



WSET

TEST REPORT

WSET

WSET

WSFT

WSET

FCC ID: 2AXYP-OHP-915N

W561

Product: Wireless Headphones

Model No.: OHP-915N

WSET

Trade Mark: oraimo

Report No.: WSCT-ANAB-R&E250300018A-BT

Issued Date: 24 March 2025 5

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Issued for:

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ORAIMO TECHNOLOGY LIMITED
FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25
W5 / SHAN MEI STREET FOTAN NT HONGKONG

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W5ET

Issued By:

WSIT

WSCT

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shall be noted in the revision section of the document. The test results in the report only apply to the
tested sample.

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

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$\overline{}$	WSCT WSCT	WSET	WSET	W5CT*
X	X	\times	X	
W5 CT	WSET WSET	WSET	WSET	



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Toot Cortification

1. Test Certification

Product: Wireless Headphones

Model No.: OHP-915N

Trade Mark: oraimo

Applicant: ORAIMO TECHNOLOGY LIMITED

FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE

19-25 SHAN MEI STREET FOTAN NT HONGKONG

Manufacturer: ORAIMO TECHNOLOGY LIMITED

FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE

WSCT

19-25 SHAN MEI STREET FOTAN NT HONGKONG

Date of Test: 05 March 2025 to 24 March 2025

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

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:

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Checked By:

Cheno

V5 (Wang Xiang)

(Chen Xu)

Approved By:

(Li Huaibi)

Date:

March

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Test Result Summary 2.

	THE CT !	THE CT	WE CT
/	Requirement	CFR 47 Section	Result
	Antenna Requirement	§15.203/§15.247 (c)	PASS
7 °	AC Power Line Conducted Emission	WSET §15.207	NA NA
_	Conducted Peak Output W5 77 Power W5 7	§15.247 (b)(1) §2.1046	W5 PASS
	20dB Occupied Bandwidth	§15.247 (a)(1) §2.1049	PASS
	Carrier Frequencies Separation	§15.247 (a)(1)	PASS
	Hopping Channel Number	§15.247 (a)(1)	W5 C PASS
7	Dwell Time	§15.247 (a)(1)	PASS
7°	Radiated Emission	§15.205/§15.209 \$2.1053, §2.1057 W5 E7	PASS _{V5ET}
	Band Edge	§15.247(d) §2.1051, §2.1057	PASS

Note:

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W5 C

- 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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W5C1



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W5 CT

EUT Description 3.

	Product Name:	Wireless Headphones [7] W5 [7]	V5 CT
\times	Model :	OHP-915N	
Average of	Trade Mark:	oraimo	
W5 CT	Operation Frequency:	2402MHz~2480MHz	$\overline{}$
	Channel Separation:	1MHz	\times
	Number of Channel:	797 WSET WSET	V5 CT
\times	Modulation Type:	GFSK, π/4-DQPSK, 8-DPSK	
WSET	Modulation Technology:	FHSS WSET WSET WSET	
	Antenna Type:	PCB Antenna	\times
	Antenna Gain:	-0.24dBi	NS ET
WSEI	Operating Voltage	Rechargeable Li-ion Battery: 503035 Nominal Voltage: 3.7V Rated Energy: 1.85Wh Rated Capacity: 500mAh	
		Limited Charge Voltage: 4.2V	\bigvee
	Remark:	N/A.	
	WSCT	57 07 W 57 07 W 57 07	NSIT

WSCT	W5 CT	WSCT	WSCT	WSCT

	1	WSET	W5 CT	WSCT	WSCT	W5CT°
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W5 CT W5 ET W5 ET W5E7

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W5 CT





Report No.: WSCT-ANAB-R&E250300018A -BT

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Operation Frequency each of channel for GFSK, π/4-DQPSK, 8DPSK

	<u> </u>		<i>y</i>				., 02.	•
	Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
	₩05 <i>[1</i>	2402MHz	V20 C1	2422MHz	40 [2442MHz	605	7 2462MHz
	1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
0	10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
	11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
	X		\sim		X		X	
	18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
	M19 C T	2421MHz	4 39 <i>C</i> 7	2441MHz	159 C	2461MHz	W5 E	7 -
	Remark:	Channel 0 3	0 8.78 ha	ve heen tes	ted for C	ESK T//_DO	DOK 8L) DOK

Remark: Channel 0, 39 &78 have been tested for GFSK, π/4-DQPSK, 8DPSK

modulation mode	X			
WSET WS	ET° WS	W5	ET WS	ET .
	WSLT	WSCT	W5 CT°	X
WS ET WS	$\langle \hspace{0.1cm} \rangle$	$\langle \hspace{0.1cm} \rangle$		WSCT
	WSET	WSET	WSET	WSCT
WS ET WS	$\langle \hspace{0.1cm} \rangle$			er -
WSCT	WSET	WSCT	WSET	WSCT
WSET WS	$\langle \hspace{0.1cm} \rangle$			TT /
W5 ET	WSET	WSCT	WSET	incations Testing
WSET WS	$\langle \hspace{0.1cm} \rangle$		rdization	WS CT Stone
ADD: Building A-B,Baoil'an Industrial Park,No.58 and 60,Tit TEL: 0086-755-26996192 26996053 26996144 FAX: 0	angtou Avenue, Shiyan Street, Bao'an District 0086-755-86376605 E-mail: fengbing.wa		涂圳巴尔恒测从此股份有限公司	Testing Group (Shenzhen) Co.,Ltd

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4. Genera Information

4.1. Test environment and mode

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

Tast	Mode:
1291	MUUUE.
1000	IVIOUC.

Engineering mode:	Keep the EUT in continuous transmitting
	by select channel and modulations with
(max)	Fully-charged battery

The sample was placed 0.8m & 1.5m for the measurement below & 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.

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.

0	Equipment	Model No.	Serial No.	FCC ID	Trade Name
	Adapter	XCU32	1	1	/

Note:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, 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

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All measurement facilities used to collect the measurement data are located at World Standardization Certification & Testing Group (Shenzhen) Co., Ltd. Building A-B,Baoli'an Industrial Park,No.58 and 60,Tangtou Avenue, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, China

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

ANAB - Certificate Number: AT-3951

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (ANAB). Certification Number: AT-3951

WS	ET W	SET WS	CT WS	ET° V	VS CT°
WSCT	WSET	WSCT	WSCT	WSCT	
	$\langle \hspace{0.1cm} \rangle$	TET WS			VSET
WSET	WSET	WSET	WSET	WSET	
	TET W.S	TET WS	GT WS	TET N	VSET
WSCT	WSET	WSCT	WSCT	WSCT	
	$\langle \hspace{0.1cm} \rangle$	SET WS			
WSCI	WSIT	WSCI	WSCI	Continuation 8 To	Group (Shenzhen

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3. Measurement Uncertainty

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 %.

WSCT	No.	Item	MU	
	1	Conducted Emission Test	±3.2dB	\setminus
	2	RF power, conducted	±0.16dB	
	3	Spurious emissions, conducted	±0.21dB	W5 L
X	4	All emissions, radiated(<1GHz)	±4.7dB	
WSET	5	All emissions, radiated(>1GHz)	±4.7dB/5_7	
	6	Temperature	±0.5°C	X
	7	Humidity	±2.0%	WE

WSET	W5E	T WS	CT W	SET	SET
	SET	WSCT	WSET	WSET	WSCT
WSET	WSE	WS	W.	SET W	SET
	SET	WSCT	WSLT	WSET	WSET
WSET	WSE	$\langle \hspace{0.1cm} \rangle$			SET
	5.07	WSCT	WSET	WSET	scations Testing

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5.4. MEASUREMENT INSTRUMENTS

	3.4. WILAGOINEWILM MASTINGWILM 13						
_	NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	Calibration Date	Calibration Due.	'5 C T
<	Test software		EZ-EMC	CON-03A	-	Χ-	
r i	Test software		MTS8310	WSCT	- /	75 TT	
	EMI Test Receiver	R&S	ESCI	100005	11/05/2024	11/04/2025	$\overline{}$
	LISN	AFJ	LS16	16010222119	11/05/2024	11/04/2025	\times
	LISN(EUT)	Mestec	AN3016	04/10040	11/05/2024	11/04/2025	'S C T
<	Universal Radio Communication Tester	R&S	CMU 200	1100.0008.02	11/05/2024	11/04/2025	
C	Coaxial cable	Megalon	LMR400	N/A	11/05/2024	11/04/2025	
	GPIB cable	Megalon	GPIB	N/A	11/05/2024	11/04/2025	
	Spectrum Analyzer	R&S	FSU	100114	11/05/2024	11/04/2025	\wedge
	Pre Amplifier	IH.P. <i>ET</i>	HP8447E 5 /	2945A02715	11/05/2024	11/04/2025	15 ET
	Pre-Amplifier	CDSI	PAP-1G18-38	-	11/05/2024	11/04/2025	
1	Bi-log Antenna	SCHWARZBECK	VULB9168	01488	11/05/2024	11/04/2025	
C	9*6*6 Anechoic	ET V	VS CT	W.S.CT	11/05/2024	11/04/2025	
	Horn Antenna	COMPLIANCE ENGINEERING	CE18000		11/05/2024	11/04/2025	X
	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-631	11/05/2024	11/04/2025	rs et
	Cable	TIME MICROWAVE	LMR-400	N-TYPE04	11/05/2024	11/04/2025	761
	System-Controller	ccs	N/A	N/A	N.C.R	N.C.R	
C i	Turn Table	ccs	V5 / 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	-	11/05/2024	11/04/2025	
	Loop Antenna	EMCO	6502W51	00042960	11/05/2024	11/04/2025	rs et
1	Horn Antenna	SCHWARZBECK	BBHA 9170	1123	11/05/2024	11/04/2025	
	Power meter	Anritsu	ML2487A	6K00003613	11/05/2024	11/04/2025	
4	Power sensor	Anritsu	MX248XD	WSET	11/05/2024	11/04/2025	
	Spectrum Analyzer	Keysight	N9010B	MY60241089	11/05/2024	11/04/2025	X

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Test Results and Measurement Data 6.

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

6.1. Antenna requirement

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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. 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 Bluetooth antenna is a PCB Antenna. it meets the standards, and the best case gain of the antenna is -0.24dBi.

Please refer to the attachment "OHP-915N" Internal Photo" for the antenna location

WSET	WSET	WSET	WSCT	WSET	
WS	ET WS	CT WS	CT WS	ET W	SET
WSET	W5 CT	WSCT	WSET	WSET	

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Conducted Emission 6.2.

$\overline{}$	6.2.1. Test Specification 5	T WSET WSET	W5 C7
X	Test Requirement:	FCC Part15 C Section 15.207	
WSET	Test Method: 5 [7]	ANSI C63.10:2014 W5 [7] W5 [7]	
	Frequency Range:	150 kHz to 30 MHz	\vee
	Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto	West
WSLT	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	WSET
	X	Reference Plane	X
	WSET WSE	40cm 80cm LISN	W5 C1
WSET	Test Setup: WS CT WS CT	E.U.T AC power Test table/Insulation plane Remark: E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m	WSET
X	Test Mode:	Refer to item 4.1	
WSET	WSET WSE	 The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please 	X
WSET	WSET WSE	refer to the block diagram of the test setup and photographs). 3. 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.	Testino
X	Test Result:	NA W5	Group (She







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6.2.2. EUT OPERATING CONDITIONS

The EUT is working in the Normal link mode. All modes have been tested and normal link mode is

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Test data:

Note: EUT is powered by batteries and cannot transmit normally while charging. This project does not require testing

WSET	WSET*	WSCT	WSET	WSET
	\times	SET WS	$\langle \hspace{0.1cm} \rangle$	$\langle \times \rangle$
WSET	WSET	WSCT	W5ET°	W5ET °
	\times	SET WS	$\langle \hspace{0.2cm} \rangle$	
WSCT	WSET	WSET	WSET	WSET
	\times	SET WS	$\langle \hspace{0.1cm} \rangle$	
WSLT	WSET	WSLT	WSET	W5 ET
	\times	SET WS	$\langle \hspace{0.2cm} \hspace{0.2cm}$	
WSET	WSET	WSET	WSET	WSCT October 19 Coloup (Shenzher
				300

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6.3. Conducted Output Power

6.3.1. Test Specification

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Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2014
Limit:	Section 15.247 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts.
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	Use the following spectrum analyzer settings: Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel RBW > the 20 dB bandwidth of the emission being measured VBW ≥ RBW Sweep = auto Detector function = peak Trace = max hold Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.
Test Result:	PASS

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6.3.2. Test Data

- 1						
4	GFSK mode					
	Test channel	Peak Output Power (dBm)	Limit (dBm)	Result		
0	Lowest	7.38	20.97	PASS		
1	Middle	7.71	20.97	PASS		
	Highest	7.53	20.97	PASS		

Pi/4DQPSK mode				
	Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
	Lowest	7.38 <i>5 L T</i>	20.97	PASS 77
	Middle	7.71	20.97	PASS
	Highest	7.53	20.97	PASS
		WS / W	5// M	

8DPSK mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result		
Lowest	7.35	20.97	PASS		
Middle	7.92	20.97	PASS		
Highest	W5 [T] 7.6	20.97	PASS		
	Lowest Middle	Test channel Peak Output Power (dBm) Lowest 7.35 Middle 7.92	Test channel Peak Output Power (dBm) Limit (dBm) Lowest 7.35 20.97 Middle 7.92 20.97		

Test plots as follows:

W5CT	WSET	WSE	T WS	LT W	<i></i>
.					X
X	WSET	WSET	WSET	WSET®	WSET

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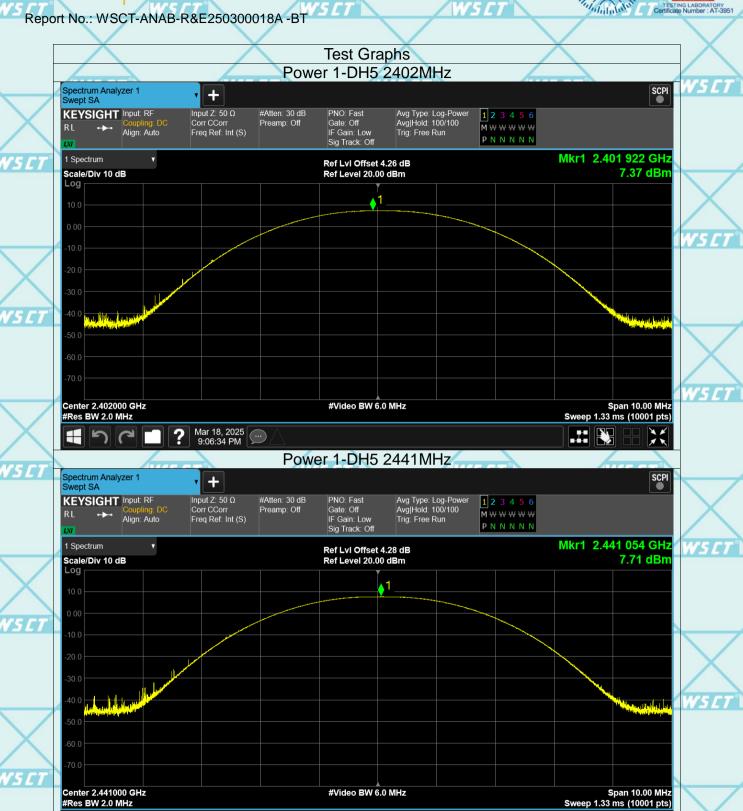
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W5 CT









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W5 CT



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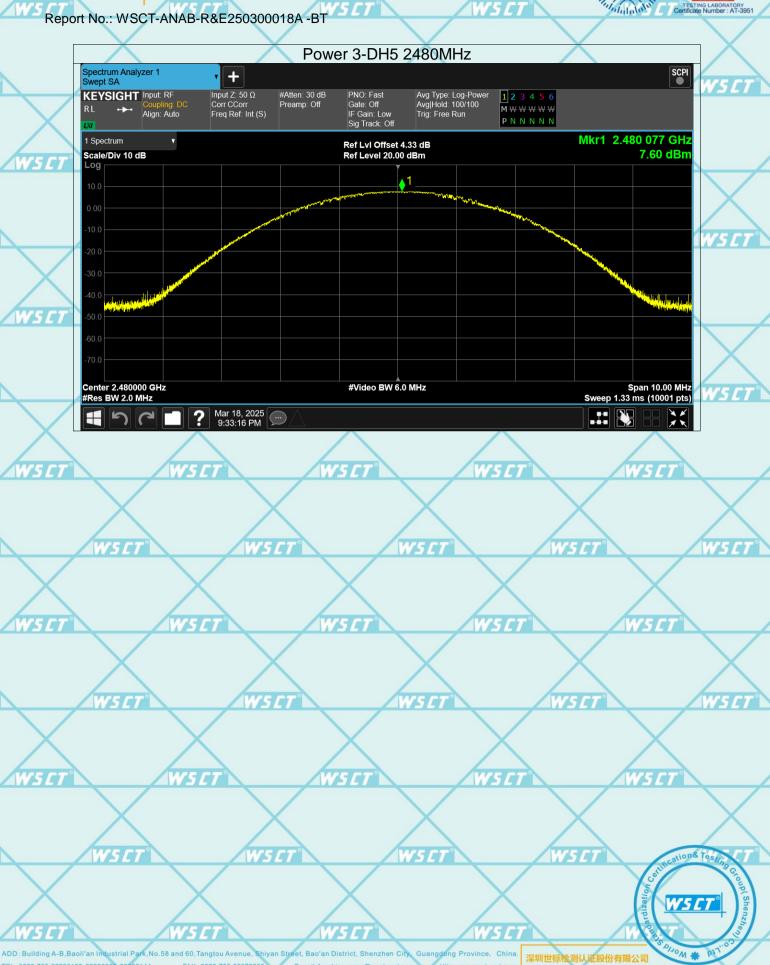


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W5 C1







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W5 CT

20dB Occupy Bandwidth 6.4.

W5C7

W5 C7

W5 CI

6.4.1. Test Specification

WSCT	Test Requirement:	FCC Part15 C Section 15.247 (a)(1)				
ZW2151	Test Method:	ANSI C63.10:2014				
	Limit:	N/A	\times			
Average	Test Setup:	Spectrum Analyzer EUT	W5 ET°			
WSET"	Test Mode:	Transmitting mode with modulation				
WSET	Test Procedure:	 The testing follows ANSI C63.10:2014 Measurement Guidelines. 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. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel; 1%≤ RBW≤5% of the 20 dB bandwidth; VBW≥3RBW; Sweep = auto; Detector function = peak; Trace = max hold. Measure and record the results in the test report. 	WSET			
	Test Result:	PASS	X			
	/march		/			

W5 CT W5 CT W5 CT

W5E1

W5 CT





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6.4.2. Test data

	WETT	WEFT		VELT	
Toot channel	-20	-20dB Occupy Bandwidth (MHz)			
Test channel	GFSK	π/4-DQPSK	8DPSK	Conclusion	
Lowest	0.945 W5	1.269	1.198	PASS _{V5}	
Middle	0.952	1.183	1.276	PASS	
Highest	0.932	1.264	1.181	PASS	

Test plots as follows:

WSET	W5 CT	W5 ET®	WSET"	W5CT"

WS CT WS CT WS CT

WSCT WSCT WSCT WSCT WSCT	W5 CT	WSET	W5 CT	W5 CT	WSET
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W5 CT	WSCT	WSET	WSET	WSET

W5 CT°	W5CT"	W5 CT	W5CT"	WSET"
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WSCT	W5CT*	WSCT	WSCT	W5CT

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W5CT

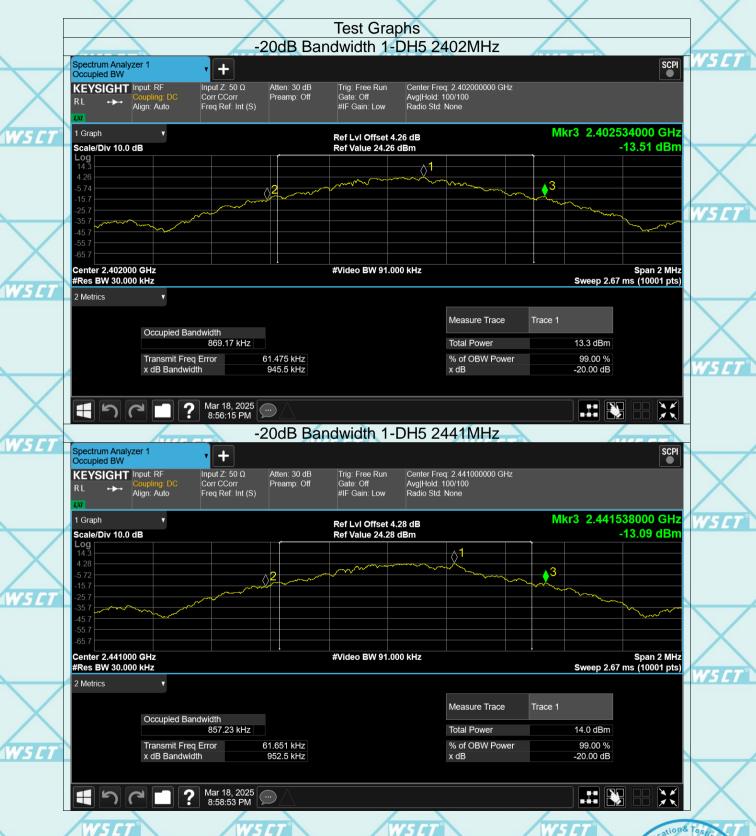




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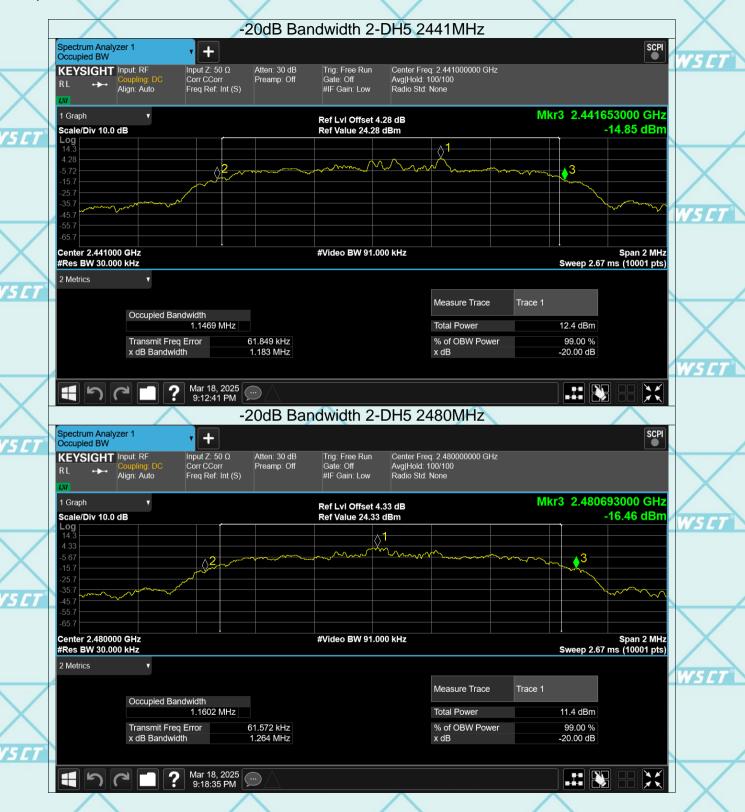




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W5 C



W5 CT





Report No.: WSCT-ANAB-R&E250300018A -BT

W5 CT

Carrier Frequencies Separation 6.5.

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W5E7

X	Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
WS CT	Test Method:	ANSI C63.10:2014 W5 [T] W5 [T]	
	Limit:	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.	WSET
WSET	Test Setup:	Spectrum Analyzer EUT W5.5.7	
	Test Mode:	Hopping mode	
WSET	Test Procedure:	 The testing follows ANSI C63.10:2014 Measurement Guidelines. 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. Enable the EUT hopping function. Use the following spectrum analyzer settings: Span = wide enough to capture the peaks of two adjacent channels; RBW is set to approximately 30% of the channel spacing, adjust as necessary to best identify the center of each individual channel; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Record the value in report. 	WSET
	Test Result:	PASS	
	Limit: Carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater. Test Setup: Fut W5 LT		

W5 CT

WSET

W5 CT

W5 C7

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W5 CT

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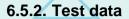
TESTING LABORATORY Certificate Number : AT-3951

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W5 CT



W5 CT

WS CT

W5 C1

	WELL	WELL	/C/T			
	GFSK mode					
	Test channel	Carrier Frequencies Separation (MHz)	Limit (MHz)	Result		
Lowest 1.002		0.630	PASS			
	Middle	1.018	0.635	PASS		
	Highest	1.004	0.621	PASS		

Pi/4 DQPSK mode Carrier Frequencies Limit (MHz) Test channel Result Separation (MHz) Lowest 0.994 0.846 **PASS** Middle 1.002 0.789 **PASS** Highest 1.006 0.843 **PASS**

	8DPSK mode					
Test channel Carrier Frequencies Separation (MHz)			Limit (MHz)	Result		
	Lowest 0.998		0.799	PASS		
	Middle 0.998		0.851	PASS		
1	Highest	1.002	0.787	PASS		

W5 E1 W5 C

W5C1 WS ET W5 CT W5 E1

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W5 C 7

W5C7





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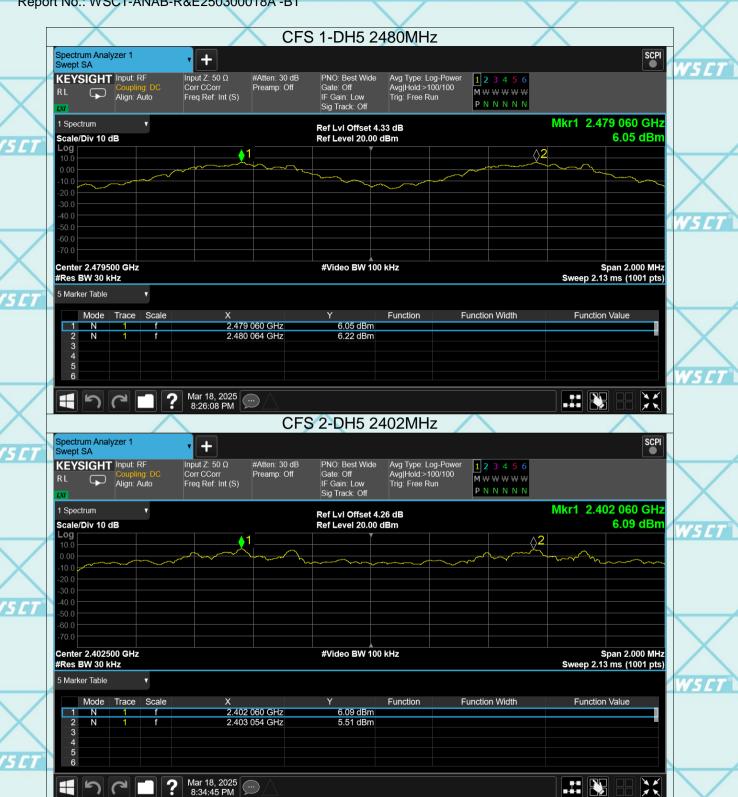




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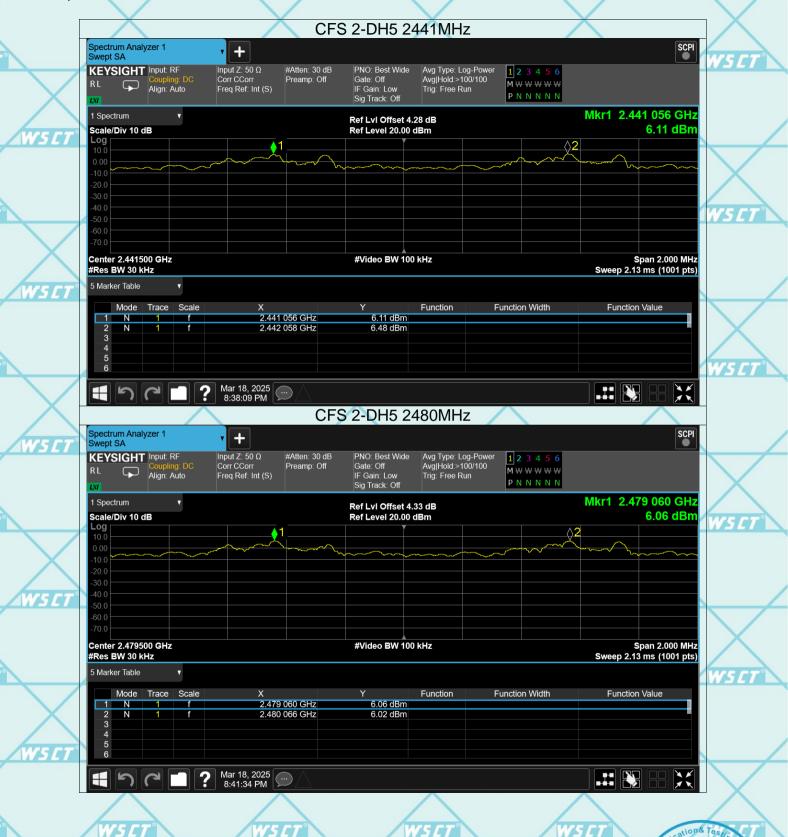






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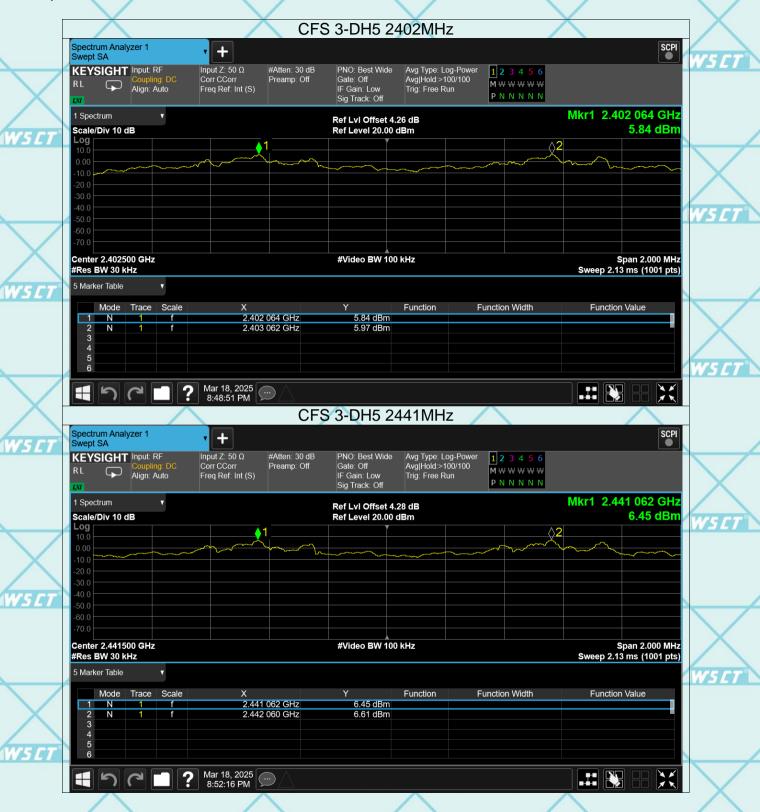




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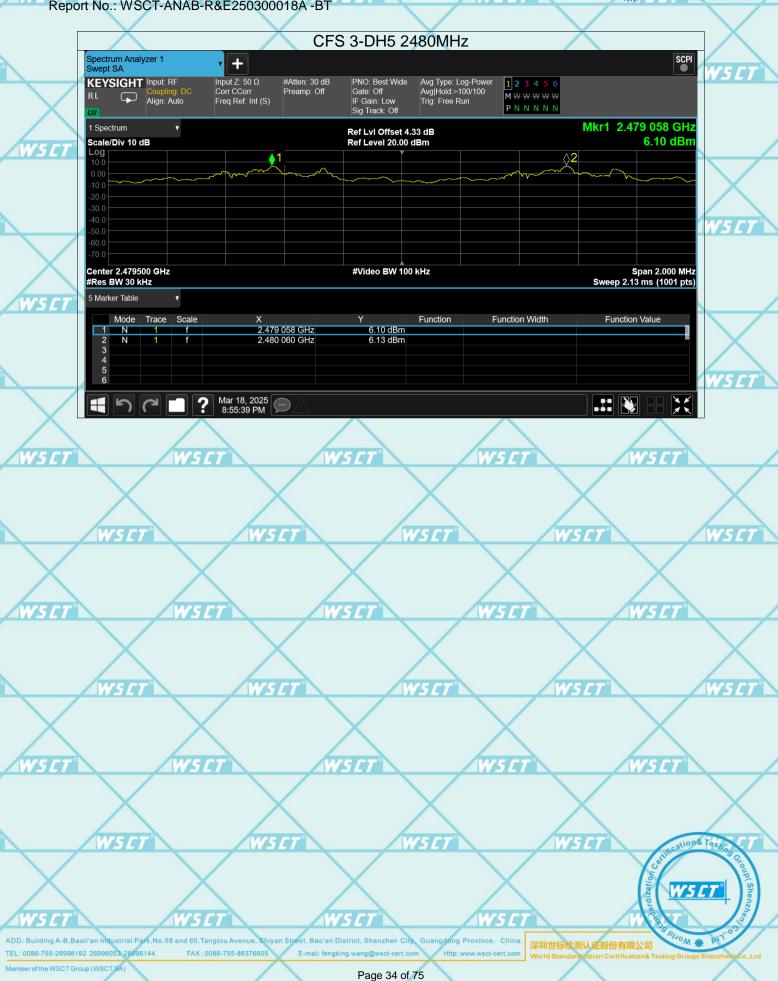




W5 C1



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W5CT°

6.6. Hopping Channel Number

W5CT[®]

W5ET

W5 CT

6.6.1. Test Specification

X	X	X X X	
	Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
W5 CT	Test Method:	ANSI C63.10:2014	
	Limit:	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.	X
X	Test Setup:		W5 C
WSCT		Spectrum Analyzer EUT	
	Test Mode:	Hopping mode	
WSET	Test Procedure:	 The testing follows ANSI C63.10:2014 Measurement Guidelines. 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. Enable the EUT hopping function. Use the following spectrum analyzer settings: Span = the frequency band of operation; set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. The number of hopping frequency used is defined as the number of total channel. Record the measurement data in report. 	W5C
	Test Result:	PASS PASS	X
	WSCT° WSC	T WSTT WSTT	WSE

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W5CT°

WSET







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W5CT

6.6.2. Test data

_	Mode	Hopping channel numbers	Limit	Result	W5E1
	GFSK, P/4-DQPSK, 8DPSK	79	15	PASS	

Test plots as follows:

W5 C1 W5 CT W5 CI

WS CT W5 C7 W5 C1 W5 CT W5 CI

W5 E1 WS CI WS CI WSEI

W5 CT W5 CT WS ET W5E1 WS CI

W5 E W5 C W5 C W5C

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W5 CI WS ET W5 CT W5 C1

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W5 C1

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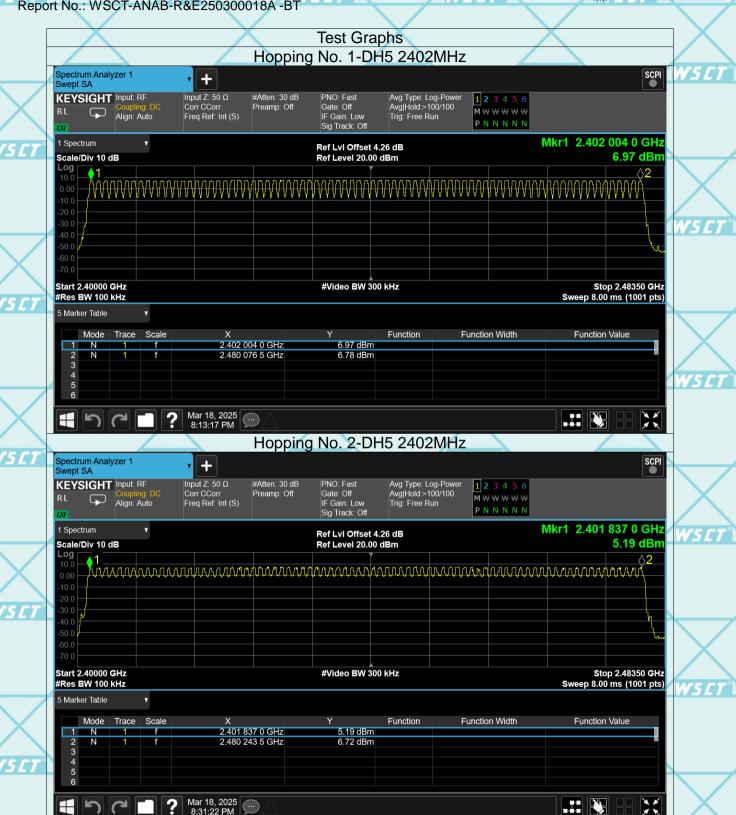
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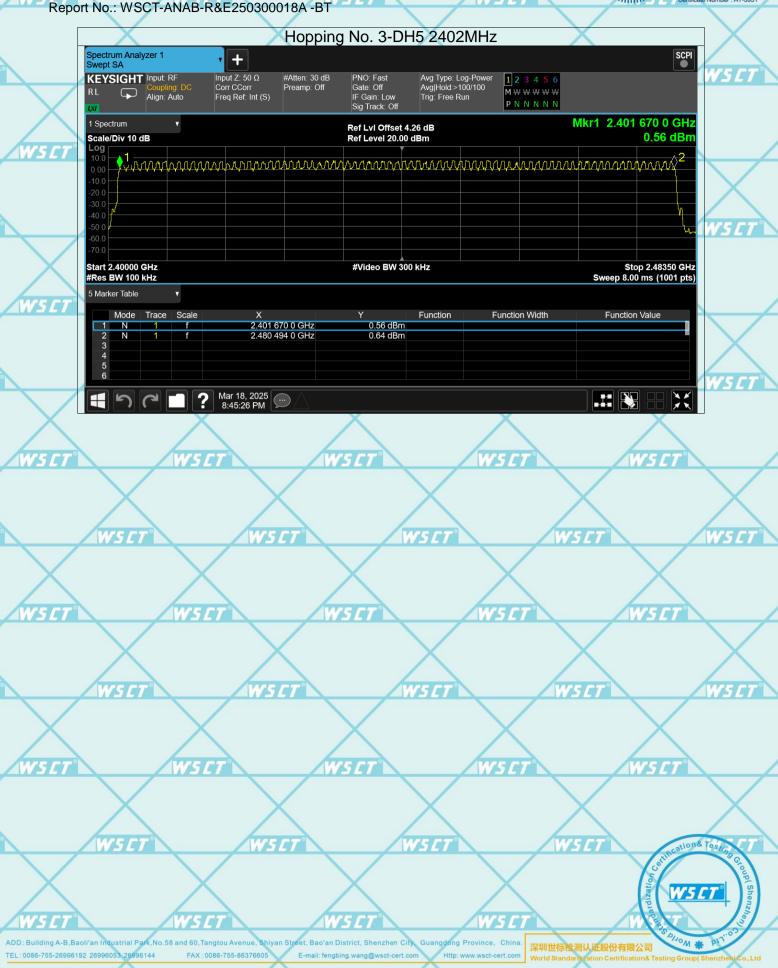
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6.7. Dwell Time

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W5 CT

W5CT

W5 CT

X	Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
WSCT	Test Method:	ANSI C63.10:2014 W5 [7] W5 [7]	
	Limit:	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.	W5 LT
X	Test Setup:	Spectrum Analyzer EUT	
WSET	Test Mode:	Hopping mode W5ET W5ET	
WSCT	Test Procedure:	 The testing follows ANSI C63.10:2014 Measurement Guidelines. 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. Enable the EUT hopping function. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel; VBW≥RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold. Measure and record the results in the test report. 	WSCI
	Test Result:	PASS	
	WSG	Wall	WSET

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WSET

W5CT

W5 CT

SET WSET

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W5 CT





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6.7.2. Test Data

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	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
	1-DH1	2402	0.405	129.6	320	31600	400	Pass
	1-DH1	2441	0.405	128.79	318	31600	400	Pass
	1-DH1	2480	0.404	128.068	317	31600	400	Pass
	1-DH3	2402	1.661	272.404	164	31600	400	Pass
	1-DH3	2441	1.66	262.28	158	31600	400	Pass
	1-DH3	2480	1.662	267.582	161	31600	400	Pass
	1-DH5	2402	2.91	317.19	109	31600	400	Pass
1	1-DH5	2441	2.907	331.398	114	31600	400	Pass
	1-DH5	2480	2.91	334.65	115	31600	400	Pass

Note: 1. In normal mode, hopping rate is 1600 hops/s with 6 slots in 79 hopping channels.

For DH1, With channel hopping rate (1600 / 2 / 79) in Occupancy Time Limit (0.4 x 79) (s), Hops Over Occupancy Time comes to $(1600 / 2 / 79) \times (0.4 \times 79) = 320 \text{ hops}$

> For DH3, With channel hopping rate (1600 / 4 / 79) in Occupancy Time Limit (0.4 x 79) (s), Hops Over Occupancy Time comes to $(1600/4/79) \times (0.4 \times 79) = 160 \text{ hops}$

For DH5, With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s), Hops Over Occupancy Time comes to $(1600 / 6 / 79) \times (0.4 \times 79) = 106.67$ hops

2. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

Test plots as follows:

W5 CI WSCI WS ET

WSC

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W5 C1





W5 CI



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W5 CT

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