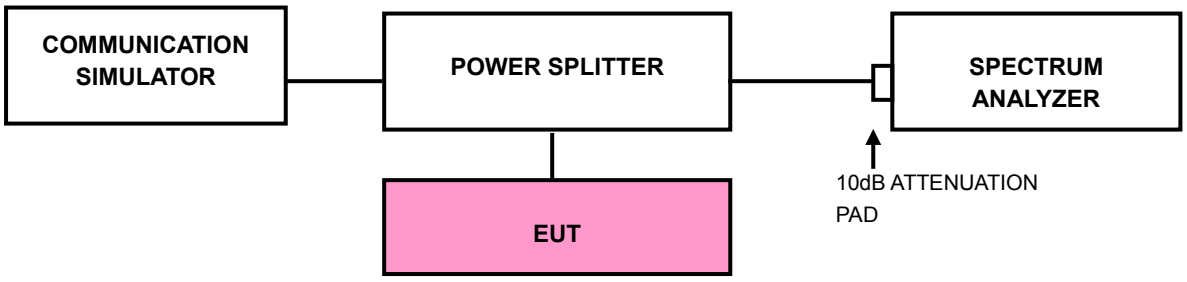
3.5 BAND EDGE MEASUREMENT

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 10MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).

d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)

e. 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)

f. 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)

g. 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)

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 15MHz)

i. 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)

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

3.5.4 TEST RESULTS

LTE BAND 4

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

Channel Bandwidth: 1.4MHz 16QAM

CHANNEL	19957	1 RB	CHANNEL	20393	1 RB

CHANNEL	19957	Full RB	CHANNEL	20393	Full RB

LTE BAND 4

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

Channel Bandwidth: 3MHz 16QAM					
CHANNEL	19965	1 RB	CHANNEL	20385	1 RB

CHANNEL	19965	Full RB	CHANNEL	20385	Full RB

LTE BAND 4

Channel Bandwidth: 5MHz QPSK					
CHANNEL	19975	1 RB	CHANNEL	20375	1 RB
					
CHANNEL	19975	Full RB	CHANNEL	20375	Full RB
					

Channel Bandwidth: 5MHz 16QAM					
CHANNEL	19975	1 RB	CHANNEL	20375	1 RB
					
CHANNEL	19975	Full RB	CHANNEL	20375	Full RB
					

LTE BAND 4

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

Channel Bandwidth: 10MHz 16QAM

CHANNEL	20000	1 RB	CHANNEL	20350	1 RB

CHANNEL	20000	Full RB	CHANNEL	20350	Full RB

LTE BAND 4

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

Channel Bandwidth: 15MHz 16QAM					
CHANNEL	20025	1 RB	CHANNEL	20325	1 RB
					
CHANNEL	20025	Full RB	CHANNEL	20325	Full RB
					

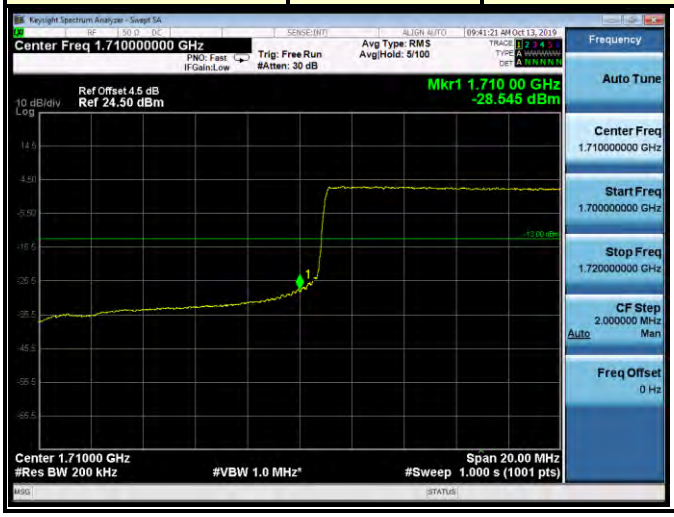
LTE BAND 4

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

Channel Bandwidth: 20MHz 16QAM

CHANNEL	20050	1 RB	CHANNEL	20300	1 RB

CHANNEL	20050	Full RB	CHANNEL	20300	Full RB



LTE BAND 66

Channel Bandwidth: 1.4MHz QPSK					
CHANNEL	131979	1 RB	CHANNEL	132665	1 RB
					
CHANNEL	131979	Full RB	CHANNEL	132665	Full RB
					

Channel Bandwidth: 1.4MHz 16QAM					
CHANNEL	131979	1 RB	CHANNEL	132665	1 RB
					
CHANNEL	131979	Full RB	CHANNEL	132665	Full RB
					

LTE BAND 66

Channel Bandwidth: 3MHz QPSK					
CHANNEL	131987	1 RB	CHANNEL	132657	1 RB
					
CHANNEL	131987	Full RB	CHANNEL	132657	Full RB
					

Channel Bandwidth: 3MHz 16QAM					
CHANNEL	131987	1 RB	CHANNEL	132657	1 RB

CHANNEL	131987	Full RB	CHANNEL	132657	Full RB

LTE BAND 66

Channel Bandwidth: 5MHz QPSK					
CHANNEL	131997	1 RB	CHANNEL	132647	1 RB
					
CHANNEL	131997	Full RB	CHANNEL	132647	Full RB
					

Channel Bandwidth: 5MHz 16QAM

CHANNEL	131997	1 RB	CHANNEL	132647	1 RB

CHANNEL	131997	Full RB	CHANNEL	132647	Full RB

LTE BAND 66

Channel Bandwidth: 10MHz QPSK					
CHANNEL	132022	1 RB	CHANNEL	132622	1 RB
					
CHANNEL	132022	Full RB	CHANNEL	132622	Full RB
					

Channel Bandwidth: 10MHz 16QAM

CHANNEL	132022	1 RB	CHANNEL	132622	1 RB

CHANNEL	132022	Full RB	CHANNEL	132622	Full RB

LTE BAND 66

Channel Bandwidth: 15MHz QPSK					
CHANNEL	132047	1 RB	CHANNEL	132597	1 RB
					
CHANNEL	132047	Full RB	CHANNEL	132597	Full RB
					

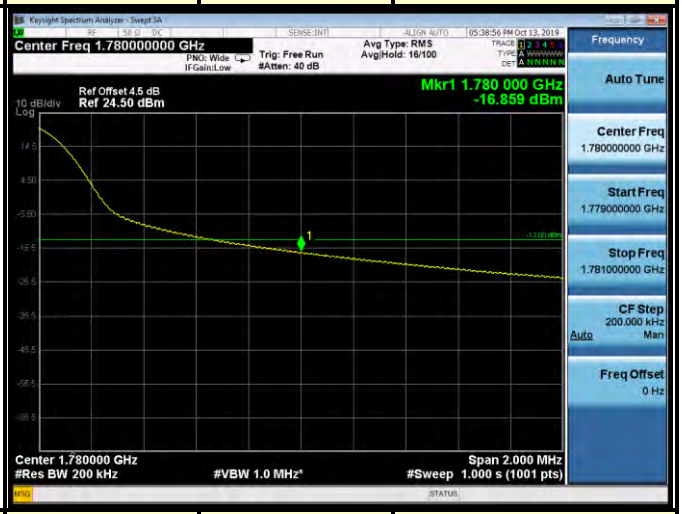
Channel Bandwidth: 15MHz 16QAM					
CHANNEL	132047	1 RB	CHANNEL	132597	1 RB
					
CHANNEL	132047	Full RB	CHANNEL	132597	Full RB
					

LTE BAND 66

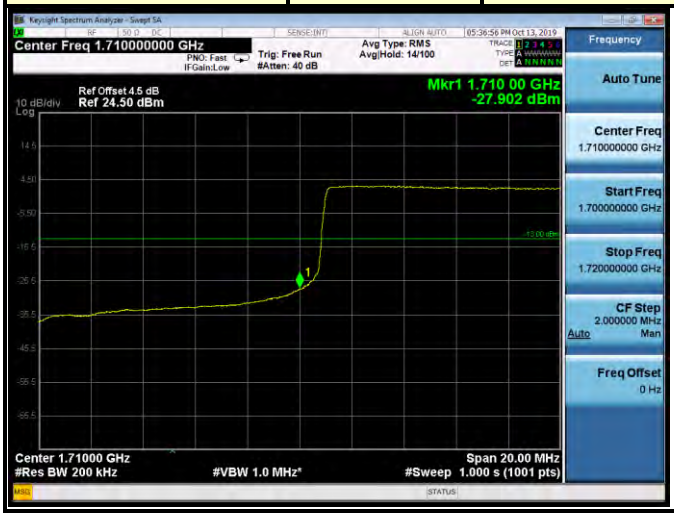
Channel Bandwidth: 20MHz QPSK					
CHANNEL	132072	1 RB	CHANNEL	132572	1 RB
					
CHANNEL	132072	Full RB	CHANNEL	132572	Full RB
					

Channel Bandwidth: 20MHz 16QAM

CHANNEL	132072	1 RB	CHANNEL	132572	1 RB



CHANNEL	132072	Full RB	CHANNEL	132572	Full RB



3.6 CONDUCTED SPURIOUS EMISSIONS

3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

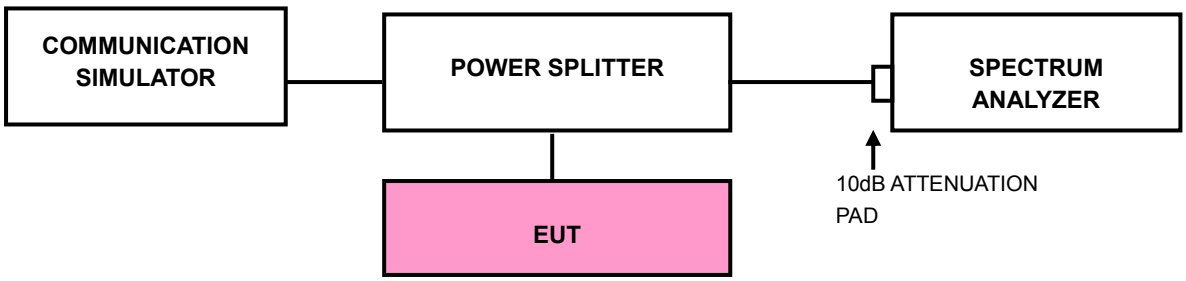
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission equal to –13dBm

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 WCDMA Band 4 & LTE Band 4. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

3.6.3 TEST SETUP



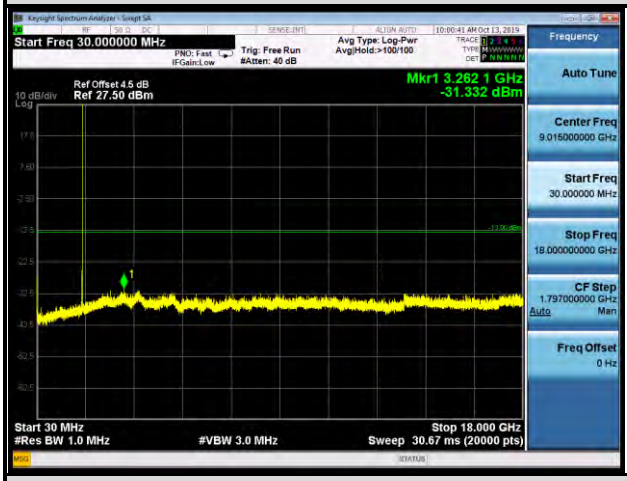
3.6.4 TEST RESULTS

LTE BAND 4

1.4MHz / QPSK

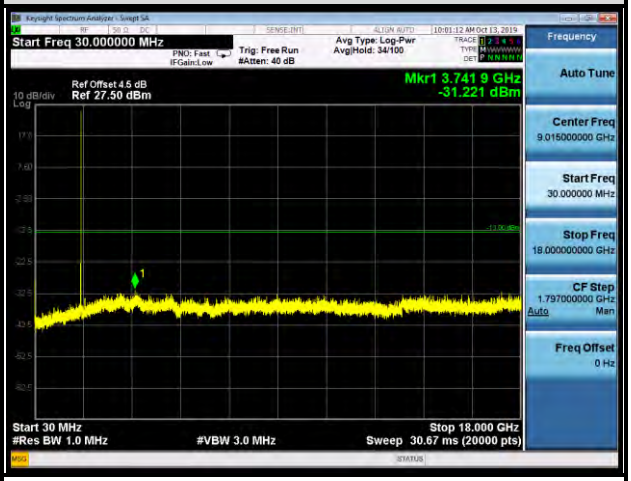
CHANNEL 19957

FREQUENCY RANGE : 30MHz~18GHz



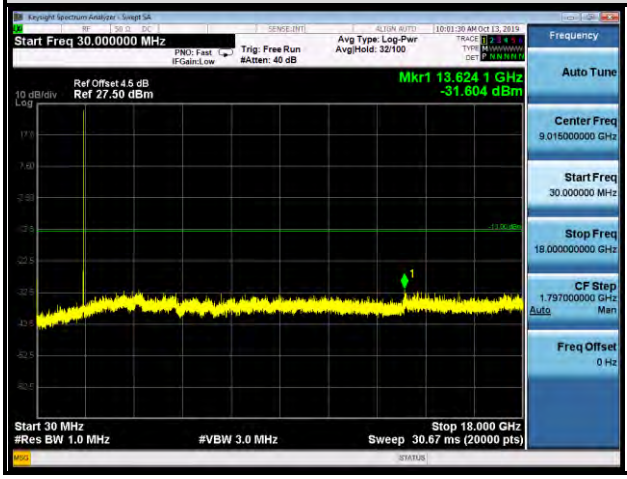
CHANNEL 20175

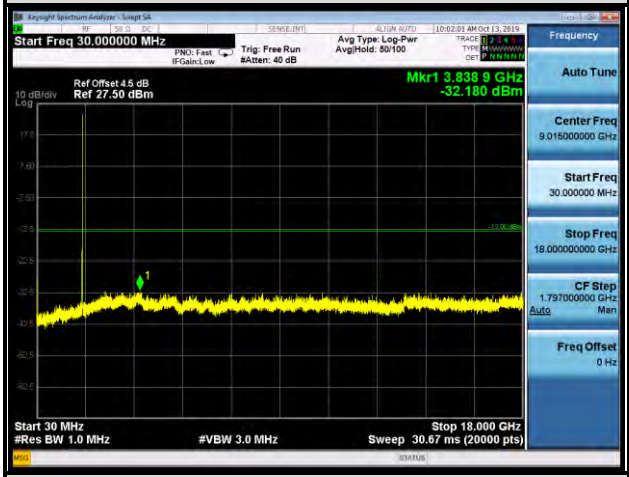
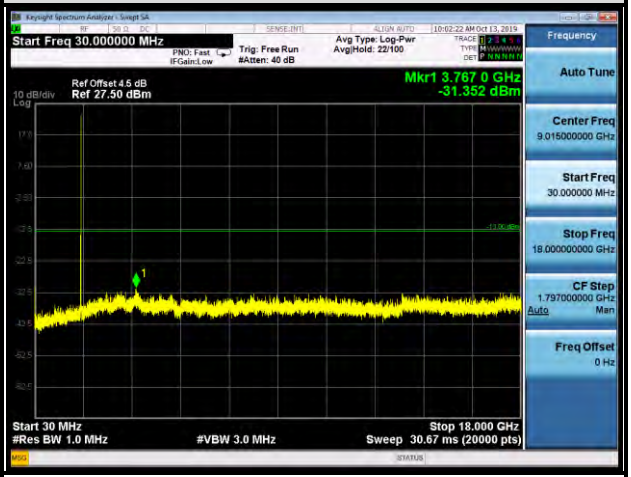
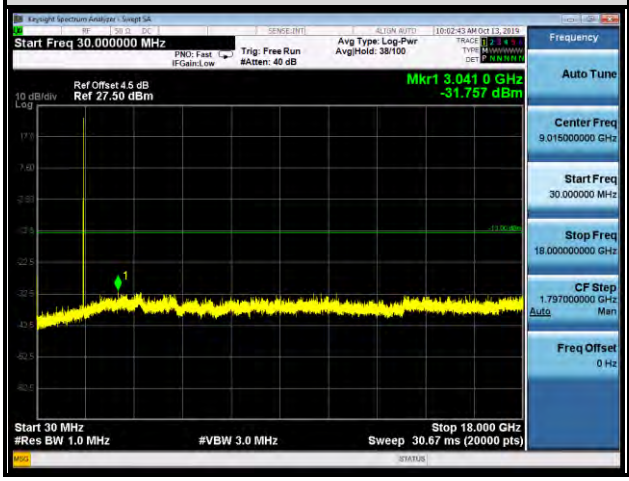
FREQUENCY RANGE : 30MHz~18GHz

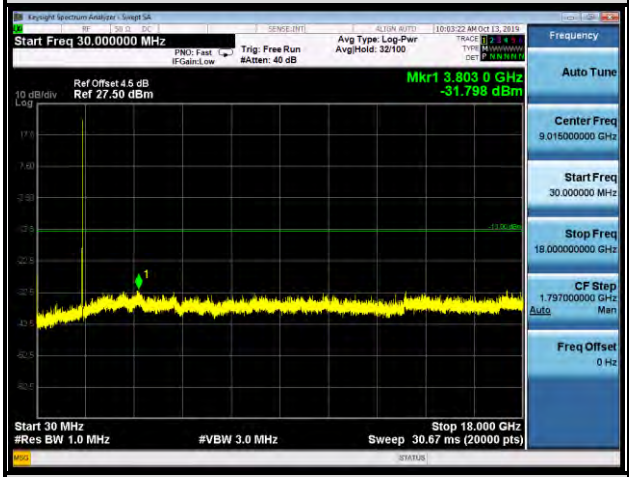
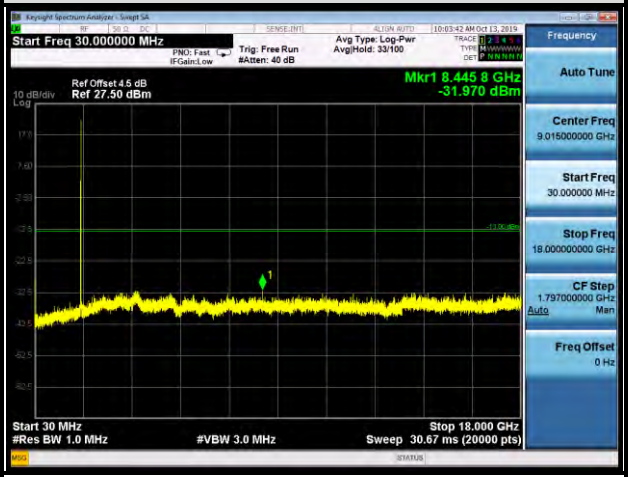
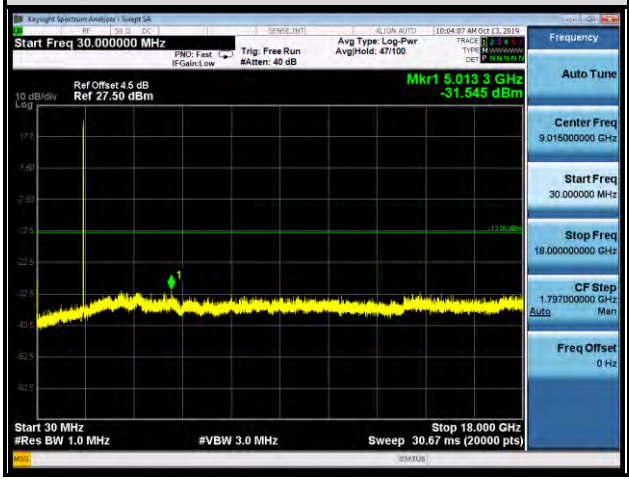


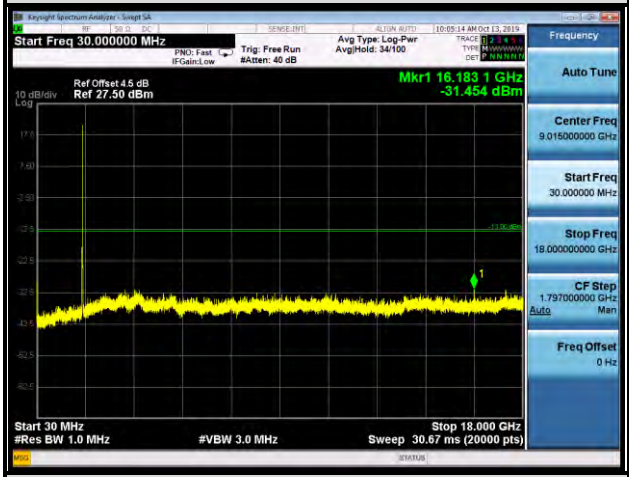
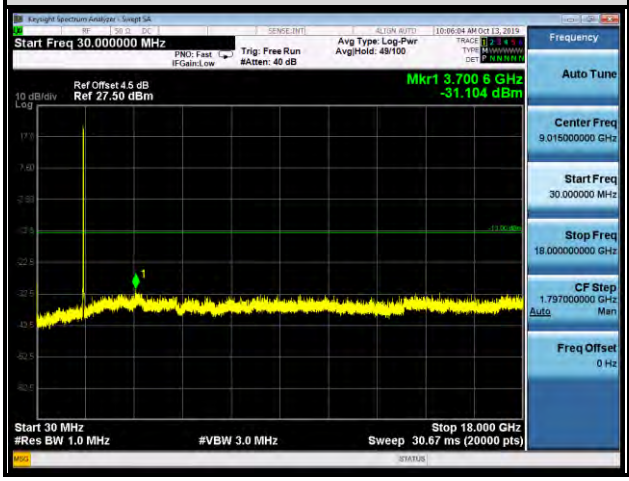
CHANNEL 20393

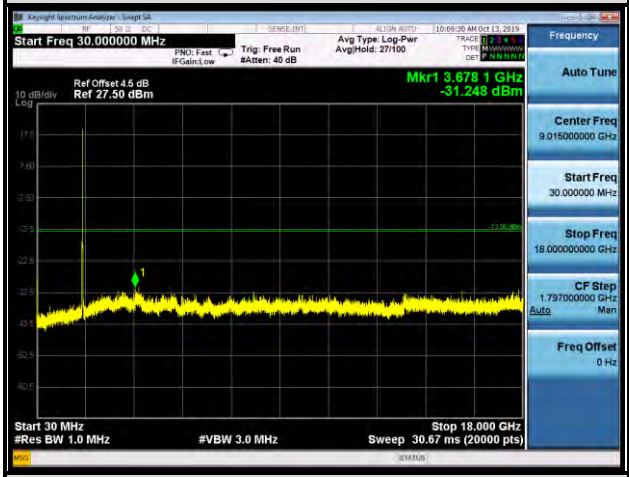
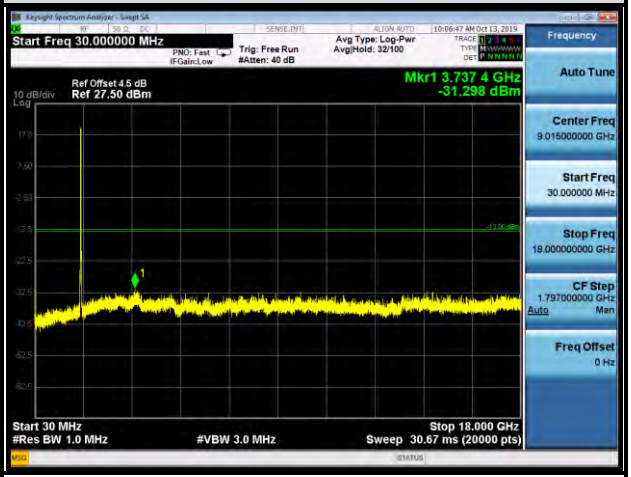
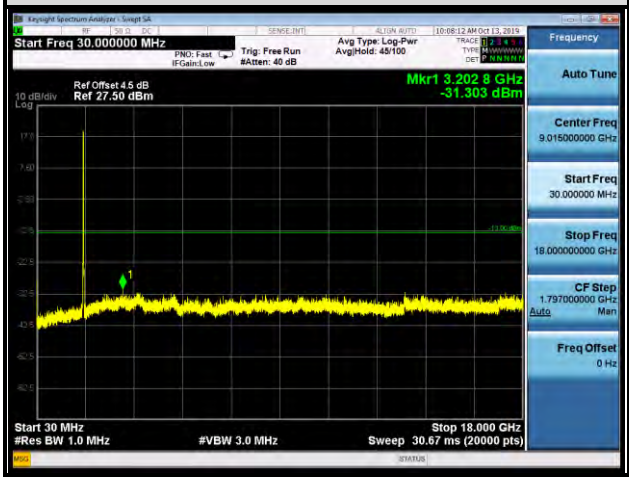
FREQUENCY RANGE : 30MHz~18GHz



3MHz / QPSK	
CHANNEL 19965	CHANNEL 20175
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 20385	
FREQUENCY RANGE : 30MHz~18GHz	
	

5MHz / QPSK	
CHANNEL 19975	CHANNEL 20175
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 20375	
FREQUENCY RANGE : 30MHz~18GHz	
	

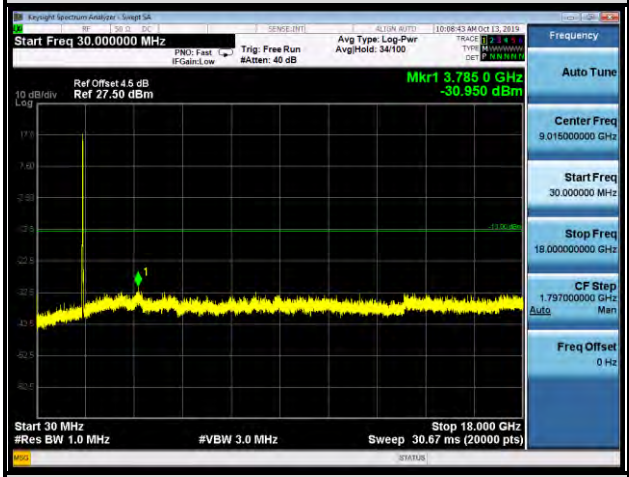
10MHz / QPSK	
CHANNEL 20000	CHANNEL 20175
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 20350	
FREQUENCY RANGE : 30MHz~18GHz	
	

15MHz / QPSK	
CHANNEL 20025	CHANNEL 20175
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 20325	
FREQUENCY RANGE : 30MHz~18GHz	
	

20MHz / QPSK

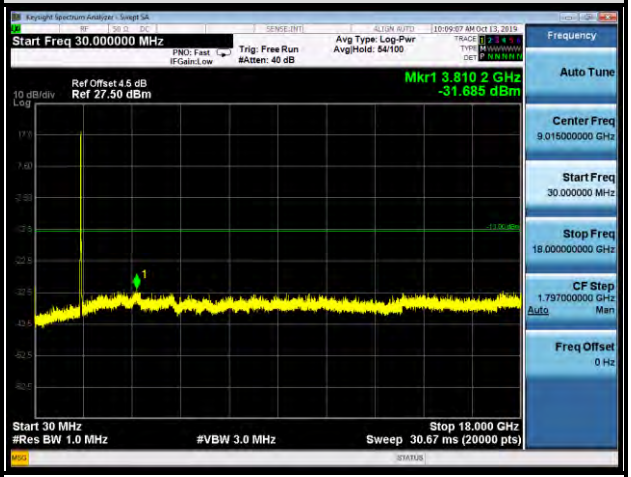
CHANNEL 20050

FREQUENCY RANGE : 30MHz~18GHz



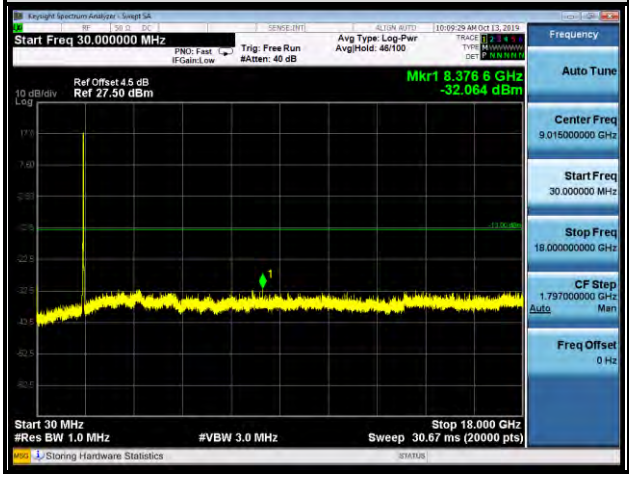
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20300

FREQUENCY RANGE : 30MHz~18GHz

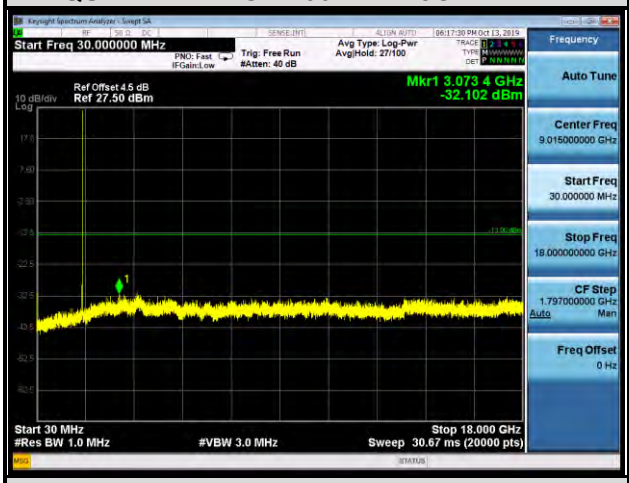


LTE BAND 66

1.4MHz / QPSK

CHANNEL 131979

FREQUENCY RANGE : 30MHz~18GHz

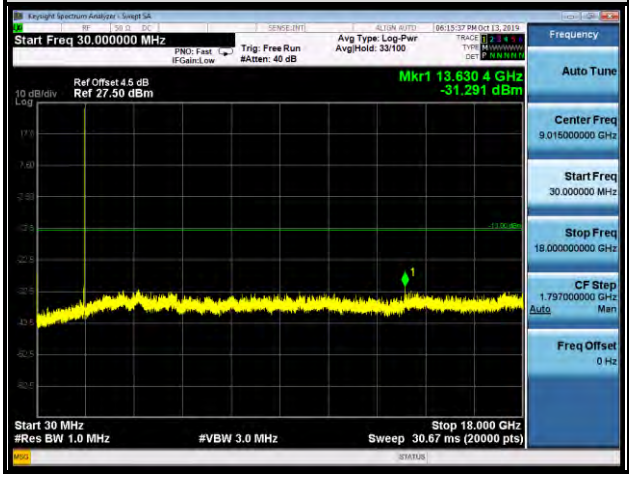


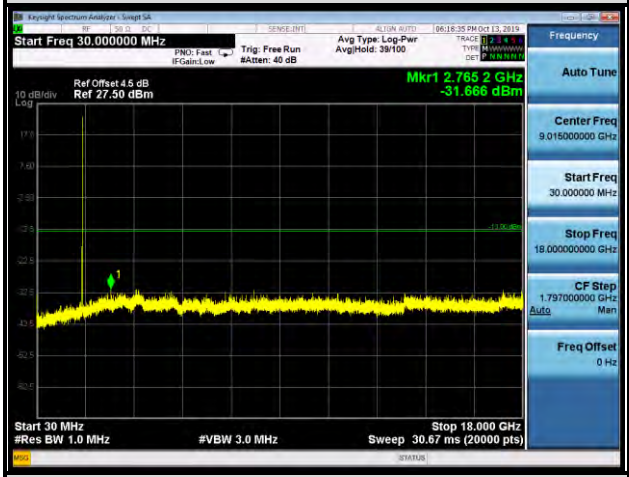
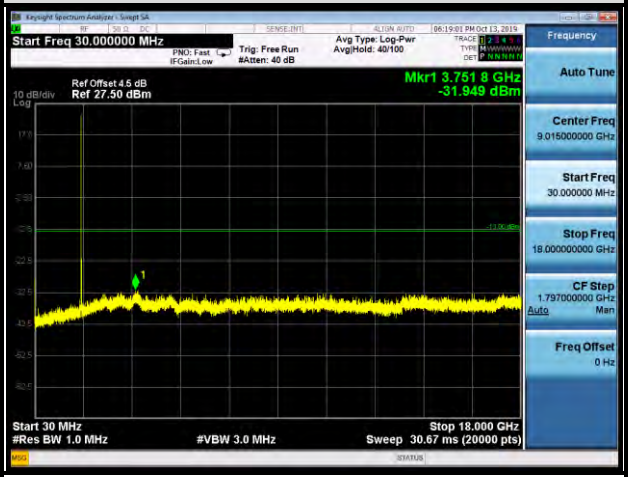
CHANNEL 132322

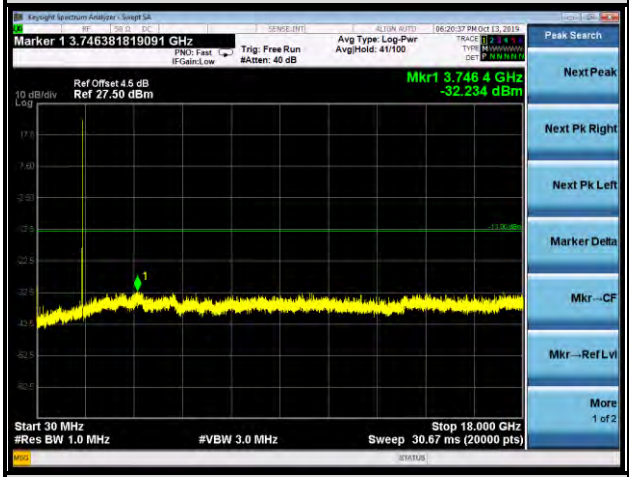
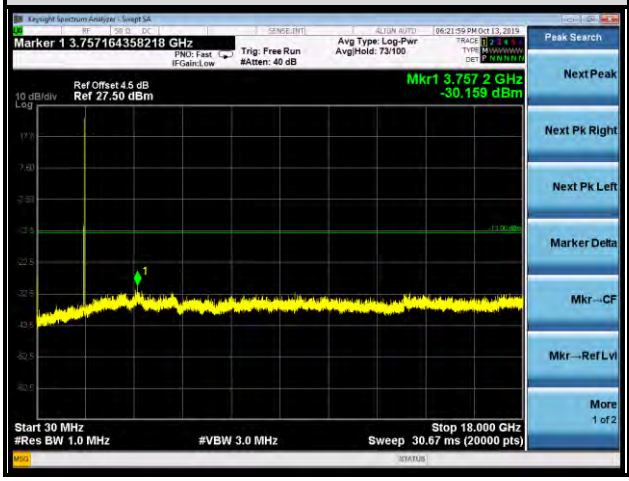
FREQUENCY RANGE : 30MHz~18GHz

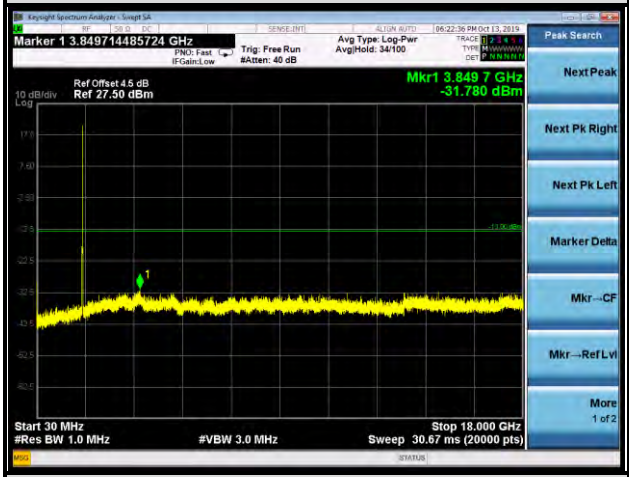
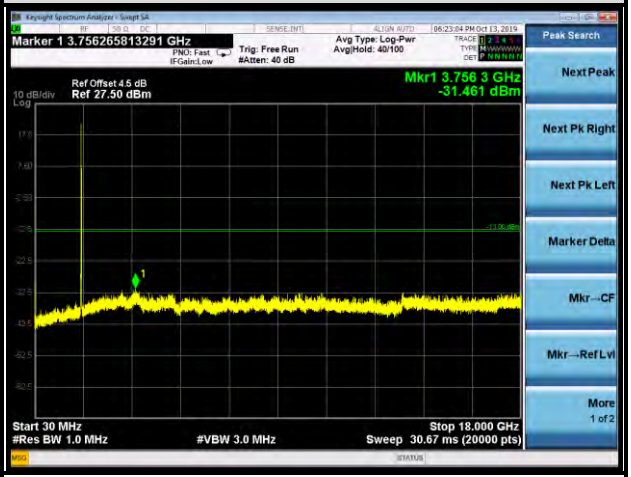
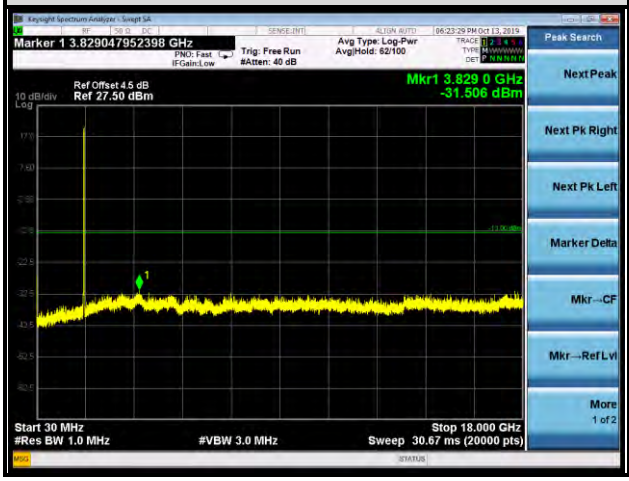
CHANNEL 132665

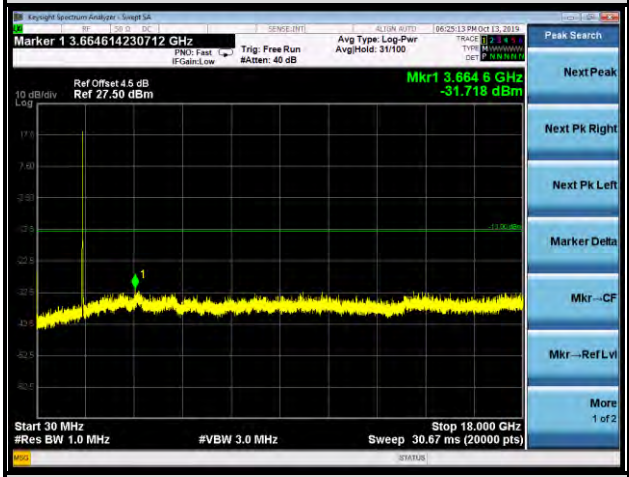
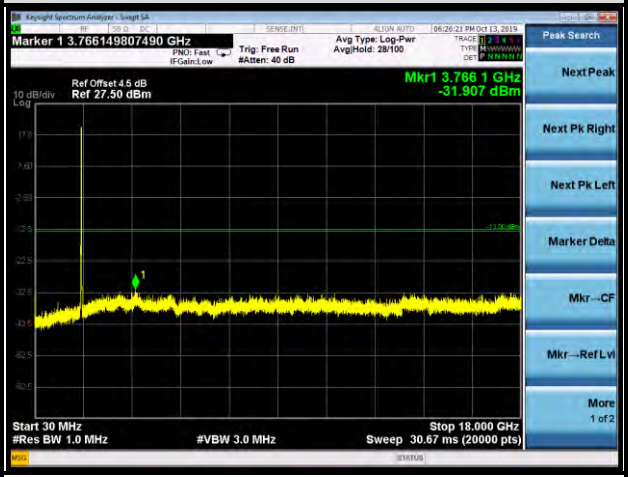
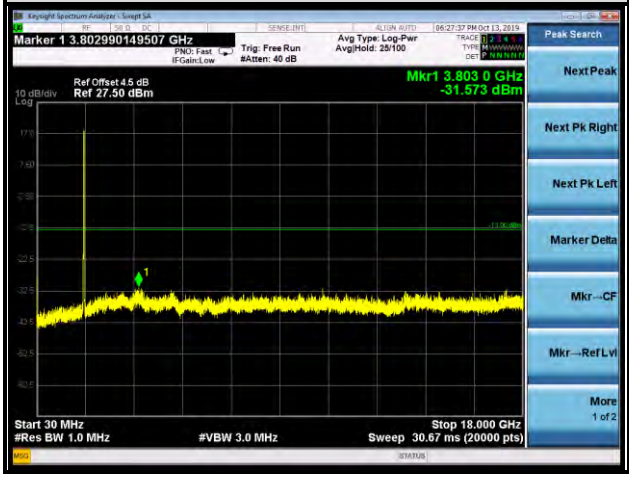
FREQUENCY RANGE : 30MHz~18GHz

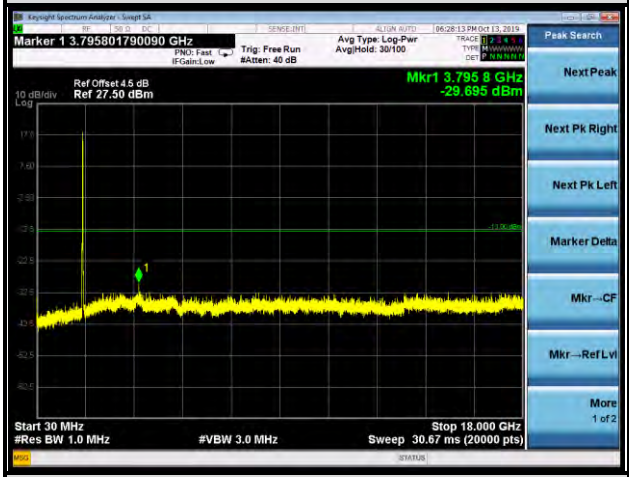
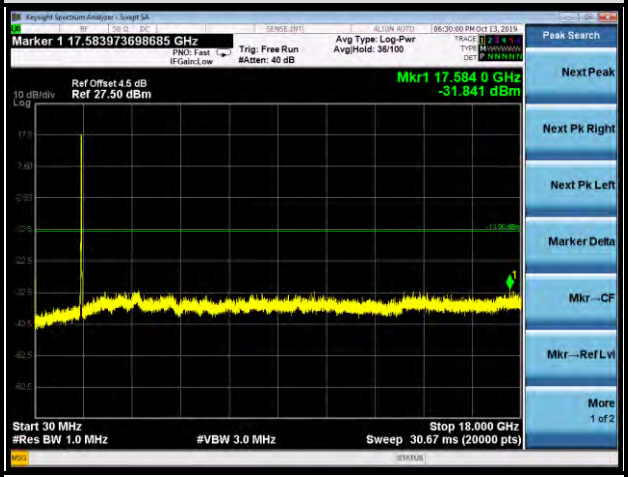
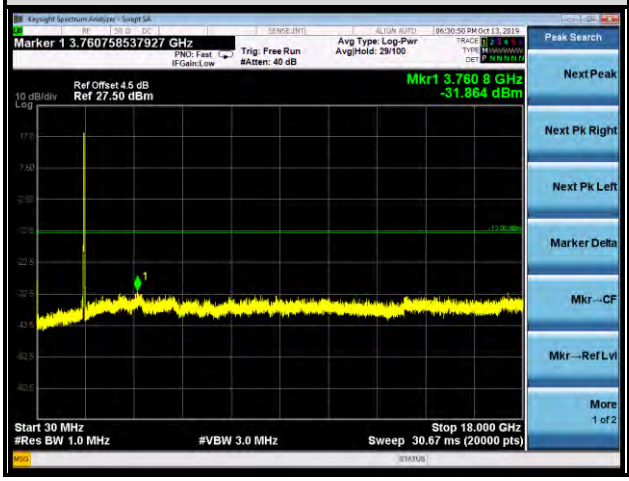


3MHz / QPSK	
CHANNEL 131987	CHANNEL 132322
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 132657	
FREQUENCY RANGE : 30MHz~18GHz	
	

5MHz / QPSK	
CHANNEL 131997	CHANNEL 132322
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 132647	
FREQUENCY RANGE : 30MHz~18GHz	
	

10MHz / QPSK	
CHANNEL 132022	CHANNEL 132322
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 132622	
FREQUENCY RANGE : 30MHz~18GHz	
	

15MHz / QPSK	
CHANNEL 132047	CHANNEL 132322
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 132597	
FREQUENCY RANGE : 30MHz~18GHz	
	

20MHz / QPSK	
CHANNEL 132072	CHANNEL 132322
FREQUENCY RANGE : 30MHz~18GHz	FREQUENCY RANGE : 30MHz~18GHz
	
CHANNEL 132572	
FREQUENCY RANGE : 30MHz~18GHz	
	

3.7 RADIATED EMISSION MEASUREMENT

3.7.1 LIMITS OF RADIATED EMISSION 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

3.7.2 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

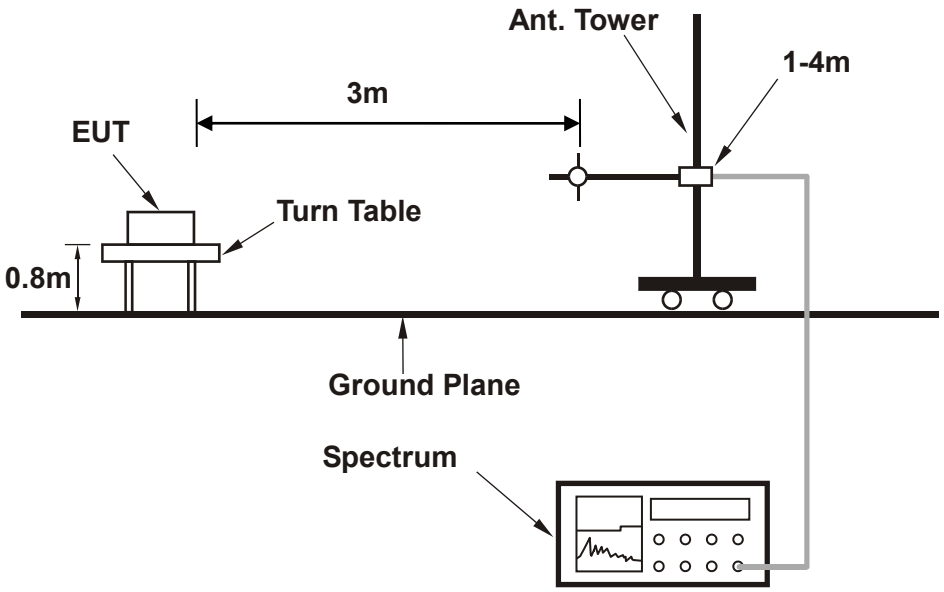
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.7.3 DEVIATION FROM TEST STANDARD

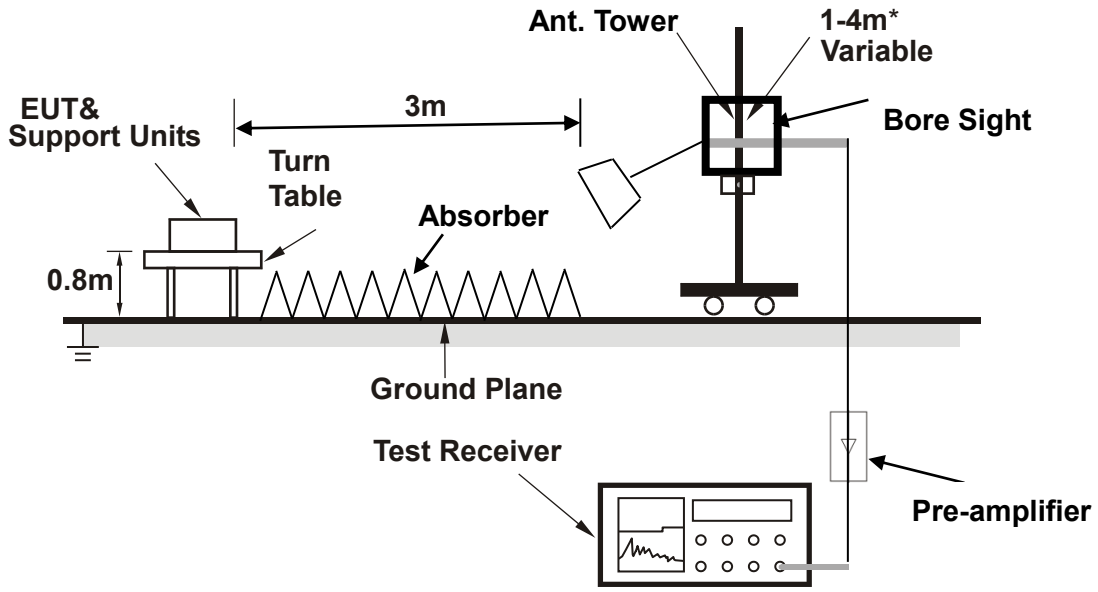
No deviation

3.7.4 TEST SETUP

< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.7.5 TEST RESULTS

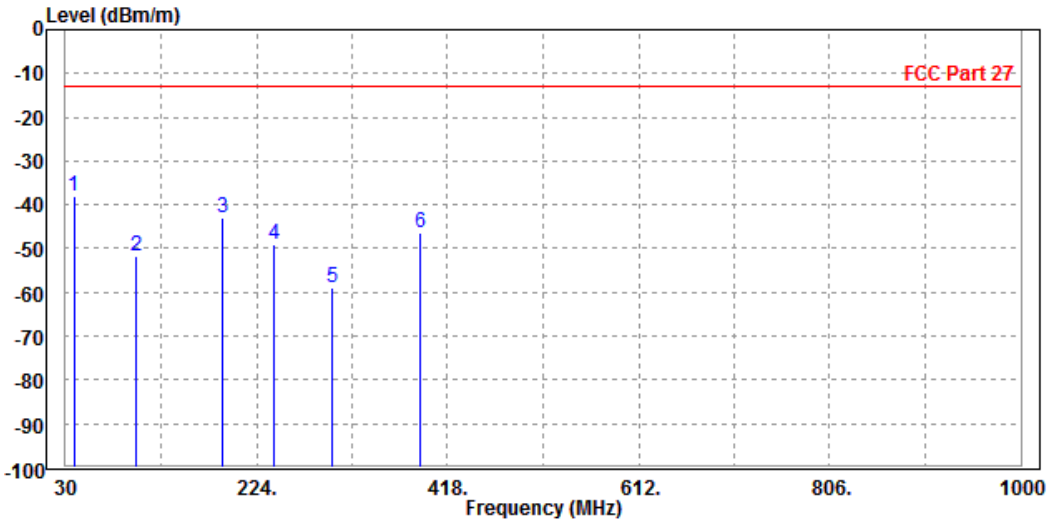
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

LTE BAND 4

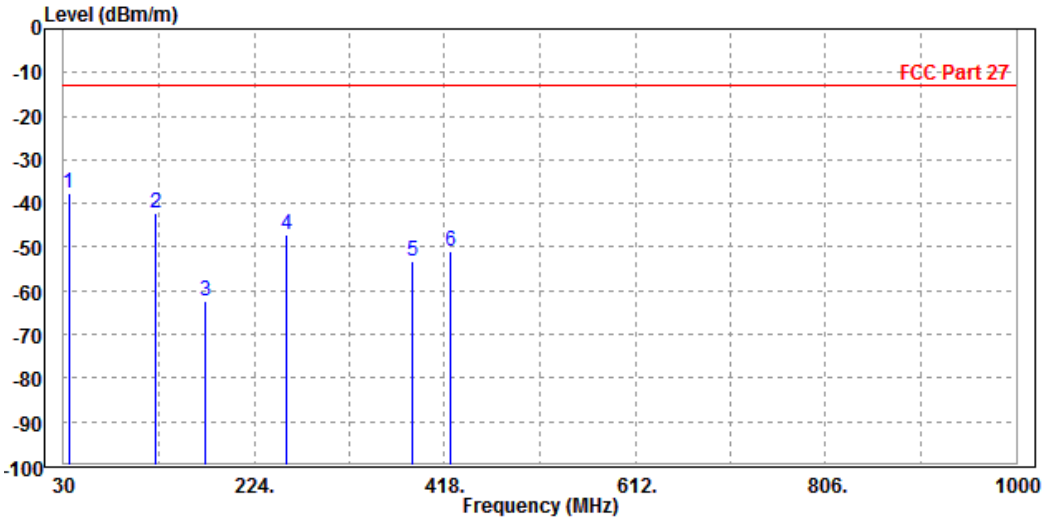
MODE	TX channel 20175	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 38.460	-37.94	-50.12	-13.00	-24.94	12.18	Peak	Horizontal
2	101.580	-51.83	-40.35	-13.00	-38.83	-11.48	Peak	Horizontal
3	189.210	-42.98	-25.46	-13.00	-29.98	-17.52	Peak	Horizontal
4	241.360	-49.02	-32.58	-13.00	-36.02	-16.44	Peak	Horizontal
5	301.260	-58.95	-45.18	-13.00	-45.95	-13.77	Peak	Horizontal
6	389.520	-46.45	-35.64	-13.00	-33.45	-10.81	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	35.120	-37.60	-36.28	-13.00	-24.60	-1.32	Peak	Vertical
2	123.310	-42.26	-29.67	-13.00	-29.26	-12.59	Peak	Vertical
3	174.560	-62.26	-48.52	-13.00	-49.26	-13.74	Peak	Vertical
4	256.310	-47.17	-35.68	-13.00	-34.17	-11.49	Peak	Vertical
5	385.240	-53.11	-42.12	-13.00	-40.11	-10.99	Peak	Vertical
6	423.650	-50.81	-40.75	-13.00	-37.81	-10.06	Peak	Vertical



ABOVE 1GHz

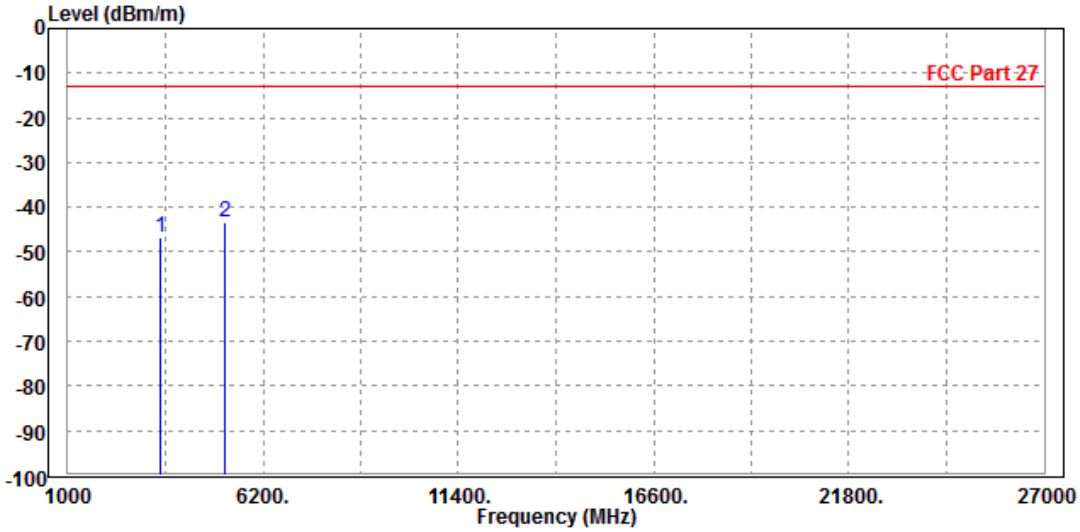
Note: For higher frequency, the emission is too low to be detected.

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

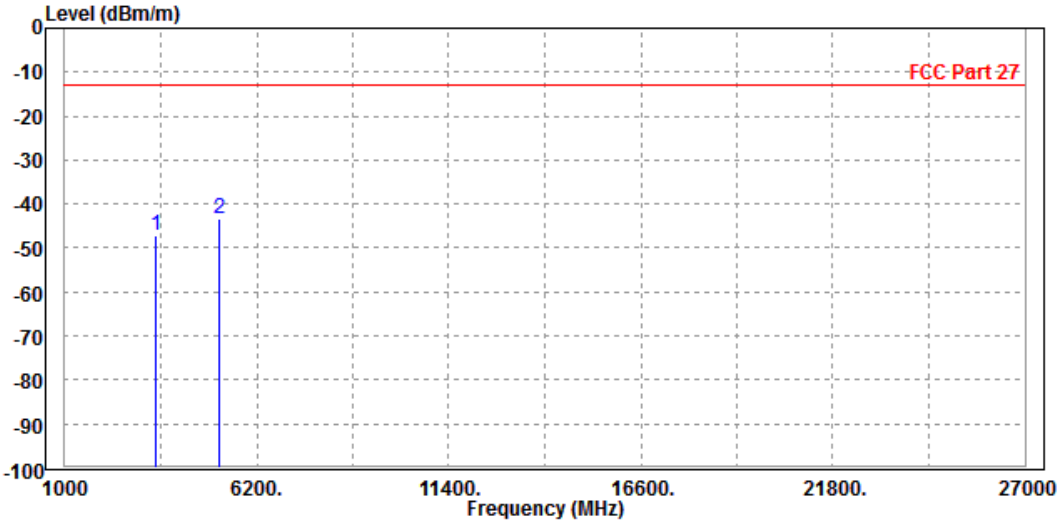
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-46.70	-55.28	-13.00	-33.70	8.58	Peak	Horizontal
2 PP	5197.500	-43.24	-52.36	-13.00	-30.24	9.12	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

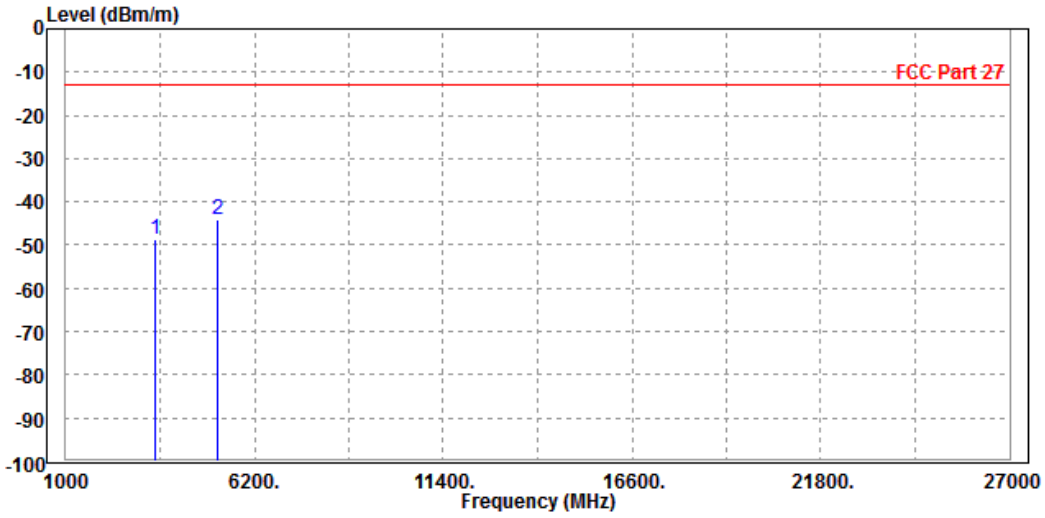
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-47.29	-56.45	-13.00	-34.29	9.16	Peak	Vertical
2 PP	5197.500	-43.39	-53.21	-13.00	-30.39	9.82	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK

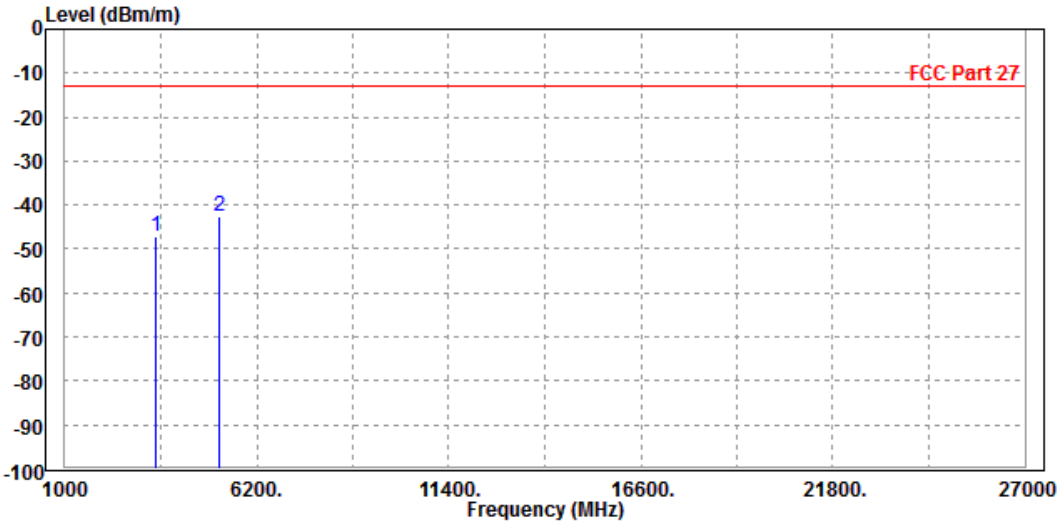
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-48.84	-57.42	-13.00	-35.84	8.58	Peak	Horizontal
2 PP	5197.500	-44.04	-53.16	-13.00	-31.04	9.12	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

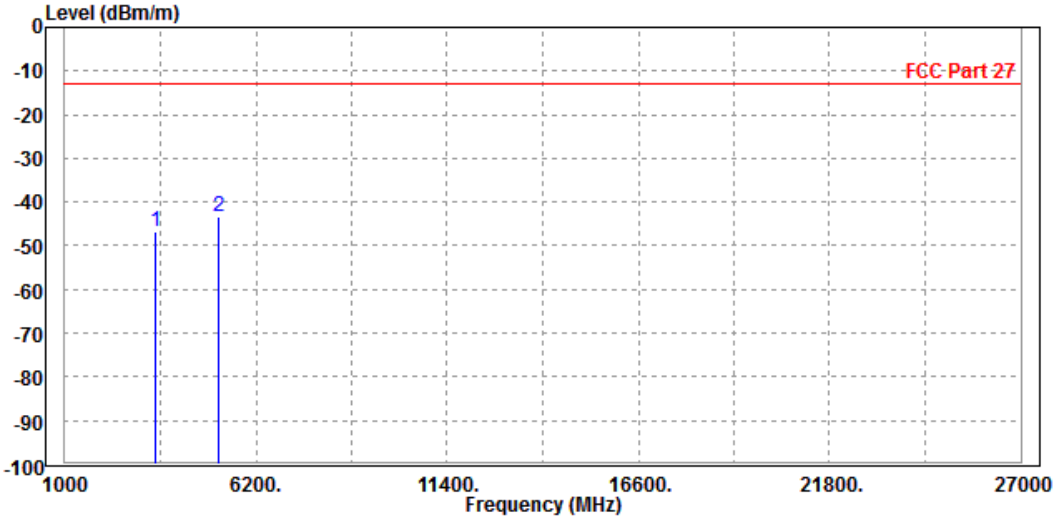
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-47.18	-56.34	-13.00	-34.18	9.16	Peak	Vertical
2 PP	5197.500	-42.66	-52.48	-13.00	-29.66	9.82	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

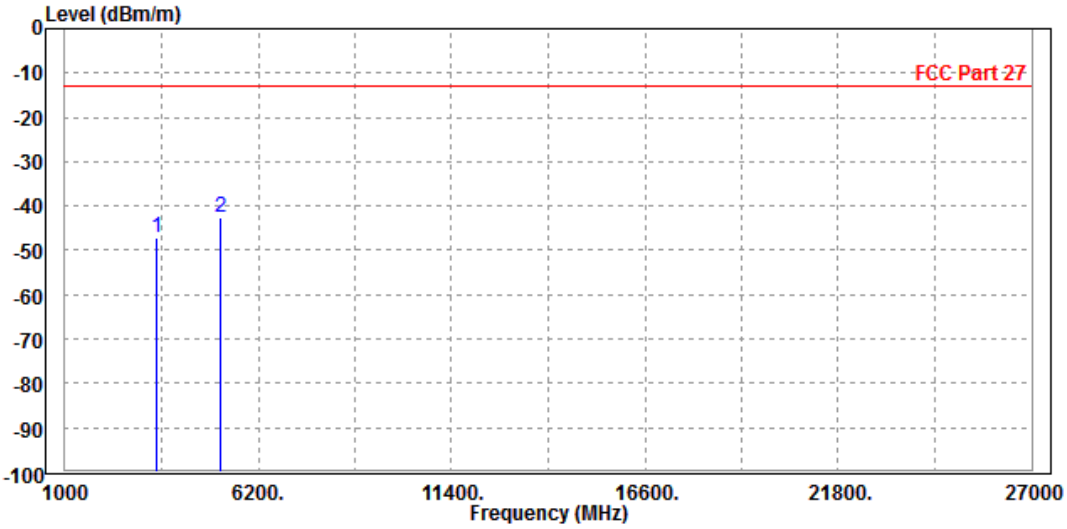
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-46.65	-55.23	-13.00	-33.65	8.58	Peak	Horizontal
2 PP	5197.500	-43.34	-52.46	-13.00	-30.34	9.12	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-46.97	-56.13	-13.00	-33.97	9.16	Peak	Vertical
2 PP	5197.500	-42.59	-52.41	-13.00	-29.59	9.82	Peak	Vertical

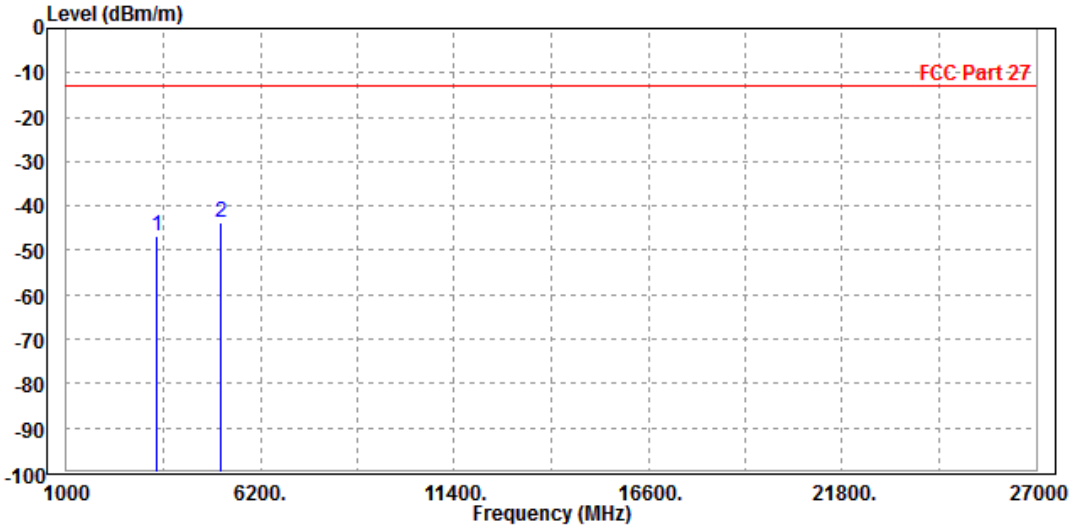


CHANNEL BANDWIDTH: 10MHz / QPSK

CH 20000

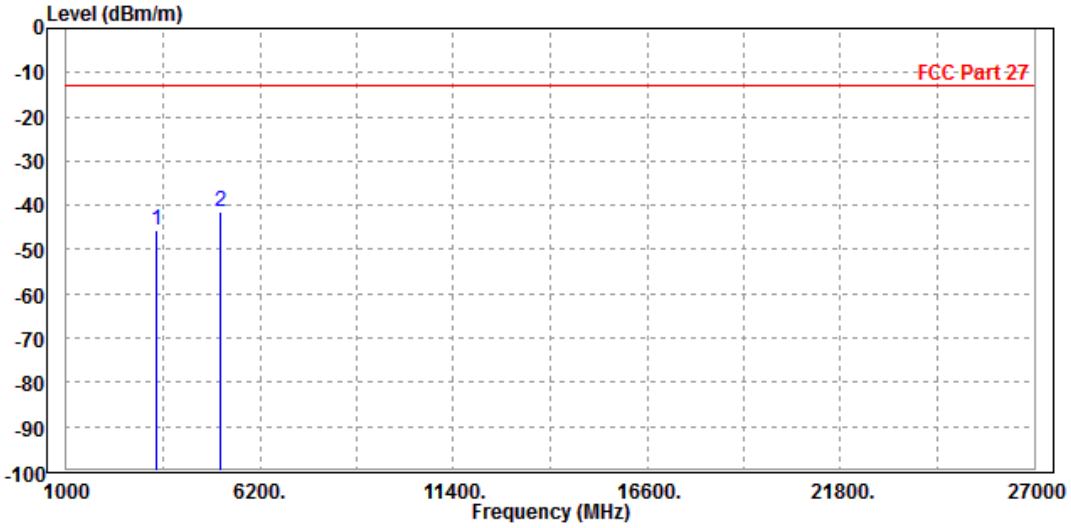
MODE	TX channel 20000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3418.000	-46.58	-55.17	-13.00	-33.58	8.59	Peak	Horizontal
2 PP	5145.000	-43.90	-52.86	-13.00	-30.90	8.96	Peak	Horizontal



MODE	TX channel 20000	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

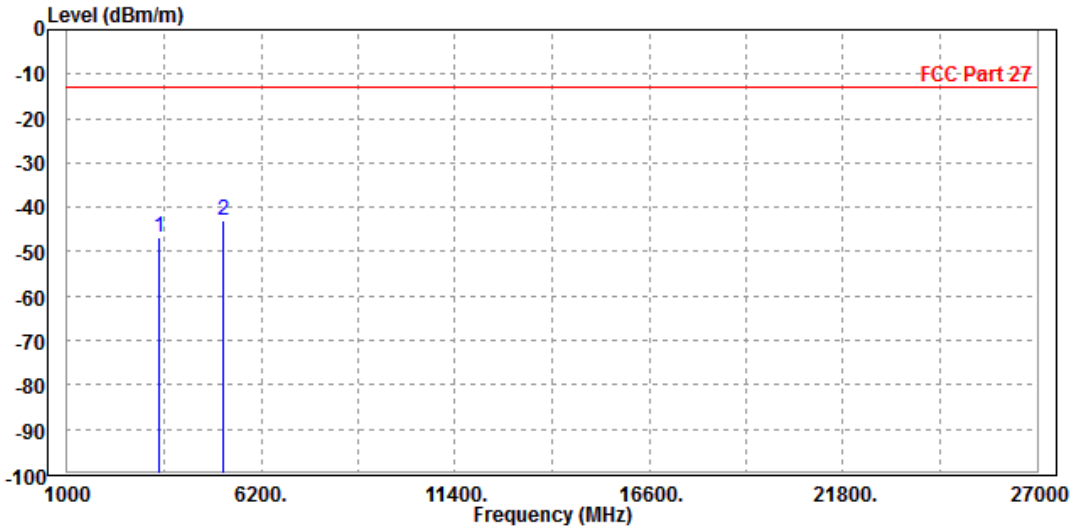
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3418.000	-45.56	-54.67	-13.00	-32.56	9.11	Peak	Vertical
2 PP	5145.000	-41.37	-51.21	-13.00	-28.37	9.84	Peak	Vertical



CH 20175

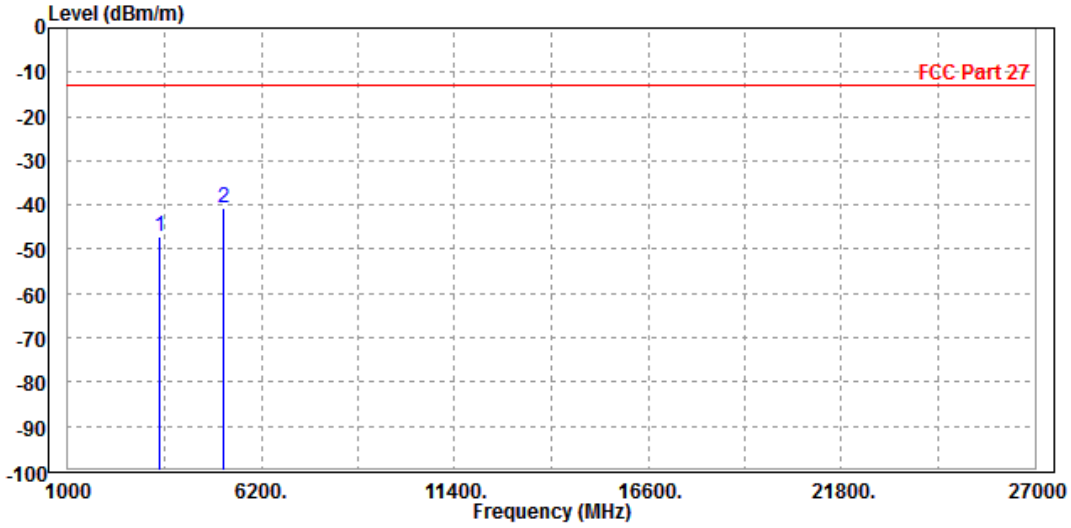
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-46.78	-55.36	-13.00	-33.78	8.58	Peak	Horizontal
2 PP	5197.500	-43.00	-52.12	-13.00	-30.00	9.12	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

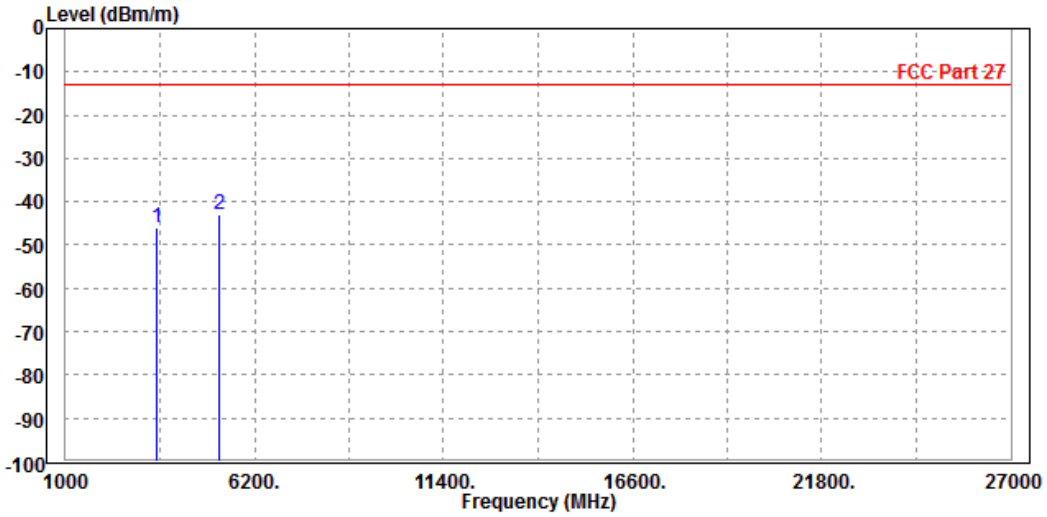
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-47.29	-56.45	-13.00	-34.29	9.16	Peak	Vertical
2 PP	5197.500	-40.52	-50.34	-13.00	-27.52	9.82	Peak	Vertical



CH 20350

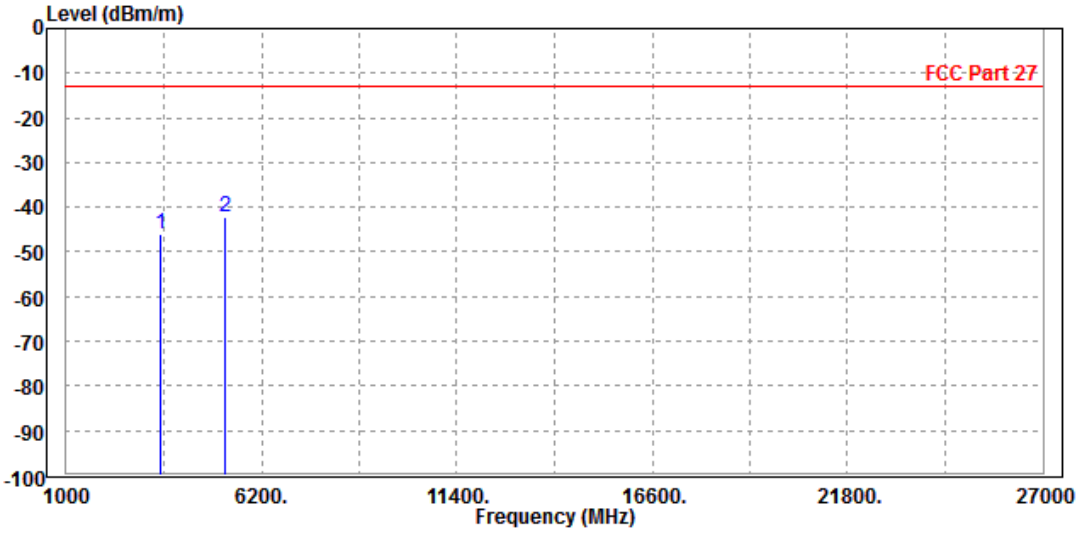
MODE	TX channel 20350	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3496.000	-46.12	-54.69	-13.00	-33.12	8.57	Peak	Horizontal
2 PP	5250.000	-43.09	-52.36	-13.00	-30.09	9.27	Peak	Horizontal



MODE	TX channel 20350	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

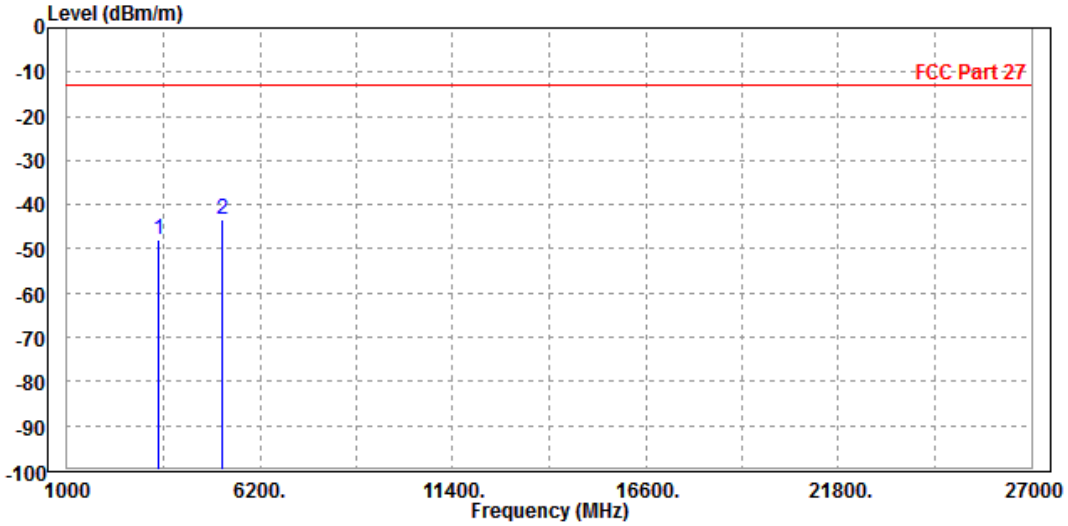
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3496.000	-46.13	-55.32	-13.00	-33.13	9.19	Peak	Vertical
2 PP	5250.000	-42.09	-51.89	-13.00	-29.09	9.80	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

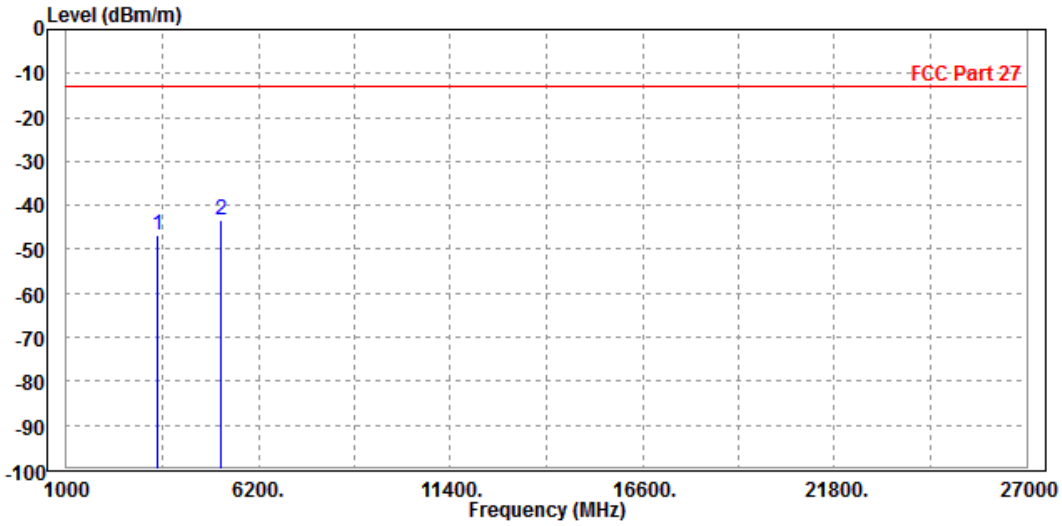
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-47.79	-56.37	-13.00	-34.79	8.58	Peak	Horizontal
2 PP	5197.500	-43.33	-52.45	-13.00	-30.33	9.12	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

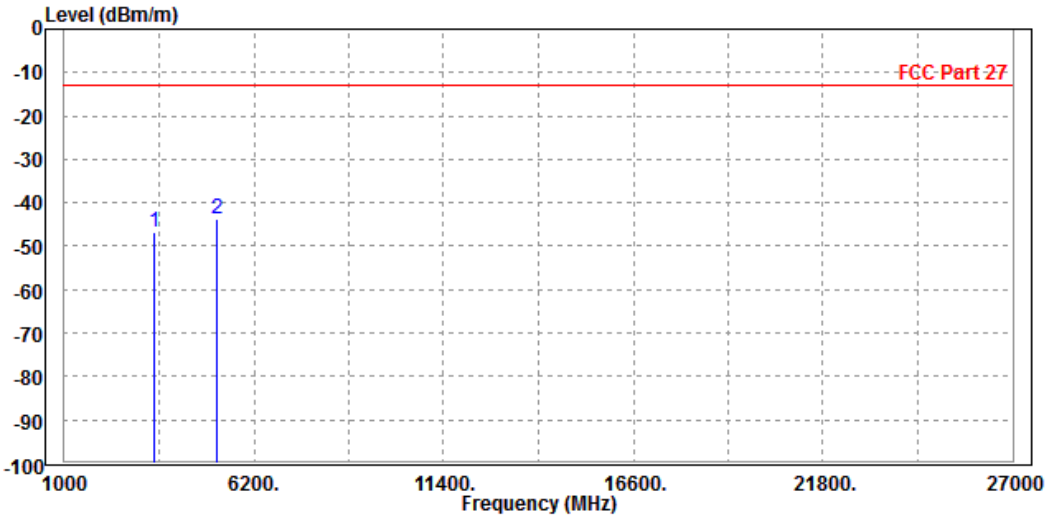
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-46.62	-55.78	-13.00	-33.62	9.16	Peak	Vertical
2 PP	5197.500	-43.30	-53.12	-13.00	-30.30	9.82	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

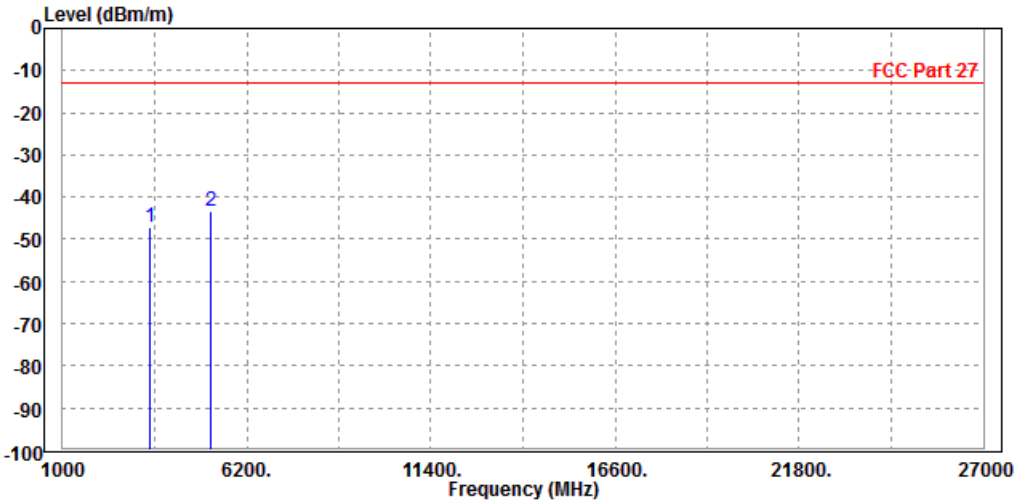
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-46.84	-55.42	-13.00	-33.84	8.58	Peak	Horizontal
2 PP	5197.500	-43.73	-52.85	-13.00	-30.73	9.12	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-47.18	-56.34	-13.00	-34.18	9.16	Peak	Vertical
2 PP	5197.500	-43.47	-53.29	-13.00	-30.47	9.82	Peak	Vertical



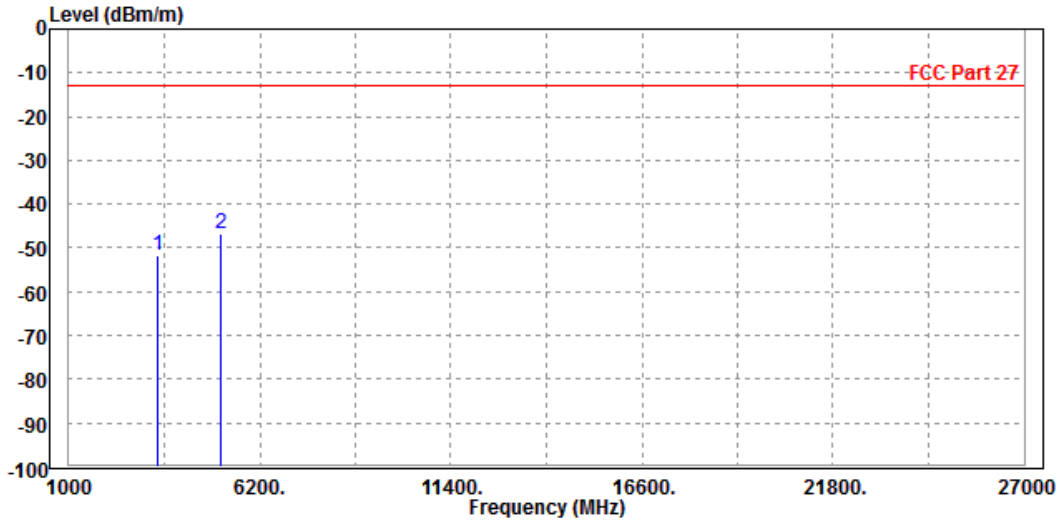
LTE BAND 66

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH 131979

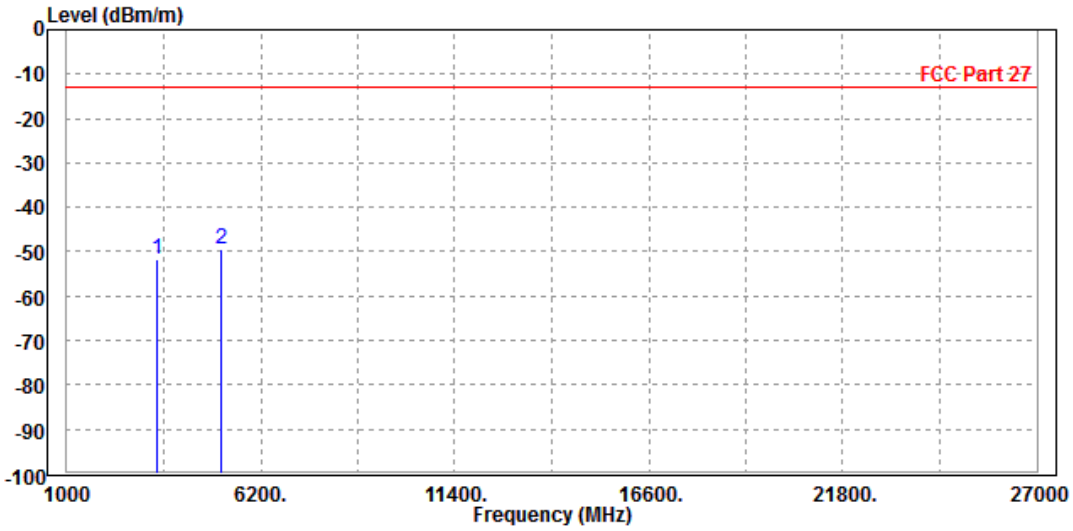
MODE	TX channel 131979	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3421.400	-51.77	-53.63	-13.00	-38.77	1.86	Peak	Horizontal
2 PP	5132.100	-46.82	-55.35	-13.00	-33.82	8.53	Peak	Horizontal



MODE	TX channel 131979	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

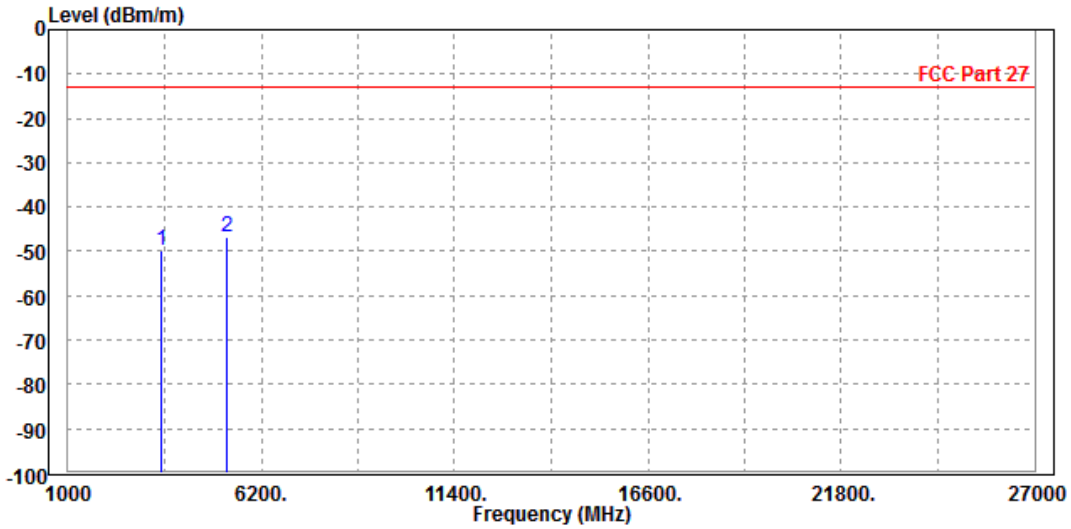
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3421.400	-51.74	-54.21	-13.00	-38.74	2.47	Peak	Vertical
2 PP	5132.100	-49.37	-57.36	-13.00	-36.37	7.99	Peak	Vertical



CH 132322

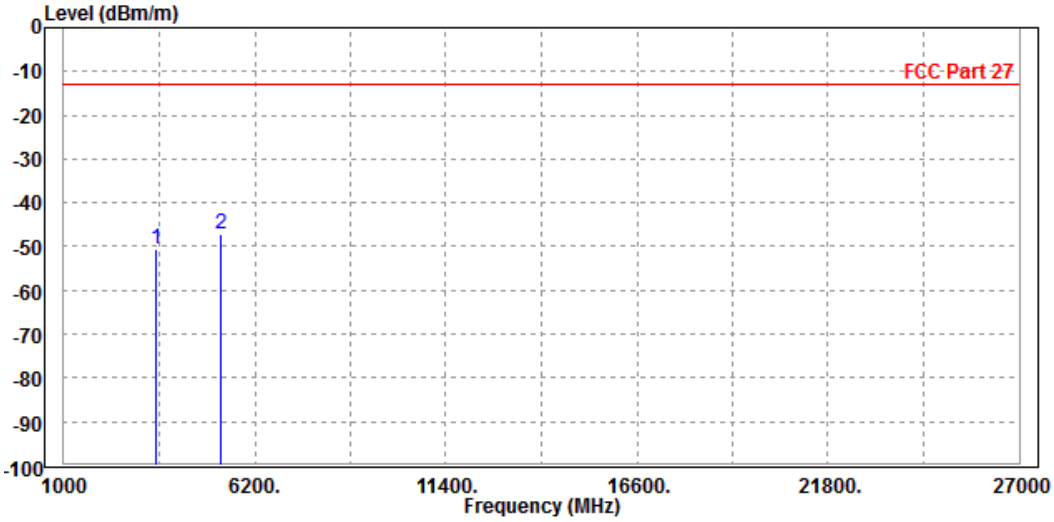
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-49.91	-52.18	-13.00	-36.91	2.27	Peak	Horizontal
2 PP	5265.000	-46.86	-55.55	-13.00	-33.86	8.69	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

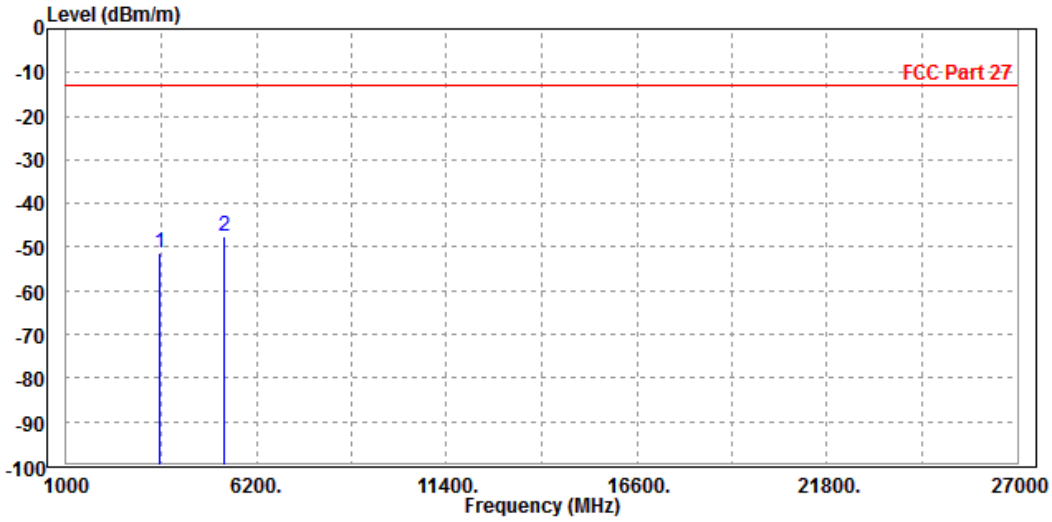
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-50.61	-53.29	-13.00	-37.61	2.68	Peak	Vertical
2 PP	5265.000	-47.33	-55.31	-13.00	-34.33	7.98	Peak	Vertical



CH 132665

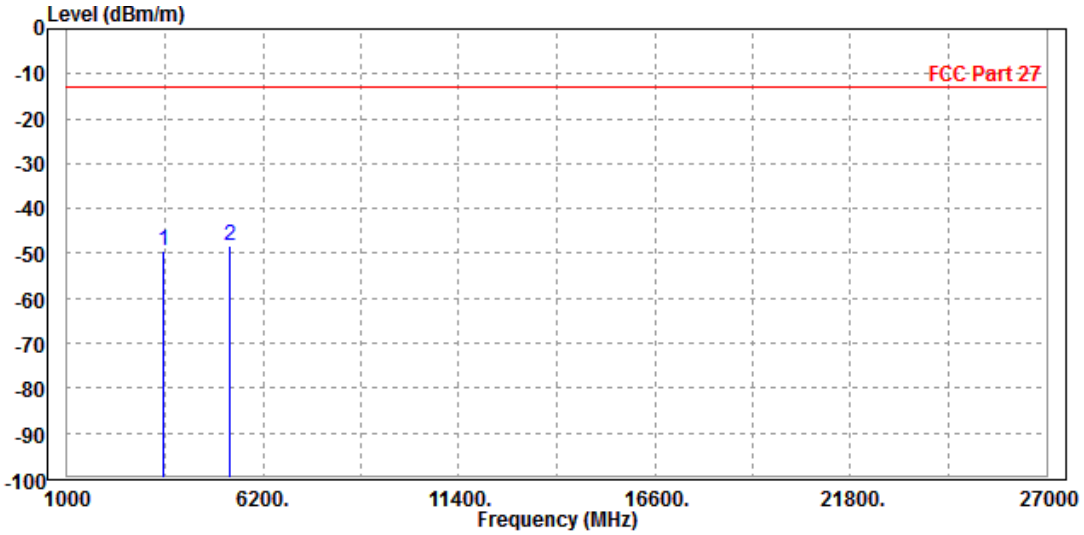
MODE	TX channel 132665	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1		3558.600	-51.25	-53.69	-13.00	-38.25	2.44	Peak	Horizontal
2	PP	5337.900	-47.65	-56.42	-13.00	-34.65	8.77	Peak	Horizontal



MODE	TX channel 132665	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

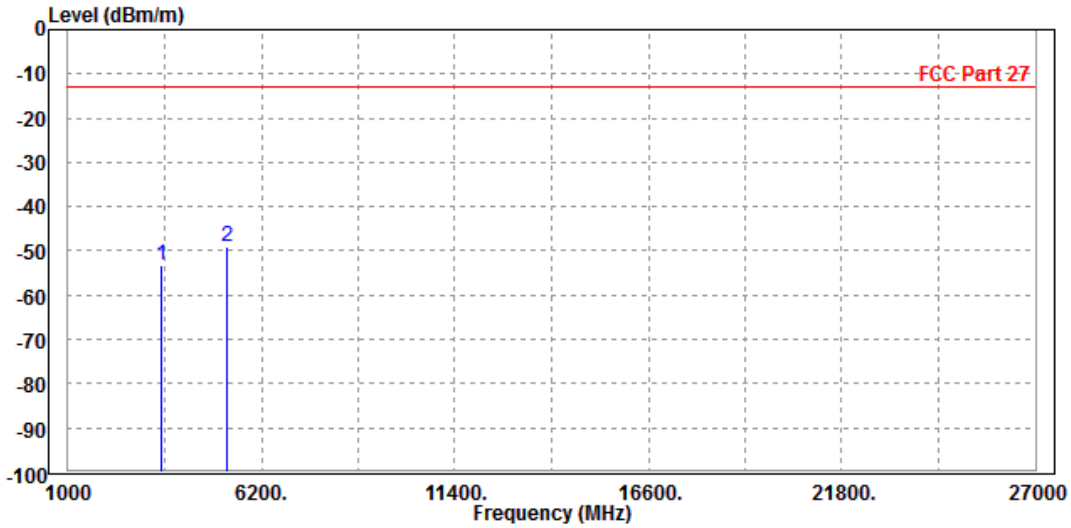
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3558.600	-49.48	-52.34	-13.00	-36.48	2.86	Peak	Vertical
2 PP	5337.900	-48.30	-56.28	-13.00	-35.30	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK

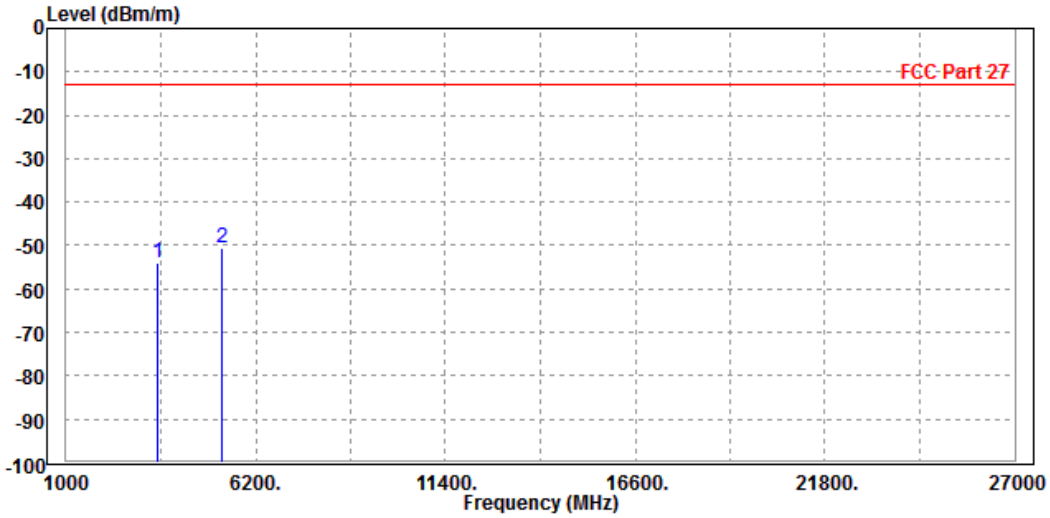
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.40	-55.67	-13.00	-40.40	2.27	Peak	Horizontal
2 PP	5265.000	-49.22	-57.91	-13.00	-36.22	8.69	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

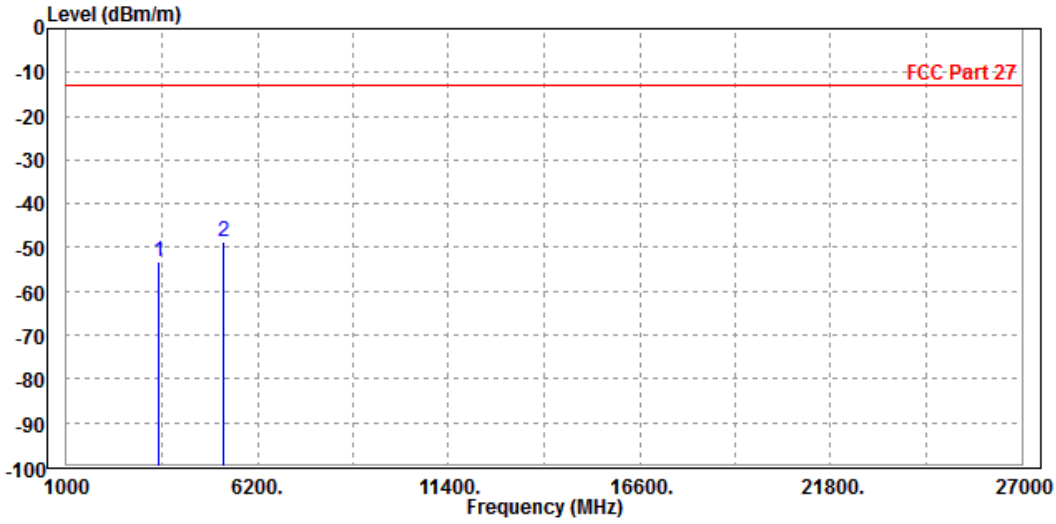
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.85	-56.53	-13.00	-40.85	2.68	Peak	Vertical
2 PP	5265.000	-50.74	-58.72	-13.00	-37.74	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

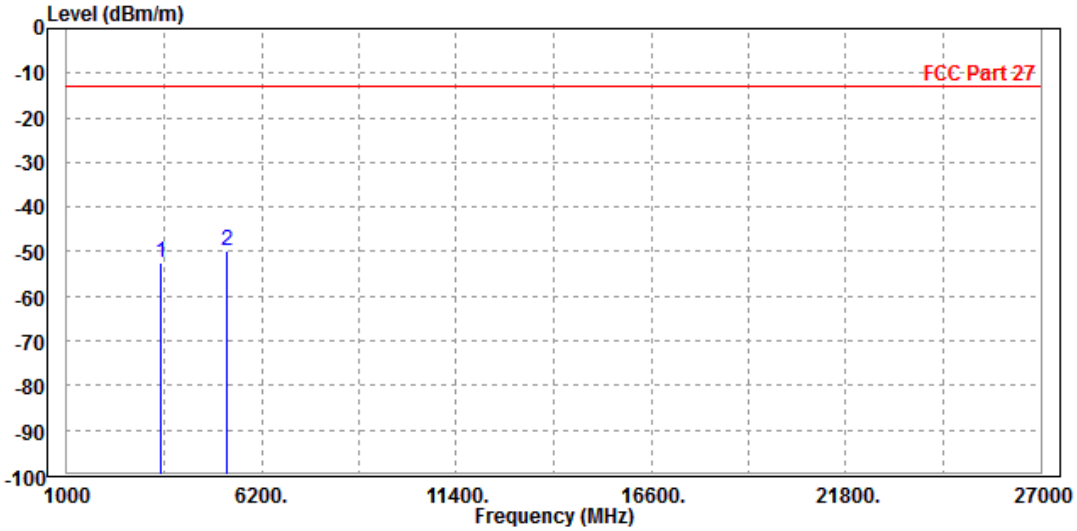
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.11	-55.38	-13.00	-40.11	2.27	Peak	Horizontal
2 PP	5265.000	-48.56	-57.25	-13.00	-35.56	8.69	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

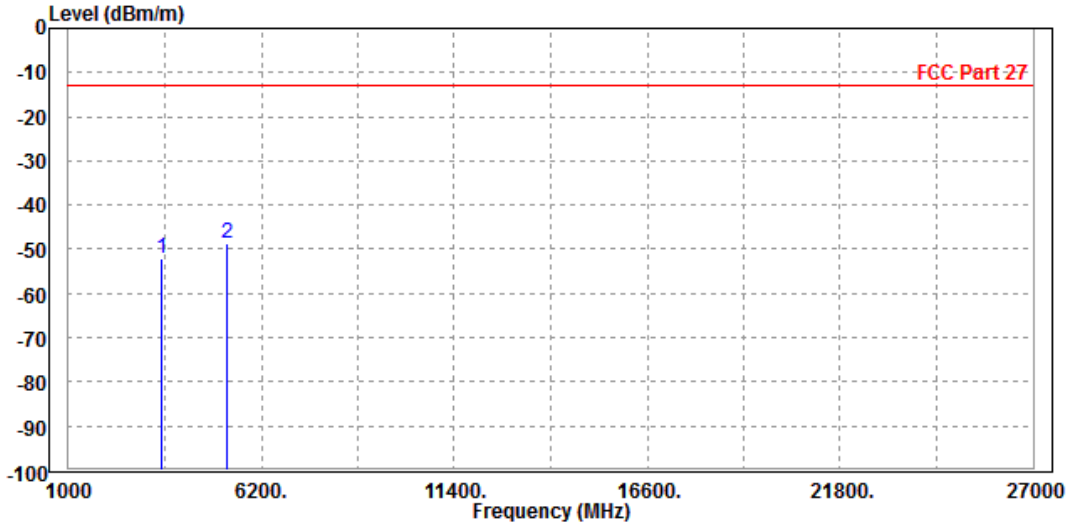
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-52.55	-55.23	-13.00	-39.55	2.68	Peak	Vertical
2 PP	5265.000	-49.70	-57.68	-13.00	-36.70	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

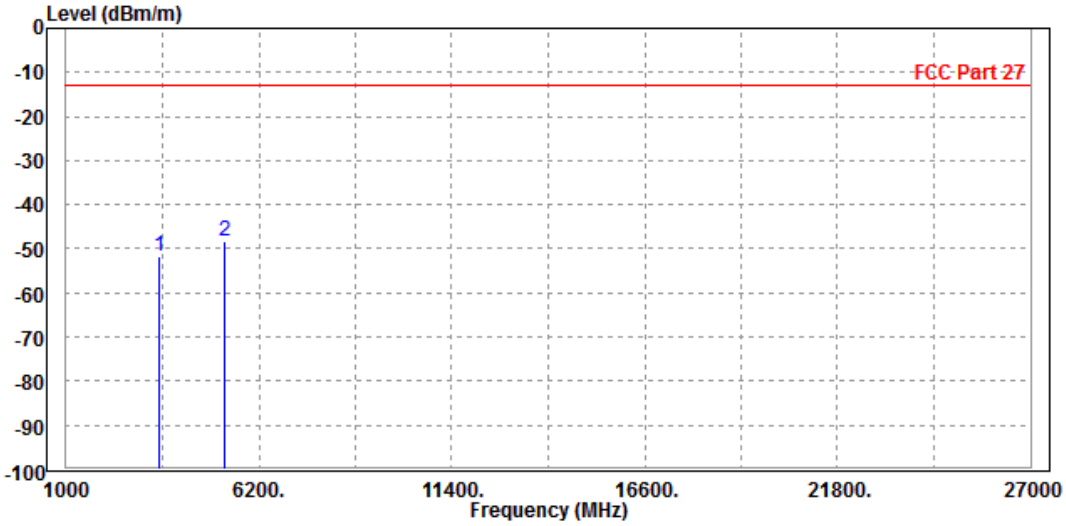
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-52.01	-54.28	-13.00	-39.01	2.27	Peak	Horizontal
2 PP	5265.000	-48.72	-57.41	-13.00	-35.72	8.69	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

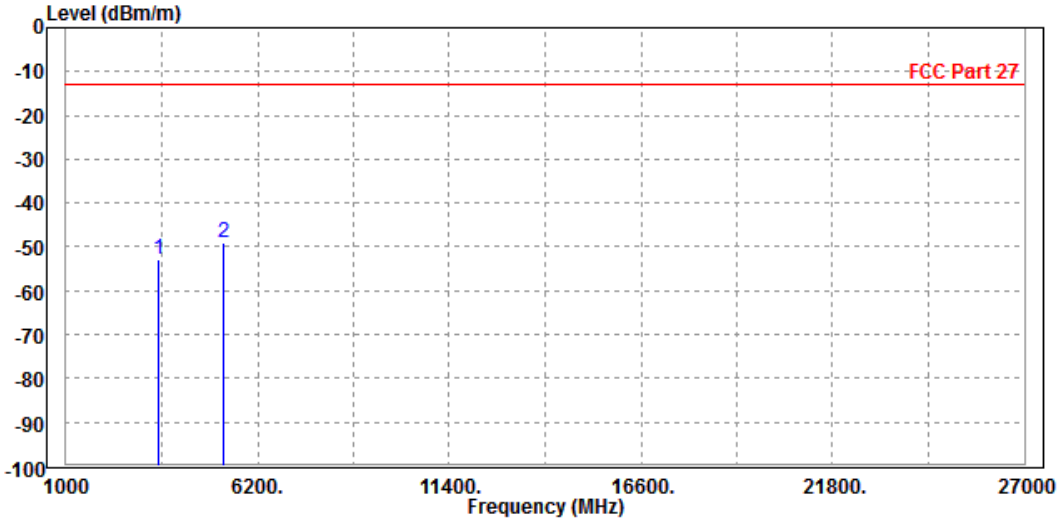
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-51.68	-54.36	-13.00	-38.68	2.68	Peak	Vertical
2 PP	5265.000	-48.23	-56.21	-13.00	-35.23	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

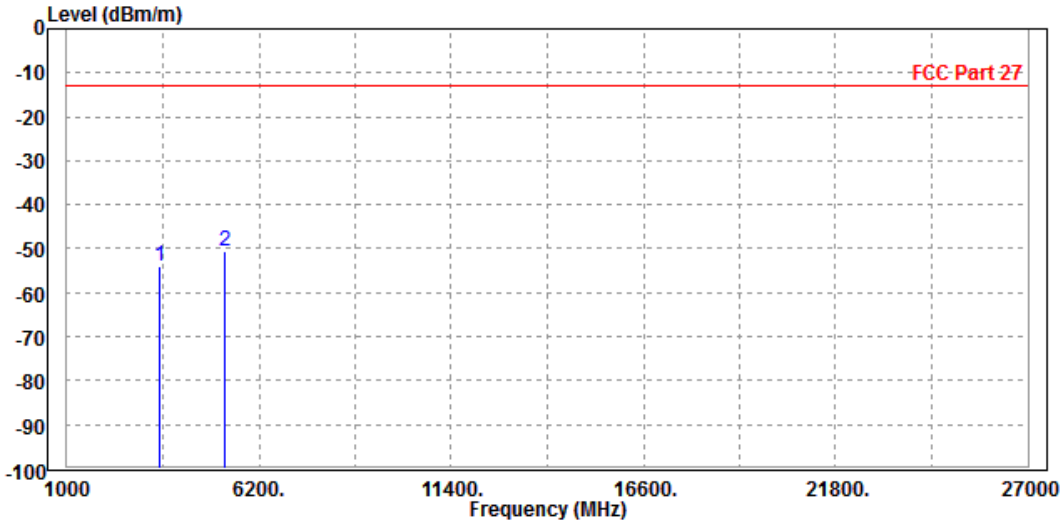
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.00	-55.27	-13.00	-40.00	2.27	Peak	Horizontal
2 PP	5265.000	-49.20	-57.89	-13.00	-36.20	8.69	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

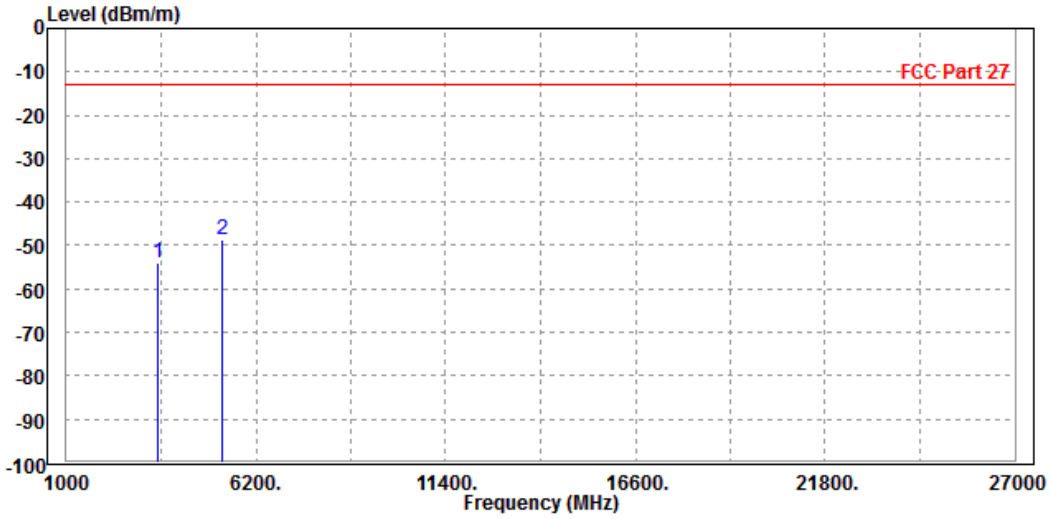
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.94	-56.62	-13.00	-40.94	2.68	Peak	Vertical
2 PP	5265.000	-50.73	-58.71	-13.00	-37.73	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

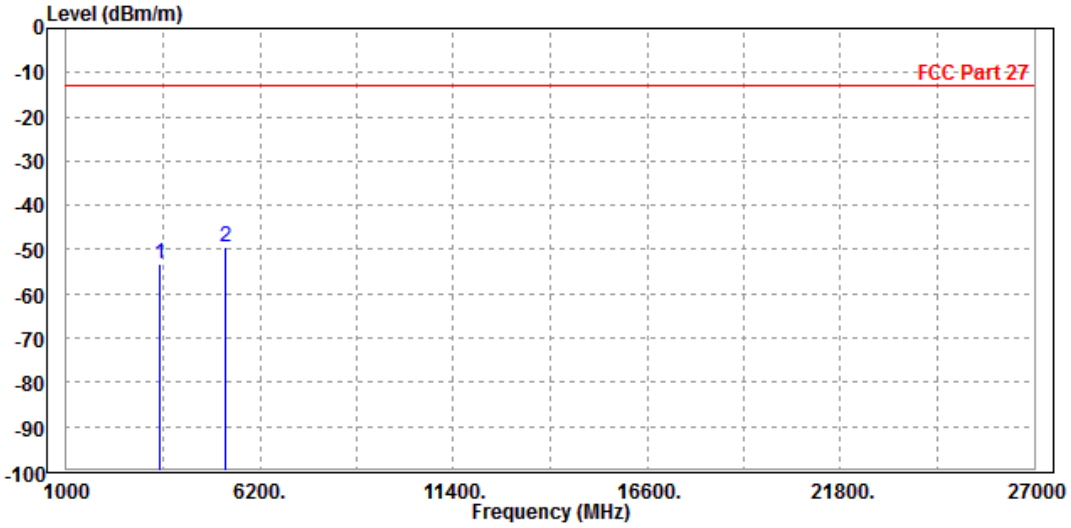
MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.99	-56.26	-13.00	-40.99	2.27	Peak	Horizontal
2 PP	5265.000	-48.79	-57.48	-13.00	-35.79	8.69	Peak	Horizontal



MODE	TX channel 132322	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3522.000	-53.14	-55.82	-13.00	-40.14	2.68	Peak	Vertical
2 PP	5265.000	-49.47	-57.45	-13.00	-36.47	7.98	Peak	Vertical



4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

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