

RL RF 50Ω AC Inter Freq 2.441500000	GHz	GE:INT	ALIGNAUTO #Avg Type: R	MS	23 PM Mar 05, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
		Trig: Free Run #Atten: 30 dB	Avg Hold:>10	0/100	DET PNNNN
Ref Offset 2.36 dB dB/div Ref 20.00 dBm				Mkr1 2.44 -(0 824 GHz 3.596 dBm
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tes BW 30 kHz	#VBW ′	100 kHz		Sweep 2.133 n	
N 1 F 2.44	V 10 824 GHz -6.596 dB	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	
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	CFS NVN	T 2-DH1 2			
ent Spectrum Analyzer - Swept SA RL RF 50Ω AC	SENS	T 2-DH1 2	ALIGNAUTO		:18 PM Mar 05, 2024
ent Spectrum Analyzer - Swept SA RL RF 50Ω AC) GHz	BE:INT	480MHz	MS	:18 PM Mar 05, 2024 TRACE 1 2 3 4 5 TYPE MWWWW
ent Spectrum Analyzer - Swept SA RL RF 50 Q AC Inter Freq 2.479500000) GHz	GE:INT	ALIGNAUTO #Avg Type: R	MS 0/100	TRACE 12345 TYPE MWWWWW DET PNNNN
ent Spectrum Analyzer - Swept SA RL RF 50.0 AC inter Freq 2.479500000 Ref Offset 2.4 dB dB/div Ref 20.00 dBm) GHz PNO: Wide	BE:INT	ALIGNAUTO #Avg Type: R	Ms 0/100 Mkr1 2.47	TRACE 12345 TYPE MWWWW DET PNNNN
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enter 2.402500 G Res BW 30 kHz	HZ	#VBW	100 kHz		Sweep	span 2.133 ms	2.000 MHz (1001 pts)
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lent Spectrum Analyzer				2441MHz			
lent Spectrum Analyzer RL RF	50 Ω AC		NT 3-DH1		:: RMS •100/100	12:52:52 TF	2 PM Mar 05, 2024
lent Spectrum Analyzer RL RF enter Freq 2.44 Ref Offse dB/div Ref 20	50 Ω AC 1500000 GHz et 2.36 dB	PNO: Wide	NSE:INT	2441MHz Alignauto #Avg Type	+100/100	۳ ۲۲ (r1 2.44 0	PM Mar 05, 2024 RACE 1 2 3 4 5 6 TYPE MWWWWW DET P. N.N.N.1
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Ref Offs: Ref Offs: Ref 20. Ref 20. Re	30 Ω AC 1500000 GHz et 2.36 dB 00 dBm 1 1 4 1 4 4 2.36 dB 00 dBm 1 4 5 5 5 5 5 5 5 5 5 5 5 5 5	FRO: Wide FIFGain:Low	NSE:INT Trig: Free Run #Atten: 30 dB	2441MHz	Sweep	span 2.133 ms	20000 MHz



	CFS NVNT 3-I	DH1 2480MHz	
Agilent Spectrum Analyzer - Swept SA			
ଆ RL RF 50 ହ AC Center Freq 2.479500000 GHz	PNO: Wide IFGain:Low #Atten: 3		
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-30.0			
-50.0			
-70.0 Center 2.479500 GHz			Span 2.000 MH
#Res BW 30 kHz	#VBW 100 kH	z	Sweep 2.133 ms (1001 pts
MKR MODE TRC SCL X 1 N 1 f 2.478 826		INCTION FUNCTION WIDTH	FUNCTION VALUE
2 N 1 f 2.479 828	GHz -7.436 dBm GHz -7.497 dBm		
5 6 7			
8 9 10 11			
< ISG		In status	





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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
NVNT	3-DH1	79	15	Pass

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RL RF 503 Renter Freq 2.4417	PNO		Free Run n: 30 dB	ALIGN AUTO #Avg Type: I Avg Hold:>1		12:59:48 PM M TRACE TYPE DET	ar 05, 2024 1 2 3 4 5 6 9 N N N N N
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tart 2.40000 GHz Res BW 100 kHz		#VBW 300	kHz		Sweep	Stop 2.483 8.000 ms (10	
KR MODE TRC SCL	× 2.401 837 0 GHz	-2.522 dBm	FUNCTION FUI	NCTION WIDTH	FUN	ICTION VALUE	^
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		in a Nin NIV/			_		
		ing No. NV	NT 2-DH1		Z		
gilent Spectrum Analyzer - Sv	vept SA	ING NO. NV			Z	01:06:31 PM M	ar 05, 2024
g <mark>ilent Spectrum Analyzer - Sv</mark>	wept SA 2 AC 50000 GHz	SENSE:INT		2441MH ALIGN AUTO #Avg Type: I	RMS	TRACE	123456
g <mark>ilent Spectrum Analyzer - Sv</mark>	vept SA 2 AC 50000 GHz PN0	SENSE:INT		2441MH	RMS 00/100	TRACE TYPE DET	123456 MWWWWW PNNNNN
glient Spectrum Analyzer - Sv RL RF 503 enter Freq 2.4417 Ref Offset 2	vept SA 2 AC 500000 GHz PNO IFGa .36 dB	SENSE:INT	Free Run	2441MH ALIGN AUTO #Avg Type: I	RMS 00/100	TRACE TYPE DET 2.401 920	123456 NNNNN 5 GHz
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Ref Offset 2 0 dB/div Ref 20.00 0 dB/div Ref 20.00 0 dB/div Ref 20.00 0 dB/div Ref 20.00	vept SA 2 AC 500000 GHz PNO IFGa .36 dB	SENSE:INT D: Fast Trig: in:Low #Atte	Free Run n: 30 dB	2441MH ALIGNAUTO #Avg Type: Avg Hold>1	RMS 00/100 Mkr1	TRACE TYPE Det 2.401 920 -2.708	5 GHz
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glient Spectrum Analyzer - Sy RL RF SO center Freq 2.4417 Ref Offset 2 Ref Offset 2 0 dB/div Ref 20.00 Ref 20.00 0 d0 1 Ref 20.00 0 d0 1 1 0 d0 1 1 0 d0 1 1 0 d0 1 1	vept SA 2 AC 4 50000 GHz PNC FG2 .36 dB dBm 4 V/V/V/V/V/V/V/V/V/V/V/V/V/V/V/V/V/V/V/	SENSE:INT D: Fast Trig: in:Low #Atte	Free Run n: 30 dB	2441MH	RMS DOI/100 Mkr1	TRACE TYPE Det 2.401 920 -2.708 -2.708 MMMMMMM Stop 2.483 8.000 ms (10	5 GHz 4 dBm 4 dBm 2 dBm 5 GHz 5 GHz
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Edition : B.1

No. : BCTC/RF-EMC-005



			Нор	ping No	. NVN	T 3-D	H1 2441	MHz		
	rum Ana	lyzer - Swept SA	1							
XI RL Center F	RF req 2	50 Ω AC 2.44175000	00 GHz	PNO: Fast 😱 Gain:Low	Trig: Fre #Atten: \$			Type: RMS fold:>100/100		1 PM Mar 05, 2024 IRACE 1 2 3 4 5 TYPE M WWWW DET P N N N N
10 dB/div Log		Offset 2.36 dE 20.00 dBm						Mk	r1 2.401 8 -2	37 0 GHz 459 dBm
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70.0										
start 2.40 Res BW				#VB	W 300 kH	z		Swe	Stop 2 ep 8.000 m	.48350 GH s (1001 pts
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3 4 5										
6 7 8 9										
10										,
SG							K STAT	US		

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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.

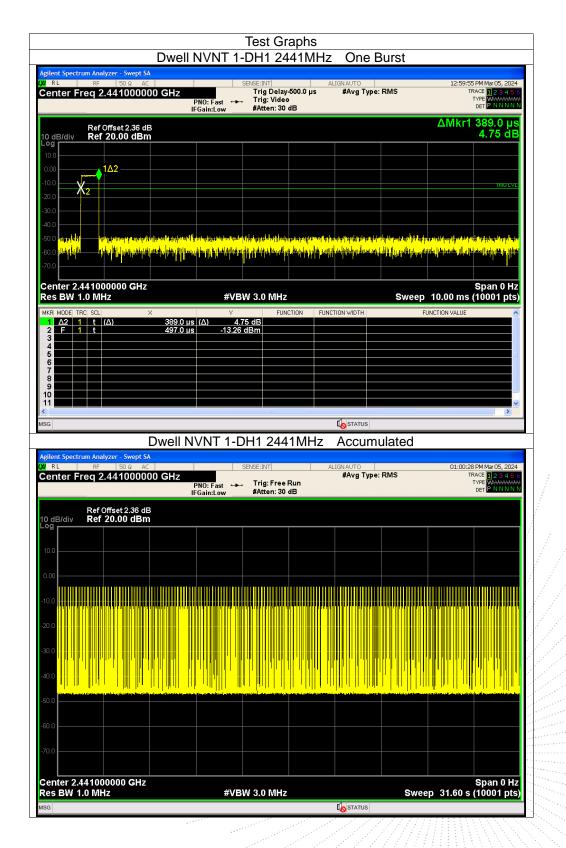
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH1	2441	0.389	122.146	314	31600	400	Pass
1-DH3	2441	1.644	259.752	158	31600	400	Pass
1-DH5	2441	2.893	289.3	100	31600	400	Pass
2-DH1	2441	0.398	125.37	315	31600	400	Pass
2-DH3	2441	1.65	267.3	162	31600	400	Pass
2-DH5	2441	2.894	321.234	111	31600	400	Pass
3-DH1	2441	0.4	127.6	319	31600	400	Pass
3-DH3	2441	1.649	265.489	161	31600	400	Pass
3-DH5	2441	2.897	338.949	117	31600	400	Pass

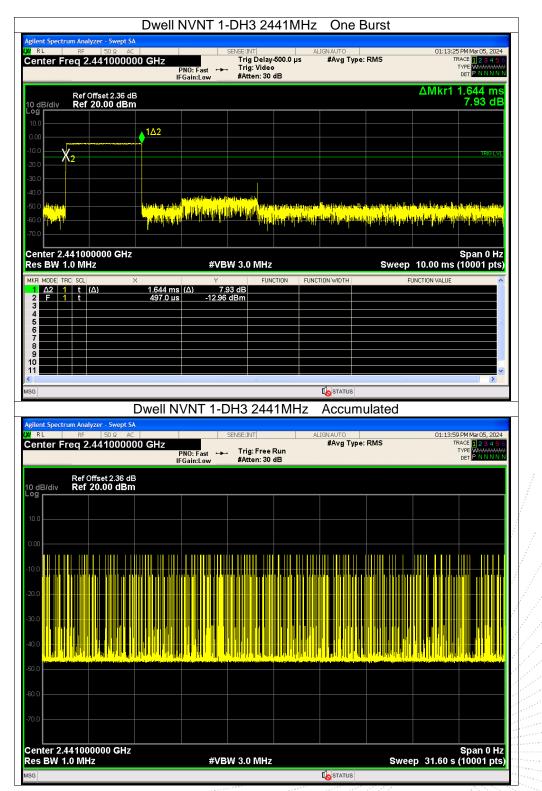
14.4 Test Result

Note: Total Dwell Time (ms) = Pulse Time (ms)*Burst Count



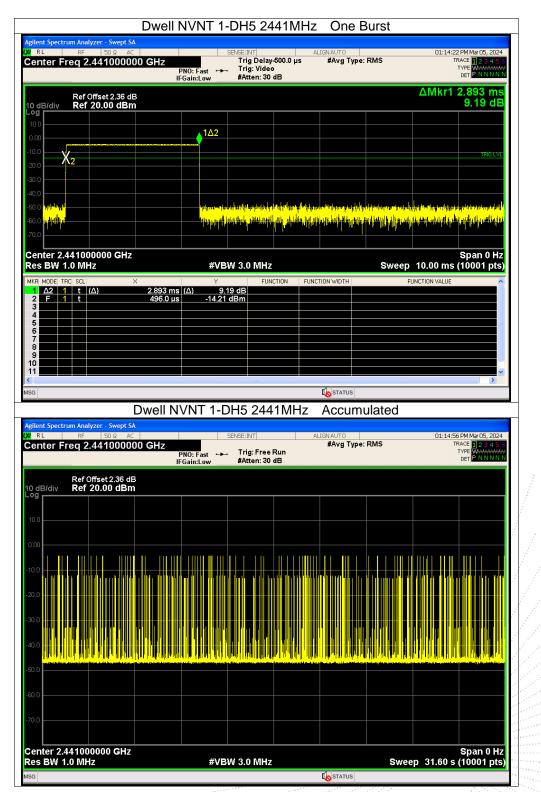






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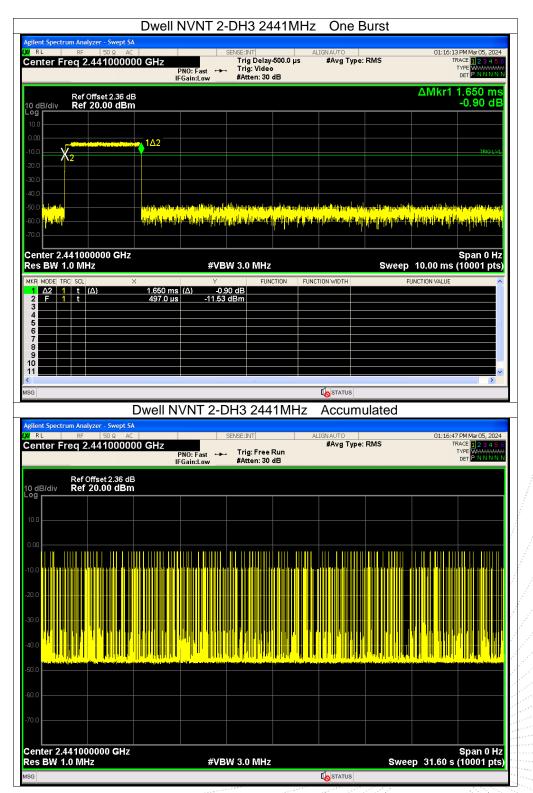






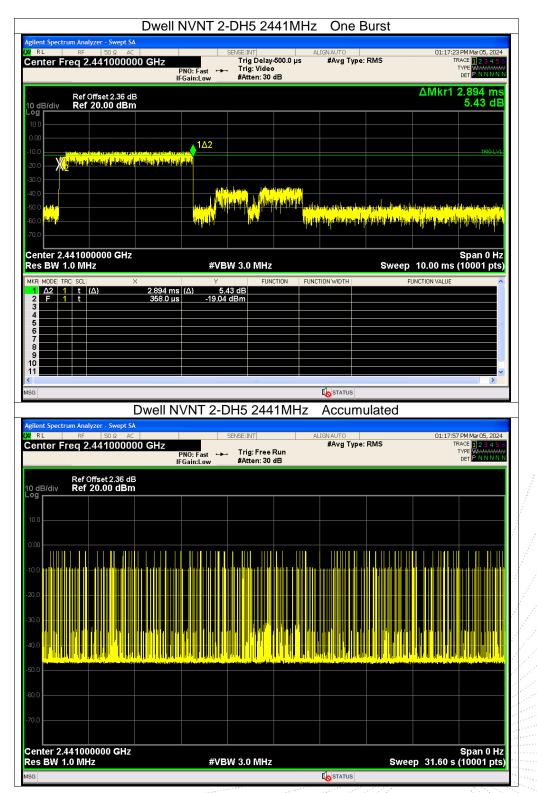
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gilent Spectrum Analyzer RL RF Center Freq 2.44	50 Ω AC 1000000 GHz	PNO: Fast	SENSE:INT Trig Delay Trig: Video #Atten: 30	500.0 µs	IGN AUTO #Avg Type:	RMS	т	7 PM Mar 05, 2024 RACE 1 2 3 4 5 TYPE WWWWW DET PNNNN
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0.00 1Δ2 10.0 X2	2							
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40.0 50.0 <mark>((,,,,),,,,,),,,,,,,,,,,,,,,,,,,,,,,,</mark>	la an	n here friger for the spirit	alayar di seri <mark>yiliyi karal</mark>	<mark>et ander son der ster ster son son son son son son son son son son</mark>	u pangha sa kalangan sa ka	hetkopstikkkelesiplesi	ANH MARKA NAHANA	<mark>is platin</mark> (1) (¹⁰ /1) (1)
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	497.0 μ	s -11.66	dBm					
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8 9 0								
1					STATUS			
		IVNT 2-D	0H1 244	1MHz	Accum	ulated		
RL RF RL RF Rt RF RT RF	50 Ω AC		SENSE:INT		IGNAUTO #Avg Type:	RMS	TI	1 PM Mar 05, 2024 RACE 1 2 3 4 5
		PNO: Fast +++ IFGain:Low	Trig: Free I #Atten: 30					DET P N N N N
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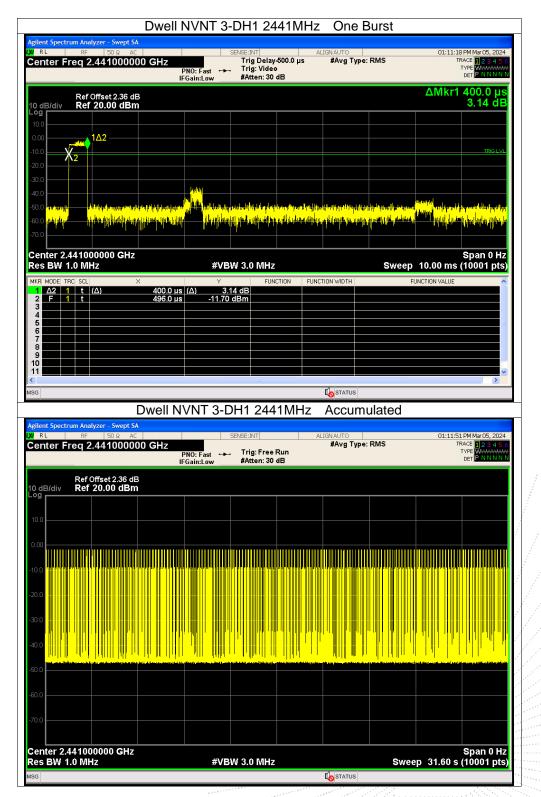
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	ept SA	VINT 3-L	DH3 244		Accum	ulated		
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RL RF 50 Ω enter Freq 2.44100 	ept SA AC 00000 GHz 1 36 dB	PNO: Fast ↔	SENSE:INT	A Run	LIGN AUTO		01:19:2 T	
RL RF 50 2 enter Freq 2.44100 Ref Offset 2.3 dB/div Ref 20.00 d	ept SA AC 00000 GHz 1 36 dB	PNO: Fast ↔	SENSE:INT	A Run	LIGN AUTO		01:19:2: T	
RL RF 50 2 enter Freq 2.44100 Ref Offset 2.3 dB/div Ref 20.00 d	ept SA AC 00000 GHz 1 36 dB	PNO: Fast ↔	SENSE:INT	A Run	LIGN AUTO		01:19:2: T	
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enter Freq 2.44100 Ref Offset 2.3	ept SA AC 00000 GHz 1 36 dB	PNO: Fast ↔	SENSE:INT	A Run	LIGN AUTO			
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P E A



	Dwell N	IVNT 3-D	DH5 2441MF	Hz One E	Burst		
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ISG	Dwell N\	/NT 3-DF	H5 2441MHz	z Accum	ulated		
A <mark>gilent Spectrum Analyzer - S</mark> K/ RL RF 50	wept SA		NSE:INT	ALIGNAUTO		01:20:4	1 PM Mar 05, 2024
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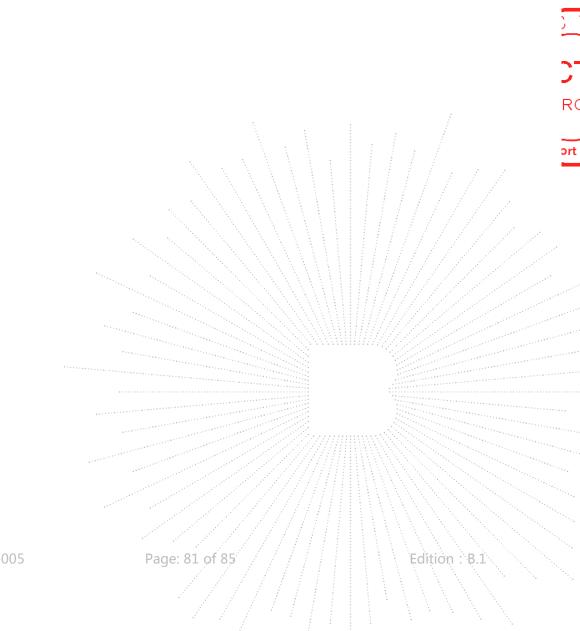
15. Antenna Requirement

15.1 Limit

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

15.2 Test Result

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

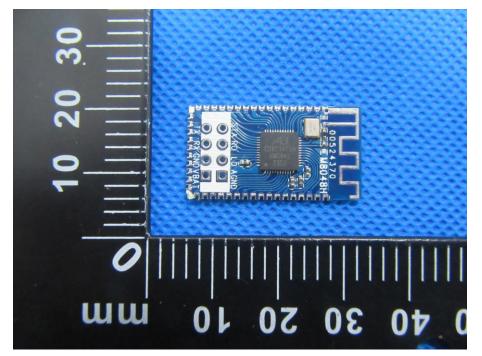


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16. EUT Photographs

EUT Photo



NOTE: Appendix-Photographs Of EUT Constructional Details

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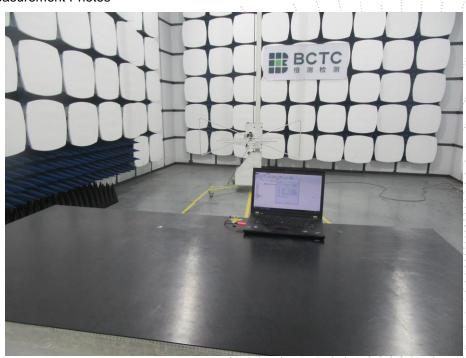


17. EUT Test Setup Photographs

Conducted emissions



Radiated Measurement Photos



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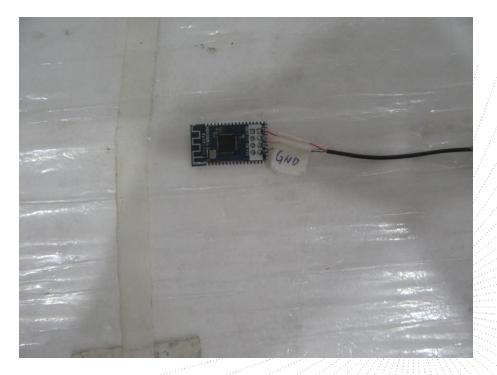
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STATEMENT

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

8. 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:

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

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P.C.: 518103

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Website: http://www.chnbctc.com

E-Mail: bctc@bctc-lab.com.cn

***** END *****

No. : BCTC/RF-EMC-005

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