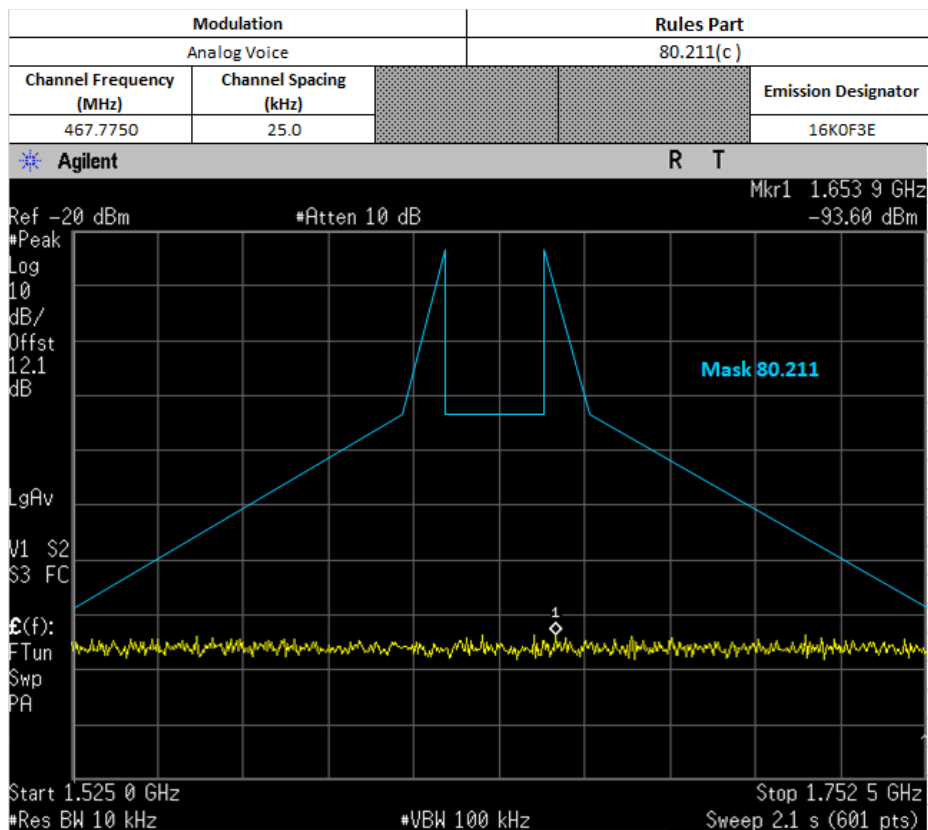
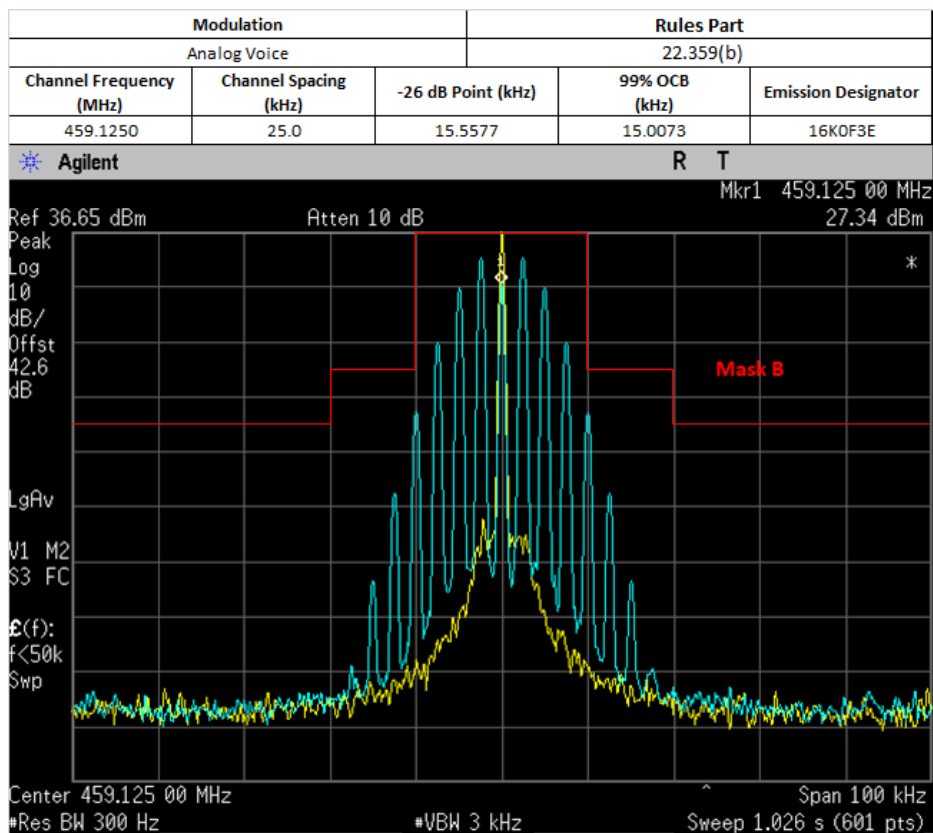
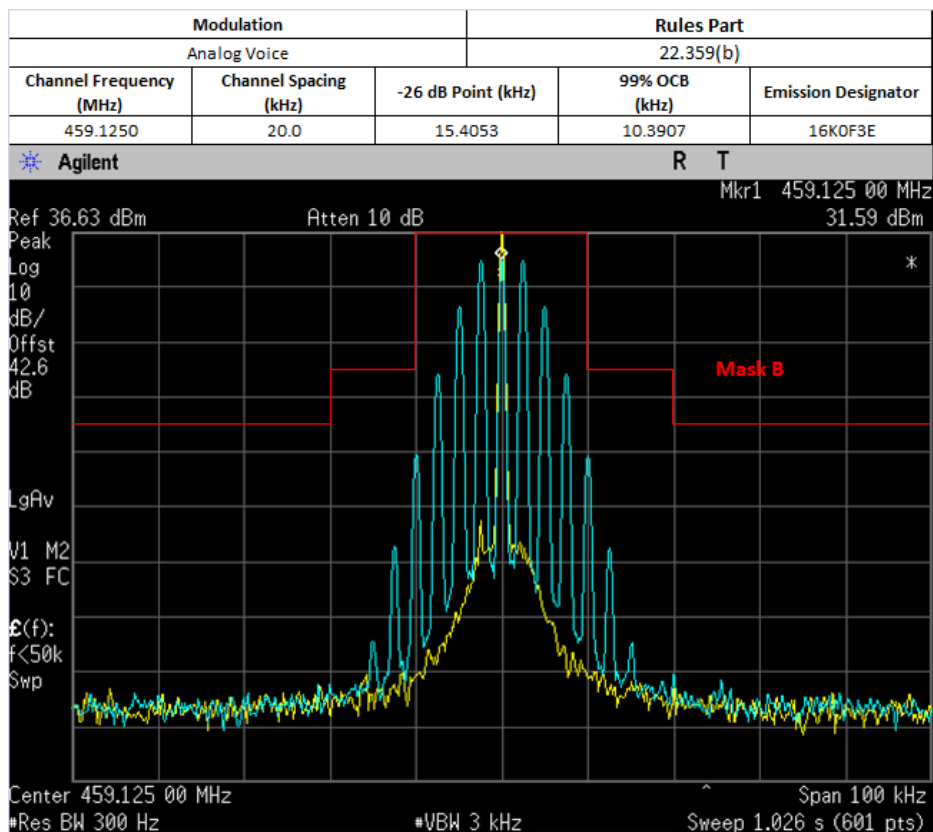


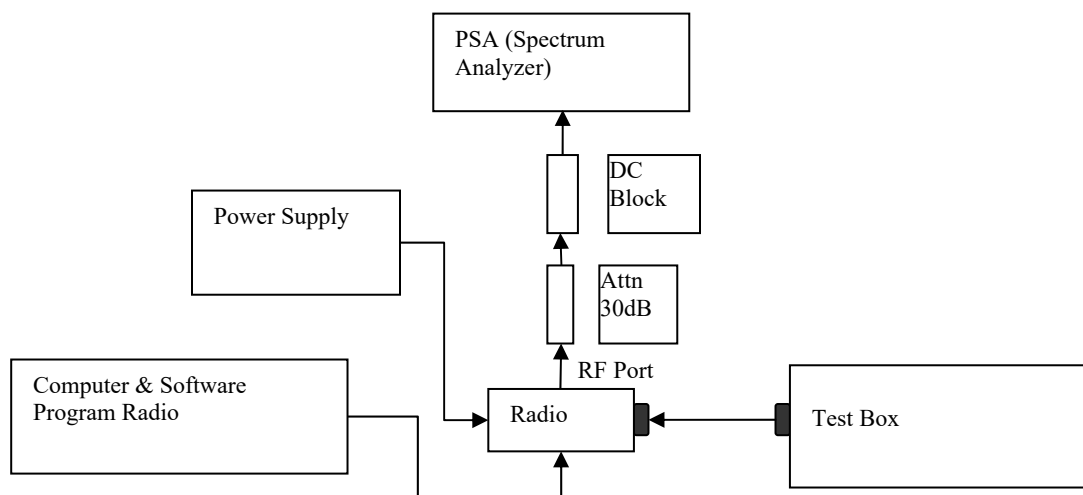


For Part 80 only (NOT FOR FCC REVIEW)





6.6.3. Test Setup (Digital)



- 1) Program and set radio to operate in desire test frequency and digital mode with modulation. (*4FSK, C4FM or other digital modulation form).
- 2) Path loss for the measurement included.
- 3) Select the Occupied Bandwidth measurement for 99% Emissions Bandwidth Measurement.
- 4) Key in the Fc and Resolution Bandwidth (1 ~ 5 % of emission designator).
- 5) Transmit the DUT and record the occupied Bandwidth frequency.
- 6) Preset the spectrum analyzer for modulation emission spectrum measurement.
- 7) Set the span and Resolution Bandwidth (according to FCC/ ISED standard).
- 8) Capture the screen shot as modulated signal.

*Note:

- For Digital Modulation, 12.5 kHz Data F1D & FXD would be the same. Therefore only measurements with F1D modulation shown below.
- For Digital Modulation, 12.5 kHz Data F1E & FXE would be the same. Therefore only measurements with F1E modulation shown below.

6.6.4. Test Result (Digital)

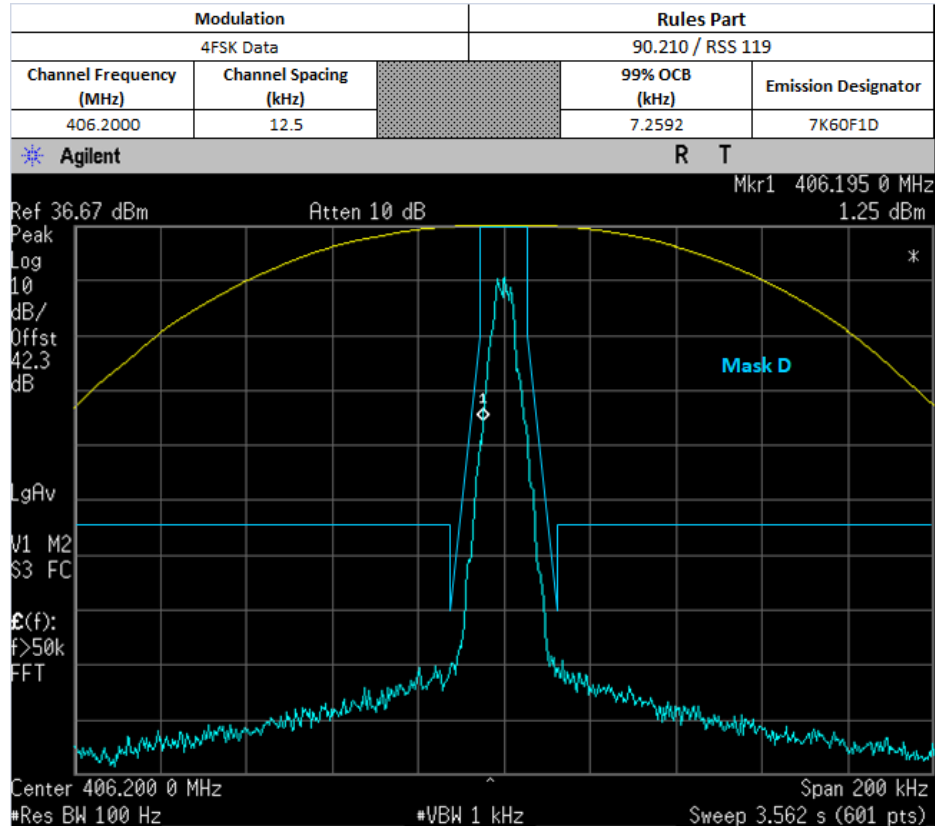
Digital (12.5 kHz Channelization, Digital Data/Voice/Voice+Data):

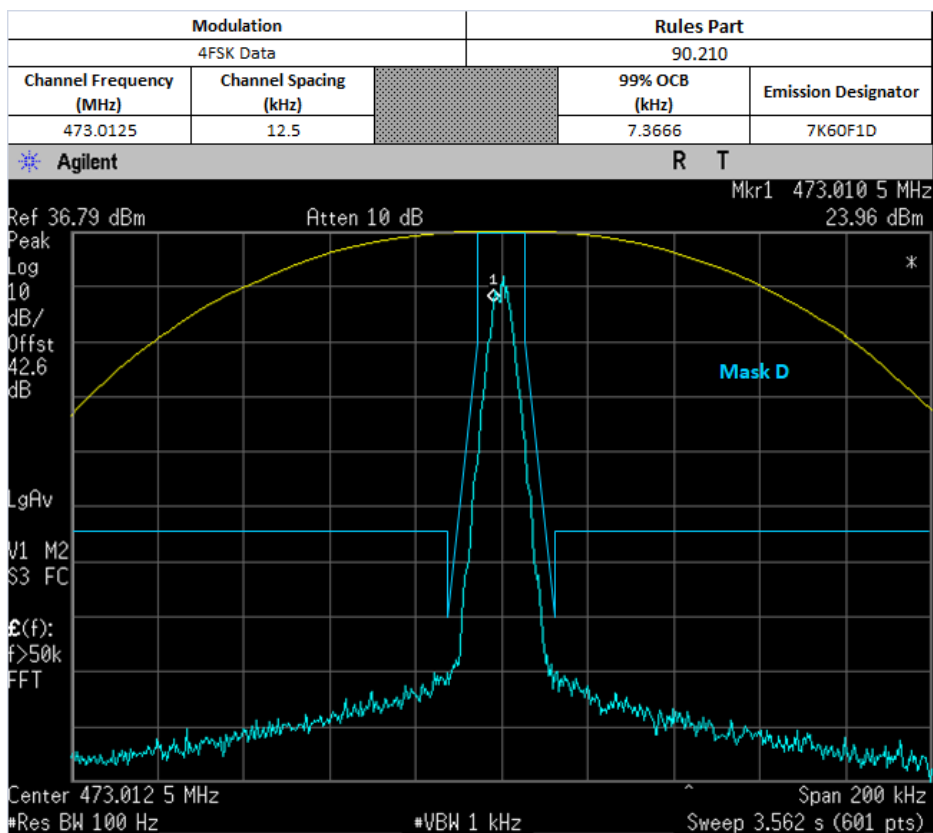
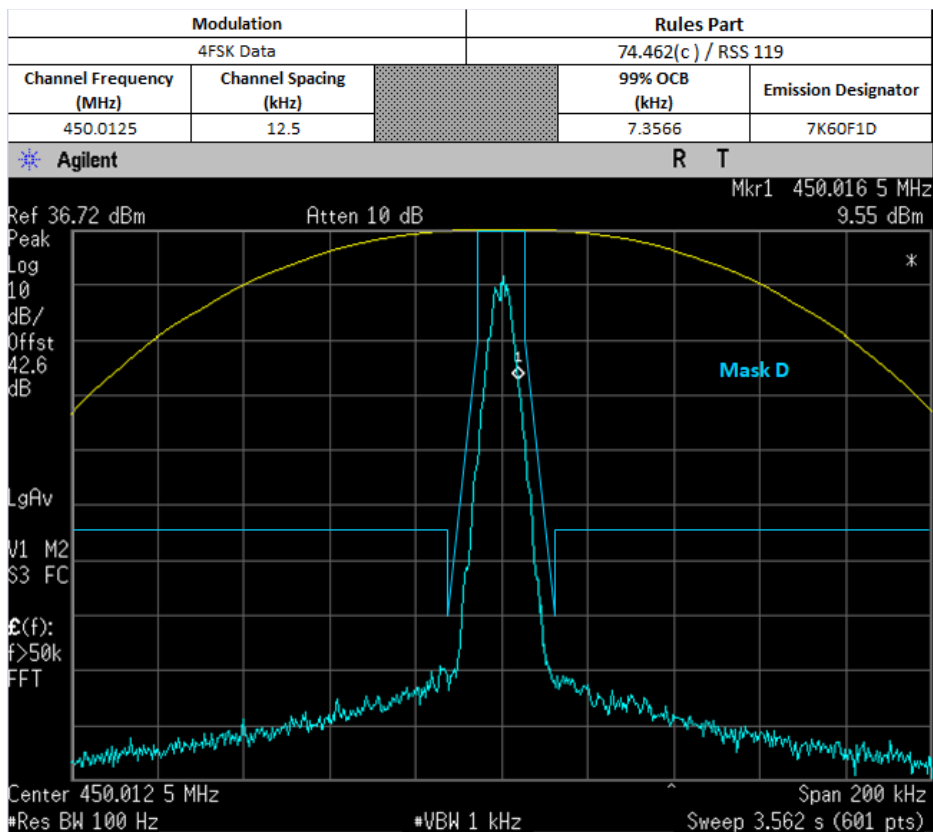
Emission Designator 7K60F1D/7K60F1E/7K60F1W

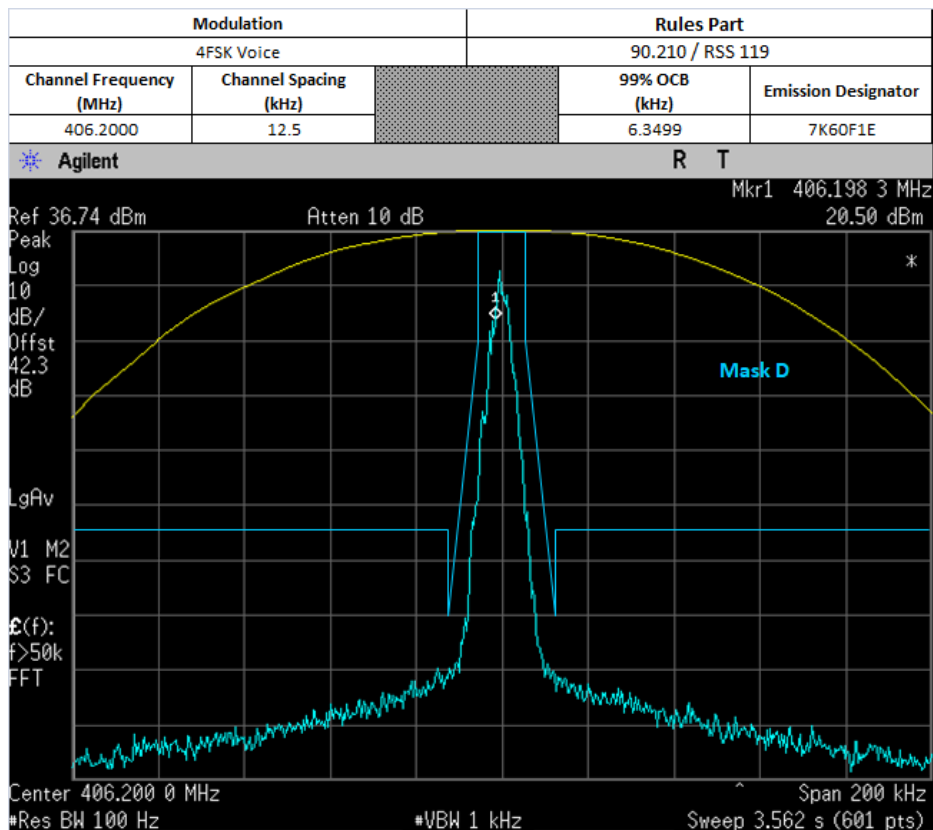
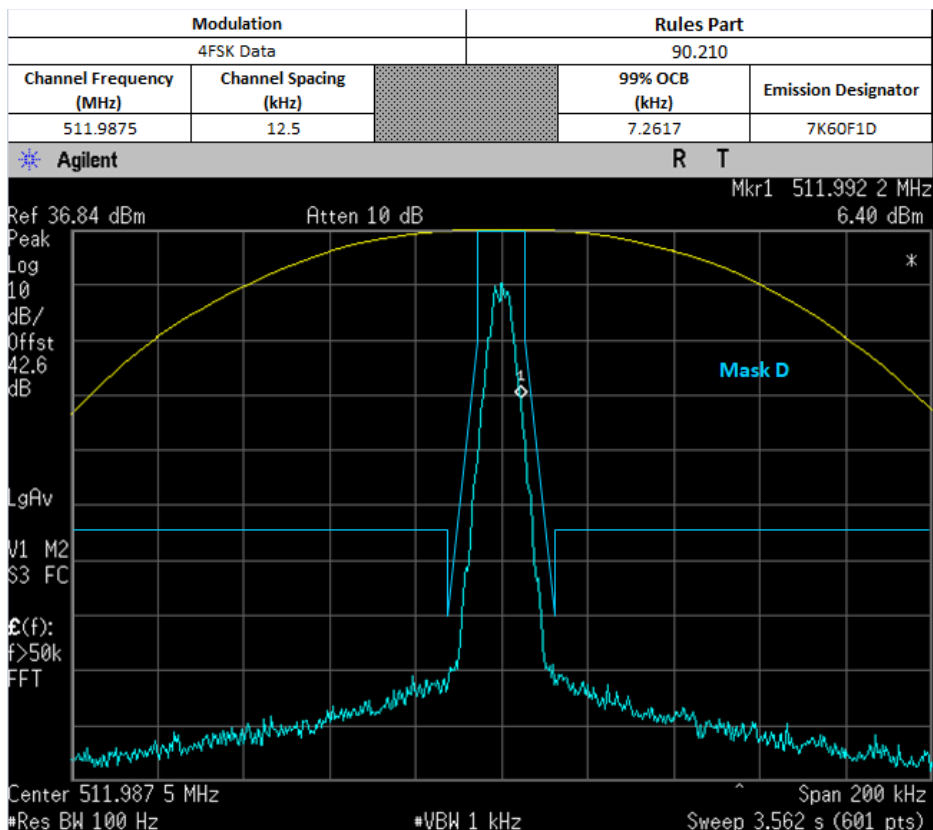
The 99% energy rule (title 47CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It basically states that 99% of the modulation energy falls within X kHz, in this case, 7.60kHz Measurements were performed in accordance with TIA/EIA TSB102.CAAB Section 2.2.5.2. The emission mask was obtained from 47CFR 90.210(d).

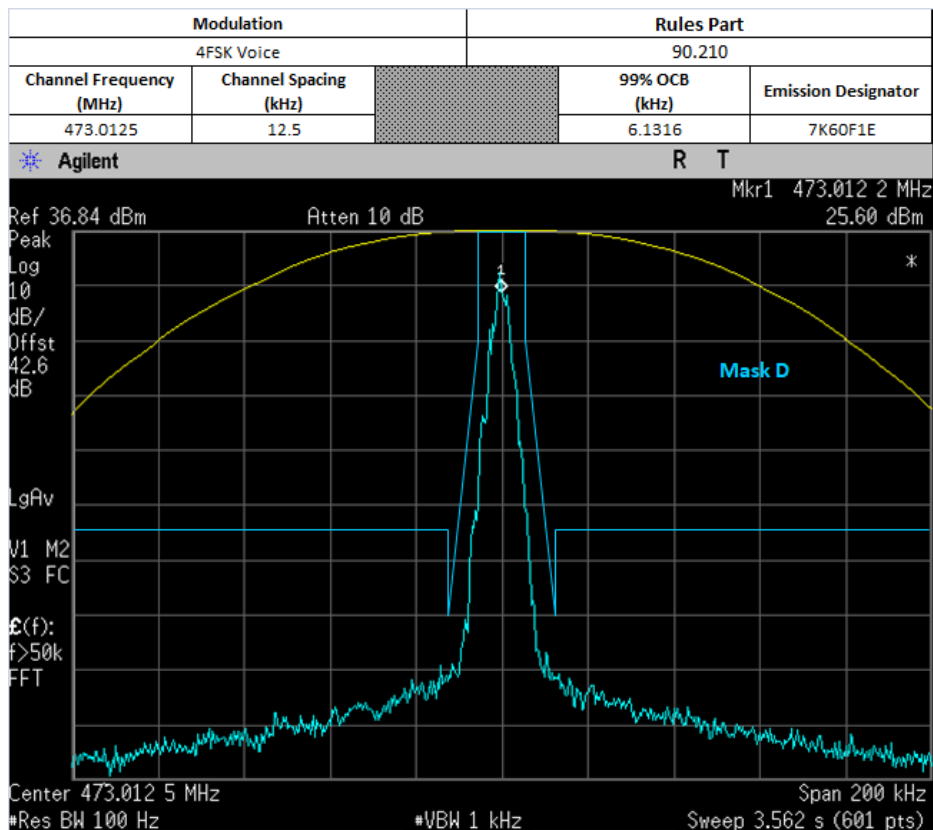
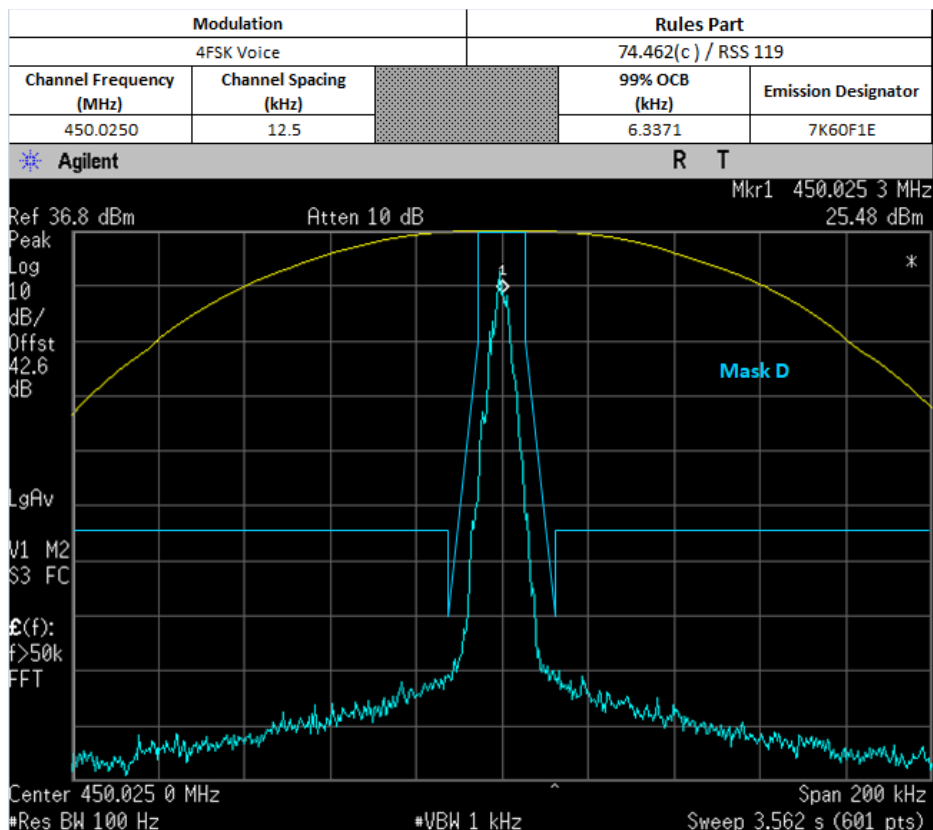
F1D/E/W portion of the designator indicates digital data/voice/voice+data.

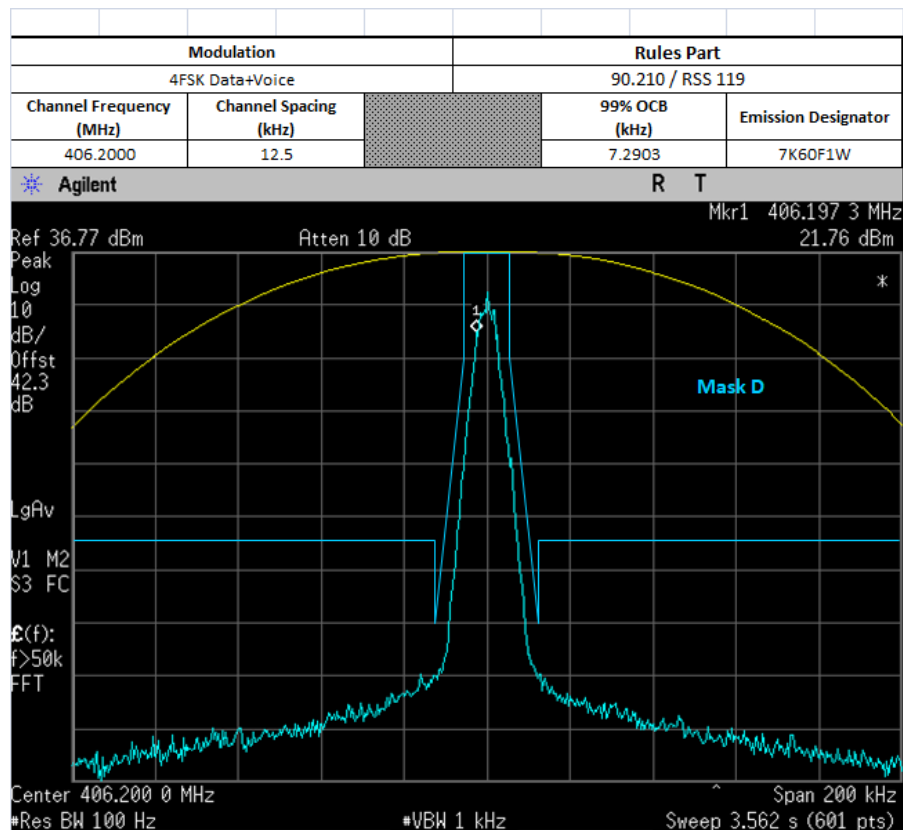
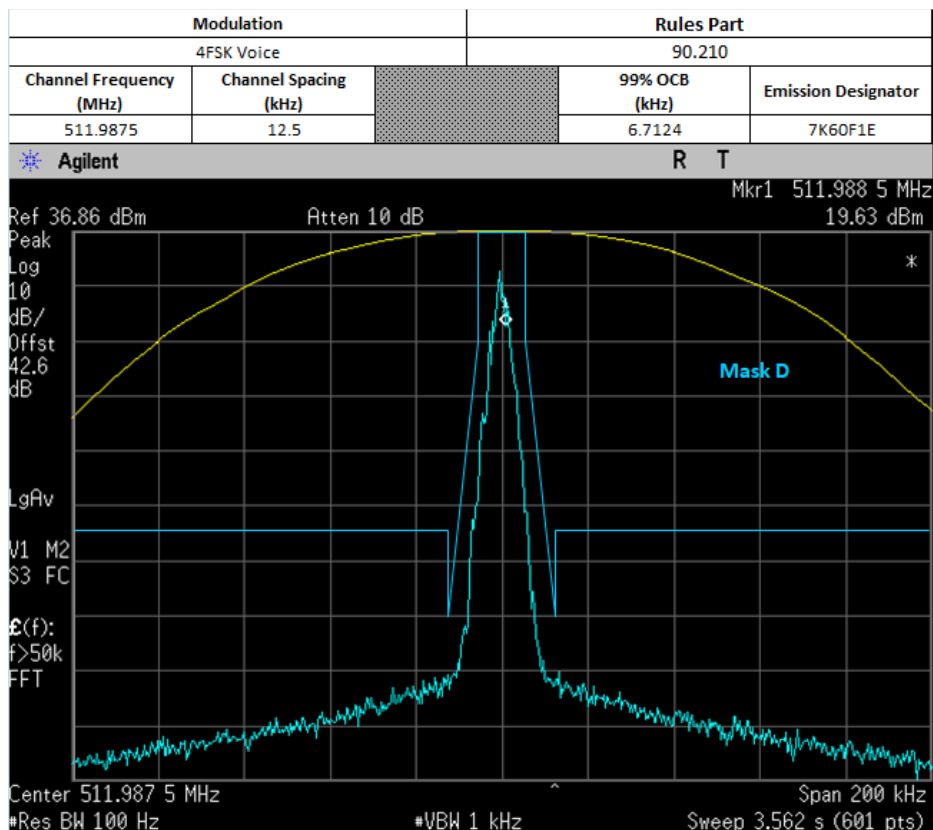
Therefore, the entire designator for 12.5 kHz channelization digital data is 7K60F1D / 7K60F1E / 7K60F1W

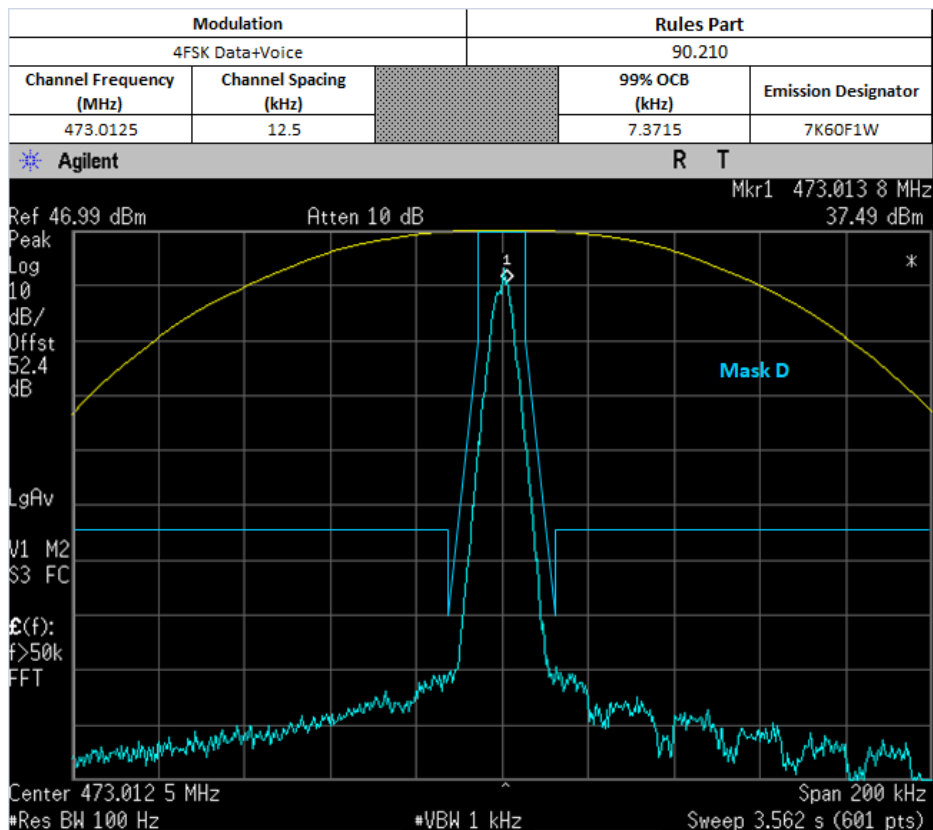
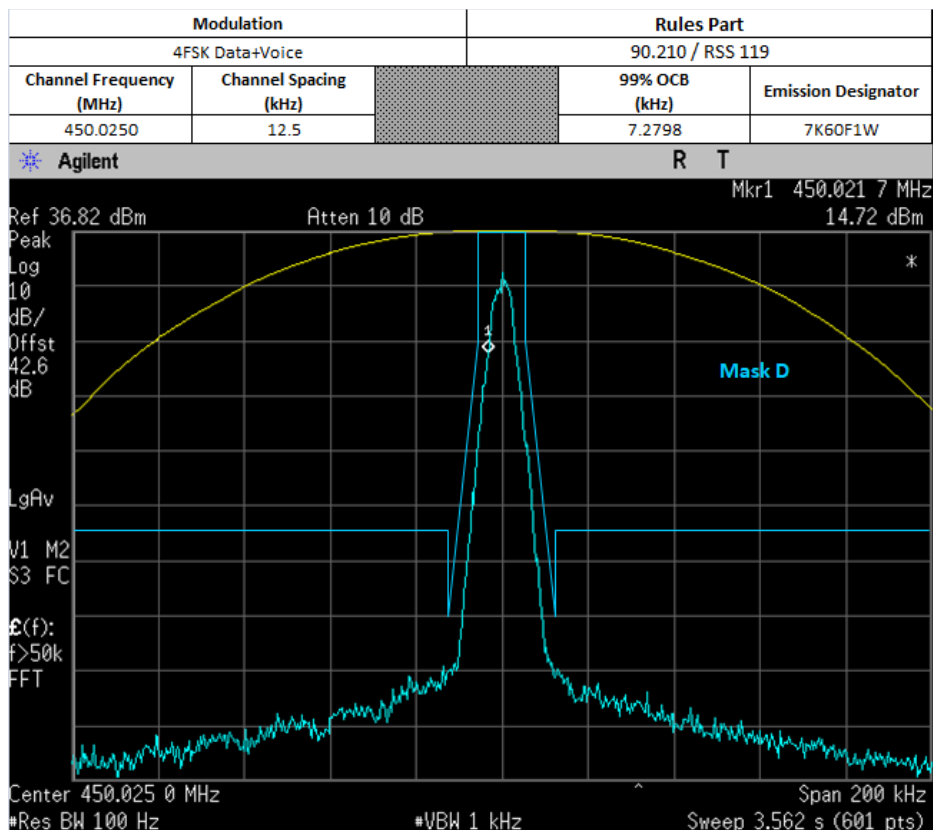


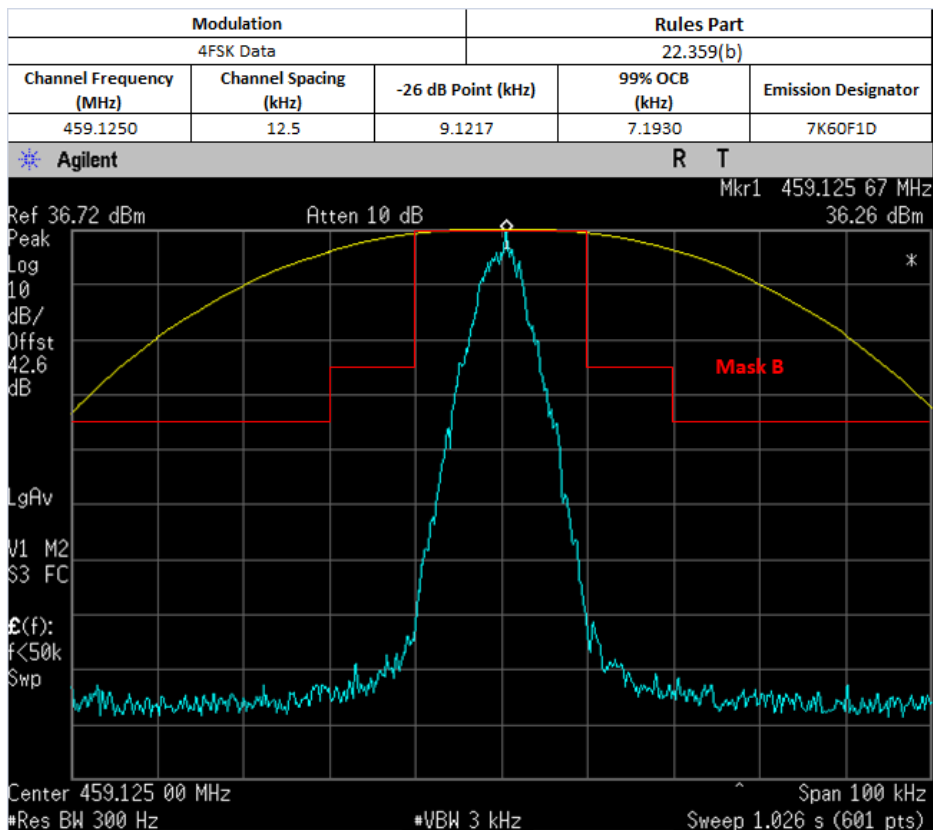
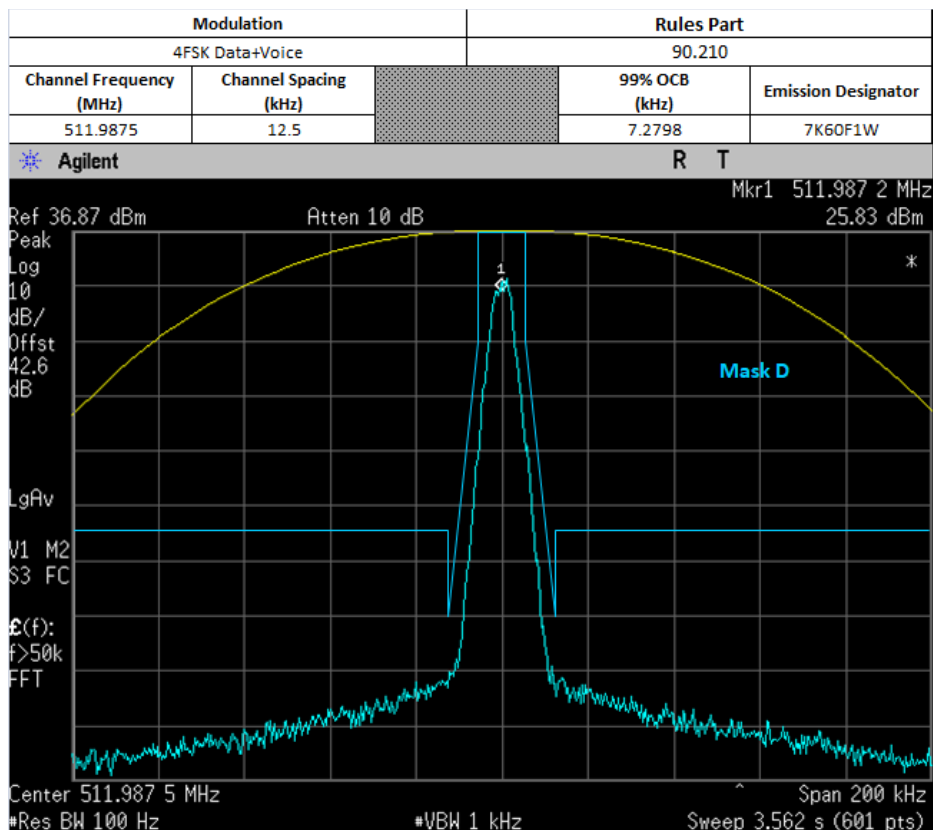


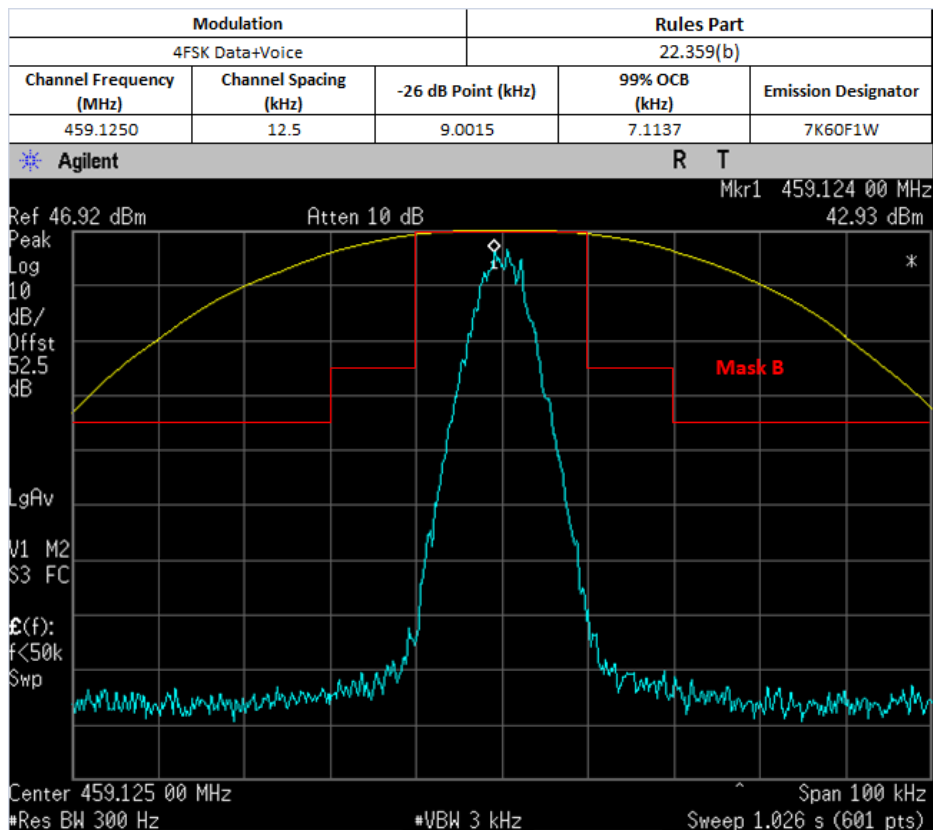
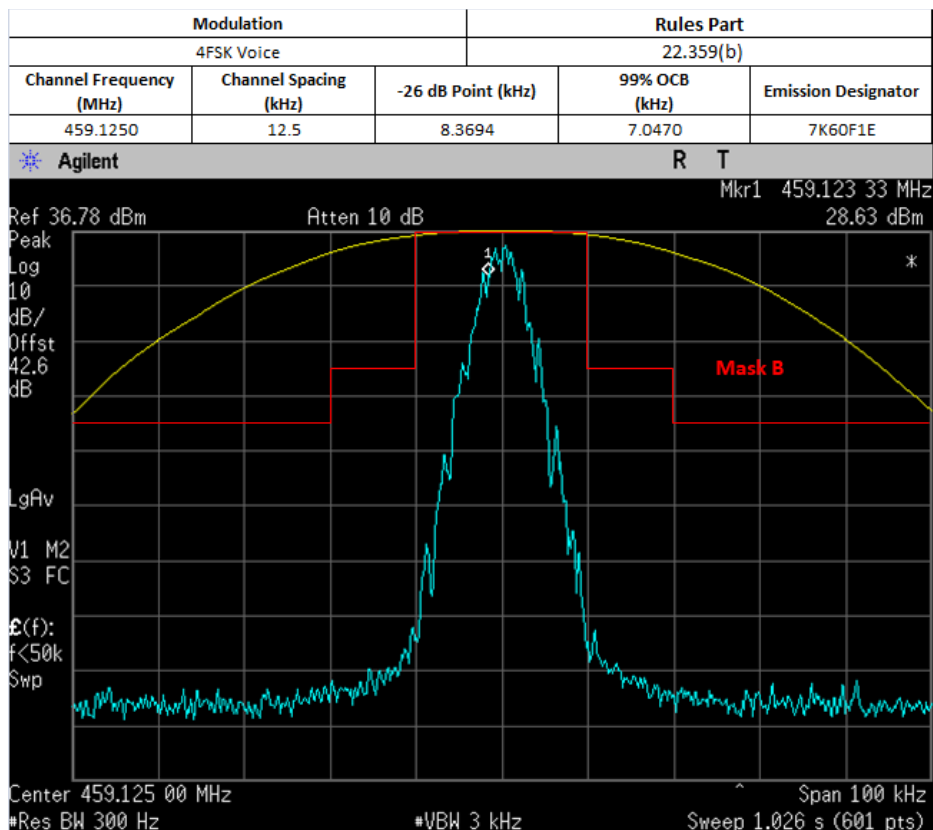












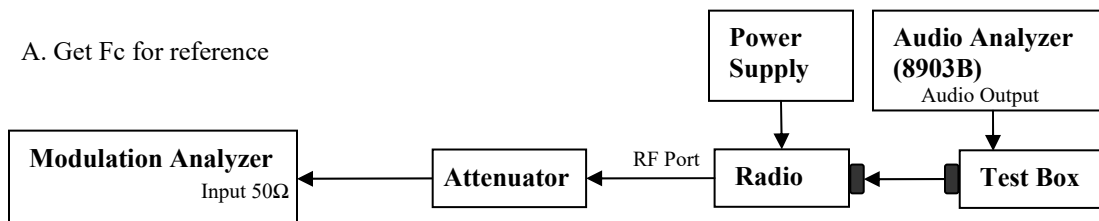
6.6.5. Test Limit

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

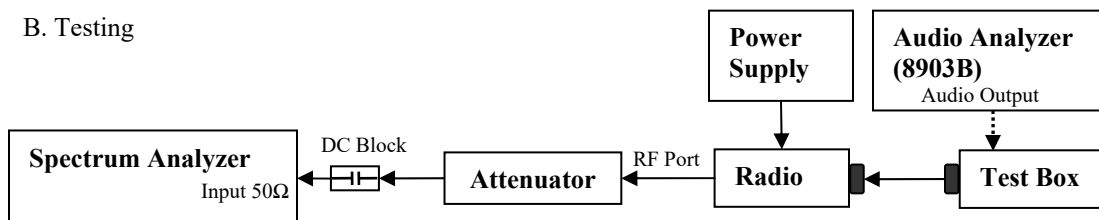
6.7. Band Edge Conducted Spurious Emission (Part 22)

6.7.1. Test Setup (Analog)

A. Get Fc for reference



B. Testing



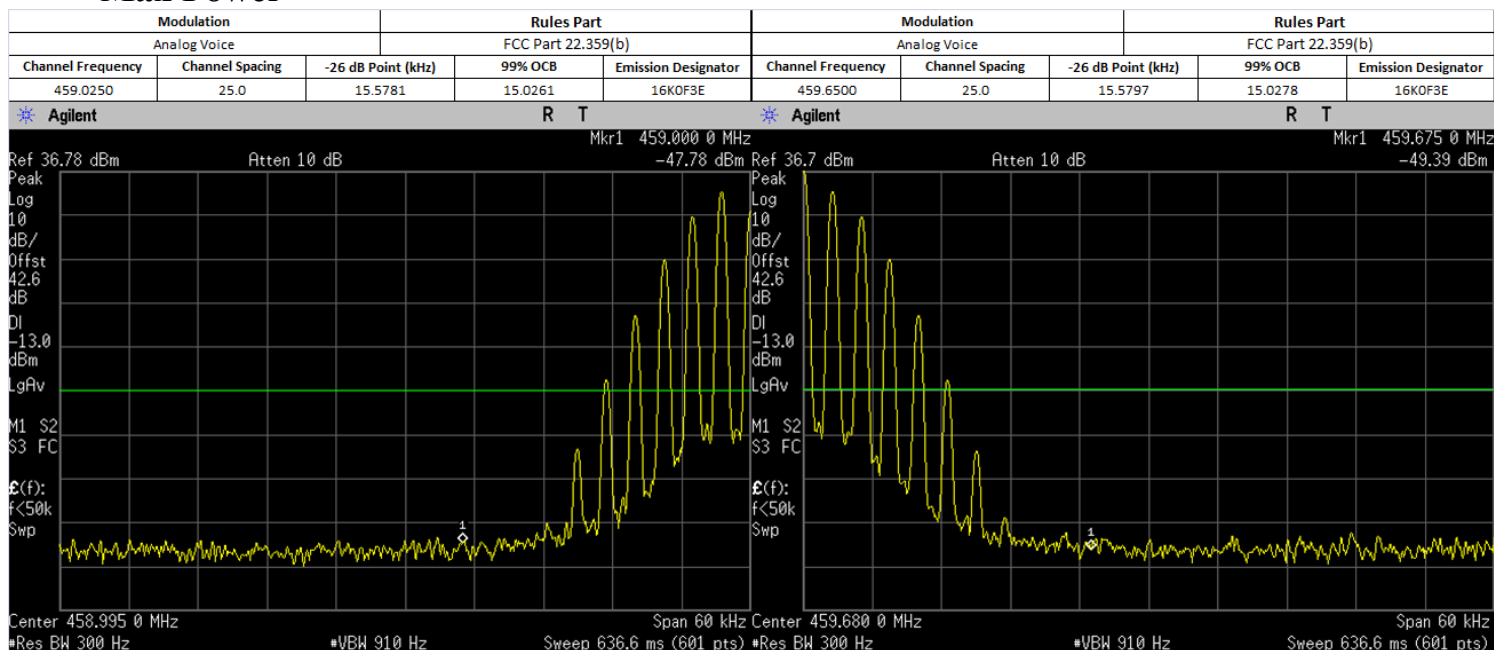
- 2) The DUT transmitter output port was connected to Modulation Analyzer.
- 3) Set the audio bandwidth filter to 15 kHz low pass filter and 50 kHz high pass filter.
- 4) Transmit the radio and set the audio analyzer to 2.5 kHz audio frequency and 50% of the rated deviation. Up the amplitude by 16 dB. Dekey the DUT.
- 5) Path loss for the measurement included.
- 6) Select the Occupied Bandwidth measurement for 99% and 26dB Emissions Bandwidth Measurement.
- 7) Key in the Fc and Resolution Bandwidth.
- 8) Transmit the DUT and record the occupied Bandwidth frequencies.
- 9) Preset the spectrum analyzer for band edge measurement.
- 10) The band edges of lowest and highest channels were measured.
- 11) Key in the Lowest and highest channel frequency, span is 60 kHz and Resolution Bandwidth is at least 1% of Emission Bandwidth.
- 12) Save the screen shot as modulated signal.
- 13) Remove the audio tone from audio analyzer to capture unmodulated signal.

*Note:

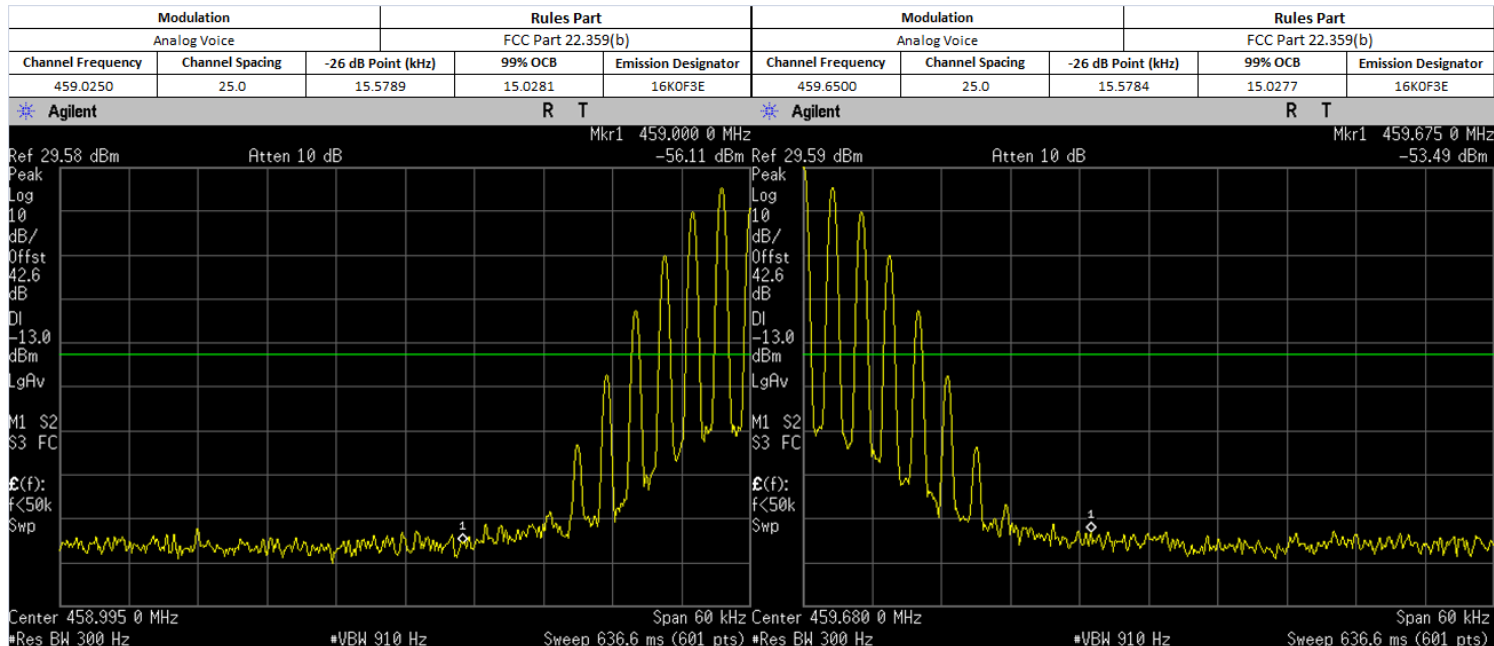
- For emission designator ending with F3E, 16K0F3E is the worst case and therefore only 16K0F3E will be shown.

6.7.2. Test Result (Analog)

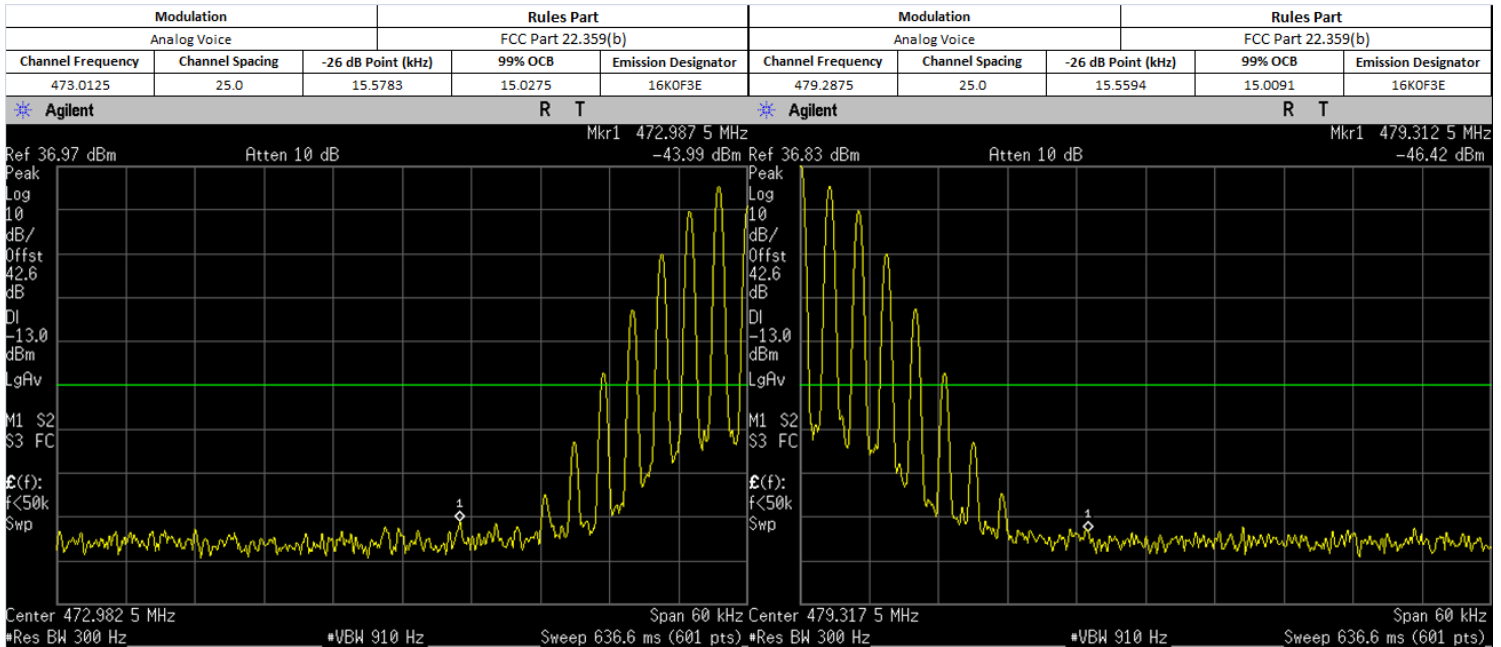
Max Power



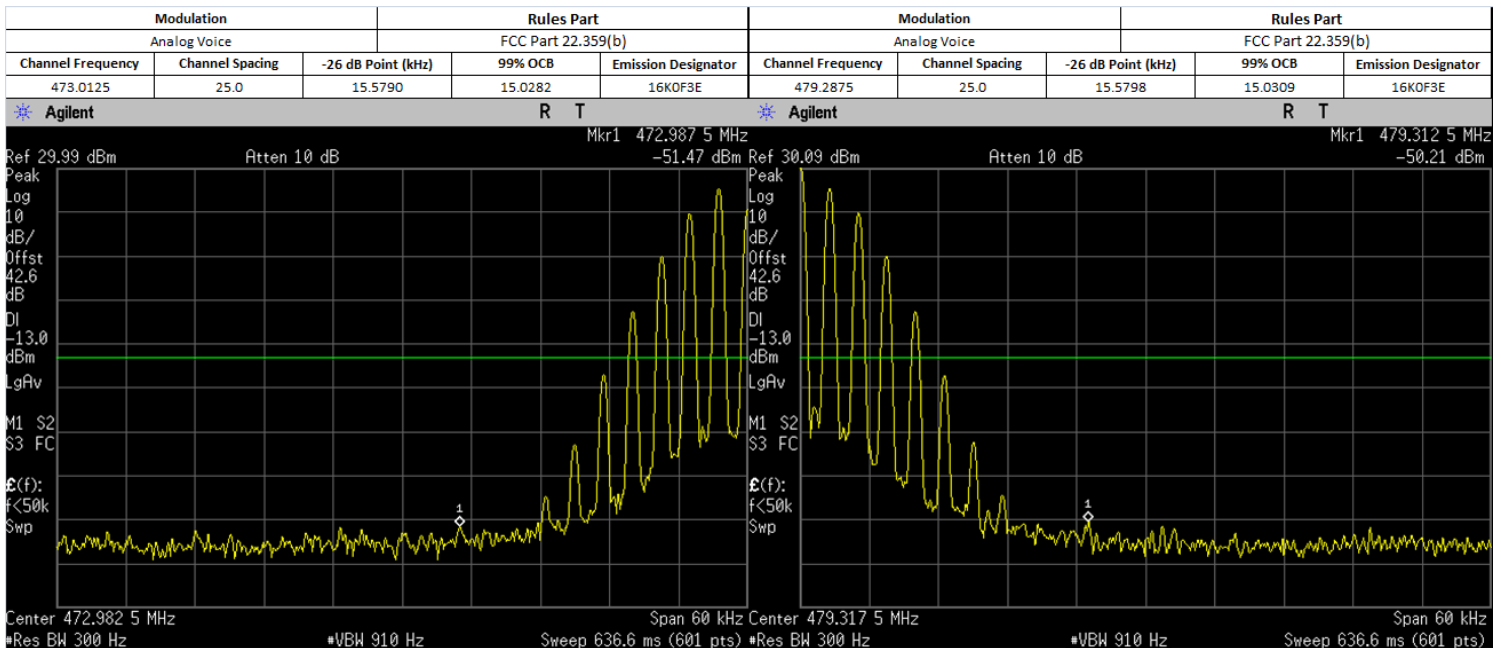
Low Power



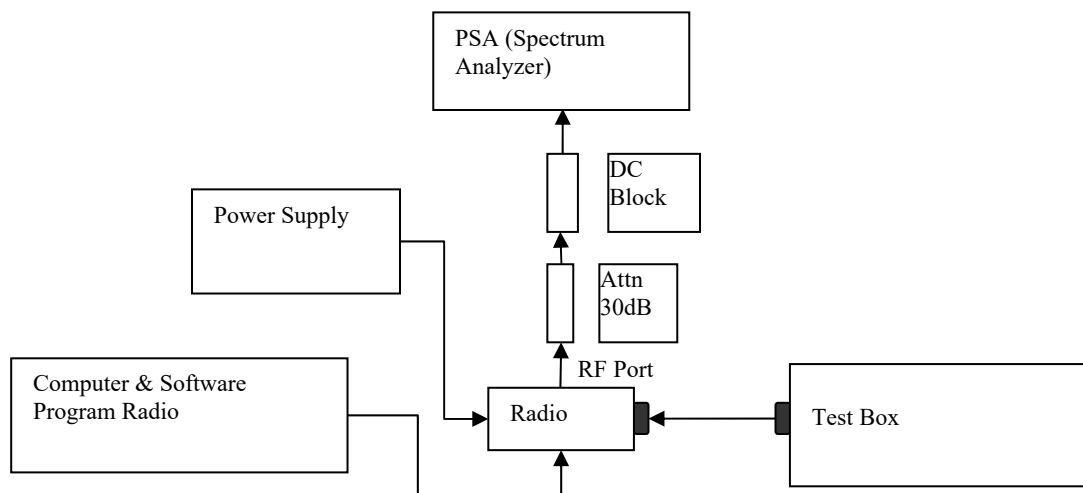
Max Power



Low Power



6.7.3. Test Setup (Digital)



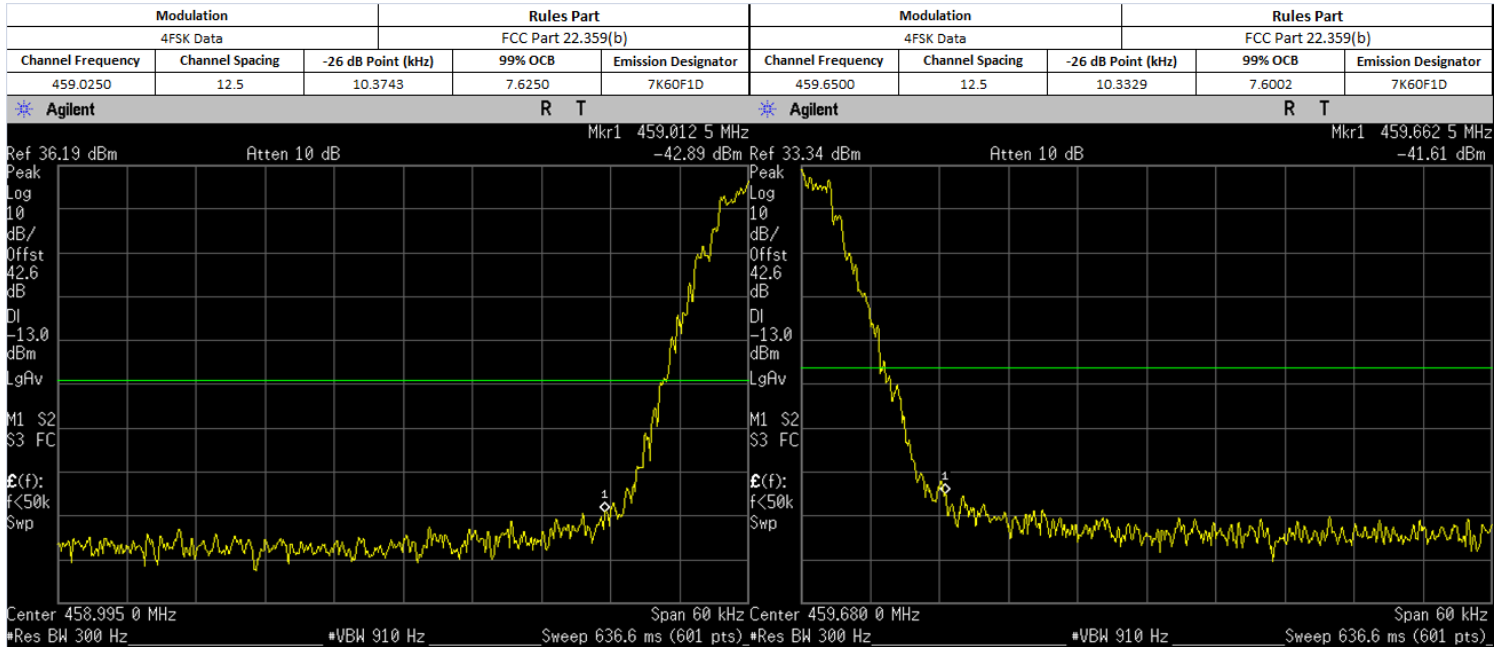
- 1) Program and set radio to operate in desire test frequency and digital mode with modulation. (*4FSK, C4FM or other digital modulation form).
- 2) Path loss for the measurement included.
- 3) Select the Occupied Bandwidth measurement for 99% and 26dB Emissions Bandwidth Measurement.
- 4) Key in the Fc and Resolution Bandwidth.
- 5) Transmit radio record the occupied Bandwidth frequencies.
- 6) Preset the spectrum analyzer for band edge measurement.
- 7) Key in the lowest and highest channels frequency, span is 60 kHz and Resolution Bandwidth is at least 1% of Emission Bandwidth.
- 8) Save the screen shot.

*Note:

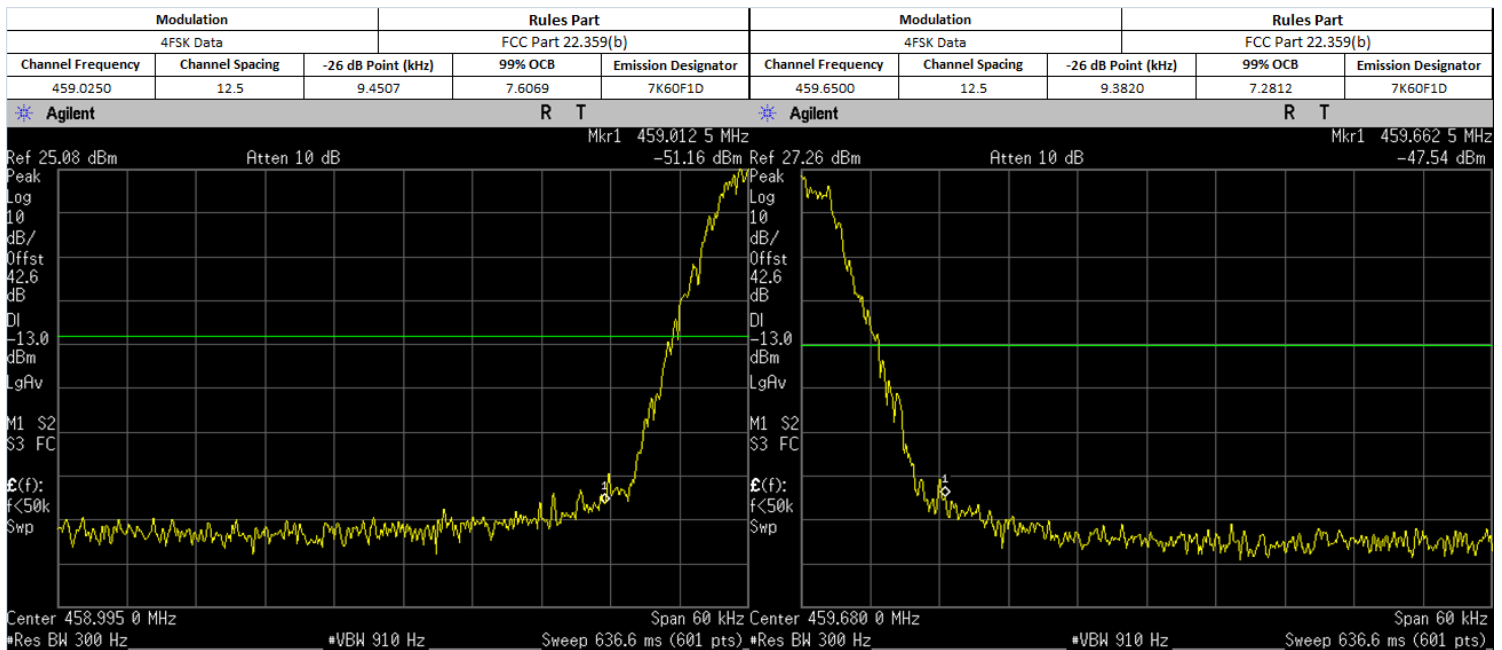
- For Digital Modulation, 12.5 kHz Data F1D & FXD would be the same. Therefore only measurements with F1D modulation shown below.
- For Digital Modulation, 12.5 kHz Data F1E & FXE would be the same. Therefore only measurements with F1E modulation shown below.

6.7.4. Test Result (Digital)

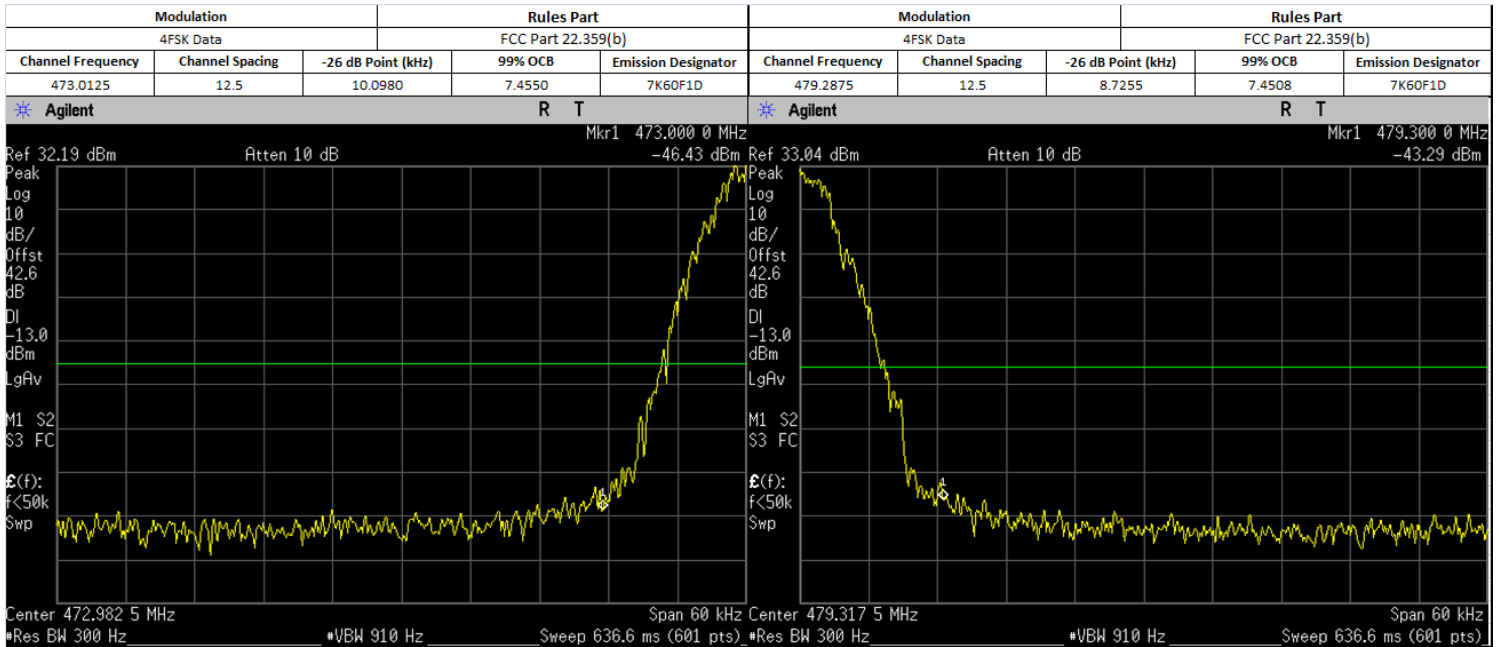
Max Power



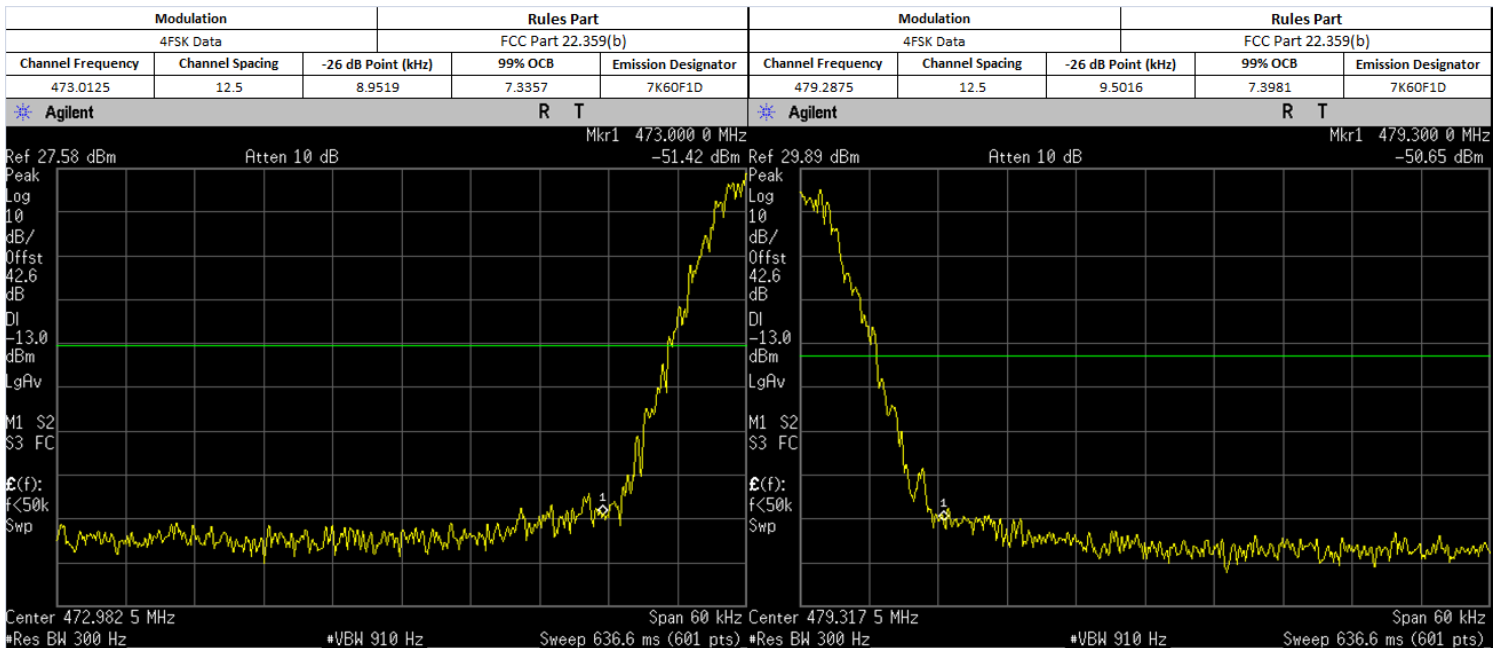
Low Power



Max Power



Low Power

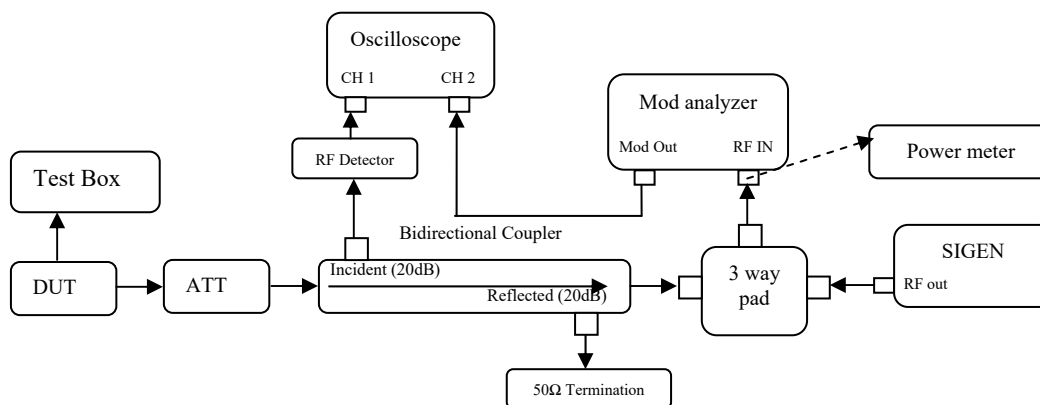


6.7.5. Test Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

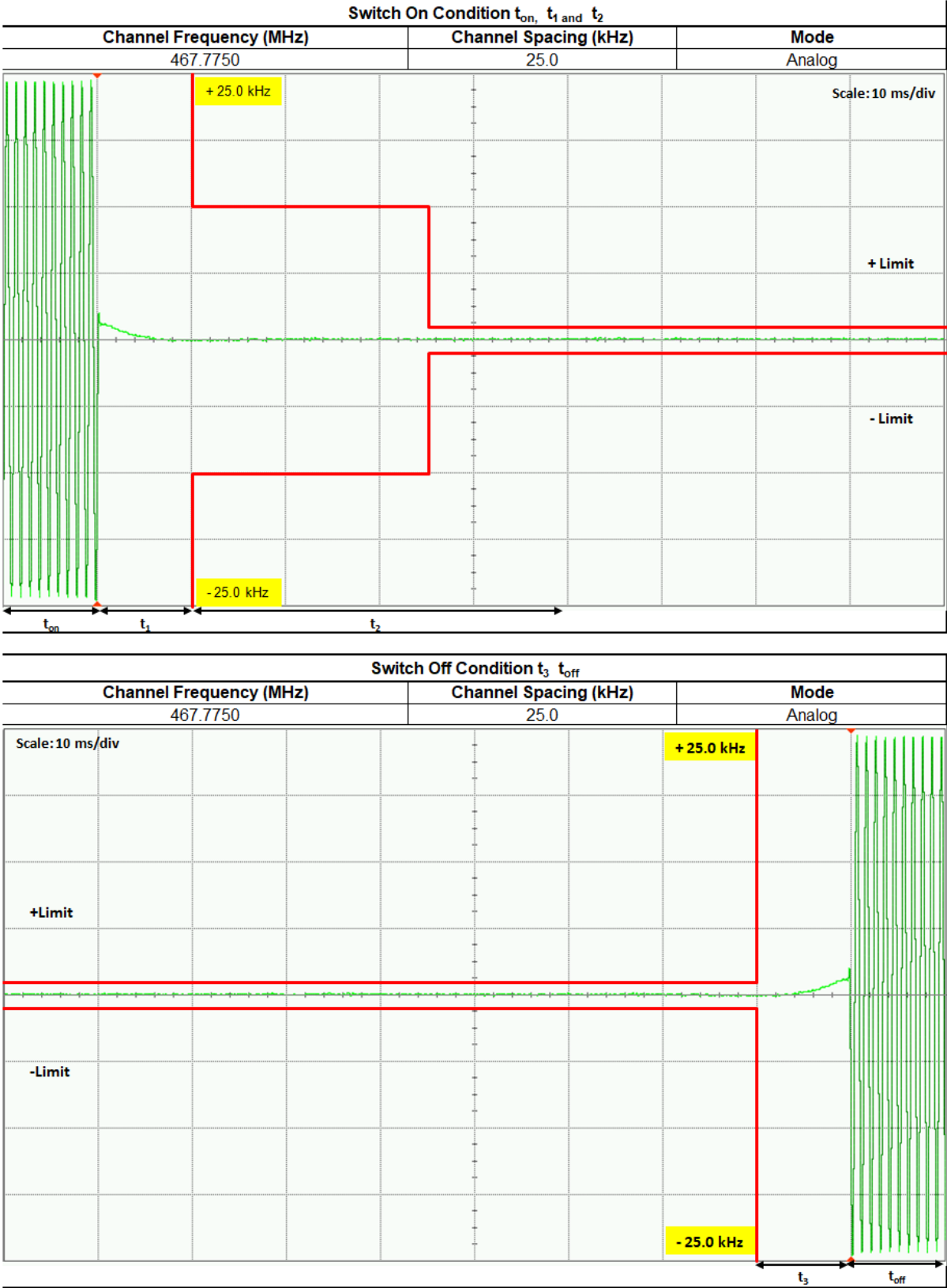
6.8. Transient Frequency Behavior

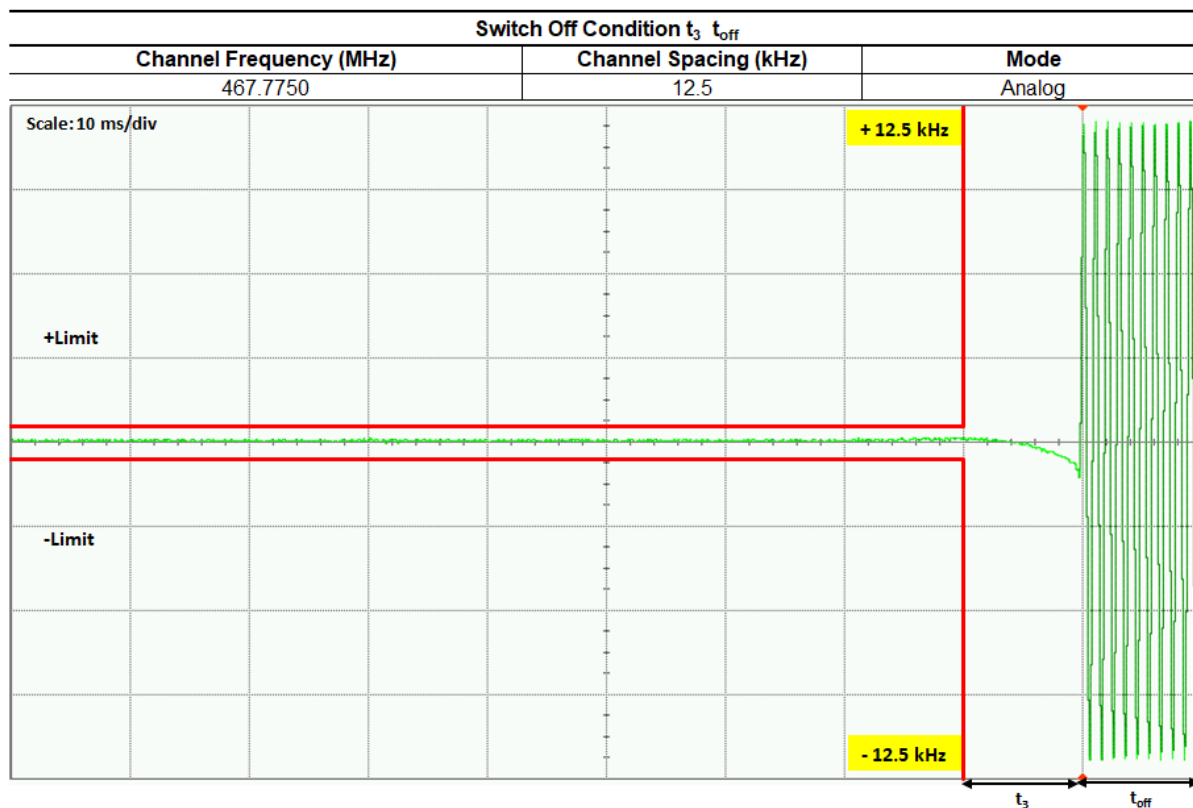
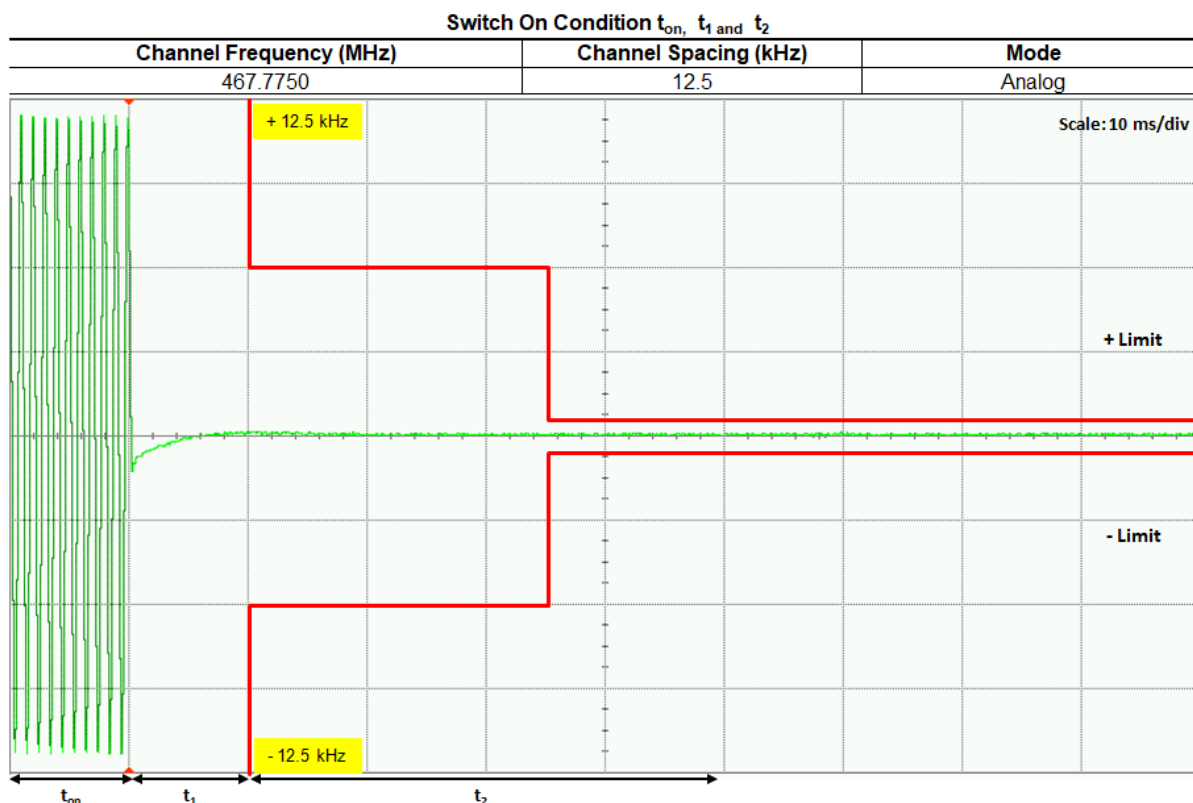
6.8.1. Test Setup



- 1) Connect the setup as figure above.
- 2) Path loss for the measurement included.
- 3) Set on Siggen with the assigned center frequency, internal 1 kHz FM tone.
FM Deviation: Analog 25kHz Channel Spacing = 25 kHz
Analog 12.5 kHz Channel Spacing = 12.5 kHz
C4FM = 12.5 kHz
- 4) Turn on 50 kHz high pass filter and 15 kHz low pass filter on modulation analyzer.
- 5) Supply sufficient attenuation ATT to provide the output power of $\leq -11\text{dBm}$ into power meter when DUT is keying up.
- 6) Note the power level on power meter and dekey the DUT.
- 7) Adjust the amplitude of the signal generator to the level power meter, maintained the amplitude throughout the rest of the measurement.
- 8) Connect the output to modulation analyzer.
- 9) Reduce 30dB attenuation and transmit the radio to get the trigger line.
- 10) Capture the screen shot for key-up (rising edge) and de-key (falling edge) mode.

6.8.2. Test Result





6.8.3. Test Limit

Transmitters designed to operate in the 150-174 MHz and 421-512 MHz frequency bands must maintain transient frequencies within the maximum frequency difference limits during the time intervals indicated:

Time intervals ^{1 2}	Maximum frequency difference ³	All equipment	
		150 to 174 MHz	421 to 512 MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 kHz Channels			
t ₁ ⁴	±25.0 kHz	5.0 ms	10.0 ms
t ₂	±12.5 kHz	20.0 ms	25.0 ms
t ₃ ⁴	±25.0 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 kHz Channels			
t ₁ ⁴	±12.5 kHz	5.0 ms	10.0 ms
t ₂	±6.25 kHz	20.0 ms	25.0 ms
t ₃ ⁴	±12.5 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 kHz Channels			
t ₁ ⁴	±6.25 kHz	5.0 ms	10.0 ms
t ₂	±3.125 kHz	20.0 ms	25.0 ms
t ₃ ⁴	±6.25 kHz	5.0 ms	10.0 ms

¹ t_{on} is the instant when a 1 kHz test signal is completely suppressed, including any capture time due to phasing.

t_1 is the time period immediately following t_{on} .

t_2 is the time period immediately following t_1 .

t_3 is the time period from the instant when the transmitter is turned off until t_{off} .

t_{off} is the instant when the 1 kHz test signal starts to rise.

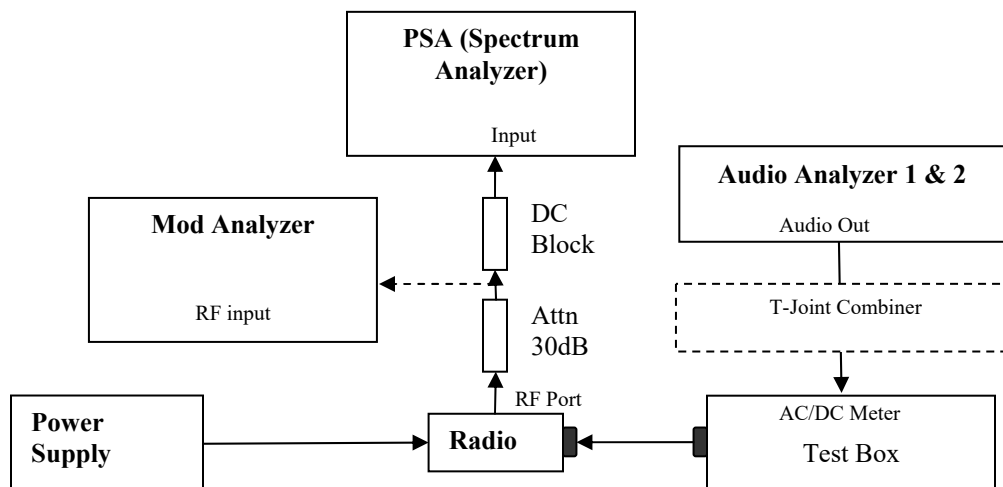
² During the time from the end of t_2 to the beginning of t_3 , the frequency difference must not exceed the limits specified in §90.213.

³ Difference between the actual transmitter frequency and the assigned transmitter frequency.

⁴ If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

6.9. Adjacent Channel Power

6.9.1. Test Setup (Analog)

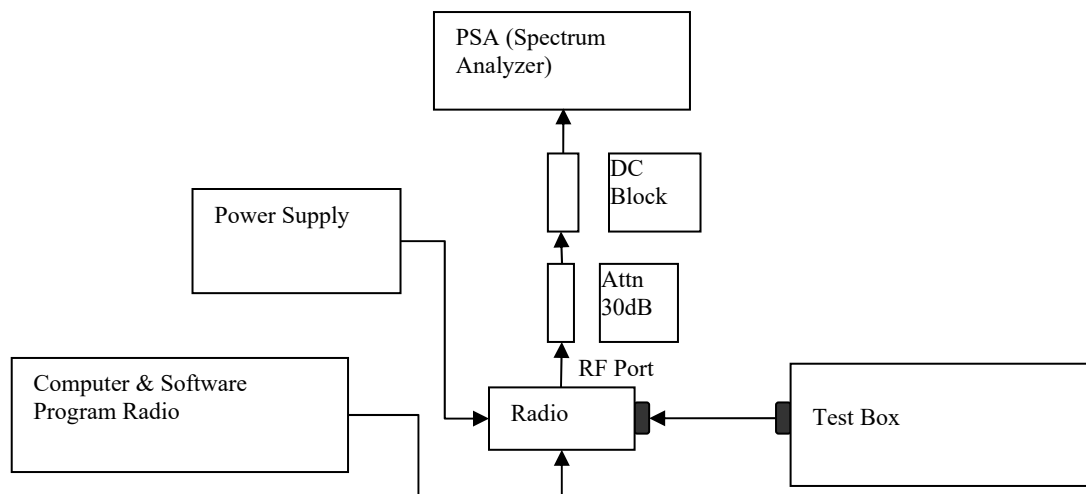


- 1) The DUT transmitter output port was connected to modulation analyzer.
- 2) Transmit the radio and turn on 1st audio analyzer with audio frequency 650Hz, 50% rated deviation, and record the amplitude value as AmpT1.
- 3) Turn off Audio analyzer 1 and turn on audio analyzer 2, set the audio frequency to 2.2 kHz and 50% deviation. Record the amplitude as AmpT2.
- 4) Turn both audio analyzers ON and up 10dB amplitude level.
- 5) Connect the output to PSA and set to assigned center frequency.
- 6) Set Span, Resolution Bandwidth and Video Bandwidth per rules part.
- 7) Transmit the radio and record the Adjacent Channel Power value in dBc.

6.9.2. Test Result

Not Applicable

6.9.3. Test Setup (Digital)



- 1) Program and set radio to operate in desire test frequency and digital mode with modulation. (4FSK, C4FM or other digital modulation form).
- 2) Prepare setup as per picture.
- 3) Turn on the ACP Measurement – Press Measure, ACP.
- 4) Set Span, Resolution Bandwidth and Video Bandwidth as per rules part.
- 5) Transmit the radio and record the Adjacent Channel Power value in dBc.

6.9.4. Test Result

Not Applicable

6.9.5. Test Limit

12.5 kHz MOBILE TRANSMITTER ACP REQUIREMENTS

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.50	25.00	-60
62.50	25.00	-65
87.50	25.00	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

25 kHz MOBILE TRANSMITTER ACP REQUIREMENTS

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.50	25	-60
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 kHz to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

12.5 kHz BASE TRANSMITTER ACP REQUIREMENTS

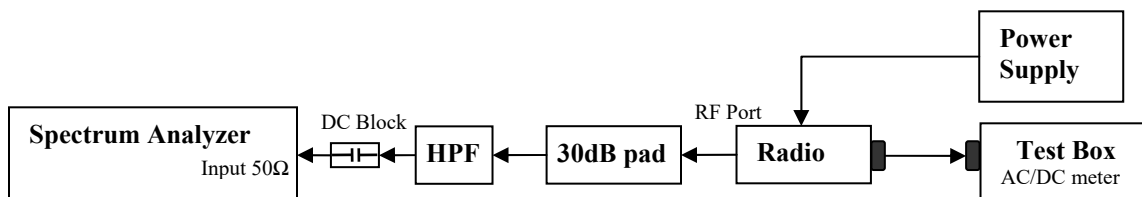
Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350.00	100	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	¹ -85

25 kHz BASE TRANSMITTER ACP REQUIREMENTS

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100.00	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	¹ -85

6.10. Conducted Spurious Emission

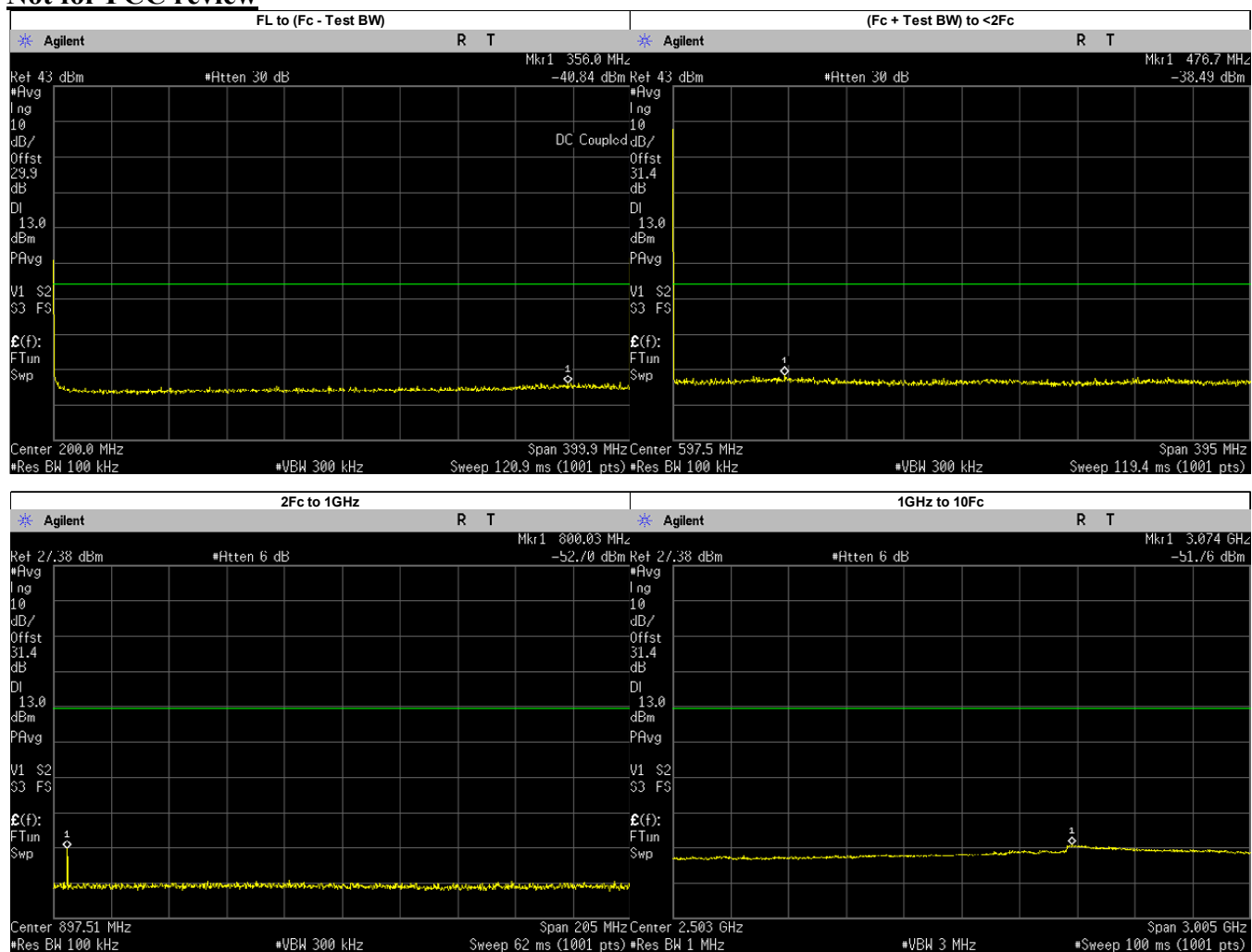
6.10.1. Test Setup



- 1) The DUT transmitter output port was connected to Spectrum Analyzer with above setup.
- 2) Program and set radio to operate in desire test frequency and mode. (Analog / digital modulation form).
- 3) Path loss for the measurement included.
- 4) Set the PSA Resolution Bandwidth as per rules part.
- 5) Set the Ref offset from the pathloss offset calibration file.
- 6) Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from:
 - a. 9 KHz to $F_c - \text{Test Bandwidth}$
 - b. $F_c + \text{Test Bandwidth}$ to $2F_c - 5\text{MHz}$.
- 7) Key up the DUT, Peak Search the highest Spur and record the levels of spurious emissions
- 8) Dekey the DUT.
- 9) Turn On High Pass Filter path and Key up the DUT.
- 10) Adjust the PSA Freq for incremental coverage of range from $2F_c$ to $10F_c$
- 11) Key up the DUT and record the highest spur levels of spurious emissions.

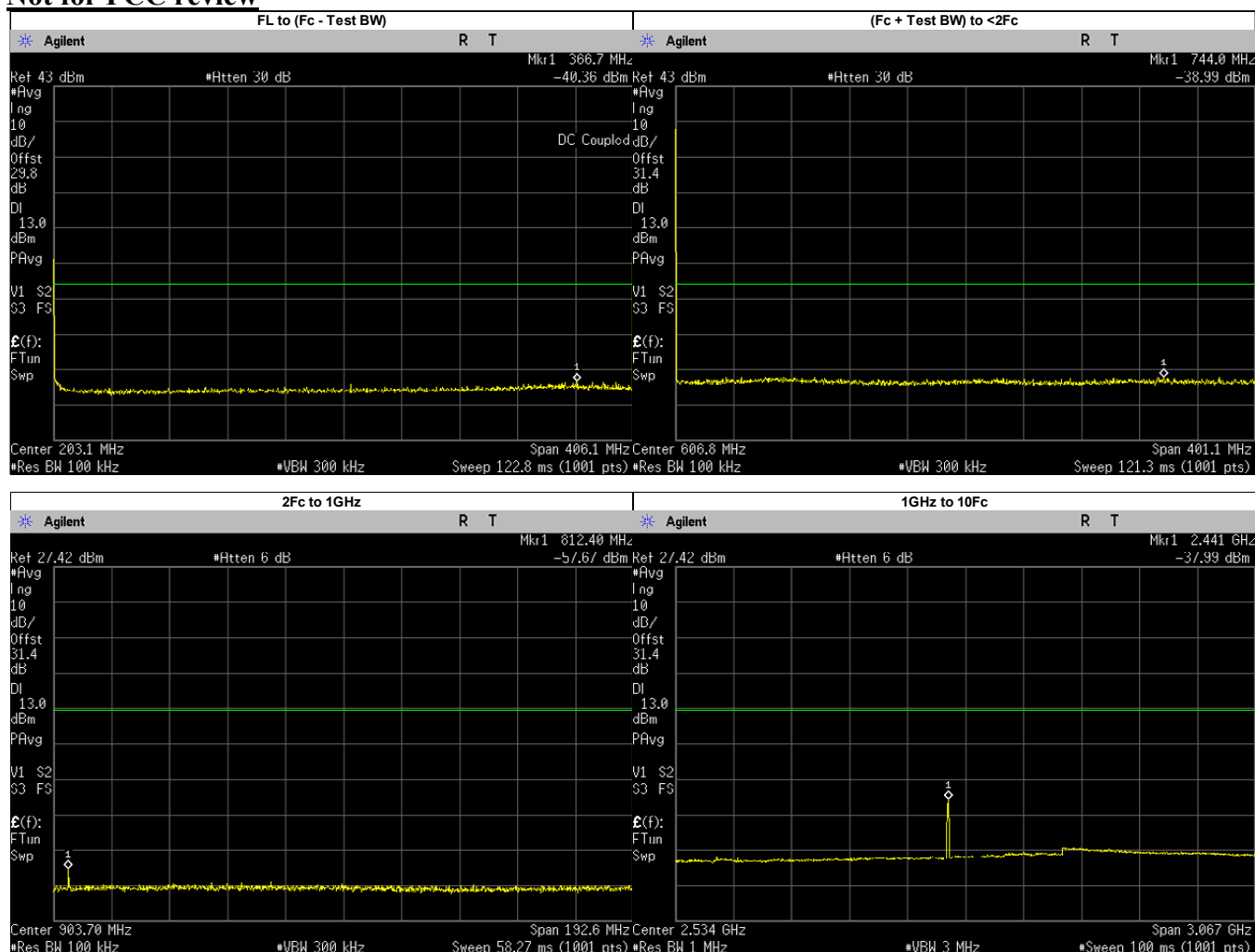
6.10.2. Test Result (Analog)

Analog: 400.0125. MHz, 25.0 kHz Channel Spacing, Max. Power Not for FCC review



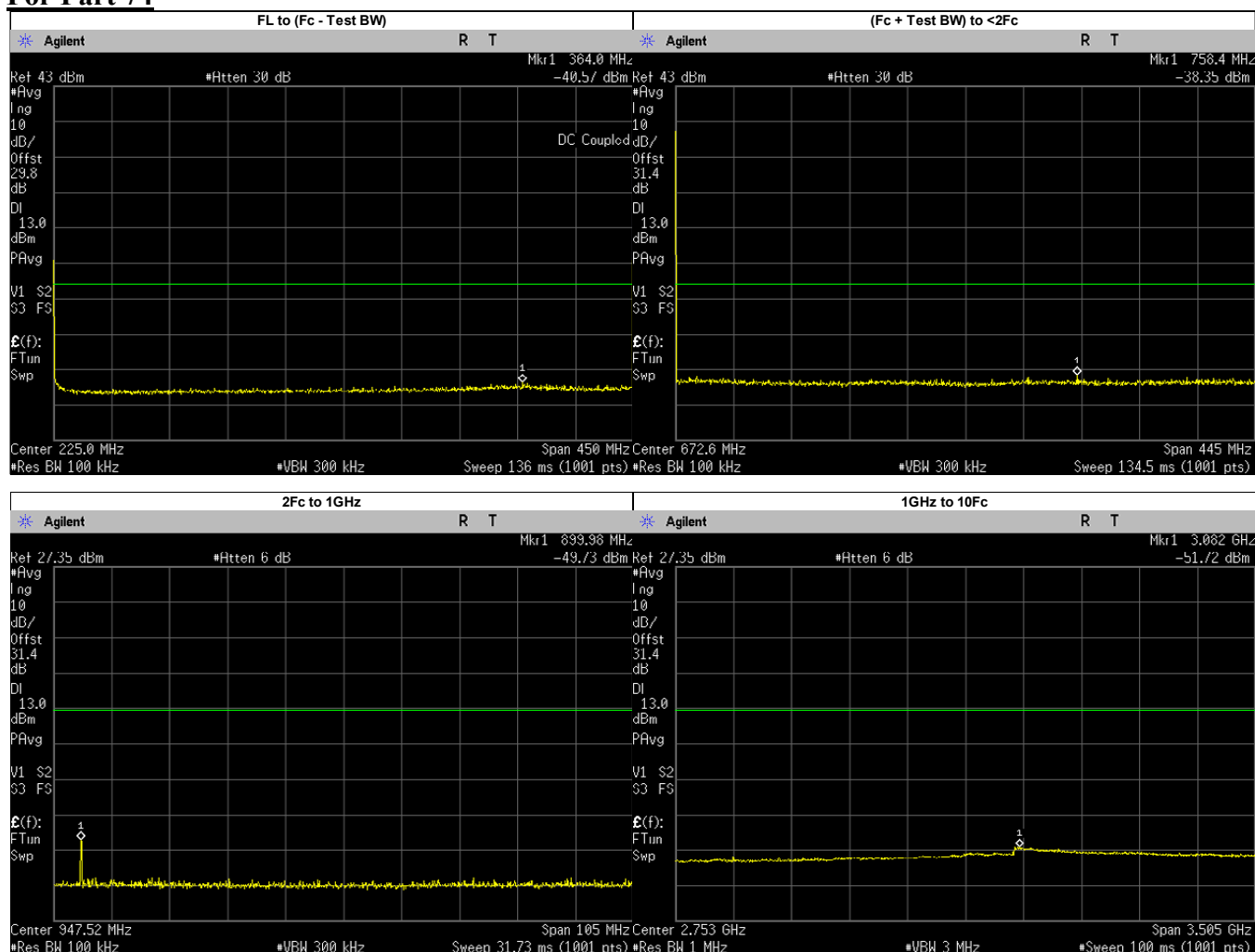
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	356.0000	-40.8400	-13.00	PASS
(Fc + Test BW) to <2Fc	476.6898	-38.4900	-13.00	PASS
2Fc to 1GHz	800.0300	-52.7000	-13.00	PASS
1GHz to 10Fc	3073.5360	-51.7600	-13.00	PASS
	1200.0370	-55.4069	-13.00	PASS
	1600.0500	-55.5507	-13.00	PASS
	2000.0620	-54.9459	-13.00	PASS
	2400.0750	-54.6480	-13.00	PASS
	2800.0880	-53.4556	-13.00	PASS
	3200.1000	-52.7264	-13.00	PASS
	3600.1130	-53.3017	-13.00	PASS
	4000.1250	-53.9530	-13.00	PASS

Analog: 406.2. MHz, 25.0 kHz Channel Spacing, Max. Power
Not for FCC review



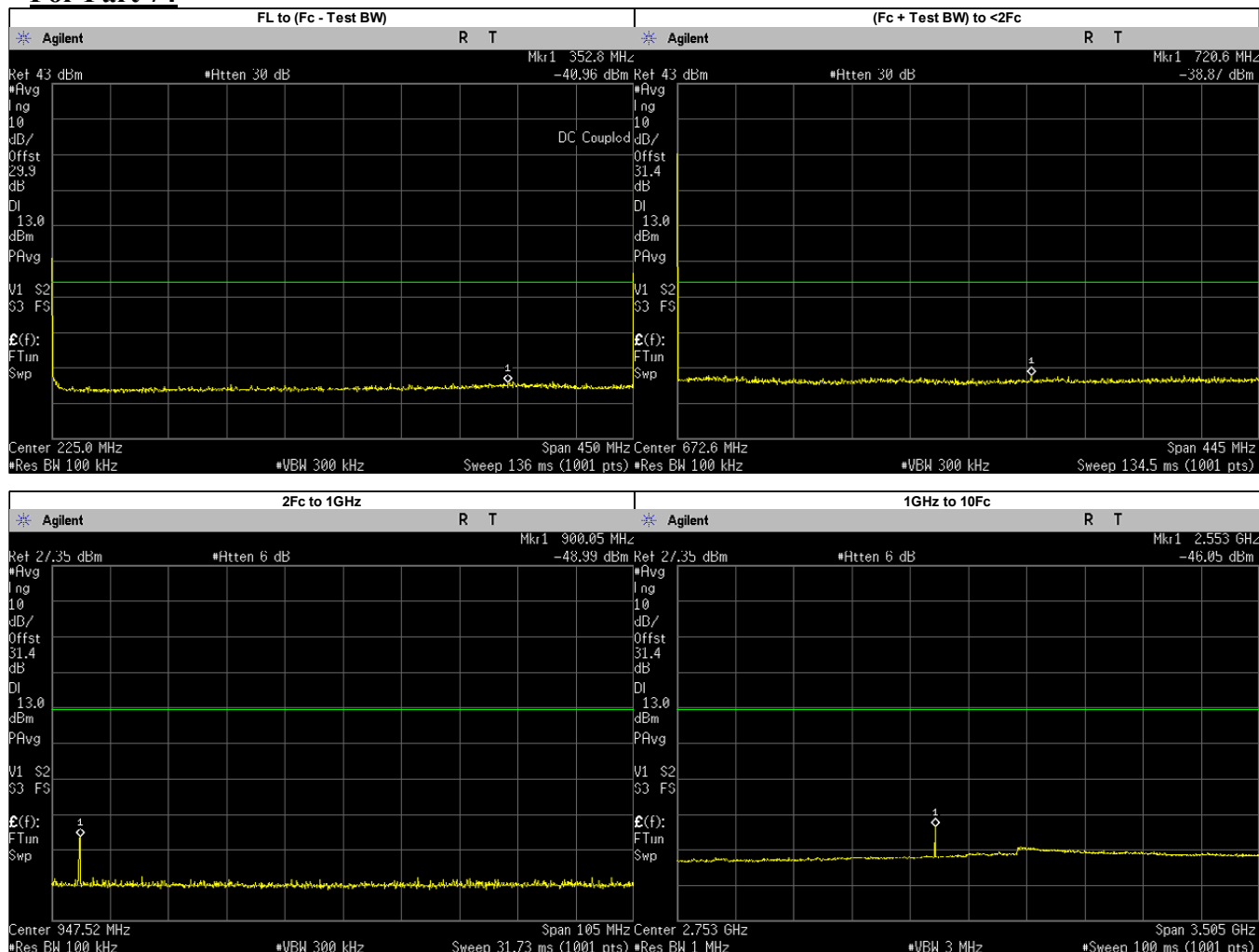
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	366.7000	-40.3600	-13.00	PASS
(Fc + Test BW) to <2Fc	744.0192	-38.9900	-13.00	PASS
2Fc to 1GHz	812.4000	-57.6700	-13.00	PASS
1GHz to 10Fc	2441.4900	-37.9900	-13.00	PASS
	1218.6000	-54.5185	-13.00	PASS
	1624.8000	-55.4977	-13.00	PASS
	2031.0000	-55.0179	-13.00	PASS
	2437.2000	-43.6189	-13.00	PASS
	2843.4000	-53.3784	-13.00	PASS
	3249.6000	-52.4715	-13.00	PASS
	3655.8000	-53.1971	-13.00	PASS
	4062.0000	-53.7727	-13.00	PASS

**Analog: 450.025. MHz, 25.0 kHz Channel Spacing, Max. Power
For Part 74**



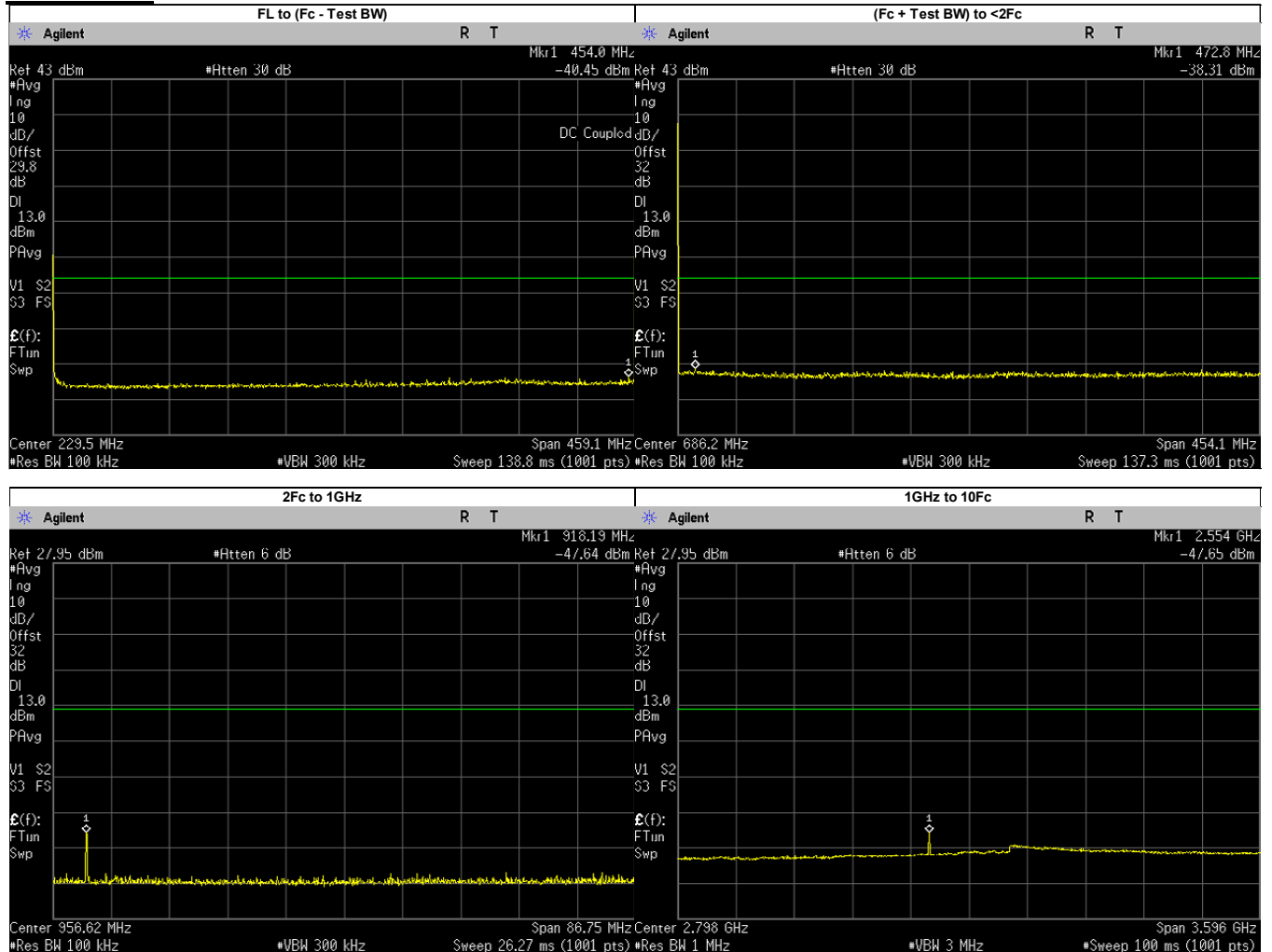
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	364.0000	-40.5740	-13.00	PASS
(Fc + Test BW) to <2Fc	758.4448	-38.3500	-13.00	PASS
2Fc to 1GHz	899.9827	-49.7300	-13.00	PASS
1GHz to 10Fc	3082.1190	-51.7200	-13.00	PASS
	1350.0750	-54.4190	-13.00	PASS
	1800.1000	-55.3405	-13.00	PASS
	2250.1250	-54.9450	-13.00	PASS
	2700.1500	-54.3031	-13.00	PASS
	3150.1750	-52.1830	-13.00	PASS
	3600.2000	-53.4938	-13.00	PASS
	4050.2250	-53.7987	-13.00	PASS
	4500.2500	-54.0033	-13.00	PASS

Analog: 450.025. MHz, 25.0 kHz Channel Spacing, Low. Power
For Part 74



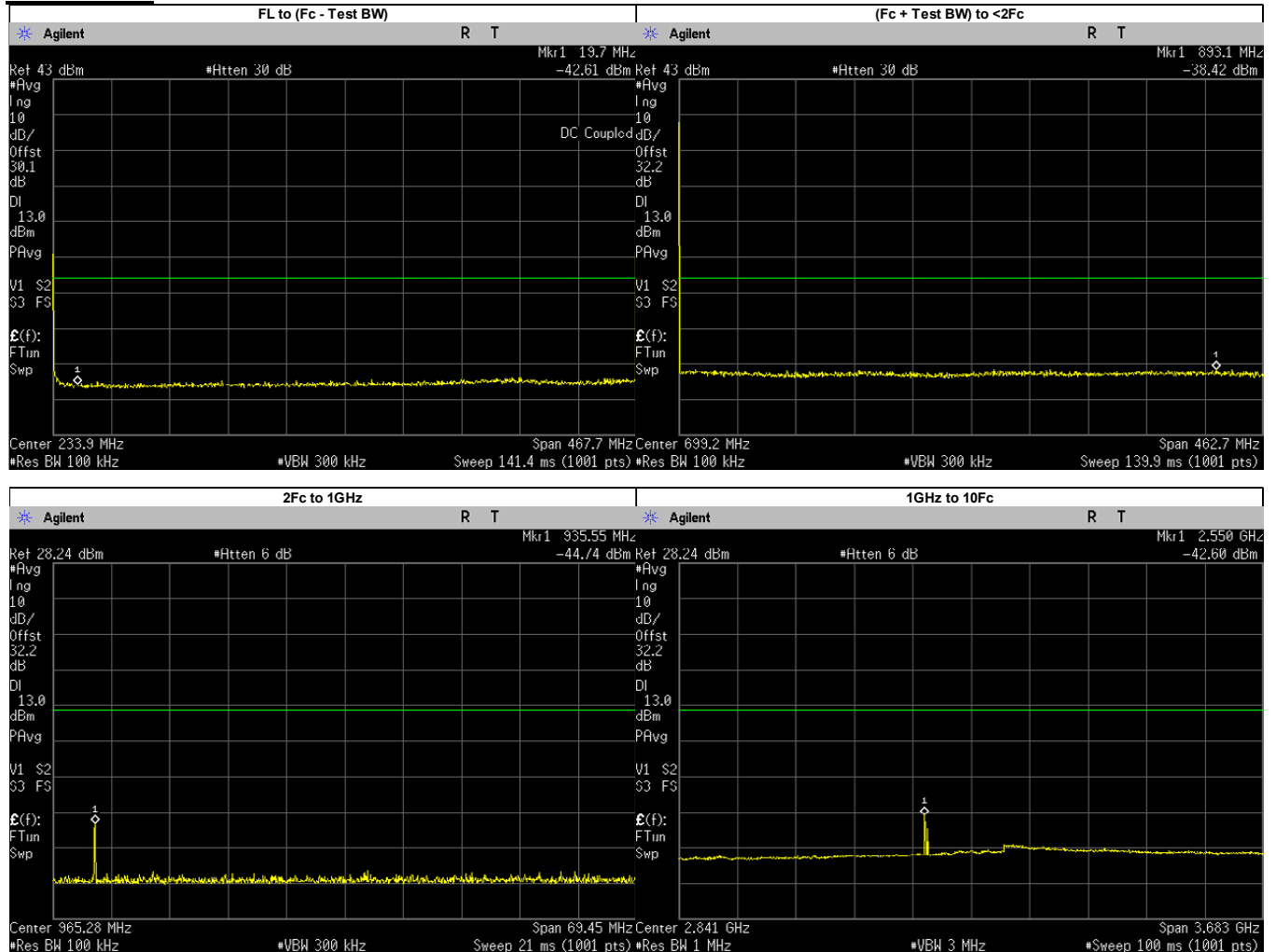
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	352.8000	-40.9580	-13.00	PASS
(Fc + Test BW) to <2Fc	720.6225	-38.8700	-13.00	PASS
2Fc to 1GHz	900.0500	-48.9900	-13.00	PASS
1GHz to 10Fc	2552.8260	-46.0500	-13.00	PASS
	1350.0750	-55.6116	-13.00	PASS
	1800.1000	-55.5239	-13.00	PASS
	2250.1250	-55.0474	-13.00	PASS
	2700.1500	-54.1018	-13.00	PASS
	3150.1750	-52.4275	-13.00	PASS
	3600.2000	-53.3532	-13.00	PASS
	4050.2250	-53.7934	-13.00	PASS
	4500.2500	-53.9899	-13.00	PASS

**Analog: 459.125. MHz, 25.0 kHz Channel Spacing, Max. Power
For Part 22**



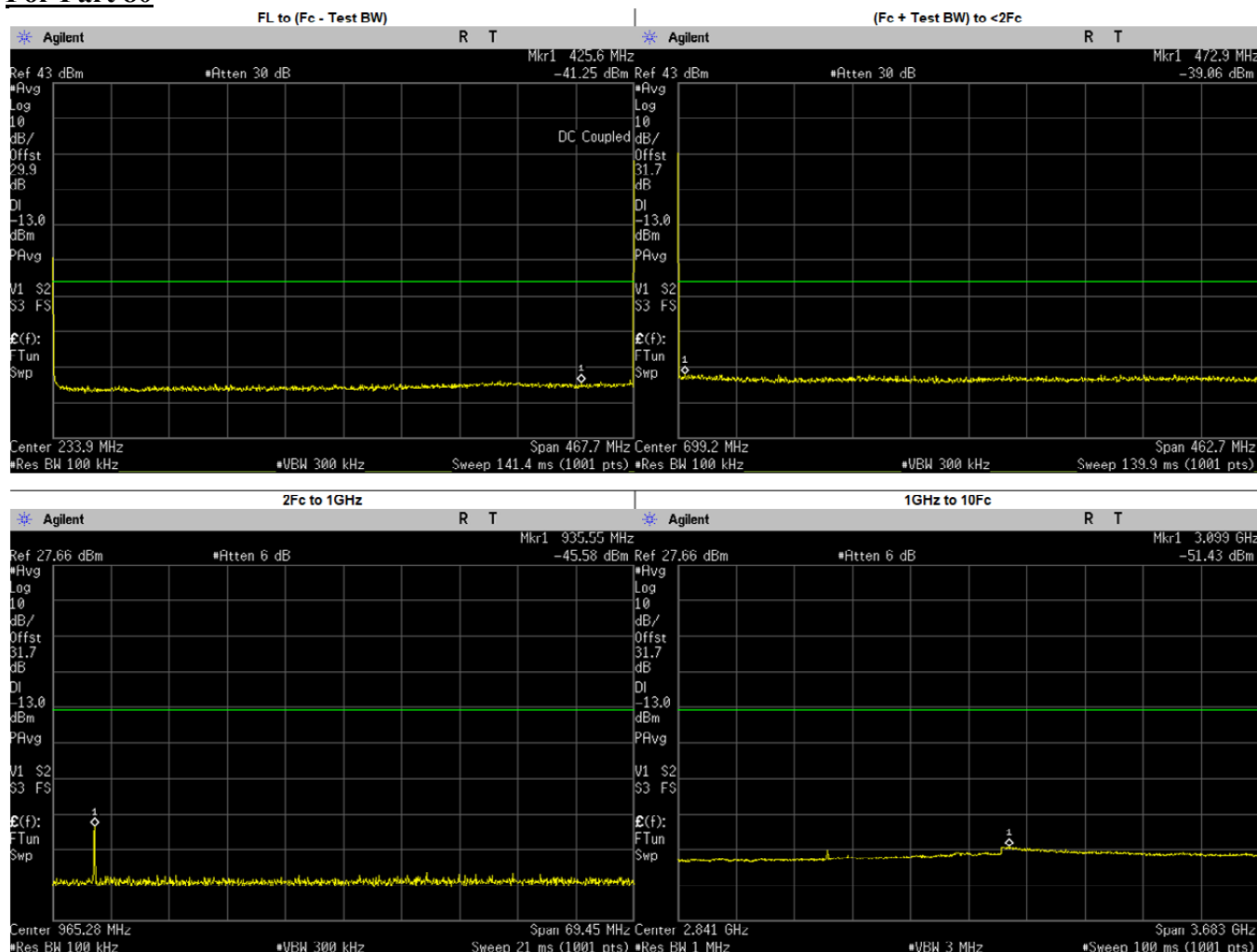
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	454.0000	-40.4500	-13.00	PASS
(Fc + Test BW) to <2Fc	472.8038	-38.3100	-13.00	PASS
2Fc to 1GHz	918.1947	-47.6400	-13.00	PASS
1GHz to 10Fc	2553.5800	-47.6500	-13.00	PASS
	1377.3750	-54.6108	-13.00	PASS
	1836.5000	-54.8330	-13.00	PASS
	2295.6250	-54.2774	-13.00	PASS
	2754.7500	-53.0024	-13.00	PASS
	3213.8750	-52.1520	-13.00	PASS
	3673.0000	-52.8448	-13.00	PASS
	4132.1250	-53.3305	-13.00	PASS
	4591.2500	-53.2798	-13.00	PASS

**Analog: 467.775. MHz, 25.0 kHz Channel Spacing, Max. Power
For Part 80**



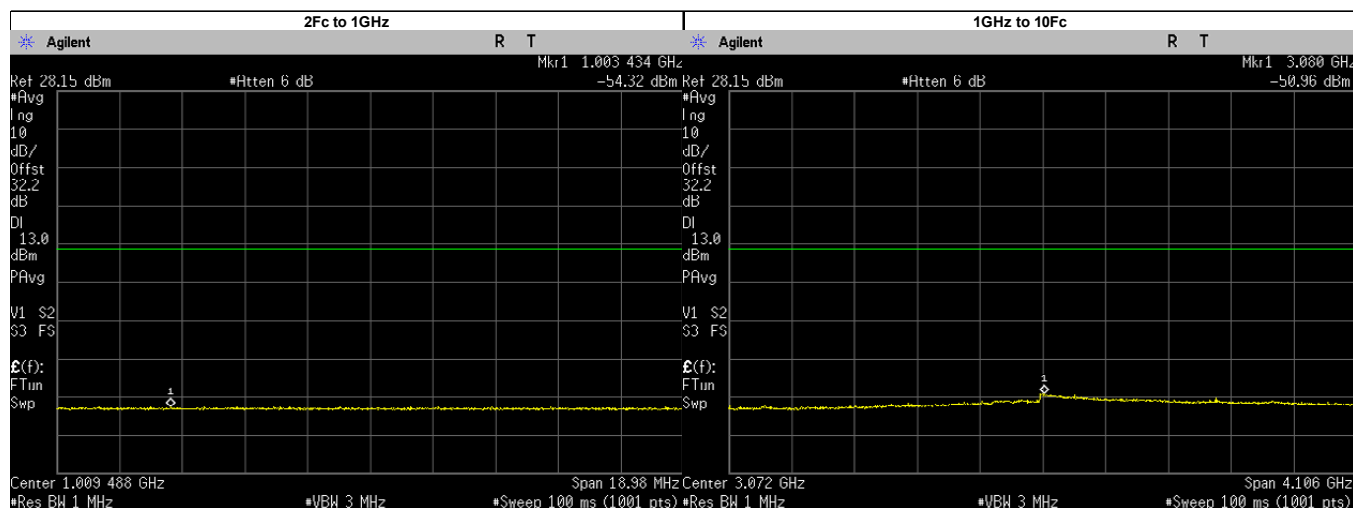
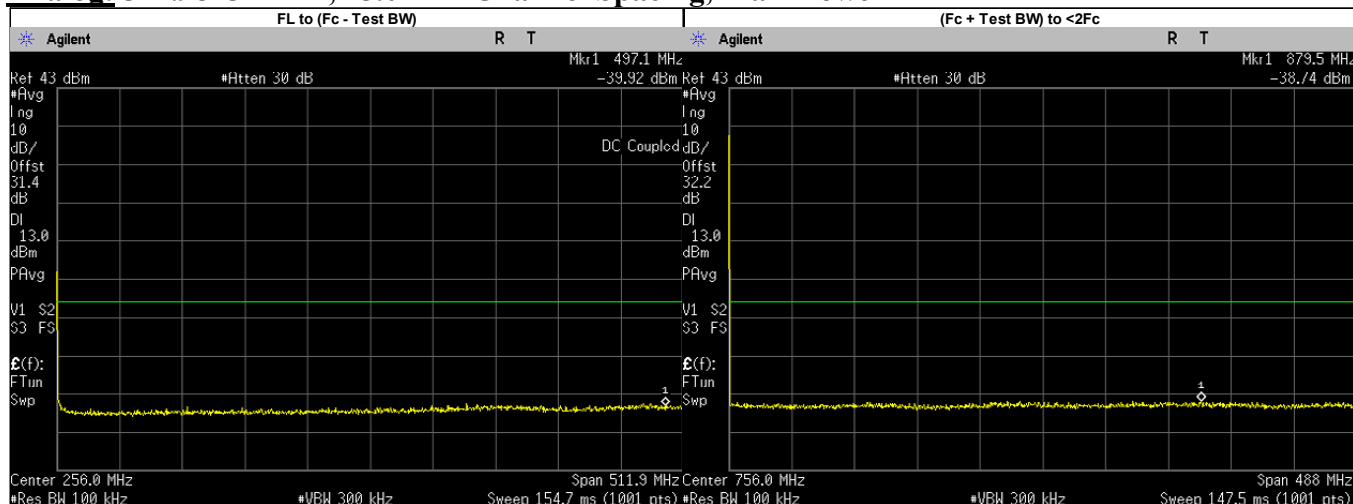
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	19.7000	-42.6100	-13.00	PASS
(Fc + Test BW) to <2Fc	893.0698	-38.4200	-13.00	PASS
2Fc to 1GHz	935.5500	-44.7400	-13.00	PASS
1GHz to 10Fc	2550.4380	-42.6000	-13.00	PASS
	1403.3250	-54.5167	-13.00	PASS
	1871.1000	-54.5905	-13.00	PASS
	2338.8750	-53.7948	-13.00	PASS
	2806.6500	-52.9030	-13.00	PASS
	3274.4250	-51.7820	-13.00	PASS
	3742.2000	-52.5311	-13.00	PASS
	4209.9750	-52.6112	-13.00	PASS
	4677.7500	-53.3536	-13.00	PASS

Analog: 467.775. MHz, 25.0 kHz Channel Spacing, Low. Power
For Part 80



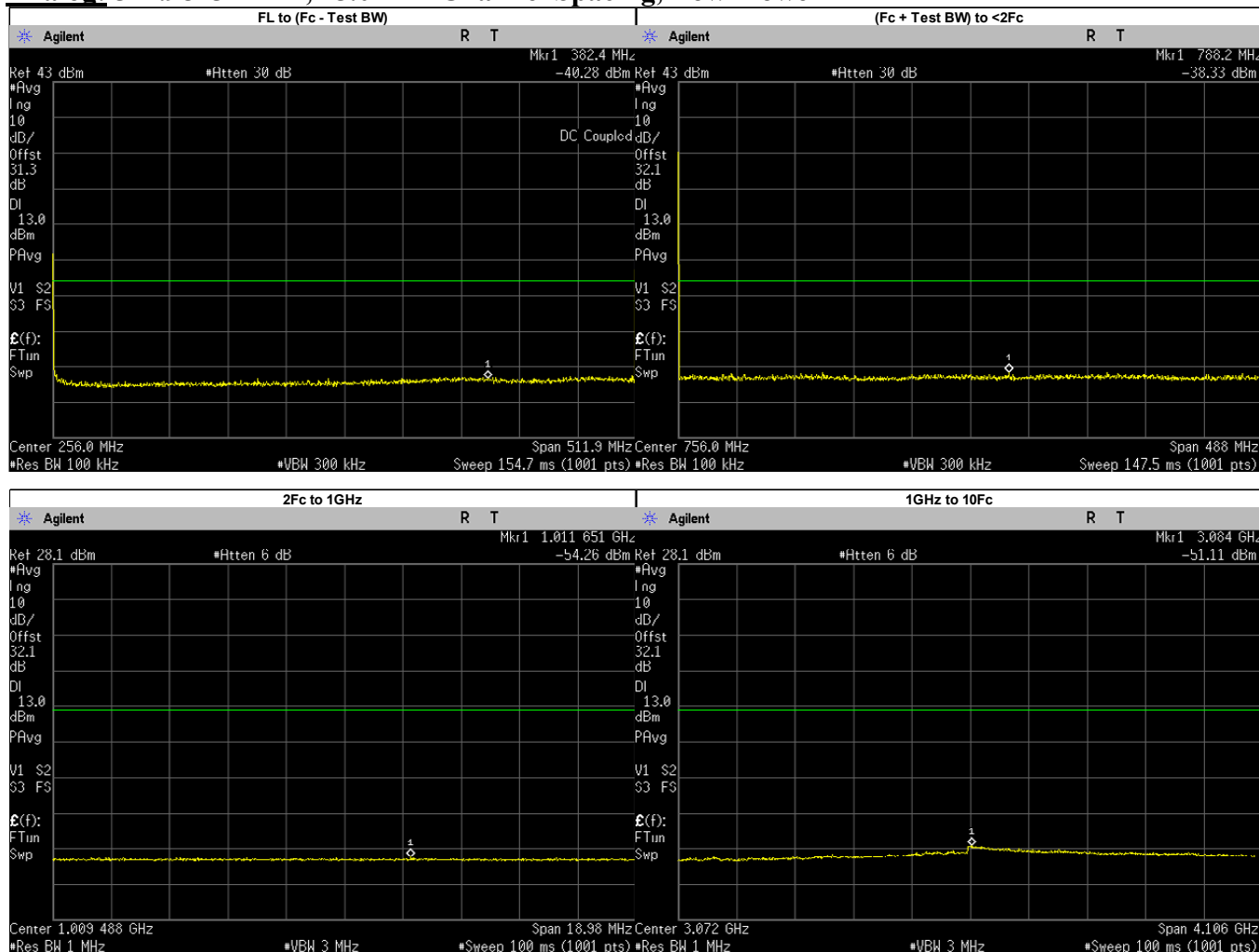
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	425.6000	-41.2500	-13.00	PASS
(Fc + Test BW) to <2Fc	472.9217	-39.0600	-13.00	PASS
2Fc to 1GHz	935.5500	-45.5800	-13.00	PASS
1GHz to 10Fc	3099.1680	-51.4300	-13.00	PASS
	1403.3250	-55.2118	-13.00	PASS
	1871.1000	-55.1234	-13.00	PASS
	2338.8750	-54.4370	-13.00	PASS
	2806.6500	-53.3546	-13.00	PASS
	3274.4250	-52.3289	-13.00	PASS
	3742.2000	-53.1303	-13.00	PASS
	4209.9750	-53.5598	-13.00	PASS
	4677.7500	-53.9318	-13.00	PASS

Analog: 511.9875. MHz, 25.0 kHz Channel Spacing, Max. Power



Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	497.1000	-39.9200	-13.00	PASS
(Fc + Test BW) to <2Fc	879.4749	-38.7400	-13.00	PASS
2Fc to 1GHz	1003.4340	-54.3200	-13.00	PASS
1GHz to 10Fc	3080.1370	-50.9600	-13.00	PASS
	1023.9750	-54.1458	-13.00	PASS
	1535.9630	-54.2741	-13.00	PASS
	2047.9500	-54.1521	-13.00	PASS
	2559.9370	-53.4863	-13.00	PASS
	3071.9250	-51.0340	-13.00	PASS
	3583.9120	-52.3936	-13.00	PASS
	4095.9000	-53.1741	-13.00	PASS
	4607.8870	-53.1381	-13.00	PASS
	5119.8750	-53.7158	-13.00	PASS

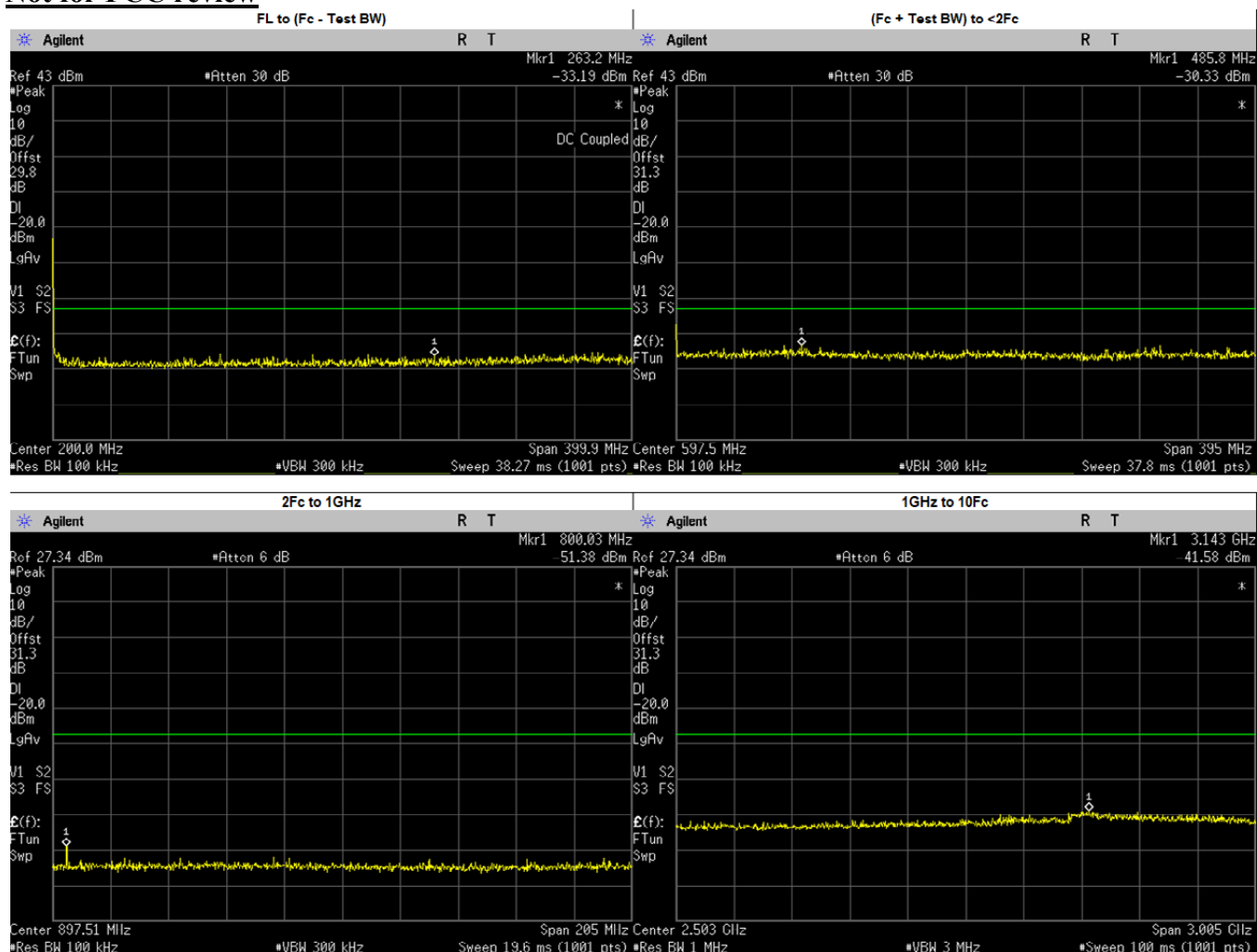
Analog: 511.9875. MHz, 25.0 kHz Channel Spacing, Low. Power



Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	382.4000	-40.2800	-13.00	PASS
(Fc + Test BW) to <2Fc	788.2272	-38.3300	-13.00	PASS
2Fc to 1GHz	1011.6510	-54.2600	-13.00	PASS
1GHz to 10Fc	3084.2430	-51.1100	-13.00	PASS
	1023.9750	-54.9002	-13.00	PASS
	1535.9630	-54.5105	-13.00	PASS
	2047.9500	-53.9633	-13.00	PASS
	2559.9370	-53.8780	-13.00	PASS
	3071.9250	-51.3750	-13.00	PASS
	3583.9120	-52.7068	-13.00	PASS
	4095.9000	-53.2444	-13.00	PASS
	4607.8870	-52.8793	-13.00	PASS
	5119.8750	-53.9336	-13.00	PASS

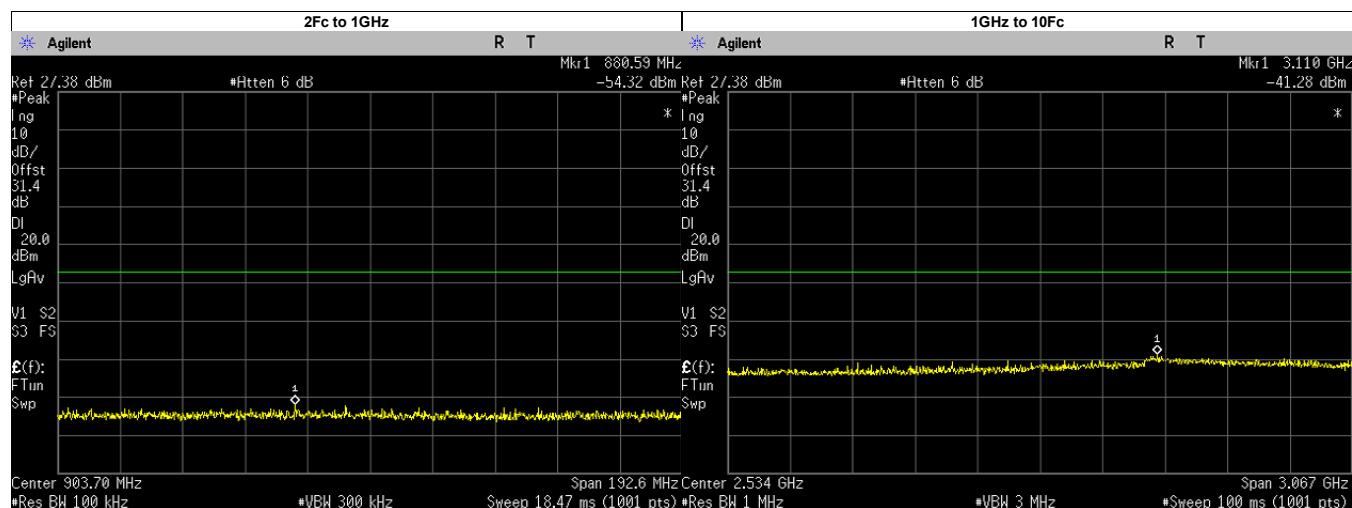
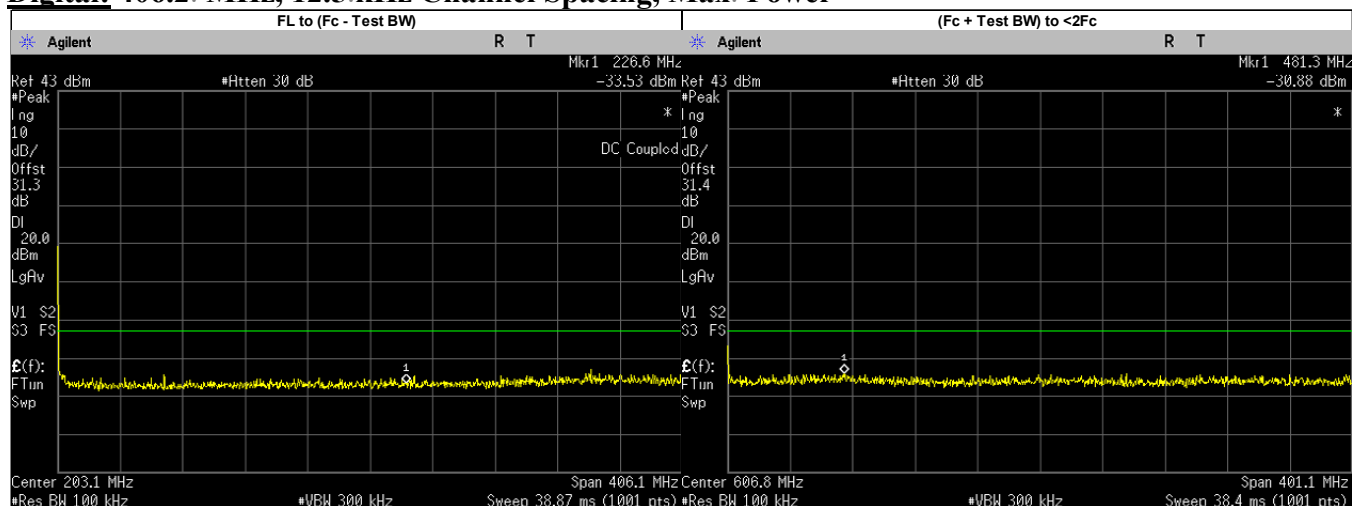
6.10.3. Test Result (Digital)

Digital: 400.0125 MHz, 12.5 kHz Channel Spacing, Max. Power Not for FCC review



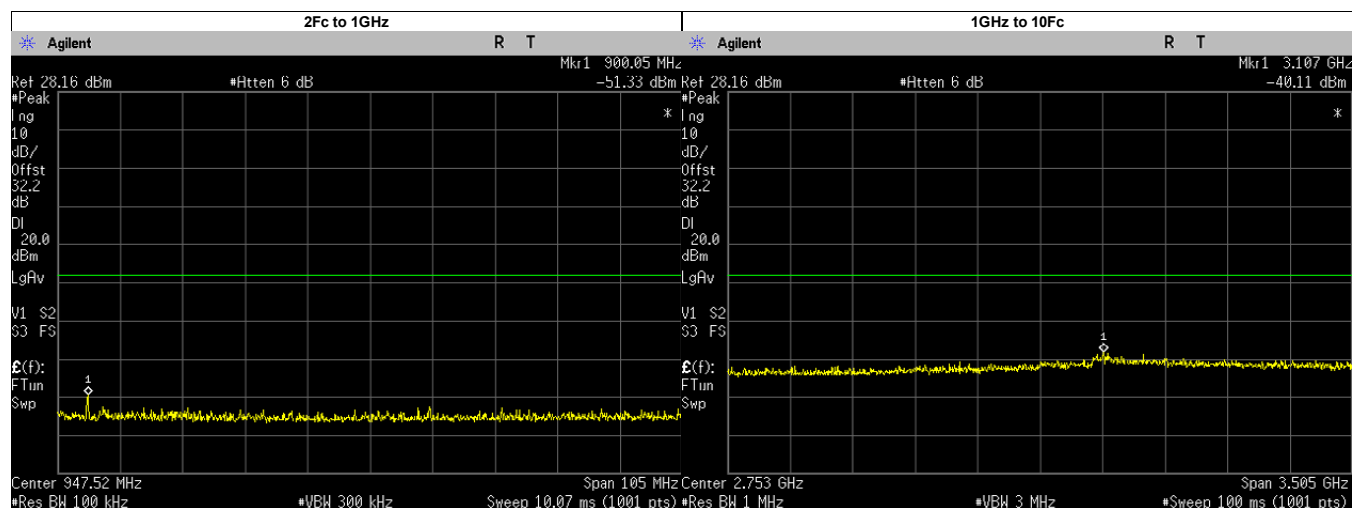
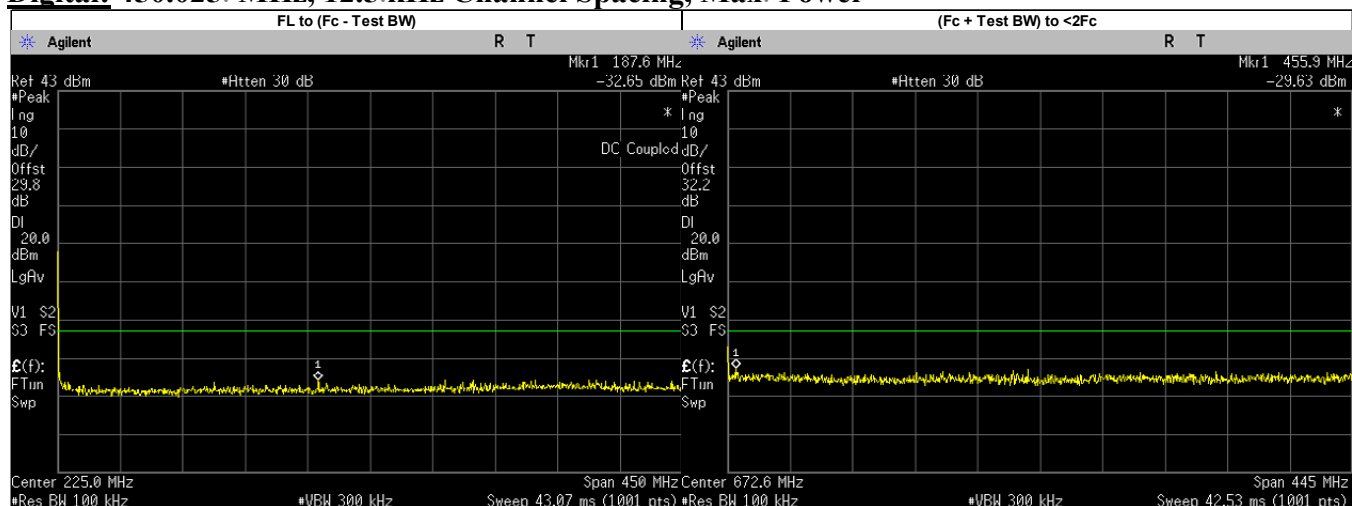
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	263.2000	-33.1870	-20.00	PASS
(Fc + Test BW) to <2Fc	485.7738	-30.3300	-20.00	PASS
2Fc to 1GHz	800.0300	-51.3800	-20.00	PASS
1GHz to 10Fc	3142.6540	-41.5800	-20.00	PASS
	1200.0370	-45.6107	-20.00	PASS
	1600.0500	-46.1234	-20.00	PASS
	2000.0620	-45.5700	-20.00	PASS
	2400.0750	-45.3047	-20.00	PASS
	2800.0880	-43.3982	-20.00	PASS
	3200.1000	-43.6080	-20.00	PASS
	3600.1130	-43.3192	-20.00	PASS
	4000.1250	-44.3592	-20.00	PASS

Digital: 406.2. MHz, 12.5 kHz Channel Spacing, Max. Power



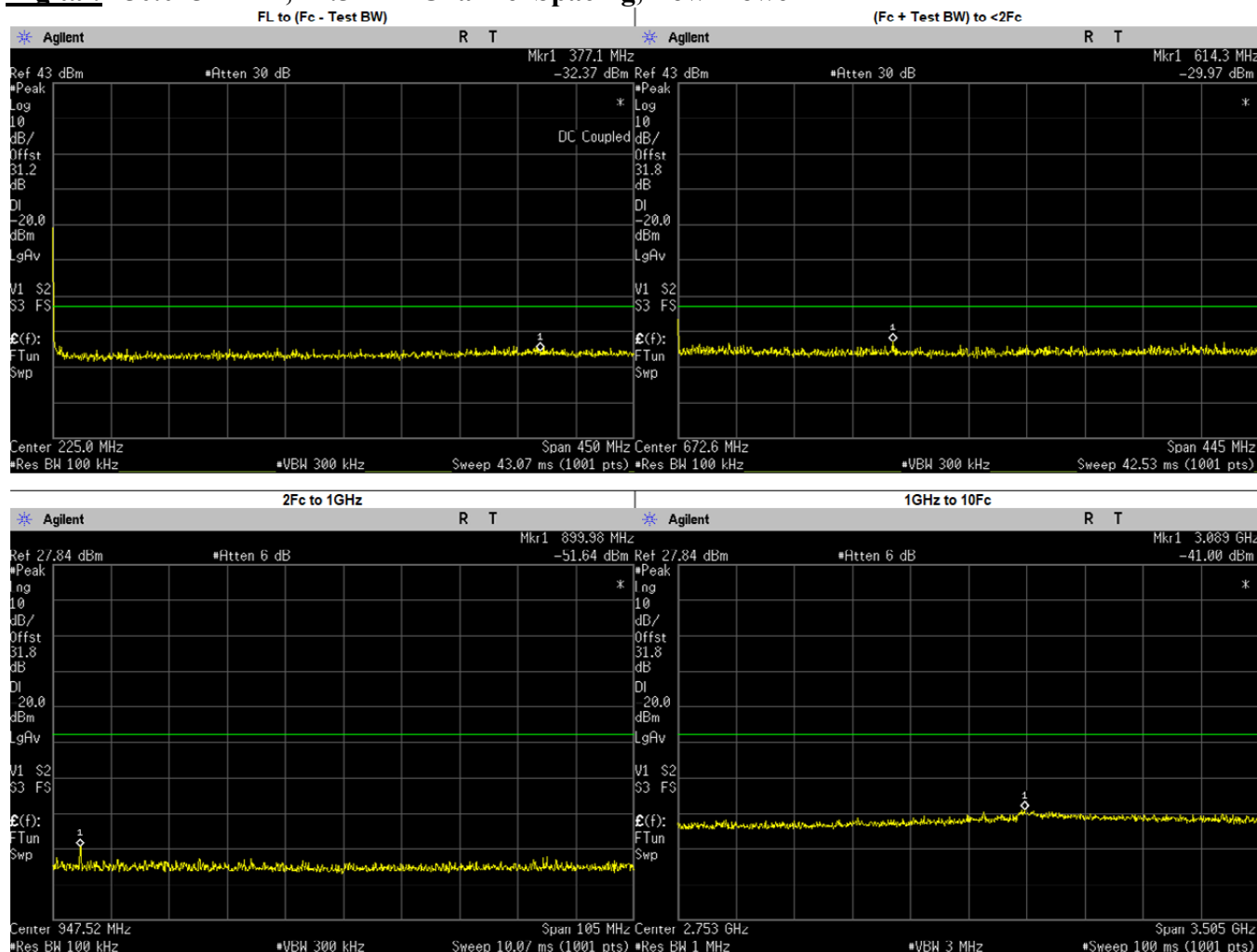
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	226.6000	-33.5290	-20.00	PASS
(Fc + Test BW) to <2Fc	481.2696	-30.8800	-20.00	PASS
2Fc to 1GHz	880.5880	-54.3200	-20.00	PASS
	812.4000	-56.3197	-20.00	PASS
1GHz to 10Fc	3110.0960	-41.2800	-20.00	PASS
	1218.6000	-45.9259	-20.00	PASS
	1624.8000	-46.1919	-20.00	PASS
	2031.0000	-45.9972	-20.00	PASS
	2437.2000	-44.5868	-20.00	PASS
	2843.4000	-43.5298	-20.00	PASS
	3249.6000	-42.7560	-20.00	PASS
	3655.8000	-44.2903	-20.00	PASS
	4062.0000	-43.9876	-20.00	PASS

Digital: 450.025 MHz, 12.5 kHz Channel Spacing, Max. Power



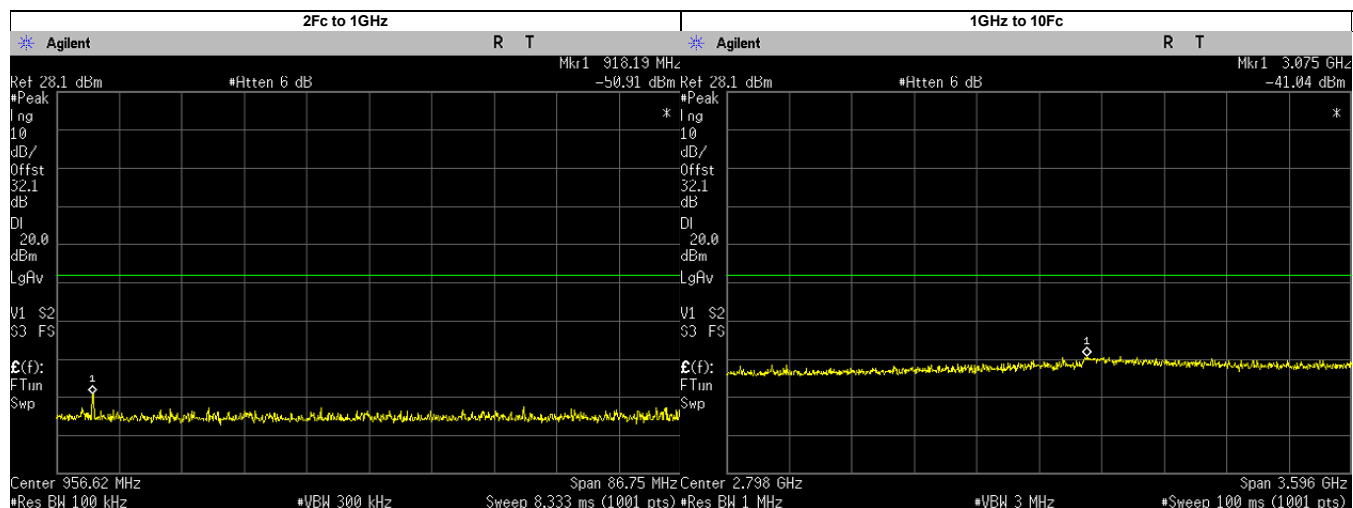
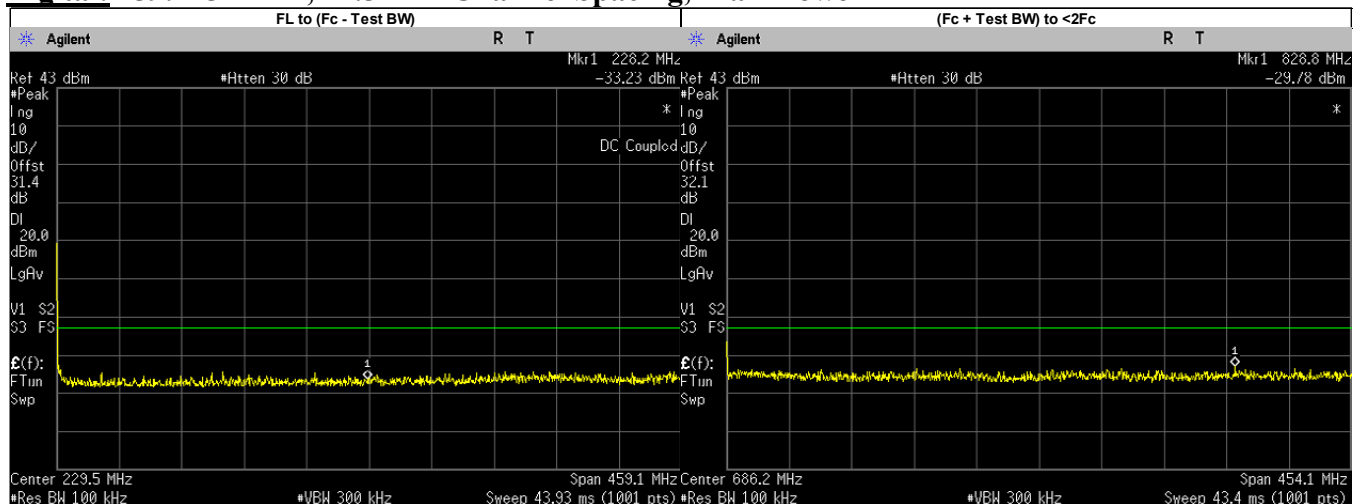
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	187.6000	-32.6490	-20.00	PASS
(Fc + Test BW) to <2Fc	455.8664	-29.6300	-20.00	PASS
2Fc to 1GHz	900.0500	-51.3300	-20.00	PASS
1GHz to 10Fc	3106.6550	-40.1100	-20.00	PASS
	1350.0750	-45.0687	-20.00	PASS
	1800.1000	-44.4548	-20.00	PASS
	2250.1250	-44.7579	-20.00	PASS
	2700.1500	-44.2751	-20.00	PASS
	3150.1750	-42.0906	-20.00	PASS
	3600.2000	-42.4560	-20.00	PASS
	4050.2250	-43.6712	-20.00	PASS
	4500.2500	-43.8799	-20.00	PASS

Digital: 450.025 MHz, 12.5 kHz Channel Spacing, Low Power



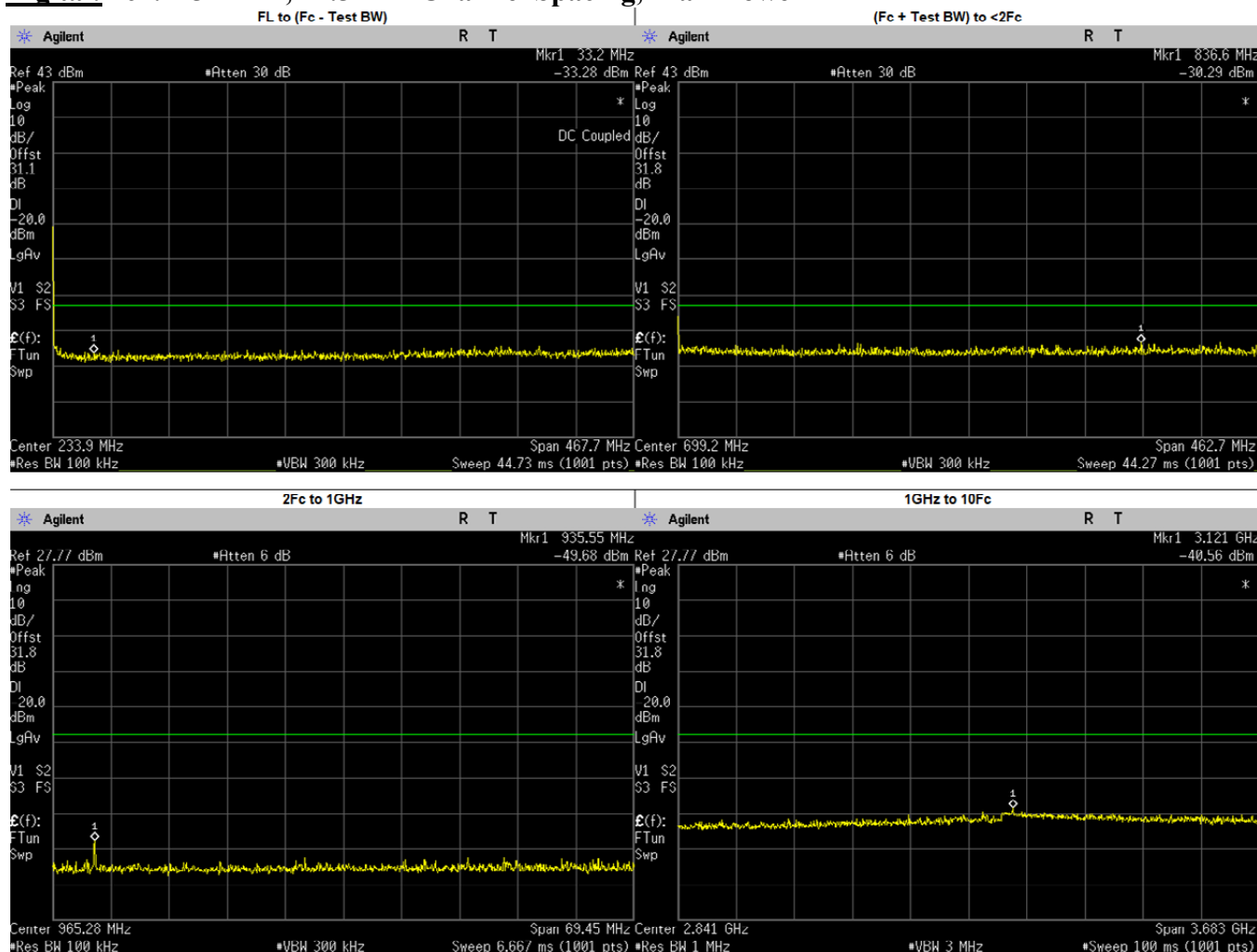
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	377.1000	-32.3660	-20.00	PASS
(Fc + Test BW) to <2Fc	614.2751	-29.9700	-20.00	PASS
2Fc to 1GHz	899.9827	-51.6400	-20.00	PASS
	900.0500	-51.6441	-20.00	PASS
1GHz to 10Fc	3089.1290	-41.0000	-20.00	PASS
	1350.0750	-44.6586	-20.00	PASS
	1800.1000	-45.6251	-20.00	PASS
	2250.1250	-44.7794	-20.00	PASS
	2700.1500	-44.7111	-20.00	PASS
	3150.1750	-42.5837	-20.00	PASS
	3600.2000	-43.5538	-20.00	PASS
	4050.2250	-43.9357	-20.00	PASS
	4500.2500	-43.8762	-20.00	PASS

Digital: 459.125 MHz, 12.5 kHz Channel Spacing, Max. Power



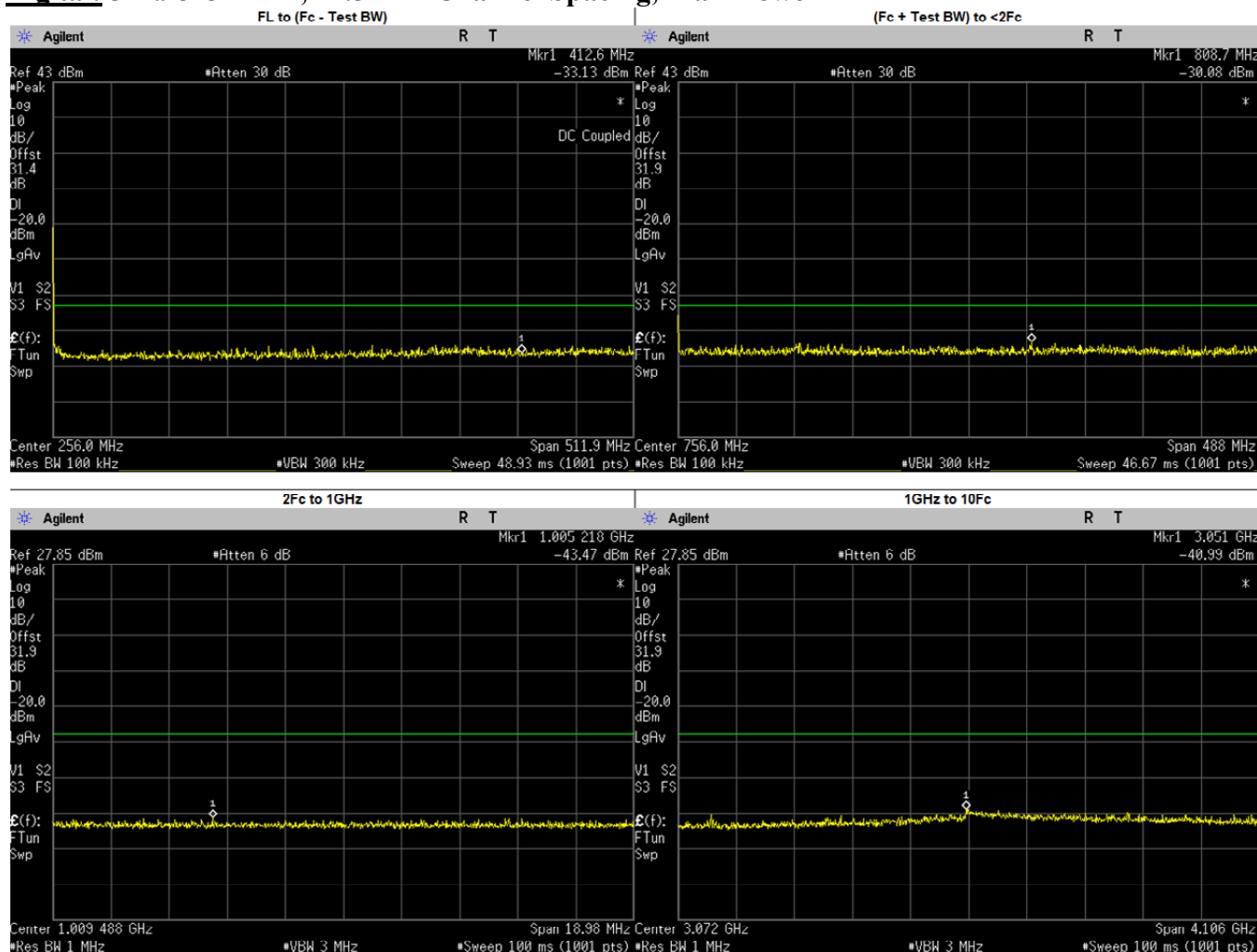
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	228.2000	-33.2320	-20.00	PASS
(Fc + Test BW) to <2Fc	828.7933	-29.7800	-20.00	PASS
2Fc to 1GHz	918.1947	-50.9100	-20.00	PASS
	918.2500	-51.0210	-20.00	PASS
1GHz to 10Fc	3075.0360	-41.0400	-20.00	PASS
	1377.3750	-45.7713	-20.00	PASS
	1836.5000	-44.9238	-20.00	PASS
	2295.6250	-44.0312	-20.00	PASS
	2754.7500	-42.7892	-20.00	PASS
	3213.8750	-42.4215	-20.00	PASS
	3673.0000	-43.0512	-20.00	PASS
	4132.1250	-43.2594	-20.00	PASS
	4591.2500	-43.1321	-20.00	PASS

Digital: 467.775 MHz, 12.5 kHz Channel Spacing, Max. Power



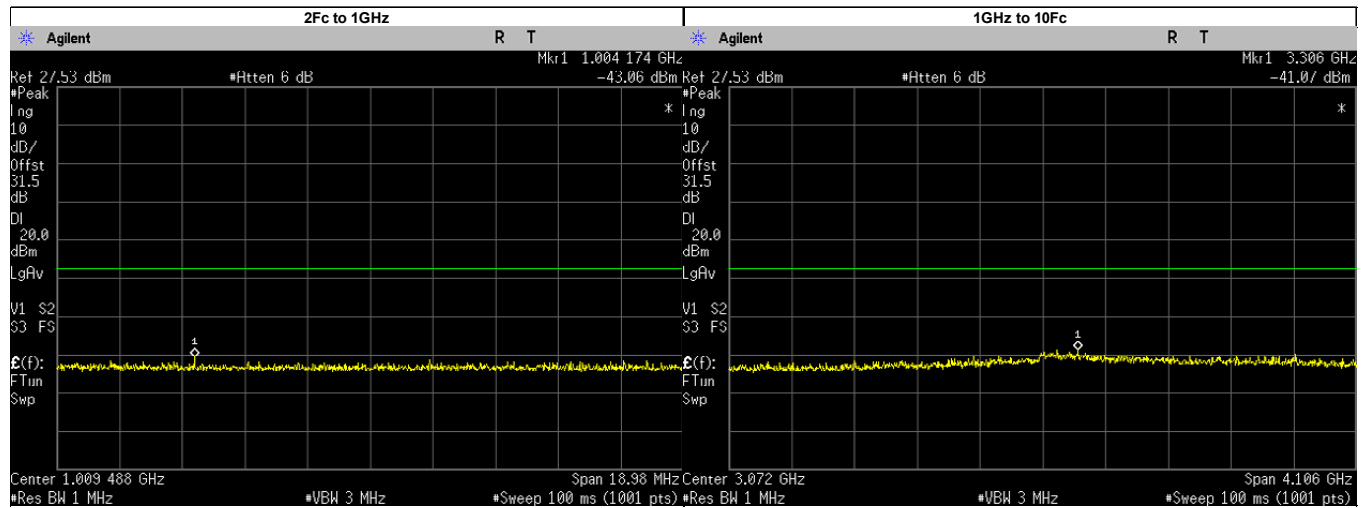
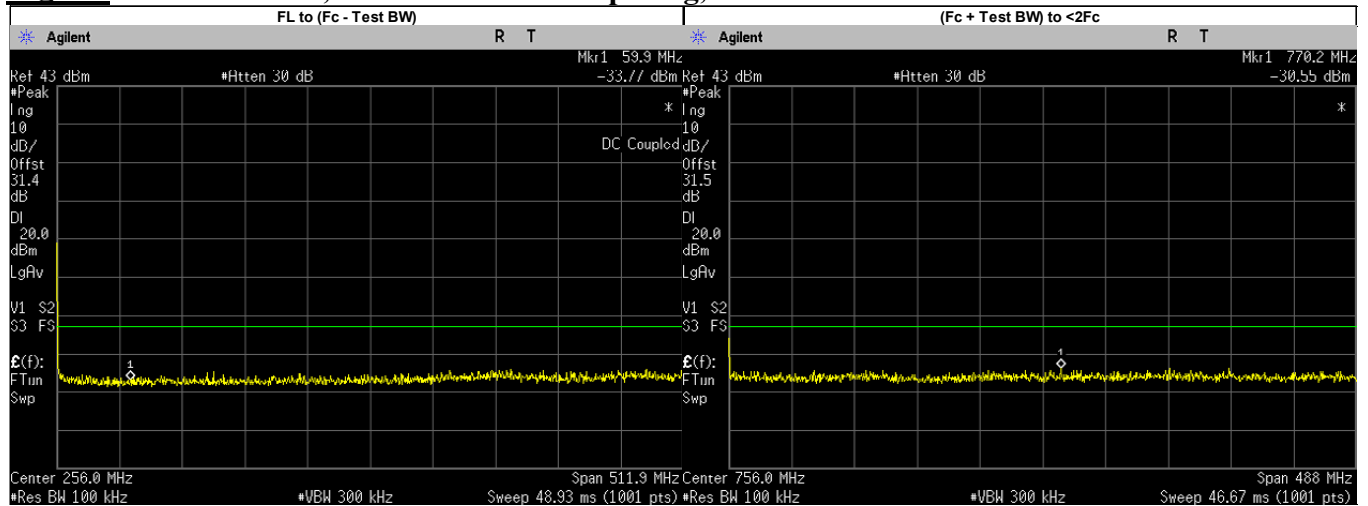
Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	33.2000	-33.2770	-20.00	PASS
(Fc + Test BW) to <2Fc	836.6182	-30.2900	-20.00	PASS
2Fc to 1GHz	935.5500	-49.6800	-20.00	PASS
1GHz to 10Fc	3121.2640	-40.5600	-20.00	PASS
	1403.3250	-45.8354	-20.00	PASS
	1871.1000	-45.6175	-20.00	PASS
	2338.8750	-44.7111	-20.00	PASS
	2806.6500	-43.0944	-20.00	PASS
	3274.4250	-43.0518	-20.00	PASS
	3742.2000	-43.1364	-20.00	PASS
	4209.9750	-44.3506	-20.00	PASS
	4677.7500	-44.4287	-20.00	PASS

Digital: 511.9875. MHz, 12.5.kHz Channel Spacing, Max. Power



Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	412.6000	-33.1350	-20.00	PASS
(Fc + Test BW) to <2Fc	808.7214	-30.0800	-20.00	PASS
2Fc to 1GHz	1005.2180	-43.4700	-20.00	PASS
1GHz to 10Fc	3051.3960	-40.9900	-20.00	PASS
	1023.9750	-46.0730	-20.00	PASS
	1535.9630	-46.0886	-20.00	PASS
	2047.9500	-44.8155	-20.00	PASS
	2559.9370	-44.6381	-20.00	PASS
	3071.9250	-41.5850	-20.00	PASS
	3583.9120	-43.1206	-20.00	PASS
	4095.9000	-43.0080	-20.00	PASS
	4607.8870	-42.7433	-20.00	PASS
	5119.8750	-44.7930	-20.00	PASS

Digital: 511.9875 MHz, 12.5 kHz Channel Spacing, Low Power



Frequency Range	Highest Spur Frequency (MHz)	Spurious Level (dBm)	Failing Limit (dBm)	Results
FL to (Fc - Test BW)	59.9000	-33.7720	-20.00	PASS
(Fc + Test BW) to <2Fc	770.1729	-30.5500	-20.00	PASS
2Fc to 1GHz	1004.1740	-43.0600	-20.00	PASS
1GHz to 10Fc	3305.9610	-41.0700	-20.00	PASS
	1023.9750	-45.6637	-20.00	PASS
	1535.9630	-45.7200	-20.00	PASS
	2047.9500	-45.3333	-20.00	PASS
	2559.9370	-44.8206	-20.00	PASS
	3071.9250	-42.3220	-20.00	PASS
	3583.9120	-43.7675	-20.00	PASS
	4095.9000	-43.8950	-20.00	PASS
	4607.8870	-44.2492	-20.00	PASS
	5119.8750	-44.3732	-20.00	PASS

6.10.4. Test Limit

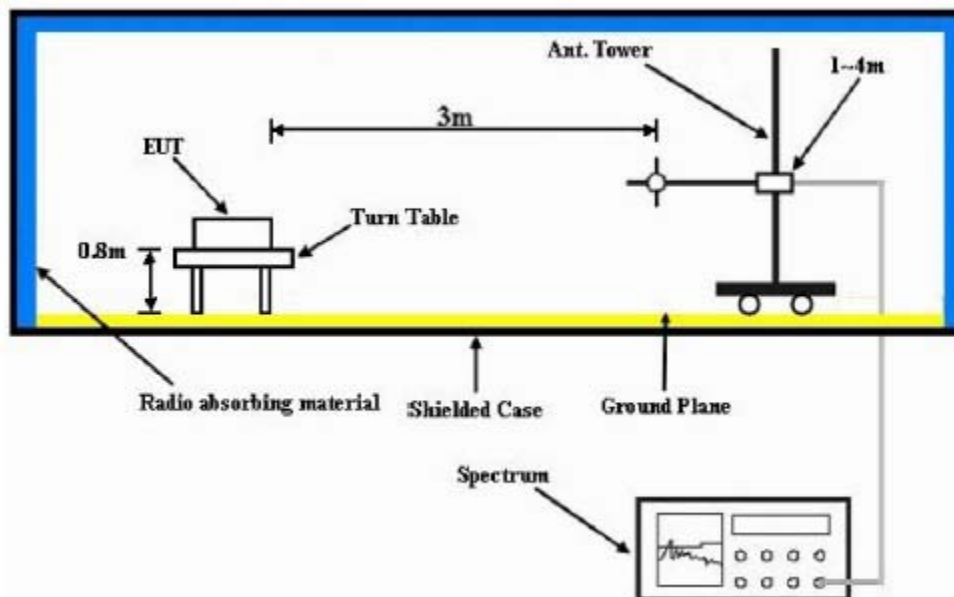
Table below summarized the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least

Channel Spacing	Part 22	Part 24D	Part 74	Part 80	Part 90 (UHF, VHF, 800, 900)	Part 90 (700)
12.5kHz	$43 + \log_{10}(P)$ (-13 dBm)	$43 + \log_{10}(P)$ (-13 dBm)	$43 + \log_{10}(P)$ (-13 dBm)	Not Applicable	$50 + \log_{10}(P)$ (-20 dBm)	$43 + \log_{10}(P)$ (-13 dBm)
25kHz		Not Applicable		$43 + \log_{10}(P)$ (-13 dBm)	$43 + \log_{10}(P)$ (-13 dBm)	$43 + \log_{10}(P)$ (-13 dBm)

Channel Spacing	RSS 134	RSS 182	RSS 119 (UHF, VHF, 800, 900)	RSS 119 (700)
12.5kHz	$43 + \log_{10}(P)$ (-13 dBm)	Not Applicable	$50 + \log_{10}(P)$ (-20 dBm)	$43 + \log_{10}(P)$ (-13 dBm)
25kHz	Not Applicable	$43 + \log_{10}(P)$ (-13 dBm)	$43 + \log_{10}(P)$ (-13 dBm)	$43 + \log_{10}(P)$ (-13 dBm)

6.11. Radiated Spurious Emission

6.11.1. Test Setup



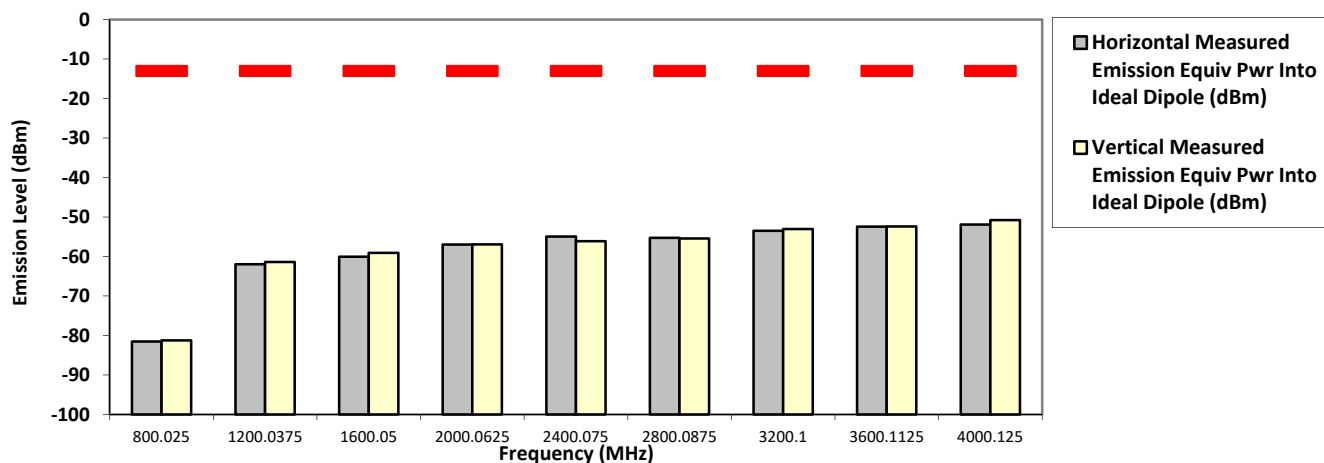
- 1) The Resolution Bandwidth for scanning Radiated Emission below 1 GHz is 100 kHz with Video Bandwidth = 300 kHz and Resolution Bandwidth for above 1 GHz is 1 MHz with Video Bandwidth = 3 MHz. Detector mode is positive peak.
- 2) In the semi- anechoic chamber, setup as illustrated above the DUT placed on the 0.8m height (for $F_c < 1\text{GHz}$) or 1.5m height (for $F_c > 1\text{GHz}$) 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.
- 3) The substitution antenna is substituted for DUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 4) Final Radiated Spurious Emission = “Read Value” + Measured substitution value.

6.11.2. Test Result (Analog)

SAC Transmitter Radiated Emission:
Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Analog
400.012500 MHz 25 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
800.0250	-13.0000	-81.5457 **	-81.2591 **
1200.0375	-13.0000	-61.9491 **	-61.3794 **
1600.0500	-13.0000	-60.0783 **	-59.0958 **
2000.0625	-13.0000	-56.9746 **	-56.9243 **
2400.0750	-13.0000	-54.9399 **	-56.1125 **
2800.0875	-13.0000	-55.2582 **	-55.4306 **
3200.1000	-13.0000	-53.5014 **	-53.0600 **
3600.1125	-13.0000	-52.4361 **	-52.3960 **
4000.1250	-13.0000	-51.8964 **	-50.7632 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
System MU: 4.03 dB Temp(Deg): 23.8 Hum(%RH): 68.9

Remarks:

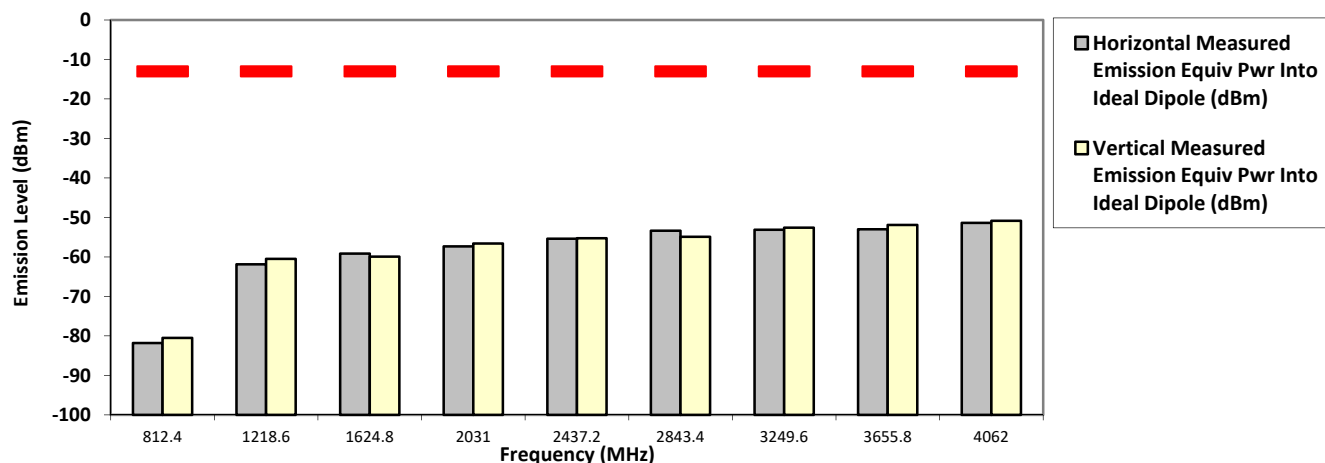
Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Analog
406.200000 MHz 25 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
812.4000	-13.0000	-81.8343 **	-80.5113 **
1218.6000	-13.0000	-61.8729 **	-60.5182 **
1624.8000	-13.0000	-59.1818 **	-59.9447 **
2031.0000	-13.0000	-57.3439 **	-56.6281 **
2437.2000	-13.0000	-55.4027 **	-55.2820 **
2843.4000	-13.0000	-53.3803 **	-54.8970 **
3249.6000	-13.0000	-53.1318 **	-52.6036 **
3655.8000	-13.0000	-53.0018 **	-51.9061 **
4062.0000	-13.0000	-51.3859 **	-50.8510 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN

S/N: 734TWP0311

SR:18058-EMC-00047

Battery Part No: PMNN4804A

Accy Part No: NA

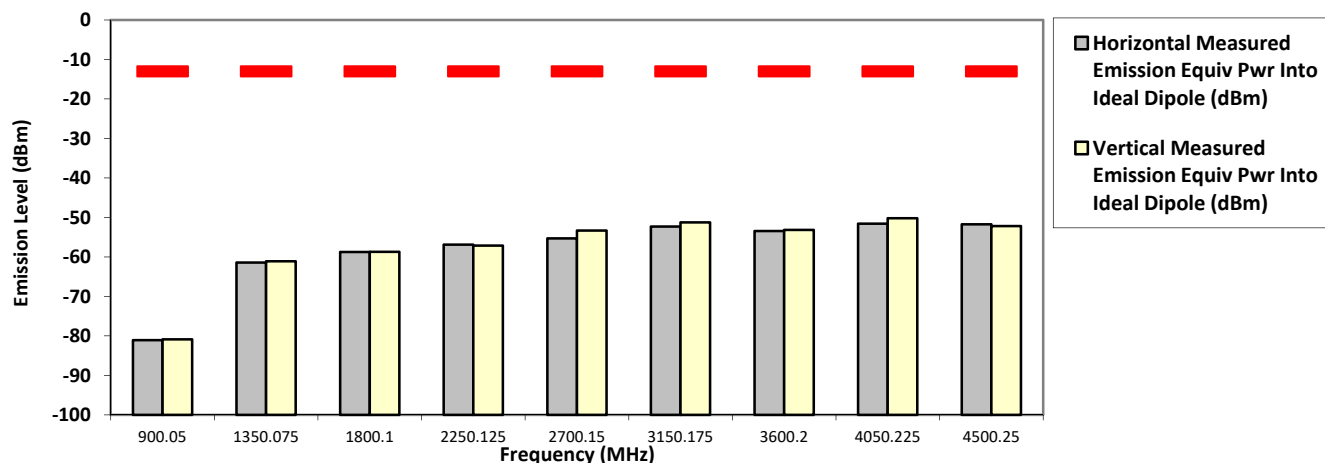
Test Mode: TX Analog
25 kHz

450.025000 MHz

1.000 Watt(s) /Low Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
900.0500	-13.0000	-81.0774 **	-80.8748 **
1350.0750	-13.0000	-61.4197 **	-61.1260 **
1800.1000	-13.0000	-58.7489 **	-58.7333 **
2250.1250	-13.0000	-56.9125 **	-57.1390 **
2700.1500	-13.0000	-55.3104 **	-53.3407 **
3150.1750	-13.0000	-52.3001 **	-51.2821 **
3600.2000	-13.0000	-53.4581 **	-53.1805 **
4050.2250	-13.0000	-51.5908 **	-50.2305 **
4500.2500	-13.0000	-51.7663 **	-52.1998 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman

Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported

Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
----------------	------------------	----------------

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN

S/N: 734TWP0311

SR:18058-EMC-00047

Battery Part No: PMNN4804A

Accy Part No: NA

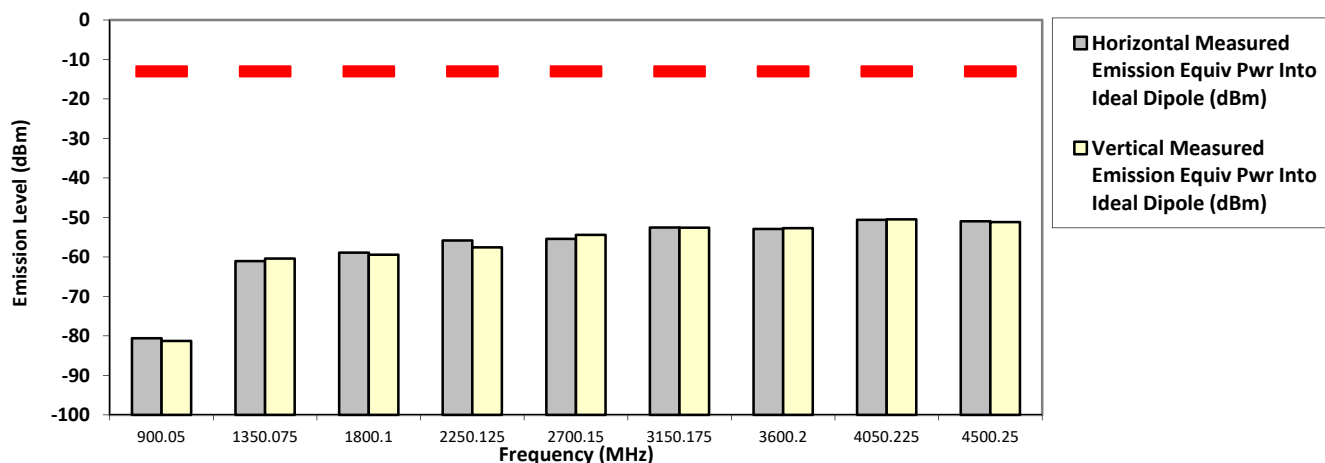
Test Mode: TX Analog
25 kHz

450.025000 MHz

4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
900.0500	-13.0000	-80.6090 **	-81.3084 **
1350.0750	-13.0000	-61.0629 **	-60.4216 **
1800.1000	-13.0000	-58.9313 **	-59.4521 **
2250.1250	-13.0000	-55.8506 **	-57.5800 **
2700.1500	-13.0000	-55.4328 **	-54.4246 **
3150.1750	-13.0000	-52.5487 **	-52.6128 **
3600.2000	-13.0000	-52.9189 **	-52.7349 **
4050.2250	-13.0000	-50.6113 **	-50.5024 **
4500.2500	-13.0000	-50.9653 **	-51.1907 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman

Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported

Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
----------------	------------------	----------------

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN

S/N: 734TWP0311

SR:18058-EMC-00047

Battery Part No: PMNN4804A

Accy Part No: NA

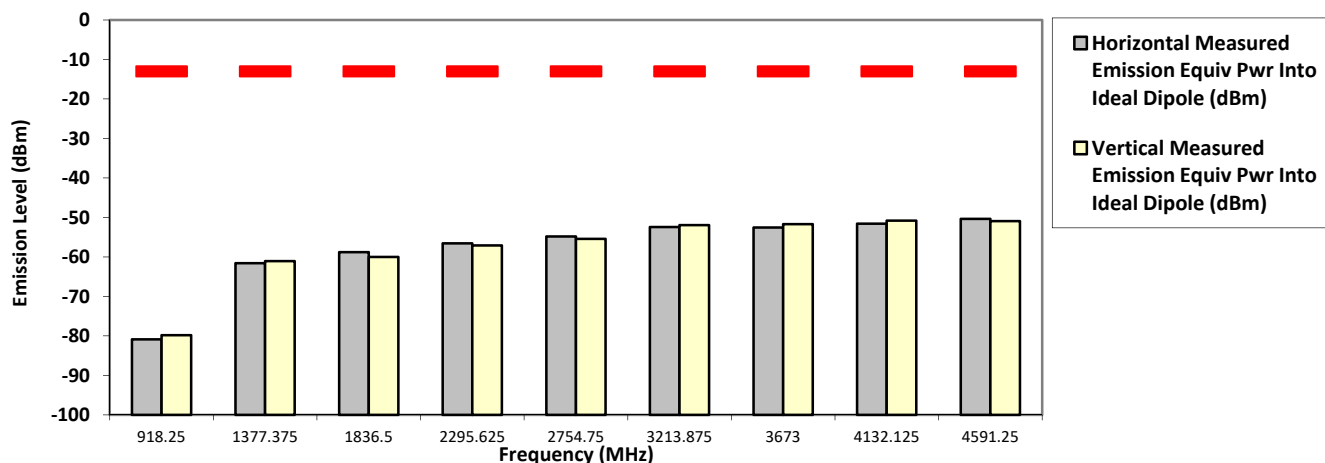
Test Mode: TX Analog
25 kHz

459.125000 MHz

4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
918.2500	-13.0000	-80.8670 **	-79.8427 **
1377.3750	-13.0000	-61.5811 **	-61.0816 **
1836.5000	-13.0000	-58.8191 **	-60.0086 **
2295.6250	-13.0000	-56.5904 **	-57.0983 **
2754.7500	-13.0000	-54.8369 **	-55.4268 **
3213.8750	-13.0000	-52.4338 **	-51.9605 **
3673.0000	-13.0000	-52.5750 **	-51.6947 **
4132.1250	-13.0000	-51.5744 **	-50.8119 **
4591.2500	-13.0000	-50.3615 **	-50.9531 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN

S/N: 734TWP0311

SR:18058-EMC-00047

Battery Part No: PMNN4804A

Accy Part No: NA

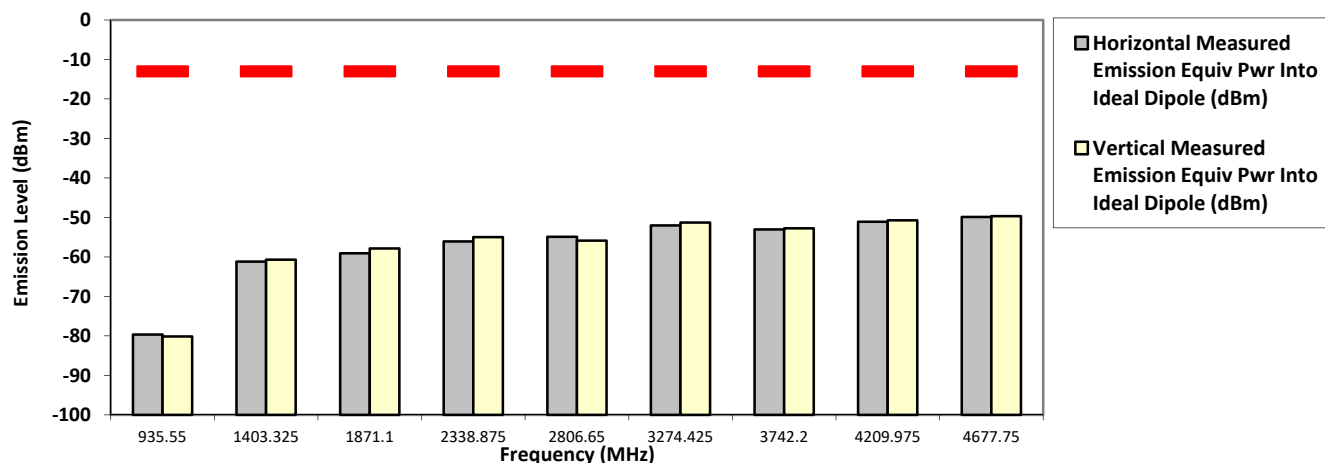
Test Mode: TX Analog
25 kHz

467.775000 MHz

4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
935.5500	-13.0000	-79.6856 **	-80.1508 **
1403.3250	-13.0000	-61.2076 **	-60.7132 **
1871.1000	-13.0000	-59.0667 **	-57.8612 **
2338.8750	-13.0000	-56.1076 **	-54.9764 **
2806.6500	-13.0000	-54.9066 **	-55.9049 **
3274.4250	-13.0000	-52.0185 **	-51.3175 **
3742.2000	-13.0000	-53.0679 **	-52.7803 **
4209.9750	-13.0000	-51.1098 **	-50.7377 **
4677.7500	-13.0000	-49.8897 **	-49.6804 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman

Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported

Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

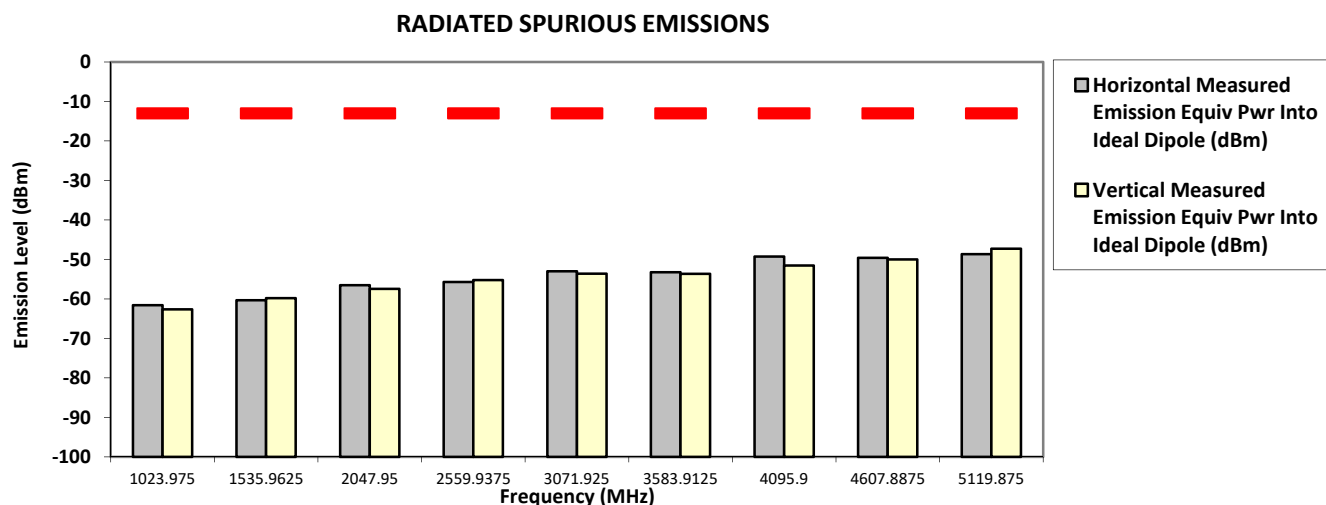
Remarks:

Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Analog
511.987500 MHz 25 kHz 1.000 Watt(s) /Low Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
1023.9750	-13.0000	-61.6100 **	-62.6332 **
1535.9625	-13.0000	-60.3599 **	-59.8173 **
2047.9500	-13.0000	-56.5241 **	-57.4710 **
2559.9375	-13.0000	-55.7421 **	-55.2532 **
3071.9250	-13.0000	-52.9905 **	-53.6172 **
3583.9125	-13.0000	-53.2424 **	-53.6410 **
4095.9000	-13.0000	-49.2865 **	-51.5539 **
4607.8875	-13.0000	-49.6223 **	-50.0054 **
5119.8750	-13.0000	-48.6561 **	-47.3116 **



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

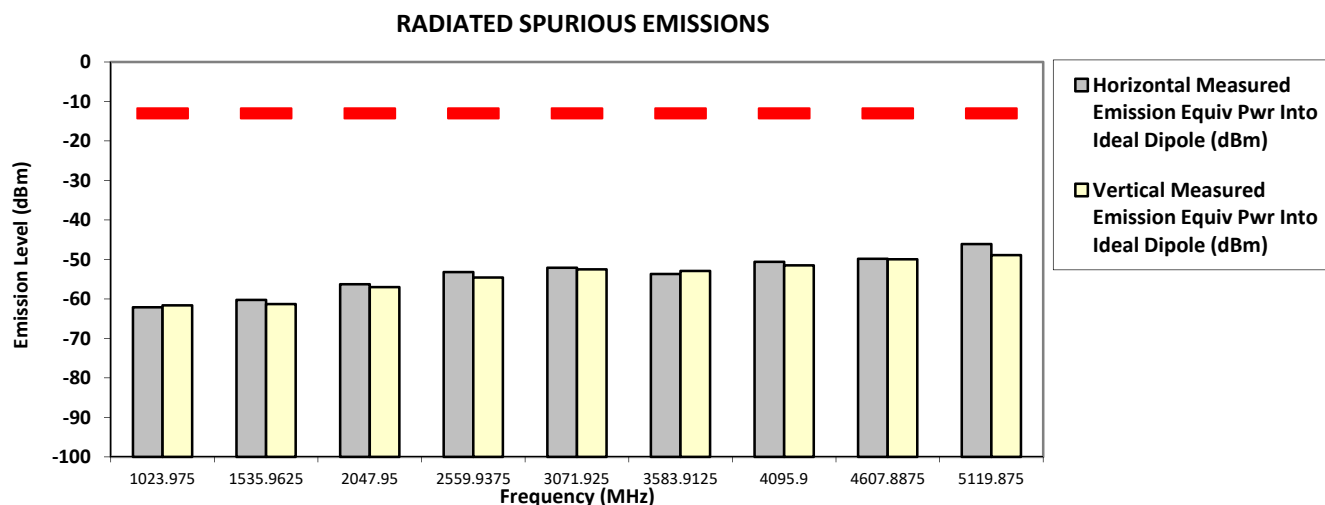
Remarks:

Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Analog
511.987500 MHz 25 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
1023.9750	-13.0000	-62.1427 **	-61.6587 **
1535.9625	-13.0000	-60.2764 **	-61.3273 **
2047.9500	-13.0000	-56.3069 **	-57.0364 **
2559.9375	-13.0000	-53.2114 **	-54.6077 **
3071.9250	-13.0000	-52.0982 **	-52.5109 **
3583.9125	-13.0000	-53.6817 **	-52.9388 **
4095.9000	-13.0000	-50.6228 **	-51.4955 **
4607.8875	-13.0000	-49.8298 **	-49.9701 **
5119.8750	-13.0000	-46.1254 **	-48.9095 **



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Tue, Aug 04, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

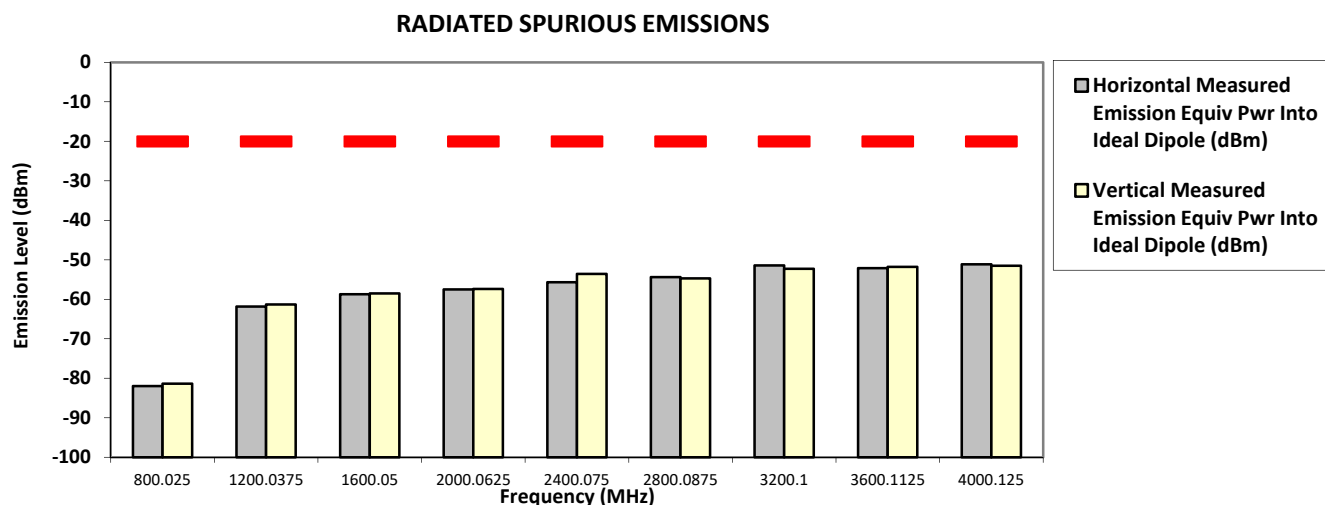
System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

6.11.3. Test Result (Digital)

SAC Transmitter Radiated Emission:
Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
400.012500 MHz 12.5 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
800.0250	-20.0000	-81.9744 **	-81.3807 **
1200.0375	-20.0000	-61.8437 **	-61.2971 **
1600.0500	-20.0000	-58.7250 **	-58.5276 **
2000.0625	-20.0000	-57.4999 **	-57.3678 **
2400.0750	-20.0000	-55.6930 **	-53.5821 **
2800.0875	-20.0000	-54.3747 **	-54.7201 **
3200.1000	-20.0000	-51.4466 **	-52.2921 **
3600.1125	-20.0000	-52.1373 **	-51.7845 **
4000.1250	-20.0000	-51.1308 **	-51.5158 **



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks:

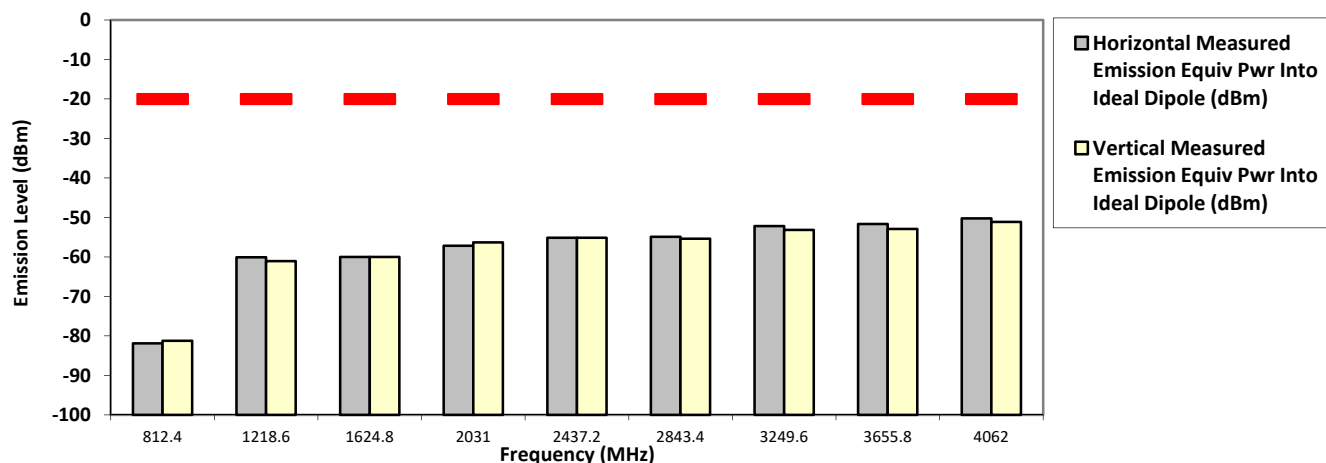
Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
406.200000 MHz 12.5 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
812.4000	-20.0000	-81.9057 **	-81.2385 **
1218.6000	-20.0000	-60.1106 **	-61.0900 **
1624.8000	-20.0000	-60.0349 **	-60.0132 **
2031.0000	-20.0000	-57.1869 **	-56.3341 **
2437.2000	-20.0000	-55.1502 **	-55.1734 **
2843.4000	-20.0000	-54.8969 **	-55.4004 **
3249.6000	-20.0000	-52.2185 **	-53.1509 **
3655.8000	-20.0000	-51.6739 **	-52.9081 **
4062.0000	-20.0000	-50.2635 **	-51.1593 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

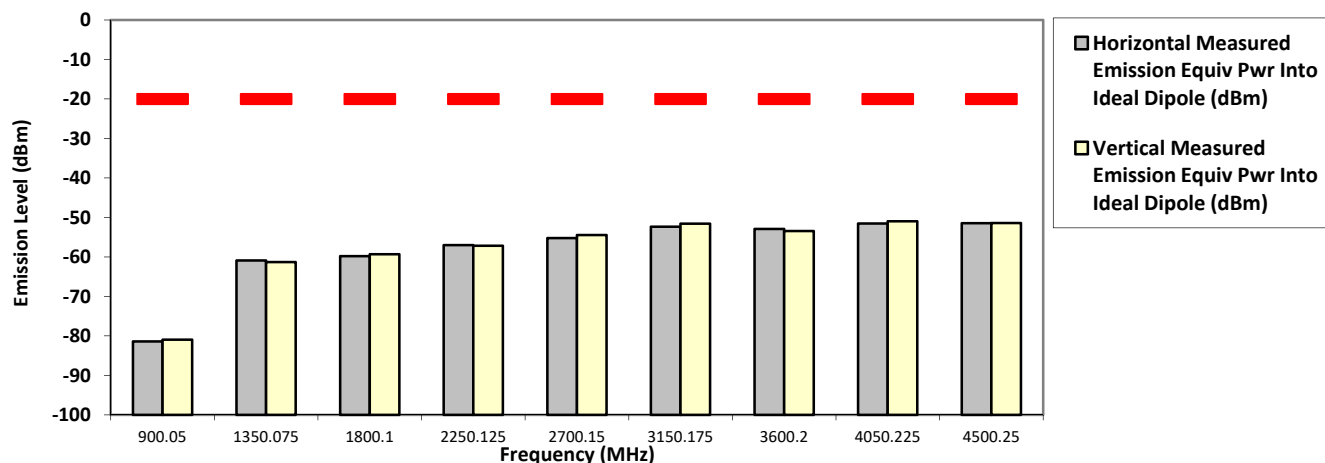
Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
450.025000 MHz 12.5 kHz 1.000 Watt(s) /Low Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
900.0500	-20.0000	-81.4154 **	-80.9846 **
1350.0750	-20.0000	-60.9214 **	-61.2957 **
1800.1000	-20.0000	-59.8148 **	-59.3266 **
2250.1250	-20.0000	-57.0275 **	-57.1737 **
2700.1500	-20.0000	-55.2564 **	-54.4695 **
3150.1750	-20.0000	-52.3499 **	-51.6063 **
3600.2000	-20.0000	-52.9167 **	-53.4379 **
4050.2250	-20.0000	-51.5419 **	-50.9796 **
4500.2500	-20.0000	-51.4858 **	-51.4293 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

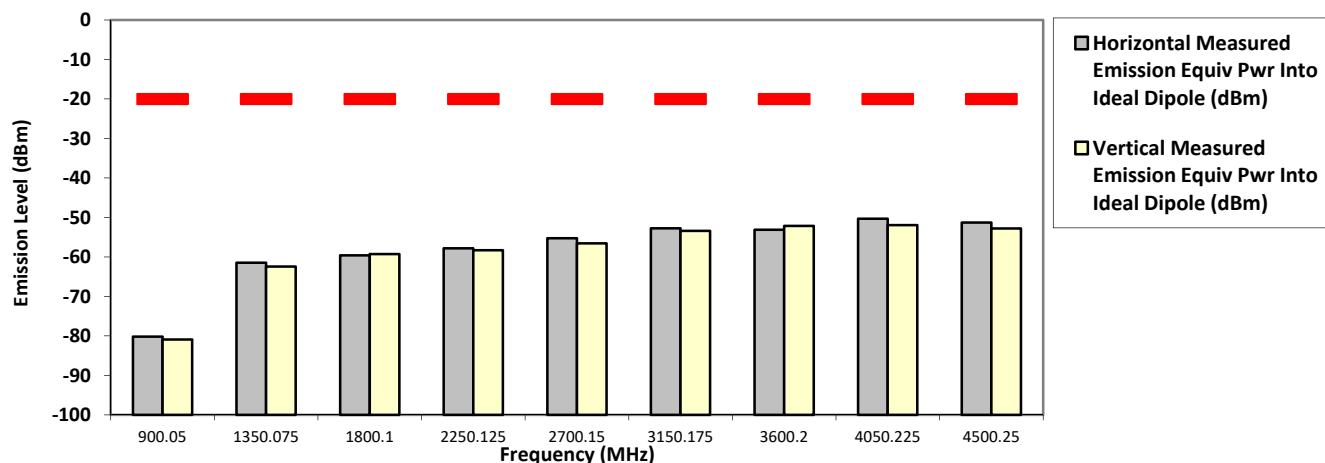
Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
450.025000 MHz 12.5 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
900.0500	-20.0000	-80.1833 **	-80.9064 **
1350.0750	-20.0000	-61.4969 **	-62.4551 **
1800.1000	-20.0000	-59.6100 **	-59.2765 **
2250.1250	-20.0000	-57.8243 **	-58.3166 **
2700.1500	-20.0000	-55.2699 **	-56.5903 **
3150.1750	-20.0000	-52.7690 **	-53.4193 **
3600.2000	-20.0000	-53.1261 **	-52.1729 **
4050.2250	-20.0000	-50.3172 **	-51.9557 **
4500.2500	-20.0000	-51.3219 **	-52.7975 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks:

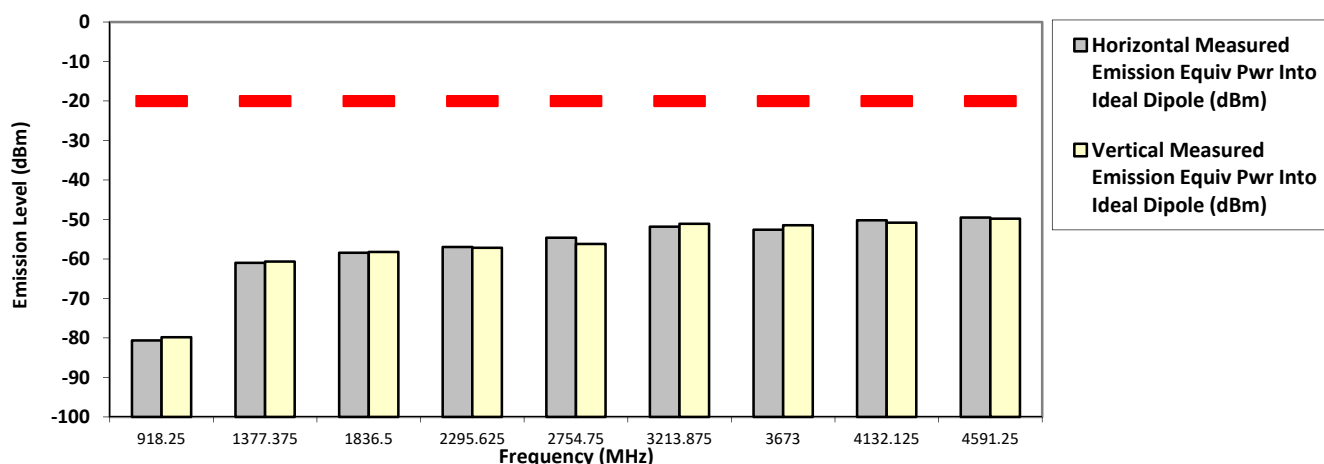
Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
459.125000 MHz 12.5 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
918.2500	-20.0000	-80.6478 **	-79.8141 **
1377.3750	-20.0000	-60.9878 **	-60.6867 **
1836.5000	-20.0000	-58.4537 **	-58.2331 **
2295.6250	-20.0000	-56.9626 **	-57.1997 **
2754.7500	-20.0000	-54.6410 **	-56.2080 **
3213.8750	-20.0000	-51.8422 **	-51.1247 **
3673.0000	-20.0000	-52.5966 **	-51.4616 **
4132.1250	-20.0000	-50.2211 **	-50.8083 **
4591.2500	-20.0000	-49.5214 **	-49.7976 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

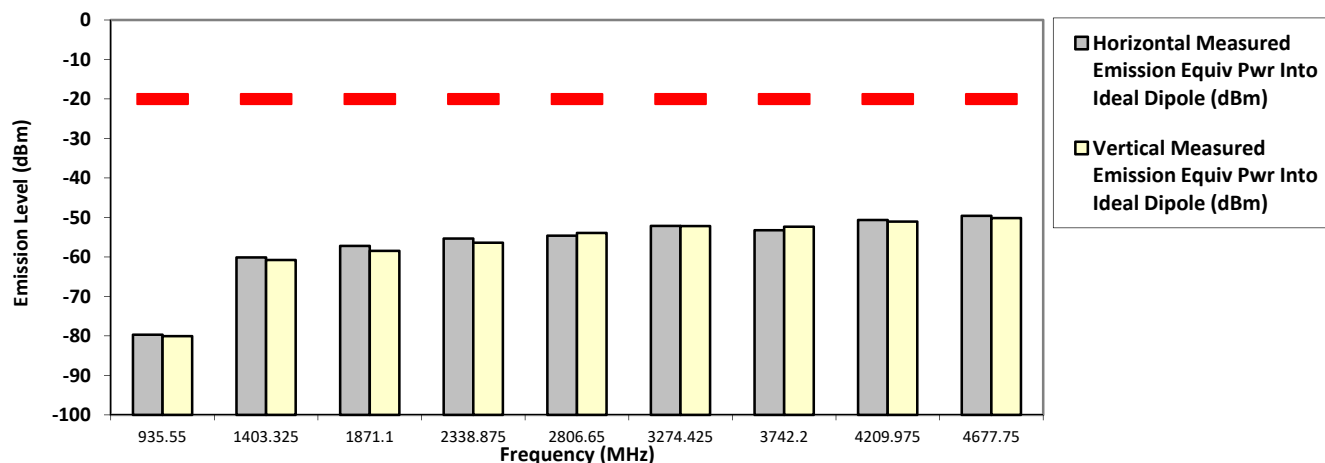
Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
467.775000 MHz 12.5 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
935.5500	-20.0000	-79.6974 **	-80.0853 **
1403.3250	-20.0000	-60.1247 **	-60.7739 **
1871.1000	-20.0000	-57.2130 **	-58.4777 **
2338.8750	-20.0000	-55.3670 **	-56.4269 **
2806.6500	-20.0000	-54.6095 **	-53.9527 **
3274.4250	-20.0000	-52.1387 **	-52.1825 **
3742.2000	-20.0000	-53.2633 **	-52.3539 **
4209.9750	-20.0000	-50.6526 **	-51.0699 **
4677.7500	-20.0000	-49.6111 **	-50.1927 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

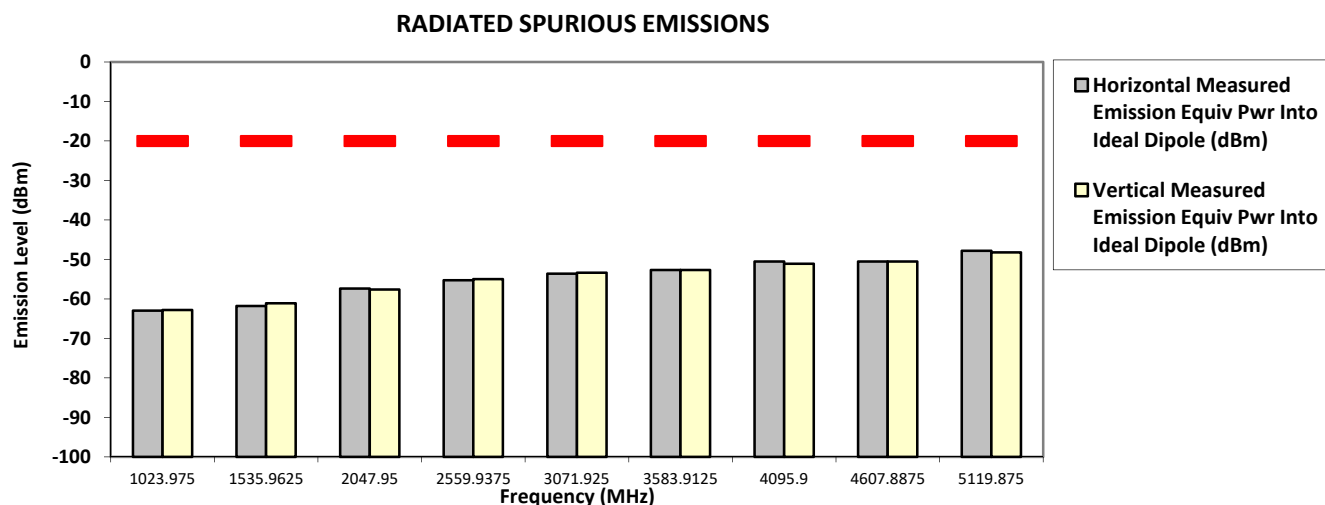
System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
511.987500 MHz 12.5 kHz 1.000 Watt(s) /Low Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
1023.9750	-20.0000	-62.9674 **	-62.7938 **
1535.9625	-20.0000	-61.8046 **	-61.1237 **
2047.9500	-20.0000	-57.4001 **	-57.6472 **
2559.9375	-20.0000	-55.2631 **	-54.9790 **
3071.9250	-20.0000	-53.6246 **	-53.3639 **
3583.9125	-20.0000	-52.6976 **	-52.6913 **
4095.9000	-20.0000	-50.5485 **	-51.0857 **
4607.8875	-20.0000	-50.5244 **	-50.5332 **
5119.8750	-20.0000	-47.8238 **	-48.2317 **



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

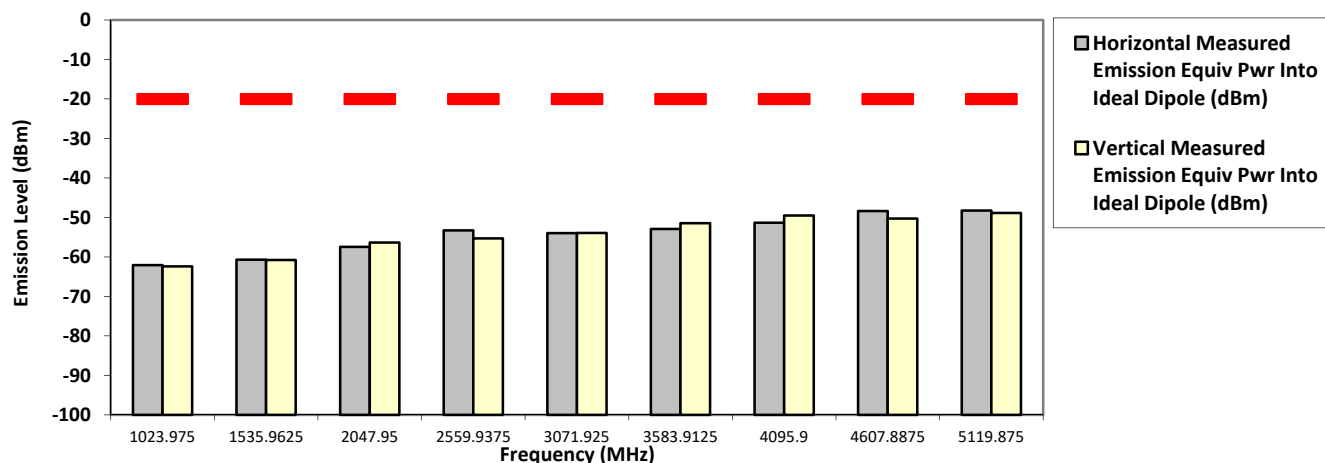
Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 SR:18058-EMC-00047
Battery Part No: PMNN4804A Accy Part No: NA
Test Mode: TX Digital
511.987500 MHz 12.5 kHz 4.800 Watt(s) /Max Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
1023.9750	-20.0000	-62.0792 **	-62.3916 **
1535.9625	-20.0000	-60.7262 **	-60.7906 **
2047.9500	-20.0000	-57.4457 **	-56.3794 **
2559.9375	-20.0000	-53.3083 **	-55.3359 **
3071.9250	-20.0000	-53.9789 **	-53.9572 **
3583.9125	-20.0000	-52.9291 **	-51.4646 **
4095.9000	-20.0000	-51.3474 **	-49.5416 **
4607.8875	-20.0000	-48.3937 **	-50.3061 **
5119.8750	-20.0000	-48.2723 **	-48.8858 **

RADIATED SPURIOUS EMISSIONS



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman Wed, Aug 05, 2020

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 68.9

System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

6.11.4. Test Limit

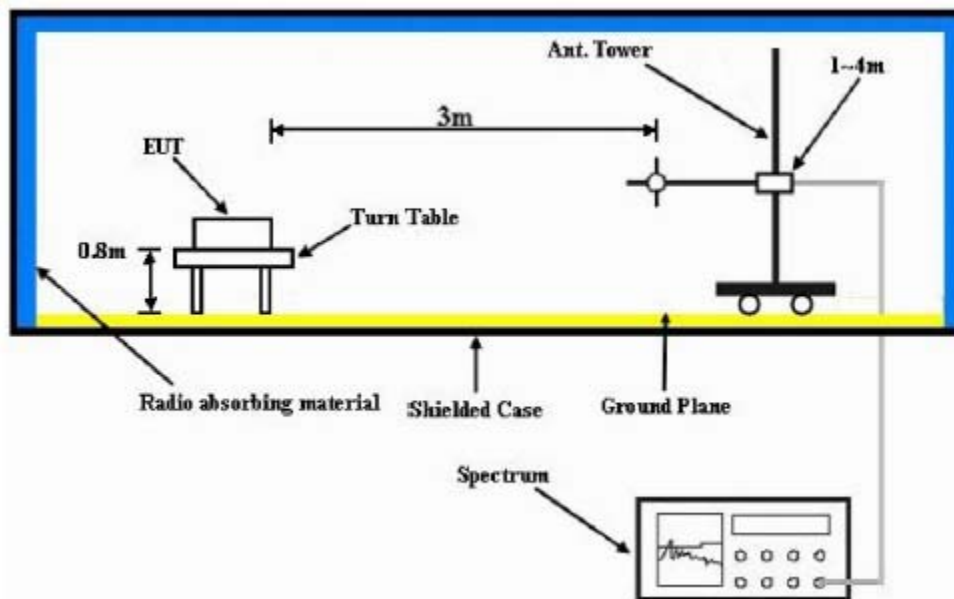
Table below summarized the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least

Channel Spacing	Part 22	Part 24D	Part 74	Part 80	Part 90 (UHF, VHF, 800, 900)	Part 90 (700)
12.5kHz	43 + log ₁₀ (P) (-13 dBm)	43 + log ₁₀ (P) (-13 dBm)	43 + log ₁₀ (P) (-13 dBm)	Not Applicable	50 + log ₁₀ (P) (-20 dBm)	43 + log ₁₀ (P) (-13 dBm)
25kHz		Not Applicable		43 + log ₁₀ (P) (-13 dBm)	43 + log ₁₀ (P) (-13 dBm)	43 + log ₁₀ (P) (-13 dBm)

Channel Spacing	RSS 134	RSS 182	RSS 119 (UHF, VHF, 800, 900)	RSS 119 (700)
12.5kHz	43 + log ₁₀ (P) (-13 dBm)	Not Applicable	50 + log ₁₀ (P) (-20 dBm)	43 + log ₁₀ (P) (-13 dBm)
25kHz	Not Applicable	43 + log ₁₀ (P) (-13 dBm)	43 + log ₁₀ (P) (-13 dBm)	43 + log ₁₀ (P) (-13 dBm)

6.12. Effective Radiated Power (ERP)

6.12.1. Test Setup



- 1) The Resolution Bandwidth for Equivalent Radiated Power (ERP) below 1 GHz is 100 kHz with Video Bandwidth = 300 kHz and Resolution Bandwidth for EIRP above 1 GHz is 1 MHz with Video Bandwidth = 3 MHz. Detector Mode is RMS.
- 2) In the semi-anechoic chamber, setup as illustrated above the DUT placed on the 0.8m height (for $F_c < 1\text{GHz}$) or 1.5m (for $F_c > 1\text{GHz}$) of Turn Table, rotated the table 45 degree each interval 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 for each degree interval. The “Read Value” is the spectrum reading of maximum power value.
- 3) The substitution antenna is substituted for DUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the Measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.

6.12.2. Test Result

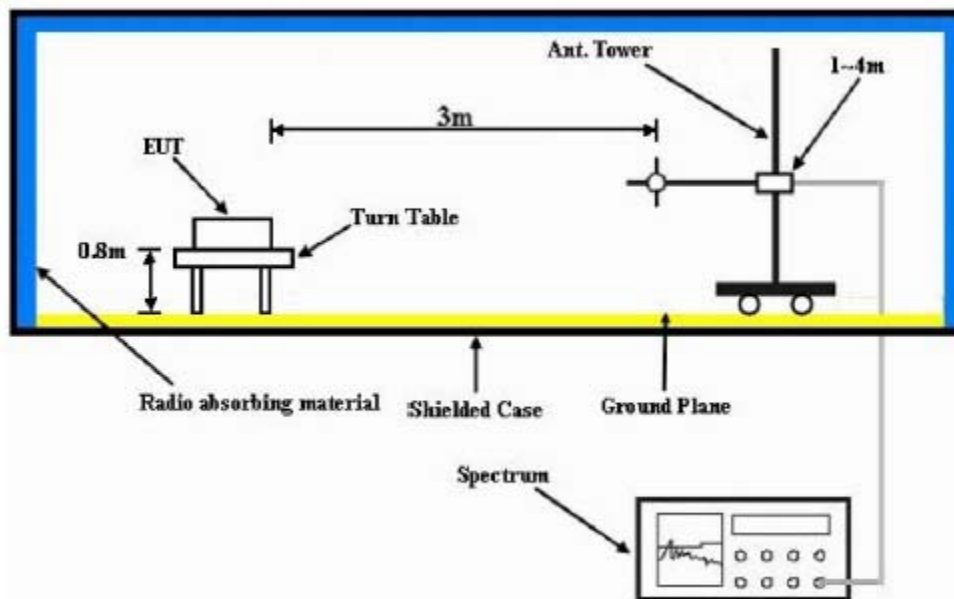
Not Applicable

6.12.3. Test Limit

The maximum output power of the transmitter for mobile stations is 100 watts (20 dB). Power is given in terms of effective radiated power (ERP).

6.13. GNSS (EIRP for 1559 - 1610MHz)

6.13.1. Test Setup



- 4) The Resolution Bandwidth for Equivalent Isotropically Radiated Power (EIRP) below 1 GHz is 100 kHz with Video Bandwidth = 300 kHz and Resolution Bandwidth for EIRP above 1 GHz is 1 MHz with Video Bandwidth = 3 MHz. Detector Mode is RMS.
- 5) In the semi-anechoic chamber, setup as illustrated above the DUT placed on the 0.8m height of Turn Table, rotated the table 45 degree each interval 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 for each degree interval. The "Read Value" is the spectrum reading of maximum power value.
- 6) The substitution antenna is substituted for DUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the Measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 7) $EIRP = \text{"Read Value"} + \text{Measured substitution value} + 2.15$.

6.13.1. Test Result

Not Applicable

6.13.2. Test Limit

For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

~ End of Test Report ~