

47 CFR PART 15 SUBPART E TEST REPORT

for

TPMS TOOL

Model No.: XXX66XXX, XXX67XXX

(X=A-Z, 0-9 or blank)

FCC ID: 2ANR7-VT67RFID

of

Applicant: ATEQ INSTRUMENTS (ASIA)PTE LTD.

TAIWAN BRANCH (SINGAPORE)

**Address: NO.3, LANE 223, SAN JIA DONG STREET, 40642,
TAICHUNG, TAIWAN**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW1072

Industry Canada filed test laboratory Reg. No.: 20037, 5107A



Report No.: W6M22311-23090-C-3



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

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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.

Laboratory disclaimer-

1. The test results of this test report relate exclusively to the item tested as specified in 1.5.
2. The test report may only be reproduced or published in full.
3. Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.
4. Antenna gain is provided by applicant and laboratory issue relevant data and results.

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:

December 21, 2023

Sora Kuo

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

December 21, 2023

Kevin Wang

Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

10m 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

Worldwide Testing Services (Taiwan) Co., Ltd.

6F., No. 58, Ln. 188, Ruiguang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)
Tel: 886-2-6606-8877

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, 5107A

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

Name: ./.
Accredited number: ./.
Street: ./.
Town: ./.
Country: ./.

1.3 Details of approval holder

Name: ATEQ INSTRUMENTS (ASIA)PTE LTD.
TAIWAN BRANCH (SINGAPORE)
Street: NO.3, LANE 223, SAN JIA DONG STREET, 40642,
Town: TAICHUNG,
Country: TAIWAN

1.4 Application details

Date of receipt of test item: November 24, 2023

Date of test: from November 27, 2023 to December 19, 2023



Registration number: W6M22311-23090-C-3
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1.5 General information of Test item

Type of test item: TPMS TOOL
Model number: XXX66XXX, XXX67XXX (X=A-Z, 0-9 or blank)
Brand name: ATEQ
Multi-listing model number: ./.
Sample no.: #02

Technical data

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

Band	Mode	Channel	Conducted Power (dBm)
NII-1	802.11a	Ch 36 : 5180 MHz	10.81
		Ch 44 : 5220 MHz	10.86
		Ch 48 : 5240 MHz	10.65
	802.11n 20M	Ch 36 : 5180 MHz	10.84
		Ch 44 : 5220 MHz	10.92
		Ch 48 : 5240 MHz	10.49
	802.11n 40M	Ch 38 : 5190 MHz	10.95
		Ch 46 : 5230 MHz	10.66
	802.11ac 80M	Ch 42 : 5210 MHz	10.81
NII-3	802.11a	Ch 149 : 5745 MHz	10.88
		Ch 157 : 5785 MHz	9.25
		Ch 165 : 5825 MHz	9.68
	802.11n 20M	Ch 149 : 5745 MHz	10.66
		Ch 157 : 5785 MHz	10.31
		Ch 165 : 5825 MHz	9.79
	802.11n 40M	Ch 151 : 5755 MHz	10.64
		Ch 159 : 5795 MHz	10.32
	802.11ac 80M	Ch 155 : 5775 MHz	10.44

Operating modes: Duplex
Type of modulation: OFDM/DSSS
Fixed point to point operation: Yes / No
Type of antenna: PCB antenna



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Antenna gain: Band 1: 0.31 dBi
Band 4: 1.07 dBi

Power supply: Adapter (I/P: 100-240V~50/60Hz 0.3A
O/P: +5.0V=2.0A, 10.0W)
Battery 3.8Vd.c. 6200mAh 23.56Wh

Note: Tests were performed under worst case mode 802.11a 6 Mbps, 802.11n 20MHz(MCS0), 802.11n 40MHz(MCS0) and 802.11ac 80MHz(MCS0).

Special statement:

1. This test report is valid in connection to the model has been tested, any modification to the product which is different from the test model will avoid the certification of the test report.
2. This test report shall always be duplicated in full pages unless the written approval of the testing laboratory is obtained.
3. The x in model number is representing different marketing purpose.

Manufacturer: (if applicable)

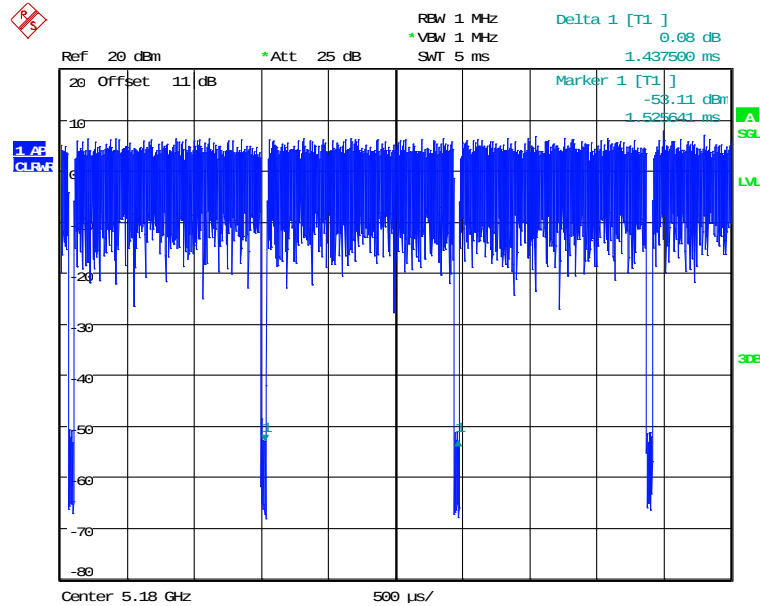
Name: ./.
Street: ./.
Town: ./.
Country: ./.

Duty cycle

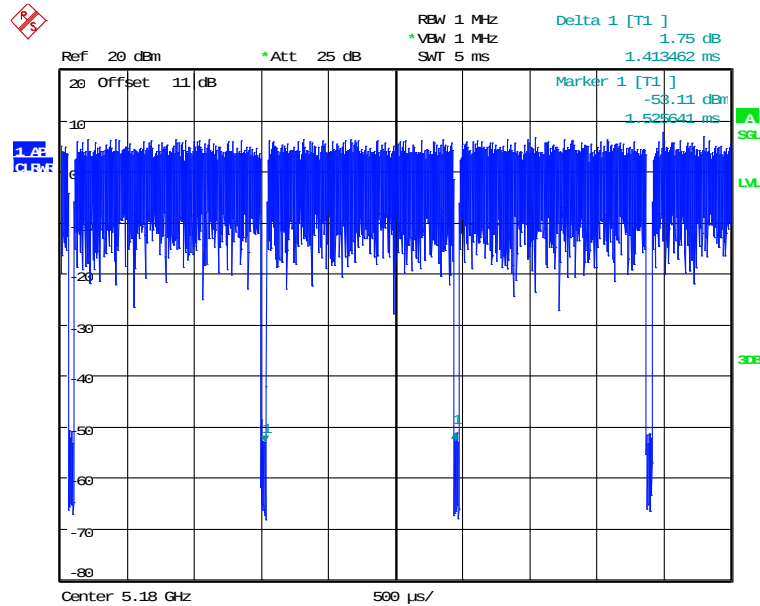
Mode	T _{on} (ms)	T _{on} +T _{off} (ms)	Duty cycle (%)	Duty Factor (dB)	1/T - VBW (kHz)
802.11a	1.413	1.438	98.30%	0.07	0.71
802.11n 20M	1.317	1.341	98.21%	0.08	0.76
802.11n 40M	0.660	0.692	95.38%	0.21	1.52
802.11ac 80M	0.332	0.369	90.01%	0.46	3.01



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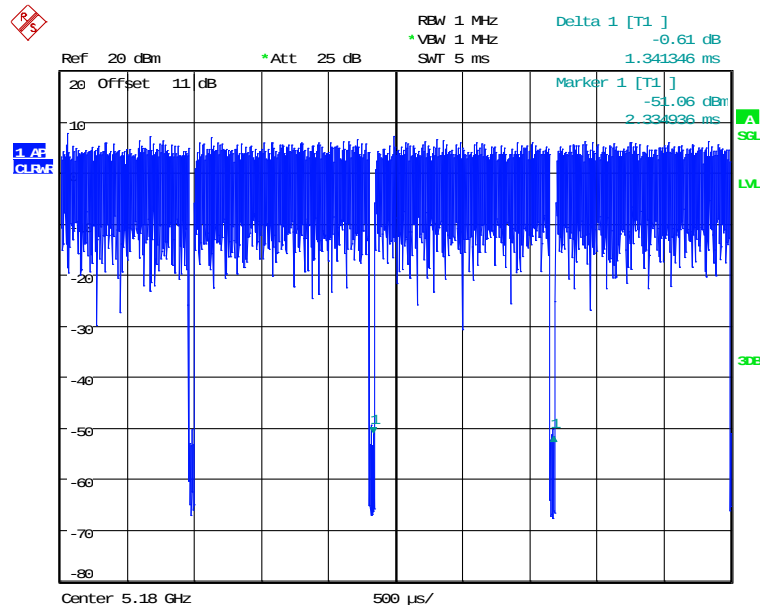
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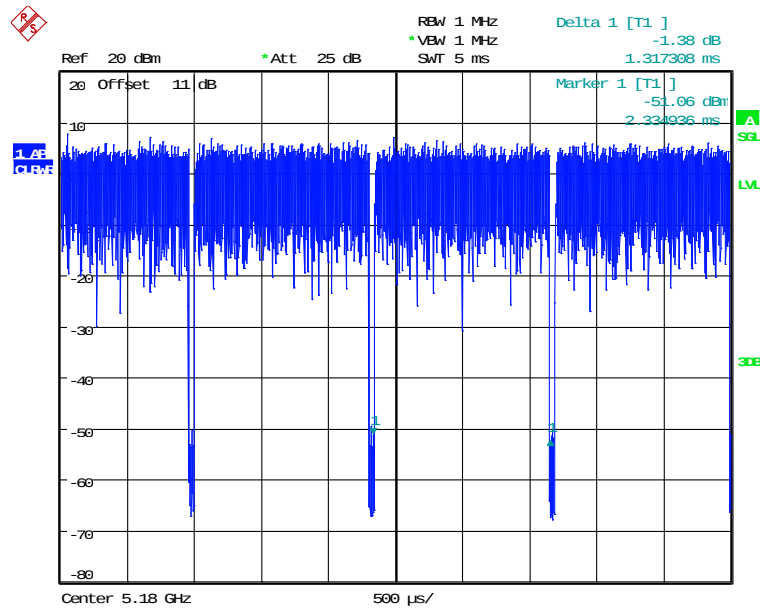
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Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



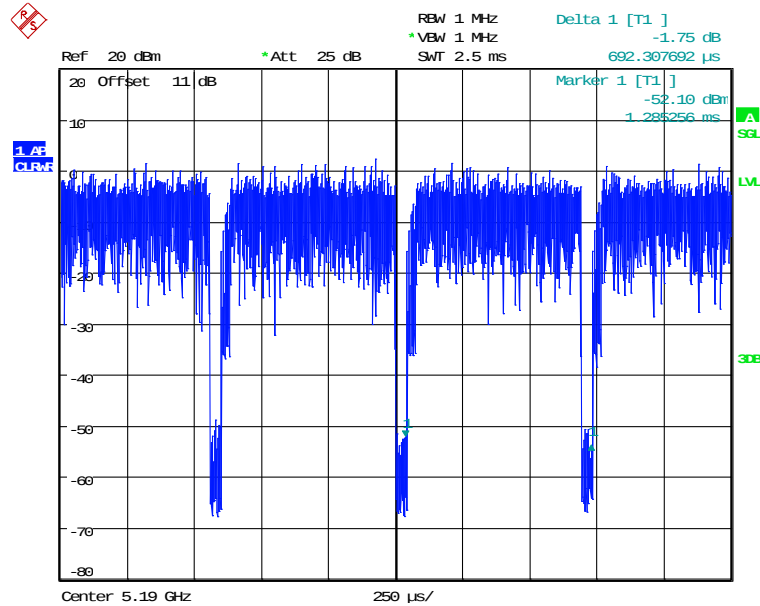
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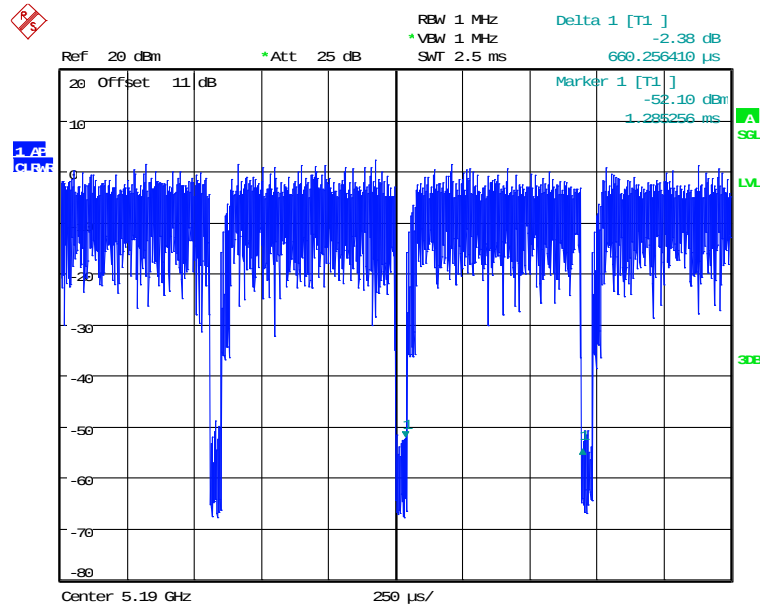
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Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



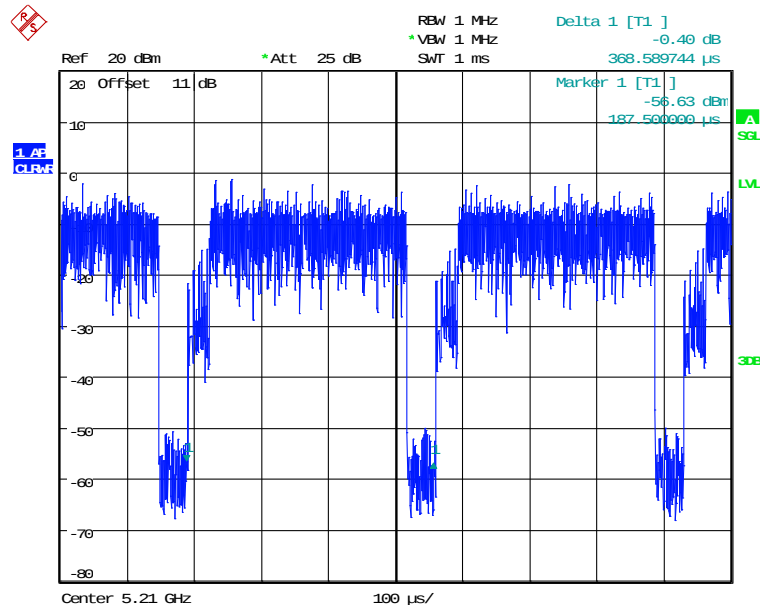
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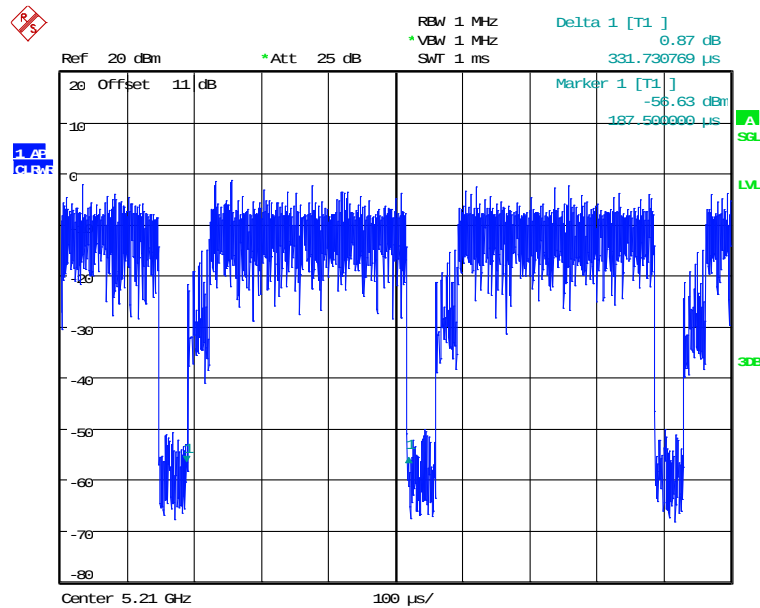
DUTY 802.11n40
Date: 3.DEC.2023 09:44:17



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DUTY 802.11ac80
Date: 3.DEC.2023 09:43:12



DUTY 802.11ac80
Date: 3.DEC.2023 09:43:17

1.6 Test standards

Technical standard : 47 CFR PART 15 SUBPART C § 15.407 (2021-10)



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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 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 0.3A
O/P: +5.0V=2.0A, 10.0W)
Battery 3.8Vd.c. 6200mAh 23.56Wh

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission (Power Line Conducted Emission)	Expanded Uncertainty : AMN : 0.94 dB Voltage probe : 0.96 dB Include Pulse Limiter : 1.52 dB
Estimation Result of Uncertainty of Radiated Emission(3M-966A) (Undesirable emission limits, Radiated Emissions from Receiver Part)	Expanded Uncertainty : 0.009-30 MHz : 1.88 dB 30-1000 MHz : 3.20 dB 1-18 GHz : 3.56 dB 18-40 GHz : 2.94 dB
Estimation Result of Uncertainty of Bandwidth Measurement (26dB emission bandwidth, 99% Occupied Bandwidth, 6dB emission bandwidth, 99% Occupied Bandwidth)	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement (Peak Transmit Power)	Expanded Uncertainty : 1.48 dB
Estimation Result of Uncertainty of Power Density Measurement (Peak Power Spectral Density)	Expanded Uncertainty : 1.48 dB
Estimation Result of Uncertainty of EIRP Measurement (Equivalent Isotropic Radiated Power (EIRP), Radiated Emissions from Receiver Part)	Expanded Uncertainty : 30-200MHz : 3.49 dB 200-1000MHz : 3.49 dB 1-18GHz : 4.81 dB 18-40GHz : 3.94 dB
Estimation Result of Uncertainty of DFS Timing (Dynamic Frequency Selection (DFS), Channel Move Time, Channel Closing Transmission Time)	Expanded Uncertainty : 587.89 us
Estimation Result of Uncertainty of DFS Threshold (Dynamic Frequency Selection (DFS), Channel Move Time, Channel Closing Transmission Time)	Expanded Uncertainty : 1.51 dB

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



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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	2023/6/12	2024/6/11
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	2023/9/19	2024/9/18
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2023/9/25	2024/9/24
ETSTW-CE 008	HF-EICHLITUNG 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	2023/7/24	2024/7/23
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2023/10/26	2024/10/25
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2023/7/17	2024/7/16
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2023/6/12	2024/6/11
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2023/10/19	2024/10/18
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	2023/7/21	2024/7/20
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2023/6/9	2024/6/8
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2023/6/28	2024/6/27
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2023/5/5	2024/5/4
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2023/3/2	2024/3/1
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2023/7/28	2024/7/27
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2023/7/31	2024/7/30
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2023/2/17	2024/2/16
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2023/2/17	2024/2/16
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2023/2/17	2024/2/16
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2023/3/22	2024/3/21
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2023/2/17	2024/2/16
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2023/2/20	2024/2/19
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	2023/10/22	2024/10/21
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2023/9/15	2024/9/14
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2023/5/25	2024/5/24
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2023/2/17	2024/2/16
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	



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ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2023/12/21	2024/12/20
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	2023/10/24	2024/10/23
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2023/6/7	2024/6/6
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2023/8/4	2024/8/3
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2023/8/4	2024/8/3
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2023/2/17	2024/2/16
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2023/8/4	2024/8/3
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2023/8/4	2024/8/3
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2023/2/20	2024/2/19
ETSTW-RE 146	Preamplifier	JPA-10M1G	15090004	JPT	2023/5/26	2024/5/25
ETSTW-RE 152	Bi-log Hybrid Antenna	MCTD 2786B	BLB20J04029	ETC	2023/3/21	2024/3/20
ETSTW-RE 153	Signal Analyzer	FSV40	101929	R&S	2023/9/20	2024/9/19
ETSTW-RE 154	EMI Test Receiver	ESR3	102829	R&S	2023/4/13	2024/4/12
ETSTW-RE 159	Bi-log Hybrid Antenna (30M~1000 MHz)	MCTD 2786B	BLB21N04035	ETC	2023/12/21	2024/12/20
ETSTW-RE 160	Amplifier Module	CHC 3	None	WTS	2023/7/14	2024/7/13
ETSTW-RE 176	Loop Antenna	FMZB 1513-60	00039	SCHWARZBECK	2023/8/10	2024/8/9
ETSTW-RE 177	TRILOG Broadband Antenna	VULB 9168&EMCI-N-6-06	01380&AT-06007	SCHWARZBECK&EMC	2023/8/24	2024/8/23
ETSTW-RE 178	Double Ridged Guide Horn Antenna	DRH18-E	210505A18ES	RFSPIN	2023/8/17	2024/8/16
ETSTW-RF 002	Electromagnetic field probe	LF-30	K-0007	STT	2023/6/13	2024/6/12
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2023/5/28	2024/5/27
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2023/3/22	2024/3/21
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2023/5/10	2024/5/9
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2023/10/18	2024/10/17
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2023/12/21	2024/12/20
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2023/12/21	2024/12/20
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2023/12/21	2024/12/20
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2023/12/21	2024/12/20
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2023/8/28	2024/8/27
ETSTW-GSM 024	Radio Communication Analyzer	MT8821C	None	Anritsu	2023/4/24	2024/4/23
ETSTW-GSM 025	Band Reject Filter	BRM19835	001	Micro-Tronics	2023/8/4	2024/8/3
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2023/2/4	2024/2/3
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2023/2/4	2024/2/3
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2023/2/4	2024/2/3
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2023/2/4	2024/2/3
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2023/6/26	2024/6/25



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ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2023/4/27	2024/4/26
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2023/9/15	2024/9/14
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2023/9/15	2024/9/14
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2023/02/17	2024/2/16
ETSTW-Cable 045	Microwave Cable	SUCOFLEX 104	325536	HUBER+SUHNER	2023/10/20	2024/10/19
ETSTW-Cable 049	Microwave Cable	FA147A0015M2020	30064-1	UTIFLEX	2023/8/16	2024/8/15
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2023/5/26	2024/5/25
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2023/2/20	2024/2/19
ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM- NM-25000	170239	EMCI	2023/10/23	2024/10/22
ETSTW-Cable 072	SMA type cable (8m)	SUCOFLEX 104	805800/4	HUBER+SUHNER	2023/2/20	2024/2/19
ETSTW-Cable 074	SMA type cable (2m)	SUCOFLEX 104	802563/4	HUBER+SUHNER	2023/2/20	2024/2/19
ETSTW-Cable 076	SMA type cable (1m)	N/A	812652/4	HUBER+SUHNER	2023/2/20	2024/2/19
ETSTW-Cable 077	SMA type cable (10m)	EMC104-SM- SM-10000	230511	EMCI	2023/7/14	2024/7/13
ETSTW-Cable 084	SMA type cable (1m)	SF104-11SMA-1000	816477/4	HONOVA	2023/7/14	2024/7/13
ETSTW-Cable 089	SMA type cable (2m)	SF104-11SMA-2000	SN 811889/4	HUBER+SUHNER	2023/7/14	2024/7/13
ETSTW-Cable 090	N type Cable (15m)	EMCCFD400- NM-NM-15000	230732	EMCI	2023/8/4	2024/8/3
ETSTW-Cable 091	N type Cable (15m)	EMCCFD400- NM-NM-15000	230733	EMCI	2023/8/4	2024/8/3
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	2023/7/21	2024/7/20
ETSTW-TH 003	Wireless weather station	GAIA	N/A	TFA	2023/10/20	2024/10/19
ETSTW-TH 004	Thermohygrometer	88163	2205131	AZ	2023/9/13	2024/9/12



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FCC ID: 2ANR7-VT67RFID

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 ≥ 3 MHz.
- (iv) Number of points in sweep ≥ 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 ≥ 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



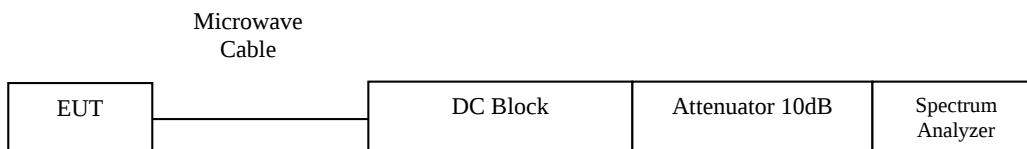
Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 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 ≥ 3 RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 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 $10\log(1\text{MHz}/\text{RBW})$ to the measured result, whereas RBW (< 1 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 kHz is available on nearly all spectrum analyzers.

Conducted measurement test setup





Worldwide Testing Services(Taiwan) Co., Ltd.

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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 U-NII Test Procedures New Rules v02r01	☒	☒	☐
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)	☐	☐	☐
UNII Detection Bandwidth	905462 D02 UNII DFS Compliance Procedures New Rules v02 – 7.8.1	☐	☐	☐
Initial Channel Availability Check Time	905462 D02 UNII DFS Compliance Procedures New Rules v02 – 7.8.2.1	☐	☐	☐
Radar Burst at the Beginning of the Channel Availability Check Time	905462 D02 UNII DFS Compliance Procedures New Rules v02 – 7.8.2.2	☐	☐	☐
Radar Burst at the End of the Channel Availability Check Time	905462 D02 UNII DFS Compliance Procedures New Rules v02 – 7.8.2.3	☐	☐	☐
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	905462 D02 UNII DFS Compliance Procedures New Rules v02 – 7.8.3	☐	☐	☐
Statistical Performance Check	905462 D02 UNII DFS Compliance Procedures New Rules v02 – 7.8.4	☐	☐	☐
Radiated Emission from Receiver Part	15.109	☐	☐	☐
AC Conducted Emissions	15.207	☒	☒	☐

The following is intentionally left blank.



Registration number: W6M22311-23090-C-3

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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 date: December 03, 2023

Temperature: 22.7°C

Humidity: 58.1 %

Tester: Sora

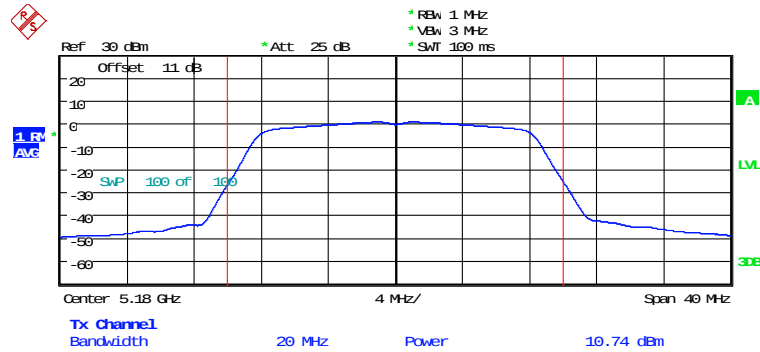
Band	Mode	Channel	Conducted power with DF (dBm/MHz)	DF (dB)	Limit (dBm/MHz)
NII-1	802.11a	Ch 36 : 5180 MHz	10.81	0.07	24
		Ch 44 : 5220 MHz	10.86	0.07	24
		Ch 48 : 5240 MHz	10.65	0.07	24
	802.11n 20	Ch 36 : 5180 MHz	10.84	0.08	24
		Ch 44 : 5220 MHz	10.92	0.08	24
		Ch 48 : 5240 MHz	10.49	0.08	24
	802.11n 40	Ch 38 : 5190 MHz	10.95	0.21	24
		Ch 46 : 5230 MHz	10.66	0.21	24
	802.11ac 80	Ch 42 : 5210 MHz	10.81	0.46	24
NII-3	802.11a	Ch 149 : 5745 MHz	10.88	0.07	30
		Ch 157 : 5785 MHz	9.25	0.07	30
		Ch 165 : 5825 MHz	9.68	0.07	30
	802.11n 20	Ch 149 : 5745 MHz	10.66	0.08	30
		Ch 157 : 5785 MHz	10.31	0.08	30
		Ch 165 : 5825 MHz	9.79	0.08	30
	802.11n 40	Ch 151 : 5755 MHz	10.64	0.21	30
		Ch 159 : 5795 MHz	10.32	0.21	30
	802.11ac 80	Ch 155: 5775 MHz	10.44	0.46	30



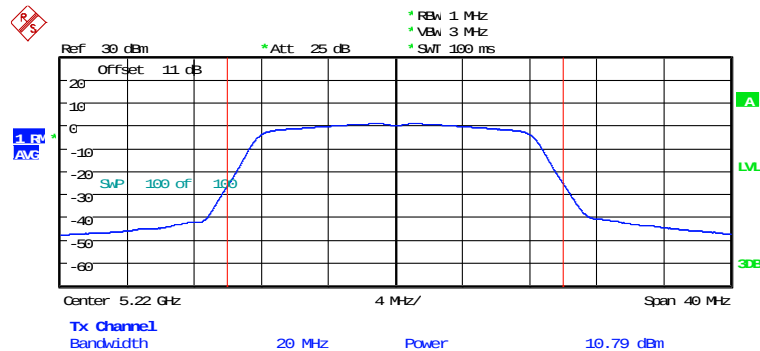
Registration number: W6M22311-23090-C-3

FCC ID: 2ANR7-VT67RFID

5.15 GHz ~ 5.25 GHz



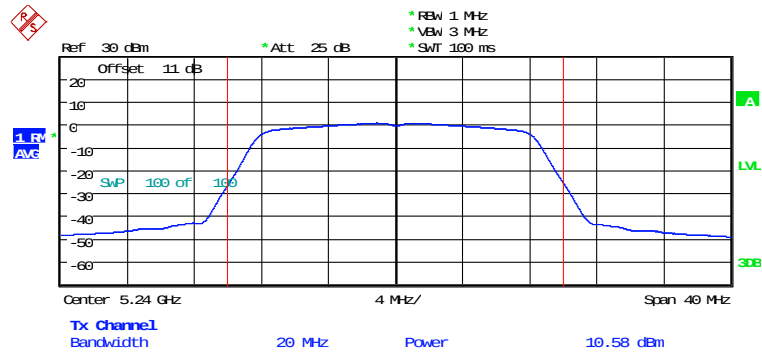
MAXIMUM CONDUCTED POWER ANT1_11aCH36
Date: 3.DEC.2023 09:11:29



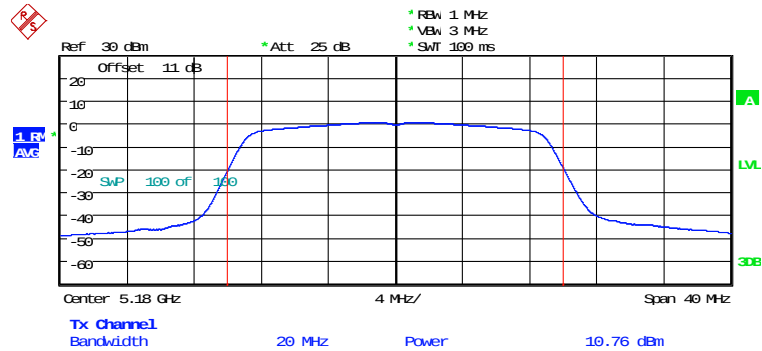
MAXIMUM CONDUCTED POWER ANT1_11aCH44
Date: 3.DEC.2023 09:12:37



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



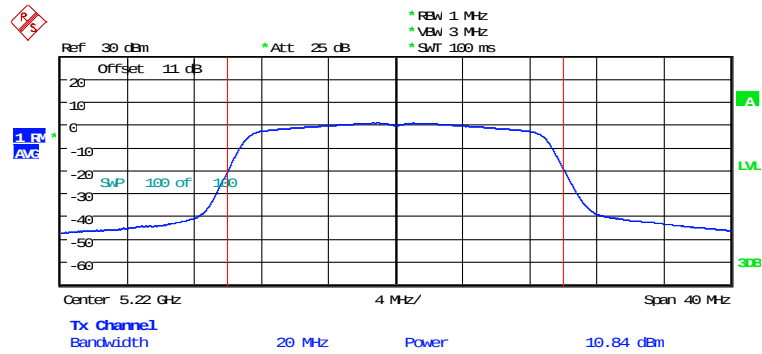
MAXIMUM CONDUCTED POWER ANT1_11aCH48
Date: 3.DEC.2023 09:13:38



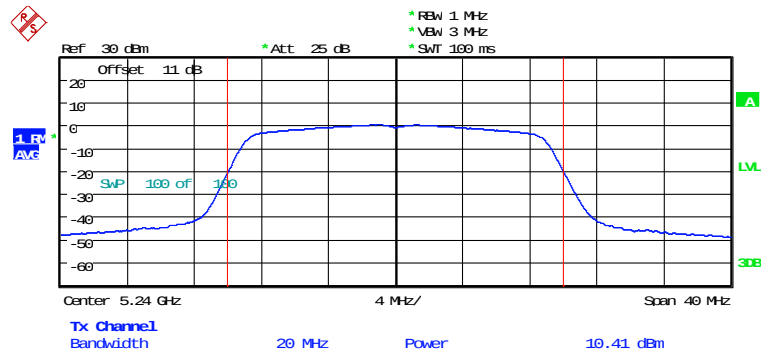
MAXIMUM CONDUCTED POWER ANT1_11n20CH36
Date: 3.DEC.2023 09:14:53



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



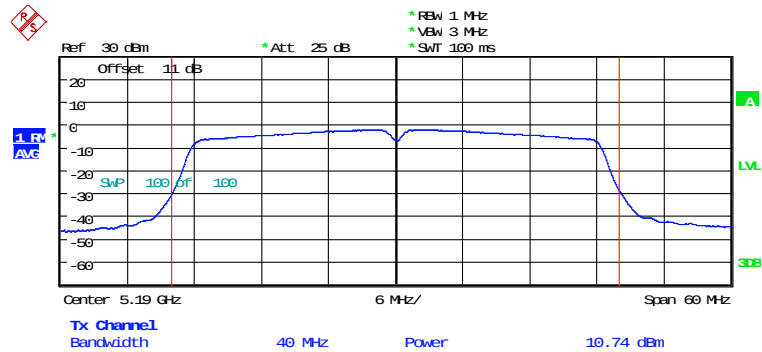
MAXIMUM CONDUCTED POWER ANT1_11n20CH44
Date: 3.DEC.2023 09:15:54



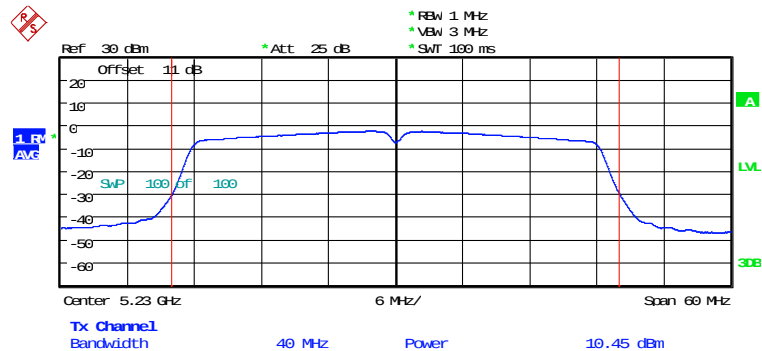
MAXIMUM CONDUCTED POWER ANT1_11n20CH48
Date: 3.DEC.2023 09:16:55



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



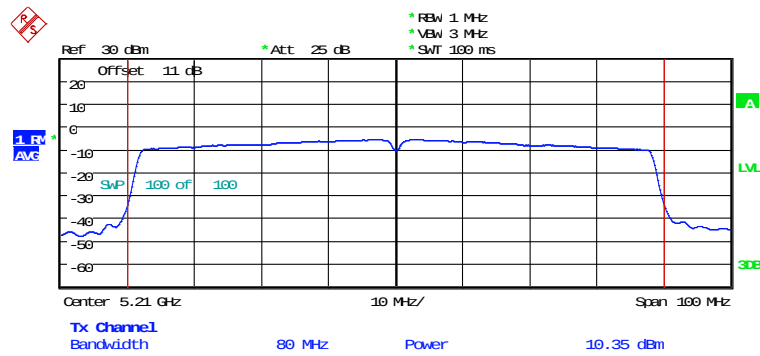
MAXIMUM CONDUCTED POWER ANT1_11n40CH38
Date: 3.DEC.2023 09:18:30



MAXIMUM CONDUCTED POWER ANT1_11n40CH46
Date: 3.DEC.2023 09:19:32



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



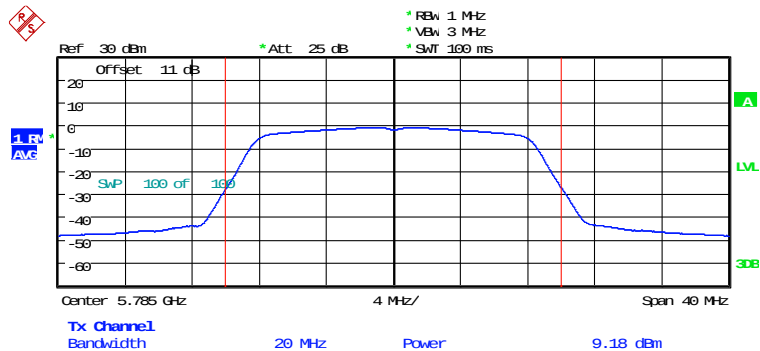
MAXIMUM CONDUCTED POWER ANT1_11ac80CH42
Date: 3.DEC.2023 09:21:07



FCC ID: 2ANR7-VT67RFID

The screenshot displays a spectrum analyzer interface. At the top, a red 'R' icon is in the top-left corner. The main display area shows a blue trace of a signal centered at 5.745 GHz. The signal has a bandwidth of 20 MHz and a power of 10.81 dBm. The y-axis represents power in dBm, ranging from -60 to 20. The x-axis represents frequency in GHz, ranging from 5.740 to 5.750. The signal is a rectangular pulse with a flat top at approximately -5 dBm and a bandwidth of 20 MHz. The signal is labeled 'Tx Channel1' and 'Bandwidth 20 MHz'. The power is labeled 'Power 10.81 dBm'. The signal is also labeled 'Offset 11 dB' and 'Att 25 dB'. The signal is also labeled 'Ref 30 dBm' and 'RBW 1 MHz'. The signal is also labeled 'VBW 3 MHz' and 'SWT 100 ms'. The signal is also labeled 'Sweep 100 of 100'.

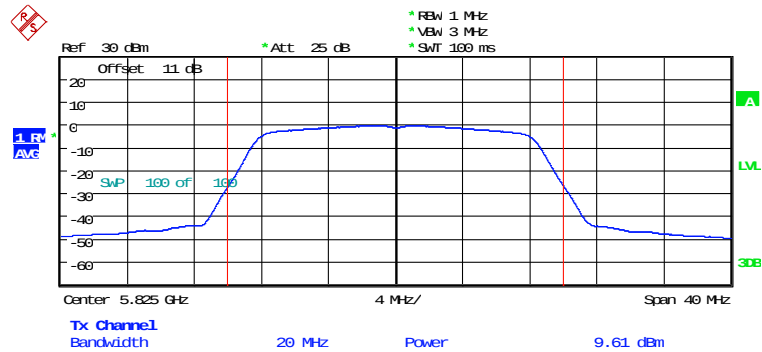
Date: 3.DEC.2023 09:26:26



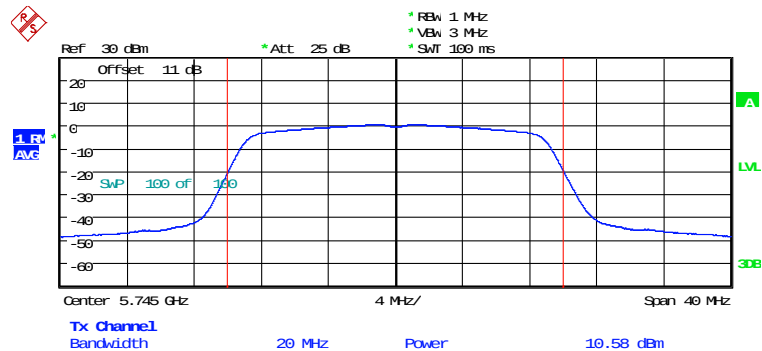
Date: 3.DEC.2023 09:27:28



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



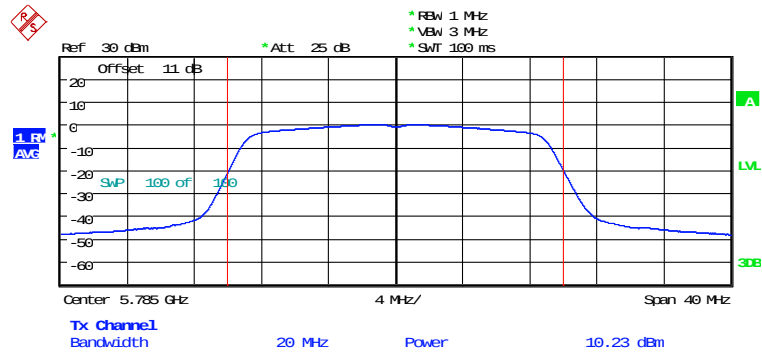
MAXIMUM CONDUCTED POWER ANT1_11aCH165
Date: 3.DEC.2023 09:28:22



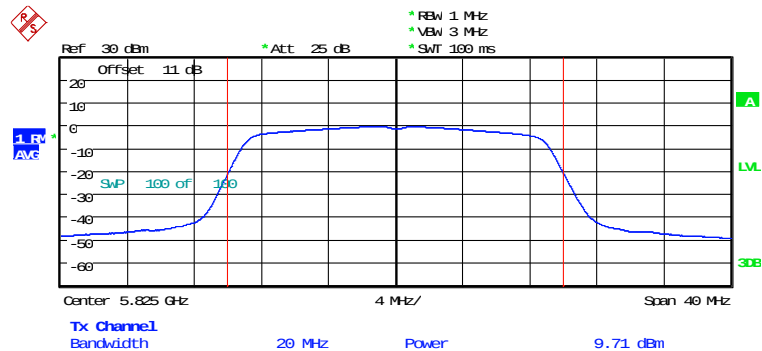
MAXIMUM CONDUCTED POWER ANT1_11n20CH149
Date: 3.DEC.2023 09:29:44



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



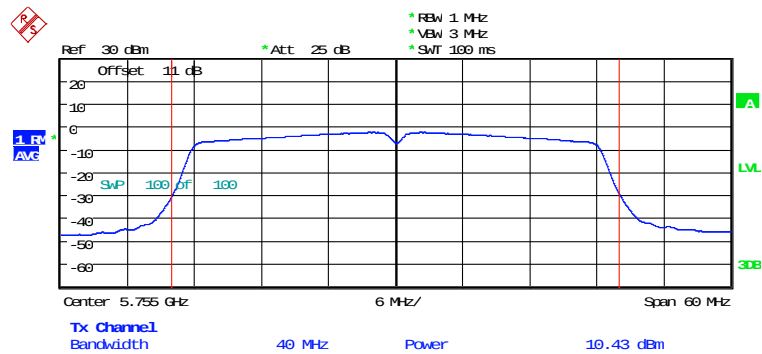
MAXIMUM CONDUCTED POWER ANT1_11n20CH157
Date: 3.DEC.2023 09:30:45



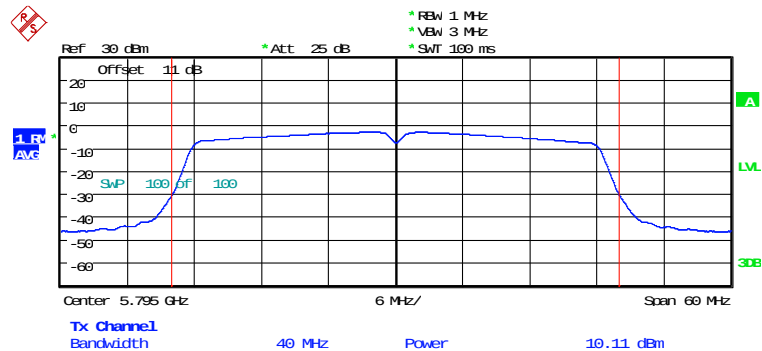
MAXIMUM CONDUCTED POWER ANT1_11n20CH165
Date: 3.DEC.2023 09:31:53



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



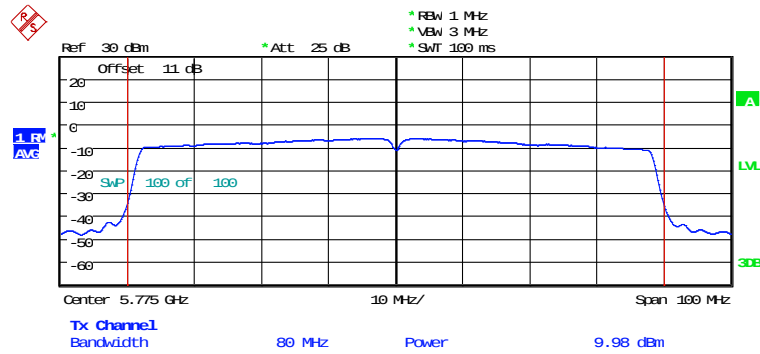
MAXIMUM CONDUCTED POWER ANT1_11n40CH151
Date: 3.DEC.2023 09:37:19



MAXIMUM CONDUCTED POWER ANT1_11n40CH159
Date: 3.DEC.2023 09:38:27



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



MAXIMUM CONDUCTED POWER ANT1_11ac80CH155
Date: 3.DEC.2023 09:24:38

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



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

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

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

Result:

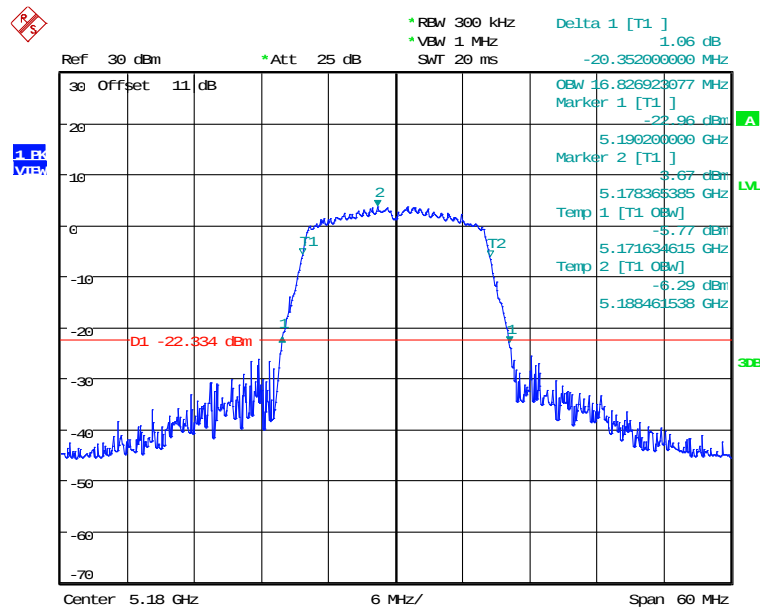
Test date: December 03, 2023

Temperature: 22.7°C

Humidity: 58.1 %

Tester: Sora

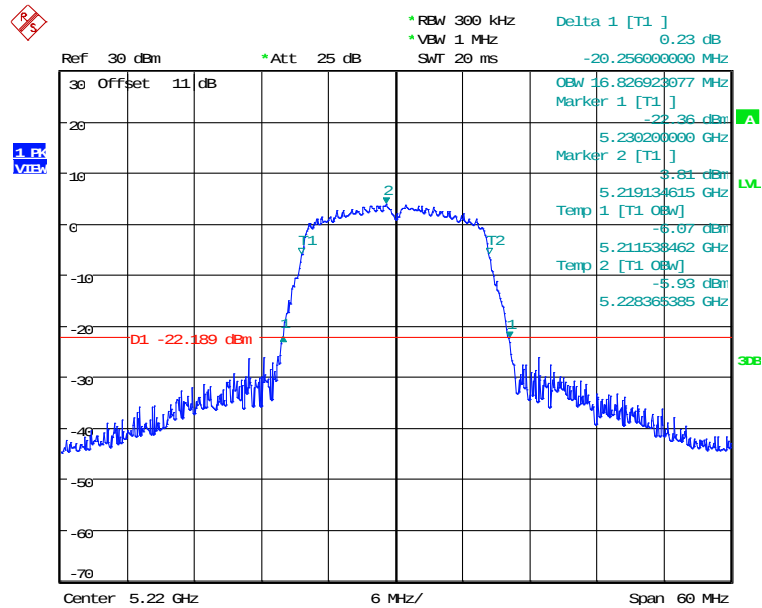
5.15 GHz ~ 5.25 GHz



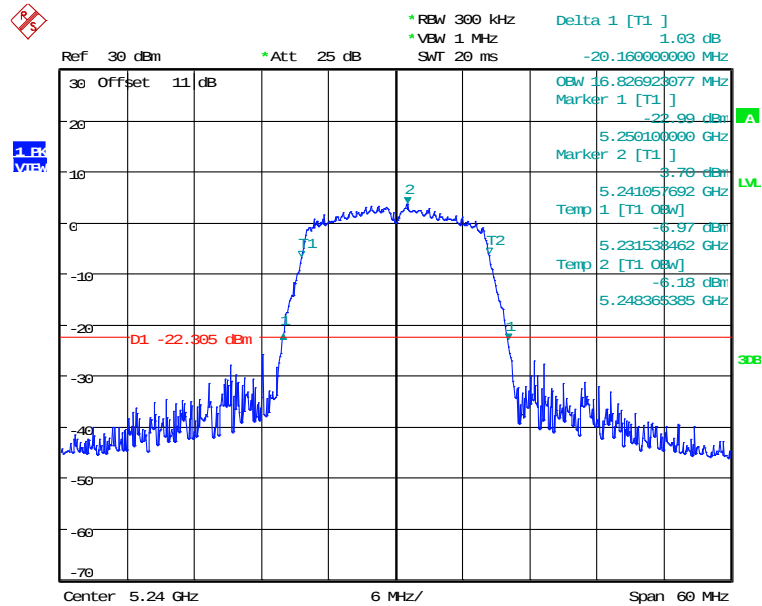
99% OBW & 26DB BANDWIDTH ANT1_11a_CH36
Date: 3.DEC.2023 09:12:07



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



99% OBW & 26DB BANDWIDTH ANT1_11a_CH44
Date: 3.DEC.2023 09:13:13

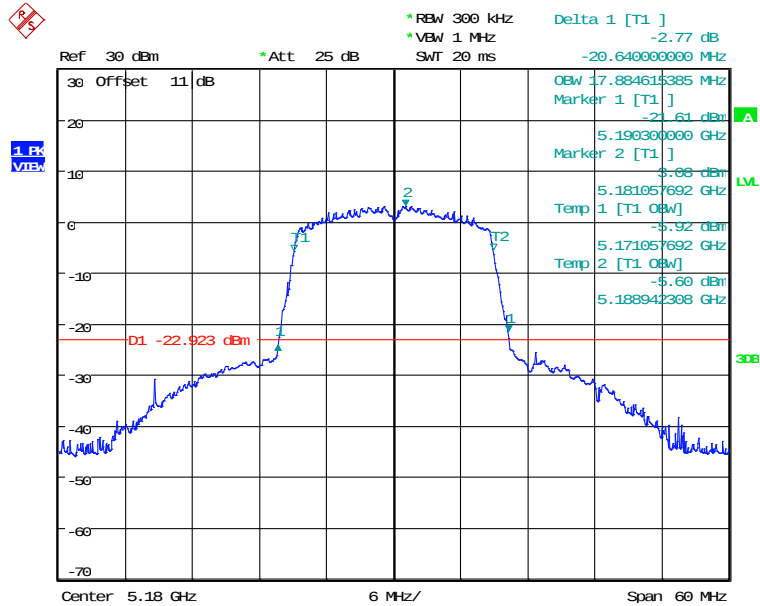


99% OBW & 26DB BANDWIDTH ANT1_11a_CH48
Date: 3.DEC.2023 09:14:14

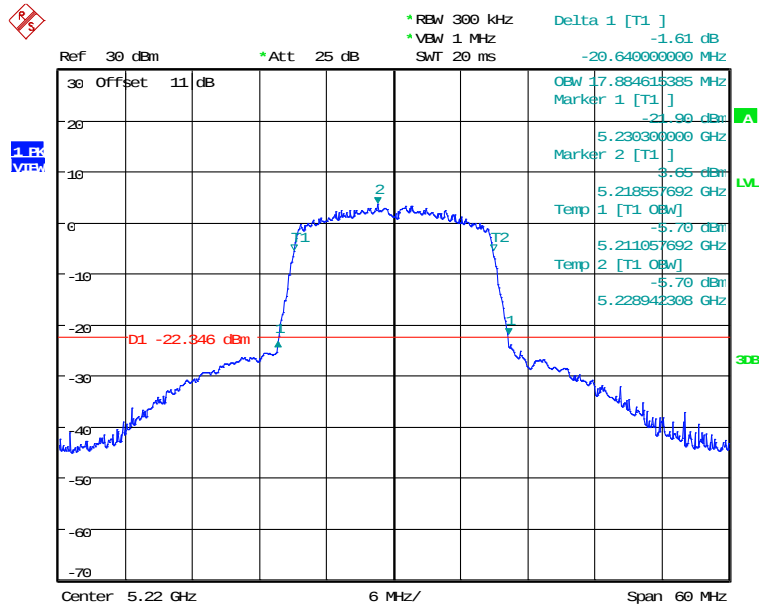


Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: 2ANR7-VT67RFID



99% OBW & 26DB BANDWIDTH ANT1_11n20_CH36
Date: 3.DEC.2023 09:15:25

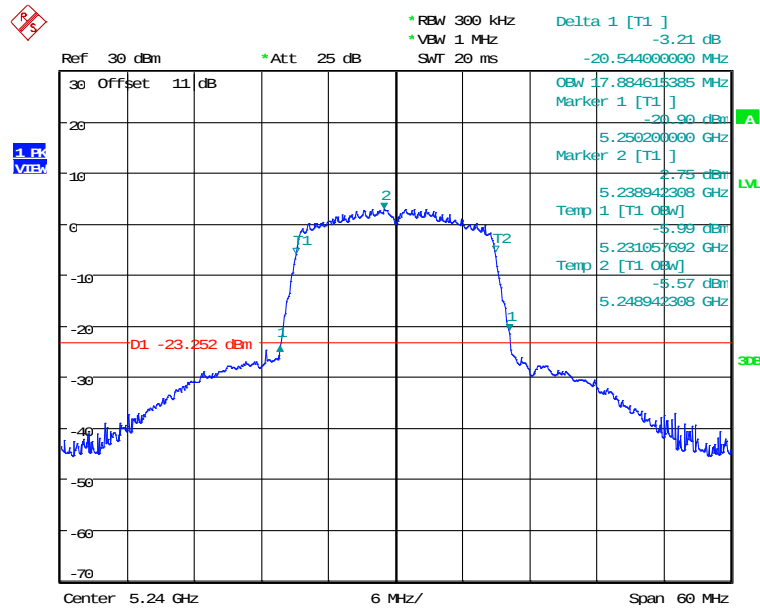


99% OBW & 26DB BANDWIDTH ANT1_11n20_CH44
Date: 3.DEC.2023 09:16:26

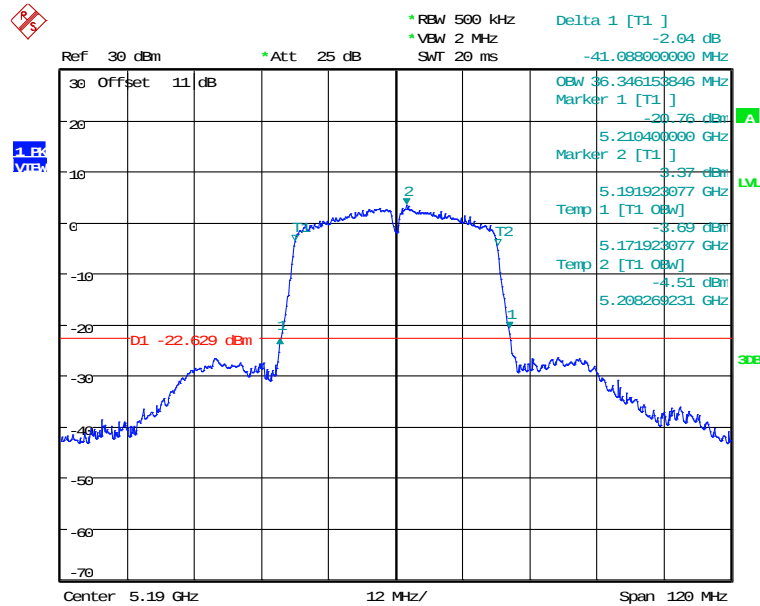


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



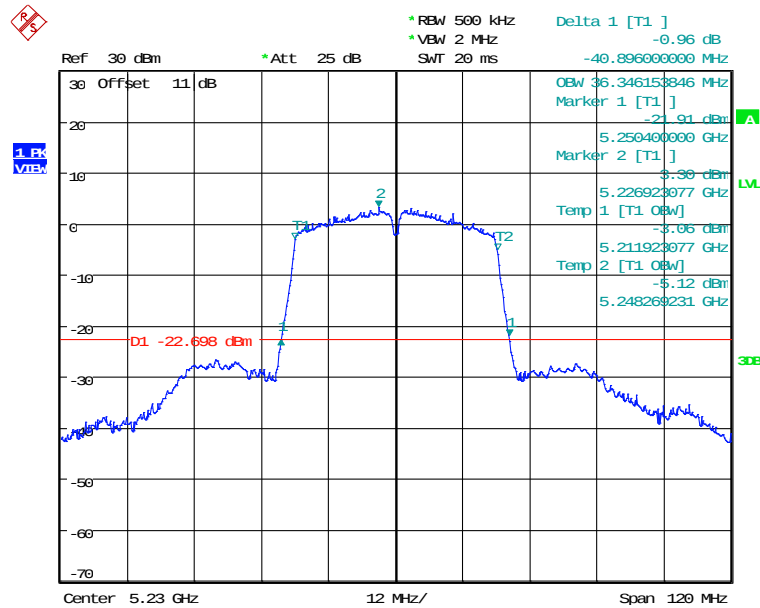
99% OBW & 26DB BANDWIDTH ANT1_11n20_CH48
Date: 3.DEC.2023 09:17:32



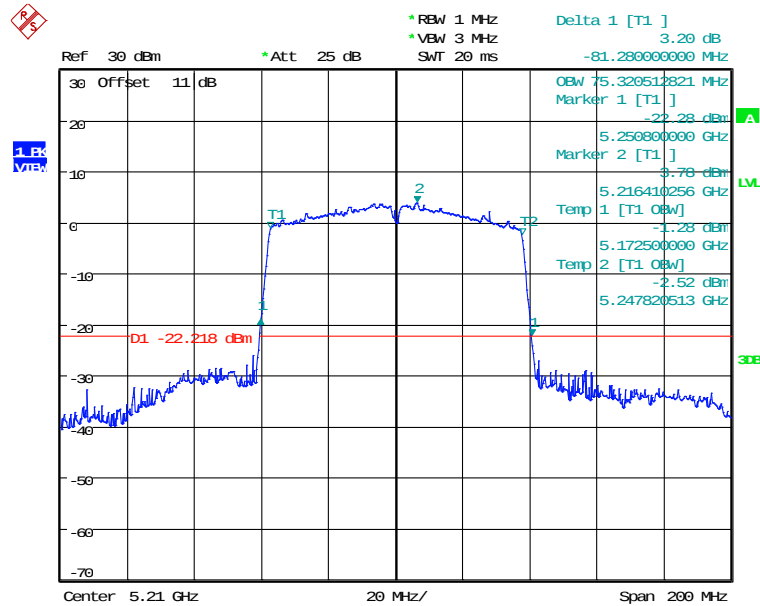
99% OBW & 26DB BANDWIDTH ANT1_11n40_CH38
Date: 3.DEC.2023 09:19:05



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



99% OBW & 26DB BANDWIDTH ANT1_11n40_CH46
Date: 3.DEC.2023 09:20:11



99% OBW & 26DB BANDWIDTH ANT1_11ac80_CH42
Date: 3.DEC.2023 09:21:50

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



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

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

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

Result:

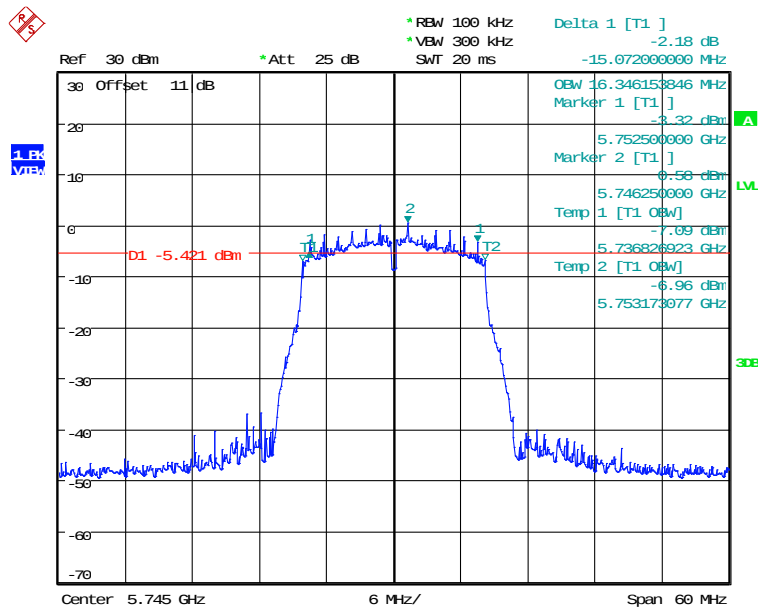
Test date: December 03, 2023

Temperature: 22.7°C

Humidity: 58.1 %

Tester: Sora

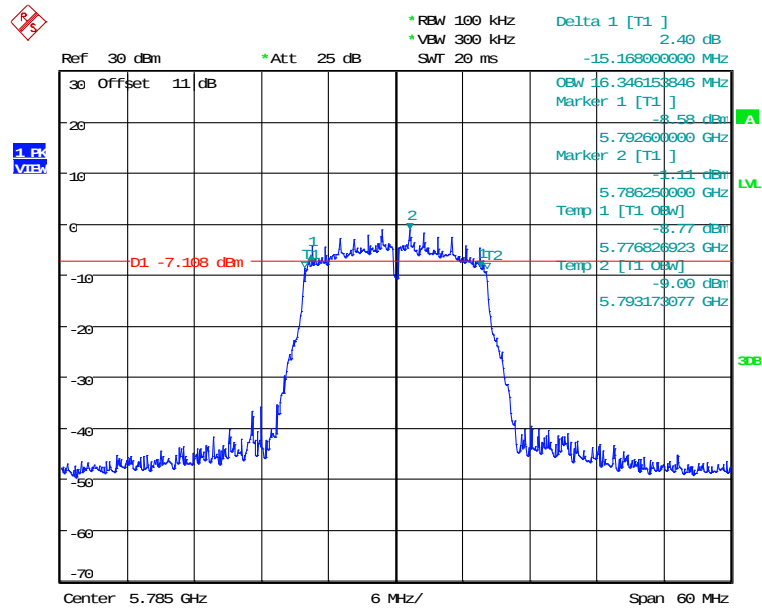
5.725 GHz ~ 5.85 GHz



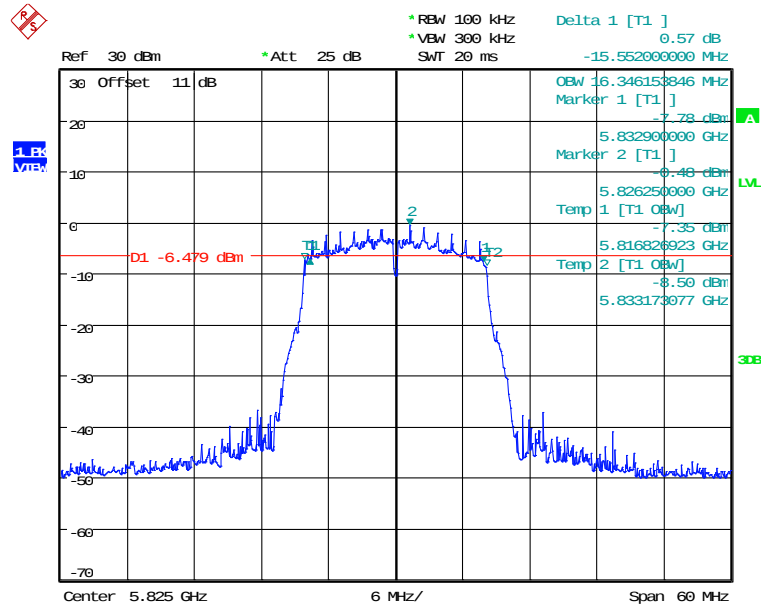
99% OBW & 6DB BANDWIDTH ANT1_11a_CH149
Date: 3.DEC.2023 09:27:04



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



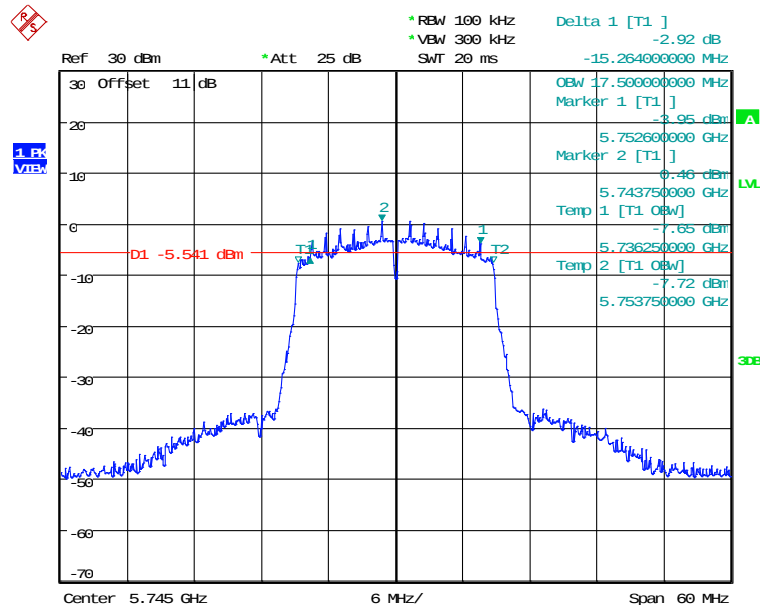
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Date: 3.DEC.2023 09:27:59



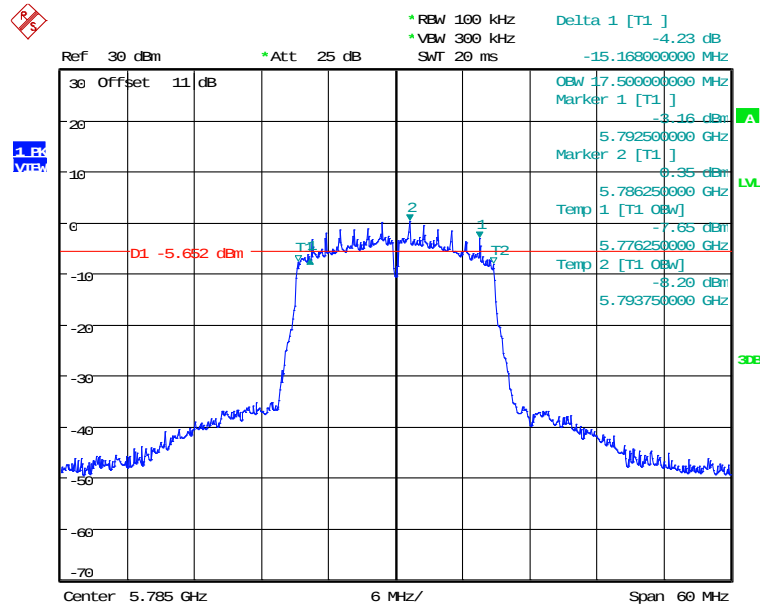
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Date: 3.DEC.2023 09:28:59



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



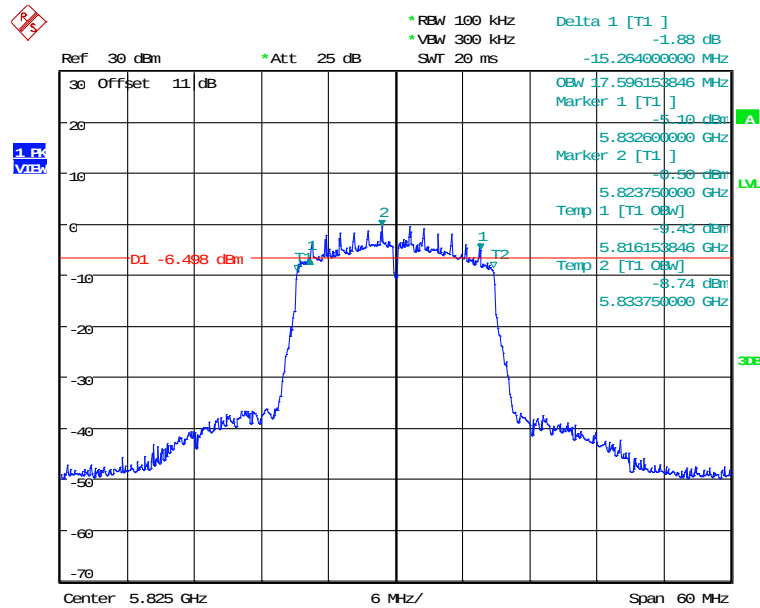
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Date: 3.DEC.2023 09:30:16



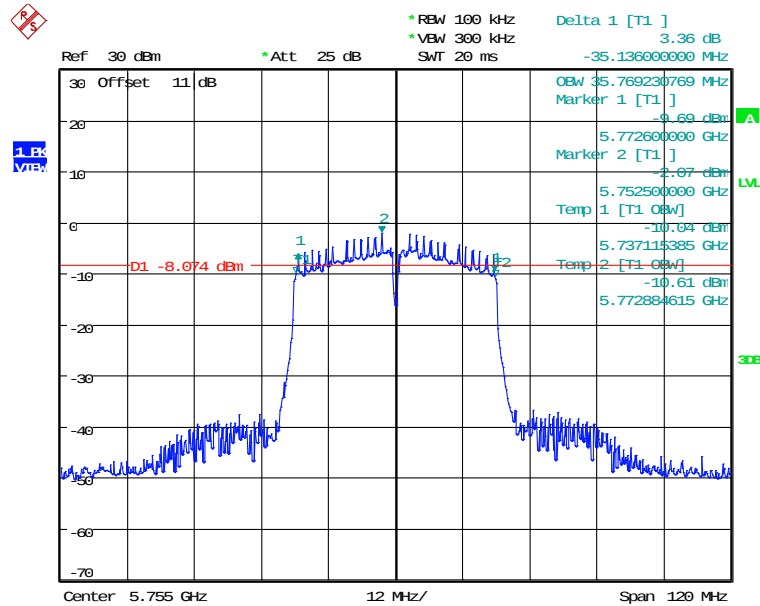
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Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



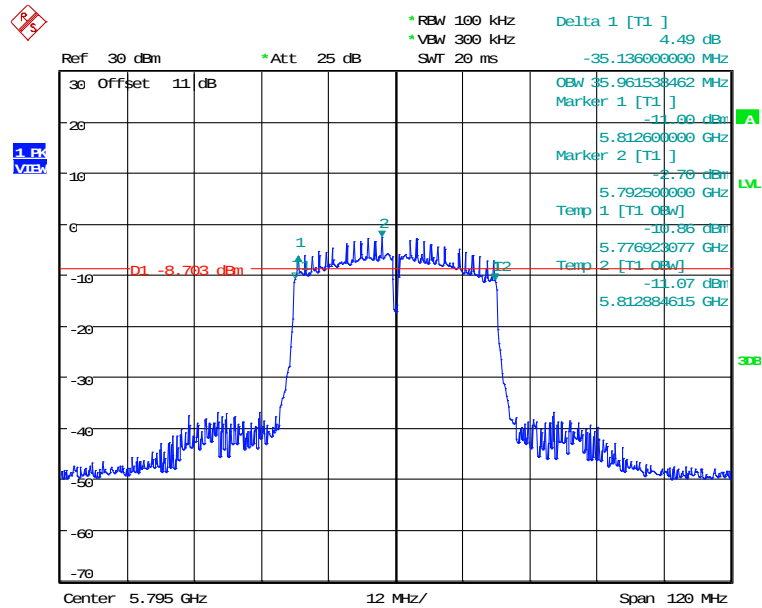
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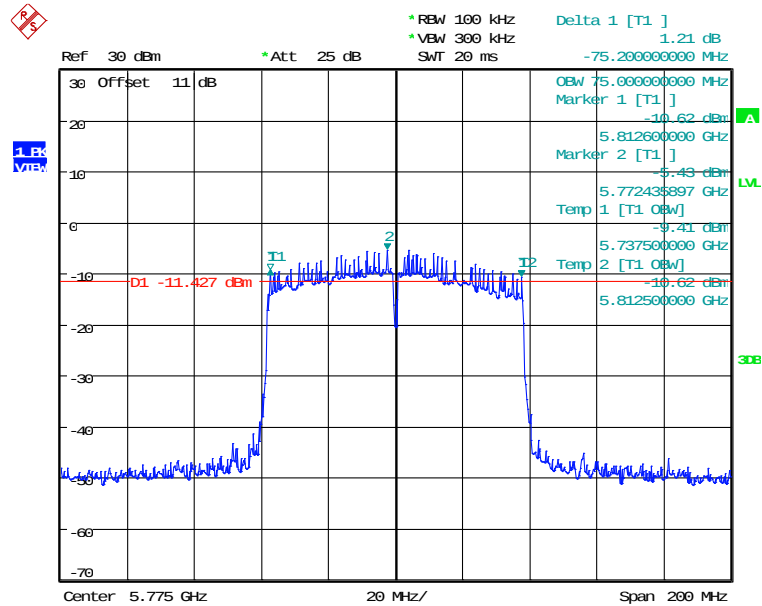
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Date: 3.DEC.2023 09:33:56



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



99% OBW & 6DB BANDWIDTH ANT1_11n40_CH159
Date: 3.DEC.2023 09:35:02



99% OBW & 6DB BANDWIDTH ANT1_11ac80_CH155
Date: 3.DEC.2023 09:25:14



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

3.4 Peak Power Spectral Density, FCC 15.407 (a)

According to §15.407(a)

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.

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.

For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm/500kHz.

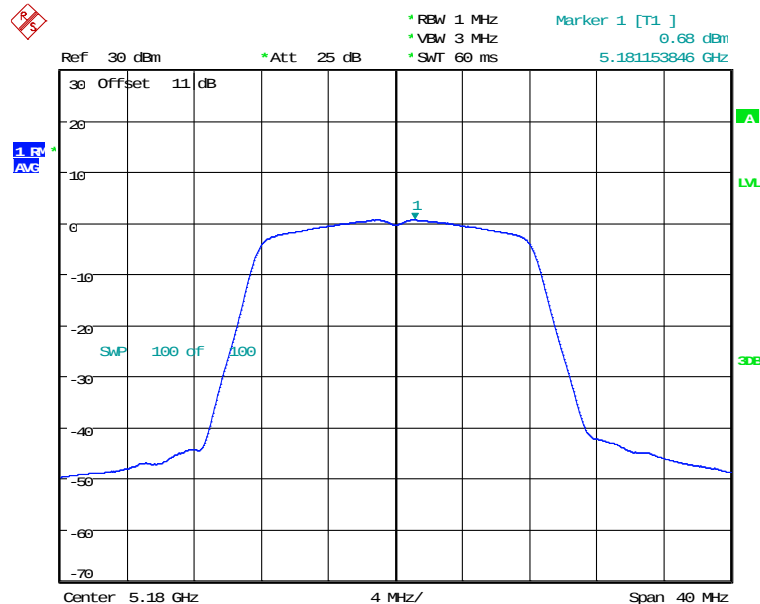
Test date: December 03, 2023

Temperature: 22.7°C

Humidity: 58.1 %

Tester: Sora

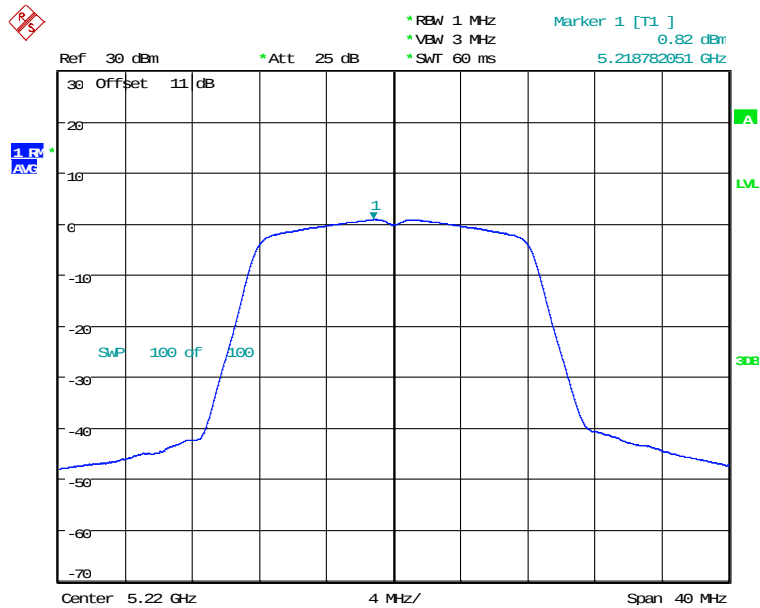
5.15 GHz ~ 5.25 GHz



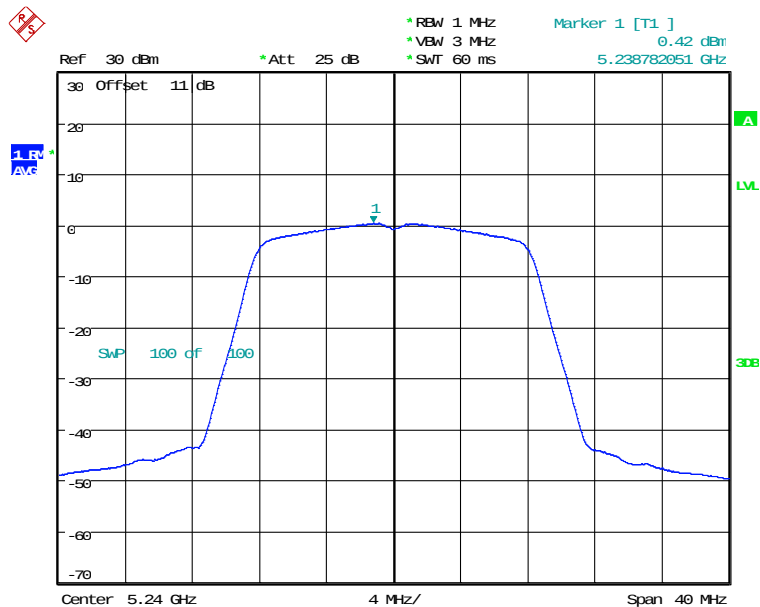
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Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



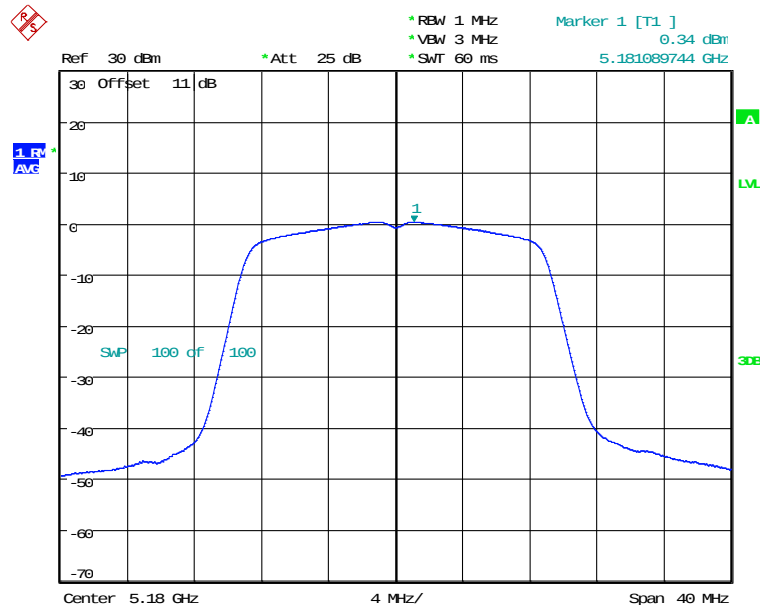
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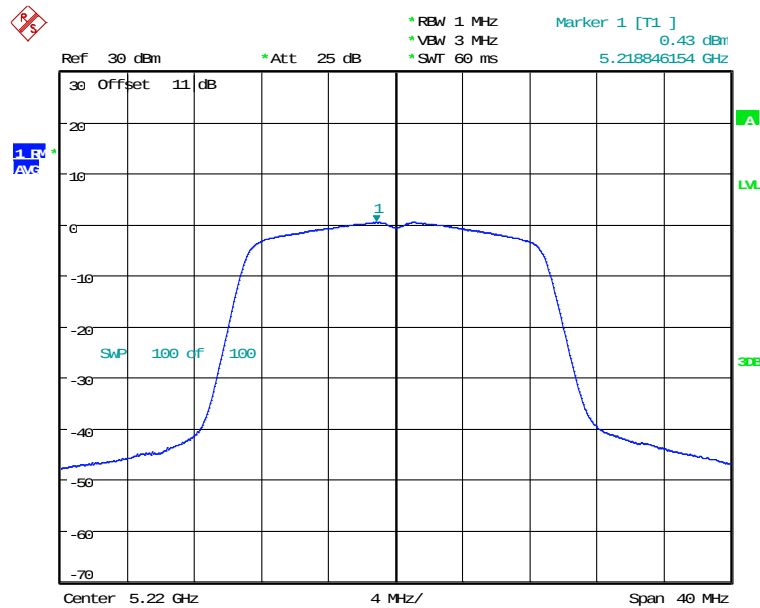
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Registration number: W6M22311-23090-C-3
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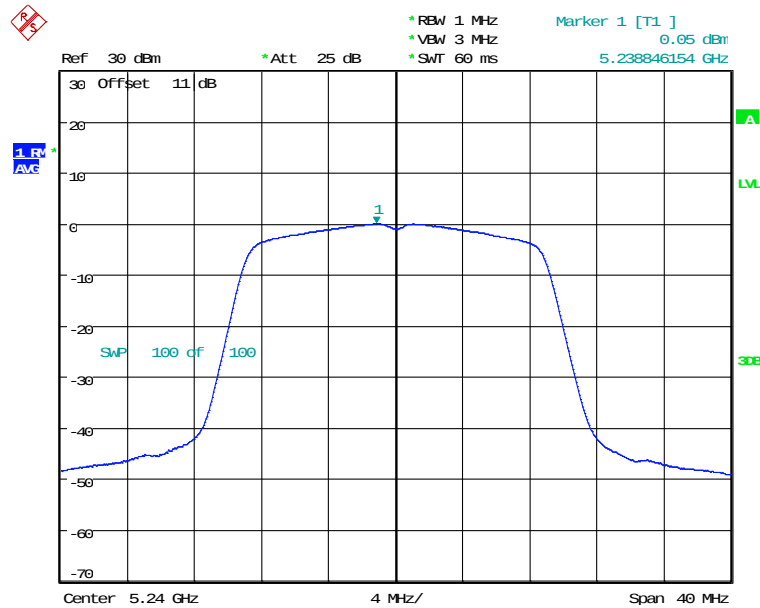
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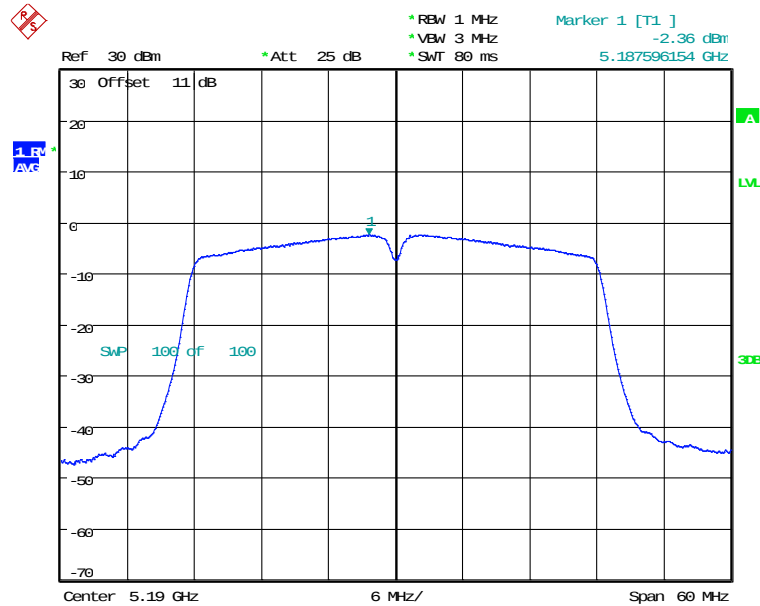
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Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



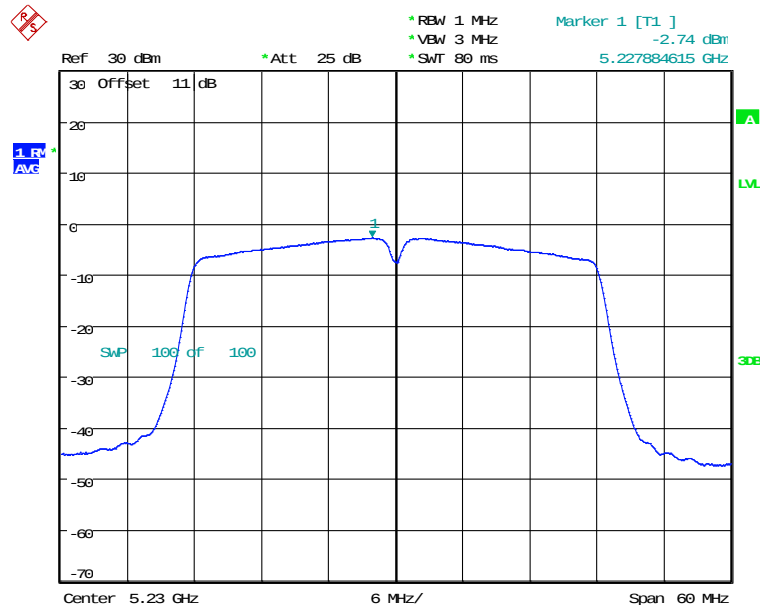
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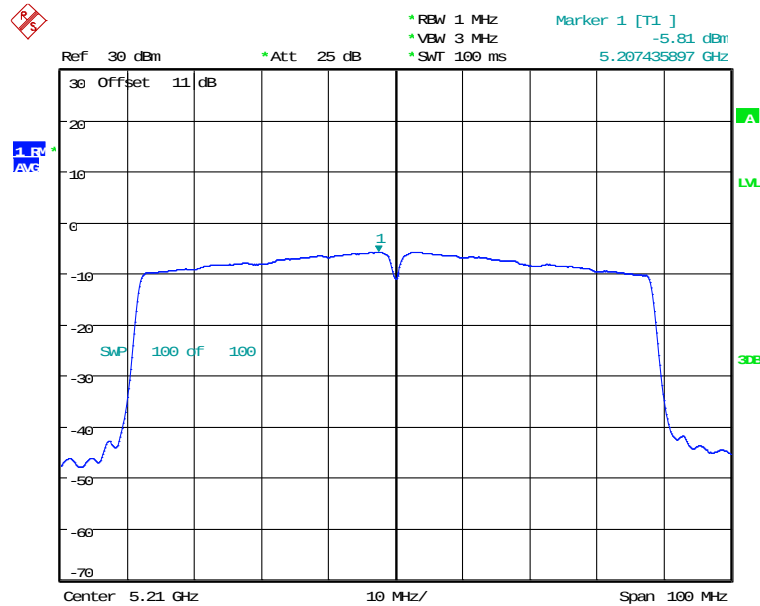
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Date: 3.DEC.2023 09:18:48



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



POWER DENSITY AV ANT111n40CH46
Date: 3.DEC.2023 09:19:56



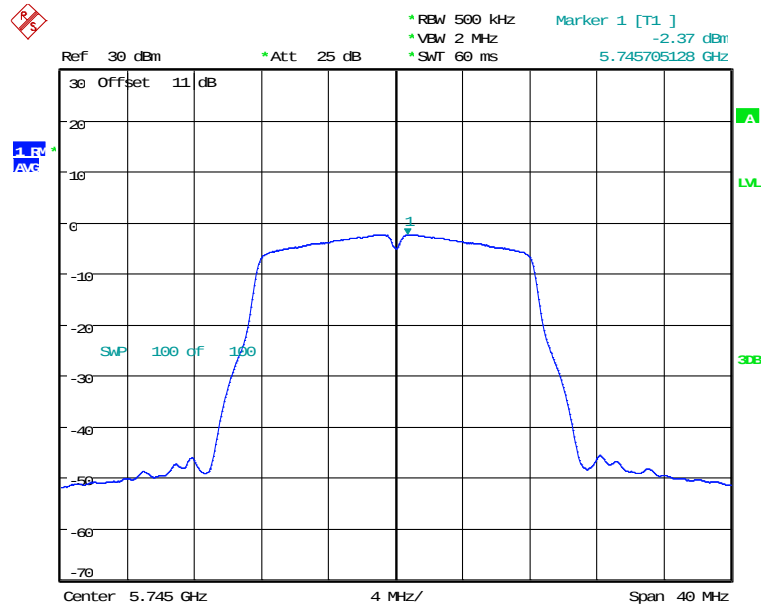
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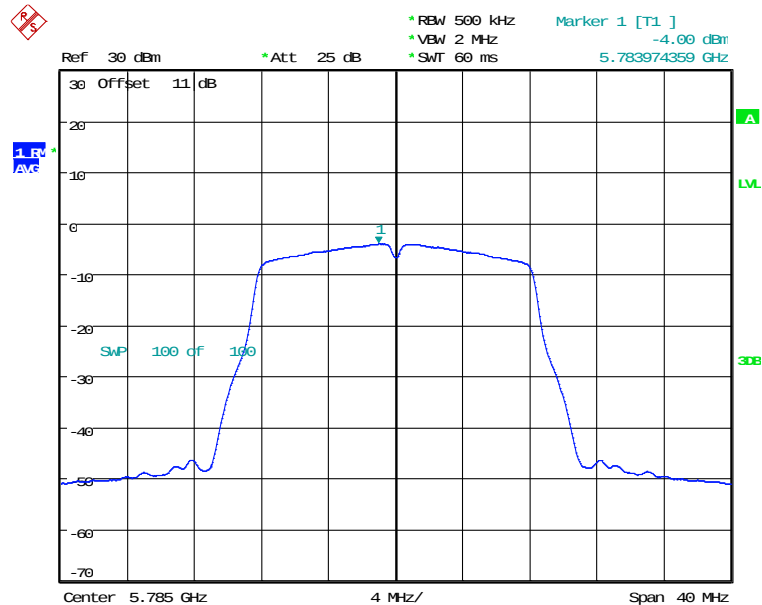
Registration number: W6M22311-23090-C-3

FCC ID: 2ANR7-VT67RFID

5.725 GHz ~ 5.85 GHz



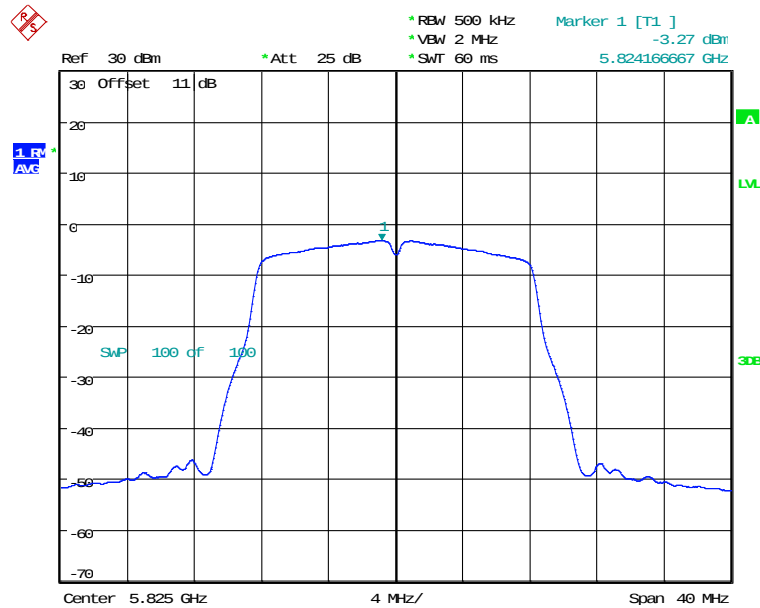
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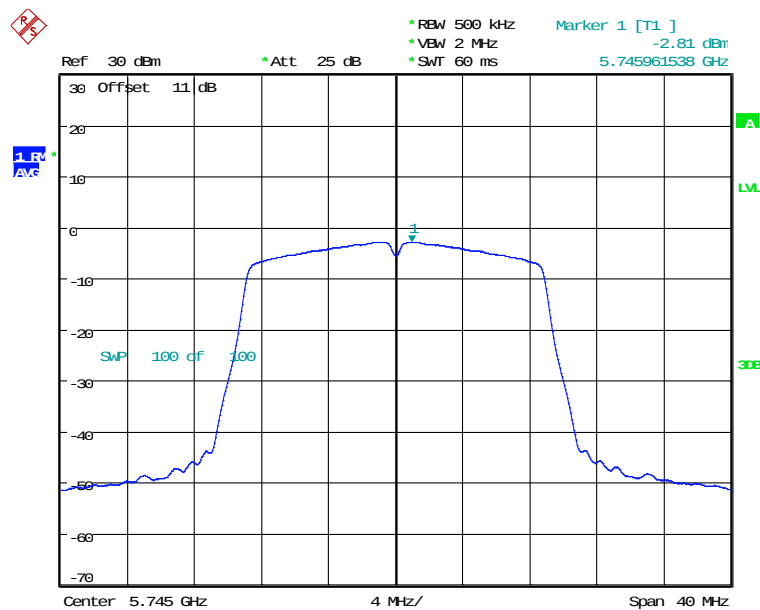
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Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



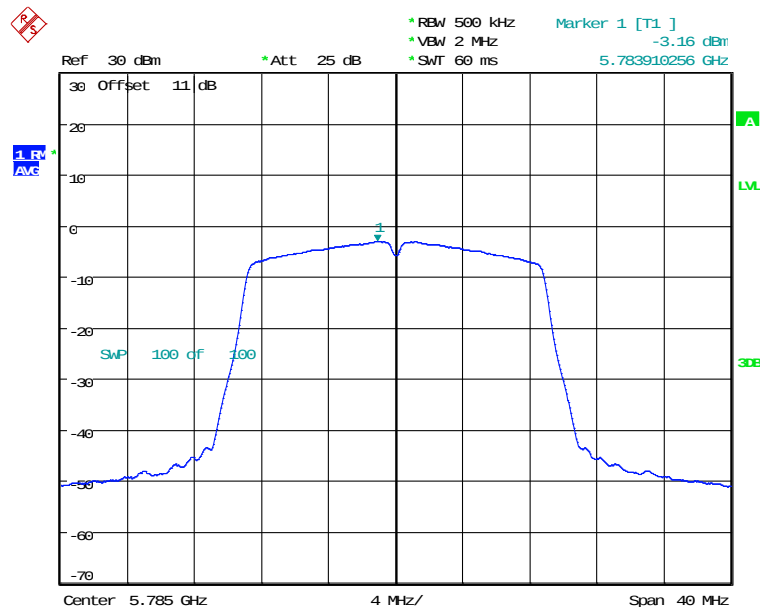
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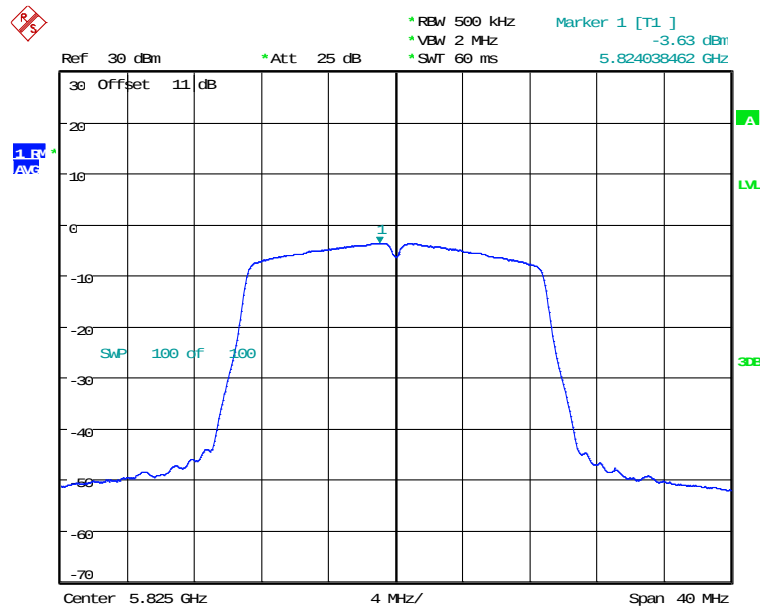
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Registration number: W6M22311-23090-C-3
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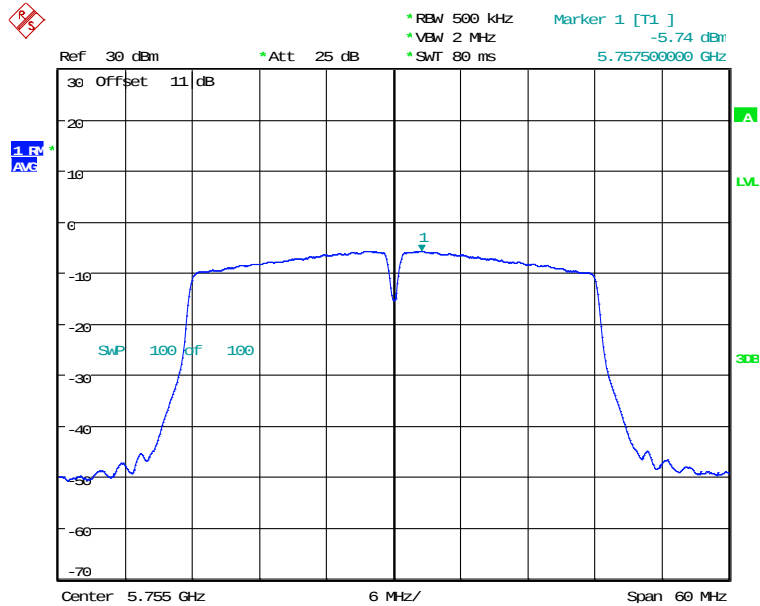
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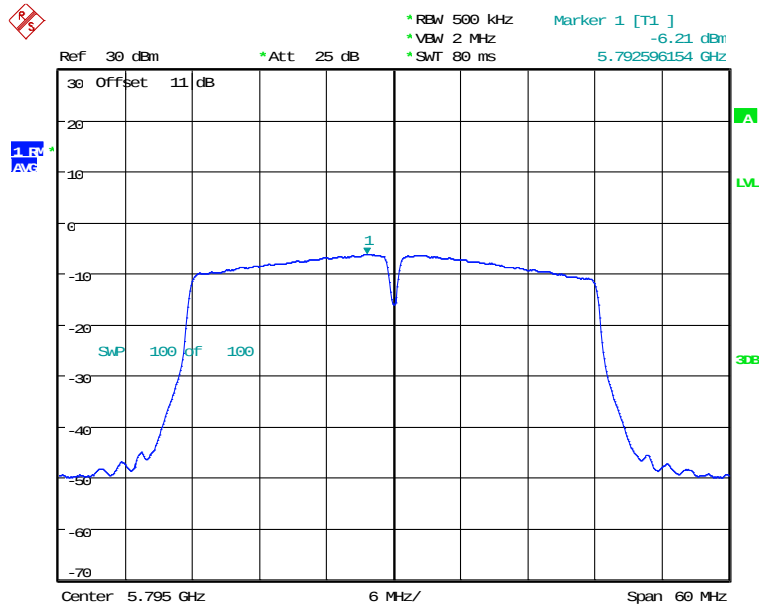
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Date: 3.DEC.2023 09:32:13



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



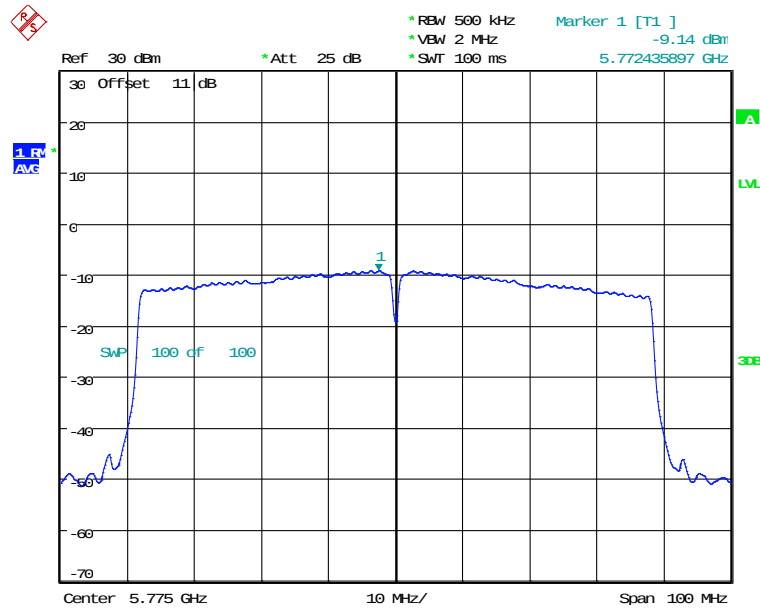
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Date: 3.DEC.2023 09:33:41



POWER DENSITY AV ANT111n40CH159
Date: 3.DEC.2023 09:34:48



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID



POWER DENSITY AV ANT111ac80CH155
Date: 3.DEC.2023 09:25:00

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



Registration number: W6M22311-23090-C-3

FCC ID: 2ANR7-VT67RFID

3.5 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: $EIRP[dBm] = E[dB\mu V/m] - 95.2$.

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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

XXX66XXX, XXX67XXX

Model: (X=A-Z, 0-9 or blank)

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 153, ETSTW-RE 154, ETSTW-RE 160,
ETSTW-RE 177, ETSTW-RE178, ETSTW-Cable 077, ETSTW-Cable 084,
ETSTW-Cable 089

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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3.6 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.

3.7 Reserved, FCC 15.407 (d)

3.8 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.

Test equipment used: ETSTW-RE 055

3.9 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.

3.10 Dynamic Frequency Selection (DFS)

3.10.1 DFS Detection Threshold

3.10.2 UNII Detection Bandwidth

3.10.3 Initial Channel Availability Check Time-5500 MHz

3.10.4 Radar Burst at the Beginning of the Channel Availability Check Time-5500 MHz

3.10.5 Radar Burst at the End of the Channel Availability Check Time- 5500 MHz



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

**3.10.6 In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time
and Non-Occupancy Period**

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: The test is not required.

3.10.7 Statistical Performance Check

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

Explanation: The test is not required because the EUT only has Band 1 & Band 4.



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

3.11 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 153, ETSTW-RE 154, ETSTW-RE 160,
ETSTW-RE 177, ETSTW-RE178, ETSTW-Cable 077, ETSTW-Cable 084,
ETSTW-Cable 089

Explanation: The test results are listed in the separated test report no.: W6M22311-23090-P-15B.

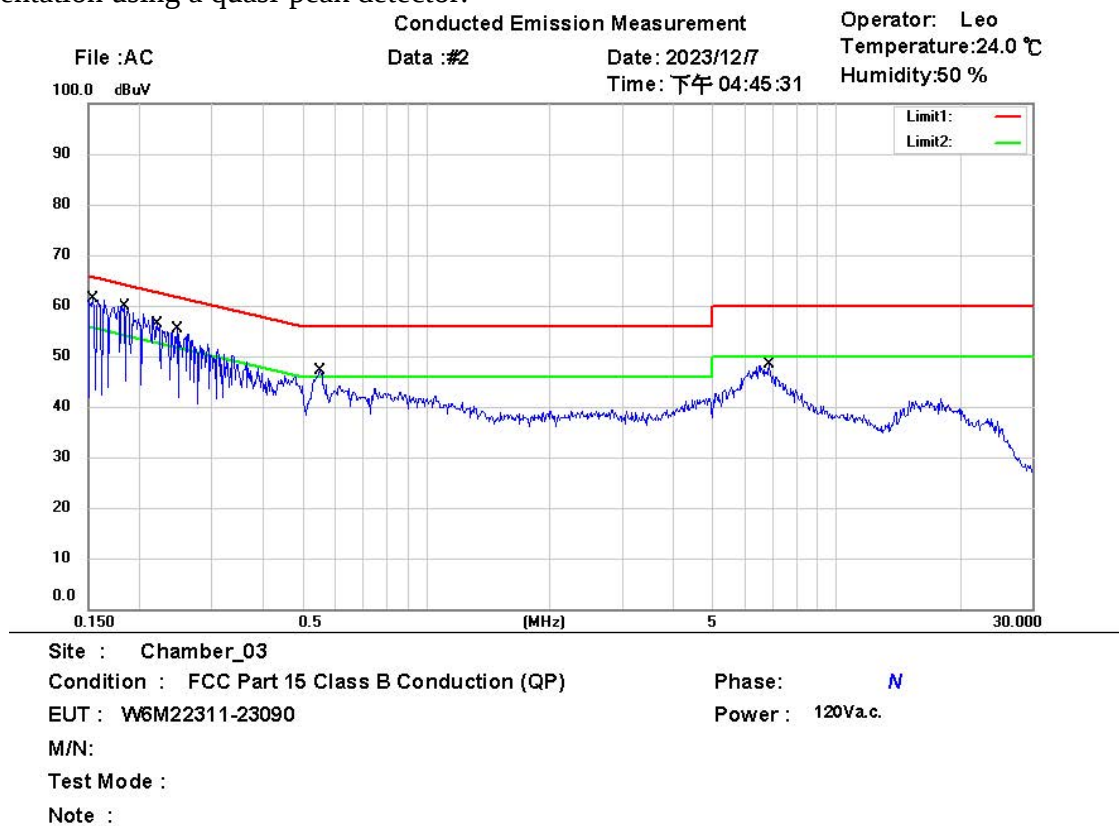


Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

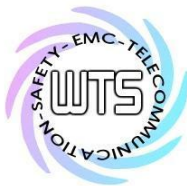
3.12 Power Line Conducted Emission

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.

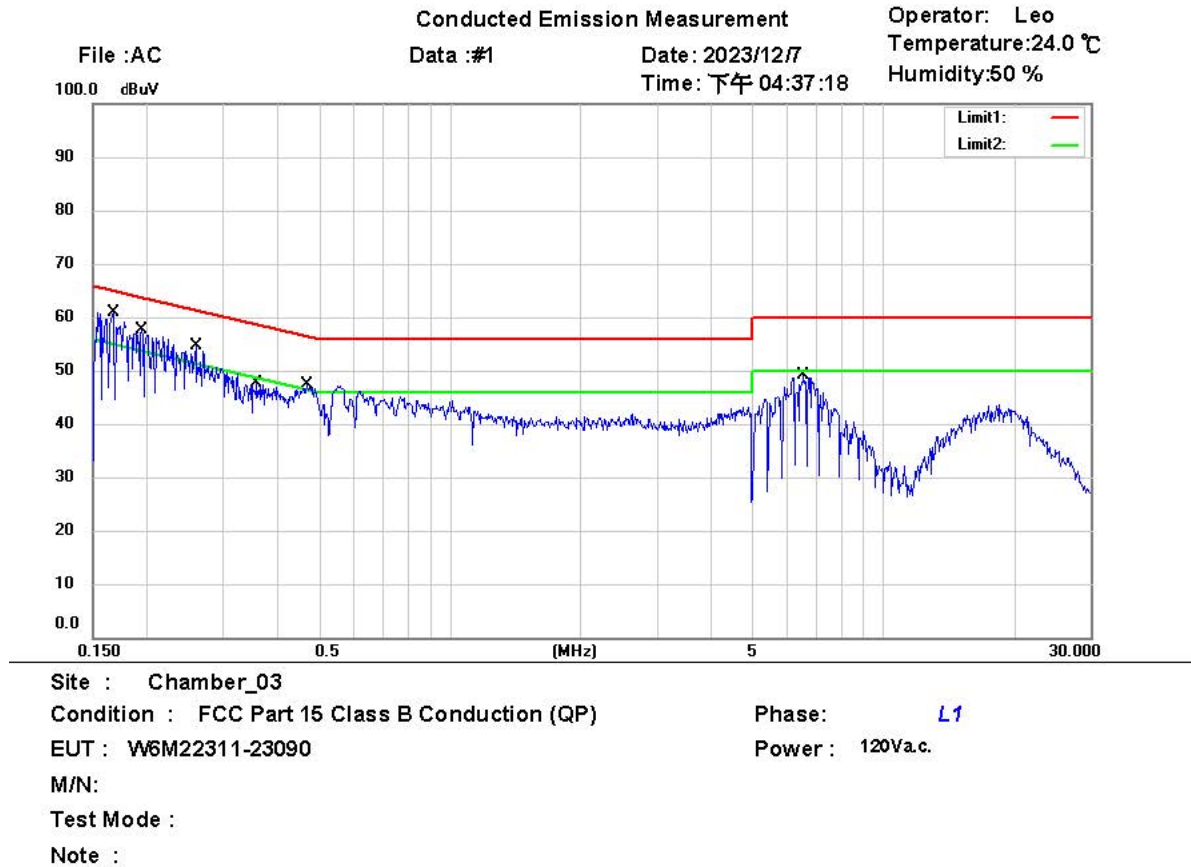


Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1528	39.51	QP	9.72	49.23	65.85	-16.62	
	0.1528	22.55	AVG	9.72	32.27	55.85	-23.58	
	0.1838	36.68	QP	9.71	46.39	64.31	-17.92	
	0.1838	22.88	AVG	9.71	32.59	54.31	-21.72	
	0.2216	33.35	QP	9.71	43.06	62.76	-19.70	
	0.2216	13.69	AVG	9.71	23.40	52.76	-29.36	
	0.2477	32.43	QP	9.71	42.14	61.83	-19.69	
	0.2477	17.27	AVG	9.71	26.98	51.83	-24.85	
	0.5517	32.35	QP	9.70	42.05	56.00	-13.95	
*	0.5517	25.39	AVG	9.70	35.09	46.00	-10.91	
	6.8625	30.84	QP	9.80	40.64	60.00	-19.36	
	6.8625	20.97	AVG	9.80	30.77	50.00	-19.23	



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Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1661	37.69	QP	9.73	47.42	65.15	-17.73	
	0.1661	15.47	AVG	9.73	25.20	55.15	-29.95	
	0.1948	35.52	QP	9.72	45.24	63.83	-18.59	
	0.1948	14.35	AVG	9.72	24.07	53.83	-29.76	
	0.2596	32.49	QP	9.71	42.20	61.44	-19.24	
	0.2596	13.99	AVG	9.71	23.70	51.44	-27.74	
	0.3582	29.78	QP	9.70	39.48	58.77	-19.29	
	0.3582	12.34	AVG	9.70	22.04	48.77	-26.73	
*	0.4685	31.48	QP	9.69	41.17	56.54	-15.37	
	0.4685	13.03	AVG	9.69	22.72	46.54	-23.82	
	6.5500	31.37	QP	9.78	41.15	60.00	-18.85	
	6.5500	16.31	AVG	9.78	26.09	50.00	-23.91	

- 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.



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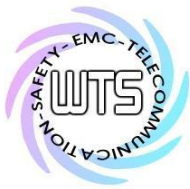
Registration number: W6M22311-23090-C-3

FCC ID: 2ANR7-VT67RFID

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, ETSTW- Cable 047.



Registration number: W6M22311-23090-C-3
FCC ID: 2ANR7-VT67RFID

Appendix

Measurement diagrams

Spurious Emissions radiated



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8875

Radiated Emission Measurement

Operator: Kai

File : 1_WiFi 5G_ant1_TX 802 Data : #1

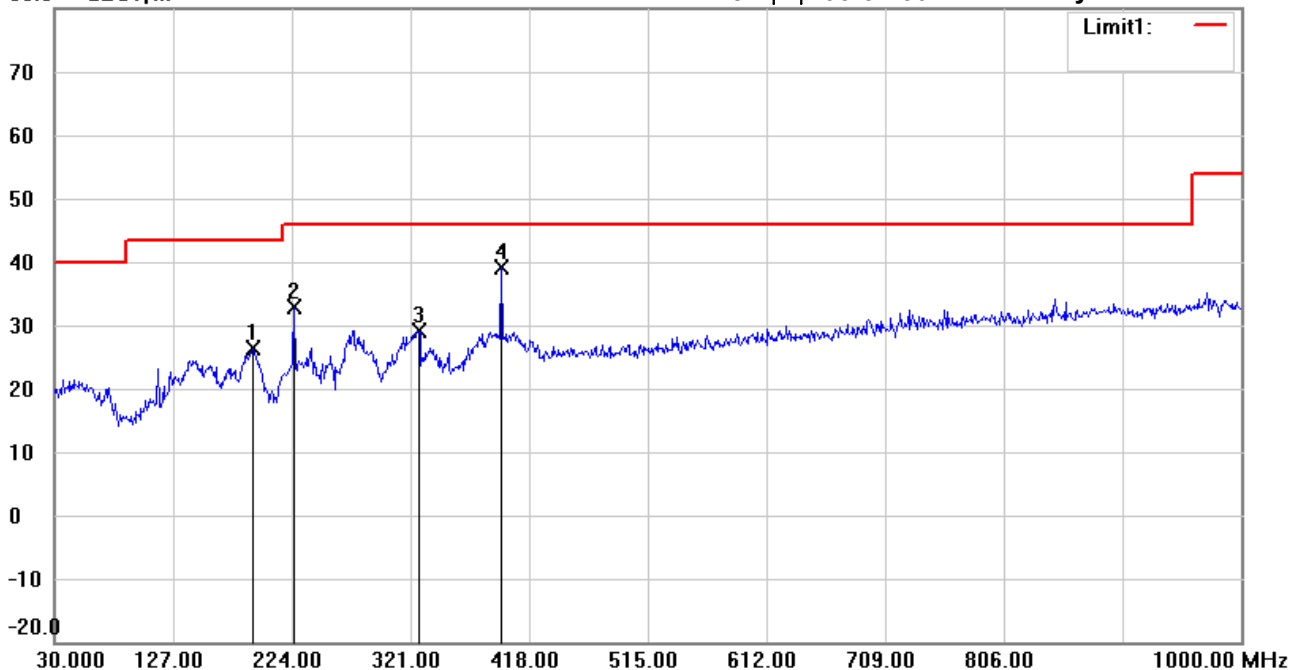
Date: 2023/11/29

Temperature: 23.4 °C

80.0 dBuV/m

Time: 下午 05:32:30

Humidity: 59.0 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22311-23090

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
	191.9900	40.50	peak	-14.12	26.38	43.50	100	120	-17.12	
	225.9400	46.94	peak	-14.13	32.81	46.00	100	296	-13.19	
	327.3050	39.76	peak	-10.70	29.06	46.00	100	50	-16.94	
*	395.2050	48.01	peak	-8.85	39.16	46.00	100	190	-6.84	

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



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8875

Radiated Emission Measurement

Operator: Kai

File : 1_WiFi 5G_ant1_TX 802 Data : #2

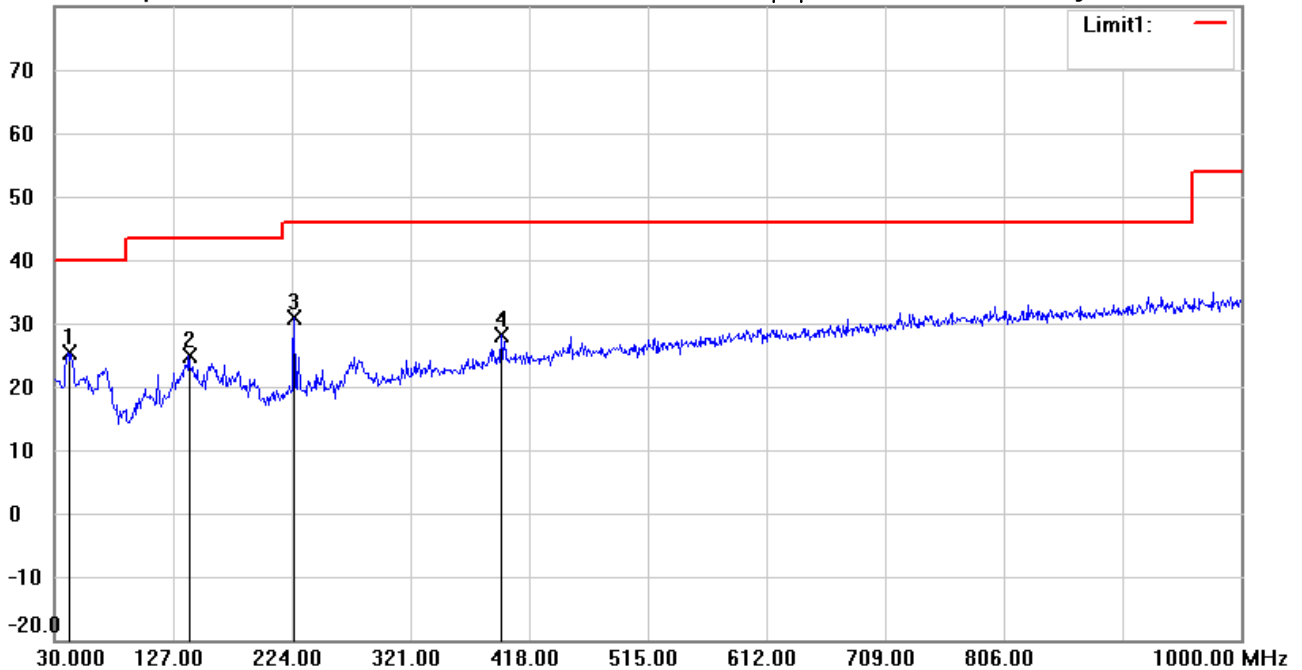
Date: 2023/11/29

Temperature: 23.4 °C

80.0 dBuV/m

Time: 下午 05:33:19

Humidity: 59.0 %



Site : Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: Vertical

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
*	41.1550	38.09	peak	-12.64	25.45	40.00	100	359	-14.55	
	140.0950	37.48	peak	-12.50	24.98	43.50	100	355	-18.52	
	225.9400	45.12	peak	-14.13	30.99	46.00	100	100	-15.01	
	395.6900	36.94	peak	-8.84	28.10	46.00	100	218	-17.90	

*: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: Kai

File :3

Data :#1

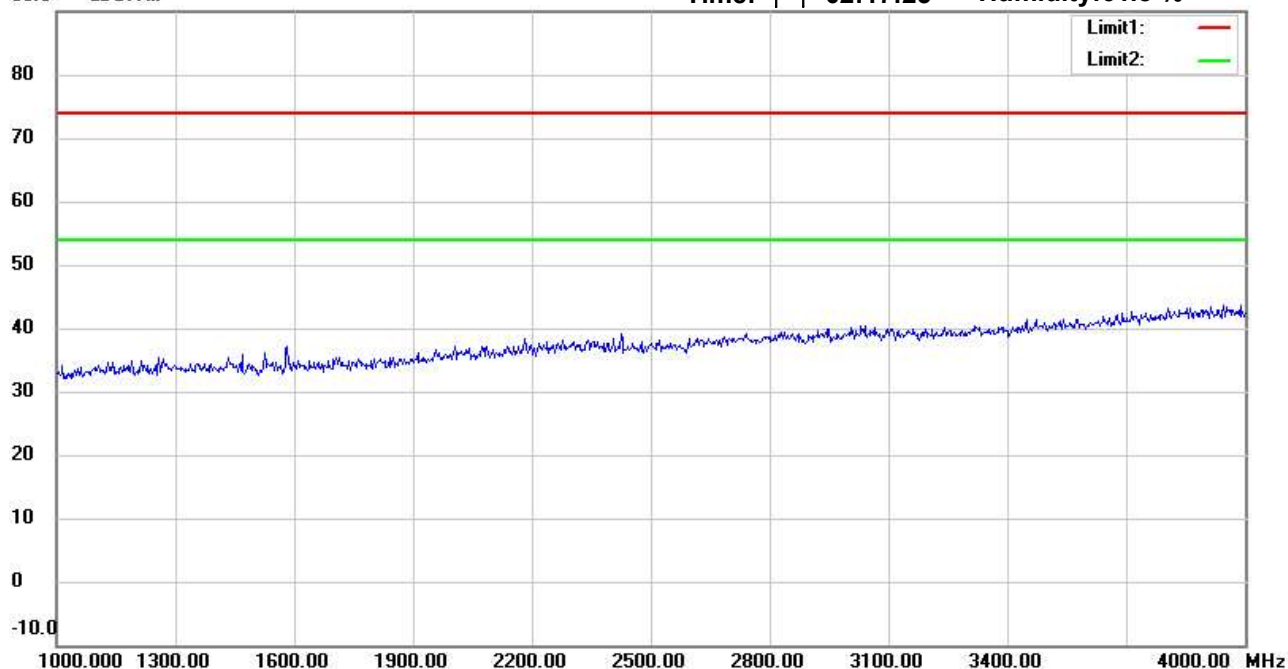
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:17:25

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

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



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Tel:+886-2-6606-8877
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Radiated Emission Measurement

Operator: Kai

File :3

Data :#7

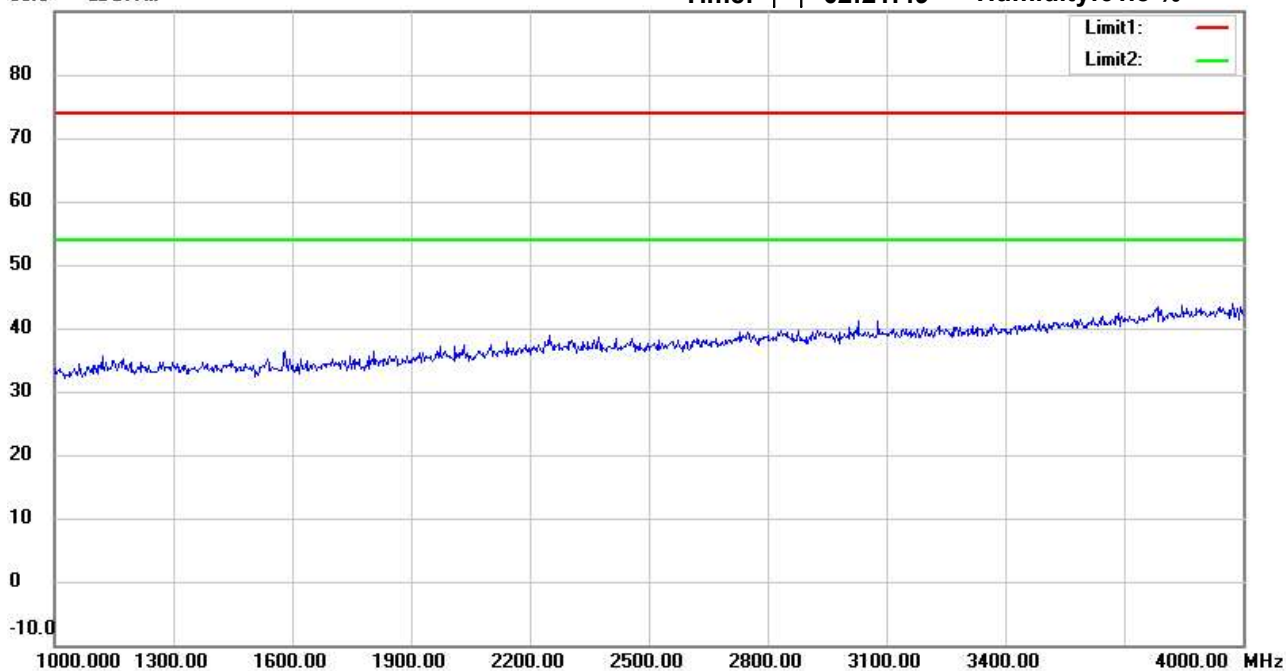
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:21:49

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: **Vertical**

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



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Radiated Emission Measurement

Operator: Kai

File : 3

Data : #2

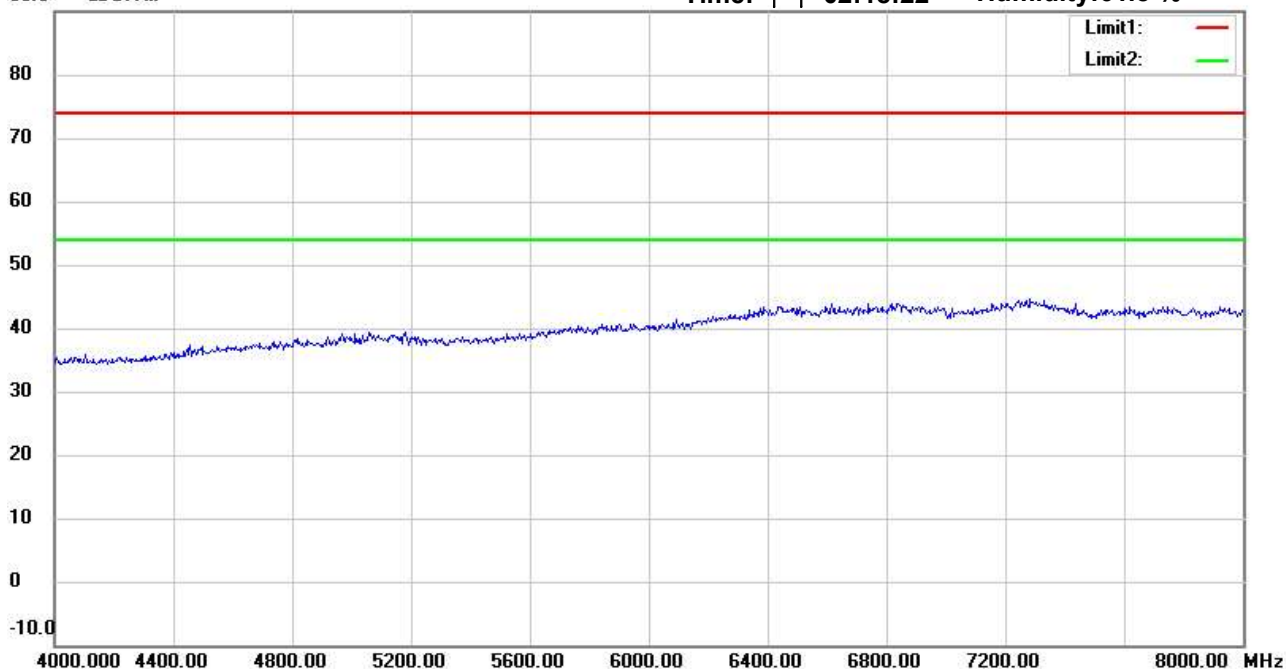
Date: 2023/11/28

Temperature: 23.8 °C

90.0 dBuV/m

Time: 下午 02:18:22

Humidity: 61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

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



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Tel:+886-2-6606-8877
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Radiated Emission Measurement

Operator: Kai

File :3

Data :#8

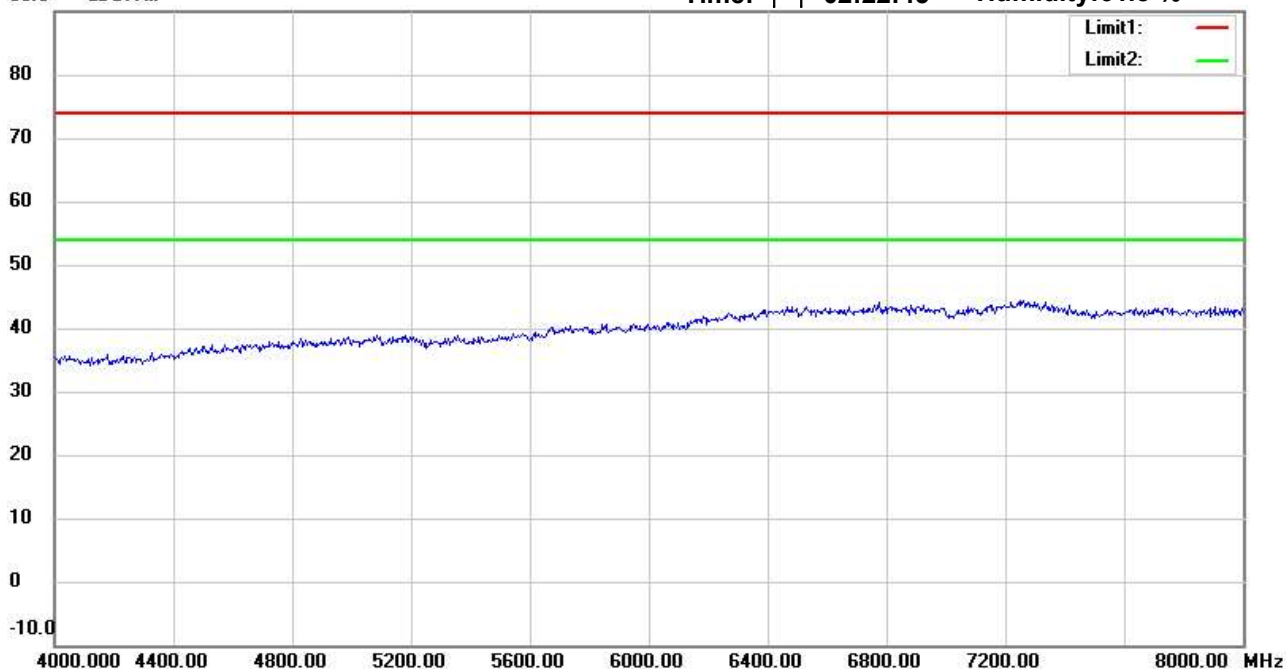
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:22:45

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: **Vertical**

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



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Radiated Emission Measurement

Operator: Kai

File : 3

Data : #3

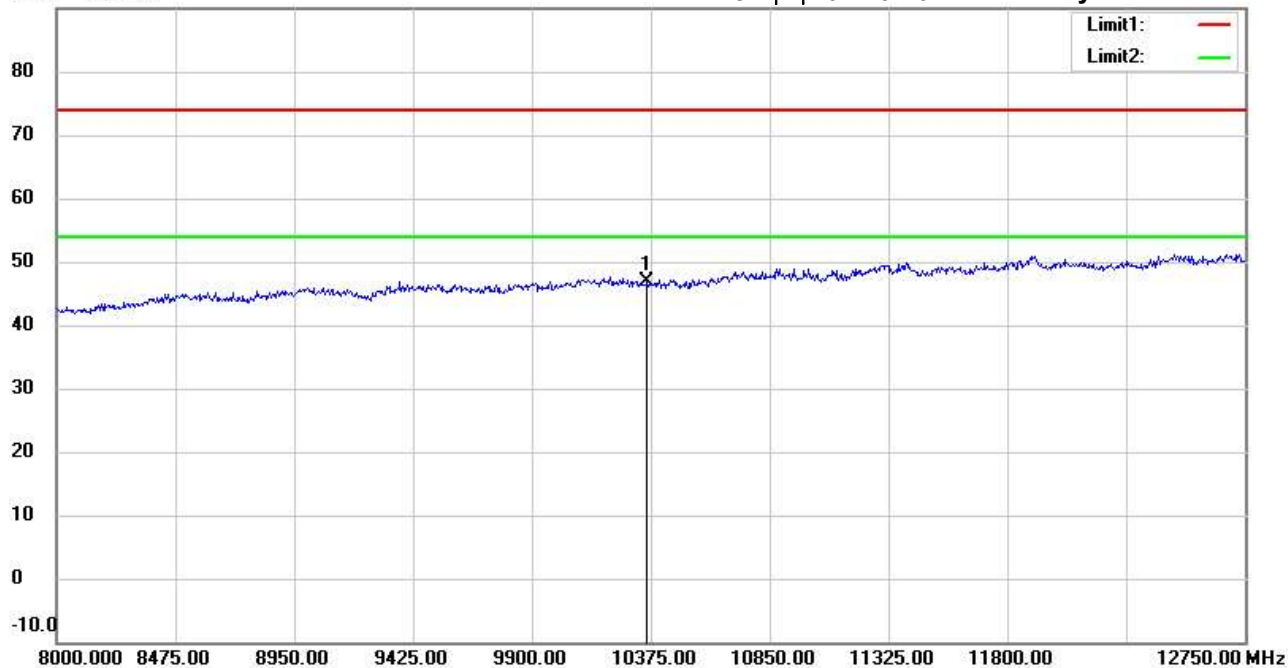
Date: 2023/11/28

Temperature: 23.8 °C

90.0 dBuV/m

Time: 下午 02:19:19

Humidity: 61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: **Horizontal**

Power : 120 V.a.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
*	10360.000	32.66	peak	14.15	46.81	74.00	150	270	-27.19	

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



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Radiated Emission Measurement

Operator: Kai

File : 3

Data : #9

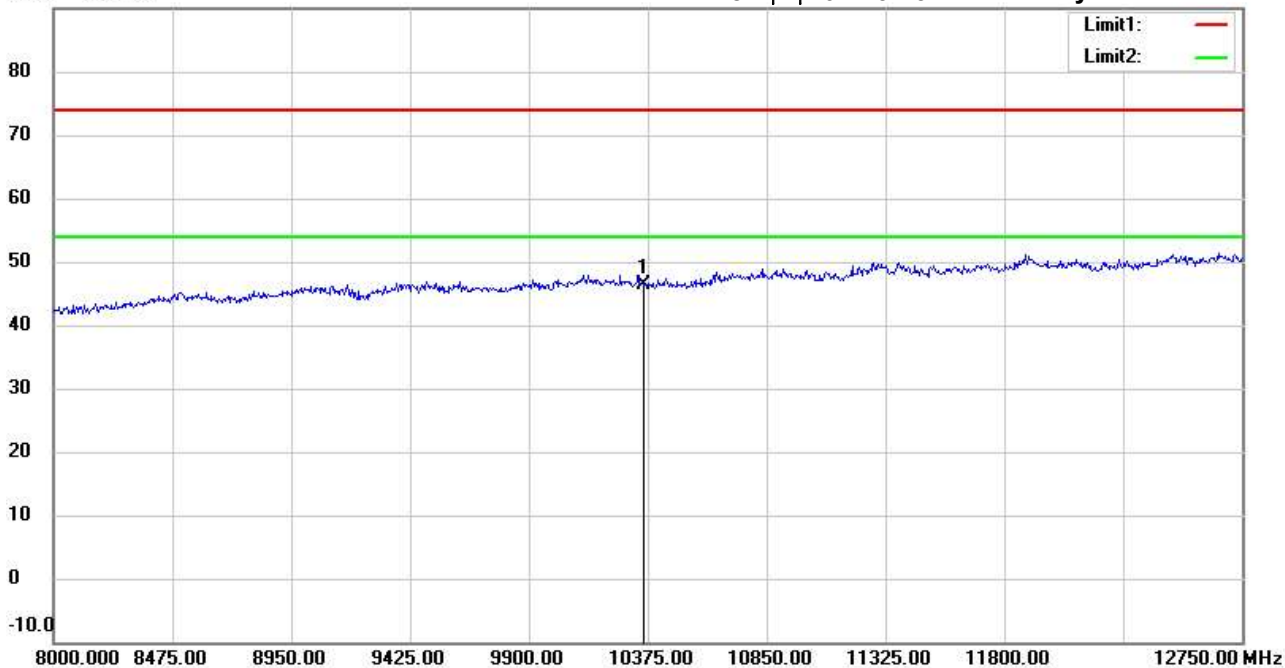
Date: 2023/11/28

Temperature: 23.8 °C

90.0 dBuV/m

Time: 下午 02:23:43

Humidity: 61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: Vertical

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
*	10360.000	32.33	peak	14.15	46.48	74.00	150	12	-27.52	

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



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Radiated Emission Measurement

Operator: Kai

File :3

Data :#4

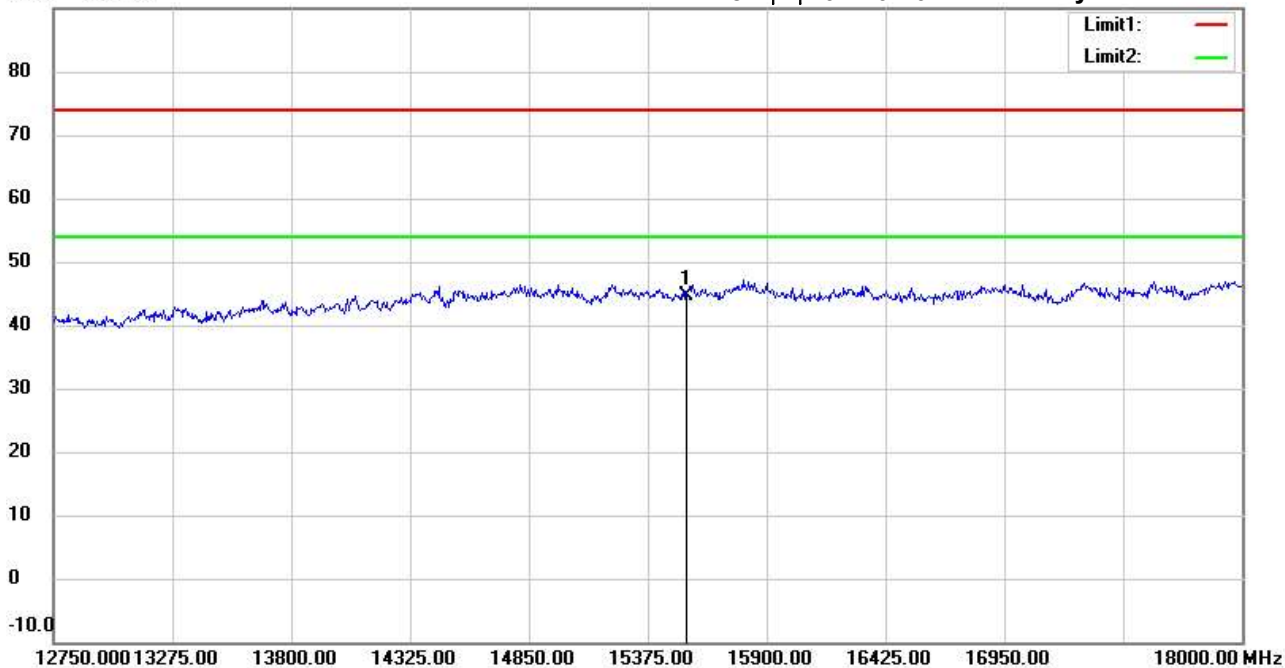
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:20:20

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

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
*	15540.000	21.31	peak	23.41	44.72	74.00	150	330	-29.28	

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



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Radiated Emission Measurement

Operator: Kai

File : 3

Data : #10

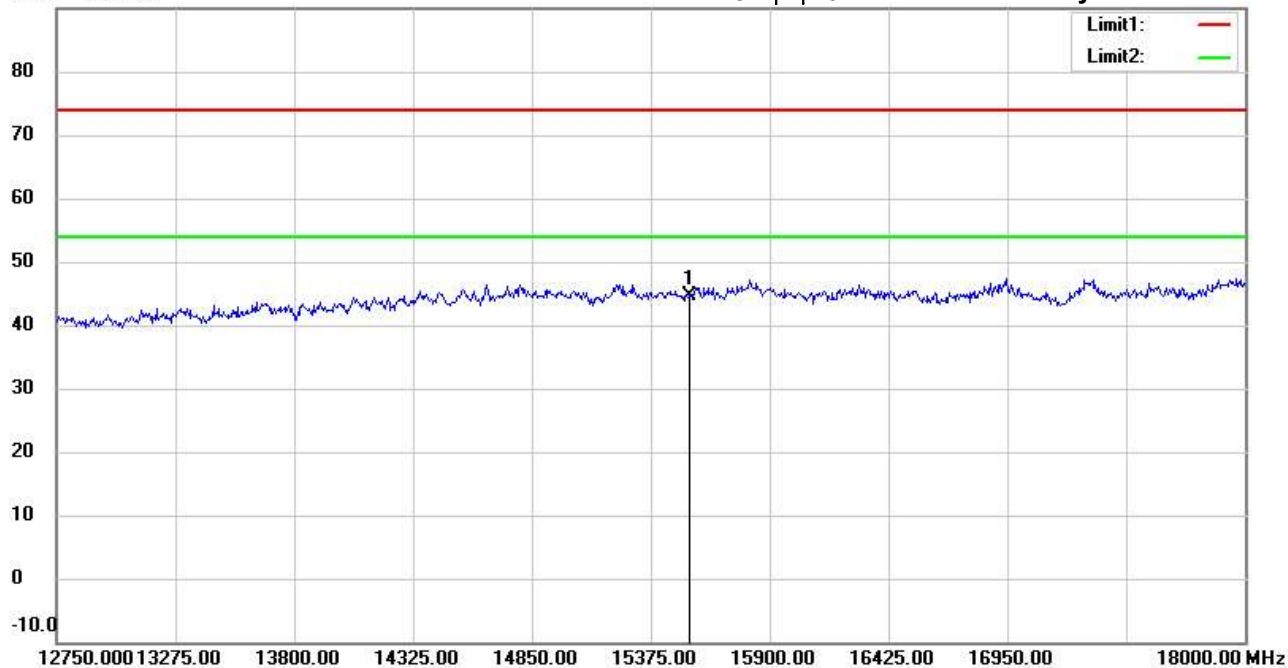
Date: 2023/11/28

Temperature: 23.8 °C

90.0 dBuV/m

Time: 下午 02:24:44

Humidity: 61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: Vertical

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
*	15540.000	21.20	peak	23.41	44.61	74.00	150	174	-29.39	

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



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Radiated Emission Measurement

Operator: Kai

File :3

Data :#5

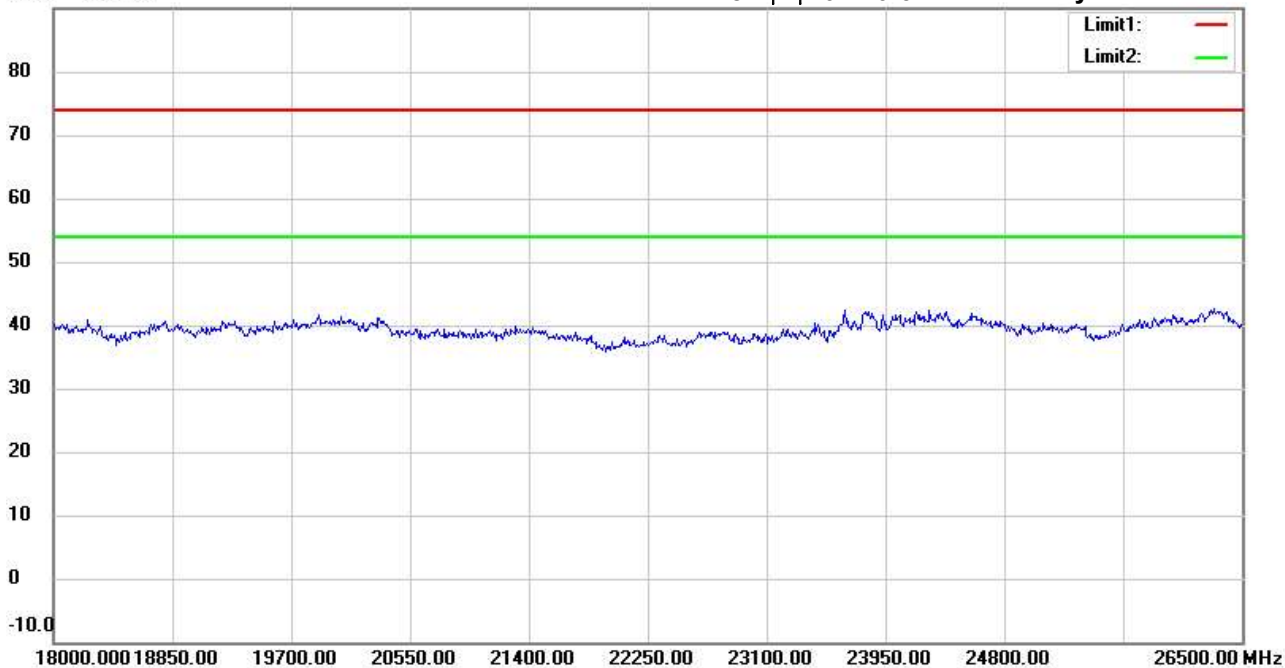
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:20:31

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

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



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Tel:+886-2-6606-8877
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Radiated Emission Measurement

Operator: Kai

File :3

Data :#11

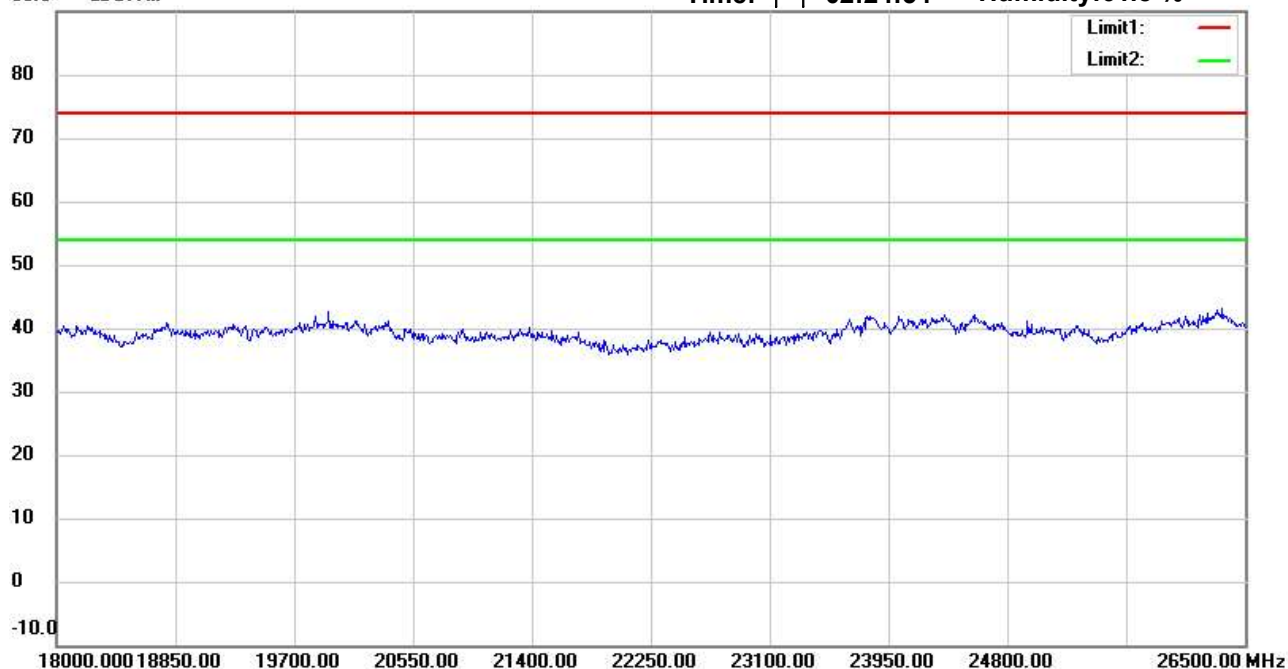
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:24:54

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: Vertical

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



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Tel:+886-2-6606-8877
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Radiated Emission Measurement

Operator: Kai

File :3

Data :#6

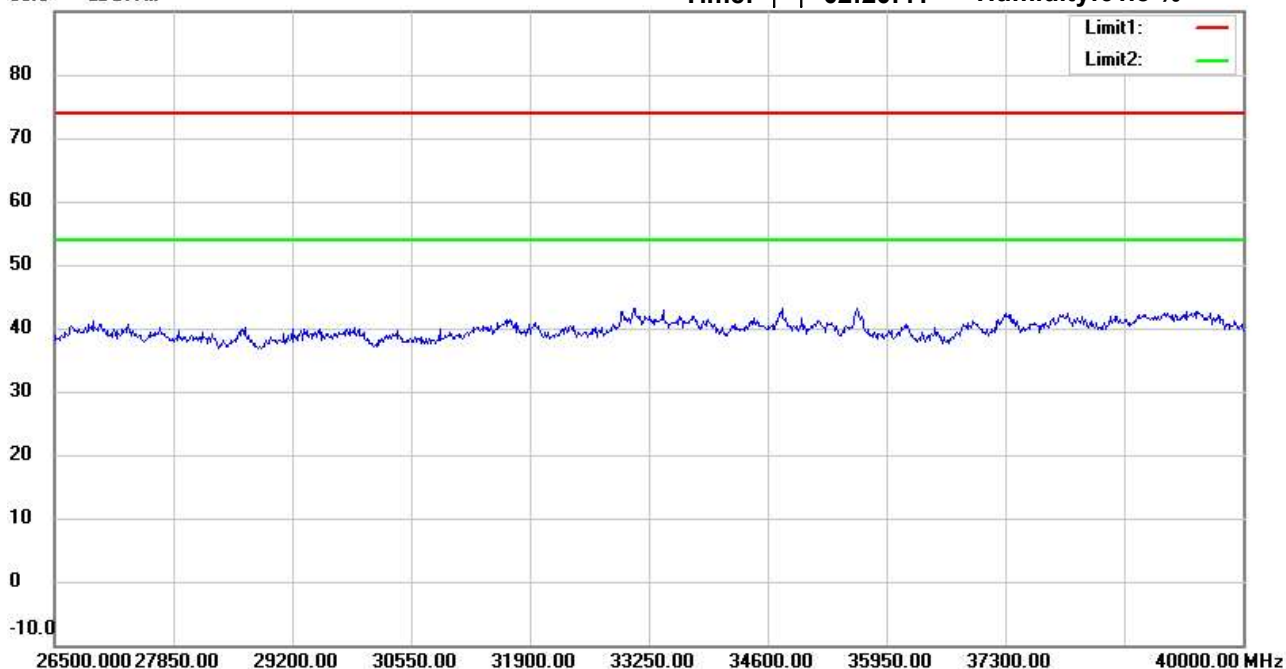
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:20:41

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

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



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Tel:+886-2-6606-8877
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Radiated Emission Measurement

Operator: Kai

File :3

Data :#12

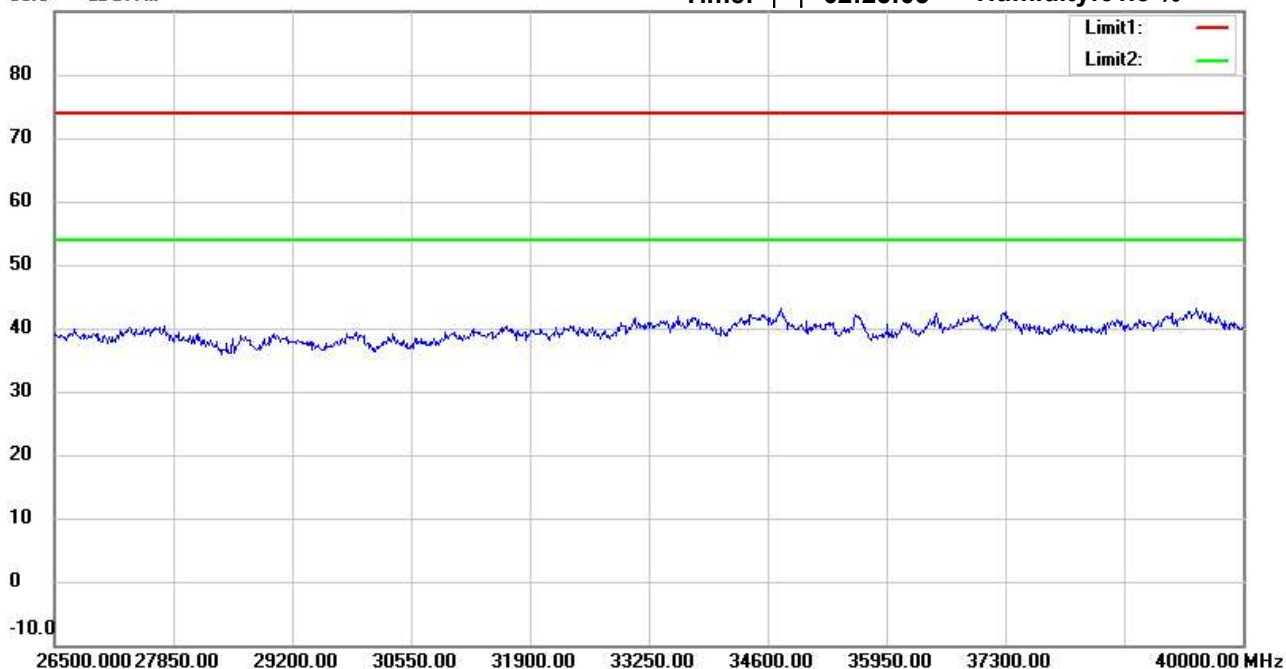
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:25:05

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH36

Note :

Polarization: Vertical

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



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Radiated Emission Measurement

Operator: Kai

File : Bandedge

Data : #1

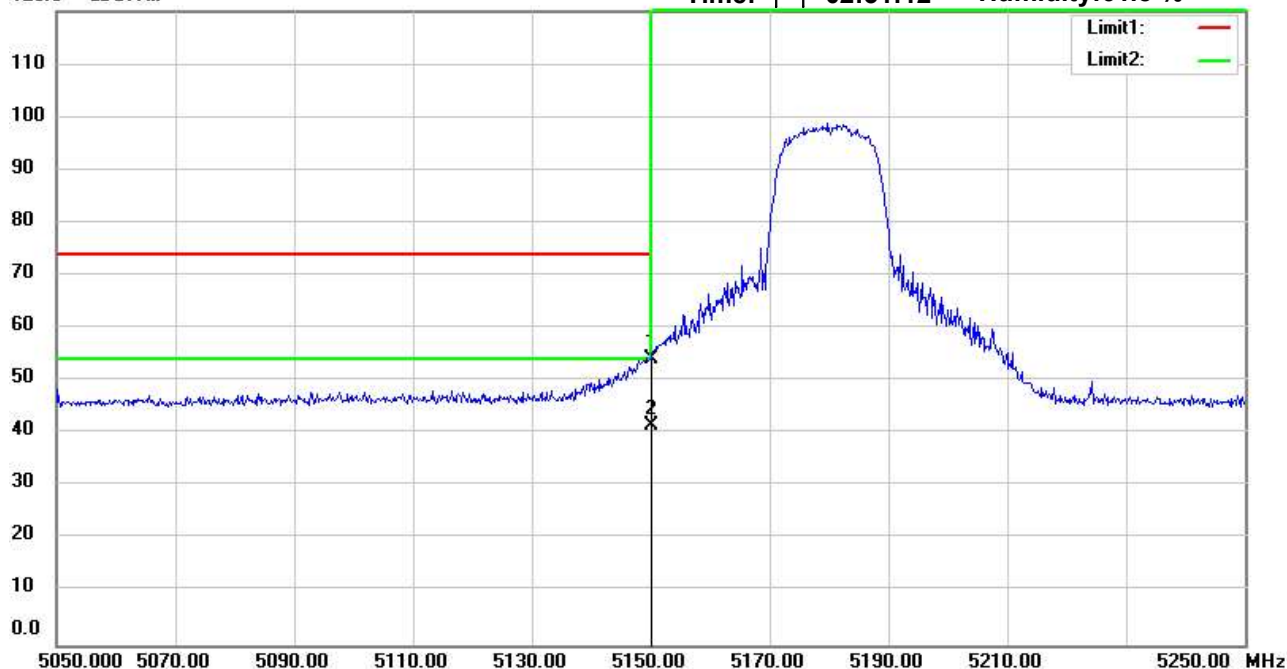
Date: 2023/11/28

Temperature: 23.8 °C

120.0 dBuV/m

Time: 下午 02:31:12

Humidity: 61.8 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Horizontal**

EUT : W6M22311-23090

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	48.71	peak	5.31	54.02	74.00	150	313	-19.98	
*	5150.000	36.38	AVG	5.31	41.69	54.00	150	313	-12.31	

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



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Radiated Emission Measurement

Operator: Kai

File : Bandedge

Data : #2

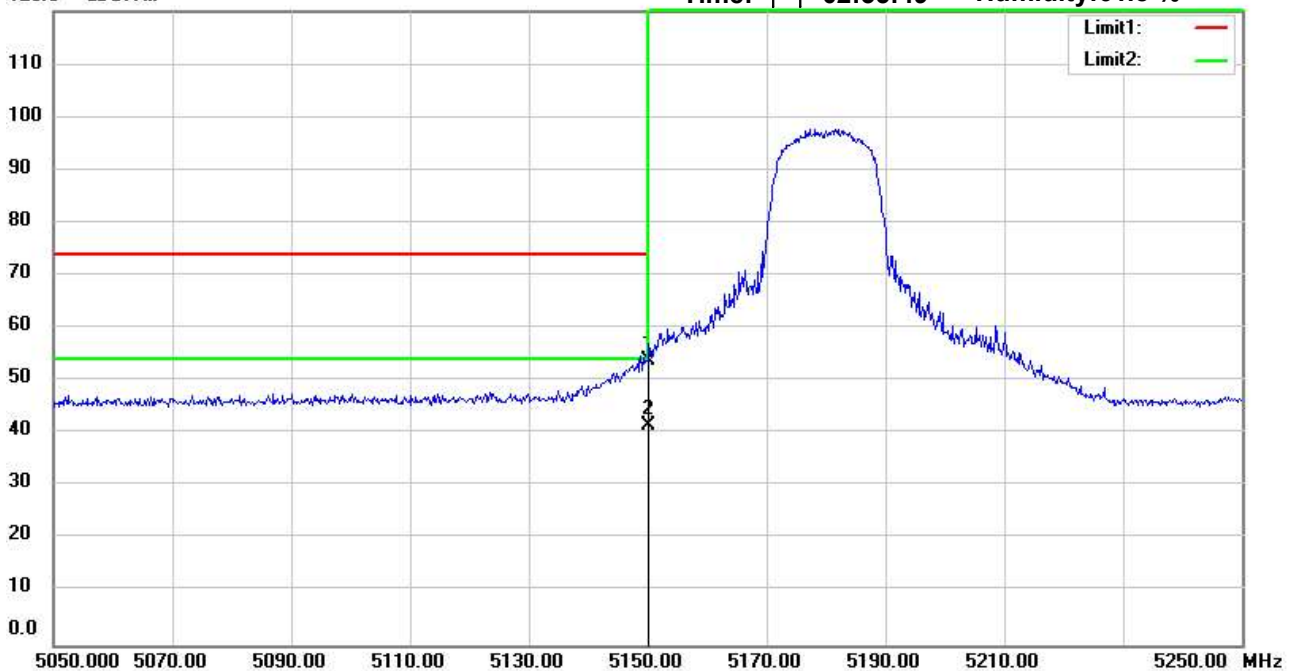
Date: 2023/11/28

Temperature: 23.8 °C

120.0 dBuV/m

Time: 下午 02:35:49

Humidity: 61.8 %



Site : Chamber

Condition : FCC 15.407 PK (Bandedge)(B1_5150_5250)

Polarization: **Vertical**

EUT : W6M22311-23090

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	48.67	peak	5.31	53.98	74.00	150	89	-20.02	
*	5150.000	36.14	AVG	5.31	41.45	54.00	150	89	-12.55	

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



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Radiated Emission Measurement

Operator: Kai

File :3

Data :#1

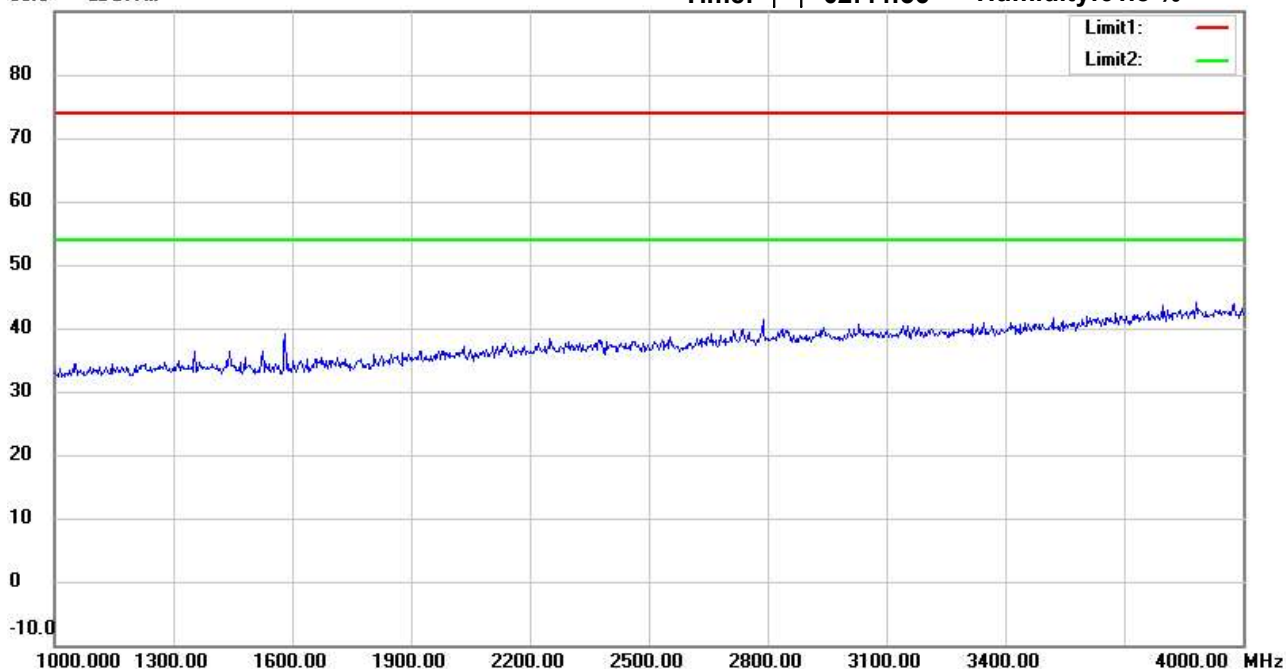
Date: 2023/11/28

Temperature:23.8 °C

90.0 dBuV/m

Time: 下午 02:44:36

Humidity:61.8 %



Site : Chamber

Condition : FCC_part 15E RE_Above 1GHz_PK

EUT : W6M22311-23090

M/N:

Test Mode : TX 802.11a CH44

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