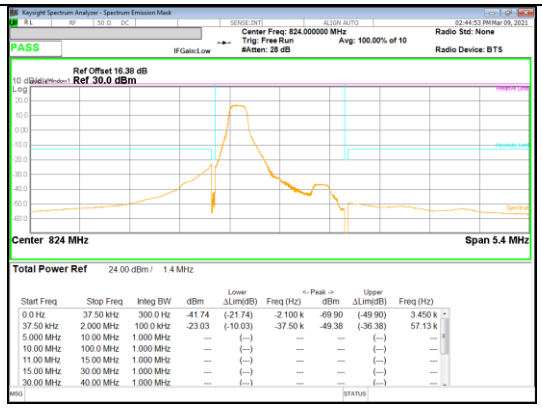
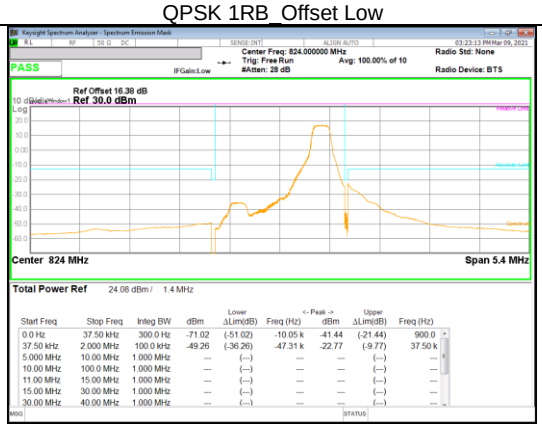
1.4 MHz

QPSK FRB

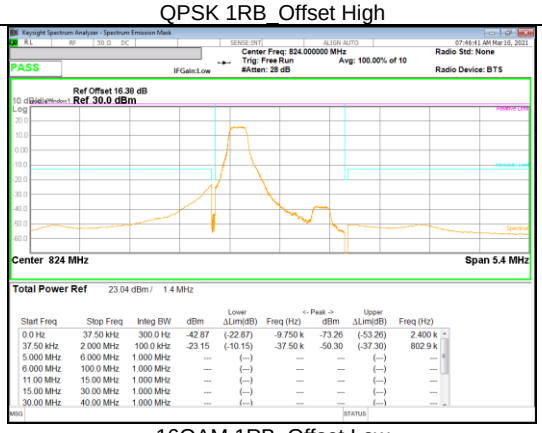


QPSK 1RB_Offset Low

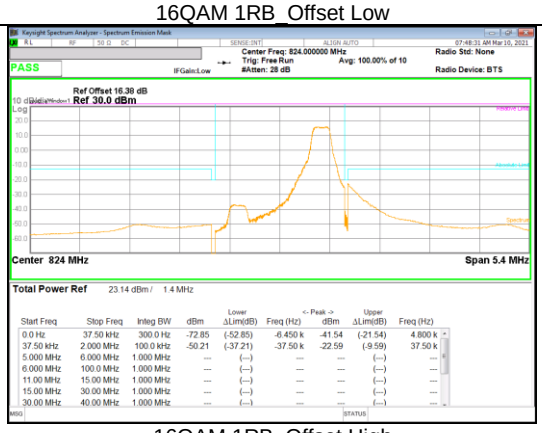


QPSK 1RB_Offset High

16QAM FRB



16QAM 1RB_Offset Low



16QAM 1RB_Offset High

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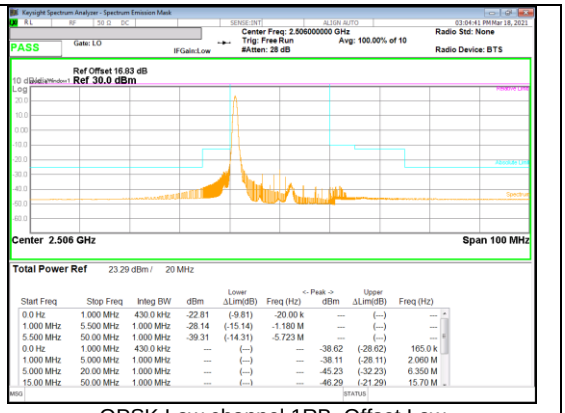
LTE Band 41

20MHz

QPSK Low channel FRB



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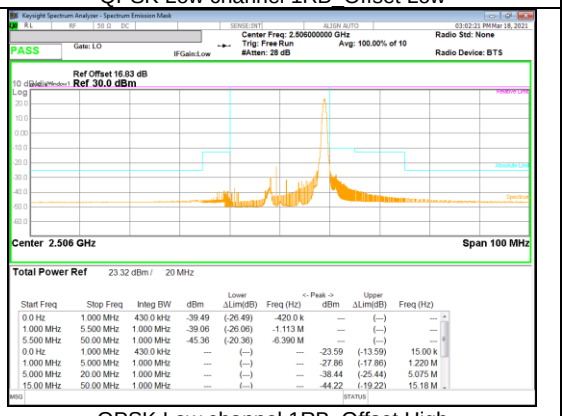

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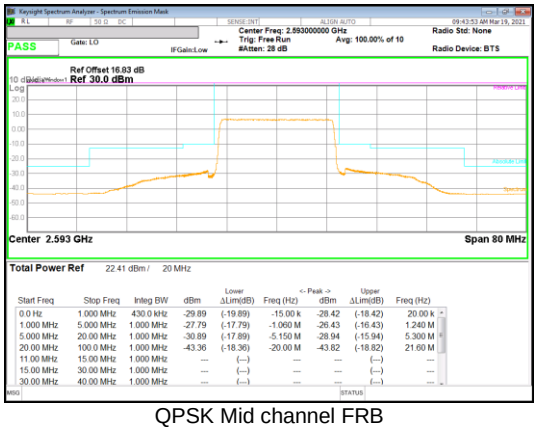
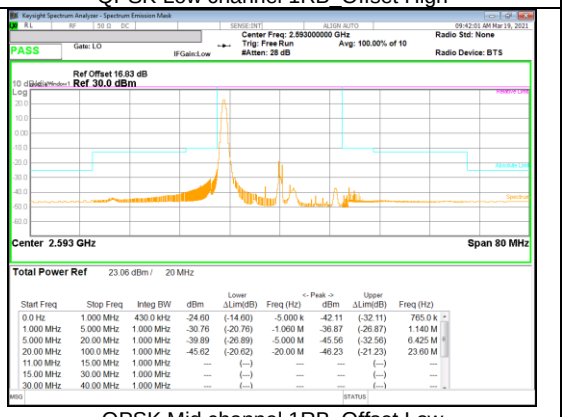
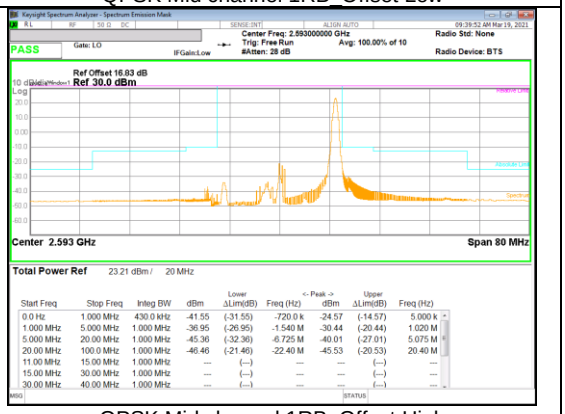


QPSK Mid channel FRB



QPSK Mid channel 1RB_Offset Low



QPSK Mid channel 1RB_Offset High

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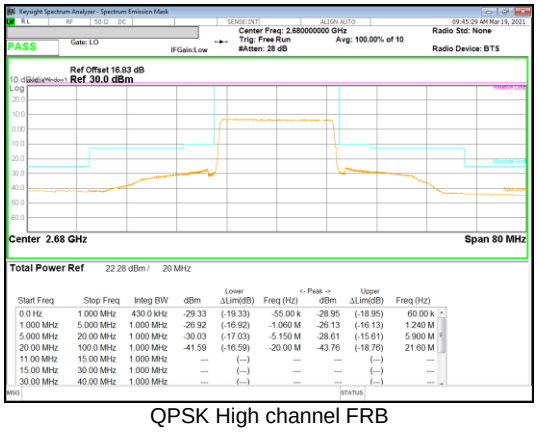
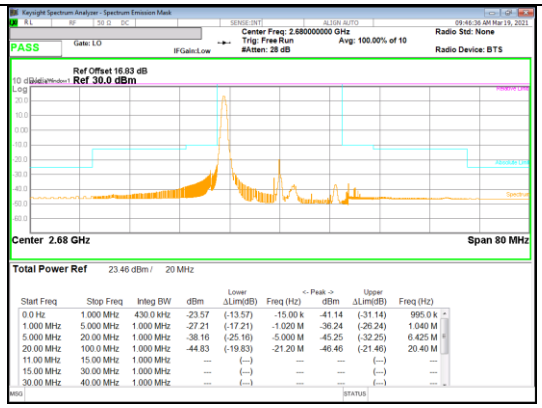
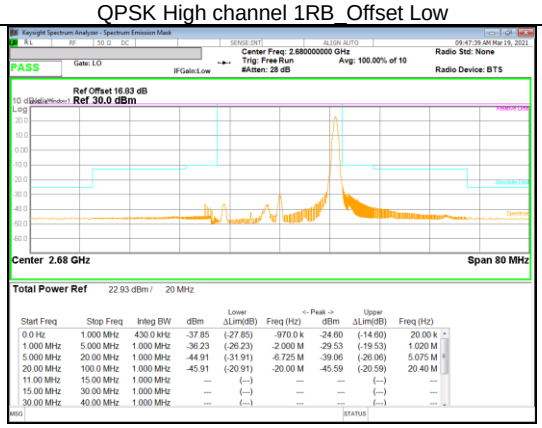
20MHz



QPSK High channel FRB



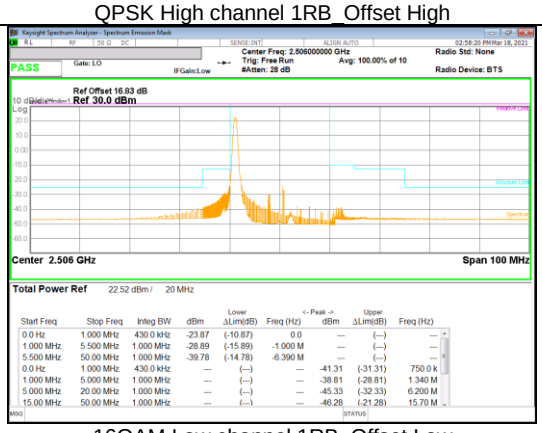
QPSK High channel 1RB_Offset Low



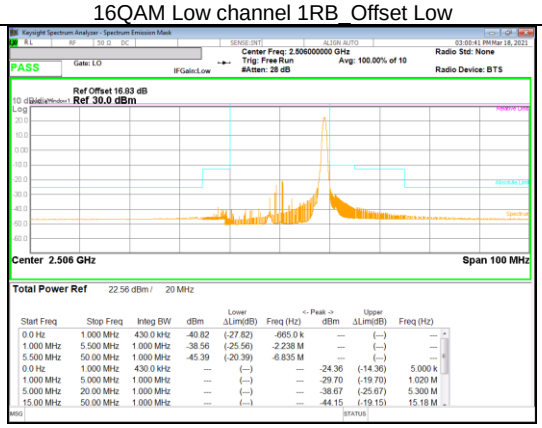
QPSK High channel 1RB_Offset High

20MHz

16QAM Low channel FRB



16QAM Low channel 1RB_Offset Low



16QAM Low channel 1RB_Offset High

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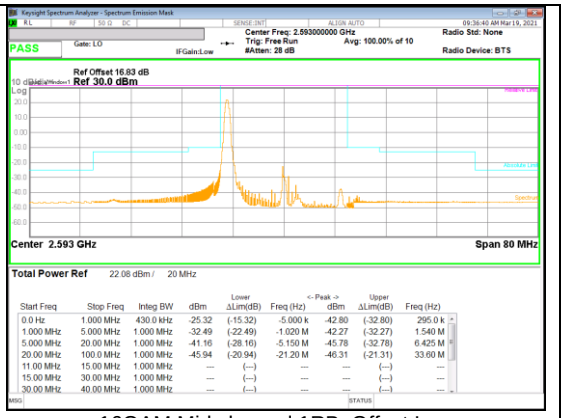
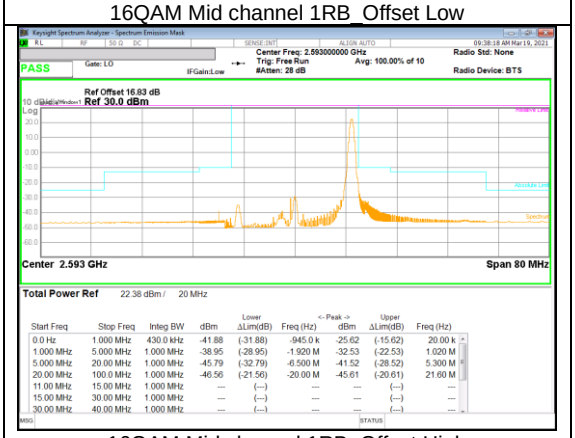
20MHz

16QAM Mid channel FRB

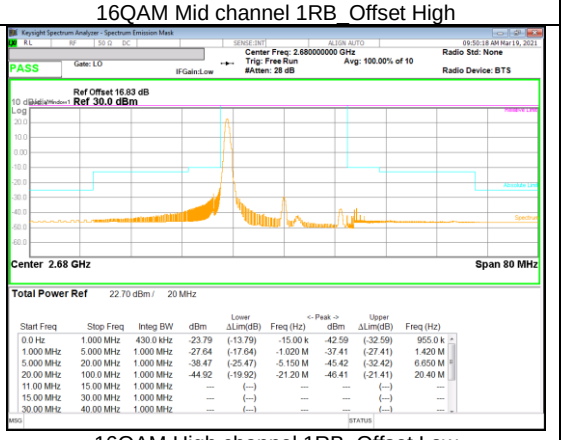


16QAM Mid channel 1RB_Offset Low



16QAM Mid channel 1RB_Offset High

16QAM High channel FRB



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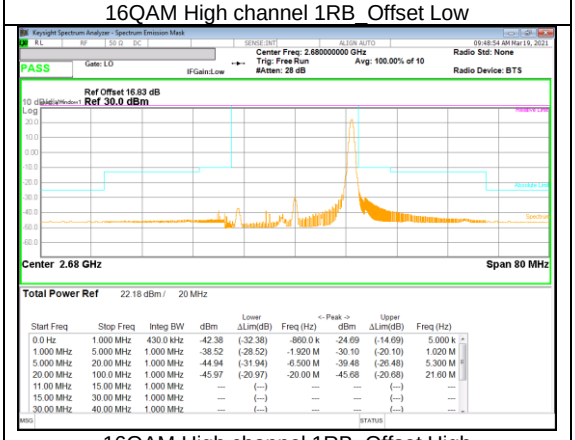

16QAM High channel 1RB_Offset High

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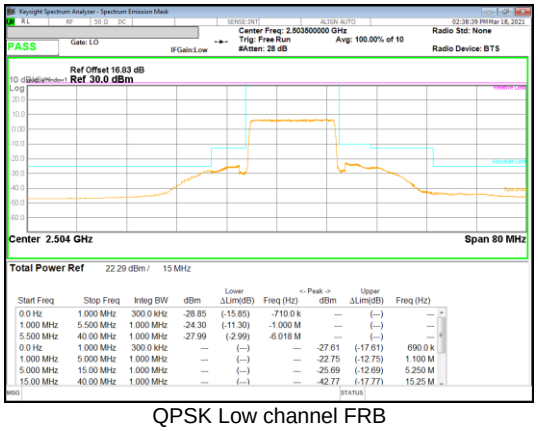
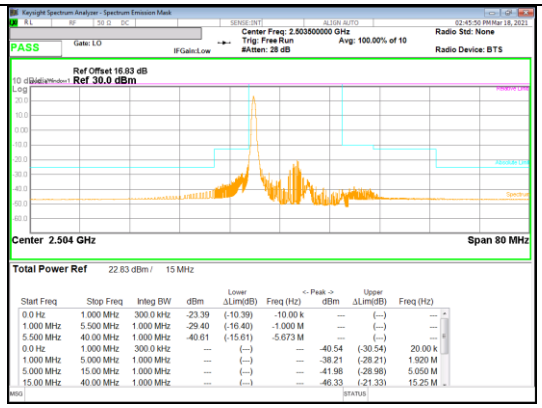
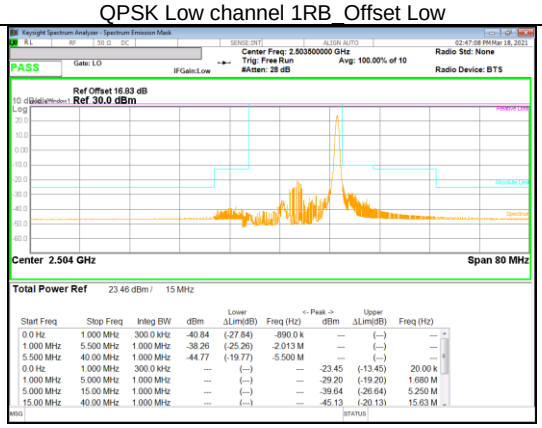
15MHz



QPSK Low channel FRB



QPSK Low channel 1RB_Offset Low



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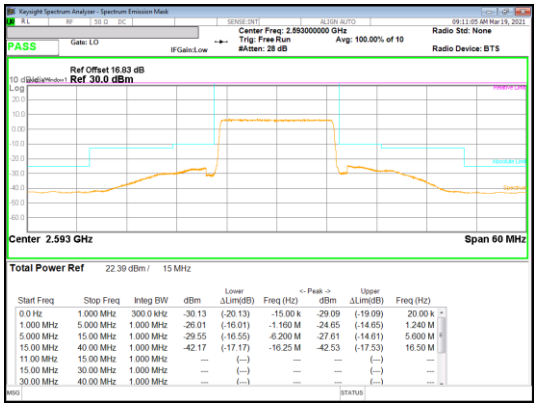
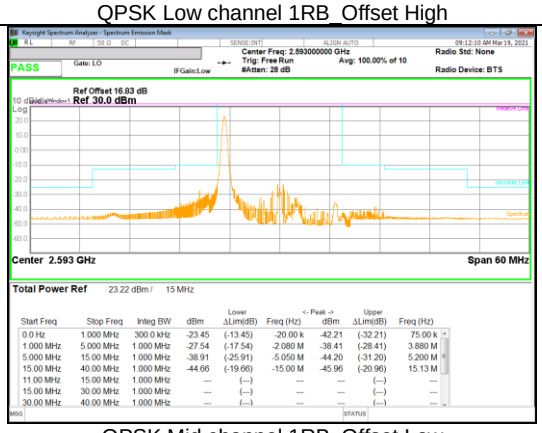
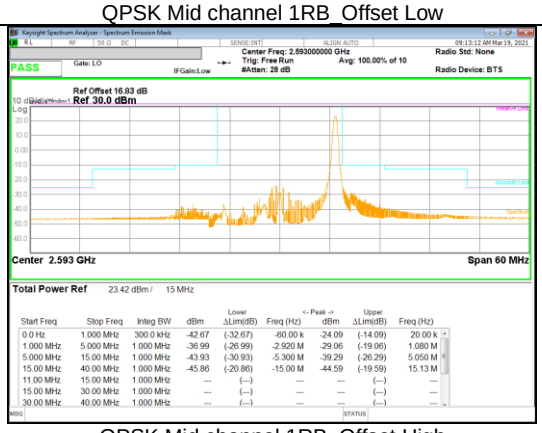


QPSK Mid channel FRB



QPSK Mid channel 1RB_Offset Low



QPSK Mid channel 1RB_Offset High

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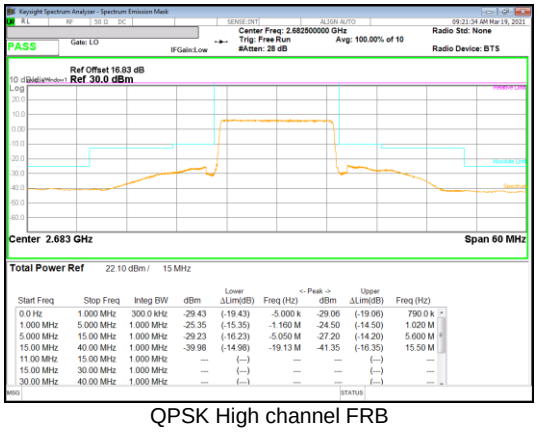
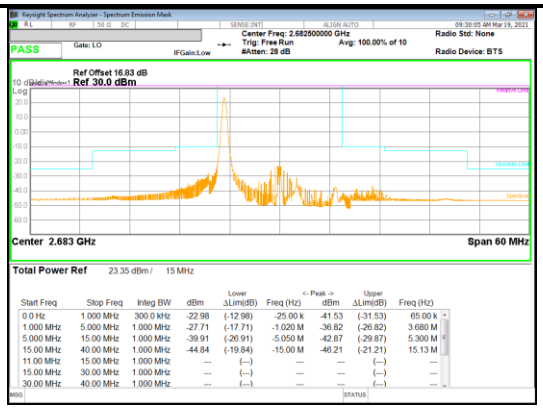
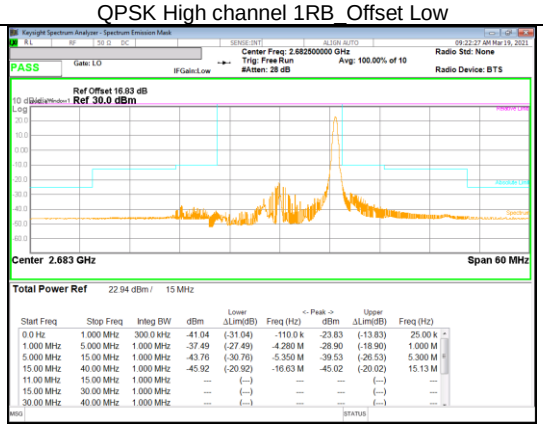
15MHz



QPSK High channel FRB

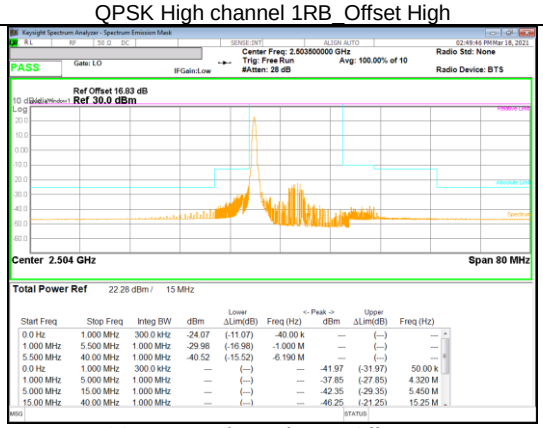


QPSK High channel 1RB_Offset Low



QPSK High channel 1RB_Offset High

16QAM Low channel FRB



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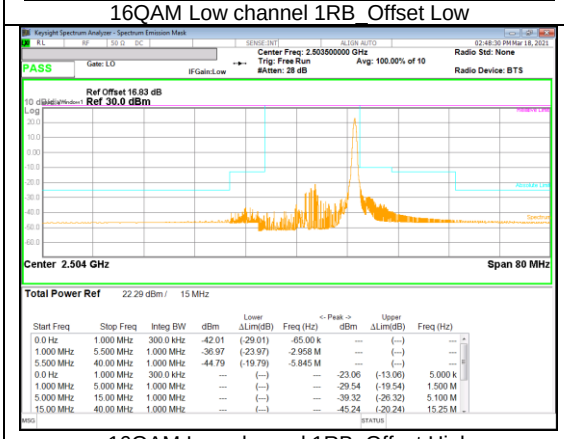

16QAM Low channel 1RB_Offset High

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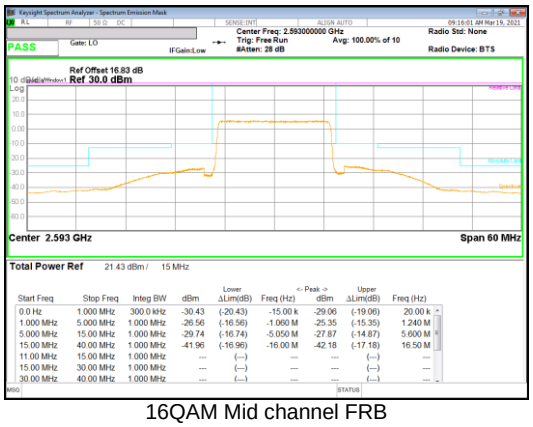
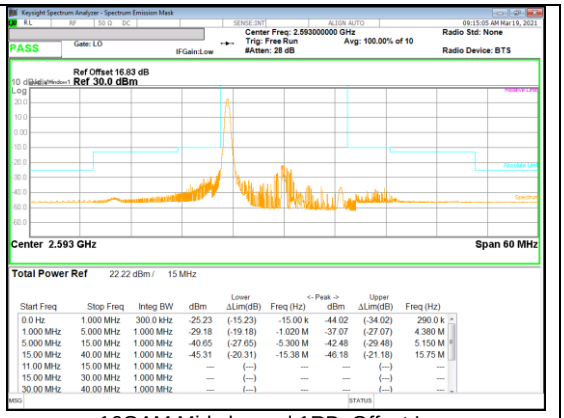
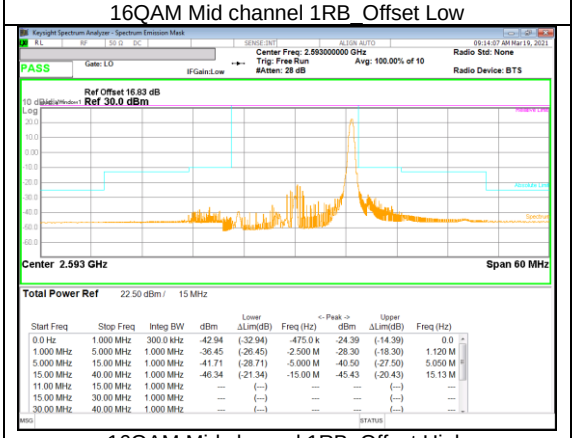


16QAM Mid channel FRB



16QAM Mid channel 1RB_Offset Low



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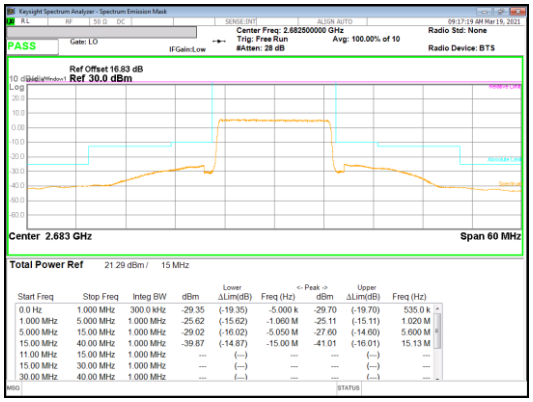
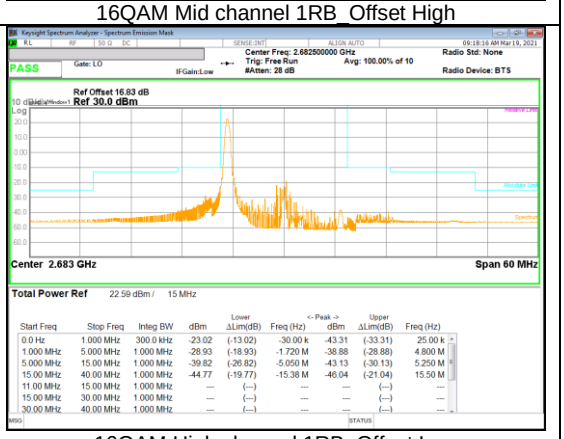


16QAM High channel FRB



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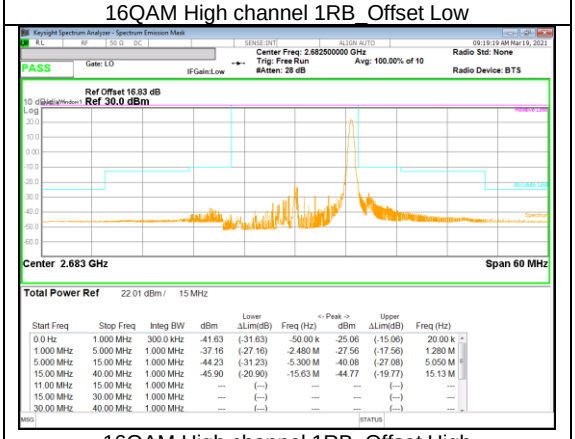

16QAM High channel 1RB_Offset High

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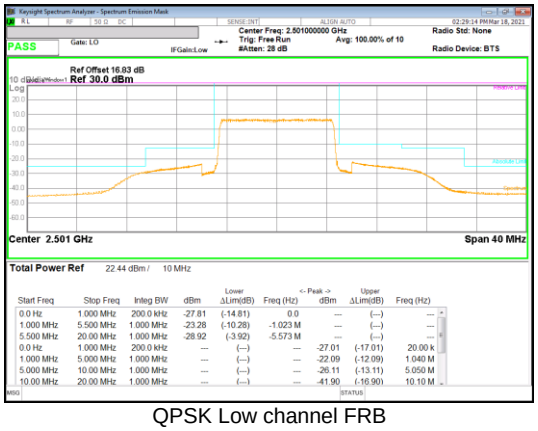
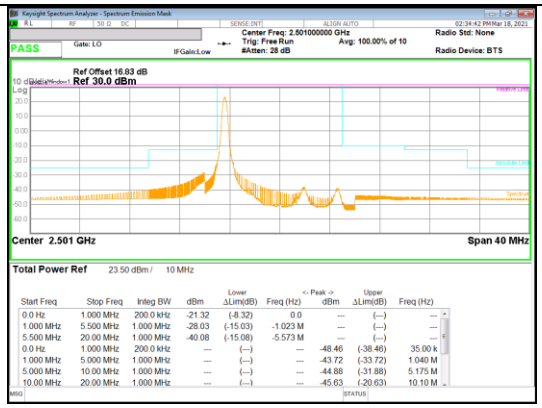
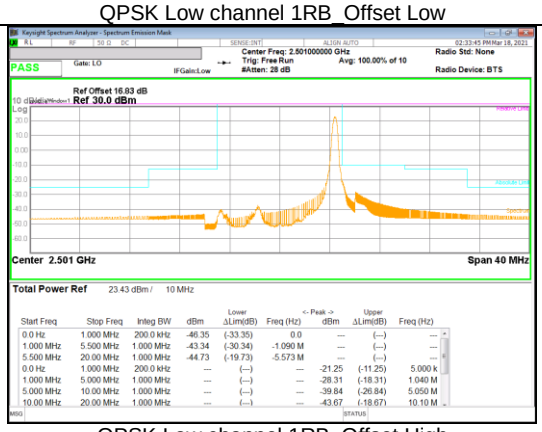
10MHz



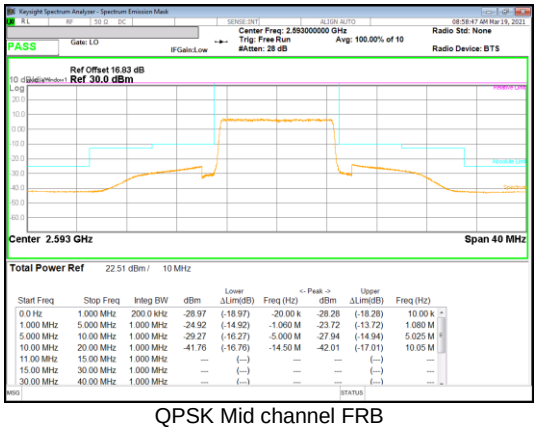
QPSK Low channel FRB



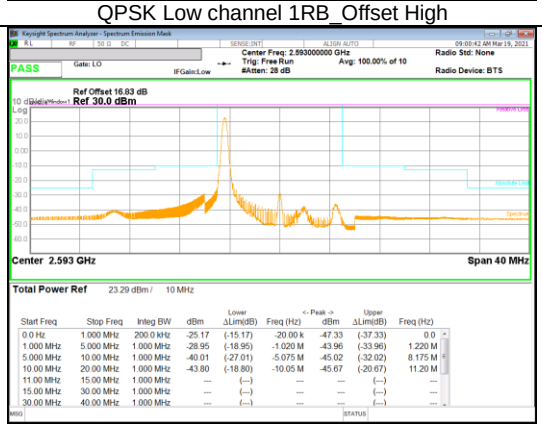
QPSK Low channel 1RB_Offset Low



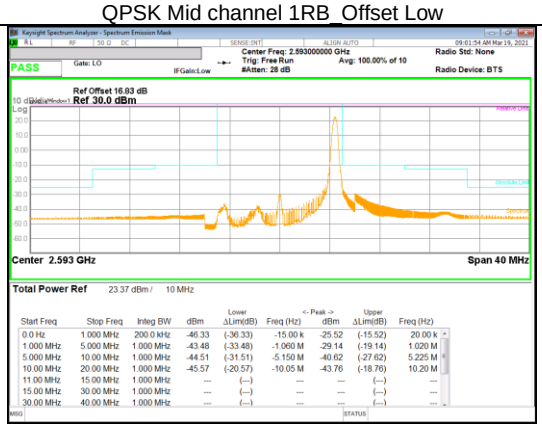
QPSK Low channel 1RB_Offset High



QPSK Mid channel FRB



QPSK Mid channel 1RB_Offset Low



QPSK Mid channel 1RB_Offset High

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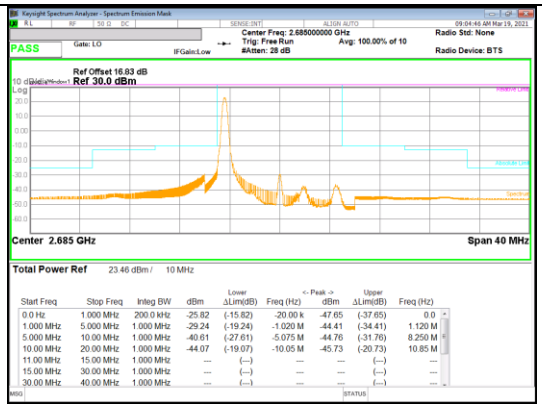
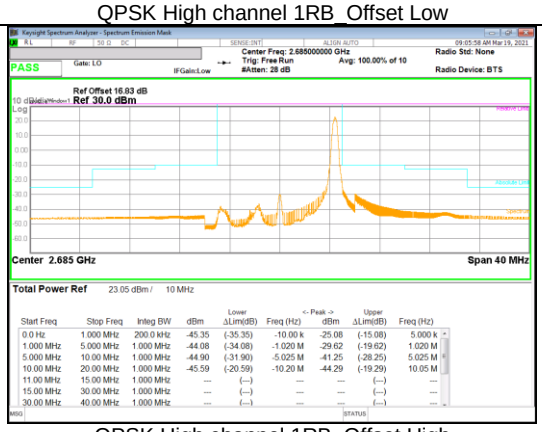
10MHz

QPSK High channel FRB

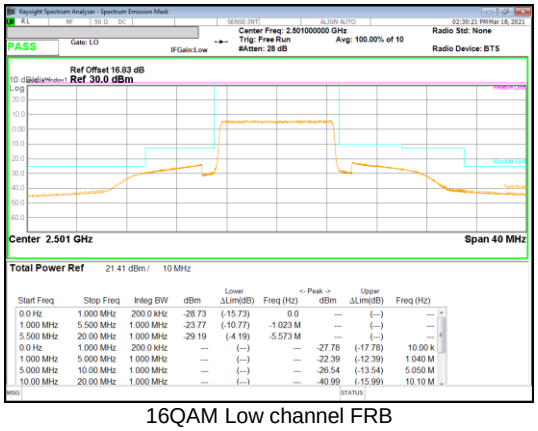


QPSK High channel 1RB_Offset Low

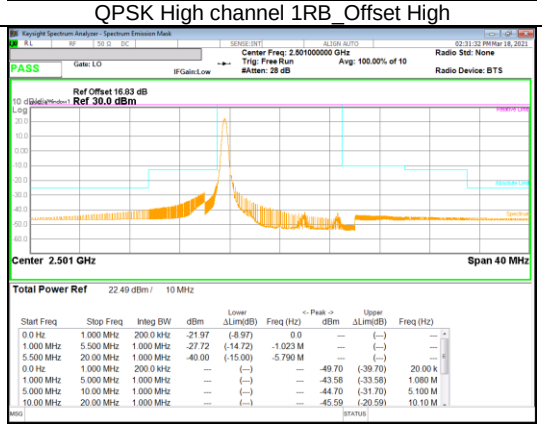


QPSK High channel 1RB_Offset High

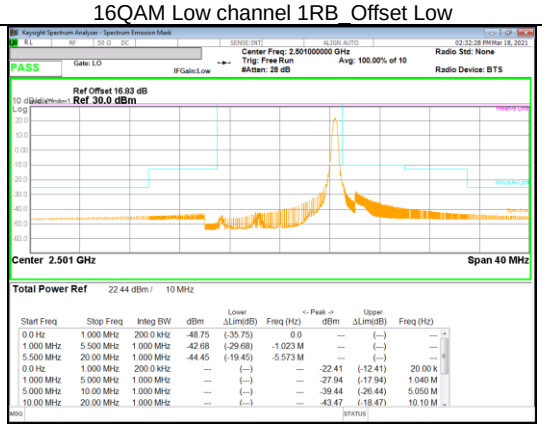
10MHz



16QAM Low channel FRB



16QAM Low channel 1RB_Offset Low



16QAM Low channel 1RB_Offset High

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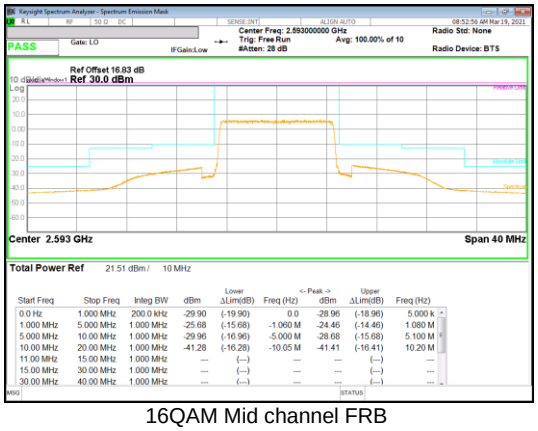
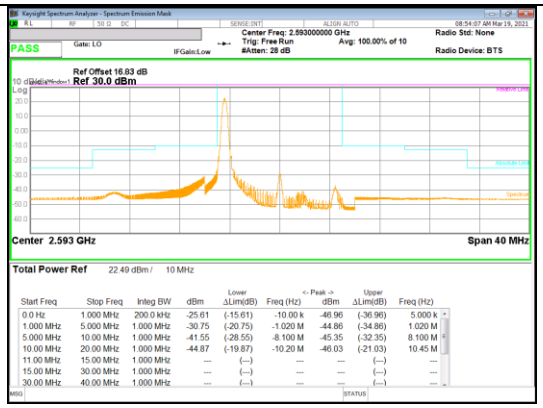
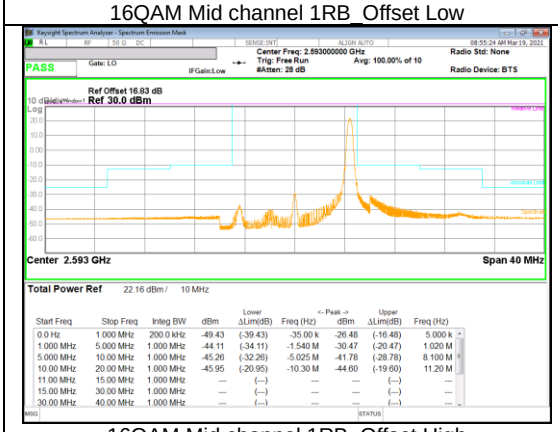
10MHz



16QAM Mid channel FRB

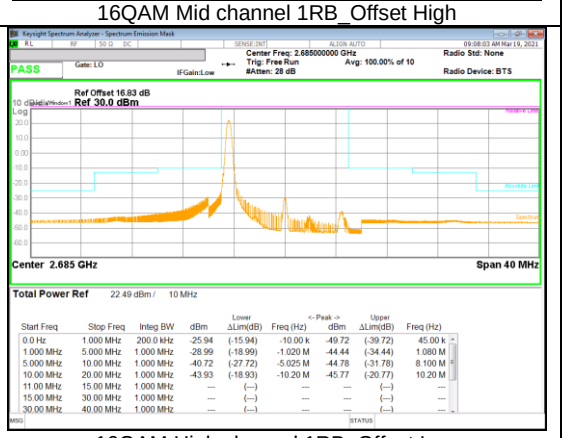


16QAM Mid channel 1RB_Offset Low



16QAM Mid channel 1RB_Offset High

16QAM High channel FRB



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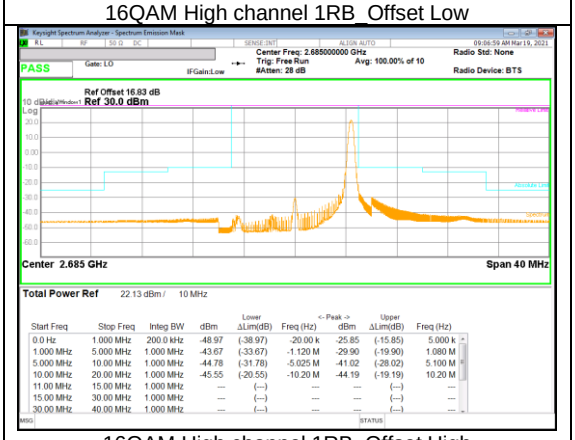

16QAM High channel 1RB_Offset High

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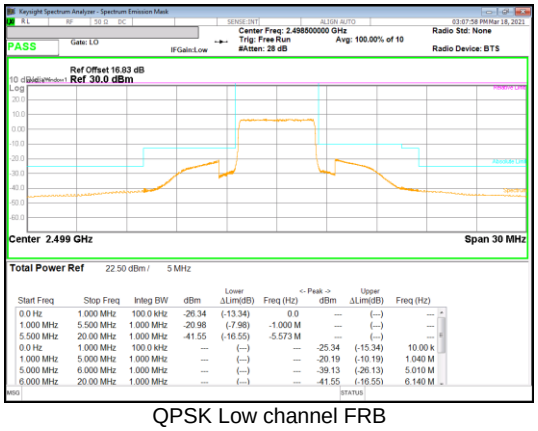
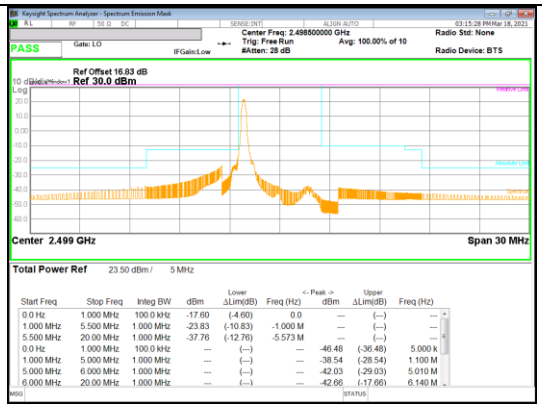
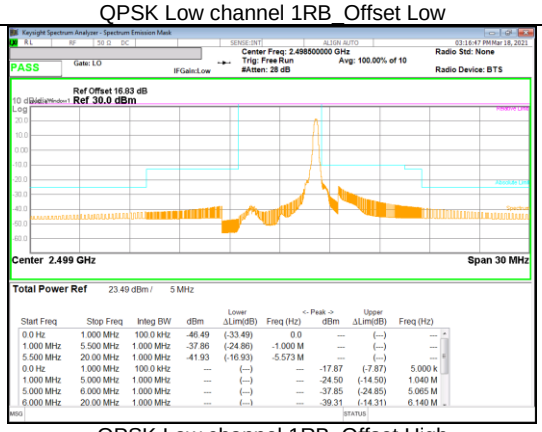
5MHz



QPSK Low channel FRB



QPSK Low channel 1RB_Offset Low



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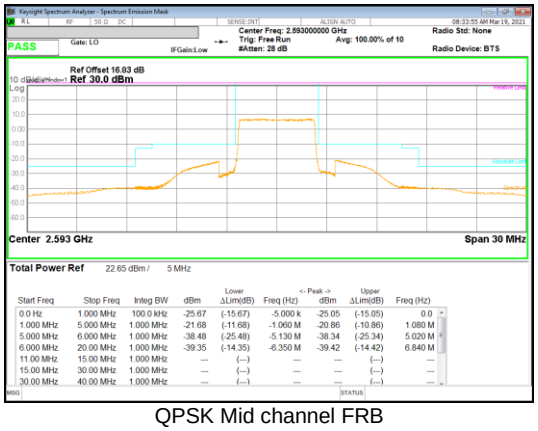
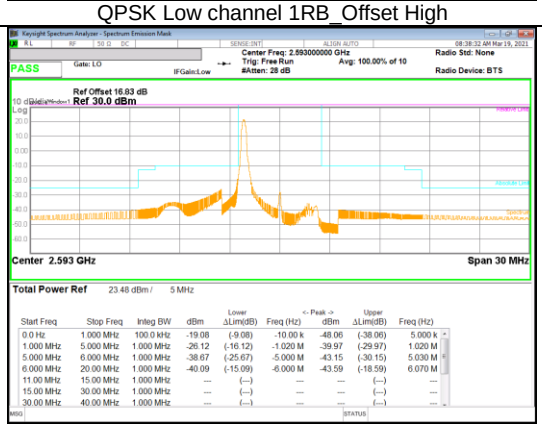


QPSK Mid channel FRB



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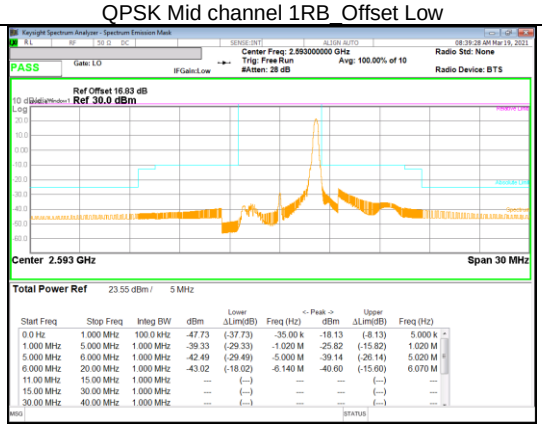

QPSK Mid channel 1RB_Offset High

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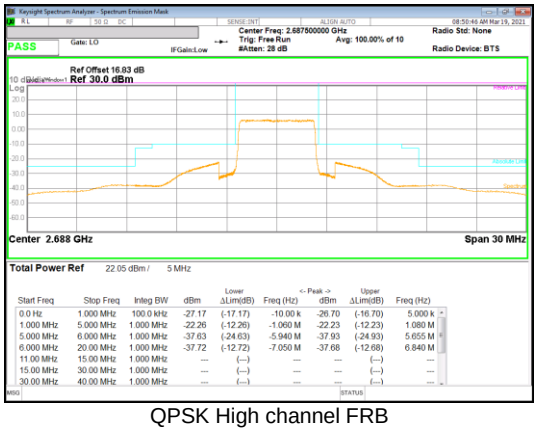
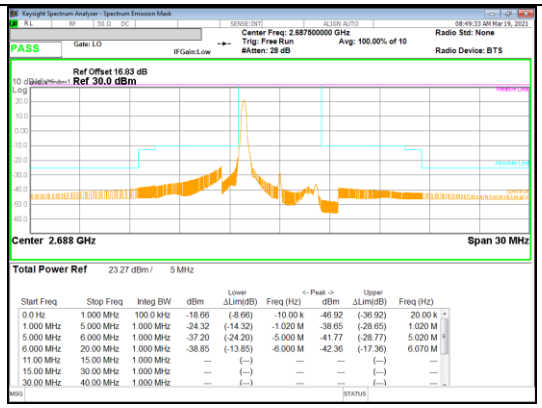
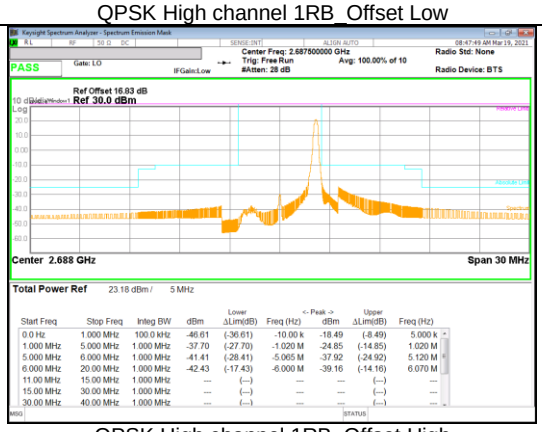
5MHz



QPSK High channel FRB

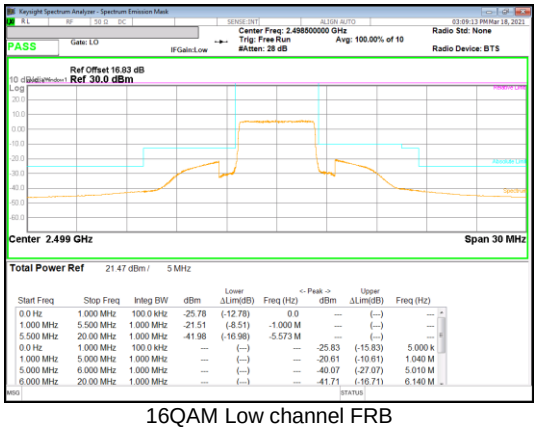


QPSK High channel 1RB_Offset Low

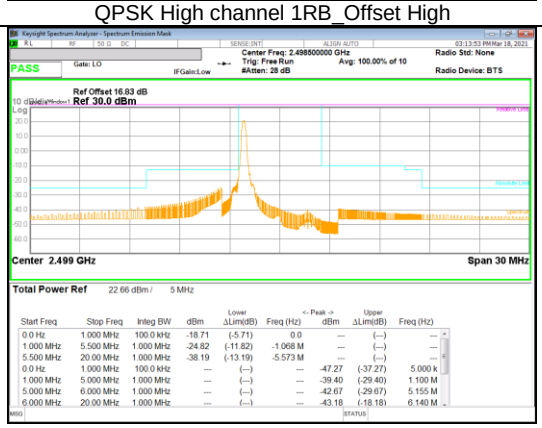


QPSK High channel 1RB_Offset High

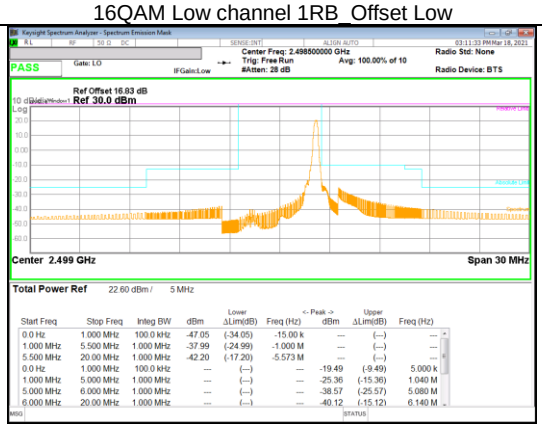
5MHz



16QAM Low channel FRB



16QAM Low channel 1RB_Offset Low



16QAM Low channel 1RB_Offset High

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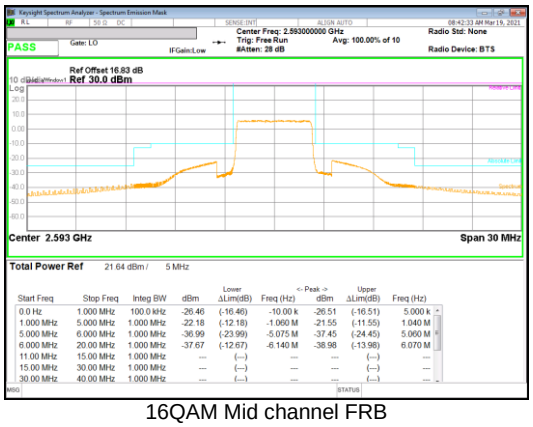
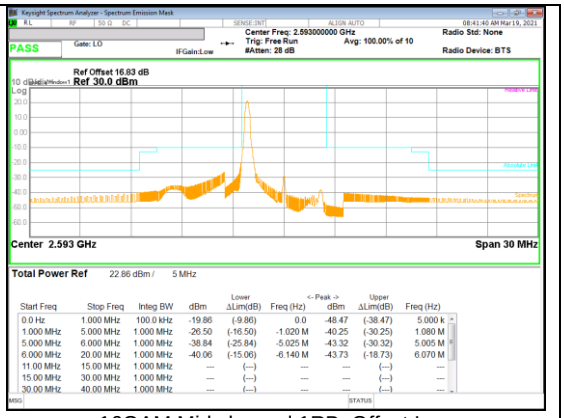
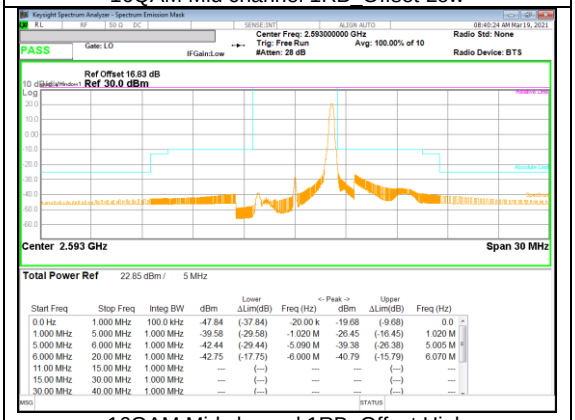
5MHz



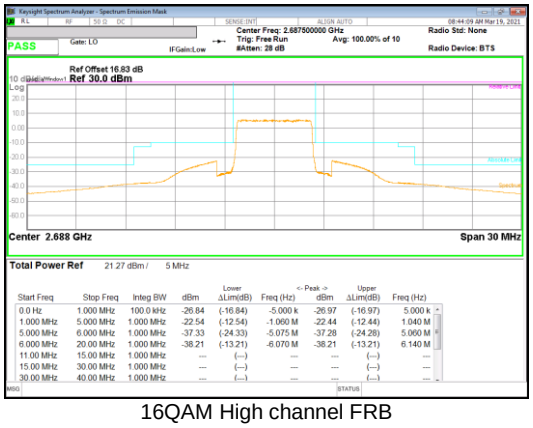
16QAM Mid channel FRB



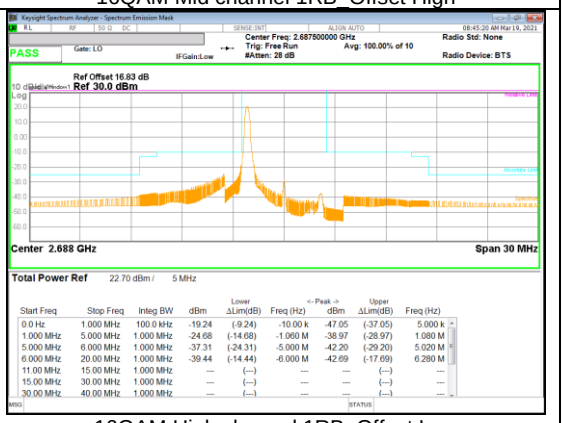
16QAM Mid channel 1RB_Offset Low



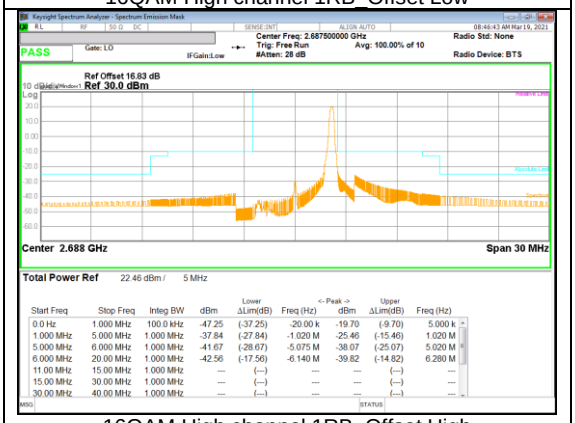
16QAM Mid channel 1RB_Offset High



16QAM High channel FRB



16QAM High channel 1RB_Offset Low



16QAM High channel 1RB_Offset High

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LTE Band 2

LTE Band 2(Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 4

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 5

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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9.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §27.53 and §90.691

LIMITS

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

Part 27.53:
(c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.

(g) 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.

(h) 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.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log_{10}(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.(NOTE : Use 100kHz reference bandwidth)

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

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TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01
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.

a) Set the RBW = 100kHz for emission below 1GHz and 1MHz for emissions above 1GHz (Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)

b) Set VBW ≥ 3 × RBW

c) Sweep time = auto couple;

d) Detector = RMS;

e) Ensure that the number of measurement points = Max (40001);

f) Trace mode = Average(FDD), Max hold(TDD);

RESULTS

See the following pages.

NOTE : Please refer to section 5.4 for bandwidth and RB setting about LTE bands.

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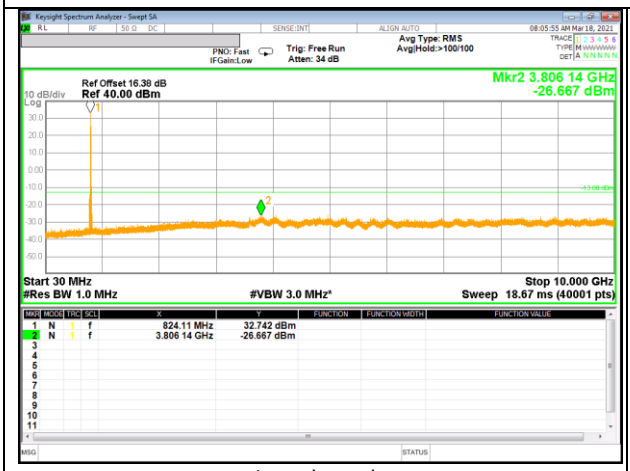
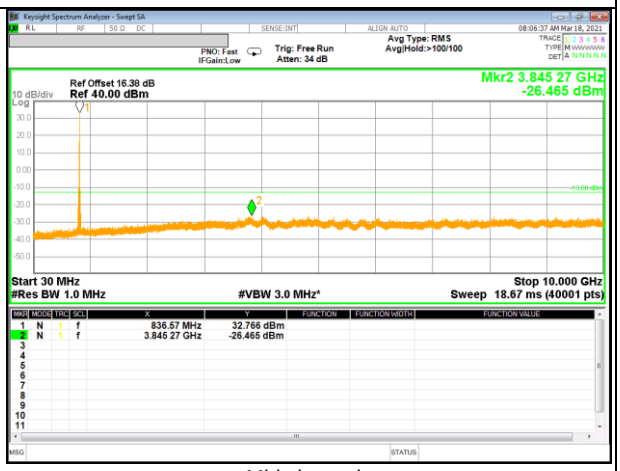
9.3.1. OUT OF BAND EMISSIONS RESULT

GSM

850 GPRS



Low channel



Mid channel

High channel

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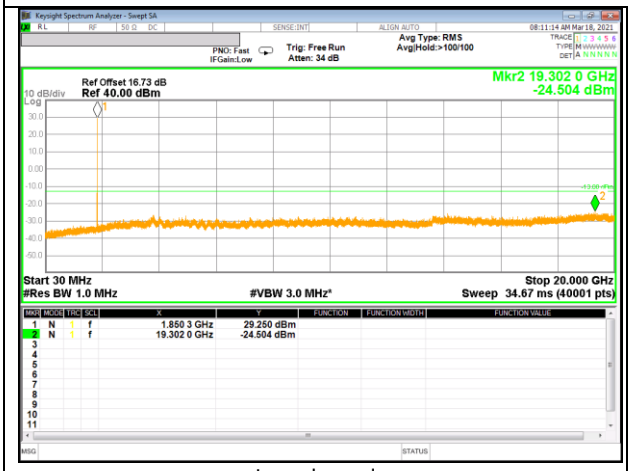
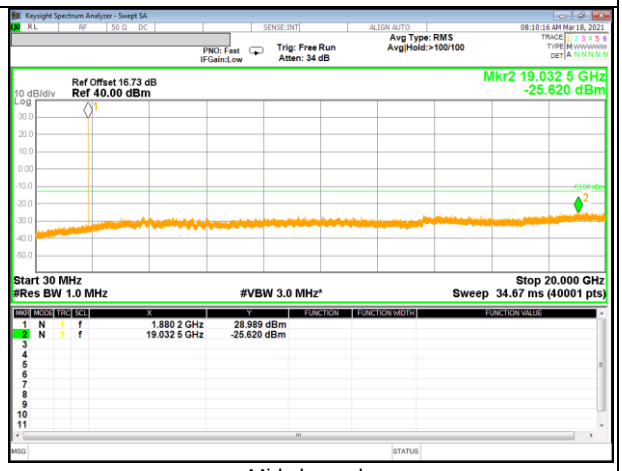
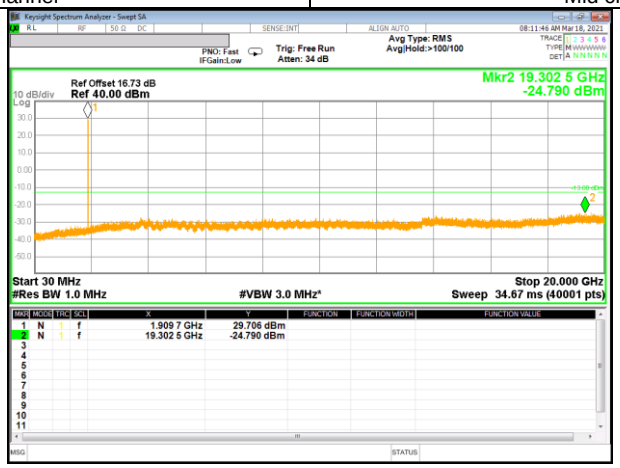
1900 GPRS



Low channel



Mid channel



High channel

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