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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	0.935	Pass
NVNT	1-DH1	2441	0.938	Pass
NVNT	1-DH1	2480	0.916	Pass
NVNT	2-DH1	2402	1.315	Pass
NVNT	2-DH1	2441	1.304	Pass
NVNT	2-DH1	2480	1.317	Pass
NVNT	3-DH1	2402	1.261	Pass
NVNT	3-DH1	2441	1.257	Pass
NVNT	3-DH1-	2480	1.249	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	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(b)(1)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS		

11.3 Test procedure

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

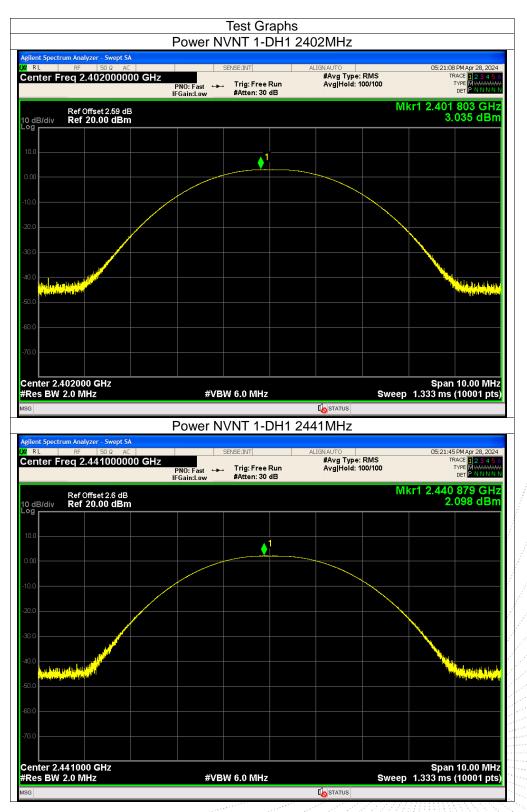
2. Set the spectrum analyzer: RBW = 2MHz. VBW = 6MHz. Sweep = auto; Detector Function = Peak.

3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

11.4 Test Result

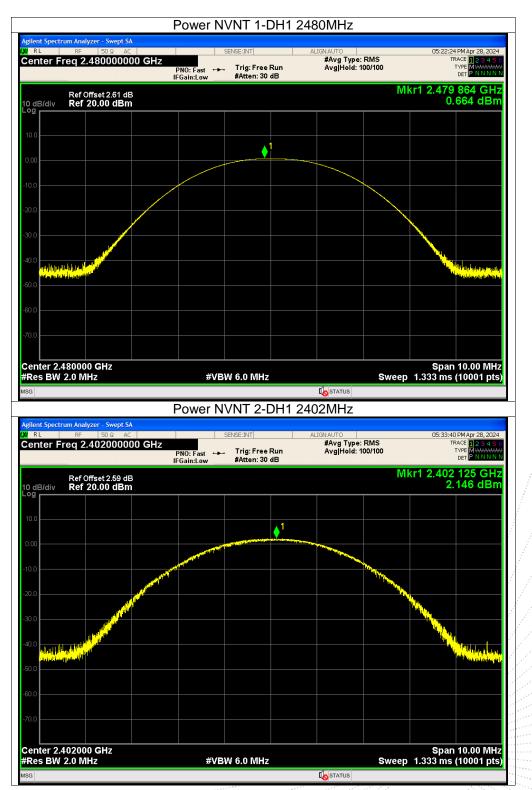
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	3.04	21	Pass
NVNT	1-DH1	2441	2.10	21	Pass
NVNT	1-DH1	2480	0.66	21	Pass
NVNT	2-DH1	2402	2.15	21	Pass
NVNT	2-DH1	2441	4.18	21	Pass
NVNT	2-DH1	2480	1.62	21	Pass
NVNT	3-DH1	2402	2.58	21	Pass
NVNT	3-DH1	2441	2.70	21	Pass
NVNT	3-DH1	2480	2.20	21	Pass







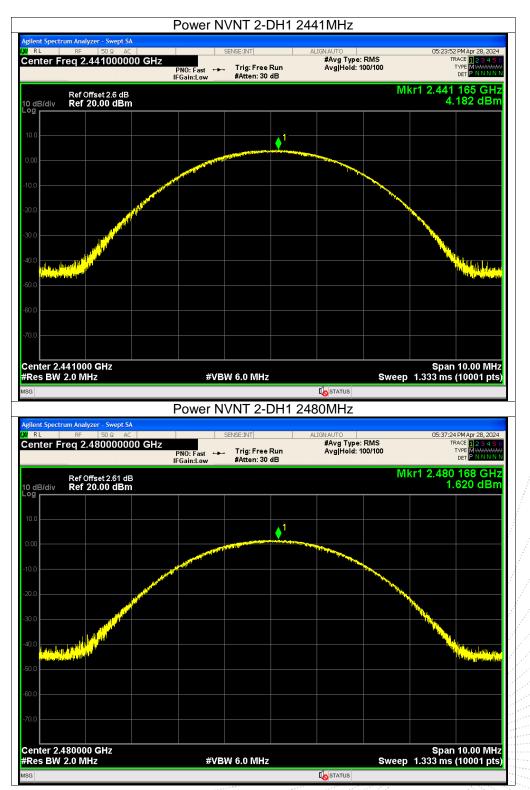




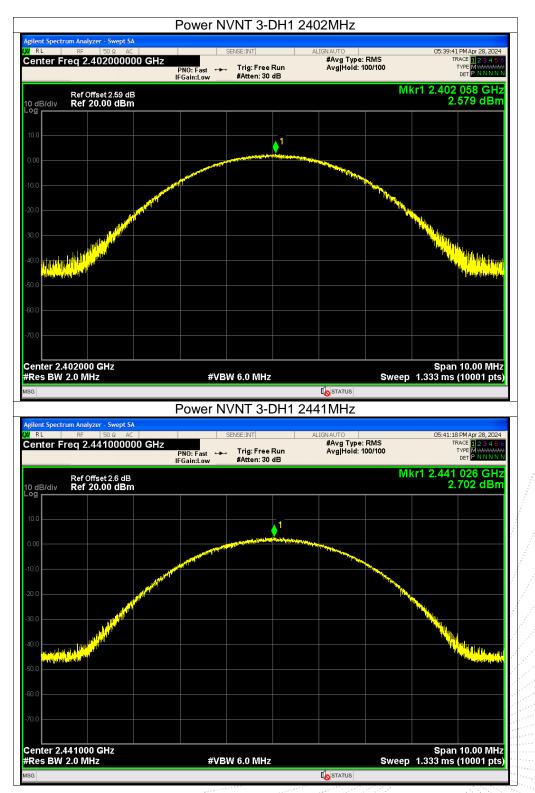


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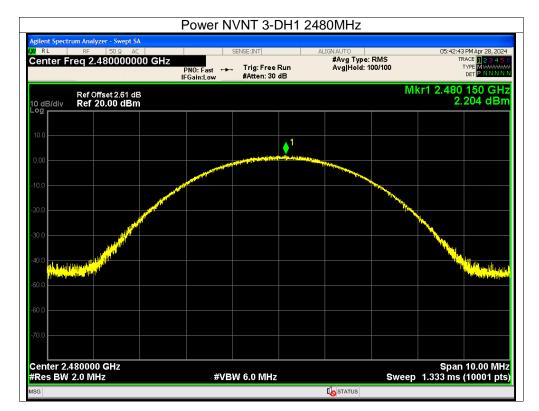














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12. Hopping Channel Separation

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.

odulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low Man	1.000	0.623	PASS
GFSK	Middle	1.004	0.625	PASS
GFSK	High	1.004	0.611	PASS
π/4 DQPSK	Low	1.000	0.877	PASS
π/4 DQPSK	Middle	1.000	0.869	PASS
π/4 DQPSK	High	0.998	0.878	PASS
8DPSK	Low	1.000	0.841	PASS
8DPSK	Middle	1.002	0.838	PASS
8DPSK	High	1.000	0.833	PASS

12.4 Test Result



gilent Spectrum Analyzer - S		FS NVNT 1	-DH1 2	402MHz		
RL RF 50 enter Freq 2.402	PNO:	SENSE:INT Wide Trig: F in:Low #Atter	Free Run n: 30 dB	ALIGNAUTO #Avg Type: Avg Hold:>	: RMS 100/100	05:47:32 PM Apr 28, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N
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enter 2.402500 GH Res BW 30 kHz	Iz	#VBW 100	kHz		Sweep 2.1	Span 2.000 MHz 33 ms (1001 pts)
IKR MODE TRC SCL	× 2.402 038 GHz	۲ -2.316 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION	
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r <mark>jient Spectrum Analyzer - 1</mark> R L RF 50	Swept SA DΩ AC 500000 GHz PN0:	SENSE:INT			: RMS	05:51:58 PM Apr 28, 2024
RL RF 055	Swept SA)Ω AC 5000000 GHz PNO: IFGal 2.6 dB	SENSE:INT	Free Run	441MHz ALIGNAUTO #Avg Type	: RMS 100/100	05:51:58 PMApr 28, 2024 TRACE 12 3 4 5 6 TYPE MWWWW DET PINNIN 2.440 866 GHZ
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es BW 30 kHz		#VBW 100 k		-	33 ms (1001 pts)
MODE TRC SCL N 1 f	× 2.478 868 GHz 2.479 872 GHz	-2.109 dBm	FUNCTION FUNCTION WIDTH	FUNCTION	VALUE
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nter Freq 2.402	Swept SA Ю д АС 2500000 GHz PN0: IFGai t 2.59 dB	SENSE:INT	DH1 2402MHz	pe: RMS d:>100/100	D6:03:14 PM Apr 28, 2024 TRACE 2 3 4 5 5 TYPE MUMANIN DET P.N.N.N.N
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Ref Offset B/div Ref 2.402 B/div Ref 20.0 Graduation Ref 20.0 Iter 2.402500 GI State SBW 30 kHz MODE MODE TRC SCL N 1	Swept SA 10 2 AC 2500000 GHz PNO: IFGal 10 dBm 1 1 4 1 4 2.59 dB 1 1 1 1 1 1 1 1 1 1 1 1 1	SENSE:INT Wide Trig: Fi #Atten: #VBW 100 k	DH1 2402MHz	e: RMS d:>100/100 Mkr1 2.	26:03:14 PMApr 28, 2024 TRACE 2 2 3 4 5 G TYPE MAXMAN 0.197 dBm 402 034 GHz 0.197 dBm 5pan 2.000 MHz 13 ms (1001 pts)
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nter Freq 2.44150	PNO		g: Free Run	ALIGNAUTO #Avg Type Avg Hold:	≥: RMS >100/100		64 PM Apr 28, 2024 IRACE 1 2 3 4 5 6 TYPE MWWWWW DET PNNNN
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ent Spectrum Analyzer - Sw RL RF 50 02 nter Freq 2.4795(Ref Offset 2: dB/div Ref 20.00 f 0 0 0 0 0 0 0 0 0 0 0 0 0	ept SA AC D00000 GHz IFG 61 dB dBm	O: Wide Tri	INT Ig: Free Run tten: 30 dB	480MHz ALIGNAUTO #Avg Type	> 100/100	kr1 2.479 -0	17 PMApr 28, 2024 IRACE 2 3 4 5 6 OFF P INITIAL 779 dBm
RL RF 50 Ω nter Freq 2.4795(Ref Offset 2. dB/div Ref 20.00 1 Ref 20.00 1 0 0 0 0 0 0 0 0 0 0 0 0 0	ept SA AC DO0000 GHz PNN IFG 61 dB dBm	SENSE: D: Wide Tri ain:Lew Tri #A	INT Ig: Free Run tten: 30 dB	480MHz ALIGNAUTO #Avg Type	>100/100	kr1 2.479 -0	17 PMApr 28, 2024 (FRACE 2 2 3 4 5 TYPE [MANNIN DET P. NINNIN 0 036 GHz 779 dBm
RL SO 2 nter Freq 2.4795(Ref Offset 2. dB/div Ref 20.00 d B C C C C C C C C C C C C C	ept SA AC D00000 GHz IFG 61 dB dBm	SENSE: O: Wide Tri ain:Low #A	int de la constant de	480MHz	>100/100	kr1 2.479 -0.	17 PMApr 28, 2024 IRACE 2 3 4 5 6 OFF P INITIAL 779 dBm
ent Spectrum Analyzer - Sw Rt BF 50 00 Inter Freq 2.47950 Ref Offset 2.4 Ref 20.00 - aB/div Ref 20.00 - - - aB/div Ref 20.00 - - - - aB/div Ref 20.00 - - - - - aB/div Ref 20.00 - - <td< td=""><td>ept SA AC DO0000 GHz IFG 61 dB dBm 1 1 1 2.479 036 GHz</td><td>SENSE: O: Wide Tri ain:Low Tri #Ari #VBW 10 Y -0.779 dBm</td><td>int de la constant de</td><td>480MHz</td><td>>100/100</td><td>kr1 2.479 -0.</td><td>17 PMApr 28, 2024 IRACE 2 3 4 5 6 OFF P INITIAL 779 dBm</td></td<>	ept SA AC DO0000 GHz IFG 61 dB dBm 1 1 1 2.479 036 GHz	SENSE: O: Wide Tri ain:Low Tri #Ari #VBW 10 Y -0.779 dBm	int de la constant de	480MHz	>100/100	kr1 2.479 -0.	17 PMApr 28, 2024 IRACE 2 3 4 5 6 OFF P INITIAL 779 dBm
ent Spectrum Analyzer - Sw RL RF 50 Ω nter Freq 2.4795(Ref Offset 2. dB/div Ref 20.00 f d dB/div Ref 20.00 f d dB/div Ref 20.00 f dB/div	ept SA AC DO0000 GHz IFG 61 dB dBm 1 1 1 2.479 036 GHz	SENSE: O: Wide Tri ain:Low Tri #Ari #VBW 10 Y -0.779 dBm	int de la constant de	480MHz	>100/100	kr1 2.479 -0.	17 PMApr 28, 2024 IRACE 2 3 4 5 6 OFF P INITIAL 779 dBm



	- Swept SA 50 Ω AC	SENSE:INT			06:07:45 PM Apr 28, 202
nter Freq 2.402	PNO	D: Wide 🖵 Trig: I ain:Low #Atte	#A FreeRun Av n:30 dB	vg Type: RMS g Hold:>100/100	TRACE 12345 TYPE MWWWW DET PNNN
Ref Offse dB/div Ref 20.0	t 2.59 dB 00 dBm			Mk	r1 2.402 034 GH 0.047 dBr
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enter 2.402500 G					Span 2.000 MH
tes BW 30 kHz	Π2	#VBW 100	kHz	Sweep	2.133 ms (1001 pts
R MODE TRC SCL	× 2.402 034 GHz	۲ 0.047 dBm	FUNCTION FUNCTION W	IDTH FUI	NCTION VALUE
N 1 f	2.403 034 GHz	0.151 dBm			
					>
i			r 🚺 s	TATUS	
The second se	C	CFS NVNT 3	‰ 3-DH1 2441M		
ent Spectrum Analyzer ·	- Swept SA		3-DH1 2441M	Hz	
ent Spectrum Analyzer - R L RF 5	- <mark>Swept SA</mark> 50 Ω AC 1500000 GHz	SENSE:INT	B-DH1 2441M	Hz	06:08:19 PM Apr 28, 202 TRACE 1 2 3 4 5 TYPE M MMMM
ent Spectrum Analyzer RL RF S Inter Freq 2.44	Swept SA 50 Q AC 1500000 GHz PNC IFG:	SENSE:INT		HZ JTO vg Type: RMS g Hold:>100/100	
ent Spectrum Analyzer RL RF S enter Freq 2.44* Ref Offse dB/div Ref 20.6	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ JTO vg Type: RMS g Hold:>100/100	06:08:19 PM Apr 28, 202 TRACE 2 3 4 9 TYPE MAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
RE Spectrum Analyzer RL RF R Inter Freq 2.44 Ref Offse dB/div Ref 20.0	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	
RE Spectrum Analyzer RL RF R Inter Freq 2.44' Ref Offse B/div Ref 20.0	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ JTO vg Type: RMS g Hold:>100/100	
Ref Offse	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	
Ref Offse	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	
Ref Offse dB/div Ref 20.0	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	
Ref Offse	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	
Ref Offse	- Swept SA 50 g AC 1500000 GHz PN(IFG: t 2.6 dB	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	
ent Spectrum Analyzer RL RF 19 Ref Offse dB/div Ref 20.0 0 0 0 0 0 0 0 0 0 0 0 0 0	- Swept SA 50 Q AC PROVIDENT 1500000 GHz PNC IFG t 2.6 dB 00 dBm	SENSE:INT	B-DH1 2441M	HZ vg Tγpe: RMS g Hold:>100/100 Mk	rt 2.441 034 GH 0.055 dBr
ent Spectrum Analyzer RL RF 19 rnter Freq 2.44' Ref Offse dB/div Ref 20.0 Ref 2.44' Ref 2.44' Ref 2.44' Ref 2.44' Ref 2.44' Ref 2.44'	- Swept SA 50 Q AC PROVIDENT 1500000 GHz PNC IFG t 2.6 dB 00 dBm	SENSE:INT	B-DH1 2441M	Hz vg Type: RMS g Hold:> 100/100 Mk	
ent Spectrum Analyzer RL RF Offse dB/div Ref 20.0 dB/div Ref 20.0 dB/d	-Swept SA 50 Q AC 1500000 GHz PNC IFG t 2.6 dB 00 dBm 1 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	SENSE:INT D: Wide Trig: ain:Low Trig: #Atte	B-DH1 2441M	Hz vg Type: RMS g Hold:>100/100 Mlk Q2 Q2 Sweep	TRACE 12:34 TYPE Minimum Der Pinnin 12:441 034 GH 0.055 dBr
Ref Offse Ref Offse dB/div Ref 20.0	-Swept SA 50 Q AC PROVIDENT 1500000 GHz PNC IFG t 2.6 dB D0 dBm	35ENSE:INT D: Wide Trig: ain:Low #Atte	B-DH1 2441M	Hz vg Type: RMS g Hold:>100/100 Mlk Q2 Q2 Sweep	rt 2.441 034 GH 0.055 dBr
ent Spectrum Analyzer RL RF 1 enter Freq 2.44' Ref Offse dB/div Ref 20.0 Ref 20.0	- Swept SA 50 Q AC	SENSE:INT D: Wide Trig: ain:Low #Atte	B-DH1 2441M	Hz vg Type: RMS g Hold:>100/100 Mlk Q2 Q2 Sweep	rt 2.441 034 GH 0.055 dBr
ent Spectrum Analyzer RL RF C enter Freq 2.44 Ref Offse dB/div Ref 20.0 Ref 0 0 0 0 0 0 0 0 0 0 0 0 0 0	- Swept SA 50 Q AC	SENSE:INT D: Wide Trig: ain:Low #Atte	B-DH1 2441M	Hz vg Type: RMS g Hold:>100/100 Mlk Q2 Q2 Sweep	rt 2.441 034 GH 0.055 dBr
Ref Offse Ref Offse dB/div Ref 2.44 Ref Offse dB/div Ref 20.0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	- Swept SA 50 Q AC	SENSE:INT D: Wide Trig: ain:Low #Atte	B-DH1 2441M	Hz vg Type: RMS g Hold:>100/100 Mlk Q2 Q2 Sweep	rt 2.441 034 GH 0.055 dBr

No.: BCTC/RF-EMC-005



	(CFS NVNT	3-DH1 2	480MHz		
Agilent Spectrum Analyze	er - Swept SA 50 Ω AC	SENSE:II		ALIGNAUTO		06:08:52 PM Apr 28, 2024
Center Freq 2.4	PN		g: Free Run ten: 30 dB	#Avg Typ Avg Hold		TRACE 123456 TYPE MWWWW DET PNNNNN
10 dB/div Ref 20	set 2.61 dB 0.00 dBm				Mk	r1 2.479 034 GHz -0.673 dBm
10.0	1					
-10.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~	~~~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-30.0						
-40.0						
-60.0						
Center 2.479500 #Res BW 30 kHz	GHz	#VBW 10	0 kHz		Sweep	Span 2.000 MHz 2.133 ms (1001 pts)
MKR MODE TRC SCL	×	Y	FUNCTION	FUNCTION WIDTH	FUT	ICTION VALUE
1 N 1 f 2 N 1 f	2.479 034 GHz 2.480 034 GHz	-0.673 dBm -0.595 dBm				
3						
5						3
7						
8						
10						~
<			1111			>
MSG						

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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



lent Spectrum Analyzer - Swep RL RF 50 Ω	AC	SENSE:INT	NT 1-DH1 2	SN AUTO	05:55:21 PM Apr 28, 202-
enter Freq 2.44175	PNO		Free Run h: 30 dB	#Avg Type: RMS Avg Hold:>100/100	TRACE 12345 TYPE MWWWW DET PNNN
Ref Offset 2.6 dB/div Ref 20.00 d	dB Bm			М	kr1 2.401 920 5 GH -0.027 dBn
29 0.0					<u>^2</u>
	VINNNNN	<u>MUMUN</u> UNUN	ŢĨŖŶŢŖŢŢŖŖĄŊ	NAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
1.0					
).0).0					
.0					
art 2.40000 GHz					Stop 2.48350 GH
Res BW 100 kHz	×	#VBW 300 I		Swo	EEP 8.000 ms (1001 pts
N 1 f N 1 f	2.401 920 5 GHz 2.480 243 5 GHz	-0.027 dBm -1.304 dBm	FONCTION		FUNCTION VALUE
3 4 5					
	Наррі	na No. NVI		441MHz	
lent Spectrum Analyzer - Swep	pt SA		NT 2-DH1 2	441MHz	06:12:21 DM Apr 28:202
l <mark>ent Spectrum Analyzer - Swep</mark> RL RF 50 Ω	pt SA AC 0000 GHz PNO	SENSE:INT	NT 2-DH1 2 ALIG	-	06:12:21 PMApr 28, 202 TRACE 12:34 5 TVPE MWWWW DET PINNIN
Ient Spectrum Analyzer - Swej RL RF 50 Ω enter Freq 2.441750 Ref Offset 2.6	pt SA AC 00000 GHz PNO IFGai dB	SENSE:INT	NT 2-DH1 2	A41MHz *Avg Type: RMS Avg Hold:>100/100	TRACE 12345 TYPE MWWWW DET P N N N N kr1 2.401 586 5 GH
RL Spectrum Analyzer - Swer RL SD 9 enter Freq 2.441751 Ref Offset 2.6 dB/div Ref 20.00 d 9	pt SA AC 00000 GHz PNO IFGai dB	SENSE:INT	NT 2-DH1 2 ALIG	A41MHz *Avg Type: RMS Avg Hold:>100/100	TRACE 12345 TYPE MWWWW DET PNNNN
lent Spectrum Analyzer - Swer RL 85 50 9 enter Freq 2.441751 Ref Offset 2.6 dB/div Ref 20.00 d	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2 ALIC Free Run 1: 30 dB	441MHz SNAUTO #Avg Type: RMS Avg Hold>100/100	kr1 2.401 586 5 GH -6.542 dBn
RL Spectrum Analyzer - Swer RL RF 50 9 enter Freq 2.44175 Ref Offset 2.6 dB/div Ref 20.00 d	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2 ALIC Free Run 1: 30 dB	441MHz SNAUTO #Avg Type: RMS Avg Hold>100/100	TRACE 12345 TYPE MWWWW DET P N N N N kr1 2.401 586 5 GH
Ref Offset 2.6 Ref Offset 2.6 dB/div Ref 2.000 d	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2 ALIC Free Run 1: 30 dB	441MHz SNAUTO #Avg Type: RMS Avg Hold>100/100	kr1 2.401 586 5 GH -6.542 dBn
RE Spectrum Analyzer - Swer RL RF 50 @ enter Freq 2.441751 Brdiv Ref Offset 2.6 dB/div Ref 20.00 d	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2 ALIC Free Run 1: 30 dB	441MHz SNAUTO #Avg Type: RMS Avg Hold>100/100	trace 12345 туре Per Minim kr1 2.401 586 5 GH -6.542 dBn -6.542 dBn -6.542 dBn
Ref Offset 2.6 dB/div Ref 2.000 d	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2 ALIC Free Run 1: 30 dB	441MHz SNAUTO #Avg Type: RMS Avg Hold>100/100	кr1 2.401 586 5 GH -6.542 dBn -6.542 dBn
Ient Spectrum Analyzer - Swer RL RF 50 Q enter Freq 2.441750 dB/div Ref 20.00 d g 00 01 01 00 01 01 00 01 01 00 01 01 01	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2 ALIC Free Run 1: 30 dB	441MHz SNAUTO #Avg Type: RMS Avg Hold>100/100	телес 12345 туре ет Милин kr1 2.401 586 5 GH -6.542 dBn -6.542 dBn
RE Spectrum Analyzer - Swer RL RF 50 Q enter Freq 2.441751 B/div Ref Offset 2.6 dB/div Ref 20.00 d	AC PNO BM dB Bm	SENSE:INT : Fast Trig: F n:Low #Atter	NT 2-DH1 2	441MHz	кr1 2.401 586 5 GH -6.542 dBn -6.542 dBn
Ient Spectrum Analyzer - Swer RL S0 Q Ref Offset 2.6 GB/div Ref 20.00 d GB/div Ref 20.00 d GB/div Ref 20.00 d Q </td <td>AC AC OUDOO GHZ PNO IFGai dB Bm</td> <td>SENSE:INT</td> <td>NT 2-DH1 2</td> <td>441MHz</td> <td>телес D2345 турет MMMM kr1 2.401 586 5 GH -6.542 dBn -6.542 dBn -6.540 dBn -6.542 dBn -</td>	AC AC OUDOO GHZ PNO IFGai dB Bm	SENSE:INT	NT 2-DH1 2	441MHz	телес D2345 турет MMMM kr1 2.401 586 5 GH -6.542 dBn -6.542 dBn -6.540 dBn -6.542 dBn -
Ient Spectrum Analyzer - Swer RL RF 50 Q enter Freq 2.441751 Sec Sec Ref Offset 2.6 B/div Ref 20.00 d GB/div Ref 20.00 d G/div Auge 00 1 1 F Sec 00 1 F Sec Sec 00 1 F Sec Sec 00 1 F Sec Sec	AC DOUD GHZ PROIFGail	SENSE:INT Fast Trig: F in:Low #Atter WMMMWWWW WMMWWWWW WMMWWWWW #VBW 300 I	NT 2-DH1 2	441MHz *Avg Type: RMS Avg Hold:>100/100 MI	телес [23 4 5 турет рет Минин kr1 2.401 586 5 GH -6.542 dBn -6.542 dBn -6.54
Ient Spectrum Analyzer - Sweg Ref Offset 2.6 Ref Offset 2.6 Block Ref 20.00 d Glock Ref 20.00 d Block Ref 20.00 d Block Ref 20.00 d Glock Ref 20.00 d Glock Ref 20.00 d Glock Ref 20.00 d Block Ref 20.00 d Block Ref 20.00 d Block Ref 20.00 d	AC AC OUDOO GHZ PNO IFGai dB Bm	SENSE:INT	NT 2-DH1 2	441MHz *Avg Type: RMS Avg Hold:>100/100 MI	телес [23 4 5 турет рет Минин kr1 2.401 586 5 GH -6.542 dBn -6.542 dBn -6.54





Но	pping No. NVN	IT 3-DH1 2441	MHz	
Agilent Spectrum Analyzer - Swept SA VA RL RF 50 Q AC Center Freq 2.441750000 GHz	PNO: Fast FI FGain:Low #Atten:	reeRun Avg <mark>i</mark> H	06: "ype: RMS sid:≻100/100	16:40 PM Apr 28, 2024 TRACE 1 2 3 4 5 6 TYPE MWWW DET P N N N N
Ref Offset 2.6 dB 10 dB/div Ref 20.00 dBm				503 0 GHz -5.448 dBm
- 300 - 200 - 300 - 400 - 600 - 700	*/////////////////////////////////////			
Start 2.40000 GHz #Res BW 100 kHz	#VBW 300 k	Hz	Stop Sweep 8.000	o 2.48350 GHz ms (1001 pts)
MKR MODE TRC SCL X 1 N 1 f 2.401503 0 GH 2 N 1 f 2.401503 0 GH 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10 - - -	z -5.448 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VAL	
K MSG		STATU	s	<u>></u>





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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.

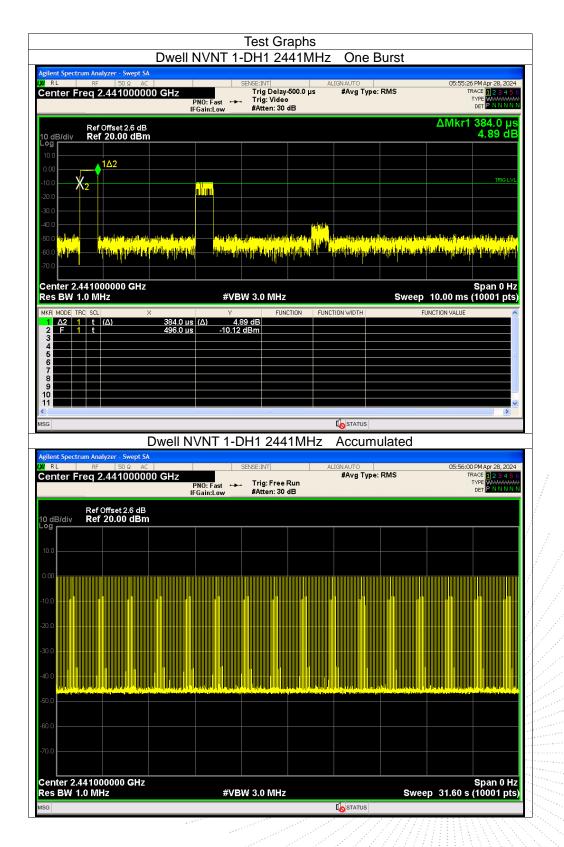
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
1-DH1	2441	0.384	122.88	320	31600	400	Pass
1-DH3	2441	1.639	262.24	160	31600	400	Pass
1-DH5	2441	2.888	309.016	107	31600	400	Pass
2-DH1	2441	0.368	117.392	319	31600	400	Pass
2-DH3	2441	1.618	257.262	159	31600	400	Pass
2-DH5	2441	2.866	306.662	107	31600	400	Pass
3-DH1	2441	0.241	76.879	319	31600	400	Pass
3-DH3	2441	1.492	238.72	160	31600	400	Pass
3-DH5	2441	2.741	293.287	107	31600	400	Pass

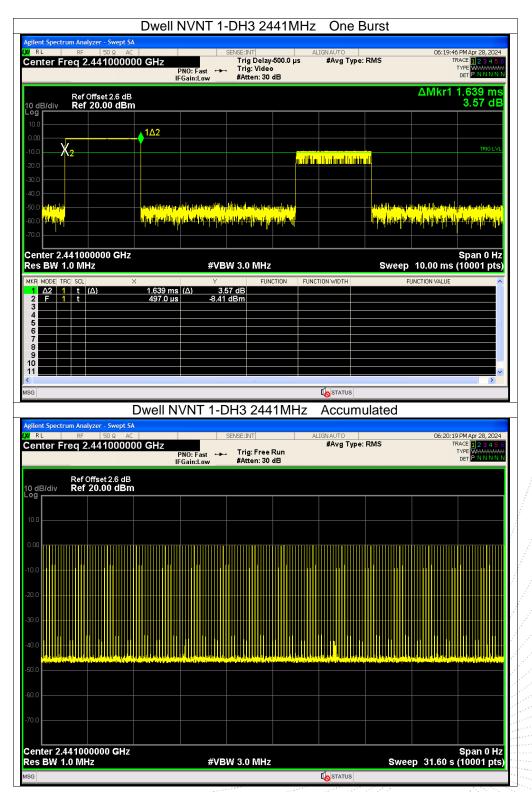
14.4 Test Result

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

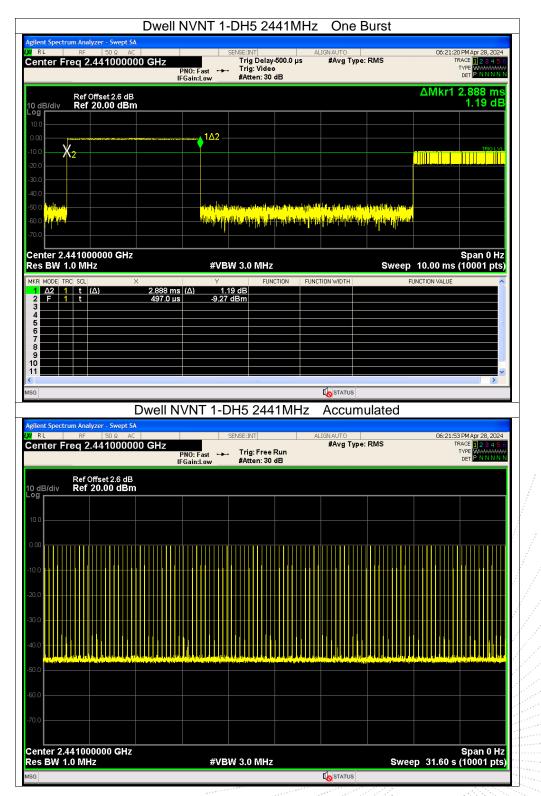






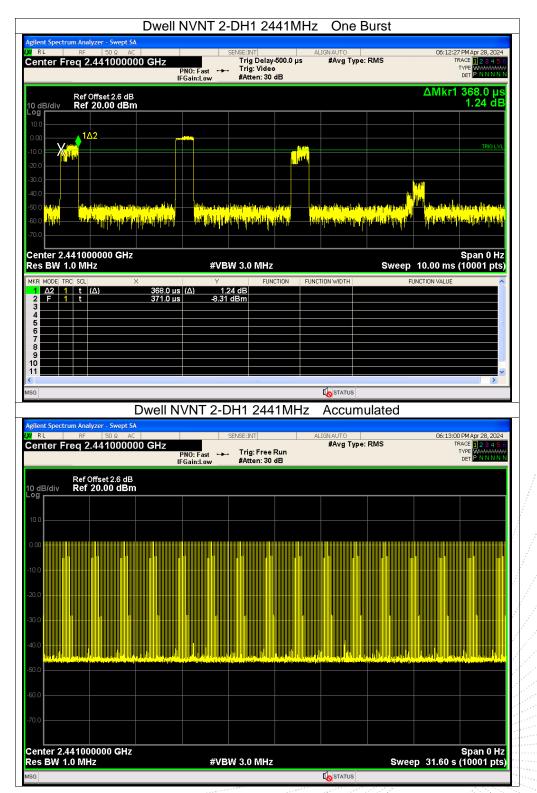














			SENSE:INT		IGN AUTO	DME	06:22:30) PM Apr 28, 2024
enter Freq 2.44100000	F	PNO: Fast ↔ Gain:Low	Trig Delay-50 . Trig: Video #Atten: 30 dB		#Avg Type	E RMS	Т	RACE 123456 TYPE WWWWWWWW DET PNNNNN
Ref Offset 2.6 dB							ΔMkr1	1.618 ms
dB/div Ref 20.00 dBm								1.89 dB
0.0	1Δ2			,	den kan kan serat in kan ita			
								TRIG LVL
0.0								
0.0								
0.0 <mark>(****)0</mark> 0.0 <mark>*****</mark>	ital daga jabata dak ng jang daga pang	in a contract de la contract <mark>a la braix a contract de la contracta de la cont</mark>	t palante da de la proposition Li palante a la plante da propositione de la plante de la p			ta pitelite des alexanos Inspiteles de suplicion	dina da partina fuerga pa <mark>1919 n. Unite Company</mark>	n a fina des na des de 19 de ja segmenta des des
0.0	literation of the	d stab		-ur			- hu - r t -	
enter 2.441000000 GHz es BW 1.0 MHz	1	#VF	3W 3.0 MHz		1	Sween	10.00 ms	Span 0 Hz (10001 pts)
KR MODE TRC SCL >		Y	FUNCT	ION FUNC	TION WIDTH		JNCTION VALUE	(10001 pt5)
1 Δ2 1 t (Δ) 2 F 1 t 3	1.618 ms 371.0 µs	<u>(Δ)</u> 1. -8.39	89 dB dBm					
4								=
6 7 8								
9								
			IIII		1			×
3			DH3 2441	MH-2	Accum	ulated		
ilent Spectrum Analyzer - Swept SA			5115 244 1		Accum	ulateu		
	0 GHz		SENSE:INT		IGNAUTO #Avg Type	e: RMS	TI	8 PM Apr 28, 2024 RACE 1 2 3 4 5 6 TYPE WWW/M/M/M/
	00 GHz	PNO: Fast ++ Gain:Low	SENSE:INT - Trig: Free Ru #Atten: 30 dE	ın		e: RMS	TI	
Ref Offset 2.6 dB dB/div Ref 20.00 dBm	00 GHz	PNO: Fast ↔ Gain:Low	. Trig: Free Ru	ın		e: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref 20.00 dBm	00 GHz	PNO: Fast ↔	. Trig: Free Ru	ın		e: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB Ref 20.00 dBm	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın		e: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB Ref 20.00 dBm	00 GHz	PNO: Fast	. Trig: Free Ru	ın		: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB Ref 20.00 dBm	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın		: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref 20.00 dBm	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın		e: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref 2.44100000 g Ref 0.00 dBm g Ref 2.0.00 dBm g Ref 2.0.00 dBm	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın			TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref 2.44100000 g Ref 0.00 dBm g Ref 2.0.00 dBm g Ref 2.0.00 dBm	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın		:: RMS	TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref 2000 dBm 00 00 00 00 00 00	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın			TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref 20.00 dBm	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın			TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref Offset 2.6 dB Ref 20.00 dBm Go Ref 20.00 dBm Ref 20.00 dBm Ref 2	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın			TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB Ref Offset 2.6 dB Ref 20.00 dBm Generation Generation <t< td=""><td>00 GHz</td><td>PNO: Fast Gain:Low</td><td>. Trig: Free Ru</td><td>ın</td><td></td><td></td><td>TI</td><td>RACE 1 2 3 4 5 6</td></t<>	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın			TI	RACE 1 2 3 4 5 6
Ref Offset 2.6 dB dB/div Ref Offset 2.6 dB Ref 20.00 dBm Go Ref 20.00 dBm Ref 20.00 dBm Ref 2	00 GHz	PNO: Fast Gain:Low	. Trig: Free Ru	ın			TI	RACE 1 2 3 4 5 6

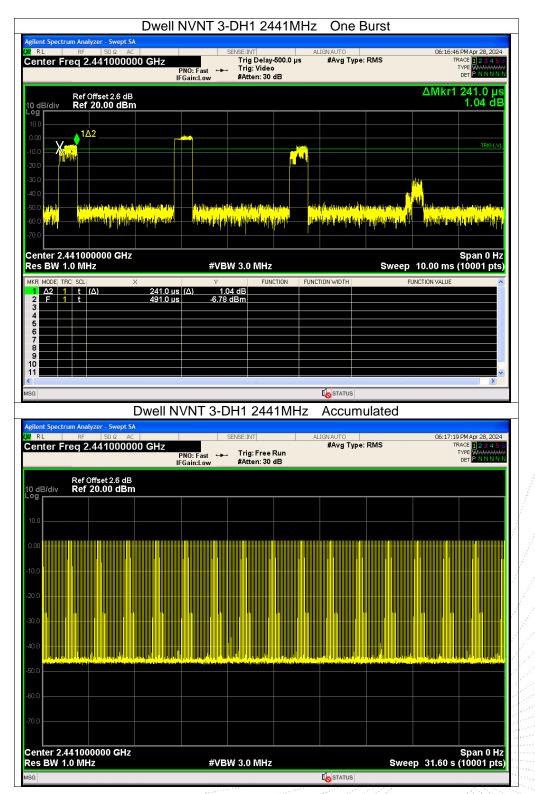
'epoi



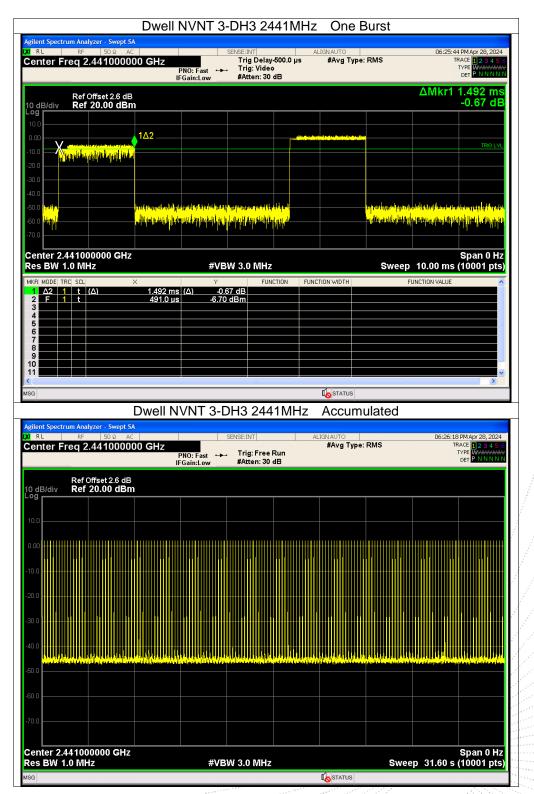
ilent Spectrum Analyzer - Swept SA	ł	/NT 2-DH5 24		One Burst		
RL RF 50 Ω AC enter Freq 2.44100000	DO GHZ	SENSE:INT Trig Dela ::Fast ↔ Trig:Vide in:Low #Atten:30	0	AUTO Avg Type: RMS	06:24:13 PM Apr 28, 202 TRACE 1 2 3 4 5 TYPE WAMAAA DET P N N N	24 5 6 444 1 N
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<pre>KR MODE TRC SCL</pre>	× 2.866 ms (Δ	Y FUI	NCTION FUNCTION	-	UNCTION VALUE	•
2 F 1 t 3 4	371.0 µs	-8.27 dBm				
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3				STATUS	<u>></u>	⊻
	Dwell NVI	NT 2-DH5 244	<u> </u>	status ccumulated		
i <mark>lent Spectrum Analyzer - Swept SA RL RF 50 Ω AC</mark>		NT 2-DH5 244	41MHz A		06:24:46 PM Apr 28, 202	24
i <mark>lent Spectrum Analyzer - Swept SA RL RF 50 Ω AC</mark>	DO GHz		41MHz A	ccumulated		5 6
lent Spectrum Analyzer - Swept S/J RL RF 50 Ω Ac enter Freq 2.44100000 Ref Offset 2.6 dB dB/div Ref 20.00 dBm	00 GHz PNO IFGai	SENSE:INT	41MHz A		06:24:46 PM Apr 28, 202 TRACE 12 2 4 5	5 6
Ient Spectrum Analyzer - Swept S/ RL RF 50 Ω AC enter Freq 2.4410000(Ref Offset 2.6 dB dB/div Ref 20.00 dBm	00 GHz PNO IFGai	SENSE:INT	41MHz A		06:24:46 PM Apr 28, 202 TRACE 12 2 4 5	5 6
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RL RF 50.0 Act RL RF 50.0 Act enter Freq 2.44100000 Ref Offset 2.6 dB Ref 20.00 dBm dB/div Ref 20.00 dBm Ref 20.00 dBm 00	00 GHz PNO IFGai	SENSE:INT	41MHz A		06:24:46 PM Apr 28, 202 TRACE 12 2 4 5	6
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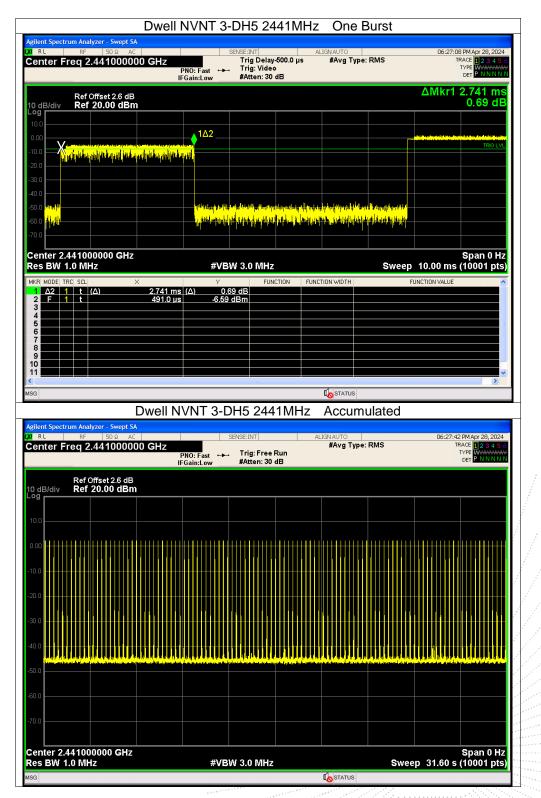






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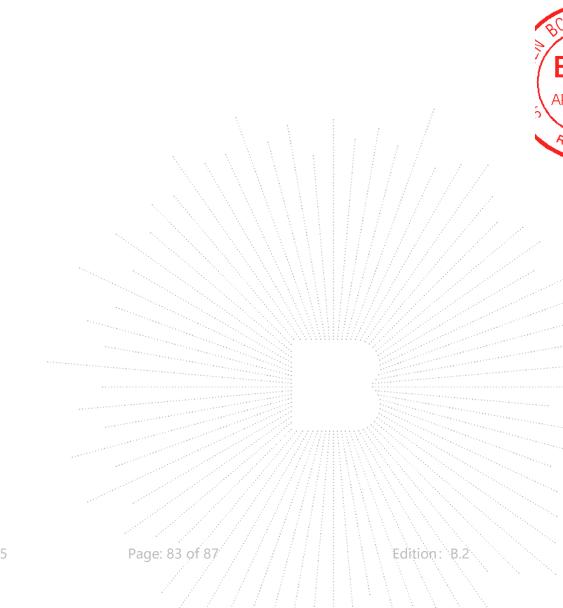
15. Antenna Requirement

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.





16. EUT Photographs

EUT Photo



NOTE: Appendix-Photographs Of EUT Constructional Details

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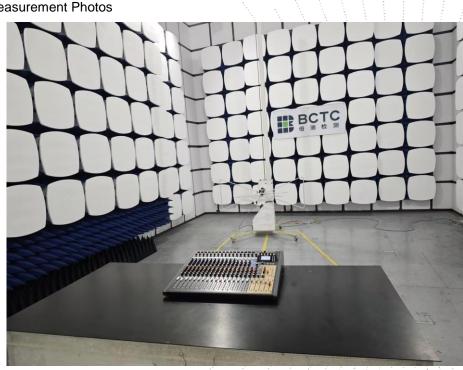


17. EUT Test Setup Photographs

Conducted emissions



Radiated Measurement Photos



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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:

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***** END *****

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