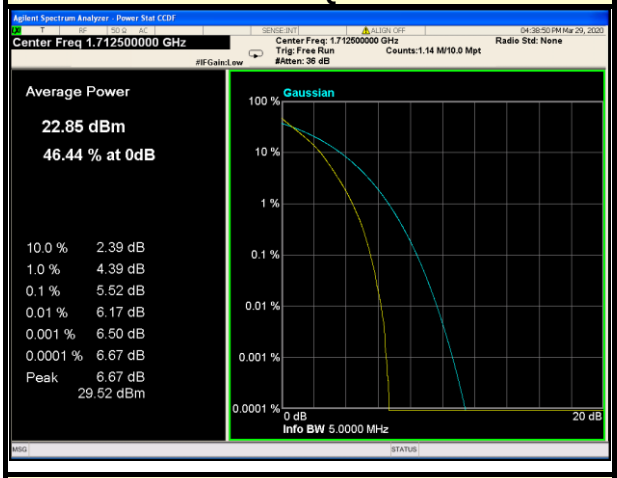
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.52	6.22	20000	1715	5.31	6.05
20175	1732.5	5.01	6.12	20175	1732.5	4.72	5.9
20375	1752.5	4.76	5.82	20350	1750	4.48	5.59

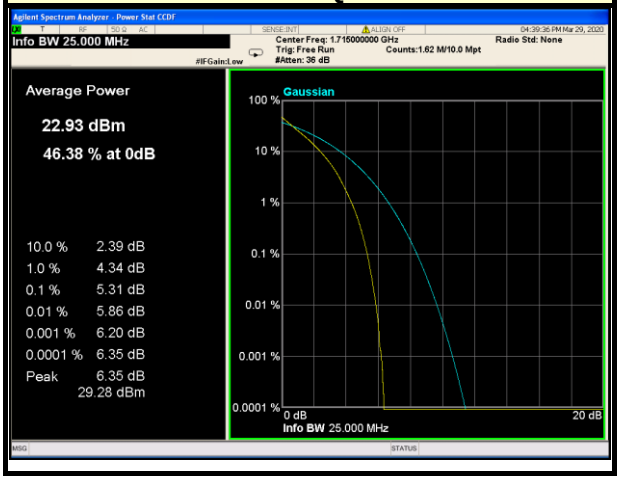
SPECTRUM PLOT OF WORST VALUE

5MHz / QPSK

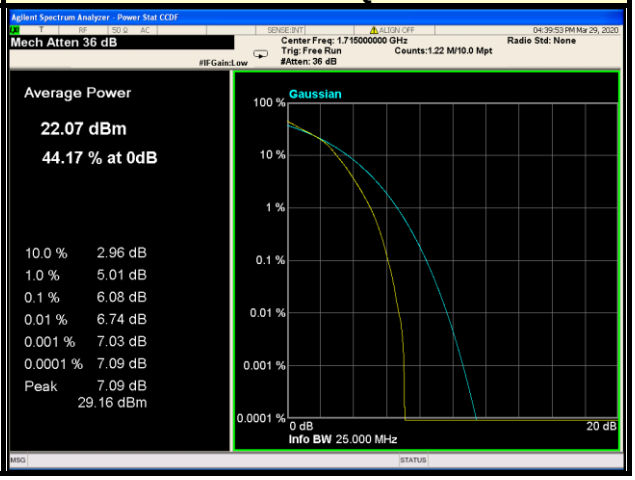


5MHz / 16QAM

10MHz / QPSK



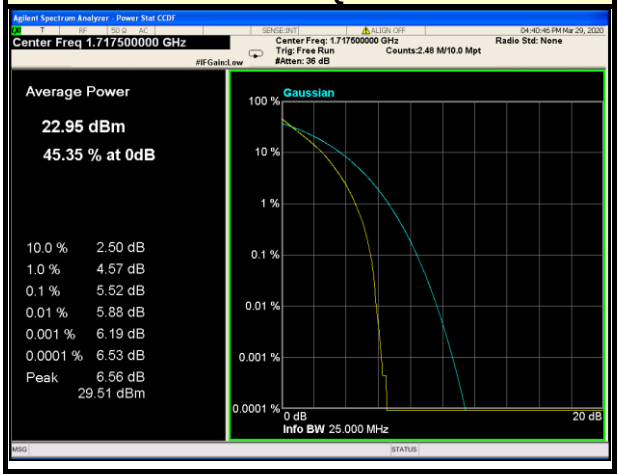
10MHz / 16QAM



CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	5.52	6.08	20050	1720	5.26	5.99
20175	1732.5	4.99	5.95	20175	1732.5	4.74	5.90
20325	1747.5	4.74	5.62	20300	1745	4.55	5.55

SPECTRUM PLOT OF WORST VALUE

15MHz / QPSK



15MHz / 16QAM

20MHz / QPSK

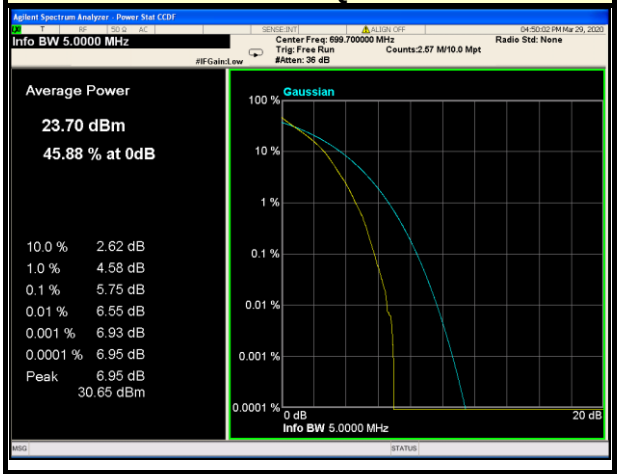
20MHz / 16QAM

LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz				CHANNEL BANDWIDTH: 3MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	5.75	6.64	23025	700.5	5.56	6.14
23095	707.5	5.62	6.34	23095	707.5	5.71	6.44
23173	715.3	5.17	5.98	23165	714.5	5.10	5.84

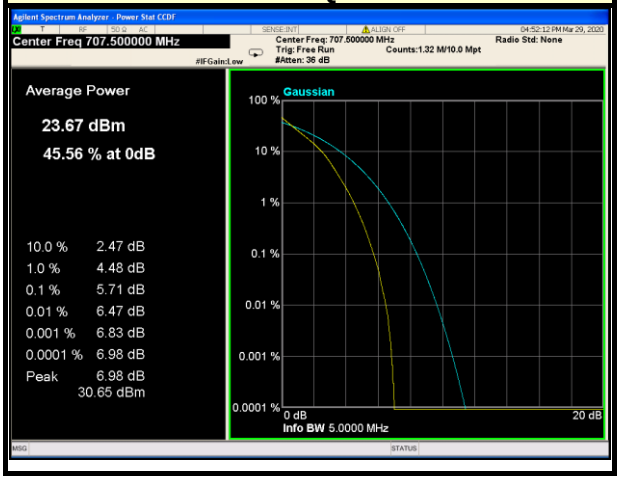
SPECTRUM PLOT OF WORST VALUE

1.4MHz / QPSK

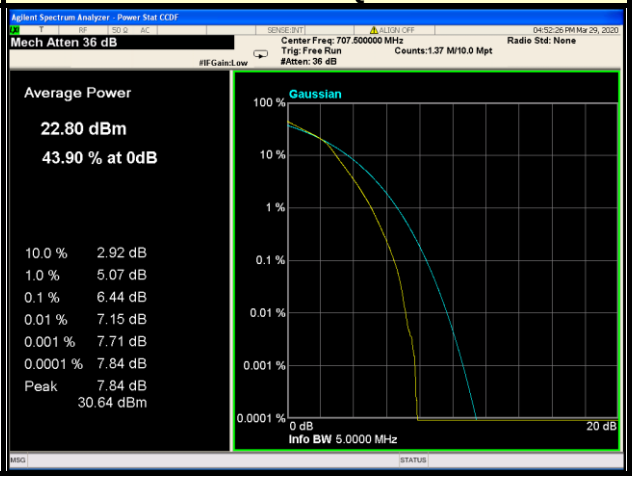


1.4MHz / 16QAM

3MHz / QPSK



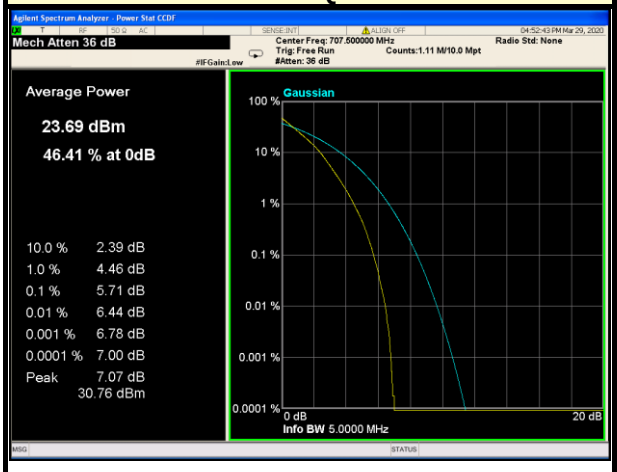
3MHz / 16QAM



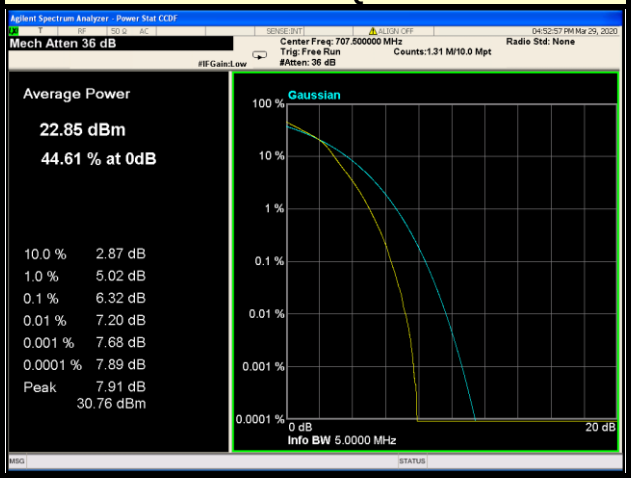
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	5.60	6.04	23060	704	5.59	6.08
23095	707.5	5.71	6.32	23095	707.5	5.71	6.39
23155	713.5	5.09	5.68	23130	711	5.06	5.78

SPECTRUM PLOT OF WORST VALUE

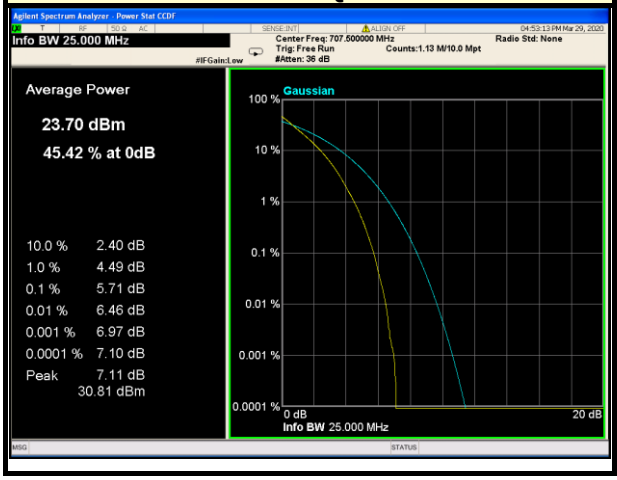
5MHz / QPSK



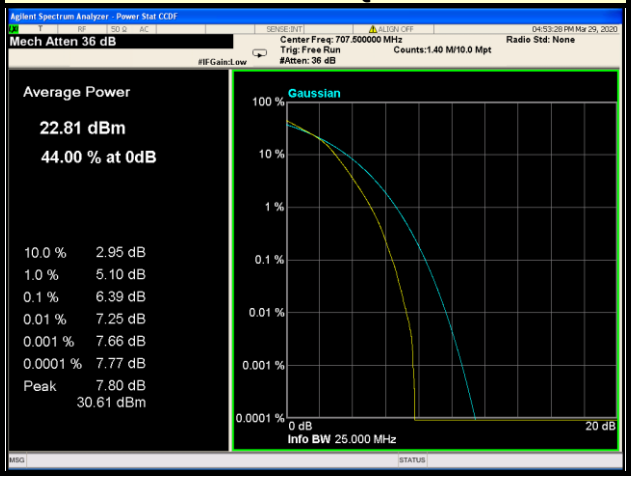
5MHz / 16QAM



10MHz / QPSK



10MHz / 16QAM



LTE BAND 13

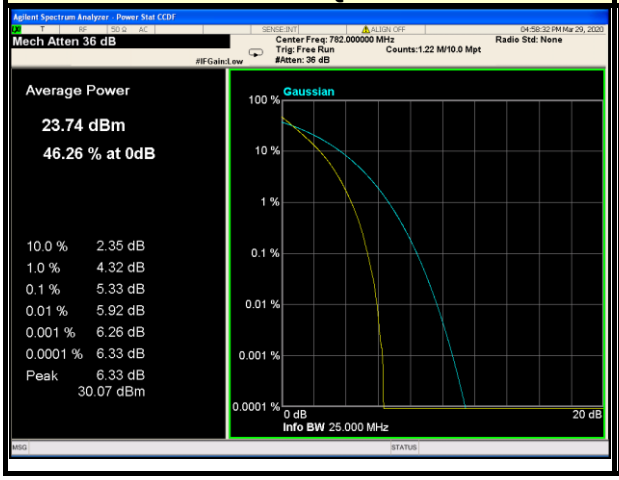
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
23205	779.5	4.84	5.55	-	-	-	-
23230	782	5.64	6.29	23230	782	5.33	6.06
23255	784.5	5.40	6.18	-	-	-	-

SPECTRUM PLOT OF WORST VALUE

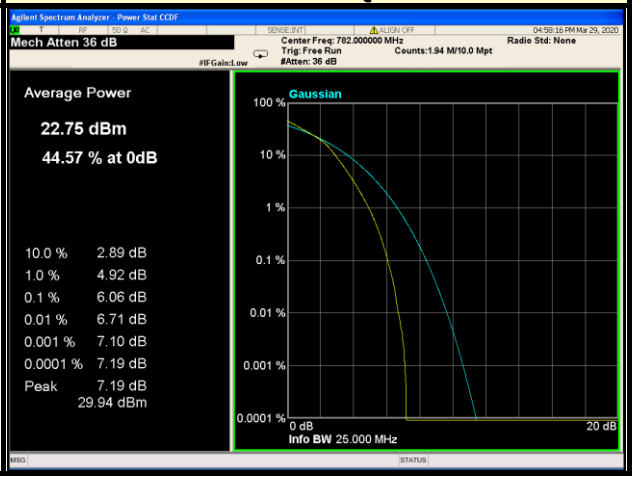
5MHz / QPSK

5MHz / 16QAM

10MHz / QPSK



10MHz / 16QAM

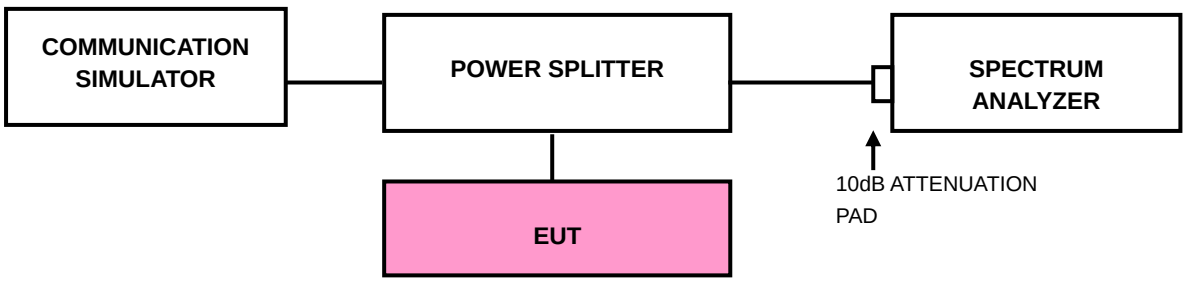


3.5 BAND EDGE MEASUREMENT

3.5.1 LIMITS OF BAND EDGE MEASUREMENT

The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.
However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

3.5.2 TEST SETUP



3.5.3 TEST PROCEDURES

a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).

b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)

d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)

e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)

f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)

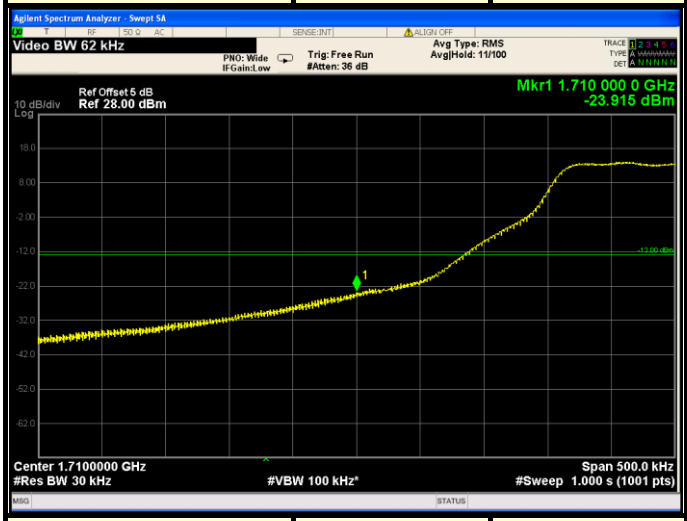
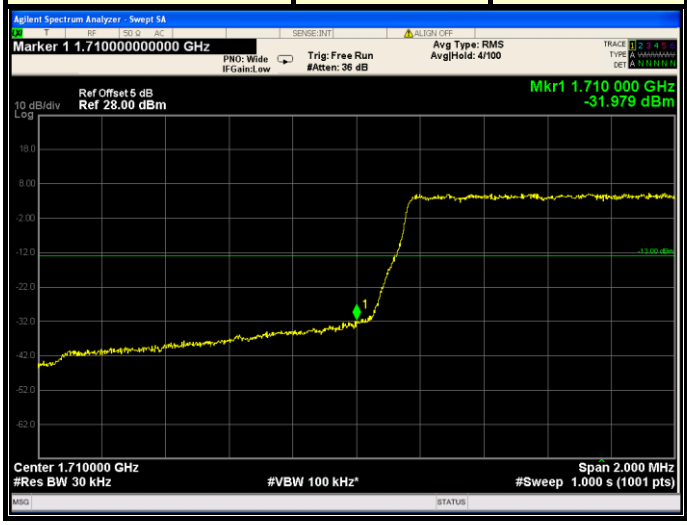
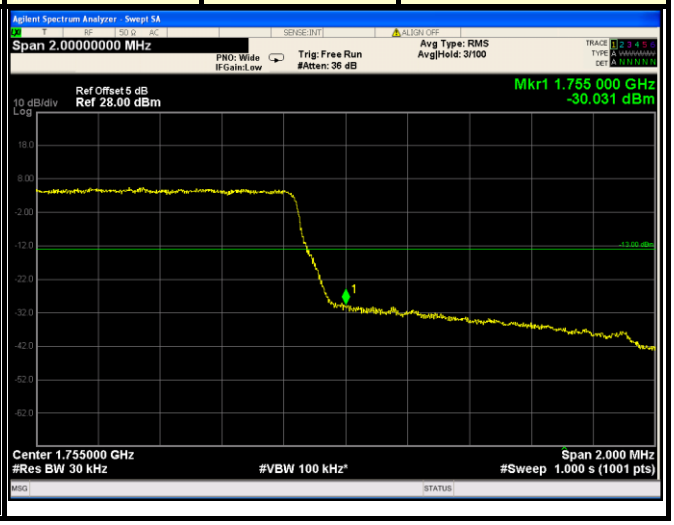
g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 15MHz)

h. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 20MHz)

i. Record the max trace plot into the test report.

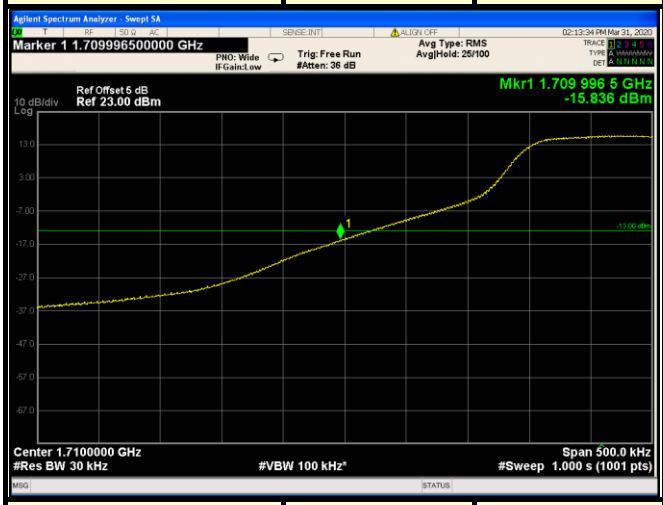
3.5.4 TEST RESULTS

LTE BAND 4

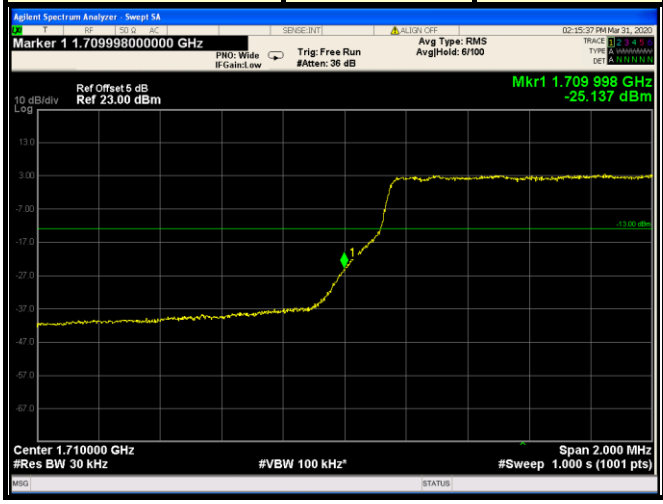
Channel Bandwidth: 1.4MHz					
CHANNEL	19957	1 RB	CHANNEL	20393	1 RB
				
CHANNEL	19957	Full RB	CHANNEL	20393	Full RB
				

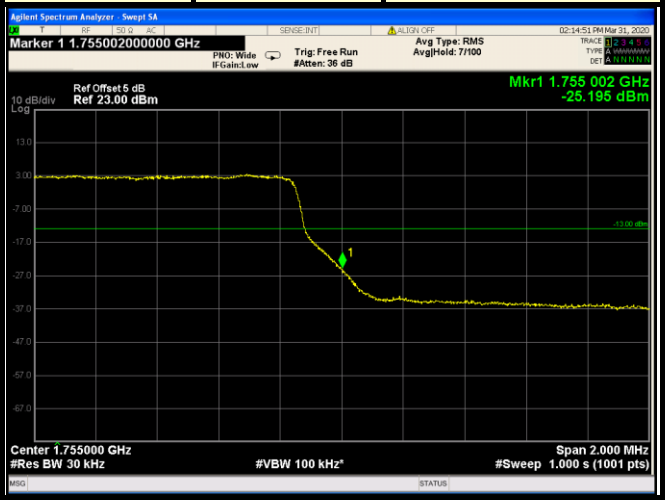
LTE BAND 4

Channel Bandwidth: 3MHz					
CHANNEL	19965	1 RB	CHANNEL	20385	1 RB



CHANNEL	19965	Full RB	CHANNEL	20385	Full RB

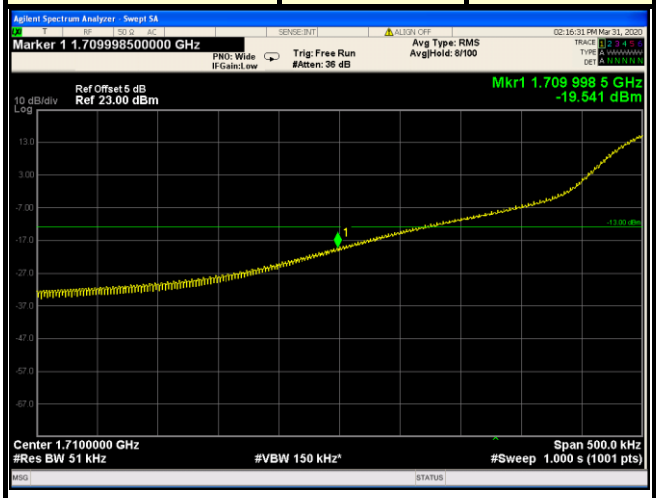


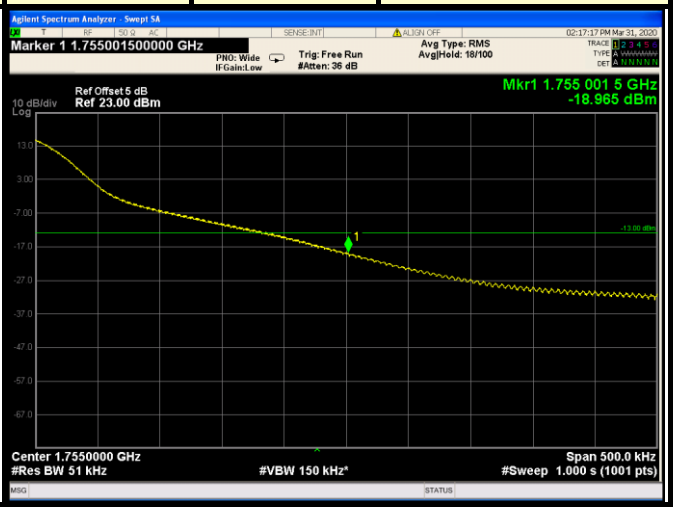


LTE BAND 4

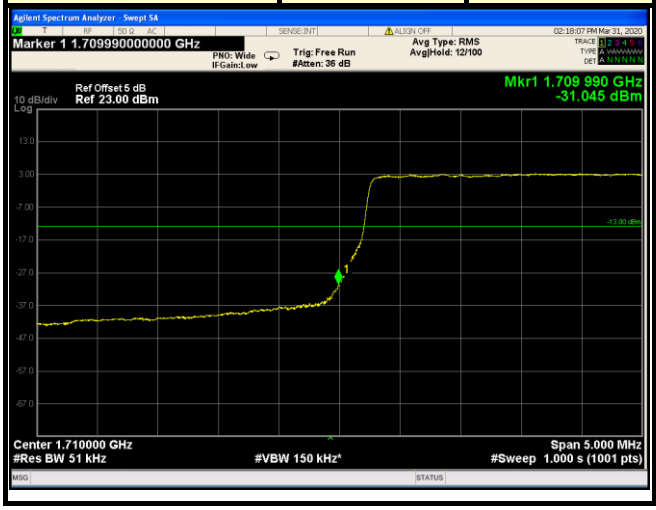
Channel Bandwidth: 5MHz

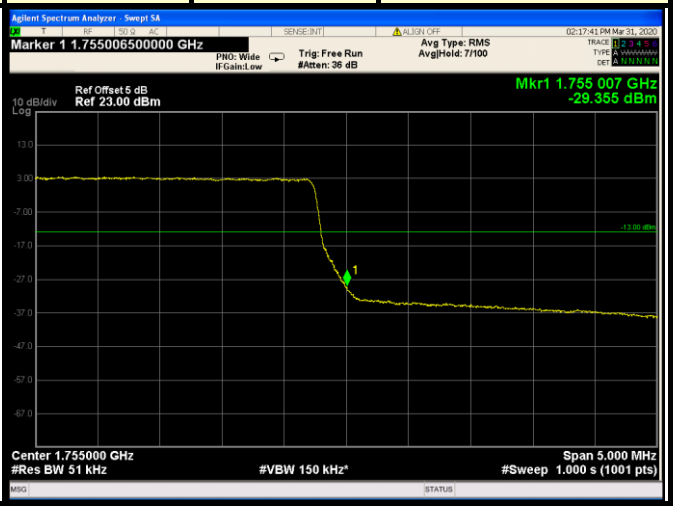
CHANNEL	19975	1 RB	CHANNEL	20375	1 RB



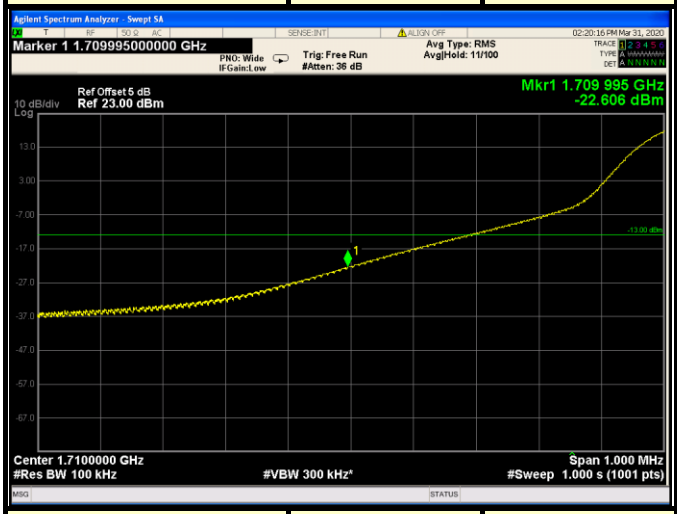
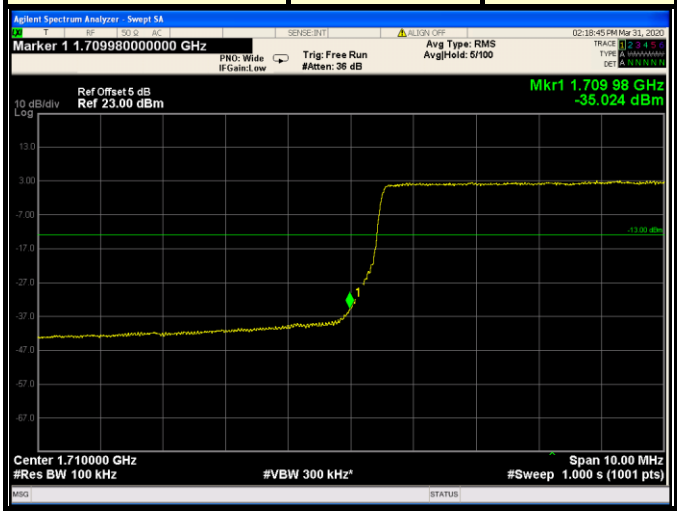
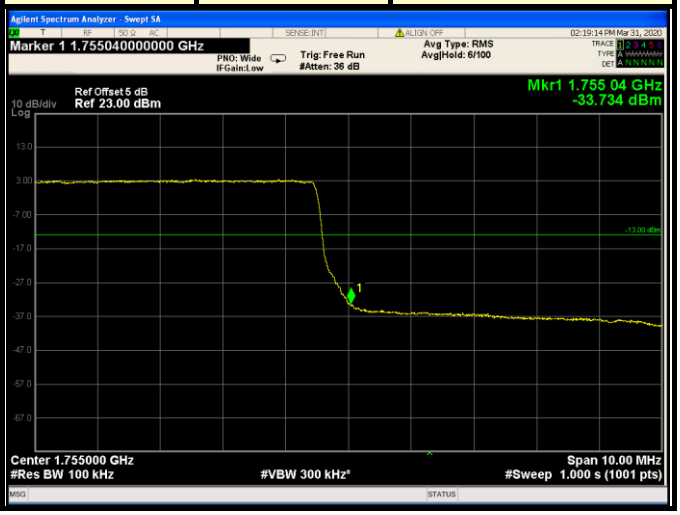


CHANNEL	19975	Full RB	CHANNEL	20375	Full RB

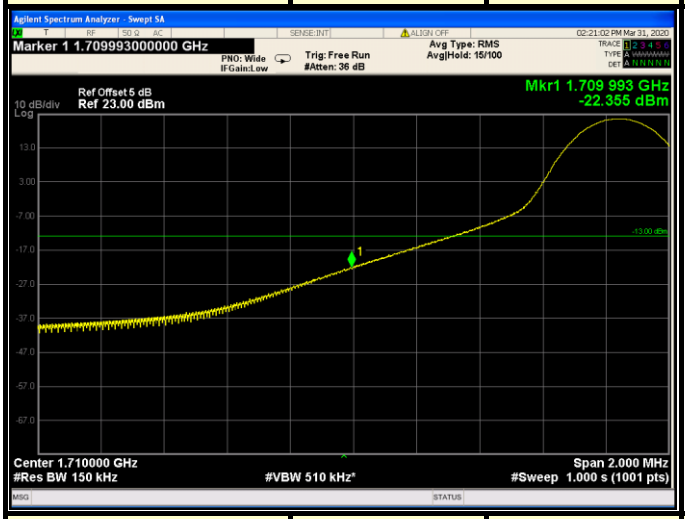
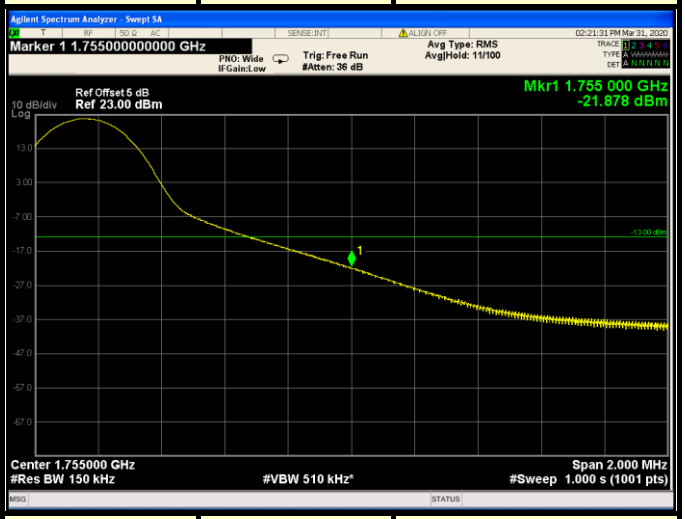
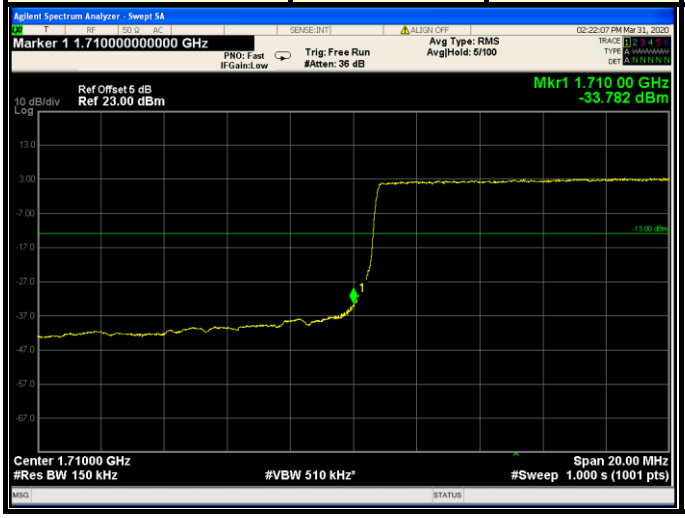
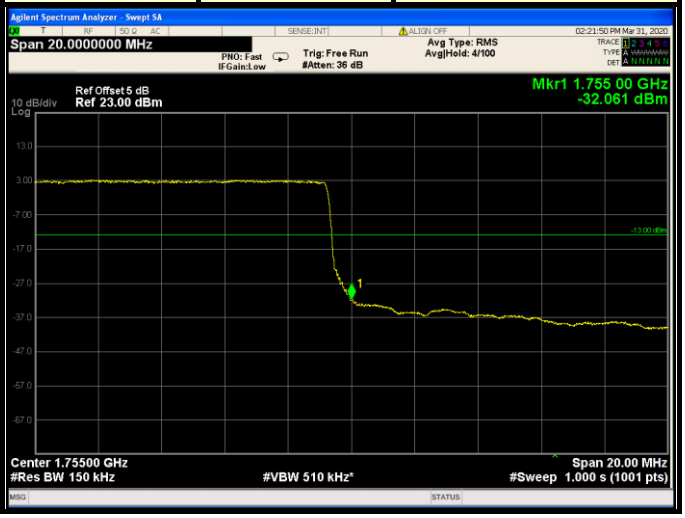




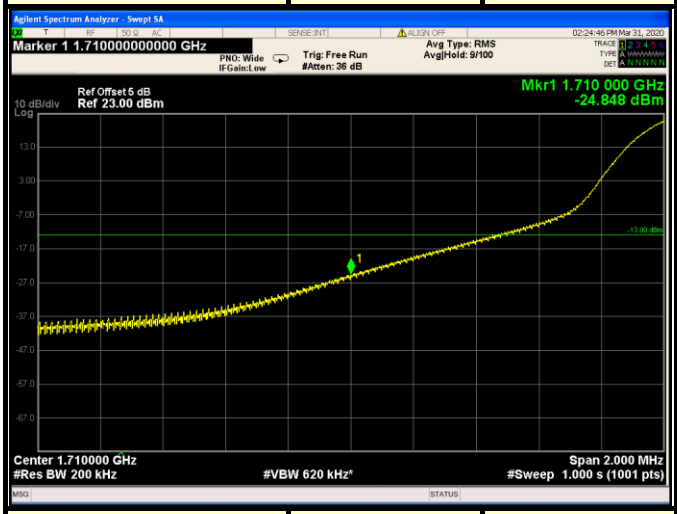
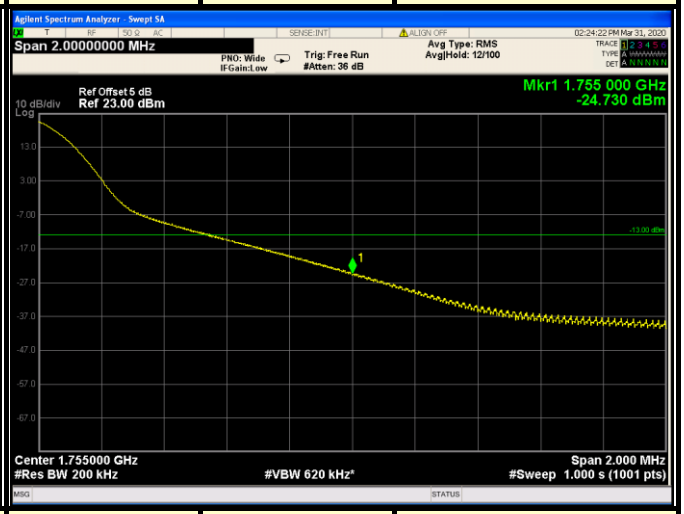
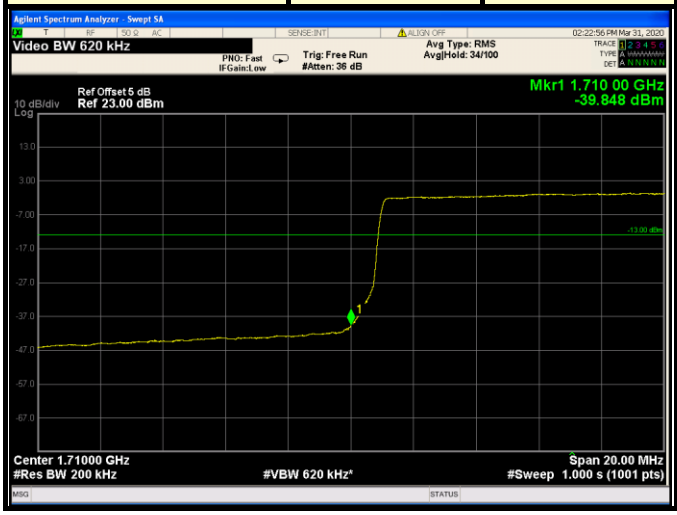
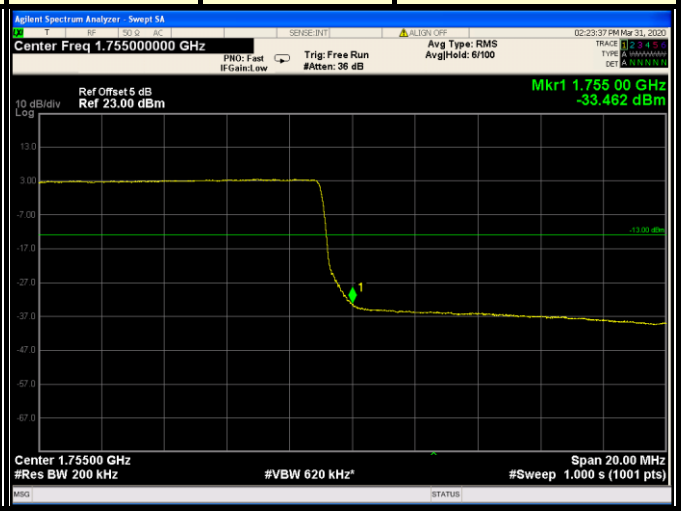
LTE BAND 4

Channel Bandwidth: 10MHz					
CHANNEL	20000	1 RB	CHANNEL	20350	1 RB
					
CHANNEL	20000	Full RB	CHANNEL	20350	Full RB
					

LTE BAND 4

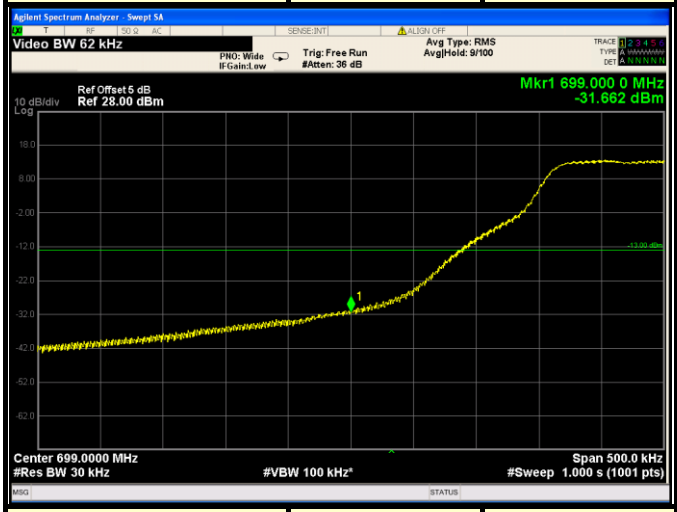
Channel Bandwidth: 15MHz					
CHANNEL	20025	1 RB	CHANNEL	20325	1 RB
					
CHANNEL	20025	Full RB	CHANNEL	20325	Full RB
					

LTE BAND 4

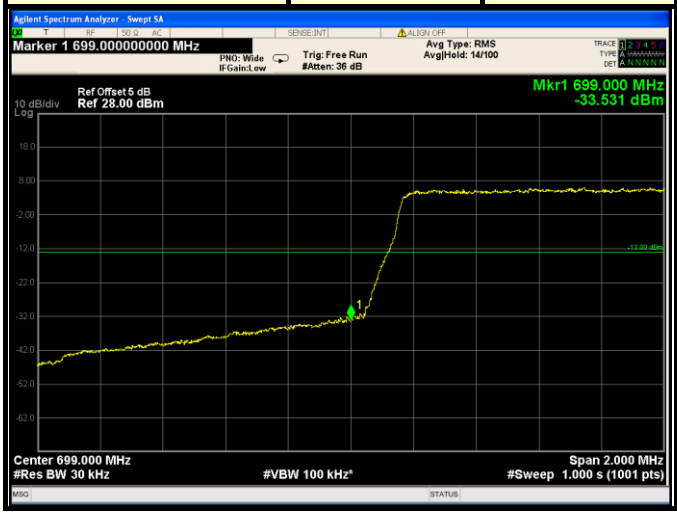
Channel Bandwidth: 20MHz					
CHANNEL	20050	1 RB	CHANNEL	20300	1 RB
					
CHANNEL	20050	Full RB	CHANNEL	20300	Full RB
					

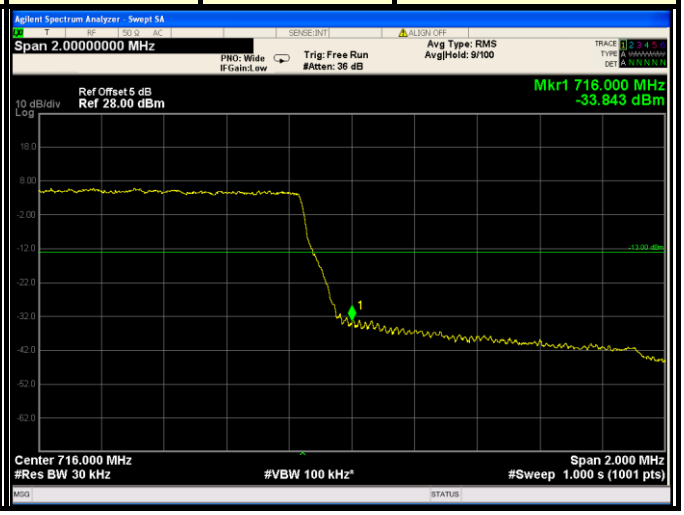
LTE BAND 12

Channel Bandwidth: 1.4MHz					
CHANNEL	23017	1 RB	CHANNEL	23173	1 RB



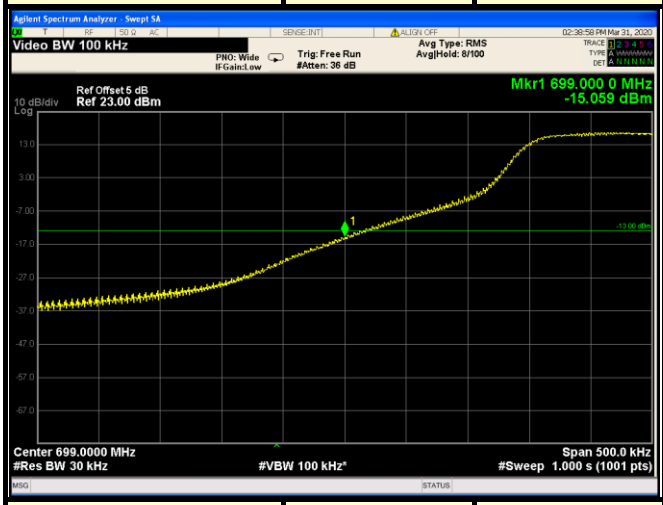
CHANNEL	23017	Full RB	CHANNEL	23173	Full RB

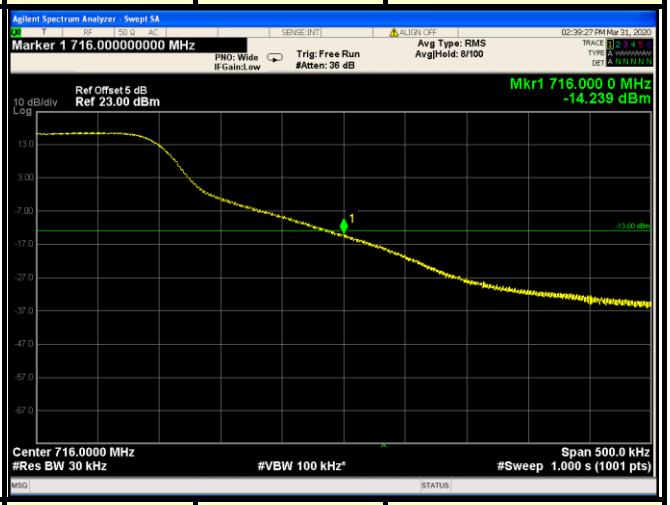




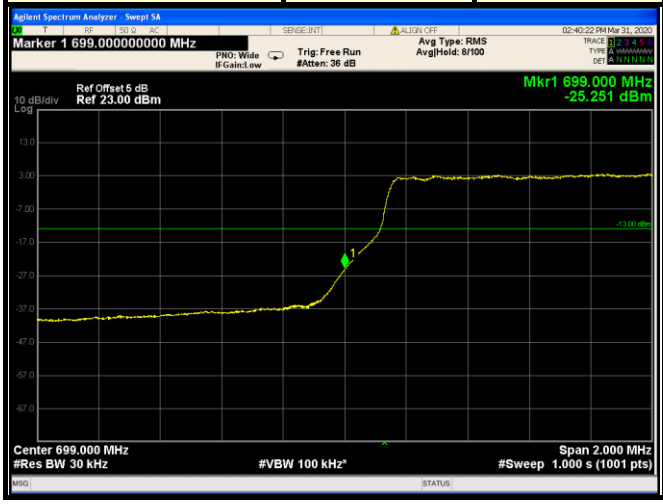
LTE BAND 12

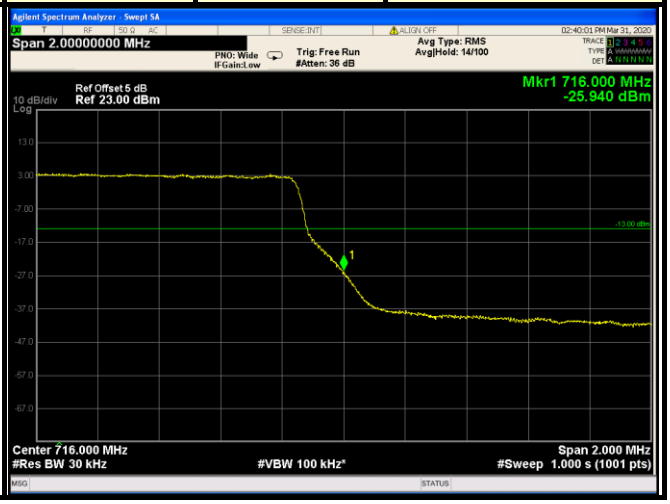
Channel Bandwidth: 3MHz					
CHANNEL	23025	1 RB	CHANNEL	23165	1 RB





CHANNEL	23025	Full RB	CHANNEL	23165	Full RB

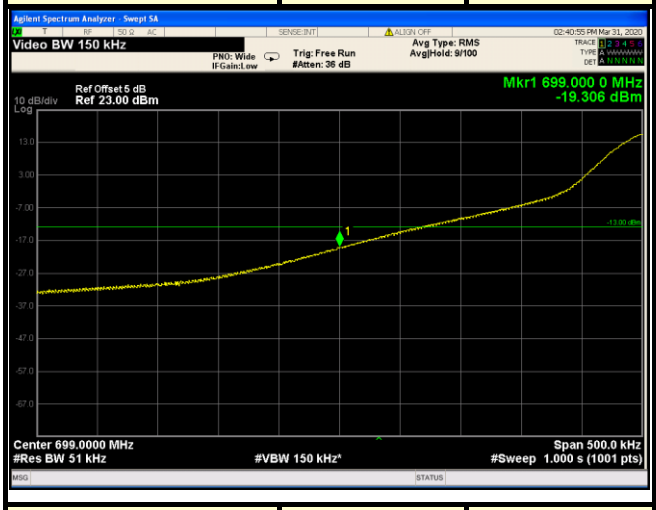


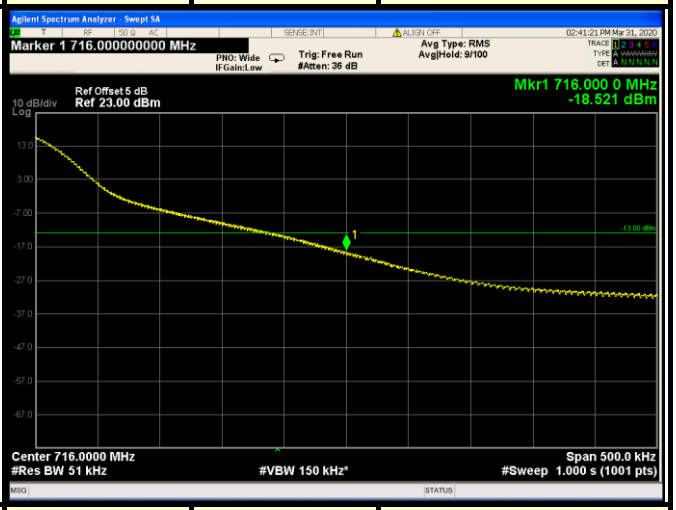


LTE BAND 12

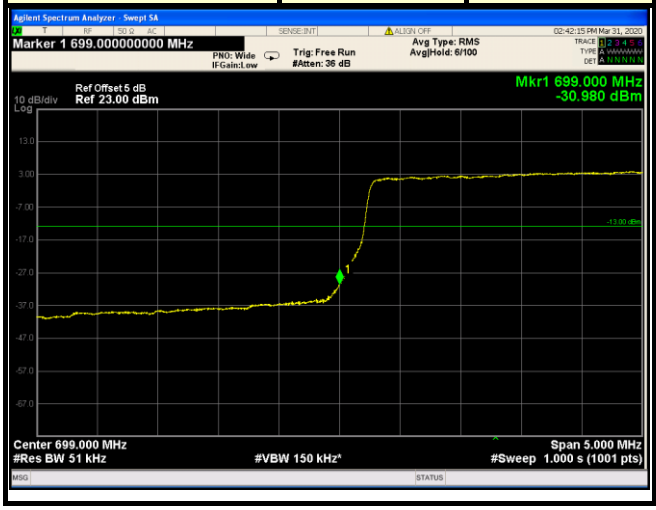
Channel Bandwidth: 5MHz

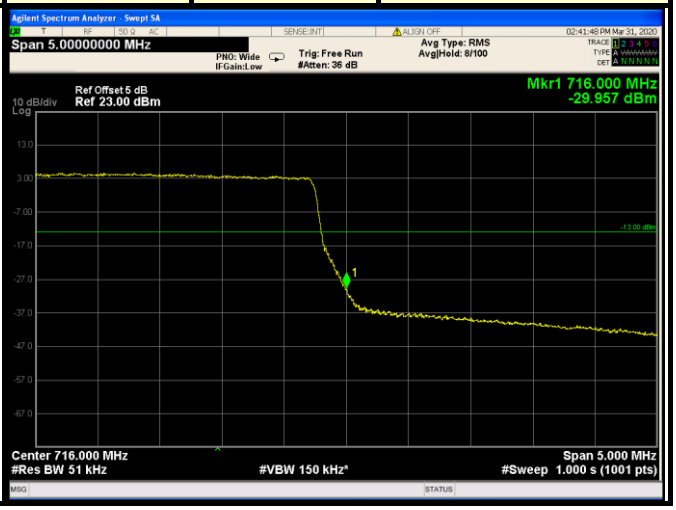
CHANNEL	23035	1 RB	CHANNEL	23155	1 RB



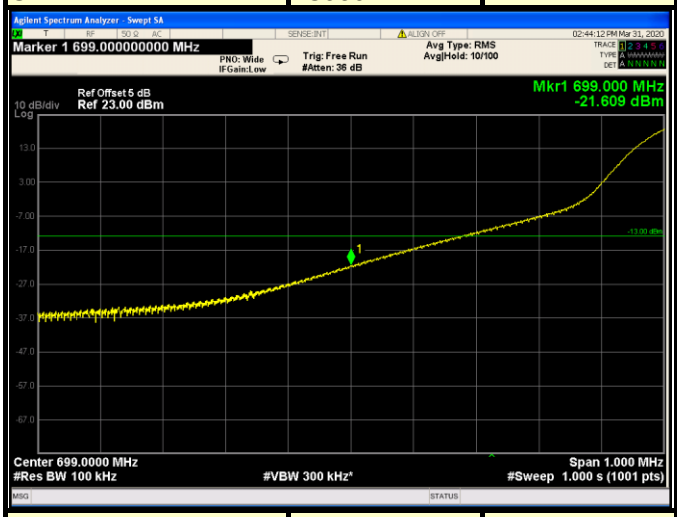
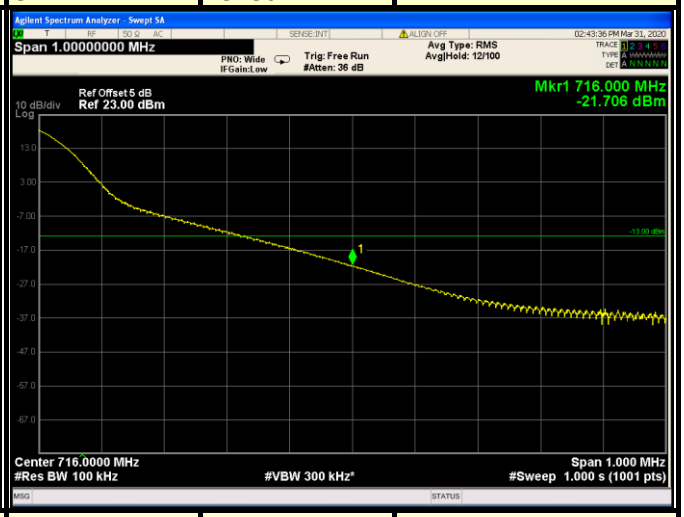
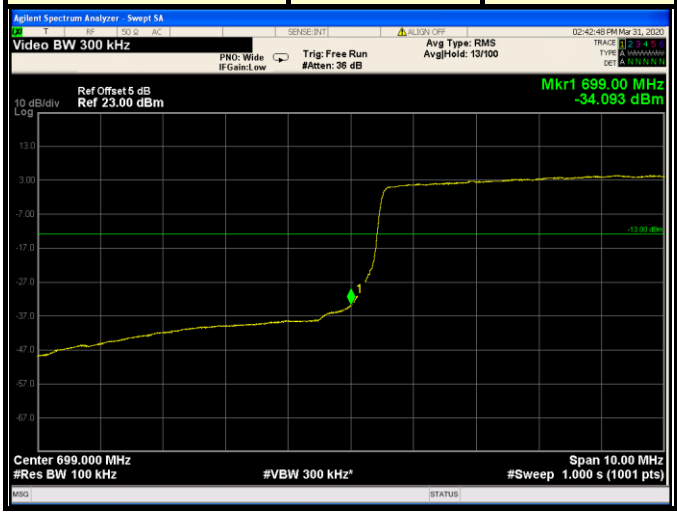
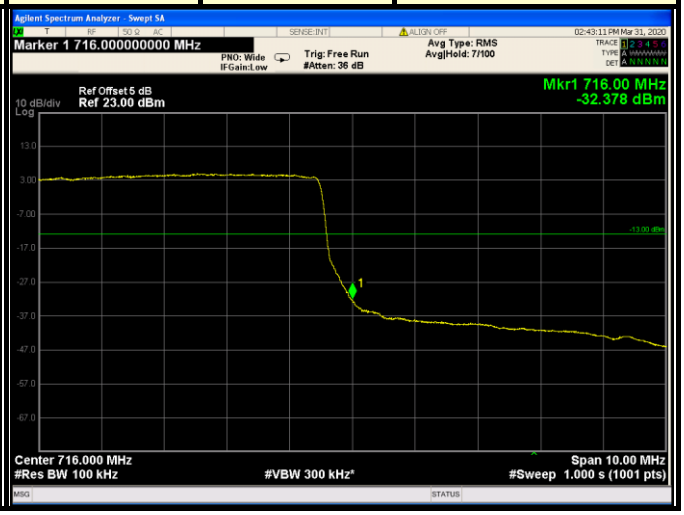


CHANNEL	23035	Full RB	CHANNEL	23155	Full RB





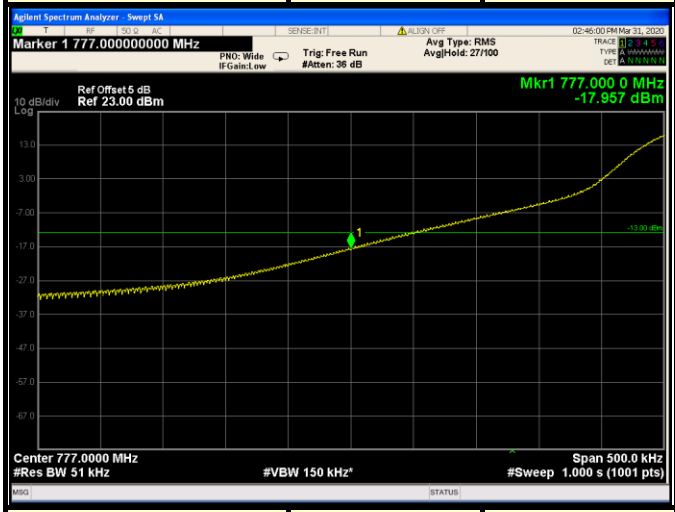
LTE BAND 12

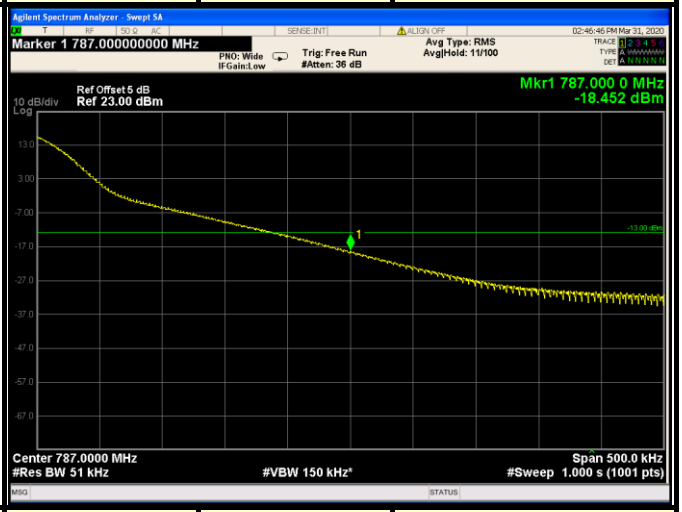
Channel Bandwidth: 10MHz					
CHANNEL	23060	1 RB	CHANNEL	23130	1 RB
					
CHANNEL	23060	Full RB	CHANNEL	23130	Full RB
					

LTE BAND 13

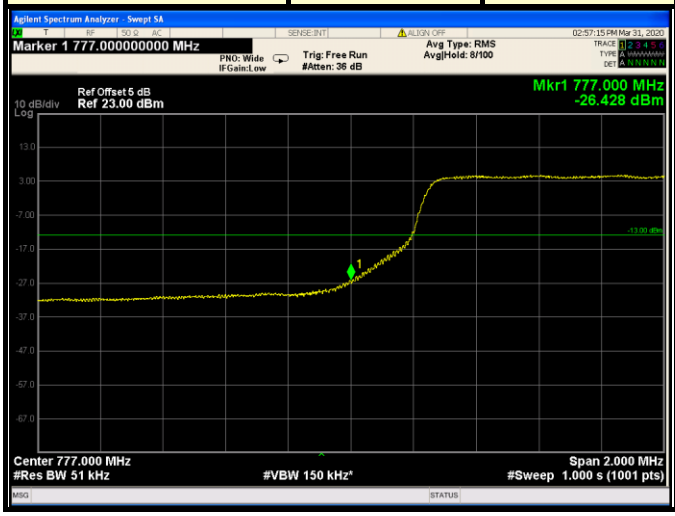
Channel Bandwidth: 5MHz

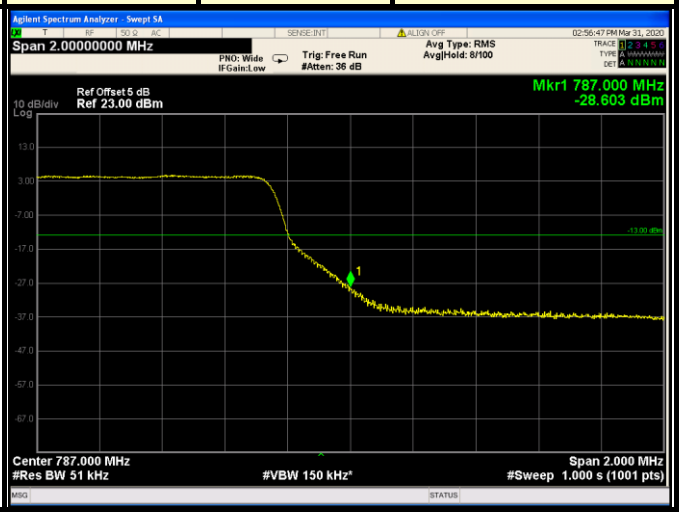
CHANNEL	23205	1 RB	CHANNEL	23255	1 RB



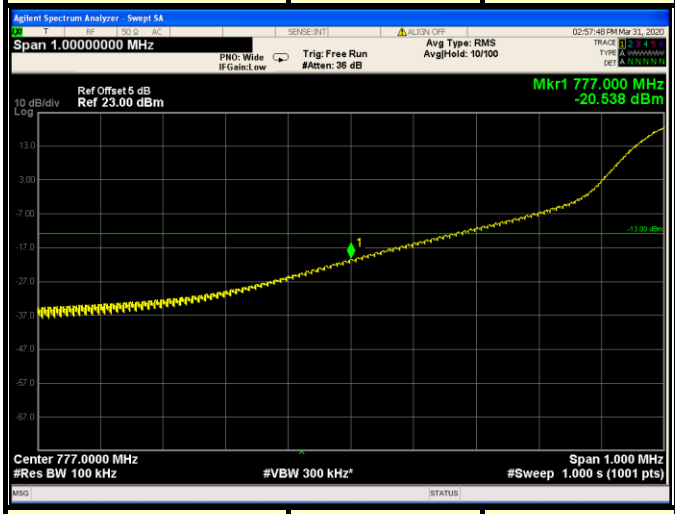
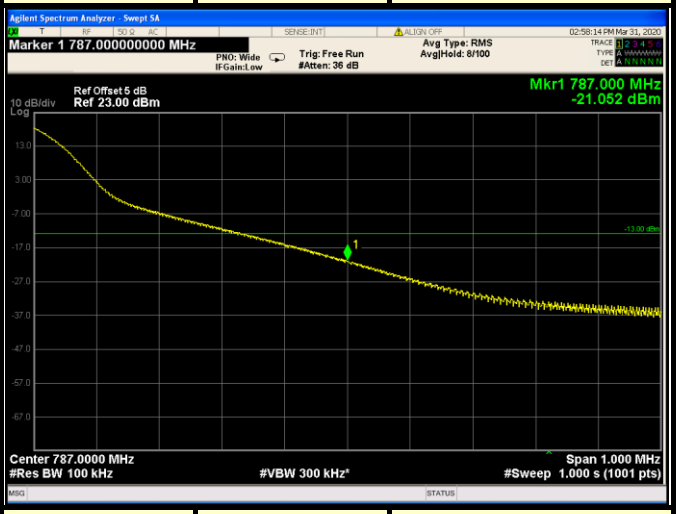
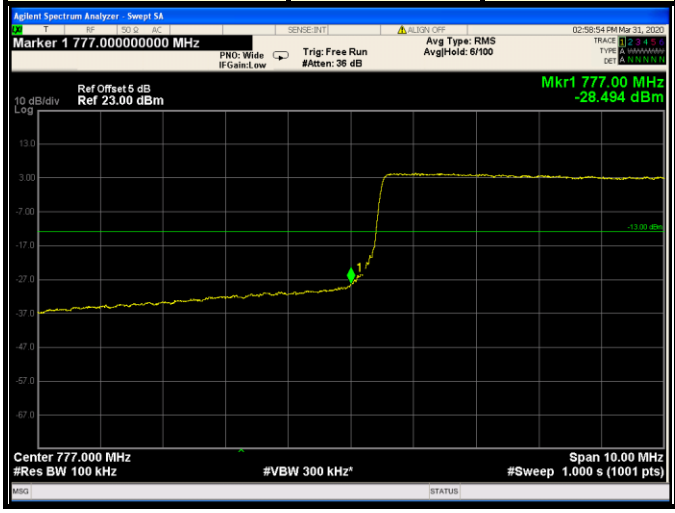
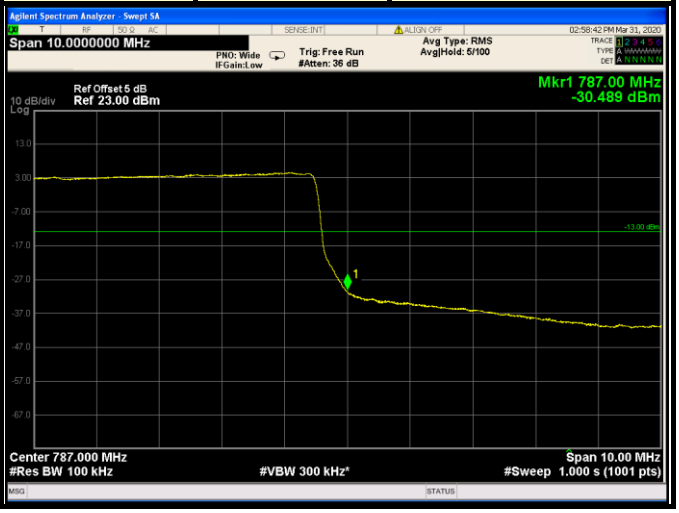


CHANNEL	23205	Full RB	CHANNEL	23255	Full RB





LTE BAND 13

Channel Bandwidth: 10MHz					
CHANNEL	23230	1 RB	CHANNEL	23230	1 RB
					
CHANNEL	23230	Full RB	CHANNEL	23230	Full RB
					

3.6 CONDUCTED SPURIOUS EMISSIONS

3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

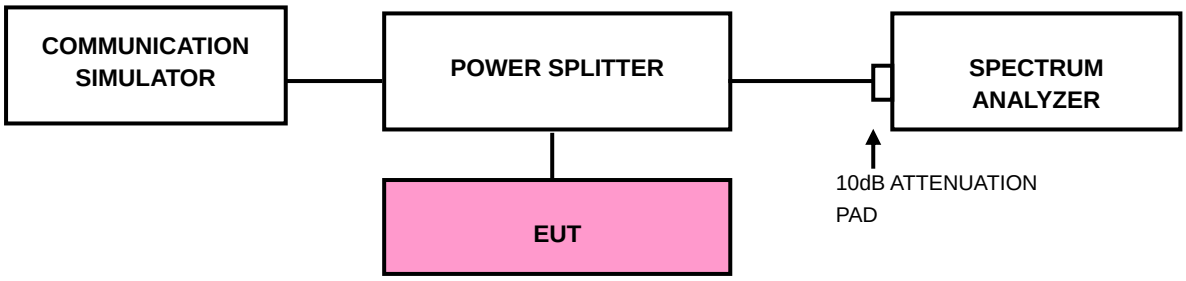
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission equal to –13dBm

3.6.2 TEST PROCEDURE

a. The EUT makes a phone call to the communication simulator. All measurements were done at middle operational frequency range.

b. Measuring frequency range is from 30 MHz to 19.1GHz for LTE Band 4 and 30 MHz to 9GHz for LTE Band 12. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

3.6.3 TEST SETUP



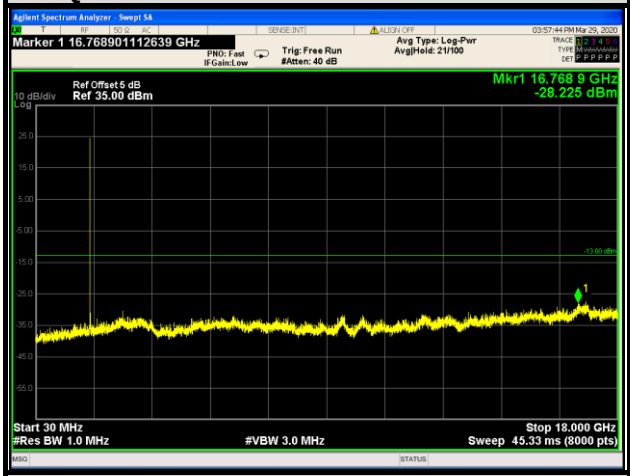
3.6.4 TEST RESULTS

LTE BAND 4

1.4MHz / QPSK

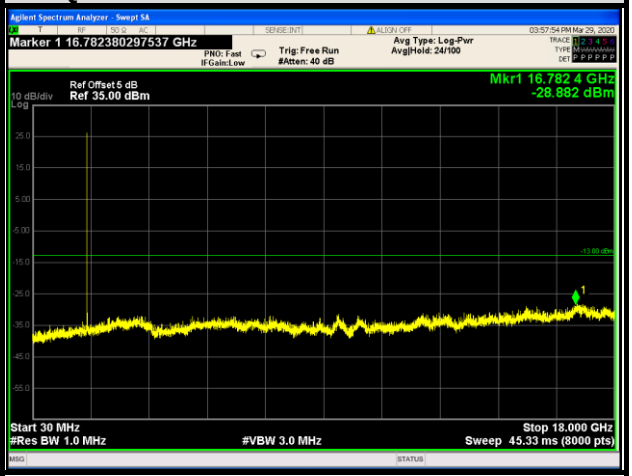
CHANNEL 19957

FREQUENCY RANGE : 30MHz~19.1GHz



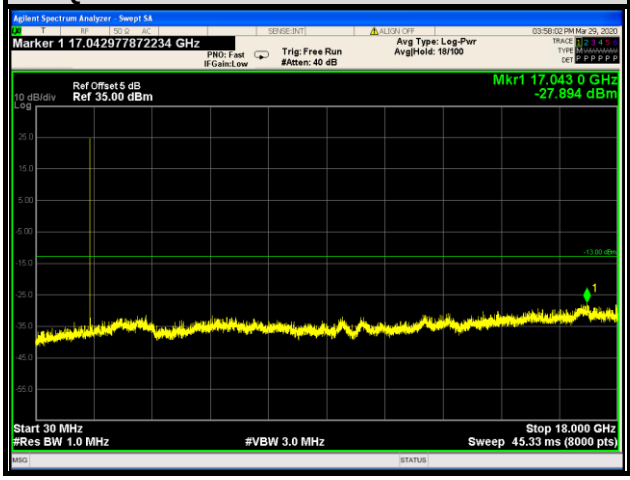
CHANNEL 20175

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 20393

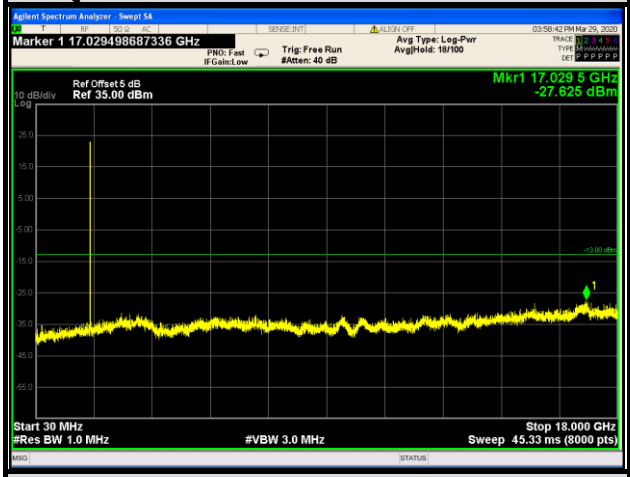
FREQUENCY RANGE : 30MHz~19.1GHz



3MHz / QPSK

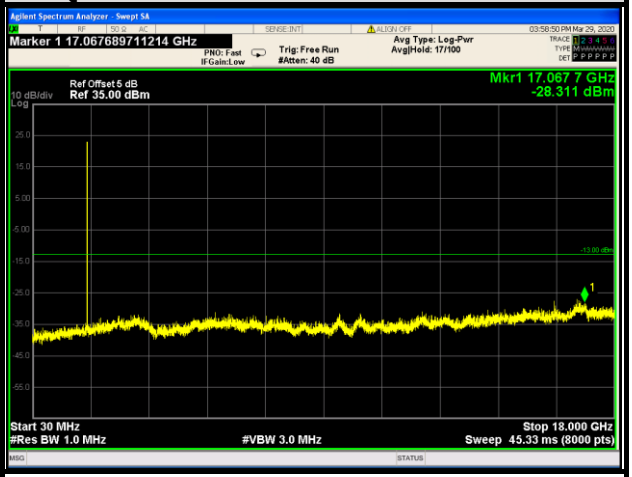
CHANNEL 19965

FREQUENCY RANGE : 30MHz~19.1GHz



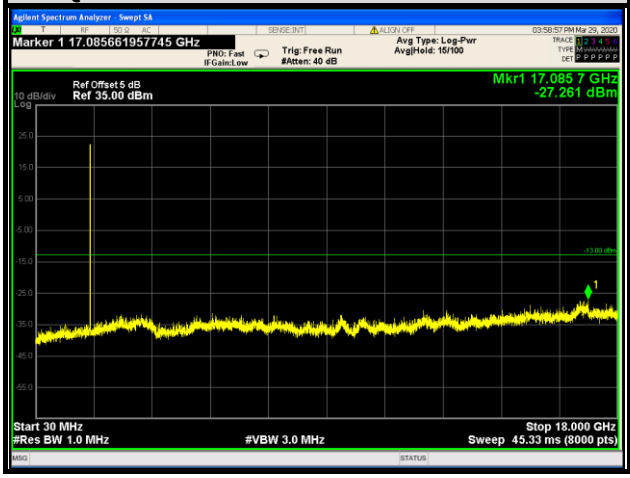
CHANNEL 20175

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 20385

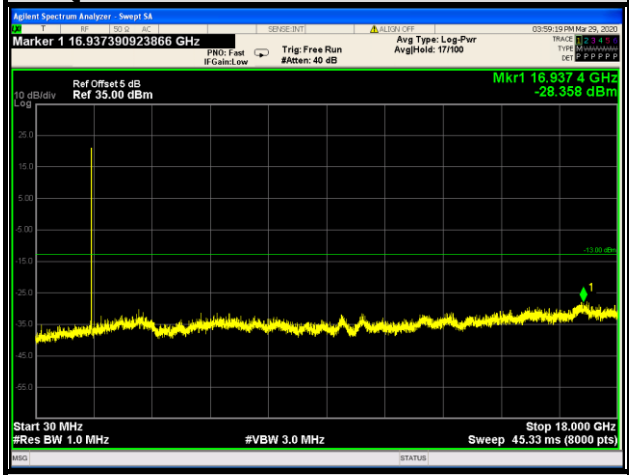
FREQUENCY RANGE : 30MHz~19.1GHz



5MHz / QPSK

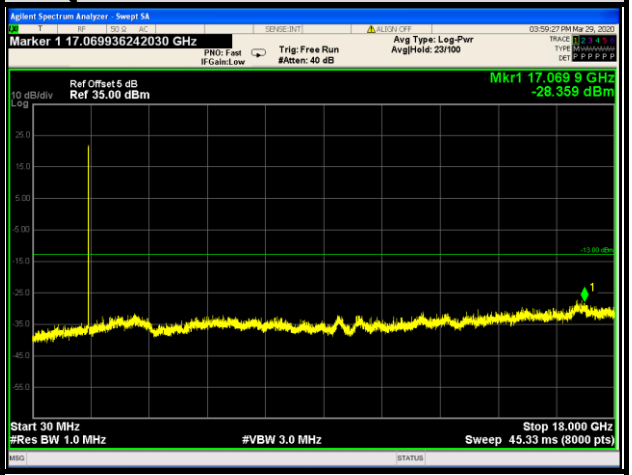
CHANNEL 19975

FREQUENCY RANGE : 30MHz~19.1GHz



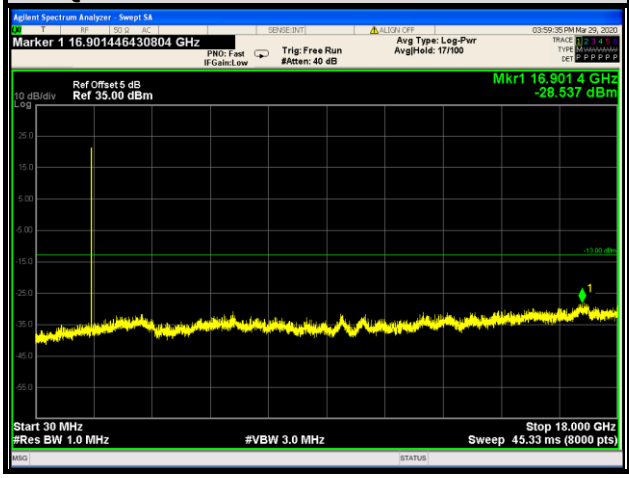
CHANNEL 20175

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 20375

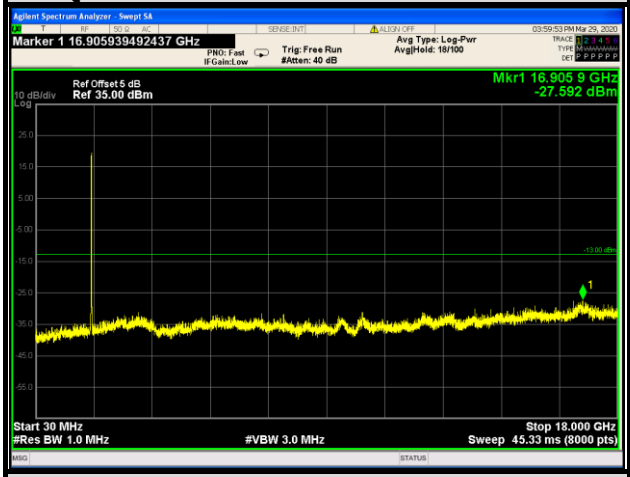
FREQUENCY RANGE : 30MHz~19.1GHz



10MHz / QPSK

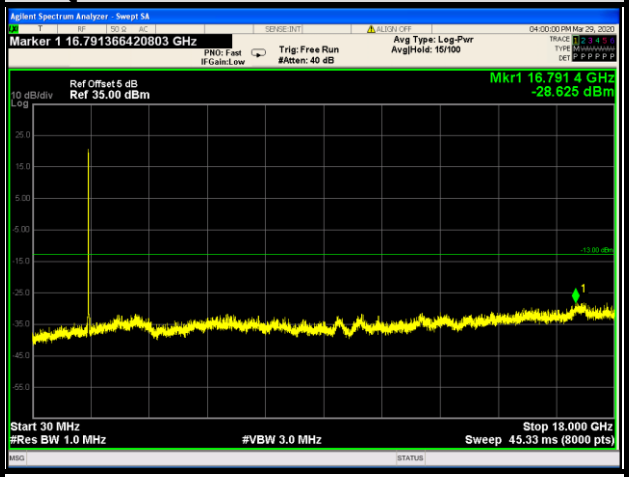
CHANNEL 20000

FREQUENCY RANGE : 30MHz~19.1GHz



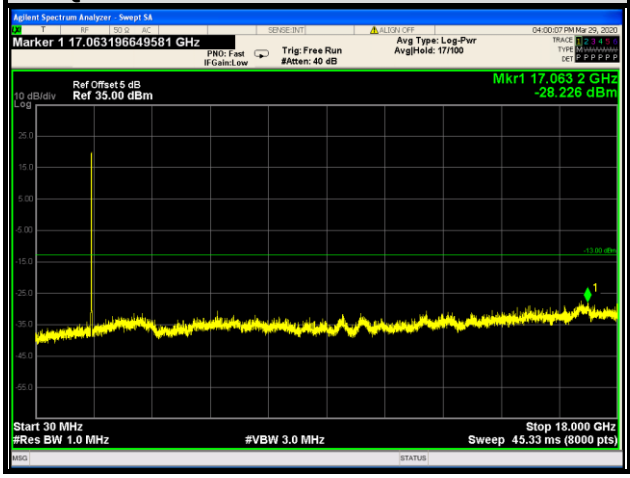
CHANNEL 20175

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 20350

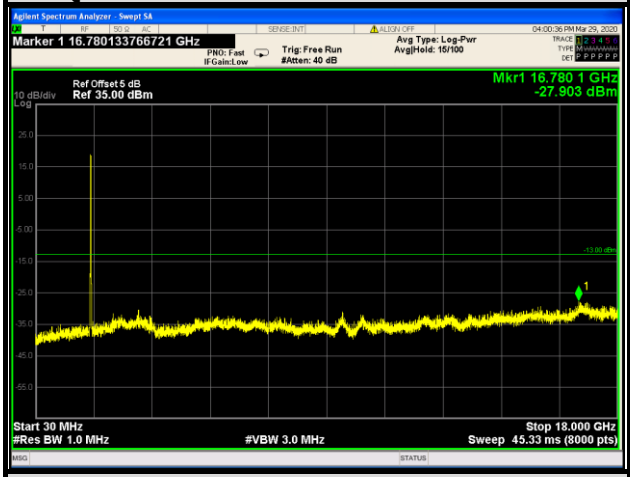
FREQUENCY RANGE : 30MHz~19.1GHz



15MHz / QPSK

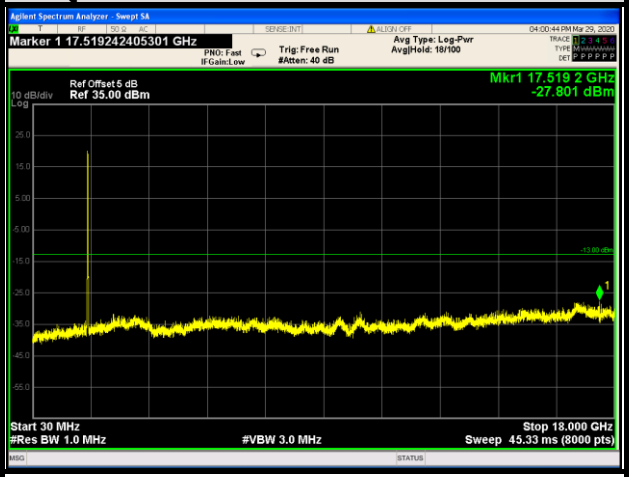
CHANNEL 20025

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 20175

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 20325

FREQUENCY RANGE : 30MHz~19.1GHz