

TEST REPORT

Report No.:	BCTC2207367811E					
Applicant:	Guangdong Xizhongxi Technology Co., Ltd.					
Product Name:	TWS Bluetooth headset					
Model/Type Ref.:	W01					
Tested Date:	2022-07-26 to 2022-08-02					
Issued Date:	2022-08-02					
She	enzhen BCTC Testing Co., Ltd. Page 1 of 66					



FCC ID: 2A5LA-W01

Product Name:	TWS Bluetooth headset
Trademark:	N/A
Model/Type Ref.:	W01
Prepared For:	Guangdong Xizhongxi Technology Co., Ltd.
Address:	Building 7, No. 1, Jizhou Middle Road, Daojiao Town, Dongguan City, Guangdong Province, China
Manufacturer:	Guangdong Xizhongxi Technology Co., Ltd.
Address:	Building 7, No. 1, Jizhou Middle Road, Daojiao Town, Dongguan 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, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2022-07-26
Sample tested Date:	2022-07-26 to 2022-08-02
Issue Date:	2022-08-02
Report No.:	BCTC2207367811E
Test Standards:	FCC Part15.247 ANSI C63.10-2013
Test Results:	PASS / / / / / / / / / / / / / / / /
Remark:	This is Bluetooth Classic radio test report.
Tested	by: Approved by:

Chen

Lei Chen/Project Handler

Zero Zhou/Reviewer

Edition

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

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(Note: N/A Means Not Applicable)

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1. Version

Report No.	Issue Date	Description	Approved
BCTC2207367811E	2022-08-02	Original	Valid

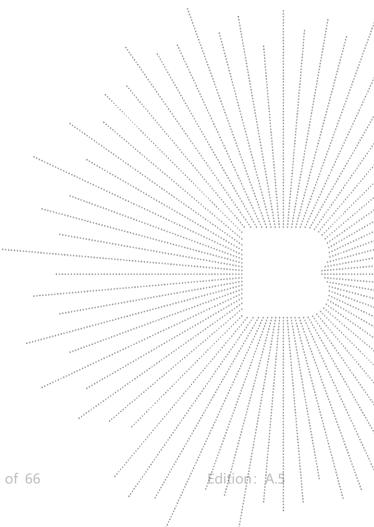
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2. Test Summary

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





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(9kHz-30MHz)	U=3.7dB
2	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
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°C



4. Product Information And Test Setup

4.1 Product Information

Model/Type Ref.:	W01
Model differences:	N/A
Bluetooth version:	BT5.3
Operation Frequency:	2402-2480MHz
Type of Modulation:	GFSK, π/4DQPSK
Number Of Channel	79CH
Antenna installation:	Chip antenna
Antenna Gain:	1.9dBi
Ratings:	USB: DC 5V, Battery: DC 3.7V

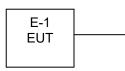
4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission:



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model Series No. Note		
E-1	TWS Bluetooth headset	N/A	WÖ1 N/A EUT ///		
E-2	Adapter	N/A	BCTC001 N/A Auxiliary		

ltem	Shielded Type	Ferrite Core	Length
C-1	NO	NO	0.5M DC cable unshielded

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.



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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	/

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/4DQPSK)	2402MHz	2441MHz	2480MHz		
3	Cha	arging(Conducted	emission)			
4	Transmitting (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 1.0,1.1
Frequency	2402 MHz	2441 MHz 2480 MHz
Parameters	DEF	



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, Zhancheng, 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 24, 2022	May 23, 2023	
LISN	R&S	ENV216	101375	May 24, 2022	May 23, 2023	
Software	Frad	EZ-EMC	EMC-CON 3A1	/	1	
Attenuator	/	10dB DC-6GHz	1650	May 24, 2022	May 23, 2023	

/ mondator		DC-6GHz	1000	111ay 2 1, 2022	11111 20, 2020
				. \	
		RF Cond	ducted Test		
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power Metter	Keysight	E4419	۸	May 24, 2022	May 23, 2023
Power Sensor (AV)	Keysight	E9300A	\	May 24, 2022	May 23, 2023
Signal Analyzer20kH z-26.5GHz	Keysight	N9020A	MY49100060	May 24, 2022	May 23, 2023
Spectrum Analyzer9kHz- 40GHz	R&S	FSP40	١	May 24, 2022	May 23, 2023

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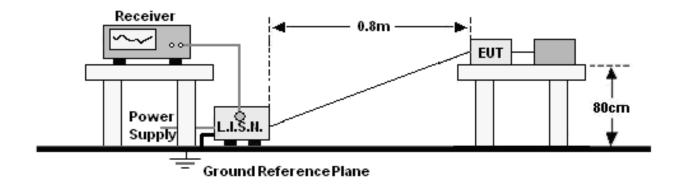
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	May 24, 2022	May 23, 2023
Receiver	R&S	ESRP	101154	May 24, 2022	May 23, 2023
Amplifier	SKET	LAPA_01G18 G-45dB	١	May 24, 2022	May 23, 2023
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 24, 2022	May 23, 2023
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 26, 2022	May 25, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	1541	Jun. 06, 2022	Jun. 05, 2023
Horn Antenn(18GHz -40GHz)	Schwarzbeck	BBHA9170	00822	Jun. 06, 2022	Jun. 05, 2023
Amplifier(18G Hz-40GHz)	MITEQ	TTA1840-35- HG	2034381	May 26, 2022	May 25, 2023
Loop Antenna(9KHz -30MHz)	Schwarzbeck	FMZB1519B	00014	May 26, 2022	May 25, 2023
RF cables1(9kHz- 30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-00 08	May 26, 2022	May 25, 2023
RF cables2(30MH z-1GHz)	Huber+Suhnar	30MHz-1GH z	1486150	May 26, 2022	May 25, 2023
RF cables3(1GHz- 40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	May 26, 2022	May 25, 2023
Power Metter	Keysight	E4419	/ ····	May 26, 2022	May 25, 2023
Power Sensor (AV)	Keysight	E9300A	····	May 26, 2022	May 25, 2023
Signal Analyzer20kHz -26.5GHz	Keysight	N9020A	MY49100060	May 26, 2022	May 25, 2023
Spectrum Analyzer9kHz- 40GHz	R&S	FSP40	Γ	May 26, 2022	May 25, 2023
Software	Frad	EZ-EMC	FA-03A2 RE		

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6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

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

1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies

6.3 Test Procedure

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

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

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

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

6.4 EUT Operating Conditions

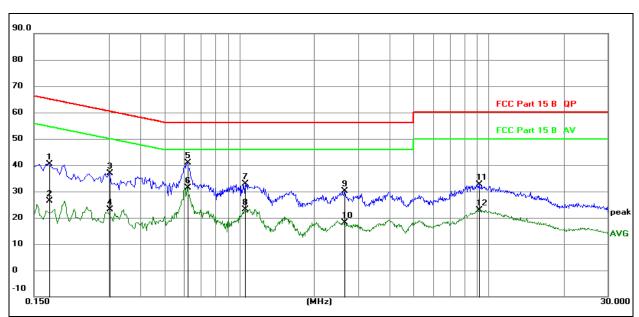
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



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6.5 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Voltage :	AC120V/60Hz	Test Mode:	Mode 3



Remark:

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

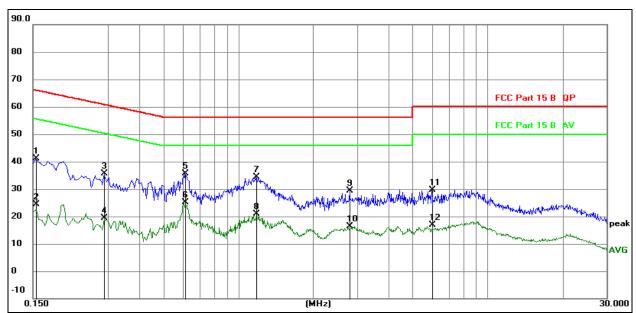
					-		
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz		dB	dBuV	dBuV	dB	Detector
1	0.1722	20.68	19.73	40.41	64.85	-24.44	QP
2	0.1722	6.68	19.73	26.41	54.85	-28.44	AVG
3	0.3019	17.21	19.77	36.98	60.19	-23.21	QP
4	0.3019	3.37	19.77	23.14	50.19	-27.05	AVG
5	0.6173	21.08	19.73	40.81	56.00	-15.19	QP
6 *	0.6173	11.70	19.73	31.43	46.00	-14.57	AVG
7	1.0541	13.06	19.77	32.83	56.00	-23.17	QP
8	1.0541	3.42	19.77	23.19	46.00	-22.81	AVG
9	2.6500	10.24	19.95	30.19	56.00	-25.81	QP
10	2.6500	-1.84	19.95	18.11	46.00	-27.89	AVG
11	9.1557	12.50	20.25	32.75	60.00	-27.25	QP
12	9.1557	2.74	20.25	22.99	50.00	-27.01	AVG

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Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	AC120V/60Hz	Test Mode:	Mode 3



Remark:

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

3. Measurement=Reading Level+ Correct Factor

4. Over=Measurement-Limit

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz		dB	dBuV	dBuV	dB	Detector
1	0.1545	21.43	19.68	41.11	65.75	-24.64	QP
2	0.1545	4.69	19.68	24.37	55.75	-31.38	AVG
3	0.2895	15.82	19.78	35.60	60.54	-24.94	QP
4	0.2895	-0.51	19.78	19.27	50.54	-31.27	AVG
5 *	0.6134	15.90	19.73	35.63	56.00	-20.37	QP
6	0.6134	5.40	19.73	25.13	46.00	-20.87	AVG
7	1.1805	14.62	19.78	34.40	56.00	-21.60	QP
8	1.1805	0.99	19.78	20.77	46.00	-25.23	AVG
9	2.8050	9.36	19.97	29.33	56.00	-26.67	QP
10	2.8050	-3.63	19.97	16.34	46.00	-29.66	AVG
11	5.9820	9.48	20.15	29.63	60.00	-30.37	QP
12	5.9820	-3.20	20.15	16.95	50.00	-33.05	AVG

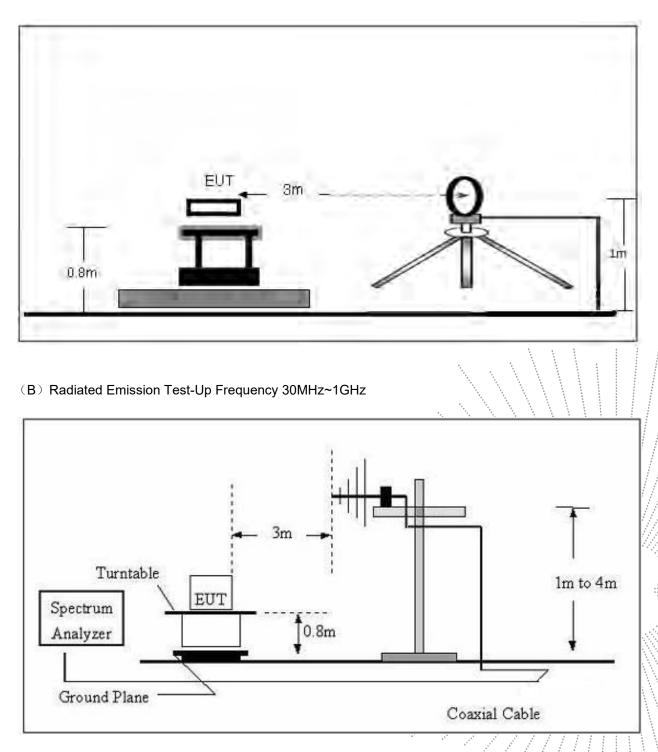


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7. Radiated Emissions

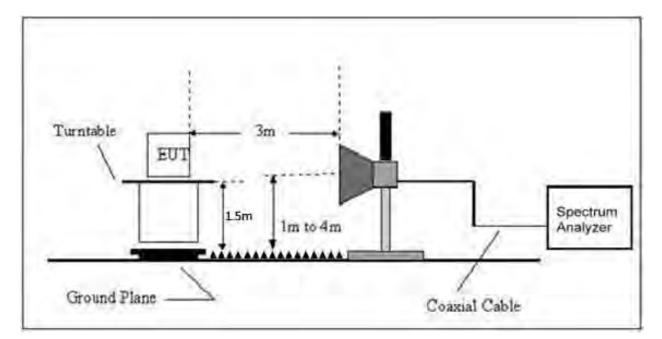
7.1 Block Diagram Of Test Setup

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





(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	Lir	mit (dBuV/m) (at 3M)
(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).



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 chamber. 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:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).

h. Test the EUT in the lowest channel ,the middle 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.

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 chamber. 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.



Edition:

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 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.

7.5 Test Result

Below 30MHz

26 ℃	Relative	Humidity:	24%	
101 kPa	Test Vo	tage :	AC120V/60Hz	
Mode 4	Polariza	tion :		
Reading	Limit	Margin	State	
(dBuV/m)	(dBuV/m)	(dB)	P/F	
		<u> </u>	PASS	
			PASS	
	101 kPa Mode 4 Reading (dBuV/m) 	101 kPa Test Vol Mode 4 Polariza Reading Limit (dBuV/m) (dBuV/m)	101 kPa Test Voltage : Mode 4 Polarization : Reading Limit (dBuV/m) (dBuV/m)	

Note:

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

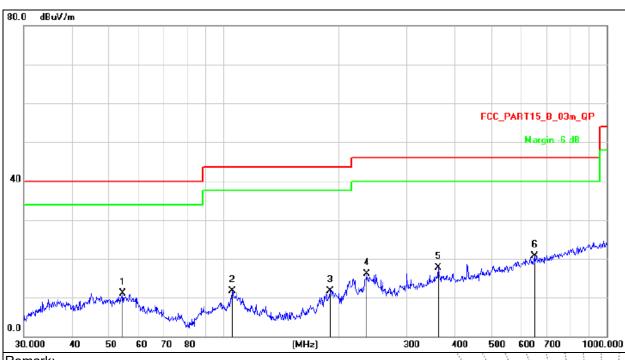
Distance extrapolation factor =40 log (specific distance/test distance)(dB); Limit line = specific limits(dBuv) + distance extrapolation factor.



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Between 30MHz - 1GHz

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 4	Remark:	N/A



Remark:

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

2. Measurement=Reading Level+ Correct Factor

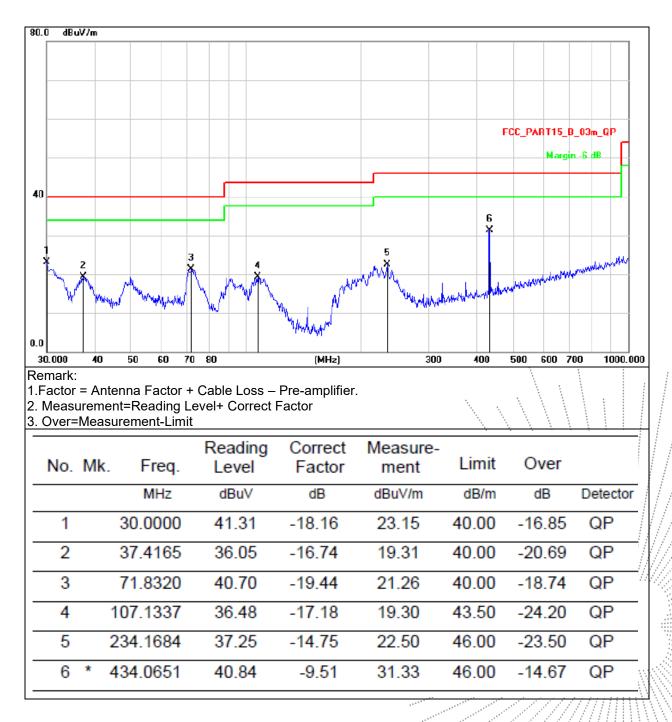
3. Over=Measurement-Limit

No.	M	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		54.4516	26.85	-15.70	11.15	40.00	-28.85	QP
2		105.2718	28.72	-17.06	11.66	43.50	-31.84	QP
3		189.7385	28.51	-16.75	11.76	43.50	-31.74	QP
4		235.8164	30.87	-14.69	16.18	46.00	-29.82	QP
5		362.9844	28.46	-10.71	17.75	46.00	-28.25	QP
6	*	649.6597	25.34	-4.72	20.62	46.00	-25.38	QP

No.: BCTC/RF-EMC-005



Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 4	Remark:	N/A





Polar	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	Туре
			GFSK Low ch	annel			
V	4804.00	54.59	-0.43	54.16	74.00	-19.84	PK
V	4804.00	43.65	-0.43	43.22	54.00	-10.78	AV
V	7206.00	46.42	8.31	54.73	74.00	-19.27	PK
V	7206.00	36.56	8.31	44.87	54.00	-9.13	AV
Н	4804.00	52.90	-0.43	52.47	74.00	-21.53	PK
Н	4804.00	42.09	-0.43	41.66	54.00	-12.34	AV
Н	7206.00	44.50	8.31	52.81	74.00	-21.19	PK
Н	7206.00	35.79	8.31	44.10	54.00	-9.90	AV
		G	FSK Middle c	hannel			
V	4882.00	50.62	-0.38	50.24	74.00	-23.76	PK
V	4882.00	42.50	-0.38	42.12	54.00	-11.88	AV
V	7323.00	40.51	8.83	49.34	74.00	-24.66	PK
V	7323.00	31.61	8.83	40.44	54.00	-13.56	AV
Н	4882.00	46.64	-0.38	46.26	74.00	-27.74	PK
Н	4882.00	35.77	-0.38	35.39	54.00	-18.61	AV
Н	7323.00	38.30	8.83	47.13	74.00	-26.87	PK
Н	7323.00	29.74	8.83	38.57	54.00	-15.43	AV
		(GFSK High ch	annel	<u> </u>		
V	4960.00	53.39	-0.32	53.07	74.00	-20.93	PK
V	4960.00	43.61	-0.32	43.29	54.00	-10.71	AV
V	7440.00	45.36	9.35	54.71	74.00	-19.29	PK
V	7440.00	35.12	9.35	44.47	54.00	-9.53	AV
Н	4960.00	51.66	-0.32	51.34	74.00	-22.66	PK
Н	4960.00	40.73	-0.32	40.41	54.00	-13.59	AV
Н	7440.00	43.43	9.35	52.78	74.00	-21.22	PK
Н	7440.00	36.03	9.35	45.38	54.00	-8.62	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.

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

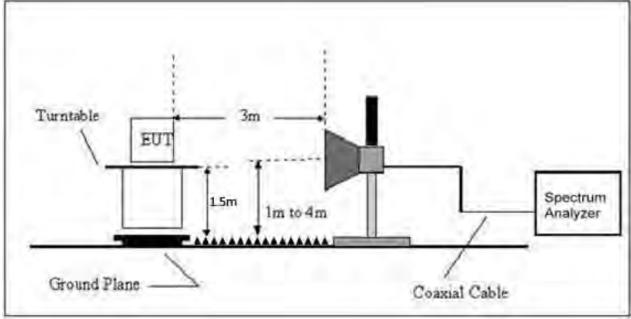
5.All the Modulation are test, the worst mode is GFSK, the data recording in the report.



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

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 / 1/T Hz 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 chamber. 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 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.



Edition: A 5

8.5 Test Result

	Polar (H/V)		Level Factor		Measure- ment (dBuV/m)	Limits (dBuV/m)		Result
	(111 •)	(11112)	(dBuV/m)	n) (dB)	РК	РК	AV	
	Low Channel 2402MHz							
	Н	2390.00	53.35	-6.70	46.65	74.00	54.00	PASS
	Н	2400.00	57.37	-6.71	50.66	74.00	54.00	PASS
	V	2390.00	52.74	-6.70	46.04	74.00	54.00	PASS
GFSK	V	2400.00	57.31	-6.71	50.60	74.00	54.00	PASS
Gran		High Channel 2480MHz						
	Н	2483.50	55.84	-6.79	49.05	74.00	54.00	PASS
	Н	2500.00	52.62	-6.81	45.81	74.00	54.00	PASS
	V	2483.50	56.59	-6.79	49.80	74.00	54.00	PASS
	V	2500.00	54.04	-6.81	47.23	74.00	54.00	PASS
			Low	Channel 24	402MHz			
	Н	2390.00	54.15	-6.70	47.45	74.00	54.00	PASS
	Н	2400.00	58.16	-6.71	51.45	74.00	54.00	PASS
	V	2390.00	53.84	-6.70	47.14	74.00	54.00	PASS
π/4DQPSK	V	2400.00	56.87	-6.71	50.16	74.00	54.00	PASS
II/4DQF3N			High	n Channel 2	480MHz			
	Н	2483.50	58.14	-6.79	51.35	74.00	54.00	PASS
	Н	2500.00	53.55	-6.81	46.74	74.00	54.00	PASS
	V	2483.50	57.43	-6.79	50.64	74.00	54.00	PASS
Dementer	V	2500.00	53.02	-6.81	46.21	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. Conducted Emission

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;

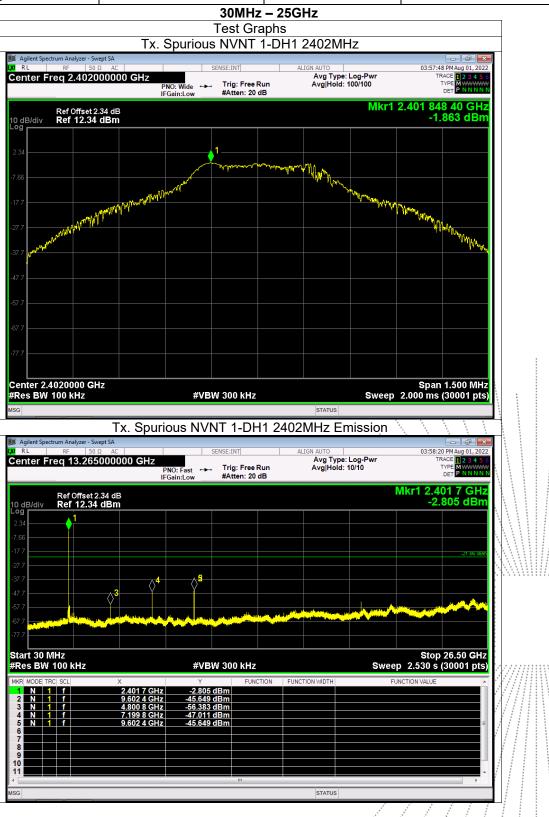
2. Set the spectrum analyzer: Below 1GHz: RBW = 100kHz, VBW = 300kHz, Sweep = auto Detector function = peak, Trace = max hold Above 1GHz: RBW = 100kHz, VBW = 300kHz, Sweep = auto Detector function = peak, Trace = max hold



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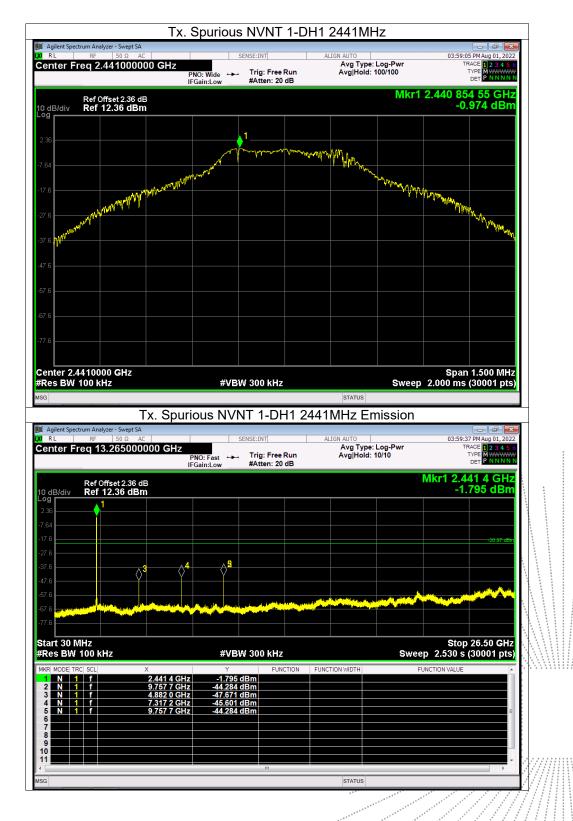
9.4 Test Result

Temperature :	26 ℃	Relative Humidity:	54%
Test Voltage :	AC120V/60Hz	Remark:	N/A



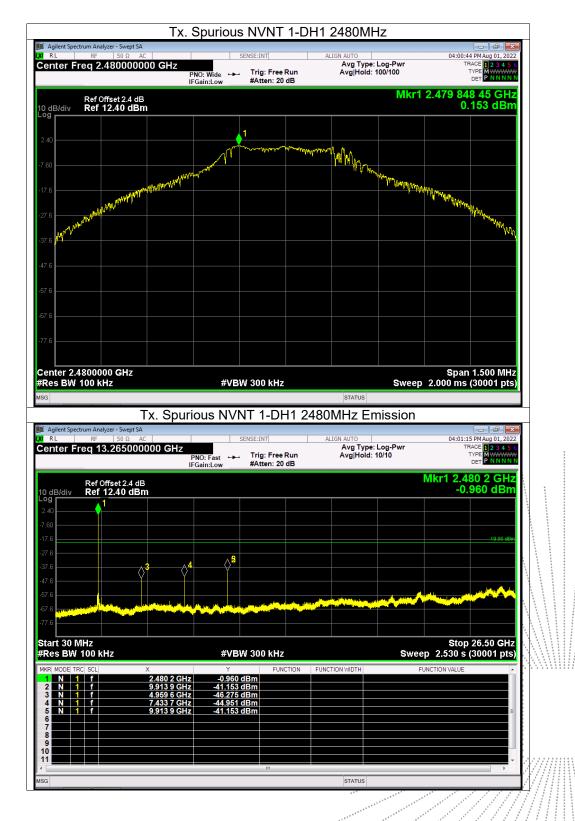


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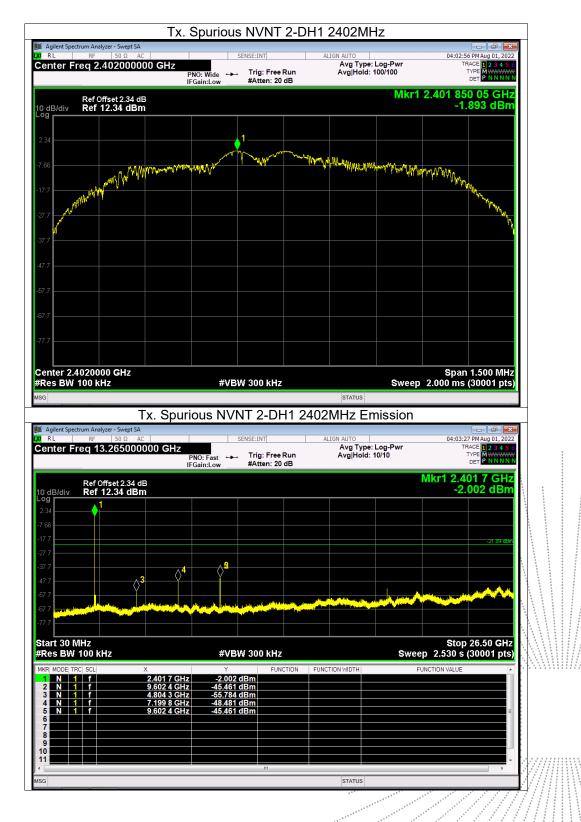


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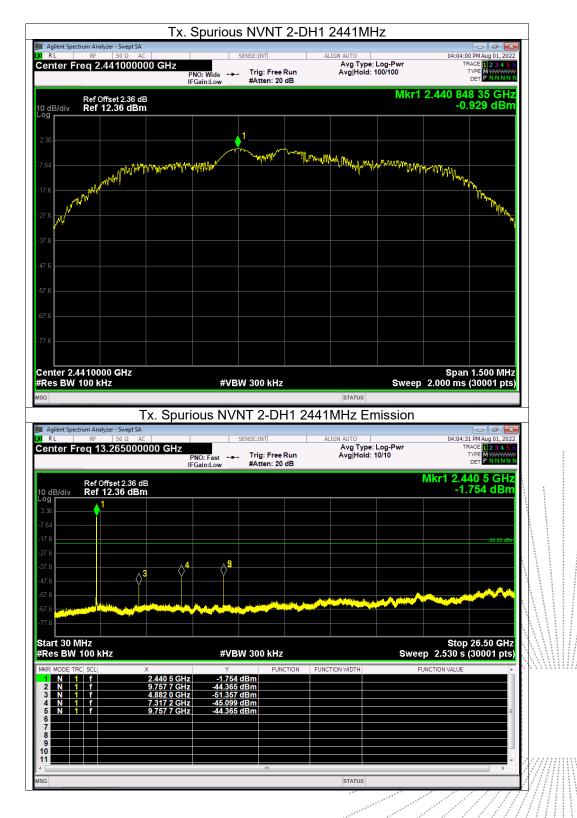


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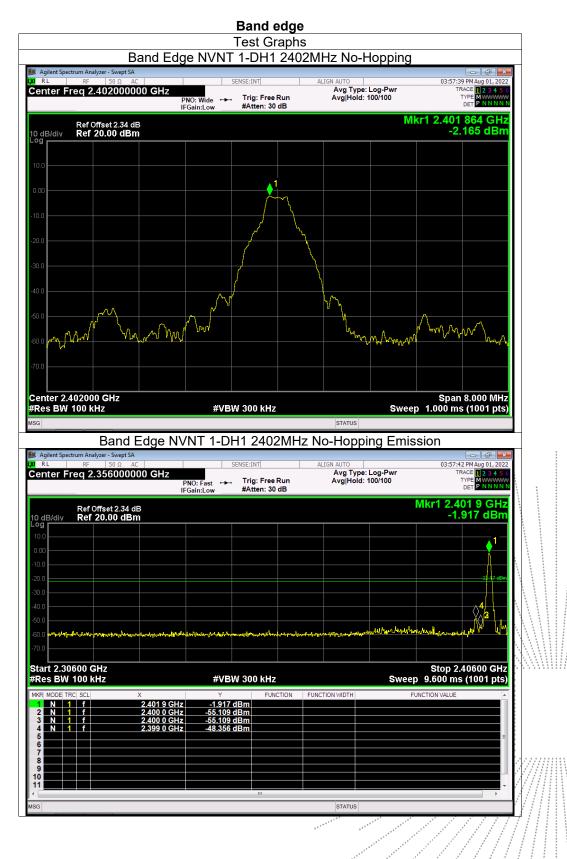
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Agilent Spectrum Analy: RL RF enter Freq 2.4	50 Ω AC	PN	O:Wide ↔	SENSE:INT		ALIGN AUTO Avg Type: Avg Hold:		04:05	12 PM Aug 01, 2022 TRACE 1 2 3 4 5 6 TYPE M
Ref Of	set 2.4 dB	IFG	ain:Low	#Atten: 2	20 dB		Mkr'		50 30 GHz 0.141 dBm
dB/div Ref 1	2.40 dBm								
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nter 2.480000 es BW 100 kH			40.7E				ā	Spa	n 1.500 MHz
			#*V =	5VV 3UU KH	Z		Swee	J 2.000 IIIS	S (30001 DIS)
				3W 300 kH		STATUS		5 2.000 ms	s (30001 pts)
1	Tx	. Spuric				status 0MHz Er		5 2.000 ms	
Agilent Spectrum Analy: R L RF	Tx zer - Swept SA 50 Ω AC	0 GHz	ous NV	NT 2-D	H1 248		nission	04:05	43 PM Aug 01, 2022 TRACE 2 3 4 5 6
Agilent Spectrum Analy, RL RF Inter Freq 13	Tx ter - Swept SA 50 Ω AC 265000000	0 GHz		NT 2-D	H1 248	OMHZ Er	nission	04:05	143 PM Aug 01, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P.N.N.N.N.
Agilent Spectrum Analy: RL RF Inter Freq 13 Ref Of dB/div Ref 1	Tx zer - Swept SA 50 Ω AC	0 GHz	ous NV	/NT 2-D sense:int → Trig: Fre	H1 248		nission	04:05 Mkr1 2.4	43 PM Aug 01, 2022 TRACE 2 3 4 5 6
Agilent Spectrum Analy, RL RF enter Freq 13 Ref 0f dB/div Ref 1	Tx ter - Swept SA 50 Ω AC 26500000 fset 2.4 dB	0 GHz	ous NV	/NT 2-D sense:int → Trig: Fre	H1 248		nission	04:05 Mkr1 2.4	43 PM Aug 01, 2022 TYPE M 23 45 0 TYPE M WWWW DET P NNNNN 480 2 GHZ
Ref Of dB/div Ref 1	Tx ter - Swept SA 50 Ω AC 26500000 fset 2.4 dB	0 GHz	ous NV	/NT 2-D sense:int → Trig: Fre	H1 248		nission	04:05 Mkr1 2.4	43 PM Aug 01, 2022 TYPE M 23 45 0 TYPE M WWWW DET P NNNNN 480 2 GHZ
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Agilent Spectrum Analy, RL RF Inter Freq 13 B/div Ref 0 0 0 6 6	Tx ter - Swept SA 50 Ω AC 26500000 fset 2.4 dB	0 GHz	DUS NV I0: Fast ↔	/NT 2-D SENSE:INT → Trig: Fre #Atten: 2	H1 248		nission	04:05 Mkr1 2.4	43 PM Aug 01, 2022 TYPE M 23 45 0 TYPE M WWWW DET P NNNNN 480 2 GHZ
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Agilent Spectrum Analyz RL RF onter Freq 13 Ref 0 dB/div Ref 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	Tx ter - Swept SA 50 Ω AC 265000000 fset 2.4 dB 2.40 dBm	0 GHz PN IFG	OUS NV	NT 2-D SENSE:INT → Trig: Fre #Atten: 2	H1 248	ALIGN AUTO	mission Log-Pwr 10/10	04:05	43 PM Aug 01, 2022 TYPE M 23 45 0 TYPE M WWWW DET P NNNNN 480 2 GHZ
Agilent Spectrum Analy RL RF Inter Freq 13 Ref Of B/div Ref 1 9 0 0 0 0 0 0 0 0 0 0 0 0 0	Tx er - Swept SA 50 Q AC 265000000 fset 2.4 dB 2.40 dBm 3 4 3 4 4 4 2 4 4 4 4 4 4 4 4 4 4 4 4 4	0 GHz PM IFC	00: Fast 00: Fast in:Low #VE Y -0.702 -0.702	'NT 2-D SENSE:INT → Trig: Fre #Atten: 2 3W 300 kH 5 dBm	H1 248		mission Log-Pwr 10/10	04:05	43 PM Aug 01, 2022 TRACE 1 23 4 5 6 TYPE M X X X X X X X X X X X X X X X X X X
Agilent Spectrum Analyz RL RF enter Freq 13 Ref 0 dB/div Ref 1 G G G G G G G G G G G G G	T χ ter - Swept SA 50 Ω AC 265000000 fset 2.4 dB 2.40 dBm 4 2.40 dBm 3 4 2.40 dBm 4 2.40 dBm 4	0 GHz PM IFG 4 4 4 4 4 4 4 4 4 4 4 4 4	0: Fast 0: Fast → 0: Fast → 0: 0: Fast → 0: () () ()) () ()) () () () () ()) () (VNT 2-D SENSE:INT → Trig: Fre #Atten: 2 BW 300 kH 5 dBm 3 dBm 7 dBm	H1 248	ALIGN AUTO	mission Log-Pwr 10/10	04:05	43 PM Aug 01, 2022 TRACE 1 23 4 5 6 TYPE M X X X X X X X X X X X X X X X X X X
Agilent Spectrum Analy, RL RF onter Freq 13 Ref 0f dB/div Ref 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	T χ ter - Swept SA 50 Ω AC 265000000 fset 2.4 dB 2.40 dBm 4 2.40 dBm 3 4 2.40 dBm 4 2.40 dBm 4	0 GHz PM IFG 4 4 4 4 4 80 2 GHz 913 9 GHz 939 9 GHz	DUS NV IO: Fast → iain:Low #VE ¥VE Y -0.705 -0.705 -0.705	VNT 2-D SENSE:INT → Trig: Fre #Atten: 2 BW 300 kH 5 dBm 3 dBm 7 dBm	H1 248	ALIGN AUTO	mission Log-Pwr 10/10	04:05	43 PM Aug 01, 2022 TRACE 1 23 4 5 6 TYPE M X X X X X X X X X X X X X X X X X X
Agilent Spectrum Analyz RL RF enter Freq 13 Ref 0 dB/div Ref 1 G G G G G G G G G G G G G	T χ ter - Swept SA 50 Ω AC 265000000 fset 2.4 dB 2.40 dBm 4 2.40 dBm 3 4 2.40 dBm 4 2.40 dBm 4	0 GHz PM IFG 4 4 4 4 4 4 4 4 4 4 4 4 4	0: Fast 0: Fast → 0: Fast → 0: 0: Fast → 0: () () ()) () ()) () () () () ()) () (VNT 2-D SENSE:INT → Trig: Fre #Atten: 2 BW 300 kH 5 dBm 3 dBm 7 dBm	H1 248	ALIGN AUTO	mission Log-Pwr 10/10	04:05	43 PM Aug 01, 2022 TRACE 1 23 4 5 6 TYPE M X X X X X X X X X X X X X X X X X X

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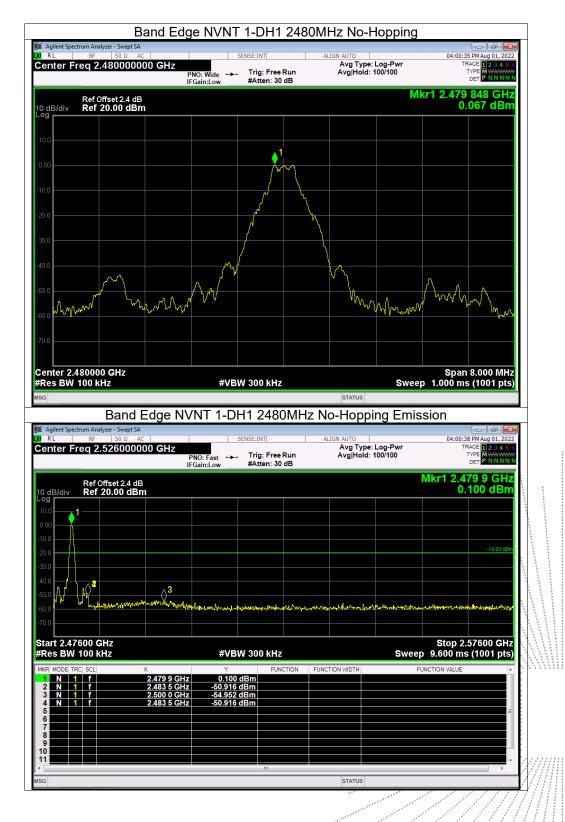


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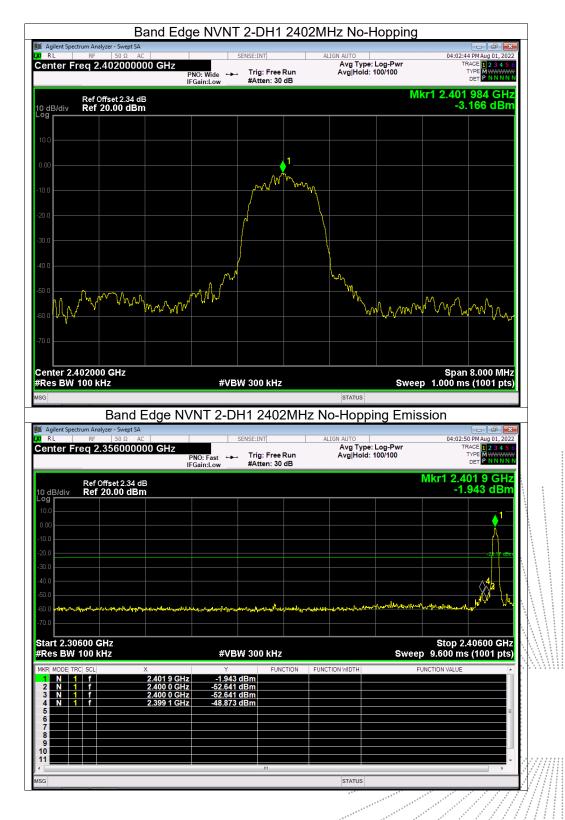


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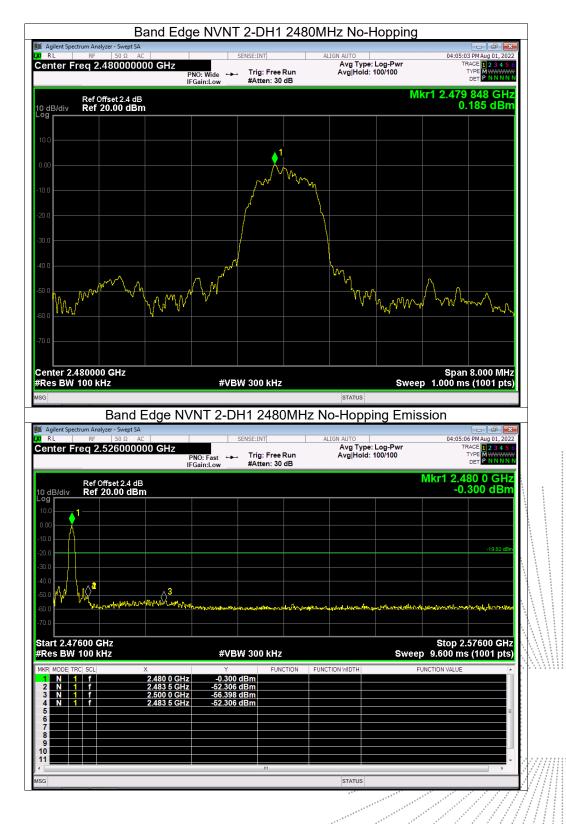


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A:5

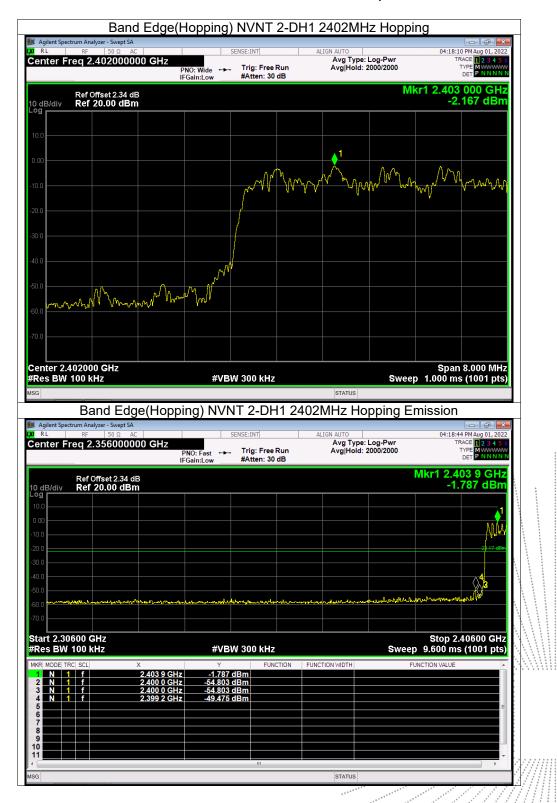
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Edition:

10. 20 dB Bandwidth

10.1 Block Diagram Of Test Setup



10.2 Limit

N/A

10.3 Test Procedure

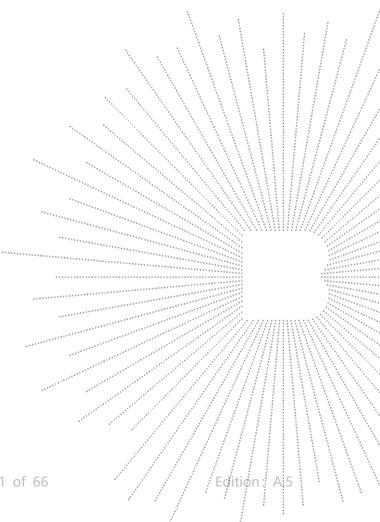
- 1. Set RBW = 30kHz.
- 2. Set the video bandwidth (VBW) \ge 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.

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 20 dB relative to the maximum level measured in the fundamental emission.



10.4 Test Result

Temperature :	26 ℃		Relative Humidit	umidity : 54%		
Test Voltage :	AC120	V/60Hz	Remark:		N/A	
Modulation		Test Cha	innel		Bandwidth(MHz)	
GFSK		Low		0.869		
GFSK		Middl	e	0.842		
GFSK		High	1	0.858		
π/4DQPSK	π/4DQPSK			1.237		
π/4DQPSK		Middl	e	1.233		
π/4DQPSK		High	ı	1.251		









Edition: A.5





Edition: A.5





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.

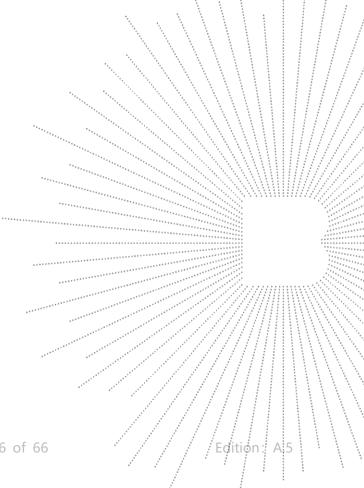
- 2. Set the spectrum analyzer: RBW = 2MHz. VBW = 6MHz. Sweep = auto; Detector Function = Peak.
- 3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

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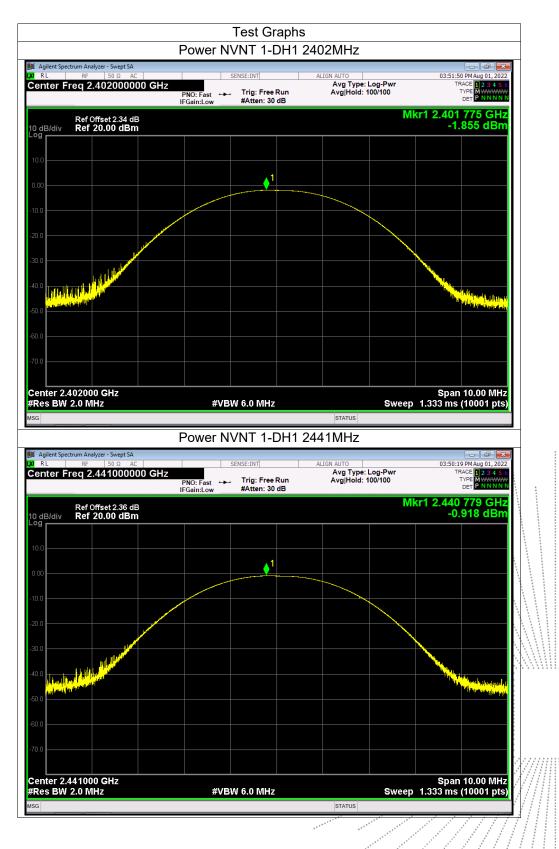
11.4 Test Result

Temperature :	26 ℃	Relative Humidity :	54%	
Test Voltage :	AC120V/60Hz	Remark:	N/A	
Modulation	Test Channel	Output Power (dBm)		Limit (dBm)
GFSK	Low	-1.86		21
GFSK	Middle	-0.92		21
GFSK	High	0.2		21
π/4DQPSK	Low	-0.97		21
π/4DQPSK	Middle	-0.02		21
π/4DQPSK	High	1.04		21

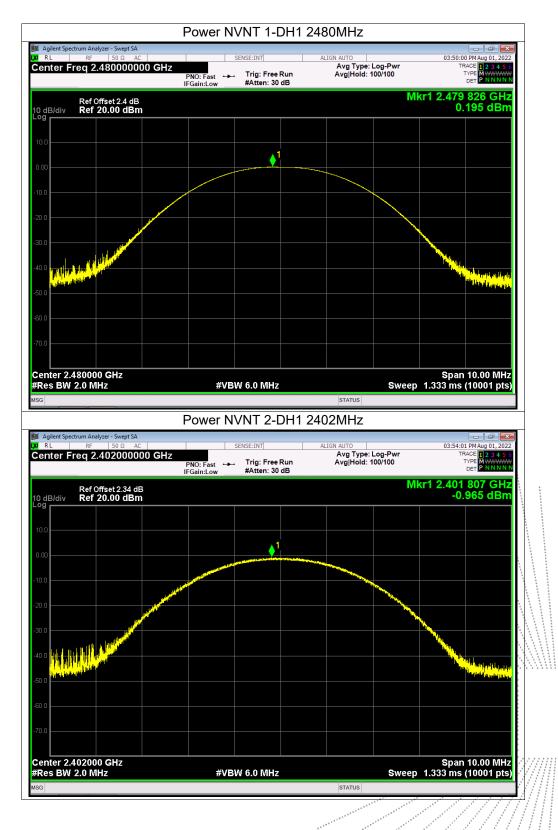


No.: BCTC/RF-EMC-005

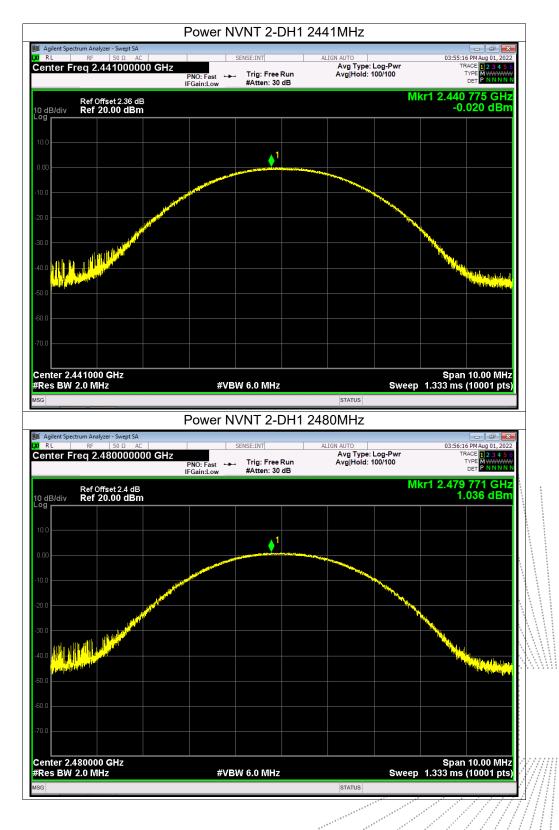














Edition:

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.

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12.4 Test Result

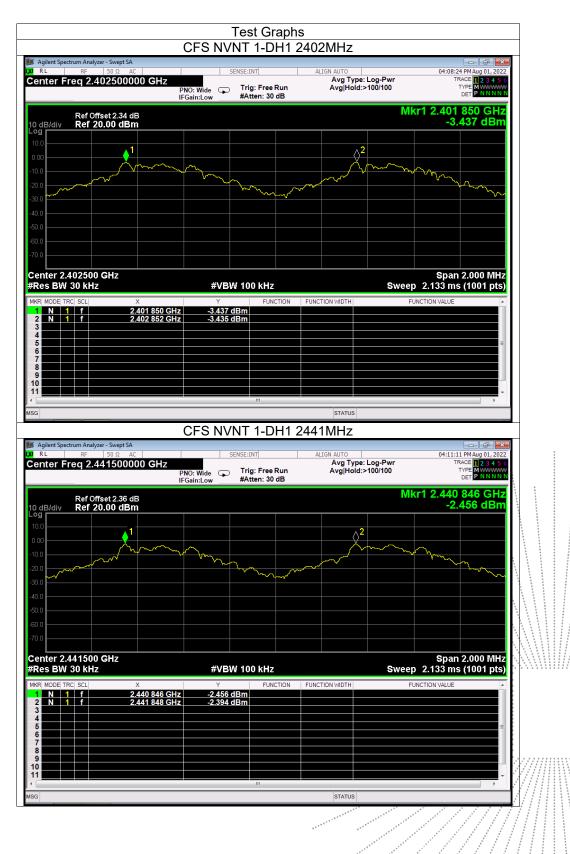
Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	1.002	0.869	PASS
GFSK	Middle	1.002	0.842	PASS
GFSK	High	0.996	0.858	PASS
π/4DQPSK	Low	1	0.825	PASS
π/4DQPSK	Middle	1	0.822	PASS
π/4DQPSK	High	0.998	0.834	PASS

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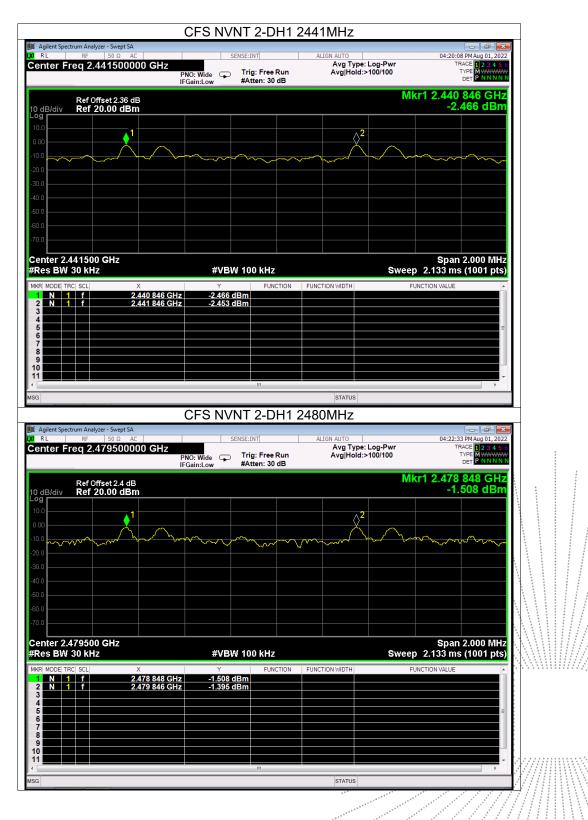
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13. Number Of Hopping Frequency

13.1 Block Diagram Of Test Setup



13.2 Limit

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

13.3 Test Procedure

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

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

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

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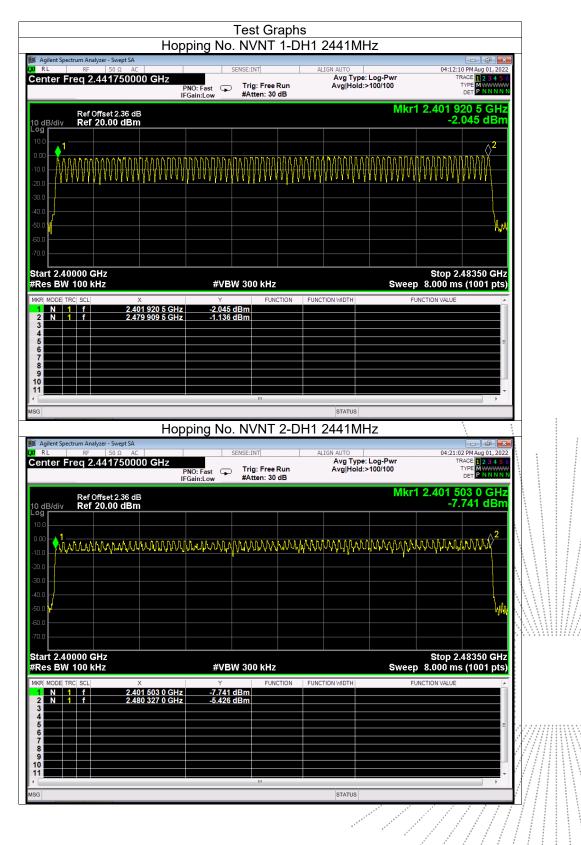
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13.4 Test Result



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14. Dwell Time

14.1 Block Diagram Of Test Setup



14.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

14.3 Test Procedure

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

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

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

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

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14.4 Test Result

DH5 Packet permit maximum 1600 / 79 / 6 hops per second in each channel (5 time slate DX 1 time slate TX)

(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.

Modulation	Channel Data	Packet	pulse time(ms)	Dwell Time(s)	Limits(s)
		DH1	0.382	0.122	0.4
GFSK	Middle	DH3	1.639	0.262	0.4
		DH5	2.887	0.308	0.4
	Middle	2DH1	0.391	0.125	0.4
π/4DQPSK		2DH3	1.643	0.263	0.4
		2DH5	2.891	0.308	0.4



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lent Spectrum Analyzer - Swe			1-DH1 2			arot		
	2 AC		SENSE:INT Trig Delay		GN AUTO	Log-Pwr	TI	7 PM Aug 01, 2022
lor 110q 2144 100	0000-0112	PNO: Fast ↔ IFGain:Low	Trig: Video #Atten: 30	D	5 ,	-		TYPE WWWWWWW DET P N N N N N
Ref Offset 2.	36 dB						ΔMkr1	382.0 µs
3/div Ref 20.00								4.55 dB
1∆2								TRIG LVL
X ^I 2								
		il., billin						
n a la calendar de la	in the state of the	n a star a s	un de la la companya de la companya	an an an an Albard.	in a far the second			त्वा प्रतिवृत्तिः विश्वमित्तवे । स्रोतिसम्बद्धाः स्रोतिस्त
	ter of a transfer			and while many but	in a bhaile al		den hipsplan	alida i Kardalaha
ter 2.441000000 (CH7							Span 0 Hz
BW 1.0 MHz	5112	#V	BW 3.0 MHz			Sweep	0 10.00 ms	(10001 pts)
IODE TRC SCL	× 382.0 µ	Υ IS (Δ)	FUN	CTION FUNCT	ION WIDTH		FUNCTION VALUE	<u>^</u>
F 1 t	485.0	is -17.0	2 dBm					
								•
					STATUS			•
· · · ·	Dwe		1-DH3 2	441MH 2	One B	urst		
ent Spectrum Analyzer - Swe	ept SA							
er Freq 2.44100			SENSE:INT Trig Delay	-500.0 µs	GN AUTO Avg Type:	Log-Pwr	04:23:4 TI	3 PM Aug 01, 2022 RACE 1 2 3 4 5 6
		PNO: Fast ↔ IFGain:Low	Trig: Video #Atten: 30					DET PNNNN
	36 dB						ΔMkr1	1.639 ms 4.23 dB
Ref Offset 2.	aвm							4.20 00
Ref Offset 2.	▲1∆2							
Vidiv Ref 20.00	<u>1∆2</u>							TRIG LVL
Ref Offset 2: Ref 20.00	1Δ2							TRIG LVL
Vidiv Ref 20.00	1Δ2							TRIG LVL
Xdiv Ref 20.00 (
Xdiv Ref 20.00 (di nati sena si kara di	andaji'r ynyraet i ba degai y glyna d a		line a cardona	
Xdiv Ref 20.00 (pin an an an ann an an an an an an an an a	يسايما بيناه	land the game of the	a long til med angelen for a long til med angelen for	line a cardona	
Waiv Ref 20.00 (The second states and	lat no star posta da sera po 1 de sera de la sera posta de la sera posta 1 de sera de la sera de	ine program the		line a cardona	andalasti And <mark>alasti Andalasti</mark>
Vdiv Ref 20.00 (<mark>, hu daalaanan</mark>	The second states and		and the part of the	Sweep	0 10.00 ms	Span 0 Hz
Xdiv Ref 20.00 (GHz	*/////////////////////////////////////	BW 3.0 MHz	<mark>i la parte de la Construir de la parte de la p</mark>	ing the state of the	Sweep		Span 0 Hz
Vdiv Ref 20.00 (GHz	#VI #VI	BW 3.0 MHz	<mark>i la parte de la Construir de la parte de la p</mark>	hading a far	Sweep	0 10.00 ms	Span 0 Hz
Kdiv Ref 20.00 (Kaiv Kaiv	GHz X 1.639 m	#VI #VI	BW 3.0 MHz	<mark>i la parte de la Construir de la parte de la p</mark>	hading a far	Sweep	0 10.00 ms	Span 0 Hz
Kdiv Ref 20.00 (χ 2 χ 2 χ 2 χ 2 χ 2 χ 3 χ 4	GHz X 1.639 m	#VI #VI	BW 3.0 MHz	<mark>i la parte de la Construir de la parte de la p</mark>	hading a far	Sweep	0 10.00 ms	Span 0 Hz
Kdiv Ref 20.00 (χ 2 χ 2 χ 2 χ 2 χ 2 χ 3 χ 4	GHz X 1.639 m	#VI #VI	BW 3.0 MHz	<mark>i la parte de la Construir de la parte de la p</mark>	hading a far	Sweep	0 10.00 ms	Span 0 Hz
Kef 20.00 (χ χ χ χ χ χ χ χ χ χ χ χ χ χ χ χ χ χ ζ <t< td=""><td>GHz X 1.639 m</td><td>#VI #VI</td><td>BW 3.0 MHz</td><td><mark>i la parte de la Construir de la parte de la p</mark></td><td>hading a far</td><td>Sweep</td><td>0 10.00 ms</td><td>Span 0 Hz</td></t<>	GHz X 1.639 m	#VI #VI	BW 3.0 MHz	<mark>i la parte de la Construir de la parte de la p</mark>	hading a far	Sweep	0 10.00 ms	Span 0 Hz



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Agilent Spectrum Analyzer - Swept SA R L RF 50 Ω AC	SENSE:INT	ALIGN AUTO	04:24:35 PM Aug 01, 2022
nter Freq 2.441000000 GHz	PNO: Fast ++ Trig Delay-500 Trig: Video IFGain:Low #Atten: 30 dB		TRACE 123456 TYPE WWWWWWW DET PNNNNN
Ref Offset 2.36 dB dB/div Ref 20.00 dBm			ΔMkr1 2.887 ms -1.78 dB
			TRIG LVL
0			
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nter 2.441000000 GHz s BW 1.0 MHz	#VBW 3.0 MHz	Sweep	Span 0 Hz 10.00 ms (10001 pts)
MODE TRC SCL X Δ2 1 t (Δ) 2.887 m	Υ FUNCTIO	N FUNCTION WIDTH FUI	ICTION VALUE
F 1 t 485.0 µ	ıs -13.54 dBm		
	m	STATUS	4
Dwel	I NVNT 2-DH1 244	1MHz One Burst	
RL RF 50 Ω AC nter Freq 2.441000000 GHz	SENSE:INT Trig Delay-500 PNO: Fast →→→ Trig: Video	ALIGN AUTO 0.0 µs Avg Type: Log-Pwr	04:21:08 PM Aug 01, 2022 TRACE 1 2 3 4 5 6 TYPE WAAAAAAAA
Ref Offset 2.36 dB	IFGain:Low #Atten: 30 dB		ΔMkr1 391.0 μs
dB/div Ref 20.00 dBm			-1.31 dB
			TRIG LVL
o o			
 Intervention of the second seco	ing a state of the second	an a shirifal a shirifa na sherifa (bara birifa) a kuta i a hirifan a sherifan (bara birifan)	
while is the state of the sector		de la suba-	
			Spap 0 Hz
nter 2.441000000 GHz s BW 1.0 MHz	#VBW 3.0 MHz		Span 0 Hz 10.00 ms (10001 pts)
nter 2.44100000 GHz s BW 1.0 MHz MODE TRC SCL X Δ2 1 t (Δ) 391.0 μ F 1 t 497.0 μ	Υ FUNCTIO		10.00 ms (10001 pts)
nter 2.441000000 GHz s BW 1.0 MHz MODE TRC SCL X Δ2 1 t (Δ) 391.0 μ F 1 t 497.0 μ	Υ FUNCTIO		10.00 ms (10001 pts)
Δ2 1 t (Δ) 391.0 μ	Υ FUNCTIO		10.00 ms (10001 pts)
nter 2.441000000 GHz s BW 1.0 MHz MODE TRC SCL × Δ2 1 t (Δ) 391.0 μ F 1 t 497.0 μ	Υ FUNCTIO		10.00 ms (10001 pts)



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nter Freq 2.44100	AC 00000 GHz PNO: Fas IFGain:Lo		ALIGN AUTO Avg Type: Log-Pwr	04:25:42 PM Aug 0 TRACE 1 2 TYPE WW DET P N	3 4 5 6
Ref Offset 2.3	36 dB			ΔMkr1 1.643 0.67	
dB/div Ref 20.00 c	Bm			0.07	
	1Δ2				
					NG LVL
.0					
0 0 <mark>aylana</mark>		La bene probabana di barten taka pata da	ing had an the synchrolithear	a a mart an a' fair the cristic first and a sector a sector and a sector a sector a sector a sector a sector a	TONT
.0 <mark>////.w/</mark>			an allan nasin biyon an an an An allan nasin biyon an an		
nter 2.441000000 G	Hz			Span	
S BW 1.0 MHZ	X	#VBW 3.0 MHz		reep 10.00 ms (10001	pts)
Δ2 1 t (Δ) F 1 t	1.643 ms (Δ)	0.67 dB -13.07 dBm			
		III	STATUS		•
	Dwell NV	NT 2-DH5 2441N			
Agilent Spectrum Analyzer - Swep RL RF 50 Ω		SENSE:INT	ALIGN AUTO	04:26:30 PM Aug 0	1,2022
nter Freq 2.44100	100000 GHz PNO: Fas IFGain:Lo		Avg Type: Log-Pwr	TRACE 1 2 TYPE WW DET P N	
Ref Offset 2.3	36 dB			ΔMkr1 2.891	
dB/div Ref 20.00 c	Bm			0.09	
.0					10 6174
		Δ2		a di pada da di daga sa ka di daga sa ka di Paga di sa ka sa ka di daga sa ka	
		Δ2			
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	fa billitik de avinderlitin over aller optende for		ne de service de la constante de la constante La constante de la constante de		
	1 2 vi Uni vi e 22 vi e 114		nd kandad an a sa kaladan sa kala Arstan Angelan ya pata di sa paga Arstan Angelan ya pata di sa paga		
nter 2.441000000 G	(a pin the international provided in the advancement of the international provided in the advancement of the international provided in the international provide The international provided	internet finder beinden Internet finder beinden Internet finder beinder Internet finder beinder WBW 3.0 MHz	Sw	Span reep 10.00 ms (10001	0 Hz
α α α α α α α α α α α α α α	1 2 vi Uni vi e 22 vi e 114	internet finder beinden Internet finder beinden Internet finder beinder Internet finder beinder WBW 3.0 MHz	, <u>texte a printi di di sen an ta di san</u> ar ang	Span	0 Hz
Δ Δ	(1) Will a find all in which in a find a line in a line line line in a line in a line line line in a line in a line in a	Hole The of the second	Sw	Span reep 10.00 ms (10001	0 Hz
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15. Antenna Requirement

15.1 Limit

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.2 Test Result

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

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16. EUT Photographs

EUT Photo



NOTE: Appendix-Photographs Of EUT Constructional Details

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17. EUT Test Setup Photographs

Conducted emissions Photo



Radiated Measurement Photos







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STATEMENT

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

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

3. The test report is invalid without the "special seal for inspection and testing".

4. The test report is invalid without the signature of the approver.

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

6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.

7. The test report without CMA mark is only used for scientific research, teaching, enterprise product development and internal quality control purposes.

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

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

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

No.: BCTC/RF-EMC-005