

Spectr	um	٦						E
Ref Le Att Count 1	vel 30.	.00 dB 40 d	dm Offset 10.9 dB SWT 94	54 dB 👄 RBW 20 .8 µs 👄 VBW 50) kHz) kHz Mode	Auto FFT		('
∎1Pk Vie	W							
20 dBm-						M1[1]		-11.37 dBr 2.40134900 GH 8.65 dBr
10 40					M2	HIZ[1]		2.40215600 GH
I dBm-				and	m	mm.		
-10 dBm	D1 -	-11.35				- vm	43	
-20 dBm	ma	m	m				have	man
-40 dBm								
-50 dBm								
-60 dBm								
CF 2.40	2 GHz			1	001 pts			Span 3.0 MHz
Marker	n Def	Tur	Othershare	Desmanar	E-mating		E.u. at l	Denvilt
1 N	1 Ref	1	2,401349 GHz	-11.37 dBm	Function		Function	Kesult
2 N	2	1	2.402156 GHz	8.65 dBm				
3 D	3 N1	1	1.281 MHz	-0.12 dB				
	T			•		sacuring	(and the second	23.12.2021











Spe	ectrun	n	٦							
Re At	f Leve t int 100	1 30. /100	00 dB 40 (m Offset 10.7 dB SWT 94	77 dB 👄 RBW 20 4.8 μs 👄 VBW 50) kHz) kHz Mode	auto FFT			(.
0 1 Pk	< View									
						0	M1[1]		2.479	12.47 dBr 35500 GH
20 a	IBm—						M2[1]			7.98 dBr
10 d	Bm					M2		16	2.480	15600 GH
0 dB	m				man	my	work			
-10 (dBm	-D1 -	12.02		<i></i>		work	203		
-20 (dBm—					_		2	-	
-307	ash	v	A	mon		_		hand	www	mon
-40 (dBm—								-	
-50 (dBm—	-								
-60 (dBm—					_				
CF 2	2.48 G	Hz			1	001 pts			Spa	n 3.0 MHz
Mar	rker									
No	Туре	Ref	Trc	Stimulus	Response	Function		Function	n Result	
1	N1		1	2.479355 GHz	-12.47 dBm					
2	N2		1	2.480156 GHz	7.98 dBm					
3	D3	N1	1	1.29 MHz	-0.06 dB					

Fig. 75 20dB Bandwidth (8DPSK, CH78)



A.6 Time of Occupancy (Dwell Time)

Method of Measurement: See ANSI C63.10-clause 7.8.4.

Measurement Limit:

Standard	Limit (s)
FCC 47 CFR Part 15.247(a)	< 0.4

Measurement Results:

Mode	Channel	Packet	Burst (m	BurstWidth (ms)		TotalHops (Num)		Conclusion
GFSK	39	DH5	Fig.76	2.87	Fig.77	80	0.23	Р
π/4 DQPSK	39	2-DH5	Fig.78	2.87	Fig.79	90	0.26	Р
8DPSK	39	3-DH5	Fig.80	2.87	Fig.81	80	0.23	Р

See below for test graphs.

Conclusion: Pass



		2							
					M	1[1]			-4.87 dBi
dBm	TRC 0.000				D	2[1]			5.86 d
	TRG -2.030	asm min an m	ein Bar ein Im Imite fir anne	Inter of Allertic		1	i i	r	2.86661 m
10 dBm									
20 dBm									
30 dBm									
10 dBm									- 197
					sic. 3.3	a		Contra and	halphungh
a de frances de la compañía de la co	Jin Ladin					Manufacto	and the provided	199 hi laddd d	William a
	······································				r r h h h h h h	in de physic	ni, <mark>ipakki pipa</mark>	til. In Later of	. http://www.
70 dBm					1				
30 dBm									
-80 dBm									
F 2 441 C	Hz			800	0 pts				1.0 ms





Fig. 77 Number of Burst in Observation Period (Dwell Time) (GFSK, CH39)



Ref Level 10.00 dBm	Offset 10.57 dB 🖷 RBW 1	MHz		(V
🛛 🗛 Att 🛛 20 dB 🖷 🕯	3WT 15 ms 👄 VBW 3	MHz		
SGL Count 1/1 TR	.G: VID			
1Pk Clrw				
the other states	Chat a has a ha	M1[1]		-1.63 dBn
Manufactor	No. 10 10 2	and all shares		-1.00 µ
0 dBm		D2[1]		3.83 di
		1	Î. Î.	2.87286 m
-10 dBm				
-20 dBm				_
-30 dBm				_
40 dBm				
- to ubin				
50 /D	Televite and the second	a la construction de la construc	a second second	
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HOOK BANKIN THE THE	International In	A NUMBER OF THE PARTY OF THE PA		All south Williams
-70 dBm				
-80 dBm-				_
1004000 (14889)/1199000				
CE 2 441 CH2		00 ptc		1.5 mc/
GF 2.441 GHZ	80	oo pro		1.5 ms/





Fig. 79 Number of Burst in Observation Period (Dwell Time) (π /4 DQPSK, CH39)



Ref Level 10.00 dBm Offset	10.57 dB 😑 RBW 1 N	1Hz		
Att 20 dB 🖷 SWT	15 ms 👄 VBW 3 N	1Hz		
SGL Count 1/1 TRG: VID				
1Pk Clrw				
the data structure residence and an end		M1[1]		-1.26 dBr
Manuel Hat Hat the third	110	DOLL		875 n
TRG -2.030 dBm 11 11		D2[1]		-0.52 d
	- C	1	Î. Î.	2.07200 m
-10 dBm				_
-20 dBm				
30 dBm			-	_
-40 dBm				
GO dBm		the here when the		
ulleruh beruhung	1400000 Aprendation of the	nd die de las de services de la casa de la	a non kalik kostalikinsi b	duter bed a lange
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oold dit hit at a		Manufally 1. A. S. S.	al advantation and	he been a
-70 dBm				
80 dBm			+ +	
CE 2.441 GHz	800	10 nts		1.5 ms/





Fig. 81 Number of Burst in Observation Period (Dwell Time) (8DPSK, CH39)



A.7 Number of Hopping Channels

Method of Measurement: See ANSI C63.10-clause 7.8.3.

Measurement Limit:

Standard	Limit (Num)
FCC 47 CFR Part 15.247(a)	At least 15 non-overlapping channels

Measurement Results:

Mode	Packet	Number of Hopping Channels	Test results (Num)	Conclusion
GFSK	DH5	Fig.82	79	Р
π/4 DQPSK	2-DH5	Fig.83	79	Р
8DPSK	3-DH5	Fig.84	79	Р

See below for test graphs.

Conclusion: Pass











Fig. 83 Number of Hopping Channels ($\pi/4$ DQPSK, Hopping)





Refleve	30.00 dBn	Offset	IN 54 dB 👄	RBW 100 k	H7				
Att	40 dt	SWT	1 ms 👄	VBW 300 k	Hz Mode	Auto Sweej	2		
Count 100	0/1000								
1Pk View									1
20 dBm									
19 Aprilia	MANUA	MANNA	Munh	MAMAA	munt	MANA	MMM	MMM	MMA
0 dBm									
-10 dBm		-						~	
20 dBm									
-30 dBm									
-40 dBm									
-50 dBm					2				
-60 dBm									
Start 2.4 0	GHz			691	pts			Stop 2	.4835 GHz

Fig. 84 Number of Hopping Channels (8DPSK, Hopping)



A.8 Carrier Frequency Separation

Method of Measurement: See ANSI C63.10-clause 7.8.2.

Measurement Limit:

Standard	Limit
	By a minimum of 25 kHz or two-thirds of the 20 dB
FCC 47 CFR Part 15.247(a)	bandwidth of the hopping channel, whichever is
	greater

Measurement Results:

Mode	Channel	Packet	Separation of hopping channels	Test result (kHz)	Conclusion
GFSK	39	DH5	Fig.85	1003.00	Р
π/4 DQPSK	39	2-DH5	Fig.86	1003.00	Р
8DPSK	39	3-DH5	Fig.87	1003.00	Р

See below for test graphs.

Conclusion: Pass









Fig. 86 Carrier Frequency Separation (π/4 DQPSK, CH39)



Spectrum				
Ref Level 20.00 dBm Att 30 dB Count 100/100	Offset 10.60 dB ● RBN SWT 18.9 µs ● VBN	W 100 kHz W 300 kHz Mode /	Auto FFT	X
●1Pk View				
10 dBm	MI	M1		11.21 dBm D2 2.44115217 GHz 0.16 dB 1.00290 MHz
0 dBm				
-10 dBm				
-20 dBm-				~
-30 dBm				
-40 dBm				
-50 dBm				
-60 dBm				
-70 dBm				
Start 2.4405 GHz		691 pts	I	Stop 2.4425 GHz
		Meas		2231220121

Fig. 87 Carrier Frequency Separation (8DPSK, CH39)



A.9 AC Power line Conducted Emission

Method of Measurement: See ANSI C63.10-clause 6.2

Test Condition:

Voltage (V)	Frequency (Hz)			
120	60			

Measurement Result and limit:

BT- AE2, AE3, AE4

Frequency range	Quasi-peak	Average-peak	Result (dBμV)		Conclusion			
(MHz)	Limit (dBµV)	Limit (dBμV)	Traffic	ldle	CONCIUSION			
0.15 to 0.5	66 to 56	56 to 46						
0.5 to 5	56	46	Fig.88	Fig.89	Р			
5 to 30	60	50						
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15								
MHz to 0.5 MHz.								

Note: The measurement results include the L1 and N measurements.

See below for test graphs. Conclusion: Pass





Fig. 88 AC Power line Conducted Emission (Traffic)

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.646000	37.82	56.00	18.18	L1	ON	10
1.186000	37.74	56.00	18.26	L1	ON	10
1.414000	36.81	56.00	19.19	L1	ON	10
4.866000	35.13	56.00	20.87	L1	ON	10
10.226000	41.11	60.00	18.89	L1	ON	10
10.694000	42.44	60.00	17.56	Ν	ON	10

Measurement Results: Quasi Peak

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.426000	30.21	47.33	17.12	L1	ON	10
0.538000	31.23	46.00	14.77	L1	ON	10
1.014000	28.46	46.00	17.54	L1	ON	10
4.998000	29.51	46.00	16.49	L1	ON	10
10.386000	37.17	50.00	12.83	Ν	ON	10
10.958000	37.77	50.00	12.23	N	ON	10





Fig. 89 AC Power line Conducted Emission (Idle)

Frequency	Quasi Peak	Limit	Margin	Line	Filter	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)			(dB)
0.390000	42.84	58.06	15.22	L1	ON	10
0.558000	31.51	56.00	24.49	L1	ON	10
1.230000	37.30	56.00	18.70	L1	ON	10
1.286000	37.38	56.00	18.62	L1	ON	10
10.238000	41.06	60.00	18.94	N	ON	10
10.682000	41.39	60.00	18.61	Ν	ON	10

Measurement Results: Quasi Peak

Measurement Results: Average

Frequency	Average	Limit	Margin	Line	Filter	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)			(dB)
0.378000	32.12	48.32	16.21	L1	ON	10
0.486000	32.85	46.24	13.38	L1	ON	10
0.818000	27.72	46.00	18.28	L1	ON	10
4.342000	28.12	46.00	17.88	Ν	ON	9
10.342000	36.57	50.00	13.43	Ν	ON	10
10.882000	36.56	50.00	13.44	Ν	ON	10

END OF REPORT