

Lowest Channel -26dBc Bandwidth kHz

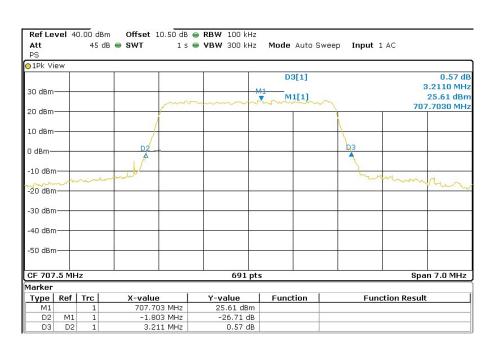


Middle Channel 99% Occupied Bandwidth

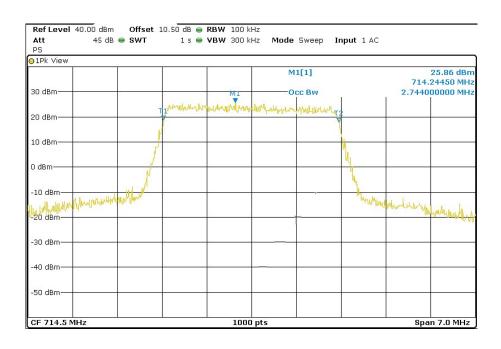




Middle Channel -26dBc Bandwidth kHz



Highest Channel 99% Occupied Bandwidth





TEST RESULTS (Cont): Highest Channel -26dBc Bandwidth kHz Ref Level 40.00 dBm Offset 10.50 dB @ RBW 100 kHz 45 dB 👄 SWT 1 s 🍛 **VBW** 300 kHz Mode Auto Sweep Input 1 AC Att 1Pk View D2[1] -456.0 kHz 30 dBm-M1[1] 26.14 dBm 713.3550 MHz 20 dBm-10 dBm-0 dBm--10 dBmbrundy. -20 dBm--30 dBm--40 dBm -50 dBm-Span 7.0 MHz CF 714.5 MHz 691 pts Marker Type | Ref | Trc | X-value Y-value Function **Function Result**

713.355 MHz

-456.0 kHz

LTE 16QAM MODULATION. BW = 3 MHz

D2 M1

D2

Lowest Channel 99% Occupied Bandwidth



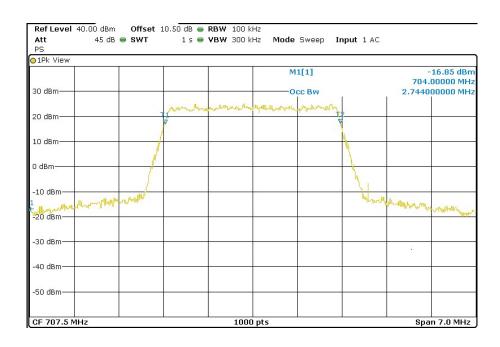
26.14 dBm

-27.67 dB 0.07 dB





Middle Channel 99% Occupied Bandwidth





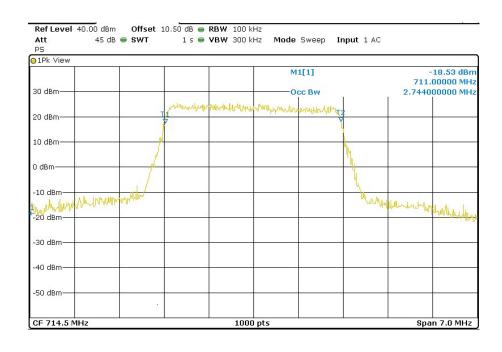
TEST RESULTS (Cont): Middle Channel -26dBc Bandwidth kHz Ref Level 40.00 dBm Offset 10.50 dB @ RBW 100 kHz 45 dB 👄 SWT 1 s 🍛 **VBW** 300 kHz Att Mode Auto Sweep Input 1 AC ●1Pk View D3[1] -0.21 dB 3.1710 MHz 30 dBm-M1[1] 25.22 dBm 707.3890 MHz 20 dBm-10 dBm-0 dBm--20 dBm--30 dBm--40 dBm--50 dBm-Span 7.0 MHz

Type | Ref | Trc | X-value Y-value Function **Function Result** 707.389 MHz 25.22 dBm M1 -26.02 dB D2 -1.489 MHz D3 D2 3.171 MHz -0.21 dB

691 pts

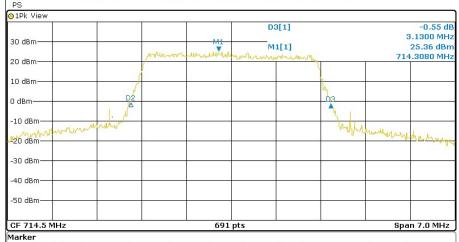
Highest Channel 99% Occupied Bandwidth

CF 707.5 MHz





TEST RESULTS (Cont): Highest Channel -26dBc Bandwidth kHz Ref Level 40.00 dBm Offset 10.50 dB RBW 100 kHz Att 45 dB SWT 1 s VBW 300 kHz Mode Auto Sweep Input 1 AC PS 1 Pk View



 Marker

 Type Ref Trc
 X-value
 Y-value
 Function
 Function Result

 M1
 1
 714.308 MHz
 25.36 dBm
 25

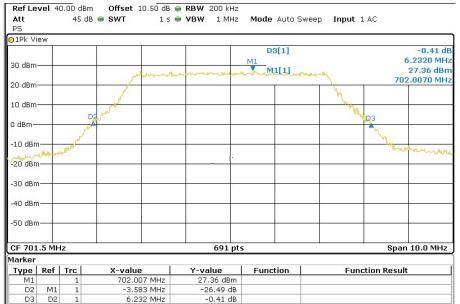
LTE QPSK MODULATION. BW = 5 MHz

Lowest Channel 99% Occupied Bandwidth

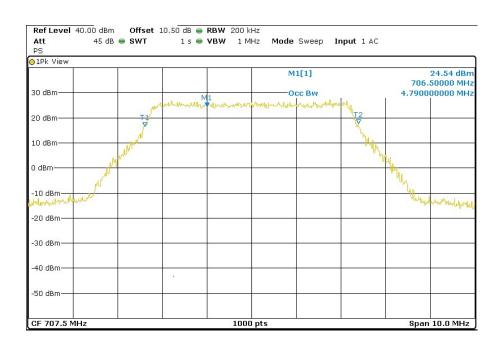




TEST RESULTS (Cont): Lowest Channel -26dBc Bandwidth kHz



Middle Channel 99% Occupied Bandwidth

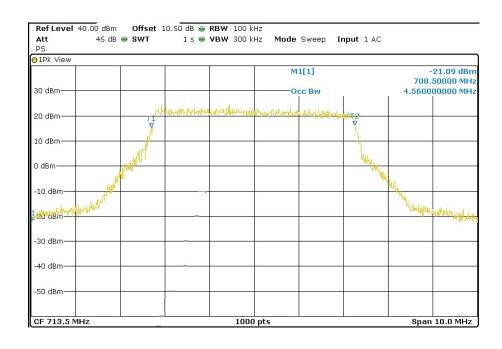




TEST RESULTS (Cont): Middle Channel -26dBc Bandwidth kHz Offset 10.50 dB e RBW 200 kHz Ref Level 40.00 dBm 45 dB **⊜ SWT** 1 s **• VBW** 1 MHz Att Mode Auto Sweep Input 1 AC ○1Pk View D2[1] -27.50 dB -5.0360 MHz 30 dBm-M1[1] 27.17 dBm malwhile 709.4250 MHz 20 dBm-10 dBm

-50 dBm-Span 10.0 MHz CF 707.5 MHz 691 pts Marker Type | Ref | Trc Function **Function Result** Y-value X-value 709.425 MHz 27.17 dBm D2 D3 М1 -5.036 MHz -27.50 dB D2 6.243 MHz 0.90 dB

Highest Channel 99% Occupied Bandwidth





TEST RESULTS (Cont): Highest Channel -26dBc Bandwidth kHz Ref Level 40.00 dBm Offset 10.50 dB @ RBW 200 kHz 45 dB 🅌 SWT 1 s 🍩 **VBW** 1 MHz Mode Auto Sweep Input 1 AC Att 1Pk View D3[1] 6.0930 MHz 30 dBm-M1[1] 27.37 dBm 711.7920 MHz 20 dBm 10 dBm-0 dBm--10 dBm--20 dBm -40 dBm--50 dBm-Span 10.0 MHz

691 pts

Function

Function Result

Y-value

27.37 dBm

-27.05 dB

0.22 dB

LTE 16QAM MODULATION. BW = 5 MHz

M1 D2

CF 713.5 MHz

M1

X-value

711.792 MHz -1.375 MHz

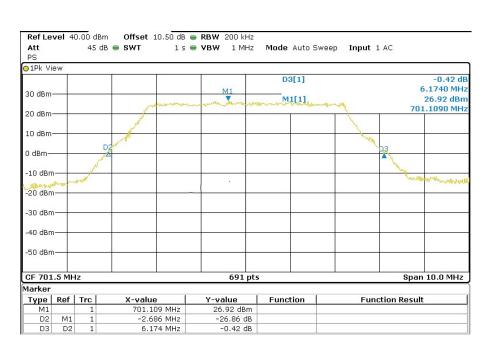
Marker Type | Ref | Trc |

Lowest Channel 99% Occupied Bandwidth

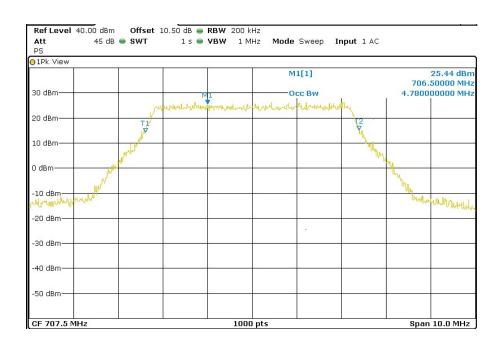




Lowest Channel -26dBc Bandwidth kHz

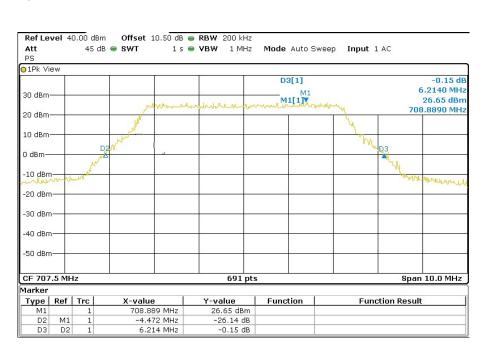


Middle Channel 99% Occupied Bandwidth

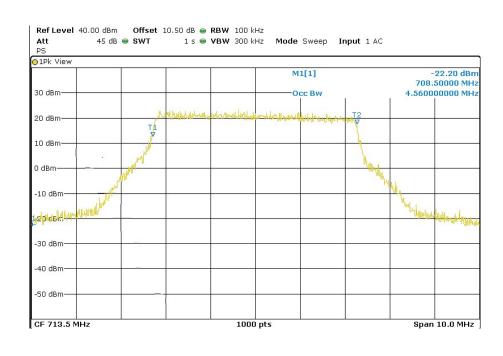




Middle Channel -26dBc Bandwidth kHz

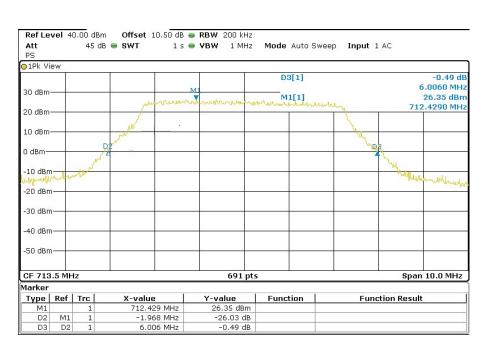


Highest Channel 99% Occupied Bandwidth



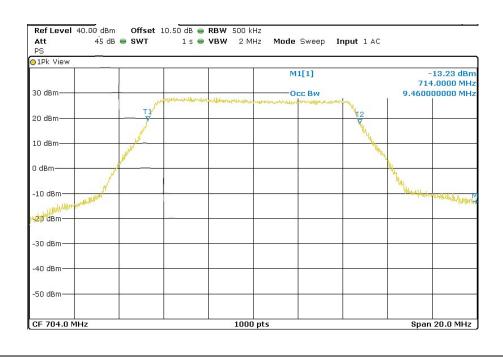


Highest Channel -26dBc Bandwidth kHz



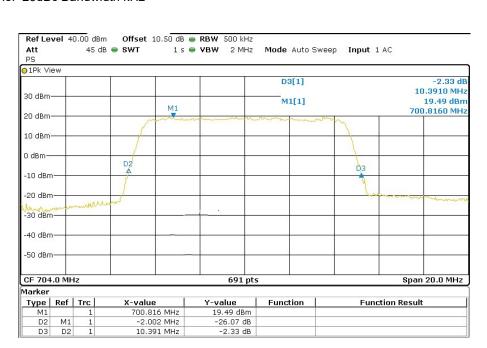
LTE QPSK MODULATION. BW = 10 MHz

Lowest Channel 99% Occupied Bandwidth

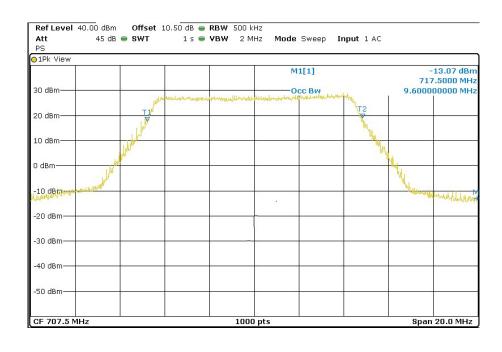




Lowest Channel -26dBc Bandwidth kHz



Middle Channel 99% Occupied Bandwidth

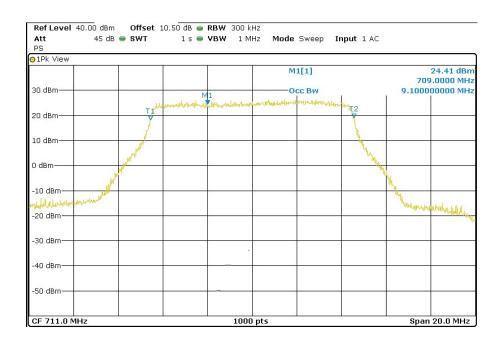




Middle Channel -26dBc Bandwidth kHz

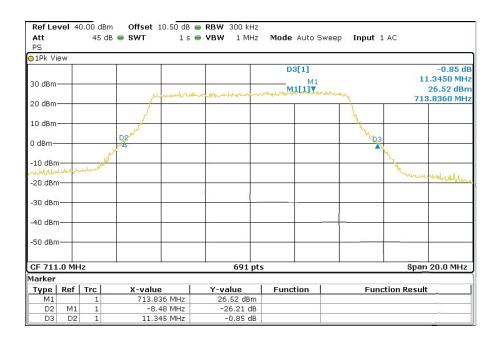


Highest Channel 99% Occupied Bandwidth



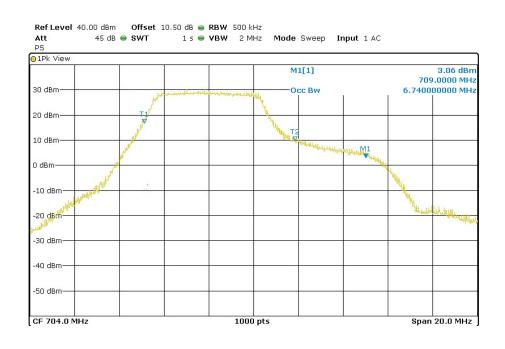


Highest Channel -26dBc Bandwidth kHz



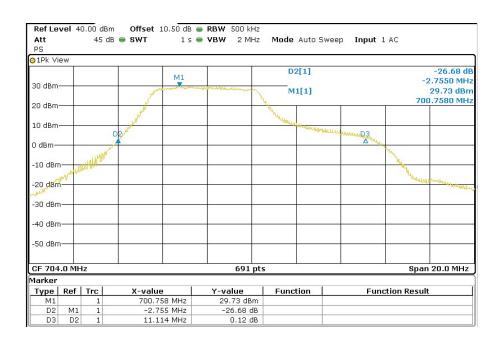
LTE 16QAM MODULATION. BW = 10 MHz

Lowest Channel 99% Occupied Bandwidth

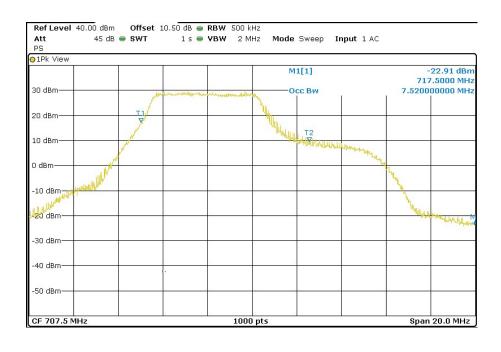




Lowest Channel -26dBc Bandwidth kHz

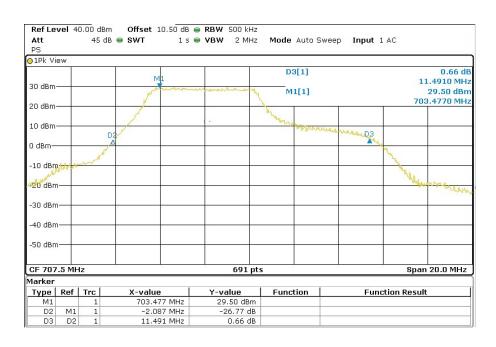


Middle Channel 99% Occupied Bandwidth

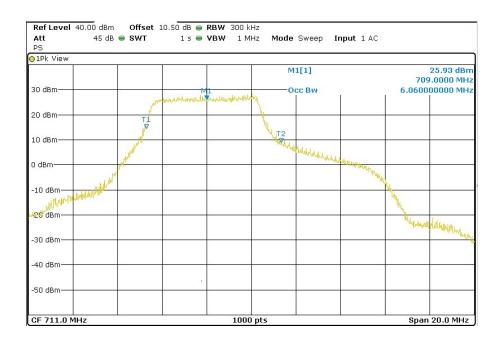




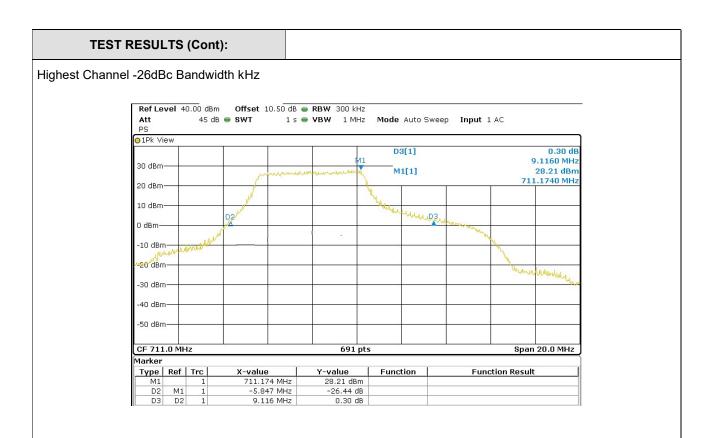
Middle Channel -26dBc Bandwidth kHz



Highest Channel 99% Occupied Bandwidth









TEST A.5: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

LIMITS:	Product standard:	FCC Part 27 / IC RSS-130
LIMITS.	Test standard:	FCC §2.1051 and § 27.53/ RSS-130 Clause 4.7

LIMITS

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

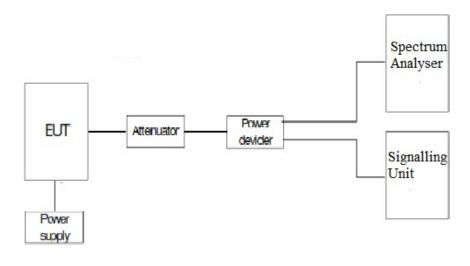
TEST SETUP

The EUT RF output connector was connected to a spectrum analyzer and to the Universal Radio Communication Tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using a 50-ohm attenuator and a power splitter.

The spectrum was investigated from 9 kHz to 18 GHz for LTE Band XII.

The reading of the spectrum analyzer is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyzer.

For LTE mode the configuration of Resource Blocks and modulation which is the worst case for conducted power was used.





TESTED SAMPLES:	S/01	
TESTED CONDITIONS MODES:	TC#01	
TEST RESULTS:	PASS	

Frequency range 9 kHz - 18 GHz

LTE OPSK MODULATION, BW = 1.4 MHz

Lowest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Middle Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Highest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

LTE QPSK MODULATION. BW = 3 MHz

Lowest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Middle Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Highest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

LTE QPSK MODULATION. BW = 5 MHz

Lowest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Middle Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Highest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

LTE QPSK MODULATION. BW = 10 MHz

Lowest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

Middle Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

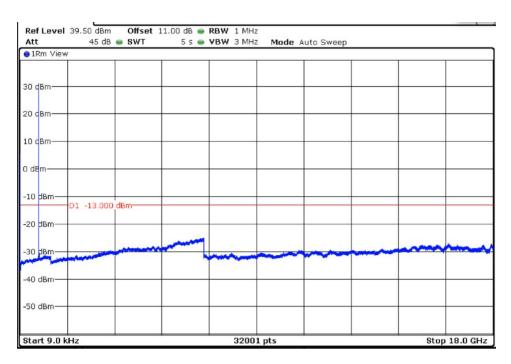
Highest Channel

No spurious signal was found at less than 20dB respect to the limit in the frequency range.

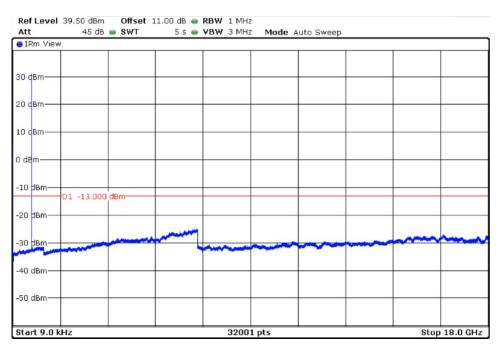


LTE QPSK MODULATION. BW = 1.4MHz

Lowest Channel

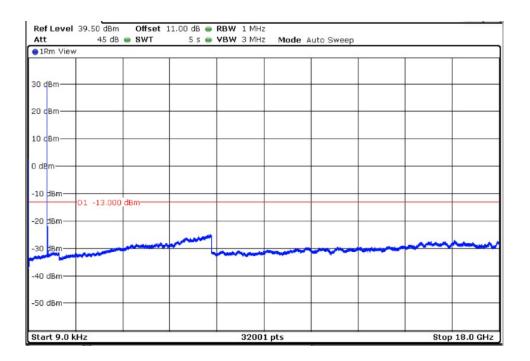


Middle Channel



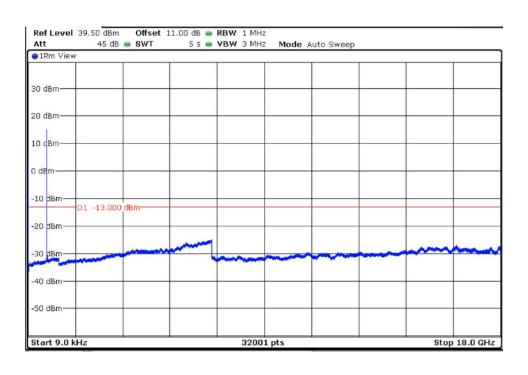


Highest Channel



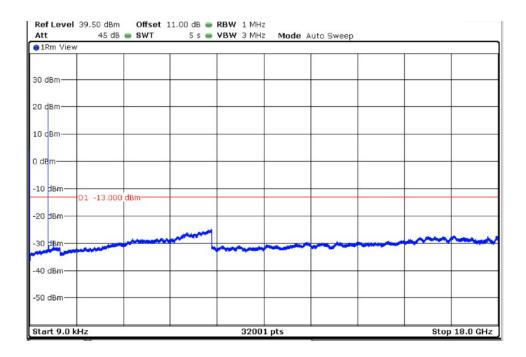
LTE QPSK MODULATION. BW = 3 MHz

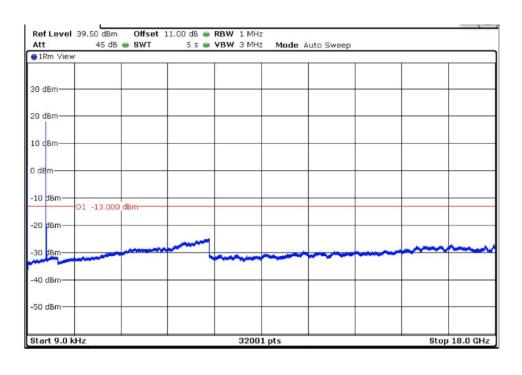
Lowest Channel





Middle Channel

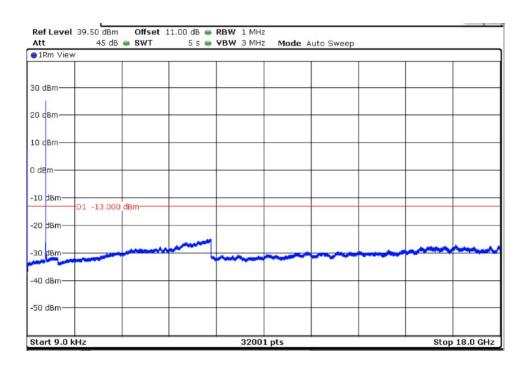




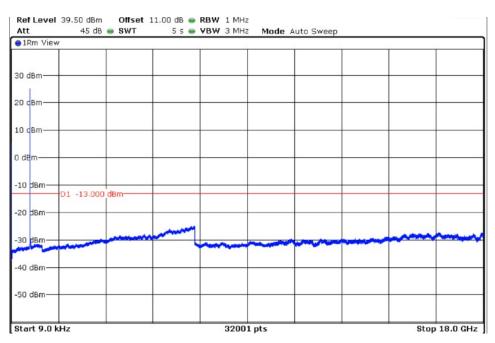


LTE QPSK MODULATION. BW = 5 MHz

Lowest Channel

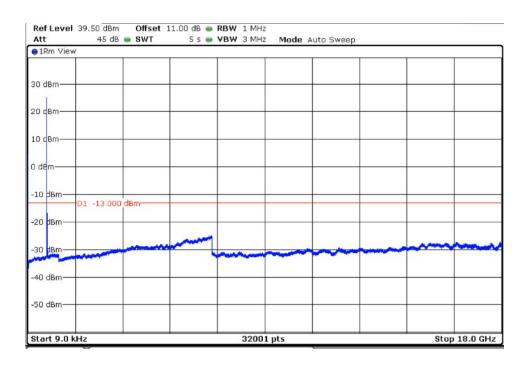


Middle Channel



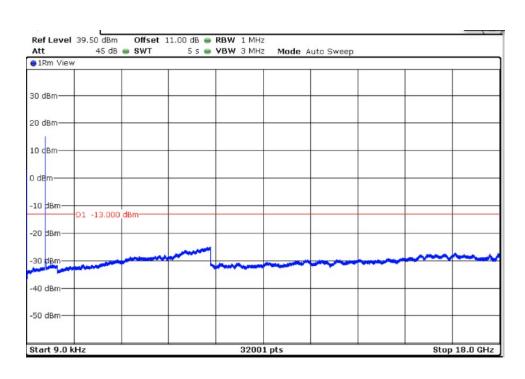


Highest Channel



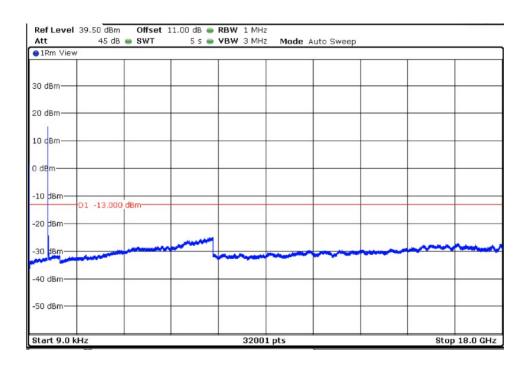
LTE QPSK MODULATION. BW = 10 MHz

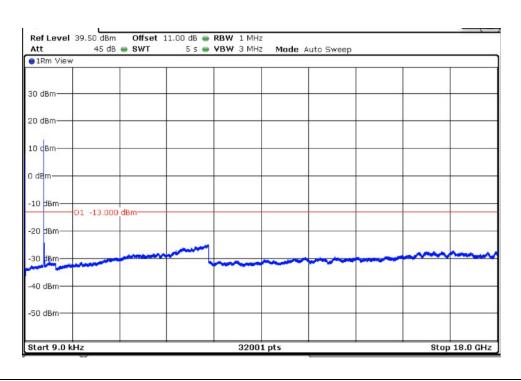
Lowest Channel





Middle Channel







TEST A.6: SPURIOUS EMISSIONS AT ANTENNA TERMINALS AT BLOCK EDGES

LIMITO	Product standard:	FCC Part 27 / IC RSS-130
LIMITS:	Test standard:	FCC § 27.53 / RSS-130 Clause 4.7

LIMITS

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

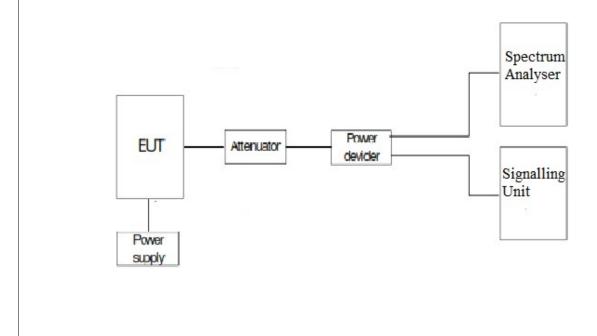
TEST SETUP

The EUT RF output connector was connected to a spectrum analyzer and to the Universal Radio Communication tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using a 50 ohm attenuator and a power splitter.

The reading of the spectrum analyzer is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyzer.

For LTE mode the configuration of modulation which is the worst case for conducted power was used.

As indicated in FCC part 27.53 (h) (3), in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block or band, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.





TESTED SAMPLES:	S/01	
TESTED CONDITIONS MODES:	TC#01	
TEST RESULTS:	PASS	

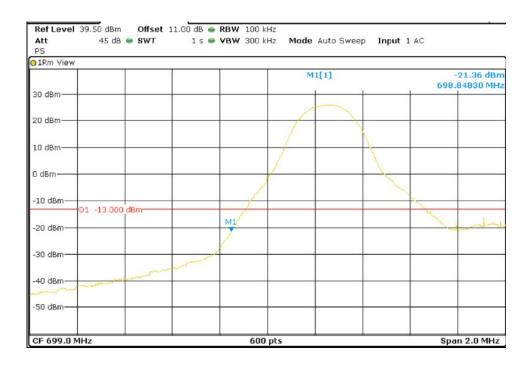
TESTED CONDITIONS MODI	TC#01				
TEST RESULTS:	PASS				
LTE QPSK	RB=1		RB=1	RB=1.	RB=1
MODULATION	Offset =0		Offset =0	Offset =0	Offset =0
	BW = 1.4 MHz		BW = 3 MHz	BW = 5 MHz	BW = 10 MHz
Maximum measured level at lowest Block Edge at antenna port (dBm)	-23.63		-22.97	-18.67	-16.03
				I	1
LTE QPSK	RB=6		RB=15	RB=25	RB=50
MODULATION	Offset =0		Offset =0	Offset =0	Offset =0
	BW = 1.4 MHz		BW = 3 MHz	BW = 5 MHz	BW = 10 MHz
Maximum measured level at lowest Block Edge at antenna port (dBm)	-21.3	36	-23.54	-17.74	-19.47
LTE QPSK	RB=	1	RB=1	RB=1	RB=1
MODULATION	Offset =Max		Offset =Max	Offset =Max	Offset =Max
	BW = 1.4	1 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz
Maximum measured level at Highest Block Edge at antenna port (dBm)	est Block Edge at -28.2		-19.39	-18.47	-23.39
LTE QPSK	RB=		RB=15	RB=25	RB=50
MODULATION	Offse		Offset =0	Offset =0	Offset =0
	BW = 1.	4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz
Maximum measured level at Highest Block Edge at	-26.	99	-26.87	-20.06	-23.64

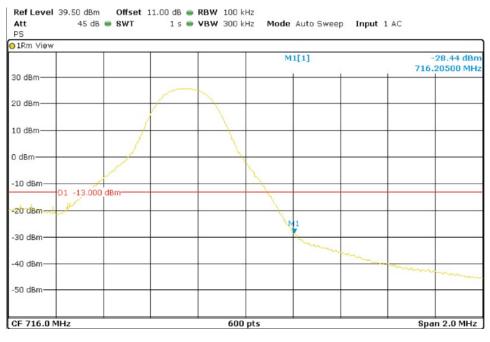
LTE QPSK	RB=6	RB=15	RB=25	RB=50
MODULATION	Offset =0	Offset =0	Offset =0	Offset =0
	BW = 1.4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz
Maximum measured level at Highest Block Edge at	-26.99	-26.87	-20.06	-23.64
antenna port (dBm)				



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

Lowest Channel

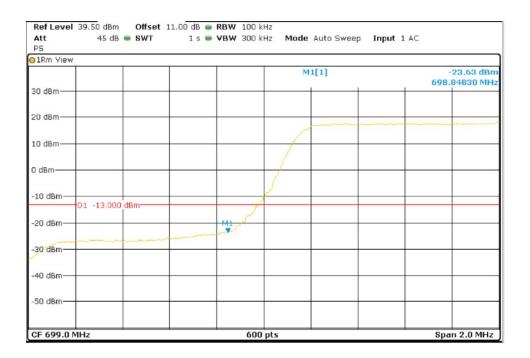


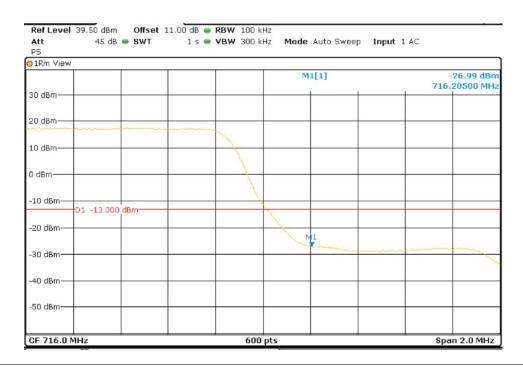




LTE QPSK MODULATION. RB = 6. Offset = 0. BW = 1.4 MHz

Lowest Channel

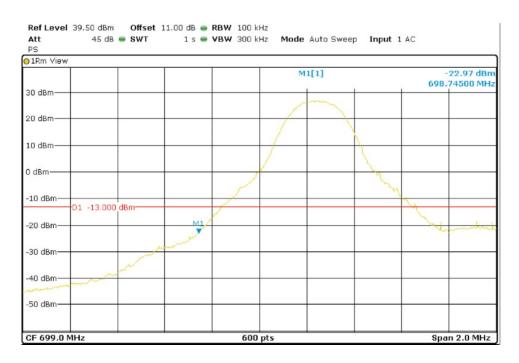


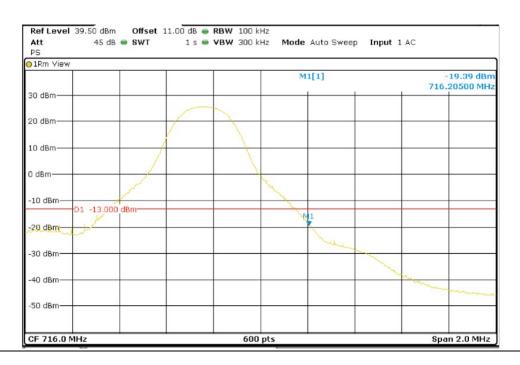




LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 3 MHz

Lowest Channel







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

Lowest Channel

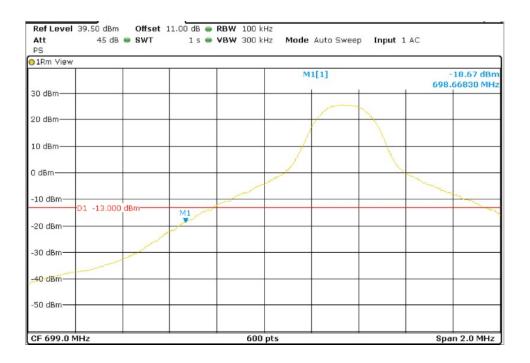






LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 5 MHz

Lowest Channel

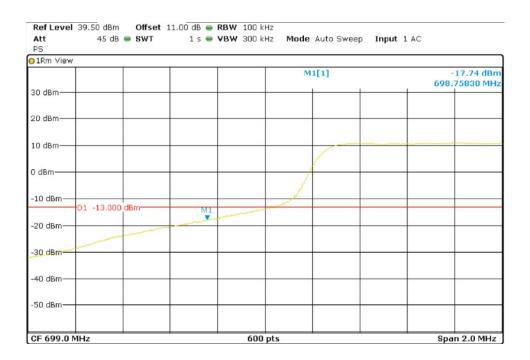






LTE QPSK MODULATION. RB = 25. Offset = 0. BW = 5 MHz

Lowest Channel

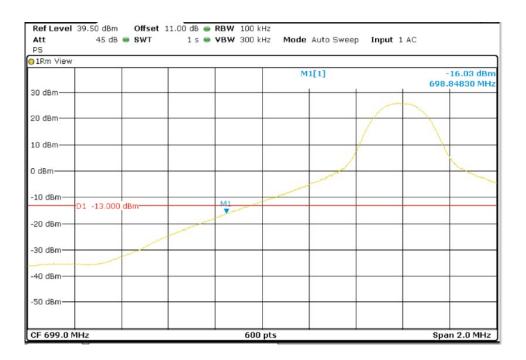






LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 10 MHz

Lowest Channel

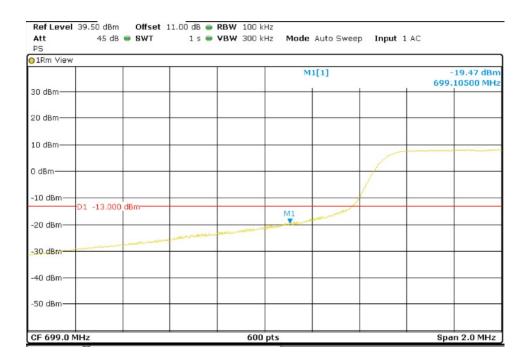


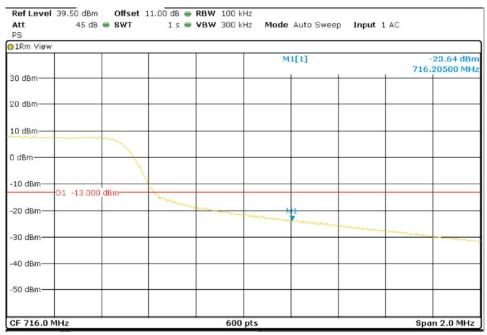




LTE QPSK MODULATION. RB = 50. Offset = 0. BW = 10 MHz

Lowest Channel







TEST A.7: RADIATED EMISSIONS

_	Product standard:	FCC Part 27 / IC RSS-130
LIMITS:	Test standard:	FCC §2.1053 and §27.53 / RSS-130 Clause 4.7

LIMITS

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

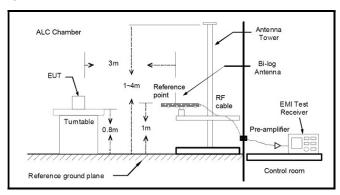
TEST SETUP

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

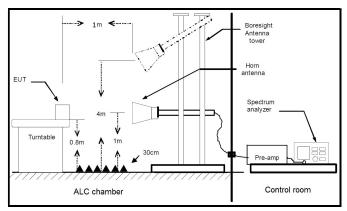
The EUT was placed on a non-conductive stand at a 3-meter distance from the measuring antenna for measurements below 1 GHz and at 1-meter distance for measurements above 1 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum reading was recorded.

Radiated measurements < 1GHz



Radiated measurements > 1GHz





TESTED SAMPLES:	S/01	
TESTED CONDITIONS MODES:	TC#01	
TEST RESULTS:	PASS	

RESULTS

A preliminary scan determined the QPSK 5 MHz bandwidth as the worst case. The configuration of Resource Blocks which is the worst case for conducted power was used.

The following plots show the results for this configuration.

No spurious signal was found at less than 20dB respect to the limit in all the frequency ranges.

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

Low Channel:

FREQUENCY RANGE: 30-1000 MHz

Frequency	PK+_CLRWR	PK+_MAXH	Comment
(MHz)	(dBm)	(dBm)	
78.532333	-65.08	-53.76	
700.076000	-8.47	12.62	Fundamental
732.474000	-40.67	-32.56	

