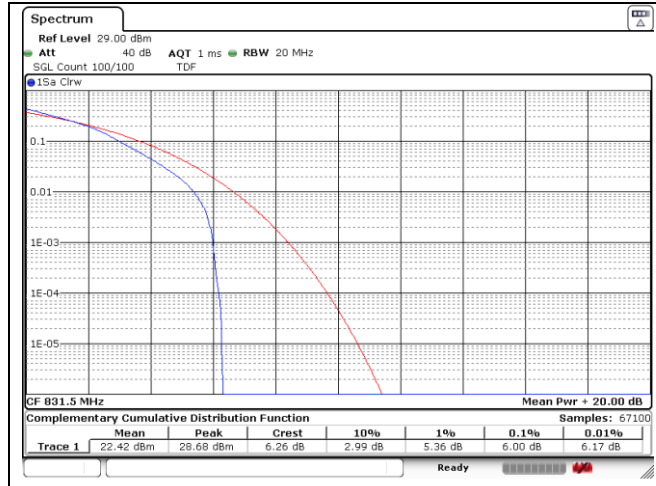
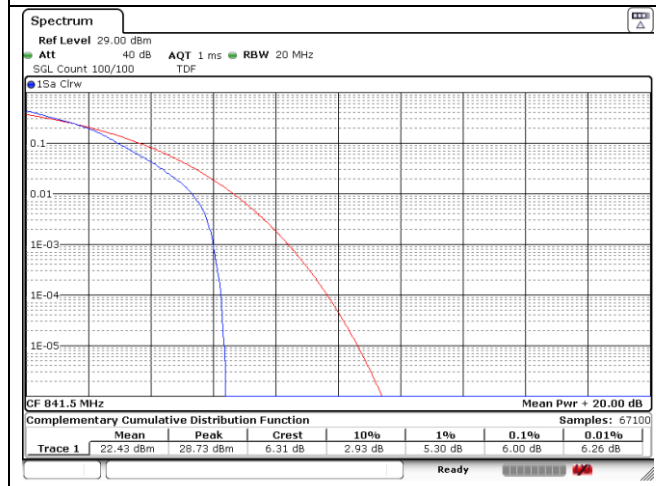


LTE band 26\_Part 22

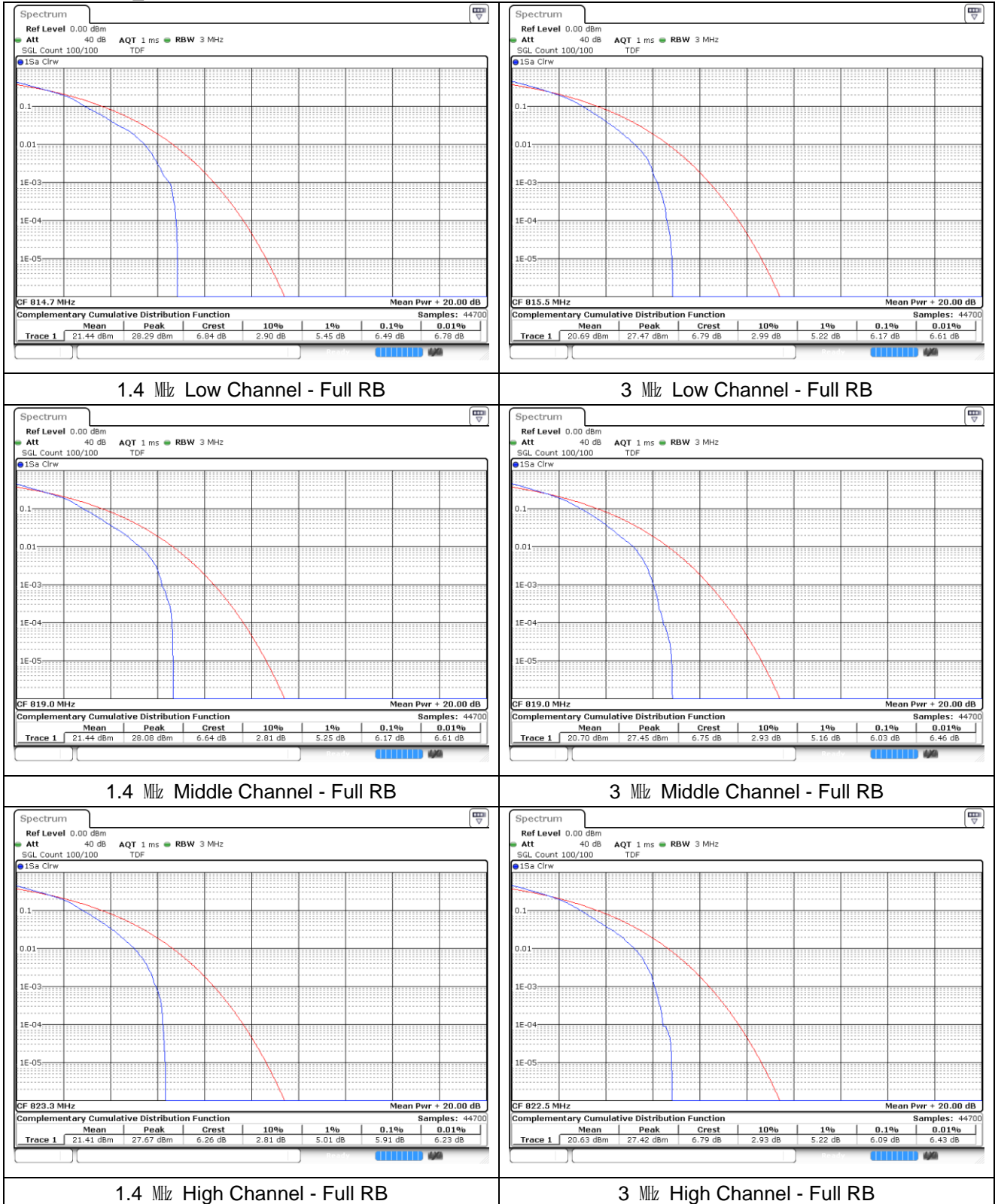


15 MHz Low Channel - Full RB

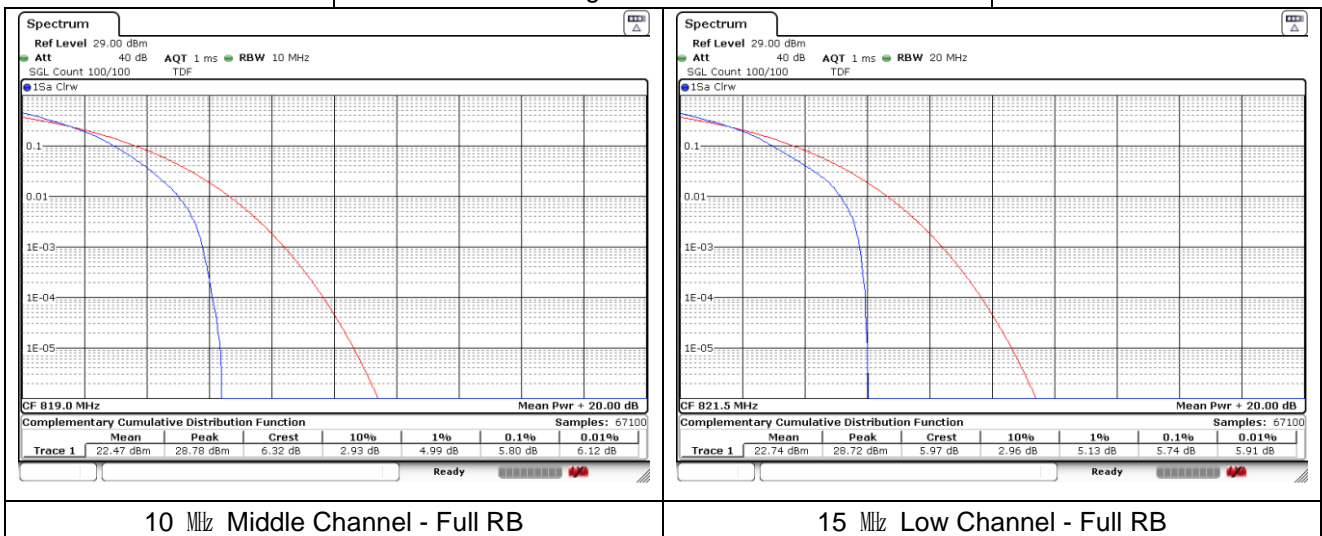
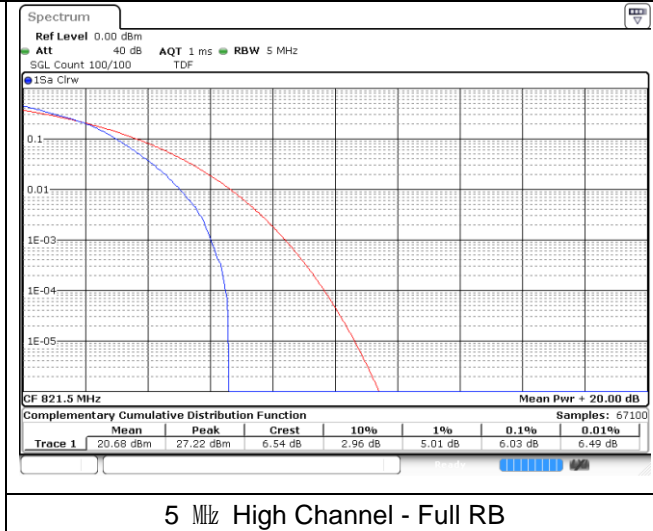
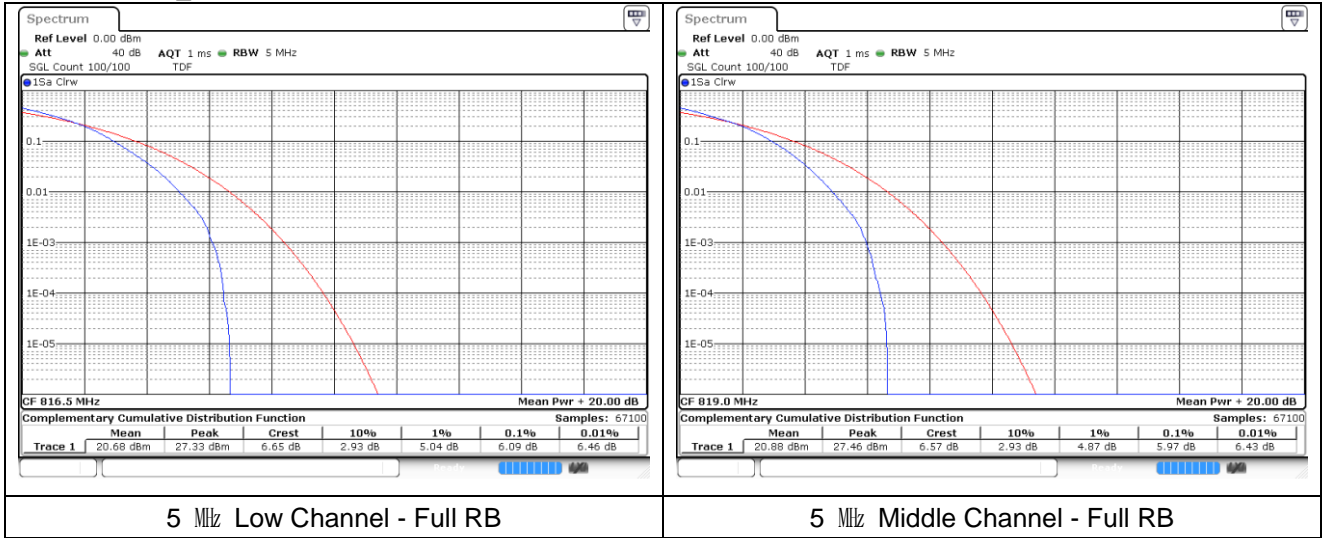


15 MHz High Channel - Full RB

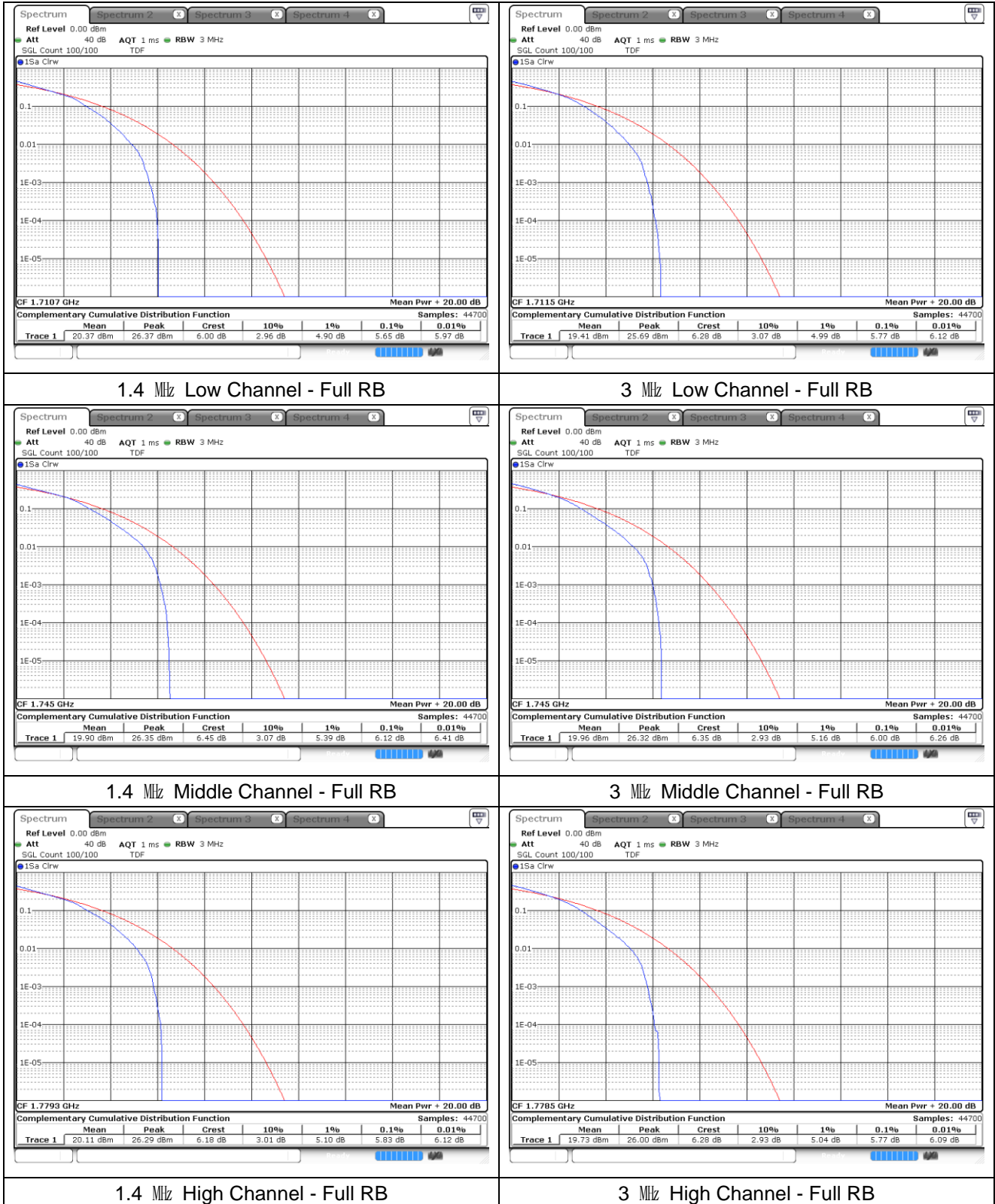
**LTE band 26 Part 90**



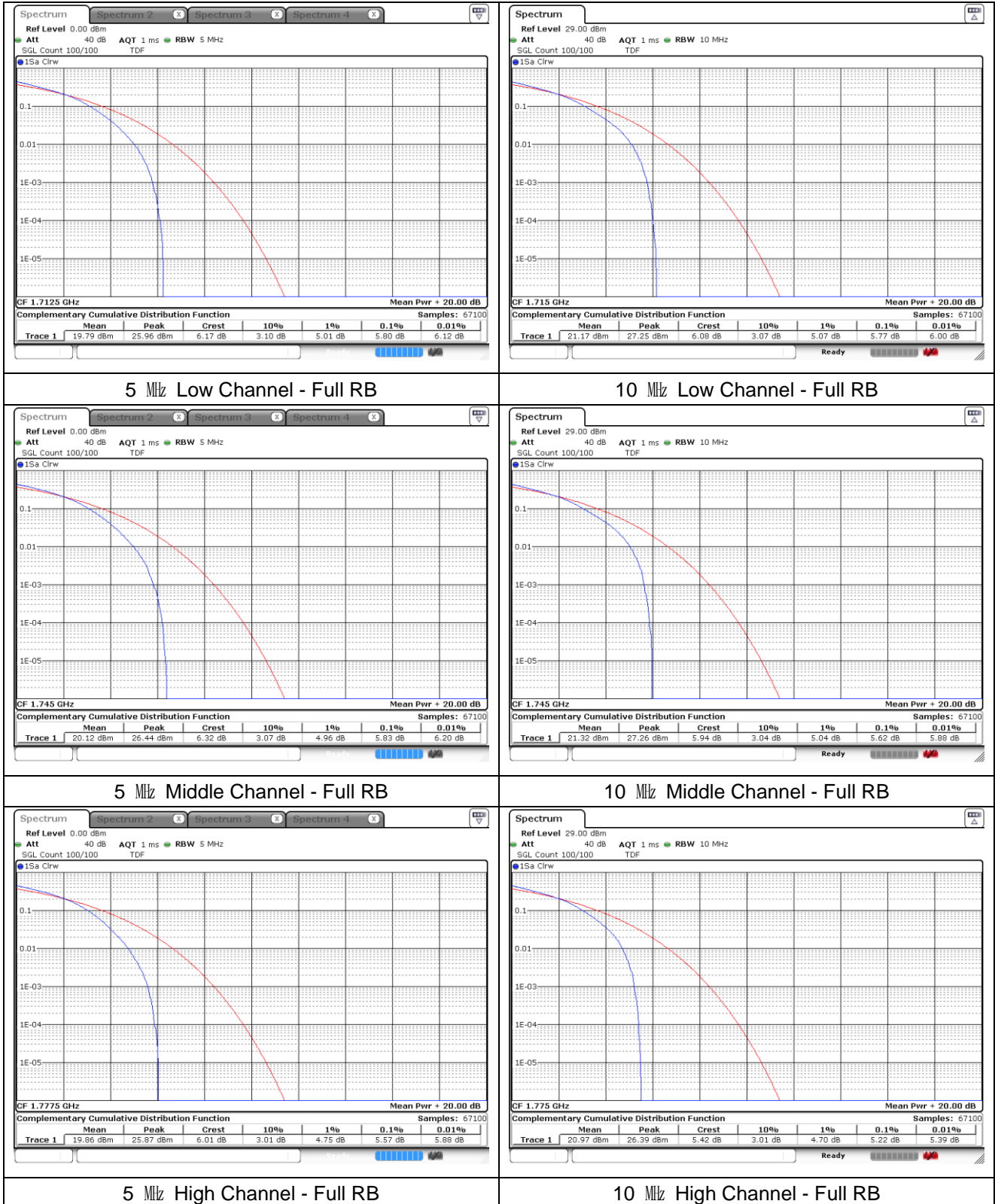
**LTE band 26 Part 90**



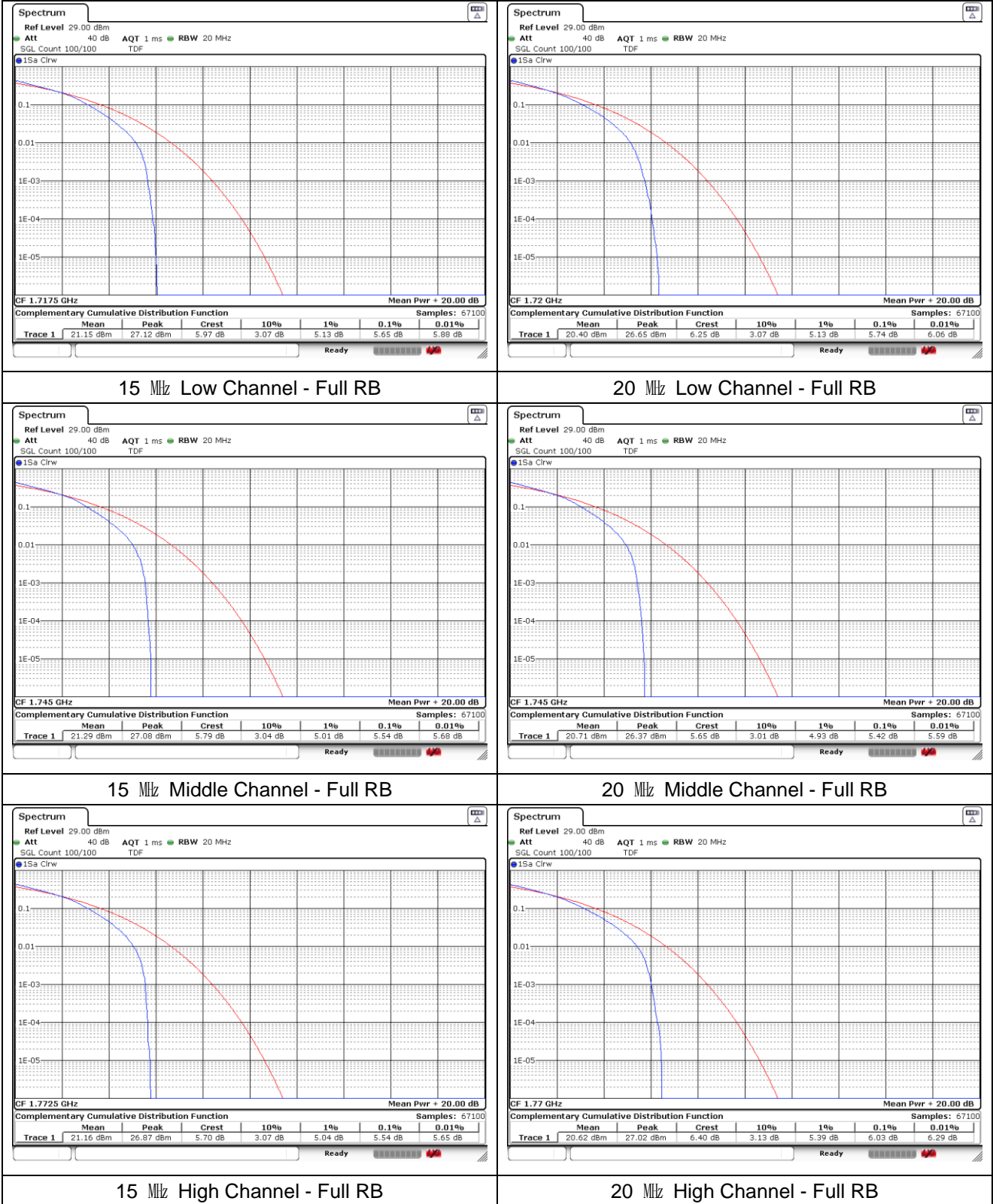
**LTE band 66/4**



**LTE band 66/4**



**LTE band 66/4**



## 6. Spurious Emissions at Antenna Terminal

### 6.1. Limit

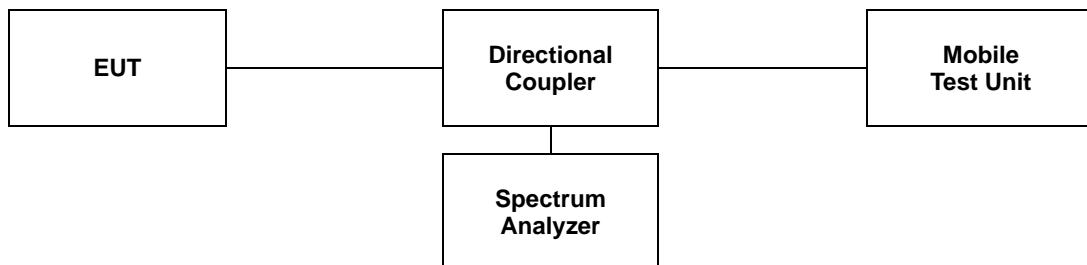
- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.
- §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.
- §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;
- §27.53(f), for operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1 559-1 610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.
- §27.53(g), 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.
- §27.53(h)(1), for operations in the 1 695-1 710 MHz, 1 710-1 755 MHz, 1 755-1 780 MHz, 1 915-1 920 MHz, 1 995-2 000 MHz, 2 000-2 020 MHz, 2 110-2 155 MHz, 2 155-2 180 MHz, and 2 180-2 200 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.
- §90.691(a), out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:
  - (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  $116 \text{Log}_{10}(f / 6.1)$  decibels or  $50 + 10 \text{Log}_{10}(P)$  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 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  $43 + 10 \text{Log}_{10}(P)$  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.



## 6.2. Test Procedure

The test follows section 5.7 of ANSI C63.26-2015.

1. Start frequency was set to 9 kHz and stop frequency was set to at least 10\* the fundamental frequency.
2. Detector = RMS.
3. Trace mode = Max hold.
4. Sweep time = Auto couple.
5. The trace was allowed to stabilize.
6. Please see notes below for RBW and VBW settings.
7. For plots showing conducted spurious emissions from 9 kHz to 20 GHz, all path loss of wide frequency range was investigated and compensated to spectrum analyzer as TDF function.



### Note;

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and frequencies greater than 1 GHz. However, 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. The emission bandwidth is defined as the width of the signal between two point, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

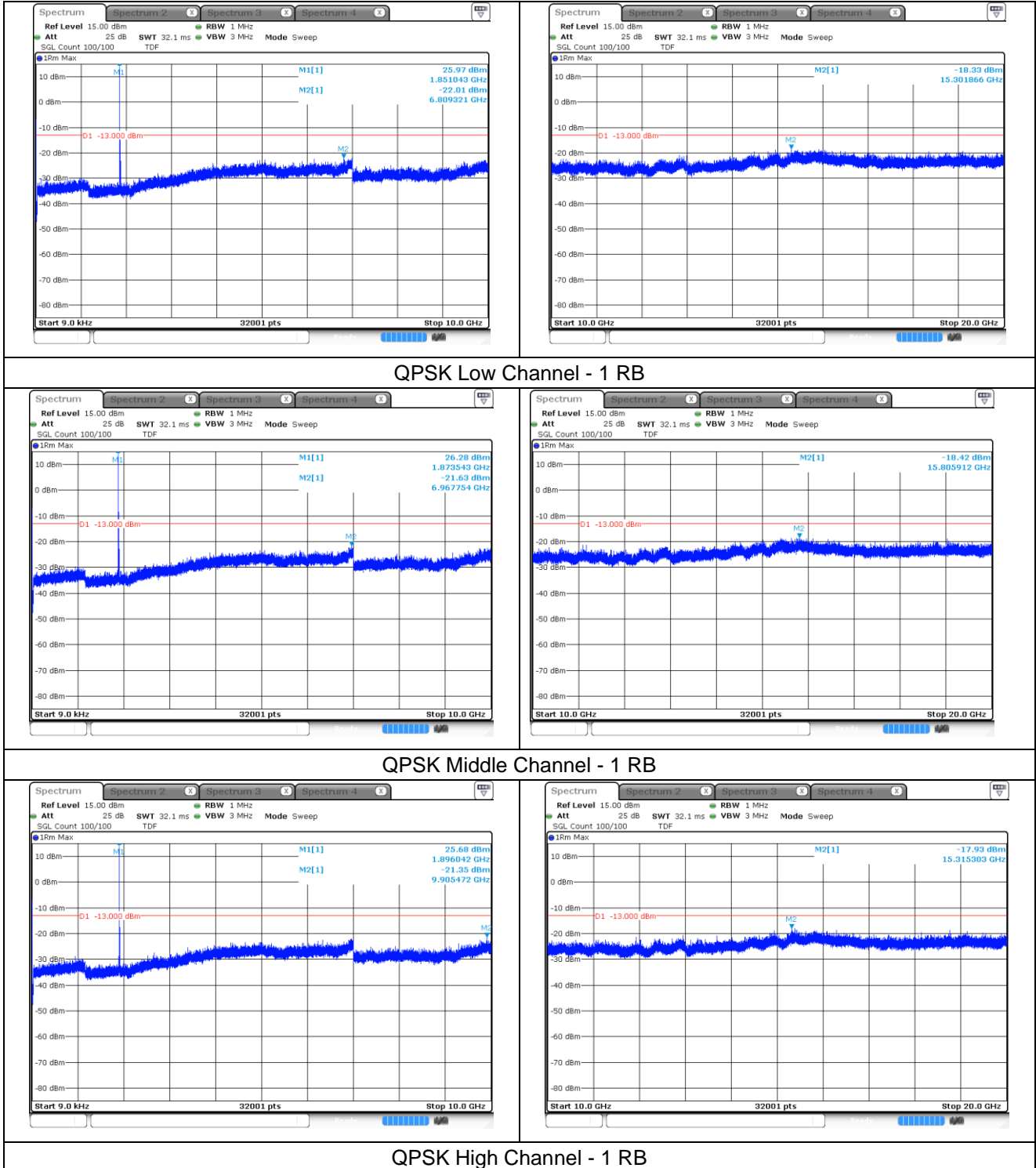


### 6.3. Test Results

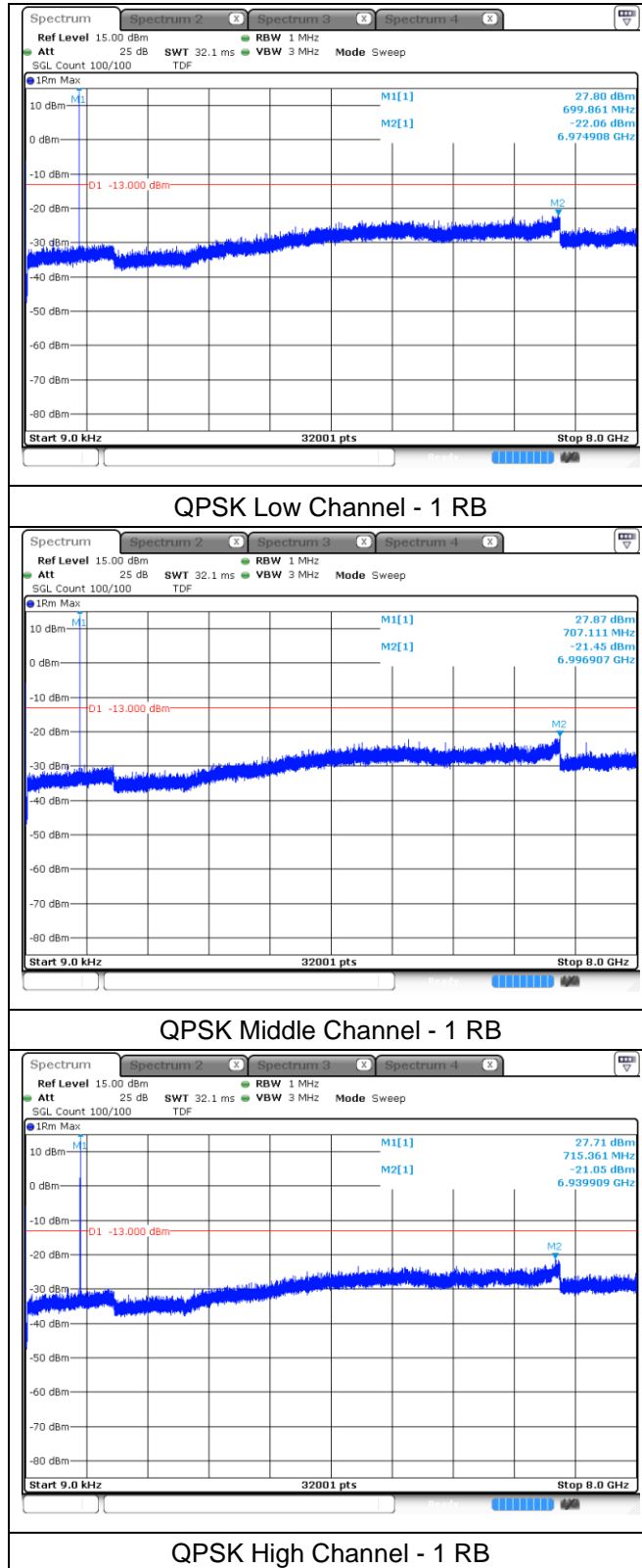
Ambient temperature : (23 ± 1) °C  
 Relative humidity : 47 % R.H.

#### - Test plots

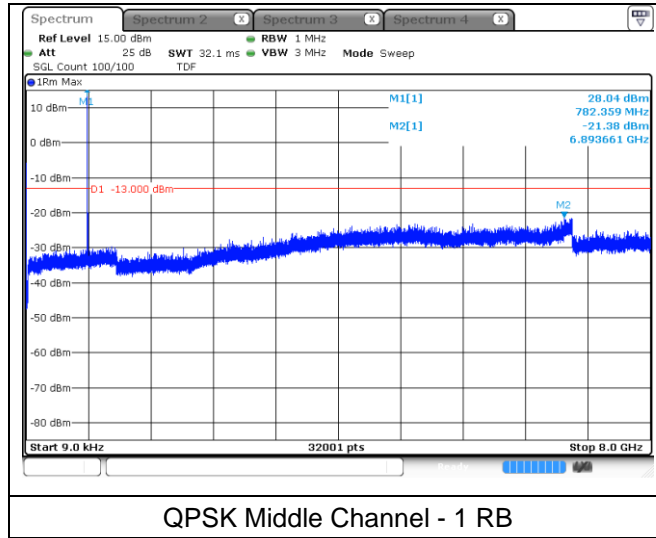
#### LTE band 2 (15 MHz)



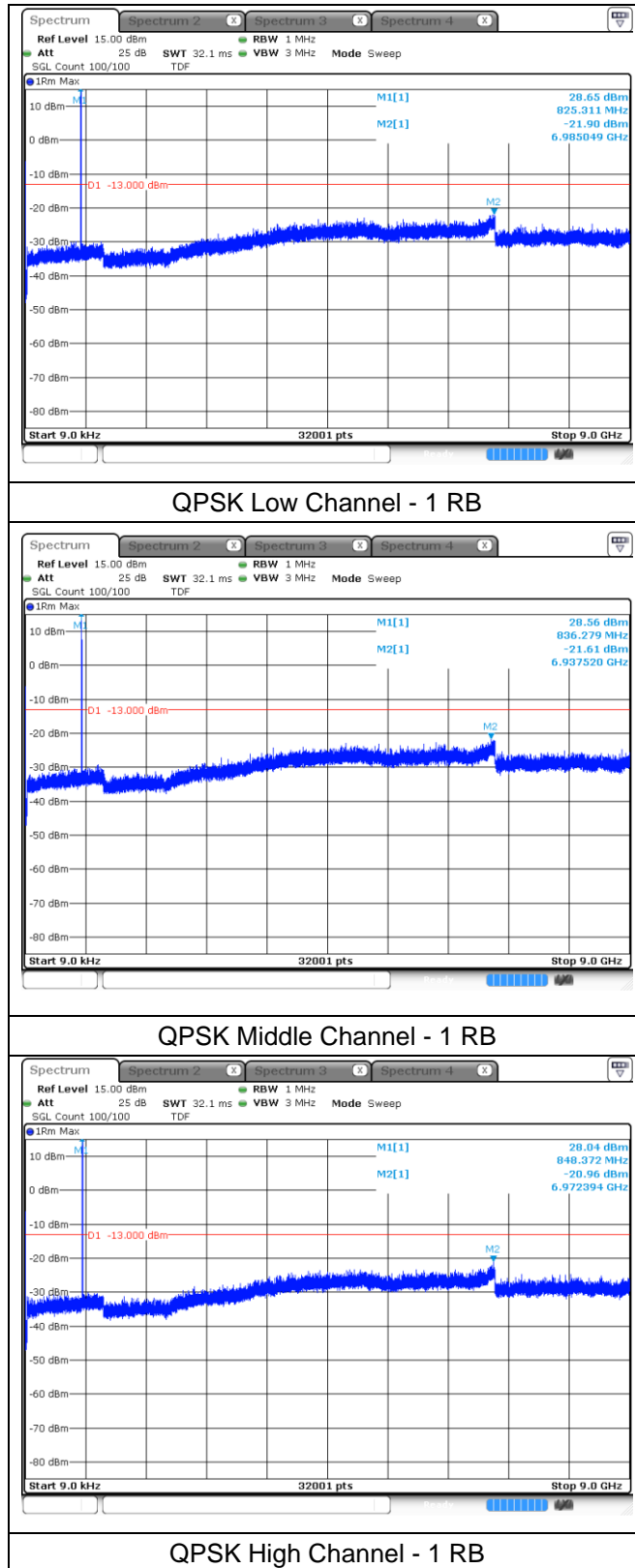
**LTE band 12 (1.4 MHz)**



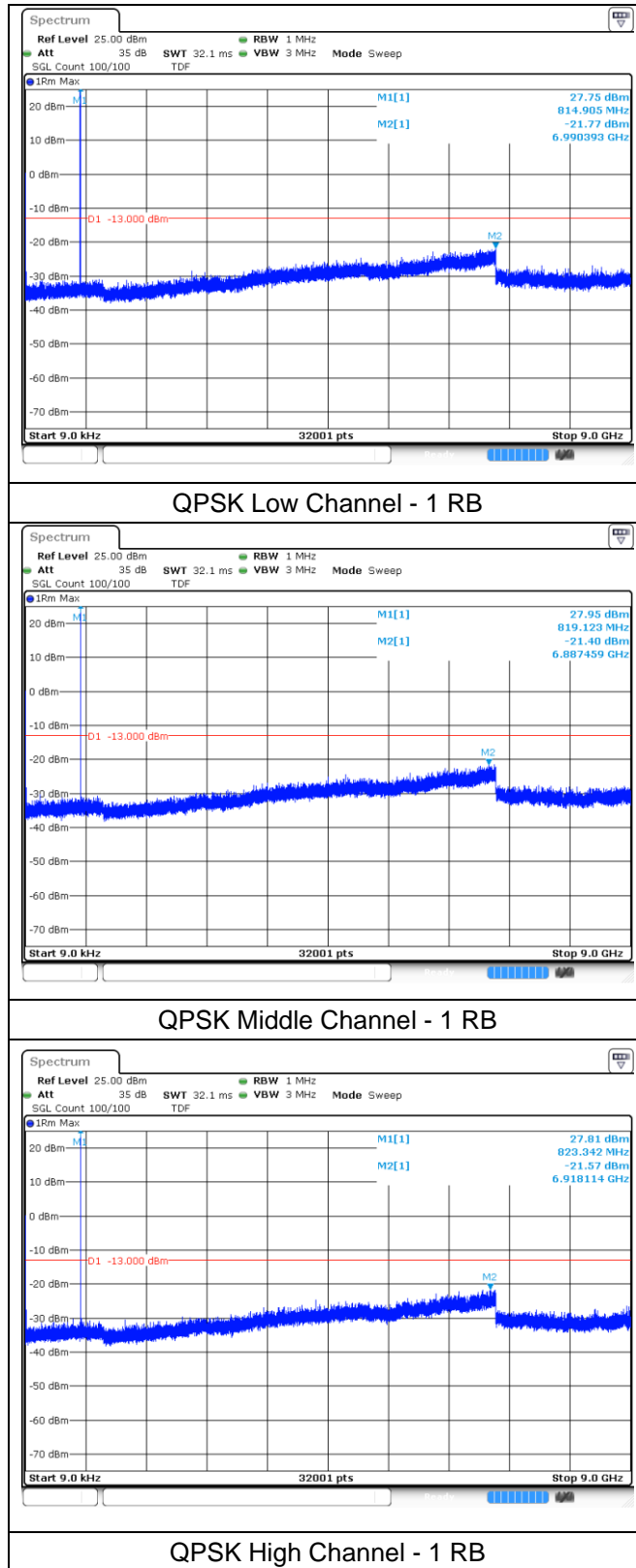
LTE band 13 (10 MHz)



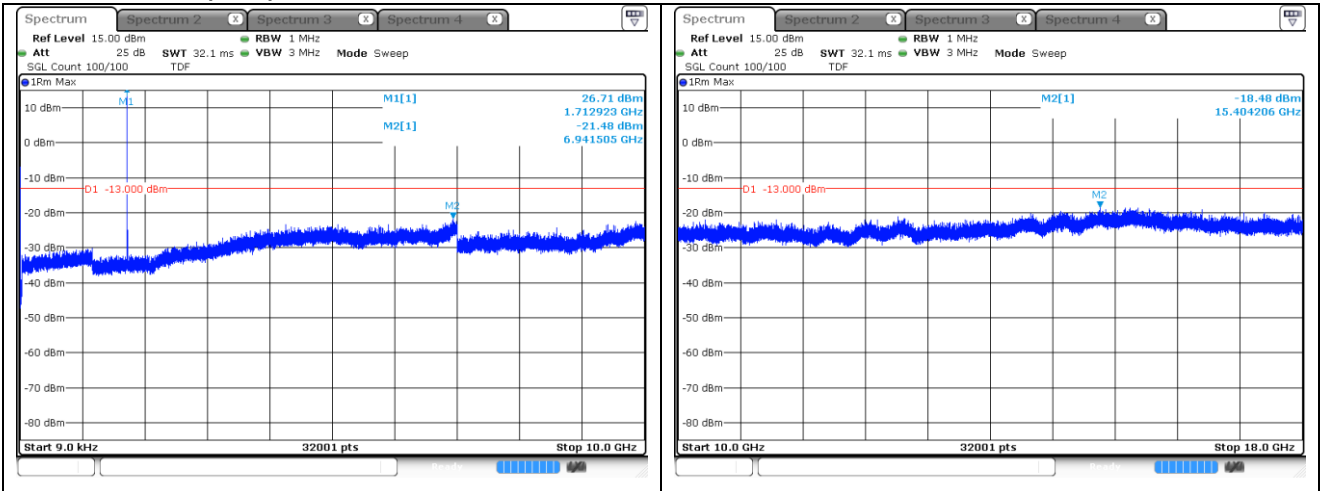
**LTE band 26/5 (1.4 MHz)  
(Part 22)**



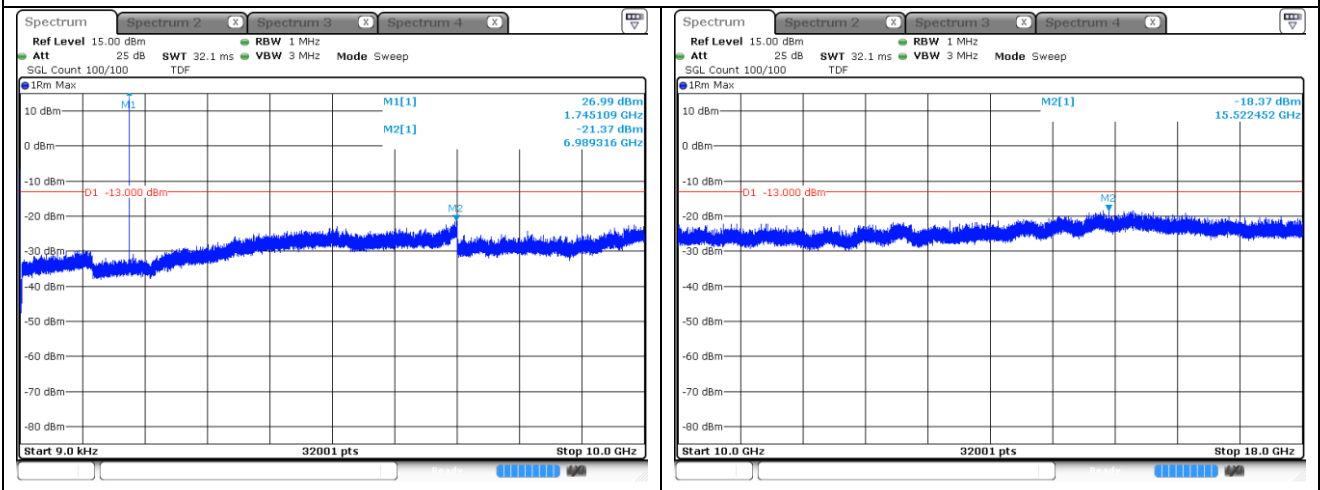
**LTE band 26 (1.4 MHz)  
(Part 90)**



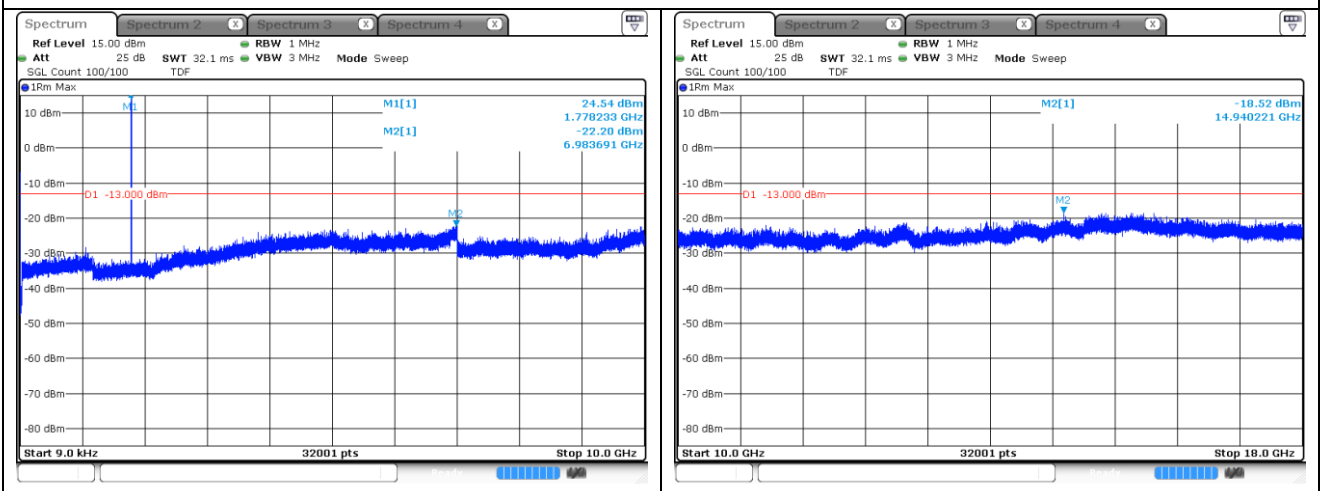
**LTE band 66/4 (3 MHz)**



**QPSK Low Channel - 1 RB**



**QPSK Middle Channel - 1 RB**



**QPSK High Channel - 1 RB**

## 7. Band Edge and Emission Mask

### 7.1. Limit

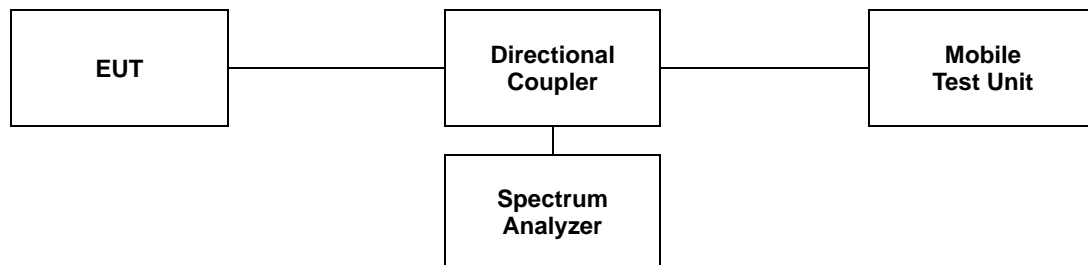
- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.
- §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.
- §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;
- §27.53(c)(4), on all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;
- §27.53(g), 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.
- §27.53(h)(1), for operations in the 1 695-1 710 MHz, 1 710-1 755 MHz, 1 755-1 780 MHz, 1 915-1 920 MHz, 1 995-2 000 MHz, 2 000-2 020 MHz, 2 110-2 155 MHz, 2 155-2 180 MHz, and 2 180-2 200 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.
- §90.691(a), out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:
  - (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  $116 \text{ Log}_{10} (f / 6.1)$  decibels or  $50 + 10 \text{ Log}_{10} (P)$  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 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  $43 + 10 \text{ Log}_{10} (P)$  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.



## 7.2. Test Procedure

The test follows section 5.7 of ANSI C63.26-2015.

- a. Span was set large enough so as to capture all out of band emissions near the band edge.
- b.  $RBW \geq 1\%$  of OBW
- c.  $VBW \geq 3 \times RBW$ .
- d. Detector = RMS.
- e. Trace mode = Average.
- f. Sweep time = Auto.
- g. The trace was allowed to stabilize.
- h. All path loss of frequency range was investigated and compensated to spectrum analyzer as TDF function.

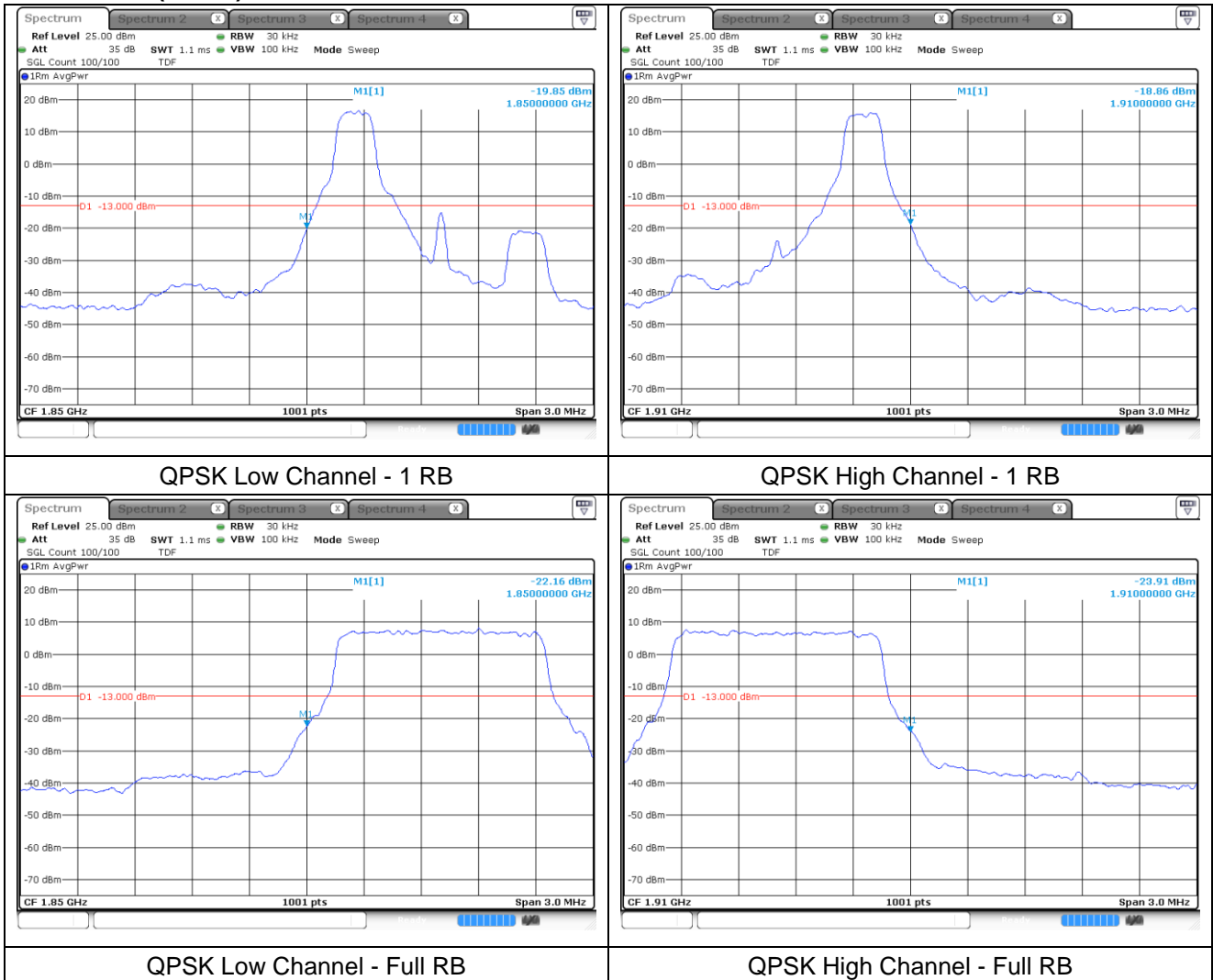


### 7.3. Test Results

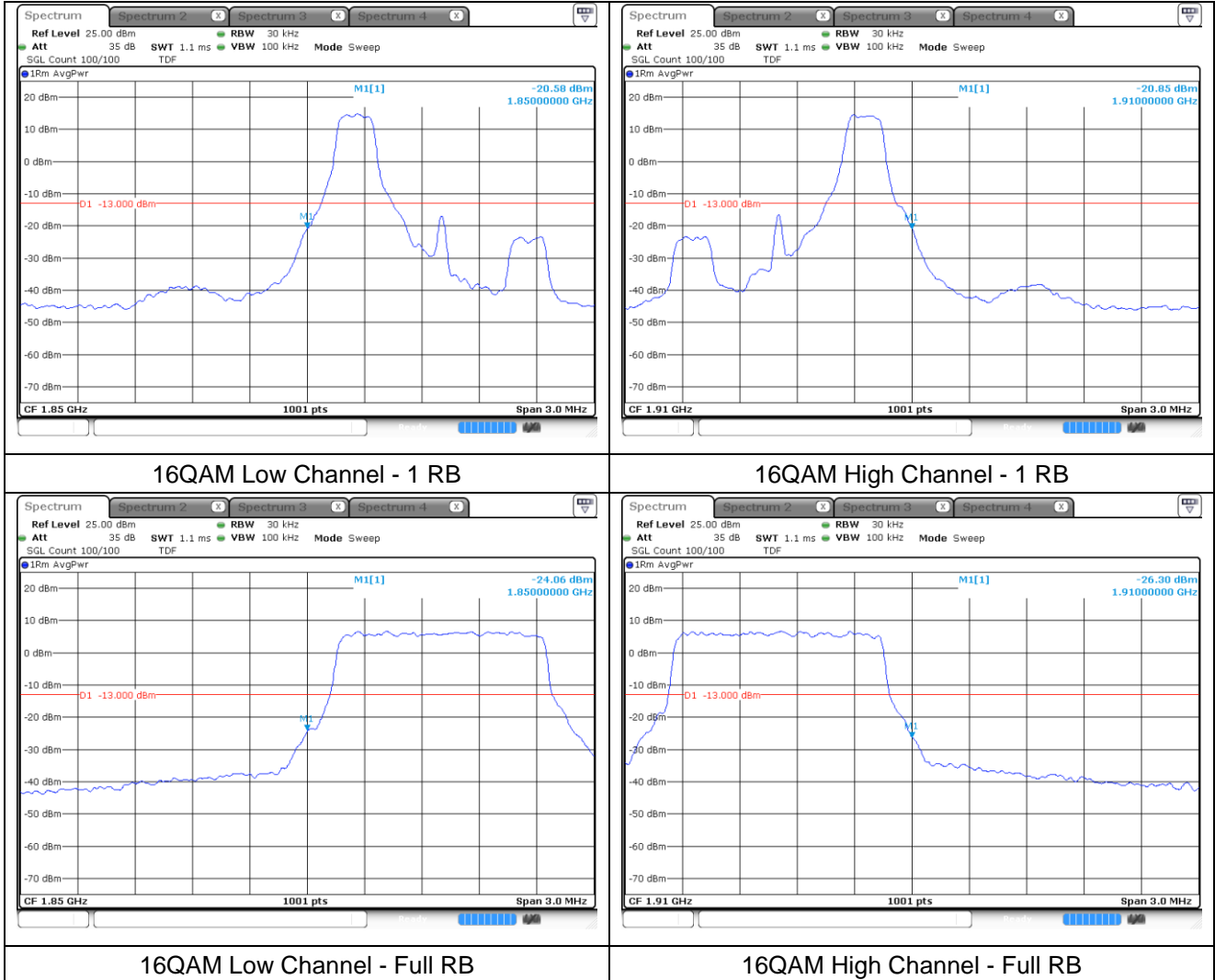
Ambient temperature : (23 ± 1) °C  
 Relative humidity : 47 % R.H.

#### - Test plots

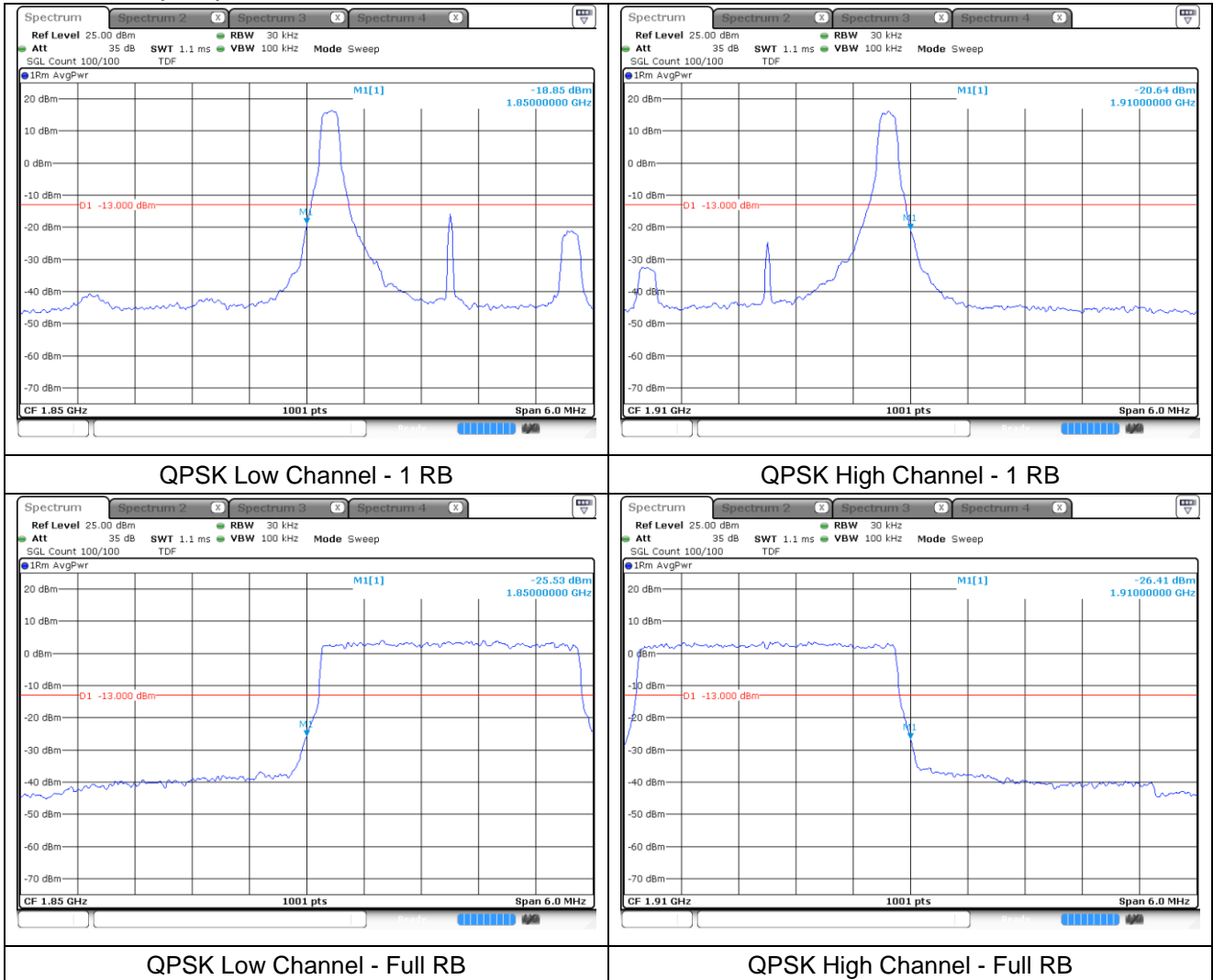
#### LTE band 2 (1.4 MHz)



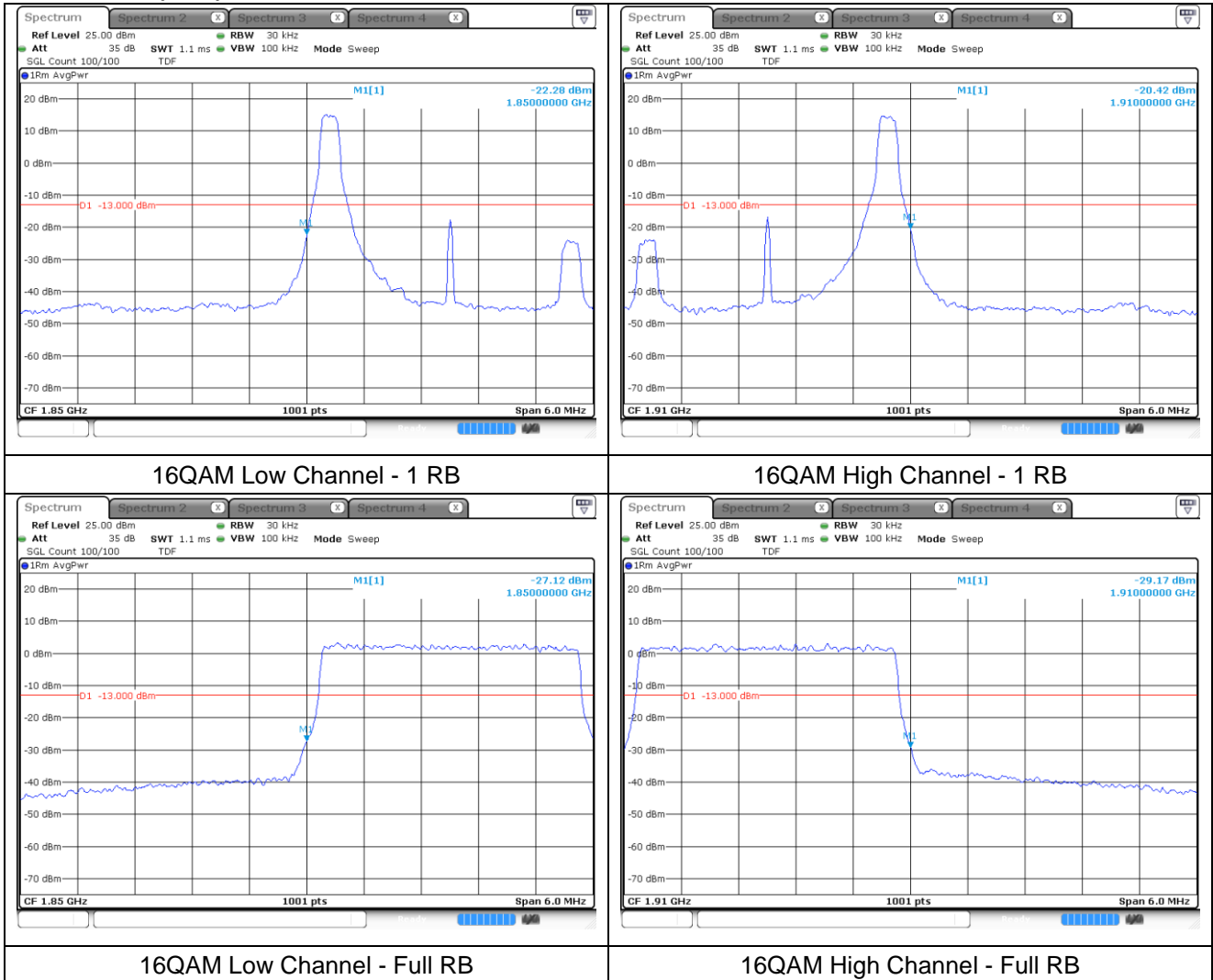
**LTE band 2 (1.4 MHz)**



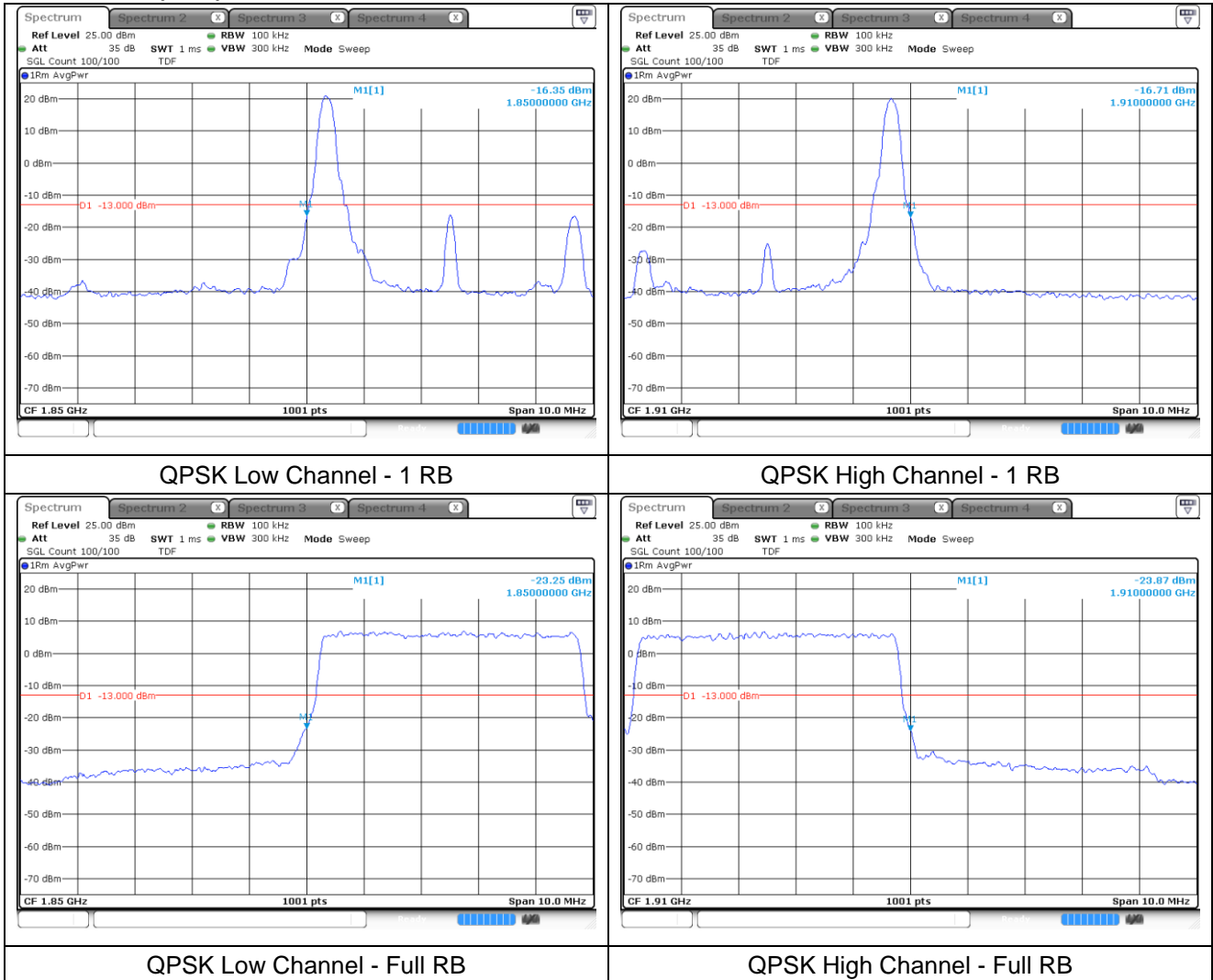
**LTE band 2 (3 MHz)**



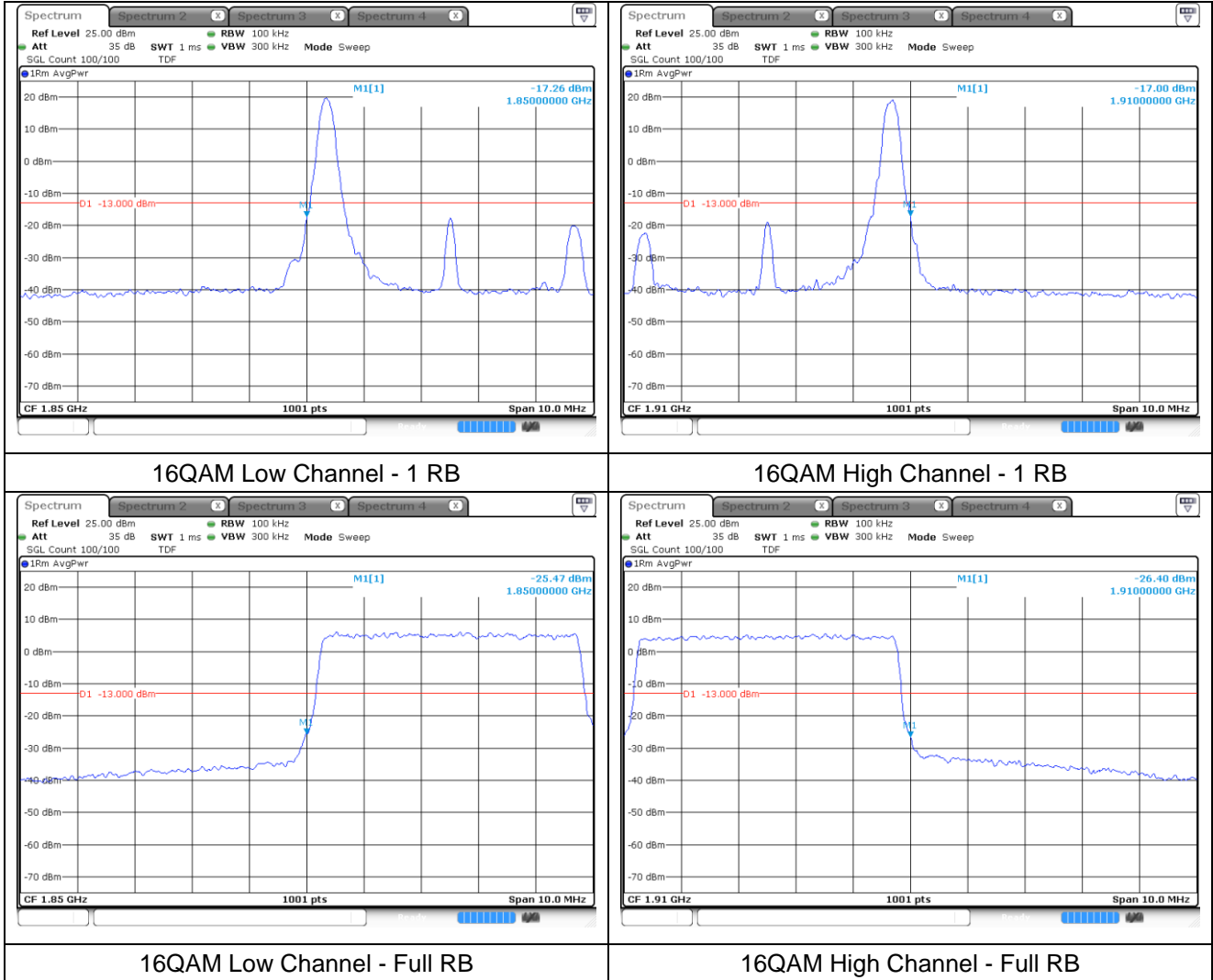
**LTE band 2 (3 MHz)**



**LTE band 2 (5 MHz)**

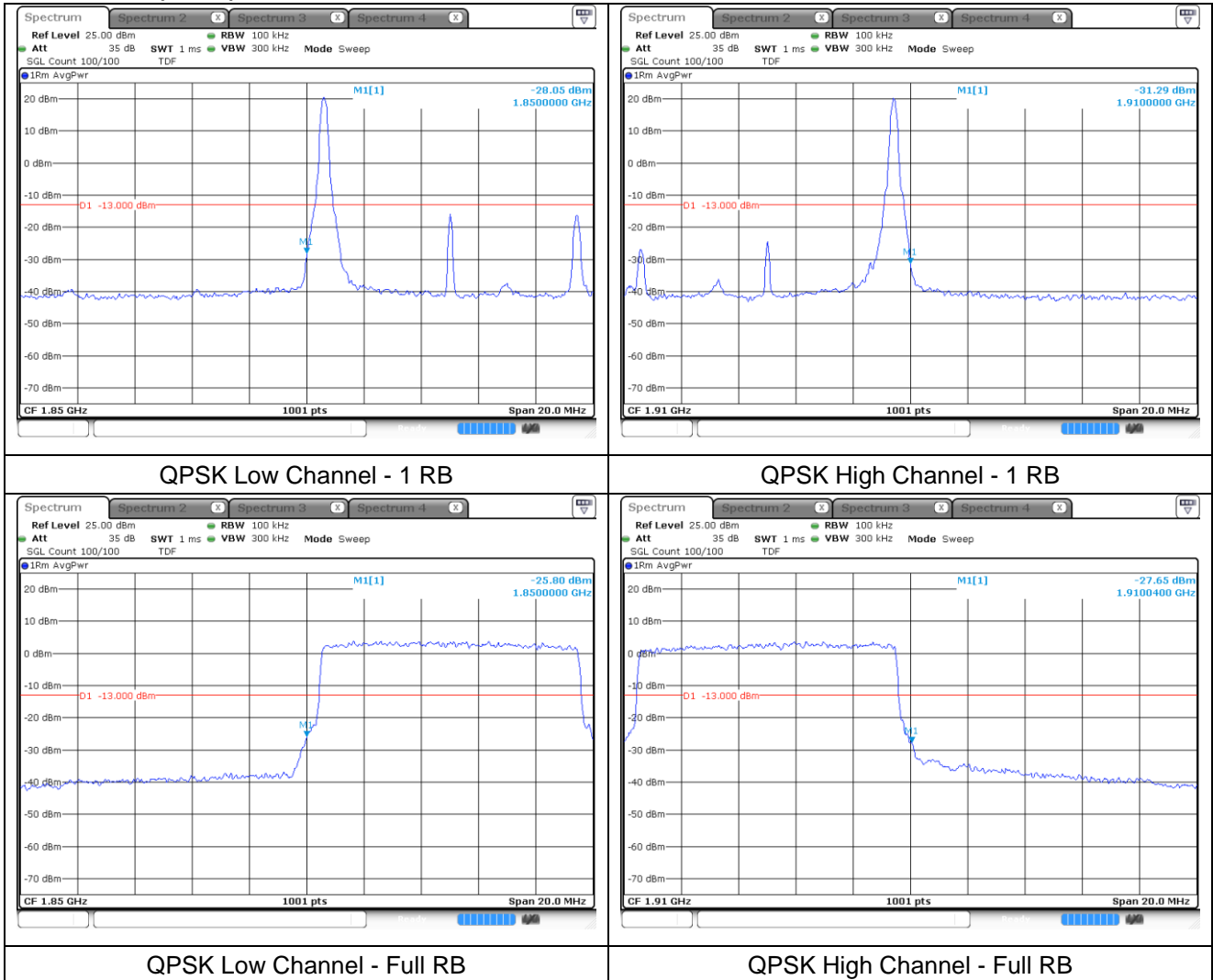


**LTE band 2 (5 MHz)**

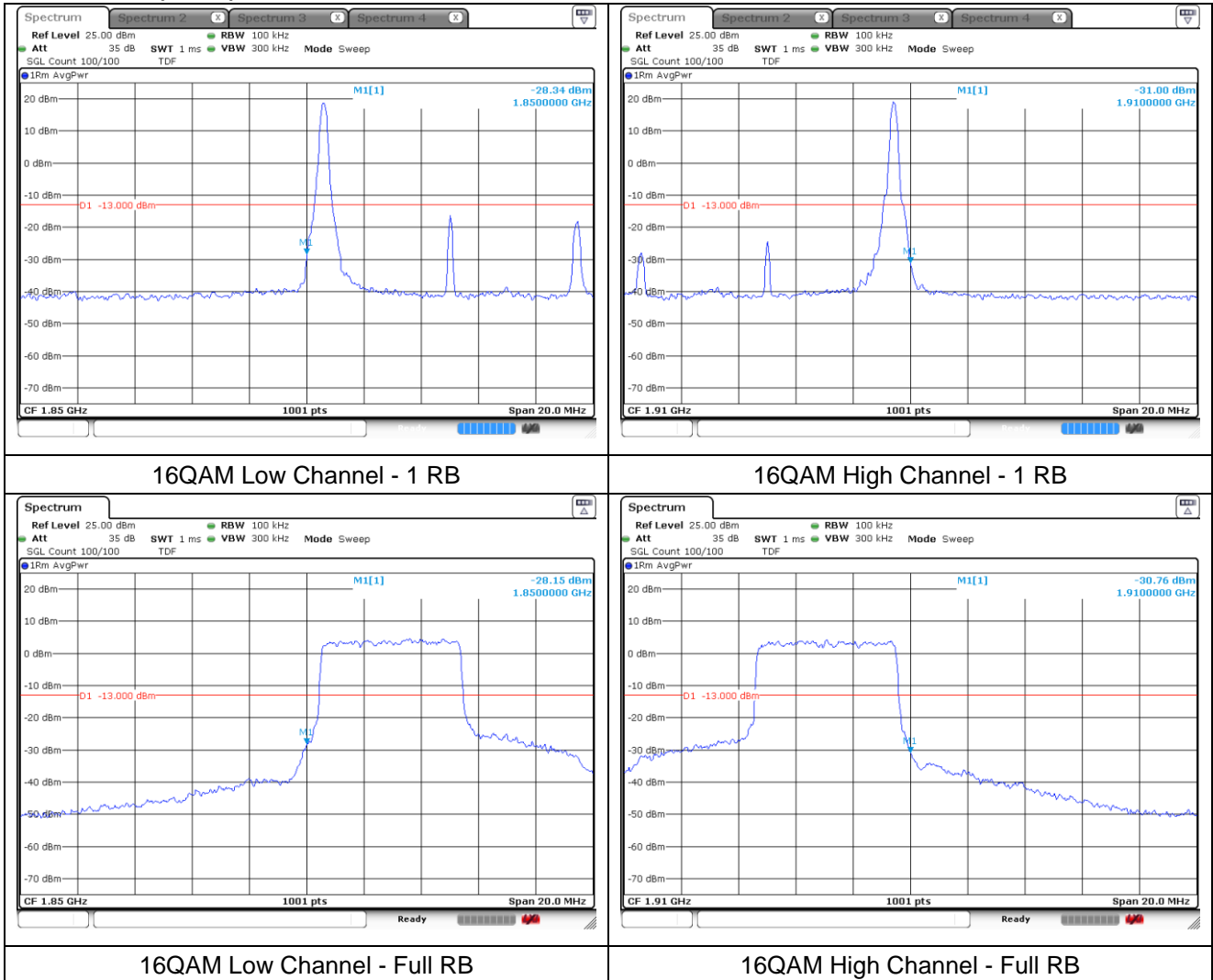




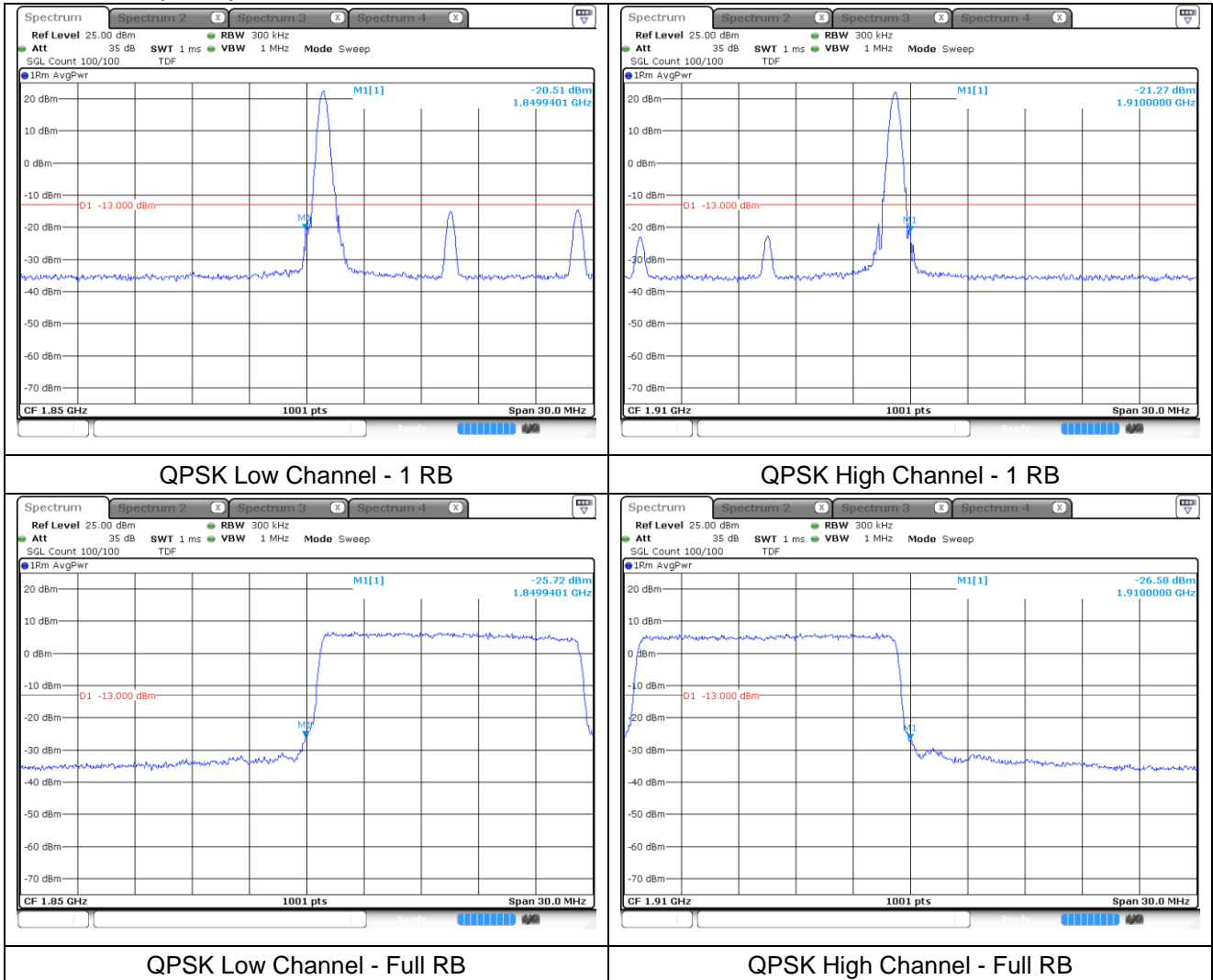
**LTE band 2 (10 MHz)**



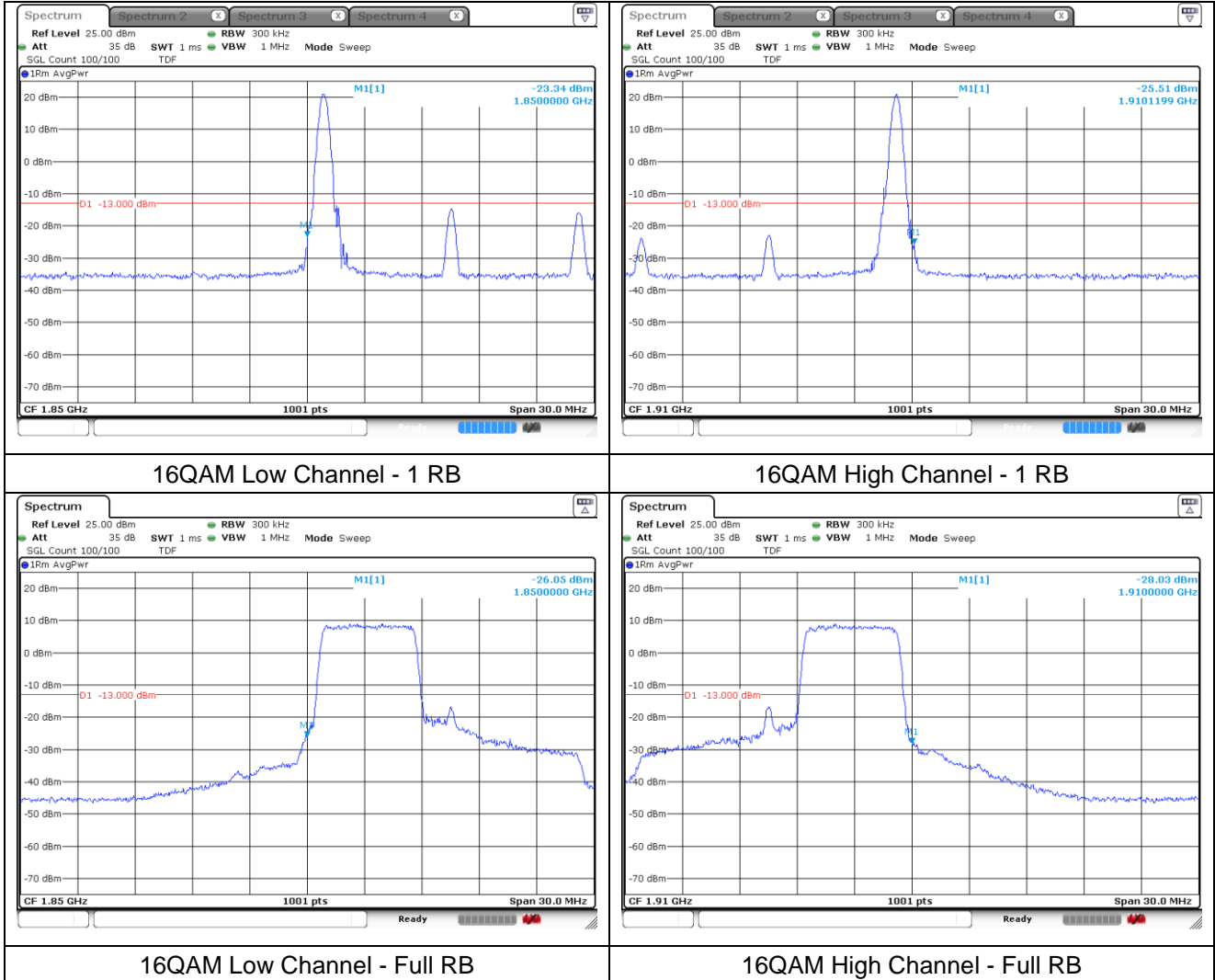
**LTE band 2 (10 MHz)**



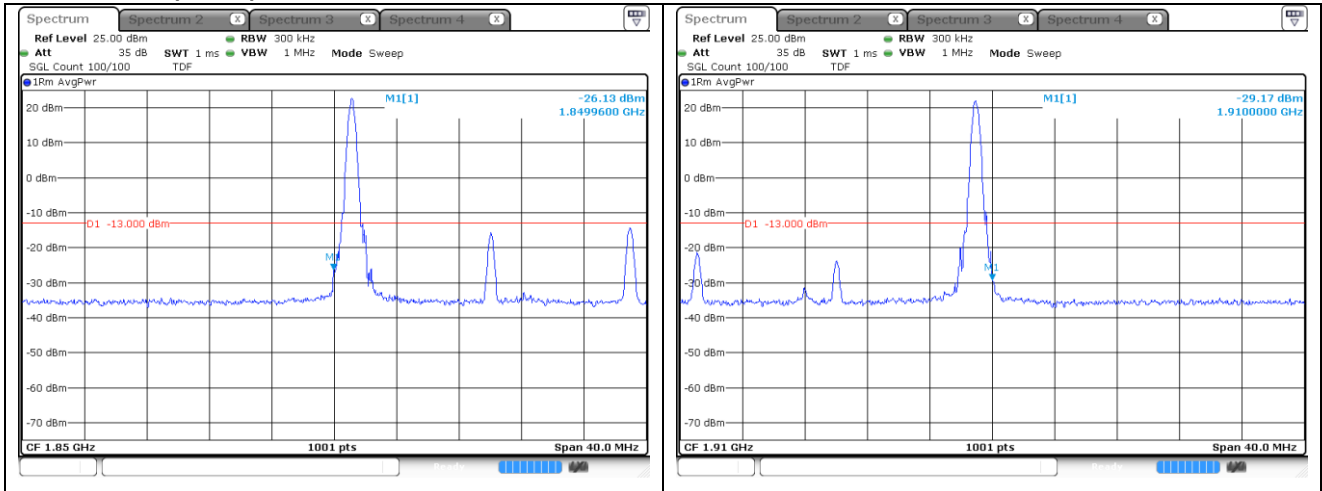
**LTE band 2 (15 MHz)**



**LTE band 2 (15 MHz)**

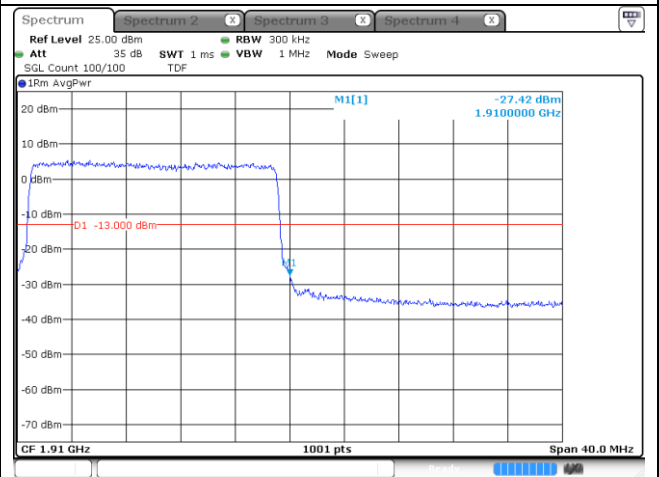
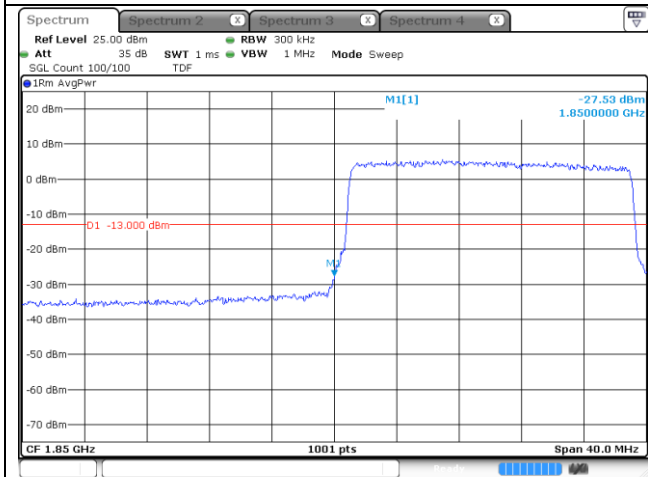


**LTE band 2 (20 MHz)**



**QPSK Low Channel - 1 RB**

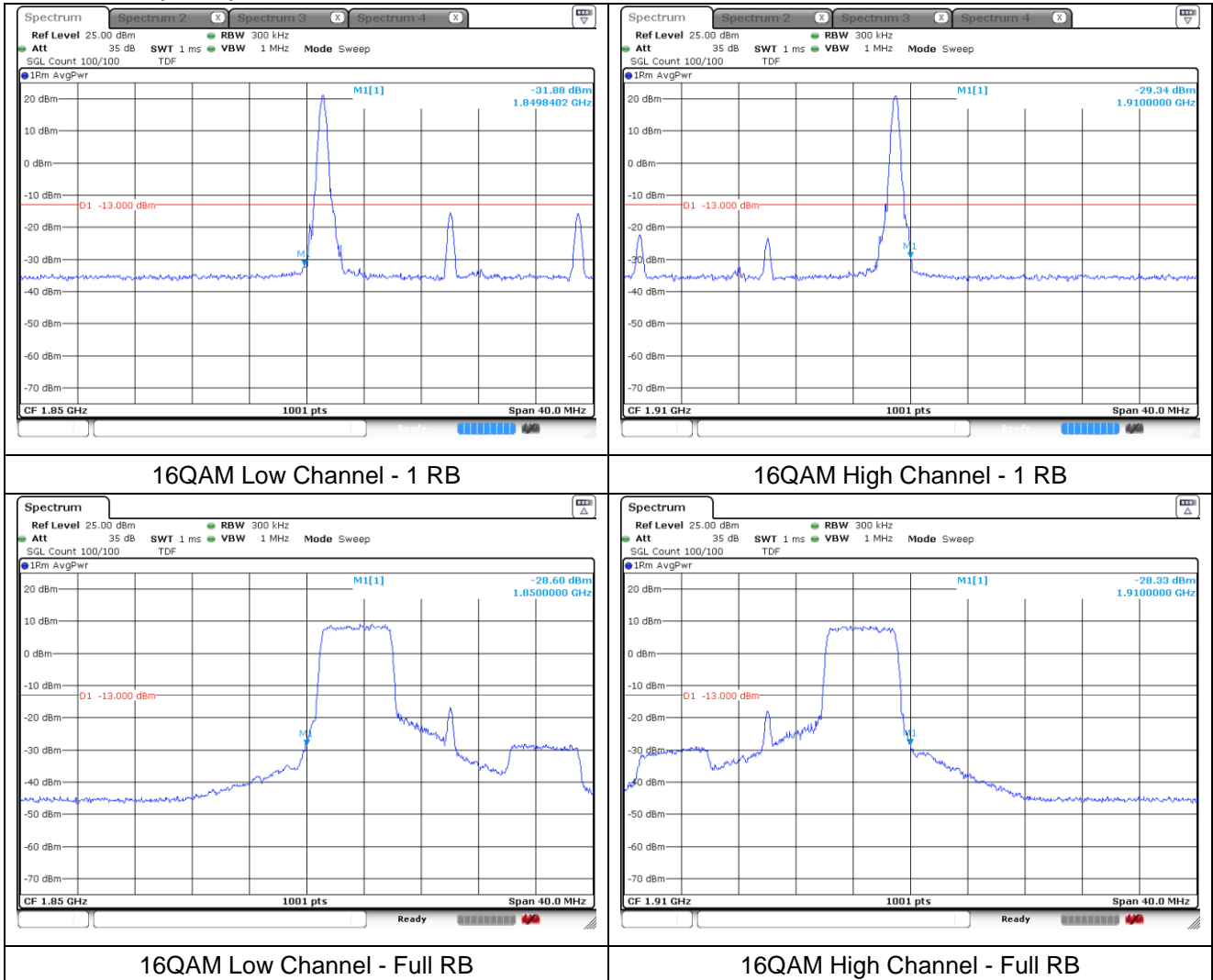
**QPSK High Channel - 1 RB**



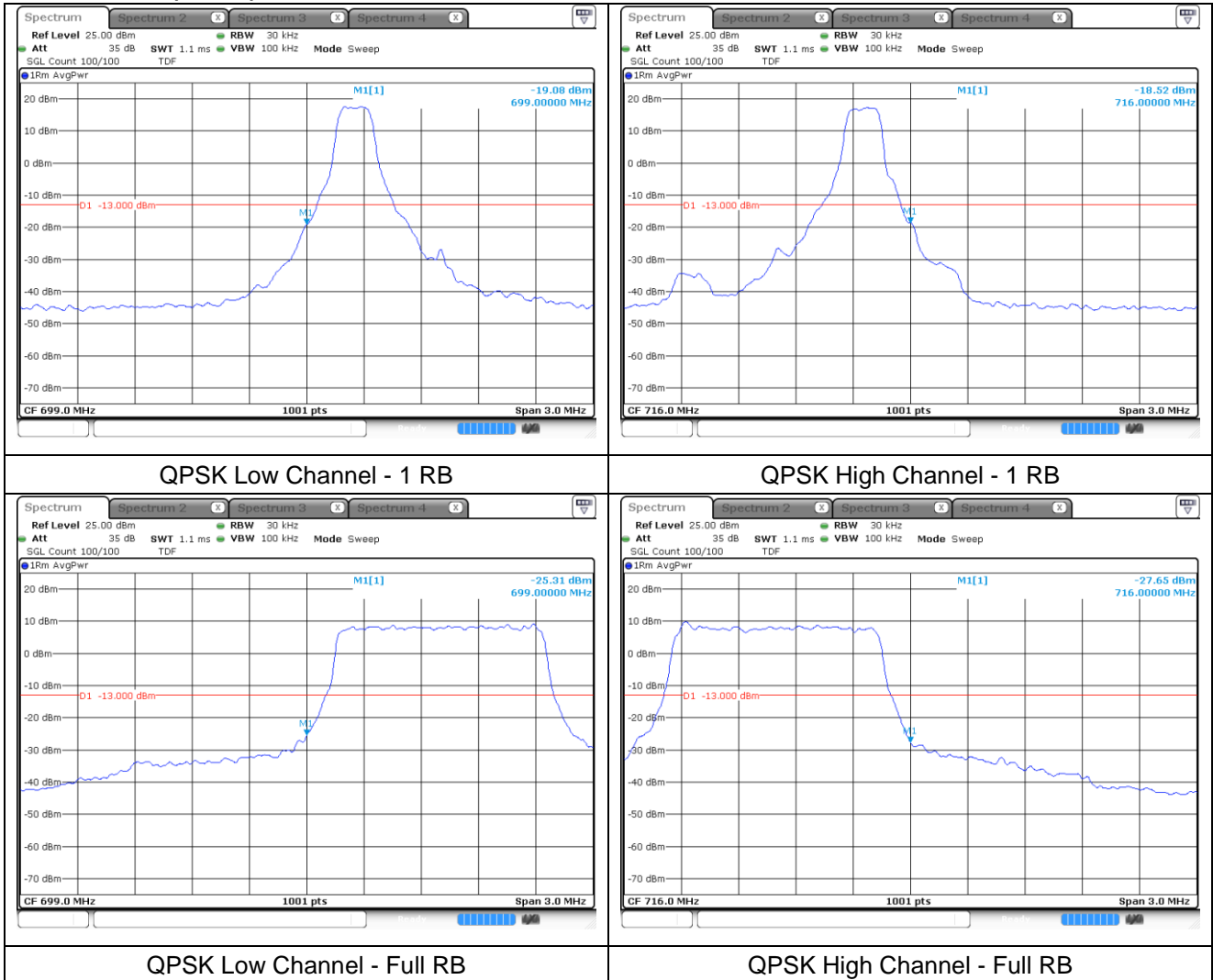
**QPSK Low Channel - Full RB**

**QPSK High Channel - Full RB**

**LTE band 2 (20 MHz)**

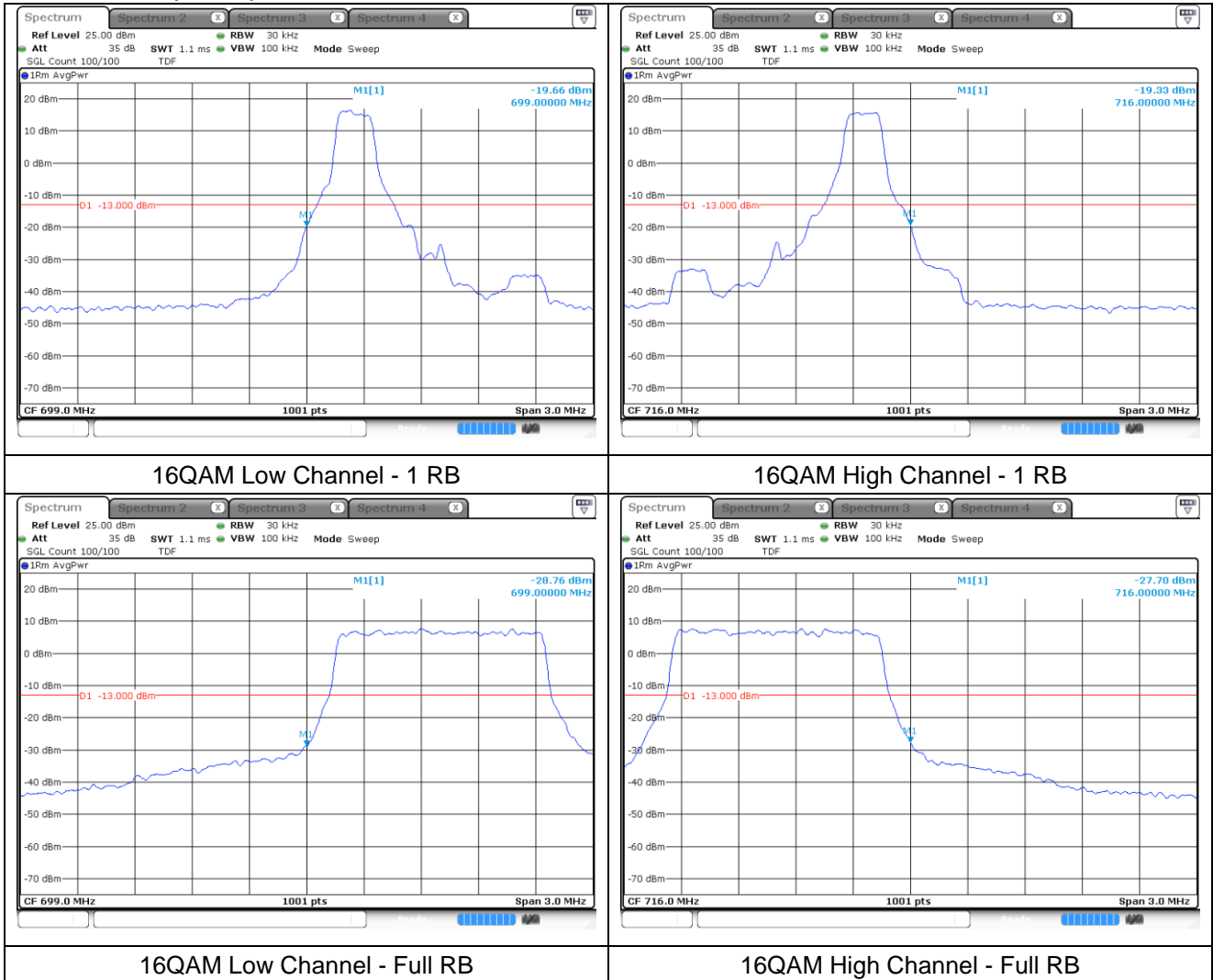


**LTE band 12 (1.4 MHz)**





**LTE band 12 (1.4 MHz)**



**LTE band 12 (3 MHz)**

