

47 CFR PART 15 SUBPART C TEST REPORT

for

11ac WiFi Router

Model No.: AP7632-EC1-3B1

FCC ID: TKZAP7632EC1

of

Applicant: AsiaRF Co., Ltd.

Address: 1F, 7, Houde Street, Yonghe Dist. New Taipei City, 23455
Taiwan R.O.C.

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

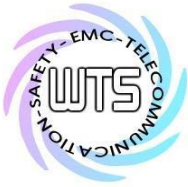
FCC Registration No.: TW1477, TW1072

Industry Canada filed test laboratory Reg. No. 20037



Report No.: W6M22111-21376-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wts@wts-lab.com



Registration number: W6M22111-21376-C-1
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1 General Information

1.1 Notes

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

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

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

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

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

The test report may only be reproduced or published in full.

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Specific Conditions:

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

The test sample is able to work according IEEE 802.11 b/g/n.

This report is related to FCC Part 15 C (DSSS and OFDM device).

Tester:

February 21, 2022

Rick Chen

Rick Chen.

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

February 21, 2022

Kevin Wang

Kevin Wang

Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Lishui, Shuang Sing Village,

Wanli Dist., New Taipei City 207,

Taiwan (R.O.C.)

3 meter semi-anechoic chamber

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

TEL:886-2-6613-0228

FAX:886-2-2791-5046

Company

Worldwide Testing Services(Taiwan) Co., Ltd.

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

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

Tel : 886-2-66068877

Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

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: AsiaRF Co., Ltd.

Street: 1F, 7, Houde Street, Yonghe Dist.

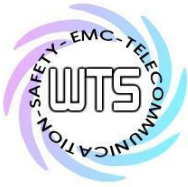
Town: New Taipei City, 23455

Country: Taiwan R.O.C.

1.4 Application details

Date of receipt of test item: January 27, 2022

Date of test: from January 28, 2022 to February 21, 2022



Registration number: W6M22111-21376-C-1
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1.5 General information of Test item

Type of test item: 11ac WiFi Router
Model Number: AP7632-EC1-3B1
Brand Name: AsiaRF
Multi-listing model number: AP7632-EC1-3B2
Photos: see Appendix

Technical data

Frequency band: 2.4 GHz – 2.4835 GHz

802.11b, g, n 20MHz

Frequency (ch 1 or A): 2.412 GHz
Frequency (ch 6 or B): 2.437 GHz
Frequency (ch 11 or C): 2.462 GHz

802.11n 40MHz

Frequency (ch 1 or A): 2.422 GHz
Frequency (ch 4 or B): 2.437 GHz
Frequency (ch 7 or C): 2.452 GHz
Number of Channels: 802.11b, g, n 20MHz: 11
802.11n 40MHz: 7

Operation modes: Duplex
Modulation Type: DSSS / OFDM
Fixed point-to-point operation: Yes / No

Type of Antenna: PCB antenna
Antenna gain: 2.5 dBi (for ANT0 & ANT1)

(Testing laboratory assumes no responsibility for affecting any validity of the result while the information which is provided by clients.)

Directional gain: 5.51 dBi

According to KDB 662911, Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, \dots, G_N dBi. If transmit signals are correlated, then Directional gain $= 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]



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Power supply: Adaptor (I/P: 100-240V~50/60Hz, 1.2A MAX;
O/P: 12V, 3000mA)

Emission designator: Mode A (802.11b): DSSS: 14M0G1D
Mode B (802.11g): OFDM: 17M0D1D
Mode C (802.11n 20MHz): OFDM: 18M4D1D
Mode D (802.11n 40MHz): OFDM: 38M4D1D

Host device: None

Classification:

Fixed Device	<input checked="" type="checkbox"/>
Mobile Device (Human Body distance > 20cm)	<input type="checkbox"/>
Portable Device (Human Body distance < 20cm)	<input type="checkbox"/>
Modular Radio Device	<input type="checkbox"/>

Transmitter

Unom

ANT 0

Mode A (DSSS)

Power (ch 1 or A): Conducted: 7.11 dBm
Power (ch 6 or B): Conducted: 7.22 dBm
Power (ch 11 or C): Conducted: 7.59 dBm

Mode B (OFDM)

Power (ch 1 or A): Conducted: 11.93 dBm
Power (ch 6 or B): Conducted: 13.25 dBm
Power (ch 11 or C): Conducted: 8.01 dBm

Mode C (OFDM)

Power (ch 1 or A): Conducted: 11.98 dBm
Power (ch 6 or B): Conducted: 12.08 dBm
Power (ch 11 or C): Conducted: 6.65 dBm

Mode D (OFDM)

Power (ch 1 or A): Conducted: 11.12 dBm
Power (ch 4 or B): Conducted: 11.10 dBm
Power (ch 7 or C): Conducted: 6.87 dBm



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ANT 1

Mode A (DSSS)

Power (ch 1 or A): Conducted: 5.43 dBm
Power (ch 6 or B): Conducted: 6.10 dBm
Power (ch 11 or C): Conducted: 6.92 dBm

Mode B (OFDM)

Power (ch 1 or A): Conducted: 12.12 dBm
Power (ch 6 or B): Conducted: 12.62 dBm
Power (ch 11 or C): Conducted: 8.13 dBm

Mode C (OFDM)

Power (ch 1 or A): Conducted: 11.31 dBm
Power (ch 6 or B): Conducted: 11.77 dBm
Power (ch 11 or C): Conducted: 7.05 dBm

Mode D (OFDM)

Power (ch 1 or A): Conducted: 10.46 dBm
Power (ch 4 or B): Conducted: 10.83 dBm
Power (ch 7 or C): Conducted: 6.71 dBm

Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	42.82	46.20	14.76	16.32	16.65	11.69
802.11n 40MHz	35.18	37.10	14.24	15.46	15.69	11.54

Manufacturer: (if applicable)

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

1.6 Test standards

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



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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 %

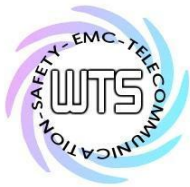
Air pressure: 86 ... 103 kPa

Power supply: Adaptor (I/P: 100-240V~50/60Hz, 1.2A MAX;
O/P: 12V, 3000mA)

Extreme conditions parameters: ./.

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission (Power Line Conducted Emission)	Expanded Uncertainty: AMN: 1.03 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 Digital Part)	Expanded Uncertainty: 0.009-30 MHz: 3.48 dB 30-1000 MHz: 4.48 dB 1-18 GHz: 4.15 dB 18-40 GHz: 3.78 dB
Estimation Result of Uncertainty of Bandwidth Measurement (Minimum 6 dB Bandwidth)	Expanded Uncertainty: 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement (Peak Output Power (transmitter))	Expanded Uncertainty: 3.07 dB
Estimation Result of Uncertainty of Power Density Measurement (Peak Power Spectral Density)	Expanded Uncertainty: 3.63 dB
Estimation Result of Uncertainty of Band Edge Measurement (Radiated Emission on the band edge)	Expanded Uncertainty: 0.67 dBc

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

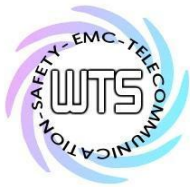


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2.3 Test Equipment List

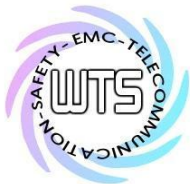
No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2021/6/17	2022/6/16
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2021/11/9	2022/11/8
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2021/9/22	2022/9/21
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	2021/7/29	2022/7/28
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2021/11/8	2022/11/7
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	2022/2/3	2023/2/2
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	2022/2/18	2023/2/17
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2022/2/18	2023/2/17
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2022/2/18	2023/2/17
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	2022/2/18	2023/2/17
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	2022/2/18	2023/2/17
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	



Worldwide Testing Services(Taiwan) Co., Ltd.

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ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2022/1/5	2023/1/4
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	2022/2/18	2023/2/17
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 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-RE 159	Bi-log Hybrid Antenna (30M~1000 MHz)	MCTD 2786B	BLB21N04035	ETC	2021/12/06	2022/12/05
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	2022/1/5	2023/1/4
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2022/1/5	2023/1/4
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2022/1/5	2023/1/4
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2022/1/5	2023/1/4
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	2022/2/18	2023/2/17
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2022/2/18	2023/2/17
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2022/2/18	2023/2/17
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2022/2/18	2023/2/17
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	2022/2/18	2023/2/17

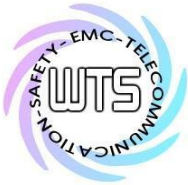


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ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2021/7/2	2022/7/1
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2021/6/4	2022/6/3
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



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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.10-2013 6.2 using a 50 μ H 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 6.3 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 dB μ V) 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 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/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 6.2.2. 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.



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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 = $20 \log(\text{dwell time}/T)$

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.



Registration number: W6M22111-21376-C-1

FCC ID: TKZAP7632EC1

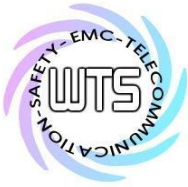
3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)(3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Equivalent isotropically radiated Power	15.247(b)(3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.247(d): 15.209	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Band Edge Measurement	15.247(d)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minimum 6 dB Bandwidth	15.247(a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Peak Power Spectral Density	15.247(e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Digital Part	15.109	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note:

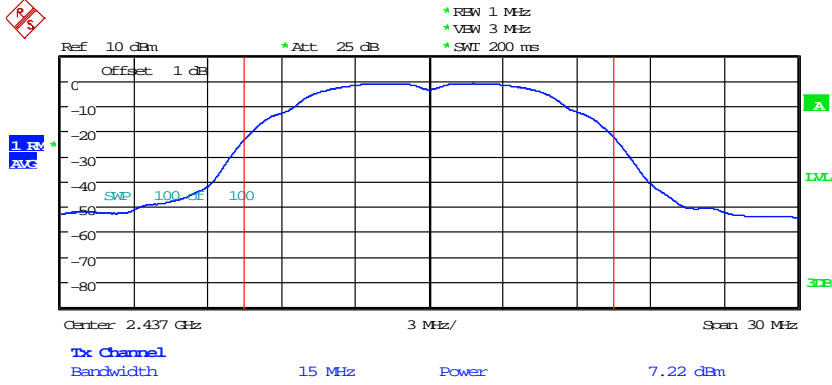
1. This EUT incorporates a MIMO function with IEEE 802.11b, 802.11g, and 802.11n. Physically, this EUT includes two transmitters and two receivers with two incoherent streams. This device uses multiplexing and also employ cyclic delay diversity to improve range and throughput, and this device simultaneously operates on two adjacent channels.
2. This EUT is 2*2 spatial MIMO (2Tx&2Rx) without beam forming function. That operates dual chain configuration. The Pre-test was performed to determine the worst case mode from all possible combinations between all available modulations, data rates, bandwidths, and spatial stream modes.
3. The detail of chosen mode for full testing are as below:

Mode	Available channel	Chosen Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1,6,11	DSSS	DBPSK, DQPSK, CCK	1
802.11g	1 to 11	1,6,11	OFDM	BPSK, QPSK, 16QAM, 64QAM	6
802.11n (20MHz)	1 to 11	1,6,11	OFDM	BPSK, QPSK, 16QAM, 64QAM	6.5
802.11n (40MHz)	1 to 7	1,4,7	OFDM	BPSK, QPSK, 16QAM, 64QAM	13.5



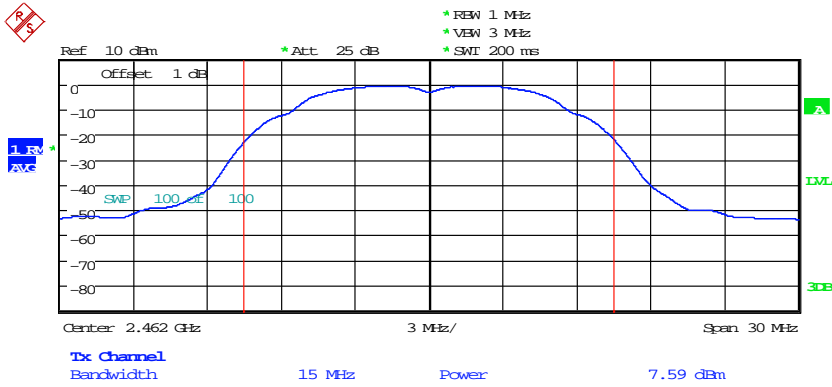
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



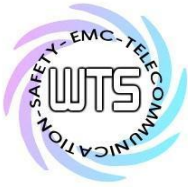
MAX OUTPUT POWER 802.11B CH6

Date: 16.FEB.2022 21:42:31



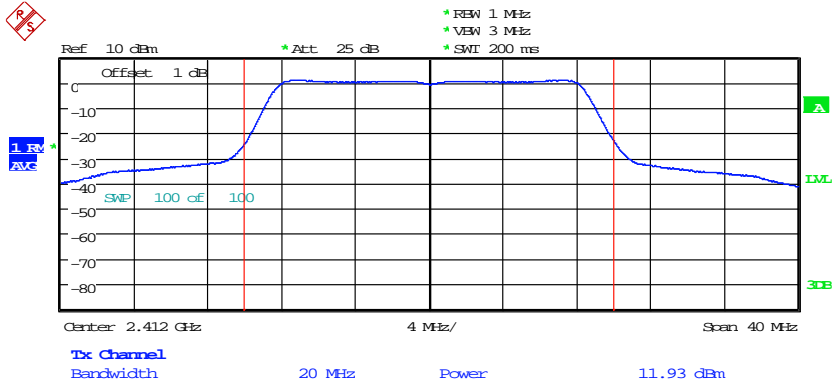
MAX OUTPUT POWER 802.11B CH11

Date: 16.FEB.2022 21:43:41

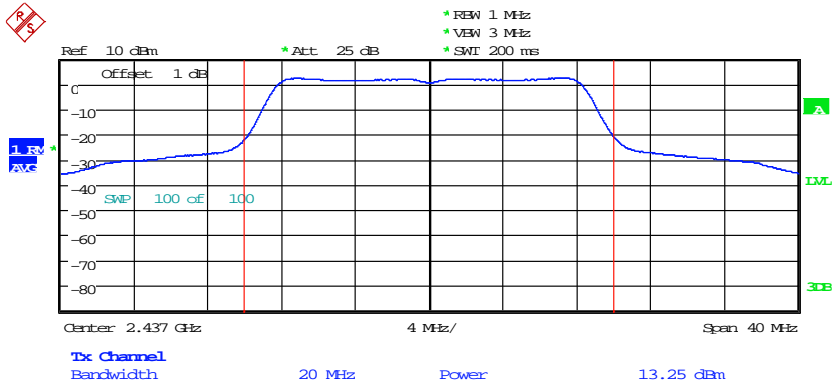


Worldwide Testing Services(Taiwan) Co., Ltd.

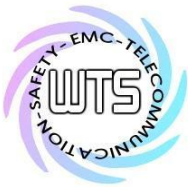
Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



MAX OUTPUT POWER 802.11G CH1
Date: 16.FEB.2022 21:51:59

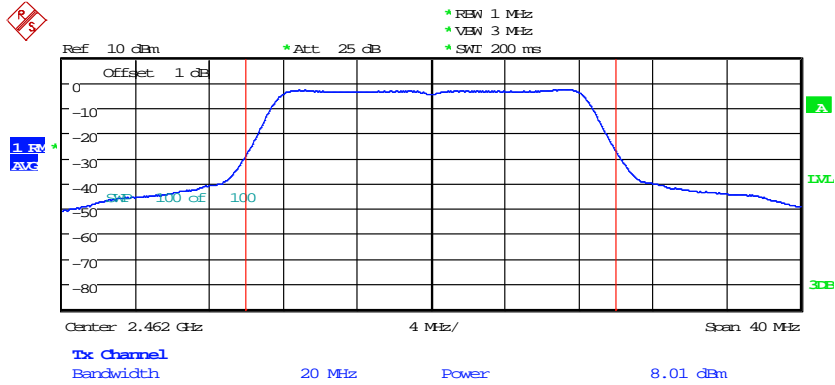


MAX OUTPUT POWER 802.11G CH6
Date: 16.FEB.2022 21:35:57



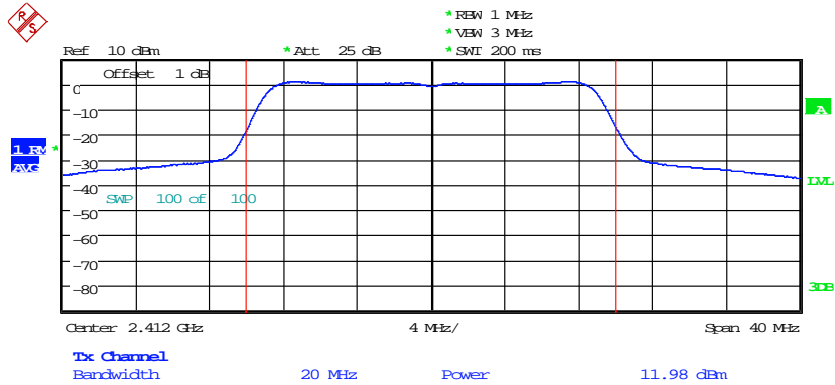
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



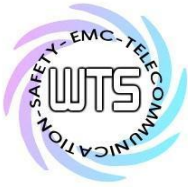
MAX OUTPUT POWER 802.11G CH11

Date: 16.FEB.2022 21:34:59



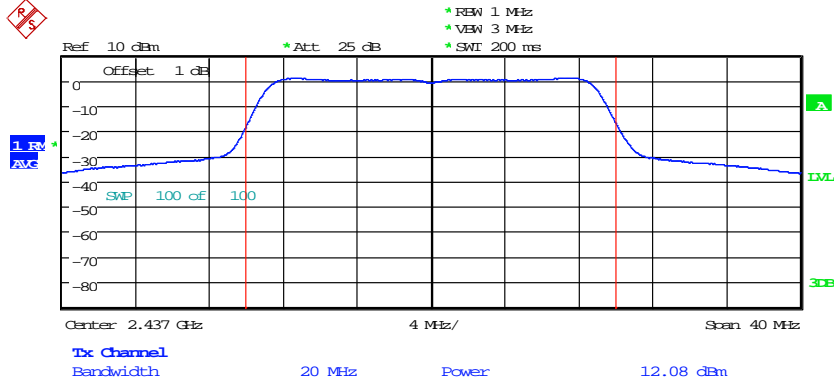
MAX OUTPUT POWER 802.11N 20MHZ CH1

Date: 16.FEB.2022 21:25:17

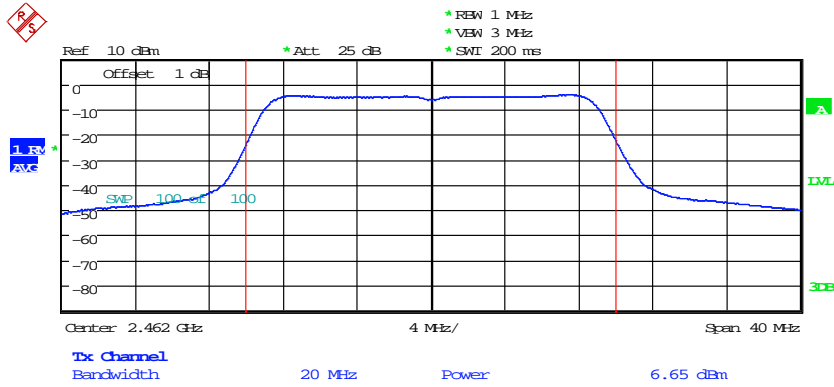


Worldwide Testing Services(Taiwan) Co., Ltd.

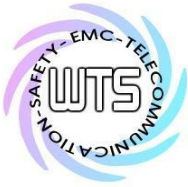
Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



MAX OUTPUT POWER 802.11N 20MHZ CH6
Date: 16.FEB.2022 21:26:25

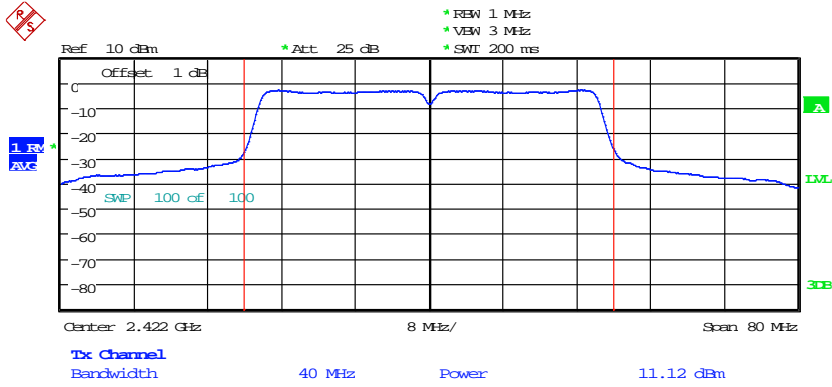


MAX OUTPUT POWER 802.11N 20MHZ CH11
Date: 16.FEB.2022 21:30:53

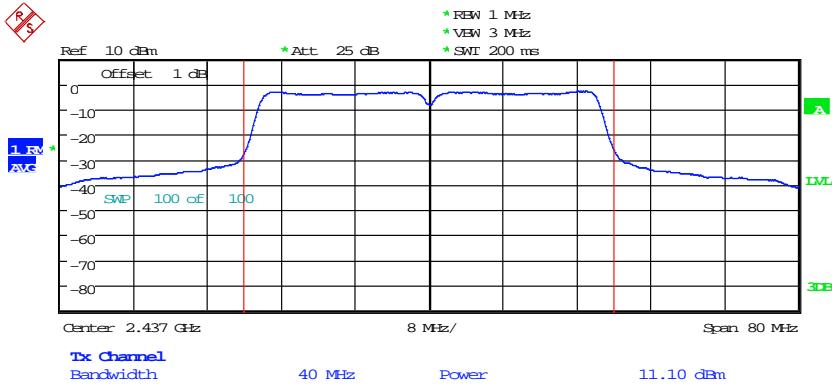


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



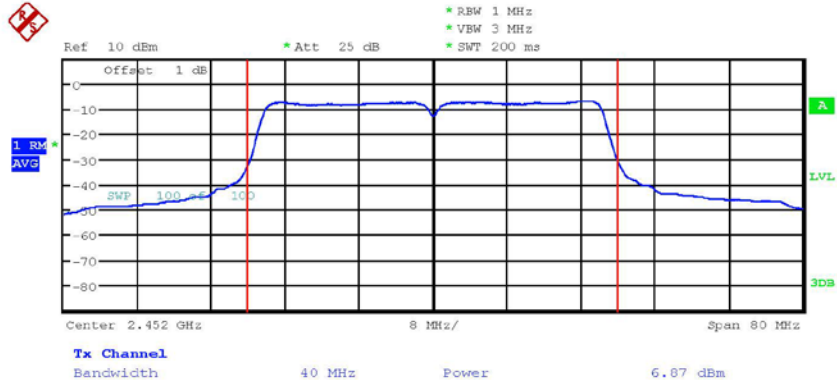
MAX OUTPUT POWER 802.11N 40MHZ CH1
 Date: 16.FEB.2022 21:22:25



MAX OUTPUT POWER 802.11N 40MHZ CH4
 Date: 16.FEB.2022 21:21:03

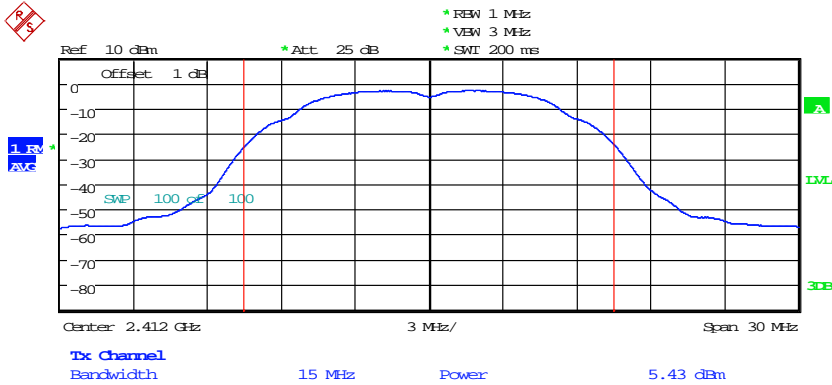


Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1

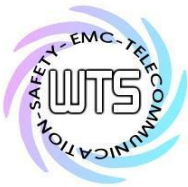


MAX OUTPUT POWER 802.11N 40MHZ CH7
Date: 16.FEB.2022 21:18:13

ANT 1

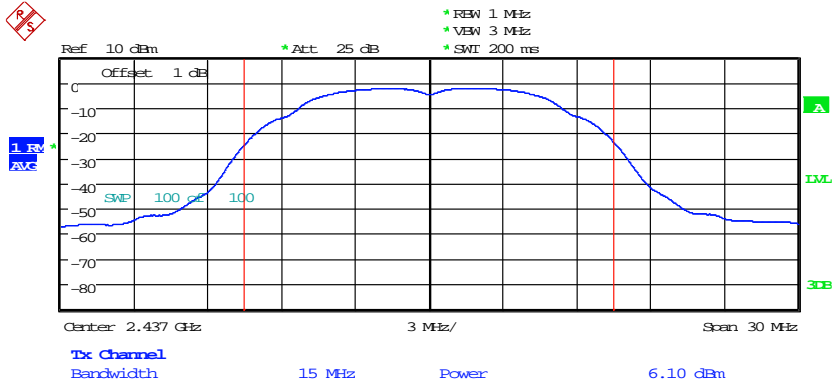


MAX OUTPUT POWER 802.11B CH1
Date: 16.FEB.2022 21:40:27



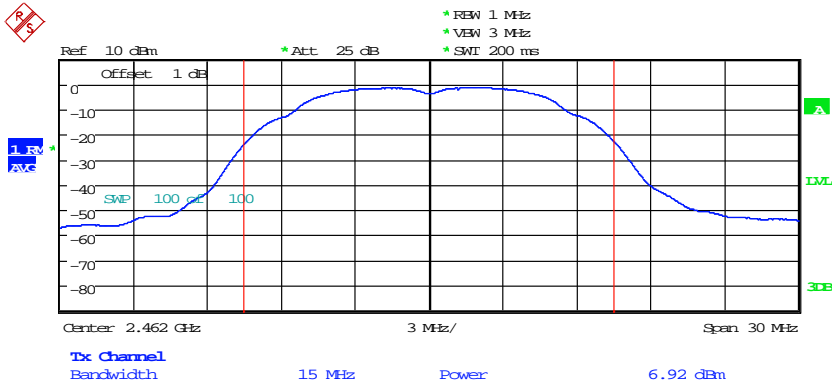
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



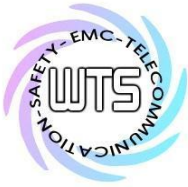
MAX OUTPUT POWER 802.11B CH6

Date: 16.FEB.2022 21:41:43



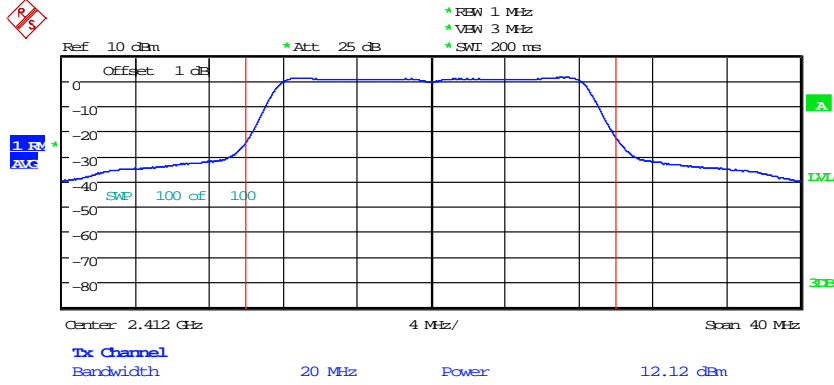
MAX OUTPUT POWER 802.11B CH11

Date: 16.FEB.2022 21:44:42

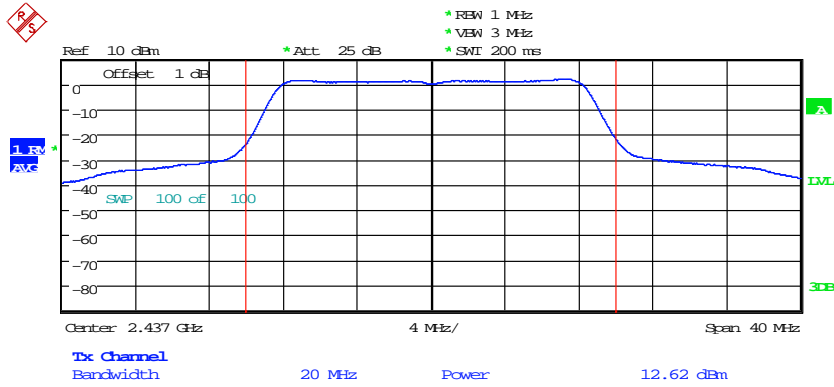


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



MAX OUTPUT POWER 802.11G CH1
 Date: 16.FEB.2022 21:37:48

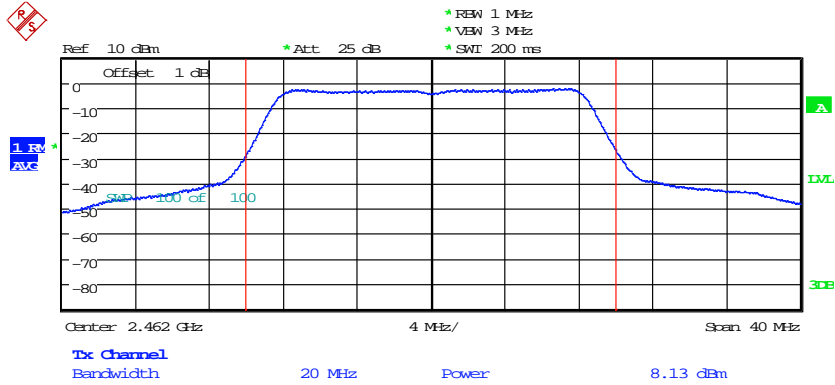


MAX OUTPUT POWER 802.11G CH6
 Date: 16.FEB.2022 21:36:51



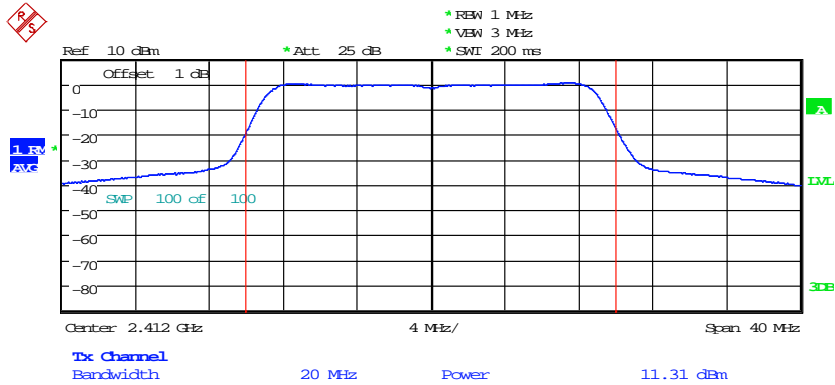
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



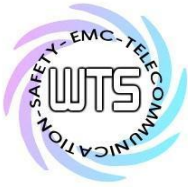
MAX OUTPUT POWER 802.11G CH11

Date: 16.FEB.2022 21:33:57



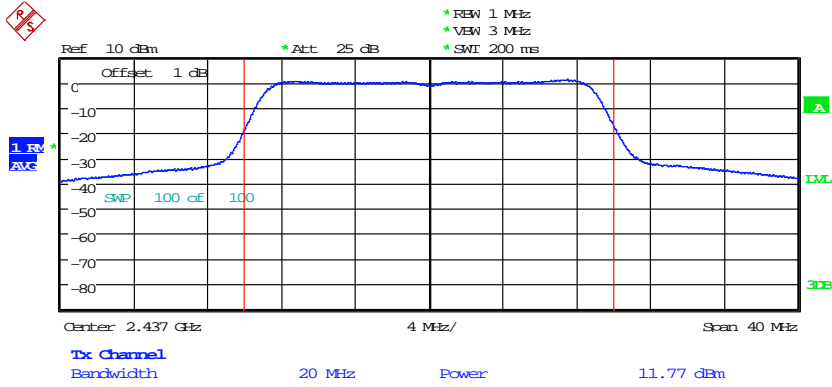
MAX OUTPUT POWER 802.11N 20MHZ CH1

Date: 16.FEB.2022 21:24:30



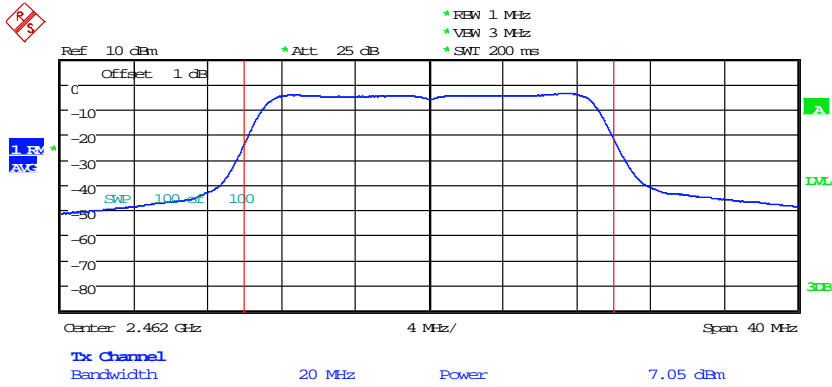
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



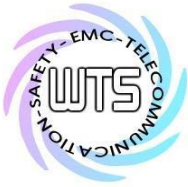
MAX OUTPUT POWER 802.11N 20MHZ CH6

Date: 16.FEB.2022 21:27:03



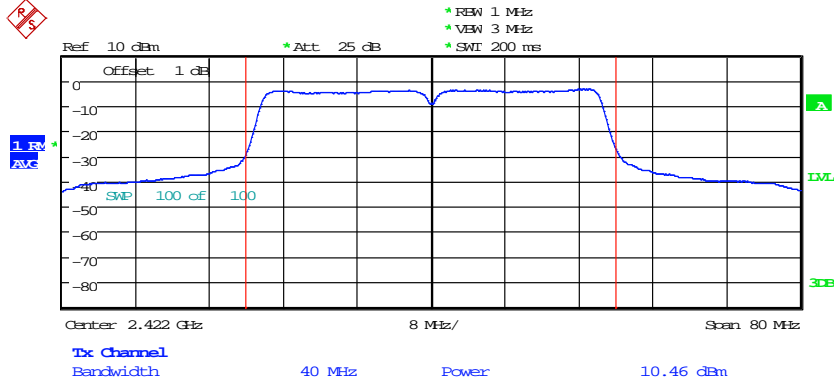
MAX OUTPUT POWER 802.11N 20MHZ CH11

Date: 16.FEB.2022 21:31:51



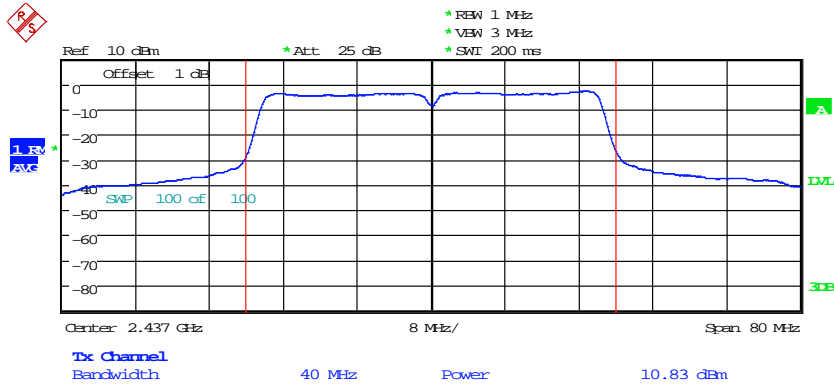
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



MAX OUTPUT POWER 802.11N 40MHZ CH1

Date: 16.FEB.2022 21:23:05



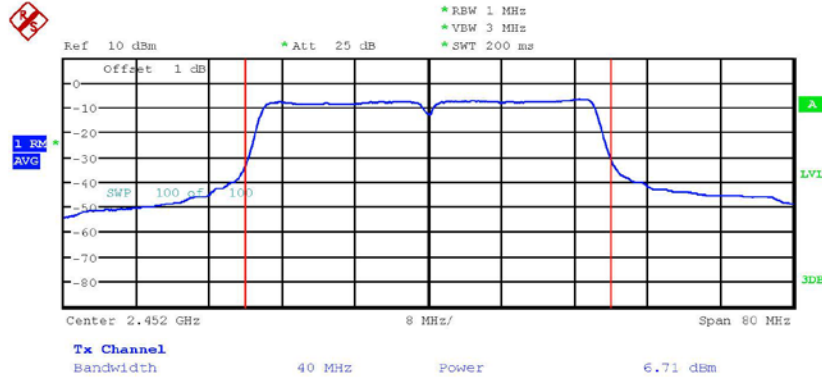
MAX OUTPUT POWER 802.11N 40MHZ CH4

Date: 16.FEB.2022 21:20:19



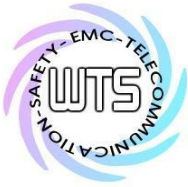
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



MAX OUTPUT POWER 802.11N 40MHZ CH7
 Date: 16.FEB.2022 21:18:53

ANT 0	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	15.78	16.14	4.62	11.98	12.08	6.65
802.11n 40MHz	12.94	12.88	4.86	11.12	11.10	6.87
ANT 1	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	13.52	15.03	5.07	11.31	11.77	7.05
802.11n 40MHz	11.12	12.11	4.69	10.46	10.83	6.71
Combine	mW			dBm		
	Ch Low	Ch Mid	Ch High	Ch Low	Ch Mid	Ch High
802.11n 20MHz	42.82	46.20	14.76	16.32	16.65	11.69
802.11n 40MHz	35.18	37.10	14.24	15.46	15.69	11.54



Worldwide Testing Services(Taiwan) Co., Ltd.

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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



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 FCC ID: TKZAP7632EC1

3.2 Equivalent isotropic radiated power (EIRP)

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain

EIRP = 16.65 dBm+ 5.51 dBi [antenna gain claimed by manufacturer] = 22.16 dBm = 164.44 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

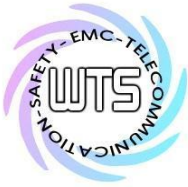
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(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



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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/cm².

Established separation distance is 20 cm.

Operating frequency band: 2412-2462 MHz, 2422-2452 MHz

The product meets RF exposure requirement.

Because the power density of 0.0327 mW/cm² at 2437 MHz is below the power density limit of 1 mW/cm².

Limits:

Limit for General Population / Uncontrolled Exposure	
Frequency (MHz)	Power Density (mW/cm²)
1500 – 100.000	1.0



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1

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 \leq 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:

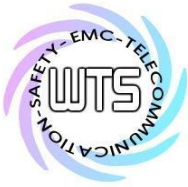
“If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

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 = $20 \log (\text{dwell time}/ 100\text{ms})$

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

Explanation: See attached diagrams in Appendix.



Registration number: W6M22111-21376-C-1

FCC ID: TKZAP7632EC1

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(c), 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

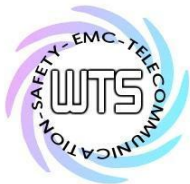
Guidance on Measurement of Digit Transmission Systems:

“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 = $20 \log (\text{dwell time}/100\text{ms})$

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



Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: TKZAP7632EC1

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: AP7632-EC1-3B1 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)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Polarization: Vertical

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

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



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1

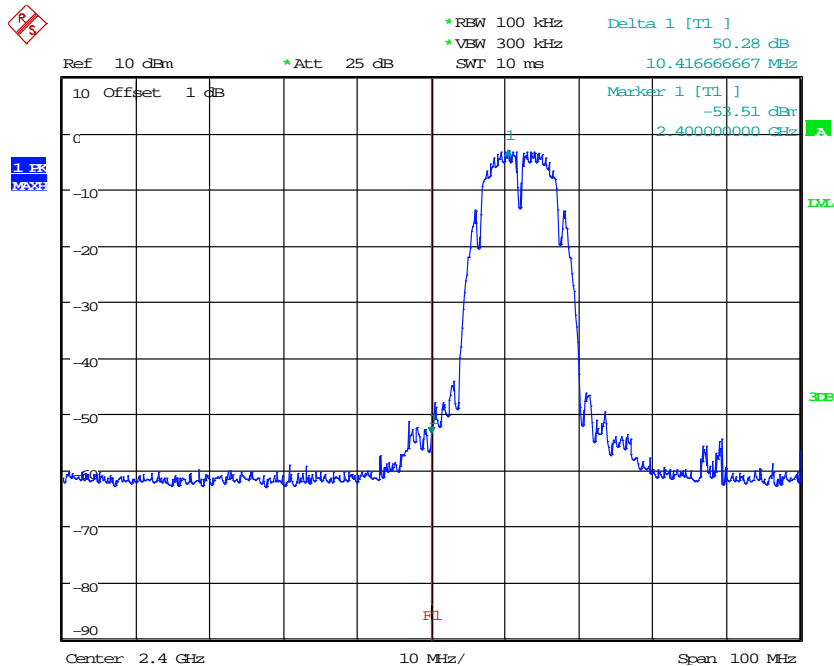
3.6 Radiated Emission on the band edge

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.

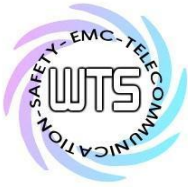
In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.

Test date: February 16, 2022
Temperature: 22.9 °C
Humidity: 54.0 %
Tester: Rick

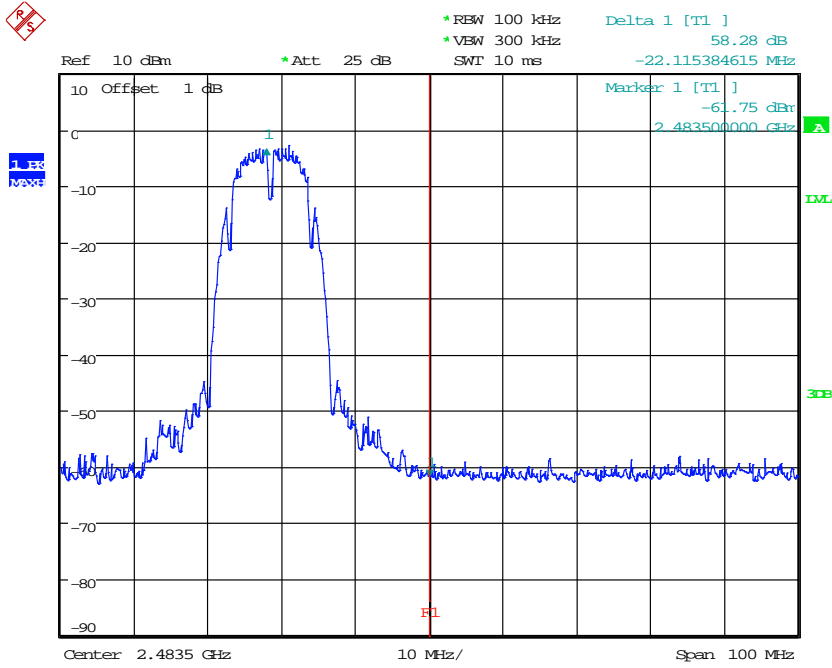
ANT 0



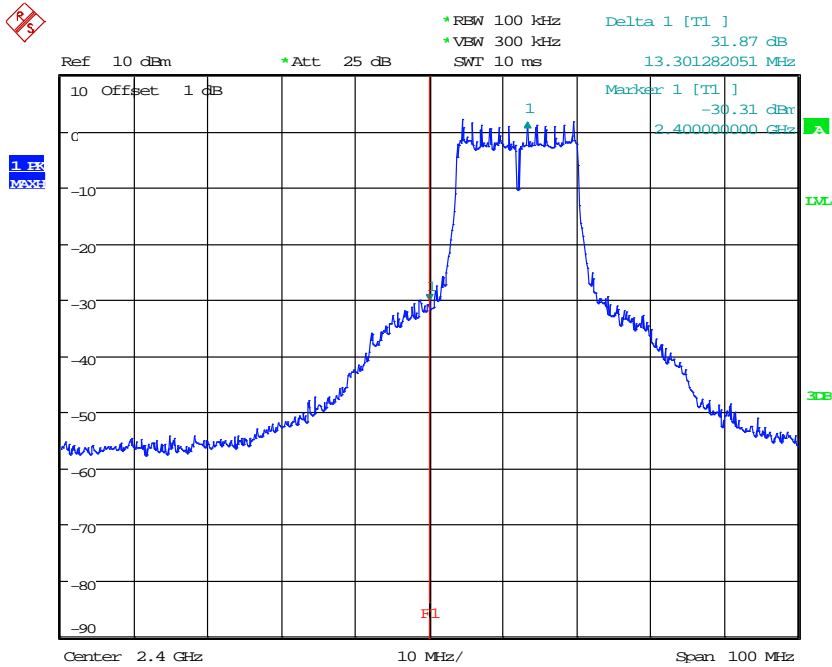
BANDWIDTH 802.11B CH1
Date: 16.FEB.2022 20:51:34



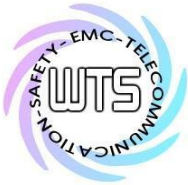
Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



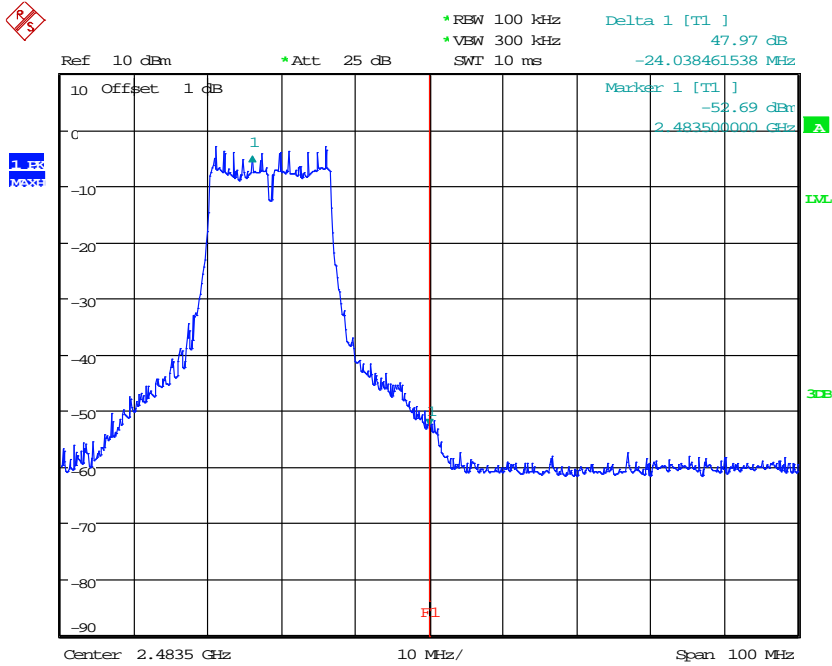
BANDWIDTH 802.11B CH11
Date: 16.FEB.2022 21:10:09



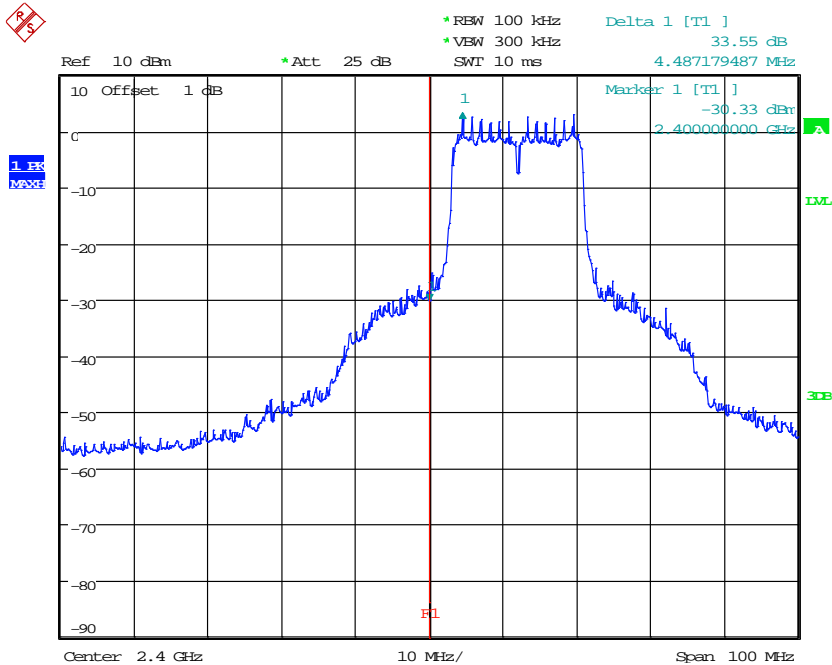
BANDWIDTH 802.11G CH1
Date: 16.FEB.2022 20:53:17



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



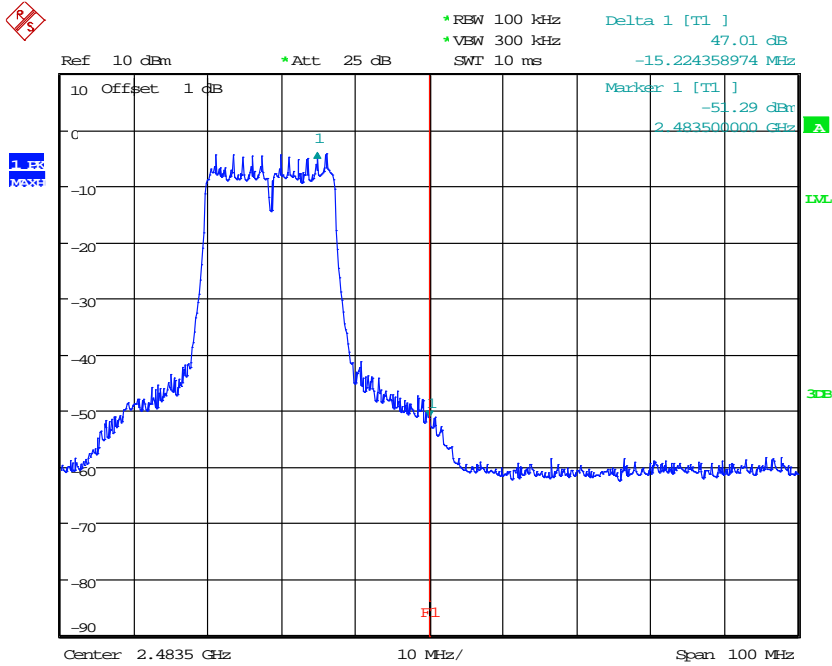
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Date: 16.FEB.2022 21:09:37



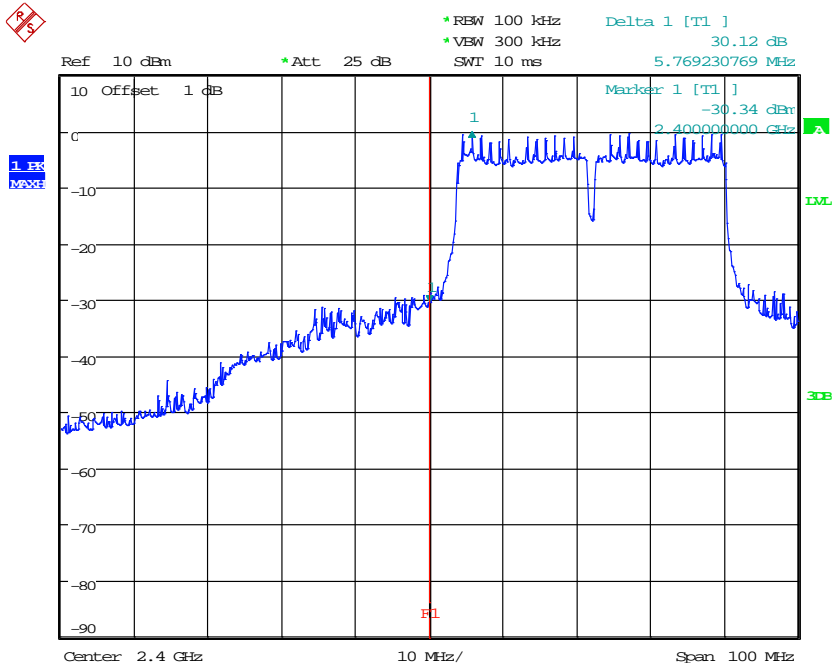
BANDWIDTH 802.11N 20M CH1
Date: 16.FEB.2022 20:54:26



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



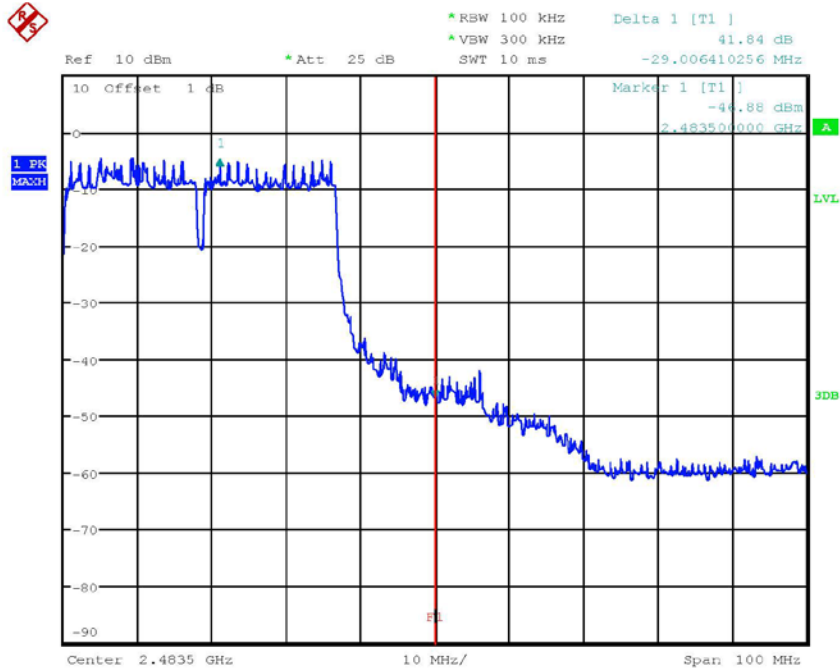
BANDWIDTH 802.11N 20M CH11
Date: 16.FEB.2022 21:07:01



BANDWIDTH 802.11N 40M CH1
Date: 16.FEB.2022 20:55:38

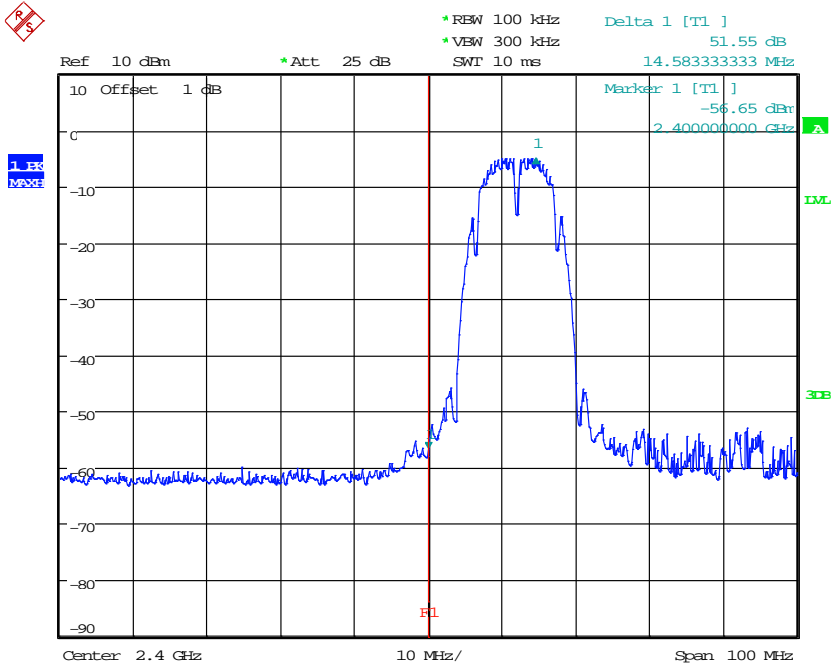


Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



BANDEDGE 802.11N 40M CH7
Date: 21.FEB.2022 15:18:57

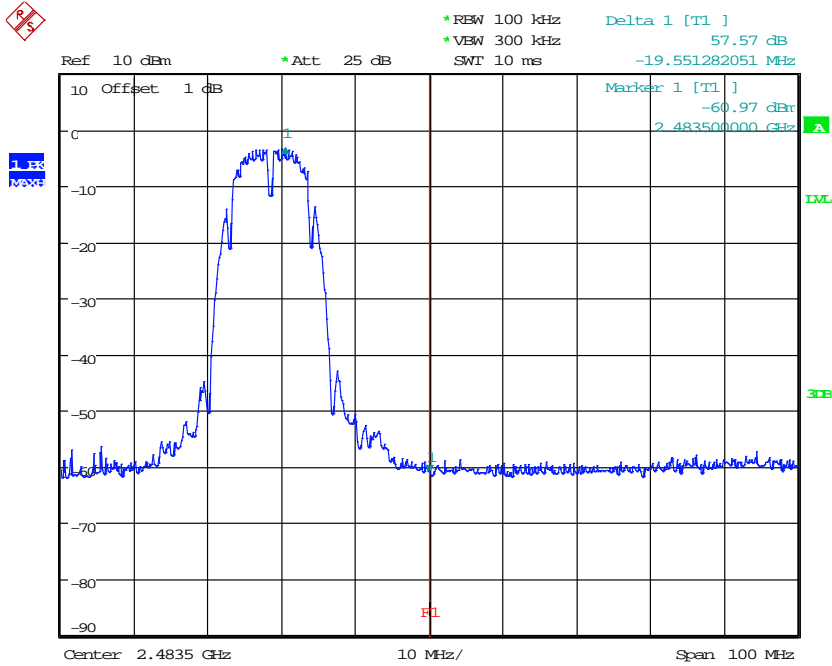
ANT 1



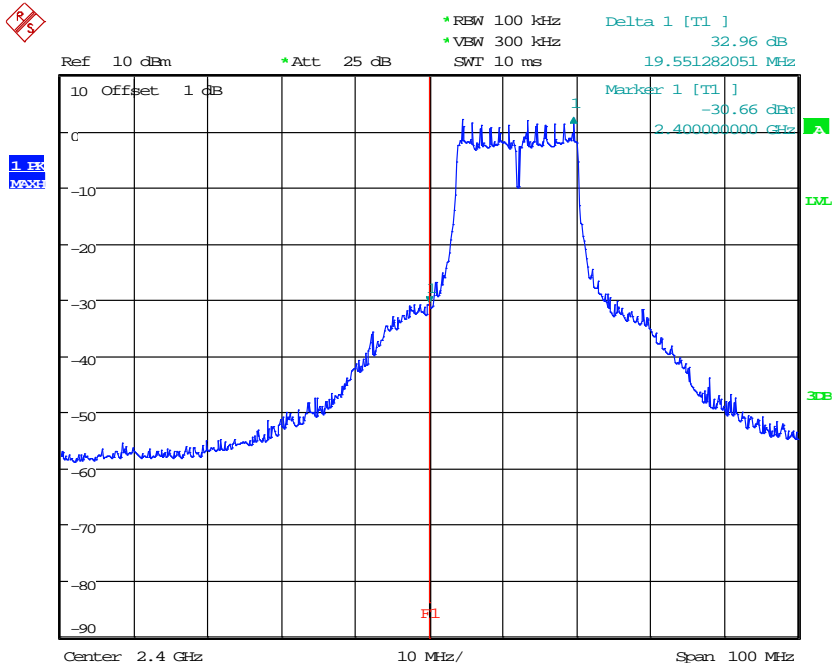
BANDWIDTH 802.11B CH1
Date: 16.FEB.2022 21:00:32



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



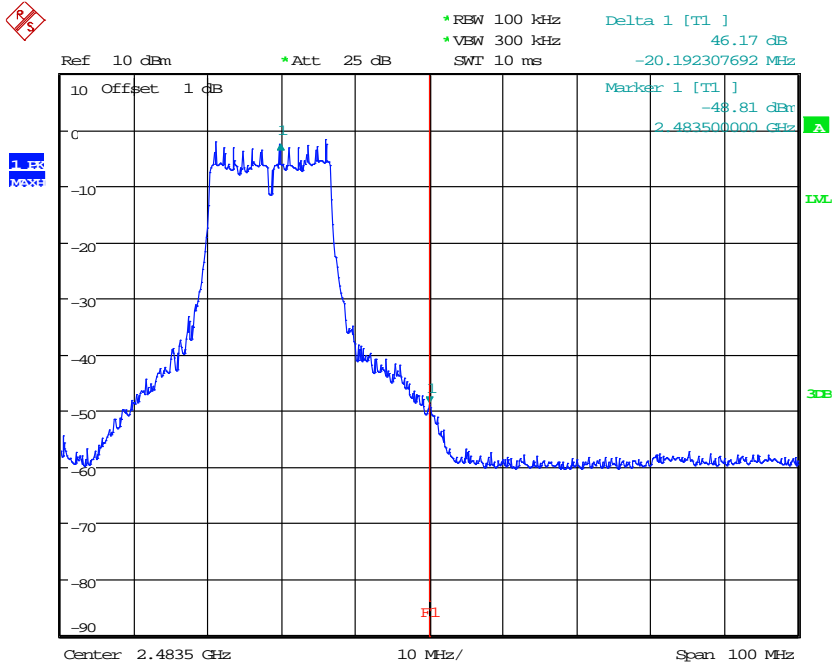
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Date: 16.FEB.2022 21:10:49



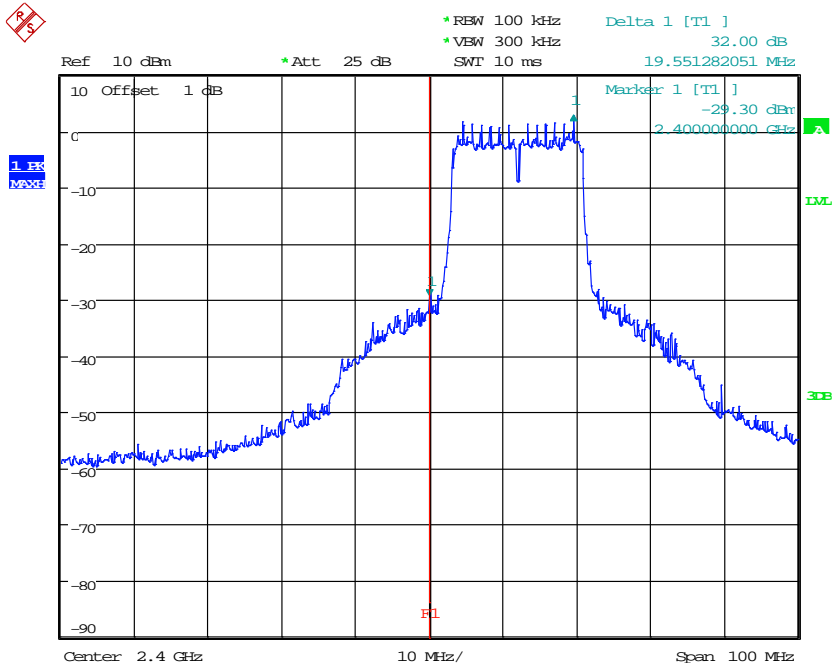
BANDWIDTH 802.11G CH1
Date: 16.FEB.2022 20:58:12



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



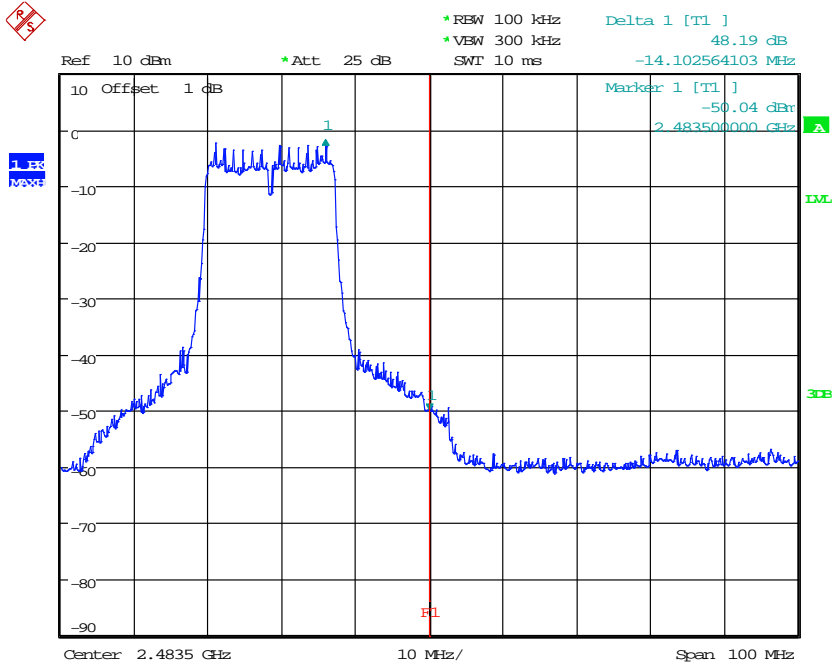
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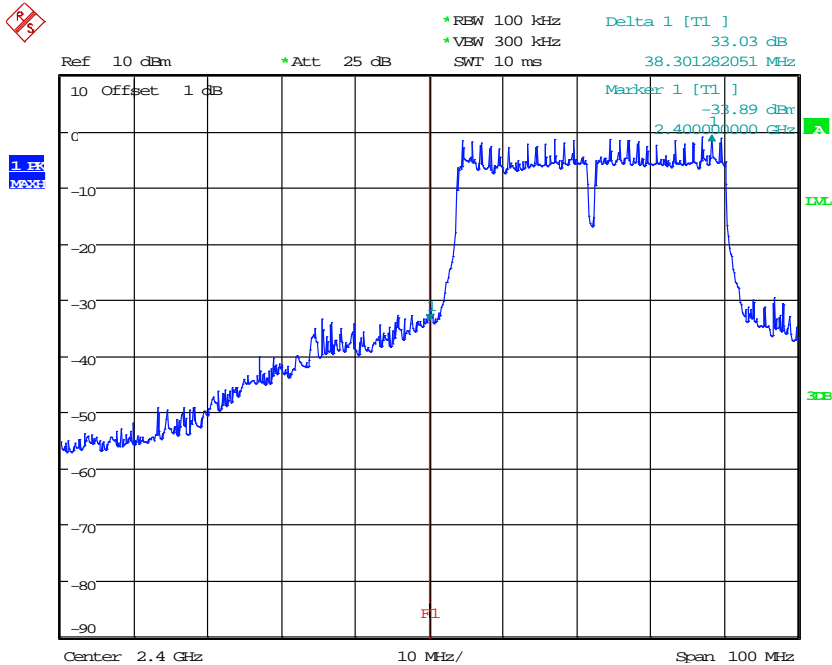
BANDWIDTH 802.11N 20M CH1
Date: 16.FEB.2022 20:57:04



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



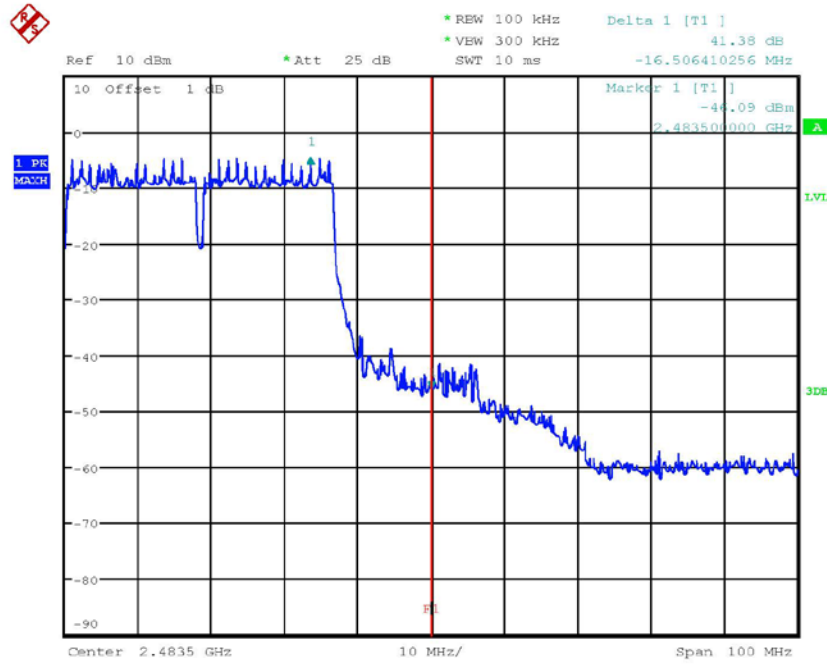
BANDWIDTH 802.11N 20M CH11
Date: 16.FEB.2022 21:06:00



BANDWIDTH 802.11N 40M CH1
Date: 16.FEB.2022 20:56:11



Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



EANDEGE 802.11N 40M CH7
 Date: 21.FEB.2022 15:18:26

Limit:

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

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



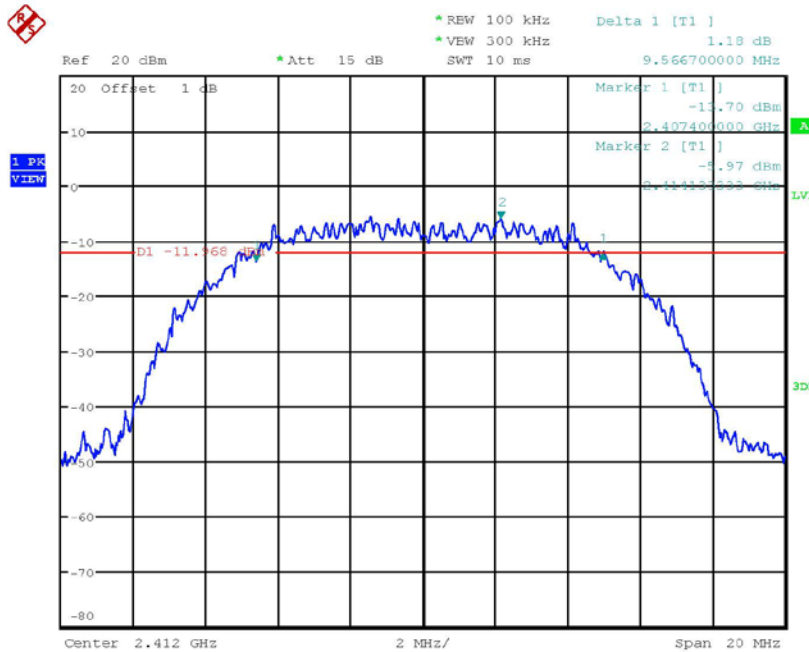
Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1

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: February 15, 2022
Temperature: 22.3 °C
Humidity: 54.2 %
Tester: Rick

ANT 0

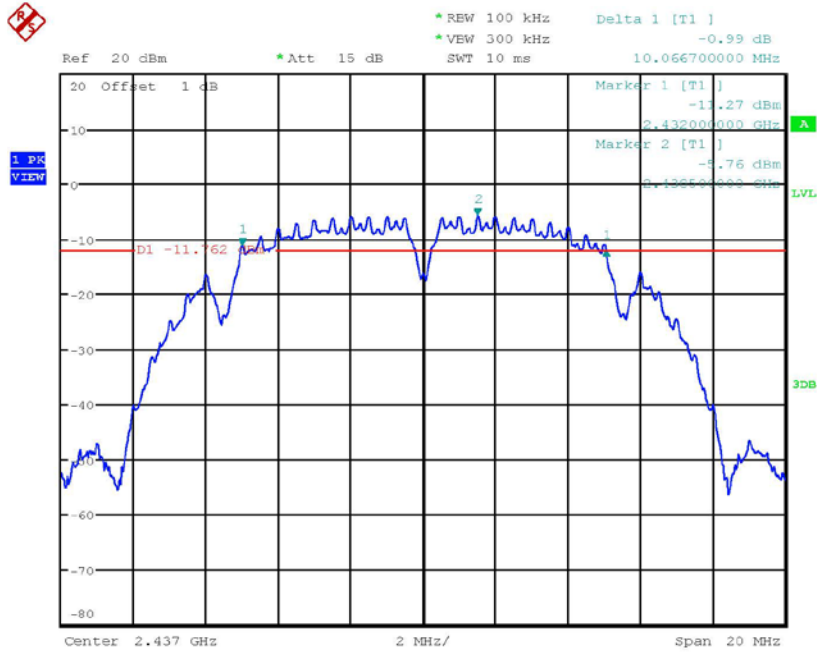


6DB BANDWIDTH 802.11B CH01
Date: 15.FEB.2022 17:28:38

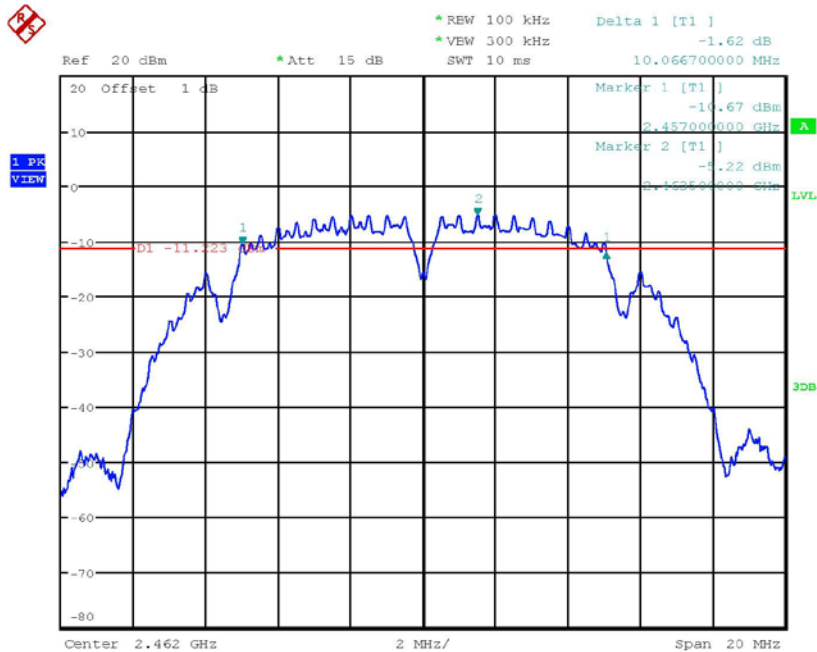


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11B CH06
Date: 15.FEB.2022 17:29:41

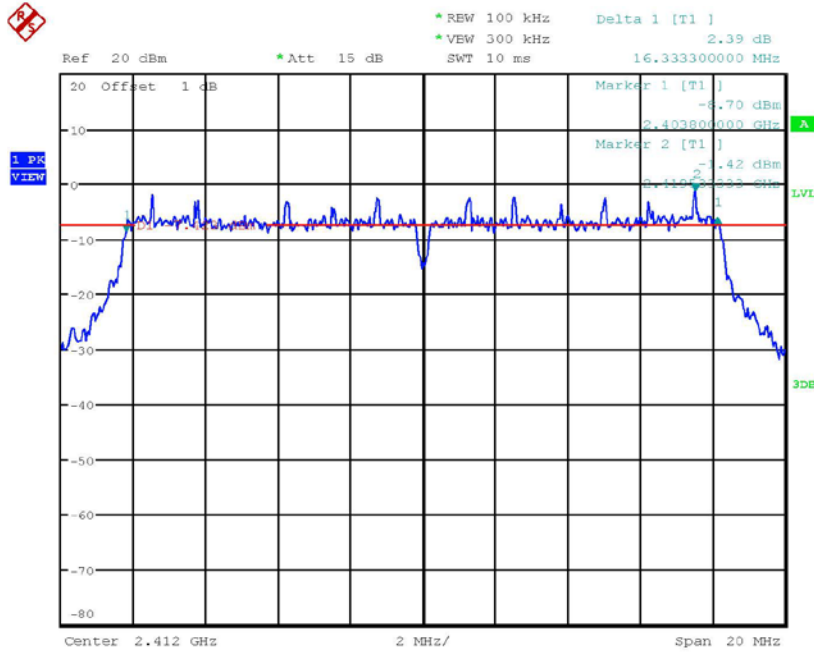


6DB BANDWIDTH 802.11B CH11
Date: 15.FEB.2022 17:30:40

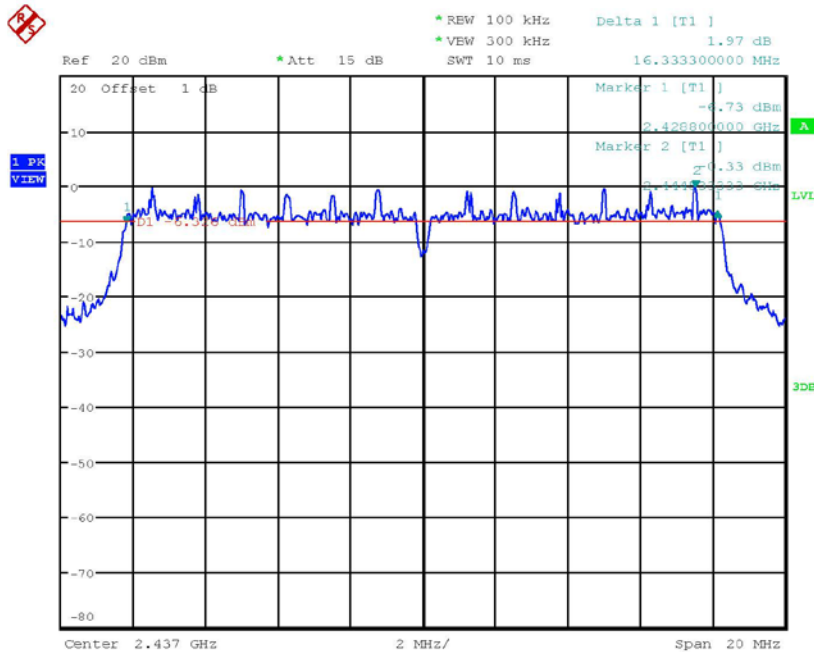


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



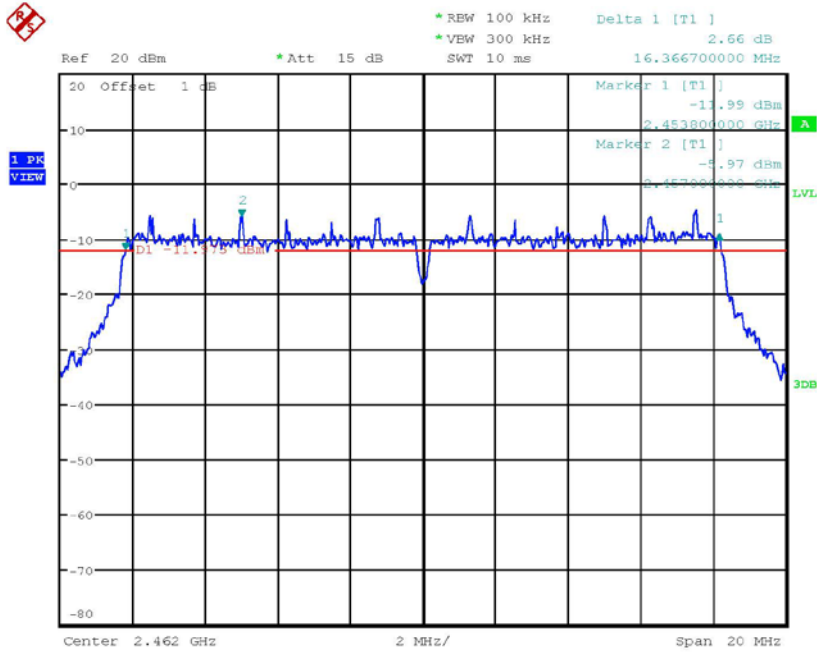
6DB BANDWIDTH 802.11G CH01
Date: 15.FEB.2022 17:36:09



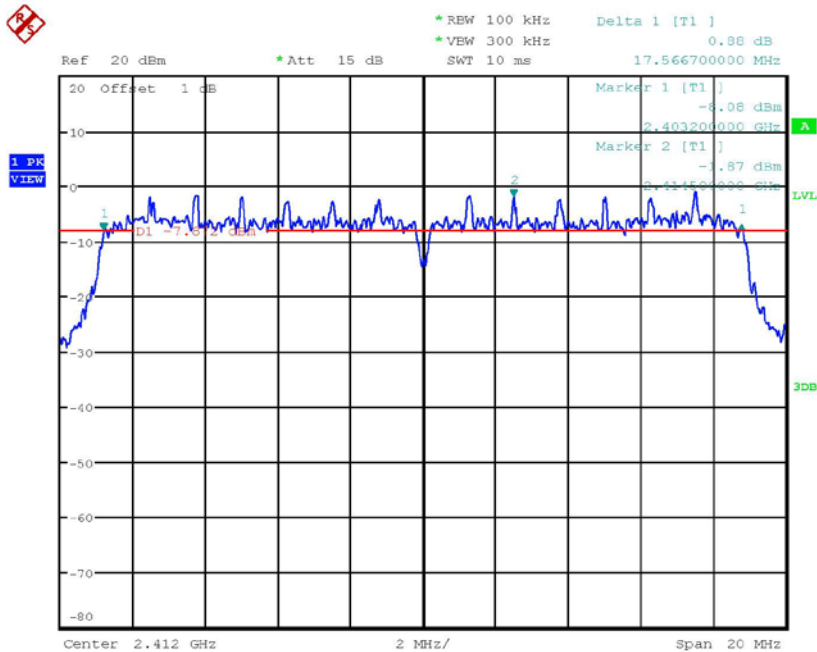
6DB BANDWIDTH 802.11G CH06
Date: 15.FEB.2022 17:37:11



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



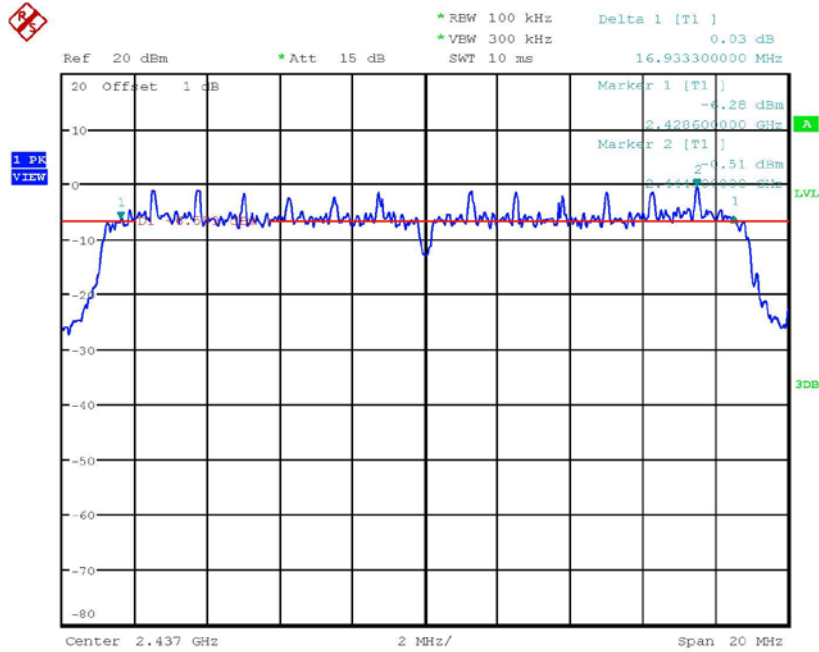
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Date: 15.FEB.2022 17:38:21



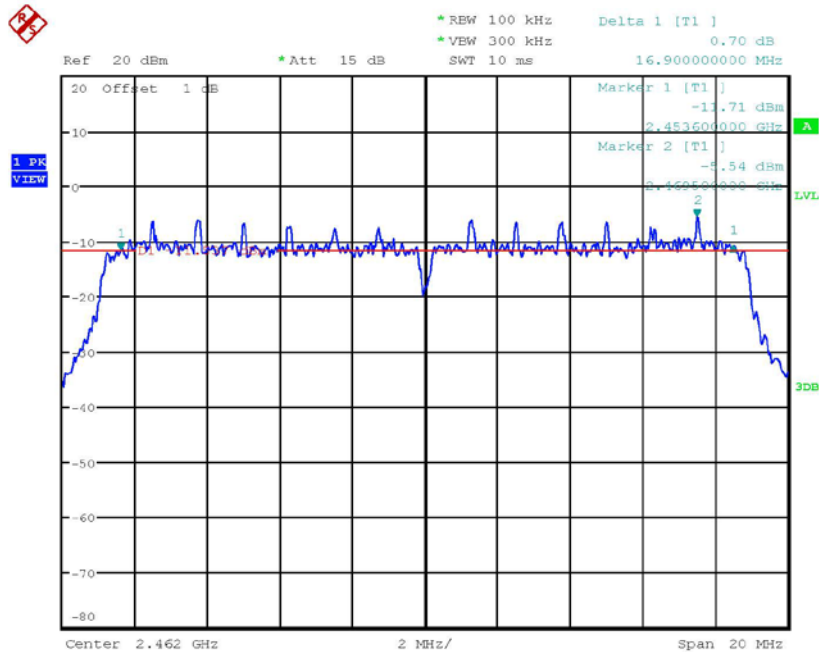
6DB BANDWIDTH 802.11N 20MHZ CH1
Date: 15.FEB.2022 20:29:37



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11N 20MHZ CH6
Date: 15.FEB.2022 17:50:21

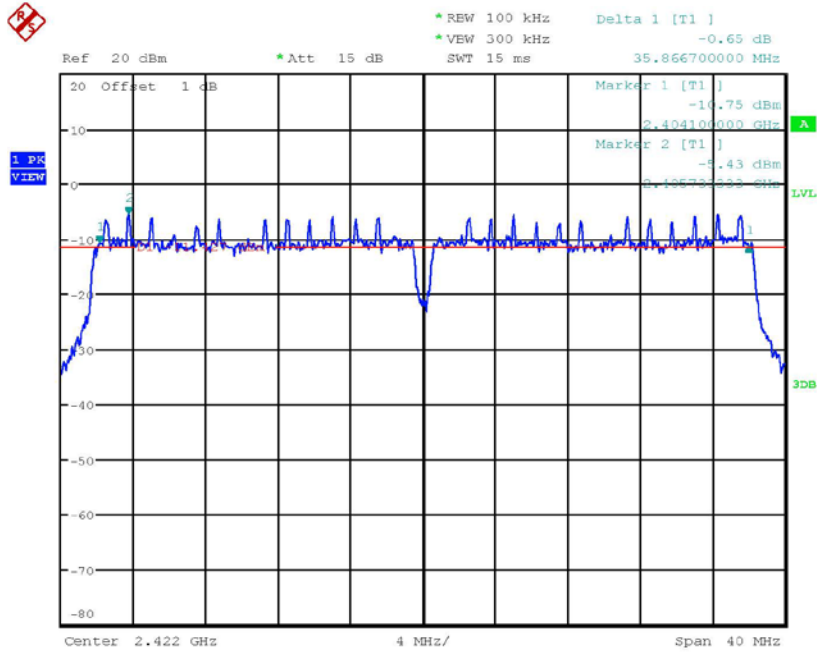


6DB BANDWIDTH 802.11N 20MHZ CH11
Date: 15.FEB.2022 18:01:07

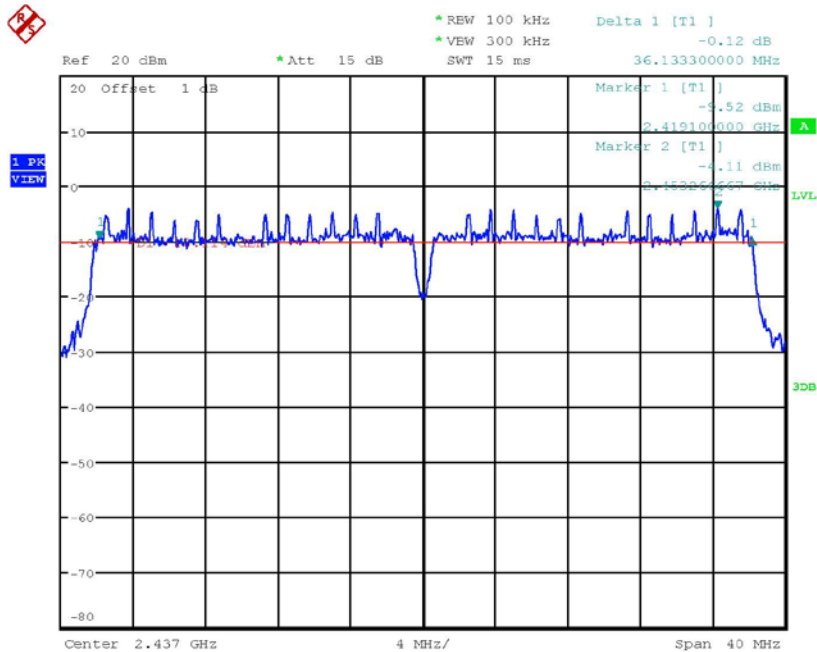


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



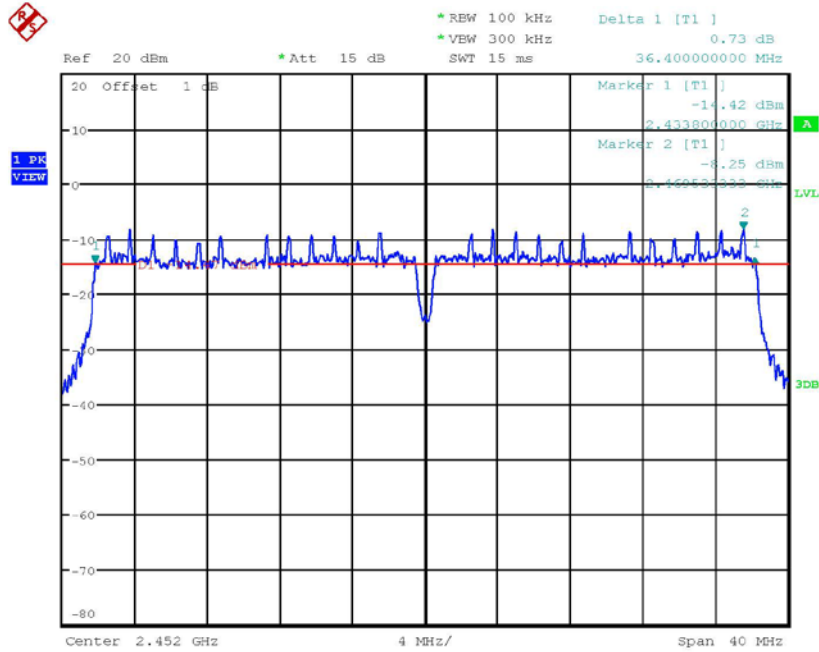
6DB BANDWIDTH 802.11N 40MHZ CH1
Date: 15.FEB.2022 18:03:43



6DB BANDWIDTH 802.11N 40MHZ CH4
Date: 15.FEB.2022 18:05:08

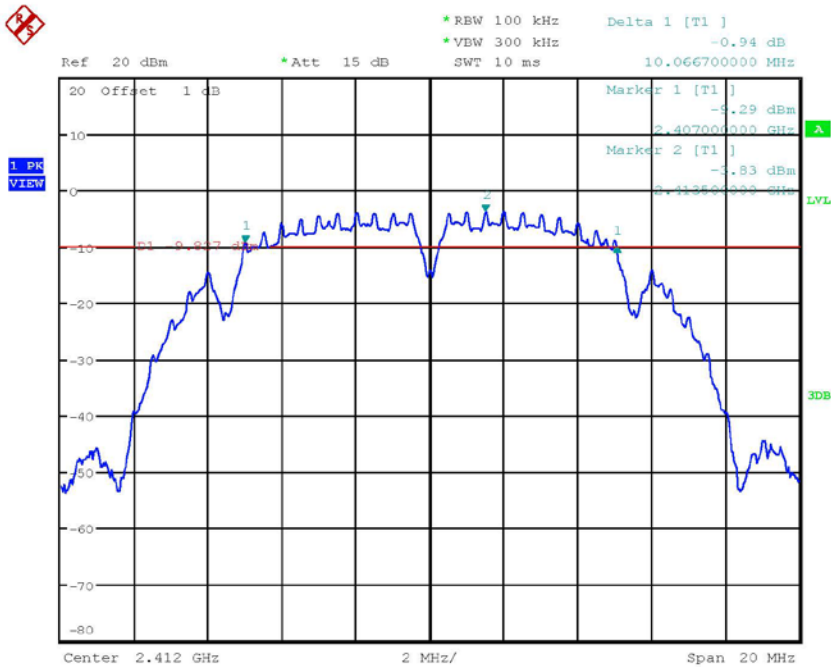


Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11N 40MHZ CH7
Date: 15.FEB.2022 18:18:20

ANT 1

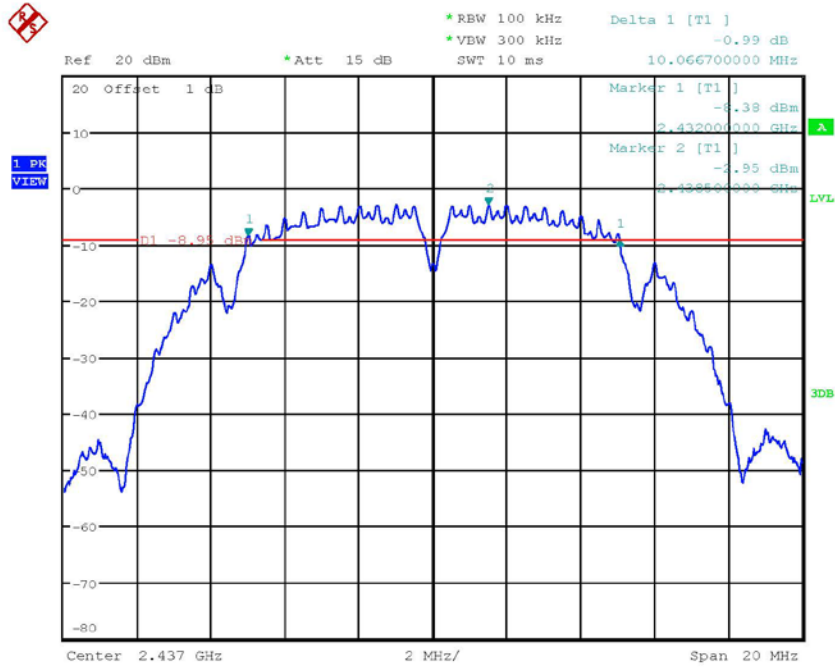


6DB BANDWIDTH 802.11B CH01
Date: 15.FEB.2022 20:56:56

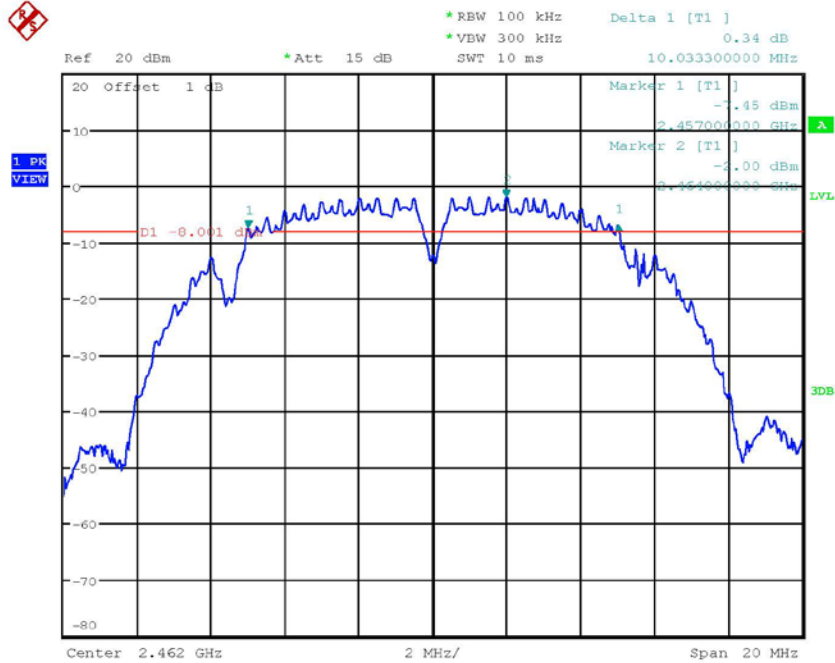


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11B CH06
Date: 15.FEB.2022 20:58:26

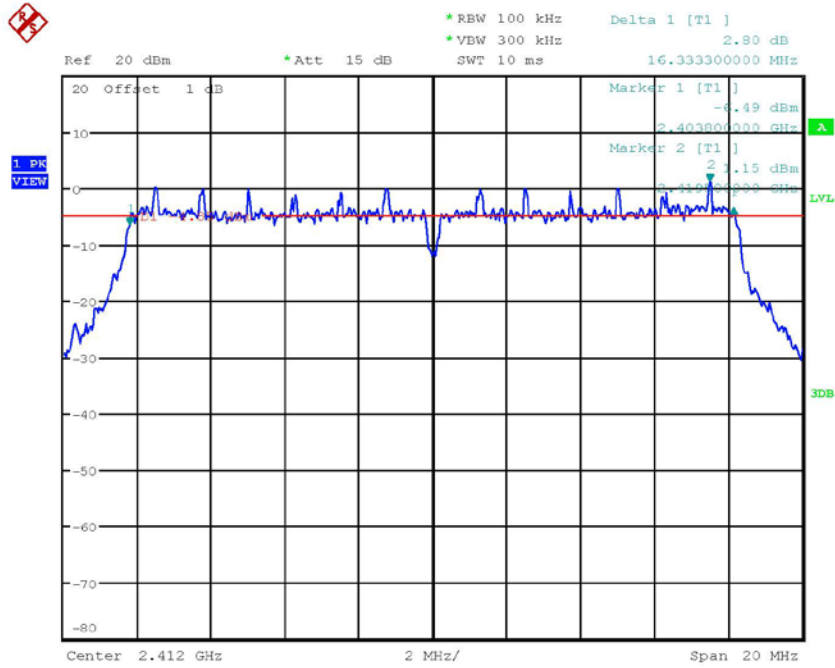


6DB BANDWIDTH 802.11B CH11
Date: 15.FEB.2022 20:59:27

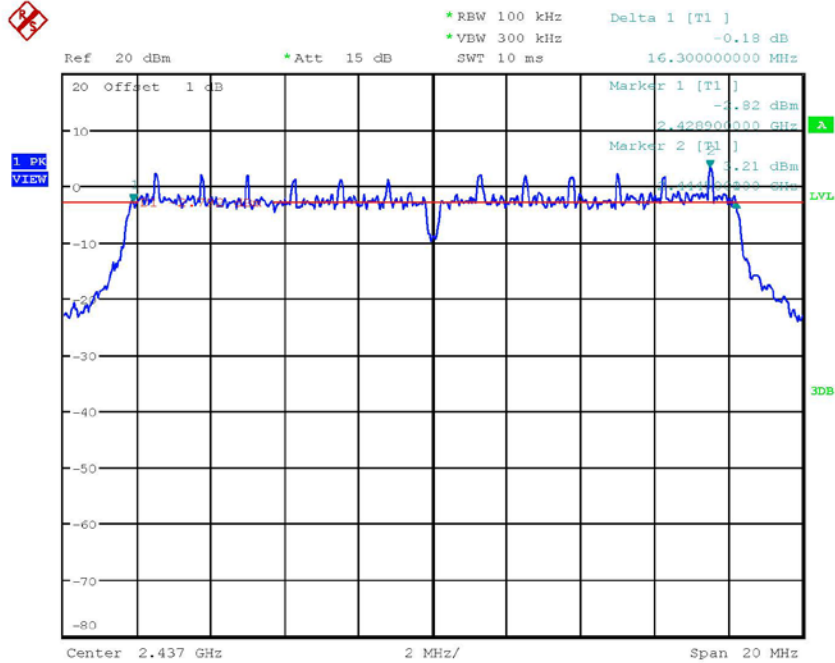


Worldwide Testing Services(Taiwan) Co., Ltd.

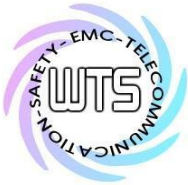
Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11G CH01
Date: 15.FEB.2022 21:01:35

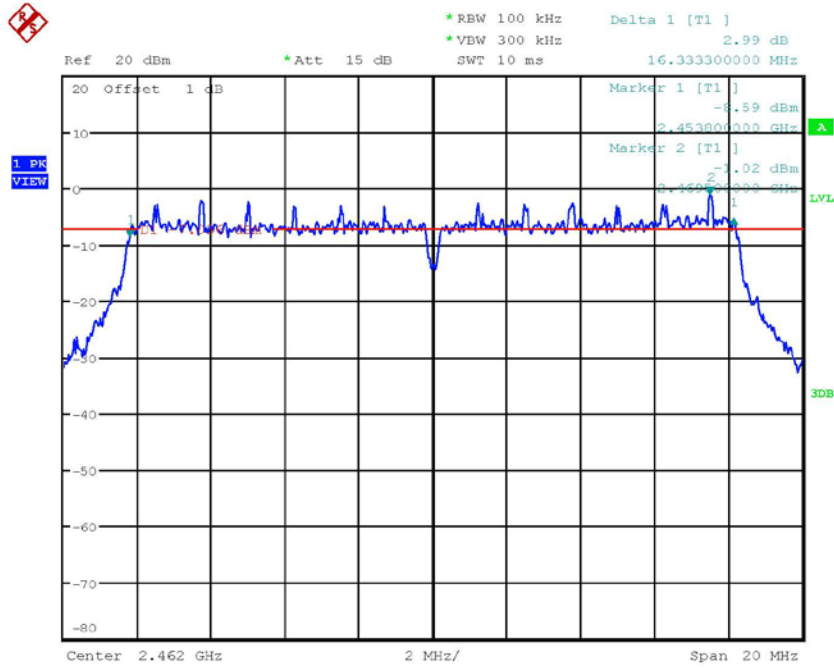


6DB BANDWIDTH 802.11G CH06
Date: 15.FEB.2022 21:03:01

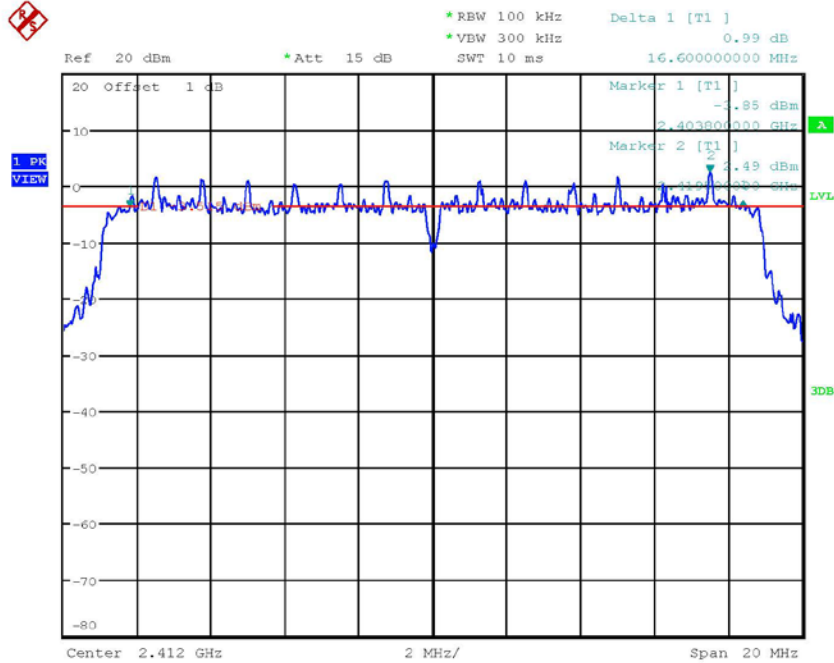


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11G CH11
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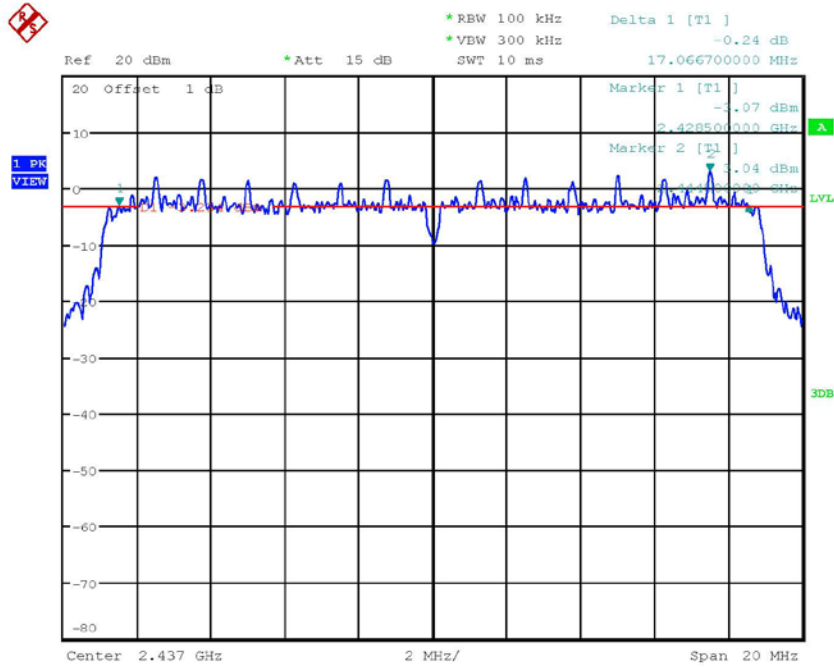


6DB BANDWIDTH 802.11N 20MHZ CH1
Date: 15.FEB.2022 21:06:28

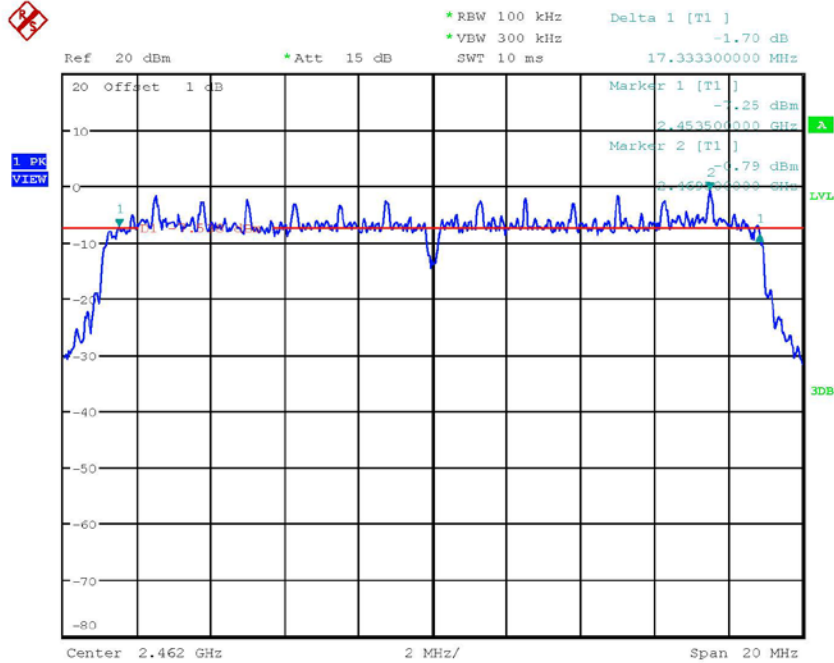


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11N 20MHZ CH6
Date: 15.FEB.2022 21:07:35

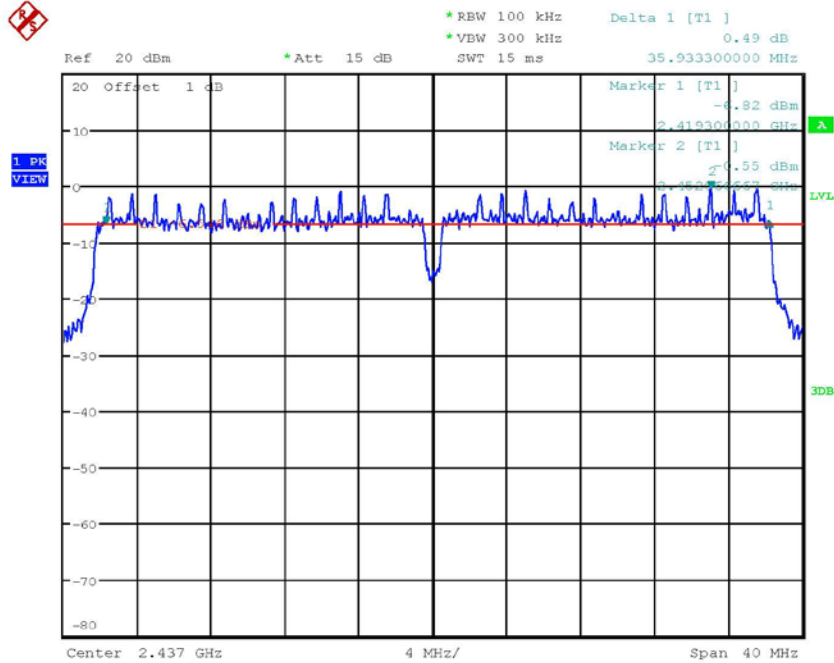
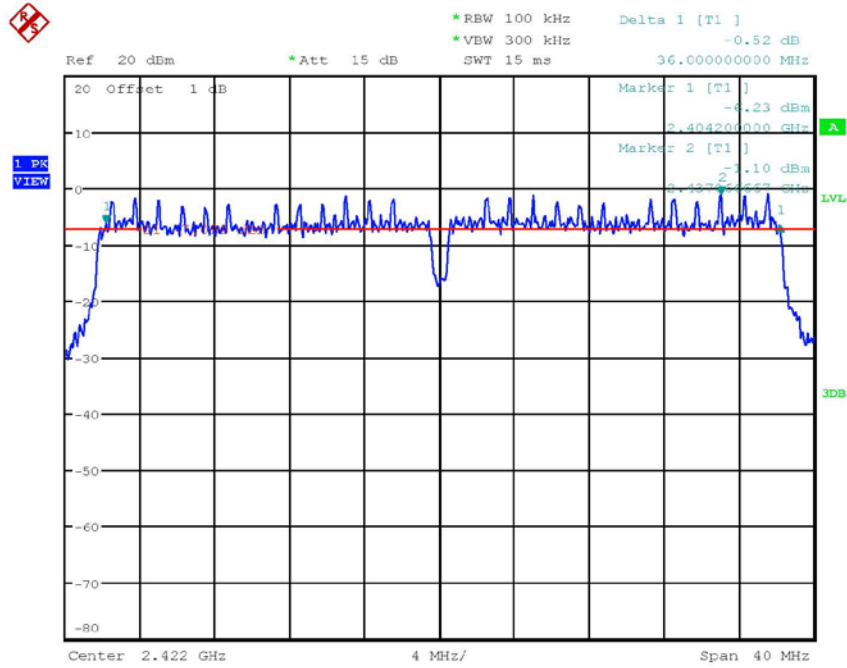


6DB BANDWIDTH 802.11N 20MHZ CH11
Date: 15.FEB.2022 21:08:44



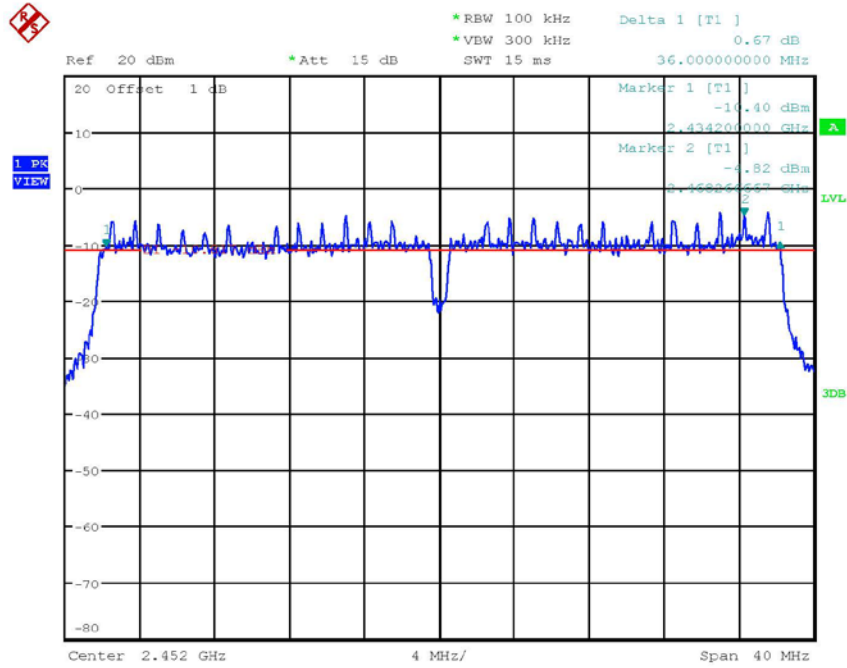
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1





Registration number: W6M22111-21376-C-1
 FCC ID: TKZAP7632EC1



6DB BANDWIDTH 802.11N 40MHZ CH7
 Date: 15.FEB.2022 21:33:36

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.



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1

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.

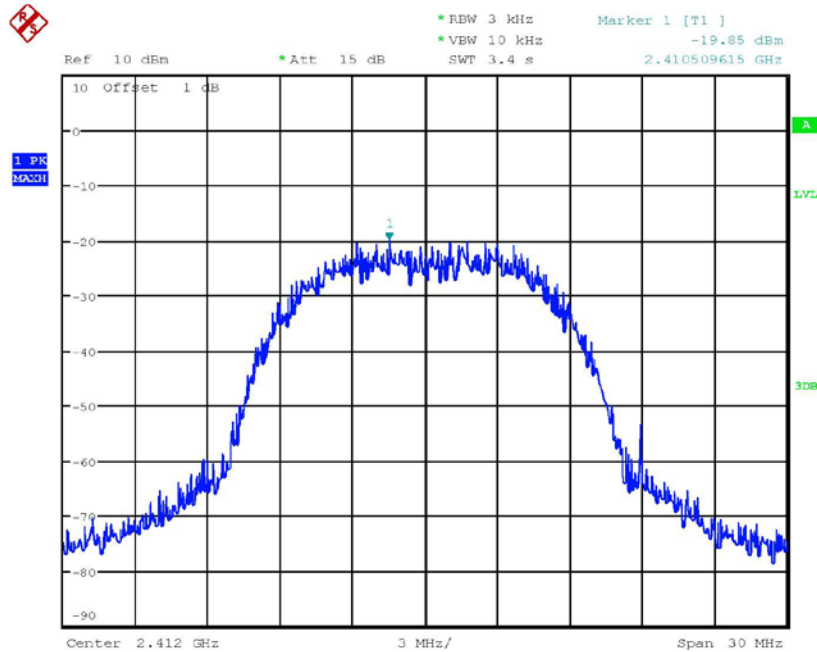
Test date: February 15, 2022

Temperature: 22.3 °C

Humidity: 54.2 %

Tester: Rick

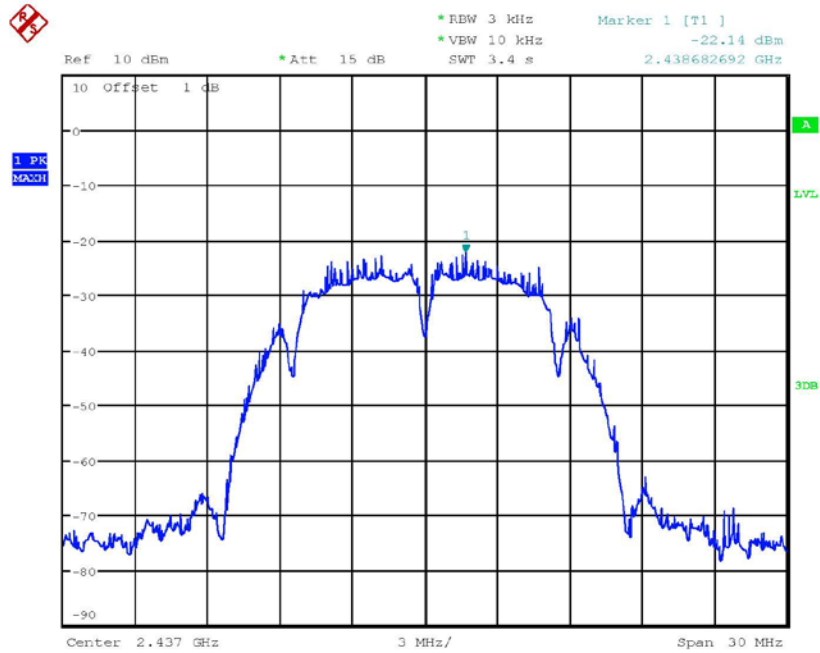
ANT 0



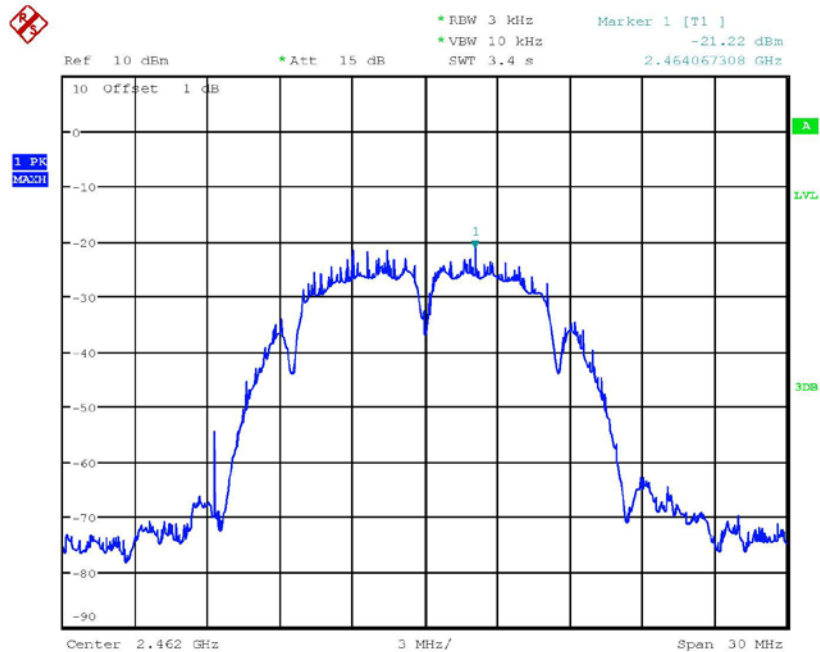
POWER DENSITY 802.11B CH01
Date: 15.FEB.2022 17:28:46



Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



POWER DENSITY 802.11B CH06
Date: 15.FEB.2022 17:29:49

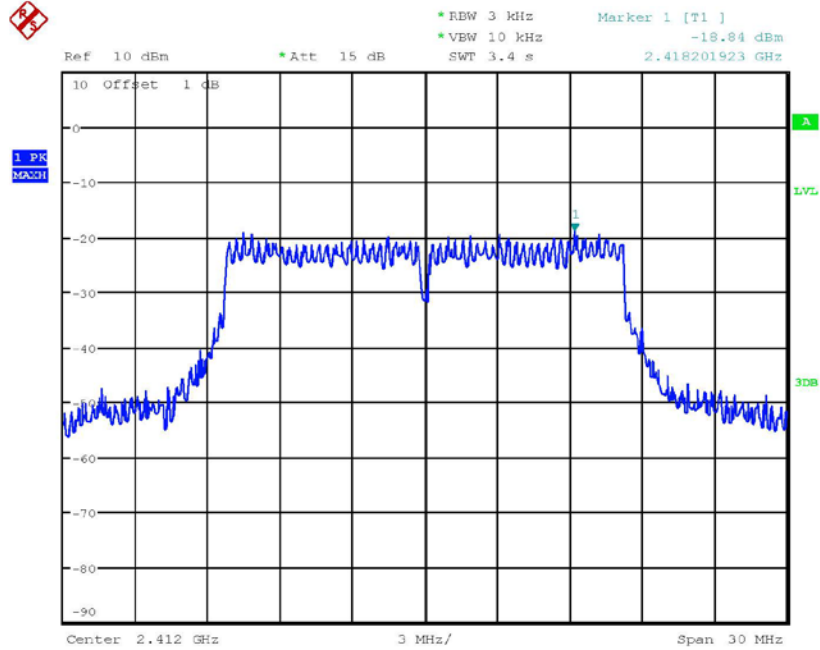


POWER DENSITY 802.11B CH11
Date: 15.FEB.2022 17:30:48

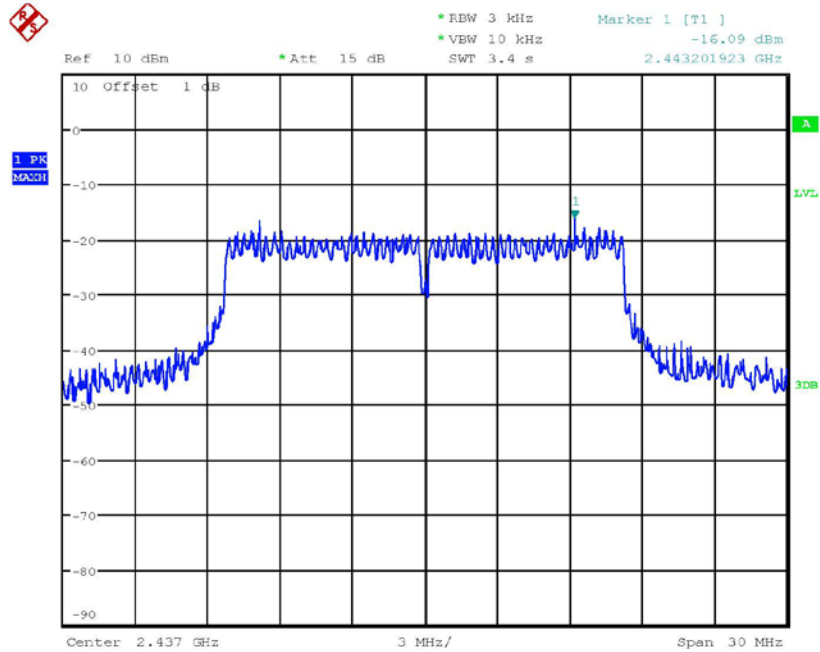


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



POWER DENSITY 802.11G CH01
Date: 15.FEB.2022 17:36:17

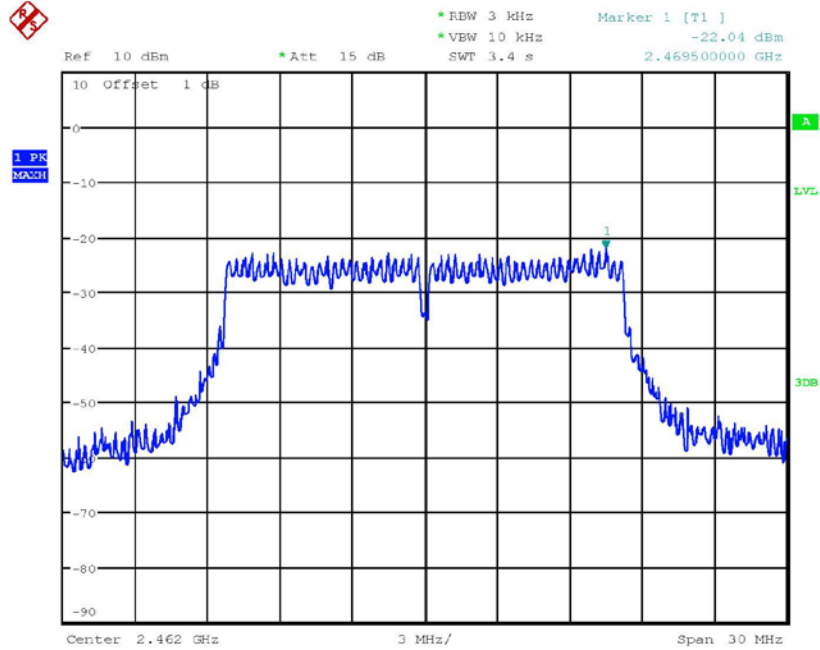


POWER DENSITY 802.11G CH06
Date: 15.FEB.2022 17:37:19

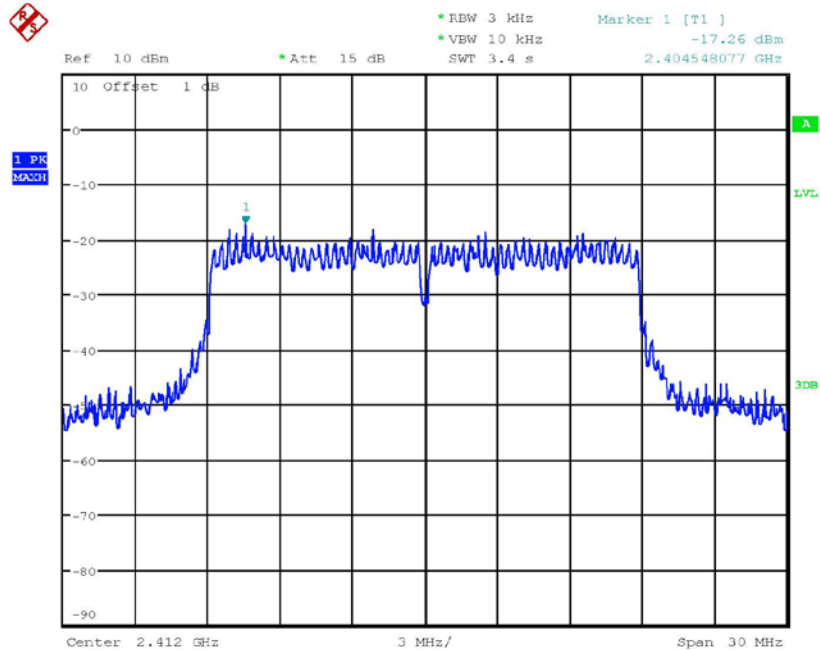


Worldwide Testing Services(Taiwan) Co., Ltd.

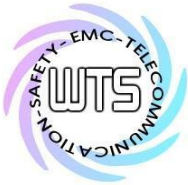
Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



POWER DENSITY 802.11G CH11
Date: 15.FEB.2022 17:38:29

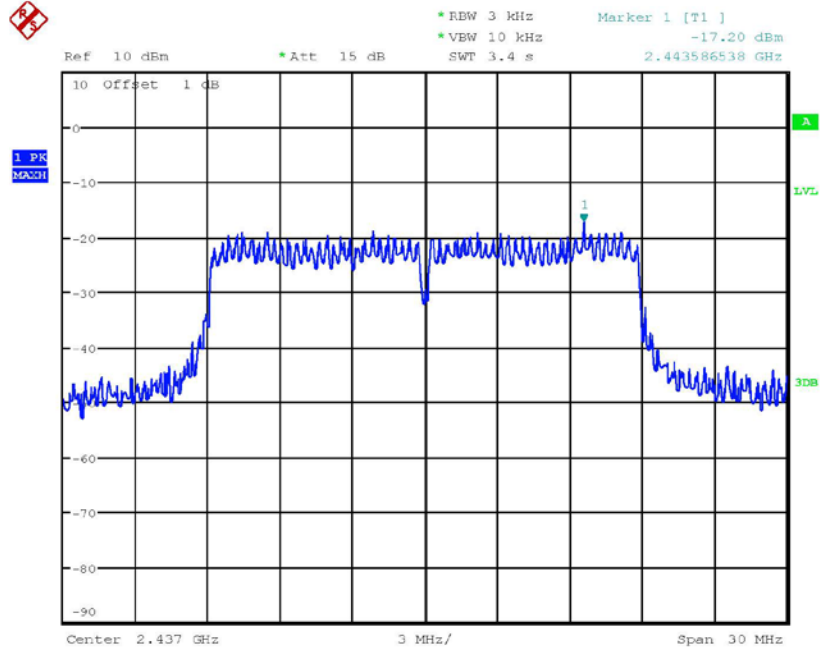


POWER DENSITY 802.11N 20MHZ CH1
Date: 15.FEB.2022 20:29:45

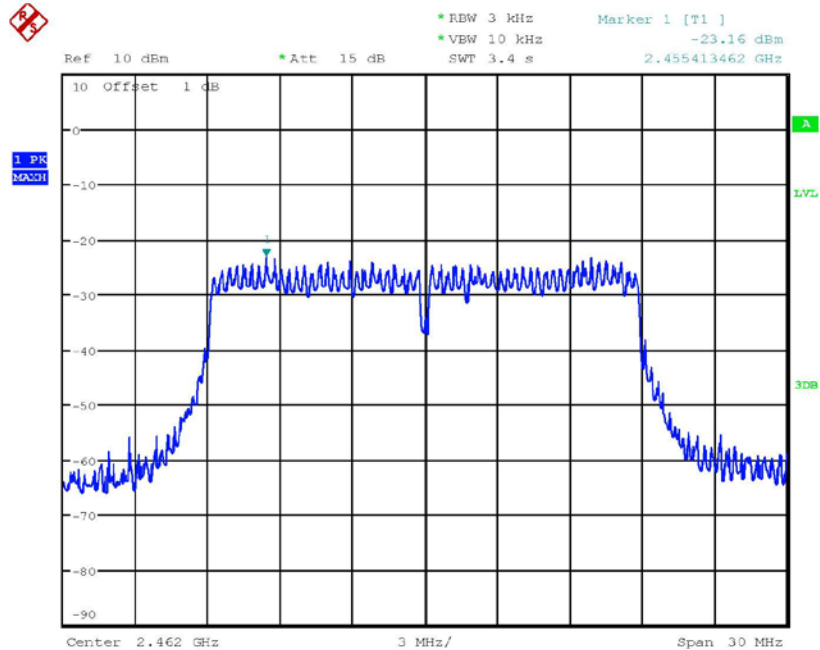


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22111-21376-C-1
FCC ID: TKZAP7632EC1



POWER DENSITY 802.11N 20MHZ CH6
Date: 15.FEB.2022 17:50:29



POWER DENSITY 802.11N 20MHZ CH11
Date: 15.FEB.2022 18:01:15