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World Standardization Certification & Testing Group (Shenzhen) Co., Ltd





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TEST REPORT

FCC ID: 2ADYY-K16SDA Product: Laptop Computer Model No.: K16SDA Trade Mark: TECNO Report No.: WSCT-A2LA-R&E240300014A-Wi-Fi1 Issued Date: 06 June 2024

Issued for:

FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

Issued By:

World Standardization Certification & Testing Group(Shenzhen) Co.,Ltd. Building A-B, Baoshi Science & Technology Park, Baoshi Road Bao'an District, Shenzhen, Guangdong, China TEL: +86-755-26996192

FAX: +86-755-86376605

Note: The results contained in this report pertain only to the tested sample. This report shall not be reproduced, except in full, without written approval of World Standardization Certification & Testing Group(Shenzhen) Co., Ltd. This report must not be used by the client to claim product certification, approval, or any agency of the U.S. Government.



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ADD:Building A-B Baoshi Science & Technology Park, Baoshi Road, Bao an District, Shenzhen, Guangdong, China TEL:86-755-26996192 26992308 FAX-86-755-86376605 E-mail: Fengbing Wang@wsct-cert.com Http://www.wsct-cert.com 世标检测认证股份 (Shenzhen) Co., Ltd

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1. Test Certification

1. Test Cert	ification Please Contact with WSCT
Product:	Laptop Computer
Model No.:	K16SDA
Trade Mark:	TECNO
Applicant:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Date of Test:	09 April 2024 to 05 June 2024 WSLT WSLT
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
The above equin	ment has been tested by World Standardization Continentian & Testing

The above equipment has been tested by World Standardization Certification & Testing Group(Shenzhen)Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

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Tested By:	Checked	10	2 Perun	
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				CT SE
Approved By: Linguan		Date: 06 June	2014 Bar	1.5
(Liu Fuxin)		1 / me	10 PHOM	*2005176
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Color Color Sheet	X	X	X	
世际检测认证股份 ADD:Buil	Iding A-B.Baoshi Science & Techno 755-26996192 26996053 FAX:0086-7	llogy Park, Baoshi Road,Baoar 55-86376605 E-mail:fengbing.war	n District, Shenzhen, Guang ng@wscl-cert.com Http:www.	dong, China wsct-cert.com
World Standardization Certification & Techno Group (Shenzhen) Co., Ltd. TEL:0086-	\sim		Member of t	he WSCT INC.
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2. Test Result Summary

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	AVAIA AVAIA		AV494A	WSLT N
/	Requirement	CFR 47 Section	Result	
2	Antenna requirement	§15.203/§15.247 (c)	PASS	
	AC Power Line Conducted Emission	§15.207	PASS	\checkmark
/	Conducted Peak Output Power	§15.247 (b)(3) §2.1046	PASS	WSET
	6dB Emission Bandwidth	§15.247 (a)(2) §2.1049	PASS	
	Power Spectral Density	§15.247 (e)	PASS	\bigtriangledown
_	Band Edge	1§5.247(d) §2.1051, §2.1057	PASS	WEIT
-	Spurious Emission	§15.205/§15.209 §2.1053, §2.1057	PASS	

Note:

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- 1. PASS: Test item meets the requirement.
- 2. Fail: Test item does not meet the requirement.
- 3. N/A: Test case does not apply to the test object.
- 4. The test result judgment is decided by the limit of test standard.

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3. EUT Description

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Product:	Laptop Computer	1414
Model No.:	K16SDA	
Trade Mark:	TECNO	
Operation Frequency:	2412MHz~2462MHz (802.11b/g/n/ax(HT20)) 2422MHz~2452MHz (802.11n/ax(HT40))	\smallsetminus
Channel Separation:	5MHz	17333
Modulation type:	DSSS (DBPSK, DQPSK, CCK) for IEEE 802.11b OFDM/OFDMA(BPSK,QPSK,16QAM,64QAM,1024QAM) for IEEE 802.11g/n/ax	FIRE
Antenna Type:	FPC Antenna	/
Antenna Gain	MAIN ANT: 3.52dBi AUX ANT: 2.64 dBi	\times
Rechargeable Li-Polymer Battery:	Model: K16S Nominal Voltage: 11.55V Rated Capacity: 6060mAh Rated nergy: 70.00Wh Limited Charge Voltage: 13.2V	1517
Adapter:	Adapter: E065-1R200325VU Input: 100-240V~,50/60Hz,1.5A Output: 20.0V3.25A	\times
Remark:	N/A. WSG	THE



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Operation Frequency each of channel For 802.11b/g/n(HT20)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
CIN III	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		
×.	hursen	6	Allerand		ATTINA		Allerand

Operation Frequency each of channel For 802.11n (HT40)

			-		<u> </u>		
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
ANHER	~ - /	4.17	2427MHz	11751	2442MHz	AHST	<u> - /</u>
		5	2432MHz	8	2447MHz	-	
3	2422MHz	6	2437MHz	9	2452MHz		X

Note:

In section 15.31(*m*), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

802.11b/g/n/ax (HT20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n/ax (HT40)

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Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

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Genera Information 4.

4.1. Test environment and mode

Operating Environment:

Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar

Test Mode:

MM * PI

Engineering mode:

Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%)

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. For the full battery state and The output power to the maximum state.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

mas monst base.		
AVISION A	Mode W507	AVISTAT .
\bigvee	802.11b	\vee
Δ	802.11g	Δ
	802.11n(H20)	
X	802.11n(H40)	X
AVISTO 1	802.11ax(H20)	AUSIAT .
\bigvee	802.11ax(H40)	\vee
Final Test Mode:		
Operation mode:	Keep the EUT in con with modulation	tinuous transmitting
T.For WIFI function, the end	gineering test program was provided and ena	bled to make EUT
世标检测认证股份 (the Certification & Congroup (Shenzhen) Co., Ltd	ADD:Building A-B Baoshi Science & Technology Park, Baoshi Roa TEL:86-755-26996192 26992306 FAX-86-755-86376605 E-mail: Fen	nd, Bao'an District, Shenzhen, Guangdong,

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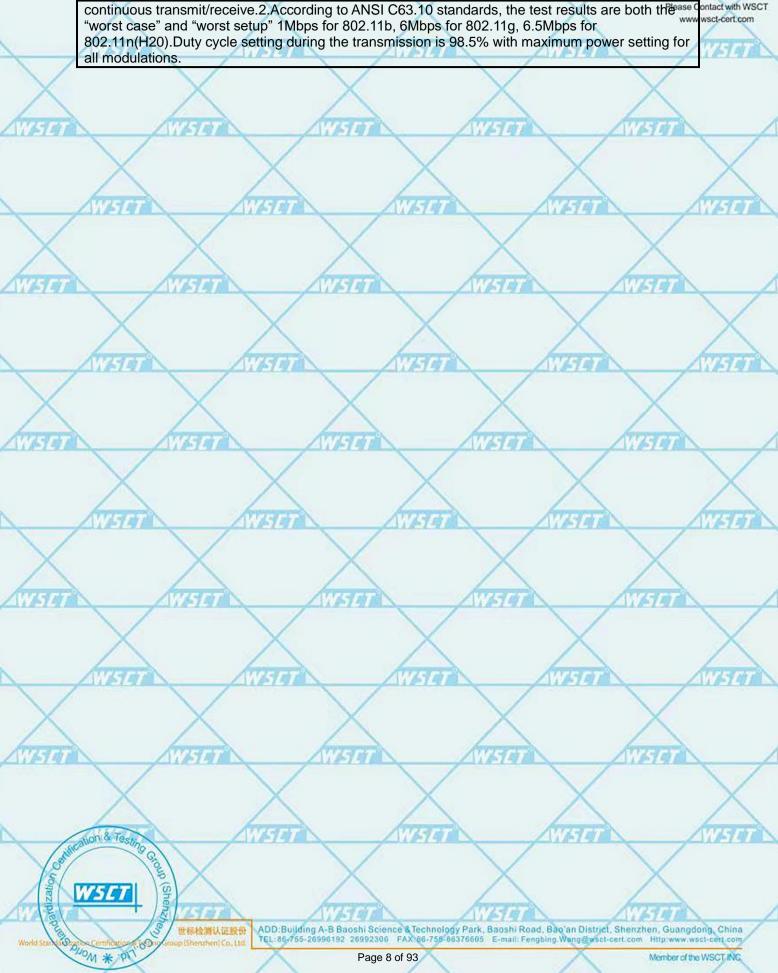
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4.2. Description of Support Units

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The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

	Equipment	Model No.	Serial No.	FCC ID	Trade Name
	Adapter	Adapter1	1 ×	/	ADAPTER
1	Router	Archer AX6000	1/1/50	TE7AX6000	507

Note:

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- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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5. Facilities and Accreditations

5.1. Facilities

All measurement facilities used to collect the measurement data are located at Building A-B, Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China of the World Standardization Certification & Testing Group(Shenzhen) CO., LTD

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 32. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.2. ACCREDITATIONS

CNAS - Registration Number: L3732

China National Accreditation Service for Conformity Assessment, The test firm Registration Number: L3732

FCC - Designation Number: CN1303

World Standardization Certification & Testing Group(Shenzhen) CO., LTD. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Designation Number: CN1303.

A2LA - Certificate Number: 5768.01

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The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA).Certification Number: 5768.01

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5.3.Measurement Uncertainty

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The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

	00111001			-
2	No.	Item	MU	
9	1	Conducted Emission Test	±3.2dB	\checkmark
	2	RF power, conducted	±0.16dB	X
_;	31750	Spurious emissions, conducted	±0.21dB	WSET
/	4	All emissions, radiated(<1GHz)	±4.7dB	
2	5	All emissions, radiated(>1GHz)	±4.7dB	
	6	Temperature	±0.5°C	\checkmark
	7	Humidity	±2.0%	X
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5.4.MEASUREMENT INSTRUMENTS

ALL AND	1694	1141		14740		10
NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	Calibration Date	Calibration Due.	
Test software	-	EZ-EMC	CON-03A	- A	AT AN	
Test software		MTS8310	/		1	1
EMI Test Receiver	R&S	ESCI	100005	11/05/2023	11/04/2024	X
LISN	AFJ	LS16	1601 <mark>0222119</mark>	11/05/2023	11/04/2024	5/2
LISN(EUT)	Mestec	AN3016	04/10040	11/05/2023	11/04/2024	
Universal Radio Communication Tester	R&S	CMU 200	1100.0008.02	11/05/2023	11/0 <mark>4</mark> /2024	
Coaxial cable	Megalon	LMR400	N/A	11/05/2023	11/04/2024	.)
GPIB cable	Megalon	GPIB	N/A	11/05/2023	11/04/2024	X
Spectrum Analyzer	R&S	FSU	100114	11/05/2023	11/04/2024	5/2
Pre Amplifier	H.P.	HP8447E	2945A02715	11/05/2023	11/04/2024	
Pre-Amplifier	CDSI	PAP-1G18-38		11/05/2023	11/04/2024	
Bi-log Antenna	SUNOL Sciences	WSC JB3	A021907	11/05/2023	11/04/2024	
9*6*6 Anechoic			-	11/05/2023	11/04/2024	
Horn Antenna	COMPLIANCE ENGINEERING	CE18000	-	11/05/2023	11/04/2024	\frown
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-631	11/05/2023	11/04/2024	SE
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	11/05/2023	11/04/2024	
System-Controller	ccs	N/A	N/A	N.C.R	N.C.R	
Turn Table	ccs	N/A	N/A	N.C.R	N.C.R	
Antenna Tower	ccs	N/A	N/A	N.C.R	N.C.R	\times
RF cable	Murata	MXHQ87WA300 0	-	11/05/2023	11/04/2024	577
Loop Antenna	EMCO	6502	00042960	11/05/2023	11/04/2024	
Horn Antenna	SCHWARZBECK	BBHA 9170	1123	11/05/2023	11/04/2024	
Power meter	Anritsu	ML2487A	6K00003613	11/05/2023	11/04/2024	
Power sensor	Anritsu	MX248XD	/ -	11/05/2023	11/04/2024	0
Spectrum Analyzer	Keysight	N9010B	MY60241089	11/05/2023	11/04/2024	X
(in the second	horrow	APPER	Acres 1	Arrent	here	-

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6. Test Results and Measurement Data

6.1. Antenna requirement

Report No.: WSCT-A2LA-R&E240300014A-Wi-Fi1

Standard requirement: FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

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6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement: Test Method: Frequency Range: Receiver setup:	FCC Part15 C Section ANSI C63.10:2014 150 kHz to 30 MHz RBW=9 kHz, VBW=30 Frequency range	A112707	
Frequency Range: Receiver setup:	150 kHz to 30 MHz RBW=9 kHz, VBW=30 Frequency range) kHz, Sweep time	
Receiver setup:	RBW=9 kHz, VBW=30) kHz, Sweep time	
	Frequency range	0 k <mark>Hz, Swee</mark> p time	
imits:			=auto
WISET	(MHz) 0.15-0.5 0.5-5 5-30	Limit (Quasi-peak 66 to 56* 56 60	dBuV) Average 56 to 46* 46 50
$\times \rightarrow$	Reference		50
	A	80cm LISN Filter	AC power
Test Setup:	E.U.T AC power	EMI Receiver	1 -
	Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization N Test table height=0.8m	letwork	
Fest Mode:	Charging + transmittin	ng with modulation	\sim
WISTER WIST	 The E.U.T is connecting impedance star provides a 500hm/ measuring equipmer The peripheral deviation 	abilization network 50uH coupling im ent. ces are also conne	(L.I.S.N.). This pedance for the ected to the mair
Test Procedure:	 power through a L coupling impedance refer to the block photographs). 3. Both sides of A.C conducted interfere emission, the relative 	e with 50ohm tern diagram of the line are checke nce. In order to fi	nination. (Please test setup and ed for maximum nd the maximum
Test Result:	the interface cable ANSI C63.10: 2014 PASS		
Test Resulf:		A	X



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6.2.2. Test data

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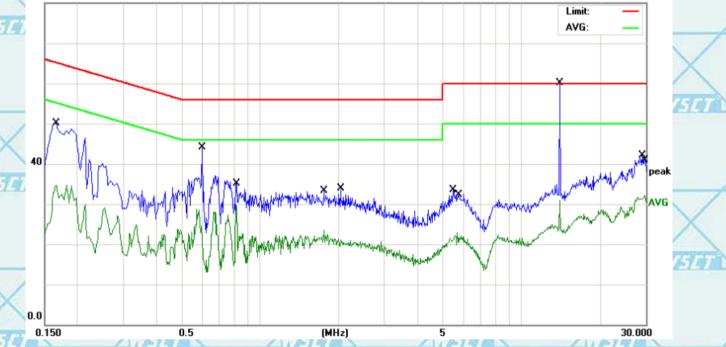
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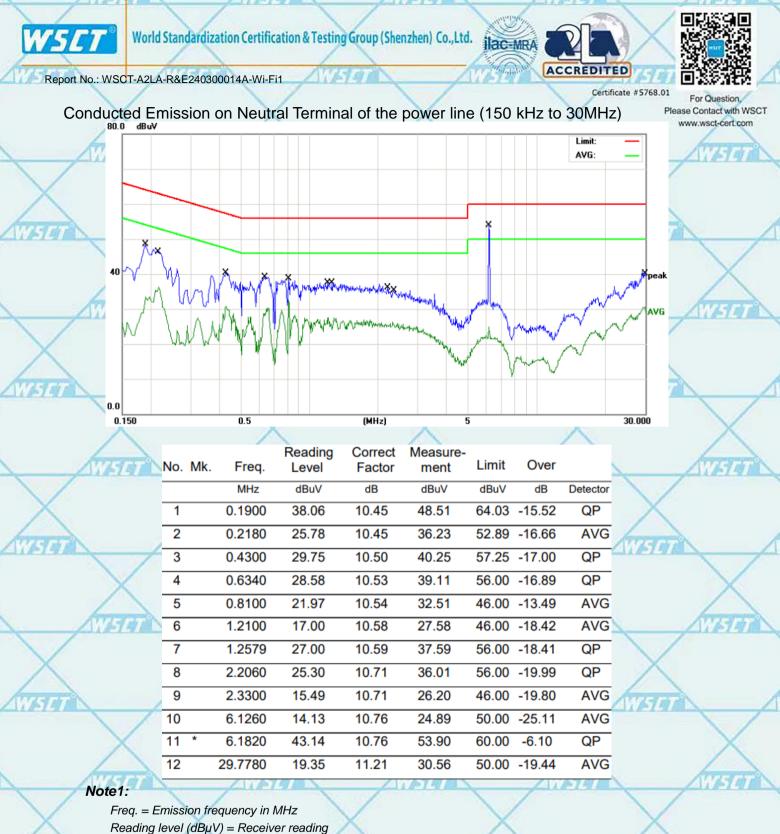
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Please refer to following diagram for individual The worst mode is MIMO802.11n20 Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz) 80.0 dBuV



A				1					1	-
(No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
2			MHz	dBuV	dB	dBuV	dBuV	dB	Detector	
	1		0.1660	39.70	10.45	50.15	65.15	-15.00	QP	<
	2		0.1660	24.29	10.45	34.74	55.15	-20.41	AVG	
	3	*	0.6020	33.64	10.53	44.17	56.00	-11.83	QP	,
	4		0.8100	19.41	10.54	29.95	46.00	-16.05	AVG	Ľ
/	5		1.7660	12.93	10.67	23.60	46.00	-22.40	AVG	
1	6		2.0380	23.13	10.71	33.84	56.00	-22.16	QP	
77	7		5.4860	22.69	10.75	33.44	60.00	-26.56	QP	
	8		5.7020	12.06	10.75	22.81	50.00	-27.19	AVG	5
	9		14.0060	15.51	11.13	26.64	60.00	-33.36	QP	
	10		14.0060	19.84	11.13	30.97	50.00	-19.03	AVG	4
1	11		29.1660	30.86	11.19	42.05	60.00	-17.95	QP	L
	12		29.7100	20.84	11.20	32.04	50.00	-17.96	AVG	
			1	1		/ \		1		

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Corr. Factor (dB) = Antenna factor + Cable loss

Measurement $(dB\mu V) =$ Reading level $(dB\mu V) +$ Corr. Factor (dB)

Limit ($dB\mu V$) = Limit stated in standard

Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. =Quasi-Peak AVG =average

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* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

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6.2.3. peak power

6.2.4. Test Specification	ecification	. Test	6.2.4.
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Report No.: WSCT-A2LA-R&E240300014A-Wi-Fi1

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)				
Test Method:	KDB 558074				
Limit:	30dBm	\checkmark			
Test Setup:	Spectrum Analyzer	WISTO			
Spectrum Analyzer Lor Test Mode: Transmitting mode with modulation					
Test Procedure:	 The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Measure the conducted output power and record the results in the test report. 				
Test Result:	PASS				
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- (i) If all antennas have the same gain, G_{ANT} : Directional gain = G_{ANT} + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and G_{ANT} is the antenna gain in dBi. (This formula can also be applied when antennas have different gains if the highest antenna gain is substituted for G_{ANT} .)
- (ii) If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following two formulas.
 - Directional gain = $G_{ANT MAX}$ + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and GANT MAX is the gain of the antenna having the highest gain (in dBi).
 - Or,

 $DirectionalGain = 10 \cdot \log \left| \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right|$

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- Each antenna is driven by no more than one spatial stream; N_{SS} = the number of independent spatial streams of data; N_{ANT} = the total number of antennas
- $g_{j,k} = 10^{G_k/20}$ if the *k*th antenna is being fed by spatial stream *j*, or zero if it is not; G_k is the gain in dBi of the kth antenna.

For power measurements on IEEE 802.11 devices, 1,2 Array Gain = 0 dB (i.e., no array gain) for NANT \leq 4; Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT; Array Gain = 5 log(NANT/NSS) dBi or 3 dB, whichever is less, for 20-MHz channel widths with NANT \geq 5.

Note: Nant=2, satisfy the condition Nant≤4, so Array gain=0dB, Directional gain=Gant+Array gain=3.52dBi+0dB=3.52dBi, not more than 6, so the power limit is unchanged.

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6.2.5. Test Data

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1	Mode	Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Verdict	
1	b	2412	21.12	30	Pass	
4	b	2437	22.44	30	Pass	
M/E	b	2462	21.63	30	Pass	
	g	2412	25.93	30	Pass	1
	g	2437	26.05	30	Pass	
	g	2462	26.17	30	Pass	
_	n20	2412	25.8	30	Pass	ġ
1	n20	2437	26	30	Pass	
	n20	2462	26.02	30	Pass	
/	n40	2422	25.32	30	Pass	
11/2	n40	2437 // 5	26.15	30	Pass	
	n40	2452	26.33	30	Pass	,
	ax20	2412	26.2	30	Pass	9
	ax20	2437	26.25	30	Pass	
	ax20	2462	26.53	30	Pass	7
1	ax40	2422	25.98	30	Pass	
	ax40	2437	26.25	30	Pass	
1	ax40	2452	26.12	30	Pass	
m	AL LA	keer	A COLORED	Anna	0	

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ANSI Mode Frequency **Total Power** Limit Verdict (MHz) (dBm) (dBm) Pass 30 b 2412 18.72 18.71 30 Pass b 2437 b 2462 18.69 30 Pass 30 Pass 20.22 2412 g Pass 30 2437 20.13 g 19.9 30 Pass 2462 g 30 Pass n20 2412 20.22 20.13 30 Pass n20 2437 Pass 30 n20 2462 19.85 n40 2422 20.51 30 Pass n40 2437 20.4 30 Pass 30 Pass n40 2452 20.31 Pass ax20 30 2412 20.45 ax20 20.34 30 Pass 2437 30 Pass ax20 2462 19.84 30 Pass ax40 2422 20.72 30 Pass ax40 2437 20.42 ax40 2452 20.43 30 Pass

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\times	Mode	Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Verdict	\times	
\land /	n20	2412	26.86	30	Pass		
ISET AW	n20	2437	27.00	30	Pass	WISET	2
	n20	2462	26.96	30	Pass		
X	n40	2422	26.56	30	Pass		
	n40	2437	27.17	30	Pass		
WISET	n40	2452	27.30	30	Pass	T WISTOT	5
	ax20	2412	27.22	30	Pass		
X	ax20	2437	27.24	30	Pass	X	
\land /	ax20	2462	27.37	30	Pass		
ISET AVI	ax40	2422	27.11	30	Pass	WISET	1
	ax40	2437	27.26	30	Pass		
\times	ax40	2452	27.16	30	Pass		
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6.3. Emission Bandwidth

6.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15	.247 (a)(2)		
Test Method:	KDB 558074	WEIT	AVISION	
Limit:	>500kHz	\sim		\times
Test Setup:	Spectrum Analyzer	EUT		VIST
Test Mode:	Transmitting mode with m	odulation	WISET	
Test Procedure:	 The testing follows FCC DTS D01 Meas. Guida Set to the maximum po EUT transmit continuo Make the measuremen resolution bandwidth (Video bandwidth (VBV 	ance v04. ower setting and er ously. it with the spectrur RBW) = 100 kHz. V) = 300 kHz. In o	nable the n analyzer's Set the rder to make	
	an accurate measuren be greater than 500 kl 4 Measure and record the	Hz.	PUT IS A	$\overline{}$
Test Result:		Hz.	PUT IS A	X VETE
Test Result:	be greater than 500 kl 4. Measure and record the	Hz.	PUT IS A	× 1111 ×
Test Result:	be greater than 500 kl 4. Measure and record the	Hz.	PUT IS A	
AVE AVE	be greater than 500 kH 4. Measure and record the PASS	Hz. e results in the tes	t report.	
AVE AVE	be greater than 500 kH 4. Measure and record the PASS	Hz. e results in the tes		
AVISITI AVISITI AVISITI AVISITI AVISITI	be greater than 500 kH 4. Measure and record the PASS	Hz. e results in the tes		



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6.3.2. Test data(worst)

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	Mode	Frequency	-6 dB Bandwidth	Limit -6 dB	Verdict	
		(MHz)	(MHz)	Bandwidth (MHz)		
	b	2412	10.064	0.5	Pass	>
	b /	2437	10.095	0.5	Pass	-
	b	2462	10.083	0.5	Pass	
	g	2412	15.928	0.5	Pass	
k	g	2437	15.897	0.5	Pass	
	g	2462	15.277	0.5	Pass	7
	n20	2412	15.357	0.5	Pass	
	n20	2437	15.245	0.5	Pass	
	n20	2462	15.326	0.5	Pass	2
~	n40	2422	33.869	0.5	Pass	P
	n40	2437	35.098	0.5	Pass	
	n40	2452 🗡	35.01 🗡	0.5	Pass	
2	ax20	2412	15.057	0.5	Pass	
1	ax20	2437	15.046	0.5	Pass	1
	ax20	2462	16.23	0.5	Pass	
	ax40	2422	33.787	0.5	Pass	
	ax40	2437	35.042	0.5	Pass	
1	ax40	2452	35.104	0.5	Pass	

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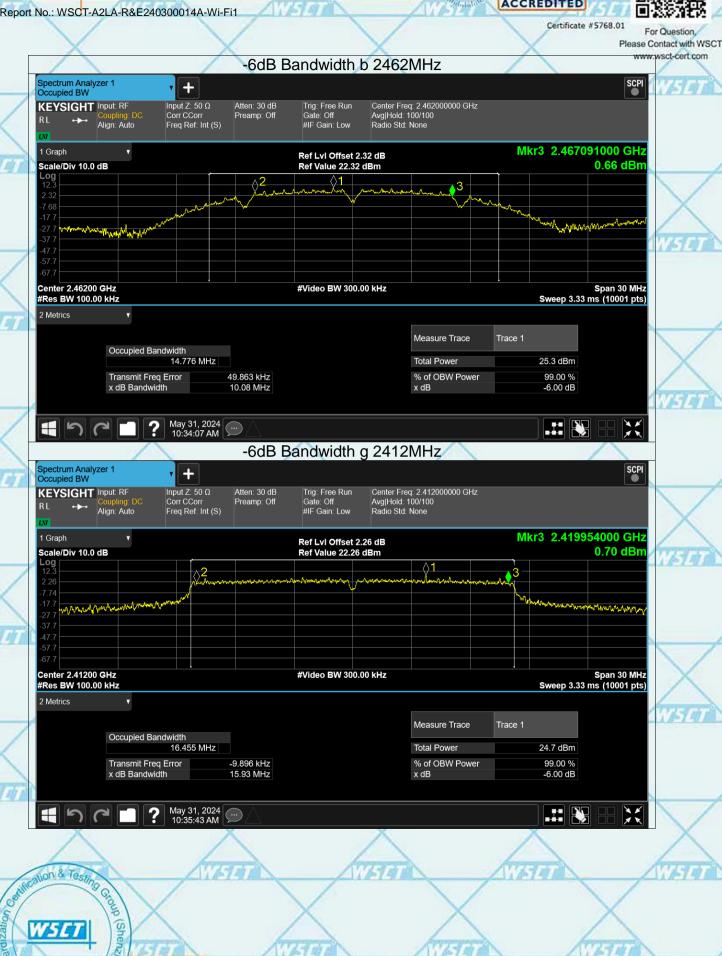
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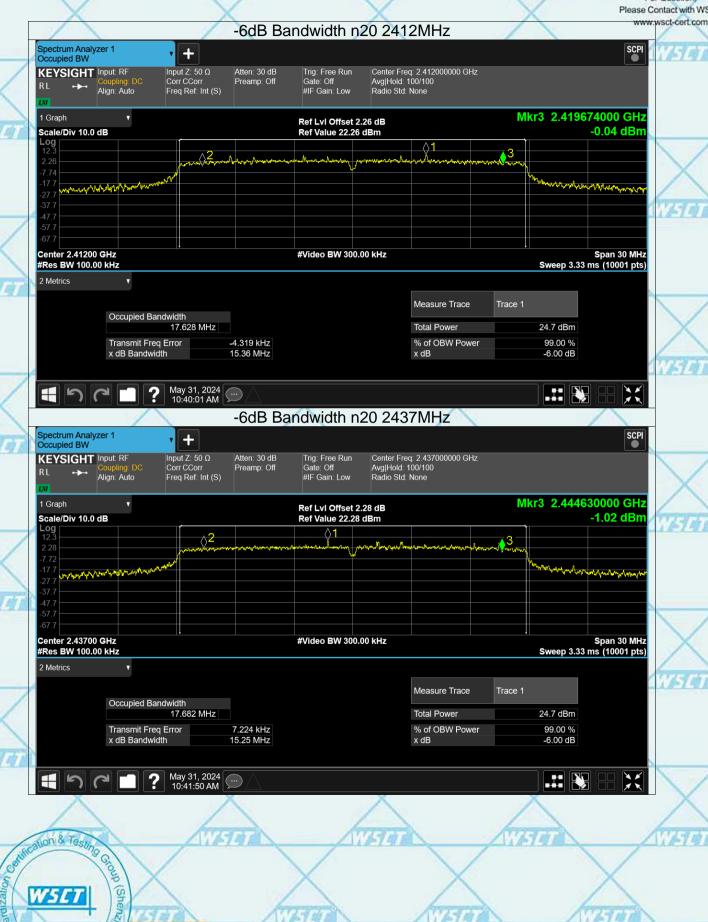
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Please Contact with WSCT www.wsct-cert.com -6dB Bandwidth n40 2437MHz Spectrum Analyzer 1 Occupied BW SCPI + KEYSIGHT Input: RF Input Z: 50 Ω Atten: 30 dB Trig: Free Run Center Freq: 2.437000000 GHz Corr CCorr Freq Ref: Int (S) Preamp: Off Gate⁻ Off Avg|Hold: 100/100 Radio Std: None Align: Auto #IF Gain: Low Mkr3 2.454559000 GHz 1 Graph Ref LvI Offset 2.28 dB Ref Value 22.28 dBm Scale/Div 10.0 dB -2.10 dBm .00 <u>5</u>2 Winnyayun her water and the second and Center 2.43700 GHz #Video BW 300.00 kHz Span 60 MHz #Res BW 100.00 kHz Sweep 6.00 ms (10001 pts) 2 Metrics Measure Trace Trace 1 Occupied Bandwidth 36.206 MHz Total Power 25.1 dBm 10.116 kHz 99.00 % Transmit Freq Error % of OBW Power x dB Bandwidth 35.10 MHz x dB -6.00 dB May 31, 2024 10:46:48 AM ? ÷ Ŋ **1** 7 7 ····) -6dB Bandwidth n40 2452MHz Spectrum Analyzer 1 Occupied BW SCPI + Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) Center Freq: 2.452000000 GHz Avg|Hold: 100/100 Atten: 30 dB Preamp: Off Trig: Free Run Gate: Off KEYSIGHT Input: RF RL ++-Align: Auto #IF Gain: Low Radio Std: None Mkr3 2.469518000 GHz 1 Graph Ref LvI Offset 2.31 dB Scale/Div 10.0 dB Ref Value 22.31 dBm -1.19 dBm ∧2 -01 and the state MAN MANNA and shaked Span 60 MHz Sweep 6.00 ms (10001 pts) Center 2.45200 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz 2 Metrics Measure Trace Trace 1 Occupied Bandwidth 36.250 MHz Total Power 25.3 dBm 12.553 kHz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 35.01 MHz x dB -6.00 dB May 31, 2024 10:49:07 AM $\mathbf{\tilde{\mathbf{x}}}$ ょう ? ÷ (\cdots) Contralion & Testin TOUP

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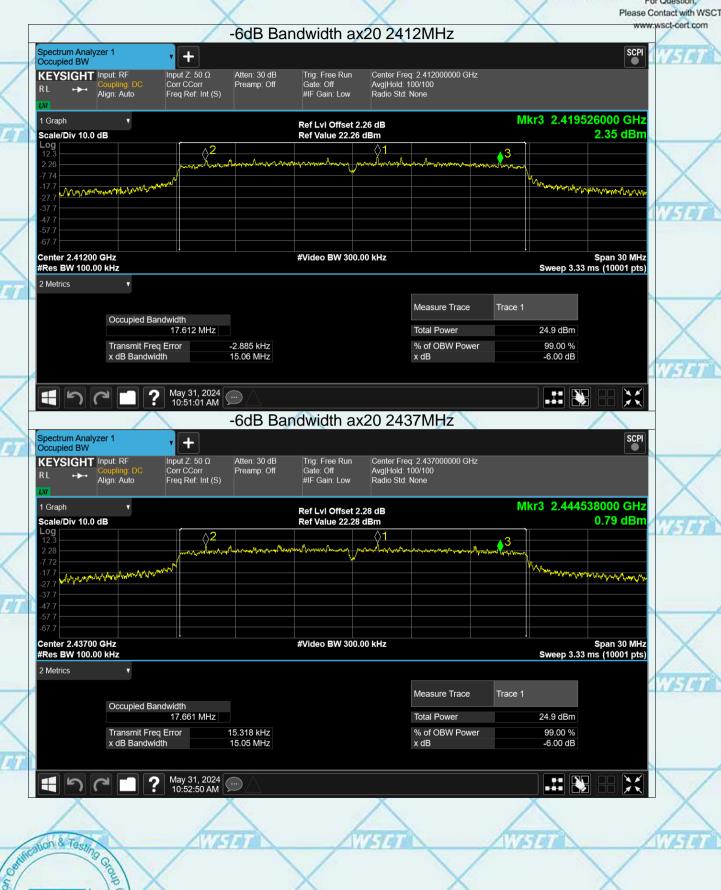
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www.wsct-cert.com -6dB Bandwidth ax20 2462MHz Spectrum Analyzer 1 Occupied BW SCPI + KEYSIGHT Input: RF Input Z: 50 Ω Atten: 30 dB Trig: Free Run Center Freq: 2.462000000 GHz Corr CCorr Freq Ref: Int (S) Preamp: Off Gate⁻ Off Avg|Hold: 100/100 Radio Std: None Align: Auto #IF Gain: Low Mkr3 2.470129000 GHz 1 Graph Ref LvI Offset 2.32 dB Ref Value 22.32 dBm 2.55 dBm Scale/Div 10.0 dB .00 \$1 13 www.www.wetwhat Anthony Center 2.46200 GHz #Res BW 100.00 kHz Span 30 MHz Sweep 3.33 ms (10001 pts) #Video BW 300.00 kHz 2 Metrics Measure Trace Trace 1 Occupied Bandwidth 17.713 MHz Total Power 25.2 dBm 14.093 kHz 99.00 % Transmit Freq Error % of OBW Power x dB Bandwidth 16.23 MHz x dB -6.00 dB May 31, 2024 10:54:18 AM ? ÷ Ŋ **1** 7 7 ····) -6dB Bandwidth ax40 2422MHz Spectrum Analyzer 1 Occupied BW SCPI + Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) Center Freq: 2.422000000 GHz Avg|Hold: 100/100 Atten: 30 dB Preamp: Off Trig: Free Run Gate: Off KEYSIGHT Input: RF RL ----Align: Auto #IF Gain: Low Radio Std: None Mkr3 2.438905000 GHz 1 Graph ۷ Ref LvI Offset 2.27 dB -0.98 dBm Ref Value 22.27 dBm Scale/Div 10.0 dB $\hat{\gamma}^1$ <mark>⊘</mark>2 3 المعملية المعمل darts a Andretinant month man when the must have t Mary Hand Mary Mar Span 60 MHz Sweep 6.00 ms (10001 pts) Center 2.42200 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz 2 Metrics Measure Trace Trace 1 Occupied Bandwidth 36.130 MHz Total Power 25.1 dBm Transmit Freq Error 11.505 kHz % of OBW Power 99.00 % x dB Bandwidth 33.79 MHz x dB -6.00 dB May 31, 2024 10:56:10 AM $\mathbf{\tilde{\mathbf{x}}}$ ょう ? ÷ (...) Contralion & Testin OUP

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www.wsct-cert.com -6dB Bandwidth ax40 2437MHz Spectrum Analyzer 1 Occupied BW SCPI + KEYSIGHT Input: RF Input Z: 50 Ω Atten: 30 dB Trig: Free Run Center Freq: 2.437000000 GHz Corr CCorr Freq Ref: Int (S) Preamp: Off Gate⁻ Off Avg|Hold: 100/100 Radio Std: None Align: Auto #IF Gain: Low Mkr3 2.454549000 GHz 1 Graph Ref LvI Offset 2.28 dB Ref Value 22.28 dBm Scale/Div 10.0 dB -1.83 dBm .00 <mark>∂</mark>2 \Diamond Academate www.wamah.www. March Marine M Center 2.43700 GHz #Video BW 300.00 kHz Span 60 MHz #Res BW 100.00 kHz Sweep 6.00 ms (10001 pts) 2 Metrics Measure Trace Trace 1 Occupied Bandwidth 36.157 MHz Total Power 25.2 dBm 27.763 kHz 99.00 % Transmit Freq Error % of OBW Power x dB Bandwidth 35.04 MHz x dB -6.00 dB May 31, 2024 10:57:44 AM ? ÷ Ŋ **1** 7 7 ····) -6dB Bandwidth ax40 2452MHz Spectrum Analyzer 1 Occupied BW SCPI + Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) Center Freq: 2.452000000 GHz Avg|Hold: 100/100 Atten: 30 dB Preamp: Off Trig: Free Run Gate: Off KEYSIGHT Input: RF RL ++-Align: Auto #IF Gain: Low Radio Std: None Mkr3 2.469599000 GHz 1 Graph ۷ Ref LvI Offset 2.31 dB Scale/Div 10.0 dB Ref Value 22.31 dBm -1.80 dBm <mark>∂2</mark> -01 mannon mark A day A. www.whywingh and the second migare and the second Span 60 MHz Sweep 6.00 ms (10001 pts) Center 2.45200 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz 2 Metrics Measure Trace Trace 1 Occupied Bandwidth 36.172 MHz Total Power 25.0 dBm Transmit Freq Error 46.745 kHz % of OBW Power 99.00 % 35.10 MHz x dB Bandwidth x dB -6.00 dB May 31, 2024 10:59:10 AM $\mathbf{\tilde{\mathbf{x}}}$ ょう ? ÷ (...) Contralion & Testin IOUP (Shenz) NSE Zat

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6.4. Power Spectral Density

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB 558074
Limit:	The average power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.
Test Setup:	Spectrum Analyzer
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The testing follows Measurement Procedure 10.3 Method AVGPSD of FCC KDB Publication No.558074 D01 DTS Meas. Guidance v04 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. Set the span to at least 1.5 times the OBW. Detector = RMS, Sweep time = auto couple. Employ trace averaging (RMS) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. Measure and record the results in the test report.
Test Result:	PASS

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- (i) If all antennas have the same gain, G_{ANT} : *Directional gain* = G_{ANT} + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and G_{ANT} is the antenna gain in dBi. (This formula can also be applied when antennas have different gains if the highest antenna gain is substituted for G_{ANT} .)
- (ii) If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following two formulas.
 - Directional gain = G_{ANT MAX} + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and G_{ANT MAX} is the gain of the antenna having the highest gain (in dBi).

Or,

DirectionalGain =
$$10 \cdot \log \left| \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right|^2$$

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Each antenna is driven by no more than one spatial stream; N_{SS} = the number of independent spatial streams of data; N_{ANT} = the total number of antennas $10G_{L}/20$

 $g_{j,k} = 10^{G_k/20}$ if the *k*th antenna is being fed by spatial stream *j*, or zero if it is not; G_k is the gain in dBi of the kth antenna.

For power spectral density (PSD) measurements on all devices, Array Gain = 10 log(NANT/NSS) dB. Note: Nant=2, Array gain=10Log (Nant/Nss)=10log(2/1)=3.01dB,

Directional gain=Gant+Array gain=3.52dBi+3.01dB=6.53dBi, exceeding 6, so psd limit= Standard limit - (directional gain-6dBi) = Standard limit - 0.53 =7.47.





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6.4.2. Test data(worst)

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À		ATTINE	MAIN Ant1	TÀ	ATTACA
3	Mode	Frequency	Total PSD	Limit	Verdict
		(MHz)	(dBm/3kHz)	(dBm/3kHz)	
	b	2412	4.98	7.47	Pass
1	b	2437	5.65	7.47	Pass
1	b	2462	5.34	7.47	Pass
	g	2412	3.44	7.47	Pass
	g	2437	4.1	7.47	Pass
2	g	2462	4.17	7.47	Pass
1	n20	2412	3.47	7.47	Pass
	n20	2437	3.38	7.47	Pass
	n20	2462	3.5	7.47	Pass
	n40	2422	0.89	7.47	Pass
1	n40	2437	V5C1.16	7.47	Pass
	n40	2452	1.72	7.47	Pass
	ax20	2412	4.38	7.47	Pass
5	ax20	2437	4.17	7.47	Pass
R	ax20	2462	4.68	7.47	Pass
-	ax40	2422		7.47	Pass
	ax40	2437	1.07	7.47	Pass
	ax40	2452	1.05	7.47	Pass
1	aler ar		WEIGHT .	ATT TO BE	

A	1494		AUX Ant2	Austan	1
	Mode	Frequency	Total PSD	Limit	Verdict
		(MHz)	(dBm/3kHz)	(dBm/3kHz)	
2	b	2412	1.91	7.47	Pass
1	b	2437	1.8	7.47	Pass
	b	2462	1.71	7.47	Pass
	g	2412	-2.75	7.47	Pass
-	g	2437	-2.73	7.47	Pass
1	g	2462	-2.96	7.47	Pass
/	n20	2412	-2.81	7.47	Pass
	n20	2437	-2.99	7.47	Pass
	n20	2462	-3.34	7.47	Pass
	n40	2422	-4.42	7.47	Pass
-	n40	2437	-4.31	7.47	Pass
	n40	2452	-4.2	7.47	Pass
	ax20	2412	-2.96	7.47	Pass
1	ax20	2437	-2.57	7.47	Pass
1	ax20	2462	-2.97	7.47	Pass
	ax40	2422	-4.37	7.47	Pass
6	ax40	2437	-4.38	7.47	Pass
2	ax40	2452	-4.33	7.47	Pass
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$\mathbf{\nabla}$		MIMO Mode			Ce
ANTER A	Mode	Frequency (MHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
	n20	2412	4.39	7.47	Pass
	n20	2437	4.28	7.47	Pass
	n20	2462	4.32	7.47	Pass
	n40	2422	2.01	7.47	Pass
	n40	2437	2.24	7.47	Pass

	n40	2452	2.71	7.47	Pass
	ax20	2412	5.12	7.47	Pass
	ax20	2437	5.00	7.47	Pass
1	ax20	2462	5.37	7.47	Pass
	ax40	2422	2.11	7.47	Pass
	ax40	2437	2.16	7.47	Pass
	ax40	2452	2.16	7.47	Pass
1	Y d all and all		I down and a set	ATT A DO DO	



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www.wsct-cert.com PSD n20 2462MHz Spectrum Analyzer 1 Swept SA SCPI + Avg Type: Log-Power Avg|Hold: 100/100 Trig: Free Run KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 30 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Corr CCorr Freq Ref: Int (S) Preamp: Off Align: Auto M ₩ ₩ ₩ ₩ ₩ Mkr1 2.463 862 GHz 1 Spectrum V Ref LvI Offset 2.32 dB Ref Level 20.00 dBm 3.50 dBm Scale/Div 10 dB Log Wharper And www.wwwwwwwᡆᡰᡆᢣᢧᡀᠹ᠕ᡁ᠋᠋ whythe ᠋ᡰᡁᠧᢣᡧ᠋ᢣᠧᡯᡧᡨᡀ ᡔ᠋ᢩ᠕ᢧᡀᡟᡁᡗᡶᢧᡃᡐᢦᢩᢣ ᠋᠋᠈ᢞᡆᡰᡃᢑᡗᡀᠲ᠋᠋ᡔᡀᢦᡰᢑᠰ λ λ λ λ λ MMMMMM ղյ - Mary April and Center 2.46200 GHz #Video BW 100 kHz Span 22.99 MHz #Res BW 30 kHz Sweep 24.3 ms (1001 pts) May 31, 2024 XX 5 ? ÷ E'y \square PSD n40 2422MHz SCPI Spectrum Analyzer 1 + wept SA Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) #Atten: 30 dB Preamp: Off Avg Type: Log-Power Avg|Hold: 100/100 KEYSIGHT Input: RF PNO: Fast Gate: Off 1 2 3 4 5 6 <u> ₩ ₩ ₩ ₩ ₩</u> RL ++-Align: Auto Trig: Free Run Sig Track: Off Mkr1 2.416 97 GHz 1 Spectrum Ref LvI Offset 2.27 dB Scale/Div 10 dB Ref Level 20.00 dBm 0.88 dBm Log 1 provident of the second of the provident of the second of Walnut and a star water mannahar ւսկերկնե MUM balabour and MMM MANAMANAN Center 2.42200 GHz #Res BW 30 kHz #Video BW 100 kHz Span 50.80 MHz Sweep 53.6 ms (1001 pts) May 31, 2024 う ÷ ? Ŋ 3 (

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1.16 dBm

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1.72 dBm

ilac-MRA Report No.: WSCT-A2LA-R&E240300014A-Wi-Fi1 Certificate #5768.01 PSD n40 2437MHz Spectrum Analyzer 1 Swept SA + Avg Type: Log-Power Avg|Hold: 100/100 Trig: Free Run KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 30 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Corr CCorr Freq Ref: Int (S) Preamp: Off Align: Auto M ₩ ₩ ₩ ₩ ₩ Mkr1 2.434 47 GHz 1 Spectrum V Ref LvI Offset 2.28 dB Ref Level 20.00 dBm Scale/Div 10 dB Log **(1** how when the second second second second second paper where a state and a state where a state of the stat Manunapprover mallagy all and a Center 2.43700 GHz #Video BW 100 kHz Span 52.65 MHz #Res BW 30 kHz Sweep 55.5 ms (1001 pts) May 31, 2024 う ? ÷ Ŋ \square PSD n40 2452MHz Spectrum Analyzer 1 + wept SA Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) #Atten: 30 dB Preamp: Off Avg Type: Log-Power Avg|Hold: 100/100 KEYSIGHT Input: RF PNO: Fast Gate: Off 1 2 3 4 5 6 <u> ₩ ₩ ₩ ₩ ₩</u> RL ++-Align: Auto Trig: Free Run Sig Track: Off Mkr1 2.449 48 GHz 1 Spectrum Ref LvI Offset 2.31 dB Scale/Div 10 dB Ref Level 20.00 dBm Log <u>^</u>1 www.www.www.www. handle white the second where the second second WW4 nn/h∿ Huller Marine Mari WMWWWWwwwwwww Center 2.45200 GHz #Res BW 30 kHz #Video BW 100 kHz Span 52.52 MHz Sweep 55.4 ms (1001 pts) May 31, 2024 う ? 3 (

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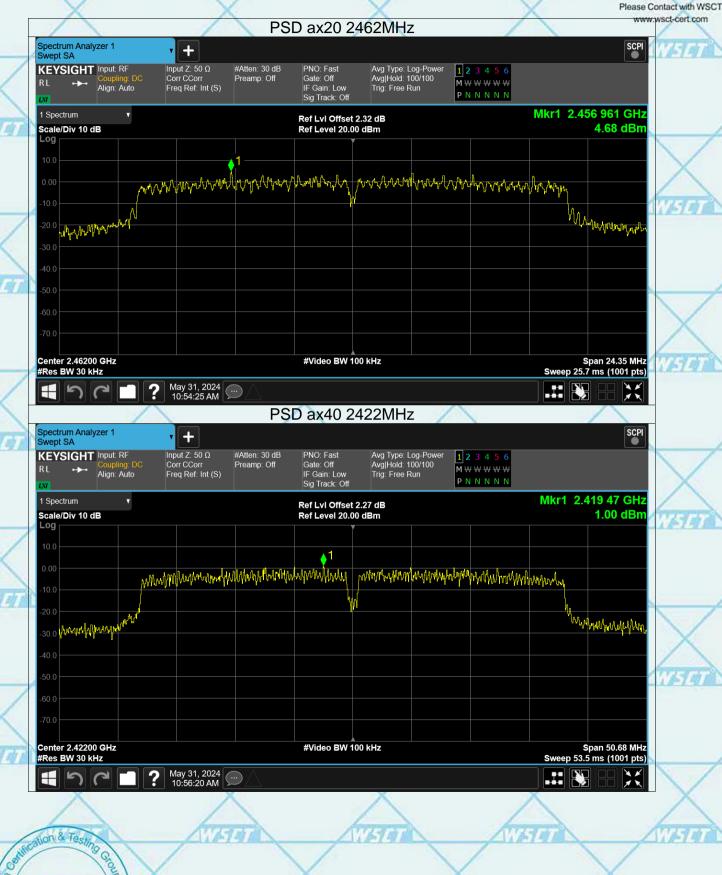
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PSD ax40 2437MHz Spectrum Analyzer 1 Swept SA SCPI + Avg Type: Log-Power Avg|Hold: 100/100 Trig: Free Run KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 30 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Corr CCorr Freq Ref: Int (S) Preamp: Off Align: Auto M ₩ ₩ ₩ ₩ ₩ Mkr1 2.434 48 GHz 1 Spectrum V Ref LvI Offset 2.28 dB Ref Level 20.00 dBm 1.07 dBm Scale/Div 10 dB Log 01 MILWINDOWANA MININA MANANA MANANA MANANA MANANA and a for the second and a second WW Muthallalala mannalan Center 2.43700 GHz #Video BW 100 kHz Span 52.56 MHz #Res BW 30 kHz Sweep 55.5 ms (1001 pts) May 31, 2024 ... XX う ? ÷ Ŋ \square PSD ax40 2452MHz SCPI Spectrum Analyzer 1 + wept SA Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) #Atten: 30 dB Preamp: Off Avg Type: Log-Power Avg|Hold: 100/100 KEYSIGHT Input: RF PNO: Fast Gate: Off 1 2 3 4 5 6 <u> ₩ ₩ ₩ ₩ ₩</u> RL ++-Align: Auto Trig: Free Run Sig Track: Off Mkr1 2.449 47 GHz 1 Spectrum Ref LvI Offset 2.31 dB 1.05 dBm Scale/Div 10 dB Ref Level 20.00 dBm Log when have been and the second MrMMuhu manaumonterpolationaliter and with the MM harmonian Center 2.45200 GHz #Res BW 30 kHz #Video BW 100 kHz Span 52.66 MHz Sweep 55.5 ms (1001 pts) May 31, 2024 う ? Ŋ 3 (Salitcation & Testing

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