

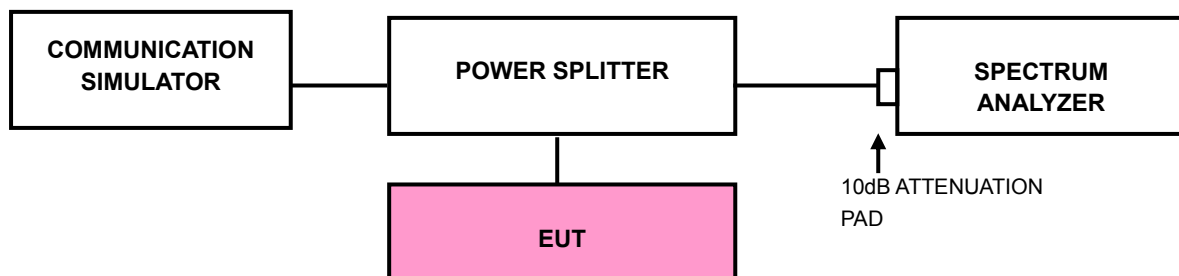
3.5 BAND EDGE MEASUREMENT

3.5.1 LIMITS OF BAND EDGE MEASUREMENT

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

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

3.5.2 TEST SETUP



3.5.3 TEST PROCEDURES

- a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 15MHz)
- h. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 20MHz)
- i. Record the max trace plot into the test report.



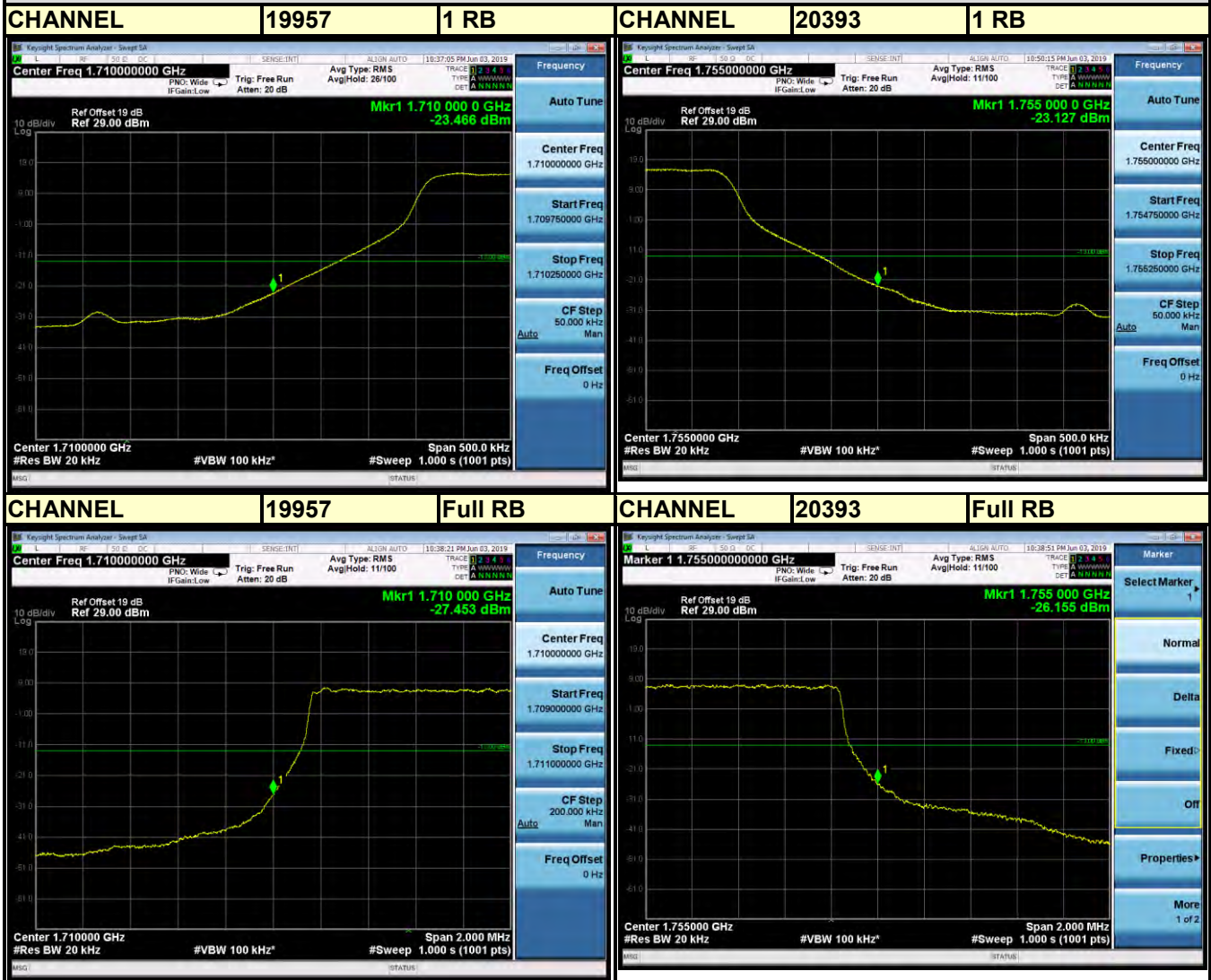
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VERITAS

Test Report No.: RF190517W003-5

3.5.4 TEST RESULTS

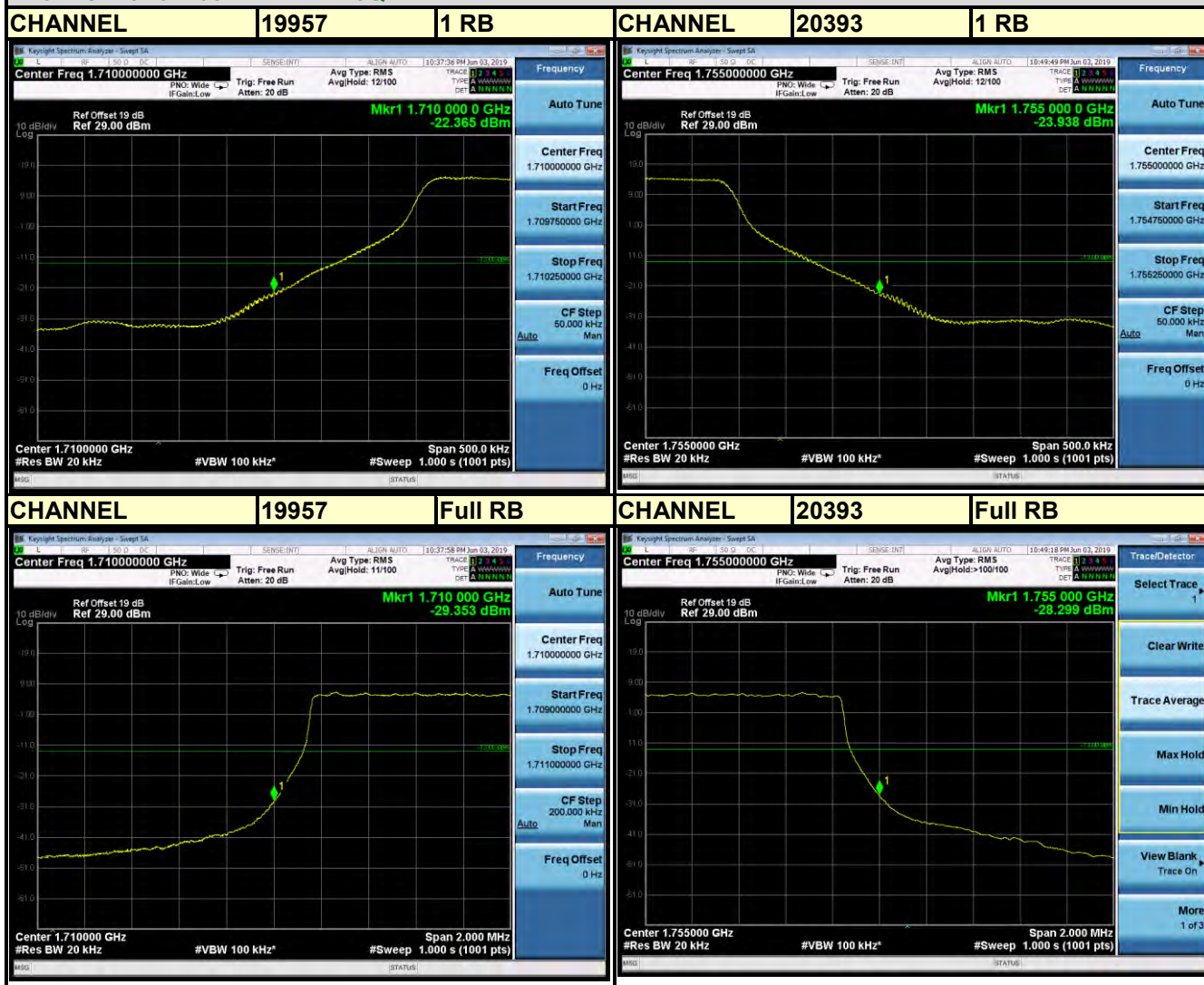
LTE BAND 4

Channel Bandwidth: 1.4MHz QPSK





Channel Bandwidth: 1.4MHz 16QAM

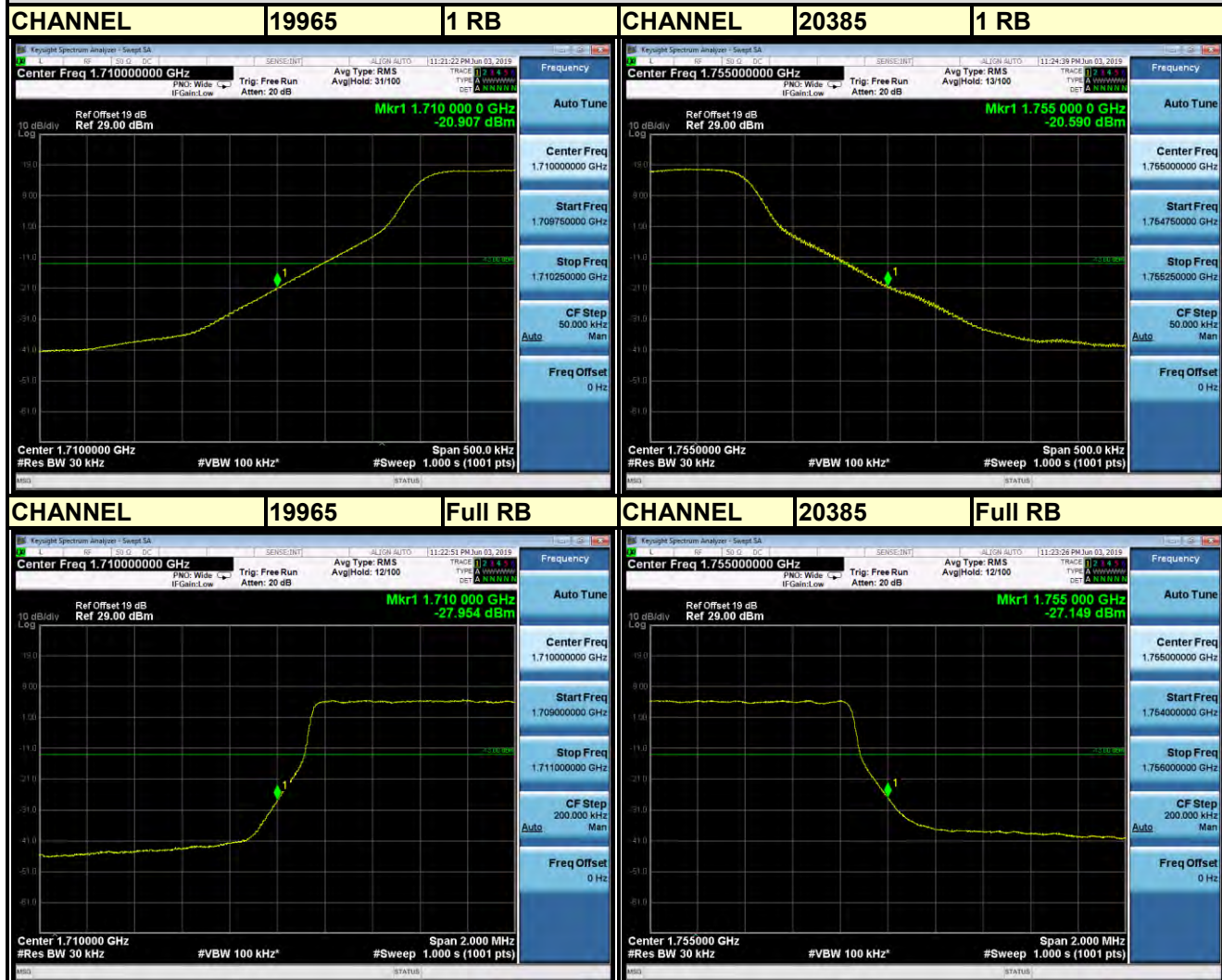




Test Report No.: RF190517W003-5

LTE BAND 4

Channel Bandwidth: 3MHz QPSK

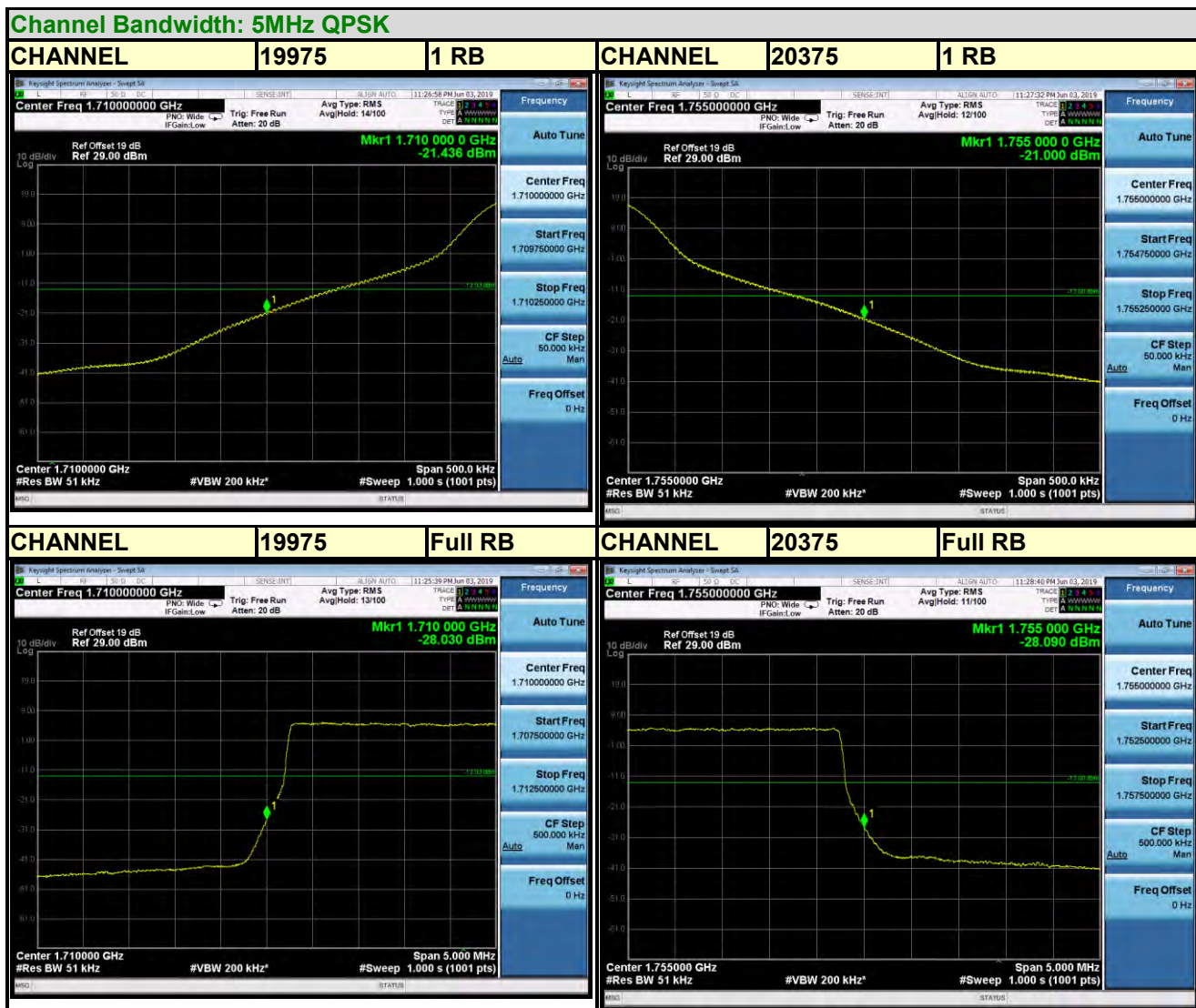




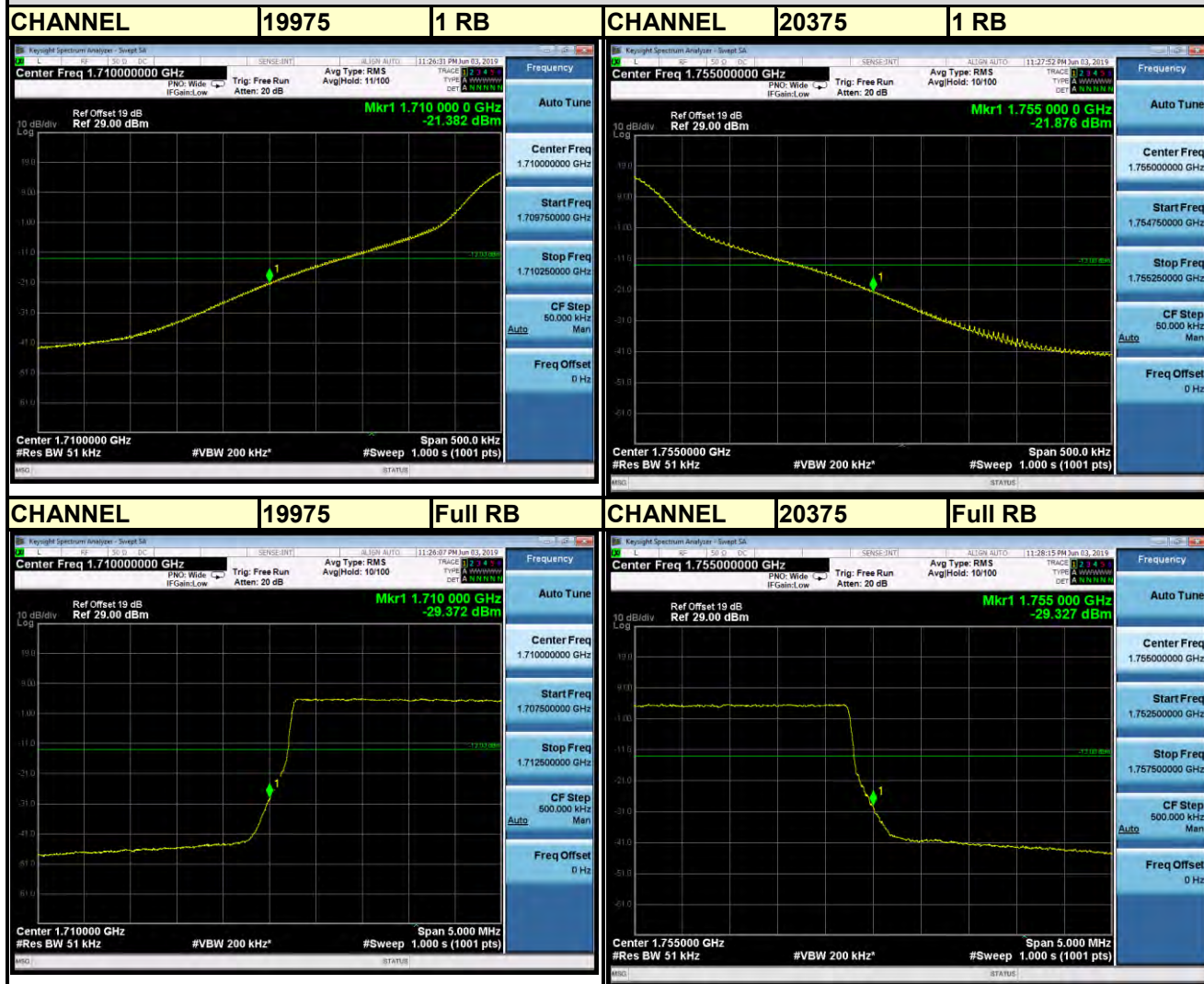
No.B102, Dazu Chuangxin Mansion, North of
Beihuan Avenue, North Area, Hi-Tech Industrial Park,
Nanshan District, Shenzhen, Guangdong, China

Tel: +86 755 8869 6566
Fax: +86 755 8869 6577
Email: customerservice_dg@cn.bureauveritas.com

LTE BAND 4



Channel Bandwidth: 5MHz 16QAM

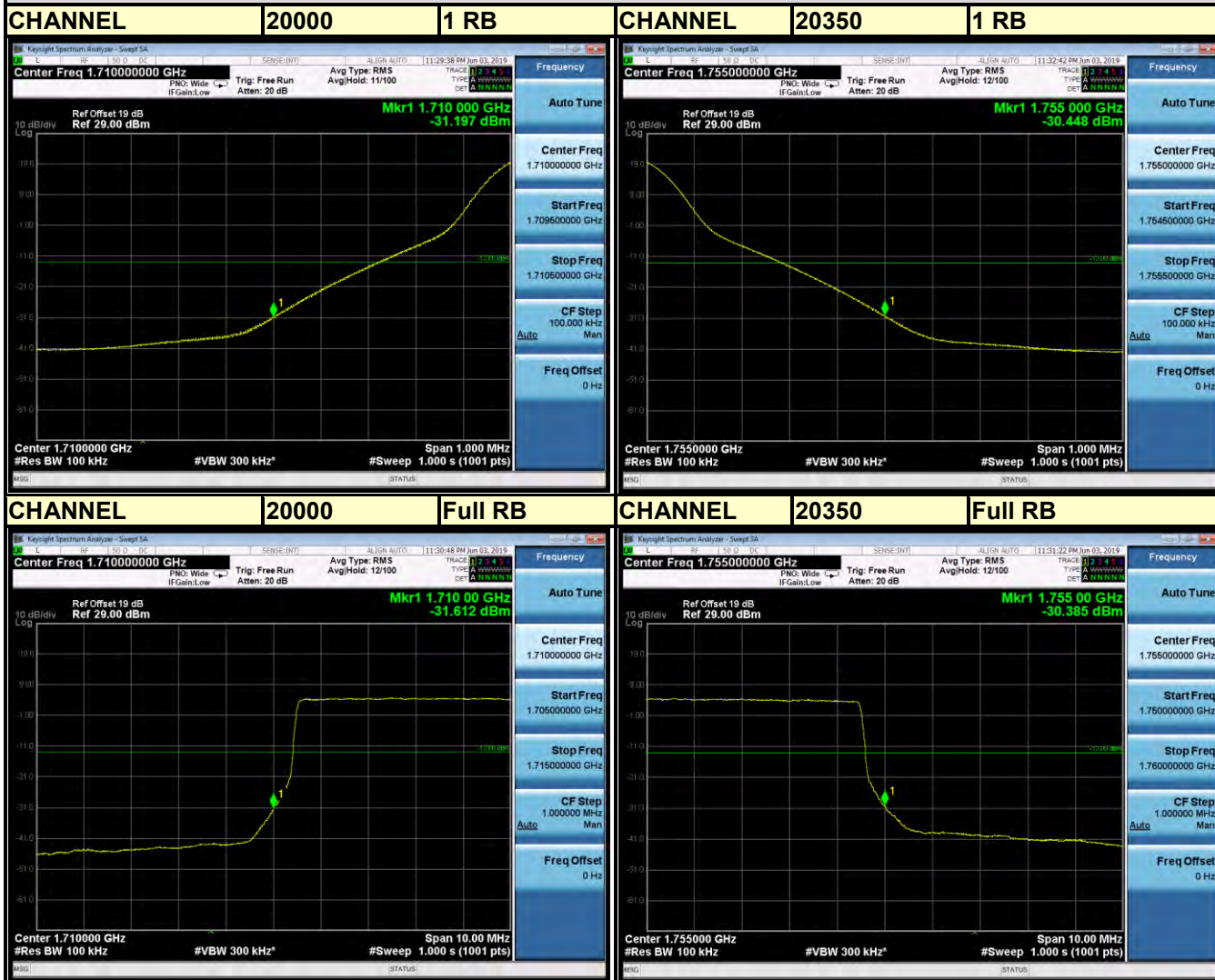




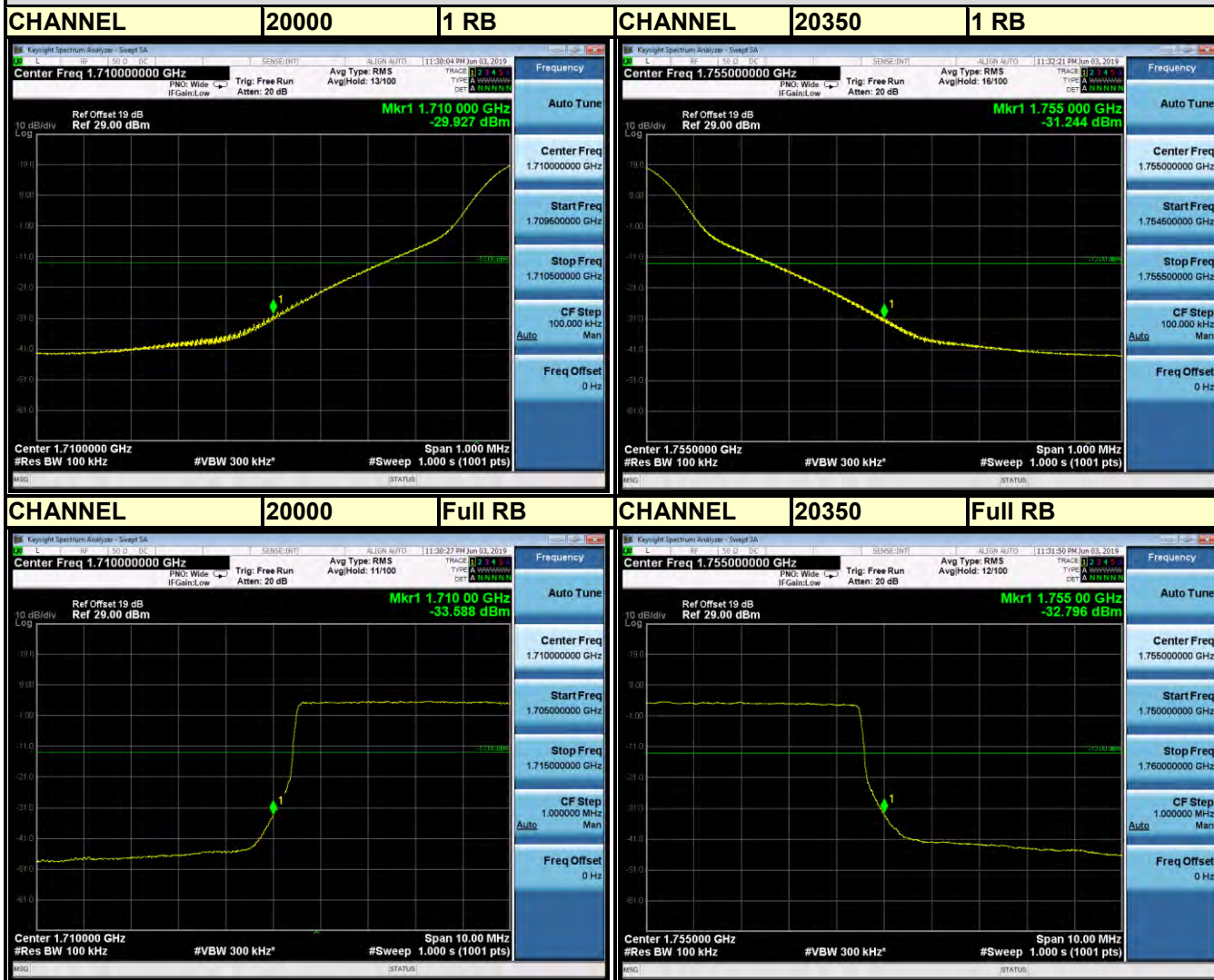
Test Report No.: RF190517W003-5

LTE BAND 4

Channel Bandwidth: 10MHz QPSK



Channel Bandwidth: 10MHz 16QAM





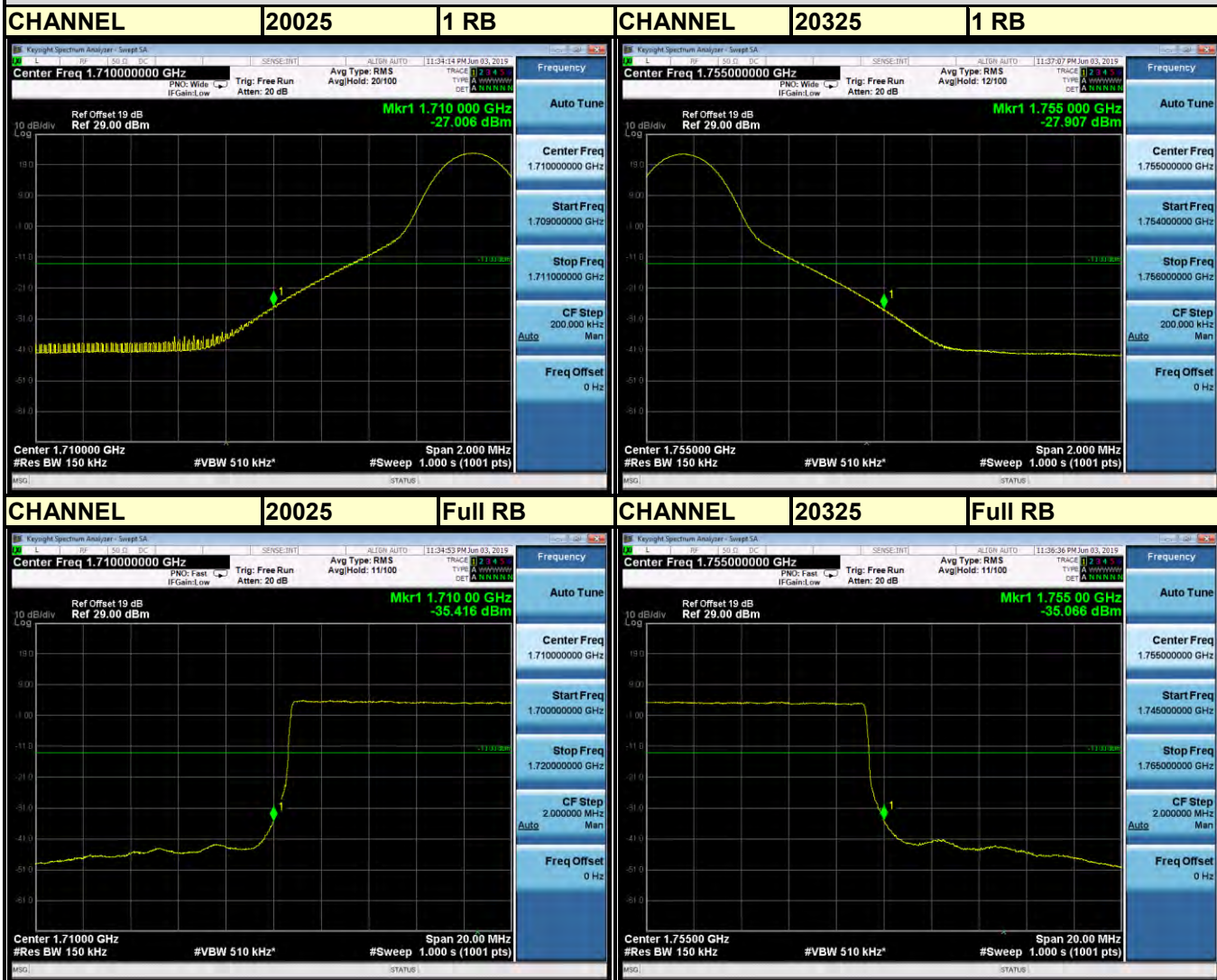
Test Report No.: RF190517W003-5

LTE BAND 4

Channel Bandwidth: 15MHz QPSK



Channel Bandwidth: 15MHz 16QAM

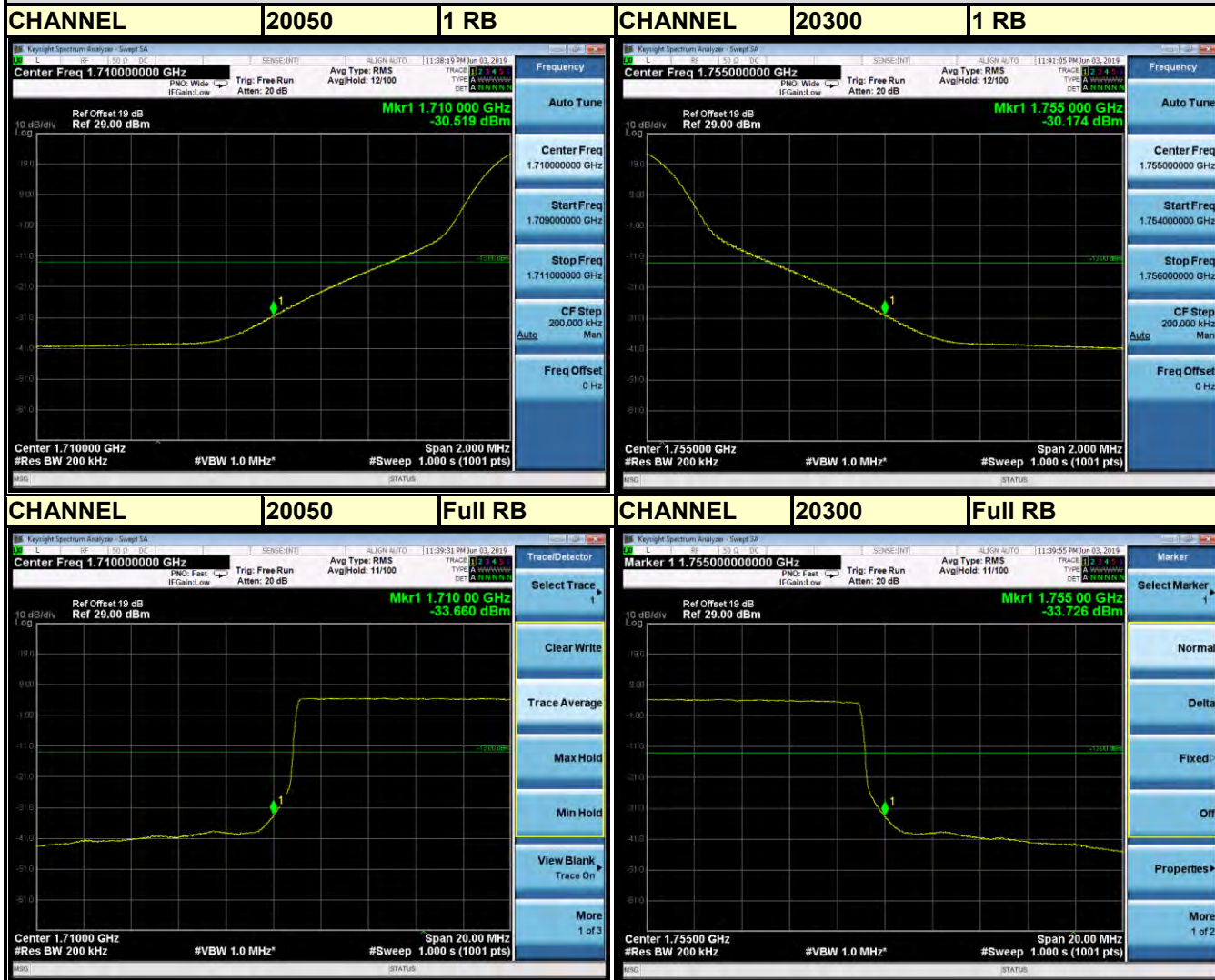




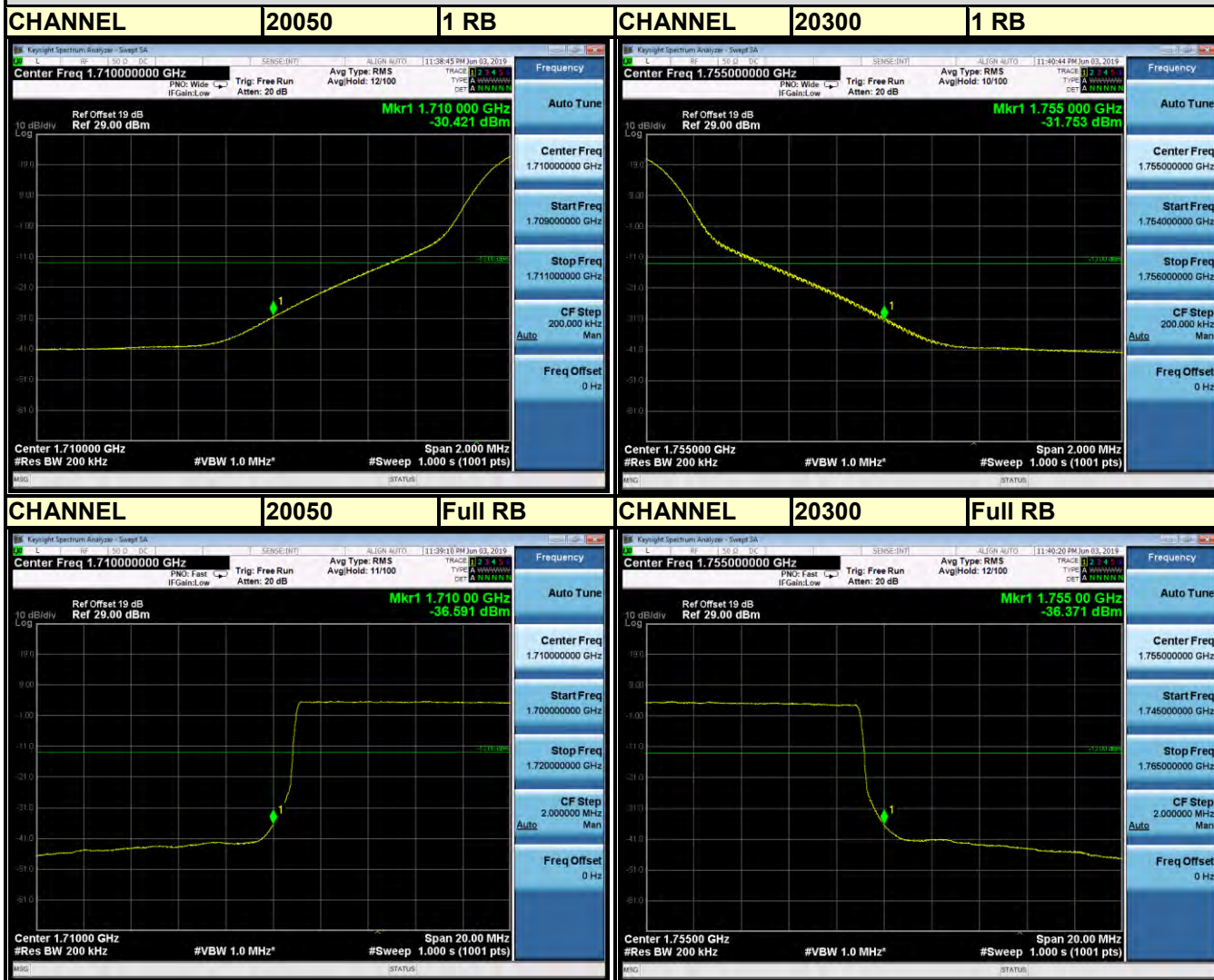
Test Report No.: RF190517W003-5

LTE BAND 4

Channel Bandwidth: 20MHz QPSK



Channel Bandwidth: 20MHz 16QAM





Test Report No.: RF190517W003-5

LTE BAND 12

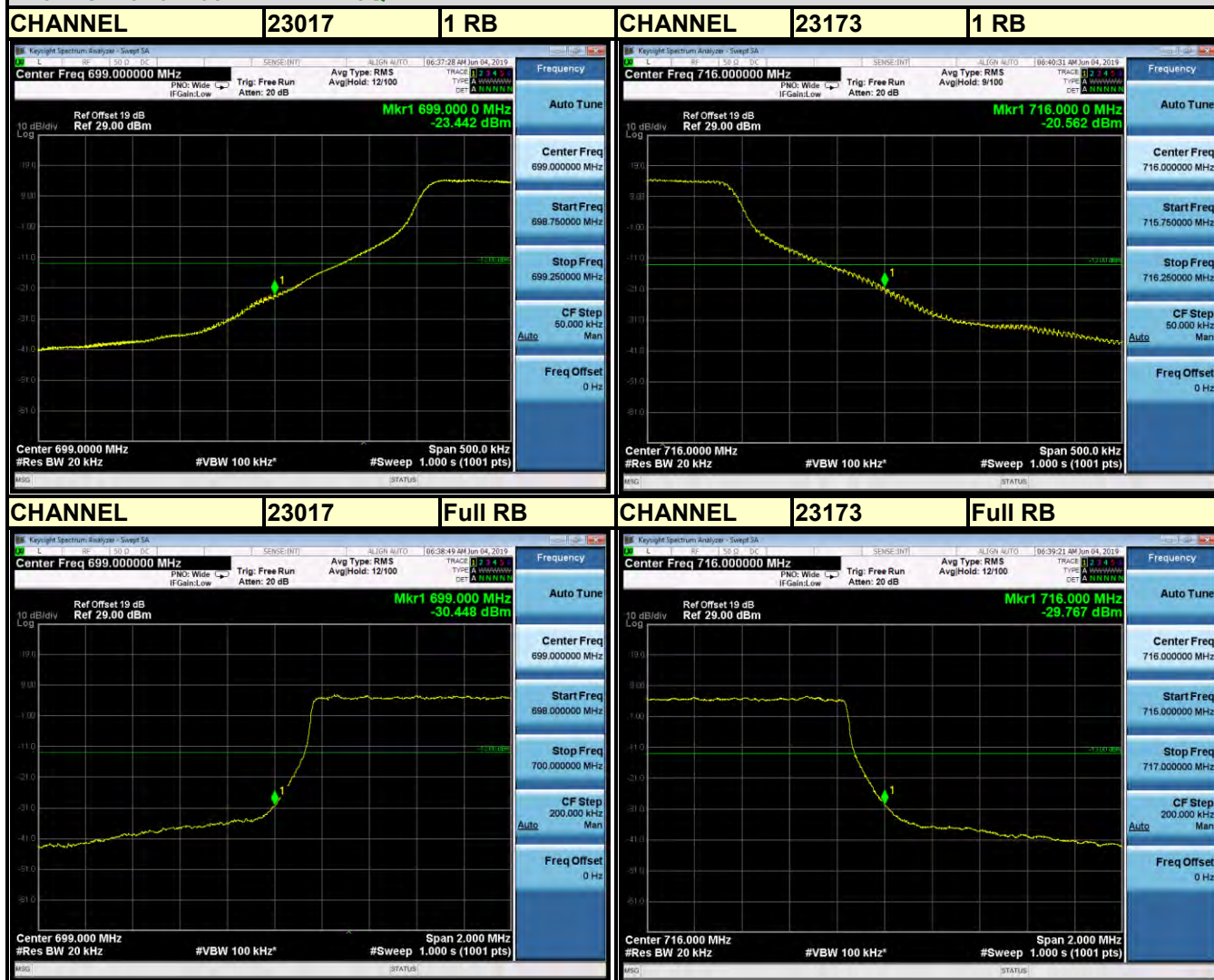
Channel Bandwidth: 1.4MHz QPSK





Test Report No.: RF190517W003-5

Channel Bandwidth: 1.4MHz 16QAM



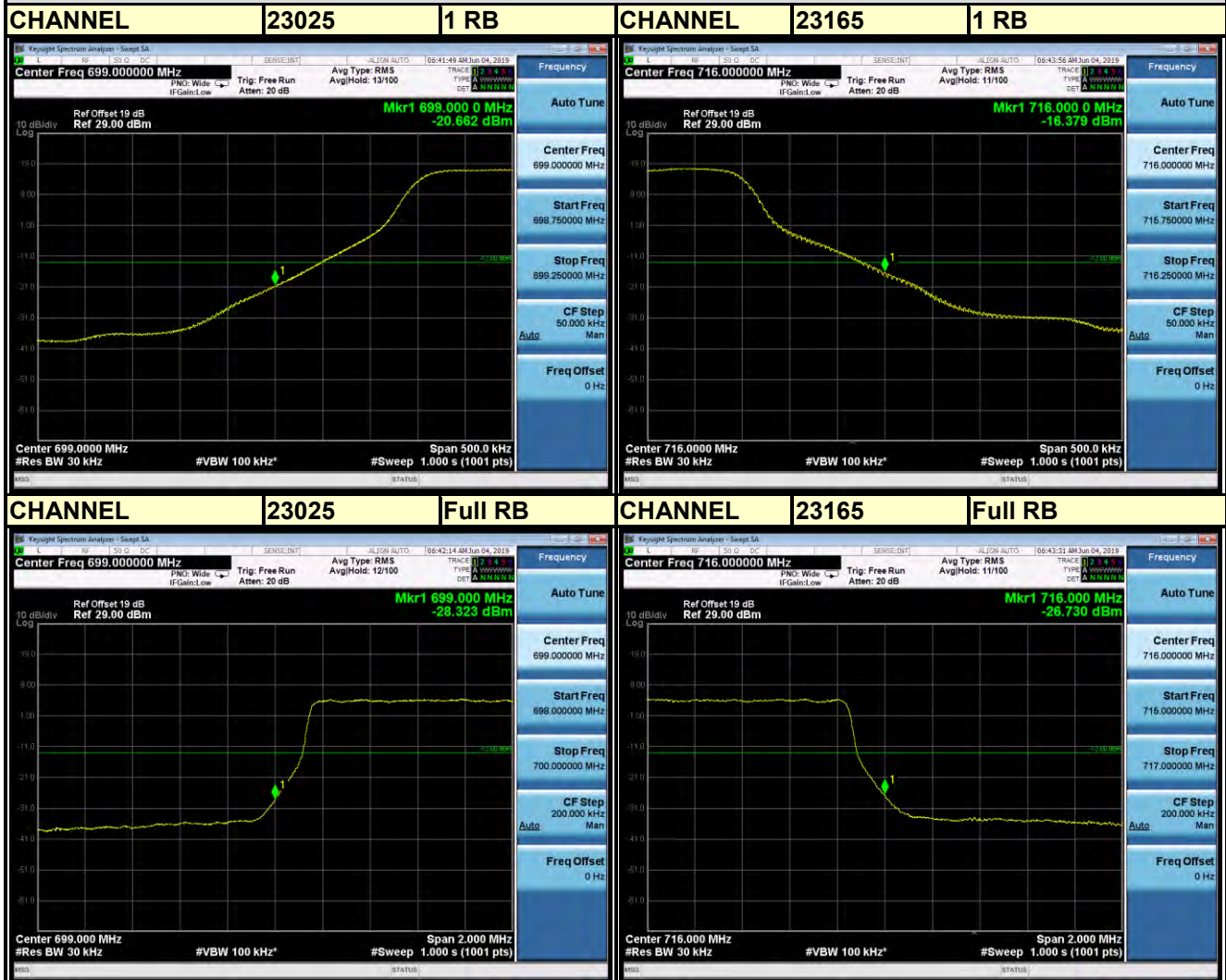


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Test Report No.: RF190517W003-5

LTE BAND 12

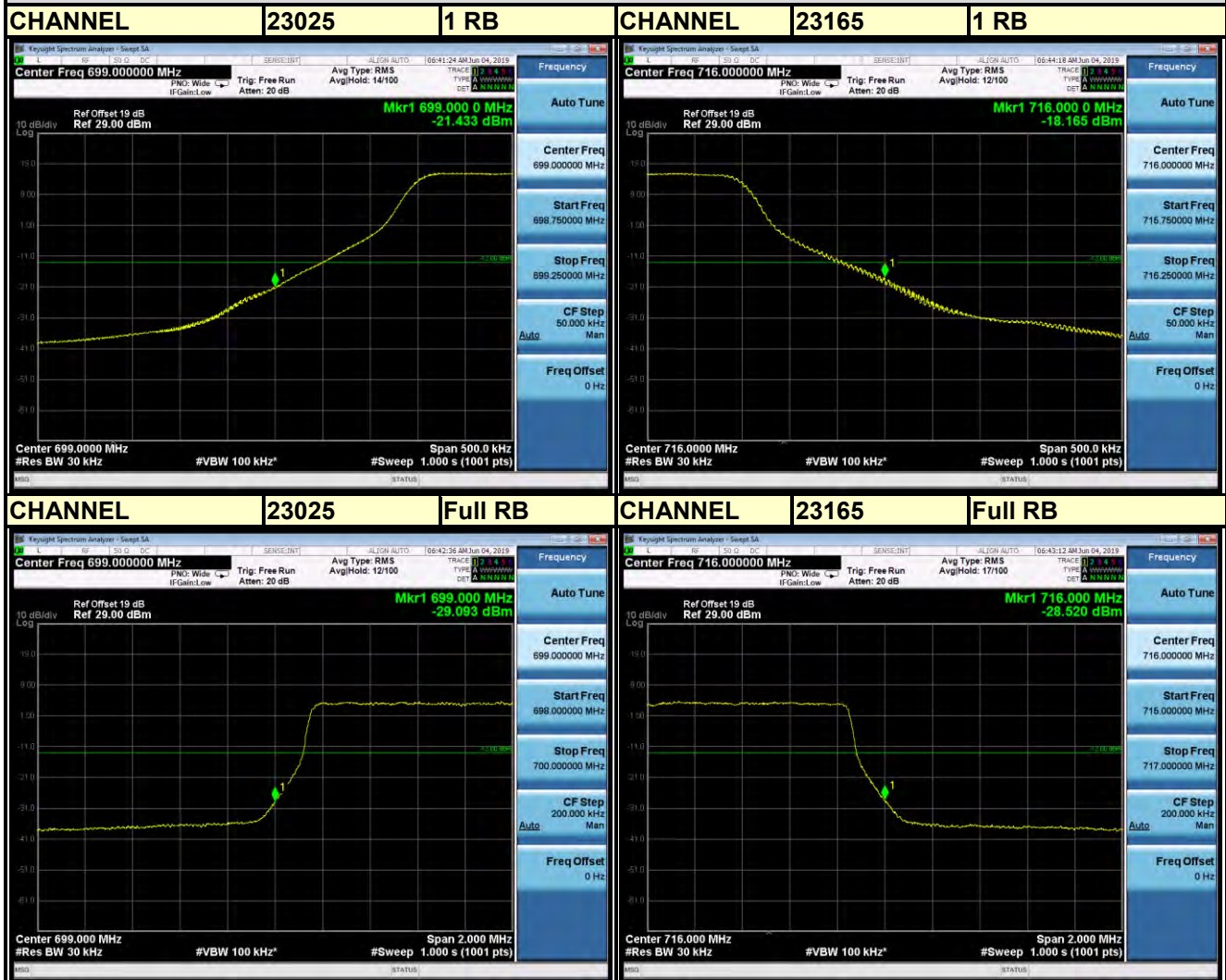
Channel Bandwidth: 3MHz QPSK





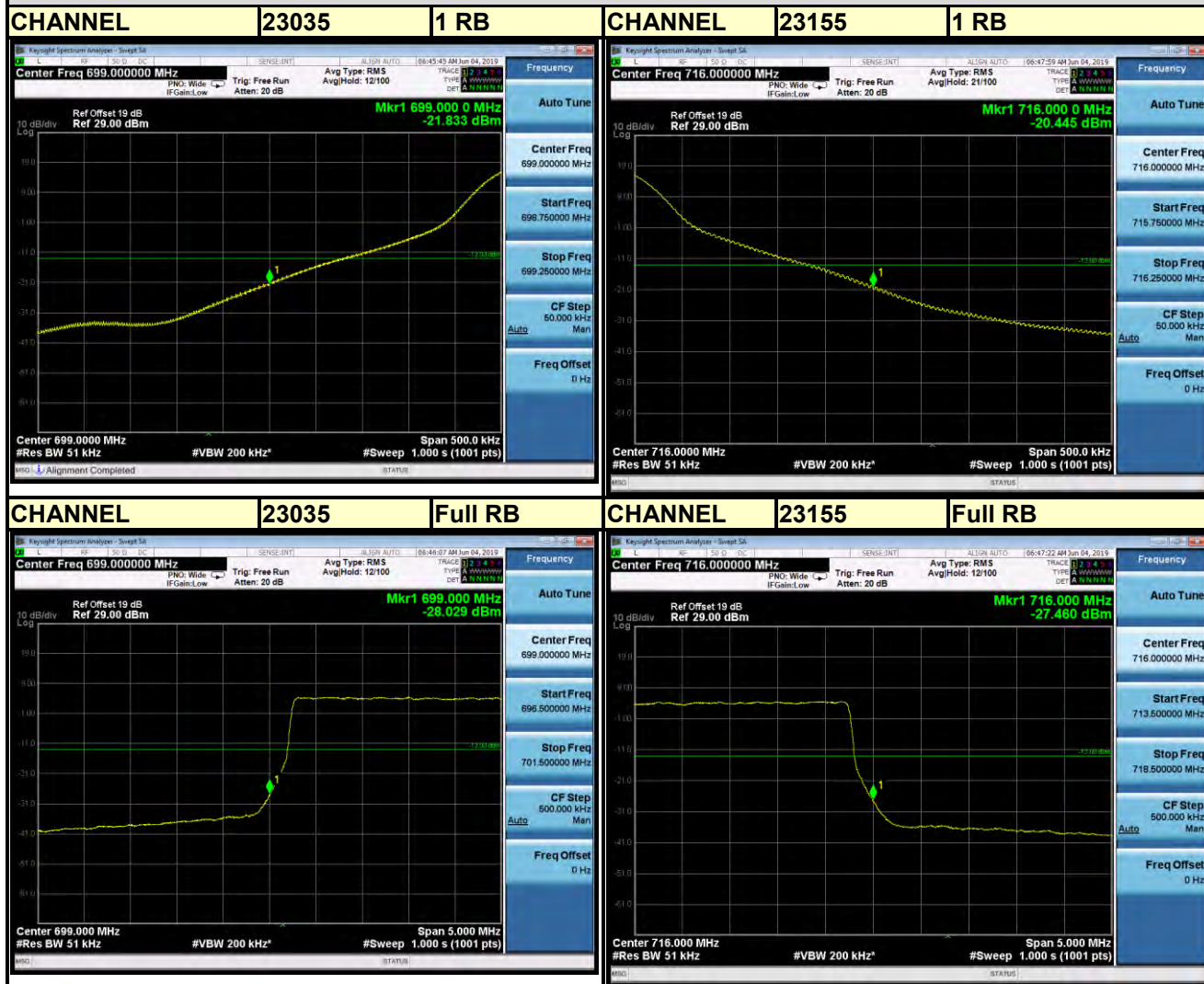
Test Report No.: RF190517W003-5

Channel Bandwidth: 3MHz 16QAM



LTE BAND 12

Channel Bandwidth: 5MHz QPSK

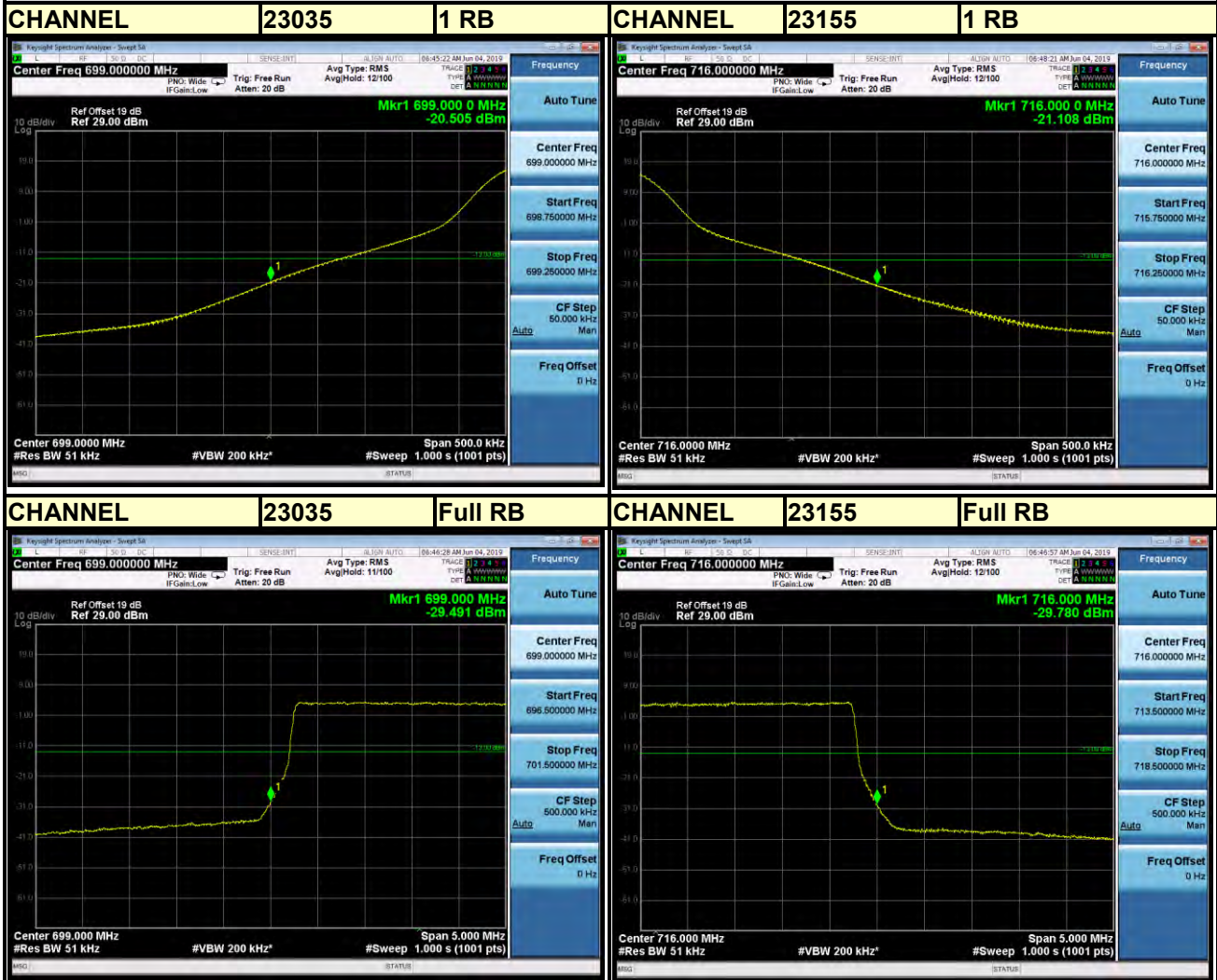




BUREAU
VERITAS

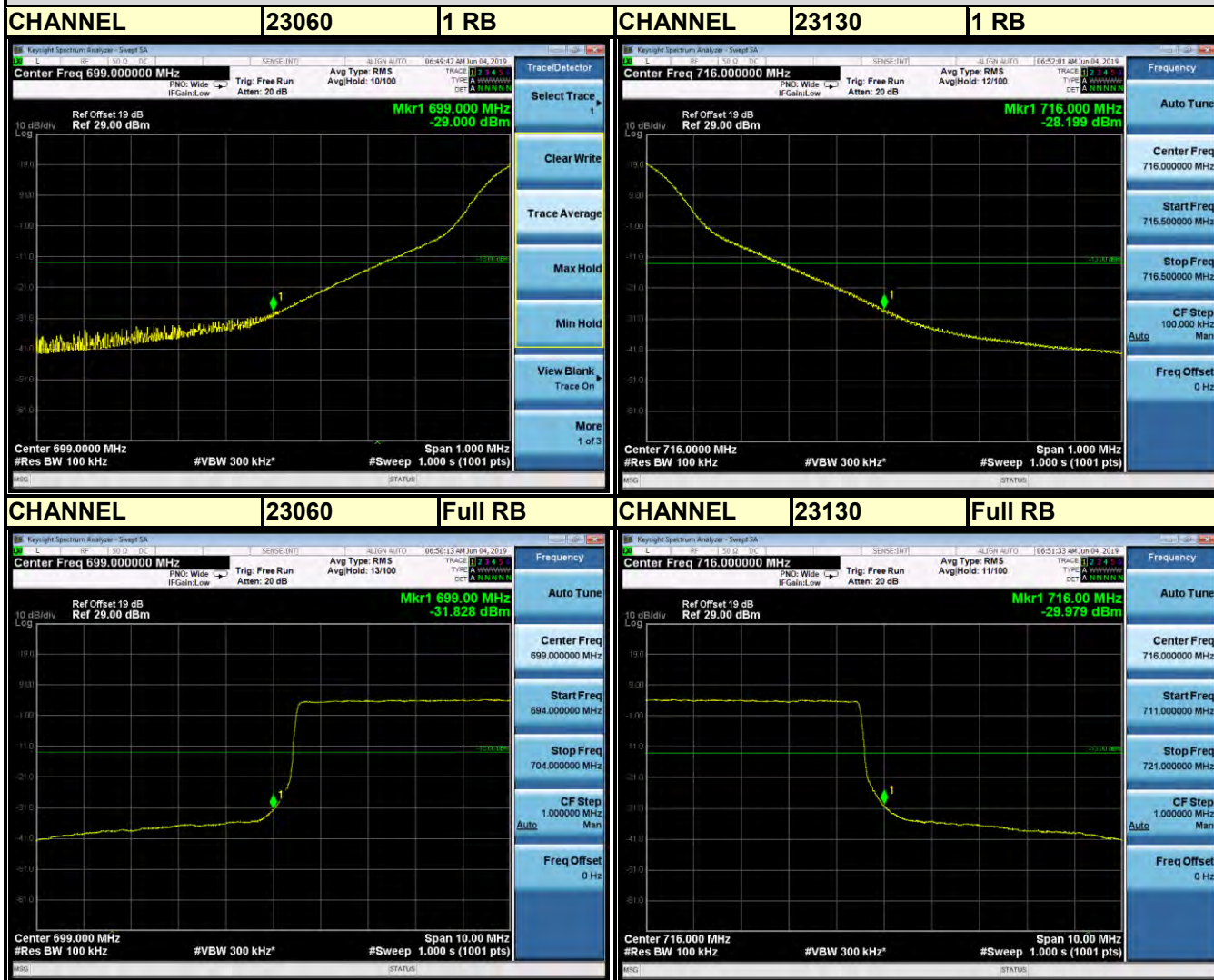
Test Report No.: RF190517W003-5

Channel Bandwidth: 5MHz 16QAM

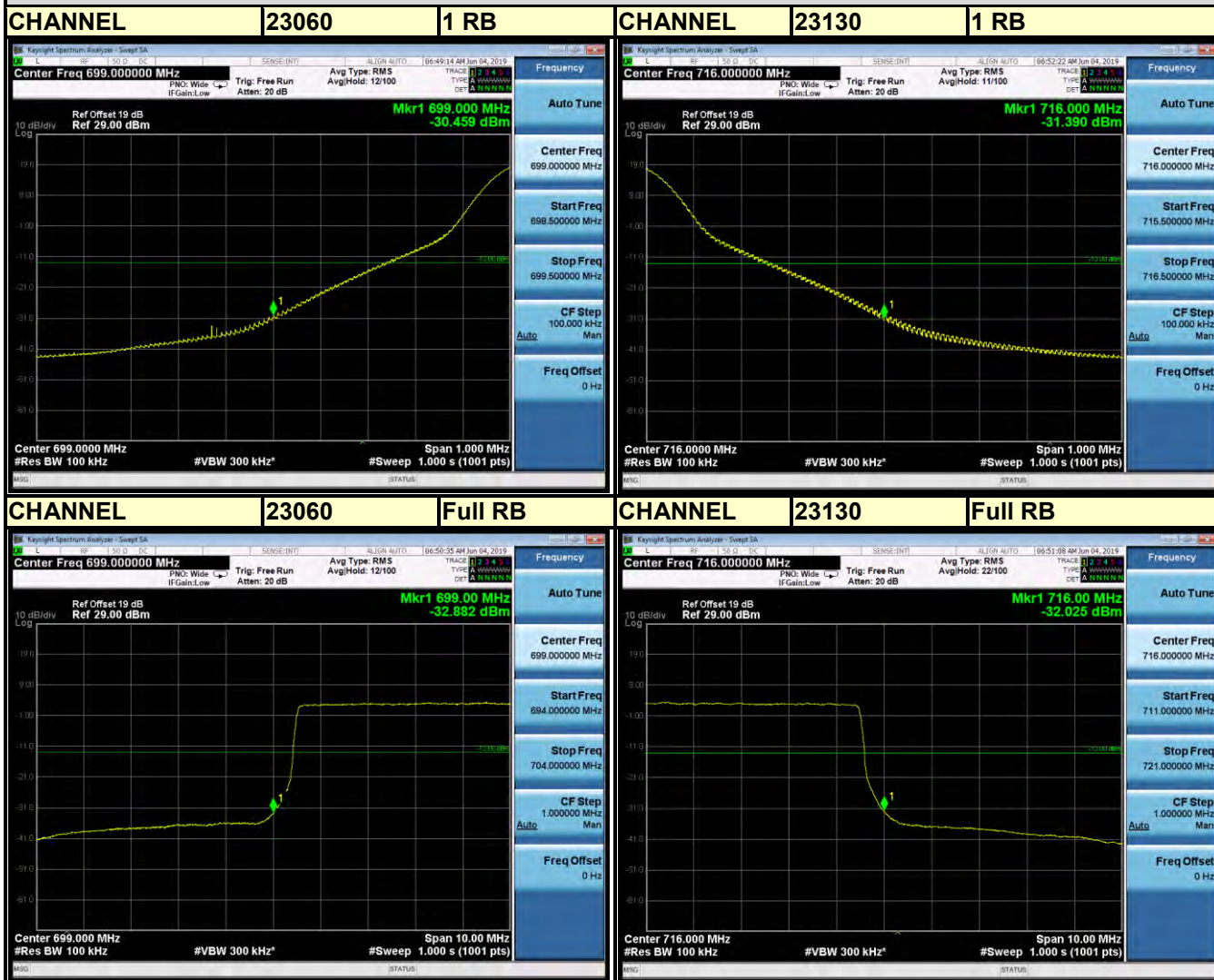


LTE BAND 12

Channel Bandwidth: 10MHz QPSK



Channel Bandwidth: 10MHz 16QAM



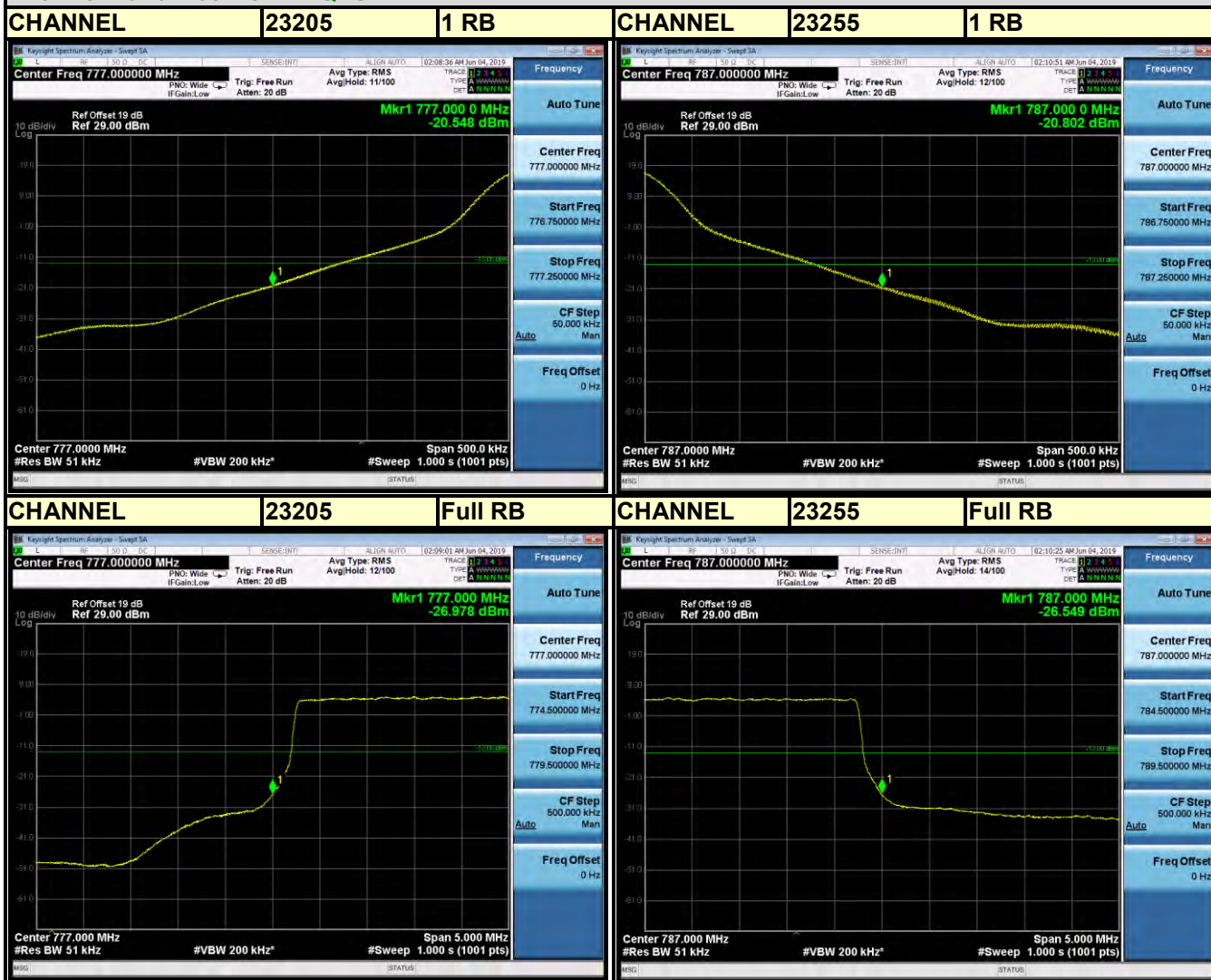


BUREAU
VERITAS

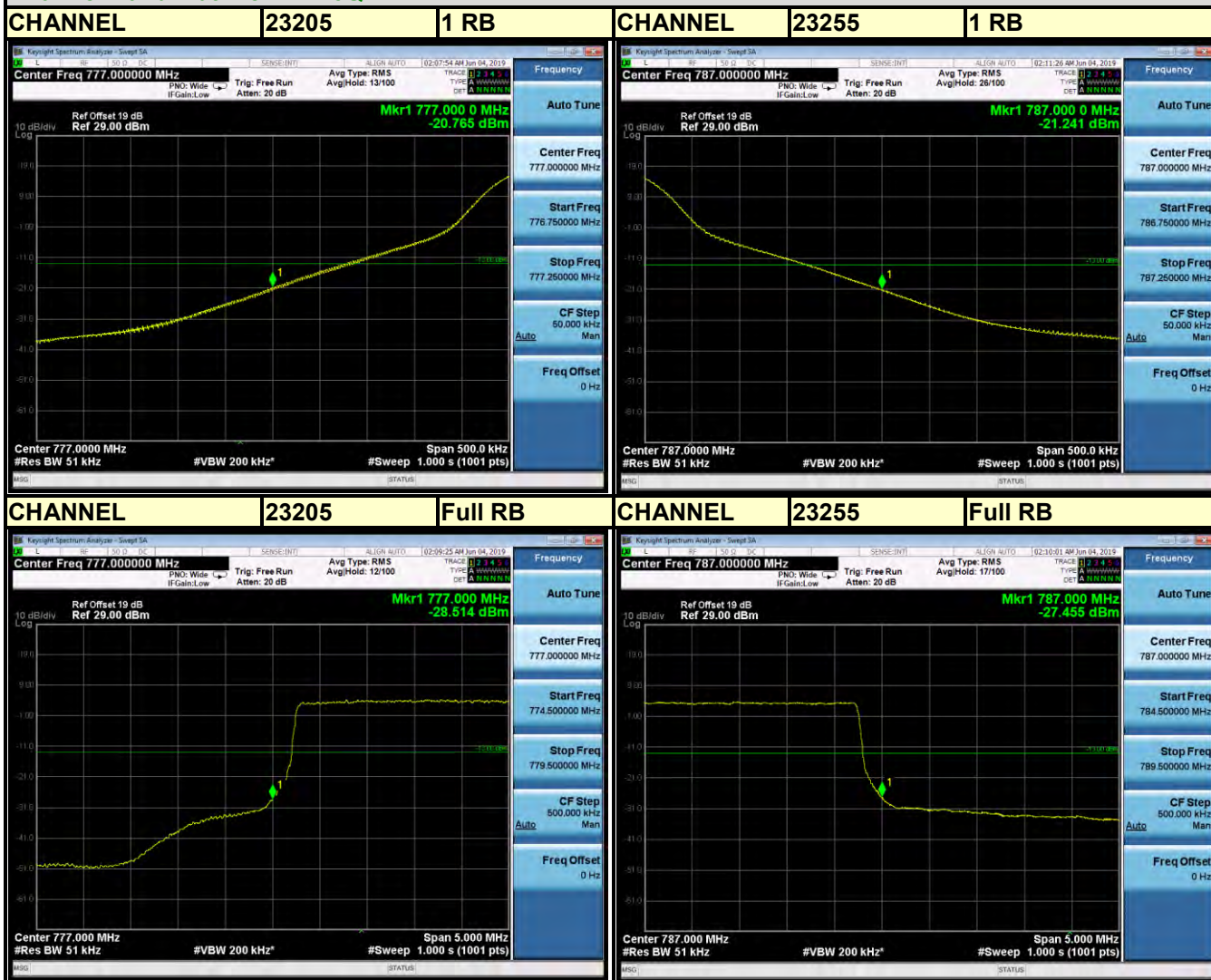
LTE BAND 13

Test Report No.: RF190517W003-5

Channel Bandwidth: 5MHz QPSK

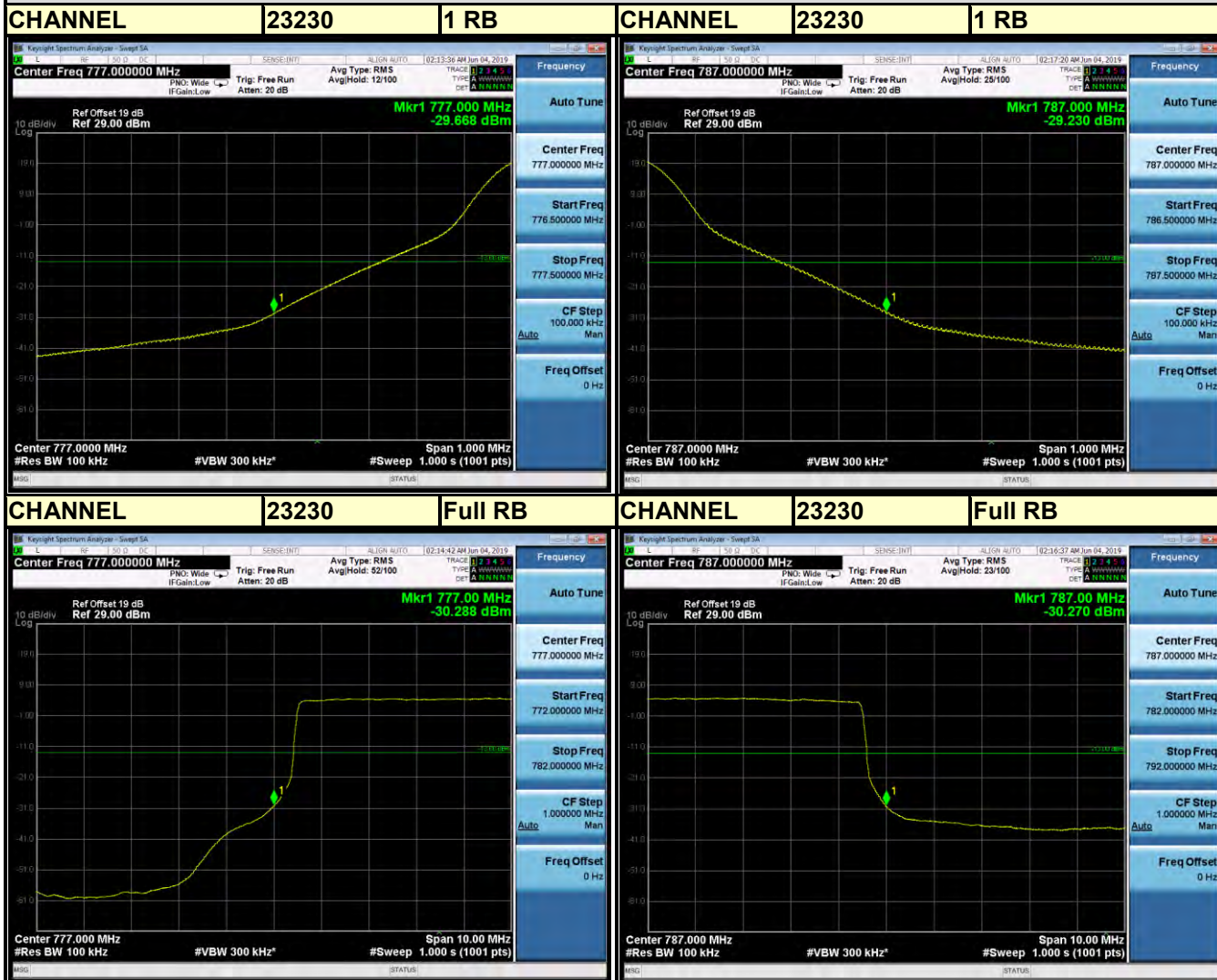


Channel Bandwidth: 5MHz 16QAM

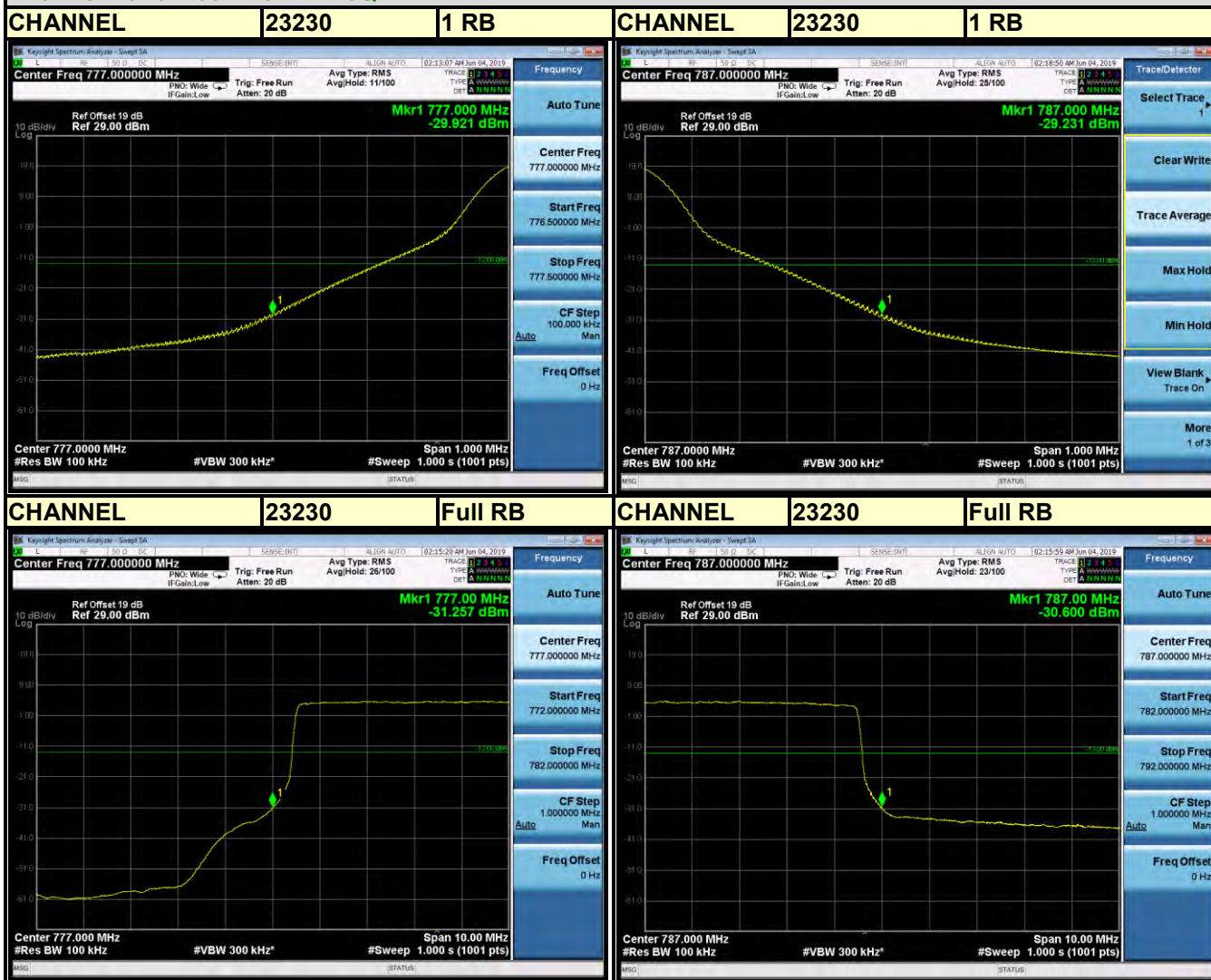


LTE BAND 13

Channel Bandwidth: 10MHz QPSK



Channel Bandwidth: 10MHz 16QAM



3.6 CONDUCTED SPURIOUS EMISSIONS

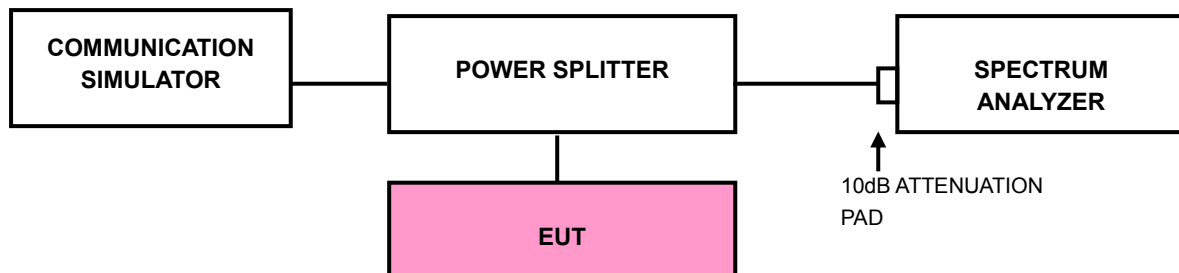
3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

3.6.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at middle operational frequency range.
- b. Measuring frequency range is from 30 MHz to 19.1GHz for LTE Band 4 and 30 MHz to 9GHz for LTE Band 12 & LTE Band 13. 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

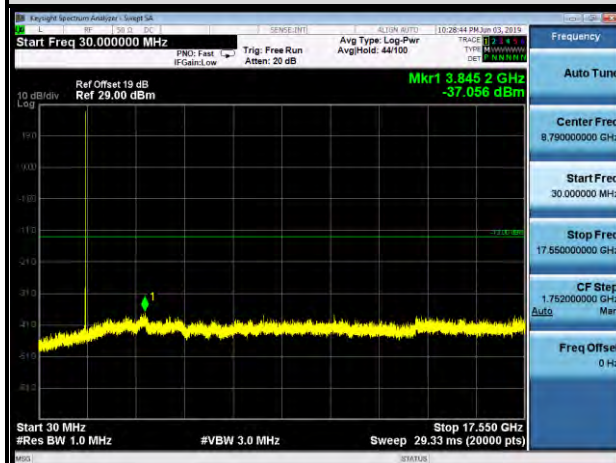
LTE BAND 4



3MHz / QPSK

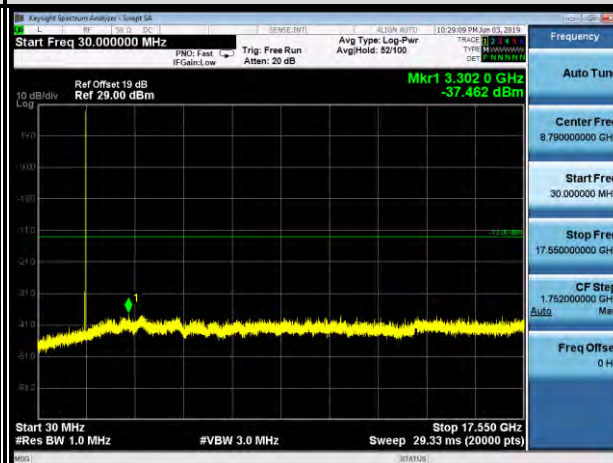
CHANNEL 19965

FREQUENCY RANGE : 30MHz~17.55GHz



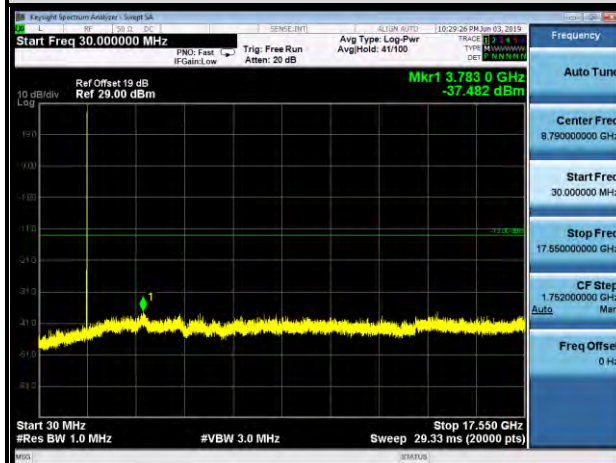
CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



CHANNEL 20385

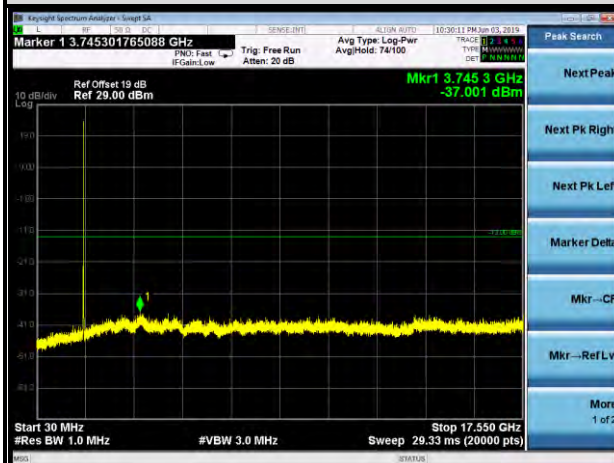
FREQUENCY RANGE : 30MHz~17.55GHz



5MHz / QPSK

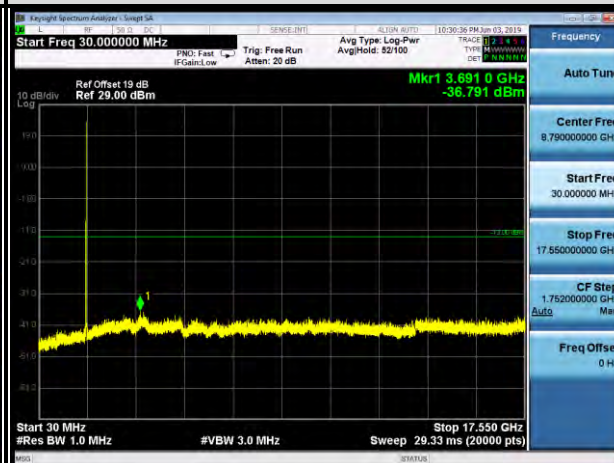
CHANNEL 19975

FREQUENCY RANGE : 30MHz~17.55GHz



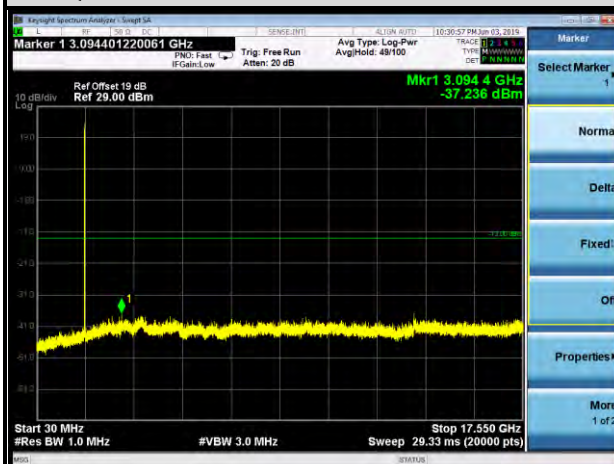
CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



CHANNEL 20375

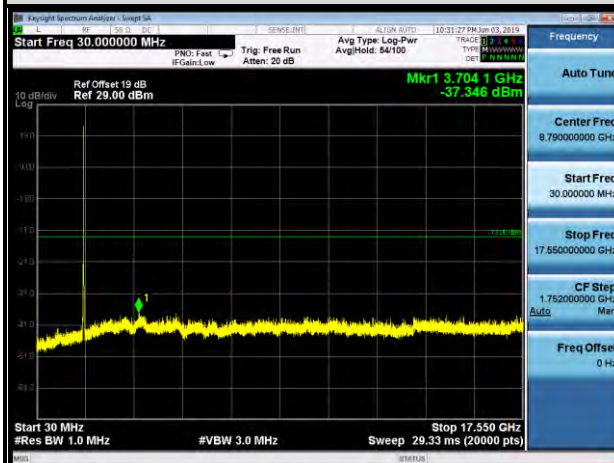
FREQUENCY RANGE : 30MHz~17.55GHz



10MHz / QPSK

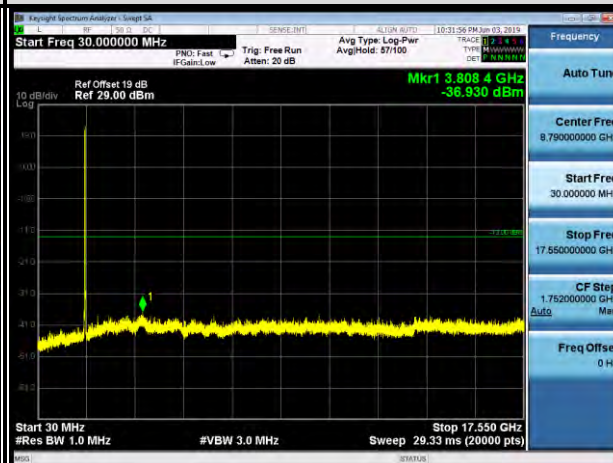
CHANNEL 20000

FREQUENCY RANGE : 30MHz~17.55GHz



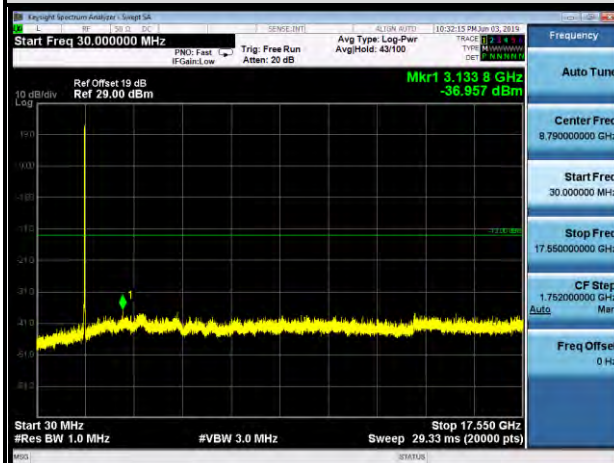
CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



CHANNEL 20350

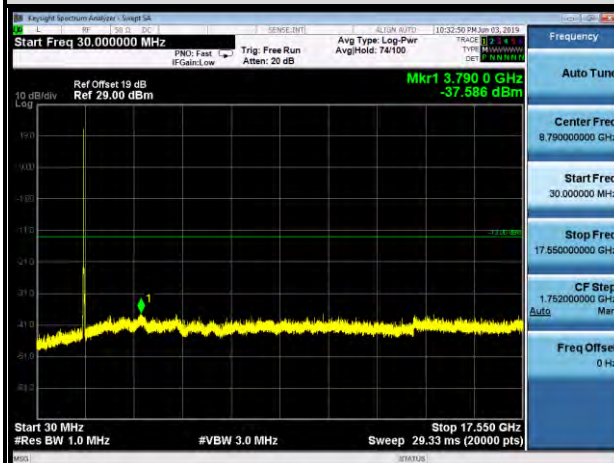
FREQUENCY RANGE : 30MHz~17.55GHz



15MHz / QPSK

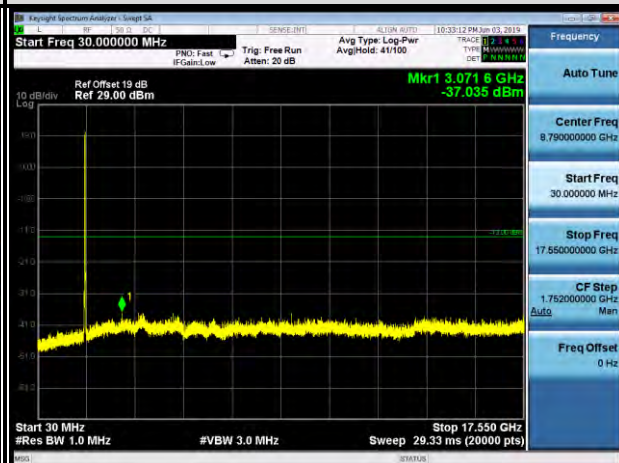
CHANNEL 20025

FREQUENCY RANGE : 30MHz~17.55GHz



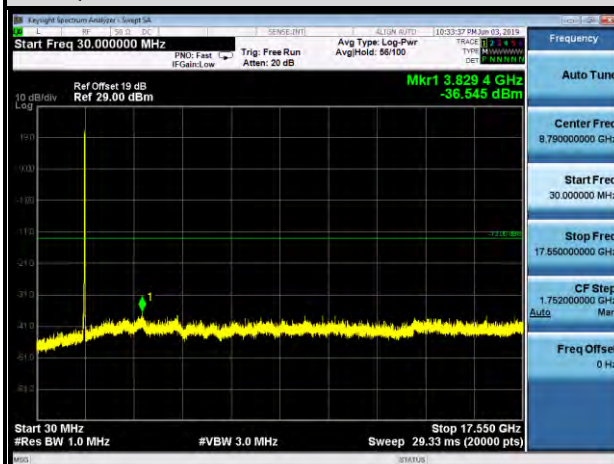
CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



CHANNEL 20325

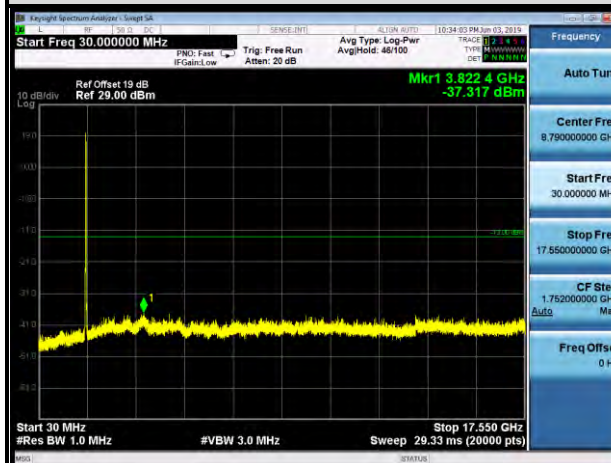
FREQUENCY RANGE : 30MHz~17.55GHz



20MHz / QPSK

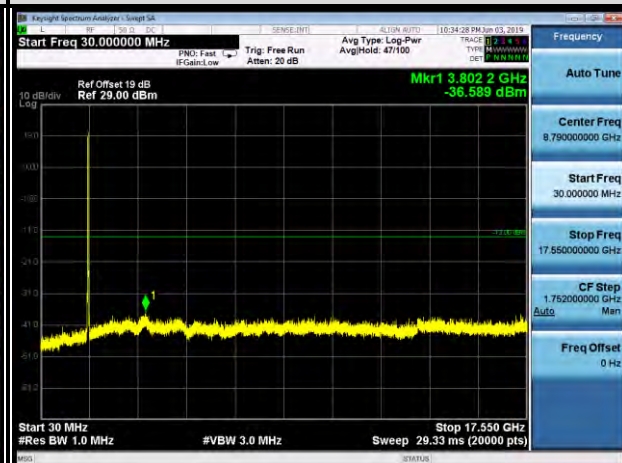
CHANNEL 20050

FREQUENCY RANGE : 30MHz~17.55GHz



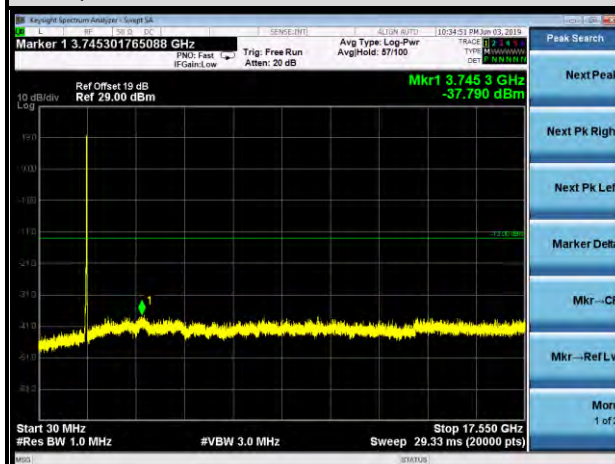
CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



CHANNEL 20300

FREQUENCY RANGE : 30MHz~17.55GHz

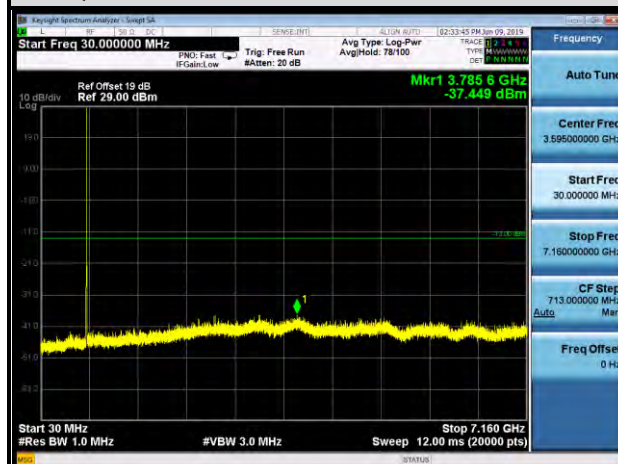


LTE BAND 12

1.4MHz / QPSK

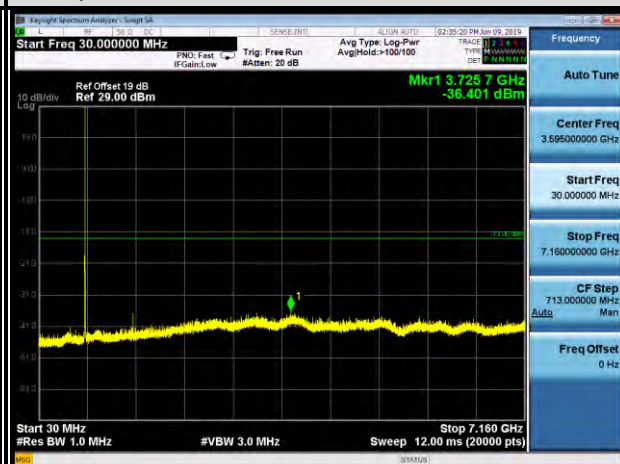
CHANNEL 23017

FREQUENCY RANGE : 30MHz~7.16GHz



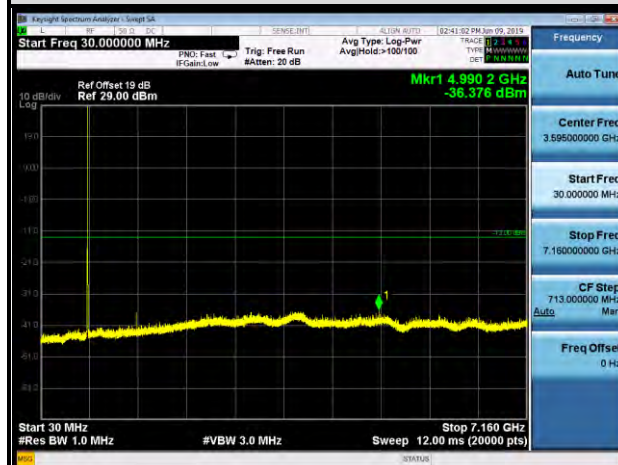
CHANNEL 23095

FREQUENCY RANGE : 30MHz~7.16GHz



CHANNEL 23173

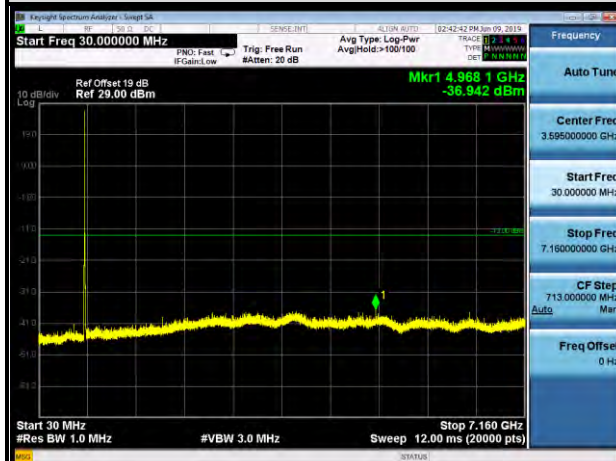
FREQUENCY RANGE : 30MHz~7.16GHz



3MHz / QPSK

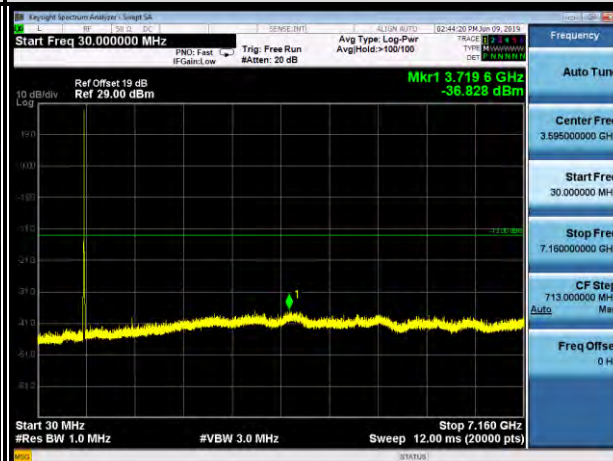
CHANNEL 23025

FREQUENCY RANGE : 30MHz~7.16GHz



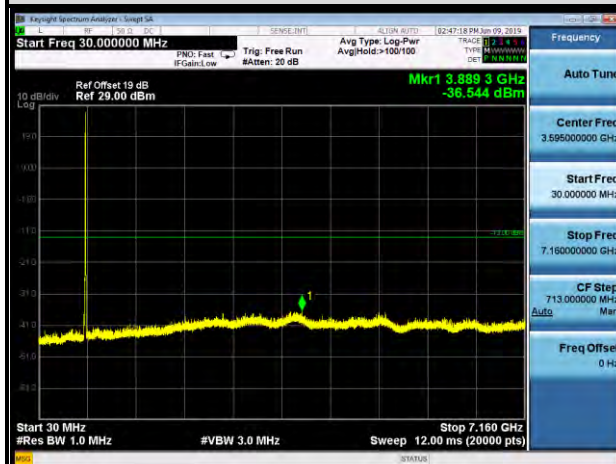
CHANNEL 23095

FREQUENCY RANGE : 30MHz~7.16GHz



CHANNEL 23165

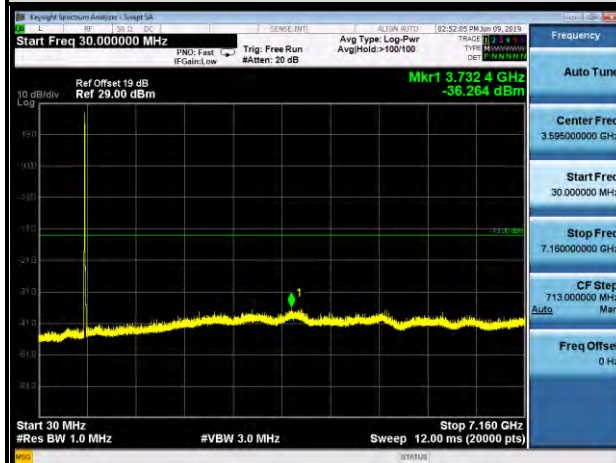
FREQUENCY RANGE : 30MHz~7.16GHz



5MHz / QPSK

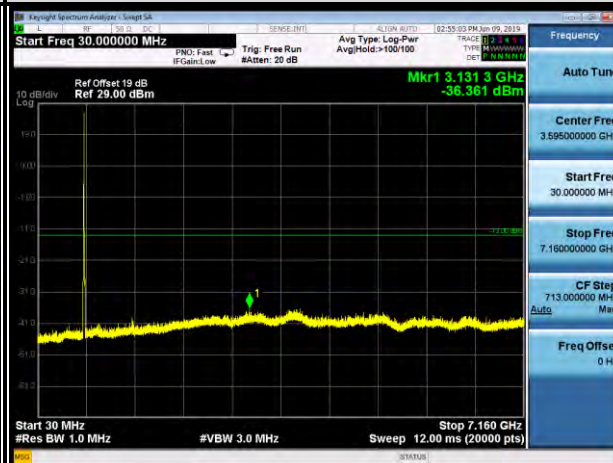
CHANNEL 23035

FREQUENCY RANGE : 30MHz~7.16GHz



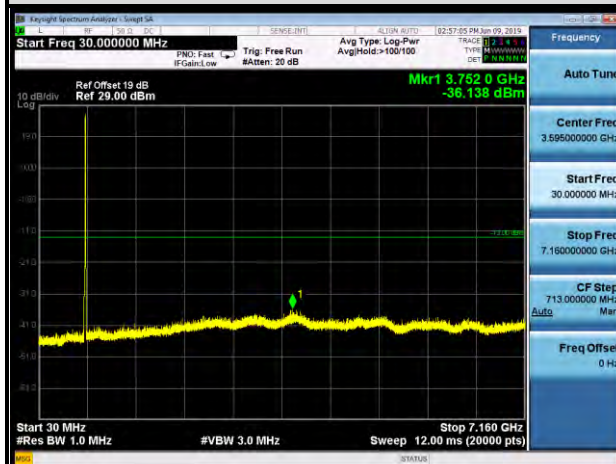
CHANNEL 23095

FREQUENCY RANGE : 30MHz~7.16GHz



CHANNEL 23155

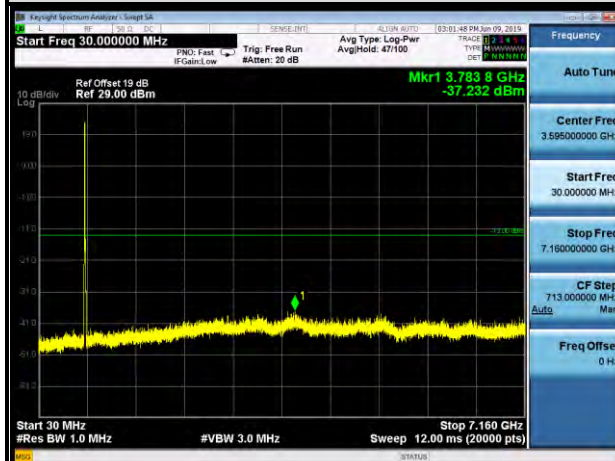
FREQUENCY RANGE : 30MHz~7.16GHz



10MHz / QPSK

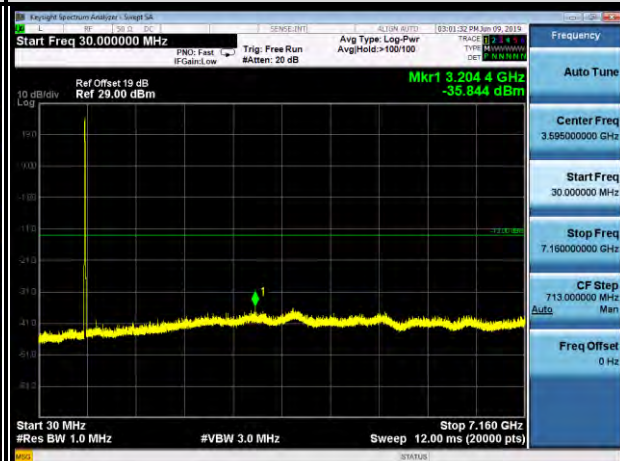
CHANNEL 23060

FREQUENCY RANGE : 30MHz~7.16GHz



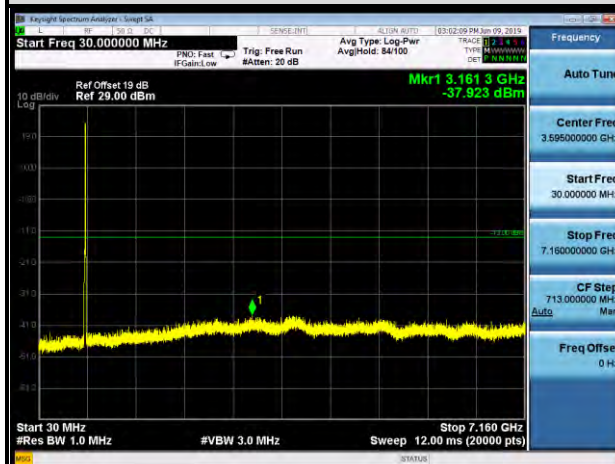
CHANNEL 23095

FREQUENCY RANGE : 30MHz~7.16GHz



CHANNEL 23130

FREQUENCY RANGE : 30MHz~7.16GHz

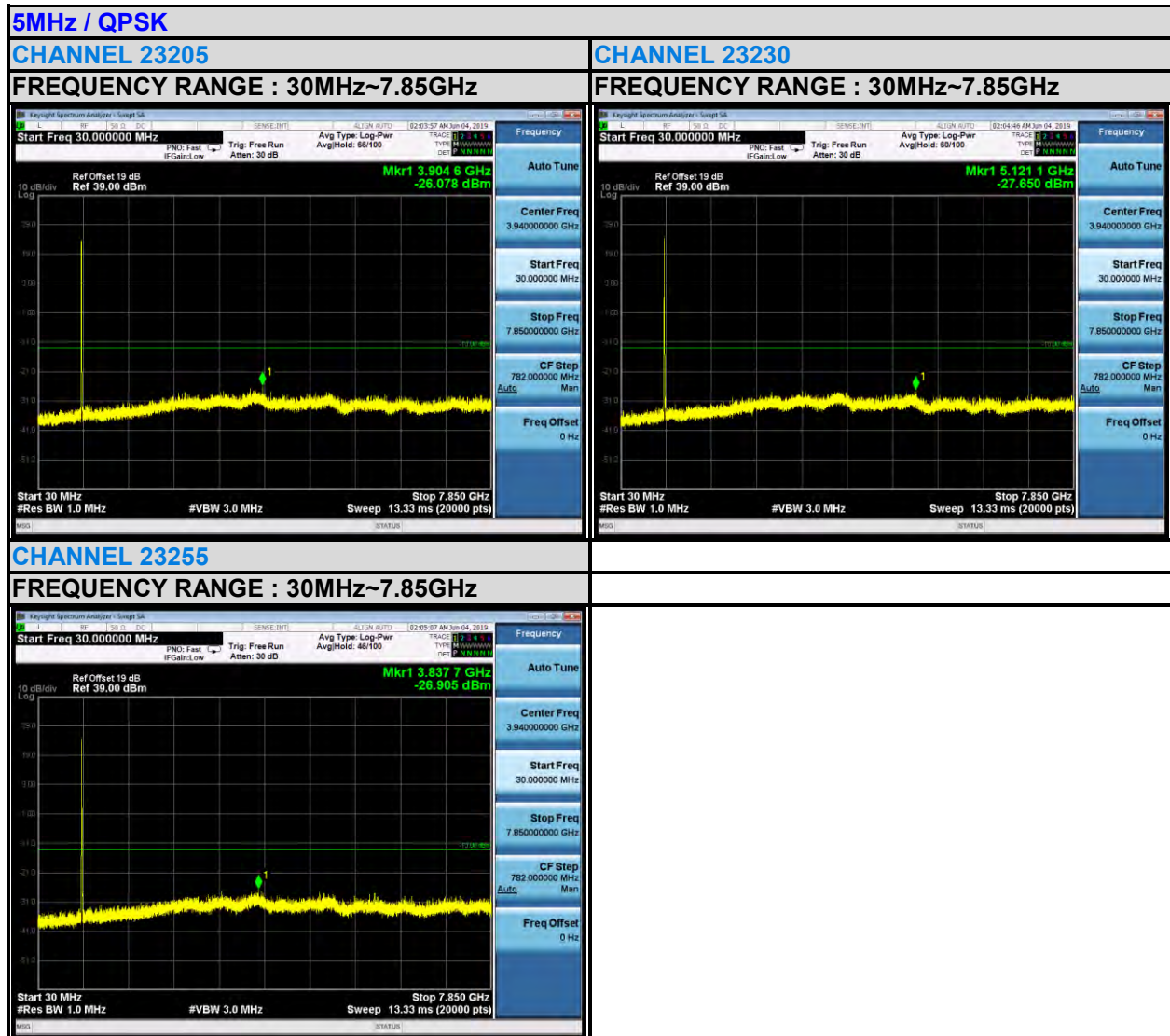




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VERITAS

Test Report No.: RF190517W003-5

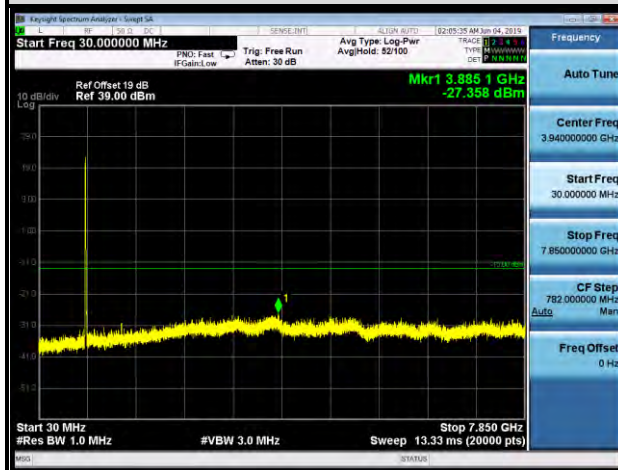
LTE Band 13



10MHz / QPSK

CHANNEL 23230

FREQUENCY RANGE : 30MHz~7.85GHz

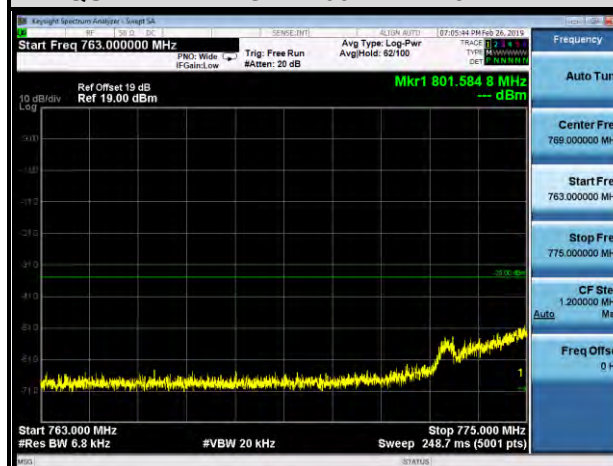


LTE BAND 13

5MHz / QPSK

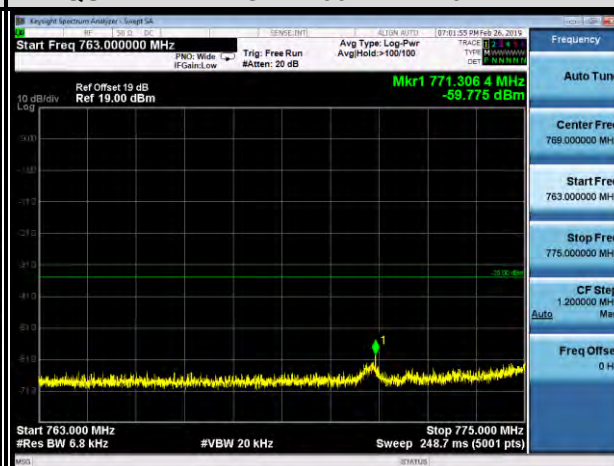
CHANNEL 23205

FREQUENCY RANGE : 763MHz~775MHz



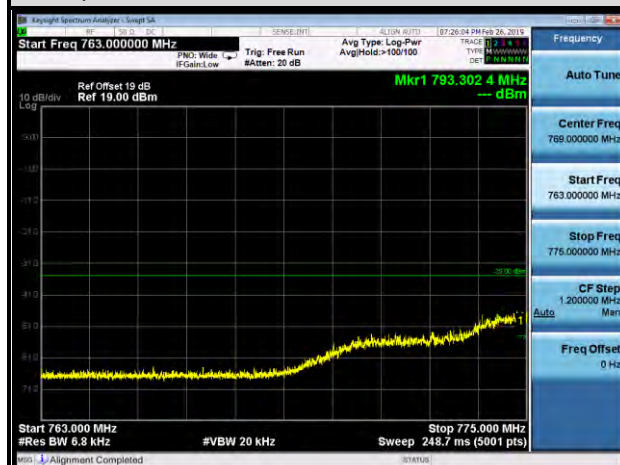
CHANNEL 23230

FREQUENCY RANGE : 763MHz~775MHz



CHANNEL 23255

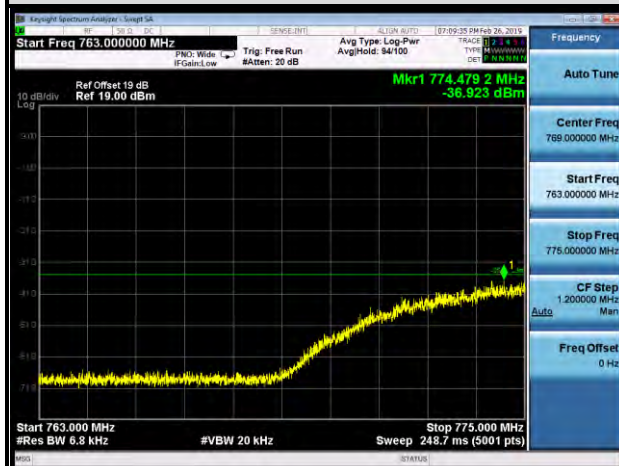
FREQUENCY RANGE : 763MHz~775MHz



10MHz / QPSK

CHANNEL 23230

FREQUENCY RANGE : 763MHz~775MHz

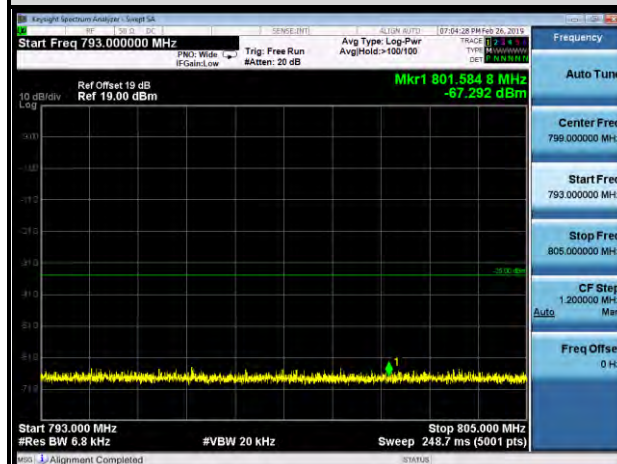


LTE BAND 13

5MHz / QPSK

CHANNEL 23205

FREQUENCY RANGE : 793MHz~805MHz



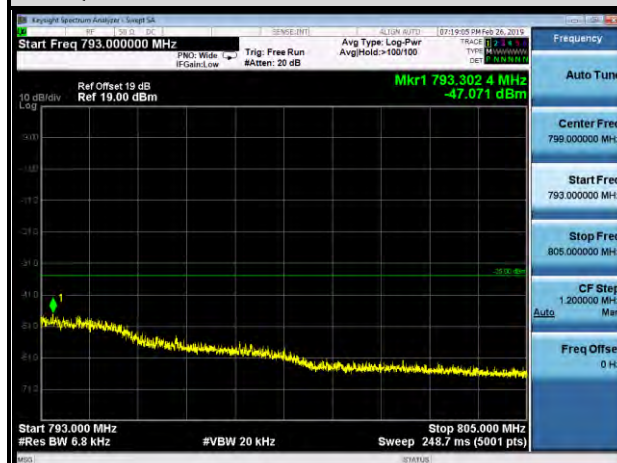
CHANNEL 23230

FREQUENCY RANGE : 793MHz~805MHz



CHANNEL 23255

FREQUENCY RANGE : 793MHz~805MHz

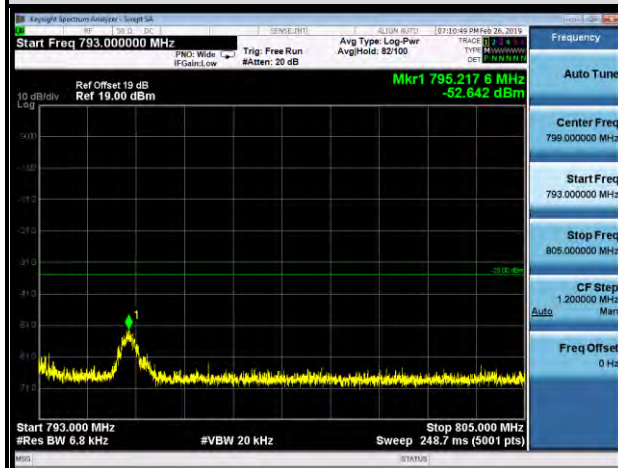




Test Report No.: RF190517W003-5

10MHz / QPSK
CHANNEL 23230

FREQUENCY RANGE : 793MHz~805MHz



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 $43 + 10 \log_{10}(P)$ 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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$

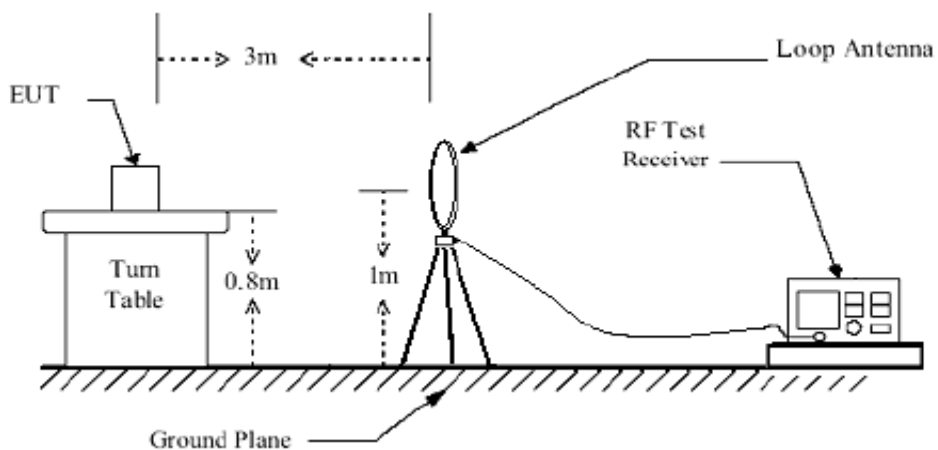
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.7.3 DEVIATION FROM TEST STANDARD

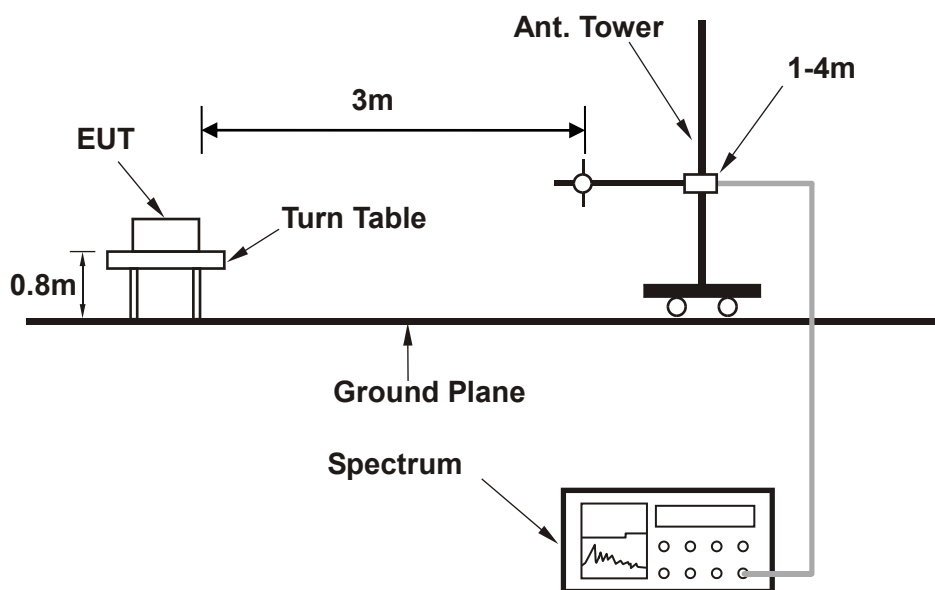
No deviation

3.7.4 TEST SETUP

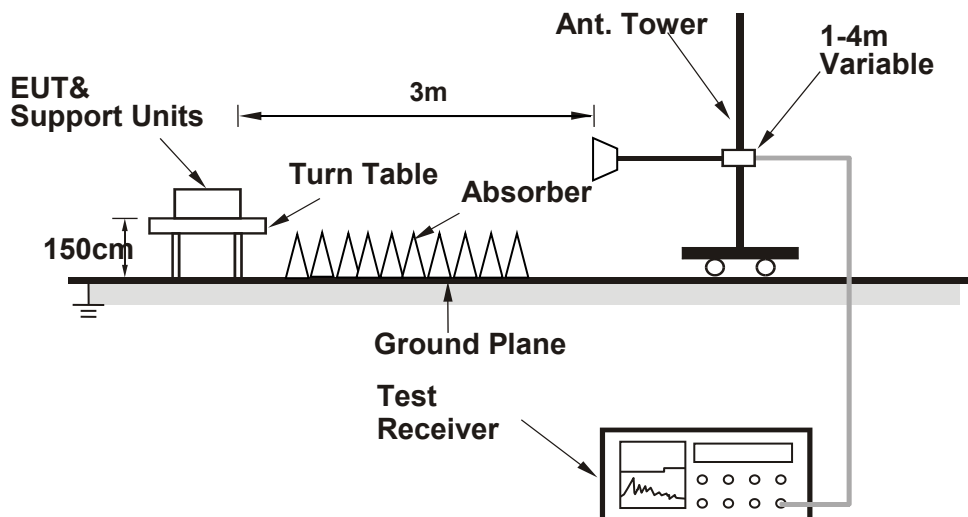
<Below 30MHz>



< Frequency Range 30MHz~1GHz >



< Frequency Range above 1GHz >



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

3.7.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

9 KHz – 30 MHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

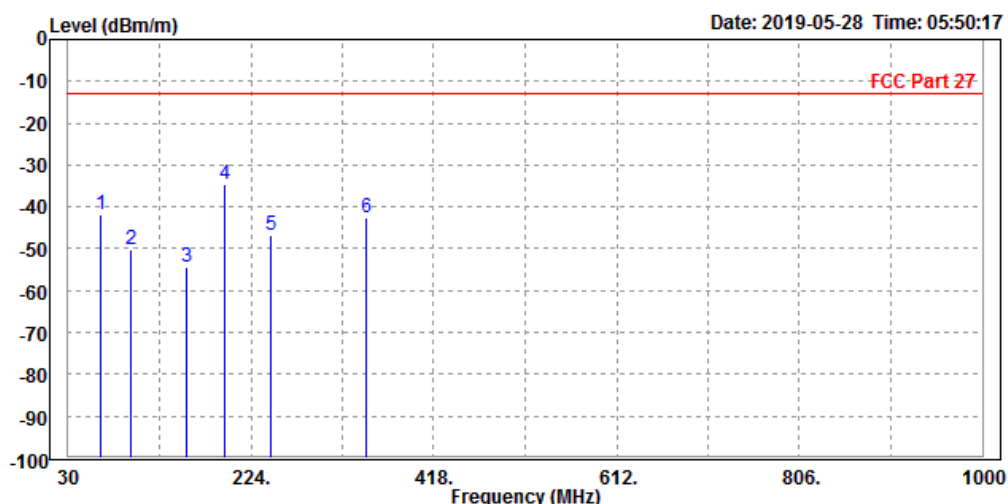
30 MHz – 1GHz data:

LTE BAND 4

CHANNEL BANDWIDTH: 3MHz / QPSK

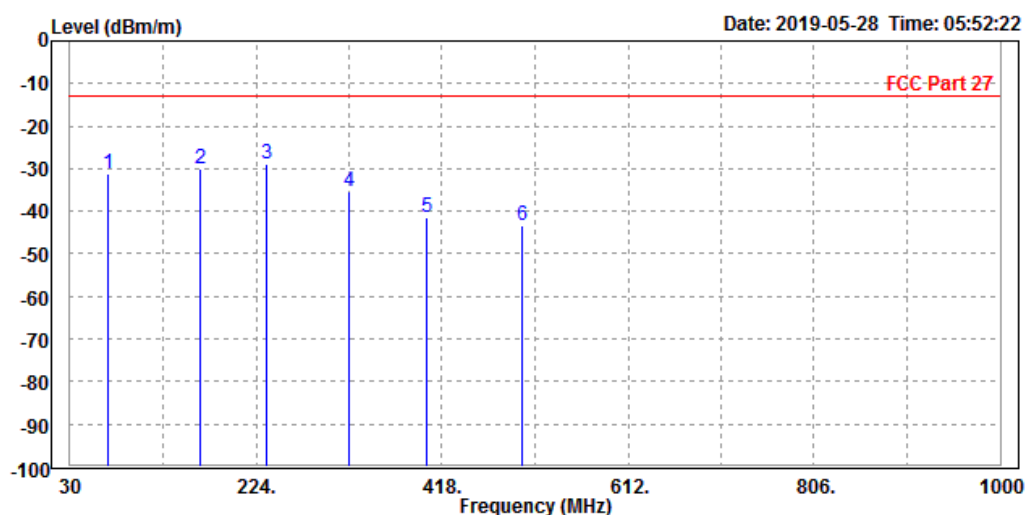
MODE	TX channel 20175	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	65.320	-41.89	-49.11	-13.00	-28.89	7.22	Peak	Horizontal
2	96.680	-50.15	-59.45	-13.00	-37.15	9.30	Peak	Horizontal
3	155.350	-54.51	-64.64	-13.00	-41.51	10.13	Peak	Horizontal
4 PP	195.420	-34.55	-45.24	-13.00	-21.55	10.69	Peak	Horizontal
5	245.310	-46.69	-59.48	-13.00	-33.69	12.79	Peak	Horizontal
6	345.680	-42.71	-58.23	-13.00	-29.71	15.52	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	69.580	-31.04	-38.61	-13.00	-18.04	7.57	Peak	Vertical
2	165.780	-29.85	-40.25	-13.00	-16.85	10.40	Peak	Vertical
3 PP	235.640	-28.75	-41.26	-13.00	-15.75	12.51	Peak	Vertical
4	321.440	-35.37	-50.23	-13.00	-22.37	14.86	Peak	Vertical
5	401.250	-41.33	-58.65	-13.00	-28.33	17.32	Peak	Vertical
6	501.220	-43.49	-62.21	-13.00	-30.49	18.72	Peak	Vertical





Test Report No.: RF190517W003-5

ABOVE 1GHz

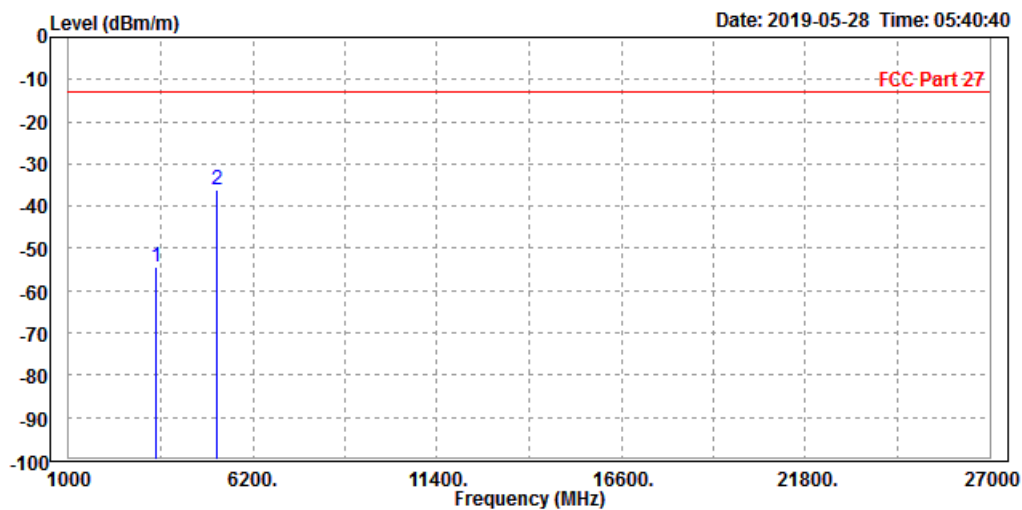
Note: For higher frequency, the emission is too low to be detected.

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

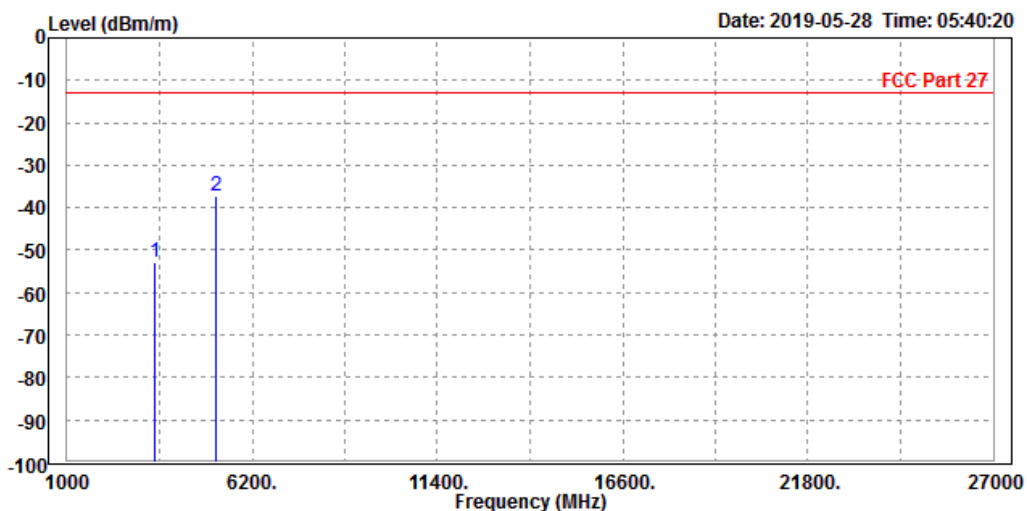
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-54.27	-56.32	-13.00	-41.27	2.05	Peak	Horizontal
2 PP	5197.000	-36.14	-44.75	-13.00	-23.14	8.61	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	-52.73	-55.26	-13.00	-39.73	2.53	Peak	Vertical
2 PP	5197.000	-37.15	-45.13	-13.00	-24.15	7.98	Peak	Vertical

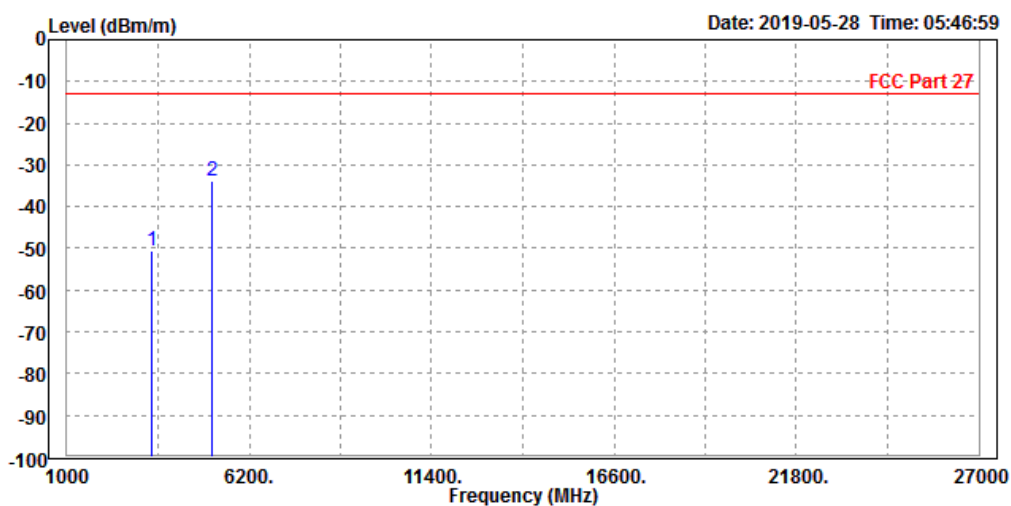


CHANNEL BANDWIDTH: 3MHz / QPSK

CH19965

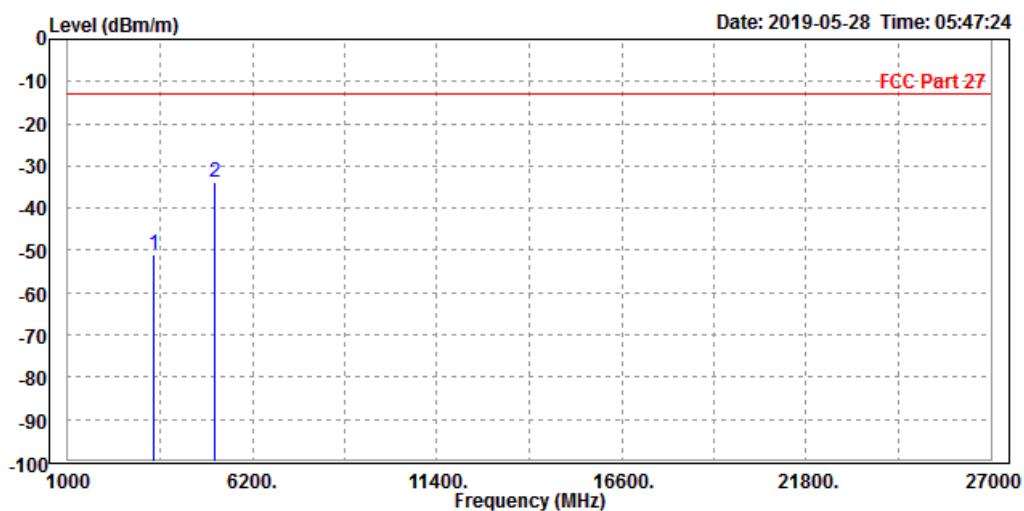
MODE	TX channel 19965	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3418.000	-50.49	-52.34	-13.00	-37.49	1.85	Peak	Horizontal
2 PP	5132.000	-33.70	-42.23	-13.00	-20.70	8.53	Peak	Horizontal



MODE	TX channel 19965	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

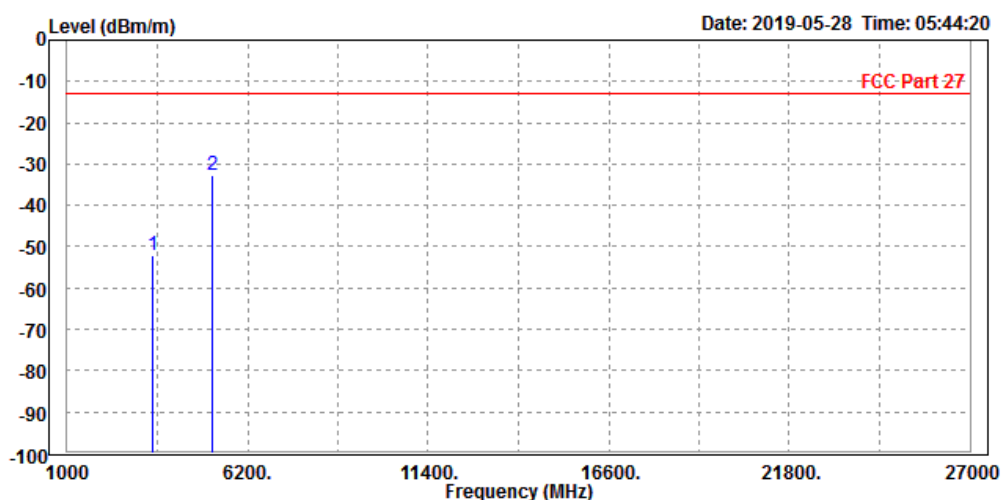
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3418.000	-50.99	-53.46	-13.00	-37.99	2.47	Peak	Vertical
2 PP	5132.000	-34.02	-42.01	-13.00	-21.02	7.99	Peak	Vertical



CH 20175

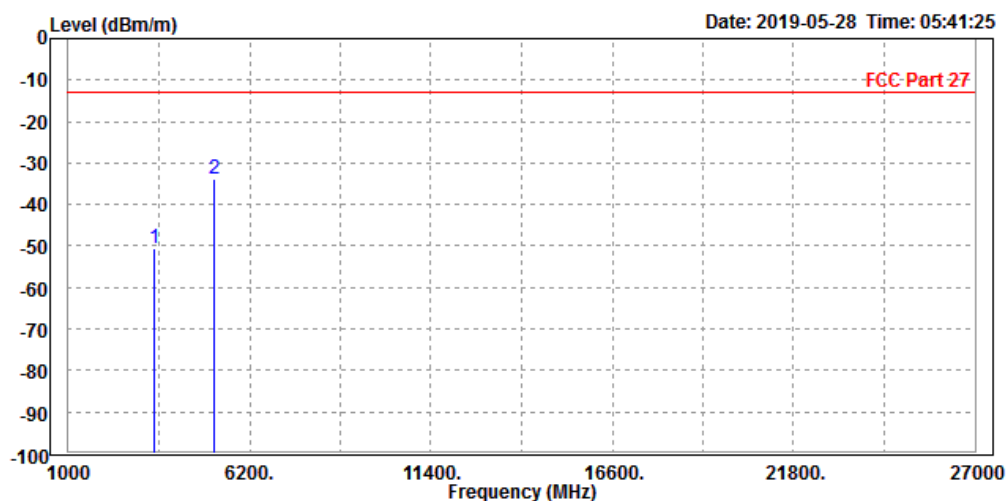
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-52.17	-54.22	-13.00	-39.17	2.05	Peak	Horizontal
2 PP	5197.000	-32.70	-41.31	-13.00	-19.70	8.61	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

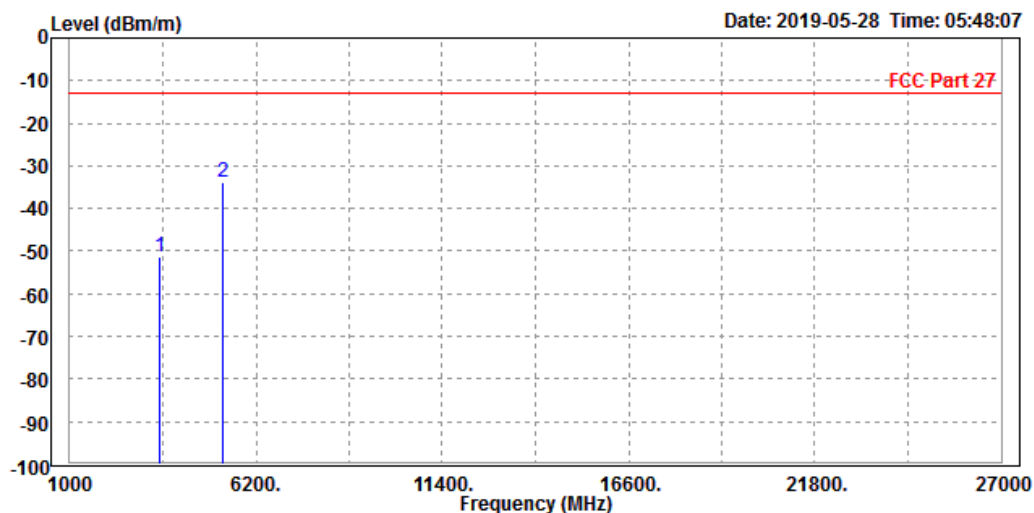
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-50.63	-53.16	-13.00	-37.63	2.53	Peak	Vertical
2 PP	5197.000	-33.80	-41.78	-13.00	-20.80	7.98	Peak	Vertical



CH20385

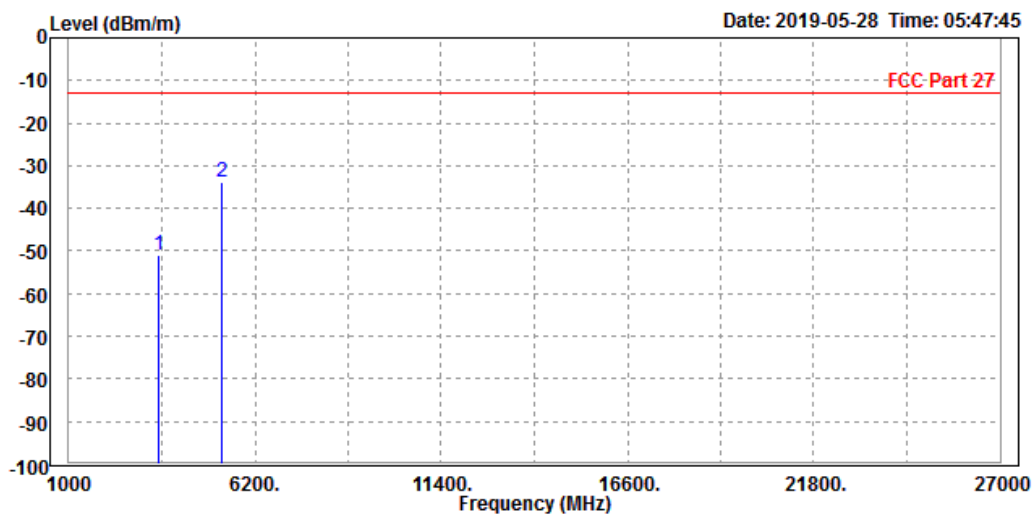
MODE	TX channel 20835	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3502.000	-51.31	-53.48	-13.00	-38.31	2.17	Peak	Horizontal
2 PP	5266.000	-33.88	-42.57	-13.00	-20.88	8.69	Peak	Horizontal



MODE	TX channel 20835	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

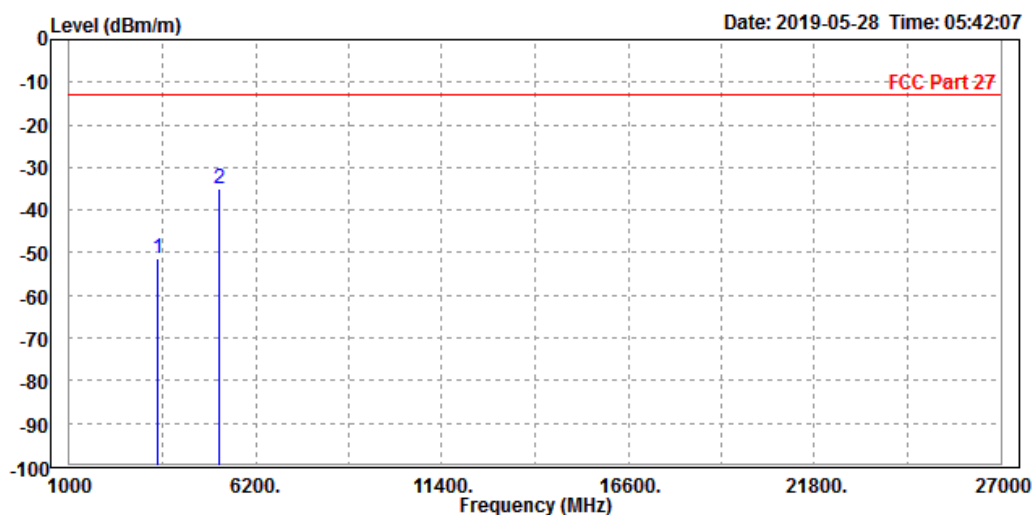
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3502.000	-51.04	-53.62	-13.00	-38.04	2.58	Peak	Vertical
2 PP	5266.000	-33.91	-41.89	-13.00	-20.91	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

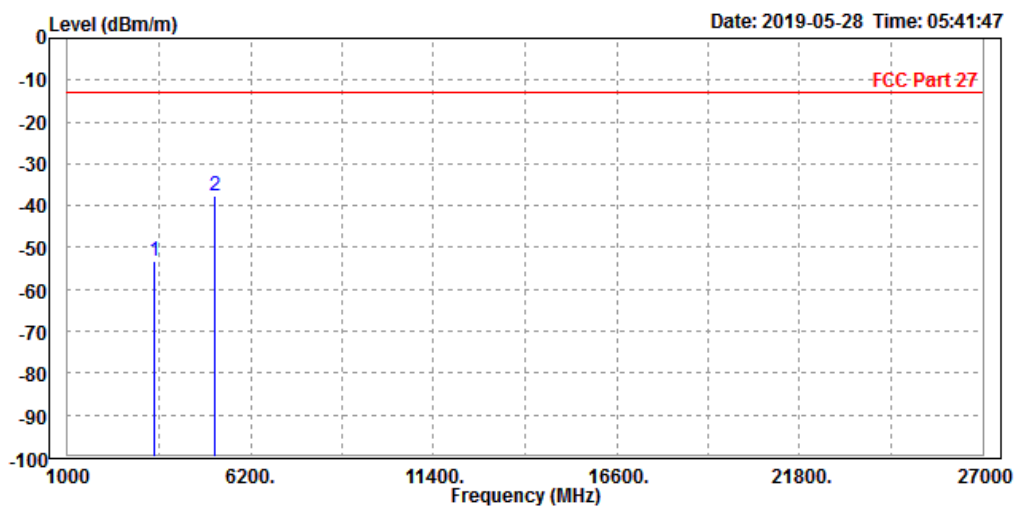
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-51.23	-53.28	-13.00	-38.23	2.05	Peak	Horizontal
2 PP	5197.000	-34.84	-43.45	-13.00	-21.84	8.61	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

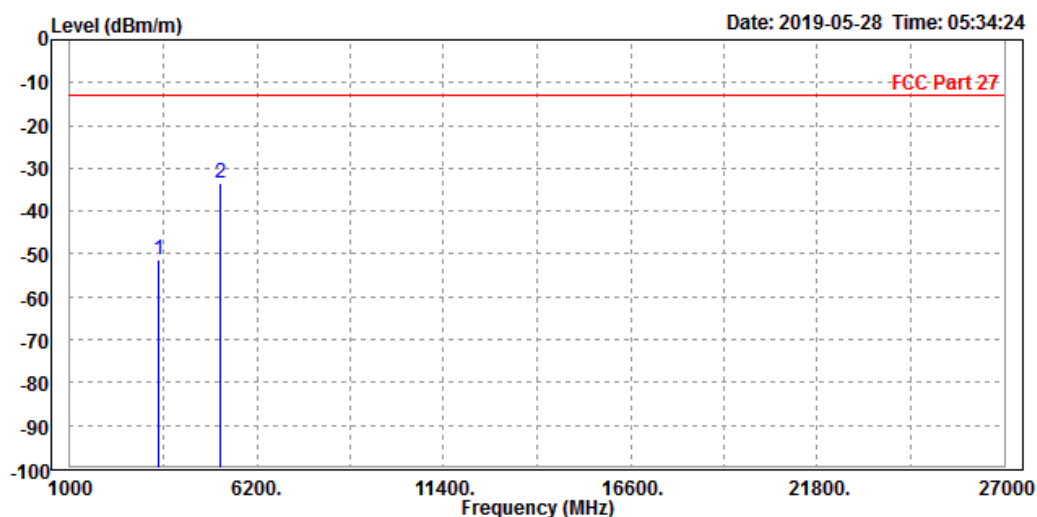
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-53.33	-55.86	-13.00	-40.33	2.53	Peak	Vertical
2 PP	5197.000	-37.69	-45.67	-13.00	-24.69	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

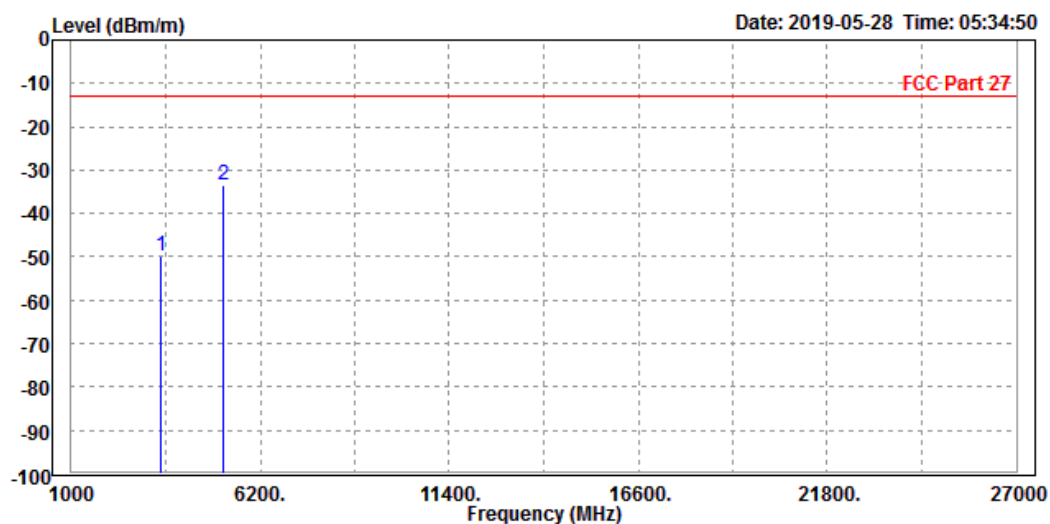
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-51.16	-53.21	-13.00	-38.16	2.05	Peak	Horizontal
2 PP	5197.000	-33.54	-42.15	-13.00	-20.54	8.61	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

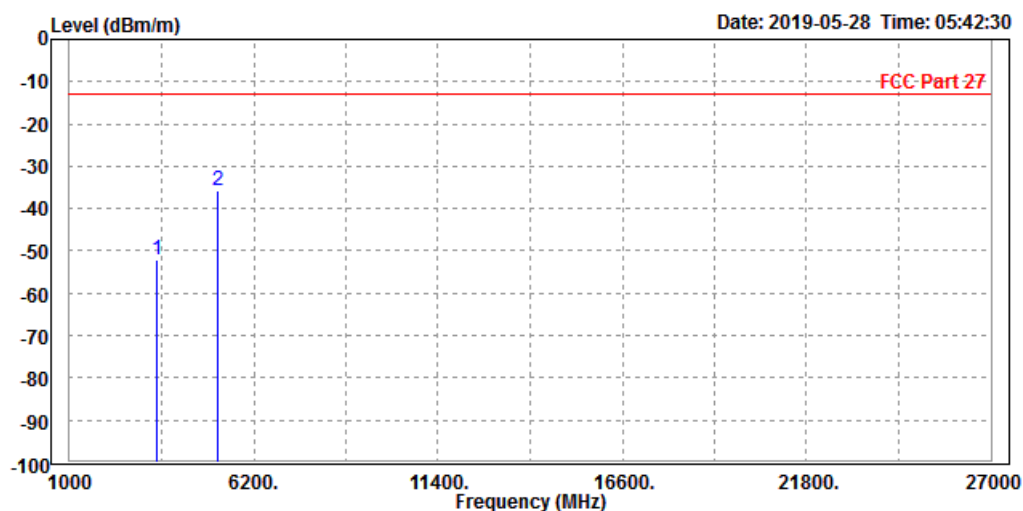
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-49.83	-52.36	-13.00	-36.83	2.53	Peak	Vertical
2 PP	5197.000	-33.47	-41.45	-13.00	-20.47	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

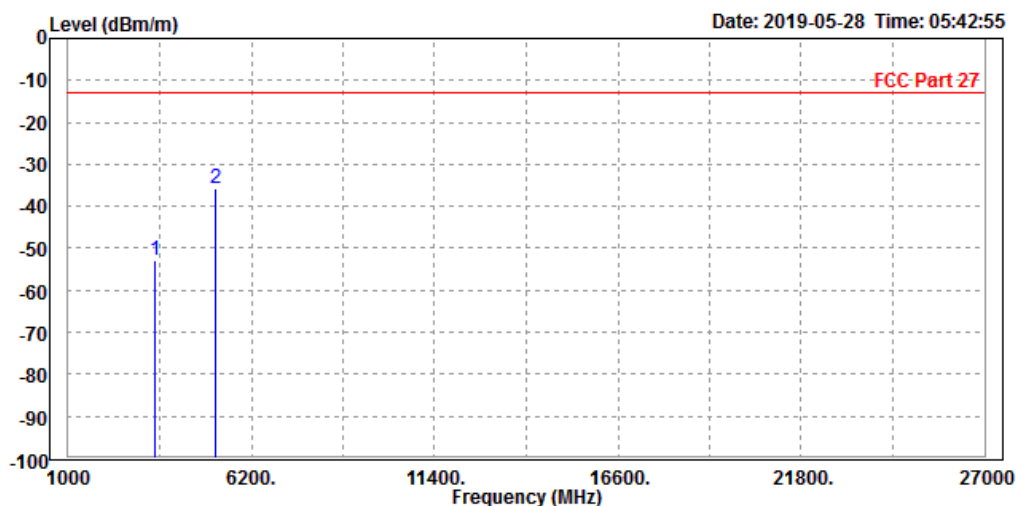
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-52.16	-54.21	-13.00	-39.16	2.05	Peak	Horizontal
2 PP	5197.000	-35.90	-44.51	-13.00	-22.90	8.61	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

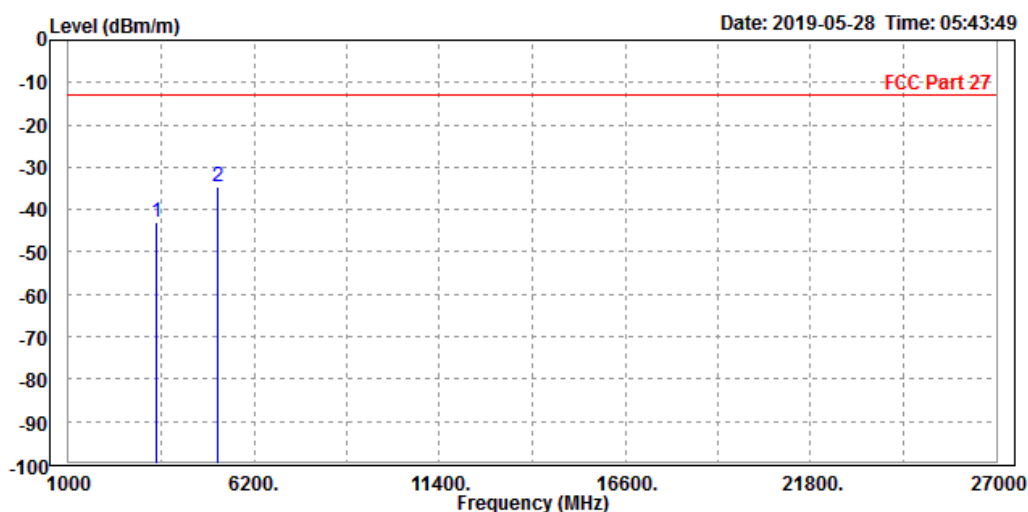
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-52.71	-55.24	-13.00	-39.71	2.53	Peak	Vertical
2 PP	5197.000	-35.83	-43.81	-13.00	-22.83	7.98	Peak	Vertical



CHANNEL BANDWIDTH: 20MHz / QPSK

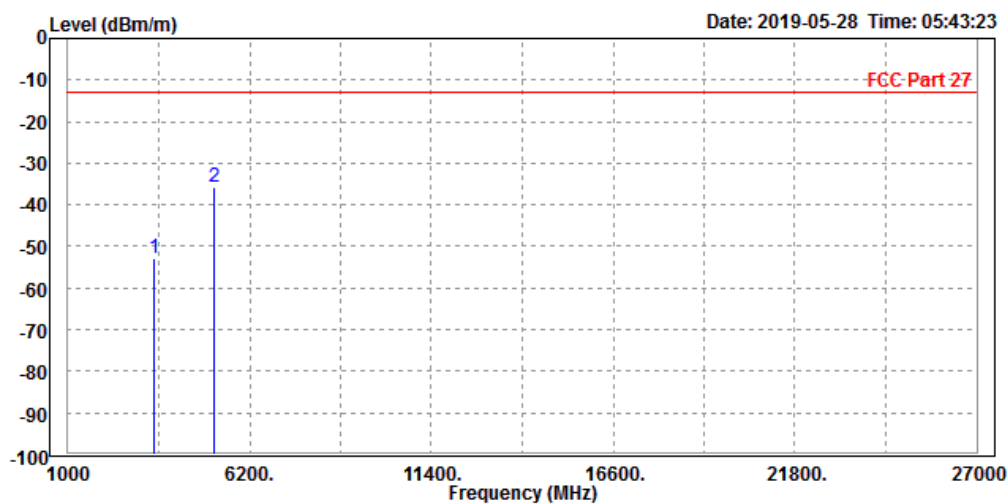
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3470.000	-43.08	-45.13	-13.00	-30.08	2.05	Peak	Horizontal
2 PP	5197.000	-34.66	-43.27	-13.00	-21.66	8.61	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	-52.89	-55.42	-13.00	-39.89	2.53	Peak	Vertical
2 PP	5197.000	-35.70	-43.68	-13.00	-22.70	7.98	Peak	Vertical





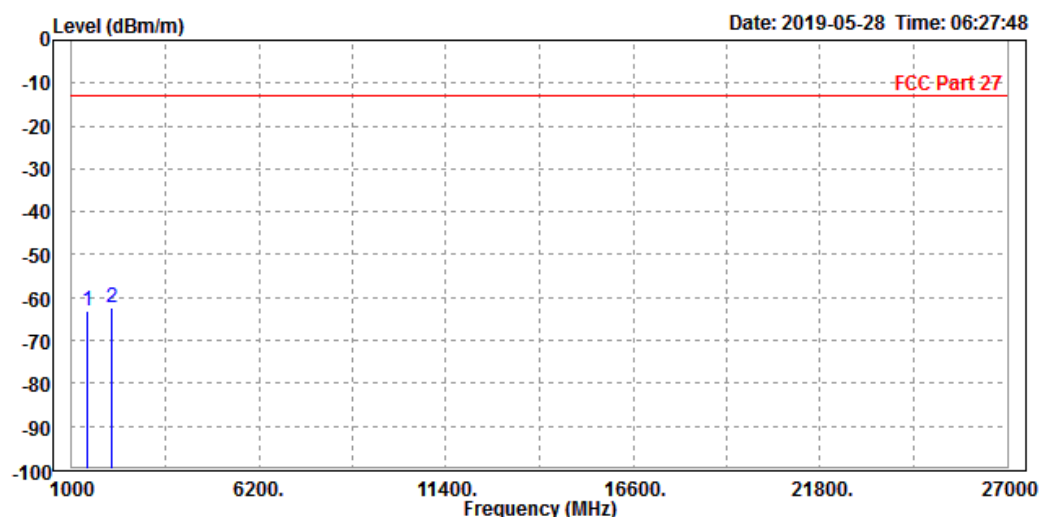
Test Report No.: RF190517W003-5

LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	1416.000	-63.04	-56.32	-13.00	-50.04	-6.72	Peak	Horizontal
2 PP	2122.500	-62.51	-60.58	-13.00	-49.51	-1.93	Peak	Horizontal

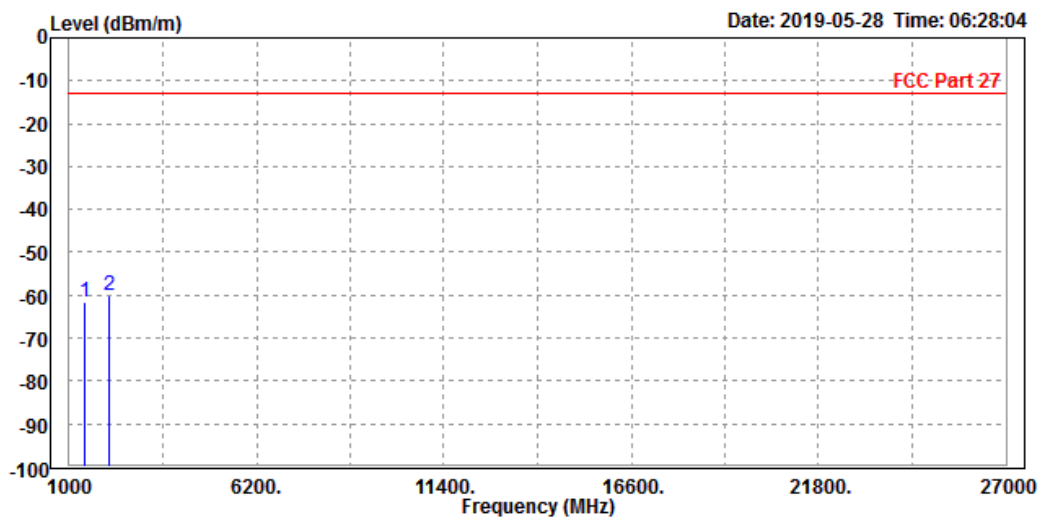




Test Report No.: RF190517W003-5

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	1416.000	-61.78	-56.34	-13.00	-48.78	-5.44	Peak	Vertical
2 PP	2122.500	-60.10	-59.86	-13.00	-47.10	-0.24	Peak	Vertical





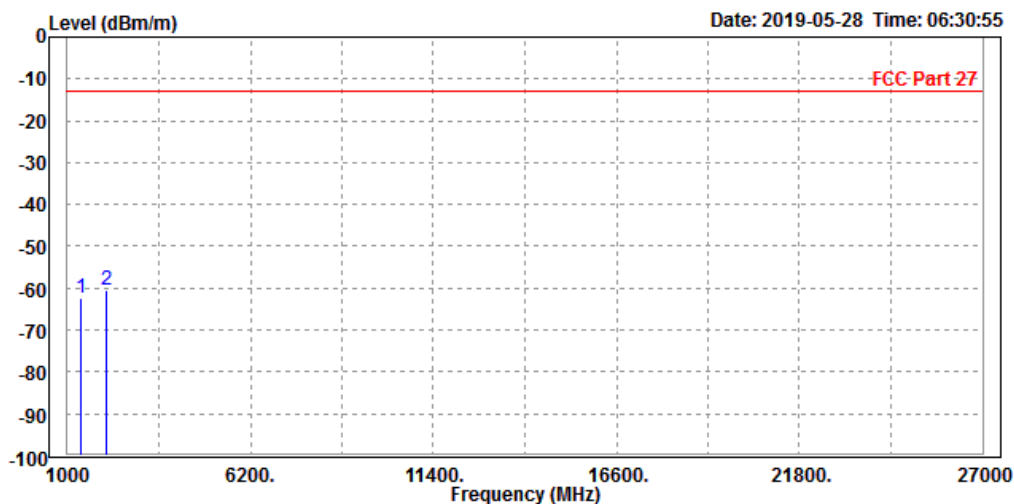
Test Report No.: RF190517W003-5

CHANNEL BANDWIDTH: 3MHz / QPSK

CH 23025

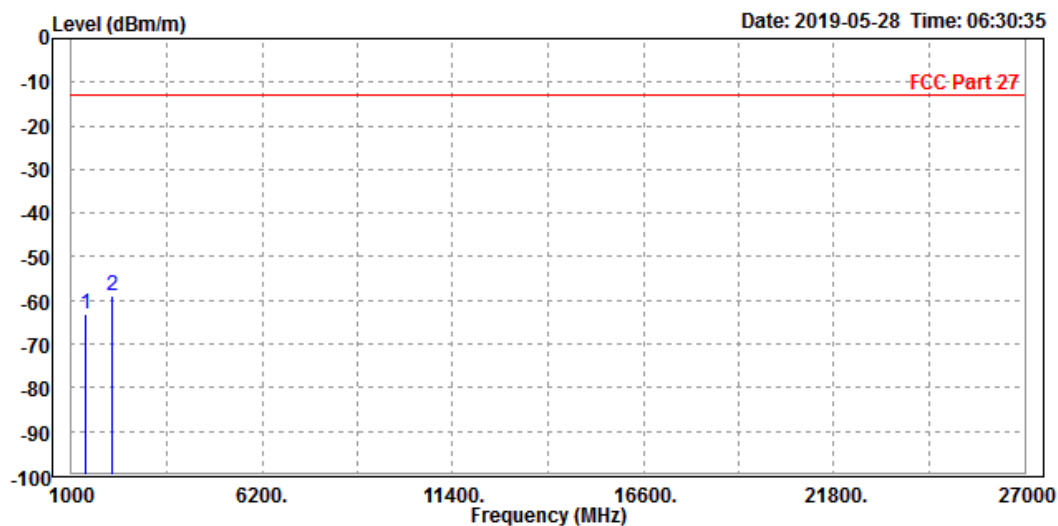
MODE	TX channel 23025	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1390.000	-62.30	-55.42	-13.00	-49.30	-6.88	Peak	Horizontal
2 PP	2101.500	-60.59	-58.64	-13.00	-47.59	-1.95	Peak	Horizontal



MODE	TX channel 23025	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

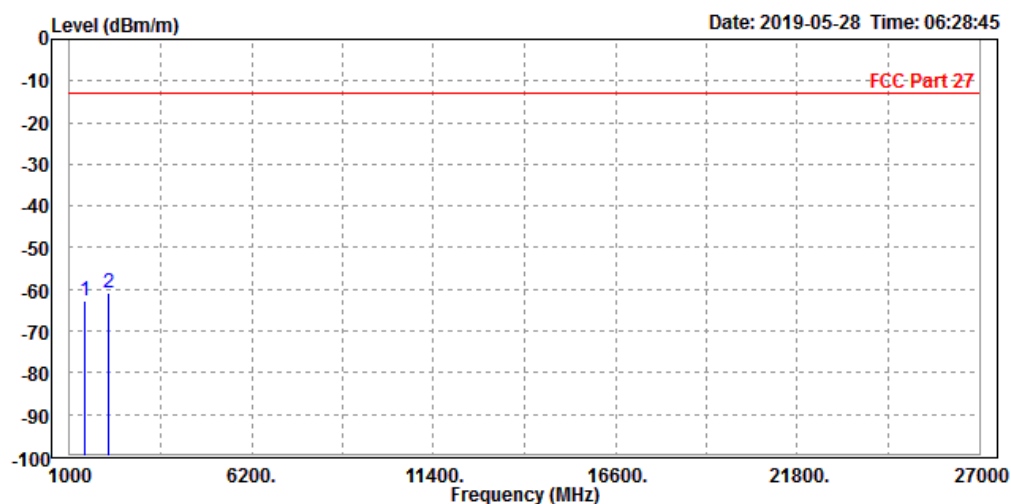
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1390.000	-63.01	-57.41	-13.00	-50.01	-5.60	Peak	Vertical
2 PP	2101.500	-58.94	-58.69	-13.00	-45.94	-0.25	Peak	Vertical



CH 23095

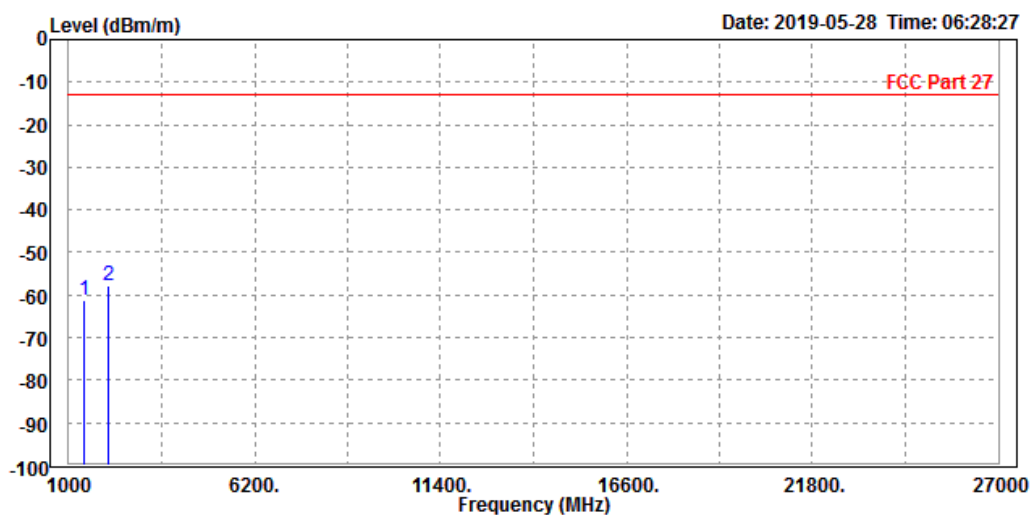
MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-62.67	-55.95	-13.00	-49.67	-6.72	Peak	Horizontal
2 PP	2122.500	-60.79	-58.86	-13.00	-47.79	-1.93	Peak	Horizontal



MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

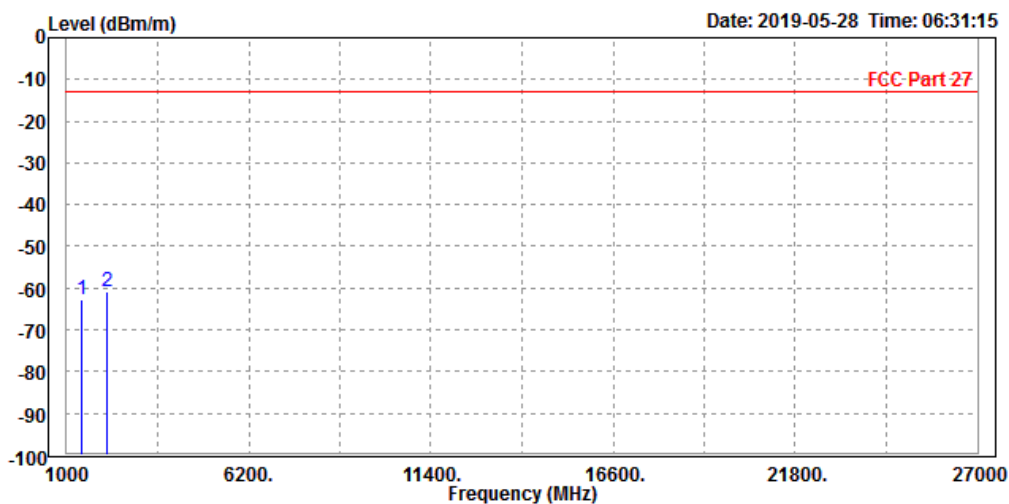
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-61.08	-55.64	-13.00	-48.08	-5.44	Peak	Vertical
2 PP	2122.500	-57.90	-57.66	-13.00	-44.90	-0.24	Peak	Vertical



CH 23165

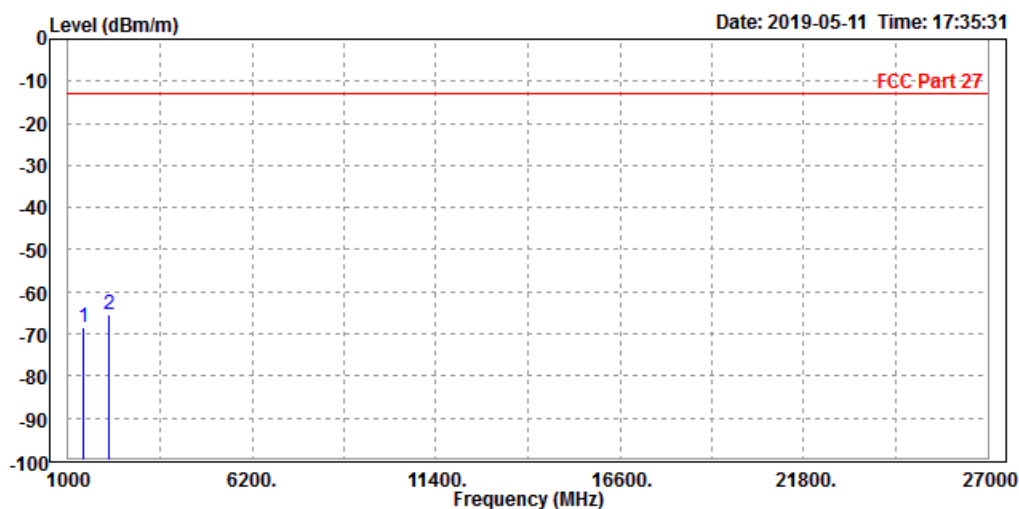
MODE	TX channel 23165	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-62.61	-55.89	-13.00	-49.61	-6.72	Peak	Horizontal
2 PP	2143.500	-60.86	-58.94	-13.00	-47.86	-1.92	Peak	Horizontal



MODE	TX channel 23165	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

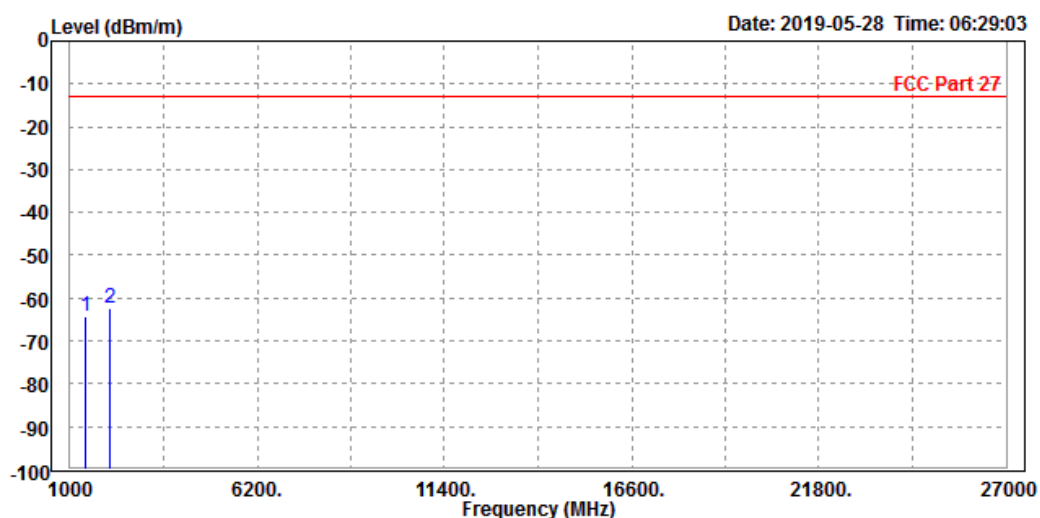
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-68.56	-63.12	-13.00	-55.56	-5.44	Peak	Vertical
2 PP	2143.500	-65.31	-65.07	-13.00	-52.31	-0.24	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

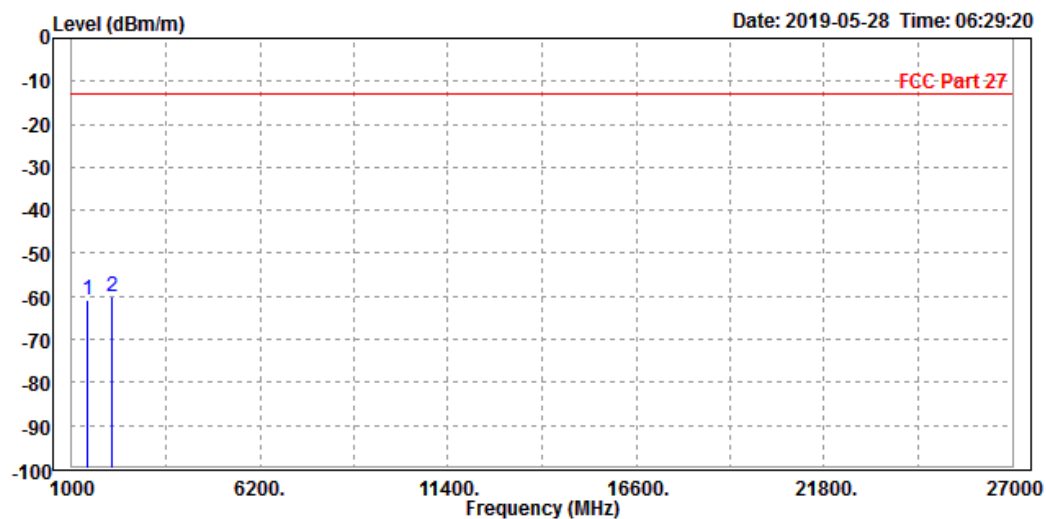
MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-64.14	-57.42	-13.00	-51.14	-6.72	Peak	Horizontal
2 PP	2122.500	-62.24	-60.31	-13.00	-49.24	-1.93	Peak	Horizontal



MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

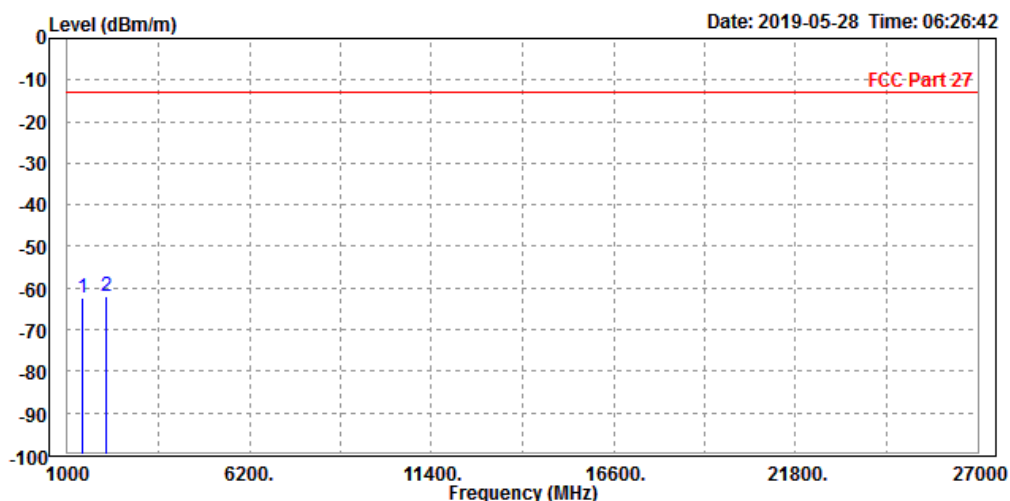
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-60.93	-55.49	-13.00	-47.93	-5.44	Peak	Vertical
2 PP	2122.500	-59.92	-59.68	-13.00	-46.92	-0.24	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

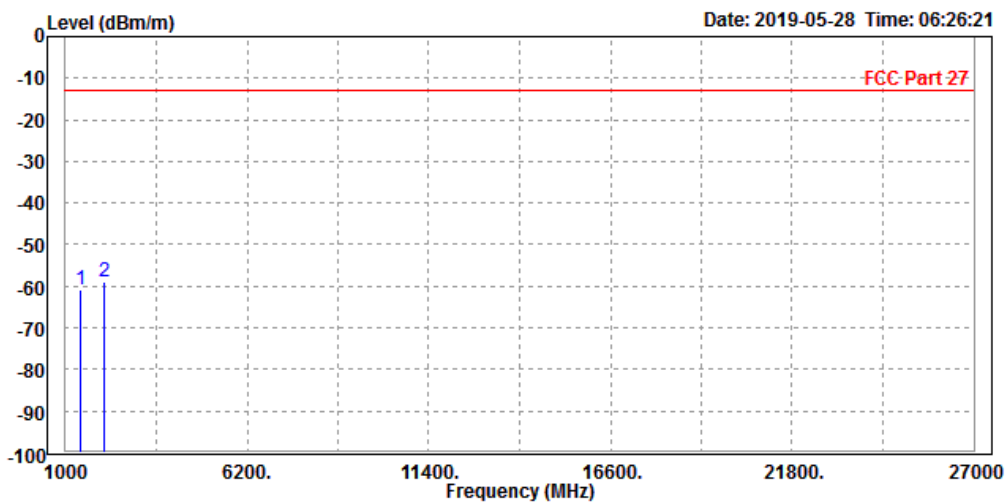
MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-62.50	-55.78	-13.00	-49.50	-6.72	Peak	Horizontal
2 PP	2122.500	-61.79	-59.86	-13.00	-48.79	-1.93	Peak	Horizontal



MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	1416.000	-60.92	-55.48	-13.00	-47.92	-5.44	Peak	Vertical
2 PP	2122.500	-58.89	-58.65	-13.00	-45.89	-0.24	Peak	Vertical



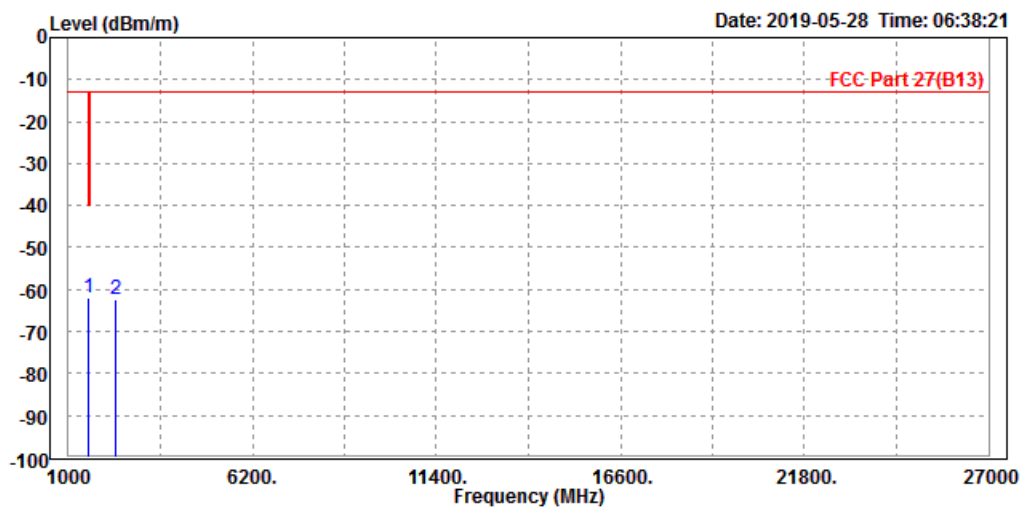
LTE BAND 13

CHANNEL BANDWIDTH: 5MHz / QPSK

CH 23205

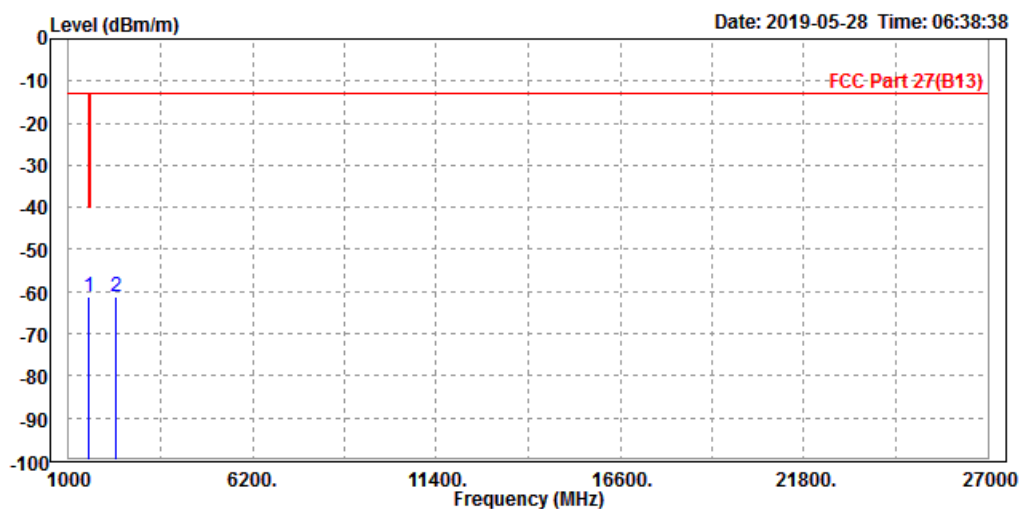
MODE	TX channel 23205	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1572.000	-61.98	-56.38	-40.00	-21.98	-5.60	Peak	Horizontal
2	2338.500	-62.35	-60.59	-13.00	-49.35	-1.76	Peak	Horizontal



MODE	TX channel 23205	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	1572.000	-61.13	-56.87	-40.00	-21.13	-4.26	Peak	Vertical
2		2338.500	-61.09	-60.89	-13.00	-48.09	-0.20	Peak	Vertical





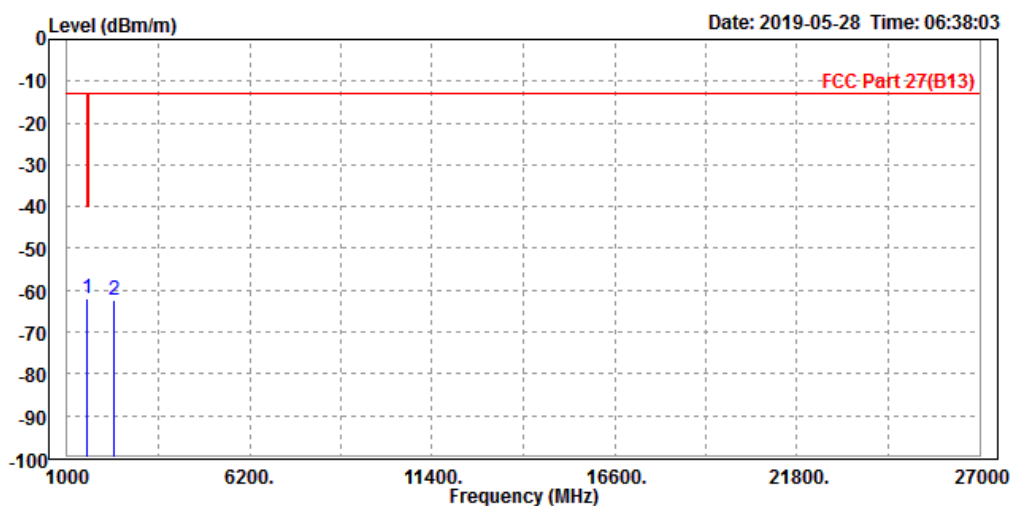
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Test Report No.: RF190517W003-5

CH 23230

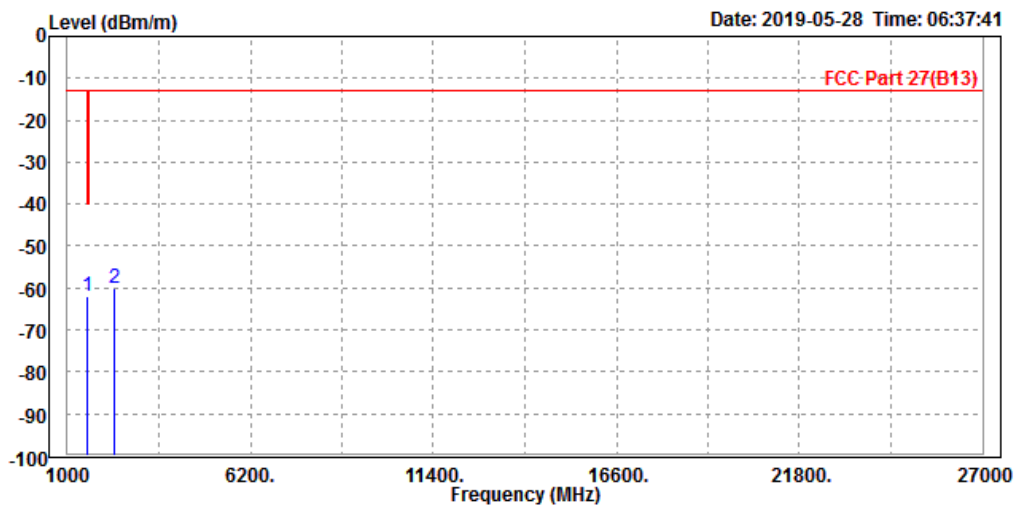
MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-62.01	-56.41	-40.00	-22.01	-5.60	Peak	Horizontal
2		2346.000	-62.34	-60.58	-13.00	-49.34	-1.76	Peak	Horizontal



MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

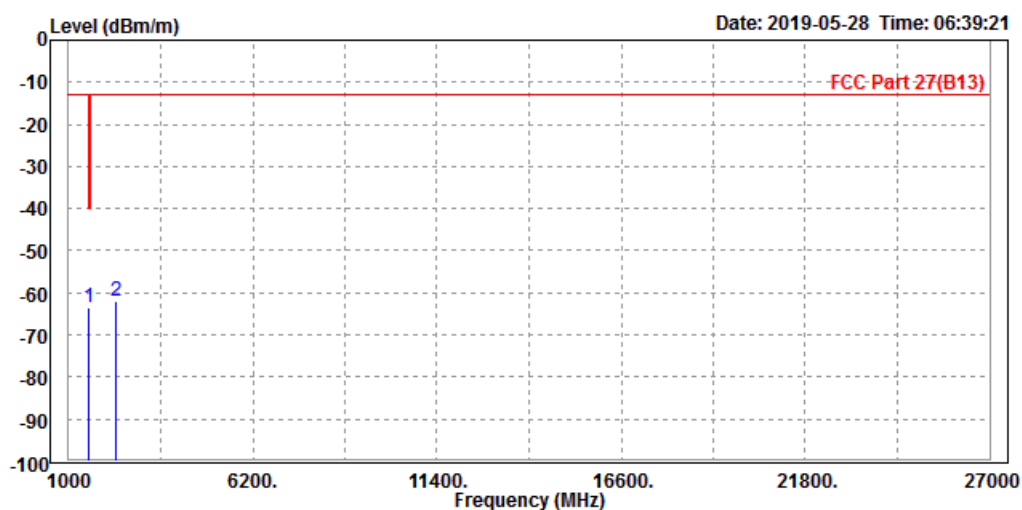
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1572.000	-61.88	-57.62	-40.00	-21.88	-4.26	Peak	Vertical
2	2346.000	-60.22	-60.02	-13.00	-47.22	-0.20	Peak	Vertical



CH 23255

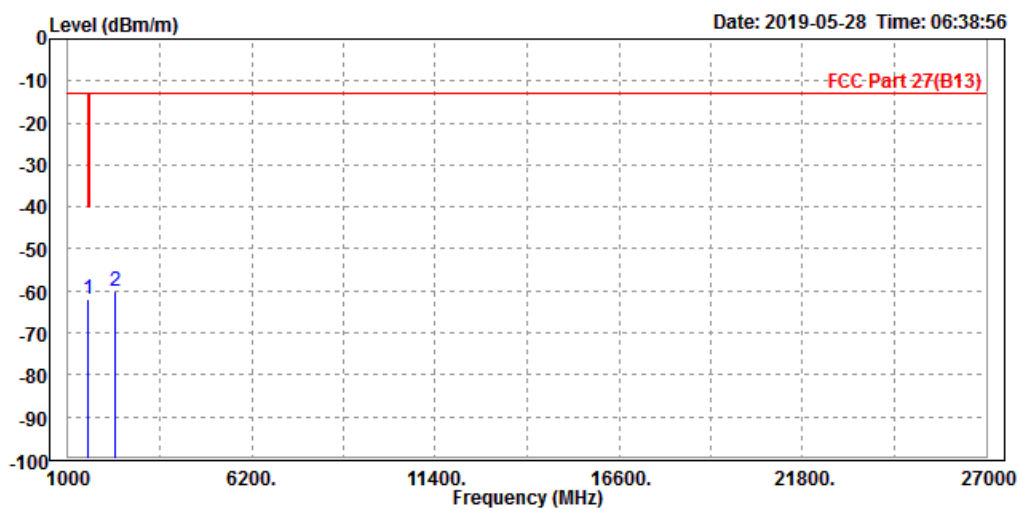
MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1572.000	-63.44	-57.84	-40.00	-23.44	-5.60	Peak	Horizontal
2	2353.500	-62.10	-60.35	-13.00	-49.10	-1.75	Peak	Horizontal



MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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 1572.000	-62.11	-57.85	-40.00	-22.11	-4.26	Peak	Vertical
2	2353.500	-60.06	-59.86	-13.00	-47.06	-0.20	Peak	Vertical



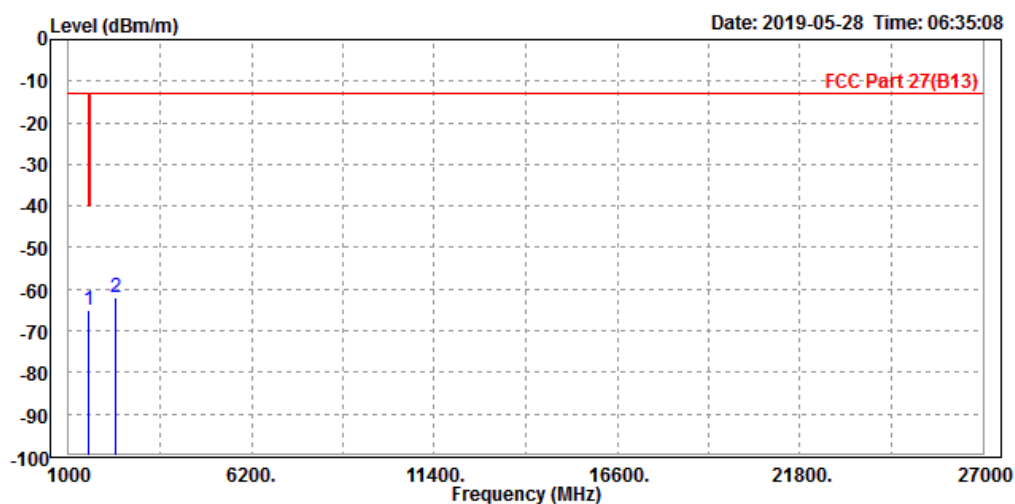


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CHANNEL BANDWIDTH: 10MHz / QPSK

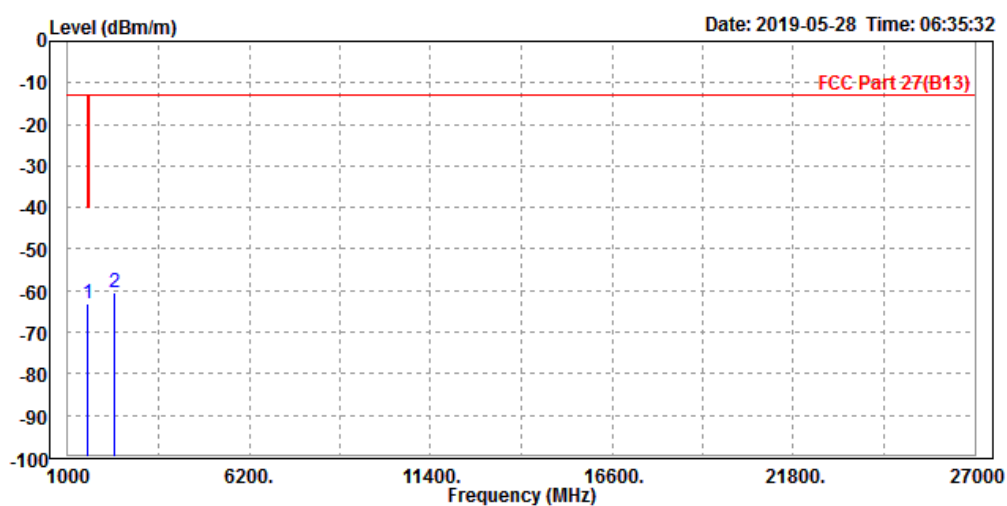
MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-64.92	-59.32	-40.00	-24.92	-5.60	Peak	Horizontal
2		2346.000	-62.11	-60.35	-13.00	-49.11	-1.76	Peak	Horizontal



MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V 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	1572.000	-62.95	-58.69	-40.00	-22.95	-4.26	Peak	Vertical
2		2346.000	-60.45	-60.25	-13.00	-47.45	-0.20	Peak	Vertical





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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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Fax: +86-755-88696577

Email: customerservice.dg@cn.bureauveritas.com

Web Site: www.adt.com.tw

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



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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.

---END---