

# **TEST REPORT**

Report No.:	BCTC2412824796E					
Applicant:	SHENZHEN JUNYE ELECTRONICS CO LTD					
Product Name:	TWS Earbuds					
Test Model:	Y98					
Tested Date:	2024-12-30 to 2025-01-03					
Issued Date:	2025-01-09					
	nzhen BCTC Testing Co., Ltd.					
No.: BCTC/RF-EMC-005	Page: 1 of 81					



# FCC ID: 2BB3B-TWSY98

Product Name:	TWS Earbuds
Trademark:	N/A
Model/Type Reference:	Y98,TWSPRO-WHT
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:	2024-12-30
Sample Tested Date:	2024-12-30 to 2025-01-03
Report No.:	BCTC2412824796E
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.

Page: 2 of 81



# Table of Content

Test	Report Declaration F	Page
1.	Version	5
2.	Test Summary	6
3.	Measurement Uncertainty	
4.	Product Information and Test Setup	
4.1	Product Information	
4.2	Test Setup Configuration	
4.3	Support Equipment	
4.4	Channel List	
4.5	Test Mode	
4.6	Table Of Parameters Of Text Software Setting	
5.	Test Facility And Test Instrument Used	
5.1	Test Facility	
5.2	Test Instrument Used	
6.	Conducted Emissions	
0. 6.1	Block Diagram Of Test Setup	
6.2	Limit	
6.3	Test procedure	
6.4	EUT operating Conditions	
6.5	Test Result	
7.	Radiated emissions	
7.1	Block Diagram Of Test Setup	
7.2	Limit	
7.3	Test procedure	
7.4	EUT operating Conditions	
7.5	Test Result	
8.	Radiated Band Emission Measurement and Restricted Bands of Operation	
8.1	Block Diagram Of Test Setup	
8.2	Limit	
8.3	Test procedure	
8.4	EUT operating Conditions	25
8.5	Test Result	
9.	Spurious RF Conducted Emissions	27
9.1	Block Diagram Of Test Setup	
9.2	Limit	27
9.3	Test procedure Test Result	27
9.4	Test Result	28
10.	20 dB Bandwidth	49
10.1	Block Diagram Of Test Setup	49
10.2	Limit	49
10.3	20 dB Bandwidth Block Diagram Of Test Setup Limit Test procedure	49
10.4	Test Result Maximum Peak Output Power Block Diagram Of Test Setup Limit	50
11.	Maximum Peak Output Power	56
11.1	Block Diagram Of Test Setup	56
11.2	Limit	56
11.3	Test procedure	56

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11.4 Test Result	56
12. Hopping Channel Separation	62
12.1 Block Diagram Of Test Setup	62
12.2 Limit	
12.3 Test procedure	62
12.4 Test Result	
13. Number of Hopping Frequency	68
13.1 Block Diagram Of Test Setup	68
13.2 Limit	68
13.3 Test procedure	68
13.4 Test Result	68
14. Dwell Time	71
14.1 Block Diagram Of Test Setup	71
14.2 Limit	71
14.3 Test procedure	71
14.4 Test Result	
15. Antenna Requirement	78
15.1 Limit	78
15.2 Test Result	78
16. EUT Test Setup Photographs	79

t Sea

Page: 4 of 81



# 1. Version

Report No.	Issue Date	Description	Approved
BCTC2412824796E	2025-01-09	Original	Valid



Page: 5 of 81



#### **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
9	Antenna Requirement	15.203	PAS

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.

Page: 6 of 81



#### 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℃



No.: BCTC/RF-EMC-005

Page: 7 of 81



## 4. Product Information and Test Setup

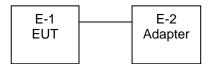
#### 4.1 Product Information

Model/Type reference:	Y98,TWSPRO-WHT
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, we finally have Y98 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,1A
Battery:	DC 3.7V/30mAh

# 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** 



Page: 8 of 81

Edition: B.2

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# 4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	TWS Earbuds	N/A	Y98	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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Page: 10 of 81



#### 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	Manufacturer	Last Cal.	Next Cal.					
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	١	\			
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	\	May 16, 2024	May 15, 2025			
Power Sensor (AV)	Keysight	E9300A	/	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			

Page: 11 of 81



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	\	\			

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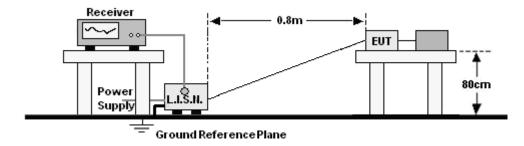
No.: BCTC/RF-EMC-005

Page: 12 of 81



#### 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.

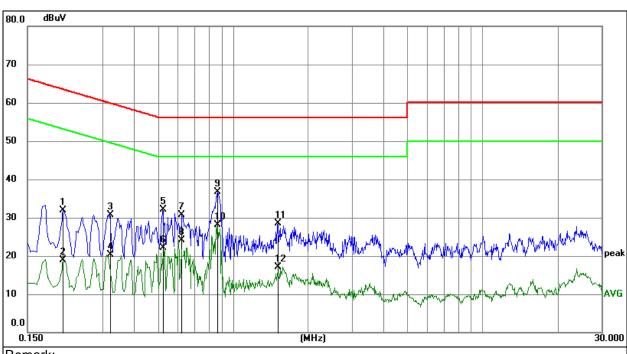
#### 6.4 EUT operating Conditions

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:	<b>26</b> ℃	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.

<ol><li>Measurement =</li></ol>	Reading Level +	Correct Factor

4. Over = Measurement - Limit

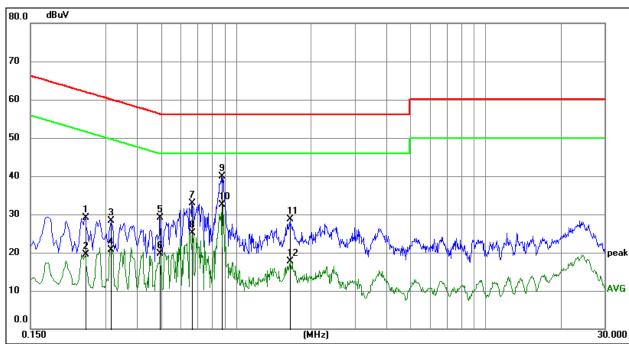
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2083	21.39	10.59	31.98	63.27	-31.29	QP
2	0.2083	8.24	10.59	18.83	53.27	-34.44	AVG
3	0.3200	20.12	10.60	30.72	59.71	-28.99	QP
4	0.3200	9.68	10.60	20.28	49.71	-29.43	AVG
5	0.5210	21.38	10.64	32.02	56.00	-23.98	QP
6	0.5210	11.46	10.64	22.10	46.00	-23.90	AVG
7	0.6238	19.99	10.66	30.65	56.00	-25.35	QP
8	0.6238	13.35	10.66	24.01	46.00	-21.99	AVG
9	0.8664	26.11	10.62	36.73	56.00	-19.27	QP
10 *	0.8664	17.58	10.62	28.20	46.00	-17.80	AVG
11	1.5113	17.84	10.68	28.52	56.00	-27.48	QP
12	1.5113	6.47	10.68	17.15	46.00	-28.85	AVG

No.: BCTC/RF-EMC-005

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Temperature:	<b>26</b> ℃	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 (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2490	18.48	10.59	29.07	61.79	-32.72	QP
2	0.2490	8.98	10.59	19.57	51.79	-32.22	AVG
3	0.3165	17.67	10.60	28.27	59.80	-31.53	QP
4	0.3165	10.16	10.60	20.76	49.80	-29.04	AVG
5	0.4965	18.40	10.63	29.03	56.06	-27.03	QP
6	0.4965	8.98	10.63	19.61	46.06	-26.45	AVG
7	0.6675	22.20	10.65	32.85	56.00	-23.15	QP
8	0.6675	14.48	10.65	25.13	46.00	-20.87	AVG
9	0.8790	29.22	10.62	39.84	56.00	-16.16	QP
10 *	0.8790	21.79	10.62	32.41	46.00	-13.59	AVG
11	1.6530	18.00	10.72	28.72	56.00	-27.28	QP
12	1.6530	7.08	10.72	17.80	46.00	-28.20	AVG





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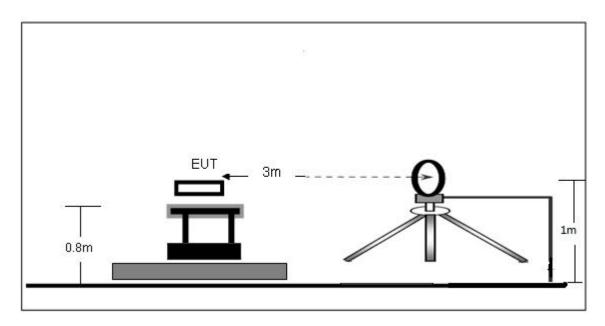
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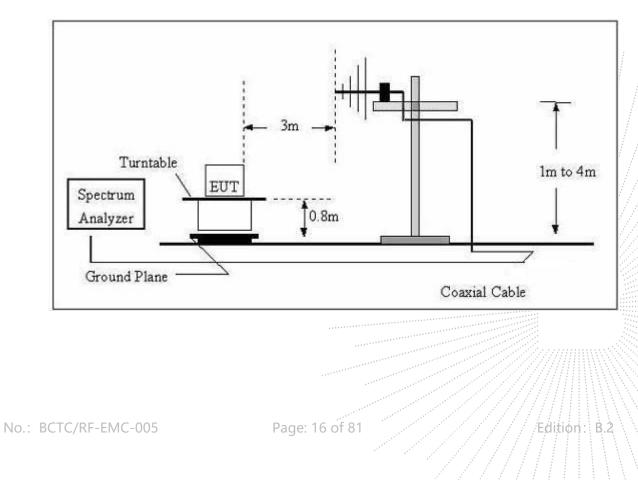
#### 7. Radiated emissions

## 7.1 Block Diagram Of Test Setup

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

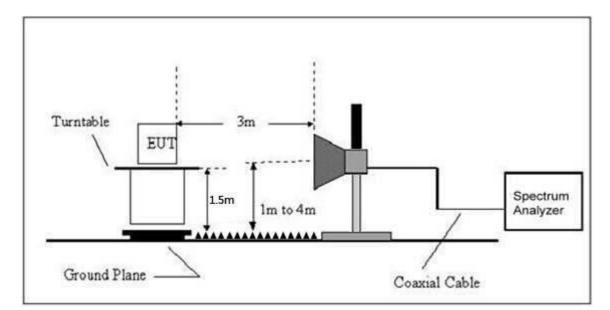


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(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 <sup>(2400/F(kHz))</sup> + 80		
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log <sup>(24000/F(kHz))</sup> + 40		
1.705 ~ 30	30	30	100 * 30	20log <sup>(30)</sup> + 40		
30 ~ 88	100	3	100	20log <sup>(100)</sup>		
88 ~ 216	150	3	150	20log <sup>(150)</sup>		
216 ~ 960	200	3	200	20log <sup>(200)</sup>		
Above 960	500	3	500	20log <sup>(500)</sup>		

Limits Of Radiated Emission Measurement (Above 1000MHz)

Erequency (MHz)	Limit (dBuV/m) (at 3M)
Frequency (MHz)	Peak
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).

Page: 17 of 81

FD



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,
1 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.

Page: 19 of 81



#### 7.5 Test Result

#### Below 30MHz

Temperature:	<b>26</b> ℃	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.

No.: BCTC/RF-EMC-005

Page: 20 of 81

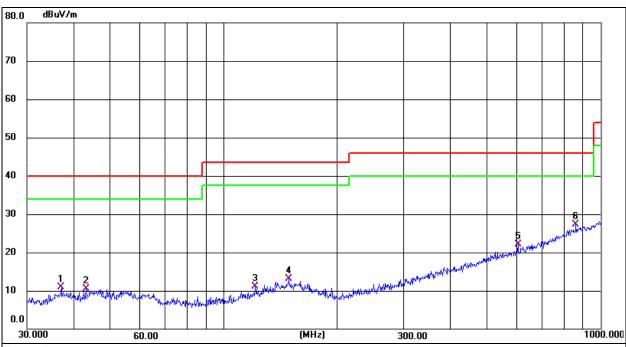
Edition: B.2

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#### Between 30MHz - 1GHz

Temperature:	<b>26</b> ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
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

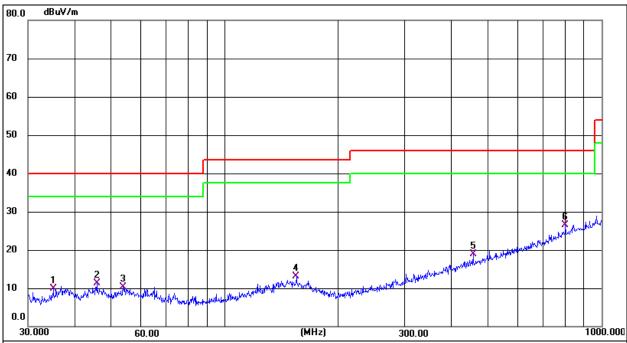
1							1 1 1
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.0248	28.21	-17.38	10.83	40.00	-29.17	QP
2	43.0505	27.46	-16.92	10.54	40.00	-29.46	QP
3	121.1231	27.95	-16.75	11.20	43.50	-32.30	QP
4	148.9625	27.36	-14.30	13.06	43.50	-30.44	QP
5	603.5392	27.12	-4.97	22.15	46.00	-23.85	QP
6 *	860.0352	26.76	0.59	27.35	46.00	-18.65	QP
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Temperature:	<b>26</b> ℃	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	35.0048	27.57	-17.64	9.93	40.00	-30.07	QP
2	45.6948	28.19	-16.88	11.31	40.00	-28.69	QP
3	53.6932	27.28	-16.93	10.35	40.00	-29.65	QP
4	154.8204	27.61	-14.53	13.08	43.50	-30.42	QP
5	455.9058	27.55	-8.61	18.94	46.00	-27.06	QP
6 *	801.7863	26.99	-0.45	26.54	46.00	-19.46	QP

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Page: 22 of 81



#### Reading Correct Measure-Limits Frequency Over Polar Level Factor ment Detector (H/V) Type (dBuV/ (dBuV/m) (MHz) (dBuV/m) (dB) (dB) m) **GFSK Low channel** 4804.00 -19.99 74.00 -22.10 ΡK V 71.89 51.90 V 4804.00 61.45 -19.99 41.46 54.00 -12.54 AV V 7206.00 64.14 -14.22 49.92 74.00 -24.08 ΡK V 7206.00 53.90 -14.22 39.68 54.00 -14.32 AV Н 4804.00 70.18 -19.99 50.19 74.00 -23.81 ΡK Н 4804.00 61.01 -19.99 41.02 54.00 -12.98 AV ΡK Н 7206.00 62.76 -14.22 48.54 74.00 -25.46 55.65 Н 7206.00 -14.22 41.43 54.00 -12.57 AV **GFSK Middle channel** ΡK V 4882.00 70.43 -19.84 50.59 74.00 -23.41 -12.23 V 4882.00 41.77 AV 61.61 -19.84 54.00 V 7323.00 59.52 -13.90 45.62 74.00 -28.38 PK V 7323.00 50.53 -13.90 36.63 54.00 -17.37 AV 4882.00 45.64 Н 65.48 -19.84 74.00 -28.36 PK Н 4882.00 54.77 -19.84 34.93 54.00 -19.07 AV Н 7323.00 58.30 -13.90 44.40 74.00 -29.60 ΡK 35.40 Н 7323.00 49.30 -13.90 54.00 -18.60 AV **GFSK High channel** ΡK V 4960.00 -19.68 74.00 -24.71 68.97 49.29 V 4960.00 58.30 -19.68 38.62 54.00 -15.38 AV PK V 7440.00 -13.57 47.85 74.00 -26.15 61.42 V 7440.00 51.74 -13.57 38.17 54.00 -15.83 AV Н 4960.00 46.91 74.00 -27.09 ΡK 66.59 -19.68 Н 4960.00 55.60 -19.68 35.92 54.00 -18.08 AV ΡK Н 7440.00 -13.57 46.29 74.00 -27.71 59.86 7440.00

#### Between 1GHz – 25GHz

#### Remark:

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

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54.00

-15.37

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

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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.

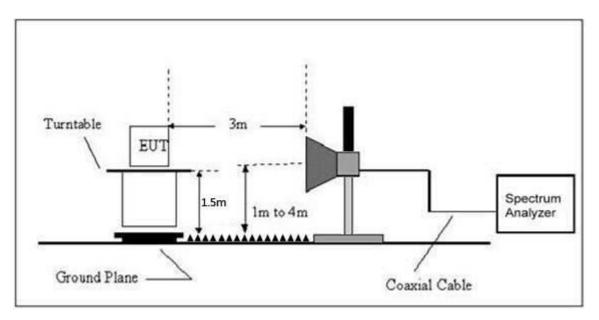
5.All the Modulation are test, the worst mode is GFSK, the data recording in the report.



#### 8. Radiated Band Emission Measurement and Restricted Bands of Operation

#### 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
<sup>1</sup> 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	( <sup>2</sup>
13.36-13.41			



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.



#### 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							
GFSK	Н	2390.00	72.21	-25.43	46.78	74.00	54.00	PASS
	Н	2400.00	74.37	-25.40	48.97	74.00	54.00	PASS
	V	2390.00	72.04	-25.43	46.61	74.00	54.00	PASS
	V	2400.00	72.84	-25.40	47.44	74.00	54.00	PASS
	High Channel 2480MHz							
	Н	2483.50	72.14	-25.15	46.99	74.00	54.00	PASS
	Н	2500.00	70.54	-25.10	45.44	74.00	54.00	PASS
	V	2483.50	72.76	-25.15	47.61	74.00	54.00	PASS
	V	2500.00	69.32	-25.10	44.22	74.00	54.00	PASS
π/4DQPSK	Low Channel 2402MHz							
	Н	2390.00	73.92	-25.43	48.49	74.00	54.00	PASS
	Н	2400.00	75.83	-25.40	50.43	74.00	54.00	PASS
	V	2390.00	72.97	-25.43	47.54	74.00	54.00	PASS
	V	2400.00	74.42	-25.40	49.02	74.00	54.00	PASS
	High Channel 2480MHz							
	Н	2483.50	72.56	-25.15	47.41	74.00	54.00	PASS
	Н	2500.00	69.34	-25.10	44.24	74.00	54.00	PASS
	V	2483.50	71.49	-25.15	46.34	74.00	54.00	PASS
	V	2500.00	67.70	-25.10	42.60	74.00	54.00	PASS
8DPSK	Low Channel 2402MHz							
	Н	2390.00	72.50	-25.43	47.07	74.00	54.00	PASS
	Н	2400.00	74.49	-25.40	49.09	74.00	54.00	PASS
	V	2390.00	72.74	-25.43	47.31	74.00	54.00	PASS
	V	2400.00	73.47	-25.40	48.07	74.00	54.00	PASS
	High Channel 2480MHz							
	Н	2483.50	73.82	-25.15	48.67	74.00	54.00	PASS
	Н	2500.00	70.27	-25.10	45.17	74.00	54.00	PASS
	V	2483.50	73.21	-25.15	48.06	74.00	54.00	PASS
	V	2500.00	68.36	-25.10	43.26	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.



#### 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 TC JC JC

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Page: 27 of 81



#### 9.4 Test Result







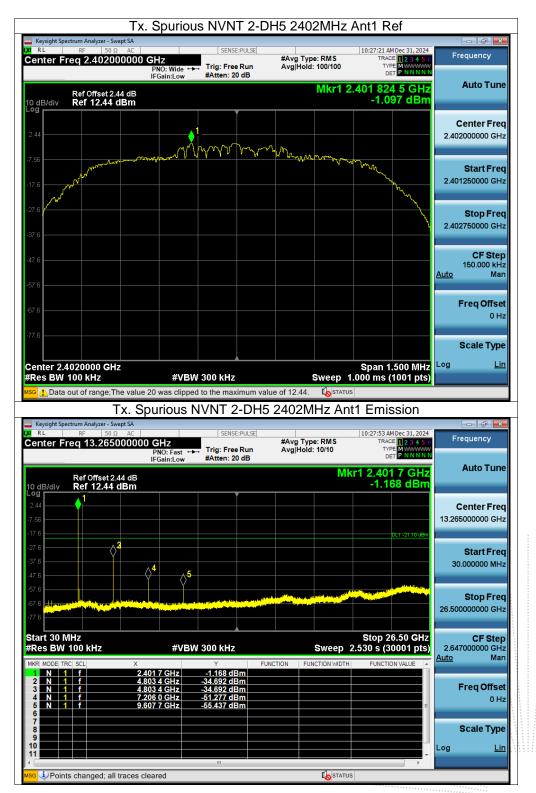






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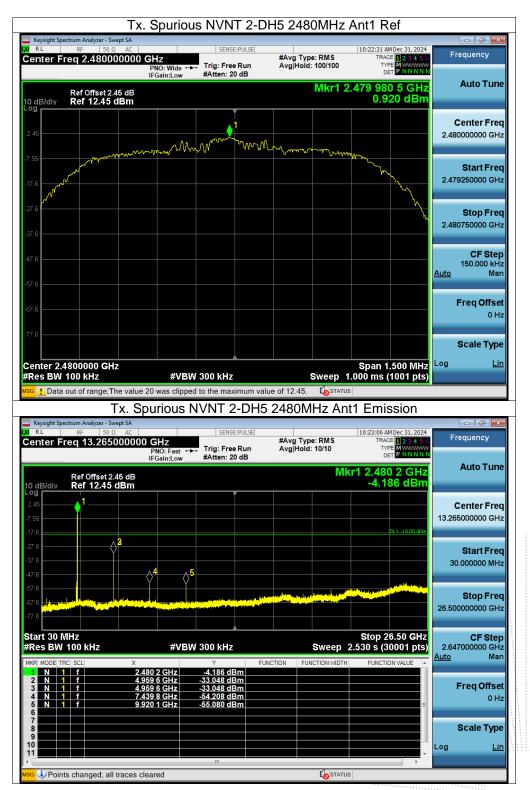


Page: 31 of 81









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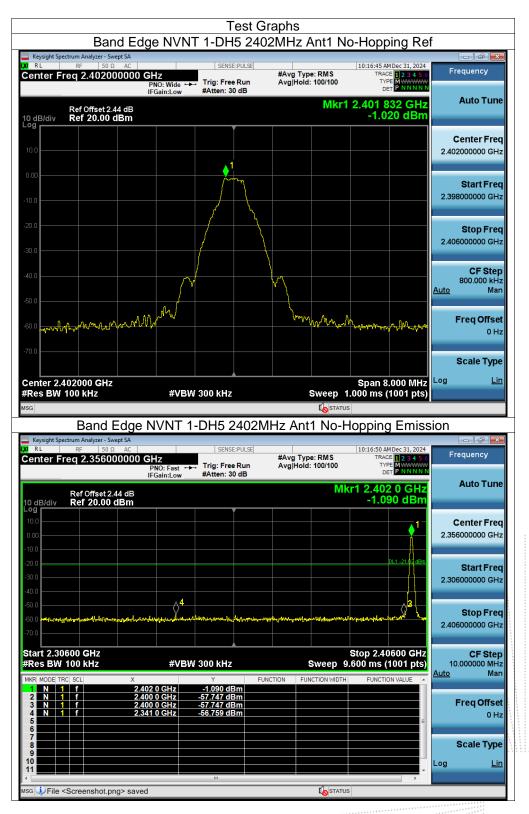








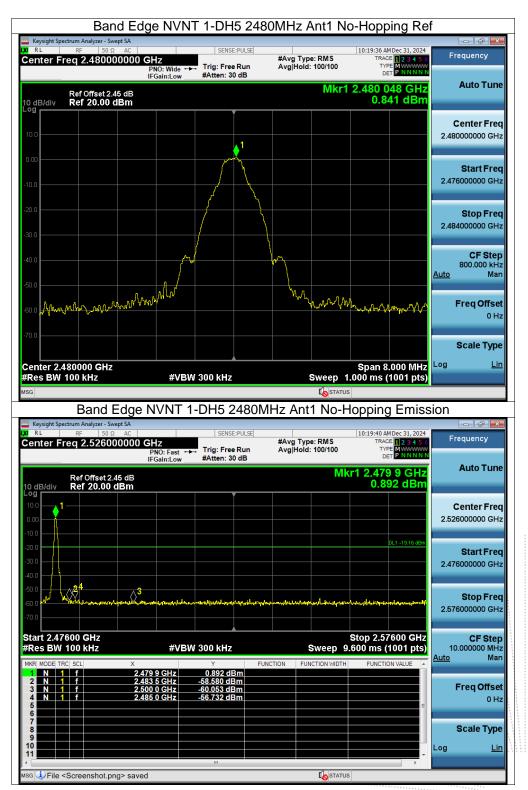




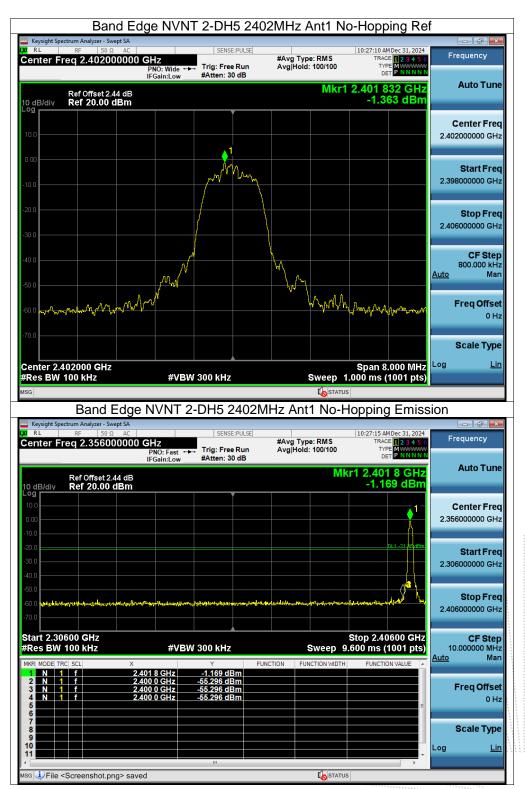
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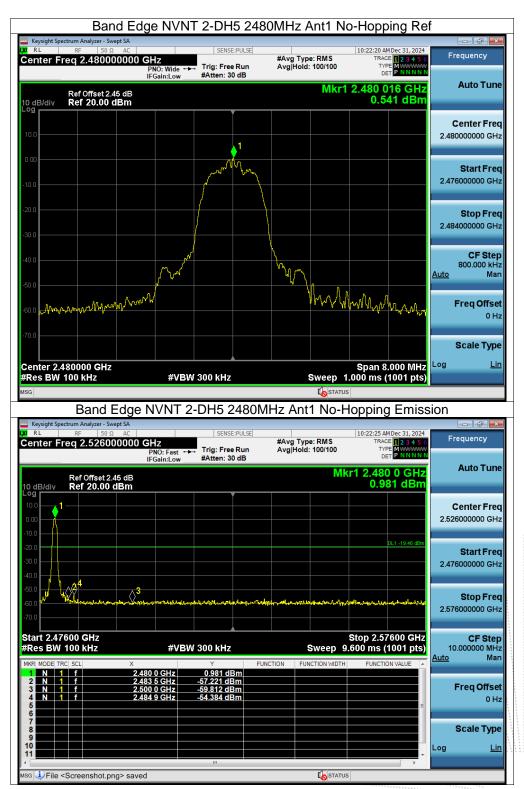




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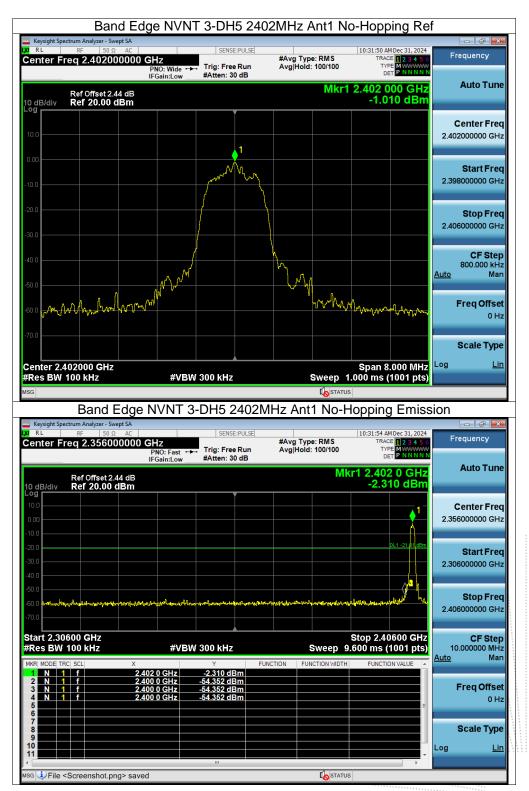




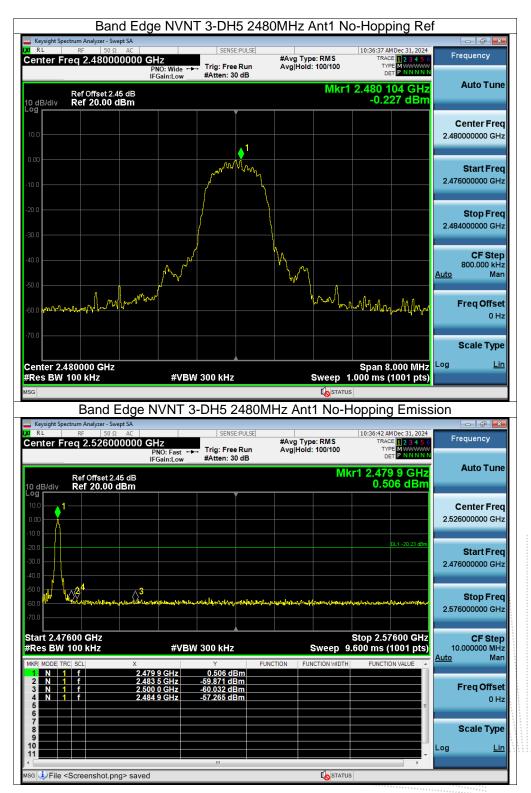
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Page: 40 of 81

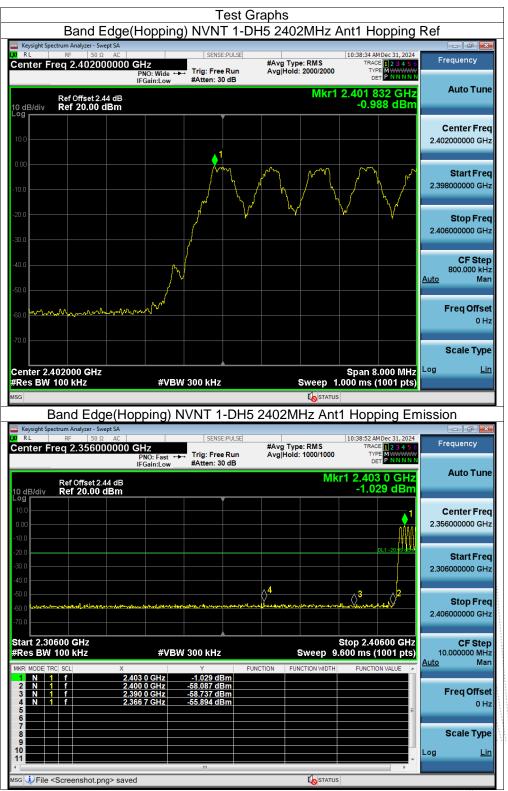




















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Page: 47 of 81







#### 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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Page: 49 of 81



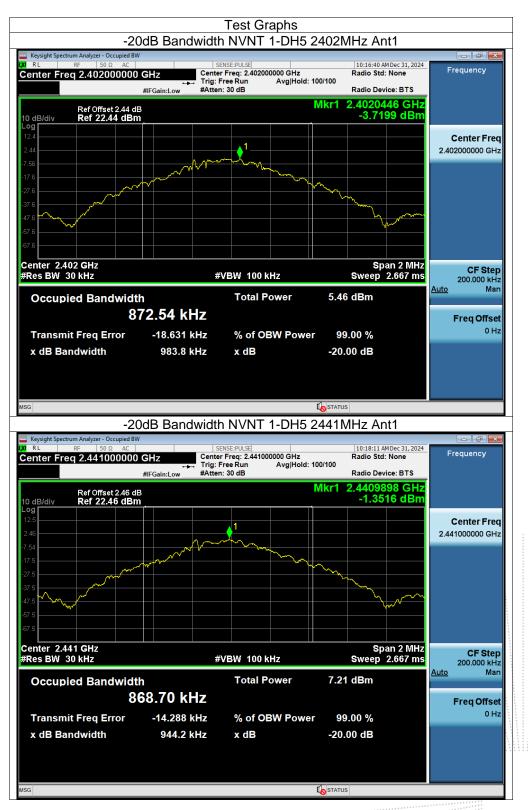
#### 10.4 Test Result

Condition	Mode	Frequency (MHz)	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	0.984	Pass
NVNT	1-DH5	2441	0.944	Pass
NVNT	1-DH5	2480	0.94	Pass
NVNT	2-DH5	2402	1.280	Pass
NVNT	2-DH5	2441	1.256	Pass
NVNT	2-DH5	2480	1.276	Pass
NVNT	3-DH5	2402	1.251	Pass
NVNT	3-DH5	2441	1.268	Pass
NVNT	3-DH5	2480	1.292	Pass

No.: BCTC/RF-EMC-005

Page: 50 of 81





Page: 51 of 81







No.: BCTC/RF-EMC-005

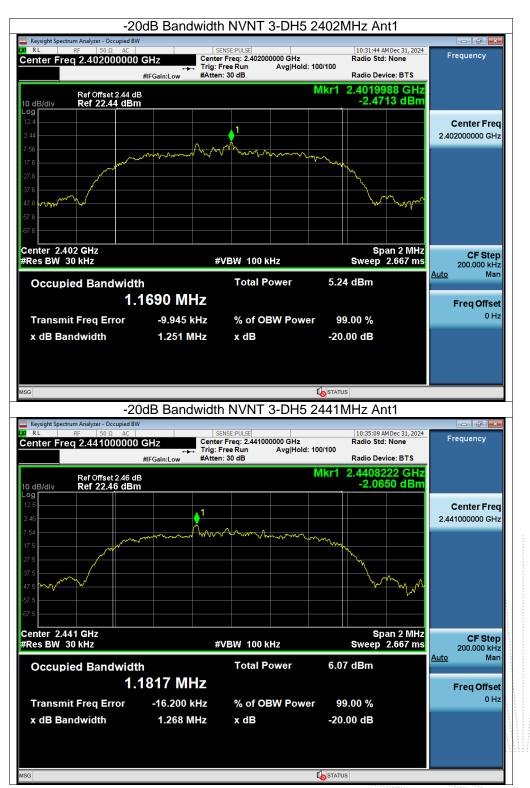
Page: 52 of 81





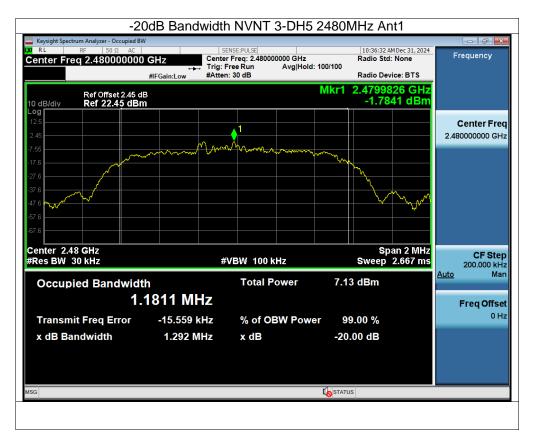
Page: 53 of 81





Page: 54 of 81







Page: 55 of 81



#### 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.

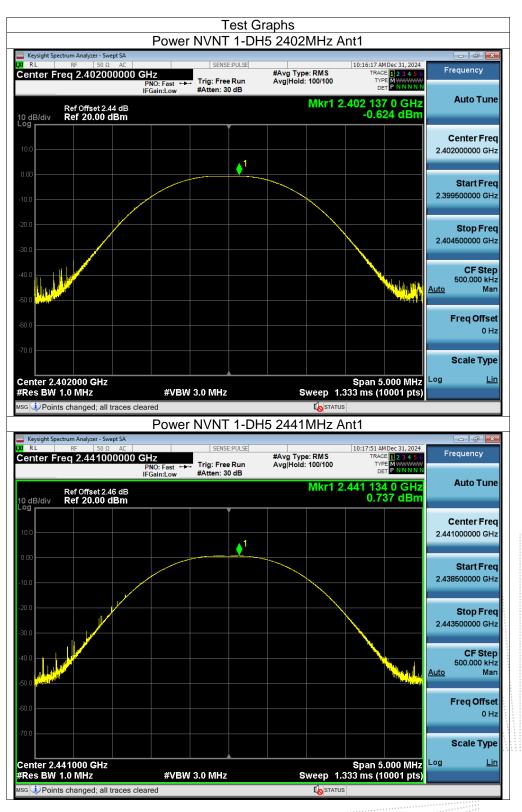
#### 11.4 Test Result

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	-0.62	21	Pass
NVNT	1-DH5	2441	0.74	21	Pass
NVNT	1-DH5	2480	1.46	21	Pass
NVNT	2-DH5	2402	-0.12	21	Pass
NVNT	2-DH5	2441	1.25	21	Pass
NVNT	2-DH5	2480	2.00	21	Pass
NVNT	3-DH5	2402	0.10	21	Pass
NVNT	3-DH5	2441	1.59	21	Pass
NVNT	3-DH5	2480	2.28	21	Pass

Page: 56 of 81

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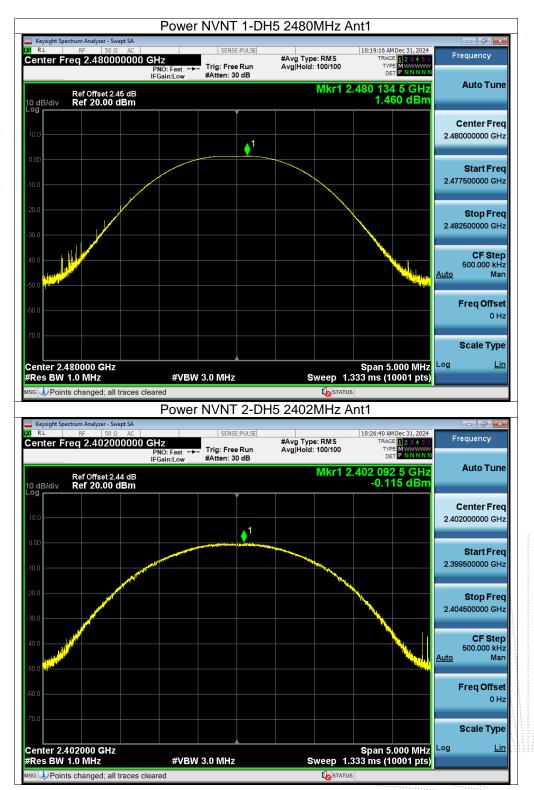




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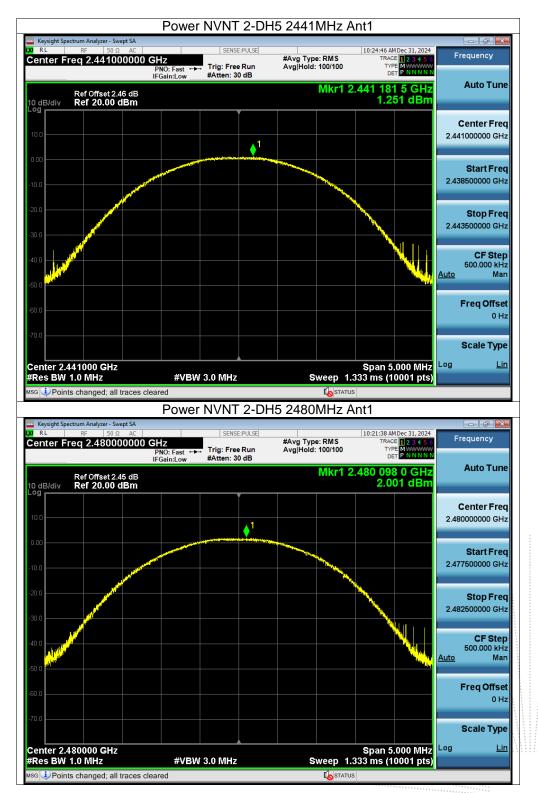
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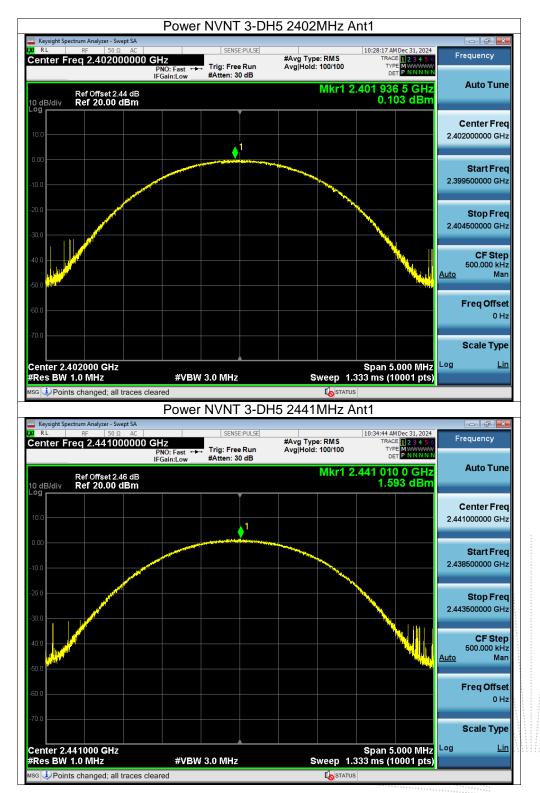
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Page: 59 of 81

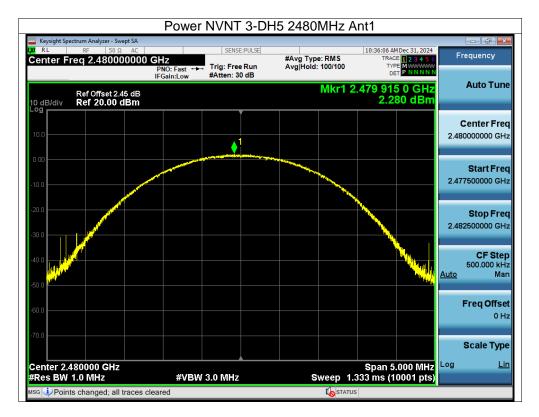




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Page: 60 of 81





No.: BCTC/RF-EMC-005

Page: 61 of 81



#### 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)	Verdic
NVNT	1-DH5	2402.006	2402.976	0.970	0.656	Pass
NVNT	1-DH5	2440.998	2441.884	0.886	0.629	Pass
NVNT	1-DH5	2478.822	2479.984	1.162	0.627	Pass
NVNT	2-DH5	2401.818	2402.914	1.096	0.853	Pass
NVNT	2-DH5	2440.808	2441.816	1.008	0.837	Pass
NVNT	2-DH5	2478.996	2480.000	1.004	0.851	Pass
NVNT	3-DH5	2401.996	2402.968	0.972	0.834	Pass
NVNT	3-DH5	2441.002	2441.998	0.996	0.845	Pass
NVNT	3-DH5	2478.986	2479.884	0.898	0.861	Pass

#### 12.4 Test Result

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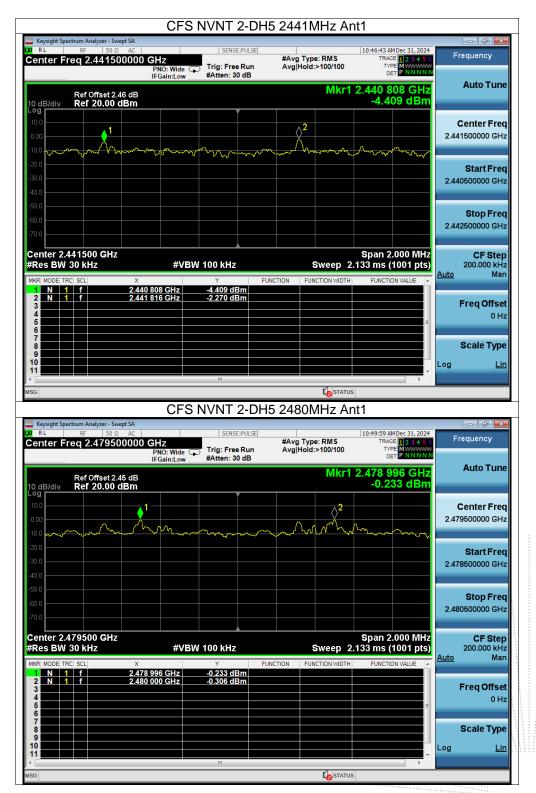
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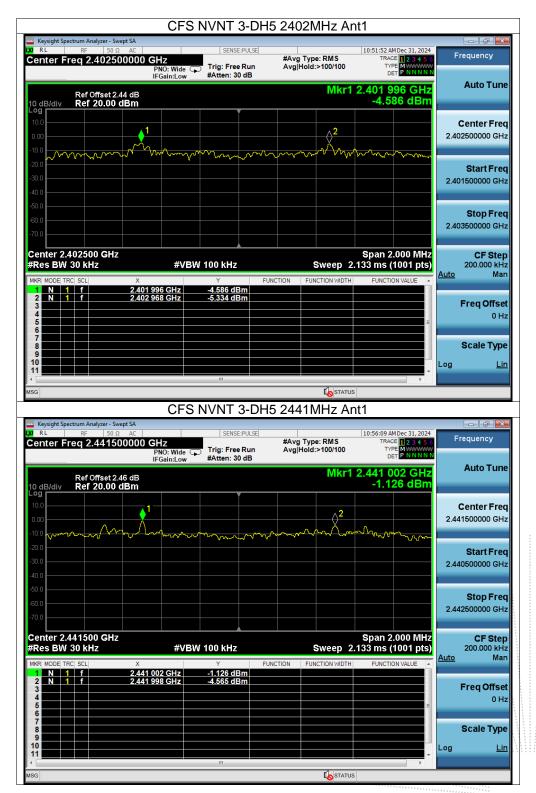


Page: 64 of 81











CF	-S NVNT 3-DI	H5 2480MHz A	nt1	
Keysight Spectrum Analyzer - Swept SA				- ¢ ×
Center Freq 2.479500000 GHz PNO: Wid IFGain:Lo		#Avg Type: RMS Avg Hold:>100/100	10:55:19 AM Dec 31, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N	Frequency
Ref Offset 2.45 dB 10 dB/div Ref 20.00 dBm		Mkr1	2.478 986 GHz -0.908 dBm	Auto Tune
	man and a start	2	horan -	<b>Center Freq</b> 2.479500000 GHz
-20 0				<b>Start Fred</b> 2.478500000 GHz
-50.0 -60.0 -70.0				<b>Stop Fred</b> 2.480500000 GH:
Center 2.479500 GHz #Res BW 30 kHz #	VBW 100 kHz	Sweep 2	Span 2.000 MHz 2.133 ms (1001 pts)	CF Step 200.000 kHz
MKR MODE TRC SCL X	Y	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Mar
1         N         1         f         2.478 986 GHz           2         N         1         f         2.479 884 GHz           3         -         -         -           4         -         -         -           5         -         -         -           6         -         -         -				Freq Offset 0 Hz
7				Scale Type
10			-	Log <u>Lin</u>
MSG	m	<b>K</b> STATU	is the second se	



Page: 67 of 81



#### 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.

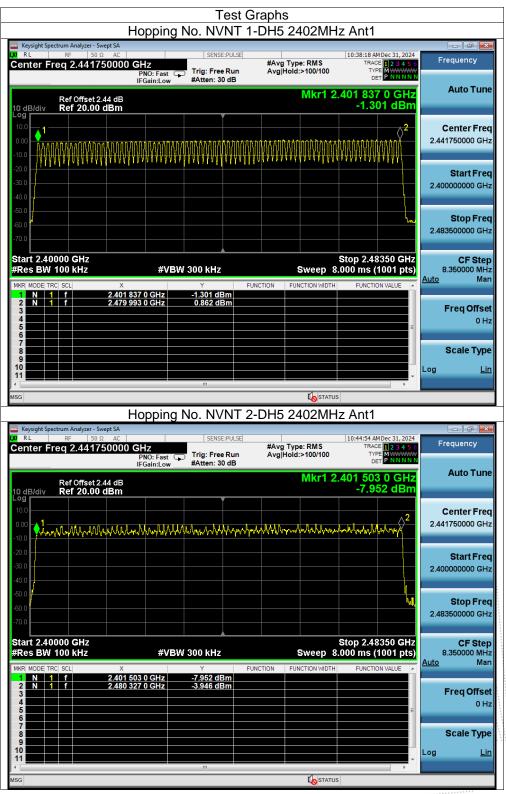
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

#### 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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Page: 69 of 81

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Hopping	g No. NVNT 3	-DH5 2402MH	z Ant1	
Keysight Spectrum Analyzer - Swept SA	SENSE:PULSE		10:51:40 AM Dec 31, 2024	
Center Freg 2.441750000 GHz		#Avg Type: RMS	TRACE 1 2 3 4 5 6	Frequency
PNO: Fast IFGain:Low	Trig: Free Run #Atten: 30 dB	Avg Hold:>100/100	DET P NNNN	
		Mkr1 2	402 004 0 GHz	Auto Tune
Ref Offset 2.44 dB 10 dB/div Ref 20.00 dBm			-1.750 dBm	
				Center Freq
			$\diamond^2$	2.441750000 GHz
0.00 MMANUMUMUMUM	VAAANMAAMAANAAYAAA	ᢂᢧᡑ᠋᠕ᢣ᠇ᡅᡘᡵᡗᢂᡃᠺᠮᡵ᠇ᡃᡡᢢᠰ	WWWWWWWWWW	2.441700000 0112
-20.0				
-30.0				Start Freq 2.40000000 GHz
-40.0				2.40000000 GH2
-50.0				
-60.0			<b>b</b> a.	Stop Freq
-70.0				2.483500000 GHz
Start 2.40000 GHz #Res BW 100 kHz #V	300 kHz		Stop 2.48350 GHz .000 ms (1001 pts)	CF Step 8.350000 MHz
MKR MODE TRC SCL X		NCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
1 N 1 f 2.402 004 0 GHz	-1.750 dBm			
2 N 1 f 2.480 160 0 GHz 3	1.091 dBm			Freq Offset
4			=========	0 Hz
6				
				Scale Type
10				Log <u>Lin</u>
MSG				

No.: BCTC/RF-EMC-005

Page: 70 of 81



#### 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.

Page: 71 of 81



Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	0.401	127.518	400	Pass
NVNT	1-DH3	2441	1.655	273.075	400	Pass
NVNT	1-DH5	2441	2.902	290.200	400	Pass
NVNT	2-DH1	2441	0.388	123.384	400	Pass
NVNT	2-DH3	2441	1.663	254.439	400	Pass
NVNT	2-DH5	2441	2.910	293.910	400	Pass
NVNT	3-DH1	2441	0.410	131.200	400	Pass
NVNT	3-DH3	2441	1.659	275.394	400	Pass
NVNT	3-DH5	2441	2.911	355.142	400	Pass

n 00.,LT

No.: BCTC/RF-EMC-005

Page: 72 of 81



	Test G Dwell NVNT 1-DH1 244		
Keysight Spectrum Analyzer - Swep C RL RF 50 Ω Center Freq 2.441000	AC SENSE:PULSE	A VICE AND A VICE OT A DATA STREET AND A VICE AND A VIC	Frequency
Ref Offset 2.4/ 10 dB/div Ref 20.00 d	5 dB	ΔMkr1 401.0 μs 3.32 dB	
10.0 0.00 -10.0 -20.0		TRIG LVL	Center Freq 2.441000000 GHz
-30.0	lite et a costal takon néveletetet a colle a 1973	an it is not the location of t	<b>Start Freq</b> 2.441000000 GHz
-60.0 <mark>-0.1 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 </mark>	ender og som	<mark>ali que l'holant est l'hongine professionen en parte l'hon</mark>	2.441000000 GHz
Center 2.441000000 G Res BW 1.0 MHz MKR MODE TRC SCL 1 A2 1 t (A) 2 F 1 t	#VBW 3.0 MHz	Span 0 Hz Sweep 10.00 ms (10001 pts NCTION FUNCTION WIDTH FUNCTION VALUE	1.000000 MHz <u>Auto</u> Man
3 4 5 6 7			Freq Offset 0 Hz
8 9 10 11 	m		Scale Type Log <u>Lin</u>
MSG Doints changed; all tr	Dwell NVNT 1-DH3 244	1MHz Ant1 One Burst	
Keysight Spectrum Analyzer - Swep     KL RF 50 Ω     Center Freq 2.441000	AC SENSE:PULSE	10:57:33 AM Dec 31, 2024 #Avg Type: RMS TRACE 12345 TYPE W DET P NNNN	6 Frequency
Ref Offset 2.4 10 dB/div Ref 20.00 d	3 dB	ΔMkr1 1.655 ms 5.05 dE	
10.0 0.00 -10.0 -20.0	1Δ2	TRIG LVL	Center Freq 2.441000000 GHz
-20.0 -30.0 -40.0 -50.0		<sup>112</sup> (151-11-11-11-11-11-11-11-11-11-11-11-11-	<b>Start Freq</b> 2.441000000 GHz
-60.0 automatication -70.0		Manahallahaddardarahandaranil, fydrafarmeraelladdiaenarayd	<b>Stop Freq</b> 2.441000000 GHz
Center 2.441000000 G Res BW 1.0 MHz MKR MODE TRC SCL 1 Δ2 1 t (Δ)	#VBW 3.0 MHz X Y FUT 1.655 ms (Δ) 5.05 dB	Span 0 Hz Sweep 10.00 ms (10001 pts Action Function Width Function Value	
2 F 1 t 3 4 5 6 7 9	482.0 µs5.40 dBm		Freq Offset 0 Hz
7         8           9         9           10         11           11         11	"	,	Scale Type Log <u>Lin</u>
	aces cleared	STATUS	



Dwel	I NVNT 1-DH5 24	41MHz Ant1 C	One Burst	
Keysight Spectrum Analyzer - Swept SA	SENSE:PULSE		10:41:35 AM Dec 31, 2024	- ē 🐱
Center Freq 2.441000000 GH		us #Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE WWWWW DET P NNNNN	Frequency
Ref Offset 2.46 dB 10 dB/div <b>Ref 20.00 dBm</b>		Ĺ	∆Mkr1 2.902 ms 0.15 dB	Auto Tune
	1Δ2		TRIG LVL	Center Fred 2.441000000 GHz
20 0 <b>Xuun ku miku</b>				Start Free 2.441000000 GH:
50.0		lage opened a station of the former of the second state of the second state of the second state of the second s Indian and second states and states of the second states of the second states of the second states of the second		<b>Stop Free</b> 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)	<b>CF Step</b> 1.000000 MH: <u>Auto</u> Mar
MKR         MODE         TRC         SCL         X           1         Δ2         1         t         (Δ)         2.91           2         F         1         t         48:         3           3         -         -         -         -           4         -         -         -         -           5         -         -         -         -           6         -         -         -         -	22 ms (Δ) 0.15 dB 3.0 μs -15.97 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 Ha
7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9				Scale Type
10 11			-	Log <u>Lir</u>
sg 🕕 Points changed; all traces cleare	"" ed	<b>I</b> STATU	IS IS	
	I NVNT 2-DH1 24			
Keysight Spectrum Analyzer - Swept SA			ne buist	
RL RF 50Ω AC enter Freq 2.441000000 GH	Z SENSE:PULSE Z Trig Delay-500.0 IO: Fast +++ Trig: Video Join:Low #Atten: 30 dB	us #Avg Type: RMS	10:58:41 AM Dec 31, 2024 TRACE 1 2 3 4 5 6 TYPE WWWWWWW DET P NNNNN	Frequency
Ref Offset 2.46 dB 0 dB/div Ref 20.00 dBm	ain:Low #Atten: 50 dB		ΔMkr1 388.0 μs -2.15 dB	Auto Tun
10.0 0.00 10.0			TRIG LVL	Center Free 2.441000000 GH
20.0 30.0 40.0				<b>Start Free</b> 2.441000000 GH
	and the second		10 IV 10 IV 10 IV	<b>Stop Free</b> 2.441000000 GH
Center 2.441000000 GHz tes BW 1.0 MHz	#VBW 3.0 MHz	Sweep 1	Span 0 Hz 0.00 ms (10001 pts)	CF Step 1.000000 MH <u>Auto</u> Mar
2 F 1 t 48 3 4 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8.0 μs (Δ) -2.15 dB 3.0 μs -12.60 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Mar Freq Offse 0 H:
6 7 8 9 9				Scale Type
11				Log <u>Lir</u>
			•	



	Dwell I	NVNT 2-DH	10 277 110		me burst	
Keysight Spectrum Analyzer - S	Swept SA Ω AC	SEN	SE:PULSE		10:59:42 AM Dec 31	2024
enter Freq 2.4410	000000 GHz	Fast +++ Trig: Vid	ay-500.0 µs #. leo	Avg Type: RMS	TRACE 1 2 3 TYPE WWW DET P N N	456 Frequency
	IFGain	:Low #Atten:	30 dB		AMkr1 1.663	
Ref Offset 2 0 dB/div Ref 20.00				4	4.99	
.og 10.0						Center Fred
	1∆2					2.441000000 GH
10.0 X2					TRI	GLVL
20.0						Start Fred
30.0						2.441000000 GH
40.0						
	and the state of the	and a last as a supplying the second	lia li la proto a progra del più pri	and Milliperson and Applebatic factors		Stop Free
50.0 <b>                                   </b>				<sup>(</sup> , and the second	a di la Manual Inderi na s	2.441000000 GH:
			·			
enter 2.441000000 tes BW 1.0 MHz	GHZ	#VBW 3.0 MH;	z	Sweep 1	Span ( 0.00 ms (10001	
IKR MODE TRC SCL	Х	Y	FUNCTION		,	Auto Mar
1 Δ2 1 t (Δ) 2 F 1 t	<u>1.663</u> 498.0	ms (∆) 4.99 µs -8.60 d	dB IBm			
3 4						Freq Offse
5						E
7 8						Scale Type
9						
10 11						Log <u>Lir</u>
Boints changed: al	Il traces cleared			I STATI	21	•
G iPoints changed; a				STATU		Þ
	Dwell I	WVNT 2-DI	H5 2441M			
Keysight Spectrum Analyzer - S RL RF 50		NVNT 2-DH	SE:PULSE	1Hz Ant1 C	Dne Burst	
Keysight Spectrum Analyzer - S RL RF 50	Dwell N Swept SA IQ AC 0000000 GHz PNO:	NVNT 2-DH	se:PULSE ay-500.0 µs #/		Dne Burst	,2024 4 5 6 Frequency
RL RF 50 enter Freq 2.4410	Dwell N Swept SA 1 Ω AC 0000000 GHz PNO: IFGain	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst 10:45:51 AMDec 31 TRACE 1 2 3 TYPE DET P.NN	4 5 6 WWW
Reysight Spectrum Analyzer - S RL RF 50 Renter Freq 2.4410 Ref Offset 2 0 dB/div Ref 20.00	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst	2024     Frequency       4 5 6     Frequency       NNN     Auto Tune
RL RE 50 RL RE 50 RE Freq 2.4410 Ref Offset 2 0 dB/div Ref 20.00	Dwell N Swept SA Q AC PNO: IFGain 2.46 dB 0 dBm	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst	2024     Frequency       4 5 6     Frequency       NNN     Auto Tune       dB     Image: Contract of the second se
RL RF 50           Ref 0ffset2           Ref 0ffset2           0 dB/div         Ref 20.00           0 0         0	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst	2024 4 5 6 NNN Auto Tune dB Center Freq
Reysight Spectrum Analyzer - S RL RF 50 Center Freq 2.4410 Ref Offset2 0 dB/div Ref 20.00	Dwell N Swept SA Q AC PNO: IFGain 2.46 dB 0 dBm	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst 10:45:51 AM Dec 31 TRACE [] 23 TRACE [] 23	2024 4 5 6 NNN Auto Tune Center Free 2.441000000 GH:
Reysight Spectrum Analyzer - S           RL         RF         50           Ref Offset 2           0 dB/div         Ref 20.00         Ref 20.00         <	Dwell N Swept SA Q AC PNO: IFGain 2.46 dB 0 dBm	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst 10:45:51 AM Dec 31 TRACE [] 23 TRACE [] 23	2024     Frequency       4 5 0     NNN       Market State     Auto Tune       Center Freq     2.441000000 GH:
Reysight Spectrum Analyzer - S           RL         RF         50           center Freq 2.4410           Ref Offset 2           O dB/div         Ref Offset 2           0         Ref Offset 2           0         Ref Offset 2           0         Ref Offset 2           0	Dwell N Swept SA Q AC PNO: IFGain 2.46 dB 0 dBm	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst 10:45:51 AM Dec 31 TRACE [] 23 TRACE [] 23	2024 4 5 6 NNN Auto Tune Center Free 2.441000000 GH:
Reysight Spectrum Analyzer - S           RL         RF         50           center Freq 2.4410           Ref Offset 2           O dB/div         Ref Offset 2           0 dB/div         Ref Offset 2           0 dB/div         Ref 20.00           0 dD         X2           0 dD         X2           0 dD         X2	Dwell N Swept SA Q AC PNO: IFGain 2.46 dB 0 dBm	NVNT 2-DH	se:PULSE ay-500.0 µs #/	1Hz Ant1 C	Dne Burst 10:45:51 AM Dec 31 TRACE [] 23 TRACE [] 23	2024 4 5 6 NNN Auto Tune Center Freq 2.44100000 GH: Start Freq
Reysight Spectrum Analyzer - S           RL         RF         S0           center Freq 2.4410           Ref Offset 2           0 dB/div         Ref 20.00           90         2         2           10 0         2         2           20 0         2         2           30 0         2         2           40 0         2         2	Dwell N Swept SA Ω AC PNO: IFGain 2.46 dB D dBm	NVNT 2-DF Fast ↔→ Fig Del Flow → #Atten: :	SE:PULSE ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024 Frequency Auto Tune Center Free 2.441000000 GH: 2.441000000 GH:
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Reysight Spectrum Analyzer - S           RL         RF         50           center Freq 2.4410           Ref Offset 2           0 dB/div         Ref 20.00           20         2         2           0 dB/div         Ref 20.00         2           20         2         2         2           0 dB/div         Ref 20.00         2         2           0 dV         2         2         2           10 dV         2         2         2           10 dV         2         2         2           10 dV         2         2         3           10 dV	Dwell N Swept SA Ω AC PNO: IFGain 2.46 dB D dBm	NVNT 2-DF Fast ↔→ Fig Del Flow → #Atten: :	SE:PULSE ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024     Frequency       4 5 0     Frequency       Mms     Auto Tune       Center Frequency     2.441000000 GH;       Curve     Start Frequency       Start Frequency     Stop Frequency
Reysight Spectrum Analyzer - S           RL         RF         50           Center Freq 2.4410           Ref Offset 2           0         B/d         Ref 20.00           0         Ref 20.00         Ref 20.00           0         X2         Ref 20.00           0         Ref 20.00         Ref 20.00  <	Dwell f Swept SA $\Omega$ AC PNO: IFGain 2.46 dB 0 dBm 1Δ2 Umation 14 repr	NVNT 2-DF	SE:PULSE ay-500.0 µs #. leo 30 dB	Avg Type: RMS	Dne Burst	2024 Frequency Auto Tune Center Freq 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH:
Keysight Spectrum Analyzer - S           RL         RF         S0           Center Freq 2.4410         Ref Offset 2         Galaxies           0 dB/div         Ref 0ffset 2         Galaxies           0 dB/div         Ref 20.00         Galaxies           0 d0         Ref 20.00         Galaxies         Galaxies           0 d0 <th< td=""><td>Dwell I Swept SA (2) AC PNO: IFGain 2.46 dB 0 dBm 1/2 1/2 (unated to the constraint of the Constr</td><td>NVNT 2-DF Fast ↔→ Fig Del Flow → #Atten: :</td><td>SE:PULSE ay-500.0 µs #. leo 30 dB</td><td>Avg Type: RMS</td><td>Dne Burst</td><td>2024     Frequency       4 5 0     Frequency       Ministry     Auto Tune       Center Frequency     2.441000000 GH;       2.441000000 GH;     Stop Frequency       2.441000000 GH;     2.441000000 GH;       1000000 MHz     CF Step 1.000000 MHz       Hz     1.000000 MHz       Auto     Mark</td></th<>	Dwell I Swept SA (2) AC PNO: IFGain 2.46 dB 0 dBm 1/2 1/2 (unated to the constraint of the Constr	NVNT 2-DF Fast ↔→ Fig Del Flow → #Atten: :	SE:PULSE ay-500.0 µs #. leo 30 dB	Avg Type: RMS	Dne Burst	2024     Frequency       4 5 0     Frequency       Ministry     Auto Tune       Center Frequency     2.441000000 GH;       2.441000000 GH;     Stop Frequency       2.441000000 GH;     2.441000000 GH;       1000000 MHz     CF Step 1.000000 MHz       Hz     1.000000 MHz       Auto     Mark
Reysight Spectrum Analyzer - S           RL         RF         50           Center Freq 2.4410           Ref Offset 2           0 dB/div         Ref 20.00           0 0         X2           20 0         X2           20 0         X2           20 0         X4           60 0         X4           60 0         X4           60 0         X4           Center 2.4410000000	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB 1Δ2 1Δ2 Constraint (Spr Constraint) Constraint (Spr Constraint) Co	NVNT 2-DF	SE:PULSE  ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024     Frequency       4 5 0     Frequency       Ministry     Auto Tune       Center Frequency     2.441000000 GH;       2.441000000 GH;     Stop Frequency       2.441000000 GH;     2.441000000 GH;       1000000 MHz     CF Step 1.000000 MHz       Hz     1.000000 MHz       Auto     Mark
RL       RF       So         Ref Offset 2         Center Freq 2.4410         Ref Offset 2         O dB/div       Ref Offset 2         O dB/div       Ref Offset 2         O dB/div       Ref Offset 2         0       0       2       2         0       0       2       2         0       0       2       2         0       0       2       2         0       0       2       2         0       0       0       2         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0       0         0       0       0     <	Dwell I Swept SA (a) AC D000000 GHz PNO: IFGain 2.46 dB 0 dBm 1A2 1A2 1A2 1A2 1A2 1A2 1A2 1A2	NVNT 2-DF	SE:PULSE  ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024 Frequency Auto Tune Auto Tune Center Freq 2.441000000 GH: 2.441000000 GH: CENTE 2.441000000 GH: CF Step 1.000000 GH: CF Step 1.000000 GH: Auto Mar Freq Offset
RL         RF         50           Center Freq 2.4410         Ref Offset2         Sector           0 dB/div         Ref Offset2         Ref Offset2           0 dB/div         Ref 20.00         Sector           1 d2 dE/div         Ref 20.00         Sector           2	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB 1Δ2 1Δ2 Constraint (Spr Constraint) Constraint (Spr Constraint) Co	NVNT 2-DF	SE:PULSE  ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024       Frequency         4 5 0       Frequency         Ministry       Auto Tune         Center Frequency       2.441000000 GH:         2.441000000 GH:       2.441000000 GH:         1000       Stop Frequency         2.441000000 GH:       2.441000000 GH:         1000       CF Step Frequency         1000       CF Step Frequency         1000000 MH:       Auto Mar
Reysight Spectrum Analyzer - S         RL       RF       S0         Center Freq 2.4410         Ref Offset 2         O dB/div       Ref 20.00         O dB/div       Ref 20.00       Colspan="2">Colspan="2"Co	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB 1Δ2 1Δ2 Constraint (Spr Constraint) Constraint (Spr Constraint) Co	NVNT 2-DF	SE:PULSE  ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024 Frequency Auto Tune Center Freq 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: CF Step 1.00000 MH: Auto Mar Freq Offse 0 H:
Keysight Spectrum Analyzer - S           RL         RF         So           Center Freq 2.4410           Ref Offset 2           0 dB/div         Ref 20.00           1 d2         1 d1         1 d2           1 d2         1 d1         1 d2           1 d2         1 d1         1 d2	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB 1Δ2 1Δ2 Constraint (Spr Constraint) Constraint (Spr Constraint) Co	NVNT 2-DF	SE:PULSE  ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024 Frequency Auto Tune Auto Tune Center Free 2.441000000 GH; 2.441000000 GH; 2.441000000 GH; 1.000000 GH; Auto CF Step 1.000000 MH; Auto Mar Freq Offse 0 H;
Reysight Spectrum Analyzer - S         Ref Offset 2         Center Freq 2.4410         Ref Offset 2         O dB/div       Ref Offset 2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       2       2       2         0       3       3       3	Dwell N Swept SA 2000000 GHz PNO: IFGain 2.46 dB 1Δ2 1Δ2 Constraint (Spr Constraint) Constraint (Spr Constraint) Co	NVNT 2-DF	SE:PULSE  ay-500.0 µs #, leo 30 dB	Avg Type: RMS	Dne Burst	2024 Frequency Auto Tune Center Freq 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: 2.44100000 GH: CF Step 1.00000 MH: Auto Mar Freq Offse 0 H:



	Dwell NVN	I 3-DH1 2441	MHz Ant1 O	ne Burst	
Keysight Spectrum Analyzer - Sw		SENSE:PULSE		11:00:33 AM Dec 31, 2024	- ¢ ×
Center Freq 2.4410		Trig Delay-500.0 µs	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNN	Frequency
Ref Offset 2. 10 dB/div Ref 20.00	.46 dB		L	Mkr1 410.0 µs 1.91 dB	Auto Tune
10.0 0.00 10.0 1Δ2	414			TRIG LVL	Center Freq 2.441000000 GHz
-100 X21 -200 -300 -400 -400 -400 -400 -400 -400 -4					<b>Start Freq</b> 2.441000000 GHz
	an a faith a faith a faith an a faith an a faith an an a	n (a barran barran (a barran (a barran (a 19 julia) (a barran (a barran (a barran (a 19 julia) (a barran (a barran (a barran (a barran (a barran (a barran	<mark>n e ferse frank ferse ferse ferse ferse ferse ferse 1 e ferse frank ferse ferse ferse ferse ferse ferse ferse 1 e ferse fers</mark>	a na se de la familia de la calenda de la familia de la calenda de la calenda de la calenda de la calenda de la Este de la calenda de la ca Este de la calenda de la ca	<b>Stop Freq</b> 2.441000000 GHz
Center 2.441000000 Res BW 1.0 MHz	#VBV	V 3.0 MHz		Span 0 Hz 00 ms (10001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
MRR         MODE         TRC         SCL           1         Δ2         1         t         (Δ)           2         F         1         t         3           3         -         -         -         -           4         -         -         -         -           5         -         -         -         -           6         -         -         -         -	× 410.0 μs (Δ) 479.0 μs	Y FUNC 1.91 dB -14.97 dBm	TION FUNCTION WIDTH	FUNCTION VALUE	Freq Offset 0 Hz
7 8 9 10					Scale Type
11					Log <u>Lin</u>
MSG Doints changed; all	traces cleared		STATUS		
	Dwell NVN	T 3-DH3 2441	MHz Ant1 O	ne Burst	
	vept SA	SENSE:PULSE			
Center Fred 2.4410		Trig Delay-500.0 µs	#Avg Type: RMS	11:01:30 AM Dec 31, 2024 TRACE 1 2 3 4 5 6	Frequency
Center Freq 2.4410	000000 GHz PNO: Fast IFGain:Low 46 dB			TRACE 1 2 3 4 5 6 TYPE DET PNNNNN Mkr1 1.659 ms	Frequency Auto Tune
10 dB/div Ref Offset 2. Log 10 dB/div Ref 20.00	00000 GHz PN0: Fast → IFGain:Low 46 dB dBm	Trig Delay-500.0 µs → Trig: Video		TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNNN	
Ref Offset 2. 10 dB/div Ref 20.00 10 0 10 0	00000 GHz PN0: Fast → IFGain:Low 46 dB dBm 1Δ2 w <sup>II</sup>	Trig Delay-500.0 µs → Trig: Video #Atten: 30 dB		TRACE 12.3.4.5 6 TYPE WWWWWP DET PININNN Mkr1 1.659 ms 1.07 dB	Auto Tune Center Freq
Ref Offset 2. Ref Offset 2. Ref 20.00 10.0 000 -10.0 -20.0 -20.0 -30.0 -40.0 -60.0 -70.0	00000 GHz PND: Fast → IFGain:Low 46 dB dBm 1Δ2 1Δ2	Trig Delay-500.0 µs → Trig: Video	qal) المراجع المراجع والمراجع	TRACE ID 23 4 5 G TYPE WWWWWP DEF PINNINN Mkr1 1.659 ms 1.07 dB TRIG LVL	Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz Stop Freq 2.441000000 GHz
Ref Offset 2. Ref Offset 2. Ref 20.00 10.0 000 -10.0 -20.0	00000 GHz PND: Fast → IFGain:Low 46 dB dBm 1Δ2 46 dB control 1Δ2 control 1	Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	A state of the sta	TRACE D 23 4 5 G TRACE D 23 4 5 G TRACE D 20 1 5 G Mkr1 1.659 ms 1.07 dB TRACE TRACE Span 0 Hz .00 ms (10001 pts)	Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq
Ref Offset 2. 10 dB/div Ref 20.00 10 dB/div Ref 2	00000 GHz PN0: Fast → IFGain:Low 46 dB dBm 1Δ2 40 40 40 40 40 40 40 40 40 40	Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	A state of the sta	TRACE [] 2.3.4.5 G TRACE [] 2.3.4.5 G TRACE [] 2.3.4.5 G Mkr1 1.659 ms 1.07 dB TRICL VL TRICL VL	Start Freq           2.441000000 GHz           Start Freq           2.441000000 GHz           Stop Freq           2.441000000 GHz
Ref Offset 2.           10         dB/div           Ref 20.00           Log           10.0           0.00           -10.0           -20.0           -20.0           -30.0           -40.0           -50.0           -40.0           -60.0           -70.0           -60.0           -70.0 <td>00000 GHz PND: Fast → IFGain:Low 46 dB dBm 1Δ2 46 dB gain public first or fr tribuly for first or fr GHz #VBV × 1.659 ms (Δ)</td> <td>Trig Delay-500.0 µs Trig: Video #Atten: 30 dB</td> <td>A state of the sta</td> <td>TRACE D 23 4 5 G TRACE D 23 4 5 G TRACE D 20 1 5 G Mkr1 1.659 ms 1.07 dB TRACE TRACE Span 0 Hz .00 ms (10001 pts)</td> <td>Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz Scale Type</td>	00000 GHz PND: Fast → IFGain:Low 46 dB dBm 1Δ2 46 dB gain public first or fr tribuly for first or fr GHz #VBV × 1.659 ms (Δ)	Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	A state of the sta	TRACE D 23 4 5 G TRACE D 23 4 5 G TRACE D 20 1 5 G Mkr1 1.659 ms 1.07 dB TRACE TRACE Span 0 Hz .00 ms (10001 pts)	Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz Scale Type
Ref Offset 2: Ref Offset 2: Ref 20.00 10.0 0.00 -10.0 -20.0	00000 GHz PN0: Fast → IFGain:Low 46 dB dBm 1Δ2 46 dB dBm 1Δ2 46 dB dBm 1Δ2 46 dB dBm 1Δ2 46 dB dBm 1Δ2 46 dB 48 dB	Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	A state of the sta	TRACE D 3 4 5 G	Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset 0 Hz

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Dwell NVNT 3-DH5 2441MHz Ant1 One Burst				
Keysight Spectrum Analyzer - Swept SA           μ         RF         50 Ω         AC           Center Freq 2.441000000 GHz	D: Fast 🛶 Trig: Video	) µs #Avg Type: RMS	10:53:05 AM Dec 31, 2024 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNNN	Frequency
Ref Offset 2.46 dB	ain:Low #Atten: 30 dB		ΔMkr1 2.911 ms 3.22 dB	Auto Tune
10.0 0.00 -10.0 -20.0 -20.0	142		TRIG LVL	Center Freq 2.441000000 GHz
-10.0 -20.0 -30.0 -40.0				Start Freq 2.441000000 GHz
-500 (7		ne post het ingenet in the rest of the second s New York (Second second	and the second	<b>Stop Freq</b> 2.441000000 GHz
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz		Span 0 Hz 10.00 ms (10001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
<b>1</b> Δ2 <b>1</b> t (Δ) 2.91 <sup>4</sup>	1 ms (Δ) 3.22 dB .0 μs -14.95 dBm			Freq Offset 0 Hz
7				Scale Type

Page: 77 of 81



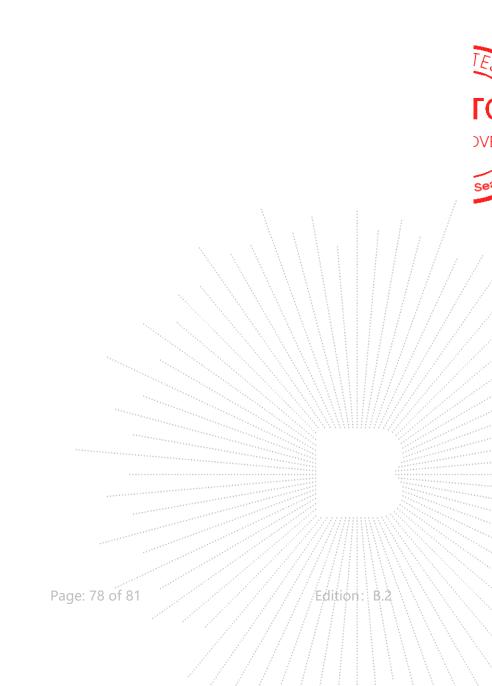
#### 15. Antenna Requirement

#### 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.



No.: BCTC/RF-EMC-005



# 16. EUT Test Setup Photographs

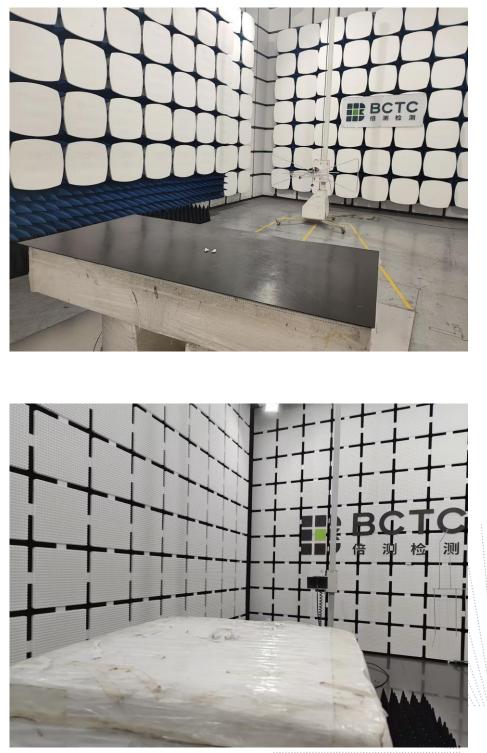
**Conducted Emission Measurement Photos** 



Page: 79 of 81



**Radiated Measurement Photos** 



Page: 80 of 81



# **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

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Website: http://www.chnbctc.com

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

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

**\*\*\*\*\*\* END \*\*\*\*** 

Page: 81 of 81