

TEST REPORT

Report No.:	t No.: BCTC2212869684E					
Applicant:	Shenzhen Moldull Acoustic Technology Co.,Ltd.					
Product Name:	TWS Bluetooth headset					
Model/Type reference:	MD032	CHENZH				
Tested Date:	2022-12-13 to 2022-12-19					
Issued Date:	2022-12-19					
She	enzhen BCTC Testing Co., Ltd	•				
No.: BCTC/RF-EMC-007	Page: 1 of 66	Edition: A.5				



FCC ID: 2AXPW-MD032

Product Name:	TWS Bluetooth headset
Trademark:	N/A
Model/Type Reference:	MD032 A3, A3 pro
Prepared For:	Shenzhen Moldull Acoustic Technology Co.,Ltd.
Address:	403 Huiyi Wealth Center No.9, Zhongxin Road, Dalang, Longhua New Area, ShenZhen City, Guangdong Province, China
Manufacturer:	Shenzhen Moldull Acoustic Technology Co.,Ltd.
Address:	403 Huiyi Wealth Center No.9, Zhongxin Road, Dalang, Longhua New Area, ShenZhen City, Guangdong Province, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2022-12-13
Sample tested Date:	2022-12-13 to 2022-12-19
Issue Date:	2022-12-19
Report No.:	BCTC2212869684E
Test Standards:	FCC Part15.247 ANSI C63.10-2013
Test Results:	PASS
Remark:	This is Bluetooth Classic radio test report.

Tested by:

Chen

Lei Chen/Project Handler

Approved by:

Zero Zhou/Reviewer

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

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(Note: N/A Means Not Applicable)

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1. Version

Report No.	Issue Date	Description	Approved
BCTC2212869684E	2022-12-19	Original	Valid







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 hoppingfrequencies	§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(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 °C





4. Product Information And Test Setup

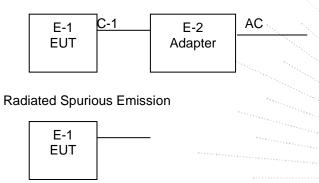
4.1 Product Information

Model/Type reference:	MD032 A3, A3 pro
Model differences:	All the model are the same circuit and RF module, except model names and color.
Bluetooth Version:	BT5.3
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	Bluetooth: 2402-2480MHz
Type of Modulation:	Bluetooth: GFSK, π/ 4 DQPSK
Number Of Channel	79CH
Antenna installation:	Ceramic antenna
Antenna Gain:	3dBi
Ratings:	DC 5V from USB, DC 3.7V from battery

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:





4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	TWS Bluetooth headset	N/A	MD032	A3, A3 pro	EUT
E-2	Adapter	UGREEN	CD122	N/A	Auxiliary

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

4.4 Channel List

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

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4.5 Test Mode

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

Test Mode	Test mode Low channel Middle channel		High channel			
1	Transmitting(GFSK)	2402MHz	2441MHz	2480MHz		
2	Transmitting(π/ 4 DQPSK)	2402MHz	2441MHz	2480MHz		
3	Charging (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	DEF	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	١	/			
Attenuator	\	10dB DC-6GHz	1650	May 24, 2022	May 23, 2023			

RF Conducted Test								
Equipment	Manufacturer	Model#	Model# Serial#		Next Cal.			
Power Metter	Keysight	E4419		May 24, 2022	May 23, 2023			
Power Sensor (AV)	Keysight	E9300A	$\sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} $	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	100363	May 24, 2022	May 23, 2023			
Radio frequency control box	MAIWEI	MW100-RFC B						
Software	MAIWEI	MTS 8310	· · · · · · · · · · · · · · · · · · ·	Ι				



Radiated Emissions Test (966 Chamber01)							
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	Schwarzbeck	BBV9744	9744-0037	May 24, 2022	May 23, 2023		
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 26, 2022	May 25, 2023		
Loop Antenna(9KHz -30MHz)	Schwarzbeck	FMZB1519B	00014	May 26, 2022	May 25, 2023		
Amplifier	SKET	LAPA_01G18 G-45dB	١	May 24, 2022	May 23, 2023		
Horn Antenna	Schwarzbeck	BBHA9120D	1541	Jun. 06, 2022	Jun. 05, 2023		
Amplifier(18G Hz-40GHz)	MITEQ	TTA1840-35- HG	2034381	May 26, 2022	May 25, 2023		
Horn Antenn(18GH z-40GHz)	Schwarzbeck	BBHA9170	00822	Jun. 06, 2022	Jun. 05, 2023		
Spectrum Analyzer9kHz- 40GHz	R&S	FSP40	100363	May 24, 2022	May 23, 2023		
Software	Frad	EZ-EMC	FA-03A2 RE	\	Λ_{j}		

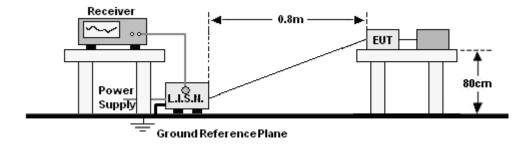
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6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

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

Notes:

1. *Decreasing linearly with logarithm of frequency.

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

6.3 Test procedure

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

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

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

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

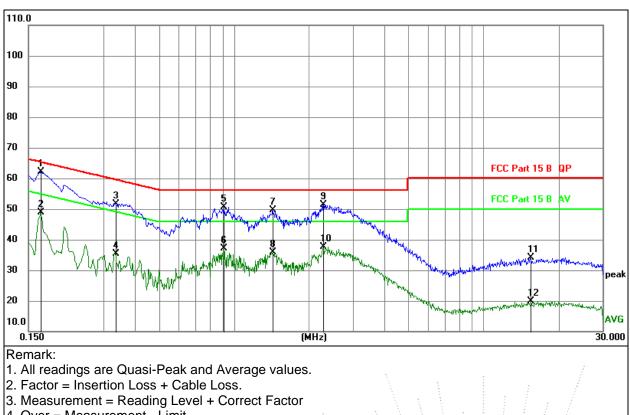
6.4 EUT operating Conditions

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



6.5 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz



No. Mk. Freq. Reading Level Correct Factor Measure- ment Limit Over MHz dB dBuV dBuV dB Detector 1 * 0.1680 42.49 19.72 62.21 65.06 -2.85 QP 2 0.1680 29.04 19.72 48.76 55.06 -6.30 AVG 3 0.3345 31.92 19.76 51.68 59.34 -7.66 QP 4 0.3345 15.63 19.76 35.39 49.34 -13.95 AVG 5 0.9104 30.91 19.75 50.66 56.00 -5.34 QP 6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57	 Over = Measurement - Limit 			1. A.				4	
1 * 0.1680 42.49 19.72 62.21 65.06 -2.85 QP 2 0.1680 29.04 19.72 48.76 55.06 -6.30 AVG 3 0.3345 31.92 19.76 51.68 59.34 -7.66 QP 4 0.3345 15.63 19.76 35.39 49.34 -13.95 AVG 5 0.9104 30.91 19.75 50.66 56.00 -5.34 QP 6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP </td <td>No.</td> <td>Mk.</td> <td>Freq.</td> <td>-</td> <td></td> <td></td> <td>Limit</td> <td>Over</td> <td></td>	No.	Mk.	Freq.	-			Limit	Over	
1 0.1600 42.43 13.72 62.21 65.06 42.63 QP 2 0.1680 29.04 19.72 48.76 55.06 -6.30 AVG 3 0.3345 31.92 19.76 51.68 59.34 -7.66 QP 4 0.3345 15.63 19.76 35.39 49.34 -13.95 AVG 5 0.9104 30.91 19.75 50.66 56.00 -5.34 QP 6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP			MHz		dB	dBuV	dBuV	dB	Detector
3 0.3345 31.92 19.76 51.68 59.34 -7.66 QP 4 0.3345 15.63 19.76 35.39 49.34 -13.95 AVG 5 0.9104 30.91 19.75 50.66 56.00 -5.34 QP 6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	1	*	0.1680	42.49	19.72	62.21	65.06	-2.85	QP
4 0.3345 15.63 19.76 35.39 49.34 -13.95 AVG 5 0.9104 30.91 19.75 50.66 56.00 -5.34 QP 6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	2		0.1680	29.04	19.72	48.76	55.06	-6.30	AVG
5 0.9104 30.91 19.75 50.66 56.00 -5.34 QP 6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	3		0.3345	31.92	19.76	51.68	59.34	-7.66	QP
6 0.9104 17.45 19.75 37.20 46.00 -8.80 AVG 7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	4		0.3345	15.63	19.76	35.39	49.34	-13.95	AVG
7 1.4279 29.71 19.81 49.52 56.00 -6.48 QP 8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	5		0.9104	30.91	19.75	50.66	56.00	-5.34	QP
8 1.4279 15.99 19.81 35.80 46.00 -10.20 AVG 9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	6		0.9104	17.45	19.75	37.20	46.00	-8.80	AVG
9 2.2829 31.57 19.91 51.48 56.00 -4.52 QP 10 2.2829 17.76 19.91 37.67 46.00 -8.33 AVG 11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	7		1.4279	29.71	19.81	49.52	56.00	-6.48	QP
102.282917.7619.9137.6746.00-8.33AVG1115.459013.7220.3034.0260.00-25.98QP	8		1.4279	15.99	19.81	35.80	46.00	-10.20	AVG
11 15.4590 13.72 20.30 34.02 60.00 -25.98 QP	9		2.2829	31.57	19.91	51.48	56.00	-4.52	QP
	10		2.2829	17.76	19.91	37.67	46.00	-8.33	AVG
12 15.4590 -0.41 20.30 19.89 50.00 -30.11 AVG	11		15.4590	13.72	20.30	34.02	60.00	-25.98	QP
	12		15.4590	-0.41	20.30	19.89	50.00	-30.11	AVG

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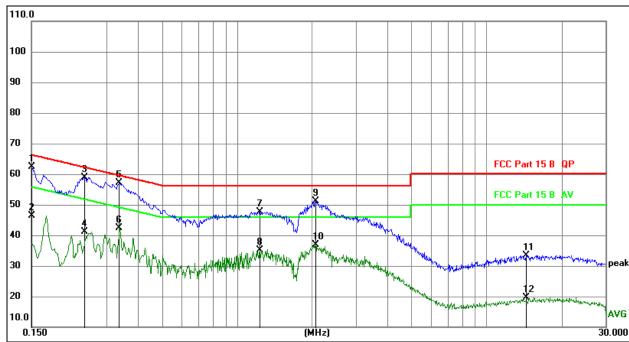
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Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Ν
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz



Remark:

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

4. Over = N	leasurement - Limit
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4. Ove	4. Over = Measurement - Limit							
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.1500	42.64	19.67	62.31	66.00	-3.69	QP
2		0.1500	26.66	19.67	46.33	56.00	-9.67	AVG
3		0.2455	39.15	19.79	58.94	61.91	-2.97	QP
4		0.2455	21.37	19.79	41.16	51.91	-10.75	AVG
5	*	0.3373	37.41	19.76	57.17	59.27	-2.10	QP
6		0.3373	22.74	19.76	42.50	49.27	-6.77	AVG
7		1.2356	27.90	19.79	47.69	56.00	-8.31	QP
8		1.2356	15.46	19.79	35.25	46.00	-10.75	AVG
9		2.0658	31.30	19.89	51.19	56.00	-4.81	QP
10		2.0658	16.97	19.89	36.86	46.00	-9.14	AVG
11		14.4403	13.20	20.28	33.48	60.00	-26.52	QP
12		14.4403	-0.55	20.28	19.73	50.00	-30.27	AVG
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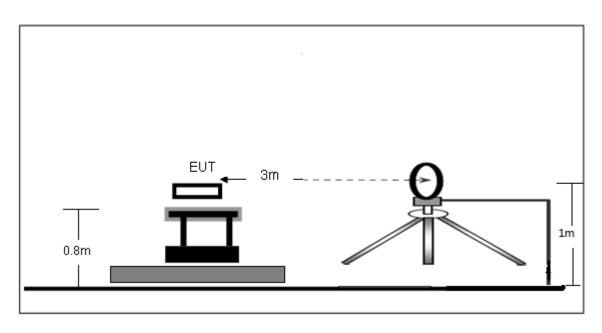
Edition:



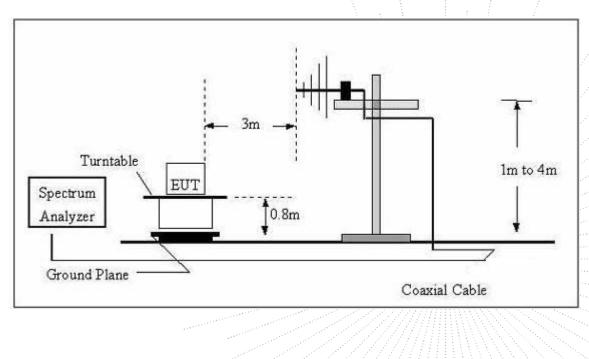
7. Radiated emissions

7.1 Block Diagram Of Test Setup

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



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



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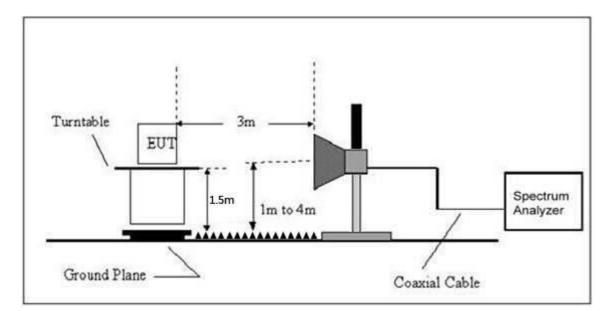
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(C) Radiated Emission Test-Up Frequency Above 1GHz



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.

Field Strength	Distance	Field Strength Limit at 3m Distance				
uV/m	(m)	uV/m	dBuV/m			
2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80			
24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40			
30	30	100 * 30	20log ⁽³⁰⁾ + 40			
100	3	100	20log ⁽¹⁰⁰⁾			
150	3	150	20log ⁽¹⁵⁰⁾			
200	3	200	20log ⁽²⁰⁰⁾			
500	3	500	20log ⁽⁵⁰⁰⁾			
	uV/m 2400/F(kHz) 24000/F(kHz) 30 100 150 200	uV/m (m) 2400/F(kHz) 300 24000/F(kHz) 30 30 30 100 3 150 3 200 3	uV/m (m) uV/m 2400/F(kHz) 300 10000 * 2400/F(kHz) 24000/F(kHz) 30 100 * 24000/F(kHz) 30 30 100 * 30 100 3 100 150 3 150 200 3 200			

Limits Of Radiated Emission Measurement (Above 1000MHz)

	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).

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Frequency Range Of Radiated Measurement

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

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

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

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

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

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

7.3 Test procedure

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

Spectrum Parameter	Setting
1-25GHz	RBW 1 MHz /VBW 1 MHz for Peak, 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.



7.5 Test Result

Below 30MHz

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

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

Note:

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

permissible value has no need to be reported.

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

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

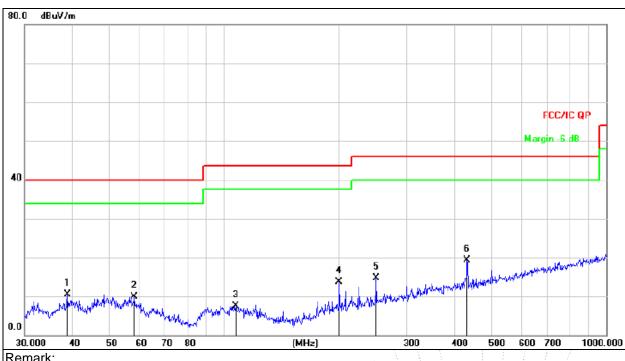
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Between 30MHz - 1GHz

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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	/
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		38.8878	27.33	-16.90	10.43	40.00	-29.57	QP
2		58.2030	26.73	-16.82	9.91	40.00	-30.09	QP
3	1	107.1337	25.71	-18.23	7.48	43.50	-36.02	QP
4		199.9856	31.12	-17.37	13.75	43.50	-29.75	QP
5	2	250.3012	30.60	-15.82	14.78	46.00	-31.22	QP
6	* 4	432.5457	31.12	-11.74	19.38	46.00	-26.62	QP

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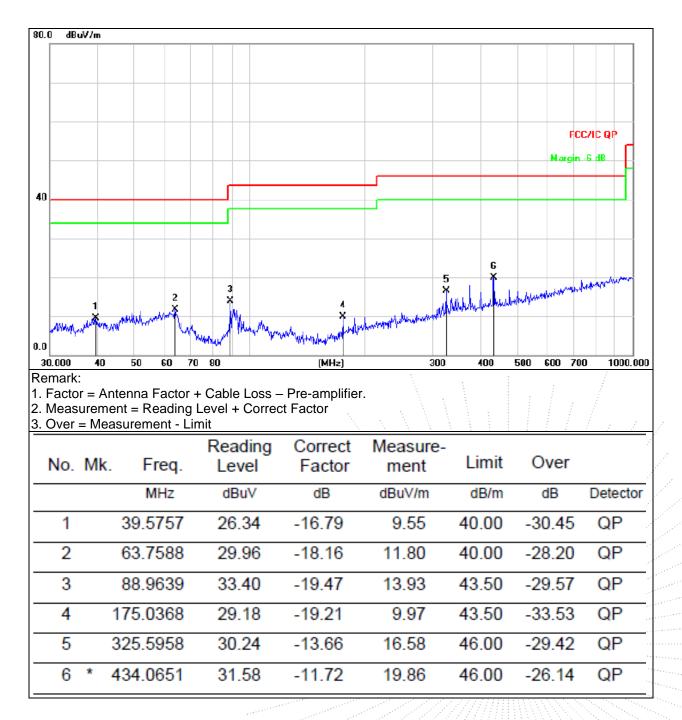
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Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 4	Test Voltage:	DC 3.7V



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Between 1GHz – 25GHz

Polar	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	Туре
	GFSK Low channel						
V	4804.00	54.04	-0.43	53.61	74.00	-20.39	PK
V	4804.00	45.87	-0.43	45.44	54.00	-8.56	AV
V	7206.00	44.41	8.31	52.72	74.00	-21.28	PK
V	7206.00	33.77	8.31	42.08	54.00	-11.92	AV
Н	4804.00	49.77	-0.43	49.34	74.00	-24.66	PK
Н	4804.00	40.11	-0.43	39.68	54.00	-14.32	AV
Н	7206.00	41.80	8.31	50.11	74.00	-23.89	PK
Н	7206.00	33.57	8.31	41.88	54.00	-12.12	AV
	GFSK Middle channel						
V	4882.00	51.07	-0.38	50.69	74.00	-23.31	PK
V	4882.00	43.53	-0.38	43.15	54.00	-10.85	AV
V	7323.00	41.40	8.83	50.23	74.00	-23.77	PK
V	7323.00	31.99	8.83	40.82	54.00	-13.18	AV
Н	4882.00	49.68	-0.38	49.30	74.00	-24.70	PK
Н	4882.00	40.18	-0.38	39.80	54.00	-14.20	AV
Н	7323.00	38.43	8.83	47.26	74.00	-26.74	PK
Н	7323.00	30.29	8.83	39.12	54.00	-14.88	AV
		(GFSK High ch	annel			
V	4960.00	53.28	-0.32	52.96	74.00	-21.04	PK
V	4960.00	45.06	-0.32	44.74	54.00	-9.26	AV
V	7440.00	45.98	9.35	55.33	74.00	-18.67	PK
V	7440.00	36.88	9.35	46.23	54.00	-7.77	AV
Н	4960.00	51.59	-0.32	51.27	74.00	-22.73	PK
Н	4960.00	41.19	-0.32	40.87	54.00	-13.13	AV
Н	7440.00	43.38	9.35	52.73	74.00	-21.27	PK
Н	7440.00	35.50	9.35	44.85	54.00	-9.15	AV

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.



Polar	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector
(H/V)	(MHz)	(dBuV/m)	(dB) (dBuV/m	(dBuV/m)	(dBuV/ m)	(dB)	Туре
		π/ 4	4 DQPSK Low	channel			
V	4804.00	52.72	-0.43	52.29	74.00	-21.71	PK
V	4804.00	44.14	-0.43	43.71	54.00	-10.29	AV
V	7206.00	42.91	8.31	51.22	74.00	-22.78	PK
V	7206.00	32.55	8.31	40.86	54.00	-13.14	AV
Н	4804.00	48.13	-0.43	47.70	74.00	-26.30	PK
Н	4804.00	38.75	-0.43	38.32	54.00	-15.68	AV
Н	7206.00	40.60	8.31	48.91	74.00	-25.09	PK
Н	7206.00	32.08	8.31	40.39	54.00	-13.61	AV
	π/ 4 DQPSK Middle channel						
V	4882.00	50.08	-0.38	49.70	74.00	-24.30	PK
V	4882.00	42.75	-0.38	42.37	54.00	-11.63	AV
V	7323.00	41.00	8.83	49.83	74.00	-24.17	PK
V	7323.00	32.55	8.83	41.38	54.00	-12.62	AV
Н	4882.00	46.84	-0.38	46.46	74.00	-27.54	PK
Н	4882.00	37.18	-0.38	36.80	54.00	-17.20	AV
Н	7323.00	38.30	8.83	47.13	74.00	-26.87	PK
Н	7323.00	31.22	8.83	40.05	54.00	-13.95	AV
		π/ 4	DQPSK High	n channel			
V	4960.00	51.41	-0.32	51.09	74.00	-22.91	PK
V	4960.00	41.63	-0.32	41.31	54.00	-12.69	AV
V	7440.00	45.08	9.35	54.43	74.00	-19.57	/ PK
V	7440.00	35.28	9.35	44.63	54.00	-9.37	AV
Н	4960.00	49.28	-0.32	48.96	74.00	-25.04	PK
Н	4960.00	39.26	-0.32	38.94	54.00	-15.06	AV
Н	7440.00	43.55	9.35	52.90	74.00	-21.10	PK
Н	7440.00	36.27	9.35	45.62	54.00	-8.38	AV

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

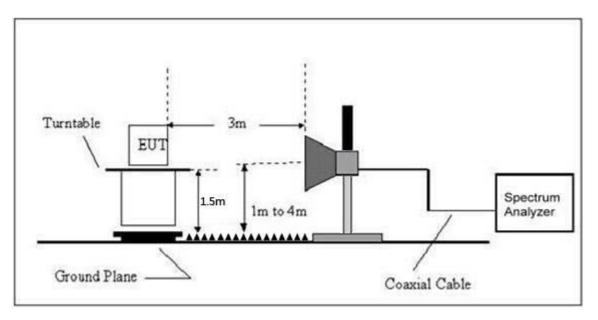
4. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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)

	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).

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 Highest channel.

Note:

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

8.4 EUT operating Conditions

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

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8.5 Test Result

Test mode	Polar Frequency (H/V) (MHz)	Reading Level	Correct Factor	Measure- ment (dBuV/m)	Limits (dBuV/m)		Result				
		(141112)	(dBuV/m)	(dB)	РК	РК	AV				
		Low Channel 2402MHz									
GFSK	Н	2390.00	52.99	-6.70	46.29	74.00	54.00	PASS			
	Н	2400.00	56.08	-6.71	49.37	74.00	54.00	PASS			
	V	2390.00	52.60	-6.70	45.90	74.00	54.00	PASS			
	V	2400.00	54.08	-6.71	47.37	74.00	54.00	PASS			
		High Channel 2480MHz									
	Н	2483.50	52.48	-6.79	45.69	74.00	54.00	PASS			
	Н	2500.00	48.25	-6.81	41.44	74.00	54.00	PASS			
	V	2483.50	52.11	-6.79	45.32	74.00	54.00	PASS			
	V	2500.00	48.20	-6.81	41.39	74.00	54.00	PASS			
	Low Channel 2402MHz										
π/4DQPSK	Н	2390.00	53.52	-6.70	46.82	74.00	54.00	PASS			
	Н	2400.00	56.68	-6.71	49.97	74.00	54.00	PASS			
	V	2390.00	53.81	-6.70	47.11	74.00	54.00	PASS			
	V	2400.00	55.09	-6.71	48.38	74.00	54.00	PASS			
	High Channel 2480MHz										
	Н	2483.50	51.70	-6.79	44.91	74.00	54.00	PASS			
	Н	2500.00	48.66	-6.81	41.85	74.00	54.00	PASS			
	V	2483.50	54.00	-6.79	47.21	74.00	54.00	PASS			
	V	2500.00	50.25	-6.81	43.44	74.00	54.00	PASS			

Remark:

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

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

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

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

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9. Spurious RF Conducted Emissions

9.1 Block Diagram Of Test Setup



9.2 Limit

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

9.3 Test procedure

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

2. Set the spectrum analyzer:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

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9.4 Test Result

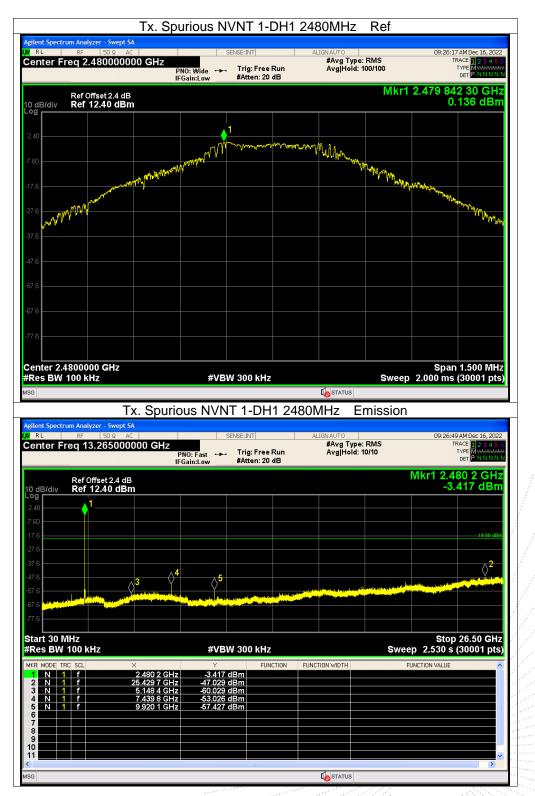






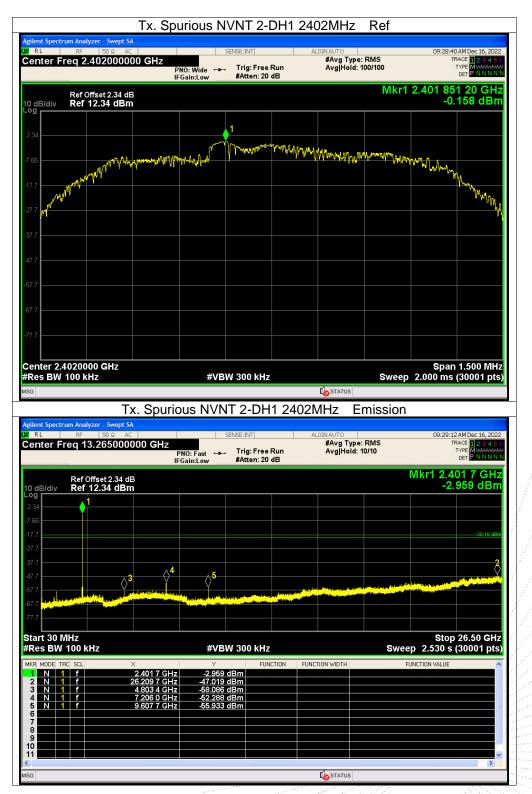
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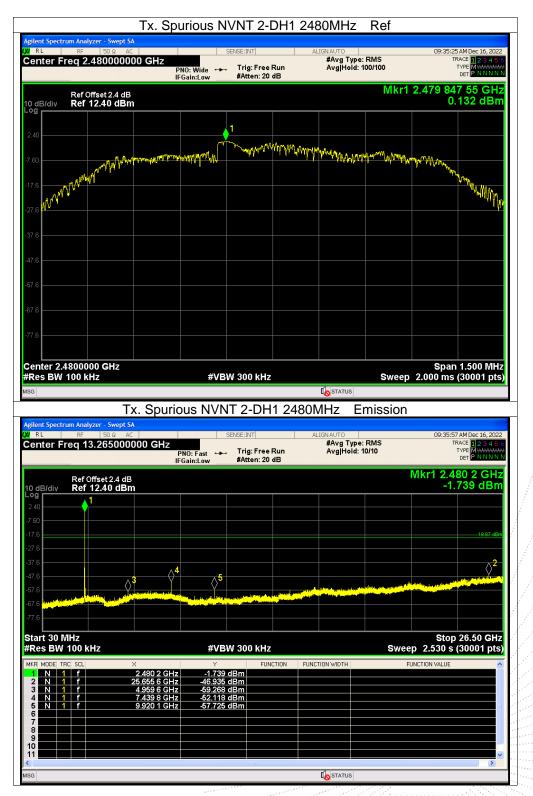




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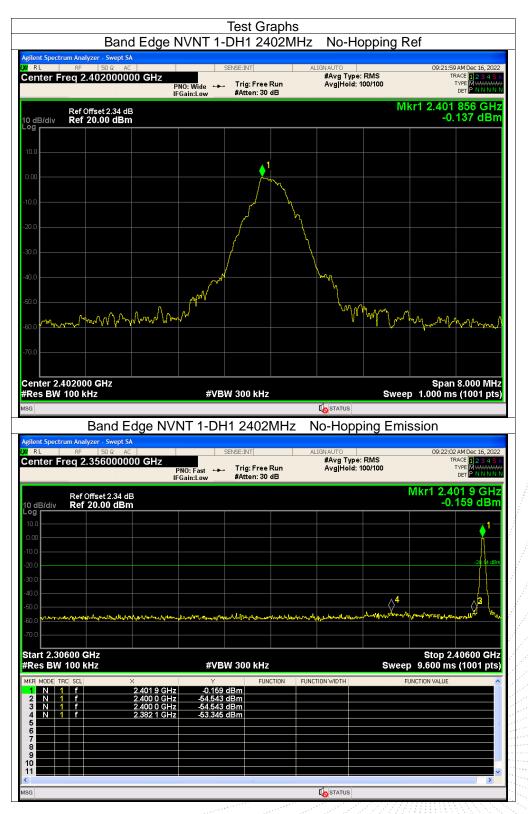




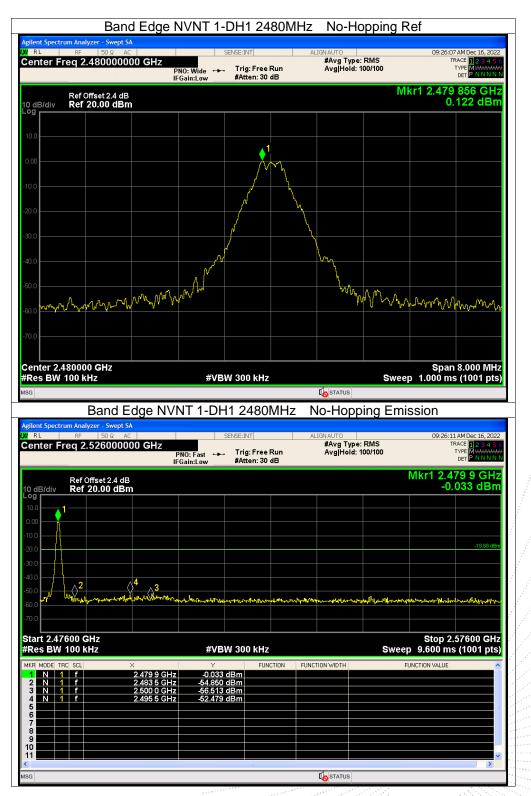




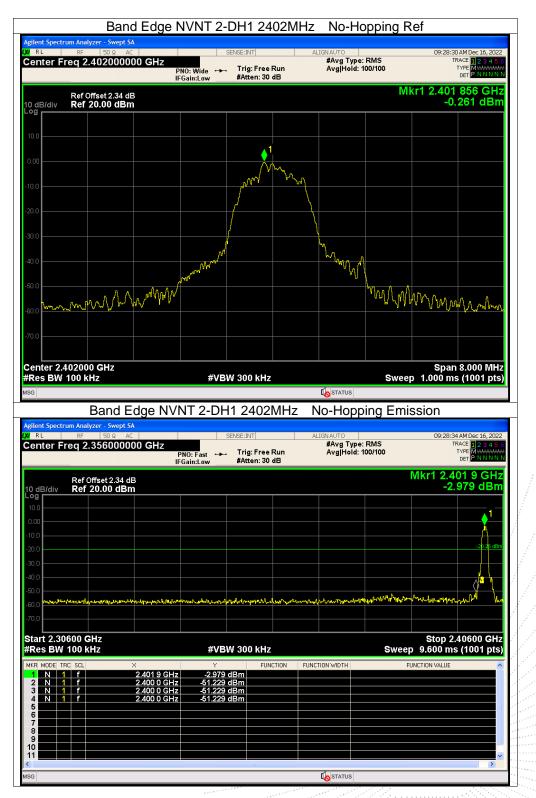






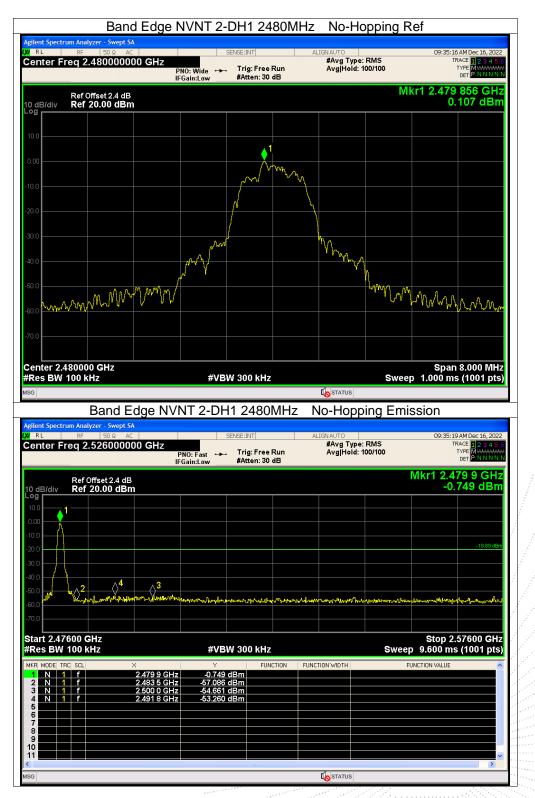








































10. 20 dB Bandwidth

10.1 Block Diagram Of Test Setup



10.2 Limit

N/A

10.3 Test procedure

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

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

10.4 Test Result

Condition	Mode	Frequency (MHz)	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	1.035	Pass
NVNT	1-DH1	2441	1.008	Pass
NVNT	1-DH1	2480	0.923	Pass
NVNT	2-DH1	2402	1.228	Pass
NVNT	2-DH1	2441	1.263	Pass
NVNT	2-DH1	2480	1.244	Pass

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11. Maximum Peak Output Power

11.1 Block Diagram Of Test Setup



11.2 Limit

			FCC Part15 (15.247),	Subpart C	
Section	Те	st Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	k 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.

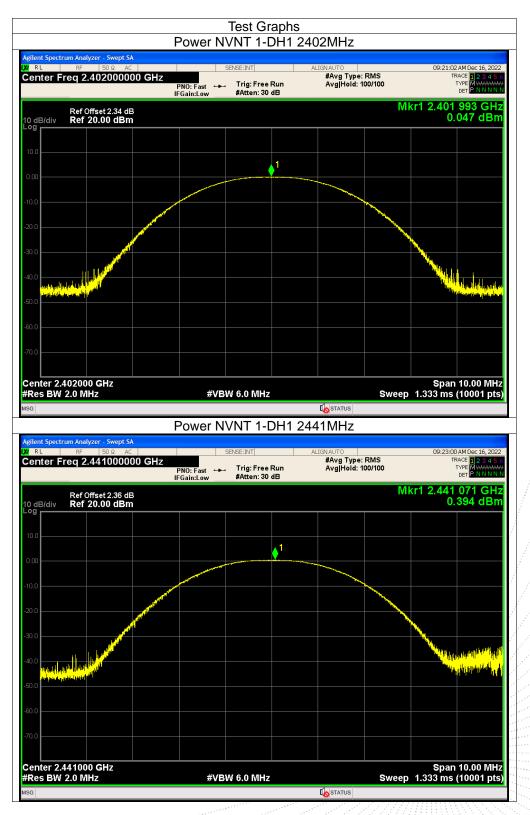
11.4 Test Result

No.: BCTC/RF-EMC-007

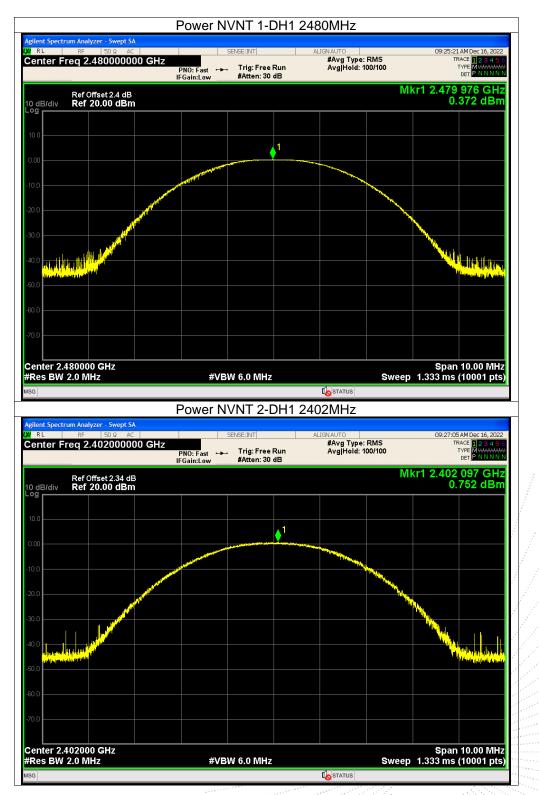
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	0.05	21	Pass
NVNT	1-DH1	2441	0.39	21	Pass
NVNT	1-DH1	2480	0.37	21	Pass
NVNT	2-DH1	2402	0.75	21	Pass
NVNT	2-DH1	2441	1.05	21	Pass
NVNT	2-DH1	2480	0.97	21	Pass

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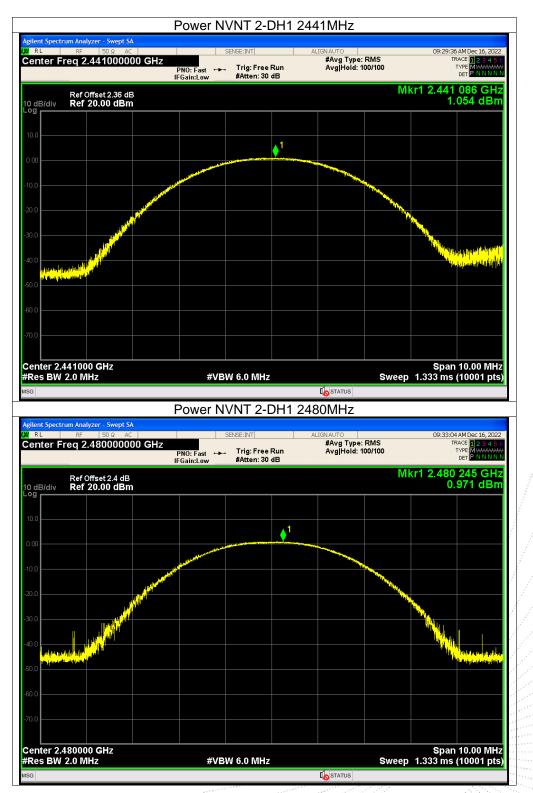












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12. Hopping Channel Separation

12.1 Block Diagram Of Test Setup



12.2 Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 0.125W.

12.3 Test procedure

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

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

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

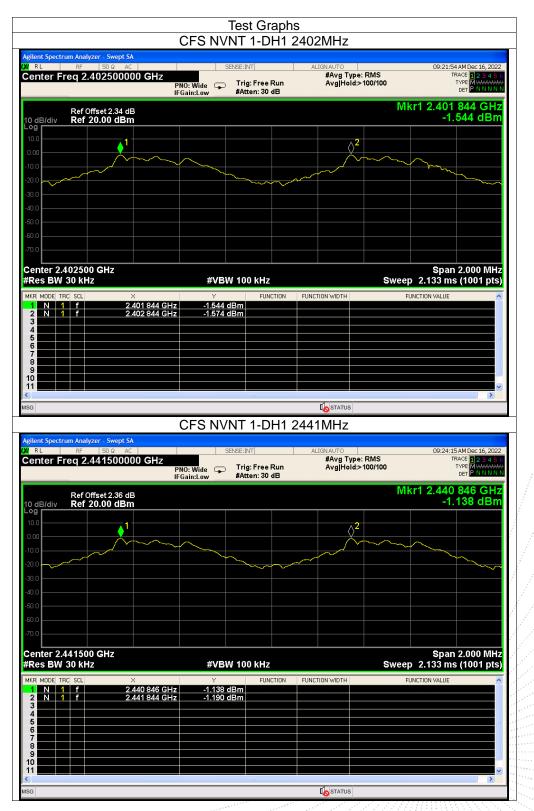
Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	2401.844	2402.844	1.000	0.690	Pass
NVNT	1-DH1	2440.846	2441.844	0.998	0.672	Pass
NVNT	1-DH1	2478.846	2479.844	0.998	0.923	Pass
NVNT	2-DH1	2401.846	2402.846	1.000	0.819	Pass
NVNT	2-DH1	2440.844	2441.842	0.998	0.842	Pass
NVNT	2-DH1	2478.844	2479.844	1.000	0.829	Pass

12.4 Test Result

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ent Spectrum Analyzer		OTAIOT N	ar l	ALICE AUTO		00-06-00-054-016-000
nter Freq 2.47		SENSE:IM		ALIGN AUTO #Avg Type:		09:26:03 AM Dec 16, 202 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
			g: Free Run ten: 30 dB	Avg Hold:>*	100/100	
Ref Offse					Mkr1	2.478 846 GH
dB/div Ref 20.0						-1.152 dBn
0	1					
					~~~~~	
				$\sim$		
o						
0						
nter 2.479500 G es BW 30 kHz	Hz	#VBW 100	î kHz		Sween_2	Span 2.000 MH 2.133 ms (1001 pts
MODE TRC SCL	×	#VEW TU	FUNCTION	FUNCTION WIDTH	-	
N 1 f	2.478 846 GHz 2.479 844 GHz	-1.152 dBm -1.134 dBm	- Cherloit		1 JNC	
	24979 64919HZ	-1.104 uBill				
			ini			>
	(	CFS NVNT	2-DH1			
	<u> </u>			2402MH7		
ent Spectrum Analyzer -	- Swept SA			2402MHz		
RL RF 5	50 Ω AC	SENSE:IN		ALIGNAUTO	RMS	09:28:26 AM Dec 16, 202 TRACE
	50 Ω AC 2500000 GHz PN0	SENSE:IN	vt g: Free Run		RMS 100/100	TRACE 12345
nter Freq 2.402	50 Ω AC 2500000 GHz PNO IFG		NT T	ALIGNAUTO #Avg Type:	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF S nter Freq 2.402 Ref Offse dB/div Ref 20.0	50 Ω AC 2500000 GHz PN0 IFG t2.34 dB	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type:	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF S nter Freq 2.402 Ref Offse	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF S nter Freq 2.402 Ref Offse dB/div Ref 20.0	50 Ω AC 2500000 GHz PN0 IFG t2.34 dB	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type:	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF Freq 2.402 Ref Offse dB/div Ref 20.0	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF Freq 2.402	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF Freq 2.402	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF Freq 2.402	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF Freq 2.402	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF Freq 2.402	2500000 GHz PN IFG t2.34 dB 00 dBm	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12345 TYPE MWWWW DET PNNNN
Ref Offse Black Ref 2.402 Ref Offse Black Ref 20.0 Ref 20	2500000 GHz PNO PNO PNO PNO PNO PNO PNO PNO	SENSE:IN	vt g: Free Run	ALIGNAUTO #Avg Type: Avg Hold>'	100/100	TRACE 12:245 TYPE MUNITURE OPEN PUNITURE 12:401 846 GH -1.538 dBn
RL RF Freq 2.402	2500000 GHz PNO PNO PNO PNO PNO PNO PNO PNO	SENSE:IN	yT g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>'	100/100 Mkr1	TRACE 012 3.4 S TYPE MANNA 2.401 846 GH -1.538 dBn
RL RF Freq 2.402 Ref Offse dB/div Ref 20.0 Ref 20.0	ED R. AC 2500000 GHz PN PN PN PN PN PN PN PN PN PN	SENSE:IN O: Wide ain:Low #Att #VBW 100 Y	yT g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>'	100/100 Mkr1	TRACE 012 3.4 S TYPE MANNA 2.401 846 GH -1.538 dBn
Ref Offse Ref Offse Ref Offse Ref 20.02 Ref 20.02	ED A AC 2500000 GHz PNU PNU PNU PNU PNU PNU PNU PNU	SENSE IN ain:Low F #Att	g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>	100/100 Mkr1	09:28:26 AM Dec 16, 202 TRACE 12:34 5 TYPE MAXWAND DET DINNIN 2.401 846 GH -1.538 dBn 
Ref         Ref         Offse           Cl5/div         Ref 20.02           Ref         Participation           Ref         P	2500000 GHz 2500000 GHz PNU PRU PRU PRU PRU PRU PRU PRU PR	SENSE:IN O: Wide Trig ain:Low #Att #VBW 100 Y -1.558 dBm	g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>	100/100 Mkr1	Span 2.000 MH 2.133 ms (1001 pts
Ref Offse Ref Offse	2500000 GHz 2500000 GHz PNU PRU PRU PRU PRU PRU PRU PRU PR	SENSE:IN O: Wide Trig ain:Low #Att #VBW 100 Y -1.558 dBm	g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>	100/100 Mkr1	TFACE         12.2.45           Type         Ministration           12.401         846         GH           -1.538         dBn
RL RF Freq 2.402 Ref Offse Ref Offse Ref 20.0 Ref 20	2500000 GHz 2500000 GHz PNU PRU PRU PRU PRU PRU PRU PRU PR	SENSE:IN O: Wide Trig ain:Low #Att #VBW 100 Y -1.558 dBm	g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>	100/100 Mkr1	TFACE         12.2.45           Type         Ministration           12.401         846         GH           -1.538         dBn
Ref Offse Ref Offse Ref Offse Ref 20.0 Ref	2500000 GHz 2500000 GHz PNU PRU PRU PRU PRU PRU PRU PRU PR	SENSE:IN O: Wide Trig ain:Low #Att #VBW 100 Y -1.558 dBm	g: Free Run ten: 30 dB	ALIGNAUTO #Avg Type: Avg Hold>	100/100 Mkr1	TFACE         12.2.45           Type         Ministration           12.401         846         GH           -1.538         dBn



ilent Spectrum Analyzer - S				
RL RF 50 enter Freq 2.4415	500000 GHz PN0	SENSE:INT	ALIGN AUTO #Avg Type: RMS Avg Hold:>100/100	09:32:15 AM Dec 16, 2022 TRACE 1 2 3 4 5 TYPE MWWWWW DET P N N N N
	IFGa	in:Low #Atten: 30 dB	R	
Ref Offset 2 dB/div Ref 20.00	2.36 dB		IV	lkr1 2.440 844 GHz -1.135 dBm
^{pg}				
.00	<b>↓</b> ¹		$\langle \rangle^2$	
	$\wedge \frown \rightarrow$		$\sim$	
			- ~	
0.0				
0.0				
0.0				
0.0				
enter 2.441500 GH Res BW 30 kHz	Z	#VBW 100 kHz	Swee	Span 2.000 MHz p 2.133 ms (1001 pts
R MODE TRC SCL	×	Y FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1 N 1 F 2 N 1 F	2.440 844 GHz 2.441 842 GHz	-1.135 dBm -1.290 dBm		
8				
9				
1				~
3			STATUS	
		FS NVNT 2-DH1	2480MHz	
			210000112	
ilent Spectrum Analyzer - S	owept SA			
RL RF 50	Ω AC	SENSE:INT	ALIGN AUTO	09:35:11 AM Dec 16, 2022 TRACE 12, 3, 4, 5
RL RF 50	Ω AC 500000 GHz PN0	: Wide 😱 Trig: Free Run	ALIGNAUTO #Avg Type: RMS Avg Hold:>100/100	09:35:11 AM Dec 16, 2022 TRACE 1 2 3 4 5 TYPE MWWWWW DET P N N N N
RL RF 50 enter Freq 2.4795	Ω AC 500000 GHz PN0 IFG2		#Avg Type: RMS Avg Hold:>100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF 50 enter Freq 2.4795 Ref Offset2	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold:>100/100	TRACE 1 2 3 4 5 TYPE MWARAAN
RL RF 50 enter Freq 2.4795 Ref Offset 2 0 dB/div Ref 20.00	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF 50 enter Freq 2.4795 Ref Offset 2 d dB/div Ref 20.00	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold:>100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL         RF         50           enter Freq 2.4795         Ref Offset 2           0 dB/div         Ref 20.00           9         0           0.0         0	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL         RF         50           enter Freq 2.4795         Ref Offset 2           0 dB/div         Ref 20.00           0 0	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL RF 50 enter Freq 2.4795 Ref Offset 2 dB/div Ref 20.00	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL         RF         150           enter Freq 2.4795         Ref Offset 20.00         Ref 20.00           0 dB/div         Ref 20.00         Ref 20.00           0 0	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
enter Freq 2.4795 Ref Offset2	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL         RF         150           enter Freq 2.4795         Ref Offset 20.00         Ref 20.00           0 dB/div         Ref 20.00         Ref 20.00           0 0	Ω AC 500000 GHz PN0 IFG2 2.4 dB	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	TRACE 12345 TYPE MWWWW DET PNNNN
RL         RF         \$0           enter Freq 2.4795         Ref Offset 2         dB/div           dB/div         Ref 20.00         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0           00         0         0	2.4 dB 0 dBm	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold≫100/100	IRACE 12345 TYPE MANNIN DET MANNIN kr1 2.478 844 GHz -1.174 dBm
RL         RF         50           enter Freq 2.4795         Ref Offset 2         Ref 0 ffset 2           dB/div         Ref 20.00         Ref 20.00           0	2.4 dB 0 dBm	: Wide 😱 Trig: Free Run	#Avg Type: RMS Avg Hold>100/100	ITRACE 12345 TYPE DIAL 12345 TYPE DIAL 12345 NINNI Ikr1 2.478 844 GHz -1.174 dBm
RL         RF         50           enter Freq 2.4795         Ref Offset 2         dB/div         Ref 20.00           og	R AC 500000 GHz PNO IFGa 2.4 dB 0 dBm 1 1 2.4 dB 0 dBm 2.4 dB 0 dBm 2.4 dB 0 dBm 1 2.4 dB 0 dBm 2.4 dB 0 dBm 0 d	Hintlow Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold>100/100	IRACE 12345 TYPE MANNIN DET MANNIN kr1 2.478 844 GHz -1.174 dBm
RL         RF         ISO           enter Freq 2.4795         Ref Offset 2         Ref 20.00           dB/div         Ref 20.00         Ref 20.00           0	2 AC FROM CONTRACT OF CONTRACT	#VBW 100 kHz	#Avg Type: RMS Avg Hold>100/100	Trace         D 23 4 S           TYPE         D 21 4 S           OFF         D 21 4 S           VICE         D 21 4 S           VICE
RL         RF         50           enter Freq 2.4795         Ref Offset2         Ref Offset2           dB/div         Ref 20.00         Ref 20.00           00	2. AC 500000 GHz PNO IFG2 2.4 dB 0 dBm 1 1 2 2 2 4 dB 2 4 dB 2 4 4 4 4 4 4 4 4 4 4 4 4 4	#VBW 100 kHz	#Avg Type: RMS Avg Hold>100/100	Trace         D 23 4 S           TYPE         D 21 4 S           OFF         D 21 4 S           VICE         D 21 4 S           VICE
RL         RF         50           enter Freq 2.4795         Ref Offset 2           dB/div         Ref 20.00           0	2. AC 500000 GHz PNO IFG2 2.4 dB 0 dBm 1 1 2 2 2 4 dB 2 4 dB 2 4 4 4 4 4 4 4 4 4 4 4 4 4	#VBW 100 kHz	#Avg Type: RMS Avg Hold>100/100	Trace         D 23 4 S           TYPE         D 21 4 S           OFF         D 21 4 S           VICE         D 21 4 S           VICE
RL         RF         ISO           enter Freq 2.4795         Ref Offset 2         Ref 20.00           dB/div         Ref 20.00         Ref 20.00           0	2. AC 500000 GHz PNO IFG2 2.4 dB 0 dBm 1 1 2 2 2 4 dB 2 4 dB 2 4 4 4 4 4 4 4 4 4 4 4 4 4	#VBW 100 kHz	#Avg Type: RMS Avg Hold>100/100	Trace         D 23 4 S           TYPE         D 21 4 S           OFF         D 21 4 S           VICE         D 21 4 S           VICE
RL         RF         50           enter Freq 2.4795         Ref Offset2         Ref Offset2           dB/div         Ref 20.00         Ref 20.00           0	2. AC 500000 GHz PNO IFG2 2.4 dB 0 dBm 1 1 2 2 2 4 dB 2 4 dB 2 4 4 4 4 4 4 4 4 4 4 4 4 4	#VBW 100 kHz	#Avg Type: RMS Avg Hold>100/100	Trace         D 23 4 S           TYPE         D 21 4 S           OFF         D 21 4 S           VICE         D 21 4 S           VICE

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# 13. Number Of Hopping Frequency

# 13.1 Block Diagram Of Test Setup



# 13.2 Limit

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

## 13.3 Test procedure

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

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

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

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

### 13.4 Test Result

Condition	Mode	Hopping Number	Limit	Verdict
NVNT	1-DH1	79	15	Pass
NVNT	2-DH1	79	15	Pass

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Faue.	
1 0 9 0 1	55 of 66



RL RF 50Ω AC enter Freq 2.441750000 GHz	SENSE:INT PNO: Fast IFGain:Low #Atten: 30 dB	ALIGNAUTO #Avg Type: RMS Avg Hold:>100/100	09:39:01 AM Dec 16, 202 TRACE 1 2 3 4 5 TYPE M WWWW DET P N N N N
Ref Offset 2.36 dB dB/div Ref 20.00 dBm		Mkr1 :	2.401 837 0 GH: -0.176 dBn
	11 N 4 D 6 M 5 N 6 M 10 N 10 N 10 N 10 A 10 A 10 A 10 A 10 A		2 MUD MI O R D D D D D
	FAARAAFAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	₩₩₩₩₩₩₩₩₩
1.0			
0.0 <b>∫</b>			\
art 2.40000 GHz Res BW 100 kHz	#VBW 300 kHz		Stop 2.48350 GH 8.000 ms (1001 pts
R         MODE         TRC         SCL         X           N         1         f         2.401         837         0           2         N         1         f         2.479         826         0		FUNCTION WIDTH FUNC	TION VALUE
3 4 5			
6 7 8			
1 I		<b>Ko</b> status	
	opping No. NVNT 2-DI	-	
<mark>ilent Spectrum Analyzer - Swept SA</mark> R L RF 50 Ω AC	SENSE:INT	ALIGNAUTO	09:45:29 AM Dec 16, 202
enter Freq 2.441750000 GHz	PNO: Fast 🕞 Trig: Free Run IFGain:Low #Atten: 30 dB	#Avg Type: RMS Avg Hold:>100/100	TRACE 12345 TYPE MWWWW DET PNNNN
Ref Offset 2.36 dB dB/div Ref 20.00 dBm		Mkr1 :	2.401 837 0 GH: -0.070 dBn
dB/div Ref 20.00 dBm			
0.0 1 .00 AMAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	www.www.www.www	wwwwwwwwww	and the second second
0.0 100 100 100 100 100 100	whithhamphhaith	www.www.www.	
	www.www.www.www.	wwwwwwwww	
	wwwwwwwwww	wwwwwwww	
	wwwwwwwwww	wwwwwwwww	
			Stop 2.48350 GH
CO CO CONTRACTOR CONTR	#VBW 300 kHz	Sweep	
00       1         00       1         00       1         00       1         00       1         00       1         00       1         00       1         00       1         00       1         1       N       1         1       N       1         1       N       1         1       1       1         2       N       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1       1       1         1 <td>#VBW 300 kHz Y FUNCTION SHz -0.070 dBm</td> <td>Sweep</td> <td>Stop 2.48350 GH 8.000 ms (1001 pts</td>	#VBW 300 kHz Y FUNCTION SHz -0.070 dBm	Sweep	Stop 2.48350 GH 8.000 ms (1001 pts
0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1           0.0         1	#VBW 300 kHz Y FUNCTION SHz -0.070 dBm	Sweep	Stop 2.48350 GH 8.000 ms (1001 pts



# 14. Dwell Time

# 14.1 Block Diagram Of Test Setup



# 14.2 Limit

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

## 14.3 Test procedure

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

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

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

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

# 14.4 Test Result

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

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

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

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

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Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	0.372	118.296	400	Pass
NVNT	1-DH3	2441	1.626	266.664	400	Pass
NVNT	1-DH5	2441	2.874	255.786	400	Pass
NVNT	2-DH1	2441	0.381	120.015	400	Pass
NVNT	2-DH3	2441	1.633	269.445	400	Pass
NVNT	2-DH5	2441	2.880	339.840	400	Pass



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	Dwoll	ר NVNT 1-E			One E	luret		
i <mark>lent Spectrum Analyzer - Swe</mark> RL RF 50Ω			NSE:INT	AL	IGNAUTO			7 AM Dec 16, 2
enter Freq 2.44100	Р	NO: Fast ↔→ Gain:Low	Trig Delay⊰ Trig: Video #Atten: 30 c	•	#Avg Type:	RMS		RACE 1234 TYPE WWWW DET PNNN
Ref Offset 2.3 dB/div Ref 20.00 d							∆Mkr1	372.0   -3.55 c
								TRIGI
.0								
).0 ).0				r turbited				
1.0 <mark>stylundal – Udersteindent</mark> 1. <mark>stylundar – Udersteindent</mark>	e Mitti di esteri strijenti Gubbi dista da acta i kana av	nia internationalistation Alternationalistation	and differences And the second second	lankantet <mark>riku∭k</mark> an lantarik	a da da se porti la secon Texas da na secondada	d ⁱ ts data the data taga A bat davi strat taga		den die die op Internet die op
		all where a			a I to Read	ու ինդի իս անու	de travad	
enter 2.441000000 G	Hz							
		#VBW	/ 3.0 MHz			Sweep	10.00 ms	
R MODE TRC SCL	×	Y	FUNC	TION FUNCT	ION WIDTH		10.00 ms	Span 0   (10001 p
25 BW 1.0 MHz R MODE TRC SCL Δ2 1 t (Δ) 2 F 1 t		Y	FUNC	TION FUNCT	ION WIDTH			
es BW 1.0 MHz R MODE TRC SCL Δ2 1 t (Δ) F 1 t G 1 t	× 372.0 μs	γ (Δ) -3.55	FUNC	TION FUNCT	ION WIDTH			
225 BW 1.0 MHz R MODE TRC SCL Δ2 1 t (Δ) F 1 t 5 4 4 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	× 372.0 μs	γ (Δ) -3.55	FUNC	TION FUNCI	ION WIDTH			
es BW 1.0 MHz R MODE TRC SCL Δ2 1 t (Δ)	× 372.0 μs	γ (Δ) -3.55	FUNC	CTION FUNC	ION WIDTH			

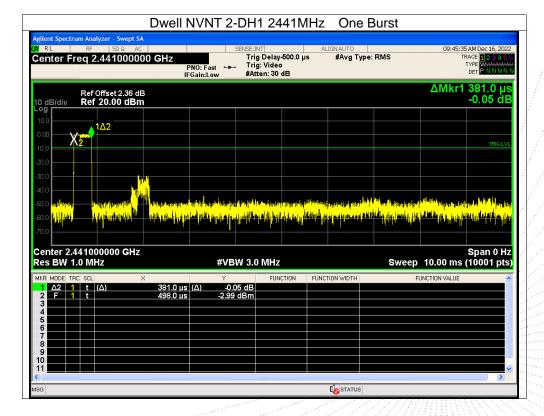
### Dwell NVNT 1-DH3 2441MHz One Burst ept SA nt Spectrum Analyzer RL NSE:INT Trig Delay-500.0 μs Trig: Video #Atten: 30 dB #Avg Type: RMS Center Freq 2.441000000 GHz PNO: Fast ↔↔ IFGain:Low TYPE DET ΔMkr1 1.626 ms -1.72 dB Ref Offset 2.36 dB Ref 20.00 dBm 10 dB/div 1<u>Δ</u>2 Xalladadadad to a physical sector of the large large france of a second large goal. والمرابع والمرابعة والمنافع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمتعاد والمتحاف والمراجع Center 2.441000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 10.00 ms (10001 pts) #VBW 3.0 MHz FUNCTION WIDTH FUNCTION VALUE FUNCTION Δ2 1 t (Δ) F 1 t 1.626 ms (Δ) 490.0 μs -1.72 dl -12.12 dBr

# 

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Dwell N	NVNT 1-DH5 2441N	IHz One Burst	
	SENSE:INT Trig Delay-500.0 µ N0: Fast ↔ Trig: Video Gain:Low #Atten: 30 dB	ALIGNAUTO Is #Avg Type: RMS	09:49:57 AM Dec 16, 2022 TRACE 1 2 3 4 5 6 TYPE WAAAAAAA DET P N N N N
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Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Swe	Span 0 Hz ep 10.00 ms (10001 pts)
MKR         MODE         TRC         SCL         X           1         A2         1         t         (A)         2.874 ms           2         F         1         t         490.0 µs           3         -         -         -           6         -         -         -           7         -         -         -           9         -         -         -           10         -         -         -	Y FUNCTION (Δ) -3.48 dB -12.14 dBm	FUNCTION WIDTH	FUNCTION VALUE
NSG ST		STATUS	



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Dwe	II NVNT 2-DH	I3 2441MF	lz One	Burst	
Agilent Spectrum Analyzer - Swept SA V RL RF 50 Ω AC Center Freq 2.441000000 GHz	PNO: Fast +++ Tri	INT ig Delay-500.0 μs ig: Video tten: 30 dB	ALIGNAUTO #Avg Typ	e: RMS	09:50:42 AM Det 16, 2022 TRACE 12 3 4 5 6 TYPE WWWWWW DET PNNNNN
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Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.	0 MHz		Sweep	Span 0 Hz 10.00 ms (10001 pts)
MKR         MODE         TRC         SCL         X           1         Δ2         1         t         (Δ)         1.653           2         F         1         t         486.           3         -         -         486.           4         -         -         -           5         -         -         -           6         -         -         -           7         -         -         -           9         -         -         -           10         -         -         -	Y - O.34 dB 0 μs -12.99 dBm		UNCTION WIDTH	FL	INCTION VALUE
MSG			STATUS		

ilent Spectrum Analyzer - Swe		VNT 2-DH	0 277 110	1Hz One I	Barot		
RL RF 50Ω enter Freq 2.44100	0000 GHz	0:East ⊶⊶ Trie	uт g Delay-500.0 μ g:Video ten:30 dB	ALIGN AUTO IS #Avg Type	e: RMS	TYPE	ec 16, 20 <mark>1 2 3 4 5</mark> W N N N
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No.: BCTC/RF-EMC-007



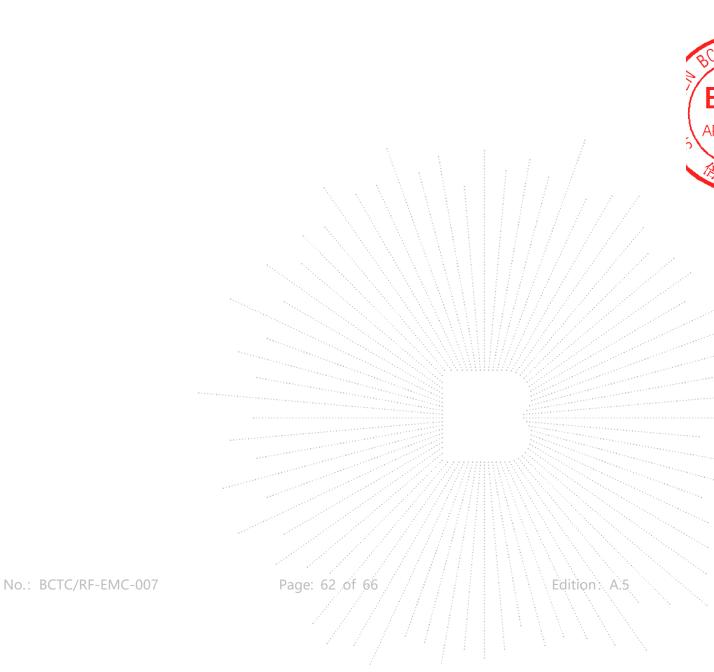
# 15. Antenna Requirement

## 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 Ceramic antenna, fulfill the requirement of this section.





# 16. EUT Photographs

EUT Photo



NOTE: Appendix-Photographs Of EUT Constructional Details

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# 17. EUT Test Setup Photographs

Conducted emissions

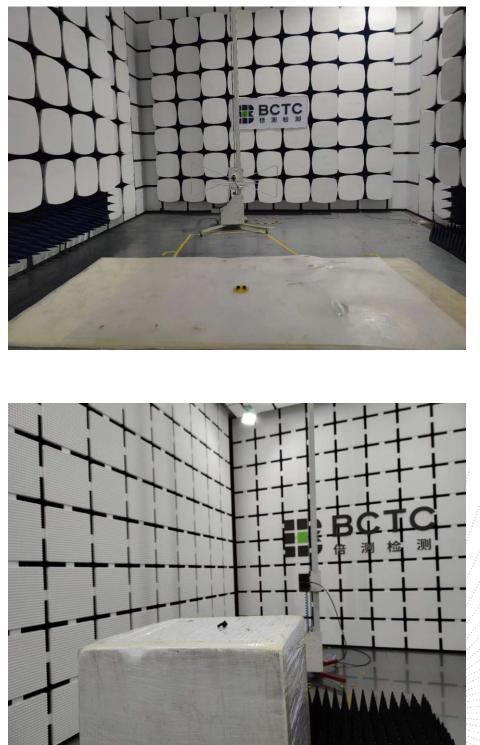








Radiated Measurement Photos





# 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.

# Address:

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P.C.: 518103

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Website: http://www.chnbctc.com

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

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