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TEST REPORT

FCC ID: 2ADYY-T16MA

Product: Laptop Computer

Model No.: T16MA

Trade Mark: TECNO

Report No.: WSCT-A2LA-R&E240300013A-Wi-Fi1

Issued Date: 16 April 2024

Issued for:

TECNO MOBILE LIMITED

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

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Certificate #5768.01

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Report No.: WSCT-A2LA-R&E240300013A-Wi-Fi1

1. Test Certification

Product: Laptop Computer

Model No.: T16MA

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: 02 April 2024 to 16 April 2024

Applicable
Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

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.

Tested By:

(Wang Xiang)

Checked By:

(Chen Xu)

Approved By:

(Liu Fuxin)

Date.

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Test Result Summary

-/			
	Requirement	CFR 47 Section	Result
8	Antenna requirement	§15.203/§15.247 (c)	PASS
	AC Power Line Conducted Emission	§15.207	PASS
/	Conducted Peak Output Power	§15.247 (b)(3) §2.1046	PASS
>	6dB Emission Bandwidth	§15.247 (a)(2) §2.1049	PASS
	Power Spectral Density	§15.247 (e)	PASS
7	Band Edge	1§5.247(d) §2.1051, §2.1057	PASS
9	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

Product:	Laptop Computer
Model No.:	T16MA
Trade Mark:	TECNO
Operation Frequency:	2412MHz~2462MHz (802.11b/g/n/ax(HT20)) 2422MHz~2452MHz (802.11n/ax(HT40))
Channel Separation:	5MHz
Modulation type:	DSSS (DBPSK, DQPSK, CCK) for IEEE 802.11b OFDM/OFDMA(BPSK,QPSK,16QAM,64QAM,256QAM,102 4QAM) for IEEE 802.11g/n/ax
Antenna Type:	Integral Antenna
Antenna Gain	MAIN:2.40dBi ,AUX:2.70 dBi
Operating Voltage:	Adapter1: TCW-A61S-65W Input: 100-240V~50/60Hz 1.5A Max Output:PD:5V==3A 9V==3A 12V==3A 15V==3A 20V==3.25A PPS:3.3-11V==5A Max Rechargeable Li-ion Battery: 528282-3S1P Rated Voltage: 11.61V Rated Capacity: 6460mAh/75Wh Typical Capacity: 6550mAh/76.04Wh Limited Charge Voltage: 13.35V
Remark:	N/A.

Configuration differences

Cornigulation un	liciciices	X	X			
Configuration/ Processor Camera		LCD	Touchpad			
T16MA (i5)	CK2B2B	P160NH41P-R4	AMR13489-PCT1336U-8-240116			
T16MA (i7)	KANC792	GY160WUXGM-N33-B	SP1503T_V10			
Note: The prototypes of both configurations have been tested, and the T16MA (i7) has the						

Note: The prototypes of both configurations have been tested, and the T16MA (i7) has the worst test result, which is the main test model reported











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

						<u> </u>		- AND A CORE
	Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
7	C1/1-1-91	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
	2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
	3	2422MHz	6	2437MHz	9	2452MHz		

Operation Frequency each of channel For 802.11n/ax (HT40)

	Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
	AVETO		4	2427MHz	175/	2442MHz	17274	- /
7	-		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

802.11b/g/n/ax (HT20)

The grant of the	
Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n/ax (HT40)

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

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4. Genera Information

4.1. Test environment and mode

	Operating Environment:					
1	Temperature:	25.0 °C				
	Humidity:	56 % RH				
	Atmospheric Pressure:	1010 mbar				
	Test Mode:					
	Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%)				
6	Appropriation (Control of the Control of the Contro	Appropriation () Appropriation ()				

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:

report and defined as follows:	CIPIAN (IPIAN)
Per-scan all kind of data rate in lowest was worst case.	channel, and found the follow list which it
WASTER VILLE OF THE PARTY OF TH	lode W5707
80	2.11b
80	2.11g
802.11	n/ax(H20)
802.11	n/ax(H40)
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

1. For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.2. According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20). Duty cycle setting during the transmission is 98.5% with maximum power setting for all modulations.

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4.2. Description of Support Units

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	TCW-A61S-65W	X	/	TECNO

Note:

- 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
- 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.

Test Instr	uments.	WEIGH	WST	WEIGH
Wester	WSGT			
WETER	NVSIA	AVETA	WHAT	776790
WEIGH	WEST WEST	NVAT	AVE	19.0
Welgi	WATER	WSI	WETGE	WASTON
WHI	WEIGHT	NIE!	A NY	79.0
ation & Teess	WEIGH	WEIGH	WEIGH	WEIGH
World Stan Liftygue Cerminal of Honor	(Sheep)		All All Marine Control of the Contro	74.0
World State in Project Common September 1990	世际校署认证股份 Group (Shenzhen) Co. Ltd. TEL:86,755-26996192 26	hi Science & Technology Park, Baos 3992306 FAX 66-755-86376605 E-m Page 8 of 93		en, Guangdong, China Http://www.wsct-cont.com Member of the WSCT INC









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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 22. 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

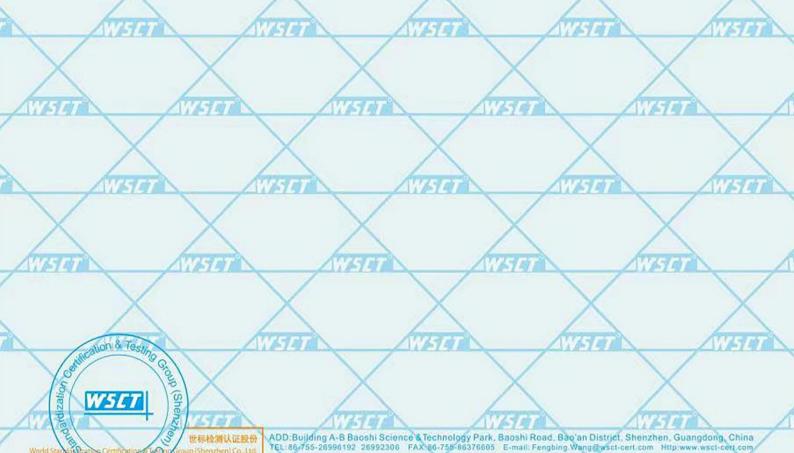
FCC - Designation Number: CN1303

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

The reported uncertainty of measurement y ± 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 %.

		nee et appreximately ee 701	
1	No.	Item	MU
	1	Conducted Emission Test	±3.2dB
	2	RF power, conducted	±0.16dB
	31/5/	Spurious emissions, conducted	±0.21dB
	4	All emissions, radiated(<1GHz)	±4.7dB
1	5	All emissions, radiated(>1GHz)	±4.7dB
	6	Temperature	±0.5°C
	7 X	Humidity	±2.0%

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5.4.MEASUREMENT INSTRUMENTS

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	/ 4748	/ 1674 M	1127	4 4	A748		-7
X	NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	Calibration Date	Calibration Due.	
1/	Test software	-	EZ-EMC	CON-03A	- 4	234	
	Test software		MTS8310	/			
	EMI Test Receiver	R&S	ESCI	100005	11/05/2023	11/04/2024	?
	LISN	AFJ	LS16	16010222119	11/05/2023	11/04/2024	5
	LISN(EUT)	Mestec	AN3016	04/10040	11/05/2023	11/04/2024	
X	Universal Radio Communication Tester	R&S	CMU 200	1100.0008.02	11/05/2023	11/04/2024	
	Coaxial cable	Megalon	LMR400	N/A	11/05/2023	11/04/2024	
	GPIB cable	Megalon	GPIB	N/A	11/05/2023	11/04/2024	?
	Spectrum Analyzer	R&S	FSU	100114	11/05/2023	11/04/2024	5
	Pre Amplifier	H.P.	HP8447E	2945A02715	11/05/2023	11/04/2024	
×	Pre-Amplifier	CDSI	PAP-1G18-38	-/	11/05/2023	11/04/2024	
7	Bi-log Antenna	SCHWARZBECK	VULB9168	01488	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	_
	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-631	11/05/2023	11/04/2024	5
×	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	
7	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	
	RF cable	Murata	MXHQ87WA300 0		11/05/2023	11/04/2024	5
	Loop Antenna	EMCO	6502	00042960	11/05/2023	11/04/2024	Ī
×	Horn Antenna	SCHWARZBECK	BBHA 9170	1123	11/05/2023	11/04/2024	
7	Power meter	Anritsu	ML2487A	6K00003613	11/05/2023	11/04/2024	
	Power sensor	Anritsu	MX248XD	/	11/05/2023	11/04/2024	
	Spectrum Analyzer	Keysight	N9010B	MY60241089	11/05/2023	11/04/2024	1
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6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:

FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

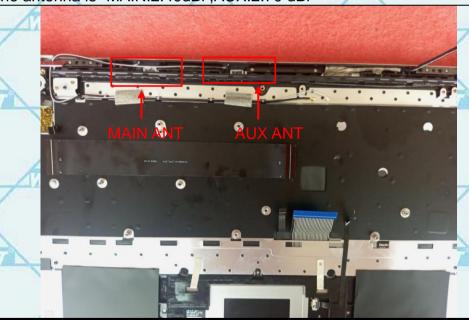
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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.

E.U.T Antenna:

The Wi-Fi antenna is a Integral Antenna. it meets the standards, and the best case gain of the antenna is "MAIN:2.40dBi ,AUX:2.70 dBi"













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6.2. Conducted Emission

6.2.1. Test Specification

2.1. Test Specification	
Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2014
Frequency Range:	150 kHz to 30 MHz
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto
Limits:	Frequency range (MHz) Limit (dBuV) 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50
	Reference Plane
Test Setup:	E.U.T AC power EMI Receiver
Test Mode:	Charging + transmitting with modulation
WSI	1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
Test Procedure:	 The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50ul-coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2014 on conducted measurement.
Test Result:	PASS
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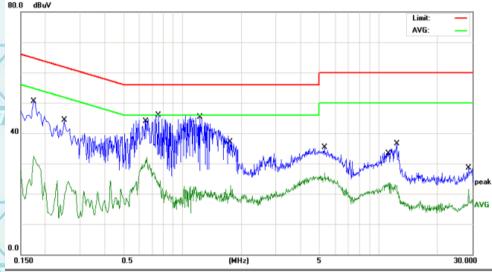
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6.2.2. Test data(worst case)

Please refer to following diagram for individual

The worst mode is MIMO11ax40

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB	dBuV	dBuV	dB	Detector
	1		0.1740	40.04	10.41	50.45	64.76	-14.31	QP
	2		0.1740	22.05	10.41	32.46	54.76	-22.30	AVG
	3		0.2500	33.96	10.42	44.38	61.75	-17.37	QP
	4		0.6580	21.67	10.48	32.15	46.00	-13.85	AVG
A	5	*	0.7539	35.40	10.49	45.89	56.00	-10.11	QP
	6		1.2340	34.66	10.55	45.21	56.00	-10.79	QP
	7		1.7700	12.11	10.63	22.74	46.00	-23.26	AVG
	8		5.2900	24.65	10.70	35.35	60.00	-24.65	QP
	9		5.3140	16.12	10.70	26.82	50.00	-23.18	AVG
1	10		11.3460	12.80	10.86	23.66	50.00	-26.34	AVG
Ž	11		12.3220	25.50	10.92	36.42	60.00	-23.58	QP
	12		28.6740	10.54	10.97	21.51	50.00	-28.49	AVG

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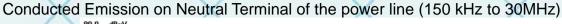


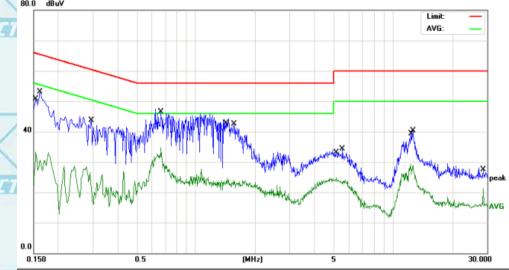


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	0.130		0.		(MIIZ)	3			30.000
/	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
1			MHz	dBuV	dB	dBuV	dBuV	dB	Detector
Ž	1		0.1539	22.90	10.41	33.31	55.78	-22.47	AVG
	2		0.1620	42.77	10.41	53.18	65.36	-12.18	QP
	3		0.2940	33.32	10.43	43.75	60.41	-16.66	QP
	4	*	0.6620	36.10	10.48	46.58	56.00	-9.42	QP
/	5		0.6660	24.21	10.48	34.69	46.00	-11.31	AVG
	6		1.4420	14.19	10.58	24.77	46.00	-21.23	AVG
	7		1.5660	31.85	10.59	42.44	56.00	-13.56	QP
	8		5.1620	14.22	10.69	24.91	50.00	-25.09	AVG
	9		5.5620	23.67	10.70	34.37	60.00	-25.63	QP
	10		12.2540	18.39	10.91	29.30	50.00	-20.70	AVG
	11		12.6580	29.43	10.93	40.36	60.00	-19.64	QP
/	12		28.6740	10.42	10.97	21.39	50.00	-28.61	AVG

Note1:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

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

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

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

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak AVG =average

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

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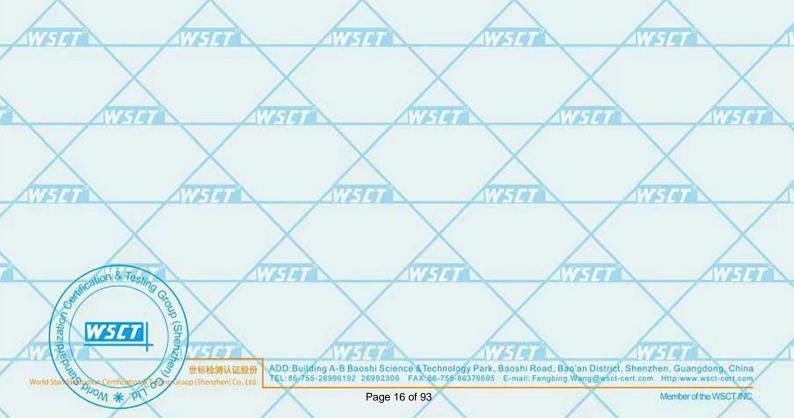
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Report No.: WSCT-A2LA-R&E240300013A-Wi-Fi1 6.2.3. Maximum Conducted (Average) Output Power

6.2.4. Test Specification

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	Mark Commission of the Commiss	ridge and A.M. J. J. Hillard	
Test Requirement:	FCC Part15 C Section	15.247 (b)(3)	
Test Method:	KDB 558074		2
Limit:	30dBm	CIFIE CONTRACTOR	
Test Setup:			1
	Spectrum Analyzer	EUT	
Test Mode:	Transmitting mode with	modulation	
Test Procedure:	FCC KDB No. 5580 v04. 2. The RF output of EU analyzer by RF cabl was compensated to measurement. 3. Set to the maximum EUT transmit contin	ted output power and record the	/
Test Result:	PASS		
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- Report No.: WSCT-A2LA-R&E240300013A-Wi-Fi1
 - 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_{ANTMAX} is the gain of the antenna having the highest gain (in

Or,

• Directional Gain =
$$10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^{2}}{N_{ANT}} \right]$$

where

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 kth 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 ≤ 4;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less, for 20-MHz channel widths with NANT ≥ 5 .

Note: Nant=2, satisfy the condition Nant≤4, so Array gain=0dB, Directional gain=Gant+Array gain=2.70dBi+0dB=2.70dBi, not more than 6, so the power limit is unchanged.

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Test Data

MAIN Ant1

	Mode	Frequency	Total Power	Limit	Verdict
		(MHz)	(dBm)	(dBm)	
	b	2412	16.95	30	Pass
	b	2437	16.78	30	Pass
	b	2462	16.79	30	Pass
	g	2412	20.07	30	Pass
æ	g	2437	20.17	30	Pass
	g	2462	19.87	30	Pass
	n20	2412	20.03	30	Pass
	n20	2437	20.06	30	Pass
	n20	2462	19.75	30	Pass
	n40	2422	17.18	30	Pass
1	n40	2437	20.43	30	Pass
	n40	2452	19.01	30	Pass
	ax20	2412	20.21	30	Pass
	ax20	2437	20.28	30	Pass
E	ax20	2462	20.01	30	Pass
	ax40	2422	17.18	30	Pass
	ax40	2437	20.58	30	Pass
	ax40	2452	19.24	30	Pass

AUX Ant2

	Mode	Frequency	Total Power	Limit	Verdict
		(MHz)	(dBm)	(dBm)	
	b	2412	16.85	30	Pass
7	b	2437	16.76	30	Pass
4	Ь	2462	16.65	30	Pass
	g	2412	20.04	30	Pass
	g	2437	20.15	30	Pass
	g	2462	19.29	30	Pass
	n20	2412	19.82	30	Pass
	n20	2437	19.93	30	Pass
	n20	2462	19.22	30	Pass
	n40	2422	17.15	30	Pass
	n40	2437	20.34	30	Pass
7	n40	2452	19.93	30	Pass
P	ax20	2412	20.15	30	Pass
	ax20	2437	20.24	30	Pass
	ax20	2462	19.57	30	Pass
	ax40	2422	17.32	30	Pass
	ax40	2437	20.43	30	Pass
	ax40	2452	20.11	30	Pass



2437

2452







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MiMO Mode

Total Power Frequency Verdict Mode Limit (MHz) (dBm) (dBm) n20 2412 22.94 Pass 30 n20 2437 23.01 30 **Pass** n20 2462 22.50 30 **Pass** Pass n40 2422 20.18 30 23.40 Pass n40 2437 30 n40 30 Pass 2452 22.50 ax20 2412 30 Pass 23.19 23.27 ax20 2437 30 **Pass** ax20 2462 30 **Pass** 22.81 ax40 2422 20.26 30 **Pass**

23.52

22.71

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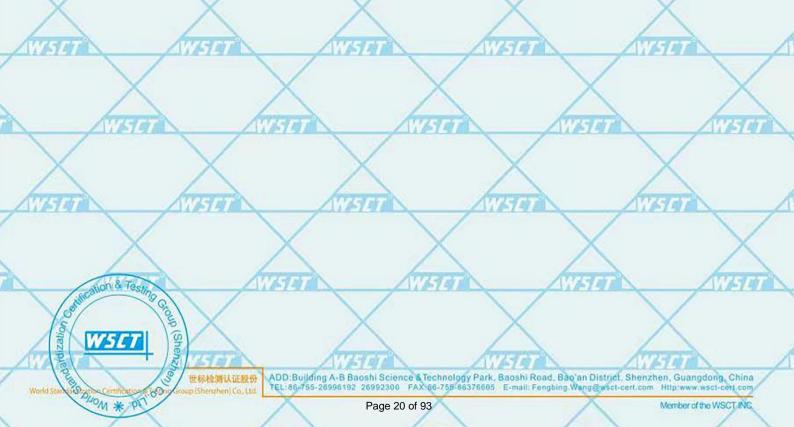
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6.3. Emission Bandwidth

6.3.1. Test Specification

Test Requirement:	FCC Part15 C Section	on 15.247 (a)(2)	\wedge			
Test Method:	KDB 558074	SVETTE	AT AT A A			
Limit:	>500kHz	\times				
Test Setup:		EUT				
Test Mode:	Spectrum Analyzer Transmitting mode w		M1333			
Test Procedure:	1. The testing follows DTS D01 Meas. 2. Set to the maximum EUT transmit cor 3. Make the measure resolution bandwown Video bandwidth an accurate mea	 Transmitting mode with modulation The testing follows FCC KDB Publication No. 55807 DTS D01 Meas. Guidance v04. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth mube greater than 500 kHz. 				
Test Result:	PASS					











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6.3.2. Test data

Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	10.07	0.5	Pass
b	2437	10.10	0.5	Pass
b	2462	10.11	0.5	Pass
g	2412	15.13	0.5	Pass
g	2437	15.09	0.5	Pass
g	2462	15.12	0.5	Pass
n20	2412	15.12	0.5	Pass
n20	2437	15.13	0.5	Pass
n20	2462	15.08	0.5	Pass
n40	2422	33.84	0.5	Pass
n40	2437	35.08	0.5	Pass
n40	2452	35.07	0.5	Pass
ax20	2412	15.24	0.5	Pass
ax20	2437	15.62	0.5	Pass
ax20	2462	16.22	0.5	Pass
ax40	2422	35.08	0.5	Pass
ax40	2437 W5	35.09	0.5	Pass
ax40	2452	35.07	0.5	Pass

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NV 5141	W-191	WEIGH	\times		
		V/5191	NIE 181	Wister	165100
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Certificate #5768.01 Report No.: WSCT-A2LA-R&E240300013A-Wi-Fi1 For Question, Please Contact with WSCT www.wsct-cert.com Test Graphs -6dB Bandwidth b 2412MHz Spectrum Analyzer 1 Occupied BW + Center Freq: 2.412000000 GHz Avg|Hold: 100/100 Radio Std: None Trig: Free Run Gate: Off #IF Gain: Low Input Z: 50 Ω KEYSIGHT Input: RF Atten: 30 dB Corr CCorr Freq Ref: Int (S) Mkr3 2.417026000 GHz 1 Graph Ref LvI Offset 1.85 dB Ref Value 21.85 dBm -0.70 dBm Scale/Div 10.0 dB Center 2.41200 GHz #Res BW 100.00 kHz Span 30 MHz Sweep 3.33 ms (10001 pts) #Video BW 300.00 kHz Occupied Bandwidth 20.5 dBm 13.394 MHz Total Power Transmit Freq Error -11.147 kHz % of OBW Power 99.00 % x dB Bandwidth 10.07 MHz x dB -6.00 dB Apr 12, 2024 -6dB Bandwidth b 2437MHz Spectrum Analyzer 1
Occupied BW Trig: Free Run Gate: Off #IF Gain: Low Input Z: 50 Ω KEYSIGHT Input: RF Atten: 30 dB Center Freq: 2.437000000 GHz Avg|Hold: 100/100 Radio Std: None Corr CCorr Freq Ref: Int (S) Mkr3 2.441956000 GHz 1 Graph Ref Lvi Offset 1.86 dB Ref Value 21.86 dBm -1.68 dBm Scale/Div 10.0 dB Center 2.43700 GHz #Video BW 300.00 kHz Sweep 3.33 ms (10001 pts) #Res BW 100.00 kHz Occupied Bandwidth 13.383 MHz Total Power 20.3 dBm



Transmit Freq Error

-95.008 kHz

Apr 12, 2024 7:07:23 PM

> ADD:Building A-B Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China TEL:86-755-26986192 26992306 FAX-86-755-86376605 E-mail: Fengbing Wang@wscl-cert.com Http://www.wscl-cert.com

% of OBW Power

99.00 % -6.00 dB







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Certificate #5768.01 For Question, Please Contact with WSCT www.wsct-cert.com -6dB Bandwidth b 2462MHz Spectrum Analyzer 1
Occupied BW + Input Z: 50 Ω Center Freq: 2.462000000 GHz KEYSIGHT Input: RF Trig: Free Run Corr CCorr Freq Ref: Int (S) Gate: Off #IF Gain: Low Avg|Hold: 100/100 Radio Std: None Align: Auto Mkr3 2.466929000 GHz 1 Graph Ref Lvi Offset 1.89 dB Ref Value 21.89 dBm -2.06 dBm Scale/Div 10.0 dB Center 2.46200 GHz #Video BW 300.00 kHz Span 30 MHz #Res BW 100.00 kHz Sweep 3.33 ms (10001 pts) 2 Metrics Occupied Bandwidth 13.390 MHz Total Power 20.3 dBm Transmit Freq Error x dB Bandwidth -124.14 kHz % of OBW Power 99.00 % 10.11 MHz -6.00 dB x dB













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ADD:Building A-B Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China TEL:86-755-26996192 26992306 FAX:86-755-86376605 E-mail: Fengbing.Wang@wsct-cert.com Http://www.wsct-cert.com









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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 greate than 8dBm in any 3kHz band at any time interval ocontinuous transmission.				
Test Setup:	Spectrum Analyzer EUT				
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 spectrur 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 spar to at least 1.5 times the OBW. Detector = RMS, Sweep time = auto couple. Employ trace averaging (RMS) mode over a minimur 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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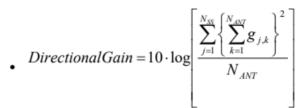
If all antennas have the same gain, G_{ANT}:

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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,



where

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 kth 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=2.70dBi+3.01dB=5.71dBi, not exceeding 6, so psd limits remain unchanged.

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6.4.2. Test data

MAIN Ant1

			WAIN AILLI				
	Mode	Frequency	Total PSD	Limit	Verdict		
j		(MHz)	(dBm/3kHz)	(dBm/3kHz)			
ĺ	b	2412	0.30	8	Pass		
	b	2437	0.74	8	Pass		
	b	2462	0.33	8	Pass		
	g	2412	-1.23	8	Pass		
	g	2437	-1.02	8	Pass		
5	g	2462	-1.95	8	Pass		
	n20	2412	-1.31	8	Pass		
	n20	2437	-1.31	8	Pass		
6	n20	2462	-1.60	8	Pass		
L	n40	2422	-7.46	8	Pass		
	n40	2437	-4.17	8	Pass		
	n40	2452	-5.66	8	Pass		
	ax20	2412	-1.53	8	Pass		
e	ax20	2437	-1.60	8	Pass		
1	ax20	2462	-1.98	8	Pass		
	ax40	2422	-8.48	8	Pass		
1	ax40	2437	-5.14	8	Pass		
ľ	ax40	2452	-6.63	8	Pass		

AUX Ant2

		AUX Ant2					
	Mode	Frequency	Total PSD	Limit	Verdict		
		(MHz)	(dBm/3kHz)	(dBm/3kHz)			
5	b	2412	0.63	8	Pass		
	b	2437	0.44	8	Pass		
	b	2462	0.54	8	Pass		
Á	g	2412	-1.42	8	Pass		
	g	2437	-0.62	8	Pass		
	g	2462	-1.37	8	Pass		
	n20	2412	-1.33	8	Pass		
	n20	2437	-1.36	8	Pass		
è	n20	2462	-2.15	8	Pass		
	n40	2422	-7.37	8	Pass		
	n40	2437	-4.33	8	Pass		
4	n40	2452	-4.78	8	Pass		
ſ	ax20	2412	/5/-1.51	8/5/7	Pass		
	ax20	2437	-1.70	8	Pass		
	ax20	2462	-2.61	8	Pass		
	ax40	2422	-8.27	8	Pass		
	ax40	2437	-5.19	8	Pass		
3	ax40	2452	-5.78	8	Pass		

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11017	Mode	Frequency	Total PSD	Limit	Verdict	
	-00	(MHz)	(dBm/3kHz)	(dBm/3kHz)	Dana	
	n20	2412	1.69	8	Pass	
NISTER /	n20	2437	1.68	8	Pass	WEIGH
CIETA C	n20	2462	1.14	8	Pass	1161911
	n40	2422	-4.40	8	Pass	
	n40	2437	-1.24	8	Pass	
	n40	2452	-2.19	8	Pass	
NATE A	ax20	2412	1.49	8	Pass	17279
	ax20	2437	1.36	8	Pass	
X	ax20	2462	0.73	8	Pass	X
	ax40	2422	-5.36		Pass	
11799	ax40	2437	-2.15	8	Pass	AWSTET
	ax40	2452	-3.17	0	Pass	
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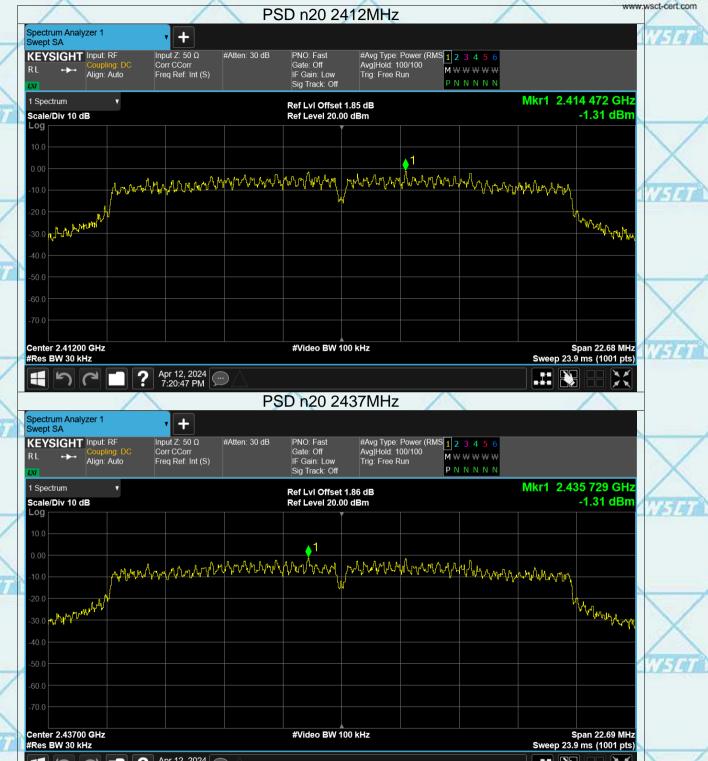




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