

FCC PART 15 SUBPART E TEST REPORT

for

Tablet Computer

Model No.: DR13

FCC ID: IR5DR13

of

Applicant: MilDef Crete Inc.

Address: 7F, No. 250, Sec.3, Pei Shen Rd., Shen Keng District,
New Taipei City Taiwan R.O.C.

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW0020, TW1072

Industry Canada filed test laboratory Reg. No. 20037

A2LA Accredited No.: 2732.01



Report No.: W6M21910-19416-C-2

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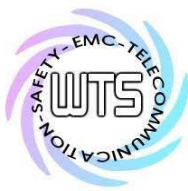


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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

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Specific Conditions:

Usage of the hereunder tested device in combination with other integrated or external antennas requires at least additional output power measurements, spurious emission measurements, conducted emission measurements (AC supply lines) and radio frequency exposure evaluations for each individual configuration performed, for certification by FCC.

Tester:

November 8, 2019

Kent Lin

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

November 8, 2019

Kevin Wang

Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 207,
Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228

FAX:886-2-2791-5046

Company

Worldwide Testing Services(Taiwan) Co., Ltd.

6F, NO. 58, LANE 188, RUEY-KUANG RD.

NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. TW1477, TW0020, TW1072

Industry Canada filed test laboratory Reg. No. 20037

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name: ./.

Accredited number: ./.

Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.

1.3 Details of approval holder

Name: MilDef Crete Inc.

Street: 7F, No. 250, Sec.3, Pei Shen Rd., Shen Keng District,

Town: New Taipei City

Country: Taiwan R.O.C.

Telephone: 886 2 2662 6074

Fax: 886 2 2662 6079

1.4 Application details

Date of receipt of test item: October 15, 2019

Date of test: from October 15, 2019 to November 5, 2019



Registration number: W6M21910-19416-C-2

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1.5 General information of Test item

Type of test item: Tablet Computer

Model Number: DR13

Brand Name: MilDef Crete

Multi-listing model number: ./.

Photos: see Appendix

Technical data

Frequency band: Band 1: 5.150 GHz-5.250 GHz, Band 4: 5.725 GHz-5.850 GHz

Band 1

802.11a: Low Channel (CH36): 5180 MHz
Middle Channel (CH44): 5220 MHz
High Channel (CH48): 5240 MHz

802.11n 20MHz: Low Channel (CH36): 5180 MHz
Middle Channel (CH44): 5220 MHz
High Channel (CH48): 5240 MHz

802.11n 40MHz: Low Channel (CH38): 5190 MHz
High Channel (CH46): 5230 MHz

802.11ac 80MHz: CH42: 5210 MHz

Band 4

802.11a: Low Channel (CH149): 5745 MHz
Middle Channel (CH157): 5785 MHz
High Channel (CH165): 5825 MHz

802.11n 20MHz: Low Channel (CH149): 5745 MHz
Middle Channel (CH157): 5785 MHz
High Channel (CH165): 5825 MHz

802.11n 40MHz: Low Channel (CH151): 5755 MHz
High Channel (CH159): 5795 MHz

802.11ac 80MHz CH155: 5775 MHz



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Band 1

Numbers of channel: 802.11a: 4 channels
802.11n 20 MHz: 4 channels
802.11n 40 MHz: 2 channels
802.11ac 80 MHz: 1 channel

Band 4

Numbers of channel: 802.11a: 5 channels
802.11n20 MHz: 5 channels
802.11n 40 MHz: 2 channels
802.11ac 80 MHz: 1 channel

Operating modes: Duplex

Type of modulation: OFDM

Fixed point to point operation: Yes / No

Antenna: PIFA Antenna

Antenna gain: ANT A
Band1: -0.74 dBi, Band4: -2.14 dBi
ANT B
Band1: -0.8 dBi, Band4: -4.7 dBi

Directional gain: Band1: 2.24 dBi, Band4: -0.32 dBi

Power supply: Adapter (I/P: 100-240V~50-60Hz, 1.2A MAX.
O/P: 19V 4.74A)
Battery 10.8V, 5800mAh, 63Wh

Classification:

Fixed Device	☐
Mobile Device (Human Body distance > 20cm)	☒
Portable Device (Human Body distance < 20cm)	☐
Modular Radio Device	☐

Note: This device was functioned as a ☐Master ☐Slave device during the DFS

Manufacturer: (if applicable)

Name: ./.
Street: ./.
Town: ./.
Country: ./.

1.6 Test standards

Technical standard : 47 CFR FCC Part 15 Subpart E § 15.407(2018-10)



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2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed. ☒

or

The deviations as specified in 3 were ascertained in the course of the tests performed. ☐

2.2 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Details of power supply: Adapter (I/P: 100-240V~50-60Hz, 1.2A MAX.
O/P: 19V 4.74A)
Battery 10.8V, 5800mAh, 63Wh

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission	Expanded Uncertainty : AMN : 1.30 dB Voltage probe : 1.36 dB
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty : 0.009-30 MHz : 2.02 dB 30-1000 MHz : 3.49 dB 1-18 GHz : 3.01 dB 18-40 GHz : 2.43 dB
Estimation Result of Uncertainty of Bandwidth Measurement 20 dB Bandwidth, Occupied bandwidth, Channel bandwidth, Necessary Bandwidth	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement Output power	Expanded Uncertainty : 1.72 dB
Estimation Result of Uncertainty of Power Density Measurement Power density	Expanded Uncertainty : 1.73 dB
Estimation Result of Uncertainty of Band Edge Measurement	Expanded Uncertainty : 0.98 dBc
Estimation Result of Uncertainty of Conducted Spurious Emission Measurement Conducted spurious emission	Expanded Uncertainty : 1.726 dB
Estimation Result of Uncertainty of EIRP Measurement EIRP 、 ERP 、 Output power(dBm) 、 Radiated spurious emission(dBm), Receiver spurious radiations (≥ 30 MHz)	Expanded Uncertainty : 30-200MHz : 2.50 dB 200-1000MHz : 2.50 dB 1-18GHz : 3.38 dB 18-40GHz : 3.04 dB
Estimation Result of Uncertainty of DFS Timing	Expanded Uncertainty : 0.6 ms
Estimation Result of Uncertainty of DFS Threshold	Expanded Uncertainty : 1.71 dB

The decision rule is: Measurement uncertainty is not taken into account.



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2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2019/6/4	2020/6/3
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2019/10/31	2020/10/30
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2019/9/24	2020/9/23
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2019/7/23	2020/7/22
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2019/10/3	2020/10/2
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2019/7/18	2020/7/17
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2019/6/4	2020/6/3
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2019/5/29	2020/5/28
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2019/7/25	2020/7/24
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2019/7/22	2020/7/21
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2019/4/2	2020/4/1
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2019/1/29	2020/1/28
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2019/4/23	2020/4/22
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2019/5/13	2020/5/12
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2019/2/27	2020/2/26
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2019/2/27	2020/2/26
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2019/2/27	2020/2/26
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2019/3/5	2020/3/4
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2019/2/27	2020/2/26
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2019/5/16	2020/5/15
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2019/9/23	2020/9/22
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2019/9/18	2020/9/17
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2019/5/9	2020/5/8
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2019/2/22	2020/2/21
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2019/1/14	2020/1/13



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ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2019/6/3	2020/6/2
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2019/8/8	2020/8/7
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2019/8/8	2020/8/7
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2019/2/26	2020/2/25
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2019/8/8	2020/8/7
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2019/8/8	2020/8/7
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2019/5/16	2020/5/15
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2019/4/2	2020/4/1
ETSTW-RF 002	Electromagnetic field probe	LF-30	K-0007	STT	2019/5/27	2020/5/26
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2019/5/16	2020/5/15
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2019/3/5	2020/3/4
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2019/3/26	2020/3/25
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2019/10/18	2020/10/17
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2019/1/14	2020/1/13
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2019/1/14	2020/1/13
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2019/1/14	2020/1/13
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2019/1/14	2020/1/13
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2019/9/12	2020/9/11
ETSTW-GSM 024	Radio Communication Analyzer	MT8821C	None	Anritsu	2019/3/5	2020/3/4
ETSTW-GSM 025	Band Reject Filter	BRM19835	001	Micro-Tronics	2019/8/9	2020/8/8
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test Use NCR	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2019/2/21	2020/2/20
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2019/7/2	2020/7/1
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2019/2/25	2020/2/24
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2019/5/14	2020/5/13
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2019/9/18	2020/9/17
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2019/9/18	2020/9/17
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2019/2/25	2020/2/24
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2019/5/16	2020/5/15
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2019/6/6	2020/6/5
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2019/5/16	2020/5/15
ETSTW-Cable 066	SMA type cable	32022	None	ASTROLAB	2019/9/24	2020/9/23



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ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM-NM-25000	170239	EMCI	2019/6/6	2020/6/5
ETSTW-Cable 072	SMA type cable (8m)	SUCOFLEX 104	805800/4	HUBER+SUHNER	2019/5/16	2020/5/15
ETSTW-Cable 074	SMA type cable (2m)	SUCOFLEX 104	802563/4	HUBER+SUHNER	2019/5/16	2020/5/15
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	AUDIX	Version 9.161014	
WTSTW-SW 008	Signal studio	Agilent	None	AUDIX	Version 2.0.0.1	
ETSTW-TH 001	Thermohygrometer	608-H1	45204316	Testo	2019/9/9	2020/9/8
ETSTW-TH 002	Thermohygrometer	608-H1	45204317	Testo	2019/9/9	2020/9/8



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2.4 Test Procedure

The test procedures are performed following the test stands ANSI STANDARD C63.10 and FCC 789033 D02 General UNII Test Procedures New Rules v01r04.

■ Minimum Emission Bandwidth for the band 5.150-5.250 GHz, 5.725-5.850 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

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

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

■ 99 Percent Occupied Bandwidth

The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section H)3)d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the 6-dB emission bandwidth to define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section E). However, the 6-dB bandwidth must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

The following procedure shall be used for measuring (99 %) power bandwidth.

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



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■ Maximum conducted output power

- (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW $\geq$ 3 MHz.
- (iv) Number of points in sweep $\geq$ 2 Span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- (vii) If transmit duty cycle $<$ 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq$ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
- (viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

■ Power Density

The rules requires “maximum power spectral density” measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power...”. (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3. Make the following adjustments to the peak value of the spectrum, if applicable:
 - a) If Method SA-2 or SA-2 Alternative was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum.
 - b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth.
5. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or



Registration number: W6M21910-19416-C-2

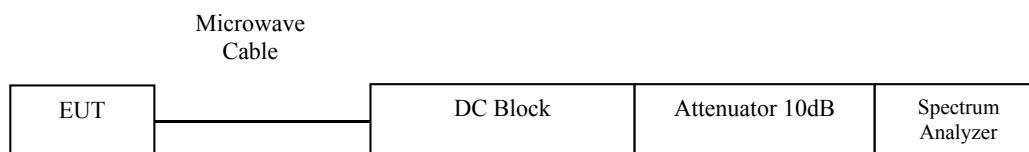
FCC ID: IR5DR13

500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.1.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since $RBW=100 \text{ kHz}$ is available on nearly all spectrum analyzers.

Conducted measurement test setup





Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Transmit Power	15.407(a)	☐	☐	☐
6-dB emission bandwidth	15.407(a)	☐	☐	☐
26-dB emission bandwidth	15.407(a)	☐	☐	☐
99 % Occupied Bandwidth	789033 D02 General UNII Test Procedures New Rules v01	☐	☐	☐
Band edge	15.407(a)	☒	☒	☐
Peak Power Spectral Density	15.407(a)	☐	☐	☐
Undesirable emission limits	15.407(b)	☒	☒	☐
Radio Frequency Exposure	15.407(f)	☐	☐	☐
Transmit Power Control	15.407(h)	☐	☐	☐
Dynamic Frequency Selection (DFS)	15.407(h)	☐	☐	☐
Channel Move Time, Channel Closing Transmission Time	15.407(i)	☐	☐	☐
Radiated Emission from Receiver Part	15.109	☐	☐	☐
AC Conducted Emissions	15.207	☒	☒	☐

The following is intentionally left blank.



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3.1 Peak Transmit Power, FCC 15.407 (a)

According to §15.407(a)

1. For the band 5.15-5.25 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 30 dBm (1 W) for master device and 24 dBm (250 mW) for mobile/portable client device.
2. For the band 5.25-5.35 GHz and 5.47-5.725 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 24 dBm (250 mW) or $11\text{dBm} + 10 \log B$, whichever is lower (B= 26-dB emission BW).
3. For the band 5.725-5.850 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 30 dBm (1 W).

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

Explanation: This test is not required.



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3.2 26dB emission bandwidth, 99% Occupied Bandwidth, FCC 15.407 (a)

According to §15.407(a). No Limit required.

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

Explanation: This test is not required.



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3.3 6dB emission bandwidth, 99% Occupied Bandwidth, FCC 15.407 (a)

According to §15.407(a). No Limit required.

Explanation: This test is not required.

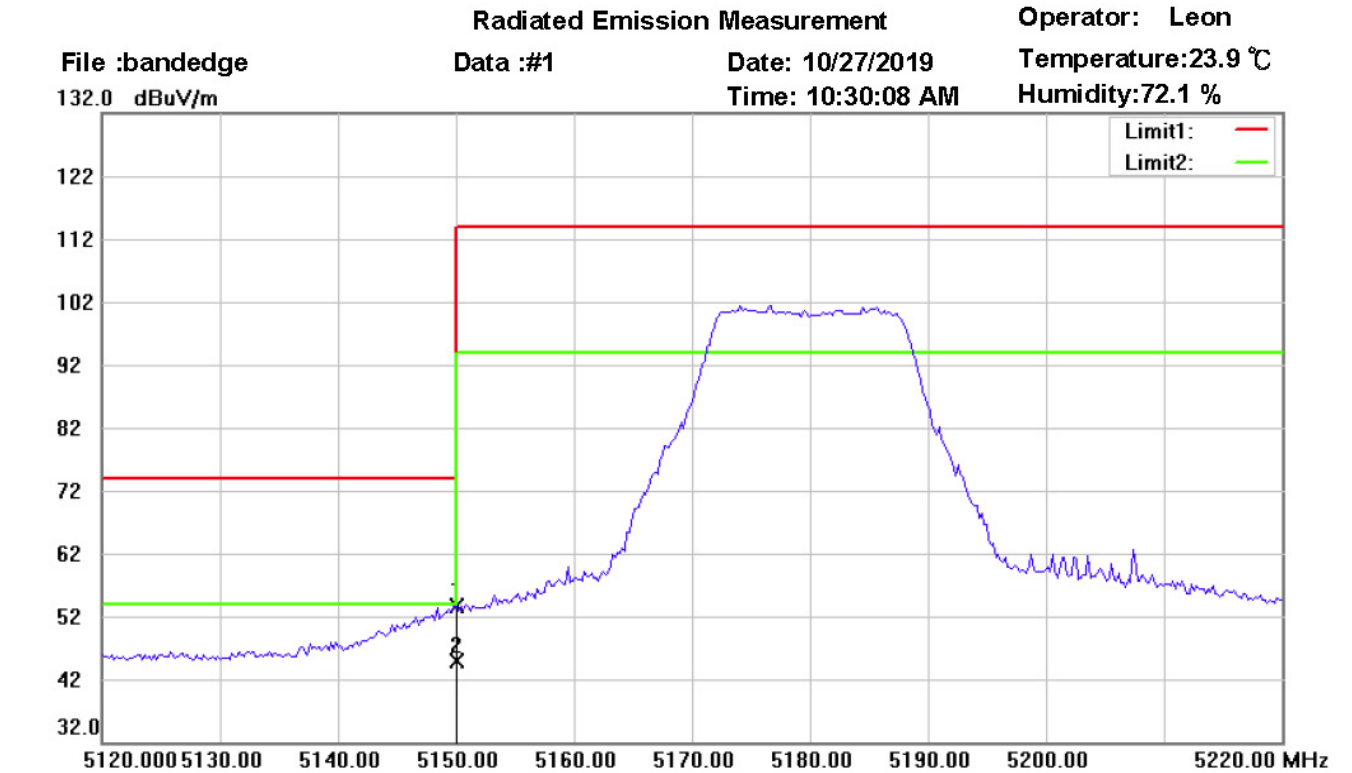


Registration number: W6M21910-19416-C-2
FCC ID: IR5DR13

3.4 Band edge, FCC 15.407 (a)

According to §15.407(a). No Limit required.

ANTA



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

EUT : W6M21910-19416

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: *Horizontal*

Power : 120 Va.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	12.50	peak	41.10	53.60	74.00	170	295	-20.40	
*	5150.000	3.73	AVG	41.10	44.83	54.00	170	295	-9.17	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

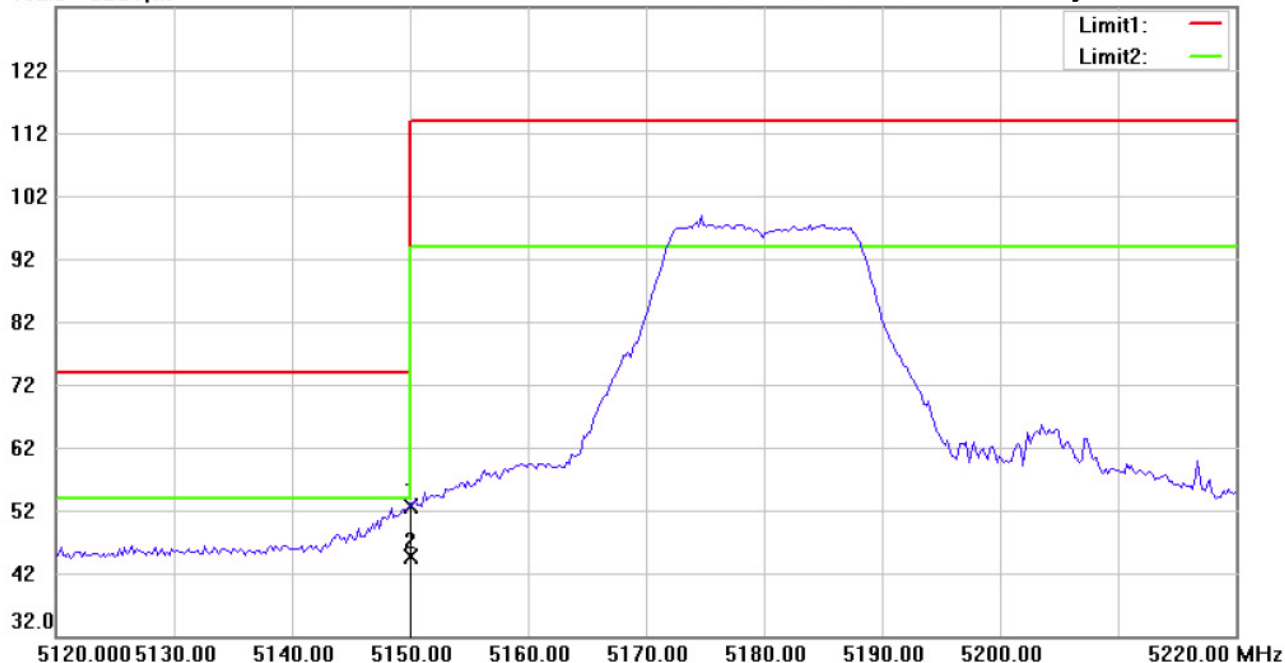
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 10:43:29 AM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH36

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	11.56	peak	41.10	52.66	74.00	162	360	-21.34	
*	5150.000	3.63	AVG	41.10	44.73	54.00	162	360	-9.27	



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

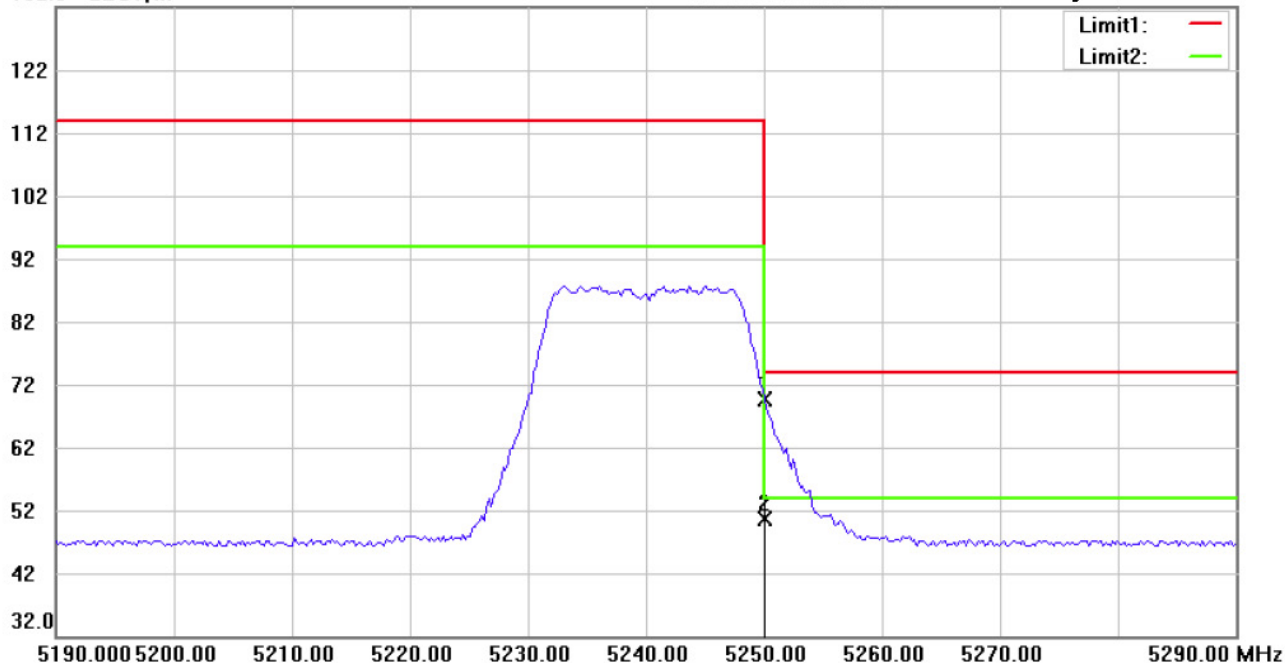
Date: 10/31/2019

Temperature:22.6 °C

132.0 dBuV/m

Time: 7:56:39 AM

Humidity:73.9 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Horizontal*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH48

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	28.20	peak	41.37	69.57	74.00	168	295	-4.43	
*	5250.000	9.38	AVG	41.37	50.75	54.00	168	295	-3.25	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

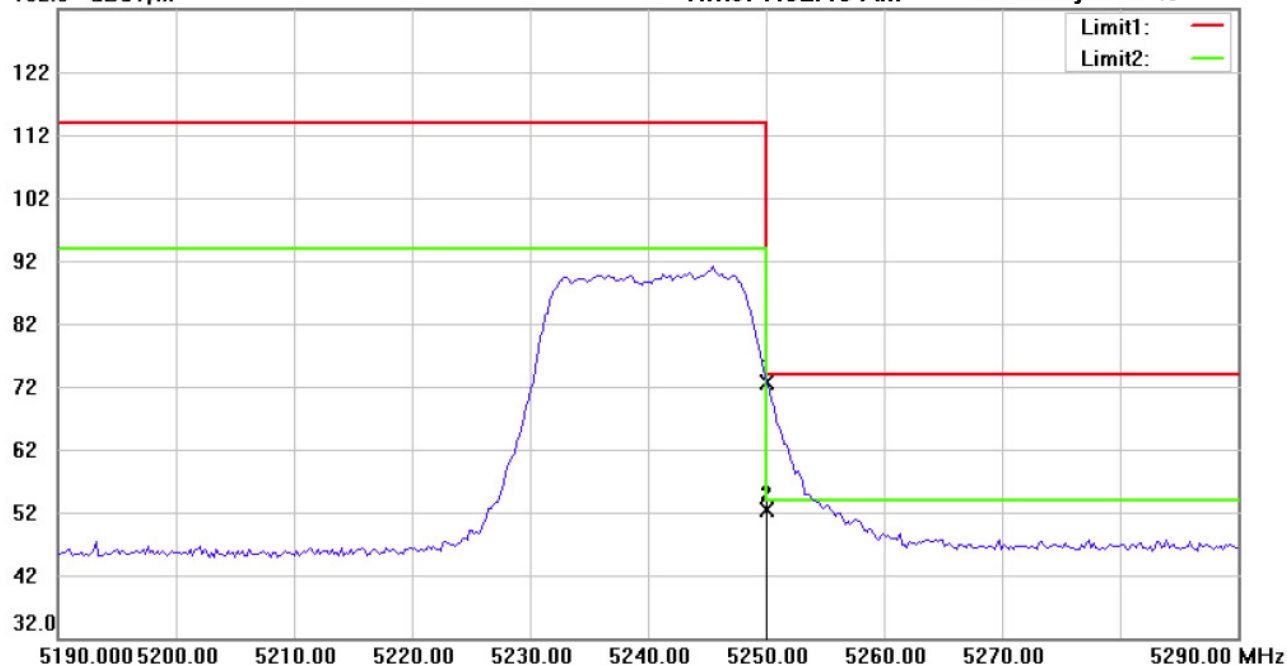
Date: 10/31/2019

Temperature:22.6 °C

132.0 dBuV/m

Time: 7:52:13 AM

Humidity:73.9 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH48

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	5250.000	31.36	peak	41.37	72.73	74.00	150	355	-1.27	
	5250.000	10.93	AVG	41.37	52.30	54.00	150	355	-1.70	



Registration number: W6M21910-19416-C-2
FCC ID: IR5DR13

ANTB

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

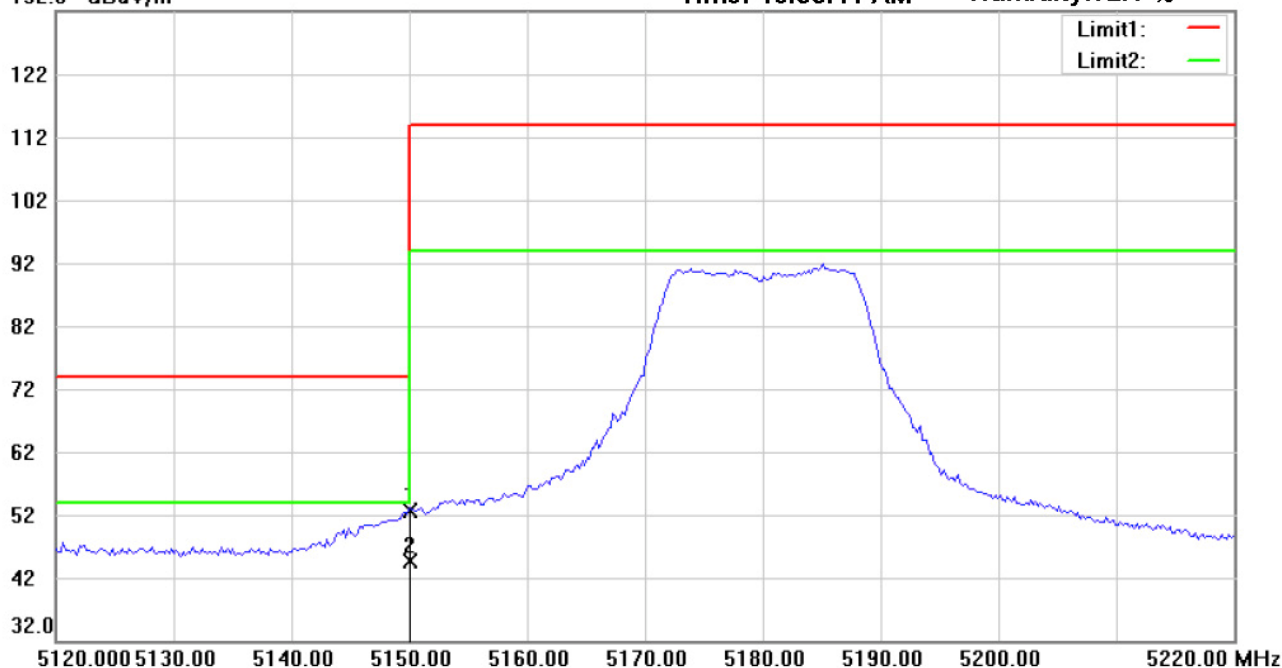
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 10:55:44 AM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Horizontal*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH36

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	11.65	peak	41.10	52.75	74.00	150	184	-21.25	
*	5150.000	3.52	AVG	41.10	44.62	54.00	150	184	-9.38	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

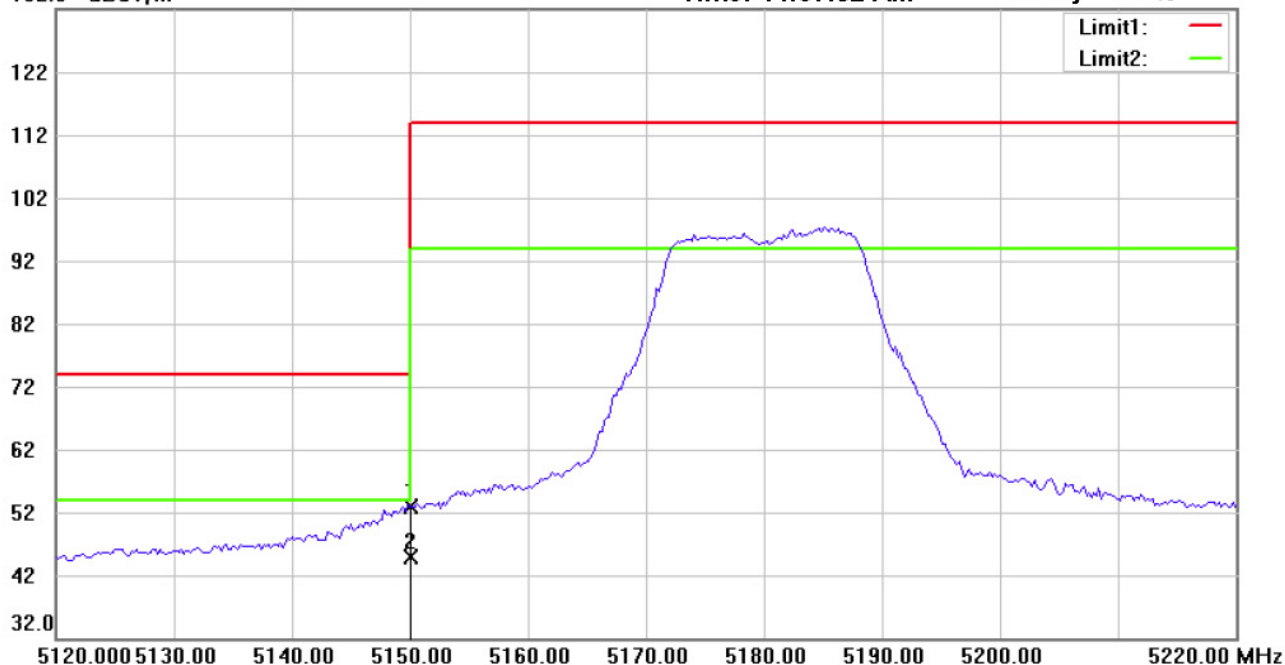
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 11:07:32 AM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH36

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	11.66	peak	41.10	52.76	74.00	150	280	-21.24	
*	5150.000	3.75	AVG	41.10	44.85	54.00	150	280	-9.15	



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

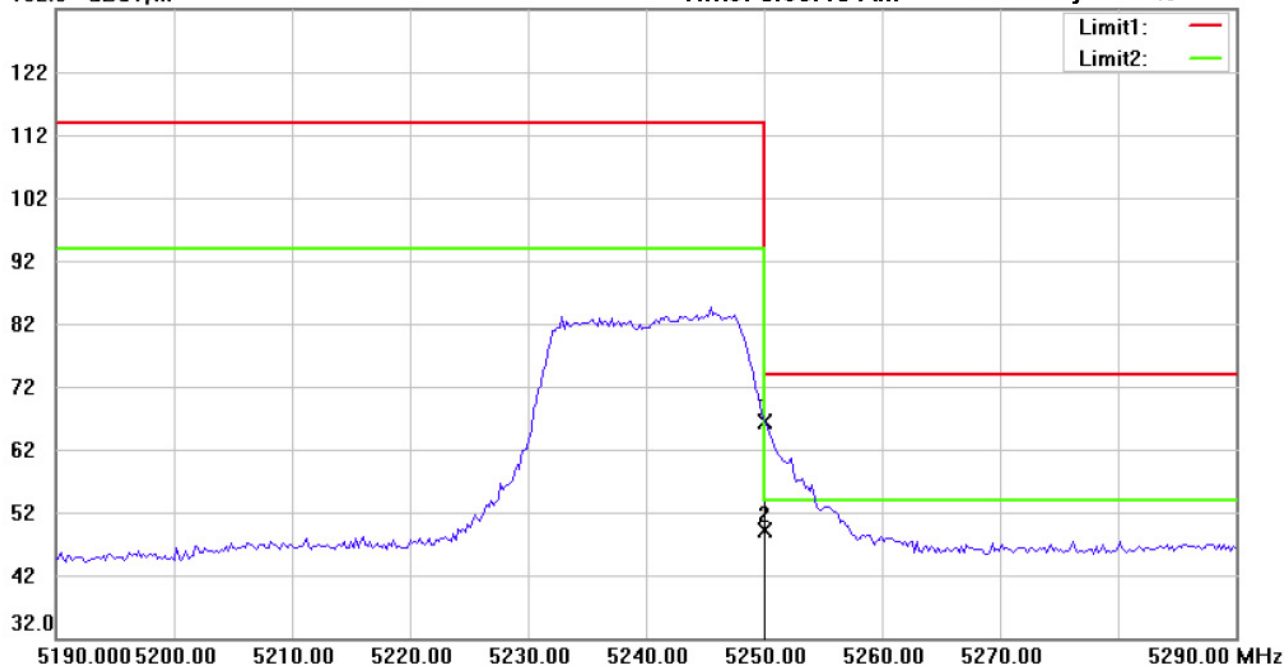
Date: 10/31/2019

Temperature:22.6 °C

132.0 dBuV/m

Time: 8:09:18 AM

Humidity:73.9 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Horizontal*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH48

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	24.89	peak	41.37	66.26	74.00	150	137	-7.74	
*	5250.000	7.76	AVG	41.37	49.13	54.00	150	137	-4.87	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2
FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

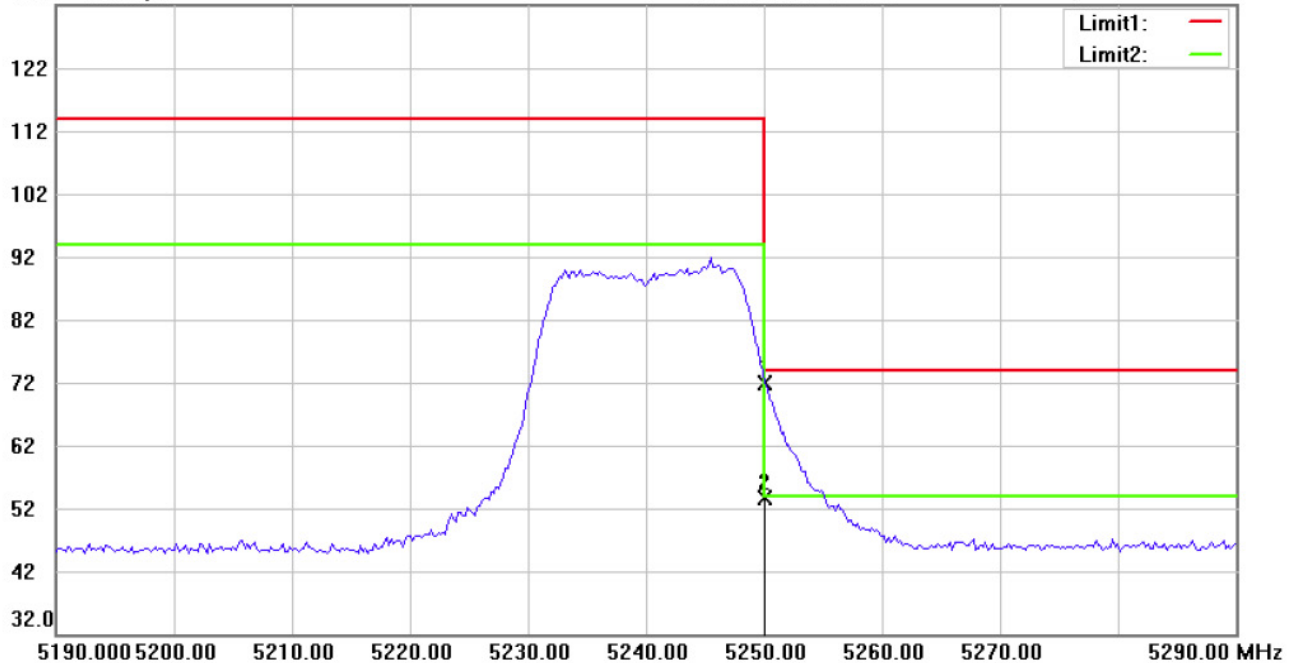
Date: 10/31/2019

Temperature:22.6 °C

132.0 dBuV/m

Time: 8:11:46 AM

Humidity:73.9 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Vertical*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11a CH48

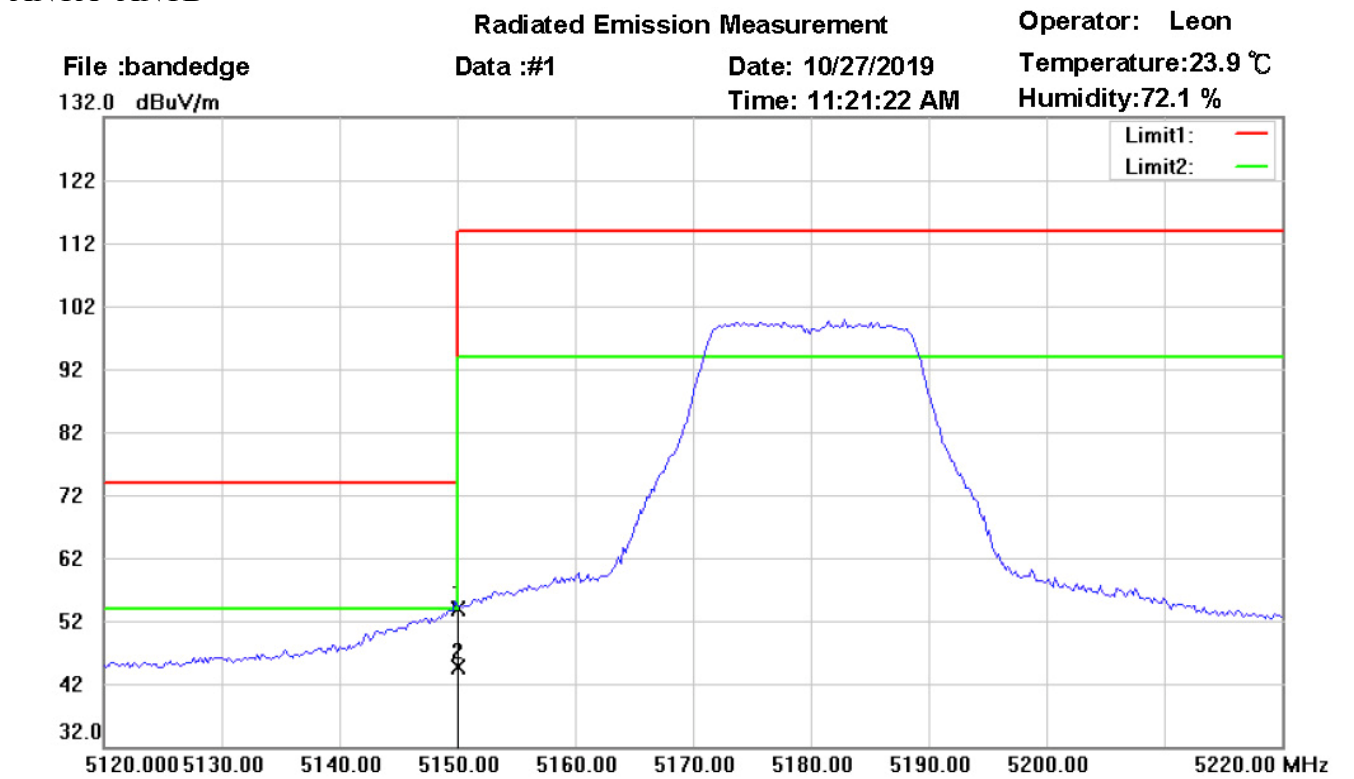
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	30.58	peak	41.37	71.95	74.00	238	204	-2.05	
*	5250.000	12.31	AVG	41.37	53.68	54.00	238	204	-0.32	



Registration number: W6M21910-19416-C-2
FCC ID: IR5DR13

ANTA+ANTB



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

EUT : W6M21910-19416

M/N:

Test Mode : TX 802.11n20 CH36

Note :

Polarization: *Horizontal*

Power : 120 Va.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	12.84	peak	41.10	53.94	74.00	170	290	-20.06	
*	5150.000	3.61	AVG	41.10	44.71	54.00	170	290	-9.29	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

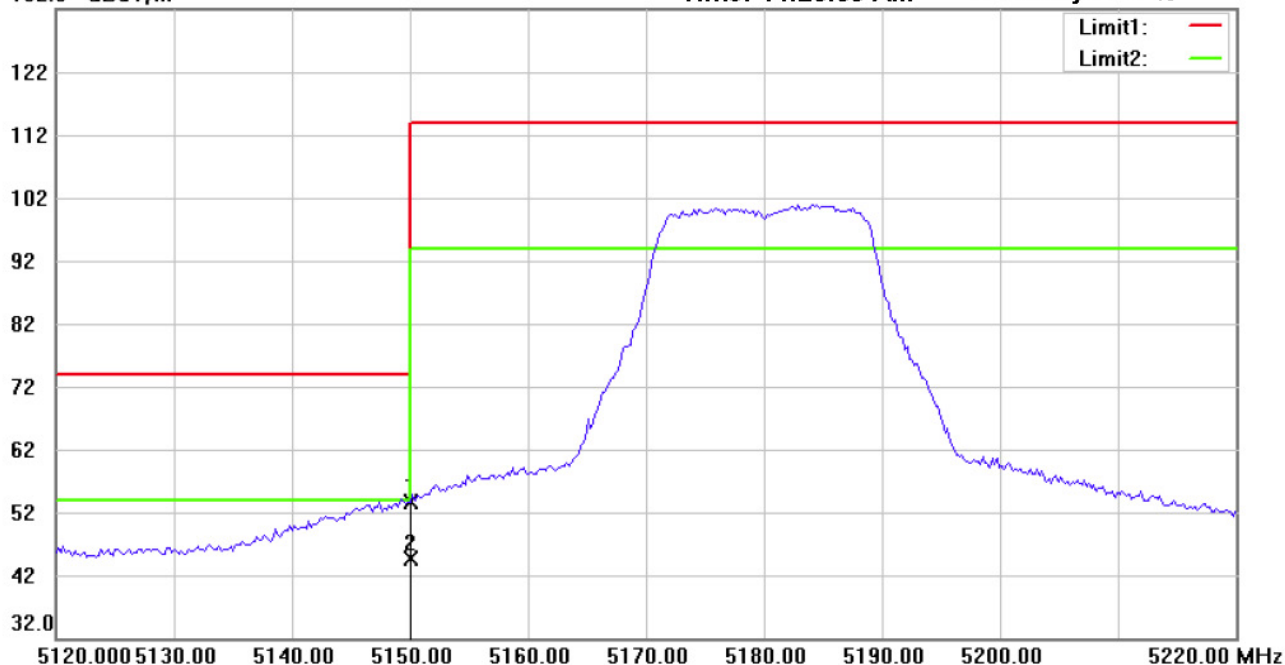
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 11:29:33 AM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Vertical*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11n20 CH36

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	12.65	peak	41.10	53.75	74.00	240	0	-20.25	
*	5150.000	3.43	AVG	41.10	44.53	54.00	240	0	-9.47	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2
FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

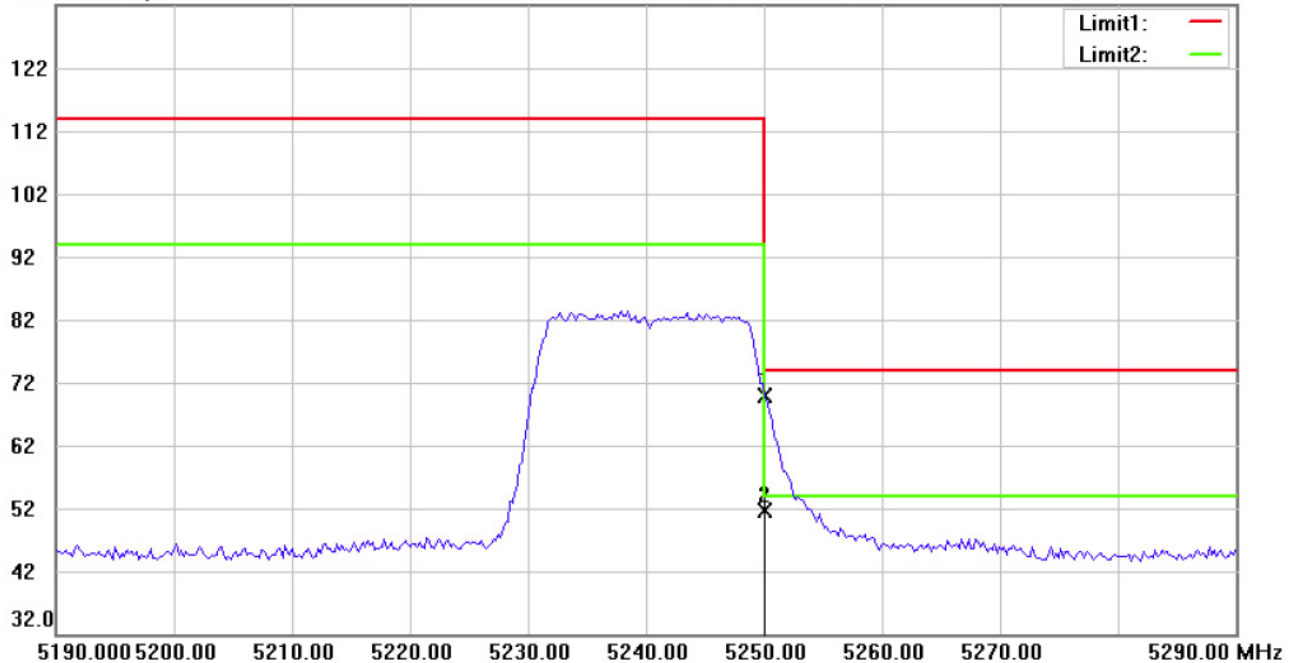
Date: 10/31/2019

Temperature:22.6 °C

132.0 dBuV/m

Time: 8:34:34 AM

Humidity:73.9 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

EUT : W6M21910-19416

M/N:

Test Mode : TX 802.11n20 CH48

Note :

Polarization: *Horizontal*

Power : 120 Va.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	28.42	peak	41.37	69.79	74.00	170	295	-4.21	
*	5250.000	10.37	AVG	41.37	51.74	54.00	170	295	-2.26	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

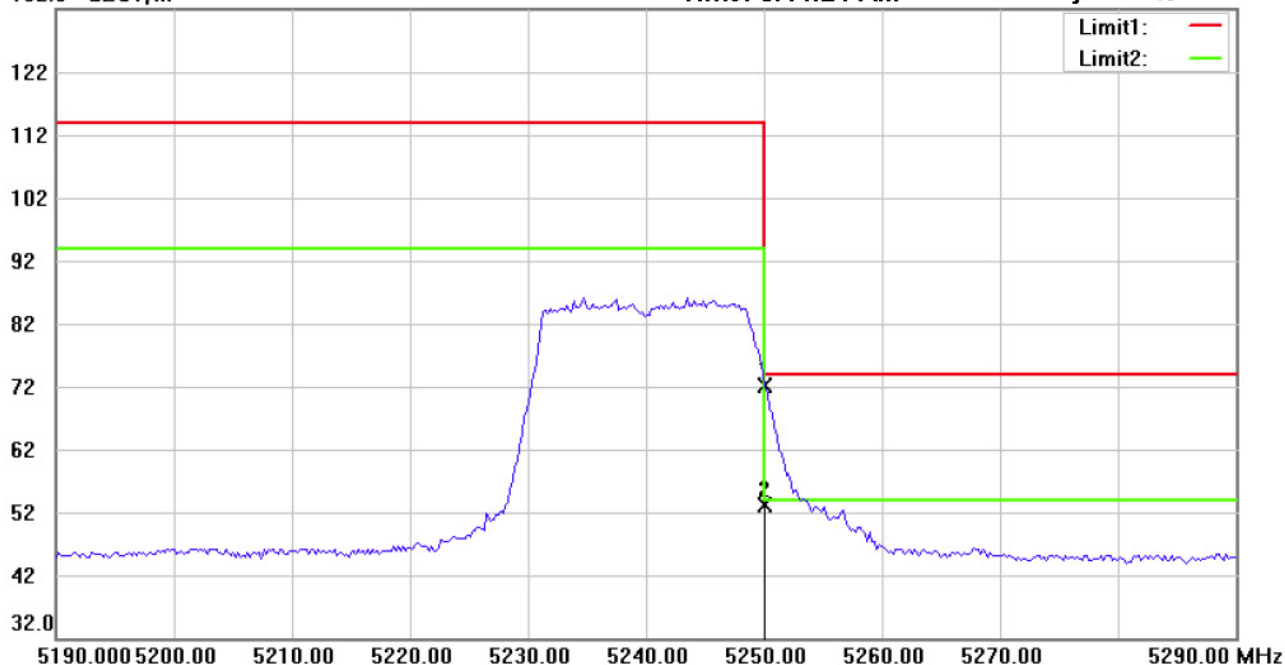
Date: 10/31/2019

Temperature:22.6 °C

132.0 dBuV/m

Time: 8:41:24 AM

Humidity:73.9 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11n20 CH48

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	30.75	peak	41.37	72.12	74.00	238	0	-1.88	
*	5250.000	11.87	AVG	41.37	53.24	54.00	238	0	-0.76	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

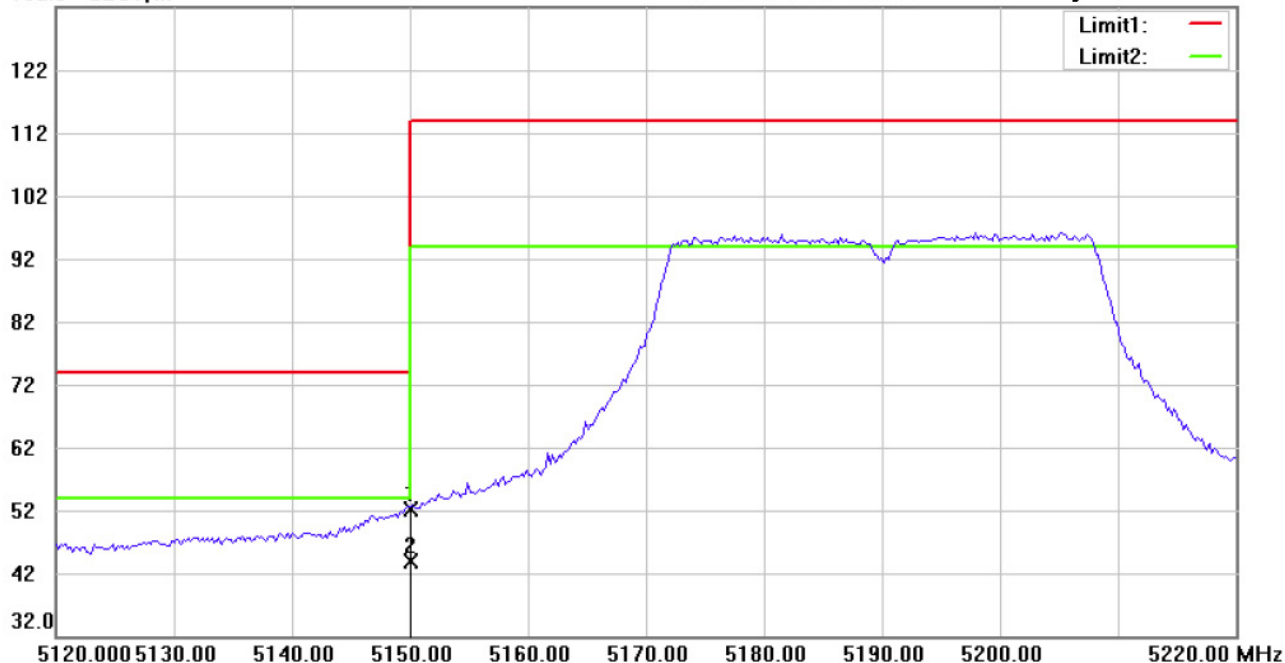
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 11:59:24 AM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Horizontal*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11n40 CH38

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	11.14	peak	41.10	52.24	74.00	180	295	-21.76	
*	5150.000	2.89	AVG	41.10	43.99	54.00	180	295	-10.01	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

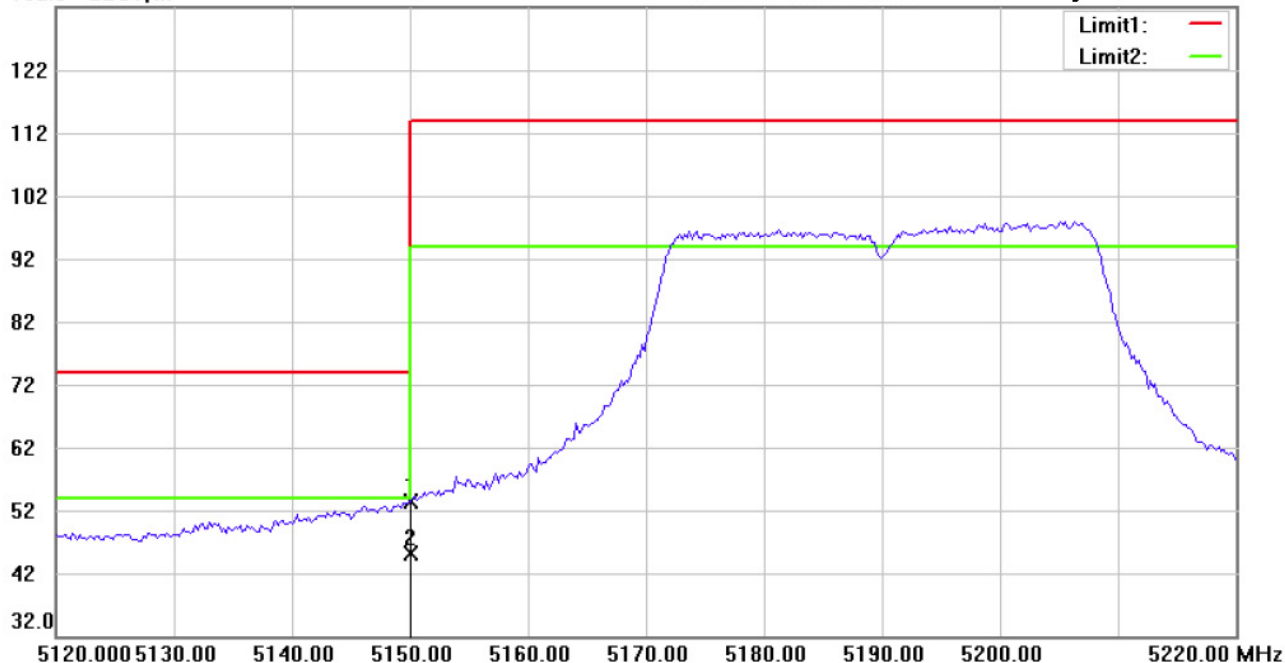
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 11:41:08 AM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11n40 CH38

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	12.22	peak	41.10	53.32	74.00	270	360	-20.68	
*	5150.000	3.91	AVG	41.10	45.01	54.00	270	360	-8.99	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

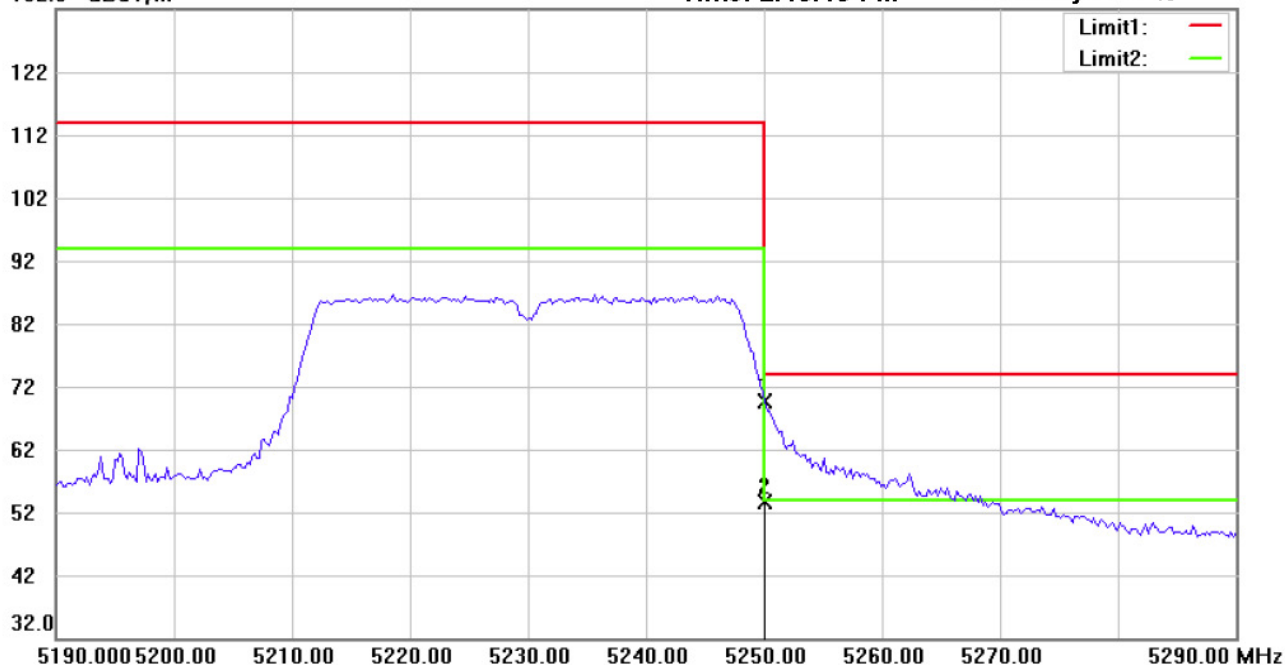
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 2:15:49 PM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Horizontal*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11n40 CH46

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	28.20	peak	41.37	69.57	74.00	170	295	-4.43	
*	5250.000	12.17	AVG	41.37	53.54	54.00	170	295	-0.46	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

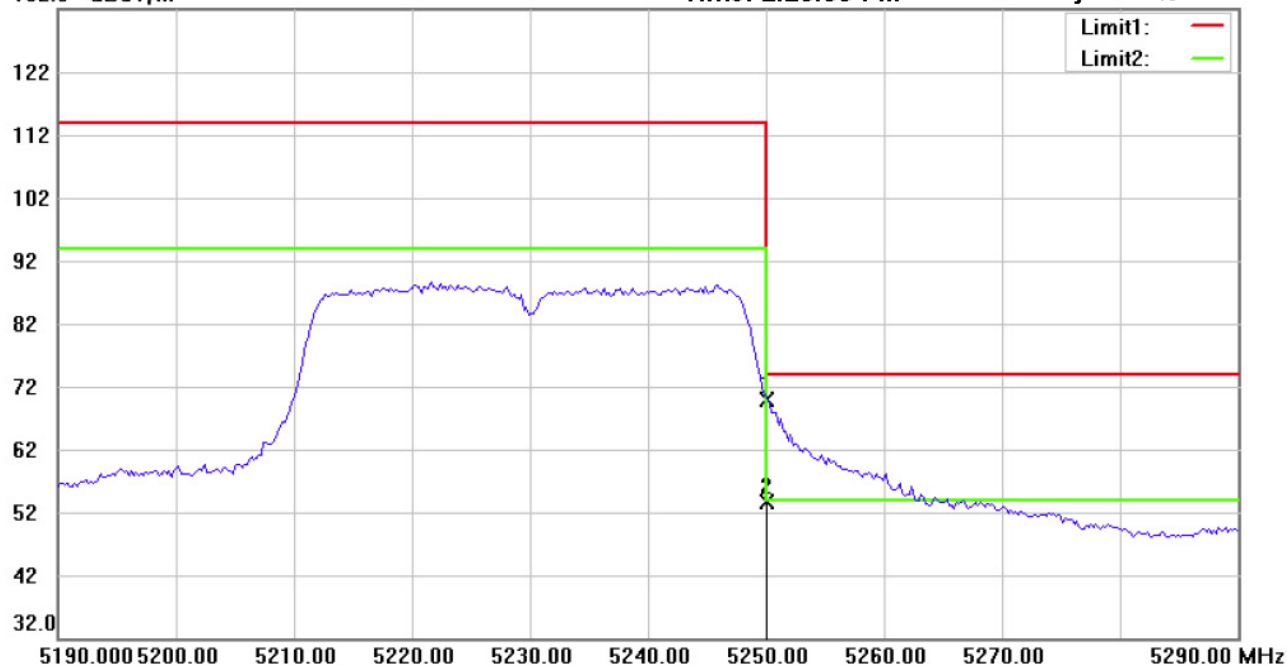
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 2:25:55 PM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Vertical*

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11n40 CH46

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5250.000	28.53	peak	41.37	69.90	74.00	253	0	-4.10	
*	5250.000	12.35	AVG	41.37	53.72	54.00	253	0	-0.28	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#1

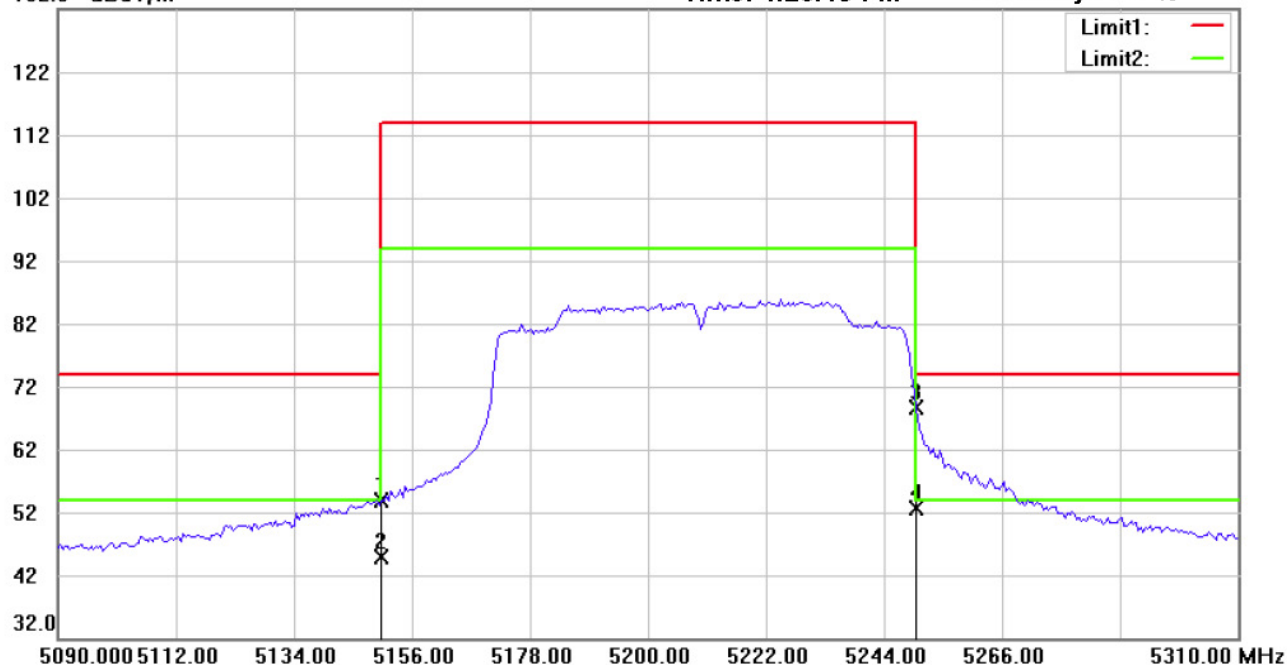
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 1:26:13 PM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: *Horizontal*

EUT : W6M21910-19416

Power : 120 V.a.c.

M/N:

Distance: 3m

Test Mode : TX 802.11ac CH42

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	12.70	peak	41.10	53.80	74.00	170	290	-20.20	
	5150.000	3.75	AVG	41.10	44.85	54.00	170	290	-9.15	
	5250.000	27.30	peak	41.37	68.67	74.00	170	290	-5.33	
*	5250.000	11.31	AVG	41.37	52.68	54.00	170	290	-1.32	



Registration number: W6M21910-19416-C-2
FCC ID: IR5DR13

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#2

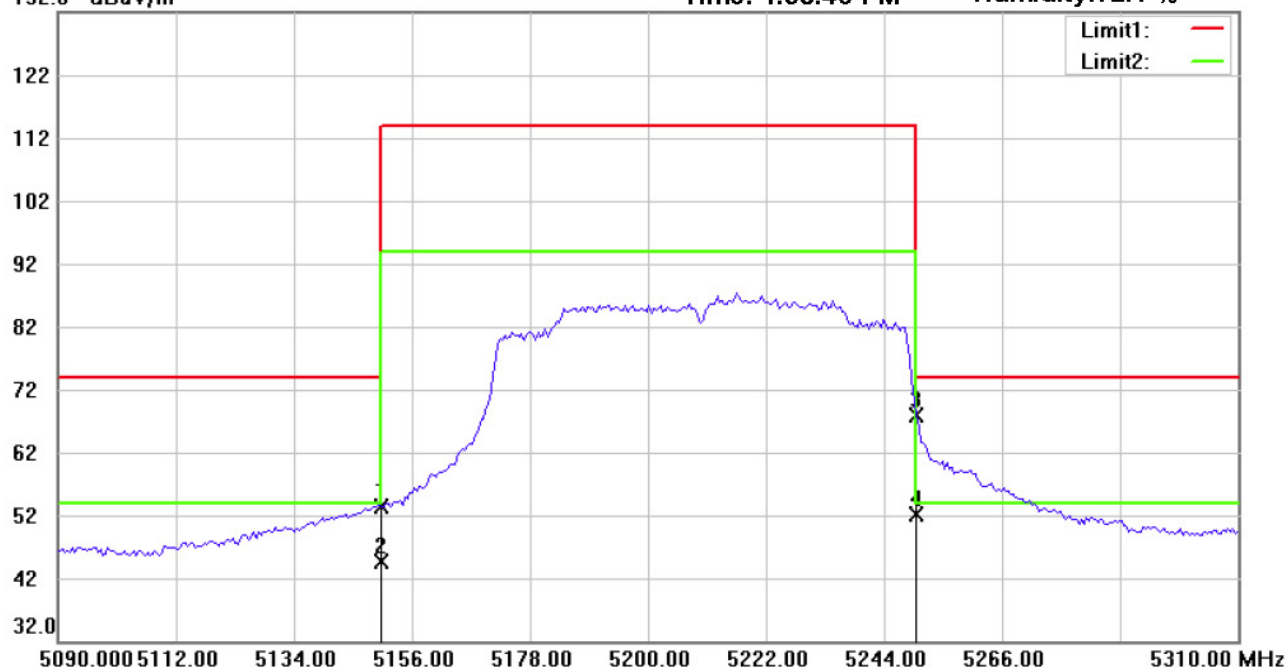
Date: 10/27/2019

Temperature:23.9 °C

132.0 dBuV/m

Time: 1:38:46 PM

Humidity:72.1 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M21910-19416

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 802.11ac CH42

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	5150.000	12.33	peak	41.10	53.43	74.00	197	350	-20.57	
	5150.000	3.57	AVG	41.10	44.67	54.00	197	350	-9.33	
	5250.000	26.54	peak	41.37	67.91	74.00	197	350	-6.09	
*	5250.000	10.68	AVG	41.37	52.05	54.00	197	350	-1.95	



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3.5 Peak Power Spectral Density, FCC 15.407 (a)

According to §15.407(a)

1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 17 dBm/MHz for master device and 11 dBm/MHz for mobile/portable client device.
2. For the band 5.25-5.35 GHz and 5.47-5.725 GHz, the peak power spectral density shall not exceed 11 dBm/MHz.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm/500kHz.

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

Explanation: This test is not required.



3.6 Undesirable emission limits, FCC 15.407 (b)

1. For transmitters operating in the 5.15–5.25 GHz band: all emissions out-side of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.
2. For transmitters operating in the 5.25–5.35 GHz band: all emissions out-side of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. De-vices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all appli-cable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15–5.25 GHz band.
3. For transmitters operating in the 5.47–5.725 GHz band: all emissions out-side of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
4. For transmitters operating in the 5.725–5.850 GHz band: All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
5. The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
6. Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.
7. According to According to KDB 789033 D02 General UNII Test Procedures v01, as specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.
8. If radiated measurements are performed, field strength is then converted to EIRP as follows:
 - (i) $EIRP = ((E \cdot d)^2) / 30$, where: E is the field strength in V/m; d is the measurement distance in meters. EIRP is the equivalent isotropically radiated power in watts.
 - (ii) Working in dB units, the above equation is equivalent to: $EIRP[dBm] = E[dB\mu V/m] + 20 \log(d[meters]) - 104.77$.
 - (iii) Or, if d is 3 meters: $EIRP[dBm] = E[dB\mu V/m] - 95.2$.
 - (iv)

Applicable to	Limit	
☒	FIELD STRENGTH at 3m (dBμV/m)	
	PK	AV
	74	54
☐	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH at 3m (dBμV/m)
	PK	PK
	-27	68.3



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

Model: DR13

Date: --

Mode: --

Temperature: -- °C Engineer: --

Polarization: Horizontal

Humidity: -- %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 147,
ETSTW-RE 088, ETSTW-RE 018

Explanation: After evaluated, the test result in this report adopt the worst case to measure,
please see attached diagrams in appendix.



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3.7 Automatic Discontinuation of transmission, FCC 15.407 (c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure.

This function will be declared by manufacturer.

3.8 Reserved, FCC 15.407 (d)

3.9 Indoor Operation Restriction, FCC 15.407 (e)

Within the 5.15–5.25 GHz band, U- NII devices will be restricted to indoor operations to reduce any potential for harmful interference to co-channel MSS operations. This equipment has to be declared by manufacturer of the final product as content of the user manual.

3.10 Equivalent isotropic radiated power, FCC 15.407 (f)

FCC Rule: 15.407(b)(3)

Band 1

Test exclusion = max. conducted output power + adjusted for tune-up tolerance

Test exclusion = -- dBm

Test equipment used: ETSTW-RE 055

3.11 RF Exposure Compliance Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.25 m normally can be maintained between the user and the device.

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.

The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

$$S = \frac{PG}{4 \pi R^2}$$

S – Power Density

P – Output power ERP

R – Distance

D – Cable Loss

AG – Antenna Gain

Item	Unit	Value	Remarks
P	mW	--	Peak value
D	dB	--	--
AG	dBi	--	--
G	--	--	Calculated Value
R	cm	--	Assumed value
S	mW/cm2	--	Calculated value



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Limits:

Limit for General Population / Uncontrolled Exposure	
Frequency (MHz)	Power Density (mW/cm ²)
1500 – 100.000	1.0

Explanation: Please refer to SAR report.



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3.12 Transmit Power Control (TPC)

Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

Explanation: Max put power of the EUT is less than 500 mW (27dBm) so this test item is not required.



Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3.13 Dynamic Frequency Selection (DFS)

3.13.1 DFS Detection Threshold

3.13.2 Channel move time plot of Type1 radar waveform on 5530MHz

3.13.3 30Minutes Non-Occupancy Time

Test equipment used: ETSTW-RE 133, ETSTW-RE 134

Explanation: This test is not required.



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3.14 Channel Move Time, Channel Closing Transmission Time

FCC Rule: 15.407(i)

Result :

Parameter (at 5530MHz)	Test Result	Limit
	Type0	
Channel Move Time (ms)	--	<10s
Channel Close Transmission Time (ms)	--	< 60ms

Note: The Channel Close Transmission Time is compromised 200 milliseconds starting at the beginning of the Channel Move Time plus the additional intermittent control signal required to facilitate channel-move operation (an aggregate of 60milliseconds) during the remainder of the 10seconds period.

Test equipment used: ETSTW-RE 133, ETSTW-RE 134

Explanation: This test is not required.



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3.15 Radiated Emissions from Receiver Part

FCC Rule: 15.109

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 147, ETSTW-RE 088,
ETSTW-RE 018

Explanation: The test results are listed in the separated test report no.: W6M21910-19416-P-15B.

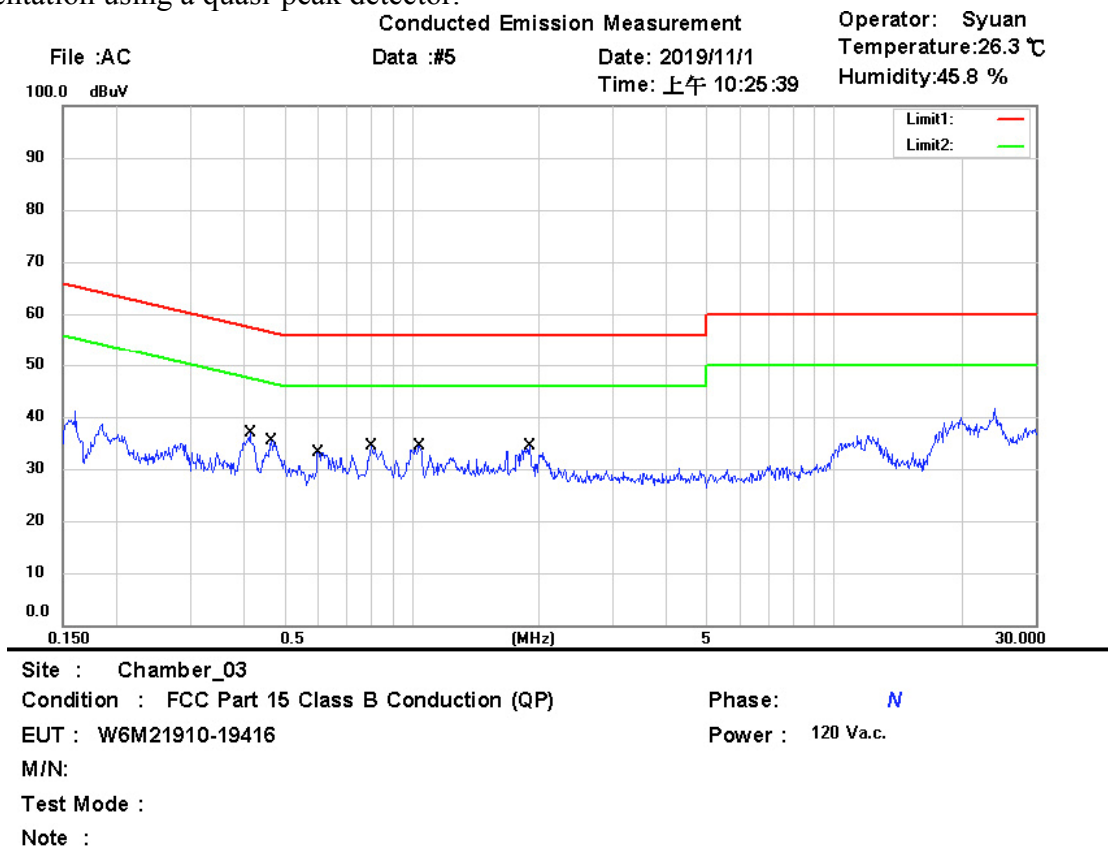
Registration number: W6M21910-19416-C-2

FCC ID: IR5DR13

3.16 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

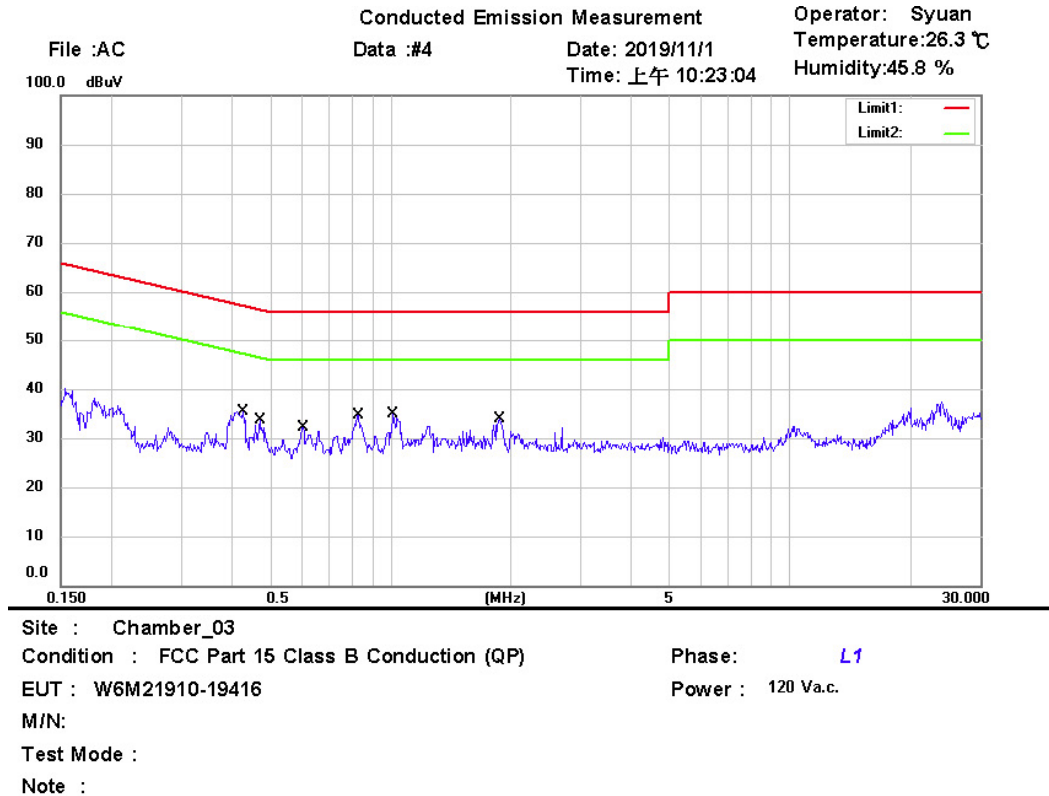


Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.4134	21.93	QP	9.69	31.62	57.58	-25.96	
	0.4134	12.07	AVG	9.69	21.76	47.58	-25.82	
	0.4650	17.06	QP	9.68	26.74	56.60	-29.86	
*	0.4650	13.66	AVG	9.68	23.34	46.60	-23.26	
	0.5990	16.66	QP	9.67	26.33	56.00	-29.67	
	0.5990	12.56	AVG	9.67	22.23	46.00	-23.77	
	0.8037	16.96	QP	9.65	26.61	56.00	-29.39	
	0.8037	10.18	AVG	9.65	19.83	46.00	-26.17	
	1.0377	19.82	QP	9.63	29.45	56.00	-26.55	
	1.0377	12.19	AVG	9.63	21.82	46.00	-24.18	
	1.8950	17.38	QP	9.55	26.93	56.00	-29.07	
	1.8950	10.86	AVG	9.55	20.41	46.00	-25.59	



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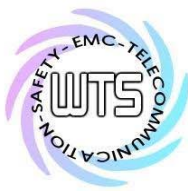
Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.4267	19.41	QP	9.71	29.12	57.32	-28.20	
	0.4267	12.86	AVG	9.71	22.57	47.32	-24.75	
	0.4695	14.94	QP	9.70	24.64	56.52	-31.88	
	0.4695	10.26	AVG	9.70	19.96	46.52	-26.56	
	0.6012	16.40	QP	9.69	26.09	56.00	-29.91	
*	0.6012	12.37	AVG	9.69	22.06	46.00	-23.94	
	0.8262	18.47	QP	9.67	28.14	56.00	-27.86	
	0.8262	11.68	AVG	9.67	21.35	46.00	-24.65	
	1.0085	16.51	QP	9.65	26.16	56.00	-29.84	
	1.0085	10.58	AVG	9.65	20.23	46.00	-25.77	
	1.8680	19.26	QP	9.57	28.83	56.00	-27.17	
	1.8680	12.25	AVG	9.57	21.82	46.00	-24.18	

- Note: 1. The formula of measured value as: Test Result = Reading + Correction Factor
2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. Up Line: QP Limit Line, Down Line: Ave Limit Line.

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test equipment used: ETSTW-CE 001, ETSTW-CE 016, ETSTW-RE 045



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Appendix

Measurement diagrams

Spurious Emissions radiated