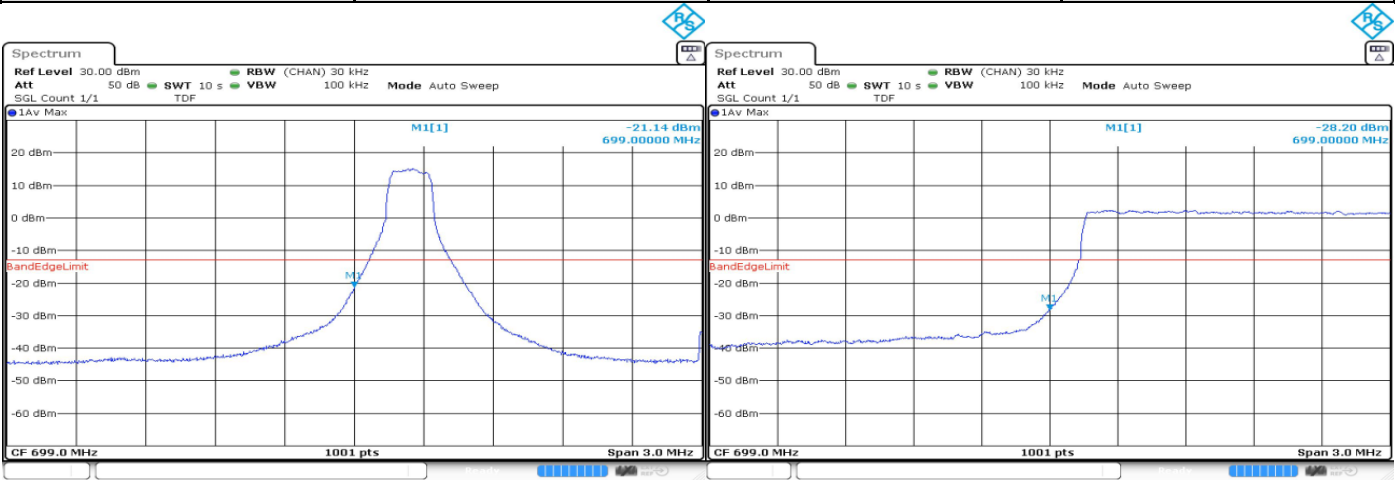
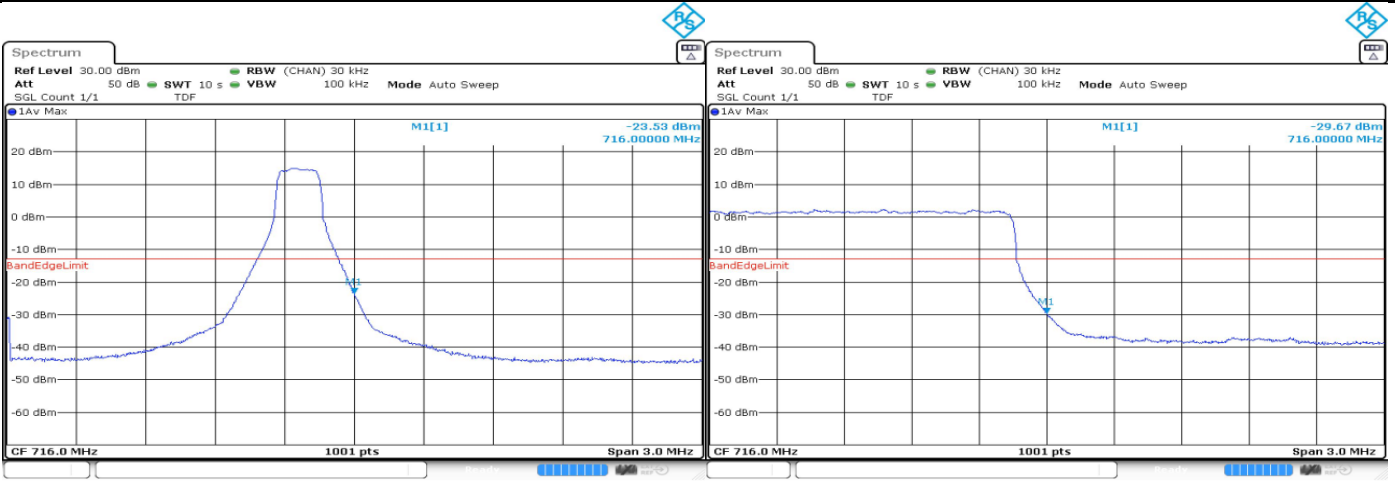
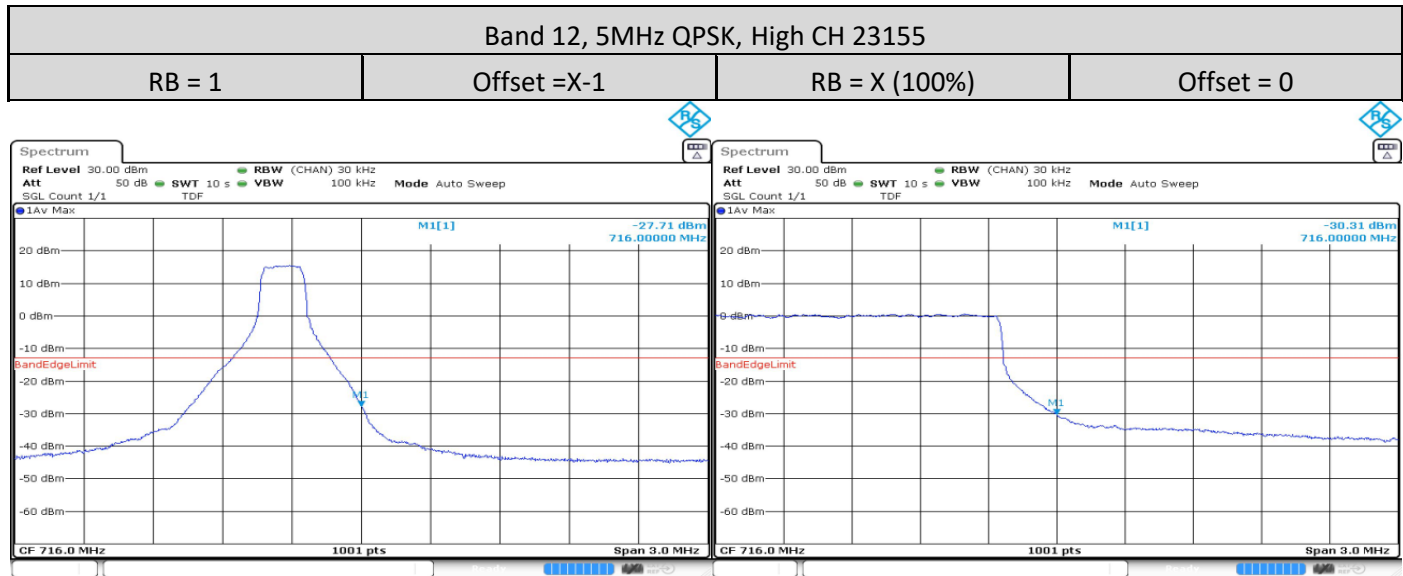
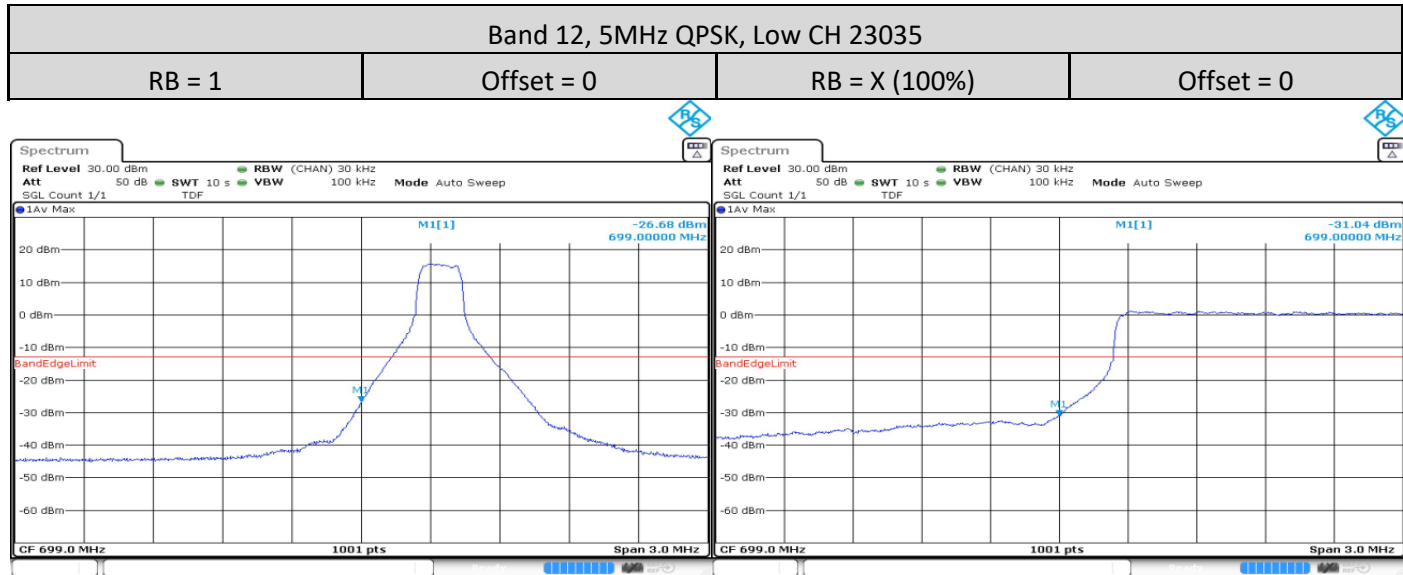


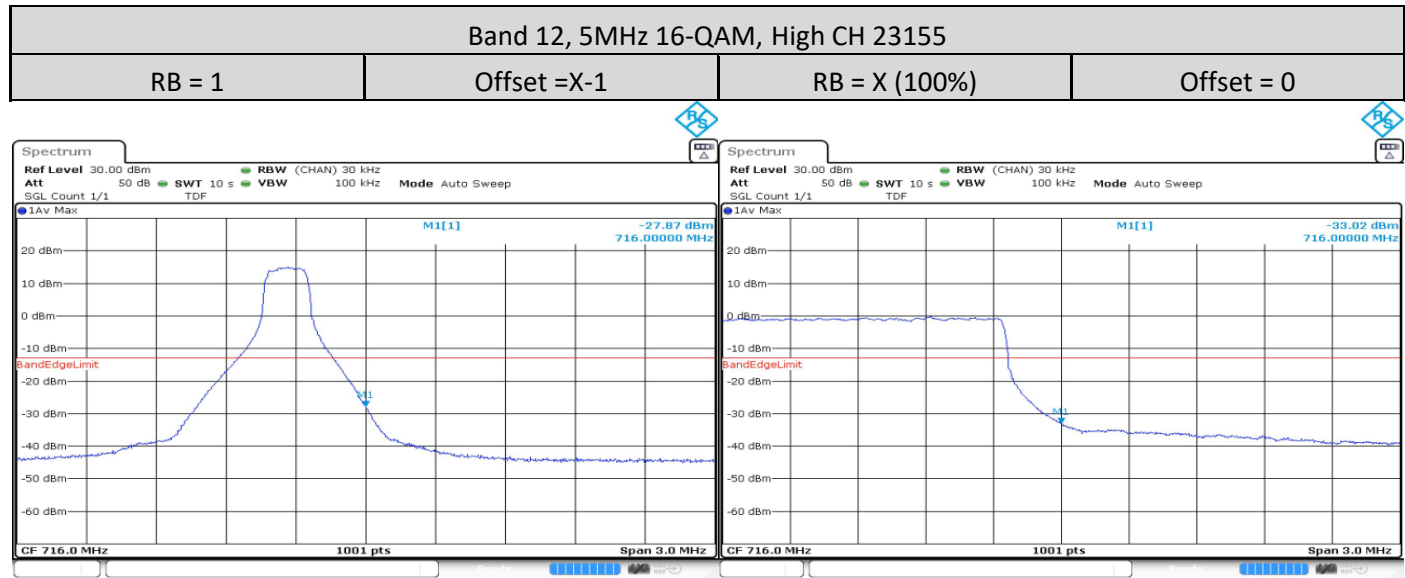
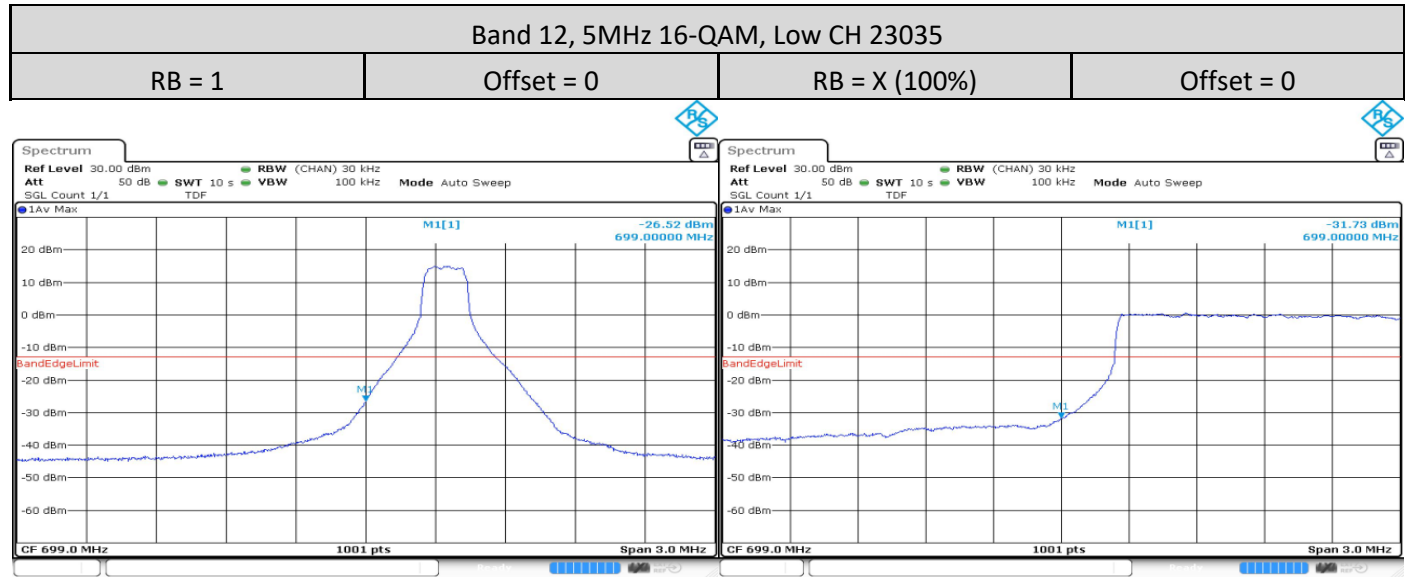
Band 12, 3MHz 16-QAM, Low CH 23025			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0



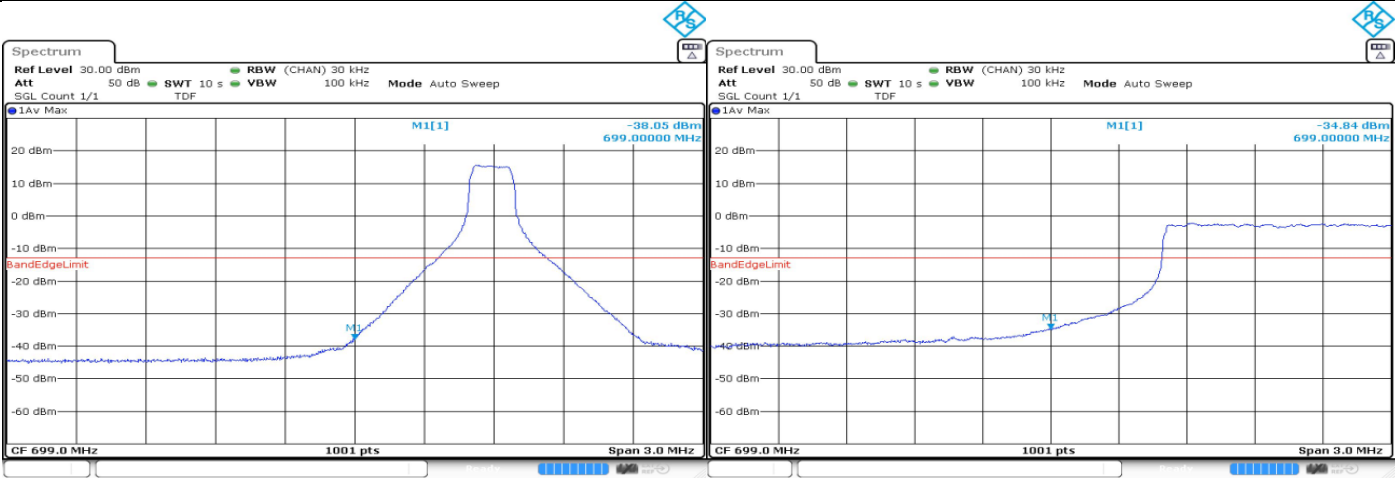
Band 12, 3MHz 16-QAM, High CH 23165			
RB = 1	Offset = X-1	RB = X (100%)	Offset = 0



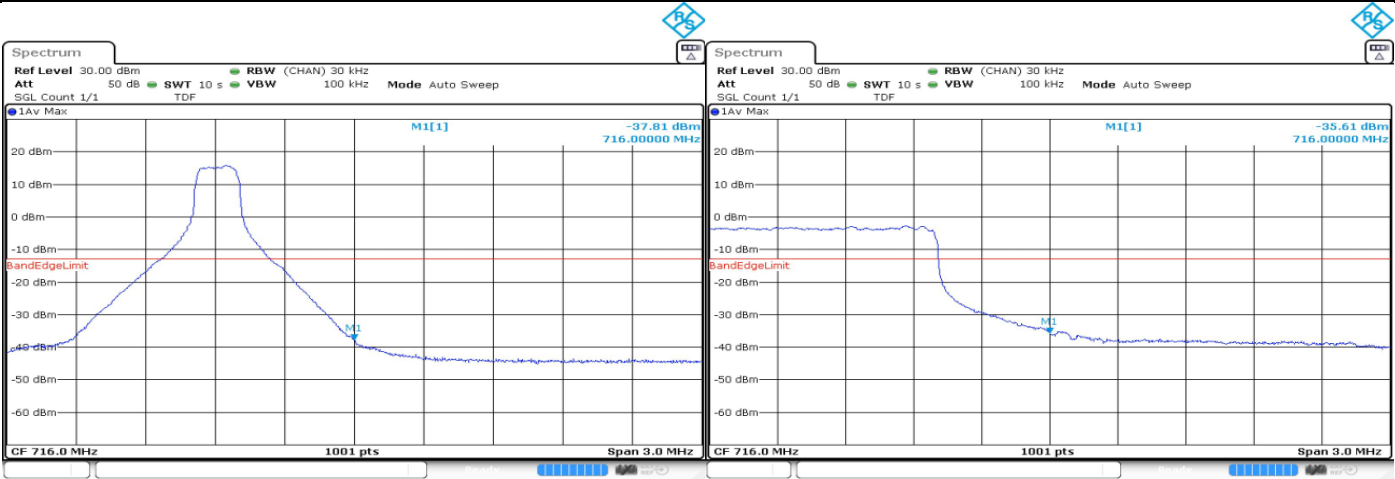


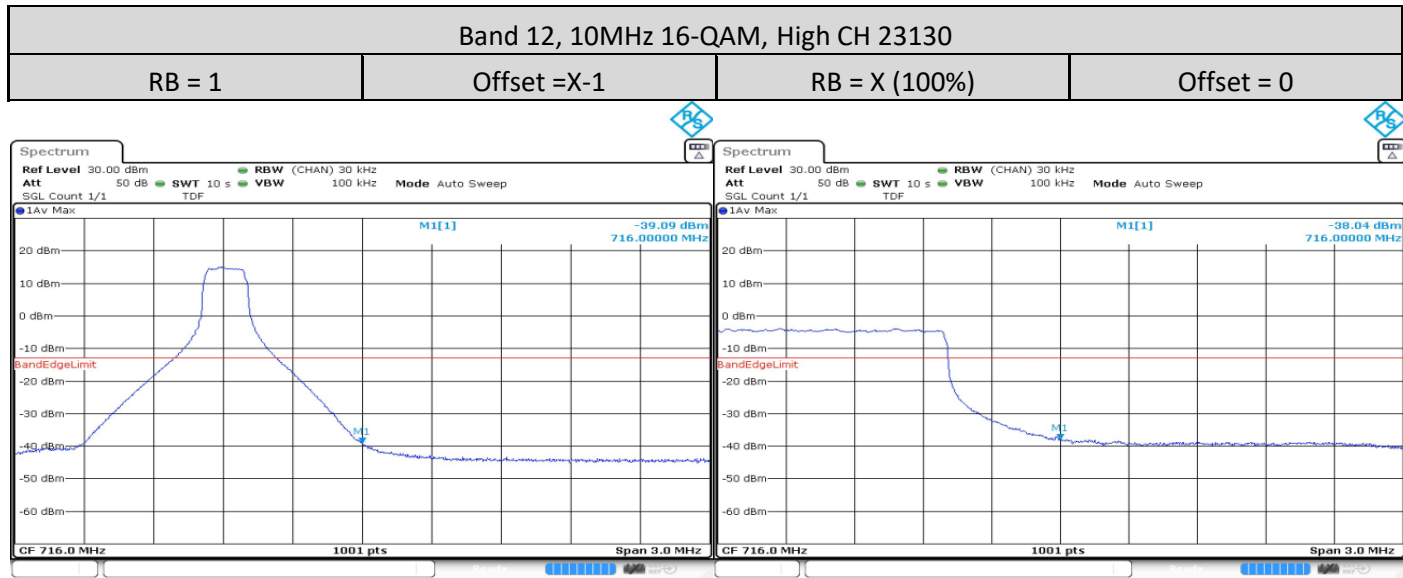
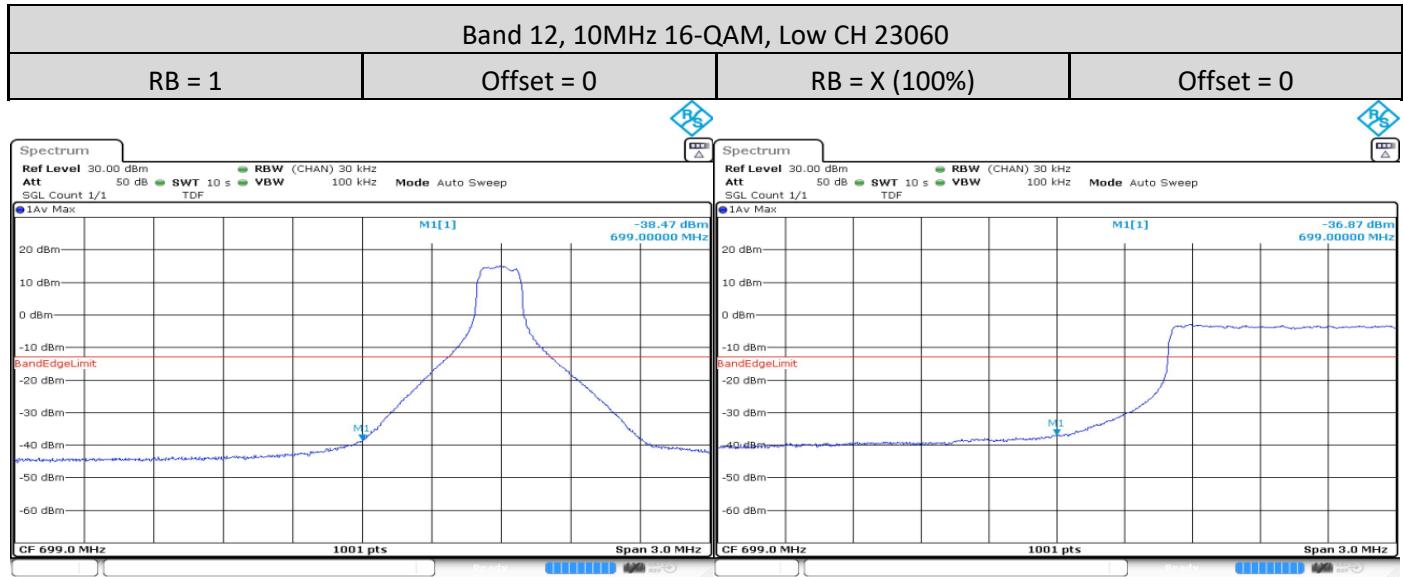


Band 12, 10MHz QPSK, Low CH 23060			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0

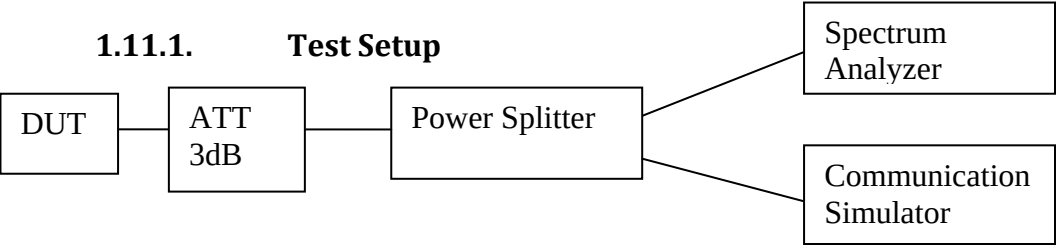


Band 12, 10MHz QPSK, High CH 23130			
RB = 1	Offset =X-1	RB = X (100%)	Offset = 0





1.11. Conducted Spurious Emission



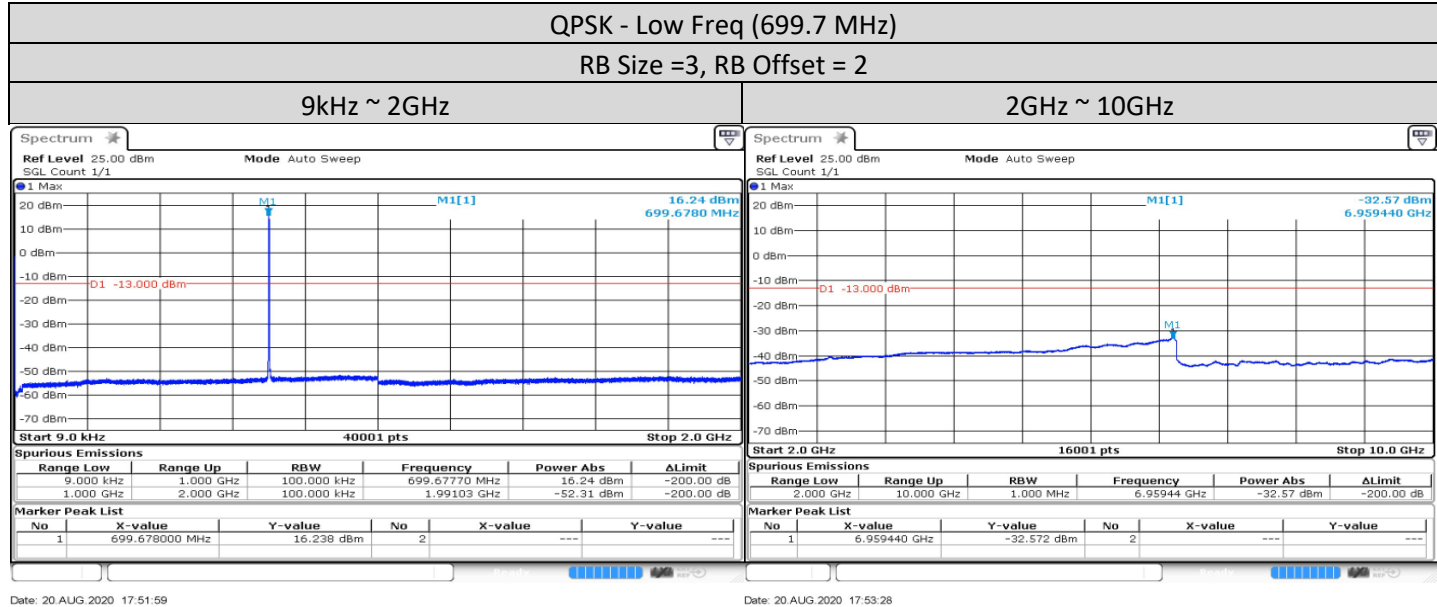
- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) Set DUT to transmit maximum power through communication simulator.
- 4) Spectrum Analyzer setting, RBW = 1 MHz, VBW = 3 MHz.
- 5) The spurious emission of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

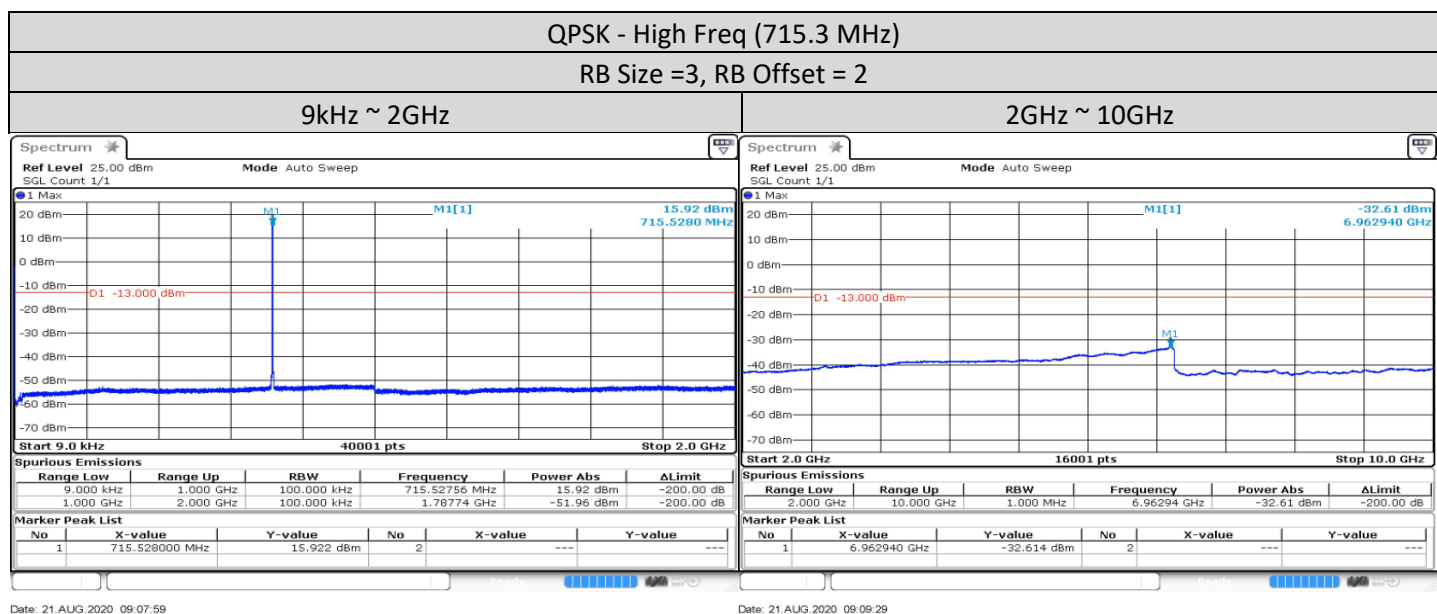
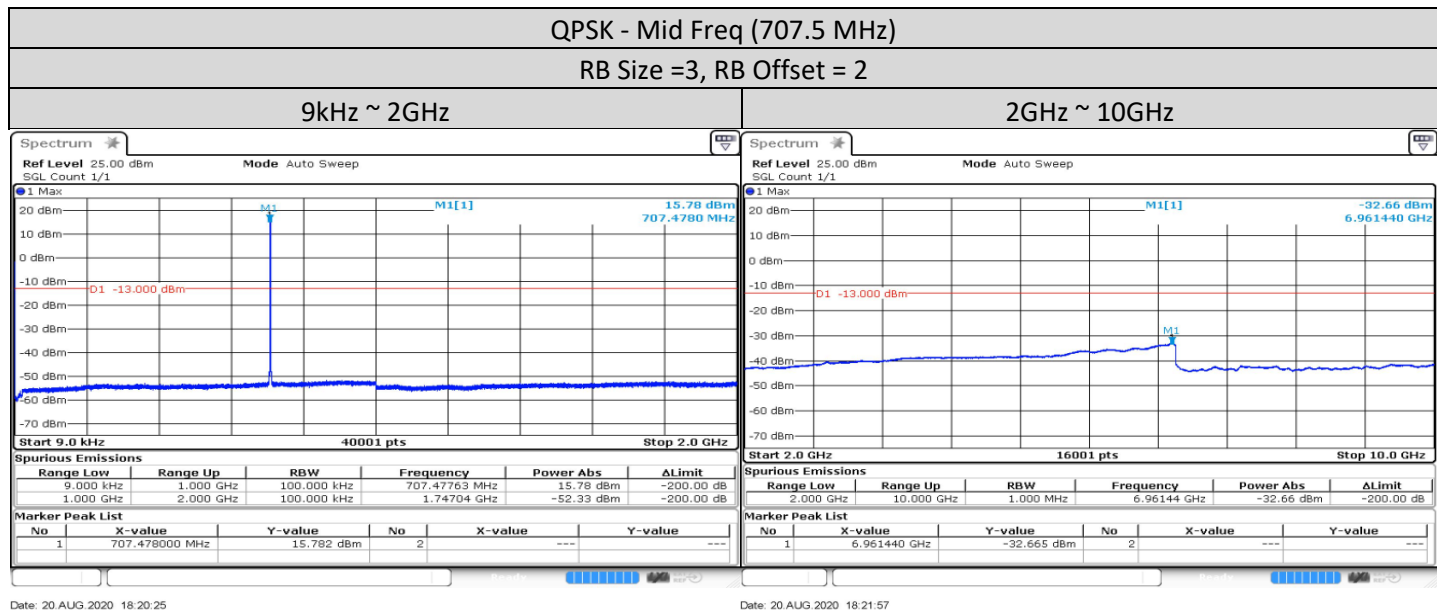
1.11.2. Test Limit

For operations in the 600 MHz band and the 698-746 MHz band, 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.

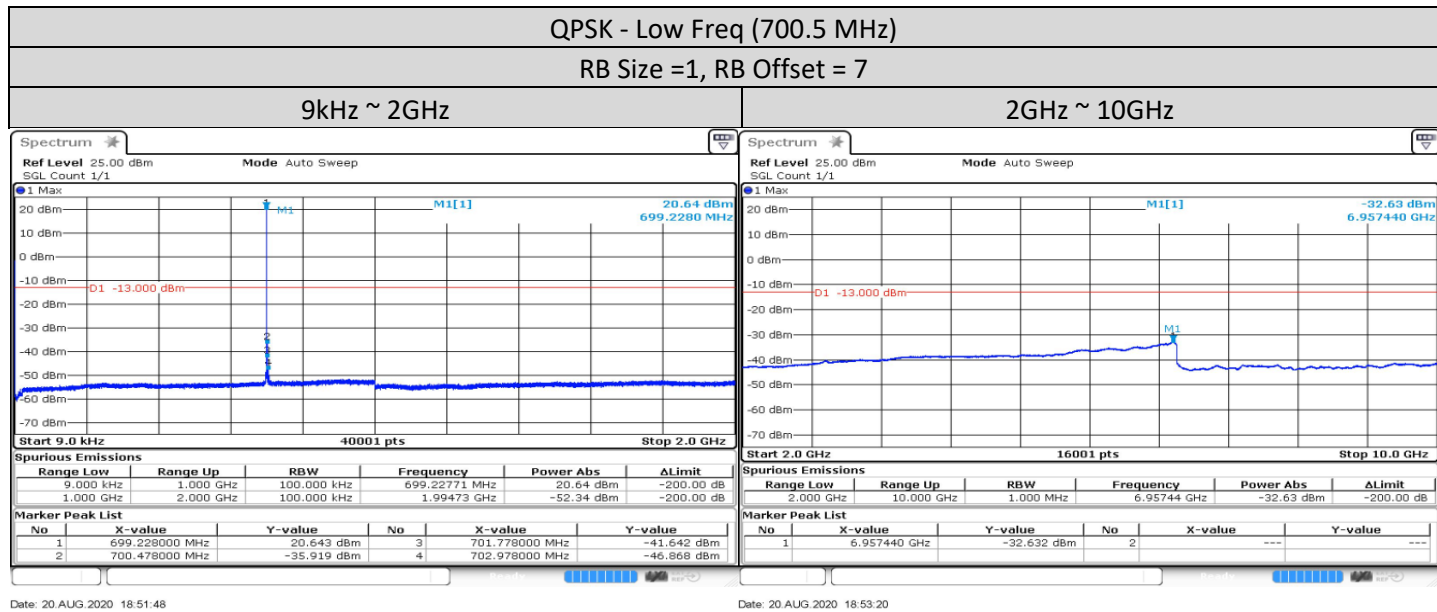
1.11.3. Conducted Spurious Emissions – LTE Band 12 (698-716MHz)

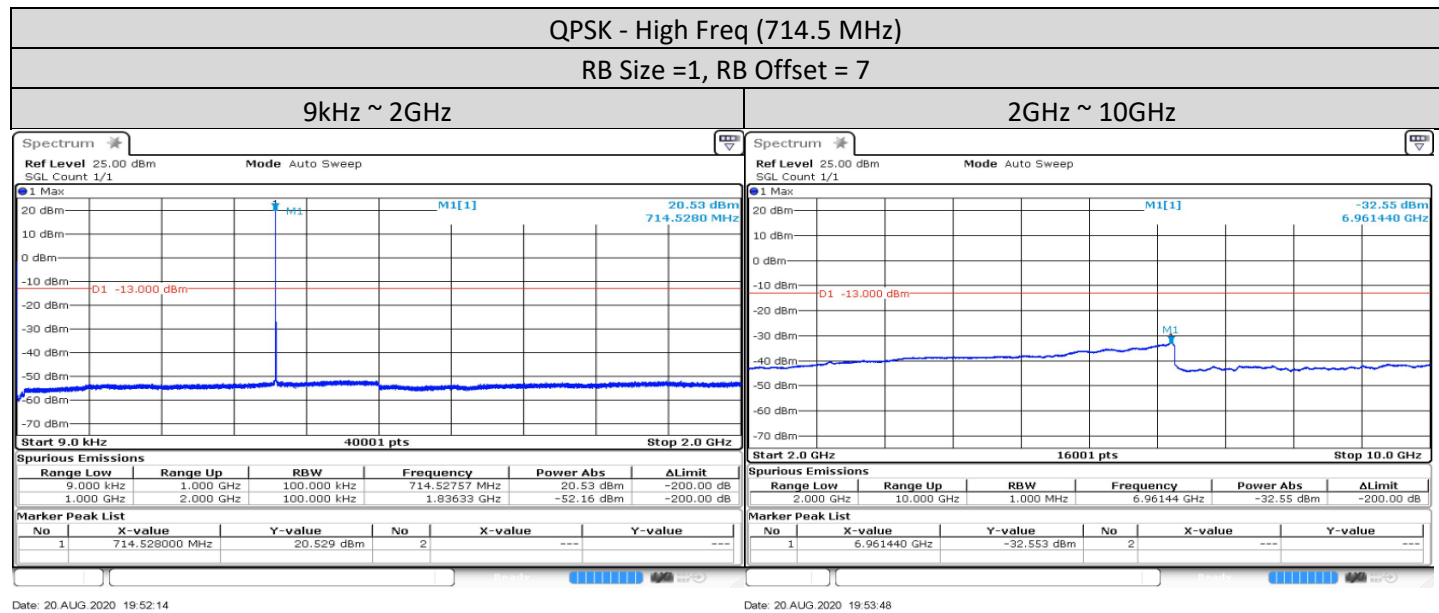
1.4MHz



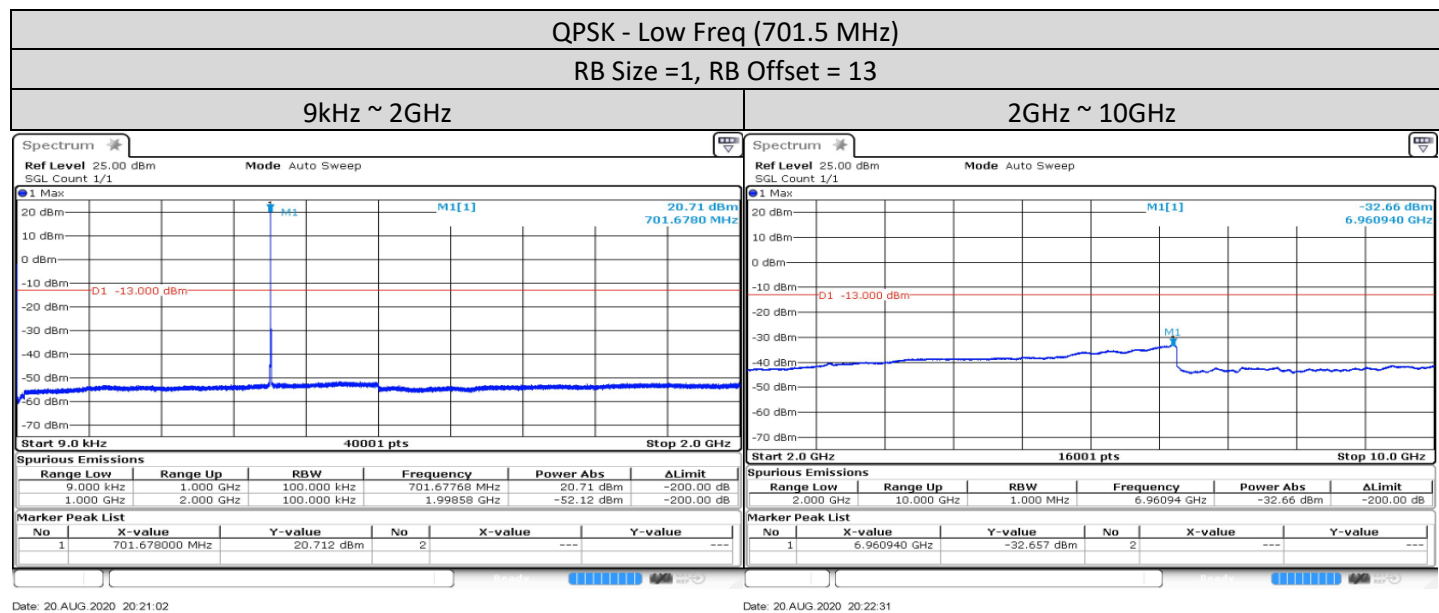


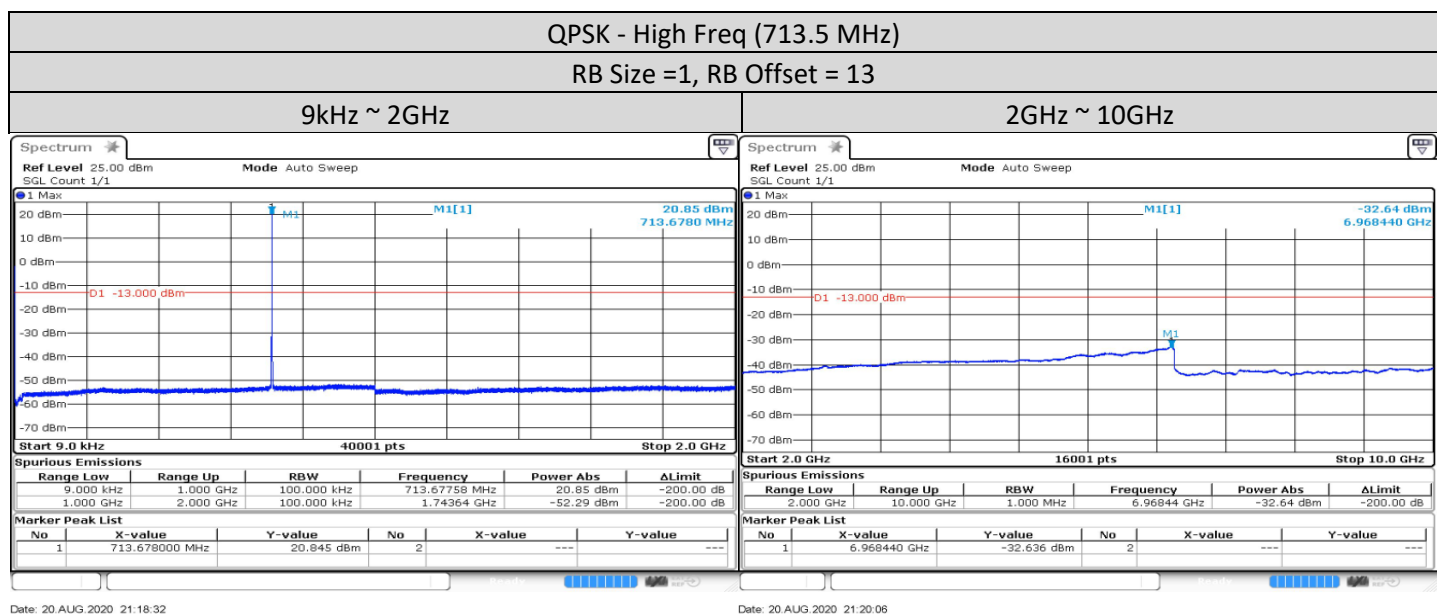
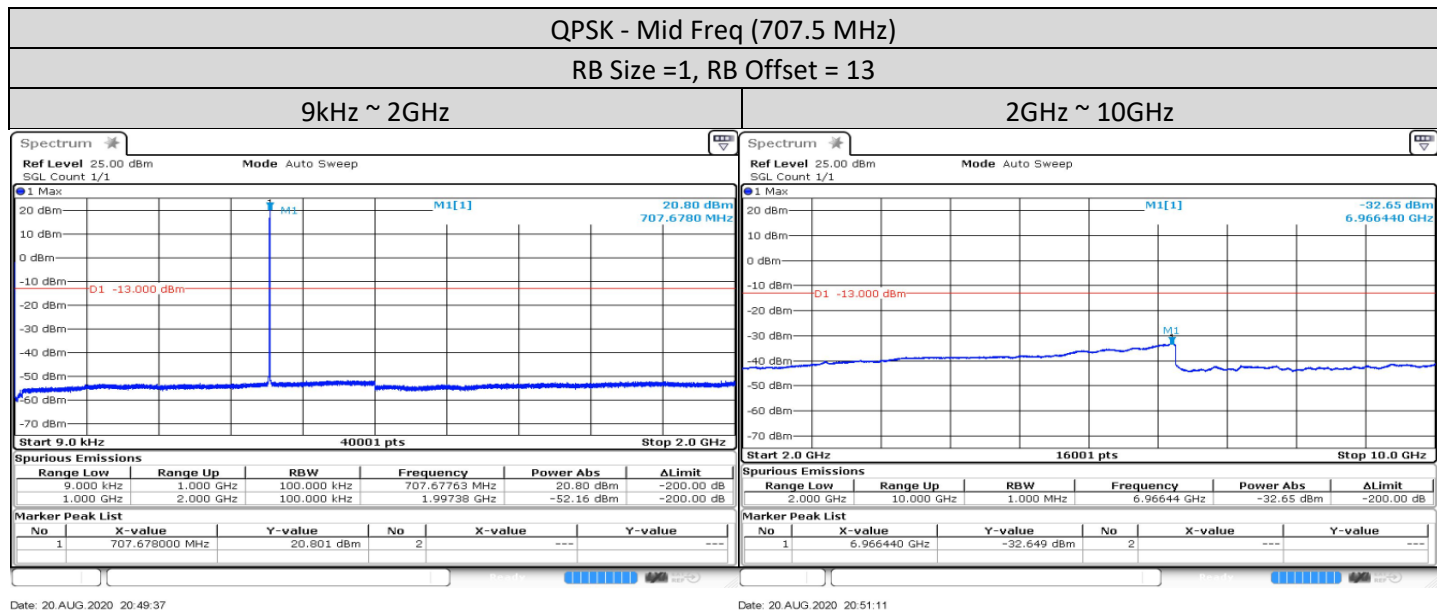
3MHz



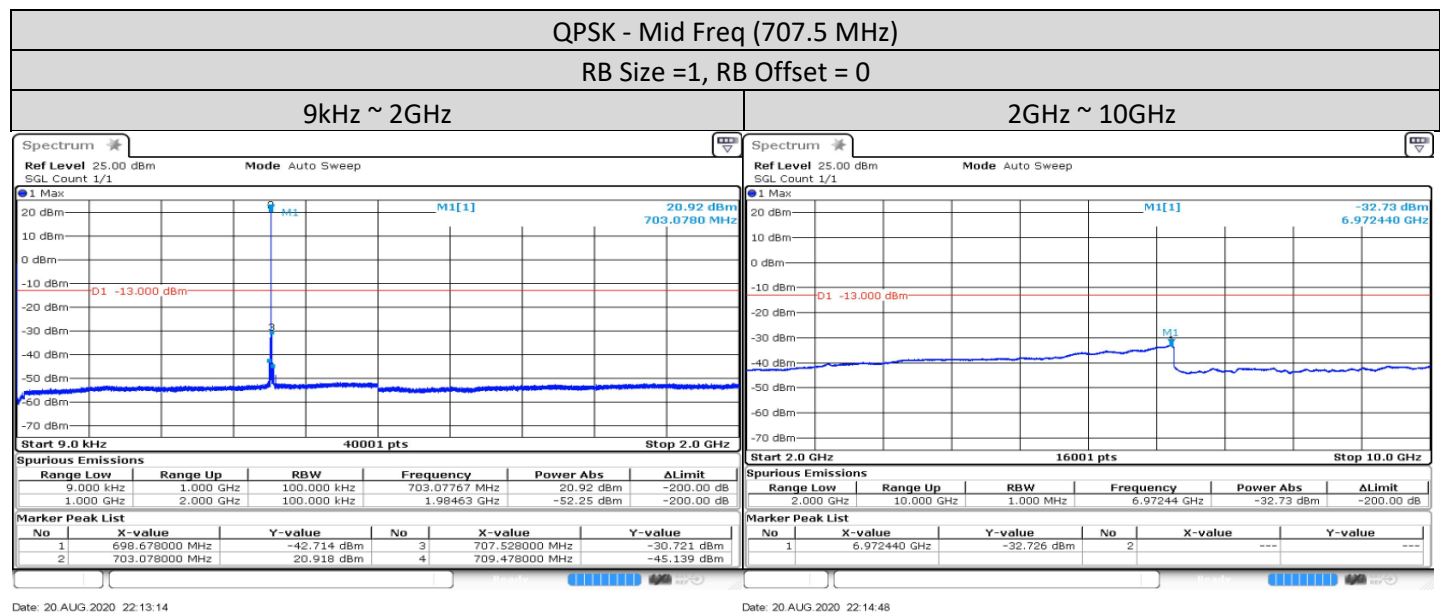
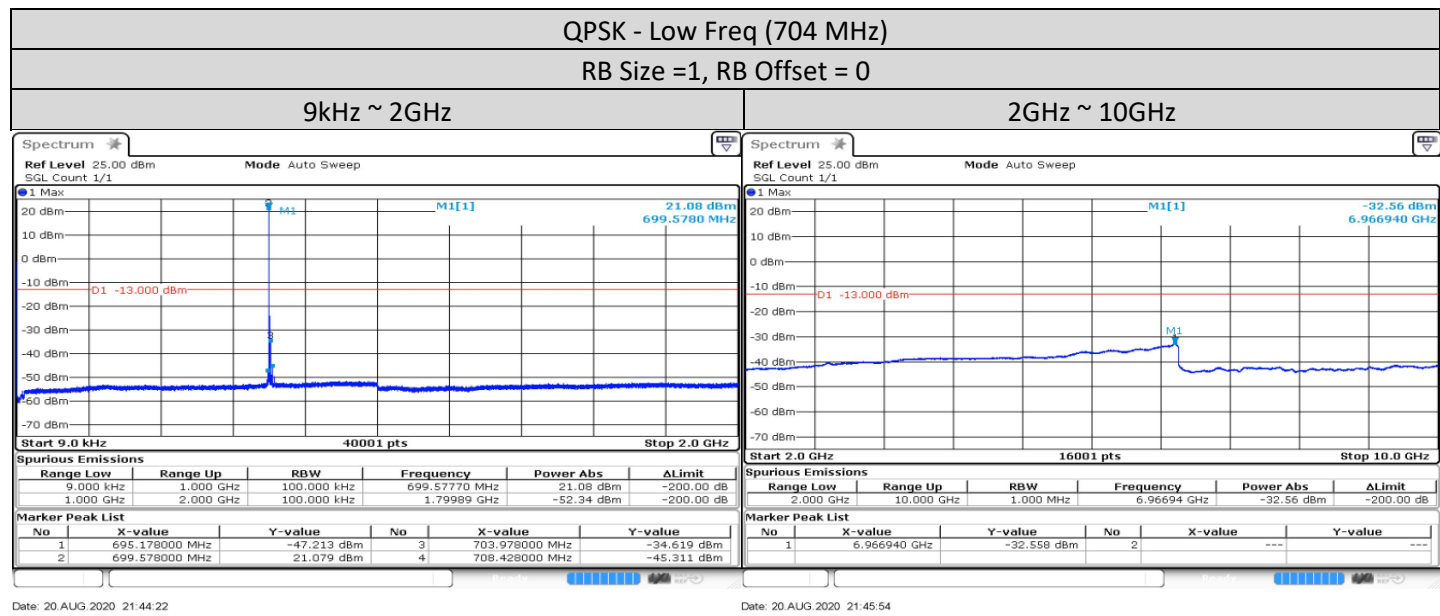


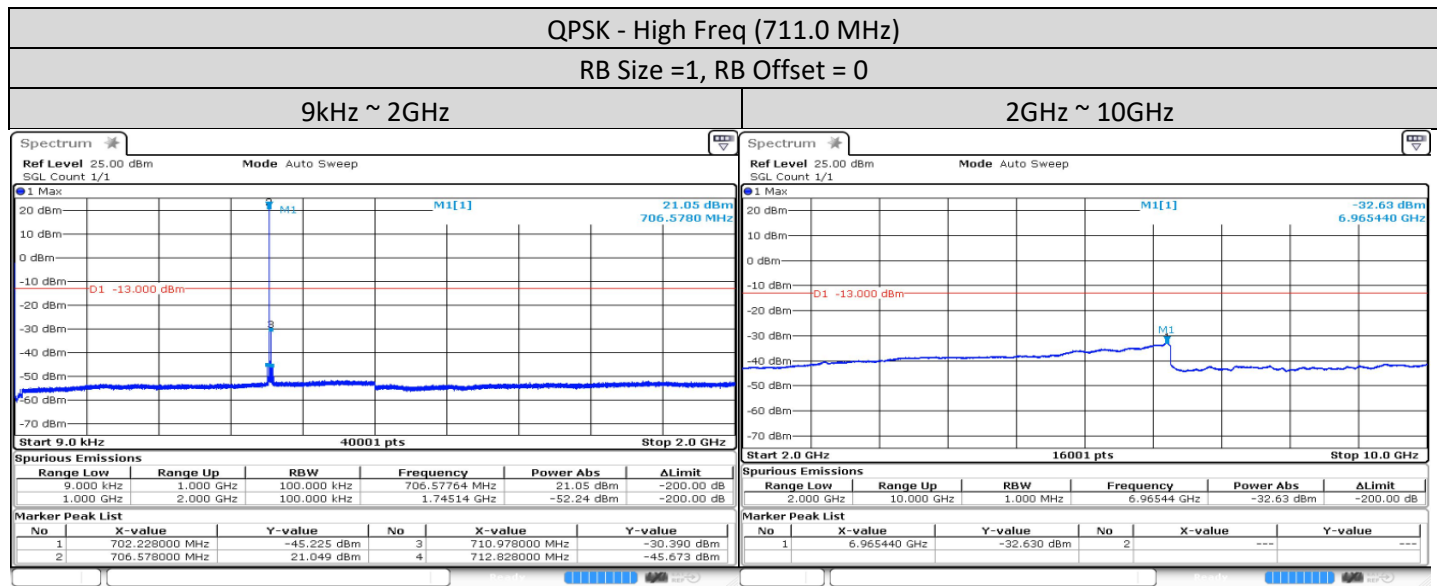
5MHz





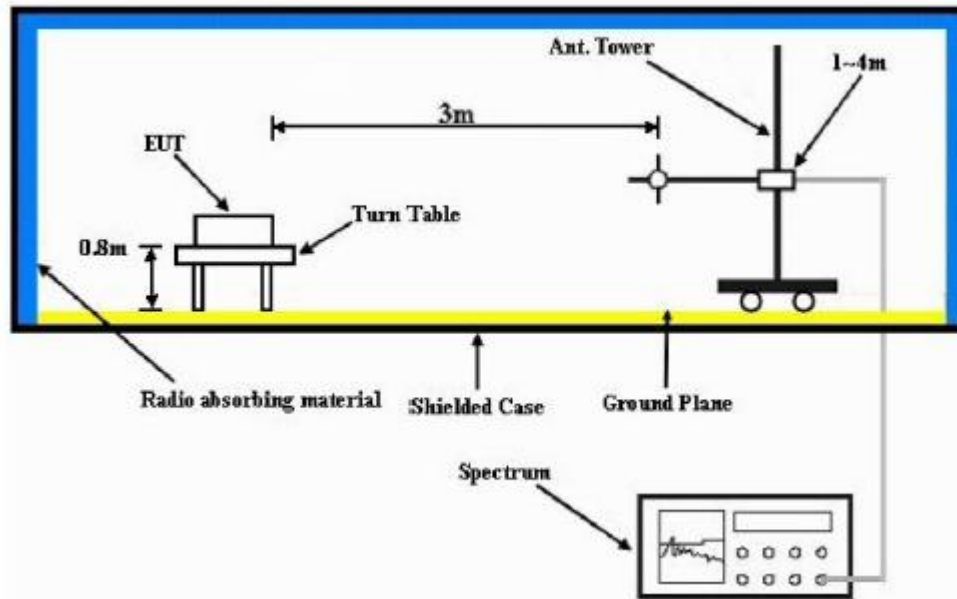
10MHz





1.12. Radiated Spurious Emission

1.12.1. 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.

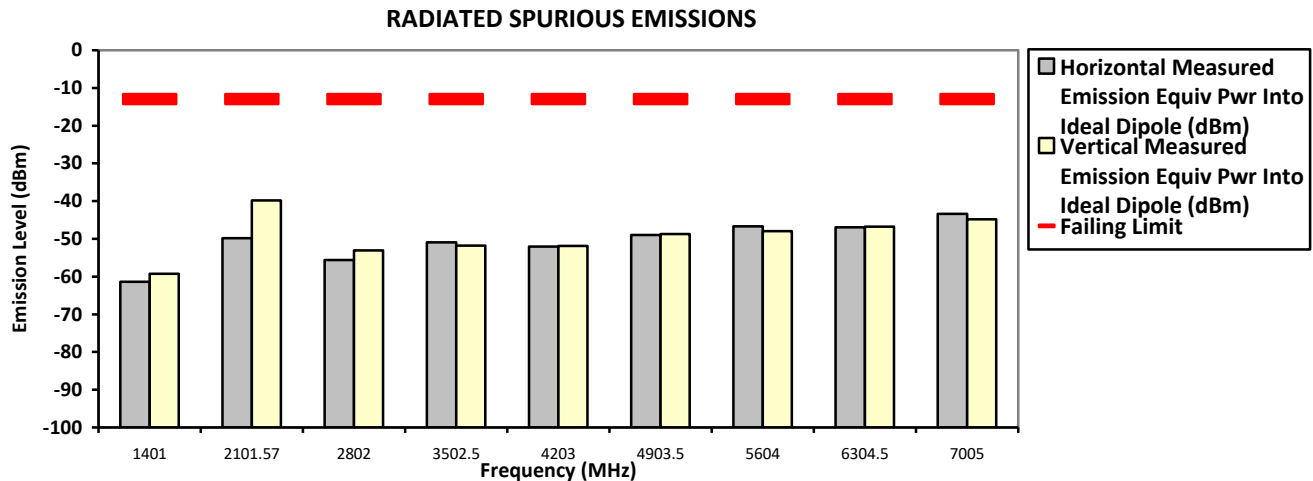
1.12.2. Test Limit

For operations in the 600 MHz band and the 698-746 MHz band, 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.

1.12.3. Radiated Spurious Emission – LTE Band 12 (698-716MHz)

SAC Transmitter Radiated Emission:
 Model Number: AAH90ZDU9RH1AN S/N: 734TWP0308 SR:18058-EMC-00052
 Battery Part No: PMNN4804A Accy Part No: AN000348A01
 Test Mode: TX LTE (Band 12) X-Plane
 700.500000 MHz (Low) Bandwidth 3MHz 0.252 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)
1401.0000	-13.0000	-61.4059 **	-59.2868 **
2101.5700	-13.0000	-49.8600 *	-39.8400 *
2802.0000	-13.0000	-55.5870 **	-53.0374 **
3502.5000	-13.0000	-50.9307 **	-51.7504 **
4203.0000	-13.0000	-52.0650 **	-51.8670 **
4903.5000	-13.0000	-49.0180 **	-48.7453 **
5604.0000	-13.0000	-46.7285 **	-47.9561 **
6304.5000	-13.0000	-46.9200 **	-46.7754 **
7005.0000	-13.0000	-43.3887 **	-44.8096 **



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&Fendi Sat, Aug 29, 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): 69.8

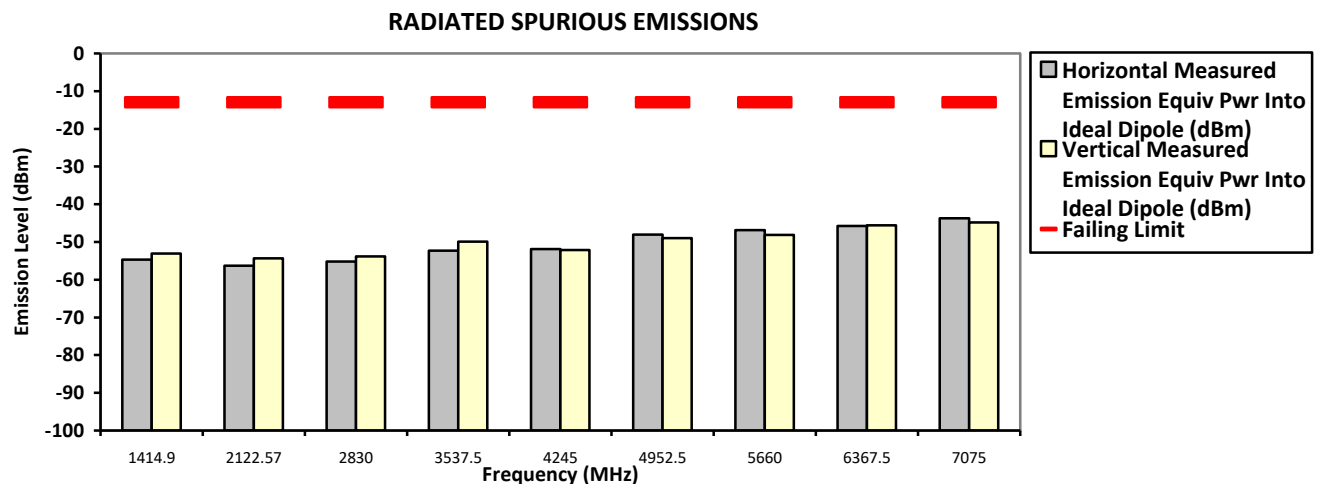
System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:
Model Number: AAH90ZDU9RH1AN **S/N: 734TWP0308** **SR:18058-EMC-00052**
Battery Part No: PMNN4804A **Accy Part No: AN000348A01**
Test Mode: TX LTE (Band 12) X-Plane
707.500000 MHz (Mid) **Bandwidth 1.4MHz** **0.252 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)
1414.9000	-13.0000	-54.6400 *	-53.0400 *
2122.5700	-13.0000	-56.2500 *	-54.3500 *
2830.0000	-13.0000	-55.1815 **	-53.8288 **
3537.5000	-13.0000	-52.2571 **	-49.9016 **
4245.0000	-13.0000	-51.8521 **	-52.0876 **
4952.5000	-13.0000	-48.0754 **	-48.9613 **
5660.0000	-13.0000	-46.8837 **	-48.1142 **
6367.5000	-13.0000	-45.7520 **	-45.6067 **
7075.0000	-13.0000	-43.7590 **	-44.7917 **



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&Fendi Sat, Aug 29, 2020

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

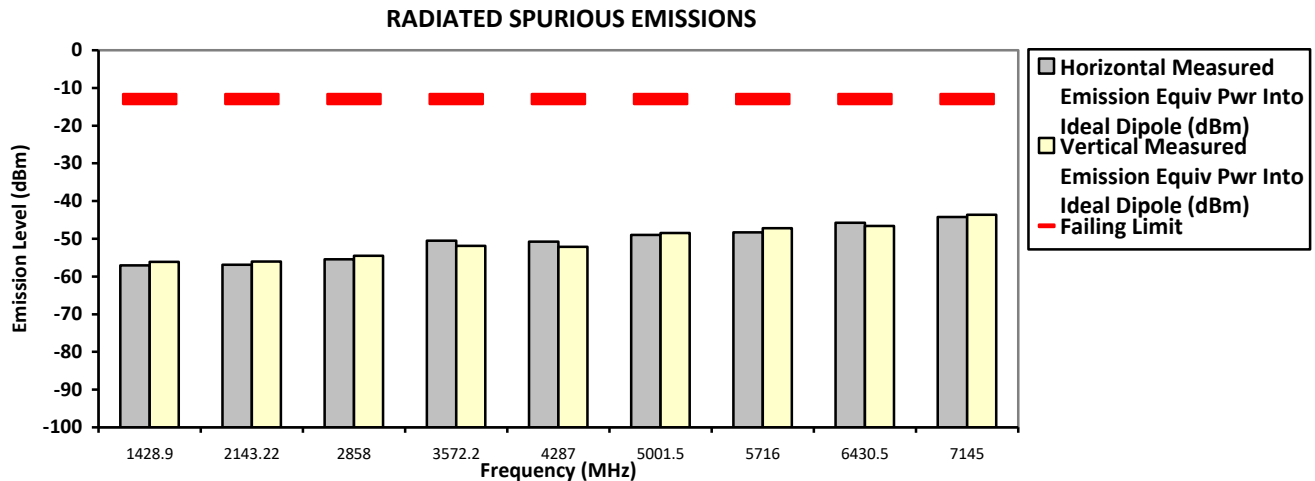
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.8 Hum(%RH): 69.8

System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:
Model Number: AAH90ZDU9RH1AN **S/N:** 734TWP0308 **SR:**18058-EMC-00052
Battery Part No: PMNN4804A **Accy Part No:** AN000348A01
Test Mode: TX LTE (Band 12) X-Plane
714.500000 MHz (High) **Bandwidth** 3MHz **0.252 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)
1428.9000	-13.0000	-57.0200 *	-56.1300 *
2143.2200	-13.0000	-56.9000 *	-55.9900 *
2858.0000	-13.0000	-55.4480 **	-54.4838 **
3572.2000	-13.0000	-50.5100 *	-51.8300 *
4287.0000	-13.0000	-50.7589 **	-52.1020 **
5001.5000	-13.0000	-48.9452 **	-48.4639 **
5716.0000	-13.0000	-48.2857 **	-47.1758 **
6430.5000	-13.0000	-45.7345 **	-46.5746 **
7145.0000	-13.0000	-44.2185 **	-43.6273 **



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&Fendi Sat, Aug 29, 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): 69.8

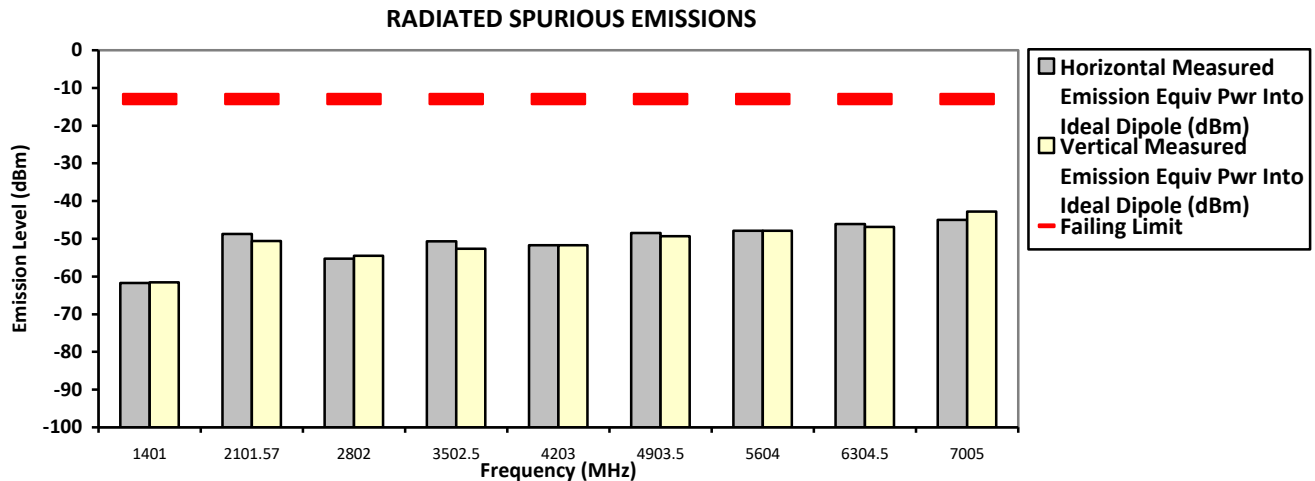
System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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Model Number: AAH90ZDU9RH1AN **SAC Transmitter Radiated Emission:** **S/N: 734TWP0308** **SR:18058-EMC-00052**
Battery Part No: PMNN4804A **Accy Part No: AN000348A01**
Test Mode: TX LTE (Band 12) Y-Plane
700.500000 MHz (Low) **Bandwidth 3MHz** **0.252 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)
1401.0000	-13.0000	-61.7038 **	-61.5802 **
2101.5700	-13.0000	-48.6900 *	-50.5600 *
2802.0000	-13.0000	-55.2832 **	-54.4643 **
3502.5000	-13.0000	-50.6978 **	-52.6210 **
4203.0000	-13.0000	-51.7324 **	-51.7148 **
4903.5000	-13.0000	-48.5061 **	-49.3261 **
5604.0000	-13.0000	-47.8771 **	-47.9090 **
6304.5000	-13.0000	-46.0900 **	-46.8945 **
7005.0000	-13.0000	-44.9595 **	-42.7835 **



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&Fendi Sat, Aug 29, 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): 69.8

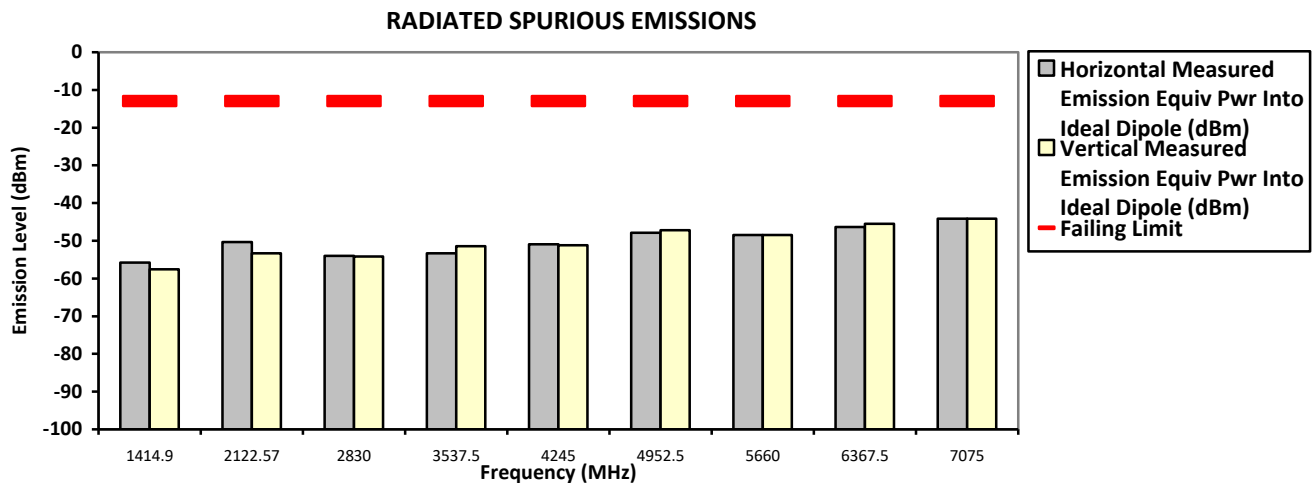
System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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Model Number: AAH90ZDU9RH1AN SAC Transmitter Radiated Emission: S/N: 734TWP0308 SR:18058-EMC-00052
 Battery Part No: PMNN4804A Accy Part No: AN000348A01
 Test Mode: TX LTE (Band 12) Y-Plane
 707.500000 MHz (Mid) Bandwidth 1.4MHz 0.252 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)
1414.9000	-13.0000	-55.7700 *	-57.5500 *
2122.5700	-13.0000	-50.3700 *	-53.2800 *
2830.0000	-13.0000	-53.9981 **	-54.1772 **
3537.5000	-13.0000	-53.2753 **	-51.4391 **
4245.0000	-13.0000	-50.8999 **	-51.1797 **
4952.5000	-13.0000	-47.8518 **	-47.1852 **
5660.0000	-13.0000	-48.4517 **	-48.4371 **
6367.5000	-13.0000	-46.3905 **	-45.5132 **
7075.0000	-13.0000	-44.1752 **	-44.1834 **



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&Fendi Sat, Aug 29, 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): 69.8

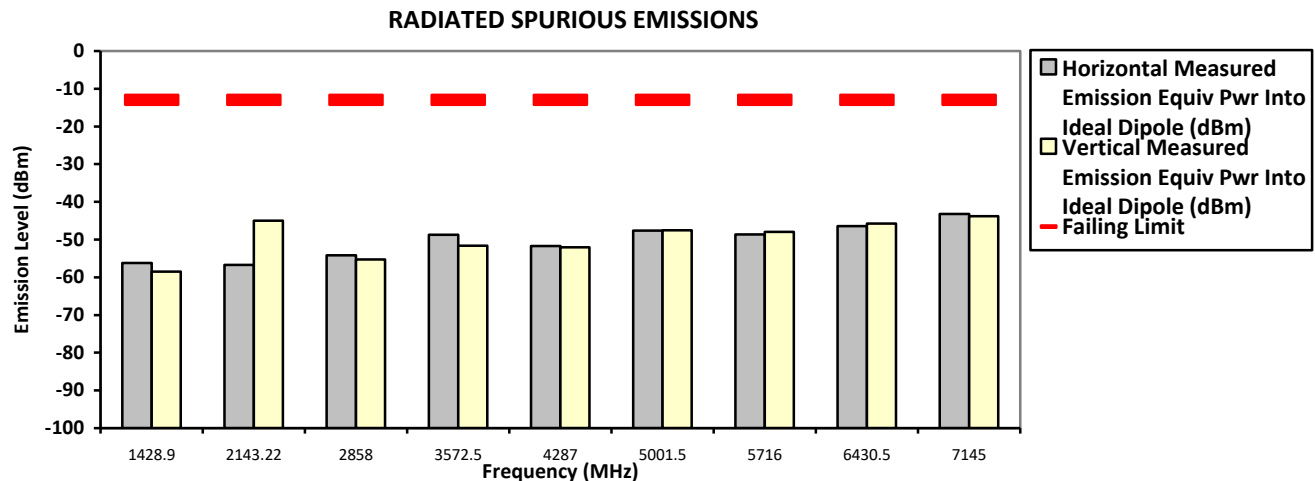
System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0308 SR:18058-EMC-00052
Battery Part No: PMNN4804A Accy Part No: AN000348A01
Test Mode: TX LTE (Band 12) Y-Plane
714.500000 MHz (High) Bandwidth 3MHz 0.252 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)
1428.9000	-13.0000	-56.2000 *	-58.4800 *
2143.2200	-13.0000	-56.6700 *	-44.9800 *
2858.0000	-13.0000	-54.1172 **	-55.2358 **
3572.5000	-13.0000	-48.7459 **	-51.5941 **
4287.0000	-13.0000	-51.7235 **	-52.0548 **
5001.5000	-13.0000	-47.6652 **	-47.5177 **
5716.0000	-13.0000	-48.6510 **	-47.9859 **
6430.5000	-13.0000	-46.4572 **	-45.7542 **
7145.0000	-13.0000	-43.2224 **	-43.8323 **



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&Fendi Sun, Aug 30, 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): 69.8

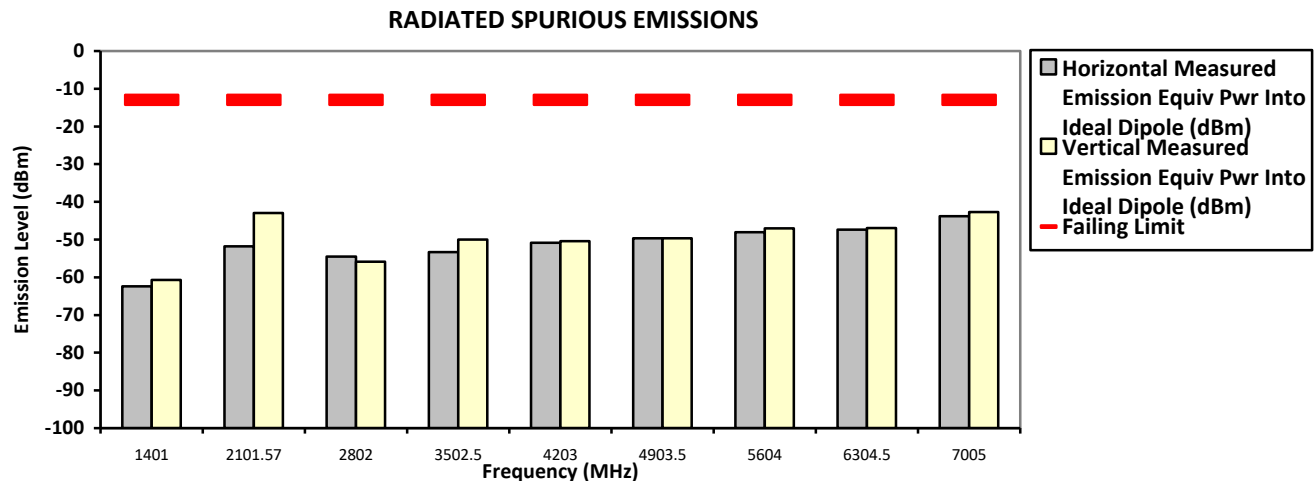
System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0308 SR:18058-EMC-00052
 Battery Part No: PMNN4804A Accy Part No: AN000348A01
 Test Mode: TX LTE (Band 12) Z-Plane
 700.500000 MHz (Low) Bandwidth 3MHz 0.252 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)
1401.0000	-13.0000	-62.3893 **	-60.6873 **
2101.5700	-13.0000	-51.7700 *	-42.9700 *
2802.0000	-13.0000	-54.5208 **	-55.8903 **
3502.5000	-13.0000	-53.2813 **	-49.9578 **
4203.0000	-13.0000	-50.8825 **	-50.4426 **
4903.5000	-13.0000	-49.6254 **	-49.6486 **
5604.0000	-13.0000	-48.0665 **	-47.0065 **
6304.5000	-13.0000	-47.3567 **	-46.9290 **
7005.0000	-13.0000	-43.8100 **	-42.6942 **



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&Fendi Sat, Aug 29, 2020

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

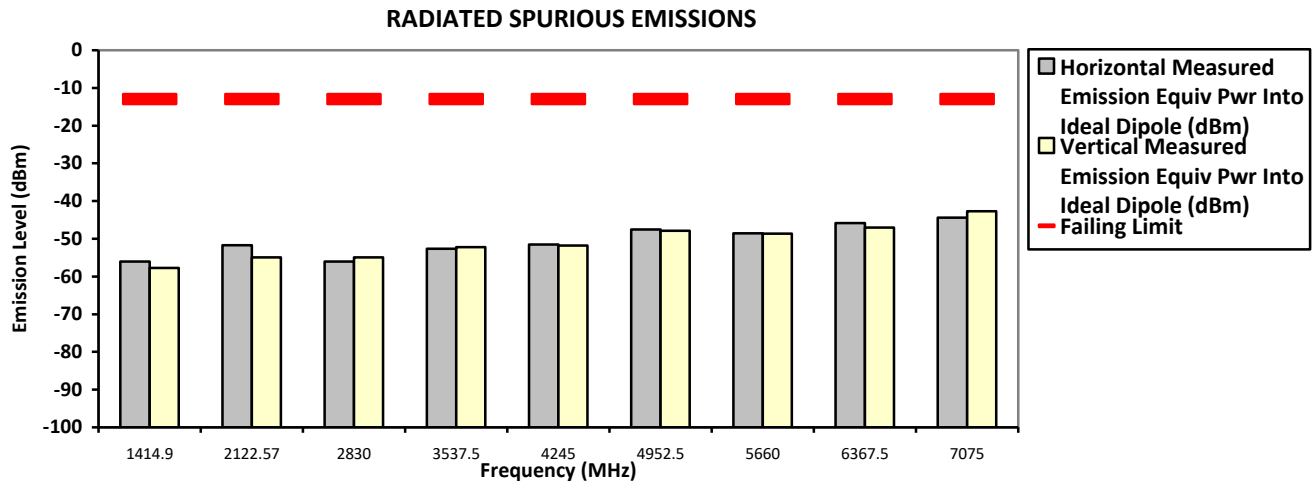
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 23.8 Hum(%RH): 69.8

System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

Model Number: AAH90ZDU9RH1AN SAC Transmitter Radiated Emission: S/N: 734TWP0308 SR:18058-EMC-00052
Battery Part No: PMNN4804A Accy Part No: AN000348A01
Test Mode: TX LTE (Band 12) Z-Plane
707.500000 MHz (Mid) Bandwidth 1.4MHz 0.252 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)
1414.9000	-13.0000	-56.0200 *	-57.7200 *
2122.5700	-13.0000	-51.6600 *	-54.9200 *
2830.0000	-13.0000	-55.9874 **	-54.9325 **
3537.5000	-13.0000	-52.6223 **	-52.1963 **
4245.0000	-13.0000	-51.5130 **	-51.8024 **
4952.5000	-13.0000	-47.5289 **	-47.9078 **
5660.0000	-13.0000	-48.5253 **	-48.6601 **
6367.5000	-13.0000	-45.8632 **	-47.0030 **
7075.0000	-13.0000	-44.4186 **	-42.7168 **



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&Fendi Sat, Aug 29, 2020

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

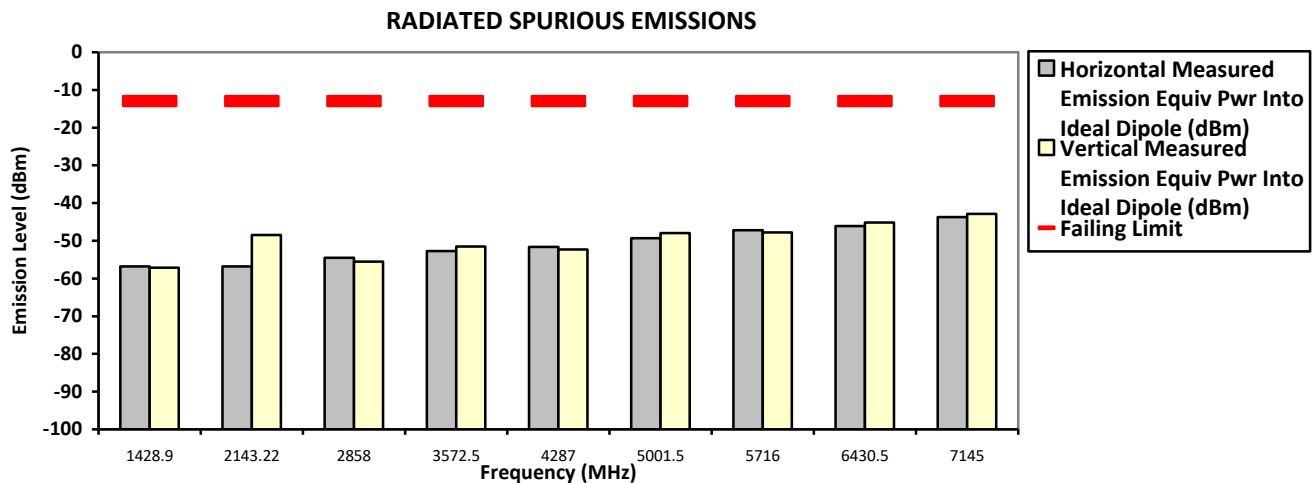
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 23.8 Hum(%RH): 69.8

System MU: 4.03 dB

Remarks: Passed Results Marginal Results Failed Results

SAC Transmitter Radiated Emission:
Model Number: AAH90ZDU9RH1AN **S/N:** 734TWP0308 **SR:**18058-EMC-00052
Battery Part No: PMNN4804A **Accy Part No:** AN000348A01
Test Mode: TX LTE (Band 12) Z-Plane **Bandwidth** 3MHz **0.252 Watt(s) /Max Power**
714.500000 MHz (High)

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
1428.9000	-13.0000	-56.8300 *	-57.1700 *
2143.2200	-13.0000	-56.7500 *	-48.4500 *
2858.0000	-13.0000	-54.4803 **	-55.5198 **
3572.5000	-13.0000	-52.7316 **	-51.5266 **
4287.0000	-13.0000	-51.5909 **	-52.2932 **
5001.5000	-13.0000	-49.3085 **	-47.9747 **
5716.0000	-13.0000	-47.2317 **	-47.7543 **
6430.5000	-13.0000	-46.0933 **	-45.1504 **
7145.0000	-13.0000	-43.6772 **	-42.8939 **



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&Fendi Sun, Aug 30, 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): 69.8

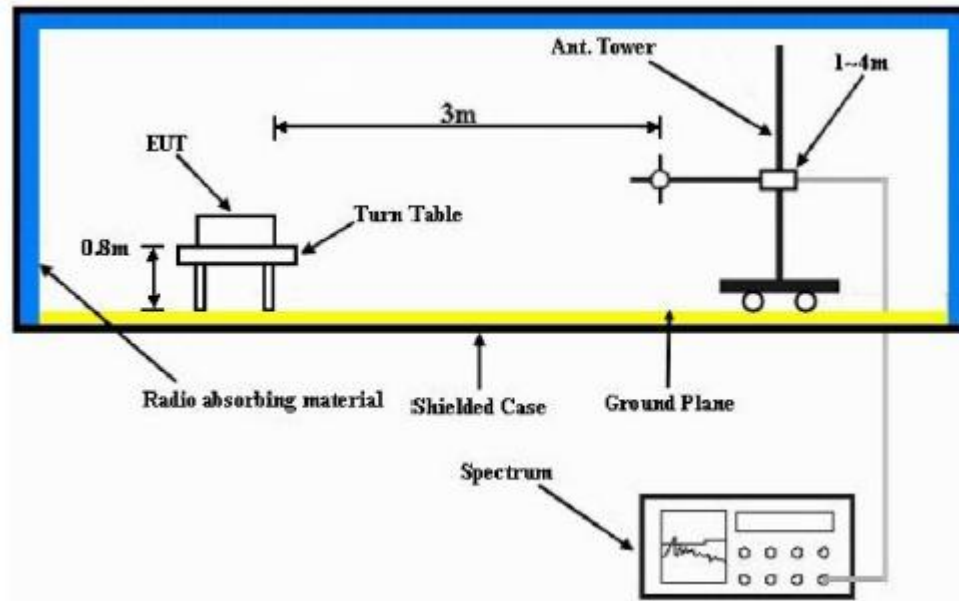
System MU: 4.03 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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1.13. Effective Radiated Power (ERP)

1.13.1. 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) $EIRP = \text{“Read Value”} + \text{Measured substitution value.}$

1.13.2. Test Limit

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

1.13.3. Effective Radiated Power (ERP) - LTE Band 12 (698-716MHz)

Not Performed.

--End of Test Report--