





Middle Channel -26dBc Bandwidth kHz









Highest Channel -26dBc Bandwidth kHz













Middle Channel -26dBc Bandwidth kHz









Highest Channel -26dBc Bandwidth kHz





LTE QPSK MODULATION. BW = 20 MHz

Lowest Channel 99% Occupied Bandwidth



Lowest Channel -26dBc Bandwidth kHz













Highest Channel -26dBc Bandwidth kHz





LTE 16QAM MODULATION. BW = 20 MHz

Lowest Channel 99% Occupied Bandwidth



Lowest Channel -26dBc Bandwidth kHz













TEST C.5: SPURI	OUS EMISSIONS /	AT ANTENNA TERMINALS
	Product standard:	FCC Part 24 / IC RSS-133
	Test standard:	FCC §2.1051 and § 24.238/ RSS-133 Clause 6.5
<u>LIMITS</u> According to specifica factor of at least 43 + 7 At Po transmitting pow the level in dBm relativ	tion, the power of emi 10 log (P) dB. P in watts ver of 2 watts (33 dBm) ve to Po becomes:	ssions shall be attenuated below the transmitter power (P) by a s. , the specified minimum attenuation becomes 43+10log (Po). and
Po (dBm) – [43 + 10 lo	og (Po in watts)] = -13 c	IBm
TEST S	SETUP	
The EUT RF output co Tester R&S CMW500 using a 50-ohm attenu	onnector was connecte (selecting maximum lator and a power splitte	ed to a spectrum analyzer and to the Universal Radio Communication transmission power of the EUT and different modes of modulation) er.
The spectrum was inve	estigated from 9 kHz to	26 GHz for LTE Band 25.
The reading of the spe of EUT and input of the	ectrum analyzer is corr e spectrum analyzer.	ected with the attenuation loss of connection between output terminal
For LTE mode the co power was used.	nfiguration of Resource	e Blocks and modulation which is the worst case for conducted
P	EUT Attenuat	or Power Signalling Unit



TESTED SAMPLES:	S/01			
TESTED CONDITIONS MODES:	TC#01			
TEST RESULTS:	PASS			
<u>Frequency range 9 kHz – 26 GHz</u> LTE QPSK MODULATION. BW = 1.4 MHz				
Lowest Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
Middle Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
Highest Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
LTE QPSK MODULATION. BW = 3 MHz				
Lowest Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
Middle Channel No spurious signal was found at less than 10 d	Middle Channel No spurious signal was found at less than 10 dB respect to the limit in the frequency range.			
Highest Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
LTE QPSK MODULATION. BW = 5 MHz				
Lowest Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
Middle Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			
Highest Channel No spurious signal was found at less than 10 d	B respect to the limit in the frequency range.			



TEST RESULTS (Cont):	
LTE QPSK MODULATION. BW = 10 MHz	
Lowest Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
Middle Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
Highest Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
LTE QPSK MODULATION. BW = 15 MHz	
Lowest Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
Middle Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
Highest Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
LTE QPSK MODULATION. BW = 20 MHz	
Lowest Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
Middle Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.
Highest Channel No spurious signal was found at less than 10	dB respect to the limit in the frequency range.



TEST RESULTS (Cont): LTE QPSK MODULATION. BW = 1.4MHz Lowest Channel Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 1 MHz Att 45 dB 👄 SWT 5 s 👄 VBW 3 MHz Mode Auto Sweep ●1Rm View 30 dBm 20 dBm 10 dBm 0 dBm--10 dBm D1 -13.000 dBm--20 dBn ~~ -30 dBm -40 dBm -50 dBm-Start 9.0 kHz 32001 pts Stop 26.0 GHz Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 1 MHz Att 45 dB 👄 SWT 5 s 👄 **VBW** 3 MHz Mode Auto Sweep ●1Rm View 30 dBm 20 dBm 10 dBm

Middle Channel









Middle Channel







LTE QPSK MODULATION. BW = 5 MHz

Lowest Channel



Middle Channel









Middle Channel



Ref Level Att	39.50 dBm 45 dB	Offset SWT	11.00 dB 👄 5 s 👄	RBW 1 MHz VBW 3 MHz	Mode /	Auto Sweep			
●1Rm View									
30 dBm									
20 dBm									
10 dBm									
0 dBm									
-10 dBm									
	D1 -13.000	dBm							
-20 dBm									
-30 dBm		www.		~~~~			m	~~~~~	~~~~~
	Γ	•							
-40 dBm									
-50 dBm									
Start 9.0 k	Hz			3200:	1 pts			Stop	26.0 GHz



LTE QPSK MODULATION. BW = 15 MHz

Lowest Channel



Middle Channel









Middle Channel



1Rm View	45 QB	- SW1	55 📟	YOW 3 MH2	. Mode A	auto Sweep			
Inter Fight									
30 dBm									
20 dBm									
10 dBm									
) dBm									
-10 dBm	-D1 -13.000	dBm							
•20 dBm									
-30 dBm		Land La				······	~~~~	~~~~~	
40 dBm									
50 dBm									
Start 9.0 k	Hz			3200	1 pts			Stop	26.0 GH



TEST C.6: SPURIC	US EMISSIONS	AT ANTENNA TERMINALS AT BLOCK EDGES
	Product standard:	FCC Part 24 / IC RSS-133
LIMITS:	Test standard:	FCC § 24.238 and FCC §2.1051 / RSS 133- Clause 6.6
<u>LIMITS</u> According to specificati factor of at least 43 + 10 At Po transmitting powe the level in dBm relative Po (dBm) – [43 + 10 log	on, the power of em) log (P) dB. P in wat er of 2 watts (33 dBm e to Po becomes: g (Po in watts)] = -13	issions shall be attenuated below the transmitter power (P) by a ts.), the specified minimum attenuation becomes 43+10log (Po). and dBm
TEST SE	TUP	
The EUT RF output con Tester R&S CMW500 using a 50-ohm attenua The reading of the spec	nnector was connect (selecting maximum tor and a power split ctrum analyzer is cor	ed to a spectrum analyzer and to the Universal Radio Communication transmission power of the EUT and different modes of modulation) ter. rected with the attenuation loss of connection between output terminal
of EUT and input of the	spectrum analyzer.	
For LTE mode the confi As indicated in FCC par block or band, a resolu emission of the transmit	guration of modulatic rt 24, in the 1 MHz ba tion bandwidth of at tter may be employed	on which is the worst case for conducted power was used. ands immediately outside and adjacent to the licensee's frequency least one percent of the emission bandwidth of the fundamental d.
	EUT Attenu Power supply	Lator Power devider Signalling



TES	TED SAMPLES	:	S/01				
TESTED C	ONDITIONS MO	DDES:		TC	#01		
TE	ST RESULTS:		PASS				
			-				
LTE QPSK MODULATION	RB=1.	RB=1.	RB=1.	RB=1.	RB=1.	RB=1.	
	Offset=0.	Offset =0.					
	BW=1.4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz	BW = 15 MHz	BW = 20 MHz	
Maximum measured level at lowest Block Edge at antenna port (dBm)	-16.51	-22.8	-19.6	-21.37	-18.58	-21.13	
							
LTE QPSK MODULATION:	RB= All.	RB= All.	RB= All.	RB= All.	RB= All.	RB= All.	
	Offset=0.	Offset =0.					
	BW=1.4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz	BW = 15 MHz	BW = 20 MHz	
Maximum measured level at lowest Block Edge at antenna port (dBm)	-22.59	-17.97	-22.74	-22.74	-21.04	-24.04	
LTE QPSK MODULATION:	RB= 1.	RB= 1.	RB= 1.	RB= 1.	RB= 1.	RB= 1.	
	Offset=Max.	Offset=Max.	Offset=Max.	Offset=Max.	Offset=Max.	Offset=Max.	
	BW=1.4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz	BW = 15 MHz	BW = 20 MHz	
Maximum measured level at highest Block Edge at antenna port (dBm)	-21.39	-21.41	-18.47	-24.53	-21.98	-22.12	
				1			
LTE QPSK MODULATION:	RB= All.	RB= All.	RB= All.	RB= All.	RB= All.	RB= All.	
	Offset=0.	Offset =0.					
	BW=1.4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz	BW = 15 MHz	BW = 20 MHz	
Maximum measured level at highest Block Edge at antenna port (dBm)	-21.15	-22.54	-22.9	-23.93	-22.15	-24.55	



LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 1.4 MHz

Lowest Channel







LTE QPSK MODULATION. RB = 6. Offset = 0. BW = 1.4 MHz

Lowest Channel

Offset 11.00 dB - RBW 50 kHz Ref Level 39.50 dBm 45 dB 👄 SWT 1 s 👄 VBW 200 kHz Mode Auto Sweep Input 1 AC Att PS 01Rm View M1[1] -22.59 dBm 1.84999830 GHz 30 dBm-20 dBm-10 dBm-0 dBm -10 dBm-D1 -13.000 dBm--20 dBm--30 d8m--40 dBm--50 dBm-CF 1.85 GHz Span 2.0 MHz 600 pts





LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 3 MHz

Lowest Channel







LTE QPSK MODULATION. RB = 15. Offset = 0. BW = 3 MHz

Lowest Channel







LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 5 MHz

Lowest Channel







LTE QPSK MODULATION. RB = 25. Offset = 0. BW = 5 MHz

Lowest Channel

Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 100 kHz 45 dB 👄 SWT 1 s 👄 VBW 300 kHz Mode Auto Sweep Input 1 AC Att PS ⊙1Rm View M1[1] -22.74 dBm 1.84988500 GHz 30 dBm-20 dBm-10 dBm· 0 dBm--10 dBm-D1 -13.000.dBm-M1 -20 dBm-. -30 dBm--40 dBm--50 dBm-CF 1.85 GHz Span 2.0 MHz 600 pts





LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 10 MHz

Lowest Channel







LTE QPSK MODULATION. RB = 50. Offset = 0. BW = 10 MHz

Lowest Channel

Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 100 kHz 45 dB 👄 SWT 1 s 👄 VBW 300 kHz Mode Auto Sweep Input 1 AC Att PS o1Rm View M1[1] -22.74 dBm 1.84999830 GHz 30 dBm 20 dBm 10 dBm-0 dBm--10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm--50 dBm· CF 1.85 GHz 600 pts Span 2.0 MHz





LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 15 MHz

Lowest Channel

Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 200 kHz 45 dB 👄 SWT Mode Auto Sweep Input 1 AC Att 1 s 👄 VBW 1 MHz PS 01Rm View M1[1] -18.58 dBm 1.84999830 GHz 30 dBm· 20 dBm-10 dBm· 0 dBm--10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm--50 dBm-Span 2.0 MHz CF 1.85 GHz 600 pts





LTE QPSK MODULATION. RB = 75. Offset = 0. BW = 15 MHz

Lowest Channel

Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 200 kHz 45 dB 👄 SWT Att 1 s 👄 VBW 1 MHz Mode Auto Sweep Input 1 AC PS ⊖1Rm View M1[1] 21.04 dBm 1.84999830 GHz 30 dBm-20 dBm· 10 dBm-0 dBm--10 dBm-D1 -13.000 dBm--20 dBm -30 dBm--40 dBm--50 dBm-Span 2.0 MHz CF 1.85 GHz 600 pts





LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 20 MHz

Lowest Channel







LTE QPSK MODULATION. RB = 100. Offset = 0. BW = 20 MHz

Lowest Channel

Ref Level 39.50 dBm Offset 11.00 dB - RBW 200 kHz 45 dB 👄 SWT 1 s 👄 VBW 1 MHz Mode Auto Sweep Input 1 AC Att PS o1Rm View M1[1] -24.04 dBm 1.84999500 GHz 30 dBm-20 dBm-10 dBm-0 dBm--10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm--50 dBm-CF 1.85 GHz 600 pts Span 2.0 MHz

Highest Channel

Ref Level 39.50 dBm Offset 11.00 dB 👄 RBW 200 kHz Att 45 dB 🖷 SWT 1 s 👄 VBW 1 MHz Mode Auto Sweep Input 1 AC PS ⊖1Rm View -24.55 dBm 1.91003830 GHz M1[1] 30 dBm-20 dBm-10 dBm 0 dBm -10 dBm D1 -13,000 dBm -20 dBm-**М**І Т -30 dBm -40 dBm--50 dBm CF 1.91 GHz 600 pts Span 2.0 MHz



TEST C.7: RADIATED EMISSIONS								
	Product standard:	FCC Part 24 / IC RSS-133						
LIMITS:	Test standard:	FCC §2.1053 and §24.238 /RSS-133 Clause 6.6						
LIMITS According to specificat factor of at least 43 + 1 At Po transmitting pow the level in dBm relativ Po (dBm) – [43 + 10 lo	<u>LIMITS</u> According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. P in watts. At Po transmitting power of 2 watts (33 dBm), the specified minimum attenuation becomes 43+10log (Po). and the level in dBm relative to Po becomes: Po (dBm) – [43 + 10 log (Po in watts)] = -13 dBm							
TEST S	ETUP							
The measurement was MHz to at least the 10t The EUT was placed measurements below 1 Detected emissions we height and polarization Radiated measuremen	s performed with the E h harmonic of the high d on a non-conductive I GHz and at 1-meter of ere maximized at each . The maximum reading ts < 1GHz	EUT inside an anechoic chamber. The spectrum was scanned from 30 nest frequency generated within the equipment. ive stand at a 3-meter distance from the measuring antenna for distance for measurements above 1 GHz. h frequency by rotating the EUT and adjusting the measuring antenna ng was recorded.						
Radiated measuremen	ts > 1GHz	Boresight Antenna tower Horn antenna spectrum analyzer Im Jocom Control room						



TESTED					S/01	
TESTED CONL				I C#01		
TEST R	RESULTS:				PASS	
RESULTS						
A preliminary scan de Blocks which is the wo	etermined the QP orst case for cond	SK 20 MH ucted powe	z bandv r was us	width as the wo sed.	rst case. The config	uration of Resource
The following plots she	ow the results for	this configu	ration.			
No spurious signal wa	as found at less the	an 20dB res	spect to	the limit in all th	e frequency ranges.	
LTE OPSK MODULAT	TION RB = 1 Off	set = 0 BW	/ = 20 M	Hz		
			20 11			
TEST RESU	JLTS (Cont):				Low Channel	
FREQUENCY RANGE	E: <u>30-1000 MHz</u>	·				
	Frequency (MHz)	PK+_CLI (dBn	RWR n)	PK+_MAXH (dBm)	Comment	
	31.713667		-64.36	-59.58		
	995.602667		-53.88	-48.22		
	∩					
	-10-					
	-10			IX limits to Spu	rious Emissions FCC22, 24, 27	
	-20-					
	-30 +					
	≥ -50 + 					
	-60			Name of the other states		
	-70 -	المراجع المراجع مراجع المراجع ال مراجع المراجع ا	na laga di sana Tina ang tidukan			
	-80 -					
	30M 50	60 80 100	IM Even		400 500 800 1G	
	РК+ МАХН			TX limits to Sour	ious Emissions ECC22 24 27	
		rkt_olf	(9917)	i A minis to Spu	1043 E MISSIONS F CC22, 24, 27	



Low Channel

FREQUENCY RANGE: 1-18 GHz

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Comment
1858.500000	8.50	25.05	
1939.500000	-46.68	-40.75	Fundamental
2971.500000	-45.44	-39.14	
6973.000000	-42.29	-35.41	
10305.500000	-51.31	-43.47	
17942.000000	-42.96	-38.37	









TEST RESULTS(Cont.):	Middle Channel
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FREQUENCY RANGE: 30-1000 MHz

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Comment
30.711333	-63.16	-58.80	
963.269333	-54.39	-48.29	





Middle Channel

FREQUENCY RANGE: 1-18 GHz

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Comment
1878.500000	6.73	26.10	
1960.000000	-43.74	-40.19	Fundamental
2949.500000	-44.47	-40.44	
6977.000000	-41.15	-36.49	
13686.000000	-46.53	-40.01	
17988.500000	-44.02	-37.75	









TEST RESULTS(Cont.):			High Channel		
REQUENCY RANGE: 30	<u>0-1000 MHz</u>				
F	Frequency	PK+_CLRWR	PK+_MAXH	Comment	
	30.517333	-63.38	-59.67		
	982.669333	-53.39	-48.80		
	0 -10 -20 -30 -40 -50 -60 -60 -70 -70 -80 -70 -70 -70 -70 -70 -70 -70 -7	s Emissions FCC22, 24, 27 0106_LR_30-1000MHz_Ban	TX limits to Spurious 200 300 400 juency in Hz d2_Hiqh_1900MHz	Emissions FCC22, 24, 27	



High Channel

FREQUENCY RANGE: 1-18 GHz

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Comment
1899.000000	5.15	25.68	
1980.500000	-43.22	-40.71	Fundamental
2957.000000	-43.07	-40.38	
6879.000000	-40.64	-35.72	
13064.000000	-44.94	-40.60	
16334.000000	-45.19	-39.90	





