.00	-22.21	AVG
*	4880.000	49.75	-3.02	46.73	74.00	-27.27	peak
*	7320.000	45.01	3.63	48.64	74.00	-25.36	peak
#	9760.000	51.00	8.30	59.30	84.52	-25.22	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2390.000	53.30	-7.60	45.70	74.00	-28.30	peak
@	2440.793	102.01	-7.70	94.31	-	-	peak
-	2498.387	53.76	-7.58	46.18	74.00	-27.82	peak
@	2440.047	101.50	-7.70	93.80	-	-	AVG
-	2390.000	31.13	-7.60	23.53	54.00	-30.47	AVG
-	2483.500	31.63	-7.63	24.00	54.00	-30.00	AVG
*	4880.000	49.65	-3.02	46.63	74.00	-27.37	peak
-	7320.000	54.04	3.63	57.67	74.00	-16.33	peak
-	7320.000	48.46	3.63	51.69	54.00	-2.31	AVG
#	9760.000	49.43	8.30	57.73	74.31	-16.58	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	1 GHz ~ 26 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	2480.293	112.12	-7.64	104.48	-	-	peak
-	2497.540	64.94	-7.59	57.35	74.00	-16.65	peak
@	2480.100	110.81	-7.64	103.17	-	-	AVG
-	2504.060	40.40	-7.60	32.80	54.00	-21.20	AVG
*	4960.000	50.81	-2.89	47.92	74.00	-26.08	peak
*	7440.000	48.07	3.87	51.94	74.00	-22.06	peak
#	9920.000	49.48	8.27	57.75	84.48	-26.73	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	2479.800	102.16	-7.64	94.52	-	-	peak
-	2493.780	55.18	-7.60	47.58	74.00	-26.42	peak
@	2480.007	101.41	-7.64	93.77	-	-	AVG
-	2503.880	32.70	-7.60	25.10	54.00	-28.90	AVG
*	4960.000	50.29	-2.89	47.40	74.00	-26.60	peak
-	7440.000	52.02	3.87	55.89	74.00	-18.11	peak
-	7440.000	47.92	3.87	51.79	54.00	-2.21	AVG
#	9920.000	47.21	8.27	55.48	74.52	-19.04	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



2M

EUT Test Condition		Measurement Detail	
Channel	Channel 0	Frequency Range	1 GHz ~ 26 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2390.000	62.42	-7.60	54.82	74.00	-19.18	peak
@	2402.533	112.88	-7.58	105.30	-	-	peak
-	2377.640	37.08	-7.64	29.44	54.00	-24.56	AVG
@	2402.060	110.06	-7.58	102.48	-	-	AVG
*	4804.000	47.82	-3.09	44.73	74.00	-29.27	peak
#	7206.000	45.40	3.56	48.96	85.30	-36.34	peak
#	9608.000	48.52	7.77	56.29	85.30	-29.01	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2390.000	53.32	-7.60	45.72	74.00	-28.28	peak
@	2402.513	103.78	-7.58	96.20	-	-	peak
-	2390.000	33.20	-7.60	25.60	54.00	-28.40	AVG
@	2402.053	102.11	-7.58	94.53	-	-	AVG
*	4804.000	49.81	-3.09	46.72	74.00	-27.28	peak
#	7206.000	52.13	3.56	55.69	76.20	-20.51	peak
#	9608.000	45.39	7.77	53.16	76.20	-23.04	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. " * ": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



EUT Test Condition		Measurement Detail	
Channel	Channel 19	Frequency Range	1 GHz ~ 26 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2389.253	62.38	-7.60	54.78	74.00	-19.22	peak
@	2439.660	112.78	-7.70	105.08	-	-	peak
-	2490.527	64.03	-7.61	56.42	74.00	-17.58	peak
-	2390.000	33.47	-7.60	25.87	54.00	-28.13	AVG
@	2440.053	110.04	-7.70	102.34	-	-	AVG
-	2487.967	39.91	-7.61	32.30	54.00	-21.70	AVG
*	4880.000	49.43	-3.02	46.41	74.00	-27.59	peak
*	7320.000	48.74	3.63	52.37	74.00	-21.63	peak
#	9760.000	51.33	8.30	59.63	85.08	-25.45	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2374.660	53.51	-7.65	45.86	74.00	-28.14	peak
@	2439.567	103.48	-7.70	95.78	-	-	peak
-	2489.527	54.81	-7.61	47.20	74.00	-26.80	peak
-	2390.000	31.53	-7.60	23.93	54.00	-30.07	AVG
@	2440.053	101.71	-7.70	94.01	-	-	AVG
-	2483.500	31.52	-7.63	23.89	54.00	-30.11	AVG
*	4880.000	48.00	-3.02	44.98	74.00	-29.02	peak
-	7320.000	54.17	3.63	57.80	74.00	-16.20	peak
-	7320.000	48.32	3.63	51.55	54.00	-2.45	AVG
#	9760.000	49.55	8.30	57.85	75.78	-17.93	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	1 GHz ~ 26 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	2480.493	113.23	-7.64	105.59	-	-	peak
-	2484.307	67.46	-7.63	59.83	74.00	-14.17	peak
@	2480.053	110.15	-7.64	102.51	-	-	AVG
-	2483.500	54.25	-7.63	46.62	54.00	-7.38	AVG
*	4960.000	49.60	-2.89	46.71	74.00	-27.29	peak
-	7440.000	50.34	3.87	54.21	74.00	-19.79	peak
-	7440.000	44.16	3.87	48.03	54.00	-5.97	AVG
#	9920.000	50.34	8.27	58.61	85.59	-26.98	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	2479.480	103.52	-7.64	95.88	-	-	peak
-	2483.500	55.20	-7.63	47.57	74.00	-26.43	peak
@	2480.040	101.86	-7.64	94.22	-	-	AVG
-	2483.500	40.37	-7.63	32.74	54.00	-21.26	AVG
*	4960.000	49.16	-2.89	46.27	74.00	-27.73	peak
-	7440.000	53.14	3.87	57.01	74.00	-16.99	peak
-	7440.000	47.25	3.87	51.12	54.00	-2.88	AVG
#	9920.000	45.82	8.27	54.09	75.88	-21.79	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Below 1GHz Data

9 kHz ~ 30 MHz Data

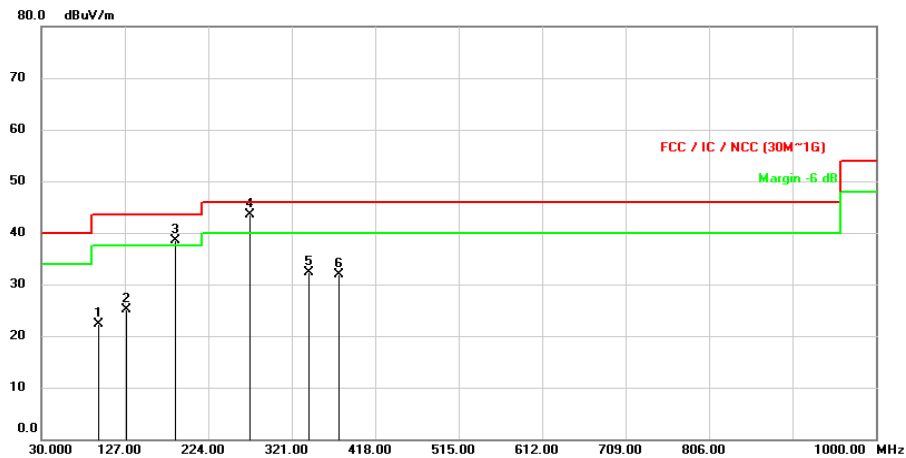
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Data

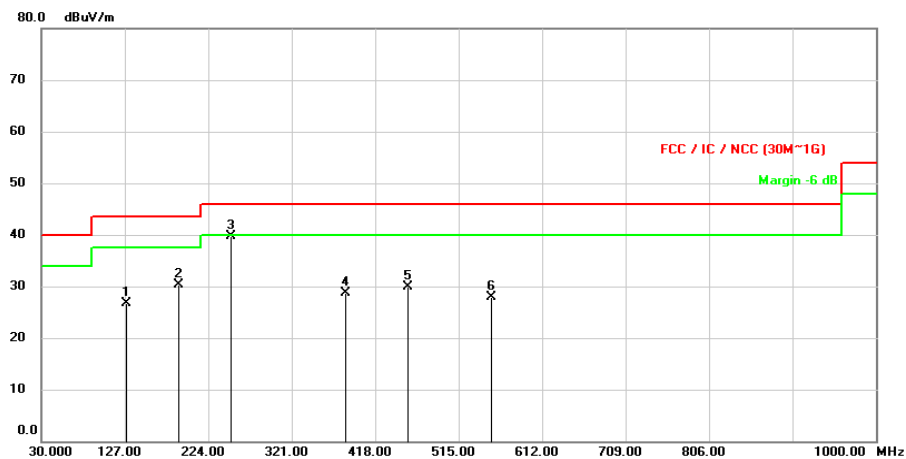
1M

EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	30 MHz ~ 1 GHz

Horizontal



Vertical



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	96.0247	43.28	-21.02	22.26	43.50	-21.24	peak
-	128.0347	42.60	-17.40	25.20	43.50	-18.30	peak
-	185.3293	55.63	-17.17	38.46	43.50	-5.04	peak
-	272.1767	58.64	-15.11	43.53	46.00	-2.47	peak
-	341.5640	45.86	-13.46	32.40	46.00	-13.60	peak
-	376.3870	44.43	-12.50	31.93	46.00	-14.07	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	128.0347	44.01	-17.40	26.61	43.50	-16.89	peak
-	188.8537	47.77	-17.41	30.36	43.50	-13.14	peak
-	249.3817	55.87	-16.07	39.80	46.00	-6.20	peak
-	384.0177	40.94	-12.28	28.66	46.00	-17.34	peak
-	456.0240	40.45	-10.49	29.96	46.00	-16.04	peak
-	552.0217	36.57	-8.68	27.89	46.00	-18.11	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
5. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



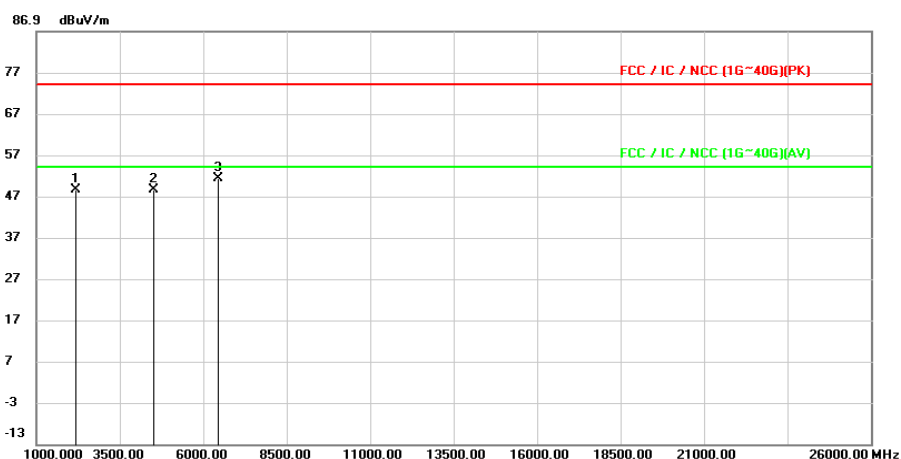
Receiver

Above 1 GHz Data

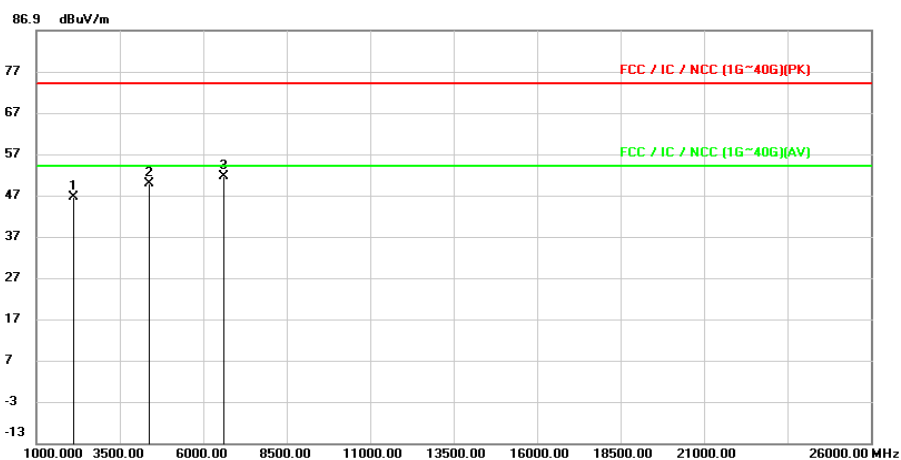
1M

EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	1 GHz ~ 26 GHz

Horizontal



Vertical



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Test report No. : 4788960218-TW-R0-V0

Page : 41 of 51

Issued date : Oct. 31, 2019

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2178.333	46.10	2.55	48.65	74.00	-25.35	peak
-	4530.000	42.13	6.45	48.58	74.00	-25.42	peak
-	6429.167	40.79	10.41	51.20	74.00	-22.80	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	2130.000	44.49	1.96	46.45	74.00	-27.55	peak
-	4395.000	43.88	5.94	49.82	74.00	-24.18	peak
-	6633.333	40.59	10.88	51.47	74.00	-22.53	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
5. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Below 1GHz Data

9 kHz ~ 30 MHz Data

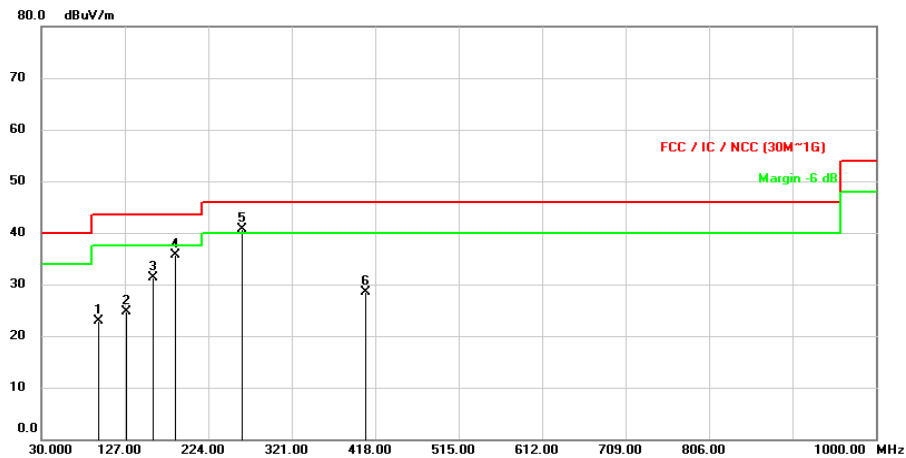
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Data

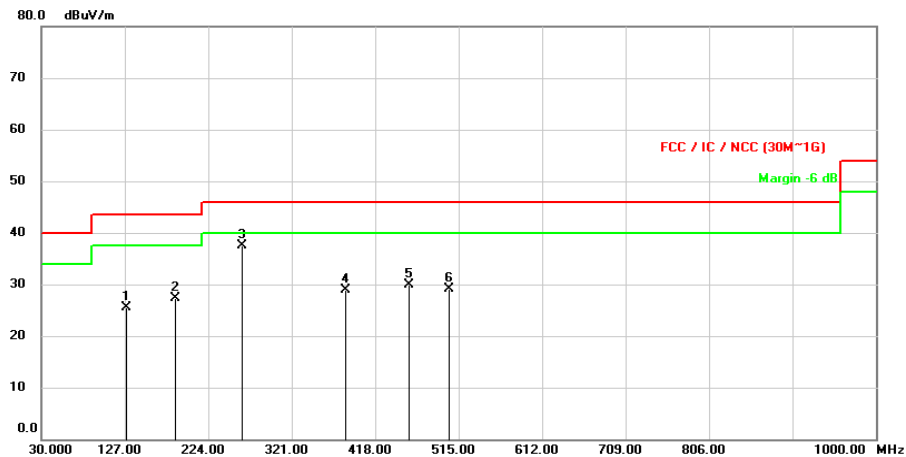
1M

EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	30 MHz ~ 1 GHz

Horizontal



Vertical



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Test report No. : 4788960218-TW-R0-V0

Page : 43 of 51

Issued date : Oct. 31, 2019

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	95.9923	43.87	-21.02	22.85	43.50	-20.65	peak
-	128.0023	42.15	-17.40	24.75	43.50	-18.75	peak
-	160.0123	46.52	-15.22	31.30	43.50	-12.20	peak
-	185.0707	52.78	-17.15	35.63	43.50	-7.87	peak
-	263.9963	56.33	-15.67	40.66	46.00	-5.34	peak
-	408.0090	40.26	-11.66	28.60	46.00	-17.40	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	128.0023	42.89	-17.40	25.49	43.50	-18.01	peak
-	185.0383	44.41	-17.14	27.27	43.50	-16.23	peak
-	263.9963	53.22	-15.67	37.55	46.00	-8.45	peak
-	384.0177	41.27	-12.28	28.99	46.00	-17.01	peak
-	455.9917	40.40	-10.49	29.91	46.00	-16.09	peak
-	504.0390	38.89	-9.69	29.20	46.00	-16.80	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
5. The other emission levels were very low against the limit.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

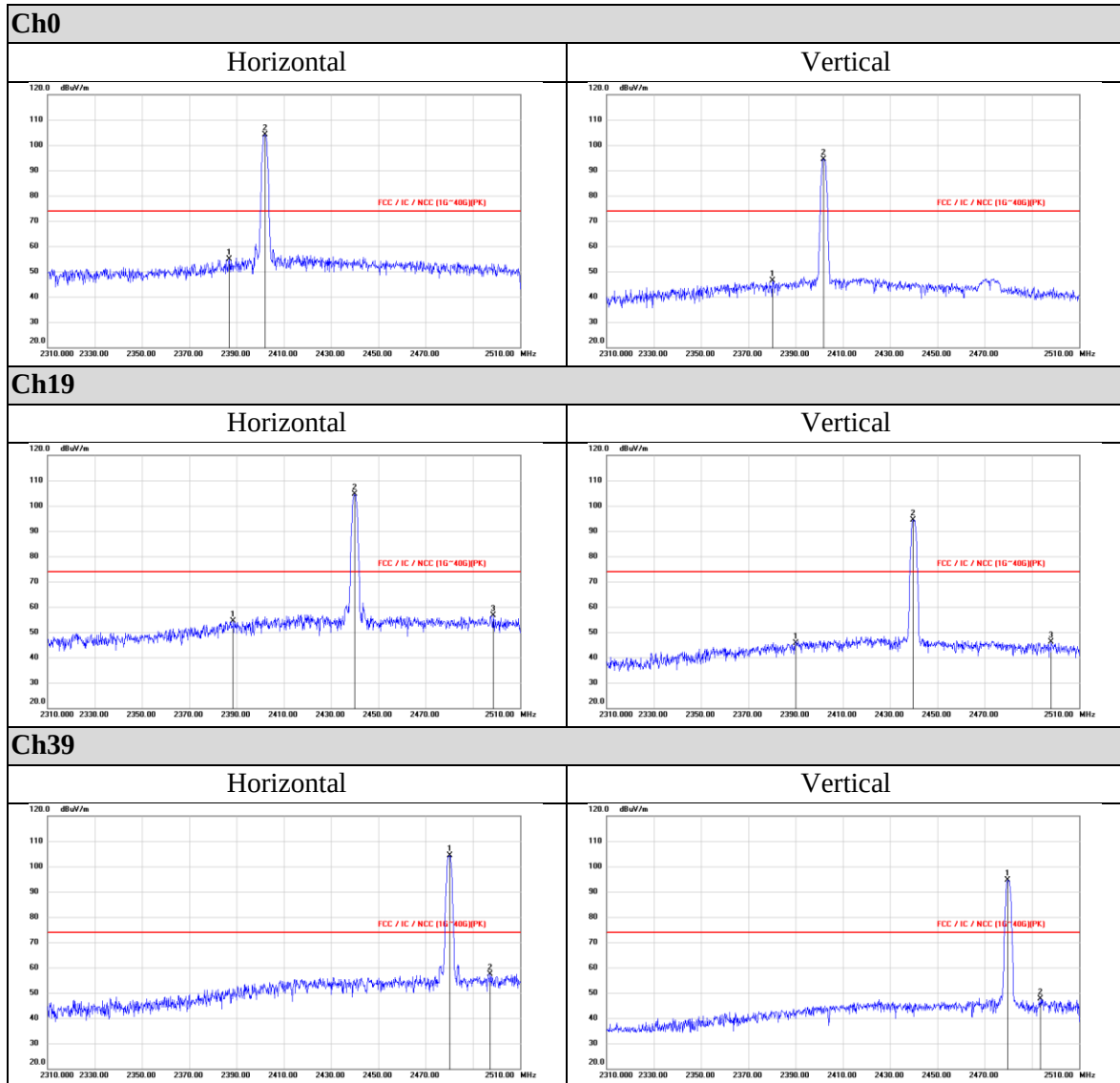
Doc No: 17-EM-F0880 / 2.0



Appendix I Radiated Band Edge Measurement

1M

Peak



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

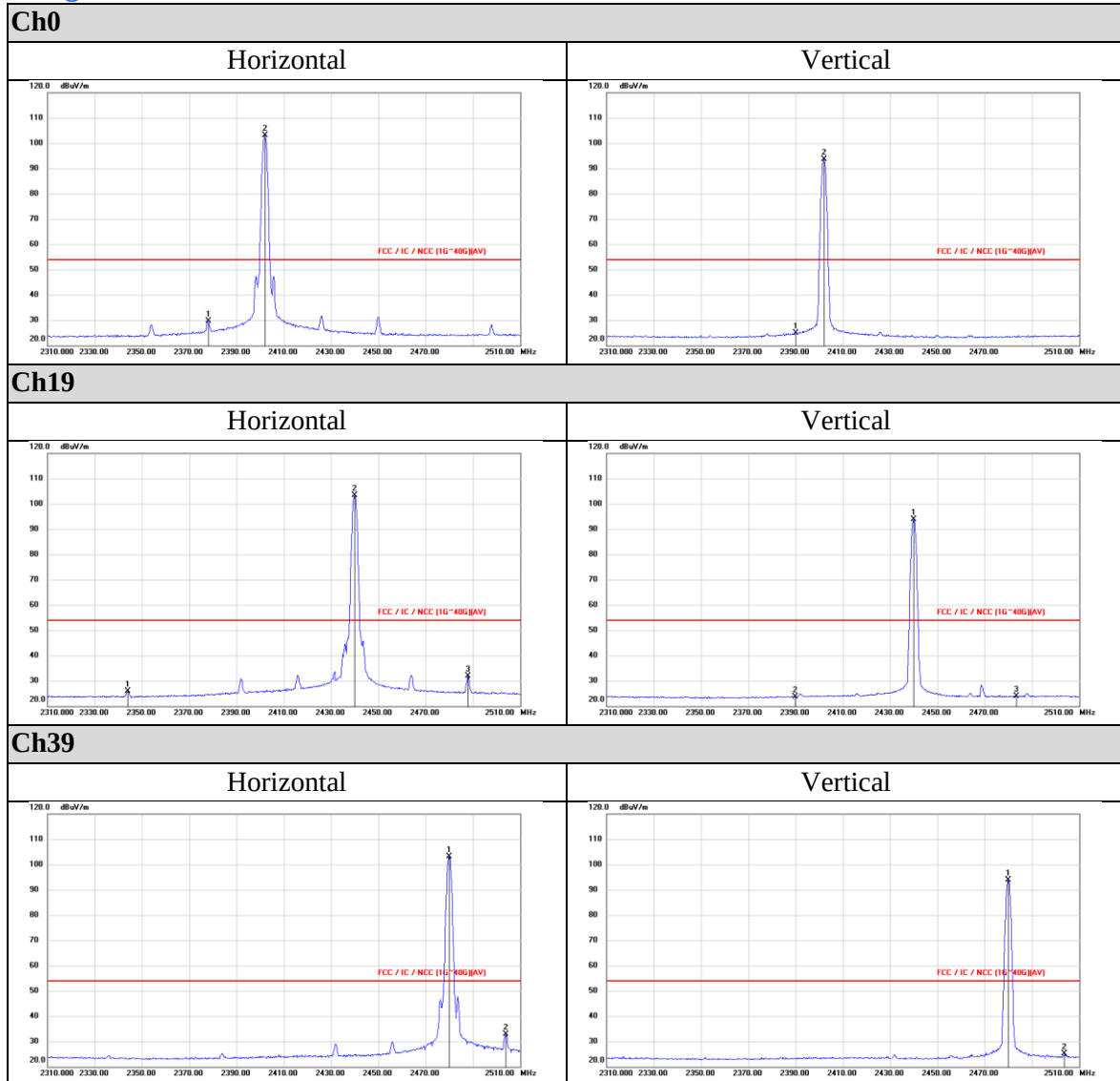
Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Average



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

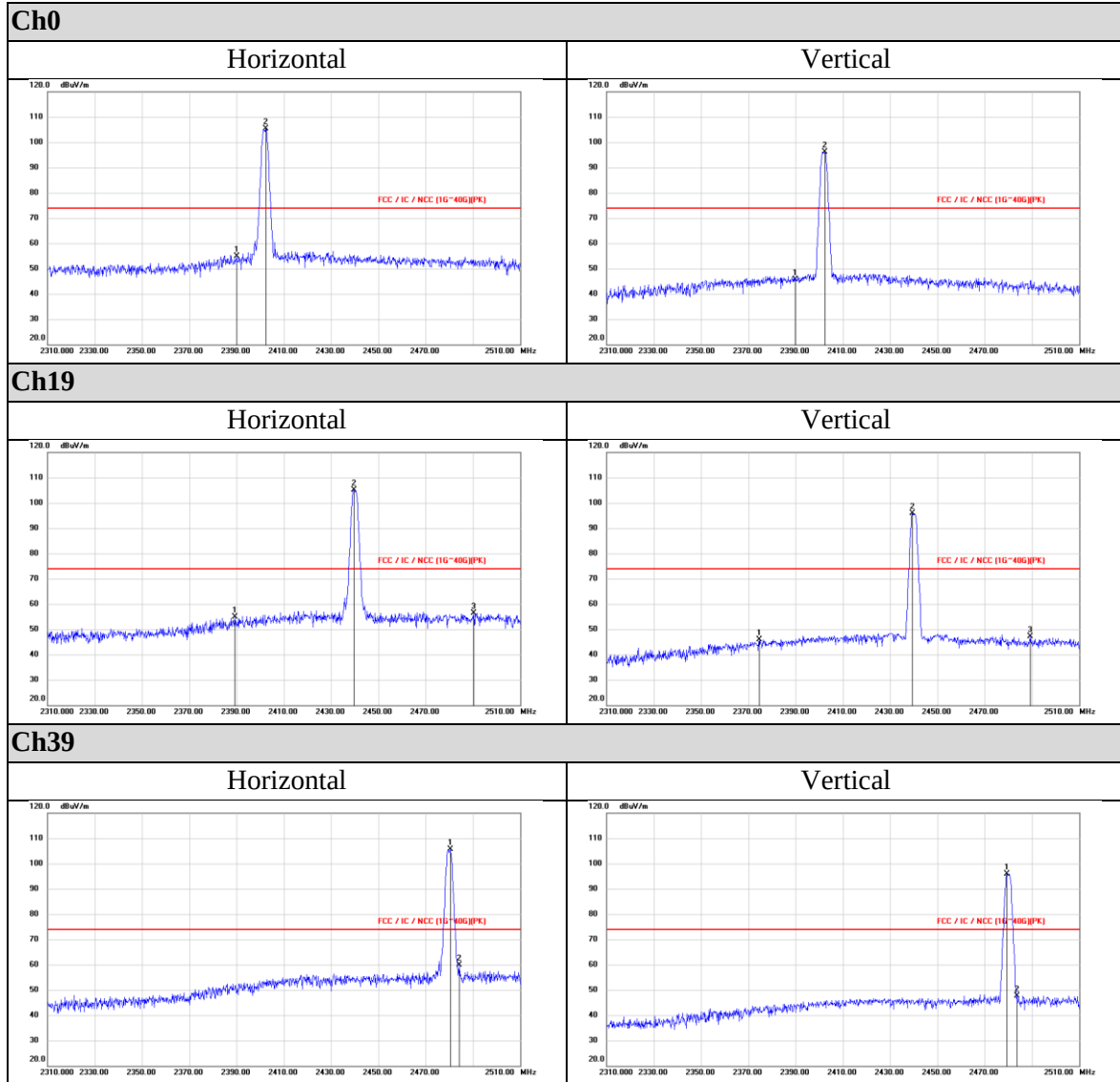
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



2M

Peak

**Underwriters Laboratories Taiwan Co., Ltd.**

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

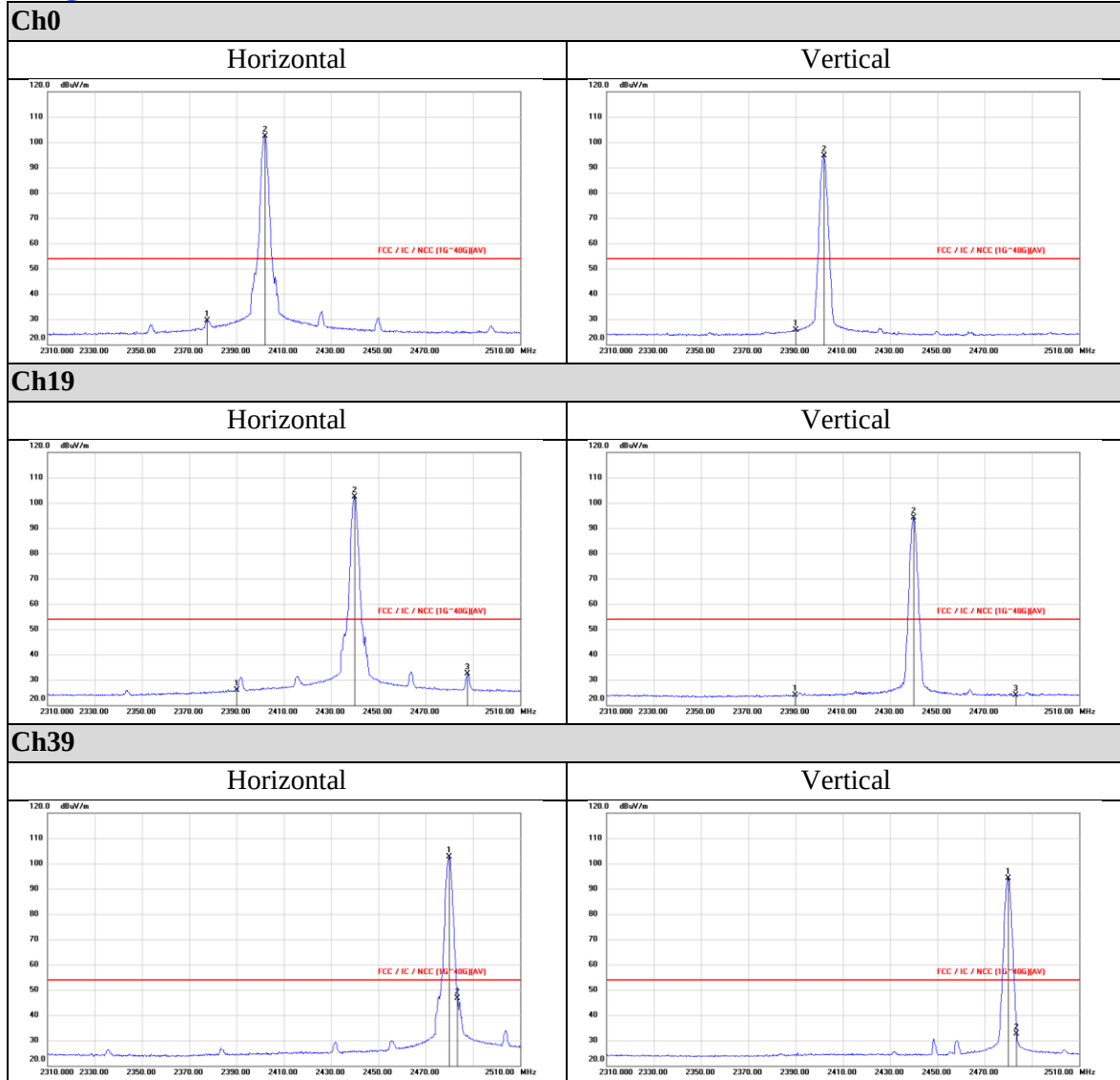
Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Average

**Underwriters Laboratories Taiwan Co., Ltd.**

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

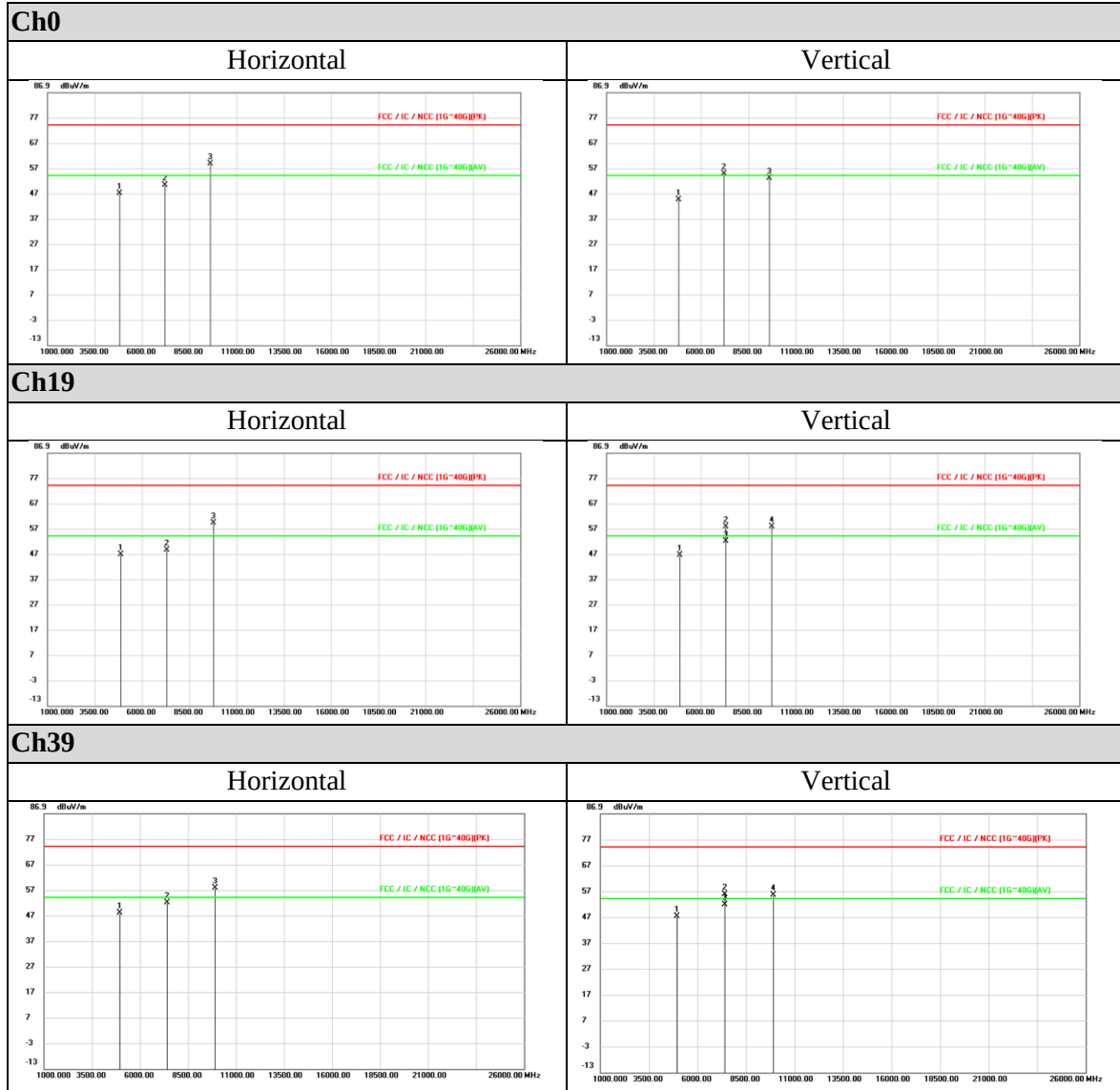
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



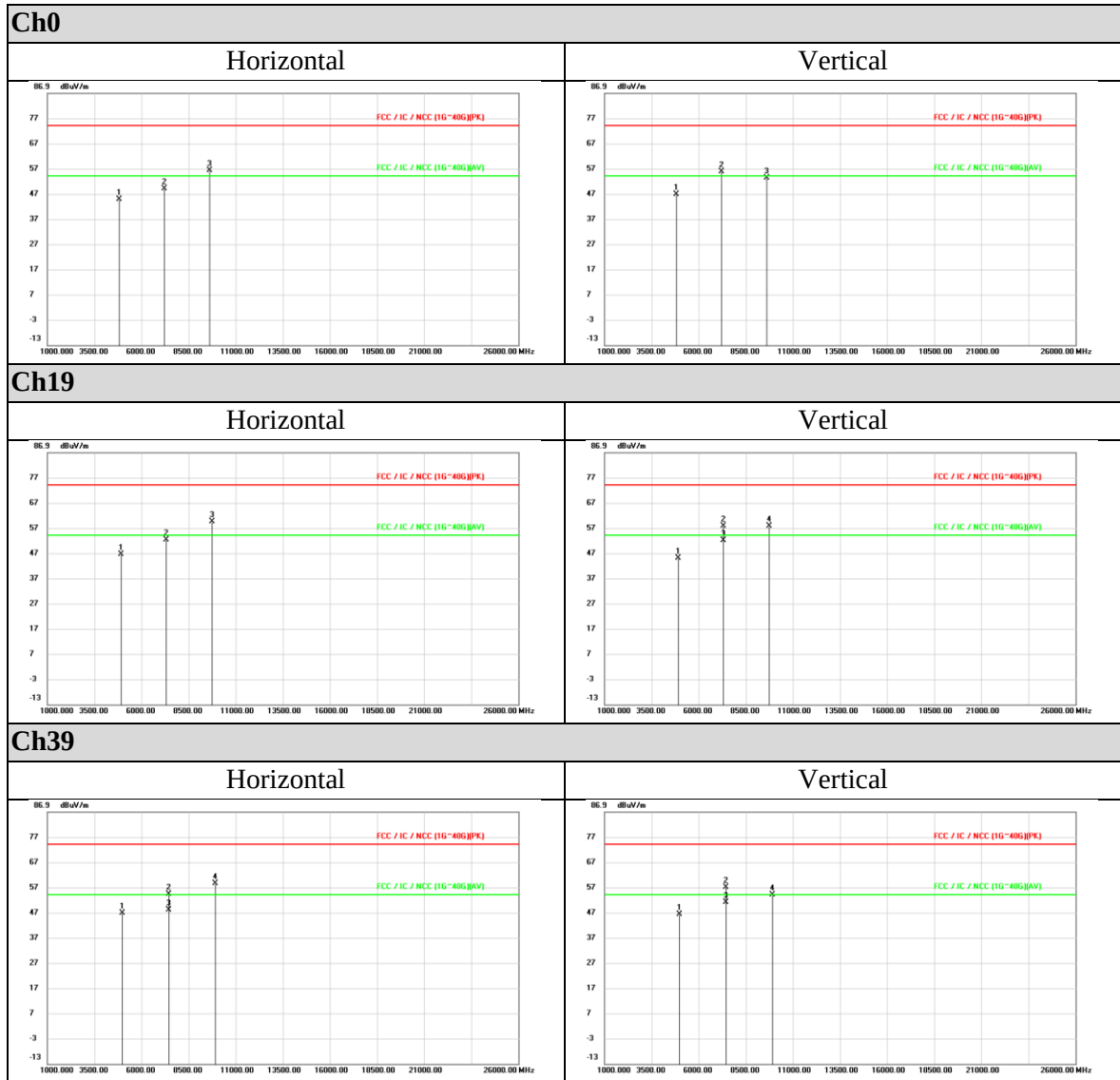
Appendix II Radiated Spurious Emission Measurement

1M





2M



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

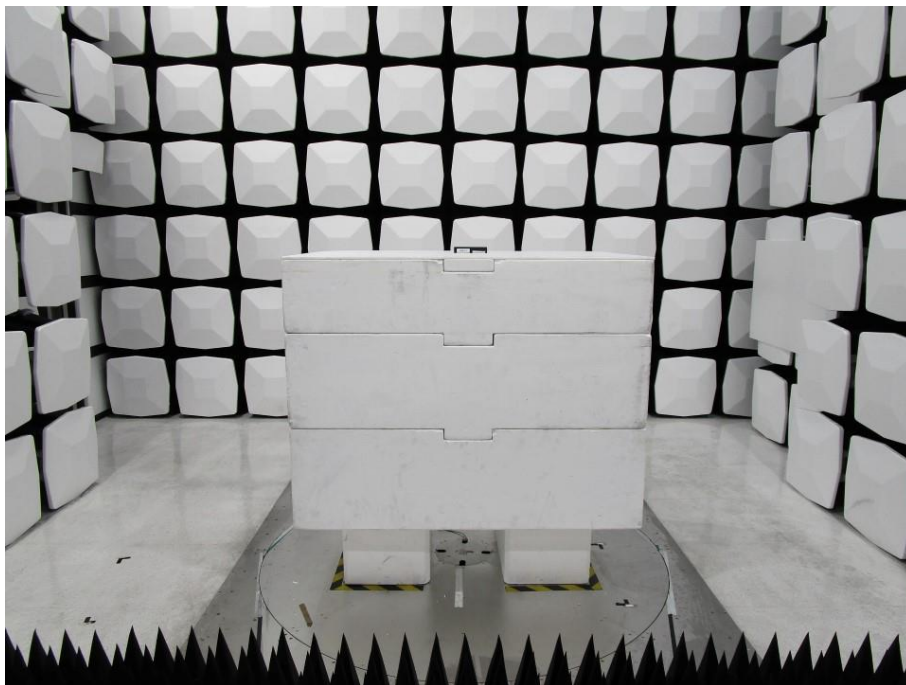
Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Appendix III Radiated Spurious Emission Setup Configurations

Above 1GHz



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0880 / 2.0



Below 1GHz



Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0880 / 2.0