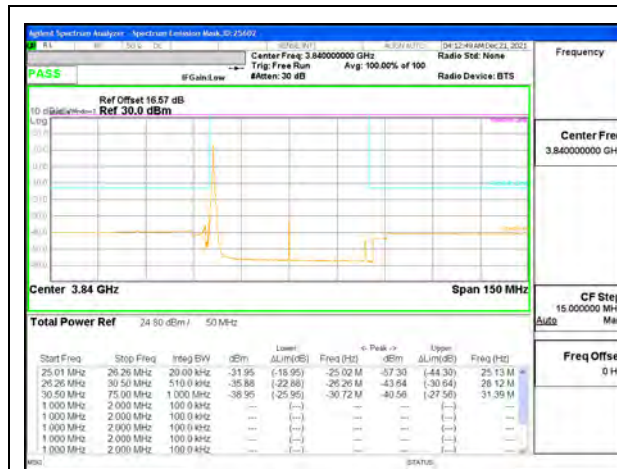
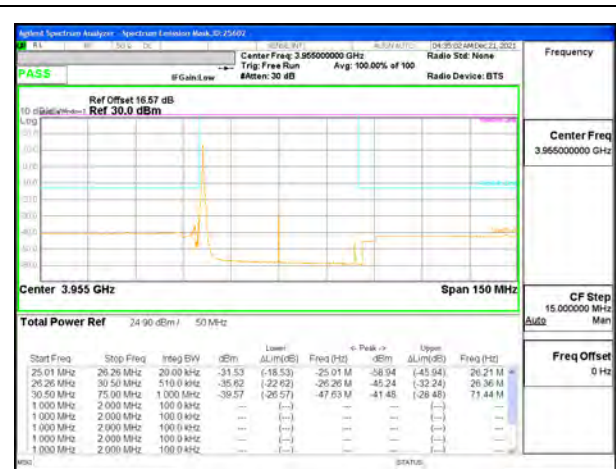




5G NR n77 50MHz BPSK Middle Channel RB1-0



5G NR n77 50MHz BPSK High Channel RB1-0



5G NR n77 50MHz BPSK Middle Channel RB1-132



5G NR n77 50MHz BPSK High Channel RB1-132



5G NR n77 50MHz BPSK Middle Channel RB128-0



5G NR n77 50MHz BPSK High Channel RB128-0



5G NR n77 60MHz BPSK Low Channel RB1-0



5G NR n77 60MHz BPSK Middle Channel RB1-0



5G NR n77 60MHz BPSK Low Channel RB1-161



5G NR n77 60MHz BPSK Middle Channel RB1-161



5G NR n77 60MHz BPSK Low Channel RB162-0



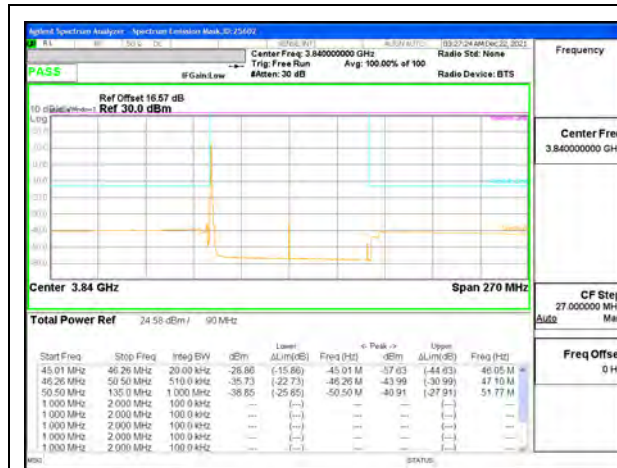
5G NR n77 60MHz BPSK Middle Channel RB162-0



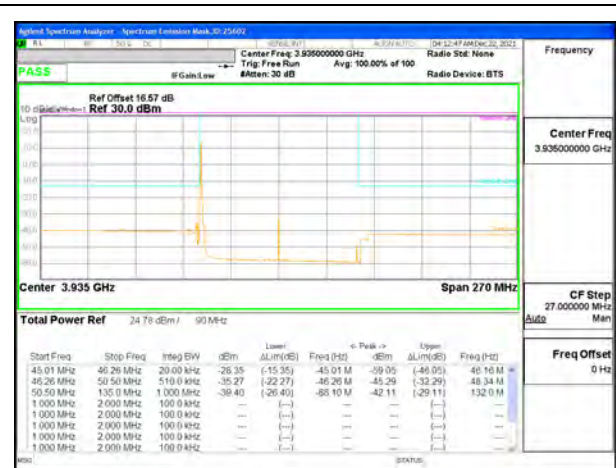




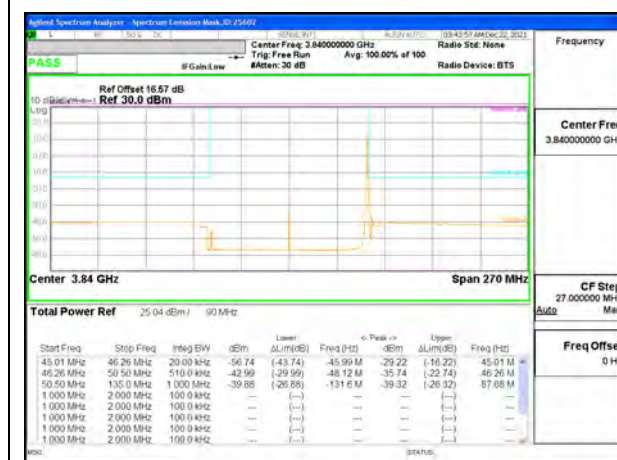




5G NR n77 90MHz BPSK Middle Channel RB1-0



5G NR n77 90MHz BPSK High Channel RB1-0



5G NR n77 90MHz BPSK Middle Channel RB1-244



5G NR n77 90MHz BPSK High Channel RB1-244

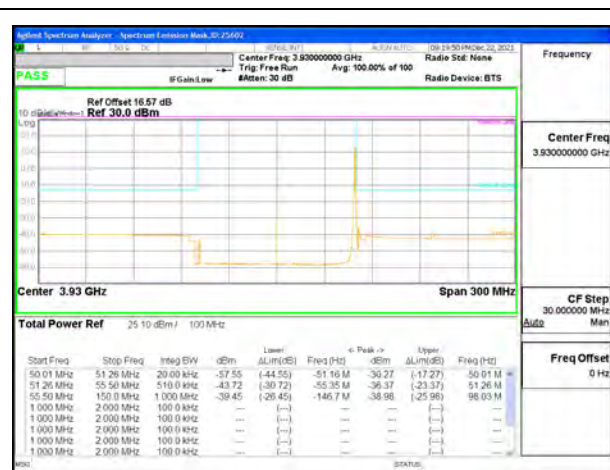
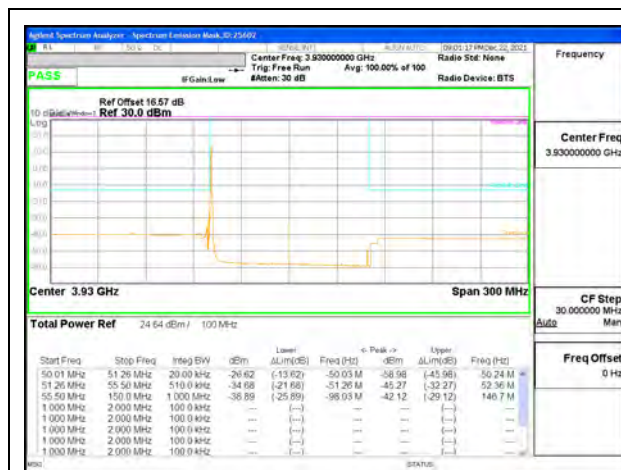


5G NR n77 90MHz BPSK Middle Channel RB243-0



5G NR n77 90MHz BPSK High Channel RB243-0





Intentionally Blank

9.3. OUT OF BAND EMISSIONS

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm, -25dBm and -40dBm according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

Both QPSK and 16QAM modes are tested, QPSK bandwidths results are reported as worst case.

9.3.1. 5G NR n5

LIMITS

FCC: §22.917 (a)

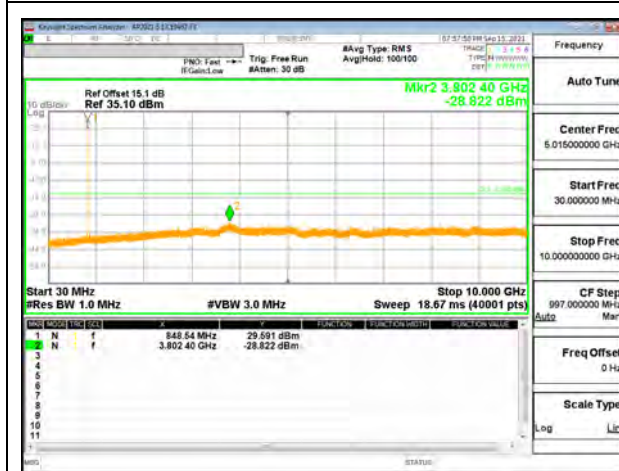
The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.



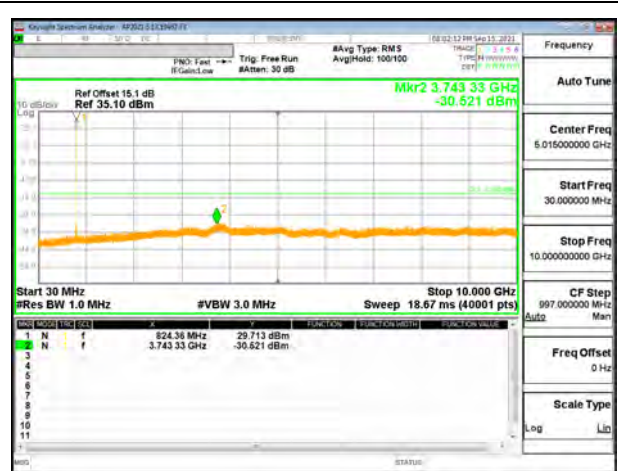
5G NR n5 5MHz BPSK Low Channel RB1-0



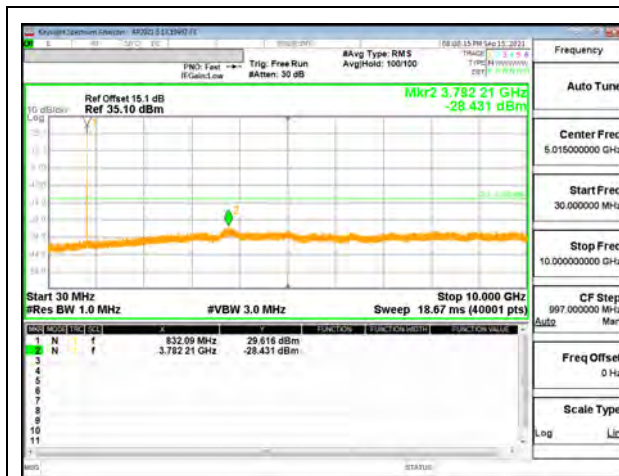
5G NR n5 5MHz BPSK Middle Channel RB1-1



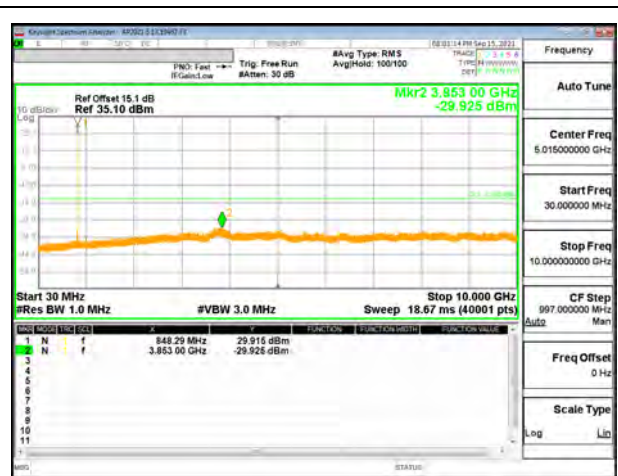
5G NR n5 5MHz BPSK High Channel RB1-24



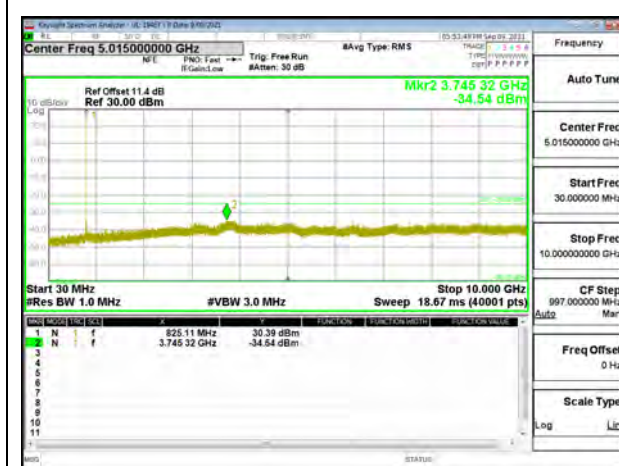
5G NR n5 10MHz BPSK Low Channel RB1-0



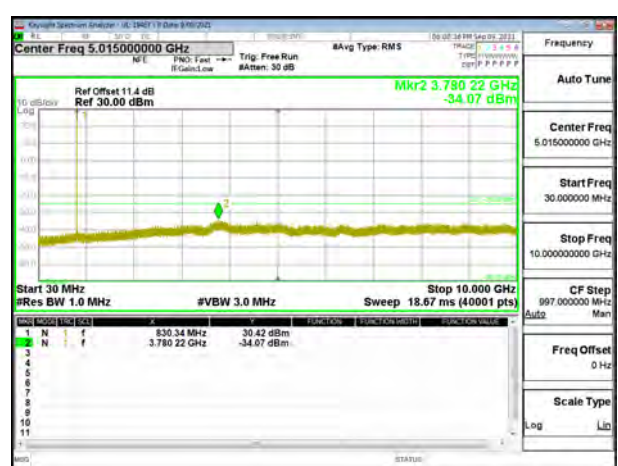
5G NR n5 10MHz BPSK Middle Channel RB1-1



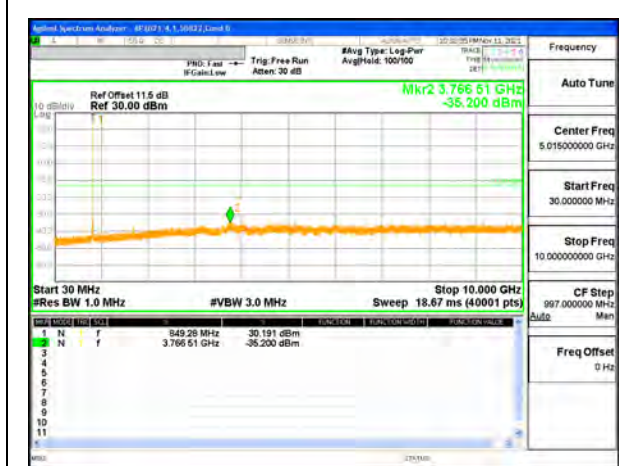
5G NR n5 10MHz BPSK High Channel RB1-51



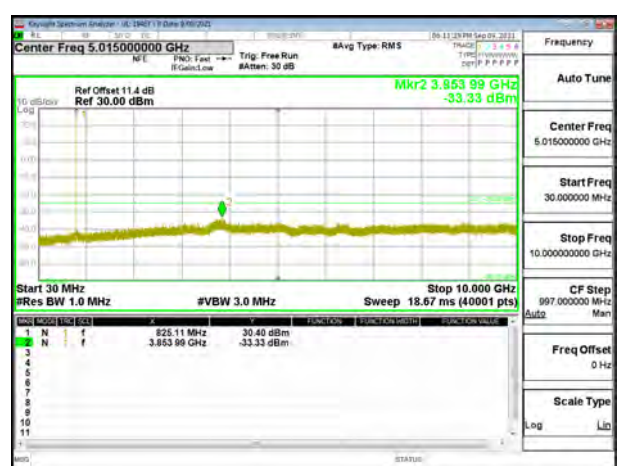
5G NR n5 15MHz BPSK Low Channel RB1-0



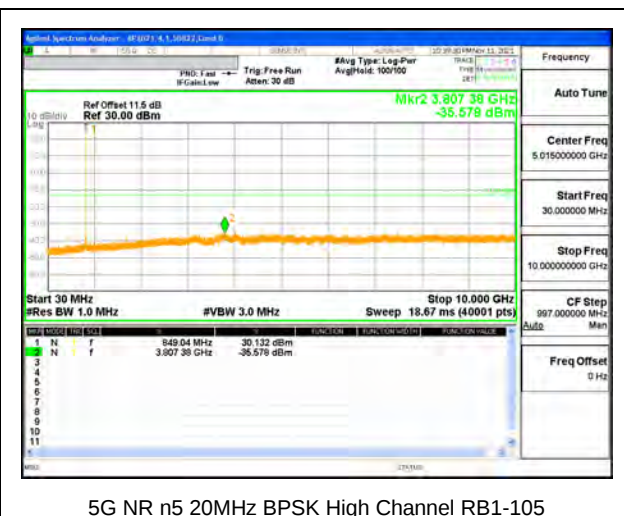
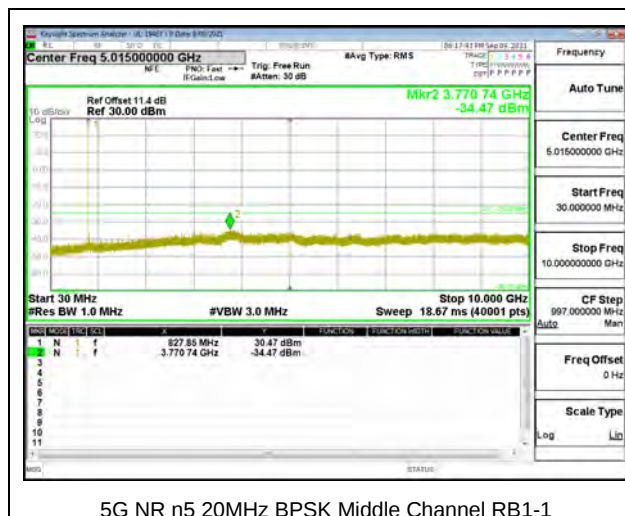
5G NR n5 15MHz BPSK Middle Channel RB1-1



5G NR n5 15MHz BPSK High Channel RB1-78



5G NR n5 20MHz BPSK Low Channel RB1-0



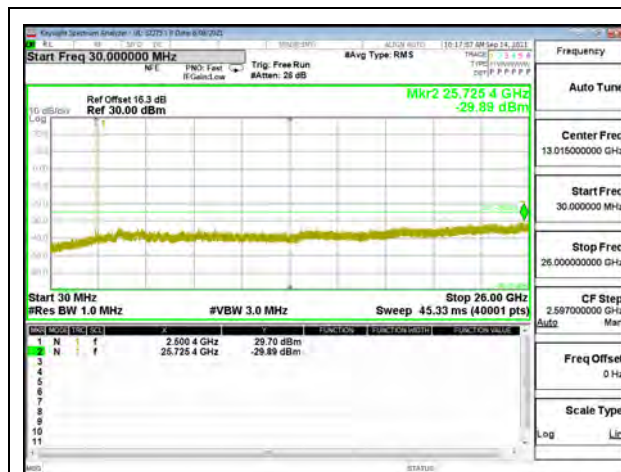
9.3.2. LTE BAND 7 AND 5G NR n7

LIMITS

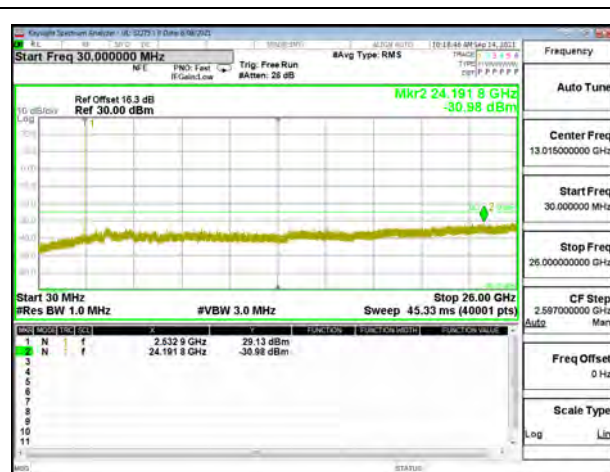
FCC: §27.53 (m)

The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.

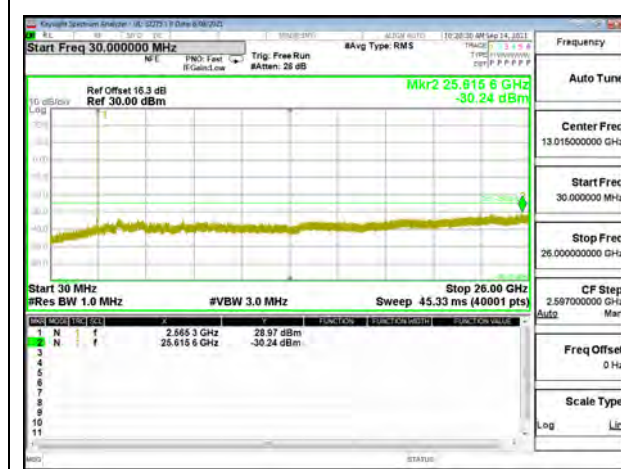
LTE BAND 7



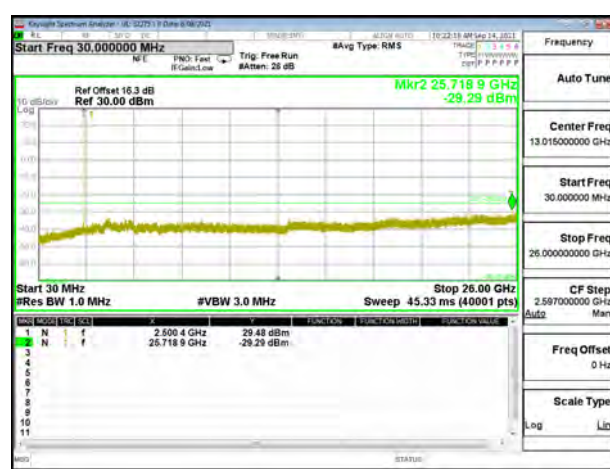
LTE B7 5MHz QPSK Low Channel RB1-0



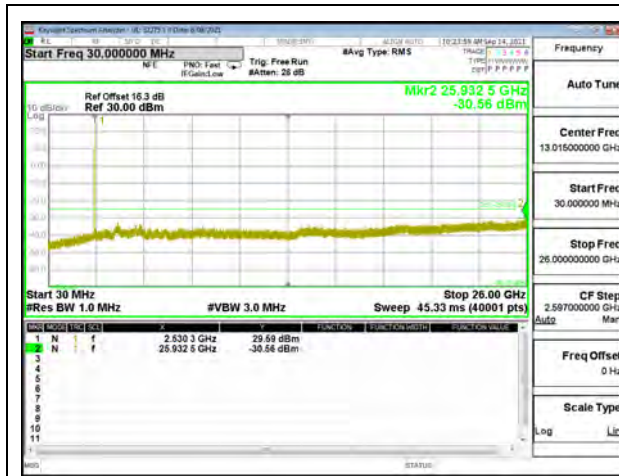
LTE B7 5MHz QPSK Middle Channel RB1-0



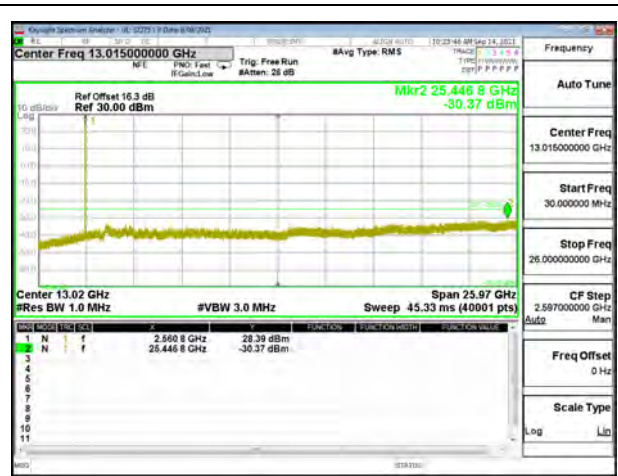
LTE B7 5MHz QPSK High Channel RB1-0



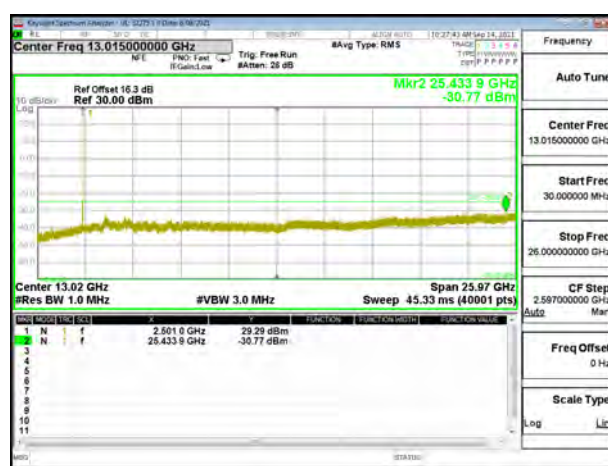
LTE B7 10MHz QPSK Low Channel RB1-0



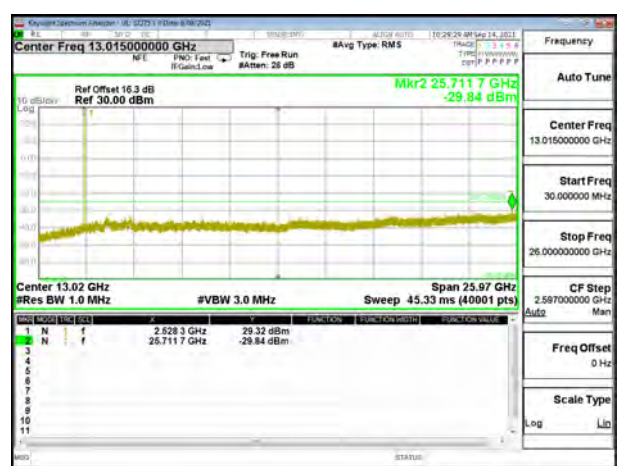
LTE B7 10MHz QPSK Middle Channel RB1-0



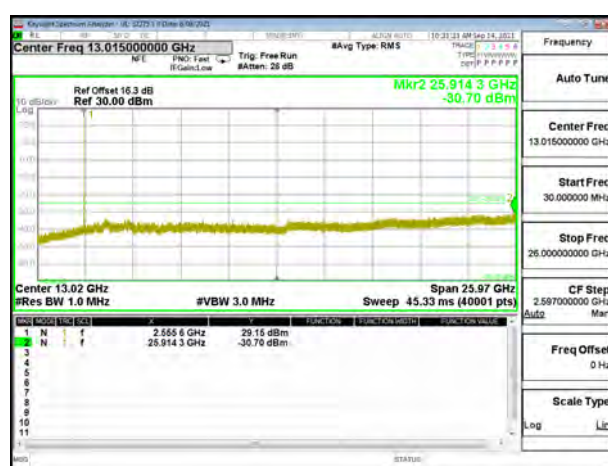
LTE B7 10MHz QPSK High Channel RB1-0



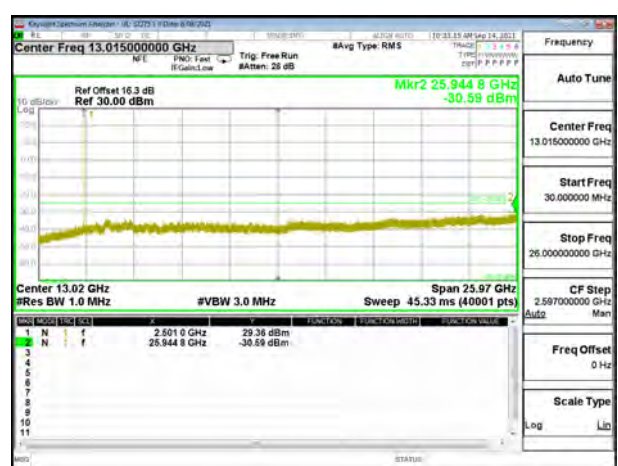
LTE B7 15MHz QPSK Low Channel RB1-0



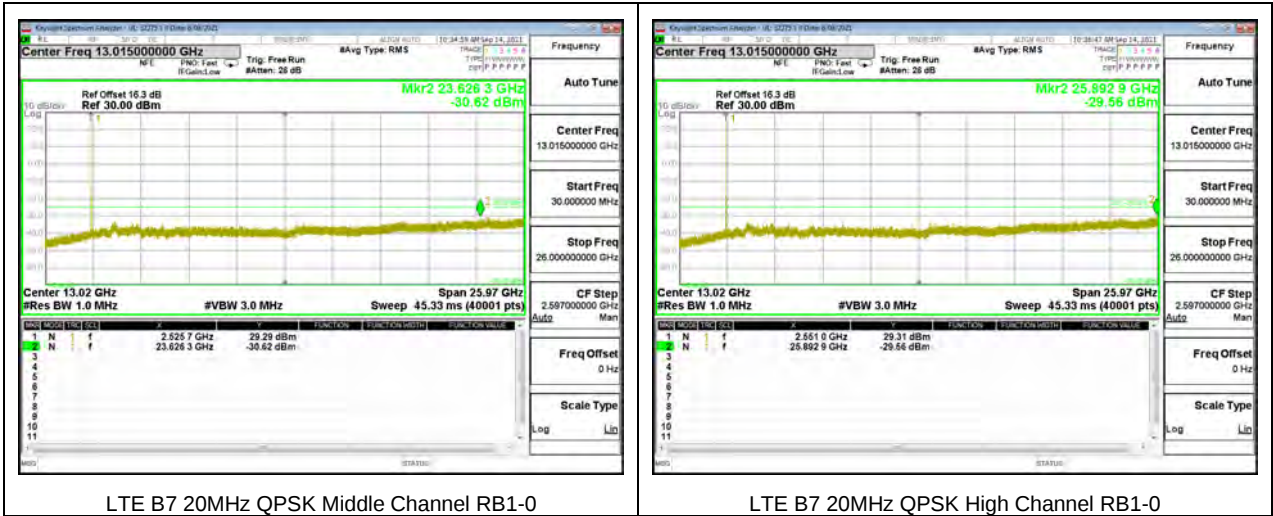
LTE B7 15MHz QPSK Middle Channel RB1-0



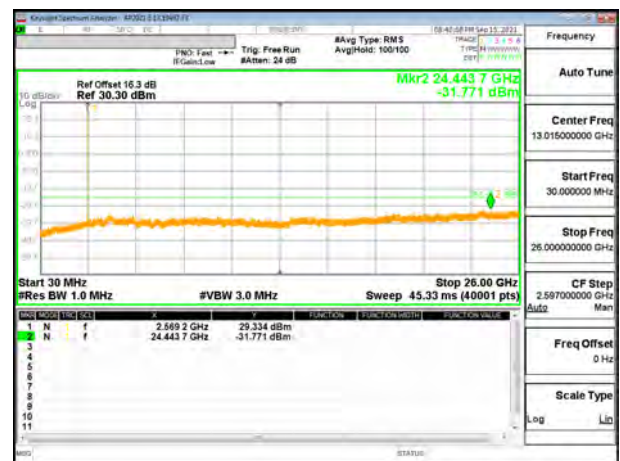
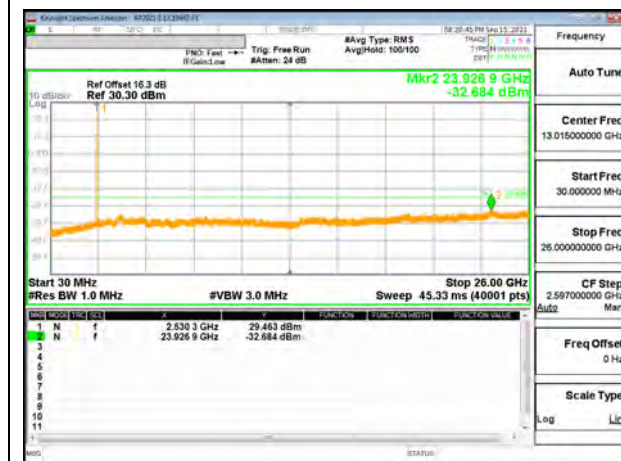
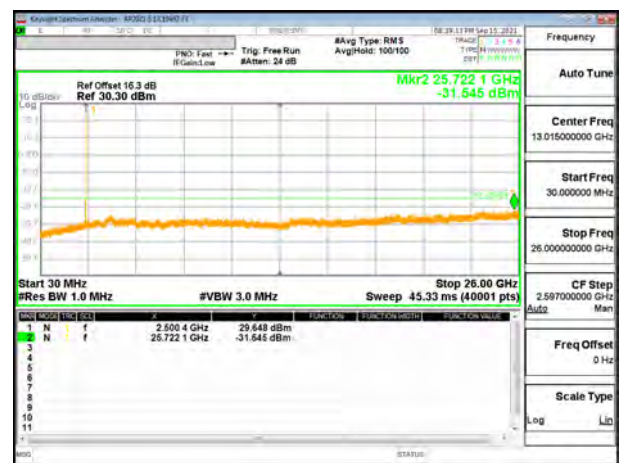
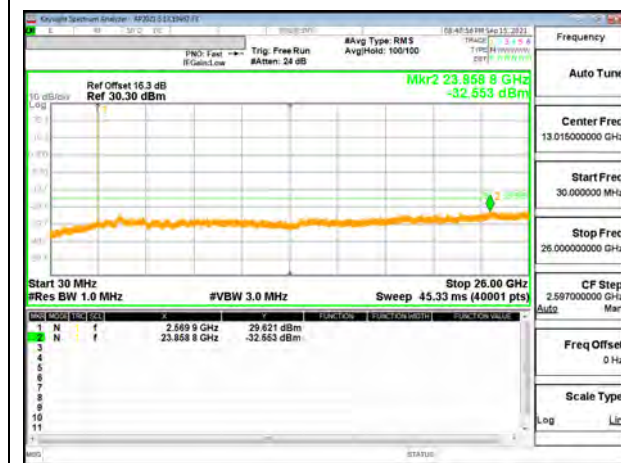
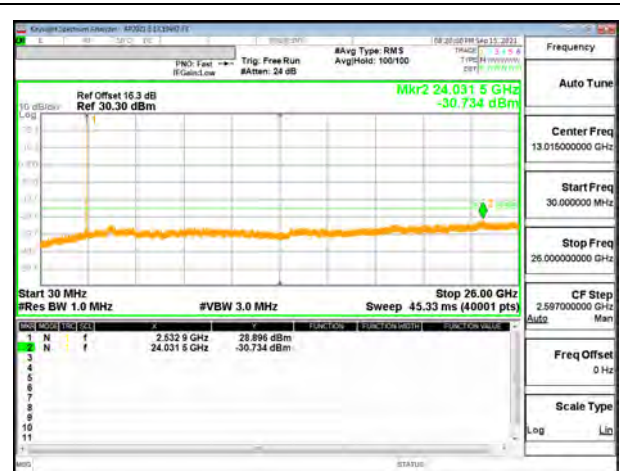
LTE B7 15MHz QPSK High Channel RB1-0



LTE B7 20MHz QPSK Low Channel RB1-0



5G NR n7

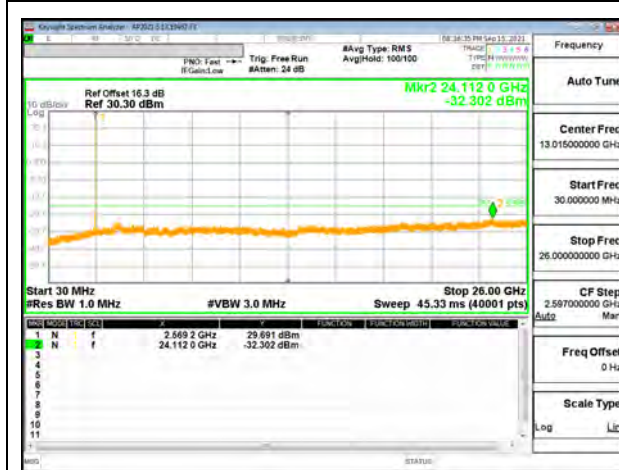




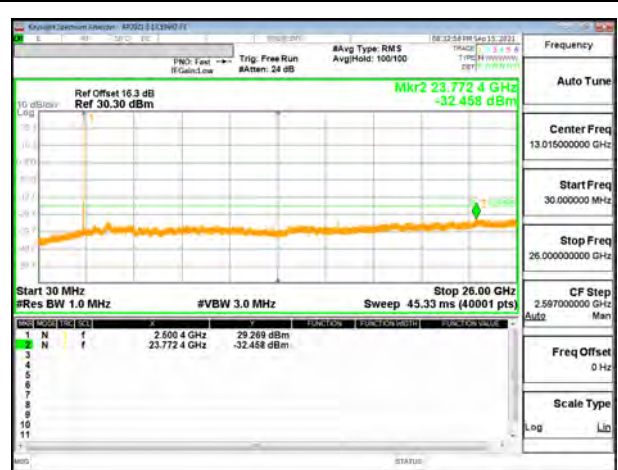
5G NR n7 15MHz BPSK Low Channel RB1-0



5G NR n7 15MHz BPSK Middle Channel RB1-1



5G NR n7 15MHz BPSK High Channel RB1-78



5G NR n7 20MHz BPSK Low Channel RB1-0



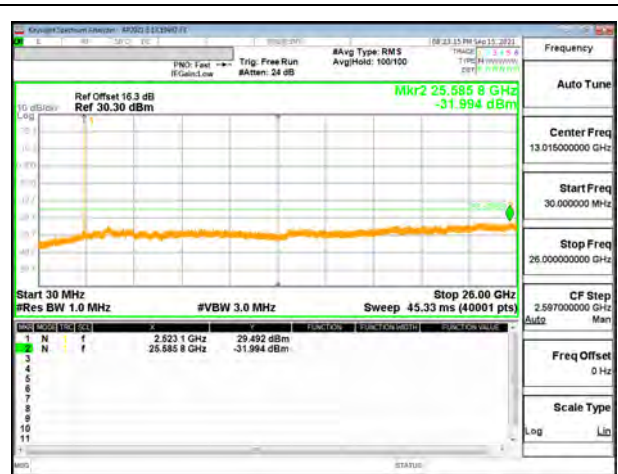
5G NR n7 20MHz BPSK Middle Channel RB1-1



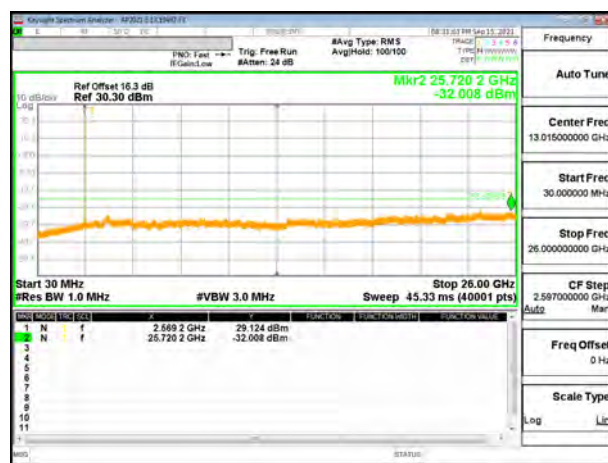
5G NR n7 20MHz BPSK High Channel RB1-105



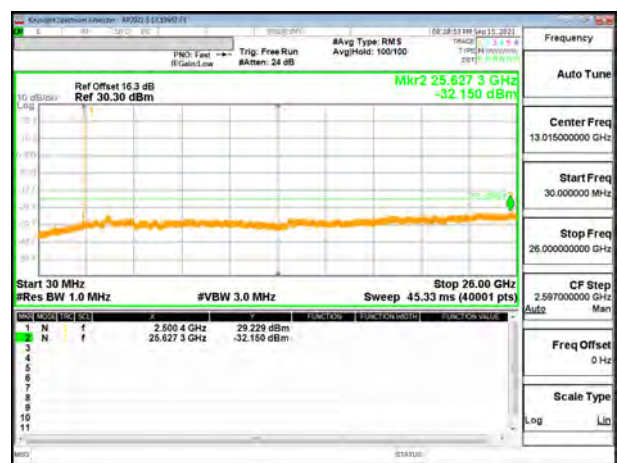
5G NR n7 25MHz BPSK Low Channel RB1-0



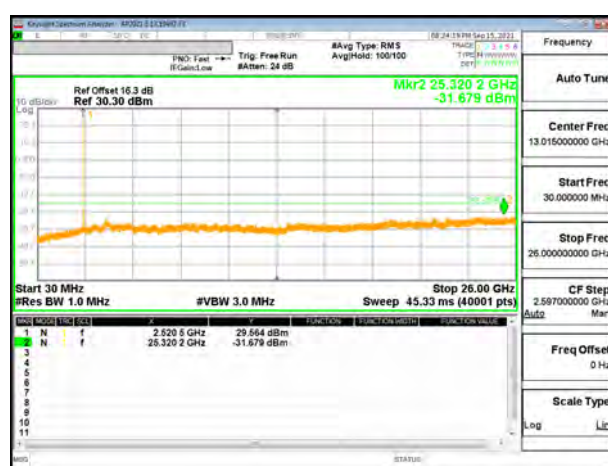
5G NR n7 25MHz BPSK Middle Channel RB1-1



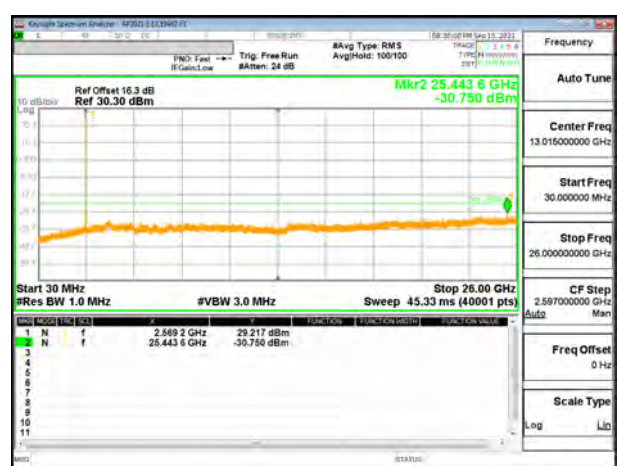
5G NR n7 25MHz BPSK High Channel RB1-132



5G NR n7 30MHz BPSK Low Channel RB1-0



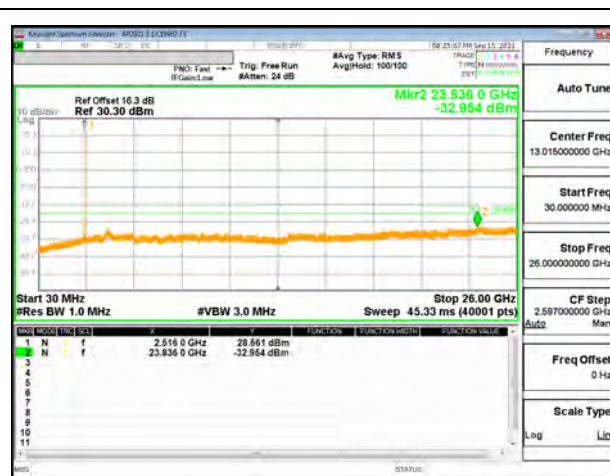
5G NR n7 30MHz BPSK Middle Channel RB1-1



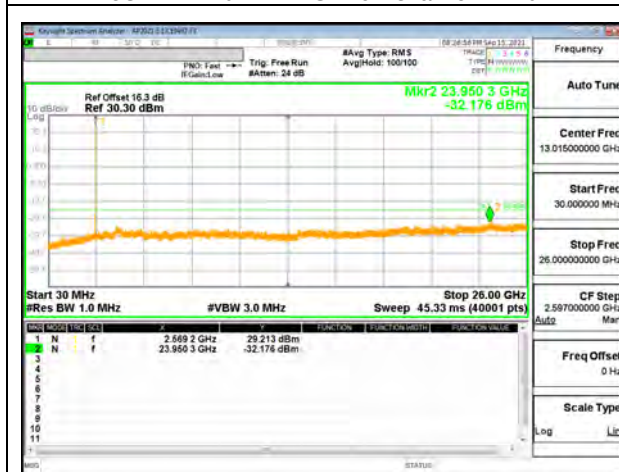
5G NR n7 30MHz BPSK High Channel RB1-159



5G NR n7 40MHz BPSK Low Channel RB1-0



5G NR n7 40MHz BPSK Middle Channel RB1-1



5G NR n7 40MHz BPSK High Channel RB1-215

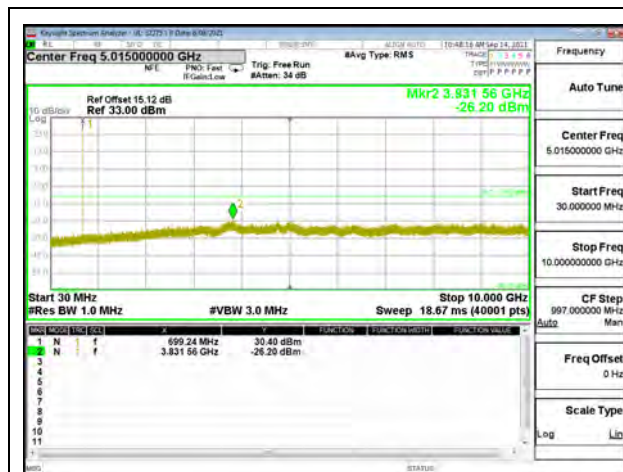
9.3.3. LTE BAND 12 AND 5G NR n12

LIMITS

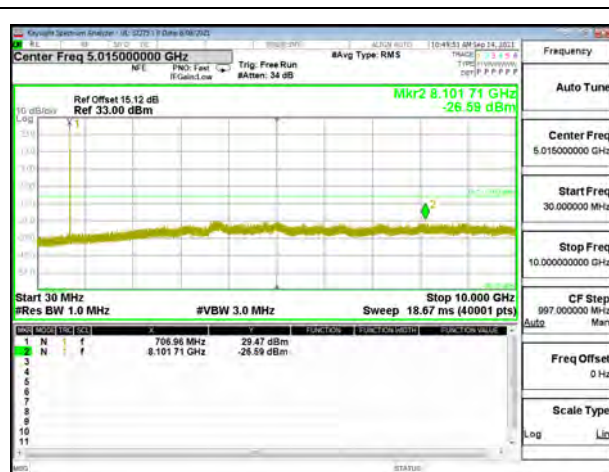
FCC: §27.53 (g)

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

LTE BAND 12



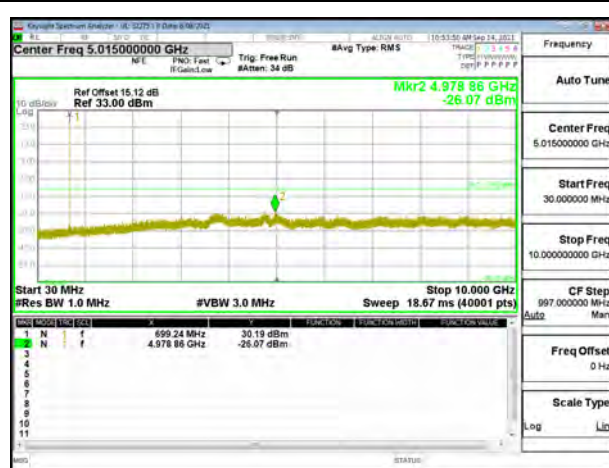
LTE B12 1.4MHz QPSK Low Channel RB1-0



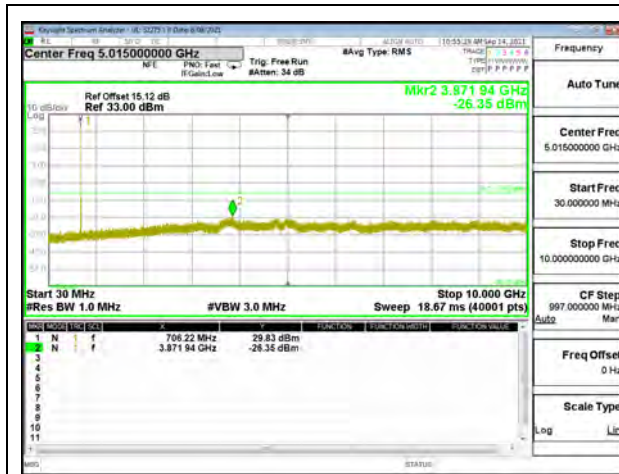
LTE B12 1.4MHz QPSK Middle Channel RB1-0



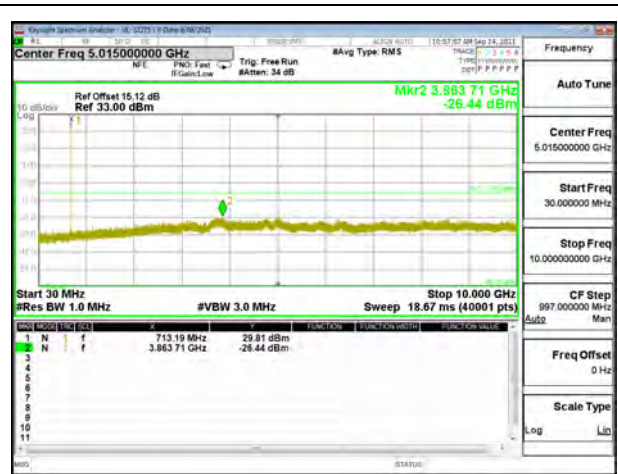
LTE B12 1.4MHz QPSK High Channel RB1-0



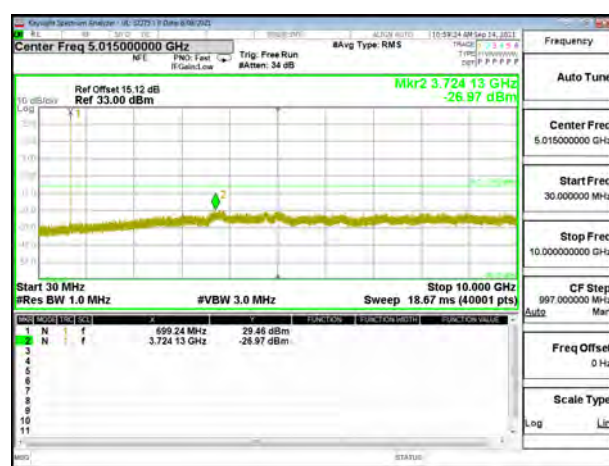
LTE B12 3MHz QPSK Low Channel RB1-0



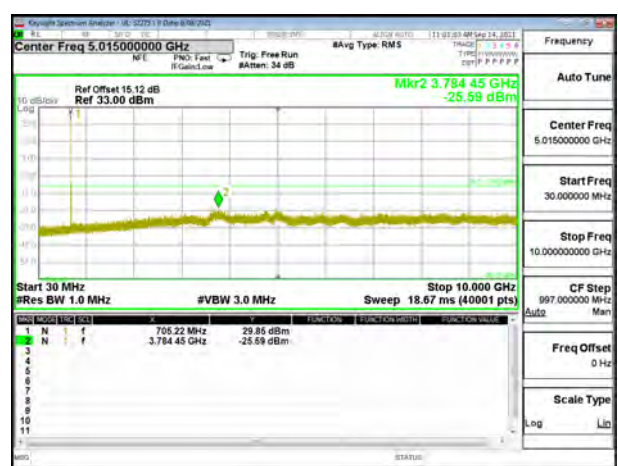
LTE B12 3MHz QPSK Middle Channel RB1-0



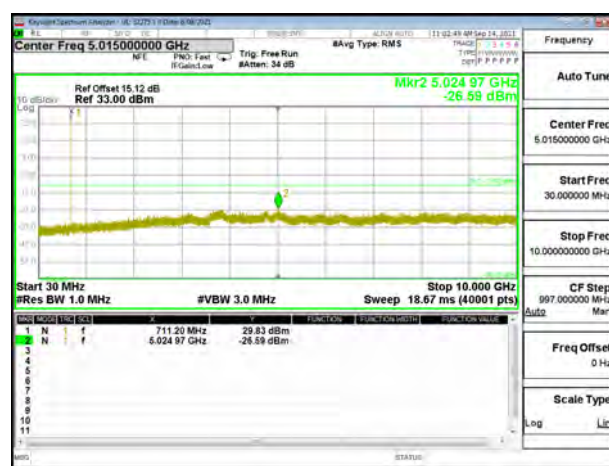
LTE B12 3MHz QPSK High Channel RB1-0



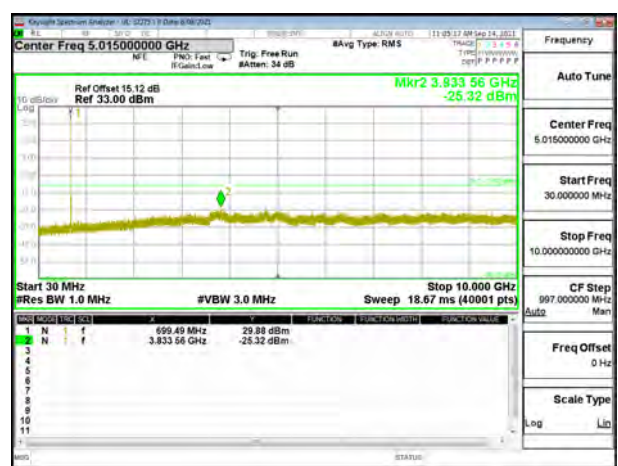
LTE B12 5MHz QPSK Low Channel RB1-0



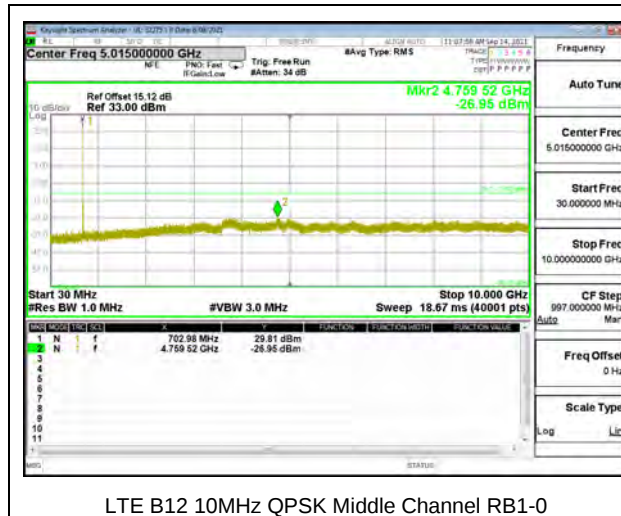
LTE B12 5MHz QPSK Middle Channel RB1-0



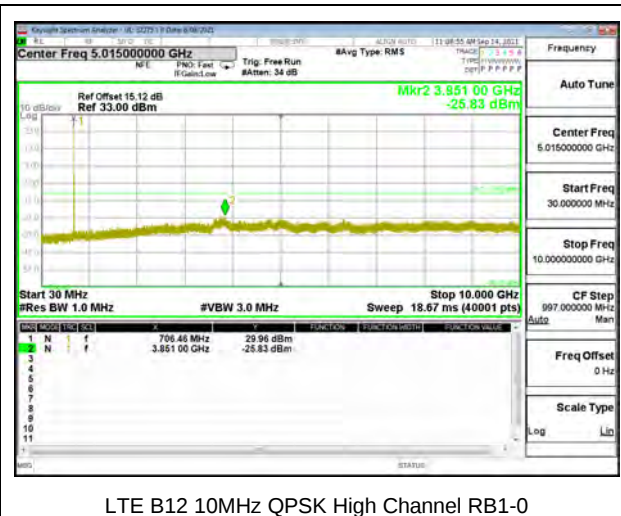
LTE B12 5MHz QPSK High Channel RB1-0



LTE B12 10MHz QPSK Low Channel RB1-0



LTE B12 10MHz QPSK Middle Channel RB1-0



LTE B12 10MHz QPSK High Channel RB1-0

5G NR n12



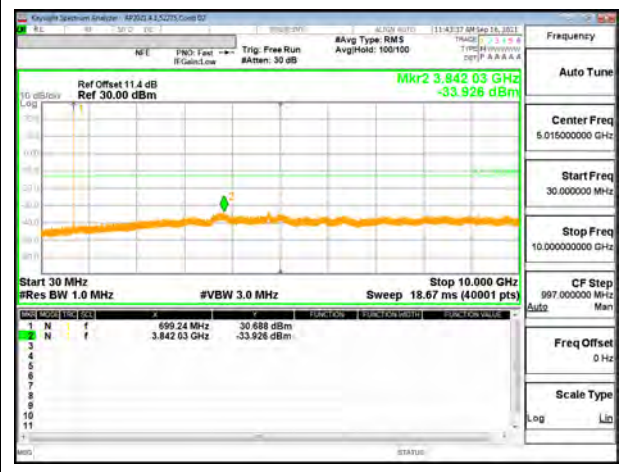
5G NR n12 5MHz BPSK Low Channel RB1-0



5G NR n12 5MHz BPSK Middle Channel RB1-1



5G NR n12 5MHz BPSK High Channel RB1-24



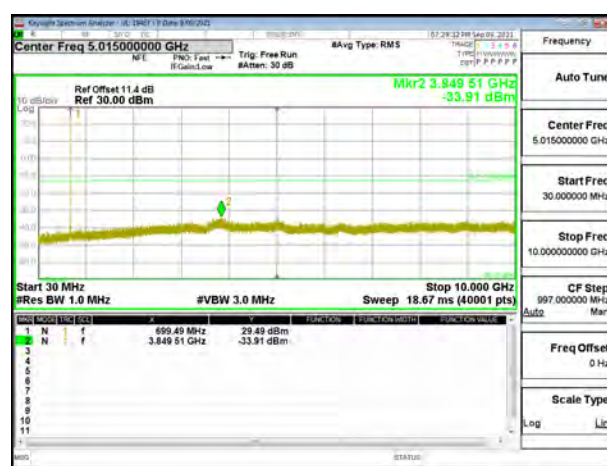
5G NR n12 10MHz BPSK Low Channel RB1-0



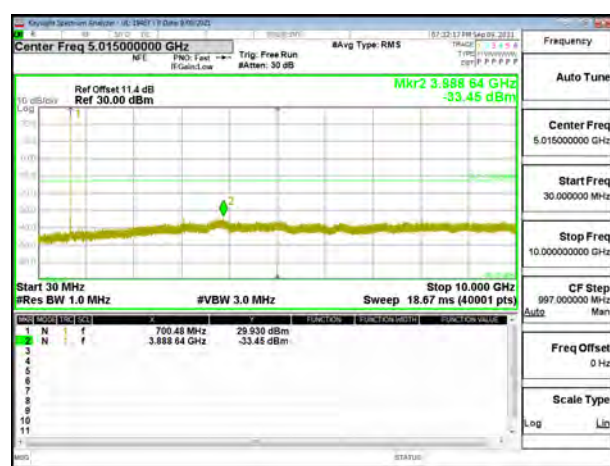
5G NR n12 10MHz BPSK Middle Channel RB1-1



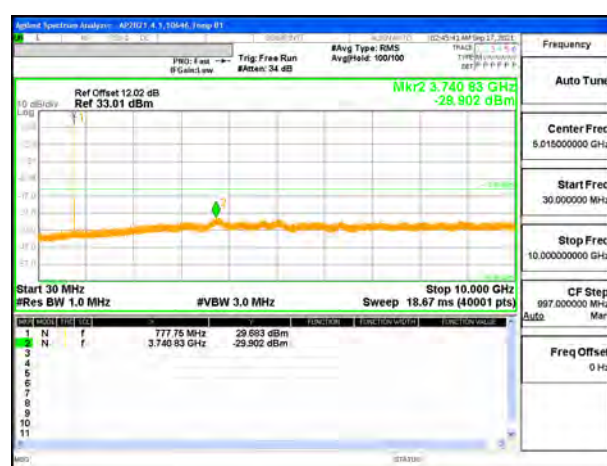
5G NR n12 10MHz BPSK High Channel RB1-51



5G NR n12 15MHz BPSK Low Channel RB1-0



5G NR n12 15MHz BPSK Middle Channel RB1-1



5G NR n12 15MHz BPSK High Channel RB1-78

9.3.4. LTE BAND 13

LIMITS

FCC: §27.53 (c), (f)

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log(P)$ dB where transmitting power (P) in Watts. 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.

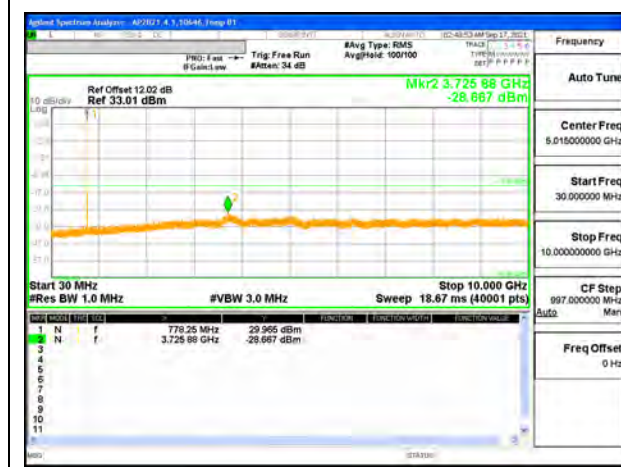
Note: Radiated data in section 9.1.6 confirms a compliance for the emissions in GPS 1559-1610 MHz band were wideband emissions therefore the -40 dBm/MHz limit was used.



LTE B13 5MHz QPSK Low Channel RB1-0



LTE B13 5MHz QPSK High Channel RB1-0



LTE B13 10MHz QPSK Middle Channel RB1-0

Note: Radiated data in section 9.1.6 confirms a compliance with narrowband limits for GPS1559-1610 MHz band.

9.3.5. LTE BAND 14

LIMITS

FCC: §90.543 (e), (f)

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts. 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.

Note: Radiated data in section 9.1.7 confirms a compliance for the emissions in GPS 1559-1610 MHz band were wideband emissions therefore the -40 dBm/MHz limit was used.



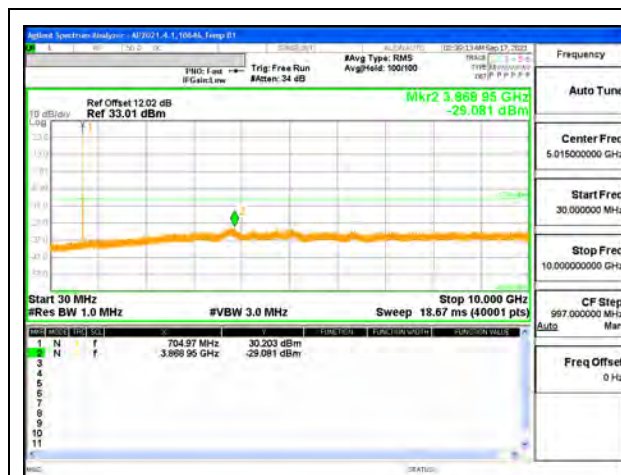
Note: Radiated data in section 9.1.7 confirms a compliance with narrowband limits for GPS1559-1610 MHz band.

9.3.6. LTE BAND 17

LIMITS

FCC: §27.53 (g)

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.



LTE B17 5MHz QPSK Low Channel RB1-0



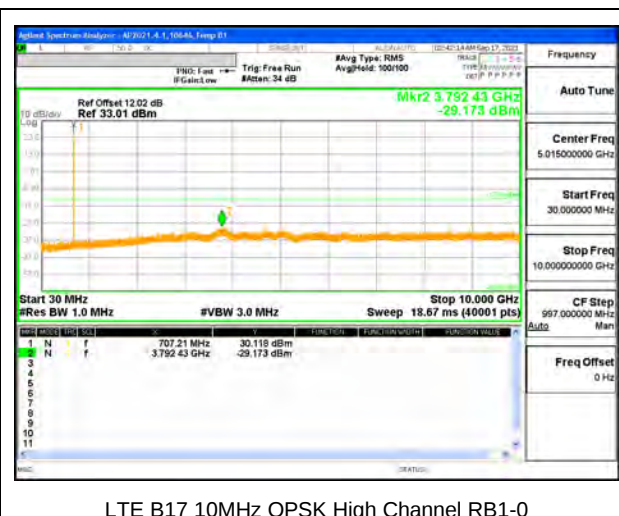
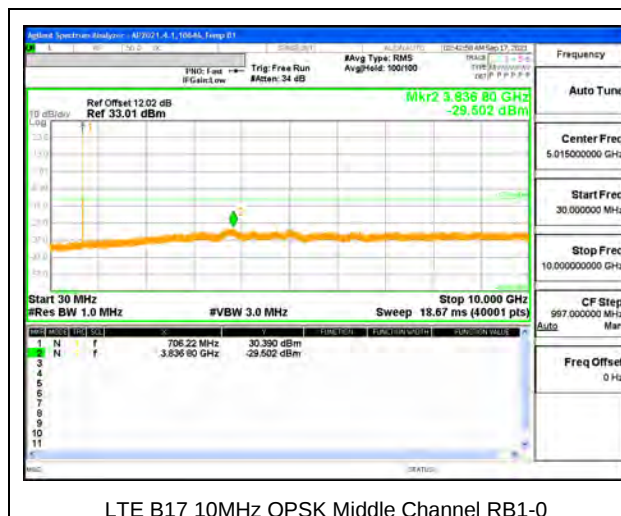
LTE B17 5MHz QPSK Middle Channel RB1-0



LTE B17 5MHz QPSK High Channel RB1-0



LTE B17 10MHz QPSK Low Channel RB1-0



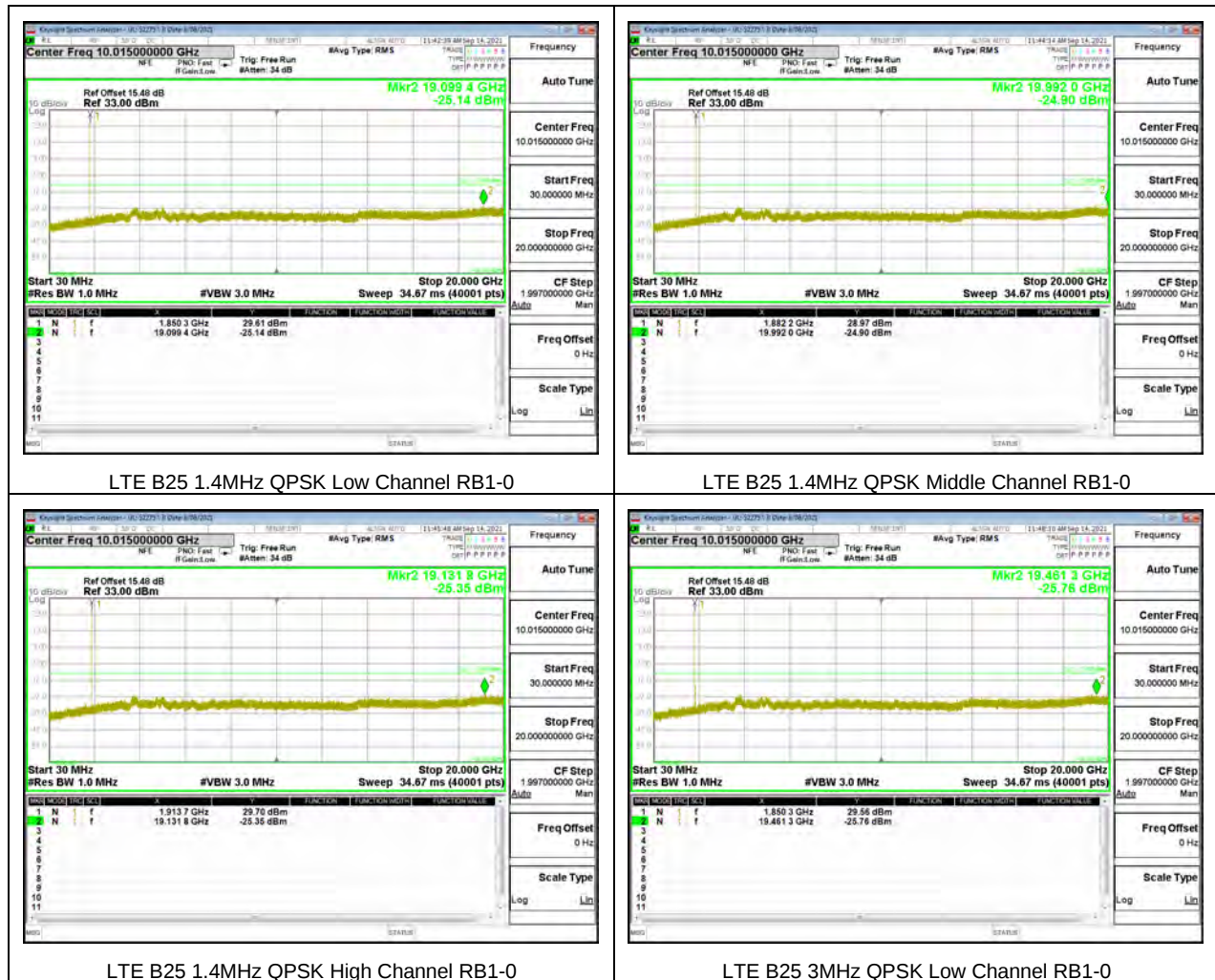
9.3.7. LTE BAND 25 AND 5G NR n25

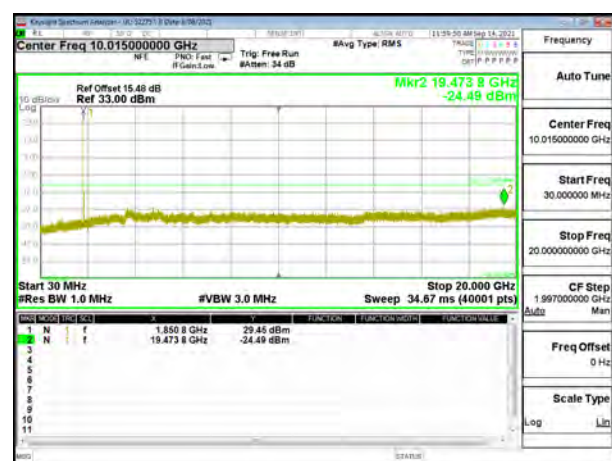
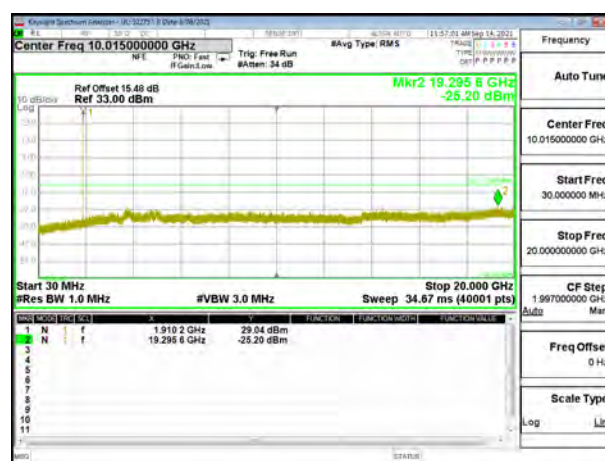
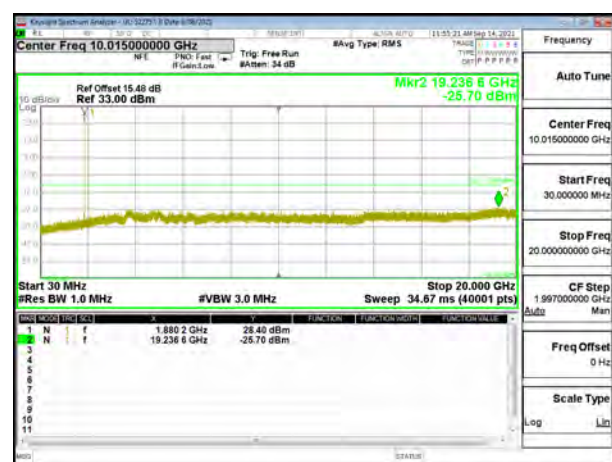
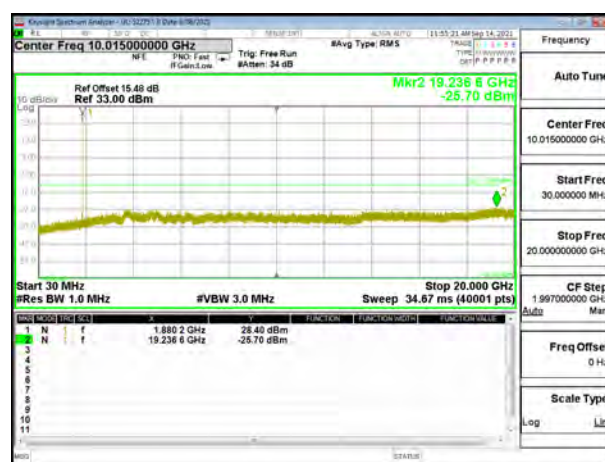
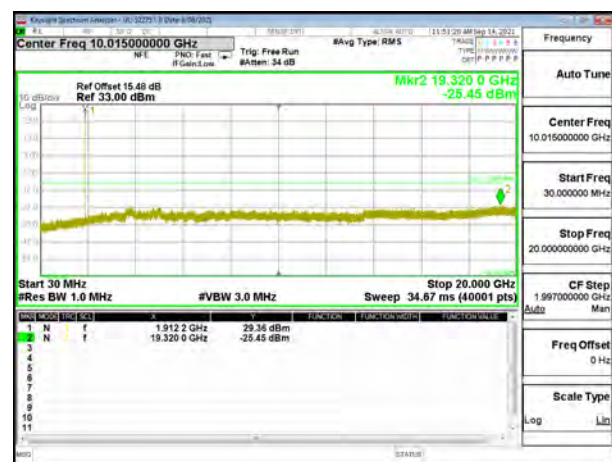
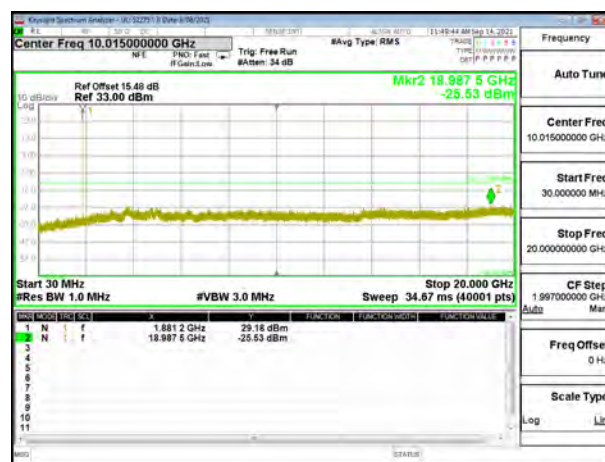
LIMITS

FCC: §24.238 (a)

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

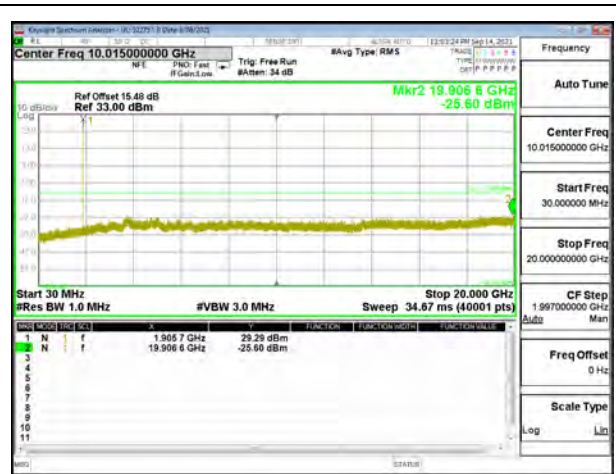
LTE BAND 25



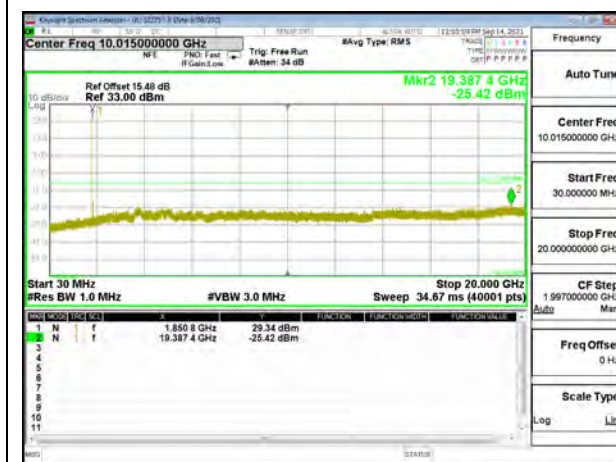




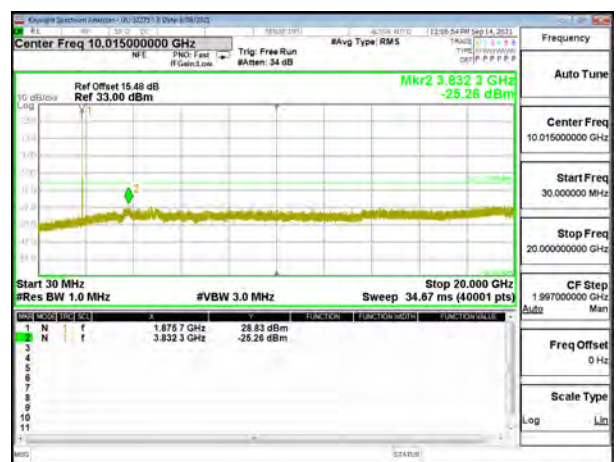
LTE B25 10MHz QPSK Middle Channel RB1-0



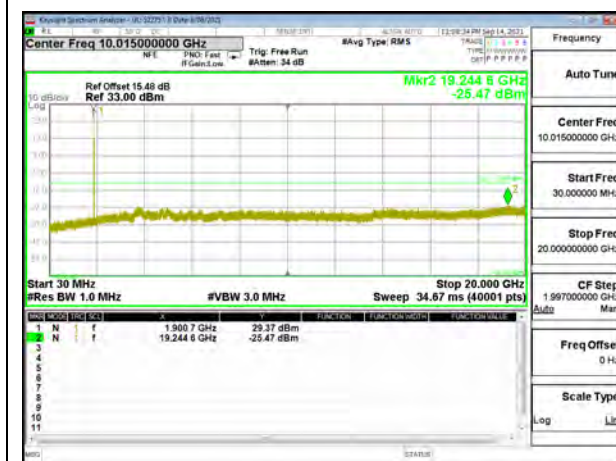
LTE B25 10MHz QPSK High Channel RB1-0



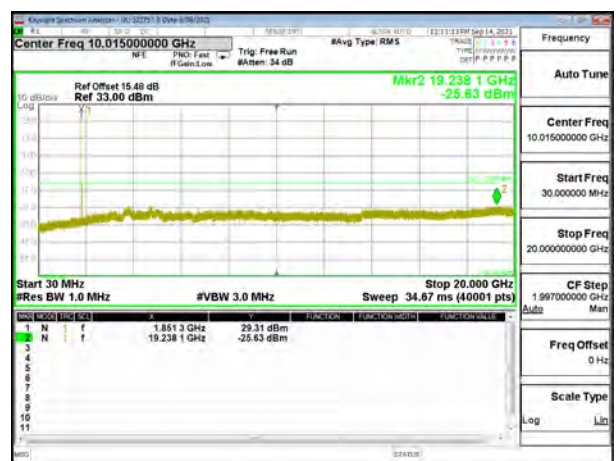
LTE B25 15MHz QPSK Low Channel RB1-0



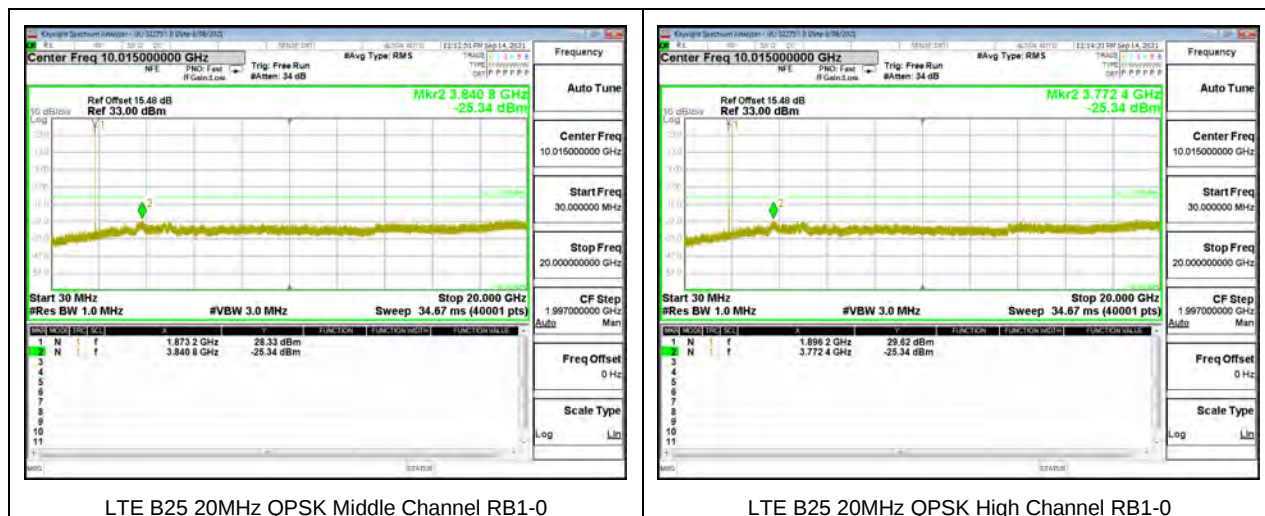
LTE B25 15MHz QPSK Middle Channel RB1-0



LTE B25 15MHz QPSK High Channel RB1-0



LTE B25 20MHz QPSK Low Channel RB1-0



5G NR n25



5G NR n25 5MHz BPSK Low Channel RB1-0



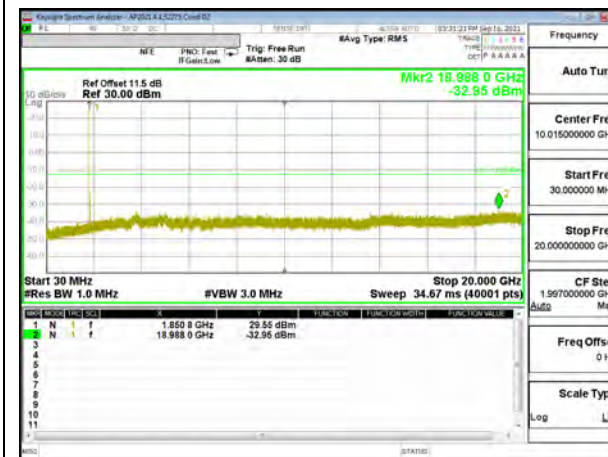
5G NR n25 5MHz BPSK Middle Channel RB1-1



5G NR n25 5MHz BPSK High Channel RB1-24



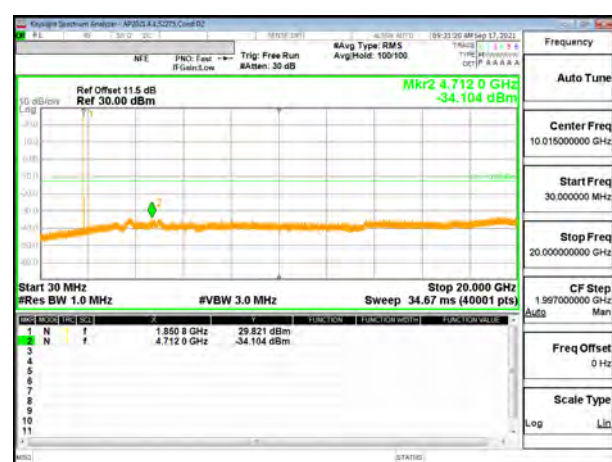
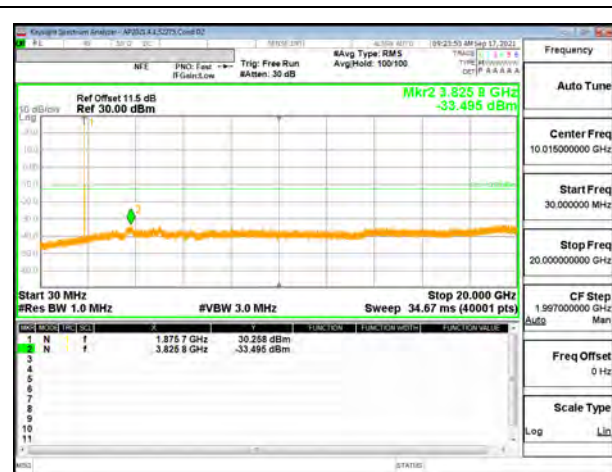
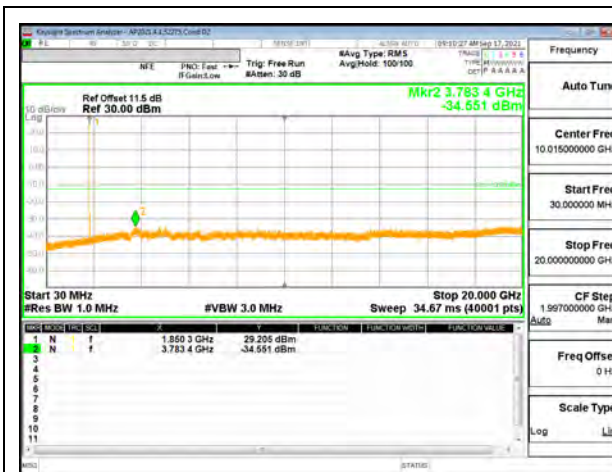
5G NR n25 10MHz BPSK Low Channel RB1-0

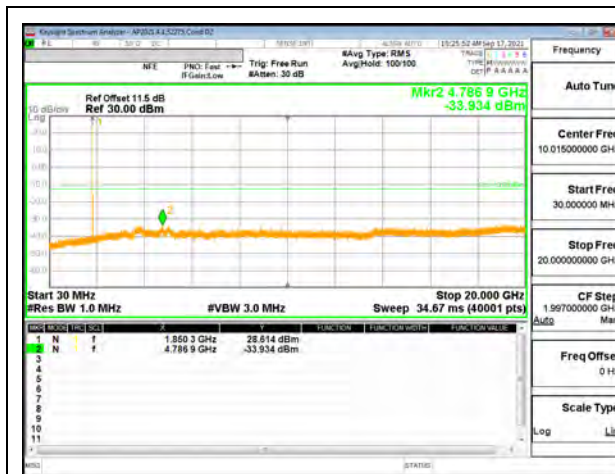


5G NR n25 10MHz BPSK Middle Channel RB1-1

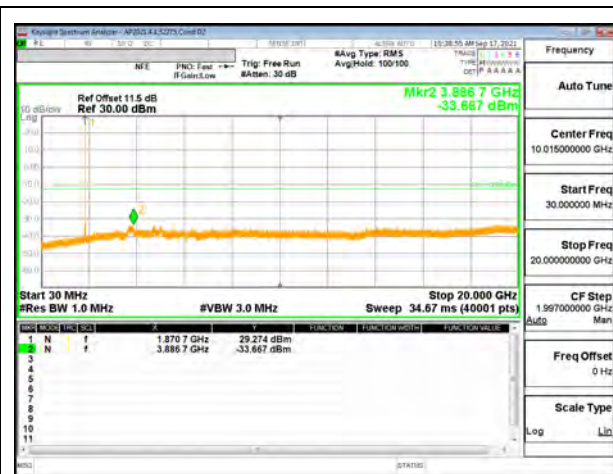


5G NR n25 10MHz BPSK High Channel RB1-51





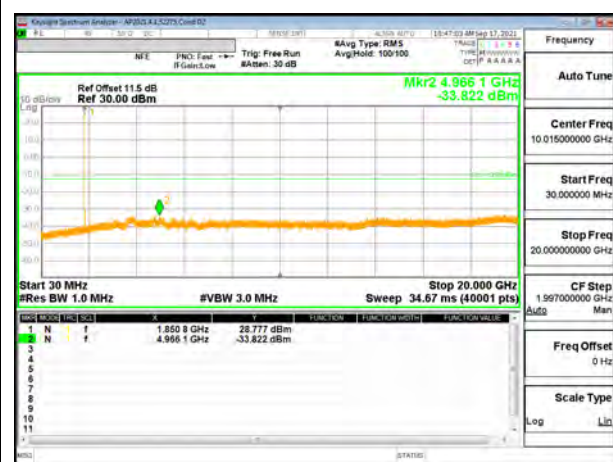
5G NR n25 25MHz BPSK Low Channel RB1-0



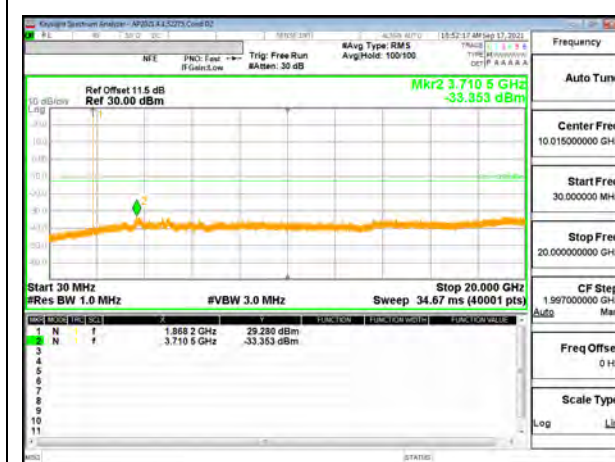
5G NR n25 25MHz BPSK Middle Channel RB1-1



5G NR n25 25MHz BPSK High Channel RB1-132



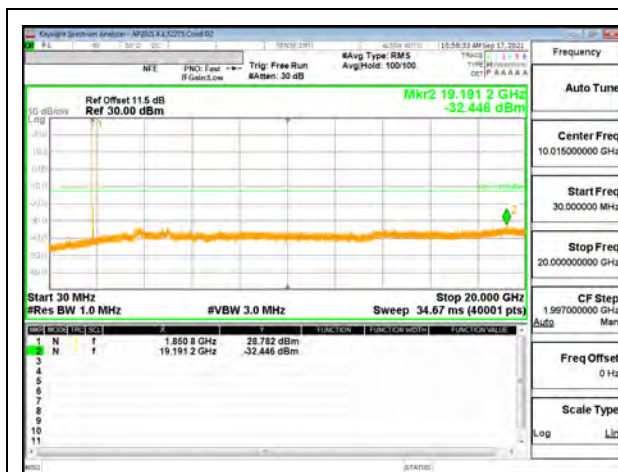
5G NR n25 30MHz BPSK Low Channel RB1-0



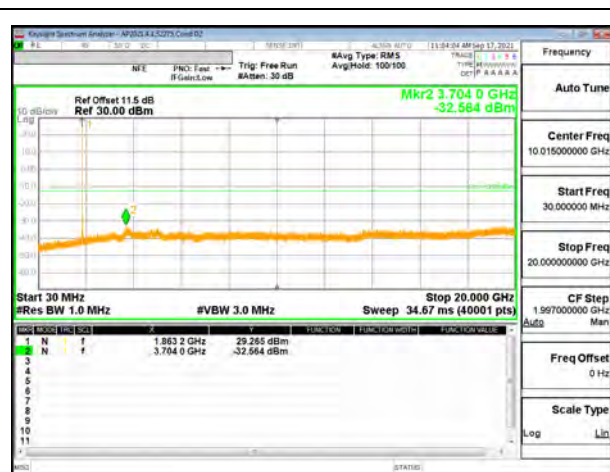
5G NR n25 30MHz BPSK Middle Channel RB1-1



5G NR n25 30MHz BPSK High Channel RB1-159



5G NR n25 40MHz BPSK Low Channel RB1-0



5G NR n25 40MHz BPSK Middle Channel RB1-1



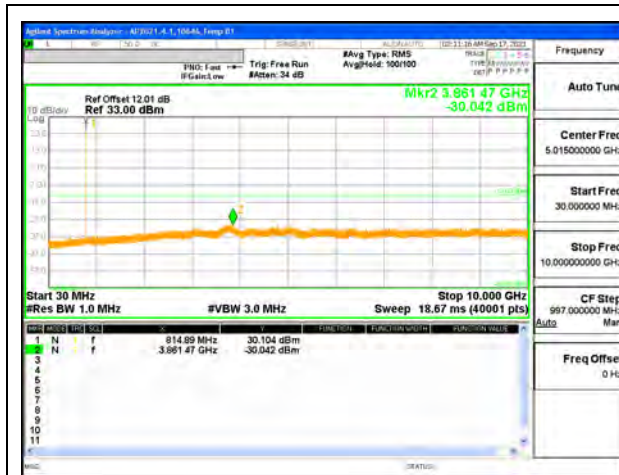
5G NR n25 40MHz BPSK High Channel RB1-215

9.3.8. LTE BAND 26 (PART 90S)

LIMITS

FCC: §90.691

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.



LTE B26 1.4MHz QPSK Low Channel RB1-0



LTE B26 1.4MHz QPSK Middle Channel RB1-0



LTE B26 1.4MHz QPSK High Channel RB1-0



LTE B26 3MHz QPSK Low Channel RB1-0



LTE B26 3MHz QPSK Middle Channel RB1-0



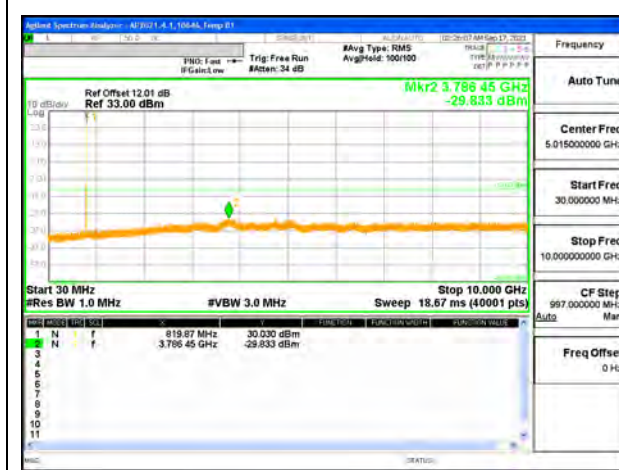
LTE B26 3MHz QPSK High Channel RB1-0



LTE B26 5MHz QPSK Low Channel RB1-0



LTE B26 5MHz QPSK Middle Channel RB1-0



LTE B26 5MHz QPSK High Channel RB1-0



LTE B26 10MHz QPSK Middle Channel RB1-0

9.3.9. LTE BAND 26 (PART 22)

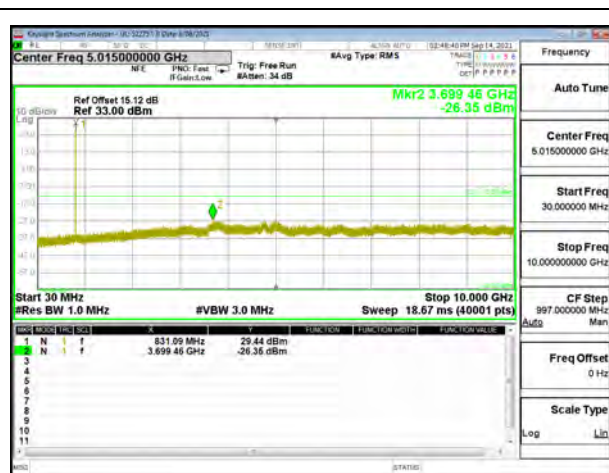
LIMITS

FCC: §22.917 (a)

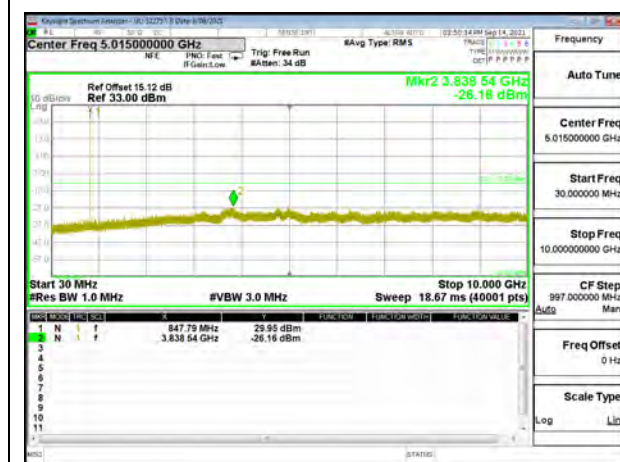
The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.



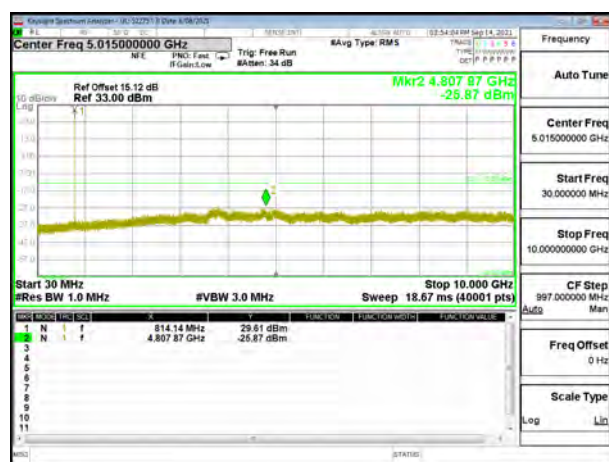
LTE B26 1.4MHz QPSK Low Channel RB1-0



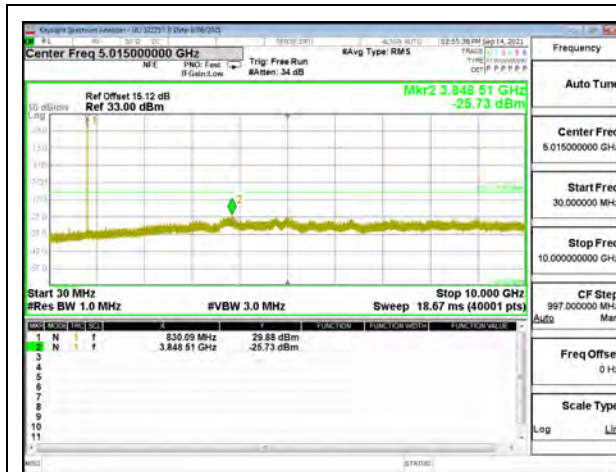
LTE B26 1.4MHz QPSK Middle Channel RB1-0



LTE B26 1.4MHz QPSK High Channel RB1-0



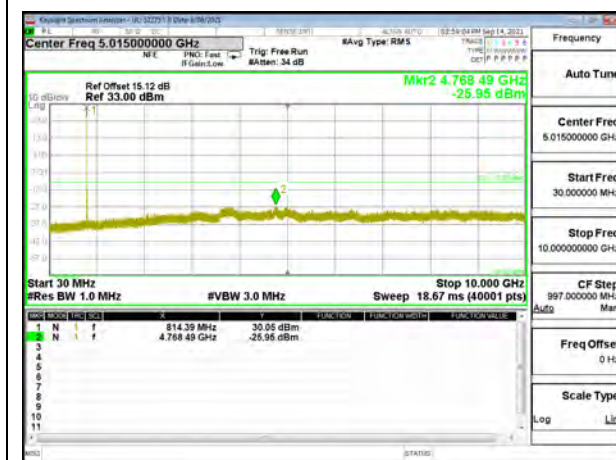
LTE B26 3MHz QPSK Low Channel RB1-0



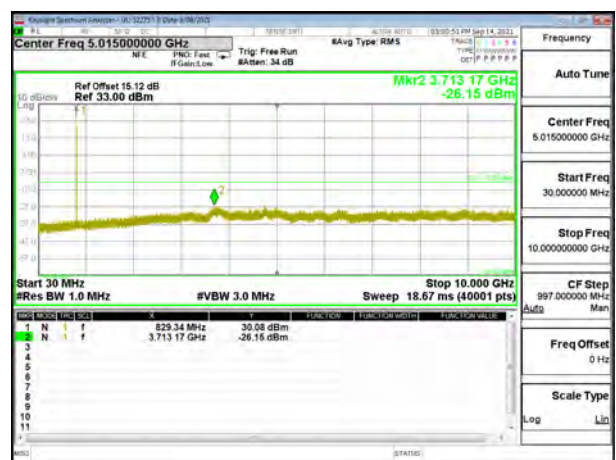
LTE B26 3MHz QPSK Middle Channel RB1-0



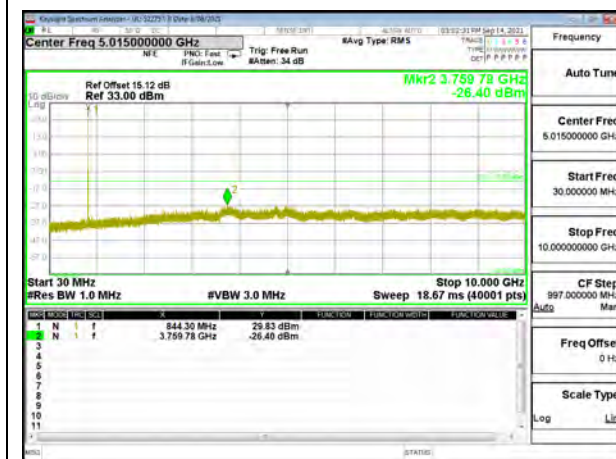
LTE B26 3MHz QPSK High Channel RB1-0



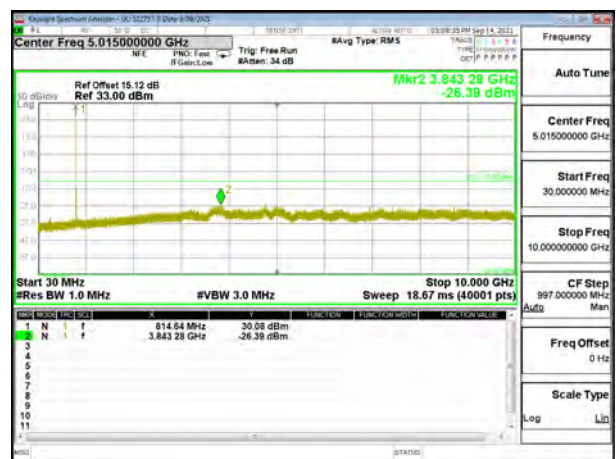
LTE B26 5MHz QPSK Low Channel RB1-0



LTE B26 5MHz QPSK Middle Channel RB1-0



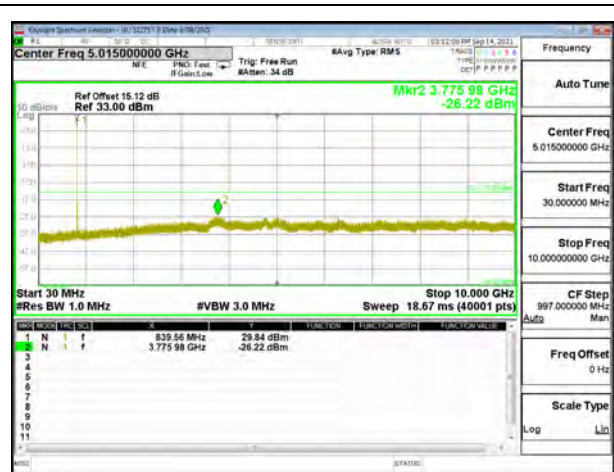
LTE B26 5MHz QPSK High Channel RB1-0



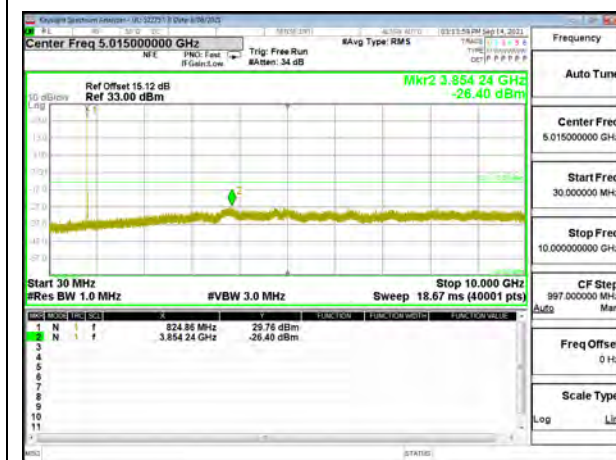
LTE B26 10MHz QPSK Low Channel RB1-0



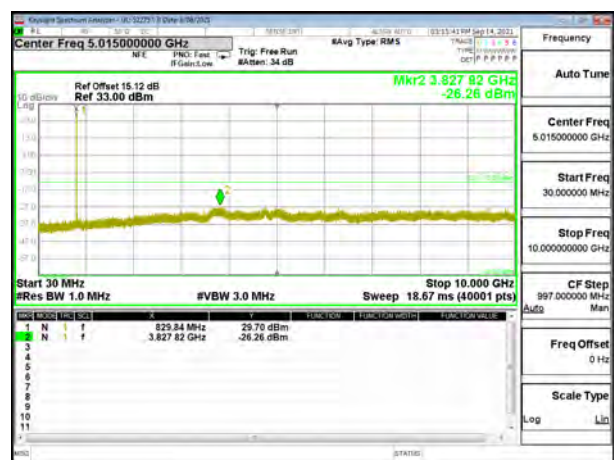
LTE B26 10MHz QPSK Middle Channel RB1-0



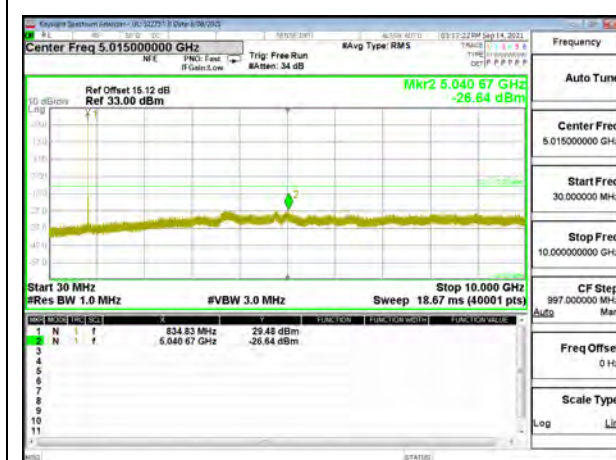
LTE B26 10MHz QPSK High Channel RB1-0



LTE B26 15MHz QPSK Low Channel RB1-0



LTE B26 15MHz QPSK Middle Channel RB1-0



LTE B26 15MHz QPSK High Channel RB1-0

9.3.10. LTE BAND 30 AND 5G NR n30

LIMITS

FCC: §27.53 (a)

The minimum permissible attenuation level of any spurious emissions is $70 + 10 \log (P)$ dB where transmitting power (P) in Watts.

LTE BAND 30





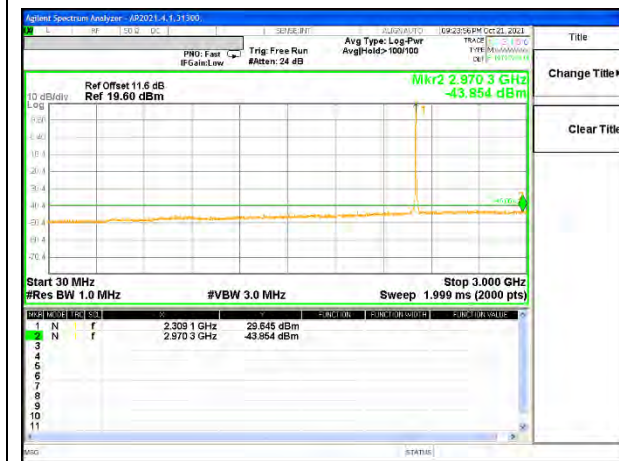
5G NR n30



5G NR n30 5MHz BPSK Low Channel RB1-0 (30M to 3G)



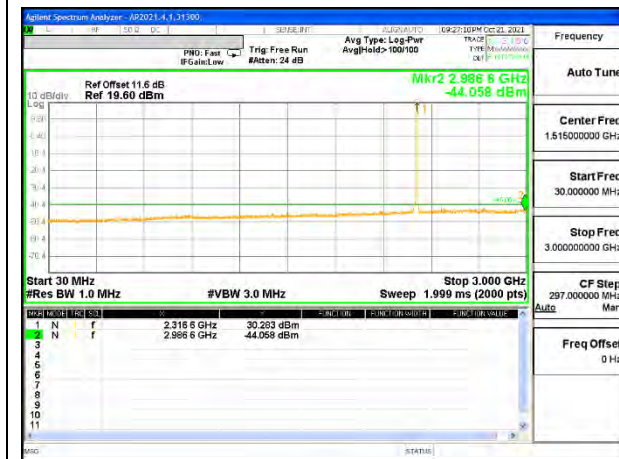
5G NR n30 5MHz BPSK Low Channel RB1-0 (3G to 26G)



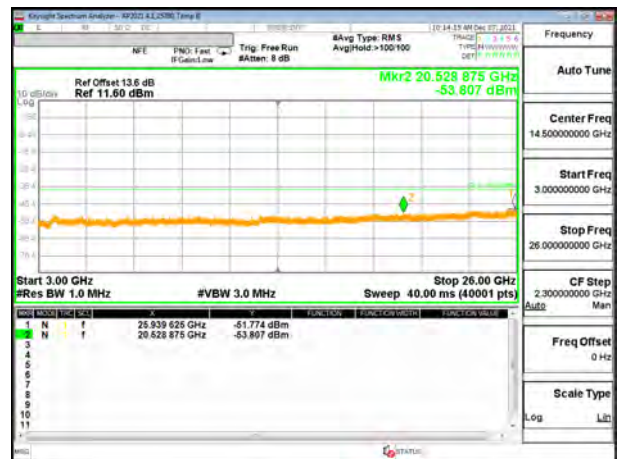
5G NR n30 5MHz BPSK Mid Channel RB1-1 (30M to 3G)



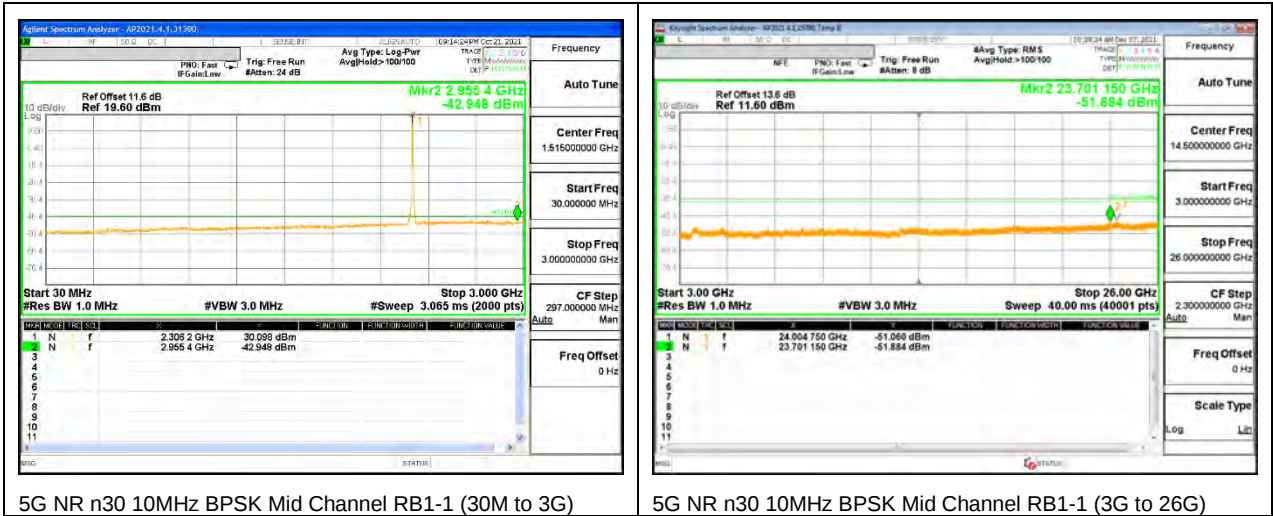
5G NR n30 5MHz BPSK Mid Channel RB1-1 (3G to 26G)



5G NR n30 5MHz BPSK High Channel RB1-24 (30M to 3G)



5G NR n30 5MHz BPSK High Channel RB1-24 (3G to 26G)



9.3.11. LTE BAND 41 AND 5G NR n41

LIMITS

FCC: §27.53 (m)

The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.

LTE BAND 41





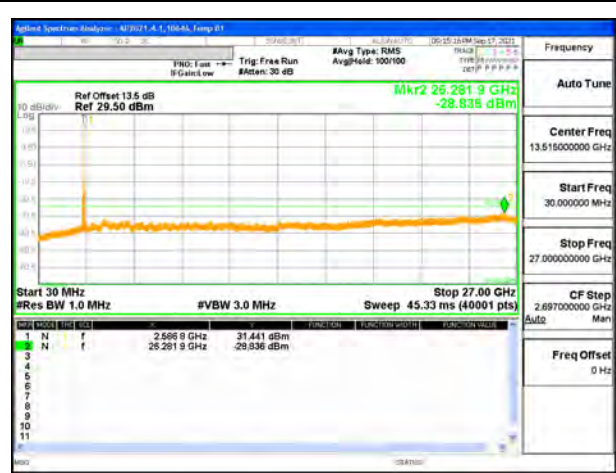
LTE B41 10MHz QPSK Middle Channel RB1-0



LTE B41 10MHz QPSK High Channel RB1-0



LTE B41 15MHz QPSK Low Channel RB1-0



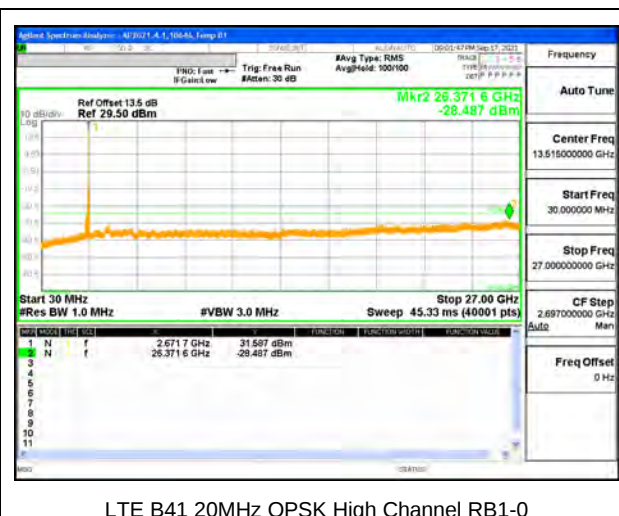
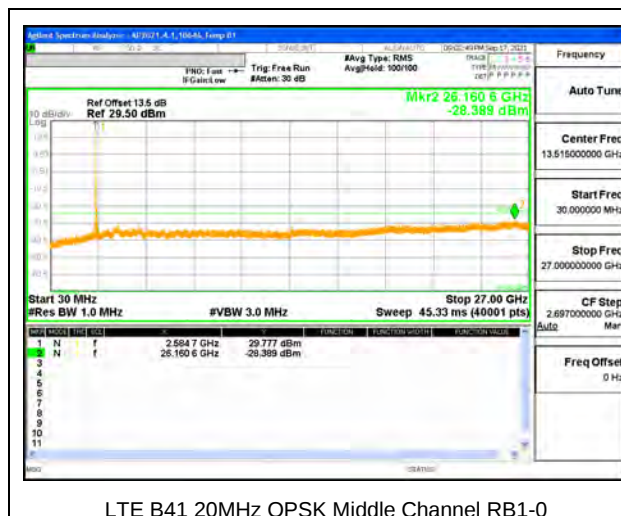
LTE B41 15MHz QPSK Middle Channel RB1-0



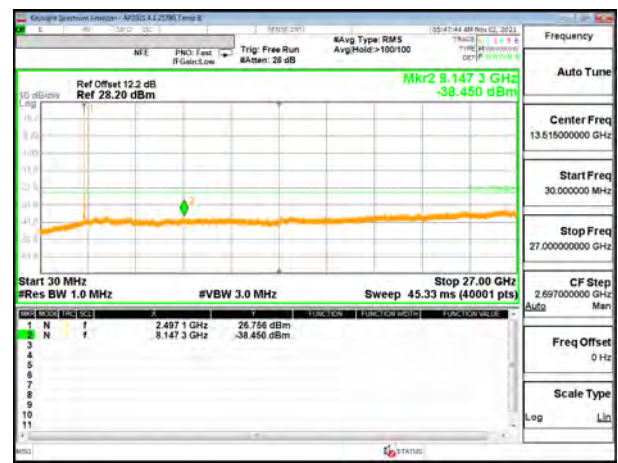
LTE B41 15MHz QPSK High Channel RB1-0

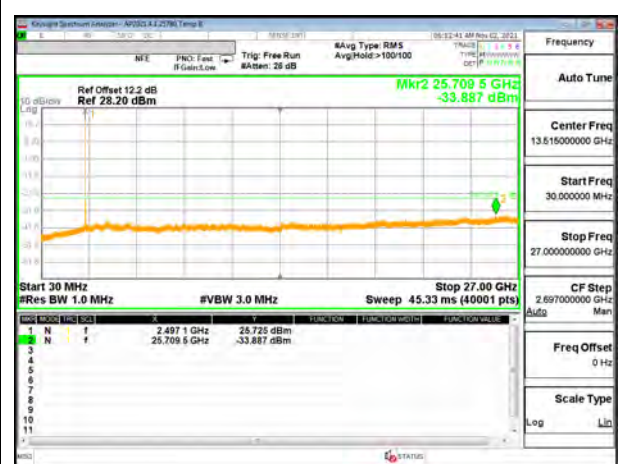
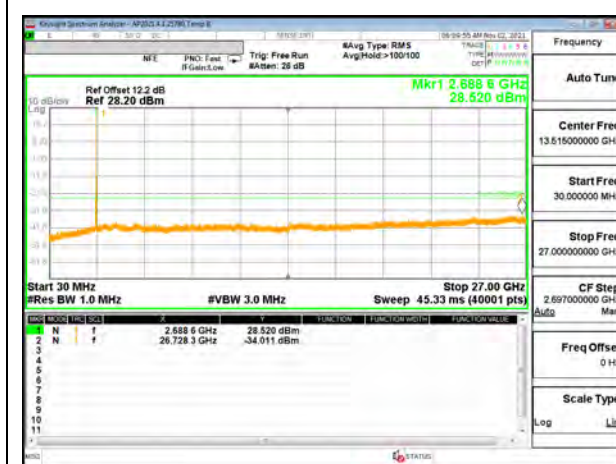
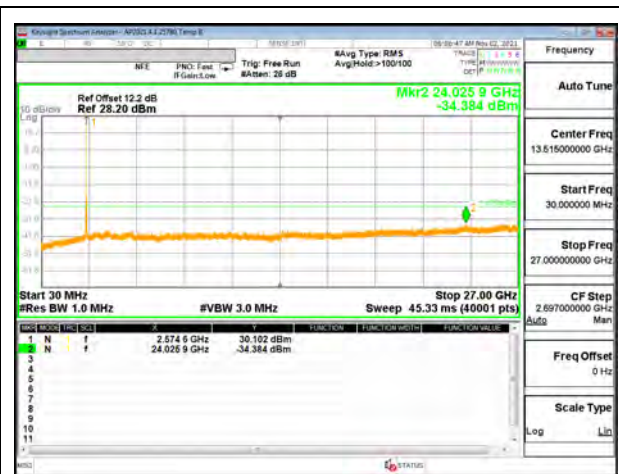


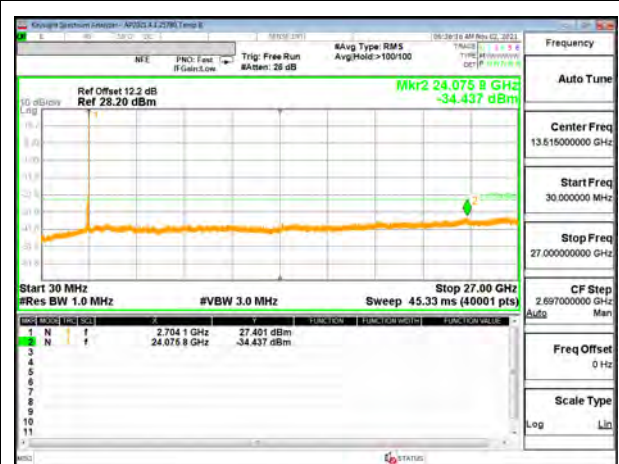
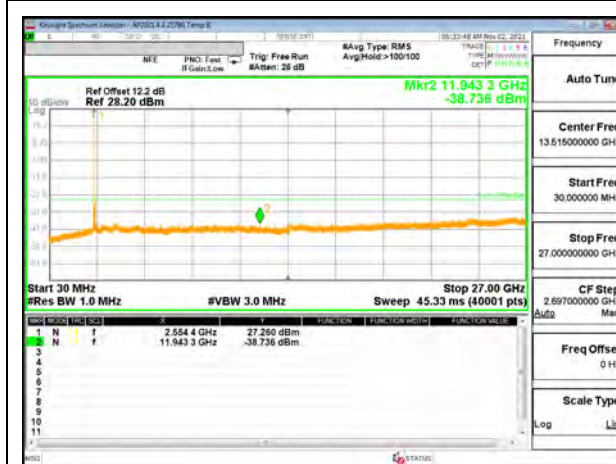
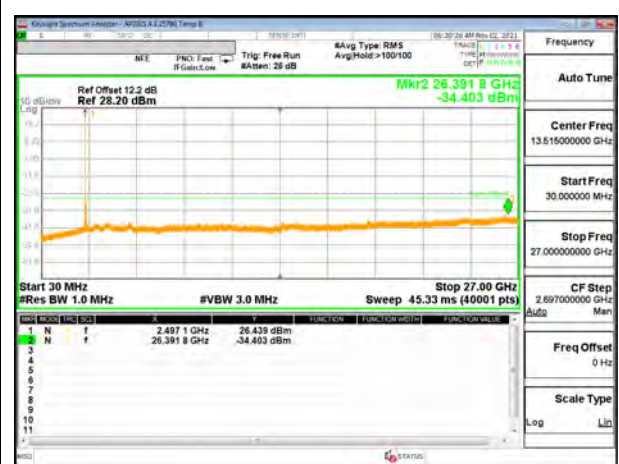
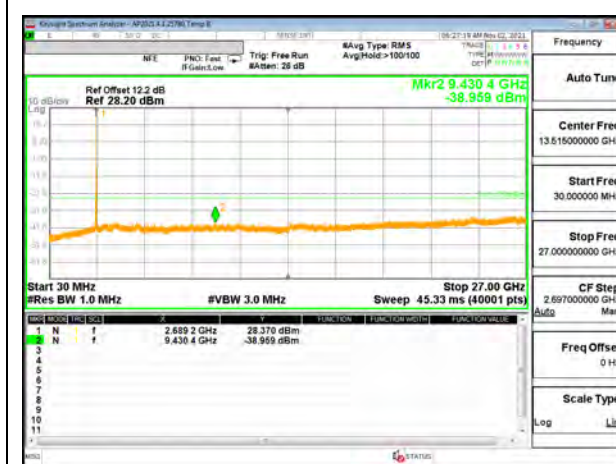
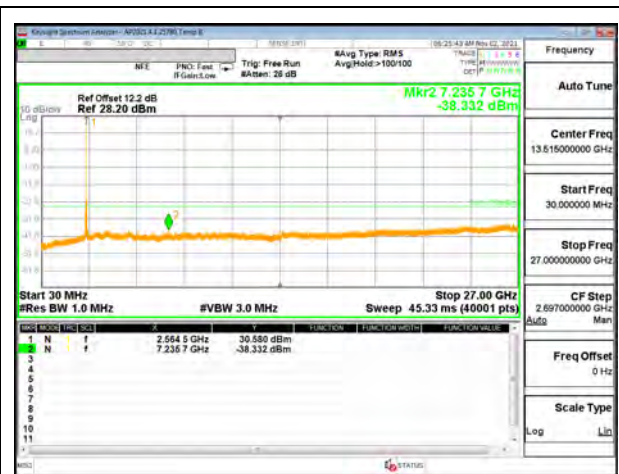
LTE B41 20MHz QPSK Low Channel RB1-0



5G NR n41





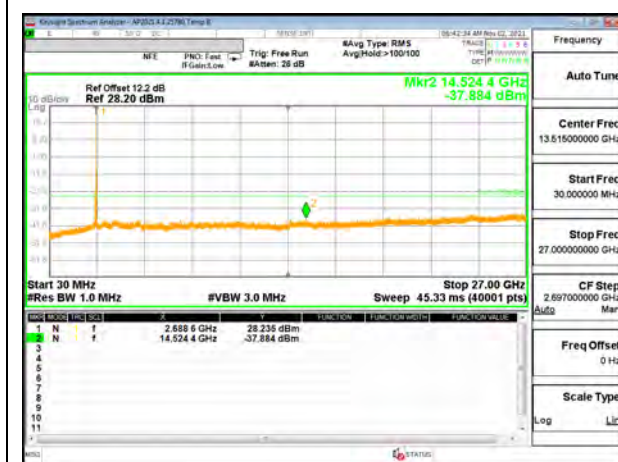




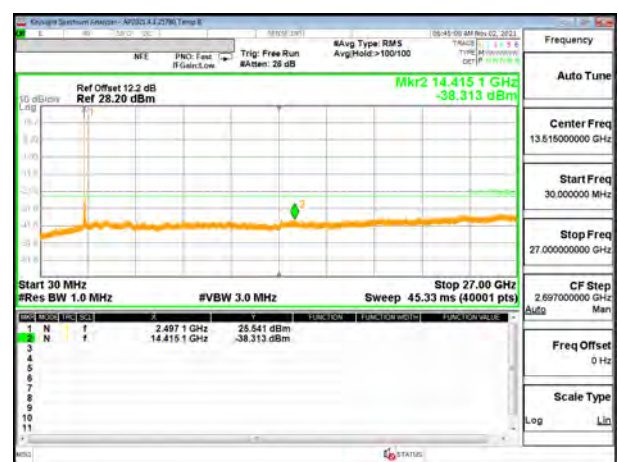
5G NR n41 90MHz BPSK Low Channel RB1-0



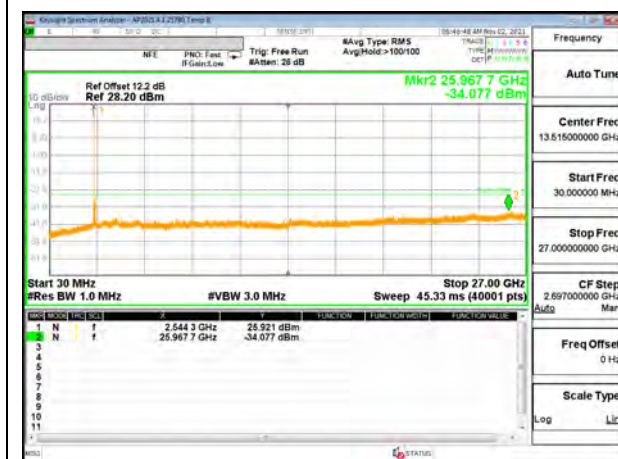
5G NR n41 90MHz BPSK Middle Channel RB1-1



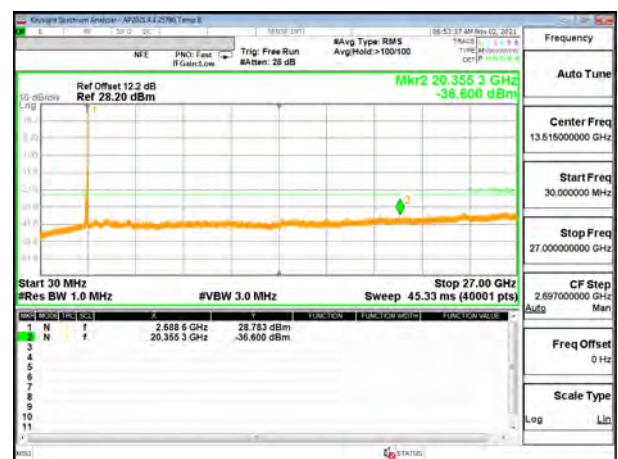
5G NR n41 90MHz BPSK High Channel RB1-244



5G NR n41 100MHz BPSK Low Channel RB1-0



5G NR n41 100MHz BPSK Middle Channel RB1-1



5G NR n41 100MHz BPSK High Channel RB1-272

9.3.12. LTE BAND 48

LIMITS

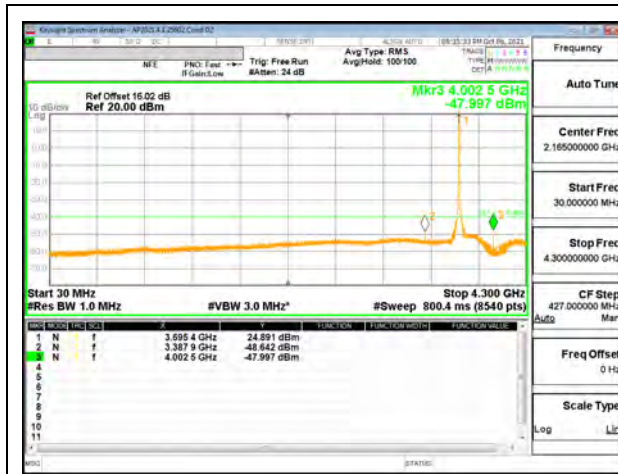
FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

LTE BAND 48

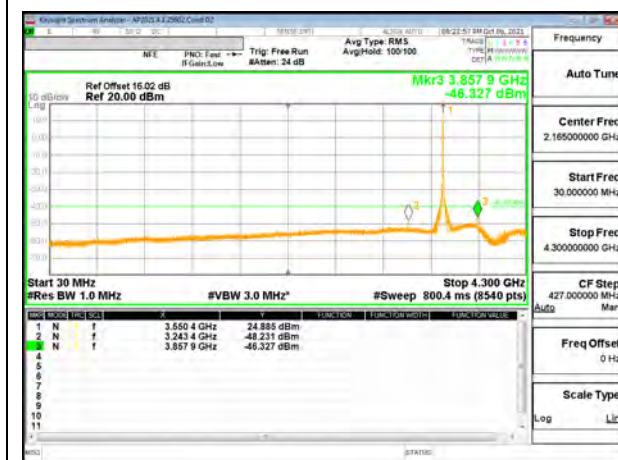




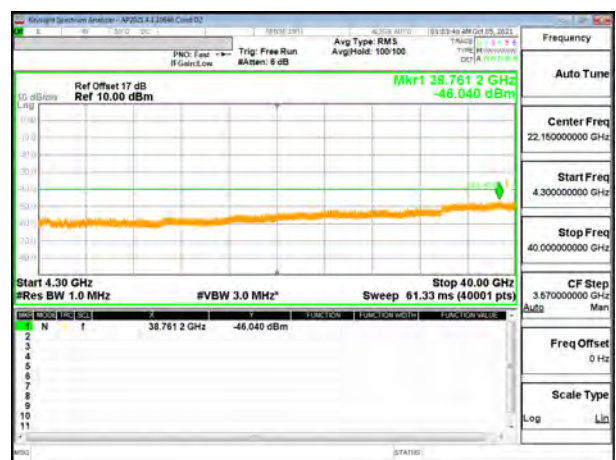
LTE B48 5MHz QPSK High Channel RB1-0 (30M to 4.3G)



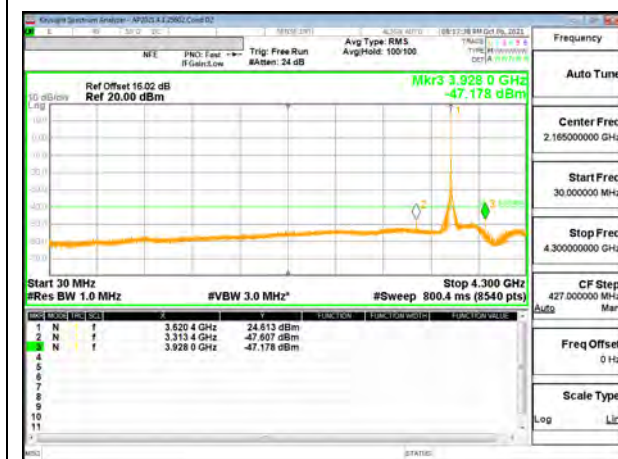
LTE B48 5MHz QPSK High Channel RB1-0 (4.3G to 40G)



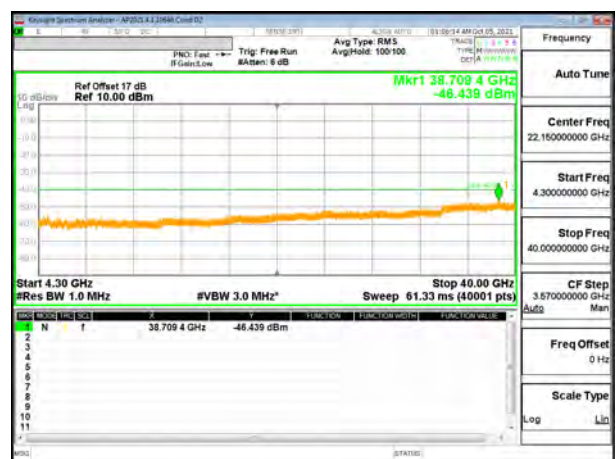
LTE B48 10MHz QPSK Low Channel RB1-0 (30M to 4.3G)



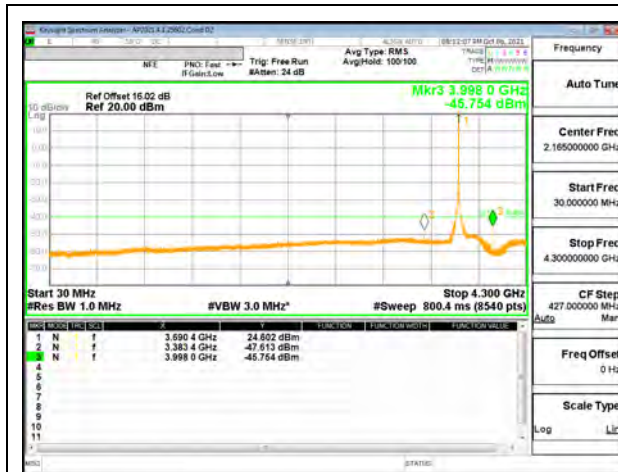
LTE B48 10MHz QPSK Low Channel RB1-0 (4.3G to 40G)



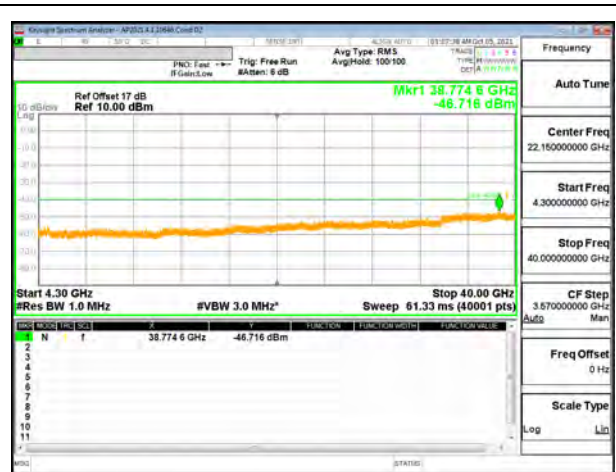
LTE B48 10MHz QPSK Mid Channel RB1-0 (30M to 4.3G)



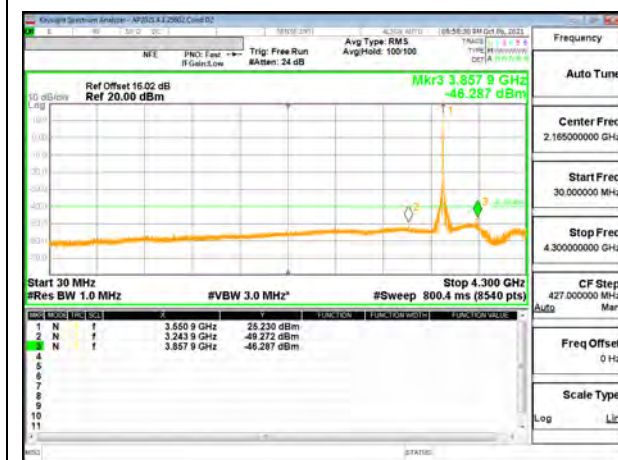
LTE B48 10MHz QPSK Middle Channel RB1-0 (4.3G to 40G)



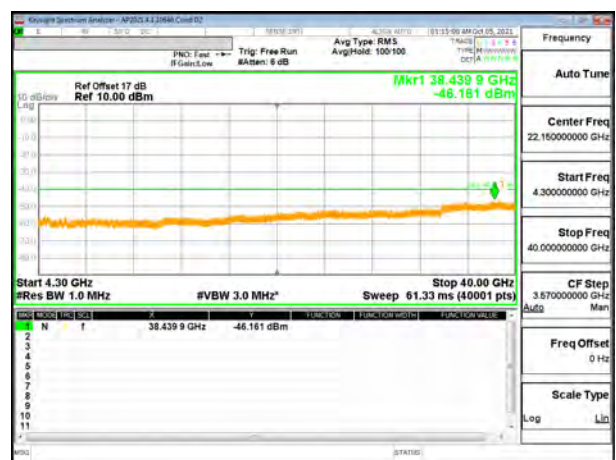
LTE B48 10MHz QPSK High Channel RB1-0 (30M to 4.3G)



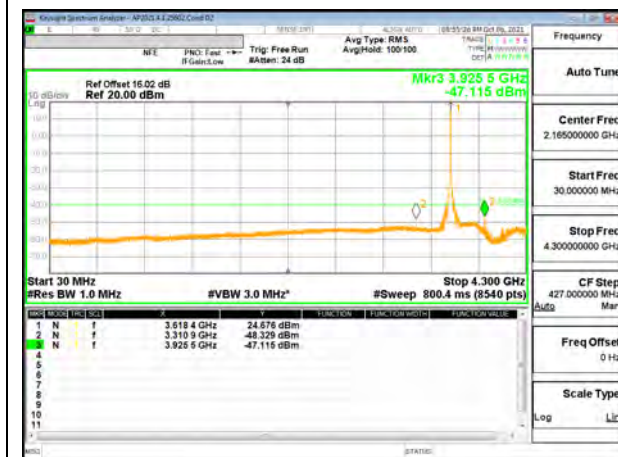
LTE B48 10MHz QPSK High Channel RB1-0 (4.3G to 40G)



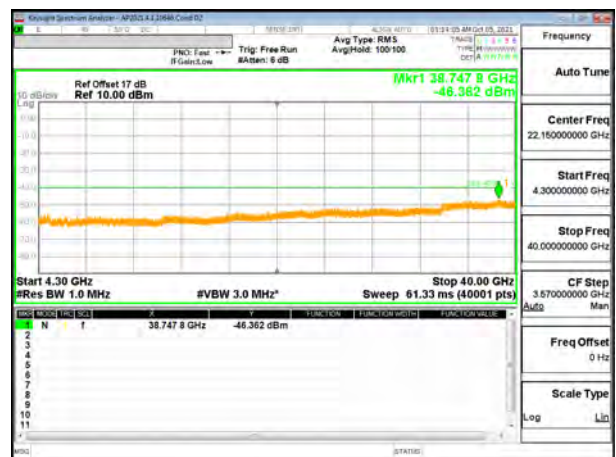
LTE B48 15MHz QPSK Low Channel RB1-0 (30M to 4.3G)



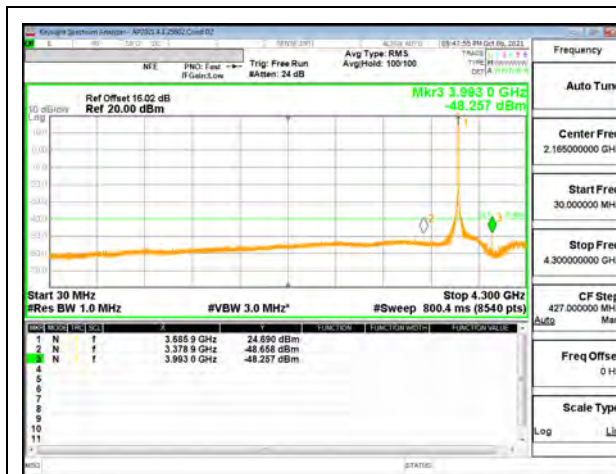
LTE B48 15MHz QPSK Low Channel RB1-0 (4.3G to 40G)



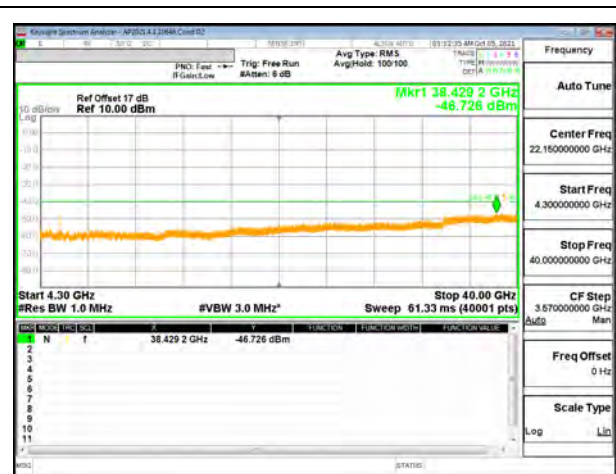
LTE B48 15MHz QPSK Mid Channel RB1-0 (30M to 4.3G)



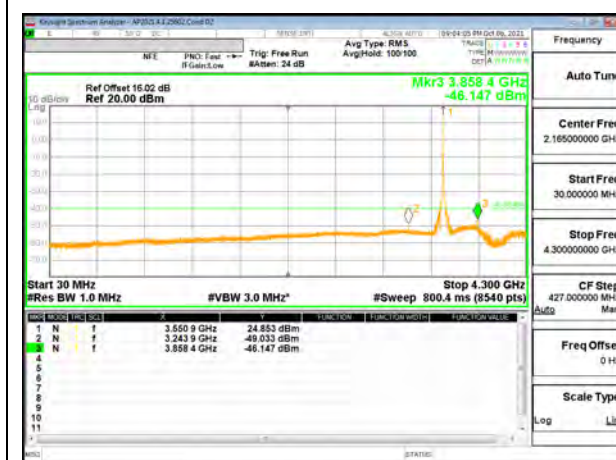
LTE B48 15MHz QPSK Middle Channel RB1-0 (4.3G to 40G)



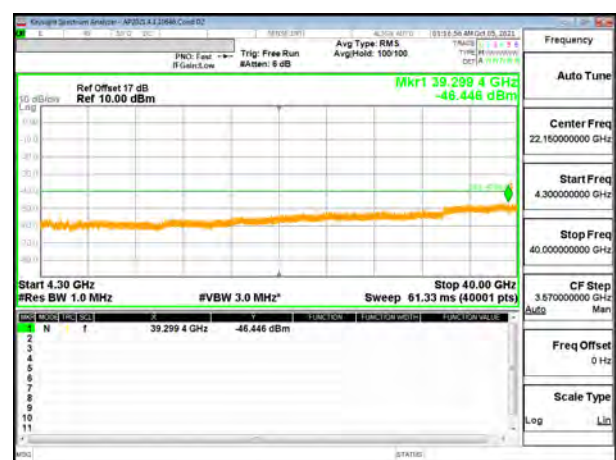
LTE B48 15MHz QPSK High Channel RB1-0 (30M to 4.3G)



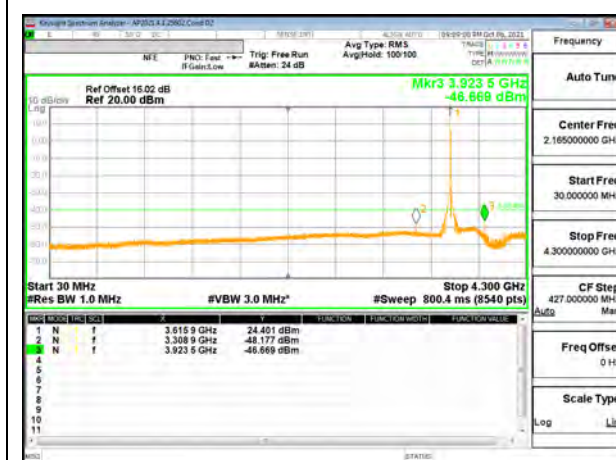
LTE B48 15MHz QPSK High Channel RB1-0 (4.3G to 40G)



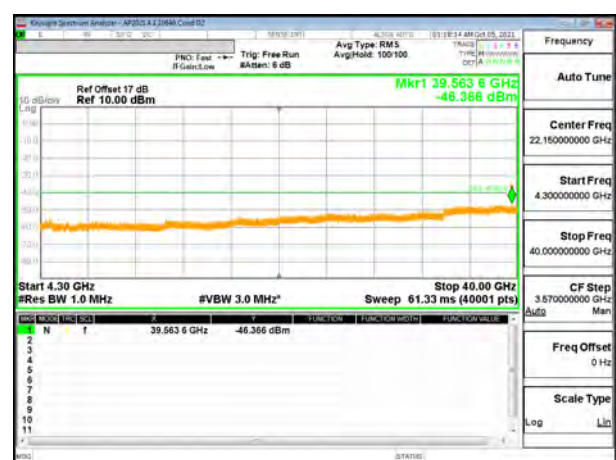
LTE B48 20MHz QPSK Low Channel RB1-0 (30M to 4.3G)



LTE B48 20MHz QPSK Low Channel RB1-0 (4.3G to 40G)



LTE B48 20MHz QPSK Mid Channel RB1-0 (30M to 4.3G)



LTE B48 20MHz QPSK Middle Channel RB1-0 (4.3G to 40G)

