

5.5 Band Edge

<b>Specifications:</b>	FCC Part 2.1051, 24.238, 2.1053, 22.917, 27.53
<b>DUT Serial Number:</b>	S3: 863424030965642
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

**Limit Level Construction:**

**According to Part 22.917 (a)**, i.e., 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.

**According to Part 24.238 (a)**, i.e., 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, so the limit level is:  $P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$ .

**According to Part 27.53(h):**

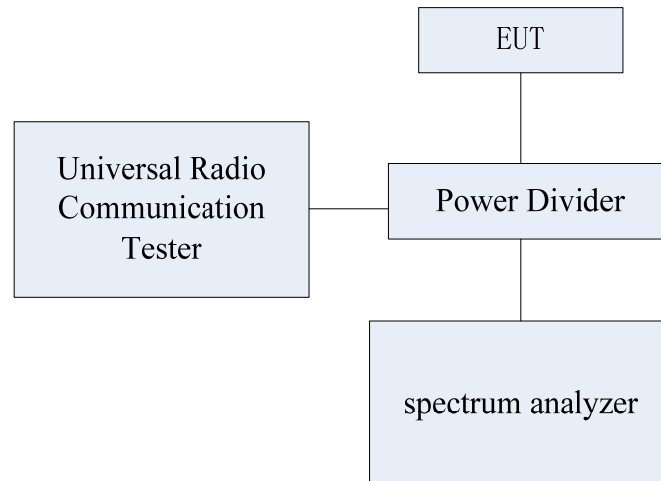
Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 Bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

**According to Part 27.53(g):**

For operations in the 600 MHz Band and the 698-746 MHz Band, the power of any emission outside a licensee's frequency Band(s) of operation shall be attenuated below the transmitter power (P) within the licensed Band(s) of operation, measured in watts, by at least  $43 + 10 \log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution Bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz Bands immediately outside and adjacent to a licensee's frequency block, a resolution Bandwidth of at least 30 kHz may be employed.

### Test Setup:

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



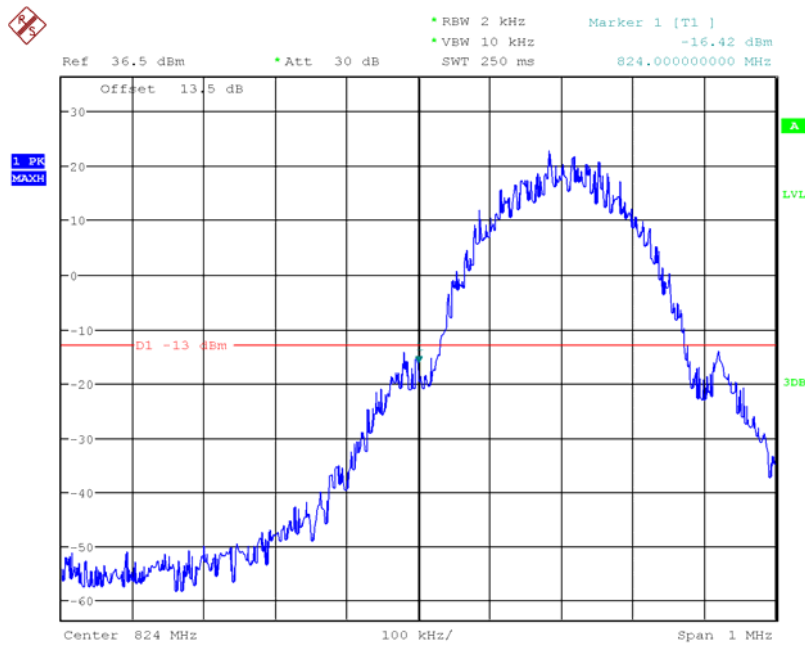
### Test Method:

Method of measurements please refer to KDB971168 D01 v03 clause 6.

- 1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The loss of the cables the test system is calibrated to correct the readings.
- 2) The spectrum analyzer was set to Average Detector function and Maximum hold mode.
- 3) The resolution Bandwidth of the spectrum analyzer was a little greater than 1% of the 26dB emission Bandwidth.

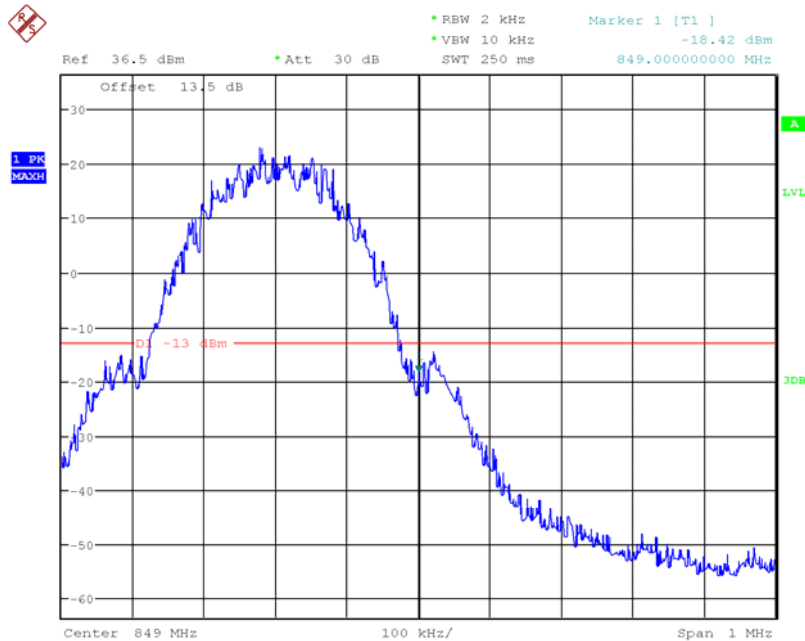
**Note:** In the graphical result description (X, Y), X represents the number of RB, Y represents the RB offset.

5.5.1 GSM850 Band Edge Results



Date: 18.OCT.2018 11:47:26

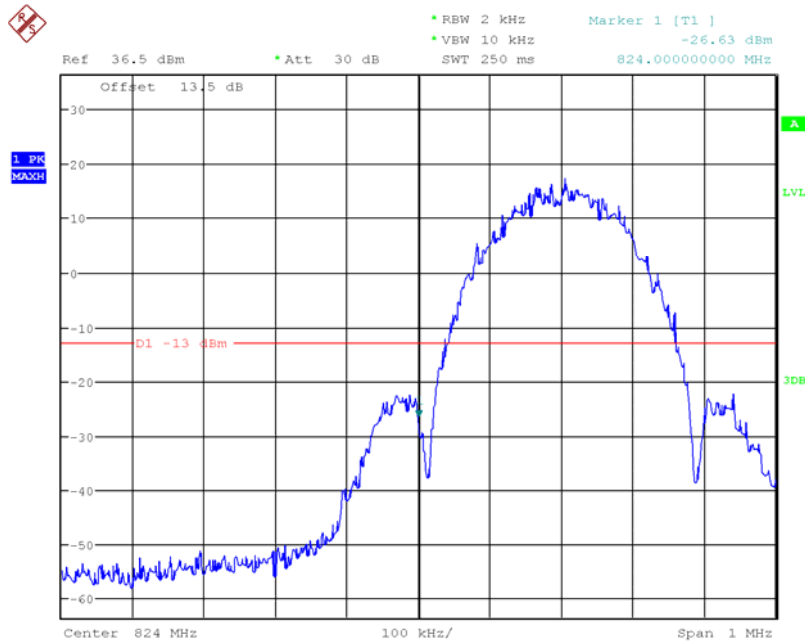
GSMK; Cellular low channel, below 824 MHz



Date: 18.OCT.2018 11:49:45

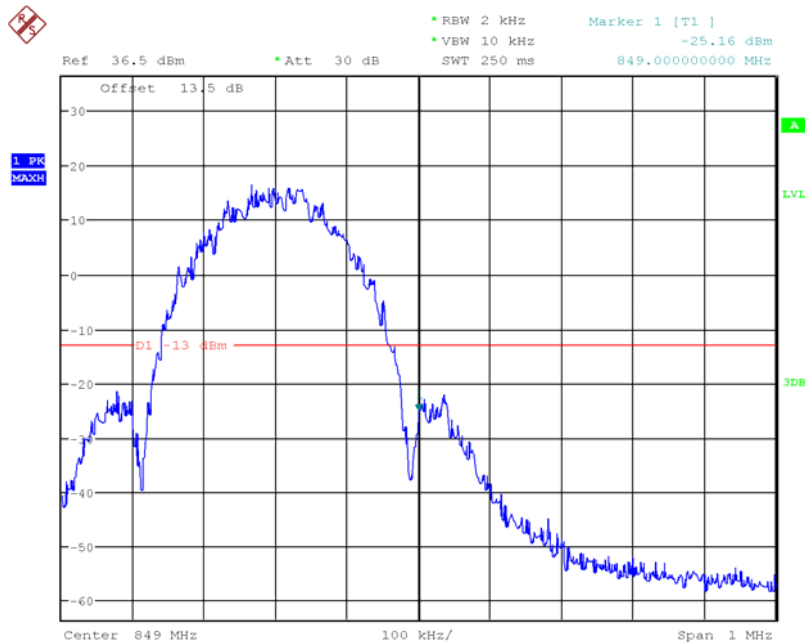
GSMK; Cellular high channel, above 849 MHz

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Date: 18.OCT.2018 11:54:08

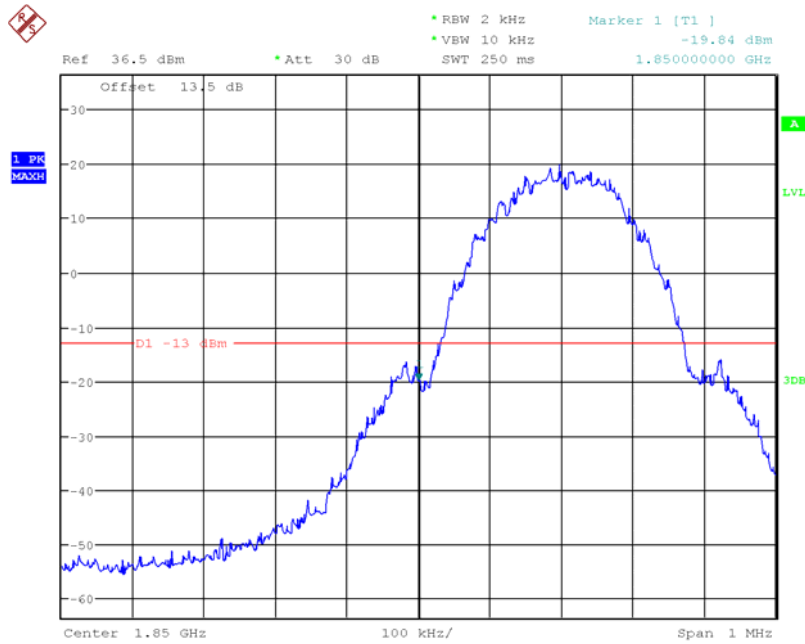
8PSK; Cellular low channel, below 824 MHz



Date: 18.OCT.2018 11:54:48

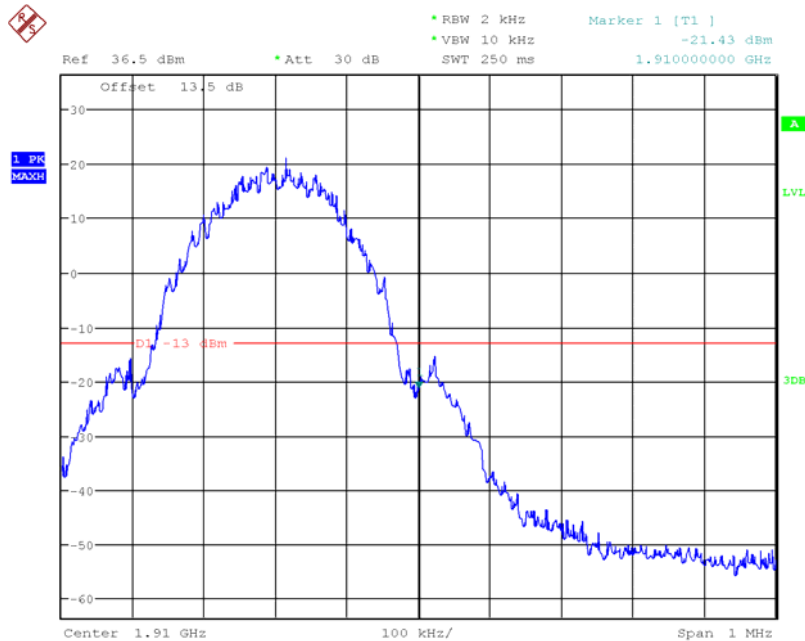
8PSK; Cellular high channel, above 849 MHz

5.5.2 PCS1900 Band Edge Results



Date: 18.OCT.2018 13:38:49

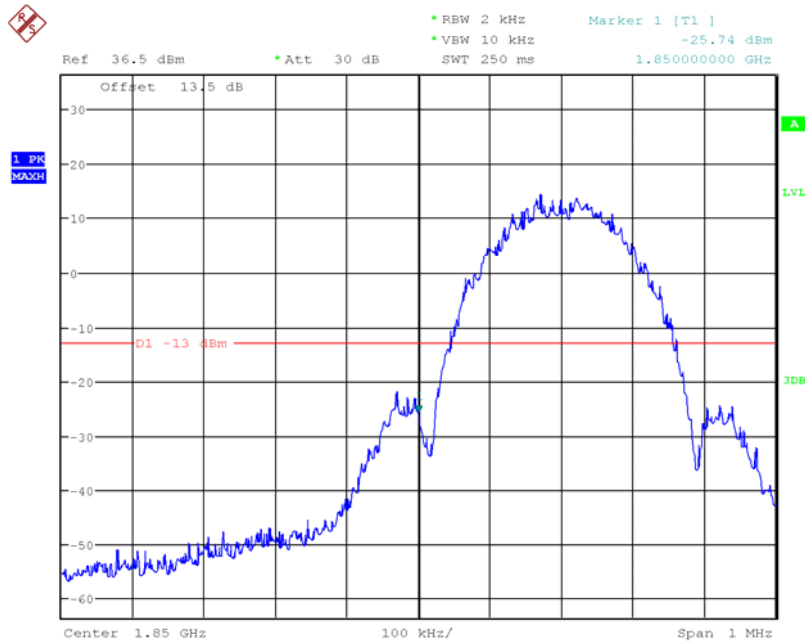
GMSK; PCS low channel, below 1850 MHz



Date: 18.OCT.2018 13:40:00

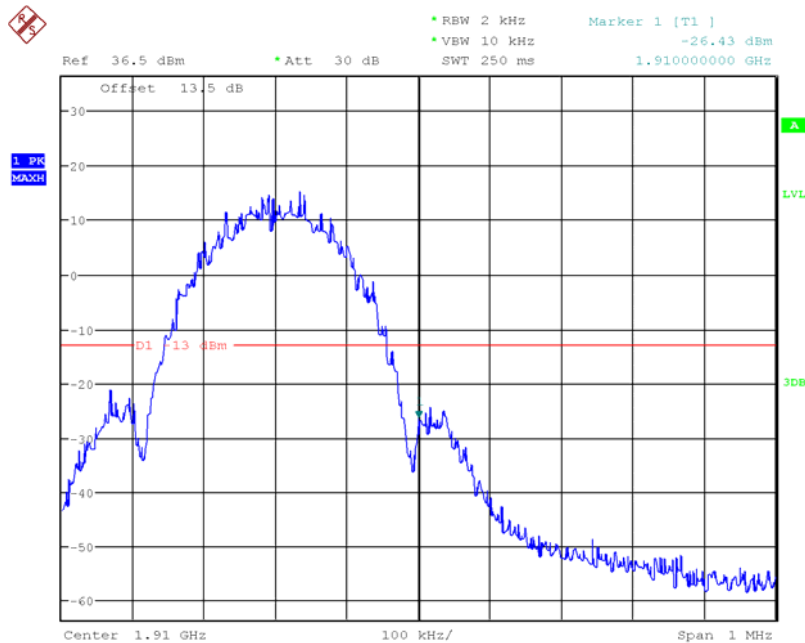
GMSK; PCS high channel, above 1910 MHz

Report No.:B18W50495-WWAN



Date: 18.OCT.2018 13:45:04

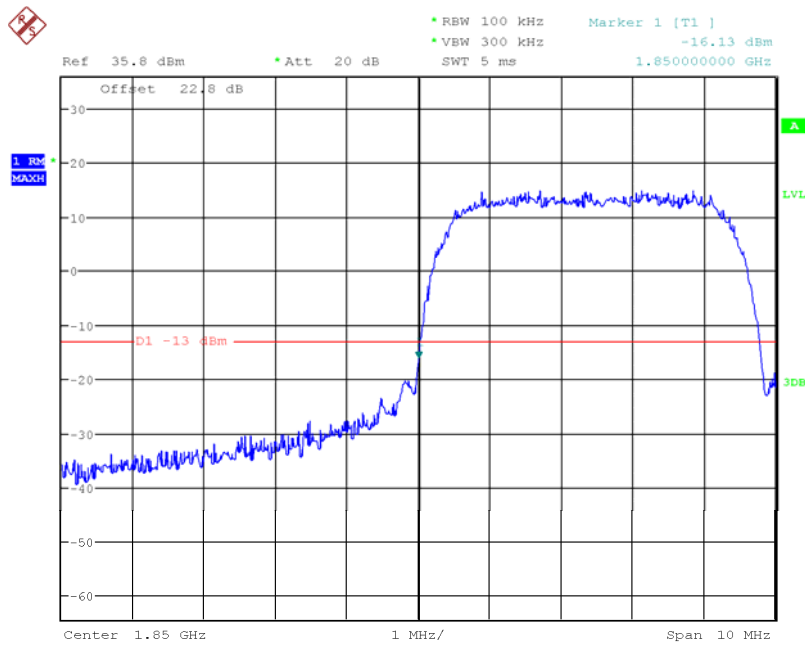
8PSK; PCS low channel, below 1850 MHz



Date: 18.OCT.2018 13:45:58

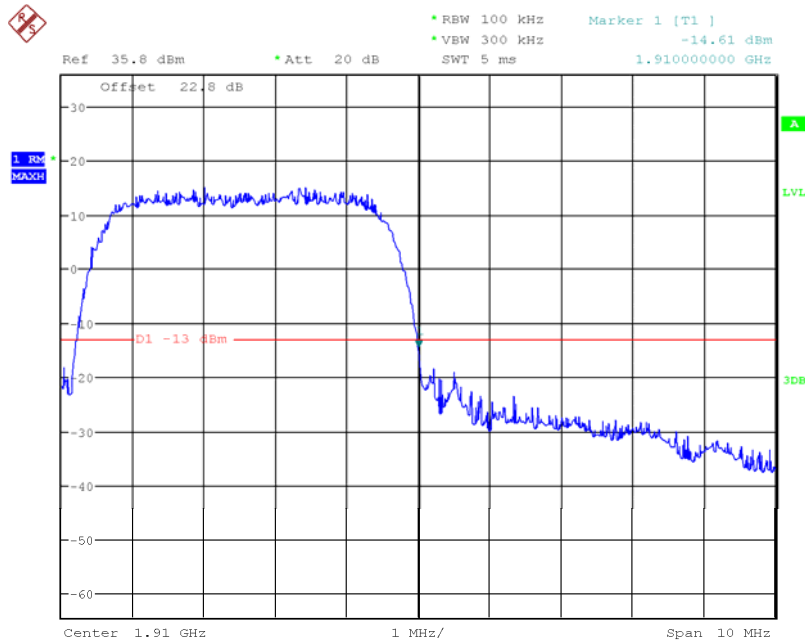
8PSK; PCS high channel, above 1910 MHz

5.5.3 WCDMA B2 Band Edge Results



Date: 23.OCT.2018 10:29:36

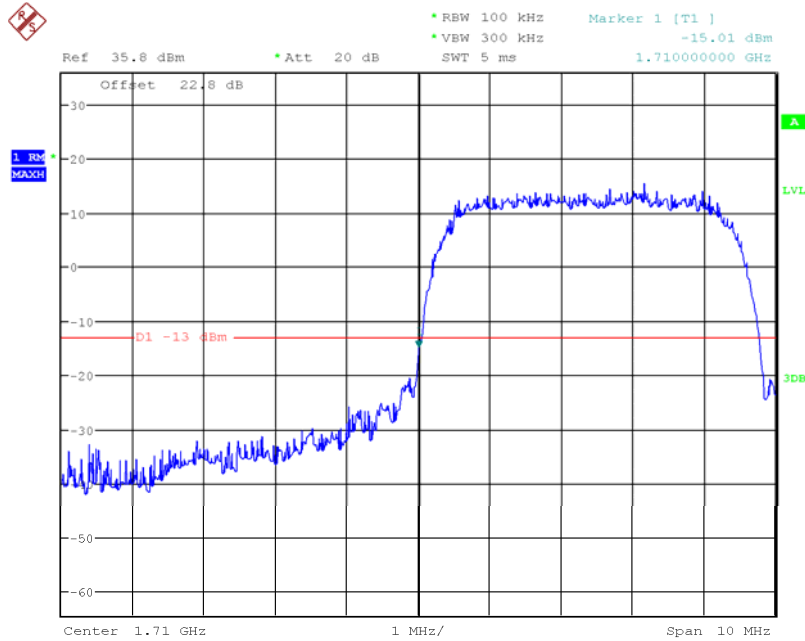
WCDMA Band 2 QPSK, Low Channel , Below 1850MHz



Date: 23.OCT.2018 10:33:02

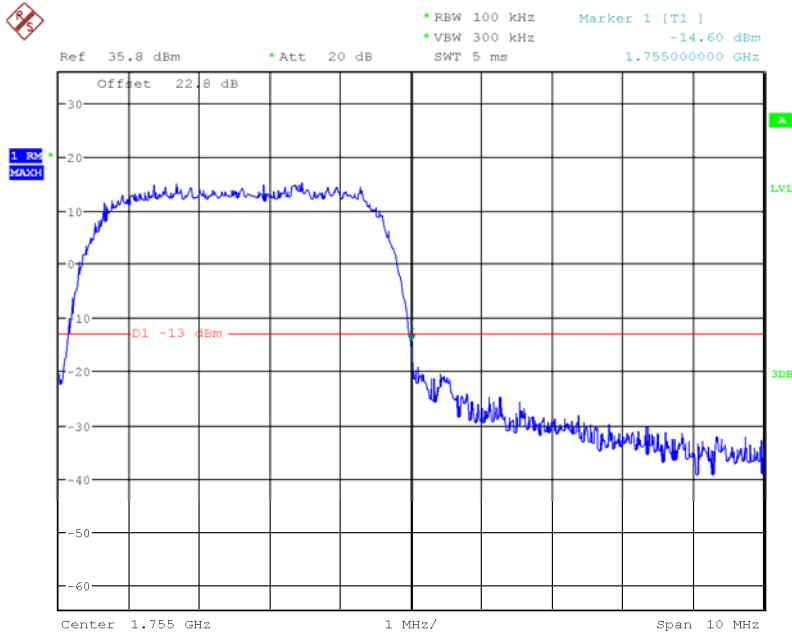
WCDMA Band 2 QPSK, High Channel , Above 1910MHz

5.5.4 WCDMA B4 Band Edge Results



Date: 23.OCT.2018 10:17:51

WCDMA Band 4 QPSK, Low Channel , Below 1710MHz

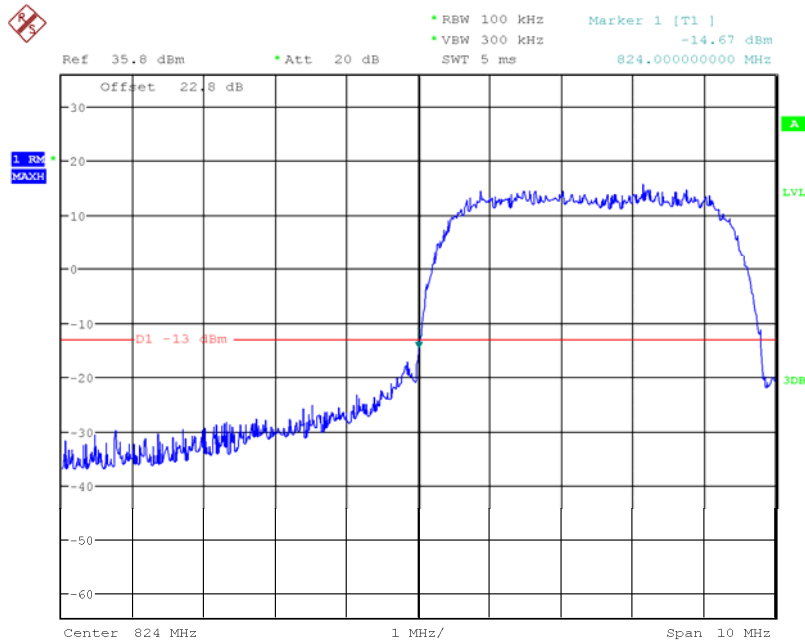


Date: 23.OCT.2018 10:21:38

WCDMA Band 4 QPSK, High Channel , Above 1755MHz

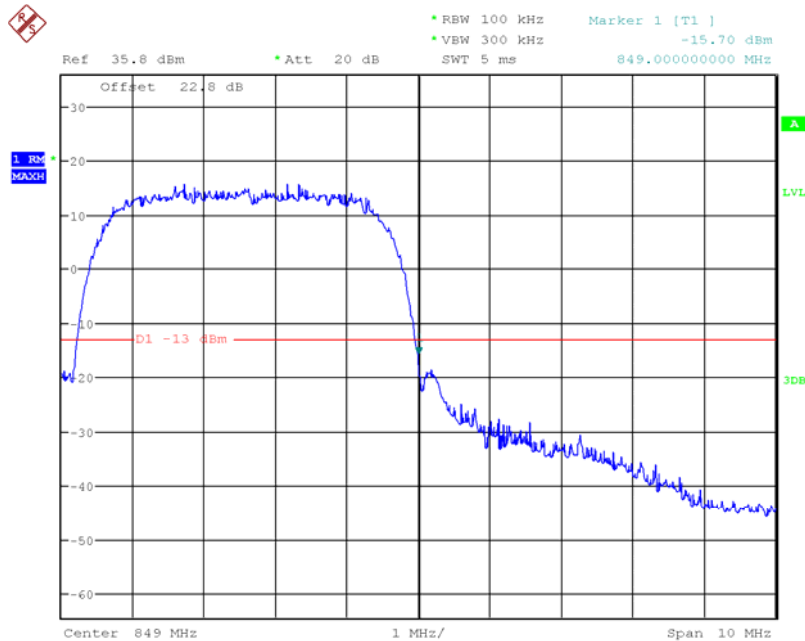


5.5.5 WCDMA B5 Band Edge Results



Date: 23.OCT.2018 10:36:00

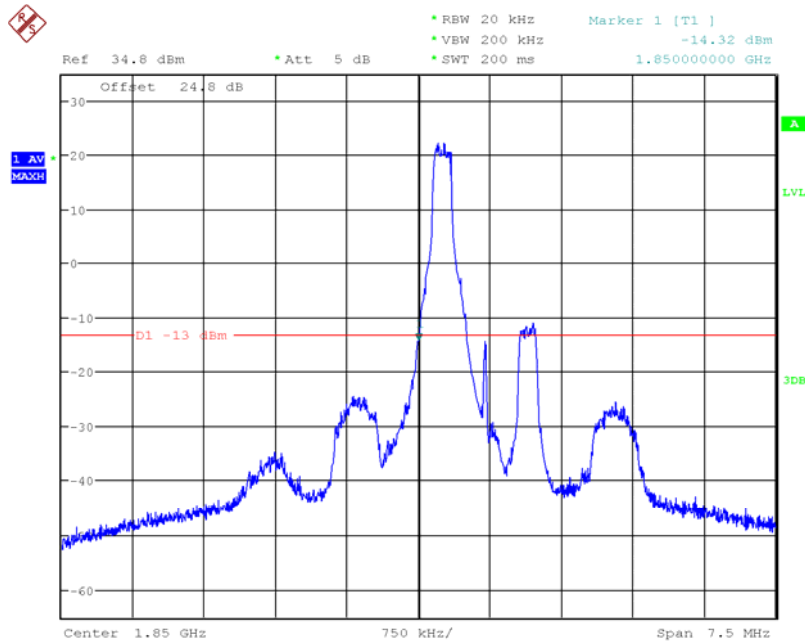
WCDMA Band 5 QPSK, Low Channel , Below 824MHz



Date: 23.OCT.2018 10:37:53

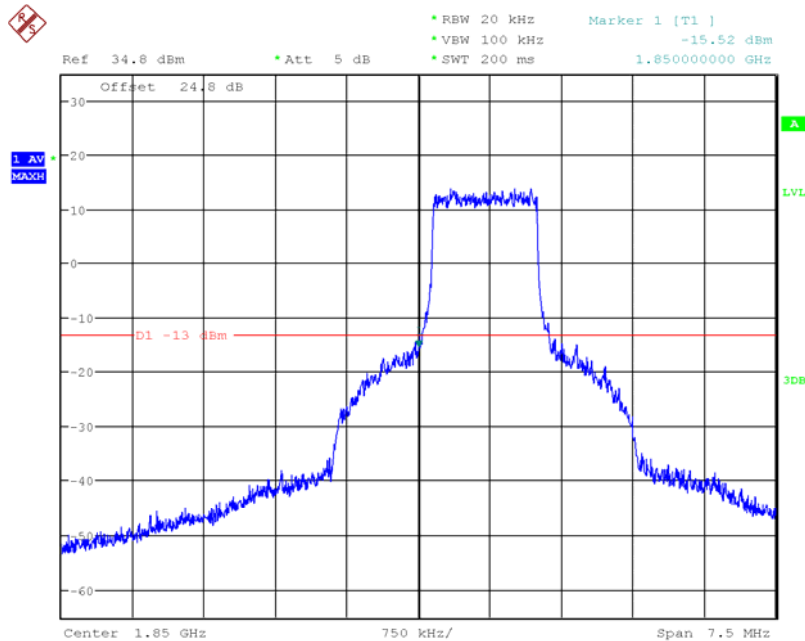
WCDMA Band 5 QPSK, High Channel , Above 849MHz

5.5.6 LTE B2 Band Edge Results



Date: 19.OCT.2018 15:26:51

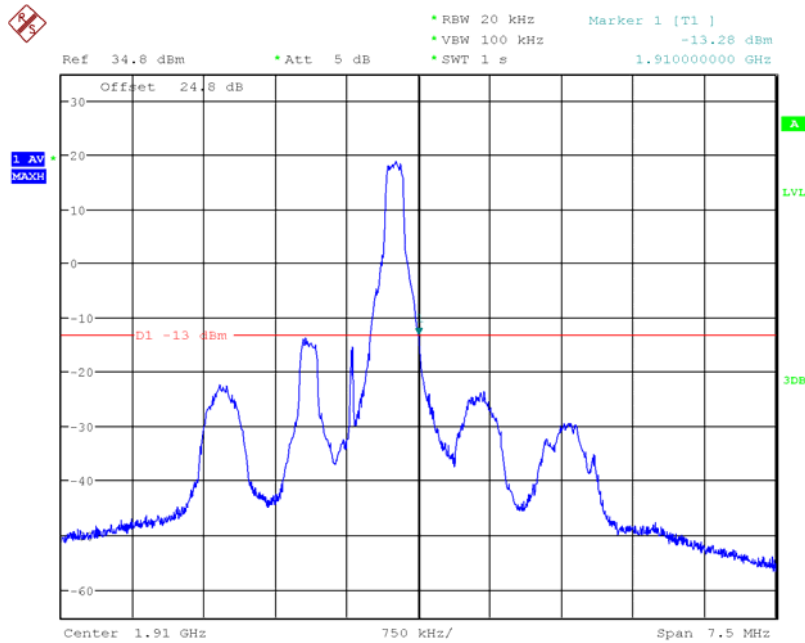
LTE Band2, 1.4MHz bandwidth, QPSK,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 15:28:00

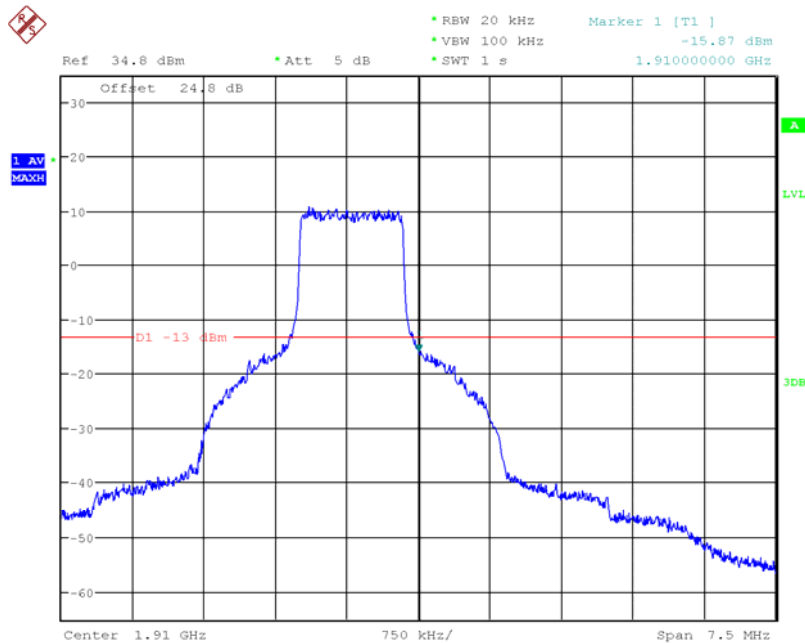
LTE Band2, 1.4MHz bandwidth, QPSK,(6,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 15:34:07

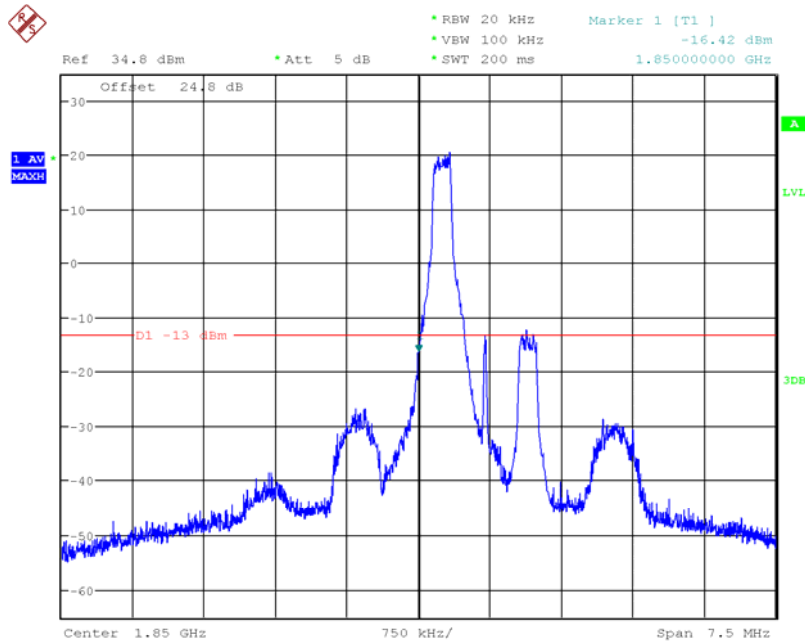
LTE Band2, 1.4MHz bandwidth, QPSK,(1,6) Mode, Above 1910MHz



Date: 19.OCT.2018 15:38:44

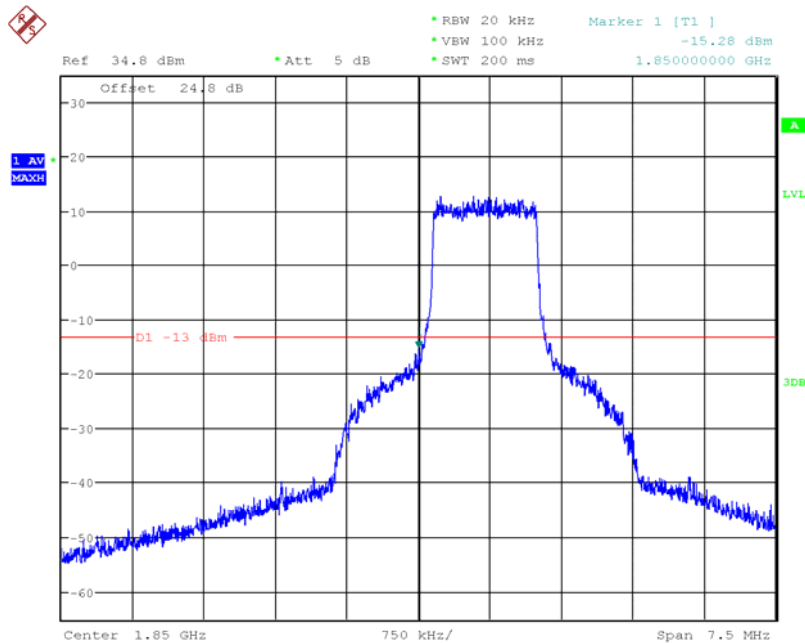
LTE Band2, 1.4MHz bandwidth, QPSK,(6,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 15:28:48

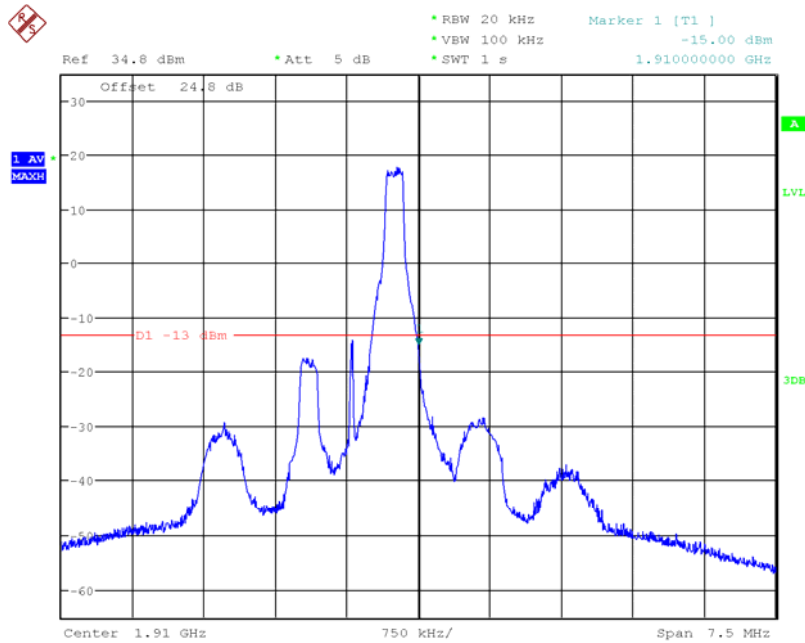
LTE Band2, 1.4MHz bandwidth, 16QAM,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 15:28:27

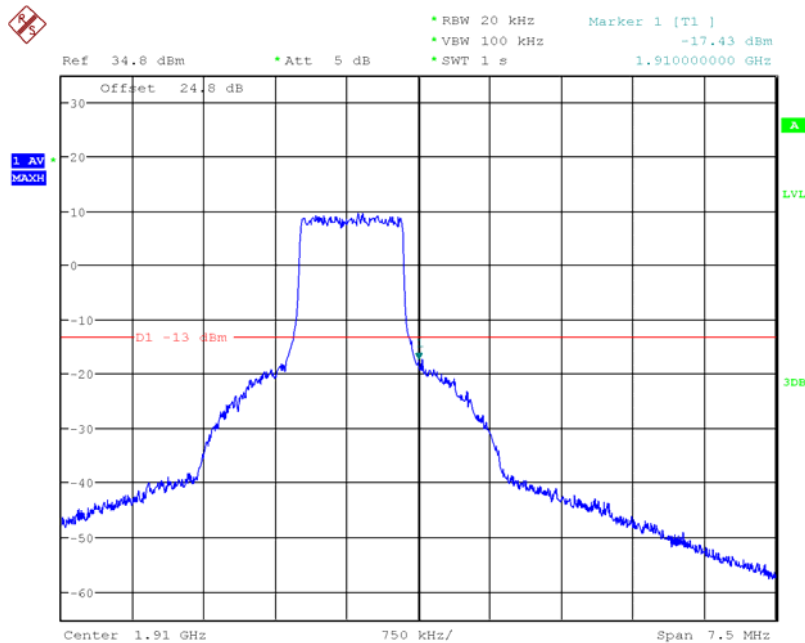
LTE Band2, 1.4MHz bandwidth, 16QAM,(6,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 15:40:59

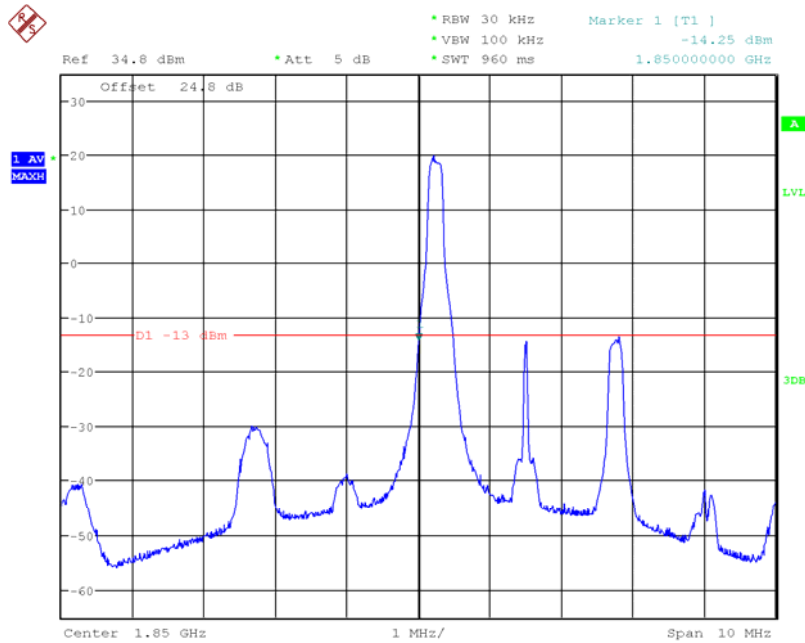
LTE Band2, 1.4MHz bandwidth, 16QAM,(1,6) Mode, Above 1910MHz



Date: 19.OCT.2018 15:39:45

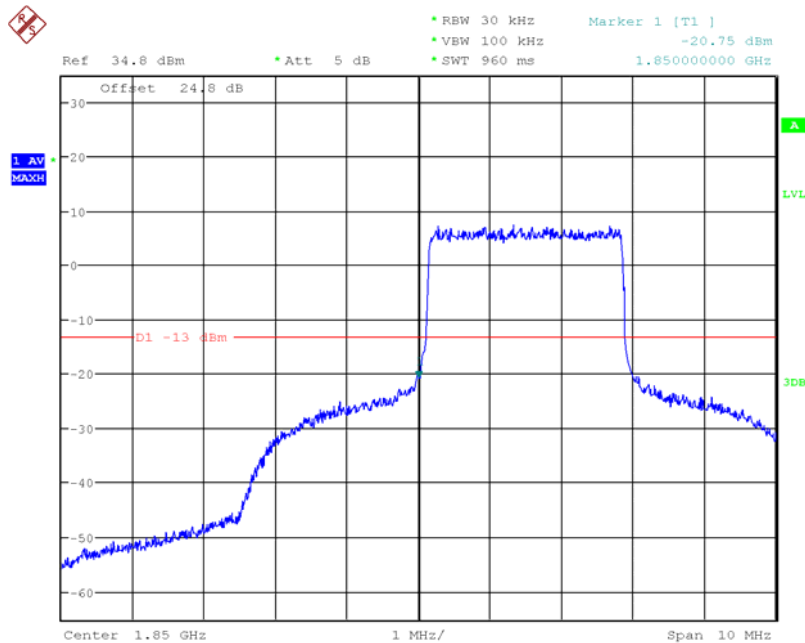
LTE Band2, 1.4MHz bandwidth, 16QAM,(6,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:45:01

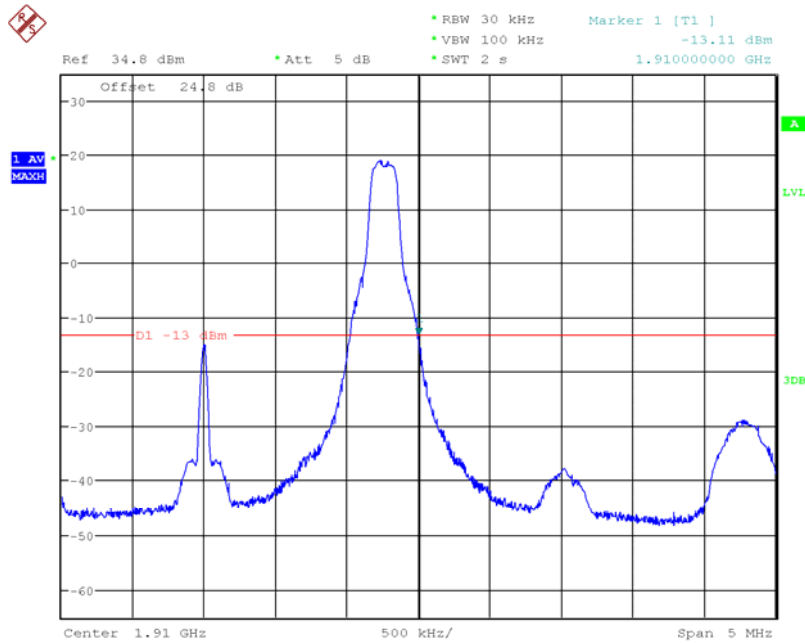
LTE Band2, 3MHz bandwidth, QPSK,(1,0) Mode , Below 1850MHz



Date: 22.OCT.2018 14:45:25

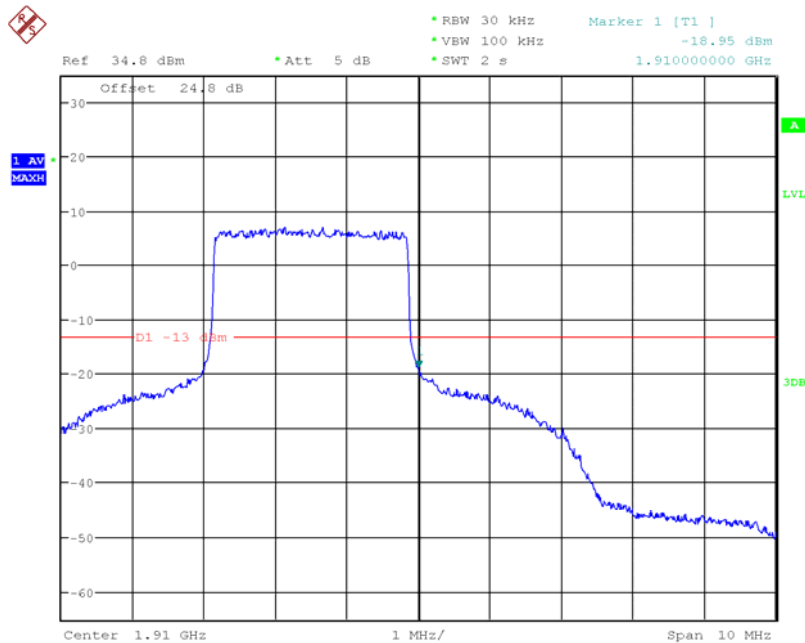
LTE Band2, 3MHz bandwidth, QPSK,(15,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:50:18

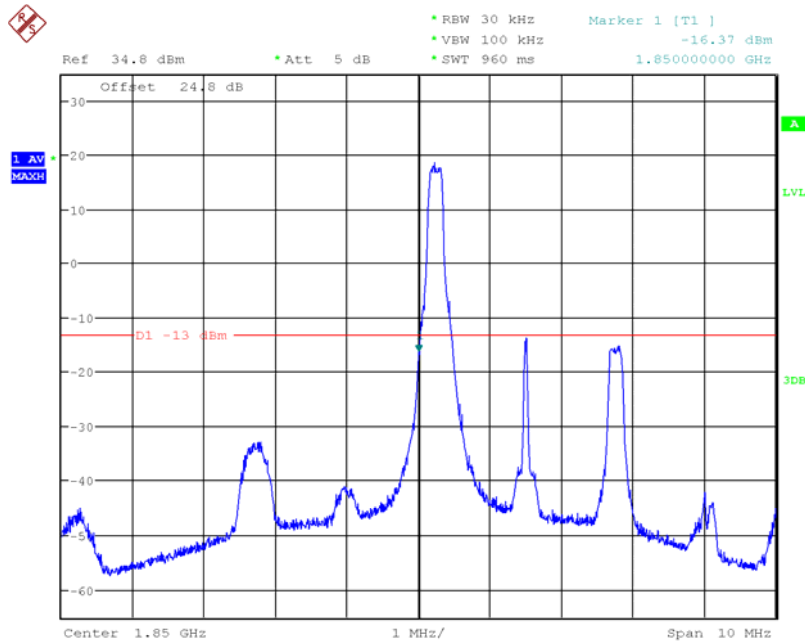
LTE Band2, 3MHz bandwidth, QPSK,(1,15) Mode, Above 1910MHz



Date: 22.OCT.2018 14:49:42

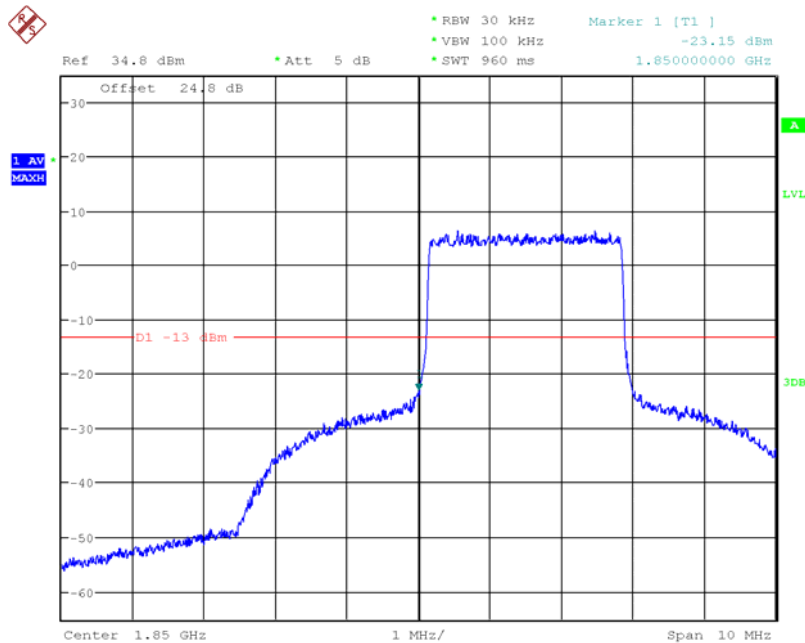
LTE Band2, 3MHz bandwidth, QPSK,(15,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:46:28

LTE Band2, 3MHz bandwidth, 16QAM,(1,0) Mode , Below 1850MHz

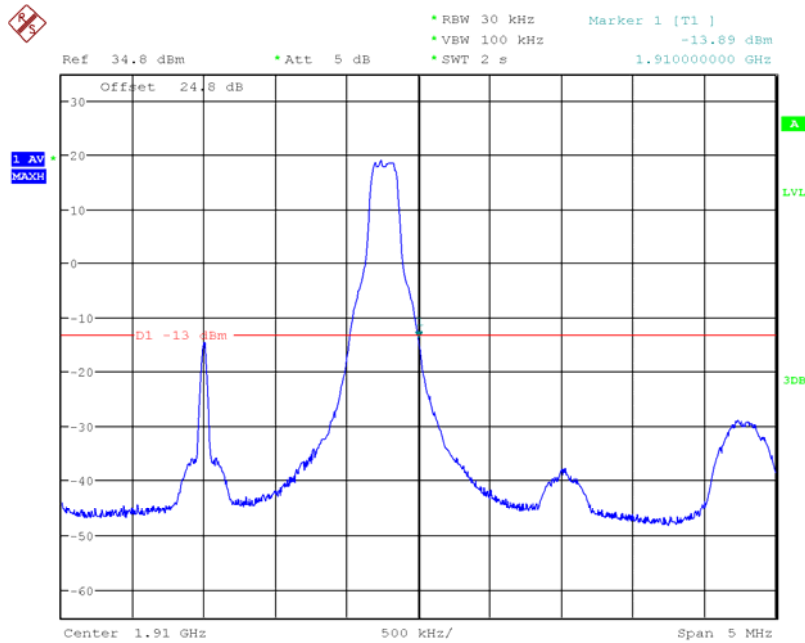


Date: 22.OCT.2018 14:45:51

LTE Band2, 3MHz bandwidth, 16QAM,(15,0) Mode , Below 1850MHz

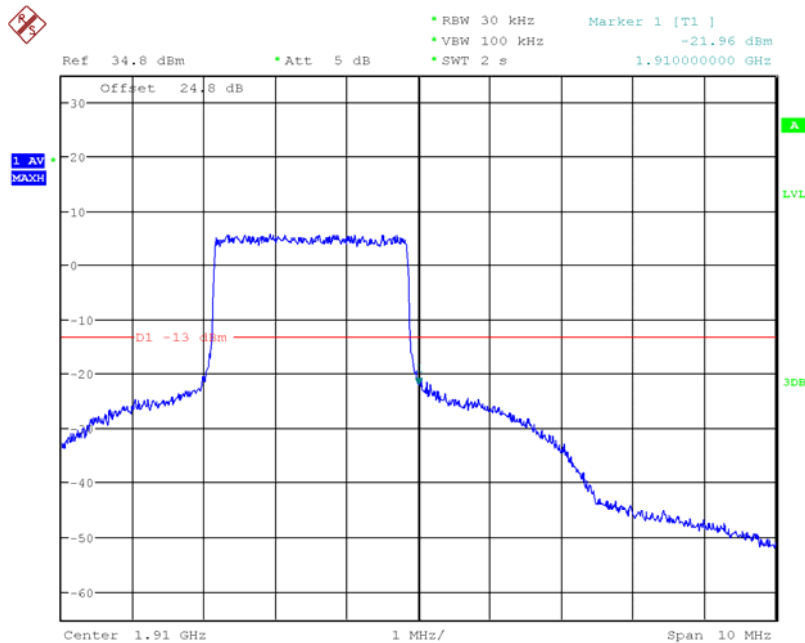


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:48:09

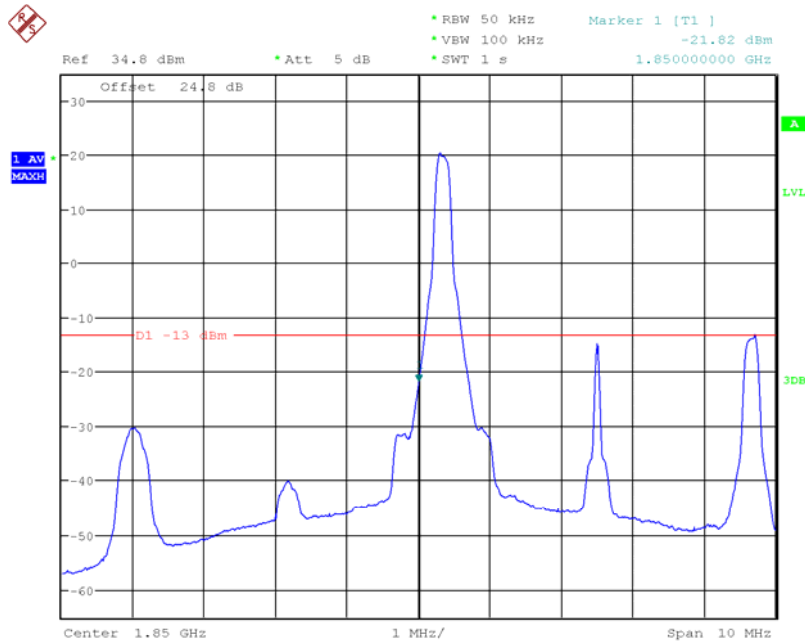
LTE Band2, 3MHz bandwidth, 16QAM,(1,15) Mode, Above 1910MHz



Date: 22.OCT.2018 14:48:45

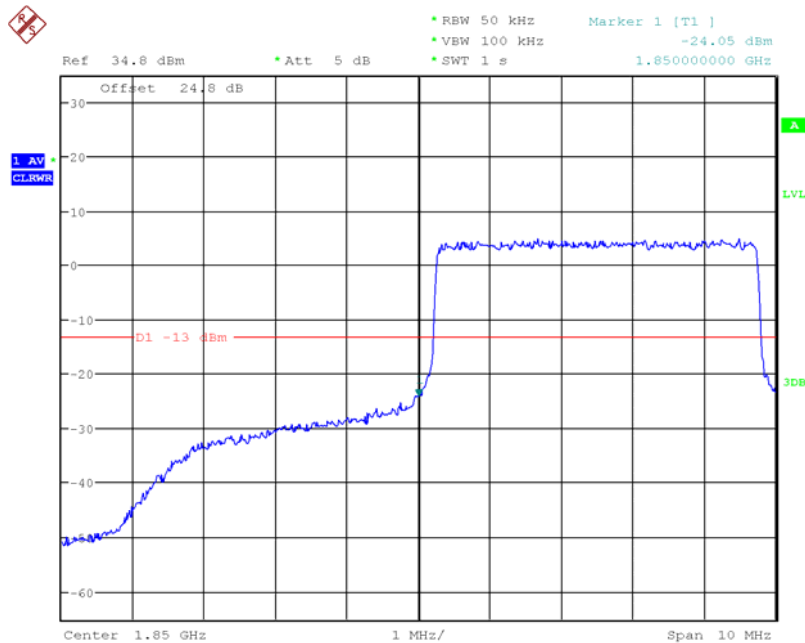
LTE Band2, 3MHz bandwidth, 16QAM,(15,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:05:38

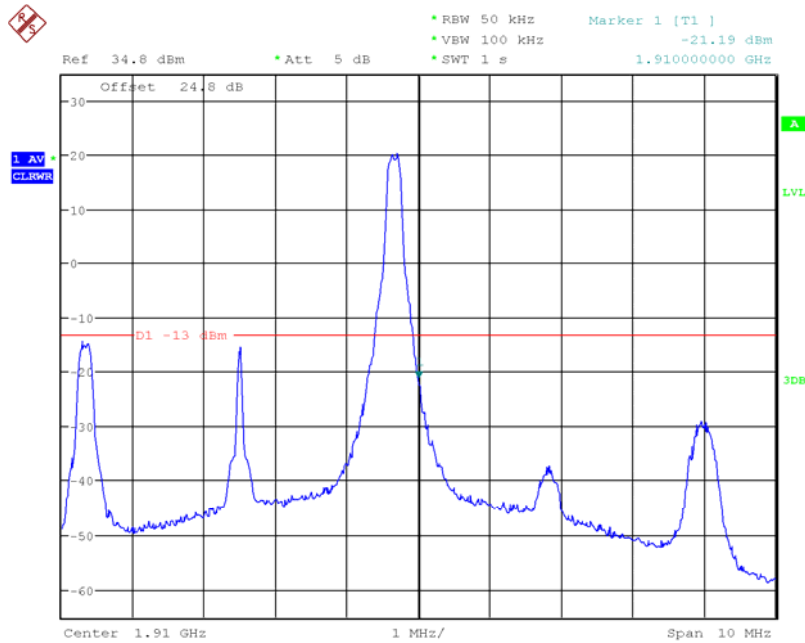
LTE Band2, 5MHz bandwidth, QPSK,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 16:06:19

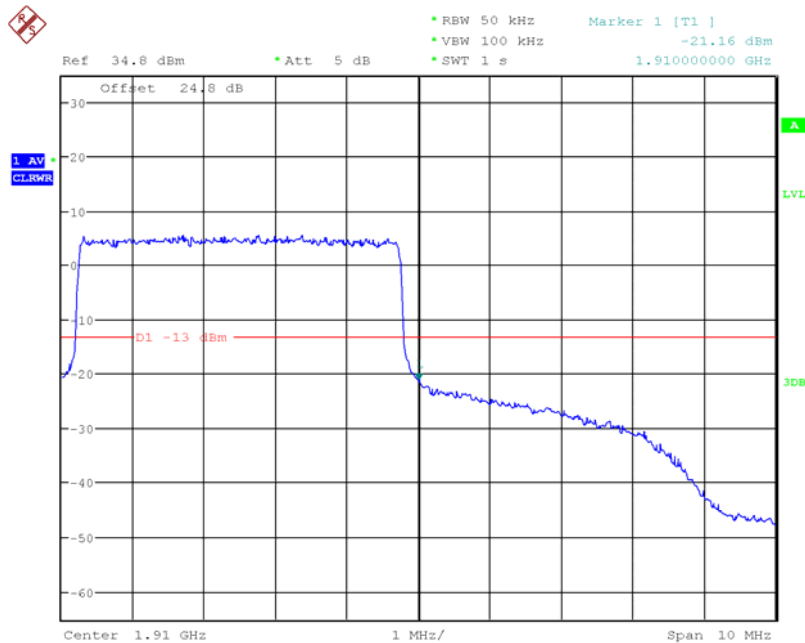
LTE Band2, 5MHz bandwidth, QPSK,(25,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:13:49

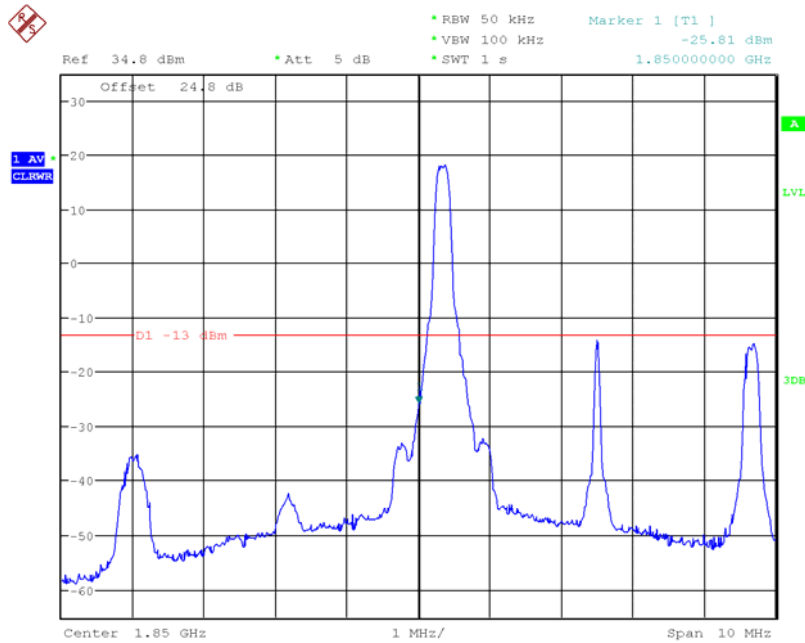
LTE Band2, 5MHz bandwidth, QPSK,(1,25) Mode, Above 1910MHz



Date: 19.OCT.2018 16:14:15

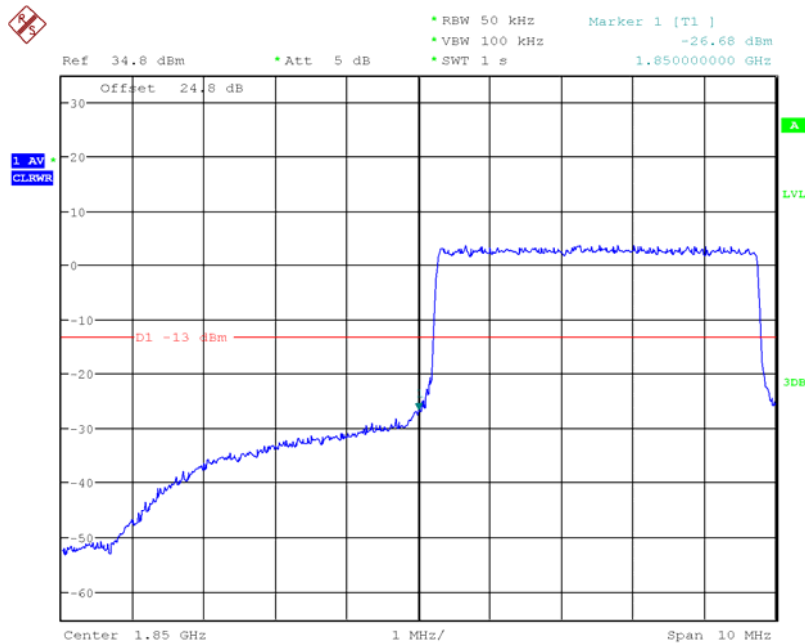
LTE Band2, 5MHz bandwidth, QPSK,(25,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:09:40

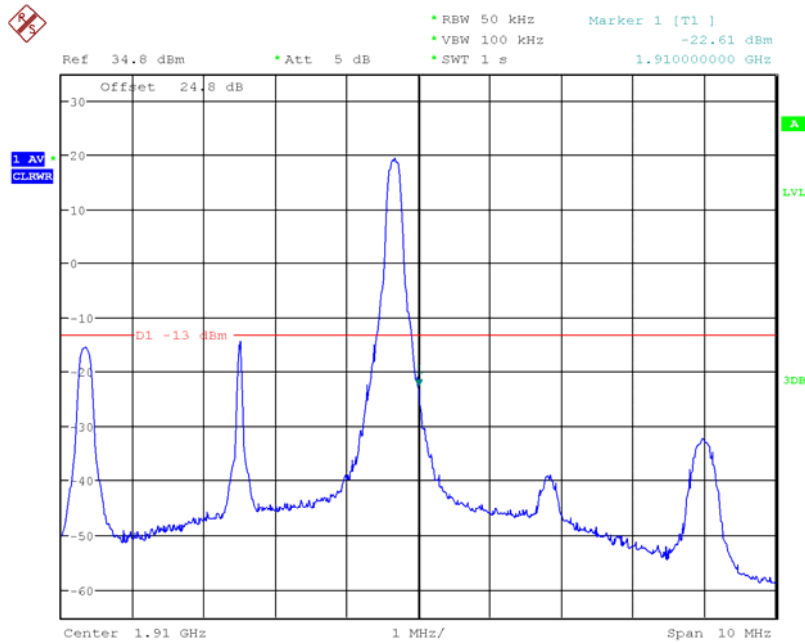
LTE Band2, 5MHz bandwidth, 16QAM,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 16:08:57

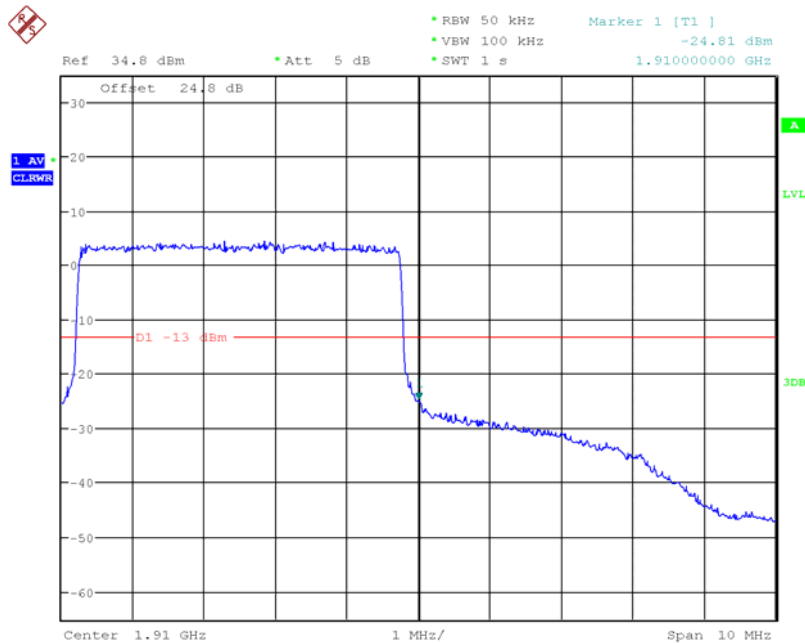
LTE Band2, 5MHz bandwidth, 16QAM,(25,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:13:08

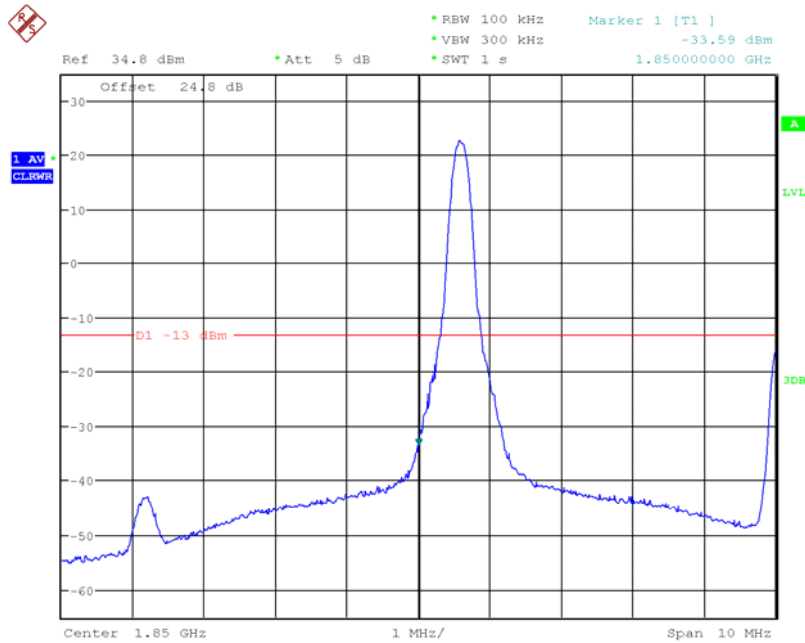
LTE Band2, 5MHz bandwidth, 16QAM,(1,25) Mode, Above 1910MHz



Date: 19.OCT.2018 16:11:42

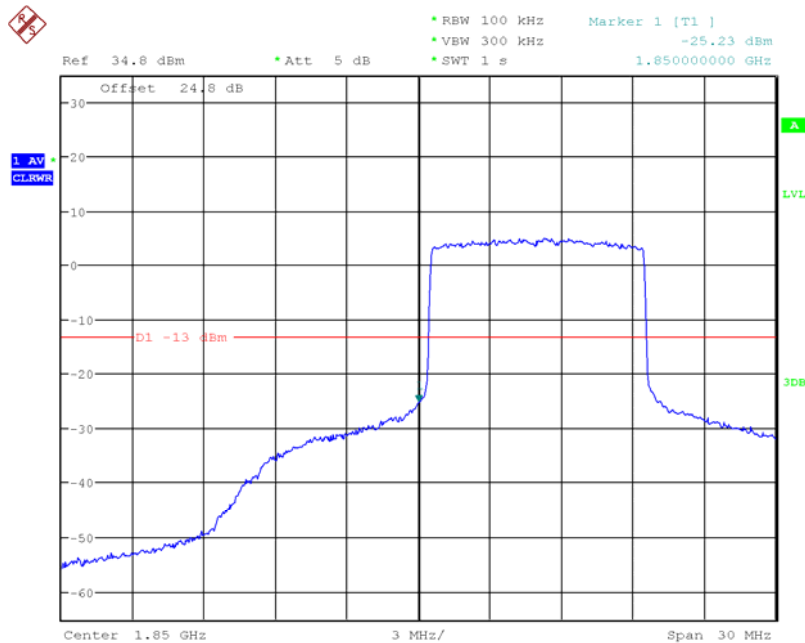
LTE Band2, 5MHz bandwidth, 16QAM,(25,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:18:56

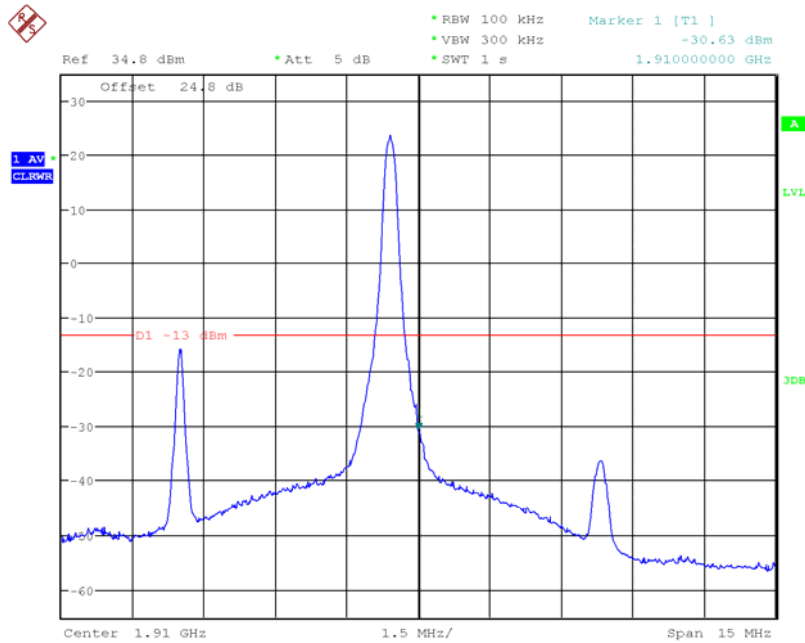
LTE Band2, 10MHz bandwidth, QPSK,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 16:20:15

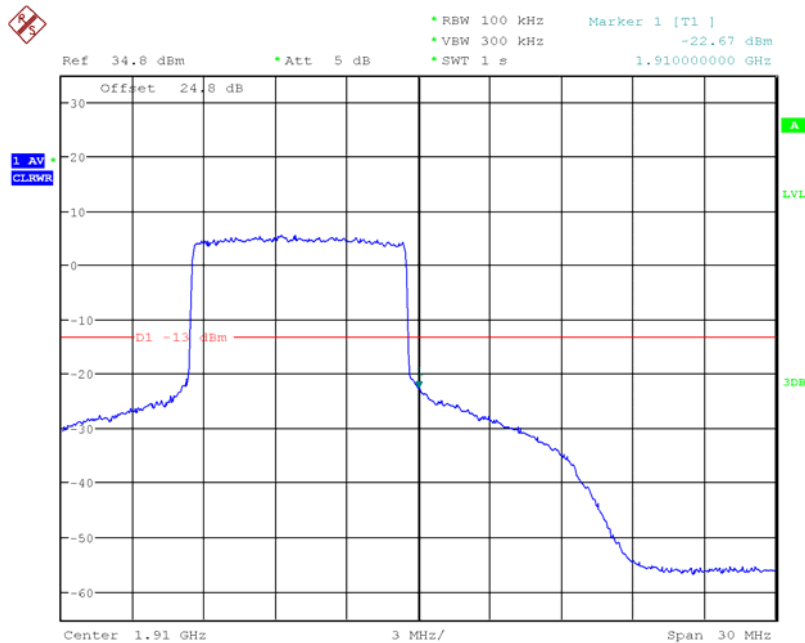
LTE Band2, 10MHz bandwidth, QPSK,(50,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:24:22

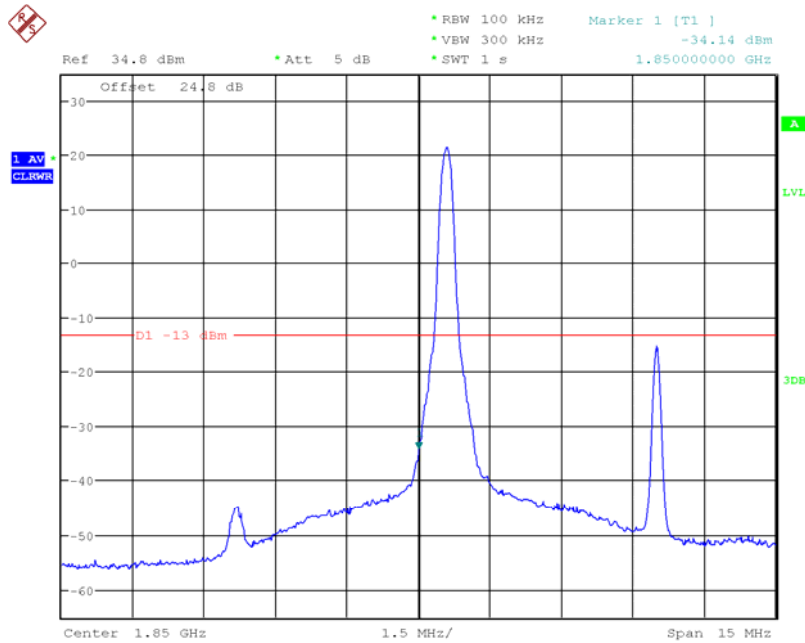
LTE Band2, 10MHz bandwidth, QPSK,(1,50) Mode, Above 1910MHz



Date: 19.OCT.2018 16:23:47

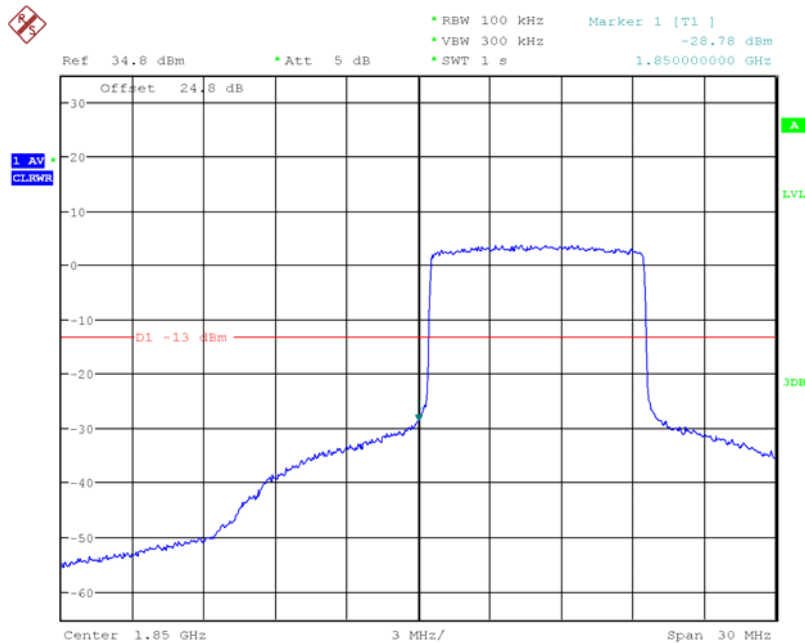
LTE Band2, 10MHz bandwidth, QPSK,(50,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:21:20

LTE Band2, 10MHz bandwidth, 16QAM,(1,0) Mode , Below 1850MHz

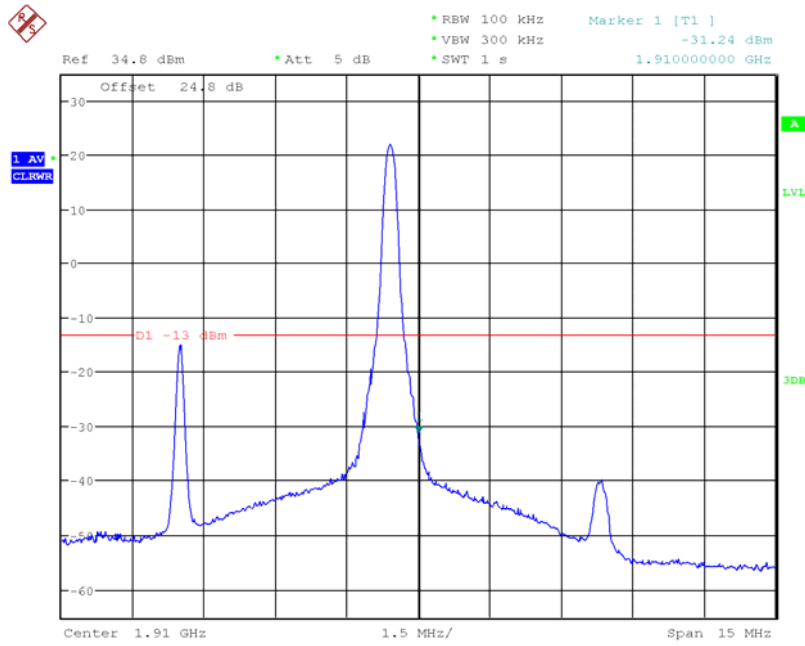


Date: 19.OCT.2018 16:20:47

LTE Band2, 10MHz bandwidth, 16QAM,(50,0) Mode , Below 1850MHz

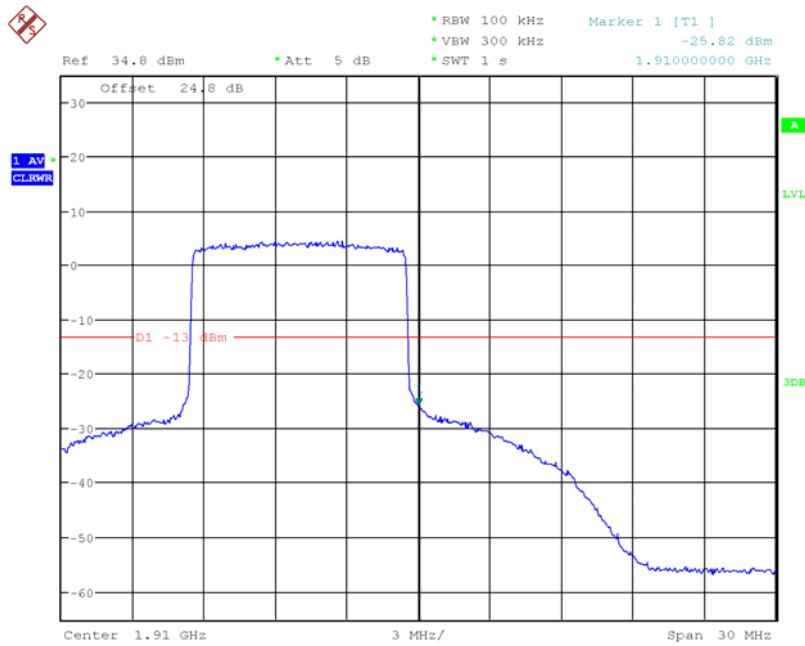


Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:22:41

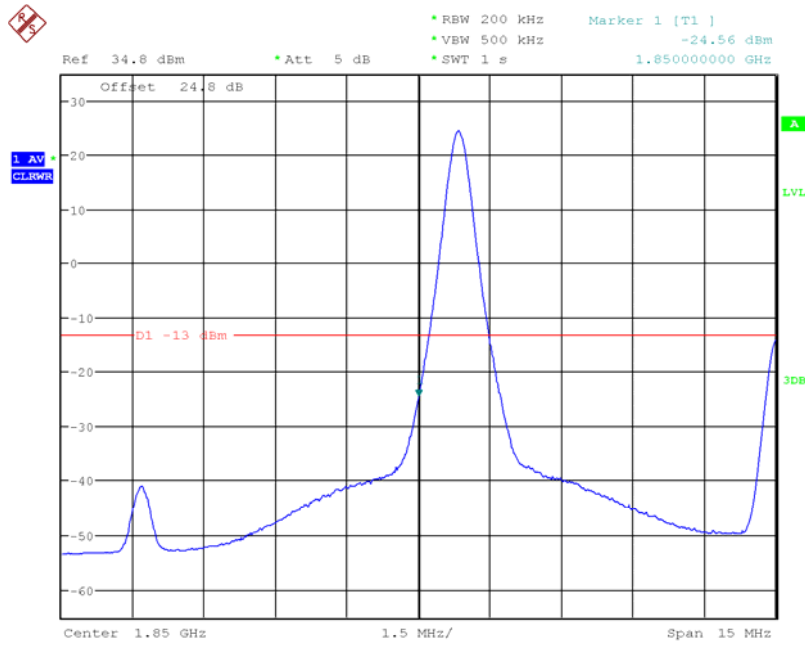
LTE Band2, 10MHz bandwidth, 16QAM,(1,50) Mode, Above 1910MHz



Date: 19.OCT.2018 16:23:18

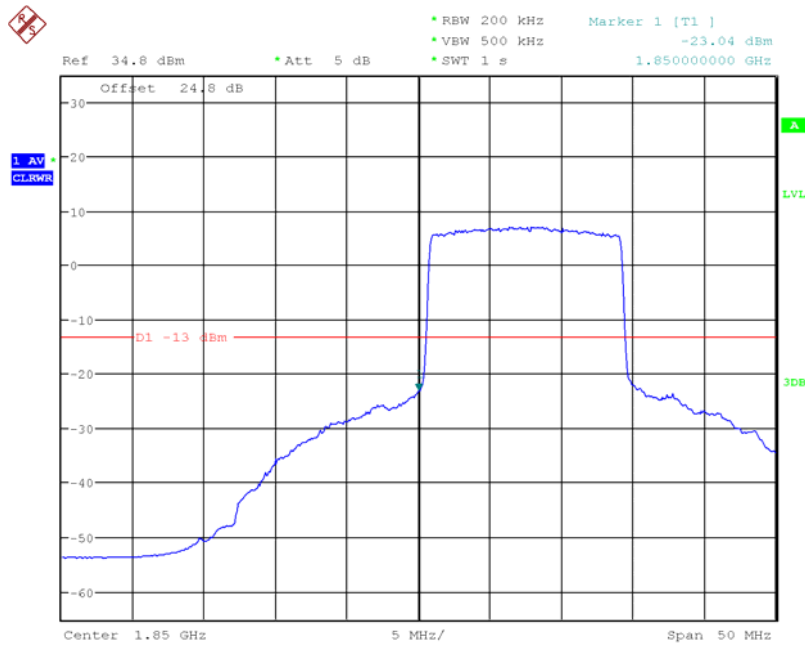
LTE Band2, 10MHz bandwidth, 16QAM,(50,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:27:46

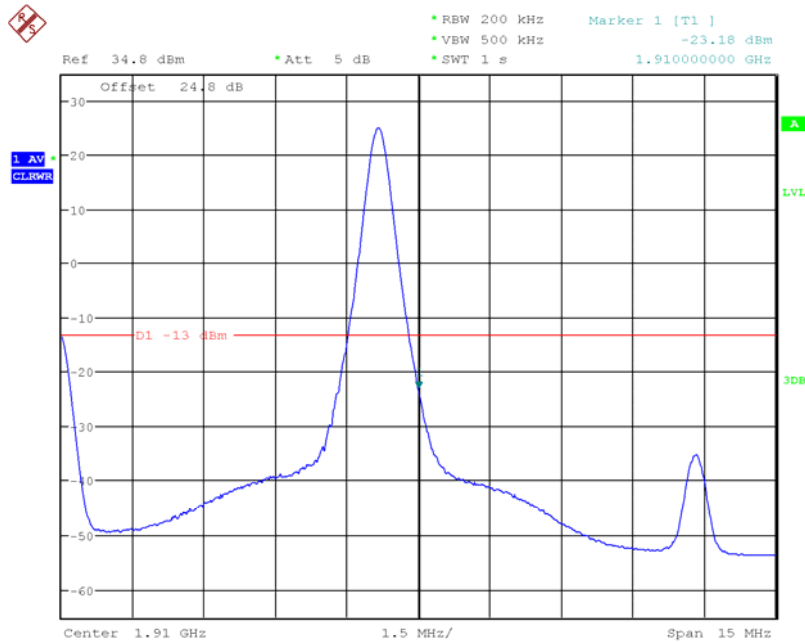
LTE Band2, 15MHz bandwidth, QPSK,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 16:28:27

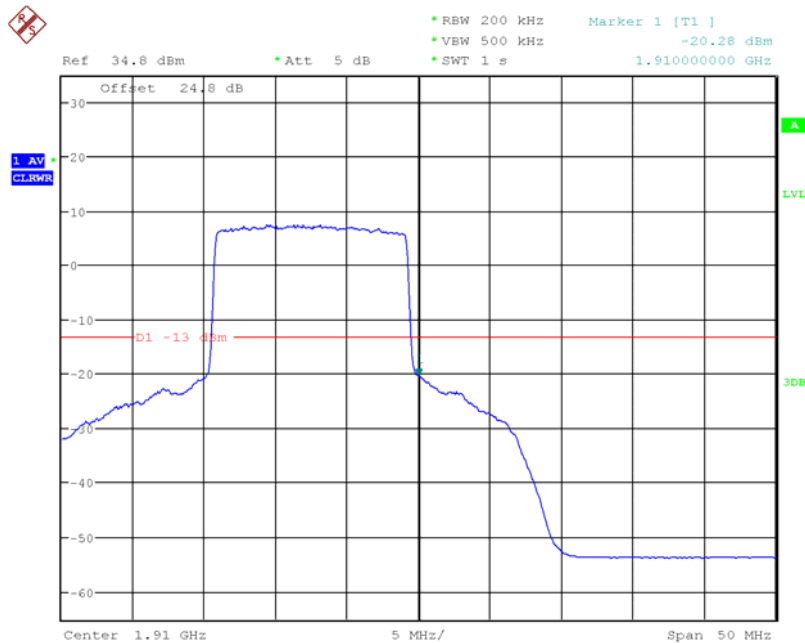
LTE Band2, 15MHz bandwidth, QPSK,(75,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:31:51

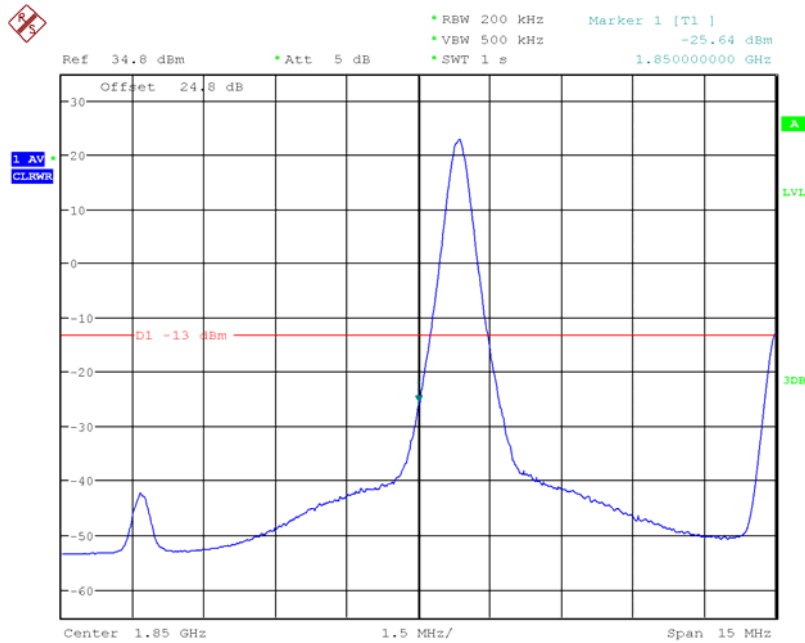
LTE Band2, 15MHz bandwidth, QPSK,(1,75) Mode, Above 1910MHz



Date: 19.OCT.2018 16:31:22

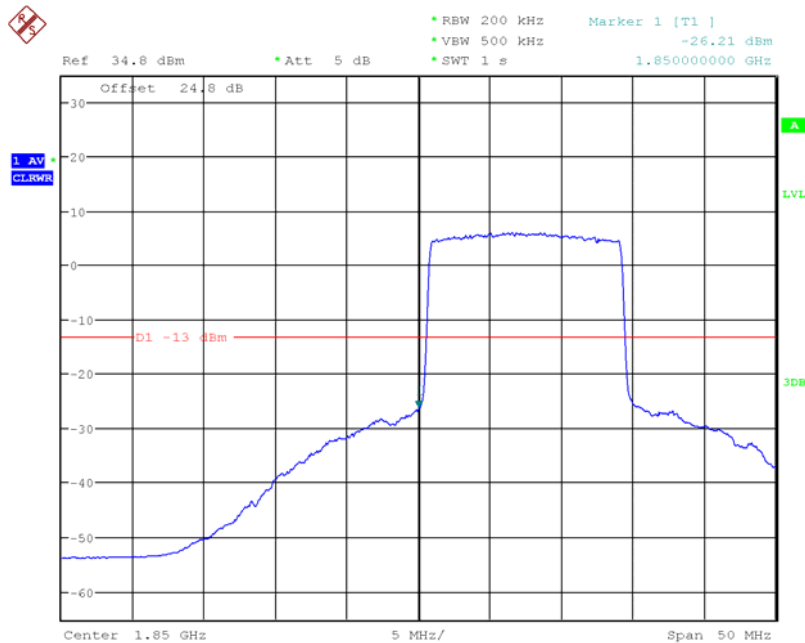
LTE Band2, 15MHz bandwidth, QPSK,(75,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:29:29

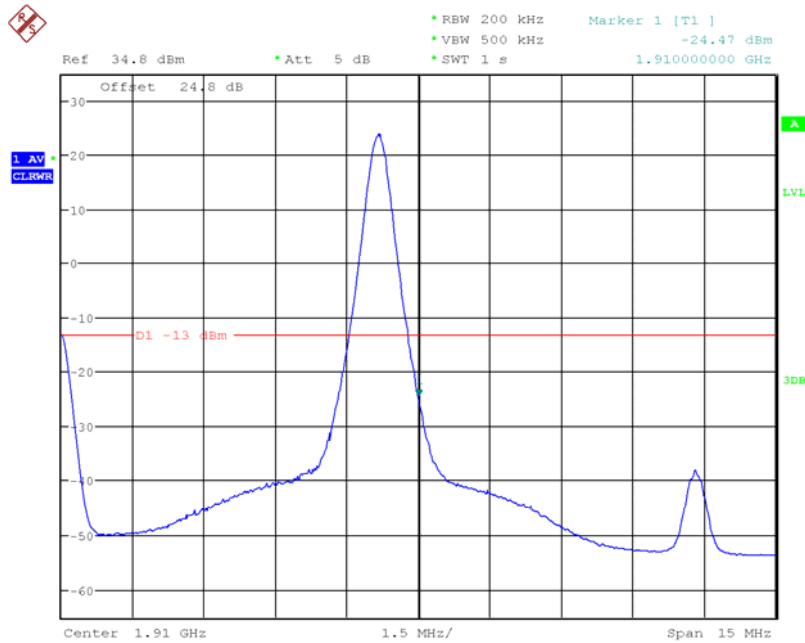
LTE Band2, 15MHz bandwidth, 16QAM,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 16:28:58

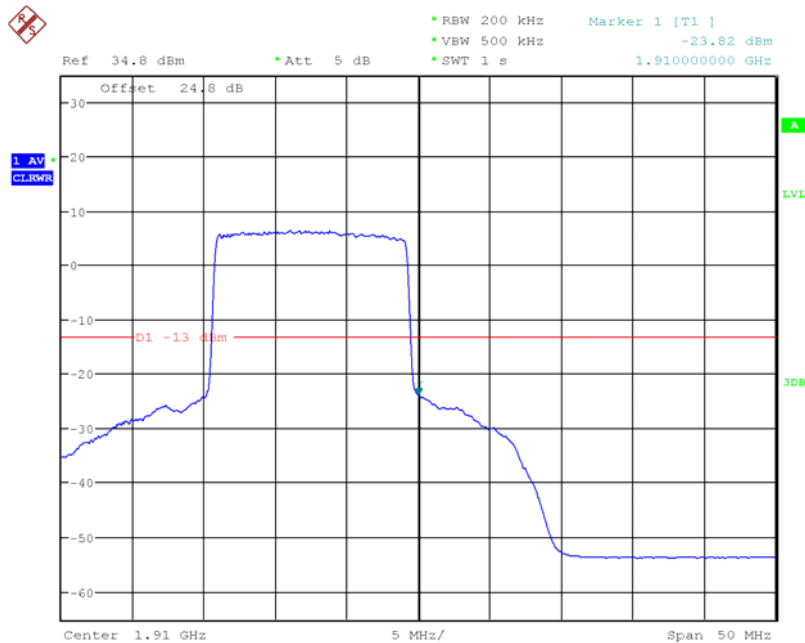
LTE Band2, 15MHz bandwidth, 16QAM,(75,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:30:31

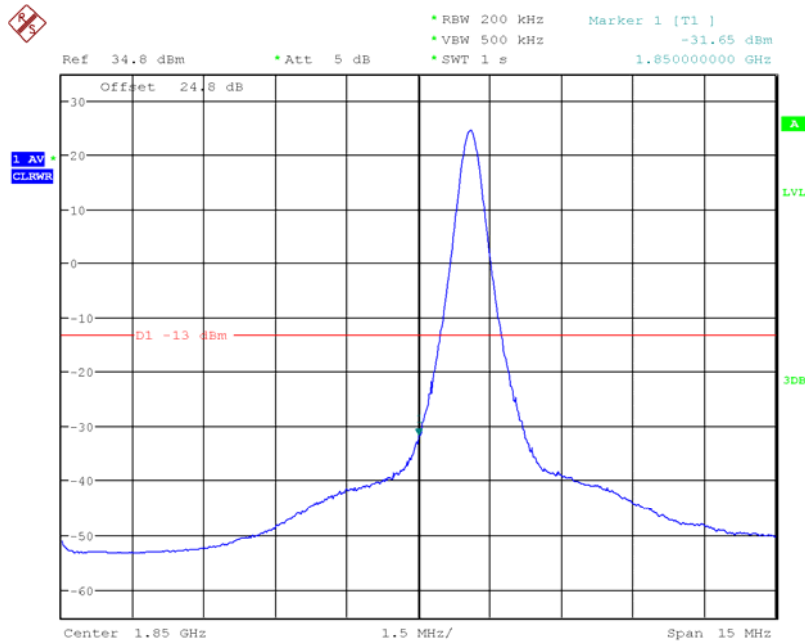
LTE Band2, 15MHz bandwidth, 16QAM,(1,75) Mode, Above 1910MHz



Date: 19.OCT.2018 16:30:58

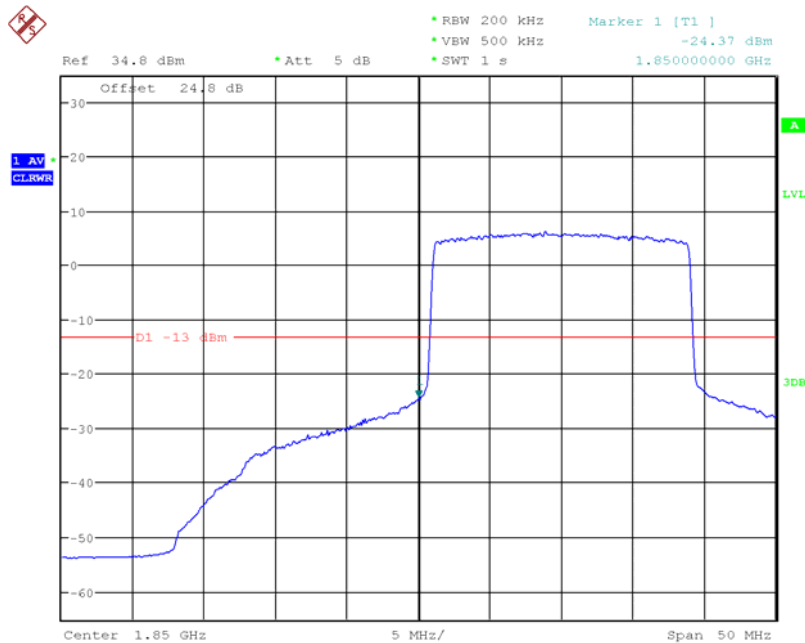
LTE Band2, 15MHz bandwidth, 16QAM,(75,0) Mode, Above 1910MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:33:21

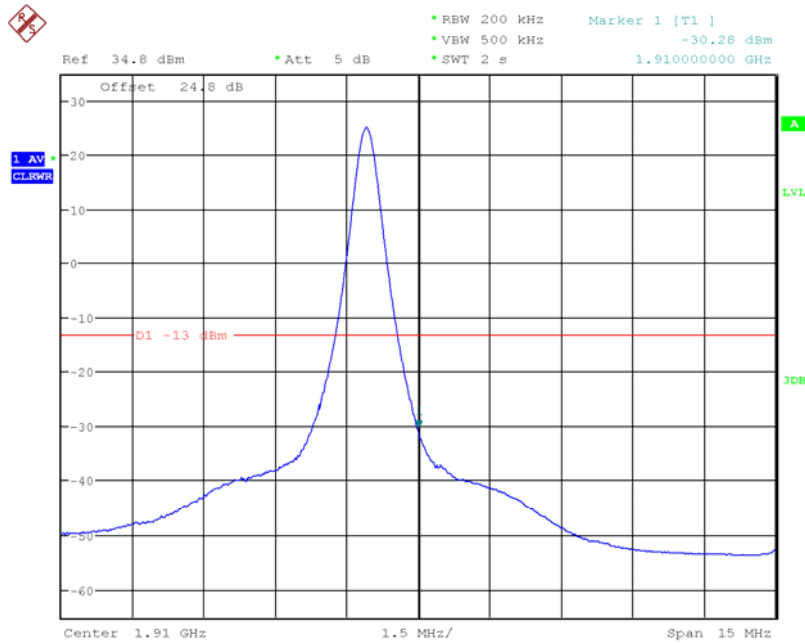
LTE Band2, 20MHz bandwidth, QPSK,(1,0) Mode , Below 1850MHz



Date: 19.OCT.2018 16:33:58

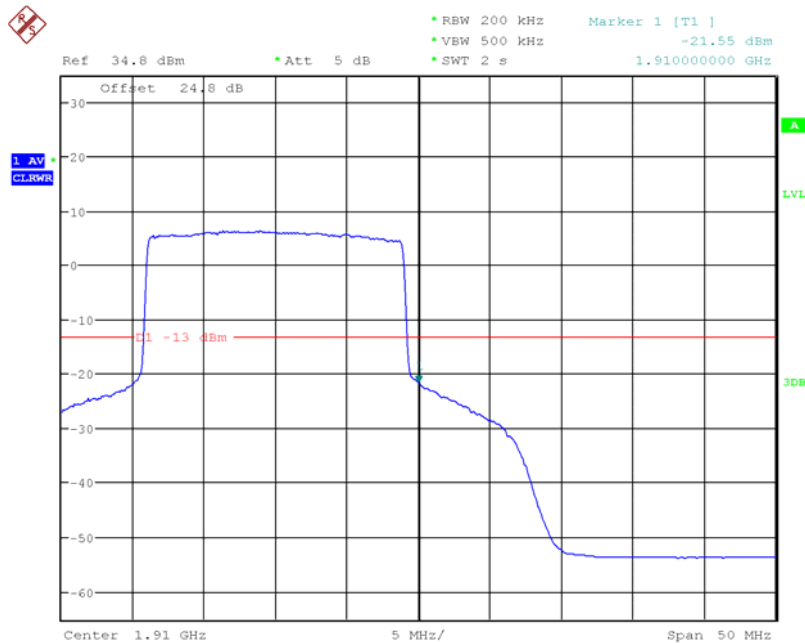
LTE Band2, 20MHz bandwidth, QPSK,(100,0) Mode , Below 1850MHz

Report No.:B18W50495-WWAN



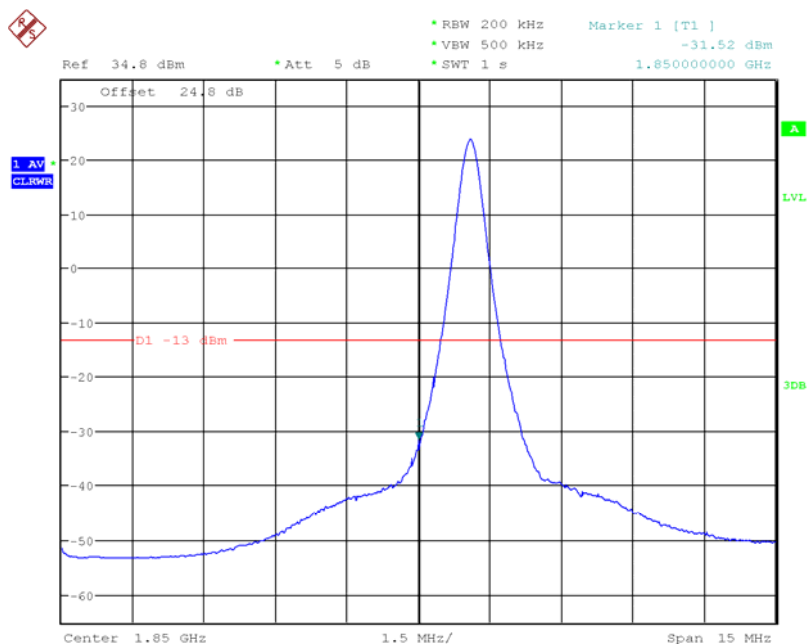
Date: 19.OCT.2018 16:43:09

LTE Band2, 20MHz bandwidth, QPSK,(1,100) Mode, Above 1910MHz



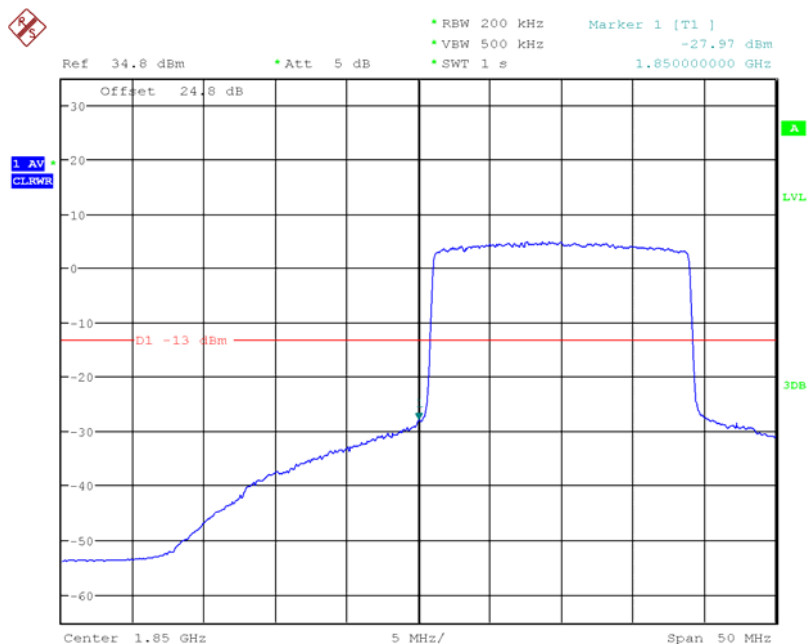
Date: 19.OCT.2018 16:43:59

LTE Band2, 20MHz bandwidth, QPSK,(100,0) Mode, Above 1910MHz



Date: 19.OCT.2018 16:34:53

### LTE Band2, 20MHz bandwidth, 16QAM,(1,0) Mode , Below 1850MHz

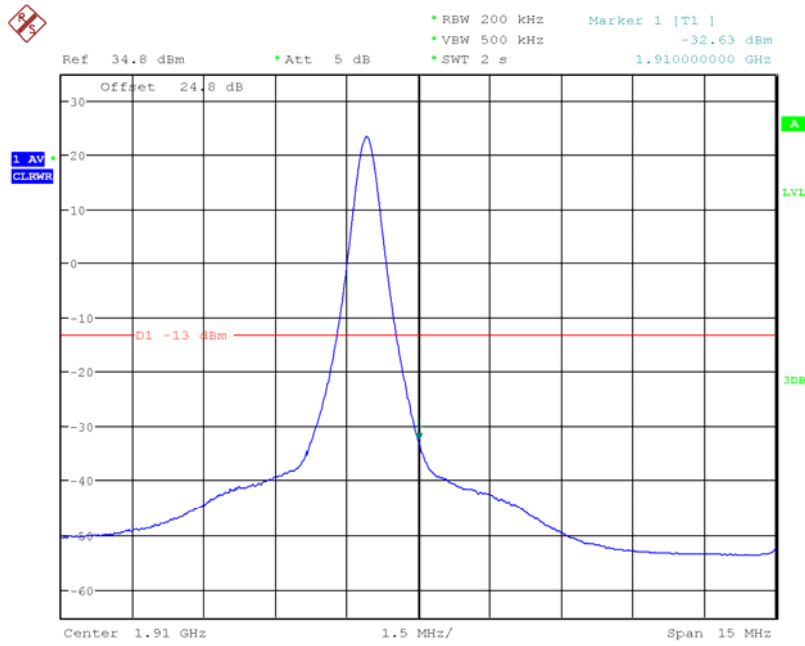


Date: 19.OCT.2018 16:34:26

### LTE Band2, 20MHz bandwidth, 16QAM,(100,0) Mode , Below 1850MHz

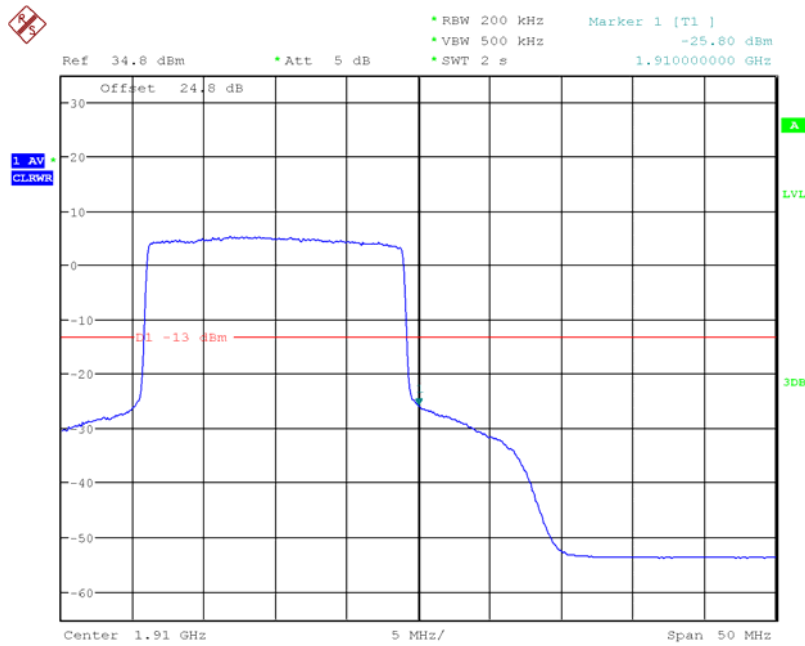


Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:42:38

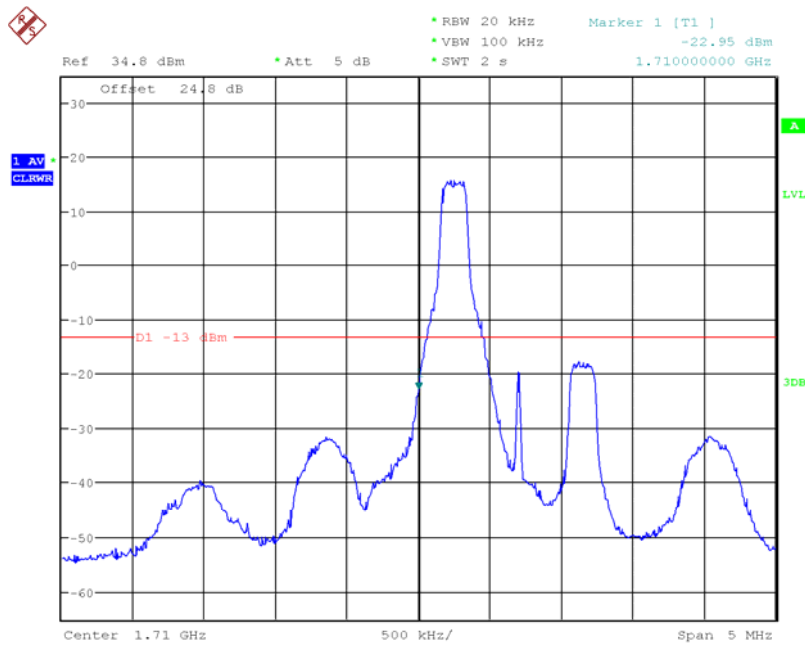
LTE Band2, 20MHz bandwidth, 16QAM,(1,100) Mode, Above 1910MHz



Date: 19.OCT.2018 16:41:19

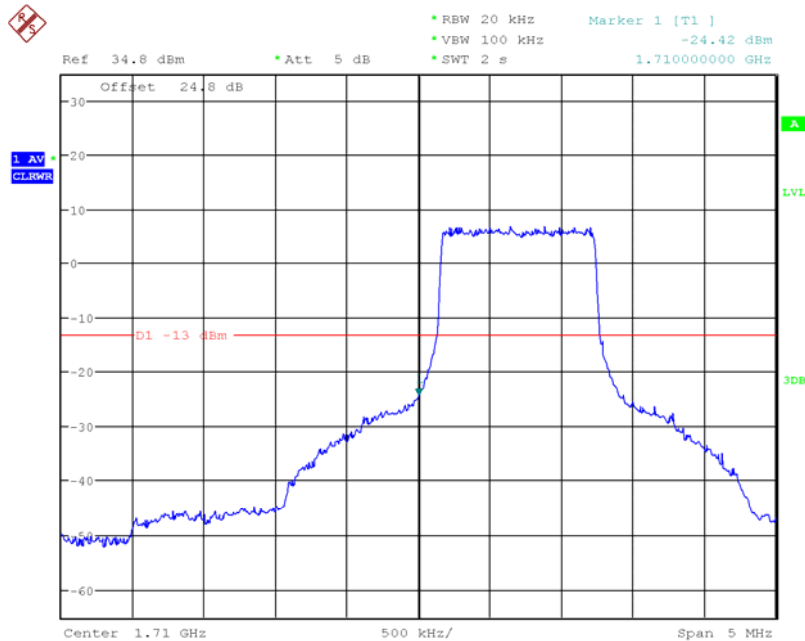
LTE Band2, 20MHz bandwidth, 16QAM,100,0) Mode, Above 1910MHz

5.5.7 LTE B4 Band Edge Results



Date: 19.OCT.2018 16:53:13

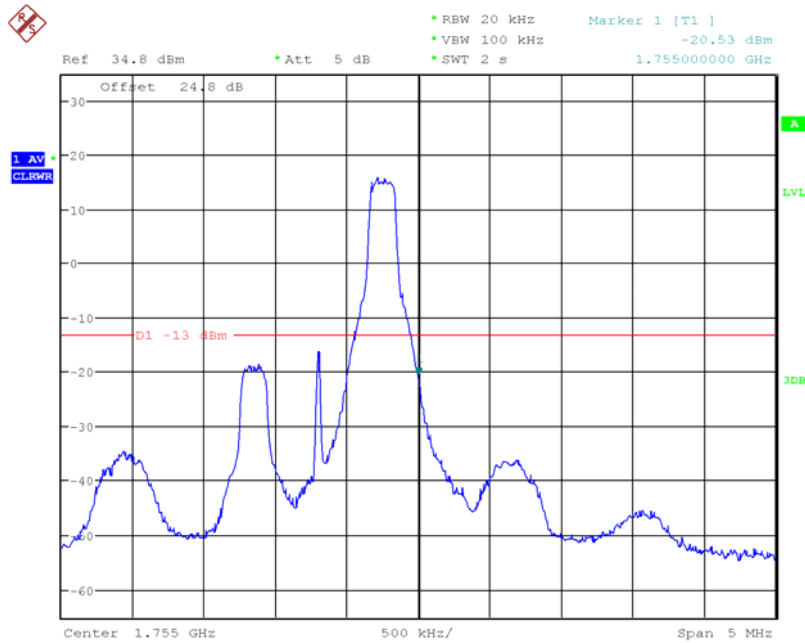
LTE Band4, 1.4MHz bandwidth, QPSK,(1,0) Mode , Below 1710MHz



Date: 19.OCT.2018 16:52:41

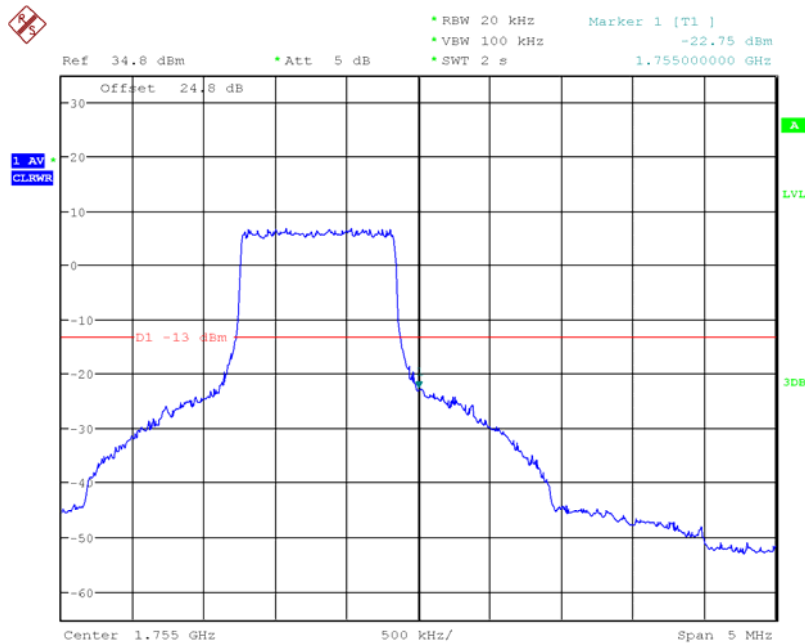
LTE Band4, 1.4MHz bandwidth, QPSK,(6,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:54:53

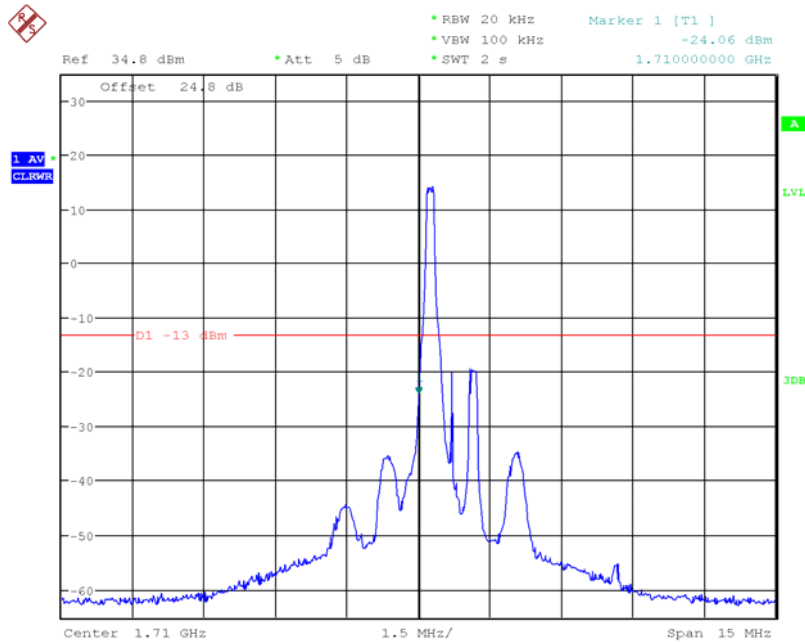
LTE Band4, 1.4MHz bandwidth, QPSK,(1,6) Mode, Above 1755MHz



Date: 19.OCT.2018 16:55:13

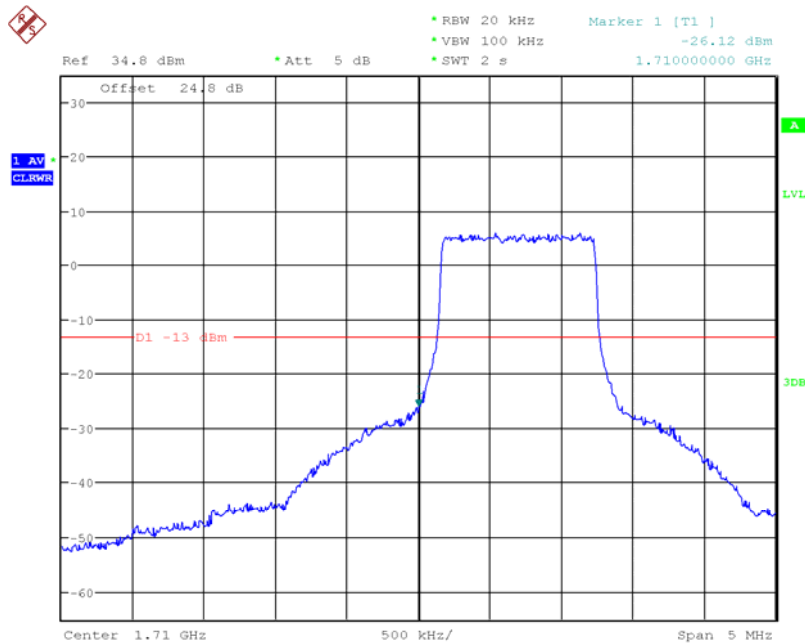
LTE Band4, 1.4MHz bandwidth, QPSK,(6,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:51:26

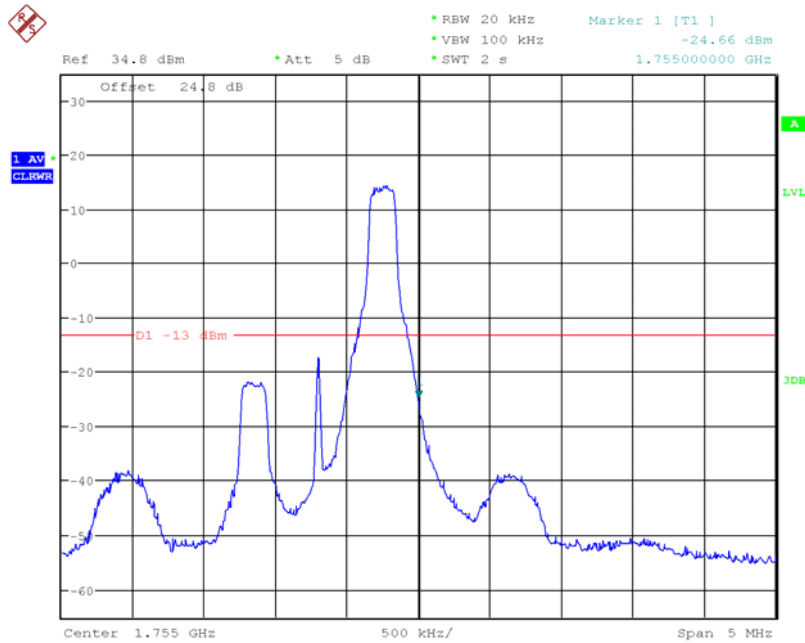
LTE Band4, 1.4MHz bandwidth, 16QAM,(1,0) Mode , Below 1710MHz



Date: 19.OCT.2018 16:52:17

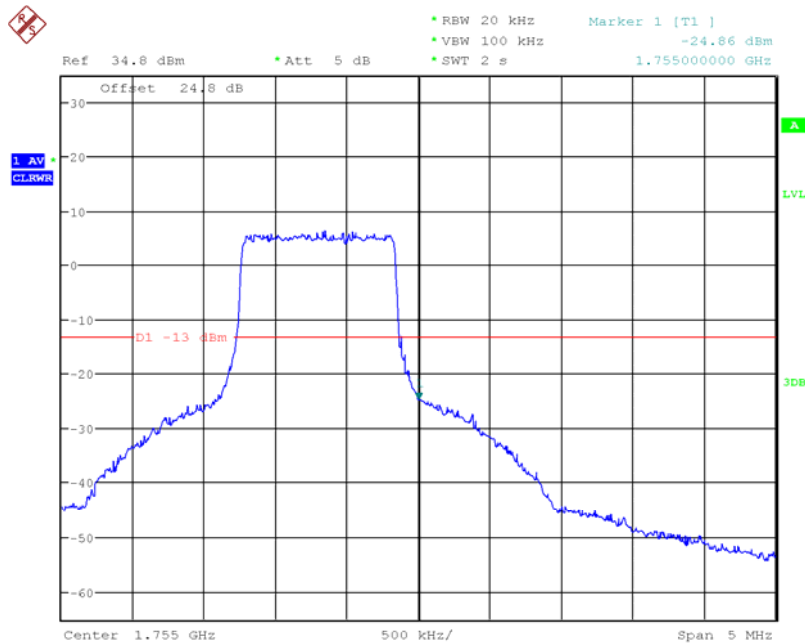
LTE Band4, 1.4MHz bandwidth, 16QAM,(6,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 16:56:13

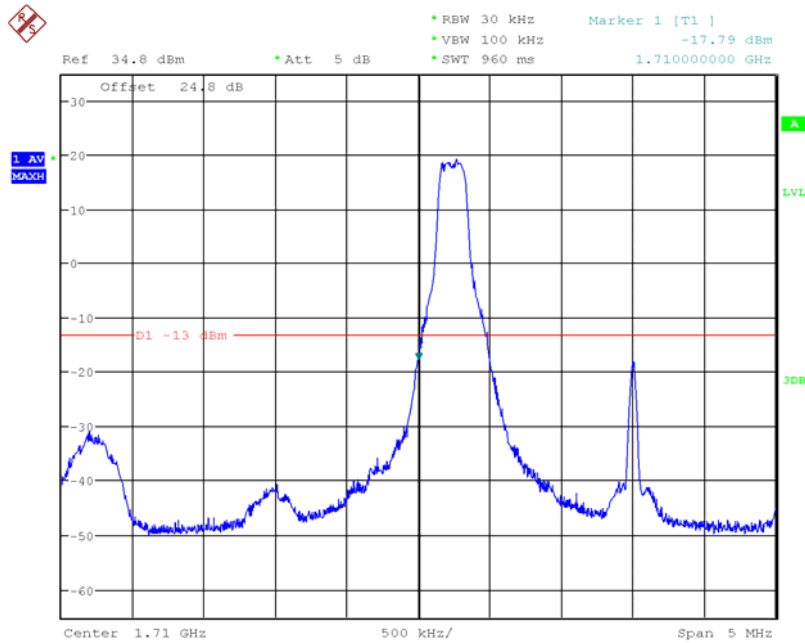
LTE Band4, 1.4MHz bandwidth, 16QAM,(1,6) Mode, Above 1755MHz



Date: 19.OCT.2018 16:55:43

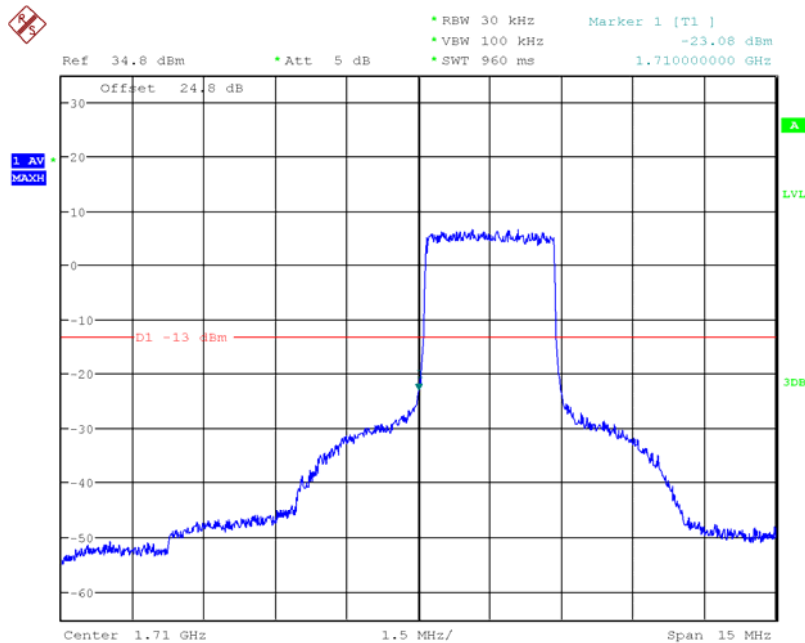
LTE Band4, 1.4MHz bandwidth, 16QAM,(6,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:32:22

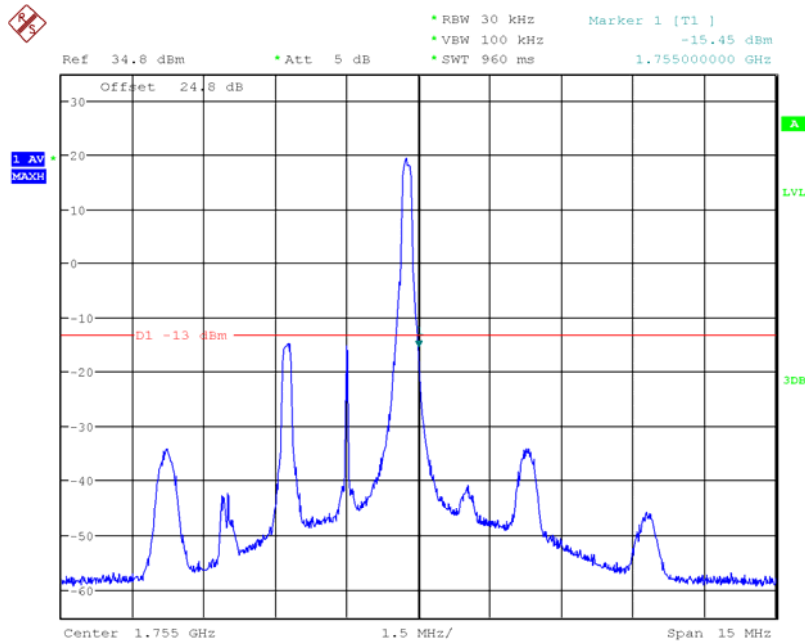
LTE Band4, 3MHz bandwidth, QPSK,(1,0) Mode , Below 1710MHz



Date: 22.OCT.2018 14:30:50

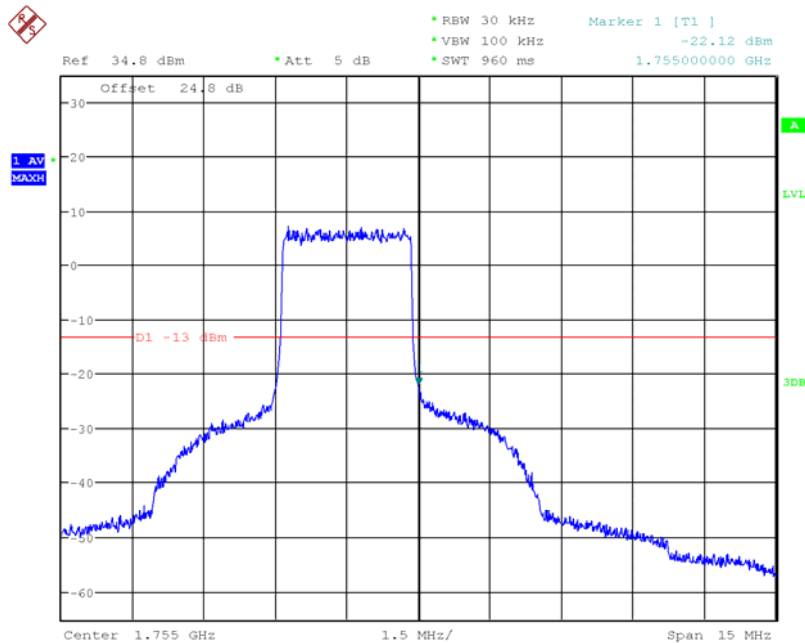
LTE Band4, 3MHz bandwidth, QPSK,(15,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:25:26

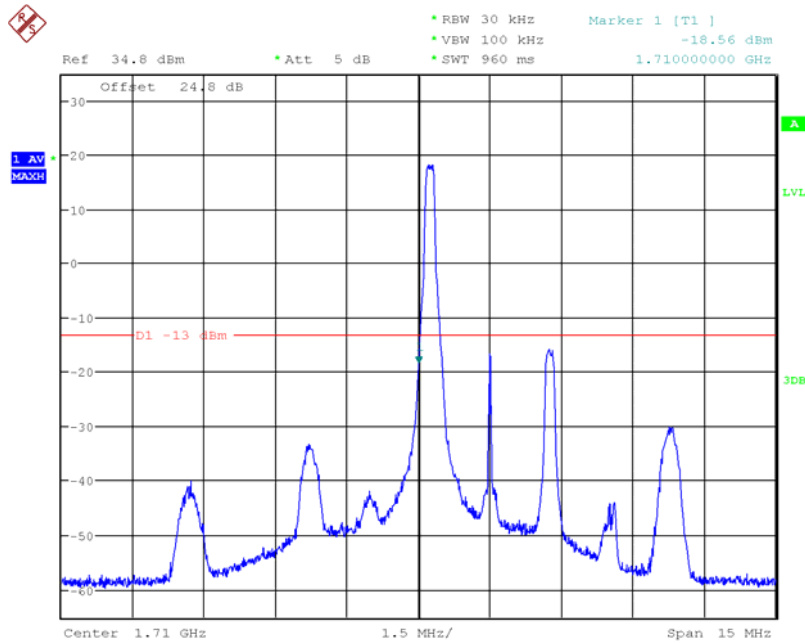
LTE Band4, 3MHz bandwidth, QPSK,(1,15) Mode, Above 1755MHz



Date: 22.OCT.2018 14:26:12

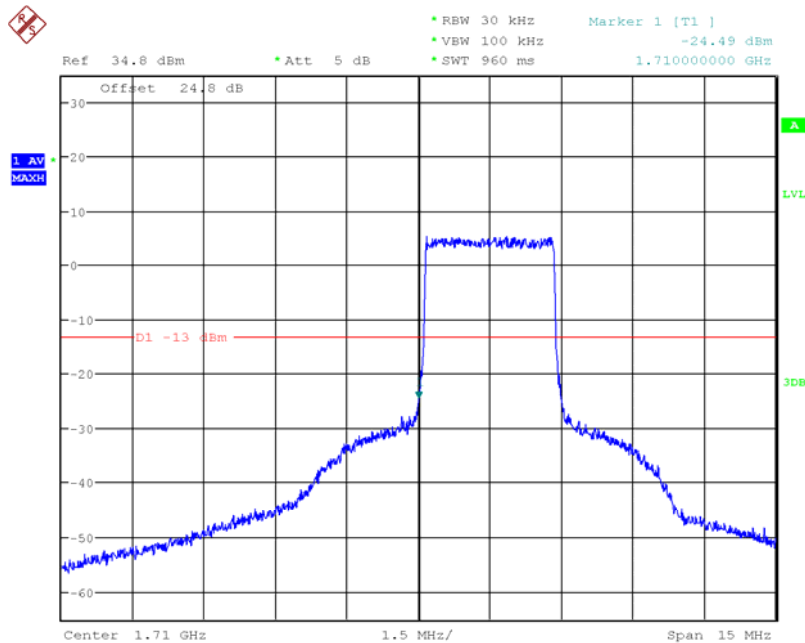
LTE Band4, 3MHz bandwidth, QPSK,(15,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:29:54

LTE Band4, 3MHz bandwidth, 16QAM,(1,0) Mode , Below 1710MHz

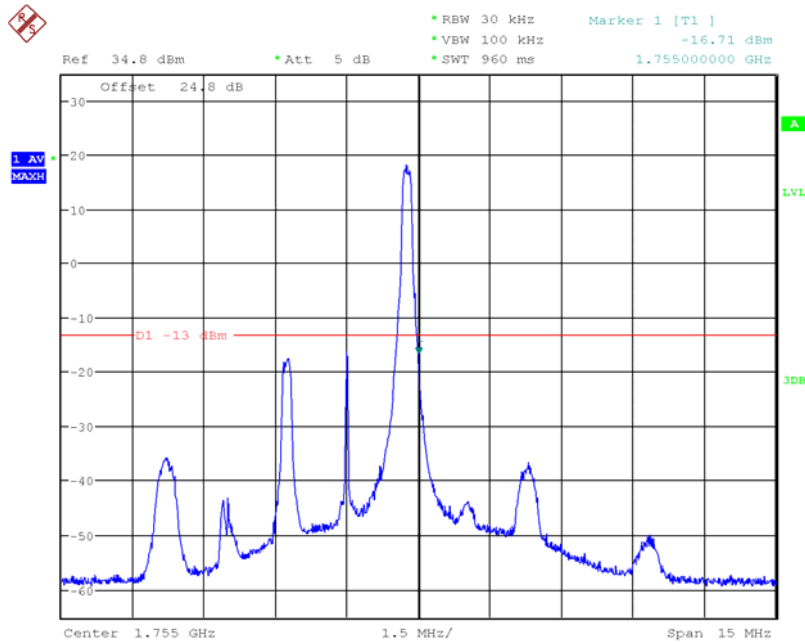


Date: 22.OCT.2018 14:30:21

LTE Band4, 3MHz bandwidth, 16QAM,(15,0) Mode , Below 1710MHz

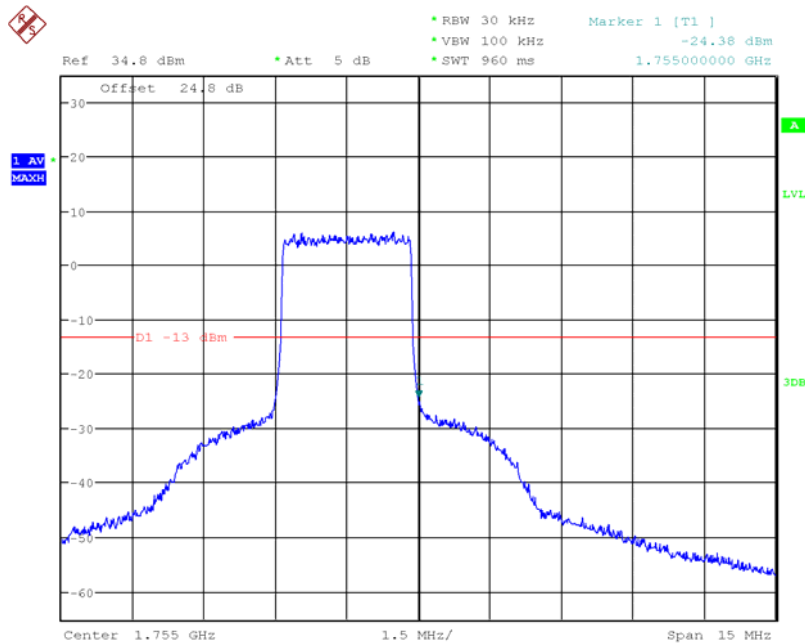


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:28:20

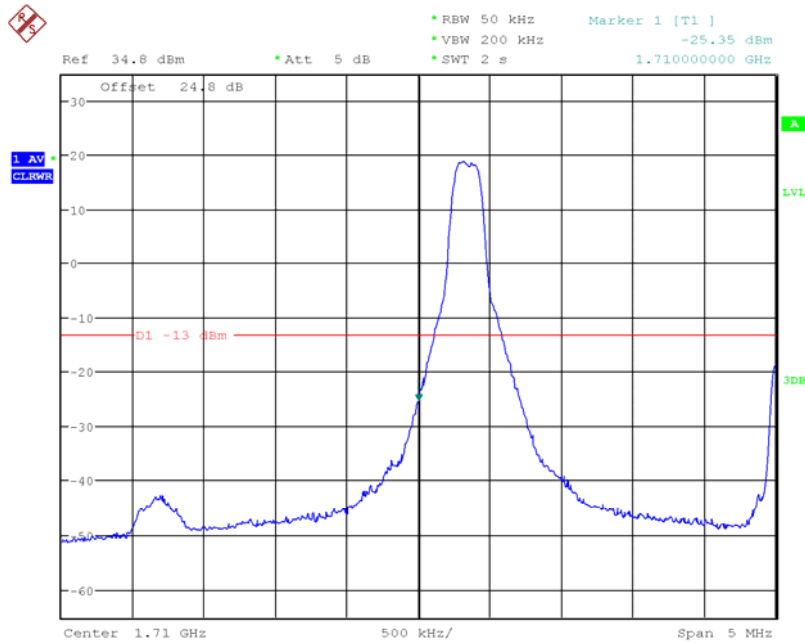
LTE Band4, 3MHz bandwidth, 16QAM,(1,15) Mode, Above 1755MHz



Date: 22.OCT.2018 14:27:33

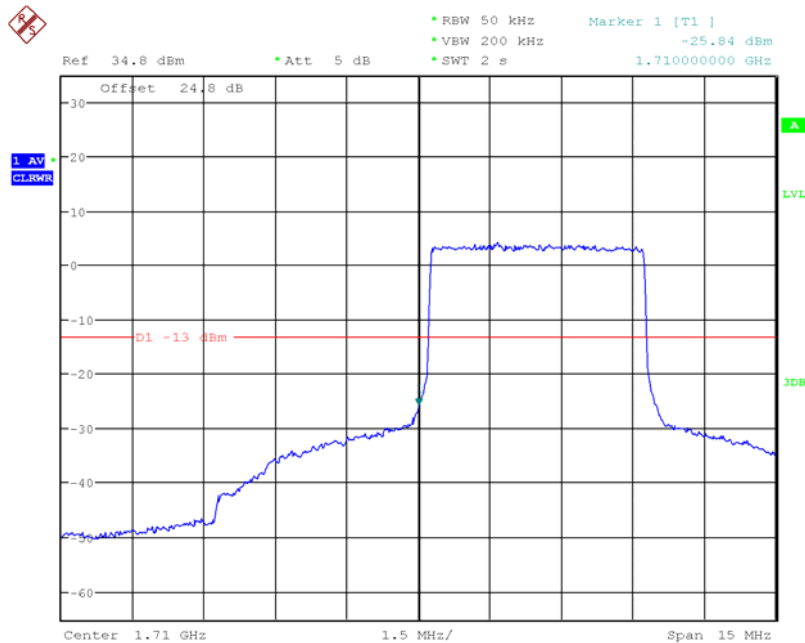
LTE Band4, 3MHz bandwidth, 16QAM,(15,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:06:35

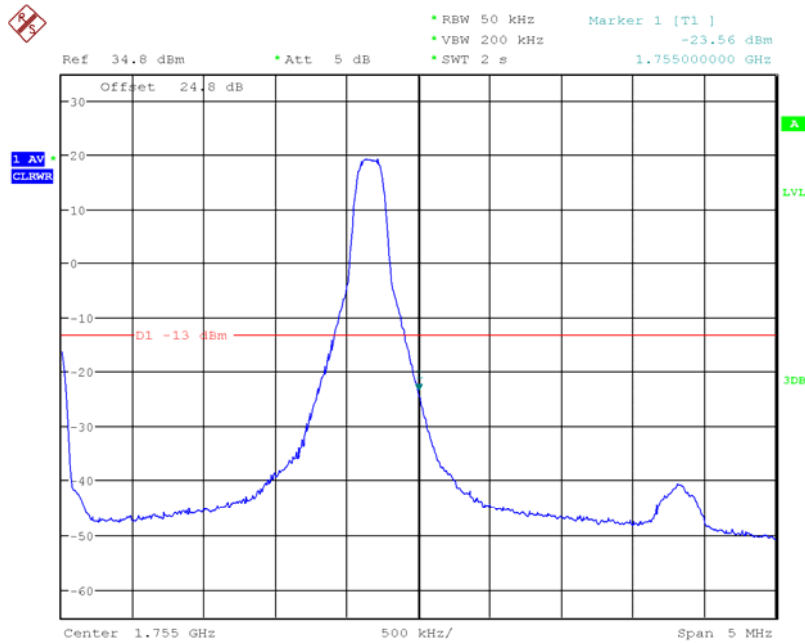
LTE Band4, 5MHz bandwidth, QPSK,(1,0) Mode , Below 1710MHz



Date: 19.OCT.2018 17:06:06

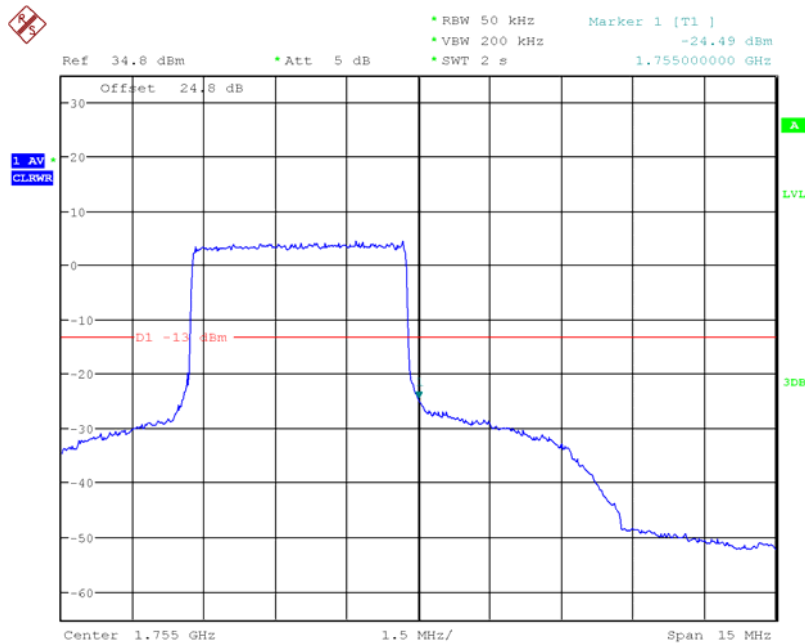
LTE Band4, 5MHz bandwidth, QPSK,(25,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:09:27

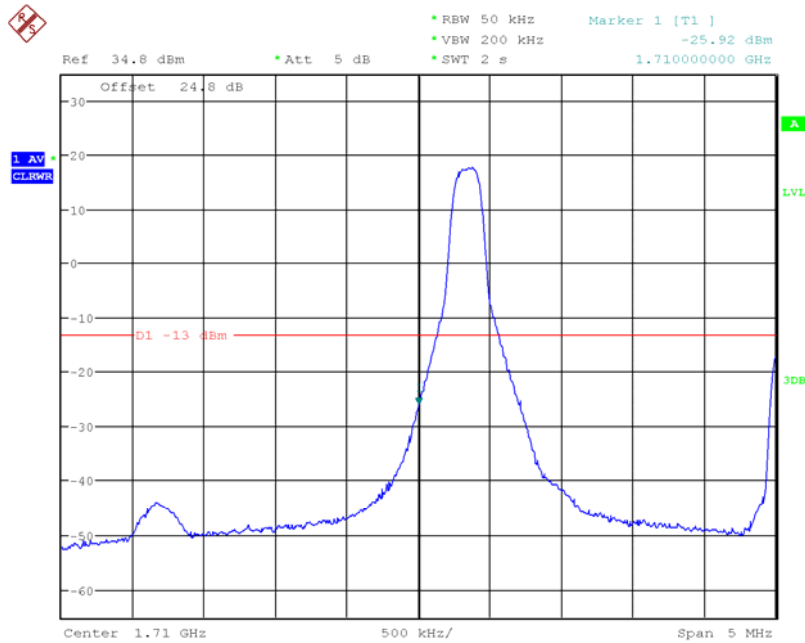
LTE Band4, 5MHz bandwidth, QPSK,(1,25) Mode, Above 1755MHz



Date: 19.OCT.2018 17:10:02

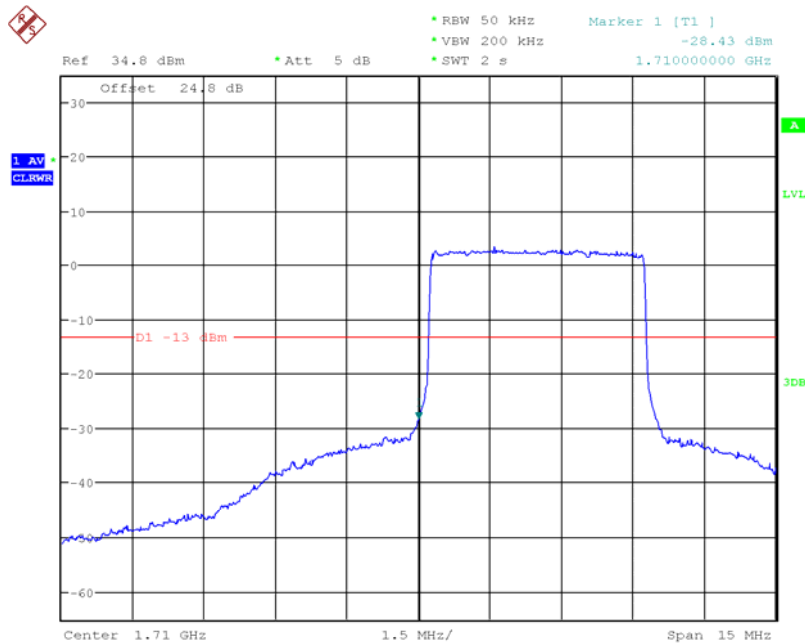
LTE Band4, 5MHz bandwidth, QPSK,(25,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:07:00

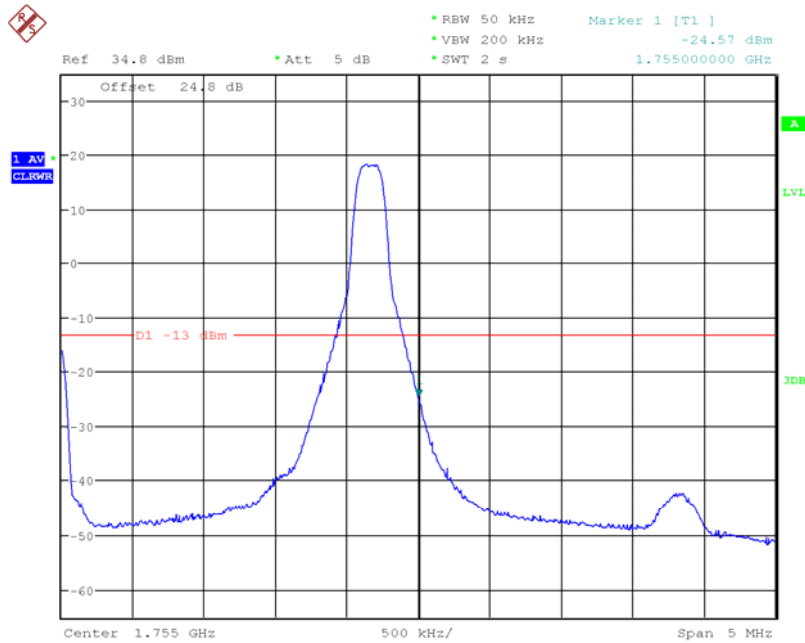
LTE Band4, 5MHz bandwidth, 16QAM,(1,0) Mode , Below 1710MHz



Date: 19.OCT.2018 17:07:26

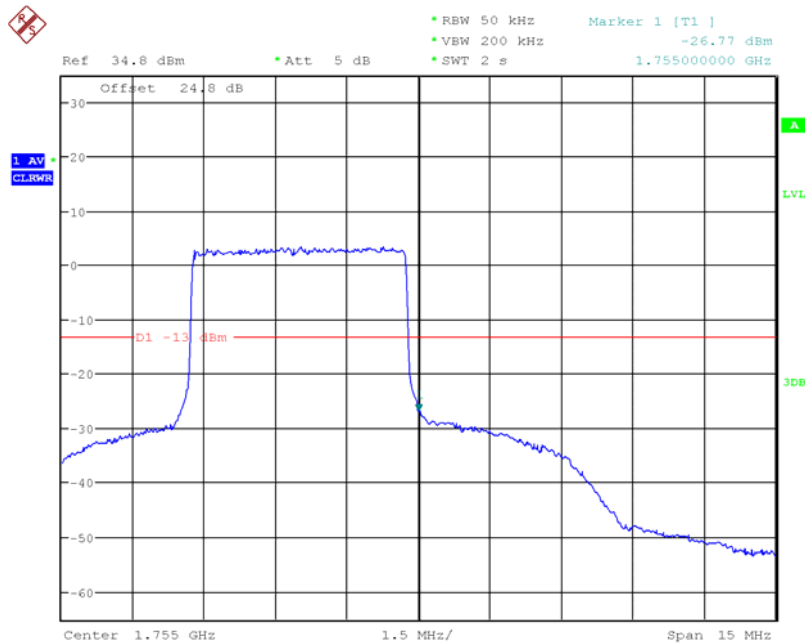
LTE Band4, 5MHz bandwidth, 16QAM,(25,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:09:01

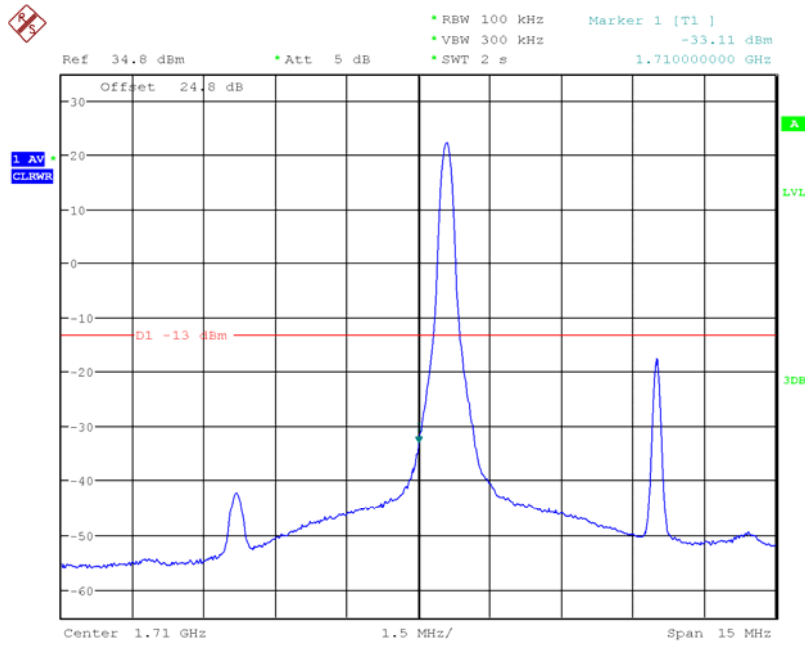
LTE Band4, 5MHz bandwidth, 16QAM,(1,25) Mode, Above 1755MHz



Date: 19.OCT.2018 17:08:24

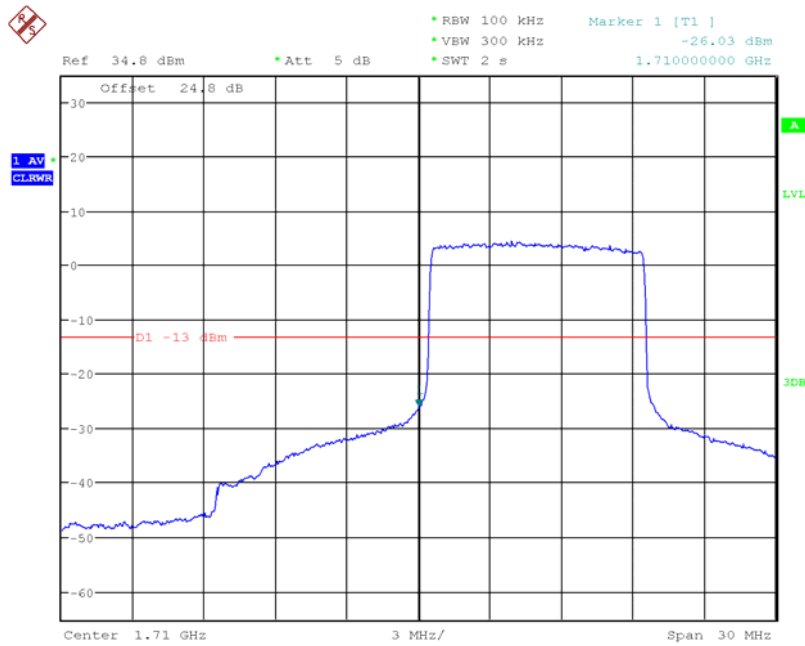
LTE Band4, 5MHz bandwidth, 16QAM,(25,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:11:49

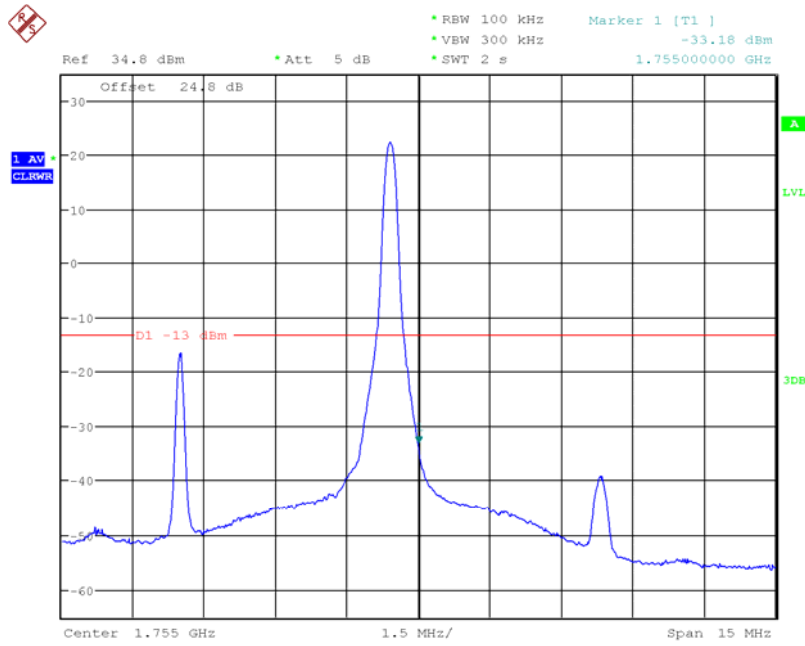
LTE Band4, 10MHz bandwidth, QPSK,(1,0) Mode , Below 1710MHz



Date: 19.OCT.2018 17:12:24

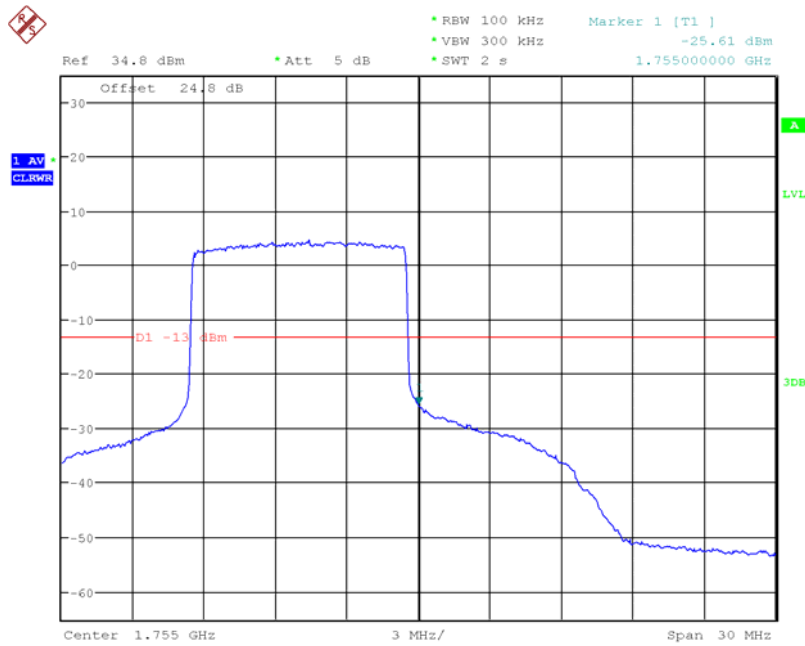
LTE Band4, 10MHz bandwidth, QPSK,(50,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:16:00

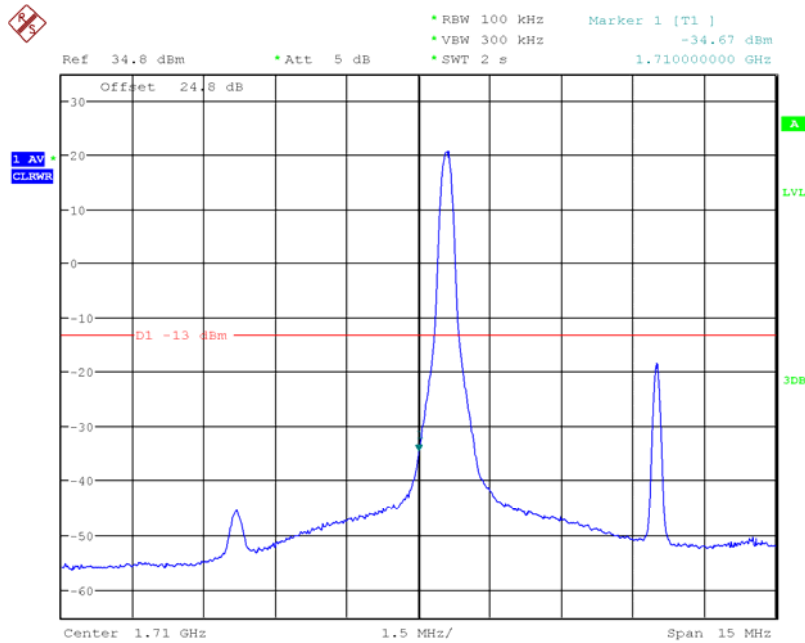
LTE Band4, 10MHz bandwidth, QPSK,(1,50) Mode, Above 1755MHz



Date: 19.OCT.2018 17:15:19

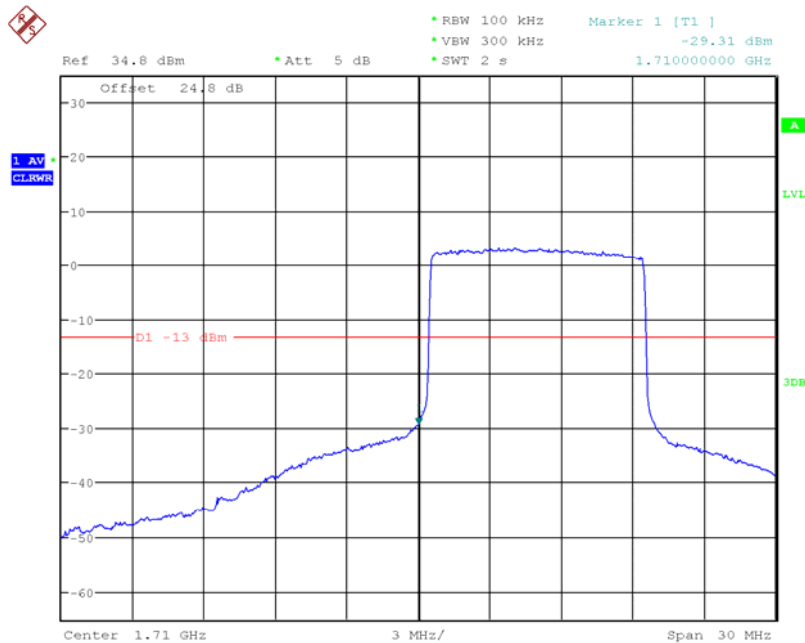
LTE Band4, 10MHz bandwidth, QPSK,(50,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:13:27

LTE Band4, 10MHz bandwidth, 16QAM,(1,0) Mode , Below 1710MHz

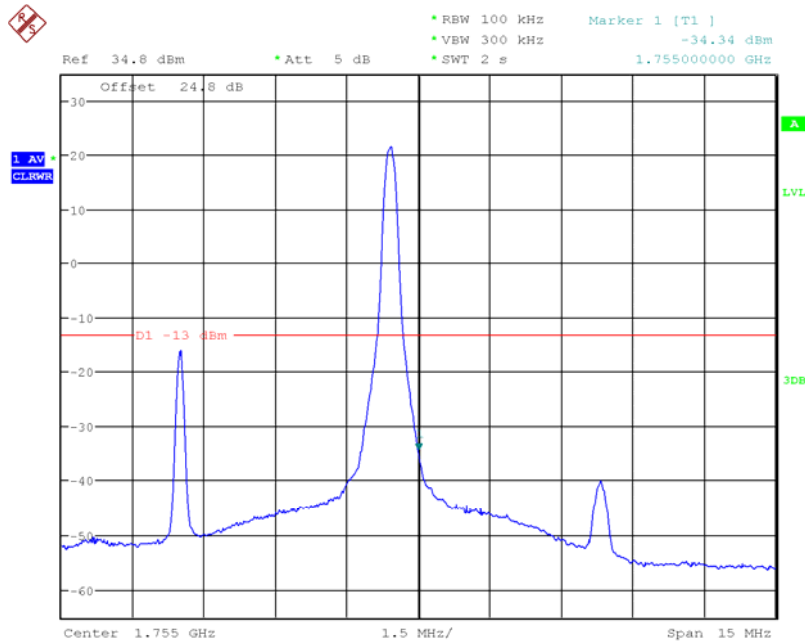


Date: 19.OCT.2018 17:12:51

LTE Band4, 10MHz bandwidth, 16QAM,(50,0) Mode , Below 1710MHz

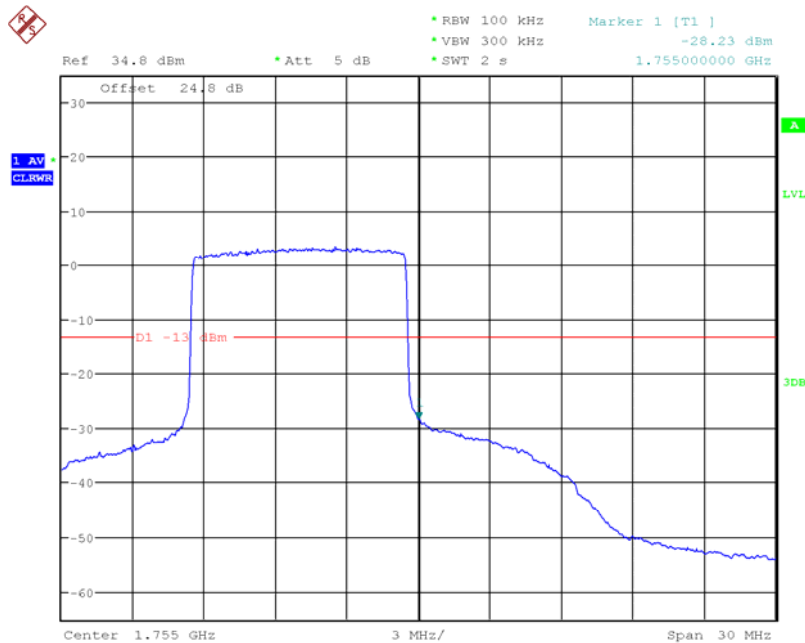


Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:14:25

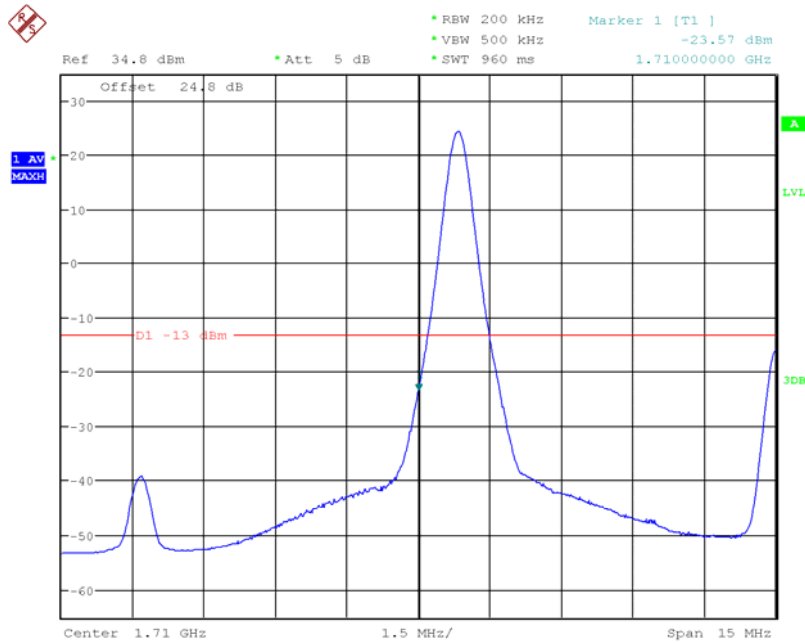
LTE Band4, 10MHz bandwidth, 16QAM,(1,50) Mode, Above 1755MHz



Date: 19.OCT.2018 17:14:57

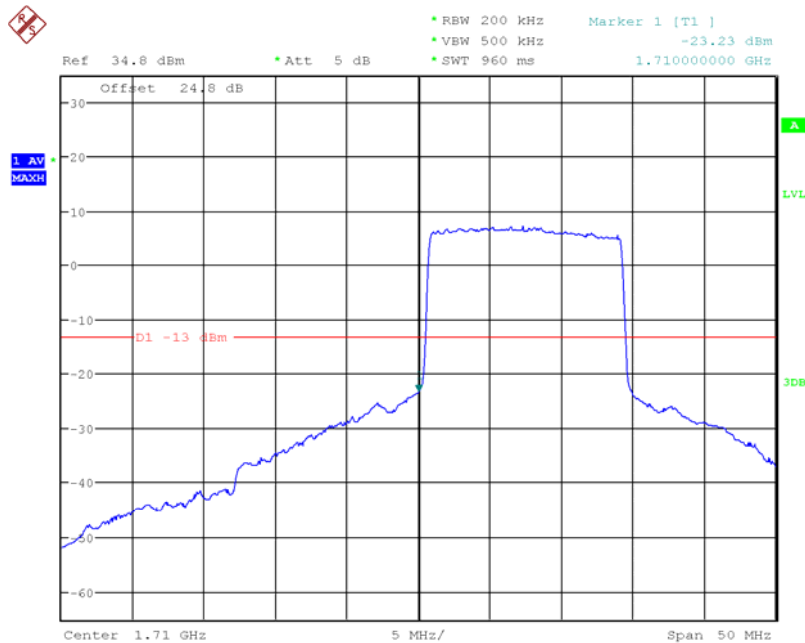
LTE Band4, 10MHz bandwidth, 16QAM,(50,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:37:05

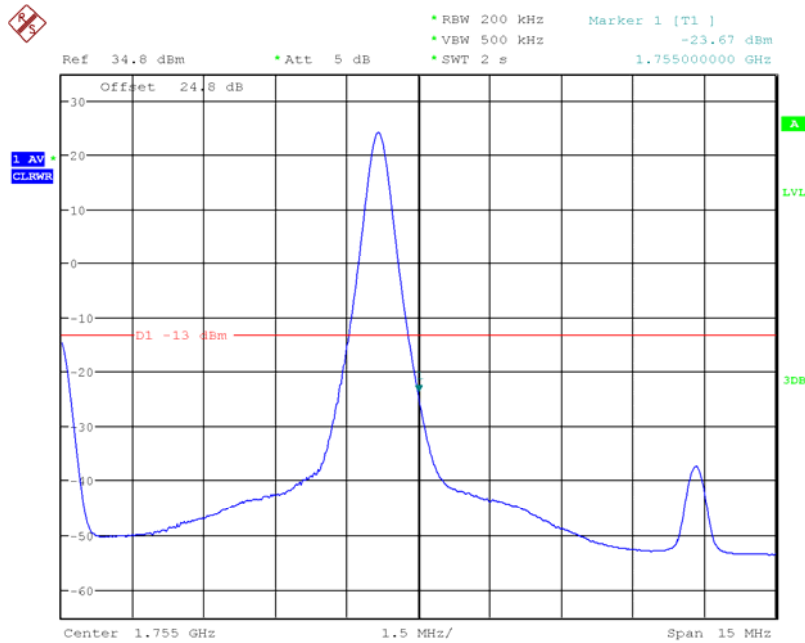
LTE Band4, 15MHz bandwidth, QPSK,(1,0) Mode , Below 1710MHz



Date: 22.OCT.2018 14:36:23

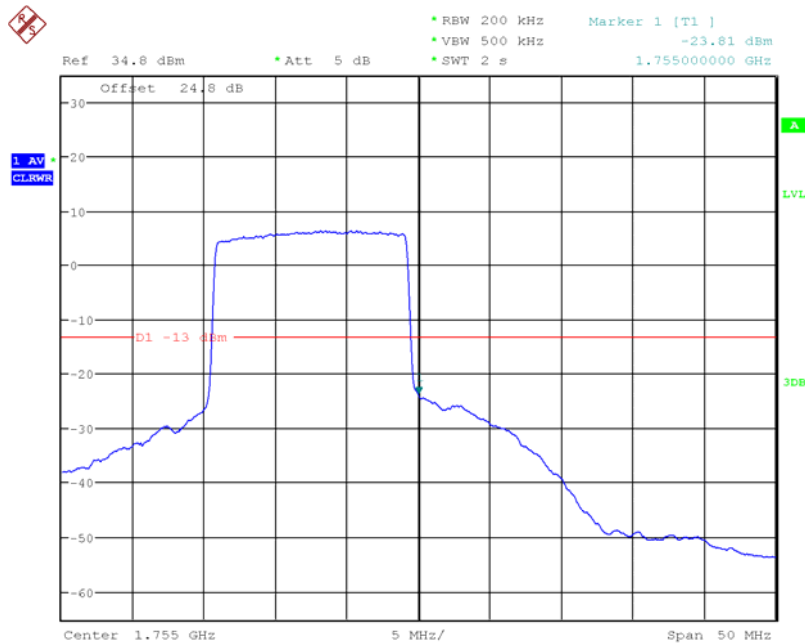
LTE Band4, 15MHz bandwidth, QPSK,(75,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:25:03

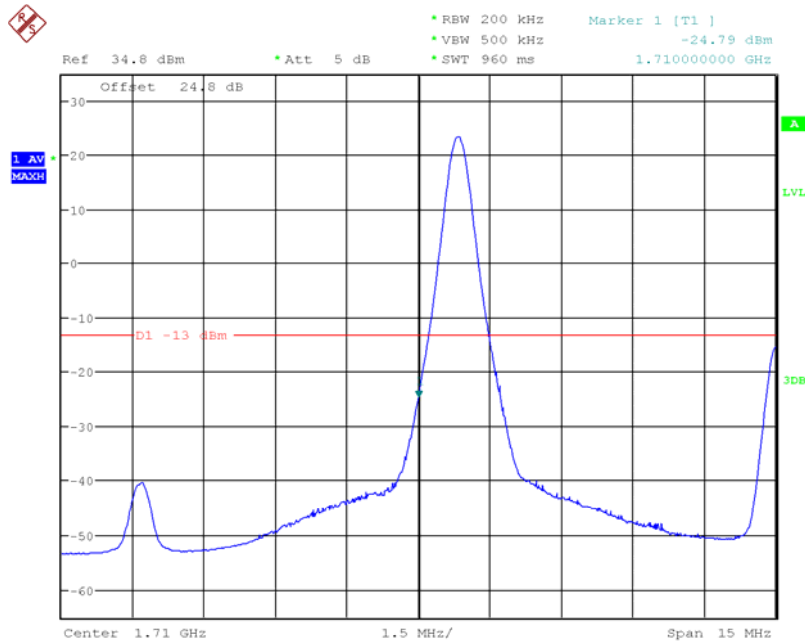
LTE Band4, 15MHz bandwidth, QPSK,(1,75) Mode, Above 1755MHz



Date: 19.OCT.2018 17:25:38

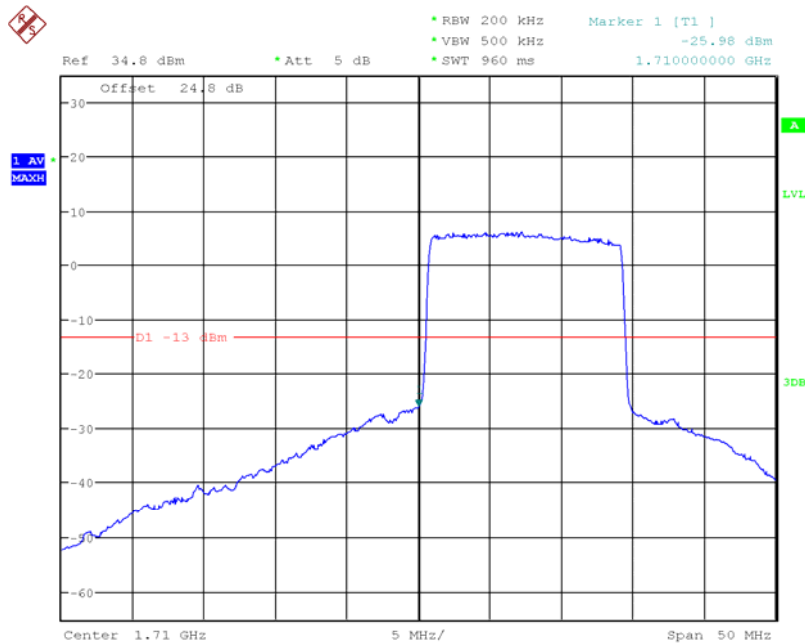
LTE Band4, 15MHz bandwidth, QPSK,(75,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:37:34

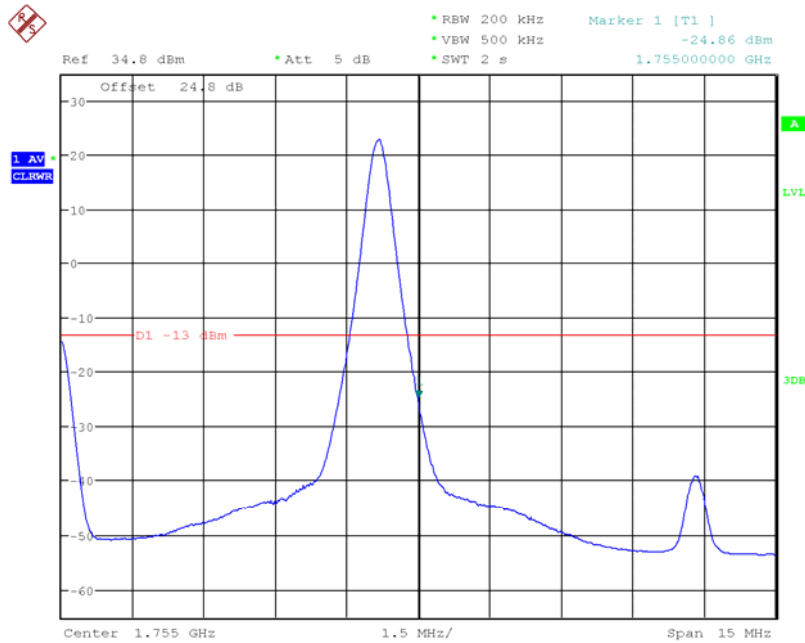
LTE Band4, 15MHz bandwidth, 16QAM,(1,0) Mode , Below 1710MHz



Date: 22.OCT.2018 14:38:46

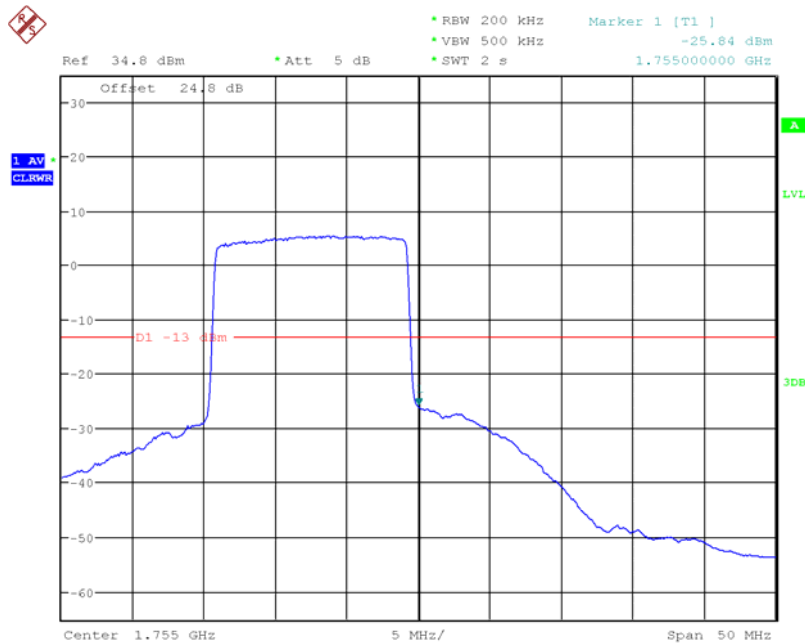
LTE Band4, 15MHz bandwidth, 16QAM,(75,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:21:47

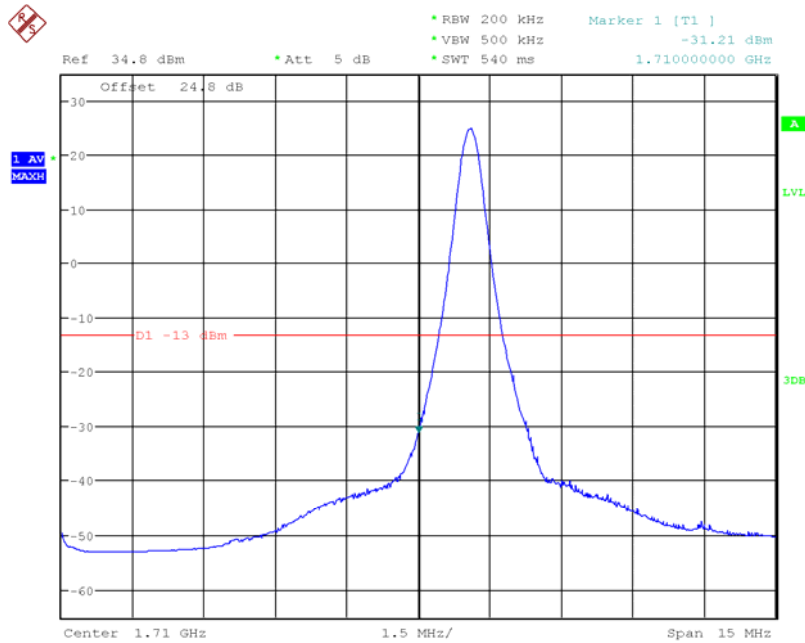
LTE Band4, 15MHz bandwidth, 16QAM,(1,75) Mode, Above 1755MHz



Date: 19.OCT.2018 17:23:55

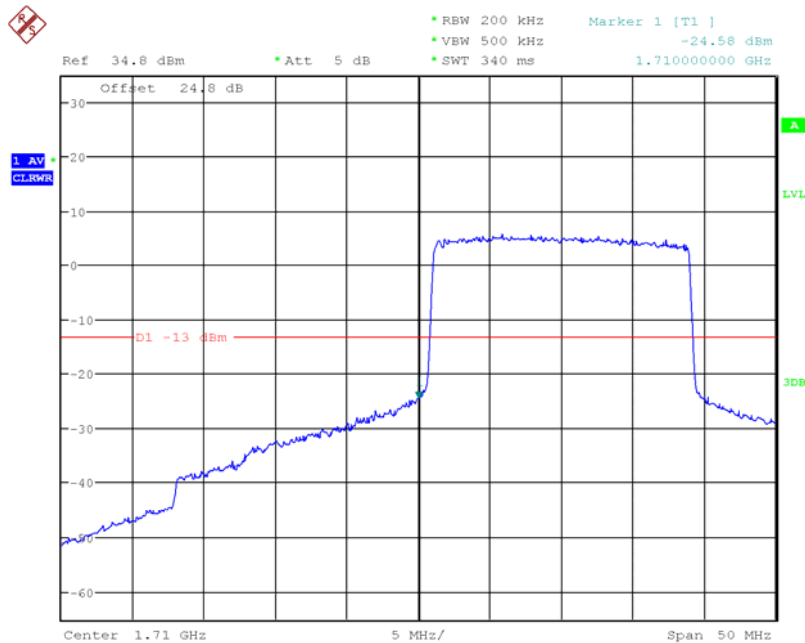
LTE Band4, 15MHz bandwidth, 16QAM,(75,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:42:43

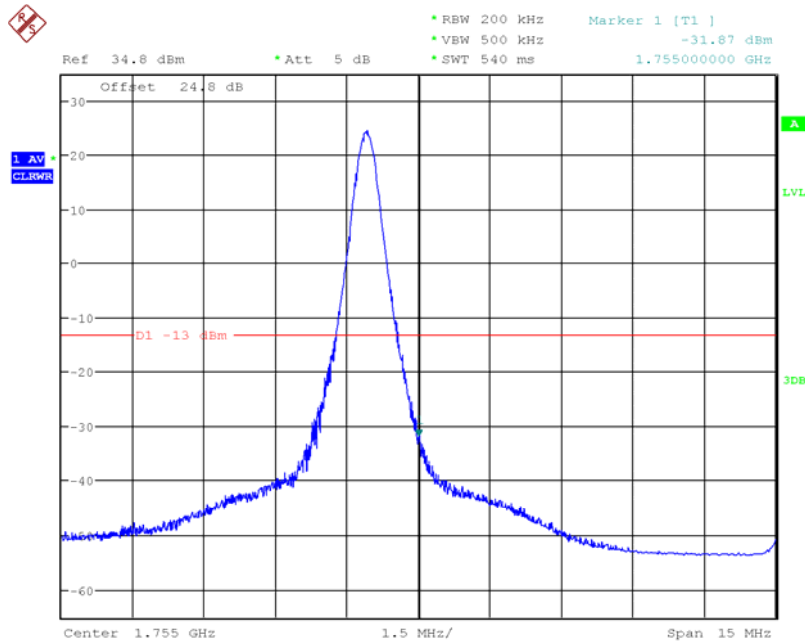
LTE Band4, 20MHz bandwidth, QPSK,(1,0) Mode , Below 1710MHz



Date: 19.OCT.2018 17:29:44

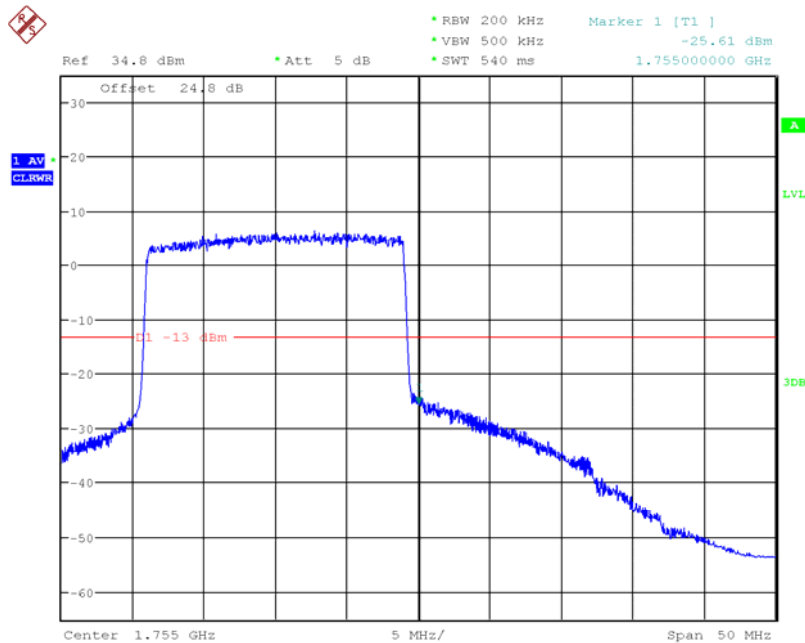
LTE Band4, 20MHz bandwidth, QPSK,(100,0) Mode , Below 1710MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:47:04

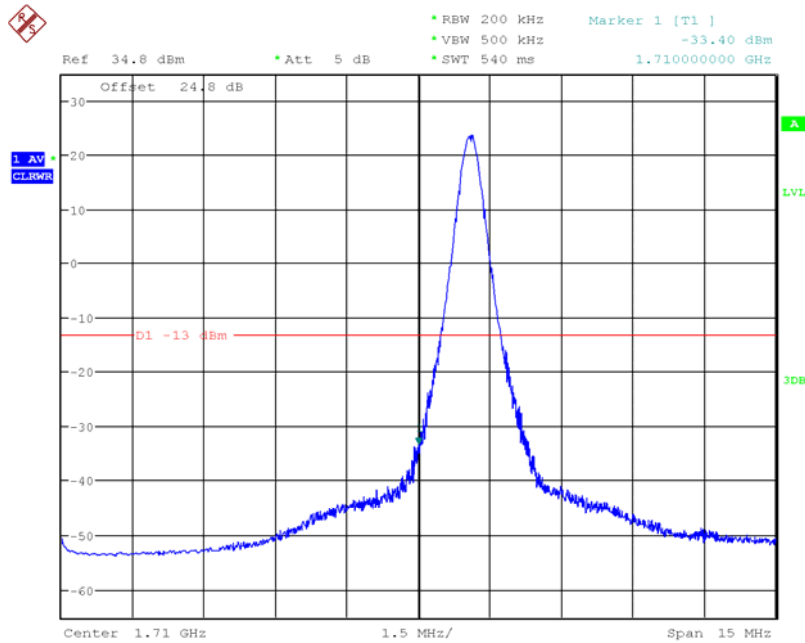
LTE Band4, 20MHz bandwidth, QPSK,(1,100) Mode, Above 1755MHz



Date: 19.OCT.2018 17:47:38

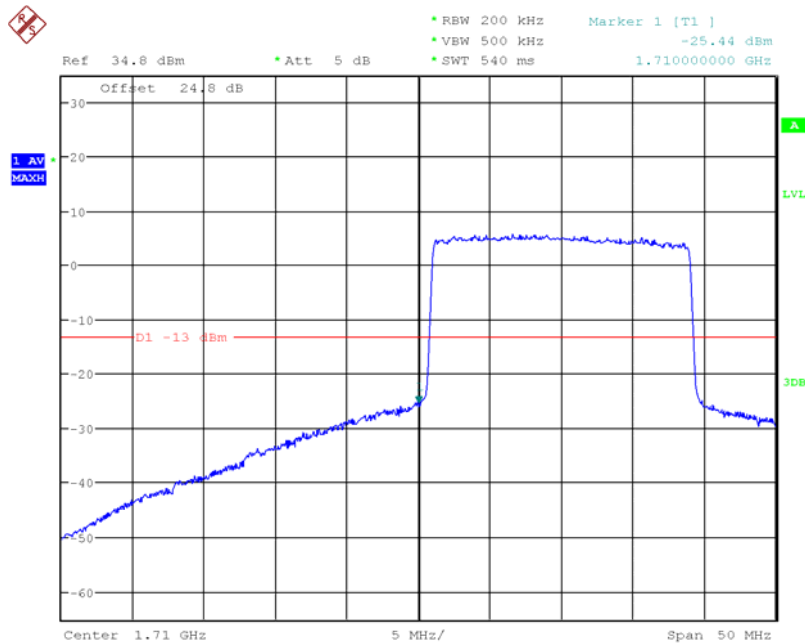
LTE Band4, 20MHz bandwidth, QPSK,(100,0) Mode, Above 1755MHz

Report No.:B18W50495-WWAN



Date: 19.OCT.2018 17:43:08

LTE Band4, 20MHz bandwidth, 16QAM,(1,0) Mode , Below 1710MHz



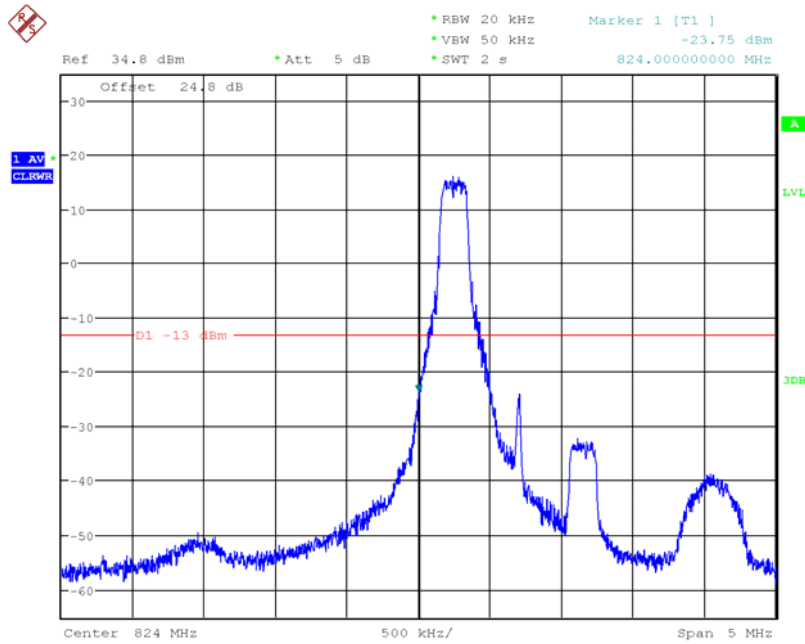
Date: 19.OCT.2018 17:43:42

LTE Band4, 20MHz bandwidth, 16QAM,(100,0) Mode , Below 1710MHz



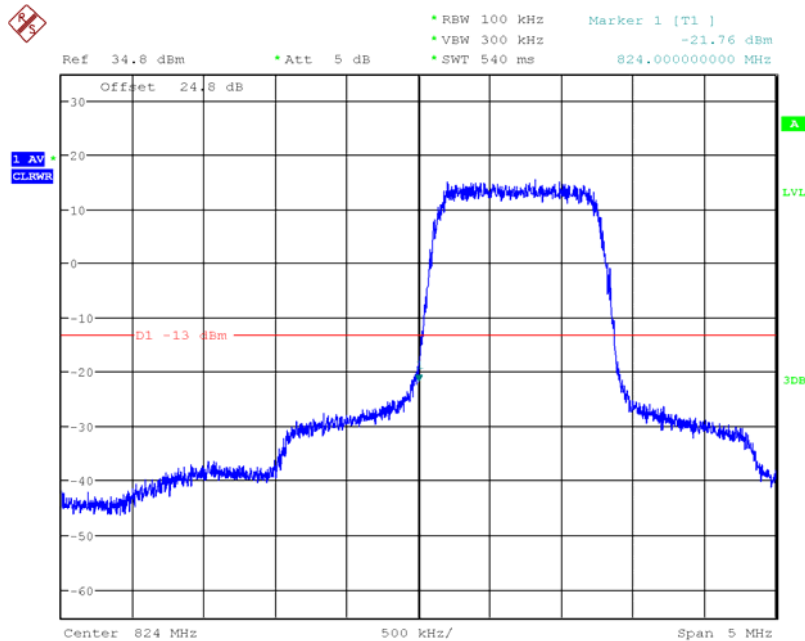


5.5.8 LTE B5 Band Edge Results



Date: 22.OCT.2018 09:36:19

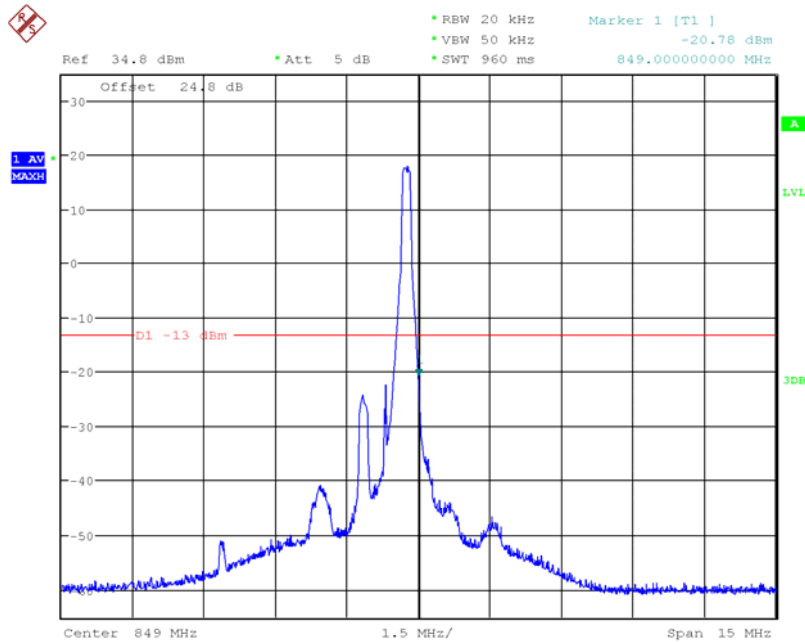
LTE Band5, 1.4MHz bandwidth, QPSK,(1,0) Mode , Below 824MHz



Date: 22.OCT.2018 09:34:15

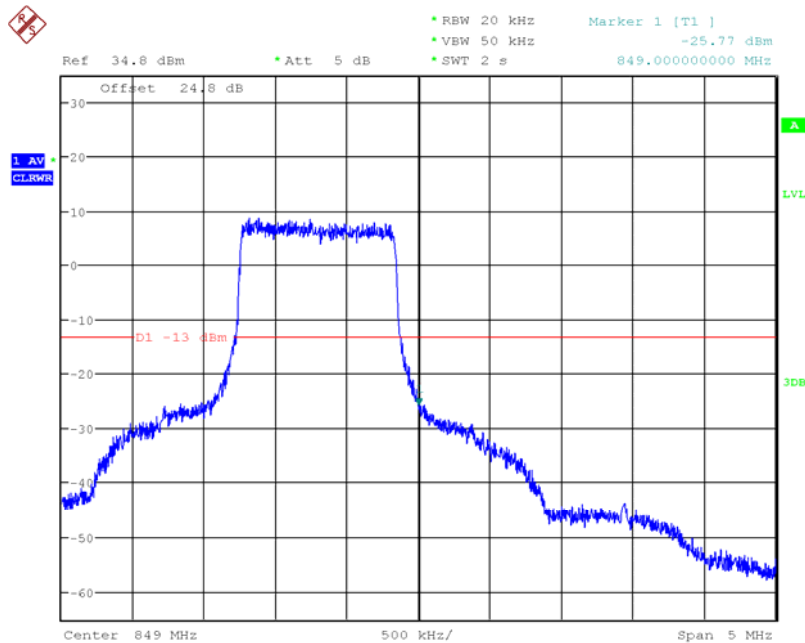
LTE Band5, 1.4MHz bandwidth, QPSK,(6,0) Mode , Below 824MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 13:42:22

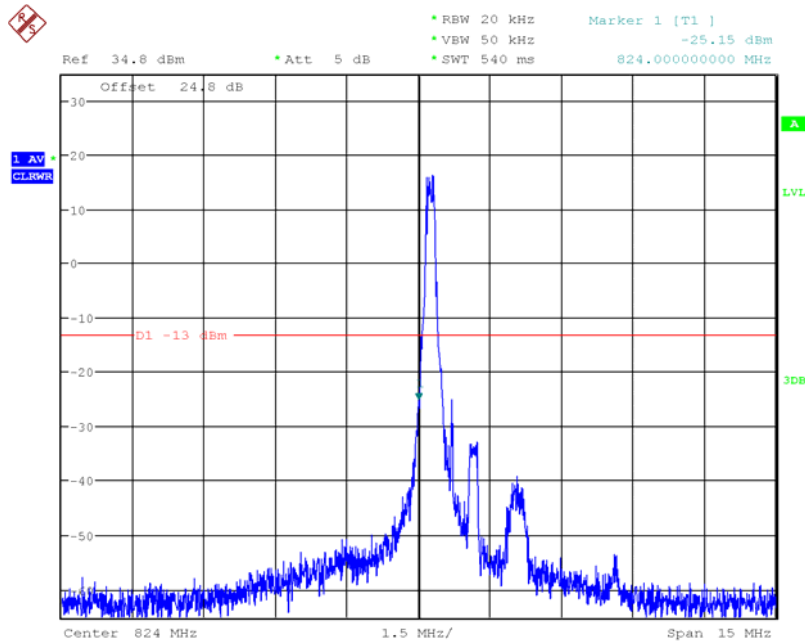
LTE Band5, 1.4MHz bandwidth, QPSK,(1,6) Mode, Above 849MHz



Date: 22.OCT.2018 09:37:34

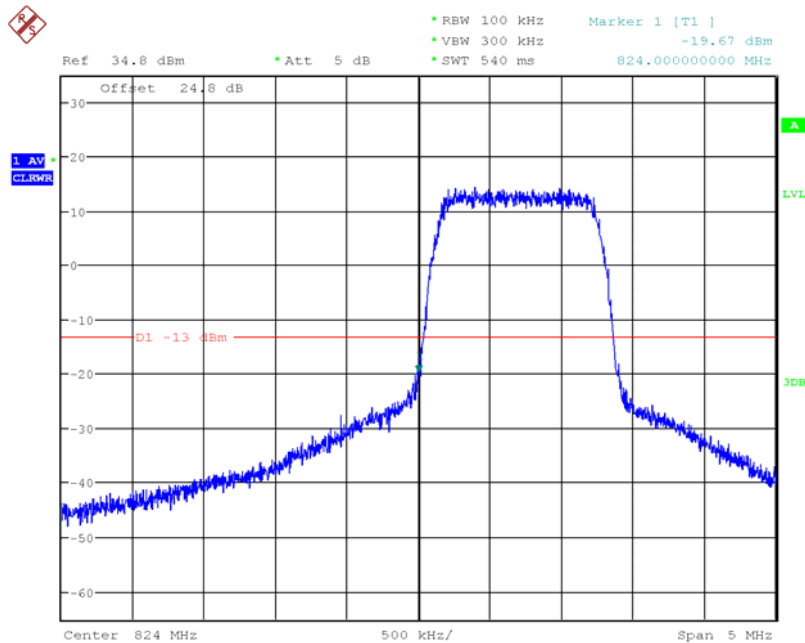
LTE Band5, 1.4MHz bandwidth, QPSK,(6,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 09:32:48

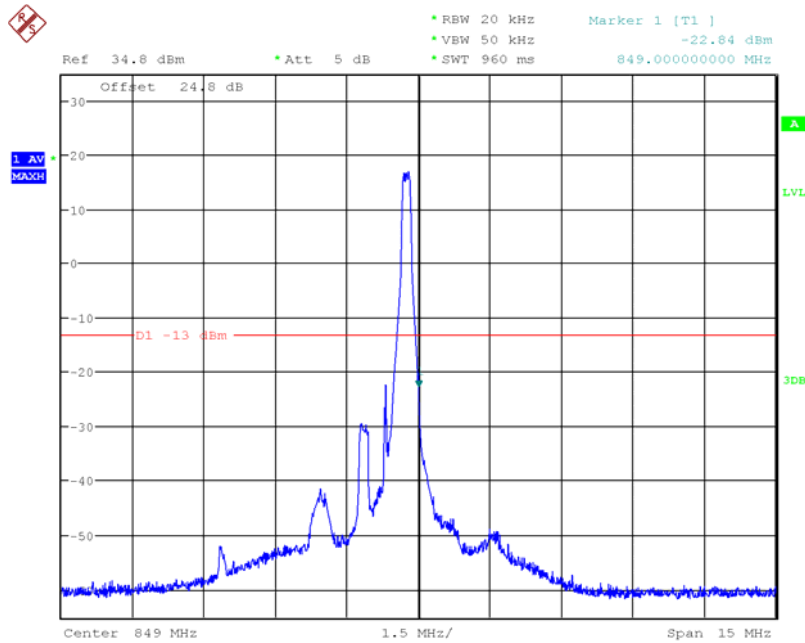
LTE Band5, 1.4MHz bandwidth, 16QAM,(1,0) Mode , Below 824MHz



Date: 22.OCT.2018 09:33:40

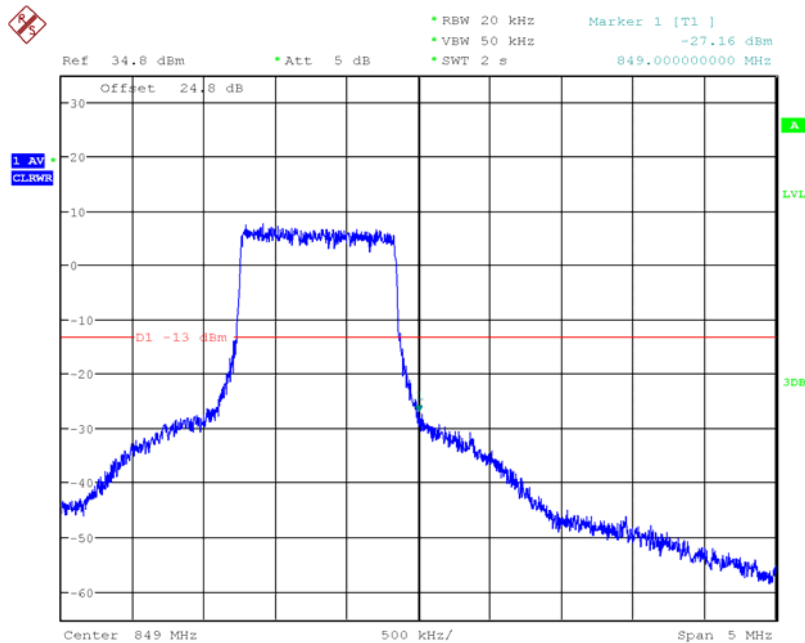
LTE Band5, 1.4MHz bandwidth, 16QAM,(6,0) Mode , Below 824MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 13:42:58

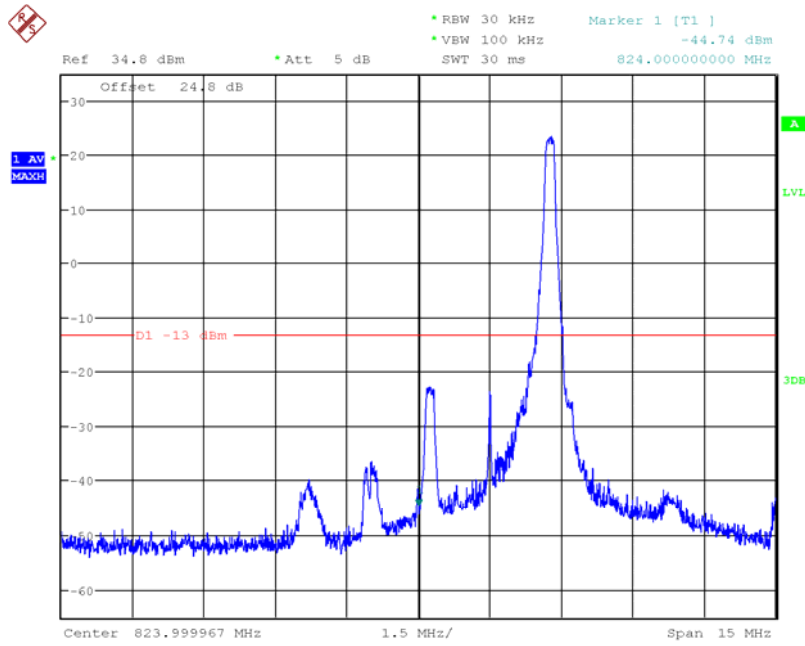
LTE Band5, 1.4MHz bandwidth, 16QAM,(1,6) Mode, Above 849MHz



Date: 22.OCT.2018 09:37:58

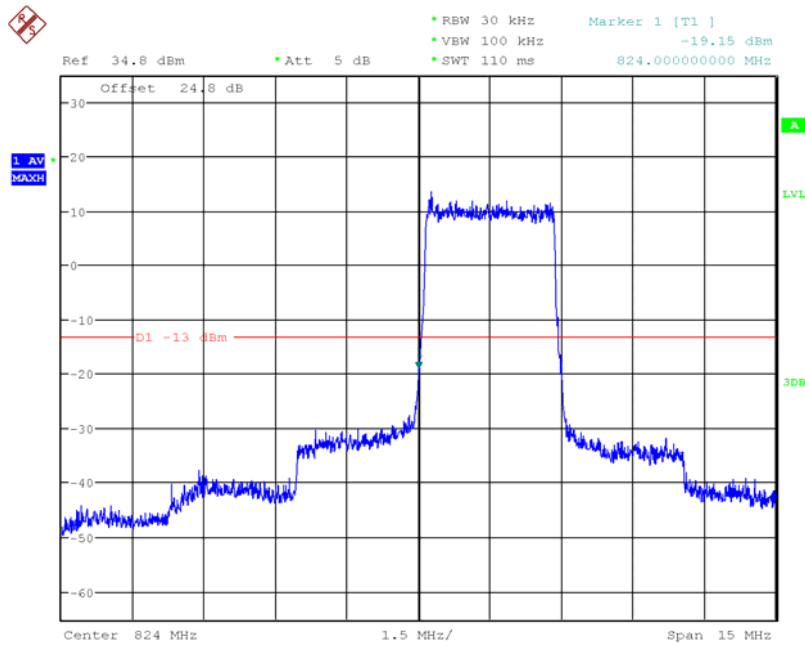
LTE Band5, 1.4MHz bandwidth, 16QAM,(6,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 09:42:18

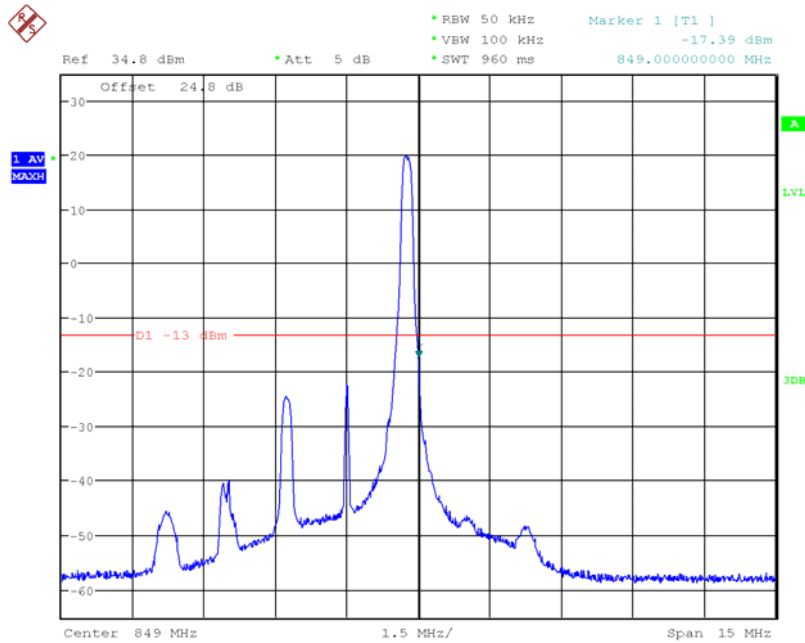
LTE Band5, 3MHz bandwidth, QPSK,(1,0) Mode , Below 824MHz



Date: 22.OCT.2018 09:43:27

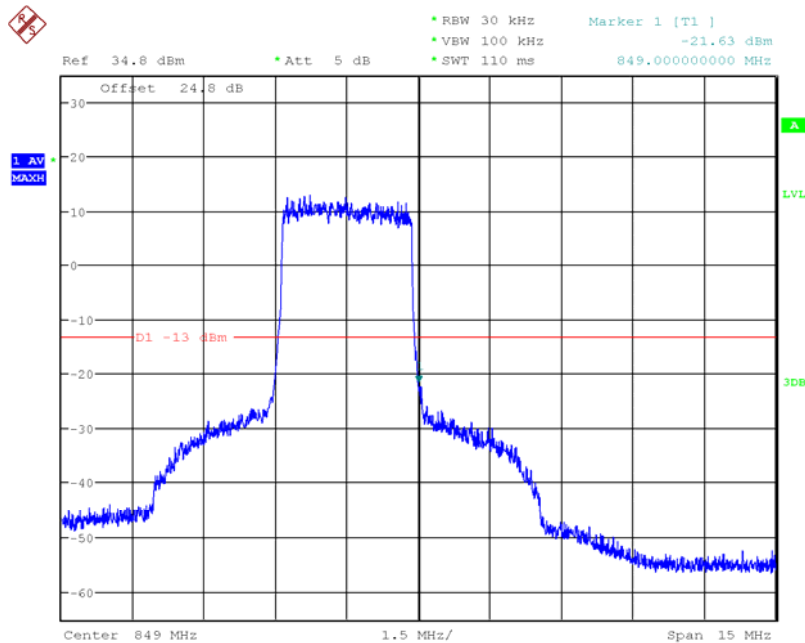
LTE Band5, 3MHz bandwidth, QPSK,(15,0) Mode , Below 824MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 13:57:14

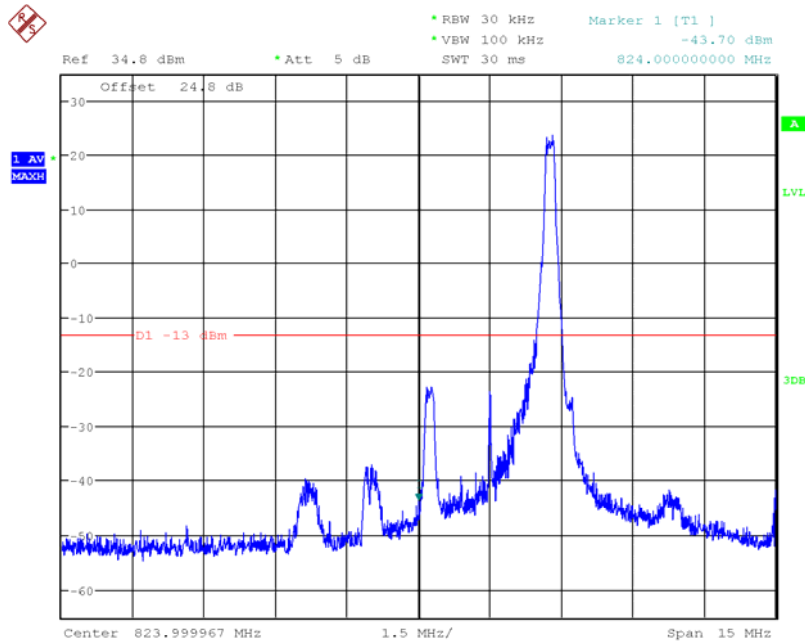
LTE Band5, 3MHz bandwidth, QPSK,(1,15) Mode, Above 849MHz



Date: 22.OCT.2018 09:49:38

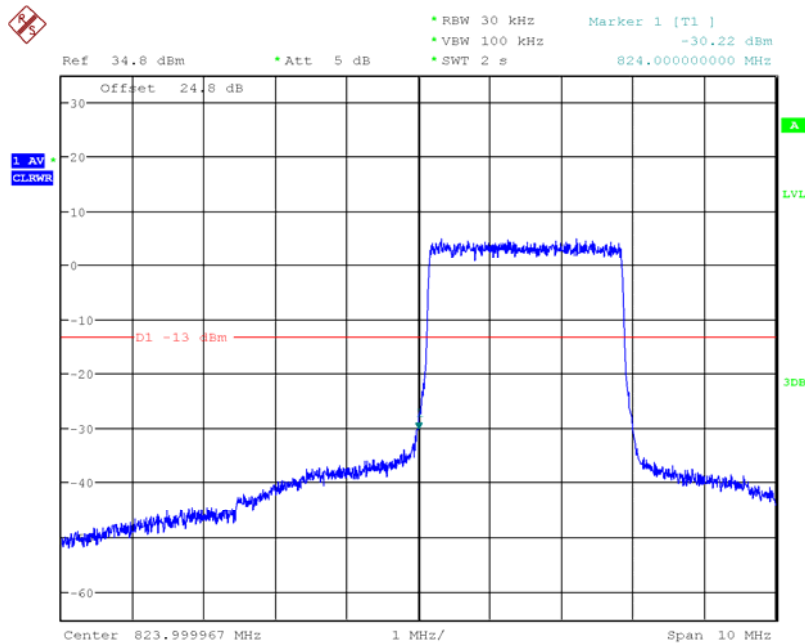
LTE Band5, 3MHz bandwidth, QPSK,(15,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 09:41:49

LTE Band5, 3MHz bandwidth, 16QAM,(1,0) Mode , Below 824MHz

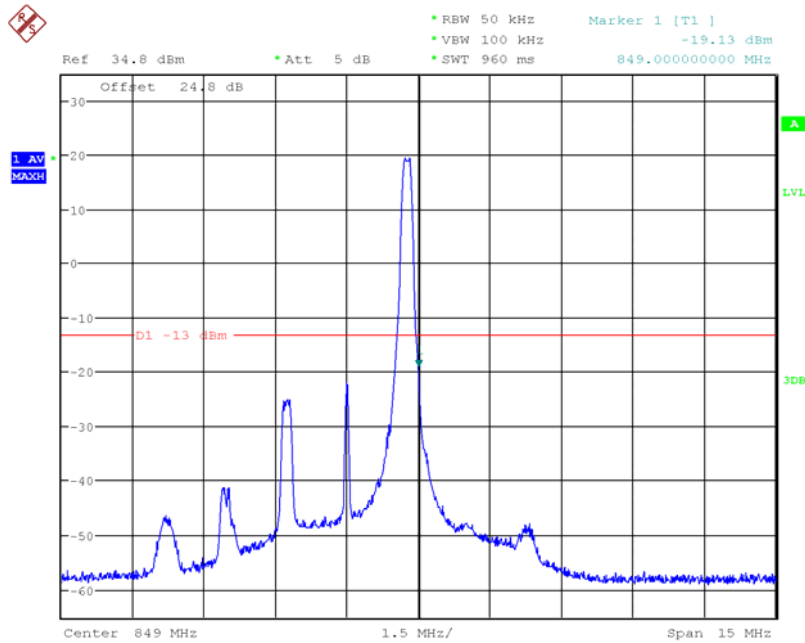


Date: 22.OCT.2018 09:40:26

LTE Band5, 3MHz bandwidth, 16QAM,(15,0) Mode , Below 824MHz

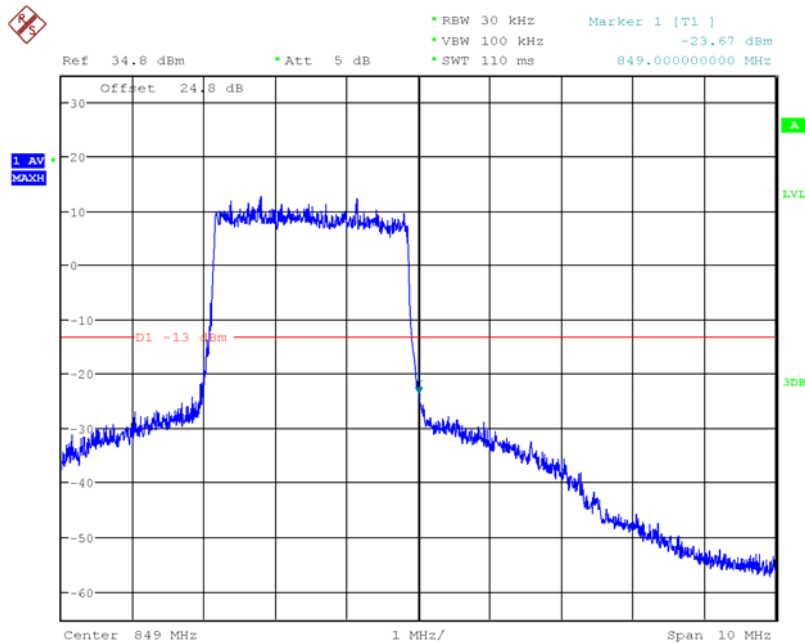


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 13:56:38

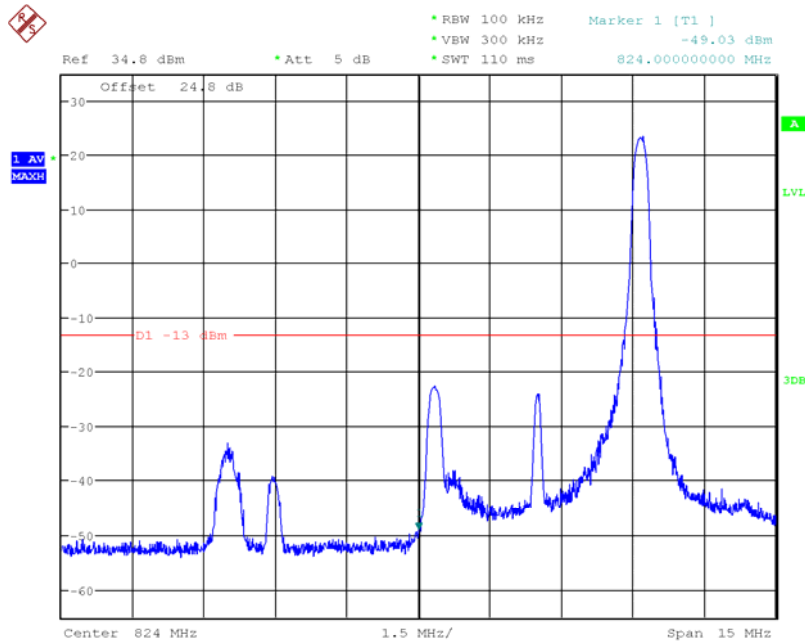
LTE Band5, 3MHz bandwidth, 16QAM,(1,15) Mode, Above 849MHz



Date: 22.OCT.2018 09:51:18

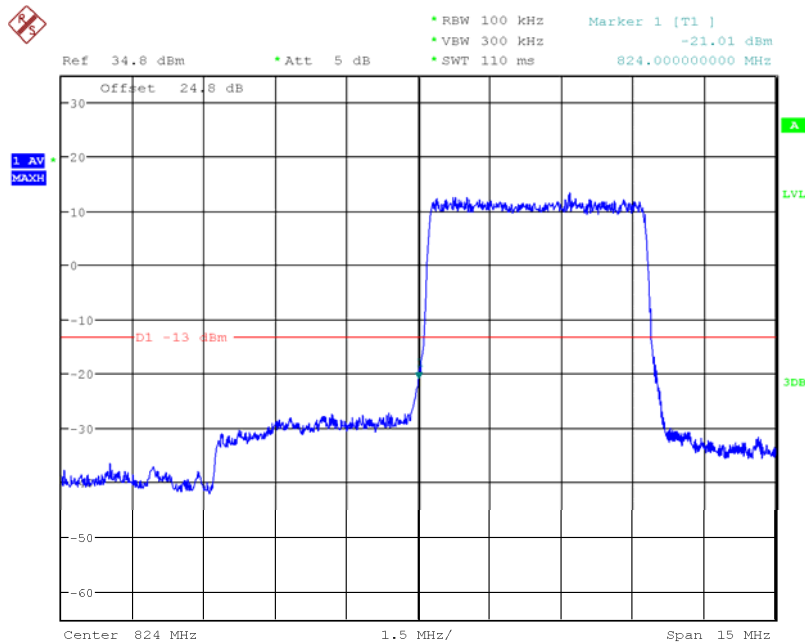
LTE Band5, 3MHz bandwidth, 16QAM,(15,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 09:53:56

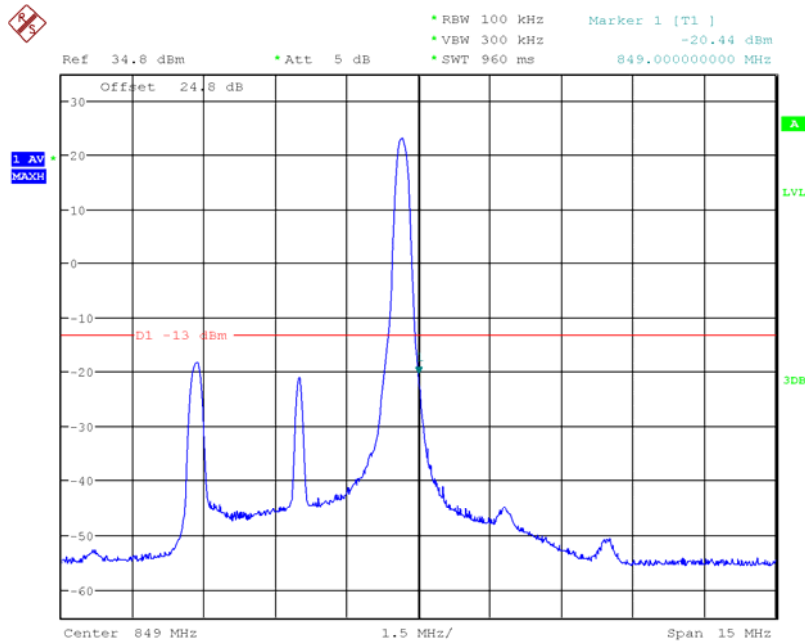
LTE Band5, 5MHz bandwidth, QPSK,(1,0) Mode , Below 824MHz



Date: 22.OCT.2018 09:53:32

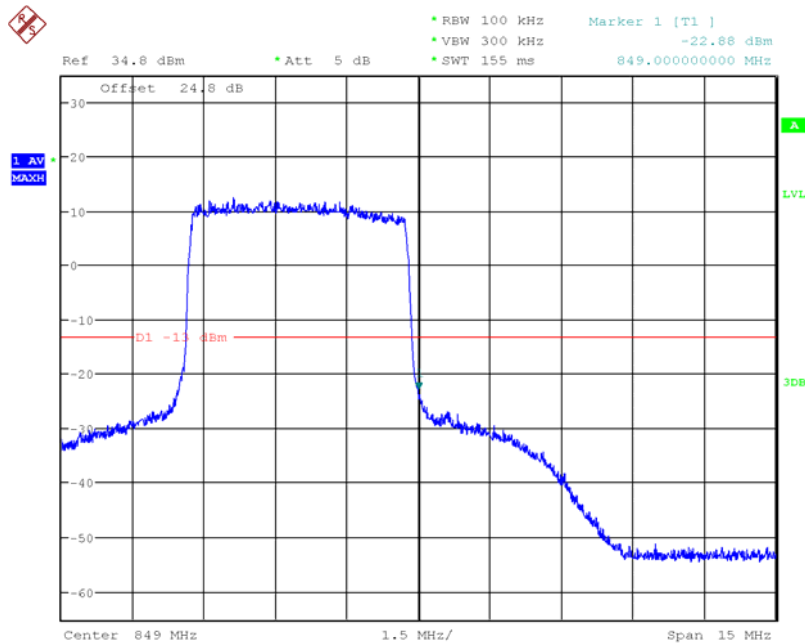
LTE Band5, 5MHz bandwidth, QPSK,(25,0) Mode , Below 824MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:20:05

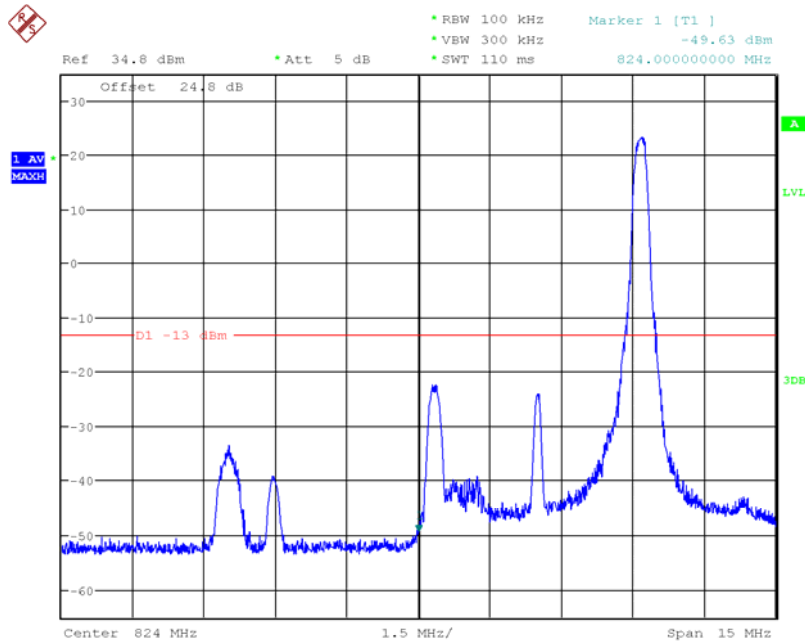
LTE Band5, 5MHz bandwidth, QPSK,(1,25) Mode, Above 849MHz



Date: 22.OCT.2018 09:58:20

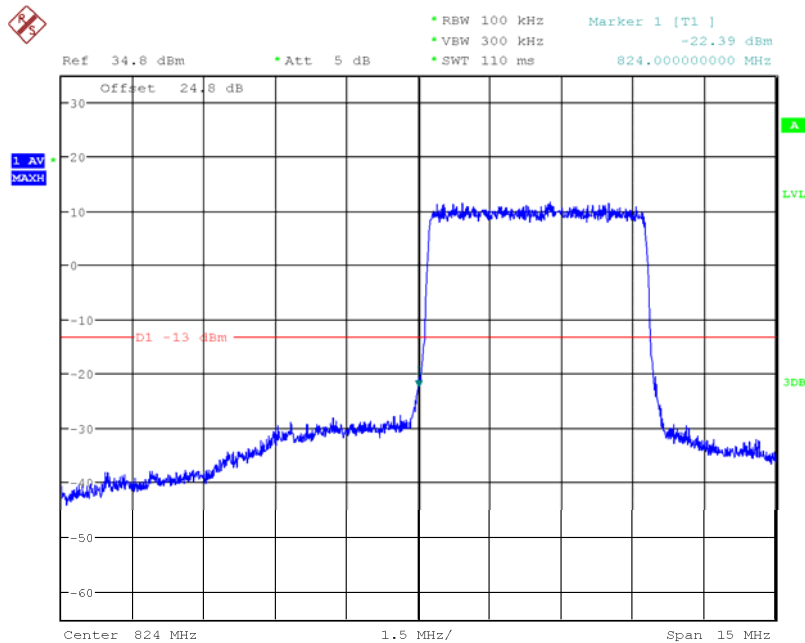
LTE Band5, 5MHz bandwidth, QPSK,(25,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 09:54:29

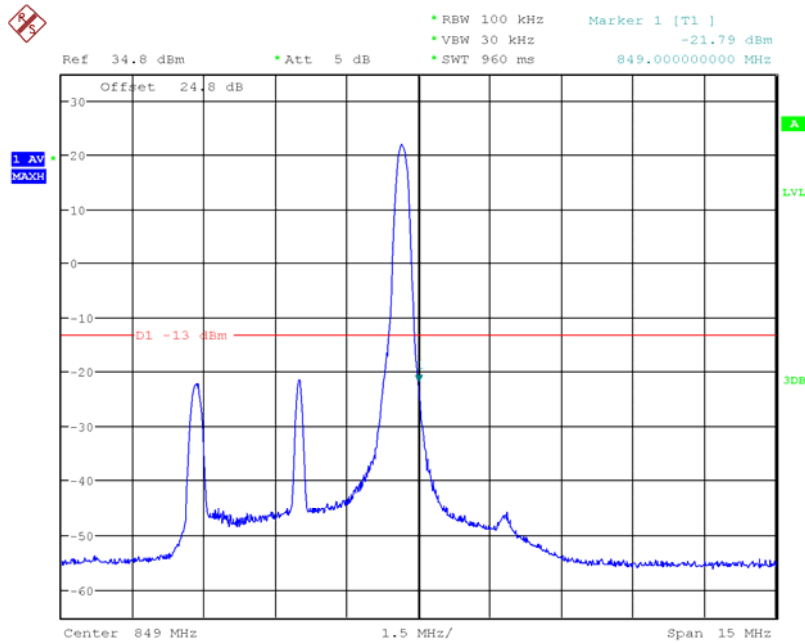
LTE Band5, 5MHz bandwidth, 16QAM,(1,0) Mode , Below 824MHz



Date: 22.OCT.2018 09:55:00

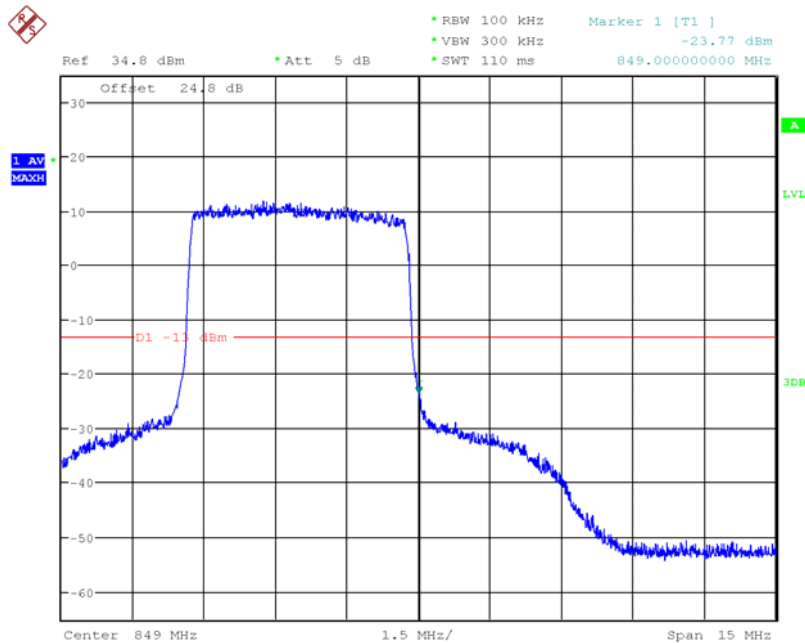
LTE Band5, 5MHz bandwidth, 16QAM,(25,0) Mode , Below 824MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 13:55:07

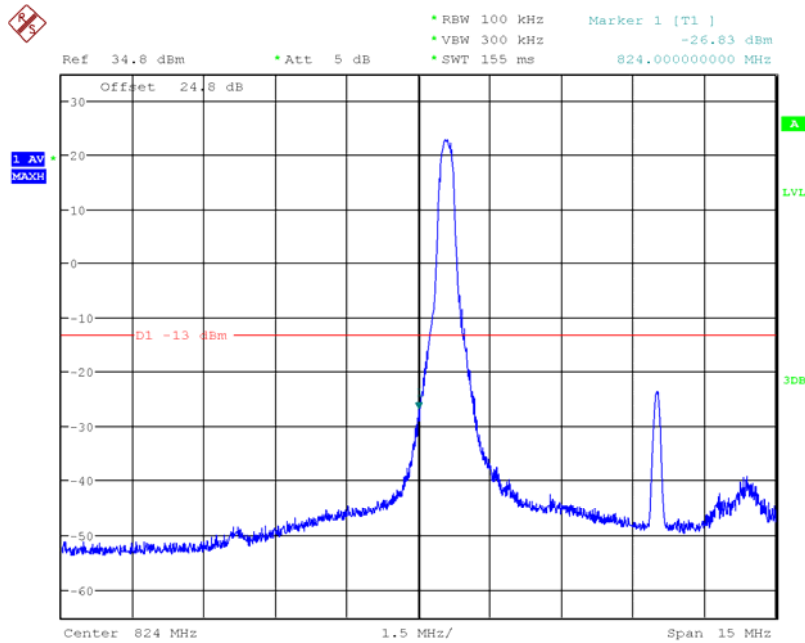
LTE Band5, 5MHz bandwidth, 16QAM,(1,25) Mode, Above 849MHz



Date: 22.OCT.2018 09:55:52

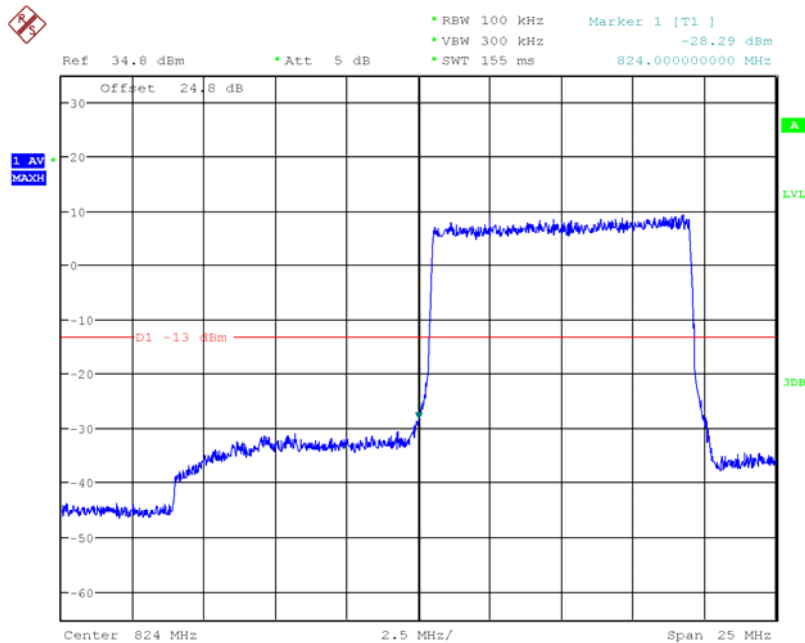
LTE Band5, 5MHz bandwidth, 16QAM,(25,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 09:59:44

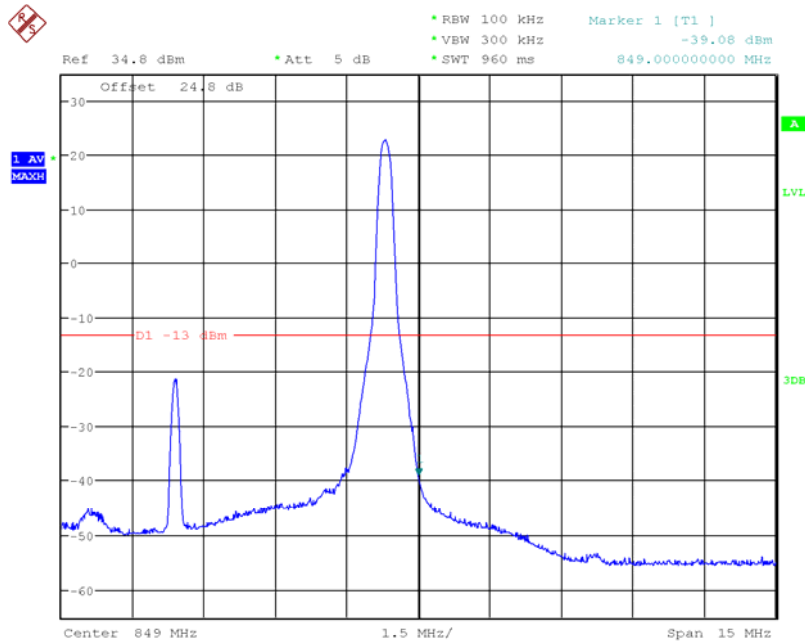
LTE Band5, 10MHz bandwidth, QPSK,(1,0) Mode , Below 824MHz



Date: 22.OCT.2018 10:00:11

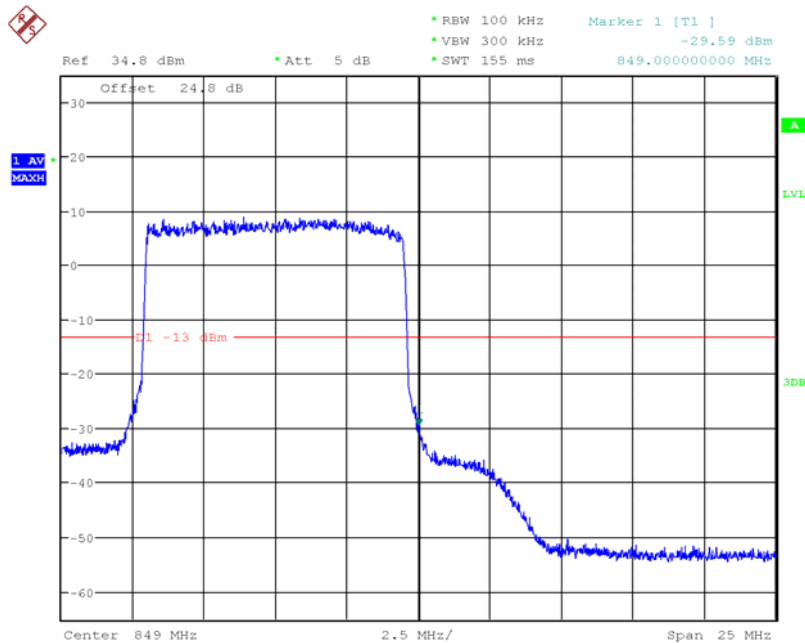
LTE Band5, 10MHz bandwidth, QPSK,(50,0) Mode , Below 824MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:21:25

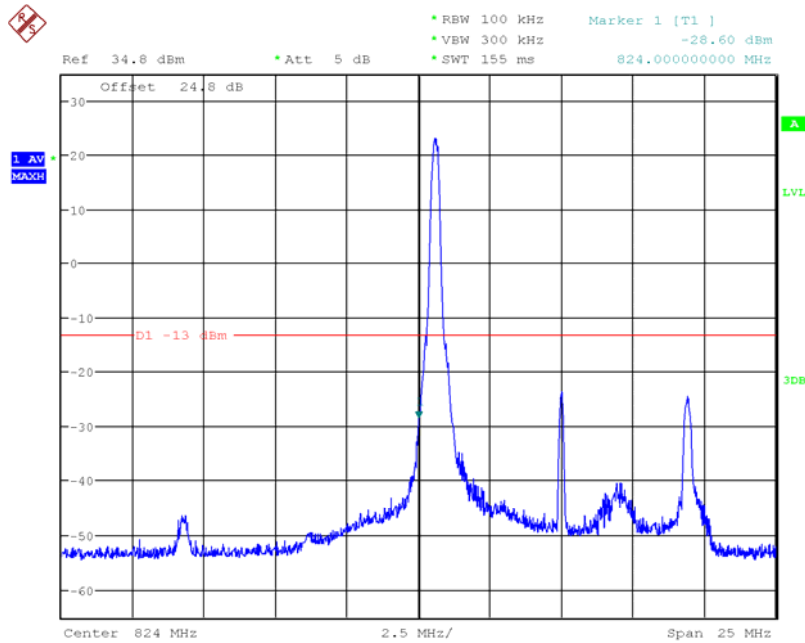
LTE Band5, 10MHz bandwidth, QPSK,(1,50) Mode, Above 849MHz



Date: 22.OCT.2018 10:04:39

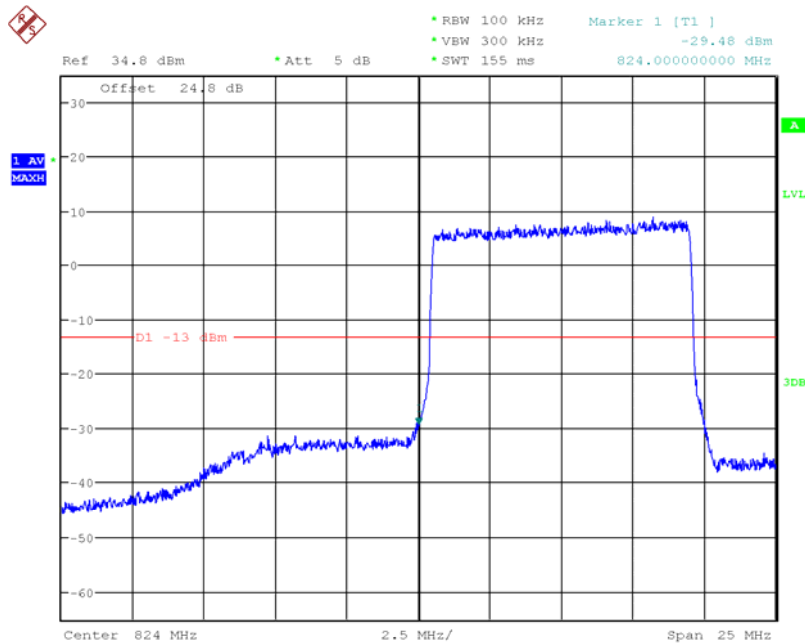
LTE Band5, 10MHz bandwidth, QPSK,(50,0) Mode, Above 849MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:01:45

LTE Band5, 10MHz bandwidth, 16QAM,(1,0) Mode , Below 824MHz

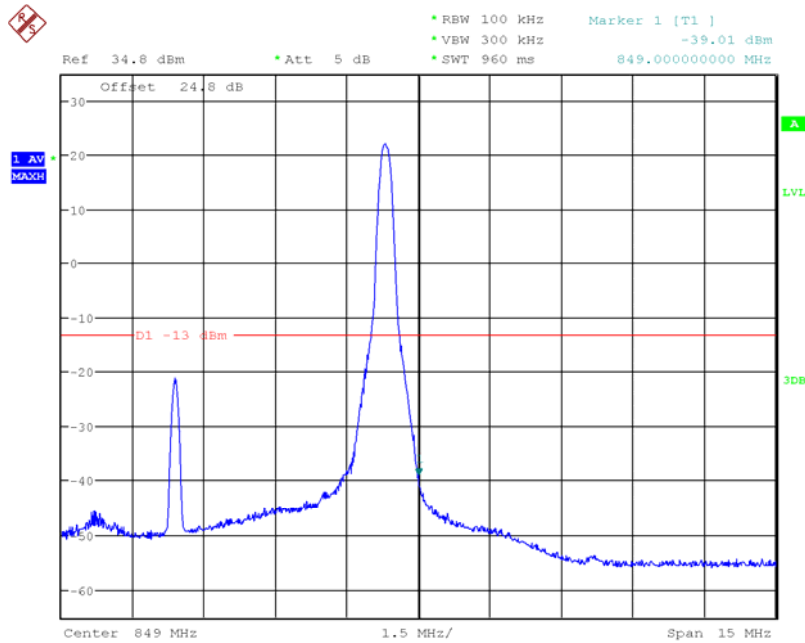


Date: 22.OCT.2018 10:00:40

LTE Band5, 10MHz bandwidth, 16QAM,(50,0) Mode , Below 824MHz

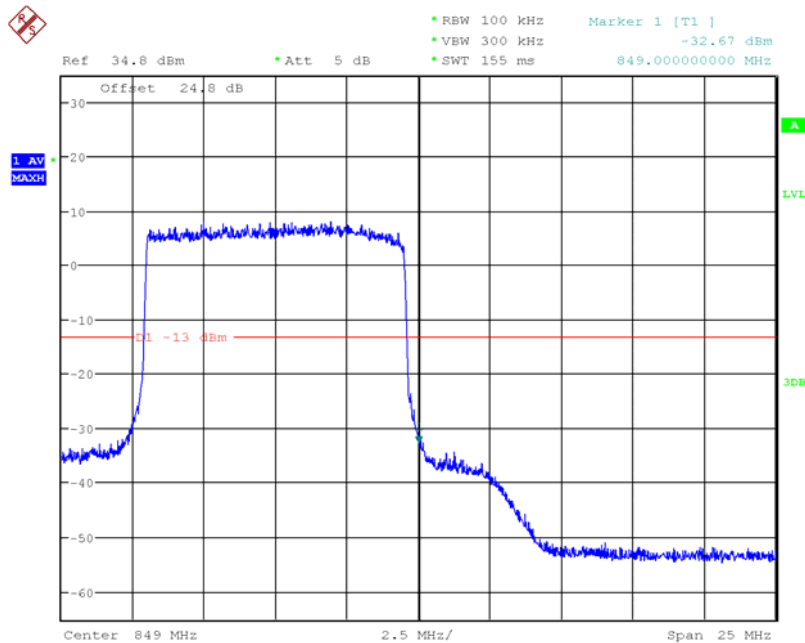


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 14:21:54

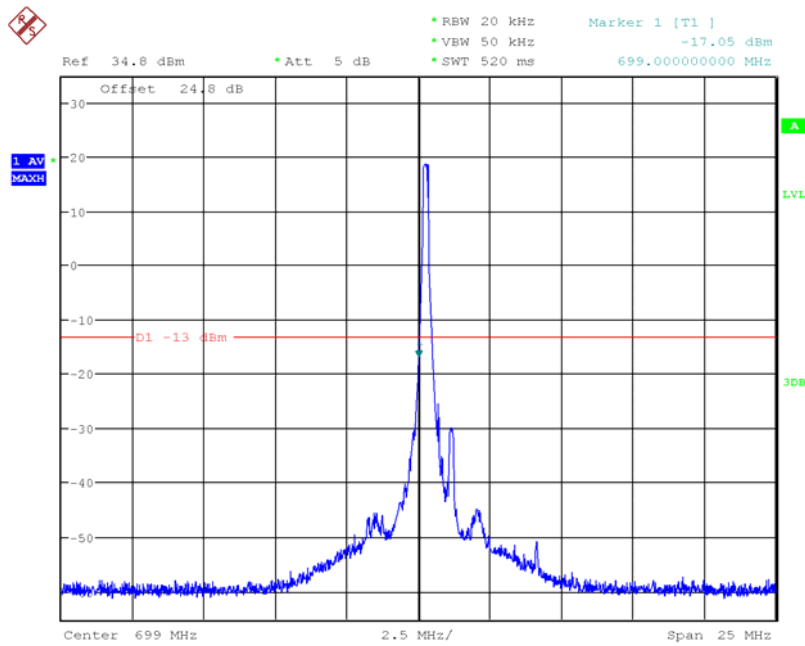
LTE Band5, 10MHz bandwidth, 16QAM,(1,50) Mode, Above 849MHz



Date: 22.OCT.2018 10:03:52

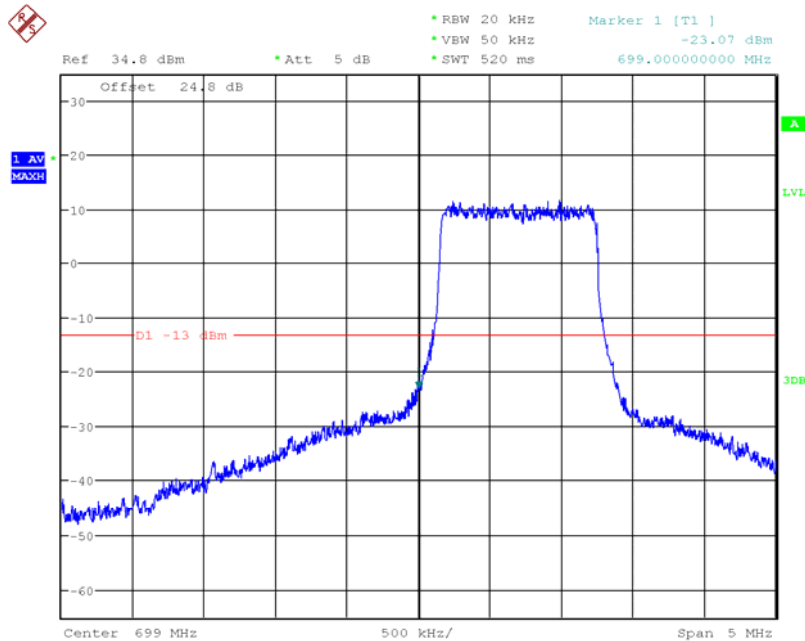
LTE Band5, 10MHz bandwidth, 16QAM,(50,0) Mode, Above 849MHz

5.5.9 LTE B12 Band Edge Results



Date: 22.OCT.2018 10:33:23

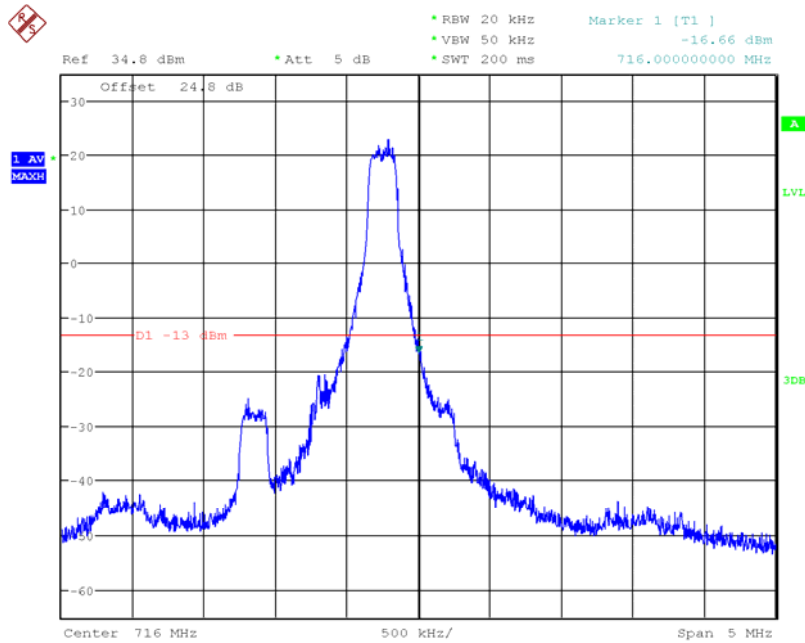
LTE Band12, 1.4MHz bandwidth, QPSK,(1,0) Mode , Below 699MHz



Date: 22.OCT.2018 10:34:05

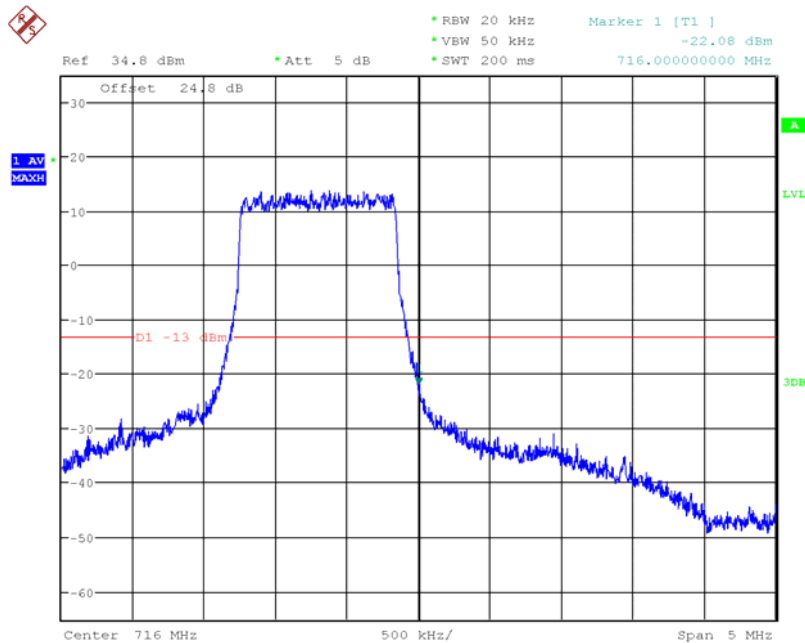
LTE Band12, 1.4MHz bandwidth, QPSK,(6,0) Mode , Below 699MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 15:50:18

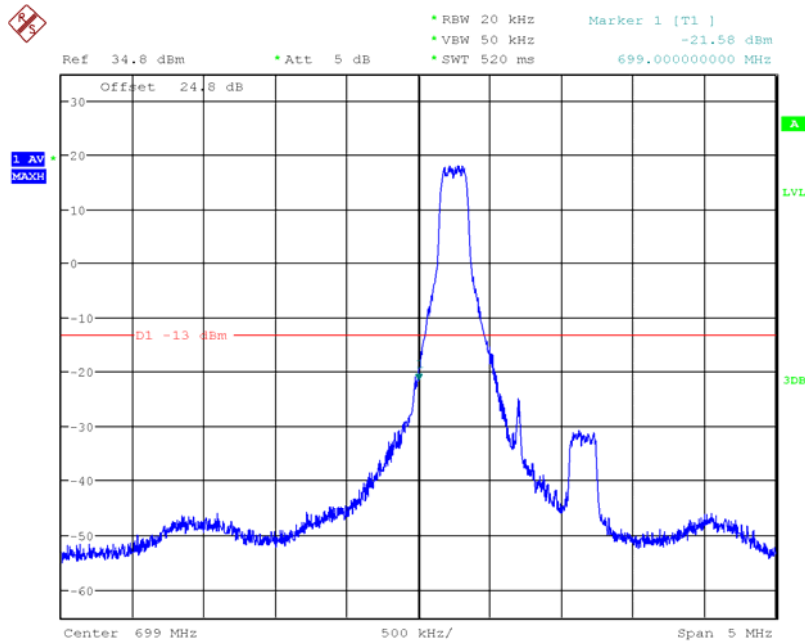
LTE Band12, 1.4MHz bandwidth, QPSK,(1,6) Mode, Above 716MHz



Date: 22.OCT.2018 15:49:52

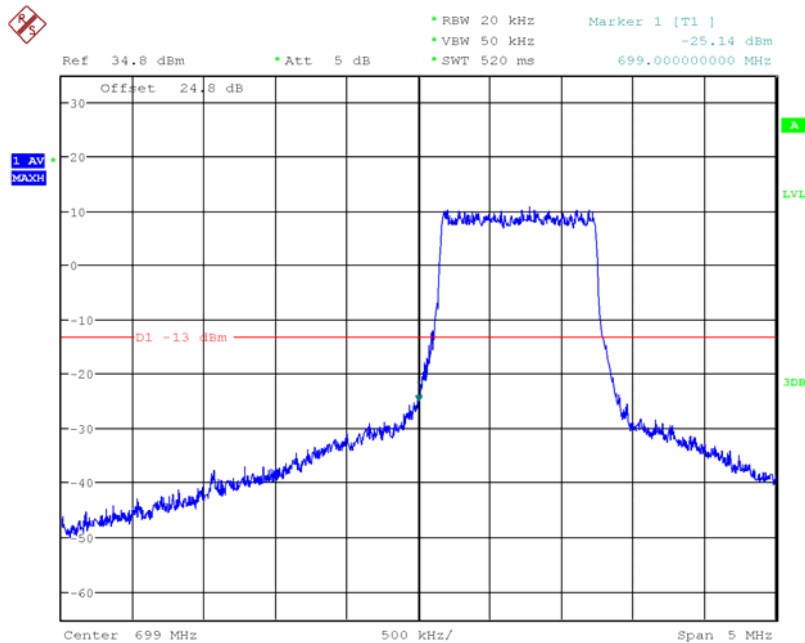
LTE Band12, 1.4MHz bandwidth, QPSK,(6,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:34:56

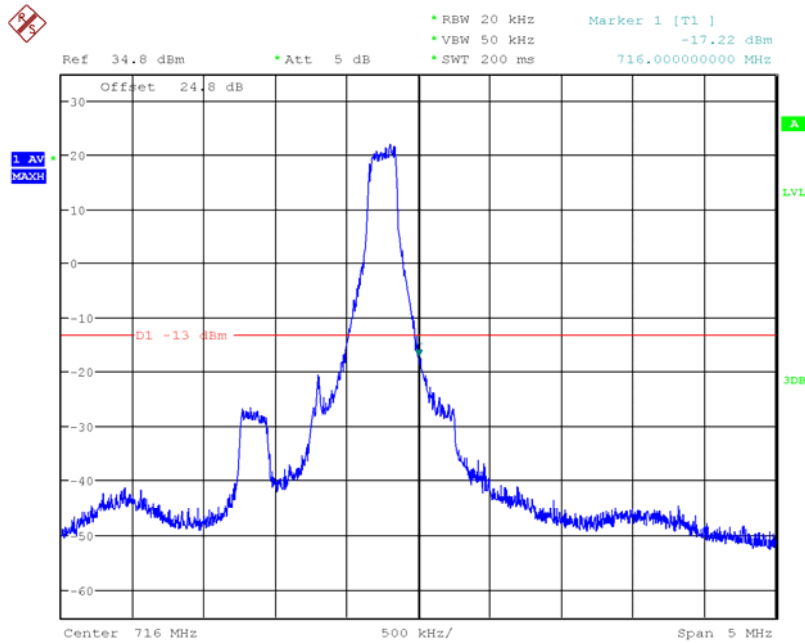
LTE Band12, 1.4MHz bandwidth, 16QAM,(1,0) Mode , Below 699MHz



Date: 22.OCT.2018 10:34:31

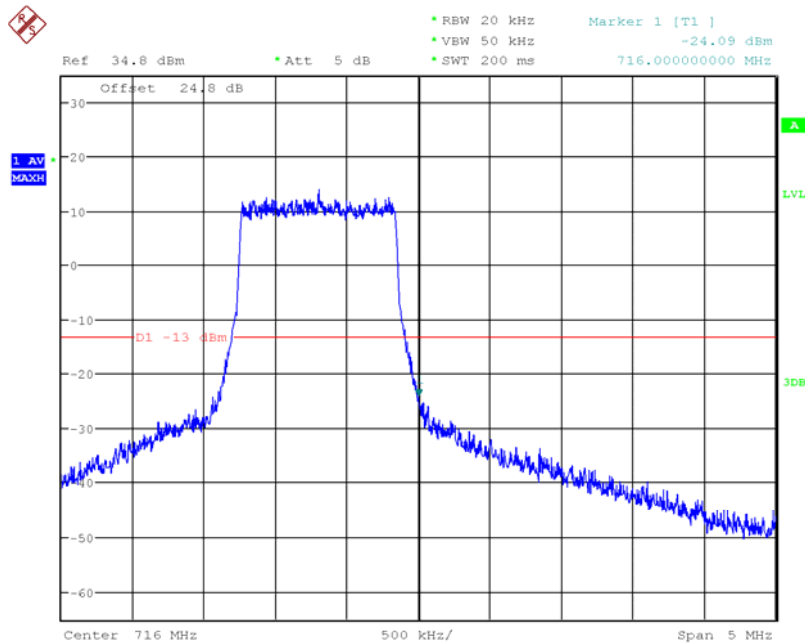
LTE Band12, 1.4MHz bandwidth, 16QAM,(6,0) Mode , Below 699MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 15:48:43

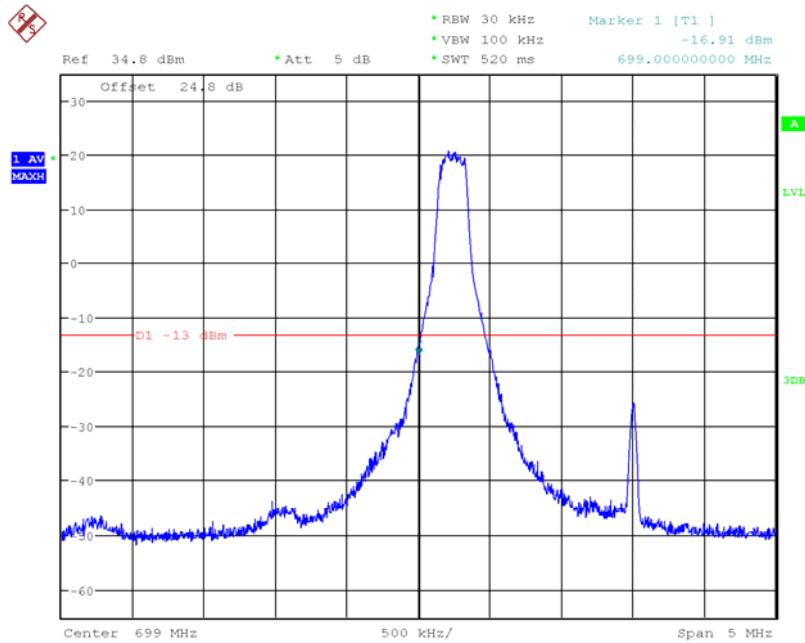
LTE Band12, 1.4MHz bandwidth, 16QAM,(1,6) Mode, Above 716MHz



Date: 22.OCT.2018 15:49:23

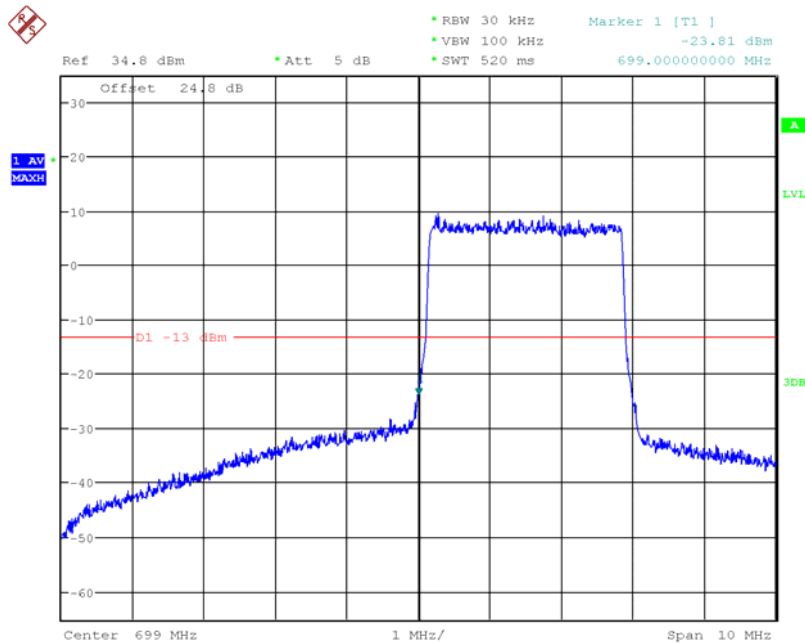
LTE Band12, 1.4MHz bandwidth, 16QAM,(6,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:39:09

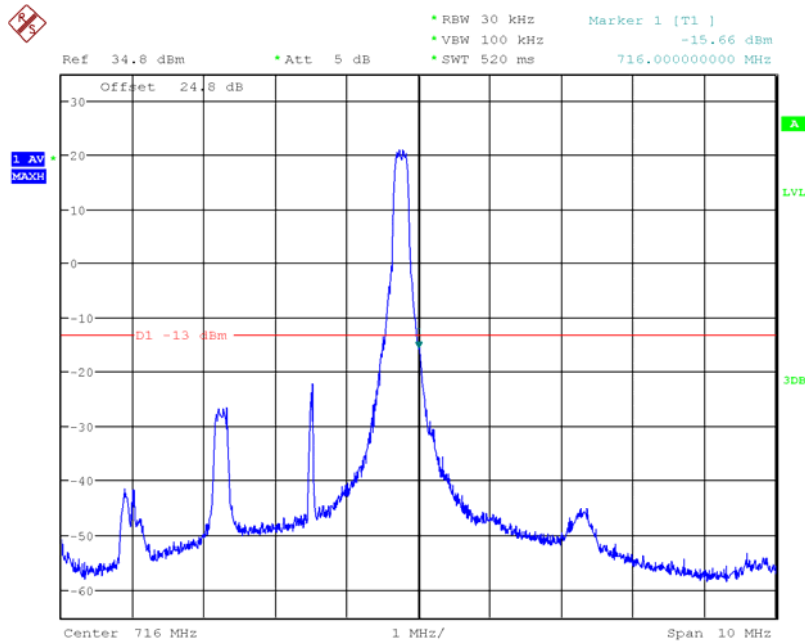
LTE Band12, 3MHz bandwidth, QPSK,(1,0) Mode , Below 699MHz



Date: 22.OCT.2018 10:39:52

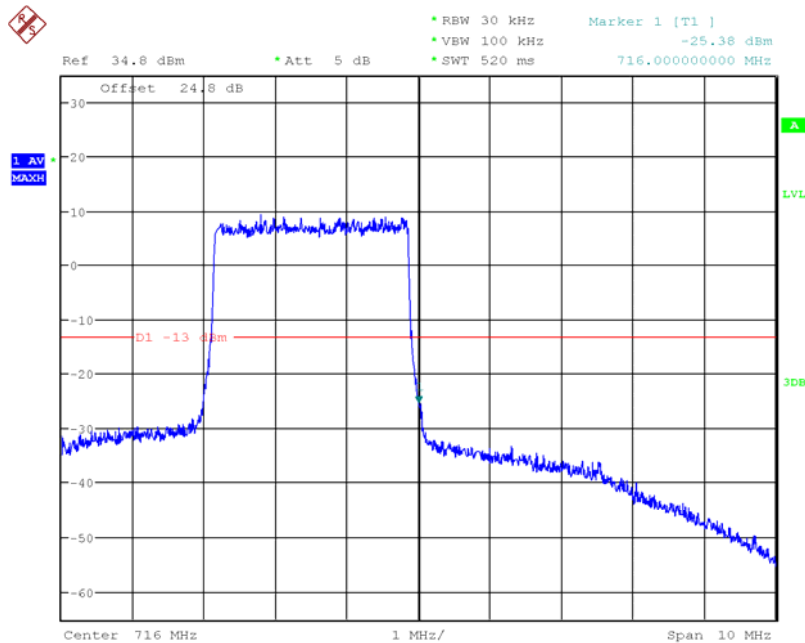
LTE Band12, 3MHz bandwidth, QPSK,(15,0) Mode , Below 699MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:41:26

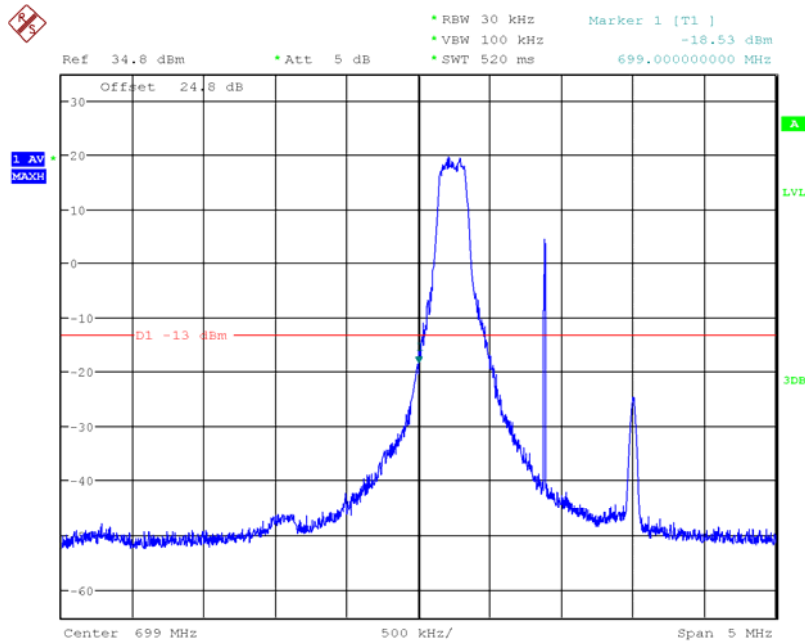
LTE Band12, 3MHz bandwidth, QPSK,(1,15) Mode, Above 716MHz



Date: 22.OCT.2018 10:40:51

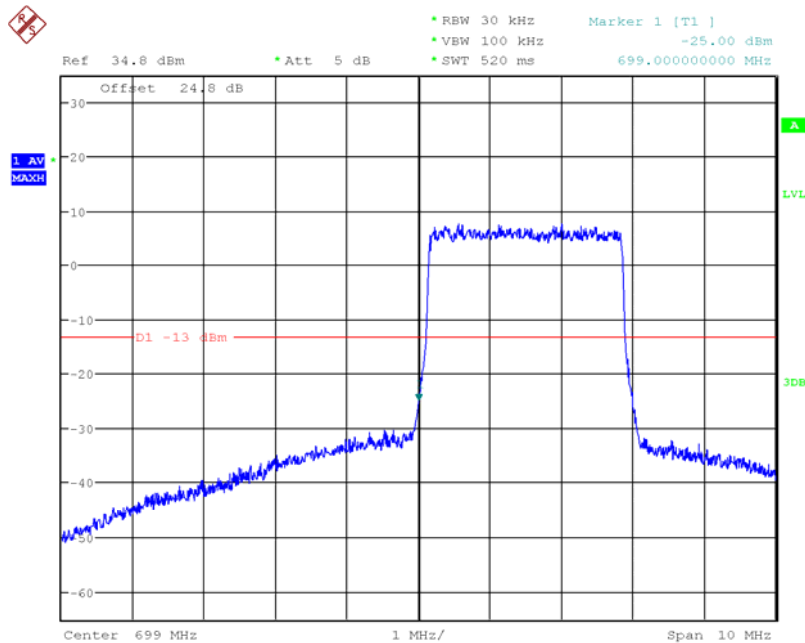
LTE Band12, 3MHz bandwidth, QPSK,(15,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:38:42

LTE Band12, 3MHz bandwidth, 16QAM,(1,0) Mode , Below 699MHz

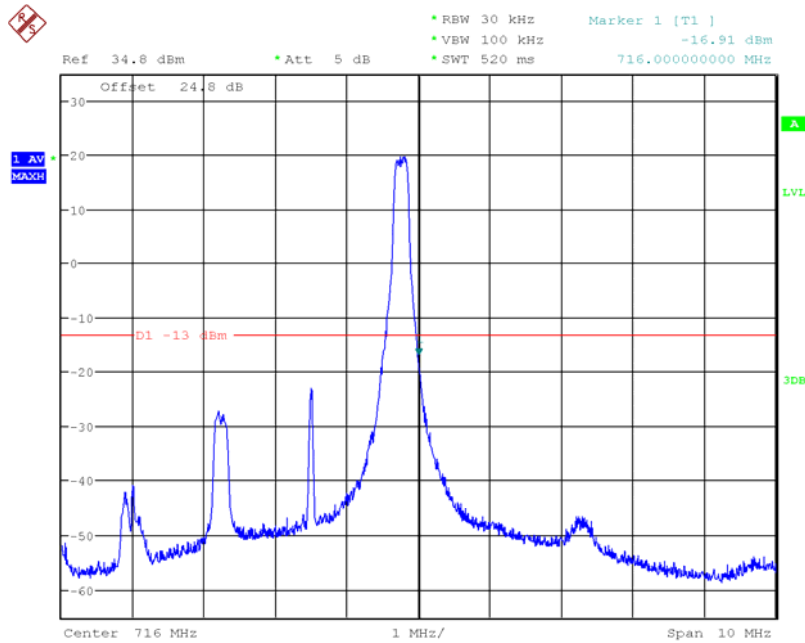


Date: 22.OCT.2018 10:38:14

LTE Band12, 3MHz bandwidth, 16QAM,(15,0) Mode , Below 699MHz

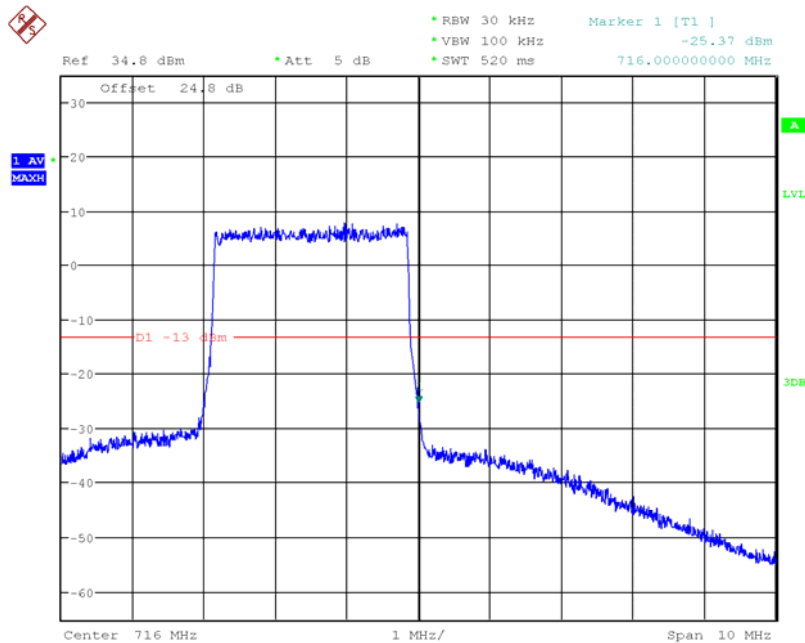


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:41:55

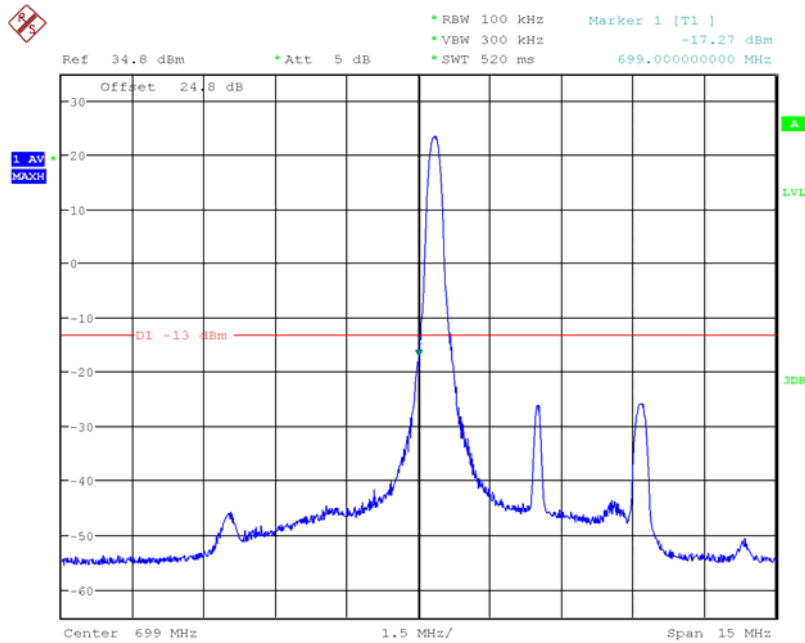
LTE Band12, 3MHz bandwidth, 16QAM,(1,15) Mode, Above 716MHz



Date: 22.OCT.2018 10:42:16

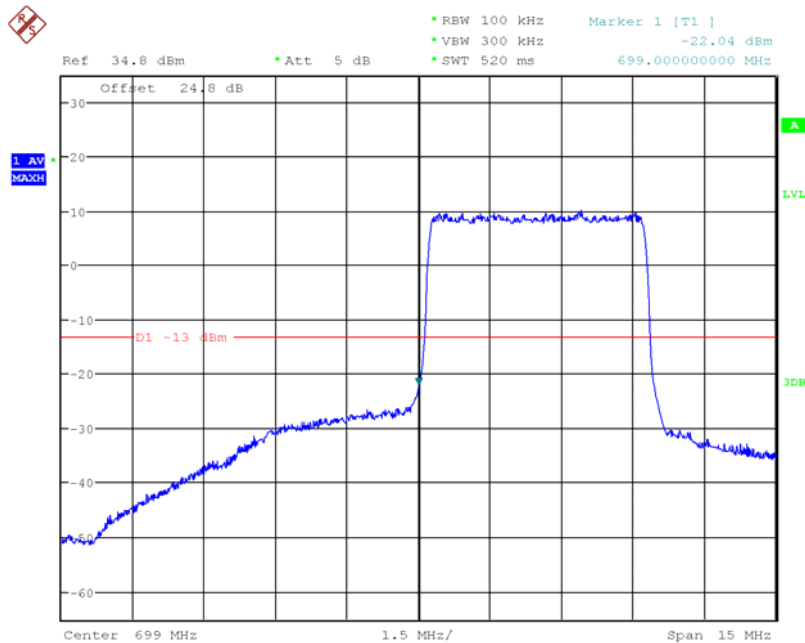
LTE Band12, 3MHz bandwidth, 16QAM,(15,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:48:36

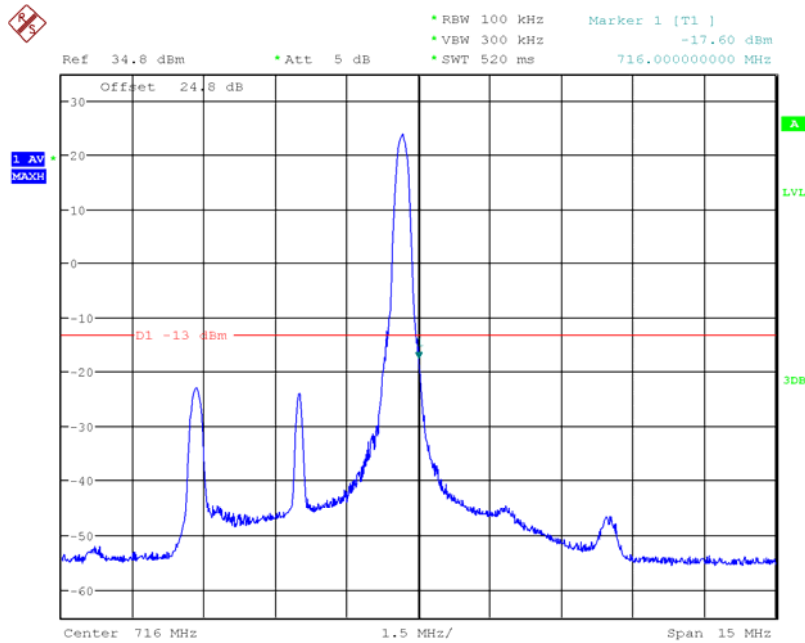
LTE Band12, 5MHz bandwidth, QPSK,(1,0) Mode , Below 699MHz



Date: 22.OCT.2018 10:48:09

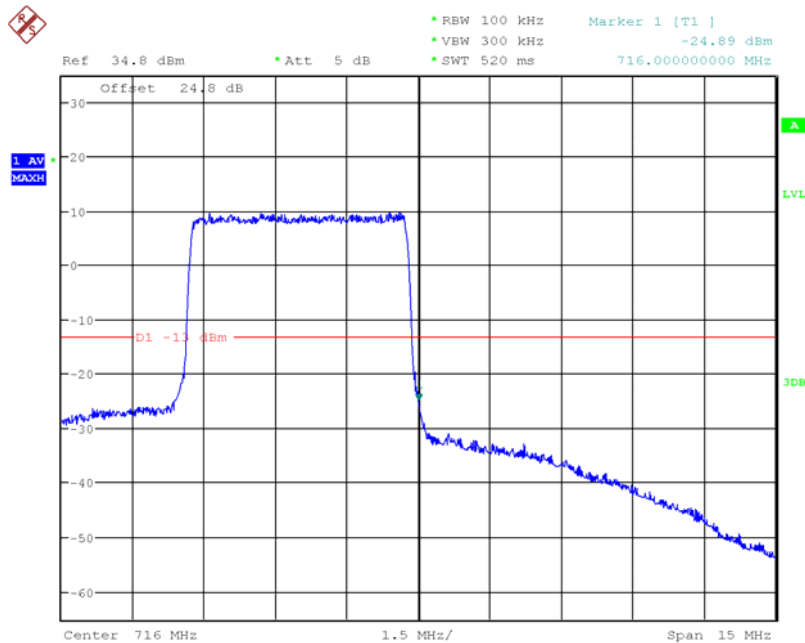
LTE Band12, 5MHz bandwidth, QPSK,(25,0) Mode , Below 699MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:51:19

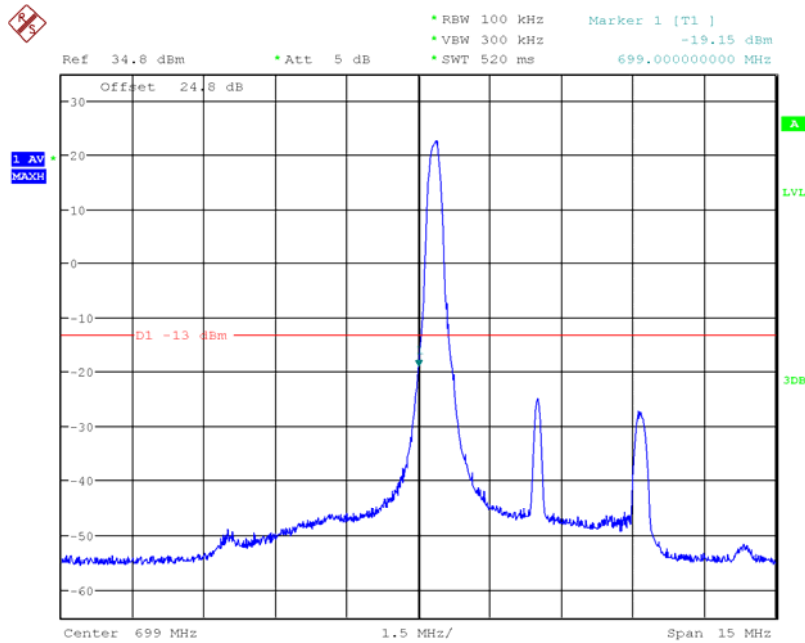
LTE Band12, 5MHz bandwidth, QPSK,(1,25) Mode, Above 716MHz



Date: 22.OCT.2018 10:51:38

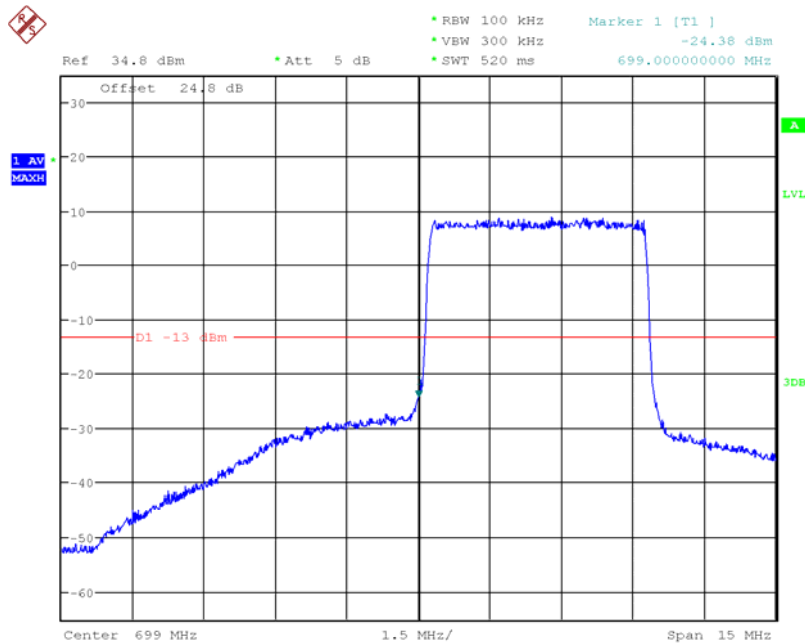
LTE Band12, 5MHz bandwidth, QPSK,(25,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:48:57

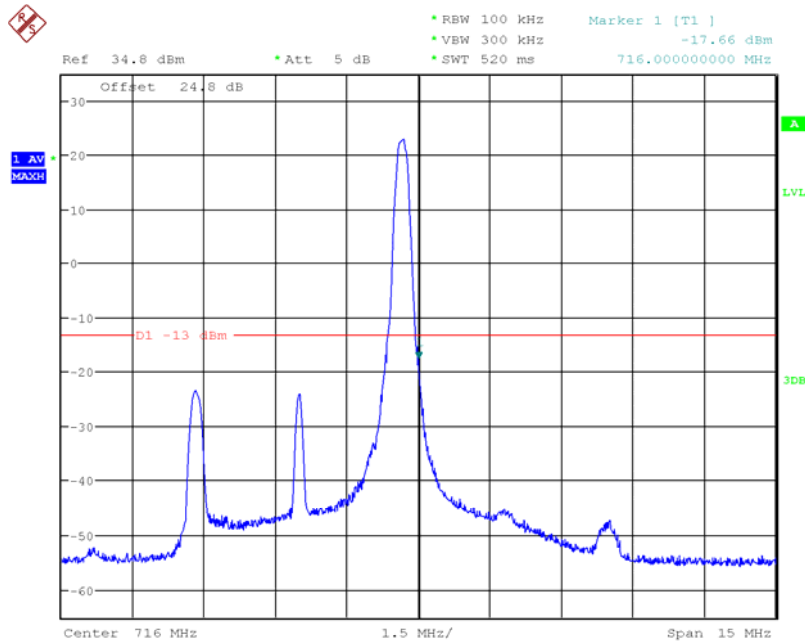
LTE Band12, 5MHz bandwidth, 16QAM,(1,0) Mode , Below 699MHz



Date: 22.OCT.2018 10:49:20

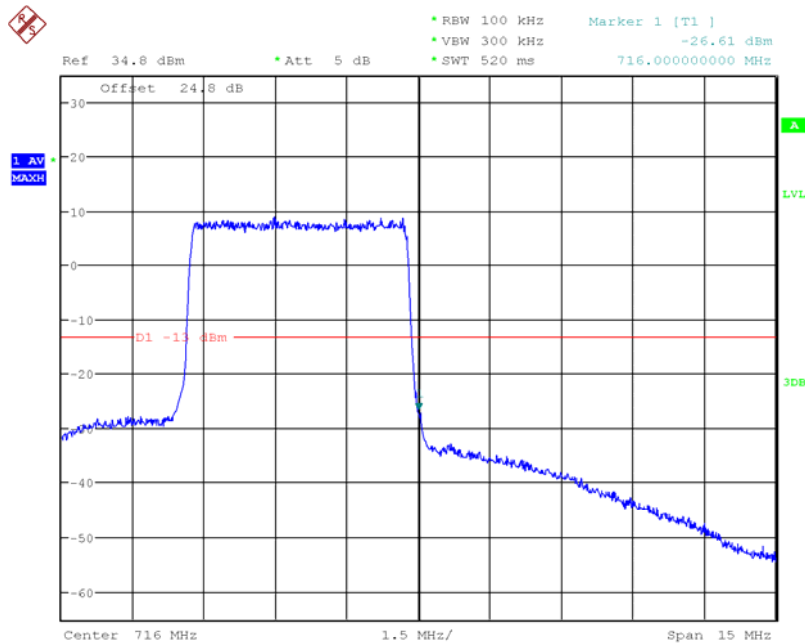
LTE Band12, 5MHz bandwidth, 16QAM,(25,0) Mode , Below 699MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:50:29

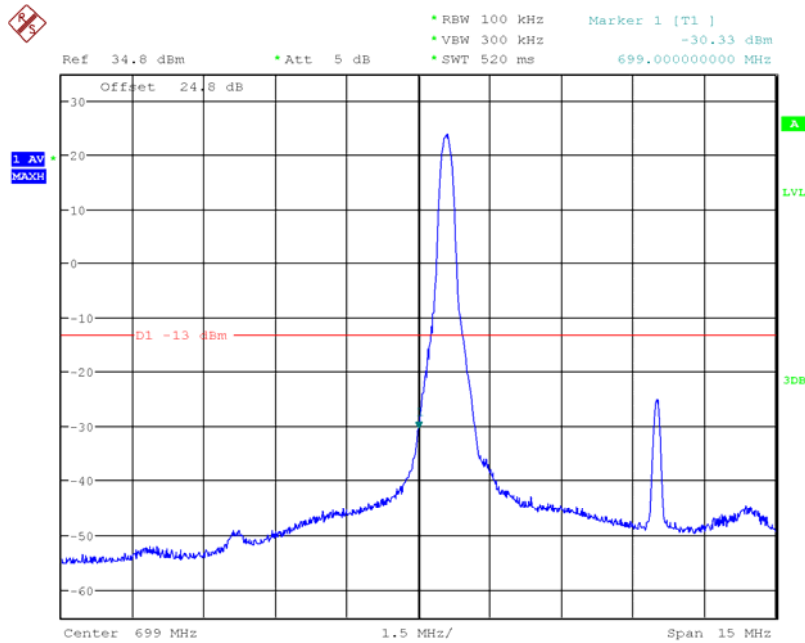
LTE Band12, 5MHz bandwidth, 16QAM,(1,25) Mode, Above 716MHz



Date: 22.OCT.2018 10:50:08

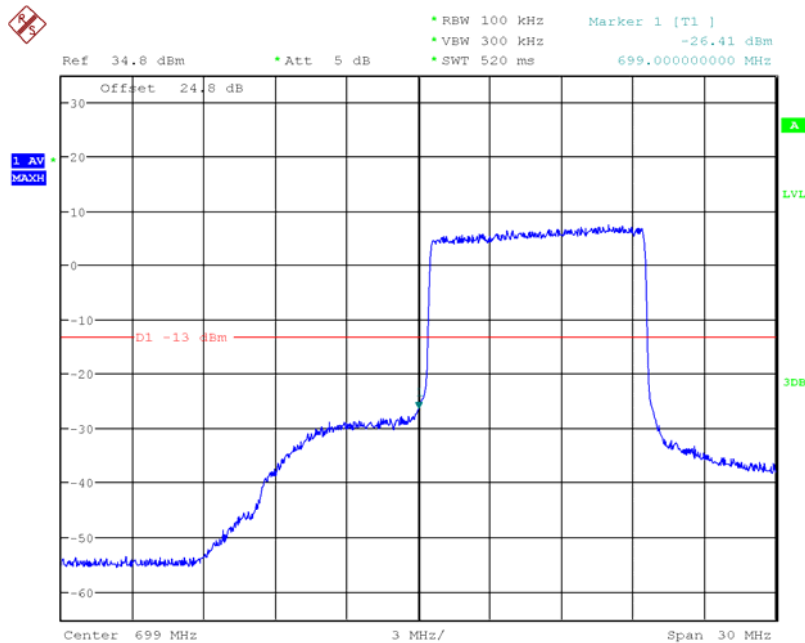
LTE Band12, 5MHz bandwidth, 16QAM,(25,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:52:55

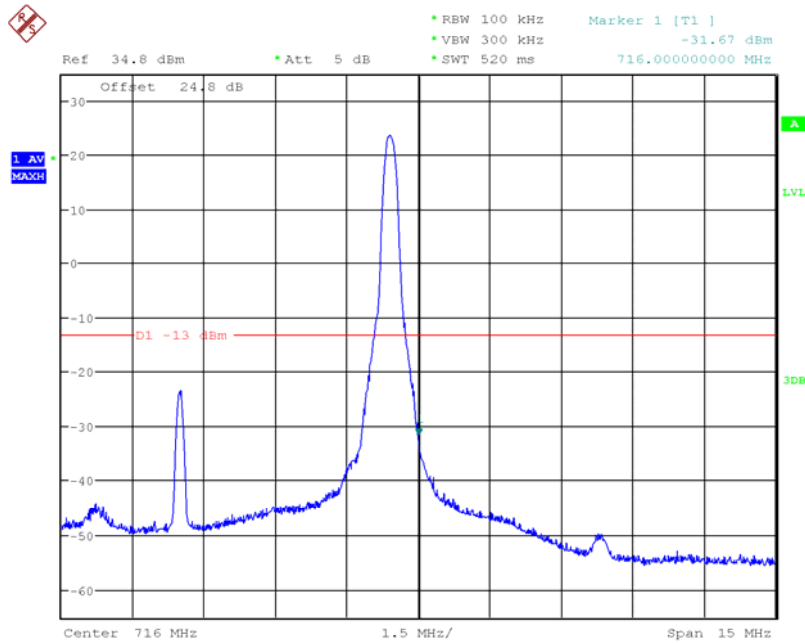
LTE Band12, 10MHz bandwidth, QPSK,(1,0) Mode , Below 699MHz



Date: 22.OCT.2018 10:53:35

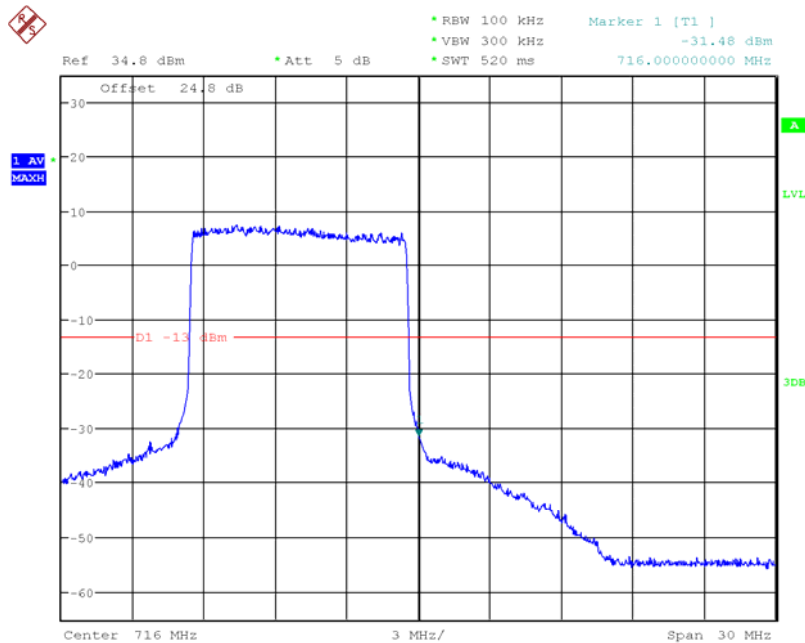
LTE Band12, 10MHz bandwidth, QPSK,(50,0) Mode , Below 699MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:06:09

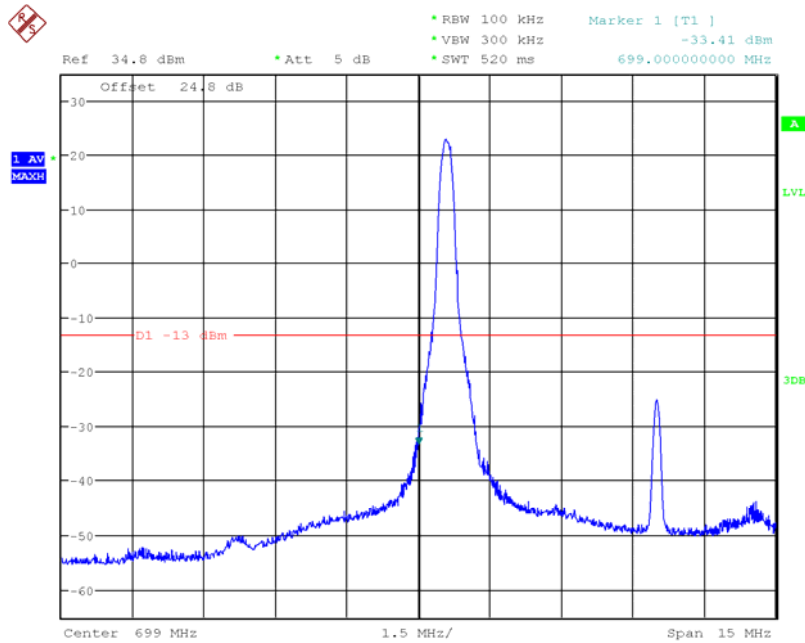
LTE Band12, 10MHz bandwidth, QPSK,(1,50) Mode, Above 716MHz



Date: 22.OCT.2018 11:05:08

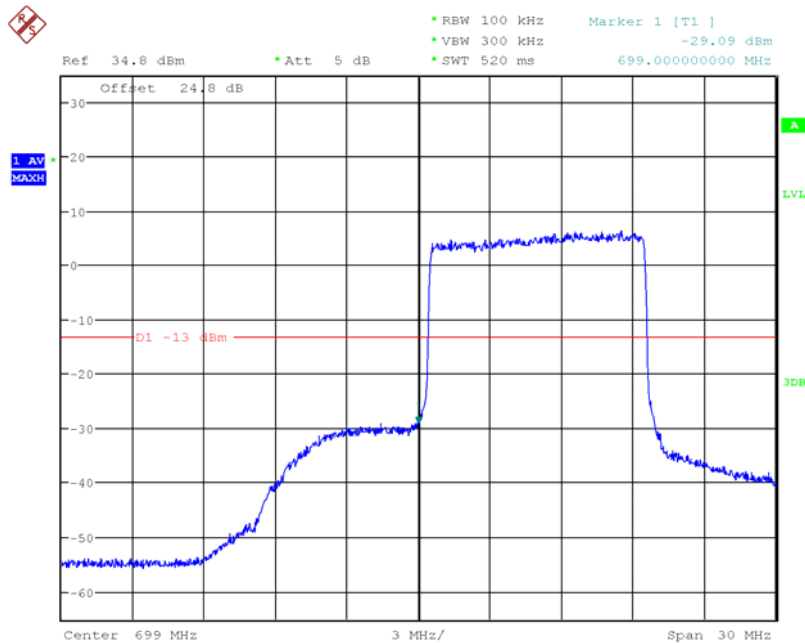
LTE Band12, 10MHz bandwidth, QPSK,(50,0) Mode, Above 716MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 10:54:36

LTE Band12, 10MHz bandwidth, 16QAM,(1,0) Mode , Below 699MHz

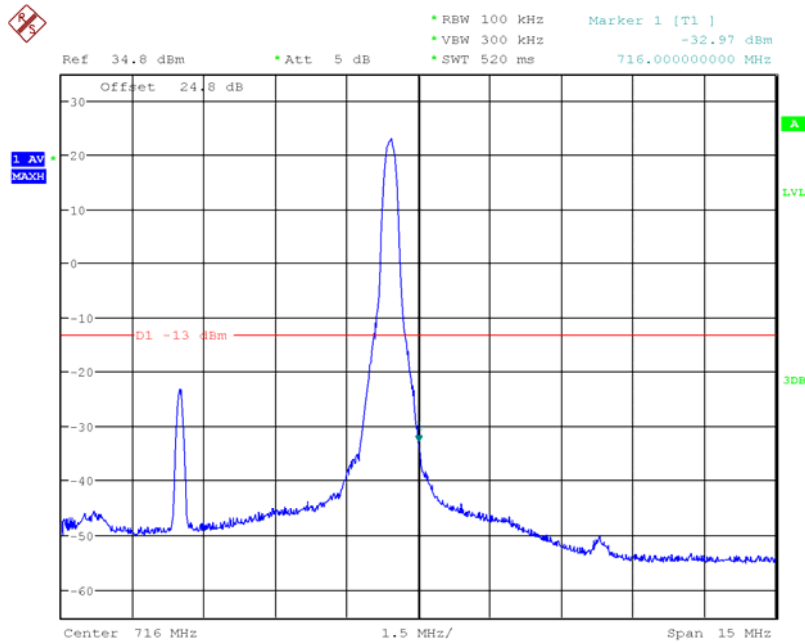


Date: 22.OCT.2018 10:54:06

LTE Band12, 10MHz bandwidth, 16QAM,(50,0) Mode , Below 699MHz

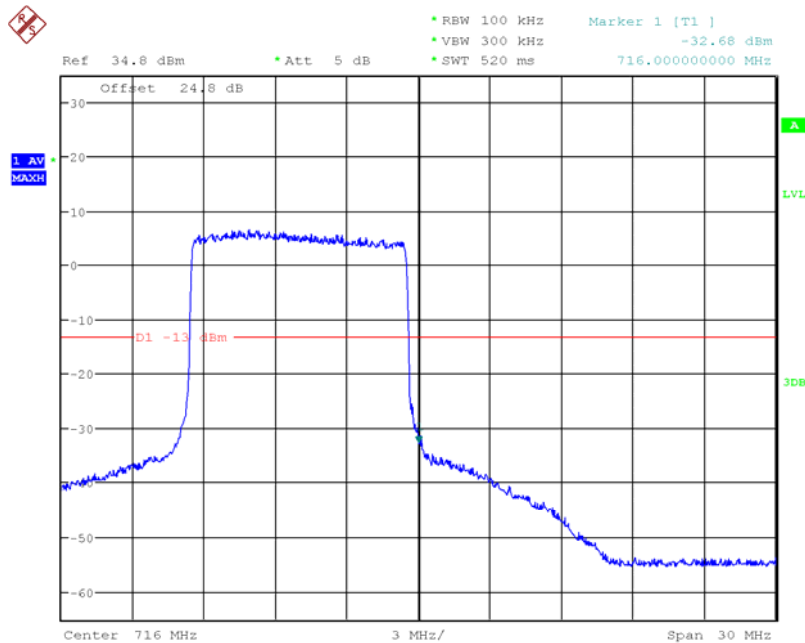


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:03:35

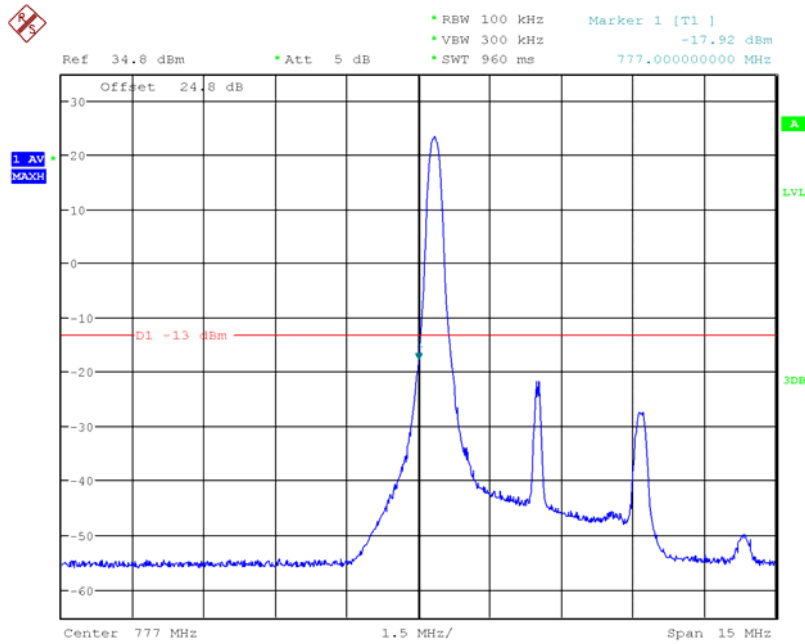
LTE Band12, 10MHz bandwidth, 16QAM,(1,50) Mode, Above 716MHz



Date: 22.OCT.2018 11:04:40

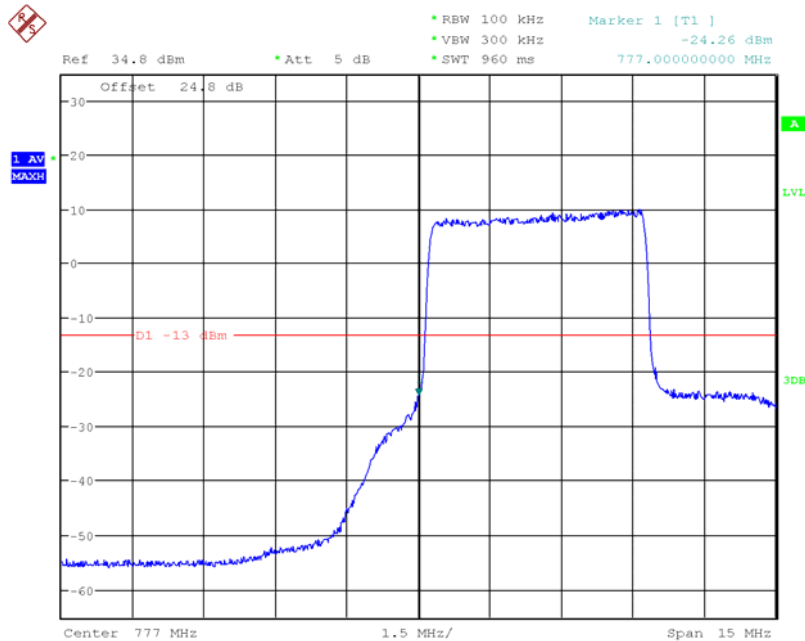
LTE Band12, 10MHz bandwidth, 16QAM,(50,0) Mode, Above 716MHz

5.5.10 LTE B13 Band Edge Results



Date: 22.OCT.2018 11:11:28

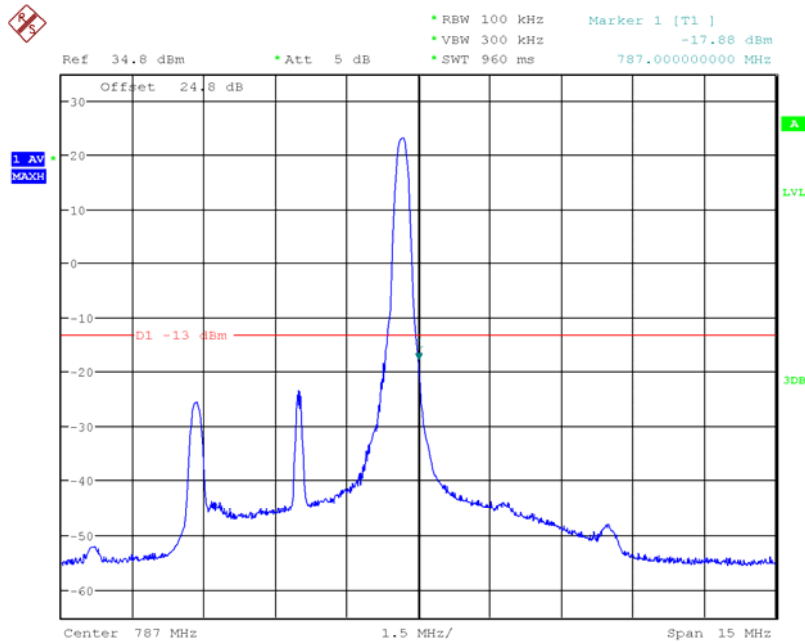
LTE Band13, 5MHz bandwidth, QPSK,(1,0) Mode , Below 777MHz



Date: 22.OCT.2018 11:10:58

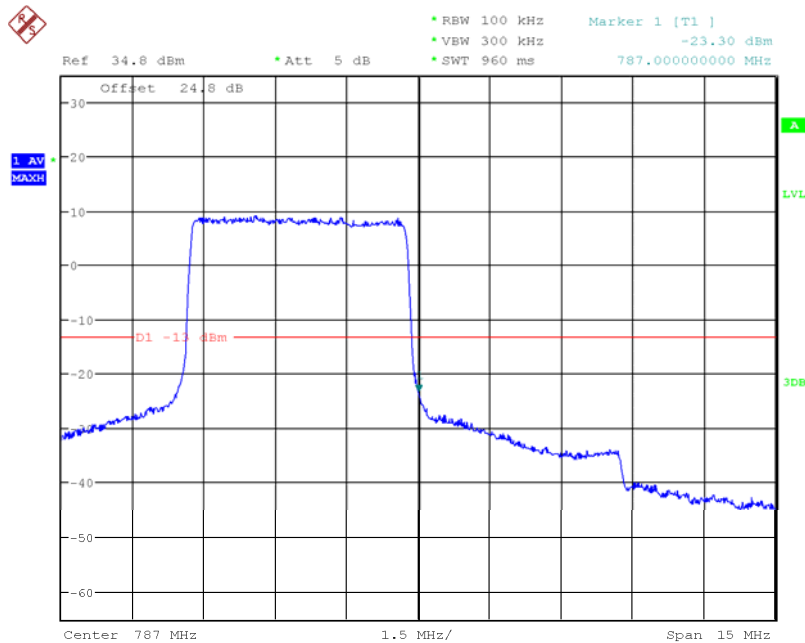
LTE Band13, 5MHz bandwidth, QPSK,(25,0) Mode , Below 777MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:12:26

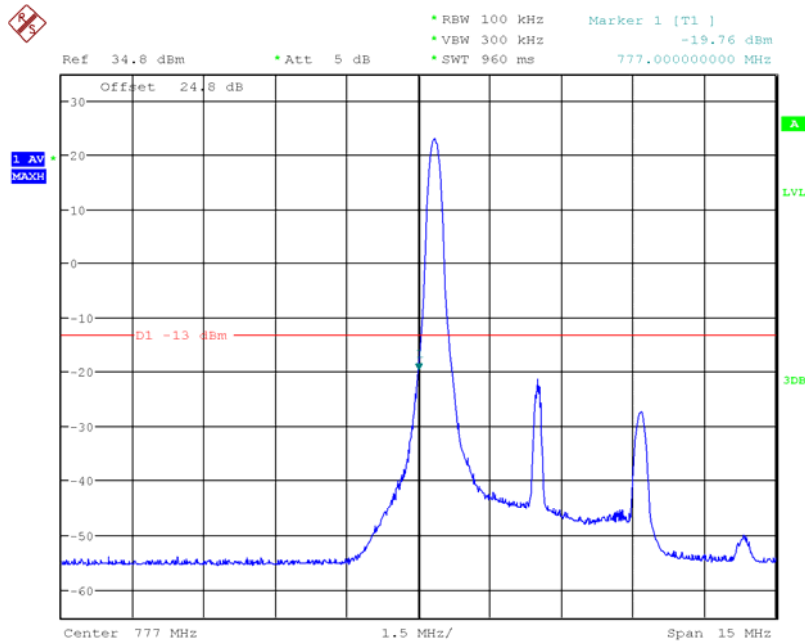
LTE Band13, 5MHz bandwidth, QPSK,(1,25) Mode, Above 787MHz



Date: 22.OCT.2018 11:12:50

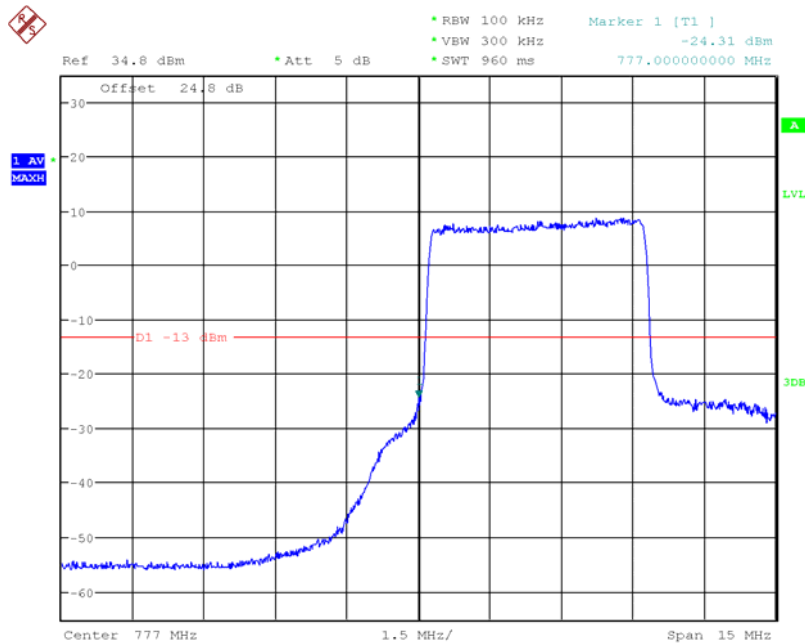
LTE Band13, 5MHz bandwidth, QPSK,(25,0) Mode, Above 787MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:10:00

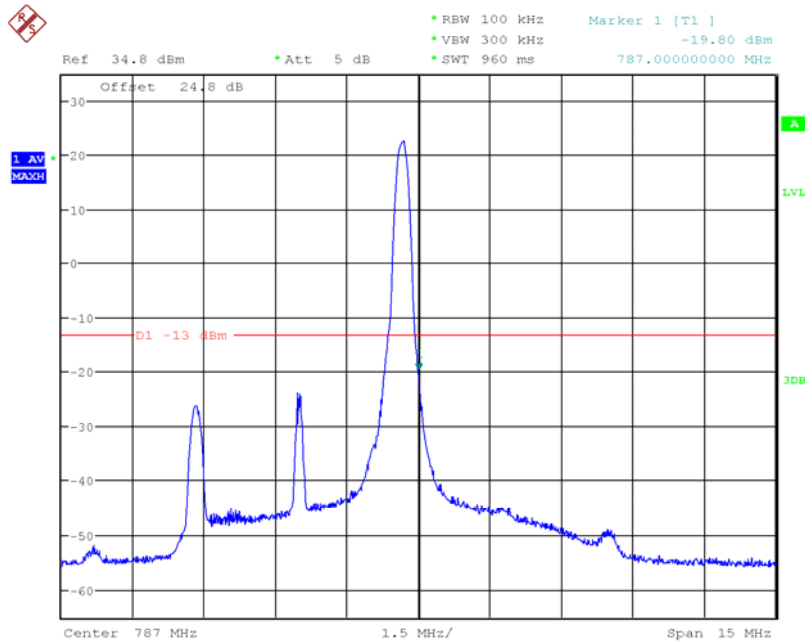
LTE Band13, 5MHz bandwidth, 16QAM,(1,0) Mode , Below 777MHz



Date: 22.OCT.2018 11:10:25

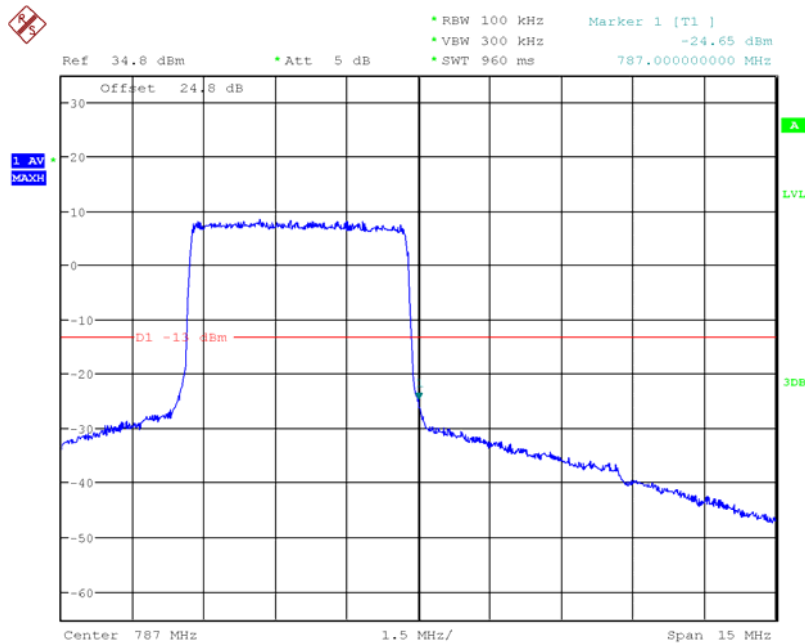
LTE Band13, 5MHz bandwidth, 16QAM,(25,0) Mode , Below 777MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:13:31

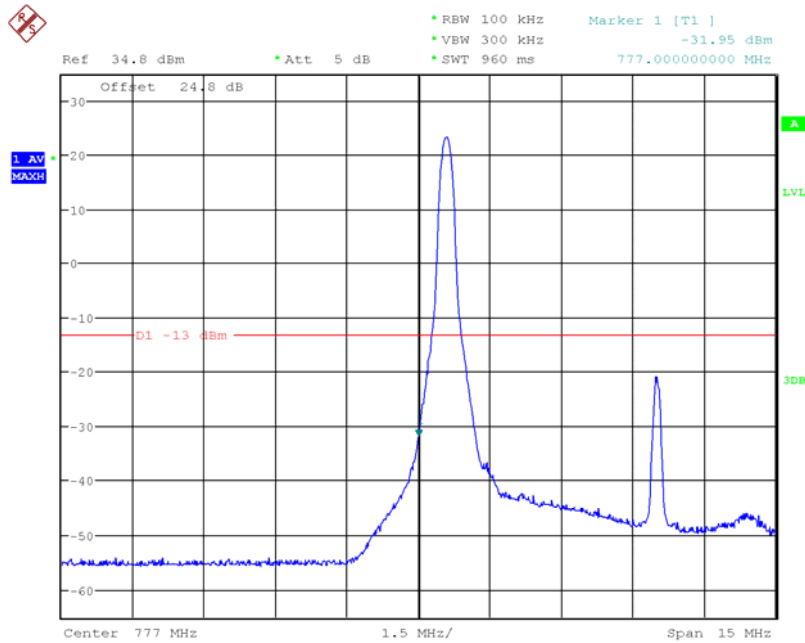
LTE Band13, 5MHz bandwidth, 16QAM,(1,25) Mode, Above 787MHz



Date: 22.OCT.2018 11:13:11

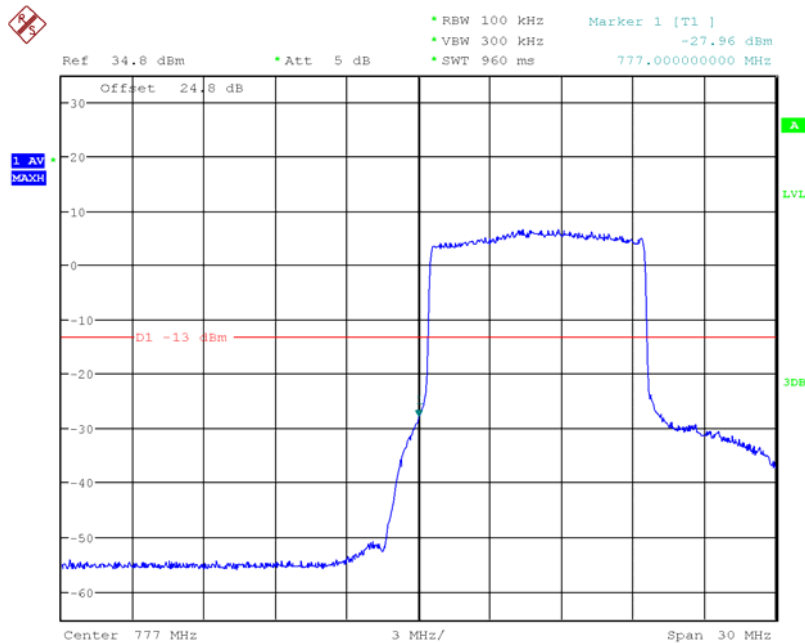
LTE Band13, 5MHz bandwidth, 16QAM,(25,0) Mode, Above 787MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:14:48

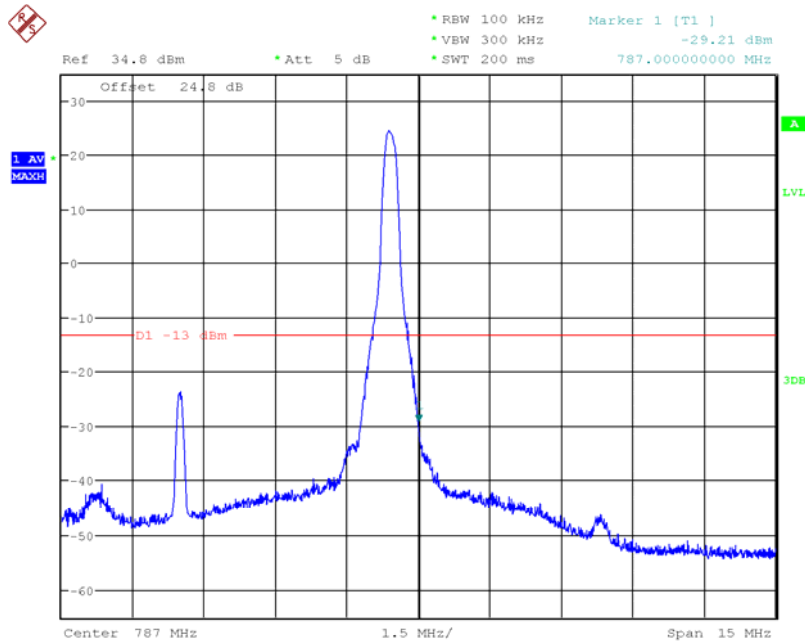
LTE Band13, 10MHz bandwidth, QPSK,(1,0) Mode , Below 777MHz



Date: 22.OCT.2018 11:15:34

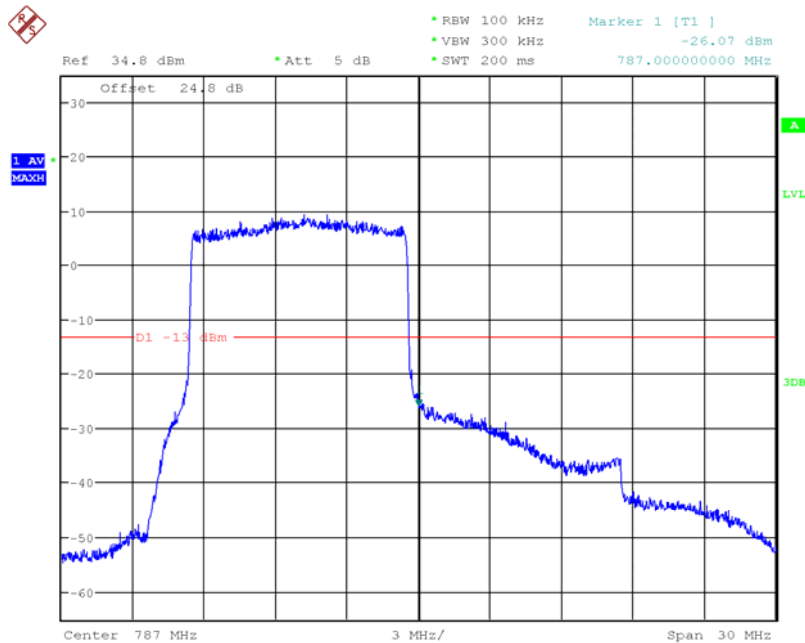
LTE Band13, 10MHz bandwidth, QPSK,(50,0) Mode , Below 777MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 15:56:57

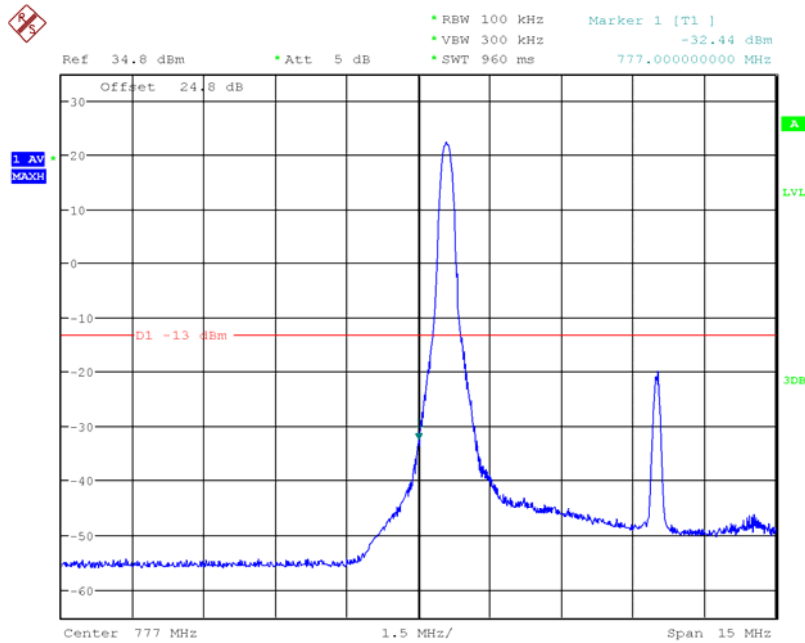
LTE Band13, 10MHz bandwidth, QPSK,(1,50) Mode, Above 787MHz



Date: 22.OCT.2018 15:56:25

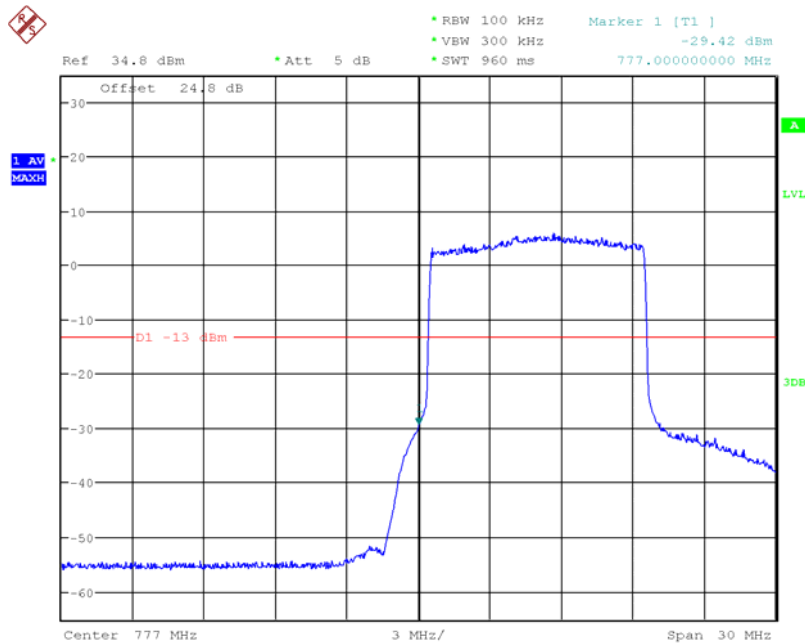
LTE Band13, 10MHz bandwidth, QPSK,(50,0) Mode, Above 787MHz

Report No.:B18W50495-WWAN



Date: 22.OCT.2018 11:16:20

LTE Band13, 10MHz bandwidth, 16QAM,(1,0) Mode , Below 777MHz

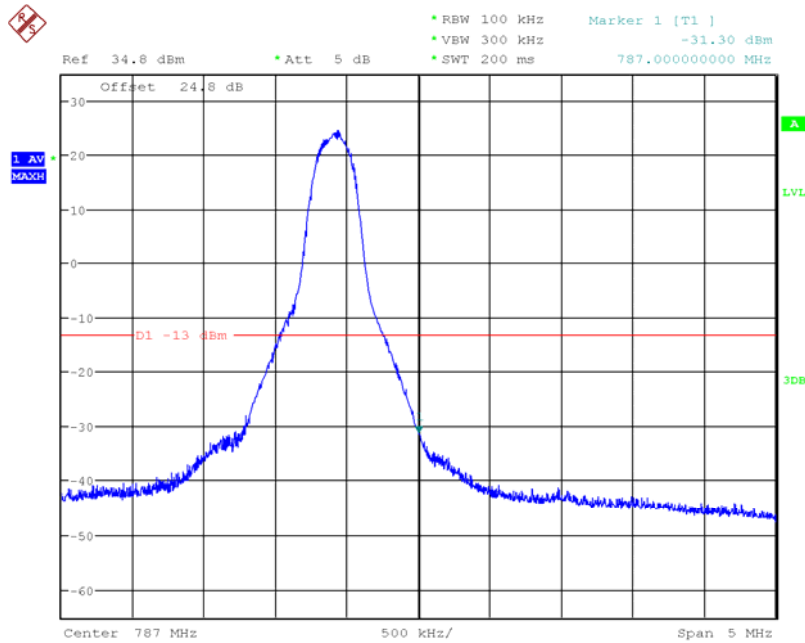


Date: 22.OCT.2018 11:15:54

LTE Band13, 10MHz bandwidth, 16QAM,(50,0) Mode , Below 777MHz

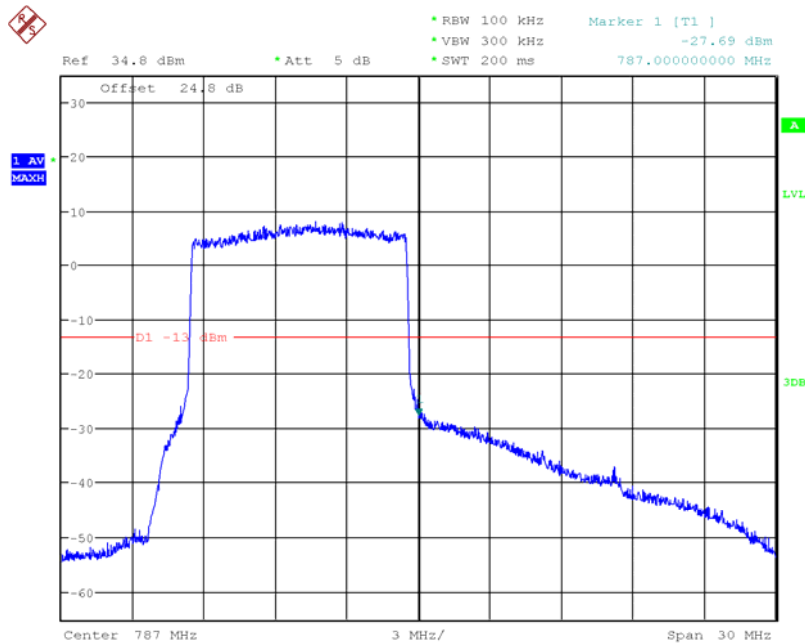


Report No.:B18W50495-WWAN



Date: 22.OCT.2018 15:55:30

LTE Band13, 10MHz bandwidth, 16QAM,(1,50) Mode, Above 787MHz



Date: 22.OCT.2018 15:56:04

LTE Band13, 10MHz bandwidth, 16QAM,(50,0) Mode, Above 787MHz

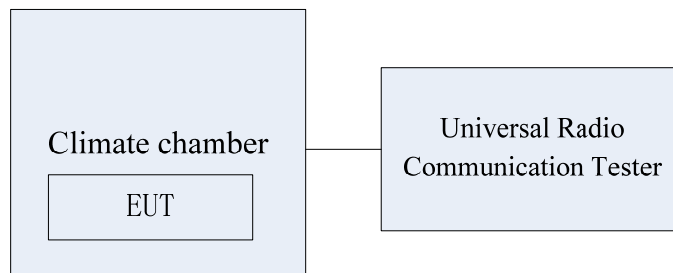
5.6 Frequency Stability over Temperature Variation

<b>Specifications:</b>	FCC Part 2.1055, 22.355, 24.235, 27.54
<b>DUT Serial Number:</b>	S3: 863424030965642
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

Limit	
Frequency deviation [ppm]	±2.5

Test Setup

The EUT was placed in a temperature chamber, demonstrated as figure T. The Wireless Telecommunications Test Set was used to set the Tx channel and power level, modulate the TX signal with different bit patterns and measure the frequency of Tx.



Test Method

Method of measurements please refer to KDB971168 D01 v03 clause 9.

- 1、 The EUT was turned off and placed in the temperature chamber.
- 2、 The temperature of the chamber was set to -30°C and allowed to stabilize.
- 3、 The EUT temperature was allowed to stabilize for 45 minutes.
- 4、 The EUT was turned on and set to transmit with Wireless Telecommunications Test Set.
- 5、 The maximum transmit frequency deviation during one minute period was measured by Wireless Communications Test Set.
- 6、 The steps 3-5 were repeated for -30°C, -20°C, -10°C, 0°C, 10°C, 20°C, 30°C, 40°C and 50°C.

5.6.1 GSM Band Frequency Stability over Temperature Variation Results

Band	Offset	Temperature[°C]								
		-30	-20	-10	0	10	20	30	40	50
GSM850 GMSK	Hz	-1.38	-1.27	3.62	3.13	-4.93	-1.42	4.78	-3.98	5.81
	ppm	-0.002	-0.002	0.004	0.004	-0.006	-0.002	0.006	-0.005	0.007
GSM850 8PSK	Hz	-3.28	4.98	1.55	-4.02	2.14	-4.13	-3.30	3.10	5.62
	ppm	-0.004	0.006	0.002	-0.005	0.003	-0.005	-0.004	0.004	0.007
PCS1900 GMSK	Hz	-2.04	3.78	-2.48	3.78	-2.15	-3.98	-4.82	4.82	-5.70
	ppm	-0.001	0.002	-0.001	0.002	-0.001	-0.002	-0.003	0.003	-0.003
PCS1900 8PSK	Hz	5.96	-3.38	-4.04	2.46	-1.38	3.38	-3.76	-2.47	5.93
	ppm	0.003	-0.002	-0.002	0.001	-0.001	0.002	-0.002	-0.001	0.003

5.6.2 WCDMA Band Frequency Stability over Temperature Variation Results

Band	Offset	Temperature[°C]								
		-30	-20	-10	0	10	20	30	40	50
2	Hz	-4.13	-2.87	6.72	-6.37	-6.08	6.91	4.67	-5.96	6.82
	ppm	-0.002	-0.002	0.004	-0.003	-0.003	0.004	0.002	-0.003	0.004
4	Hz	1.37	4.06	-1.17	3.81	-3.68	-6.25	3.68	-1.18	5.83
	ppm	0.001	0.002	-0.001	0.002	-0.002	-0.004	0.002	-0.001	0.003
5	Hz	-4.01	-3.65	5.19	-1.13	5.63	2.47	-2.16	-2.10	2.57
	ppm	-0.005	-0.004	0.006	-0.001	0.007	0.003	-0.003	-0.003	0.003

5.6.3 LTE Band Frequency Stability over Temperature Variation Results

Band	Offset	Temperature[°C]								
		-30	-20	-10	0	10	20	30	40	50
2	Hz	-5.19	3.14	5.17	-4.55	1.53	-2.52	-2.33	1.70	-1.90
	ppm	-0.003	0.002	0.003	-0.002	0.001	-0.001	-0.001	0.001	-0.001
4	Hz	2.97	3.60	-6.02	-2.37	4.32	-4.47	-3.16	5.48	-3.02
	ppm	0.002	0.002	-0.003	-0.001	0.002	-0.003	-0.002	0.003	-0.002
5	Hz	-2.78	3.02	-2.20	-4.72	-4.62	4.93	5.36	-2.90	-6.60
	ppm	-0.003	0.004	-0.003	-0.006	-0.006	0.006	0.006	-0.003	-0.008
12	Hz	-3.89	1.39	-5.12	-5.23	4.07	6.60	6.28	-5.85	1.39
	ppm	-0.005	0.002	-0.007	-0.007	0.006	0.009	0.009	-0.008	0.002
13	Hz	5.85	-5.72	6.02	1.25	-3.45	-5.13	2.69	-2.68	6.57
	ppm	0.007	-0.007	0.008	0.002	-0.004	-0.007	0.003	-0.003	0.008

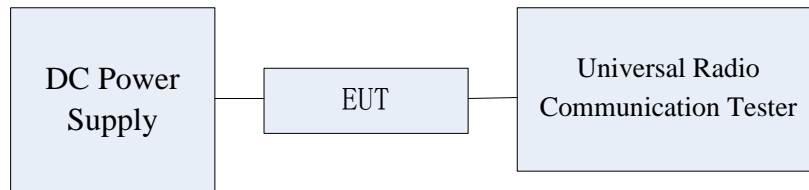
5.7 Frequency Stability over Voltage Variation

<b>Specifications:</b>	FCC Part 2.1055, 22.355, 24.235, 27.54
<b>DUT Serial Number:</b>	S3: 863424030965642
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

Limit	
Frequency deviation [ppm]	±2.5

Test Setup

The EUT was placed in a shielding chamber and powered by an adjustable power supply, demonstrated as figure V. A Wireless Telecommunications Test Set was used to set the TX channel and power level, modulate the TX signal with different bit patterns and measure the frequency of TX.



Test Method

Method of measurements please refer to KDB971168 D01 v03 clause 9.

The EUT was powered by the adjustable power supply. The frequency stability is measured by the Wireless Telecommunications Test Set.

5.7.1 GSM Band Frequency Stability over Voltage Variation Results

Test data:

Band	Offset	Voltage (V)		
		3.50	3.80	4.20
GSM850 GMSK	Hz	4.34	-4.10	1.15
	ppm	0.005	-0.005	0.001
GSM850 8PSK	Hz	-2.43	-5.63	3.04
	ppm	-0.003	-0.007	0.004
PCS1900 GMSK	Hz	-1.19	1.29	6.64
	ppm	-0.001	0.001	0.004
PCS1900 8PSK	Hz	5.56	-4.71	-1.90
	ppm	0.003	-0.003	-0.001

5.7.2 WCDMA Band Frequency Stability over Voltage Variation Results

Test data:

Band	Offset	Voltage (V)		
		3.50	3.80	4.20
2	Hz	-2.47	3.80	2.89
	ppm	-0.001	0.002	0.002
4	Hz	2.20	-5.96	-6.85
	ppm	0.001	-0.003	-0.004
5	Hz	2.20	-4.49	6.08
	ppm	0.003	-0.005	0.007

### 5.7.3 LTE Band Frequency Stability over Voltage Variation Results

Test data:

Band	Offset	Voltage (V)		
		3.50	3.80	4.20
2	Hz	3.73	-3.20	5.48
	ppm	0.002	-0.002	0.003
4	Hz	2.64	-4.01	4.41
	ppm	0.002	-0.002	0.003
5	Hz	-3.03	-4.22	5.22
	ppm	-0.004	-0.005	0.006
12	Hz	6.76	4.08	-3.06
	ppm	0.010	0.006	-0.004
13	Hz	2.03	-4.90	2.03
	ppm	0.003	-0.006	0.003

5.8 Peak to Average Ratio

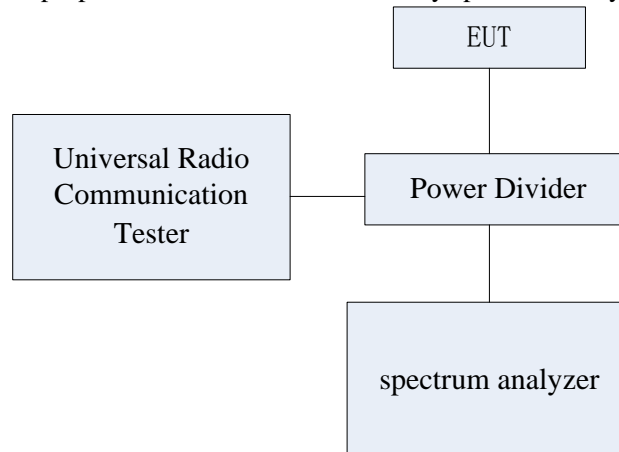
<b>Specifications:</b>	FCC Part 24.232, 27.50,
<b>DUT Serial Number:</b>	S3: 863424030965642
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

Limit

The EUT meets the requirement of having a peak to average ratio of less than 13dB.

Test Setup

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



Test Method

Method of measurements please refer to KDB971168 D01 v03 clause 5.7.

The transmitter output was connected to a CMW500 through a coaxial RF cable and directional coupler, and configured to operate at maximum power. The peak to average ratio was measured at the required operating frequencies in each Band on the Spectrum Analyzer.



5.8.1 GSM850 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	Modulation	Peak to Average Ratio
836.6	190	GMSK	7.10
		8PSK	7.10

5.8.2 GSM1900 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	Modulation	Peak to Average Ratio
1880	661	GMSK	11.37
		8PSK	10.62

5.8.3 WCDMA B2 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	Modulation	Peak to Average Ratio
1880	9400	QPSK	6.45

5.8.4 WCDMA B4 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	Modulation	Peak to Average Ratio
1732.4	1412	QPSK	6.85

5.8.5 WCDMA B5 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	Modulation	Peak to Average Ratio
836.4	4182	QPSK	6.07

5.8.6 LTE B2 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	bandwidth	Modulation	Peak to Average Ratio
1880MHz	18900	10MHz	QPSK	5.35
			16QAM	6.18

5.8.7 LTE B4 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	bandwidth	Modulation	Peak to Average Ratio
1732.5MHz	20175	10MHz	QPSK	5.54
			16QAM	6.73

5.8.8 LTE B5 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	bandwidth	Modulation	Peak to Average Ratio
836.5MHz	23525	10MHz	QPSK	5.68
			16QAM	6.58

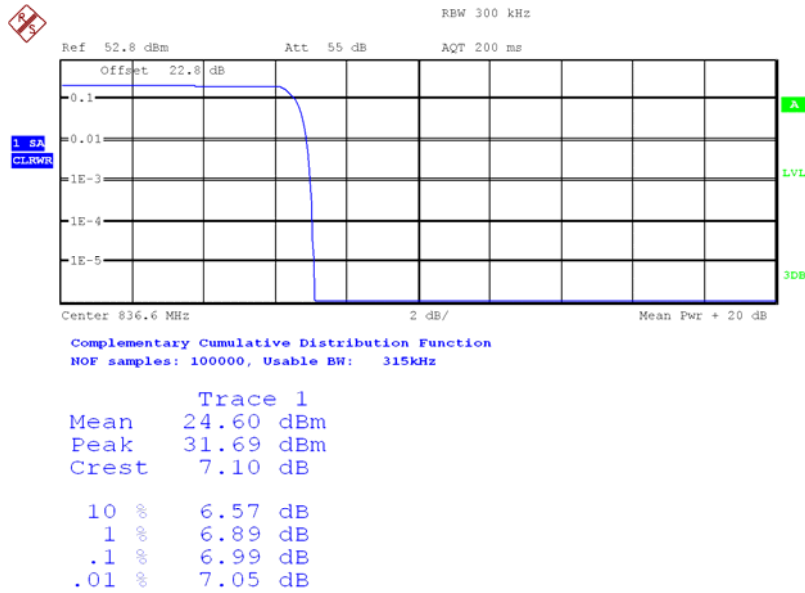
5.8.9 LTE B12 Peak to Average Ratio Results

Frequency (MHz)	EUT channel No.	bandwidth	Modulation	Peak to Average Ratio
707.5MHz	23095	10MHz	QPSK	5.79
			16QAM	6.81

5.8.10 LTE B13 Peak to Average Ratio Results

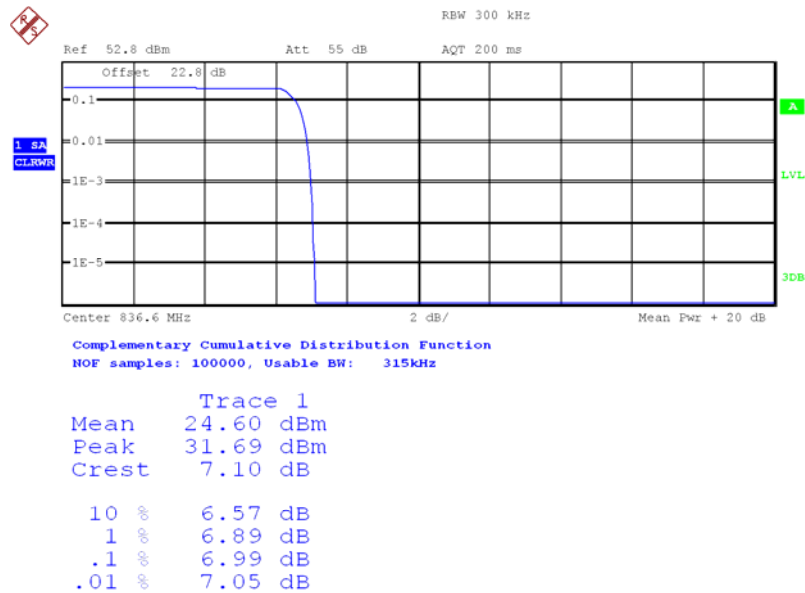
Frequency (MHz)	EUT channel No.	bandwidth	Modulation	Peak to Average Ratio
782.0MHz	23230	10MHz	QPSK	5.29
			16QAM	6.11

### Graphical for Peak to Average Ratio Results



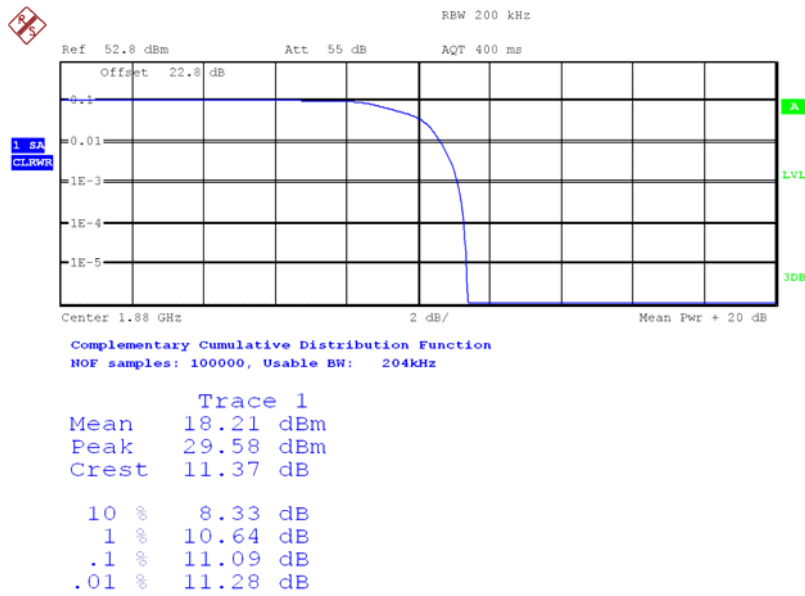
Date: 23.OCT.2018 13:44:32

### GSM850, GMSK



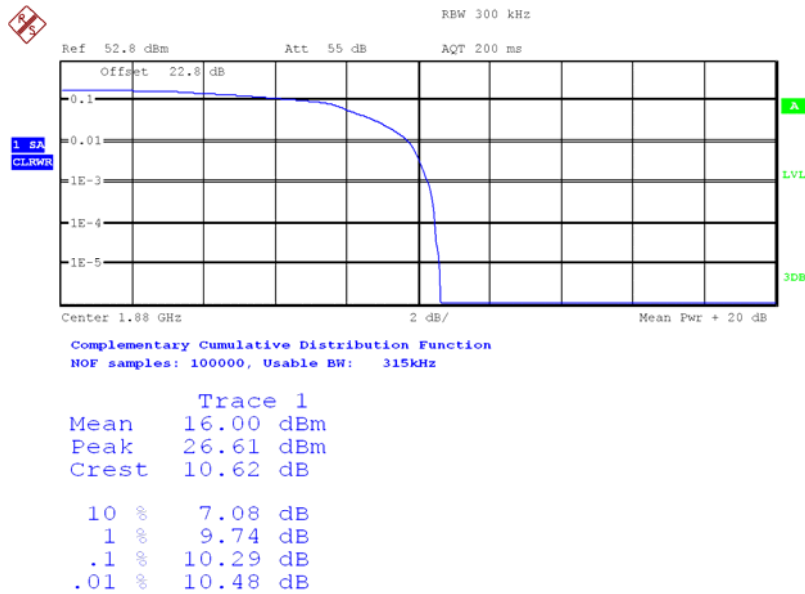
Date: 23.OCT.2018 13:44:32

### GSM850,8PSK



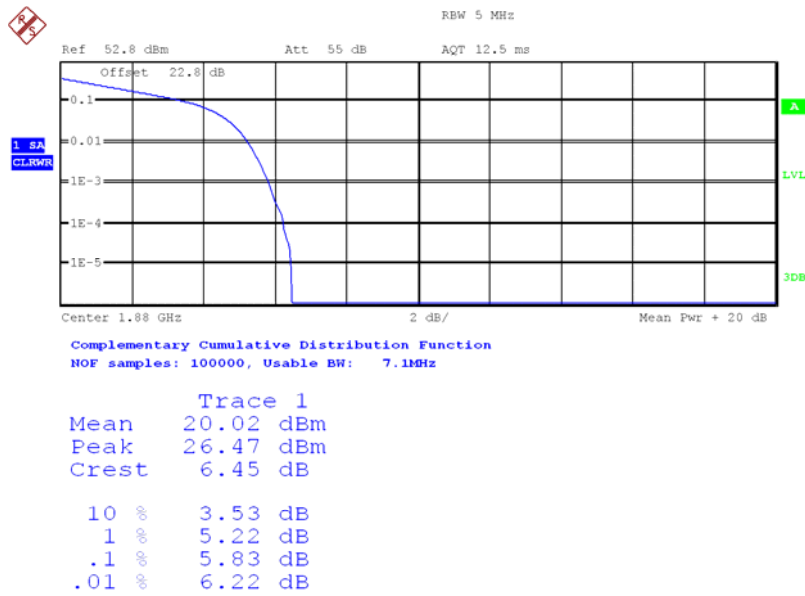
Date: 23.OCT.2018 11:52:07

### PCS1900, GMSK



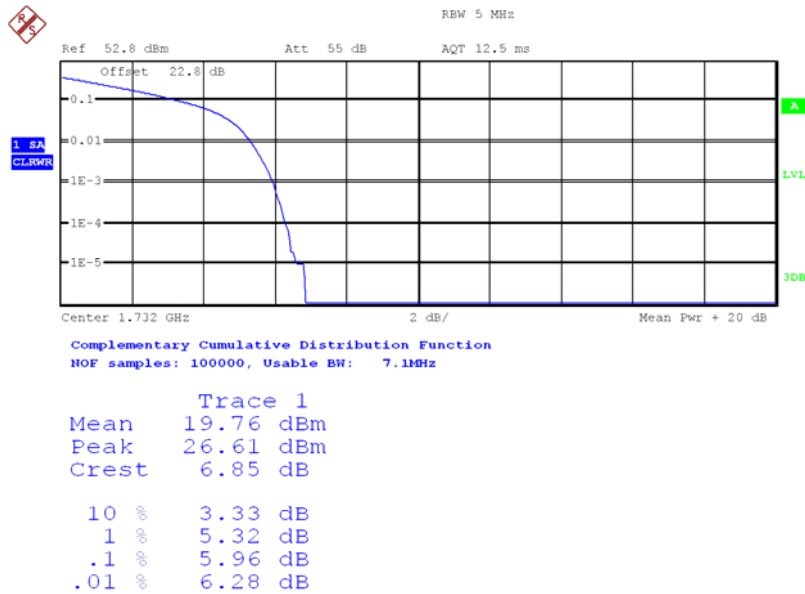
Date: 23.OCT.2018 13:38:21

### PCS1900, 8PSK



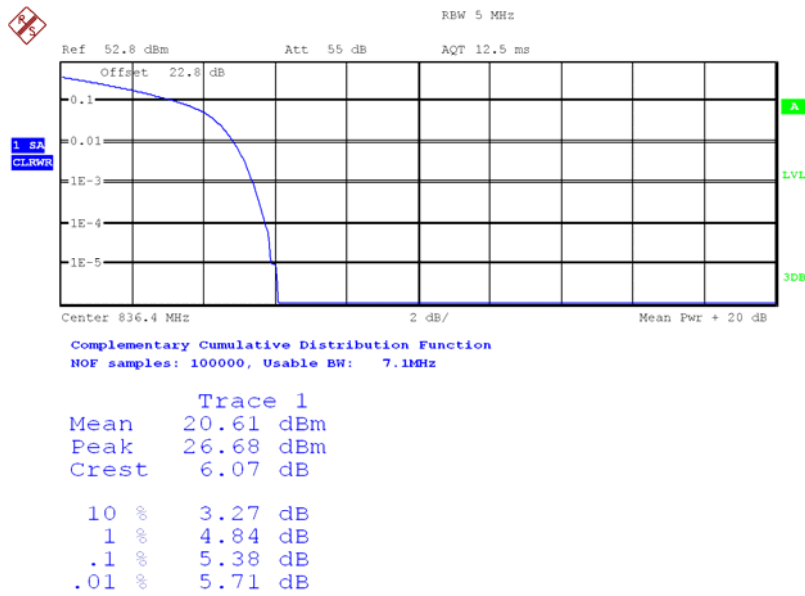
Date: 23.OCT.2018 11:33:42

### WCDMA Band2, QPSK



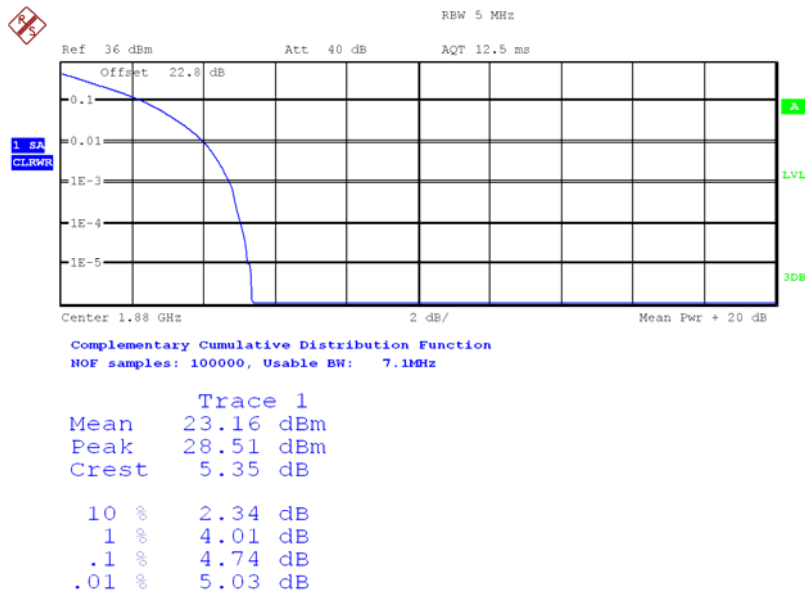
Date: 23.OCT.2018 11:35:29

### WCDMA Band4, QPSK



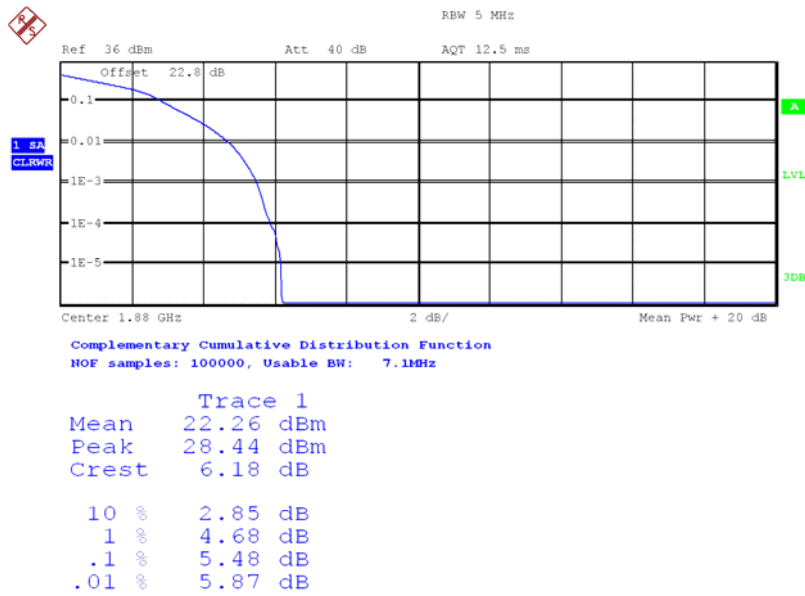
Date: 23.OCT.2018 11:30:55

### WCDMA Band5, QPSK



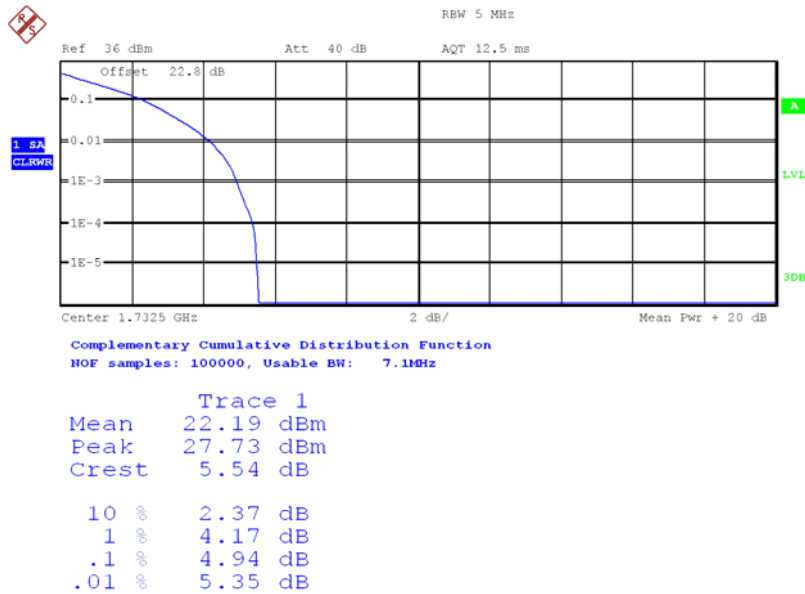
Date: 23.OCT.2018 14:01:53

### LTE Band2, QPSK



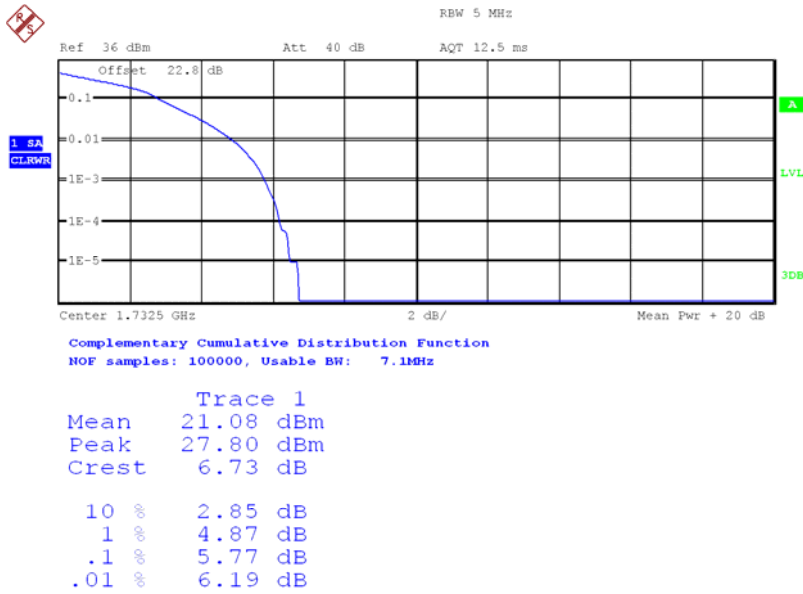
Date: 23.OCT.2018 14:02:26

### LTE Band2, 16QAM



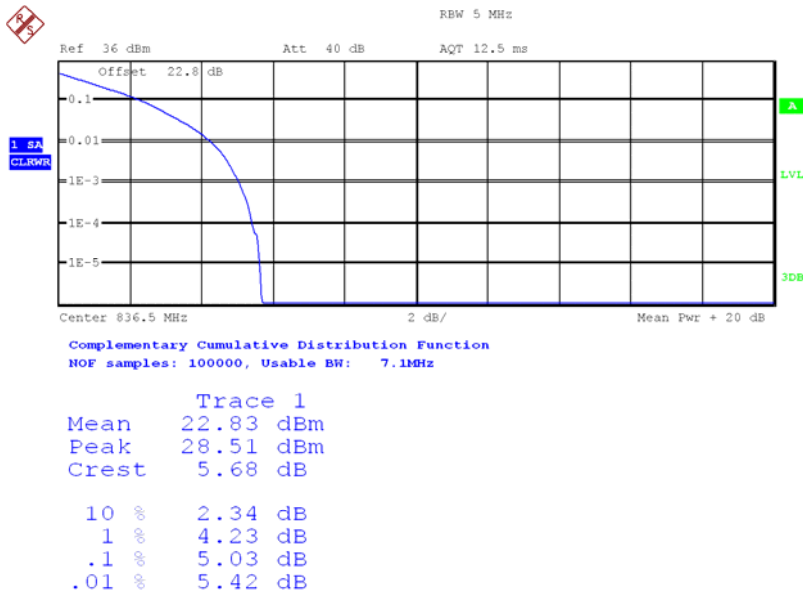
Date: 23.OCT.2018 14:03:47

### LTE Band4, QPSK



Date: 23.OCT.2018 14:03:23

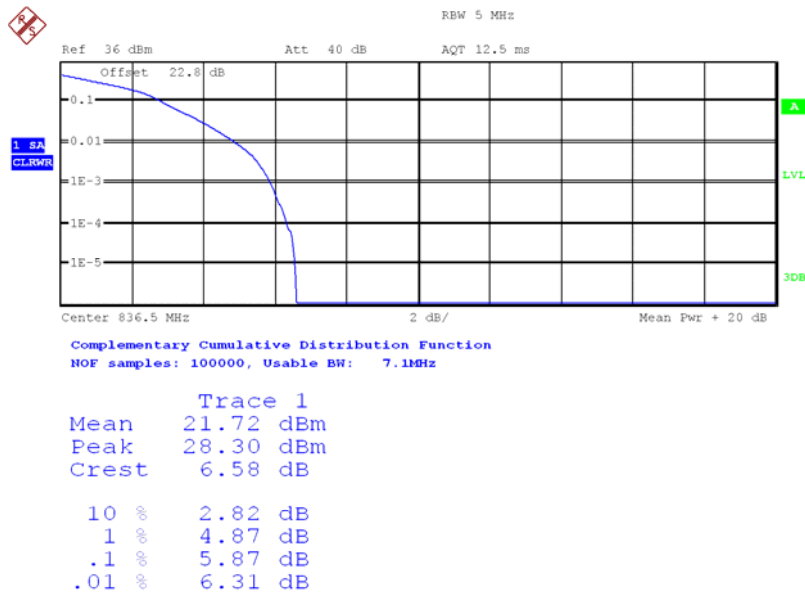
### LTE Band4, 16QAM



Date: 23.OCT.2018 14:04:41

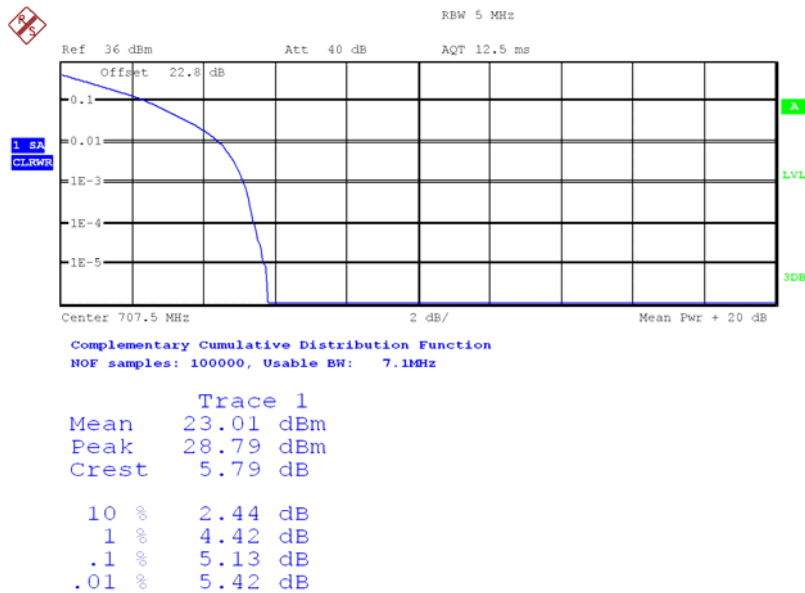
### LTE Band5, QPSK





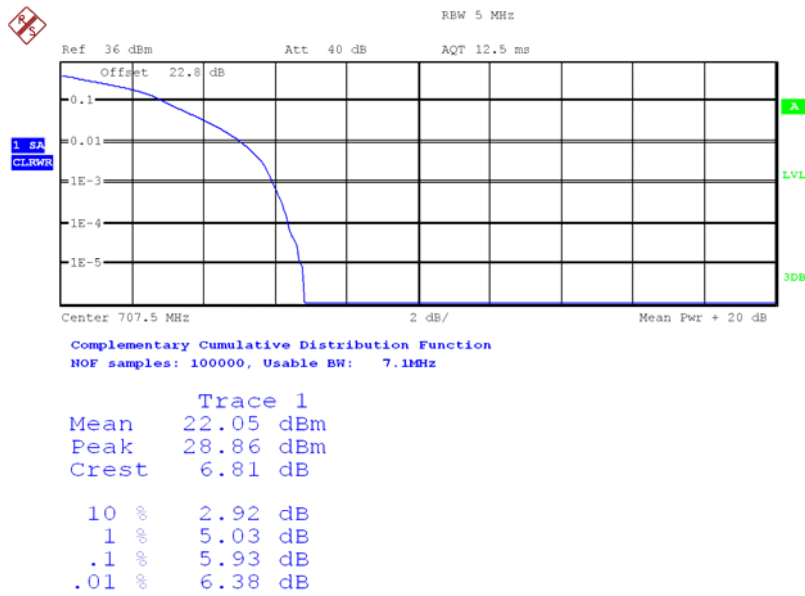
Date: 23.OCT.2018 14:05:07

### LTE Band5, 16QAM



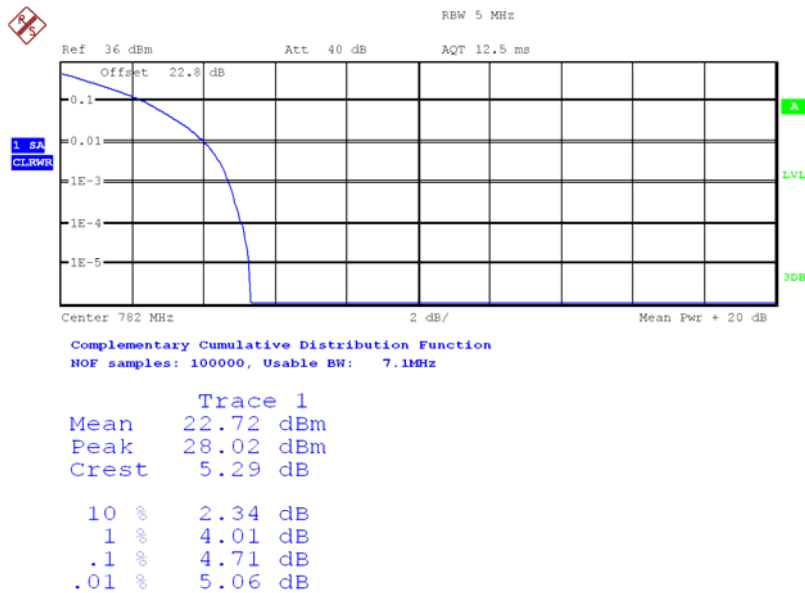
Date: 23.OCT.2018 14:06:20

### LTE Band12, QPSK



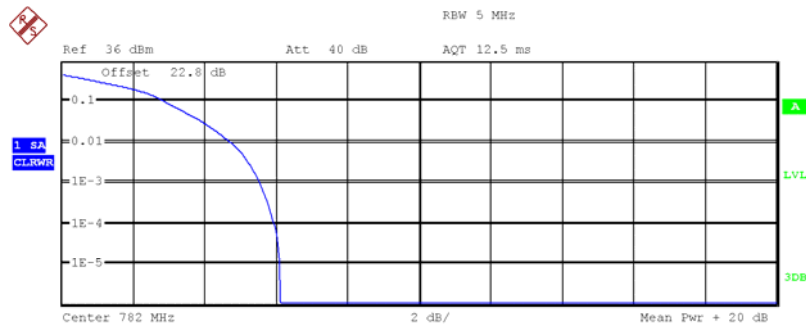
Date: 23.OCT.2018 14:05:57

### LTE Band12, 16QAM



Date: 23.OCT.2018 14:07:06

### LTE Band13, QPSK



Complementary Cumulative Distribution Function  
NOF samples: 100000, Usable BW: 7.1MHz

Trace 1  
Mean 21.83 dBm  
Peak 27.95 dBm  
Crest 6.11 dB

10 %	2.88 dB
1 %	4.71 dB
.1 %	5.54 dB
.01 %	5.93 dB

Date: 23.OCT.2018 14:07:27

LTE Band13, 16QAM

5.9 ERP and EIRP

<b>Specifications:</b>	FCC Part 22.913(a), 24.232(b)
<b>DUT Serial Number:</b>	S2: 863424030965758
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

**Limit Level Construction:**

This is the test for the maximum radiated power from the EUT.

According to Part 24.232(c), "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

According to 22.913(a), The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

According to Part 27.50(d), "Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP".

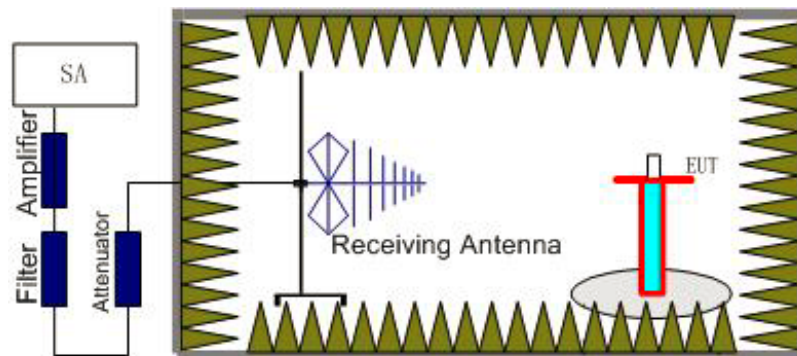
According to Part 27.50(h)(2) "Mobile stations are limited to 2.0 watts EIRP".

According to Part 27.50(c), specifies "Portable stations (hand-held de-vices) are limited to 3 watts ERP".

**Method of Measurement**

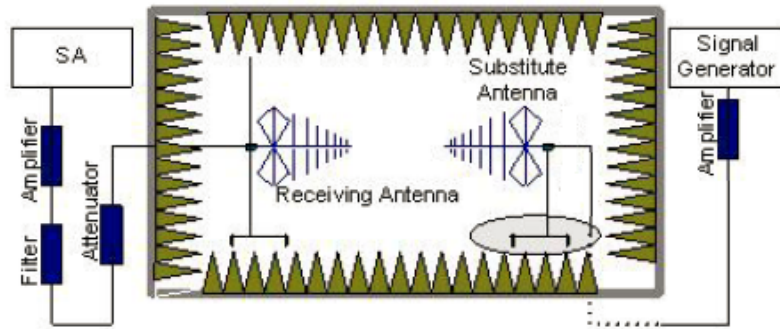
The measurements procedures in TIA-603E-2016 are used.

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).

3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at thereference point of the chamber. An RF Signal source for the frequency band of interest isconnected to the substitution antenna with a cable that has been constructed to not interferewith the radiation pattern of the antenna. A power (PMea) is applied to the input of thesubstitution antenna, and adjust the level of the signal generator output until the value of thereceiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. Thetest should be performed by rotating the test item and adjusting the receiving antennapolarization.

4. A amplifier should be connected to the Signal Source output port. And the cable should beconnect between the Amplifier and the Substitute Antenna.

The cable loss (Pcl) ,the Substitute Antenna Gain (Ga) and the Amplifier Gain (PAg) should berecorded after test.

The measurement results are obtained as described below:

$$\text{Power(EIRP)} = \text{PMea} + \text{PAg} - \text{Pcl} + \text{Ga}$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole,

$$\text{ERP} = \text{S.G output(dBM)} - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$

$$\text{EIRP} = \text{S.G output(dBM)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$

5.9.1 GSM 850 Measurement result

GPRS(GMSK)

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
824.2	26.84	3.4	-0.96	31.2	V
836.6	26.84	3.4	-0.96	31.2	V
848.8	27.14	3.4	-0.96	31.5	V

5.9.2 PCS 1900 Measurement result

GPRS(GMSK)

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
1850.2	35.8	5.0	10.4	30.4	V
1880.0	36.6	5.0	10.4	31.2	V
1909.8	35.9	5.1	10.4	30.6	V

5.9.3 WCDMA Band 2 Measurement result

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
1852.4	25.72	5.0	10.4	20.32	V
1880	26.10	5.0	10.4	20.70	V
1907.6	26.01	5.1	10.4	20.71	V

5.9.4 WCDMA Band 4 Measurement result

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
1712.4	25.27	5.0	10.4	19.87	V
1732.6	25.01	5.0	10.4	19.61	V
1752.6	24.89	5.1	10.4	19.59	V

5.9.5 WCDMA Band 5 Measurement result

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
826.4	14.88	3.4	-0.96	19.24	V
836.4	14.53	3.4	-0.96	18.89	V
846.6	14.81	3.4	-0.96	19.17	V

5.9.6 LTE Band 2 Measurement result

LTE Band 2\_20 MHz\_QPSK

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
1850.0	28.91	5.0	10.4	23.51	V
1880.0	29.05	5.0	10.4	23.65	V
1910.0	28.77	5.1	10.4	23.47	V

5.9.7 LTE Band 4 Measurement result

LTE Band 4\_20MHz\_QPSK

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
1720.0	27.25	5.0	10.4	21.85	V
1732.5	27.17	5.0	10.4	21.77	V
1745.0	27.21	5.1	10.4	21.91	V

5.9.8 LTE Band 5 Measurement result

LTE Band 5\_10MHz\_QPSK

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
829.0	17.36	3.4	-0.96	21.72	V
836.4	17.87	3.4	-0.96	22.23	V
844.0	17.81	3.4	-0.96	22.17	V

5.9.9 LTE Band 12 Measurement result

LTE Band 12\_10MHz\_QPSK

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
699.0	16.89	3.4	-0.96	21.25	V
707.5	17.77	3.4	-0.96	22.13	V
716.0	17.25	3.4	-0.96	21.61	V



5.9.10 LTE Band 13 Measurement result

LTE Band 13\_10MHz\_QPSK

Frequency [MHz]	Generator output power( $P_g$ ) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power ( $P_d$ ) [dBm]	Antenna Polarization [H/V]
777.0	17.01	3.4	-0.96	21.37	V
782.0	16.97	3.4	-0.96	21.33	V
787.0	17.25	3.4	-0.96	21.61	V

**Annex A EUT Photos**

See the document "BM818-External Photos".

See the document "BM818-Internal Photos".

**ANNEX B Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

**\*\*\*End Of Report\*\*\***