

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:

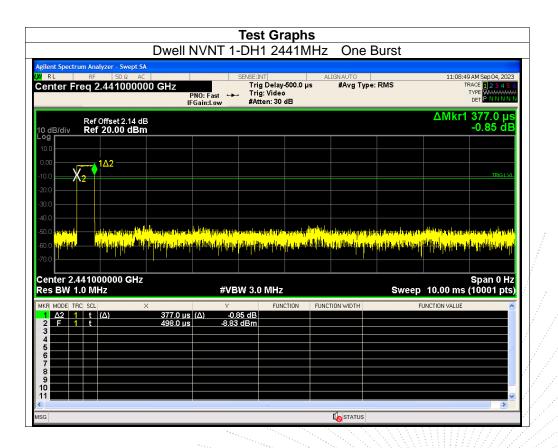
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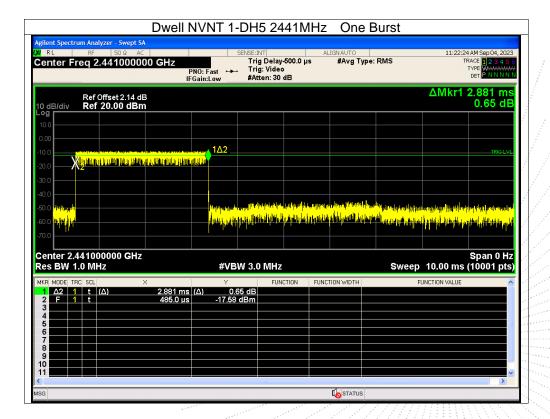
Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (s)	Limit (s)	Verdict
NVNT	1-DH1	2441	0.377	0.121	0.4	Pass
NVNT	1-DH3	2441	1.632	0.261	0.4	Pass
NVNT	1-DH5	2441	2.881	0.307	0.4	Pass
NVNT	2-DH1	2441	0.386	0.124	0.4	Pass
NVNT	2-DH3	2441	1.638	0.262	0.4	Pass
NVNT	2-DH5	2441	2.88	0.307	0.4	Pass
NVNT	3-DH1	2441	0.387	0.124	0.4	Pass
NVNT	3-DH3	2441	1.637	0.262	0.4	Pass
NVNT	3-DH5	2441	2.888	0.308	0.4	Pass



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	Dwell I	VNT 1-D	H3 2441N	1Hz One	Burst	
agilent Spectrum Analyzer - Swept S XI RL RF 50Ω A Center Freq 2.4410000	00 GHz	NO: East ++ T	нит rig Delay-500.0 µ rig: Video Atten: 30 dB	ALIGNAUTO Is #Avg Ty	pe: RMS	11:37:05 AM Sep 04, 2 TRACE 1 2 3 4 TYPE WWWW DET P.N.N.
Ref Offset 2.14 d 10 dB/div Ref 20.00 dBr						ΔMkr1 1.632 r 2.47 c
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10.0 X 2						TRIG
30.0						
50.0 ann ann an Ann	i den fan jier fielden as der den ferder de			de producto de la competencia Nacional de la competencia de la competen Nacional de la competencia de la	in die bij para bride het i Andre bieren die einer de	Norden diebergenie besteren die eine Name ander die eine geschieder die eine
70.0	11 and and a starting the	an dan tan manake	al de de le constant			
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MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t 3	× 1.632 ms 498.0 μs	Υ (Δ) 2.47 df -5.94 dBr		FUNCTION WIDTH	FL	UNCTION VALUE
4 5 6 7						
6 7 8 9						6









	Dwell N	IVNT 2-D	H1 24	41MHz	One	Burst		
agilent Spectrum Analyzer - Swept S R RL RF 50 Ω AC Center Freq 2.4410000	00 GHz	N0:East ↔►→	SE:INT Trig Delay- Trig: Video #Atten: 30 d	500.0 µs	IGNAUTO #Avg Typ	e: RMS		i AM Sep 04, 202: RACE 1 2 3 4 5 TYPE WAMAAAA DET PNNNN
Ref Offset 2.14 dl							ΔMkr1	386.0 µs 3.36 dE
0.00 -10.0 -20.0 -30.0								TRIG LVI
-40.0 -50.0 <mark>14.4 Annual An Annual Annual Annual</mark>	i in company a set dia di Anglesia ang da sa pagina	l <mark>à b</mark> hainn a bhlan b P ^{art} ainn a bhlan b	n hetati hetaan Arganti galamin	dia teologia baten <mark>1. au anti-ta ba</mark> ten	oni a cali padala Opting can patrices	la <mark>la</mark> i na kacina di kapang di U tangga <mark>ki pangkapang dapang dapa</mark>	unite des prény series unite series des prény series unite series des prény series des prény series des prény series des prény series d	ni dina dala manganya Ni dina di <mark>dana sa sa sa p</mark> a
Center 2.441000000 GHz Res BW 1.0 MHz		#VBW	3.0 MHz			Sweep	10.00 ms	Span 0 H (10001 pts
MKR MODE TRC SCL	X	Y	FUNC	TION FUNC	TION WIDTH	FI	UNCTION VALUE	
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2 F 1 t 3 4								

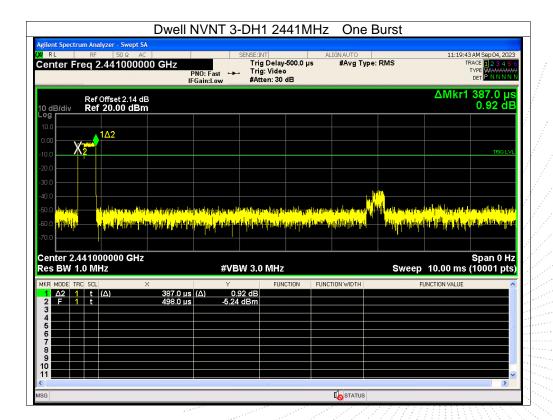
11:23:20 AM Sep 04, 2023 TRACE [] 2 3 4 5 C TYPE WWWWWWW DET P NNNNN ΔMkr1 1.638 ms -1.92 dB TROLVL

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	Dwell N	NVNT 2-	DH3 24	41MHz	One E	Burst		
gilent Spectrum Analyzer - Swept S RL RF 50Ω A Center Freq 2.4410000	00 GHz	PNO: Fast ↔→ Gain:Low	EENSE:INT Trig Delay Trig: Video #Atten: 30	500.0 µs	LIGNAUTO #Avg Type	: RMS		20 AM Sep 04, 20 TRACE 1 2 3 4 TYPE WWWWW DET P N N N
Ref Offset 2.14 d 0 dB/div Ref 20.00 dBr							∆Mkr1	1.638 m -1.92 d
10.0								
	1∆2							TRIG I
10.0 50.0 <mark>14 30 60.0 <mark>14 30</mark></mark>		italian dina kata Kanading kapatangan	d <mark>an kelak</mark> ta diseta ya ju	tisles dip a ferilens bede en felige bede fe de sj	i fel di teringe hersed (filig <mark>i</mark> ne by ister folged	i de la companya da	n a si ka si	in the state of the s
			M 3.0 MHz	nd dy talented al part of a s	h <mark>dala da fan benne han sen bar</mark> <mark>(terpingen hin jan a</mark> n stat	nin annaithean	10.00 ms	Span 0 I
40.0 50.0 14.0 50.0	×	#VB V	Maddal Line house N 3.0 MHz		t title solar s	Sweep		Span 0 I
100 1 μ 200 μ 1 200 μ 1 200 1 t 1 Δ2 1 t 2 F 1 t 3 4 5 5		#VB\ Υ (Δ) -1.9	M 3.0 MHz		<mark>, 100 100 400 400 400 400 400 400 400 400 400</mark>	Sweep	10.00 ms	Span 0
40.0 μ μ 50.0 μ μ 6 μ μ 7 μ μ 6 μ μ 8 μ μ	× 1.638 ms	#VB\ Υ (Δ) -1.9	M 3.0 MHz		<mark>, 100 100 400 400 400 400 400 400 400 400 400</mark>	Sweep	10.00 ms	Span 0 I
40.0 μ 50.0 μ 6 μ 7 μ 8 μ	× 1.638 ms	#VB\ Υ (Δ) -1.9	M 3.0 MHz		<mark>, 100 100 400 400 400 400 400 400 400 400 400</mark>	Sweep	10.00 ms	Span 0 I



Dwell N	VNT 2-DH5	5 2441MHz	One Bu	ırst	
	NO: Fast ++ Trig:	Γ Al Delay-500.0 μs Video en:30 dB	LIGNAUTO #Avg Type: RI	MS	11:24:12 AM Sep 04, 202 TRACE 1 2 3 4 5 TYPE WWWWW DET P N N N
Ref Offset 2.14 dB 10 dB/div Ref 20.00 dBm 10 0		<mark>, ha ku ja</mark> ran, u ka _{n d} a ku	1	historial and the second s	ΔMkr1 2.880 m 0.84 df 1892 LV
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0	MHz		Sweep 1	Span 0 H 0.00 ms (10001 pts
MKR MODE TRC SCL X 1 Δ2 1 t (Δ) 2.880 ms 2 F 1 t 415.0 µs 3 4 5 5 6 6 7 7 8 9 10 11 11 11 11	Υ (Δ) 0.84 dB -16.97 dBm	FUNCTION FUNC	TION WIDTH	FUNC	TION VALUE
MSG			K STATUS		







	Dwell NVNT 3-I	DH3 2441MH	Iz One Burst	
Agilent Spectrum Analyzer - Swept SA		NSE:INT Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	ALIGNAUTO #Avg Type: RMS	11:25:08 AM Sep 04, 2023 TRACE 12 3 4 5 6 TYPE WWWWWW DET PNNNNN
Ref Offset 2.14 dB 10 dB/div Ref 20.00 dBm 10.0	142			ΔMkr1 1.637 ms 2.82 dB
-10.0 -20.0 -30.0				TROLVL
-40.0	top and following the set of sets with a set of sets Angle the set of the following the following before the Angle the set of the following before the following before the	hilad hada silaya di periosa di <mark>1914 - Maria Kang tahun di angan sikiliki</mark> 1914 - Maria Kang tahun di Angan sikiliki		ne ma parta da mandra da serie da
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW	/ 3.0 MHz	Swe	Span 0 Hz eep 10.00 ms (10001 pts)
MKR MODE TRC SCL X A2 1 t (A) 2 F 1 t 3 4 5 5 6 7 8 9 10 11 11 11 11 11 11 11 11 11	Υ 1.637 ms (Δ) 2.82 498.0 μs -6.93 d	dB	FUNCTION WIDTH	FUNCTION VALUE
MSG			STATUS	

Dwell NVNT 3-DH5 2441MHz One Burst RL NSEINT Trig Delay-500.0 μs Trig: Video #Atten: 30 dB Center Freq 2.441000000 GHz #Avg Type: RMS PNO: Fast 🔸 ∆Mkr1 2.888 ms -1.80 dB Ref Offset 2.14 dB Ref 20.00 dBm 10 dB/div <u>1∆2</u> (<mark>, y) ta bay na ba bay na ba day si ba bay na babbalan ƙ</mark> . A , in , i , the provide some second se Center 2.441000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 10.00 ms (10001 pts) #VBW 3.0 MHz 2.888 ms (∆) 354.0 µs -1.80 dE -15.67 dBm 1 t 1 t **STATUS**

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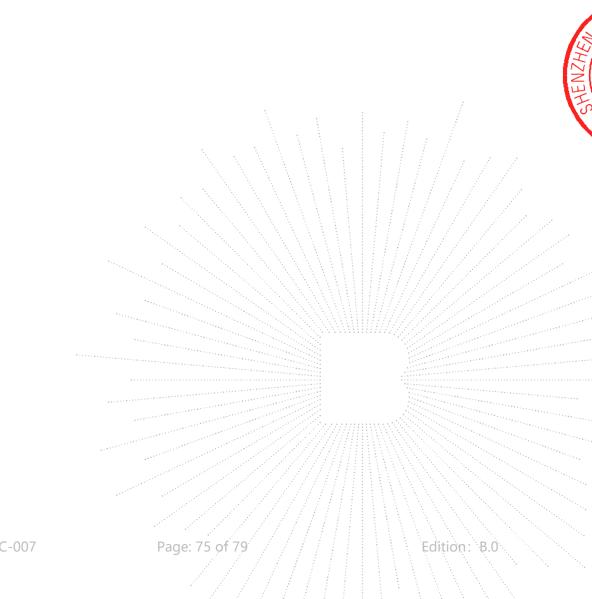
15. Antenna Requirement

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 Internal antenna, fulfill the requirement of this section.



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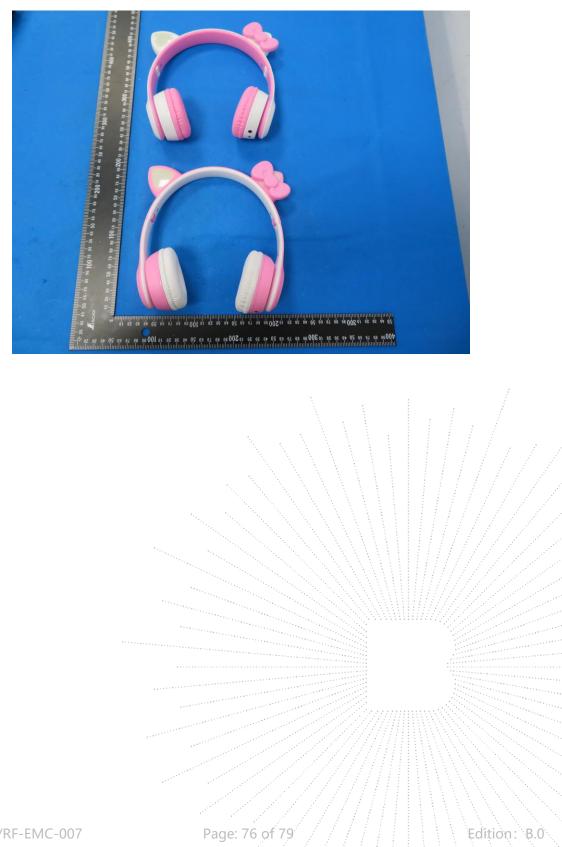


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16. EUT Photographs

EUT Photo 1

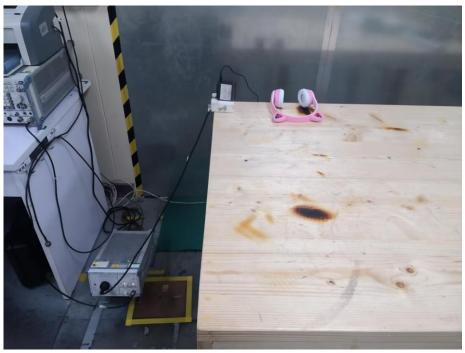


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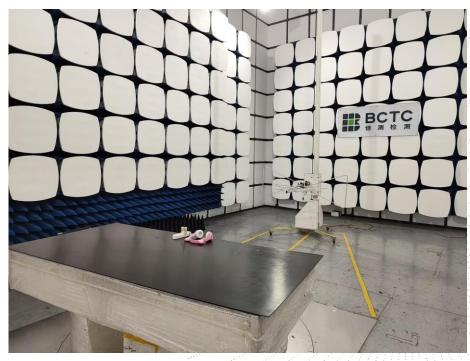


17. EUT Test Setup Photographs

Conducted Measurement 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 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.

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***** END *****

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