



Figure 8.1-193: CCDF, QPSK, 15 MHz, LTE, Port A, low channel



Figure 8.1-195: CCDF, QPSK, 15 MHz, LTE, Port A, high channel



Figure 8.1-194: CCDF, QPSK, 15 MHz, LTE, Port A, mid channel



Figure 8.1-196: CCDF, QPSK, 15 MHz, LTE, Port B, low channel





Figure 8.1-197: CCDF, QPSK, 15 MHz, LTE, Port B, mid channel



Figure 8.1-199: CCDF, QPSK, 15 MHz, LTE, Port C, low channel



Figure 8.1-198: CCDF, QPSK, 15 MHz, LTE, Port B, high channel



Figure 8.1-200: CCDF, QPSK, 15 MHz, LTE, Port C, mid channel





Figure 8.1-201: CCDF, QPSK, 15 MHz, LTE, Port C, high channel



Figure 8.1-203: CCDF, QPSK, 15 MHz, LTE, Port D, mid channel



Figure 8.1-202: CCDF, QPSK, 15 MHz, LTE, Port D, low channel



Figure 8.1-204: CCDF, QPSK, 15 MHz, LTE, Port D, high channel





Figure 8.1-205: CCDF, QPSK, 20 MHz, LTE, Port A, low channel



Figure 8.1-207: CCDF, QPSK, 20 MHz, LTE, Port A, high channel



Figure 8.1-206: CCDF, QPSK, 20 MHz, LTE, Port A, mid channel



Figure 8.1-208: CCDF, QPSK, 20 MHz, LTE, Port B, low channel





Figure 8.1-209: CCDF, QPSK, 20 MHz, LTE, Port B, mid channel



Figure 8.1-211: CCDF, QPSK, 20 MHz, LTE, Port C, low channel



Figure 8.1-210: CCDF, QPSK, 20 MHz, LTE, Port B, high channel



Figure 8.1-212: CCDF, QPSK, 20 MHz, LTE, Port C, mid channel





Figure 8.1-213: CCDF, QPSK, 20 MHz, LTE, Port C, high channel



Figure 8.1-215: CCDF, QPSK, 20 MHz, LTE, Port D, mid channel



Figure 8.1-214: CCDF, QPSK, 20 MHz, LTE, Port D, low channel



Figure 8.1-216: CCDF, QPSK, 20 MHz, LTE, Port D, high channel





Figure 8.1-217: CCDF, QPSK, WCDMA, Port A, low channel



Figure 8.1-219: CCDF, QPSK, WCDMA, Port A, high channel



Figure 8.1-218: CCDF, QPSK, WCDMA, Port A, mid channel



Figure 8.1-220: CCDF, QPSK, WCDMA, Port B, low channel





Figure 8.1-221: CCDF, QPSK, WCDMA, Port B, mid channel



Figure 8.1-223: CCDF, QPSK, WCDMA, Port C, low channel



Figure 8.1-222: CCDF, QPSK, WCDMA, Port B, high channel



Figure 8.1-224: CCDF, QPSK, WCDMA, Port C, mid channel





Figure 8.1-225: CCDF, QPSK, WCDMA, Port C, high channel



Figure 8.1-227: CCDF, QPSK, WCDMA, Port D, mid channel



Figure 8.1-226: CCDF, QPSK, WCDMA, Port D, low channel



Figure 8.1-228: CCDF, QPSK, WCDMA, Port D, high channel



8.2 FCC 27.53 and RSS-139, 6.6 Spurious emissions at RF antenna connector

8.2.1 Definitions and limits

FCC:

(h) AWS emission limits

(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}$ (P) dB.

(3) Measurement procedure.

(i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

RSS-139, Section 6.6:

i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10}$ (p [watts]) dB.

ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log₁₀ (p [watts]) dB.

8.2.2 Test summary

Test date	November 7, 2017	Temperature	22 °C
Test engineer	Andrey Adelberg	Air pressure	1009 mbar
Verdict	Pass	Relative humidity	33 %

8.2.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.

All measurements were performed using an average (RMS) detector.

Limit line was adjusted for MIMO 4×4 operation by 6 dB (for 4 ports: $10 \times Log_{10}(4)$): -13 dBm - 6 dB = -19 dBm RBW 1 MHz, VBW was wider than RBW.

Testing data Clause 27.53 and RSS-139, 6.6 Spurious emissions at RF antenna connector FCC Part 27, RSS-139, Issue 3



8.2.4 Test data



Figure 8.2-1: Conducted spurious emissions within 30–3600 MHz, Port A, LTE, 5 MHz low channel, QPSK

🔤 Key	/sight Spectrum A	nalyzer - Swept SA								
(XI	RF	50 Ω DC			SENSE:INT	1	ALIGN AUTO		01:06:20	PM Nov 07, 2017
Inpu	It Mech A	tten 14 dB	F	NO: Fast	Trig: Free #Atten: 14	Run dB	Avg Type Avg Hold:	: RMS 1/1	TR	ACE 1 2 3 4 5 6 YPE MWWWW DET A NNNNN
10 dE Log	Ref Bidiv Ref	Offset 43.3 dE 33.30 dBm					LID. 220806-CH2			
23.3										
13.3										
3.30										
-6.70										
-16.7										CL1 -19.00 dBm
-36.7	orton of the states	gland and and a state	n Alexant Vandal parke	~~~~*****	แกมไหนแหล่งการ	م _ا يد ميريد مايونيد ال	- And the second	all have a constrained of the	Carlotan dan	
-46.7										
-56.7										
Star #Res	t 30 MHz s BW 1.0 N	IHz		#VB	W 3.0 MHz			Sweep	Stop 4.467 ms	3.600 GHz (1001 pts)
MSG							STATUS			

Figure 8.2-3: Conducted spurious emissions within 30–3600 MHz, Port A, LTE, 5 MHz mid channel, QPSK







Figure 8.2-4: Conducted spurious emissions within 3600–22000 MHz, Port A, LTE, 5 MHz mid channel, QPSK







Keysight Spectrum Analyzer - Swept S/	λ.			
RF 50 Ω DI	<u> </u>	SENSE:INT	ALIGN AUTO	01:04:32 PM Nov 07, 2017
Input Mech Atten 14 di	PNO: Fast IFGain:Low	. Trig: Free Run #Atten: 14 dB	Avg Type: RMS Avg Hold: 1/1	TRACE 12 3 4 5 6 TYPE M WWWWW DET A NNNN
Ref Offset 43.3 d 10 dB/div Ref 33.30 dBn	B N			
		Ĭ	FL1 (2.2120 (298:3Hz	
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13.3				
3.30				
-6.70				
-16.7				DL1 -19.00 dBm
-26.7		d	line to mary toright and	and a consequences and the second second
-36.7	119970-14-40993-1-400-1-400-1-1-1	Production and a second s		
46.7				
-56.7				
Start 30 MHz				Stop 3 600 GHz
#Res BW 1.0 MHz	#VB	W 3.0 MHz*		Sweep 4.467 ms (1001 pts)
MSG			K STATUS	

Figure 8.2-7: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 5 MHz low channel, QPSK





Keysight Sp	ectrum Analyzer - Swept SA								- 6 ×
()	RF 50 Ω DC			SENSE:INT	AL	IGN AUTO		02:10:22	PM Nov 07, 2017
Ref Leve	el 6.30 dBm		PNO: Fast	Trig: Free	Run	Avg Type: Avg Hold:>	RM S 1/1	TR	ACE 1 2 3 4 5 6
		1	FGain:Low	#Atten: 8 d	B				
10 dB/div	Ref Offset 43.3 dE Ref 6.30 dBm	3					N	1kr1 19.2 -30.	40 0 GHz 093 dBm
Log FL2 2.15	80 GHz								
-3.70									
10.7									
-13.7									DL1 -19.00 dBm
-23.7									
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-33.7						Harris and a date	and the second	when have a	matt mon the
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-53.7									
-63.7									
-73.7									
.83.7									
-0.5.7									
Start 3.60	0 GHz		#\/B	W 2 0 MH-			Swaar	Stop 2	2.000 GHz
#Res BW	1.0 MHZ		#VB	W J.U MHZ	-	1	Sweet	5 30.07 ms	(1001 pts)
MSG						STATUS			

Figure 8.2-8: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 5 MHz low channel, QPSK







	SENSE:INT	ALIGN	I AUTO		01:07:23	PM Nov 07, 2017
PNO: Fast IFGain:Low	Trig: Free Run #Atten: 14 dB		Avg Type: R Avg Hold: 1/	2M S 1	TR	ACE 1 2 3 4 5 6 TYPE M WWWWW DET A NNNNN
	l l	FL BL	2120 828±CHz			
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		+				
						CC1 -19.00 dBm
gherry the and the source of the state	rollingeroan		kertangingat	and milder and	mitroma	alersh and all
		+				
#VB	W 3.0 MHz*		STATUS	Sweep	Stop 4.467 ms	3.600 GHz (1001 pts)
	PRO: Fast	HO: Fast	PROTEINT ALIA PROTEINT ALIA PROTEINT ALIA PROTEINT ALIA ALIA PROTEINT ALIA PROTEINT ALIA PROTEINT ALIA ALIA PROTEINT ALIA PROTEINT ALIA ALIA PROTEINT ALIA PROTEINT ALIA PROTEINTA PROTEIN	#VBW 3.0 MHz*	SUDELINIT ALLOW AND FRO-Fast Ang Type RMS FRO-Fast Ang Type RMS Avg Hold: 111 Avg Hold: 111	FRO: Fast

Figure 8.2-11: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 5 MHz high channel, QPSK



Figure 8.2-10: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 5 MHz mid channel, QPSK

Keysight Spectrum	Analyzer - Swept SA						
Ri Ri	F 50 Ω DC		SENSE:INT	ALIGN AUTO		02:14:20	PM Nov 07, 201
		PNO: Fast IFGain:Low	Trig: Free Ru #Atten: 8 dB	n Avg ly Avg Hol	d:>1/1		DET A NNNN
Ref 10 dB/div Re	f Offset 43.3 dB f 6.30 dBm				I	Mkr1 21.5 -30.	40 0 GH 686 dBr
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13.7							D11 1900 4
23.7							
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13.7							
3.7							
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3.7							
tart 3.600 GH Res BW 1.0	Hz MHz	#VI	BW 3.0 MHz*		Swee	Stop 2 p 30.67 ms	22.000 GH (1001 p
				~			

Figure 8.2-12: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 5 MHz high channel, QPSK







🔤 Keysight Sp	ectrum Analyzer - Swept SA									0 6 💌
	RF 50 Ω DC			SENSE:INT		ALI	IGN AUTO		01:06:00	PM Nov 07, 2017
Input Me	ch Atten 14 dB	DN	O: Eart and	Trig: Free I	Run		Avg Type: 1 Avg Hold: 1	/1	1	TYPE NWWWW
		IFG	ain:Low	#Atten: 14	dB		-			DET A NNNNN
	D									
10 dB/div	Ref 33.30 dBm	5								
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						Ш				· · · · ·
13.3						н				
						H				
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-6.70						Ш				
						Н				
-16.7						Ш				511 IS 00 dbs
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-26.7						А			فالمصاد	
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50 7										
-30.7										
Start 30 I	ИHz								Stop	3.600 GHz
#Res BW	1.0 MHz		#VB	W 3.0 MHz	*			Sweep	0 4.467 ms	; (1001 pts)
MSG							K STATUS			
						-	-			

Figure 8.2-15: Conducted spurious emissions within 30–3600 MHz, Port C, LTE, 5 MHz mid channel, QPSK







Figure 8.2-16: Conducted spurious emissions within 3600–22000 MHz, Port C, LTE, 5 MHz mid channel, QPSK







🔤 Keysight	Spectrum Analyzer - Swept SA									
X	RF 50 Ω DC		9	ENSE:INT		AL	IGN AUTO		01:05:08	PM Nov 07, 2017
Input N	lech Atten 14 dB			Trig: Free	Run		Avg Type: Avg/Hold: 1	RMS	18	AGE 1 2 3 4 5 6
		IFGair	Low	#Atten: 14	dB					DETANNNNN
	Ref Offset 43.3 dB	3								
Log	/ Rel 55.50 dBill					6	E STATE-CH-			
						1				
23.3										
12.2										
13.3										
3.30						Η				
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-16.7						Н				DL1 -19.00 dBm
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-36.7	The step for a street of the state of the st									
40.7										
-40.7										
-56.7						Π				
Start 30	MHz								Stop	3 600 GHz
#Res B	W 1.0 MHz		#VB	N 3.0 MHz				Sweet	4.467 ms	(1001 pts)
							D BTATUS	2000		(p.o/
mou							10 and 0s			

Figure 8.2-19: Conducted spurious emissions within 30–3600 MHz, Port D, LTE, 5 MHz low channel, QPSK





Keysight Sp	ectrum Analyzer - Swept SA	4							
X	RF 50 Ω D	c		SENSE:INT	AL	IGN AUTO		02:10:40	PM Nov 07, 2017
Ref Leve	el 6.30 dBm	F	PNO: Fast Gain:Low	Trig: Free #Atten: 8 d	Run IB	Avg Type: Avg Hold:>	RM S 1/1		DET A NNNN
10 dB/div	Ref Offset 43.3 d Ref 6.30 dBm	в					N	1kr1 20.7 -30.	48 8 GHz 934 dBm
.3.70	80 GHZ								
-0.70									
-13.7									DL1 -19.00 dBn
-23.7									∮ ¹
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-43.7									
-53.7									
-63.7									
-73.7									
-83.7									
Start 3.60	00 GHz							Stop 2	2.000 GHz
#Res BW	1.0 MHz		#VB	W 3.0 MHz	*		Swee	o 30.67 ms	; (1001 pts)
MSG						STATUS			

Figure 8.2-20: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 5 MHz low channel, QPSK







RF 50 Ω DC SENSE:INT ALIGN AUTO	01:07:46 PM Nov 07, 2017
Avg Type:	
PNO: Fast Trig: Free Run Avg Hold: IFGainLow #Atten: 14 dB	RMS 1R402 11 23 4 5 6 1/1 TYPE N WWWWW DET A N N N N
Ref Offset 43.3 dB 10 dB/div Ref 33.30 dBm	
Log PL 12/2008/63/12	
23.3	
13.3	
330	
-6.70	
-16.7	DL1 -15:00 oBm
-26.7	and we address of the could be a set of the adverte
-36.7	
-46.7	
-56.7	
start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz*	Stop 3.600 GHz Sweep 4.467 ms (1001 pts)
MSG	

Figure 8.2-23: Conducted spurious emissions within 30–3600 MHz, Port D, LTE, 5 MHz high channel, QPSK



Figure 8.2-22: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 5 MHz mid channel, QPSK



Figure 8.2-24: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 5 MHz high channel, QPSK







Image: Declarity Seclarity Augment of the second part of the seco	Keysight Spectrum Analyzer - Swept SA				
Note: Aregin yee: MAS Aregin yee: MAS Processor In the contraction From the contraction Aregin yee: MAS Processor Processor <td< th=""><th>RF 50 Ω DC</th><th></th><th>SENSE:INT</th><th>ALIGN AUTO</th><th>01:10:30 PM Nov 07, 2017</th></td<>	RF 50 Ω DC		SENSE:INT	ALIGN AUTO	01:10:30 PM Nov 07, 2017
Ref Offset 43 30 dB Number of the table of tab	Input Mech Atten 14 dB	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Type: RMS Avg Hold: 1/1	TYPE MWWWWW DET A NNNN
233 Image: Contract of the second s	Ref Offset 43.3 dB 10 dB/div Ref 33.30 dBm			0	
223 133 133 134 135 137 138 139 139 139 139 139 139 139 139			Ĭ	FL1 12.2120 8208c0Hz	
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3.30 670 677 677 677 677 677 677 67	13.3			· · · · · · · · · · · · · · · · · · ·	
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167 37 37 37 37 37 37 37 37 37 3	-6.70				
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Market of the second	36.7				n and plast
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56.7 Start 30 MHz Stop 3.600 GH: Start 30 MHz #VBW 3.0 MHz* Sweep 4.467 ms (1001 pts mp	46.7				
Start 30 MHz Stop 3.600 GH; Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 4.467 ms (1001 pts mp	56.7				
Stant 30 MHz Stop 3.600 GH Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 4.467 ms (1001 pts sen					
50 STAT 15	Start 30 MHz #Res BW 1.0 MHz	#VB	W 3.0 MHz*	Swee	Stop 3.600 GHz p 4.467 ms (1001 pts)
	MSG			K STATUS	

Figure 8.2-27: Conducted spurious emissions within 30–3600 MHz, Port A, LTE, 10 MHz mid channel, QPSK







Figure 8.2-28: Conducted spurious emissions within 3600–22000 MHz, Port A, LTE, 10 MHz mid channel, QPSK







🔤 Keysigh	nt Spectrum Analyzer - Swept SA									
() 0	RF 50 Ω DC			SENSE:INT		AL	IGN AUTO		01:09:44	PM Nov 07, 2017
Input M	Mech Atten 14 dB	3		Trig: Free	Run		Avg Type: I Avg/Hold: 1	RMS /1	TR	ACE 1 2 3 4 5 6
		IFG	io: Fast	#Atten: 14	dB					DETANNNN
	Ref Offset 43.3 dB	3								
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3.30						П				
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-6.70						H				
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-56.7						H				
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#Res B	W 1.0 MHz		#VB	W 3.0 MHz				Sweet	0 4.467 ms	(1001 pts)
							1 DIATATUR	2000		() pro/
mou							No anni Us			

Figure 8.2-31: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 10 MHz low channel, QPSK

Keysight S	Spectrum Analyzer - Swept SA	1							- 6 ×
X	RF 50 Ω D0			SENSE:INT	1	ALIGN AUTO AVG TVDP:	RMS	02:19:40 TR	PM Nov 07, 2017
			NO: Fast	Trig: Free #Atten: 8 d	Run IB	Avg Hold:>	1/1	1	DET A NNNN
10 dB/div	Ref Offset 43.3 dl Ref 6.30 dBm	в					N	1kr1 19.2 -31.	03 2 GHz 030 dBm
-3.70									
-13.7									DL1_19.00 dBm
-23.7								1	
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-43.7									
-53.7									
-63.7									
-73.7									
-83.7									
Start 3.6 #Res BV	00 GHz V 1.0 MHz		#VB	W 3.0 MHz			Sweep	Stop 2 30.67 ms	2.000 GHz (1001 pts)
MSG						K STATUS			





Figure 8.2-32: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 10 MHz low channel, QPSK







Keysight Spectrum Analyzer - Swept	SA			
RF 50 Ω	DC	SENSE:INT	ALIGN AUTO	01:12:07 PM Nov 07, 2017
Input Mech Atten 14 o	IB PNO: Fast IFGain:Low	. Trig: Free Run #Atten: 14 dB	Avg Type: RMS Avg Hold: 1/1	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET A NNNN
10 dB/div Ref 33.30 dB	dB Jm		n	
209		Ĭ	FL 02.2120 8286cHz	
23.3				
13.3				
3.30				
-6.70				
-16.7				DL1 -19.00 aBm
-26.7				وبالغلالي والمعارية والطوطعة ومسالم والراده
-36.7	free and in the land on the table of the	annis-Milhinisadhiinini		
-46.7				
-56.7				
Start 30 MHz #Res BW 1.0 MHz	#VB	W 3.0 MHz*	Sw	Stop 3.600 GHz eep 4.467 ms (1001 pts)
MSG			I STATUS	

Figure 8.2-35: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 10 MHz high channel, QPSK



Figure 8.2-34: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 10 MHz mid channel, QPSK



Figure 8.2-36: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 10 MHz high channel, QPSK







Keysight Spectrum Analyzer - Swept SA				
RF 50 Ω DC		SENSE:INT	ALIGN AUTO	01:10:57 PM Nov 07, 2017
Input Mech Atten 14 dB	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Type: RMS Avg Hold: 1/1	TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET A NNNNN
Ref Offset 43.3 dB 10 dB/div Ref 33.30 dBm			n	
		Ť	RL112.2120 806:0Hz	
23.3				
13.3				
3.30				
6.70				
-16.7				DL1-19.00 dBm
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46.7				
56.7				
Start 30 MHz #Res BW 1.0 MHz	#VB	W 3.0 MHz*	Swee	Stop 3.600 GHz p 4.467 ms (1001 pts)
MSG			Ko status	

Figure 8.2-39: Conducted spurious emissions within 30–3600 MHz, Port C, LTE, 10 MHz mid channel, QPSK



Figure 8.2-38: Conducted spurious emissions within 3600–22000 MHz, Port C, LTE, 10 MHz low channel, QPSK



Figure 8.2-40: Conducted spurious emissions within 3600–22000 MHz, Port C, LTE, 10 MHz mid channel, QPSK







🔤 Keysi	ight Spectrum Analyzer - Swept S	Ą								
(XI	RF 50 Ω D	c		SENSE:INT		AL	IGN AUTO		01:09:1	0 PM Nov 07, 2017
Input	Mech Atten 14 dl	B IF	NO: Fast	Trig: Free #Atten: 14	Run dB		Avg Type: I Avg Hold: 1	RM S /1	T	DET A NNNNN
10 dB/	Ref Offset 43.3 d div Ref 33.30 dBr	B n								
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23.3						H				
13.3						\vdash				
3.30						$\left \right $				
-6.70										
-16.7						L				DL1 -19.00 dBm
-26.7			1	10	A. 1001 A. 55454-4	Ų	had made to a state of the stat	parter and and	-Colorado	Mathematickans
-36.7	for a last and a state of the second s	benefative reductions	10400 - 11 - 4							
-46.7										
-56.7										
Start	30 MHz								Stop	3.600 GHz
#Res	BW 1.0 MHz		#VB	W 3.0 MHz	*		4	Sweep	4.467 m	s (1001 pts)
MSG							STATUS			

Figure 8.2-43: Conducted spurious emissions within 30–3600 MHz, Port D, LTE, 10 MHz low channel, QPSK

Keysight S	pectrum Analyzer - Swept S	A							
(XI	RF 50 Ω D	C		SENSE:INT		ALIGN AUTO		02:19:16	PM Nov 07, 2017
		1	PNO: Fast Gain:Low	Trig: Free #Atten: 8 d	Run IB	Avg Type: Avg Hold:>	RMS 1/1	TR	ACE 1 2 3 4 5 6 YPE MWWWW DET A NNNNN
10 dB/div	Ref Offset 43.3 d Ref 6.30 dBm	в					N	lkr1 19.2 -31.	21 6 GHz 115 dBm
-3.70									
-13.7									
-23.7									DL1 -19.00 dBm
-33.7	when here	and the second	wharmoutered	len the state of the	- Marine	n Malan Jan Angentangan	was have been	upus taur	
-43.7									
-53.7									
-63.7									
-73.7									
-83.7									
Start 3.6 #Res BW	00 GHz / 1.0 MHz		#VB	W 3.0 MHz	*		Sweep	Stop 2 30.67 ms	2.000 GHz (1001 pts)
MSG						K STATUS			





Figure 8.2-44: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 10 MHz low channel, QPSK







Keysight Spectrum Analyzer - Swept SA							
RF 50 Ω DC		SENSE:INT	AL	IGN AUTO		01:11:46	PM Nov 07, 2017
Input Mech Atten 14 dB	PNO: Fast	Trig: Free Ru #Atten: 14 dE	in 3	Avg Type: Avg Hold: 1	RM S /1	TR	ACE 1 2 3 4 5 6 TYPE MWWWWW DET A NNNNN
Ref Offset 43.3 dB 10 dB/div Ref 33.30 dBm				1			
		Ť	P.	121.2120 8285GHz			
23.3							
13.3							
3.30							
-6.70							
-16.7							DL1 -19.00 oBm
-26.7	an and we not strates MA	ورور الإملاء	water and	oran theoperature	ىلىتەرىمەر ئىلىلار مەرىكىلىر	And and a state of the state of	allad waters the second
-36.7	a contraction of the second						
-46.7							
-56.7							
Start 30 MHz #Res BW 1.0 MHz	#VB)	W 3.0 MHz*			Sween	Stop 4.467 ms	3.600 GHz
MSG				Ko status			, . ,

Figure 8.2-47: Conducted spurious emissions within 30–3600 MHz, Port D, LTE, 10 MHz high channel, QPSK







Figure 8.2-48: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 10 MHz high channel, QPSK







- Reysignt opectrum manageer - Swept SM			
RF 50 Ω DC	SENSE:INT	ALIGN AUTO	01:14:52 PM Nov 07, 2017
Input Mech Atten 14 dB	PNO: Fast Trig: Fre IFGain:Low #Atten:	Avg Type e Run Avg Hold: 14 dB	RMS TRACE 12 3 4 5 6 1/1 TYPE MWWWWW DET A NNNN
Ref Offset 43.3 dB 10 dB/div Ref 33.30 dBm		n	
209		FL112.2120 826:0Hz	
23.3			
13.3			
3.30			
-6.70			
-16.7			CL1 -15.00 oBes
-26.7		a la an had where the shorted of here the	Later - de R. marger of the Alt - and a defait of property and
-36.7 ustaley.unsw.settleterset.lynet.bl.dt.	had a second and a second a se		
-46.7			
-56.7			
#Res BW 1.0 MHz	#VBW 3.0 MH	z*	Stop 3.600 GHz Sweep 4.467 ms (1001 pts)
MSG			

Figure 8.2-51: Conducted spurious emissions within 30–3600 MHz, Port A, LTE, 15 MHz mid channel, QPSK







Figure 8.2-52: Conducted spurious emissions within 3600–22000 MHz, Port A, LTE, 15 MHz mid channel, QPSK







🔤 Keysight S	pectrum Analyzer - Swept SA								
	RF 50 Ω DC		SENSE:INT		ALI	IGN AUTO		01:13:21	PM Nov 07, 2017
Input M	ech Atten 14 dB		Trig: Free	Run		Avg Type: F	RMS /1	18	AGE 1 2 3 4 5 6
		IFGain:Low	#Atten: 14	dB					DET A N N N N N
		-							
10 dB/div	Ref Offset 43.3 dB								
Log	Ker 55.50 dBill			• 1	hu	51.2120 820sGHz			
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23.3		L			Н				<u> </u>
					Ш				· ·
13.3					Ц				
					Ш				· ·
3.30					Ц				
					Ш				
-6.70					Ш				
0.10					Ш				
-16.7					Ш				
					H				UC1 -19.00 0Bm
-26.7				ĺ	١,			4 h 4 m	
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-30.7									
									· ·
-46.7									
									· ·
-56.7									
1									I I
Start 30	MHz			•				Stop	3.600 GHz
#Res BW	1.0 MHz	#\	/BW 3.0 MHz	*			Swee	p 4.467 ms	(1001 pts)
MSG						STATUS			
					-	•			

Figure 8.2-55: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 15 MHz low channel, QPSK

🔤 Keys	ight Spe	ctrum A	nalyzer - Swept	SA									
(X)		RF	50 Ω	DC			SENSE:INT		ALI	IGN AUTO Avg Type: I	RMS	02:25:05 TR	PM Nov 07, 2017 ACE 1 2 3 4 5 6
					PN	IO: Fast 😱	Trig: Free #Atten: 8 d	Run IB		Avg Hold:>	1/1	1	DET A NNNN
10 dBi	/div	Ref (Ref	Offset 43.3 6.30 dBn	dB N							N	lkr1 19.1 -30.	84 8 GHz 959 dBm
-3.70													
-13.7					_								DL1 -19.00 dBm
-23.7					-							1	
-33.7	wh	***~~~	vvm	shrow m	Jan Star	hermont	from the start of the start of	www	ป้างหางอาจ	والمراجعة والمعالي المعالي المعالي المعالي المعالية المعالية المعالية المعالية المعالية المعالية الم	un _{ta} ress ^{el} tettett	woon help	econterps/ma
-43.7					-								
-53.7													
-63.7					-								
-73.7					-								
-83.7 -													
Start #Res	3.60 BW	0 GH: 1.0 M	z IHz			#VE	W 3.0 MHz	*			Sweep	Stop 2 30.67 ms	2.000 GHz (1001 pts)
MSG										K STATUS			





Figure 8.2-56: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 15 MHz low channel, QPSK







Keysight Spectrum Analyzer	- Swept SA							
RF S	50 Ω DC	SE	ENSE:INT	1	LIGN AUTO		01:15:57	PM Nov 07, 2017
Input Mech Atten	14 dB	PNO: Fast +++	Trig: Free R #Atten: 14 d	Run dB	Avg Type: Avg Hold: 1	RMS /1	TR T	ACE 1 2 3 4 5 6 YPE MWWWW DET A NNNNN
Ref Offset 10 dB/div Ref 33.3	43.3 dB 0 dBm				л			
			Ī	· /	L1 f2L2120 8205CHz			
23.3								
13.3								
3.30								
-6.70								
-16.7								DL1 -19.00 dBm
-26.7		الم مربع المراجع الم	and the set	الدوم مردور بردر	multination	ky Witcherhams	and the second states of the	water water
-36.7								
-46.7								
-56.7								
Start 30 MHz #Res BW 1.0 MHz		#VBW	/ 3.0 MHz*			Sweep	Stop 0 4.467 ms	3.600 GHz (1001 pts)
MSG					K STATUS			

Figure 8.2-59: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 15 MHz high channel, QPSK







Figure 8.2-60: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 15 MHz high channel, QPSK







Imput Moch Atten 14 dB Imput Moch Atten 14 dB<	17, 2017 3 4 5 6
Input Mech Atten 14 dB PROFest Property Process Proces	3456
Ber Offset 43.3 dB 10g 116230486.94 233 116230486.94 330 116230486.94	
133	_
330	
-6.70	
-16.7	9.00 dBm
-26.7	wante
46.7	
-66.7	
Start 20 MHz Star 2 R00	
#Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 4.467 ms (100	1 pts)
MSG DE STATUS	

Figure 8.2-63: Conducted spurious emissions within 30–3600 MHz, Port C, LTE, 15 MHz mid channel, QPSK







Figure 8.2-64: Conducted spurious emissions within 3600–22000 MHz, Port C, LTE, 15 MHz mid channel, QPSK







🔤 Key	sight Spectrum Anal	lyzer - Swept SA									
(XI	RF	50 Ω DC			SENSE:INT		AL	IGN AUTO		01:13:46	PM Nov 07, 2017
Inpu	t Mech Att	en 14 dB	F	PNO: Fast ++	Trig: Free #Atten: 14	Run dB		Avg Type: I Avg Hold: 1	RMS /1	TR	ACE 1 2 3 4 5 6 TYPE M WWWWW DET A NNNNN
10 dE	Ref Of Idiv Ref 3	fset 43.3 dE 3.30 dBm	•				п				
							ľ	NL21210 KEN23472			
23.3											
13.3							$\left \right $				
3.30											
-6.70											
-16.7											DL1 -19.00 dBm
-26.7				المسلحا والمساحد	Actor Annalasia	and the second	l	"physical galant	weekly work have	North Ringtheast	www.alaconcile.j
-36.7	and a star and a star and a star a	*******	and a second								
-46.7											
-56.7											
Start	30 MHz									Ston	3 600 GHz
#Res	BW 1.0 MH	İz		#VB	W 3.0 MHz				Sweep	510p 5 4.467 ms	(1001 pts)
MSG								K STATUS			

Figure 8.2-67: Conducted spurious emissions within 30–3600 MHz, Port D, LTE, 15 MHz low channel, QPSK

🔤 Keys	ight Spec	trum Ar	halyzer - Swept SA								
() 0		RF	50 Ω DC			SENSE:INT		ALIGN AUTO	RMS	02:25:34 TR	PM Nov 07, 2017 ACE 1 2 3 4 5 6
					PNO: Fast	Trig: Free #Atten: 8 d	Run IB	Avg Hold:	-1/1	1	DET A NNNNN
		D-40	M						N	lkr1 19.2	21 6 GHz
10 dB	/div	Ref	6.30 dBm	5						-30.	612 dBm
Ľ											
-3.70		-									
40.7											
-13.7											DL1 -19.00 dBm
-23.7		_								1	
										unda a	mar
-33.7	who	۳wu	man	~~~~~	gan J. K. Marker	way war war a share	Mary ma		mistig		
-43.7		_									
-53.7 -											
-63.7		_					-				
-13.7											
-83.7		_									
Start	3.600	GH	Z		40.07				0	Stop 2	2.000 GHz
#Res	DVV 1	.0 14	ΠZ		#VE	W J.U MHZ	-	1	Swee	5 30.07 ms	(1001 pts)
warg.								STATUS			





Figure 8.2-68: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 15 MHz low channel, QPSK







🔤 Keysigh	it Spectrum Analyzer - Swept SA									
(XI	RF 50 Ω DC		SEN	ISE:INT		ALI	GN AUTO		01:16:14	PM Nov 07, 2017
Input M	Mech Atten 14 dB	PNO: F IFGain:	ast ⊶⊷ Low	Trig: Free F #Atten: 14 (Run dB		Avg Type: F Avg Hold: 1	RMS /1	TR	ACE 1 2 3 4 5 6 YPE MWWWW DET A NNNNN
10 dB/di	Ref Offset 43.3 dB Ref 33.30 dBm					0				
					·	2	F21.21200 8288:GHz			
23.3										
13.3						_				
3.30										
-6.70										
-16.7										CL1 -19.00 dBm
-26.7						a.		and the second second	and the state	the constantion
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-46.7										
-56.7										
Start 3 #Res B	0 MHz W 1.0 MHz		#VBW	3.0 MHz*				Sweep	Stop 4.467 ms	3.600 GHz (1001 pts)
MSG							STATUS			

Figure 8.2-71: Conducted spurious emissions within 30–3600 MHz, Port D, LTE, 15 MHz high channel, QPSK







Figure 8.2-72: Conducted spurious emissions within 3600–22000 MHz, Port D, LTE, 15 MHz high channel, QPSK







🔤 Keysig	ht Spectrum Analyzer - Swept SA									0 6
×	RF 50 Ω DC		SI	ENSE:INT		AL	IGN AUTO		01:18:41	PM Nov 07, 2017
Input	Mech Atten 14 dB	,		Trig: Free F	Run		Avg Type: 1 Avg/Hold: 1	RMS /1	18	AUE 1 2 3 4 5 6
		IFGain	Low	#Atten: 14	dB					DETANNNNN
10 484	Ref Offset 43.3 dB	3								
Log	NV Rei 55.50 dBill					П	E STARD-CHY			
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12.2										
13.5										
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3.30						Π				
										I
-6.70						ų				
										I
-16.7										CL1 -19.00 dBm
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-46.7										
										I
-66.7										
-30.7						Γ				
Start :	30 MHz								Stop	3.600 GHz
#Res	BW 1.0 MHz		#VBV	/ 3.0 MHz	1			Sweep	4.467 ms	(1001 pts)
MSG							STATUS			
						_	•			

Figure 8.2-75: Conducted spurious emissions within 30–3600 MHz, Port A, LTE, 20 MHz mid channel, QPSK



Figure 8.2-74: Conducted spurious emissions within 3600–22000 MHz, Port A, LTE, 20 MHz low channel, QPSK



Figure 8.2-76: Conducted spurious emissions within 3600–22000 MHz, Port A, LTE, 20 MHz mid channel, QPSK







🔤 Key	sight Spectrum A	inalyzer - Swept SA									
(XI	RF	50 Ω DC			SENSE:INT		AL	IGN AUTO		01:17:48	PM Nov 07, 2017
Inpu	t Mech A	tten 14 dB			Trig: Free	Run		Avg Type: I Avg/Hold: 1	RMS /1	TR	ACE 1 2 3 4 5 6
			IF	Gain:Low	#Atten: 14	dB					DETANNNNN
	Ref	Offset 43.3 dE	3								
Log	aiv Rei	33.30 aBm					n.	E STRATEGICS			
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23.3											
23.5							Γ				
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-6.70							1				
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-10.7							₽				DL1 -19.00 dBm
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-26.7						& Hilberry	۲	www.www.www.www.	وإرسيمةهم الانتخاط فيار	Normal Market	and the party of the party of the
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-46.7							L				
I											
-56.7							L				
I						L .					
Start	30 MHz	-					_			Stop	3.600 GHz
#Res	BW 1.0 N	1Hz		#VB	W 3.0 MHz	*			Sweep	4.467 ms	(1001 pts)
MSG								STATUS			
							_	•			

Figure 8.2-79: Conducted spurious emissions within 30–3600 MHz, Port B, LTE, 20 MHz low channel, QPSK



Figure 8.2-78: Conducted spurious emissions within 3600–22000 MHz, Port A, LTE, 20 MHz high channel, QPSK



Figure 8.2-80: Conducted spurious emissions within 3600–22000 MHz, Port B, LTE, 20 MHz low channel, QPSK