

6. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

6.1 Limit

Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

6.2 Test Setup







6.5 Test Result

GFSK mode: Lowest channel





Middle channel





Highest channel



30MHz~26.5GHz







π/4-DQPSK mode



- K	eysight	Spect	rum A	nalyzer - Swept SA										00
L)XI I	2		RF	50 Q AC	() () () () () () () () () ()		SENSE:PI	JLSE		AL	IGN AUTO		11:04:	02 AM Nov 04, 2022
Ce	nter	Fre	q 1	3.2650000	00 GHz	PNO: Fast IFGain:Low	Ti #/	ig: Free Atten: 20	Run dB		#Avg Typ Avg Hold	e: RMS : 10/10		TYPE NWNNNN DET PNNNNN
10 (B/div	<i>,</i>	Ref Ref	Offset 2.01 dB 12.01 dBm									Mkr1 2.4 -6	102 6 GHz .941 dBm
2.0	-		•	1										
-7.9 -18.														-21 22 (8-
-28. -38.														
-48.	P			3		0	5							
-58. -68.)								e Mitor						
-78.														
Sta #R	rt 0. es Bl	03 W 1	GHZ 00	kHz		#	VBW 3	00 kHz				Sw	eep 2.530 s	6 26.50 GHz (30001 pts)
MKF	MODE	TRC	SCL	X			Y	FUN	CTION	FUNCT	TION WIDTH		FUNCTION VALUE	· ·
1	N	1	-		205 6 MH	z -6	941 dBm			-				
3	Ň	1	i		.803 4 GH	-54	.089 dBm							
4	N	1	1		206 0 GH	z -65	927 dBm							
6						-00	167 UDII							1
7										-				
9														
10														
	_	-	-					11						
MSG	_	-	_								STATUS			
particular.	_	_	_				_	_	_	_	100000			

Middle channel



Highest channel



30MHz~26.5GHz





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100



Highest channel



30MHz~26.5GHz





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#Avg Type: RMS Avg|Hold: 10/10 Page 34 of 70

Stop 26.50 Gl

GFSK No-hopping Band edge-left side



GFSK Hopping Band edge-left side

Keysight Spectrum Analyzer - Swept	SA						
enter Freq 2.356000	AC 000 GHz	SENSE:PUL	se g: Free Run	ALIGN AUTO #Avg Typ Avg Hold	e: RMS : 2000/2000	10:57:2 Tr	P AM Nov 04, 3 RACE 2 3 4 TYPE MWWW
Ref Offset 2.01	(B)	in:Low #At	ten: 30 dB	-		Mkr1 2.4	03 9 G
dB/div Ref 20.00 dB	im						372 de
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0							
art 2.30600 GHz es BW 100 kHz		#VBW 30	0 kHz		Swee	Stop 2.	40600 C
MODE TRC SCL	x	Y	FUNCTION	FUNCTION WIDTH		FUNCTION VALUE	
N 1 F N 1 F	2.403 9 GHz 2.400 0 GHz	-1.372 dBm -55.925 dBm					
N 1 F N 1 F	2.390 0 GHz 2.377 9 GHz	-56.797 dBm -53.328 dBm					
							11-1



GFSK No-hopping Band edge-right side



GFSK Hopping Band edge-right side

R R	RF	50 Ω A	A I	S	NSE:PULSE		AL	IGN AUTO	8	11:01:	03 AM Nov 04,
enter F	req 2.	5260000	00 GHz	PNO: Fast ++	. Trig: #Atte	Free Run n: 30 dB		#Avg Type Avg Hold:	2000/2000	1	TYPE MWW DET P N N
dB/div	Ref C Ref 3	ffset 2.04 c 20.00 dB	iB m							Mkr1 2.4	78 9 G 497 di
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art 2.47	600 G	Hz								Stop 2	.57600 0
es BW	100 k	Hz		#VE	W 300	kHz			Swee	ep 9.600 m	s (1001
R MODE TR	RC SCL		X	Y	dRm	FUNCTION	FUNCT	TION WIDTH		FUNCTION VALUE	
N	1		2.483 5 GHz	-57.485	dBm						
N 1	1		2.489 9 GHz	-55.612	dBm						
						5).					
								STATUS			

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π/4-DQPSK No-hopping Band edge-left side



π /4-DQPSK Hopping Band edge-left side

Keysight Spectrum Analyzer -	Swept SA						
R RF 50	Ω AC	SENSE:PULS	iΕ	ALIGN AUTO	DMS	11:10:12	AM Nov 04, 2
enter Freq 2.356	PN IFG	O: Fast ↔ Trig ain:Low #Att	: Free Run en: 30 dB	Avg Hold:	2000/2000	1	
Ref Offset	2.01 dB 0 dBm				1	Mkr1 2.40 -1.3	03 9 GI 354 dB
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handparter	noningenannen	un have the arriver and	www.www.w	haman and an and have	unanderheld	mandan	whent
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# 2 20600 CHz						Stop 2	10600 0
es BW 100 kHz		#VBW 300	kHz		Sweep	9.600 ms	(1001 p
MODE TRC SCL	Х	Y	FUNCTION	FUNCTION WIDTH	FU	NCTION VALUE	
N 1 f	2.403 9 GHz 2.400 0 GHz	-1.354 dBm -56.080 dBm					
N 1 F	2.390 0 GHz	-57.362 dBm					
	2.303 1 3112	-54.250 0.511					
	<u></u>						
			m.				
				STATUS			





π /4-DQPSK No-hopping Band edge-right side



$\pi/4\text{-}DQPSK$ Hopping Band edge-right side

Keysight Spectrum Analyzer - Swept S	Δ.						a
R RF 50 Ω A Senter Freq 2.5260000	C OO GHZ PNO IFGai	SENSE:PUL Fast ↔ Trig n:Low #At	se j: Free Run ten: 30 dB	ALIGN AUTO #Avg Type Avg Hold:	: RMS 2000/2000	11:13:00 AM Nov TRACE TYPE DET	04, 20 2 3 4 MMM
Ref Offset 2.04 d 0 dB/div Ref 20.00 dB	B M				Ν	/kr1 2.477 9 -4.486	GH dBi
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1.0							
art 2.47600 GHz tes BW 100 kHz		#VBW 300) kHz		Sweep	Stop 2.5760 9.600 ms (100	0 G 1 p
R MODE TRC SCL	X 2 477 9 GHz	Y -4.486 dBm	FUNCTION	FUNCTION WIDTH	FUN	ICTION VALUE	
N 1 f	2.483 5 GHz 2.500 0 GHz	-55.942 dBm -56.311 dBm					
N 1 F	2.489 9 GHz	-54.649 dBm					
			ш				,
				STATUS			





8-DPSK No-hopping Band edge-left side



8-DPSK Hopping Band edge-left side

eysight Spectrum Analy	zer - Swept SA	1	cher.nut er			1	11.21.5	
nter Freq 2.3	56000000 GHz	PNO: Fast IFGain:Low	Trig: #Atter	Free Run 1: 30 dB	#Avg Ty Avg Hold	pe: RMS d: 2000/2000	11:21:5.	AM NOV 04, 2 RACE 1 2 3 4 TYPE M 4444 DET P N N N
Ref Off dB/div Ref 2	set 2.01 dB 0.00 dBm						Mkr1 2.4 -1.	03 1 GI 667 dB
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						\$4	3	2
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rt 2.30600 GH s BW 100 kH	z z	#VE	3W 300	kHz		Swee	Stop 2.	40600 G (1001 p
MODE TRC SCL	X	Y	7 10	FUNCTION	FUNCTION WIDTH	F	FUNCTION VALUE	- 9
N 1 F N 1 F	2.403 1 G 2.400 0 G 2.390 0 G 2.390 0 G	1z -1.66 1z -58.30 1z -57.24 1z -54.76	7 dBm 5 dBm 8 dBm 7 dBm					
N 1 f								
N 1 f								
N 1 f)).				



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8-DPSK No-hopping Band edge-right side



8-DPSK Hopping Band edge-right side

Keysight Spectrum Analyzer - Swept SA							æ [
c R RF 50 Ω AC Center Freq 2.5260000	00 GHz PNO: IEGain	Fast Trig	se g: Free Run ten: 30 dB	ALIGN AUTO #Avg Type Avg Hold: :	RMS 2000/2000	11:25:00 AM Nov TRACE TYPE DET	04, 202
Ref Offset 2.04 d 10 dB/div Ref 20.00 dBn	B 1					Mkr1 2.478 1 -4.651	GH dBi
20.0							14 86 d
40.0 50.0 60.0	³	and a state of the	ethered and the second	the good for the second second second	anterran	งานหาราชาวารไปการให้	
70.0 Start 2.47600 GHz #Res BW 100 kHz		#VBW 30	0 kHz		Sweep	Stop 2.5760 9.600 ms (100) G 1 p
MKR MODE TRC SCL 1 N 1 1 2 N 1 1 3 N 1 1	2.478 1 GHz 2.483 5 GHz 2.500 0 GHz	Y -4.651 dBm -56.270 dBm -55 767 dBm	FUNCTION	FUNCTION WIDTH	FU	NCTION VALUE	
4 N 1 f 5 6 7	2.484 1 GHz	-55.274 dBm					
			ш)	,
G				STATUS			_









7. 20DB&99% BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013

7.1 Test Setup



7.4 DEVIATION FROM STANDARD

No deviation.

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+86-755-2233 6688



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7.5 Test Result

Mode	Test channel	20dB Emission Bandwidth (MHz)	Result	
	Lowest	0.9050		
GFSK	Middle	0.9058	Pass	
	Highest	0.9052		
	Lowest	1.1820	1	
π/4-DQPSK	Middle	1.2140	Pass	
	Highest	1.2130		
	Lowest	1.2150		
8-DPSK	Middle	1.2110	Pass	
	Highest	1.2070		

Test plots









GFSK Middle Channel



GFSK High Channel







π/4-DQPSK Low Channel



π/4-DQPSK Middle Channel





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π/4-DQPSK High Channel



8-DPSK Low Channel







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8-DPSK Middle Channel



8-DPSK High Channel









8. Maximum Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(1)
Test Method:	ANSI C63.10:2013
Limit:	GFSK:30 dBm
	π/4-DQPSK & 8-DPSK:20.97 dBm

8.1 Block Diagram Of Test Setup

EUT	SPECTRUM
	ANALYZER

8.2 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.

For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W.

8.3 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.

8.4 DEVIATION FROM STANDARD

No deviation.

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8.5 Test Result

Mode	Test channel	Peak Output Power (dBm)	FCC Limit (dBm)	Result
	Lowest	-1.076		
GFSK	Middle	-2.548	30.00	Pass
	Highest	-4.392		
π/4-DQPSK	Lowest	-0.579		
	Middle	-1.969	21.00	Pass
	Highest	-3.761		
	Lowest	-0.116		
8-DPSK	Middle	-1.424	21.00	Pass
	Highest	-3.212		

Test plots





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GFSK Middle Channel



GFSK High Channel





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π/4-DQPSK Low Channel



π/4-DQPSK Middle Channel





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π/4-DQPSK High Channel



8-DPSK Low Channel







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8-DPSK Middle Channel



8-DPSK High Channel







9. HOPPING CHANNEL SEPARATION

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=30KHz, VBW=100KHz, detector=Peak
Limit:	GFSK: 20dB bandwidth $\pi/4$ -DQPSK & 8DSK: 0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)

9.1 Test Setup

UT	SPECTRUM
200328 x	ANALYZER

9.2 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.

9.3 DEVIATION FROM STANDARD No deviation.

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Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	1.002	0.6033	PASS
GFSK	Middle	1.002	0.6039	PASS
GFSK	High	1.008	0.6035	PASS
π/4-DQPSK	Low	0.834	0.7880	PASS
π/4-DQPSK	Middle	0.999	0.8093	PASS
π/4-DQPSK	High	1.143	0.8087	PASS
8-DPSK	Low	1.335	0.8100	PASS
8-DPSK	Middle	0.996	0.8073	PASS
8-DPSK	High	1.167	0.8047	PASS

Test plots GFSK Low Channel











GFSK Middle Channel



GFSK High Channel







π/4-DQPSK Low Channel



π/4-DQPSK Middle Channel





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8-DPSK Low Channel







8-DPSK Middle Channel



8-DPSK High Channel





10.NUMBER OF HOPPING FREQUENCY

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak
Limit:	15 channels

10.1 Test Setup



10.2 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;

10.3 DEVIATION FROM STANDARD

No deviation.







Test Plots: 79 Channels in total











Reysight Spe M R Center Fr

		π/4-DQP	SK		
Keysight Spectrum Analyzer - Swept SA		ADD			9
Center Freq 2.441750000 GHz	PNO: Fast +++ Tr IFGain:Low #A	ig: Free Run tten: 30 dB	ALIGN AUTO #Avg Type: RMS Avg Hold: 2000/20	11:11:31 AM Nov (TRACE 1 2 000 TYPE M DET P	345 845 80000
Ref Offset 2.02 dB				Mkr1 2.401 920 5 -2.770 c	GH: dBn
-10.0 A.W.W.W.M.M.M.W.W.W.	uniummun	Appleman	edmonth when	Aran water and the second	Ň
-30.0					
-50.0					L
-70.0				Stop 2 48350	CH
#Res BW 100 kHz	#VBW 30	00 kHz		Sweep 8.000 ms (100)	1 pts
MKR MODE TRC SCL X 1 N 1 f 2.401 920 5 (2 N 1 f 2.480 076 5 (GHz -2.770 dBm GHz -5.006 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	
3 4 5 6					
		m			,
MSG			STATUS		

8-DPSK

R RF 50 Ω AC	SENSE:PU	ILSE	ALIGN AUTO	11:23:13 AM Nov 04, 2
nter Freq 2.441750000 GH	Z PNO: Fast ↔ Tr IFGain:Low #A	ig: Free Run tten: 30 dB	#Avg Type: RMS Avg Hold: 2000/2000	TRACE 2 2 3 TYPE MWWW DET P N N N
Ref Offset 2.02 dB dB/div Ref 20.00 dBm			Mk	r1 2.401 670 0 G -7.504 dB
0				
Mumiltumphan	naannamaaa	manna	mmmmmm	MANNIN
0				
0				
art 2.40000 GHz es BW 100 kHz	#VBW 30	00 kHz	Swee	Stop 2.48350 G p 8.000 ms (1001 p
art 2.40000 GHz es BW 100 kHz	#VBW 30	DO KHZ	SWEE	Stop 2.48350 G p 8.000 ms (1001 p FUNCTION VALUE
art 2.40000 GHz es BW 100 kHz K MODE TRC SCL X N 1 f 2.401 670 0 N 1 f 2.480 243 5	#VBW 3(Y GHz -7.504 dBm 5 GHz -8.697 dBm	DO KHZ	Swee	Stop 2.48350 G ep 8.000 ms (1001 p FUNCTION VALUE
art 2.40000 GHz es BW 100 kHz MODE TRC SCL X N 1 f 2.401 670 C N 1 f 2.480 243 5	#VBW 3(0 GHz -7.504 dBm 0 GHz -8.697 dBm	DO KHZ		Stop 2.48350 G 20 8.000 ms (1001 p FUNCTION VALUE
art 2.40000 GHz es BW 100 KHz MODE TRC SCL X N 1 f 2.401 670 0 N 1 f 2.480 243 5	#VBW 30 9 GHz -7,594 dBm 9 GHz -8.697 dBm	DO KHZ		Stop 2.48350 G p 8.000 ms (1001 p FUNCTION VALUE
Image: state	#VBW 30 9 GHz -7.504 dBm 5 GHz -8.697 dBm	DO KHZ		Stop 2.48350 G p 8.000 ms (1001 p FUNCTION VALUE
0 art 2.40000 GHz es BW 100 kHz X N 1 f X N 1 f 2.401 670 0 N 1 N 1 f 2.480 243 5 X	#VBW 3() GHz -7.504 dBm 5 GHz -8.697 dBm	DO KHZ		Stop 2.48350 G p 8.000 ms (1001 p FUNCTION VALUE
art 2.40000 GHz es BW 100 KHz MODE TRC SCL X N 1 f 2.401670 0 N 1 f 2.480 243 5	#VBW 3() GHz -7.504 dBm 5 GHz -8.697 dBm	DO KHZ	Swee	Stop 2.48350 G p 8.000 ms (1001 p FUNCTION VALUE

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11. DWELL TIME

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=1MHz, VBW=3MHz, Span=0Hz, Detector=Peak
Limit:	0.4 Second

11.1 Test Setup

UT	SPECTRUM
	ANALYZER

11.2 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 = 0Hz;

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).

11.3 DEVIATION FROM STANDARD No deviation.







11.4 Test Result

GFSK mode:

Frequency	Packet	Dwell time(ms)	Limit(ms)	Result
2441MHz	DH1	124.480	400	Pass
2441MHz	DH3	262.720	400	Pass
2441MHz	DH5	308.587	400	Pass

Remarks:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s Test channel: as blow CH:2441MHz time slot=0.389(ms)*(1600/ (2*79))*31.6=124.480ms CH:2441MHz time slot=1.642(ms)*(1600/ (4*79))*31.6=262.720ms

CH:2441MHz time slot=2.893(ms)*(1600/ (6*79))*31.6=308.587ms

π/4-DQPSK mode:

Frequency	Packet	Dwell time(ms)	Limit(ms)	Result
2441MHz	2DH1	126.400	400	Pass
2441MHz	2DH3	264.160	400	Pass
2441MHz	2DH5	309.227	400	Pass

Remarks:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s Test channel: as blow

CH:2441MHz time slot=0.395(ms)*(1600/ (2*79))*31.6=126.400ms CH:2441MHz time slot=1.651(ms)*(1600/ (4*79))*31.6=264.160ms

CH:2441MHz time slot=2.899(ms)*(1600/ (6*79))*31.6=309.227ms

8-DPSK mode:

					_
Frequency	Packet	Dwell time(ms)	Limit(ms)	Result	
2441MHz	3DH1	127.040	400	Pass	
2441MHz	3DH3	264.160	400	Pass	
2441MHz	3DH5	309.440	400	Pass	

Remarks:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s Test channel: as blow

CH:2441MHz time slot=0.397(ms)*(1600/ (2*79))*31.6=127.040ms CH:2441MHz time slot=1.651(ms)*(1600/ (4*79))*31.6=264.160ms CH:2441MHz time slot=2.901(ms)*(1600/ (6*79))*31.6=309.440ms







Test Plots

GFSK DH1 2441MHz

eysight Spe	RF	50 0	AC		1	S	ENSE PUI	SE	1	AL	IGN AUTO			_	1	0:59:27	AM Nov 04.
nter F	req 2	2.44100	00000) GHz	PNO: F	Fast ↔ :Low	Trig Trig #At	g Delay g: Video tten: 30	-500.0 µ dB	s	#Avg	Type:	RMS			TR	ACE 1 2 3 TYPE WWW DET P N N
B/div	Ref Ref	Offset 2. f 20.00	02 dB dBm												ΔM	kr1	389.0 5.28
		1Δ2															
$ \rightarrow $	K2																TRK
tester p						We ditte							il and general plan	a 14	dala Ma	a la pig	
trebing ₁ yehin _y		<mark>. Mala_{ti}nda Angelanda</mark>		n hander Alfreiter	tordered R ^{an} tfinde	laistani ipitasi	in (n) (da) Maiji v A	alan In	1000100 1011-1010		<mark>isi darkara</mark> <mark>Ispitela (</mark>)	n de Nitere	<mark>ng n</mark>		id in Male J		ar gandrede Teoretike
ter 2. BW 1	4410 1.0 M	00000 C	GHz		tor (r 76) 7 ¹ (f 74)	ing the second s	3W 3.0) MHz	in an in c Part a phi		<mark>in an taona an saoistean an saois In the saoistean an s</mark>	int the Internet	Swee	ep	10.00	ms (Span 0
ter 2. BW 1	4410 1.0 M	00000 Q Hz	GHz ×			iya an iya ara #VE	3W 3.0	MHZ FUN		FUNCT		н <mark>рГр</mark> н	Swee	ep FUI		ms (Span 0 (10001
hter 2. BW 1 MODE TF A2 1 F 1	4410 1.0 M 1.0 SCL 1 t	00000 (Hz (Δ)	GHz ×	389.0 497.0	us (Δ) us	#VE Y -11.5	3W 3.0 1 dBm	MH2 MH2 FUN	CTION	FUNCT		H H	Swee	ep Fu	10.00	ms (Span 0
hole π BW 1 MODE π Δ2 1 F 1	4410 1.0 M RC SCL t t	000000 G Hz	GHZ X	389.0 497.0	us (Δ) us	#VE 5 -11.5	3W 3.0	MHL AN MHZ FUN	CTION	FUNCT	TION WIDT	H	Swee	ep Fui	10.00	ms (Span 0 (10001
hter 2. BW 1 MODE TF A2 1 F 1	4410 1.0 M RC SCL t t	ооооо о Hz	GHz	389.0 497.0	us (Δ) us	#VE 5 -11.5	3W 3.0	MHz FUN	CTION	FUNCT	TION WIDT	H H	Swee	ep Fu	10.00	ms (Span 0 10001
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MODE TF	4410 1.0 M RC SCL t t	οοοοοο Ηz	GHz	389.0 497.0	us (Δ)	#VE	3W 3.0	D MHz	CTION	FUNCT	TION WIDT		Swee	ep Fu		ms (Span 0 10001
nter 2. BW 1 MODE TF A2 1 F 1	4410 1.0 M RC SCL t t	000000 (Hz	GHz ×	389.0 497.0	μ <u>s</u> (Δ) μs	#VE	3W 3.0	FUNC	CTION	FUNCT	TION WIDT		Swee	ep Fu		ms (Span 0 10001

GFSK DH3 2441MHz

Keysight Sp	ectrum Analyze	er - Swept SA										
LXI R	RF	50 Ω AC			SENSE:PUL	SE		AL	IGN AUTO		11:25:3	7 AM Nov 04, 2022
Center F	req 2.44	100000	0 GHz	PNO: Fast FGain:Low	Trig #At	g Delay g: Video ten: 30	-500.0 µ o dB	s	#Avg Type	e: RMS	T	TYPE WWWWWWW DET PNNNNN
10 dB/div	Ref Offs Ref 20	et 2.02 dB .00 dBm									ΔMkr1	1.642 ms 3.24 dB
10.0												
-10.0			1Δ2									TRICLVL
-20.0	< ₂	and a second										
-40.0							1					
-50.0 10100			anta lasta Jangaran		<mark>dhandala</mark> Baadadala		h _m haite Anna anna anna anna anna anna anna anna	tilit pl	alle dataliji - i	n er Vinseligder	n finansaran <mark>a</mark> ra	
Center 2	4410000	00 CH7										Spap 0 Hz
Res BW 1	1.0 MHz	00 GH2		#	VBW 3.0	MHz				Sweep	10.00 ms	(10001 pts)
MKR MODE TH	RC SCL	Х	1.642 ms	(A)	Y 3.24 dB	FUN	CTION	FUNCT	ION WIDTH	F	UNCTION VALUE	î
2 F 1	t		454.0 µs	-19	9.51 dBm							
4 5												
7 8												
9						1						
						,m						
MSG						_		_	STATUS			





GFSK DH5 2441MHz

R RF 50 Ω AC	SENSE:PU	JLSE	ALIGN AUTO		11:25:49	AM Nov 04, 202
enter Freq 2.441000000 G	HZ Tr PNO: Fast ↔ Tr IFGain:Low #4	rig Delay-500.0 μs rig: Video Atten: 30 dB	#Avg Type	RMS	TR 1	ACE 1 2 3 4 5 TYPE WWWWWW DET P NNNN
Ref Offset 2.02 dB					ΔMkr1 :	2.893 ms -1.19 dE
×2						TRICLY
.0						
	Provide and the second	en an an airseachtar Iostain 1916 an an an an	ing part for the second	daharan dah barran Tabah dah barran dah ba	la giur a Parad a <mark>a bha ann an ann a</mark>	in de la de la En esta de la dela de la dela de la dela de la dela de
0.0	interiority Note il del nort	ana data bandari Ana Anto Anto Anto A	<mark>i shi terri na na dala</mark>	an tabban A Na Mangh	<mark>i li kaleri aida</mark> Mina Maria	
200 00000 000 000 000 000 000 000 000 0	#VBW 3.	0 MHz	a di para da na da n Na da na d	Sweep	10.00 ms (Span 0 H: (10001 pts
R R R R X	#VBW 3.	0 MHz		Sweep	10.00 ms	Span 0 Hz 10001 pts
10 π(2) κ 10 π(2) κ	#VBW 3. #VBW 3. #1.19 dB 97.0 μs -1.19 dB	O MHz	FUNCTION WIDTH	Sweep	10.00 ms (Span 0 Ha
Image: Constraint of the second sec	#VBW 3. #VBW 3. #VBW 3. #VBW 3. -10.99 dBm	O MHZ	FUNCTION WIDTH	Sweep	10.00 ms (Span 0 Hz 10001 pts
10 π(2) (R 11 (1) (R) (R 12 1 13 1 14 1 15 1 16 1 17 1 18	жи тар ин- жи тар ин- #VBW 3. *VBW 3. * *VBW 3. * * * * * * * * * * * * * * * * * * *	O MHZ	ENTERING AND	Sweep Fi	10.00 ms (Span 0 H2 10001 pts
10 π/2 (Γ 11 π/2 (Γ 12 Γ 13 π/2 (Γ 14 π/2 (Γ 15 π/2 (Γ 15 π/2 (Γ 15 π/2 (Γ 14	#VBW 3. #VBW 3. 893 ms (Δ) -1.19 dB 197.0 μs -10.99 dBm	O MHZ	FUNCTION WIDTH	Sweep FL	10.00 ms (Span 0 Hz (10001 pts

π/4-DQPSK 2DH1 2441MHz

Keysight Sp	pectrum Ar	nalyzer - Swept	t SA										
R enter F	Freq 2	.441000	AC 0000	GHz	PNO: Fast FGain:Low	SENS	Trig Delay Trig: Vide #Atten: 30	-500.0 µ o dB	ALI S	GN AUTO #Avg Type	e: RMS	11:13:3 T	8 AM Nov 04, 2 RACE 1 2 3 4 TYPE WWWW DET P N N N
dB/div	Ref (Ref	Offset 2.02 20.00 dE	dB 3m									ΔMkr1	395.0 0.27 c
00													
	2 ¹²	<u>\</u> 2											TRIG
1.0 1.0 1.0	.J.v.		nu fil na	deeth ^d ee _t Mydd		u theory	dia ta	entrit of the	diophr	t day kapati	ada strain t		in a station
uo <mark>hijili_n</mark>	- H	AN AND	ide iuis	lines.1	W H ^a ph	alı Dələr	in a head	ar half day	high he	Rightlah	naphanan Te _l	in ningh yn he be	(1,1) (1 thinks
nter 2. s BW	.44100 1.0 MH	00000 GH Iz	lz			#VBW	3.0 MHz				Sweep	p 10.00 ms	Span 0 (10001 p
R MODE T	rrc scl 1 t 1 t	(Δ)	Х	395.0 µs 363.0 µs	(Δ) -1	Y 0.27 18.83 di	FUN dB 3m	CTION	FUNCT	ION WIDTH		FUNCTION VALUE	
					+								









π/4-DQPSK 2DH3 2441MHz



π/4-DQPSK 2DH5 2441MHz

Keysight Spectrum Analyzer - Swept SA				
Center Freq 2.441000000 G	HZ Trig PNO: Fast →→ Trig IFGain:Low #At	se Al g Delay-500.0 µs g: Video ten: 30 dB	#Avg Type: RMS	11:26:28 AM Nov 04, 202 TRACE 2 3 4 5 TYPE WWWWW DET P N N N N
Ref Offset 2.02 dB				ΔMkr1 2.899 m 6.69 dl
	<u></u> 1Δ2			
10.0 X2				TRIG L
30.0				
40.0 50.0 <mark>Windern</mark>	er på bred om biller	ution and a second a second a second	des electric d'Angler Barrard	yn da ffiliai leffer ar felerad meister an
50.0	are plating a second		nini kerendi la sanan nangan nang Nangan nangan n	Henry and a state of the state of the
enter 2.441000000 GHz tes BW 1.0 MHz	#VBW 3.0	MHz	Swee	Span 0 p 10.00 ms (10001 p
	Y 899 me (A) 6 69 dB	FUNCTION FUNC	TION WIDTH	FUNCTION VALUE
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	97.0 μs -12.06 dBm			
4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6				
6 7				
9				
		2010	1	



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8-DPSK 3DH1 2441MHz



8-DPSK 3DH3 2441MHz

Keysight Spectrum Analyzer - '	Swept SA						
R RF 50 Center Freq 2.4410	Ω AC 000000 GHz	PNO: Fast	ULSE rig Delay-500.0 μ rig: Video Atten: 30 dB	ALIGN AUTO	RMS	11:26:44 TF	AM Nov 04, 202 ACE 1 2 3 4 5 TYPE WWWWWW DET P N N N N
Ref Offset	2.02 dB) dBm					ΔMkr1	1.651 ms 2.99 dE
10.0	<u>1∆2</u>						
-10.0 X2							TRIGLY
40.0							
-50.0 400 170			a the dual of the	an da angla panganan.	the standard		<mark>kaihah hihik</mark> Kaihah
Center 2.441000000 Res BW 1.0 MHz	GHz	#VBW 3	.0 MHz		Sweep	10.00 ms	Span 0 H: (10001 pts
MKR MODE TRC SCL 1 Δ2 1 t (Δ) 2 F 1 t	× 1.651 m 497.0 u	s (Δ) 2.99 dE s -11.51 dBm	FUNCTION	FUNCTION WIDTH	F	UNCTION VALUE	
3 4 5							
6 7 8 9							
10 11 • [m				
ISG				STATUS			





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Shenzhen ZKT Technology Co., Ltd.





8-DPSK 3DH5 2441MHz Keysight Spectrum Analyzer - Swept SA E:PULSE Trig Delay-500.0 µs Trig: Video #Atten: 30 dB 11:26:57 AM N #Avg Type: RMS Center Freq 2.441000000 GHz PNO: Fast +++ IFGain:Low ΔMkr1 2.901 ms 6.87 dE Ref Offset 2.02 dB Ref 20.00 dBm ▲1∆2 X2 ered to a reproduce the first of the state of the Center 2.441000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 10.00 ms (10001 pts) #VBW 3.0 MHz 2.901 ms (Δ) 497.0 μs 1 t (Δ) 1 t 6.87 dB -11.12 dBm STATUS

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12. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
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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(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

EUT Antenna:

The antenna is FPCB Antenna, the best case gain of the antennas is 2.99 dBi, reference to the appendix II for details



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Reference to the appendix I for details.

14. EUT Constructional Details

Reference to the appendix II for details.

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

















