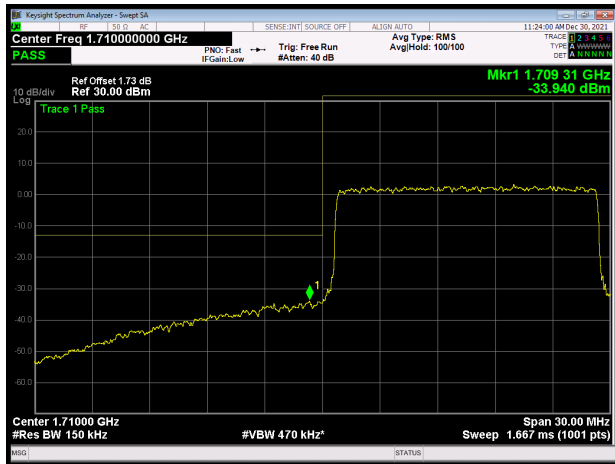
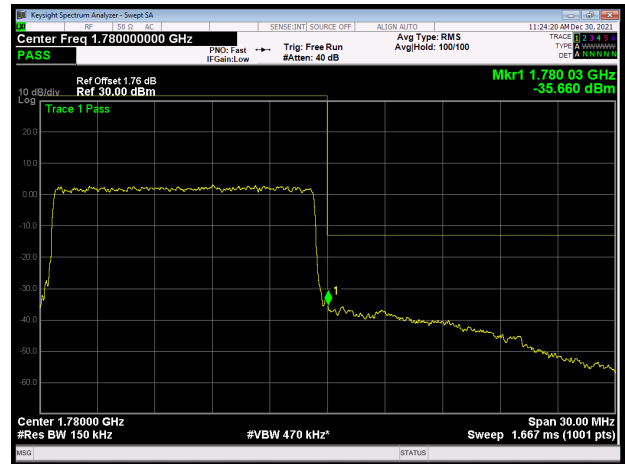




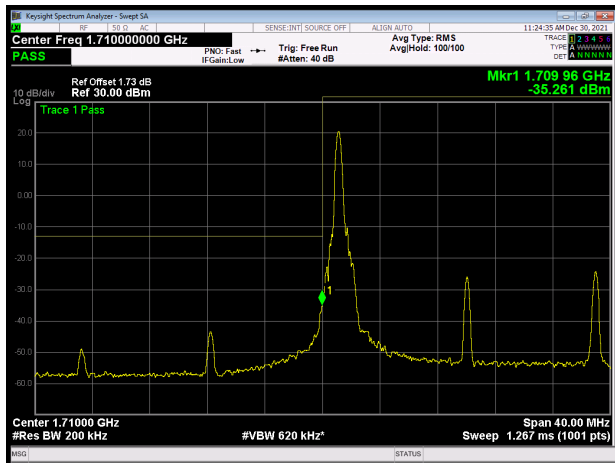
LTE Band 66 16QAM 15MHz CH-Low, 100%RB



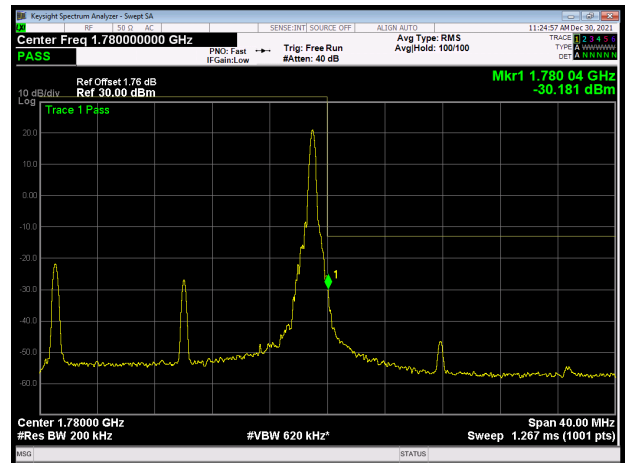
LTE Band 66 16QAM 15MHz CH-High, 100%RB



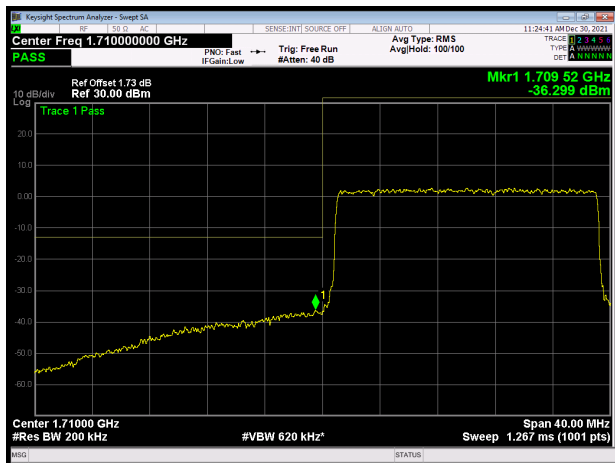
LTE Band 66 16QAM 20MHz CH-Low, 1 RB



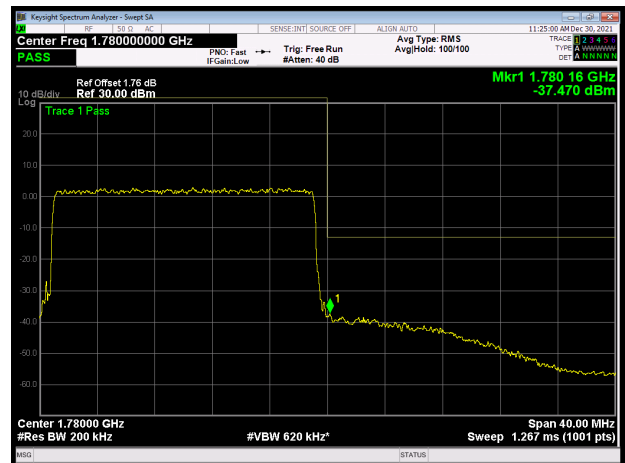
LTE Band 66 16QAM 20MHz CH-High, 1 RB



LTE Band 66 16QAM 20MHz CH-Low, 100%RB

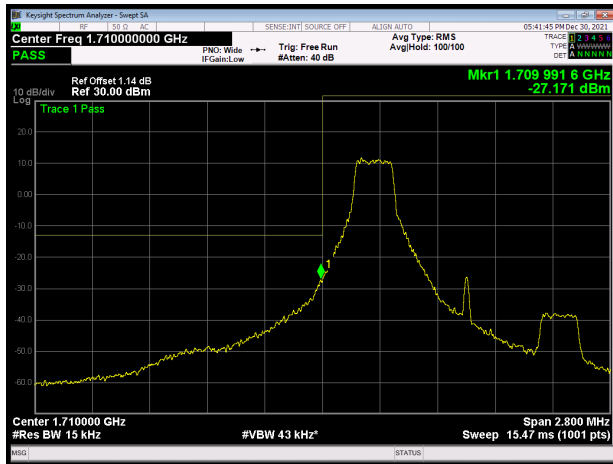


LTE Band 66 16QAM 20MHz CH-High, 100%RB

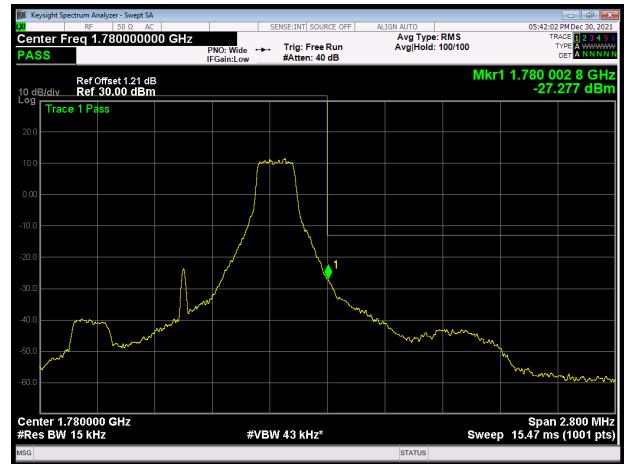




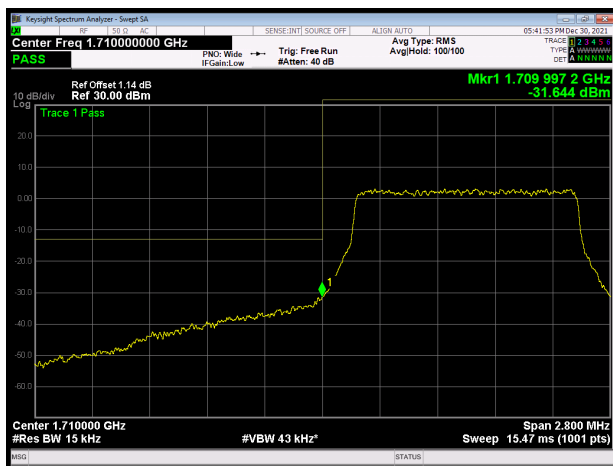
LTE Band 66 64QAM 1.4MHz CH-Low, 1 RB



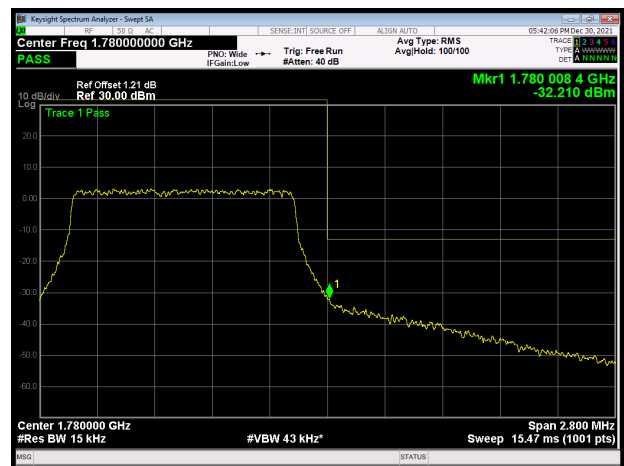
LTE Band 66 64QAM 1.4MHz CH-High, 1 RB



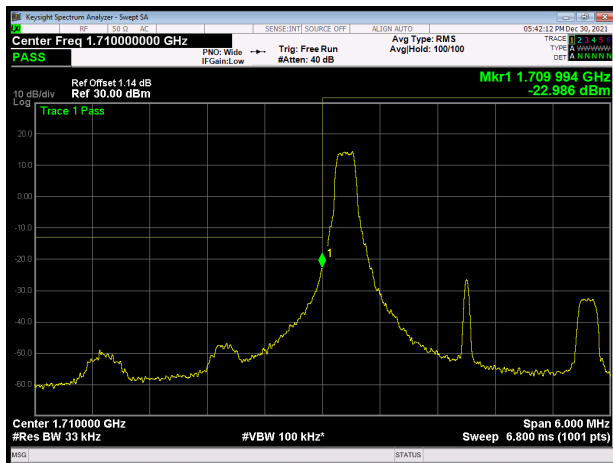
LTE Band 66 64QAM 1.4MHz CH-Low, 100%RB



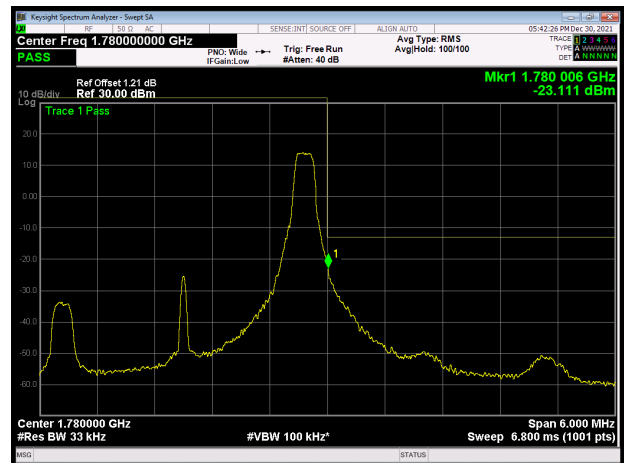
LTE Band 66 64QAM 1.4MHz CH-High, 100%RB



LTE Band 66 64QAM 3MHz CH-Low, 1 RB

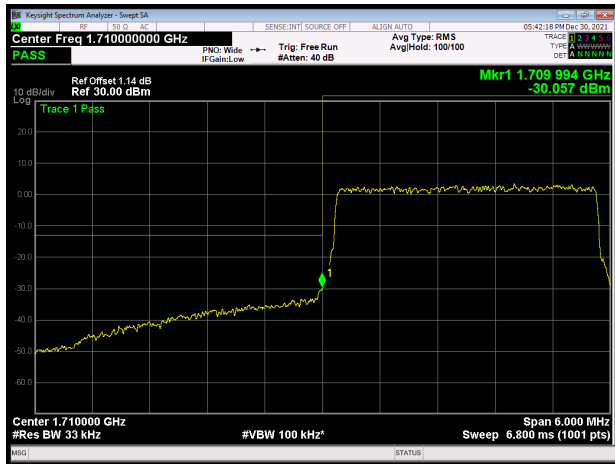


LTE Band 66 64QAM 3MHz CH-High, 1 RB

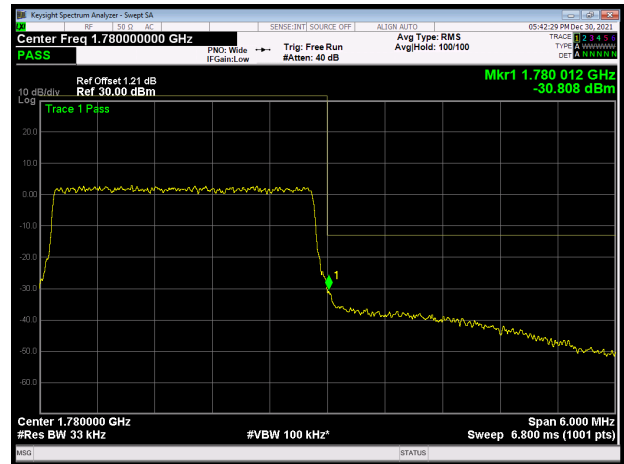




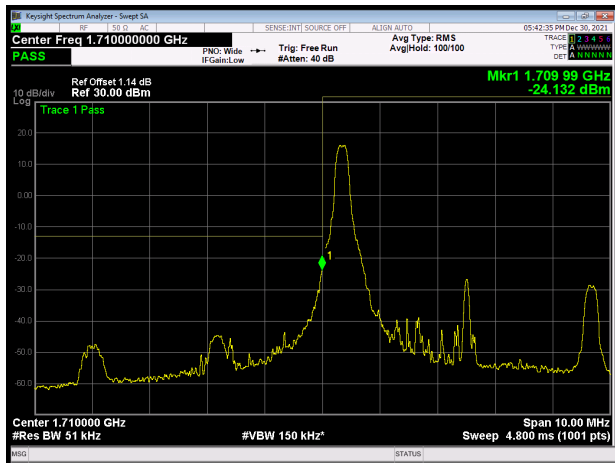
### LTE Band 66 64QAM 3MHz CH-Low, 100%RB



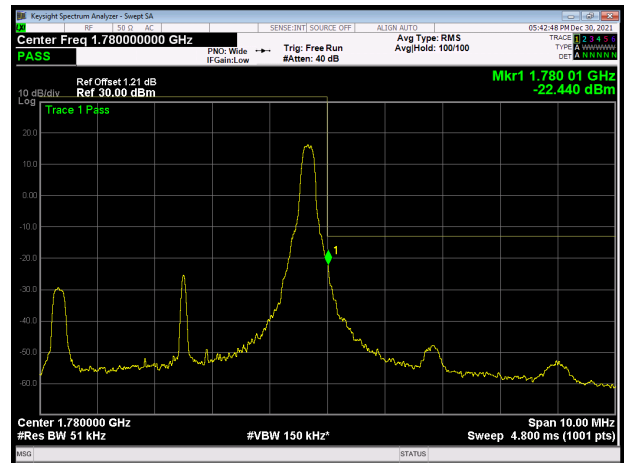
### LTE Band 66 64QAM 3MHz CH-High, 100%RB



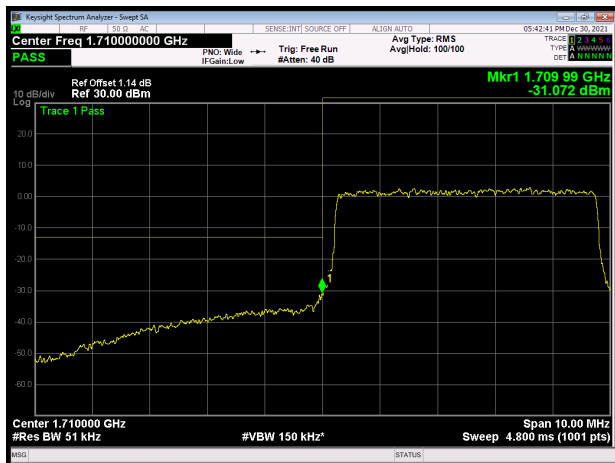
### LTE Band 66 64QAM 5MHz CH-Low, 1 RB



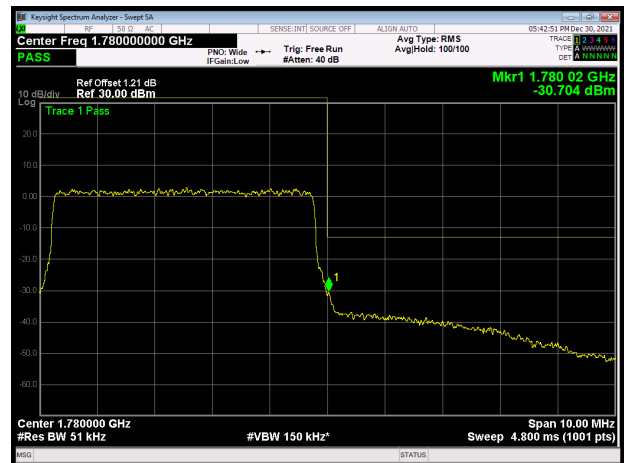
### LTE Band 66 64QAM 5MHz CH-High, 1 RB



### LTE Band 66 64QAM 5MHz CH-Low, 100%RB

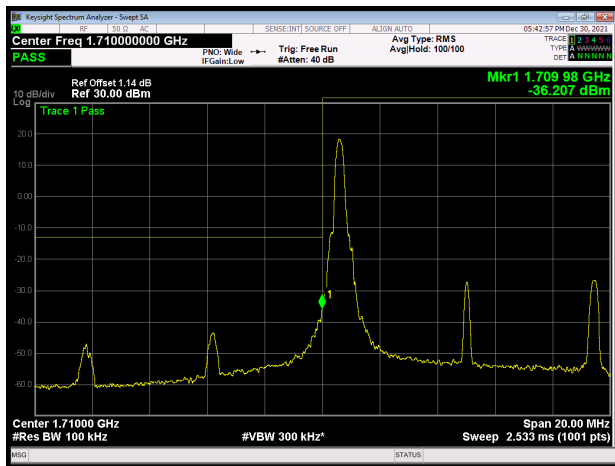


### LTE Band 66 64QAM 5MHz CH-High, 100%RB

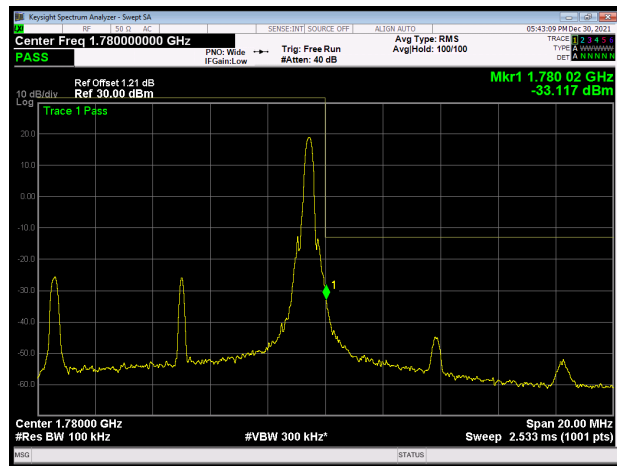




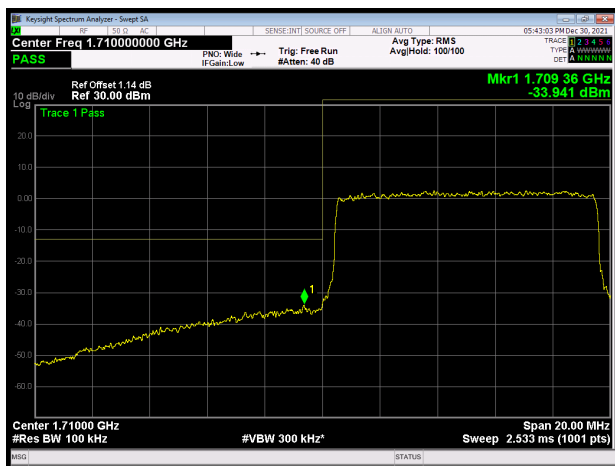
### LTE Band 66 64QAM 10MHz CH-Low, 1 RB



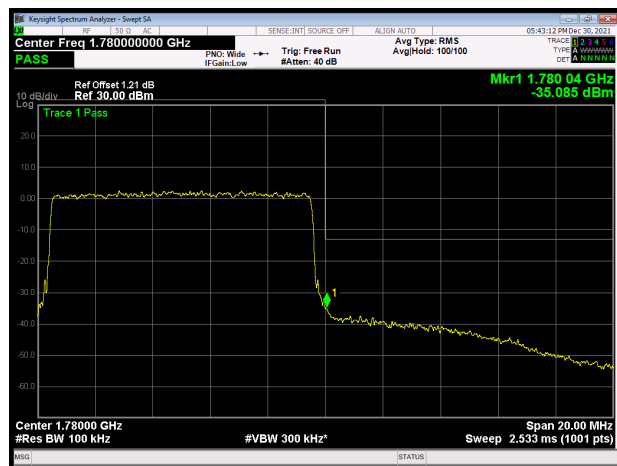
### LTE Band 66 64QAM 10MHz CH-High, 1 RB



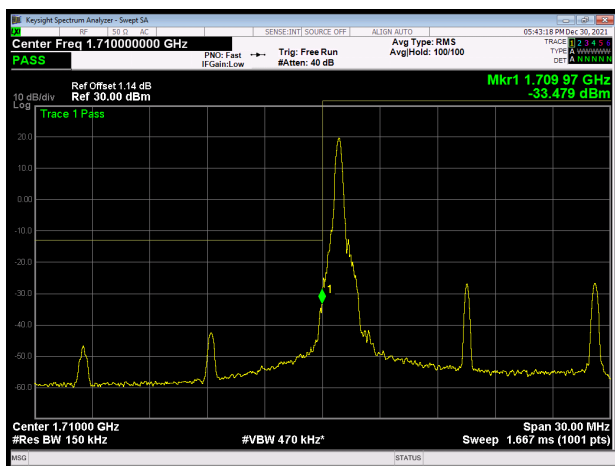
### LTE Band 66 64QAM 10MHz CH-Low, 100%RB



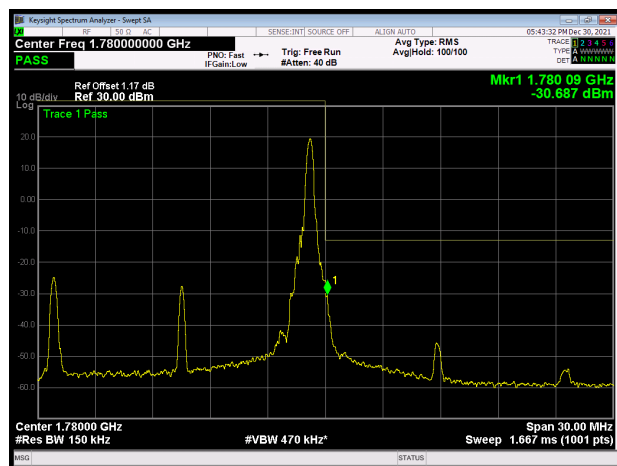
### LTE Band 66 64QAM 10MHz CH-High, 100%RB



### LTE Band 66 64QAM 15MHz CH-Low, 1 RB

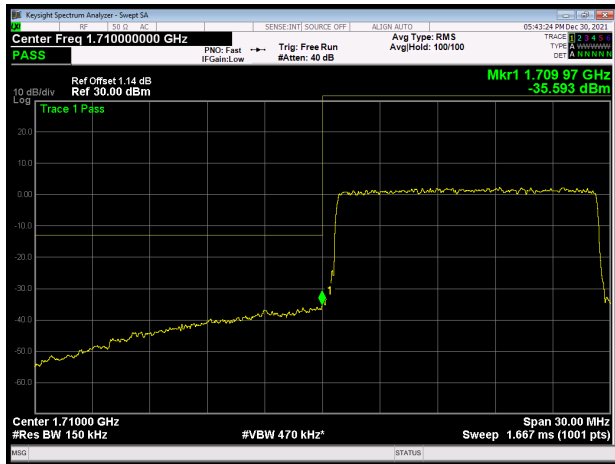


### LTE Band 66 64QAM 15MHz CH-High, 1 RB

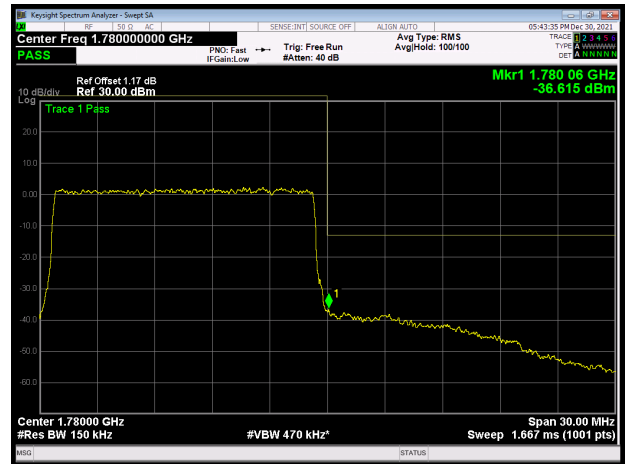




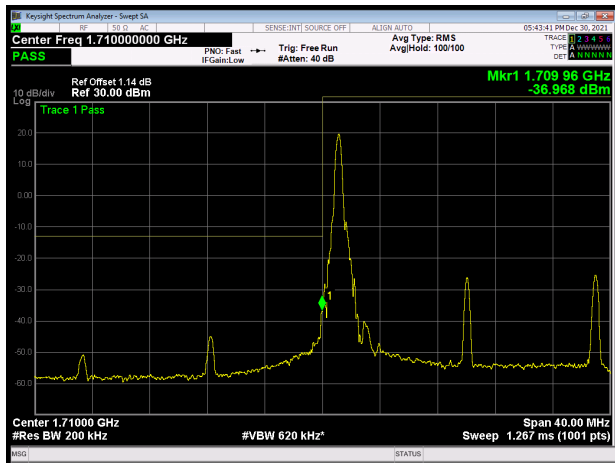
LTE Band 66 64QAM 15MHz CH-Low, 100%RB



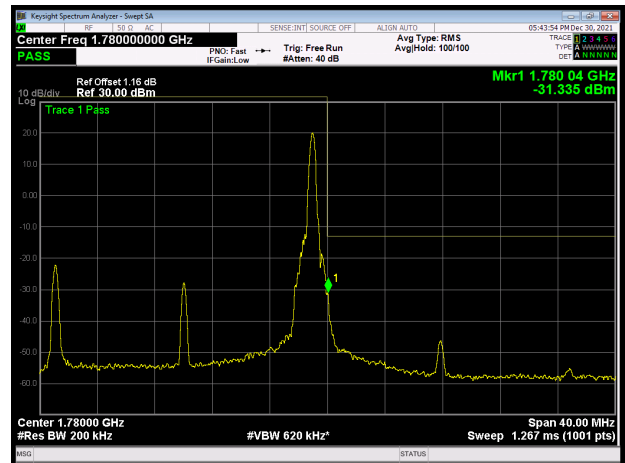
LTE Band 66 64QAM 15MHz CH-High, 100%RB



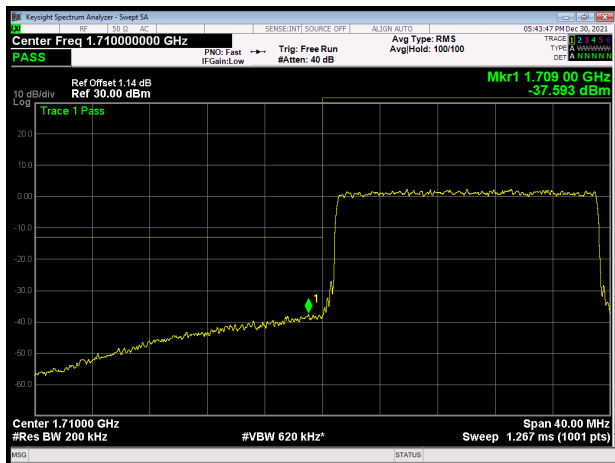
LTE Band 66 64QAM 20MHz CH-Low, 1 RB



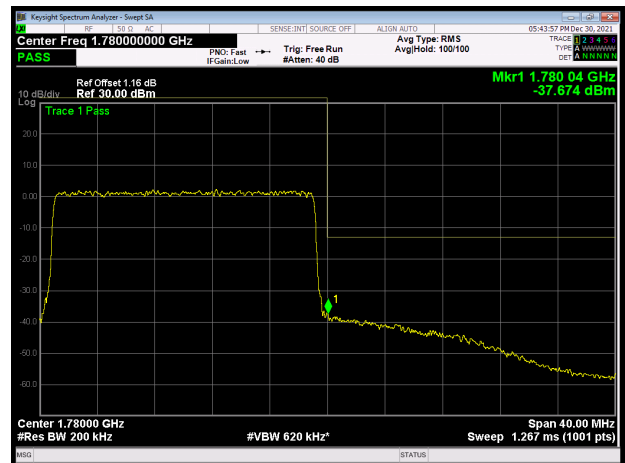
LTE Band 66 64QAM 20MHz CH-High, 1 RB



LTE Band 66 64QAM 20MHz CH-Low, 100%RB

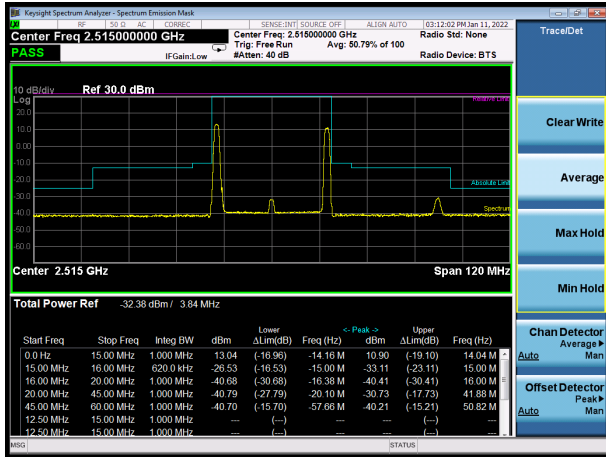


LTE Band 66 64QAM 20MHz CH-High, 100%RB

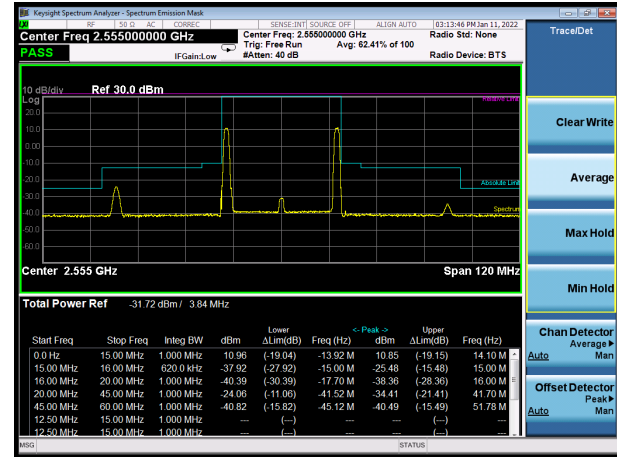




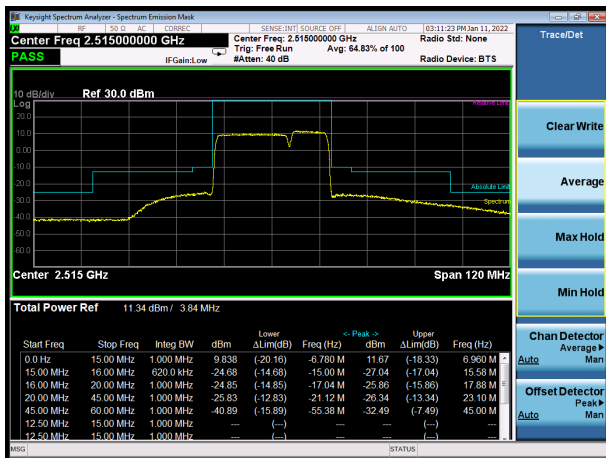
CA\_7C QPSK 20MHz+10MHz CH-Low, RB 1



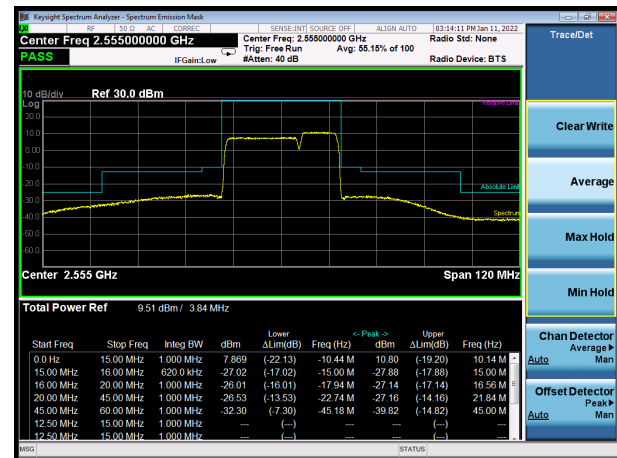
CA\_7C QPSK 20MHz+10MHz CH- High, RB 1



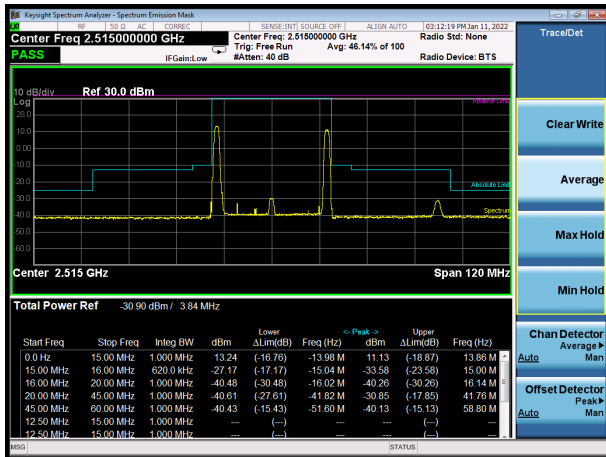
CA\_7C QPSK 20MHz+10MHz CH-Low, 100%RB



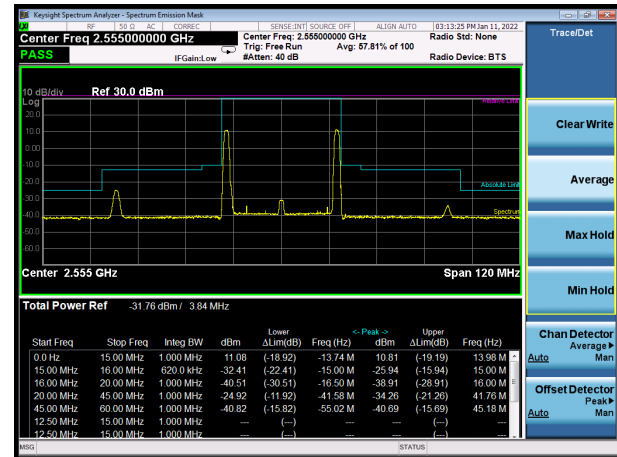
CA\_7C QPSK 20MHz+10MHz CH- High, 100%RB



CA\_7C 16QAM 20MHz+10MHz CH-Low, 1RB

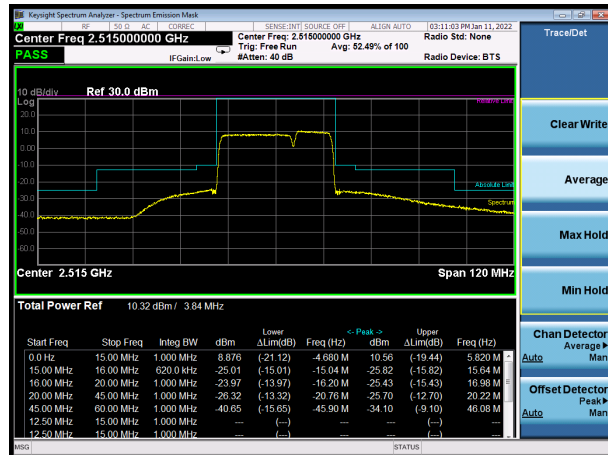


CA\_7C 16QAM 20MHz+10MHz CH- High, 1RB

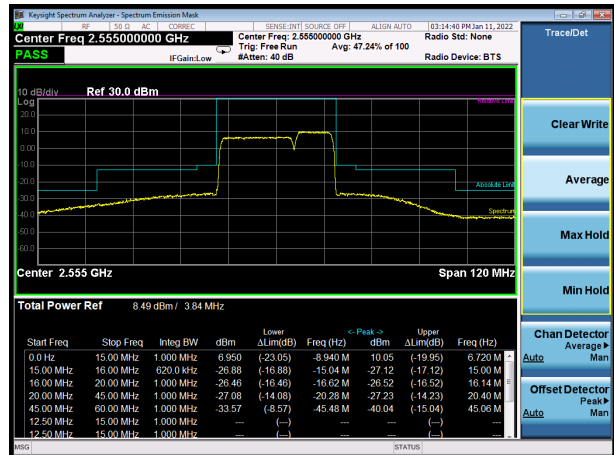




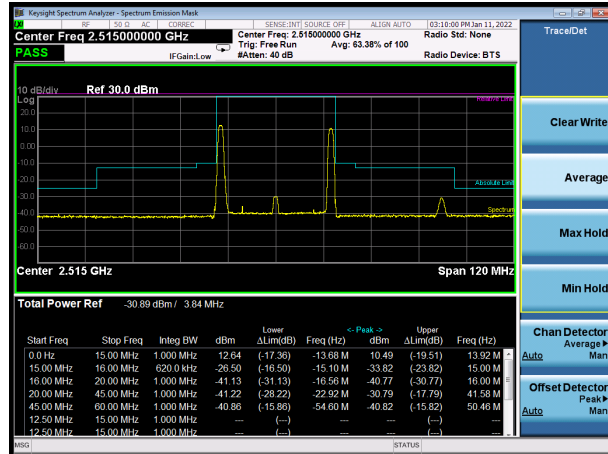
CA\_7C 16QAM 20MHz+10MHz CH-Low, 100%RB



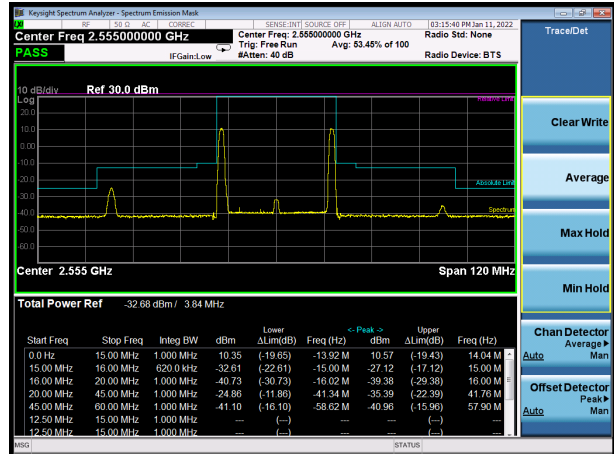
CA\_7C 16QAM 20MHz+10MHz CH- High, 100%RB



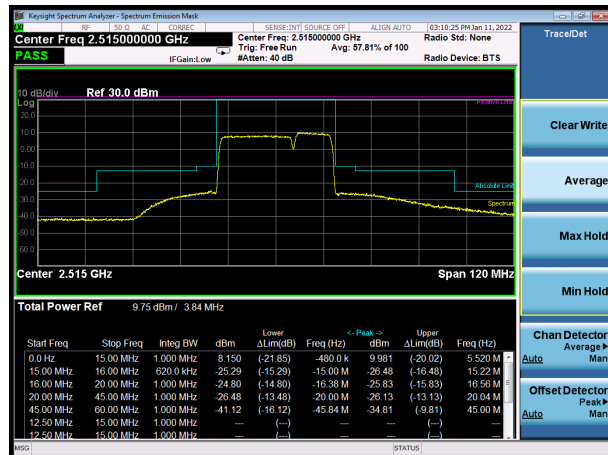
CA\_7C 64QAM 20MHz+10MHz CH-Low, RB 1



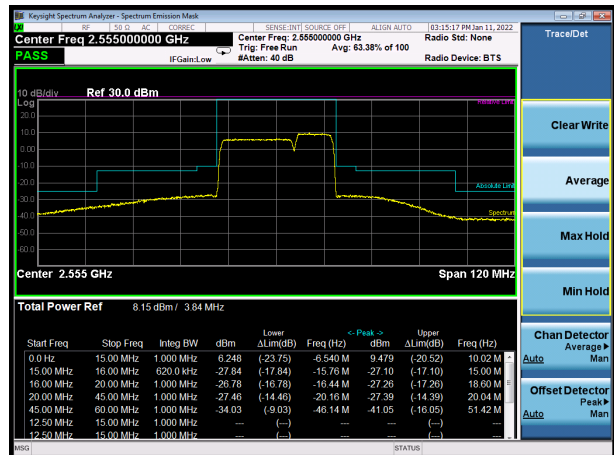
CA\_7C 64QAM 20MHz+10MHz CH- High, RB 1



CA\_7C 64QAM 20MHz+10MHz CH-Low, 100%RB

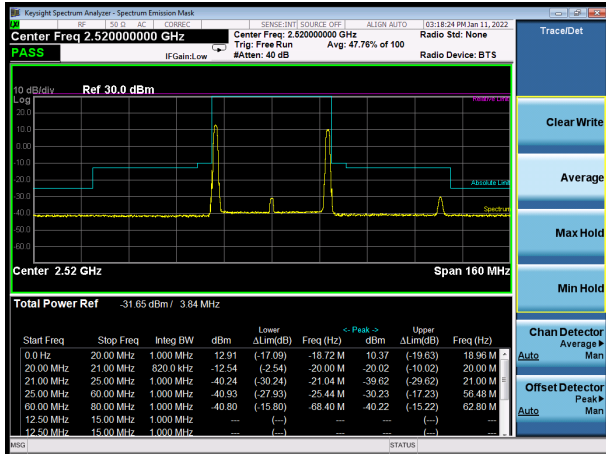


CA\_7C 64QAM 20MHz+10MHz CH- High, 100%RB

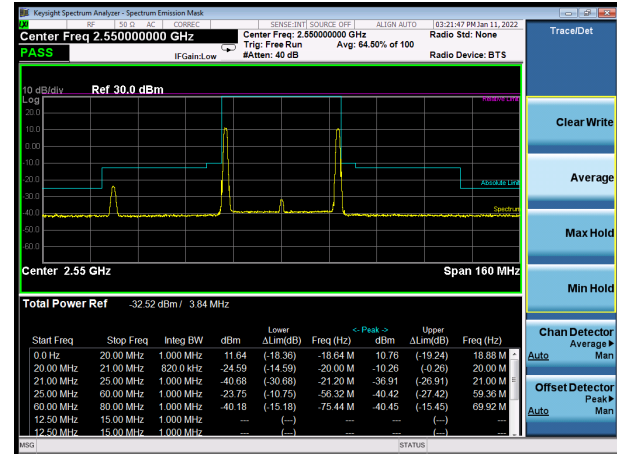




CA\_7C QPSK 20MHz+20MHz CH-Low, RB 1



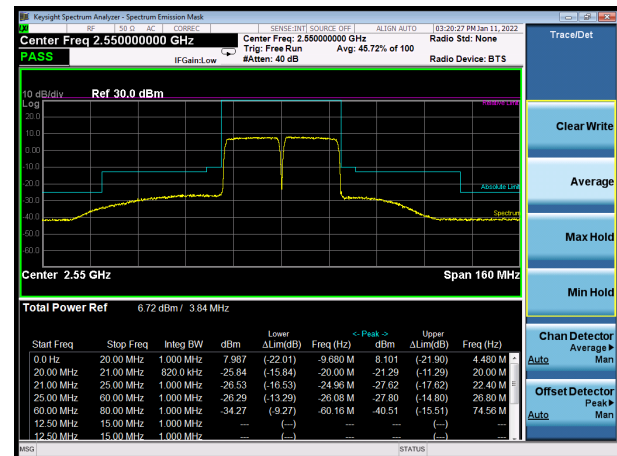
CA\_7C QPSK 20MHz+20MHz CH- High, RB 1



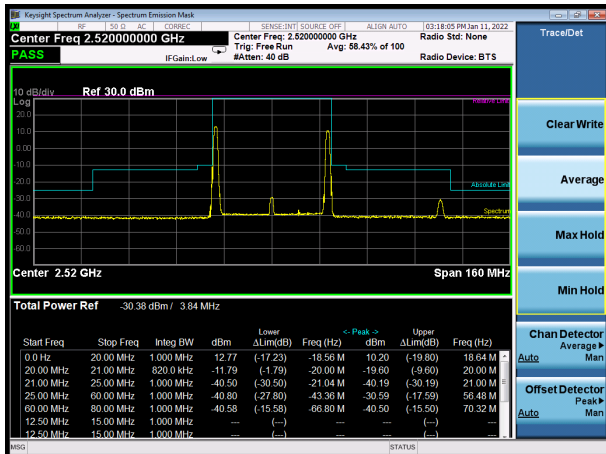
CA\_7C QPSK 20MHz+20MHz CH-Low, 100%RB



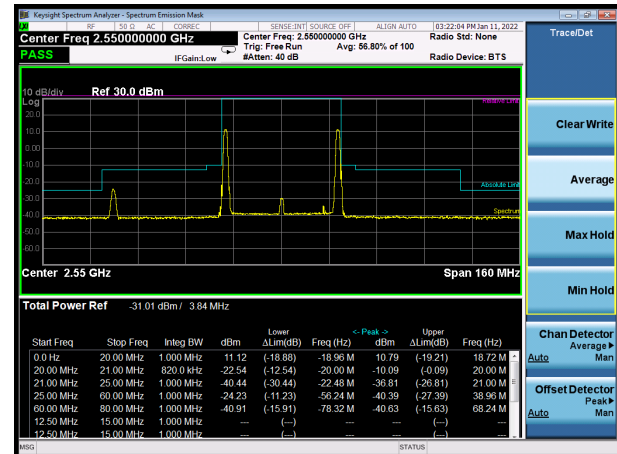
CA\_7C QPSK 20MHz+20MHz CH- High, 100%RB



CA\_7C 16QAM 20MHz+20MHz CH-Low, RB 1



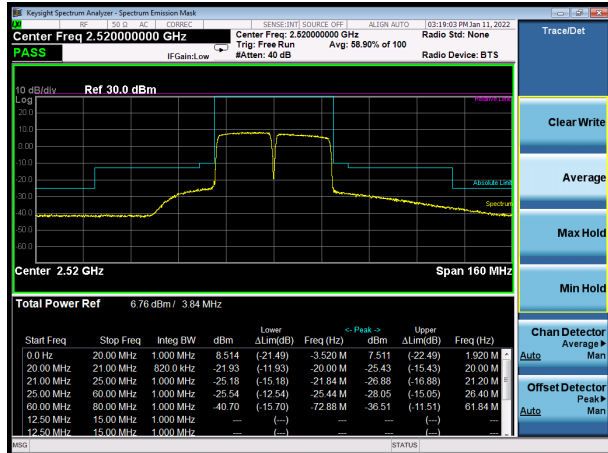
CA\_7C 16QAM 20MHz+20MHz CH- High, RB 1



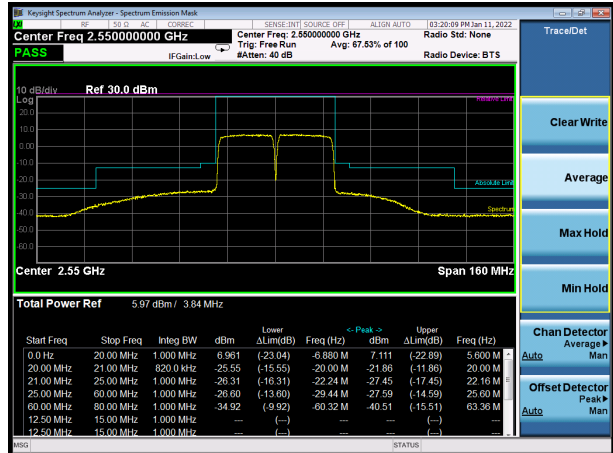




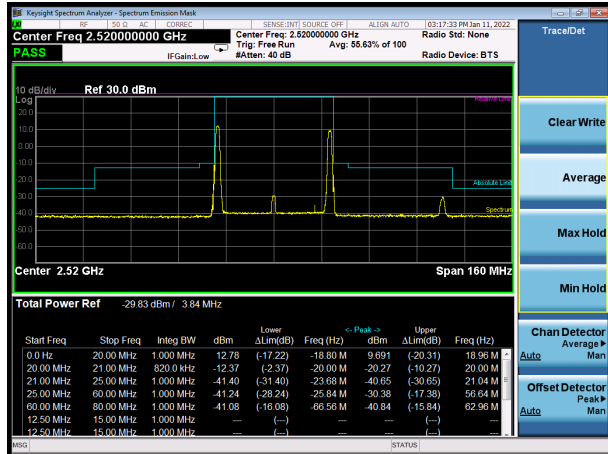
CA\_7C 16QAM 20MHz+20MHz CH-Low, 100%RB



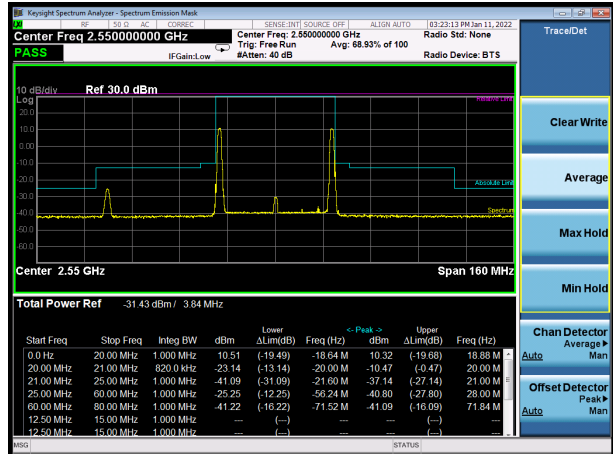
CA\_7C 16QAM 20MHz+20MHz CH- High, 100%RB



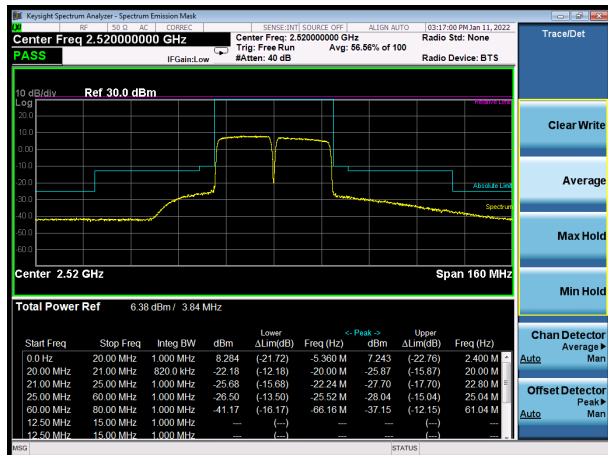
CA\_7C 64QAM 20MHz+20MHz CH-Low, RB 1



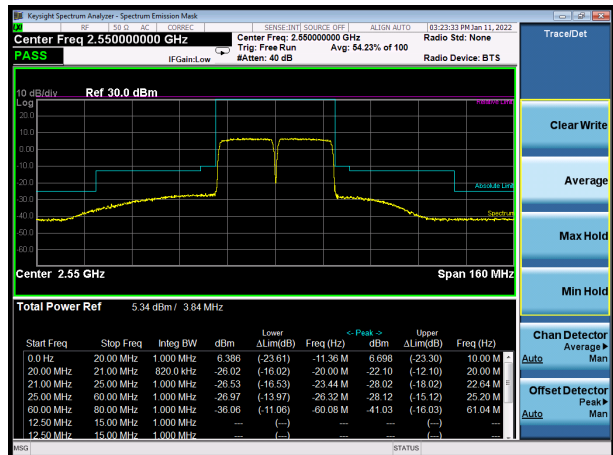
CA\_7C 64QAM 20MHz+20MHz CH- High, RB 1



CA\_7C 64QAM 20MHz+20MHz CH-Low, 100%RB

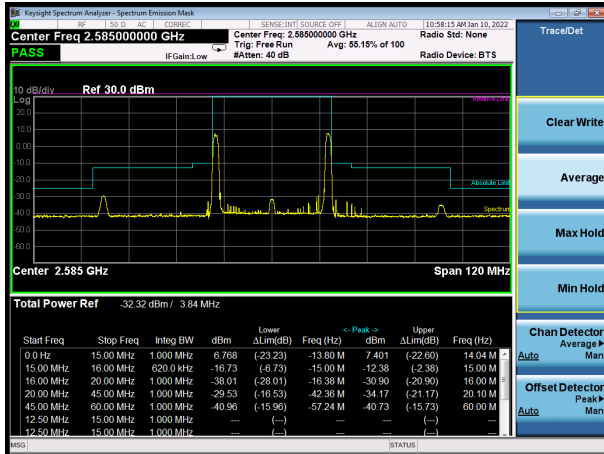


CA\_7C 64QAM 20MHz+20MHz CH- High, 100%RB

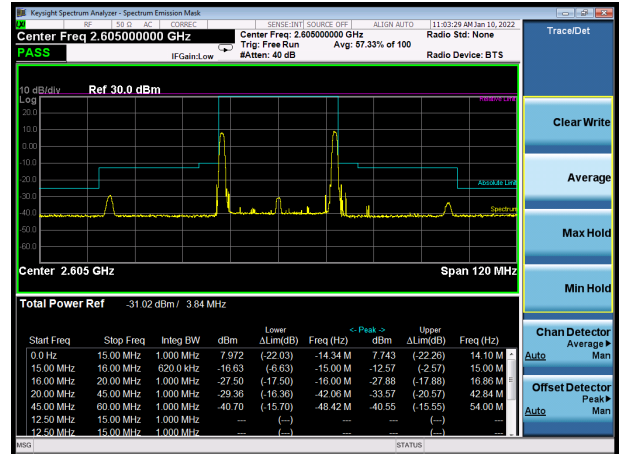




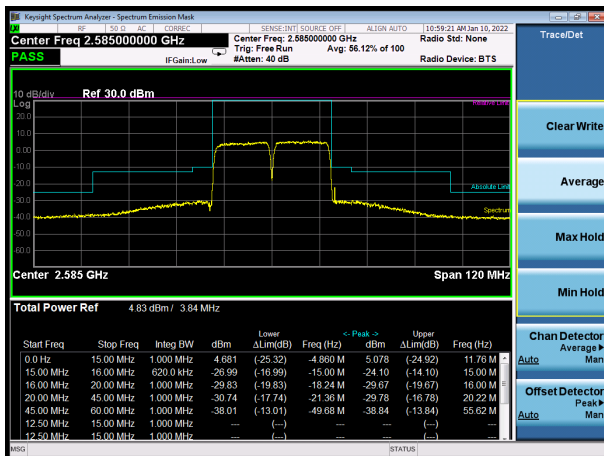
CA\_38C QPSK 15MHz+15MHz CH-Low, RB 1



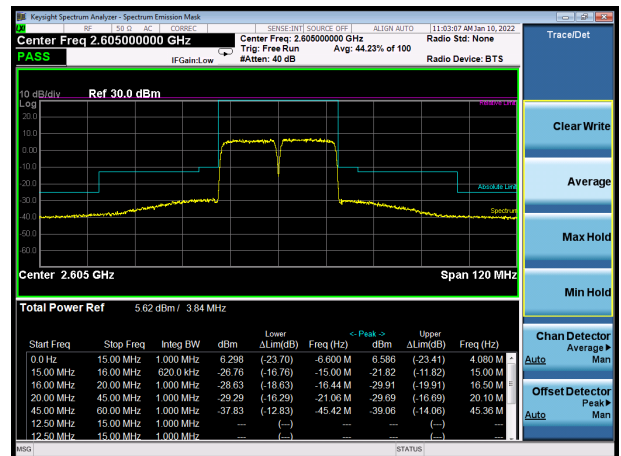
CA\_38C QPSK 15MHz+15MHz CH- High, RB 1



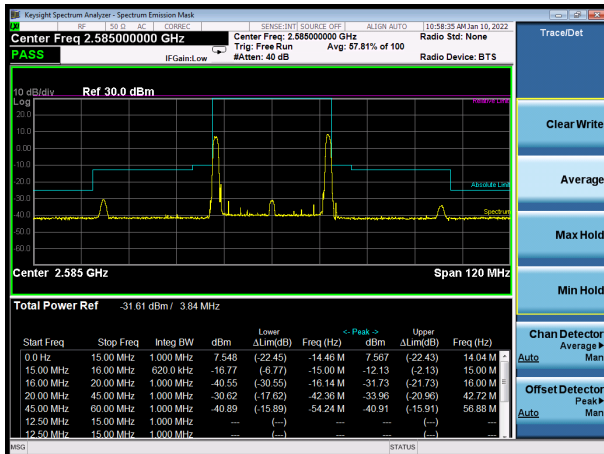
CA\_38C QPSK 15MHz+15MHz CH-Low, 100%RB



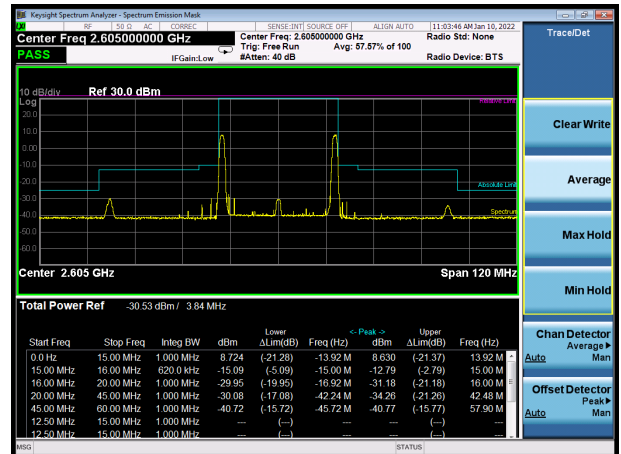
CA\_38C QPSK 15MHz+15MHz CH- High, 100%RB



CA\_38C 16QAM 15MHz+15MHz CH-Low, 1RB



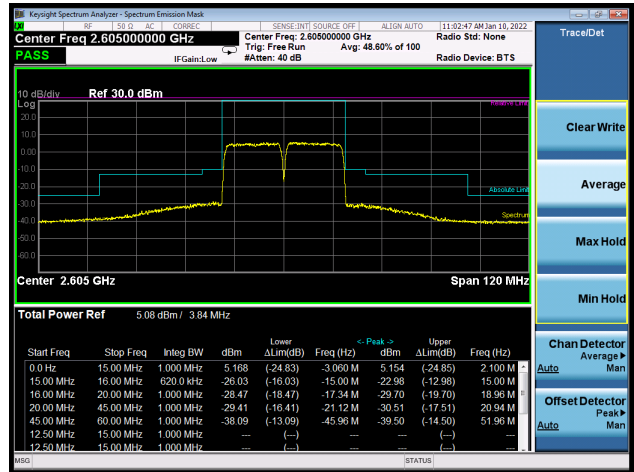
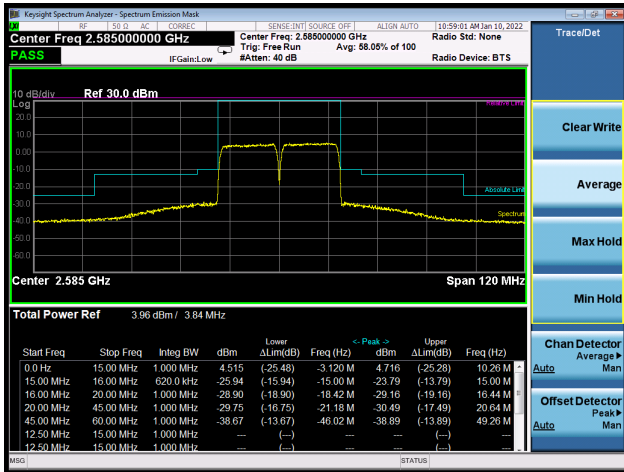
CA\_38C 16QAM 15MHz+15MHz CH- High, 1RB





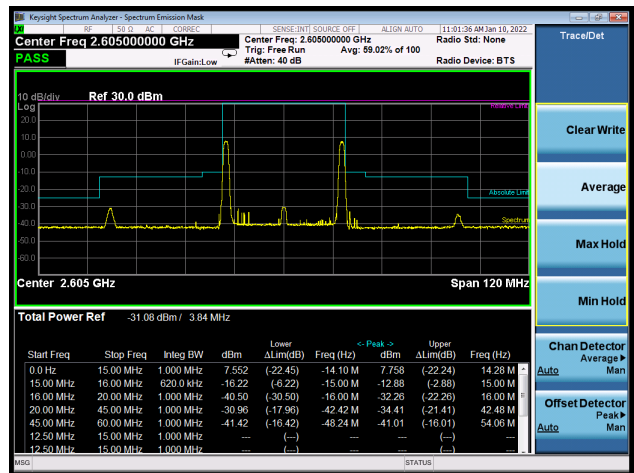
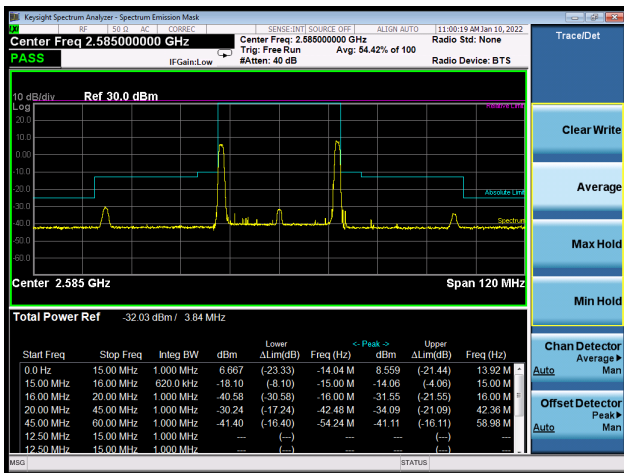
CA\_38C 16QAM 15MHz+15MHz CH-Low, 100%RB

CA\_38C 15MHz20MHz+15MHz CH- High, 100%RB



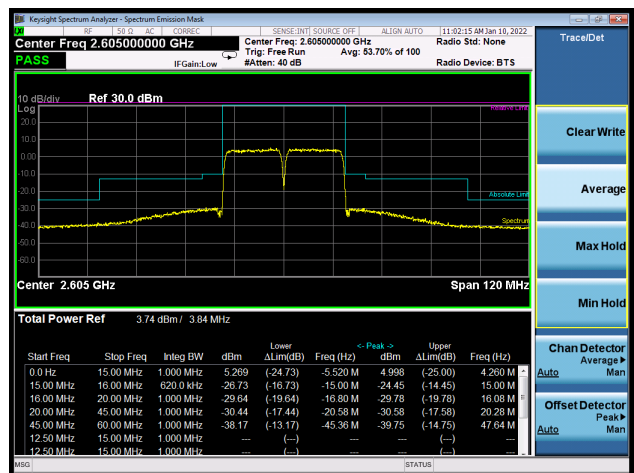
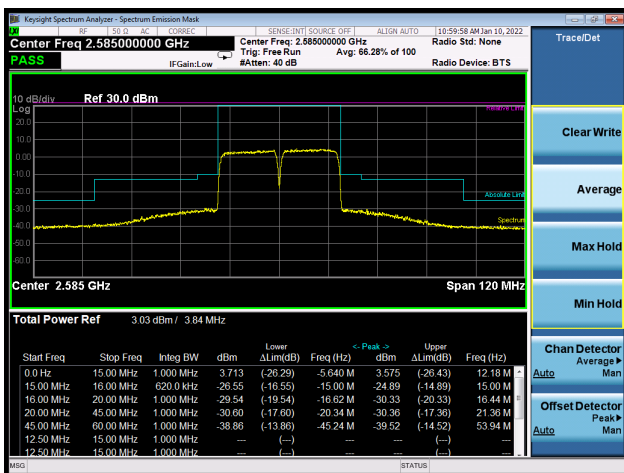
CA\_38C 64QAM 15MHz+15MHz CH-Low, RB 1

CA\_38C 64QAM 15MHz+15MHz CH- High, RB 1



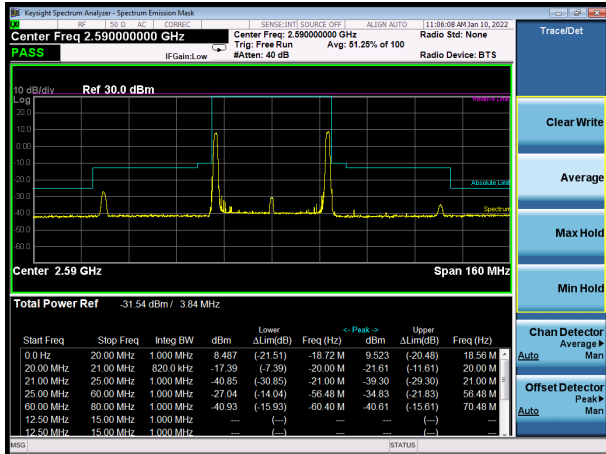
CA\_38C 64QAM 15MHz+15MHz CH-Low, 100%RB

CA\_38C 64QAM 15MHz+15MHz CH- High, 100%RB

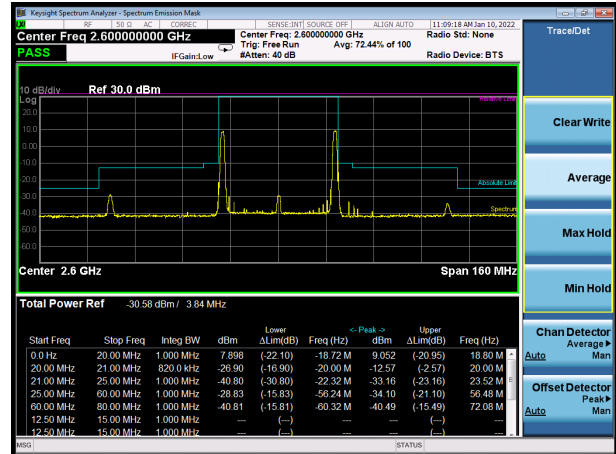




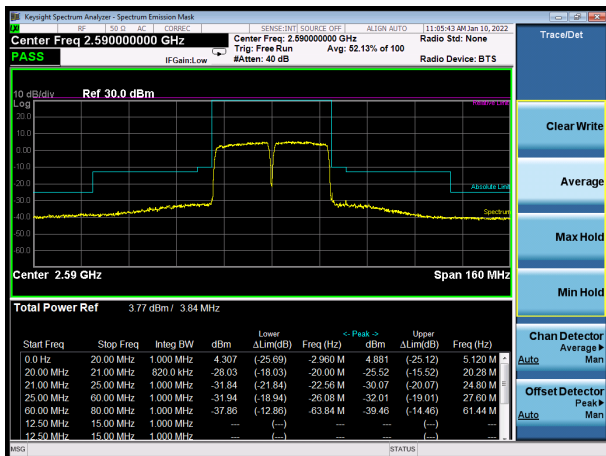
CA\_38C QPSK 20MHz+20MHz CH-Low, RB 1



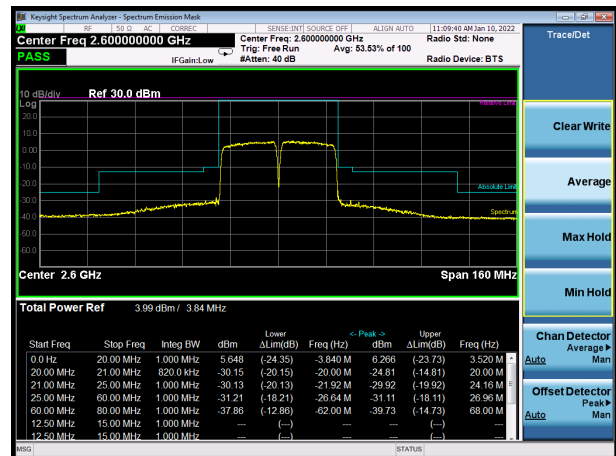
CA\_38C QPSK 20MHz+20MHz CH- High, RB 1



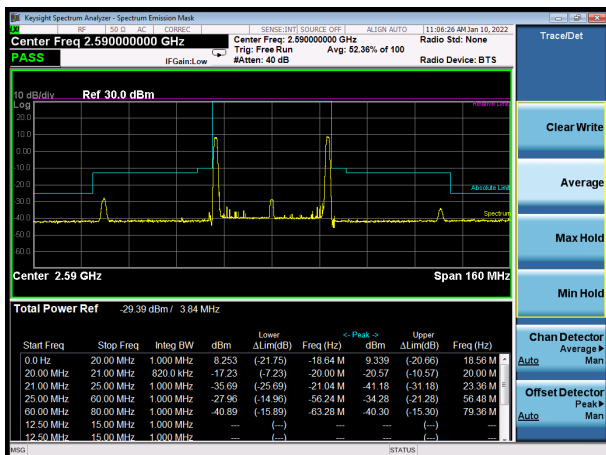
CA\_38C QPSK 20MHz+20MHz CH-Low, 100%RB



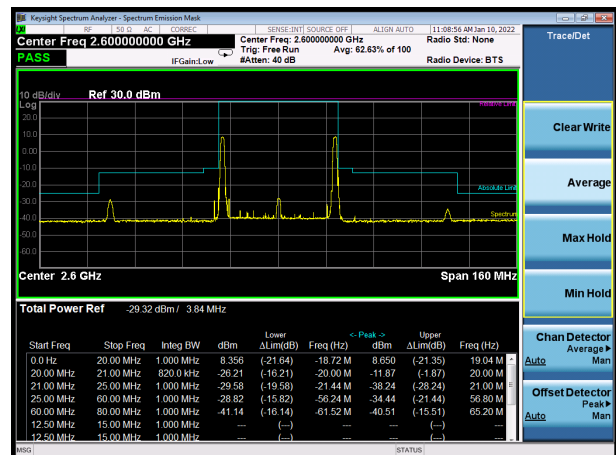
CA\_38C QPSK 20MHz+20MHz CH- High, 100%RB



CA\_38C 16QAM 20MHz+20MHz CH-Low, RB 1



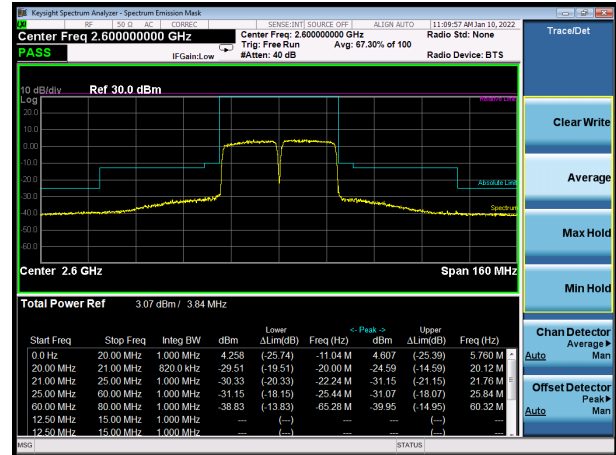
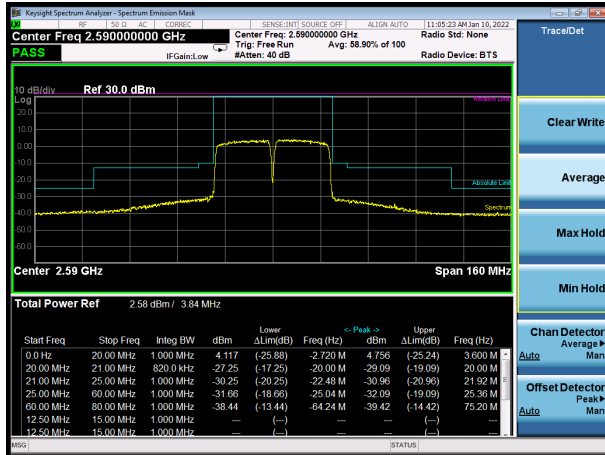
CA\_38C 16QAM 20MHz+20MHz CH- High, RB 1





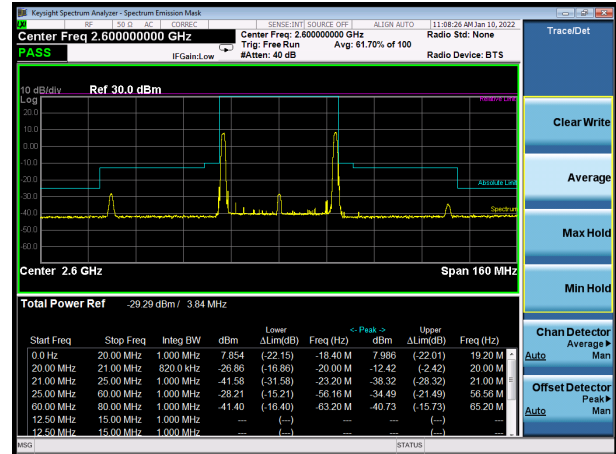
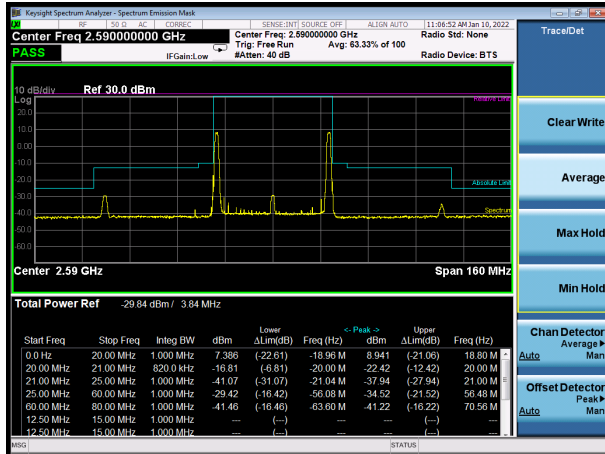
### CA\_38C 16QAM 20MHz+20MHz CH-Low, 100%RB

### CA\_38C 16QAM 20MHz+20MHz CH- High, 100%RB



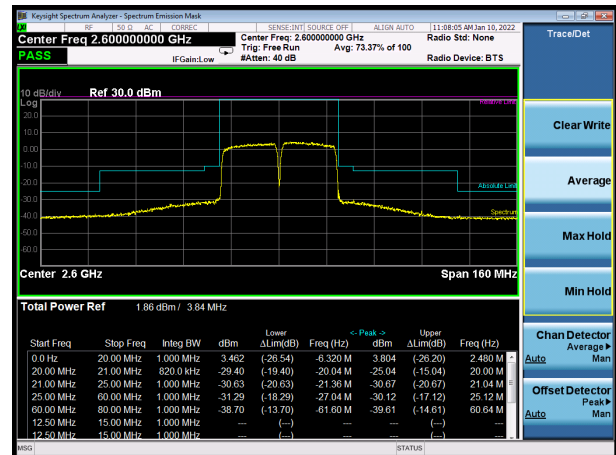
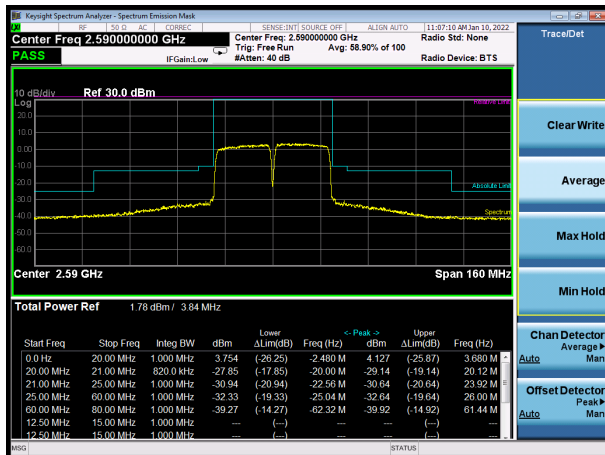
### CA\_38C 64QAM 20MHz+20MHz CH-Low, RB 1

### CA\_38C 64QAM 20MHz+20MHz CH- High, RB 1



### CA\_38C 64QAM 20MHz+20MHz CH-Low, 100%RB

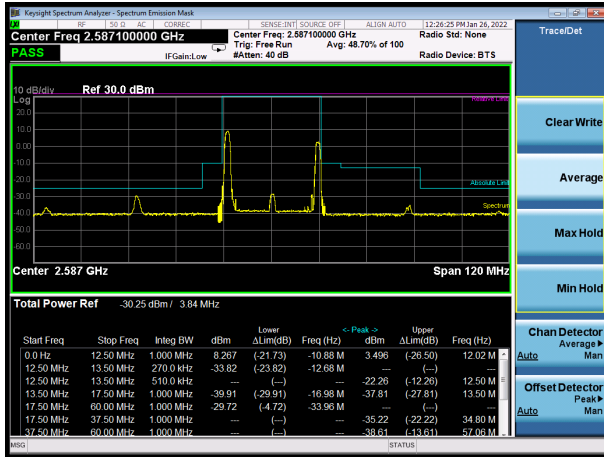
### CA\_38C 64QAM 20MHz+20MHz CH- High, 100%RB



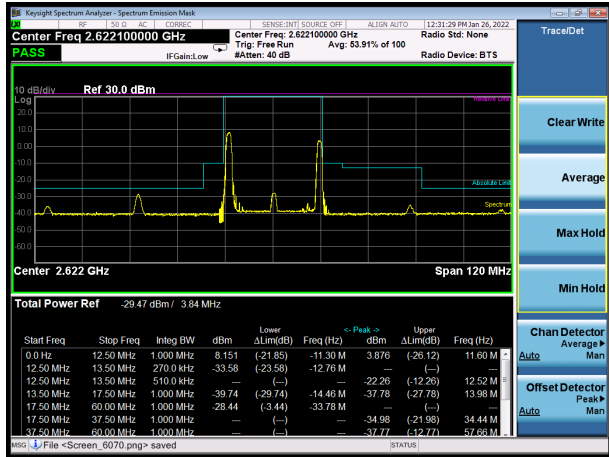




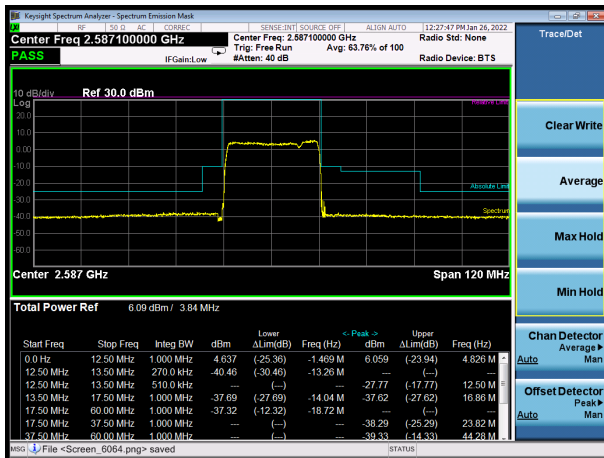
CA\_41C QPSK 20MHz+5MHz CH-Low, RB 1



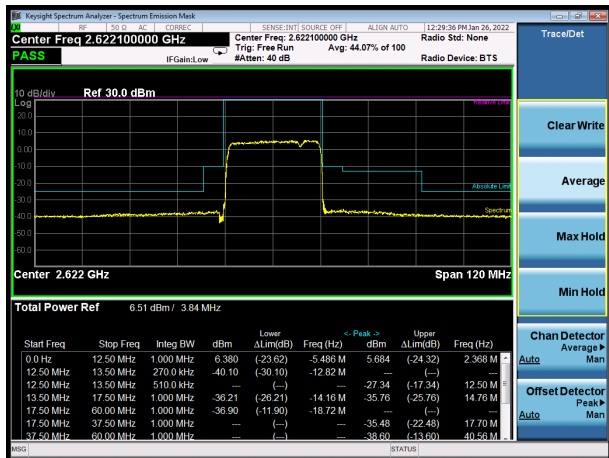
CA\_41C QPSK 20MHz+5MHz CH- High, RB 1



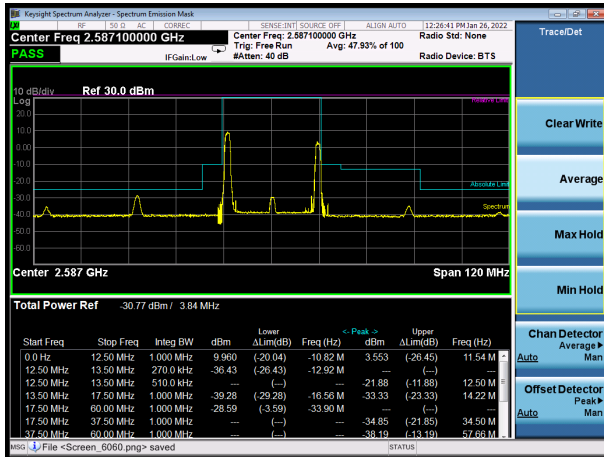
CA\_41C QPSK 20MHz+5MHz CH-Low, 100%RB



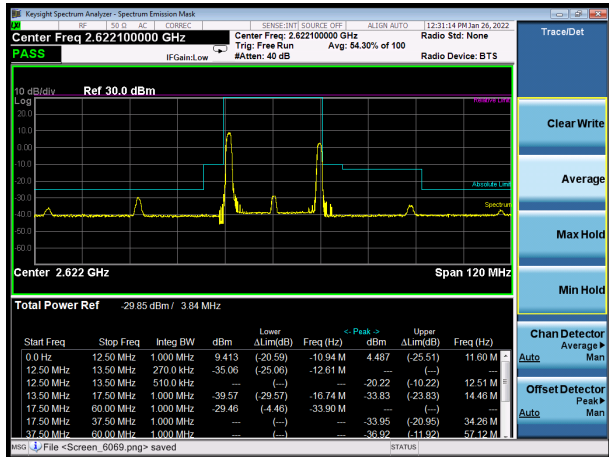
CA\_41C QPSK 20MHz+5MHz CH- High, 100%RB



CA\_41C 16QAM 20MHz+5MHz CH-Low, RB 1

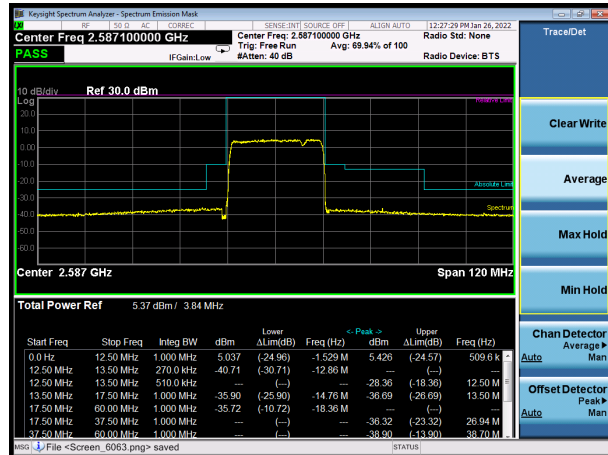


CA\_41C 16QAM 20MHz+5MHz CH- High, RB 1

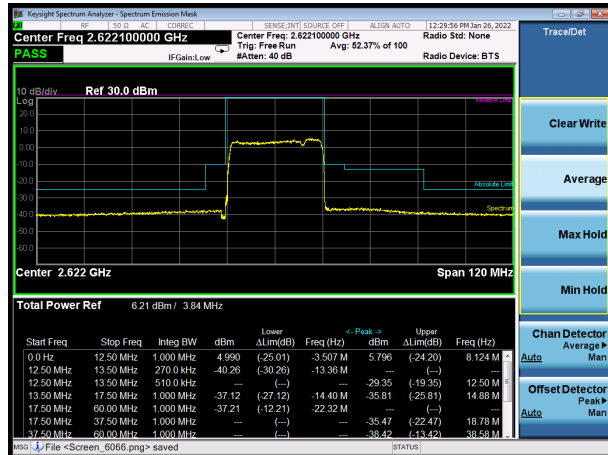




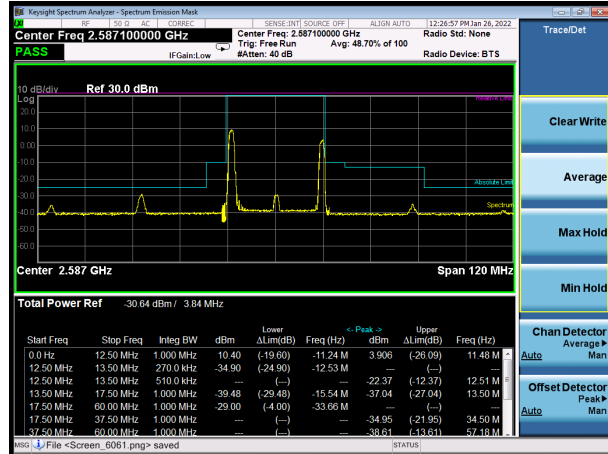
### CA\_41C 16QAM 20MHz+5MHz CH-Low, 100%RB



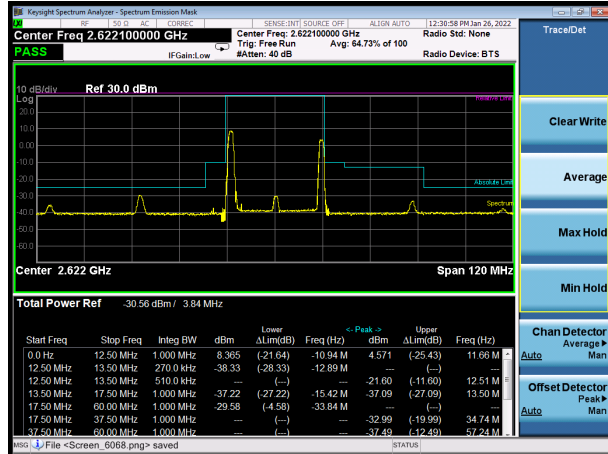
### CA\_41C 16QAM 20MHz+5MHz CH- High, 100%RB



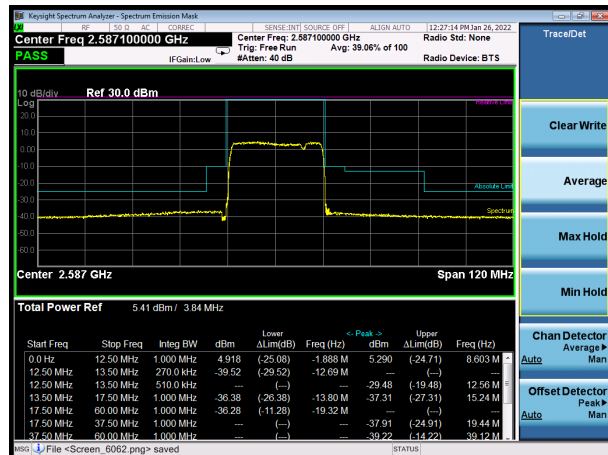
### CA\_41C 64QAM 20MHz+5MHz CH-Low, RB 1



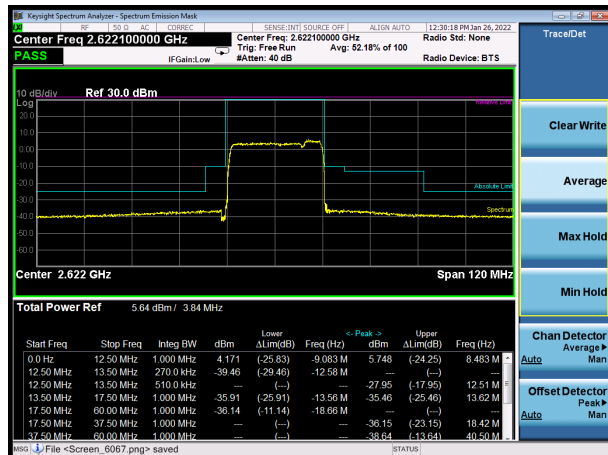
### CA\_41C 64QAM 20MHz+5MHz CH- High, RB 1



### CA\_41C 64QAM 20MHz+5MHz CH-Low, 100%RB

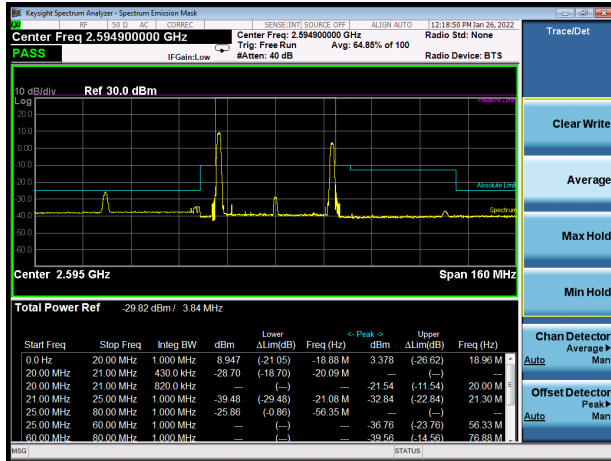


### CA\_41C 64QAM 20MHz+5MHz CH- High, 100%RB

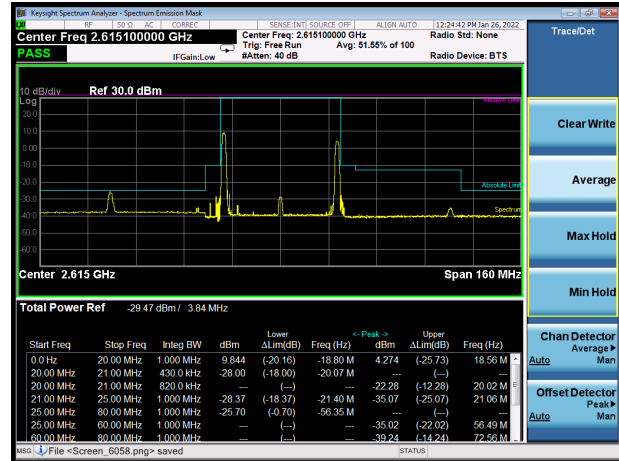




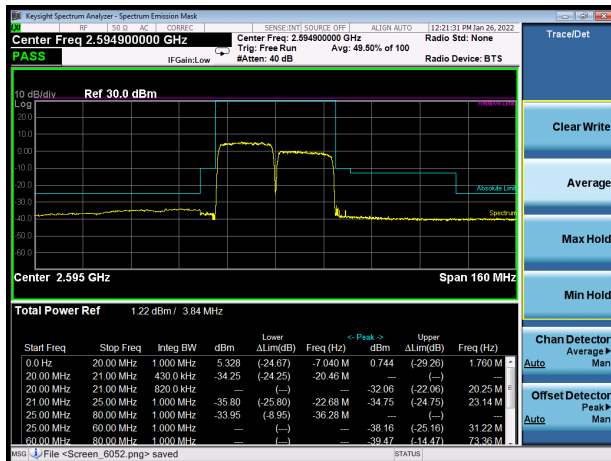
CA\_41C QPSK 20MHz+20MHz CH-Low, RB 1



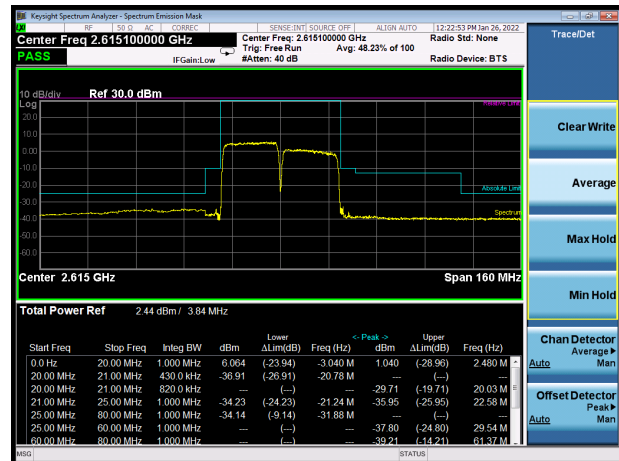
CA\_41C QPSK 20MHz+20MHz CH- High, RB 1



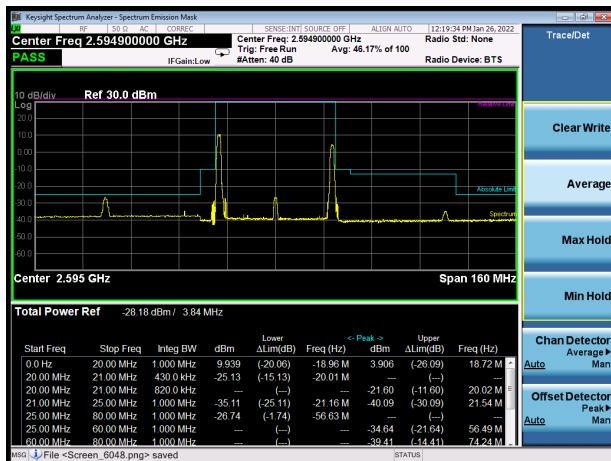
CA\_41C QPSK 20MHz+20MHz CH-Low, 100%RB



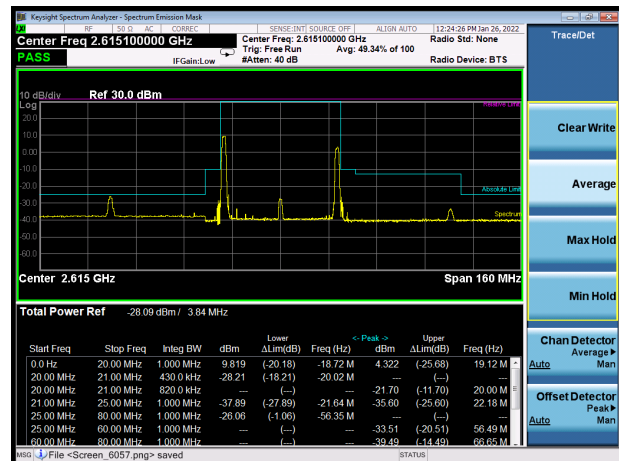
CA\_41C QPSK 20MHz+20MHz CH- High, 100%RB



CA\_41C 16QAM 20MHz+20MHz CH-Low, RB 1



CA\_41C 16QAM 20MHz+20MHz CH- High, RB 1

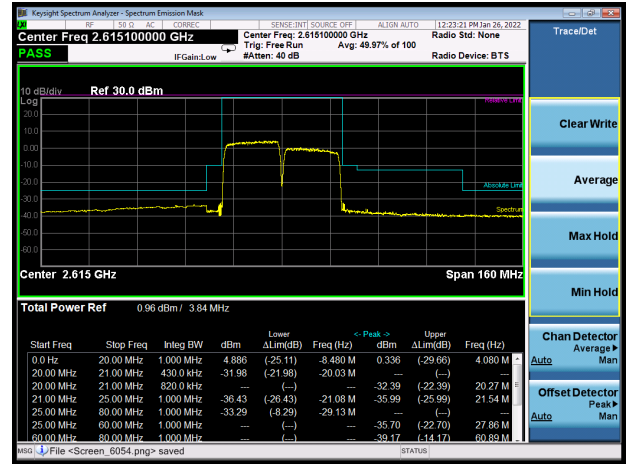
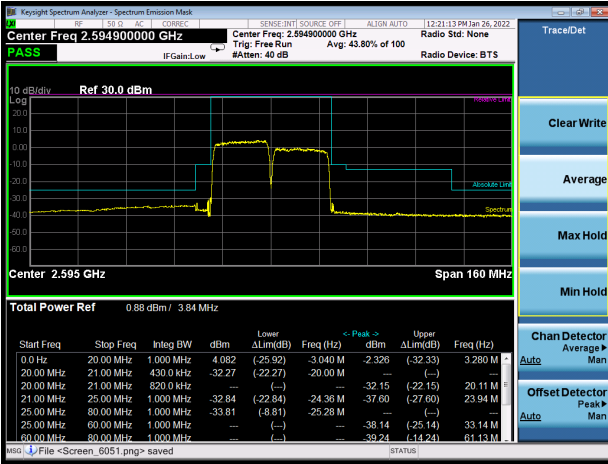






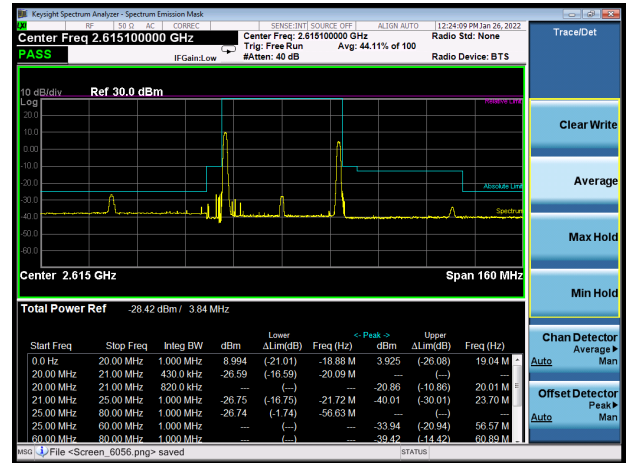
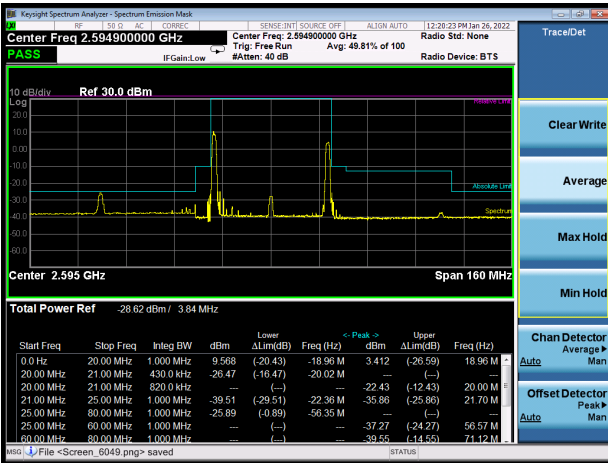
### CA\_41C 16QAM 20MHz+20MHz CH-Low, 100%RB

### CA\_41C 16QAM 20MHz+20MHz CH- High, 100%RB



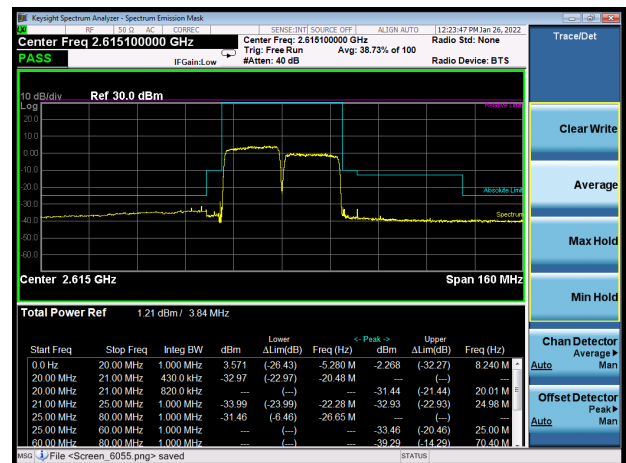
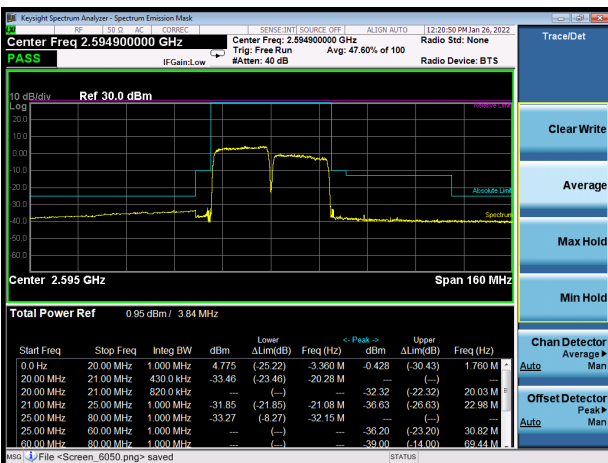
### CA\_41C 64QAM 20MHz+20MHz CH-Low, RB 1

### CA\_41C 64QAM 20MHz+20MHz CH- High, RB 1



### CA\_41C 64QAM 20MHz+20MHz CH-Low, 100%RB

### CA\_41C 64QAM 20MHz+20MHz CH- High, 100%RB



### 5.4 Peak-to-Average Power Ratio (PAPR)

#### Ambient condition

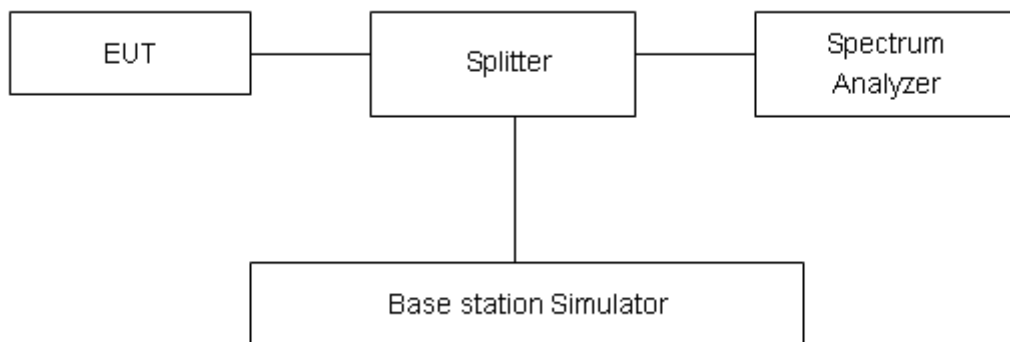
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

#### Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = PPk (dBm) - PAvg (dBm).$$

#### Test Setup



#### Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. 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.

#### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.4$  dB.



## Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
RMC	1312	1712.4	24.09	21.14	2.95	≤13	PASS
	1413	1732.6	24.42	21.33	3.09	≤13	PASS
	1513	1752.6	24.24	21.29	2.95	≤13	PASS

LTE Band 4								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	19957	1710.7	26.37	21.67	4.70	≤13	PASS
		20175	1732.5	26.95	21.57	5.38	≤13	PASS
		20393	1754.3	26.49	21.56	4.93	≤13	PASS
	3	19965	1711.5	26.37	21.67	4.70	≤13	PASS
		20175	1732.5	26.91	21.61	5.30	≤13	PASS
		20385	1753.5	26.56	21.63	4.93	≤13	PASS
	5	19975	1712.5	26.40	21.75	4.65	≤13	PASS
		20175	1732.5	27.05	21.70	5.35	≤13	PASS
		20375	1752.5	26.54	21.67	4.87	≤13	PASS
	10	20000	1715	26.48	21.80	4.68	≤13	PASS
		20175	1732.5	26.92	21.70	5.22	≤13	PASS
		20350	1750	26.49	21.75	4.74	≤13	PASS
	15	20025	1717.5	26.94	21.67	5.27	≤13	PASS
		20175	1732.5	27.21	21.60	5.61	≤13	PASS
		20325	1747.5	26.83	21.61	5.22	≤13	PASS
20	20050	1720	26.84	21.65	5.19	≤13	PASS	
	20175	1732.5	27.01	21.64	5.37	≤13	PASS	
	20300	1745	26.82	21.65	5.17	≤13	PASS	
16QAM	1.4	19957	1710.7	26.47	21.09	5.38	≤13	PASS
		20175	1732.5	27.11	21.11	6.00	≤13	PASS
		20393	1754.3	26.87	21.15	5.72	≤13	PASS
	3	19965	1711.5	26.55	21.20	5.35	≤13	PASS
		20175	1732.5	27.07	21.05	6.02	≤13	PASS
		20385	1753.5	26.70	21.17	5.53	≤13	PASS
	5	19975	1712.5	26.45	21.21	5.24	≤13	PASS
		20175	1732.5	27.14	21.18	5.96	≤13	PASS
		20375	1752.5	26.65	21.17	5.48	≤13	PASS
	10	20000	1715	26.56	21.30	5.26	≤13	PASS
		20175	1732.5	27.10	21.20	5.90	≤13	PASS
		20350	1750	26.60	21.23	5.37	≤13	PASS



	15	20025	1717.5	26.86	21.14	5.72	≤13	PASS
		20175	1732.5	27.16	21.11	6.05	≤13	PASS
		20325	1747.5	26.76	21.12	5.64	≤13	PASS
	20	20050	1720	27.04	21.19	5.85	≤13	PASS
		20175	1732.5	27.16	21.12	6.04	≤13	PASS
		20300	1745	26.92	21.17	5.75	≤13	PASS
64QAM	1.4	19957	1710.7	25.75	20.49	5.26	≤13	PASS
		20175	1732.5	26.48	20.53	5.95	≤13	PASS
		20393	1754.3	26.06	20.57	5.49	≤13	PASS
	3	19965	1711.5	25.84	20.56	5.28	≤13	PASS
		20175	1732.5	26.42	20.47	5.95	≤13	PASS
		20385	1753.5	25.99	20.52	5.47	≤13	PASS
	5	19975	1712.5	25.76	20.58	5.18	≤13	PASS
		20175	1732.5	26.41	20.52	5.89	≤13	PASS
		20375	1752.5	25.90	20.56	5.34	≤13	PASS
	10	20000	1715	25.88	20.64	5.24	≤13	PASS
		20175	1732.5	26.41	20.56	5.85	≤13	PASS
		20350	1750	25.88	20.58	5.30	≤13	PASS
	15	20025	1717.5	26.13	20.48	5.65	≤13	PASS
		20175	1732.5	26.46	20.48	5.98	≤13	PASS
		20325	1747.5	26.04	20.48	5.56	≤13	PASS
	20	20050	1720	26.33	20.53	5.80	≤13	PASS
		20175	1732.5	26.48	20.50	5.98	≤13	PASS
		20300	1745	26.25	20.55	5.70	≤13	PASS

LTE Band 7								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	20775	2502.5	26.56	20.95	5.61	≤13	PASS
		21100	2535	26.61	20.88	5.73	≤13	PASS
		21425	2567.5	26.28	20.69	5.59	≤13	PASS
	10	20800	2505	26.55	20.90	5.65	≤13	PASS
		21100	2535	26.50	20.88	5.62	≤13	PASS
		21400	2565	26.13	20.67	5.46	≤13	PASS
	15	20825	2507.5	26.87	20.82	6.05	≤13	PASS
		21100	2535	26.73	20.75	5.98	≤13	PASS
		21375	2562.5	26.46	20.59	5.87	≤13	PASS
	20	20850	2510	26.62	20.87	5.75	≤13	PASS



16QAM		21100	2535	26.41	20.71	5.70	≤13	PASS
		21350	2560	26.27	20.60	5.67	≤13	PASS
	5	20775	2502.5	27.04	20.93	6.11	≤13	PASS
		21100	2535	27.13	20.91	6.22	≤13	PASS
		21425	2567.5	26.73	20.66	6.07	≤13	PASS
	10	20800	2505	27.06	20.86	6.20	≤13	PASS
		21100	2535	27.10	20.89	6.21	≤13	PASS
		21400	2565	26.76	20.65	6.11	≤13	PASS
	15	20825	2507.5	27.22	20.80	6.42	≤13	PASS
		21100	2535	27.16	20.79	6.37	≤13	PASS
		21375	2562.5	26.88	20.59	6.29	≤13	PASS
	20	20850	2510	27.25	20.84	6.41	≤13	PASS
21100		2535	27.07	20.70	6.37	≤13	PASS	
21350		2560	26.85	20.55	6.30	≤13	PASS	
64QAM	5	20775	2502.5	26.17	20.09	6.08	≤13	PASS
		21100	2535	26.17	19.93	6.24	≤13	PASS
		21425	2567.5	25.86	19.75	6.11	≤13	PASS
	10	20800	2505	26.24	20.02	6.22	≤13	PASS
		21100	2535	26.20	19.91	6.29	≤13	PASS
		21400	2565	25.87	19.72	6.15	≤13	PASS
	15	20825	2507.5	26.38	19.93	6.45	≤13	PASS
		21100	2535	26.20	19.81	6.39	≤13	PASS
		21375	2562.5	25.99	19.70	6.29	≤13	PASS
	20	20850	2510	26.39	19.98	6.41	≤13	PASS
		21100	2535	26.15	19.76	6.39	≤13	PASS
		21350	2560	25.99	19.69	6.30	≤13	PASS

LTE Band 12								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	23017	699.7	27.80	22.58	5.22	≤13	PASS
		23095	707.5	27.90	22.63	5.27	≤13	PASS
		23173	715.3	27.88	22.65	5.23	≤13	PASS
	3	23025	700.5	27.87	22.60	5.27	≤13	PASS
		23095	707.5	27.98	22.69	5.29	≤13	PASS
		23165	714.5	27.91	22.62	5.29	≤13	PASS



	5	23035	701.5	27.90	22.71	5.19	≤13	PASS
		23095	707.5	28.00	22.72	5.28	≤13	PASS
		23155	713.5	28.00	22.72	5.28	≤13	PASS
	10	23060	704	27.88	22.71	5.17	≤13	PASS
		23095	707.5	27.88	22.74	5.14	≤13	PASS
		23130	711	27.91	22.80	5.11	≤13	PASS
16QAM	1.4	23017	699.7	27.60	21.57	6.03	≤13	PASS
		23095	707.5	27.71	21.65	6.06	≤13	PASS
		23173	715.3	27.75	21.72	6.03	≤13	PASS
	3	23025	700.5	27.72	21.65	6.07	≤13	PASS
		23095	707.5	27.78	21.66	6.12	≤13	PASS
		23165	714.5	27.75	21.67	6.08	≤13	PASS
	5	23035	701.5	27.60	21.72	5.88	≤13	PASS
		23095	707.5	27.76	21.76	6.00	≤13	PASS
		23155	713.5	27.76	21.72	6.04	≤13	PASS
	10	23060	704	27.66	21.76	5.90	≤13	PASS
		23095	707.5	27.70	21.73	5.97	≤13	PASS
		23130	711	27.79	21.78	6.01	≤13	PASS
64QAM	1.4	23017	699.7	27.13	21.06	6.07	≤13	PASS
		23095	707.5	27.14	21.13	6.01	≤13	PASS
		23173	715.3	27.27	21.21	6.06	≤13	PASS
	3	23025	700.5	27.22	21.12	6.10	≤13	PASS
		23095	707.5	27.22	21.11	6.11	≤13	PASS
		23165	714.5	27.25	21.17	6.08	≤13	PASS
	5	23035	701.5	27.06	21.17	5.89	≤13	PASS
		23095	707.5	27.20	21.18	6.02	≤13	PASS
		23155	713.5	27.25	21.22	6.03	≤13	PASS
	10	23060	704	27.09	21.18	5.91	≤13	PASS
		23095	707.5	27.13	21.19	5.94	≤13	PASS
		23130	711	27.24	21.27	5.97	≤13	PASS

LTE Band 13								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	23205	779.5	27.97	22.85	5.12	≤13	PASS
		23230	782	27.99	22.90	5.09	≤13	PASS
		23255	784.5	28.14	22.99	5.15	≤13	PASS
	10	23230	782	27.99	22.96	5.03	≤13	PASS
16QAM	5	23205	779.5	27.86	21.94	5.92	≤13	PASS
		23230	782	27.76	21.88	5.88	≤13	PASS



		23255	784.5	27.95	22.02	5.93	≤13	PASS
	10	23230	782	27.77	21.93	5.84	≤13	PASS
64QAM	5	23205	779.5	27.18	21.26	5.92	≤13	PASS
		23230	782	27.09	21.22	5.87	≤13	PASS
		23255	784.5	27.25	21.30	5.95	≤13	PASS
	10	23230	782	27.12	21.29	5.83	≤13	PASS

LTE Band 17								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	23755	779.5	27.82	22.62	5.20	≤13	PASS
		23790	782	27.99	22.66	5.33	≤13	PASS
		23825	784.5	27.89	22.56	5.33	≤13	PASS
	10	23780	782	27.83	22.70	5.13	≤13	PASS
		23790	782	27.83	22.71	5.12	≤13	PASS
		23800	782	27.80	22.64	5.16	≤13	PASS
16QAM	5	23755	779.5	27.66	21.69	5.97	≤13	PASS
		23790	782	27.73	21.67	6.06	≤13	PASS
		23825	784.5	27.61	21.56	6.05	≤13	PASS
	10	23780	782	27.66	21.70	5.96	≤13	PASS
		23790	782	27.67	21.70	5.97	≤13	PASS
		23800	782	27.60	21.61	5.99	≤13	PASS
64QAM	5	23755	779.5	27.21	21.28	5.93	≤13	PASS
		23790	782	27.23	21.19	6.04	≤13	PASS
		23825	784.5	27.15	21.09	6.06	≤13	PASS
	10	23780	782	27.19	21.24	5.95	≤13	PASS
		23790	782	27.15	21.20	5.95	≤13	PASS
		23800	782	27.14	21.14	6.00	≤13	PASS

LTE Band 38								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	37775	2572.5	27.77	19.98	7.79	≤13	PASS
		38000	2595	27.64	18.21	9.43	≤13	PASS
		38225	2617.5	27.41	18.58	8.83	≤13	PASS
	10	37800	2575	27.65	20.24	7.41	≤13	PASS
		38000	2595	27.46	18.34	9.12	≤13	PASS
		38200	2615	27.25	18.84	8.41	≤13	PASS
15	37825	2577.5	27.91	18.79	9.12	≤13	PASS	



		38000	2595	27.40	15.39	12.01	≤13	PASS	
		38175	2612.5	27.64	18.38	9.26	≤13	PASS	
		20	37850	2580	27.46	18.52	8.94	≤13	PASS
			38000	2595	27.31	18.78	8.53	≤13	PASS
			38150	2610	27.51	19.35	8.16	≤13	PASS
16QAM	5	37775	2572.5	27.75	18.62	9.13	≤13	PASS	
		38000	2595	27.84	18.15	9.69	≤13	PASS	
		38225	2617.5	27.76	17.82	9.94	≤13	PASS	
	10	37800	2575	27.71	18.37	9.34	≤13	PASS	
		38000	2595	27.64	17.01	10.63	≤13	PASS	
		38200	2615	27.64	16.59	11.05	≤13	PASS	
	15	37825	2577.5	27.98	18.80	9.18	≤13	PASS	
		38000	2595	27.66	15.68	11.98	≤13	PASS	
		38175	2612.5	28.06	18.42	9.64	≤13	PASS	
	20	37850	2580	27.83	18.74	9.09	≤13	PASS	
		38000	2595	27.61	17.22	10.39	≤13	PASS	
		38150	2610	27.91	18.86	9.05	≤13	PASS	
	64QAM	5	37775	2572.5	26.75	15.37	11.38	≤13	PASS
			38000	2595	26.72	14.54	12.18	≤13	PASS
			38225	2617.5	26.58	16.17	10.41	≤13	PASS
10		37800	2575	26.81	16.18	10.63	≤13	PASS	
		38000	2595	26.84	15.95	10.89	≤13	PASS	
		38200	2615	26.72	14.85	11.87	≤13	PASS	
15		37825	2577.5	26.89	15.84	11.05	≤13	PASS	
		38000	2595	26.91	15.29	11.62	≤13	PASS	
		38175	2612.5	27.32	18.20	9.12	≤13	PASS	
20		37850	2580	26.74	15.52	11.22	≤13	PASS	
		38000	2595	26.78	15.04	11.74	≤13	PASS	
		38150	2610	26.84	15.04	11.80	≤13	PASS	

LTE Band 41								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	39675	2498.5	25.69	16.37	9.32	≤13	PASS
		40620	2593	25.45	13.99	11.46	≤13	PASS





	10	41565	2687.5	25.64	16.98	8.66	≤13	PASS
		39700	2501	25.39	13.35	12.04	≤13	PASS
		40620	2593	25.51	15.89	9.62	≤13	PASS
	15	41540	2685	25.52	16.90	8.62	≤13	PASS
		39725	2503.5	25.75	16.37	9.38	≤13	PASS
		40620	2593	25.41	14.64	10.77	≤13	PASS
	20	41515	2682.5	25.54	15.92	9.62	≤13	PASS
		39750	2506	25.38	15.43	9.95	≤13	PASS
		40620	2593	25.50	16.61	8.89	≤13	PASS
16QAM	5	41490	2680	25.16	13.97	11.19	≤13	PASS
		39675	2498.5	26.56	17.72	8.84	≤13	PASS
		40620	2593	26.36	16.34	10.02	≤13	PASS
	10	41565	2687.5	26.25	16.53	9.72	≤13	PASS
		39700	2501	26.57	16.27	10.30	≤13	PASS
		40620	2593	26.13	14.46	11.67	≤13	PASS
	15	41540	2685	26.23	16.62	9.61	≤13	PASS
		39725	2503.5	26.62	16.21	10.41	≤13	PASS
		40620	2593	26.20	16.31	9.89	≤13	PASS
20	41515	2682.5	26.18	14.76	11.42	≤13	PASS	
	39750	2506	25.99	16.43	9.56	≤13	PASS	
	40620	2593	26.15	17.25	8.90	≤13	PASS	
64QAM	5	41490	2680	25.88	14.45	11.43	≤13	PASS
		39675	2498.5	25.84	16.36	9.48	≤13	PASS
		40620	2593	25.47	15.50	9.97	≤13	PASS
	10	41565	2687.5	25.47	15.98	9.49	≤13	PASS
		39700	2501	25.81	16.46	9.35	≤13	PASS
		40620	2593	25.44	15.82	9.62	≤13	PASS
	15	41540	2685	25.21	13.56	11.65	≤13	PASS
		39725	2503.5	25.46	15.93	9.53	≤13	PASS
		40620	2593	25.37	15.90	9.47	≤13	PASS
20	41515	2682.5	25.26	14.09	11.17	≤13	PASS	
	39750	2506	25.14	15.30	9.84	≤13	PASS	
	40620	2593	25.28	16.08	9.20	≤13	PASS	
		41490	2680	25.24	16.07	9.17	≤13	PASS



LTE Band 66								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	131979	1710.7	26.39	21.75	4.64	≤13	PASS
		132322	1745	26.52	21.79	4.73	≤13	PASS
		132665	1779.3	26.69	21.69	5.00	≤13	PASS
	3	131987	1711.5	26.46	21.90	4.56	≤13	PASS
		132322	1745	26.50	21.80	4.70	≤13	PASS
		132657	1778.5	26.74	21.73	5.01	≤13	PASS
	5	131997	1712.5	26.42	21.87	4.55	≤13	PASS
		132322	1745	26.57	21.89	4.68	≤13	PASS
		132647	1777.5	26.78	21.75	5.03	≤13	PASS
	10	132022	1715	26.43	21.82	4.61	≤13	PASS
		132322	1745	26.51	21.85	4.66	≤13	PASS
		132622	1775	26.83	21.77	5.06	≤13	PASS
	15	132047	1717.5	26.91	21.70	5.21	≤13	PASS
		132322	1745	26.89	21.76	5.13	≤13	PASS
		132597	1772.5	27.20	21.63	5.57	≤13	PASS
	20	132072	1720	26.84	21.65	5.19	≤13	PASS
		132322	1745	26.82	21.73	5.09	≤13	PASS
		132572	1770	27.05	21.63	5.42	≤13	PASS
16QAM	1.4	131979	1710.7	26.50	21.22	5.28	≤13	PASS
		132322	1745	26.62	21.33	5.29	≤13	PASS
		132665	1779.3	26.84	21.24	5.60	≤13	PASS
	3	131987	1711.5	26.61	21.39	5.22	≤13	PASS
		132322	1745	26.65	21.32	5.33	≤13	PASS
		132657	1778.5	26.93	21.26	5.67	≤13	PASS
	5	131997	1712.5	26.48	21.32	5.16	≤13	PASS
		132322	1745	26.64	21.38	5.26	≤13	PASS
		132647	1777.5	26.91	21.28	5.63	≤13	PASS
	10	132022	1715	26.60	21.34	5.26	≤13	PASS
		132322	1745	26.62	21.36	5.26	≤13	PASS
		132622	1775	26.94	21.23	5.71	≤13	PASS
	15	132047	1717.5	26.79	21.17	5.62	≤13	PASS
		132322	1745	26.83	21.25	5.58	≤13	PASS
		132597	1772.5	27.09	21.14	5.95	≤13	PASS
	20	132072	1720	26.99	21.18	5.81	≤13	PASS
		132322	1745	26.97	21.28	5.69	≤13	PASS
		132572	1770	27.10	21.03	6.07	≤13	PASS



64QAM	1.4	131979	1710.7	25.82	20.42	5.40	≤13	PASS
		132322	1745	25.96	20.57	5.39	≤13	PASS
		132665	1779.3	26.18	20.43	5.75	≤13	PASS
	3	131987	1711.5	25.95	20.64	5.31	≤13	PASS
		132322	1745	25.97	20.52	5.45	≤13	PASS
		132657	1778.5	26.24	20.46	5.78	≤13	PASS
	5	131997	1712.5	25.78	20.54	5.24	≤13	PASS
		132322	1745	25.97	20.56	5.41	≤13	PASS
		132647	1777.5	26.22	20.50	5.72	≤13	PASS
	10	132022	1715	25.85	20.53	5.32	≤13	PASS
		132322	1745	25.98	20.58	5.40	≤13	PASS
		132622	1775	26.30	20.47	5.83	≤13	PASS
	15	132047	1717.5	26.11	20.37	5.74	≤13	PASS
		132322	1745	26.14	20.47	5.67	≤13	PASS
		132597	1772.5	26.36	20.32	6.04	≤13	PASS
	20	132072	1720	26.27	20.39	5.88	≤13	PASS
		132322	1745	26.25	20.47	5.78	≤13	PASS
		132572	1770	26.40	20.30	6.10	≤13	PASS



## CA Band

CA_7C							
Bandwidth	PCC		SCC1		Peak-to-Average Power Ratio (PAPR)		
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)
CA_7C_10MHz+20MHz_QPSK	21006	2525.6	21150	2540	25.61	19.42	6.19
CA_7C_10MHz+20MHz_16QAM	21006	2525.6	21150	2540	25.43	18.46	6.97
CA_7C_10MHz+20MHz_64QAM	21006	2525.6	21150	2540	24.96	17.97	6.99
CA_7C_20MHz+10MHz_QPSK	21051	2530.1	21195	2544.5	25.53	19.32	6.21
CA_7C_20MHz+10MHz_16QAM	21051	2530.1	21195	2544.5	25.30	18.35	6.95
CA_7C_20MHz+10MHz_64QAM	21051	2530.1	21195	2544.5	24.79	17.84	6.95
CA_7C_15MHz+15MHz_QPSK	21025	2527.5	21175	2542.5	25.79	19.40	6.39
CA_7C_15MHz+15MHz_16QAM	21025	2527.5	21175	2542.5	25.43	18.40	7.03
CA_7C_15MHz+15MHz_64QAM	21025	2527.5	21175	2542.5	24.99	17.92	7.07
CA_7C_15MHz+20MHz_QPSK	21003	2525.3	21174	2542.4	25.69	19.38	6.31
CA_7C_15MHz+20MHz_16QAM	21003	2525.3	21174	2542.4	25.40	18.42	6.98
CA_7C_15MHz+20MHz_64QAM	21003	2525.3	21174	2542.4	24.96	17.96	7.00
CA_7C_20MHz+15MHz_QPSK	21026	2527.6	21197	2544.7	25.55	19.30	6.25
CA_7C_20MHz+15MHz_16QAM	21026	2527.6	21197	2544.7	25.31	18.33	6.98
CA_7C_20MHz+15MHz_64QAM	21026	2527.6	21197	2544.7	24.81	17.83	6.98
CA_7C_20MHz+20MHz_QPSK	21001	2525.1	21199	2544.9	25.70	19.28	6.42
CA_7C_20MHz+20MHz_16QAM	21001	2525.1	21199	2544.9	25.38	18.30	7.08
CA_7C_20MHz+20MHz_64QAM	21001	2525.1	21199	2544.9	24.87	17.79	7.08

CA_38C							
Bandwidth	PCC		SCC1		Peak-to-Average Power Ratio (PAPR)		
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)
CA_38C_15MHz+15MHz_QPSK	37925	2587.5	38075	2602.5	26.49	16.04	10.45
CA_38C_15MHz+15MHz_16QAM	37925	2587.5	38075	2602.5	25.98	14.53	11.45
CA_38C_15MHz+15MHz_64QAM	37925	2587.5	38075	2602.5	25.59	14.90	10.69
CA_38C_20MHz+20MHz_QPSK	37901	2585.1	38099	2604.9	26.14	15.10	11.04
CA_38C_20MHz+20MHz_16QAM	37901	2585.1	38099	2604.9	25.76	15.04	10.72
CA_38C_20MHz+20MHz_64QAM	37901	2585.1	38099	2604.9	25.17	13.64	11.53



CA_41C							
Bandwidth	PCC		SCC1		Peak-to-Average Power Ratio (PAPR)		
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)
CA_41C_5MHz+20MHz_QPSK	40648	2595.8	40765	2607.5	24.06	14.14	9.92
CA_41C_5MHz+20MHz_16QAM	40648	2595.8	40765	2607.5	23.66	13.18	10.48
CA_41C_5MHz+20MHz_64QAM	40648	2595.8	40765	2607.5	23.4	12.16	11.24
CA_41C_20MHz+5MHz_QPSK	40715	2602.5	40832	2614.2	23.9	14.28	9.62
CA_41C_20MHz+5MHz_16QAM	40715	2602.5	40832	2614.2	23.49	13.06	10.43
CA_41C_20MHz+5MHz_64QAM	40715	2602.5	40832	2614.2	23.47	13.04	10.43
CA_41C_10MHz+20MHz_QPSK	40646	2595.6	40790	2610	24.06	13.83	10.23
CA_41C_10MHz+20MHz_16QAM	40646	2595.6	40790	2610	23.53	12.91	10.62
CA_41C_10MHz+20MHz_64QAM	40646	2595.6	40790	2610	23.7	13.15	10.55
CA_41C_20MHz+10MHz_QPSK	40691	2600.1	40835	2614.5	24.013	14.23	9.78
CA_41C_20MHz+10MHz_16QAM	40691	2600.1	40835	2614.5	23.41	12.82	10.59
CA_41C_20MHz+10MHz_64QAM	40691	2600.1	40835	2614.5	23.63	13.19	10.44
CA_41C_15MHz+15MHz_QPSK	40665	2597.5	40815	2612.5	24.97	14.06	10.91
CA_41C_15MHz+15MHz_16QAM	40665	2597.5	40815	2612.5	24.93	13.22	11.71
CA_41C_15MHz+15MHz_64QAM	40665	2597.5	40815	2612.5	24.64	12.76	11.88
CA_41C_15MHz+20MHz_QPSK	40643	2595.3	40814	2612.4	24.09	13.89	10.20
CA_41C_15MHz+20MHz_16QAM	40643	2595.3	40814	2612.4	23.63	12.94	10.69
CA_41C_15MHz+20MHz_64QAM	40643	2595.3	40814	2612.4	23.94	14.21	9.73
CA_41C_20MHz+15MHz_QPSK	40666	2597.6	40837	2614.7	24.36	14.79	9.57
CA_41C_20MHz+15MHz_16QAM	40666	2597.6	40837	2614.7	23.49	13.16	10.33
CA_41C_20MHz+15MHz_64QAM	40666	2597.6	40837	2614.7	23.57	13.22	10.35
CA_41C_20MHz+20MHz_QPSK	40641	2595.1	40839	2614.9	25.21	14.42	10.79
CA_41C_20MHz+20MHz_16QAM	40641	2595.1	40839	2614.9	24.82	13.61	11.21
CA_41C_20MHz+20MHz_64QAM	40641	2595.1	40839	2614.9	24.86	12.69	12.17

## 5.5 Frequency Stability

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

#### Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from 0°C to +35°C in 10°C step size.

(1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from 0°C to +35°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

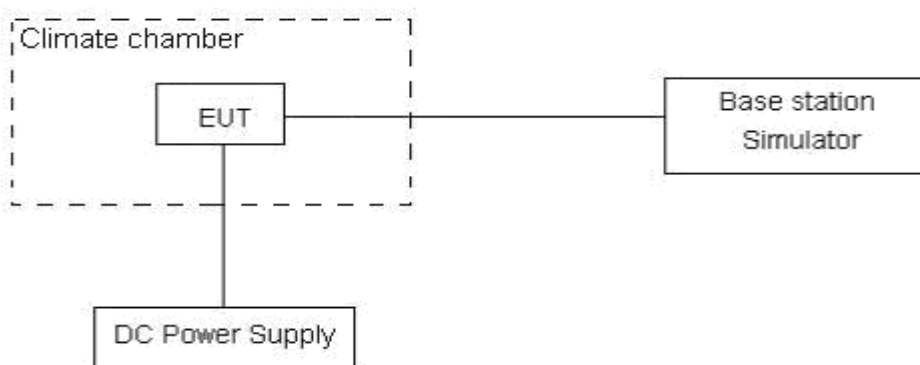
#### Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

**Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.48V, with a nominal voltage of 3.87V.

### Test setup



### Limits

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 3, U=0.01\text{ppm}$ .



Test Result

WCDMA Band IV						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
Normal (25°C)	Normal	4.40	7.54	0.00254	0.00435	PASS
Extreme (35°C)		9.23	6.24	0.00533	0.00360	PASS
Extreme (30°C)		17.08	11.29	0.00986	0.00652	PASS
Extreme (20°C)		12.96	5.51	0.00748	0.00318	PASS
Extreme (10°C)		14.47	14.08	0.00835	0.00813	PASS
Extreme (0°C)		14.34	2.02	0.00828	0.00116	PASS
25°C	LV	7.80	4.29	0.00450	0.00248	PASS
	HV	10.25	15.04	0.00592	0.00868	PASS

LTE Band 4								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.22	14.62	11.93	0.00186	0.00844	0.00689	PASS
Extreme (35°C)		14.59	17.60	13.18	0.00842	0.01016	0.00761	PASS
Extreme (30°C)		10.93	9.42	7.34	0.00631	0.00544	0.00424	PASS
Extreme (20°C)		6.89	5.97	5.48	0.00398	0.00345	0.00316	PASS
Extreme (10°C)		16.77	14.00	13.29	0.00968	0.00808	0.00767	PASS
Extreme (0°C)		15.87	7.71	15.35	0.00916	0.00445	0.00886	PASS
25°C	LV	2.33	12.48	1.91	0.00135	0.00720	0.00110	PASS
	HV	16.34	15.58	1.99	0.00943	0.00900	0.00115	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.23	15.53	4.58	0.00937	0.00896	0.00264	PASS
Extreme (35°C)		11.25	3.44	4.22	0.00650	0.00199	0.00244	PASS
Extreme (30°C)		14.22	10.40	7.92	0.00821	0.00600	0.00457	PASS
Extreme (20°C)		8.33	10.45	13.64	0.00481	0.00603	0.00787	PASS
Extreme (10°C)		5.15	17.83	9.22	0.00297	0.01029	0.00532	PASS
Extreme (0°C)		4.87	15.50	6.38	0.00281	0.00895	0.00368	PASS
25°C	LV	4.55	16.04	12.84	0.00263	0.00926	0.00741	PASS
	HV	3.61	2.03	9.20	0.00208	0.00117	0.00531	PASS



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	17.24	12.25	3.73	0.00995	0.00707	0.00215	PASS
Extreme (35°C)		14.62	6.42	8.67	0.00844	0.00370	0.00500	PASS
Extreme (30°C)		11.34	7.45	13.86	0.00654	0.00430	0.00800	PASS
Extreme (20°C)		15.10	12.44	3.50	0.00872	0.00718	0.00202	PASS
Extreme (10°C)		4.21	10.37	9.03	0.00243	0.00599	0.00521	PASS
Extreme (0°C)		5.08	14.96	7.74	0.00293	0.00863	0.00447	PASS
25°C	LV	1.37	8.34	9.99	0.00079	0.00481	0.00576	PASS
	HV	10.13	3.60	1.96	0.00585	0.00208	0.00113	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.76	12.66	15.26	0.00275	0.00731	0.00881	PASS
Extreme (35°C)		7.15	4.66	13.67	0.00413	0.00269	0.00789	PASS
Extreme (30°C)		11.77	12.68	12.31	0.00679	0.00732	0.00710	PASS
Extreme (20°C)		7.07	13.84	5.68	0.00408	0.00799	0.00328	PASS
Extreme (10°C)		2.94	11.97	17.84	0.00170	0.00691	0.01029	PASS
Extreme (0°C)		1.87	12.44	3.73	0.00108	0.00718	0.00215	PASS
25°C	LV	14.81	12.34	3.01	0.00855	0.00712	0.00174	PASS
	HV	15.62	4.95	15.65	0.00902	0.00286	0.00903	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	12.57	15.43	17.84	0.00725	0.00891	0.01030	PASS
Extreme (35°C)		12.88	6.86	7.36	0.00744	0.00396	0.00425	PASS
Extreme (30°C)		17.62	11.59	9.09	0.01017	0.00669	0.00525	PASS
Extreme (20°C)		12.25	1.54	7.98	0.00707	0.00089	0.00461	PASS
Extreme (10°C)		17.12	1.53	16.01	0.00988	0.00088	0.00924	PASS
Extreme (0°C)		5.85	9.42	10.33	0.00338	0.00543	0.00596	PASS
25°C	LV	5.16	12.82	8.22	0.00298	0.00740	0.00474	PASS
	HV	4.63	8.26	4.16	0.00267	0.00477	0.00240	PASS





Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.74	2.57	8.11	0.00562	0.00148	0.00468	PASS
Extreme (35°C)		12.64	13.23	6.73	0.00729	0.00763	0.00389	PASS
Extreme (30°C)		7.51	14.78	12.42	0.00433	0.00853	0.00717	PASS
Extreme (20°C)		5.92	14.37	1.61	0.00342	0.00830	0.00093	PASS
Extreme (10°C)		6.15	3.08	6.48	0.00355	0.00178	0.00374	PASS
Extreme (0°C)		16.28	5.69	8.60	0.00940	0.00328	0.00496	PASS
25°C	LV	11.77	16.67	15.27	0.00679	0.00962	0.00882	PASS
	HV	4.43	13.26	8.21	0.00256	0.00765	0.00474	PASS

LTE Band 7								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.68	17.08	6.01	0.00145	0.00674	0.00237	PASS
Extreme (35°C)		11.02	10.69	6.82	0.00435	0.00422	0.00269	PASS
Extreme (30°C)		10.88	9.14	9.27	0.00429	0.00361	0.00366	PASS
Extreme (20°C)		8.58	9.48	2.11	0.00338	0.00374	0.00083	PASS
Extreme (10°C)		1.13	9.58	15.37	0.00044	0.00378	0.00606	PASS
Extreme (0°C)		10.14	3.65	10.13	0.00400	0.00144	0.00400	PASS
25°C	LV	7.52	14.07	16.99	0.00297	0.00555	0.00670	PASS
	HV	14.09	1.93	8.32	0.00556	0.00076	0.00328	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.03	12.27	1.16	0.00238	0.00484	0.00046	PASS
Extreme (35°C)		3.80	5.84	3.59	0.00150	0.00230	0.00141	PASS
Extreme (30°C)		3.56	3.35	4.62	0.00141	0.00132	0.00182	PASS
Extreme (20°C)		9.38	3.36	3.44	0.00370	0.00132	0.00136	PASS
Extreme (10°C)		12.10	11.56	2.62	0.00477	0.00456	0.00103	PASS
Extreme (0°C)		1.97	17.32	17.71	0.00078	0.00683	0.00699	PASS
25°C	LV	1.90	6.88	8.83	0.00075	0.00271	0.00348	PASS
	HV	8.02	9.03	4.62	0.00317	0.00356	0.00182	PASS



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	8.87	15.74	3.48	0.00350	0.00621	0.00137	PASS
Extreme (35°C)		1.26	14.30	4.14	0.00050	0.00564	0.00163	PASS
Extreme (30°C)		13.82	4.33	17.77	0.00545	0.00171	0.00701	PASS
Extreme (20°C)		2.18	10.60	17.51	0.00086	0.00418	0.00691	PASS
Extreme (10°C)		14.47	9.95	9.29	0.00571	0.00392	0.00366	PASS
Extreme (0°C)		17.17	13.00	9.96	0.00677	0.00513	0.00393	PASS
25°C	LV	9.83	16.20	3.89	0.00388	0.00639	0.00154	PASS
	HV	8.40	13.39	12.77	0.00331	0.00528	0.00504	PASS

Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.75	9.75	6.92	0.00542	0.00385	0.00273	PASS
Extreme (35°C)		16.07	4.15	8.37	0.00634	0.00164	0.00330	PASS
Extreme (30°C)		6.99	8.30	12.91	0.00276	0.00327	0.00509	PASS
Extreme (20°C)		16.25	7.39	6.54	0.00641	0.00291	0.00258	PASS
Extreme (10°C)		12.29	5.96	1.67	0.00485	0.00235	0.00066	PASS
Extreme (0°C)		4.26	9.38	7.07	0.00168	0.00370	0.00279	PASS
25°C	LV	2.28	4.34	17.79	0.00090	0.00171	0.00702	PASS
	HV	7.98	4.69	12.96	0.00315	0.00185	0.00511	PASS

LTE Band 12								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	1.38	6.66	6.85	0.00194	0.00941	0.00969	PASS
Extreme (35°C)		6.98	4.68	2.04	0.00987	0.00662	0.00289	PASS
Extreme (30°C)		15.09	13.70	10.87	0.02133	0.01936	0.01536	PASS
Extreme (20°C)		3.20	13.47	1.02	0.00452	0.01904	0.00145	PASS
Extreme (10°C)		3.52	12.83	6.01	0.00497	0.01813	0.00850	PASS
Extreme (0°C)		14.34	9.85	7.01	0.02028	0.01392	0.00991	PASS
25°C	LV	11.56	1.76	11.42	0.01633	0.00249	0.01614	PASS
	HV	7.79	16.71	11.51	0.01101	0.02362	0.01627	PASS



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.23	10.66	6.65	0.02295	0.01506	0.00940	PASS
Extreme (35°C)		1.40	8.27	1.14	0.00198	0.01168	0.00162	PASS
Extreme (30°C)		12.07	8.32	17.29	0.01706	0.01176	0.02443	PASS
Extreme (20°C)		8.54	7.94	11.46	0.01207	0.01123	0.01619	PASS
Extreme (10°C)		10.80	12.77	8.64	0.01527	0.01806	0.01221	PASS
Extreme (0°C)		9.03	11.08	11.52	0.01277	0.01566	0.01628	PASS
25°C	LV	4.54	4.43	2.51	0.00642	0.00627	0.00355	PASS
	HV	7.96	16.62	3.48	0.01125	0.02348	0.00491	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.66	17.44	17.86	0.00517	0.02466	0.02525	PASS
Extreme (35°C)		15.70	13.52	12.58	0.02220	0.01911	0.01777	PASS
Extreme (30°C)		14.10	14.52	13.89	0.01994	0.02053	0.01963	PASS
Extreme (20°C)		16.48	15.18	8.70	0.02330	0.02145	0.01230	PASS
Extreme (10°C)		1.26	9.78	1.93	0.00178	0.01382	0.00273	PASS
Extreme (0°C)		6.05	15.74	5.58	0.00855	0.02225	0.00789	PASS
25°C	LV	1.31	8.52	14.72	0.00185	0.01204	0.02081	PASS
	HV	8.69	4.86	8.31	0.01228	0.00687	0.01174	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.76	15.85	1.50	0.00955	0.02240	0.00213	PASS
Extreme (35°C)		11.93	5.33	4.05	0.01686	0.00753	0.00573	PASS
Extreme (30°C)		6.27	10.63	14.28	0.00886	0.01503	0.02018	PASS
Extreme (20°C)		13.84	8.56	14.55	0.01957	0.01210	0.02057	PASS
Extreme (10°C)		11.10	8.67	16.77	0.01570	0.01226	0.02371	PASS
Extreme (0°C)		5.40	16.22	16.82	0.00763	0.02293	0.02377	PASS
25°C	LV	1.53	6.44	1.32	0.00216	0.00910	0.00187	PASS
	HV	9.00	7.35	11.97	0.01272	0.01039	0.01692	PASS



LTE Band 13								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.68	6.34	11.04	0.00470	0.00811	0.01411	PASS
Extreme (35°C)		1.76	9.50	1.17	0.00226	0.01214	0.00149	PASS
Extreme (30°C)		9.12	10.45	2.58	0.01166	0.01336	0.00329	PASS
Extreme (20°C)		17.84	3.65	5.95	0.02282	0.00467	0.00761	PASS
Extreme (10°C)		4.44	12.63	17.28	0.00567	0.01615	0.02210	PASS
Extreme (0°C)		5.13	7.16	17.16	0.00656	0.00915	0.02195	PASS
25°C		LV	6.34	5.46	13.21	0.00811	0.00698	0.01689
	HV	15.30	4.78	2.70	0.01957	0.00611	0.00345	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.52	16.58	9.93	0.00578	0.02120	0.01270	PASS
Extreme (35°C)		12.02	5.66	1.42	0.01537	0.00723	0.00181	PASS
Extreme (30°C)		15.37	6.55	5.97	0.01966	0.00837	0.00764	PASS
Extreme (20°C)		13.85	4.55	5.51	0.01771	0.00581	0.00705	PASS
Extreme (10°C)		7.52	15.40	8.24	0.00962	0.01970	0.01054	PASS
Extreme (0°C)		10.32	14.16	17.34	0.01320	0.01810	0.02217	PASS
25°C		LV	5.26	8.70	7.92	0.00672	0.01113	0.01013
	HV	17.91	7.16	10.08	0.02290	0.00916	0.01290	PASS

LTE Band 17								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.19	10.12	3.26	0.01576	0.01426	0.00459	PASS
Extreme (35°C)		4.17	10.26	9.64	0.00587	0.01445	0.01358	PASS
Extreme (30°C)		1.66	7.60	17.74	0.00234	0.01070	0.02498	PASS
Extreme (20°C)		10.59	7.98	12.62	0.01491	0.01124	0.01778	PASS
Extreme (10°C)		16.40	1.40	4.74	0.02310	0.00197	0.00668	PASS
Extreme (0°C)		5.68	12.69	2.69	0.00800	0.01787	0.00378	PASS
25°C		LV	16.56	14.35	12.25	0.02333	0.02021	0.01725
	HV	6.82	5.93	7.58	0.00960	0.00835	0.01068	PASS



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.64	10.84	15.17	0.00513	0.01527	0.02137	PASS
Extreme (35°C)		11.88	11.74	14.59	0.01673	0.01654	0.02054	PASS
Extreme (30°C)		12.93	17.34	9.25	0.01821	0.02443	0.01302	PASS
Extreme (20°C)		14.59	13.88	11.44	0.02055	0.01955	0.01611	PASS
Extreme (10°C)		16.79	7.10	4.91	0.02365	0.01000	0.00691	PASS
Extreme (0°C)		8.05	15.57	15.14	0.01134	0.02192	0.02133	PASS
25°C	LV	1.15	3.12	9.87	0.00162	0.00439	0.01390	PASS
	HV	8.47	16.07	13.36	0.01193	0.02264	0.01882	PASS

LTE Band 38								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.88	10.90	4.84	0.00149	0.00420	0.00186	PASS
Extreme (35°C)		13.05	2.79	8.34	0.00503	0.00107	0.00321	PASS
Extreme (30°C)		7.63	10.56	12.21	0.00294	0.00407	0.00471	PASS
Extreme (20°C)		11.59	9.65	9.03	0.00447	0.00372	0.00348	PASS
Extreme (10°C)		10.35	16.47	8.04	0.00399	0.00635	0.00310	PASS
Extreme (0°C)		2.96	1.05	9.49	0.00114	0.00041	0.00366	PASS
25°C	LV	5.14	1.82	16.26	0.00198	0.00070	0.00627	PASS
	HV	2.86	9.32	13.72	0.00110	0.00359	0.00529	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	15.15	2.17	15.26	0.00584	0.00084	0.00588	PASS
Extreme (35°C)		13.22	8.79	1.87	0.00510	0.00339	0.00072	PASS
Extreme (30°C)		12.05	10.58	1.47	0.00464	0.00408	0.00057	PASS
Extreme (20°C)		15.12	2.02	2.81	0.00582	0.00078	0.00108	PASS
Extreme (10°C)		13.25	1.47	2.73	0.00510	0.00057	0.00105	PASS
Extreme (0°C)		11.38	3.88	6.44	0.00438	0.00149	0.00248	PASS
25°C	LV	11.07	6.19	14.55	0.00426	0.00239	0.00561	PASS
	HV	6.75	3.68	2.22	0.00260	0.00142	0.00086	PASS



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.00	2.00	15.00	0.00231	0.00077	0.00578	PASS
Extreme (35°C)		17.00	6.00	7.00	0.00655	0.00231	0.00270	PASS
Extreme (30°C)		7.00	2.00	17.00	0.00270	0.00077	0.00655	PASS
Extreme (20°C)		11.00	2.00	9.00	0.00424	0.00077	0.00347	PASS
Extreme (10°C)		12.00	4.00	14.00	0.00462	0.00154	0.00539	PASS
Extreme (0°C)		2.00	9.00	11.00	0.00077	0.00347	0.00424	PASS
25°C	LV	16.00	13.00	16.00	0.00617	0.00501	0.00617	PASS
	HV	7.00	3.00	2.00	0.00270	0.00116	0.00077	PASS

Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.00	2.00	8.00	0.00231	0.00077	0.00308	PASS
Extreme (35°C)		16.00	10.00	15.00	0.00617	0.00385	0.00578	PASS
Extreme (30°C)		12.00	8.00	5.00	0.00462	0.00308	0.00193	PASS
Extreme (20°C)		10.00	12.00	4.00	0.00385	0.00462	0.00154	PASS
Extreme (10°C)		7.00	14.00	14.00	0.00270	0.00539	0.00539	PASS
Extreme (0°C)		1.00	2.00	17.00	0.00039	0.00077	0.00655	PASS
25°C	LV	14.00	8.00	11.00	0.00539	0.00308	0.00424	PASS
	HV	7.00	14.00	13.00	0.00270	0.00539	0.00501	PASS

LTE Band 41								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.00	13.00	7.00	0.00231	0.00501	0.00270	PASS
Extreme (35°C)		2.00	13.00	3.00	0.00077	0.00501	0.00116	PASS
Extreme (30°C)		2.00	10.00	7.00	0.00077	0.00386	0.00270	PASS
Extreme (20°C)		15.00	5.00	10.00	0.00578	0.00193	0.00386	PASS
Extreme (10°C)		8.00	8.00	16.00	0.00309	0.00309	0.00617	PASS
Extreme (0°C)		9.00	4.00	2.00	0.00347	0.00154	0.00077	PASS
25°C	LV	6.00	6.00	3.00	0.00231	0.00231	0.00116	PASS
	HV	4.00	4.00	4.00	0.00154	0.00154	0.00154	PASS





Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	17.00	12.00	4.00	0.00656	0.00463	0.00154	PASS
Extreme (35°C)		16.00	15.00	11.00	0.00617	0.00578	0.00424	PASS
Extreme (30°C)		9.00	2.00	7.00	0.00347	0.00077	0.00270	PASS
Extreme (20°C)		4.00	8.00	15.00	0.00154	0.00309	0.00578	PASS
Extreme (10°C)		16.00	11.00	12.00	0.00617	0.00424	0.00463	PASS
Extreme (0°C)		15.00	12.00	5.00	0.00578	0.00463	0.00193	PASS
25°C	LV	6.00	6.00	5.00	0.00231	0.00231	0.00193	PASS
	HV	11.00	14.00	10.00	0.00424	0.00540	0.00386	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.00	4.00	16.00	0.00424	0.00154	0.00617	PASS
Extreme (35°C)		11.00	17.00	8.00	0.00424	0.00656	0.00309	PASS
Extreme (30°C)		16.00	3.00	13.00	0.00617	0.00116	0.00501	PASS
Extreme (20°C)		16.00	4.00	14.00	0.00617	0.00154	0.00540	PASS
Extreme (10°C)		16.00	8.00	11.00	0.00617	0.00309	0.00424	PASS
Extreme (0°C)		2.00	10.00	6.00	0.00077	0.00386	0.00231	PASS
25°C	LV	7.00	2.00	10.00	0.00270	0.00077	0.00386	PASS
	HV	16.00	5.00	6.00	0.00617	0.00193	0.00231	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.00	8.00	15.00	0.00347	0.00309	0.00578	PASS
Extreme (35°C)		15.00	14.00	7.00	0.00578	0.00540	0.00270	PASS
Extreme (30°C)		2.00	11.00	14.00	0.00077	0.00424	0.00540	PASS
Extreme (20°C)		13.00	3.00	16.00	0.00501	0.00116	0.00617	PASS
Extreme (10°C)		17.00	9.00	14.00	0.00656	0.00347	0.00540	PASS
Extreme (0°C)		3.00	2.00	13.00	0.00116	0.00077	0.00501	PASS
25°C	LV	9.00	15.00	4.00	0.00347	0.00578	0.00154	PASS
	HV	5.00	8.00	11.00	0.00193	0.00309	0.00424	PASS



LTE Band 66								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	5.00	17.00	6.00	0.00287	0.00974	0.00344	PASS
Extreme (35°C)		7.00	7.00	15.00	0.00401	0.00401	0.00860	PASS
Extreme (30°C)		8.00	9.00	1.00	0.00458	0.00516	0.00057	PASS
Extreme (20°C)		14.00	16.00	1.00	0.00802	0.00917	0.00057	PASS
Extreme (10°C)		3.00	1.00	4.00	0.00172	0.00057	0.00229	PASS
Extreme (0°C)		3.00	14.00	5.00	0.00172	0.00802	0.00287	PASS
25°C		LV	1.00	8.00	5.00	0.00057	0.00458	0.00287
	HV	8.00	16.00	2.00	0.00458	0.00917	0.00115	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.00	2.00	8.00	0.00229	0.00115	0.00458	PASS
Extreme (35°C)		16.00	15.00	3.00	0.00917	0.00860	0.00172	PASS
Extreme (30°C)		7.00	6.00	11.00	0.00401	0.00344	0.00630	PASS
Extreme (20°C)		7.00	14.00	10.00	0.00401	0.00802	0.00573	PASS
Extreme (10°C)		16.00	17.00	5.00	0.00917	0.00974	0.00287	PASS
Extreme (0°C)		17.00	5.00	9.00	0.00974	0.00287	0.00516	PASS
25°C		LV	6.00	10.00	16.00	0.00344	0.00573	0.00917
	HV	4.00	17.00	10.00	0.00229	0.00974	0.00573	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.00	10.00	6.00	0.00917	0.00573	0.00344	PASS
Extreme (35°C)		10.00	16.00	1.00	0.00573	0.00917	0.00057	PASS
Extreme (30°C)		3.00	3.00	8.00	0.00172	0.00172	0.00458	PASS
Extreme (20°C)		2.00	14.00	7.00	0.00115	0.00802	0.00401	PASS
Extreme (10°C)		5.00	8.00	8.00	0.00287	0.00458	0.00458	PASS
Extreme (0°C)		7.00	8.00	12.00	0.00401	0.00458	0.00688	PASS
25°C		LV	5.00	12.00	14.00	0.00287	0.00688	0.00802
	HV	17.00	8.00	6.00	0.00974	0.00458	0.00344	PASS





Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.00	7.00	10.00	0.00745	0.00401	0.00573	PASS
Extreme (35°C)		10.00	10.00	3.00	0.00573	0.00573	0.00172	PASS
Extreme (30°C)		8.00	12.00	16.00	0.00458	0.00688	0.00917	PASS
Extreme (20°C)		4.00	2.00	13.00	0.00229	0.00115	0.00745	PASS
Extreme (10°C)		9.00	8.00	15.00	0.00516	0.00458	0.00860	PASS
Extreme (0°C)		9.00	12.00	16.00	0.00516	0.00688	0.00917	PASS
25°C	LV	1.00	4.00	13.00	0.00057	0.00229	0.00745	PASS
	HV	9.00	13.00	11.00	0.00516	0.00745	0.00630	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.00	6.00	3.00	0.00516	0.00344	0.00172	PASS
Extreme (35°C)		2.00	17.00	3.00	0.00115	0.00974	0.00172	PASS
Extreme (30°C)		3.00	5.00	4.00	0.00172	0.00287	0.00229	PASS
Extreme (20°C)		2.00	17.00	15.00	0.00115	0.00974	0.00860	PASS
Extreme (10°C)		5.00	10.00	7.00	0.00287	0.00573	0.00401	PASS
Extreme (0°C)		12.00	15.00	5.00	0.00688	0.00860	0.00287	PASS
25°C	LV	3.00	1.00	17.00	0.00172	0.00057	0.00974	PASS
	HV	6.00	11.00	2.00	0.00344	0.00630	0.00115	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	12.00	3.00	11.00	0.00688	0.00172	0.00630	PASS
Extreme (35°C)		5.00	3.00	16.00	0.00287	0.00172	0.00917	PASS
Extreme (30°C)		15.00	2.00	17.00	0.00860	0.00115	0.00974	PASS
Extreme (20°C)		8.00	11.00	3.00	0.00458	0.00630	0.00172	PASS
Extreme (10°C)		17.00	16.00	5.00	0.00974	0.00917	0.00287	PASS
Extreme (0°C)		13.00	17.00	13.00	0.00745	0.00974	0.00745	PASS
25°C	LV	11.00	6.00	11.00	0.00630	0.00344	0.00630	PASS
	HV	16.00	16.00	8.00	0.00917	0.00917	0.00458	PASS



## CA Band

CA_7C_QPSK		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	13.00	0.00691	2.00	0.00106	PASS
Extreme (35°C)		15.65	0.00832	10.03	0.00534	PASS
Extreme (30°C)		4.30	0.00229	13.82	0.00735	PASS
Extreme (20°C)		1.28	0.00068	1.49	0.00079	PASS
Extreme (10°C)		11.34	0.00603	9.44	0.00502	PASS
Extreme (0°C)		3.01	0.00160	1.32	0.00070	PASS
25°C	LV	8.66	0.00461	7.15	0.00380	PASS
	HV	5.36	0.00285	14.30	0.00761	PASS
CA_7C_16QAM		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	11.00	0.00585	2.00	0.00106	PASS
Extreme (35°C)		15.04	0.00800	14.15	0.00752	PASS
Extreme (30°C)		5.59	0.00297	17.67	0.00940	PASS
Extreme (20°C)		6.92	0.00368	7.21	0.00383	PASS
Extreme (10°C)		7.65	0.00407	11.28	0.00600	PASS
Extreme (0°C)		6.09	0.00324	7.92	0.00421	PASS
25°C	LV	13.89	0.00739	15.97	0.00850	PASS
	HV	15.05	0.00801	5.29	0.00281	PASS
CA_7C_64QAM		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	11.00	0.00585	2.00	0.00106	PASS
Extreme (35°C)		12.68	0.00674	17.73	0.00943	PASS
Extreme (30°C)		7.83	0.00416	15.09	0.00802	PASS
Extreme (20°C)		6.50	0.00346	11.41	0.00607	PASS
Extreme (10°C)		2.32	0.00123	1.63	0.00086	PASS
Extreme (0°C)		11.90	0.00633	9.36	0.00498	PASS
25°C	LV	10.67	0.00568	13.45	0.00716	PASS
	HV	4.81	0.00256	7.65	0.00407	PASS



CA_38C_QPSK		15MHz+15MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	5.65	0.00300	2.05	0.00109	PASS
Extreme (35°C)		14.58	0.00776	13.16	0.00700	PASS
Extreme (30°C)		15.55	0.00827	17.90	0.00952	PASS
Extreme (20°C)		10.39	0.00552	10.11	0.00538	PASS
Extreme (10°C)		9.80	0.00521	7.86	0.00418	PASS
Extreme (0°C)		7.06	0.00376	13.07	0.00695	PASS
25°C	LV	8.78	0.00467	8.74	0.00465	PASS
	HV	16.51	0.00878	10.36	0.00551	PASS
CA_38C_16QAM		15MHz+15MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	13.43	0.00714	3.83	0.00204	PASS
Extreme (35°C)		15.59	0.00829	10.93	0.00581	PASS
Extreme (30°C)		16.74	0.00890	12.76	0.00679	PASS
Extreme (20°C)		14.97	0.00796	14.02	0.00746	PASS
Extreme (10°C)		8.30	0.00442	14.70	0.00782	PASS
Extreme (0°C)		6.26	0.00333	11.31	0.00602	PASS
25°C	LV	9.31	0.00495	14.34	0.00763	PASS
	HV	7.42	0.00395	15.21	0.00809	PASS
CA_38C_64QAM		15MHz+15MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	14.25	0.00758	1.06	0.00056	PASS
Extreme (35°C)		12.08	0.00643	13.42	0.00714	PASS
Extreme (30°C)		4.77	0.00254	11.38	0.00605	PASS
Extreme (20°C)		4.05	0.00215	2.35	0.00125	PASS
Extreme (10°C)		7.43	0.00395	4.18	0.00222	PASS
Extreme (0°C)		7.33	0.00390	16.23	0.00863	PASS
25°C	LV	17.31	0.00921	5.50	0.00293	PASS
	HV	16.67	0.00887	11.94	0.00635	PASS



CA_41C_QPSK		20MHz+5MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	2.00	0.00106	11.00	0.00585	PASS
Extreme (35°C)		16.09	0.00856	9.58	0.00510	PASS
Extreme (30°C)		14.40	0.00766	4.62	0.00246	PASS
Extreme (20°C)		13.94	0.00742	16.99	0.00904	PASS
Extreme (10°C)		1.58	0.00084	11.28	0.00600	PASS
Extreme (0°C)		11.30	0.00601	17.35	0.00923	PASS
25°C	LV	13.63	0.00725	6.35	0.00338	PASS
	HV	1.62	0.00086	1.48	0.00079	PASS
CA_41C_16QAM		20MHz+5MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	5.00	0.00266	11.00	0.00585	PASS
Extreme (35°C)		11.85	0.00630	17.41	0.00926	PASS
Extreme (30°C)		14.48	0.00770	9.63	0.00512	PASS
Extreme (20°C)		15.57	0.00828	9.66	0.00514	PASS
Extreme (10°C)		12.57	0.00669	10.60	0.00564	PASS
Extreme (0°C)		1.47	0.00078	13.72	0.00730	PASS
25°C	LV	15.69	0.00834	6.36	0.00338	PASS
	HV	7.76	0.00413	15.11	0.00804	PASS
CA_41C_64QAM		20MHz+5MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Normal (25°C)	Normal	11.00	0.00585	1.00	0.00053	PASS
Extreme (35°C)		3.10	0.00165	16.77	0.00892	PASS
Extreme (30°C)		4.12	0.00219	6.32	0.00336	PASS
Extreme (20°C)		12.17	0.00648	10.16	0.00540	PASS
Extreme (10°C)		9.38	0.00499	10.69	0.00569	PASS
Extreme (0°C)		5.44	0.00289	13.90	0.00740	PASS
25°C	LV	3.02	0.00160	3.58	0.00191	PASS
	HV	8.36	0.00445	10.46	0.00556	PASS

## 5.6 Spurious Emissions at Antenna Terminals

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz

RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

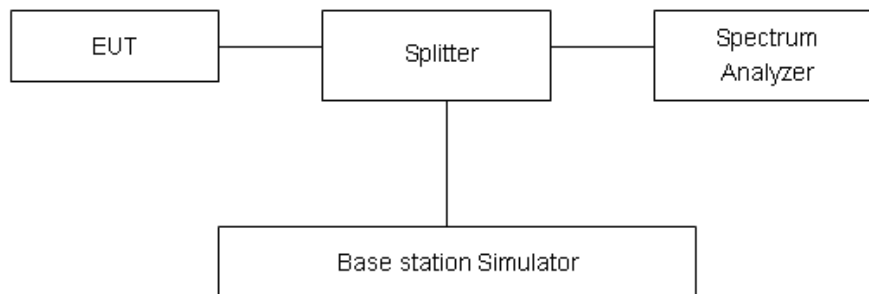
RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

### Test setup



### Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, 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..”

Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, 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.

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Rule Part 27.53(m)  $55 + 10 \log (P)$  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)(4) of this section.

Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the 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, in accordance with the following:

- (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

Part 27.53(h)/(g) Limit		-13 dBm
Part 27.53(f) Limit	Limit out of the band 1559-1610 MHz	-13 dBm
	Limit in the band 1559-1610 MHz	-40 dBm
Part 27.53(m) Limit		-25 dBm

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-30GHz	1.407 dB



### Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

