FCC§22.917(a) & §24.238(a) & §27.53 – Band Edges

Applicable Standard

FCC §22.917, § 24.238, § 27.53

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P) dB$.

According to 24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P) dB$.

According to FCC §27.53 (h) (m), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P) dB$. For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P) dB$ on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P) dB$ on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P) dB$ on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log(P) dB$ on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.

Test Results Please refer to the following plots

(Worst case is Resource Block & RB offset : Full RB)





Date: 19.NOV.2021 14:20:35



QPSK (1.4MHz, RB6) - Right Band Edge

Date: 19.NOV.2021 14:21:07

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16QAM (1.4MHz, RB6) – Left Band Edge

Date: 19.NOV.2021 14:20:52



16QAM (1.4MHz, RB6) – Right Band Edge

Date: 19.NOV.2021 14:21:24

Att	15 GB	SWI	63.2 µs 🖷	VBW 100 k	Hz Mode	Auto FFT			
1Rm Max			ĭ	r	N	1111			-16 19 dBr
							a.	1.8	500000 GH
20 dBm						-	-		
10 dBm	1				paratur	Maryan	mar	how	ann 1
0 dBm									+ - {
-10 dBm	01 -13.000	dBm	_	N	/				-
-20 dBm						2			
-30 dBm	numbr	men	mour	nan		83		2	
-40 dBm	-					-		3	91 11.2
-50 dBm				-					
-60 dBm						0			

QPSK (3MHz, RB15) – Left Band Edge

Date: 19.NOV.2021 14:21:41



QPSK (3MHz, RB15) - Right Band Edge

Date: 19.NOV.2021 14:22:13



16QAM (3MHz, RB15) – Left Band Edge

Date: 19 NOV 2021 14:21:58



16QAM (3MHz, RB15) - Right Band Edge

Date: 19 NOV 2021 14:22:26



QPSK (5MHz, RB25) – Left Band Edge

Spectrum Ref Level 30.00 dBm Offset 27.00 dB 💿 RBW 100 kHz Att 15 dB 🖷 SWT 38 µs 👜 VBW 300 kHz Mode Auto FFT ●1Rm Max M1[1] 16.26 dBm 1,9100000 GHz 20 dBm 10 dBm 0 dBm 10 dBm 01 -13.000 d8m -20 dBm -30 dBm man -40 dBm Non -50 dBm -60 dBm Span 10.0 MHz 501 pts CF 1.91 GHz

QPSK (5MHz, RB25) - Right Band Edge

Date: 24 NOV.2021 10:49:18



16QAM (5MHz, RB25) – Left Band Edge

5 Spectrum Ref Level 30.00 dBm Offset 27.00 dB 🖷 RBW 100 kHz 15 dB 🖷 SWT Att 38 µs 🖷 VBW 300 kHz Mode Auto FFT 1Rm Max M1[1] 14.44 dBn 1,9100000 GHz 20 dBm 10/d8 0 dBm -10 dBm 01 -13.000 d8m--20 dBm -30 dBm 40 dBm -50 dBm -60 dBm Span 10.0 MHz CF 1.91 GHz 501 pts

16QAM (5MHz, RB25) - Right Band Edge

Date: 24 NOV 2021 10:56:39

10.14	15 dB	SWT	56.9 µs 🖷	VBW 300 k	Hz Mode A	uto FFT		
) 1Rm Max			Ĩ		M1[[1]		17.76 dBr
20 dBm				-		9	1.85	00000 GH
10 dBm	1			1 1 1	prostance	man	manna	unary
) dBm								
10 dBm	D1 -13.000	dBm		M				
•20 dBm				and				3
30 dBm-	mon	mant	man	how m				
40 dBm	- (2863 m)							41 102
-50 dBm				-				
60 dBm						-		
05 1 05 01	17		,	501	nte		Span	20.0 MH

QPSK (10MHz, RB50) – Left Band Edge

Date: 19 NOV 2021 14:24:29



QPSK (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:25:28



16QAM (10MHz, RB50) – Left Band Edge

Date: 19 NOV 2021 14:24:59



16QAM (10MHz, RB50) - Right Band Edge

Date: 19 NOV 2021 14:25:55



QPSK (15MHz, RB75) – Left Band Edge

Date: 19.NOV.2021 14:26:31



QPSK (15MHz, RB75) - Right Band Edge

Date: 19.NOV.2021 14:27:25

1Rm Max									
						M1[1]		1.85	16.71 dBm 00000 GHz
20 dBm									Contraction Contract
LO dBm	0				m	m	m	mm	my
) d8m			-	_					
10 dBm	D1 -13.000	dBm							
20 dBm			man	mann	1				
30 dBm	norm	m	ma						-
40 dBm	-		-						
50 dBm					-	-			
						_	_		

16QAM (15MHz, RB75) – Left Band Edge

Date: 19.NOV.2021 14:27:01



16QAM (15MHz, RB75) - Right Band Edge

Date: 19.NOV.2021 14:27:45



QPSK (20MHz, RB100) – Left Band Edge

Date: 19 NOV 2021 14:28:16



QPSK (20MHz, RB100) - Right Band Edge

Date: 19 NOV 2021 14:29:22



16QAM (20MHz, RB100) – Left Band Edge

Date: 19 NOV 2021 14:28:46



16QAM (20MHz, RB100) - Right Band Edge

Date: 19.NOV.2021 14:29.55



LTE Band 4 QPSK (1.4MHz, RB6) – Left Band Edge

Date: 19.NOV.2021 14:30:15



QPSK (1.4MHz, RB6) – Right Band Edge

Date: 24.NOV.2021 11:02:18

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16QAM (1.4MHz, RB5) – Left Band Edge

Date: 19 NOV 2021 14:30:38



16QAM (1.4MHz, RB5) - Right Band Edge

Date: 19.NOV.2021 14:31:12

Att	15 dB	SWT	63.2 µs 🥃	VBW 100 k	Hz Mode	Auto FFT			
1Rm Max					1				
					M	1[1]		1.71	16.09 dBn 00000 GH
20 dBm-			-				-	come es	provided to be and the second second
10 dBm			-		power	Marson	minun	how	my
0 dBm					ļ		ļ		
-10 dBm	12 000	dD ma		N	/	1-1		c	<u> </u>
-20 dBm	51 -13.000	ubin	26 1940 - 14						
iza.den/	invite	handly	human	mann a		 43 8		5- -	0
-40 dBm						ā		c	
-50 dBm				-					
-60 dBm									

QPSK (3MHz, RB15) – Left Band Edge

Date: 19 NOV 2021 14:31:30



QPSK (3MHz, RB15) - Right Band Edge

Date: 19.NOV.2021 14:31:55

Att	15 dB	SWT	63.2 µs 🖷	VBW 100 k	Hz Mode	Auto FFT			
1Rm Max	· · · ·		¥	(
					M	11[1]		1.71	-17.23 dBn
20 dBm—							1	Contra	
10 dBm				-	proved	whent	krowwww	- way may	Muny
0 dBm									
-10 dBm—	01 -13.000	d9m		IV	[
-20 dBm—				- Northol		12			3
189,dBm	Amara	as alunte	hours	pur vario		2		-	-
-40 dBm—							-		
-50 dBm—				-				-	1
-60 dBm—	1					8			
	1		,,	501	nte			Pos	

16QAM (3MHz, RB15) – Left Band Edge

Date: 19 NOV 2021 14:31:44



16QAM (3MHz, RB15) - Right Band Edge

Date: 19 NOV 2021 14:32:18



B Spectrum Ref Level 30.00 dBm Offset 27.00 dB 🖷 RBW 100 kHz Att 15 dB 🖷 SWT 38 µs 🖷 **VBW** 300 kHz Mode Auto FFT 1Rm Max M1[1] 13.53 dBn 1.7550000 GH 20 dBm 10/dem 0/dBm -10 dBm D1 -13.000 dBm -20 dBm -30 dBm wn -40 dBm -50 dBm -60 dBm CF 1.755 GHz 501 pts Span 10.0 MHz

QPSK (5MHz, RB25) – Right Band Edge

Date: 24.NOV.2021 11:31:53

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16QAM (5MHz, RB25) – Left Band Edge

B Spectrum Offset 27.00 dB 🖷 RBW 100 kHz Ref Level 30.00 dBm Att 15 dB 曼 SWT 38 µs 🖷 VBW 300 kHz Mode Auto FFT • 1Rm Max M1[1] 14.70 dBn 1.7550000 GHz 20 dBm 10/d8m d dBm -10 dBm 01 -13.000 dBm--20 dBm 200 -30 dBm -40 dBm -50 dBm -60 dBm 501 pts Span 10.0 MHz CF 1.755 GHz Date: 24.NOV.2021 11:35:16

16QAM (5MHz, RB25) - Right Band Edge

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QPSK (10MHz, RB50) – Left Band Edge

Date: 19.NOV.2021 14:34:18



QPSK (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:35:26

10m Mary	15 08	5 8 1	20'A hz 🖷	VBW 300 KF	12 Mode	AUTO FFT			
LKW Max					м	1[1]		1.71	18.75 dBn 00000 GH:
20 dBm								Sector 10	10
10 dBm					Frences	and	mannen	Andrew	andray
0 dBm									
-10 dBm			-		1				
00 40 -	-D1 -13.000	dBm		M					
-20 Ubiii		- un	man	award					
-30 dBm-A	manna	Novica							6
-40 dBm	-						-		
-50 dBm—									
-60 dBm									-
		ļ					ļ		20.0.1

16QAM (10MHz, RB50) – Left Band Edge

Date: 19.NOV.2021 14:34:51



16QAM (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:35:53



QPSK (15MHz, RB75) – Left Band Edge

Date: 19 NOV 2021 14:36:39



QPSK (15MHz, RB75) – Right Band Edge

Date: 19.NOV.2021 14:37:55

Hes	15 08 SWT	25.3 µs 🖷	VBW IM	Hz Mode	Auto FFT			
1Rm Max		Ť		64	1711			16 06 40.
					1[1]		1.71	10.00 GH
20 dBm-								
10 -0				man	man	man	mm	my
LU UBIN-	20		ek e		· · · ·		1	1
0 dBm		_		1				
				1				
-10 dBm01 -	13.000 d8m		N	į				
00 d0m			1					
-20 UBIII		mon	nam					
32 dBonnen	man	~				-		8
Superior and								
-40 dBm	-	-	1		-			1
50 dBm			-					
-60 dBm		-	-		-			-
CE 1 71 GHz			501	nts			Snan	30.0 MHz

16QAM (15MHz, RB75) – Left Band Edge

Date: 19 NOV 2021 14:37:34



16QAM (15MHz, RB75) - Right Band Edge

Date: 19 NOV 2021 14:38:34

Att	15 dB	S SWT	37.9 µs 🖷	VBW 1 M	lz Mode	Auto FFT			
18m Max		1	1	1 1	M	1111			99 99 dBe
						TTTT]		1.70	92810 GH2
20 dBm									
10 dBm					m	mon	mining	mon	man
10 000					1		-		
0 dBm			-		1		-		
					1				
-10 dBm	D1 -13.000	dBm			1				
-20 dBm				MI	[
20 0011				mont					
-30 dBm	month	man	man				-		6
"Way									
-40 dBm	-		-						
-50 dBm									
-60 dBm			-						
CF 1.71 G	Hz	<u>.</u>	12	501	pts	<u>.</u>	k s	Span	40.0 MHz

QPSK (20MHz, RB100) – Left Band Edge

Date: 19.NOV.2021 14:38:58



QPSK (20MHz, RB100) - Right Band Edge

Date: 19.NOV.2021 14:39:58

Ref Level Att	30.00 dBn 15 di	n Offset 3 SWT	27.00 dB 👄 37.9 µs 👄	RBW 300 k VBW 1 M	Hz Hz Mode	Auto FFT			
1Rm Max									
					M	11[1]		-22	.44 dBn 400 GH
20 dBm			_						100 000
					And A	mingn	mannan	Anna.m.	
10 dBm	1				1				1
0 dBm			_						
									1
-10 dBm	01 -13 000	dam			1				
20 d0m				M	1				6
-20 0011			a an inno	m					
-30 dBm	monor	mm	man a						
source									
-40 dBm		1							
-50 dBm									
-60 dBm									
CF 1.71 GH	Z			501	pts			Span 40	1.0 MHz

16QAM (20MHz, RB100) – Left Band Edge

Date: 19.NOV.2021 14:39:31



16QAM (20MHz, RB100) - Right Band Edge

Date: 19.NOV.2021 14:40:25



LTE Band 5 QPSK (1.4MHz, RB6) – Left Band Edge

Date: 19.NOV.2021 14:40:49



QPSK (1.4MHz, RB6) - Right Band Edge

Date: 19.NOV.2021 14:41:18



16QAM (1.4MHz, RB6) – Left Band Edge

Date: 19 NOV 2021 14:41:03



16QAM (1.4MHz, RB6) - Right Band Edge

Date: 19 NOV 2021 14:41 28



QPSK (3MHz, RB15) – Left Band Edge

Date: 19.NOV.2021 14:41:50



QPSK (3MHz, RB15) - Right Band Edge

Date: 19.NOV.2021 14:42:18



16QAM (3MHz, RB15) – Left Band Edge

Date: 19.NOV.2021 14:42:00



16QAM (3MHz, RB15) - Right Band Edge

Date: 19.NOV.2021 14:42:32



QPSK (5MHz, RB25) – Left Band Edge

B Spectrum Ref Level 30.00 dBm Offset 27.00 dB 💣 RBW 100 kHz Att 15 dB 🖷 SWT 38 µs 👜 VBW 300 kHz Mode Auto FFT •1Rm Max -16.44 dBn 849.0000 MHz M1[1] 20 d8m 10/d8m-0 dBr -10 dBn 01 -13.000 d8m -20 dBm -30 dBm comm mm -40 dBm N -50 d8m -60 dBm CF 849.0 MHz 501 pts Span 10.0 MHz Date: 24 NOV 2021 13:23:08

QPSK (5MHz, RB25) - Right Band Edge



16QAM (5MHz, RB25) – Left Band Edge

Spectrum Ref Level 30.00 dBm Offset 27.00 dB 🖷 RBW 100 kHz Att 15 dB 🖷 SWT 38 µs 🖷 VBW 300 kHz Mode Auto FFT 1Rm Max M1[1] -14.03 dBn 849.0800 MH 20 dBm 10 dBmd dBn 10 dBm D1 -13.000 d8/m -20 dBn -30 dBm vinn 40 dBm n 50 dBn -60 dBm Span 10.0 MHz 501 pts CF 849.0 MHz -

16QAM (5MHz, RB25) - Right Band Edge

Date: 24.NOV.2021 13:27:14



QPSK (10MHz, RB50) – Left Band Edge

Date: 19.NOV.2021 14:44:35



QPSK (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:45:30



16QAM (10MHz, RB50) – Left Band Edge

Date: 19.NOV.2021 14:45:02



16QAM (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:45:54





Date: 19.NOV.2021 14:46:46

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16QAM (1.4MHz, RB6) – Left Band Edge

Date: 24 NOV 2021 13:32:50



16QAM (1.4MHz, RB6) - Right Band Edge

Date: 19 NOV 2021 14:46:57

Att	15 dE	SWT	63.2 µs 🖷	VBW 100 k	Hz Mode	Auto FFT			
1Rm Max		1	1	1		1717			10 CC d0p
						1[1]		69	9.0000 MH2
20 dBm									
10 dBm					Mun	Manno	many	Anno	anno 24
0 dBm			_						
					1				
10 dBm-	01 -13.000	dBm		N.	¥				
-20 dBm			mann	man					
2010-00-00 (A)	5 mm	mom							
30 dBm						č		-	6
normal									
-40 dBm							-		
50 dBm			-						
-60 dBm									
								0	- 6 0 MU-

QPSK (3MHz, RB15) – Left Band Edge

Date: 19.NOV.2021 14:47:14



QPSK (3MHz, RB15) – Right Band Edge

Date: 19.NOV.2021 14:47:43



16QAM (3MHz, RB15) – Left Band Edge

Date: 19.NOV.2021 14:47:28



16QAM (3MHz, RB15) - Right Band Edge

Date: 19.NOV.2021 14:47:56



QPSK (5MHz, RB25) – Left Band Edge

W Spectrum Ref Level 30.00 dBm Offset 27.00 dB . RBW 100 kHz 15 dB 🐽 SWT 38 µs 🖷 VBW 300 kHz Att Mode Auto FFT • 1Rm Max M1[1] -13.73 dBn 716.0000 MH 20 dBm 10 dBm dBm--10 dBm D1 -13.000 dBm -20 dBm -30 dBr M -40 dBm -50 dBm -60 dBm CF 716.0 MH2 501 pts Span 10.0 MHz

QPSK (5MHz, RB25) - Right Band Edge

Date: 24.NOV 2021 13:43:17



16QAM (5MHz, RB25) – Left Band Edge

Date: 24 NOV 2021 13 40 32



16QAM (5MHz, RB25) - Right Band Edge

Date: 24.NOV.2021 13:47:56



QPSK (10MHz, RB50) – Left Band Edge

Date: 19.NOV.2021 14:49:59



QPSK (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:50:54



16QAM (10MHz, RB50) – Left Band Edge

Date: 19.NOV.2021 14:50:23



16QAM (10MHz, RB50) - Right Band Edge

Date: 19.NOV.2021 14:51:15

FCC §2.1055, §22.355 & §24.235 & §27.54 – FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055 (a)(d), §22.355, §24.235 · §27.54

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Range (MHz)	Base, fixed (ppm)	Mobile > 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

Frequency Tolerance for Transmitters in the Public Mobile Services

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

According to §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

	10.0 MHz Middle	Channel, fo =1880 MHz	z_QPSK	
Temperature	Voltage Supplied	Frequency Error	Frequency Error	Degrald
(°°)	(Vdc)	(Hz)	(ppm)	Result
-30		-7.14	-0.0038	PASS
-20		5.02	0.0027	PASS
-10	12	-8.46	-0.0045	PASS
0		8.94	0.0048	PASS
10		8.27	0.0044	PASS
20		6.18	0.0033	PASS
30		6.54	0.0035	PASS
40		-6.76	-0.0036	PASS
50		-7.53	-0.004	PASS
20	V min.= 10.2	8.49	0.0045	PASS
20	V max.= 36	5.37	0.0029	PASS

Test Results LTE Band 2

10.0 MHz Middle Channel, fo =1880 MHz_16QAM						
Temperature	Voltage Supplied	Frequency Error	Frequency Error	D14		
(°C)	(Vdc)	(Hz)	(ppm)	Kesult		
-30		-6.58	-0.0035	PASS		
-20		-8.19	-0.0044	PASS		
-10		-7.73	-0.0041	PASS		
0	12	-7.19	-0.0038	PASS		
10		-5.63	-0.003	PASS		
20		-6.43	-0.0034	PASS		
30		-5.20	-0.0028	PASS		
40	-	-5.39	-0.0029	PASS		
50		-5.62	-0.003	PASS		
20	V min.= 10.2	6.45	0.0034	PASS		
20	V max.= 36	-5.34	-0.0028	PASS		

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Low Channel & High Channel (QPSK)						
Temperature	Voltage Supplied	FL	F н	FL Limit	FH Limit	
(°C)	(Vdc)	(MHz)	(MHz)	(MHz)	(MHz)	
-30		1710.53	1754.47	1710	1755	
-20		1710.53	1754.43	1710	1755	
-10		1710.53	1754.43	1710	1755	
0	-	1710.57	1754.51	1710	1755	
10	12	1710.57	1754.51	1710	1755	
20		1710.53	1754.51	1710	1755	
30		1710.53	1754.47	1710	1755	
40		1710.53	1754.43	1710	1755	
50		1710.49	1754.47	1710	1755	
20	V min.= 10.2	1710.49	1754.47	1710	1755	
20	\overline{V} max.= 36	1710.49	1754.47	1710	1755	

Low Channel & High Channel (16-QAM)						
Temperature	Voltage Supplied	FL	Fн	FL Limit	Fn Limit	
(°)	(Vdc)	(MHz)	(MHz)	(MHz)	(MHz)	
-30		1710.53	1754.47	1710	1755	
-20		1710.49	1754.43	1710	1755	
-10		1710.49	1754.47	1710	1755	
0		1710.57	1754.47	1710	1755	
10	12	1710.53	1754.43	1710	1755	
20		1710.53	1754.47	1710	1755	
30		1710.57	1754.43	1710	1755	
40		1710.49	1754.47	1710	1755	
50		1710.49	1754.43	1710	1755	
20	V min.= 10.2	1710.53	1754.43	1710	1755	
20	V max.= 36	1710.57	1754.47	1710	1755	

10.0 MHz Middle Channel, fo =836.5 MHz_QPSK						
Temperature	Voltage Supplied	Frequency Error	Frequency Error	Limit		
(°C)	(Vdc)	(Hz)	(ppm)	(ppm)		
-30		-0.47	-0.0006	±2.5		
-20		-8.66	-0.0104	±2.5		
-10		7.52	0.009	±2.5		
0	12	-7.62	-0.0091	±2.5		
10		5.26	0.0063	±2.5		
20		-8.69	-0.0104	±2.5		
30		8.00	0.0096	±2.5		
40		-7.64	-0.0091	±2.5		
50		-8.77	-0.0105	±2.5		
20	V min.= 10.2	-6.41	-0.0077	±2.5		
20	V max.= 36	5.55	0.0066	±2.5		

10.0 MHz Middle Channel, fo =836.5 MHz_16QAM						
Temperature	Voltage Supplied	Frequency Error	Frequency Error	Limit		
(°C)	(Vdc)	(Hz)	(ppm)	(ppm)		
-30		0.13	0.0002	±2.5		
-20		8.82	0.0105	±2.5		
-10		6.54	0.0078	±2.5		
0	12	9.01	0.0108	±2.5		
10		-9.99	-0.0119	±2.5		
20		5.92	0.0071	±2.5		
30		-6.98	-0.0083	±2.5		
40		-9.99	-0.0119	±2.5		
50		6.45	0.0077	±2.5		
20	V min.= 10.2	-5.07	-0.0061	±2.5		
20	V max.= 36	-7.60	-0.0091	±2.5		

Low Channel & High Channel (QPSK)						
Temperature	Voltage Supplied	FL	Fн	FL Limit	FH Limit	
(°C)	(Vdc)	(MHz)	(MHz)	(MHz)	(MHz)	
-30		699.55	715.41	699	716	
-20		699.51	715.45	699	716	
-10		699.55	715.49	699	716	
0	-	699.51	715.41	699	716	
10	12	699.55	715.49	699	716	
20		699.47	715.45	699	716	
30		699.51	715.49	699	716	
40		699.51	715.41	699	716	
50		699.51	715.49	699	716	
20	V min.= 10.2	699.55	715.41	699	716	
20	V max.= 36	699.51	715.49	699	716	

Low Channel & High Channel (16-QAM)						
Temperature	Voltage Supplied	FL	Fн	FL Limit	Fn Limit	
(°C)	(Vdc)	(MHz)	(MHz)	(MHz)	(MHz)	
-30		699.55	715.45	699	716	
-20		699.47	715.49	699	716	
-10		699.55	715.41	699	716	
0		699.51	715.45	699	716	
10	12	699.55	715.41	699	716	
20		699.51	715.49	699	716	
30	-	699.55	715.45	699	716	
40		699.47	715.49	699	716	
50		699.47	715.45	699	716	
20	V min.= 10.2	699.47	715.45	699	716	
20	V max.= 36	699.51	715.41	699	716	

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