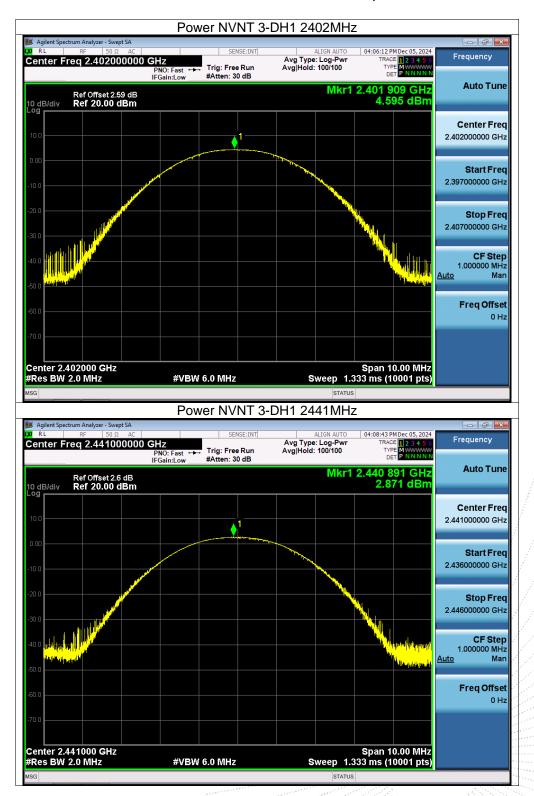


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12. Hopping Channel Separation

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.

Mode	Test Channel	Separation (MHz)	Limit(MHz)	Result
1-DH1	Low Market	0.974	0.583	PASS
1-DH1	Middle	1.014	0.593	PASS
1-DH1	High	1.008	0.646	PASS
2-DH1	Low	0.998	0.830	PASS
2-DH1	Middle	1.000	0.833	PASS
2-DH1	High	1.000	0.825	PASS
3-DH1	Low	0.998	0.829	PASS
3-DH1	Middle	0.998	0.844	PASS
3-DH1	High	1.000	0.856	PASS

12.4 Test Result



CF	Test G S NVNT 1-I	iraphs DH1 2402MHz		
Ω AC 00000 GHz	SENSE:INT Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	03:39:20 PM Dec 05, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P NNNN	
2.59 dB		Mkr1	2.402 018 GHz 3.526 dBm	Auto Tune
		2	man and a second se	Center Free 2.402500000 GH
				Start Fre 2.401500000 GH
				Stop Free 2.403500000 GH
#VBW	Y FL		Span 2.000 MHz .133 ms (1001 pts) FUNCTION VALUE	CF Step 200.000 kH <u>Auto</u> Mar
2.402 018 GHz 2.402 992 GHz	3.526 dBm 3.139 dBm			Freq Offse 0 H
2 AC	SENSE:INT	DH1 2441MHz ALIGN AUTO Avg Type: Log-Pwr Avg Hoid:>100/100	03:42:46 PM Dec 05, 2024 TRACE 2 3 4 5 0 TYPE M	Frequency
		Mkr1	2.440 914 GHz 0.774 dBm	Auto Tun
	······································	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Marine Marine and Ma	Center Fre 2.441500000 GH
				Start Fre 2.440500000 GH
				Stop Free 2.442500000 GH
#VBW	Y FL		Span 2.000 MHz .133 ms (1001 pts) FUNCTION VALUE	CF Step 200.000 kH <u>Auto</u> Mar
2.440 914 GHz 2.441 928 GHz	0.774 dBm 0.700 dBm			Freq Offse
	x x x x x x x x x x x x x x	CFS NVNT 1-I SENSE:INT DOUDO CHZ FNO: Wide Trig: Free Run RAtter: 30 dB CBM CBM CFS NVNT 1-I CFS NVNT 1-I CFS NVNT 1-I CFS NVNT 1-I SENSE:INT CFS NVNT 1-I CFS NVNT 1-I CF	2 AC SENSE:INT ALIGN AUTO PRO: Wide Trig: Free Run Free Run Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Arg Type: Log-Pwr ArgHoid:>100/100 Arg Type: Log-Pwr 2 #VEW 100 KHz Sweep 2 X Y FUNCTION FUNCTION WIDTH 2.402 892 CHz 3.526 dBm Trig: Free Run Free Run Free Run Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Trig: Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Trig: Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Trig: Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Trig: Free Run Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Trig: Free Run Trig: Free Run Trig: Free Run Trig: Free Run Arg Type: Log-Pwr ArgHoid:>100/100 Trig: Free Run Trig: Free Run	CFS NVNT 1-DH1 2402MHz SENSELINT AUGUAUTIO SENSELINT THE: FF: REN AVG TYPE: Cog.PDV THE: FF: REN AVG TYPE: Cog.PDV TH: FF: R



	U	<u>-S NVNT 1-E</u>			
Jagilent Spectrum Analyzer - Swe		CENCE INT		02:40:57 040-5 05 2024	- ē ×
ເ₩ RL RF 50 Ω Center Freq 2.47950		Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	03:49:57 PM Dec 05, 2024 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P N N N N N	Frequency
Ref Offset 2. 10 dB/div Ref 20.00	61 dB		Mkr1	2.478 918 GHz 0.131 dBm	Auto Tune
Log 10.0					Conton Eng
0.00	↓		\diamond^2		Center Freq 2.479500000 GHz
-10.0	and the second s		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- Marine Contraction of the second se	2.479500000 GH2
and the second s		man man	~	- marine	
-20.0				~~~~	Start Freq
-40.0					2.478500000 GHz
-50.0					
-60.0					Stop Freq
-70.0					2.480500000 GHz
-70.0					
Center 2.479500 GHz #Res BW 30 kHz		V 100 kHz	-	Span 2.000 MHz 133 ms (1001 pts)	CF Step 200.000 kHz Auto Man
MKR MODE TRC SCL	X 2 478 918 GHz	Y FU 0.131 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	
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		-S NVNT 2-E	DH1 2402MHz		
🔰 Agilent Spectrum Analyzer - Swe 🕅 RL RF 50 Ω	ept SA 2 AC	SENSE:INT	OH1 2402MHz	03:55:27 PM Dec 05, 2024	
X/ RL RF 50 Ω	ept SA 2 AC	SENSE:INT		03:55:27 PM Dec 05, 2024 TRACE 2 34 5 6 TYPE DET PNNNNN	Frequency
04 RL RF 50 Ω Center Freq 2.40250 Ref Offset 2: 10 dB/div Ref 20.00	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6	Frequency
RL RF 50 Ω Center Freq 2.40250 Ref Offset 2.	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE DET PNNNN 2.401 982 GHZ	Frequency Auto Tune
04 RL RE 50 Ω Center Freq 2.40250 Ref Offset 2: 10 dB/div Ref 20.00	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE DET PNNNN 2.401 982 GHZ	Frequency Auto Tune Center Freq
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X RF 50 Ω Center Freq 2.4025(Ref Offset2: 10 dB/div Ref Offset2: 10 dB/div Ref 20.00 0 00	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE DET PNNNN 2.401 982 GHZ	Frequency Auto Tune Center Free 2.402500000 GH:
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Q/ RL RF 50 Ω Center Freq 2.4025(Ref Offset2: Ref Offset2: Ref Offset2: 10 dB/div Ref 20.00 0	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE DET PNNNN 2.401 982 GHZ	Frequency Auto Tune Center Freq 2.40250000 GHz Start Freq
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RE SO Q Center Freq 2.4025(10 dB/div Ref Offset 2. 10 dB/div Ref 20.00 -00 -10 0 -20 0 -30 0	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE DET PNNNN 2.401 982 GHZ	Frequency Auto Tune Center Frec 2.40250000 GHz Start Frec 2.401500000 GHz
XI RF 50 Q Center Freq 2.4025(Ref Offset 2. 10 dB/div Ref 20.00 10 d	pt SA 2 AC PNO: Wide IFGain:Low 59 dB	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE DET PNNNN 2.401 982 GHZ	Frequency Auto Tune Center Freq 2.40250000 GHz Start Freq 2.401500000 GHz Stop Freq
XY RF 50 Q Center Freq 2.40250 Ref Offset 2. 10 dB/div Ref 20.00 -10 0	ept SA 2 AC PNO: Wide IFGain:Low 59 dB dBm 1 1 1 1 1 1 1 1 1 1 1 1 1	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE ID 23 4 5 6 TYPE Der MANNAN Der MANNAN 2.401 982 GHz 1.854 dBm	Frequency Auto Tune Center Freq 2.402500000 GHz Start Freq 2.401500000 GHz Stop Freq 2.403500000 GHz
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Center Freq 2.40250 Ref Offset 2. 10 dB/div Ref 20.00 10 0 10	ept SA 2 AC PN0: Wide IFGain:Low 59 dB dBm 4 #VBV X 2.401 982 GHz	Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 MKr1	TRACE [] 2 3 4 5 6 TYPE PET MANNAN 2.401 982 GHz 1.854 dBm	Auto Tune Center Freq 2.402500000 GHz Start Freq 2.401500000 GHz Stop Freq 2.403500000 GHz CF Step 200.000 kHz
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M RF 50 Q Center Freq 2.40250 Ref Offset 2. 10 dB/div Ref 20.00 0 0.00	pr SA 2 AC PN0: Wide IFGain:Low 59 dB dBm 4 #VBV X 2.401 982 GHz	Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 MKr1	2.401 982 GHz 1.854 dBm	Frequency Auto Tune Center Freq 2.402500000 GHz Start Freq 2.401500000 GHz 2.403500000 GHz 2.40350000 GHz 2.40350000 GHz 2.403500000 GHz
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	S NVNT 2-L	0H1 2441MHz		
Mailent Spectrum Analyzer - Swept SA				
272 RL RF 50 Ω AC Center Freq 2.441500000 GHz PNO: Wide ⊂→ IFGain:Low	Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	04:00:11 PM Dec 05, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N	Frequency
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-50.0				
-60.0				Stop Freq 2.442500000 GHz
-70.0				2.442500000 GH2
Center 2.441500 GHz #Res BW 30 kHz #VBW	100 kHz	Sweep 2.	Span 2.000 MHz 133 ms (1001 pts)	CF Step 200.000 kHz
MKR MODE TRC SCL X		NCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
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MSG		STATUS		
	S NVNT 2-L	0H1 2480MHz		
M Agilent Spectrum Analyzer - Swept SA				
	SENSE:INT	ALIGN AUTO	04:03:19 PM Dec 05, 2024	
Center Freq 2.479500000 GHz PNO: Wide IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	04:03:19 PM Dec 05, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN	Frequency
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Center Freq 2.479500000 GHz PNO: Wide IFGain:Low Ref Offset 2.61 dB	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune
Center Freq 2.479500000 GHz PNO: Wide C- IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency
Center Freq 2.479500000 GHz PNO: Wide C- IFGain:Low 10 dB/div Ref Offset 2.61 dB Ref 20.00 dBm 10 d 10 dB/div Ref 20.00 dBm	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq
Center Freq 2.479500000 GHz PNO: Wide PNO: Wide PIGain:Low 10 dB/div Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq
Center Freq 2.479500000 GHz PNO: Wide PNO: Wide PNO: Wide PIGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 10 0 10 0 10 0 10 0 000 10 0 000 000 000 000 000 000 000 000 00	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq 2.479500000 GHz
Center Freq 2.479500000 GHz PNO: Wide C IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 10 0 10 0 -10 0 -20 0 -40 0	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq
Center Freq 2.479500000 GHz PNO: Wide G IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 10 0 10 0 -10 0 -20 0 -30 0 -40 0 -50 0	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz
Center Freq 2.479500000 GHz PNO: Wide C IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 10 0 10 0 -20 0 -30 0 -40 0 -60 0	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq
Center Freq 2.479500000 GHz PNO: Wide G IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 10 0 10 0 -10 0 -20 0 -30 0 -40 0 -50 0	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN 2.478 974 GHz	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq
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Center Freq 2.479500000 GHz PNO: Wide Green Structure PNO: Wide Green Structure 10 dB/div Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 000 10 dB/div Ref 20.00 dBm 000 40 0 -30 0 -40 0 -70 0 Center 2.479500 GHz #Res BW 30 kHz #VBW MKR MODE TRCI SCL	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	2.478 974 GHz -0.988 dBm	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz
Center Freq 2.479500000 GHz PNO: Wide IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 200 1 300 1 400 4 500 2 700 2 Ref 2.479500 GHz #VBW MRR MODE TRC SCL X 1 1 f 2.479 974 GHz	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	2.478 974 GHz -0.988 dBm	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz
Center Freq 2.479500000 GHz PNO: Wide G PNO: Wide G I0 dB/div Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 000 10 dB/div Ref 20.00 dBm 000	 Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm 	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE D 2 3 4 5 6 TYPE MANNAWA DET NINININ 2.478 974 GHZ -0.988 GHZ -0.988 Span 2.000 MHz 133 ms (1001 pts) FUNCTION VALUE Image: Control of the second se	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz 2.480500000 GHz 2.480500000 GHz CF Step 200.000 kHz Auto Man
Center Freq 2.479500000 GHz PNO: Wide Control of the set of th	 Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm 	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	2.478 974 GHz -0.988 dBm	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz Auto CF Step 200.000 kHz Man
Center Freq 2.479500000 GHz PNO: Wide C IO dB/div Ref Offset 2.61 dB IO dB/div Ref 20.00 dBm Ref 20.00 dBm IO dB/div Ref 20.00 dBm IO dB/div Ref 20.00 dBm IO dB/div <tr< td=""><td> Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm </td><td>Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1</td><td>TRACE D 2 3 4 5 6 TYPE MANNAWA DET NINININ 2.478 974 GHZ -0.988 GHZ -0.988 Span 2.000 MHz 133 ms (1001 pts) FUNCTION VALUE Image: Control of the second se</td><td>Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz Auto CF Step 200.000 kHz Man</td></tr<>	 Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm 	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE D 2 3 4 5 6 TYPE MANNAWA DET NINININ 2.478 974 GHZ -0.988 GHZ -0.988 Span 2.000 MHz 133 ms (1001 pts) FUNCTION VALUE Image: Control of the second se	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz Auto CF Step 200.000 kHz Man
Center Freq 2.479500000 GHz PNO: Wide Green Structure Iteration of the structure Iteratint of the structure Iterati	 Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm 	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE D 2 3 4 5 6 TYPE MANNAWA DET NINININ 2.478 974 GHZ -0.988 GHZ -0.988 Span 2.000 MHz 133 ms (1001 pts) FUNCTION VALUE Image: Control of the second se	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz Auto CF Step 200.000 kHz Man
Center Freq 2.479500000 GHz PNO: Wide C- IFGain:Low Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm 000 1 1 1 1 1 2.478 974 GHz 1 1 1 1 1 1 1 1 1 1 1 2 N <th< td=""><td> Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm </td><td>Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1</td><td>TRACE D 2 3 4 5 6 TYPE MANNAWA DET NINININ 2.478 974 GHZ -0.988 GHZ -0.988 Span 2.000 MHz 133 ms (1001 pts) FUNCTION VALUE Image: Control of the second se</td><td>Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz Auto CF Step 200.000 kHz Man</td></th<>	 Trig: Free Run #Atten: 30 dB 400 kHz Y FU -0.988 dBm 	Avg Type: Log-Pwr Avg Hold:>100/100 Mkr1	TRACE D 2 3 4 5 6 TYPE MANNAWA DET NINININ 2.478 974 GHZ -0.988 GHZ -0.988 Span 2.000 MHz 133 ms (1001 pts) FUNCTION VALUE Image: Control of the second se	Frequency Auto Tune Center Freq 2.479500000 GHz Start Freq 2.478500000 GHz Stop Freq 2.480500000 GHz Auto CF Step 200.000 kHz Man



	CF	<u>S NVNT 3-D</u>	DH1 2402MHz		
Magilent Spectrum Analyzer - Swept SA					
00 RL RF 50Ω AC Center Freq 2.40250000	0 GHz PNO: Wide G	SENSE:INT Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	04:07:18 PM Dec 05, 2024 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P N N N N N	Frequency
Ref Offset 2.59 dE 10 dB/div Ref 20.00 dBm			Mkr1 2	2.401 984 GHz 1.957 dBm	Auto Tune
	1				Center Freq 2.402500000 GHz
-10.0		······		hanning	Start Freq
-30.0					2.401500000 GHz
-50.0 -60.0 -70.0					Stop Freq 2.403500000 GHz
Center 2.402500 GHz #Res BW 30 kHz	#VBW	100 kHz	Sweep 2.1	Span 2.000 MHz 33 ms (1001 pts)	CF Step 200.000 kHz
MKR MODE TRC SCL		Y FU	NCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
1 N 1 f 2.0 2 N 1 f 2.4 3 4 4 4 4 5 5 5 5 5	401 984 GHz 402 982 GHz	1.957 dBm 1.934 dBm		=	Freq Offset 0 Hz
7 8 9 10					
11				+ 4	
MSG			STATUS		
	CE		0H1 2441MHz		
Agilent Spectrum Analyzer - Swept SA		SINVINI S-L	711 244 HVII 12		
LXI RL RF 50 Ω AC		SENSE:INT	ALIGN AUTO	04:09:35 PM Dec 05, 2024	Frequency
Center Freq 2.44150000	PNO: Wide IFGain:Low) Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 12345 6 TYPE MWWWW DET P N N N N N	Auto Tune
Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm Log			Mkr1 5		
				2.440 978 GHz 0.138 dBm	Auto Fune
10.0 0.00	1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Center Freq 2.441500000 GHz
	1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Center Freq
0.00 -10.0 -20.0 -30.0 -40.0 -50.0					Center Freq 2.441500000 GHz Start Freq
0.00				0.138 dBm	Center Freq 2.441500000 GHz Start Freq 2.440500000 GHz Stop Freq 2.442500000 GHz
0.00 -100 -200 -300 -400 -400 -500 -500 -700 Center 2.441500 GHz #Res BW 30 kHz	#VBW	100 kHz	Sweep 2.1	0.138 dBm	Center Freq 2.441500000 GHz Start Freq 2.440500000 GHz Stop Freq
0.00 -10.0 -20	#VBW			0.138 dBm	Center Freq 2.441500000 GHz Start Freq 2.440500000 GHz Stop Freq 2.442500000 GHz CF Step 200.000 kHz
0.00 -10.0 -20.0 -30.0 -30.0 -40.0 -50.0 -50.0 -50.0 -70.0 Center 2.441500 GHz #Res BW 30 kHz MKR MODE TRC SCL 2 N 1 f 22.4 3 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	#VBW	Y FUI 0.138 dBm	Sweep 2.1	0.138 dBm	Center Freq 2.441500000 GHz Start Freq 2.440500000 GHz 2.442500000 GHz 2.442500000 GHz <u>CF Step</u> 200.000 kHz <u>Auto</u> Man



C	FS NVNT 3	-DH1 2480MHz		
🔰 Agilent Spectrum Analyzer - Swept SA				
Μ RL RF 50 Ω AC Center Freq 2.479500000 GHz NO NO NO NO	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	04:12:09 PM Dec 05, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
PNO: Wide (IFGain:Low	#Atten: 30 dB	-	DET PNNNN	Auto Tune
Ref Offset 2.61 dB 10 dB/div Ref 20.00 dBm		Mkr1	2.478 974 GHz -0.912 dBm	Auto Tulle
10.0		^2		Center Freq
0.00 -10.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mm ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	2.479500000 GHz
-20.0				Start Freq
-30.0				2.478500000 GHz
-50.0				Stop Freq
-60.0				2.480500000 GHz
Center 2.479500 GHz #Res BW 30 kHz #VB	W 100 kHz	Sweep 2	Span 2.000 MHz .133 ms (1001 pts)	CF Step 200.000 kHz
MKRI MODEI TRCI SCLI X	Y	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
1 N 1 f 2.478 974 GHz 2 N 1 f 2.479 974 GHz	-0.912 dBm -0.988 dBm			
3 4 4				Freq Offset 0 Hz
5 6 7			==	
8 9				
10			-	
MSG		STATUS	3	

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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.

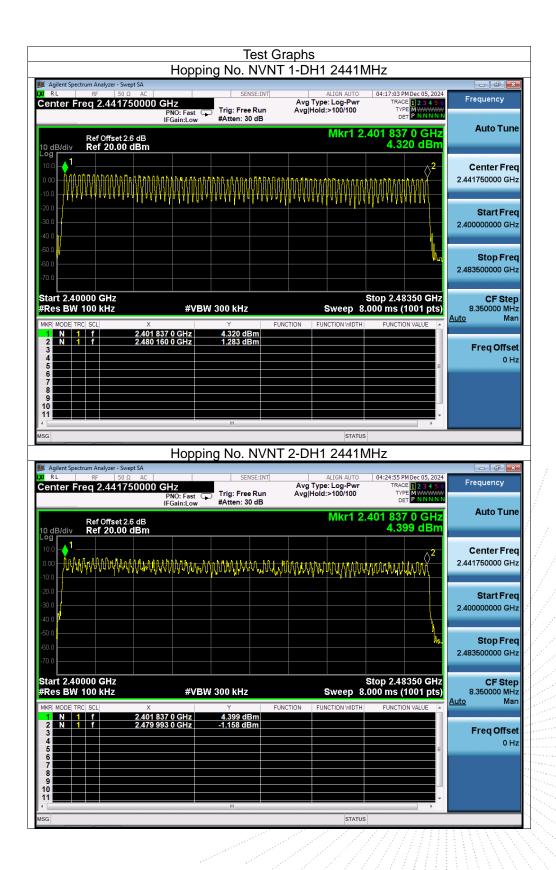
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.

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

13.4 Test Result

Condition	Mode	Hopping Number	nit Verdict
NVNT	1-DH1	79 1!	5 Pass
NVNT	2-DH1	79	5 Pass
NVNT	3-DH1	79 18	5 Pass







Нор	ping No. NVN1	3-DH1 2441	ИНz	
Ju Agilent Spectrum Analyzer - Swept SA				- ē 💌
K RL RF 50 Ω AC Center Freq 2.441750000 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	04:31:35 PM Dec 05, 2024 TRACE 1 2 3 4 5 6	Frequency
PNO: Fast IEGain:Lov		Avg Hold:>100/100	DET P NNNN	
	•	Mkr1 2	.401 753 5 GHz	Auto Tune
Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm			-2.572 dBm	
			\land	Center Freq 2.441750000 GHz
0.00 - XWWWWWWWWWWWWWWW	ahanananananan	ՠՠՠՠՠՠՠՠՠՠՠ	MARINAMAN	2.441750000 GH2
-20.0				
-30.0				Start Freq
-40.0				2.40000000 GHz
-50.0				
-60.0			Ku.	Stop Freq
-70.0				2.483500000 GHz
Start 2.40000 GHz #Res BW 100 kHz #V	/BW 300 kHz	Cween 9	Stop 2.48350 GHz .000 ms (1001 pts)	CF Step 8.350000 MHz
				Auto Man
MKR MODE TRC SCL X 1 N 1 f 2.401 753 5 GHz	Y FU -2.572 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	
2 N 1 f 2.479 993 0 GHz	0.889 dBm			Freq Offset
4			_	0 Hz
6			=	
7 8				
9				
11			-	
MSG		STATUS	5	

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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.

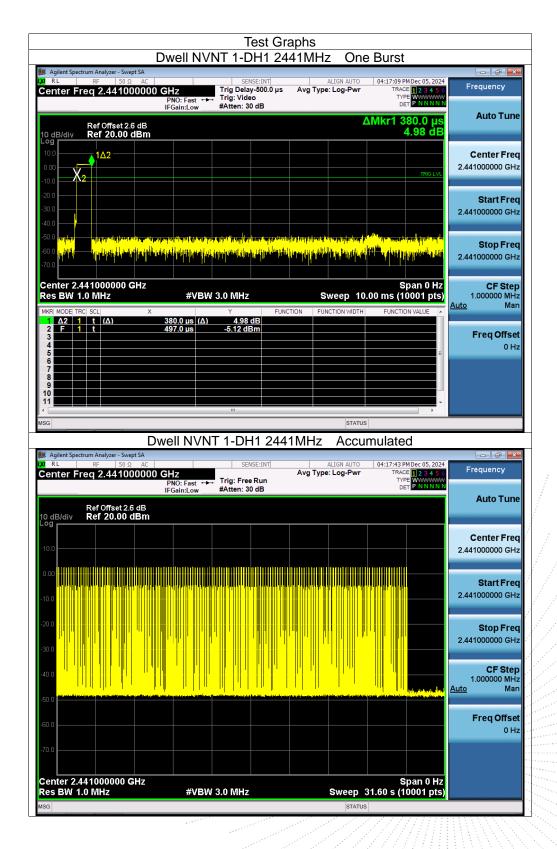
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH1	2441	0.38	107.92	284	31600	400	Pass
1-DH3	2441	1.643	259.594	158	31600	400	Pass
1-DH5	2441	2.891	289.1	100	31600	400	Pass
2-DH1	2441	0.387	113.004	292	31600	400	Pass
2-DH3	2441	1.639	258.962	158	31600	400	Pass
2-DH5	2441	2.886	285.714	99	31600	400	Pass
3-DH1	2441	0.386	120.046	311	31600	400	Pass
3-DH3	2441	1.635	259.965	159	31600	400	Pass
3-DH5	2441	2.886	282.828	98	31600	400	Pass

14.4 Test Result

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







	NT 1-DH3 24	441MHz	One Burst		
M Agilent Spectrum Analyzer - Swept SA M RL RF 50 Ω AC	SENSE:INT			M Dec 05, 2024	Frequency
Center Freq 2.441000000 GHz	Trig Delay-500.0 µs Trig: Video	Avg Type: Log	g-Pwr TRAC TYI	E 1 2 3 4 5 6 E WWWWWWW F P N N N N N	Frequency
IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm	#Atten: 30 dB		ΔMkr1 1		Auto Tune
10.0 <u>1Δ2</u>					Center Freq
0.00 X2				TRIG LVL	2.441000000 GHz
-10.0					
-20.0					Start Freq
-40.0					2.441000000 GHz
	ىر قەرىمەل لەرلىلى بەر بار بىلەر دەمەر بارى.		the two in the second states in the	isid yand in the ball	
	finde and a first standow digital		and the product of th		Stop Freq 2.441000000 GHz
-70.0	· · · ·		· · ·	1	
Center 2.441000000 GHz				pan 0 Hz	CF Step
	/ 3.0 MHz		ep 10.00 ms (1		1.000000 MHz <u>Auto</u> Man
MKR MODE TRC SCL X 1 Δ2 1 t (Δ) 1.643 ms (Δ)	4.84 dB	NCTION FUNCTION	N WIDTH FUNCTION	DN VALUE	
2 F 1 t 497.0 µs	-2.63 dBm				Freq Offset
4 5				E	0 Hz
6					
8					
10				-	
<				•	
MSG			STATUS		
	T 1-DH3 244	41MH 7 A		d	
Dwell NVN	T 1-DH3 244		ccumulate		
Dwell NVN M Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC	SENSE:INT			MDec 05, 2024	Frequency
Dwell NVN	SENSE:INT	ALIGN			
Dwell NVN Magient Spectrum Analyzer - Swept SA RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low	SENSE:INT	ALIGN		MDec 05, 2024	
Image: Display the sector of the sector	SENSE:INT	ALIGN		MDec 05, 2024	Frequency
Dwell NVN III Agilent Spectrum Analyzer - Swept SA III RL RF 50Ω AC Center Freq 2.441000000 GHz PNO: Fast ↔ IFGain:Low Ref Offset 2.6 dB	SENSE:INT	ALIGN		MDec 05, 2024	Frequency
Image: Display the sector of the sector	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune
Dwell NVN Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Spec	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq
Dwell NVN Mailent Spectrum Analyzer - Swept SA RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low Ref Offset 2.6 dB Log 10.0	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq
Dwell NVN Mailent Spectrum Analyzer - Swept SA RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low Ref Offset 2.6 dB Log 10.0	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz
Dwell NVN Image: Agilent Spectrum Analyzer - Swept SA Image: Agilent Spectrum Analyzer - Swept SA </td <td>SENSE:INT</td> <td>ALIGN</td> <td></td> <td>MDec 05, 2024</td> <td>Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz</td>	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz
Dwell NVN Agilent Spectrum Analyzer - Swept SA W RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast ↔ IFGain:Low Ref Offset 2.6 dB Log 10.0 dB/div Ref 20.00 dBm -10.0	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq
Dwell NVN Agilent Spectrum Analyzer - Swept SA W RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast ↔ IFGain:Low Ref Offset 2.6 dB Log 10.0 dB/div Ref 20.00 dBm -10.0	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq
Dwell NVN Mailent Spectrum Analyzer - Swept SA Mailent Spectrum Analyzer - Swept SA Mailent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz PNO: Fast → IFGaintLow Ref Offset 2.6 dB 10 dB/div Ref Offset 2.6 dB 10.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.44100000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz
Dwell NVN Mailent Spectrum Analyzer - Swept SA W RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm -0 00 -0 00 -	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz Stop Freq 2.441000000 GHz
Dwell NVN Mailent Spectrum Analyzer - Swept SA W RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm -0 00 -0 00 -	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz
Dwell NVN Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Sa	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset
Dwell NVN Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm 20 0 10 0 10 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 10 0 20 0 10 0 10 0 10 0 10 0 20 0 10 0 10 0 <th10 0<="" th=""> 10 0 10 0</th10>	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man
Dwell NVN Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz PNO: Fast → IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm 20 0 10 0 10 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 20 0 10 0 10 0 10 0 20 0 10 0 10 0 10 0 10 0 20 0 10 0 10 0 <th10 0<="" th=""> 10 0 10 0</th10>	SENSE:INT	ALIGN		MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset
Dwell NVN Image: sectrum Analyzer - Swept SA Image: sectrum Analyzer - Swept SA <td>SENSE:INT</td> <td>ALIGN</td> <td>Accumulate</td> <td></td> <td>Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset</td>	SENSE:INT	ALIGN	Accumulate		Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset
Dwell NVN Image: Aglient Spectrum Analyzer - Swept SA Image: Aglient Sa Image: Aglient Sa Image: Aglient Sa Image: Aglient Sa </td <td>SENSE:INT</td> <td></td> <td>Accumulate</td> <td>MDec 05, 2024</td> <td>Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset</td>	SENSE:INT		Accumulate	MDec 05, 2024	Frequency Auto Tune Center Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man Freq Offset



Dw	ell NVNT 1-DH5 24	41MHz One	e Burst	
J Agilent Spectrum Analyzer - Swept SA	SENSE:INT	ALIGN AUTO	04:39:39 PM Dec 05, 2024	- đ
Center Freq 2.441000000 GH		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWW DET P N N N N	Frequency
Ref Offset 2.6 dB		Δ	Mkr1 2.891 ms 1.07 dB	Auto Tune
Log 10.0				Center Freq 2.44100000 GHz
-10.0			TRIG LVL	2.44100000 GH2
-20.0				Start Freq 2.441000000 GHz
-40.0 -50.0	the subscription of the second state of the second s		ine faile by the spin face of the spin of	Stop Freq
-60.0 441 7	and the first and the state of the second	and and for a strange of the	,	2.441000000 GHz
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 10	Span 0 Hz .00 ms (10001 pts)	CF Step 1.000000 MHz
	Y FUN 11 ms (Δ) 1.07 dB 1.0 μs -12.55 dBm	CTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
3 4 5 6			=	Freq Offset 0 Hz
8 9				
MSG		STATUS	6	
Dwe	I NVNT 1-DH5 244	1MHz Accu	mulated	
Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC Center Freq 2.441000000 GH	SENSE:INT	ALIGN AUTO	04:40:12 PM Dec 05, 2024 TRACE 1 2 3 4 5 6	Frequency
PN	O: Fast ↔ Trig: Free Run ain:Low #Atten: 30 dB		DET PNNNN	Auto Tune
Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm Log				
10.0				Center Freq 2.441000000 GHz
-10.0				Start Freq 2.441000000 GHz
-20.0	<u>.</u> Mana 1965 at 187			Stop Freq 2.441000000 GHz
-30.0				CF Step
				1.000000 MHz
-40.0				<u>Auto</u> Man
				Freq Offset
-50.0				
-50.0 -60.0 -70.0 Center 2.441000000 GHz			Span 0 Hz	Freq Offset
-60.0 -70.0	#VBW 3.0 MHz	Sweep 3	31.60 s (10001 pts)	Freq Offset



Dwell NV	NT 2-DH1 24	441MHz	One Burst	
Agilent Spectrum Analyzer - Swept SA XX R.L RF 50 Ω AC	CENCETNE	ALIGN	AUTO 04:25:23 PM Dec 05, 2	
Center Freq 2.441000000 GHz PN0: Fast ↔ IFGain:Low	SENSE:INT Trig Delay-500.0 µs Trig: Video #Atten: 30 dB	Avg Type: Log		5 6 Frequency
Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm			ΔMkr1 387.0 -2.44 c	IS Auto Tune IB
Log 10.0 0.00 10.0 10.0 10.0			TRIG	Center Freq 2.441000000 GHz
-20.0 -30.0 -40.0				Start Freq 2.441000000 GHz
-50.0 2011 				Stop Freq 2.441000000 GHz
	(3.0 MHz		Span 0 p 10.00 ms (10001 p width FUNCTION VALUE	
MKR MODE TRC SCI X 1 Δ2 1 t (Δ) 387.0 μs (Δ) 2 F 1 t 497.0 μs 3 4 497.0 μs 3	-2.44 dB -3.79 dBm	ICTION FUNCTION	WIDTH FUNCTION VALUE	Freq Offset
5 6 7 8 9 9				
				.
MSG			STATUS	
Dwell NVN	T 2-DH1 244	1MHz A	ccumulated	
📜 Agilent Spectrum Analyzer - Swept SA 🚺 R L RF 50 Ω AC	T 2-DH1 244	ALIGN Avg Type: Log	-Pwr TRACE 1234	2024 5 6 Frequency
M Agilent Spectrum Analyzer - Swept SA M RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast ↔ IFGain:Low		ALIGN	AUTO 04:25:56 PM Dec 05, 2	Frequency
	SENSE:INT	ALIGN	AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	5 6 S 6 S 7 S 7 S 7 S 7 S 7 S 7 S 7 S 7 S 7 S 7
Agilent Spectrum Analyzer - Swept SA M RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast PNO: Fast Filter Ref Offset 2.6 dB Ref 20.00 dBm PMO PRO PRO	SENSE:INT	ALIGN	AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	5 6 MWW IN N
Mail Agilent Spectrum Analyzer - Swept SA Mail RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fast → If Gain:Low IF Gain:Low Ref Offset 2.6 dB Cog	SENSE:INT	ALIGN	AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	2024 5 6 Auto Tune Center Freq
Agilent Spectrum Analyzer - Swept SA Image: RL RF 50 Ω AC Center Freq 2.441000000 GHz IFGain:Low PNO: Fast IFGain:Low Ref Offset 2.6 dB Log Ref 20.00 dBm 0 dB/div Ref 20.00 dBm	SENSE:INT	ALIGN	AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	2024 5 6 Auto Tune Center Freq 2.441000000 GHz Start Freq
Image: Agilent Spectrum Analyzer - Swept SA Image: RL RF 50 Ω AC Center Freq 2.441000000 GHz PN0: Fast → IFGain:Low Ref Offset 2.6 dB Condition Ref 20.00 dBm 10 dB/div Ref 20.00 dBm 0.00 10.0 0.00 0.00 40.0 0.00 0.00	SENSE:INT	ALIGN	AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	2024 3 6 3 7 4 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5
Magient Spectrum Analyzer - Swept SA Image: Ref S0 Ω AC Center Freq 2.441000000 GHz PN0: Fast → IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm 0.00 0.00	SENSE:INT	ALIGN	AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	2024 5 6 Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step 1.000000 MHz
Mailent Spectrum Analyzer - Swept SA Image: Ref S0 Ω AC Center Freq 2.441000000 GHz PN0: Fast → IFGain:Low Ref Offset 2.6 dB Colspan="2">Colspan="2">Colspan="2">Conter Freq 2.441000000 GHz PN0: Fast → IFGain:Low Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm -00 -00 -10.0 -00 -20.0 -00 -40.0 -00 -70.0 -00	SENSE:INT	ALIGN		VILLA CENTRE CEN
Agilent Spectrum Analyzer - Swept SA Image: Ref S0 Ω AC Center Freq 2.441000000 GHz PN0: Fast → IFGain:Low Image: Ref PN0: Fast → IFGain:Low Ref Offset 2.6 dB PN0: Fast → IFGain:Low 10 dB/div Ref 20.00 dBm 0.000 Image: Ref Offset 2.6 dB 10.0 Image: Ref Offset 2.6 dB 10.0	SENSE:INT		AUTO 04:25:56 PM Dec 05, Pwr TRACE 1 2 3 4 TYPE 1/2 3 4	Hz



Agilent Spectrum Analyzer - S		'NT 2-DH3 2	244 11011 12	One Burst		
LXI RL RF 50		SENSE:INT	ALIC		M Dec 05, 2024	
Center Freq 2.441	000000 GHz PNO: Fast ↔ IFGain:Low	Trig Delay-500.0 µ , Trig: Video #Atten: 30 dB	us Avg Type: Lo	g-Pwr TRAC TYI D	E 1 2 3 4 5 6 E WWWWWW P NNNNN	Frequency
Ref Offset 10 dB/div Ref 20.00	2.6 dB			ΔMkr1 1	639 ms 5.38 dB	Auto Tune
	1Δ2				TRIG LVL	Center Freq 2.441000000 GHz
-10.0 A2						Start Freq
-40.0						2.441000000 GHz
-50.0 <mark>สาขาญ</mark> -60.0 <mark>ปีปฏะเ¹¹ปี</mark> -70.0						Stop Freq 2.441000000 GHz
Center 2.44100000 Res BW 1.0 MHz		V 3.0 MHz	Swe	sep 10.00 ms (1	pan 0 Hz 0001 pts)	CF Step 1.000000 MHz
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t	× 1.639 ms (Δ) 497.0 μs			ON WIDTH FUNCTI	DN VALUE	<u>Auto</u> Man
3 4 5 6					E	Freq Offset 0 Hz
7 8 9 10						
11		m		STATUS	•	
		IT 2-DH3 24			4	
Magilent Spectrum Analyzer - S	wept SA			Accumulate		o đ <mark>ex</mark>
Center Freq 2.441		Trig: Free Run #Atten: 30 dB	ALIG Avg Type: Lo	og-Pwr TRAC	M Dec 05, 2024 DE 1 2 3 4 5 6 DE WWWWWW P N N N N N	Frequency
Ref Offset 10 dB/div Ref 20.00	2.6 dB					Auto Tune
Log	dBm					Auto Tune
Log						Center Freq 2.441000000 GHz
Log						Center Freq
Log 10.0 .10.0 .10.0 .20.0						Center Freq 2.441000000 GHz Start Freq
Log 10.0 0.00 						Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step 1.000000 MHz
Log 10.0 -10.0 -20.0 -40.0 -40.0 -50.0						Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz CF Step
Log 10.0 -10.0 -20.0 -40.0 -40.0						Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz 1.000000 MHz Auto Man
Log 10.0 .0.00 .10.0 .20.0 .30.0 .40.0 .60.0	GHz	й 3.0 MHz		S Weep 31.60 s (1	ipan 0 Hz	Center Freq 2.441000000 GHz Start Freq 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 2.441000000 GHz 1.000000 MHz Auto Man



2	ell NVNT 2-DH5 2	2441MHz Or	e Burst	
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	16 ms (Δ) -1.78 dB 1.0 μs -12.69 dBm	UNCTION FUNCTION WIDT	H FUNCTION VALUE	<u>Auto</u> Man Freq Offset
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	I NVNT 2-DH5 24			
			imulated	
J WCI Majlent Spectrum Analyzer - Swept SA		41MHz Acc	umulated	
Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC Center Freq 2.441000000 GH2	Z 0: Fast ++- Trig: Free Run	ALIGN AUTO Avg Type: Log-Pwr	04:42:06 PM Dec 05, 2024	Frequency
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No.: BCTC/RF-EMC-005



Dwell	NVNT 3-DH1 2	441MHz C	One Burst	
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			TRIG LVL	Center Freq 2.441000000 GHz
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-50.0 are the the second secon			ahlundan kanada kan Kanada kanada kanada Kanada kanada	Stop Freq 2.441000000 GHz
	/BW 3.0 MHz		Span 0 Hz 10.00 ms (10001 pts)	CF Step 1.000000 MHz Auto Man
MKR MoDE TRC SCI X 1 A2 1 t (A) 386.0 µs 2 F 1 t (A) 386.0 µs 3 4 5 5 5 5	(Δ) 1.95 dB	INCTION FUNCTION W	IDTH FUNCTION VALUE	Freq Offset 0 Hz
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Dwell N Genter Freq 2.441000000 GHz PNO: Fas	SENSE:INT		Cumulated	Frequency
Image: Agilent Spectrum Analyzer - Swept SA Image: Agilent Spect SP Image	SENSE:INT	41MHz Ac	cumulated	Frequency
Dwell N M Agilent Spectrum Analyzer - Swept SA M RL RF 50 Ω AC Center Freq 2.441000000 GHz PNO: Fas IFGain:Lo Ref Offset 2.6 dB	SENSE:INT	41MHz Ac	Cumulated	Frequency
Image: Spectrum Analyzer - Swept SA Image: Spect SA Ima	SENSE:INT	41MHz Ac	Cumulated	Frequency Auto Tune Center Freq
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	ell NVNT 3-DH5 2	441MHz O	ne Burst	
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-40.0				2.441000000 GHz
-50.0 10.4 M				Stop Freq 2.441000000 GHz
Center 2.441000000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep	Span 0 Hz 10.00 ms (10001 pts)	CF Step 1.000000 MHz Auto Man
	Y Fl 36 ms (Δ) 1.44 dB 3.0 us -13.53 dBm	INCTION FUNCTION WID	TH FUNCTION VALUE	Freq Offset
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📁 Agilent Spectrum Analyzer - Swept SA	II NVNT 3-DH5 24		umulated	
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No.: BCTC/RF-EMC-005



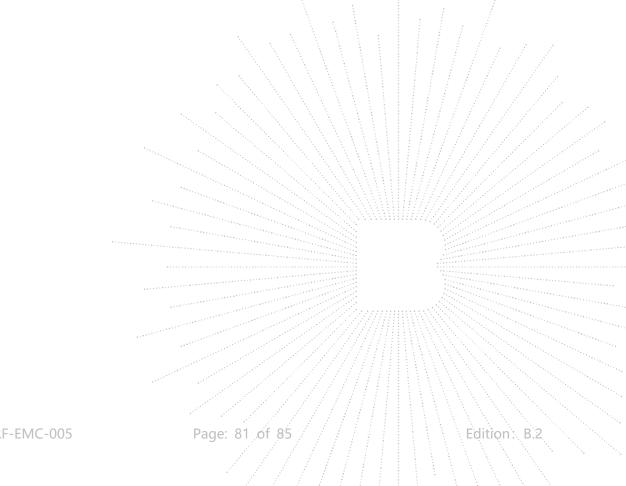
15. Antenna Requirement

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.



No.: BCTC/RF-EMC-005



16. EUT Photographs

EUT Photo 1



EUT Photo 2



NOTE: Appendix-Photographs Of EUT Constructional Details

No.: BCTC/RF-EMC-005

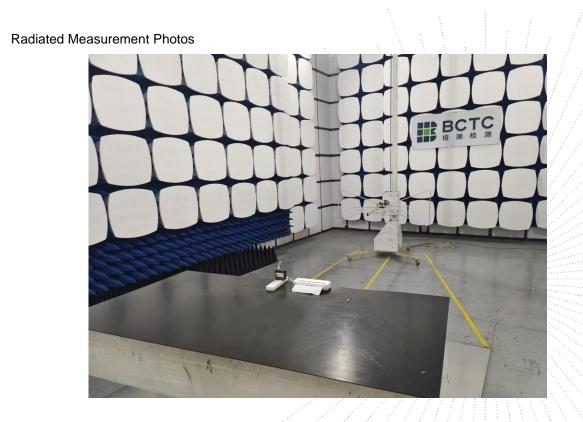
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17. EUT Test Setup Photographs

Conducted emissions





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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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Complaint/Advice E-mail: advice@bctc-lab.com.cn

***** END *****

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