

Figure 8.3-59: Conducted spurious emissions for 10 MHz high channel with IoT, with 40 W configuration at Port C

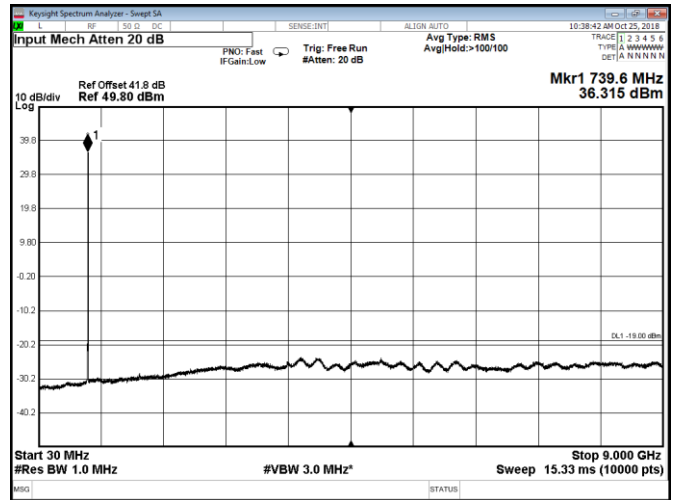


Figure 8.3-60: Conducted spurious emissions for 10 MHz high channel with IoT, with 40 W configuration at Port D

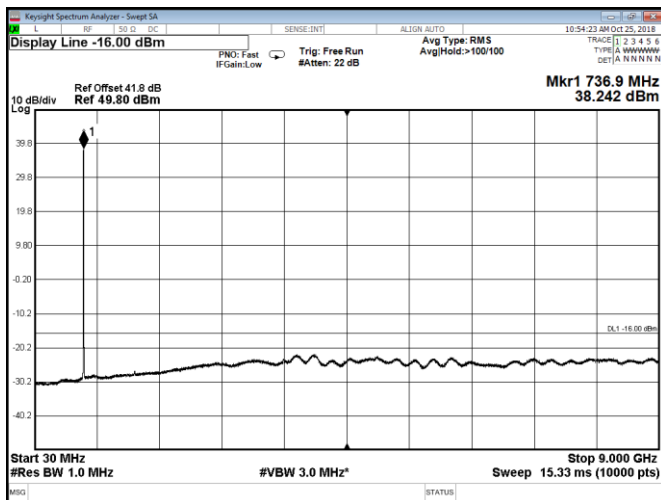


Figure 8.3-61: Conducted spurious emissions for 10 MHz low channel with IoT, with 60 W configuration at Port A

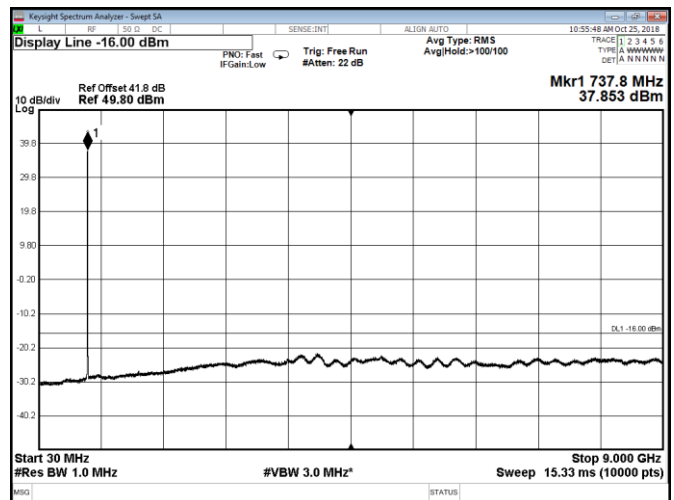


Figure 8.3-62: Conducted spurious emissions for 10 MHz low channel with IoT, with 60 W configuration at Port C

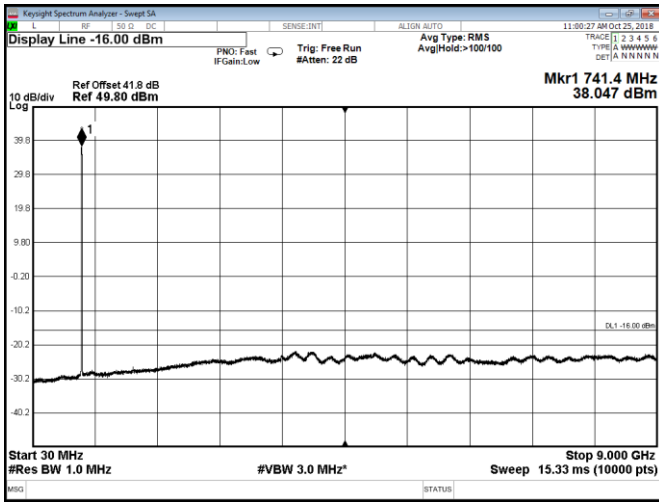


Figure 8.3-63: Conducted spurious emissions for 10 MHz mid channel with IoT, with 60 W configuration at Port A

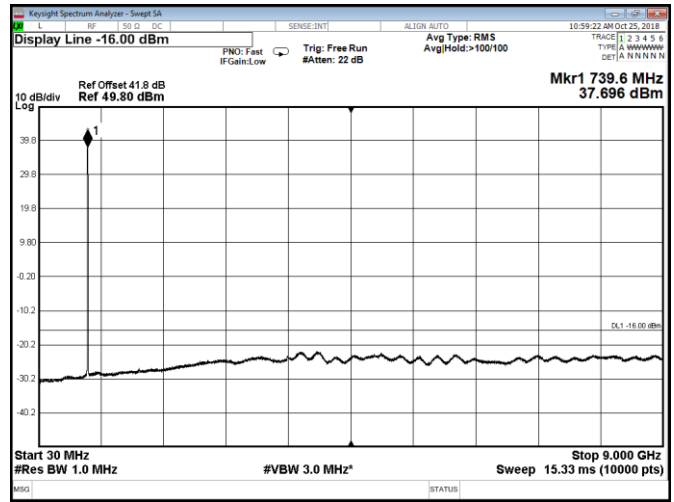


Figure 8.3-64: Conducted spurious emissions for 10 MHz mid channel with IoT, with 60 W configuration at Port C

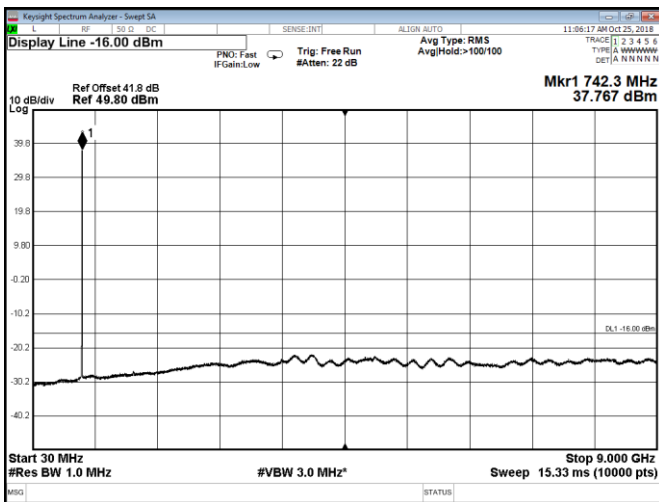


Figure 8.3-65: Conducted spurious emissions for 10 MHz high channel with IoT, with 60 W configuration at Port A

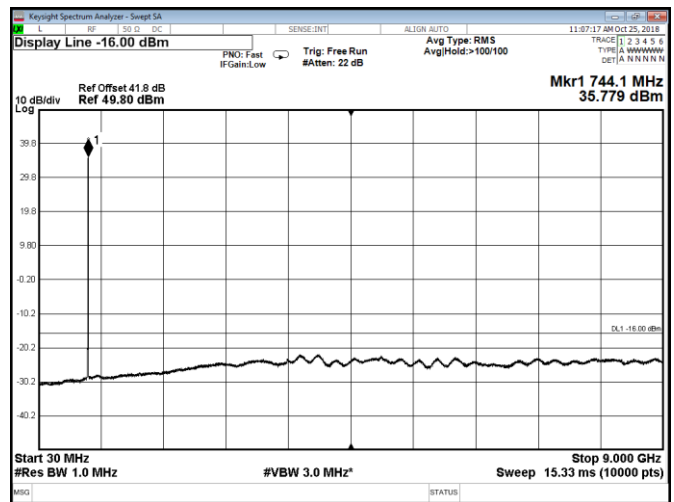


Figure 8.3-66: Conducted spurious emissions for 10 MHz high channel with IoT, with 60 W configuration at Port C

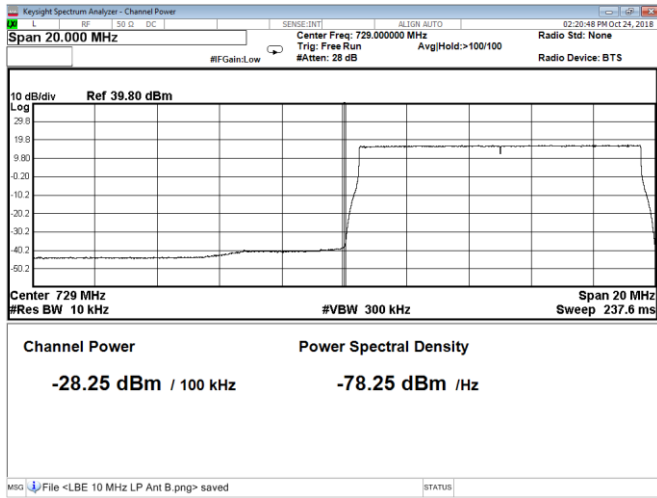


Figure 8.3-67: Conducted band edge emission at 729 MHz, 5 MHz channel with 40 W configuration at Port A

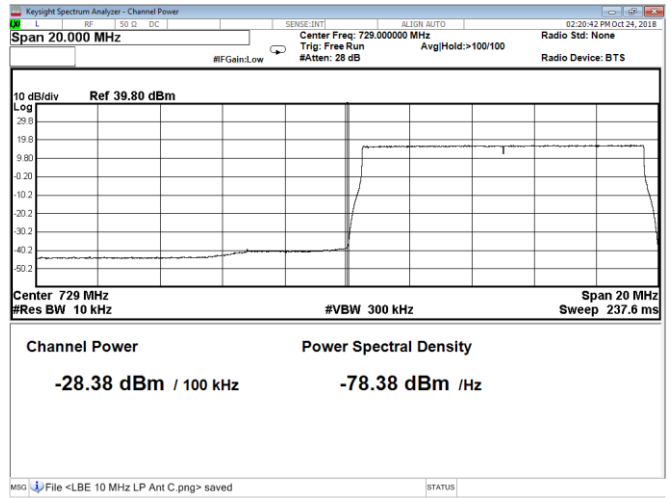


Figure 8.3-68: Conducted band edge emission at 729 MHz, 5 MHz channel with 40 W configuration at Port B

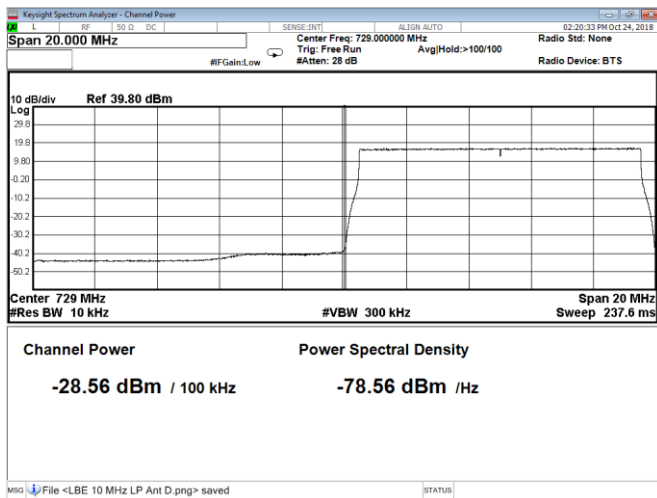


Figure 8.3-69: Conducted band edge emission at 729 MHz, 5 MHz channel with 40 W configuration at Port C

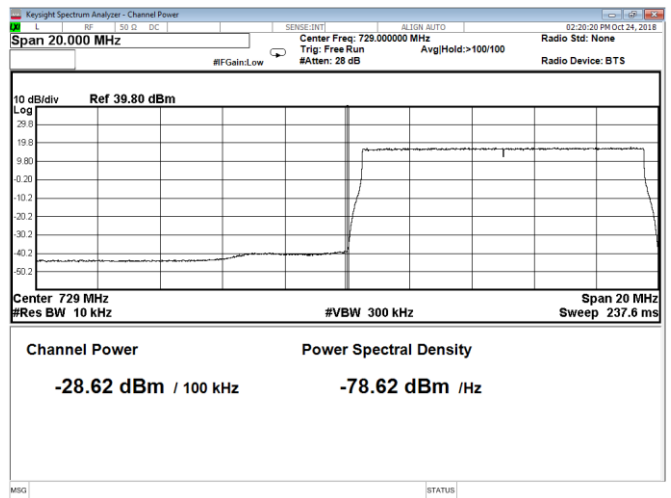


Figure 8.3-70: Conducted band edge emission at 729 MHz, 5 MHz channel with 40 W configuration at Port D

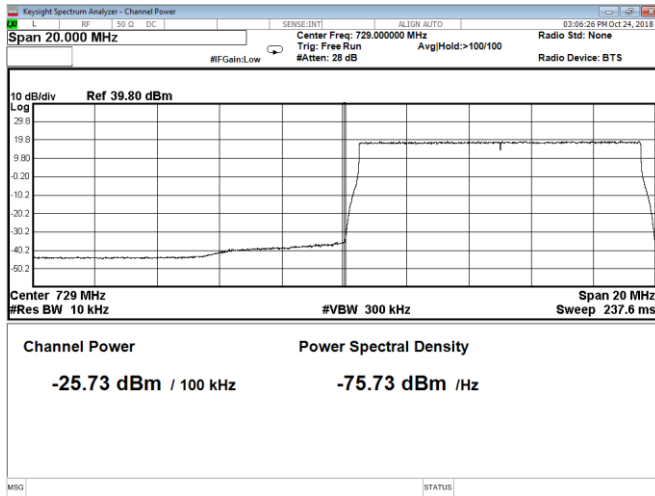


Figure 8.3-71: Conducted band edge emission at 729 MHz, 5 MHz channel with 60 W configuration at Port A

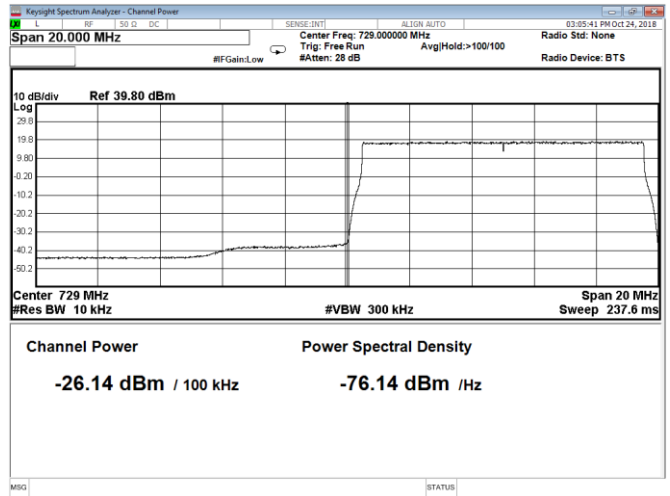


Figure 8.3-72: Conducted band edge emission at 729 MHz, 5 MHz channel with 60 W configuration at Port C

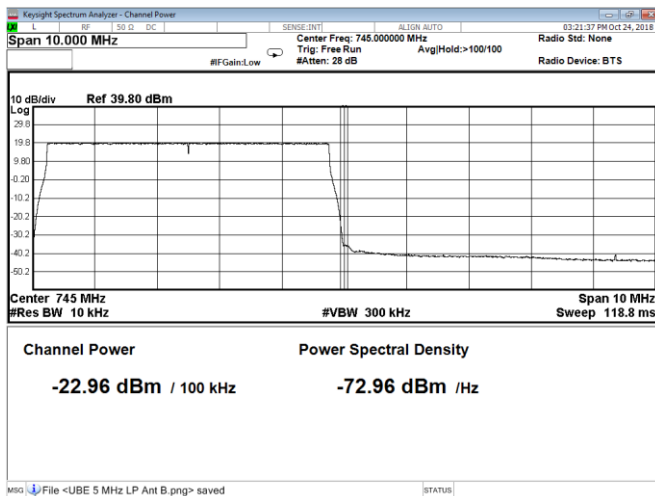


Figure 8.3-73: Conducted band edge emission at 745 MHz, 5 MHz channel with 40 W configuration at Port A

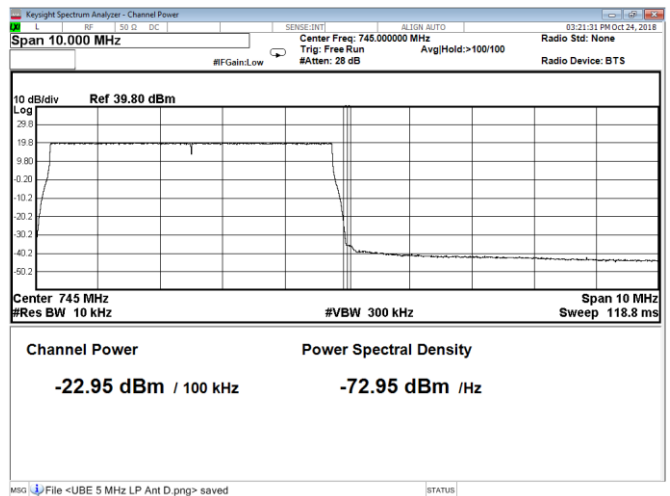


Figure 8.3-74: Conducted band edge emission at 745 MHz, 5 MHz channel with 40 W configuration at Port B

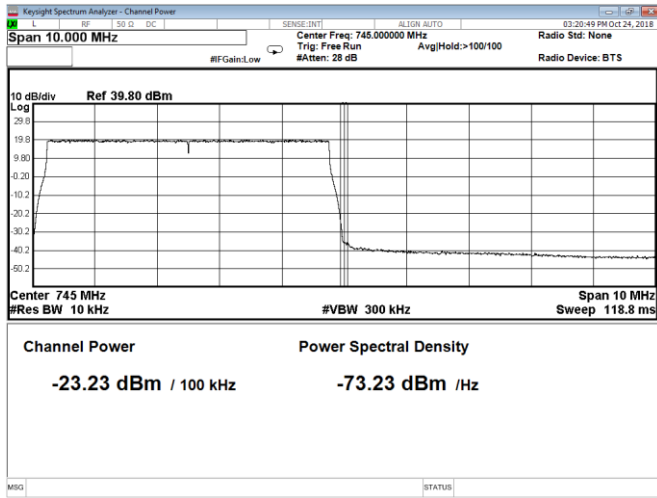


Figure 8.3-75: Conducted band edge emission at 745 MHz, 5 MHz channel with 40 W configuration at Port C

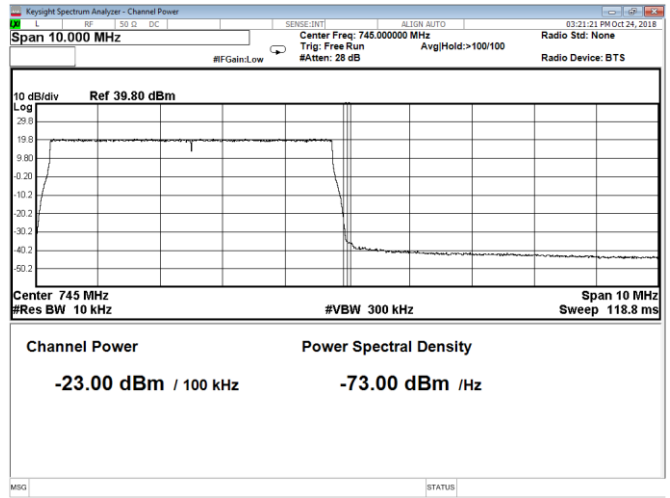


Figure 8.3-76: Conducted band edge emission at 745 MHz, 5 MHz channel with 40 W configuration at Port D

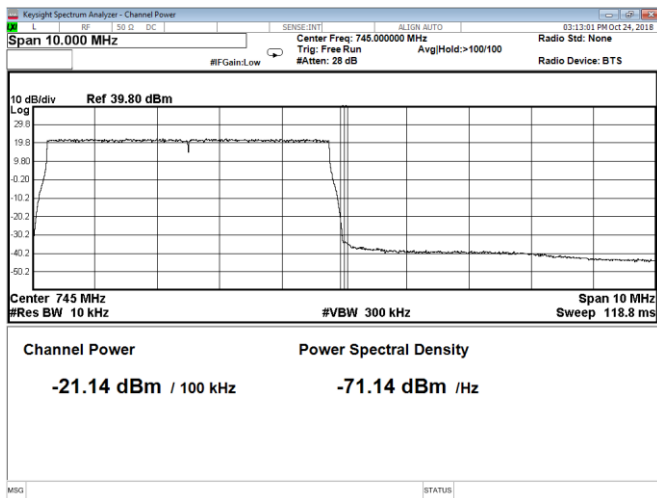


Figure 8.3-77: Conducted band edge emission at 745 MHz, 5 MHz channel with 60 W configuration at Port A

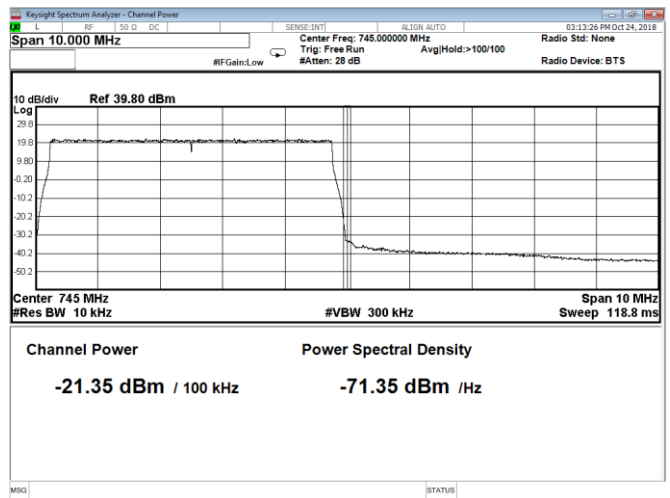


Figure 8.3-78: Conducted band edge emission at 745 MHz, 5 MHz channel with 60 W configuration at Port C

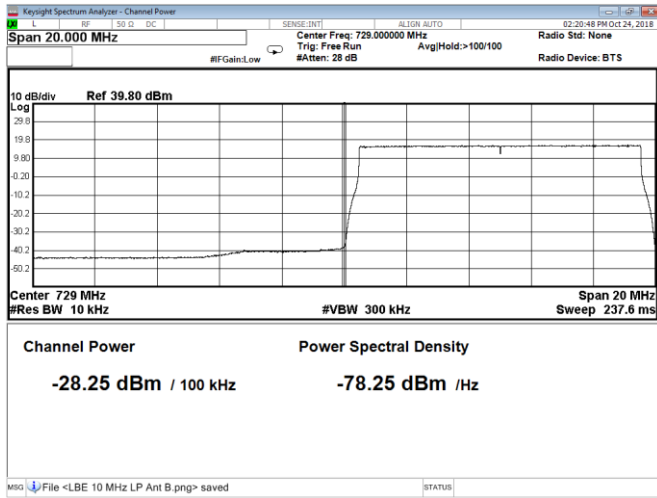


Figure 8.3-79: Conducted band edge emission at 729 MHz, 10 MHz channel with 40 W configuration at Port A

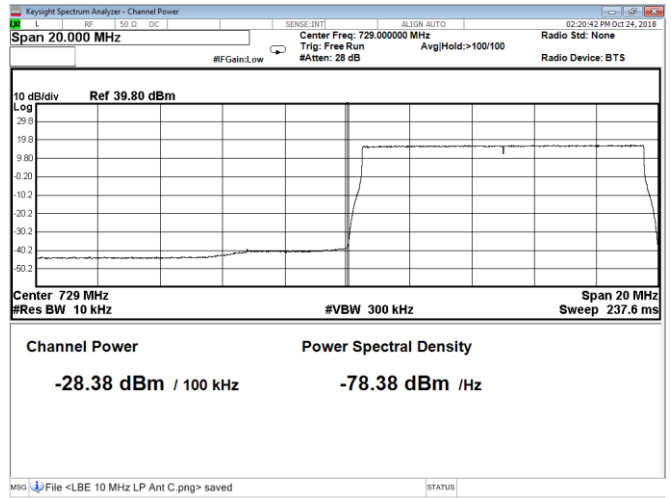


Figure 8.3-80: Conducted band edge emission at 729 MHz, 10 MHz channel with 40 W configuration at Port B

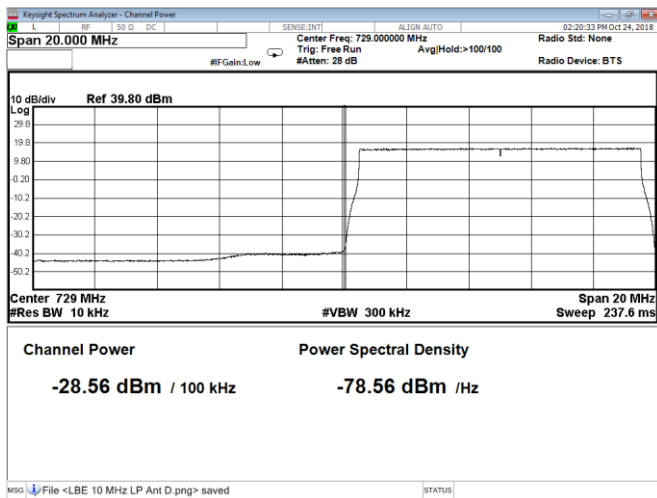


Figure 8.3-81: Conducted band edge emission at 729 MHz, 10 MHz channel with 40 W configuration at Port C

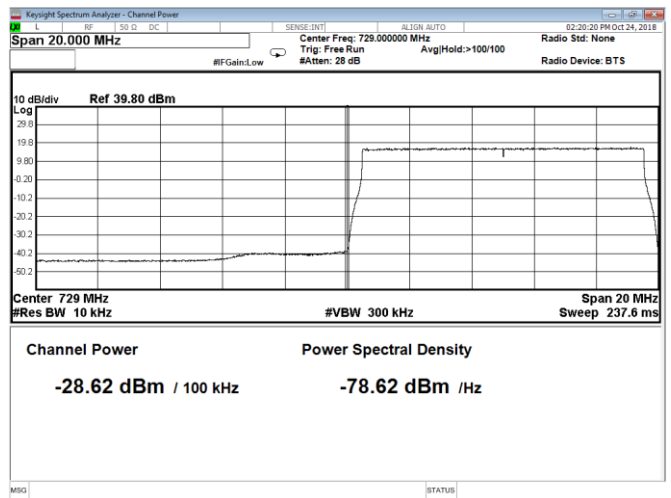


Figure 8.3-82: Conducted band edge emission at 729 MHz, 10 MHz channel with 40 W configuration at Port D

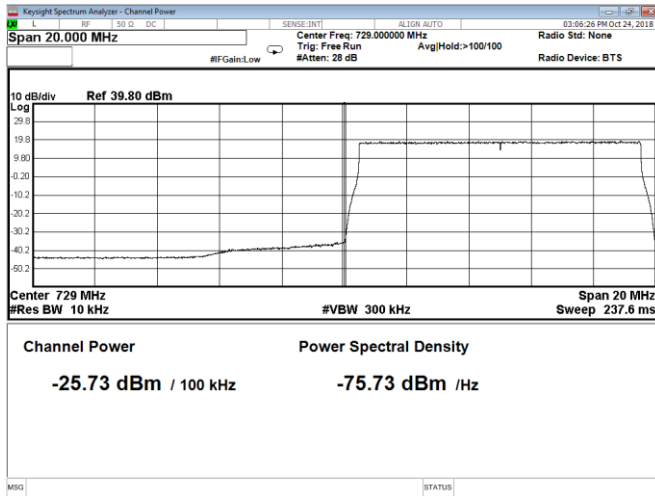


Figure 8.3-83: Conducted band edge emission at 729 MHz, 10 MHz channel with 60 W configuration at Port A

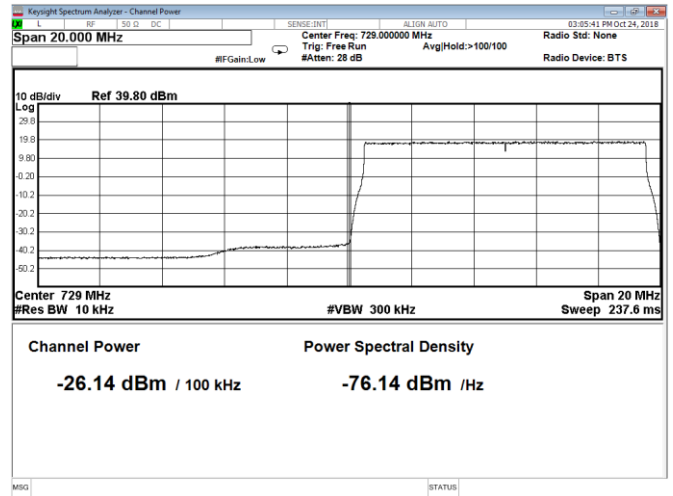


Figure 8.3-84: Conducted band edge emission at 729 MHz, 10 MHz channel with 60 W configuration at Port C

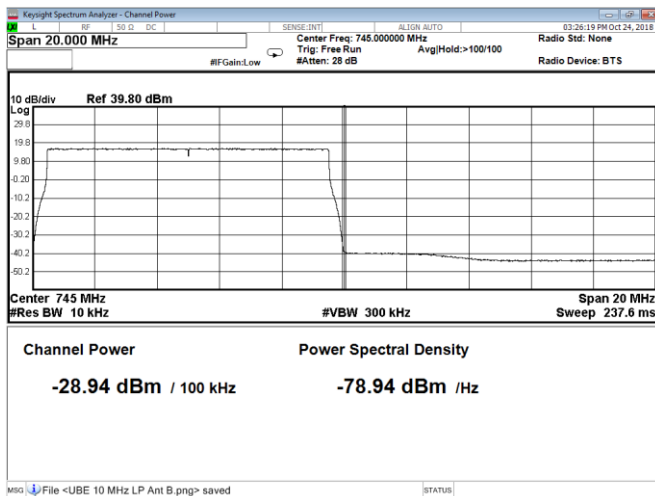


Figure 8.3-85: Conducted band edge emission at 745 MHz, 10 MHz channel with 40 W configuration at Port A

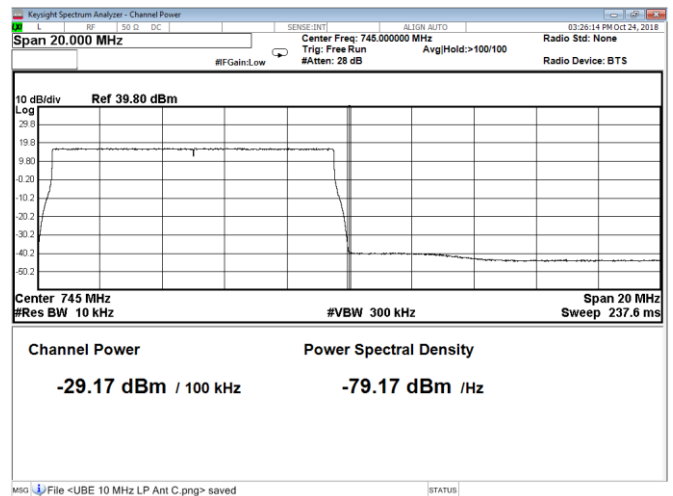


Figure 8.3-86: Conducted band edge emission at 745 MHz, 10 MHz channel with 40 W configuration at Port B

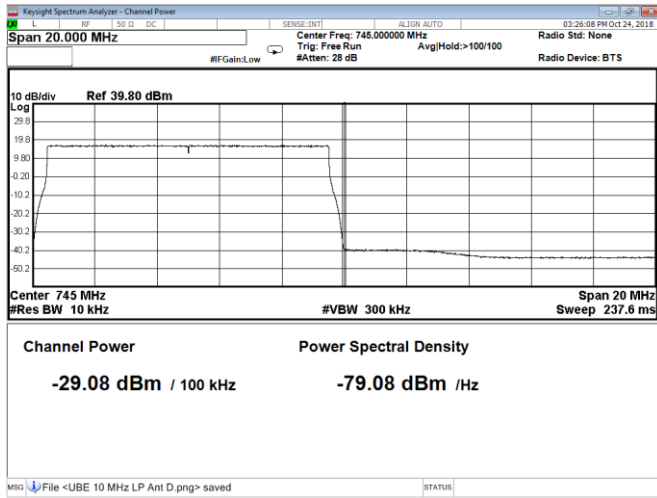


Figure 8.3-87: Conducted band edge emission at 745 MHz, 10 MHz channel with 40 W configuration at Port C

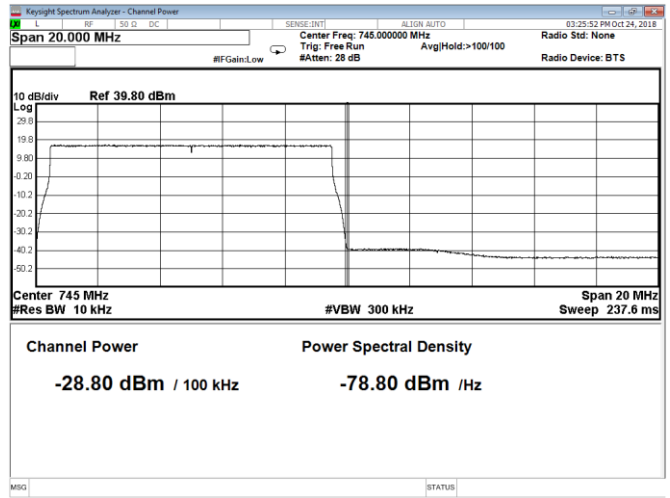


Figure 8.3-88: Conducted band edge emission at 745 MHz, 10 MHz channel with 40 W configuration at Port D

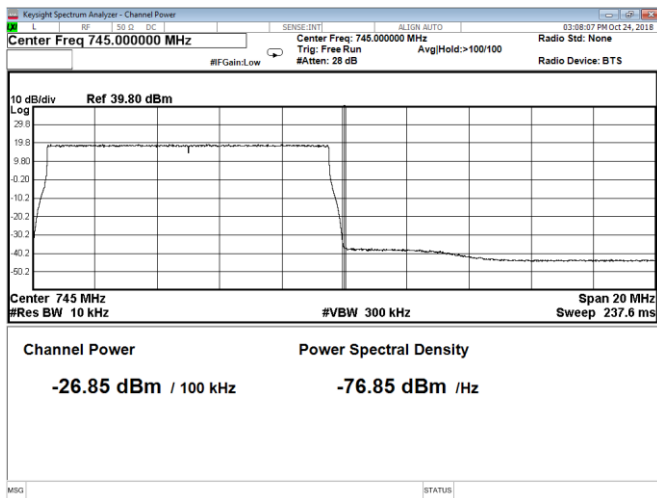


Figure 8.3-89: Conducted band edge emission at 745 MHz, 10 MHz channel with 60 W configuration at Port A

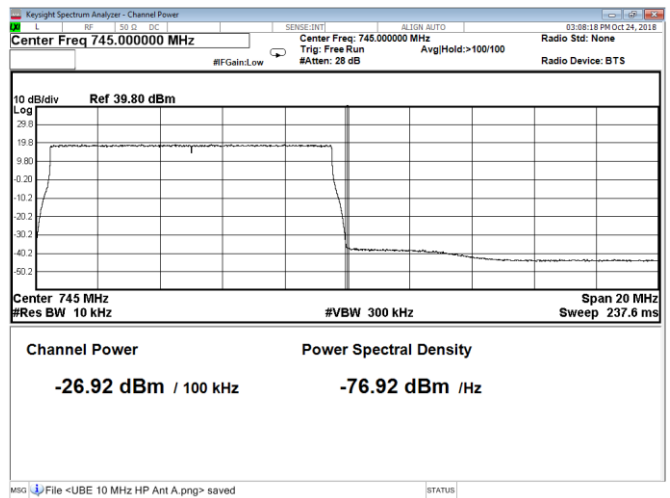


Figure 8.3-90: Conducted band edge emission at 745 MHz, 10 MHz channel with 60 W configuration at Port C



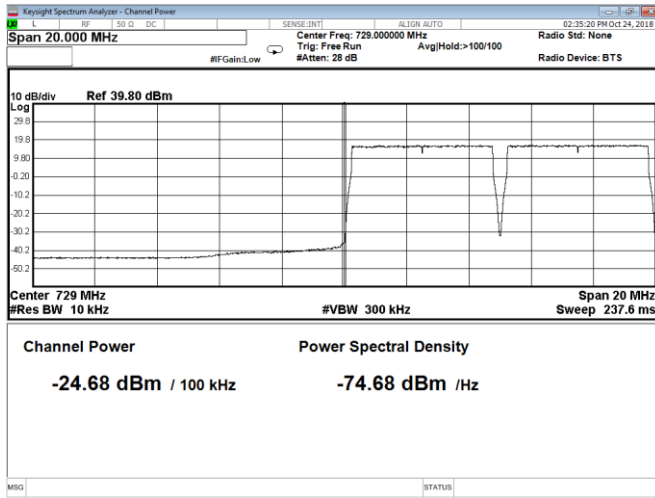


Figure 8.3-91: Conducted band edge emission at 729 MHz, MC 2x5 MHz channel with 40 W configuration at Port A

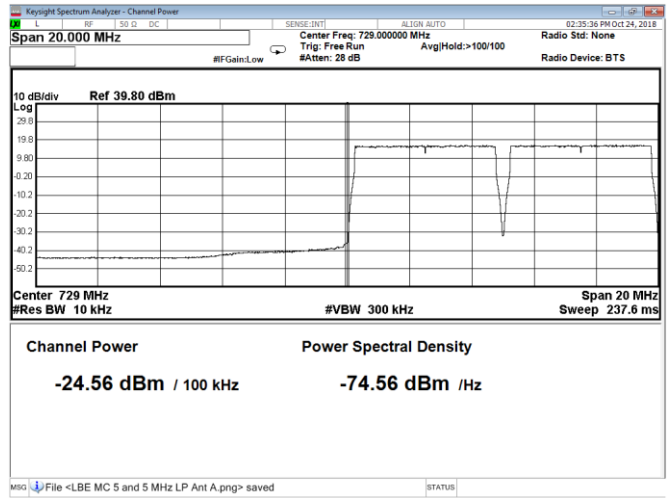


Figure 8.3-92: Conducted band edge emission at 729 MHz, MC 2x5 MHz channel with 40 W configuration at Port B

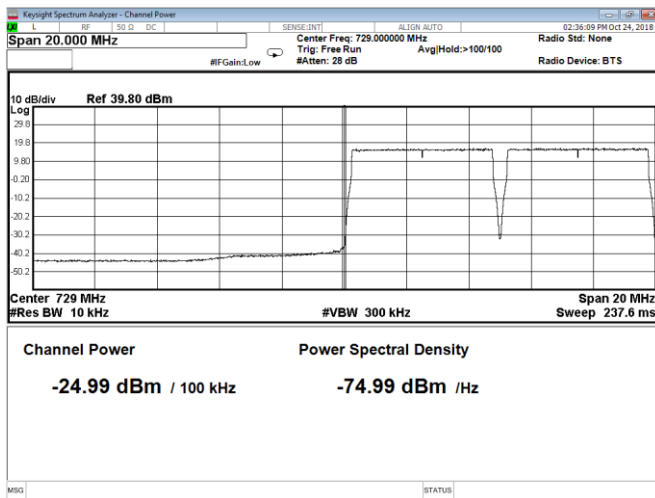


Figure 8.3-93: Conducted band edge emission at 729 MHz, MC 2x5 MHz channel with 40 W configuration at Port C

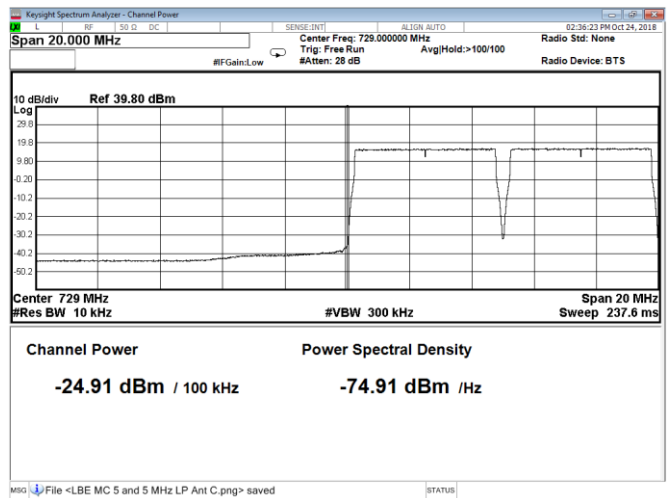


Figure 8.3-94: Conducted band edge emission at 729 MHz, MC 2x5 MHz channel with 40 W configuration at Port D

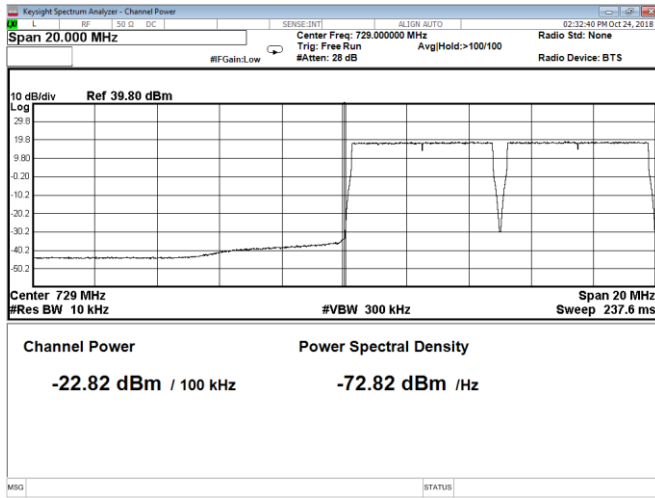


Figure 8.3-95: Conducted band edge emission at 729 MHz, MC 2x5 MHz channel with 60 W configuration at Port A

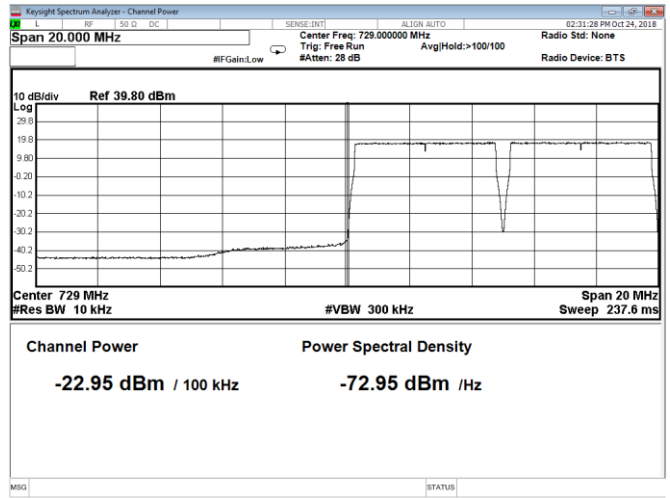


Figure 8.3-96: Conducted band edge emission at 729 MHz, MC 2x5 MHz channel with 60 W configuration at Port C

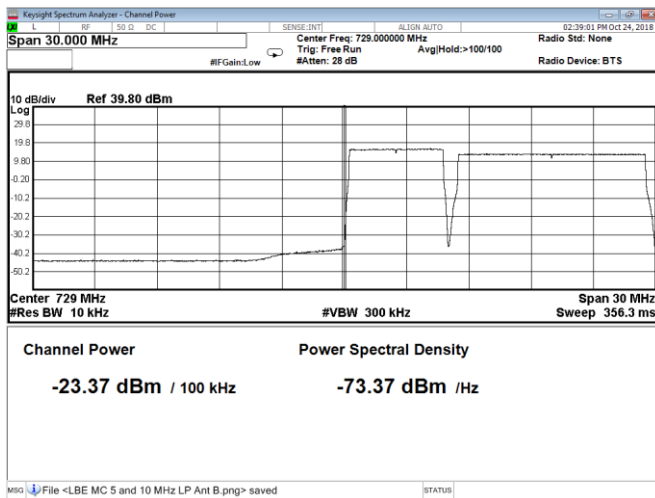


Figure 8.3-97: Conducted band edge emission at 729 MHz, MC 5 and 10 MHz channel with 40 W configuration at Port A

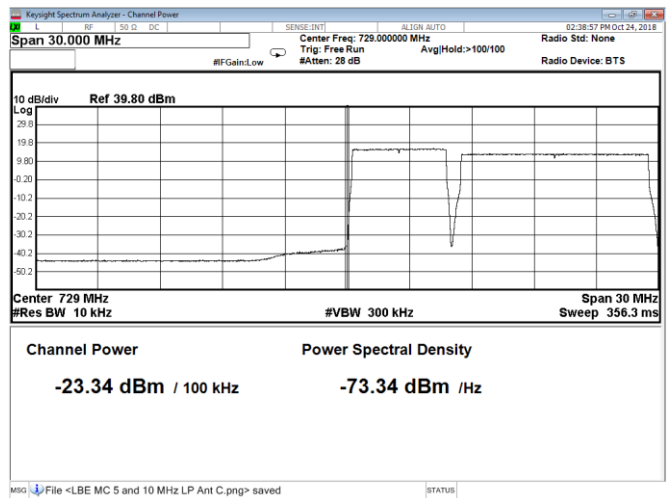


Figure 8.3-98: Conducted band edge emission at 729 MHz, MC 5 and 10 MHz channel with 40 W configuration at Port B

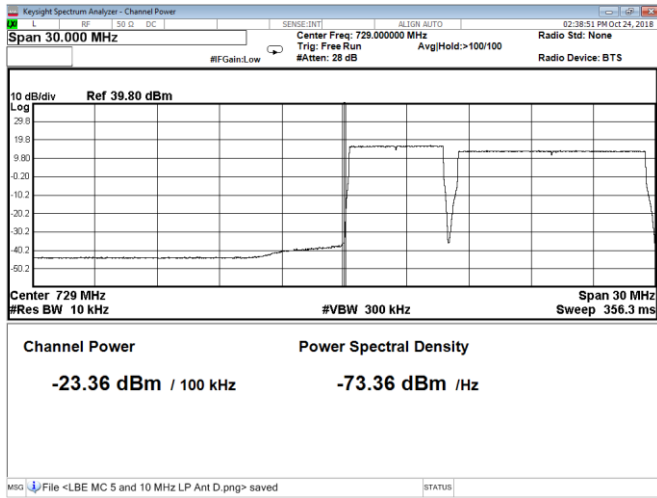


Figure 8.3-99: Conducted band edge emission at 729 MHz, MC 5 and 10 MHz channel with 40 W configuration at Port C

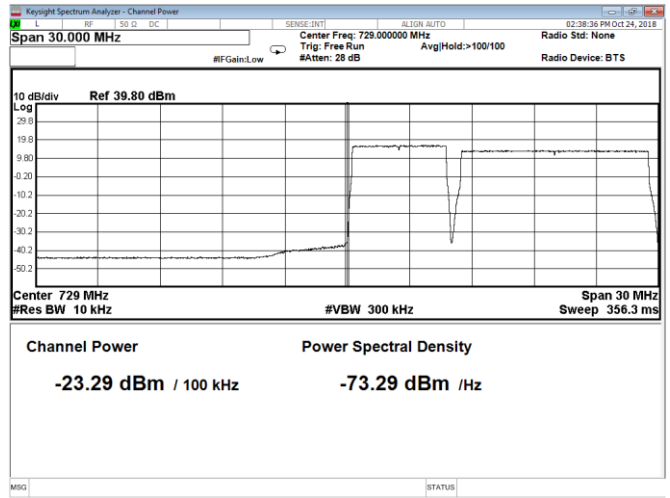


Figure 8.3-100: Conducted band edge emission at 729 MHz, MC 5 and 10 MHz channel with 40 W configuration at Port D

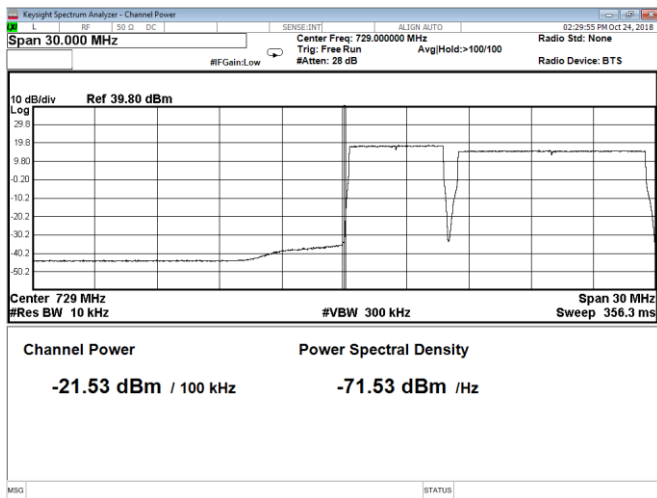


Figure 8.3-101: Conducted band edge emission at 729 MHz, MC 5 and 10 MHz channel with 60 W configuration at Port A

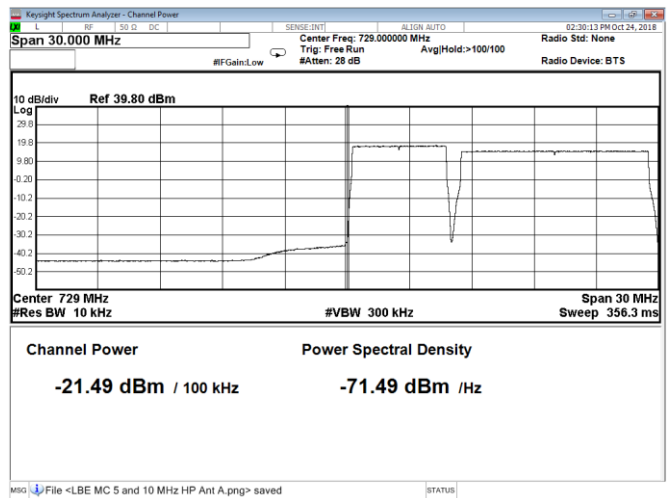


Figure 8.3-102: Conducted band edge emission at 729 MHz, MC 5 and 10 MHz channel with 60 W configuration at Port C

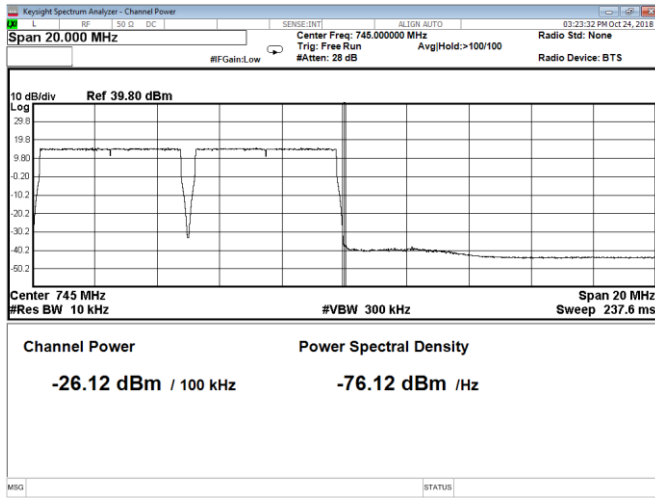


Figure 8.3-103: Conducted band edge emission at 745 MHz, MC 2x5 MHz channel with 40 W configuration at Port A

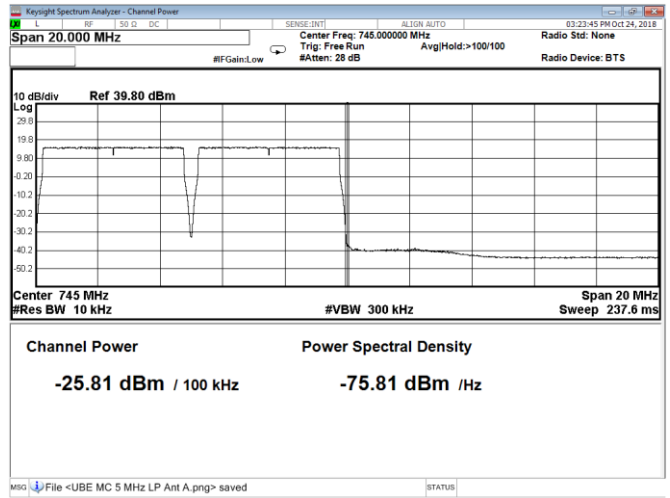


Figure 8.3-104: Conducted band edge emission at 745 MHz, MC 2x5 MHz channel with 40 W configuration at Port B

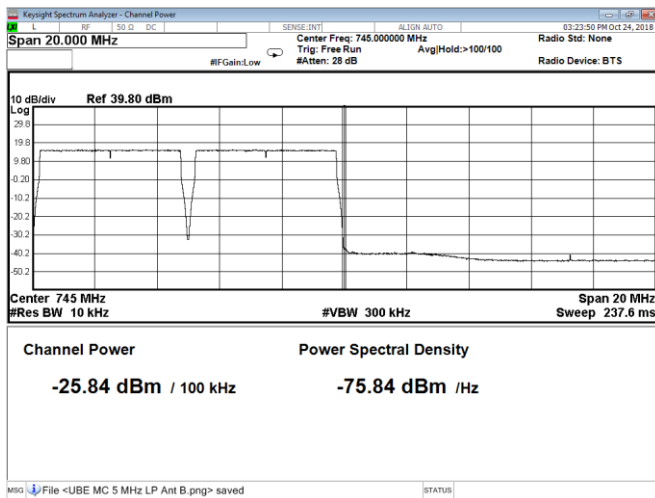


Figure 8.3-105: Conducted band edge emission at 745 MHz, MC 2x5 MHz channel with 40 W configuration at Port C

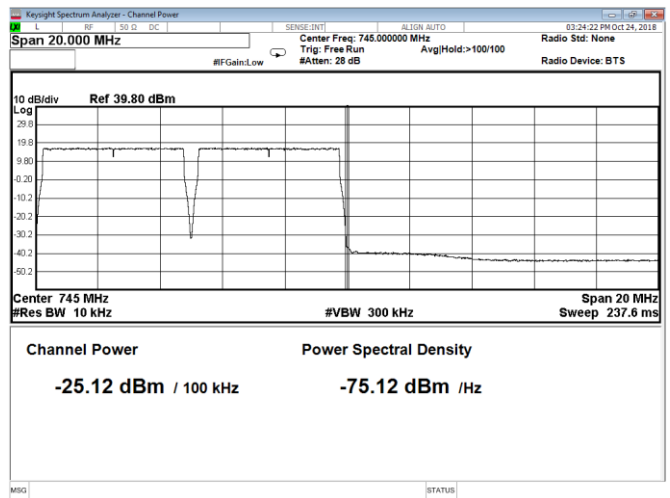


Figure 8.3-106: Conducted band edge emission at 745 MHz, MC 2x5 MHz channel with 40 W configuration at Port D

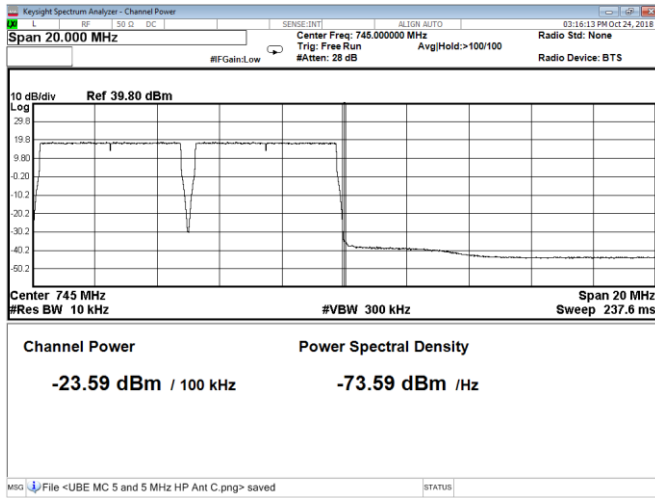


Figure 8.3-107: Conducted band edge emission at 745 MHz, MC 2x5 MHz channel with 60 W configuration at Port A

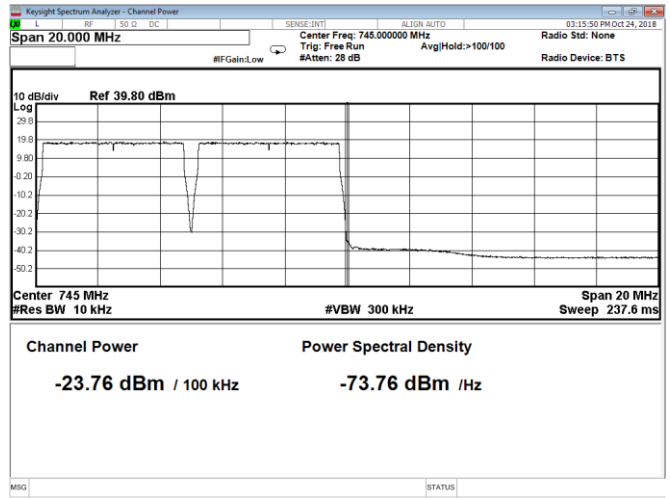


Figure 8.3-108: Conducted band edge emission at 745 MHz, MC 2x5 MHz channel with 60 W configuration at Port C

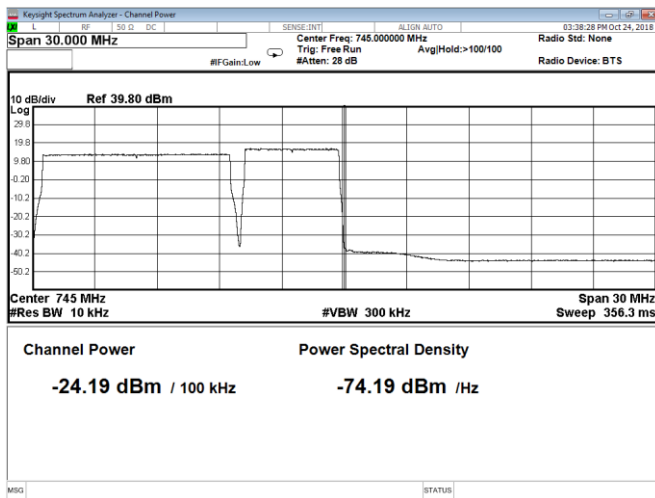


Figure 8.3-109: Conducted band edge emission at 745 MHz, MC 10 and 5 MHz channel with 40 W configuration at Port A

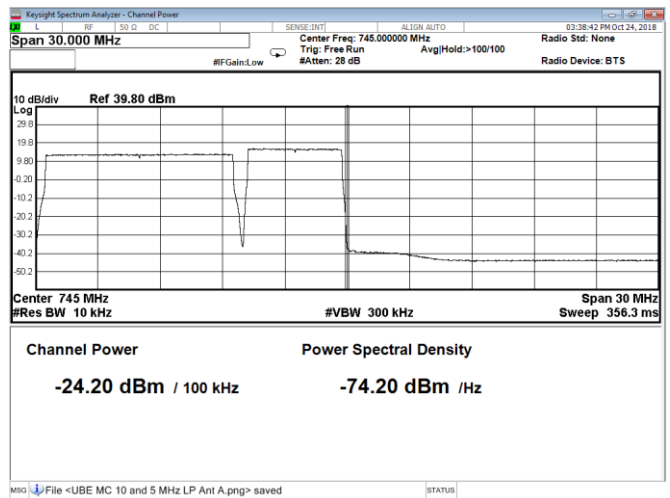


Figure 8.3-110: Conducted band edge emission at 745 MHz, MC 10 and 5 MHz channel with 40 W configuration at Port B

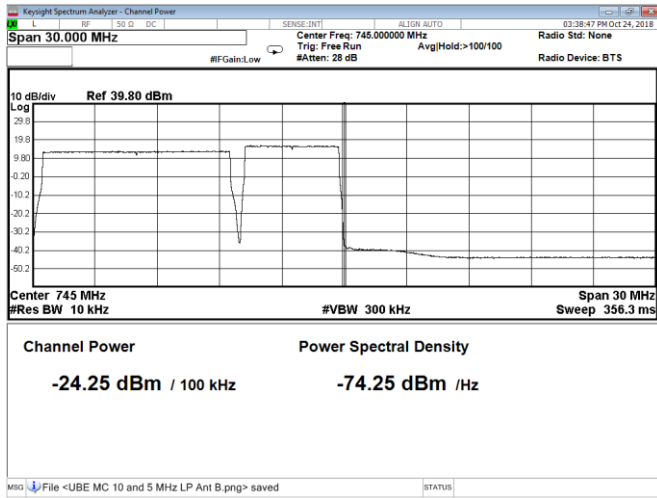


Figure 8.3-111: Conducted band edge emission at 745 MHz, MC 10 and 5 MHz channel with 40 W configuration at Port C

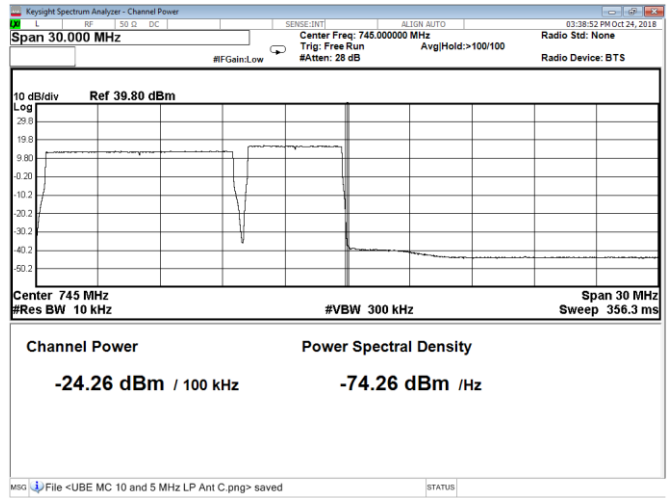


Figure 8.3-112: Conducted band edge emission at 745 MHz, MC 10 and 5 MHz channel with 40 W configuration at Port D

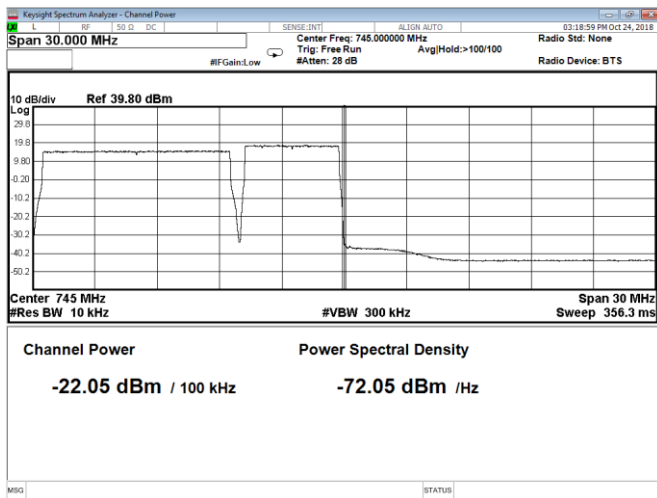


Figure 8.3-113: Conducted band edge emission at 745 MHz, MC 10 and 5 MHz channel with 60 W configuration at Port A

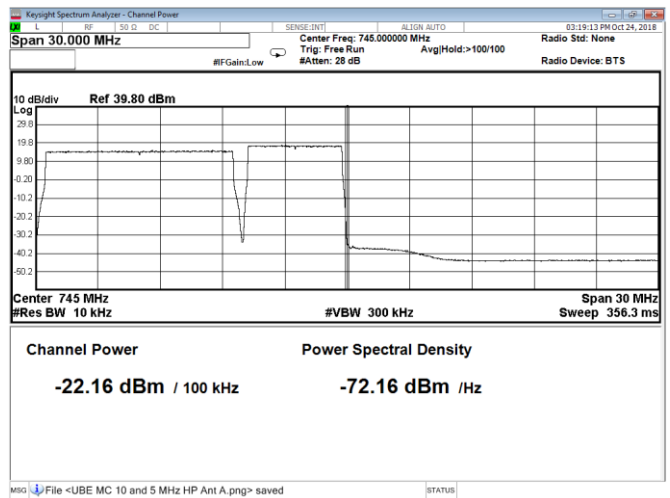


Figure 8.3-114: Conducted band edge emission at 745 MHz, MC 10 and 5 MHz channel with 60 W configuration at Port C

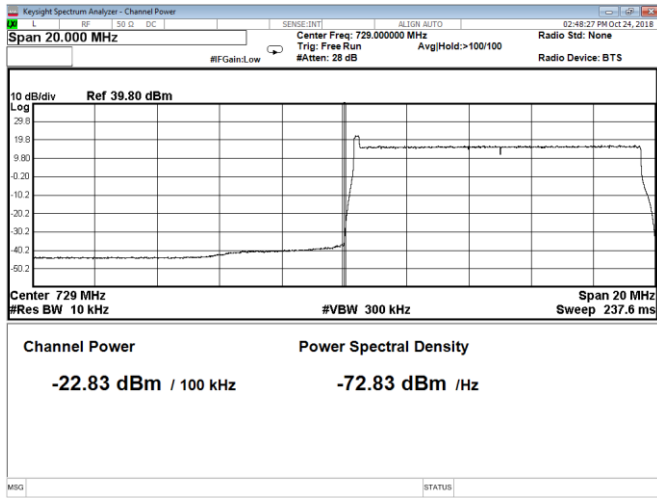


Figure 8.3-115: Conducted band edge emission at 729 MHz, 10 MHz and IoT channel with 40 W configuration at Port A

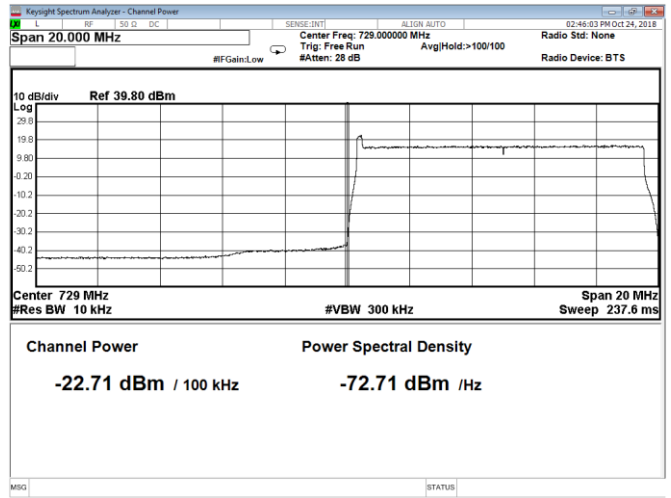


Figure 8.3-116: Conducted band edge emission at 729 MHz, 10 MHz and IoT channel with 40 W configuration at Port B

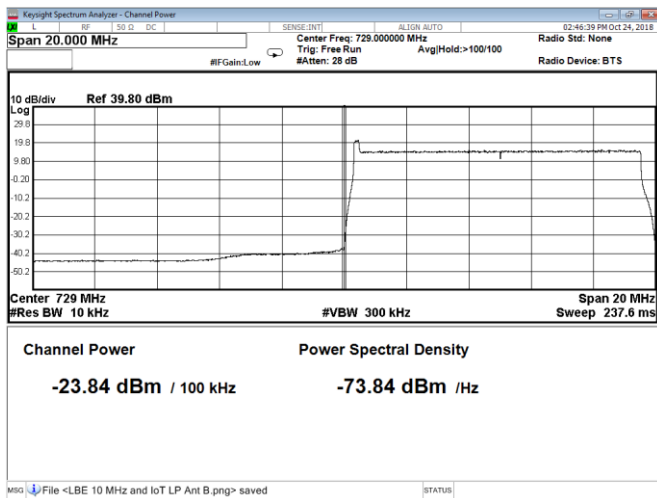


Figure 8.3-117: Conducted band edge emission at 729 MHz, 10 MHz and IoT channel with 40 W configuration at Port C

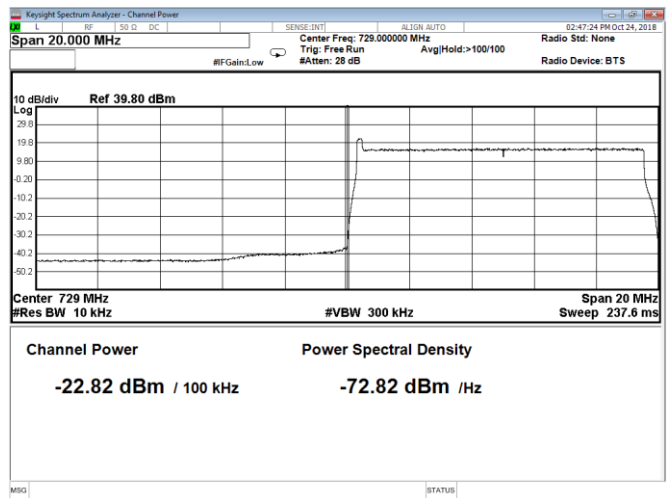


Figure 8.3-118: Conducted band edge emission at 729 MHz, 10 MHz and IoT channel with 40 W configuration at Port D

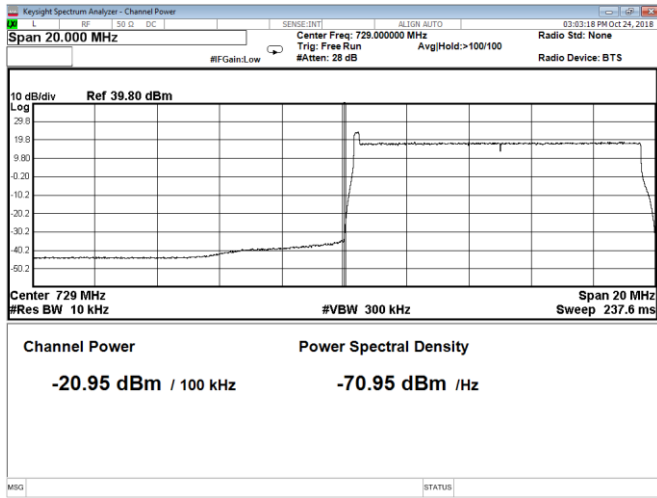


Figure 8.3-119: Conducted band edge emission at 729 MHz, 10 MHz and IoT channel with 60 W configuration at Port A

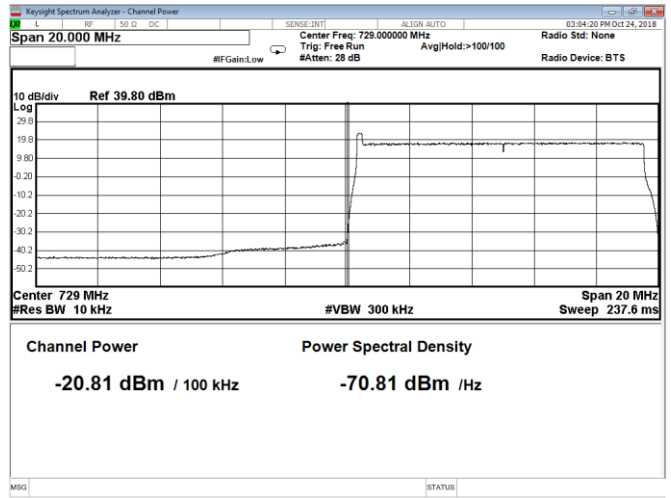


Figure 8.3-120: Conducted band edge emission at 729 MHz, 10 MHz and IoT channel with 60 W configuration at Port C

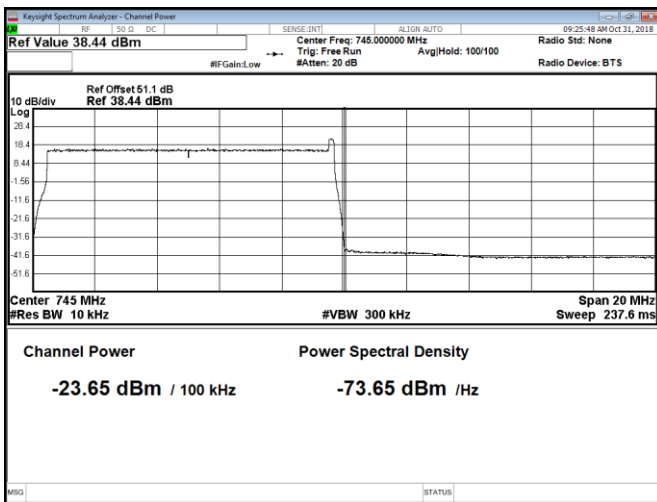


Figure 8.3-121: Conducted band edge emission at 745 MHz, 10 MHz and IoT channel with 40 W configuration at Port A

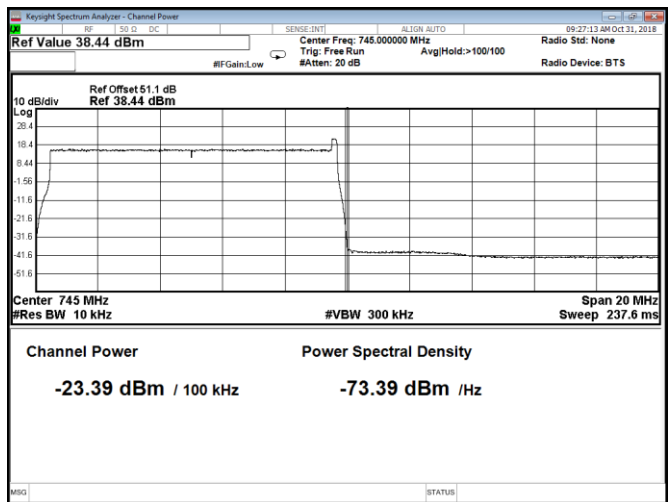


Figure 8.3-122: Conducted band edge emission at 745 MHz, 10 MHz and IoT channel with 40 W configuration at Port B



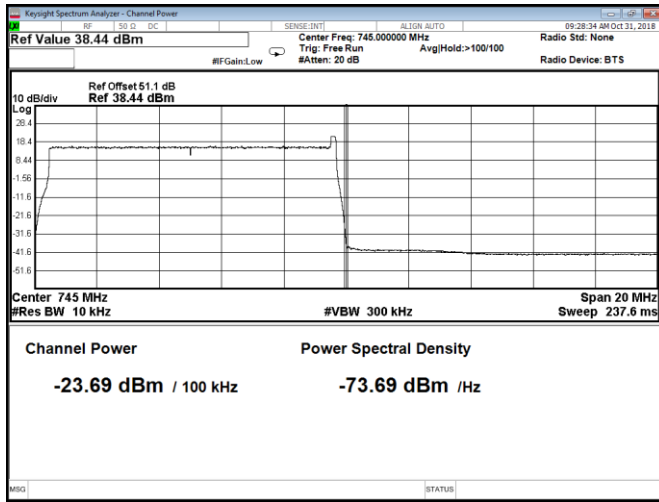


Figure 8.3-123: Conducted band edge emission at 745 MHz, 10 MHz and 10T channel with 40 W configuration at Port C

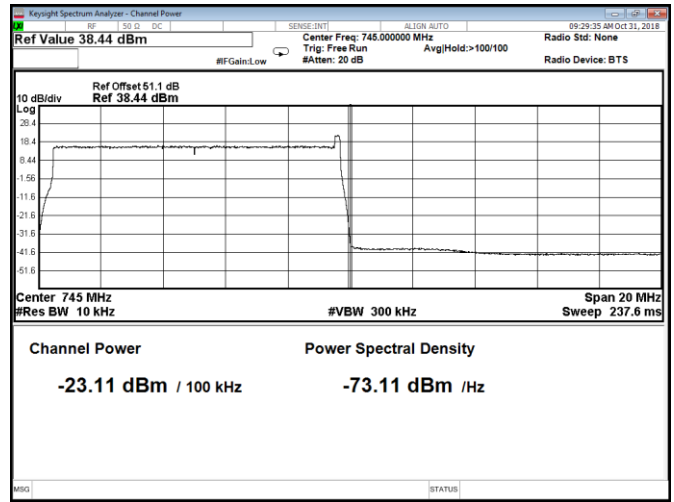


Figure 8.3-124: Conducted band edge emission at 745 MHz, 10 MHz and 10T channel with 40 W configuration at Port D

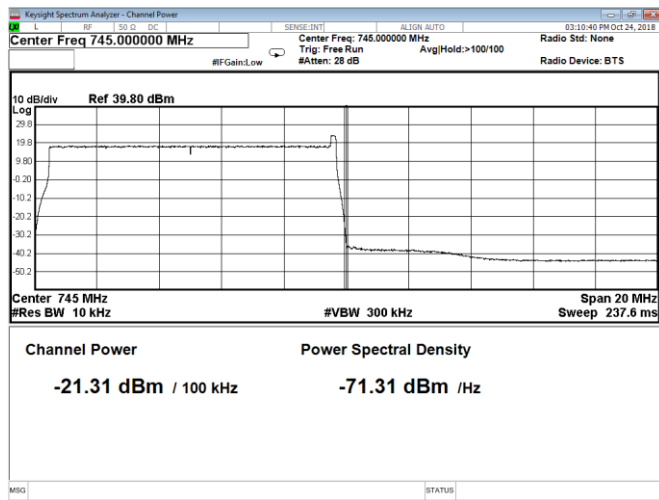


Figure 8.3-125: Conducted band edge emission at 745 MHz, 10 MHz and 10T channel with 60 W configuration at Port A

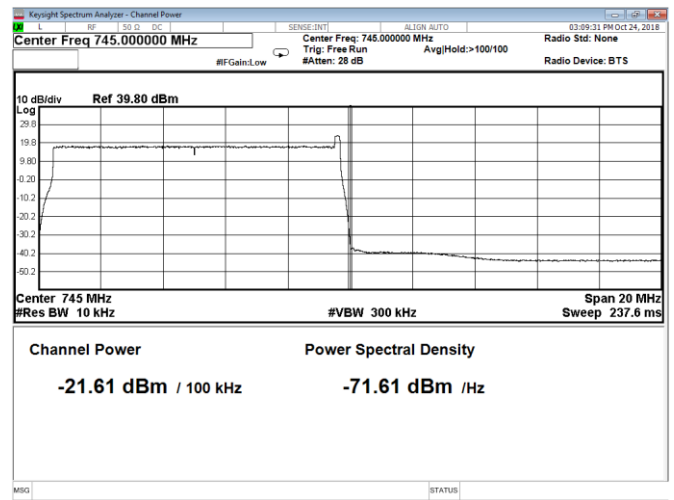


Figure 8.3-126: Conducted band edge emission at 745 MHz, 10 MHz and 10T channel with 60 W configuration at Port C

## 8.4 FCC 22.917(a) and RSS-132 5.5 Spurious emissions at RF antenna connector (B5)

---

### 8.4.1 Definitions and limits

---

**FCC:**

(a) Out of band emissions. 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.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows:

(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). 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.

(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.

(c) Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

**ISED:**

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

1. In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P ( dBW) by at least  $43 + 10 \log_{10}p$  (watts).
2. After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

### 8.4.2 Test summary

---

Test date October 24, 2018

### 8.4.3 Observations, settings and special notes

---

The spectrum was searched from 30 MHz to the 10<sup>th</sup> harmonic.

All measurements were performed using a RMS detector.

For compensation of 40 W MIMO 4x4 application limit lines were adjusted by 6 dB<sup>1</sup> to -19 dBm

For compensation of 60 W MIMO 2x2 application limit lines were adjusted by 3 dB<sup>2</sup> to -16 dBm

$${}^110 \times \log_{10}(4) = -6 \text{ dB}$$

$${}^210 \times \log_{10}(2) = -3 \text{ dB}$$

8.4.4 Test data

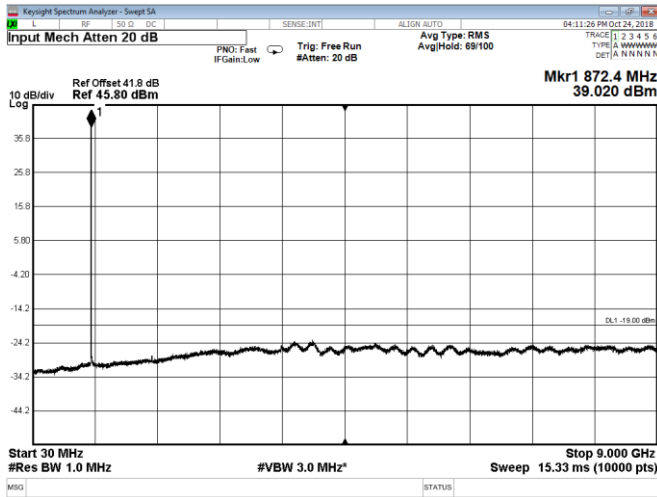


Figure 8.4-1: Conducted spurious emissions for 5 MHz low channel with 40 W configuration at Port A

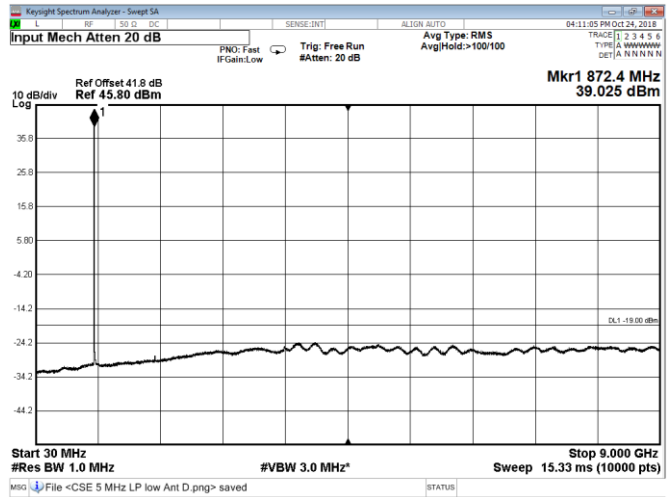


Figure 8.4-2: Conducted spurious emissions for 5 MHz low channel with 40 W configuration at Port B

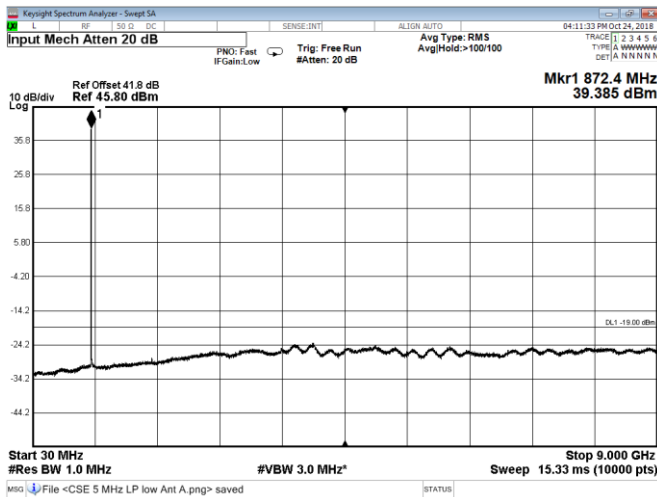


Figure 8.4-3: Conducted spurious emissions for 5 MHz low channel with 40 W configuration at Port C

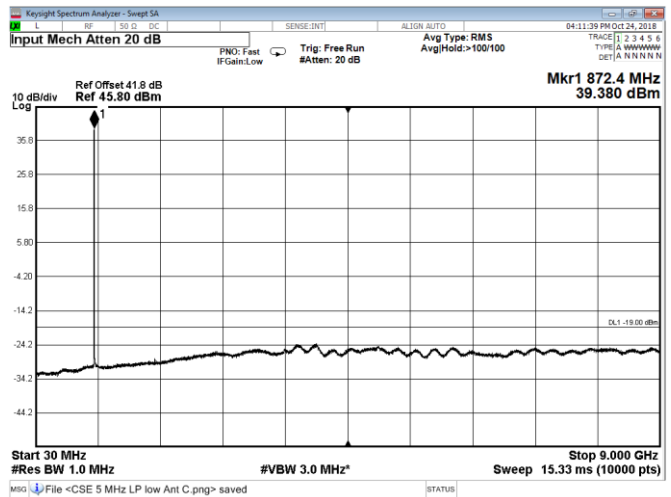
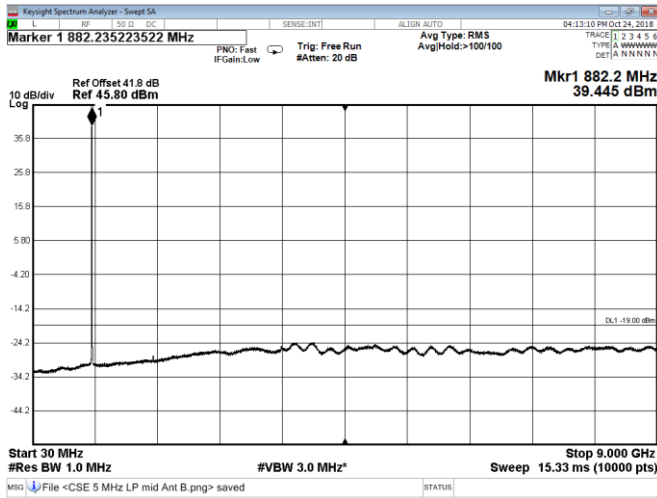


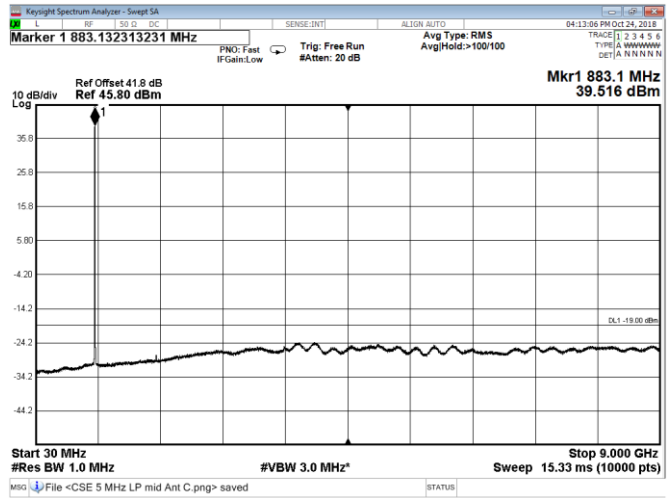
Figure 8.4-4: Conducted spurious emissions for 5 MHz low channel with 40 W configuration at Port D

**Section 8**  
**Test name**  
**Specification**

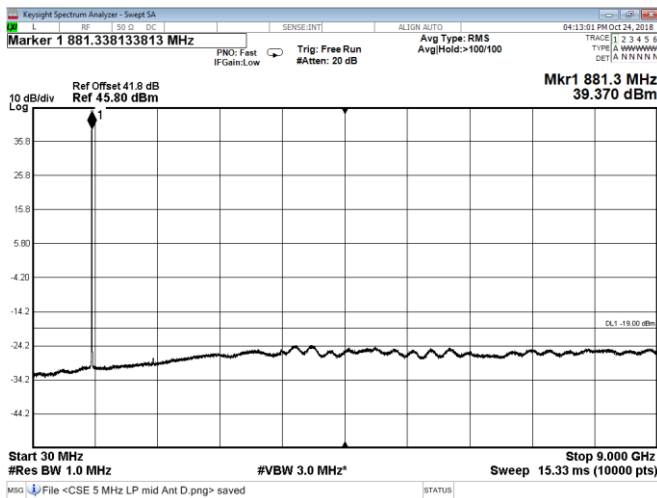
Testing data  
 Clause 22.917(a) and RSS-132 5.5 Spurious emissions at RF antenna connector (B5)  
 FCC Part 22 and RSS-132



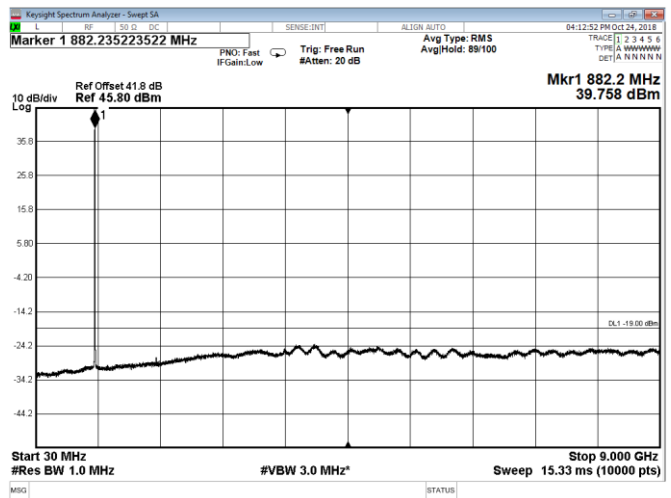
**Figure 8.4-5:** Conducted spurious emissions for 5 MHz mid channel with 40 W configuration at Port A



**Figure 8.4-6:** Conducted spurious emissions for 5 MHz mid channel with 40 W configuration at Port B



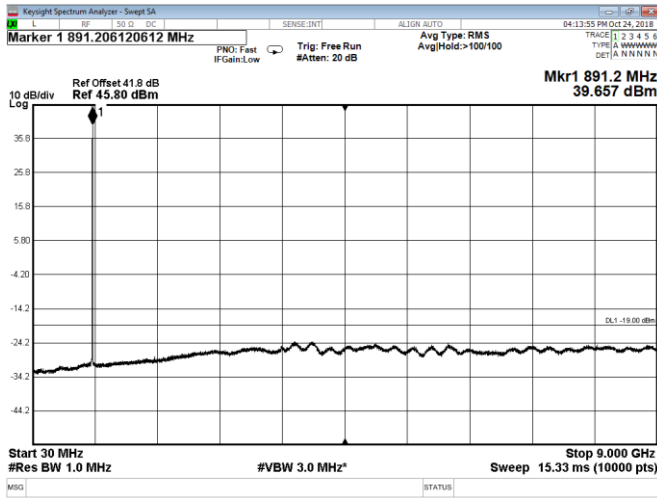
**Figure 8.4-7:** Conducted spurious emissions for 5 MHz mid channel with 40 W configuration at Port C



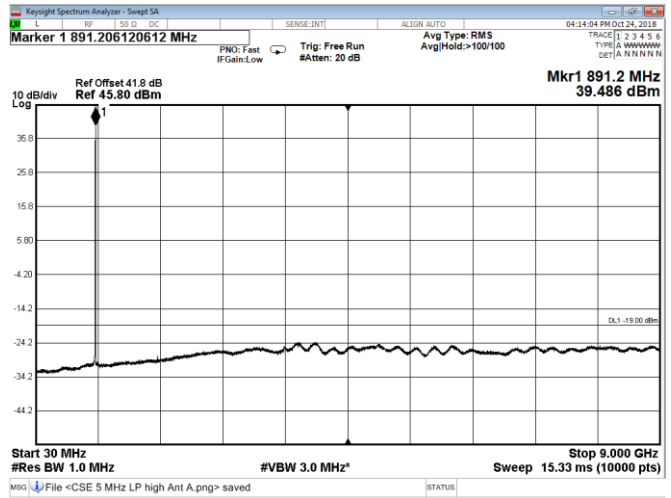
**Figure 8.4-8:** Conducted spurious emissions for 5 MHz mid channel with 40 W configuration at Port D

**Section 8**  
**Test name**  
**Specification**

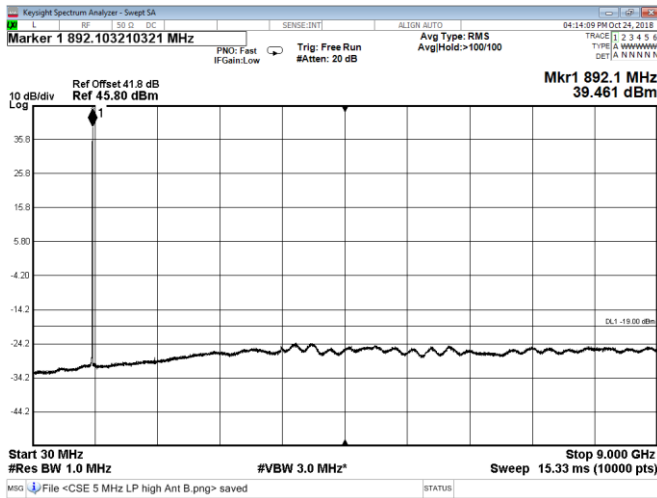
Testing data  
 Clause 22.917(a) and RSS-132 5.5 Spurious emissions at RF antenna connector (B5)  
 FCC Part 22 and RSS-132



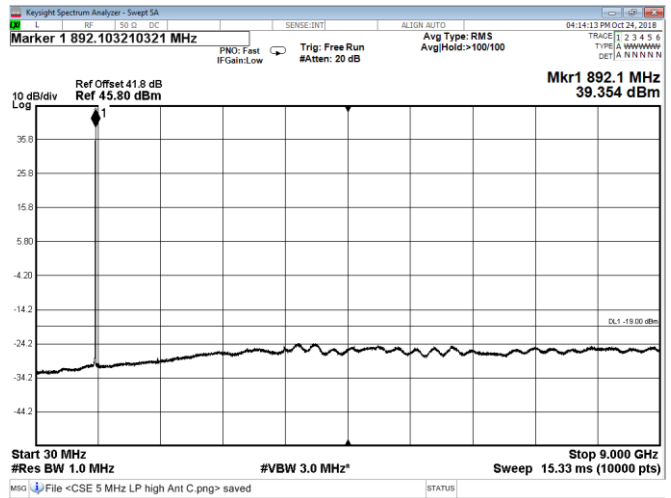
**Figure 8.4-9:** Conducted spurious emissions for 5 MHz high channel with 40 W configuration at Port A



**Figure 8.4-10:** Conducted spurious emissions for 5 MHz high channel with 40 W configuration at Port B



**Figure 8.4-11:** Conducted spurious emissions for 5 MHz high channel with 40 W configuration at Port C



**Figure 8.4-12:** Conducted spurious emissions for 5 MHz high channel with 40 W configuration at Port D

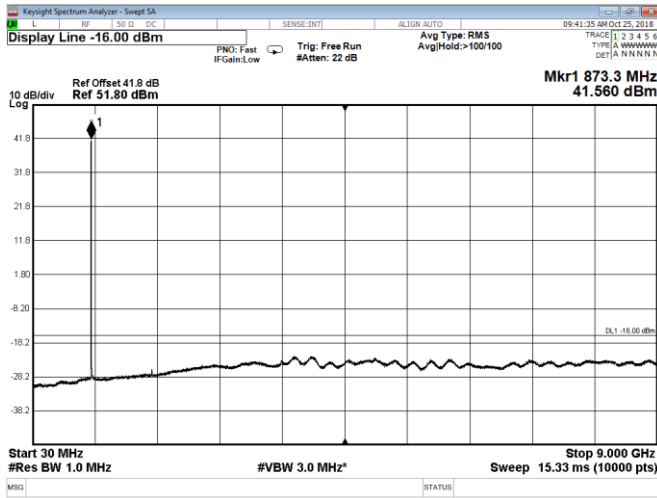


Figure 8.4-13: Conducted spurious emissions for 5 MHz low channel with 60 W configuration at Port A

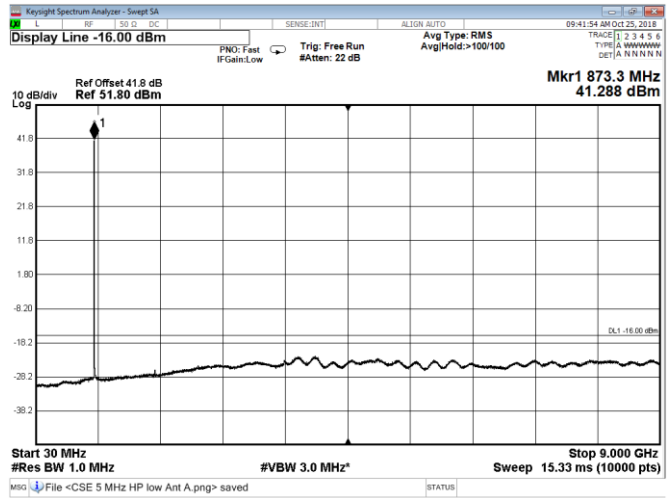


Figure 8.4-14: Conducted spurious emissions for 5 MHz low channel with 60 W configuration at Port C

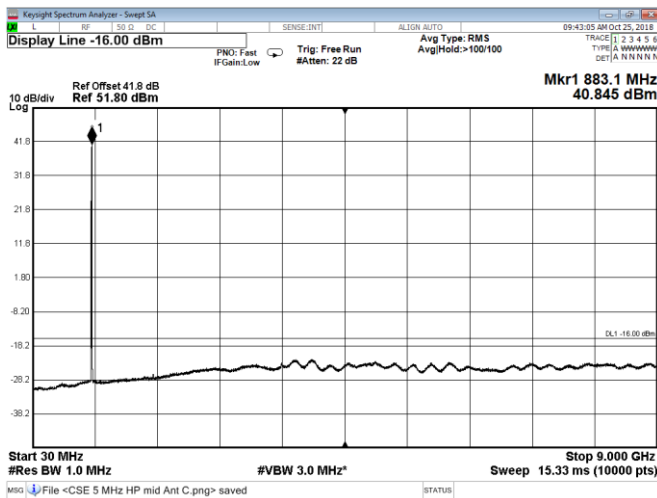


Figure 8.4-15: Conducted spurious emissions for 5 MHz mid channel with 60 W configuration at Port A

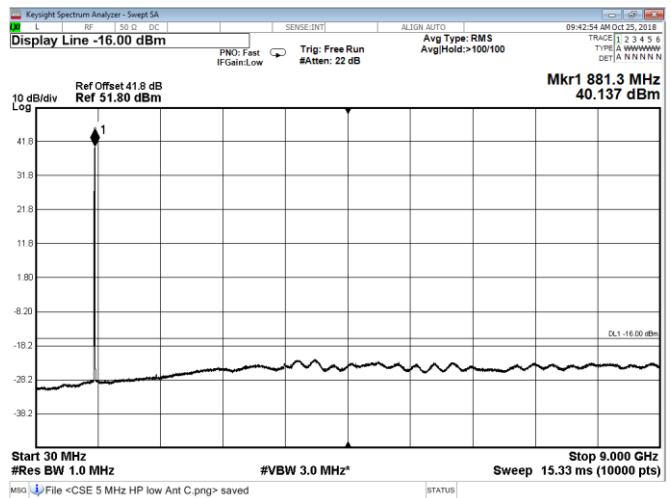
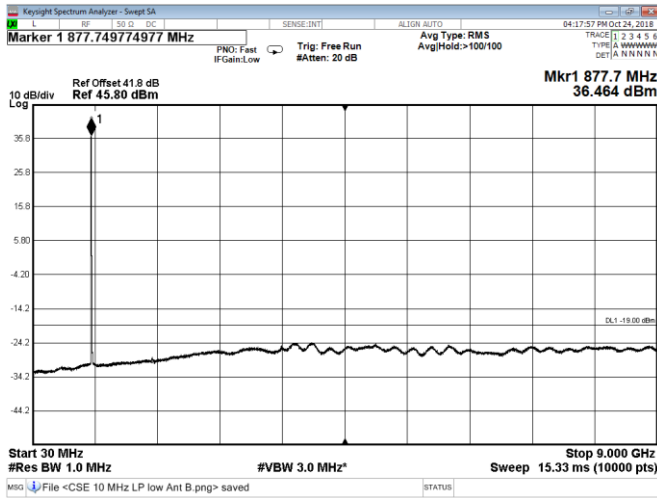


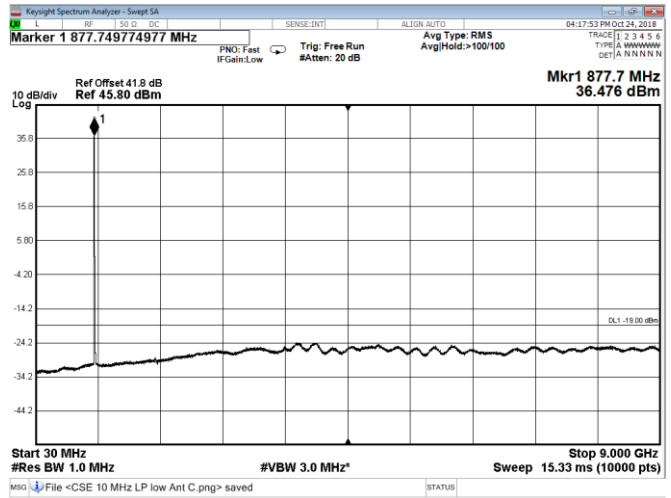
Figure 8.4-16: Conducted spurious emissions for 5 MHz mid channel with 60 W configuration at Port C

**Section 8**  
**Test name**  
**Specification**

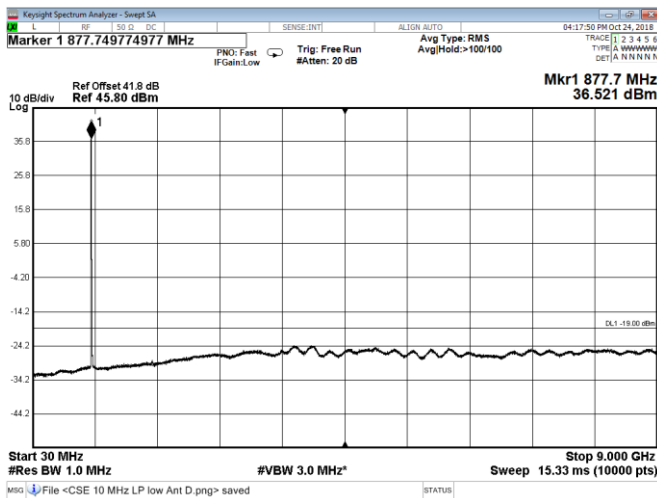
Testing data  
 Clause 22.917(a) and RSS-132 5.5 Spurious emissions at RF antenna connector (B5)  
 FCC Part 22 and RSS-132



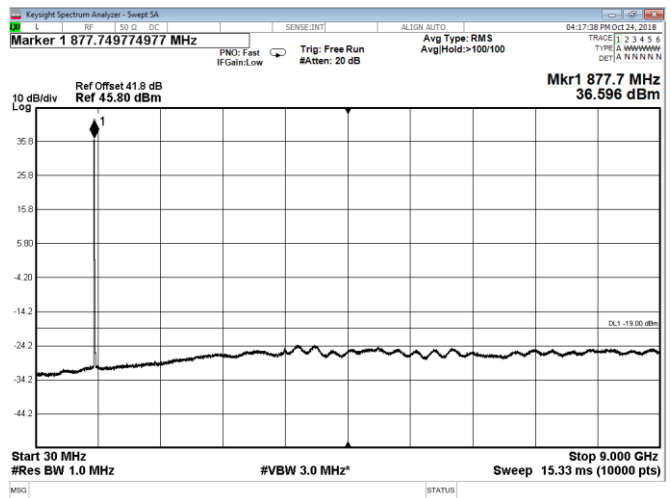
**Figure 8.4-17:** Conducted spurious emissions for 10 MHz low channel with 40 W configuration at Port A



**Figure 8.4-18:** Conducted spurious emissions for 10 MHz low channel with 40 W configuration at Port B



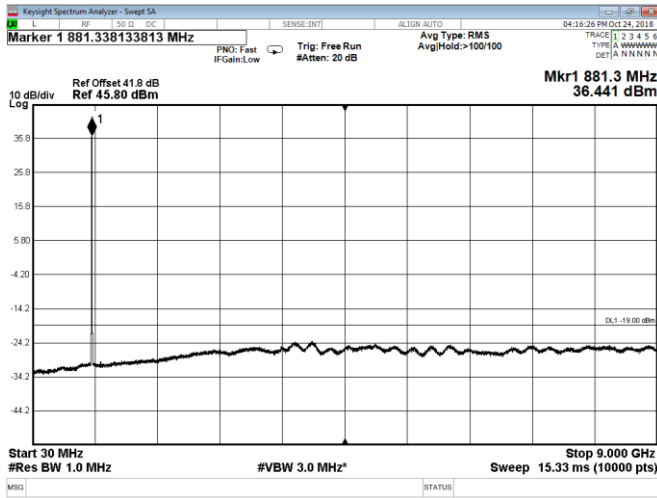
**Figure 8.4-19:** Conducted spurious emissions for 10 MHz low channel with 40 W configuration at Port C



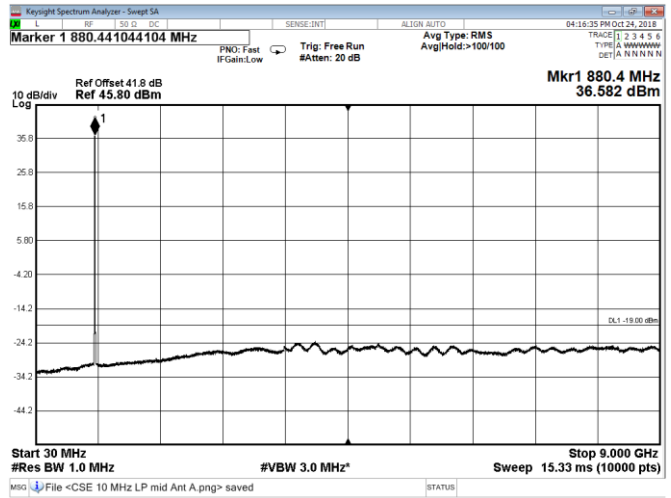
**Figure 8.4-20:** Conducted spurious emissions for 10 MHz low channel with 40 W configuration at Port D

**Section 8**  
**Test name**  
**Specification**

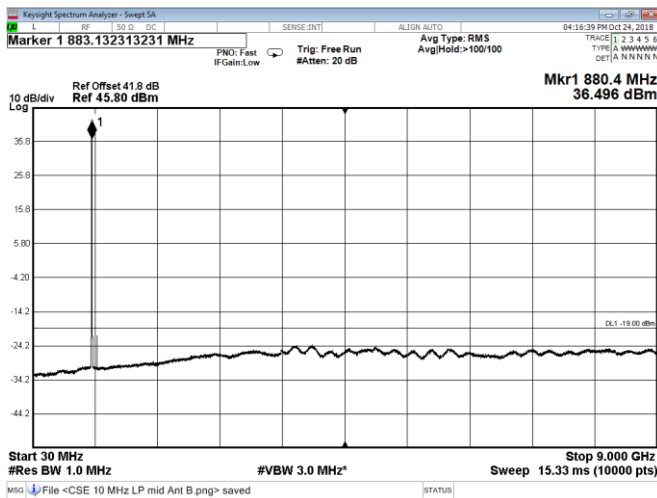
Testing data  
 Clause 22.917(a) and RSS-132 5.5 Spurious emissions at RF antenna connector (B5)  
 FCC Part 22 and RSS-132



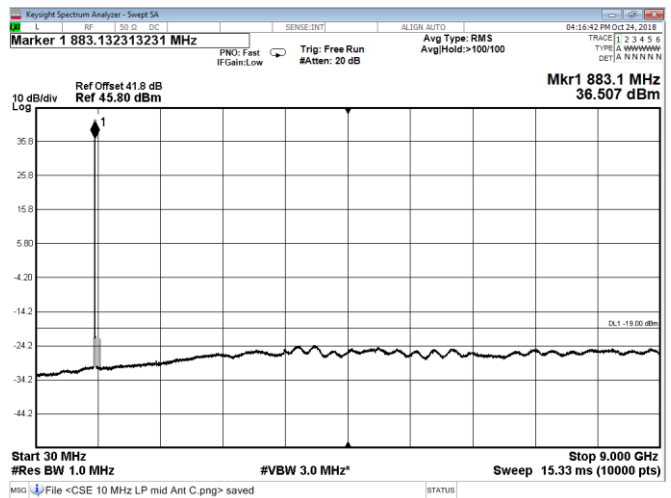
**Figure 8.4-21:** Conducted spurious emissions for 10 MHz mid channel with 40 W configuration at Port A



**Figure 8.4-22:** Conducted spurious emissions for 10 MHz mid channel with 40 W configuration at Port B



**Figure 8.4-23:** Conducted spurious emissions for 10 MHz mid channel with 40 W configuration at Port C

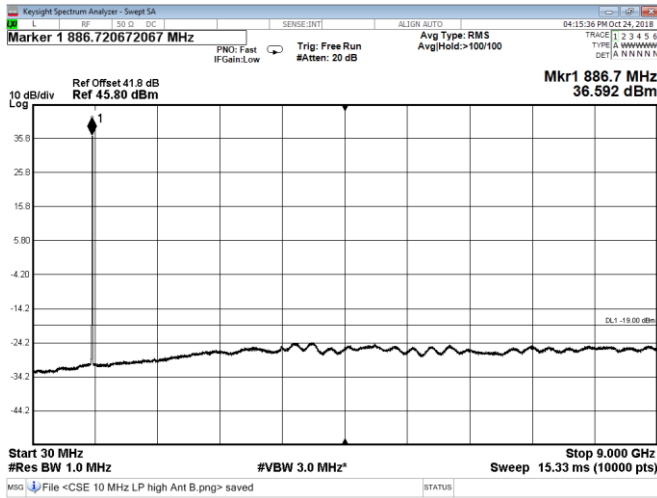


**Figure 8.4-24:** Conducted spurious emissions for 10 MHz mid channel with 40 W configuration at Port D

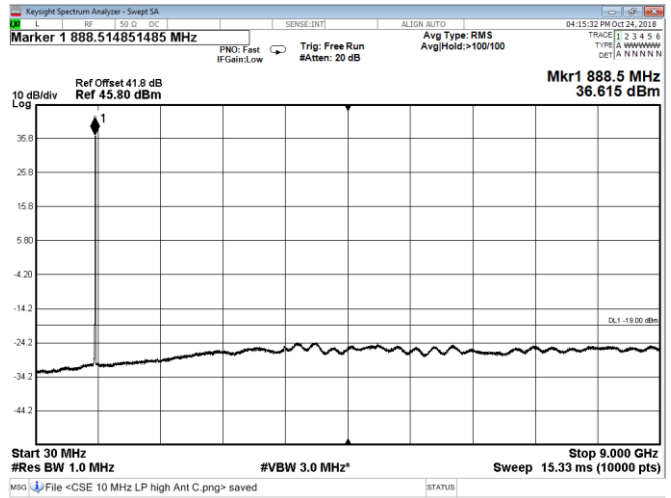


**Section 8**  
**Test name**  
**Specification**

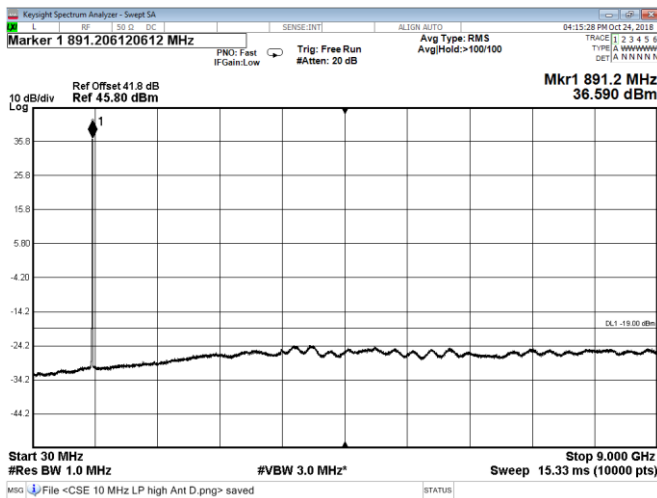
Testing data  
 Clause 22.917(a) and RSS-132 5.5 Spurious emissions at RF antenna connector (B5)  
 FCC Part 22 and RSS-132



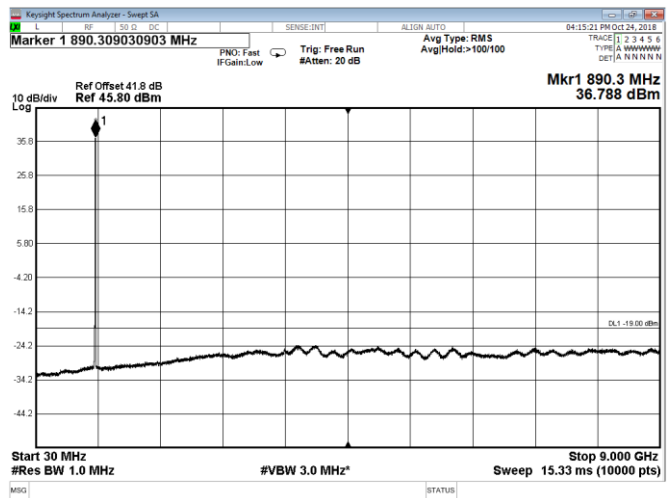
**Figure 8.4-25:** Conducted spurious emissions for 10 MHz high channel with 40 W configuration at Port A



**Figure 8.4-26:** Conducted spurious emissions for 10 MHz high channel with 40 W configuration at Port B



**Figure 8.4-27:** Conducted spurious emissions for 10 MHz high channel with 40 W configuration at Port C



**Figure 8.4-28:** Conducted spurious emissions for 10 MHz high channel with 40 W configuration at Port D