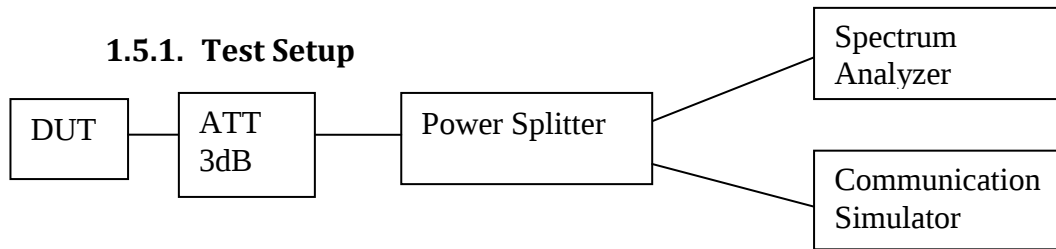


1.5. Conducted Spurious Emission

1.5.1. Test Setup



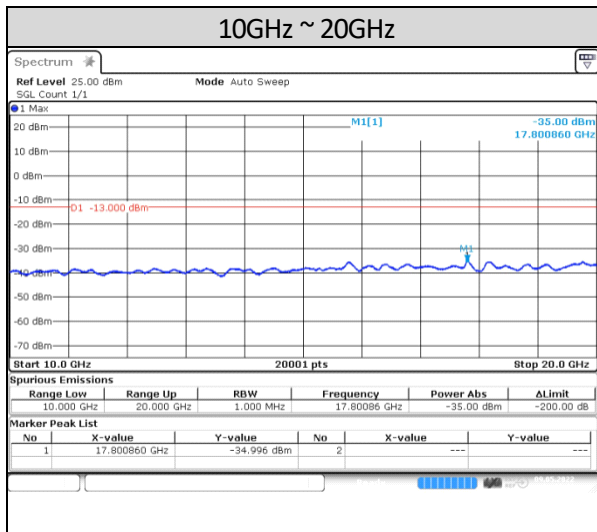
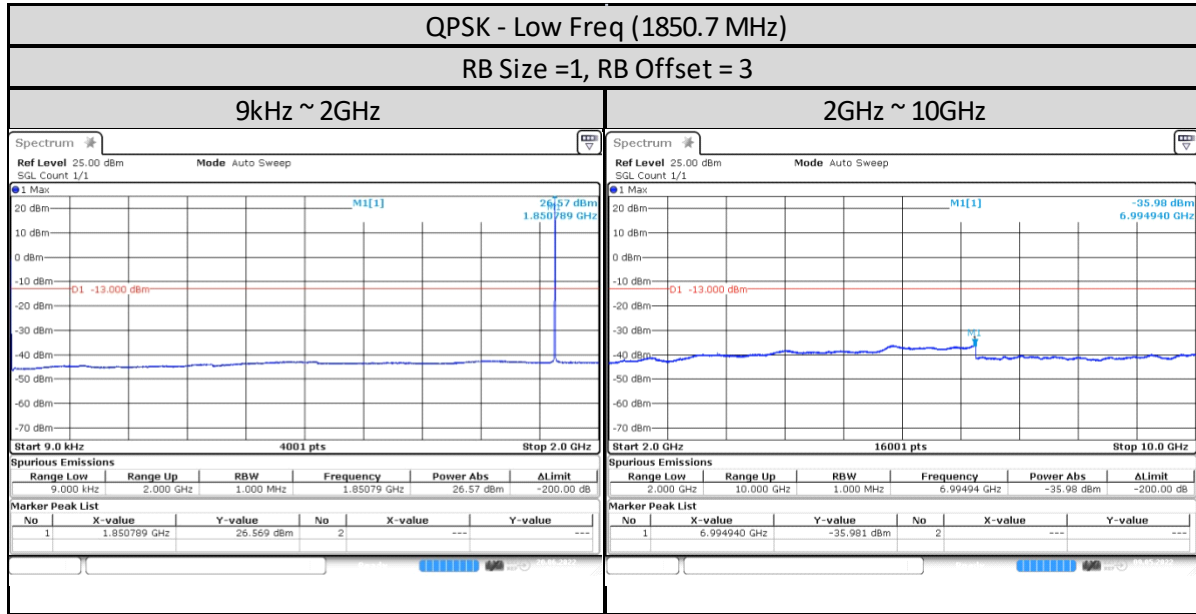
- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) Set DUT to transmit maximum power through communication simulator.
- 4) Spectrum Analyzer setting, RBW = 1 MHz, VBW = 3 MHz.
- 5) The spurious emission of lowest, middle and highest channels with the highest RF powers were measured.
- 6) Record the maximum trace plot into the test report.

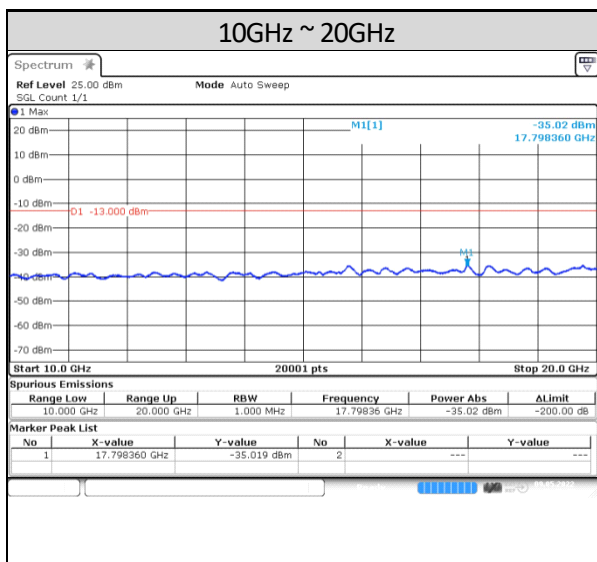
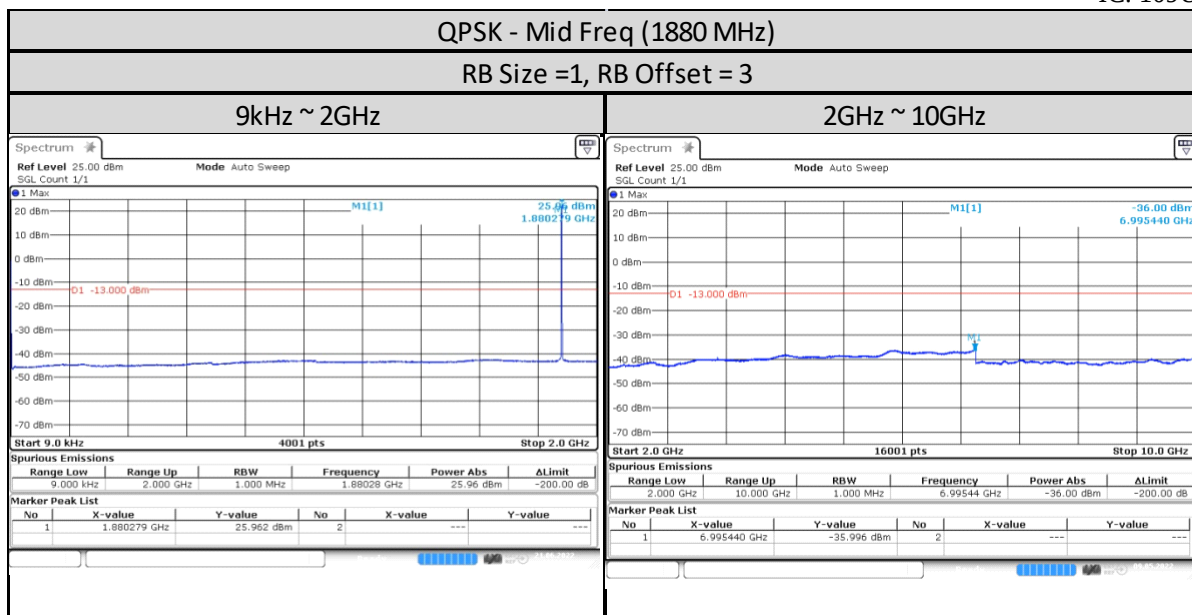
1.5.2. Test Limit

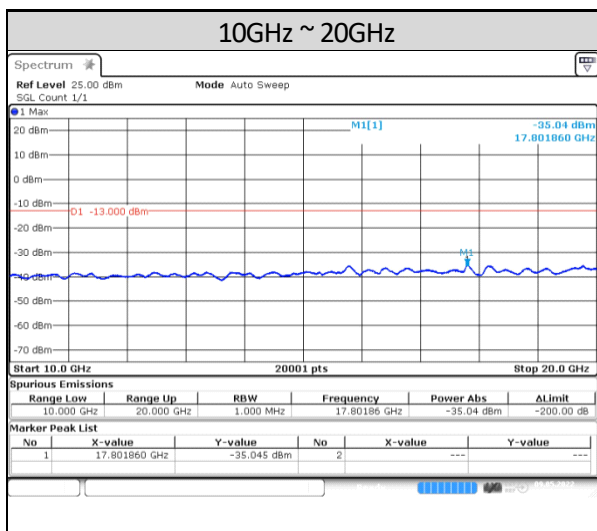
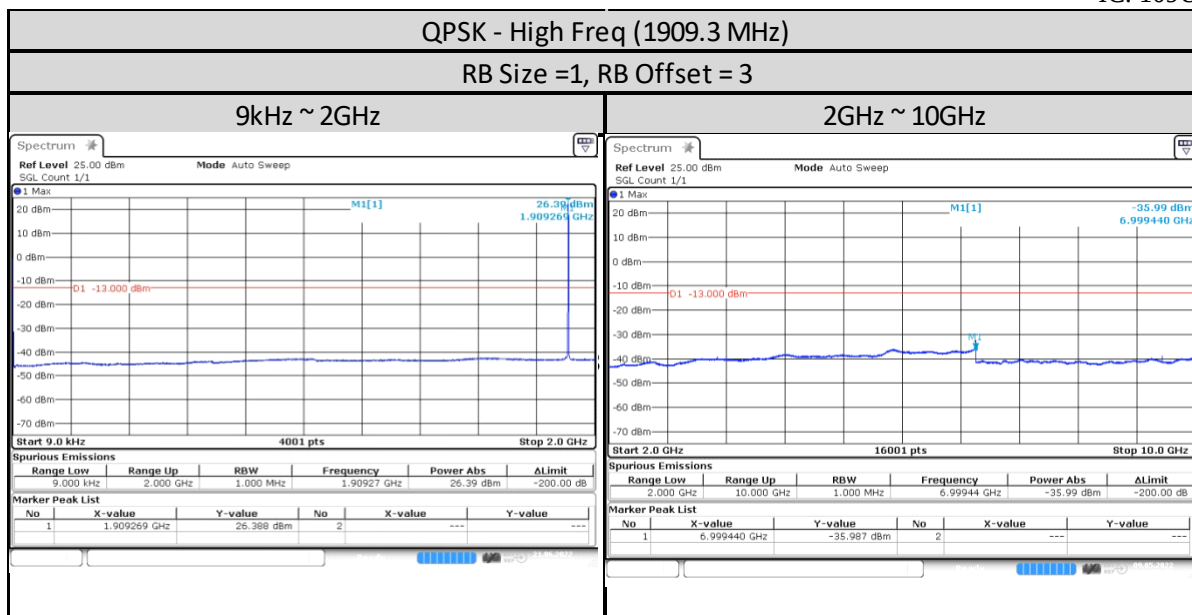
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB. The measurement instrumentation is employing a resolution bandwidth of 1 megahertz or greater.

1.5.3. Conducted Spurious Emissions - LTE Band 2 (1850 -1910 MHz)

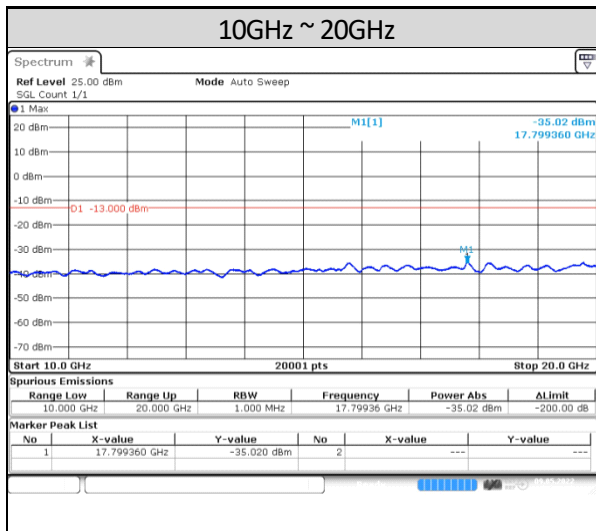
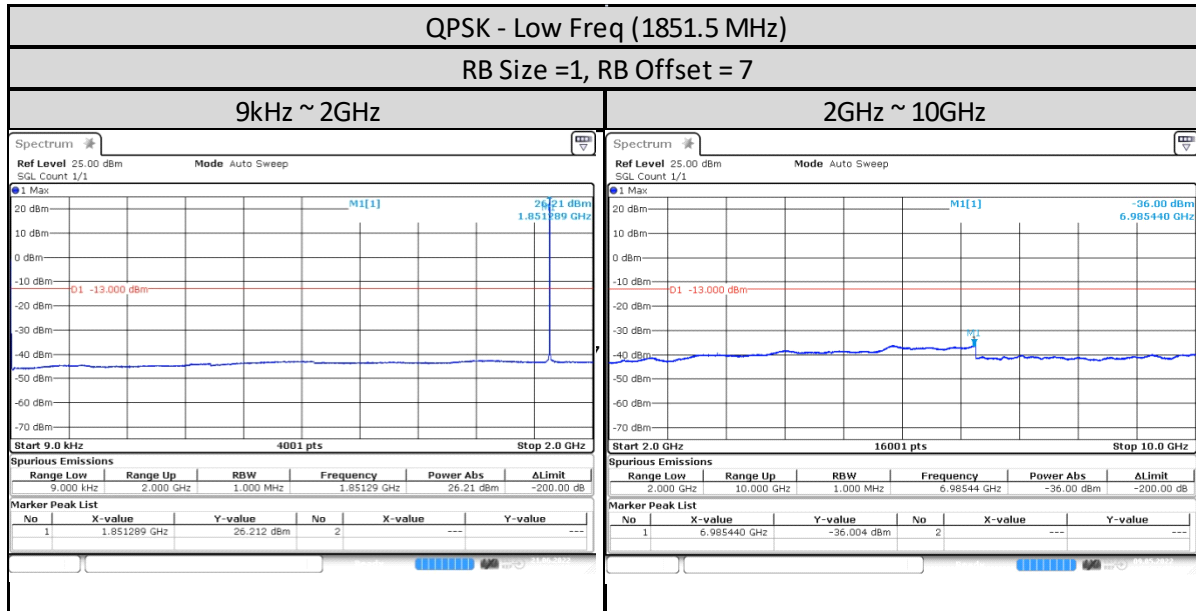
1.4MHz

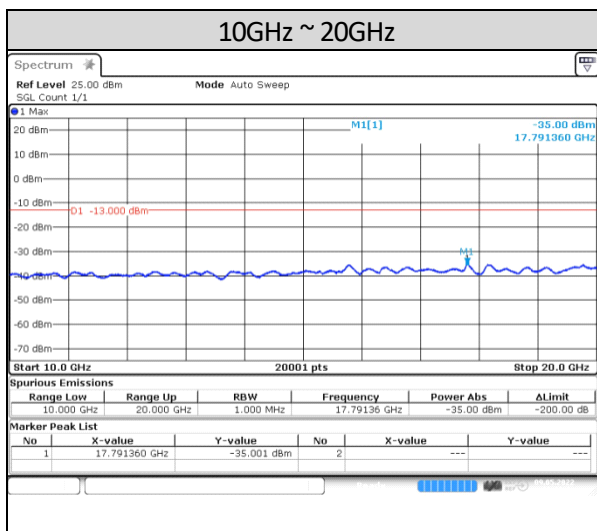
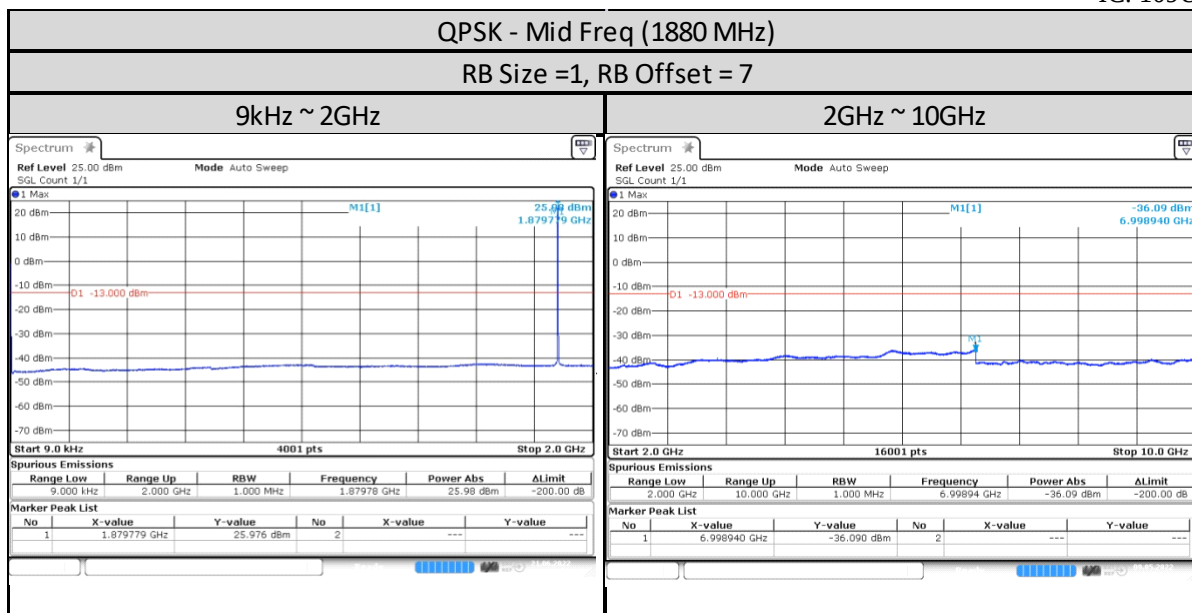


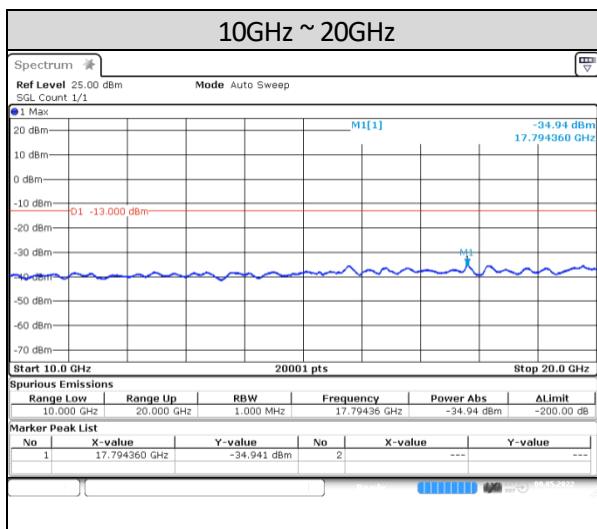
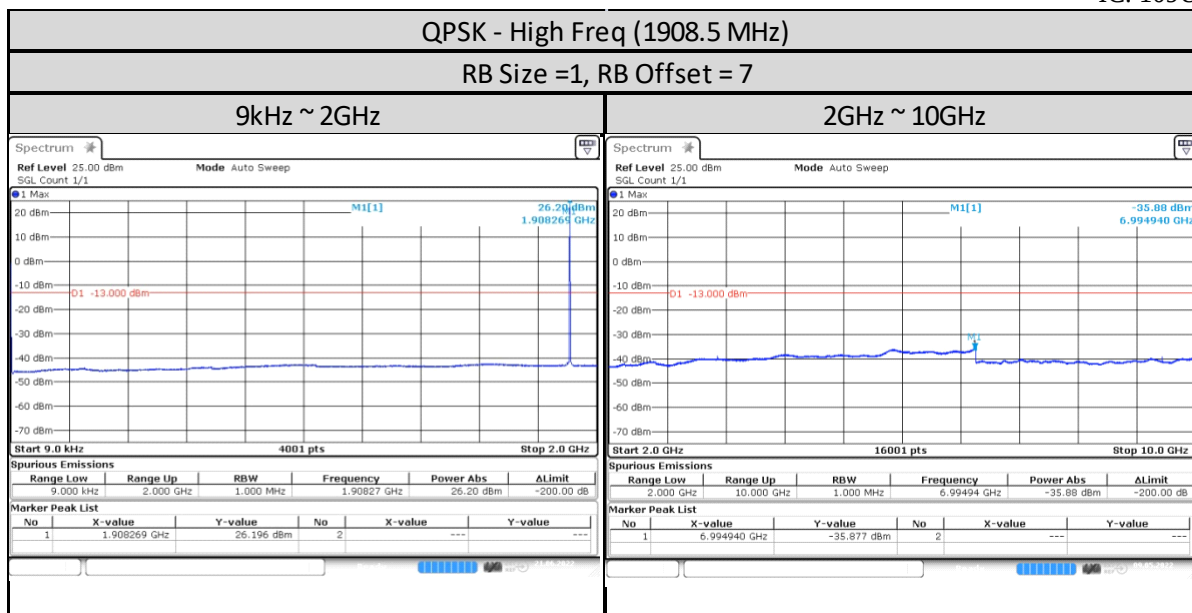




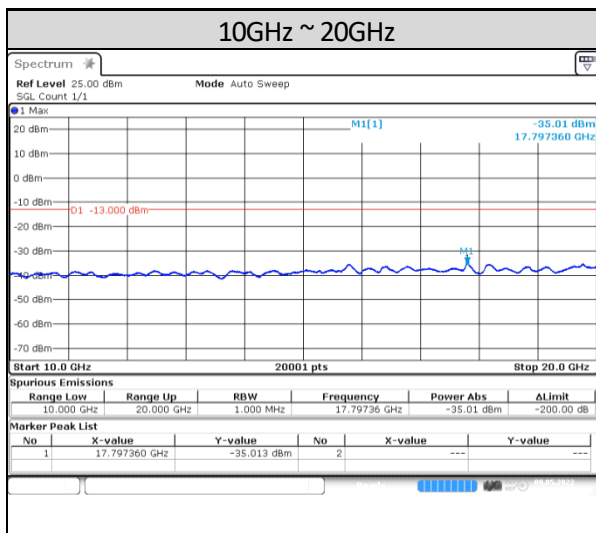
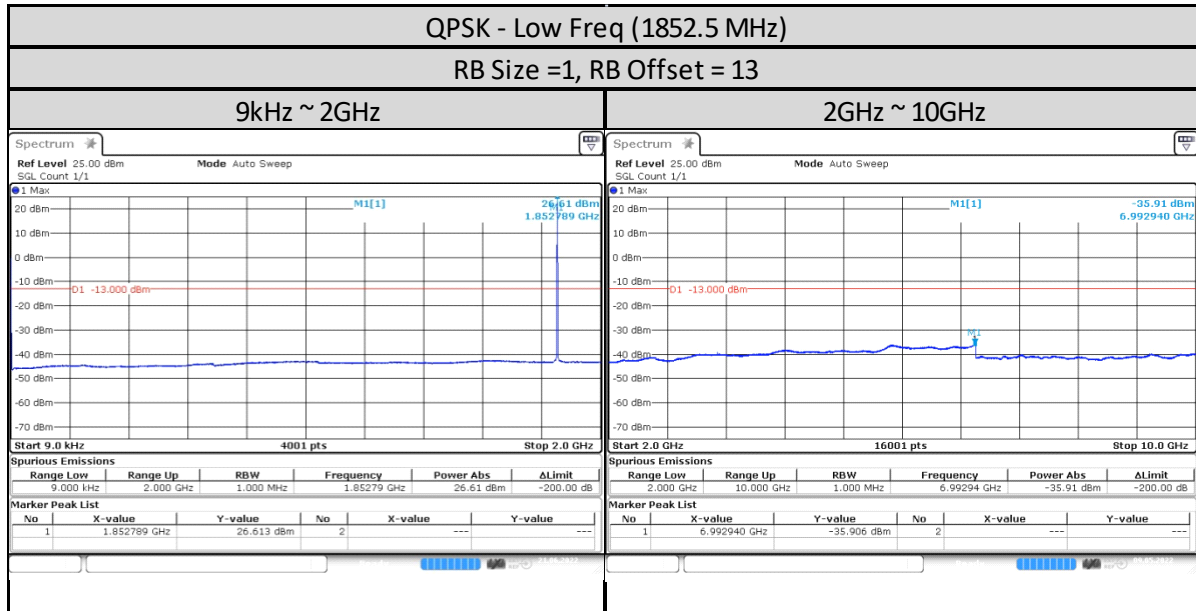
3MHz

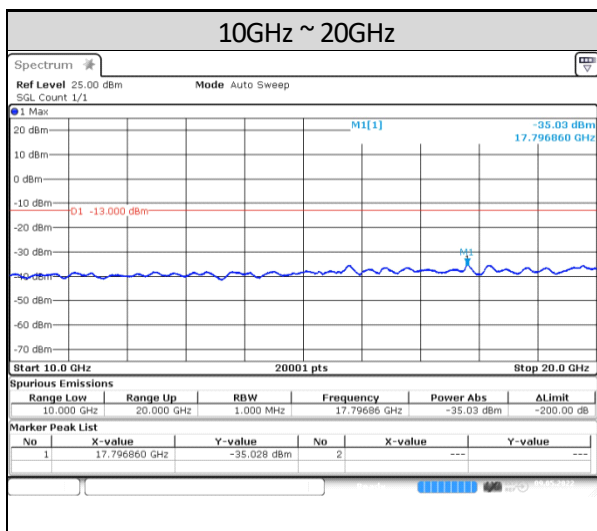
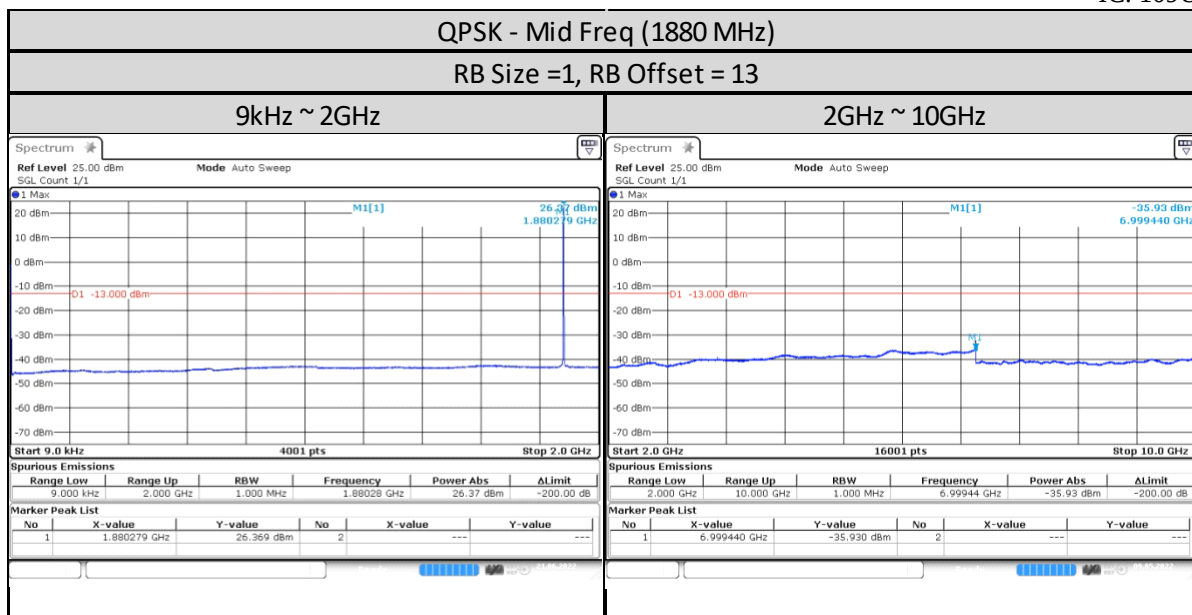


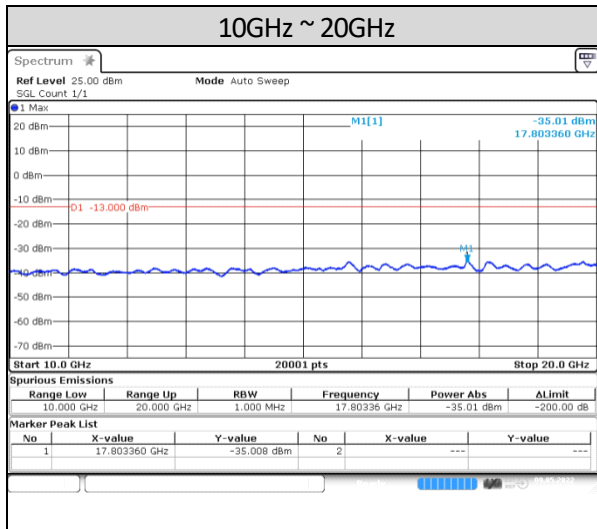
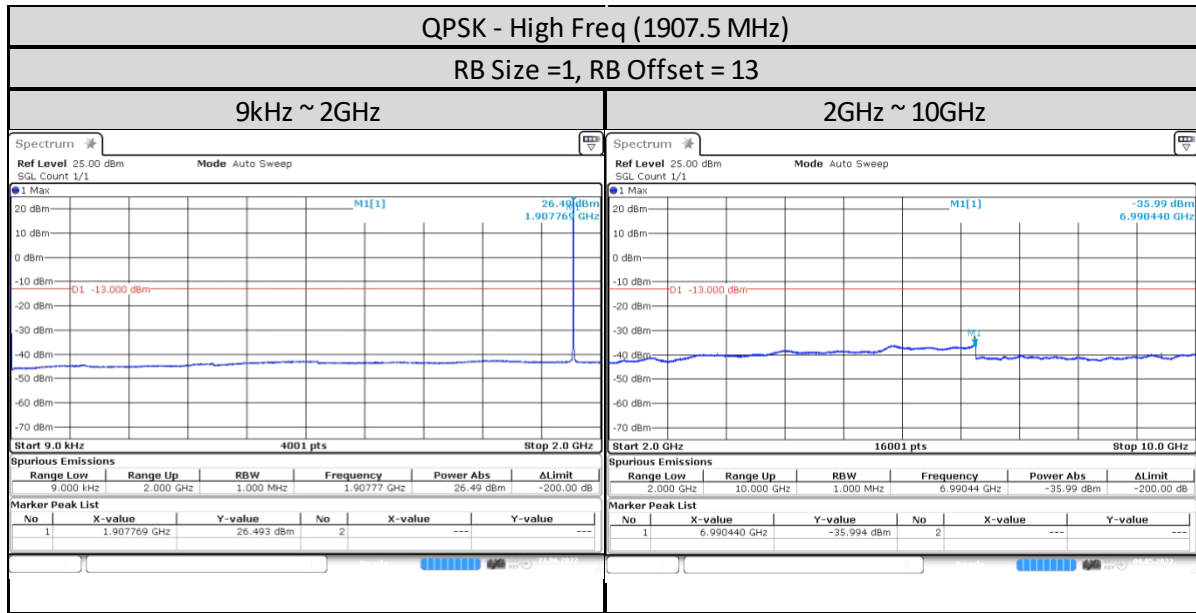




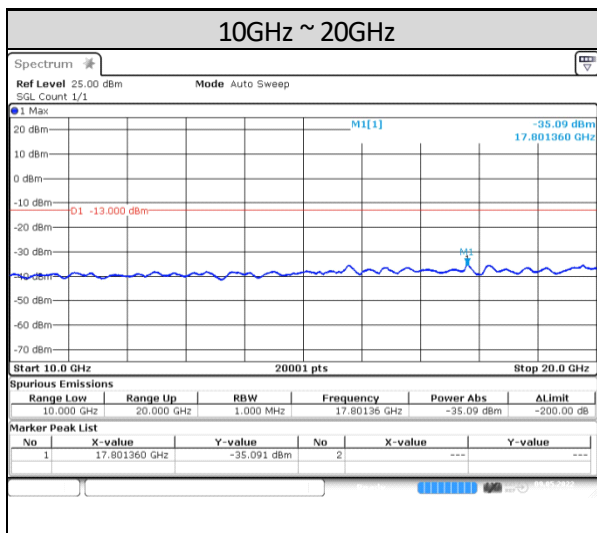
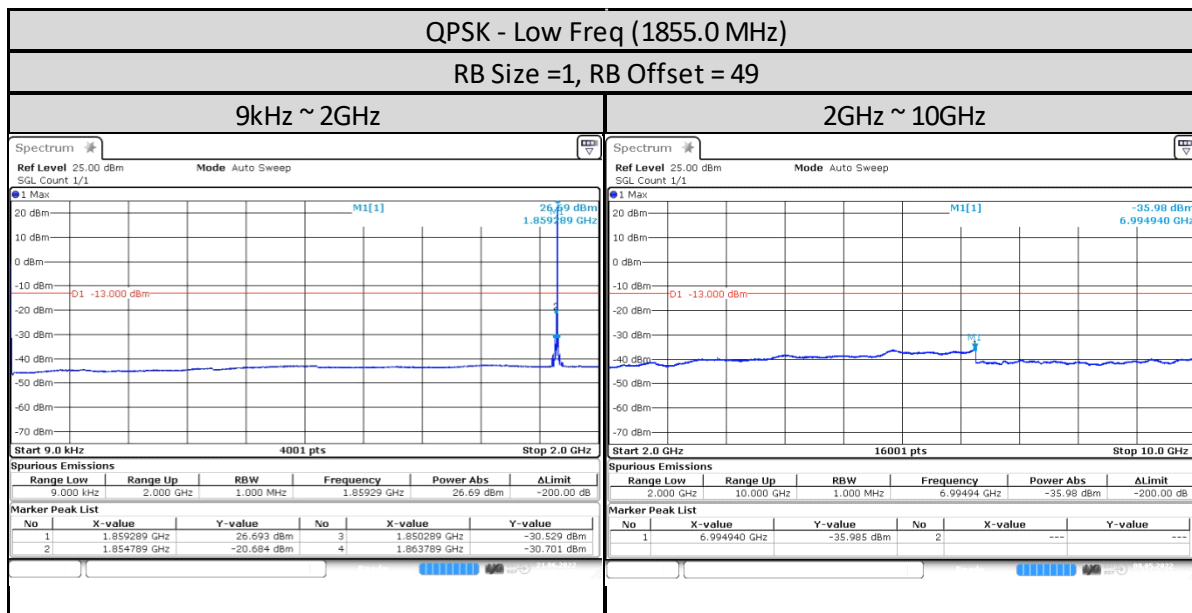
5MHz

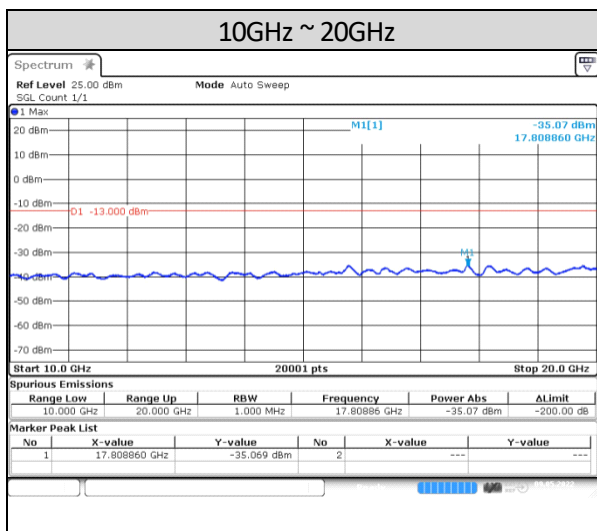
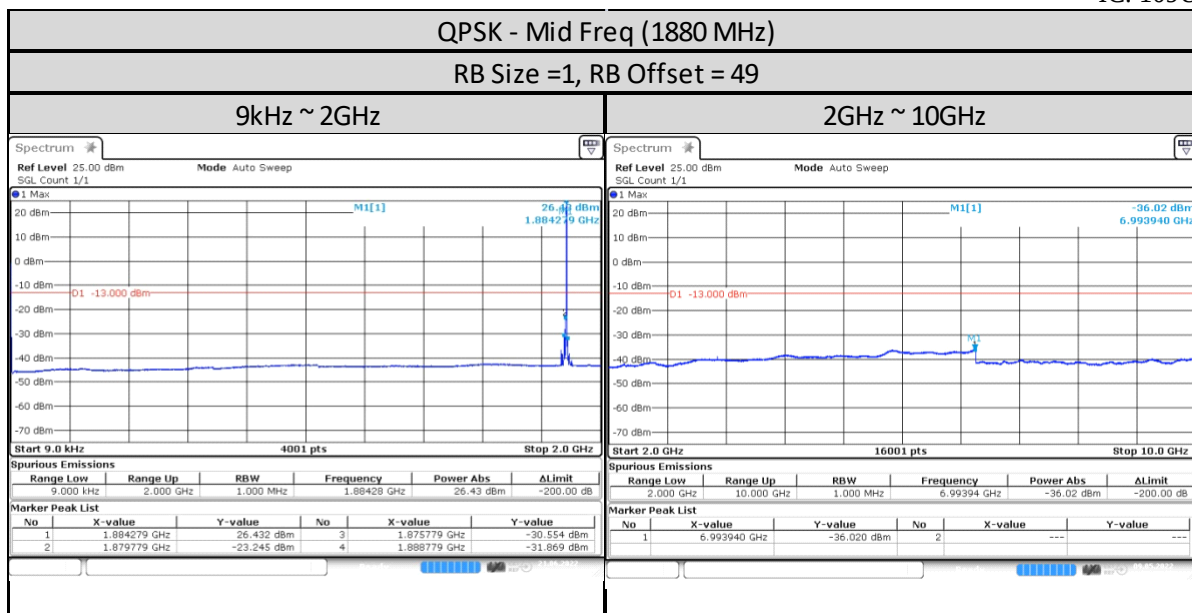


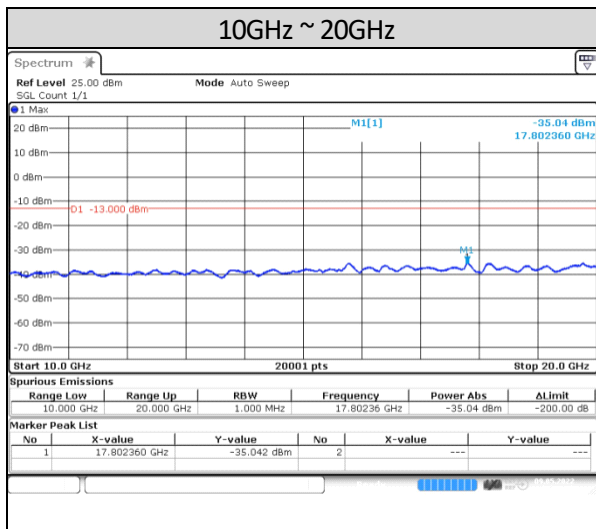
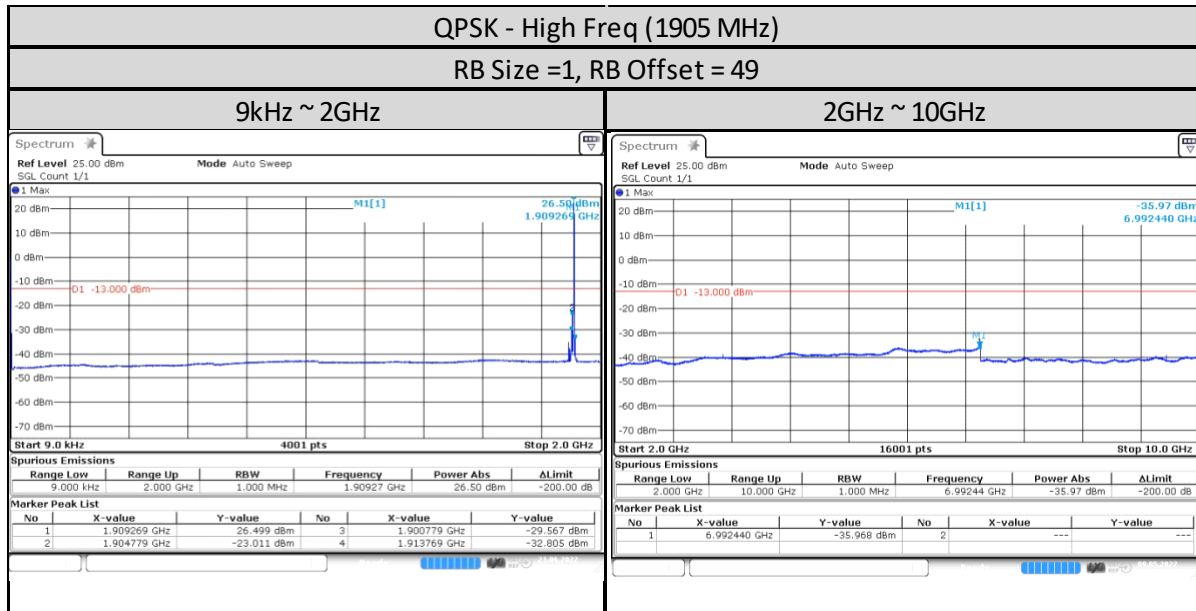




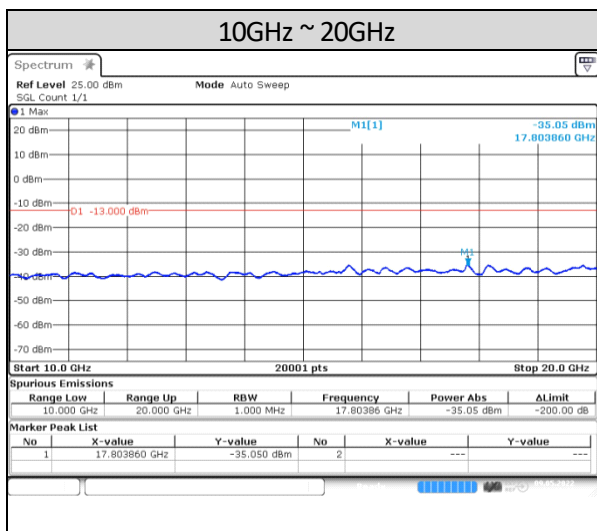
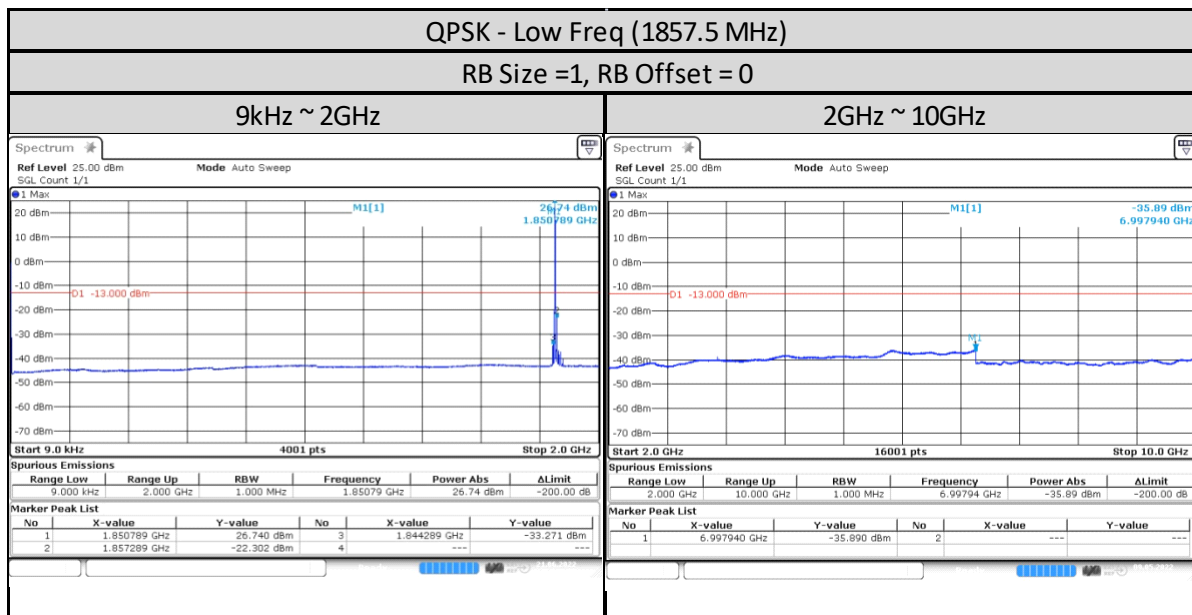
10MHz

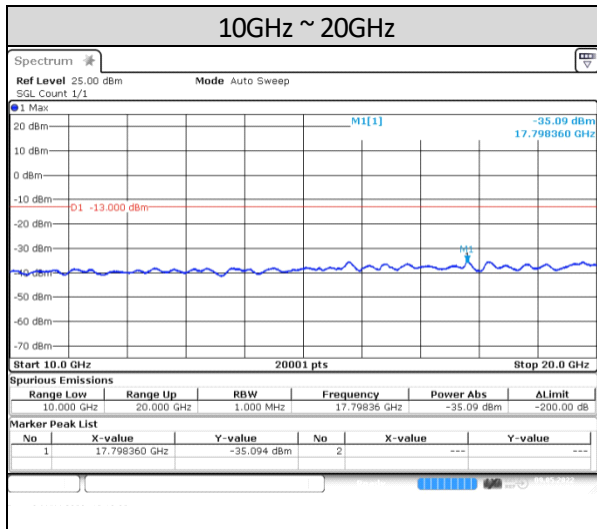
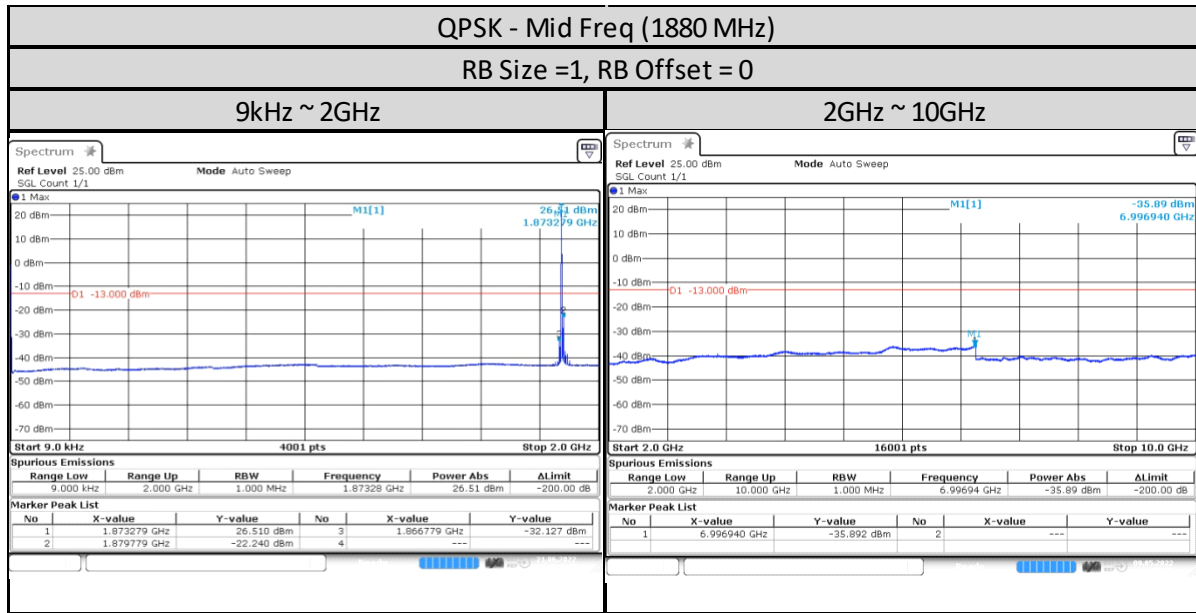


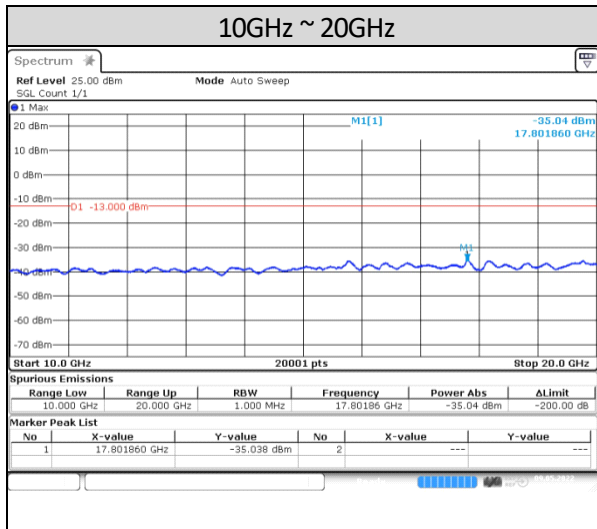
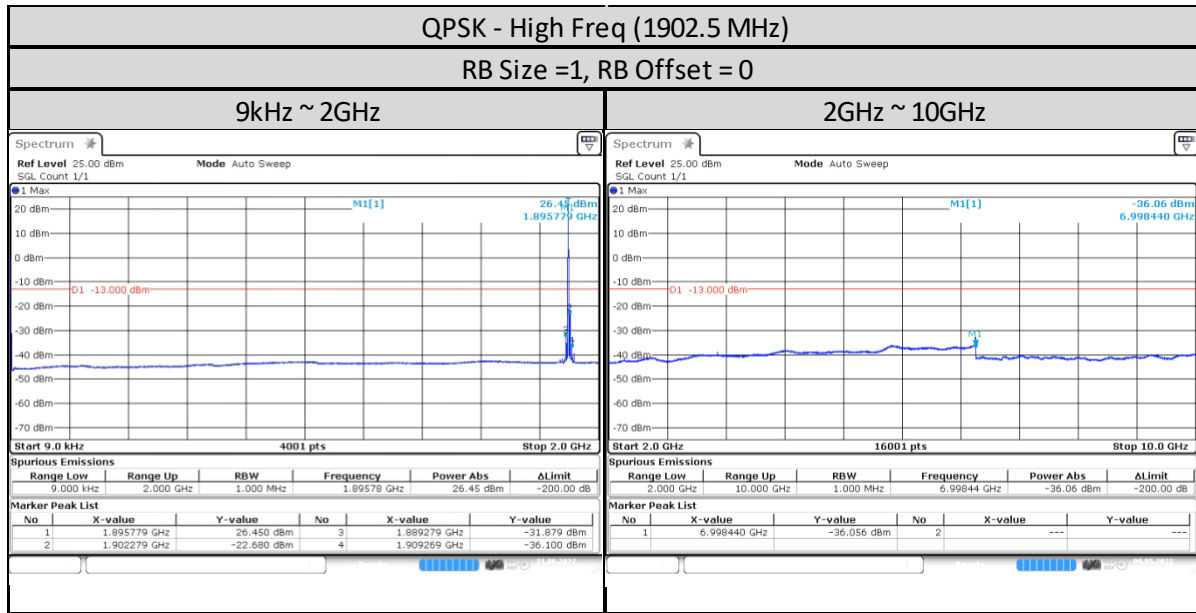




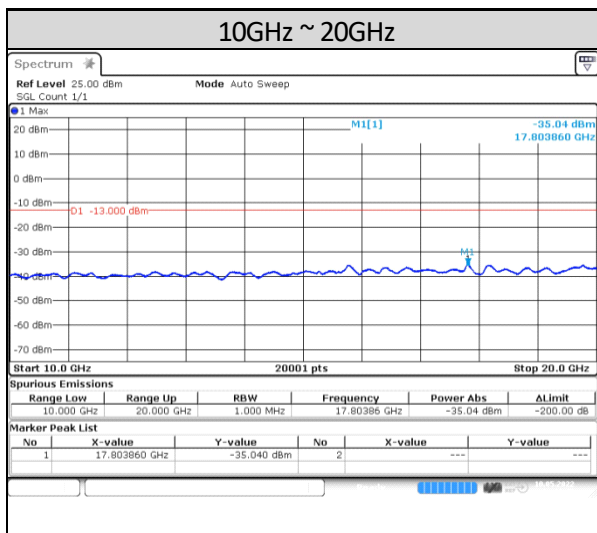
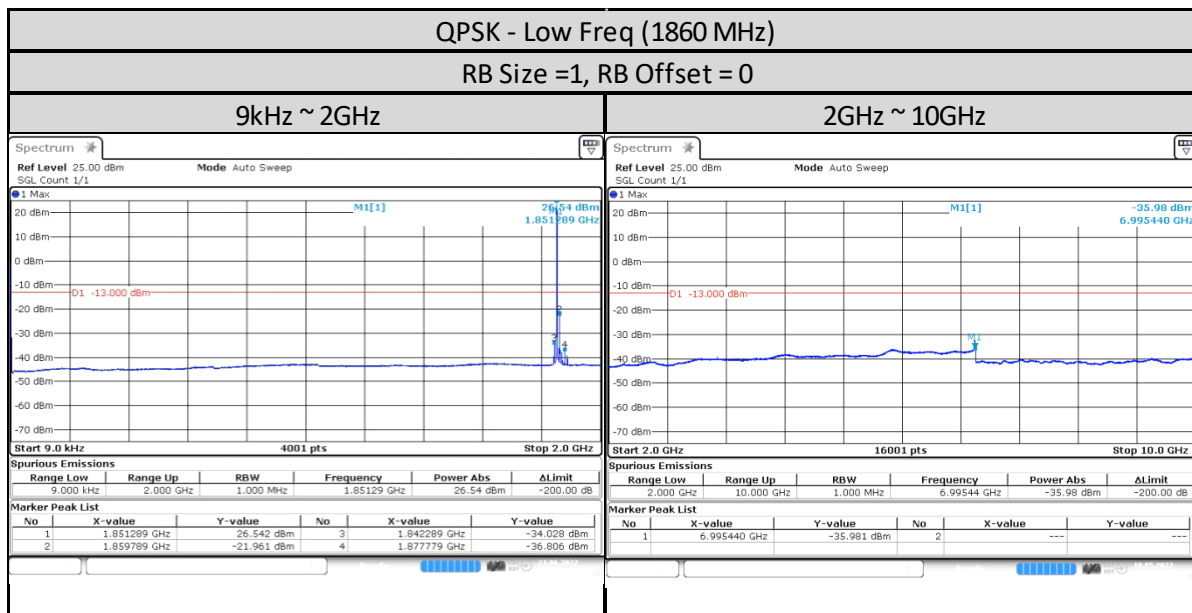
15MHz

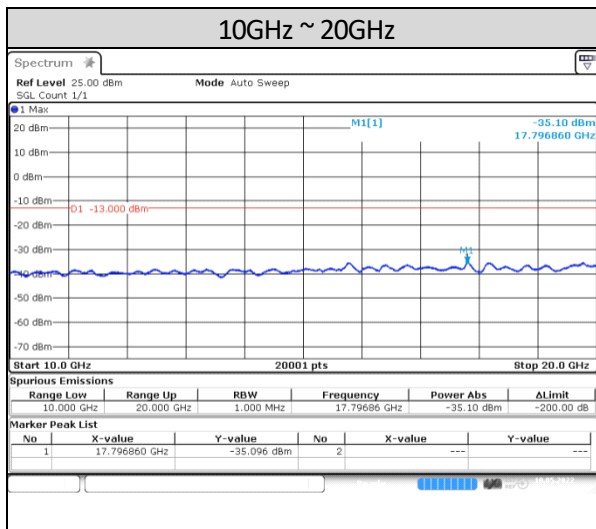
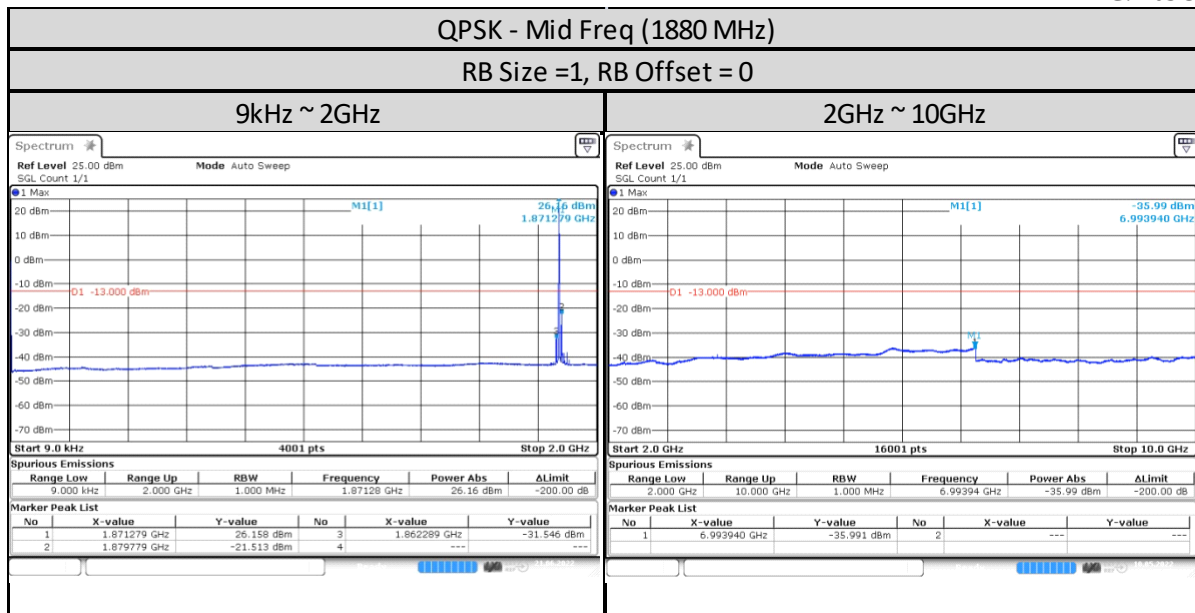


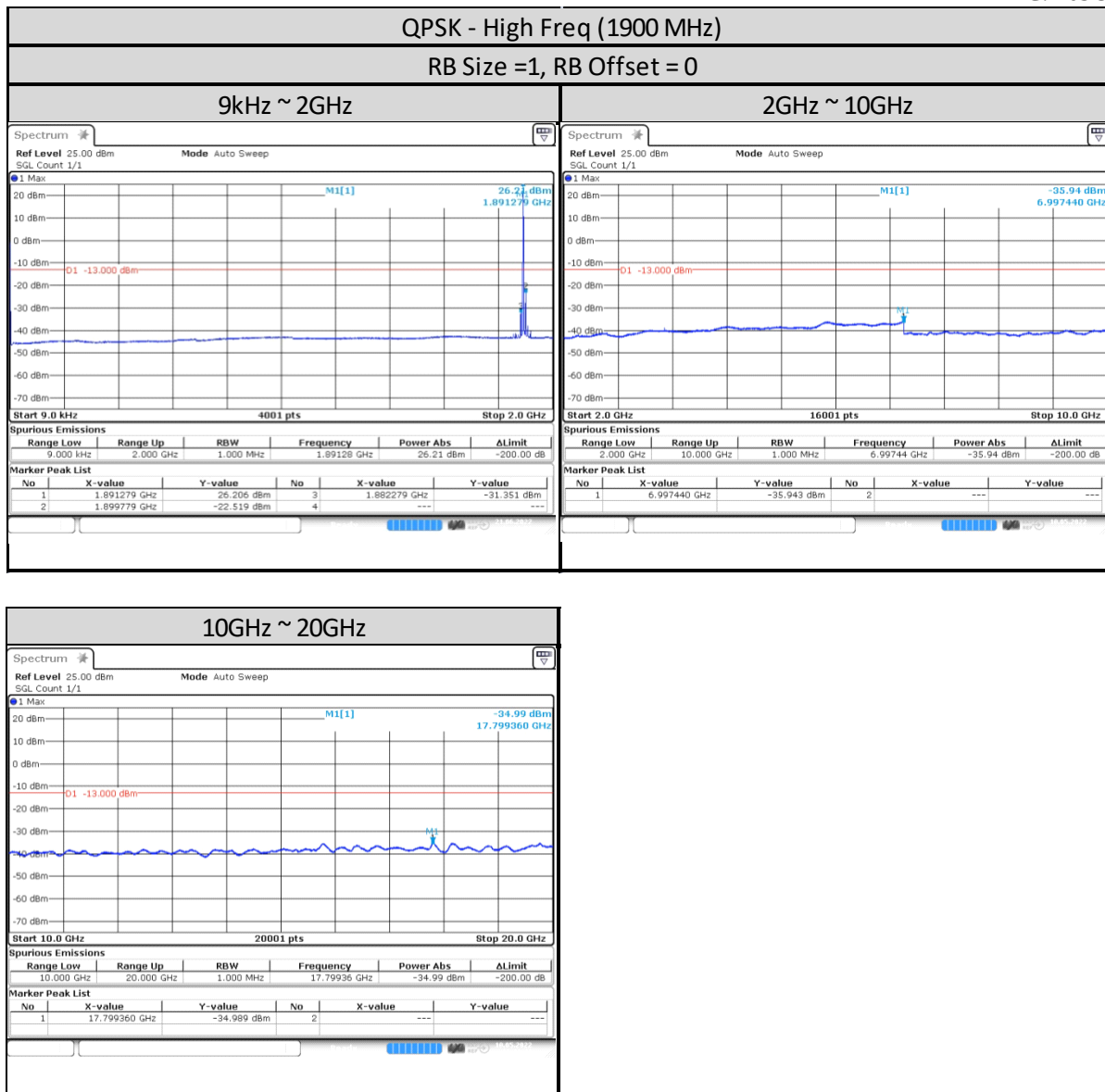




20MHz

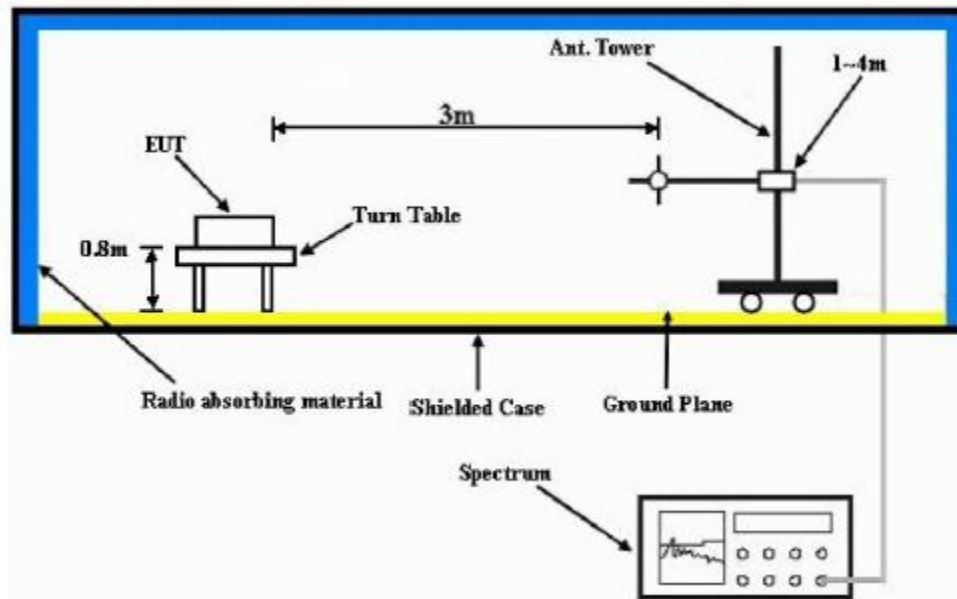






1.6. Radiated Spurious Emission

1.6.1. Test Setup



- 1) The spectrum setting for scanning Radiated Emission below 1 GHz is RBW = 100 kHz, VBW = 300 kHz and above 1 GHz is RBW = 1MHz, VBW = 3MHz. Detector mode is positive peak.
- 2) In the semi-anechoic chamber, setup as illustrated above the EUT placed on the Turn Table at 0.8m height for below 1Ghz measurement and at 1.5m height for above 1GHz measurement, 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 EUT 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.

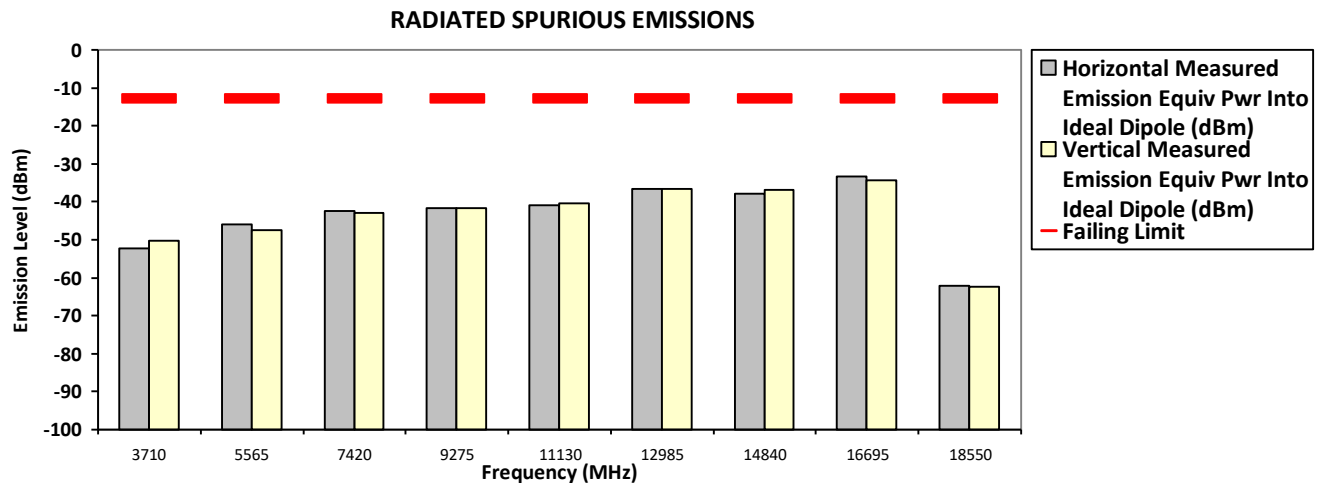
1.6.2. Test Limit

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

1.6.3. Radiated Spurious Emission – LTE Band 2 (1850-1910MHz)

SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) X-Plane **Bandwidth** 10MHz
1855.000000 MHz (Low) **0.317 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)
3710.0000	-13.0000	-52.2864 **	-50.2600 **
5565.0000	-13.0000	-46.0305 **	-47.4454 **
7420.0000	-13.0000	-42.4536 **	-42.9376 **
9275.0000	-13.0000	-41.6505 **	-41.5864 **
11130.0000	-13.0000	-40.8026 **	-40.4374 **
12985.0000	-13.0000	-36.5780 **	-36.6063 **
14840.0000	-13.0000	-37.9566 **	-36.8481 **
16695.0000	-13.0000	-33.3779 **	-34.2370 **
18550.0000	-13.0000	-62.0905 **	-62.3846 **



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: Qawiman&Nazrin Sat, 25 Jun, 2022

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): 70.1

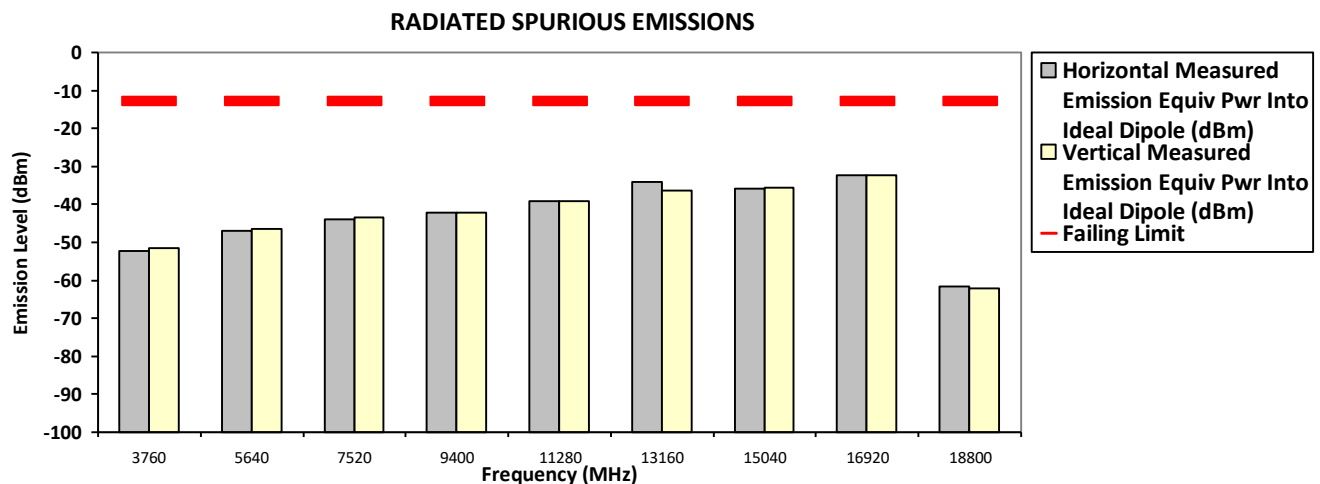
System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) X-Plane
1880.000000 MHz (Mid) **Bandwidth** 20MHz **0.317 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)
3760.0000	-13.0000	-52.3926 **	-51.5976 **
5640.0000	-13.0000	-46.9372 **	-46.4391 **
7520.0000	-13.0000	-43.8172 **	-43.3704 **
9400.0000	-13.0000	-42.1092 **	-42.2215 **
11280.0000	-13.0000	-39.2128 **	-39.1950 **
13160.0000	-13.0000	-34.0065 **	-36.2943 **
15040.0000	-13.0000	-35.8607 **	-35.5061 **
16920.0000	-13.0000	-32.2156 **	-32.2938 **
18800.0000	-13.0000	-61.5004 **	-62.0168 **



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: Qawiman&Nazrin Sat, 25 Jun, 2022

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): 70.1

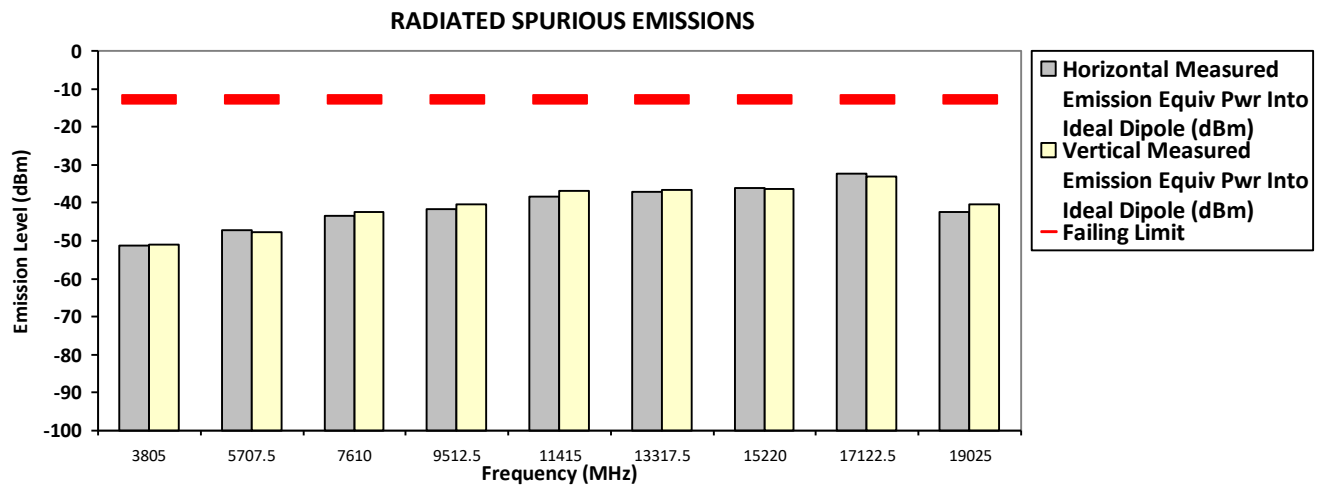
System MU: 4.03 dB

Remarks:

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

SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) X-Plane **Bandwidth** 15MHz **0.317 Watt(s) /Max Power**
1902.500000 MHz (High)

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
3805.0000	-13.0000	-51.2561 **	-50.9185 **
5707.5000	-13.0000	-47.1300 **	-47.6347 **
7610.0000	-13.0000	-43.3277 **	-42.3612 **
9512.5000	-13.0000	-41.5910 **	-40.4453 **
11415.0000	-13.0000	-38.3111 **	-36.9839 **
13317.5000	-13.0000	-37.1631 **	-36.7235 **
15220.0000	-13.0000	-36.0814 **	-36.3964 **
17122.5000	-13.0000	-32.3252 **	-33.1786 **
19025.0000	-13.0000	-42.4488 **	-40.3712 **



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: Azil&Qawiman Sat, 23 Apr, 2022

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

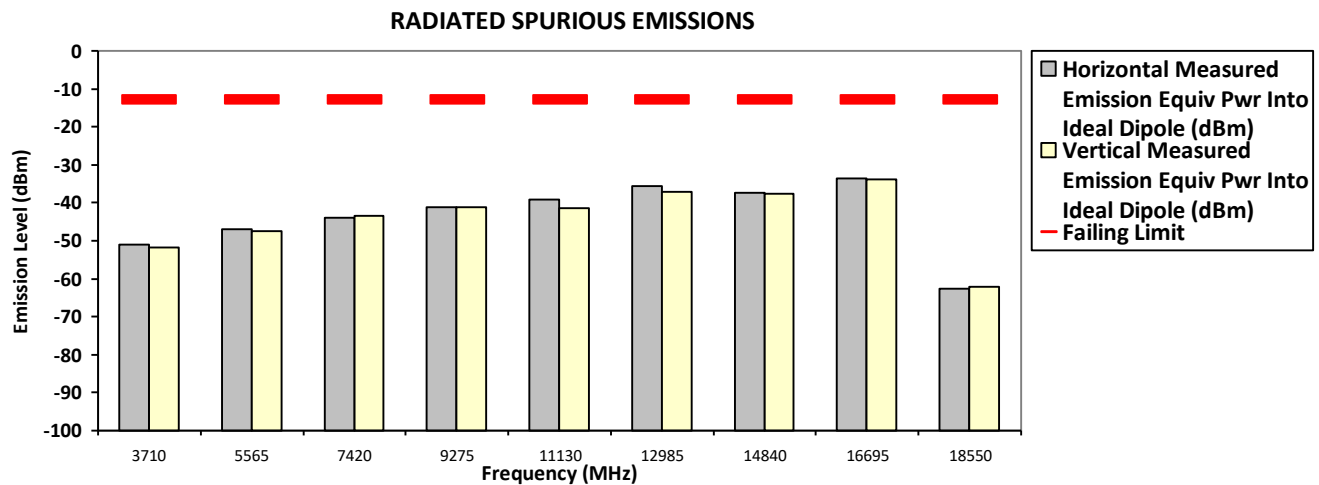
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.3 Hum(%RH): 69.3

System MU: 4.03 dB

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) Y-Plane
1855.000000 MHz (Low) **Bandwidth 10MHz** **0.317 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)
3710.0000	-13.0000	-50.9087 **	-51.8618 **
5565.0000	-13.0000	-46.9367 **	-47.3592 **
7420.0000	-13.0000	-43.9250 **	-43.4938 **
9275.0000	-13.0000	-41.2442 **	-41.1253 **
11130.0000	-13.0000	-39.2076 **	-41.3092 **
12985.0000	-13.0000	-35.4874 **	-37.0908 **
14840.0000	-13.0000	-37.4041 **	-37.6326 **
16695.0000	-13.0000	-33.5175 **	-33.7773 **
18550.0000	-13.0000	-62.5511 **	-62.0311 **



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: Qawiman&Nazrin Sat, 25 Jun, 2022

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): 70.1

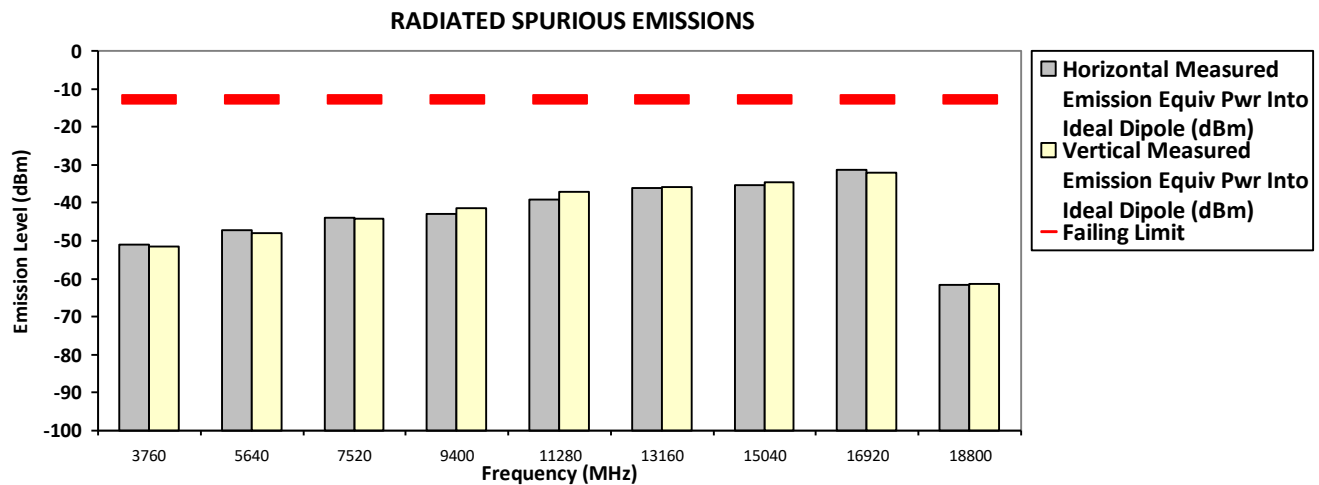
System MU: 4.03 dB

Remarks:

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

SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) Y-Plane
1880.000000 MHz (Mid) **Bandwidth** 20MHz **0.317 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)
3760.0000	-13.0000	-51.1283 **	-51.4452 **
5640.0000	-13.0000	-47.3396 **	-47.8715 **
7520.0000	-13.0000	-44.0487 **	-44.2966 **
9400.0000	-13.0000	-42.8998 **	-41.5189 **
11280.0000	-13.0000	-39.2250 **	-37.1800 **
13160.0000	-13.0000	-36.0553 **	-35.8742 **
15040.0000	-13.0000	-35.2294 **	-34.5459 **
16920.0000	-13.0000	-31.2825 **	-32.1569 **
18800.0000	-13.0000	-61.6100 **	-61.3371 **



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: Qawiman&Nazrin Sat, 25 Jun, 2022

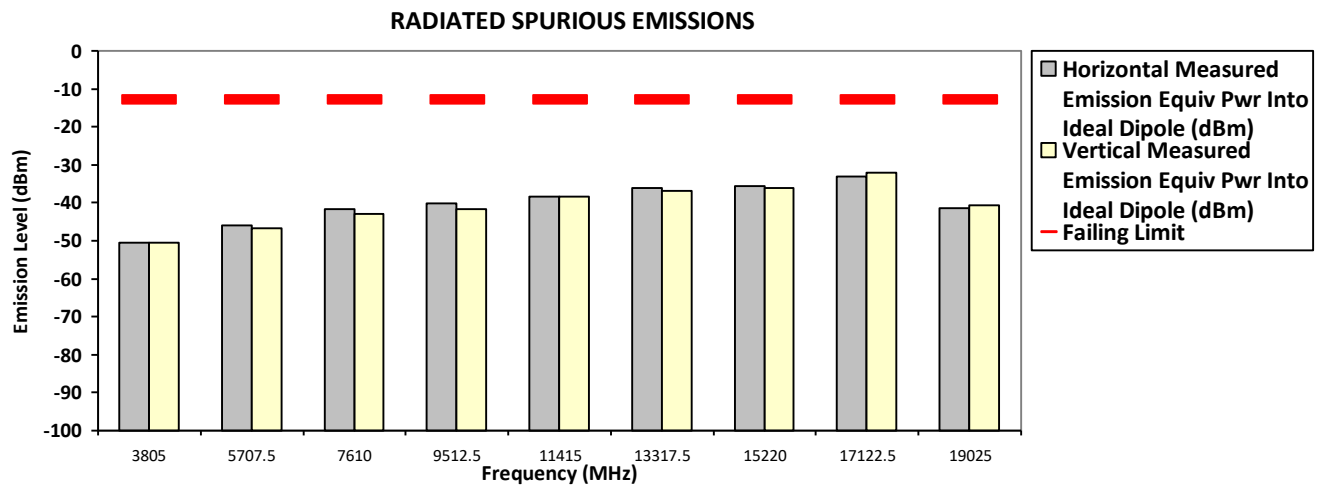
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
 *Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.8 Hum(%RH): 70.1

System MU: 4.03 dB

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) Y-Plane
1902.500000 MHz (High) **Bandwidth 15MHz** **0.317 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)
3805.0000	-13.0000	-50.6102 **	-50.4964 **
5707.5000	-13.0000	-45.9567 **	-46.7527 **
7610.0000	-13.0000	-41.7604 **	-42.9939 **
9512.5000	-13.0000	-40.2285 **	-41.5639 **
11415.0000	-13.0000	-38.3517 **	-38.4662 **
13317.5000	-13.0000	-36.1426 **	-36.8673 **
15220.0000	-13.0000	-35.6861 **	-36.2188 **
17122.5000	-13.0000	-33.0177 **	-32.1560 **
19025.0000	-13.0000	-41.5117 **	-40.5993 **



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: Azil&Qawiman Sat, 23 Apr, 2022

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

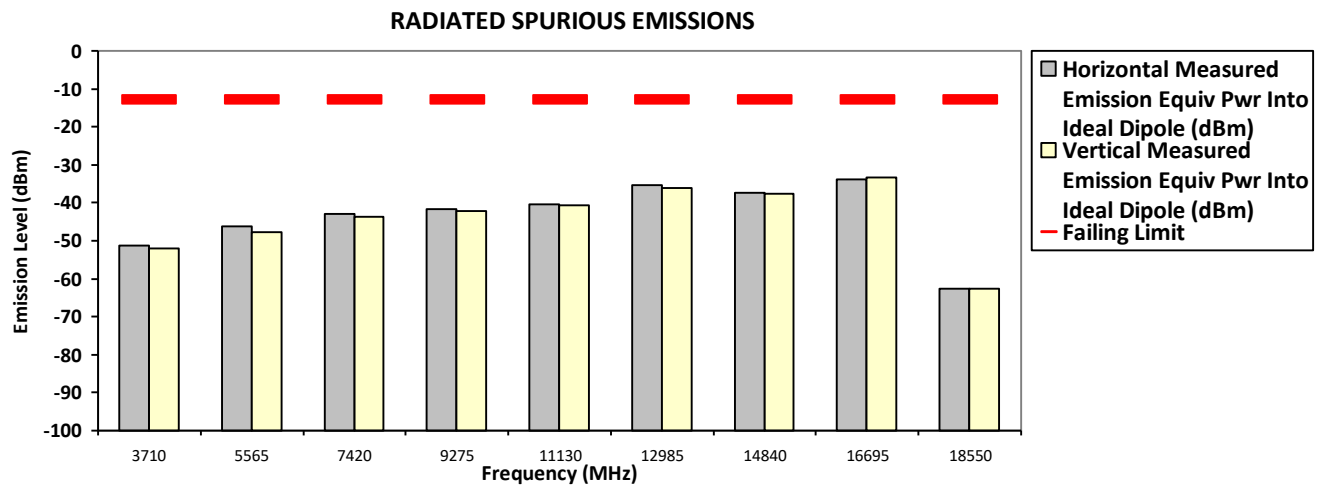
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.3 Hum(%RH): 69.3

System MU: 4.03 dB

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) Z-Plane
1855.000000 MHz (Low) **Bandwidth** 10MHz **0.317 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)
3710.0000	-13.0000	-51.3271 **	-51.9094 **
5565.0000	-13.0000	-46.1123 **	-47.7831 **
7420.0000	-13.0000	-42.8944 **	-43.7730 **
9275.0000	-13.0000	-41.5565 **	-42.2401 **
11130.0000	-13.0000	-40.2792 **	-40.6163 **
12985.0000	-13.0000	-35.3612 **	-36.1925 **
14840.0000	-13.0000	-37.3317 **	-37.5922 **
16695.0000	-13.0000	-33.8880 **	-33.2286 **
18550.0000	-13.0000	-62.5708 **	-62.5927 **



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: Qawiman&Nazrin Sat, 25 Jun, 2022

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

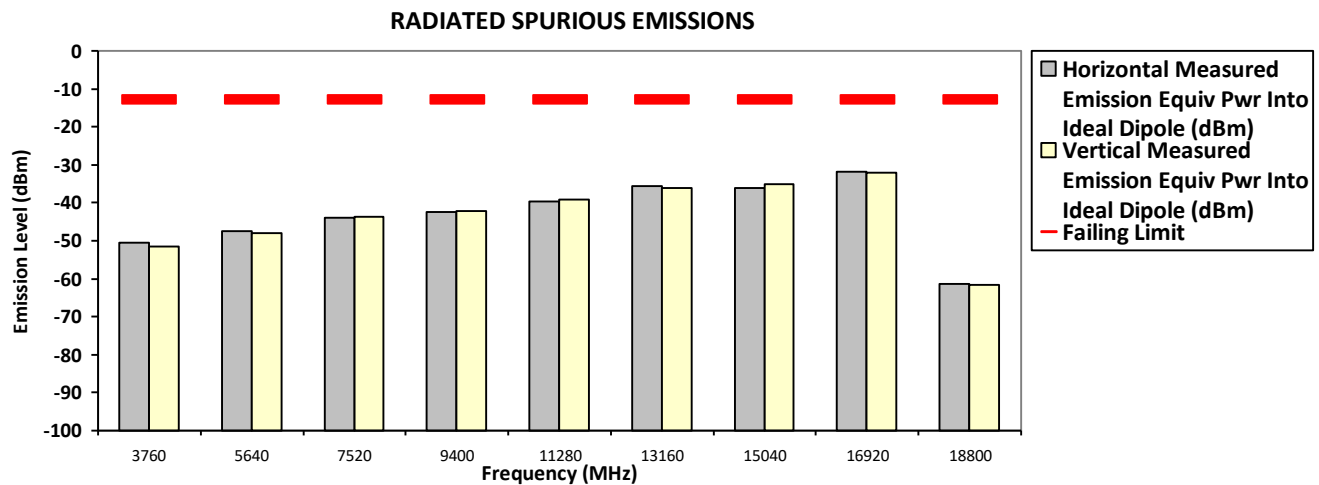
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.8 Hum(%RH): 70.1

System MU: 4.03 dB

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) Z-Plane
1880.000000 MHz (Mid) **Bandwidth** 20MHz **0.317 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)
3760.0000	-13.0000	-50.5321 **	-51.4257 **
5640.0000	-13.0000	-47.5758 **	-48.0593 **
7520.0000	-13.0000	-44.0140 **	-43.6547 **
9400.0000	-13.0000	-42.4172 **	-42.1770 **
11280.0000	-13.0000	-39.6928 **	-39.1923 **
13160.0000	-13.0000	-35.4921 **	-36.0046 **
15040.0000	-13.0000	-36.0735 **	-35.0798 **
16920.0000	-13.0000	-31.8113 **	-32.1252 **
18800.0000	-13.0000	-61.2698 **	-61.5385 **



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: Qawiman&Nazrin Sat, 25 Jun, 2022

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

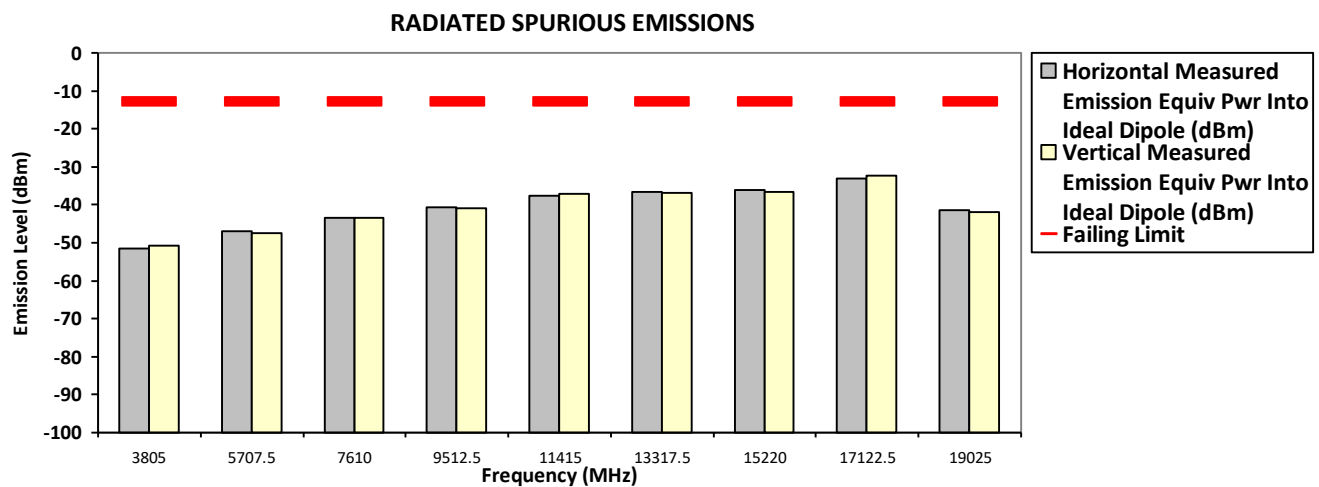
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.8 Hum(%RH): 70.1

System MU: 4.03 dB

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90UCU9RH1AN **S/N:** 734TYF0069 **SR:**27331-EMC-00027
Battery Part No: PMNN4805A **Accy Part No:** AN000415A01
Test Mode: TX LTE (Band 2) Z-Plane **Bandwidth** 15MHz **0.317 Watt(s) /Max Power**
1902.500000 MHz (High)

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
3805.0000	-13.0000	-51.4646 **	-50.8590 **
5707.5000	-13.0000	-47.0542 **	-47.3660 **
7610.0000	-13.0000	-43.4951 **	-43.3989 **
9512.5000	-13.0000	-40.6455 **	-40.9501 **
11415.0000	-13.0000	-37.7077 **	-37.0152 **
13317.5000	-13.0000	-36.7141 **	-36.7798 **
15220.0000	-13.0000	-36.2286 **	-36.5230 **
17122.5000	-13.0000	-33.1900 **	-32.4245 **
19025.0000	-13.0000	-41.4602 **	-41.9240 **



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: Azil&Qawiman Sat, 23 Apr, 2022

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

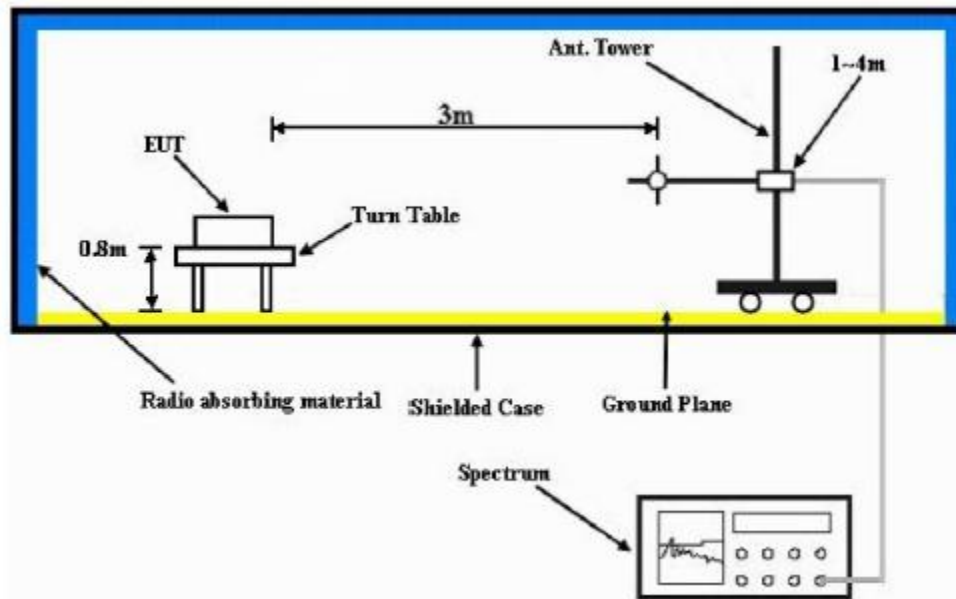
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.3 Hum(%RH): 69.3

System MU: 4.03 dB

Remarks:	Passed Results	Marginal Results	Failed Results
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1.7. Equivalent Isotropically Radiated Power (EIRP)

1.7.1. Test Setup



- 1) The spectrum setting for scanning Radiated Emission below 1 GHz is RBW = 100 kHz, VBW = 300 kHz and above 1 GHz is RBW = 1MHz, VBW = 3MHz. Detector mode is RMS.
- 2) In the semi-anechoic chamber, setup as illustrated above the EUT placed on the Turn Table at 0.8m height for below 1Ghz measurement and at 1.5m height for above 1GHz measurement, 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 EUT 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) $EIRP = \text{“Read Value”} + \text{Measured substitution value.}$

1.7.2. Test Limit

Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

1.7.3. Equivalent Isotropically Radiated Power (EIRP) - LTE Band 2 (1850-1910MHz)

Not Performed.

--End of Test Report--