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 Clause 27.53 and RSS-139, 4.2 Spurious emissions at RF antenna connector
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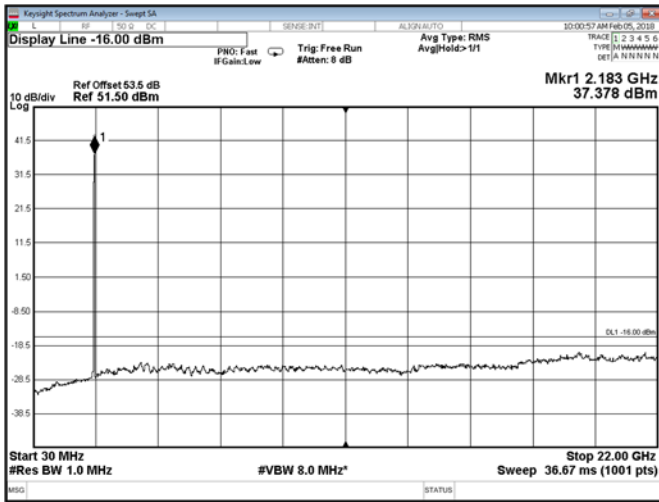


Figure 8.2-47: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 10 MHz, high channel

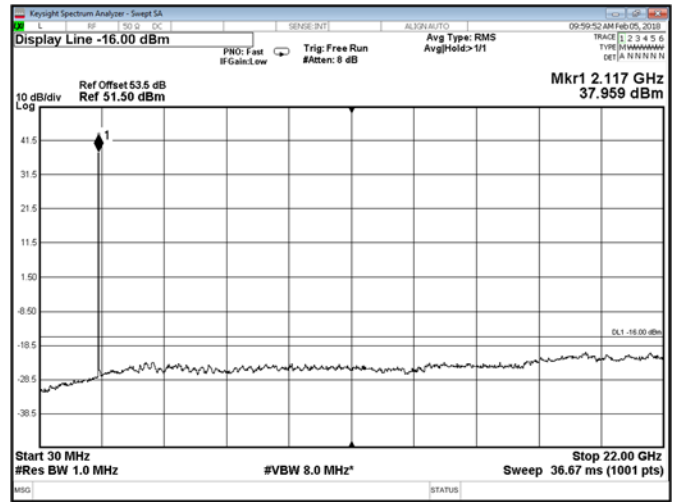


Figure 8.2-48: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 10 MHz, low channel

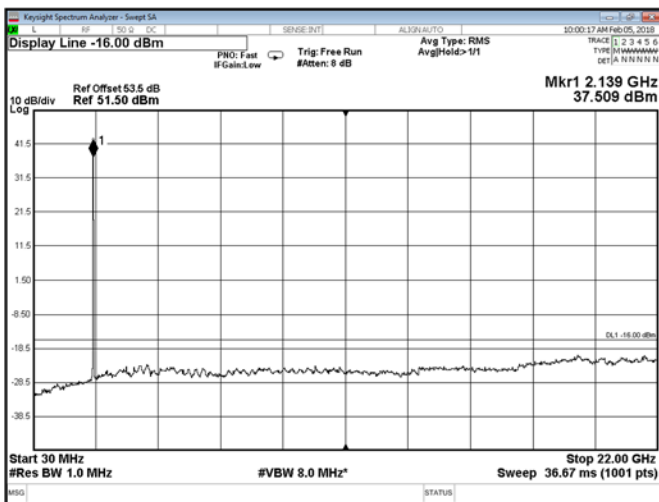


Figure 8.2-49: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 10 MHz, mid channel

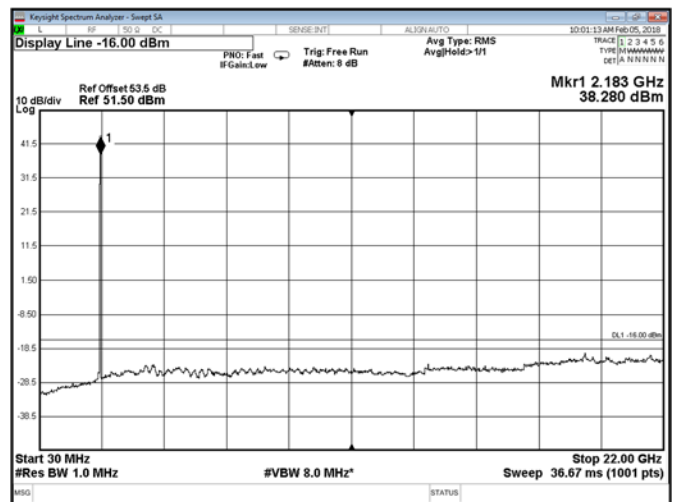


Figure 8.2-50: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 10 MHz, high channel

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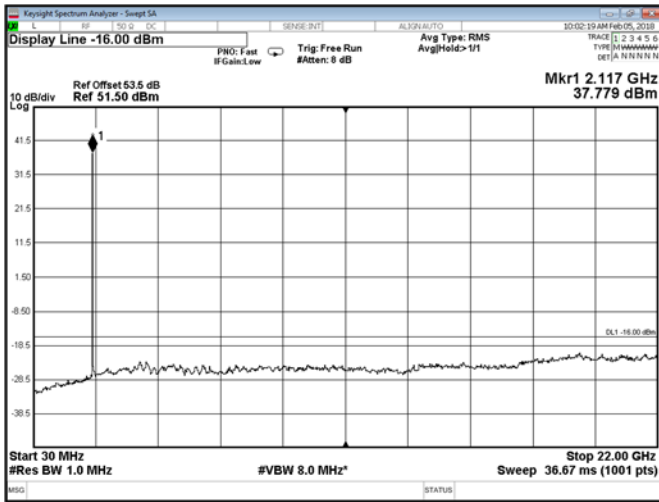


Figure 8.2-51: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 15 MHz, low channel

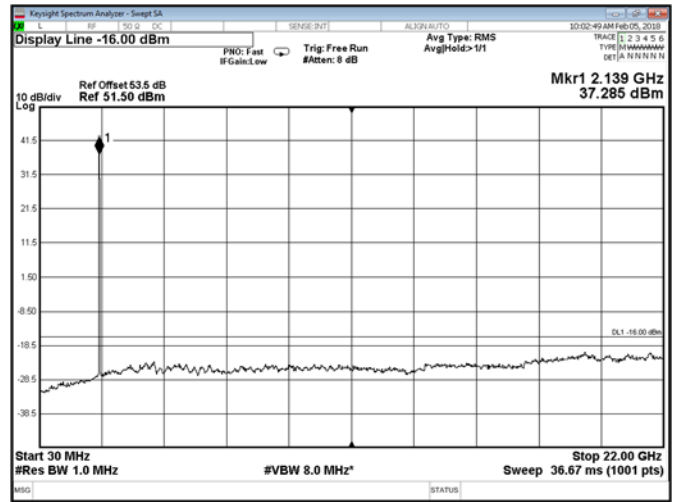


Figure 8.2-52: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 15 MHz, mid channel

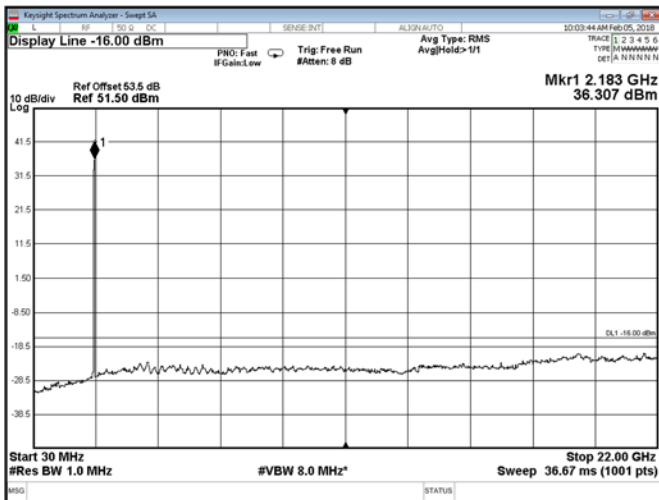


Figure 8.2-53: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 15 MHz, high channel

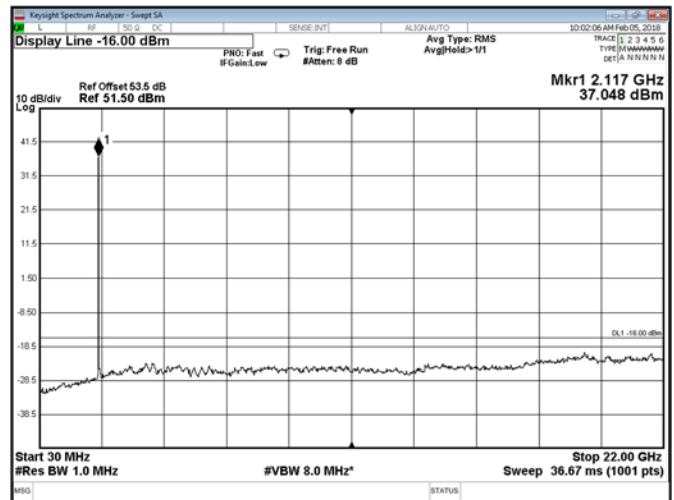


Figure 8.2-54: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 15 MHz, low channel

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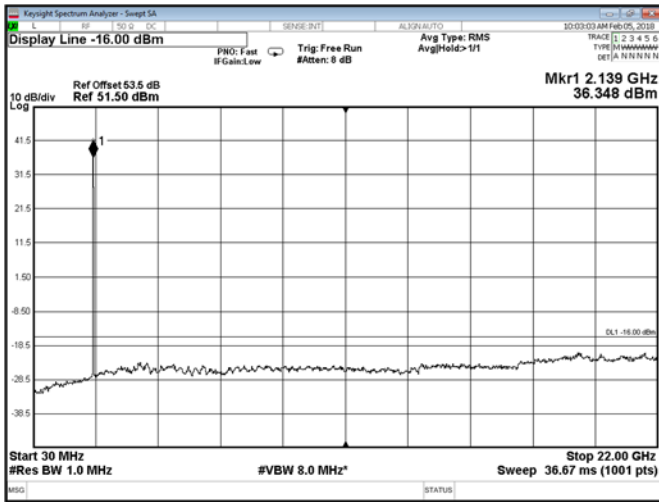


Figure 8.2-55: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 15 MHz, mid channel

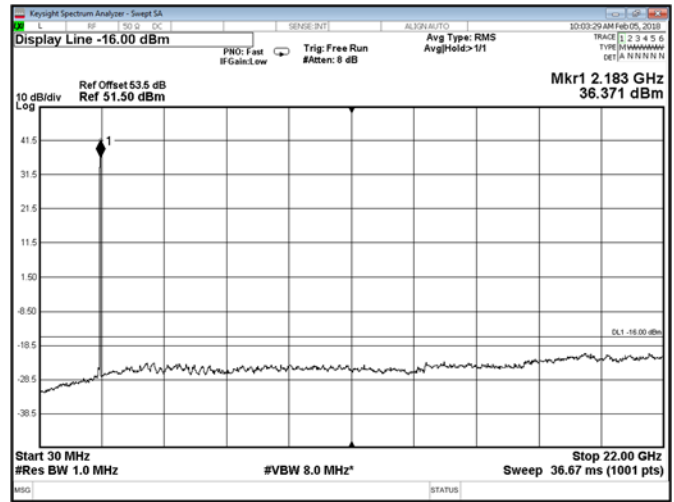


Figure 8.2-56: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 15 MHz, high channel

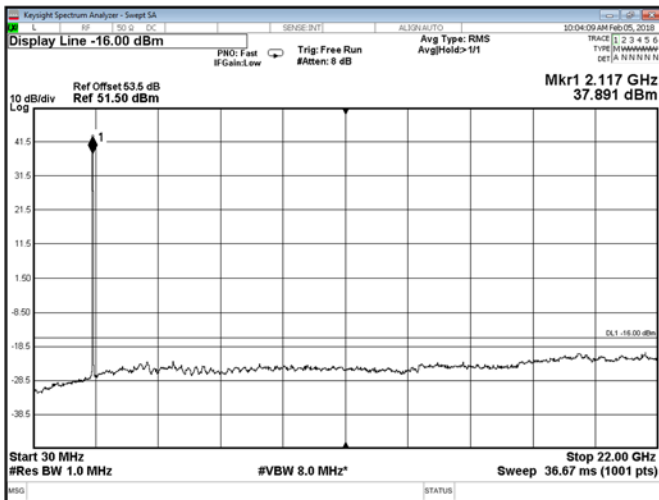


Figure 8.2-57: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 20 MHz, low channel

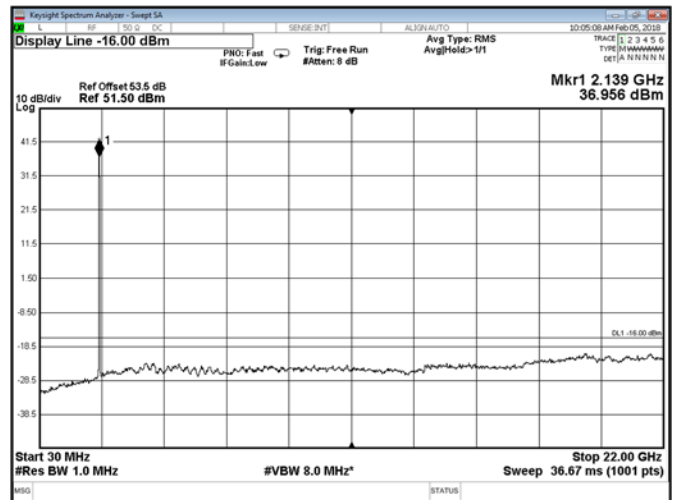


Figure 8.2-58: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 20 MHz, mid channel

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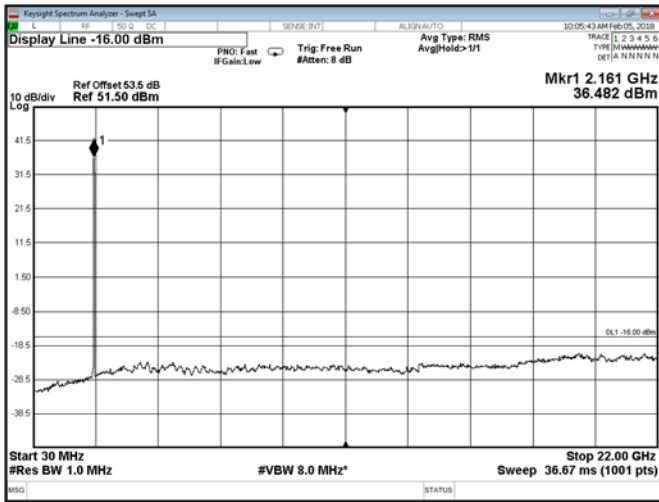


Figure 8.2-59: Conducted spurious emissions, Ant A, NB IoT, QPSK, LTE 20 MHz, high channel

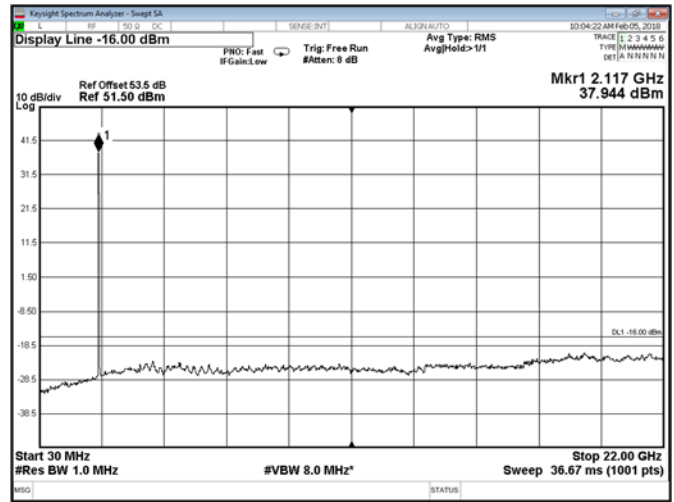


Figure 8.2-60: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 20 MHz, low channel

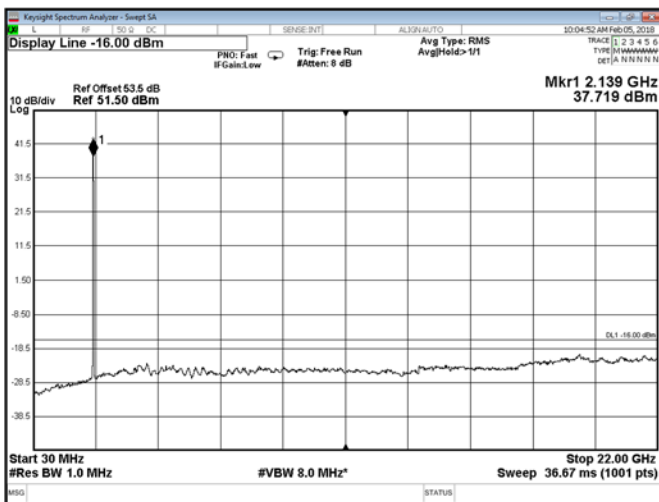


Figure 8.2-61: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 20 MHz, mid channel

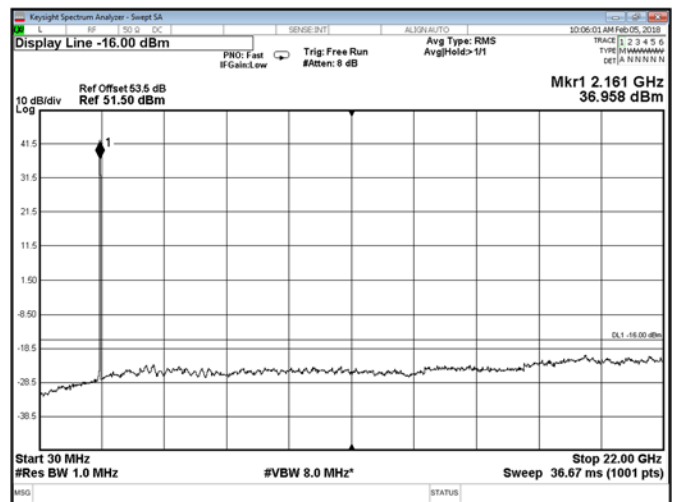


Figure 8.2-62: Conducted spurious emissions, Ant B, NB IoT, QPSK, LTE 20 MHz, high channel

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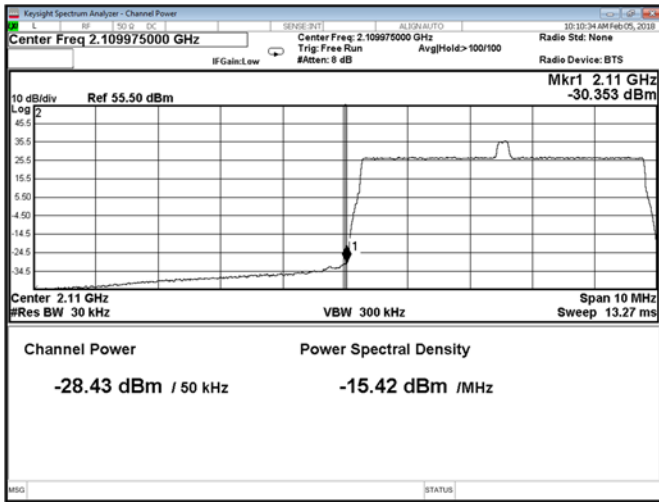


Figure 8.2-63: Conducted band edge emission at 2110 MHz, Ant A, NB IoT, QPSK, LTE 5 MHz (RBW = 1% of EBW)

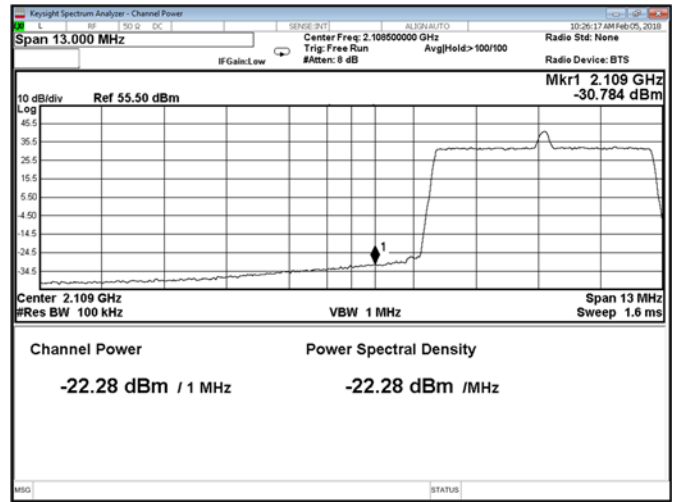


Figure 8.2-64: Conducted band edge emission at 2109 MHz, Ant A, NB IoT, QPSK, LTE 5 MHz (RBW = 1 MHz)

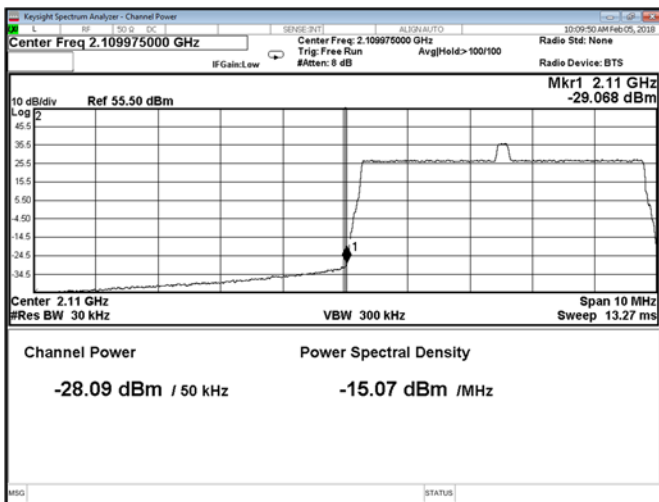


Figure 8.2-65: Conducted band edge emission at 2110 MHz, Ant B, NB IoT, QPSK, LTE 5 MHz (RBW = 1% of EBW)

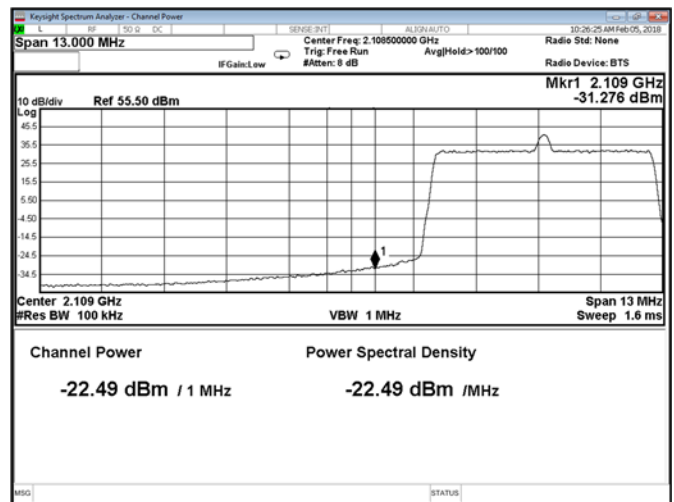


Figure 8.2-66: Conducted band edge emission at 2109 MHz, Ant B, NB IoT, QPSK, LTE 5 MHz (RBW = 1 MHz)

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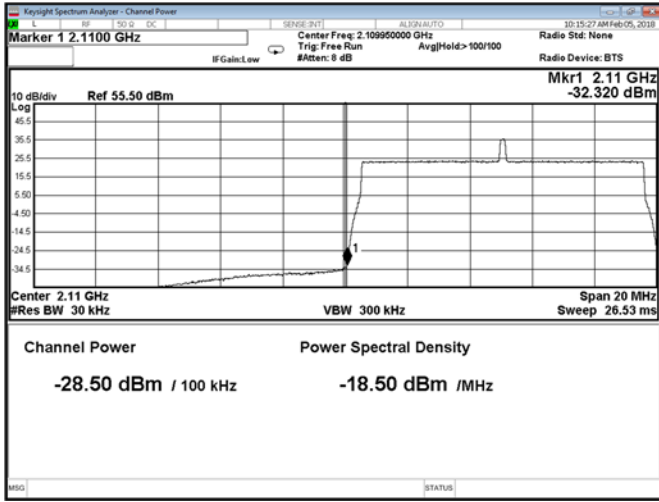


Figure 8.2-67: Conducted band edge emission at 2110 MHz, Ant A, NB IoT, QPSK, LTE 10 MHz (RBW = 1% of EBW)

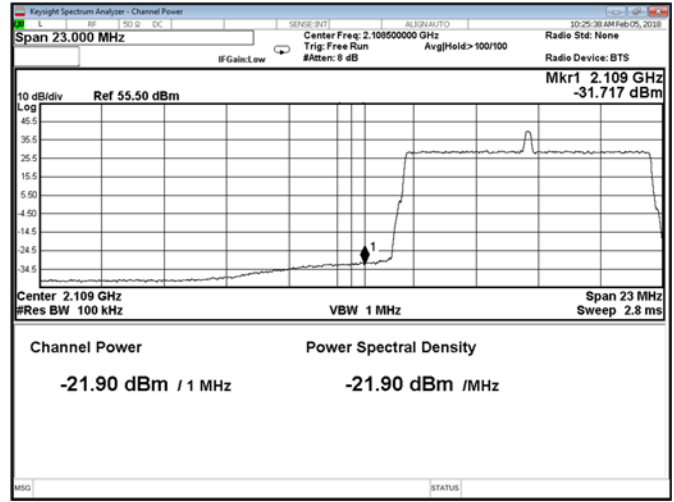


Figure 8.2-68: Conducted band edge emission at 2109 MHz, Ant A, NB IoT, QPSK, LTE 10 MHz (RBW = 1 MHz)

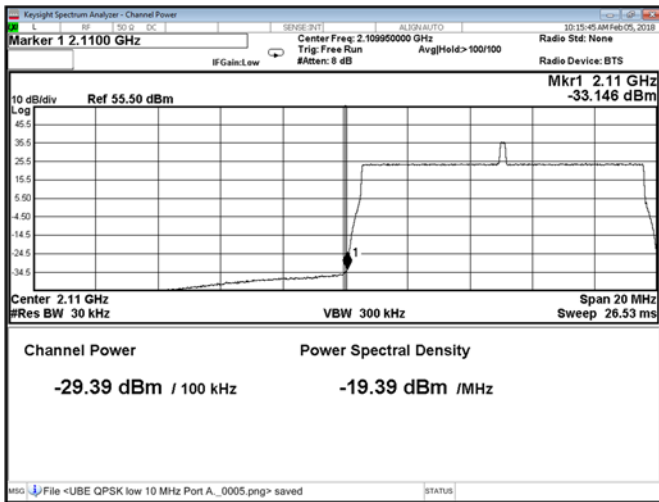


Figure 8.2-69: Conducted band edge emission at 2110 MHz, Ant B, NB IoT, QPSK, LTE 10 MHz (RBW = 1% of EBW)

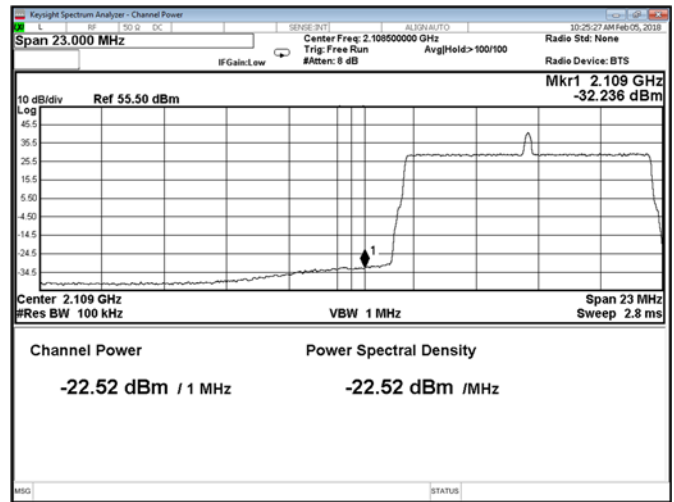


Figure 8.2-70: Conducted band edge emission at 2109 MHz, Ant B, NB IoT, QPSK, LTE 10 MHz (RBW = 1 MHz)

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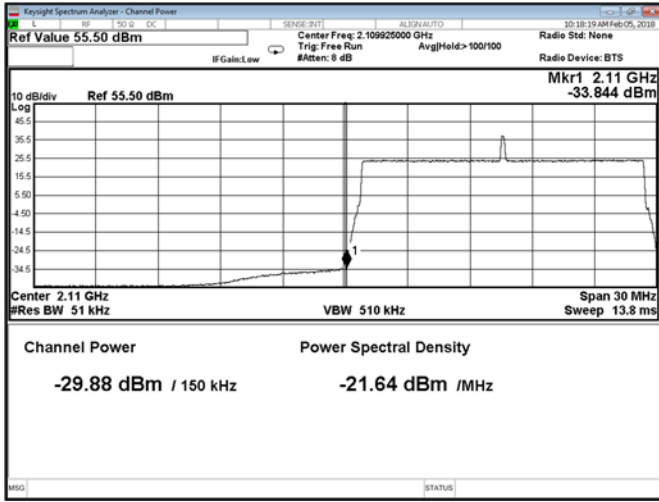


Figure 8.2-71: Conducted band edge emission at 2110 MHz,
 Ant A, NB IoT, QPSK, LTE 15 MHz (RBW = 1% of EBW)

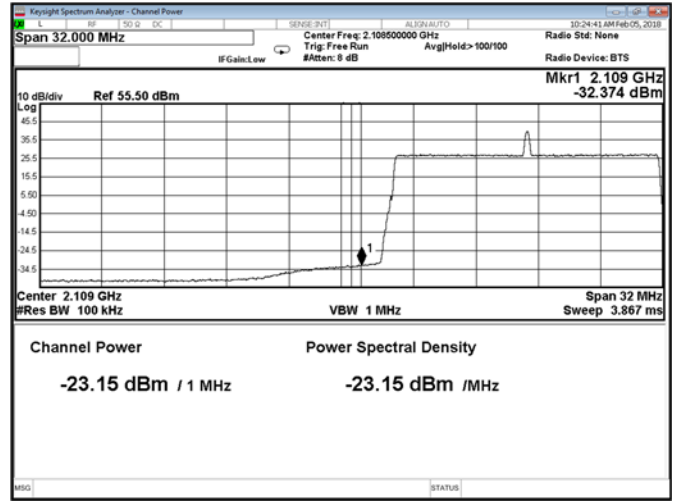


Figure 8.2-72: Conducted band edge emission at 2109 MHz,
 Ant A, NB IoT, QPSK, LTE 15 MHz (RBW = 1 MHz)

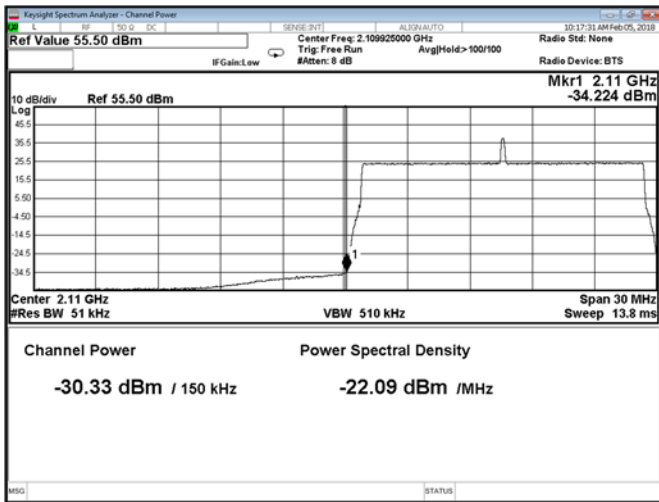


Figure 8.2-73: Conducted band edge emission at 2110 MHz,
 Ant B, NB IoT, QPSK, LTE 15 MHz (RBW = 1% of EBW)

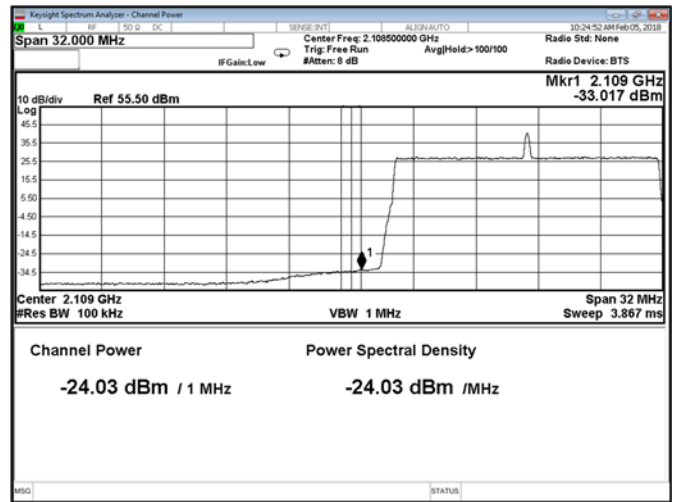


Figure 8.2-74: Conducted band edge emission at 2109 MHz,
 Ant B, NB IoT, QPSK, LTE 15 MHz (RBW = 1 MHz)

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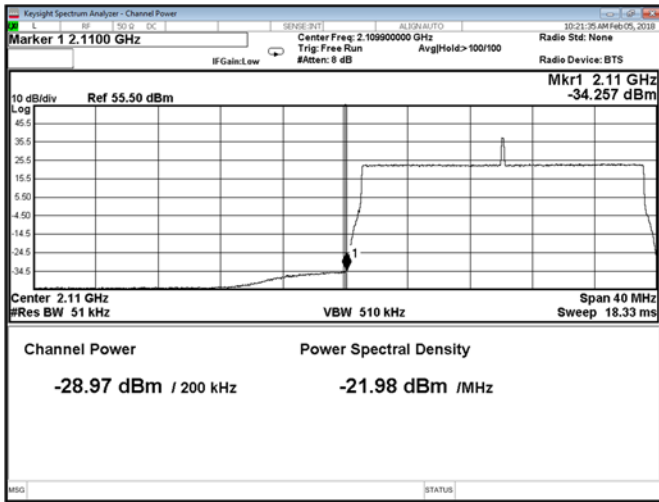


Figure 8.2-75: Conducted band edge emission at 2110 MHz, Ant A, NB IoT, QPSK, LTE 20 MHz (RBW = 1% of EBW)

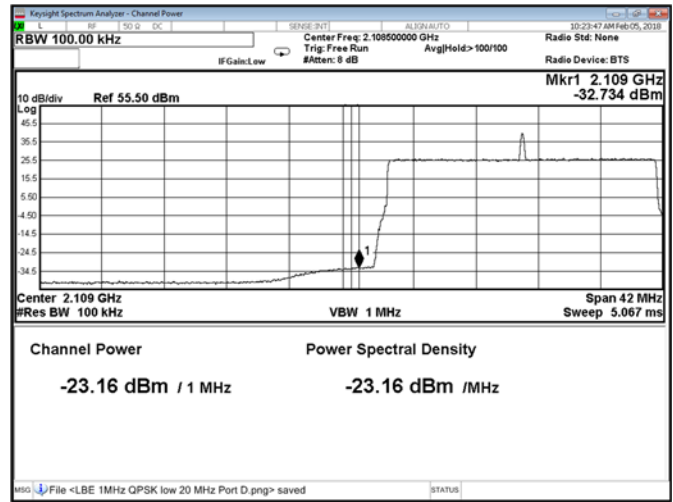


Figure 8.2-76: Conducted band edge emission at 2109 MHz, Ant A, NB IoT, QPSK, LTE 20 MHz (RBW = 1 MHz)

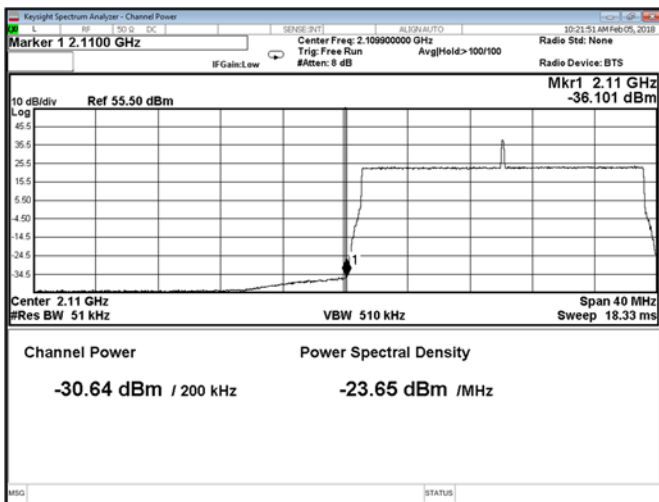


Figure 8.2-77: Conducted band edge emission at 2110 MHz, Ant B, NB IoT, QPSK, LTE 20 MHz (RBW = 1% of EBW)

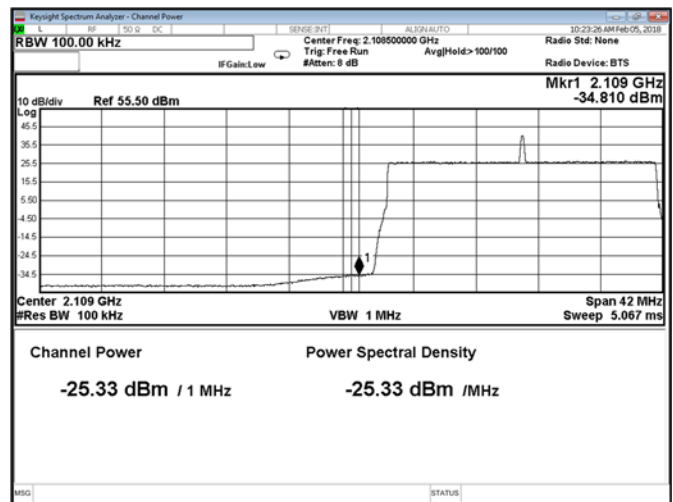


Figure 8.2-78: Conducted band edge emission at 2109 MHz, Ant B, NB IoT, QPSK, LTE 20 MHz (RBW = 1 MHz)

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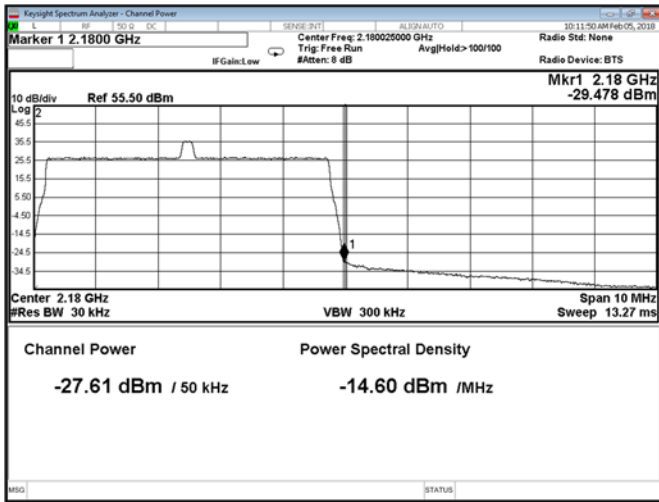


Figure 8.2-79: Conducted band edge emission at 2180 MHz, Ant A, NB IoT, QPSK, LTE 5 MHz (RBW = 1% of EBW)

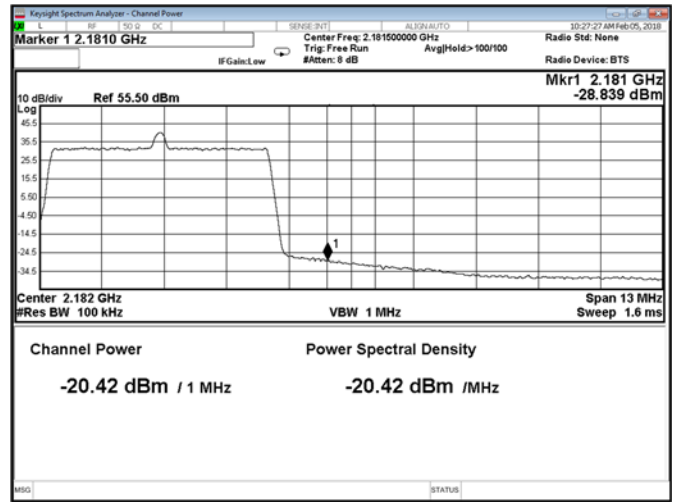


Figure 8.2-80: Conducted band edge emission at 2181 MHz, Ant A, NB IoT, QPSK, LTE 5 MHz (RBW = 1 MHz)

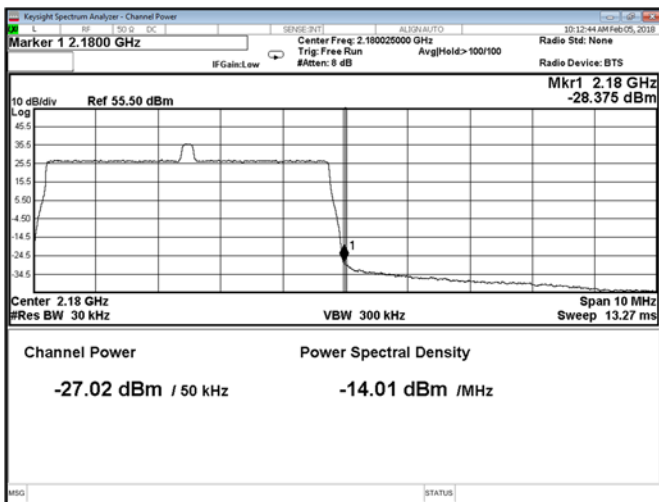


Figure 8.2-81: Conducted band edge emission at 2180 MHz, Ant B, NB IoT, QPSK, LTE 5 MHz (RBW = 1% of EBW)

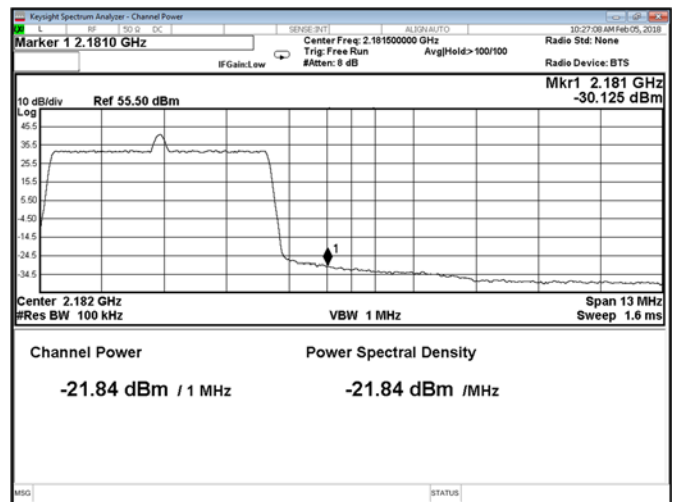


Figure 8.2-82: Conducted band edge emission at 2181 MHz, Ant B, NB IoT, QPSK, LTE 5 MHz (RBW = 1 MHz)

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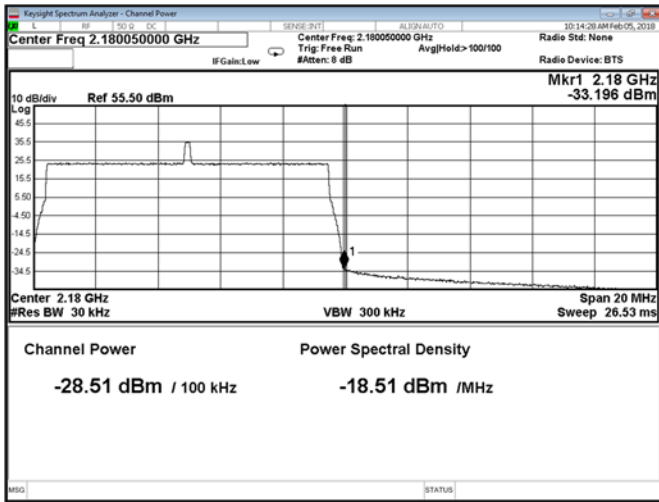


Figure 8.2-83: Conducted band edge emission at 2180 MHz, Ant A, NB IoT, QPSK, LTE 10 MHz (RBW = 1% of EBW)

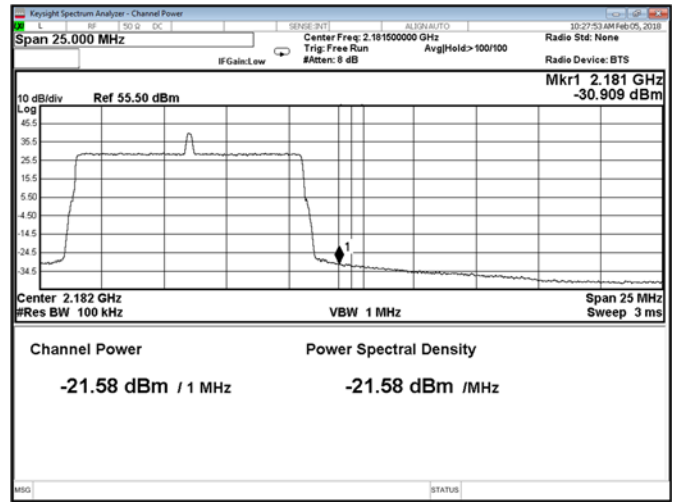


Figure 8.2-84: Conducted band edge emission at 2181 MHz, Ant A, NB IoT, QPSK, LTE 10 MHz (RBW = 1 MHz)

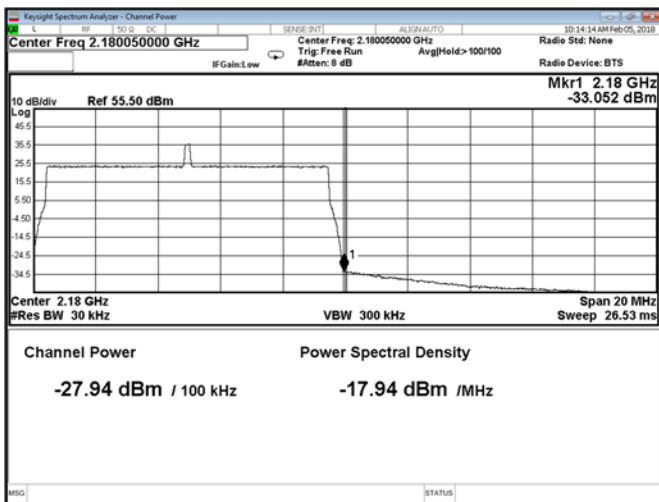


Figure 8.2-85: Conducted band edge emission at 2180 MHz, Ant B, NB IoT, QPSK, LTE 10 MHz (RBW = 1% of EBW)

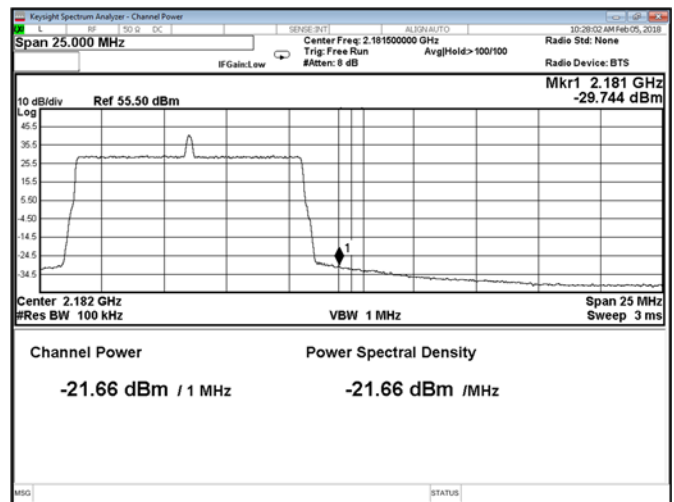


Figure 8.2-86: Conducted band edge emission at 2181 MHz, Ant B, NB IoT, QPSK, LTE 10 MHz (RBW = 1 MHz)

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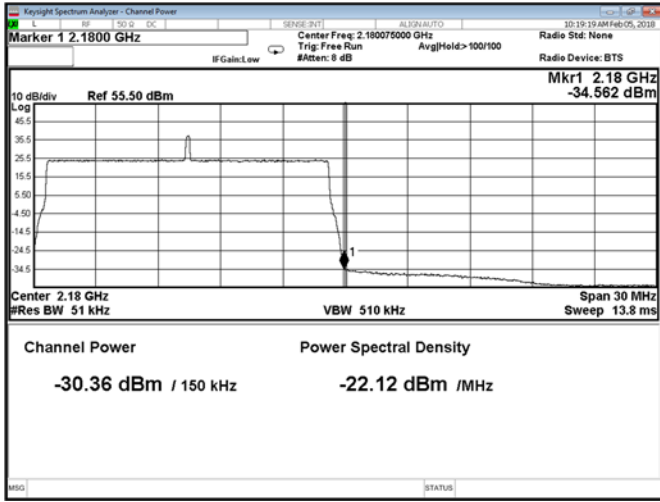


Figure 8.2-87: Conducted band edge emission at 2180 MHz, Ant A, NB IoT, QPSK, LTE 15 MHz (RBW = 1% of EBW)

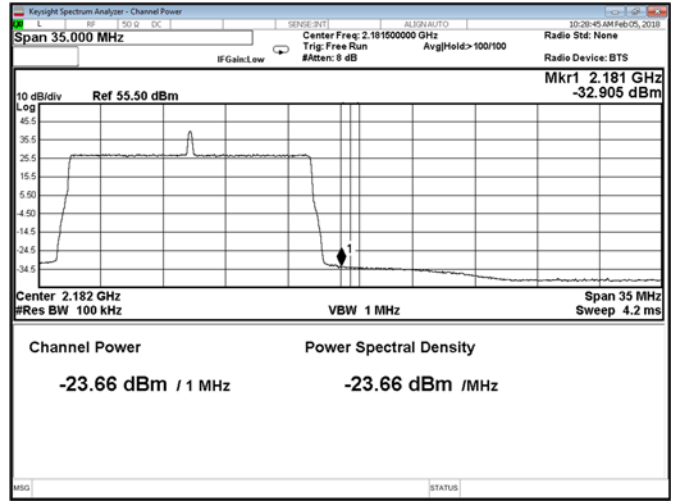


Figure 8.2-88: Conducted band edge emission at 2181 MHz, Ant A, NB IoT, QPSK, LTE 15 MHz (RBW = 1 MHz)

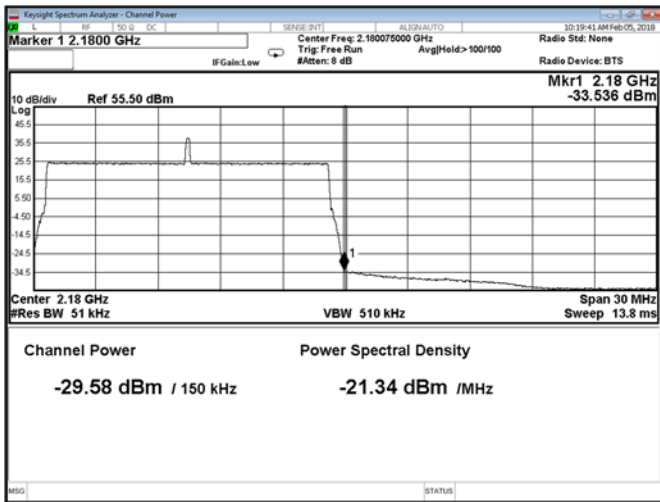


Figure 8.2-89: Conducted band edge emission at 2180 MHz, Ant B, NB IoT, QPSK, LTE 15 MHz (RBW = 1% of EBW)

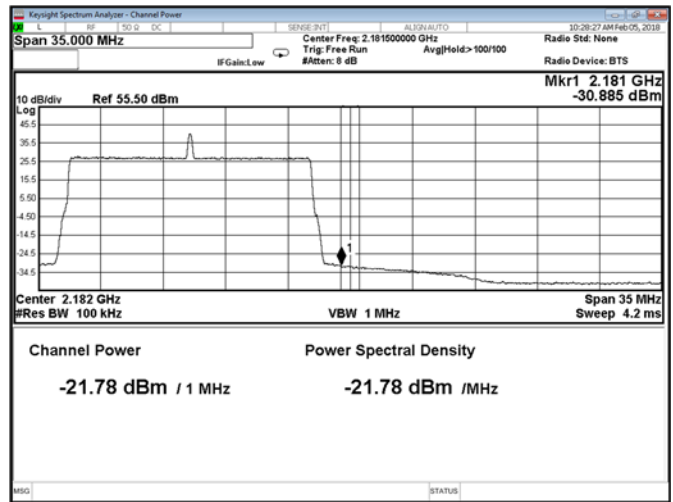


Figure 8.2-90: Conducted band edge emission at 2181 MHz, Ant B, NB IoT, QPSK, LTE 15 MHz (RBW = 1 MHz)

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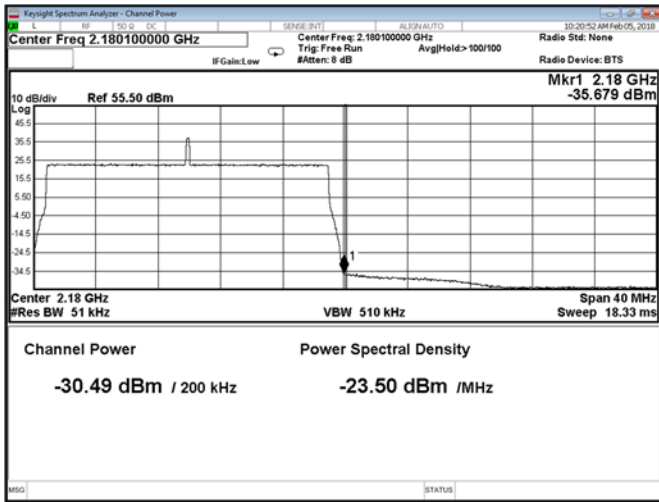


Figure 8.2-91: Conducted band edge emission at 2180 MHz, Ant A, NB IoT, QPSK, LTE 20 MHz (RBW = 1% of EBW)

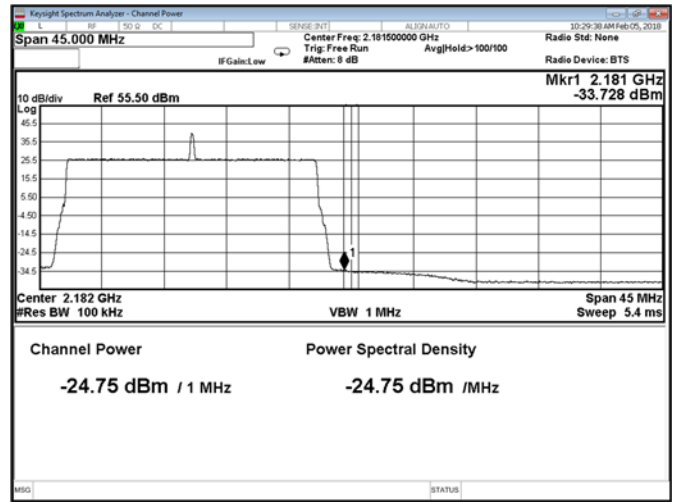


Figure 8.2-92: Conducted band edge emission at 2181 MHz, Ant A, NB IoT, QPSK, LTE 20 MHz (RBW = 1 MHz)

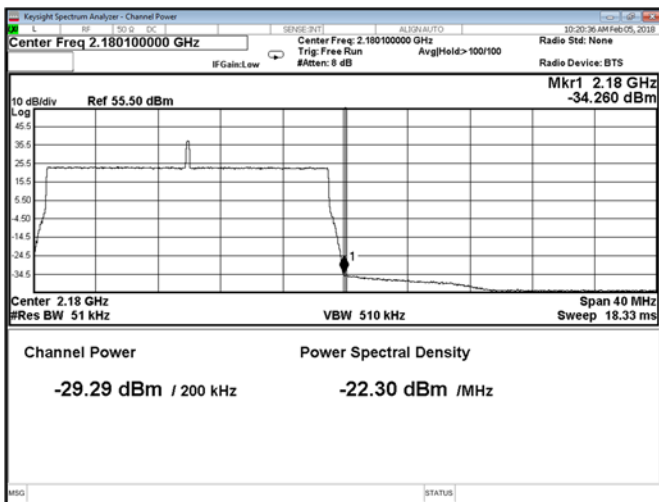


Figure 8.2-93: Conducted band edge emission at 2180 MHz, Ant B, NB IoT, QPSK, LTE 20 MHz (RBW = 1% of EBW)

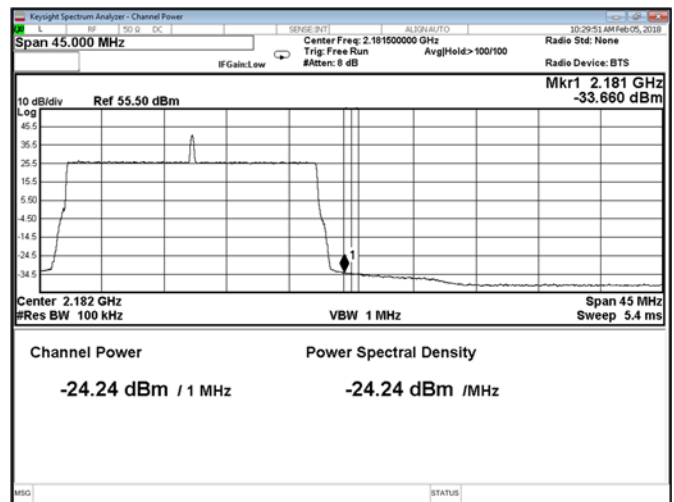


Figure 8.2-94: Conducted band edge emission at 2181 MHz, Ant B, NB IoT, QPSK, LTE 20 MHz (RBW = 1 MHz)

8.3 FCC 27.53 and RSS-139, 4.2 Radiated spurious emissions

8.3.1 Definitions and limits

FCC:

(h) AWS emission limits

(1) General protection levels. Except as otherwise specified below, for operations in the 1695–1710 MHz, 1710–1755 MHz, 1755–1780 MHz, 1915–1920 MHz, 1995–2000 MHz, 2000–2020 MHz, 2110–2155 MHz, 2155–2180 MHz, and 2180–2200 bands, 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.

(3) Measurement procedure.

(i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

RSS-139, Section 6.6:

i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

8.3.2 Test summary

Test date	January 29, 2018
Test engineer	Shawn He

8.3.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.

All measurements were performed using a peak detector.

RBW within 30–1000 MHz was 100 kHz and 1 MHz above 1 GHz. VBW was wider than RBW.

Testing was performed with RF ports terminated with 50 Ohm load.

8.3.4 Test data

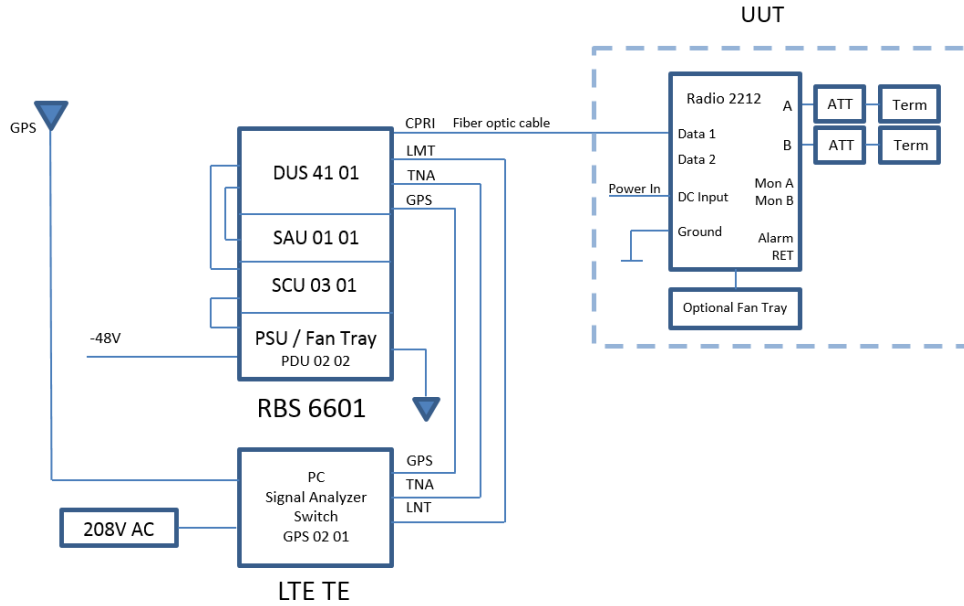
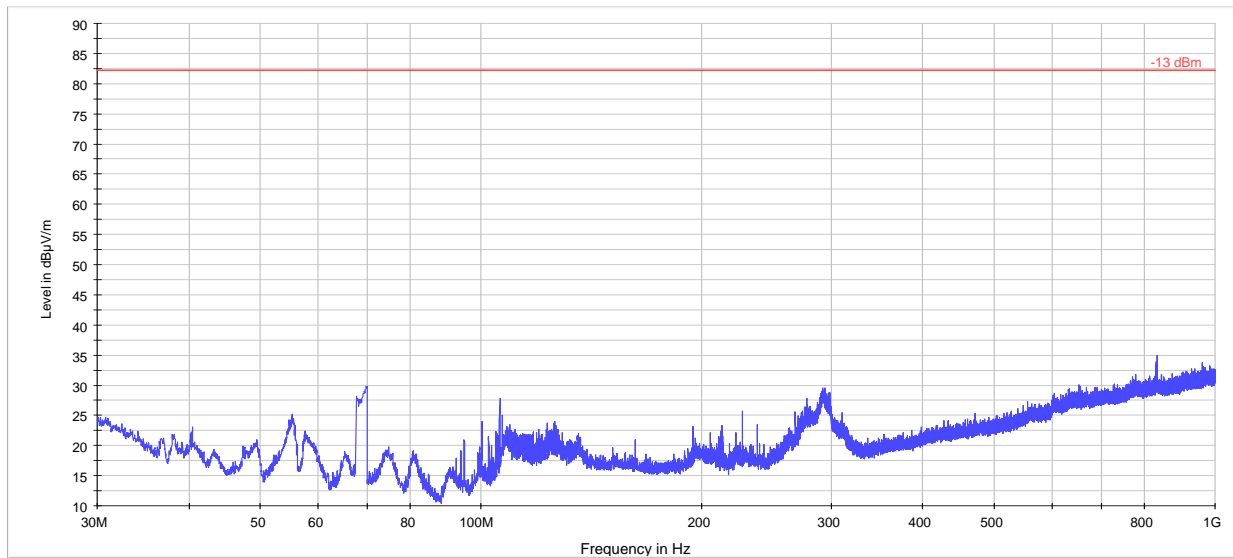


Figure 8.3-1: Set-up Diagram Radiated Spurious Emission

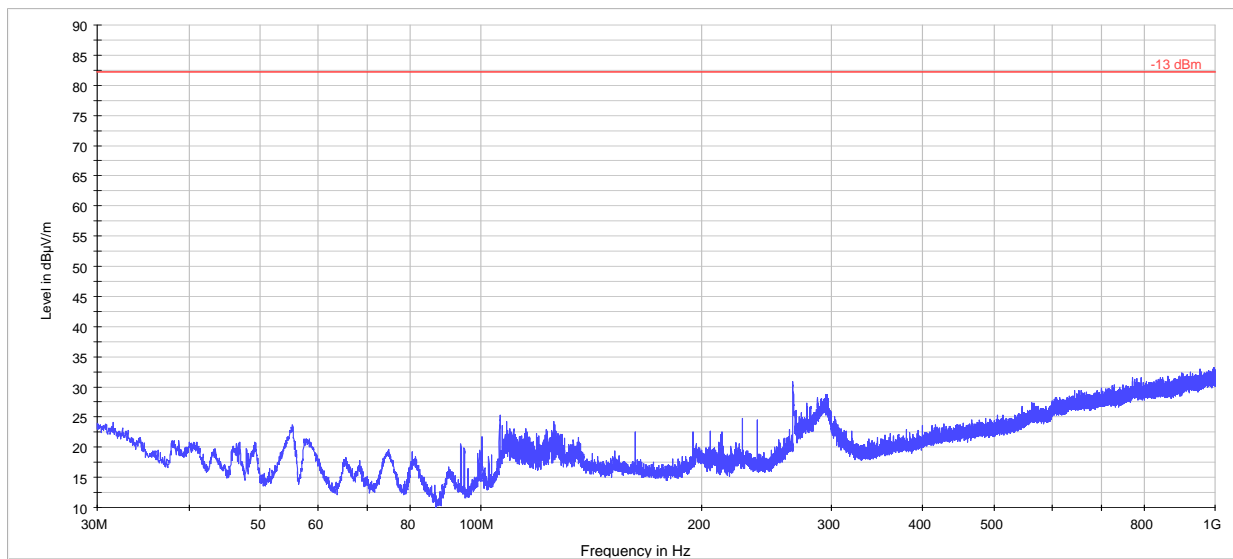


Figure 8.3-2: EUT Set -up for Radiated Compliance Testing



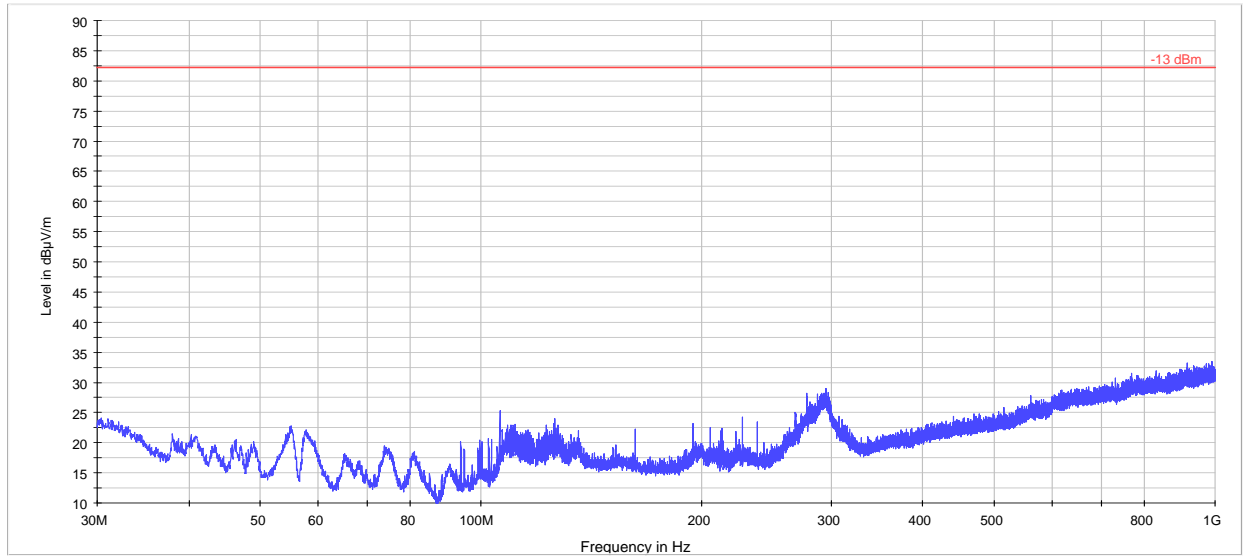
SC WCDMA - Bottom Channel
PK+ _MAXH
-13 dBm

Figure 8.3-3: Radiated spurious emission below 1 GHz for single carrier operation, low channel



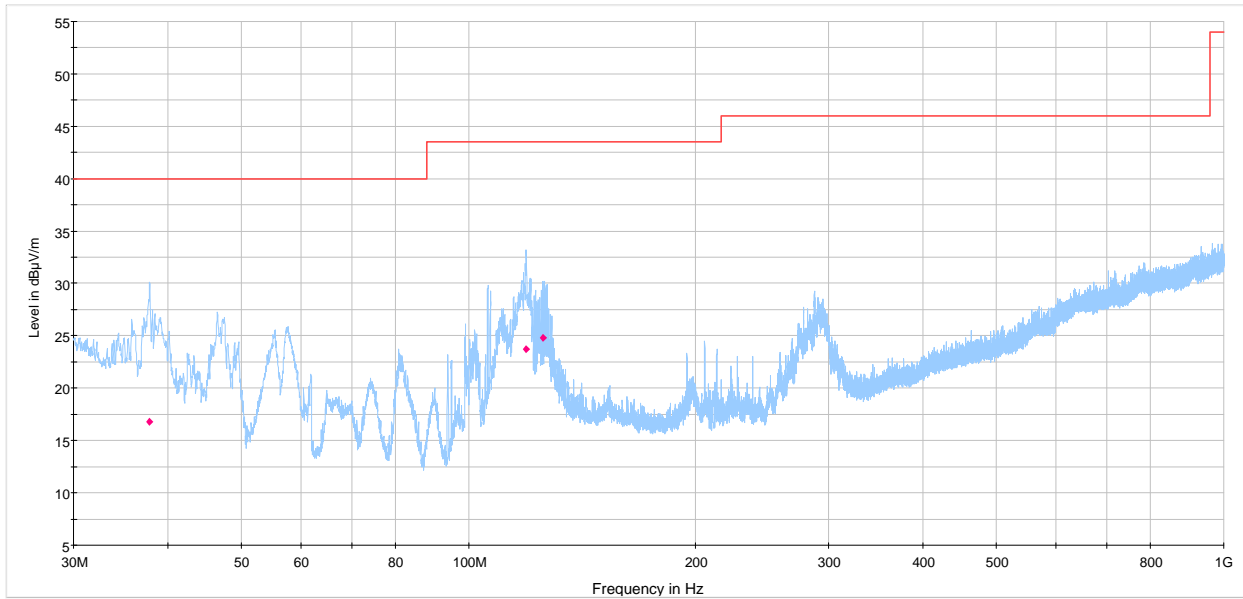
SC WCDMA - Middle Channel
PK+ _MAXH
-13 dBm

Figure 8.3-4: Radiated spurious emission below 1 GHz for single carrier operation, mid channel



SC WCDMA - Top Channel
 — PK+ .MAXH
 — -13 dBm

Figure 8.3-5: Radiated spurious emission below 1 GHz for single carrier operation, high channel



Mixed Mode Operation 2C WCDMA Bottom, LTE Top
 — FCC Part 15 and ICES - Class B 3m Q-Peak Limit
 — Preview Result 1-PK+
 ◆ Final_Result QPK

Figure 8.3-6: Radiated spurious emission below 1 GHz, for multi-RAT operation, WCDMA bottom, LTE top

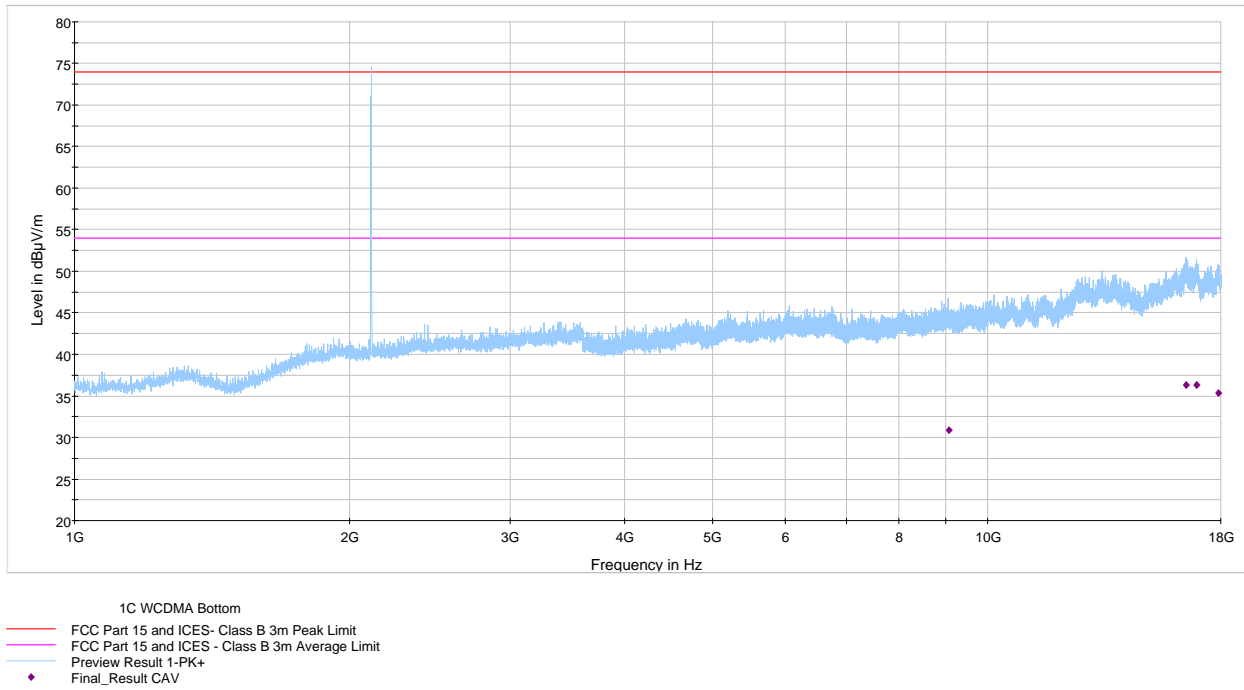


Figure 8.3-7: Radiated spurious emission within 1–18 GHz, for single carrier operation

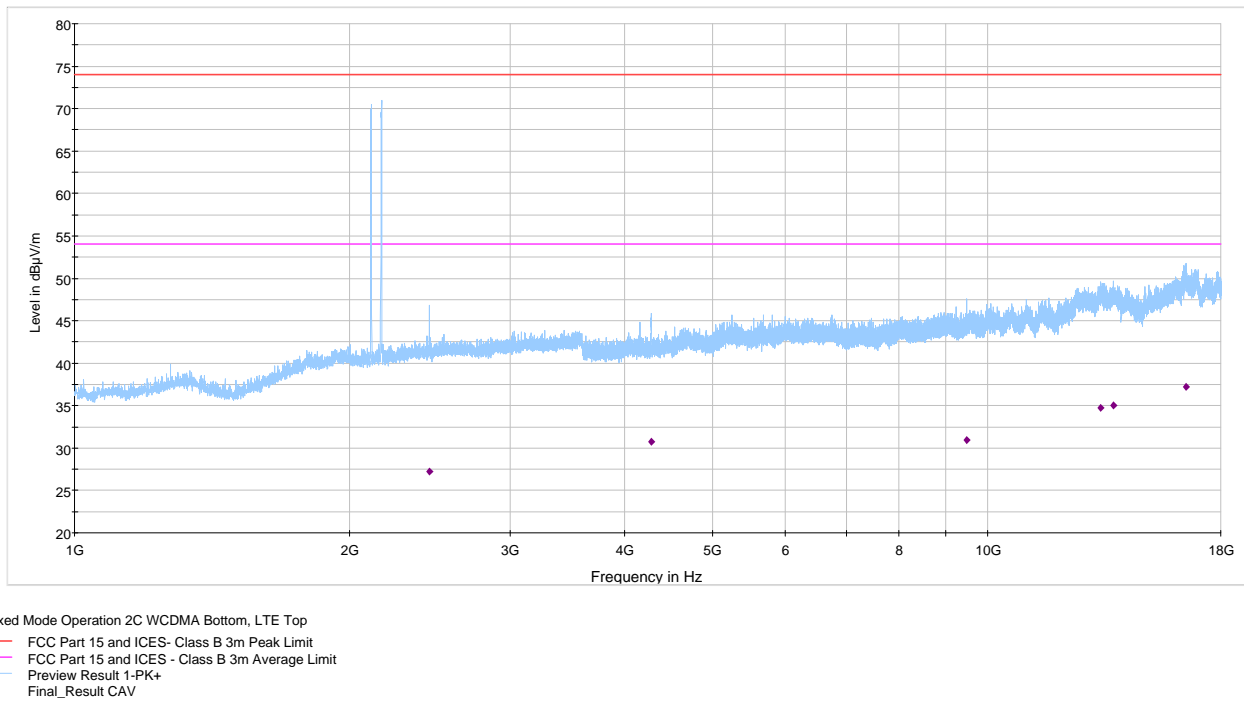


Figure 8.3-8: Radiated spurious emission within 1–18 GHz, for multi-RAT operation WCDMA bottom, LTE top

8.4 FCC 27.54 and RSS-139, Section 6.4 Frequency stability

8.4.1 Definitions and limits

FCC:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

RSS-139, Section 6.4:

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

8.4.2 Test summary

Test date	July 11, 2017
Test engineer	Andrey Adelberg

8.4.3 Observations, settings and special notes

26 dBc points including frequency tolerance were assessed to remain within assigned band.
 Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	300 Hz
Video bandwidth	RBW × 3
Trace mode	Max Hold

8.4.4 Test data

Table 8.4-1: Frequency error results

Temperature, °C	Voltage, V _{DC}	Frequency error, Hz
+50	54	+3.13
+40	54	+2.54
+30	54	+2.10
+20	54	+2.18
+20	48	+2.52
+20	40	+2.30
+10	54	+2.96
0	54	+2.98
-10	54	+2.41
-20	54	+3.70
-30	54	+2.18

Max negative drift: 0 Hz, Max positive drift: +3.70 Hz.

26 dB is located no closer than 128 kHz from the band edges.

8.5 FCC Part 2.1049 and RSS-Gen, 6.6 Occupied bandwidth

8.5.1 Definitions and limits

FCC:

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

RSS-Gen, 6.6

The emission bandwidth (×dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated × dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3× the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3×RBW.

The trace data points are recovered and are directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded.

The difference between the two recorded frequencies is the 99% occupied bandwidth.

8.5.2 Test summary

Test date	January 31, 2018
Test engineer	Andrey Adelberg

8.5.3 Observations, settings and special notes

Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	≥1 % of span
Video bandwidth	RBW × 3
Trace mode	Max Hold

8.5.4 Test data

Table 8.5-1: Occupied bandwidth results

Remarks	Frequency, MHz	99% OBW, MHz	26 dB BW, MHz
QPSK, Ant A, low channel	2112.4	4.168	4.666
16QAM, Ant A, low channel	2112.4	4.165	4.656
64QAM, Ant A, low channel	2112.4	4.168	4.666
QPSK, Ant A, mid channel	2132.5	4.173	4.668
QPSK, Ant A, high channel	2152.6	4.173	4.667
QPSK, Ant B, low channel	2112.4	4.165	4.662
16QAM, Ant B, low channel	2112.4	4.169	4.664
64QAM, Ant B, low channel	2112.4	4.160	4.661
QPSK, Ant B, mid channel	2132.5	4.166	4.660
QPSK, Ant B, high channel	2152.6	4.166	4.661

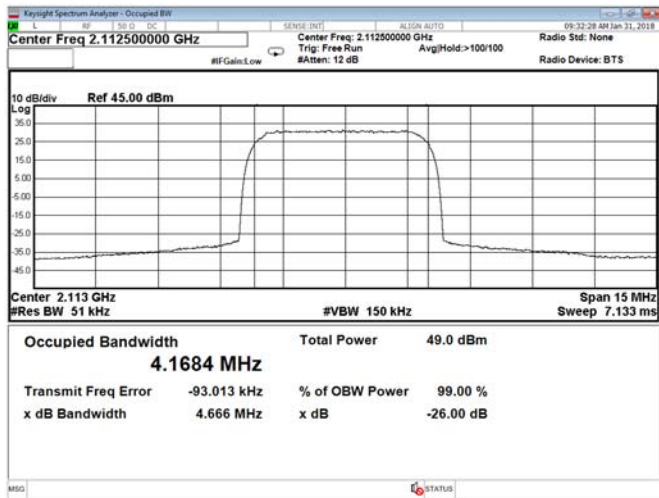


Figure 8.5-1: Occupied bandwidth, QPSK, Ant A, Low channel

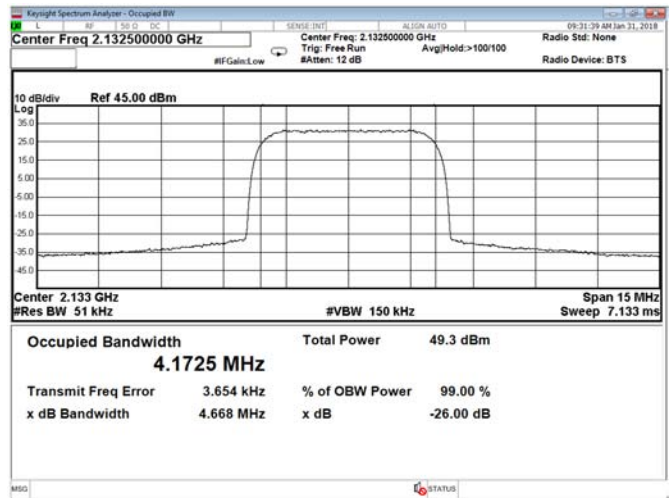


Figure 8.5-2: Occupied bandwidth, QPSK, Ant A, Mid channel

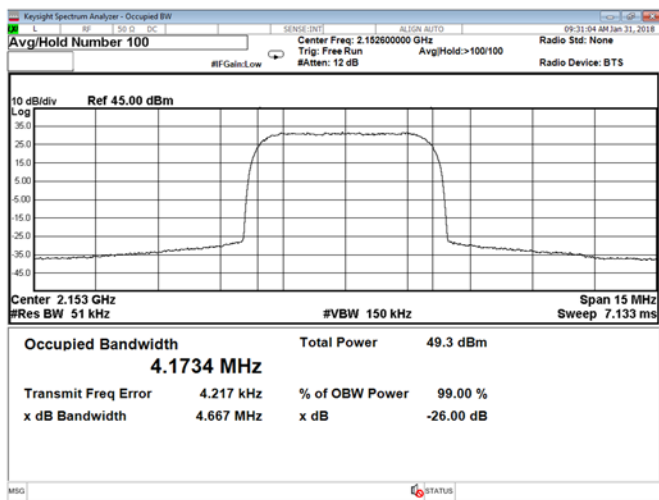


Figure 8.5-3: Occupied bandwidth, QPSK, Ant A, High channel

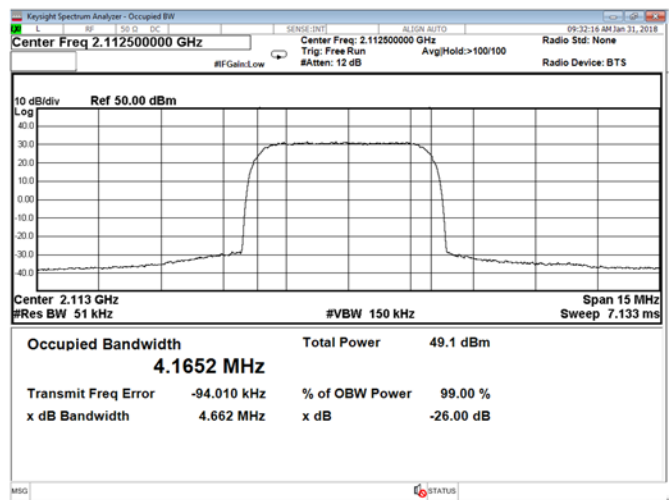


Figure 8.5-4: Occupied bandwidth, QPSK, Ant B, Low channel

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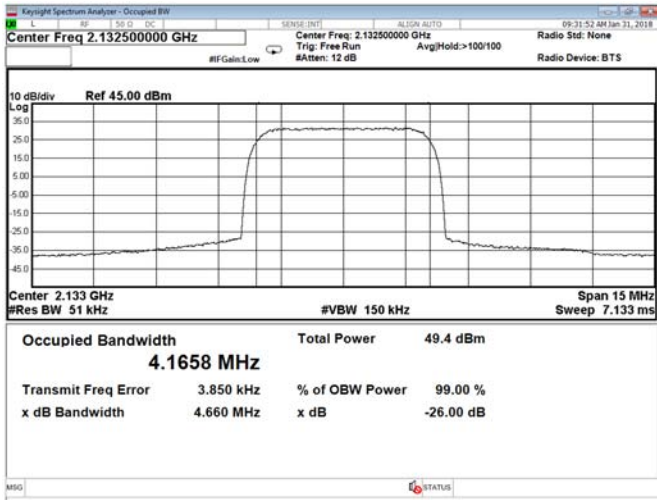


Figure 8.5-5: Occupied bandwidth, QPSK, Ant B, Mid channel

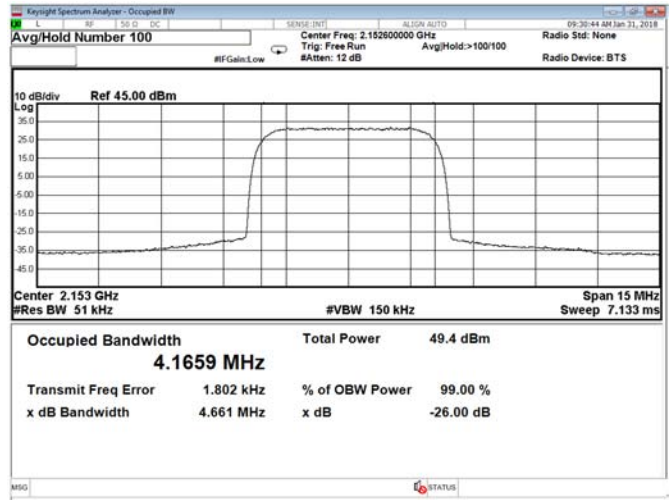


Figure 8.5-6: Occupied bandwidth, QPSK, Ant B, High channel

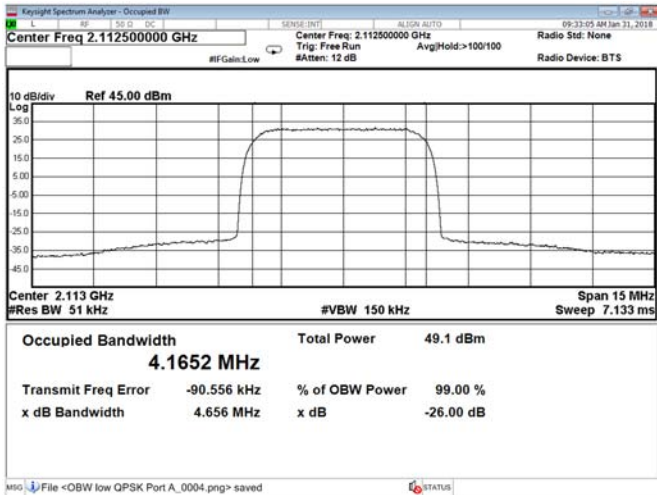


Figure 8.5-7: Occupied bandwidth, 16QAM, Ant A, Low channel

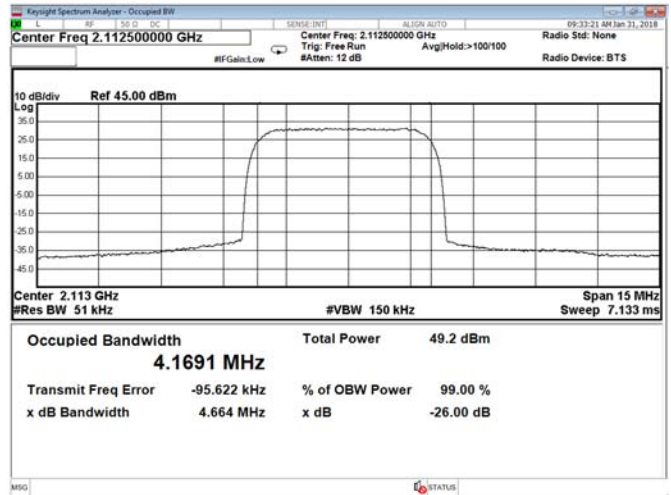


Figure 8.5-8: Occupied bandwidth, 16QAM, Ant B, Low channel

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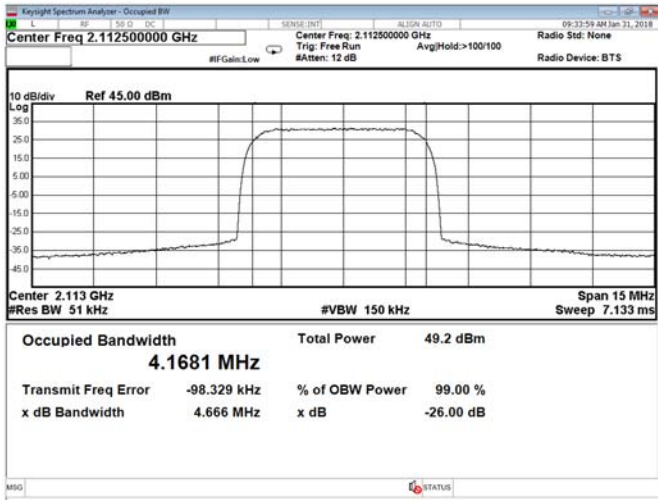


Figure 8.5-9: Occupied bandwidth, 64QAM, Ant A, Low channel

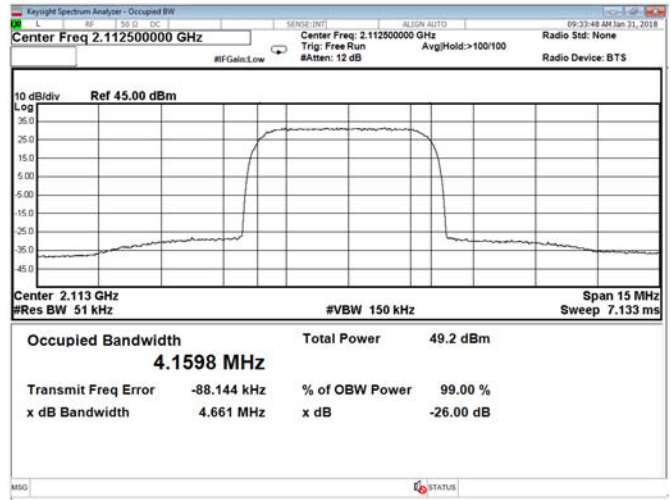


Figure 8.5-10: Occupied bandwidth, 64QAM, Ant B, Low channel

Table 8.5-2: Occupied bandwidth results for NB IoT

Remarks	Frequency, MHz	99% OBW, MHz	26 dB BW, MHz
LTE 5 MHz, Ant A, QPSK, Low channel	2112.5	4.460	4.621
LTE 5 MHz, Ant A, 16QAM, Low channel	2112.5	4.443	4.611
LTE 5 MHz, Ant A, 64QAM, Low channel	2112.5	4.466	4.625
LTE 5 MHz, Ant A, 256QAM, Low channel	2112.5	4.460	4.623
LTE 5 MHz, Ant A, QPSK, Mid channel	2145.0	4.462	4.622
LTE 5 MHz, Ant A, QPSK, High channel	2177.5	4.459	4.626
LTE 5 MHz, Ant B, QPSK, Low channel	2112.5	4.460	4.615
LTE 5 MHz, Ant B, 16QAM, Low channel	2112.5	4.445	4.613
LTE 5 MHz, Ant B, 64QAM, Low channel	2112.5	4.462	4.621
LTE 5 MHz, Ant B, 256QAM, Low channel	2112.5	4.458	4.620
LTE 5 MHz, Ant B, QPSK, Mid channel	2145.0	4.462	4.621
LTE 5 MHz, Ant B, QPSK, High channel	2177.5	4.466	4.619
LTE 10 MHz, Ant A, QPSK, Low channel	2115.0	8.907	9.182
LTE 10 MHz, Ant A, 16QAM, Low channel	2115.0	8.893	9.189
LTE 10 MHz, Ant A, 64QAM, Low channel	2115.0	8.909	9.186
LTE 10 MHz, Ant A, 256QAM, Low channel	2115.0	8.908	9.187
LTE 10 MHz, Ant A, QPSK, Mid channel	2145.0	8.903	9.183
LTE 10 MHz, Ant A, QPSK, High channel	2175.0	8.907	9.184
LTE 10 MHz, Ant B, QPSK, Low channel	2115.0	8.905	9.184
LTE 10 MHz, Ant B, 16QAM, Low channel	2115.0	8.904	9.177
LTE 10 MHz, Ant B, 64QAM, Low channel	2115.0	8.898	9.178
LTE 10 MHz, Ant B, 256QAM, Low channel	2115.0	8.914	9.181
LTE 10 MHz, Ant B, QPSK, Mid channel	2145.0	8.908	9.185
LTE 10 MHz, Ant B, QPSK, High channel	2175.0	8.910	9.181
LTE 15 MHz, Ant A, QPSK, Low channel	2117.5	13.343	13.750
LTE 15 MHz, Ant A, 16QAM, Low channel	2117.5	13.363	13.750
LTE 15 MHz, Ant A, 64QAM, Low channel	2117.5	13.345	13.730
LTE 15 MHz, Ant A, 256QAM, Low channel	2117.5	13.349	13.740
LTE 15 MHz, Ant A, QPSK, Mid channel	2145.0	13.343	13.750
LTE 15 MHz, Ant A, QPSK, High channel	2172.5	13.339	13.740
LTE 15 MHz, Ant B, QPSK, Low channel	2117.5	13.356	13.750
LTE 15 MHz, Ant B, 16QAM, Low channel	2117.5	13.356	13.730
LTE 15 MHz, Ant B, 64QAM, Low channel	2117.5	13.352	13.750
LTE 15 MHz, Ant B, 256QAM, Low channel	2117.5	13.360	13.740
LTE 15 MHz, Ant B, QPSK, Mid channel	2145.0	13.346	13.750
LTE 15 MHz, Ant B, QPSK, High channel	2172.5	13.346	13.750
LTE 20 MHz, Ant A, QPSK, Low channel	2120.0	17.803	18.310
LTE 20 MHz, Ant A, 16QAM, Low channel	2120.0	17.745	18.300
LTE 20 MHz, Ant A, 64QAM, Low channel	2120.0	17.793	18.320
LTE 20 MHz, Ant A, 256QAM, Low channel	2120.0	17.785	18.320
LTE 20 MHz, Ant A, QPSK, Mid channel	2145.0	17.786	18.300
LTE 20 MHz, Ant A, QPSK, High channel	2170.0	17.789	18.300
LTE 20 MHz, Ant B, QPSK, Low channel	2120.0	17.788	18.310
LTE 20 MHz, Ant B, 16QAM, Low channel	2120.0	17.769	18.290
LTE 20 MHz, Ant B, 64QAM, Low channel	2120.0	17.784	18.300
LTE 20 MHz, Ant B, 256QAM, Low channel	2120.0	17.798	18.310
LTE 20 MHz, Ant B, QPSK, Mid channel	2145.0	17.787	18.300
LTE 20 MHz, Ant B, QPSK, High channel	2170.0	17.793	18.290

Section 8 Testing data
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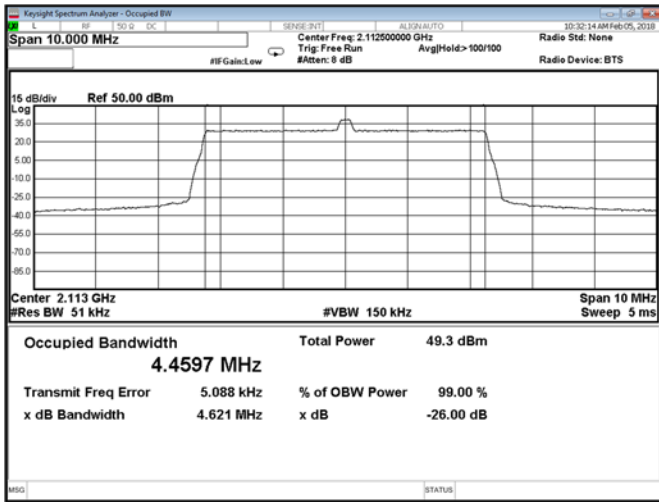


Figure 8.5-11: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 5 MHz, Low channel

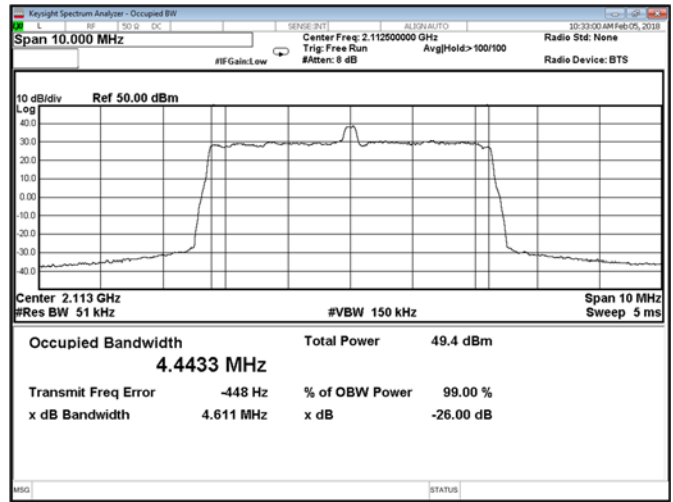


Figure 8.5-12: Occupied bandwidth, 16QAM, Ant A, NB IoT, LTE 5 MHz, Low channel

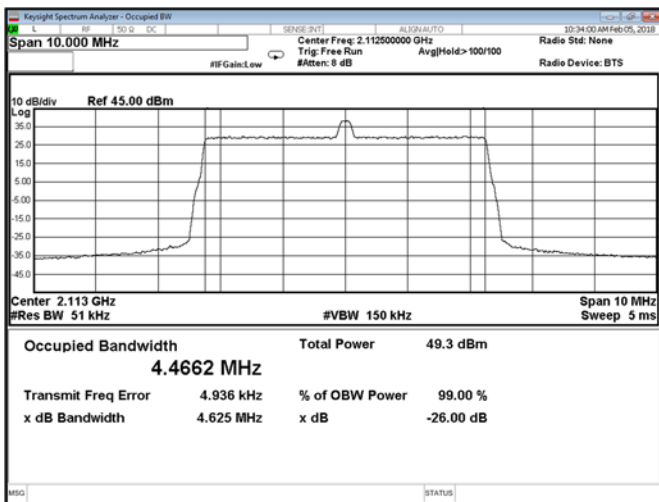


Figure 8.5-13: Occupied bandwidth, 64QAM, Ant A, NB IoT, LTE 5 MHz, Low channel

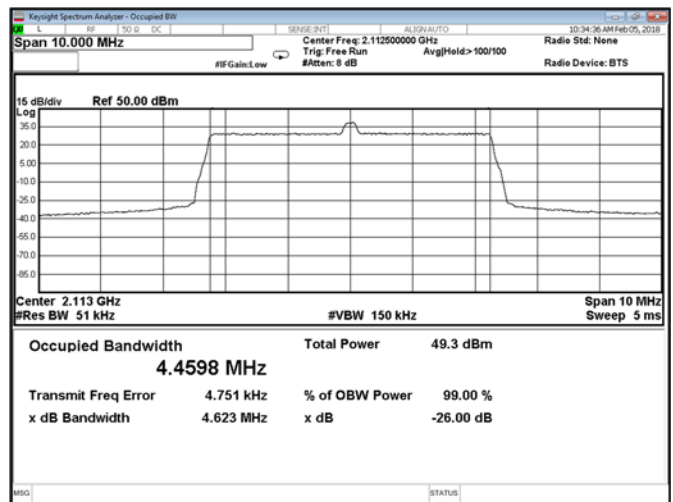


Figure 8.5-14: Occupied bandwidth, 256QAM, Ant A, NB IoT, LTE 5 MHz, Low channel

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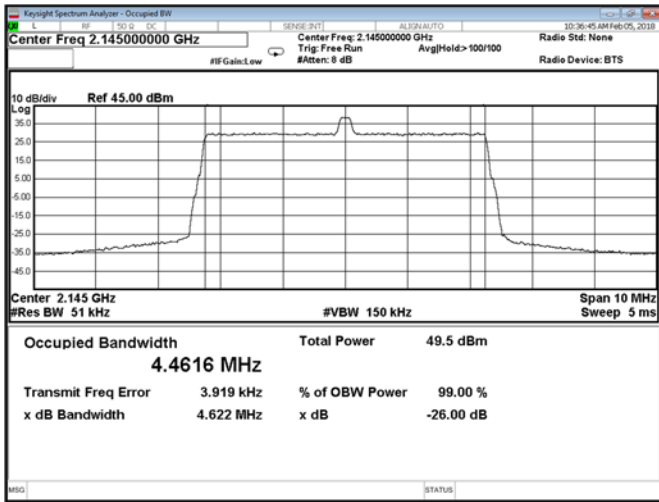


Figure 8.5-15: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 5 MHz, Mid channel

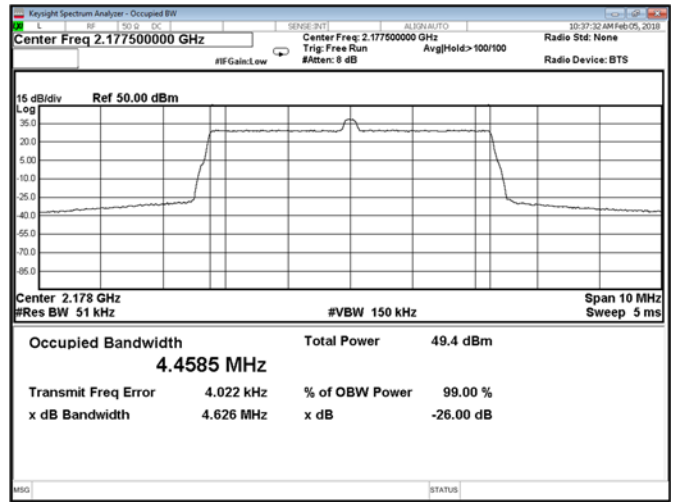


Figure 8.5-16: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 5 MHz, High channel

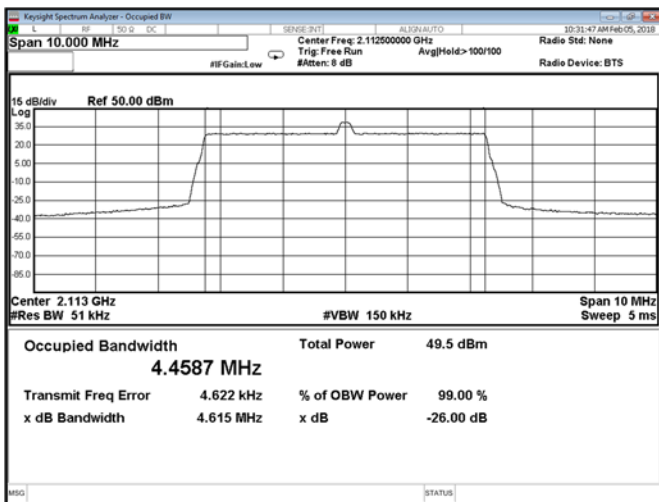


Figure 8.5-17: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 5 MHz, Low channel

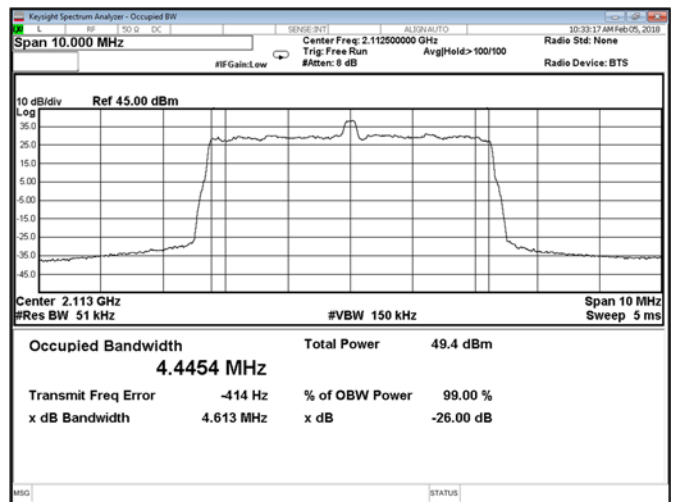


Figure 8.5-18: Occupied bandwidth, 16QAM, Ant B, NB IoT, LTE 5 MHz, Low channel

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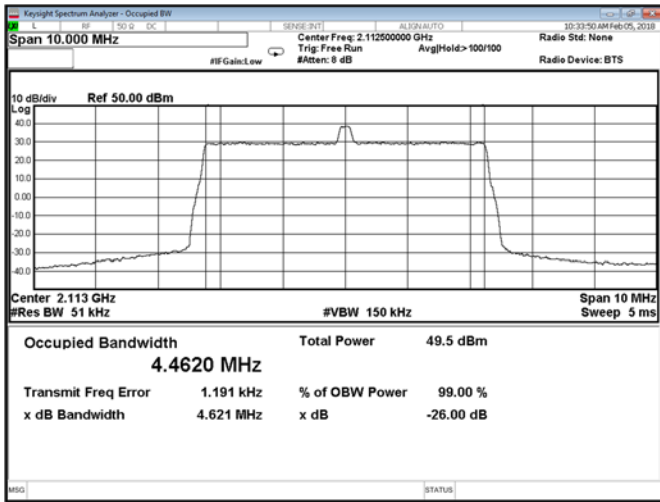


Figure 8.5-19: Occupied bandwidth, 64QAM, Ant B, NB IoT, LTE 5 MHz, Low channel

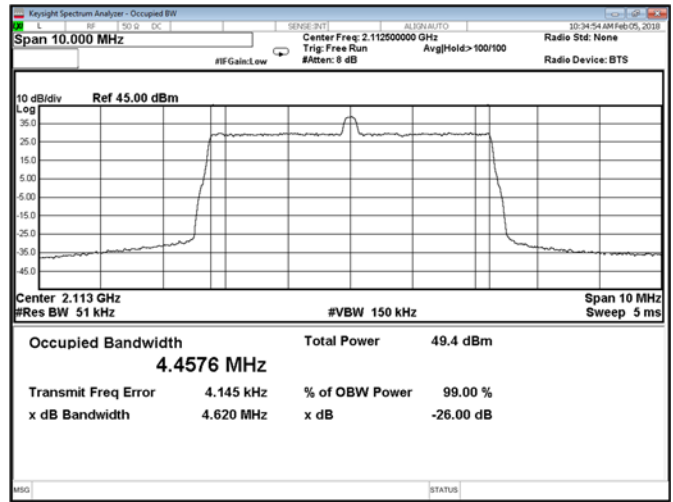


Figure 8.5-20: Occupied bandwidth, 256QAM, Ant B, NB IoT, LTE 5 MHz, Low channel

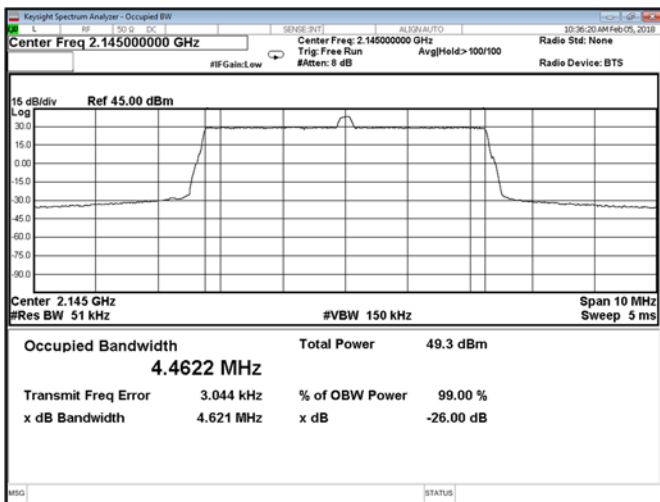


Figure 8.5-21: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 5 MHz, Mid channel

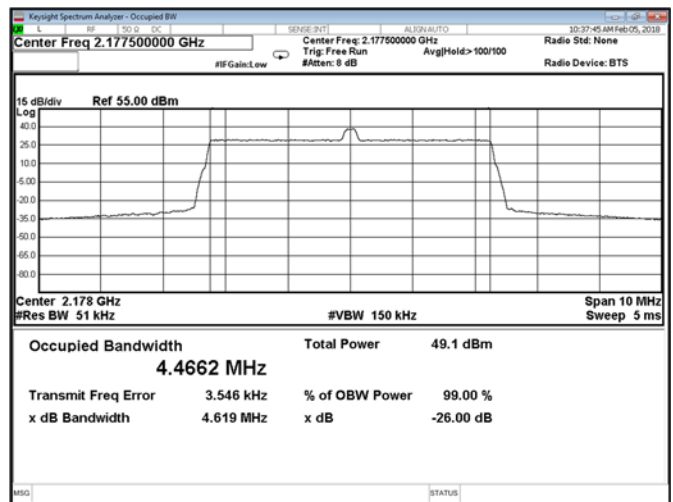


Figure 8.5-22: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 5 MHz, High channel

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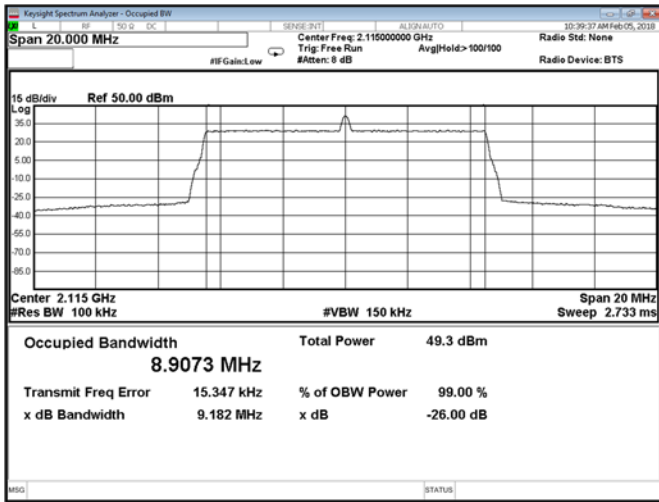


Figure 8.5-23: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 10 MHz, Low channel

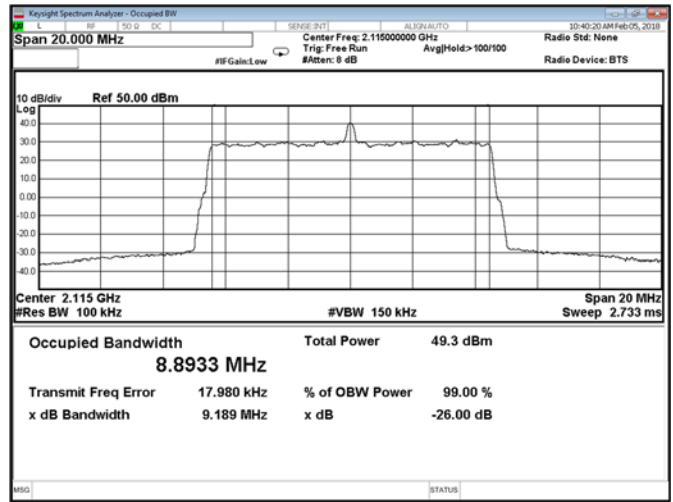


Figure 8.5-24: Occupied bandwidth, 16QAM, Ant A, NB IoT, LTE 10 MHz, Low channel

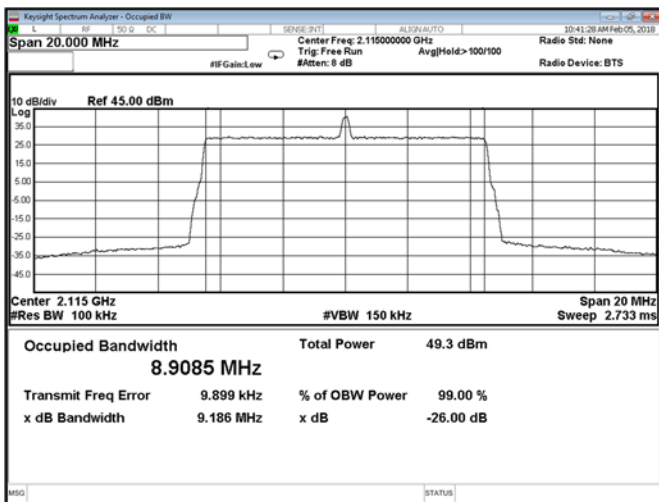


Figure 8.5-25: Occupied bandwidth, 64QAM, Ant A, NB IoT, LTE 10 MHz, Low channel

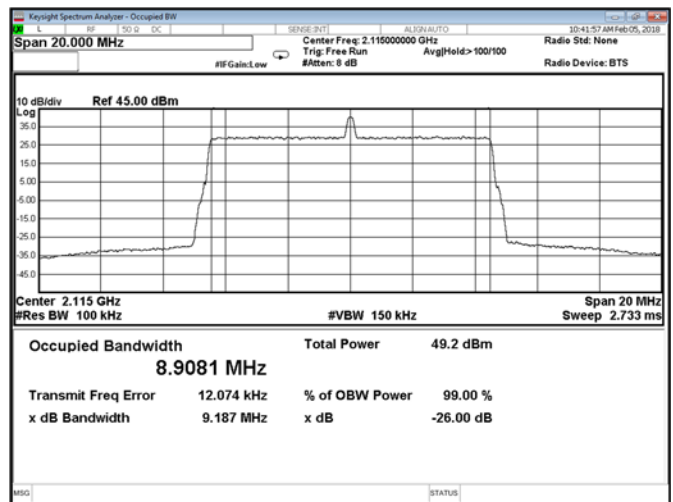


Figure 8.5-26: Occupied bandwidth, 256QAM, Ant A, NB IoT, LTE 10 MHz, Low channel

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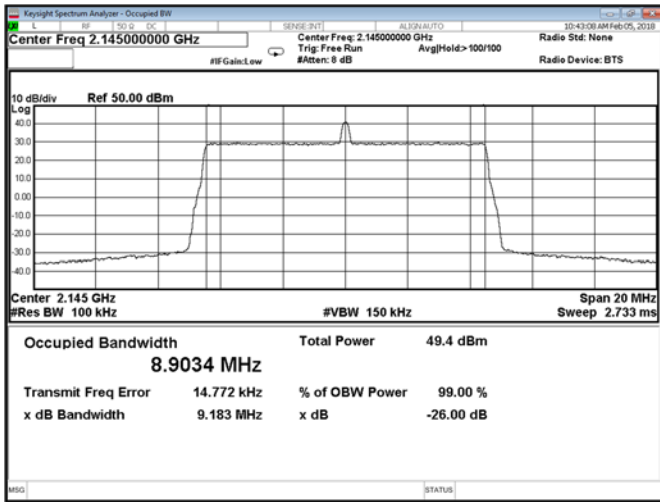


Figure 8.5-27: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 10 MHz, Mid channel

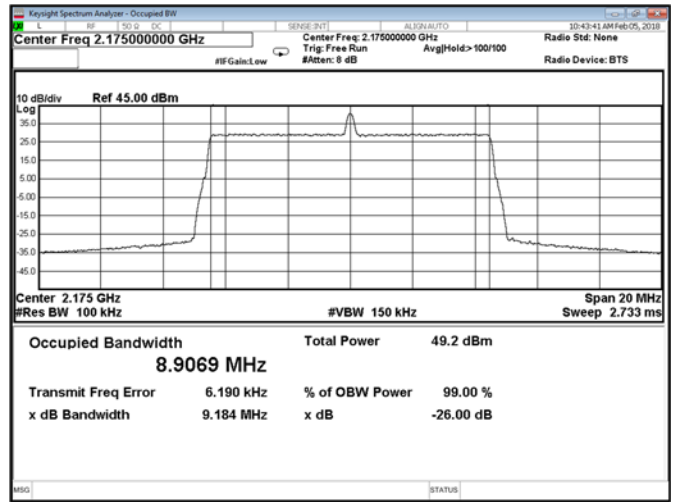


Figure 8.5-28: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 10 MHz, High channel

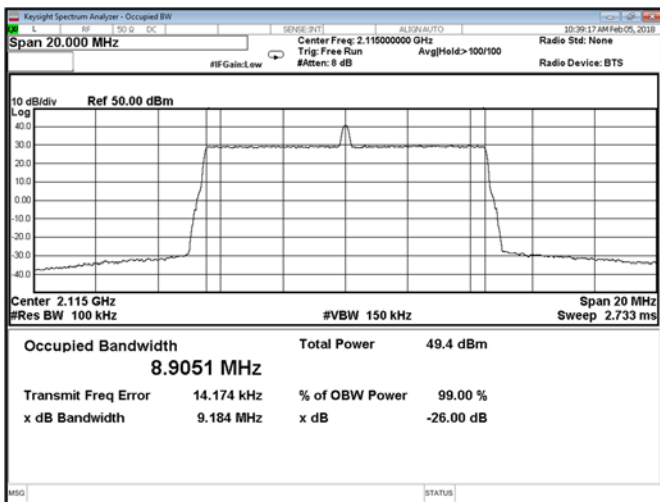


Figure 8.5-29: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 10 MHz, Low channel

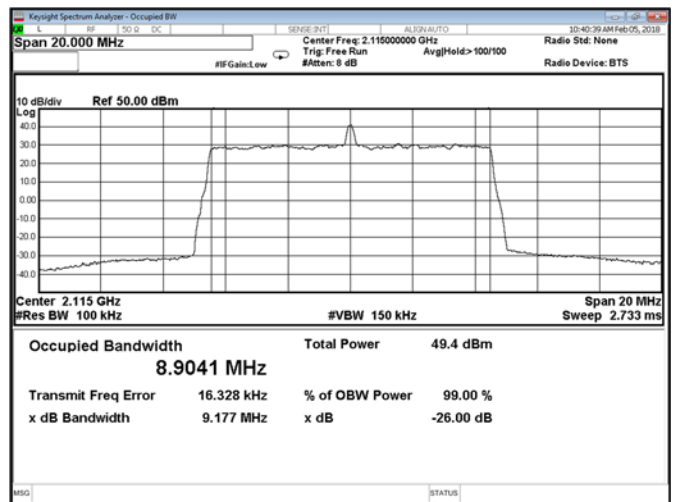


Figure 8.5-30: Occupied bandwidth, 16QAM, Ant B, NB IoT, LTE 10 MHz, Low channel

Section 8 Testing data
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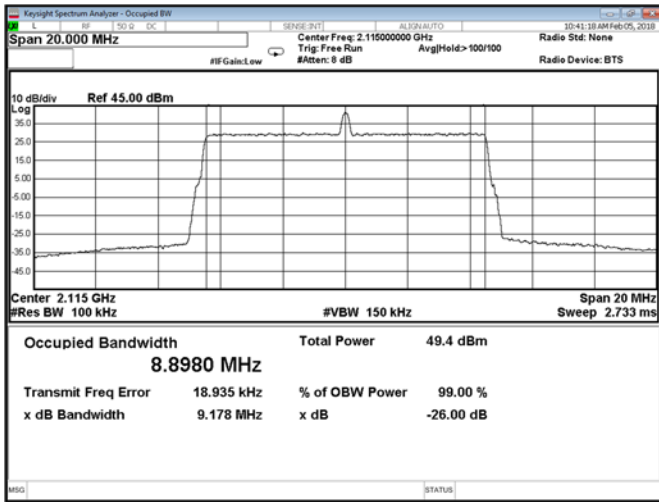


Figure 8.5-31: Occupied bandwidth, 64QAM, Ant B, NB IoT, LTE 10 MHz, Low channel

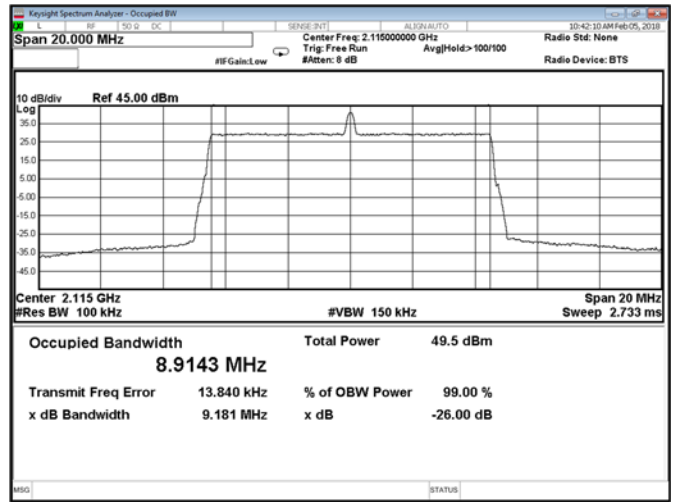


Figure 8.5-32: Occupied bandwidth, 256QAM, Ant B, NB IoT, LTE 10 MHz, Low channel

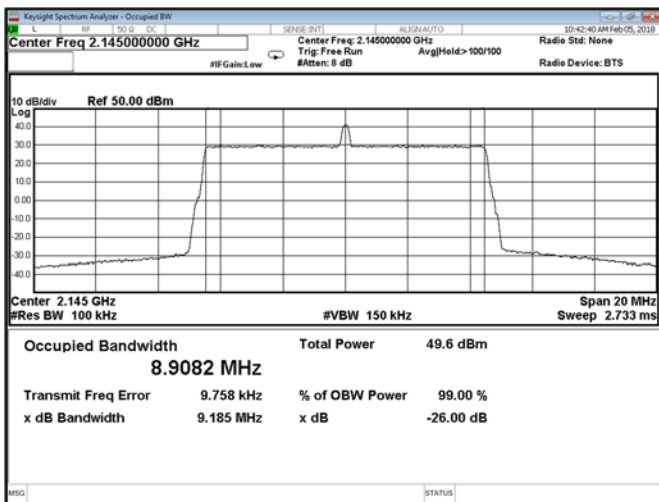


Figure 8.5-33: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 10 MHz, Mid channel

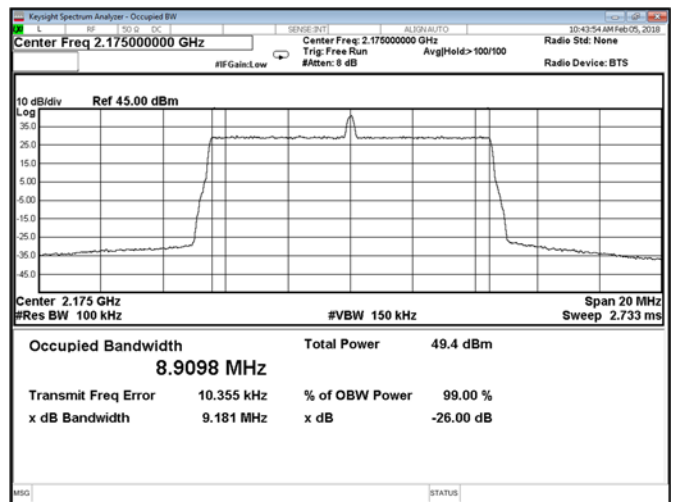


Figure 8.5-34: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 10 MHz, High channel

Section 8 Testing data
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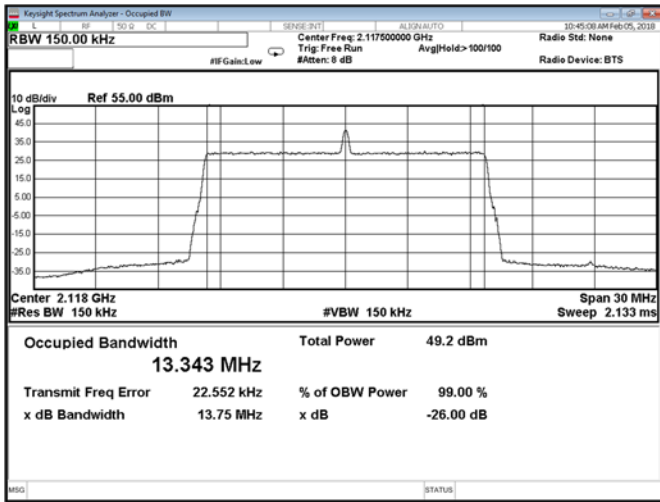


Figure 8.5-35: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 15 MHz, Low channel

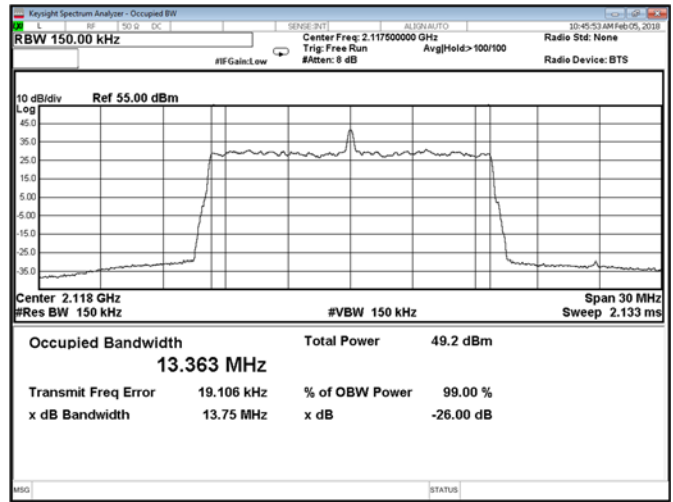


Figure 8.5-36: Occupied bandwidth, 16QAM, Ant A, NB IoT, LTE 15 MHz, Low channel

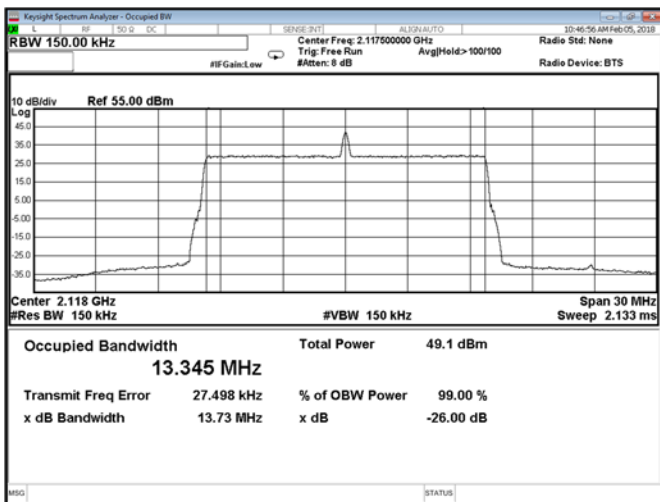


Figure 8.5-37: Occupied bandwidth, 64QAM, Ant A, NB IoT, LTE 15 MHz, Low channel

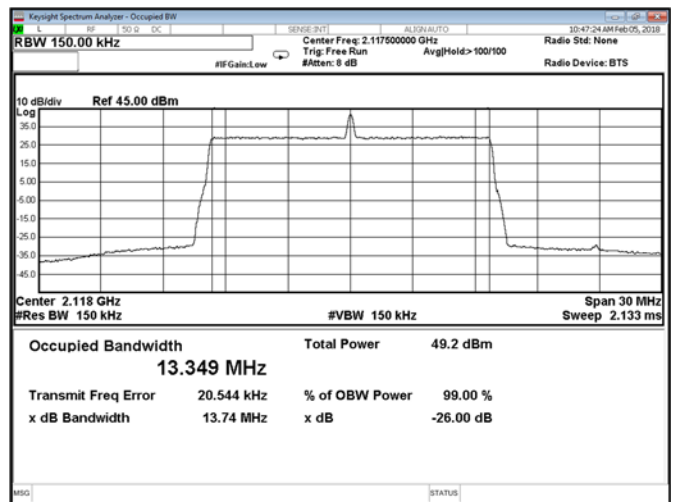


Figure 8.5-38: Occupied bandwidth, 256QAM, Ant A, NB IoT, LTE 15 MHz, Low channel

Section 8 Testing data
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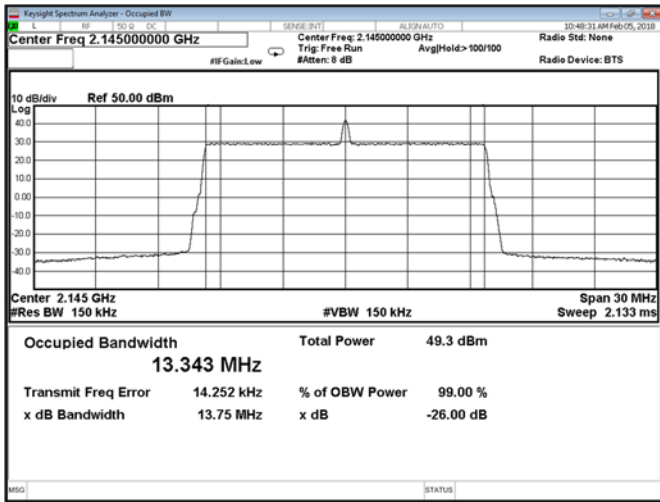


Figure 8.5-39: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 15 MHz, Mid channel

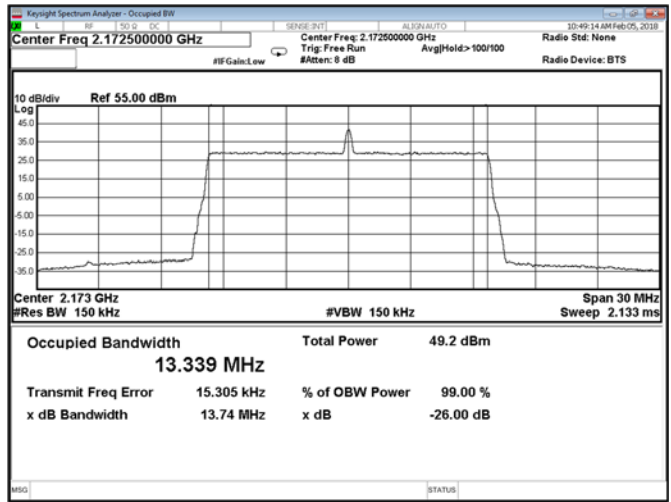


Figure 8.5-40: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 15 MHz, High channel

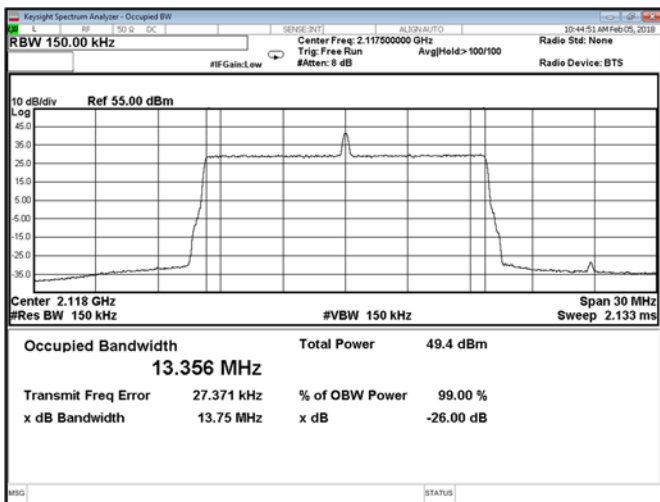


Figure 8.5-41: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 15 MHz, Low channel

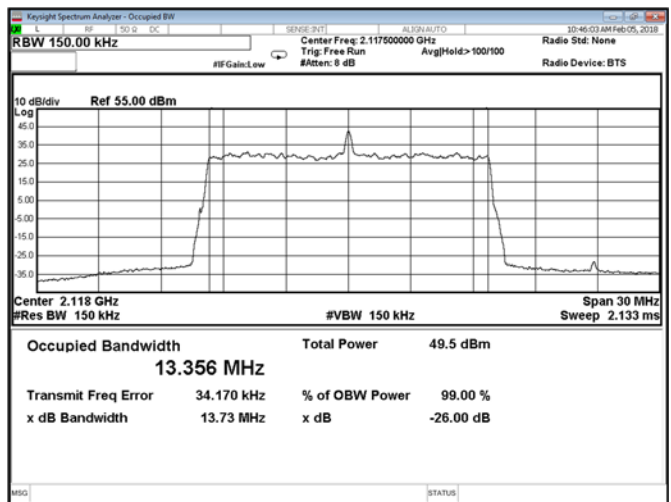


Figure 8.5-42: Occupied bandwidth, 16QAM, Ant B, NB IoT, LTE 15 MHz, Low channel

Section 8 Testing data
 Test name FCC Part 2.1049 and RSS-Gen, 6.6 Occupied bandwidth
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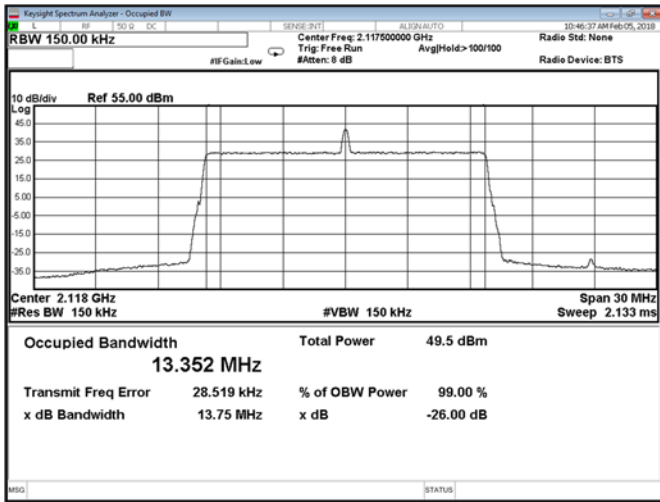


Figure 8.5-43: Occupied bandwidth, 64QAM, Ant B, NB IoT, LTE 15 MHz, Low channel

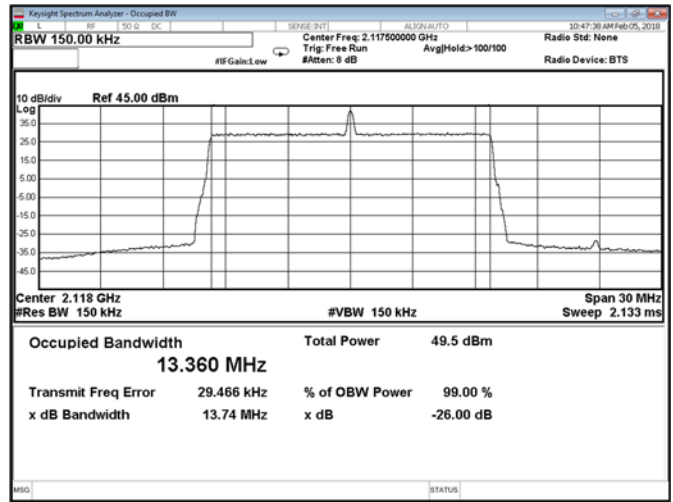


Figure 8.5-44: Occupied bandwidth, 256QAM, Ant B, NB IoT, LTE 15 MHz, Low channel

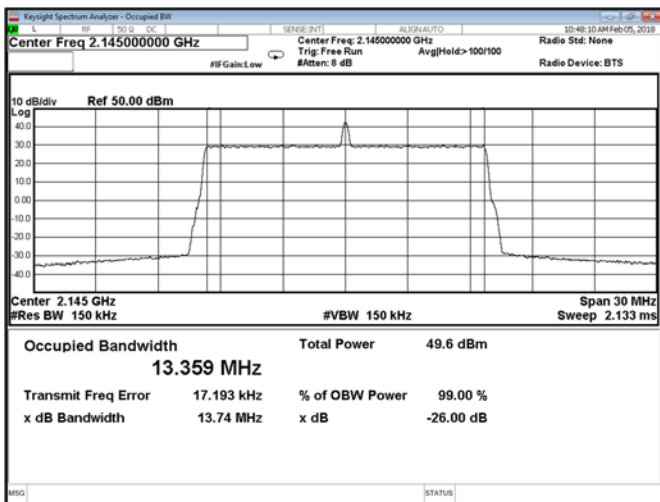


Figure 8.5-45: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 15 MHz, Mid channel

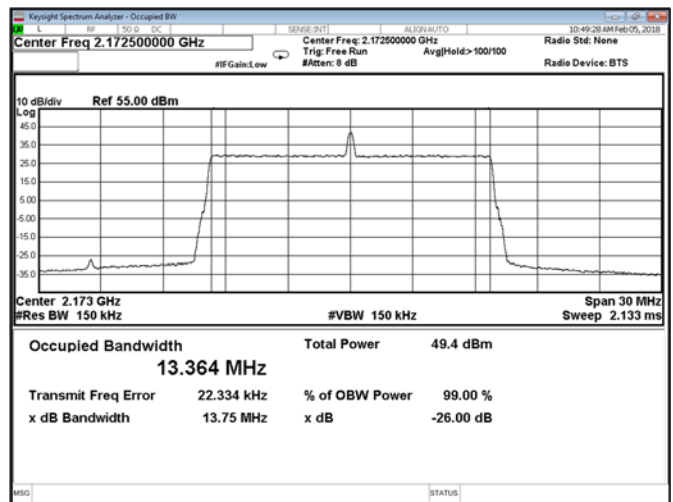


Figure 8.5-46: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 15 MHz, High channel

Section 8 Testing data
 Test name FCC Part 2.1049 and RSS-Gen, 6.6 Occupied bandwidth
 Specification FCC Part 2, RSS-Gen, Issue 4

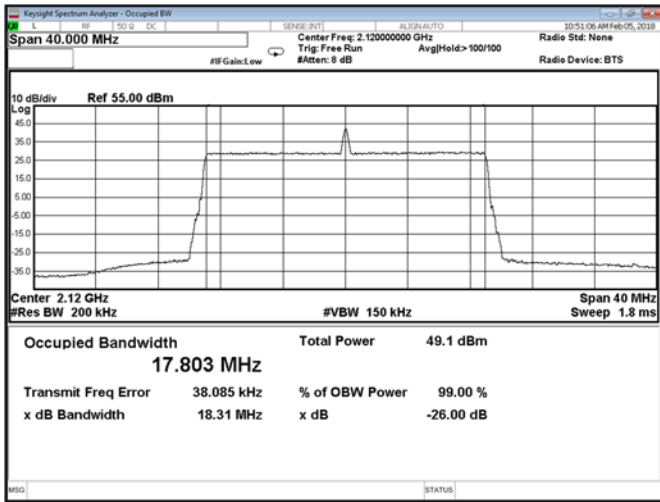


Figure 8.5-47: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 20 MHz, Low channel

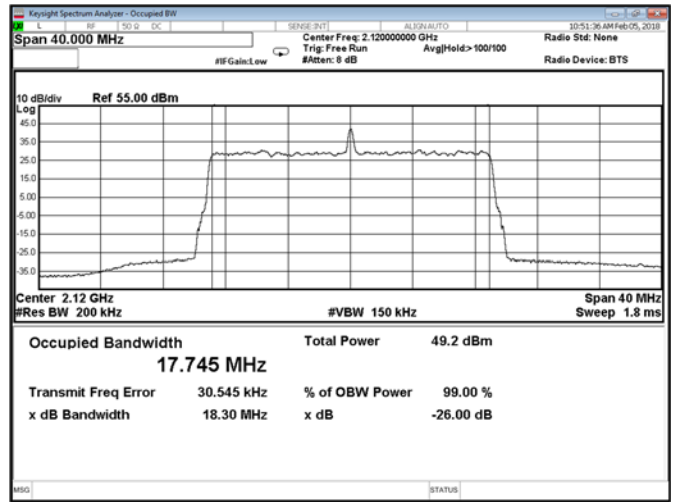


Figure 8.5-48: Occupied bandwidth, 16QAM, Ant A, NB IoT, LTE 20 MHz, Low channel

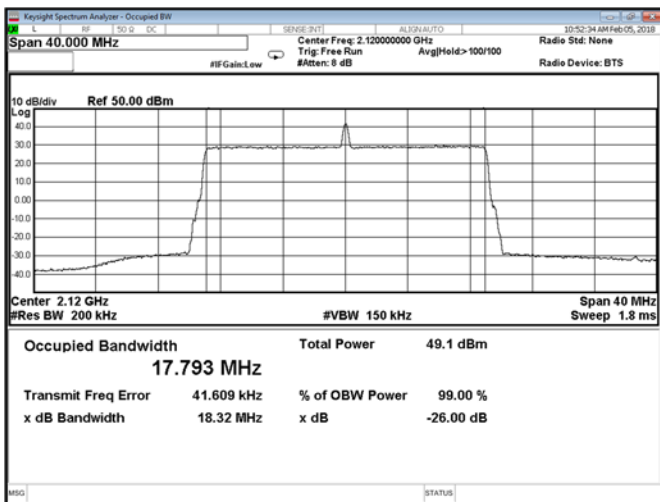


Figure 8.5-49: Occupied bandwidth, 64QAM, Ant A, NB IoT, LTE 20 MHz, Low channel

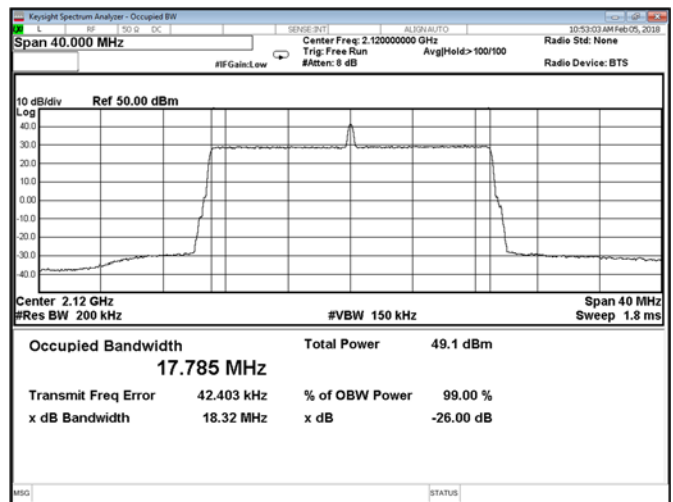


Figure 8.5-50: Occupied bandwidth, 256QAM, Ant A, NB IoT, LTE 20 MHz, Low channel

Section 8 Testing data
 Test name FCC Part 2.1049 and RSS-Gen, 6.6 Occupied bandwidth
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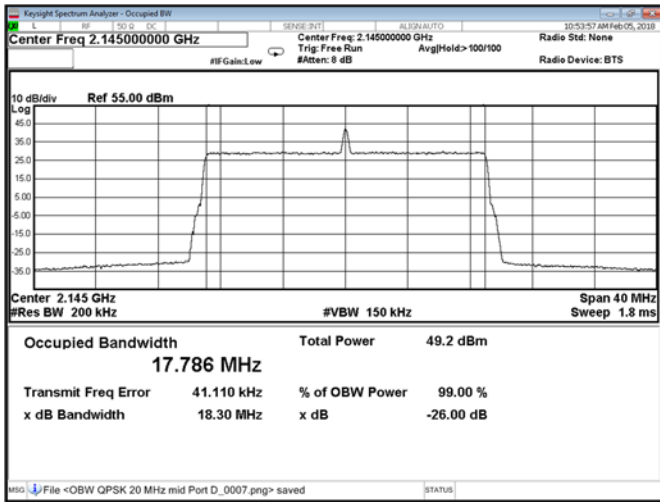


Figure 8.5-51: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 20 MHz, Mid channel

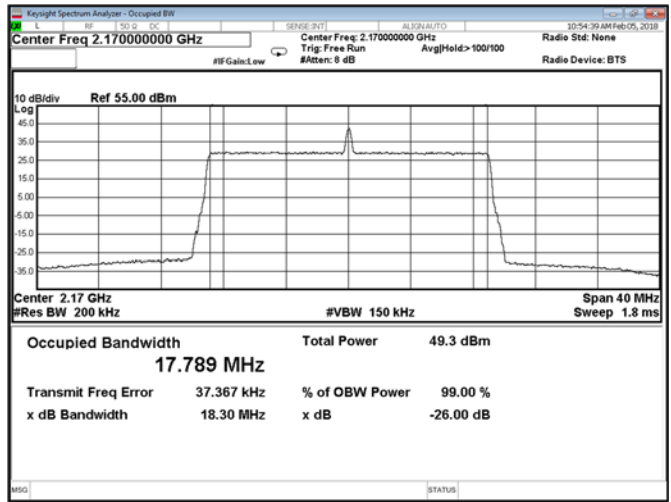


Figure 8.5-52: Occupied bandwidth, QPSK, Ant A, NB IoT, LTE 20 MHz, High channel

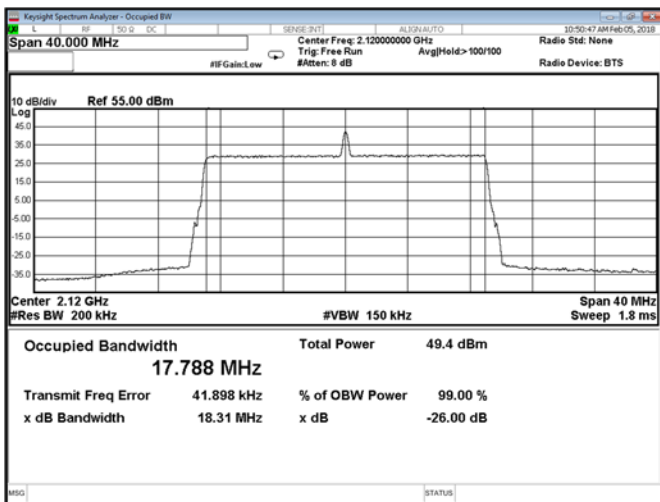


Figure 8.5-53: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 20 MHz, Low channel

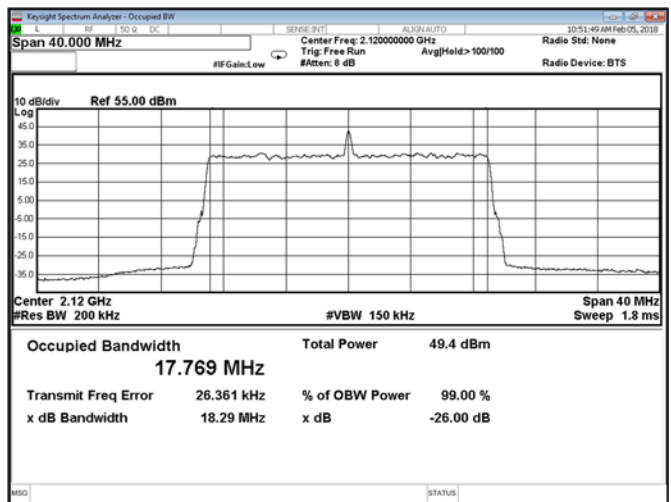


Figure 8.5-54: Occupied bandwidth, 16QAM, Ant B, NB IoT, LTE 20 MHz, Low channel

Section 8 Testing data
 Test name FCC Part 2.1049 and RSS-Gen, 6.6 Occupied bandwidth
 Specification FCC Part 2, RSS-Gen, Issue 4

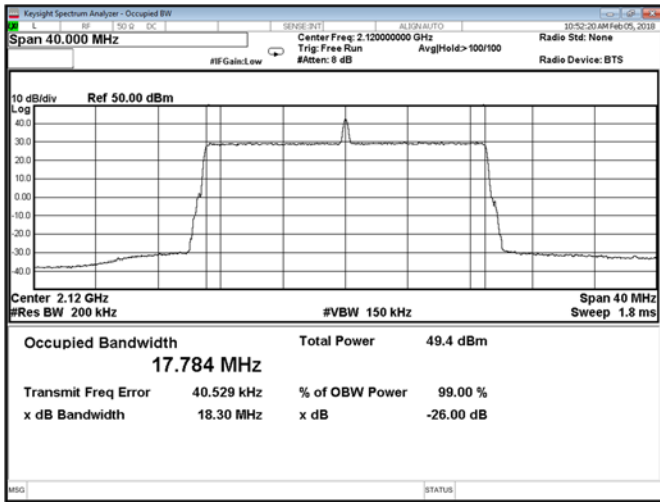


Figure 8.5-55: Occupied bandwidth, 64QAM, Ant B, NB IoT, LTE 20 MHz, Low channel

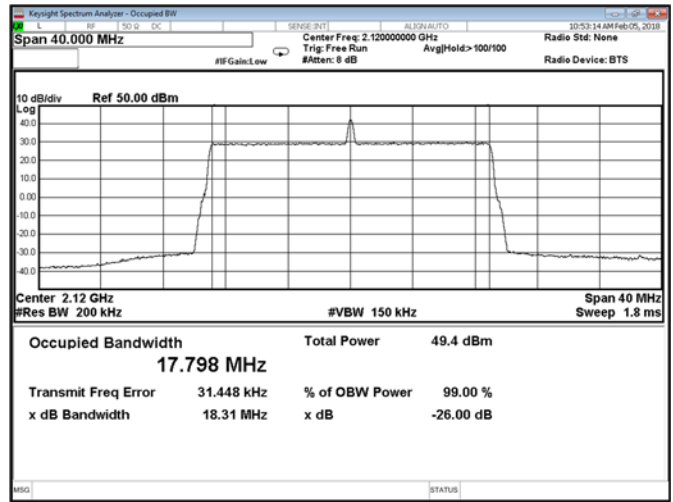


Figure 8.5-56: Occupied bandwidth, 256QAM, Ant B, NB IoT, LTE 20 MHz, Low channel

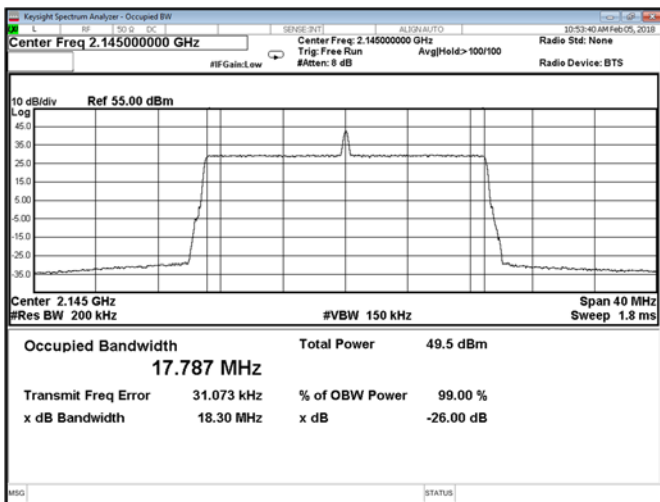


Figure 8.5-57: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 20 MHz, Mid channel

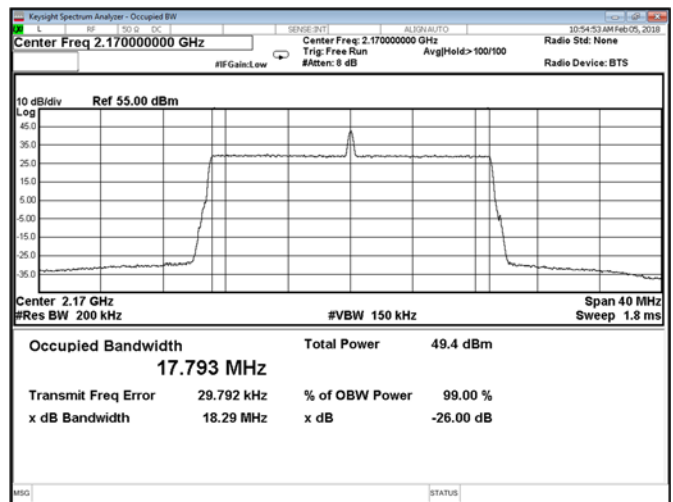
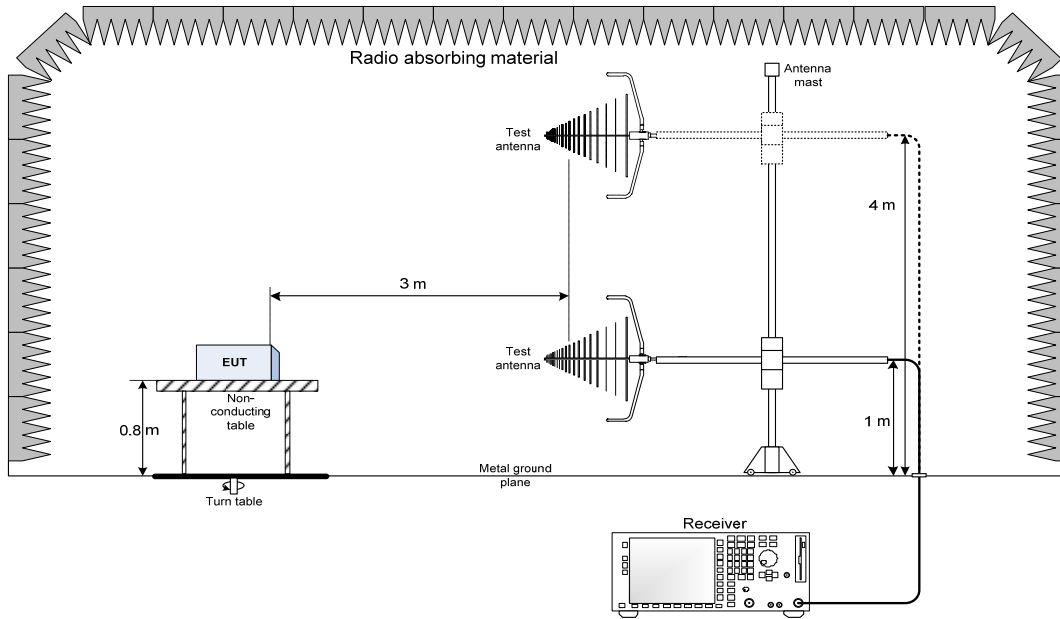


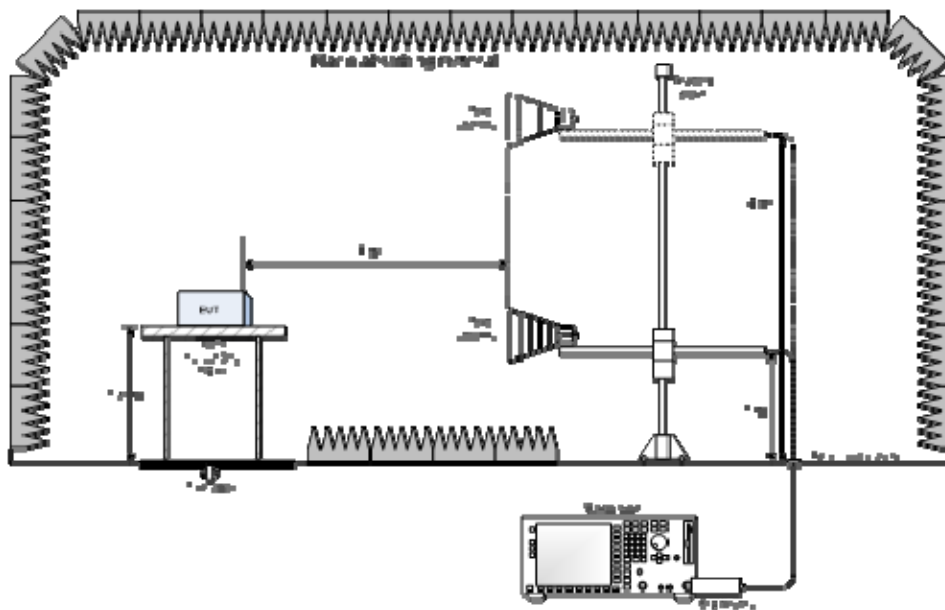
Figure 8.5-58: Occupied bandwidth, QPSK, Ant B, NB IoT, LTE 20 MHz, High channel

Section 9. Block diagrams of test set-ups

9.1 Radiated emissions set-up for frequencies below 1 GHz



9.2 Radiated emissions set-up for frequencies above 1 GHz



9.3 Conducted emissions set-up

