



Test Report No.: RF190712W002-5

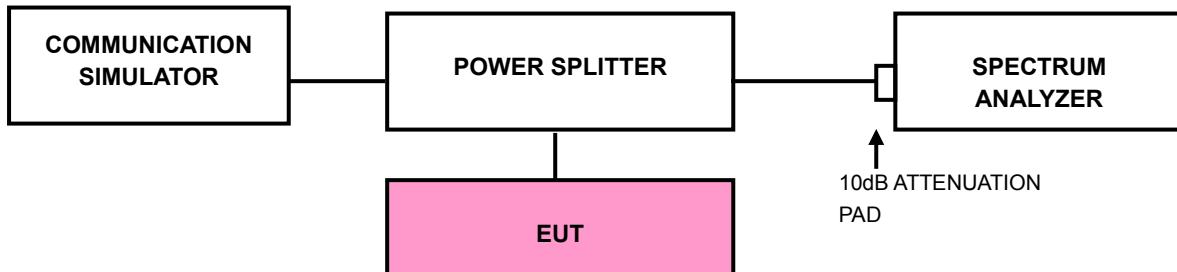
3.5 BAND EDGE MEASUREMENT

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.



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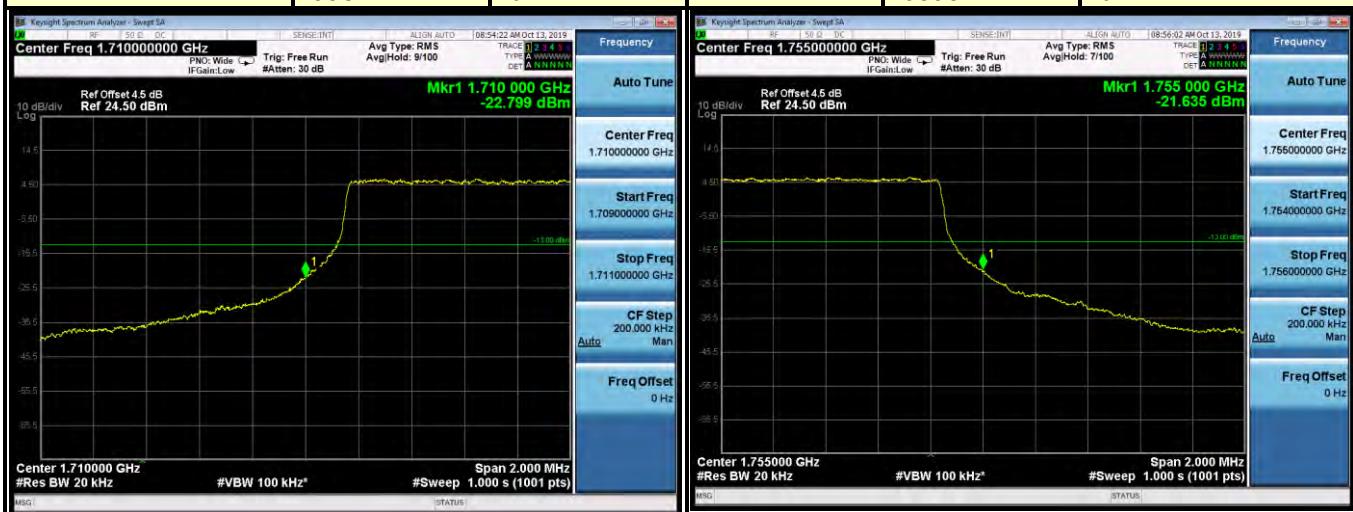
3.5.4 TEST RESULTS

LTE BAND 4

Channel Bandwidth: 1.4MHz QPSK



CHANNEL 19957 Full RB

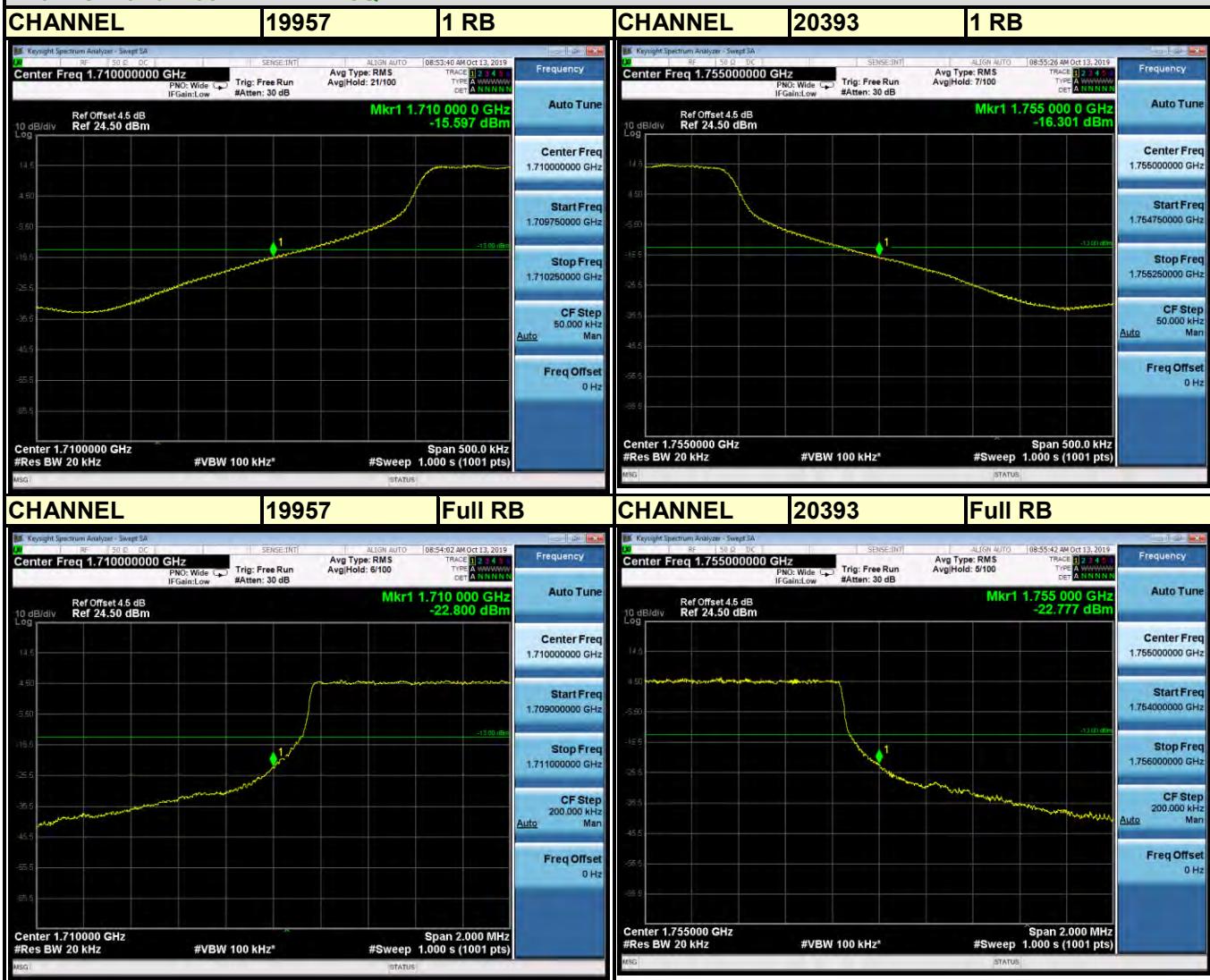




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BUREAU
VERITAS

Channel Bandwidth: 1.4MHz 16QAM

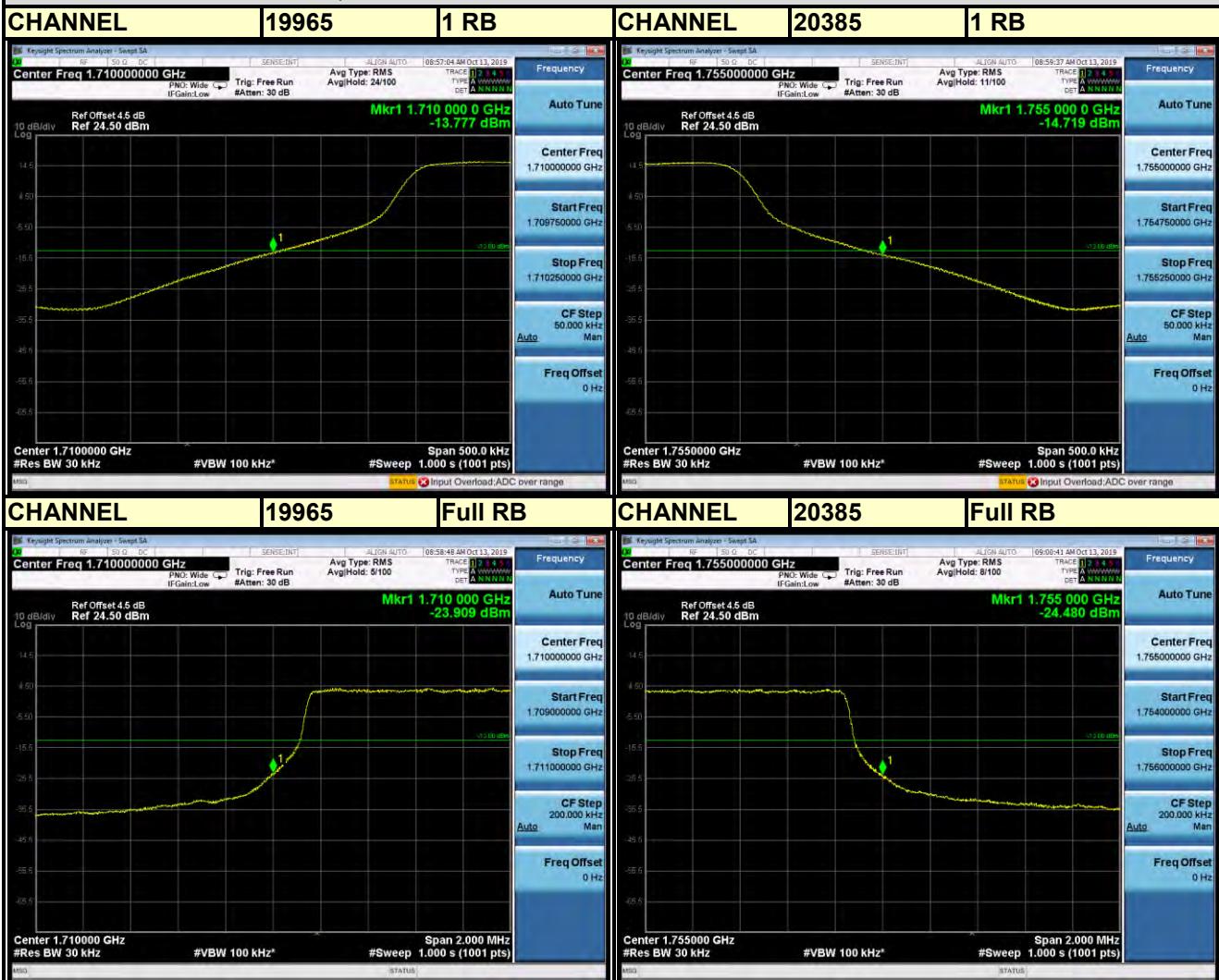




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LTE BAND 4

Channel Bandwidth: 3MHz QPSK





Test Report No.: RF190712W002-5

Channel Bandwidth: 3MHz 16QAM

The screenshot shows a Keysight Spectrum Analyzer window with the following details:

- CHANNEL**: Center Freq 1.710000000 GHz, Span 500.000 kHz, #VBW 100 kHz, #Res BW 30 kHz.
- 19965**: SENS:INT, ALIGN AUTO, 08:57:46 AM Oct 13, 2019.
- 1 RB**: TRACE A, TYPE A, WAVEFORM DET A, HORIZONTAL.
- Frequency**: Auto Tuned.
- Center Freq**: 1.710000000 GHz.
- Start Freq**: 1.709750000 GHz.
- Stop Freq**: 1.710250000 GHz.
- CF Step**: 50.000 kHz.
- Auto**.
- Freq Offset**: 0 Hz.
- Plot Area**: Shows a signal spectrum with a green stepped line and a yellow smooth curve. A green horizontal line at -1.5 dB is labeled "Ref Offset 4.5 dB Ref 24.50 dBm". A green arrow points to a peak labeled "1". The y-axis ranges from -65 to 10 dBm/dB.
- Legend**: PN: Wide, IFGain:Low, Trig: Free Run, #Atten: 30 dB, AvgType: RMS, AvgHold: 16/100.

The screenshot shows a Keysight Spectrum Analyzer interface with the following details:

- CHANNEL**: Center Freq 1.710000000 GHz
- 19965**
- FULL RB**
- SENSE[INT]**, **ALIGN AUTO**
- 08:58:22 4M Oct 2019**
- Trace 1, Type A, WAVEFORM, DET A, ENVELOPE**
- Frequency**: Auto Tuned
- Ref Offset 4.5 dB**, **Ref 24.50 dBm**
- Mkr1 1.710 000 GHz**, **-25.922 dBm**
- 10 dB/Div**, **Log**
- Center 1.710000 GHz**, **#Res BW 30 kHz**, **Span 2.000 MHz**, **#VBW 100 kHz***, **#Sweep 1.000 s (1001 pts)**
- IF Gain: Low**, **IF Gain: Low**
- Trig: Free Run**, **#Atten: 30 dB**
- Avg Type: RMS**, **Avg/Hold: 6/100**
- Auto**
- Start Frequency: 1.709000000 GHz**
- Stop Frequency: 1.711000000 GHz**
- CF Step: 200.000 kHz**
- Freq Offset: 0 Hz**

The screenshot shows a Keysight Spectrum Analyzer software window with the following details:

- Top Bar:** CHANNEL 20385, 1 RB
- Left Panel:** Frequency Range: 1.755000000 GHz to 1.755250000 GHz, Start Freq: 1.754750000 GHz, Stop Freq: 1.755250000 GHz, CF Step: 50.000 kHz, Auto, Freq Offset: 0 Hz.
- Middle Panel:**
 - Center Freq:** 1.755000000 GHz, #Res: 30 kHz, #VBW: 100 kHz.
 - Integration:** SENSE: INT, ALC/ON: AUTO, 108:59 AM Oct 13, 2019.
 - Trigger:** Trig: Free Run, #Atten: 30 dB.
 - Avg Type:** RMS, Avg/Hold: 12/100.
 - Det:** A, NORM.
 - Display:** Mkrt 1.755 000 0 GHz, -13.538 dBm.
- Plot Area:** Shows a signal spectrum with a yellow dashed curve. The y-axis is labeled "10 dB/div Log" and ranges from -6.5 to -14.5. The x-axis is labeled "100.000 kHz". A green horizontal line is drawn at approximately -13.5 dBm.

The screenshot shows a Keysight Spectrum Analyzer interface with the following details:

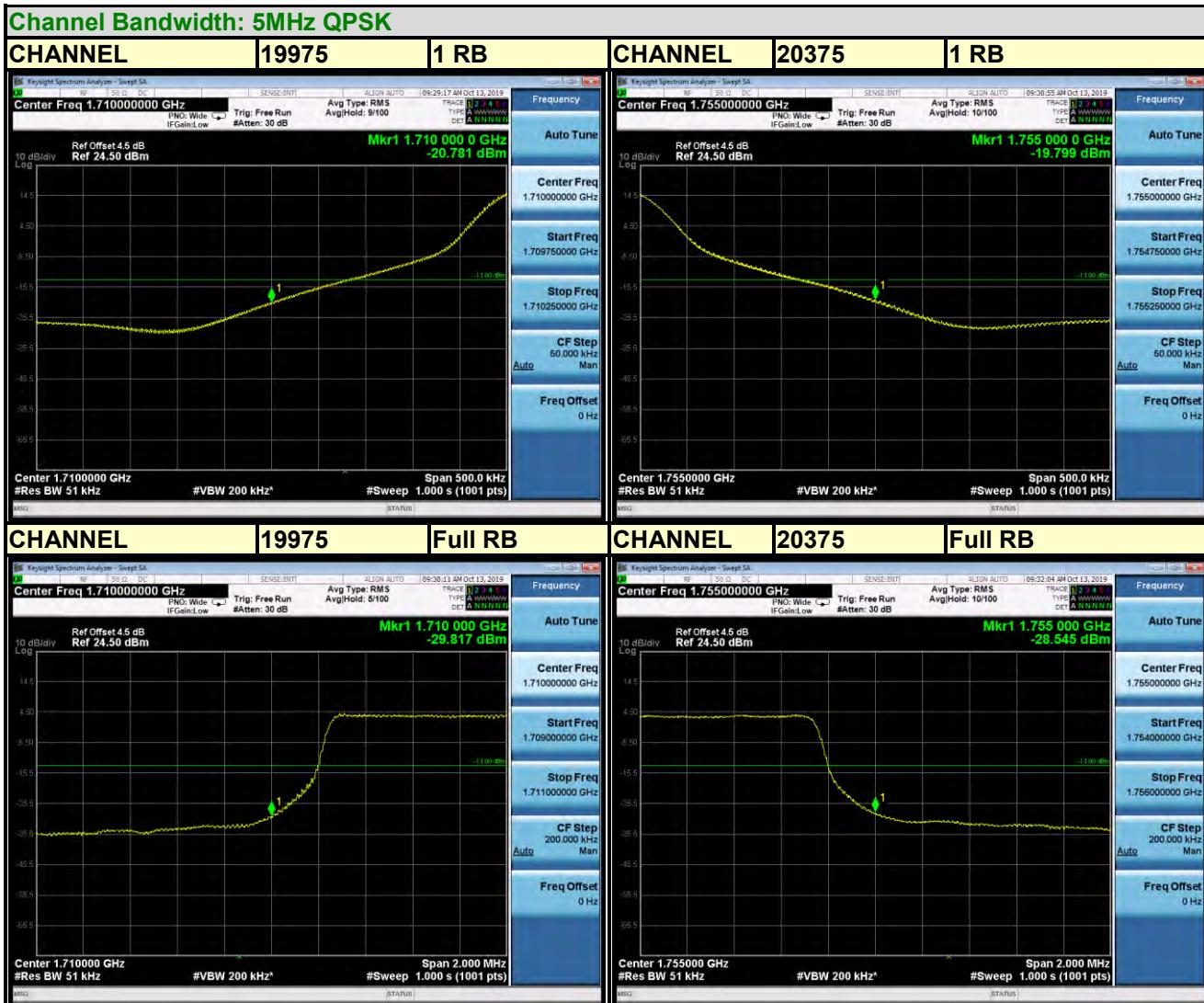
- CHANNEL**: 20385
- Full RB**
- Center Freq**: 1.755000000 GHz
- Ref Offset**: 4.5 dB
- Ref**: 24.50 dBm
- PNC**: Wide
- IFGain**: Low
- Trig**: Free Run
- #Atten**: 30 dB
- Avg Type**: RMS
- Avg/Hold**: 7/100
- Trace**: 10, 11, 14
- Type**: A
- DET**: A
- Mkr1**: 1.755 000 GHz -25.580 dBm
- Frequency**: Auto Tune
- Center Freq**: 1.755000000 GHz
- Start Freq**: 1.754000000 GHz
- Stop Freq**: 1.756000000 GHz
- CF Step**: 200.000 kHz
- Auto**
- Freq Offset**: 0 Hz

The main plot area shows a signal spectrum with a sharp drop-off at approximately 1.755 GHz. The y-axis ranges from -65.5 to 10 dBm.



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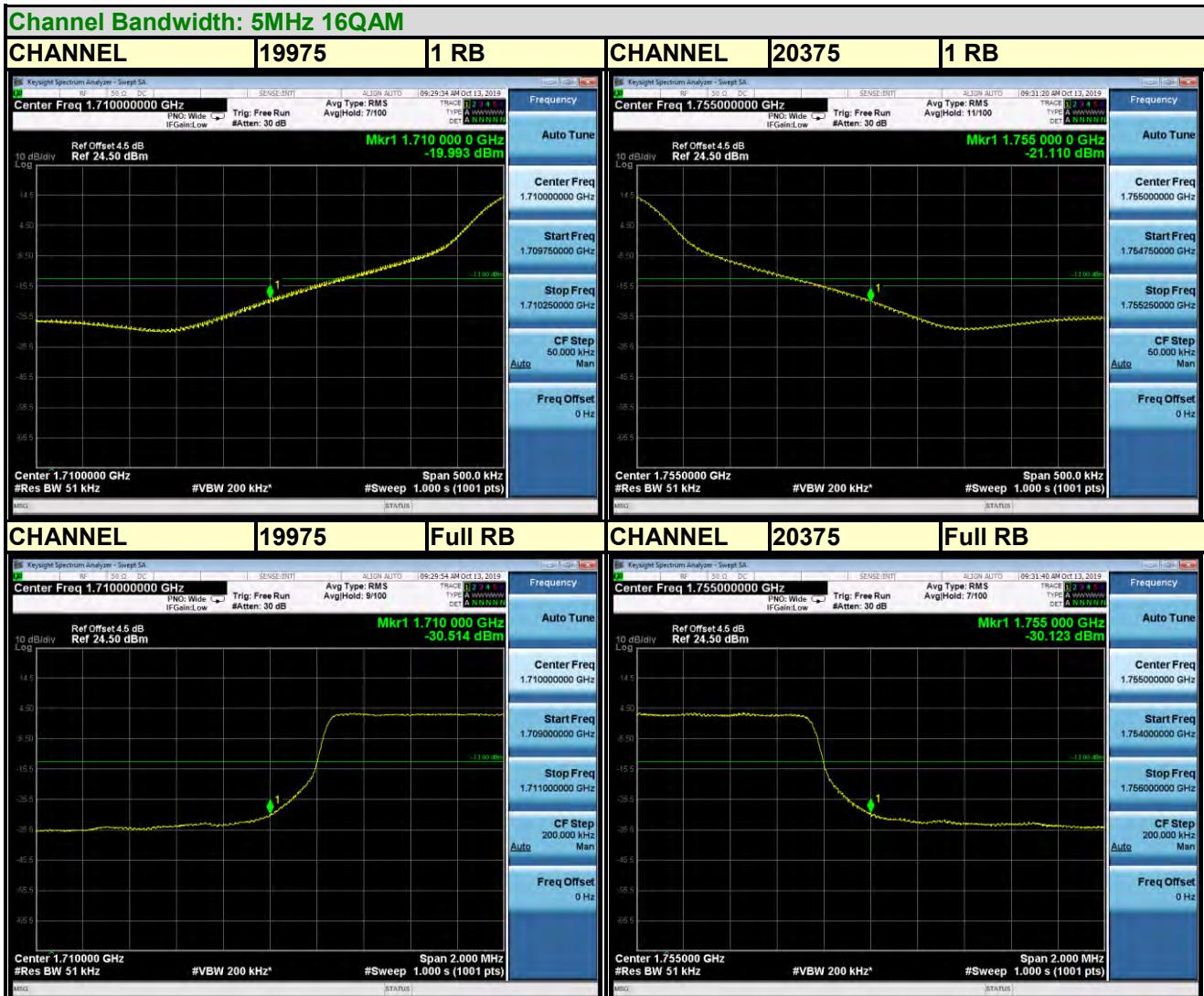
LTE BAND 4





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BUREAU
VERITAS

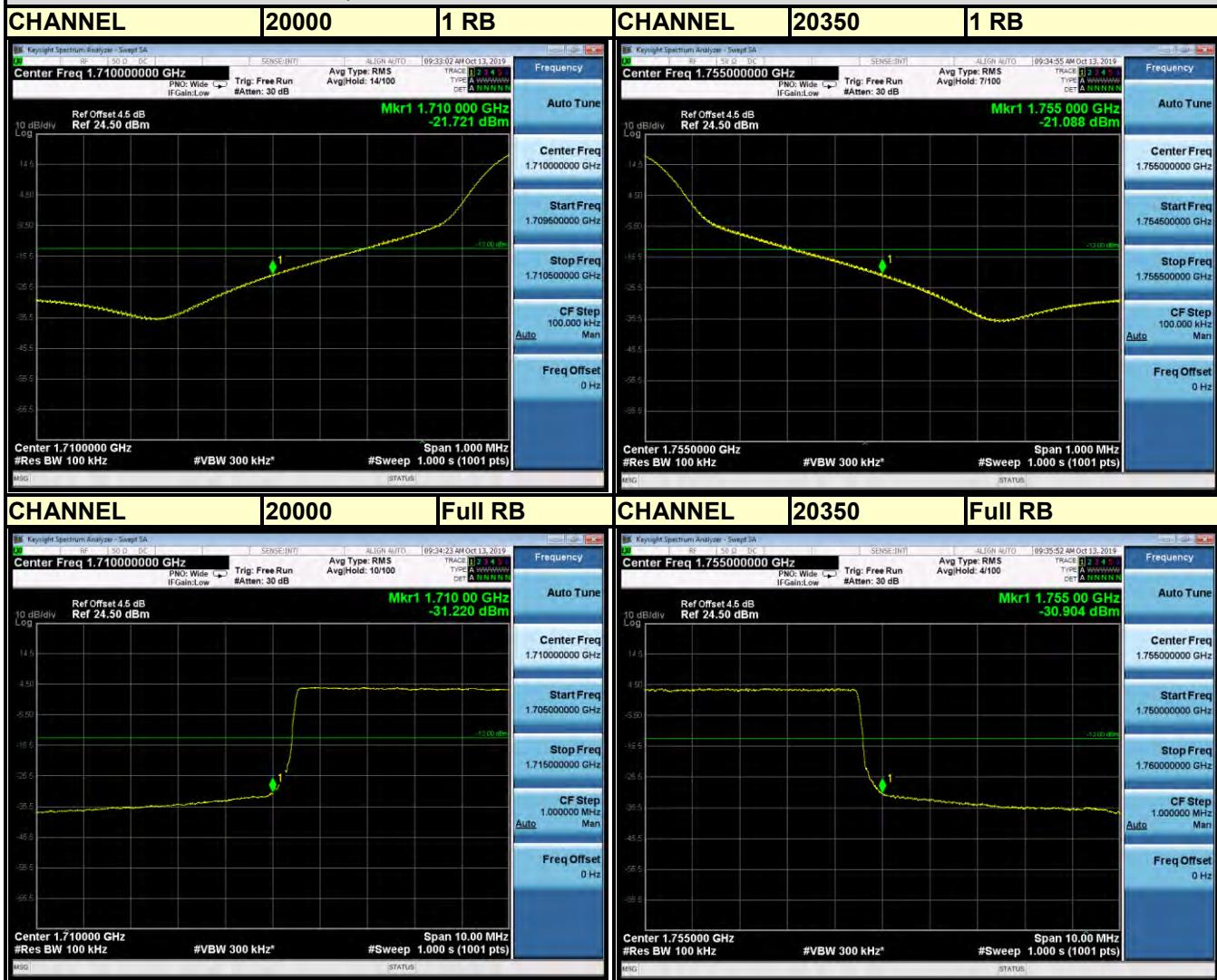




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LTE BAND 4

Channel Bandwidth: 10MHz QPSK





Test Report No.: RF190712W002-5

BUREAU
VERITAS

Channel Bandwidth: 10MHz 16QAM

CHANNEL 20000 1 RB



CHANNEL 20350 1 RB



CHANNEL 20000 Full RB



CHANNEL 20350 Full RB





Test Report No.: RF190712W002-5

LTE BAND 4

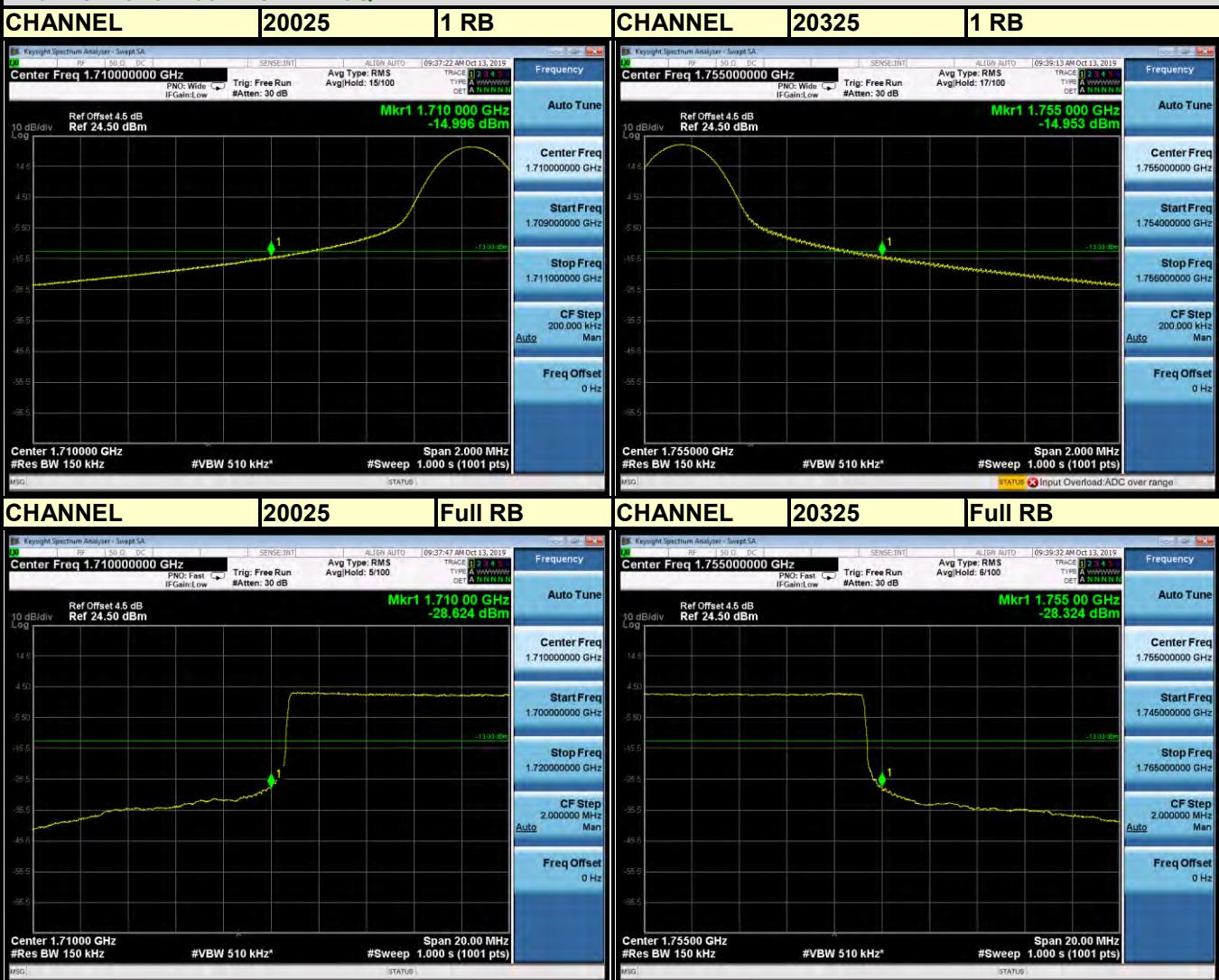
Channel Bandwidth: 15MHz QPSK





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Channel Bandwidth: 15MHz 16QAM

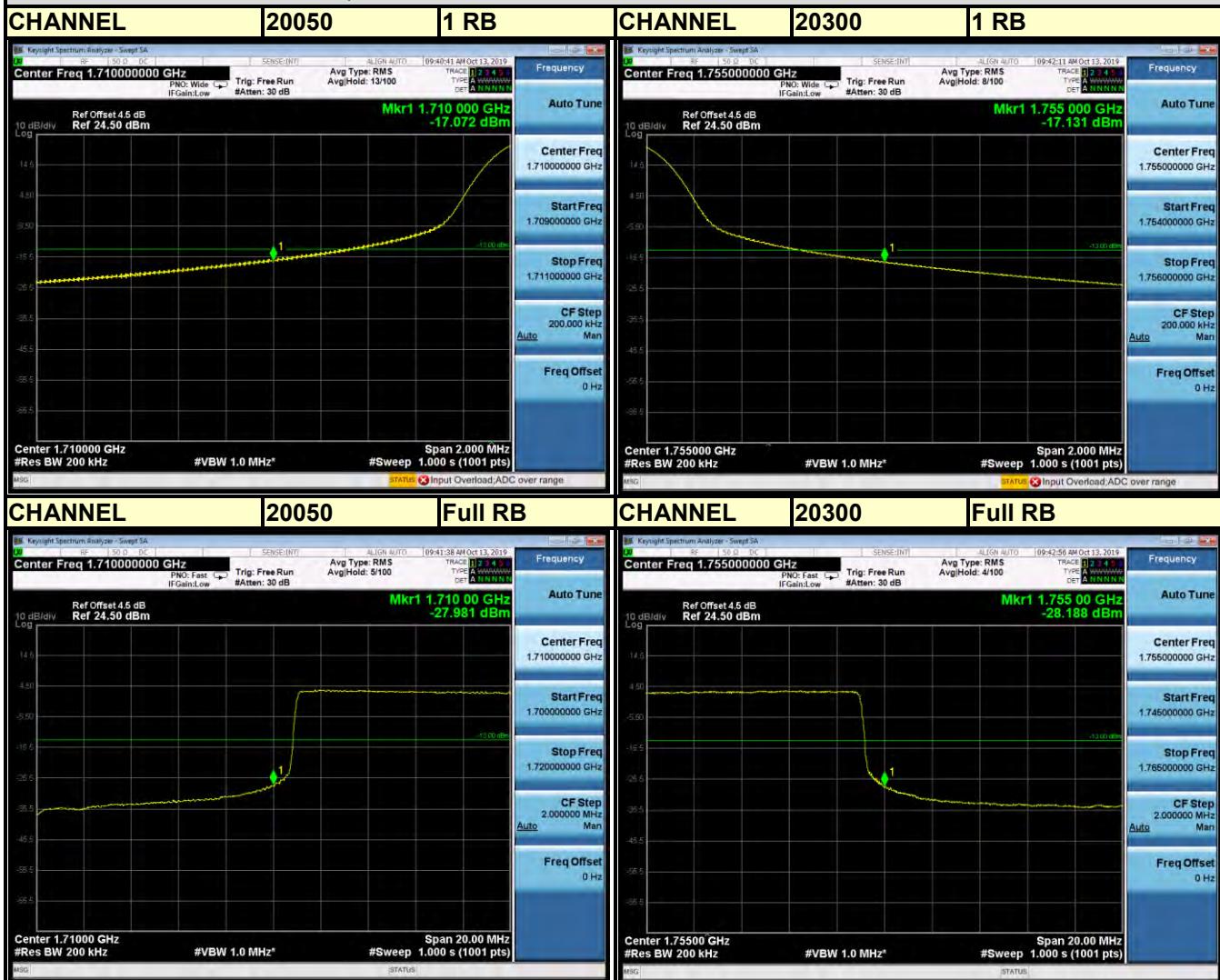




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LTE BAND 4

Channel Bandwidth: 20MHz QPSK

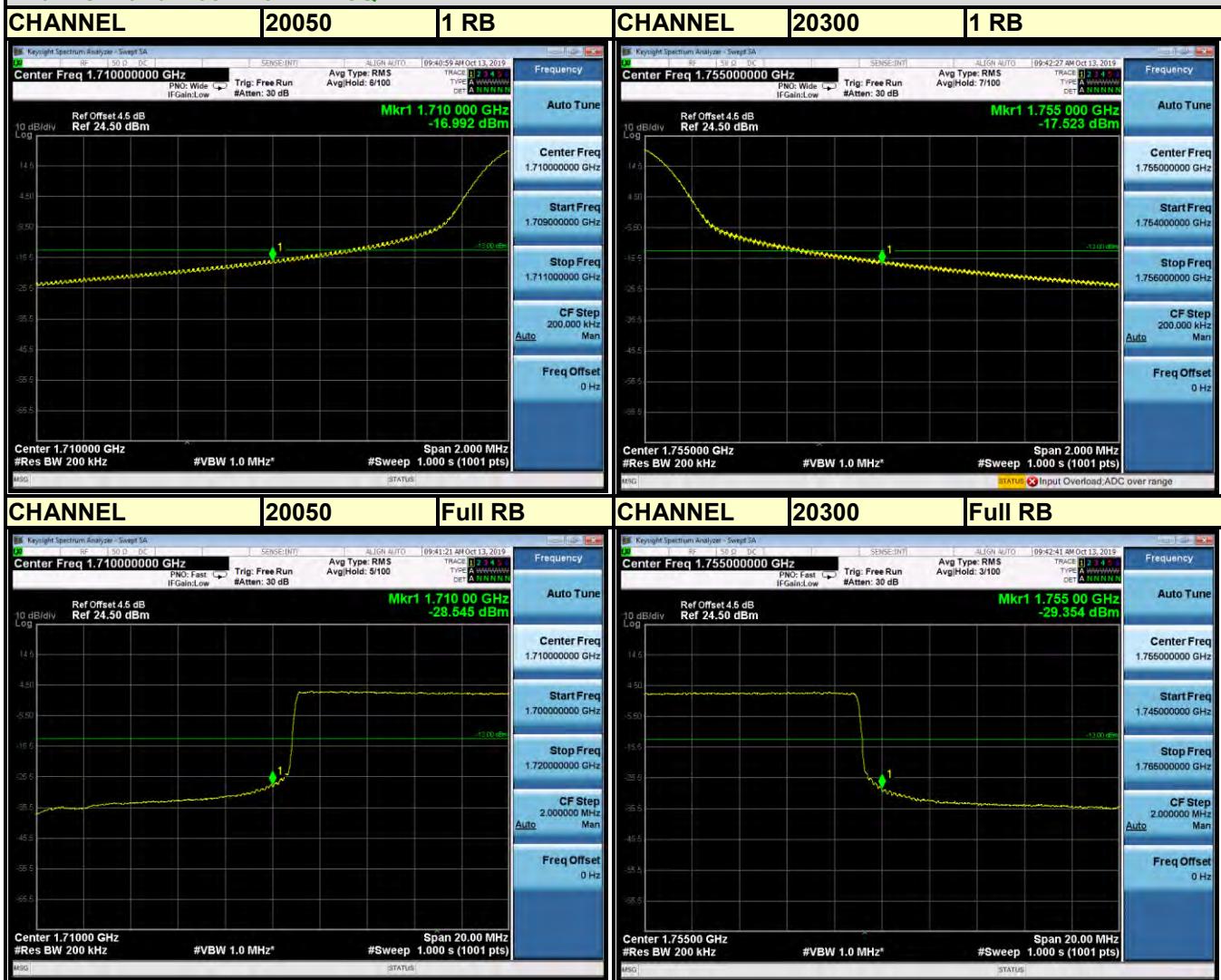




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Channel Bandwidth: 20MHz 16QAM



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LTE BAND 66

Channel Bandwidth: 1.4MHz QPSK

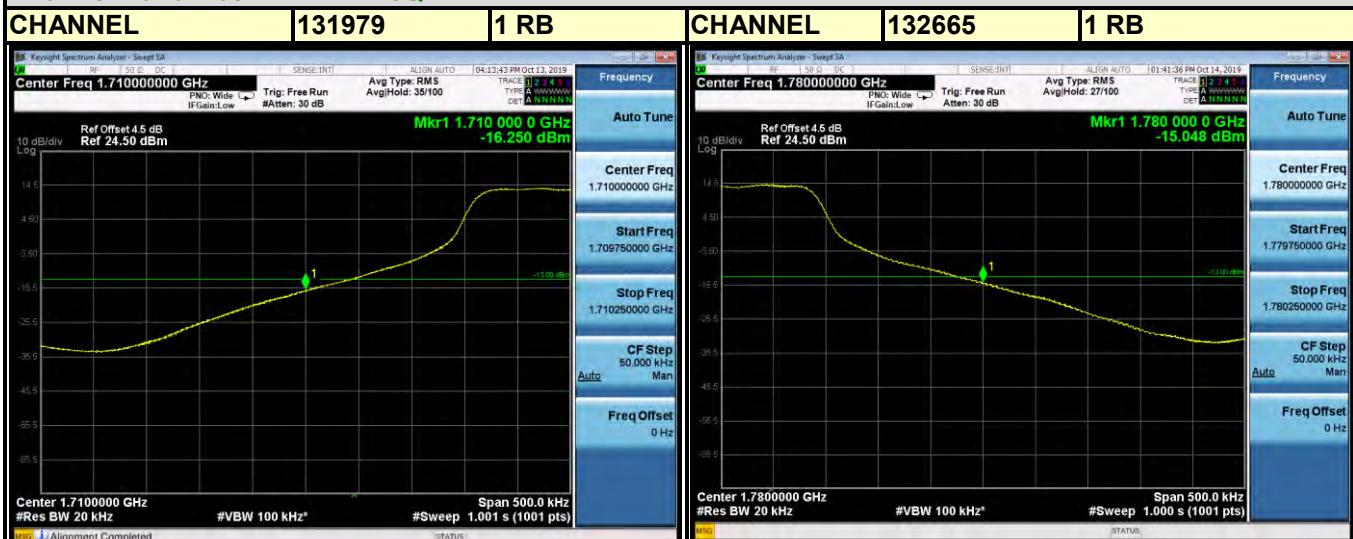




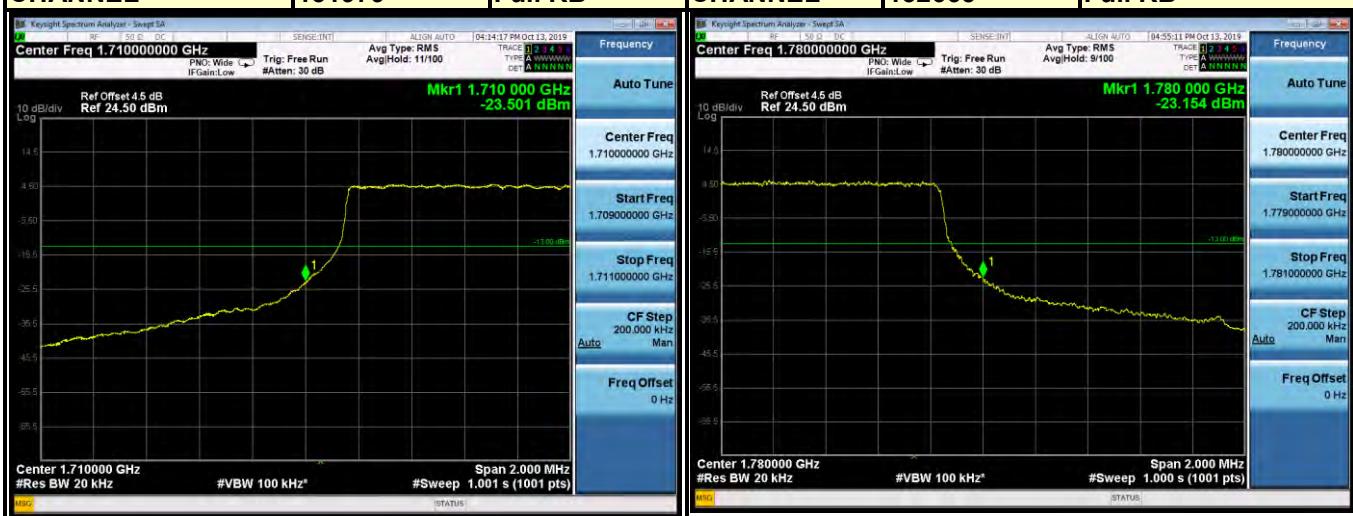
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VERITAS

Channel Bandwidth: 1.4MHz 16QAM



CHANNEL 131979 Full RB

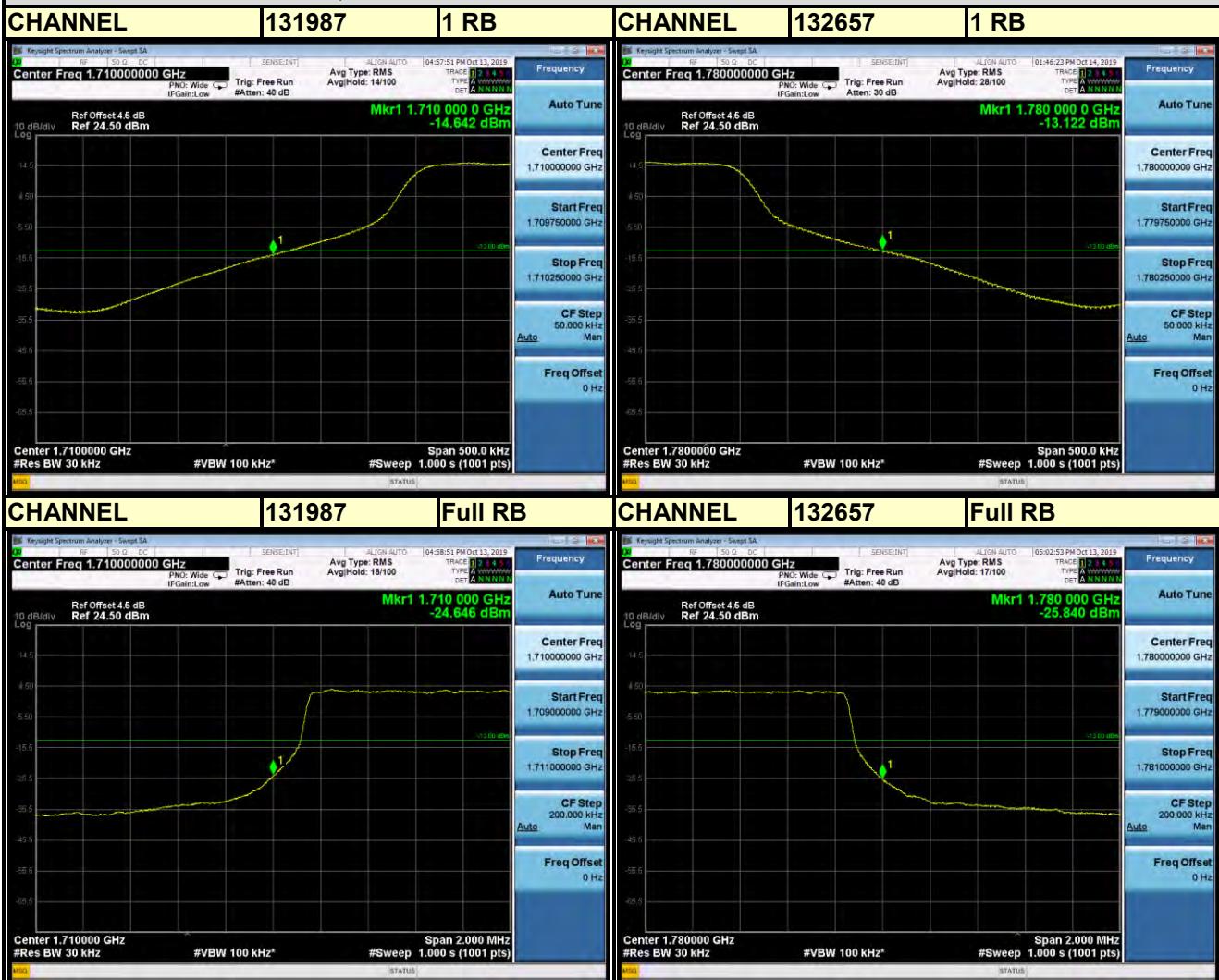




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LTE BAND 66

Channel Bandwidth: 3MHz QPSK





Test Report No.: RF190712W002-5

BUREAU
VERITAS

Channel Bandwidth: 3MHz 16QAM

CHANNEL 131987 1 RB



CHANNEL 132657 1 RB



CHANNEL 131987 Full RB



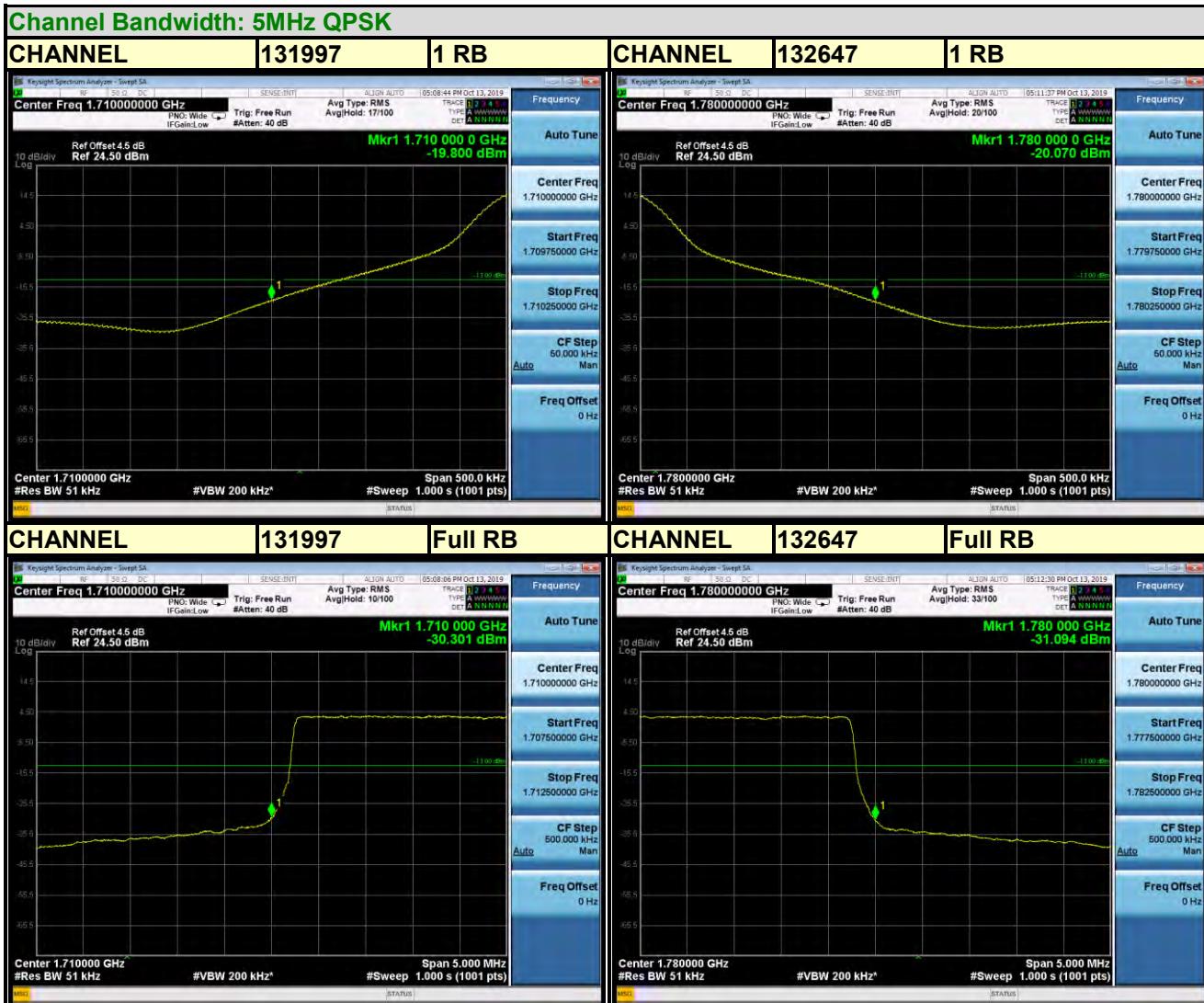
CHANNEL 132657 Full RB





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LTE BAND 66





Test Report No.: RF190712W002-5

BUREAU
VERITAS

Channel Bandwidth: 5MHz 16QAM

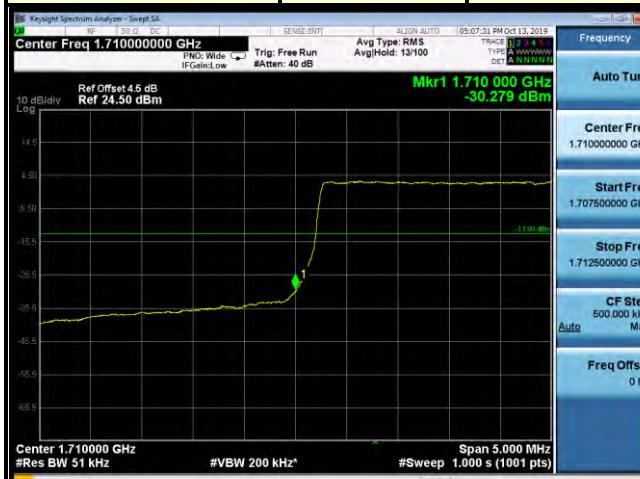
CHANNEL 131997 1 RB



CHANNEL 132647 1 RB



CHANNEL 131997 Full RB



CHANNEL 132647 Full RB





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LTE BAND 66

Channel Bandwidth: 10MHz QPSK





Test Report No.: RF190712W002-5

BUREAU
VERITAS

Channel Bandwidth: 10MHz 16QAM

CHANNEL 132022 1 RB



CHANNEL 132622

1 RB



CHANNEL 132022

Full RB



CHANNEL 132622

Full RB

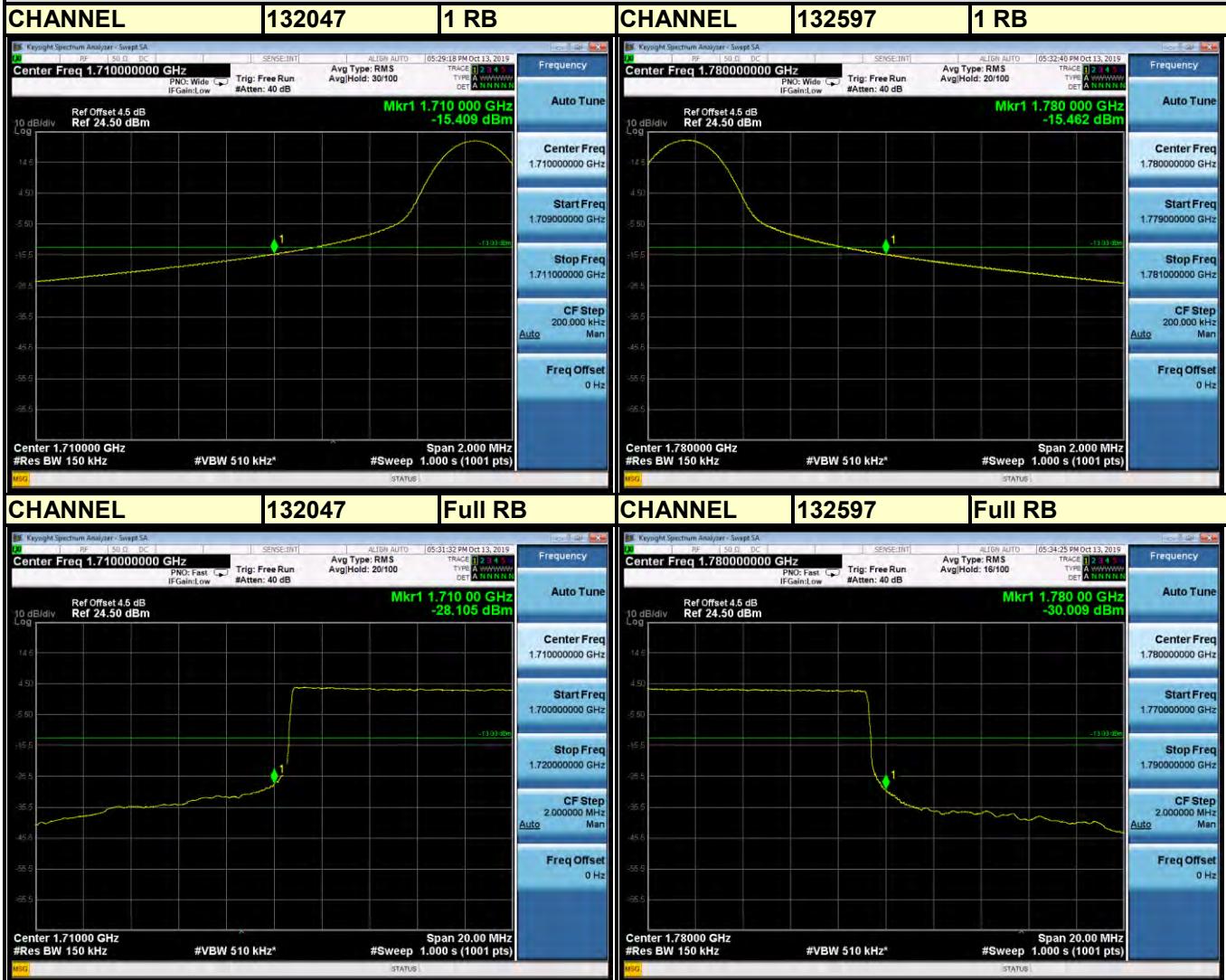




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LTE BAND 66

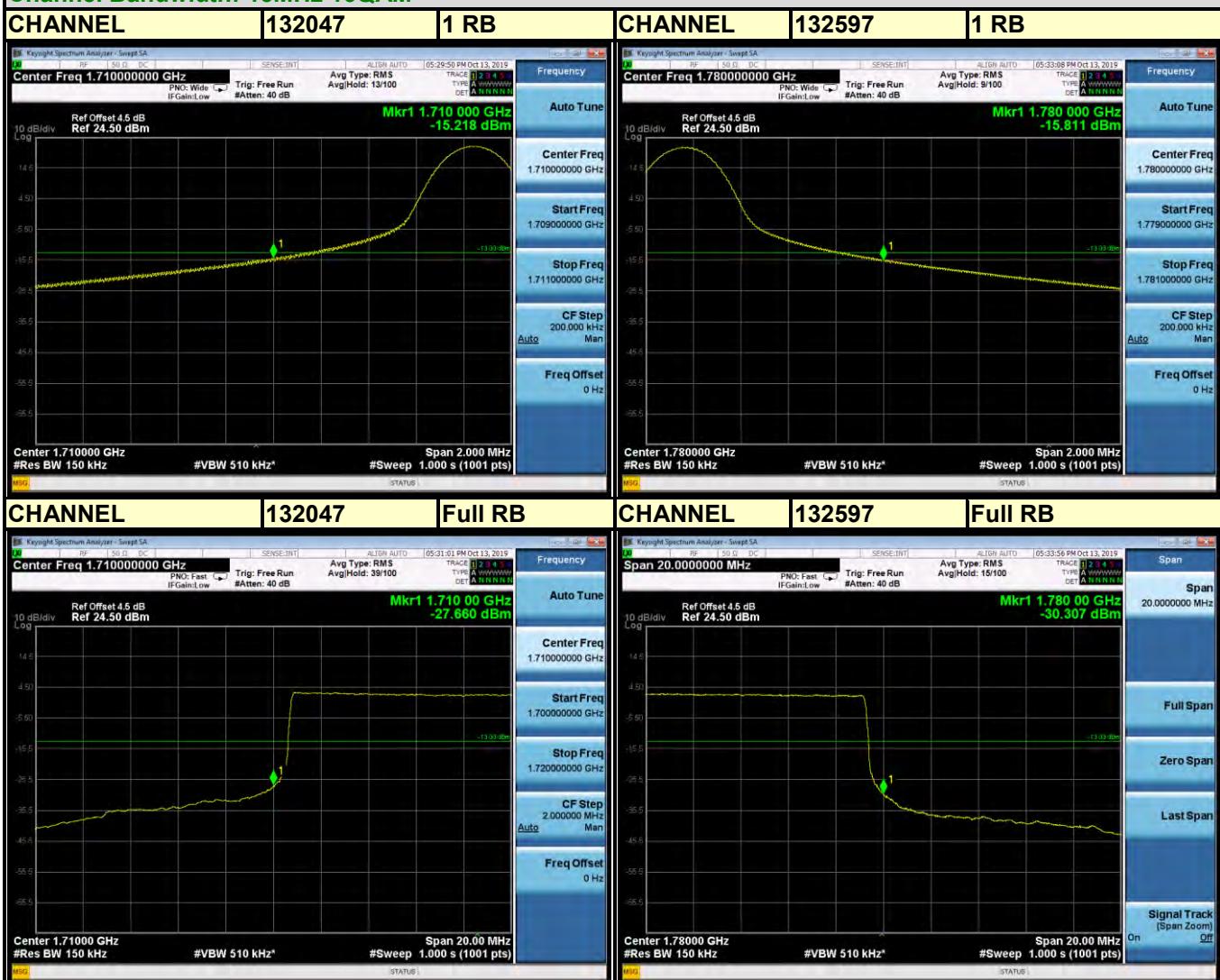
Channel Bandwidth: 15MHz QPSK





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Channel Bandwidth: 15MHz 16QAM





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LTE BAND 66

Channel Bandwidth: 20MHz QPSK





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BUREAU
VERITAS

Channel Bandwidth: 20MHz 16QAM

CHANNEL 132072 1 RB



CHANNEL 132572 1 RB



CHANNEL 132072 Full RB



CHANNEL 132572 Full RB





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3.6 CONDUCTED SPURIOUS EMISSIONS

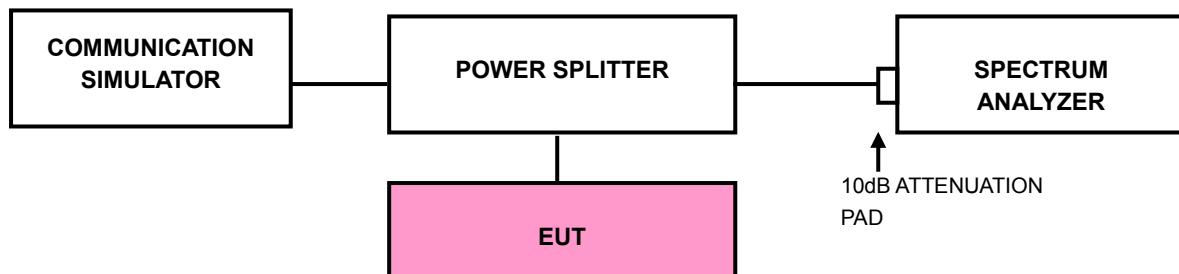
3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 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





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BUREAU
VERITAS

3.6.4 TEST RESULTS

LTE BAND 4

1.4MHz / QPSK

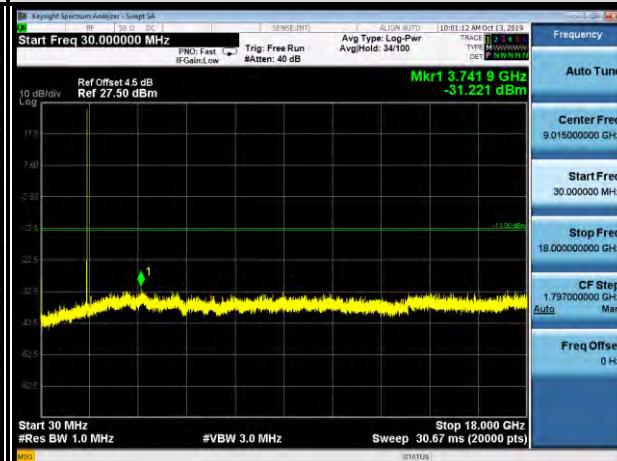
CHANNEL 19957

FREQUENCY RANGE : 30MHz~18GHz



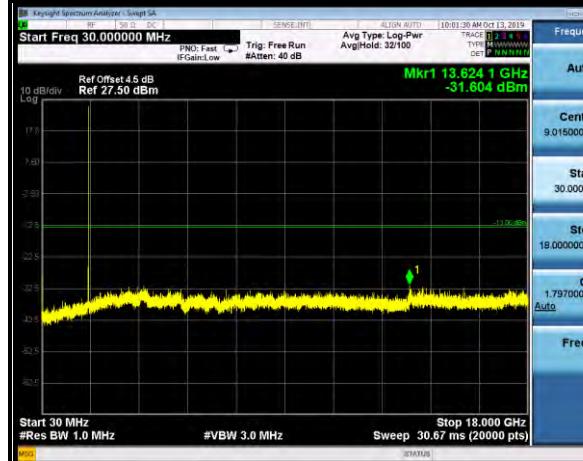
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20393

FREQUENCY RANGE : 30MHz~18GHz





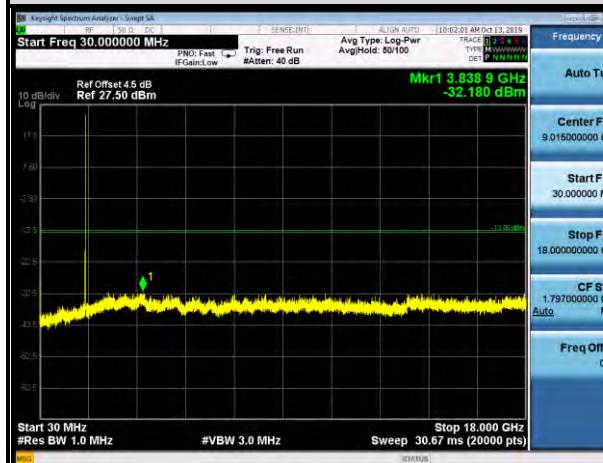
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BUREAU
VERITAS

3MHz / QPSK

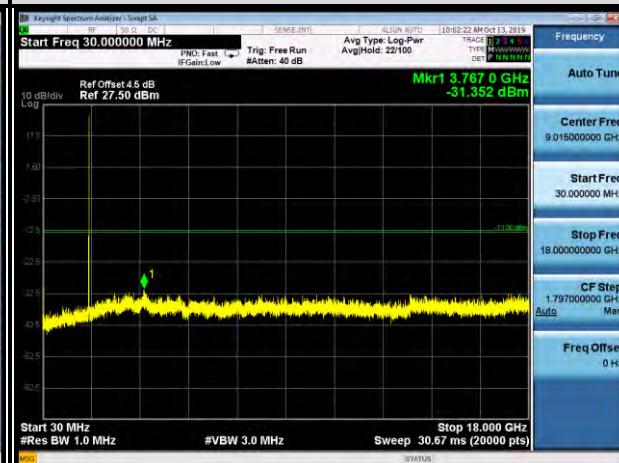
CHANNEL 19965

FREQUENCY RANGE : 30MHz~18GHz



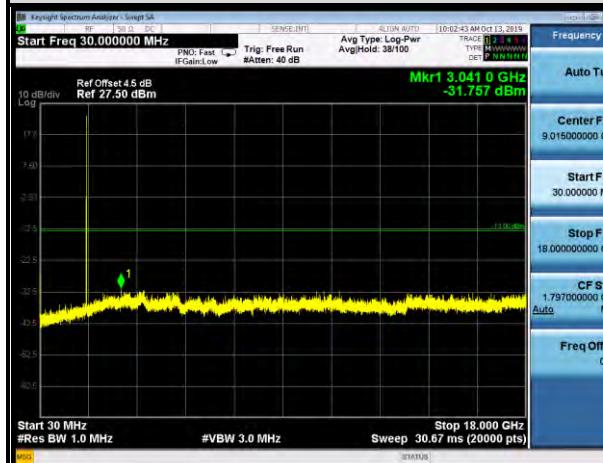
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20385

FREQUENCY RANGE : 30MHz~18GHz





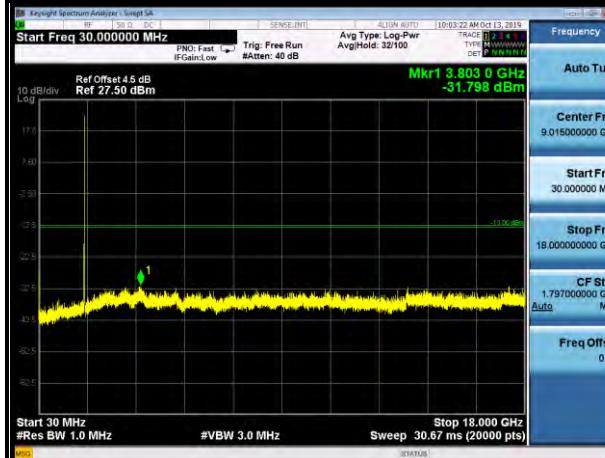
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BUREAU
VERITAS

5MHz / QPSK

CHANNEL 19975

FREQUENCY RANGE : 30MHz~18GHz



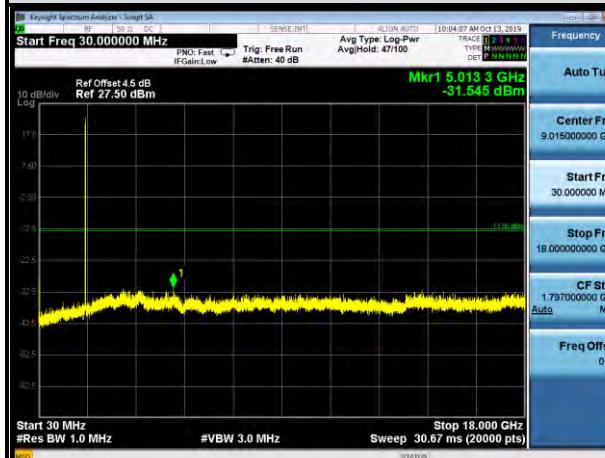
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20375

FREQUENCY RANGE : 30MHz~18GHz





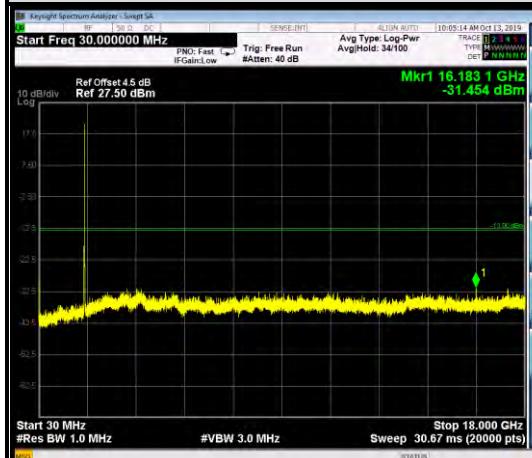
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BUREAU
VERITAS

10MHz / QPSK

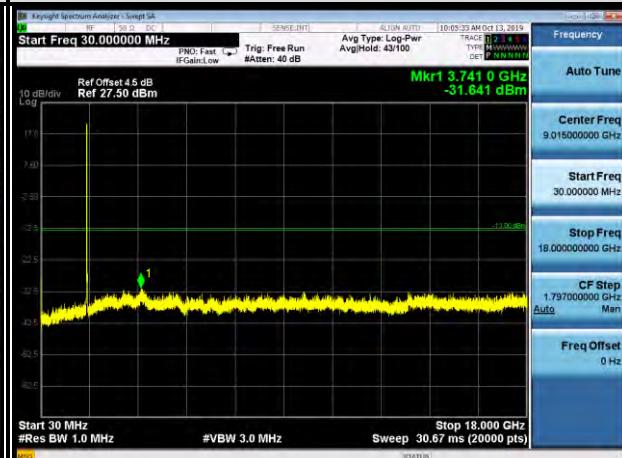
CHANNEL 20000

FREQUENCY RANGE : 30MHz~18GHz



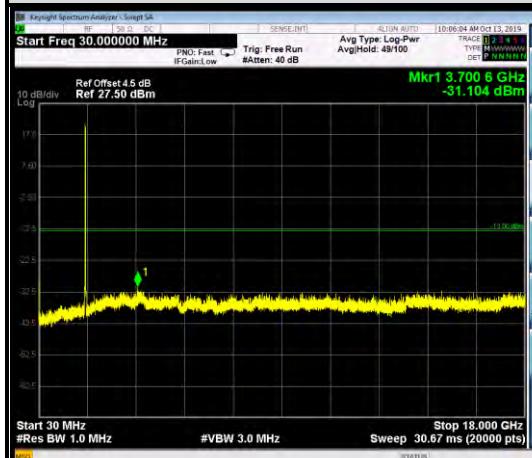
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20350

FREQUENCY RANGE : 30MHz~18GHz





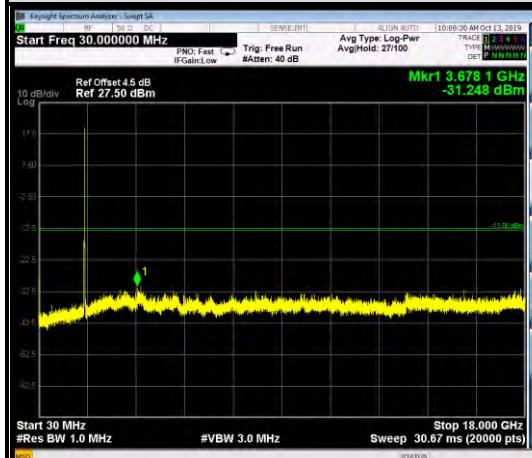
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BUREAU
VERITAS

15MHz / QPSK

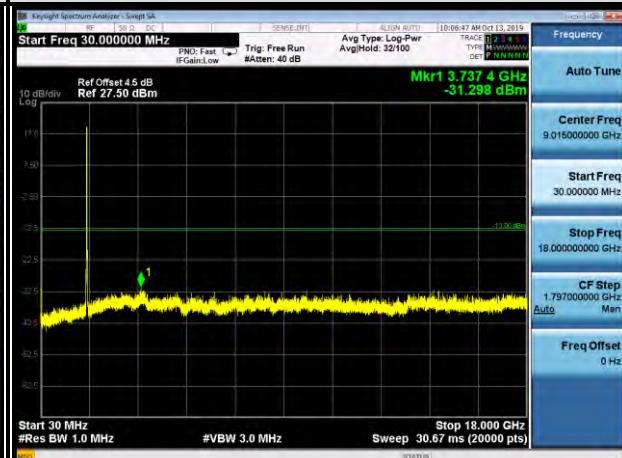
CHANNEL 20025

FREQUENCY RANGE : 30MHz~18GHz



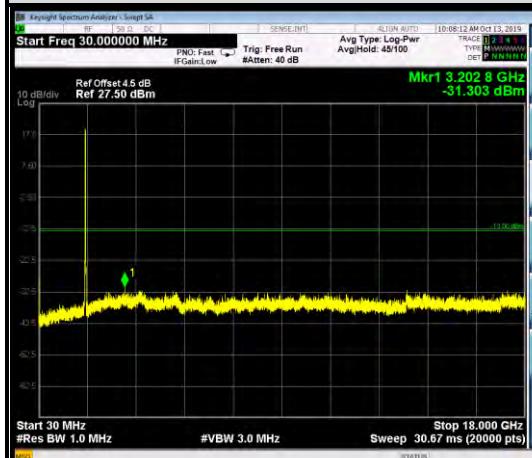
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20325

FREQUENCY RANGE : 30MHz~18GHz





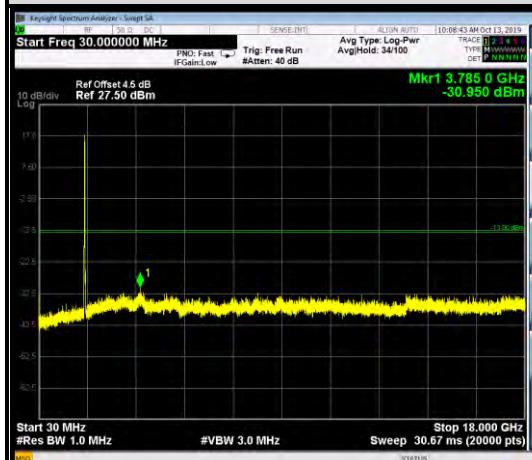
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BUREAU
VERITAS

20MHz / QPSK

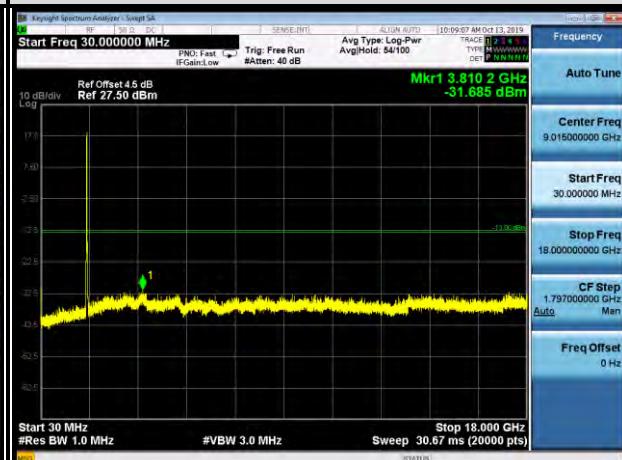
CHANNEL 20050

FREQUENCY RANGE : 30MHz~18GHz



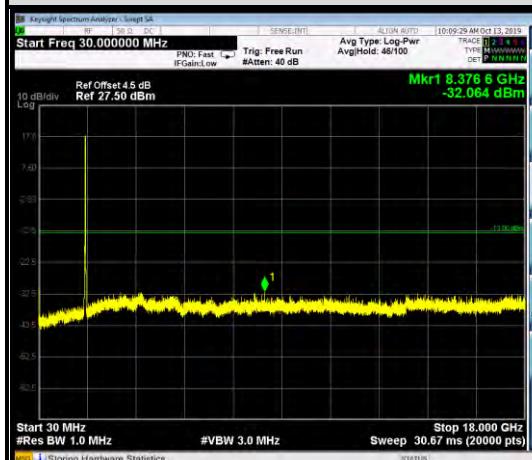
CHANNEL 20175

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 20300

FREQUENCY RANGE : 30MHz~18GHz





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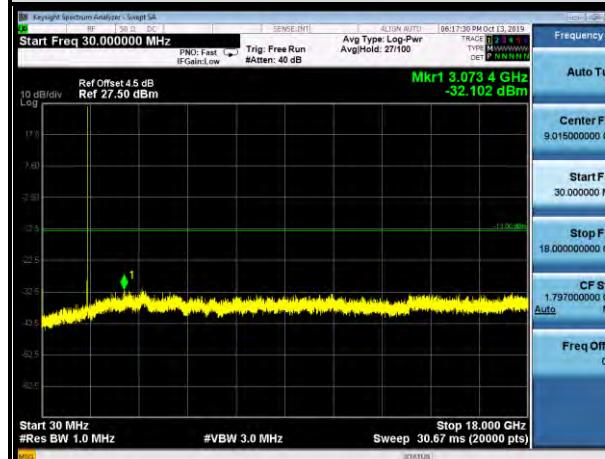
BUREAU
VERITAS

LTE BAND 66

1.4MHz / QPSK

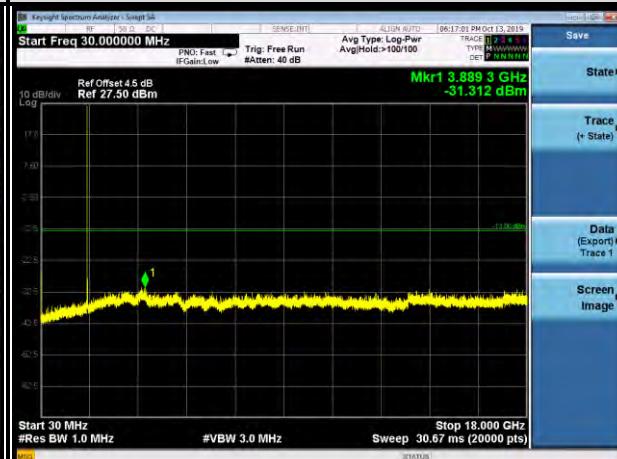
CHANNEL 131979

FREQUENCY RANGE : 30MHz~18GHz



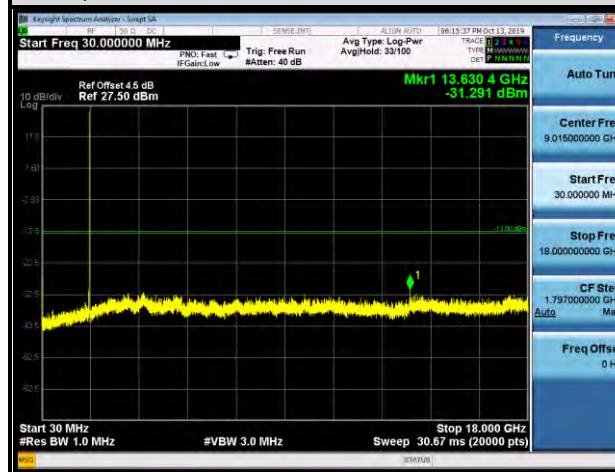
CHANNEL 132322

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 132665

FREQUENCY RANGE : 30MHz~18GHz





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BUREAU
VERITAS

3MHz / QPSK

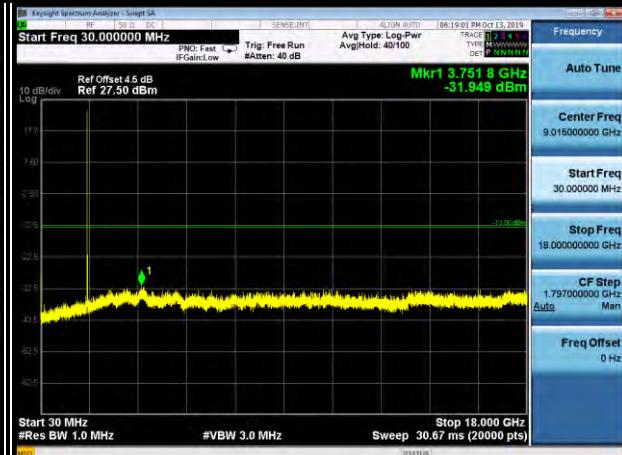
CHANNEL 131987

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 132322

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 132657

FREQUENCY RANGE : 30MHz~18GHz





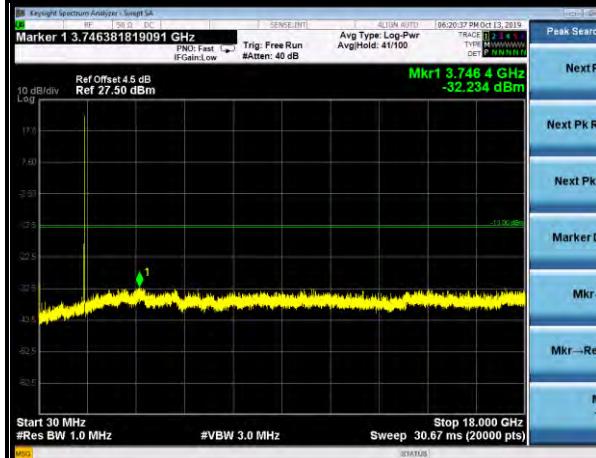
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BUREAU
VERITAS

5MHz / QPSK

CHANNEL 131997

FREQUENCY RANGE : 30MHz~18GHz



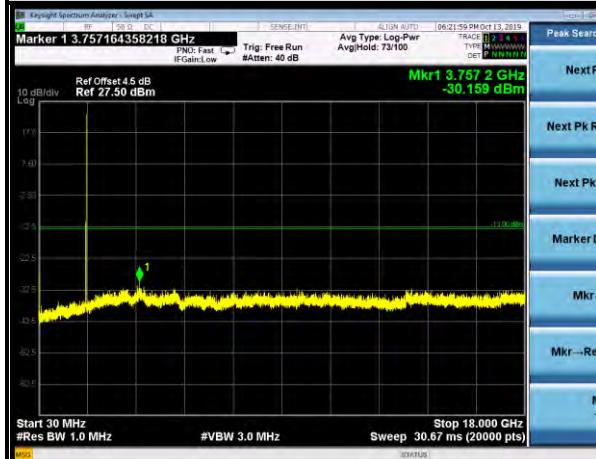
CHANNEL 132322

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 132647

FREQUENCY RANGE : 30MHz~18GHz





BUREAU
VERITAS

Test Report No.: RF190712W002-5

10MHz / QPSK

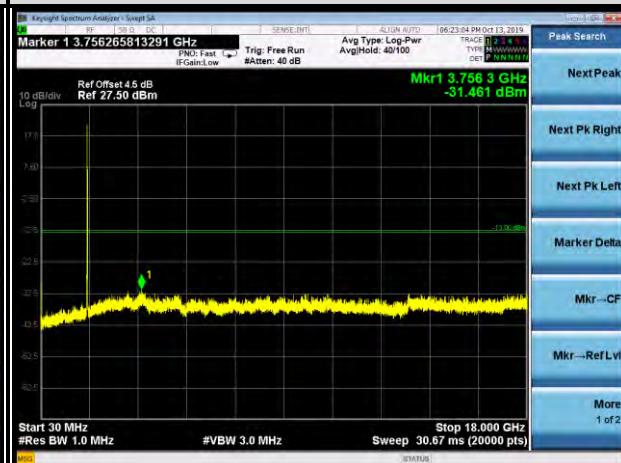
CHANNEL 132022

FREQUENCY RANGE : 30MHz~18GHz



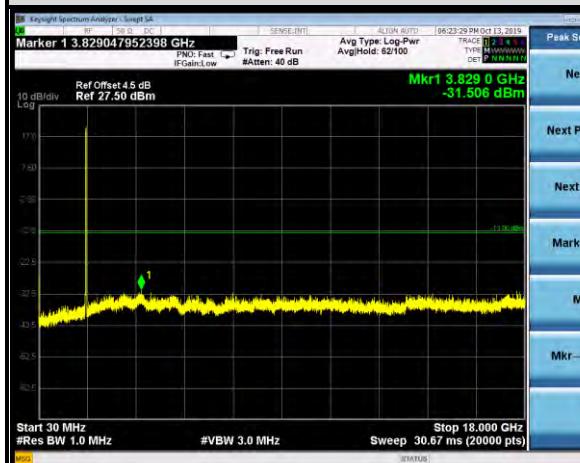
CHANNEL 132322

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 132622

FREQUENCY RANGE : 30MHz~18GHz





Test Report No.: RF190712W002-5

BUREAU
VERITAS

15MHz / QPSK

CHANNEL 132047

FREQUENCY RANGE : 30MHz~18GHz



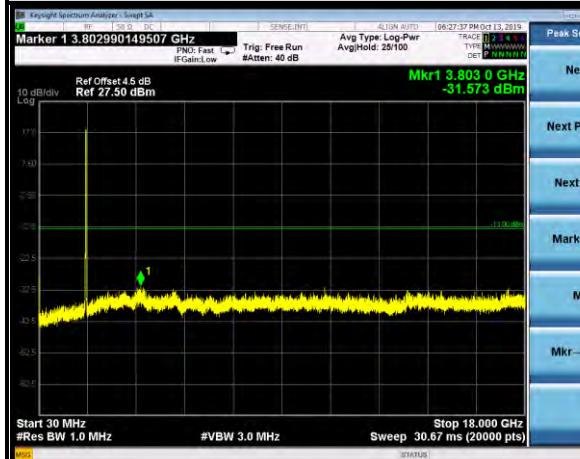
CHANNEL 132322

FREQUENCY RANGE : 30MHz~18GHz



CHANNEL 132597

FREQUENCY RANGE : 30MHz~18GHz





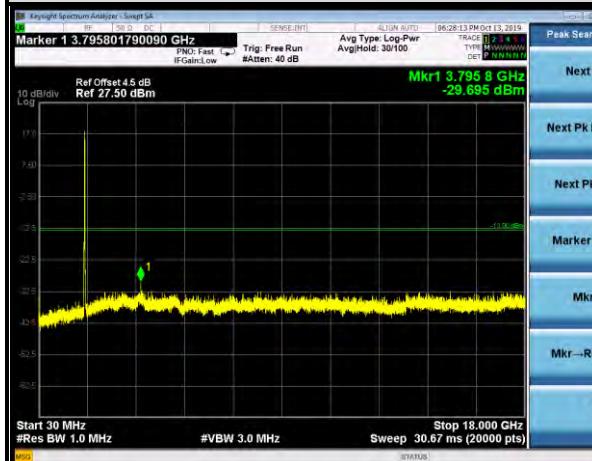
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BUREAU
VERITAS

20MHz / QPSK

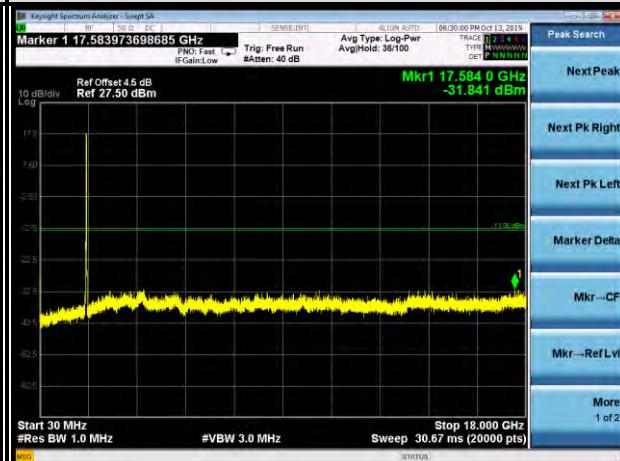
CHANNEL 132072

FREQUENCY RANGE : 30MHz~18GHz



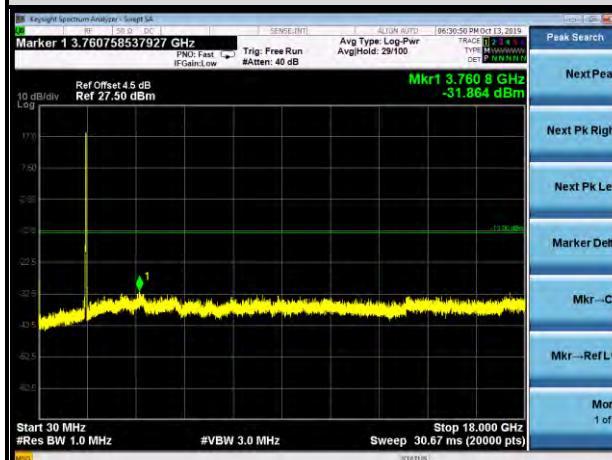
CHANNEL 132322

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 $43 + 10 \log_{10}(P)$ 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. 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.

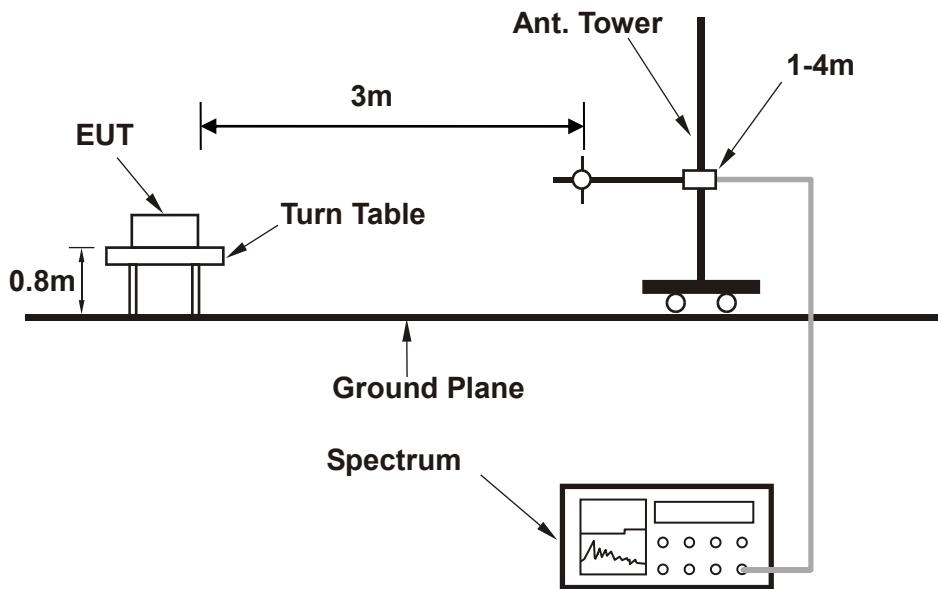
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.7.3 DEVIATION FROM TEST STANDARD

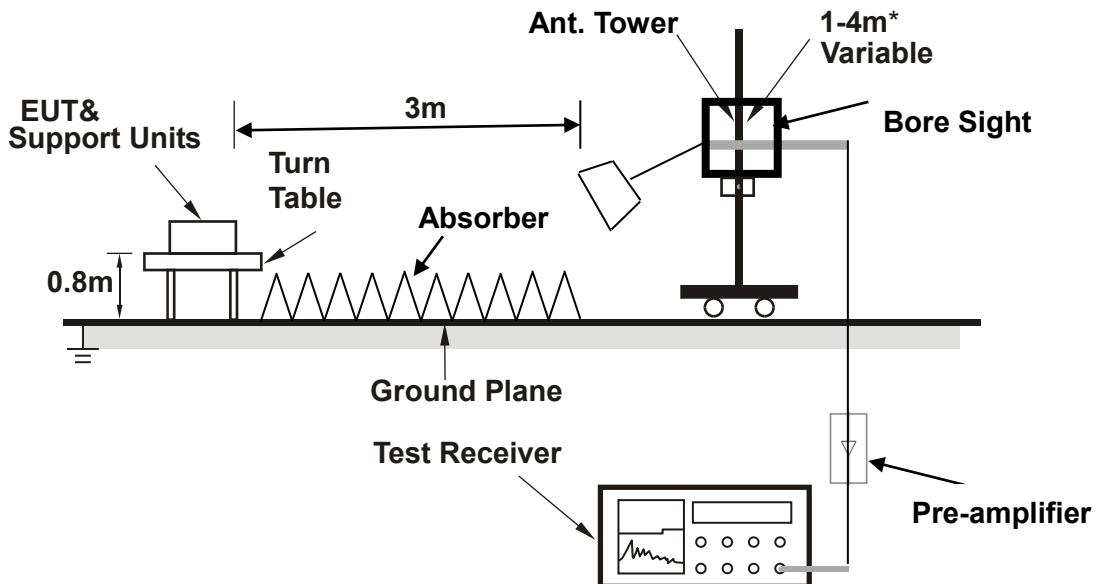
No deviation

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).



Test Report No.: RF190712W002-5

BUREAU
VERITAS

3.7.5 TEST RESULTS

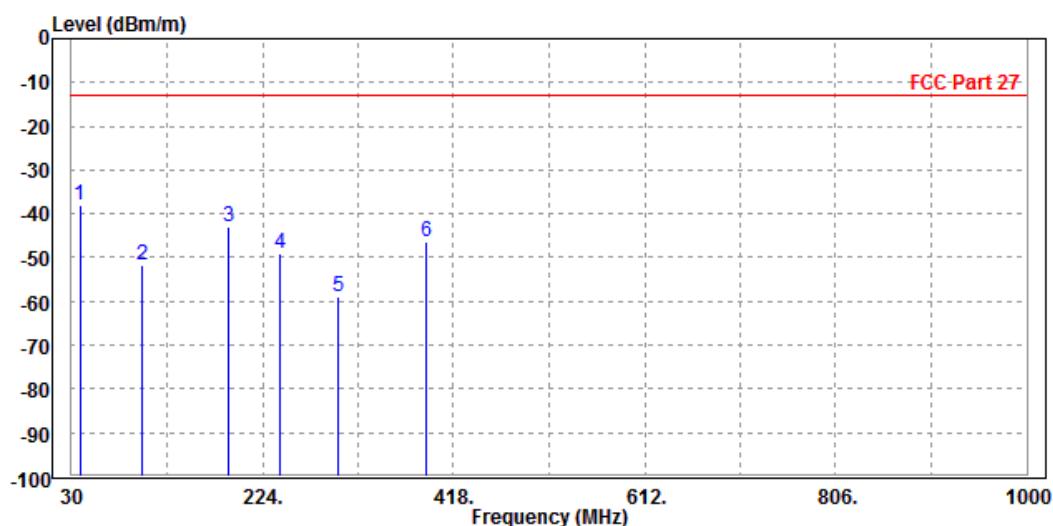
BELOW 1GHz WORST-CASE DATA

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



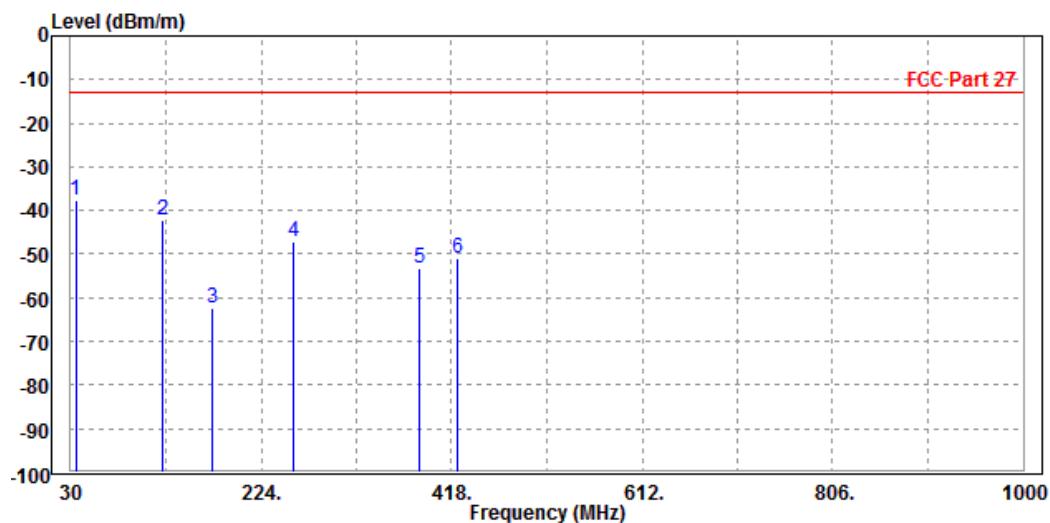


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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





Test Report No.: RF190712W002-5

ABOVE 1GHz

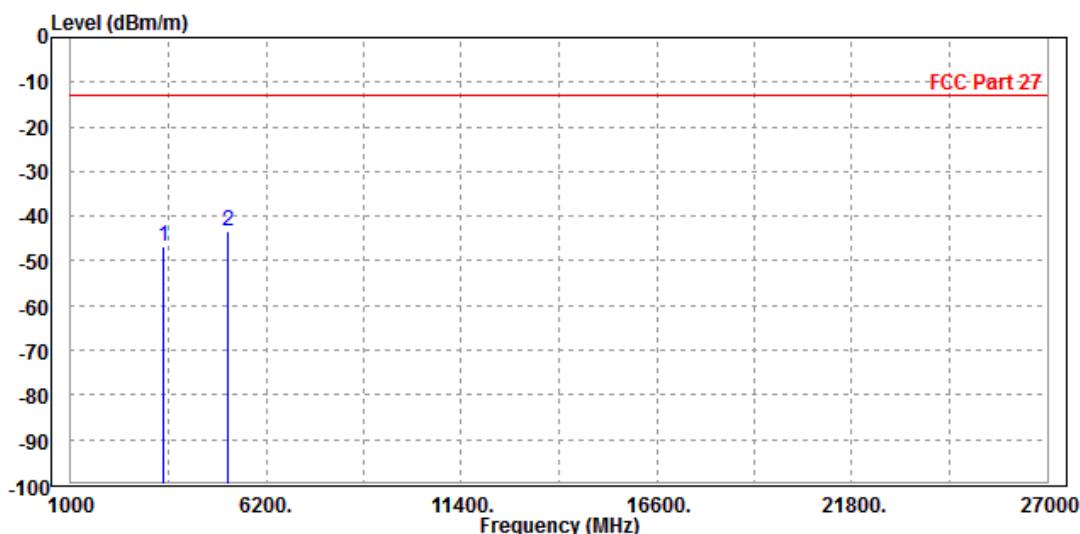
Note: For higher frequency, the emission is too low to be detected.

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 12V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Limit Level	Over Line	Limit Factor	Over 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



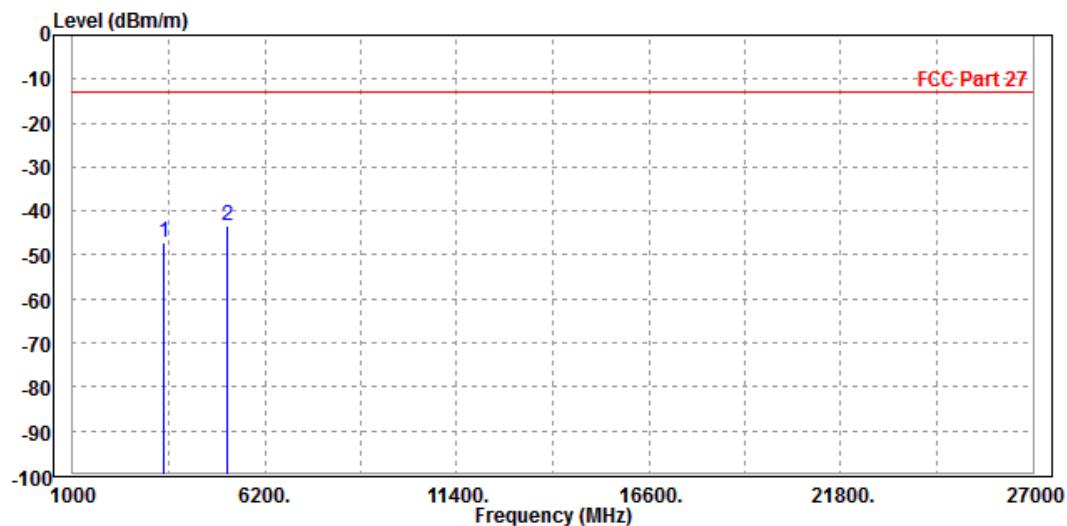


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
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



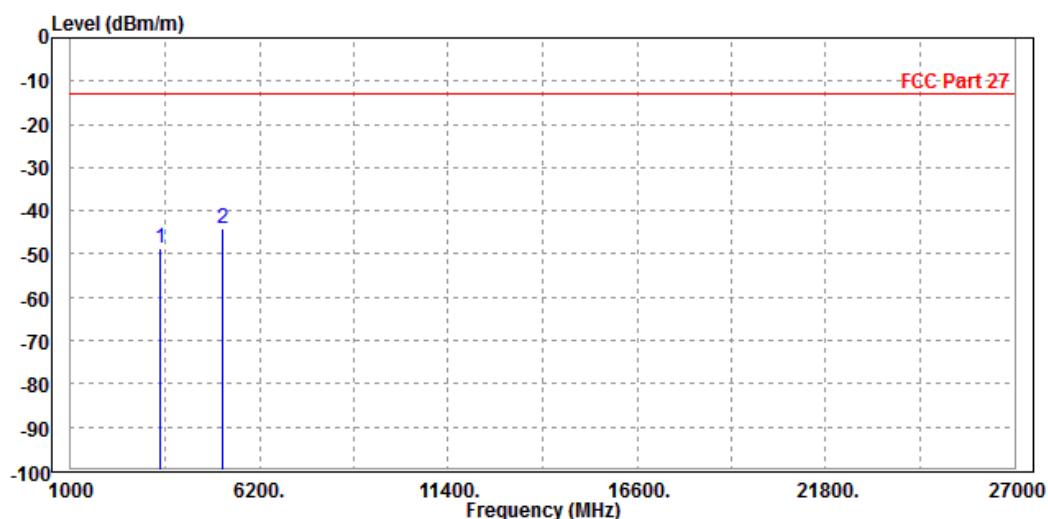


Test Report No.: RF190712W002-5

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 MHz	Level dBm/m	Read	Limit	Over	Remark	Pol/Phase
		Level dBm	Line dBm/m	dB		
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



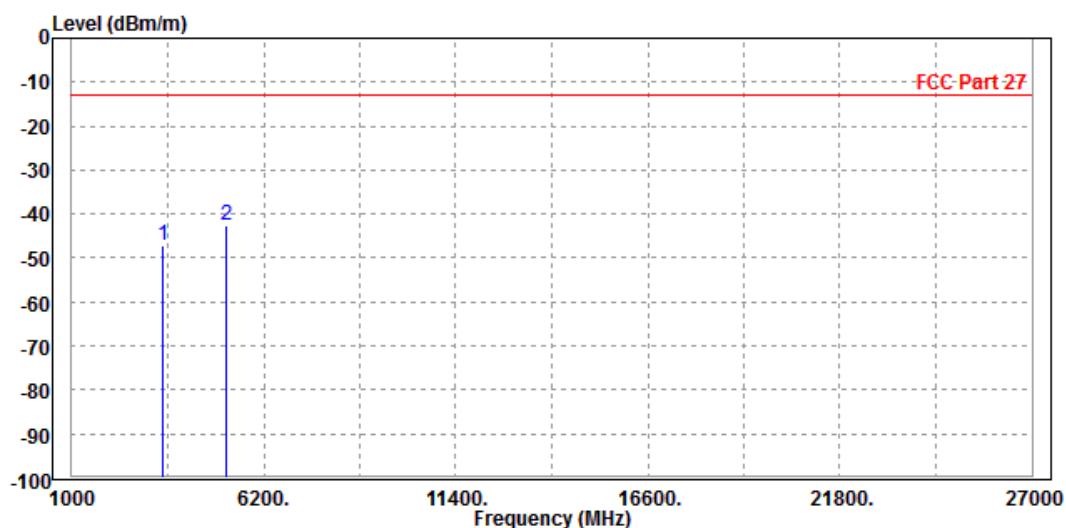


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Read Level	Limit Level	Over 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





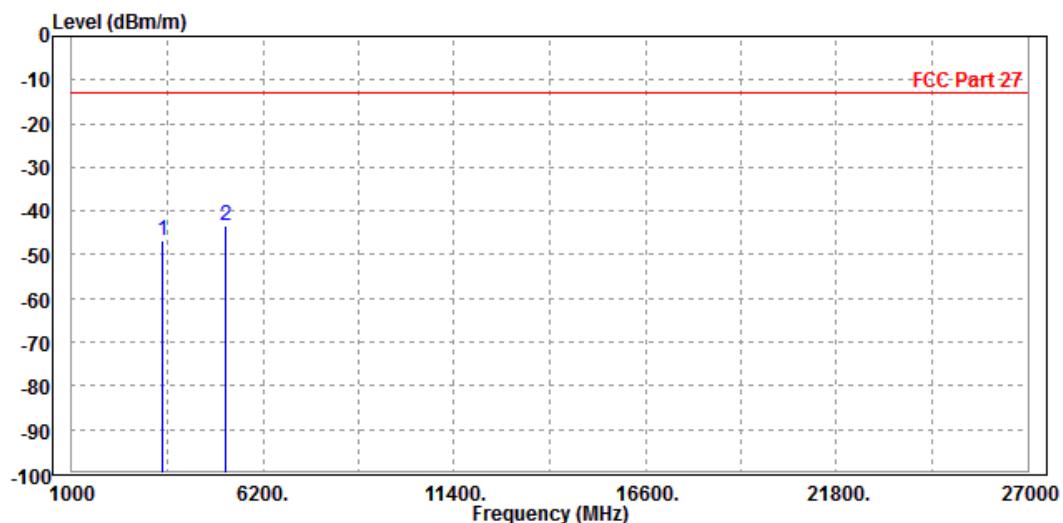
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit			
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



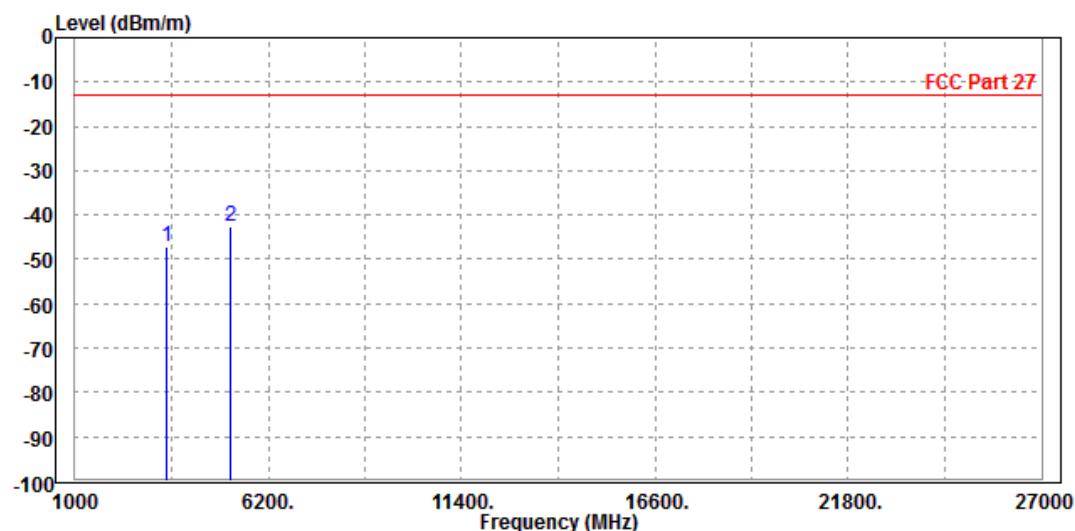


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
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





Test Report No.: RF190712W002-5

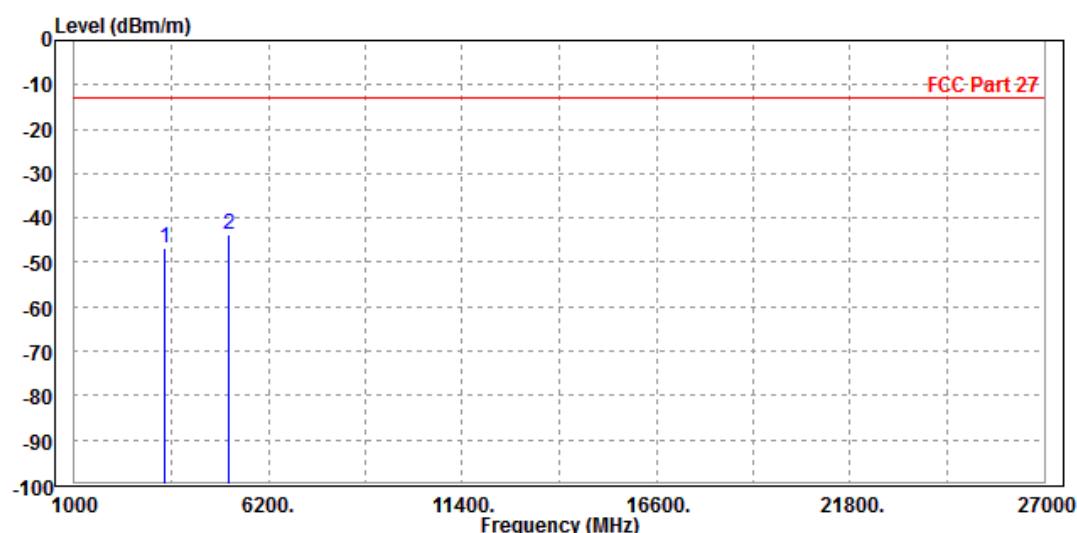
BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit Factor			
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



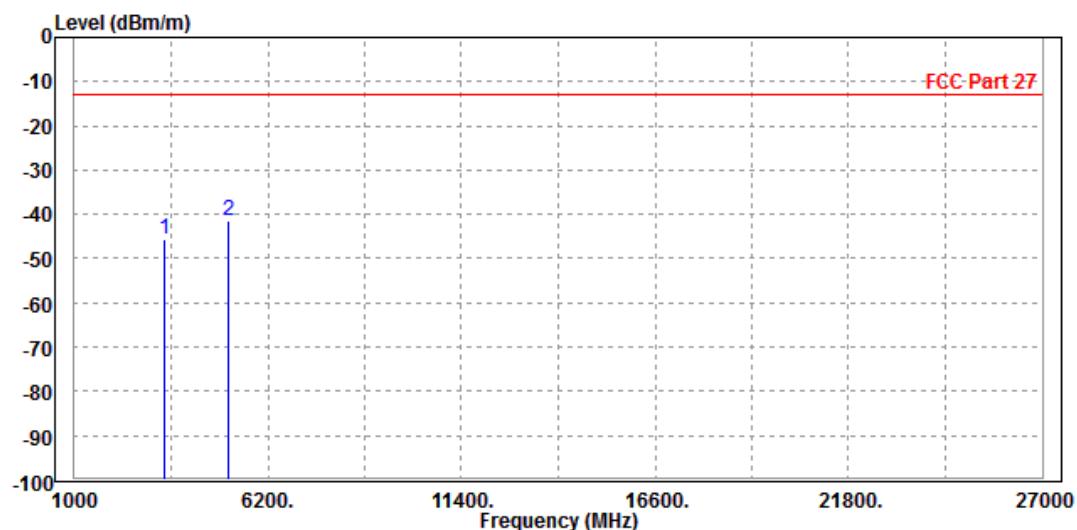


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Read Level	Limit Level	Over 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



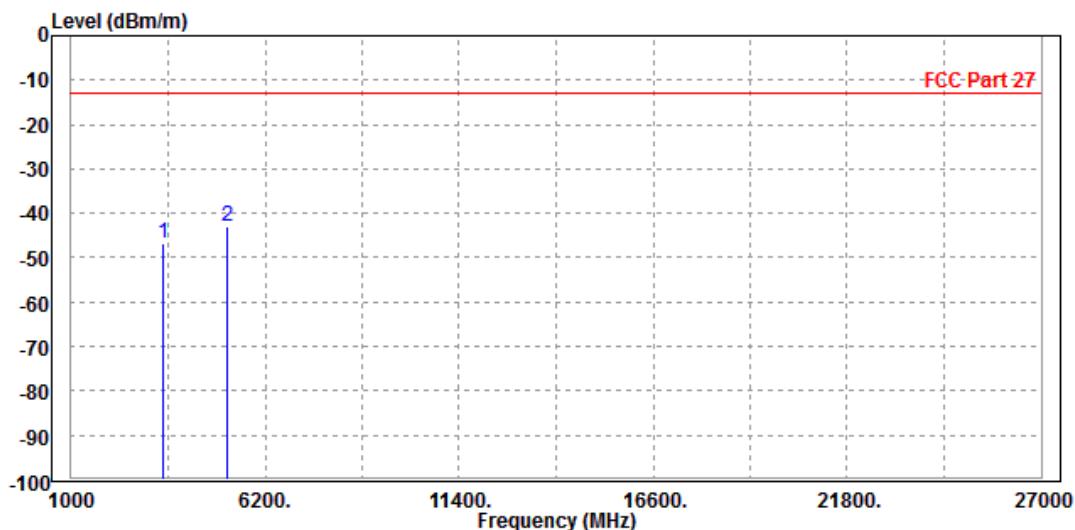


Test Report No.: RF190712W002-5

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 MHz	Read Level dBm/m	Limit Level dBm	Over Line dBm/m	Over Line dB	Over Line dB/m	Remark		Pol/Phase
						Factor	Factor	
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



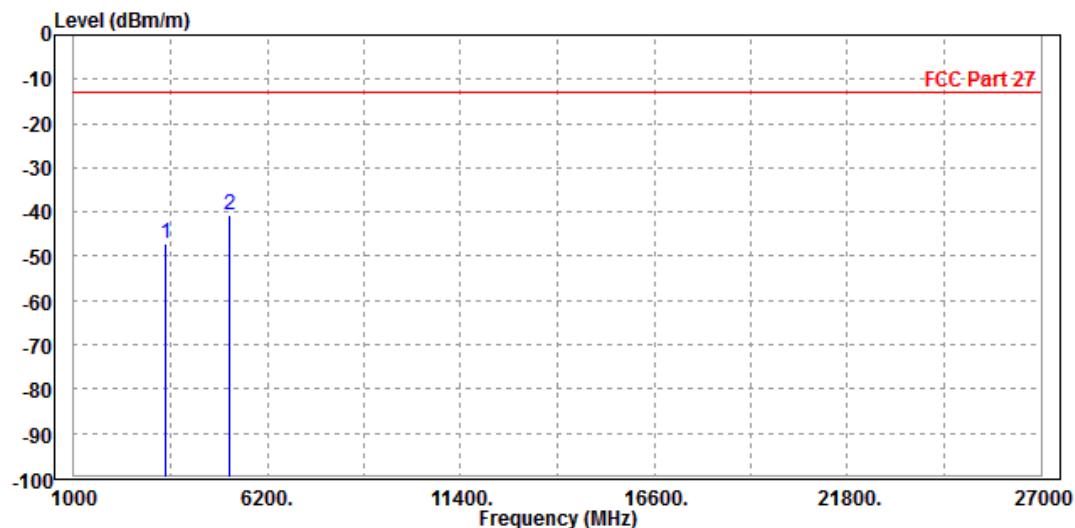


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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



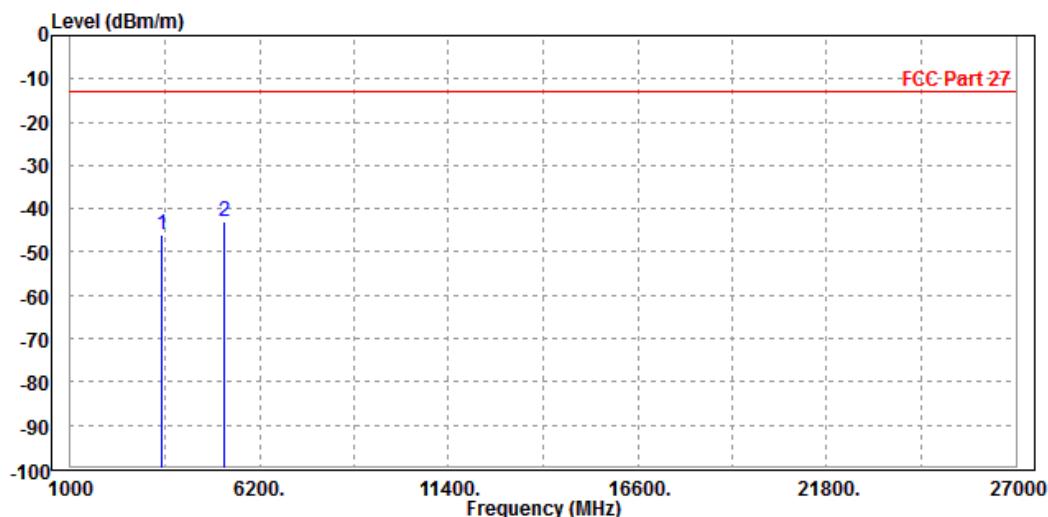


Test Report No.: RF190712W002-5

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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



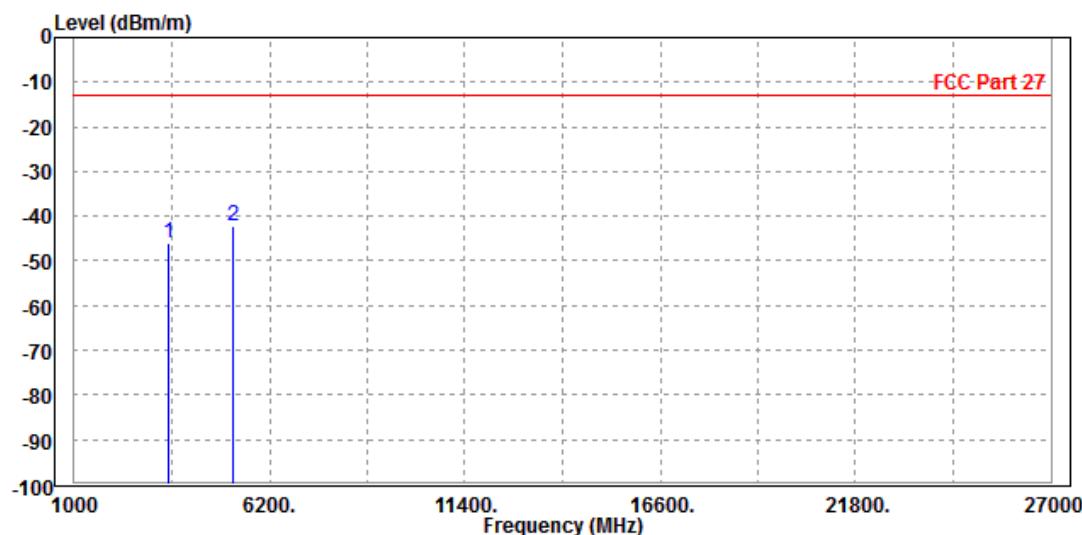


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
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





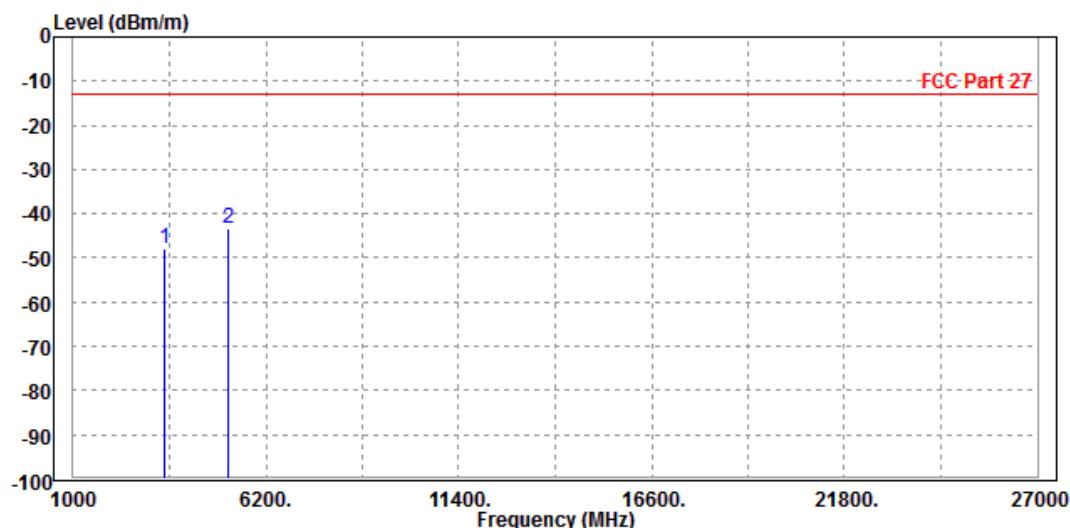
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
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



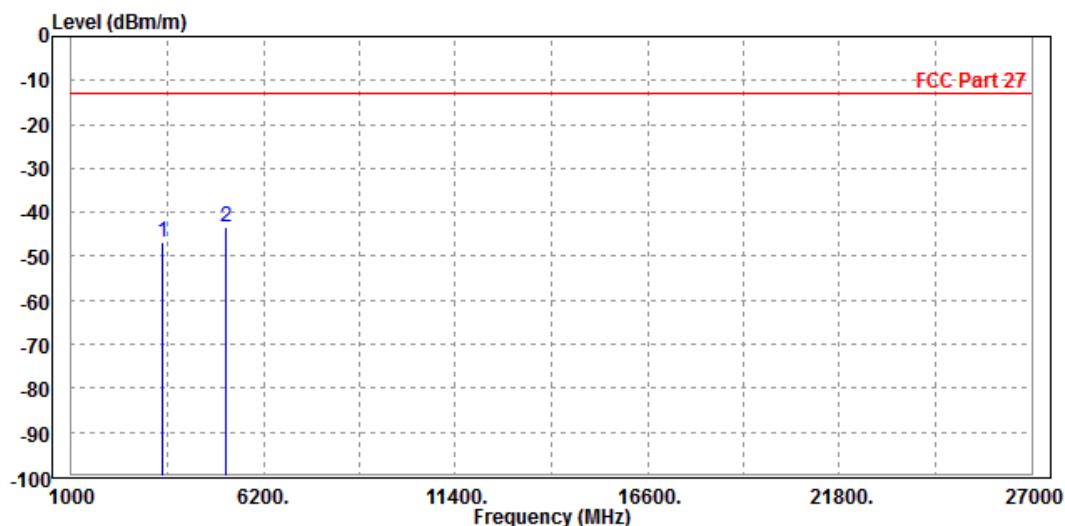


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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





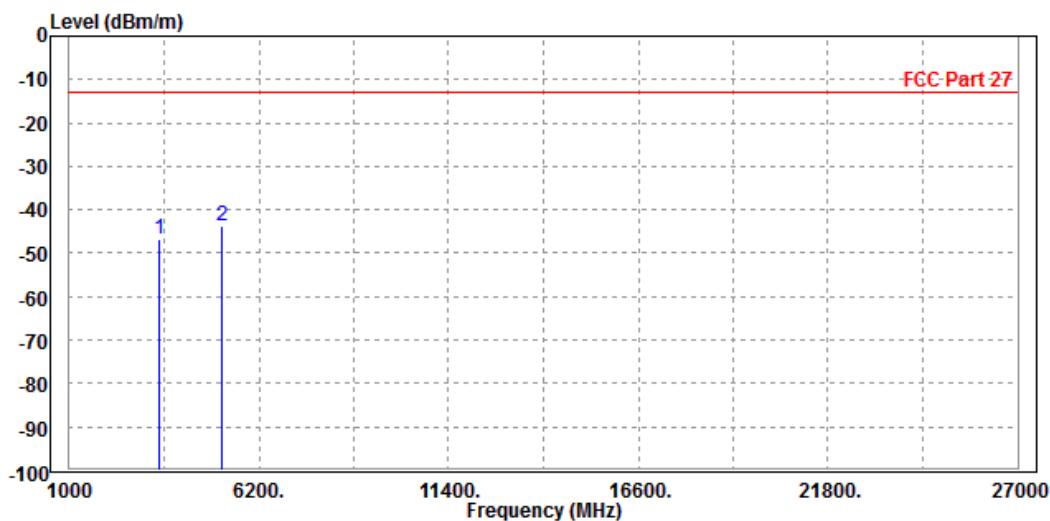
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Read Level	Limit Level	Over Line	Limit Factor	Over 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

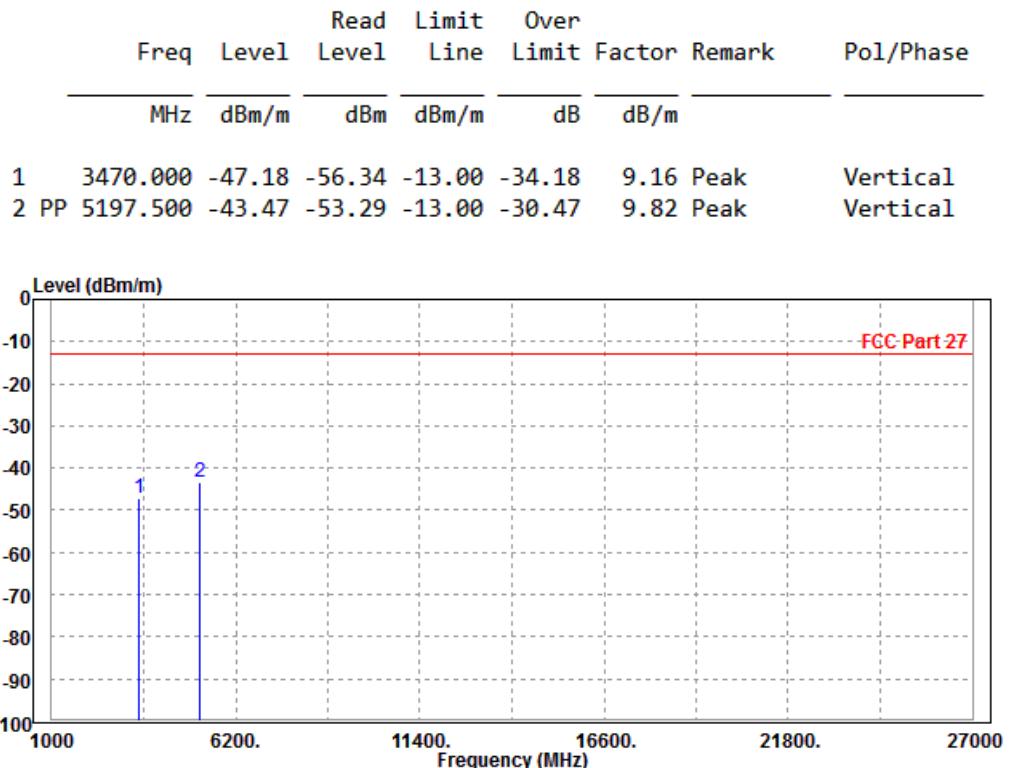




Test Report No.: RF190712W002-5

BUREAU
VERITAS

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			





Test Report No.: RF190712W002-5

BUREAU
VERITAS

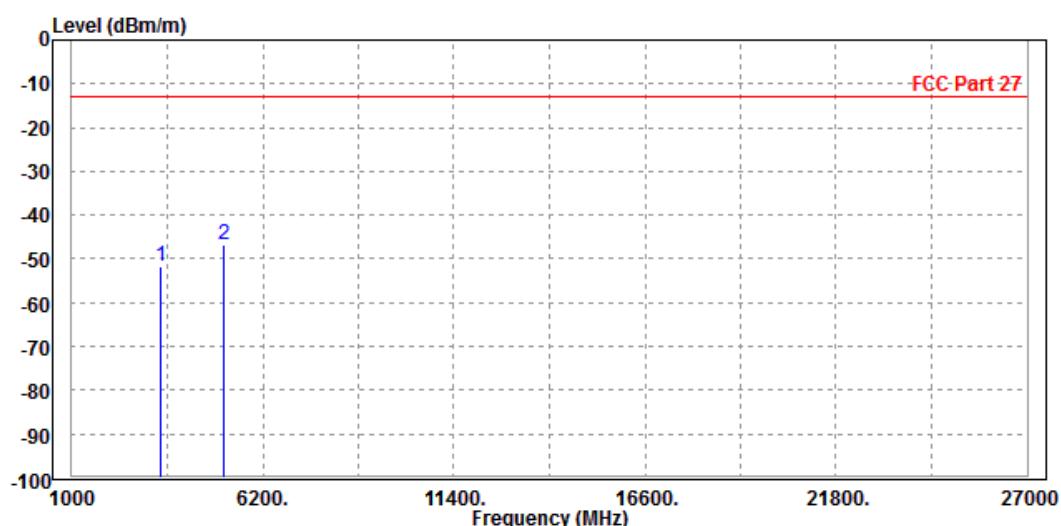
LTE BAND 66

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	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit Factor			
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



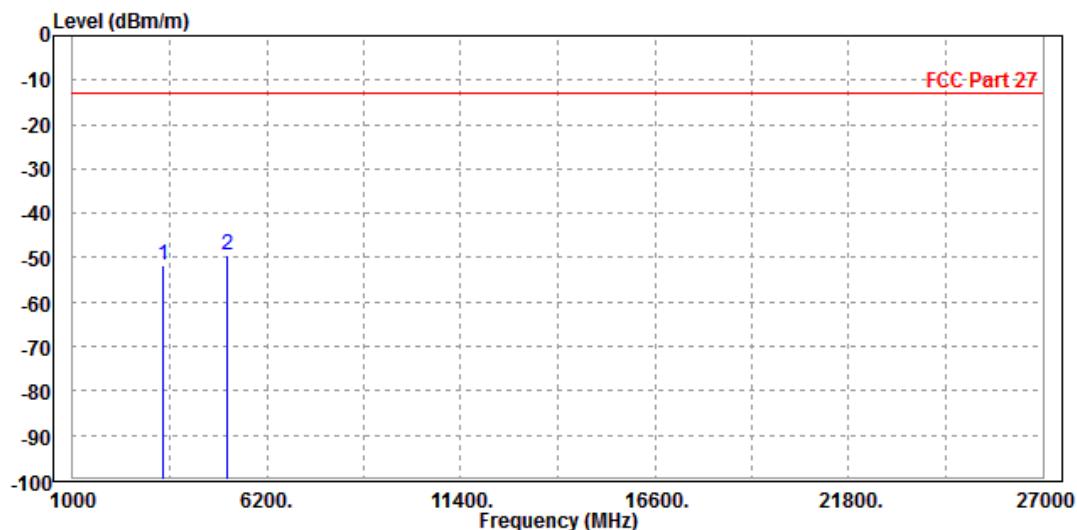


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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 MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
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





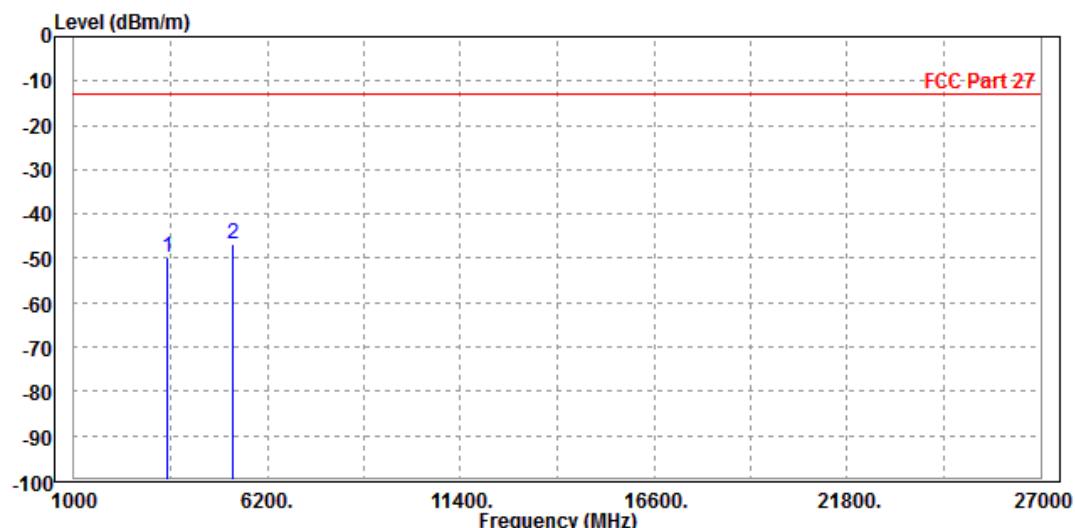
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Line	dBm/m	dB			
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



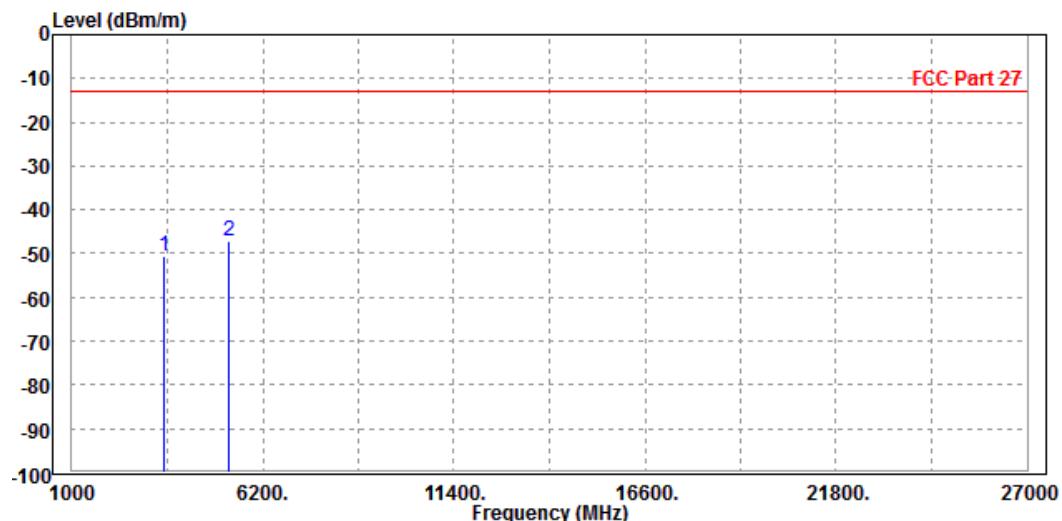


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Read Level	Limit Level	Over 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



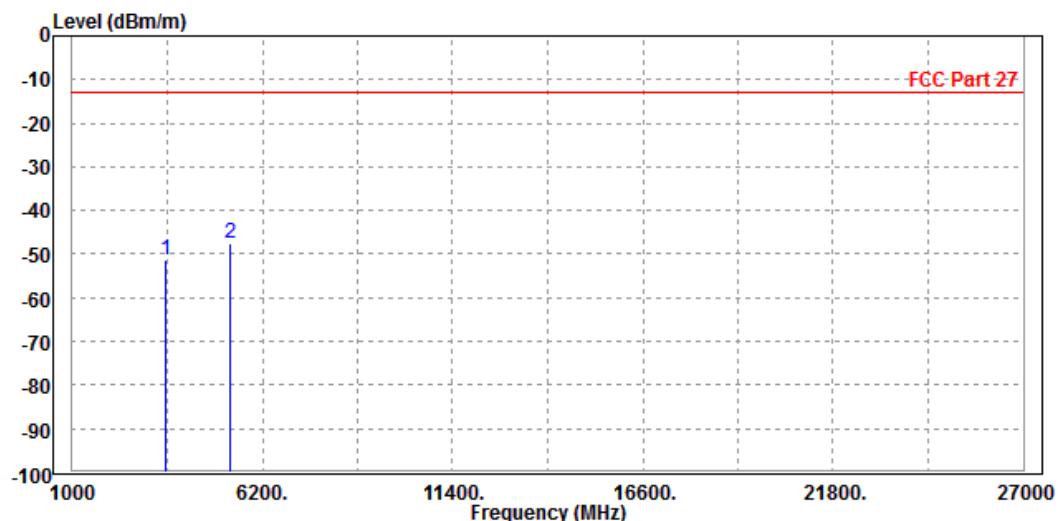


Test Report No.: RF190712W002-5

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	Read Level	Limit Level	Over 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



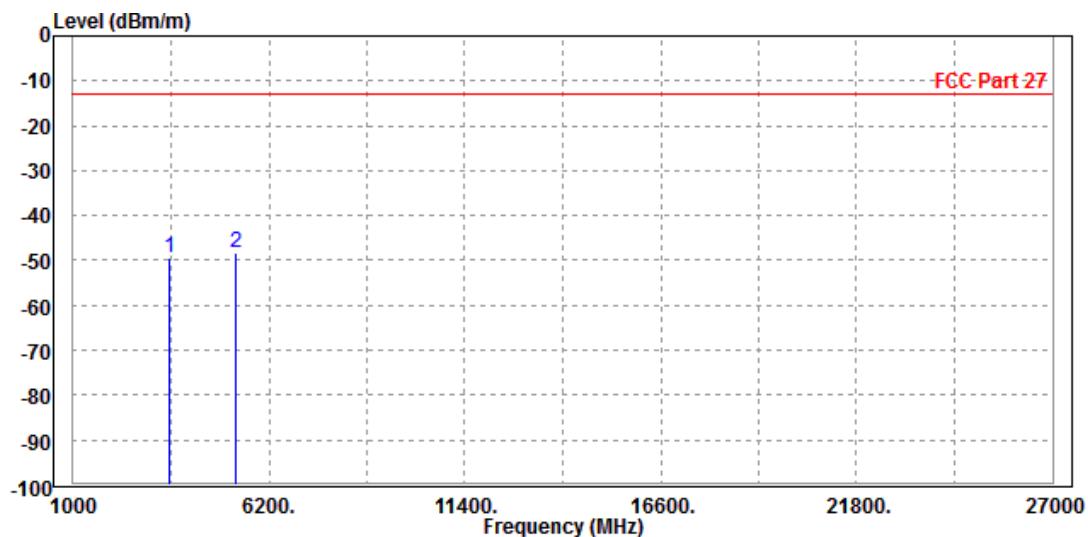


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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





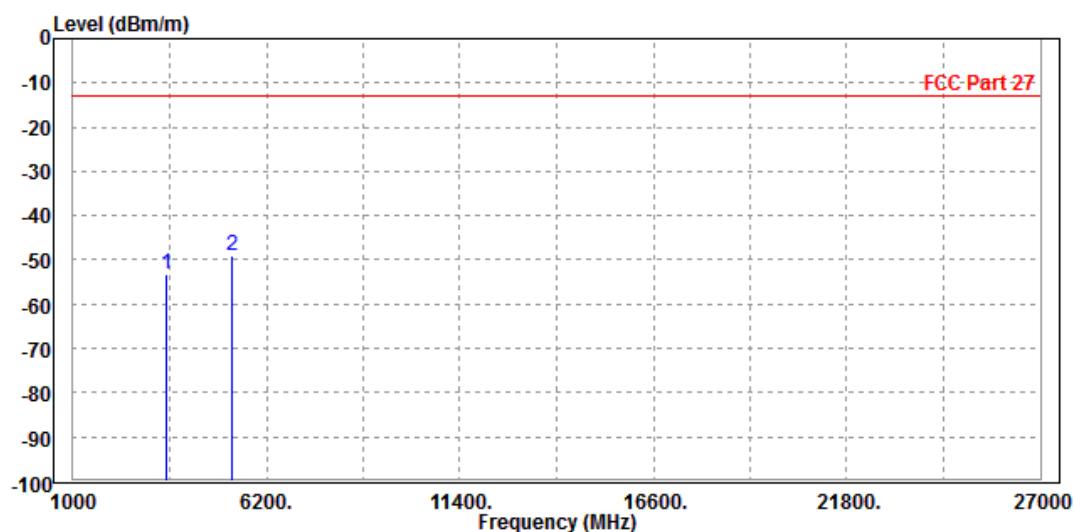
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Read Level	Limit Level	Over Line	Limit	Over 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



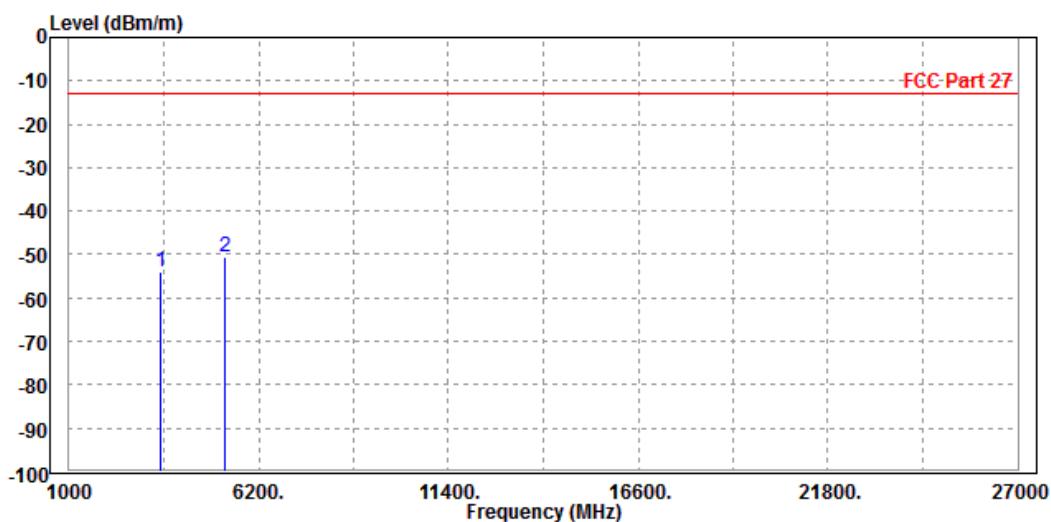


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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 MHz	Level dBm/m	Read Level	Limit Line	Over Limit Factor	Over Factor Remark	Pol/Phase
		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





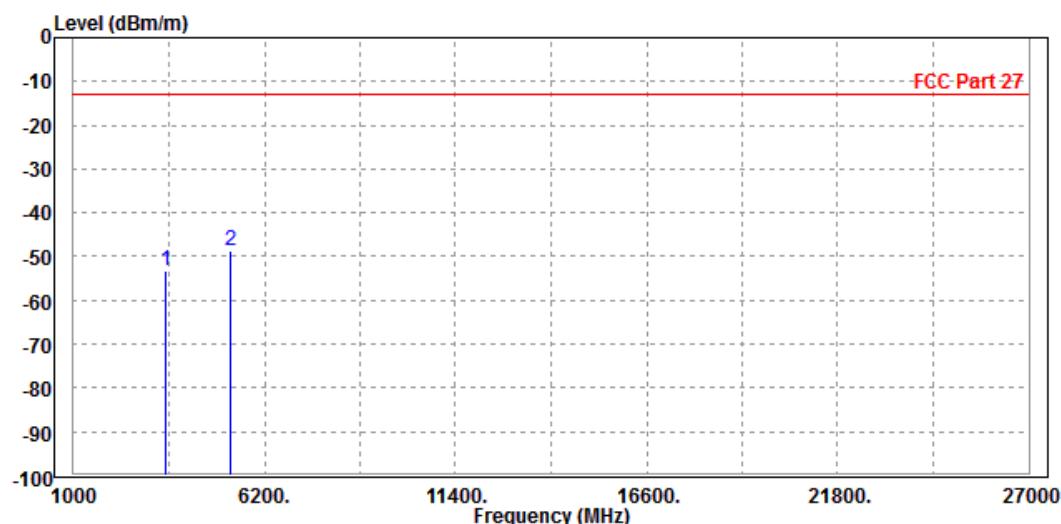
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
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



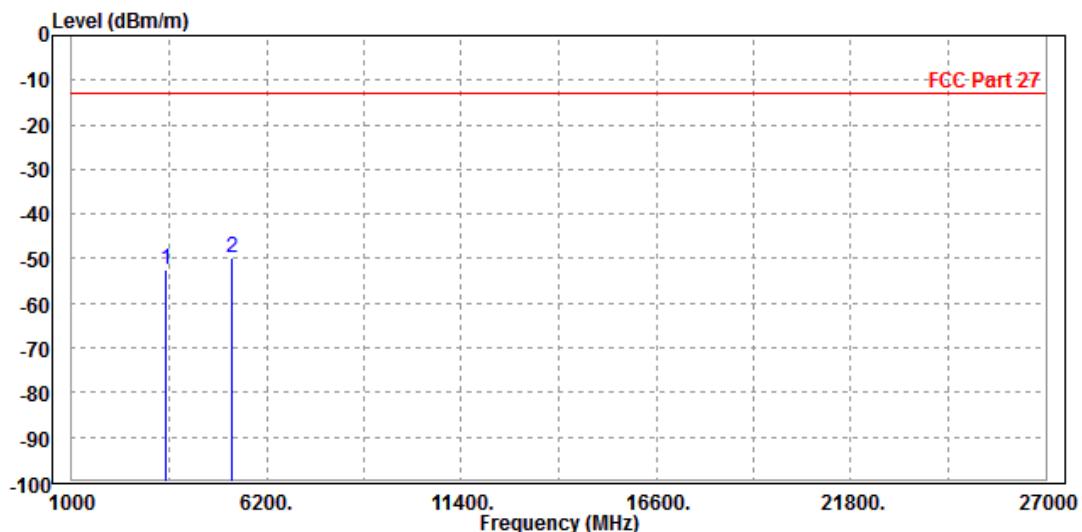


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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





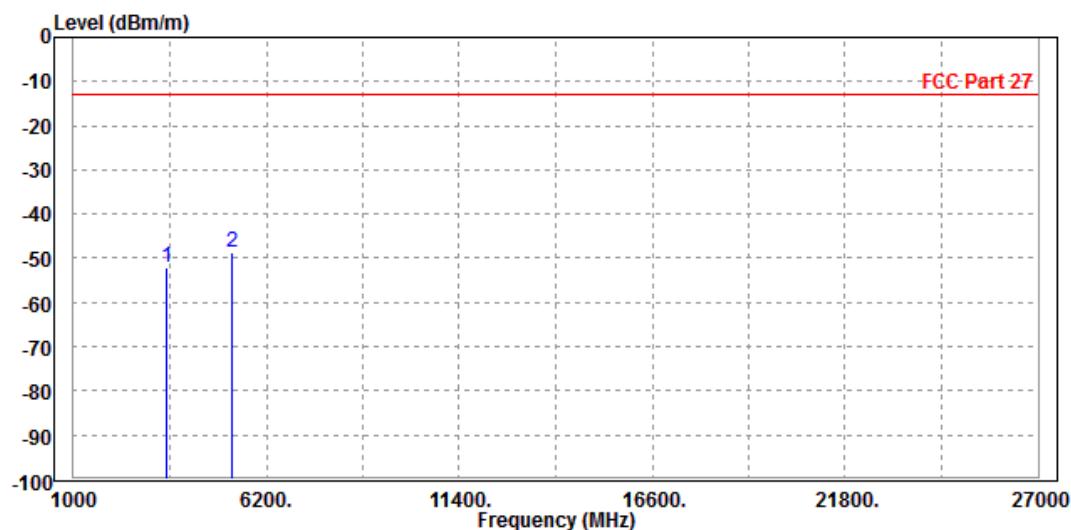
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit			
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



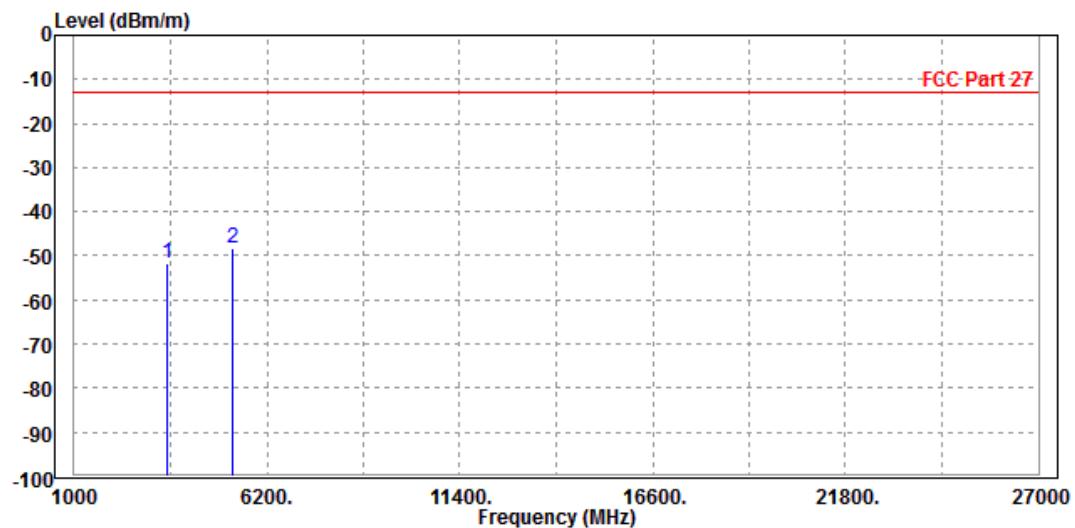


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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





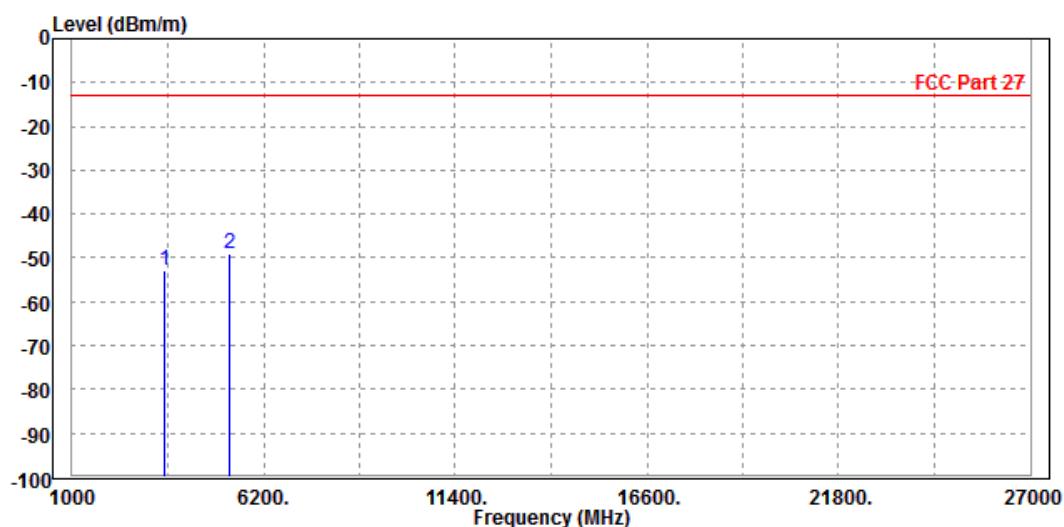
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit			
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



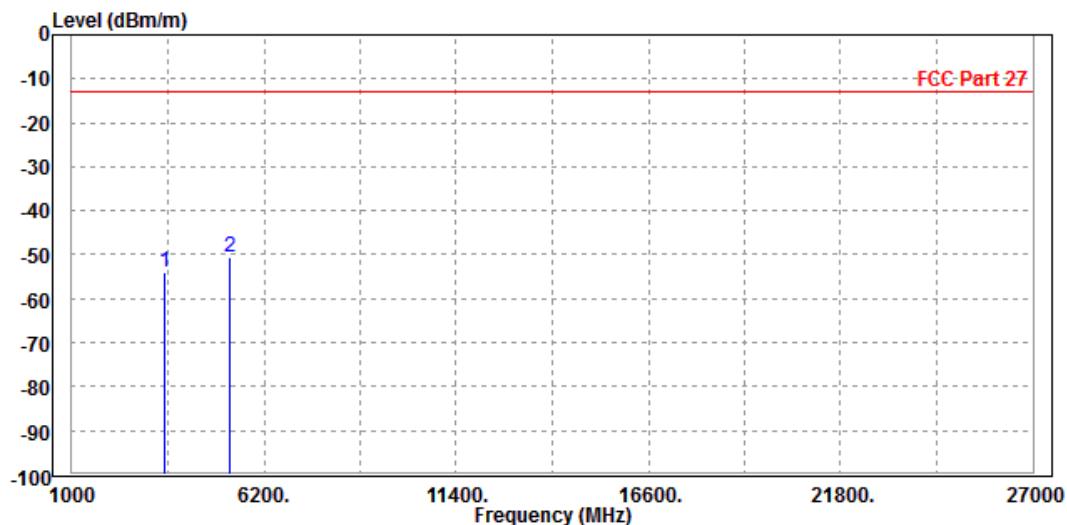


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
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





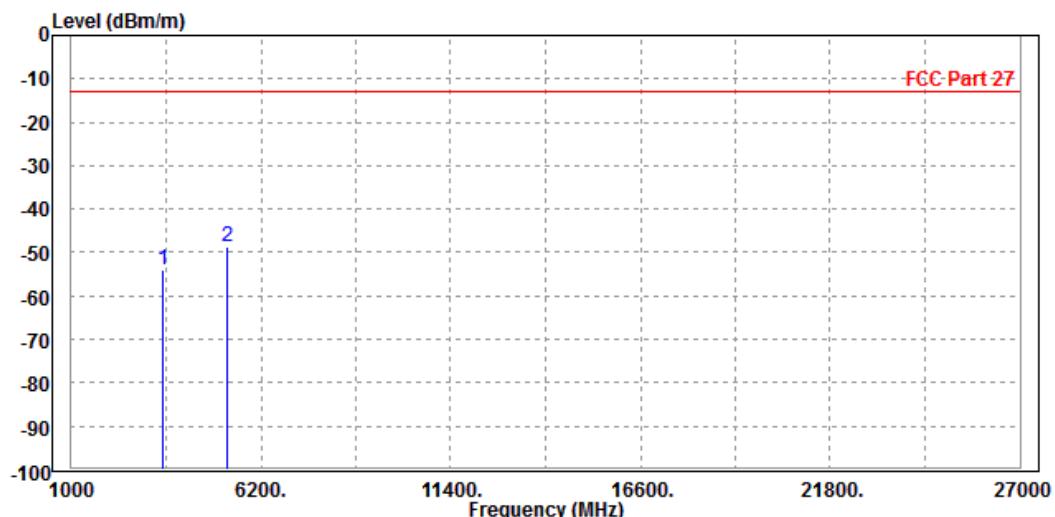
Test Report No.: RF190712W002-5

BUREAU
VERITAS

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 MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
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



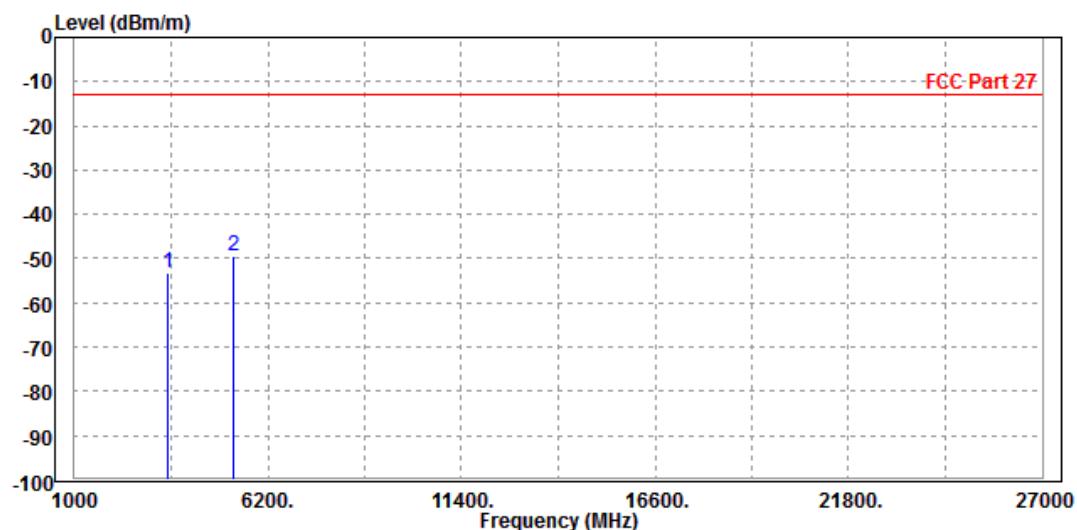


Test Report No.: RF190712W002-5

BUREAU
VERITAS

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	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
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





Test Report No.: RF190712W002-5

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.



Test Report No.: RF190712W002-5

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---