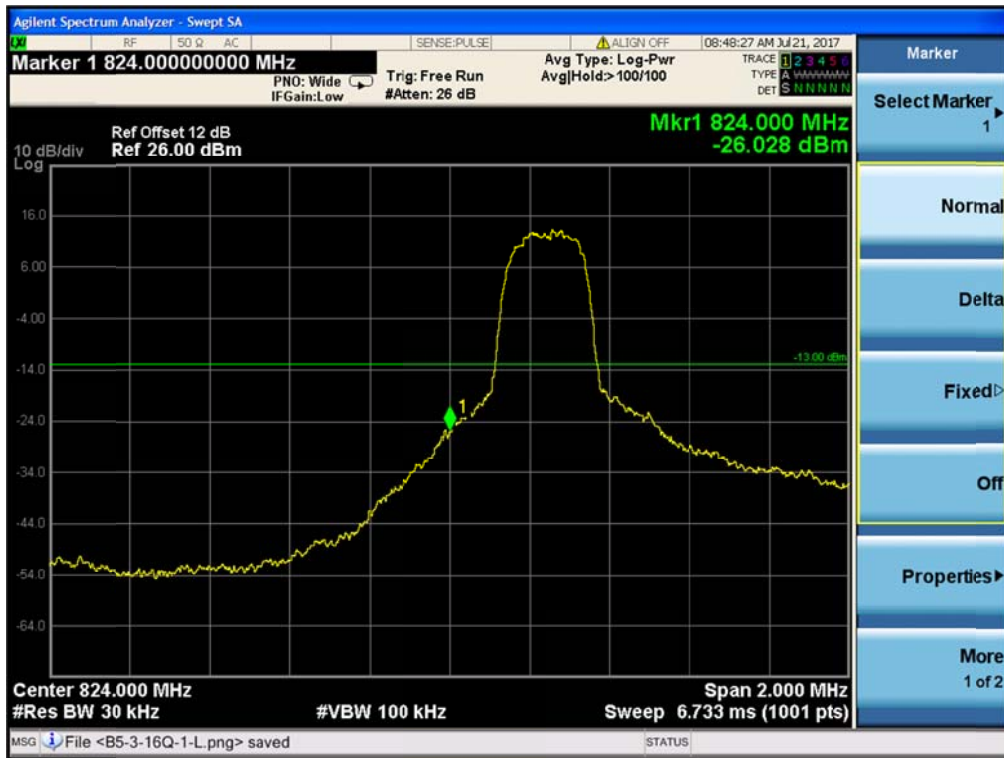
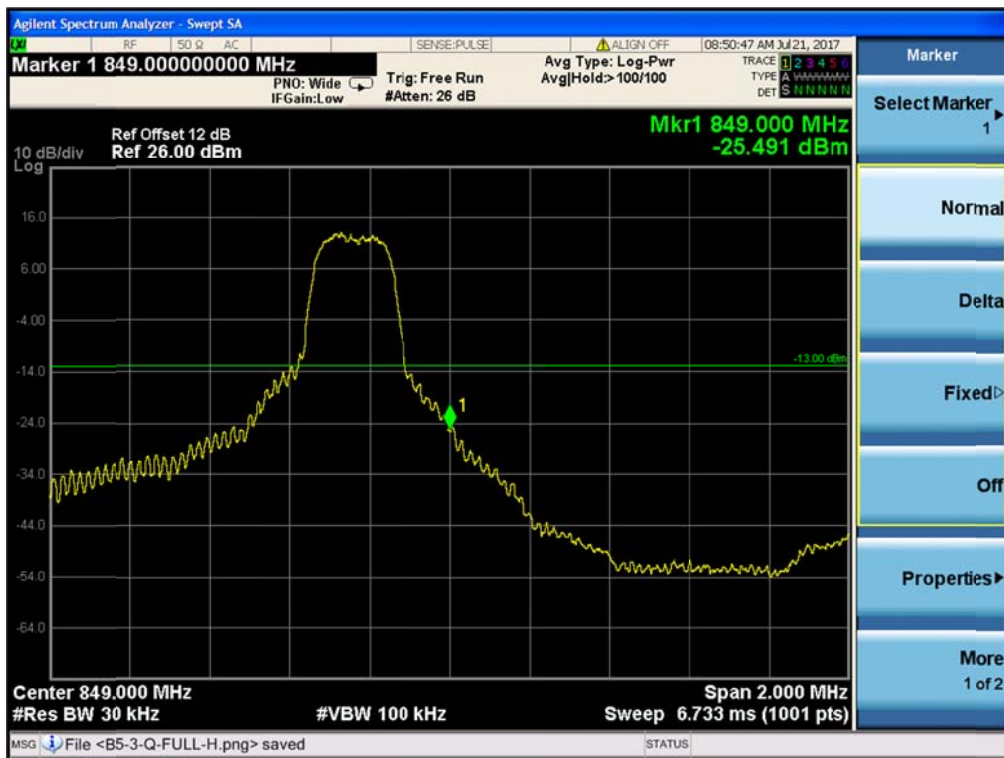


LTE Band 5-3MHz-QPSK

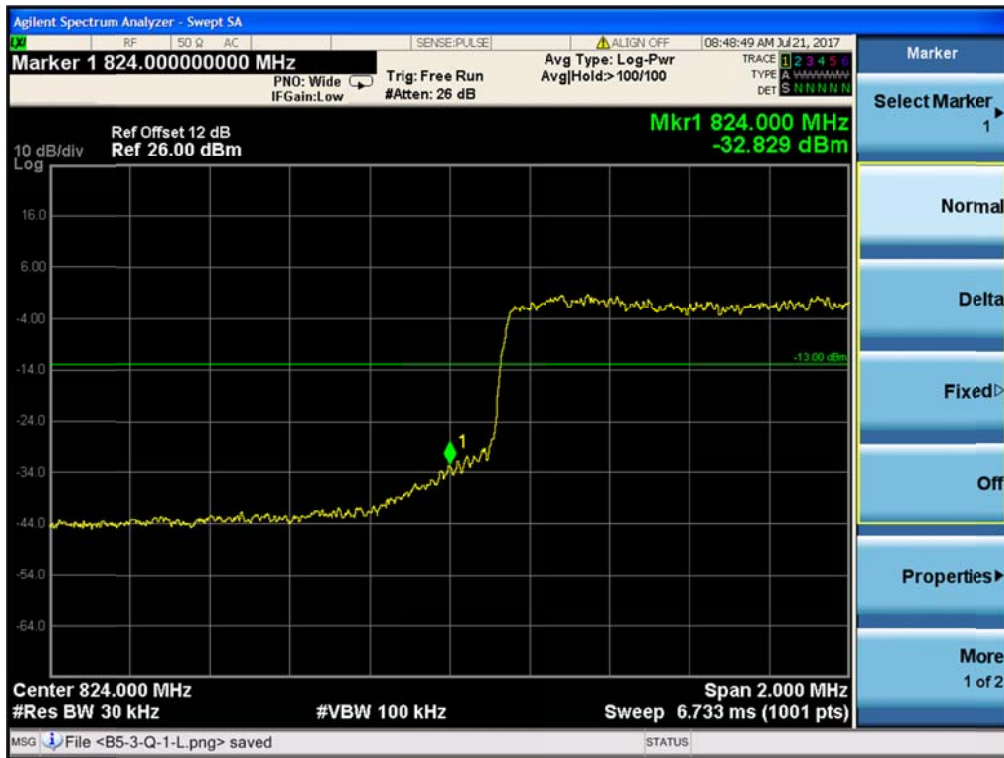


Channel Low-1RB#

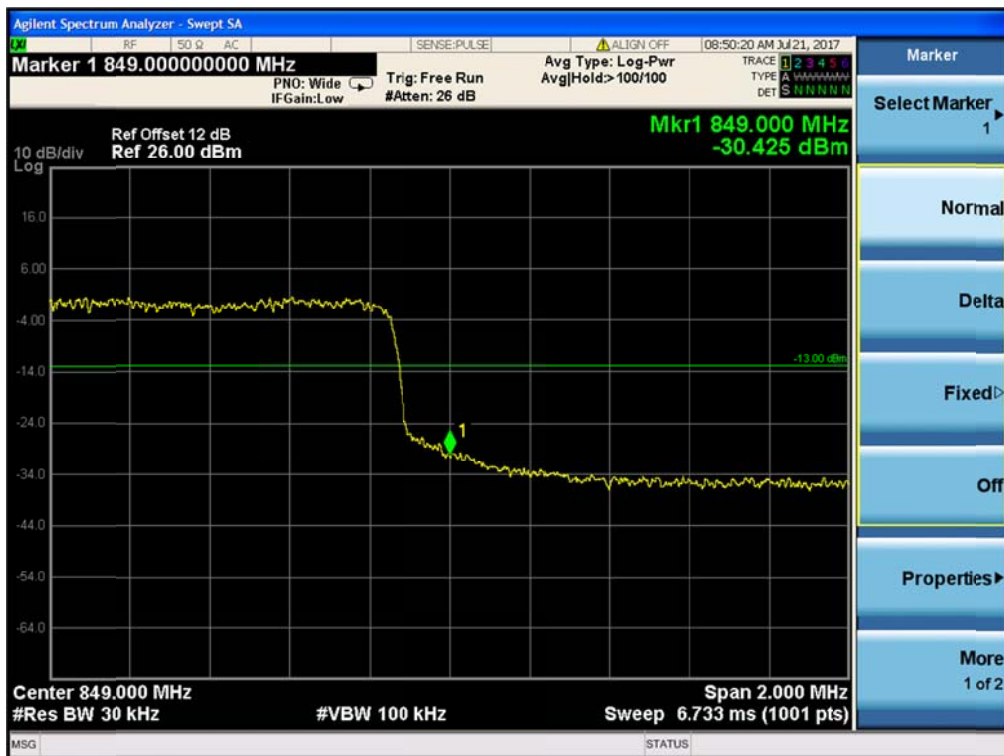


Channel High-1RB#

LTE Band 5-3MHz-QPSK

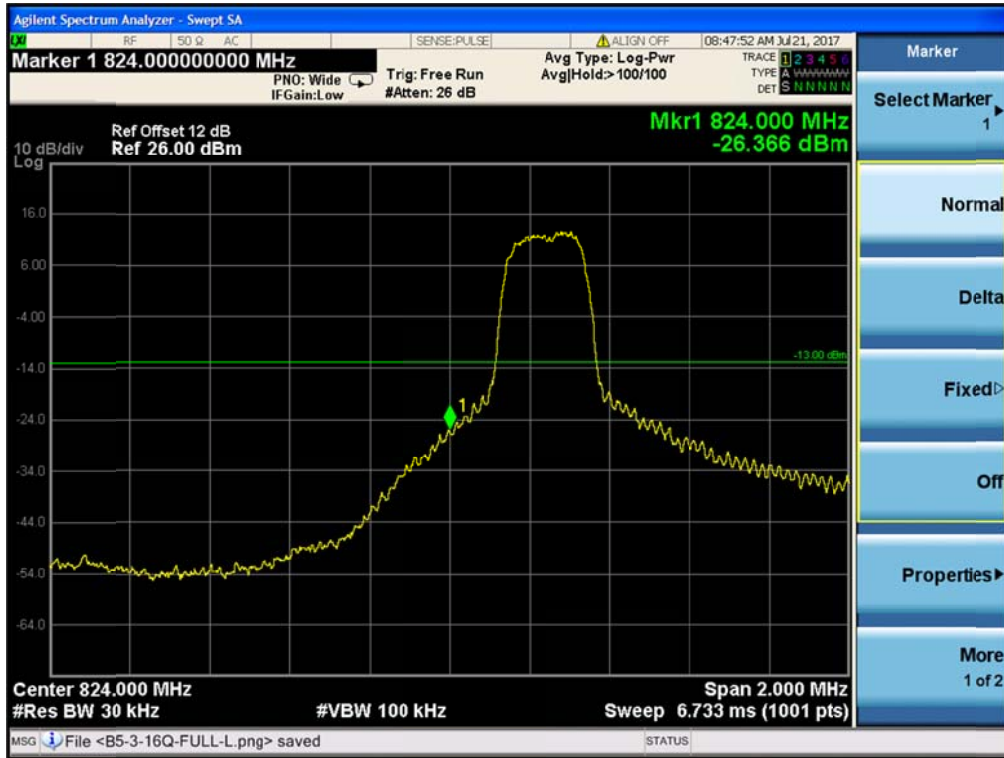


Channel Low-Full RB#

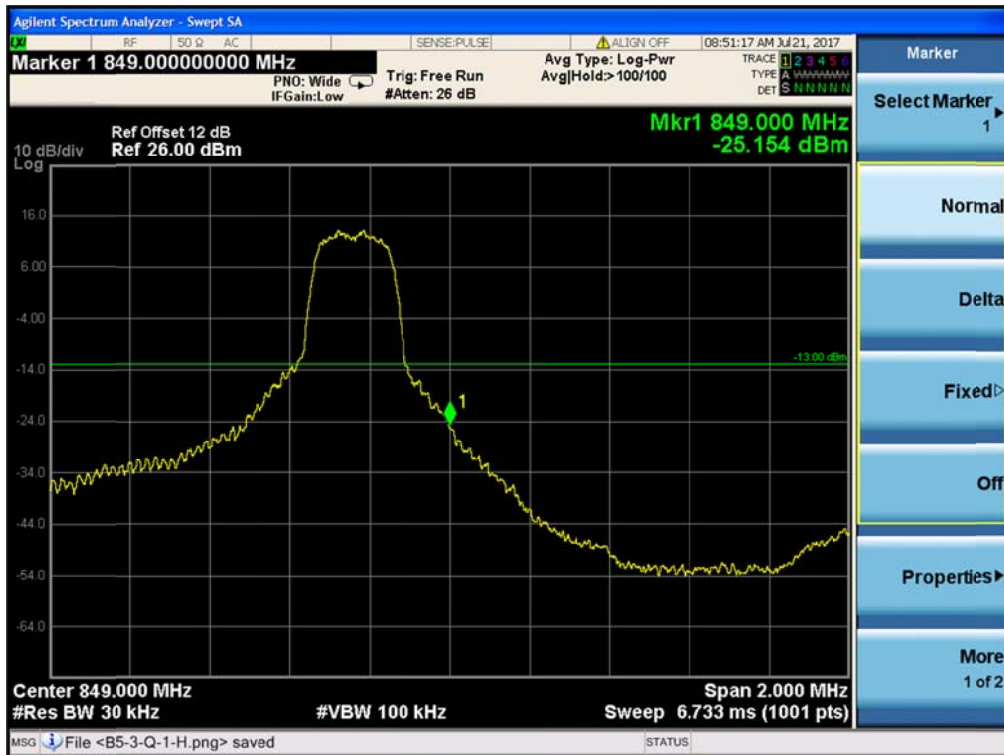


Channel High-Full RB#

LTE Band 5-3MHz-16QAM

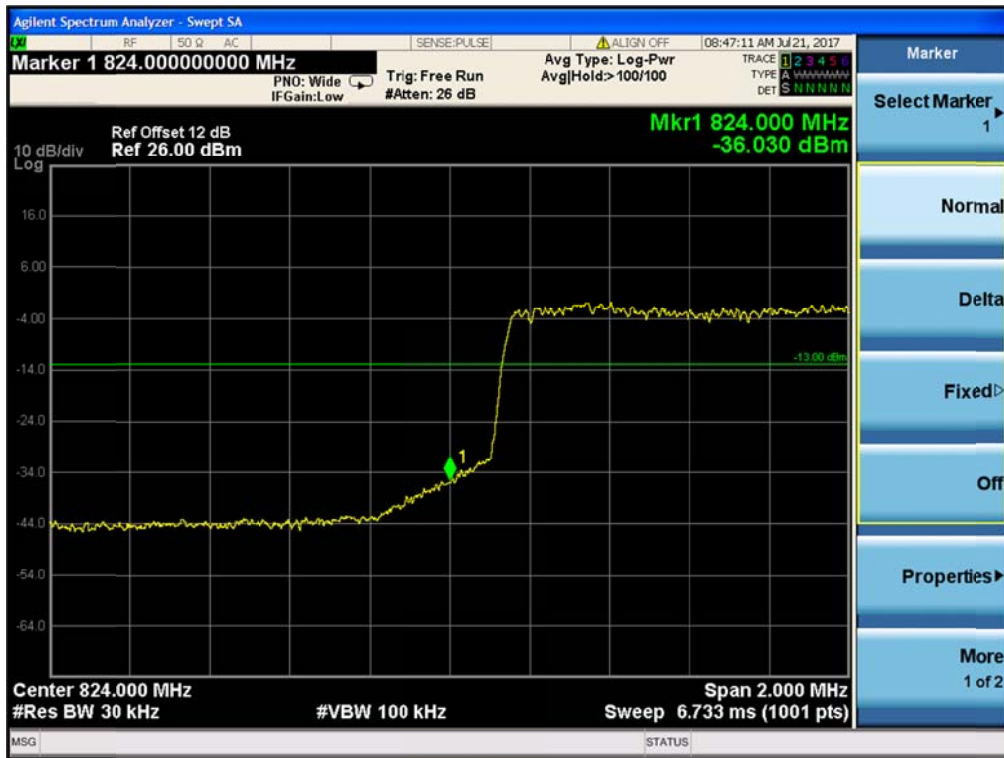


Channel Low-1RB#



Channel High-1RB#

LTE Band 5-3MHz-16QAM



Channel Low-Full RB#

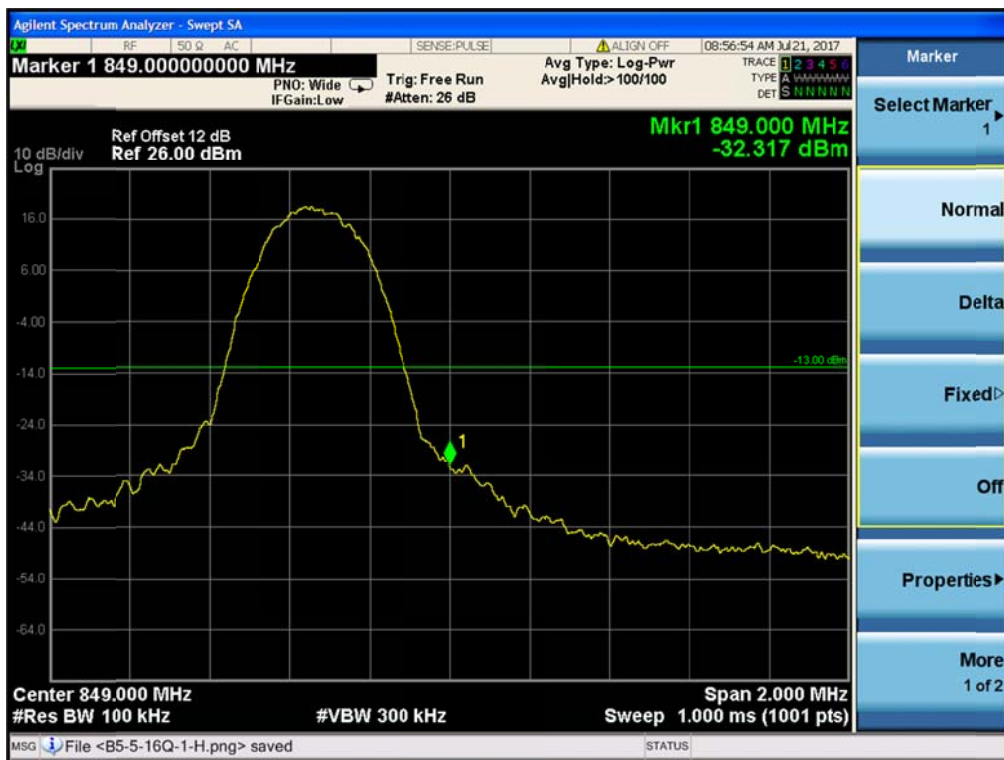


Channel High-Full RB#

LTE Band 5-5MHz-QPSK



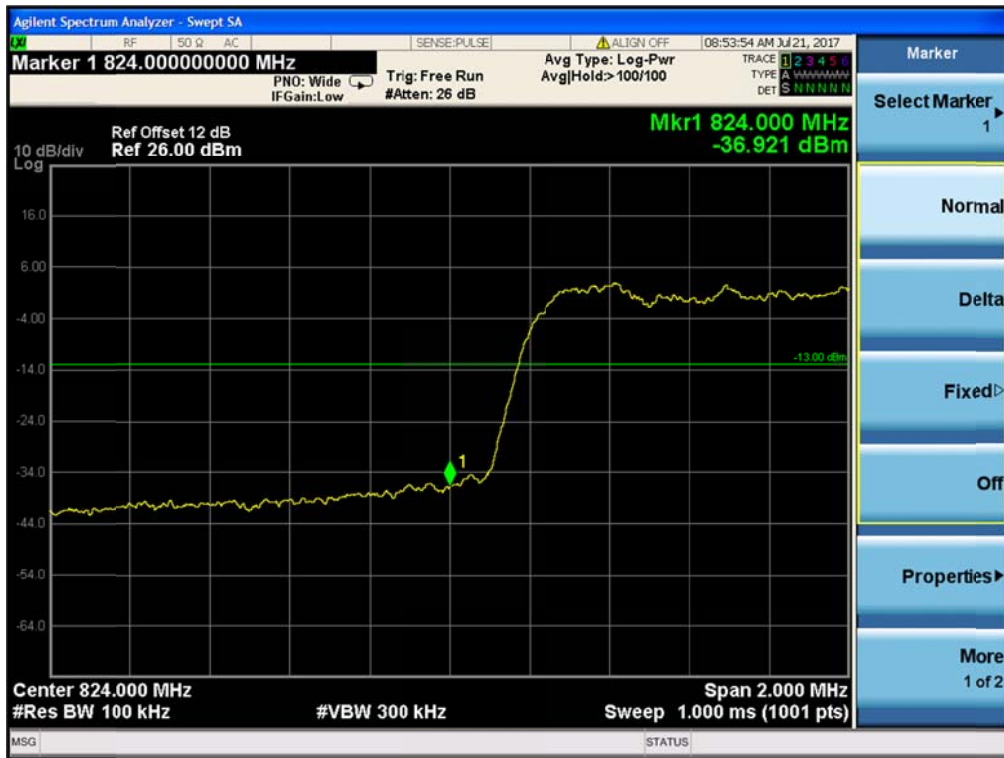
Channel Low-1RB#



Channel High-1RB#



LTE Band 5-5MHz-QPSK

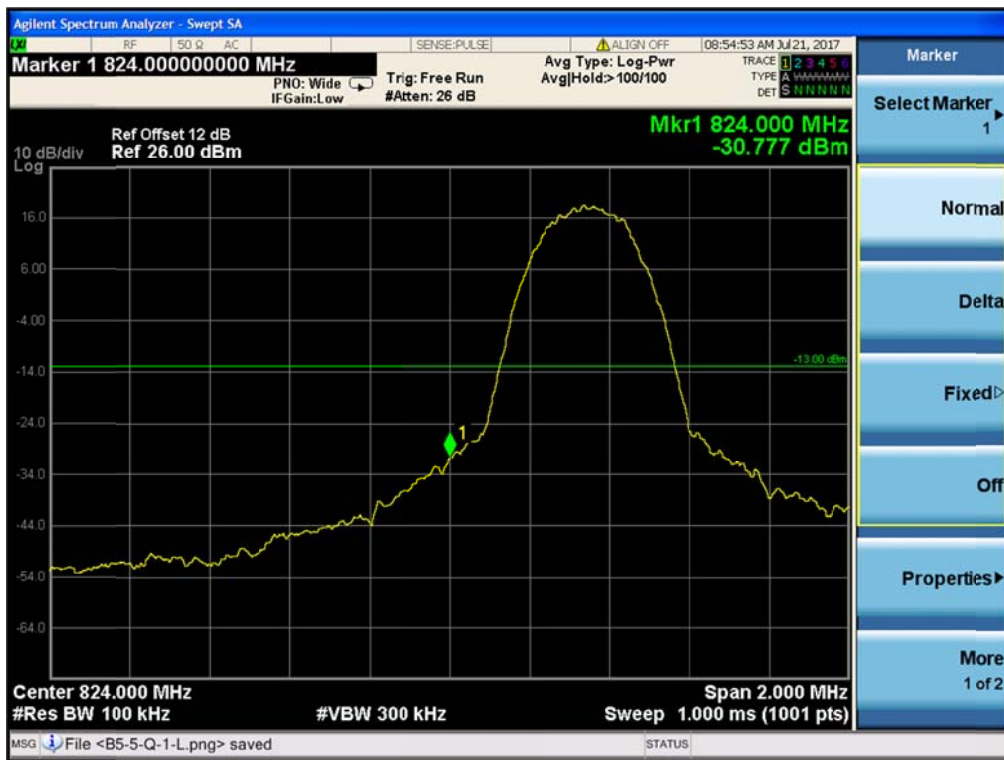


Channel Low-Full RB#



Channel High-Full RB#

LTE Band 5-5MHz-16QAM



Channel Low-1RB#



Channel High-1RB#

LTE Band 5-5MHz-16QAM



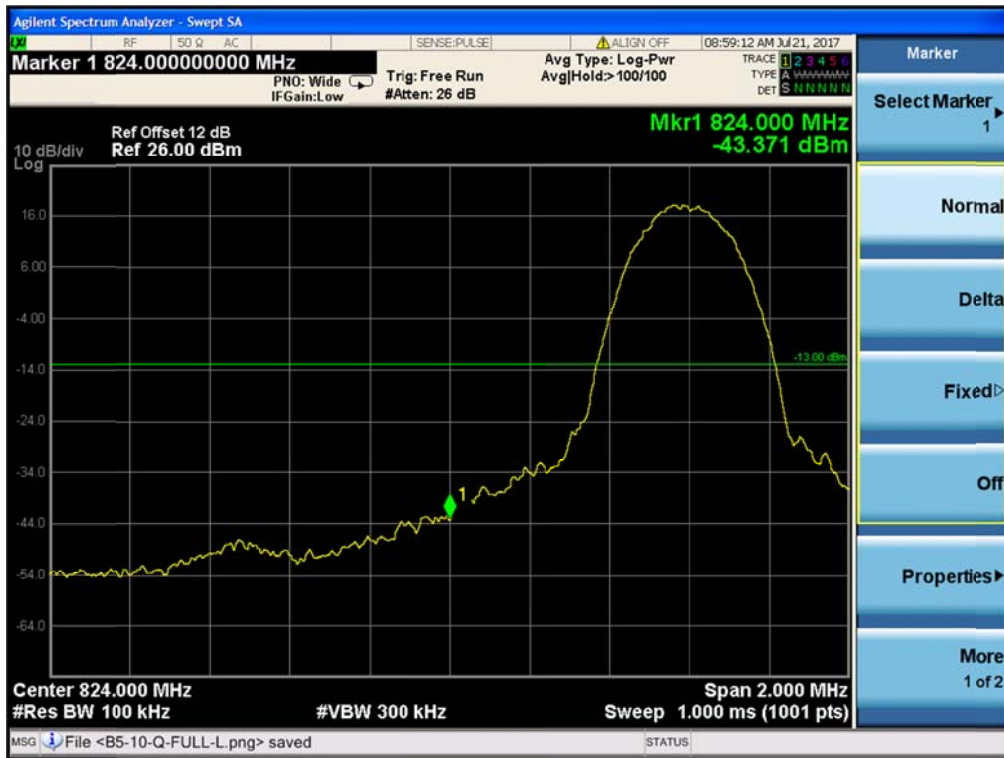
Channel Low-Full RB#



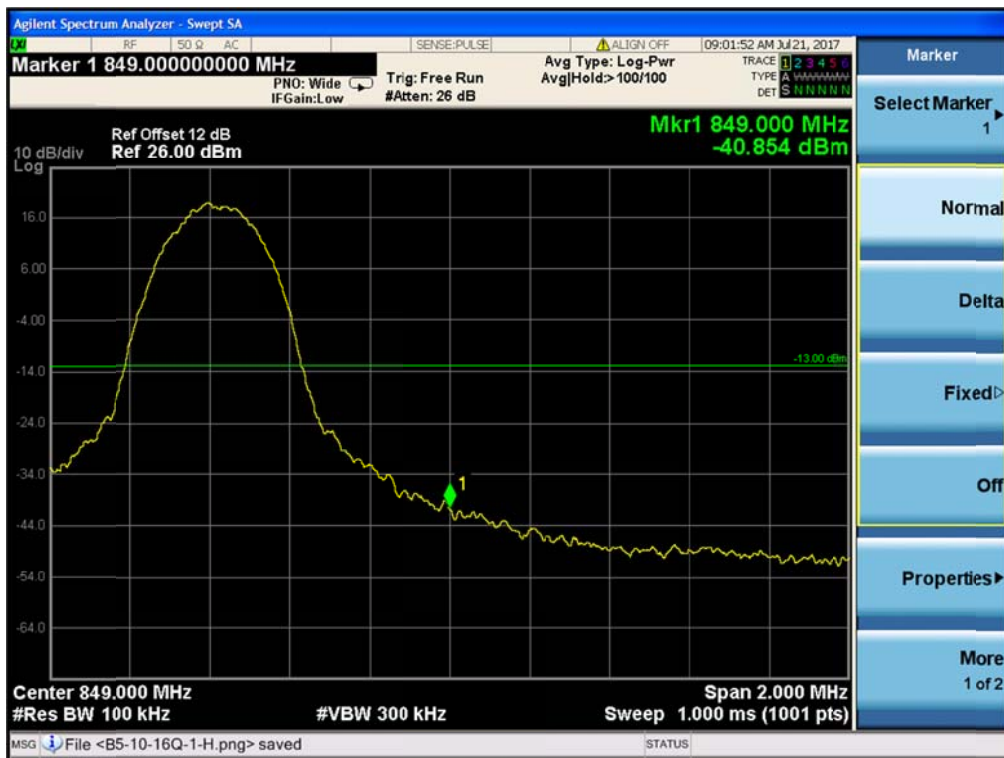
Channel High-Full RB#



LTE Band 5-10MHz-QPSK



Channel Low-1RB#

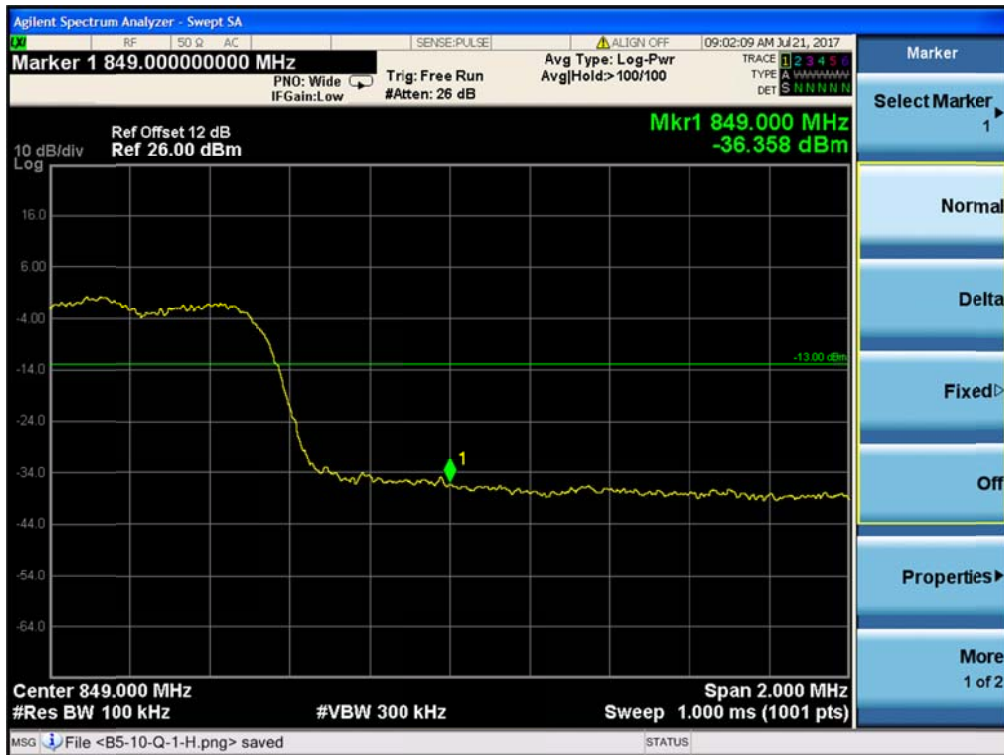


Channel High-1RB#

LTE Band 5-10MHz-QPSK

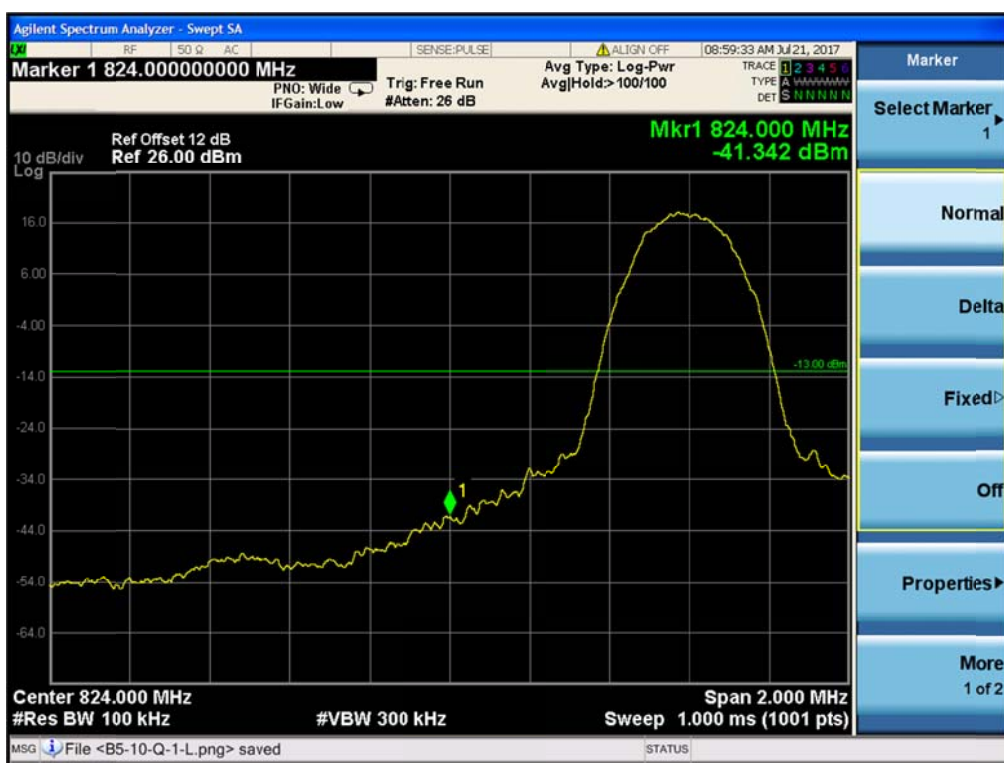


Channel Low-Full RB#

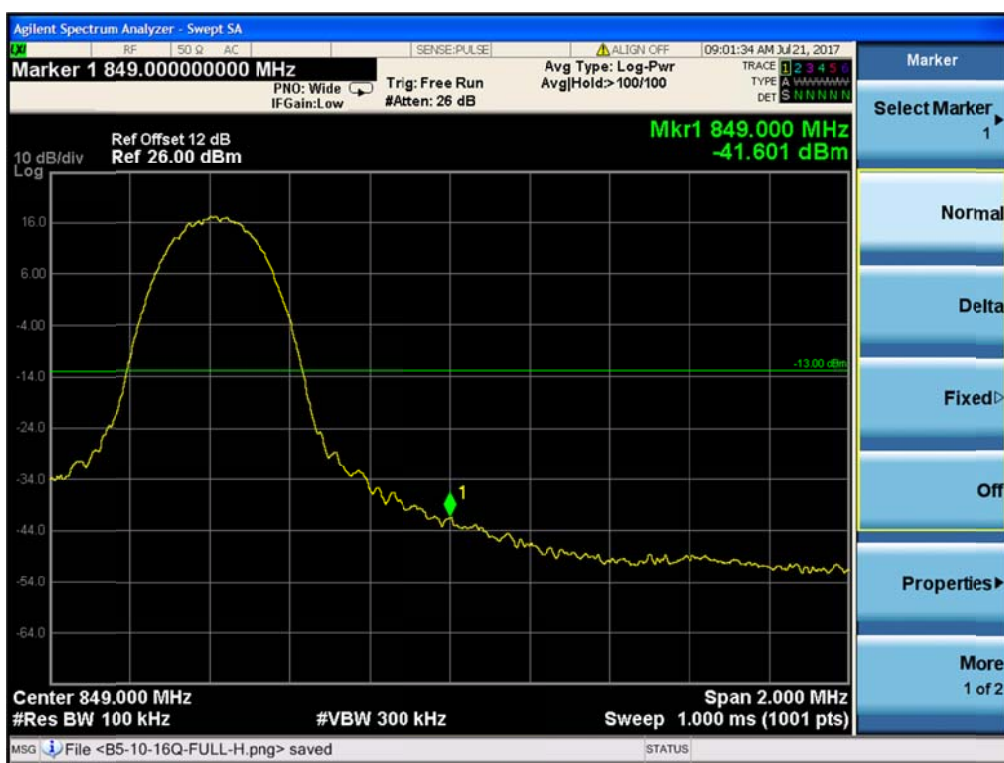


Channel High-Full RB#

LTE Band 5-10MHz-16QAM



Channel Low-1RB#



Channel High-1RB#

LTE Band 5-10MHz-16QAM

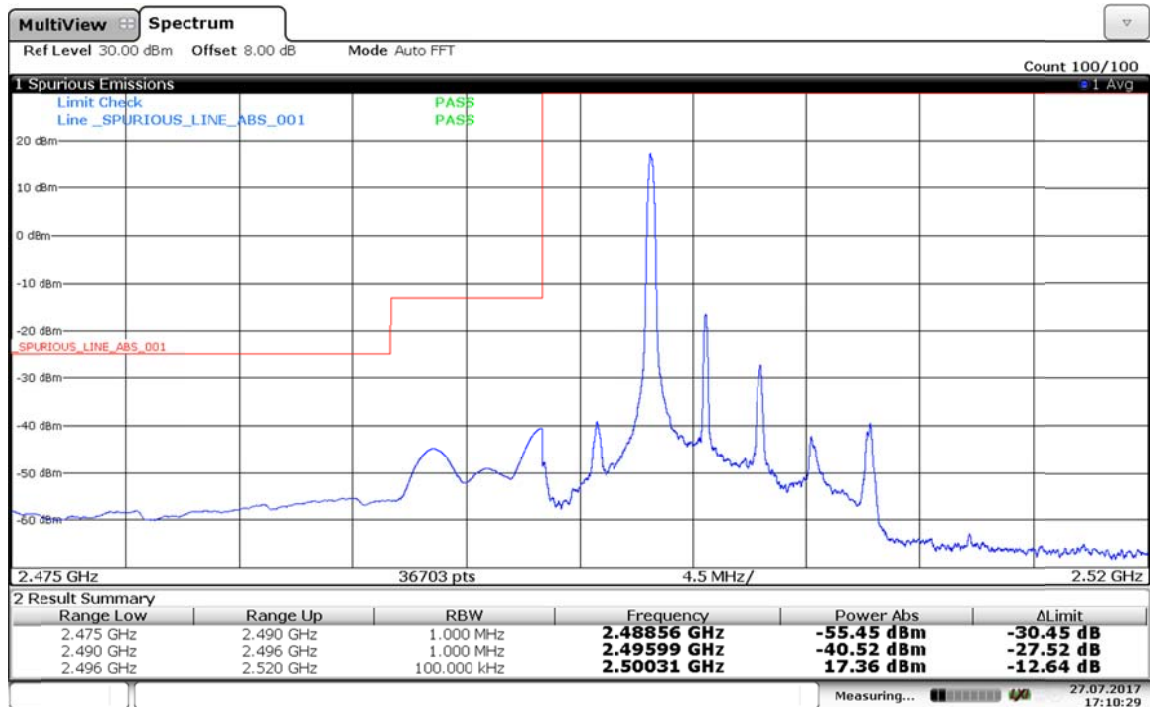


Channel Low-Full RB#



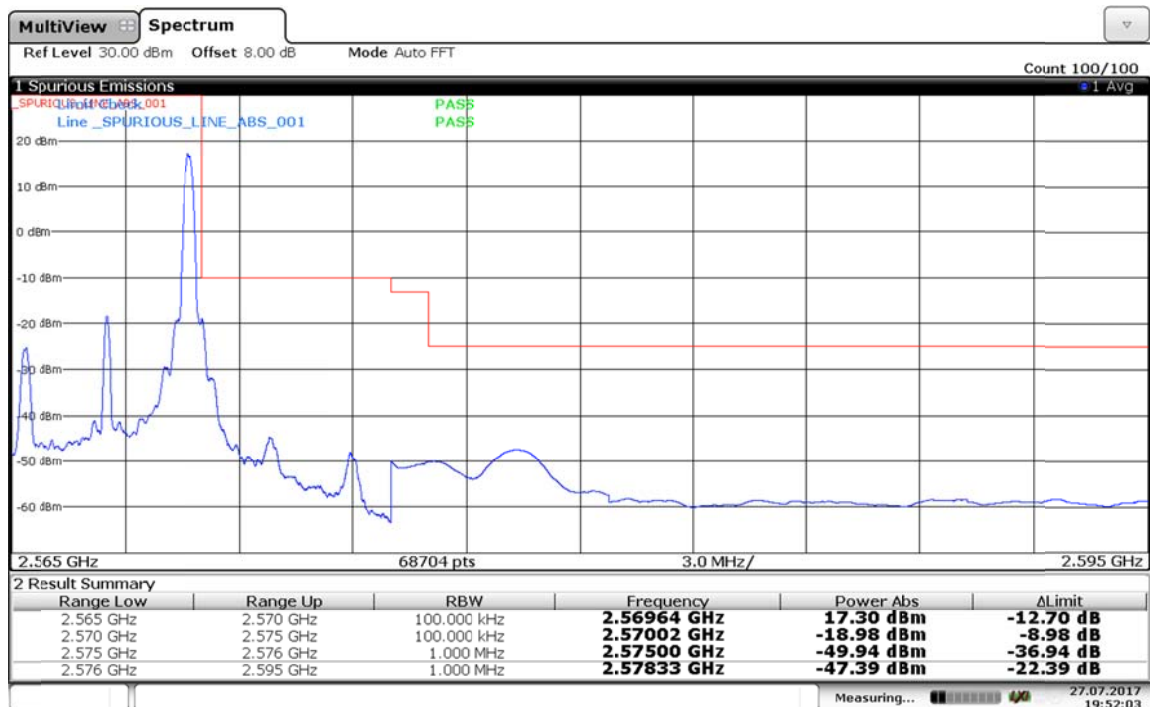
Channel High-Full RB#

LTE Band 7-5MHz-QPSK



Date 27.JUL.2017 17:10:29

Channel Low-1RB#

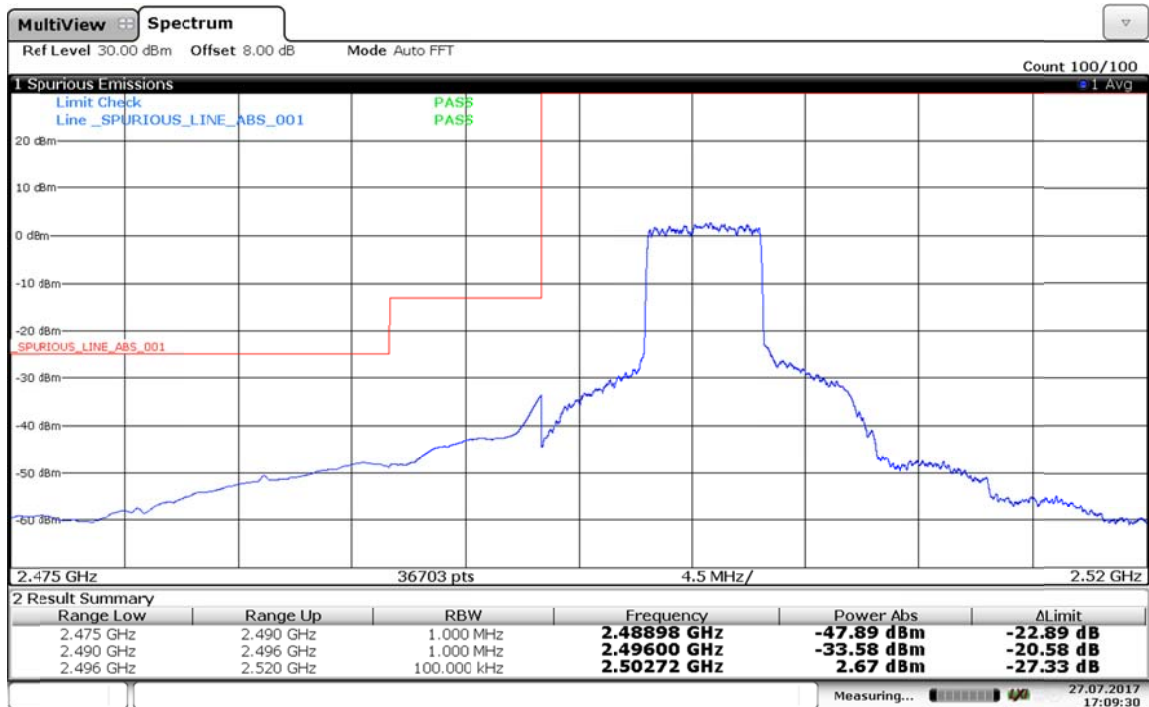


Date 27.JUL.2017 19:52:03

Channel High-1RB#

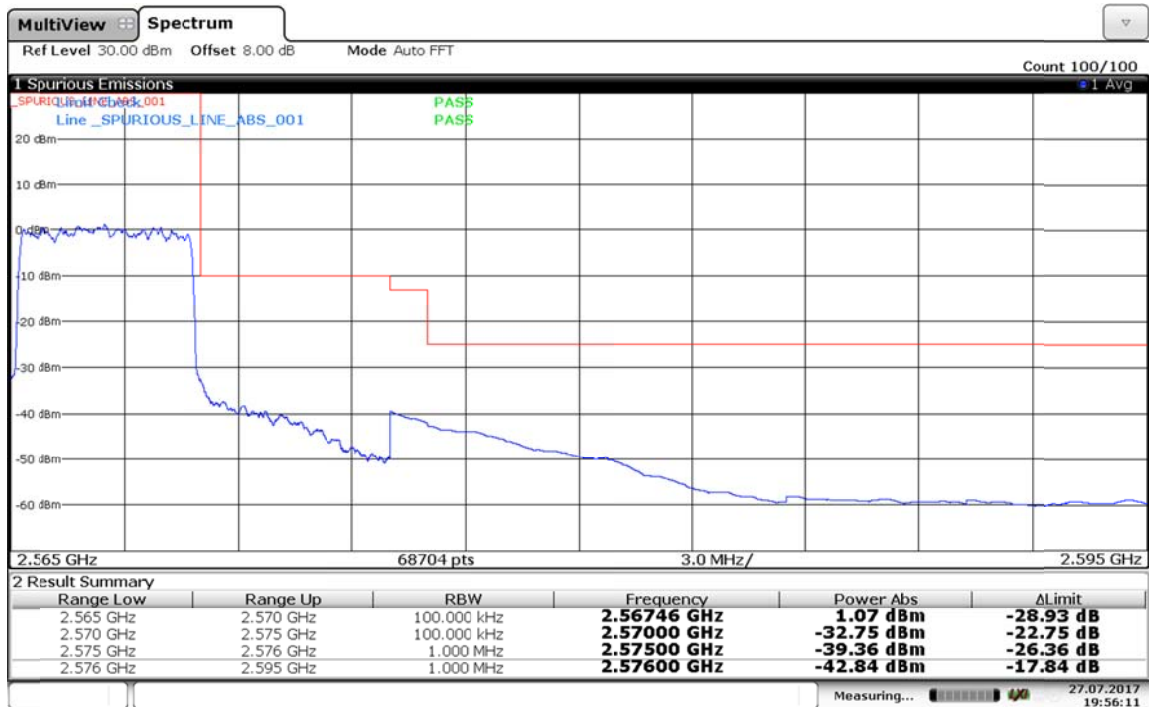


LTE Band 7-5MHz-QPSK



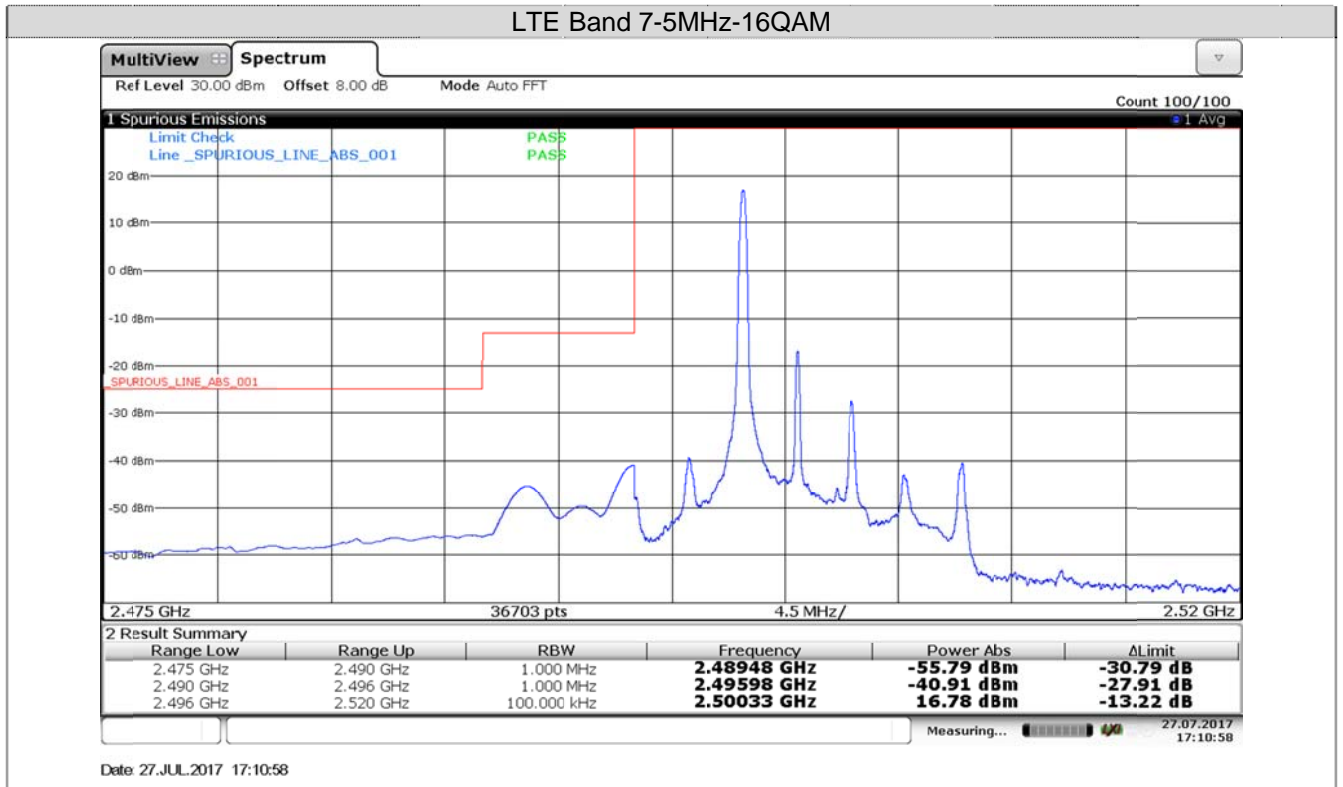
Date 27.JUL.2017 17:09:30

Channel Low-Full RB#

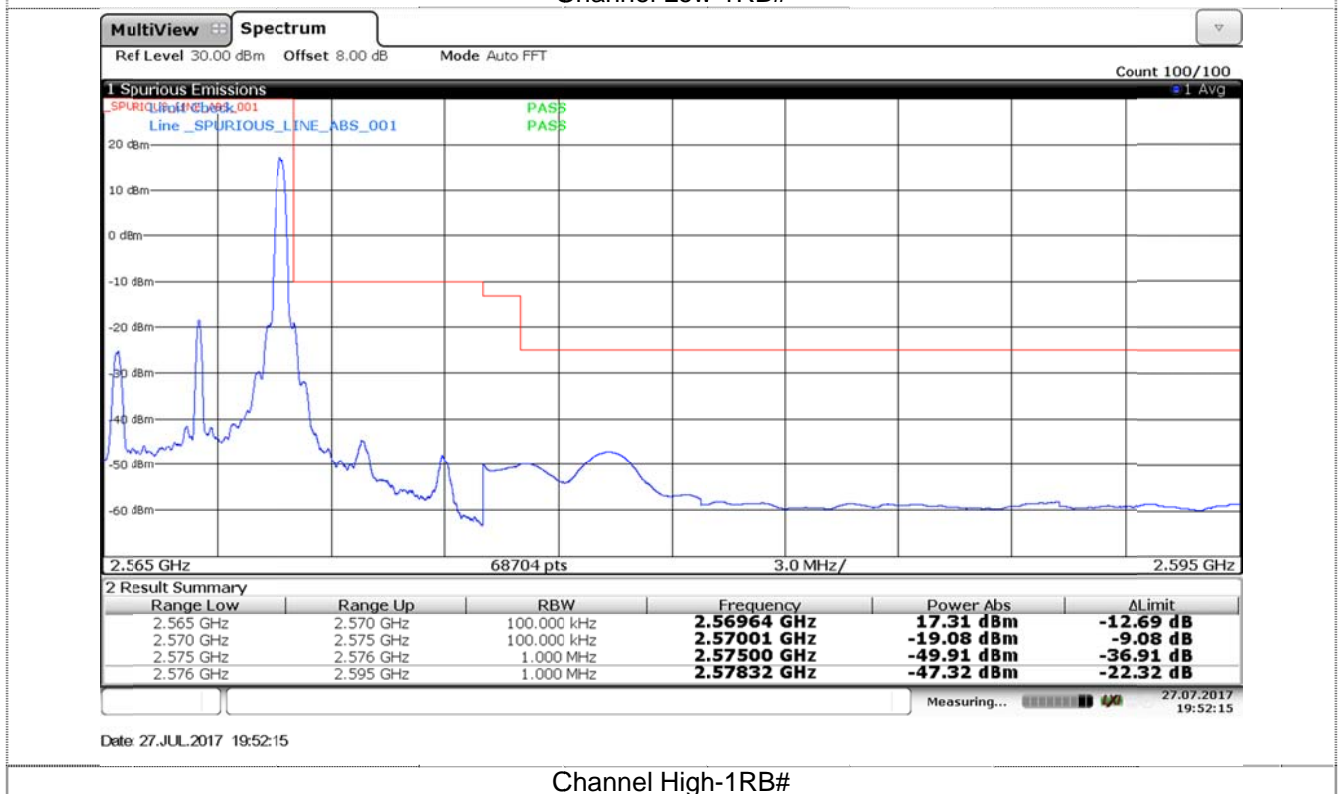


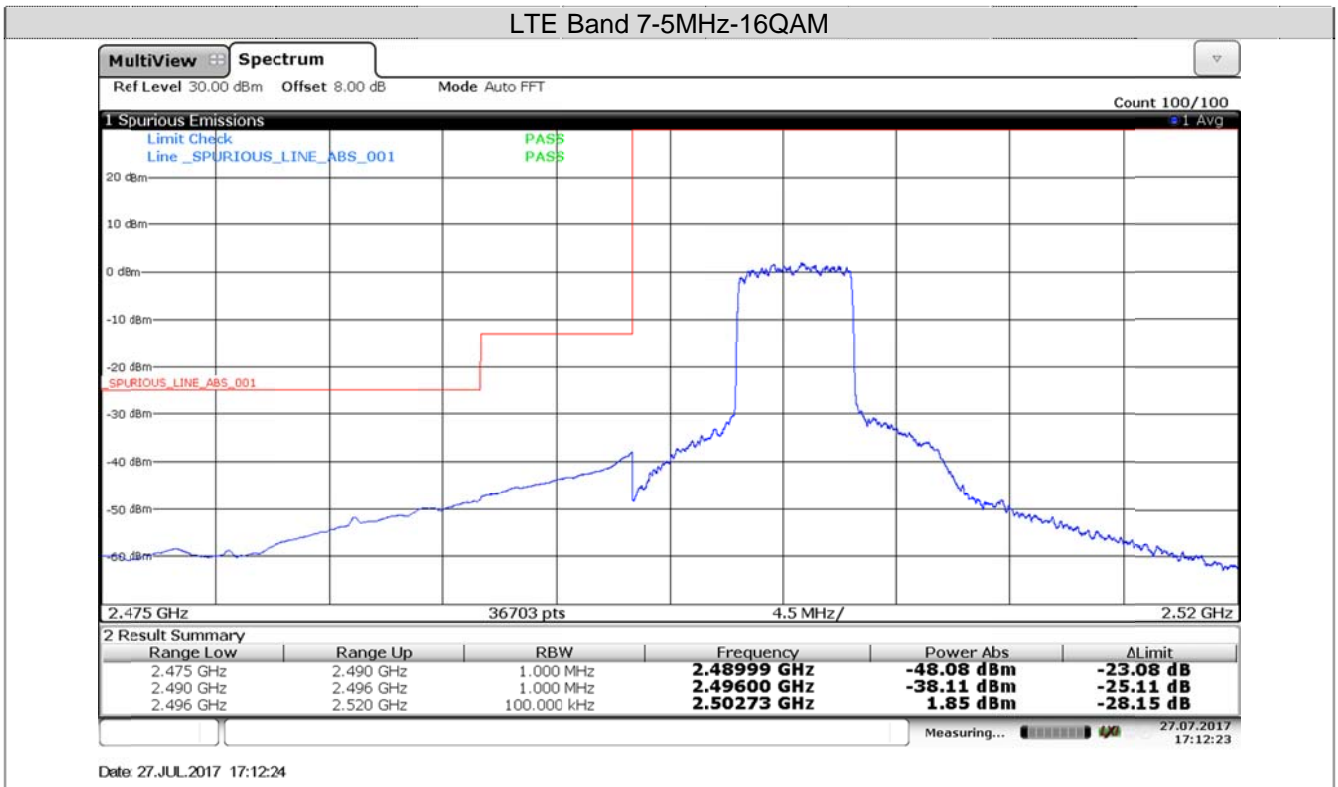
Date 27.JUL.2017 19:56:11

Channel High-Full RB#

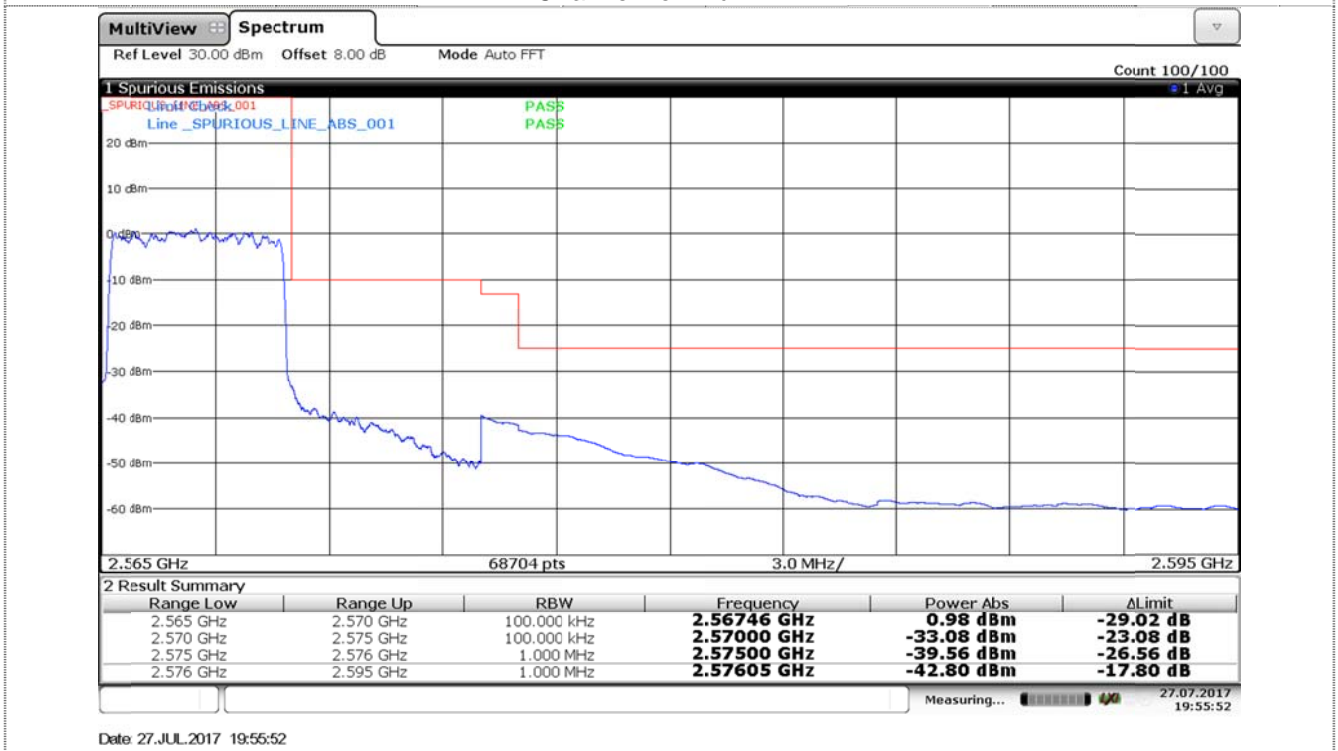


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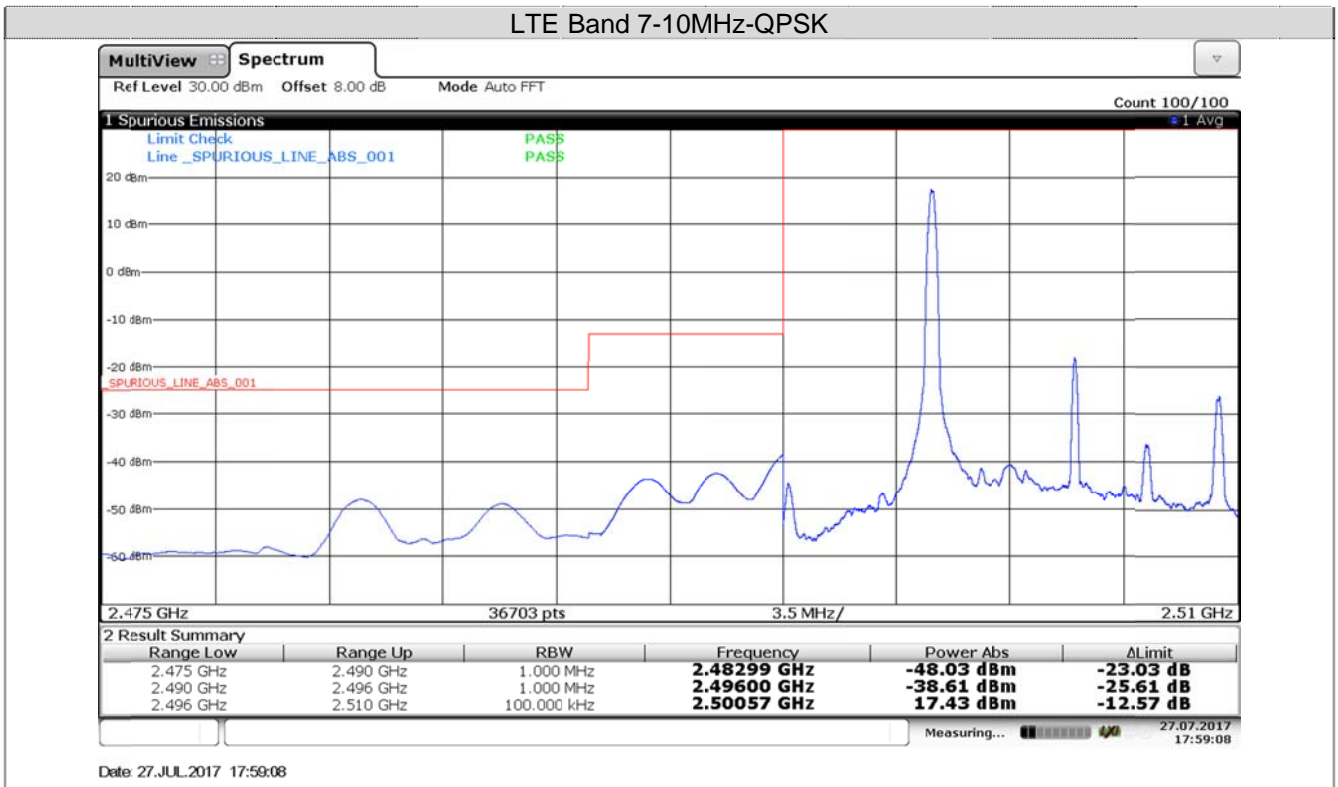




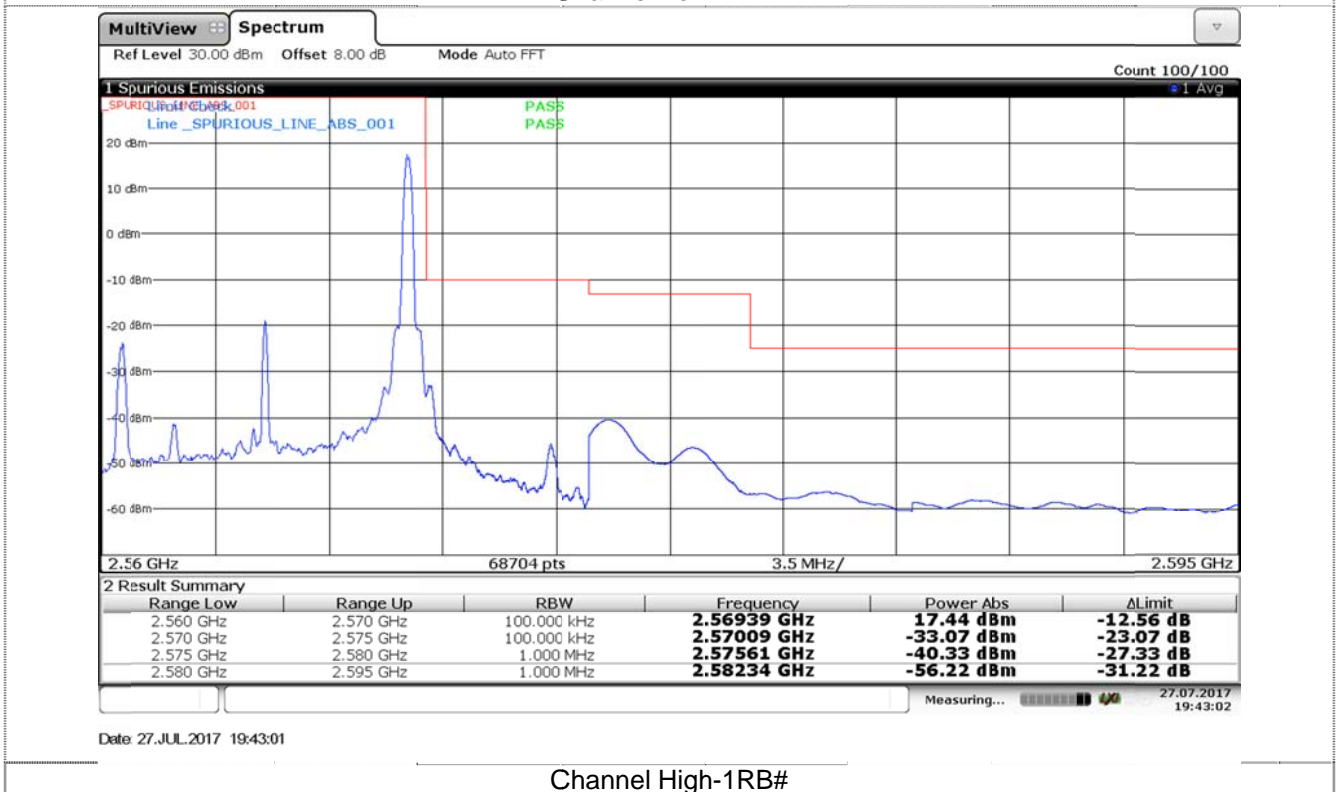
Channel Low-Full RB#



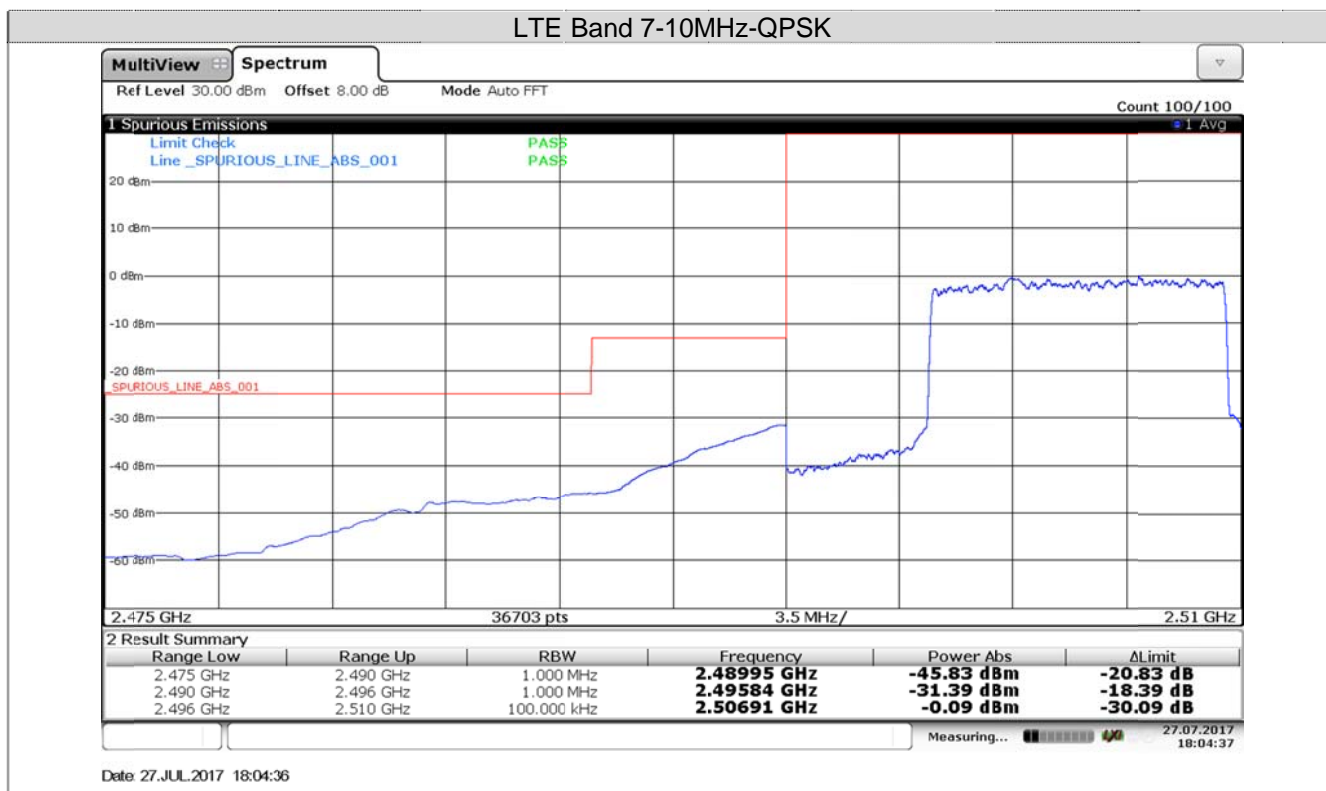
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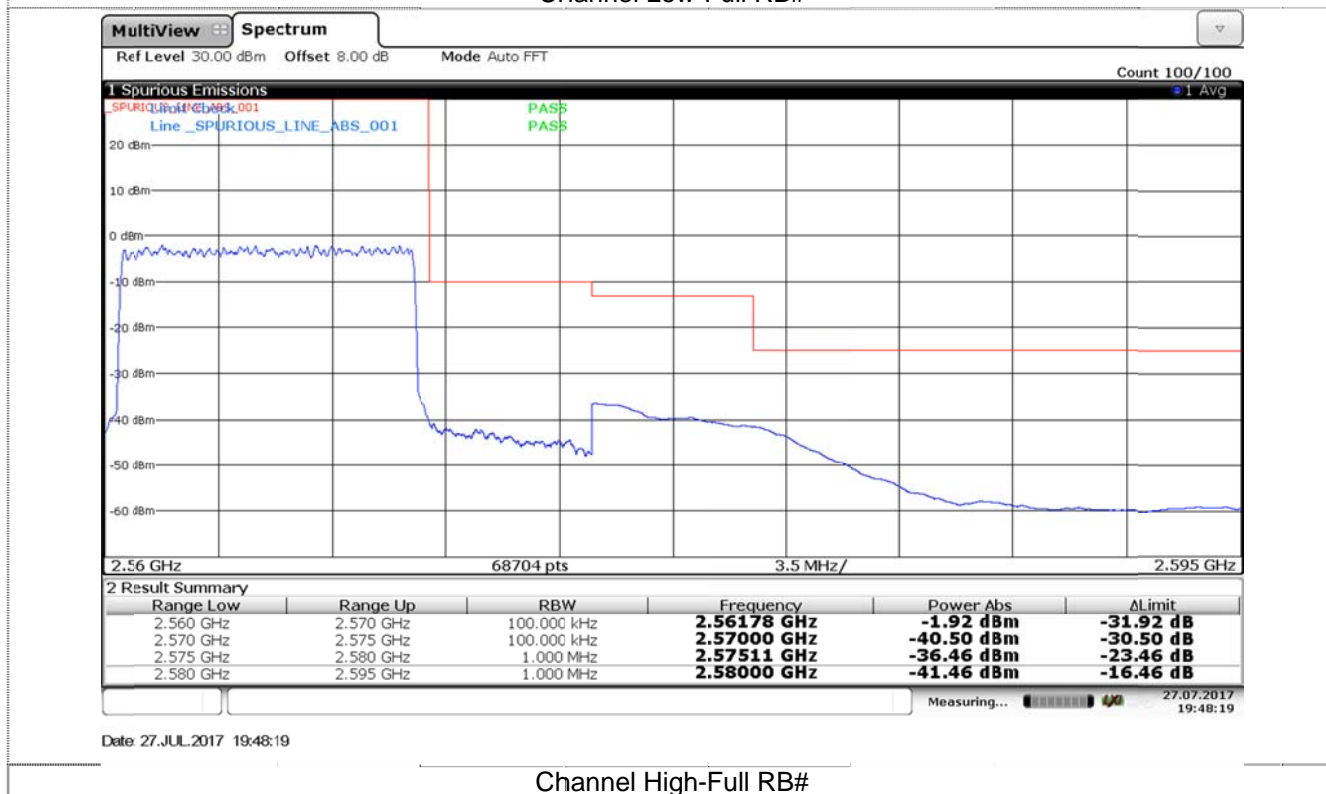
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Channel High-1RB#

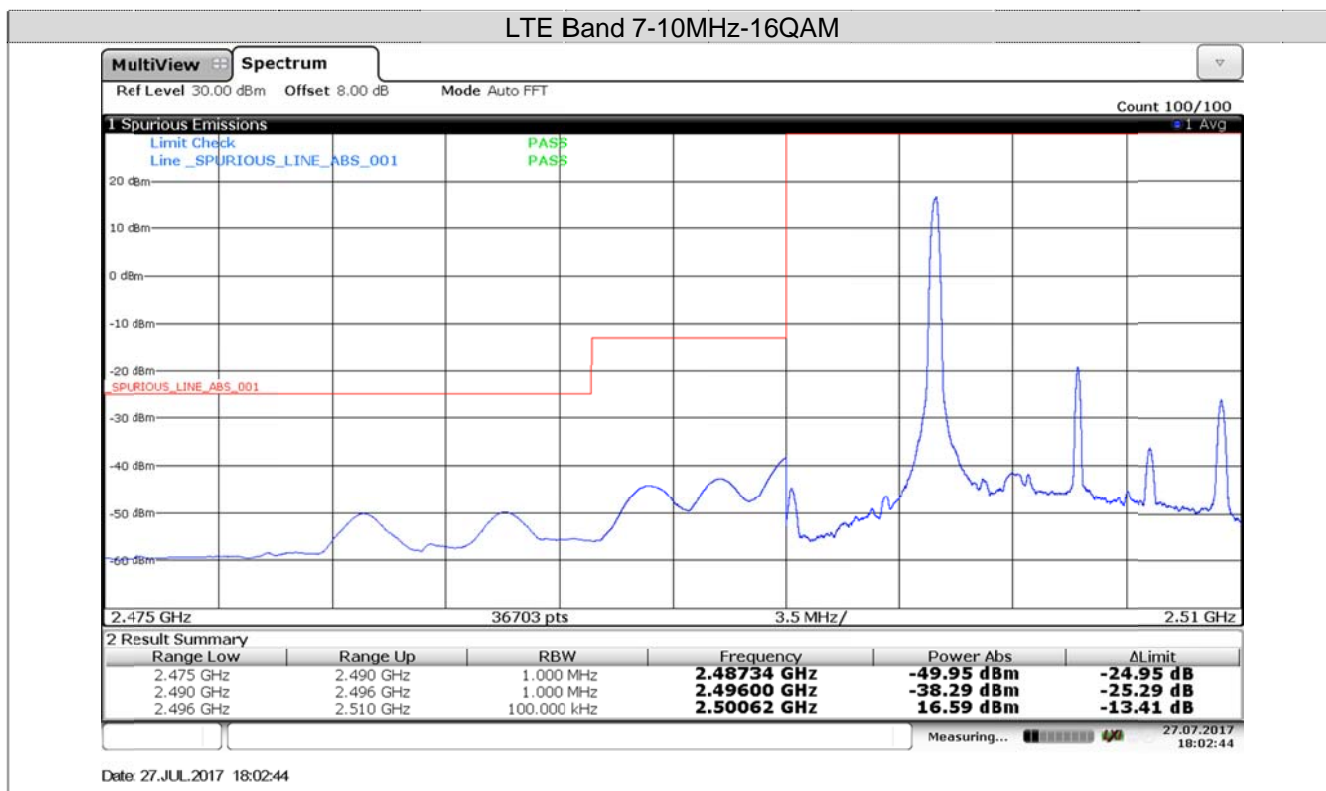


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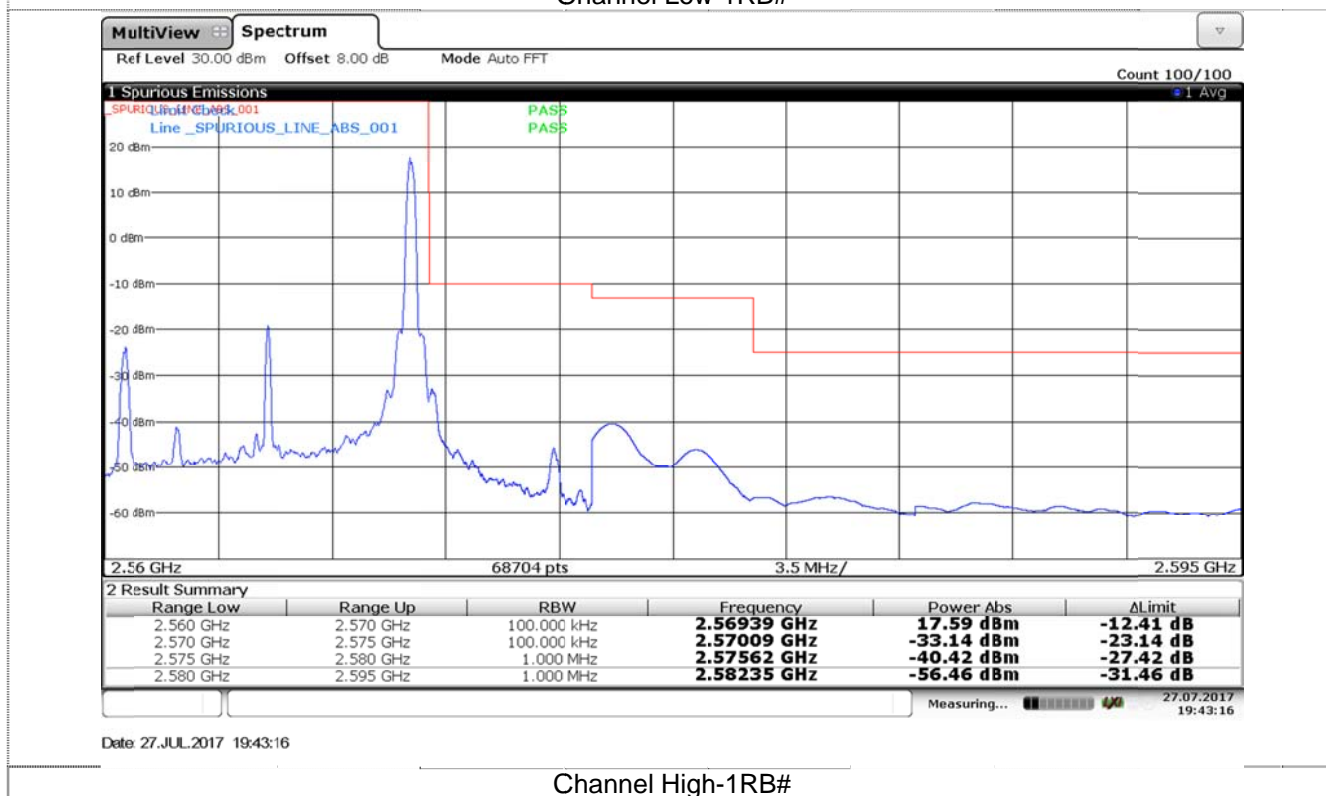


Channel High-Full RB#

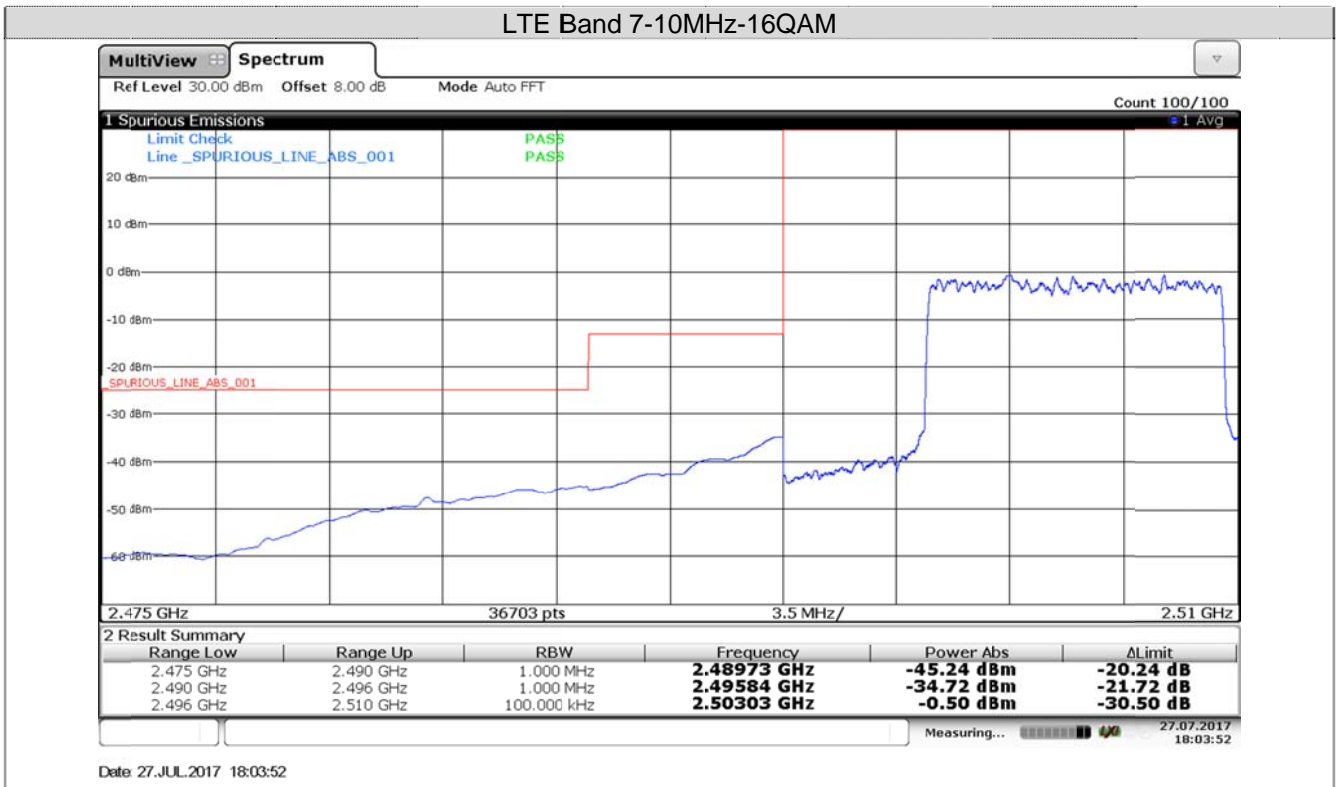




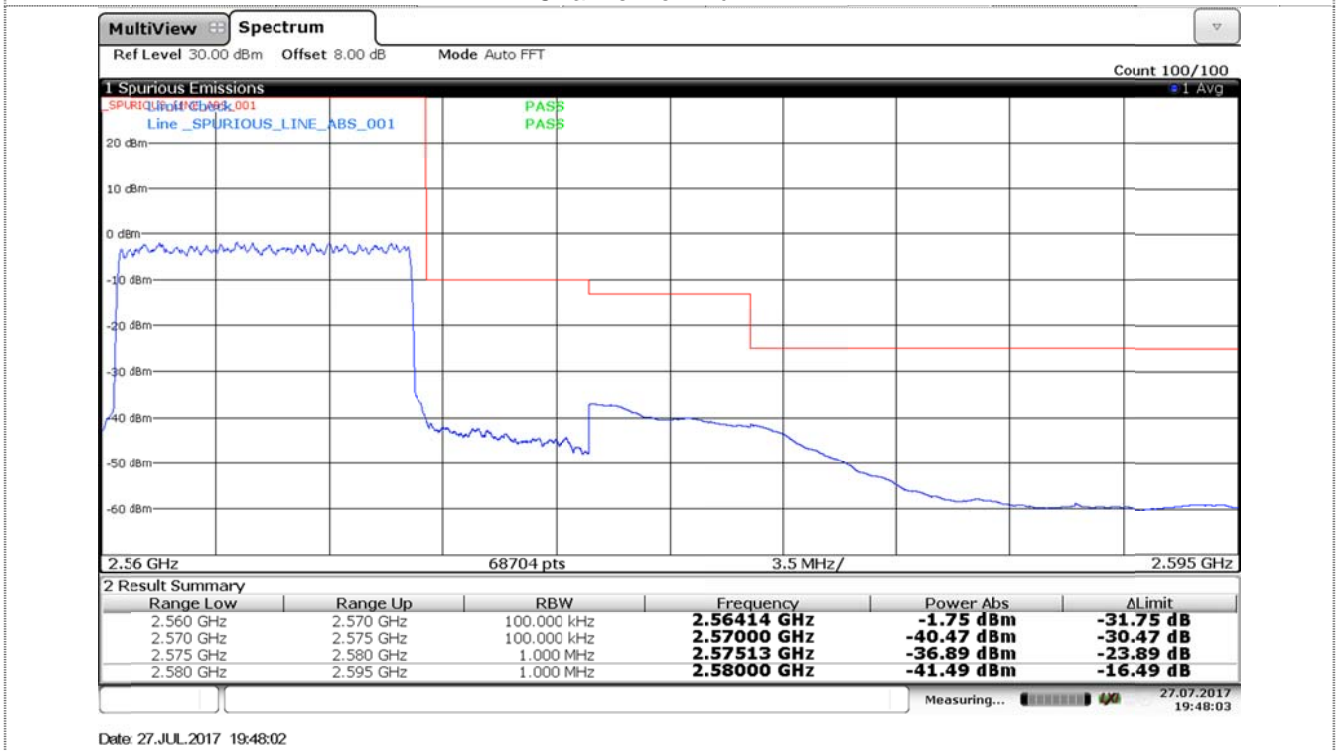
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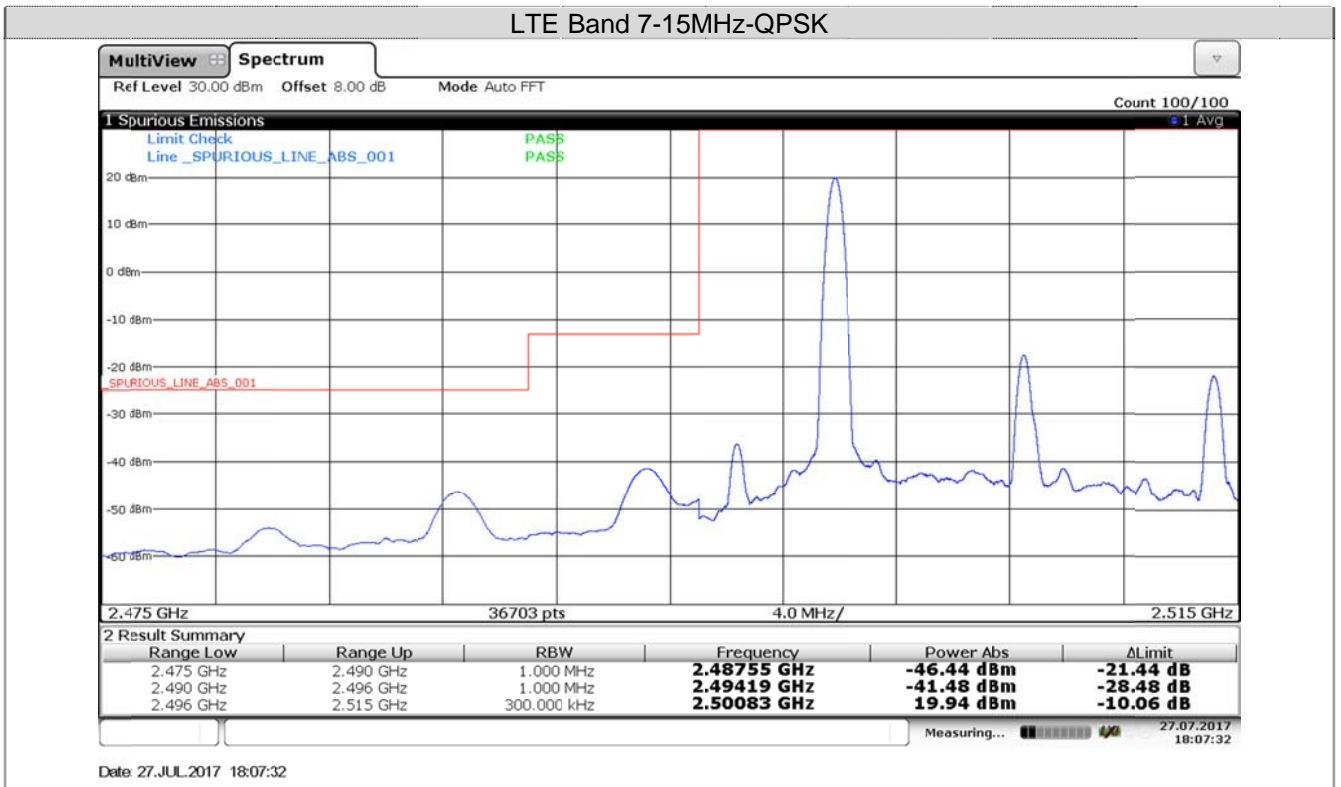
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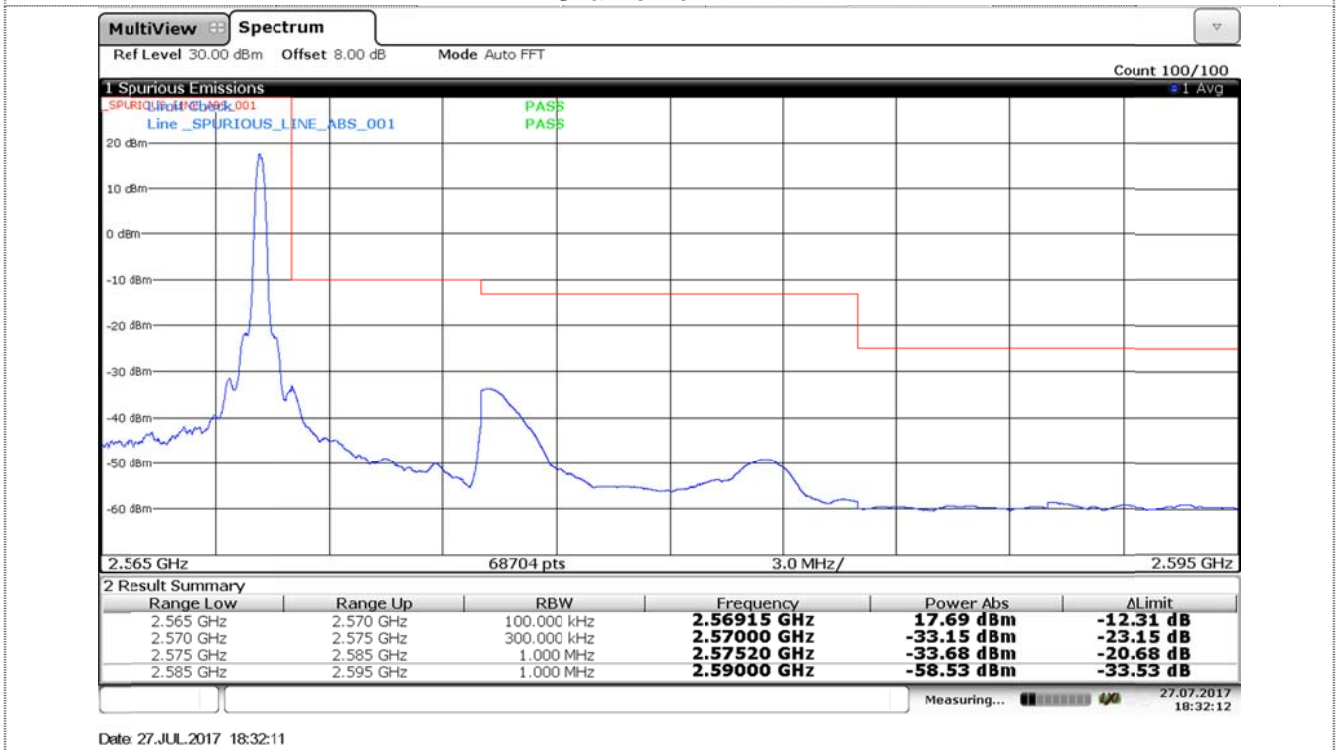
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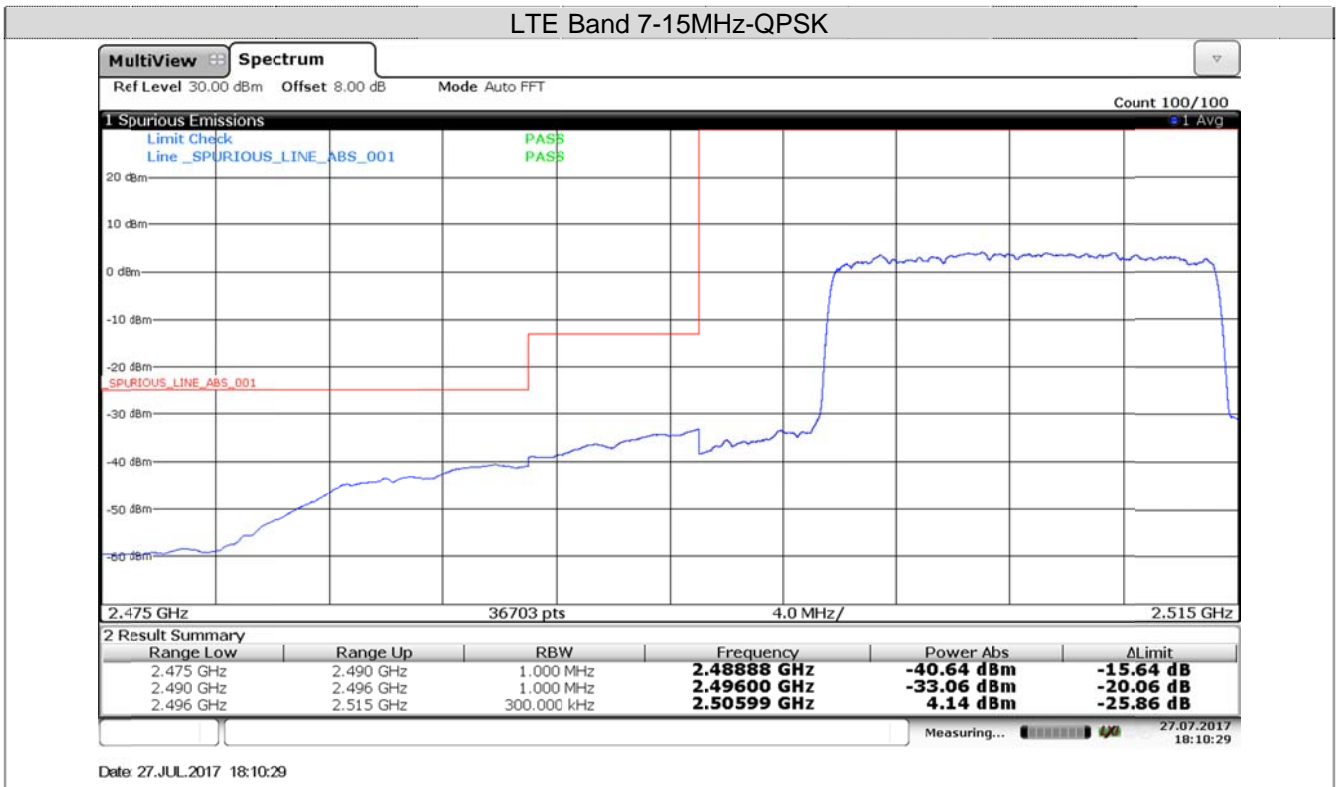
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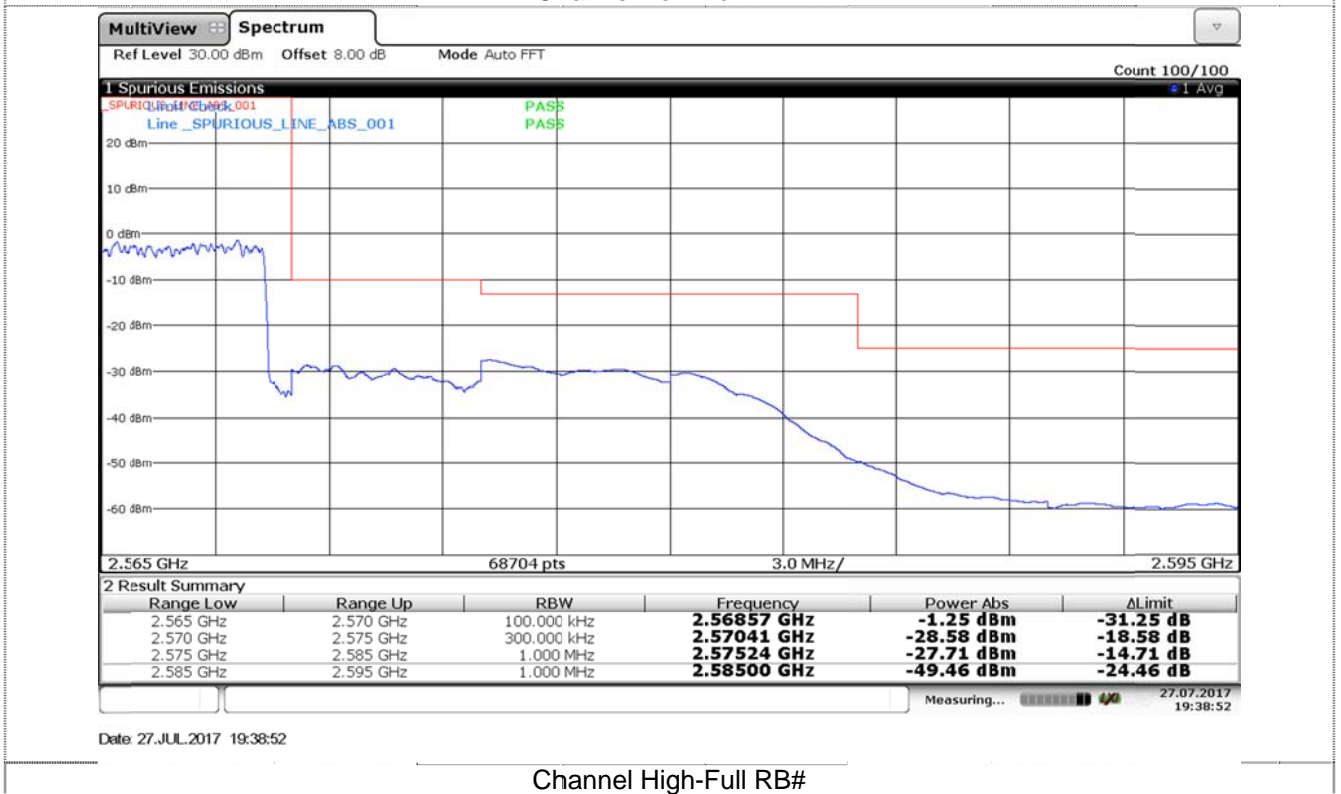
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Channel High-1RB#



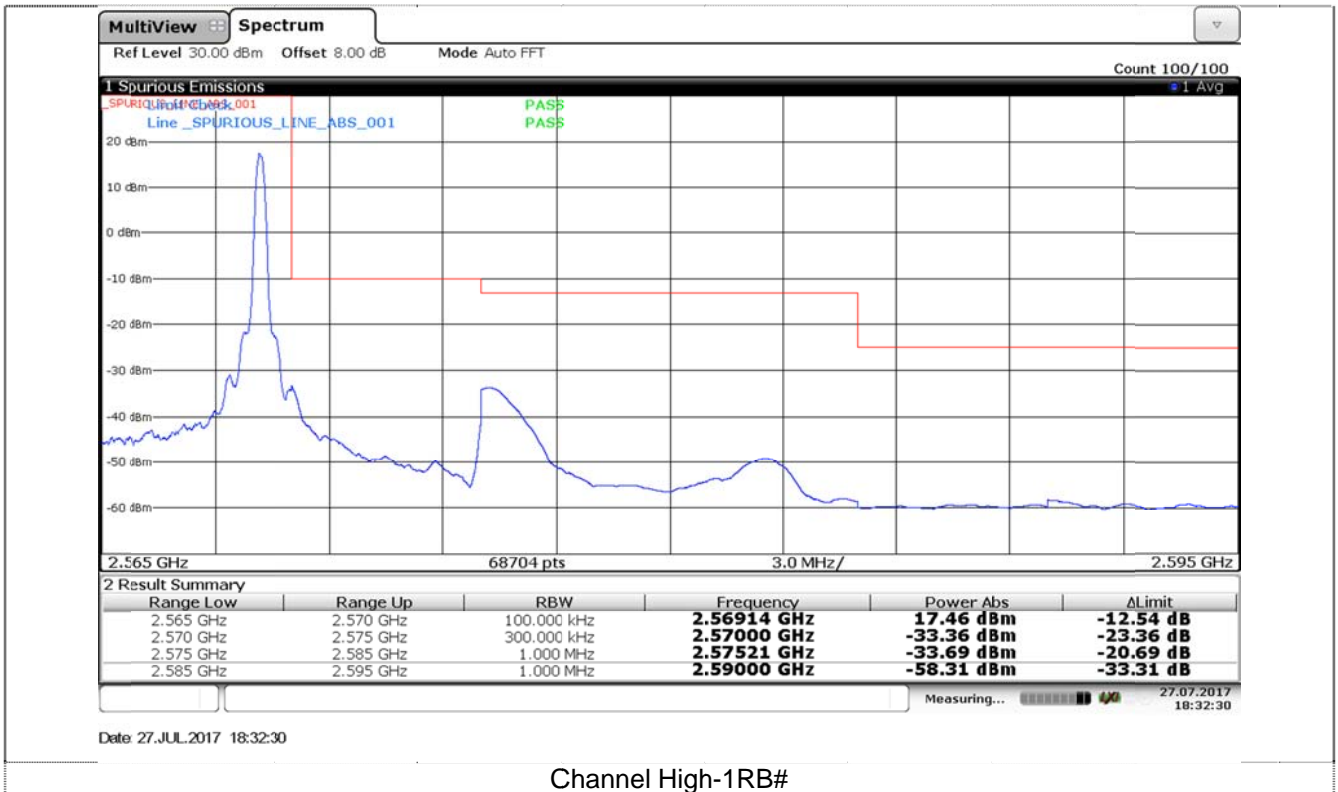
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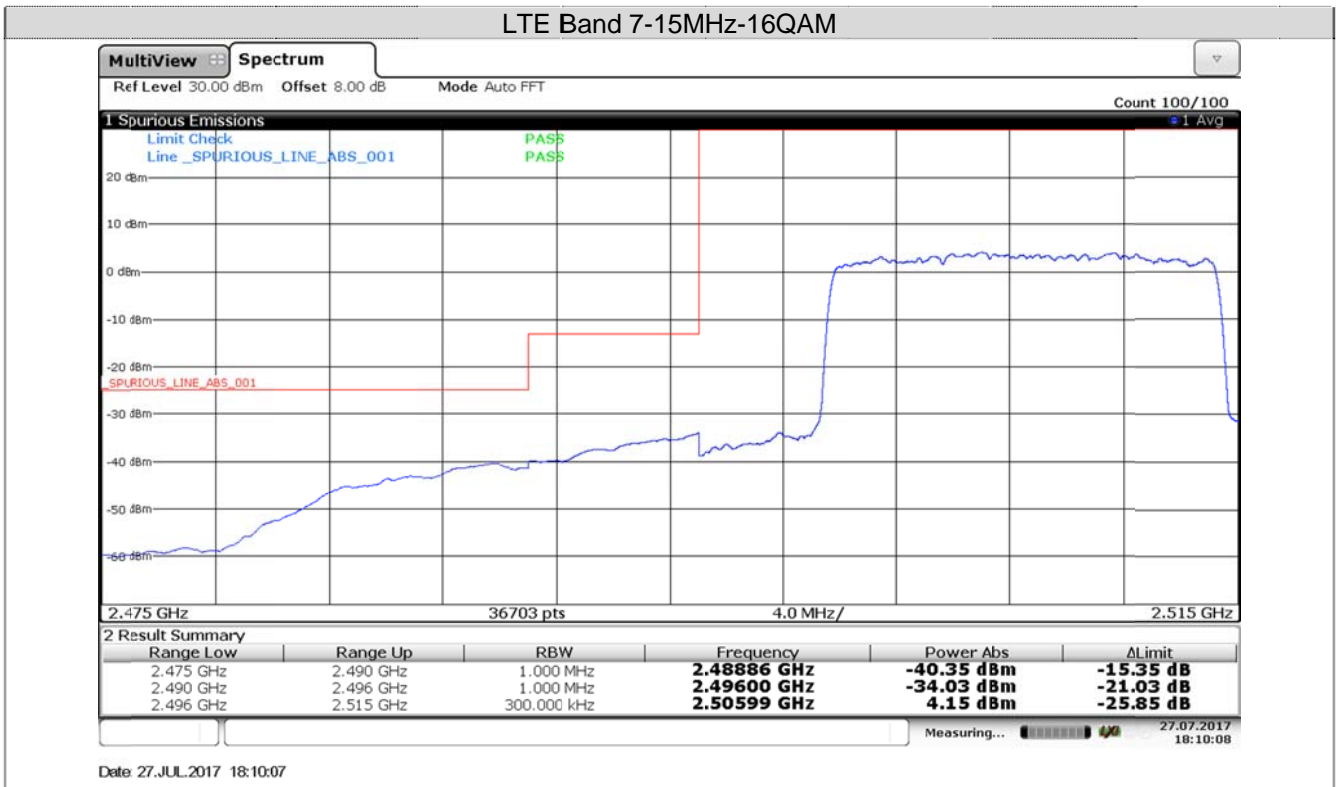


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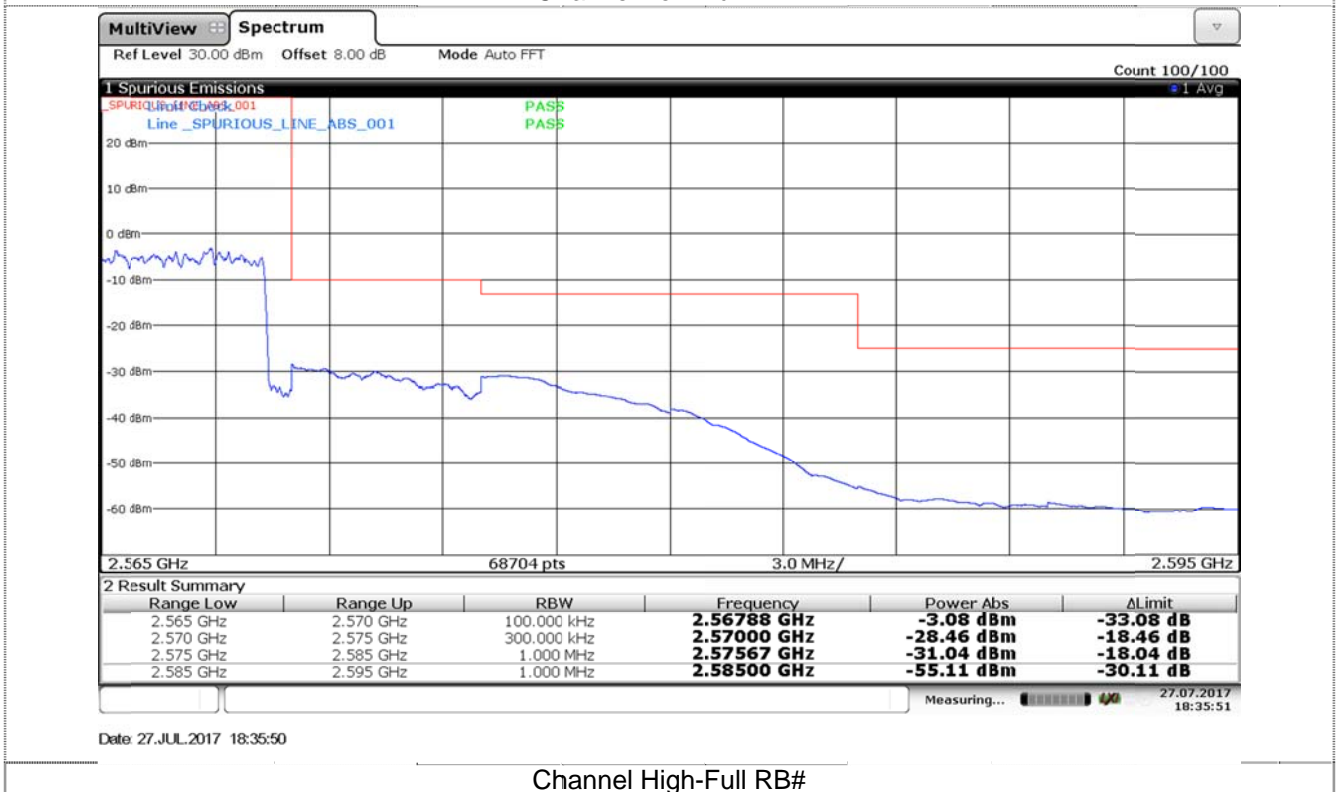




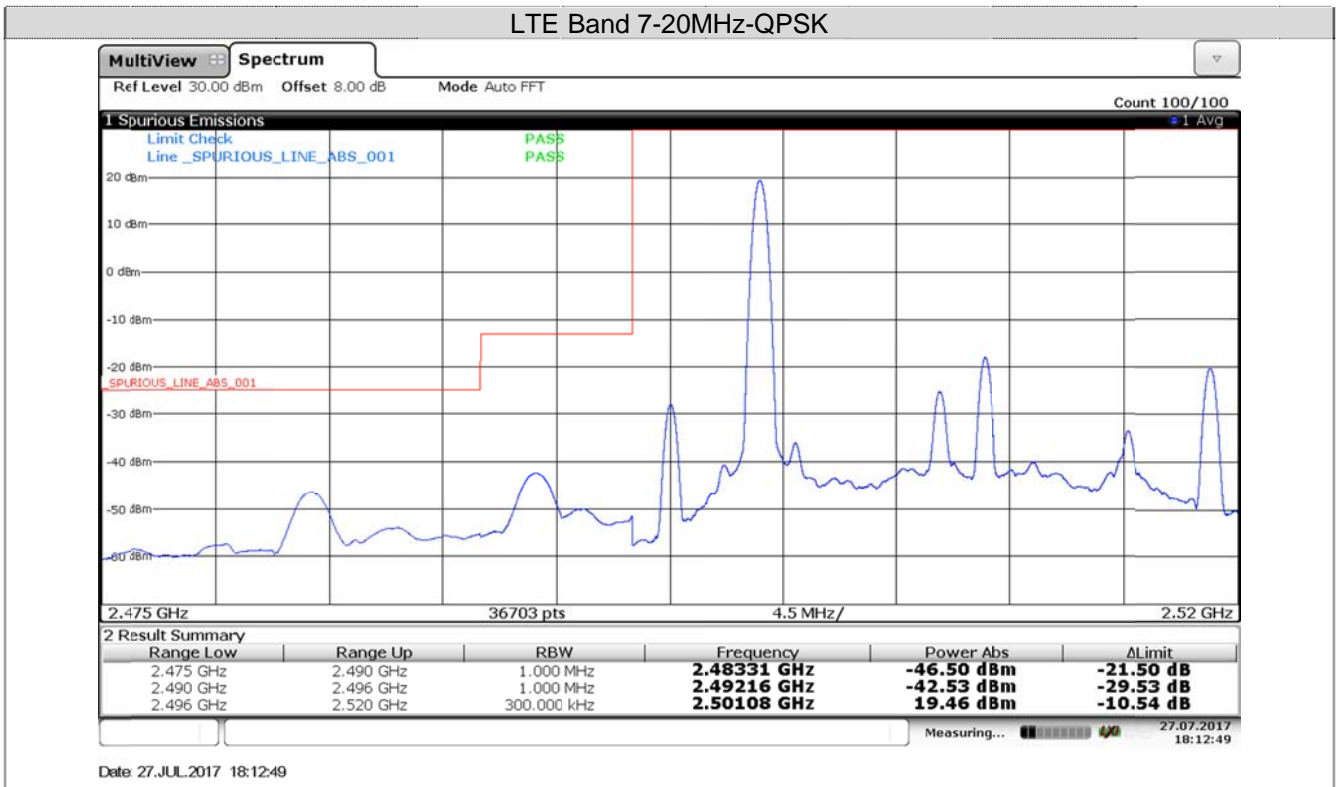




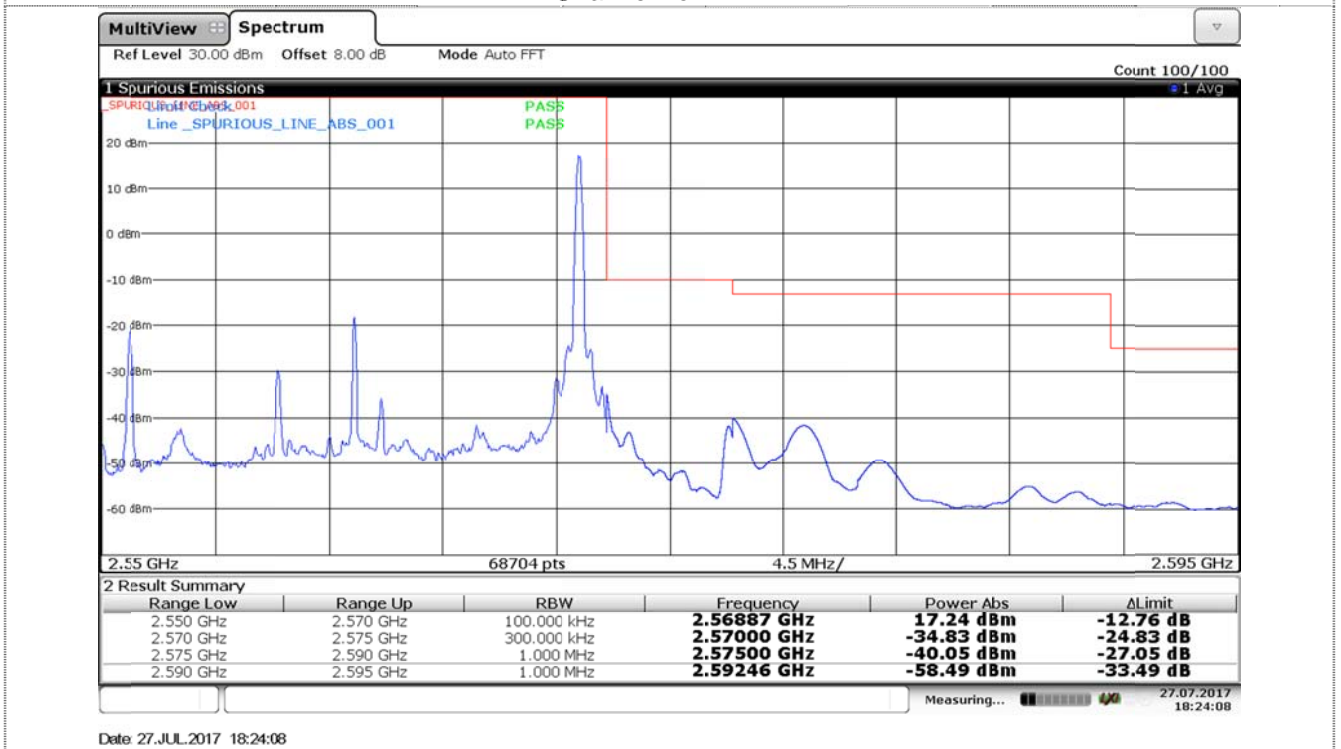
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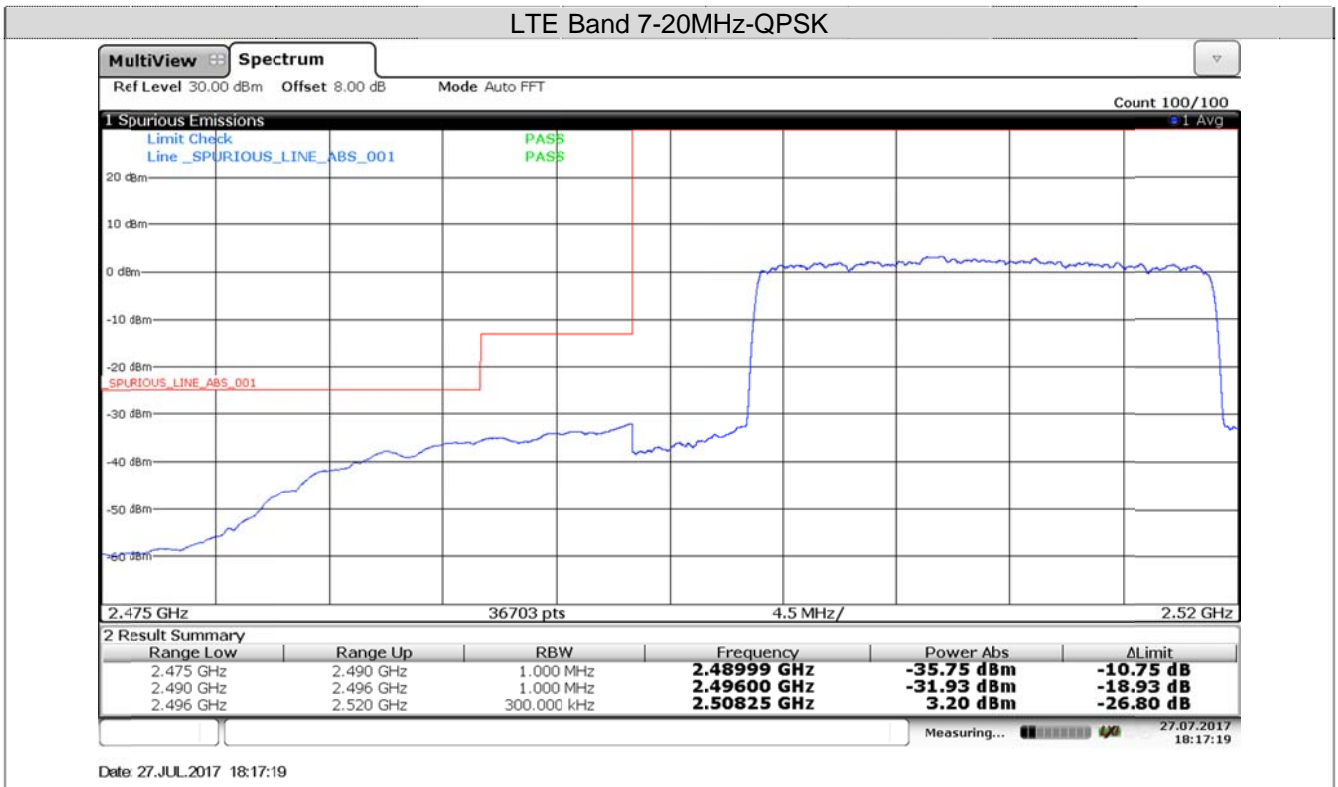
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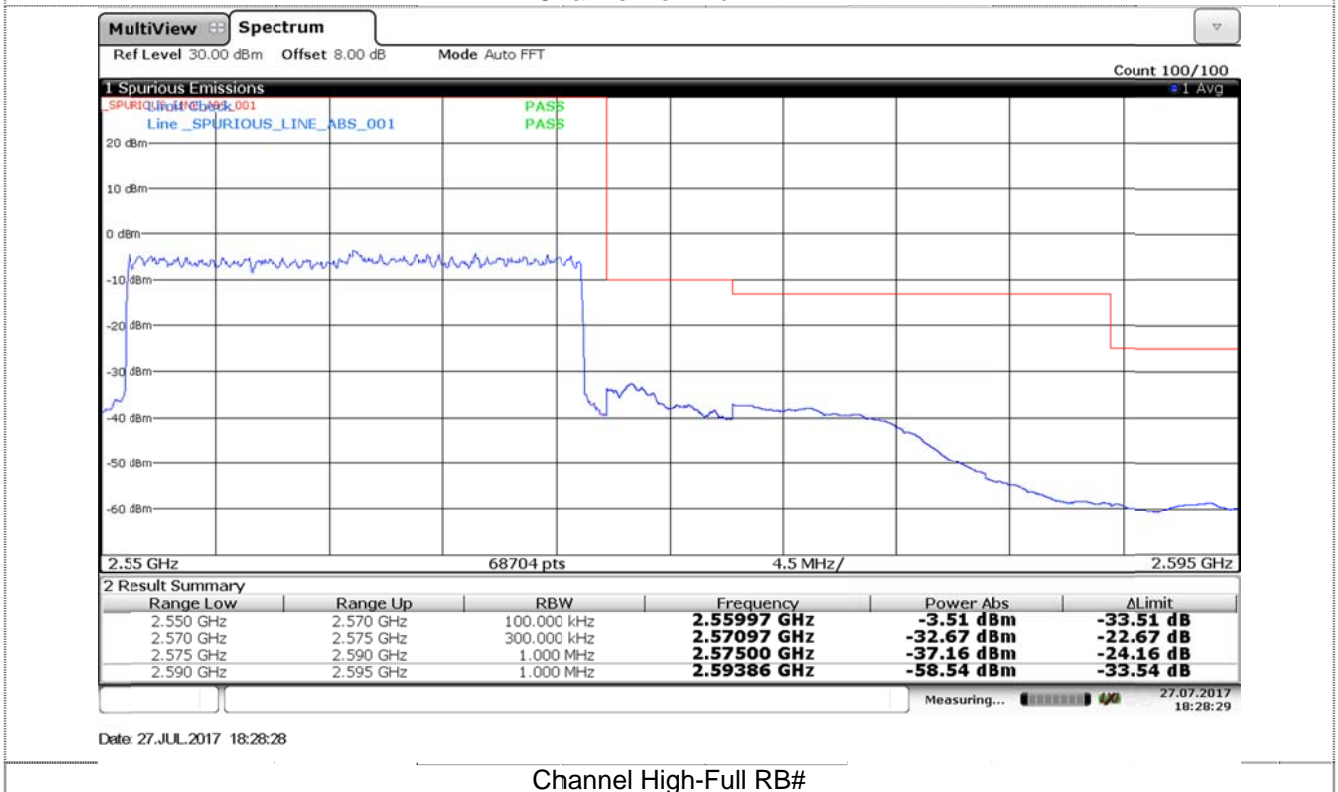
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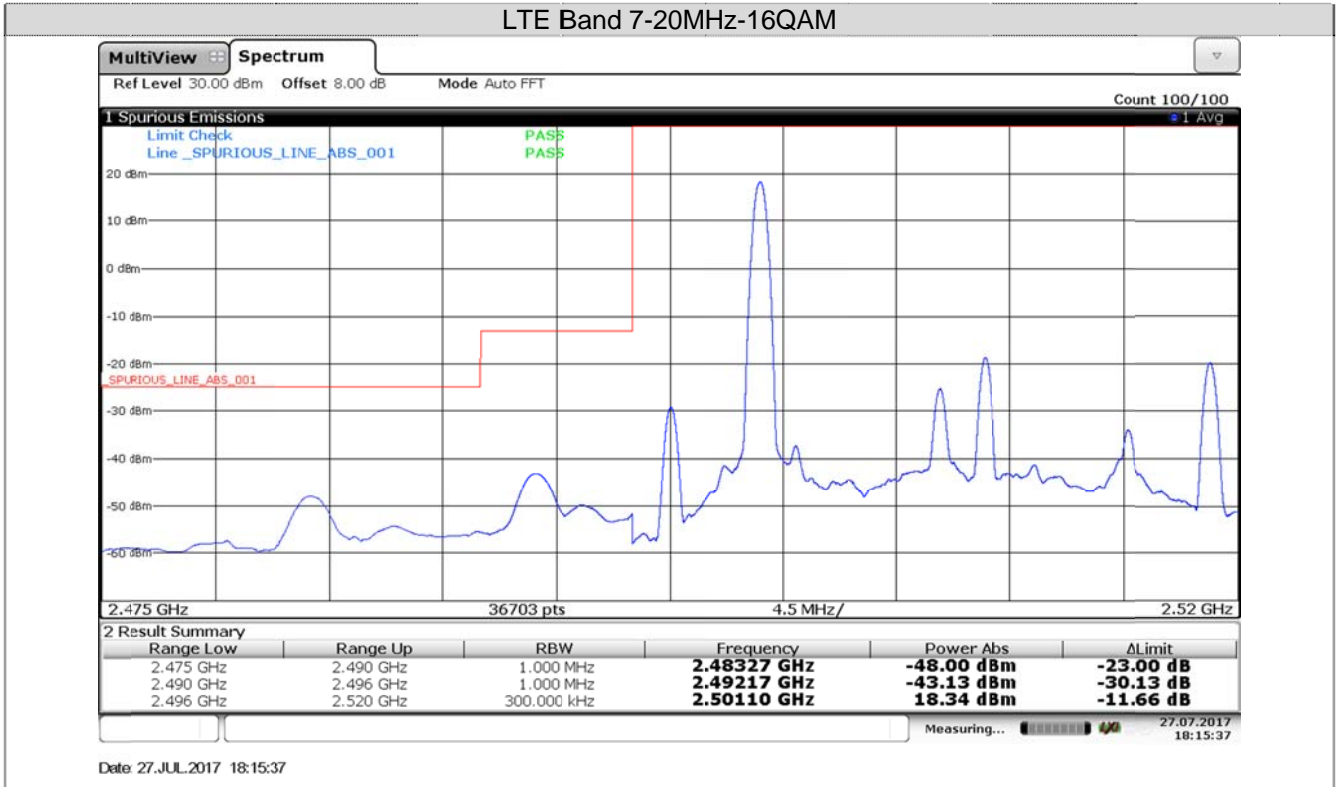
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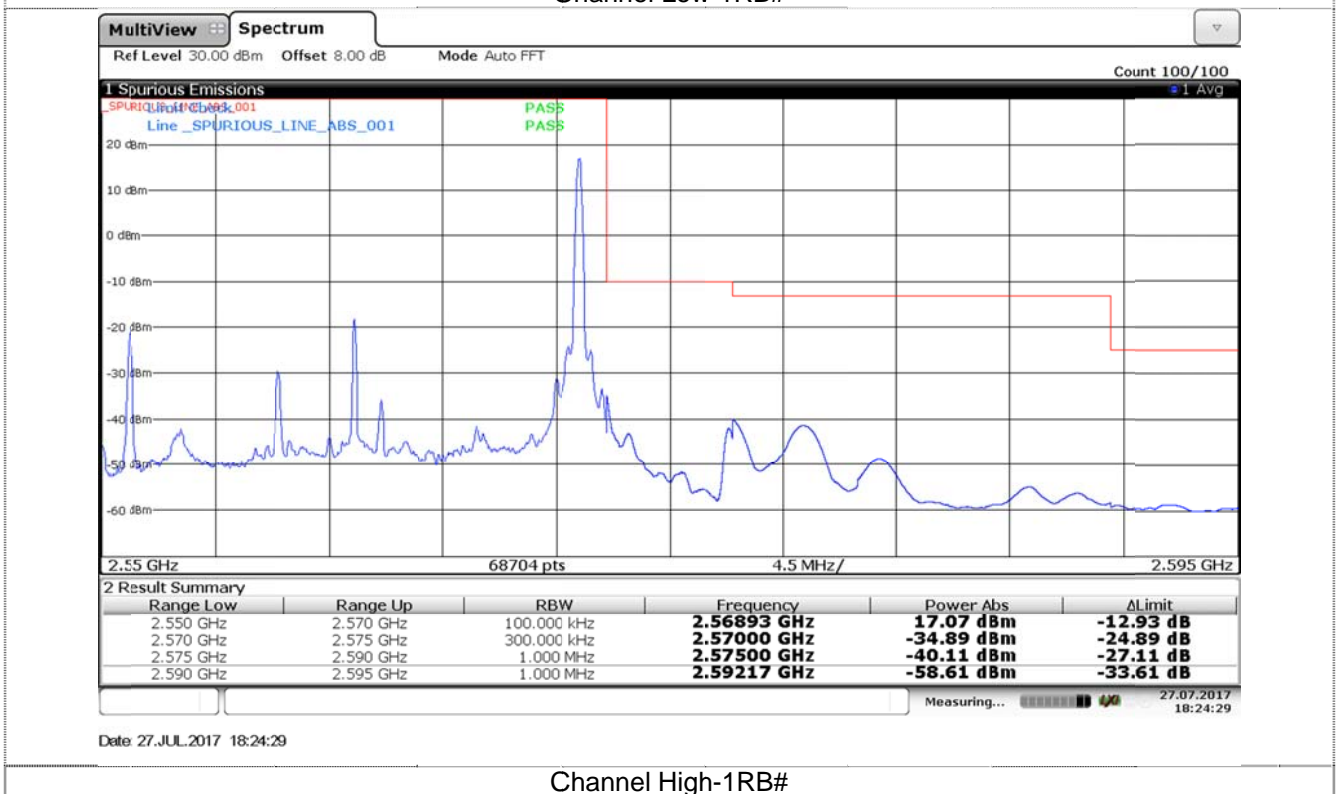
Channel Low-Full RB#



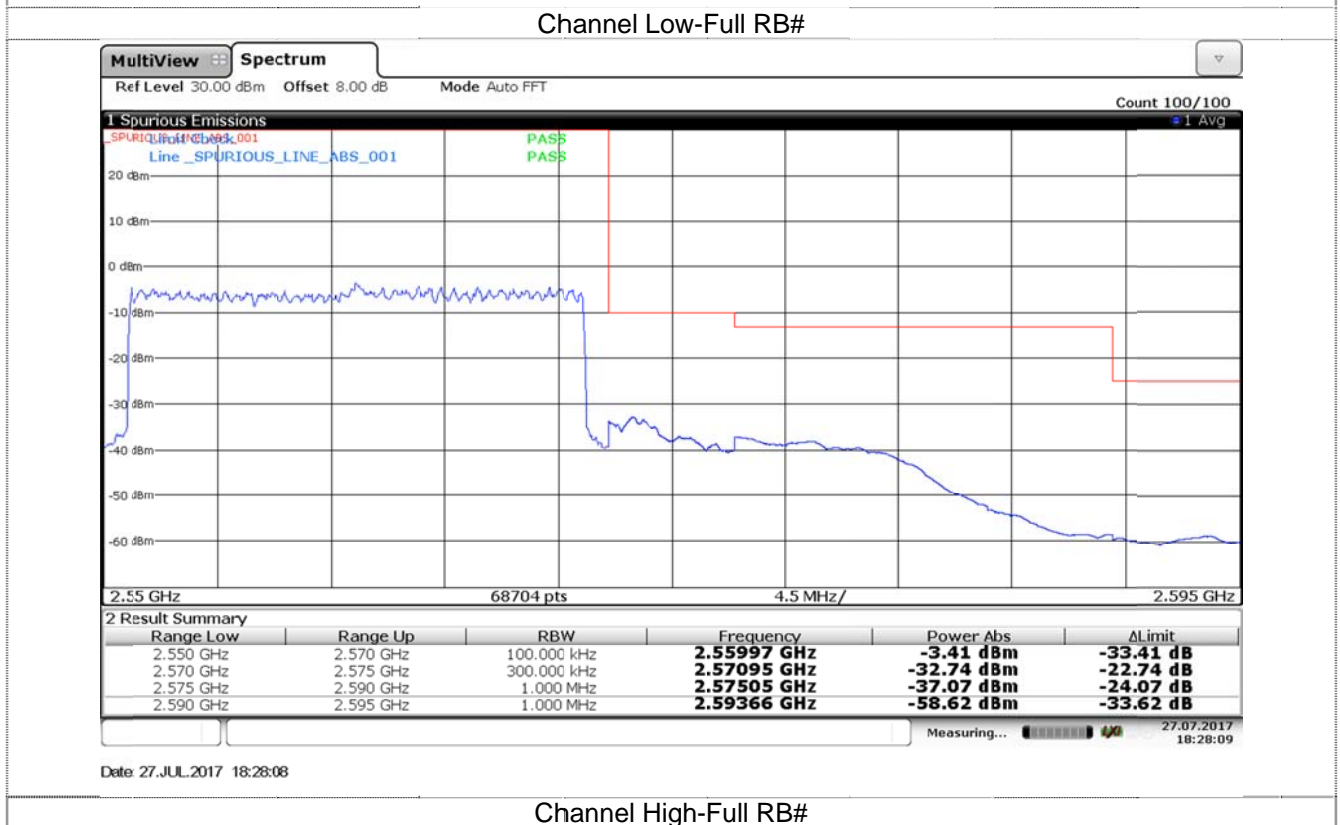
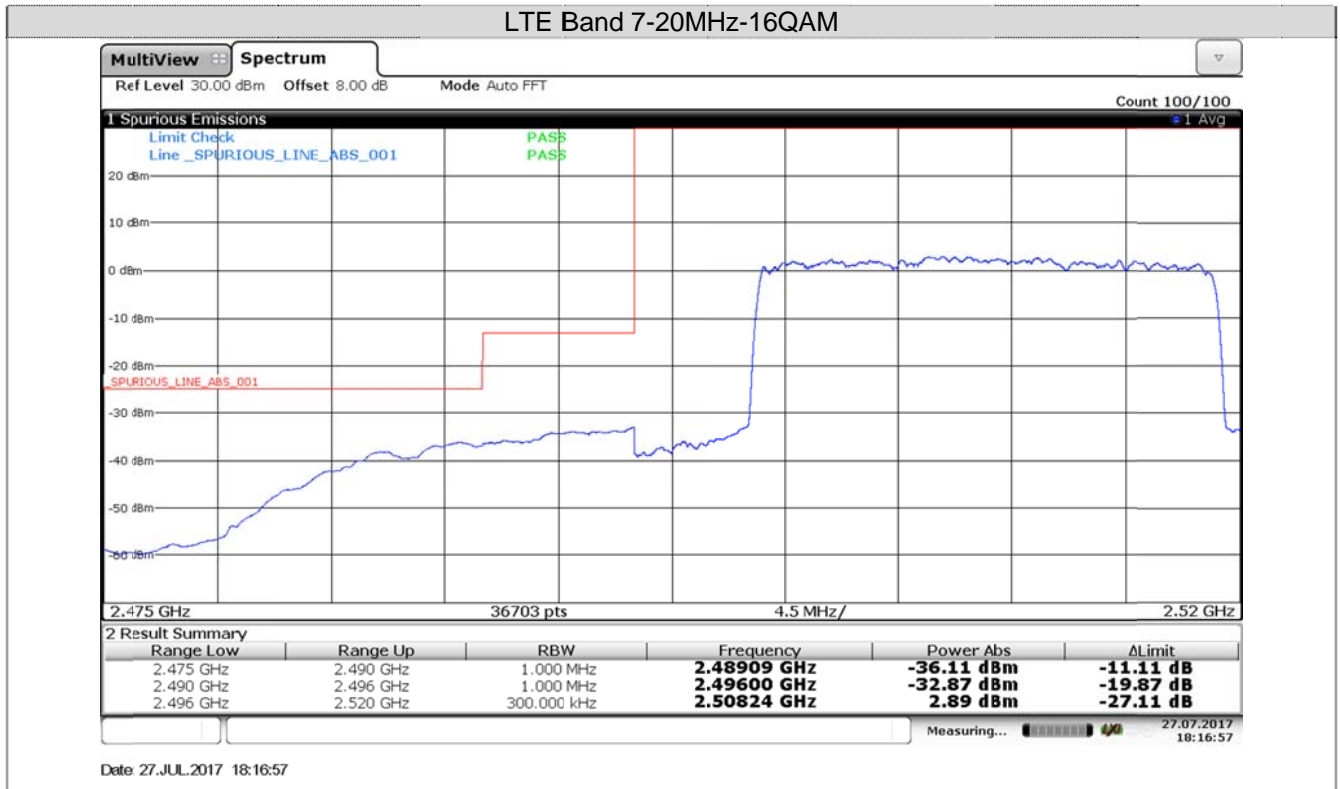
Channel High-Full RB#



### Channel Low-1RB#







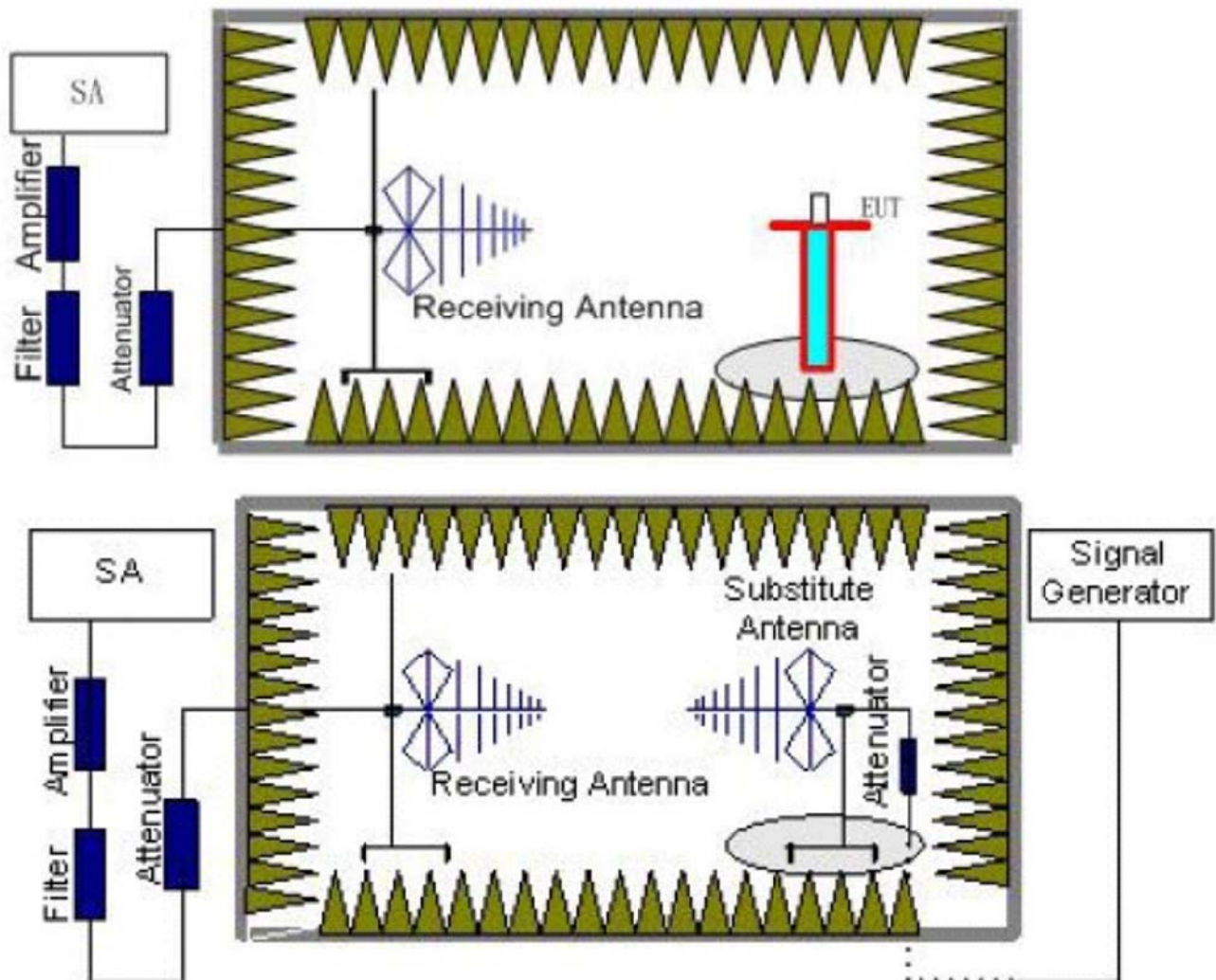
Channel High-Full RB#

## 5.5. ERP AND EIRP

### LIMIT

LTE Band 2: EIRP<2W ,LTE Band 4:EIRP<1W,LTE Band 5:ERP<7W,LTE Band 7:EIPR<2W

### TEST CONFIGURATION



### TEST PROCEDURE

1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna shall be moved from 1m to 4m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed

to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:  
Power(EIRP)=PMea- PAg - Pcl + Ga  
We used SMF100A micowave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:  
Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.  
ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

**TEST MODE:**

Please refer to the clause 3.3

**TEST RESULTS**

**Passed**       **Not Applicable**

LTE Band 2-1.4MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.47	19.68	33.00	PASS
	Mid	22.52	19.52		
	High	22.46	19.78		
16QAM	Low	22.01	19.79		PASS
	Mid	22.04	19.41		
	High	22.49	19.67		

LTE Band 2-3MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.33	19.74	33.00	PASS
	Mid	22.41	19.85		
	High	22.58	19.66		
16QAM	Low	21.85	19.64		PASS
	Mid	21.70	19.67		
	High	22.65	19.68		

LTE Band 2-5MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.21	19.36	33.00	PASS
	Mid	22.08	19.47		
	High	22.15	19.52		
16QAM	Low	21.41	19.36		PASS
	Mid	21.28	19.47		
	High	22.79	19.66		

LTE Band 2-10MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.75	18.74	33.00	PASS
	Mid	21.84	18.65		
	High	21.52	18.55		
16QAM	Low	21.62	18.11		PASS
	Mid	22.08	18.78		
	High	21.31	18.31		

LTE Band 2-15MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.94	18.52	33.00	PASS
	Mid	21.63	18.66		
	High	21.52	18.45		
16QAM	Low	21.45	18.52		
	Mid	21.63	18.66		
	High	21.39	18.45		

LTE Band 2-20MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.55	18.43	33.00	PASS
	Mid	21.08	18.25		
	High	21.52	18.36		
16QAM	Low	21.09	18.33		
	Mid	20.40	18.08		
	High	21.58	18.37		

LTE Band 4-1.4MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.55	19.75	30.00	PASS
	Mid	21.46	19.64		
	High	21.64	19.88		
16QAM	Low	20.78	19.90		
	Mid	20.82	19.50		
	High	21.42	19.74		

LTE Band 4-3MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.14	19.38	30.00	PASS
	Mid	21.25	19.52		
	High	21.33	19.47		
16QAM	Low	20.51	19.25		
	Mid	20.30	19.28		
	High	21.46	19.50		



LTE Band 4-5MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.43	18.75	30.00	PASS
	Mid	21.05	18.63		
	High	21.36	18.44		
16QAM	Low	20.66	18.58		
	Mid	20.40	18.77		
	High	20.75	18.31		

LTE Band 4-10MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	20.46	18.52	30.00	PASS
	Mid	20.74	18.34		
	High	20.88	18.48		
16QAM	Low	20.62	18.55		
	Mid	20.71	18.31		
	High	20.73	18.45		

LTE Band 4-15MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	20.66	18.74	30.00	PASS
	Mid	20.25	18.52		
	High	20.17	18.66		
16QAM	Low	20.02	18.74		
	Mid	20.25	18.52		
	High	20.00	18.66		

LTE Band 4-20MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	20.06	18.24	30.00	PASS
	Mid	20.15	17.66		
	High	20.31	17.43		
16QAM	Low	19.46	18.11		
	Mid	19.26	17.43		
	High	21.16	17.62		

LTE Band 5-1.4MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.14	20.88	38.50	PASS
	Mid	22.08	20.64		
	High	22.45	20.52		
16QAM	Low	22.02	20.98		
	Mid	22.17	20.55		
	High	22.03	20.61		

LTE Band 5-3MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.18	20.38	38.50	PASS
	Mid	22.06	20.47		
	High	22.25	20.64		
16QAM	Low	21.77	20.29		
	Mid	21.44	20.31		
	High	22.30	20.65		

LTE Band 5-5MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.75	19.85	38.50	PASS
	Mid	21.64	19.75		
	High	21.52	19.86		
16QAM	Low	20.97	19.69		
	Mid	21.09	19.87		
	High	20.99	19.74		

LTE Band 5-10MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.52	19.58	38.50	PASS
	Mid	21.43	19.47		
	High	21.84	19.55		
16QAM	Low	20.73	19.51		
	Mid	20.88	20.00		
	High	21.01	19.63		

LTE Band 7-5MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.38	20.45	33.00	PASS
	Mid	22.25	20.66		
	High	22.36	20.34		
16QAM	Low	22.23	20.57		
	Mid	22.36	20.55		
	High	21.86	20.45		

LTE Band 7-10MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	22.06	20.85	33.00	PASS
	Mid	22.25	20.47		
	High	22.17	20.22		
16QAM	Low	21.57	20.75		
	Mid	21.52	20.28		
	High	22.25	20.24		

LTE Band 7-15MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.64	19.85	33.00	PASS
	Mid	21.66	19.46		
	High	21.84	19.33		
16QAM	Low	22.09	19.75		
	Mid	21.31	19.54		
	High	21.50	19.26		

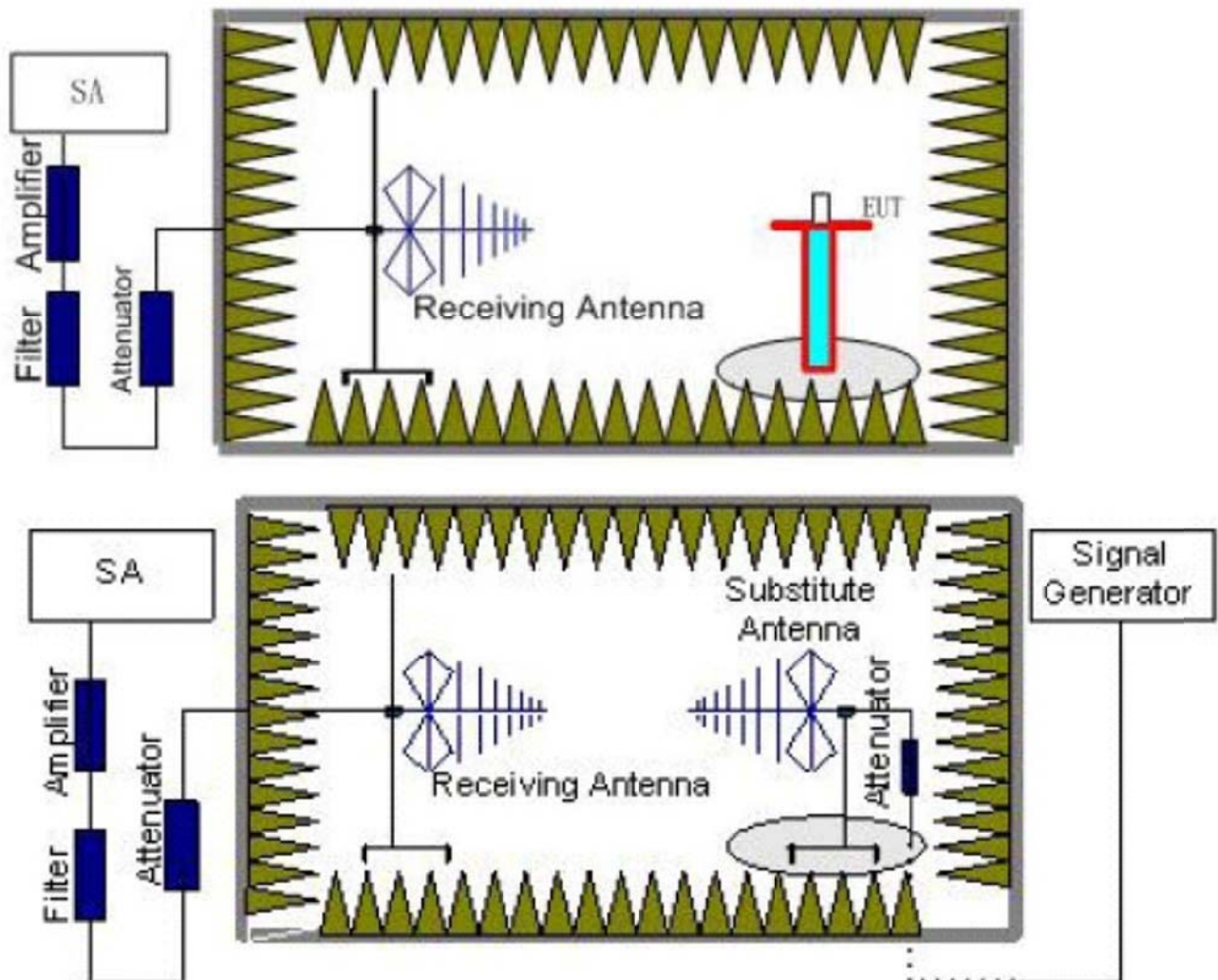
LTE Band 7-20MHz					
Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.66	19.43	33.00	PASS
	Mid	21.52	19.25		
	High	21.88	19.34		
16QAM	Low	21.16	19.64		
	Mid	21.17	19.62		
	High	21.35	19.18		

## 5.6. Radiated Spurious Emission

### LIMIT

LTE Band 2/4/17:<-13dBm;LTE Band 7<-25dBm

### TEST CONFIGURATION



### TEST RESULTS

1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna shall be moved from 1m to 4m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P<sub>Mea</sub>) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver

reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:  
Power(EIRP)=PMea- PAg - Pcl + Ga  
We used SMF100A micowave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:  
Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.  
ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

**TEST MODE:**

Please refer to the clause 3.3

**TEST RESULTS**

**Passed**       **Not Applicable**



LTE Band 2-1.4MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3701.4	Vertical	-38.55	-13.00	Pass
	5552.1	V	-41.66		
	7402.8	V	---		
	3701.4	Horizontal	-40.85		
	5552.1	H	-44.76		
	7402.8	H	---		
Mid	3760	Vertical	-37.81	-13.00	Pass
	5640	V	-41.81		
	7520	V	---		
	3760	Horizontal	-40.69		
	5640	H	-44.60		
	7520	H	---		
High	3818.6	Vertical	-38.09	-13.00	Pass
	5727.9	V	-42.06		
	7637.2	V	---		
	3818.6	Horizontal	-40.73		
	5727.9	H	-44.56		
	7637.2	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 2-3MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3703	Vertical	-39.24	-13.00	Pass
	5554.5	V	-41.81		
	7406	V	---		
	3703	Horizontal	-38.55		
	5554.5	H	-41.96		
	7406	H	---		
Mid	3760	Vertical	-38.66	-13.00	Pass
	5640	V	-42.42		
	7520	V	---		
	3760	Horizontal	-38.79		
	5640	H	-42.87		
	7520	H	---		
High	3817	Vertical	-38.00	-13.00	Pass
	5725.5	V	-42.72		
	7634	V	---		
	3817	Horizontal	-38.61		
	5725.5	H	-42.85		
	7634	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 2-5MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3705	Vertical	-38.75	-13.00	Pass
	5557.5	V	-41.99		
	7410	V	---		
	3705	Horizontal	-37.96		
	5557.5	H	-42.15		
	7410	H	---		
Mid	3760	Vertical	-38.09	-13.00	Pass
	5640	V	-42.67		
	7520	V	---		
	3760	Horizontal	-37.57		
	5640	H	-43.94		
	7520	H	---		
High	3815	Vertical	-35.38	-13.00	Pass
	5722.5	V	-43.53		
	7630	V	---		
	3815	Horizontal	-35.94		
	5722.5	H	-43.64		
	7630	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 2-10MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3710	Vertical	-38.19	-13.00	Pass
	5565	V	-42.28		
	7420	V	---		
	3710	Horizontal	-36.84		
	5565	H	-42.56		
	7420	H	---		
Mid	3760	Vertical	-37.07	-13.00	Pass
	5640	V	-43.46		
	7520	V	---		
	3760	Horizontal	-36.17		
	5640	H	-42.77		
	7520	H	---		
High	3810	Vertical	-37.35	-13.00	Pass
	5715	V	-43.00		
	7620	V	---		
	3810	Horizontal	-36.59		
	5715	H	-42.84		
	7620	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 2-15MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3715	Vertical	-37.24	-13.00	Pass
	5572.5	V	-42.68		
	7430	V	---		
	3715	Horizontal	-35.46		
	5572.5	H	-43.04		
	7430	H	---		
Mid	3760	Vertical	-35.75	-13.00	Pass
	5640	V	-44.22		
	7520	V	---		
	3760	Horizontal	-34.57		
	5640	H	-44.83		
	7520	H	---		
High	3805	Vertical	-33.53	-13.00	Pass
	5707.5	V	-44.63		
	7610	V	---		
	3805	Horizontal	-33.78		
	5707.5	H	-44.68		
	7610	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 2-20MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3720	Vertical	-35.98	-13.00	Pass
	5580	V	-43.12		
	7440	V	---		
	3720	Horizontal	-33.97		
	5580	H	-43.53		
	7440	H	---		
Mid	3760	Vertical	-34.31	-13.00	Pass
	5640	V	-44.87		
	7520	V	---		
	3760	Horizontal	-32.97		
	5640	H	-43.92		
	7520	H	---		
High	3800	Vertical	-34.61	-13.00	Pass
	5700	V	-44.23		
	7600	V	---		
	3800	Horizontal	-36.03		
	5700	H	-44.52		
	7600	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 4-1.4MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3421.4	Vertical	-30.64	-13.00	Pass
	5132.1	V	-41.33		
	6842.8	V	---		
	3421.4	Horizontal	-33.75		
	5132.1	H	-45.84		
	6842.8	H	---		
Mid	3465	Vertical	-30.52	-13.00	Pass
	5197.5	V	-41.45		
	6930	V	---		
	3465	Horizontal	-33.90		
	5197.5	H	-45.96		
	6930	H	---		
High	3508.6	Vertical	-30.32	-13.00	Pass
	5262.9	V	-41.25		
	7017.2	V	---		
	3508.6	Horizontal	-33.92		
	5262.9	H	-45.98		
	7017.2	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 4-3MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3423	Vertical	-30.11	-13.00	Pass
	5134.5	V	-41.46		
	6846	V	---		
	3423	Horizontal	-34.03		
	5134.5	H	-45.96		
	6846	H	---		
Mid	3465	Vertical	-30.02	-13.00	Pass
	5197.5	V	-41.37		
	6930	V	---		
	3465	Horizontal	-33.89		
	5197.5	H	-46.07		
	6930	H	---		
High	3507	Vertical	-30.20	-13.00	Pass
	5260.5	V	-41.20		
	7014	V	---		
	3423	Horizontal	-33.94		
	5134.5	H	-46.02		
	6846	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 4-5MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3425	Vertical	-29.71	-13.00	Pass
	5137.5	V	-41.63		
	6850	V	---		
	3425	Horizontal	-34.12		
	5137.5	H	-46.18		
Mid	6850	H	---	-13.00	Pass
	3465	Vertical	-29.58		
	5197.5	V	-41.51		
	6930	V	-		
	3465	Horizontal	-33.91		
High	5197.5	H	-46.02	-13.00	Pass
	6930	H	---		
	3505	Vertical	-29.86		
	5257.5	V	-41.77		
	7010	V	-		
High	3505	Horizontal	-34.03	-13.00	Pass
	5257.5	H	-46.13		
	7010	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 4-10MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3430	Vertical	-29.15	-13.00	Pass
	5145	V	-41.93		
	6860	V	---		
	3430	Horizontal	-33.61		
	5145	H	-45.78		
Mid	6860	H	---	-13.00	Pass
	3465	Vertical	-29.37		
	5197.5	V	-42.14		
	6930	V	---		
	3465	Horizontal	-33.47		
High	5197.5	H	-45.66	-13.00	Pass
	6930	H	-		
	3500	Vertical	-29.58		
	5250	V	-42.32		
	7000	V	-		
High	3500	Horizontal	-33.30	-13.00	Pass
	5250	H	-45.51		
	7000	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.



LTE Band 4-15MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3435	Vertical	-28.20	-13.00	Pass
	5152.5	V	-42.32		
	6870	V	---		
	3435	Horizontal	-33.69		
	5152.5	H	-45.14		
	6870	H	---		
Mid	3465	Vertical	-28.49	-13.00	Pass
	5197.5	V	-42.59		
	6930	V	---		
	3465	Horizontal	-33.53		
	5197.5	H	-45.01		
	6930	H	---		
High	3495	Vertical	-28.72	-13.00	Pass
	5242.5	V	-42.80		
	6990	V	---		
	3495	Horizontal	-33.47		
	5242.5	H	-44.95		
	6990	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 4-20MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	3440	Vertical	-26.94	-13.00	Pass
	5160	V	-43.24		
	6880	V	---		
	3440	Horizontal	-33.06		
	5160	H	-45.31		
	6880	H	---		
Mid	3465	Vertical	-26.63	-13.00	Pass
	5197.5	V	-43.38		
	6930	V	---		
	3465	Horizontal	-33.19		
	5197.5	H	-45.20		
	6930	H	---		
High	3490	Vertical	-26.44	-13.00	Pass
	5235	V	-45.14		
	6980	V	---		
	3490	Horizontal	-32.75		
	5235	H	-45.01		
	6980	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 5-1.4MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1649.4	Vertical	-45.38	-13.00	Pass
	2474.1	V	-43.75		
	3298.8	V	---		
	1649.4	Horizontal	-47.84		
	2474.1	H	-46.98		
	3298.8	H	---		
Mid	1673	Vertical	-45.52	-13.00	Pass
	2509.5	V	-43.88		
	3346	V	---		
	1673	Horizontal	-47.99		
	2509.5	H	-47.10		
	3346	H	---		
High	1696.6	Vertical	-45.32	-13.00	Pass
	2544.9	V	-43.70		
	3393.2	V	-		
	1696.6	Horizontal	-48.02		
	2544.9	H	-47.13		
	3393.2	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 5-3MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1651	Vertical	-45.35	-13.00	Pass
	2476.5	V	-43.78		
	3302	V	---		
	1651	Horizontal	-47.73		
	2476.5	H	-46.95		
	3302	H	---		
Mid	1673	Vertical	-45.26	-13.00	Pass
	2509.5	V	-43.70		
	3346	V	---		
	1673	Horizontal	-47.91		
	2509.5	H	-46.81		
	3346	H	---		
High	1695	Vertical	-44.63	-13.00	Pass
	2542.5	V	-42.64		
	3390	V	---		
	1695	Horizontal	-46.86		
	2542.5	H	-45.81		
	3390	H	---		

## Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 5-5MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1653	Vertical	-45.41	-13.00	Pass
	2479.5	V	-43.72		
	3306	V	---		
	1653	Horizontal	-47.99		
	2479.5	H	-47.01		
	3306	H	---		
Mid	1673	Vertical	-45.63	-13.00	Pass
	2509.5	V	-43.90		
	3346	V	---		
	1673	Horizontal	-47.72		
	2509.5	H	-44.84		
	3346	H	---		
High	1693.0	Vertical	-46.56	-13.00	Pass
	2539.5	V	-45.45		
	3386.0	V	---		
	1693.0	Horizontal	-48.27		
	2539.5	H	-45.35		
	3386.0	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 5-10MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1658	Vertical	-45.57	-13.00	Pass
	2487	V	-43.56		
	3316	V	---		
	1658	Horizontal	-48.66		
	2487	H	-47.16		
	3316	H	---		
Mid	1673	Vertical	-46.11	-13.00	Pass
	2509.5	V	-44.03		
	3346	V	---		
	1673	Horizontal	-47.22		
	2509.5	H	-46.90		
	3346	H	---		
High	1688	Vertical	-45.67	-13.00	Pass
	2532	V	-44.44		
	3376	V	-		
	1688	Horizontal	-47.05		
	2532	H	-47.06		
	3376	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 7-5MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	5005	Vertical	-31.75	-25.00	Pass
	7507.5	V	-39.63		
	10010	V	---		
	5005	Horizontal	-38.75	-25.00	Pass
	7507.5	H	-44.63		
	10010	H	---		
Mid	5070	Vertical	-30.93	-25.00	Pass
	7605	V	-38.91		
	10140	V	---		
	5070	Horizontal	-37.91	-25.00	Pass
	7605	H	-39.56		
	10140	H	---		
High	5135	Vertical	-31.58	-25.00	Pass
	7702.5	V	-39.98		
	10270	V	---		
	5135	Horizontal	-37.64	-25.00	Pass
	7702.5	H	-40.04		
	10270	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 7-10MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	5010	Vertical	-31.80	-25.00	Pass
	7515	V	-39.58		
	10020	V	---		
	5010	Horizontal	-38.95	-25.00	Pass
	7515	H	-44.67		
	10020	H	---		
Mid	5070	Vertical	-31.95	-25.00	Pass
	7605	V	-39.72		
	10140	V	---		
	5070	Horizontal	-38.08	-25.00	Pass
	7605	H	-40.39		
	10140	H	---		
High	5130	Vertical	-32.62	-25.00	Pass
	7695	V	-40.82		
	10260	V	---		
	5130	Horizontal	-37.81	-25.00	Pass
	7695	H	-40.88		
	10260	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 7-15MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	5015	Vertical	-31.73	-25.00	Pass
	7522.5	V	-39.65		
	10030	V	---		
	5015	Horizontal	-38.69		
	7522.5	H	-44.62		
	10030	H	---		
Mid	5070	Vertical	-31.53	-25.00	Pass
	7605	V	-39.46		
	10140	V	---		
	5070	Horizontal	-39.79		
	7605	H	-38.62		
	10140	H	---		
High	5125	Vertical	-30.68	-25.00	Pass
	7687.5	V	-38.06		
	10250	V	---		
	5125	Horizontal	-39.34		
	7687.5	H	-38.16		
	10250	H	---		

Remark:

1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

LTE Band 7-20MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	5020	Vertical	-31.84	-25.00	Pass
	7530	V	-39.54		
	10040	V	---		
	5020	Horizontal	-39.13		
	7530	H	-44.71		
	10040	H	---		
Mid	5070	Vertical	-32.20	-25.00	Pass
	7605	V	-39.86		
	10140	V	---		
	5070	Horizontal	-37.96		
	7605	H	-40.76		
	10140	H	---		
High	5120	Vertical	-33.10	-25.00	Pass
	7680	V	-41.35		
	10240	V	---		
	5120	Horizontal	-37.46		
	7680	H	-41.45		
	10240	H	---		

Remark:

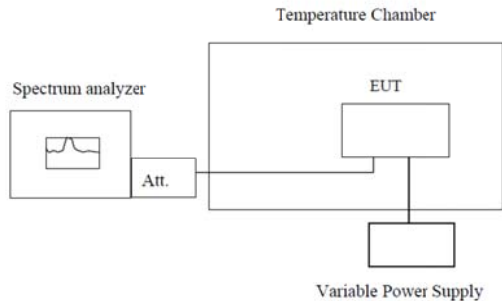
1. Remark"---" means that the emission level is too low to be measured
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

## 5.7. Frequency stability V.S. Temperature measurement

### LIMIT

2.5ppm

### TEST CONFIGURATION



**Note :** Measurement setup for testing on Antenna connector

### TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

**Passed**       **Not Applicable**



Reference Frequency: LTE Band 2 Middle channel=1880MHz,20MHz Bandwidth							
Power supplied (Vdc)	Temperature (°C)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
3.80	-30	15	0.0080	19	0.0101	2.50	Pass
	-20	24	0.0128	15	0.0080		
	-10	17	0.0090	20	0.0106		
	0	12	0.0064	16	0.0085		
	10	18	0.0096	22	0.0117		
	20	19	0.0101	14	0.0074		
	30	16	0.0085	17	0.0090		
	40	15	0.0080	15	0.0080		
	50	18	0.0096	21	0.0112		
Reference Frequency: LTE Band 4 Middle channel=1732.5MHz,20MHz Bandwidth							
Power supplied (Vdc)	Temperature (°C)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
3.80	-30	16	0.0092	14	0.0081	2.50	Pass
	-20	18	0.0104	17	0.0098		
	-10	24	0.0139	13	0.0075		
	0	13	0.0075	15	0.0087		
	10	10	0.0058	15	0.0087		
	20	25	0.0144	16	0.0092		
	30	14	0.0081	17	0.0098		
	40	13	0.0075	15	0.0087		
	50	12	0.0069	18	0.0104		
Reference Frequency: LTE Band 5 Middle channel=836.5MHz,10MHz Bandwidth							
Power supplied (Vdc)	Temperature (°C)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
3.80	-30	10	0.0120	12	0.0143	2.50	Pass
	-20	5	0.0060	16	0.0191		
	-10	15	0.0179	15	0.0179		
	0	11	0.0132	8	0.0096		
	10	14	0.0167	15	0.0179		
	20	15	0.0179	9	0.0108		
	30	13	0.0155	13	0.0155		
	40	12	0.0143	14	0.0167		
	50	14	0.0167	9	0.0108		

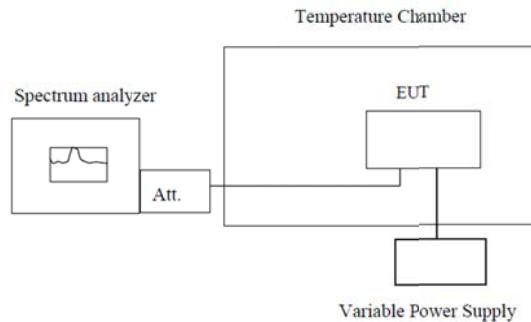
Reference Frequency: LTE Band 7 Middle channel=2535MHz,20MHz Bandwidth							
Power supplied (Vdc)	Temperature (°C)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
3.80	-30	11	0.0043	16	0.0063	2.50	Pass
	-20	17	0.0067	15	0.0059		
	-10	16	0.0063	14	0.0055		
	0	25	0.0099	18	0.0071		
	10	17	0.0067	20	0.0079		
	20	16	0.0063	15	0.0059		
	30	17	0.0067	21	0.0083		
	40	14	0.0055	26	0.0103		
	50	15	0.0059	23	0.0091		

## 5.8. Frequency stability V.S. Voltage measurement

### LIMIT

2.5ppm

### TEST CONFIGURATION



**Note :** Measurement setup for testing on Antenna connector

### TEST PROCEDURE

1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.
2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and record the frequency.
3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

**Passed**       **Not Applicable**

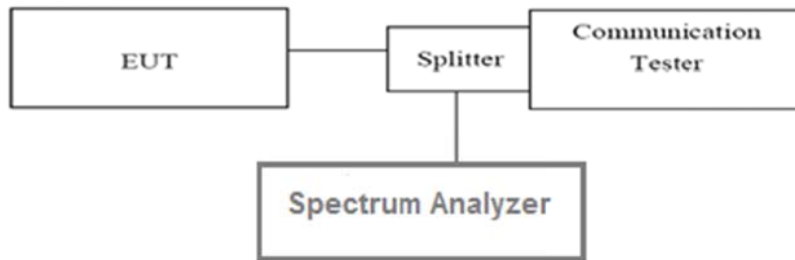
Reference Frequency: LTE Band 2 Middle channel=1880MHz,20MHz Bandwidth							
Temperature (°C)	Power supplied (Vdc)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
25	4.35	10	0.0053	17	0.0090	2.50	Pass
	3.80	16	0.0085	15	0.0080		
	3.60	15	0.0080	13	0.0069		
Reference Frequency: LTE Band 4 Middle channel=1732.5MHz,20MHz Bandwidth							
Temperature (°C)	Power supplied (Vdc)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
25	4.35	18	0.0104	22	0.0127	2.50	Pass
	3.80	10	0.0058	18	0.0104		
	3.60	21	0.0121	19	0.0110		
Reference Frequency: LTE Band 5 Middle channel=836.5MHz,10MHz Bandwidth							
Temperature (°C)	Power supplied (Vdc)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
25	4.35	21	0.0251	14	0.0167	2.50	Pass
	3.80	22	0.0263	15	0.0179		
	3.60	29	0.0347	19	0.0227		
Reference Frequency: LTE Band 7 Middle channel=2535MHz,20MHz Bandwidth							
Temperature (°C)	Power supplied (Vdc)	Frequency error				Limit (ppm)	Result
		QPSK		16QAM			
		Hz	ppm	Hz	ppm		
25	4.35	18	0.0071	13	0.0051	2.50	Pass
	3.80	21	0.0083	14	0.0055		
	3.60	12	0.0047	17	0.0067		

## 5.9. Peak-Average Ratio

### LIMIT

13dB

### TEST CONFIGURATION



### TEST PROCEDURE

According with KDB 971168

1. The signal analyzer' s CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal " RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the " on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

**Passed**       **Not Applicable**

**Remark: Worst case at all band max. Bandwidth.**

LTE Band 2-20MHz						
Modulation	QPSK		16QAM		Limit(dB)	Result
Channel	1RB#	Full RB#	1RB#	Full RB#		
Low	4.28	5.38	4.36	6.00	13.00	Pass
Mid	4.56	5.44	4.96	6.16	13.00	Pass
High	3.56	5.34	3.86	6.10	13.00	Pass

LTE Band 4-20MHz						
Modulation	QPSK		16QAM		Limit(dB)	Result
Channel	1RB#	Full RB#	1RB#	Full RB#		
Low	4.66	5.40	4.96	6.18	13.00	Pass
Mid	4.86	5.38	5.04	5.94	13.00	Pass
High	4.58	5.40	4.72	6.06	13.00	Pass

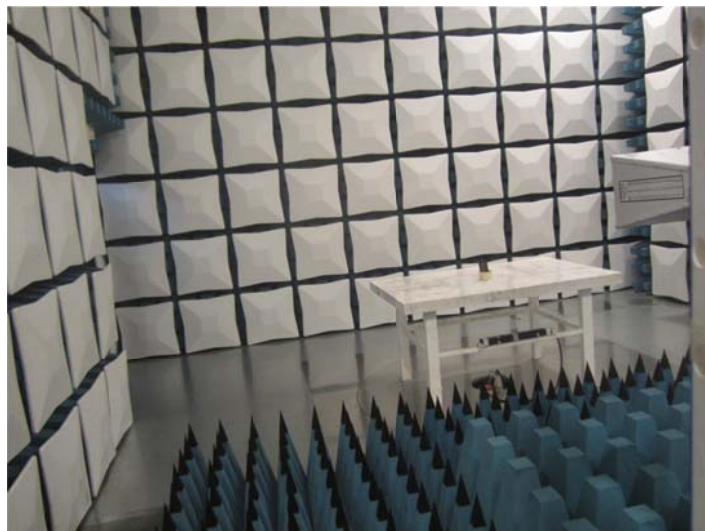
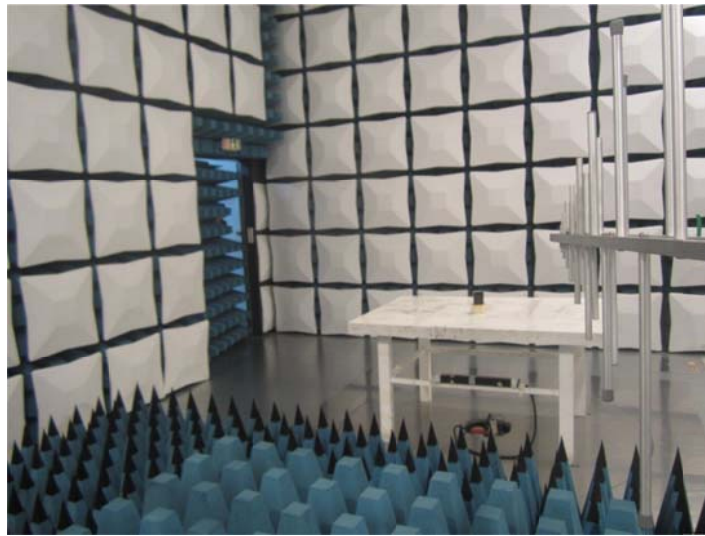
LTE Band 5-10MHz						
Modulation	QPSK		16QAM		Limit(dB)	Result
Channel	1RB#	Full RB#	1RB#	Full RB#		
Low	5.22	5.48	6.16	6.34	13.00	Pass
Mid	5.16	5.66	5.44	6.38	13.00	Pass
High	3.28	5.10	4.26	6.10	13.00	Pass

LTE Band 7-20MHz						
Modulation	QPSK		16QAM		Limit(dB)	Result
Channel	1RB#	Full RB#	1RB#	Full RB#		
Low	4.28	5.00	4.90	5.92	13.00	Pass
Mid	3.90	5.06	4.52	6.24	13.00	Pass
High	3.36	4.98	3.94	6.04	13.00	Pass



## 6. Test Setup Photos of the EUT

Radiated emission:



## 7. External and Internal Photos of the EUT

Reference to the test report No.: TRE1707003001.

.....**End of Report**.....