

TEST REPORT

Report No.:	BCTC2409936345E
Applicant:	SHENZHEN JUNYE ELECTRONICS CO LTD
Product Name:	ANC TWS EARBUDS
Test Model:	V40097W
Tested Date:	2024-09-03 to 2024-09-10
Issued Date:	2024-09-20
	nzhen BCTC Testing Co., Ltd.
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FCC ID: 2BB3B-TWS249

Product Name:	ANC TWS EARBUDS
Trademark:	N/A
Model/Type Reference:	V40097W,KY-01,TWS249,Y77
Prepared For:	SHENZHEN JUNYE ELECTRONICS CO LTD
Address:	201,Building 7,Xingye er Road,Fenghuang Village, Fuyong Town,Baoan District, Shenzhen City,Guangdong Province,China
Manufacturer:	SHENZHEN JUNYE ELECTRONICS CO LTD
Address:	201,Building 7,Xingye er Road,Fenghuang Village, Fuyong Town,Baoan District, Shenzhen City,Guangdong Province,China
Prepared By:	Shenzhen BCTC Testing Co., Ltd
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2024-09-03
Sample Tested Date:	2024-09-03 to 2024-09-10
Report No.:	BCTC2409936345E
Test Standards	FCC Part15.247 ANSI C63.10-2013
Test Results	PASS
Remark:	This is Bluetooth Classic radio test report.

Tested by:

Vave

Brave Zeng/ Project Handler

Approved by: Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

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1. Version

Report No.	Issue Date	Description	Approved
BCTC2409936345E	2024-09-20	Original	Valid



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Test Summary 2.

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No.	Results
1	Conducted emission AC power port	§15.207	PASS
2	Conducted peak output power for FHSS	§15.247(b)(1)	PASS
3	20dB Occupied bandwidth	§15.247(a)(1)	PASS
4	Number of hopping frequencies	§15.247(a)(1)(iii)	PASS
5	Dwell Time	§15.247(a)(1)(iii)	PASS
6	Spurious RF conducted emissions	§15.247(d)	PASS
7	Band edge	§15.247(d)	PASS
8	Spurious radiated emissions for transmitter	§15.247(d) & §15.209 & §15.205	PASS
9	Antenna Requirement	15.203	PASS
	N/A (Not Applicable)		

NOTE1: N/A (Not Applicable) NOTE2: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

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3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(9KHz-30MHz)	U=3.7dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
5	Conducted Emission (150kHz-30MHz)	U=3.20dB
6	Conducted Adjacent channel power	U=1.38dB
7	Conducted output power uncertainty Above 1G	U=1.576dB
8	Conducted output power uncertainty below 1G	U=1.28dB
9	humidity uncertainty	U=5.3%
10	Temperature uncertainty	U=0.59° ℃



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4. Product Information and Test Setup

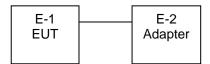
4.1 Product Information

Model/Type reference:	V40097W,KY-01,TWS249,Y77
Model differences:	The following models of units we produce are identical in electrical, mechanical and physical structure; The difference is only in the model name and color, we finally have V40097W as test model.
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	Bluetooth: 2402-2480MHz
Type of Modulation:	Bluetooth: GFSK, π/ 4 DQPSK,8DPSK
Number Of Channel	79CH
Antenna installation:	Internal antenna
Antenna Gain:	2.0dBi
Remark:	The antenna gain of the product comes from the antenna report provided by the customer, and the test data is affected by the customer information.
power supply:	DC 5V,0.5A
Battery:	DC 3.7V/200mAh

4.2 Test Setup Configuration

See test photographs attached in eut test setup photographs for the actual connections between product and support equipment.

Conducted Emission:



Radiated Spurious Emission



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4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	ANC TWS EARBUDS	N/A	V40097W	N/A	EUT
E-2	Adapter	N/A	N/A	N/A	Auxiliary

ltem	Shielded Type	Ferrite Core	Length	Note
C-1	N/A	N/A	N/A	N/A

Notes:

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.

4.4 Channel List

СН	Frequency (MHz)	СН	Frequency (MHz)	СН	Frequency (MHz)	СН	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	79	/

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4.5 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Mode	Test mode	Low channel	Middle channel	High channel		
1	Transmitting(GFSK)	2402MHz	2441MHz	2480MHz		
2	Transmitting(π/ 4 DQPSK)	2402MHz	2441MHz	2480MHz		
3	Transmitting(8DPSK)	2402MHz	2441MHz	2480MHz		
4	Transmitting (Conducted emission & Radiated emission)					

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) Fully-charged battery is used during the test

4.6 Table Of Parameters Of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Test software Version	FCC_assist 1.0.1.2				
Frequency	2402 MHz	2441 MHz	2480 MHz		
Parameters	DEF	DEF	DEF		

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5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards. FCC Test Firm Registration Number: 712850 IC Registered No.: 23583

5.2 Test Instrument Used

Conducted Emissions Test							
Equipment	ent Manufacturer Model# Serial# Last Cal. Nex						
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025		
LISN	R&S	ENV216	101375	May 16, 2024	May 15, 2025		
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\		
Pulse limiter	Schwarzbeck	VTSD 9561-F	01323	May 16, 2024	May 15, 2025		

RF Conducted Test							
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.		
Power meter	Keysight	E4419	١	May 16, 2024	May 15, 2025		
Power Sensor (AV)	Keysight	E9300A	١	May 16, 2024	May 15, 2025		
Signal Analyzer20kH z-26.5GHz	Keysight	N9020A	MY49100060	May 16, 2024	May 15, 2025		
Spectrum Analyzer9kHz- 40GHz	R&S	FSP40	100363	May 16, 2024	May 15, 2025		

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	Radiated Emissions Test (966 Chamber)							
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.			
966 chamber	ChengYu	966 Room	966	May 16, 2024	May 15, 2025			
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025			
Receiver	R&S	ESRP	101154	May 16, 2024	May 15, 2025			
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 16, 2024	May 15, 2025			
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 21, 2024	May 20, 2025			
Loop Antenna(9KHz -30MHz)	Schwarzbeck	FMZB1519B	00014	May 21, 2024	May 20, 2025			
Amplifier	SKET	LAPA_01G1 8G-45dB	SK202104090 1	May 16, 2024	May 15, 2025			
Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 30, 2024	May 29, 2025			
Amplifier(18G Hz-40GHz)	MITEQ	TTA1840-35- HG	2034381	May 16, 2024	May 15, 2025			
Horn Antenn(18GH z-40GHz)	Schwarzbeck	BBHA9170	00822	May 21, 2024	May 20, 2025			
Spectrum Analyzer9kHz- 40GHz	R&S	FSP40	100363	May 16, 2024	May 15, 2025			
Software	Frad	EZ-EMC	FA-03A2 RE	\	١			

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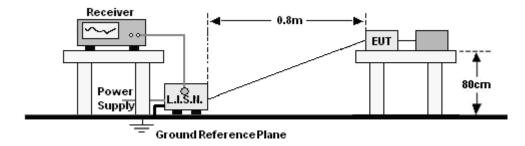
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6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

	Limit (dBuV)
Frequency (MHz)	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:

1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

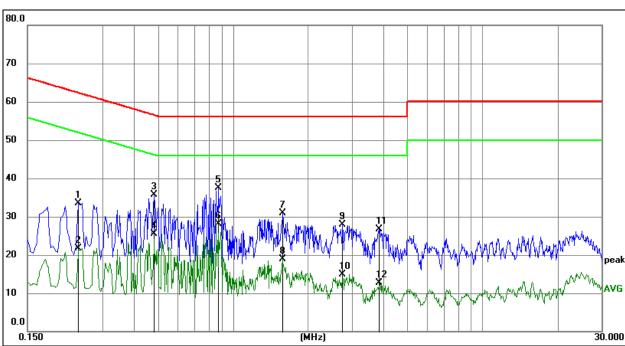
6.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



6.5 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 4	Test Voltage :	AC120V/60Hz



Remark:

All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.

3. Measurement = Reading Level + Correct Factor

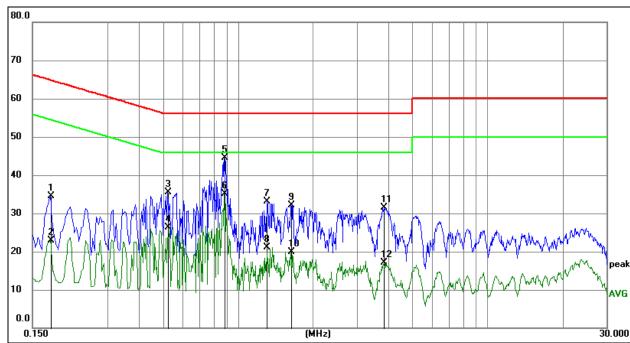
4. Over = Measurement - Limit

No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV)	Limit (dBu∀)	Margin (dB)	Detector
1	0.2391	23.27	10.27	33.54	62.13	-28.59	QP
2	0.2391	11.41	10.27	21.68	52.13	-30.45	AVG
3	0.4811	25.41	10.31	35.72	56.32	-20.60	QP
4	0.4811	15.10	10.31	25.41	46.32	-20.91	AVG
5	0.8756	27.14	10.30	37.44	56.00	-18.56	QP
6 *	0.8756	17.89	10.30	28.19	46.00	-17.81	AVG
7	1.5849	20.61	10.33	30.94	56.00	-25.06	QP
8	1.5849	8.53	10.33	18.86	46.00	-27.14	AVG
9	2.7501	17.50	10.46	27.96	56.00	-28.04	QP
10	2.7501	4.46	10.46	14.92	46.00	-31.08	AVG
11	3.8400	16.10	10.58	26.68	56.00	-29.32	QP
12	3.8400	2.11	10.58	12.69	46.00	-33.31	AVG

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Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Ν
Test Mode:	Mode 4	Test Voltage :	AC120V/60Hz



Remark:

All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.
 Measurement = Reading Level + Correct Factor
 Over = Measurement - Limit

No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV)	Limit (dBu∀)	Margin (dB)	Detector
1	0.1770	24.15	10.26	34.41	64.63	-30.22	QP
2	0.1770	12.72	10.26	22.98	54.63	-31.65	AVG
3	0.5235	25.09	10.32	35.41	56.00	-20.59	QP
4	0.5235	16.05	10.32	26.37	46.00	-19.63	AVG
5	0.8835	34.28	10.29	44.57	56.00	-11.43	QP
6 *	0.8835	24.81	10.29	35.10	46.00	-10.90	AVG
7	1.3065	22.79	10.30	33.09	56.00	-22.91	QP
8	1.3065	10.77	10.30	21.07	46.00	-24.93	AVG
9	1.6305	21.77	10.33	32.10	56.00	-23.90	QP
10	1.6305	9.55	10.33	19.88	46.00	-26.12	AVG
11	3.8400	20.84	10.58	31.42	56.00	-24.58	QP
12	3.8400	6.55	10.58	17.13	46.00	-28.87	AVG





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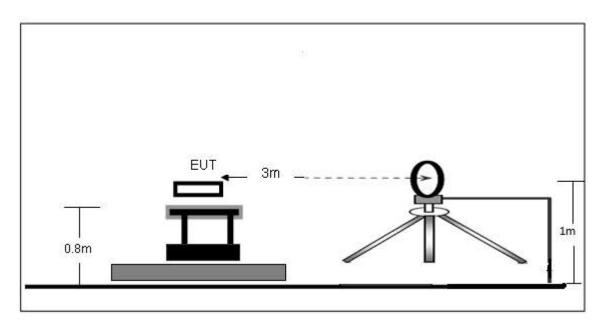
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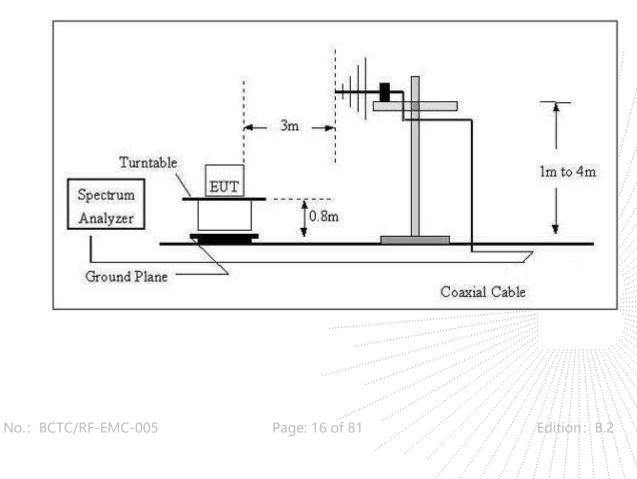
7. Radiated emissions

7.1 Block Diagram Of Test Setup

(A) Radiated Emission Test-Up Frequency Below 30MHz

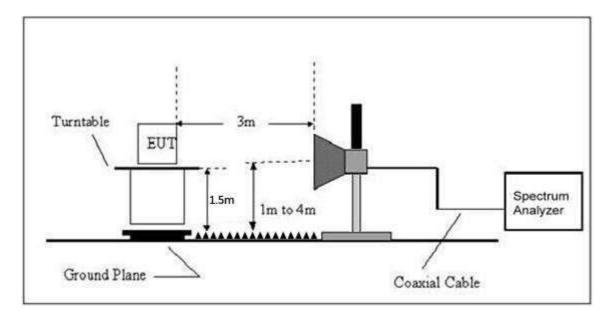


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(C) Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency	Field Strength	Distance	Field Strength Limit at 3m Distance		
(MHz)	uV/m	(m)	uV/m	dBuV/m	
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80	
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40	
1.705 ~ 30	30	30	100 * 30	20log ⁽³⁰⁾ + 40	
30 ~ 88	100	3	100	20log ⁽¹⁰⁰⁾	
88 ~ 216	150	3	150	20log ⁽¹⁵⁰⁾	
216 ~ 960	200	3	200	20log ⁽²⁰⁰⁾	
Above 960	500	3	500	20log ⁽⁵⁰⁰⁾	

Limits Of Radiated Emission Measurement (Above 1000MHz)

Fraguanay (MHz)	Limit (dBuV/m) (at 3M)				
Frequency (MHz)	Peak				
Above 1000	74				

Notes:

(1)The limit for radiated test was performed according to FCC PART 15C.

(2)The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

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Frequency Range Of Radiated Measurement

(a) For an intentional radiator the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:

(1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

(4) If the intentional radiator operates at or above 95 GHz: To the third harmonic of the highest fundamental frequency or to 750 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

(5) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a) (1)through (4) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation.

7.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
9kHz~150kHz	RBW 200Hz for QP
150kHz~30MHz	RBW 9kHz for QP
30MHz~1000MHz	RBW 120kHz for QP

Spectrum Parameter	Setting
1-25GHz	RBW 1 MHz /VBW 1 MHz for Peak,
. 200112	RBW 1 MHz / VBW 10Hz for Average

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.



d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middlest channel, the Highest channel.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

7.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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7.5 Test Result

Below 30MHz

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	DC 3.7V
Test Mode:	Mode 4	Test vollage.	DC 3.7 V

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
				PASS
				PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the

permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

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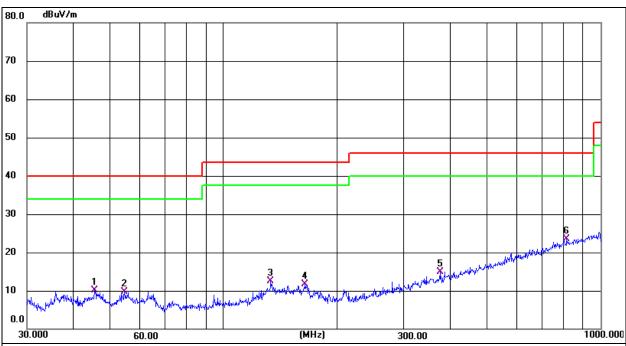
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Between 30MHz - 1GHz

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 4	Test Voltage :	DC 3.7V



Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Measurement = Reading Level + Correct Factor
 Over = Measurement - Limit

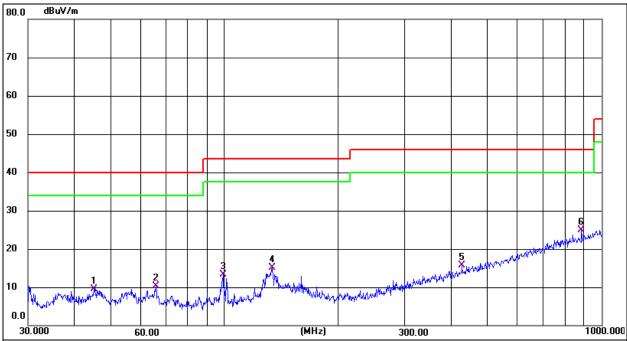
					5 5 S	1 1 1	1 I I
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	45.5348	27.02	-16.86	10.16	40.00	-29.84	QP
2	54.5950	26.71	-16.97	9.74	40.00	-30.26	QP
3	133.5603	28.37	-15.78	12.59	43.50	-30.91	QP
4	164.4023	26.96	-15.29	11.67	43.50	-31.83	QP
5	375.6091	26.19	-11.19	15.00	46.00	-31.00	QP
6 *	814.1815	23.85	-0.43	23.42	46.00	-22.58	QP
					· · · · · · · · · · · · · · · · · · ·	1	

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Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 4	Test Voltage :	DC 3.7V



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 Measurement = Reading Level + Correct Factor
 Over = Measurement - Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	44.9006	26.43	-16.86	9.57	40.00	-30.43	QP
2	65.6878	28.51	-18.12	10.39	40.00	-29.61	QP
3	99.0928	32.00	-18.74	13.26	43.50	-30.24	QP
4	133.6188	30.93	-15.78	15.15	43.50	-28.35	QP
5	427.8317	25.25	-9.61	15.64	46.00	-30.36	QP
6 *	886.8320	24.18	0.69	24.87	46.00	-21.13	QP

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Polar	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector		
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	Туре		
	GFSK Low channel								
V	4804.00	70.34	-19.99	50.35	74.00	-23.65	PK		
V	4804.00	61.47	-19.99	41.48	54.00	-12.52	AV		
V	7206.00	62.19	-14.22	47.97	74.00	-26.03	PK		
V	7206.00	54.55	-14.22	40.33	54.00	-13.67	AV		
Н	4804.00	64.32	-19.99	44.33	74.00	-29.67	PK		
Н	4804.00	56.29	-19.99	36.30	54.00	-17.70	AV		
Н	7206.00	60.53	-14.22	46.31	74.00	-27.69	PK		
Н	7206.00	55.14	-14.22	40.92	54.00	-13.08	AV		
	GFSK Middle channel								
V	4882.00	65.11	-19.84	45.27	74.00	-28.73	PK		
V	4882.00	58.32	-19.84	38.48	54.00	-15.52	AV		
V	7323.00	61.47	-13.90	47.57	74.00	-26.43	PK		
V	7323.00	52.13	-13.90	38.23	54.00	-15.77	AV		
Н	4882.00	64.00	-19.84	44.16	74.00	-29.84	PK		
Н	4882.00	54.86	-19.84	35.02	54.00	-18.98	AV		
Н	7323.00	58.17	-13.90	44.27	74.00	-29.73	PK		
Н	7323.00	51.44	-13.90	37.54	54.00	-16.46	AV		
		(GFSK High ch	annel					
V	4960.00	69.38	-19.68	49.70	74.00	-24.30	PK		
V	4960.00	61.43	-19.68	41.75	54.00	-12.25	AV		
V	7440.00	62.15	-13.57	48.58	74.00	-25.42	PK		
V	7440.00	54.87	-13.57	41.30	54.00	-12.70	, AV		
Н	4960.00	64.49	-19.68	44.81	74.00	-29.19	PK		
Н	4960.00	57.04	-19.68	37.36	54.00	-16.64	AV		
Н	7440.00	62.35	-13.57	48.78	74.00	-25.22	PK		
Н	7440.00	54.96	-13.57	41.39	54.00	-12.61	AV		

Between 1GHz – 25GHz

Remark:

1.Emission Level = Meter Reading + Factor, Factor = Antenna Factor + Cable Loss – Pre-amplifier. Over= Emission Level - Limit

2.If peak below the average limit, the average emission was no test.

3. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB

4. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

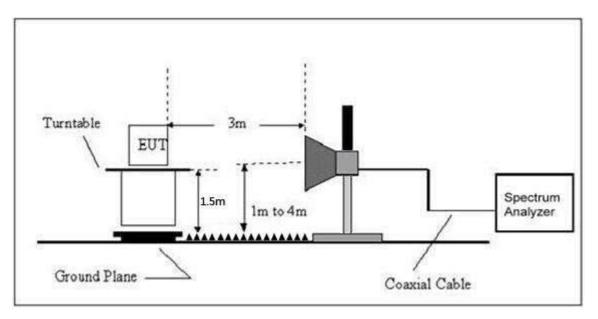
5.All the Modulation are test, the worst mode is GFSK, the data recording in the report.



Radiated Band Emission Measurement and Restricted Bands of Operation 8.

8.1 Block Diagram Of Test Setup

Radiated Emission Test-Up Frequency Above 1GHz



8.2 Limit

FCC Part15 C Section 15.209 and 15.205

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²
13.36-13.41			

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Limits Of Radiated Emission Measurement (Above 1000MHz)

Frequency (MHz)	Limit (dBuV/m) (at 3M)				
Frequency (MIRZ)	Peak Average				
Above 1000	74	54			

Notes:

(1)The limit for radiated test was performed according to FCC PART 15C.

(2)The tighter limit applies at the band edges.

(3)Emission level (dBuV/m)=20log Emission level (uV/m).

8.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (Emission In Restricted Band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Above 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b.The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middlest channel, the Highest channel.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

8.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

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8.5 Test Result

Test mode	Polar (H/V)	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measure- ment (dBuV/m)	Limits (dBuV/m)		Result		
	(()			РК	PK	AV			
	Low Channel 2402MHz									
	Н	2390.00	74.56	-25.43	49.13	74.00	54.00	PASS		
	Н	2400.00	73.29	-25.40	47.89	74.00	54.00	PASS		
	V	2390.00	71.55	-25.43	46.12	74.00	54.00	PASS		
GFSK	V	2400.00	75.12	-25.40	49.72	74.00	54.00	PASS		
	High Channel 2480MHz									
	Н	2483.50	70.92	-25.15	45.77	74.00	54.00	PASS		
	Н	2500.00	69.15	-25.10	44.05	74.00	54.00	PASS		
	V	2483.50	72.14	-25.15	46.99	74.00	54.00	PASS		
	V	2500.00	68.55	-25.10	43.45	74.00	54.00	PASS		
π/4DQPSK		Low Channel 2402MHz								
	Н	2390.00	73.16	-25.43	47.73	74.00	54.00	PASS		
	Н	2400.00	71.43	-25.40	46.03	74.00	54.00	PASS		
	V	2390.00	70.25	-25.43	44.82	74.00	54.00	PASS		
	V	2400.00	69.82	-25.40	44.42	74.00	54.00	PASS		
	High Channel 2480MHz									
	Н	2483.50	71.08	-25.15	45.93	74.00	54.00	PASS		
	Н	2500.00	68.44	-25.10	43.34	74.00	54.00	PASS		
	V	2483.50	71.22	-25.15	46.07	74.00	54.00	PASS		
	V	2500.00	69.37	-25.10	44.27	74.00	54.00	PASS		
8DPSK		Low Channel 2402MHz								
	Н	2390.00	73.12	-25.43	47.69	74.00	54.00	PASS		
	Н	2400.00	72.58	-25.40	47.18	74.00	54.00	PASS		
	V	2390.00	70.93	-25.43	45.50	74.00	54.00	PASS		
	V	2400.00	72.14	-25.40	46.74	74.00	54.00	PASS		
	High Channel 2480MHz									
	Н	2483.50	73.38	-25.15	48.23	74.00	54.00	PASS		
	Н	2500.00	69.30	-25.10	44.20	74.00	54.00	PASS		
	V	2483.50	72.86	-25.15	47.71	74.00	54.00	PASS		
	V	2500.00	69.45	-25.10	44.35	74.00	54.00	PASS		

Remark:

1. Emission Level = Meter Reading + Factor, Factor = Antenna Factor + Cable Loss - Pre-amplifier. Over= Emission Level - Limit

2. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

3 In restricted bands of operation, The spurious emissions below the permissible value more than 20dB

4. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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9. Spurious RF Conducted Emissions

9.1 Block Diagram Of Test Setup



9.2 Limit

Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.205(c))

9.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer: Below 30MHz: RBW = 100kHz, VBW = 300kHz, Sweep = auto Detector function = peak, Trace = max hold Above 30MHz: RBW = 100KHz, VBW = 300KHz, Sweep = auto Detector function = peak, Trace = max hold epoi

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9.4 Test Result









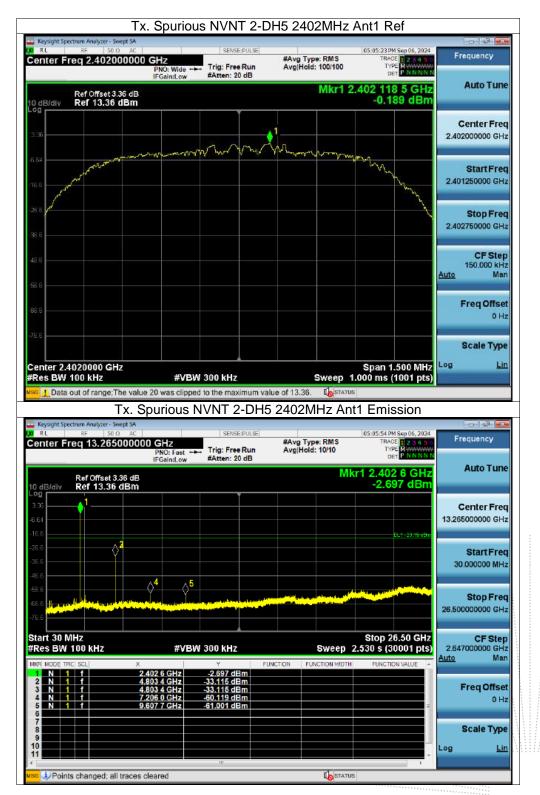




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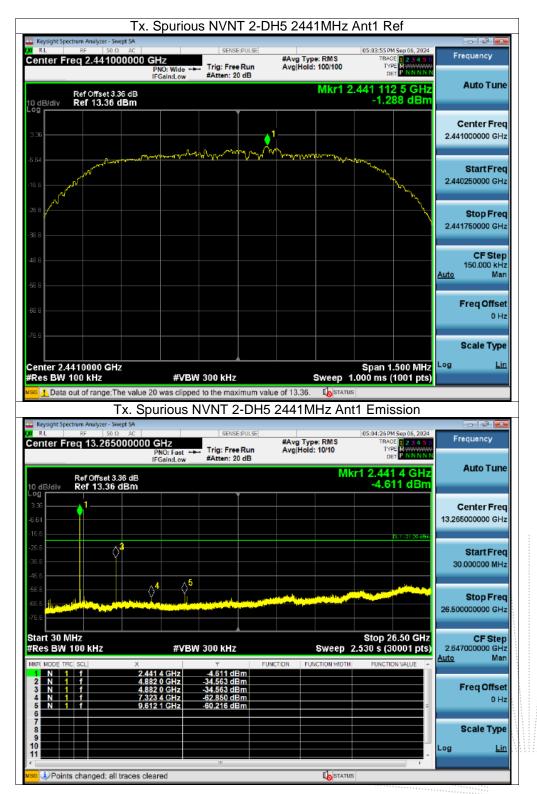
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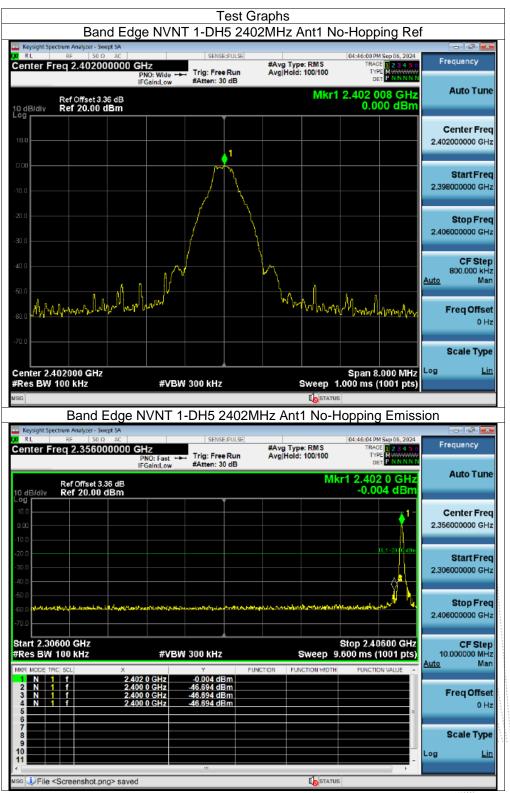




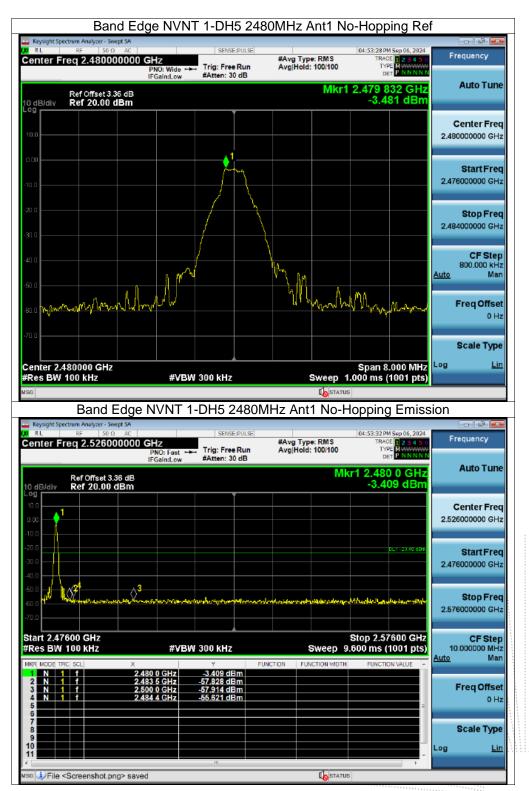






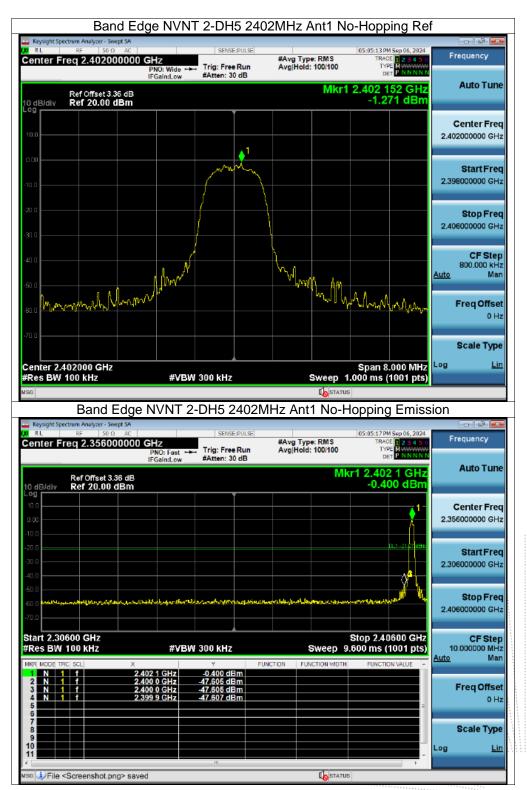






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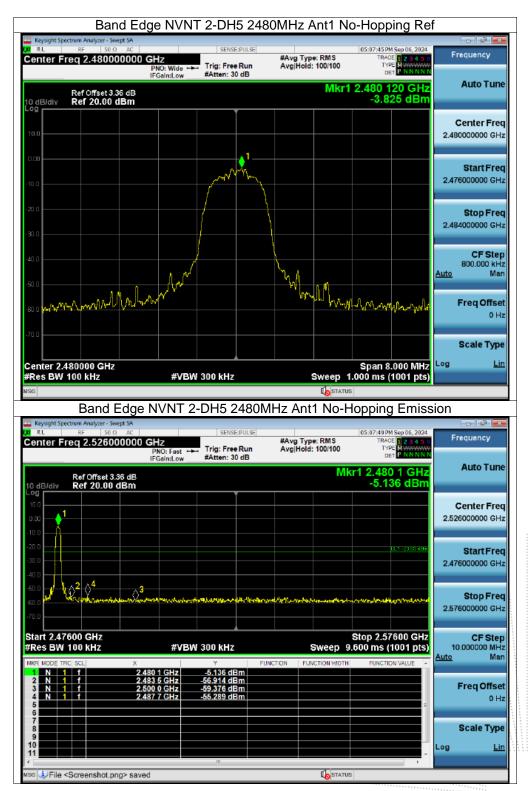




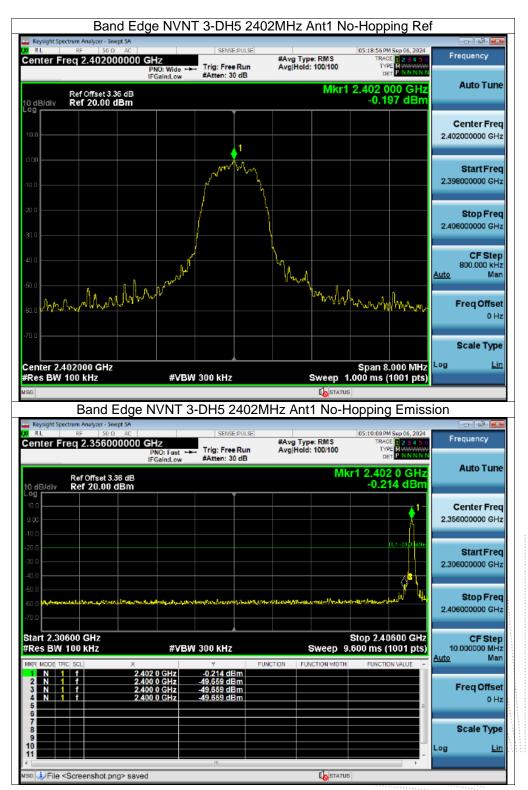
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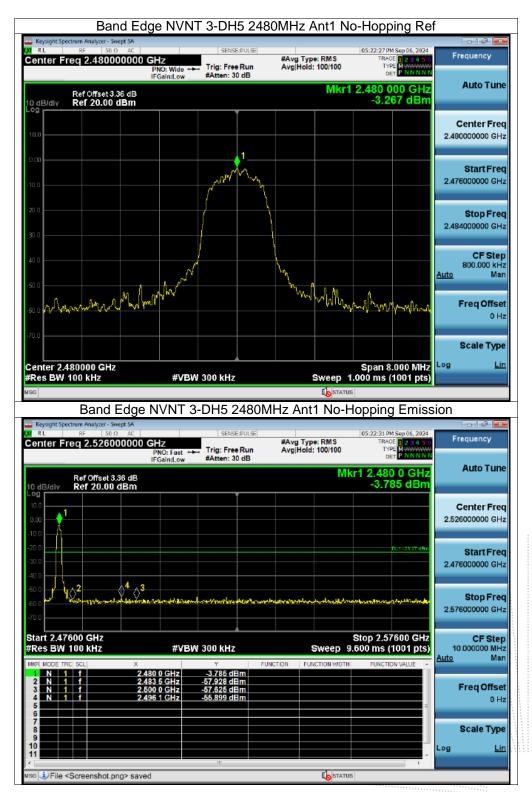






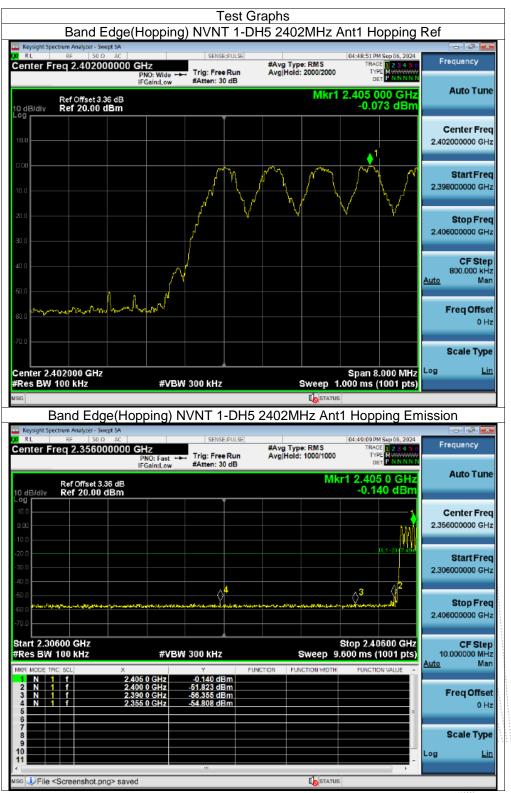






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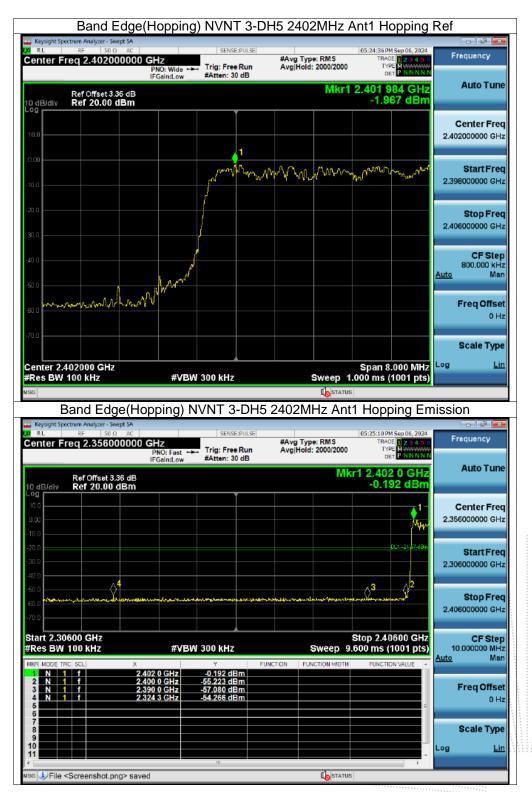


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10. 20 dB Bandwidth

10.1 Block Diagram Of Test Setup



10.2 Limit

N/A

- 10.3 Test procedure
- 1. Set RBW = 30kHz.
- 2. Set the video bandwidth (VBW) \ge 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.

6. Allow the trace to stabilize.

7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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10.4 Test Result

Condition	Mode	Frequency (MHz)	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	0.944	Pass
NVNT	1-DH5	2441	0.953	Pass
NVNT	1-DH5	2480	0.943	Pass
NVNT	2-DH5	2402	1.323	Pass
NVNT	2-DH5	2441	1.309	Pass
NVNT	2-DH5	2480	1.312	Pass
NVNT	3-DH5	2402	1.302	Pass
NVNT	3-DH5	2441	1.293	Pass
NVNT	3-DH5	2480	1.296	Pass

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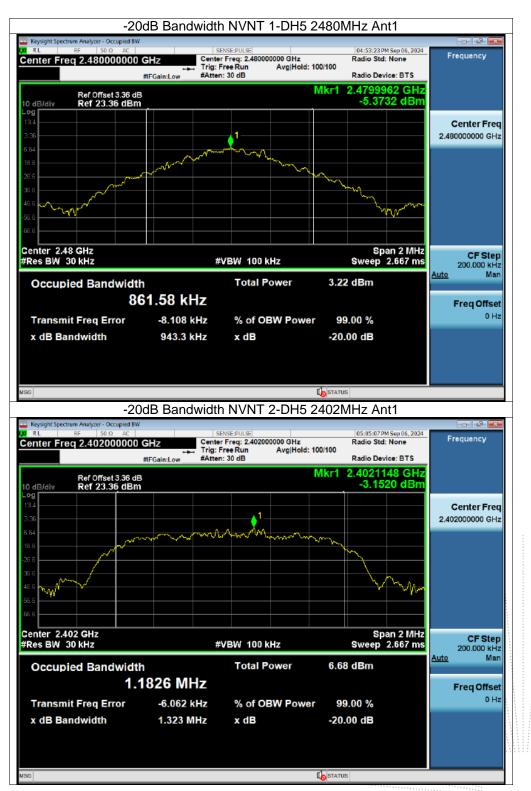




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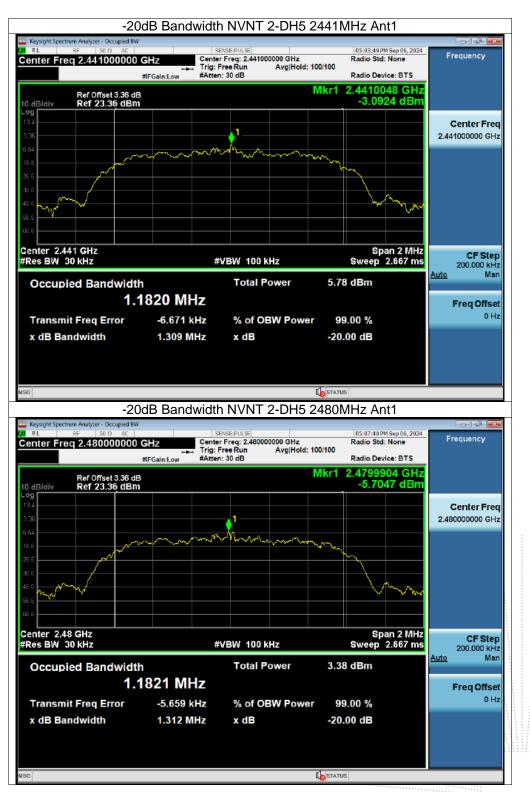


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11. Maximum Peak Output Power

11.1 Block Diagram Of Test Setup



11.2 Limit

FCC Part15 (15.247) , Subpart C						
Section	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(b)(1)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS		

11.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 2MHz. VBW = 6MHz. Sweep = auto; Detector Function = Peak.

3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

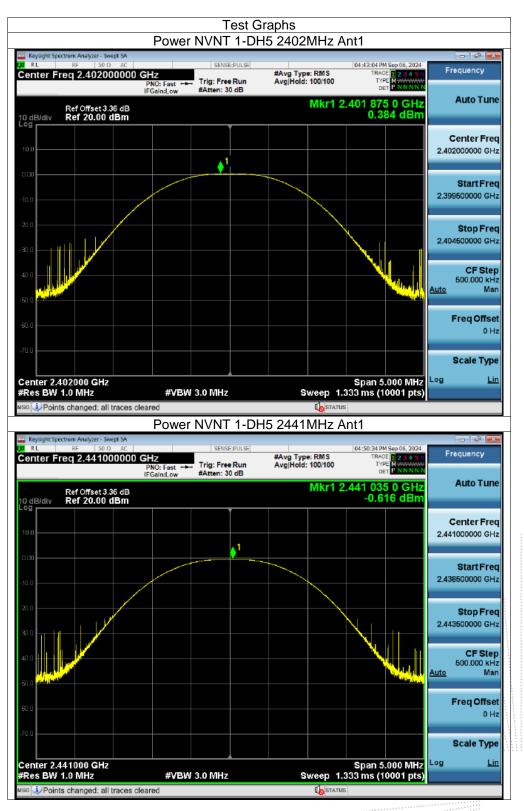
11.4 Test Result

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	0.38	21	Pass
NVNT	1-DH5	2441	-0.62	21	Pass
NVNT	1-DH5	2480	-3.01	21	Pass
NVNT	2-DH5	2402	2.23	21	Pass
NVNT	2-DH5	2441	1.30	21	Pass
NVNT	2-DH5	2480	-1:40	21	Pass
NVNT	3-DH5	2402	2.34	21	Pass
NVNT	3-DH5	2441	1.39	21	Pass
NVNT	3-DH5	2480	-1.06	21	Pass

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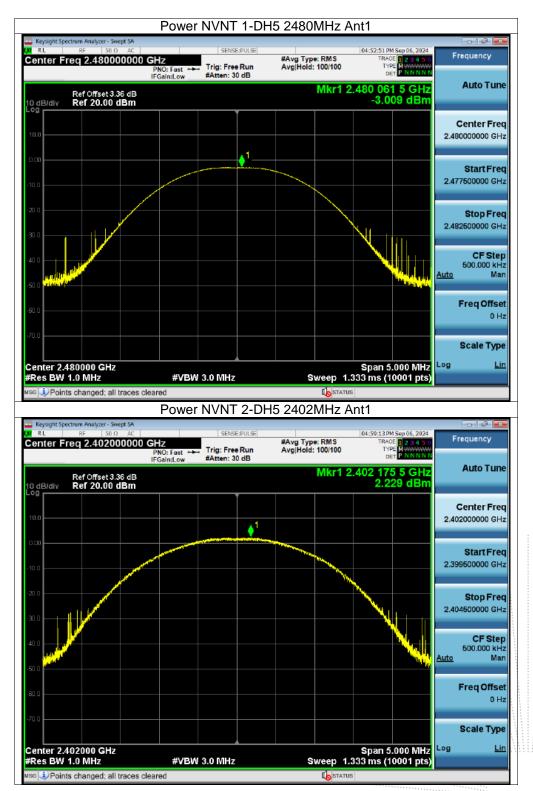
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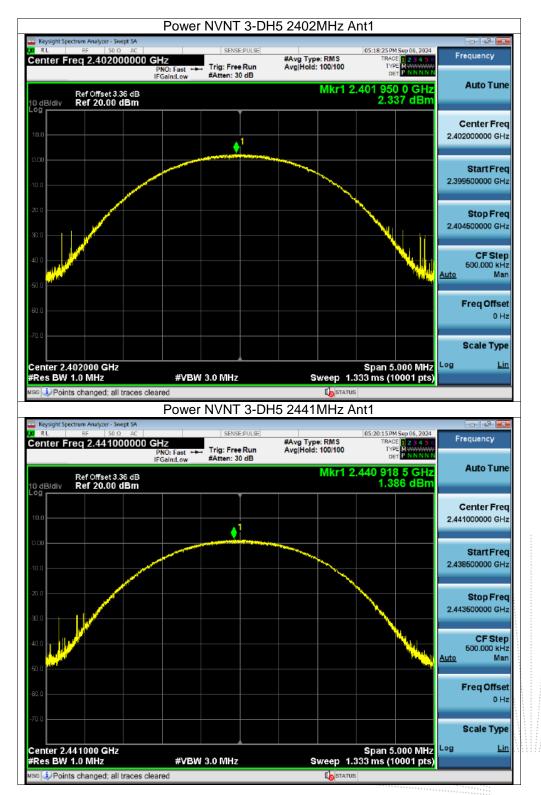
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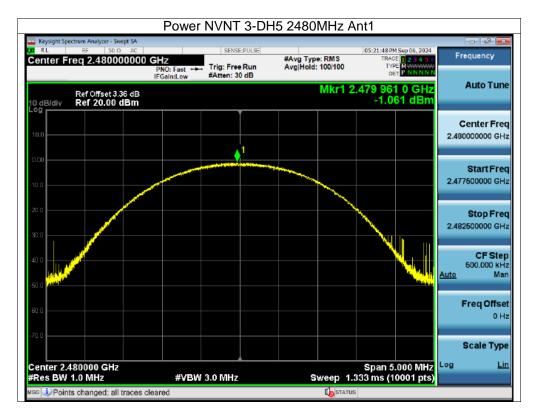
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12. Hopping Channel Separation

12.1 Block Diagram Of Test Setup



12.2 Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, 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, provided the systems operate with an output power no greater than 0.125W.

12.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 30kHz. VBW = 100kHz , Span = 2.0MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	2401.986	2402.99	1.004	0.629	Pass
NVNT	1-DH5	2441.002	2441.906	0.904	0.635	Pass
NVNT	1-DH5	2478.986	2479.99	1.004	0.629	Pass
NVNT	2-DH5	2401.996	2403.154	1.158	0.882	Pass
NVNT	2-DH5	2440.922	2441.918	0.996	0.873	Pass
NVNT	2-DH5	2478.998	2480.136	1.138	0.875	Pass
NVNT	3-DH5	2402.02	2402.968	0.948	0.868	Pass
NVNT	3-DH5	2440.992	2441.996	1.004	0.862	Pass
NVNT	3-DH5	2478.99	2479.99	1.000	0.864	Pass
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12.4 Test Result





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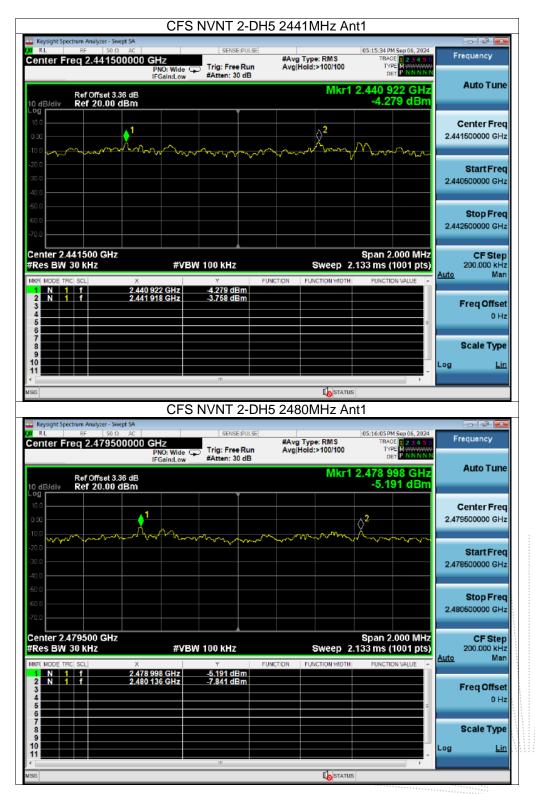
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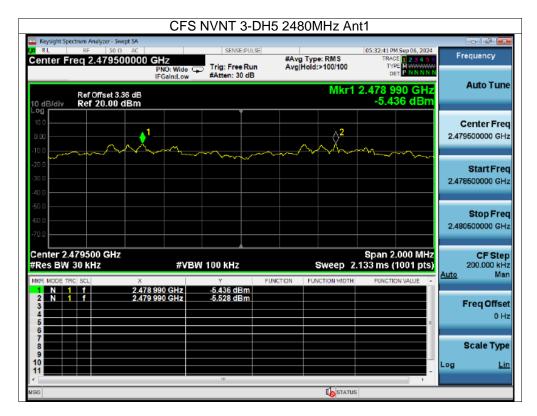




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13. Number of Hopping Frequency

13.1 Block Diagram Of Test Setup



13.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

13.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.

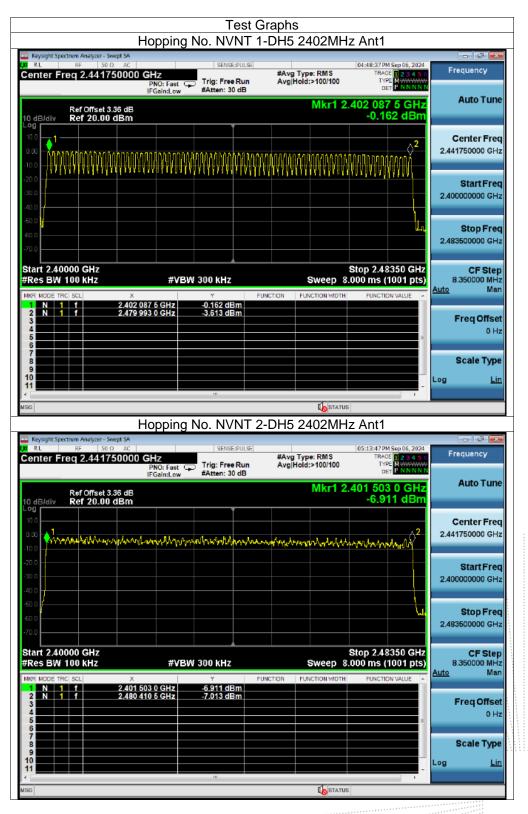
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

13.4 Test Result

Condition	Mode	Hopping Number	Limit	Verdict
NVNT	1-DH5	79	15	Pass
NVNT	2-DH5	79	15	Pass
NVNT	3-DH5	79	15	Pass

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Нор	ping No. NVNT 3-	DH5 2402MH	z Ant1	
	Fast Trig: Free Run	#Avg Type: RMS Avg Hold:>100/100	05:24:00 PM Sep 06, 2024 TRACE 1 2 3 4 5 0 TYPE M	Frequency
Ref Offset 3.36 dB 10 dB/div Ref 20.00 dBm	n:Low ≢Atten: 30 dB	Mkr1 2.	401 586 5 GHz -5.818 dBm	Auto Tune
10.0 0.00 - July - July	manilimphane	Mppl-softhywardsogward	Midanal Shanner	Center Freq 2.441750000 GHz
-20 0 -30 0 -40 0		γ 		Start Freq 2.400000000 GHz
-50.0 /			<u> </u>	Stop Freq 2.483500000 GHz
Start 2.40000 GHz #Res BW 100 kHz	#VBW 300 kHz		Stop 2.48350 GHz 000 ms (1001 pts)	CF Step 8.350000 MHz <u>Auto</u> Man
IMPR MODE TRC SCL X 1 N 1 1 2.401 586 5 6 2 N 1 1 2.480 410 6 6 3 4 5	Hz -5.818 dBm	ICTION FUNCTION WIDTH	FUNCTION VALUE =	Freq Offset 0 Hz
0 7 8 9 10				Scale Type
NSG	m	STATUS		

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14. Dwell Time

14.1 Block Diagram Of Test Setup



14.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. 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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

14.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set spectrum analyzer span = 0. Centred on a hopping channel;

3. Set RBW = 1MHz and VBW = 3MHz.Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.

4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

14.4 Test Result

DH5 Packet permit maximum 1600 / 79 / 6 hops per second in each channel (5 time slots RX, 1 time slot TX).

DH3 Packet permit maximum 1600 / 79 / 4 hops per second in each channel (3 time slots RX, 1 time slot TX).

DH1 Packet permit maximum 1600 / 79 /2 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

DH5:1600/79/6*0.4*79*(MkrDelta)/1000 DH3:1600/79/4*0.4*79*(MkrDelta)/1000 DH1:1600/79/2*0.4*79*(MkrDelta)/1000 Remark: Mkr Delta is once pulse time.

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Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	0.399	126.084	400	Pass
NVNT	1-DH3	2441	1.657	270.091	400	Pass
NVNT	1-DH5	2441	2.902	293.102	400	Pass
NVNT	2-DH1	2441	0.41	129.97	400	Pass
NVNT	2-DH3	2441	1.662	257.61	400	Pass
NVNT	2-DH5	2441	2.909	299.627	400	Pass
NVNT	3-DH1	2441	0.407	129.019	400	Pass
NVNT	3-DH3	2441	1.658	250.358	400	Pass
NVNT	3-DH5	2441	2.908	276.26	400	Pass

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	Test G Dwell NVNT 1-DH1 244		
🚾 Keysight Spectrum Analyzer - Swe			- 🗟 💌
Center Freq 2.44100	AC SENSE:PULSE	05:30:44 PM Sep 06, 2024 5 #Avg Type: RMS TYPE Det PRIVINI	
Ref Offset 3.3 10 dB/div Ref 20.00 d	96 dB	ΔMkr1 399.0 μs -2.43 dE	
10.0 0.00			Center Freq 2.441000000 GHz
-10.0 -20.0		TRG LM	Start Freq 2.441000000 GHz
-40.0 -50.0 printing	n van gegeneter en bereken en gegeneter van de gebeure of de speer en ge	ngal geseklikangel pinasiyin ténekipenteserekteren anakikaran kerekerekerekerekerekerekerekerekereker	Stop Freq
-60.0 <mark>44474 144660010000000000</mark>	a fan feringen fan ser ser skrive fan selan de skrivelij de stanferste sje ser se I		2.441000000 GHz
Center 2.441000000 G Res BW 1.0 MHz	#VBW 3.0 MHz	Span 0 Hz Sweep 10.00 ms (10001 pts NCTION FUNCTION WIDTH FUNCTION VALUE -	
1 Δ2 1 t (Δ) 2 F 1 t 3 4 5 5	399.0 µs (∆) -2.43 dB 479.0 µs -15.87 dBm		Freq Offset 0 Hz
6 7 8 9			Scale Type
10 11 MSG 3 Points changed; all t	""		Log <u>Lin</u>
	Dwell NVNT 1-DH3 244		
Keysight Spectrum Analyzer - Swe RL RF 50 Ω Center Freq 2.44100	ept SA AC SENSE:PULSE 00000 GHZ Trig Delay-500.0 µs	05:41:15 PM Sep 06, 2024	Frequency
Ref Offset 3.3 10 dB/div Ref 20.00 0	IFGain:Low #Atten: 30 dB	ΔMkr1 1.657 ms -1.50 dE	
10.0	μ 1Δ2	1895 (M.	Center Freq 2.441000000 GHz
-20.0			Start Freq 2.441000000 GHz
-50.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	n personal a second de la personal de la personal La personal de la pers	i na probani ka se i na probani n Na ka	Stop Freq 2.441000000 GHz
Center 2.441000000 G Res BW 1.0 MHz	#VBW 3.0 MHz	Span 0 Hz Sweep 10.00 ms (10001 pts	
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3 4 5 5 6	X Y FU 1.667 ms (A) -1.50 dB 478.0 us -16.07 dBm	FUNCTION VIDTH FUNCTION VALUE =	Freq Offset 0 Hz
6 7 8 9 10			Scale Type
11			

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]	Owell NVNT 1-DH5 24	441MHz Ant1 O	ne Burst	
Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	SENSE:PULSE		04:55:39 PM Sep 06, 2024	
Center Freq 2.44100000)µs #Avg Type:RMS	TRACE 1 2 3 4 5 6 TYPE W	Frequency
Ref Offset 3.36 dE		L	Mkr1 2.902 ms -0.98 dB	Auto Tune
10.0	142		TRIS LYL	Center Fred 2.441000000 GHz
20.0 X. 2007 House also, an also d	ndera ne. Un 2			Start Fred 2.441000000 GHz
50.0 <mark>4 diga</mark> 60.0 <mark>4 diga</mark> 70.0		an fajanse janjasej su najavjen fajavlj An fajanse janjasej su najavjen fajavlj	edalarinikanska statist Nasistigatet av statistiga je st	Stop Fred 2.441000000 GH:
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 10	Span 0 Hz 0.00 ms (10001 pts)	CF Step 1.000000 MHz <u>Auto</u> Mar
MKR MODE TRC SCL)	× Υ 2.902 ms (Δ) -0.98 dB 479.0 μs -15.90 dBm	FUNCTION FUNCTION WOTH	FUNCTION VALUE	Freq Offset
6 7 8 9 10				Scale Type
sc 🗼 Points changed; all trace	s cleared	Lo statu	S	
[Owell NVNT 2-DH1 24	441MHz Ant1 O	ne Burst	
Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC Center Freq 2.44100000) µs #Avg Type: RMS	05:42:12 PM Sep 06, 2024 TRACE 1 2 3 4 5 0 TYPE	Frequency
Ref Offsel 3.36 dE 0 dB/div Ref 20.00 dBm	IFGain:Low #Atten: 30 dB		ΔMkr1 410.0 μs -4.80 dB	Auto Tune
οο 10.0 0.00 <u>Χ2</u> 1Δ2			TRIG LYL	Center Free 2.441000000 GH
20.0				Start Free 2.441000000 GH
60.0 are provident to a second se	andrine in a fight in an alternative state of the state o	n faith an an faith an faith an	din shridiyan di shi kundir Ini jati pilan di shi kundir Ini jati pilan	Stop Fred 2.441000000 GH
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 10	Span 0 Hz 0.00 ms (10001 pts)	CF Step 1.000000 MH: Auto Mar
MRR MODE TRC SCL)	× Υ 410.0 μs (Δ) -4.80 dB 499.0 μs -3.00 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Mar Freq Offse 0 H:
6 7 8 9				Scale Type
10	m			Log <u>Lir</u>
se 🗼 Points changed; all trace	e cleared	STATU	5	



	Dwell NVNT 2-DH3 24	41MHz Ant1 One Burst	
Keysight Spectrum Analyzer - Sw RL RF 50 G Center Freq 2.4410	AC SENSE:PULSE 00000 GHz PN0: Fast +++ Trig Delay-500.0 Trig: Video	05:43:00 РМ Sep 06, 7 µs #Avg Type: RMS TRACE 1 2 3 ТҮРЕ У Мини пот P NM	Frequency
Ref Offset 3 10 dB/div Ref 20.00	36 dB	ΔMkr1 1.662 -4.83	ns Auto Tune dB
10.0 0.00 -10.0	1Δ2	TRO	Center Freq 2.441000000 GHz
-20.0			Start Freq 2.441000000 GHz
-50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		<mark>a na si she na la si na la sa sa sa si sa si sa </mark>	2.441000000 GHz
Center 2.441000000 Res BW 1.0 MHz	GHZ #VBW 3.0 MHz	Span 0 Sweep 10.00 ms (10001 p	
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3 4 5 6	X Y 1.662 ms (Δ) 4.83 dB 499.0 μs -2.90 dBm	FUNCTION FUNCTION WIDTH FUNCTION VALUE	Freq Offset
7 8 9 10 11			Scale Type
< Iss ↓Points changed; all	traces cleared	I STATUS	•
	Dwell NVNT 2-DH5 24	41MHz Ant1 One Burst	
Keysight Spectrum Analyzer - Sw RL RF 50 C Center Freq 2.4410	AC SENSE:PULSE 00000 GHz PN0: Fast +++ Trig Delay-500.0 Trig: Video	05:14:41 PM Sep 06, 7 µs #Avg Type: RMS TRACE 12 8 TYPE WARD DET PINT	Frequency
Ref Offset 3 IO dB/div Ref 20.00	36 dB	ΔMkr1 2.909 0.32	ns Auto Tune
10.0 0.00 -10.0	142	TRO	2.441000000 GHz
-20.0			Start Freq 2.441000000 GHz
-50.0 <mark>hy</mark>	, kana kipada saka sa kana kiba sa Galaba (kiba ya kiba sa Kiba) kata (pagi di sa sa kiba sa	alisen en el della gina a setta pen la setta de la della della della della della della della della della della La della e popularen en setta pen la nol della gi demonya della della della della della gina della della della La della esta della d	2.441000000 GHz
Center 2.441000000 Res BW 1.0 MHz	GHZ #VBW 3.0 MHz	Span 0 Sweep 15.33 ms (10001 p	HZ CF Step Dts) 1.000000 MHz Auto Man
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3 4 5 5	X 2.909 ms (Δ) 0.32 dB 348.1 μs -13.46 dBm	FUNCTION FUNCTION WIDTH FUNCTION VALUE	Freq Offset
6 7 8 9 10			Scale Type
11	traces cleared	STATUS	-



	Dwell NVN	T 3-DH1 2441	MHz Ant1 O	ne Burst	
Keysight Spectrum Analyzer - 1	Swept SA Ω AC	SENSE:PULSE		05:44:21 PM Sep 06, 2024	- 6 .
Center Freq 2.4410			#Avg Type: RMS	TRACE 1 2 3 4 3 0 TYPE W	Frequency
Ref Offset	3.36 dB		Ĺ	∆Mkr1 407.0 µs 0.10 dB	Auto Tune
				TRO LVL	Center Freq 2.441000000 GHz
-20.0 -30.0 -40.0					Start Freq 2.441000000 GHz
-50 0 111 - 112 112 113 113 -60 0 1117 - 114 114 114 -70 0	del at the bill and a property of the Adaption of the second	t ha ki ti badan dalah ti tani ng mbi ng m Ny si ng m ^a ng si ping ng tankit ng king ng ping Ny si ng mang ng ping ng tankit ng king ng ping ng ping ng ping	and part which is the factor and part of the state	and the same particular of the second	Stop Freq 2.441000000 GHz
4 Center 2.441000000 Res BW 1.0 MHz		N 3.0 MHz	Sweep 10	Span 0 Hz .00 ms (10001 pts)	CF Step 1.000000 MHz
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 4 5	× 407.0 μs (Δ) 349.0 μs	Y FUNCTI 0,10 dB -13,21 dBm	ION FUNCTION WIDTH	FUNCTION VALUE	Auto Man Freq Offset 0 Hz
6 7 8 9 10 11					Scale Type
		m	41	•	
se 🕹 Points changed; a			I STATUS		
	Dwell NVN	IT 3-DH3 2441	MHz Ant1 O	ne Burst	
Keysight Spectrum Analyzer - : RL RF 50 Center Freq 2.4410	Ω AC 000000 GHz PN0: Fast ↔	Trig: Video	#Avg Type: RMS	05:45:26 PM Sep 06, 2024 TRACE 2 3 4 5 0 TYPE WWWWWWW	Frequency
Ref Offset		#Atten: 30 dB	Δ	Mkr1 1.658 ms -1.49 dB	Auto Tune
- 09 10.0 0.00 - 10.0	162			TRIG LVL	Center Freq 2.441000000 GHz
20.0					Start Freq 2.441000000 GHz
-50.0 <mark>17 bal</mark> -60.0 14 bal -70.0	<mark>a da ang ang ang ang ang ang ang ang ang an</mark>		ing a line of the second s Second second	haine danihanan tirk kerint de Yeri Hane Hane yerint half or	Stop Freq 2.441000000 GHz
Center 2.441000000 Res BW 1.0 MHz		N 3.0 MHz	Sweep 10	Span 0 Hz .00 ms (10001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3 4 5	× 1.658 ms (Δ) 348.0 μs	Y FUNCTI -1.49 dB -12.97 dBm	IDN FUNCTION WIDTH	FUNCTION VALUE	Freq Offset
6 7 8 9 10					Scale Type
11				-	

ep



	Dwell NVN	T 3-DH5 24	141MHz An	nt1 One Burst		
Reysight Spectrum Analyzer - Swept S RL RF 50 Ω J Center Freq 2.4410000	AC	SENSE:PULSE Trig Delay-500.0 Trig: Video #Atten: 30 dB	µs #Avg Type: R			Frequency
Ref Offset 3.36 (13			ΔMkr1 2.90 0.3)8 ms 35 dB	Auto Tune
10 0 0.00 -10 0 -10					1703 LVL	Center Fred 41000000 GHz
-100 X 24 (m) 4 m 1 4 m 1 4 m 1 4					2.4	Start Fred 41000000 GHz
-50.0 114	Second and a secon		<mark>arter bilden stander det</mark>			Stop Fred 41000000 GH:
Center 2.441000000 GH: Res BW 1.0 MHz		V 3.0 MHz	Swe	Spa ep 10.00 ms (100		CF Step 1.000000 MH
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3 4 5	× 2.908 ms (Δ) 348.0 μs		FUNCTION FUNCTION	ON WIDTH FUNCTION V	ALUE	Mar Freq Offse 0 H
6 7 8 9 10						Scale Typ
		III			- Log	Lir
se 連 Points changed; all trac	cleared		L	STATUS		

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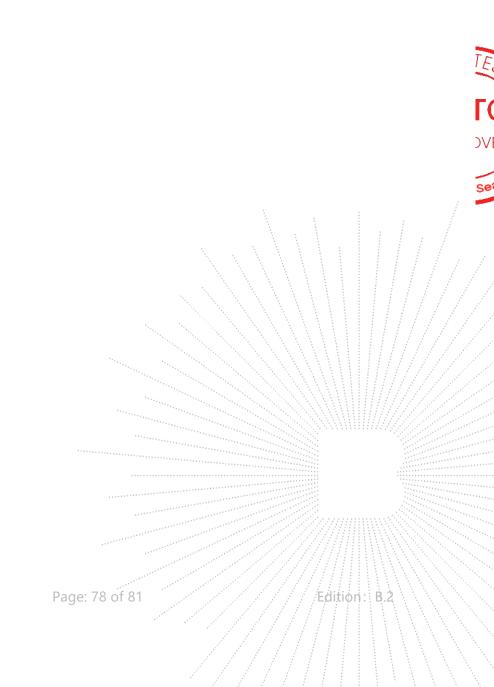
15. Antenna Requirement

15.1 Limit

15.203 requirement: For intentional device, according to 15.203: 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.

15.2 Test Result

The EUT antenna is internal antenna, fulfill the requirement of this section.





16. EUT Test Setup Photographs

Conducted Emission Measurement Photos



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Radiated Measurement Photos



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STATEMENT

1. The equipment lists are traceable to the national reference standards.

2. The test report can not be partially copied unless prior written approval is issued from our lab.

3. The test report is invalid without stamp of laboratory.

4. The test report is invalid without signature of person(s) testing and authorizing.

5. The test process and test result is only related to the Unit Under Test.

6.The quality system of our laboratory is in accordance with ISO/IEC17025.

7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: http://www.chnbctc.com

Consultation E-mail: bctc@bctc-lab.com.cn

Complaint/Advice E-mail: advice@bctc-lab.com.cn

******** END ******

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