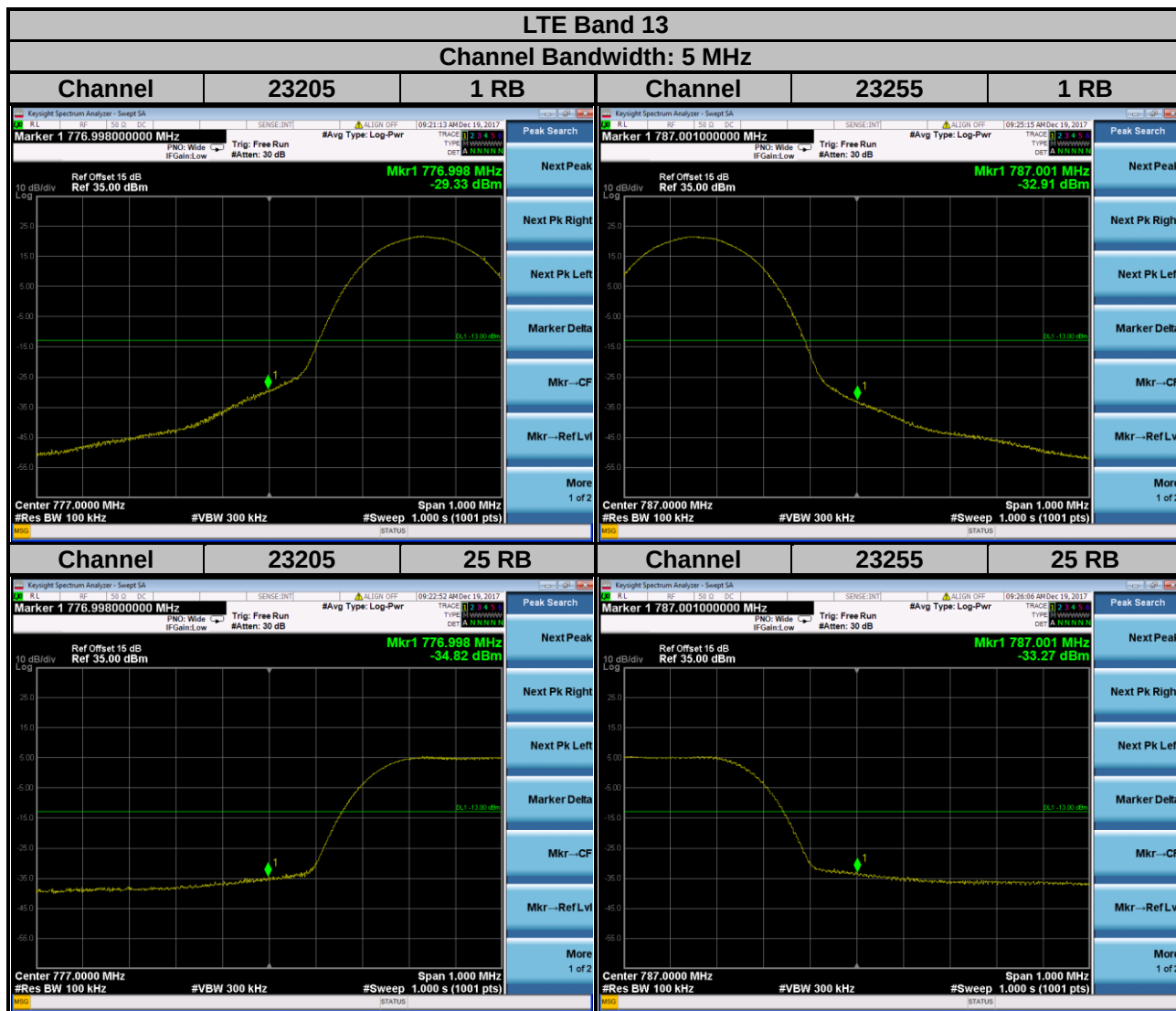
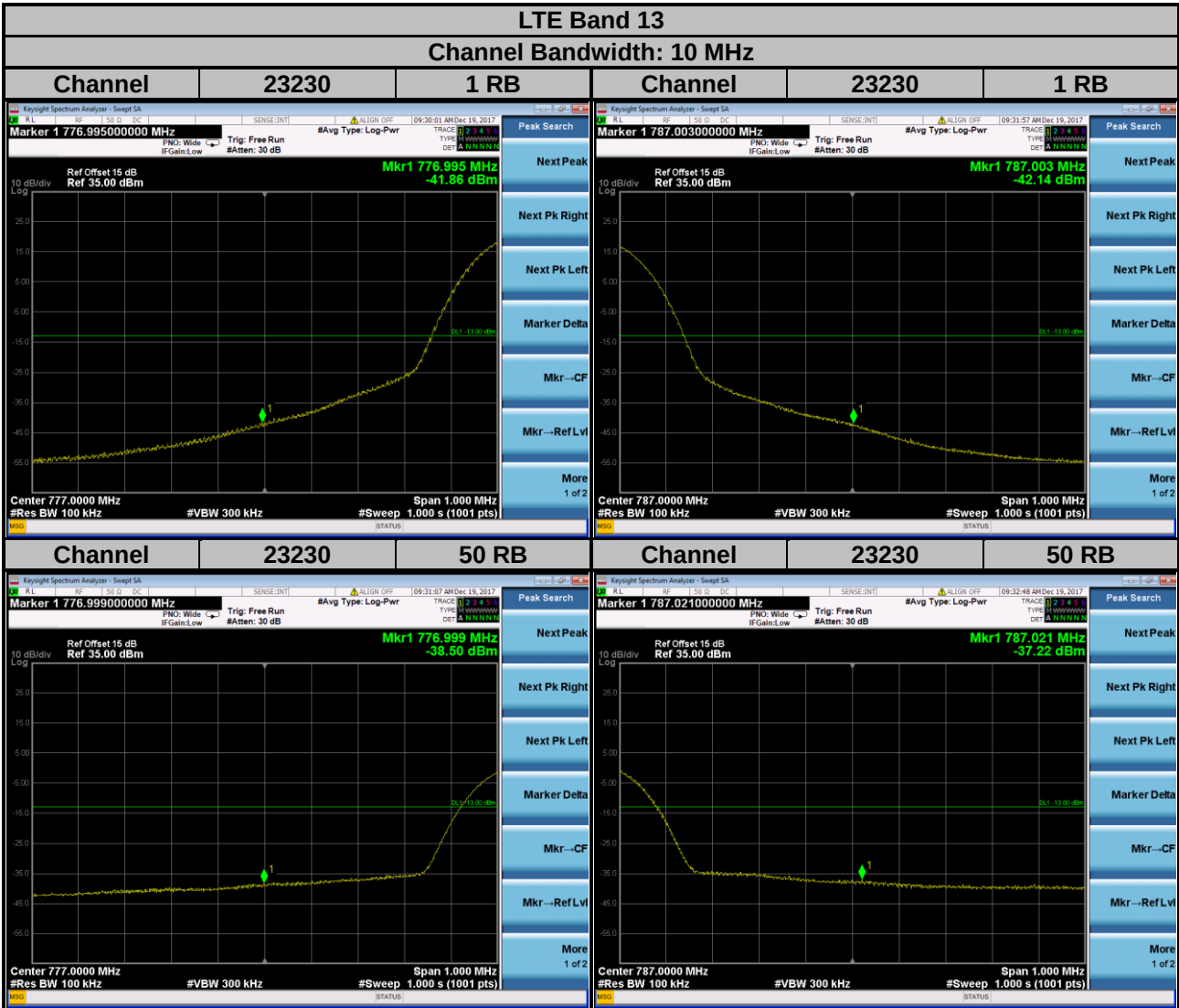
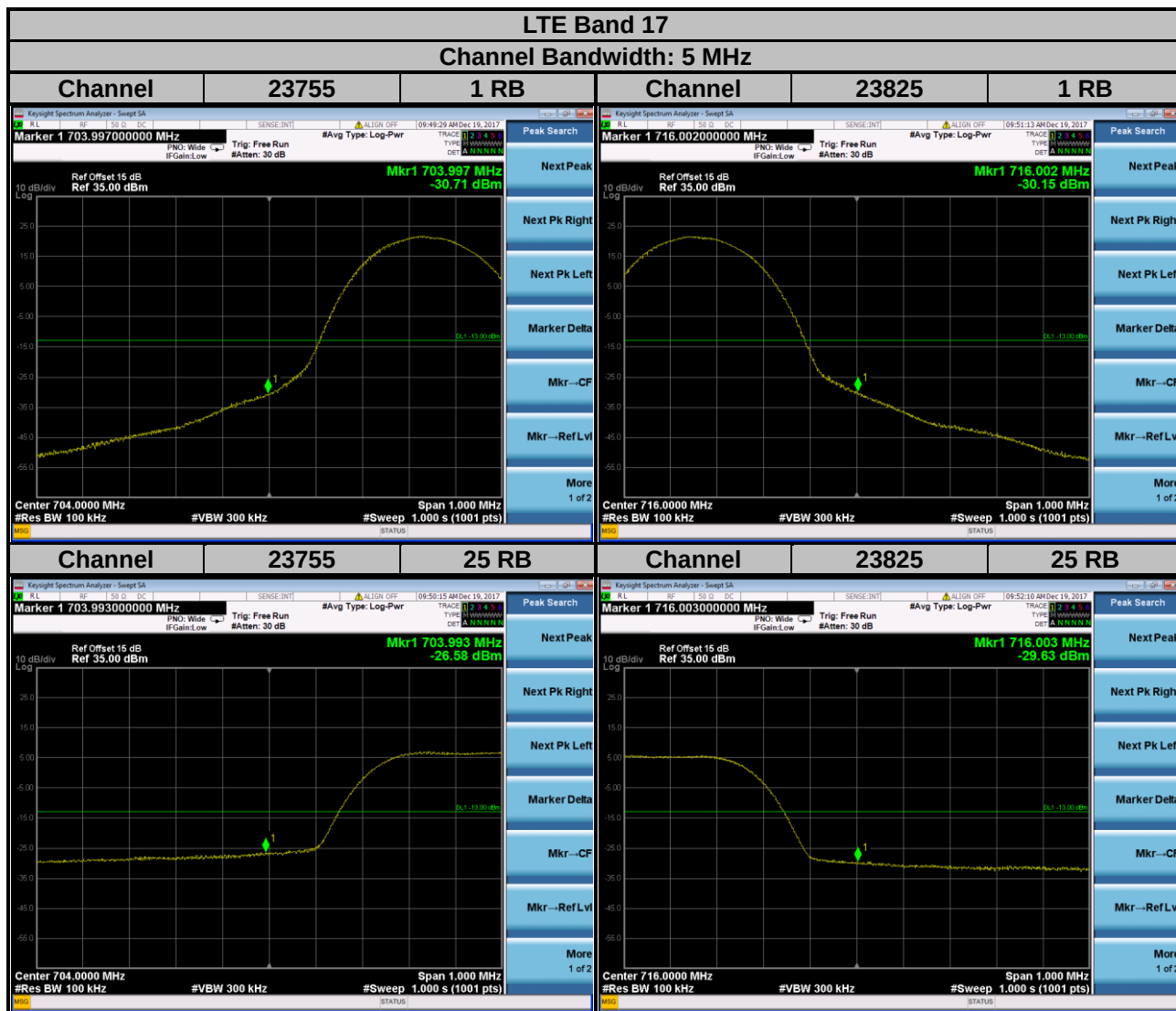
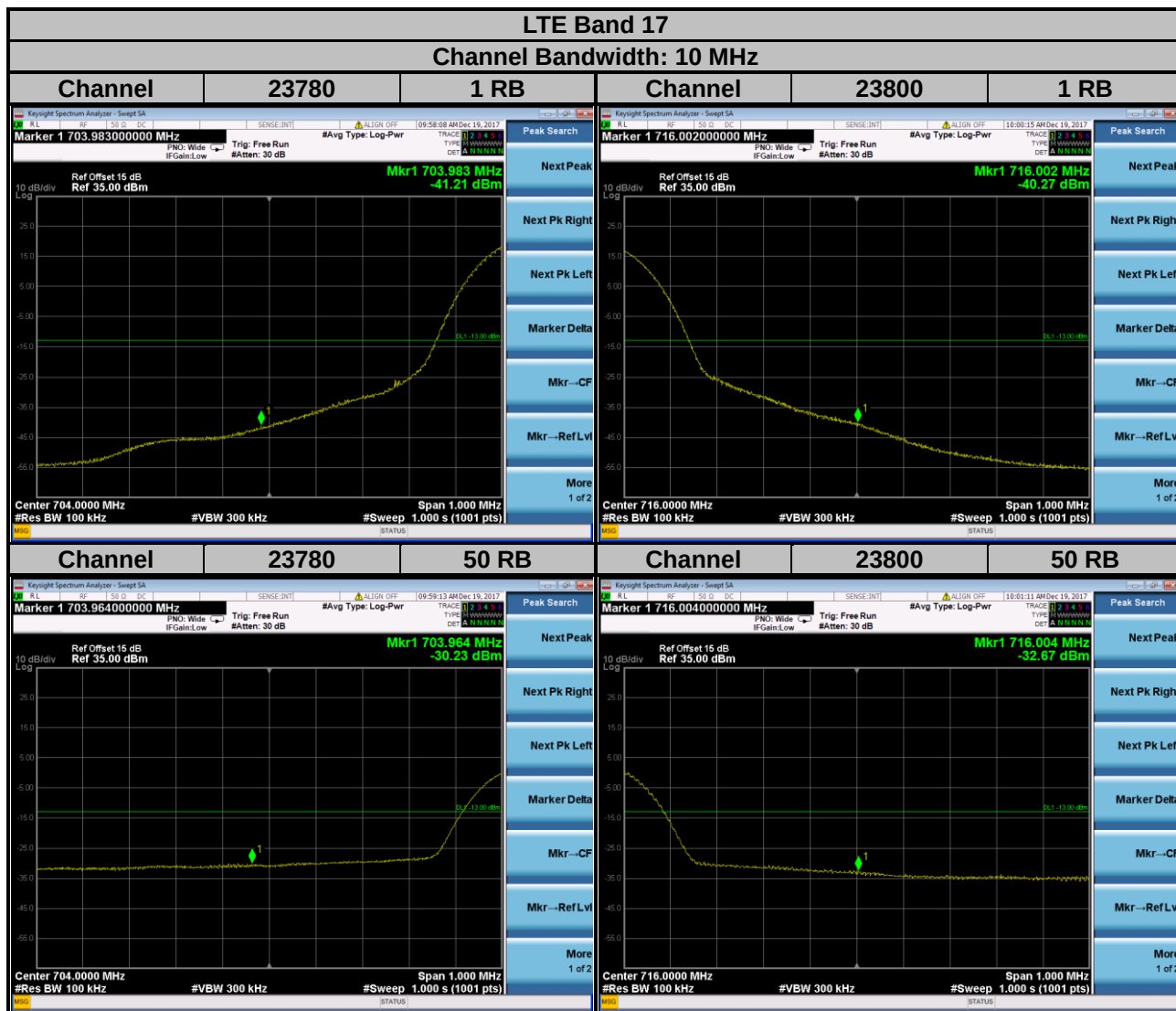


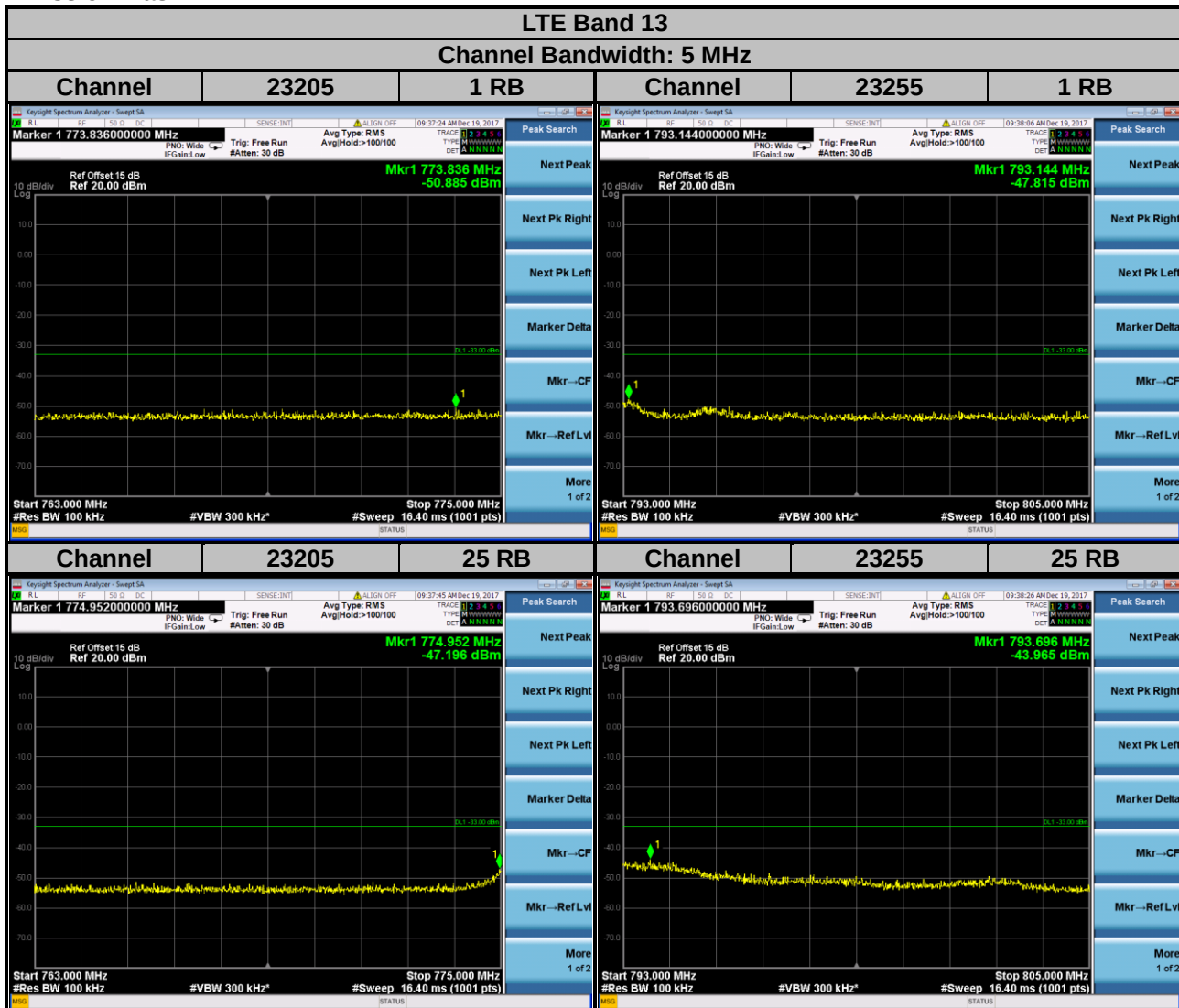








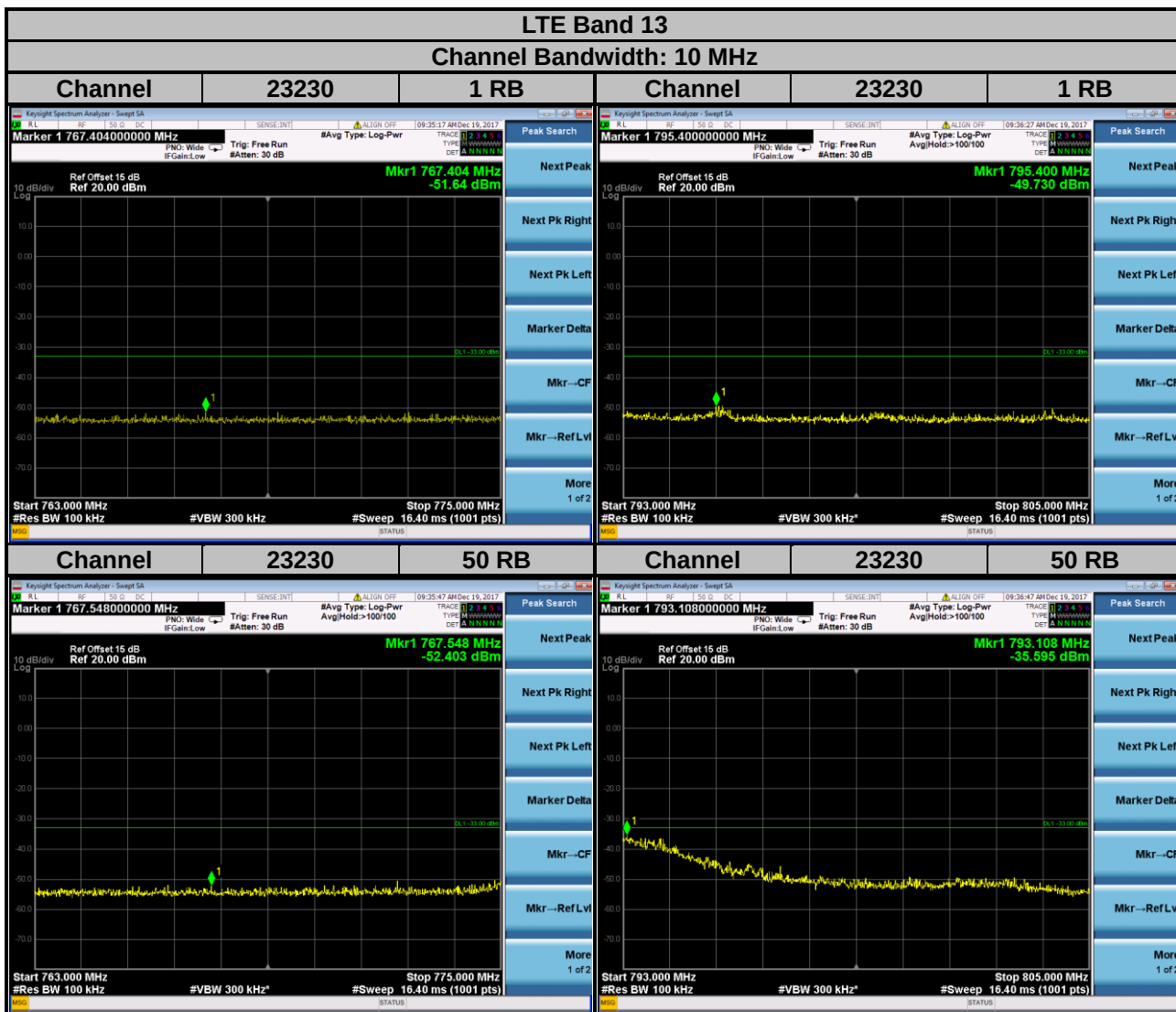
Emission Mask



For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is $65 + 10\log(P[\text{watt}])$ in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

$$10\log(10\text{kHz}/6.25\text{kHz}) = 2.04 \text{ dB}$$

$$\text{Limit line} = -35 \text{ dBm} + 2.04 \text{ dB} = -32.96 \text{ dBm}$$



For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is $65 + 10\log(P[\text{watt}])$ in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

$$10\log(10\text{kHz}/6.25\text{kHz}) = 2.04 \text{ dB}$$

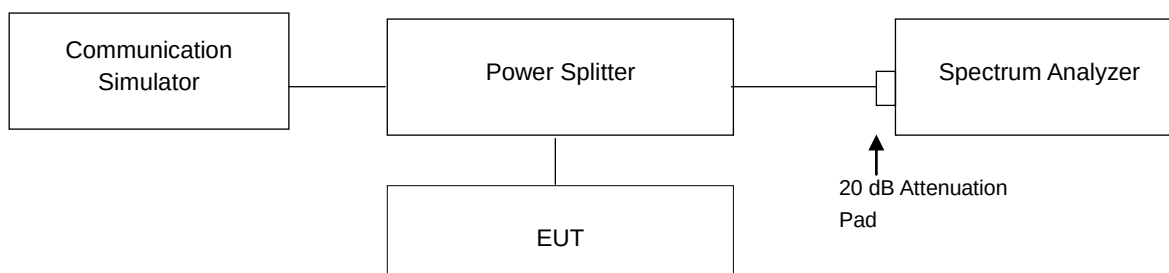
$$\text{Limit line} = -35 \text{ dBm} + 2.04 \text{ dB} = -32.96 \text{ dBm}$$

4.5 Peak to Average Ratio

4.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.5.2 Test Setup

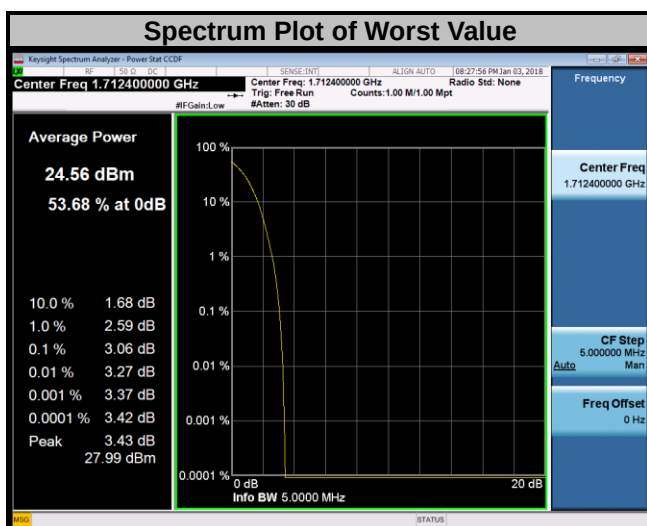


4.5.3 Test Procedures

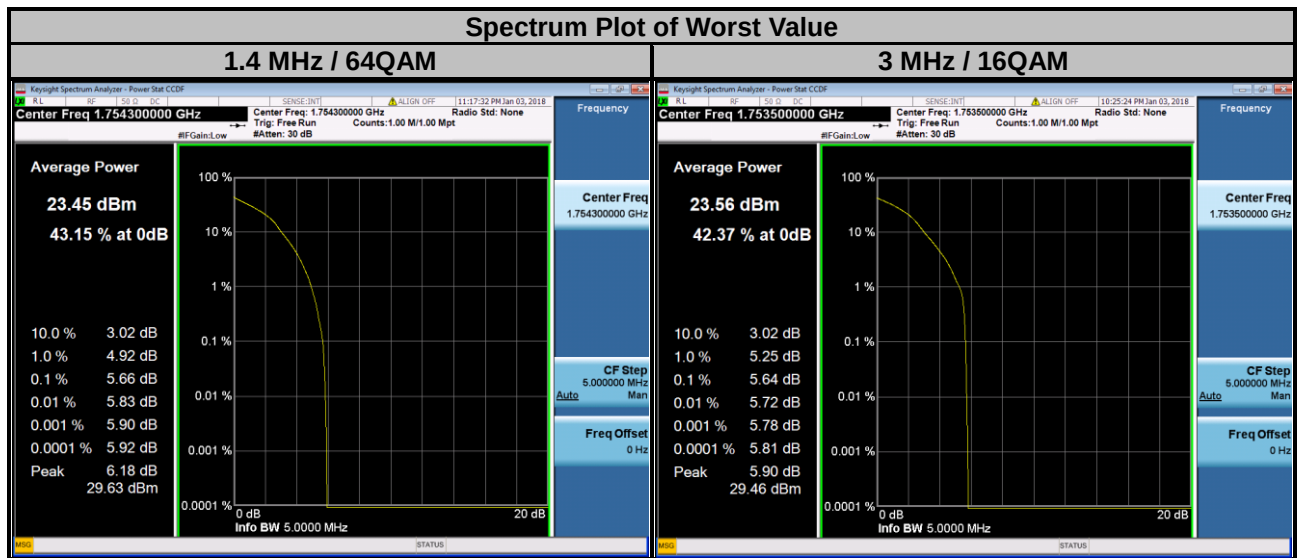
1. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.5.4 Test Results

WCDMA		
Channel	Frequency (MHz)	Peak to Average Ratio (dB)
1312	1712.4	3.06
1413	1732.6	2.97
1513	1752.6	2.98



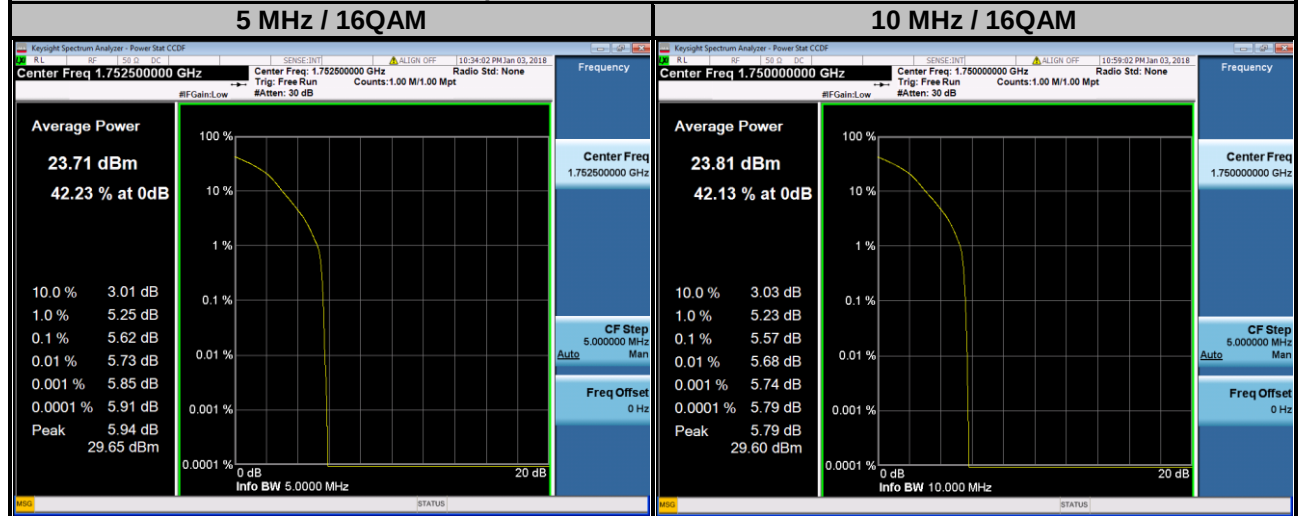
LTE Band 4									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19957	1710.7	4.23	5.05	5.00	19965	1711.5	4.19	4.95	4.92
20175	1732.5	4.68	5.41	5.49	20175	1732.5	4.60	5.45	5.38
20393	1754.3	4.87	5.65	5.66	20385	1753.5	4.85	5.64	5.58



LTE Band 4

Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19975	1712.5	4.19	4.98	4.86	20000	1715.0	4.10	4.93	4.86
20175	1732.5	4.58	5.38	5.28	20175	1732.5	4.60	5.41	5.33
20375	1752.5	4.85	5.62	5.58	20350	1750.0	4.81	5.57	5.51

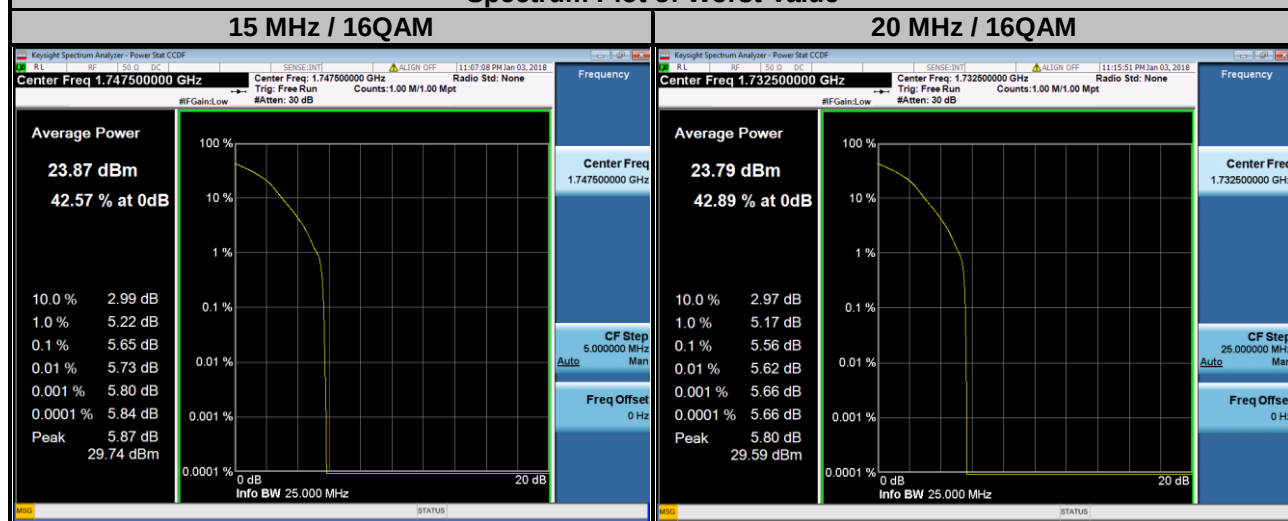
Spectrum Plot of Worst Value



LTE Band 4

Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20025	1717.5	4.05	4.86	4.76	20050	1720.0	4.04	4.82	4.66
20175	1732.5	4.68	5.45	5.36	20175	1732.5	4.75	5.56	5.47
20325	1747.5	4.87	5.65	5.55	20300	1745.0	4.69	5.46	5.44

Spectrum Plot of Worst Value



LTE Band 12

Channel Bandwidth: 1.4 MHz

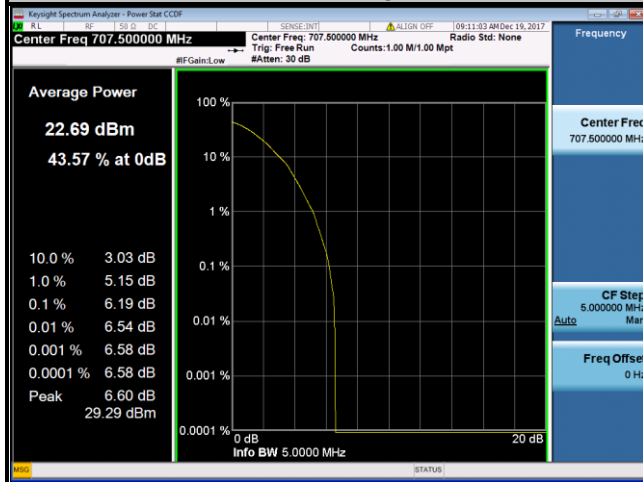
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM
23017	699.7	3.50	4.31	5.02
23095	707.5	4.81	5.45	6.19
23173	715.3	3.74	4.58	5.35

Channel Bandwidth: 3 MHz

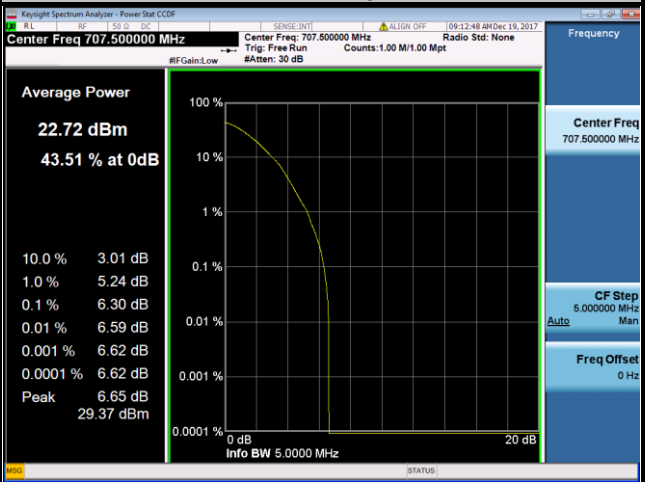
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM
23025	700.5	3.29	4.19	4.95
23095	707.5	4.70	5.44	6.30
23165	714.5	3.40	4.19	5.04

Spectrum Plot of Worst Value

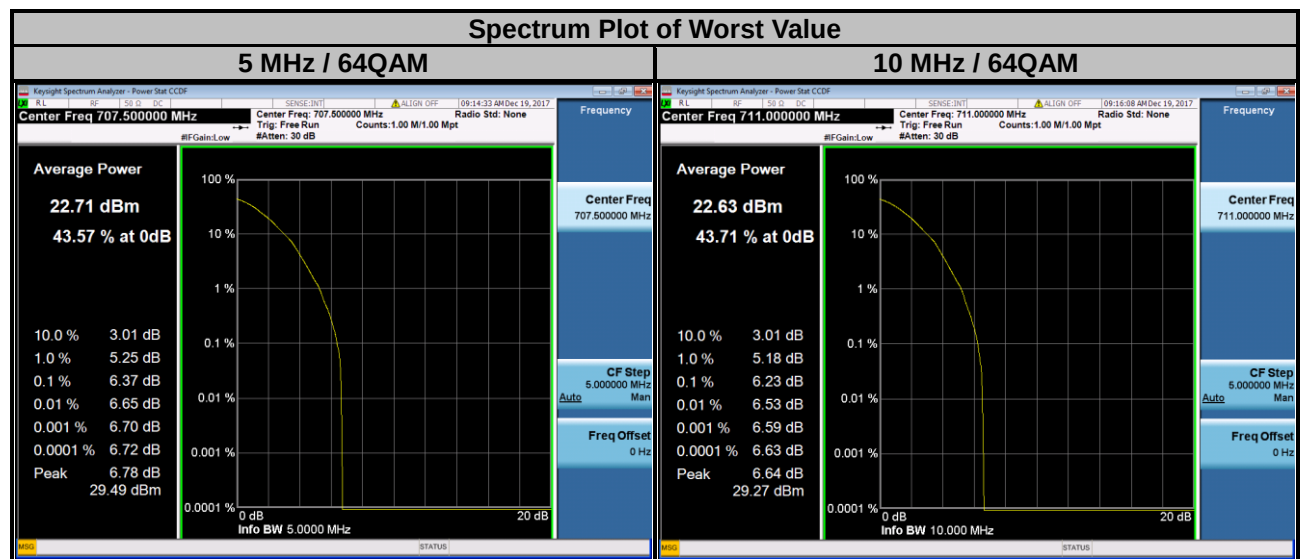
1.4 MHz / 64QAM



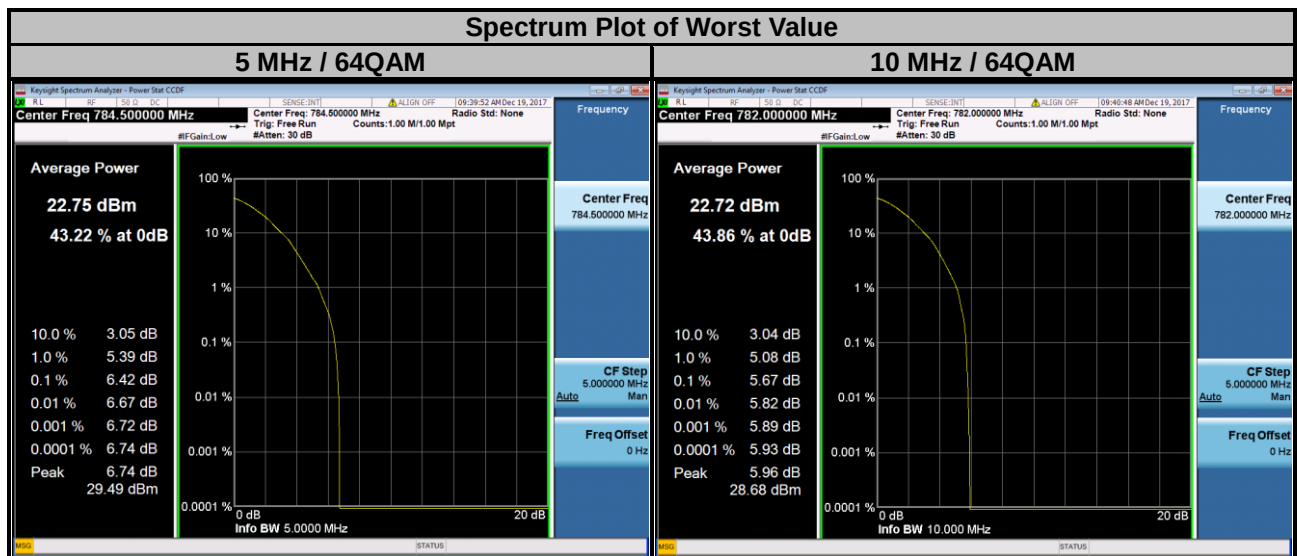
3 MHz / 64QAM



LTE Band 12									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23035	701.5	3.37	4.20	5.06	23060	704.0	3.26	4.07	4.93
23095	707.5	4.77	5.57	6.37	23095	707.5	4.05	4.86	5.69
23155	713.5	3.69	4.48	5.38	23130	711.0	4.61	5.41	6.23



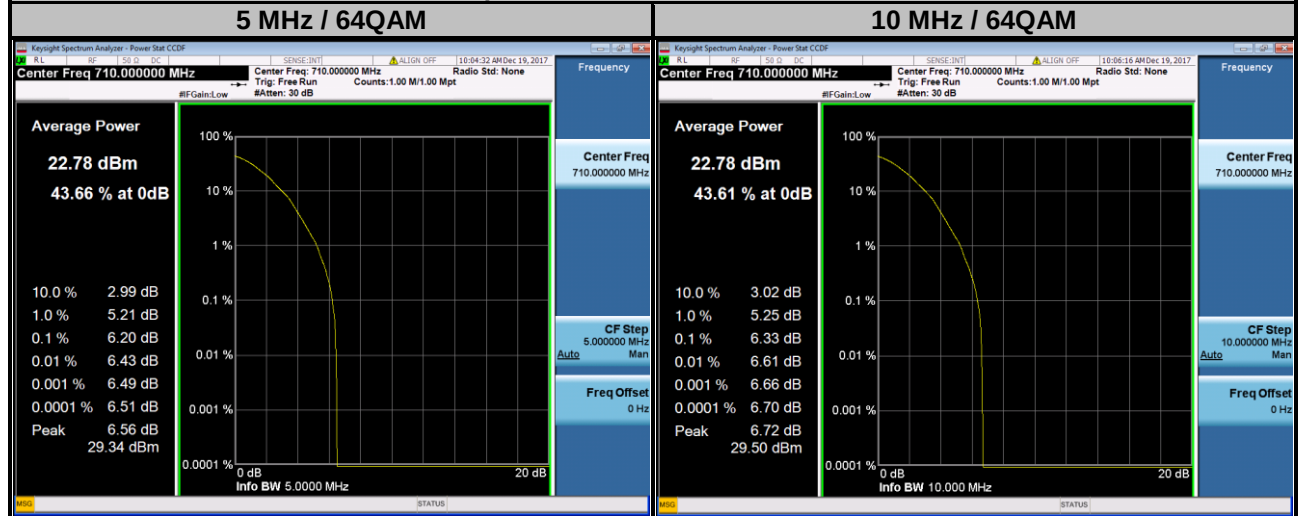
LTE Band 13									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23205	779.5	3.89	4.65	5.43	23230	782.0	4.10	4.85	5.67
23230	782.0	4.58	5.36	6.18					
23255	784.5	4.81	5.58	6.42					



LTE Band 17

Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23755	706.5	4.46	5.23	6.06	23780	709.0	4.54	5.30	6.13
23790	710.0	4.51	5.35	6.20	23790	710.0	4.75	5.52	6.33
23825	713.5	3.66	4.58	5.45	23800	711.0	4.65	5.45	6.29

Spectrum Plot of Worst Value

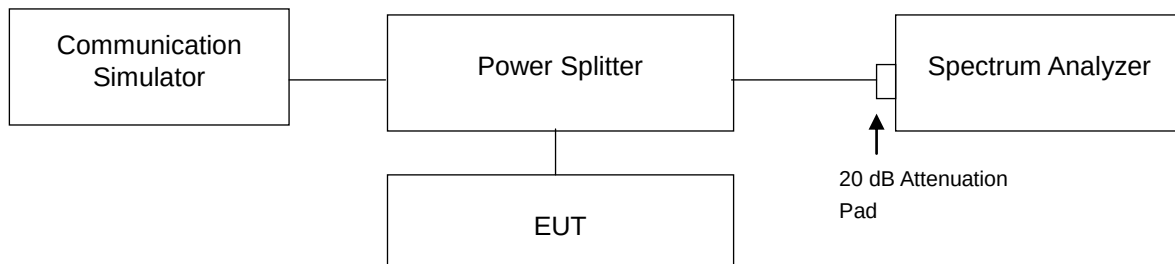


4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -13 dBm.

4.6.2 Test Setup



4.6.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30MHz to 1 GHz and 1 GHz to 10GHz for LTE Band 12/13/17 and from 30MHz to 1 GHz, 1 GHz to 10GHz, and 10 GHz to 26.5GHz for WCDMA/LTE Band 4. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz are used for conducted emission measurement.

4.6.4 Test Results

WCDMA

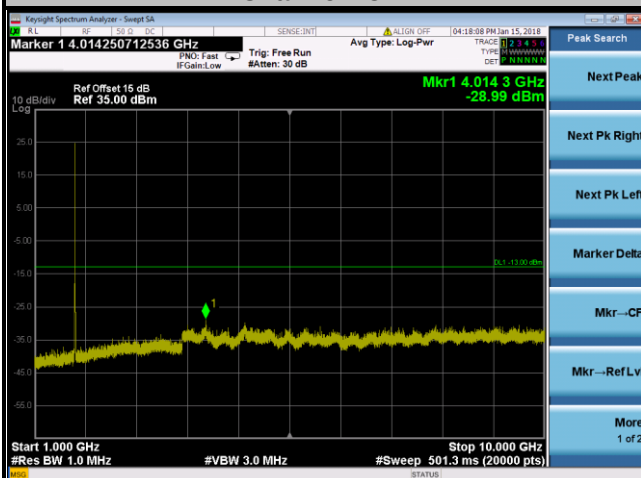
30MHz ~ 1GHz



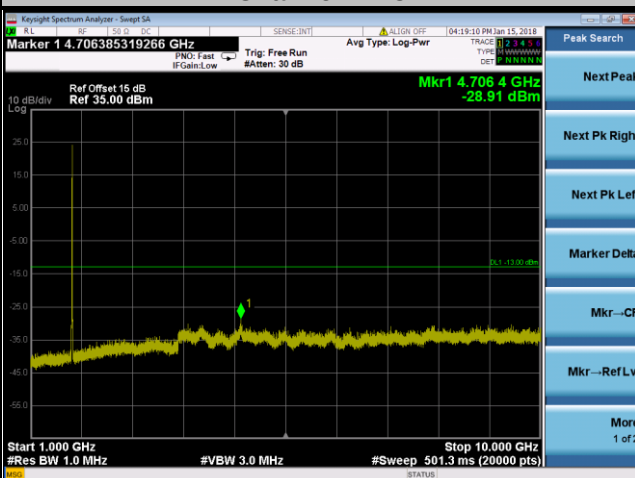
1GHz ~ 10GHz

WCDMA

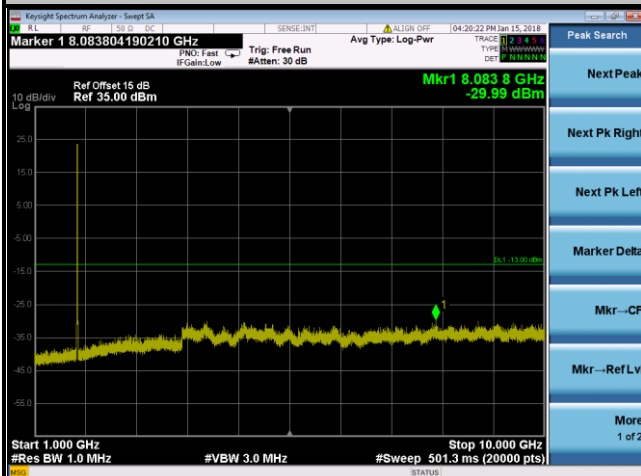
Channel 1312



Channel 1413



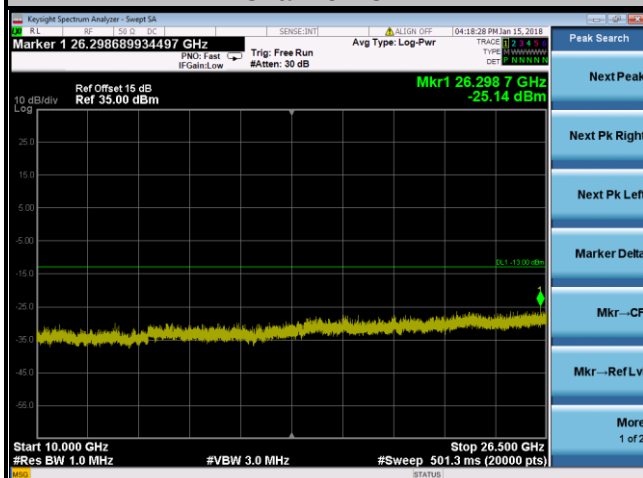
Channel 1513



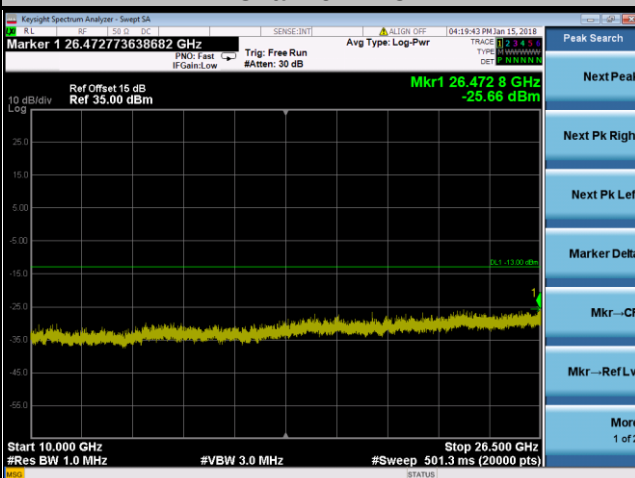
10GHz ~ 26.5GHz

WCDMA

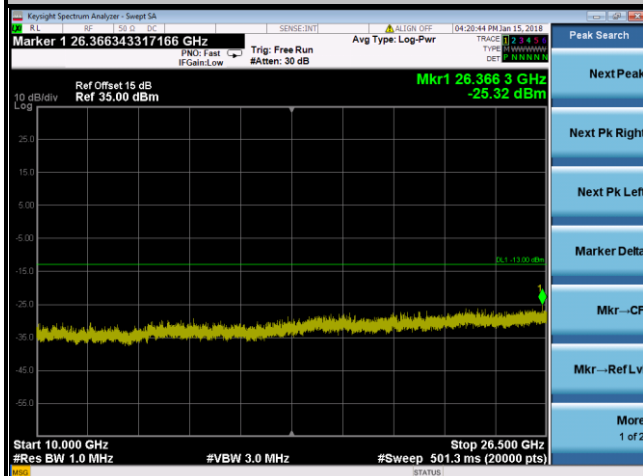
Channel 1312



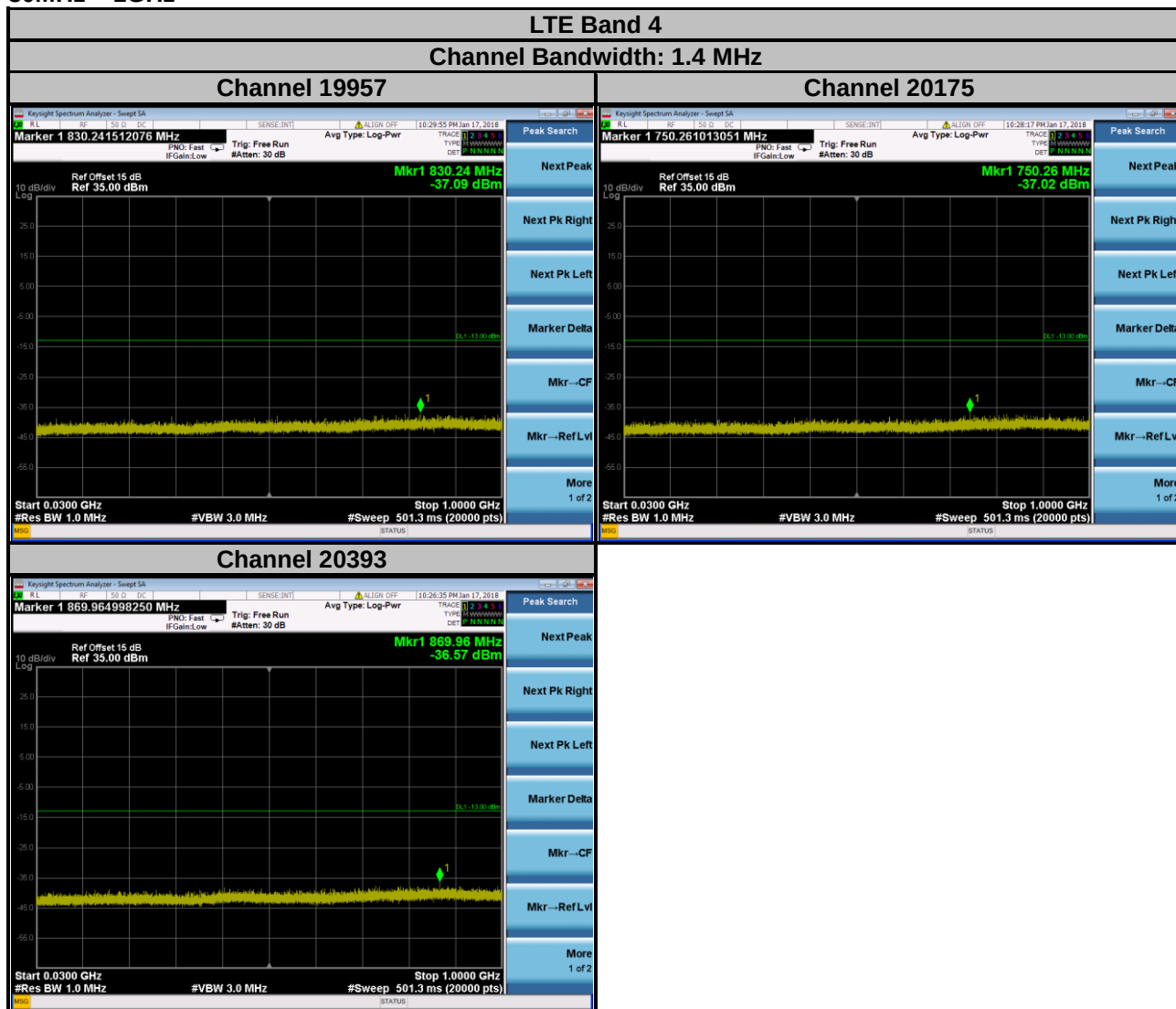
Channel 1413



Channel 1513

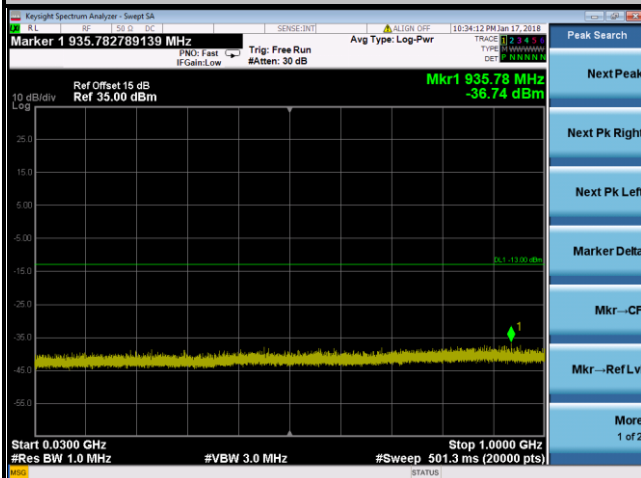


LTE Band 4
30MHz ~ 1GHz

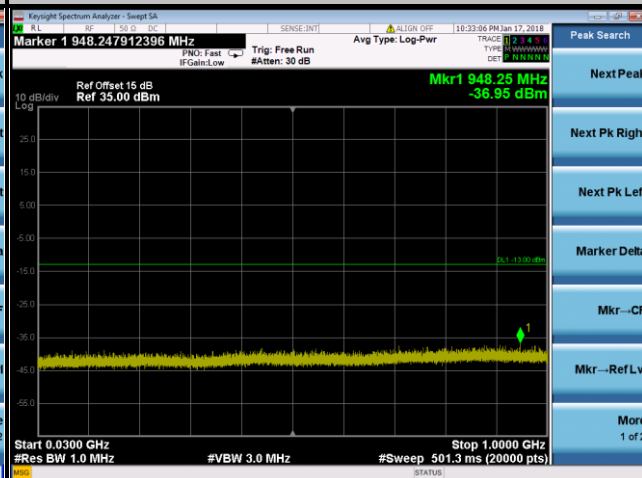


LTE Band 4 Channel Bandwidth: 3 MHz

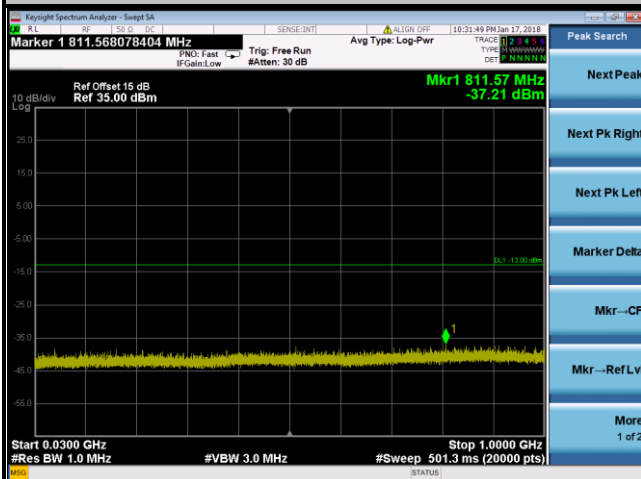
Channel 19965



Channel 20175

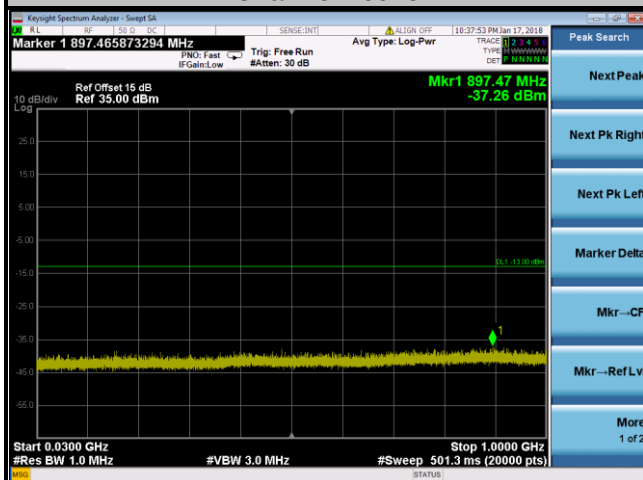


Channel 20385

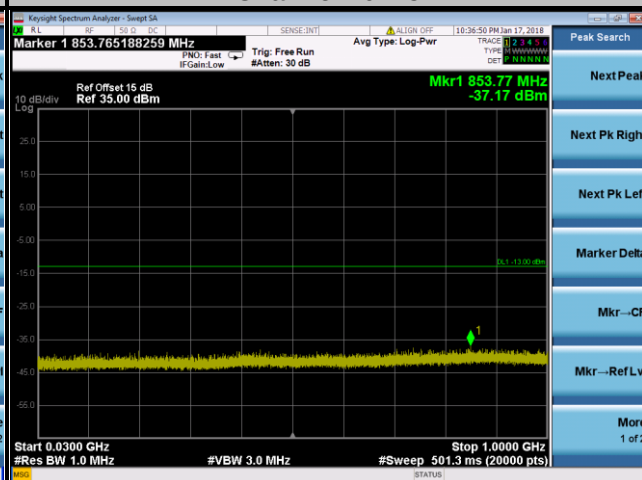


LTE Band 4 Channel Bandwidth: 5 MHz

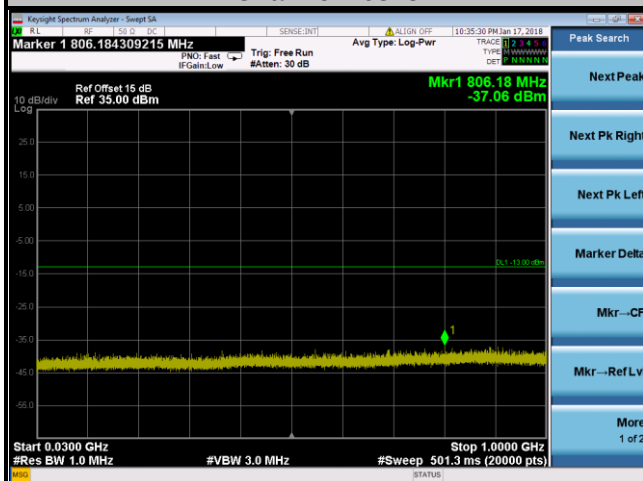
Channel 19975



Channel 20175



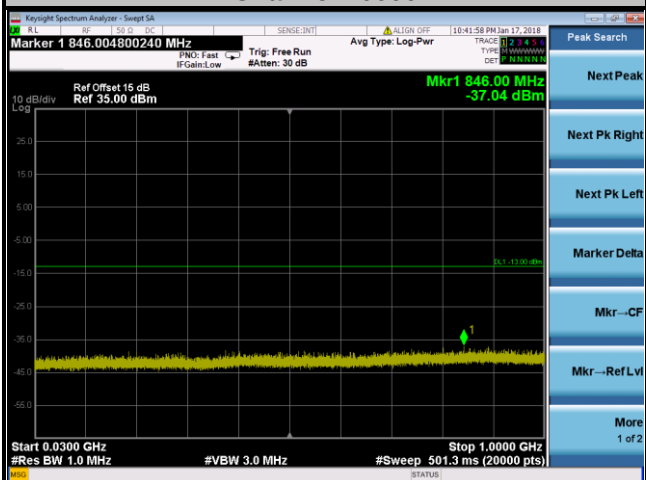
Channel 20375



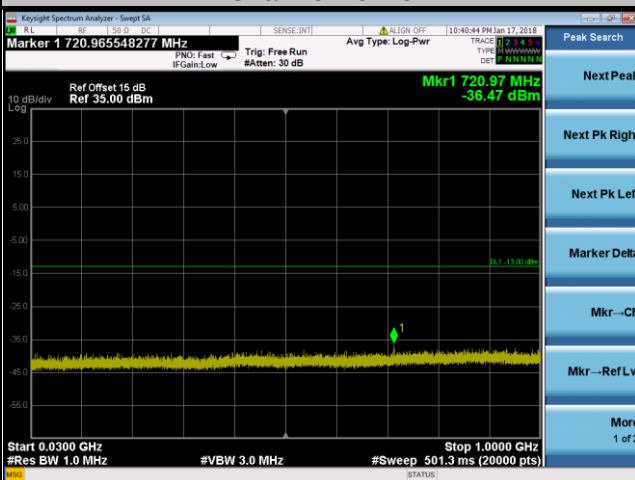
LTE Band 4

Channel Bandwidth: 10 MHz

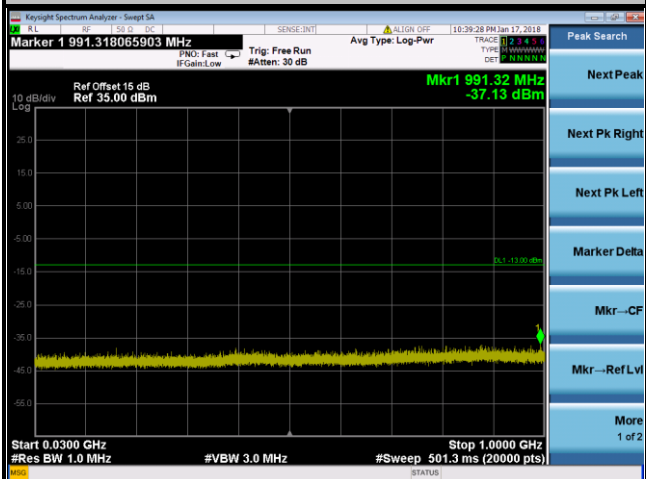
Channel 20000



Channel 170175



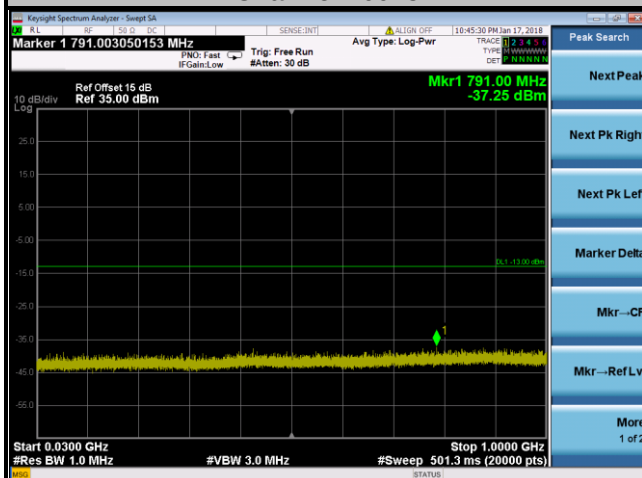
Channel 20350



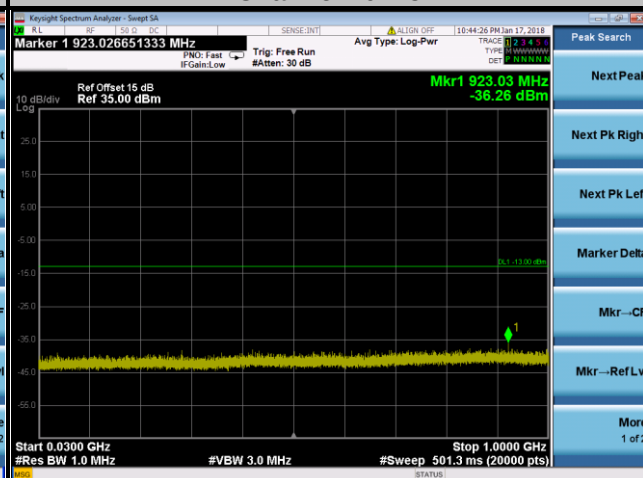
LTE Band 4

Channel Bandwidth: 15 MHz

Channel 20025



Channel 10175



Channel 20325

