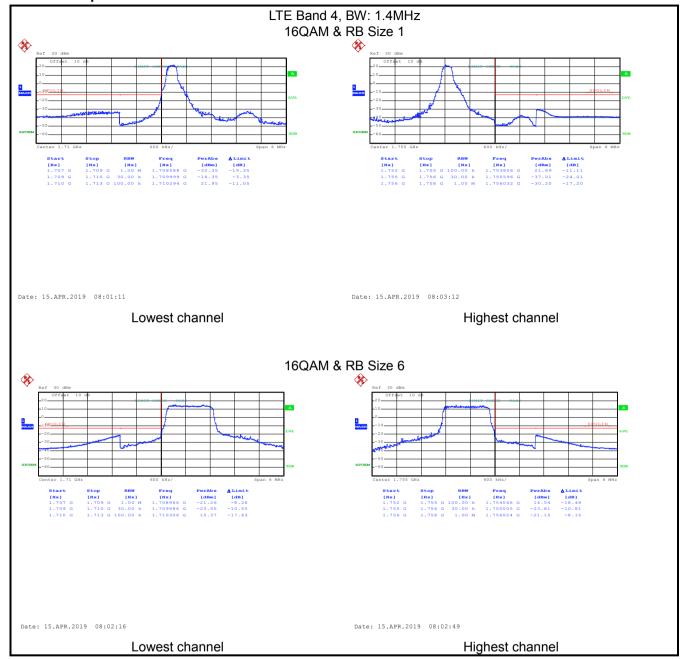


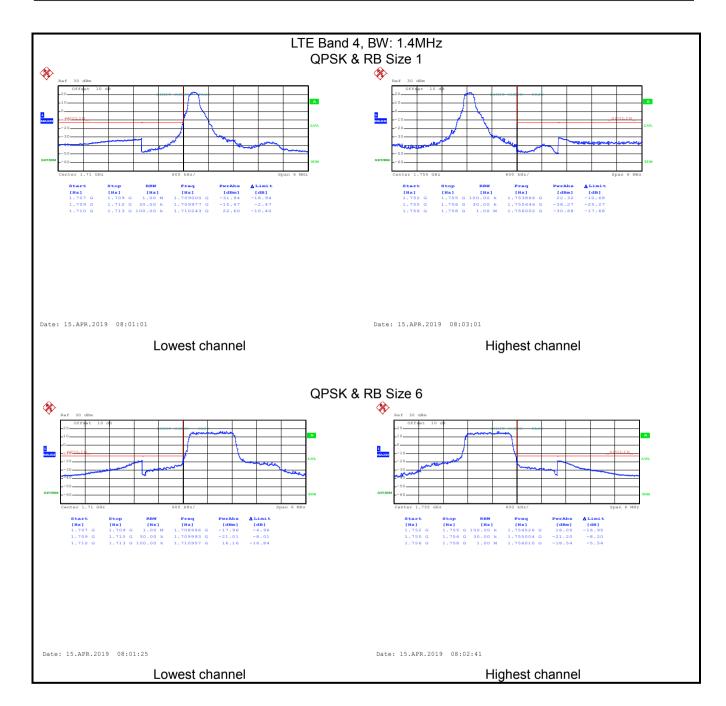


Band edge emission:

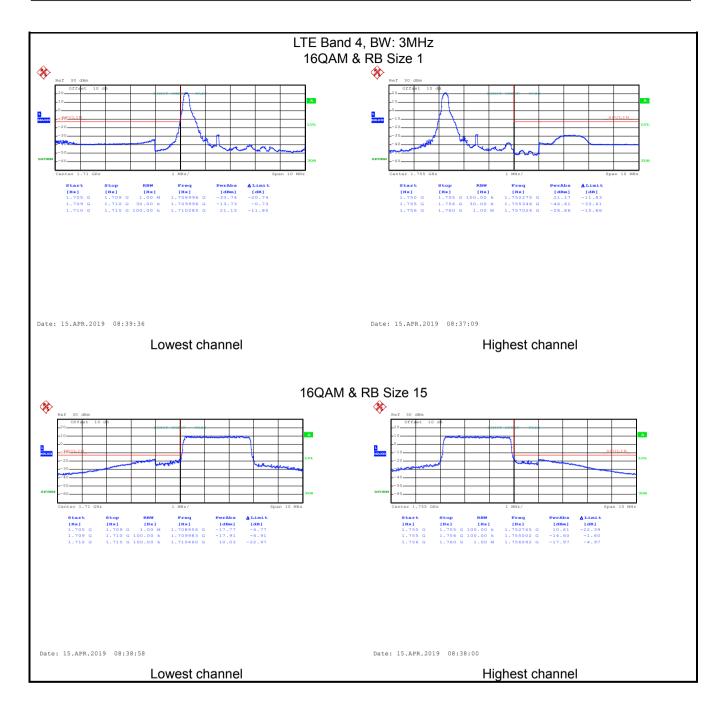
LTE Band 4 part:



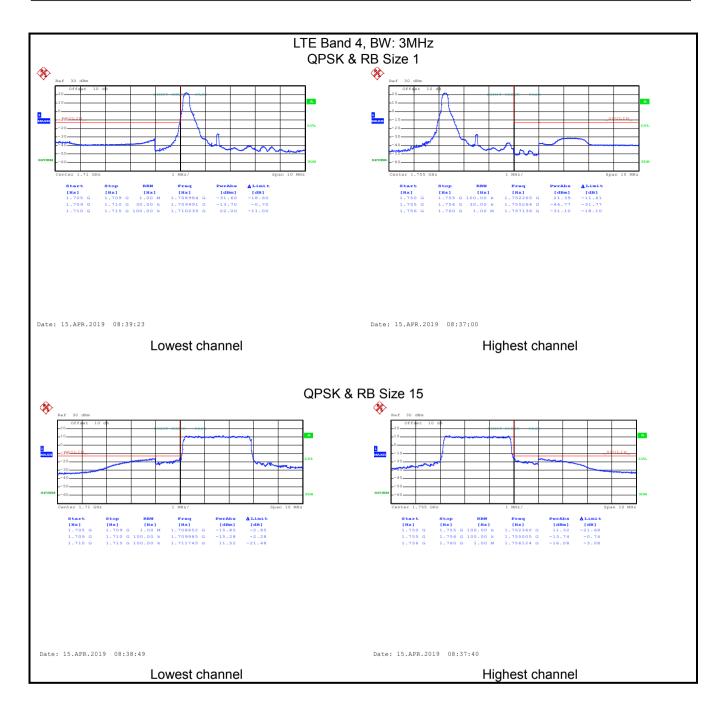




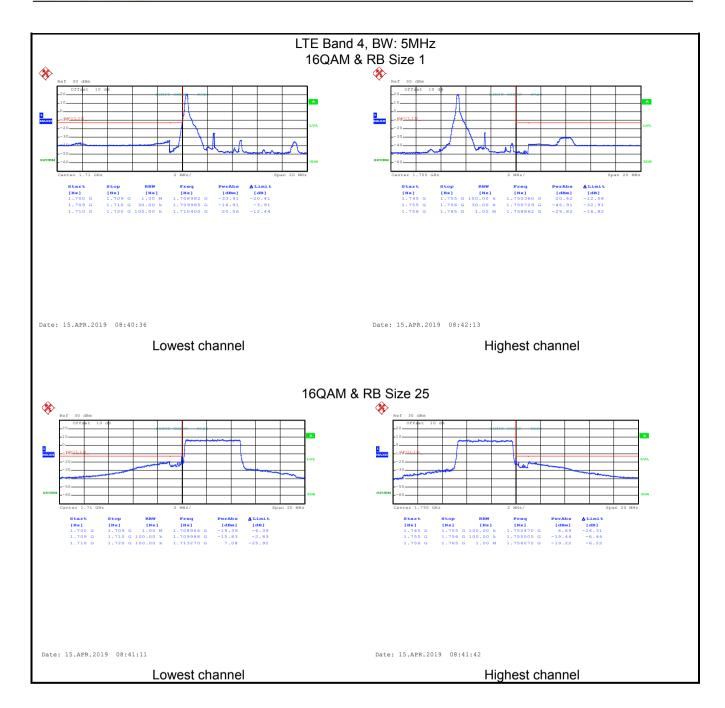




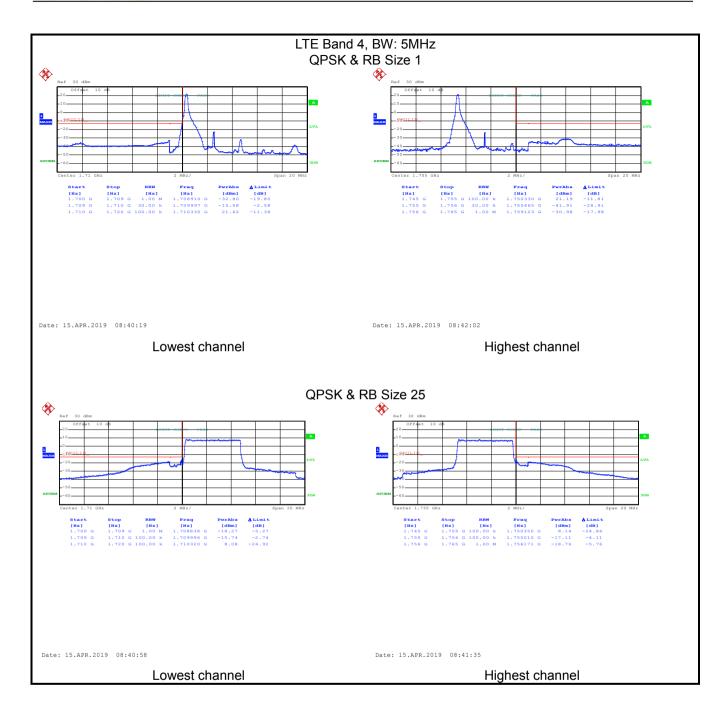




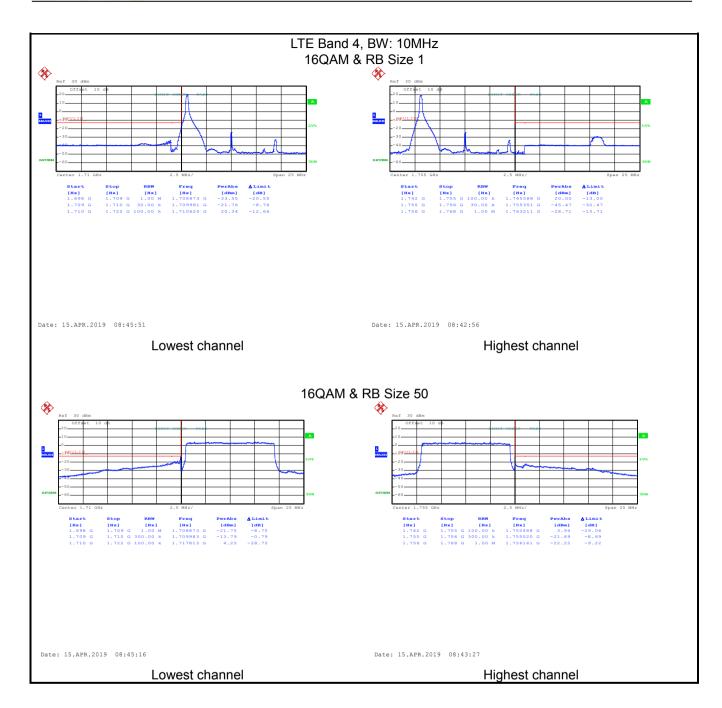




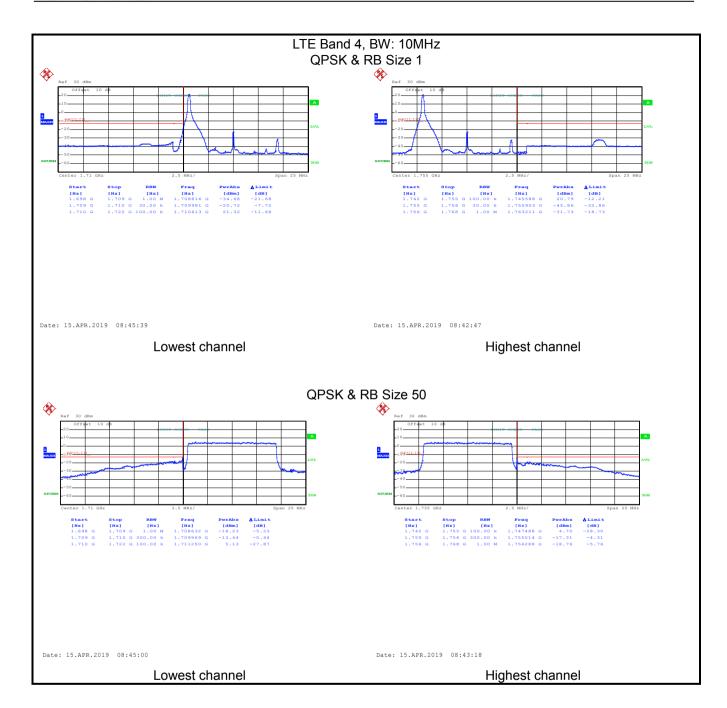




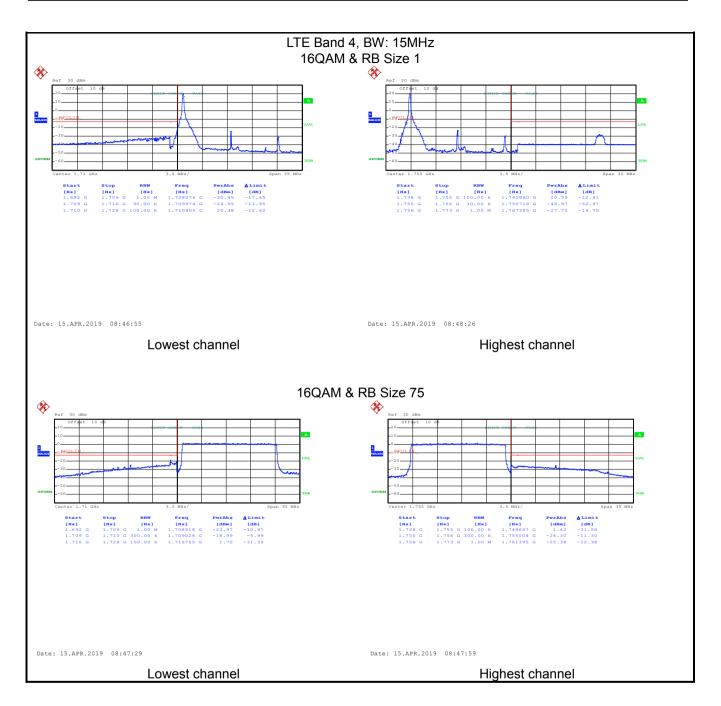




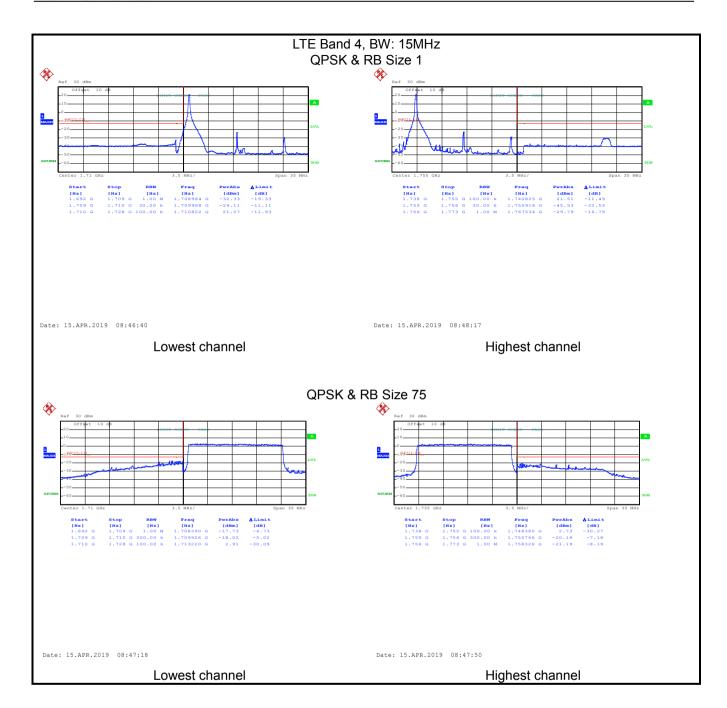




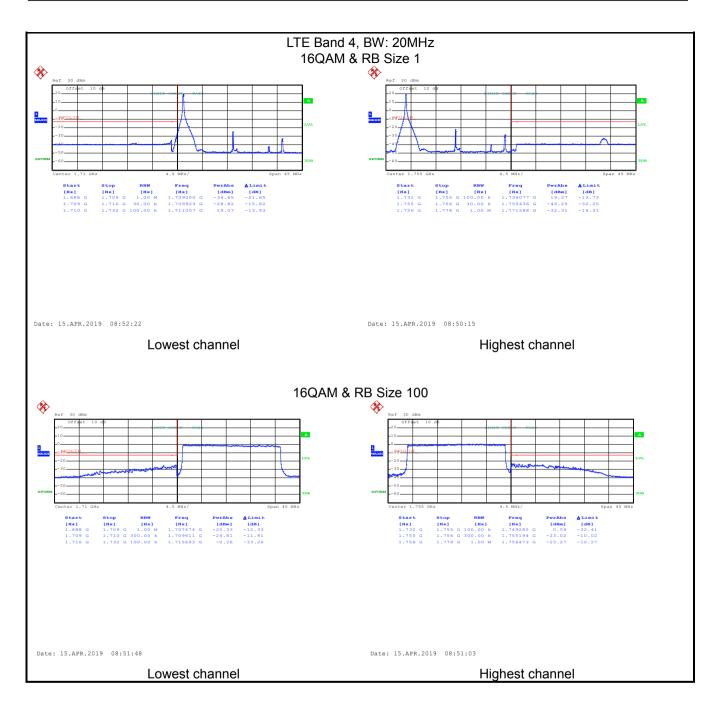




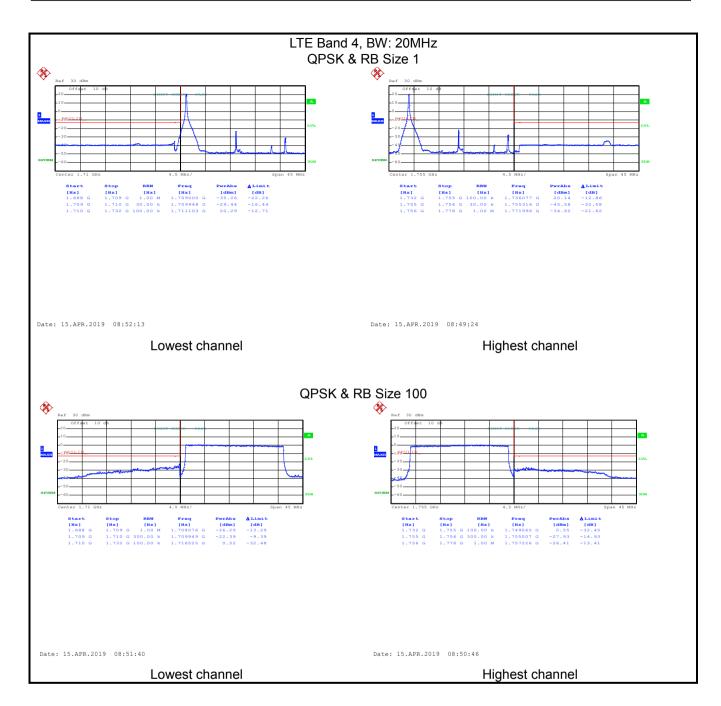






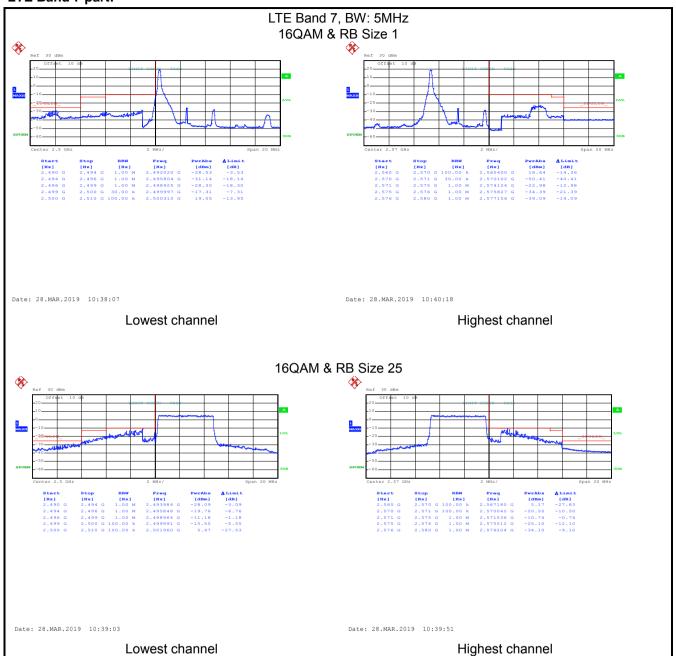




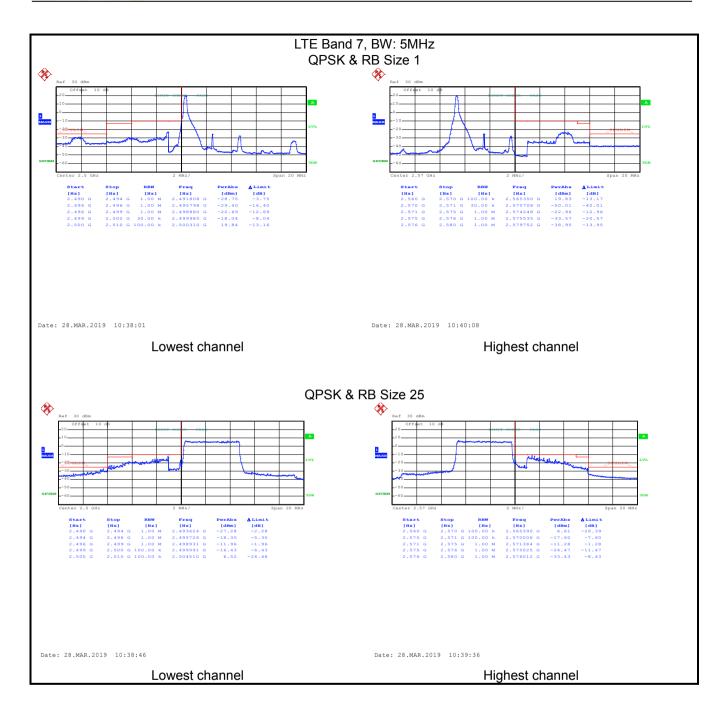




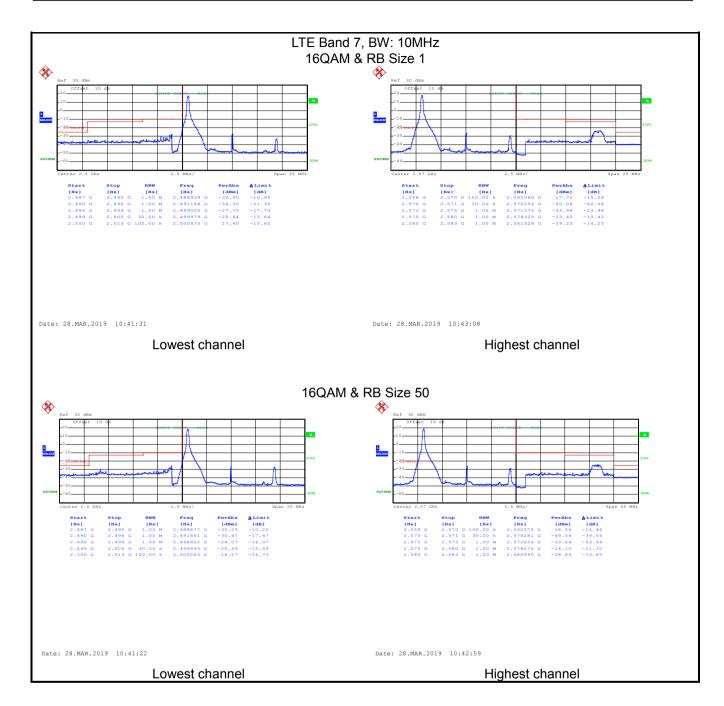
LTE Band 7 part:



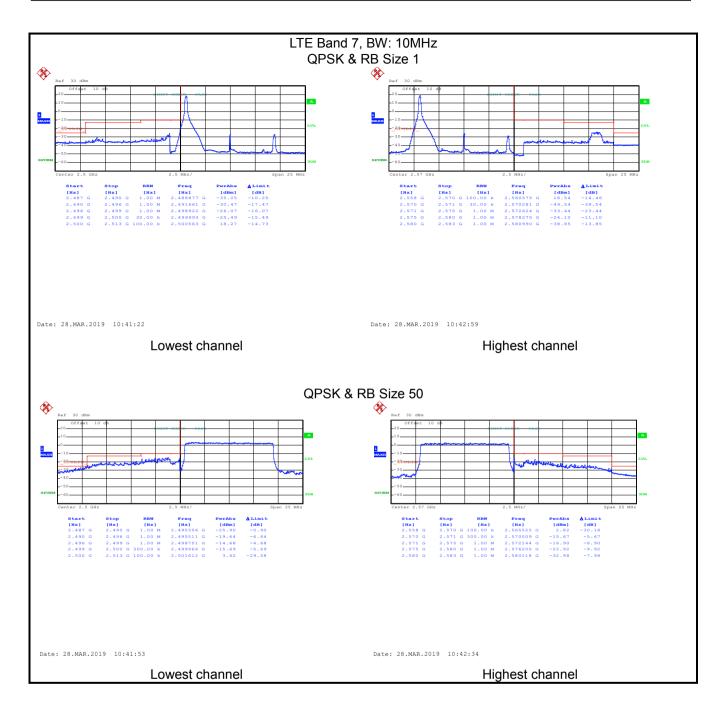




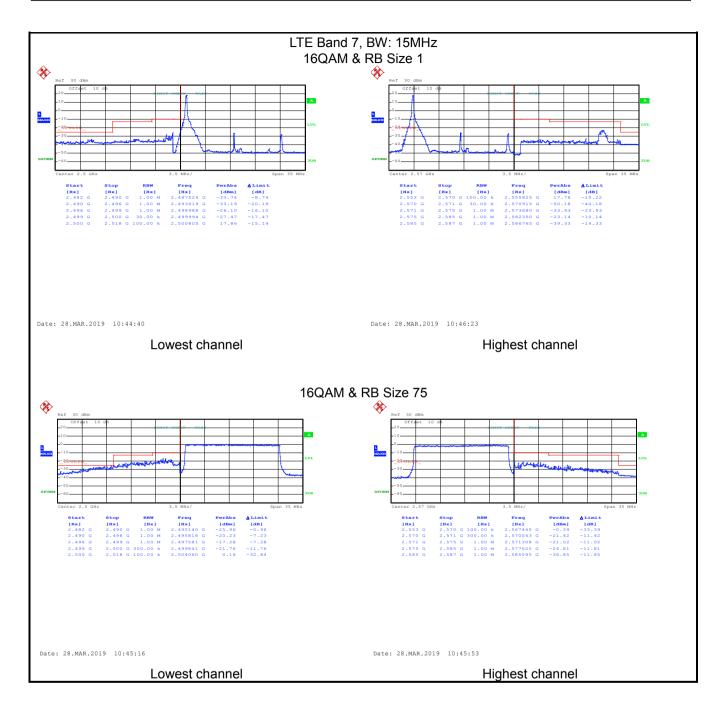




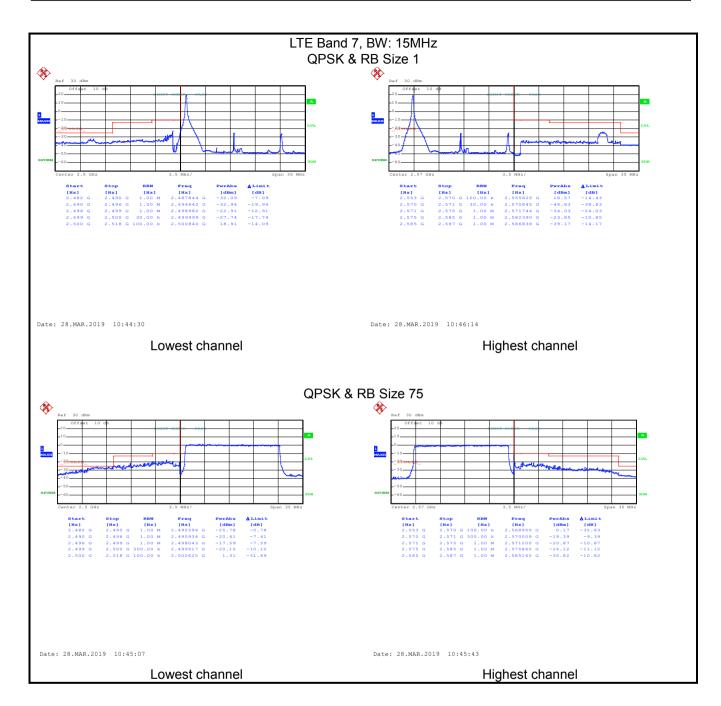




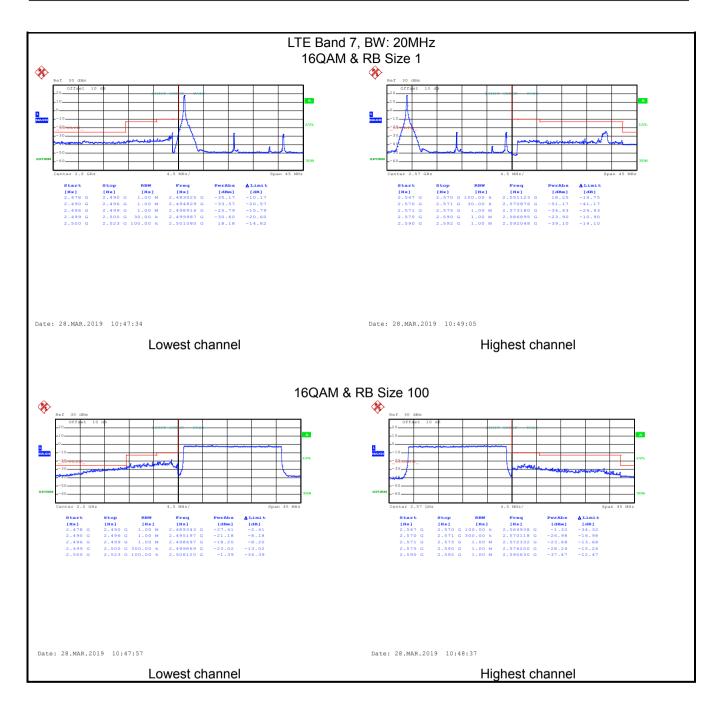




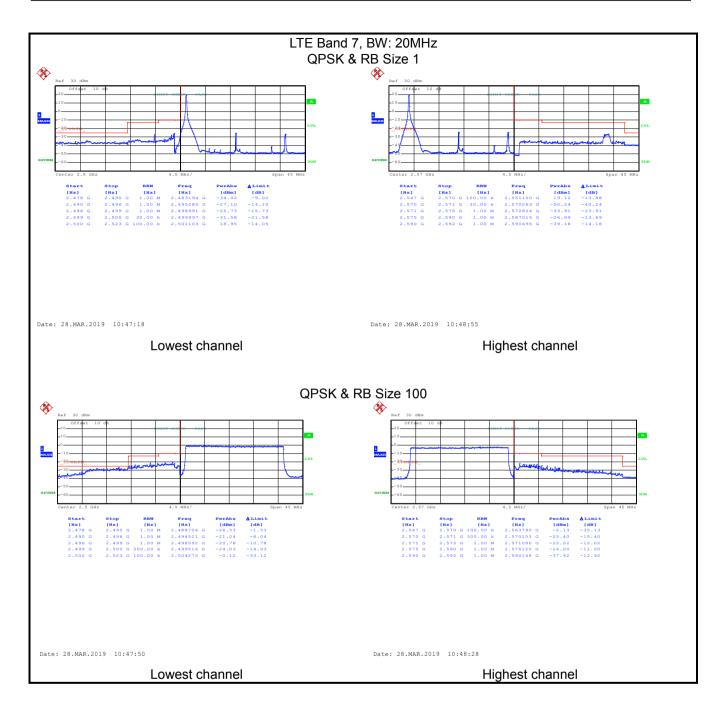














6.5 Field strength of spurious radiation measurement

Test Requirement:	Part 27.53(m), Part 27.53(h)
Test Method:	ANSI/TIA-603-D 2010
Limit:	LTE Band 4: 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 (-13 dBm). LTE Band 7: 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.
Test setup:	Above 1GHz Antenna Tower Test Receiver Antenna Tower Application of the controller of the controlle
Test Procedure:	 The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

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	4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) - Cable Loss (dB)
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data:

LTE Band 4 part:

	LT	E Band 4, WB: 1.4MH	lz	
	RI	B size 1 & RB offset (0	
Frequency (MHz)	Spurious	Emission	Limit (dBm)	Result
Frequency (Miriz)	Polarization	Level (dBm)	Limit (ubin)	Result
		Lowest Channel		
3421.40	Vertical	-46.56		
5132.10	V	-33.10		
6842.80	V	-41.33	-13.00	Door
3421.40	Horizontal	-45.11	-13.00	Pass
5132.10	Н	-35.70		
6842.80	Н	-41.42		
<u>.</u>		Middle Channel		
3465.00	Vertical	-46.54		Pass
5197.50	V	-33.46		
6930.00	V	-41.52	40.00	
3465.00	Horizontal	-45.49	-13.00	
5197.50	Н	-35.11		
6930.00	Н	-41.99		
·		Highest Channel		
3508.60	Vertical	-46.32		
5262.90	V	-33.71		
7017.20	V	-41.94	-13.00	Dana
3508.60	Horizontal	-45.42		Pass
5262.90	Н	-35.56		
7017.20	Н	-41.57		

Note:

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



LTE Band 4, WB: 3MHz					
RB size 1 & RB offset 0					
Fraguenov (MHz)	Spurious	Emission	Limit (dPm)	Desuit	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
		Lowest Channel			
3423.00	Vertical	-46.16			
5134.50	V	-33.29			
6846.00	V	-41.74	-13.00	Pass	
3423.00	Horizontal	-45.39	-13.00	Fd55	
5134.50	Н	-35.91			
6846.00	Н	-41.11			
		Middle Channel			
3465.00	Vertical	-46.09		Pass	
5197.50	V	-33.54			
6930.00	V	-42.41	-13.00		
3465.00	Horizontal	-46.05	-13.00	Fd55	
5197.50	Н	-36.29			
6930.00	Н	-42.96			
		Highest Channel			
3507.00	Vertical	-47.48			
5260.50	V	-34.29			
7014.00	V	-45.85	-13.00 P	Door	
3507.00	Horizontal	-45.12		Pass	
5260.50	Н	-35.14			
7014.00	Н	-41.41			

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



LTE Band 4, WB: 5MHz						
	RB size 1 & RB offset 0					
(MIII)	Spurious	Emission	Limit (dBm)	Result		
Frequency (MHz)	Polarization	Level (dBm)	Lilliit (dBill)	Result		
		Lowest Channel				
3425.00	Vertical	-46.13				
5137.50	V	-33.29				
6850.00	V	-41.27	-13.00	Door		
3425.00	Horizontal	-45.38	-13.00	Pass		
5137.50	Н	-35.51				
6850.00	Н	-41.66				
		Middle Channel				
3465.00	Vertical	-46.27		Pass		
5197.50	V	-33.77				
6930.00	V	-42.23	-13.00			
3465.00	Horizontal	-46.29	-13.00			
5197.50	Н	-36.83				
6930.00	Н	-42.89				
		Highest Channel				
3505.00	Vertical	-47.51				
5257.50	V	-34.41				
7010.00	V	-45.42	-13.00	Dana		
3505.00	Horizontal	-45.43		Pass		
5257.50	Н	-35.27				
7010.00	Н	-41.87				

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



	LT	E Band 4, WB: 10MH	z	
	R	B size 1 & RB offset 0)	
Fraguenov (MHz)	Spurious	Emission	Limit (dPm)	Result
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result
		Lowest Channel		
3430.00	Vertical	-46.86		
5145.00	V	-33.46		
6860.00	V	-41.17	-13.00	Pass
3430.00	Horizontal	-45.33	-13.00	Pass
5145.00	Н	-35.81		
6860.00	Н	-41.30		
		Middle Channel		
3465.00	Vertical	-46.81		Pass
5197.50	V	-33.95		
6930.00	V	-42.38	-13.00	
3465.00	Horizontal	-46.27	-13.00	
5197.50	Н	-36.77		
6930.00	Н	-42.33		
		Highest Channel		
3500.00	Vertical	-47.27		
5250.00	V	-34.38		
7000.00	V	-45.81	-13.00	Door
3500.00	Horizontal	-45.79		Pass
5250.00	Н	-35.95		
7000.00	Н	-41.83		

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



	Lī	E Band 4, WB: 15MH	z	
	R	B size 1 & RB offset ()	
Fraguency (MUz)	Spurious	Emission	Limit (dBm)	Result
Frequency (MHz)	Polarization	Level (dBm)	Lilliit (dBill)	Result
		Lowest Channel		
3435.00	Vertical	-46.51		
5152.50	V	-33.12		
6870.00	V	-41.65	-13.00	Pass
3435.00	Horizontal	-45.49	-13.00	Fd55
5152.50	Н	-35.25		
6870.00	Н	-41.45		
		Middle Channel		
3465.00	Vertical	-46.27		Pass
5197.50	V	-33.40		
6930.00	V	-42.27	-13.00	
3465.00	Horizontal	-46.23	-13.00	Fd55
5197.50	Н	-36.57		
6930.00	Н	-42.81		
		Highest Channel		
3495.00	Vertical	-47.41		
5242.50	V	-34.27		
6990.00	V	-45.33	-13.00	Door
3495.00	Horizontal	-45.14		Pass
5242.50	Н	-35.77		
6990.00	Н	-41.48		

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



	Lī	TE Band 4, WB: 20MH	z	
	R	B size 1 & RB offset ()	
(MIL_)	Spurious	Emission	Limit (dBm)	Result
Frequency (MHz)	Polarization	Level (dBm)	Limit (ubin)	Result
		Lowest Channel		
3440.00	Vertical	-46.65		
5160.00	V	-33.28		
6880.00	V	-41.46	-13.00	Pass
3440.00	Horizontal	-45.39	-13.00	Fd55
5160.00	Н	-35.11		
6880.00	Н	-41.09		
		Middle Channel		
3465.00	Vertical	-46.45		Pass
5197.50	V	-33.72		
6930.00	V	-42.72	-13.00	
3465.00	Horizontal	-46.31	-13.00	F d 5 5
5197.50	Н	-36.29		
6930.00	Н	-42.09		
		Highest Channel		
3490.00	Vertical	-47.96		
5235.00	V	-34.48		
6980.00	V	-45.48	-13.00	Door
3490.00	Horizontal	-45.54		Pass
5235.00	Н	-35.71		
6980.00	Н	-41.27		

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.





LTE Band 7 part:

LTE Band 7, WB: 5MHz					
RB size 1 & RB offset 0					
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result	
Frequency (WITZ)	Polarization	Level (dBm)	Limit (dbin)	Kesuit	
		Lowest Channel			
5005.00	Vertical	-35.93			
7507.50	V	-29.45			
10010.00	V	-35.22	-25.00	Pass	
5005.00	Horizontal	-40.21	-25.00	Pass	
7507.50	Н	-29.15			
10010.00	Н	-29.68			
		Middle Channel			
5070.00	Vertical	-36.47		Pass	
7605.00	V	-30.51			
10140.00	V	-36.92	25.00		
5070.00	Horizontal	-41.53	-25.00		
7605.00	Н	-29.86			
10140.00	Н	-30.53			
		Highest Channel			
5135.00	Vertical	-36.45			
7702.50	V	-39.49			
10270.00	V	-35.12	-25.00 P	Door	
5135.00	Horizontal	-40.25		Pass	
7702.50	Н	-30.22			
10270.00	Н	-30.53			

Note:

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



LTE Band 7, WB: 10MHz				
	RI	B size 1 & RB offset 0)	
Frequency (MHz)	Spurious	Emission	Limit (dBm)	Result
Frequency (MHZ)	Polarization	Level (dBm)	Limit (abin)	Result
		Lowest Channel		
5010.00	Vertical	-35.47		
7515.00	V	-29.91		
10020.00	V	-35.73	-25.00	Pass
5010.00	Horizontal	-40.53	-25.00	Pa55
7515.00	Н	-29.99		
10020.00	Н	-29.68		
		Middle Channel		
5070.00	Vertical	-36.41		
7605.00	V	-30.22		
10140.00	V	-36.59	-25.00	Pass
5070.00	Horizontal	-41.22	-25.00	
7605.00	Н	-29.14		
10140.00	Н	-30.31		
		Highest Channel		
5130.00	Vertical	-36.12		
7695.00	V	-39.76		
10260.00	V	-35.48	-25.00	Door
5130.00	Horizontal	-40.25		Pass
7695.00	Н	-30.29		
10260.00	Н	-30.05		

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



LTE Band 7, WB: 15MHz				
	R	B size 1 & RB offset ()	
Fragues av (MIII-)	Spurious	Emission	Limit (dBm)	Result
Frequency (MHz)	Polarization	Level (dBm)	Limit (ubin)	Result
		Lowest Channel		
5015.00	Vertical	-35.79		
7522.50	V	-29.05		
10030.00	V	-35.05	-25.00	Pass
5015.00	Horizontal	-40.22	-25.00	F455
7522.50	Н	-29.46		
10030.00	Н	-29.86		
		Middle Channel		
5070.00	Vertical	-36.95		
7605.00	V	-30.28		
10140.00	V	-36.81	-25.00	Pass
5070.00	Horizontal	-41.57	-25.00	
7605.00	Н	-29.25		
10140.00	Н	-30.35		
		Highest Channel		
5125.00	Vertical	-36.43		
7687.50	V	-39.95		
10250.00	V	-35.05	-25.00	Door
5125.00	Horizontal	-40.12		Pass
7687.50	Н	-30.48		
10250.00	Н	-30.76		

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



LTE Band 7, WB: 20MHz				
	RI	B size 1 & RB offset 0)	
Frequency (MHz)	Spurious	Emission	Limit (dBm)	Result
Frequency (MHZ)	Polarization	Level (dBm)	LIIIII (UDIII)	Result
		Lowest Channel		
5020.00	Vertical	-35.27		
7530.00	V	-29.28		
10040.00	V	-35.43	-25.00	Pass
5020.00	Horizontal	-40.95	-25.00	Pa55
7530.00	Н	-29.05		
10040.00	Н	-29.57		
		Middle Channel		
5070.00	Vertical	-36.25		
7605.00	V	-30.14		
10140.00	V	-36.82	-25.00	Pass
5070.00	Horizontal	-41.22	-25.00	
7605.00	Н	-29.16		
10140.00	Н	-30.56		
		Highest Channel		
5120.00	Vertical	-36.24		
7680.00	V	-39.95		
10240.00	V	-35.19	-25.00	Door
5120.00	Horizontal	-40.17		Pass
7680.00	Н	-30.68		
10240.00	Н	-30.25		

^{1.} The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

^{2.} For above 1 GHz, all test modes were performed, and just the worst case shown in the report.



6.6 Frequency stability V.S. Temperature measurement

Test Requirement:	Part 27.54, Part 2.1055(a)(1)(b)
Test Method:	ANSI/TIA-603-D 2010
Limit:	±2.5ppm
Test setup:	SS EUT Divider Temperature & Humidity Chamber
Test procedure:	 The equipment under test was connected to an external DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed





Measurement Data (worst case):

LTE Band 4 part:

Power supplied Tamparature (%)			ncy error		
(Vdc)	Temperature (°C)	Hz	ppm	Limit (ppm)	Result
, ,		QPSK			
	-30	191	0.110245		
	-20	145	0.083694		
	-10	101	0.058297		
	0	136	0.078499		
3.80	10	181	0.104473	±2.5	Pass
	20	177	0.102165		
	30	126	0.072727		
	40	100	0.057720		
	50	169	0.097547		
	<u>, </u>	16QAM			
	-30	199	0.114863		
	-20	181	0.104473		
	-10	148	0.085426		
	0	150	0.086580	±2.5	Pass
3.80	10	136	0.078499		
	20	188	0.108514		
	30	100	0.057720		
	40	164	0.094661		
	50	177	0.102165		





LTE Band 7 part:

Reference Fred	quency: LTE Band 7	(10MHz) Middle	channel=21100	Frequency=2535.	00MHz
Power supplied	Temperature (°C)	Frequency error		Limit (nnm)	Dogult
(Vdc)		Hz	ppm	Limit (ppm)	Result
		QPSK			
	-30	197	0.077712		
	-20	181	0.071400		
	-10	165	0.065089		
	0	123	0.048521		
3.80	10	111	0.043787	±2.5	Pass
	20	102	0.040237		
	30	147	0.057988		
	40	178	0.070217		
	50	131	0.051677		
		16QAM			
	-30	199	0.078501		
	-20	180	0.071006		
	-10	174	0.068639		
3.80	0	165	0.065089	±2.5	Pass
	10	100	0.039448		
	20	105	0.041420		
	30	136	0.053649		
	40	128	0.050493		
	50	114	0.044970		



6.7 Frequency stability V.S. Voltage measurement

Test Requirement:	Part 27.54, Part 2.1055(d)(2)
Test Method:	ANSI/TIA-603-D 2010
Limit:	±2.5ppm
Test setup:	SS EUT Divider Temperature & Humidity Chamber
Test procedure:	 Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation (+/-15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed



Measurement Data (worst case):

LTE Band 4 part:

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz							
Temperature (°C)	Power supplied	Frequency error		Limit (nnm)	Result		
remperature (C)	(Vdc)	Hz	ppm	Limit (ppm)	Result		
	QPSK						
	4.35	99	0.057143				
25	3.80	88	0.050794	±2.5	Pass		
	3.50	74	0.042713		l		
16QAM							
	4.35	69	0.039827				
25	3.80	90	0.051948	±2.5	Pass		
	3.50	81	0.046753				
Note: Only the worst case shown in the report.							

LTE Band 7 part:

Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz							
Tomporeture (°C)	Power supplied	Frequency error		Limit (mmma)	Decult		
Temperature (℃)	(Vdc)	Hz	ppm	Limit (ppm)	Result		
	QPSK						
	4.35	98	0.038659	±2.5	Pass		
25	3.80	50	0.019724				
	3.50	69	0.027219				
16QAM							
25	4.35	88	0.034714	±2.5	Pass		
	3.80	79	0.031164				
	3.50	90	0.035503				
Note: Only the worst ca	se shown in the report.				_		