47 CFR PART 15 SUBPART C TEST REPORT

for

Wireless Anemometer

Model No.: WL-21_Wind Sensor

FCC ID: 2A2MWSTWL21

of

Applicant: Scarlet Tech Co Ltd
Address: 347 4F-3, HePing E Rd, 2nd Sec, Daan Dist Taipei City
Taiwan 106

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW1072

Industry Canada filed test laboratory Reg. No. 20037

Report No.: W6M22109-21219-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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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 is 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.
The test report may only be reproduced or published in full.
Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Tester:

Date	WTS-Lab.	Name	Signature
November 23, 2021		Rick Chen	Rick Chen

Technical responsibility for area of testing:

Date	WTS	Name	Signature
November 23, 2021		Kevin Wang	Kevin Wang

Registration number: W6M22109-21219-C-1
FCC ID: 2A2MWSTWL21

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
FCC filed test laboratory Reg. No. TW1477, 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:	Scarlet Tech Co Ltd
Street:	347 4F-3, HePing E Rd, 2nd Sec, Daan Dist
Town:	Taipei City
Country:	Taiwan 106
Telephone:	+886-2-2709-2363
Fax:	./.

1.4 Application details

Date of receipt of test item:	September 13, 2021
Date of test:	from September 14, 2021 to November 08, 2021

1.5 General information of Test item

Type of test item:	Wireless Anemometer
Model Number:	WL-21_Wind Sensor
Brand Name:	Scarlet Tech
Multi-listing model number:	./.
Photos:	./.

Technical data

Frequency band:	902.9 MHz – 926.6 MHz
Frequency A:	902.9 MHz
Frequency B:	914.6 MHz
Frequency C:	926.6 MHz
Number of Channels:	80
Operation modes:	Simplex
Modulation Type:	GFSK
Fixed point-to-point operation:	☐ Yes / ☒ No
Type of Antenna:	Wire antenna
Antenna gain:	-1.56 dBi (Testing laboratory assumes no responsibility for affecting any validity of the result while the information which is provided by clients.)
Power supply:	Battery 3.6 Vd.c.
Emission designator:	700KG1D
Host device:	none

Registration number: W6M22109-21219-C-1
FCC ID: 2A2MWSTWL21

Classification :

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

Transmitter	**Unom**
Power A:	Conducted: 6.77 dBm
Power B:	Conducted: 6.36 dBm
Power C:	Conducted: 5.92 dBm

Manufacturer: (if applicable)

Name:	CHY FIREMATE CO., LTD.
Street:	No.3 Sheng-Li 1st Street, Xintian Village, Rende District,
Town:	Tainan City,
Country:	Taiwan R.O.C.

1.6 Test standards

Technical standard : 47 CFR PART 15 SUBPART C § 15.247 (2020-10)

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 were ascertained in the course of the tests performed. ☐.

2.2 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Power supply: Battery 3.6Vd.c.

Extreme conditions parameters: ./.

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission (Power Line Conducted Emission)	Expanded Uncertainty： AMN：1.05 dB Voltage probe：1.05 dB
Estimation Result of Uncertainty of Radiated Emission(3M) (Transmitter Radiated Emissions in Restricted Bands , Spurious Emissions (tx), Radiated Emission from Receiver Part)	Expanded Uncertainty： 0.009-30 MHz：2.13 dB 30-1000 MHz：3.53 dB 1-18 GHz：4.19 dB 18-40 GHz：4.09 dB
Estimation Result of Uncertainty of Bandwidth Measurement (Minimum 6 dB Bandwidth)	Expanded Uncertainty：0.41 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement (Peak Output Power (transmitter))	Expanded Uncertainty：1.61 dB
Estimation Result of Uncertainty of Power Density Measurement (Peak Power Spectral Density)	Expanded Uncertainty：1.68 dB
Estimation Result of Uncertainty of Band Edge Measurement (Radiated Emission on the band edge)	Expanded Uncertainty：1.33 dBc

The decision rule is: Measurement uncertainty is not included in the calculation of test results.

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	2021/6/17	2022/6/16
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	2021/11/5	2022/11/4
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2021/9/22	2022/9/21
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	2021/7/29	2022/7/28
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2021/10/25	2022/10/24
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2021/7/28	2022/7/27
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2021/6/17	2022/6/16
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2021/9/28	2022/9/27
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	2021/8/4	2022/8/3
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2021/5/31	2022/5/30
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2021/6/16	2022/6/15
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2021/5/5	2022/5/4
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2021/3/18	2022/3/17
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2021/5/21	2022/5/20
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2021/7/14	2022/7/13
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2021/2/19	2022/2/18
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2021/2/19	2022/2/18
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2021/2/19	2022/2/18
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2021/3/16	2022/3/15
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2021/2/19	2022/2/18
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2021/5/14	2022/5/13
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	2021/10/27	2022/10/26
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2021/9/17	2022/9/16
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2021/5/27	2022/5/26
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2021/2/19	2022/2/18
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	2021/1/6	2022/1/5
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	2021/10/29	2022/10/28
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2021/6/8	2022/6/7
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2021/8/6	2022/8/5
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2021/8/6	2022/8/5
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2021/2/19	2022/2/18
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2021/8/6	2022/8/5
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2021/8/6	2022/8/5
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2021/5/14	2022/5/13
ETSTW-RE 146	Preamplifier	JPA-10M1G	15090004	JPT	2021/6/4	2022/6/3
ETSTW-RE 148	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04006	ETC	2021/7/2	2022/7/1
ETSTW-RE 152	Bi-log Hybrid Antenna	MCTD 2786B	BLB20J04029	ETC	2021/10/5	2022/10/4
ETSTW-RE 153	Signal Analyzer	FSV40	101929	R&S	2021/10/6	2022/10/5
ETSTW-RF 002	Electromagnetic field probe	LF-30	K-0007	STT	2021/7/19	2022/7/18
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2021/6/2	2022/6/1
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2021/3/16	2022/3/15
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2021/4/27	2022/4/26
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2021/10/29	2022/10/28
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2021/1/6	2022/1/5
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2021/1/6	2022/1/5
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2021/1/6	2022/1/5
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2021/1/6	2022/1/5
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2021/9/7	2022/9/6
ETSTW-GSM 024	Radio Communication Analyzer	MT8821C	None	Anritsu	2021/4/1	2022/3/31
ETSTW-GSM 025	Band Reject Filter	BRM19835	001	Micro-Tronics	2021/8/6	2022/8/5
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	2021/2/19	2022/2/18
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2021/2/19	2022/2/18
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2021/2/19	2022/2/18
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2021/2/19	2022/2/18
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2021/7/1	2022/6/30
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2021/5/7	2022/5/6
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2021/9/17	2022/9/16
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2021/9/17	2022/9/16
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104（S_Cable 9）	279067	HUBER+SUHNER	2021/2/19	2022/2/18

ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2021/7/2	2022/7/1
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2021/6/4	2022/6/3
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM-NM-25000	170239	EMCI	2021/6/4	2022/6/3
ETSTW-Cable 072	SMA type cable (8m)	SUCOFLEX 104	805800/4	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 074	SMA type cable (2m)	SUCOFLEX 104	802563/4	HUBER+SUHNER	2021/5/14	2022/5/13
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1 Version EMEC-3A1+	
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 002	Thermohygrometer	608-H1	45204317	Testo	2021/10/18	2022/10/17
ETSTW-TH 003	Wireless weather station	GAIA	N/A	TFA	2021/10/18	2022/10/17

2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.10-2013 5.2 using a 50µH LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.10-2013 6.4 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBµV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dBµV + 10.36 dB + 6 dB = 36.36 dBµV/m @3m

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.10-2013 6.3.1. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

(1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
(2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
(3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
(4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:
Average = Peak + Duty Factor
Duty Factor = 20 log (dwell time/T)
T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

ANSI STANDARD C63.10-2013 B.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software ’EZ EMC’ was used for setting up different operation modes.

3 Test results (enclosure)

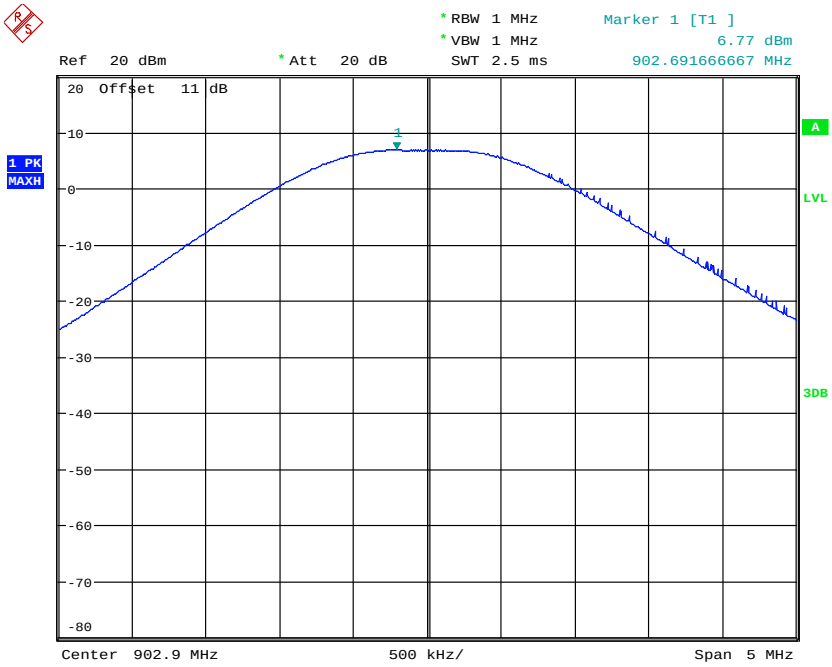
TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)	☒	☒	☐
Equivalent isotropically radiated Power	15.247(b)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(d): 15.209	☒	☒	☐
Band Edge Measurement	15.247(d)	☒	☒	☐
Minimum 6 dB Bandwidth	15.247(a)(2)	☒	☒	☐
Peak Power Spectral Density	15.247(e)	☒	☒	☐
Radiated Emission from Receiver part	15.109	☐	☐	☐
Power Line Conducted Emission	15.207	☐	☐	☐

The following is intentionally left blank.

3.1 Peak Output Power (transmitter)

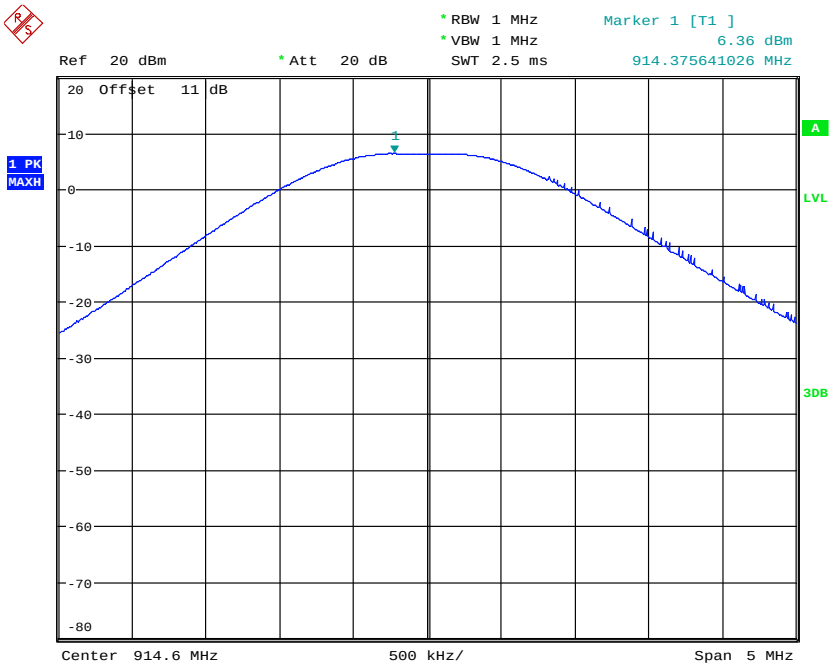
FCC Rule: 15.247(b)(3)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.
Test date: September 22, 2021
Temperature: 24.2 ˚C
Humidity: 50.8 %
Tester: Rick

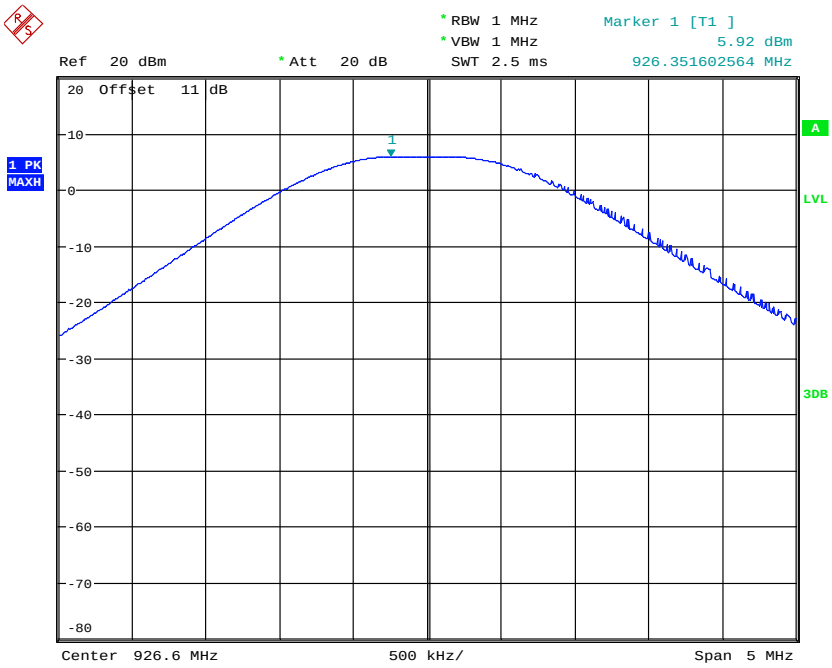


MAX OUTPUT POWER 902.9MHz
Date: 22.SEP.2021 15:57:14

Registration number: W6M22109-21219-C-1
FCC ID: 2A2MWSTWL21



MAX OUTPUT POWER 914.6MHz
Date: 22.SEP.2021 15:58:08



MAX OUTPUT POWER 926.6MHz
Date: 22.SEP.2021 15:56:00

Limits:

Frequency MHz	Power dBm
902 - 928	30
2400 – 2483.5	30
5725 – 5850	30

In case of employing transmitter antennas having antenna gain ＞ 6 dBi and using fixed point-to point operation consider §15.247 (b)(4)

Test equipment used: ETSTW-RE 055, ETSTW-RE 050, ETSTW-RE 064

3.2 Equivalent Isotropic Radiated Power (EIRP)

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain

EIRP = 6.77 dBm + ((-1.56) dBi [antenna gain claimed by manufacturer] = 5.21 dBm = 3.3189 mW

3.3 Exemption Limits for Routine Evaluation according to 47 CFR FCC Part 2 Subpart J, section 2.1091

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.

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 20 cm normally can be maintained between the user and the device.

MPE Calculation Method

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to $Pd = \frac{30 \times P \times G}{377 \times d^2}$ mW/cm^2.

Established separation distance is 20 cm.
Operating frequency band : 902.9-926.6 MHz

The product meets RF exposure requirement.
Because the power density of 0.0007 mW/cm^2 at 902.9 MHz is below the power density limit of 0.6019 mW/cm^2.

3.4 Transmitter Radiated Emissions in Restricted Bands

FCC Rules: 15.247 (d), 15.205, 15.209, 15.35
Radiated emission measurements were performed from 30 MHz to 26500 MHz.
For radiated emission tests, the analyzer setting was as followings:

Frequency ≦ 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)
Frequency ＞1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)
Frequency ＞1 GHz , RBW:1 MHz , VBW: 10 Hz (Average measurements)

Limits.

For frequencies below 1GHz:

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

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of Digit Transmission Systems:
“If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty cycle correction = 20 log (dwell time/ 100ms)

Note: No duty cycle correction was added to the reading of this EUT.

Explanation: See attached diagrams in Appendix.

3.5 Spurious Emissions (tx)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

FCC Rule: 15.247(d), 15.35
For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies above 1GHz (Peak measurements).
Modified Limit for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

For frequencies above 1GHz (Average measurements).
Max. reading – 20dB

Max. reading – 20 dB
Guidance on Measurement of Digit Transmission Systems:
“If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty Cycle correction = 20 log (dwell time/100ms)

Note: No duty cycle correction was added to the reading of EUT.

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance with point 2.3.

Calculation of test results:
Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.
In the Table being listed the critical peak and average value and exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Correction Factor".

Summary table with radiated data of the test plots

Model: WL-21_Wind Sensor Date: - -
Mode: - - Temperature: - - °C Engineer: - -
Polarization: - - 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) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Note

1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
2. **The formula of measured value as: Test Result = Reading + Correction Factor**
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. **After evaluated, the test result in this report adopt the worst case to measure, please see attached diagrams in appendix.**

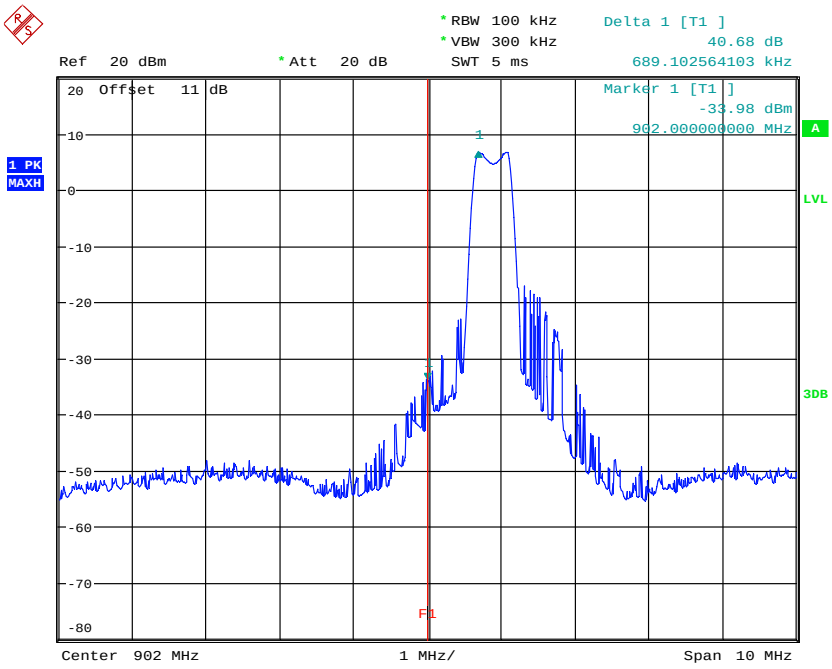
TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE 030, ETSTW-RE 111, ETSTW-RE 088, ETSTW-RE 018, ETSTW-RE 064

3.6 Radiated Emission on the band edge

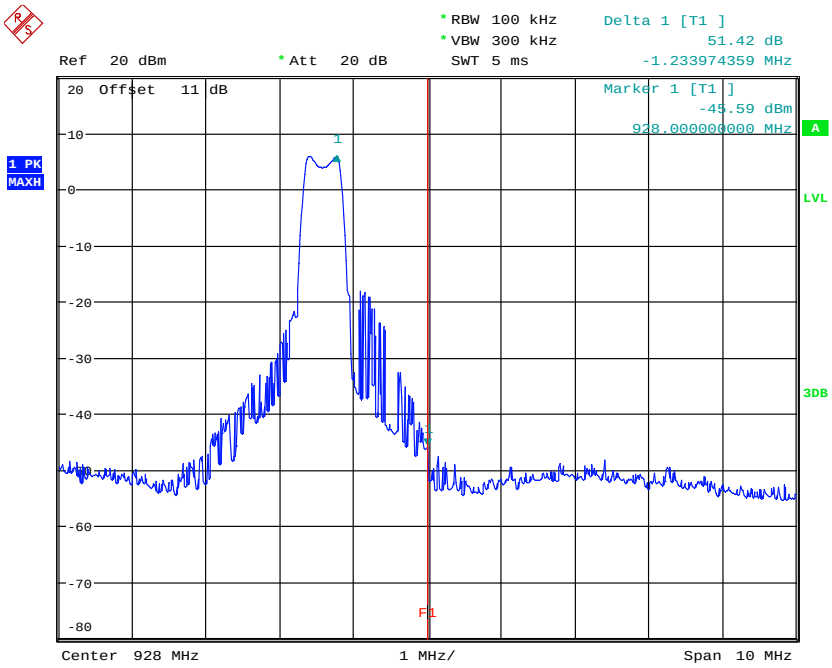
According to FCC rules part 15 subpart C §15.247(d) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.
Test date: September 22, 2021
Temperature: 24.2 ˚C
Humidity: 50.8 %
Tester: Rick



BANDEDGE 902.9MHz
Date: 22.SEP.2021 16:03:49

Registration number: W6M22109-21219-C-1
FCC ID: 2A2MWSTWL21



BANDEDGE 926.6MHz
Date: 22.SEP.2021 16:06:10

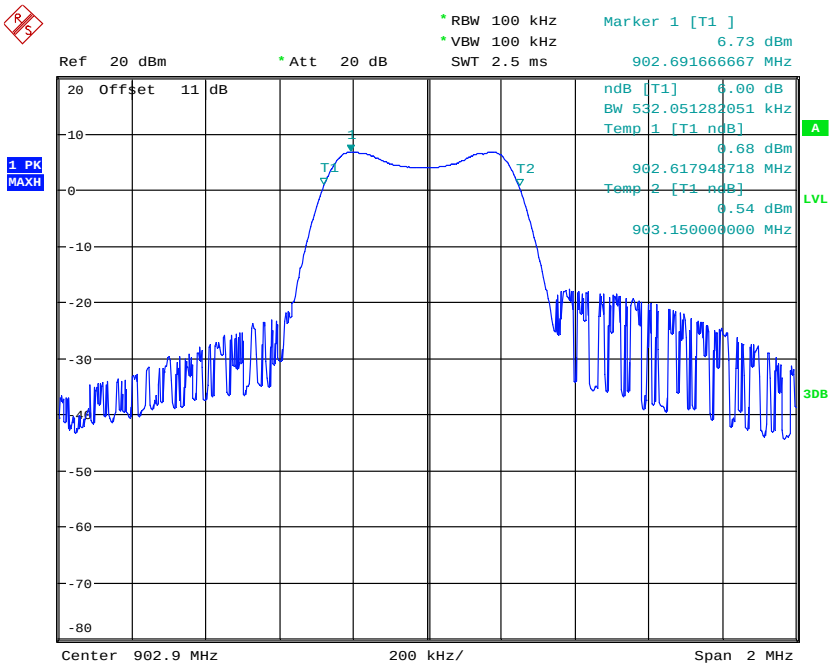
Limit:

Frequency Range / MHz	Limit
902 –928 2400 – 2483.5 5725 - 5850	- 20 dB

Test equipment used: ETSTW-RE 055, ETSTW-RE 050, ETSTW-RE 064

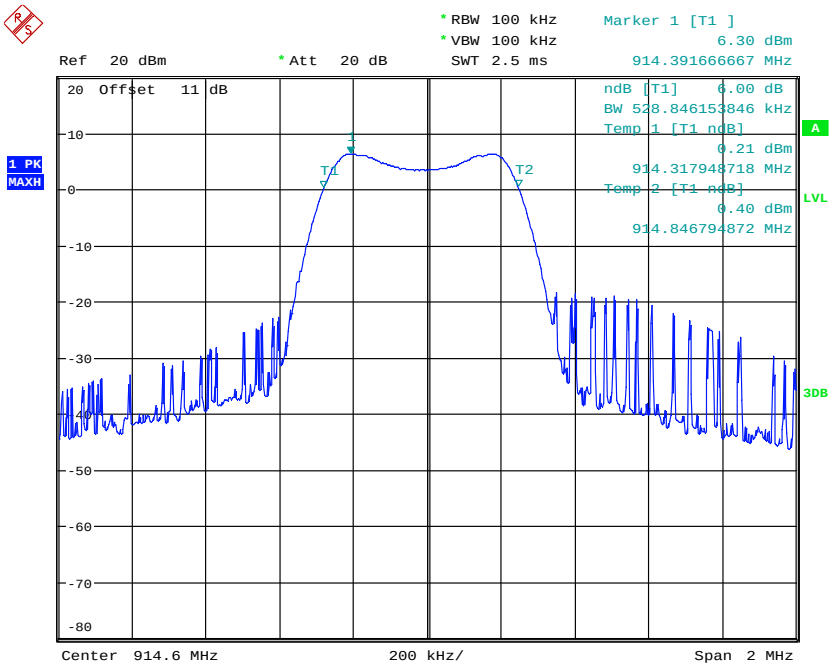
3.7 Minimum 6 dB Bandwidth

The analyzer ResBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission.
The 6 dB bandwidth is the frequency difference between the two markers.
Test date: September 22, 2021
Temperature: 24.2 ˚C
Humidity: 50.8 %
Tester: Rick

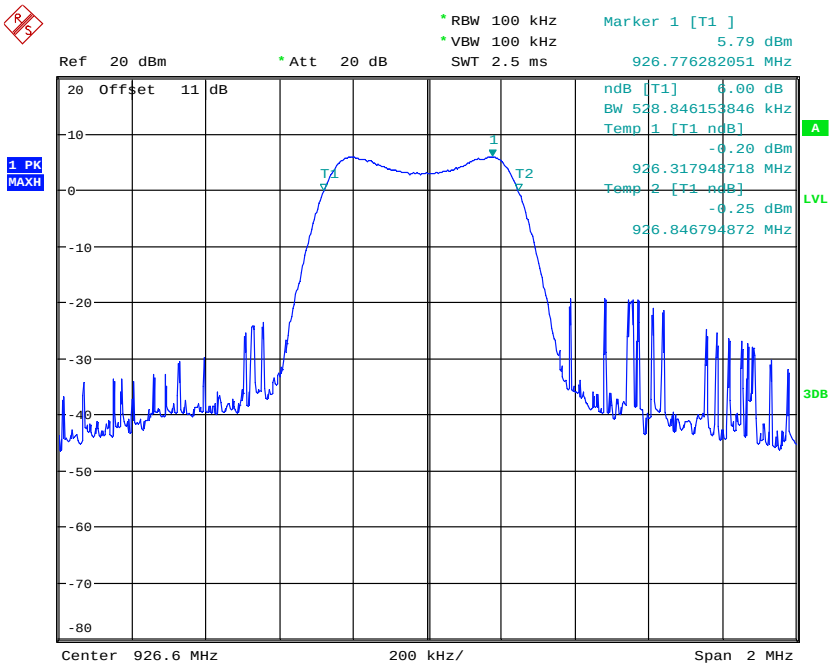


6DB BANDWIDTH 902.9MHz
Date: 22.SEP.2021 15:51:51

Registration number: W6M22109-21219-C-1
FCC ID: 2A2MWSTWL21



6DB BANDWIDTH 914.6MHz
Date: 22.SEP.2021 15:53:33



6DB BANDWIDTH 926.6MHz
Date: 22.SEP.2021 15:54:31

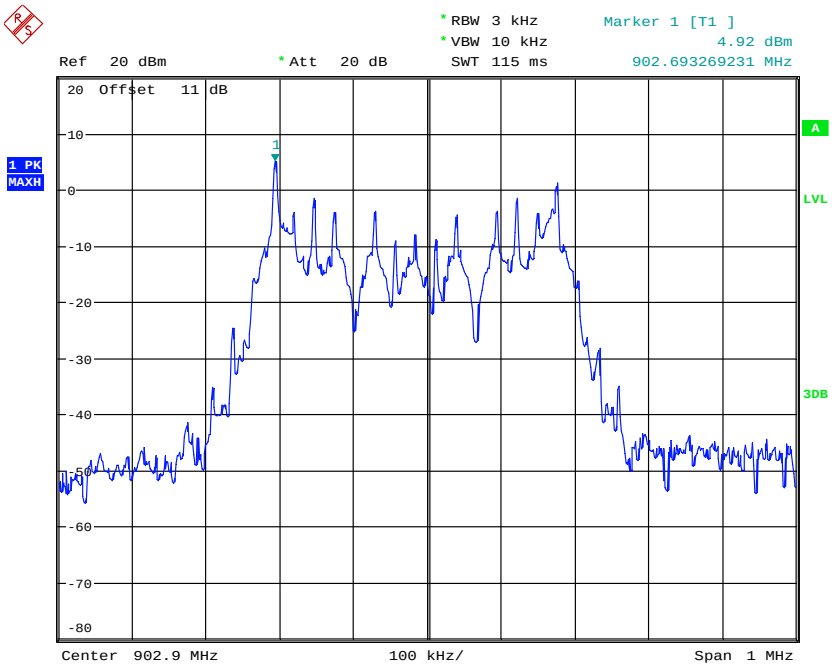
Limits:

Frequency Range MHz	**Limits**
902-928	min 500 kHz
2400-2483.5	min 500 kHz
5725-5850	min 500 kHz

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

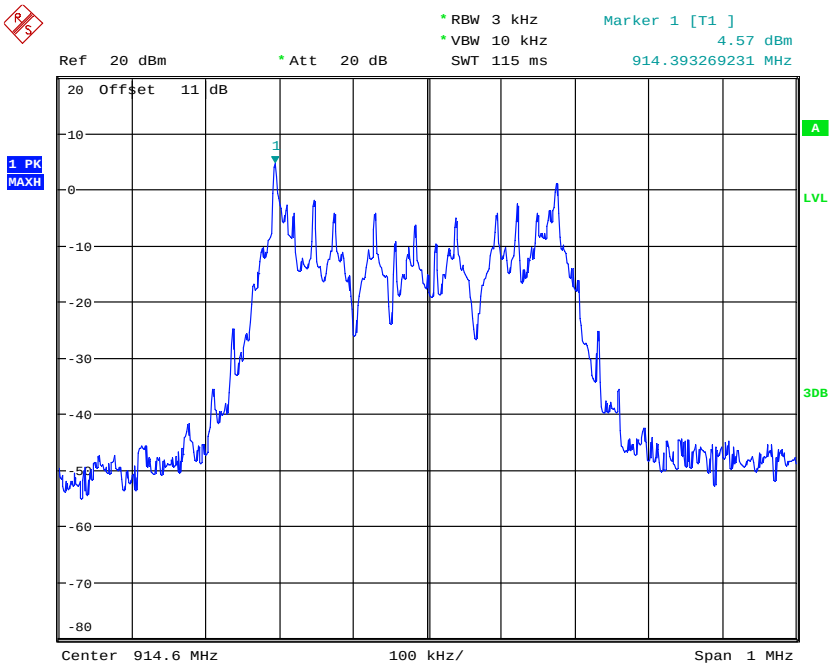
3.8 Peak Power Spectral Density

Peak Power Spectral density is a measured at low, middle and high channel.
The peak output power is measured with a measurement bandwidth of 10 MHz and displayed on diagram together with Peak Power Spectral Density result which was measured with a bandwidth of 3 kHz, appreciate frequency span and sweep time.
Test date: September 22, 2021
Temperature: 24.2 ˚C
Humidity: 50.8 %
Tester: Rick

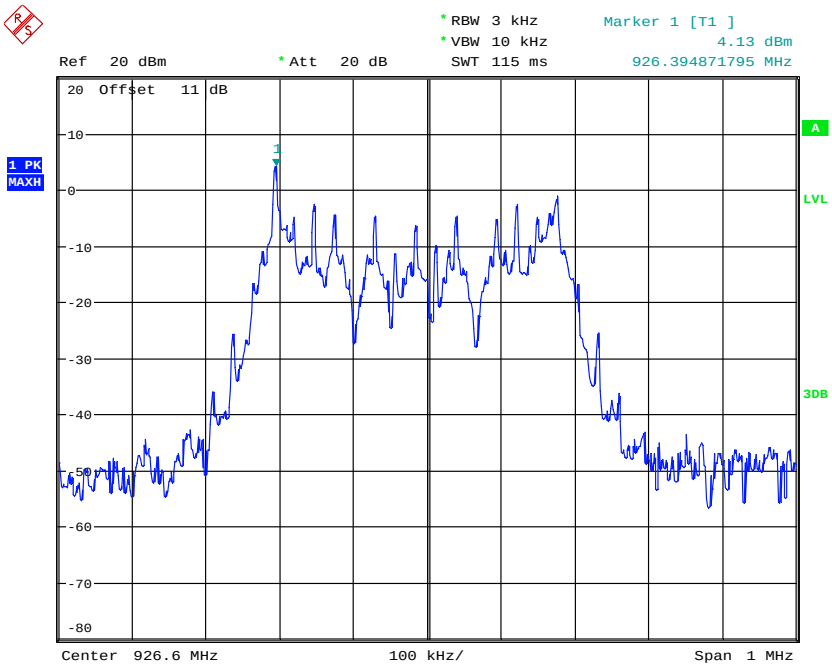


POWER DENSITY 902.9MHz
Date: 22.SEP.2021 16:02:22

Registration number: W6M22109-21219-C-1
FCC ID: 2A2MWSTWL21



POWER DENSITY 914.6MHz
Date: 22.SEP.2021 15:59:43



POWER DENSITY 926.6MHz
Date: 22.SEP.2021 16:01:16

Limits:

Frequency Range MHz	dBm
902-928	8
2400-2483.5	8
5725-5850	8

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

3.9 Radiated Emission 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 030, ETSTW-RE 055, ETSTW-RE 064, ETSTW-RE 111

Explanation: Please refer to separated test report no.: W6M22109-21219-P-15B.

3.10 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.

Model: WL-21_Wind Sensor Date: --
Mode: -- Temperature: -- °C Engineer: --
Polarization: -- Humidity: -- %

Frequency (MHz)	Reading (dBuV) QP	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV) QP	Result (dBuV) Ave.	Limit (dBuV) QP	Limit (dBuV) Ave.	Margin (dB)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Polarization: --

Frequency (MHz)	Reading (dBuV) QP	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV) QP	Result (dBuV) Ave.	Limit (dBuV) QP	Limit (dBuV) Ave.	Margin (dB)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

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.
6. The test in not required because the EUT is powered by battery.

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.

Appendix

Measurement diagrams

Spurious Emissions radiated

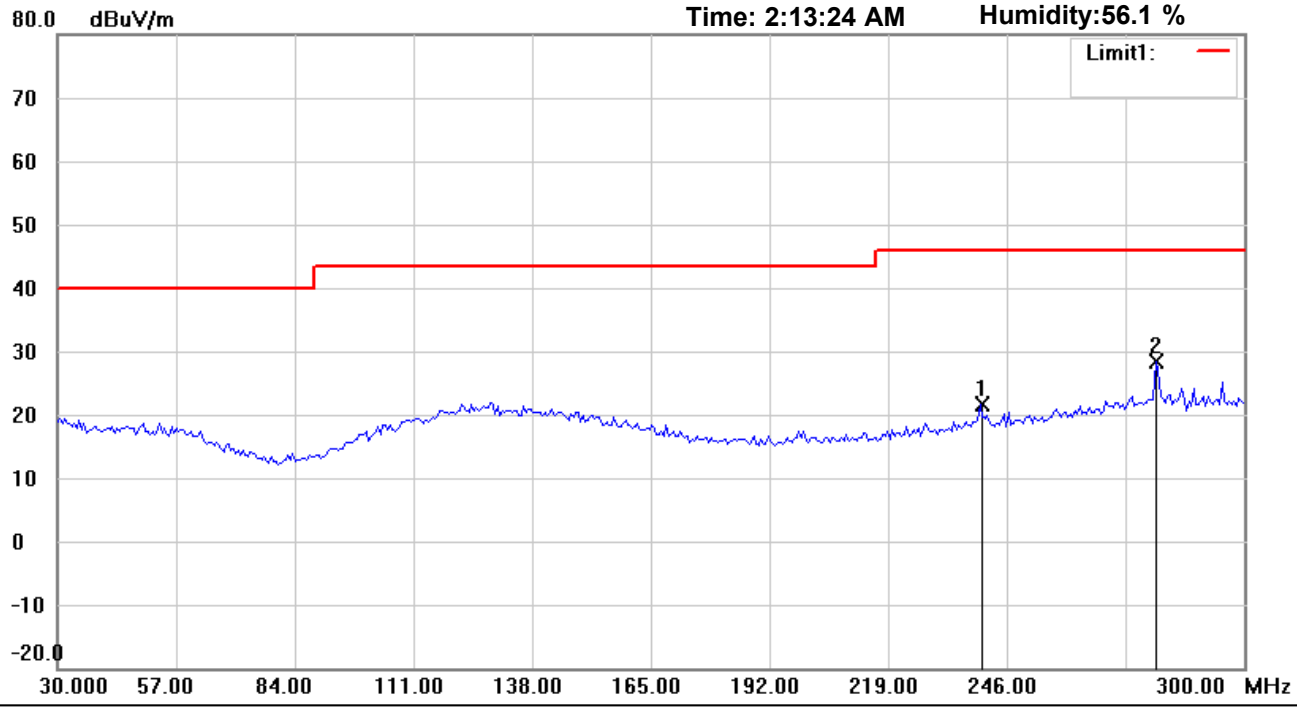
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :1 Data :#1 Date: 9/16/2021 Time: 2:13:24 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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
	239.9400	29.47	peak	-7.94	21.53	46.00	110	62	-24.47	
*	279.9800	34.18	peak	-5.78	28.40	46.00	134	270	-17.60	

*:Maximum data x:Over limit !:over margin

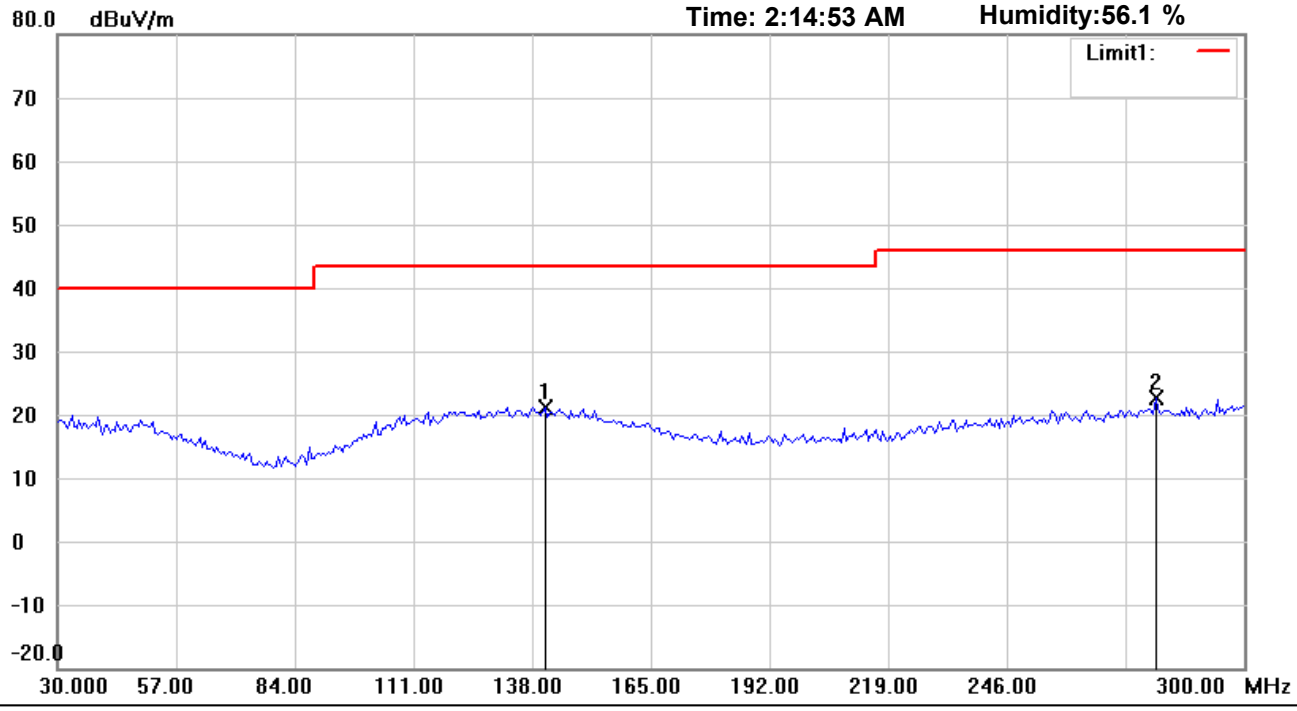
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :1 Data :#2 Date: 9/16/2021 Time: 2:14:53 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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
*	140.9218	27.57	peak	-6.46	21.11	43.50	132	185	-22.39	
	279.9800	28.29	peak	-5.78	22.51	46.00	100	340	-23.49	

*:Maximum data x:Over limit !:over margin

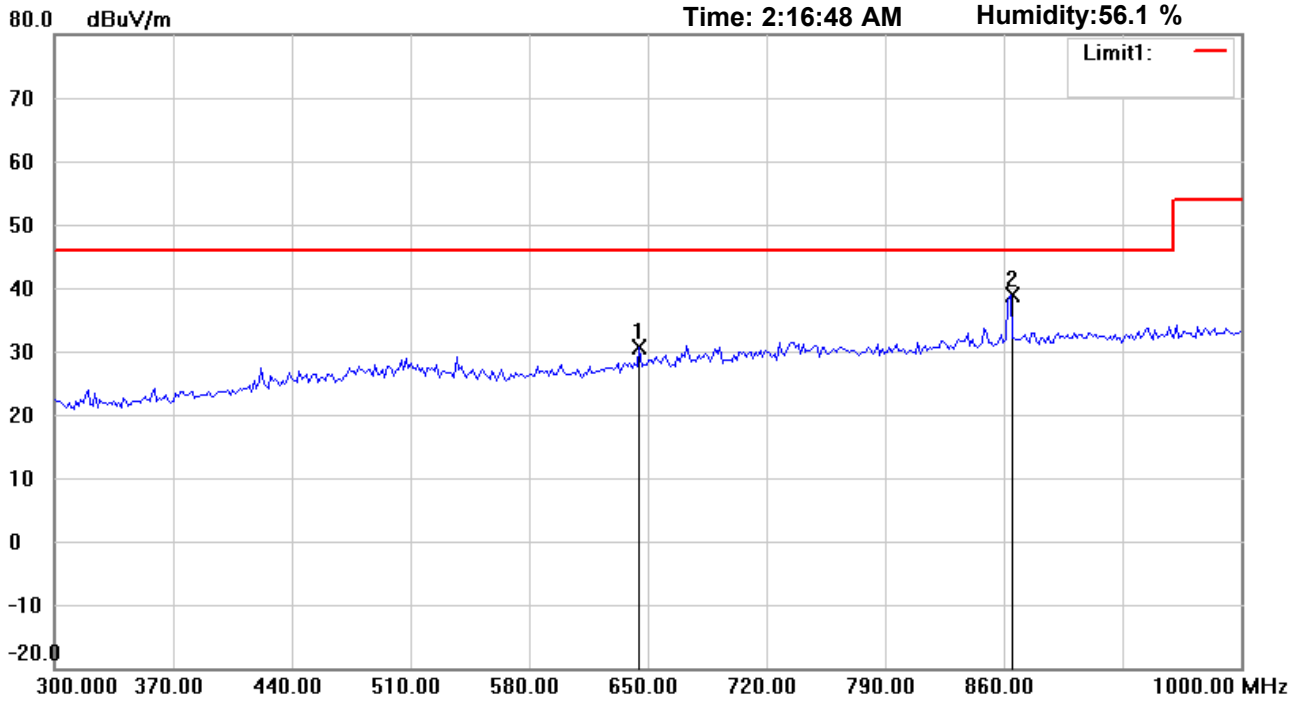
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :2 Data :#1 Date: 9/16/2021 Time: 2:16:48 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 902.9MHz

Note :

Polarization: *Horizontal*

Power : 3.6 Vd.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
	645.0902	30.38	peak	0.31	30.69	46.00	133	290	-15.31	
*	863.9280	34.90	peak	4.00	38.90	46.00	107	165	-7.10	

*:Maximum data x:Over limit !:over margin

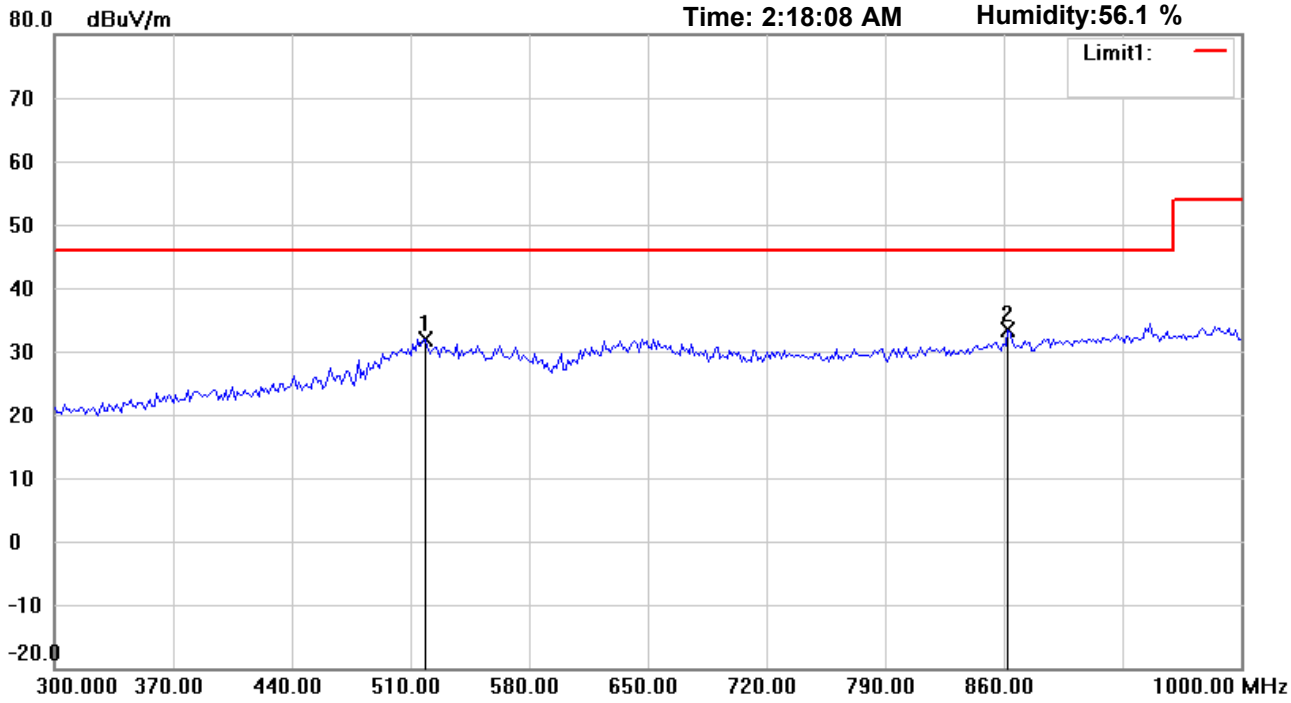
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :2 Data :#2 Date: 9/16/2021 Time: 2:18:08 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 902.9MHz

Note :

Polarization: *Vertical*

Power : 3.6 Vd.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
	518.8377	33.71	peak	-1.79	31.92	46.00	124	92	-14.08	
*	862.5251	29.33	peak	3.98	33.31	46.00	117	300	-12.69	

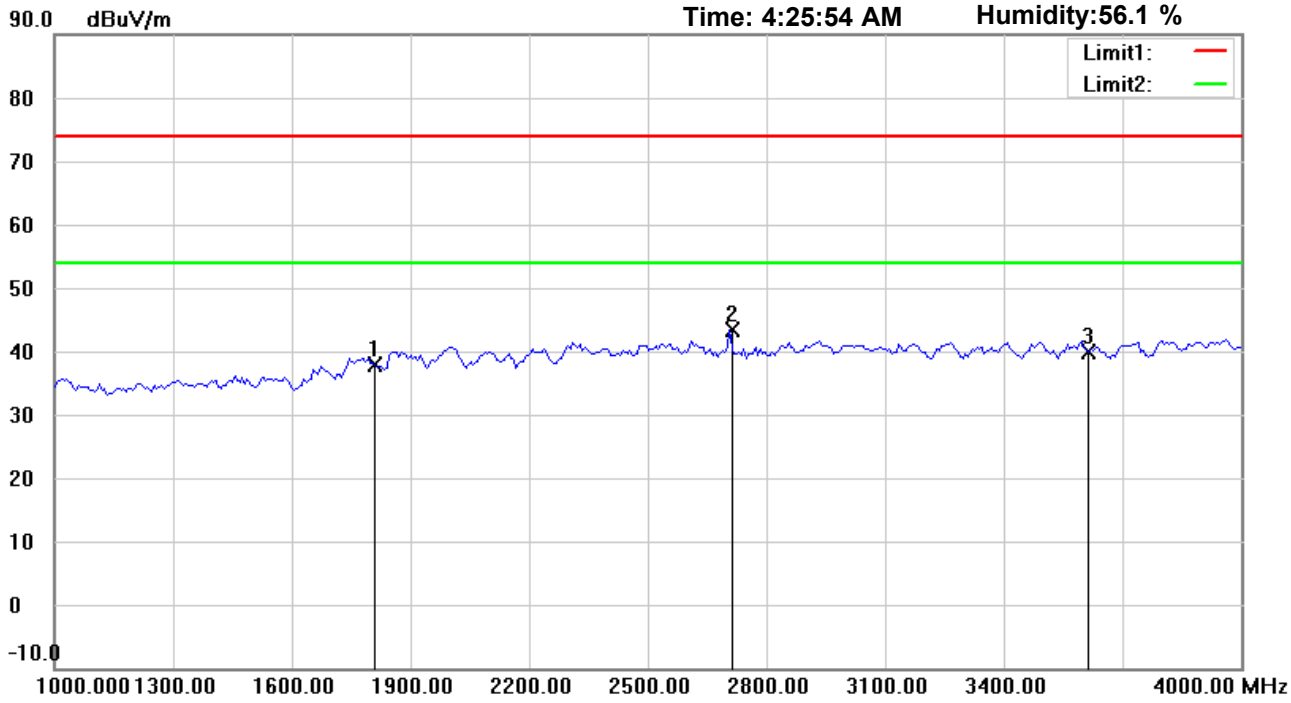
*:Maximum data x:Over limit !:over margin

Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 | Data :#1 | Date: 9/16/2021 | Time: 4:25:54 AM | Temperature:25.7 ℃ | Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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
	1805.800	41.16	peak	-3.25	37.91	74.00	150	44	-36.09	
*	2707.415	44.24	peak	-0.93	43.31	74.00	150	270	-30.69	
	3611.600	38.93	peak	0.95	39.88	74.00	150	158	-34.12	

*:Maximum data x:Over limit !:over margin

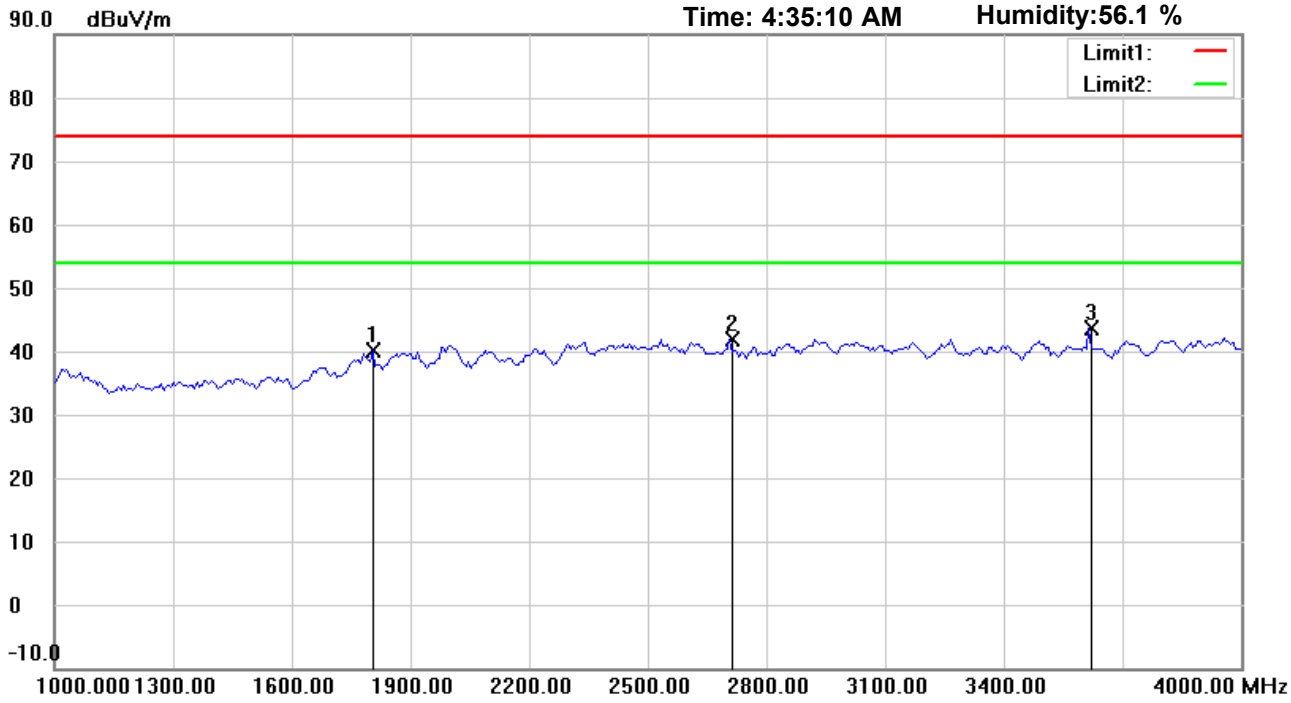
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#4 Date: 9/16/2021 Time: 4:35:10 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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
	1805.611	43.47	peak	-3.25	40.22	74.00	150	249	-33.78	
	2707.415	42.76	peak	-0.93	41.83	74.00	150	85	-32.17	
*	3615.231	42.64	peak	0.95	43.59	74.00	150	330	-30.41	

*:Maximum data x:Over limit !:over margin

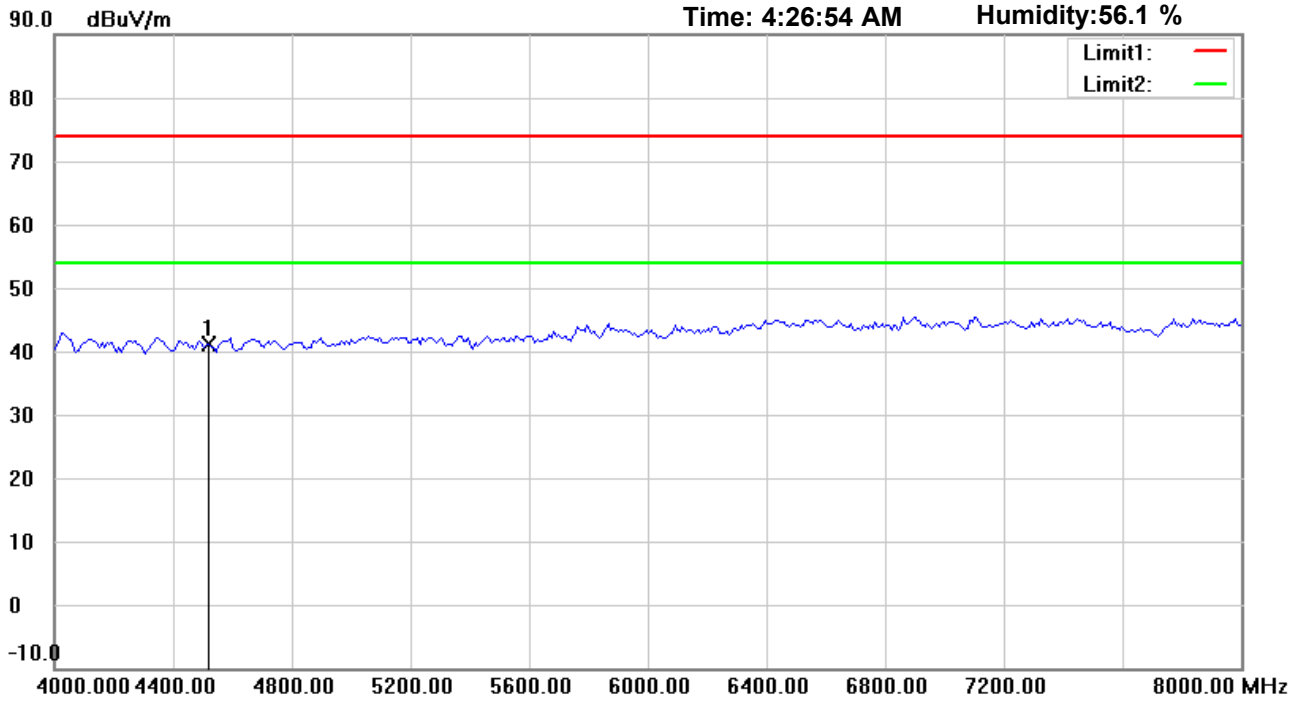
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#2 Date: 9/16/2021 Time: 4:26:54 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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
*	4514.500	40.20	peak	1.04	41.24	74.00	150	79	-32.76	

*:Maximum data x:Over limit !:over margin

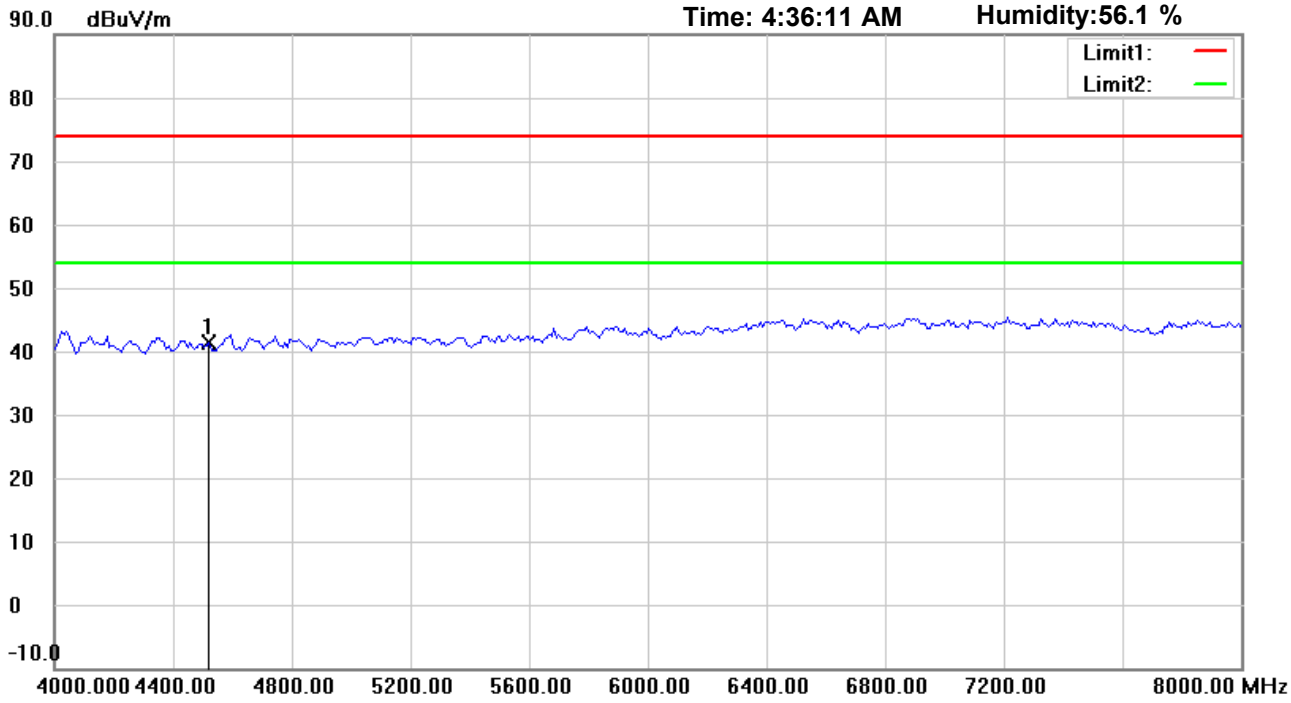
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#5 Date: 9/16/2021 Time: 4:36:11 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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
*	4514.500	40.27	peak	1.04	41.31	74.00	150	139	-32.69	

*:Maximum data x:Over limit !:over margin

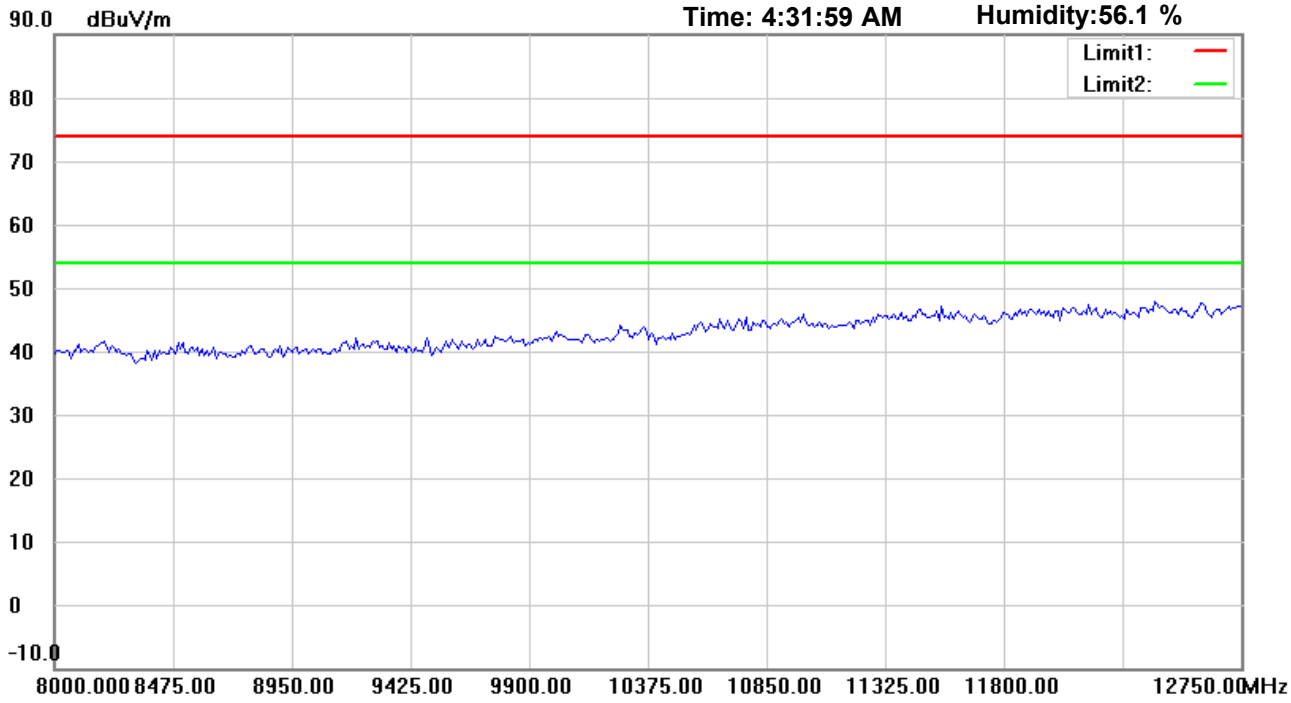
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#3 Date: 9/16/2021 Time: 4:31:59 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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

*:Maximum data x:Over limit !:over margin

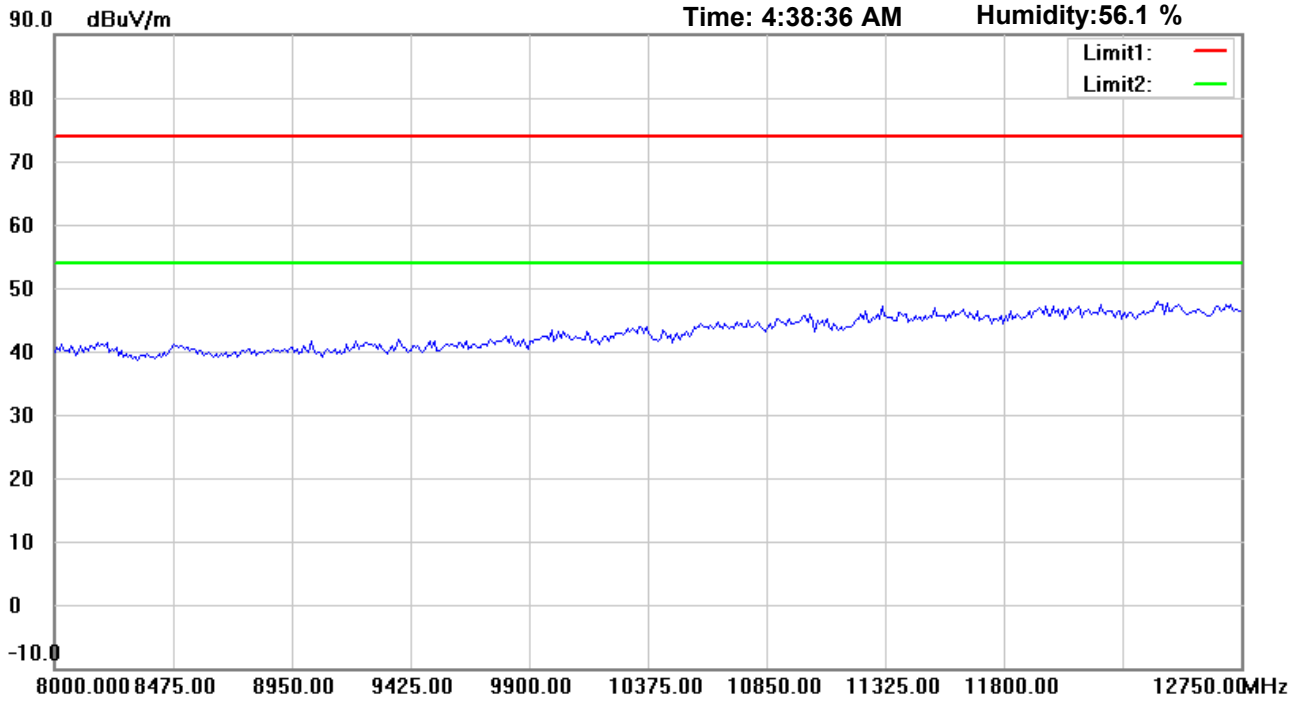
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#6 Date: 9/16/2021 Time: 4:38:36 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 902.9MHz

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

*:Maximum data x:Over limit !:over margin

Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
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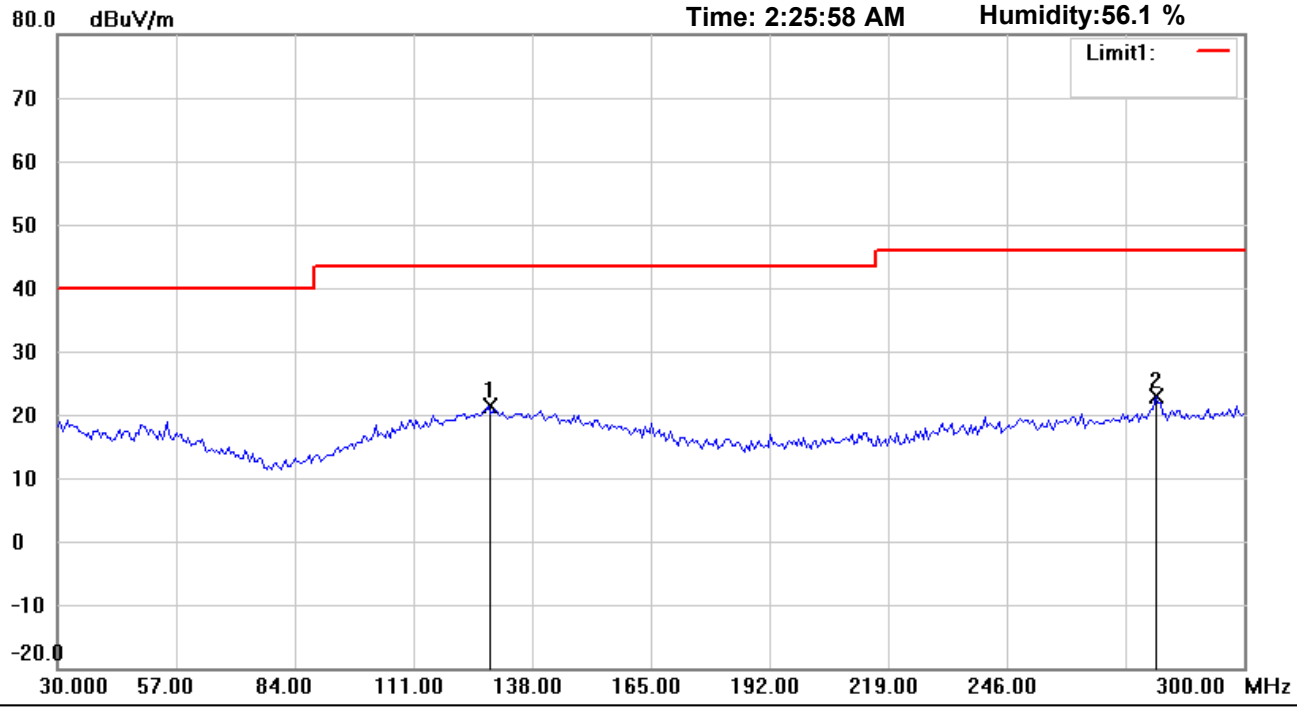
Radiated Emission Measurement

Operator: Allen

File :1 Data :#1 Date: 9/16/2021 Time: 2:25:58 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 914.6MHz

Note :

Polarization: *Horizontal*

Power : 3.6 Vd.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
*	127.9360	28.06	peak	-6.67	21.39	43.50	128	95	-22.11	
	279.9800	28.67	peak	-5.78	22.89	46.00	102	220	-23.11	

*:Maximum data x:Over limit !:over margin

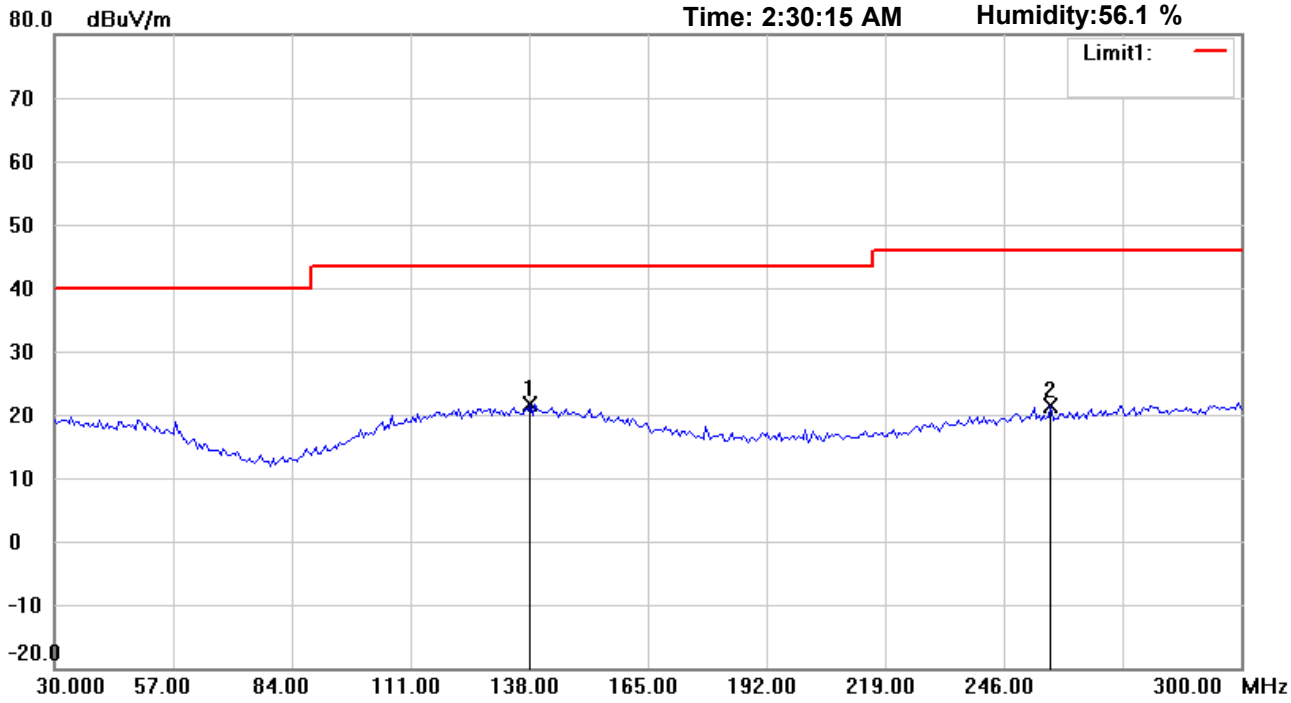
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :1 Data :#2 Date: 9/16/2021 Time: 2:30:15 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 914.6MHz

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
*	138.2164	28.14	peak	-6.43	21.71	43.50	114	271	-21.79	
	256.7134	28.48	peak	-7.10	21.38	46.00	130	66	-24.62	

*:Maximum data x:Over limit !:over margin

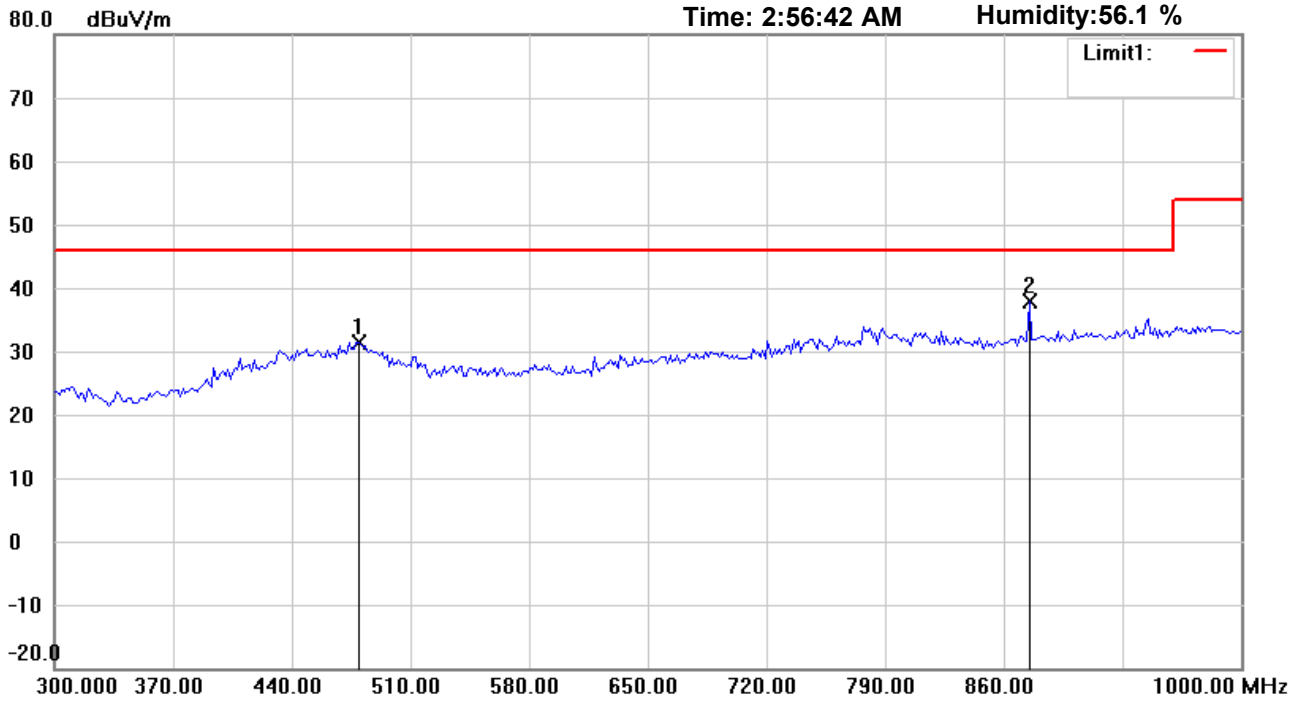
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :2 Data :#1 Date: 9/16/2021 Time: 2:56:42 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 914.6MHz

Note :

Polarization: *Horizontal*

Power : 3.6 Vd.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
	479.5591	33.83	peak	-2.35	31.48	46.00	124	58	-14.52	
*	875.1503	33.64	peak	4.16	37.80	46.00	113	310	-8.20	

*:Maximum data x:Over limit !:over margin

Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
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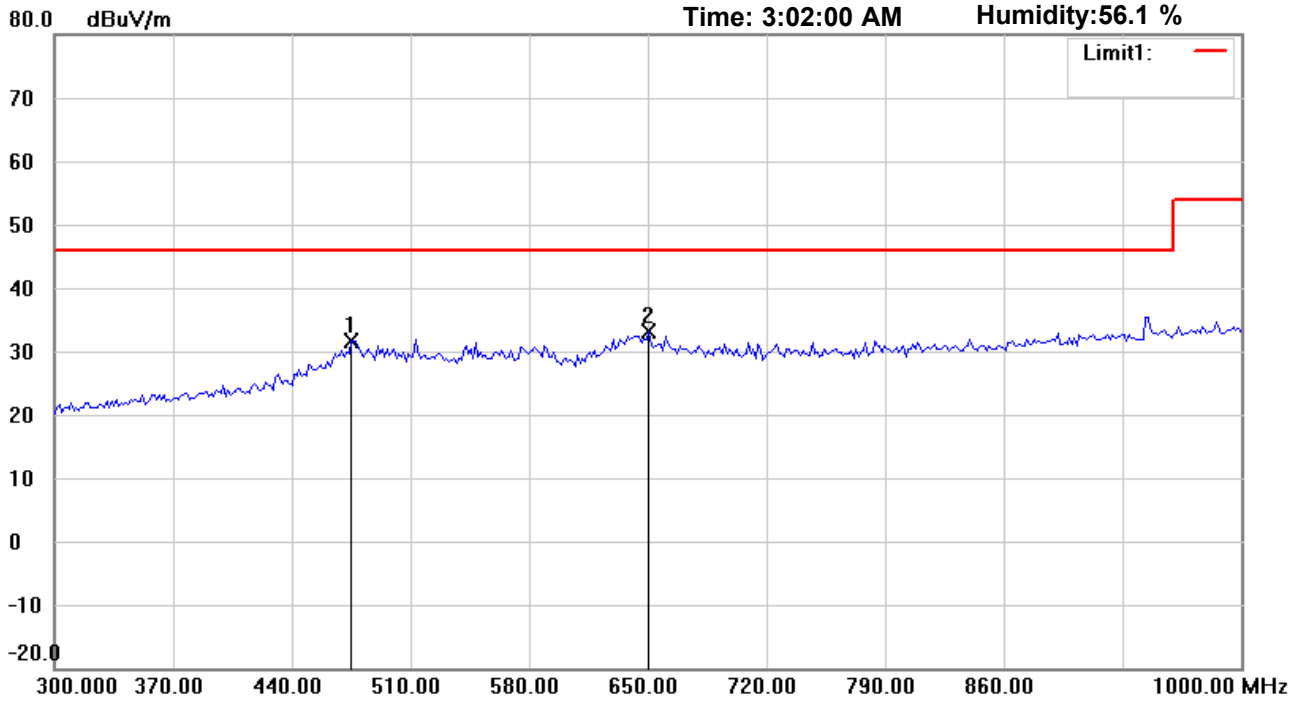
Radiated Emission Measurement

Operator: Allen

File :2 Data :#2 Date: 9/16/2021 Time: 3:02:00 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 914.6MHz

Note :

Polarization: *Vertical*

Power : 3.6 Vd.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
	475.3507	34.01	peak	-2.40	31.61	46.00	108	190	-14.39	
*	650.7014	32.53	peak	0.50	33.03	46.00	142	24	-12.97	

*:Maximum data x:Over limit !:over margin

Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
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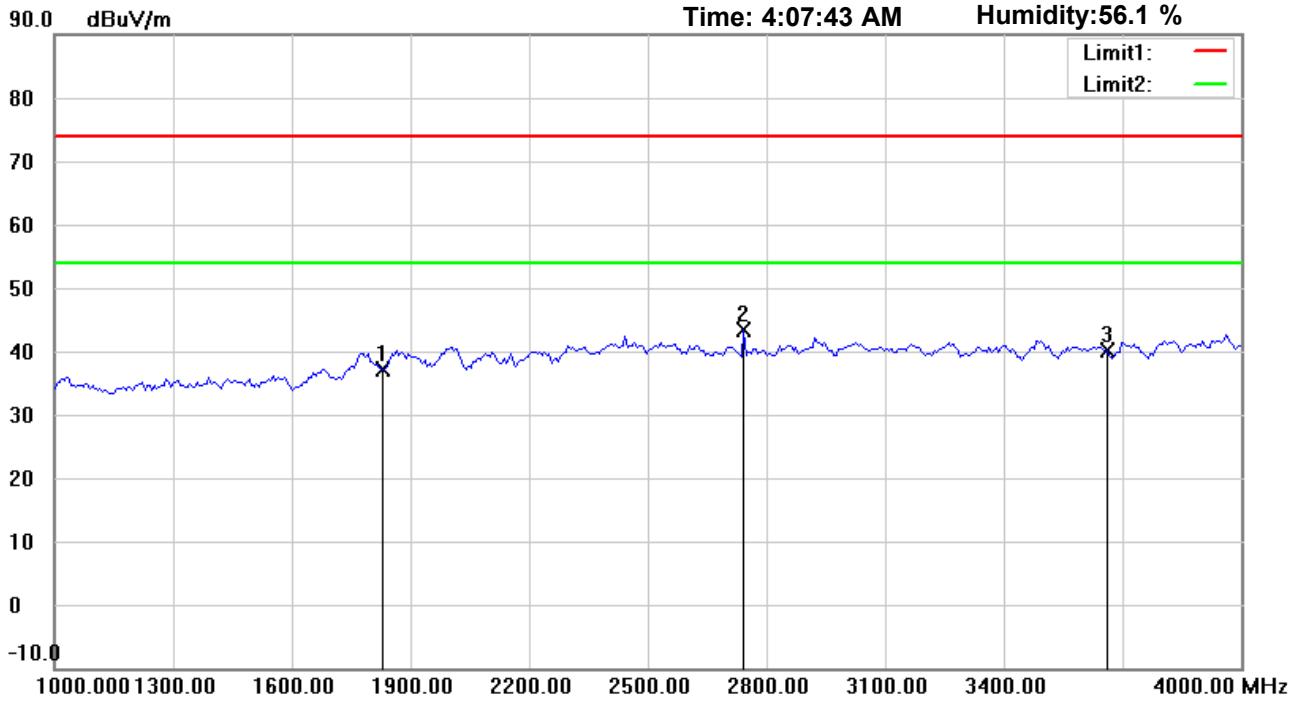
Radiated Emission Measurement

Operator: Allen

File :3 Data :#1 Date: 9/16/2021 Time: 4:07:43 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22109-21219

M/N:

Test Mode : TX 914.6MHz

Note :

Polarization: *Horizontal*

Power : 3.6 Vd.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
	1829.200	40.21	peak	-3.11	37.10	74.00	150	296	-36.90	
*	2743.487	44.22	peak	-0.91	43.31	74.00	150	70	-30.69	
	3658.400	39.12	peak	0.97	40.09	74.00	150	115	-33.91	

*:Maximum data x:Over limit !:over margin

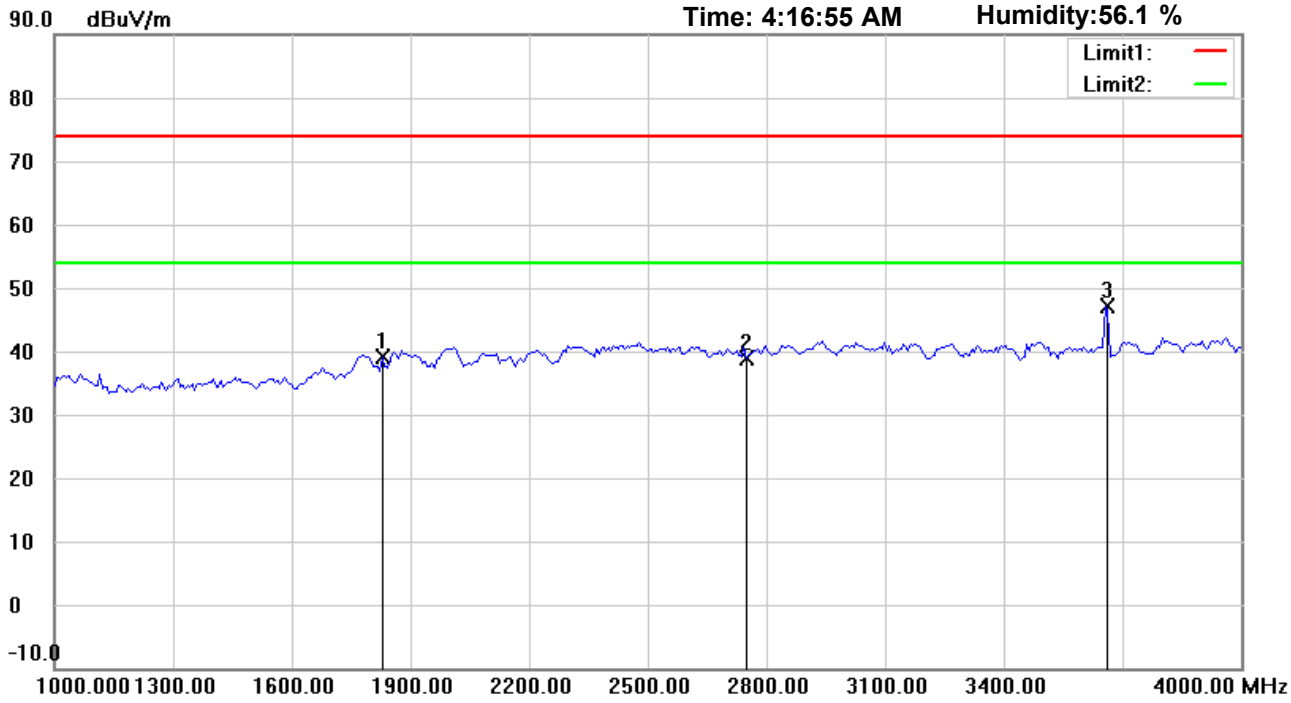
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#4 Date: 9/16/2021 Time: 4:16:55 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 914.6MHz

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
	1829.200	42.23	peak	-3.11	39.12	74.00	150	105	-34.88	
	2743.800	39.72	peak	-0.91	38.81	74.00	150	276	-35.19	
*	3657.315	46.15	peak	0.97	47.12	74.00	150	50	-26.88	

*:Maximum data x:Over limit !:over margin

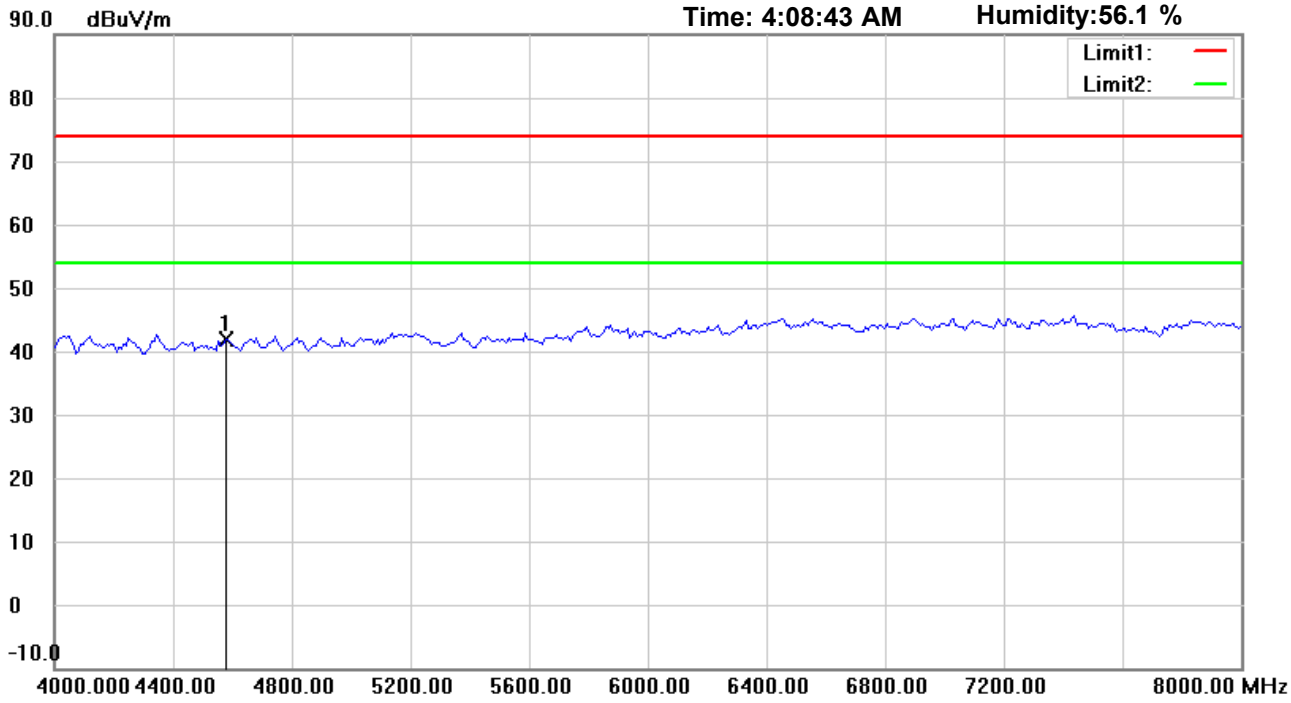
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#2 Date: 9/16/2021 Time: 4:08:43 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 914.6MHz

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
*	4573.000	40.71	peak	1.18	41.89	74.00	150	325	-32.11	

*:Maximum data x:Over limit !:over margin

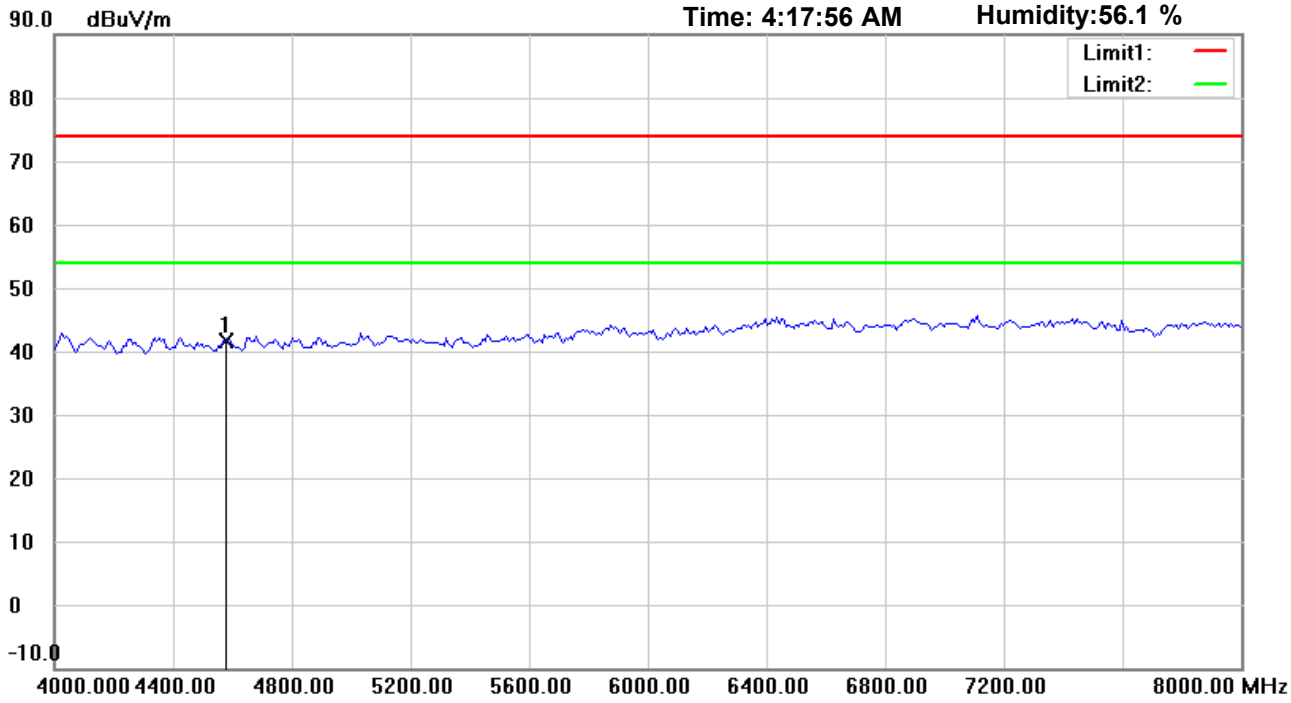
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#5 Date: 9/16/2021 Time: 4:17:56 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 914.6MHz

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
*	4573.000	40.56	peak	1.18	41.74	74.00	150	200	-32.26	

*:Maximum data x:Over limit !:over margin

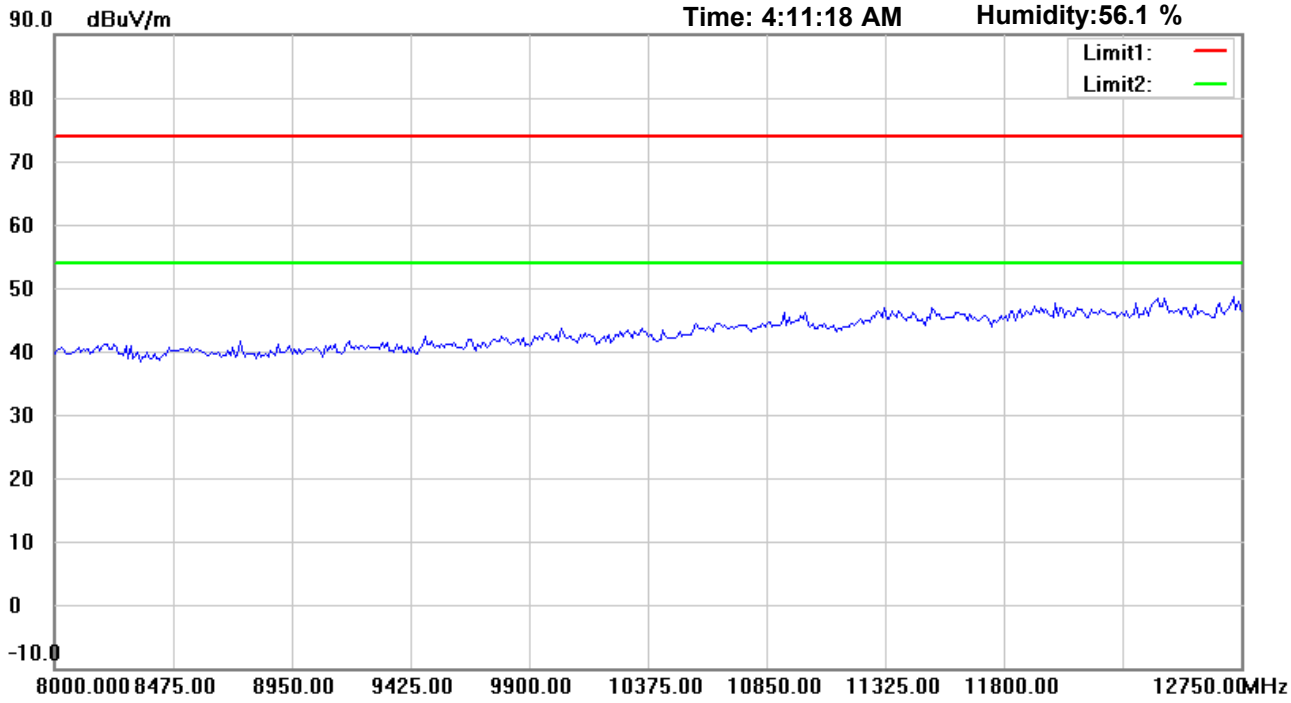
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#3 Date: 9/16/2021 Time: 4:11:18 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 914.6MHz

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

*:Maximum data x:Over limit !:over margin

Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
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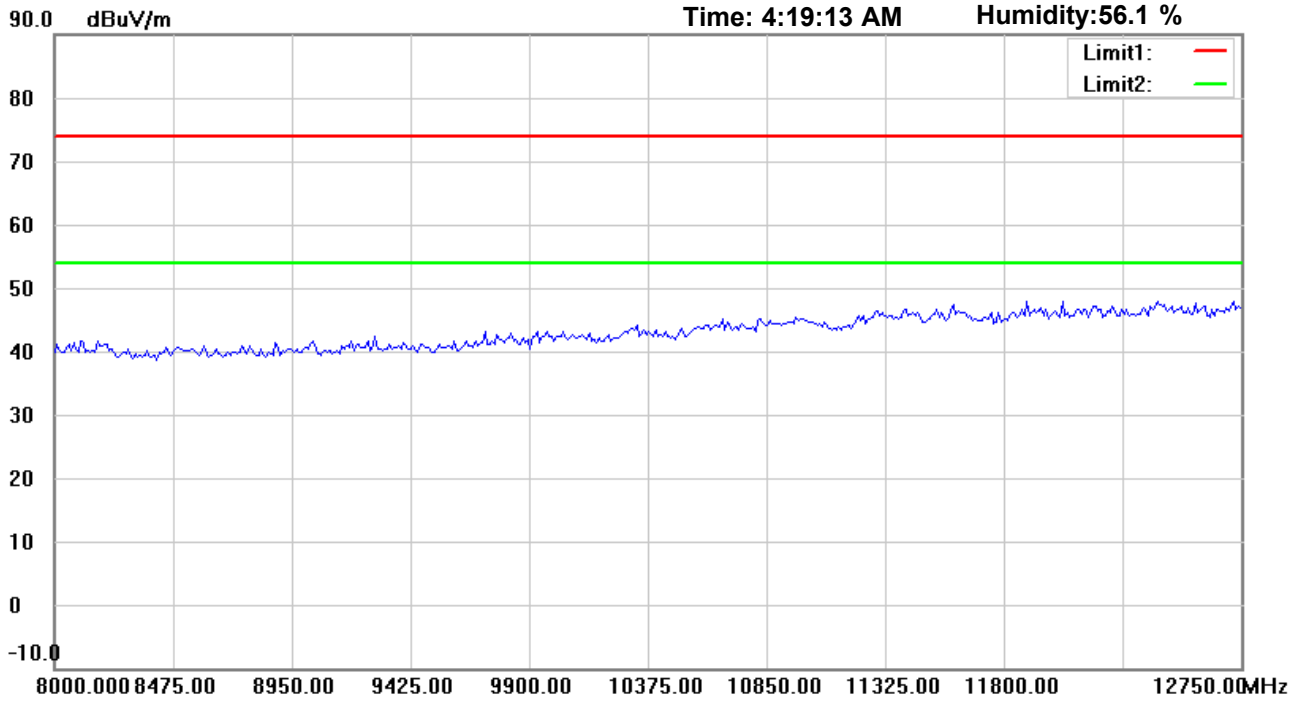
Radiated Emission Measurement

Operator: Allen

File :3 Data :#6 Date: 9/16/2021 Time: 4:19:13 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22109-21219

M/N:

Test Mode : TX 914.6MHz

Note :

Polarization: *Vertical*

Power : 3.6 Vd.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

*:Maximum data x:Over limit !:over margin

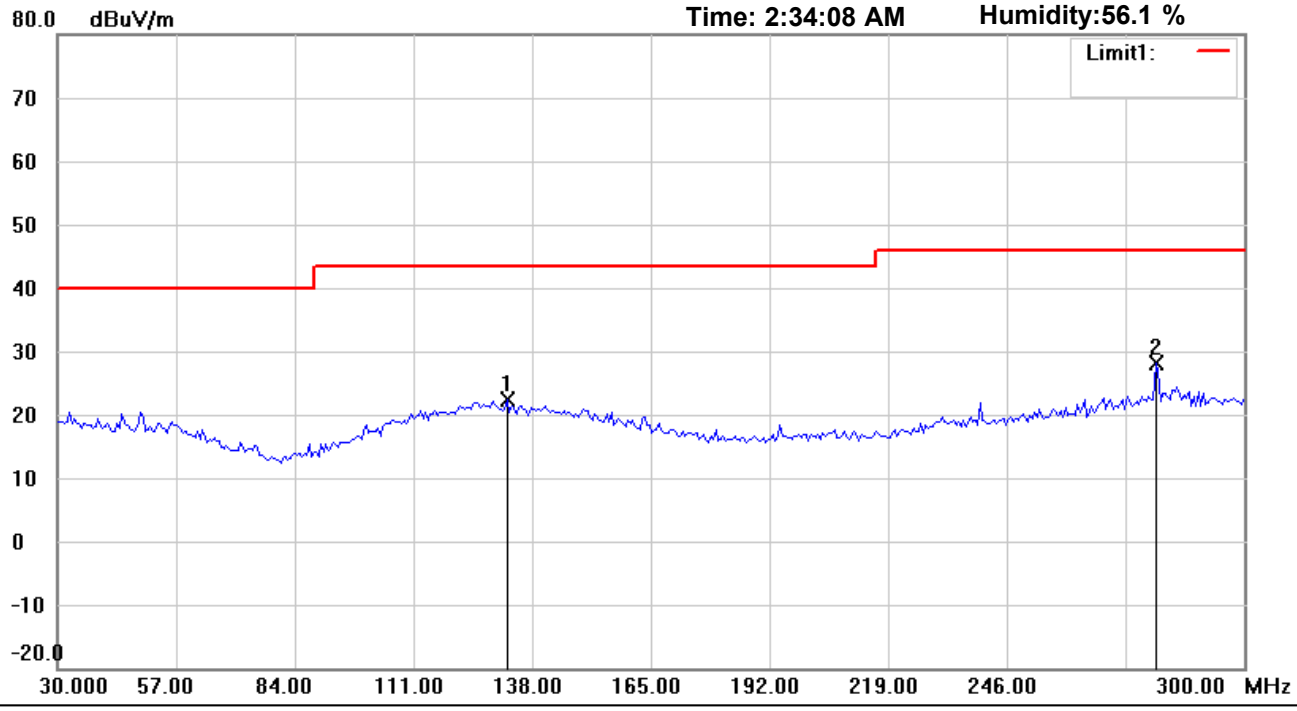
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :1 Data :#1 Date: 9/16/2021 Time: 2:34:08 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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
	132.2645	28.83	peak	-6.53	22.30	43.50	130	205	-21.20	
*	279.9800	34.02	peak	-5.78	28.24	46.00	118	136	-17.76	

*:Maximum data x:Over limit !:over margin

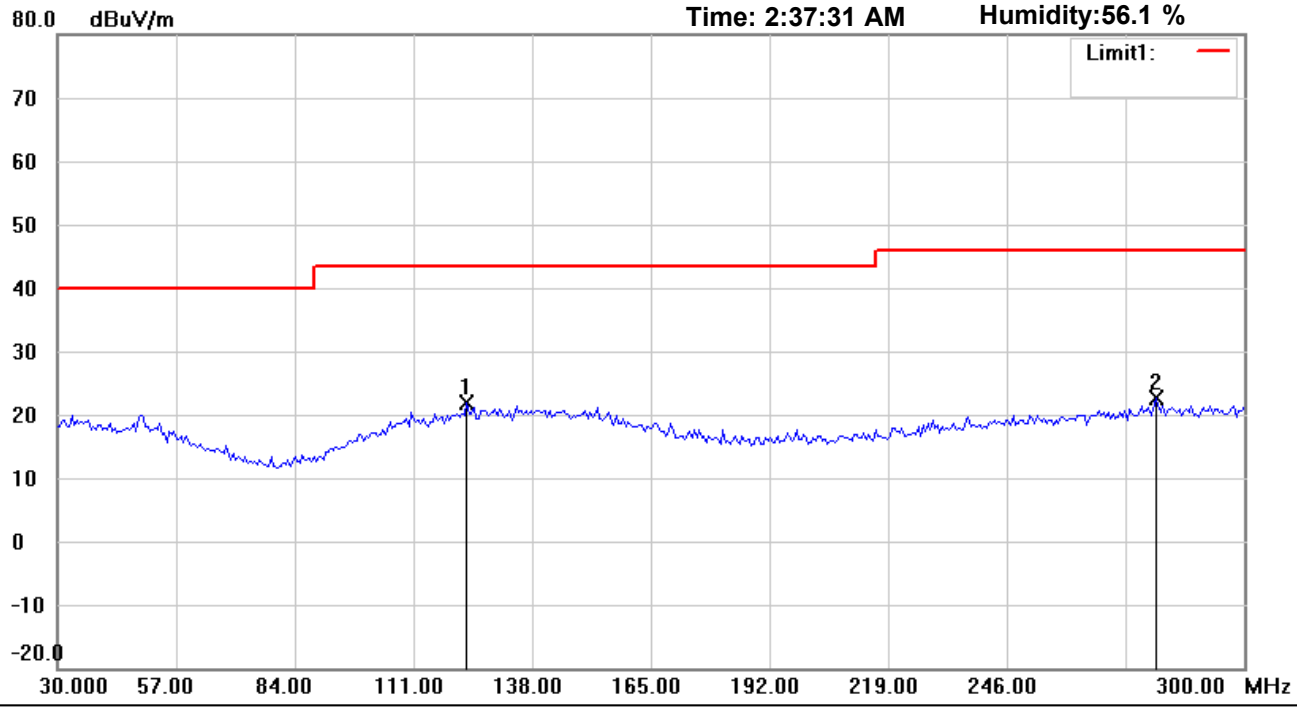
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :1 Data :#2 Date: 9/16/2021 Time: 2:37:31 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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
*	123.0661	28.90	peak	-6.90	22.00	43.50	100	164	-21.50	
	279.9800	28.32	peak	-5.78	22.54	46.00	128	40	-23.46	

*:Maximum data x:Over limit !:over margin

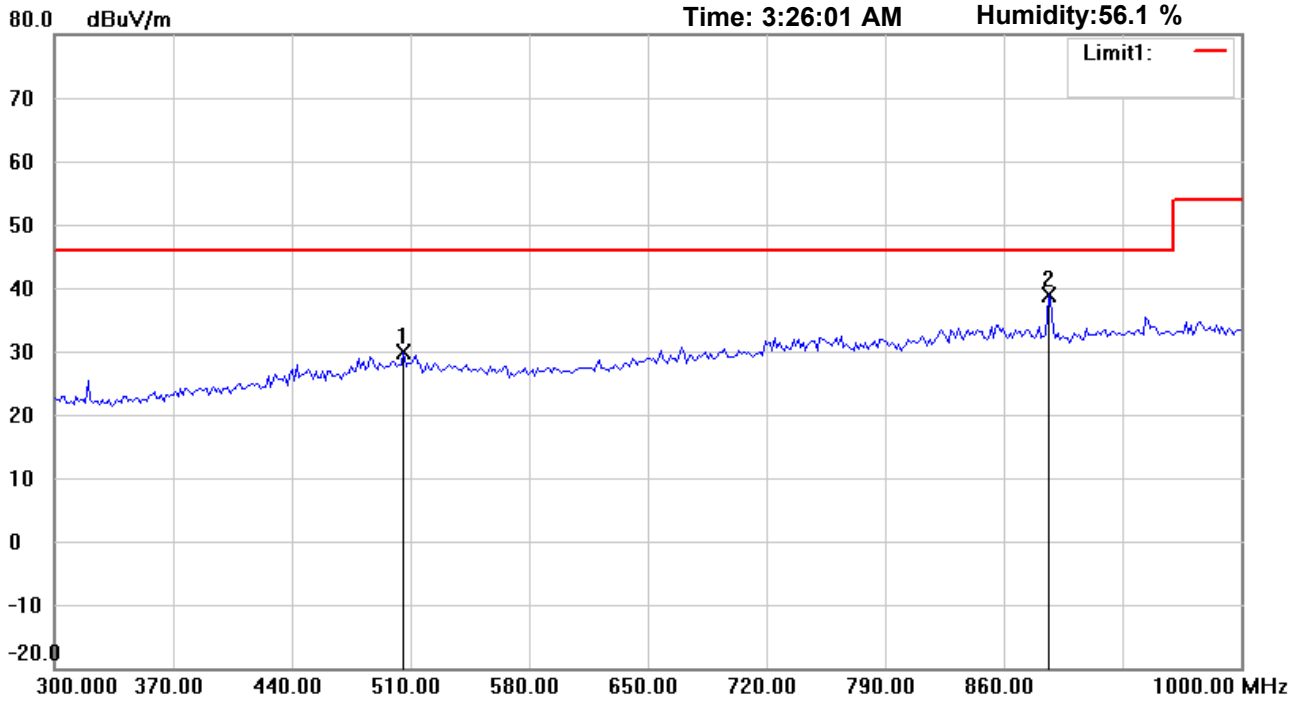
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :2 Data :#1 Date: 9/16/2021 Time: 3:26:01 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 926.6MHz

Note :

Polarization: *Horizontal*

Power : 3.6 Vd.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
	506.2124	31.76	peak	-2.00	29.76	46.00	120	56	-16.24	
*	886.3727	34.55	peak	4.33	38.88	46.00	106	238	-7.12	

*:Maximum data x:Over limit !:over margin

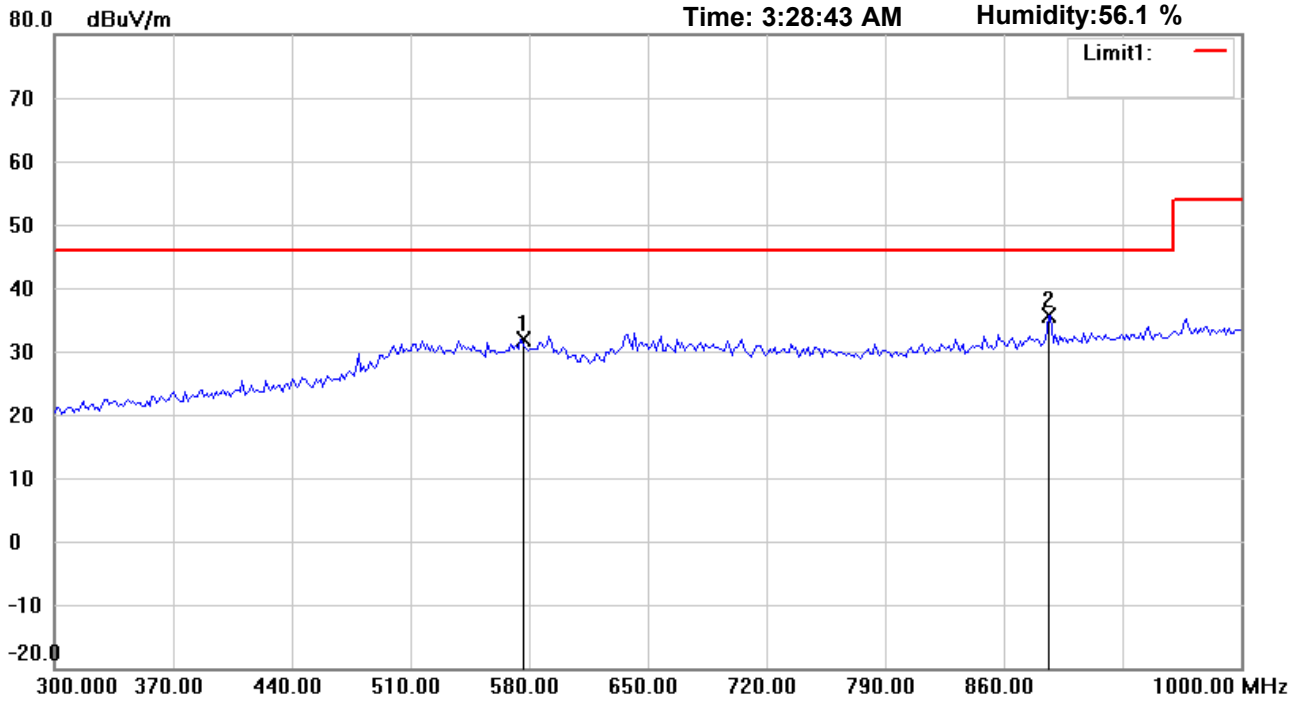
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :2 Data :#2 Date: 9/16/2021 Time: 3:28:43 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22109-21219

M/N:

Test Mode : TX 926.6MHz

Note :

Polarization: *Vertical*

Power : 3.6 Vd.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
	574.9500	33.32	peak	-1.44	31.88	46.00	140	59	-14.12	
*	886.3727	31.34	peak	4.33	35.67	46.00	102	160	-10.33	

*:Maximum data x:Over limit !:over margin

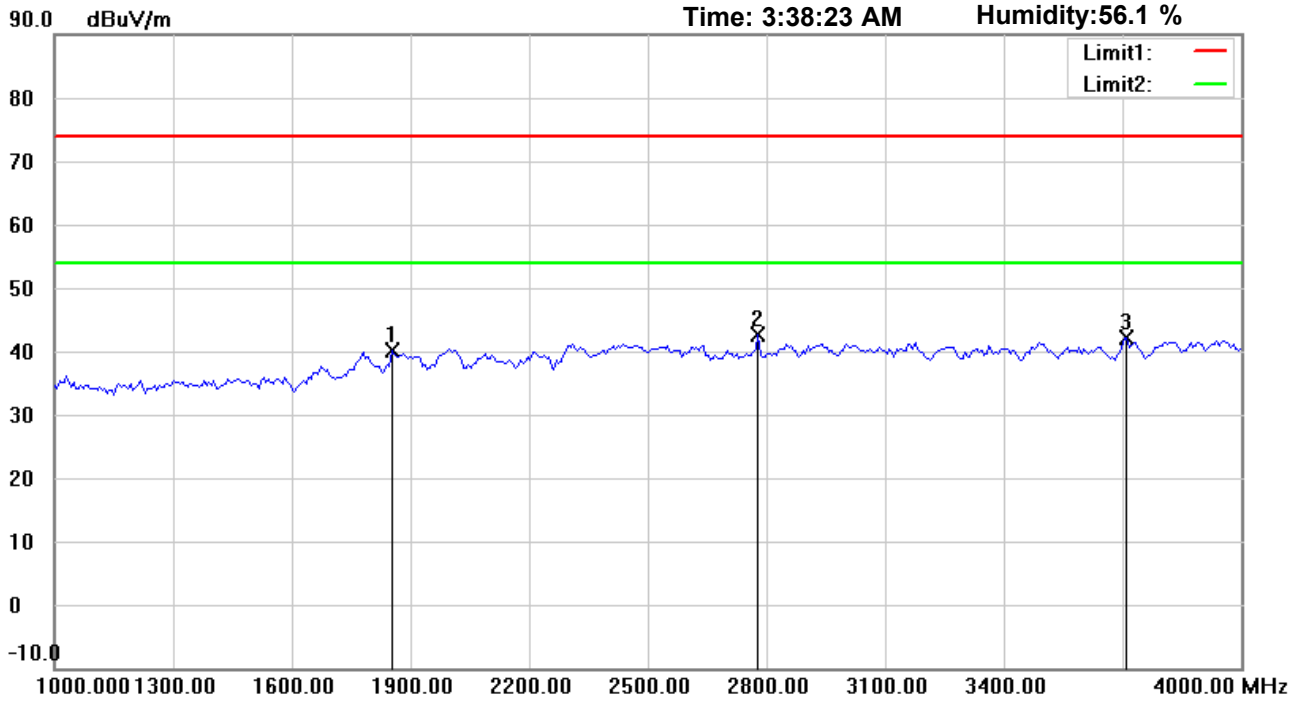
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#1 Date: 9/16/2021 Time: 3:38:23 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22109-21219

M/N:

Test Mode : TX 926.6MHz

Note :

Polarization: *Horizontal*

Power : 3.6 Vd.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
	1853.200	43.16	peak	-2.97	40.19	74.00	150	325	-33.81	
*	2779.559	43.41	peak	-0.90	42.51	74.00	150	117	-31.49	
	3706.400	41.03	peak	1.00	42.03	74.00	150	60	-31.97	

*:Maximum data x:Over limit !:over margin

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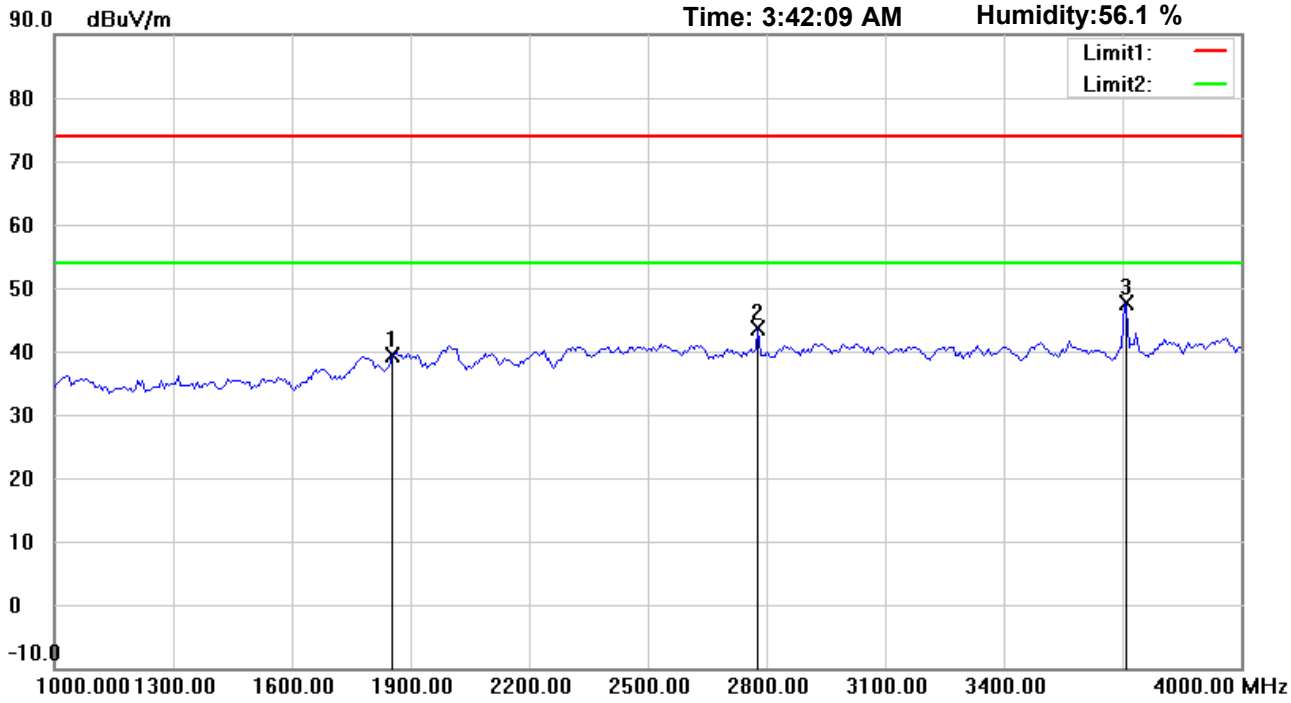
Radiated Emission Measurement

Operator: Allen

File :3 Data :#4 Date: 9/16/2021 Time: 3:42:09 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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
	1853.200	42.45	peak	-2.97	39.48	74.00	150	49	-34.52	
	2779.559	44.57	peak	-0.90	43.67	74.00	150	80	-30.33	
*	3705.411	46.55	peak	1.00	47.55	74.00	150	235	-26.45	

*:Maximum data x:Over limit !:over margin

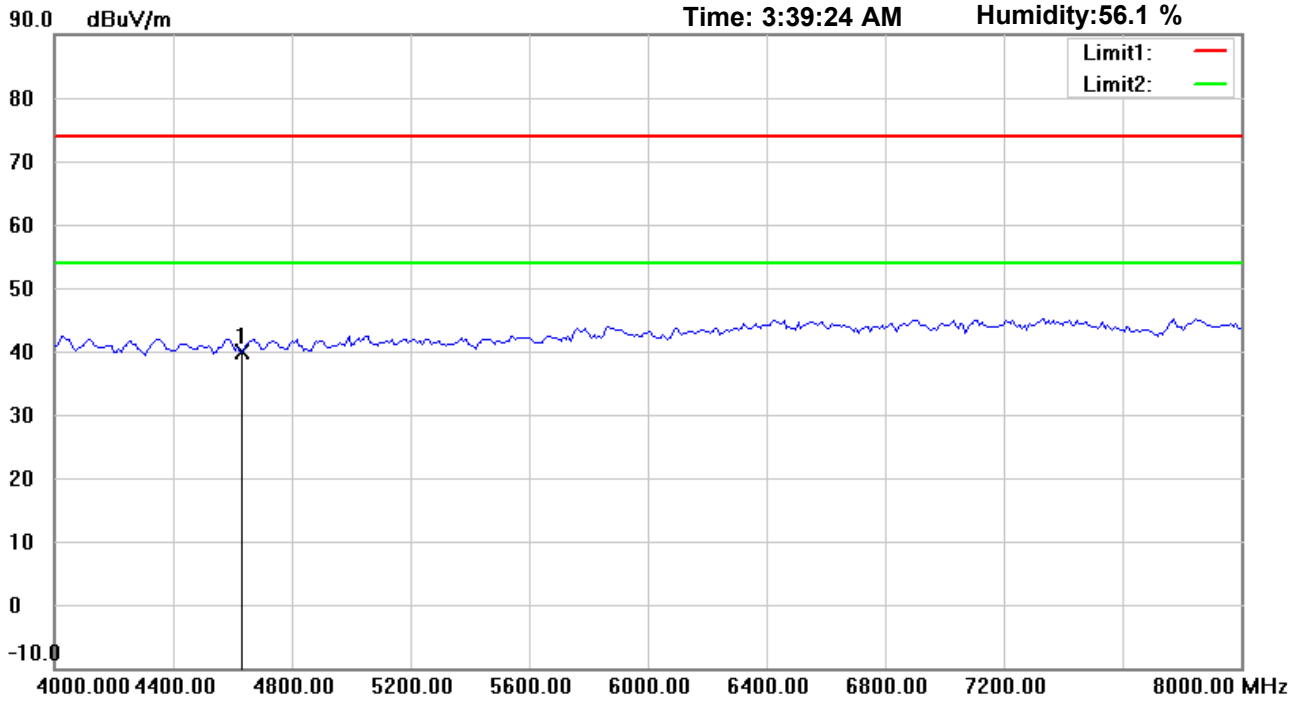
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#2 Date: 9/16/2021 Time: 3:39:24 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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
*	4633.000	38.82	peak	1.17	39.99	74.00	150	189	-34.01	

*:Maximum data x:Over limit !:over margin

Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
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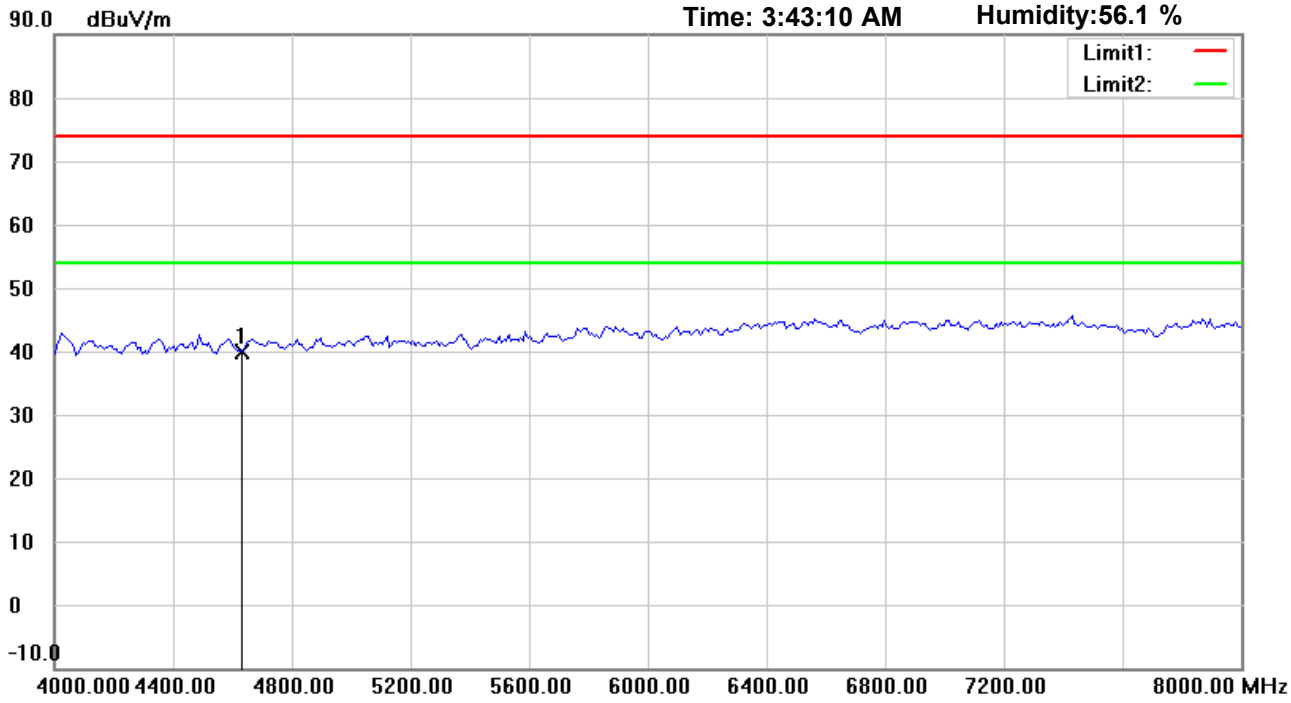
Radiated Emission Measurement

Operator: Allen

File :3 Data :#5 Date: 9/16/2021 Time: 3:43:10 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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
*	4633.000	38.82	peak	1.17	39.99	74.00	150	350	-34.01	

*:Maximum data x:Over limit !:over margin

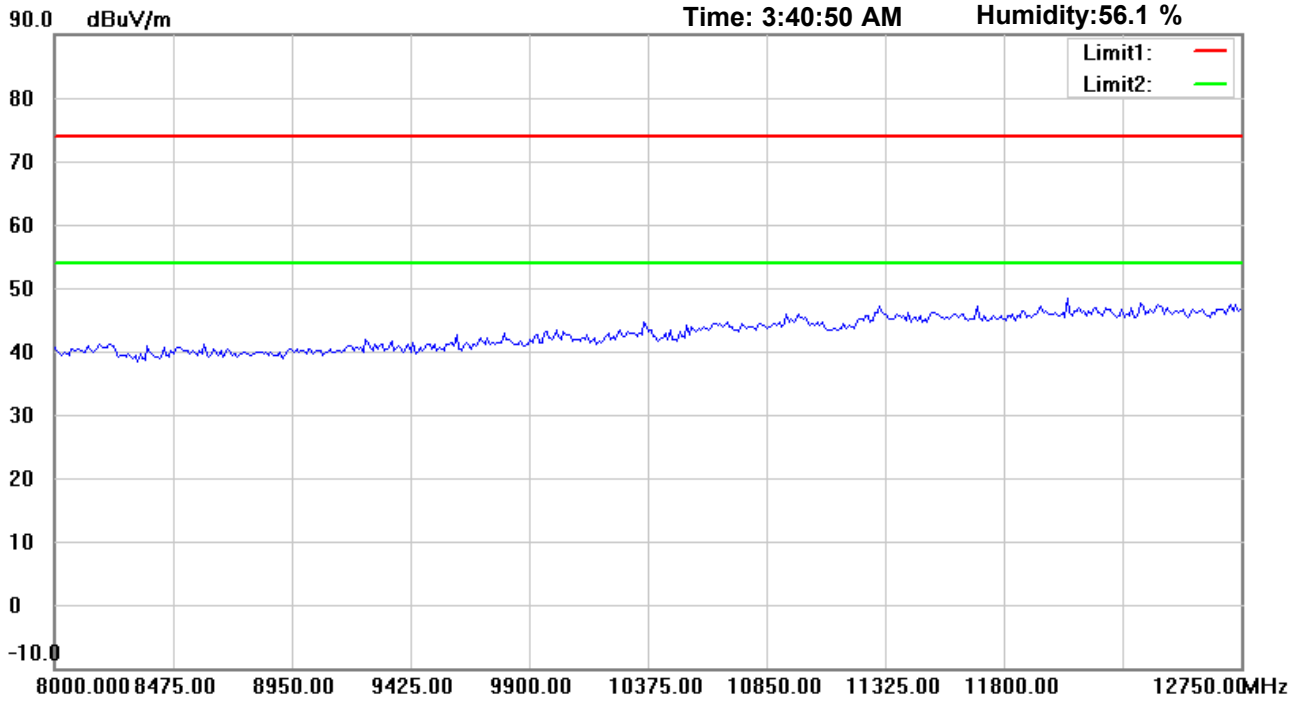
Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei
Tel:+886-2-6606-8877
Fax:+886-2-6606-8879

Radiated Emission Measurement

Operator: Allen

File :3 Data :#3 Date: 9/16/2021 Time: 3:40:50 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Horizontal*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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

*:Maximum data x:Over limit !:over margin

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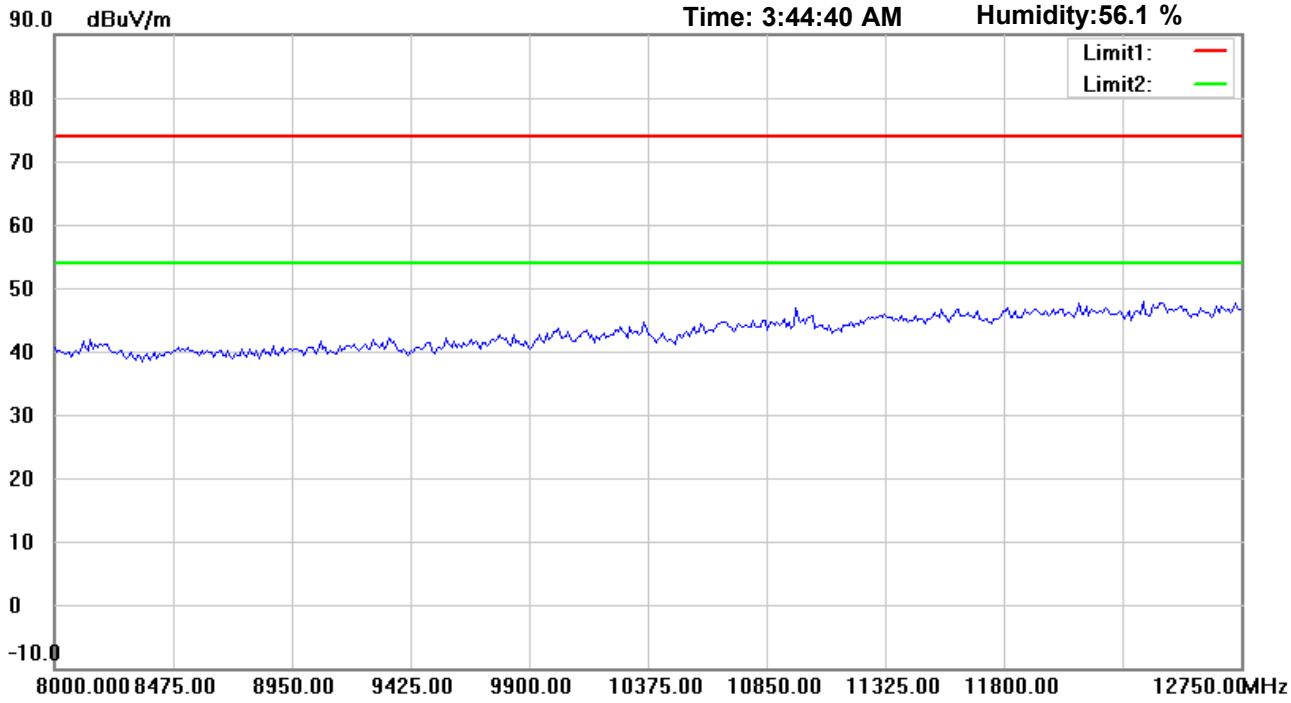
Radiated Emission Measurement

Operator: Allen

File :3 Data :#6 Date: 9/16/2021 Time: 3:44:40 AM

Temperature:25.7 ℃ Humidity:56.1 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

Polarization: *Vertical*

EUT : W6M22109-21219

Power : 3.6 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 926.6MHz

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

*:Maximum data x:Over limit !:over margin