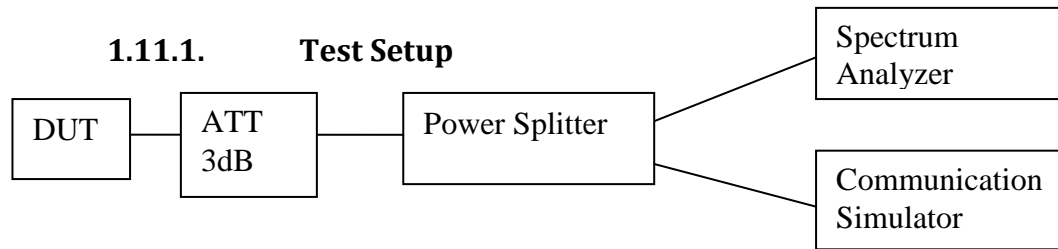


1.11. Conducted Spurious Emission



- 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

(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: $43 + 10 \log(P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log(P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log(P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log(P)$ dB on all frequencies between 2328 and 2337 MHz;

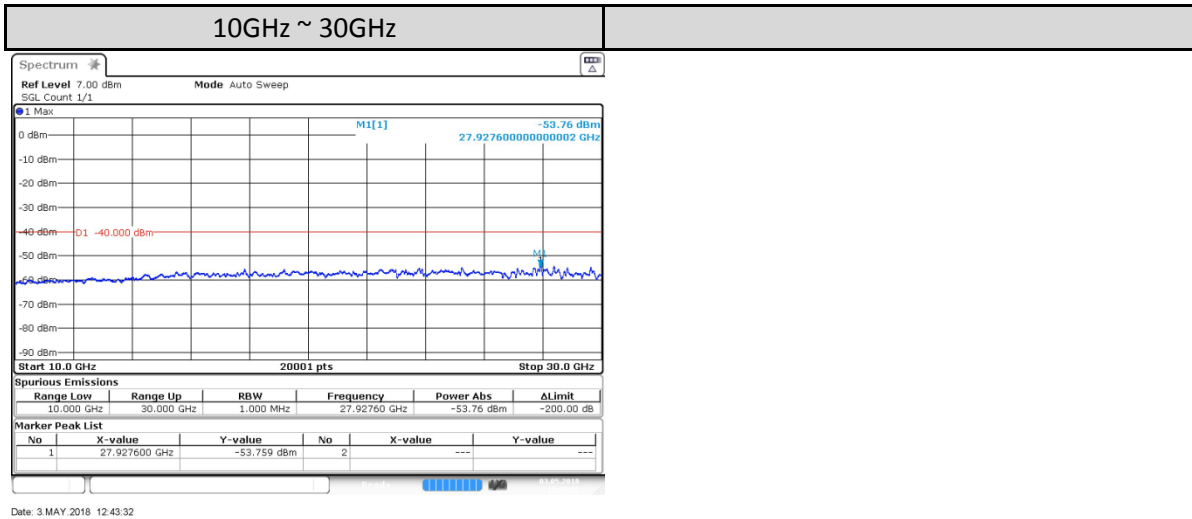
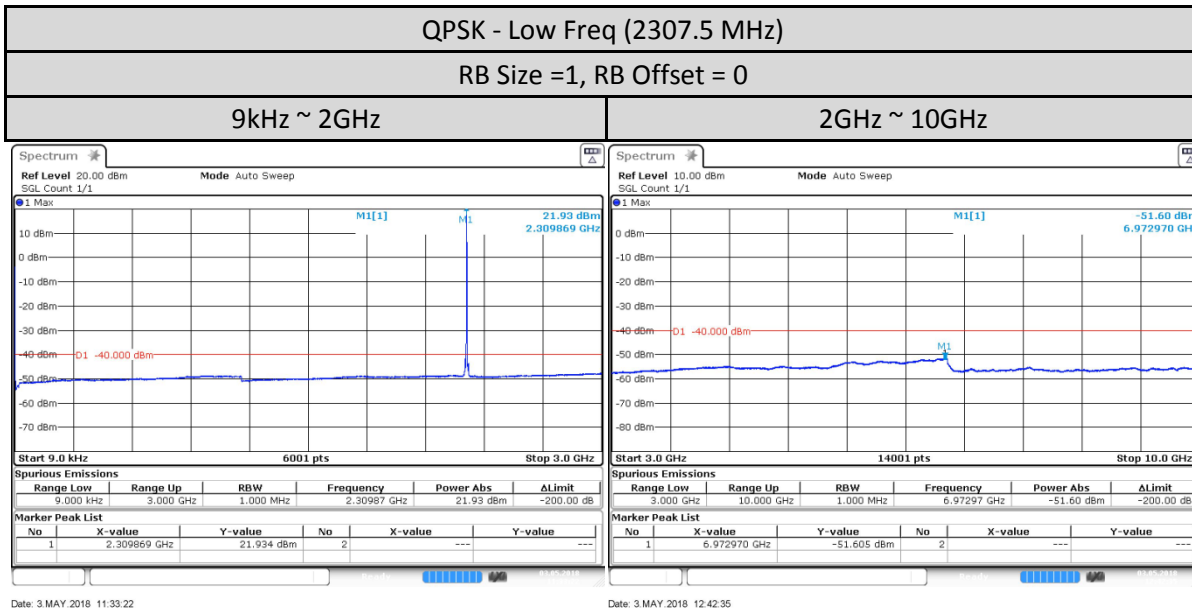
(ii) By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log(P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log(P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log(P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log(P)$ dB below 2288 MHz;

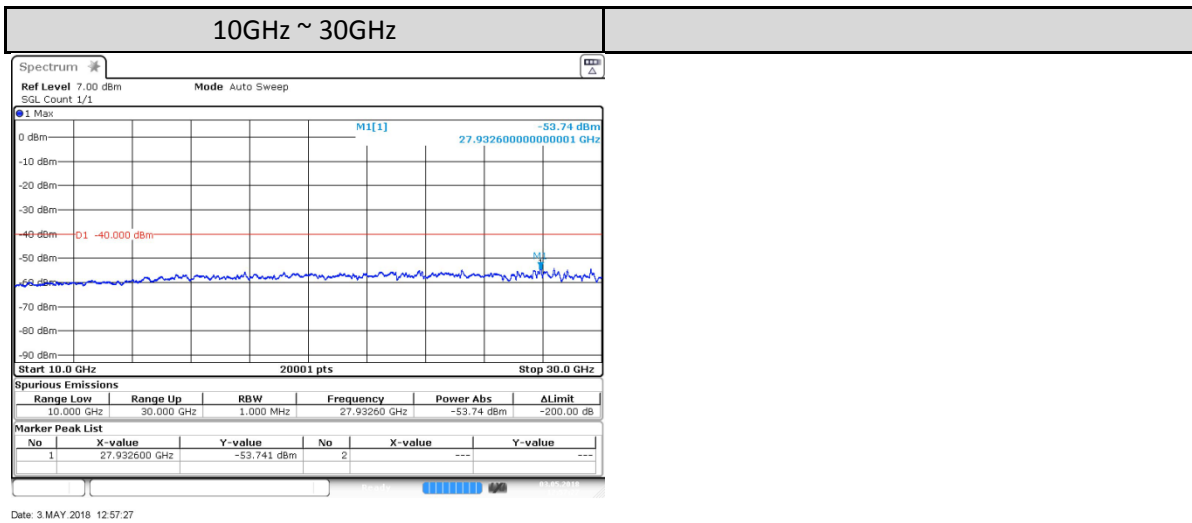
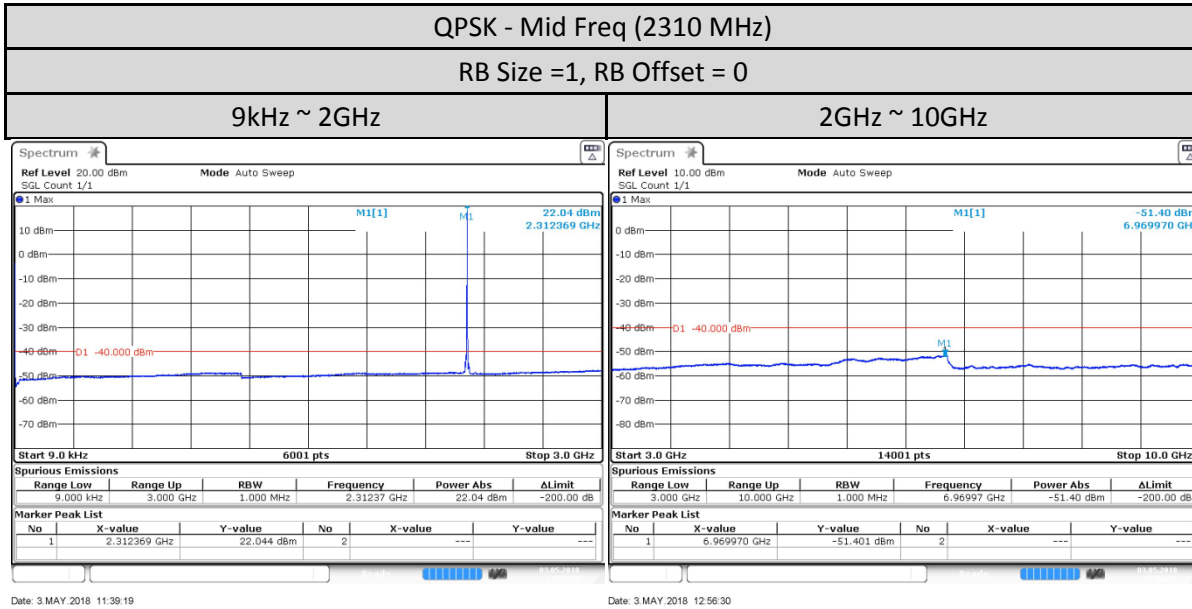
(iii) By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log(P)$ dB above 2365 MHz.

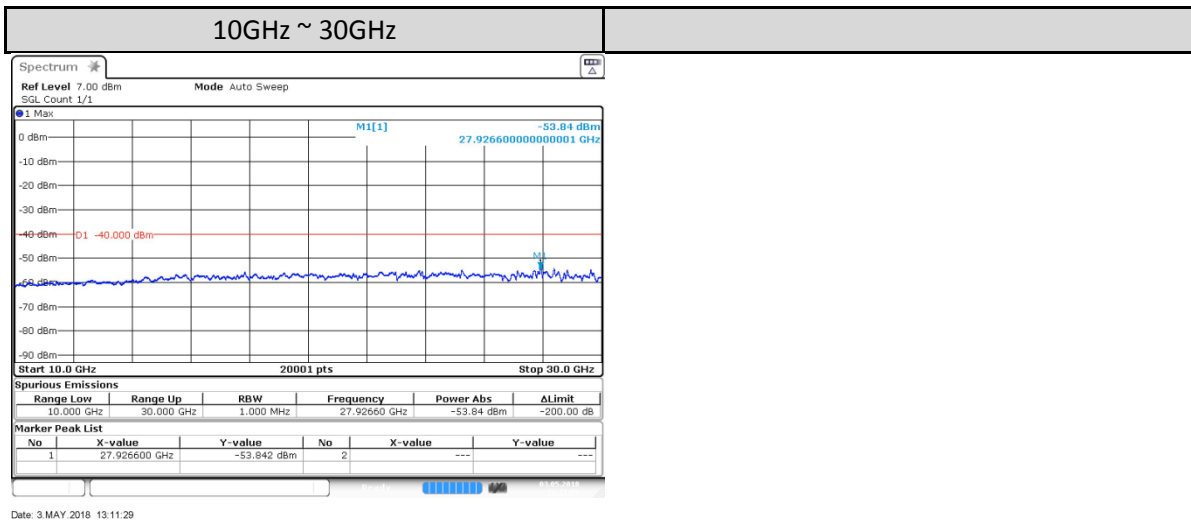
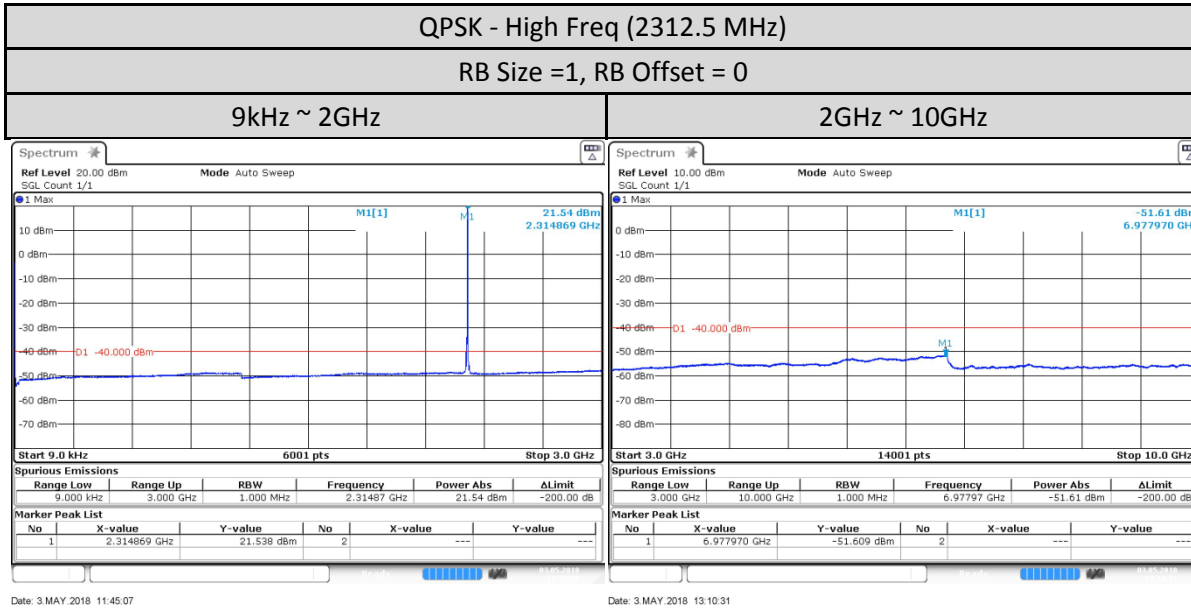
(5) *Measurement procedure.* Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.*, 1 MHz).

1.11.3. Conducted Spurious Emissions - LTE Band 30 (2305-2315MHz)

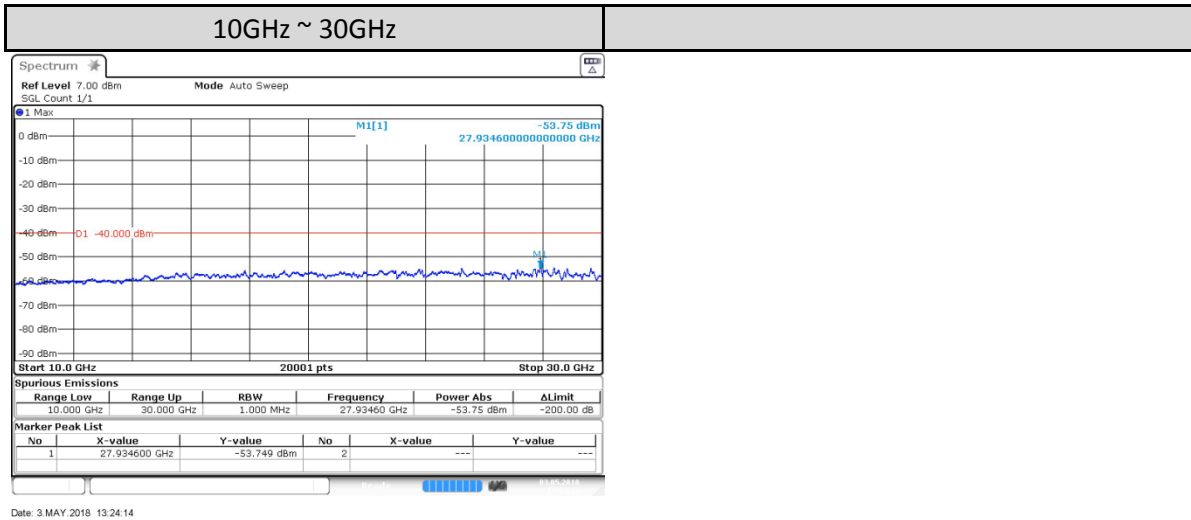
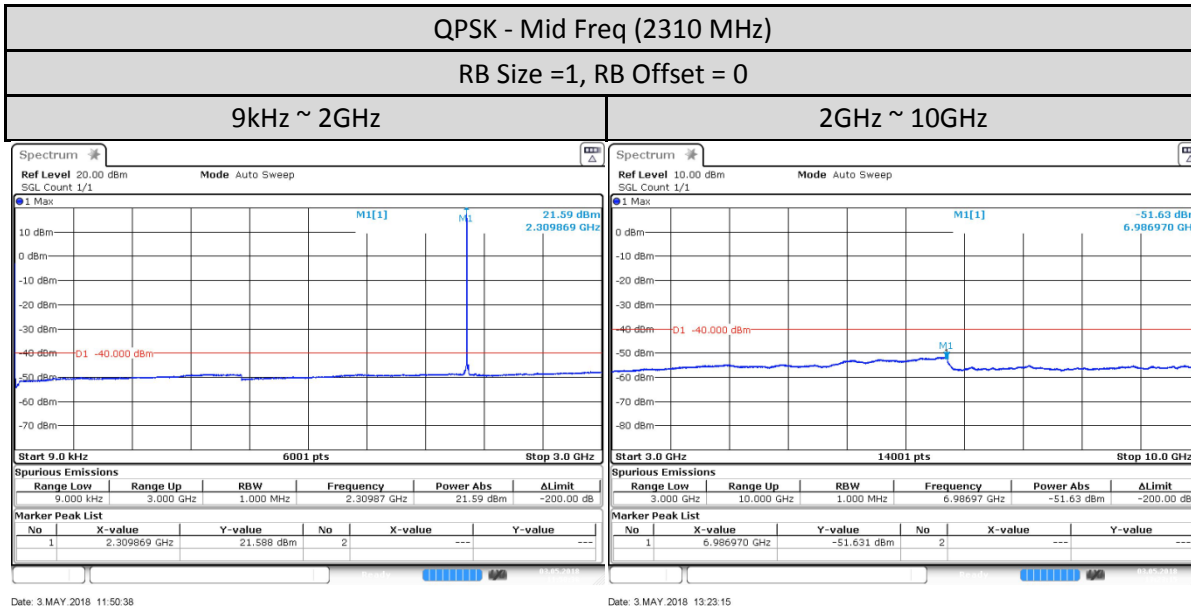
5MHz





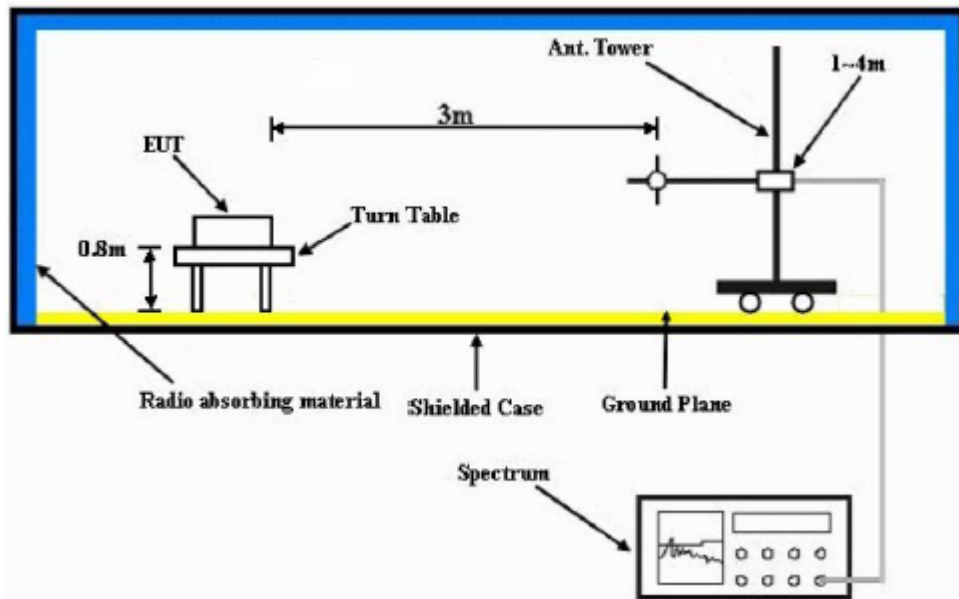


10MHz



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

(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

(5) *Measurement procedure.* Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.*, 1 MHz).

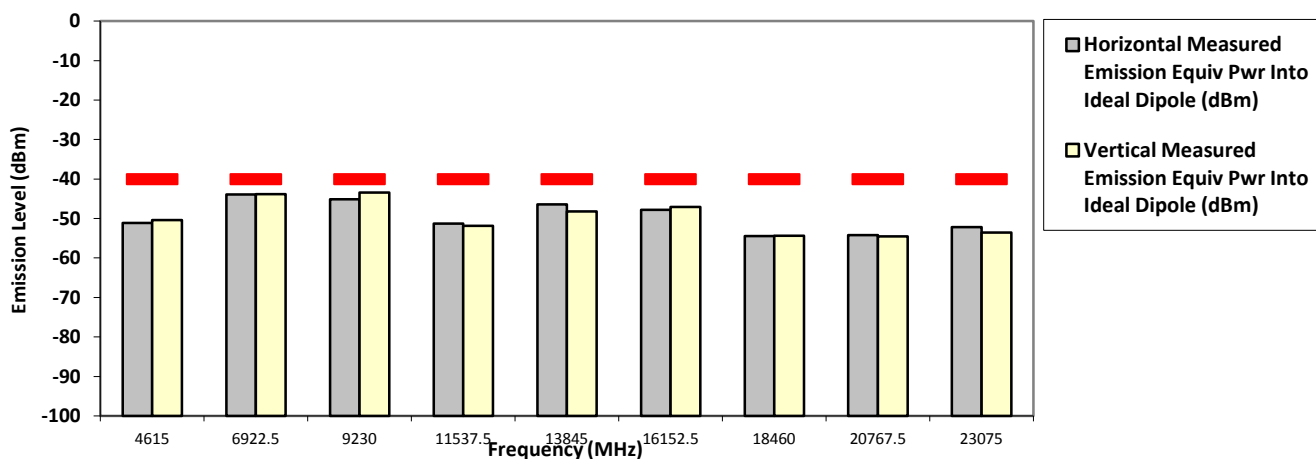
1.12.3. Radiated Spurious Emission – LTE Band 30 (2305-2315MHz)

DC configuration: Link Mode 12V

Model Number: LEX L11n **Link Mode Radiated Emission:** **S/N: 790TUF0048** **SR:08397-EMC-00197**
Battery Part No: PMNN4546A **Accy Part No: 8397-PMLN7779A-5**
Test Mode: TX LTE (Band 30)
2307.500000 MHz (Low) **Bandwidth 5MHz** **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)
4615.0000	-40.0000	-51.1093 **	-50.3900 **
6922.5000	-40.0000	-43.9290 **	-43.8199 **
9230.0000	-40.0000	-45.1469 **	-43.4480 **
11537.5000	-40.0000	-51.3068 **	-51.8345 **
13845.0000	-40.0000	-46.4210 **	-48.2095 **
16152.5000	-40.0000	-47.8302 **	-47.0507 **
18460.0000	-40.0000	-54.4411 **	-54.3511 **
20767.5000	-40.0000	-54.1756 **	-54.5252 **
23075.0000	-40.0000	-52.1954 **	-53.5587 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

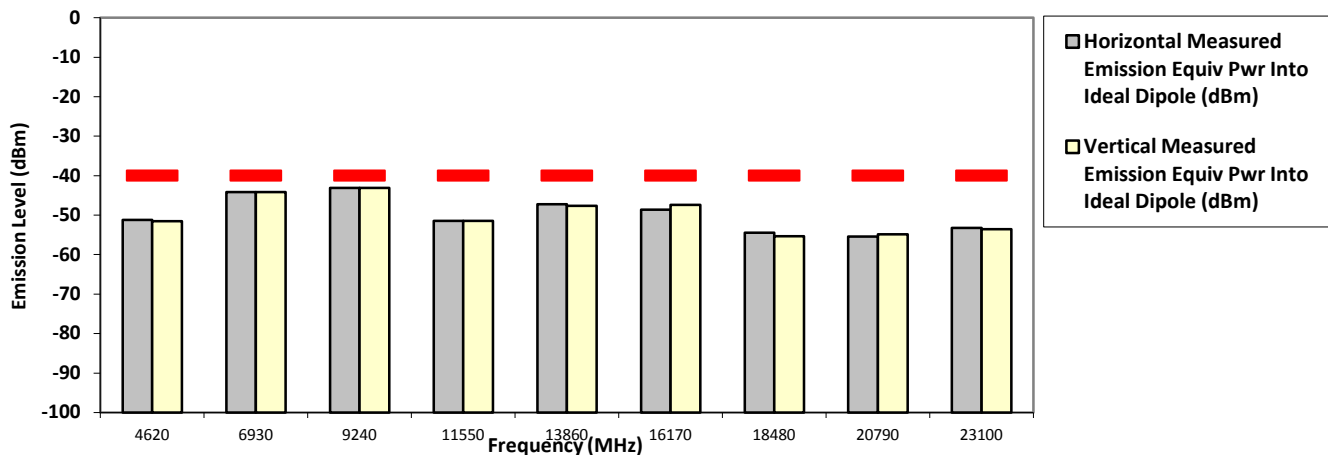
Remarks:

Passed Results	Marginal Results	Failed Results
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Link Mode Radiated Emission:
 Model Number: LEX L11n S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2310.000000 MHz (Mid) Bandwidth 5MHz 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)
4620.0000	-40.0000	-51.2148 **	-51.5336 **
6930.0000	-40.0000	-44.1367 **	-44.1965 **
9240.0000	-40.0000	-43.1035 **	-43.0792 **
11550.0000	-40.0000	-51.4776 **	-51.4421 **
13860.0000	-40.0000	-47.2050 **	-47.6497 **
16170.0000	-40.0000	-48.5972 **	-47.4190 **
18480.0000	-40.0000	-54.4797 **	-55.3626 **
20790.0000	-40.0000	-55.4526 **	-54.8911 **
23100.0000	-40.0000	-53.2248 **	-53.5343 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

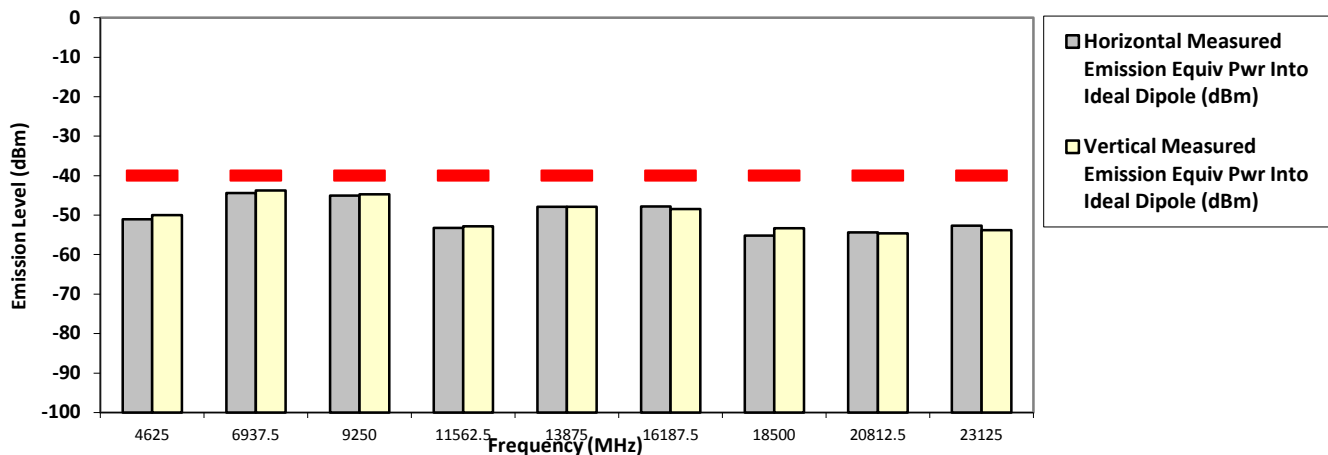
Remarks:

Passed Results	Marginal Results	Failed Results
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Link Mode Radiated Emission:
 Model Number: LEX L11n S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2312.500000 MHz (High) Bandwidth 5MHz 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)
4625.0000	-40.0000	-51.0516 **	-49.9658 **
6937.5000	-40.0000	-44.4327 **	-43.7619 **
9250.0000	-40.0000	-45.0163 **	-44.7217 **
11562.5000	-40.0000	-53.2200 **	-52.8184 **
13875.0000	-40.0000	-47.8693 **	-47.8505 **
16187.5000	-40.0000	-47.7684 **	-48.4141 **
18500.0000	-40.0000	-55.1776 **	-53.3203 **
20812.5000	-40.0000	-54.3441 **	-54.6475 **
23125.0000	-40.0000	-52.6426 **	-53.7762 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

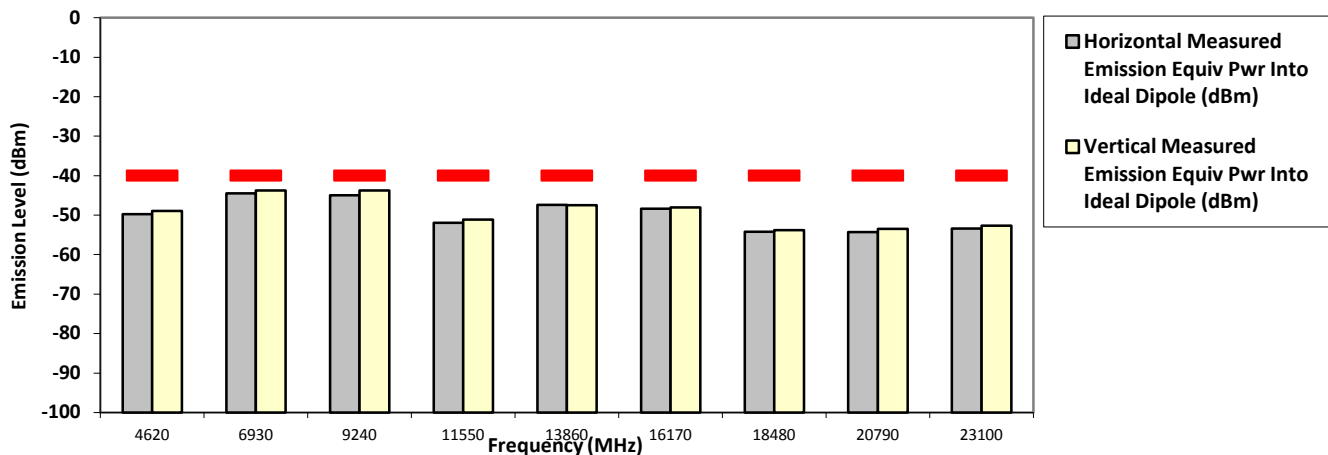
Remarks:

Passed Results	Marginal Results	Failed Results
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Link Mode Radiated Emission:
 Model Number: LEX L11n S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2310.000000 MHz (Mid) Bandwidth 10MHz 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)
4620.0000	-40.0000	-49.7827 **	-48.9110 **
6930.0000	-40.0000	-44.4447 **	-43.7378 **
9240.0000	-40.0000	-44.9494 **	-43.7931 **
11550.0000	-40.0000	-51.9242 **	-51.1458 **
13860.0000	-40.0000	-47.4264 **	-47.5142 **
16170.0000	-40.0000	-48.3742 **	-48.0595 **
18480.0000	-40.0000	-54.2315 **	-53.8224 **
20790.0000	-40.0000	-54.3136 **	-53.4736 **
23100.0000	-40.0000	-53.4315 **	-52.6754 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

Remarks:

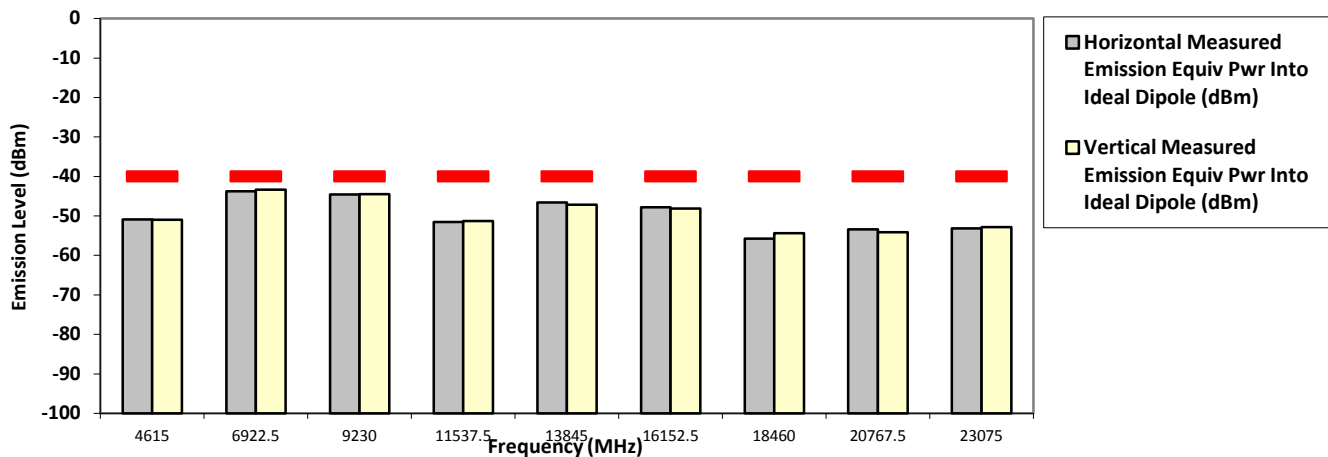
Passed Results	Marginal Results	Failed Results
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DC configuration: Link Mode 24V

Model Number: LEX L11n Link Mode Radiated Emission: S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2307.500000 MHz (Low) Bandwidth 5MHz 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)
4615.0000	-40.0000	-50.9158 **	-50.9450 **
6922.5000	-40.0000	-43.7180 **	-43.3334 **
9230.0000	-40.0000	-44.5501 **	-44.5105 **
11537.5000	-40.0000	-51.5488 **	-51.2706 **
13845.0000	-40.0000	-46.5872 **	-47.1742 **
16152.5000	-40.0000	-47.8156 **	-48.0926 **
18460.0000	-40.0000	-55.7180 **	-54.3636 **
20767.5000	-40.0000	-53.4345 **	-54.1124 **
23075.0000	-40.0000	-53.1643 **	-52.7980 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

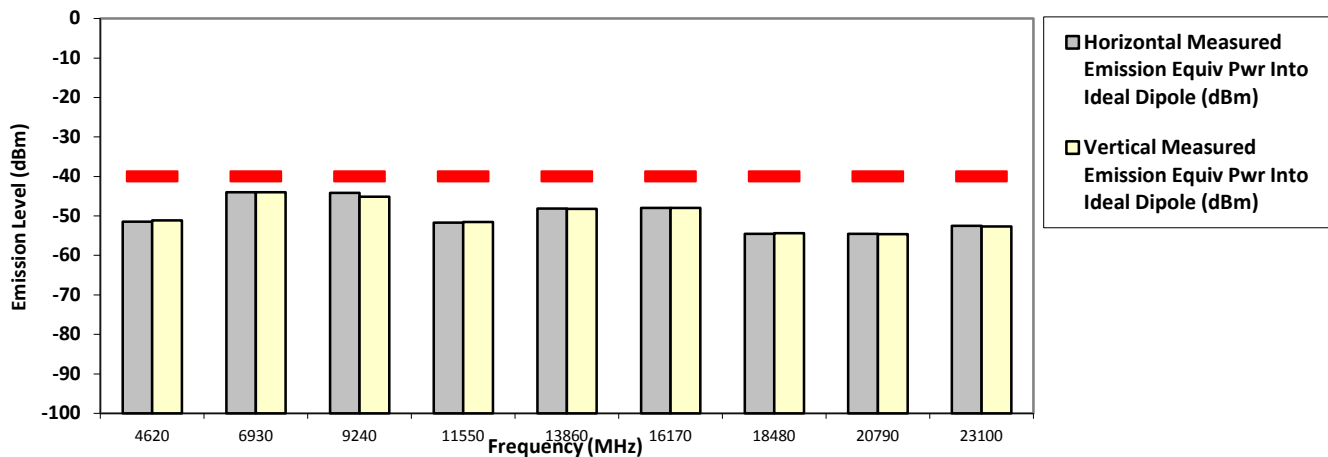
Remarks:

Passed Results	Marginal Results	Failed Results
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Link Mode Radiated Emission:
 Model Number: LEX L11n S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2310.000000 MHz (Mid) Bandwidth 5MHz 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)
4620.0000	-40.0000	-51.4181 **	-51.1384 **
6930.0000	-40.0000	-43.9950 **	-44.0131 **
9240.0000	-40.0000	-44.1701 **	-45.1635 **
11550.0000	-40.0000	-51.7094 **	-51.5525 **
13860.0000	-40.0000	-48.1003 **	-48.2484 **
16170.0000	-40.0000	-48.0044 **	-47.9950 **
18480.0000	-40.0000	-54.4958 **	-54.3725 **
20790.0000	-40.0000	-54.5445 **	-54.6046 **
23100.0000	-40.0000	-52.4828 **	-52.6650 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

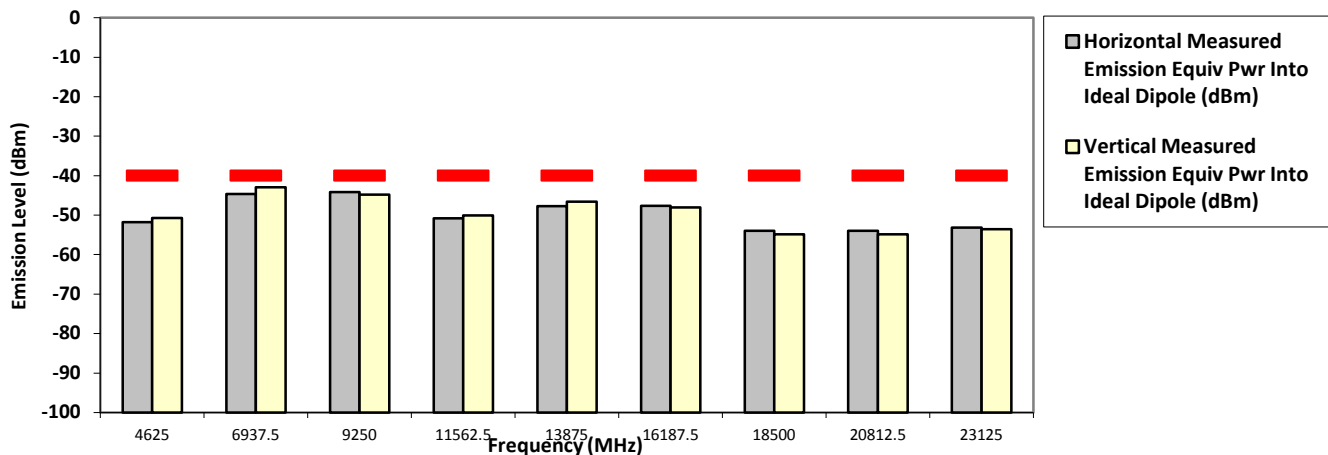
Remarks:

Passed Results	Marginal Results	Failed Results
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Link Mode Radiated Emission:
 Model Number: LEX L11n S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2312.500000 MHz (High) Bandwidth 5MHz 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)
4625.0000	-40.0000	-51.7805 **	-50.6852 **
6937.5000	-40.0000	-44.6569 **	-42.9341 **
9250.0000	-40.0000	-44.1226 **	-44.8262 **
11562.5000	-40.0000	-50.8451 **	-50.0984 **
13875.0000	-40.0000	-47.7212 **	-46.5772 **
16187.5000	-40.0000	-47.6354 **	-48.0856 **
18500.0000	-40.0000	-53.9770 **	-54.8543 **
20812.5000	-40.0000	-53.9687 **	-54.8842 **
23125.0000	-40.0000	-53.1221 **	-53.5615 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

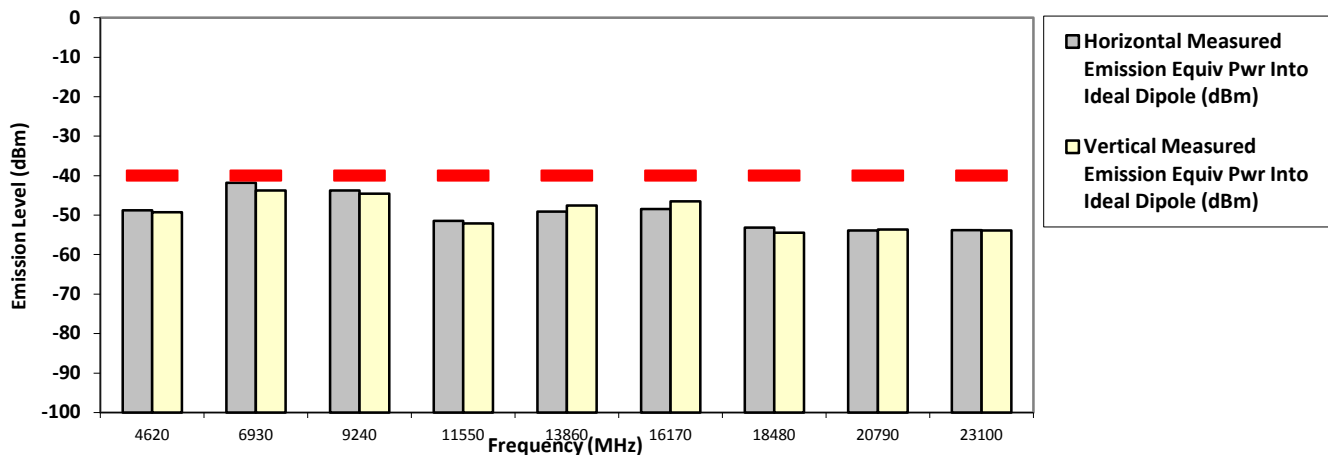
Remarks:

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

Link Mode Radiated Emission:
 Model Number: LEX L11n S/N: 790TUF0048 SR:08397-EMC-00197
 Battery Part No: PMNN4546A Accy Part No: 8397-PMLN7779A-5
 Test Mode: TX LTE (Band 30)
 2310.000000 MHz (Mid) Bandwidth 10MHz 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)
4620.0000	-40.0000	-48.7766 **	-49.2889 **
6930.0000	-40.0000	-41.7709 **	-43.7521 **
9240.0000	-40.0000	-43.7391 **	-44.5832 **
11550.0000	-40.0000	-51.4624 **	-52.0699 **
13860.0000	-40.0000	-49.0732 **	-47.5409 **
16170.0000	-40.0000	-48.4252 **	-46.5243 **
18480.0000	-40.0000	-53.1349 **	-54.4721 **
20790.0000	-40.0000	-53.8837 **	-53.6637 **
23100.0000	-40.0000	-53.8276 **	-53.9254 **

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: Azil&Nazrin Sun, Apr 15, 2018

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): 23.2 Hum(%RH): 70.3

System MU: 5.01 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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--Test Report End--