

TEST REPORT

Report No.:	BCTC2412264376-1E
Applicant:	Shenzhen Mike Morgen Technology Co., Ltd
Product Name:	NYXI FLEXI
Test Model:	NP05
Tested Date:	2024-12-04 to 2024-12-16
Issued Date:	2025-01-14
Sh	enzhen BCTC Testing Co., Ltd.
No.: BCTC/RF-EMC-005	5 Page: 1 of 81 Edition: B.2



FCC ID:2A88F-NP05

Product Name:	NYXI FLEXI
Trademark:	N/A
Model/Type Reference:	NP05,NP04,NP06,NP07,NP08,NP09,NP10
Prepared For:	Shenzhen Mike Morgan Technology Co.,Ltd.
Address:	Room 302,Building 5,Zone C,Jinxiu Huacheng Park,Bantian Street,Longgang District,Shenzhen
Manufacturer:	Shenzhen Mike Morgan Technology Co.,Ltd.
Address:	Room 302,Building 5,Zone C,Jinxiu Huacheng Park,Bantian Street,Longgang District,Shenzhen
Prepared By:	Shenzhen BCTC Testing Co., Ltd
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road,Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2024-12-04
Sample Tested Date:	2024-12-04 to 2024-12-16
Report No.:	BCTC2412264376-1E
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 P	age
1.	Version	5
2.	Test Summary	6
3.	Measurement Uncertainty	7
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	
6.1	Block Diagram Of Test Setup	
6.2	Limit	
6.3	Test procedure	
6.4		
6.5	EUT operating Conditions 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 Operatio	
8.1	Block Diagram Of Test Setup	
8.2	Limit	
8.3	Test procedure	
8.4	EUT operating Conditions	
8.5	Test Result	
9.	Spurious RF Conducted Emissions	
9.1	Block Diagram Of Test Setup	
9.2	Limit	
9.3	Test procedure	
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

JC JC JC

еро



11.4	Test Result	56
12.		
12.1		
12.2	Limit	62
12.3	Test procedure	62
12.4	Test Result	62
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		
15.	Antenna Requirement	78
15.1	Limit	78
15.2	Test Result	78
	EUT Test Setup Photographs	

Page: 4 of 81



1. Version

Report No.	Issue Date	Description	Approved
BCTC2412264376-1E	2025-01-14	Original	Valid



Page: 5 of 81



2. Test Summary

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.

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° ℃

Page: 7 of 81



4. Product Information and Test Setup

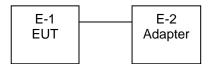
4.1 Product Information

Model/Type reference:	NP05, NP04,NP06,NP07,NP08,NP09,NP10
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 appearance color, we finally have NP05 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:	-2.30dBi
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,800mAh

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

E



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	NYXI FLEXI	N/A	NP05	N/A	EUT
E-2	Adapter/PC	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	7,1	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	79	

,TC 3C PR





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	

t Sea

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	Model#	Serial#	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	/	\	
Pulse limiter	Schwarzbeck	VTSD 9561-F	01323	May 16, 2024	May 15, 2025	

	Continuous RF Electromagnetic Field Disturbances Test						
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.		
Power meter	Keysight	E4419	A00065	May 16, 2024	May 15, 2025		
Power sensor	Keysight	E9300A	US39211659	May 16, 2024	May 15, 2025		
Power sensor	Keysight	E9300A	US39211305	May 16, 2024	May 15, 2025		
Amplifier	SKET	HAP_801000 -250W	21201805013	May 16, 2024	May 15, 2025		
Amplifier	SKET	HAP_0103-7 5W	21201805014	May 16, 2024	May 15, 2025		
Amplifier	SKET	HAP_0306-5 0W	21201805015	May 16, 2024	May 15, 2025		
Stacked double LogPer. Antenna	Schwarzbeck	STLP 9129	00077				
Field Probe	Narda	EP-601	611WX80256	May 25, 2024	May 24, 2025		
Signal Generator	Agilent	N5181A	MY50143748	May 16, 2024	May 15, 2025		
Software	SKET	EMC-S	1.2.0.18	1.15.000 (1.10)	\		



Radiated Emissions Test (966 Chamber01)						
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.	
966 chamber	ChengYu	966 Room	966	May 15, 2023	May 14, 2026	
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 21, 2024	May 20, 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	\	\	

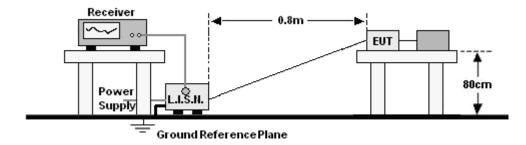
c 00.,LT

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.

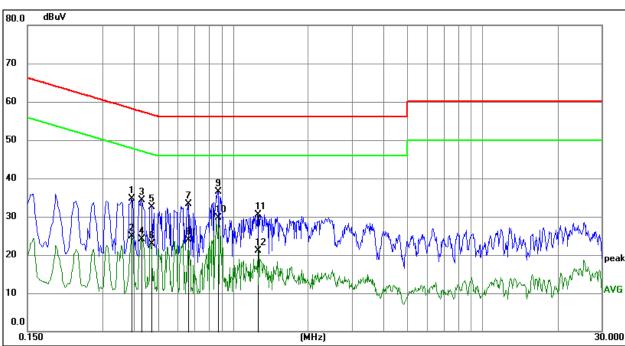
6.4 EUT operating Conditions

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



Remark:

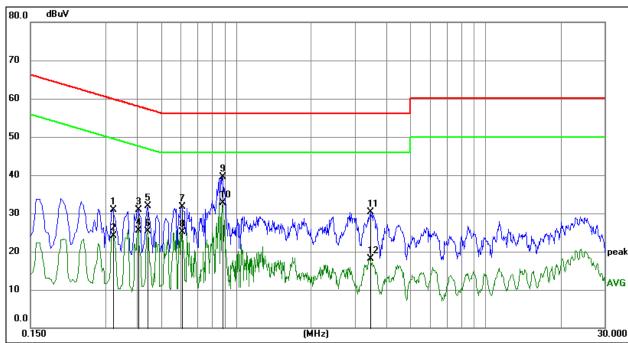
All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.
 Measurement = Reading Level + Correct Factor
 Over = Measurement - Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	The state of the s
1	0.3930	24.19	10.61	34.80	58.00	-23.20	QP	Ť.
2	0.3930	14.20	10.61	24.81	48.00	-23.19	AVG	T.
3	0.4290	23.64	10.62	34.26	57.27	-23.01	QP	Π/
4	0.4290	13.42	10.62	24.04	47.27	-23.23	AVG	Γ
5	0.4695	21.97	10.63	32.60	56.52	-23.92	QP	Γ/
6	0.4695	12.22	10.63	22.85	46.52	-23.67	AVG	\mathbb{D}
7	0.6585	22.58	10.65	33.23	56.00	-22.77	QP	E
8	0.6585	13.17	10.65	23.82	46.00	-22.18	AVG	1
9	0.8700	25.92	10.62	36.54	56.00	-19.46	QP	T?
10 *	0.8700	19.06	10.62	29.68	46.00	-16.32	AVG	T
11	1.2570	19.88	10.64	30.52	56.00	-25.48	QP	T
12	1.2570	10.39	10.64	21.03	46.00	-24.97	AVG	

E



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 (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3209	20.38	10.60	30.98	59.68	-28.70	QP
2	0.3209	13.51	10.60	24.11	49.68	-25.57	AVG
3	0.4065	20.24	10.61	30.85	57.72	-26.87	QP
4	0.4065	14.87	10.61	25.48	47.72	-22.24	AVG
5	0.4425	21.27	10.62	31.89	57.01	-25.12	QP
6	0.4425	14.77	10.62	25.39	47.01	-21.62	AVG
7	0.6045	20.96	10.66	31.62	56.00	-24.38	QP
8	0.6045	14.35	10.66	25.01	46.00	-20.99	AVG
9	0.8835	28.89	10.61	39.50	56.00	-16.50	QP
10 *	0.8835	22.04	10.61	32.65	46.00	-13.35	AVG
11	3.4620	19.28	10.95	30.23	56.00	-25.77	QP
12	3.4620	7.19	10.95	18.14	46.00	-27.86	AVG

JC JC JC

ероі



TE.

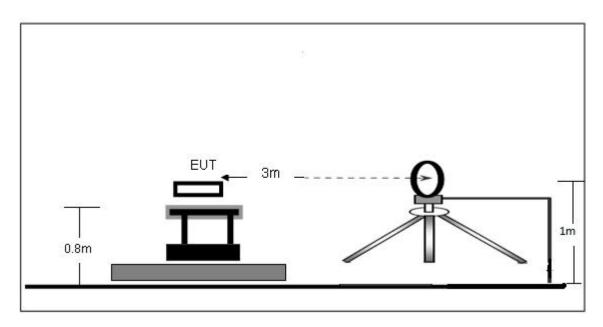
T(

t Sea

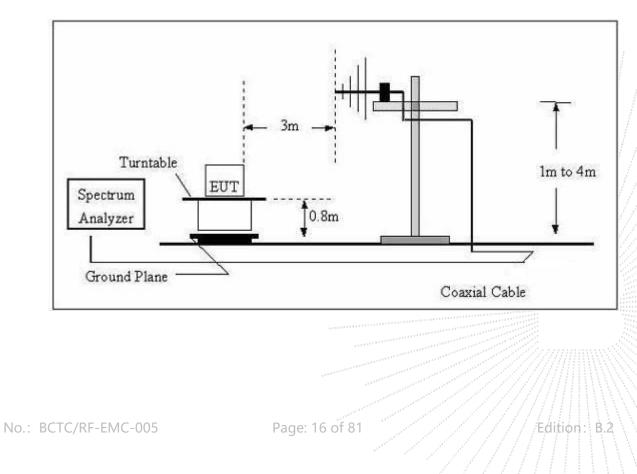
7. Radiated emissions

7.1 Block Diagram Of Test Setup

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

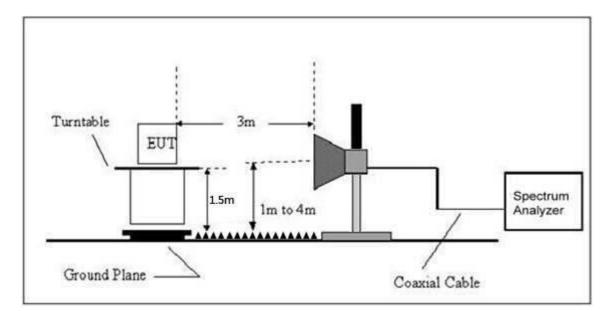


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(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)

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

=D



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, 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:	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.

No.: BCTC/RF-EMC-005

Page: 20 of 81

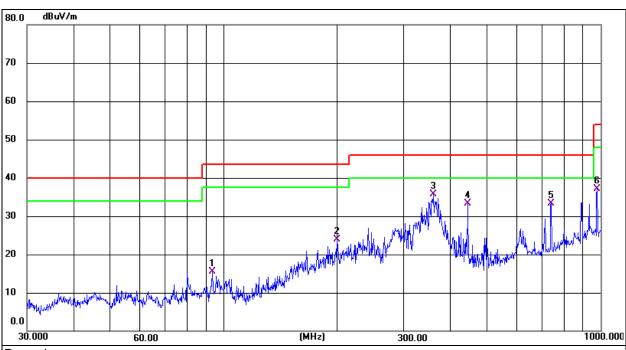
Edition: B.2

E



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.

- 2. Measurement = Reading Level + Correct Factor
- 3. Over = Measurement Limit

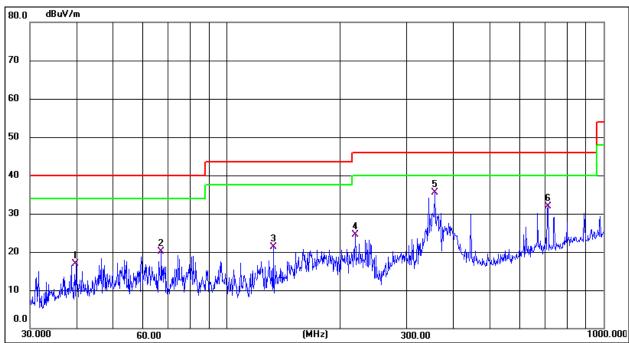
1							
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	93.1132	34.76	-19.33	15.43	43.50	-28.07	QP
2	199.2855	41.34	-17.42	23.92	43.50	-19.58	QP
3 *	359.1860	47.51	-11.71	35.80	46.00	-10.20	QP
4	443.2943	42.36	-8.97	33.39	46.00	-12.61	QP
5	739.6604	35.21	-1.97	33.24	46.00	-12.76	QP
6	979.1804	34.40	2.61	37.01	54.00	-16.99	QP
					and the latter of the latter o	er la en anta	

JC JC PR

ероі



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

			0
3.	Over	= Measurement	- Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	39.7146	33.96	-17.02	16.94	40.00	-23.06	QP
2	66.9669	38.42	-18.33	20.09	40.00	-19.91	QP
3	132.6850	37.03	-15.74	21.29	43.50	-22.21	QP
4	219.0753	41.31	-16.81	24.50	46.00	-21.50	QP
5 *	356.6758	47.28	-11.78	35.50	46.00	-10.50	QP
6	711.6734	34.59	-2.72	31.87	46.00	-14.13	QP

t Sea

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 72.32 -19.99 74.00 -21.67 ΡK V 52.33 V 4804.00 62.25 -19.99 42.26 54.00 -11.74 AV V 7206.00 63.99 -14.22 49.77 74.00 -24.23 ΡK V 7206.00 54.79 -14.22 40.57 54.00 -13.43 AV Н 4804.00 70.36 -19.99 50.37 74.00 -23.63 ΡK Н 4804.00 60.94 -19.99 40.95 54.00 -13.05 AV ΡK Н 7206.00 62.76 -14.22 48.54 74.00 -25.46 40.46 Н 7206.00 54.68 -14.22 54.00 -13.54 AV **GFSK Middle channel** ΡK V 4882.00 70.54 -19.84 50.70 74.00 -23.30 V 4882.00 42.28 54.00 -11.72 AV 62.12 -19.84 V 7323.00 60.16 -13.90 46.26 74.00 -27.74 PK V 7323.00 -13.90 37.61 54.00 -16.39 51.51 AV 4882.00 47.50 Н 67.34 -19.84 74.00 -26.50 PK -17.08 Н 4882.00 56.76 -19.84 36.92 54.00 AV Н 7323.00 58.31 -13.90 44.41 74.00 -29.59 ΡK 36.53 Н 7323.00 50.43 -13.90 54.00 -17.47 AV **GFSK High channel** V 4960.00 71.90 -19.68 74.00 -21.78 ΡK 52.22 V 4960.00 61.83 -19.68 42.15 54.00 -11.85 AV PK V 7440.00 -13.57 51.56 74.00 -22.44 65.13 V 7440.00 54.68 -13.57 41.11 54.00 -12.89 AV Н 4960.00 70.17 50.49 74.00 -23.51 ΡK -19.68 Н 4960.00 60.69 -19.68 41.01 54.00 -12.99 AV PK Н 7440.00 63.47 -13.57 49.90 74.00 -24.10 Н 7440.00 56.26 -13.57 42.69 54.00 -11.31 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.

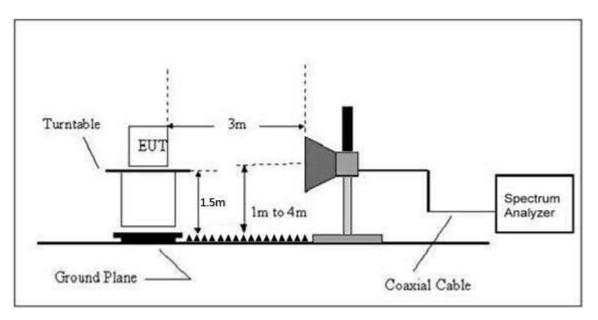
5.All the Modulation are test, the worst mode is GFSK, the data recording in the report.



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
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			



Limits Of Radiated Emission Measurement (Above 1000MHz)

Frequency (MHz)	Limit (d	BuV/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
					PK	PK	AV	
	Low Channel 2402MHz							
GFSK	Н	2390.00	72.29	-25.43	46.86	74.00	54.00	PASS
	Н	2400.00	74.38	-25.40	48.98	74.00	54.00	PASS
	V	2390.00	72.27	-25.43	46.84	74.00	54.00	PASS
	V	2400.00	73.11	-25.40	47.71	74.00	54.00	PASS
	High Channel 2480MHz							
	H	2483.50	72.64	-25.15	47.49	74.00	54.00	PASS
	Н	2500.00	68.84	-25.10	43.74	74.00	54.00	PASS
	V	2483.50	70.30	-25.15	45.15	74.00	54.00	PASS
	V	2500.00	65.41	-25.10	40.31	74.00	54.00	PASS
π/4DQPSK	Low Channel 2402MHz							
	H	2390.00	73.31	-25.43	47.88	74.00	54.00	PASS
	H	2400.00	76.19	-25.40	50.79	74.00	54.00	PASS
	V	2390.00	74.09	-25.43	48.66	74.00	54.00	PASS
	V	2400.00	75.67	-25.40	50.27	74.00	54.00	PASS
	High Channel 2480MHz							
	<u> </u>	2483.50	72.63	-25.15	47.48	74.00	54.00	PASS
	H	2500.00	70.19	-25.10	45.09	74.00	54.00	PASS
	V	2483.50	73.96	-25.15	48.81	74.00	54.00	PASS
	V	2500.00	70.28	-25.10	45.18	74.00	54.00	PASS
8DPSK	Low Channel 2402MHz							
	<u> </u>	2390.00	73.31	-25.43	47.88	74.00	54.00	PASS
	<u> </u>	2400.00	75.32	-25.40	49.92	74.00	54.00	PASS
	V	2390.00	74.19	-25.43	48.76	74.00	54.00	PASS
	V	2400.00	74.46	-25.40	49.06	74.00	54.00	PASS
	High Channel 2480MHz							
	Н	2483.50	71.48	-25.15	46.33	74.00	54.00	PASS
	Н	2500.00	69.70	-25.10	44.60	74.00	54.00	PASS
	V	2483.50	74.39	-25.15	49.24	74.00	54.00	PASS
	V	2500.00	70.73	-25.10	45.63	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.

E



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

Page: 27 of 81



9.4 Test Result





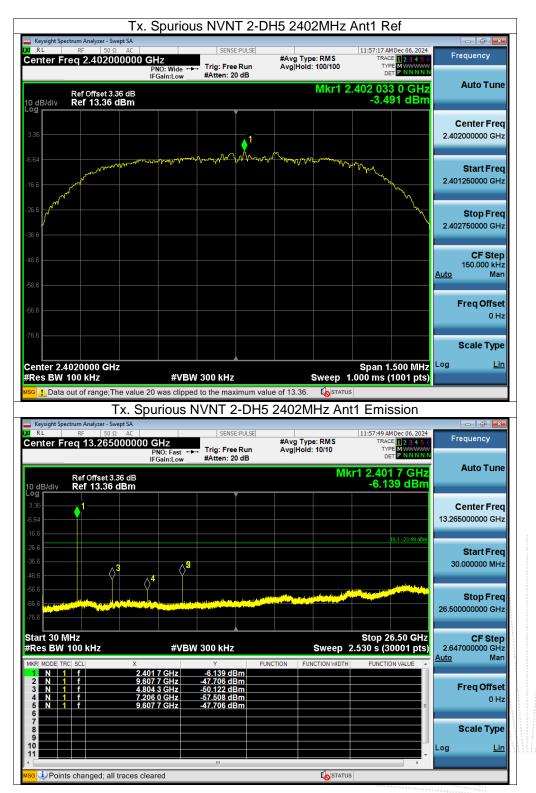




















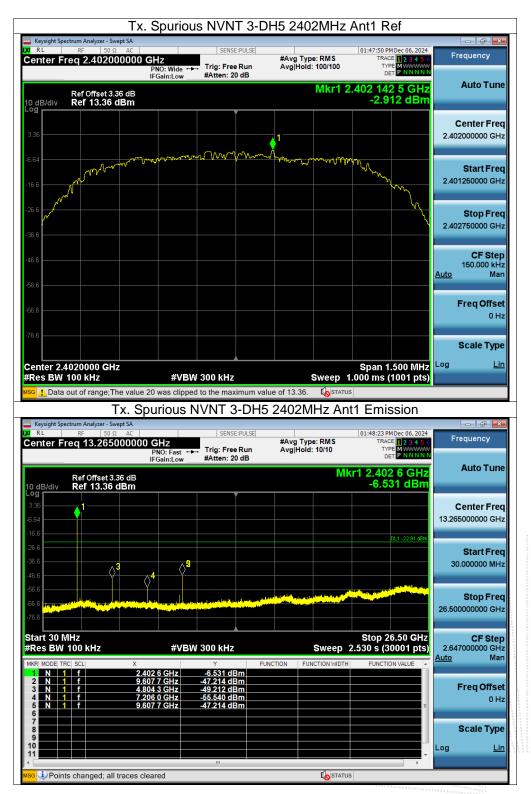






epoi

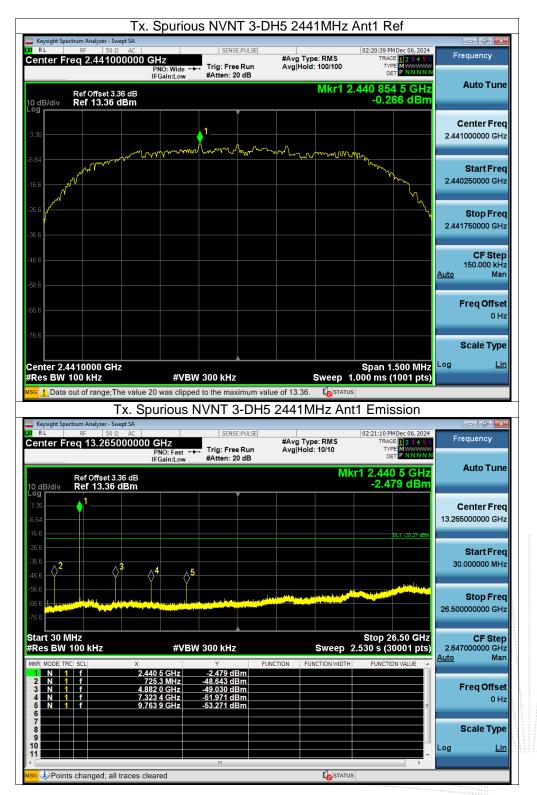




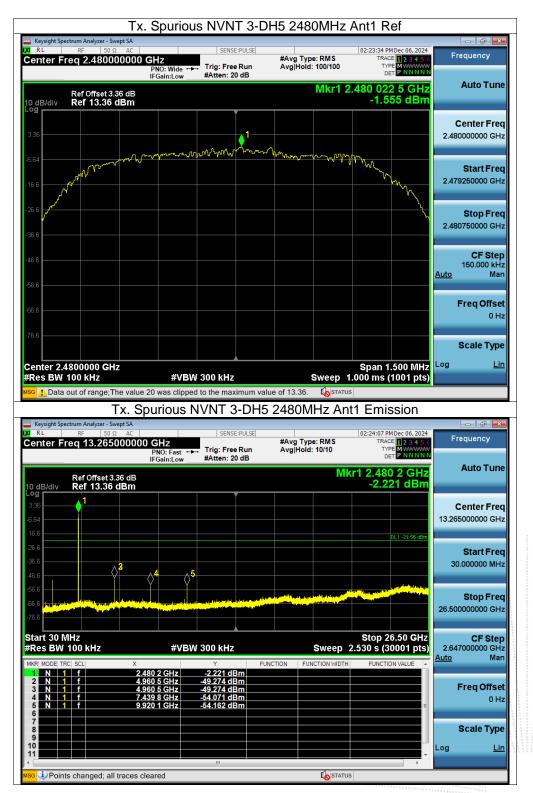
Edition: B.2

Page: 34 of 81

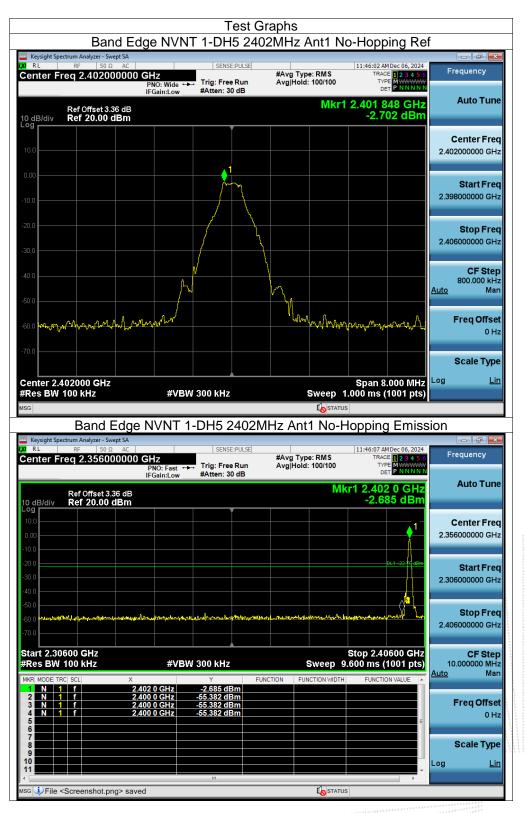










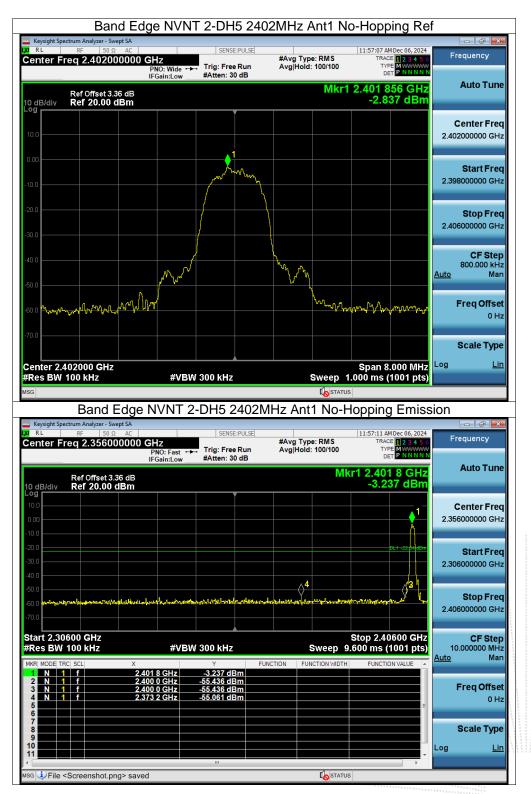


THENZH





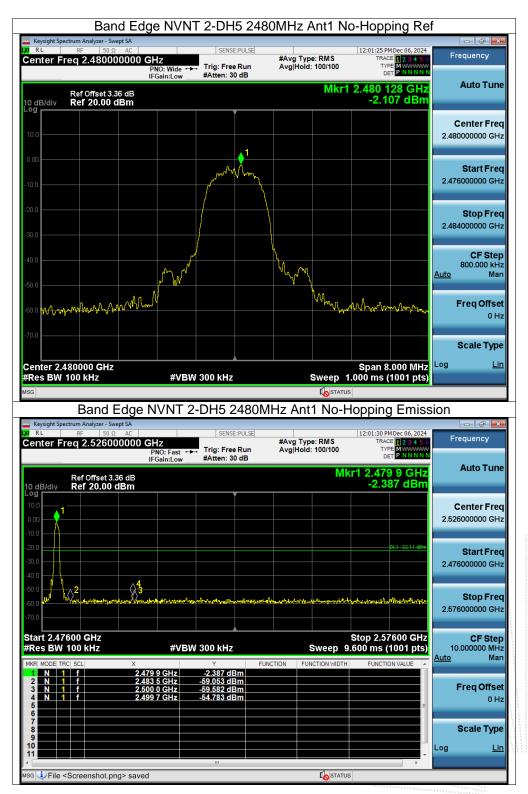




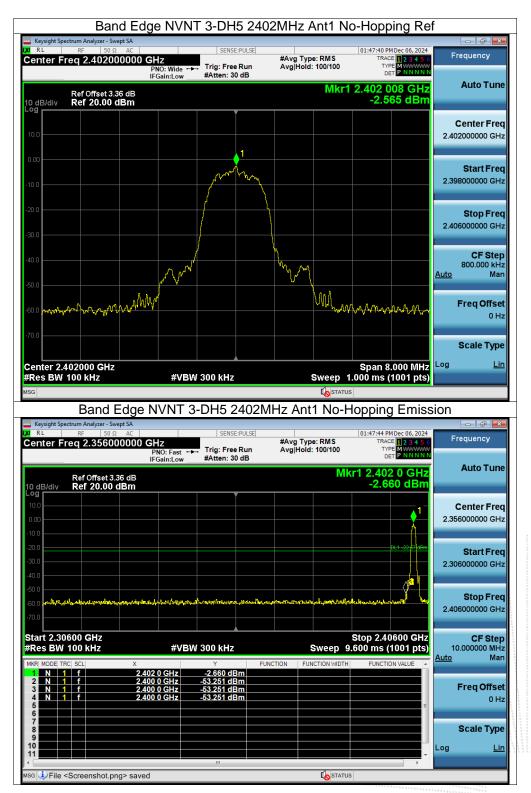
JC JC PPR

epor

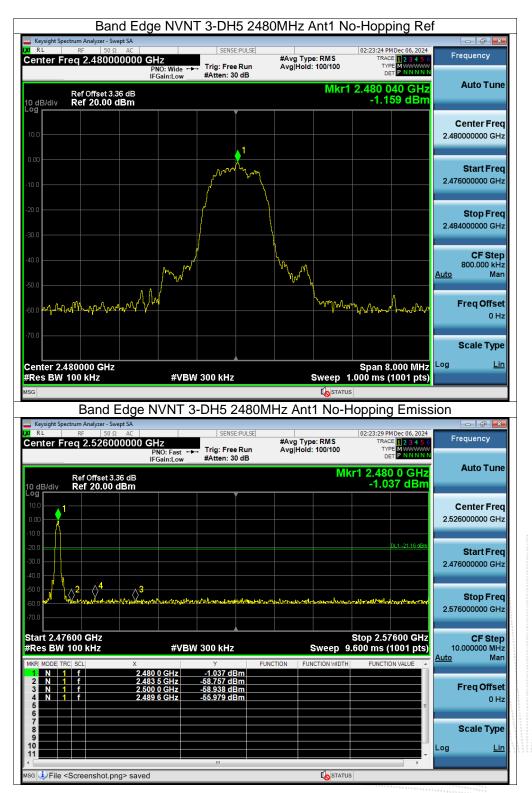






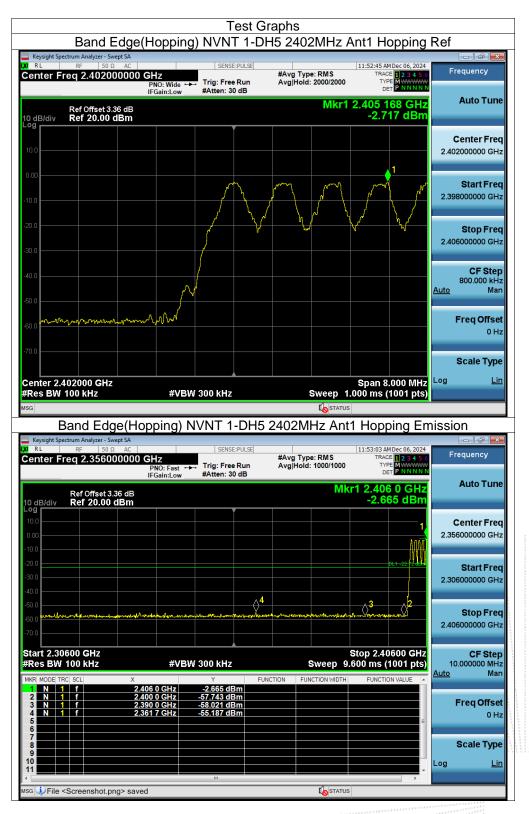






C CO.,LTA

















JC JC PPR

epor















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.

1	
え	
Z	
1	
N	

Page: 49 of 81

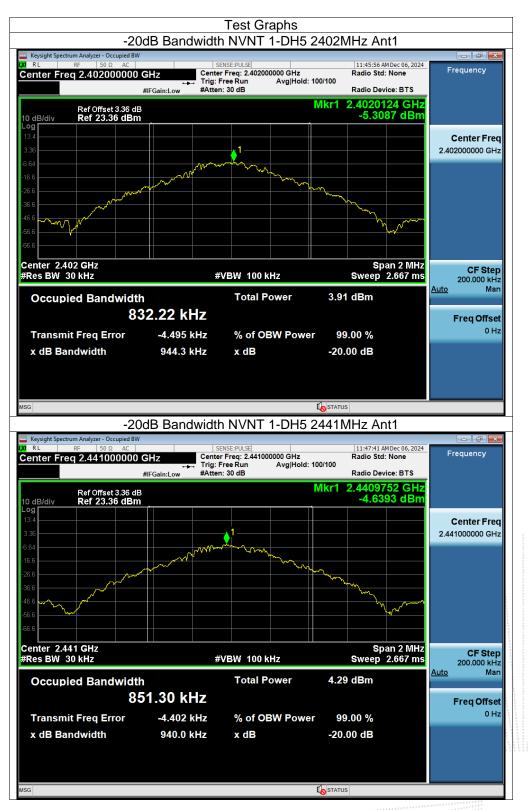


10.4 Test Result

Condition	Mode	Frequency (MHz)	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	0.944	Pass
NVNT	1-DH5	2441	0.94	Pass
NVNT	1-DH5	2480	0.944	Pass
NVNT	2-DH5	2402	1.312	Pass
NVNT	2-DH5	2441	1.319	Pass
NVNT	2-DH5	2480	1.31	Pass
NVNT	3-DH5	2402	1.301	Pass
NVNT	3-DH5	2441	1.29	Pass
NVNT	3-DH5	2480	1.303	Pass

Page: 50 of 81

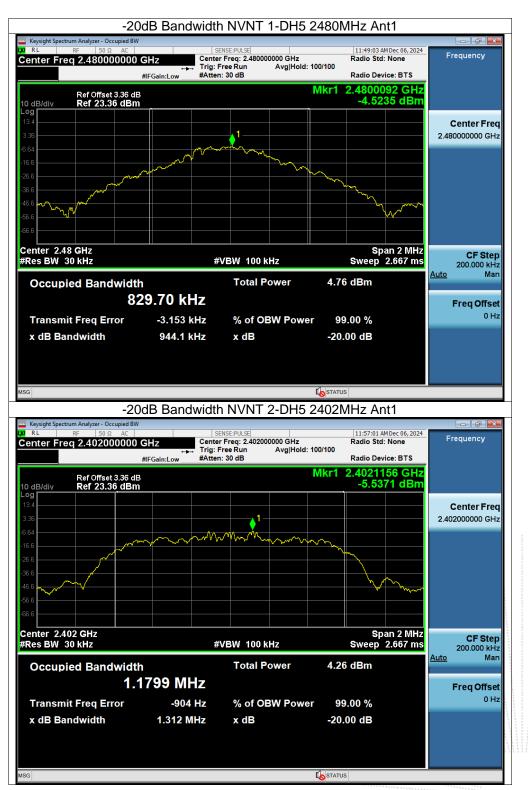






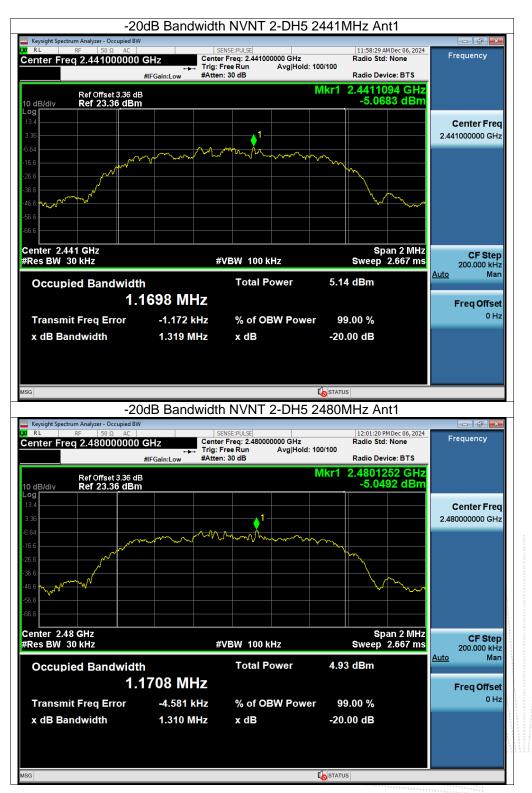
epoi











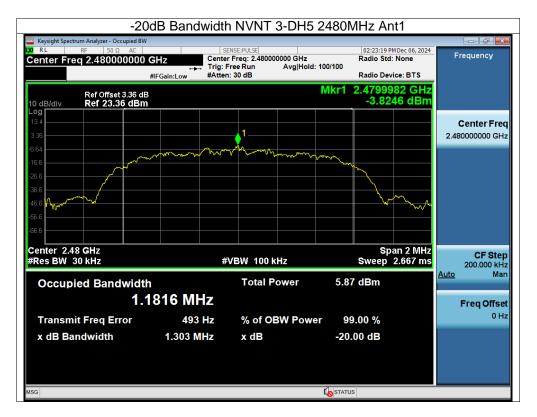
Page: 53 of 81





Page: 54 of 81







No.: BCTC/RF-EMC-005

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) Res				
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.

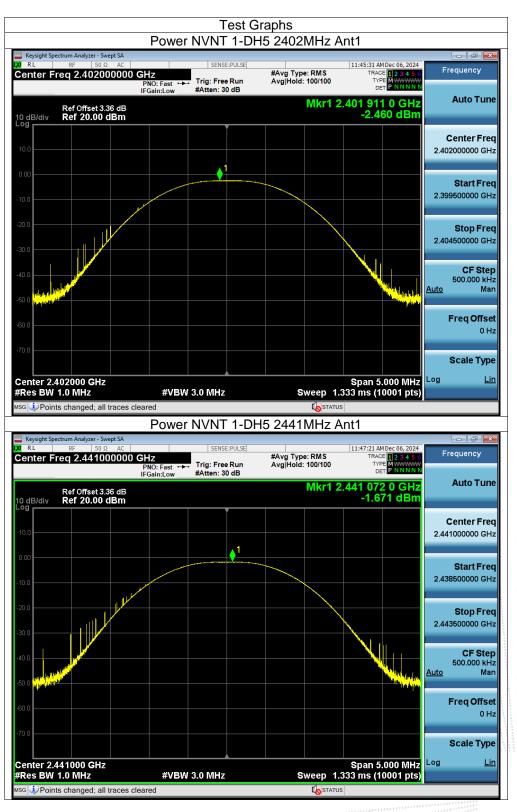
11.4 Test Result

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	-2.46	21	Pass
NVNT	1-DH5	2441	-1.67	21	Pass
NVNT	1-DH5	2480	-1.76	21	Pass
NVNT	2-DH5	2402	-0.23	21	Pass
NVNT	2-DH5	2441	0.61	21	Pass
NVNT	2-DH5	2480	0:44	21	Pass
NVNT	3-DH5	2402	0.57	21	Pass
NVNT	3-DH5	2441	2.75	21	Pass
NVNT	3-DH5	2480	1.64	21	Pass

Page: 56 of 81

E

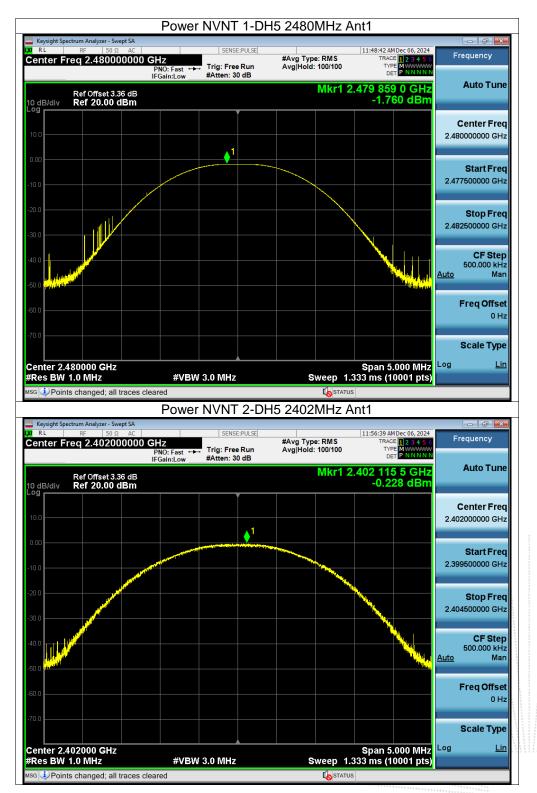




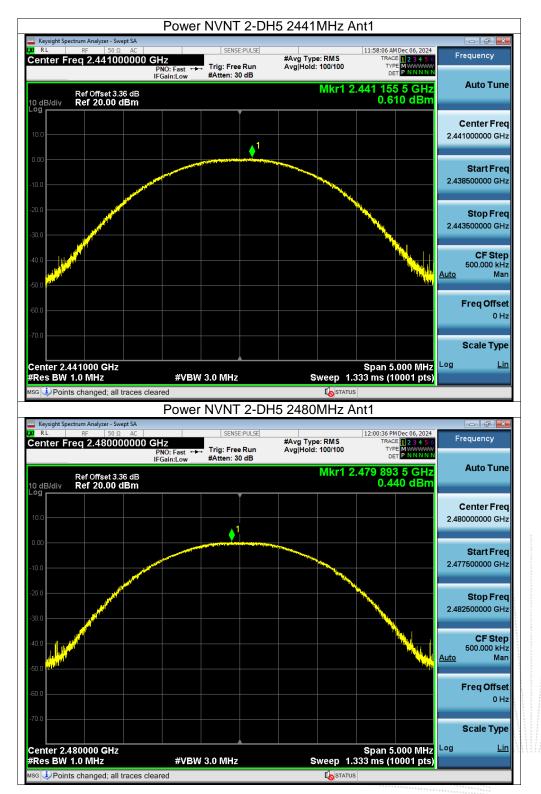
JC JC PPR

epor

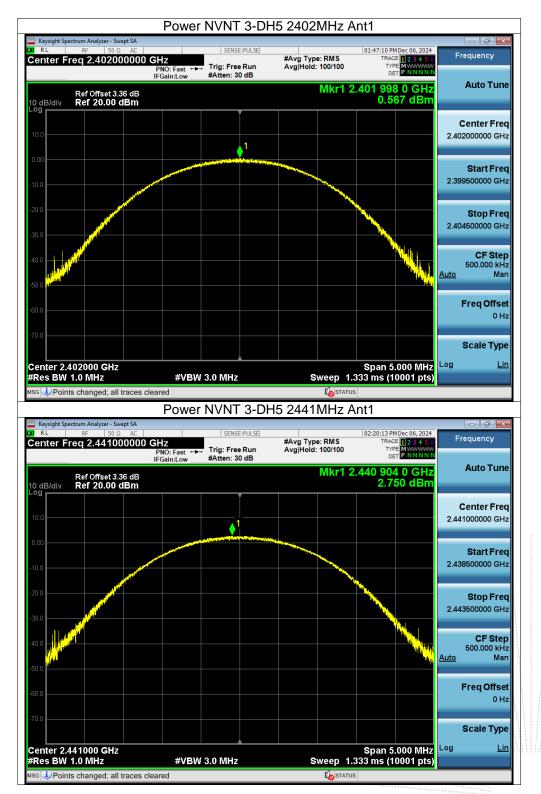






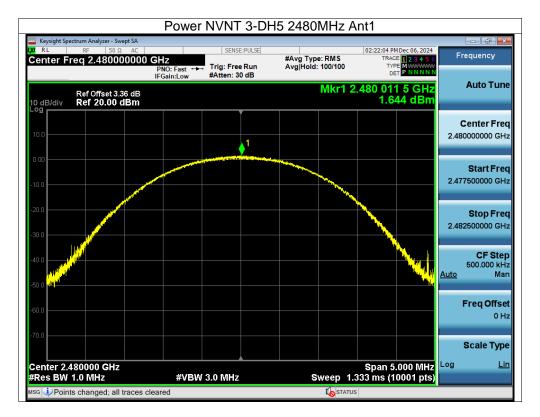






C 00.,LTA







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 Marke Hopping Freq1 Hopping Freq2 HFS Limit Variat							
Condition	Mode	(MHz)	(MHz)	(MHz)	(MHz)	Verdict	
NVNT	1-DH5	2401.97	2403.006	1.036	0.629	Pass	
NVNT	1-DH5	2440.982	2441.966	0.984	0.627	Pass	
NVNT	1-DH5	2478.97	2480.008	1.038	0.629	Pass	
NVNT	2-DH5	2401.892	2402.898	1.006	0.875	Pass	
NVNT	2-DH5	2440.892	2442.114	1.222	0.879	Pass	
NVNT	2-DH5	2478.91	2479.908	0.998	0.873	Pass	
NVNT	3-DH5	2401.836	2402.832	0.996	0.867	Pass	
NVNT	3-DH5	2440.838	2441.99	1.152	0.860	Pass	
NVNT	3-DH5	2478.926	2480.016	1.09	0.869	Pass	

12.4 Test Result

E





epoi







Keysight Spectrum Analyze		<u>S NVNT 2-DH</u>	15 2441MHz An	t1	
	r - Swept SA 50 Ω AC	SENSE:PULSE		12:08:42 PM Dec 06, 2024	
Center Freq 2.44		Trig: Free Run	#Avg Type: RMS Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE M WWWW DET P NNNN	Frequency
10 dB/div Ref 20.1	et 3.36 dB 00 dBm		Mkr1	2.440 892 GHz -4.499 dBm	Auto Tun
-og 10.0					Center Fre
0.00	1			¢ ²	2.441500000 GH
-10.0	mm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Junio	
30.0					Start Fre
-40.0					2.440500000 GH
-50.0					Stop Fre
-60.0					2.442500000 GH
-70.0					
Center 2.441500 G #Res BW 30 kHz		BW 100 kHz	Sweep 2.	Span 2.000 MHz 133 ms (1001 pts)	CF Ste 200.000 kH <u>Auto</u> Ma
MKR MODE TRC SCL	× 2.440 892 GHz	-4.499 dBm	JNCTION FUNCTION WIDTH	FUNCTION VALUE	
2 N 1 f	2.442 114 GHz	-4.498 dBm			Freq Offse
4 5 6				E	0 H
7					Scale Typ
9					Log <u>Li</u>
11					
ISG			STATUS		
	CF	S NVNT 2-DH	l5 2480MHz An	t1	
Keysight Spectrum Analyzer	r - Swept SA 50 Ω AC	SENSE:PULSE		12:09:40 PM Dec 06, 2024	
Center Freq 2.47	9500000 GHz PNO: Wide IFGain:Low	Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P N N N N N	Frequency
10 dB/div Ref 20.	et 3.36 dB 00 dBm		Mkr1	2.478 910 GHz -5.425 dBm	Auto Tun
-og 10.0					Center Fre
	1		k2		
0.00			- <u> </u>		
0.00	m		-	······	
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- <u> </u>	······································	2.479500000 GH Start Fre
-10.0			- <u> </u>	······	2.479500000 GH Start Fre
-10.0 -20.0 -30.0 -40.0 -50.0			- <u> </u>		2.479500000 GH Start Fre 2.478500000 GH
-10.0			- <u> </u>	······	2.479500000 GH Start Fre 2.478500000 GH Stop Fre
-10 0 -20 0 -30 0 -40 0 -50 0 -60 0 -70 0			- <u> </u>		2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.480500000 GH
-10.0	Hz	BW 100 kHz		Span 2.000 MHz 133 ms (1001 pts)	2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.48050000 GH CF Stej 200.000 kH
-10 0 -20 0 -30 0 -40 0 -50 0 -5	Hz #VI	Y FL			2.479500000 GH Start Fre 2.478500000 GH Stop Fre 2.480500000 GH CF Stej 200.000 kH Auto Ma
-10 0 -20 0 -30 0 -40 0 -50 0 -60 0 -70 0 Center 2.479500 G #Res BW 30 kHz MKR MODE TRC SCL 1 N 1 f 2 N 1 f	Hz #VI		Sweep 2.	133 ms (1001 pts)	2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.48050000 GH CF Ste 200.000 kH Auto Ma
100 -200 -300 -40.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.	Hz #VI	Y FU -5.425 dBm	Sweep 2.	133 ms (1001 pts)	2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.48050000 GH CF Stej 200.000 kH
-10 0 -20 0 -30 0 -40 0 -50 0 -50 0 -60 0 -60 0 -70 0 Center 2.479500 G #Res BW 30 kHz MKR MODE TRC SCL 1 N 1 f 2 N 1 f 3 0	Hz #VI	Y FU -5.425 dBm	Sweep 2.	133 ms (1001 pts)	2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.48050000 GH CF Ste 200.000 kH Auto Ma Freq Offse 0 H
100	Hz #VI	Y FU -5.425 dBm	Sweep 2.	133 ms (1001 pts)	2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.48050000 GH CF Ste 200.000 kH Auto Ma Freq Offse
10.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	Hz #VI	Y FU -5.425 dBm	Sweep 2.	133 ms (1001 pts)	2.47950000 GH Start Fre 2.47850000 GH Stop Fre 2.48050000 GH CF Ste 200.000 kH Auto Ma Freq Offse 0 H





Page: 66 of 81



	CFS NVNT 3-DF	15 2480MHz Ar	nt1	
Keysight Spectrum Analyzer - Swept SA			02:28:30 PM Dec 06, 2024	- F 💌
Center Freq 2.479500000 GHz	: Wide Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold:>100/100	02:28:30 PM Dec 06, 2024 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P N N N N	Frequency
Ref Offset 3.36 dB 10 dB/div Ref 20.00 dBm		Mkr1	2.478 926 GHz -6.664 dBm	Auto Tune
10.0 0.00 -10.0			han and the second s	Center Freq 2.479500000 GHz
-20.0 -30.0 -40.0				Start Freq 2.478500000 GHz
-50.0 -60.0 -70.0				<b>Stop Freq</b> 2.480500000 GHz
Center 2.479500 GHz #Res BW 30 kHz	#VBW 100 kHz	Sweep 2	Span 2.000 MHz 133 ms (1001 pts)	CF Step 200.000 kHz
MKR         MODE         TRC         SCL         X           1         N         1         f         2.478         926           2         N         1         f         2.478         926	GHz -6.664 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man Freq Offset
3 4 5 6			E	0 Hz
7 8 9 10				Scale Type
				Log <u>Lin</u>
MSG		STATUS		

No.: BCTC/RF-EMC-005

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	<b>79</b>	15	Pass

E



	Hopping		iraphs -DH5 2402MH	z Ant1	
Keysight Spectrum Analyzer -			DITIO E TOEINI	_ /	
XI RF 50 Center Freq 2.441	750000 GHz PNO: Fast ( IFGain:Low	Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold:>100/100	11:52:30 AM Dec 06, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N	Frequency
Ref Offset	3.36 dB		Mkr1 2.	402 004 0 GHz -2.941 dBm	Auto Tune
					Center Freq 2.441750000 GHz
-20.0 -30.0 -40.0 -50.0					Start Freq 2.400000000 GHz
-60.0					<b>Stop Freq</b> 2.483500000 GHz
Start 2.40000 GHz #Res BW 100 kHz MKR MODE TRC SCL 1 N 1 f	#VB X 2.402 004 0 GHz	W 300 kHz Y FU -2.941 dBm		Stop 2.48350 GHz 000 ms (1001 pts) FUNCTION VALUE	<b>CF Step</b> 8.350000 MHz <u>Auto</u> Man
2 N 1 f 3 4 5 6	2.480 076 5 GHz	-2.357 dBm			<b>Freq Offset</b> 0 Hz
7 8 9 10					Scale Type
11 <		III		• •	
NSG					
	Hopping	No. NVNT 2	-DH5 2402MH	z Ant1	
Keysight Spectrum Analyzer -					
		SENSE PULISE		12:05:07 PM Dec 06, 2024	
	D Q AC 750000 GHz PNO: Fast C IFGain:Low	→ Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold:>100/100	12:05:07 PM Dec 06, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET PNNNN	Frequency
	750000 GHz PNO: Fast IFGain:Low	Trig: Free Run	Avg Hold:>100/100	TRACE 1 2 3 4 5 6	Frequency
Center Freq 2.441	750000 GHz PNO: Fast 0 IFGain:Low 3.36 dB 0 dBm	Trig: Free Run #Atten: 30 dB	Avg Hold:>100/100	1740E 123456 TYPE MWWWW DET PNNNNN 401 837 0 GHz -3.164 dBm	Frequency Auto Tune Center Freq
Center Freq 2.441	750000 GHz PNO: Fast 0 IFGain:Low 3.36 dB 0 dBm	Trig: Free Run #Atten: 30 dB	AvgjHoid:>100/100	1740E 123456 TYPE MWWWW DET PNNNNN 401 837 0 GHz -3.164 dBm	Frequency Auto Tune Center Freq 2.441750000 GHz Start Freq
Center Freq 2.441	750000 GHz PNO: Fast 0 IFGain:Low 3.36 dB 0 dBm	Trig: Free Run #Atten: 30 dB	AvgjHoid:>100/100	1740E 123456 TYPE MWWWW DET PNNNNN 401 837 0 GHz -3.164 dBm	
Center Freq 2.441	750000 GHz PN0: Fast ( IFGain:Low 3.36 dB 0 dBm whwwwwwwwww whwwwwwwww whwwwwwwww whwwwwww	Trig: Free Run     #Atten: 30 dB     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #     #	AvgjHold:>100/100	401 837 0 GHz -3.164 dBm	Frequency Auto Tune Center Freq 2.441750000 GHz Start Freq 2.400000000 GHz Stop Freq 2.483500000 GHz CF Step 8.350000 MHz
Center Freq 2.441 Ref Offset 10 dB/div Ref 20.0 0 00 10 0 10 1 1 0 1 1 1 1	750000 GHz PN0: Fast 0 IFGain:Low 3.36 dB 0 dBm y/\.\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Trig: Free Run #Atten: 30 dB	AvgjHold:>100/100	401 837 0 GHz -3.164 dBm 2 2 401 837 0 GHz -3.164 dBm 2 2 4 4 4 4 5 100 ms (1001 pts)	Frequency Auto Tune Center Freq 2.441750000 GHz Start Freq 2.400000000 GHz Stop Freq 2.483500000 GHz 8.350000 GHz B.350000 MHz Auto Man
Center Freq 2.441	750000 GHz PN0: Fast 0 IFGain:Low 3.36 dB 0 dBm Wh/W/Wh/W/W/W/W/W/W/W/W/W/W/W/W/W/W/W/W	Trig: Free Run     #Atten: 30 dB	AvgjHold:>100/100	TRACE 12 34 5 G TYPE WINNIN 401 837 0 GHz -3.164 dBm 22 401 837 0 GHz -3.164 dBm 401 837 0 GHz -3.164 dBm -3.164 dBm	Frequency Auto Tune Center Freq 2.441750000 GHz Start Freq 2.400000000 GHz Stop Freq 2.483500000 GHz CF Step 8.350000 MHz
Center Freq 2.441 Ref Offset 10 dB/div Ref 20.0 10 0 10 0	750000 GHz PN0: Fast 0 IFGain:Low 3.36 dB 0 dBm Wh/W/Wh/W/W/W/W/W/W/W/W/W/W/W/W/W/W/W/W	Trig: Free Run     #Atten: 30 dB	AvgjHold:>100/100	TRACE 12 34 5 G TYPE WINNIN 401 837 0 GHz -3.164 dBm 22 401 837 0 GHz -3.164 dBm 401 837 0 GHz -3.164 dBm -3.164 dBm	Frequency Auto Tune Center Freq 2.441750000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.40000000 GHz 2.40000000 GHz 2.40000000 GHz 2.40000000 GHz 2.40000000 GHz 2.400000000 GHz 2.40000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.400000000 GHz 2.4000000000 GHz 2.4000000000 GHz 2.4000000000 GHz 2.4000000000 GHz 2.400000000 GHz 2.40000000 GHz 3.5000 GHz 3.5000 GHz 4.0000000 GHz 3.5000 GHz 4.0000000 GHz 3.5000 GHz 4.0000000 GHz 4.0000000 GHz 4.0000000 GHz 4.0000000 GHz 4.0000000 GHz 4.00000000 GHz 4.0000000 GHz 4.00000000 GHz 4.0000000 GHz 4.0000000 GHz 4.0000000 GHZ 4.00000000 GHz 4.00000000 GHZ 4.00000000 GHZ 4.00000000 GHZ 4.00000000 GHZ 5.00000 GHZ 5.000000 GHZ 5.0000000 GHZ 5.000000 GHZ 5.000000 GHZ 5.00000 GHZ 5.000000 GHZ 5.000000 GHZ 5.00000 GHZ 5.00000 GHZ 5.00000 GHZ 5.000000 GHZ 5.00000 GHZ 5.000000 GHZ 5.00000 GHZ 5.00000 GHZ 5.00000 GHZ 5.000000 GHZ 5.000000 GHZ 5.00000000 GHZ 5.000000000000000000000000000000000000





Hopping No. NVNT 3-DH5 2402MHz Ant1					
Keysight Spectrum Analyzer - Swept SA		NSE:PULSE	g Type: RMS	02:25:48 PM Dec 06, 2024	Frequency
Center Freq 2.441750000	PNO: Fast Trig: Fr IFGain:Low #Atten:	ree Run Avg	g Type: RMS  Hold:>100/100		
Ref Offset 3.36 dB 10 dB/div Ref 20.00 dBm			Mkr1 2.	401 837 0 GHz -2.149 dBm	Auto Tune
Log 10.0 0.00 -10.0	MANAMANA	Vurvurnana	lighter protocol for the second second		Center Freq 2.441750000 GHz
-20.0 -30.0 -40.0					Start Freq 2.400000000 GHz
-50.0 -60.0 -70.0					<b>Stop Freq</b> 2.483500000 GHz
Start 2.40000 GHz #Res BW 100 kHz	#VBW 300 kH	z		Stop 2.48350 GHz 000 ms (1001 pts)	CF Step 8.350000 MHz
	337 0 GHz -2.149 0 410 5 GHz -3.939 0		FUNCTION WIDTH	FUNCTION VALUE	Auto Man Freq Offset
4 5 6 7 8				E	0 Hz Scale Type
9 10 11 11					Log <u>Lin</u>
MSG			to status		

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	0.387	123.453	400	Pass
NVNT	1-DH3	2441	1.643	249.736	400	Pass
NVNT	1-DH5	2441	2.891	332.465	400	Pass
NVNT	2-DH1	2441	0.398	126.564	400	Pass
NVNT	2-DH3	2441	1.647	243.756	400	Pass
NVNT	2-DH5	2441	2.895	318.45	400	Pass
NVNT	3-DH1	2441	0.396	126.324	400	Pass
NVNT	3-DH3	2441	1.649	245.701	400	Pass
NVNT	3-DH5	2441	2.897	318.67	400	Pass

n 00.,LT

No.: BCTC/RF-EMC-005

Page: 72 of 81



	Test G Dwell NVNT 1-DH1 244		et
Keysight Spectrum Analyzer - Swa           Keysight Spectrum Analyzer - Swa           RL         RF         50 Ω           Center Freq 2.44100	AC SENSE:PULSE 0000 GHz Trig Delay-500.0 µs PNO: Fast +	02:30:20 PM #Avg Type: RMS TRAC	IDec 06,2024         Frequency           I 2 3 4 5 6         Frequency           I P NNNN         Image: State Sta
Ref Offset 3.3 10 dB/div Ref 20.00 d	36 dB	ΔMkr1 3	Auto Tuno
10.0 0.00 ▲1Δ2			Center Freq 2.441000000 GHz
-10.0 -20.0 -30.0 -40.0			<b>Start Freq</b> 2.441000000 GHz
	n an air an tha ann an an ann an ann an an ann an an a	n seles for an a star and the second second star and the second second second second second second second secon Second Second	<mark>해 아이지 (1997년) Stop Freq</mark> 제작자(111년) 2.441000000 GHz
Center 2.441000000 G Res BW 1.0 MHz	#VBW 3.0 MHz	S Sweep 10.00 ms (10 ICTION FUNCTION WIDTH FUNCTION	Auto Man
2 F 1 t 3 4 5 6 9	494.0 µs -17.53 dBm		Freq Offset
7 8 9 10 11			Log Lin
MSG Doints changed; all t	races cleared Dwell NVNT 1-DH3 244	1MHz Ant1 One Bur	st
Keysight Spectrum Analyzer - Swe RL RF 50 Ω     Center Freq 2.44100	AC SENSE:PULSE 10000 GHz PNO: Fast + Trig Delay-500.0 µs Trig: Video	#Avg Type: RMS TRAC	1Dec 06, 2024 E 1 2 3 4 5 6 E WWWWWW T P NNNNN
Ref Offset 3.3 10 dB/div Ref 20.00 d Log	IFGain:Low #Atten: 30 dB 36 dB 1BM	ΔMkr1 1.	
10.0 0.00 -10.0	1Δ2		Center Freq 2.441000000 GHz
-20.0 2			Start Freq 2.441000000 GHz
-50.0 (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100) (100)	l den en den segen de la serve la president de la serve de la s Fil de la serve	and the second	2.441000000 GHz
Center 2.441000000 G Res BW 1.0 MHz	#VBW 3.0 MHz	S Sweep 10.00 ms (10 ICTION   FUNCTION WIDTH   FUNCTIO	Auto Man
2 F 1 t 3 4 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1.643 ms (Δ) 8.81 dB 493.0 μs -16.69 dBm		Freq Offset □ Hz
7 8 9 10 11			Scale Type
•			

12 M 24



	Dwell NVNT 1	-DH5 2441M	Hz Ant1 On	e Burst	
Keysight Spectrum Analyzer - Sw X RL RF 50 Ω	1	SENSE:PULSE		11:53:34 AM Dec 06, 2024	
Center Freq 2.44100	PNO: Fast ++- Tr	ig Delay-500.0 μs #Α ig: Video .tten: 30 dB	vg Type: RMS	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNNN	Frequency
Ref Offset 3. 10 dB/div Ref 20.00			ΔΝ	lkr1 2.891 ms 3.13 dB	Auto Tune
Log 10.0 0.00 -10.0	1Δ2				Center Freq 2.441000000 GHz
20.0 X 2000 000,000 000,000 000,000 000,000 000,000 000,000 000,000 000,000 000,000 000,000 000,000 000,000 000					Start Freq 2.441000000 GHz
-50.0 4 70 4		en _{er} de la bisker d Anter de la bisker d			<b>Stop Freq</b> 2.441000000 GHz
Center 2.441000000 C Res BW 1.0 MHz	GHz #VBW 3.0			Span 0 Hz 0 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 6	× 2.891 ms (Δ) 493.0 μs -1	Y FUNCTION 3.13 dB 9.13 dBm	FUNCTION WIDTH	FUNCTION VALUE	Freq Offset
7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9					Scale Type
11 (				* 	
ISG Points changed; all	traces cleared				
	Dwell NVNT 2	-DH1 2441M	Hz Ant1 On	e Burst	
keysight Spectrum Analyzer - Sw RL RF 50 Ω Center Freq 2.44100	AC DO0000 GHz Tr PNO: Fast ↔→ Tr	SENSE:PULSE ig Delay-500.0 μs #Α' ig: Video tten: 30 dB	vg Type: RMS	03:01:28 PM Dec 06, 2024 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNNN	Frequency
Ref Offset 3. 0 dB/div Ref 20.00 (	36 dB		ΔΙ	Mkr1 398.0 µs 6.89 dB	Auto Tune
10.0 0.00 10.0 X2				TRIG LVL	Center Fred 2.441000000 GH:
					Start Free 2.441000000 GH:
	a ferdina fan fan de fan de Fan ferdina fan ferdina fan de fan Fan ferdina ferdina ferdina ferdina ferdina ferden ferden ferden ferden ferden ferden ferden ferden ferden fer	<mark>Alefjellin bei seinen sein Alefjellin bei seinen seine</mark>	<mark>e 1997 (</mark> na 1964) <mark>(na 1964 (na 1974)).</mark> Geographicae (na 1974 (na 1974))	Congraphics of the Solution Congraphics of the Solution of t	Stop Fred 2.441000000 GH;
Center 2.441000000 C Res BW 1.0 MHz	#VBW 3.0			Span 0 Hz 0 ms (10001 pts)	CF Step 1.000000 MHz Auto Mar
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3 4 5	X 398.0 μs 498.0 μs -	Y FUNCTION 6.89 dB 6.91 dBm	FUNCTION WIDTH	FUNCTION VALUE	Freq Offse
6 7 8 9 10					Scale Type
11					



_	Dwell NVN	IT 2-DH3 244 ⁻	1MHz Ant1 C	One Burst	
Keysight Spectrum Analyzer - Sw		SENSE:PULSE		02:02:47 040 04 2024	
Center Freq 2.44100		Trig Delay-500.0 µs → Trig: Video #Atten: 30 dB	#Avg Type: RMS	03:02:47 PM Dec 06, 2024 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset 3. 10 dB/div Ref 20.00	36 dB		1	∆Mkr1 1.647 ms 0.52 dB	Auto Tune
10.0					Center Freq
	1Δ2			TRIG LVL	2.441000000 GHz
-20.0					<b>Start Freq</b> 2.441000000 GHz
-40.0	Territoria a constanti di Batta degli se su	na presidente de la companya de la c	a a film of the th shows the program is the second	p. And and a start of the start	
60.0 (14) ( 70.0		nipelle for the planet of a prove for the			Stop Freq 2.441000000 GHz
Center 2.441000000 C Res BW 1.0 MHz		N 3.0 MHz	Sweep 1	Span 0 Hz 0.00 ms (10001 pts)	CF Step 1.000000 MHz
MKR MODE TRC SCL	× 1.647 ms (Δ)				<u>Auto</u> Man
2 F 1 t 3 4 5 5	<u>363.0 µs</u>	-13.87 dBm		E	Freq Offset 0 Hz
6 7 8 9					Scale Type
					Log <u>Lin</u>
ISG iPoints changed; all	traces cleared		STATU	JS	
		T 2-DH5 244 ⁻		no Buret	
Keysight Spectrum Analyzer - Sw	ept SA	SENSE:PULSE		12:06:03 PM Dec 06, 2024	
Center Freq 2.44100	00000 GHz PNO: Fast ↔ IFGain:Low	Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET PNNNNN	Frequency
Ref Offset 3. 10 dB/div Ref 20.00				∆Mkr1 2.895 ms -1.30 dB	Auto Tune
10.0 0.00					Center Freq 2.441000000 GHz
	1Δ2			TRIG LVL	
-30.0					Start Freq 2.441000000 GHz
-50.0 y ₌₀		n lan an halad sa an pan na mang kata pata (Lan kalan) ka katal pan na katal pata na ka	ando listo - standa a di de , da a posta en de secondo a di 1999 e la conte de se	- ye - faran aya ay kayada ta fa farkanyi fa ye ye (bu data aya aya da ye yekati ta far da yeka yekati yekati yekati yekati yekati yekati yekati yekati yekati	Stop Freq
-60.0			والمساوية ومصاديه والمسالية والمسالية	lled months for adding the	2.441000000 GHz
Center 2.441000000 C Res BW 1.0 MHz		N 3.0 MHz	Sweep 1	Span 0 Hz 5.33 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	× 2.895 ms (Δ) 361.9 μs		CTION FUNCTION WIDTH	FUNCTION VALUE	
3 4 5				E	Freq Offset 0 Hz
6 7 8 9					Scale Type
10				-	Log <u>Lin</u>
<	traces cleared	m	STATU	IS IS	



Keysight Spectrum Analyzer - Swept SA         Image: Constraint of the system of
Center Freq 2.441000000 GHz         Trig Delay-500.0 µs         #Avg Type: RMS         TRACE         12 3 4 5 G         Frequency           PNO: Fast         →         Trig Delay-500.0 µs         #Avg Type: RMS         Trace         12 3 4 5 G         Frequency           PNO: Fast         →         Trig Delay-500.0 µs         #Avg Type: RMS         Trace         12 3 4 5 G         Frequency           It is Compared to the state         Auto Tur         Trig Delay-500.0 µs         #Atten: 30 dB         Auto Tur           It delay-500.0 µs         #Atten: 30 dB         Center Frequency         Auto Tur           It delay-500.0 µs         1Δ2         Trig Delay-500.0 µs         2.29 dB         Auto Tur           It delay-500.0 µs         1Δ2         Trig Delay-500.0 µs         2.441000000 GH         Center Frequency           It delay-500.0 µs
Ref Offset 3.36 dB         Auto Tur           0 dB/div         Ref 20.00 dBm         2.29 dB         Center Fre           100         1A2         TROLVL         Center Fre         2.44100000 GF           200         200         TROLVL         TROLVL         Start Fre           300         100         2.44100000 GF         2.44100000 GF         2.44100000 GF
100     Δ2     Δ3
-20.0
-500 on the second state of the second state o
Center 2.441000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.00 ms (10001 pts)
MICR MODE TRC SCL X Y Y FUNCTION FUNCTION WIDTH FUNCTION VALUE 1 A2 1 t (A) 396.0 µs (A) 2.29 dB 2 F 1 t 364.0 µs -12.80 dBm 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
6 7 8 9 10 10
ISG Departure Points changed; all traces cleared
Dwell NVNT 3-DH3 2441MHz Ant1 One Burst
Keysight Spectrum Analyzer - Swept SA
C RL RF 50 Ω AC SENSE:PULSE 03:05:49 PM Dec 06, 2024 Center Freq 2.441000000 GHz Trigo Delay-500.0 μs #Avg Type: RMS TRACE 12 34 5 G PNO: Fast +→→ Trig: Video Trig: Video Det PNNNNN IFGainLow #Atten: 30 dB Det PNNNNN
Ref Offset 3.36 dB Auto Tur Ref 20.00 dBm 7.06 dB 7.06 dB
100 000 102 102 102 102 102 102
200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200         200
-500 hung
Center 2.441000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.00 ms (10001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE 1 Δ2 1 t (Δ) 1.649 ms (Δ) 7.06 dB 2 F 1 t 498.0 μs -7.27 dBm 5
6 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
ISG DPoints changed; all traces cleared

ep



Dwell	INVNT 3-DH5	2441MHz Ant1	One Burst	
Keysight Spectrum Analyzer - Swept SA     RL RF 50 Ω AC     Center Freq 2.441000000 GHz PNN	Z D: Fast ↔ Trig Delay-50 Trig: Video		02:27:34 PM Dec 06, 2024 TRACE 1 2 3 4 5 6 TYPE WWWWW	Frequency
IFGa Ref Offset 3.36 dB 10 dB/div Ref 20.00 dBm	ain:Low #Atten: 30 dE	3	ΔMkr1 2.897 ms 4.19 dB	Auto Tune
Logy 10.0 0.00	142		TRIG LVL	Center Freq 2.441000000 GHz
-10.0 -20.0 -30.0 -40.0				<b>Start Freq</b> 2.441000000 GHz
-50.0 /////	han jarda dan terketa bahar pertekan New Para II pilateta pahar pertekan New Para II pilateta pahar pertekan	na telanippuna ang ang ang ang ang ang ang ang ang a	un den fallen pol ⁱ nske konfertier politiker ødet in den sjon på _e den in de fallen og bester i	<b>Stop Freq</b> 2.441000000 GHz
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep	Span 0 Hz 10.00 ms (10001 pts)	CF Step 1.000000 MHz Auto Man
	97 ms (Δ) 4.19 dB 4.0 μs -14.56 dBm	FUNCTION FUNCTION WE	FUNCTION VALUE	Freq Offset 0 Hz
7 8 9 10 11				Scale Type
MSG Doints changed; all traces cleared	m ed	<b>I</b> ∕₀ st/	TUS	

Page: 77 of 81



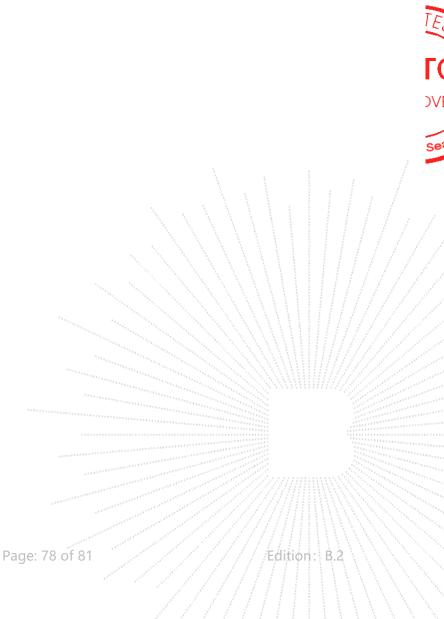
### 15. Antenna Requirement

#### 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.





# 16. EUT Test Setup Photographs

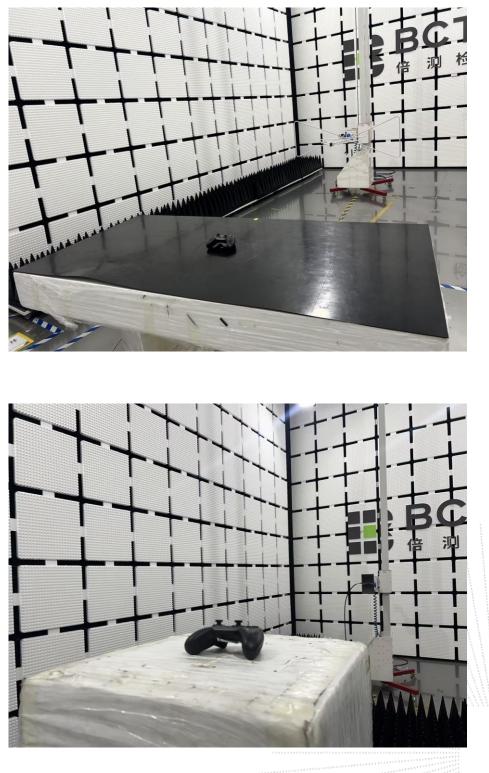
Conducted Emission Measurement Photos



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, Zhancheng, 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 *****

Page: 81 of 81