

Ref Offset 0.5 dB Addition <th>ak Search Next Peal</th>	ak Search Next Peal
Rarker 1 Δ 1.002000000 MHz Avg Type: Log-Pwr Trace [] 78 4 58 Per PN0: Wide PRG: Now Trig: Free Run Avg Hold:>100/100 Trig: Free Run Avg Hold:>100/100 Trig: Free Run Avg Hold:>100/100 Per 0 dB/div Ref Offset 0.5 dB ΔMkr1 1.002 MHz 0.135 dB 0.135 dB Net 0 dB/div Ref 0.00 dBm 0.135 dB Net Net	NextPea
Ref Offset 0.5 dB ΔMkr1 1.002 MHz 0 dB/div Ref 0.00 dBm 0.135 dB 0 dB/div 1Δ2 Ne	
De dB/div Ref 0.00 dBm 0.135 dB Ne	
D dB/div Ref 0.00 dBm U.135 dB 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	xt Pk Righ
	xt Pk Righ
	xt Pk Righ
	ext Pk Le
	arker Del
	Mkr→C
0.0 M	kr→RefL
	Мо
	1 of
enter 2.402500 GHz Span 2.000 MHz Res BW 30 kHz #VBW 100 kHz Sweep 2.133 ms (1001 pts)	
s status	

Test plots GFSK Low Channel

GFSK Middle Channel

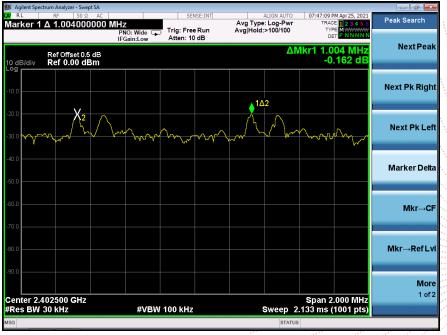




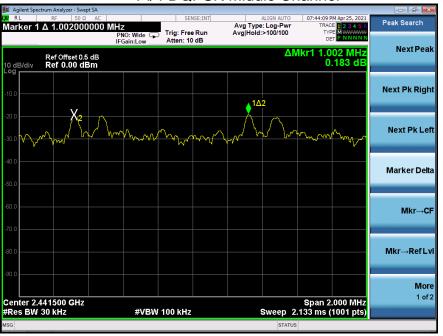


GFSK High Channel

Pi/4 DQPSK Low Channel

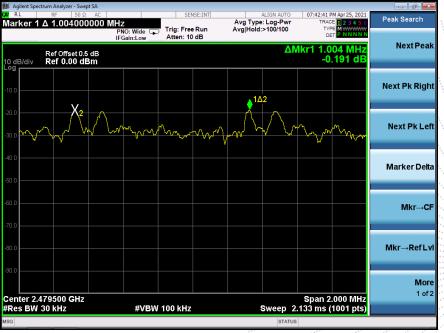






Pi/4 DQPSK Middle Channel

Pi/4 DQPSK High Channel





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.

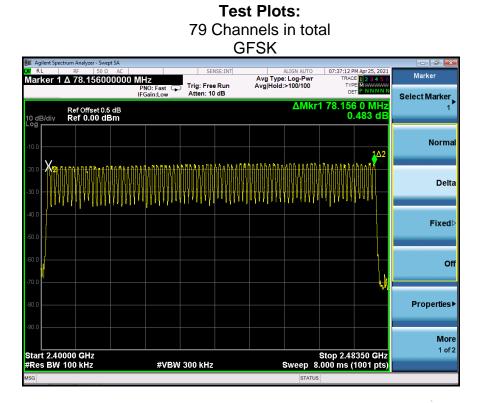
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

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



	N.,		SK	QPS	Pi/4 [
Select Marker	M Apr 25, 2021 E 1 2 3 4 5 6 E M WWWWWW T P N N N N N	TRAC TYP DE					Z NO: Fast G Gain:Low	AC 10000 MH PI		R	XI RL
1	2 5 MHz 054 dB	1 78.072 1.	ΔMkr						f Offset 0.5 f 0.00 dE		10 dB Log r
Norma	102									.,	-10.0
Delta		WWWW	MMM	ANAANO	MMMU	MMM	MMMM	WWWW	MANNA MANA	<u>Via</u> MWI	-20.0 -30.0
Fixed⊳											-40.0
Off											-60.0
Properties►											-80.0
More 1 of 2		Stop 2.48 .000 ms (Sweep 8			300 kHz	#VBW			t 2.40000 s BW 100	
			STATUS								ИSG

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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).



Test Result 14.4

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

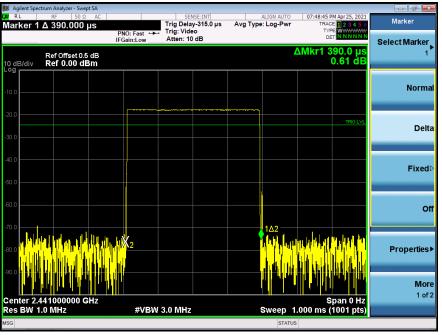
(3 time slots RX, 1 time slot TX). DH1 Packet permit maximum 1600 / 79 /2 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

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.

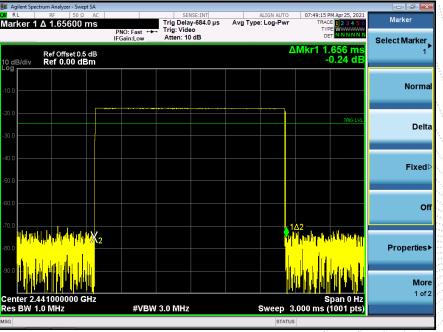
Modulation	Channel Data	Packet	pulse time(ms)	Dwell Time(s)	Limits(s)
		DH1	0.390	0.125	0.4
GFSK	Middle	DH3	1.656	0.265	0.4
		DH5	2.920	0.311	0.4
		2DH1	0.395	0.126	0.4
Pi/4DQPSK	PSK Middle	2DH3	1.668	0.267	0.4
		2DH5	2.930	0.313	0.4



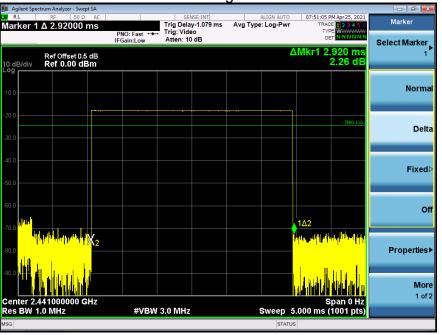
Test Plots GFSK DH1 Middle Channel



GFSK DH3 Middle Channel

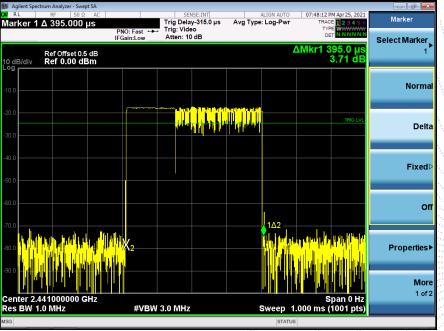






GFSK DH5 High Middle Channel

Pi/4DQPSK DH1 Middle Channel

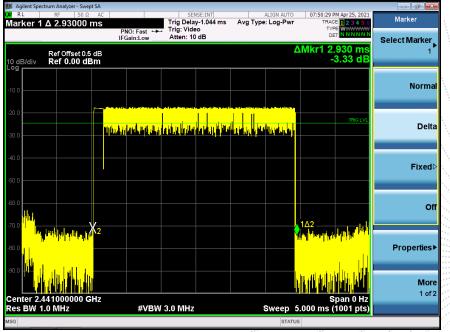






Pi/4DQPSK DH3 Middle Channel

Pi/4DQPSK DH5 Middle Channel





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 CHIP antenna, fulfill the requirement of this section.

Edition A3



16. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2



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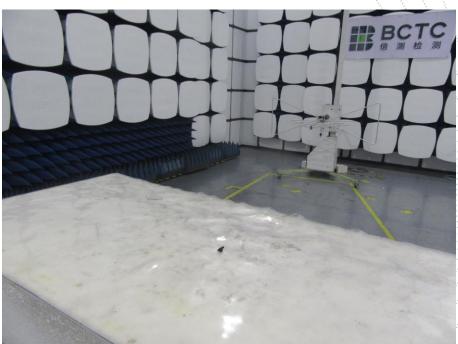


17. EUT TEST SETUP PHOTOGRAPHS

Conducted emissions



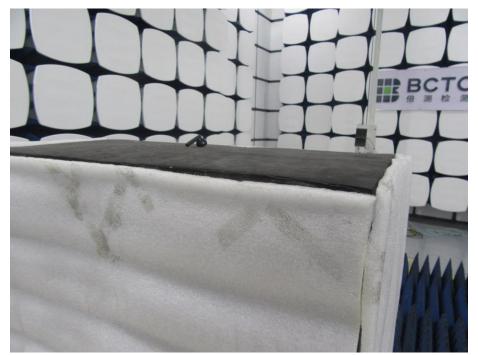
Radiated Measurement Photos



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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 stamp of laboratory.

4. The test report is invalid without signature of person(s) testing and authorizing.

5. The test process and test result is only related to the Unit Under Test.

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

7.If there is any objection to 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, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Internet : http://www.bctc-lab.com

E-Mail : <u>bctc@bctc-lab.com.cn</u>

******** END ******

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