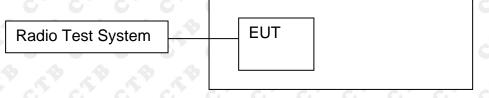






9. COUDUCTED PEAK OUTPUT POWER

9.1 Block Diagram Of Test Setup



9.2 Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3 Test procedure

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

2. Set the spectrum analyzer: RBW = 3MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak.

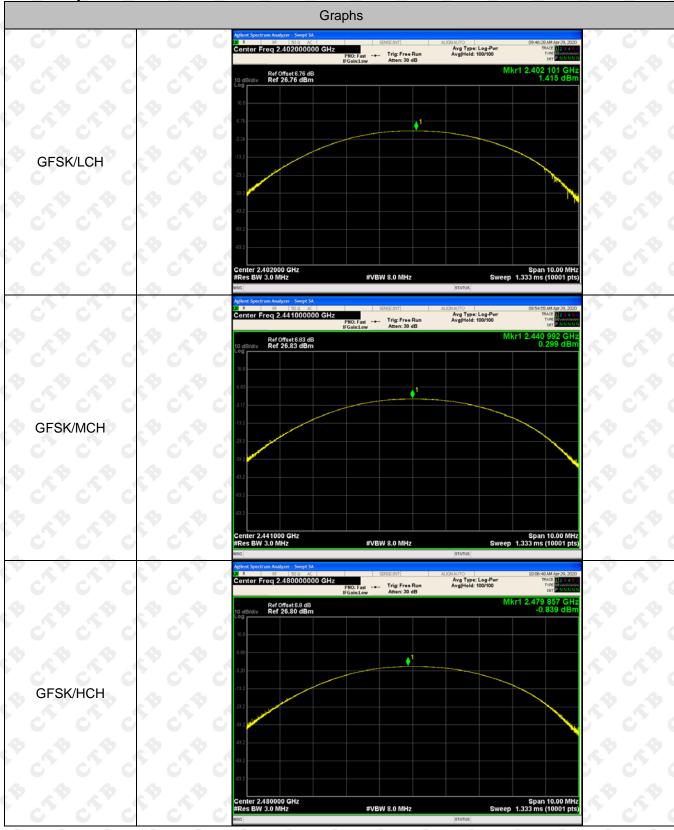
3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

9.4 Test Result

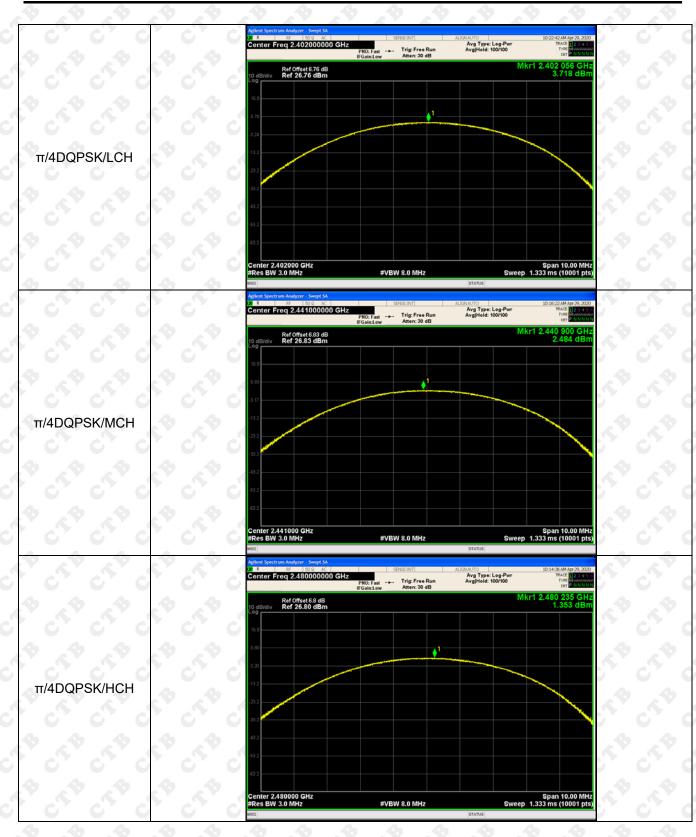
Mode	Channel.	Verdict	
	LCH	1.415	PASS
BDR mode (GFSK)	MCH	0.299	PASS
	НСН	-0.839	PASS
	CLCH C	O O 3.718 O O	PASS C
EDR mode (π/4DQPSK)	MCH	2.484	PASS
	НСН	1.353	PASS
	LCH	4.391	PASS
EDR mode (8DPSK)	MCH	3.149	PASS
	НСН	2.015	PASS



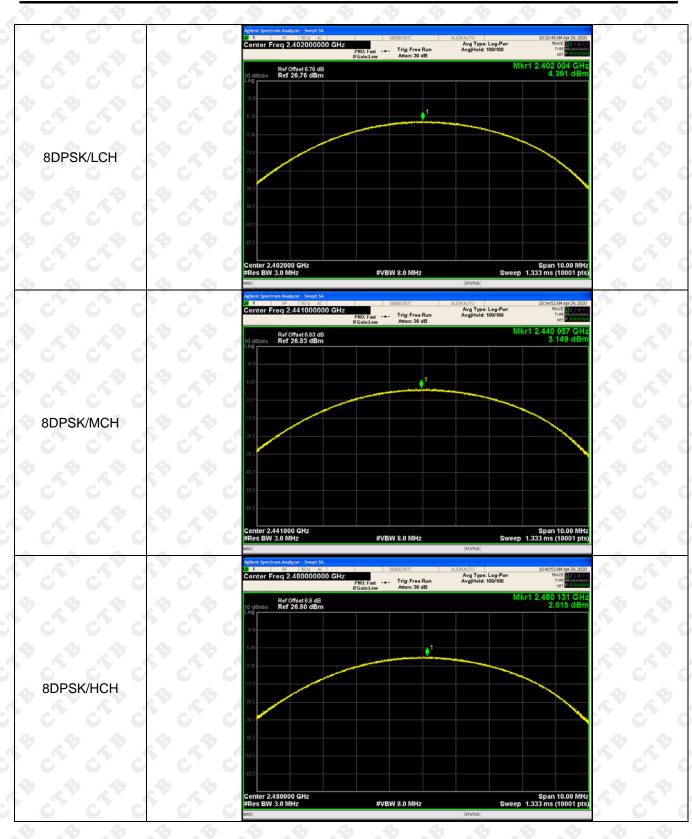
Test Graph:







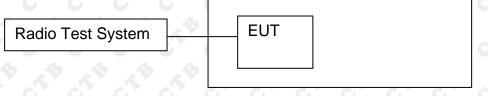






10. 20DB OCCUPIED BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limit

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125nw.

10.3 Test procedure

- 1. Rem1. Set RBW = 100 kHz.
- 2. Set the video bandwidth (VBW) \geq 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.

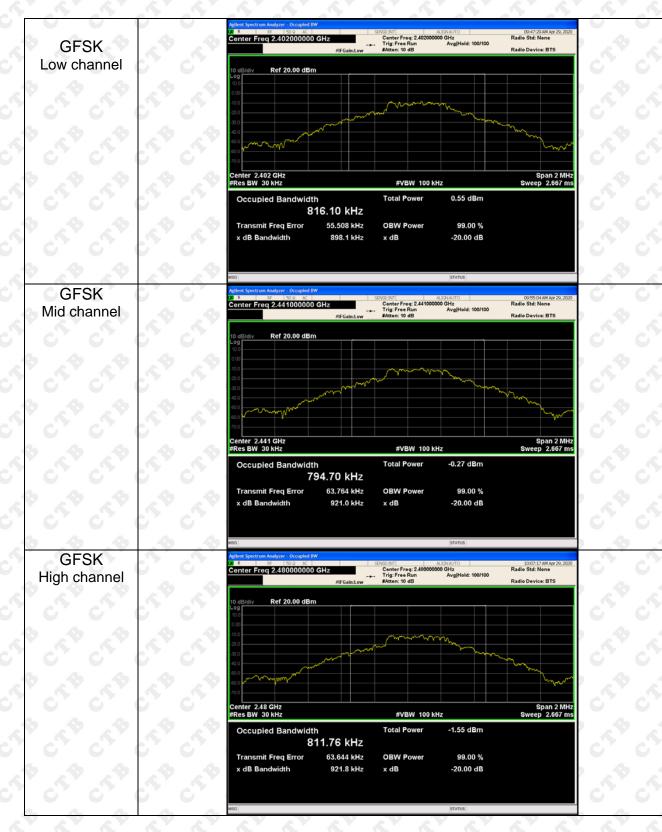
10.4 Test Result

Test Mode	Frequency	20dB Bandwidth (MHz)	Result
	Low channel	0.8981	PASS
GFSK	Mid channel	0.921	PASS
	High channel	0.9218	PASS
	Low channel	1.3038	PASS
π/4DQPSK	Mid channel	1.2894	PASS
	High channel	1.3161	PASS
~~~~~	Low channel	1.2609	PASS
8DPSK	Mid channel	1.3256	PASS
	High channel	1.2894	PASS

Note: All modes of operation were Pre-scan and the worst-case emissions are reported.



Test Graph:



Report





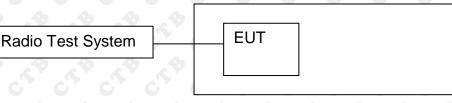






## 11. CARRIERFREQUENCIES SEPARATION

11.1 Block Diagram Of Test Setup



#### 11.2 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.

#### 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 = 30kHz. VBW = 100kHz , Span = 3.0MHz. 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	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	0.993	PASS
GFSK	MCH C	0.999	PASS
GFSK	HCH	0.999	PASS
π/4DQPSK	LCH	1.02	PASS
π/4DQPSK	MCH	0.987	PASS
π/4DQPSK	HCH	1.068	PASS
8DPSK	LCH	0.936	PASS
8DPSK	MCH	1.137	PASS
8DPSK	НСН	O O 1.323 O O O	PASS

#### 11.4 Test Result



#### Test Graph





## Shenzhen CTB Testing Technology Co., Ltd. Report No.: CTB200429009RFX

	5 6	Aglient Spectrum Analyzer - Swept SA DC 8 R5 50 9 AC Center Freq 2.402500000 GHz	SENSE:INT	ALION AUTO Avg Type: Log-Pwr Avg Hold: 5000/5000	10:27:02 AM Apr 29, 2020 TRACE 2 3 4 9 6 TVPI	5 6	5
A A A	\$ \$	Ref Offset 6.76 dB	PNO: Wide Trig: Free Run IFGain:Low Atten: 30 dB		Mkr1 1.020 MHz -0.689 dB		
		16.8	X2	162	000		
CAN CAN C	STO CATO CA	-132 -132 -232			hu		500
π/4DQPSK/LCH	\$ \$	-43 2 -63 2					
		Center 2.402500 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep	Span 3.000 MHz 1.000 ms (1001 pts)		Č
* 5 [*] 5 [*] 5	5 ⁷⁰ c 1 ⁷⁰ c 1	MKR  MODE  TRC  SCL  X    1  Δ2  1  f  (Δ)  1.020 M    2  F  1  f  2.402 188 G    3   1  f  2.402 188 G	Y FUNCTION F Hz (Δ) -0.669 dB Hz 1.018 dBm	UNCTION WIDTH FUNC	TION VALUE		S ^N C
4,4,4	\$ \$	5 6 7 8					
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1 6 1 6 1 C	ST CAR C	Aglient Spectrum Analyzer - Swept SA U R RF 500 AC Center Freq 2.441500000 GHz	SENSE:INT PNO: Wide Trig: Free Run	ALION AUTO Avg Type: Log-Pwr Avg Hold: 5000/5000	10:19:29 AM Apr 29, 2020 TRACE 2014 5 C	5 ° c	SV.
\$ \$ \$	\$ \$	Ref Offset 6.83 dB	PHO:Wide ⊶⊶ Trig:FreeRun IFGain:Low Atten:30 dB		ΔMkr1 987 kHz -0.357 dB		
ి రి రి ర		16.8 6.83	X2,	162			C
8 58 58 S	SP CR P C	-13 2 -23 2 -33 2			M		58
π/4DQPSK/MCH	. 4. 4	-43 2 -63 2 -63 2					
ి రి రి ర	້ວົ້ວ	Center 2.441500 GHz #Res BW 100 kHz	#VBW 300 kHz		Span 3.000 MHz 1.000 ms (1001 pts)		C
P 5 P 5 P 5	5 8 A 8 A	MKR MODE TRC SOL X 1 02 1 f (Δ) 997 k 2 F 1 f 2,440 900 G 3 4	Y FUNCTION F Hz (Δ) -0.357 dB Hz -0.188 dBm	UNCTION WIDTH FUNC	TION VALUE		50
\$ \$ \$	A .A	6 7 8 9					
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8 58 58 A	5 8 A 8	Aglient Spectrum Analyzer - Swept SA R R SO AC Center Freq 2.479500000 GHz	PNO: Wide Trig: Free Run IFGaint.ow Atten: 30 dB	AUGN AUTO Avg Type: Log-Pwr Avg Hold: 5000/5000	02:02:04 PM May 27, 2020 TRACE 2 2 4 5 6 TYPE MULTINE	SP .	5.8
\$ \$ \$	\$ \$	Ref Offset 6.8 dB 10 dB/div Ref 26.80 dBm	In caller the second se	Δ	Mkr1 1.068 MHz 0.542 dB		\$
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\$ 5\$ 5\$ S	5 8 A 8	-13 2			- AMA	A B	50
π/4DQPSK/HCH		-43.2 -63.2 -63.2					
ి రి రి ర	5° 5°	Center 2.479500 GHz #Res BW 100 kHz	#VBW 300 kHz		Span 3.000 MHz 1.000 ms (1001 pts)	5 0	Ċ
P 59 59	A 40 1	1  Δ2  1  f  (Δ)  1.068 M    2  F  1  f  2.479 119 Gi    3  -  -  -  -    4  -  -  -  -    5  -  -  -  -  -				58	58
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6 7 8 9 10					-
6 6 6	5 6 6	11 €		STATUS	>	5 6	S'c



Shenzhen CTB Testing Technology Co., Ltd. Report No.: CTB200429009RFX

		Aglient Spectrum Analyzer - Swept SA	CONTRACT		10:30:51 AM Apr 29, 2020	Ś	
	000	Center Freq 2.402500000 GH	PNO: Wide Trig: Free Run IFGain:Low Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 5000/5000	TRACE 2 3 4 5 6 TVPE MULTINA		C C
	A 24 1	Ref Offset 6.76 dB	I GUINEGH		ΔMkr1 936 kHz 0.627 dB	\$	4
		10 dB/div Ref 26.76 dBm Log 16.8		162		5	c' c
	\$ \$	-3.24	mm X2 mmm		mmm		
		-13.2					c . c
	A A	-33.2 -43.2					4
8DPSK/LCH	SY . SY .	-63.2				SY	S.
		Center 2.402500 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep	Span 3.000 MHz 1.000 ms (1001 pts)		0 0
	69 69 A	MKR MODE TRC SCL X 1 Δ2 1 f (Δ) 938 2 F 1 f 2.402 116	Y PUNCTION PL 5 kHz (Δ) 0,627 dB GHz 0,369 dBm	UNCTION WIDTH FUNC	TION VALUE	29	~
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	. 4 . 4	6 7 8					
	6 6	9 10 11					6 0
4 4 4	4 4	MSG		STATUS		4	4
	ST ST A	Aglient Spectrum Analyzer - Swept SA DU R RF 50 9 AC Center Freq 2.441500000 GH:	SENSE:INT	ALIONAUTO Avg Type: Log-Pwr Avg Hold: 5000/5000	10:37:36 AM Apr 29, 2020 TRACE 2 2 4 5 0 Type	SY	S
		D.4.0%-46.03-4D	PNO: Wide Trig: Free Run IFGain:Low Atten: 30 dB		Det PNNNNN Mkr1 1.137 MHz		
	C C C	Ref Offset 6.83 dB			0.438 dB	K.Y	A V
	C C	6.83	www.Xzhanna	1Δ2			C C
	A 4	-3.17	and the second second		where our for the second s	\$	A 40
		-332				5	c' c
8DPSK/MCH	\$ \$	-43.2					
	S 6 6	Center 2.441500 GHz			Span 3.000 MHz		S .
	A A	#Res BW 100 kHz	#VBW 300 kHz Y FUNCTION FL		1.000 ms (1001 pts)	- 20	
	5× 5× 6	1 Δ2 1 f (Δ) 1.137 2 F 1 f 2.441 080 3	MHz (Δ) 0.438 dB GHz -0.622 dBm			SY	5
		5 6 7					0
	19 19 1	8 9 10 11				29	29
	' C' C	K MSG	N.	STATUS	2	5	C' C
\$ \$ \$	A 4	Agilent Spectrum Analyzer - Swept SA	SENSE:INT	ALIGNAUTO	10:43:04 AM Apr 29, 2020 TRACE 2 3 4 5 0	\$	4
		Center Freq 2.479500000 GH:	PNO: Wide Trig: Free Run IFGain:Low Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 5000/5000	TYPE DET PNNNNN		c' c
	\$ \$	Ref Offset 6.8 dB 10 dB/dly Ref 26.80 dBm			Mkr1 1.323 MHz 1.207 dB		
		6.80		162		5	S' 0
		-3.20 And Control of 			m		4
	6 × 6 × 6	-23.2			<u> </u>	SY	5
8DPSK/HCH	00	-43.2			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		U C
	N 29 1	-63 2			Span 3 000 MHz	20	2
	0 0	Center 2.479500 GHz #Res BW 100 kHz	#VBW 300 kHz		Span 3.000 MHz 1.000 ms (1001 pts)		0 C
	A .A .	1 Δ2 1 f (Δ) 1,323 2 F 1 f 2.478 909 3 J	MHz (Δ) 1.207 dB GHz -2.726 dBm				
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	\$ \$	8 9 10				-	40
	ST ST A	11		STATUS	×	ST	5
				PIATUS			



12. HOPPING CHANNEL NUMBER

12.1 Block Diagram Of Test Setup



12.2 Limit

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

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 = 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;

12.4 Test Result

Mode	Channel.	Number of Hopping Channel	Verdict
GFSK	Нор		PASS
π/4DQPSK	Нор	79	PASS
8DPSK	Нор		PASS



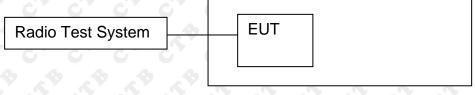
Test Graph

	Graphs
	Agliest System Analyzer - Sergt SA All Price System Analyzer - Sergt SA Center Freq 2.441750000 GHz ODXEPNT AUSURNTO ODXEPNT Center Freq 2.441750000 GHz Trig: Free Run IFG aint.tow Avg Type: Leg-Pur Avg]Hold: 500085000 Trig: Free Run Avg]Hold: 500085000 Tr
GFSK/Hop	432
^{و به} د ^{در به} د ^{و به} د ^{و به} د ^{به} د ^{ر به} د ^{ر به} د ^{و به}	#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (1001 pts) MRR MODE TRC SCL V Function Function width Function width 1 1 1 2.492 097 5 GHz OB14 dBm Function width Function width 1 1 1 1 2.490 243 5 GHz OB14 dBm Function width Function width 1 1 1 2.490 243 5 GHz -1.337 dBm Function width Function width Function width 1 1 1 1 1 Function width
	K 3 MSG [STATUS] Applient System Analyzer - Swept SA 5026 2911 All R 57 502 6 261 Center Freq 2.441750000 GHz 6026 2911 Avg Type: Log-Pw 1028 29 AM Apr 29, 2020
5 ¹⁰ C 1 ¹⁰	Center Freq 2.441750000 GHz Trig: Free Run IF Gelind.ow Avg Type: Legt-Pur Avg]Hold: 50005000 Trig: Free Run Avg]Hold: 50005000 Trig: Free Run Avg]Hold: 50005000
π/4DQPSK/Hop	432 432
A CARCAR CAR	
5 ¹⁰ C ^{5¹⁰} C ^{5¹⁰} C ^{5¹⁰} 5 ¹⁰ C ^{5¹⁰} C ^{5¹⁰} C ^{5¹⁰} 5 ¹⁰ C ^{5¹⁰} C ^{5¹⁰} C ^{5¹⁰}	Altered Spectrum Madyary - Swept SA Status St
8DPSK/Hop	432 432 432 532 532 532 532 532 Start 2.40000 GHz Stop 2.48350 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (1001 pts) MRI MODE, TRC, SCL X Y Function Function value N 1 7 2.400 494 0 GHz -0.303 dBm Function value
* c [*] c [*] c [*]	2 N 1 f 2.480 494 0 GHz 4.334 dBm 4 4 4 4 4 4 6 4 4 4 4 4 1 4 4 4 4 4 4 1 4



13. DWELL TIME

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. 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.

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 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).



СТВ

Mode	Packet	Channel	Pulse Time (ms)	Total Dwell Time (ms)	Limit (ms)	Verdict
í,	DH1	LCH	0.385	123.20	400	PASS
4	DH1	MCH	0.385	123.20	400	PASS
	DH1	HCH	0.385	123.20	400	PASS
	DH3	LCH	1.646	263.36	400	PASS
GFSK	DH3	MCH	1.646	263.36	400	PASS
0	DH3	HCH	1.646	263.36	400	PASS
\$ 1	DH5	LCH	2.897	309.01	400	PASS
6	DH5	MCH	2.896	308.91	400	PASS
Q 4	DH5	HCH	2.897	309.01	400	PASS

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

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

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

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



Test Graph

	Graphs
GFSK_DH1/LCH	Affletti Spectrum Andryer: Swept SA. EXECUTIO EXECUTION EXECUTION VALUE EXECUTION VALUE EXEC
GFSK_DH1/MCH	Addrest Spectrum Analyzer, Sweep 5A Trig Delays 1.000 ms (1900) Add PPOL PHT Trig Delays 1.000 ms (1900) Trig Delays 1.0000 ms (1900) Trig De
GFSK_DH1/HCH	Aller System Andrews Sweet SA Aller System Conter Freq 2.480000000 GHz Fig. Video Center Freq 2.480000000 GHz Fig. Video Center 2.480000000 GHz Fig. Video Center 2.480000000 GHz Center 2.48000000 GHZ Center 3.48000000 GHZ Center 3.48000000 GHZ Center 3.48000000 GHZ Center 3.48000000 GHZ Center 3.48000000 G



V AV AV		Y A Y	A Y A						
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	ن ک ک در ^م ک در ک	Ref Offset 6. 10 dB/div Ref 26.76 L0g			utalia prive a segunda	Leaven and Leaven	1Δ2 100LV		
GFSK_DH3/LCH	5 ° ° °		GHZ	#VBW 3.0 MHz		Sweep 3.00	Span 0 H 00 ms (10001 pts		
* 5 [*] 5 [*] 5 [*] 5 [*]	54 54 2 ⁵⁰ 2	MKR MODE TRC SCL 1 A2 1 t (A) 2 F 1 t 3 4 6 6 7 7 8	× 1.646 ms (Δ) 1.007 ms	Y FUNCTION 0.04 dB -1.00 dBm	FUNCTION WIDTH	FUNCTION			
		Agilent Spectrum Analyzer - Sw U R RF 50 G	2 AC	SPN52:007	ALICNAUTO		2 10:22:02 AM Apr 29, 202		
	cr ^{to} cr ^t	Center Freq 2.44100 Ref Offset 6 10 dB/dlv Ref 26.83	PNO: IFGain	Trig Delay-1.000 Fast → Trig: Video Low Atten: 30 dB	ms Avg Type:		Mkr1 1.646 m -0.19 dl		
* c ⁵ * c ⁵ * c ⁵ *	cr® cr	6 83 -3.17 -13.2 -23.2 -33.2 	>	(₂))))))))))))))))))))))))))))))))))))	nin hindrigen and an		1Δ2 () perf	*	
GFSK_DH3/MCH	crs cr	432 433	a state and	#VBW 3.0 MHz			Span 0 H 00 ms (10001 pts		
	6 ⁶ 6 ⁶	MAR MODE TRC SCI 1 Δ2 1 t (Δ) 2 F 1 t (Δ) 3 4 5 6 6 7 8 9 9 9	× 1.646 ms (Δ) 1.007 ms	-0,19 dB -2,13 dBm	FUNCTION WIDTH	FUNCTION	N VALUE)		
	6° 6°	9 10 11 KISG Agilent Spectrum Analyzer - Sm 00 R R RF 500	D AC	SENSE:INT	STATUS ALIGNAUTO		2 10:13:52 AM Apr 29, 202		
	67 67 	Center Freq 2.4800	PNO: IFGain	Trig Delay-1.000 Fast → Trig: Video Low Atten: 30 dB	ms Avg Type:		TRACE 2345 TYPE 001 001 001 001 001 001 001 001 001 00		
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GFSK_DH3/HCH	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	43 2 63 2 63 2 Center 2.480000000 Res BW 1.0 MHz	GHz	#VBW 3.0 MHz		Sweep 3.00	Span 0 H 00 ms (10001 pts	z	
	cre cri	MKR MODE TRC SCL 1 A2 1 t (A) 2 F 1 t 3 4 6 6 7	× 1.646 ms (Δ) 1.006 ms	Y FUNCTION 0,60 dB -3,17 dBm	FUNCTION WIDTH	FUNCTION	N VALUE		
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		nt Spectrum Analyzer - Swept 85 50 0 / nter Freq 2.4020000	40	SENSE:INT Trig Delay-1.000 m g → Trig: Video w Atten: 30 dB	ALIGNAUTO Is Avg Type: L	10:3 og-Pwr	2:25 AM Apr 29, 2020 TRACE 2 4 5 0 Type Det PINNINN	4	\$ \$
ి ద్ ద్ ద్		Ref Offset 6.76 dB	dB 8m				1 2.897 ms -0.61 dB		
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	C Cer Res	anter 2.402000000 GH BW 1.0 MHz		#VBW 3.0 MHz		Sweep 5.000 m	Span 0 Hz s (10001 pts)		
* c [*] c [*] c [*] c [*]		MODE TRC SCL Δ2 1 t (Δ) F 1 t	× 2.897 ms (Δ) 1.008 ms	Y FUNCTION -0.61 dB -0.02 dBm	FUNCTION WIDTH	FUNCTION VALU			
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<u> </u>	iii Msc Aptic	it Spectrum Analyzer - Swept :	SA		STATUS		×	\$	
	10 R	ter Freq 2.4410000	AC 000 GHz PNO: Fas IFGain:Lo	SENSE:NT Trig Delay-1.000 m t → Trig: Video w Atten: 30 dB	ALIONAUTO IS Avg Type: L	og-Pwr	0:33 AM Acr 29, 2020 TRACE 12, 3, 4, 5, 6 TYPE CET P.N.N.N.N.N. 1, 2.897 ms	6	
* c ^r * c ^r * c ^r *	10 g	Ref Offset 6.83 dB	dB 3m			102	1.31 dB		
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	Cer	Ref Offset 5.8 dl B/dly Ref 26.80 dB	PNO: Fas IFGain:Lo	Trig Delay-1.000 m t →→ Trig: Video w Atten: 30 dB	s Avg Type: L	og-Pwr	TRACE 2 3 4 5 6 TYPE WARMAN DET P NNNNN 1 2.897 ms		
* c ^{5*} c ^{5*} c ^{5*}		B/div Ref 26.80 dB				1Δ2	0.92 dB		
\$ 5\$ 5\$ 5\$ 5 ^{\$}	5 5 5 5 132 223 233		X ₂				1990 L.VL		
GFSK_DH5/HCH	432	asi mining di <mark>kana kana</mark> Mening pana ^k ana kana					dan birdan dan da National dan salar		
		nter 2.480000000 GH	×	#VBW 3.0 MHz	FUNCTION WIDTH	Sweep 5.000 m			
* c ^{4*} c ^{4*} c ^{4*}		Δ2 1 t (Δ) F 1 t	2.897 ms (Δ) 1.006 ms	0.92 dB -2.65 dBm					
\$ 5\$ 5\$ 5 ^{\$}	7 8 9 10 10						~		
				6 6	STATUS	- 44	<u></u>		



14. PSEUDORANDOM FREQUENCY

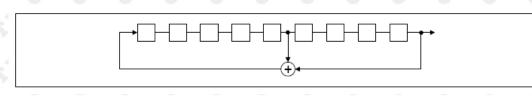
14.1 Limit

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 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

14.2 Test procedure

The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: 29 -1 = 511 bits
- Longest sequence of zeros: 8 (non-inverted signal)



An example of Pseudorandom Frequency Hopping Sequence as follow:

20 62 46 77	7	64	8	73	-		16	75	1	
						 				3

Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

14.3 Test Result

СТВ

The device does not have the ability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters.



15. ANTENNA REQUIREMENT

15.203 requirement:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

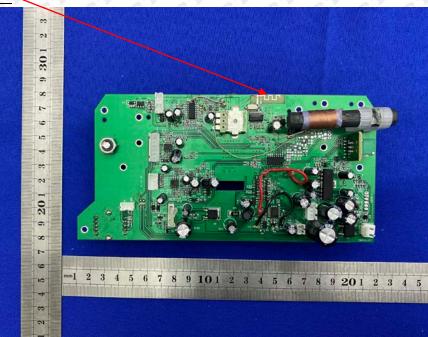
15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is PCB antenna. The best case gain of the antenna is 0.8dBi.

ANT.





16. EUT PHOTOGRAPHS

EUT Photo 1





Report



Shenzhen CTB Testing Technology Co., Ltd. Report No.: CTB200429009RFX

EUT Photo 3



EUT Photo 4





Shenzhen CTB Testing Technology Co., Ltd. Report No.: CTB200429009RFX

EUT Photo 5



EUT Photo 6





EUT Photo 7





17. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission







Conducted Emission



********** END OF REPORT *********