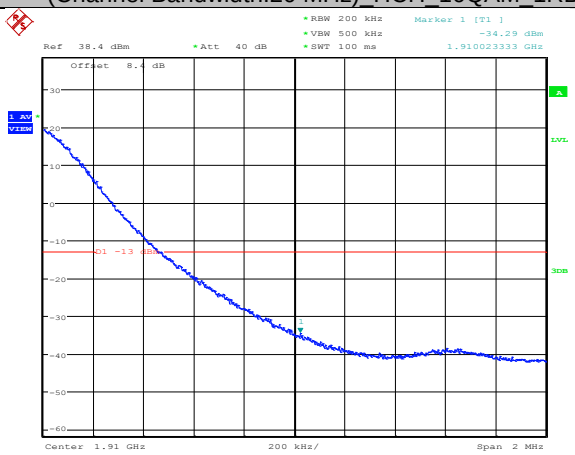
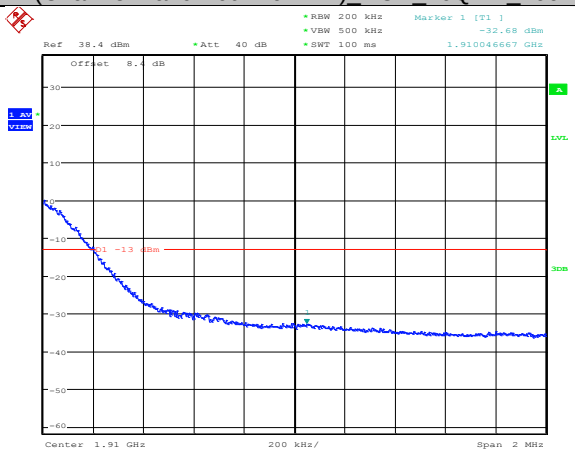
(Channel Bandwidth:20 MHz)_HCH_16QAM_1RB#99



Date: 5.SEP.2018 17:13:32

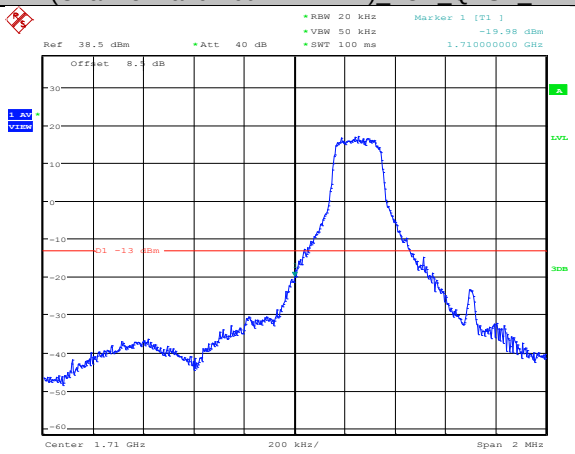
(Channel Bandwidth:20 MHz)_HCH_16QAM_100RB#0



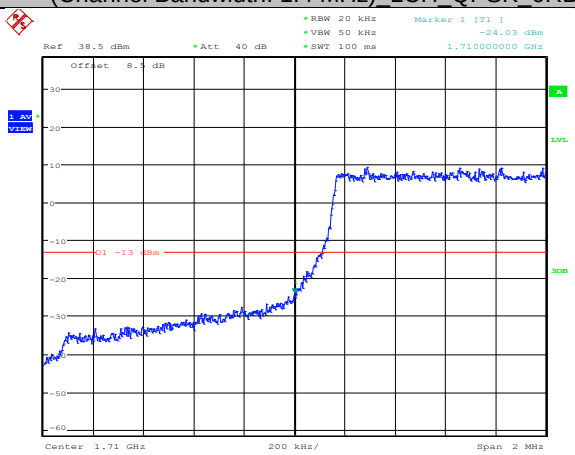
Date: 5.SEP.2018 17:13:54

Band edge measurement
LTE Band 4
Test Mode = QPSK /TM4
Channel Bandwidth: 1.4 MHz
Test Channel = LCH/HCH

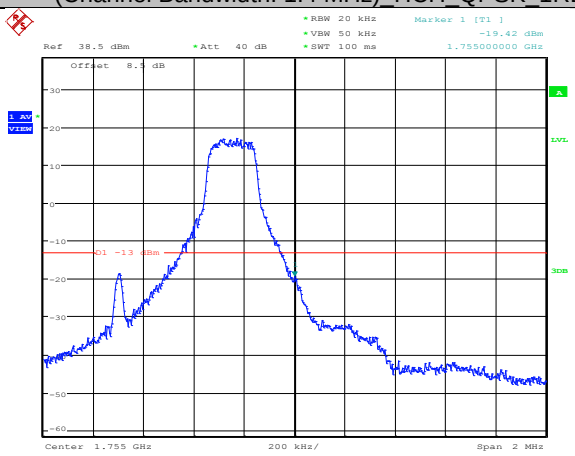
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0

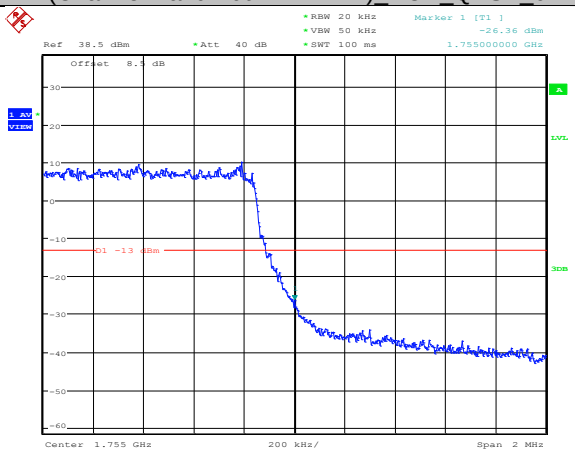


(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#5



Date: 6.SEP.2018 10:43:26

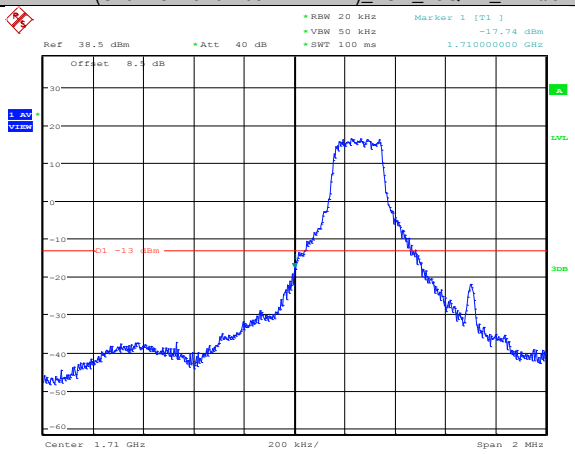
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0



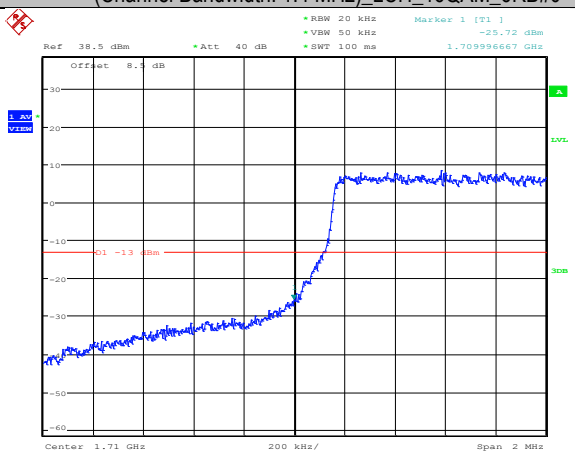
Date: 6.SEP.2018 10:43:45

Band edge measurement
LTE Band 4
Test Mode = 16QAM /TM5
Channel Bandwidth: 1.4 MHz
Test Channel = LCH/HCH

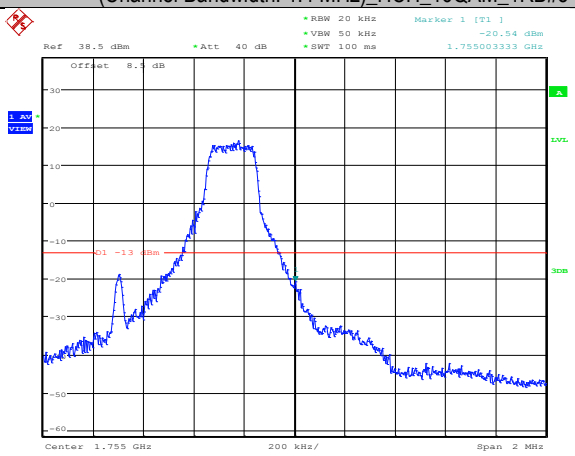
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_6RB#0

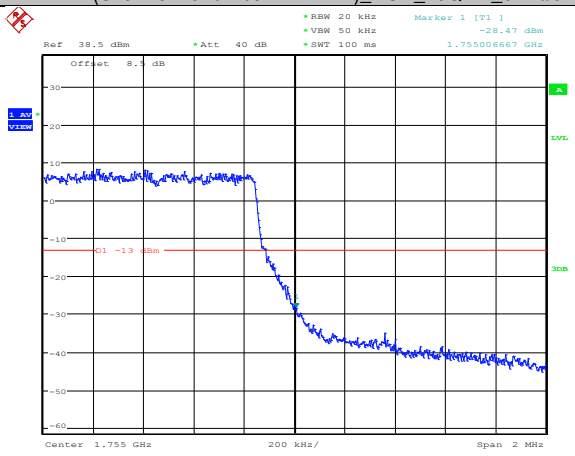


(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#5



Date: 6.SEP.2018 10:43:35

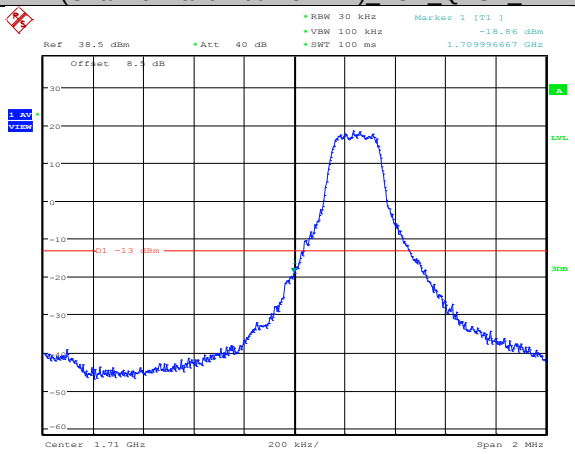
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_6RB#0



Date: 6.SEP.2018 10:43:55

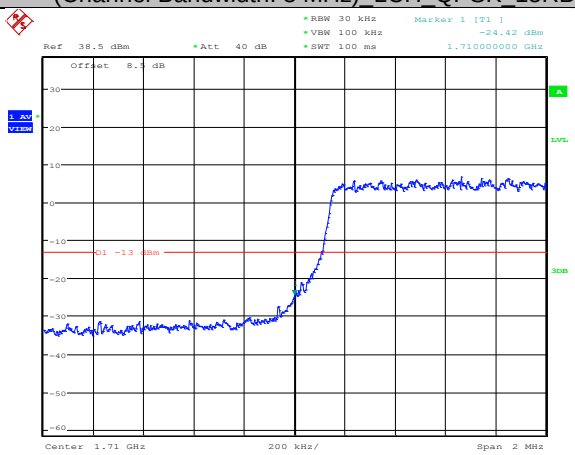
Band edge measurement
LTE Band 4
Test Mode = QPSK /TM4
Channel Bandwidth: 3 MHz
Test Channel = LCH/HCH

(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0



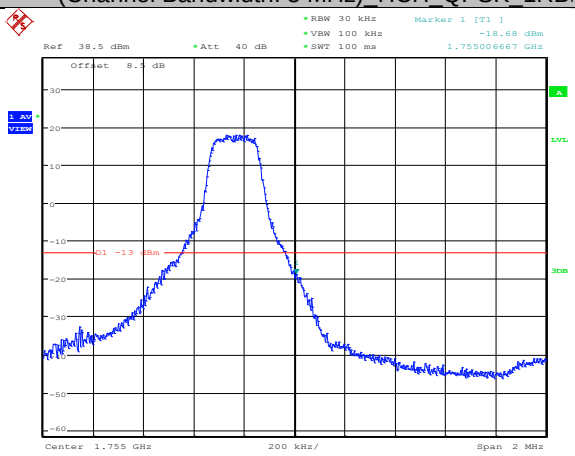
Date: 6.SEP.2018 11:03:30

(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0



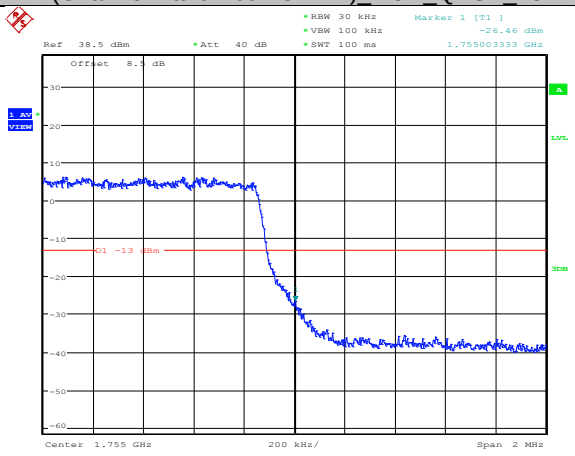
Date: 6.SEP.2018 11:04:08

(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14



Date: 6.SEP.2018 11:04:59

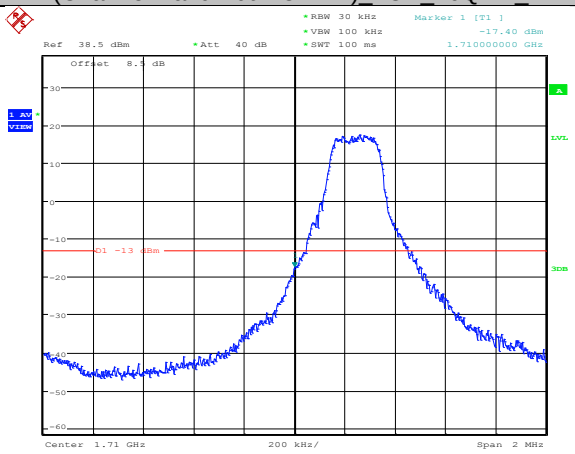
(Channel Bandwidth: 3 MHz)_HCH_QPSK_15RB#0



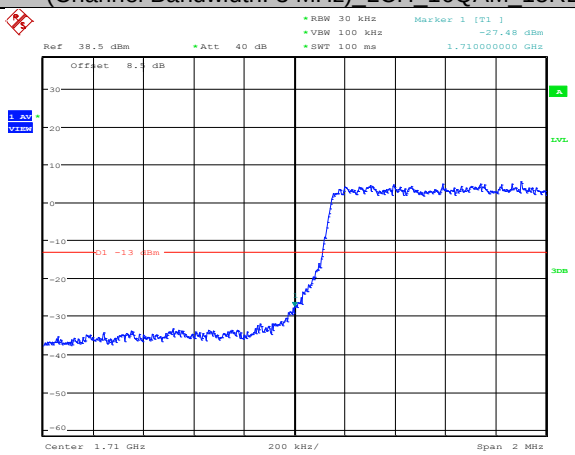
Date: 6.SEP.2018 11:05:18

Band edge measurement
LTE Band 4
Test Mode = 16QAM /TM5
Channel Bandwidth: 3 MHz
Test Channel = LCH/HCH

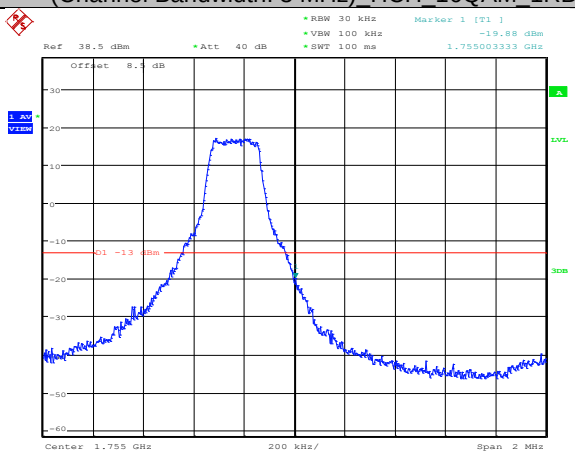
(Channel Bandwidth: 3 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth: 3 MHz)_LCH_16QAM_15RB#0

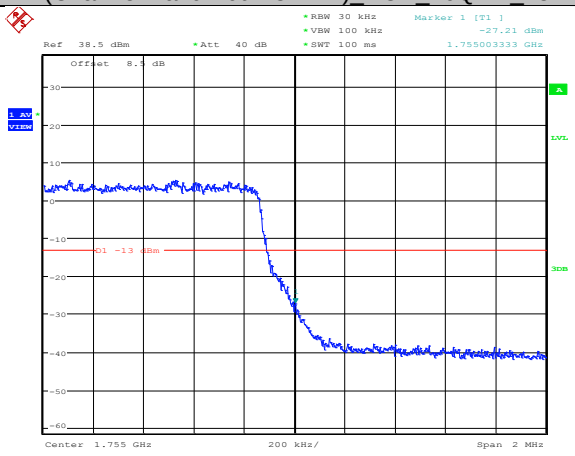


(Channel Bandwidth: 3 MHz)_HCH_16QAM_1RB#14



Date: 6.SEP.2018 11:05:09

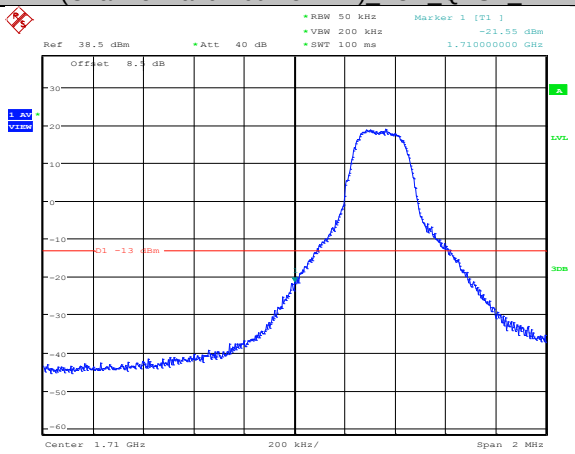
(Channel Bandwidth: 3 MHz)_HCH_16QAM_15RB#0



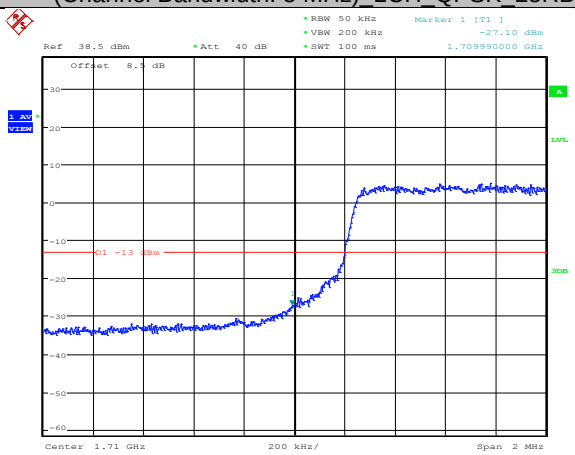
Date: 6.SEP.2018 11:05:28

Band edge measurement
LTE Band 4
Test Mode = QPSK /TM4
Channel Bandwidth: 5 MHz
Test Channel = LCH/HCH

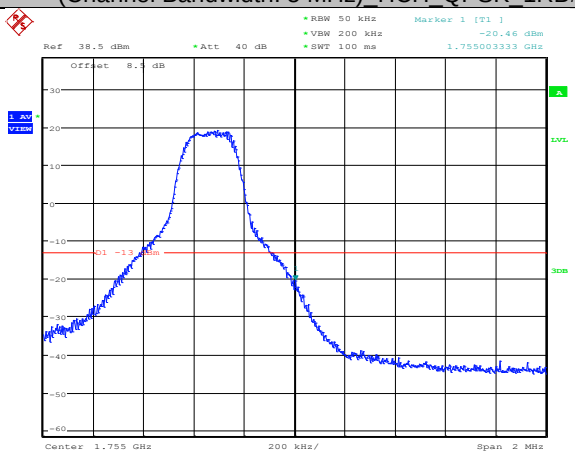
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0

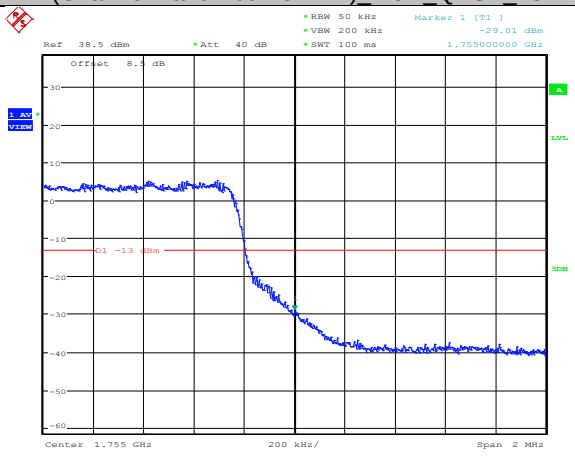


(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#24



Date: 6.SEP.2018 11:39:16

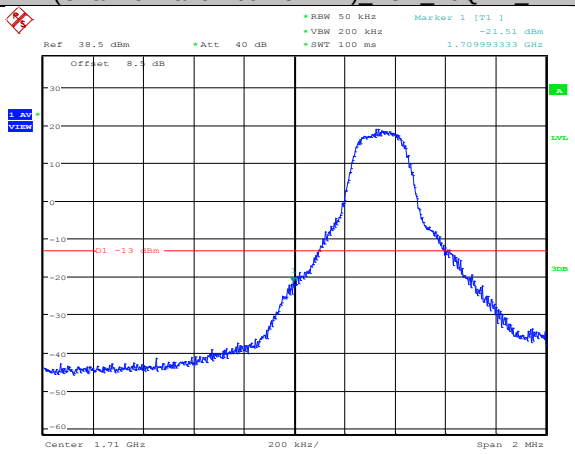
(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0



Date: 6.SEP.2018 11:40:25

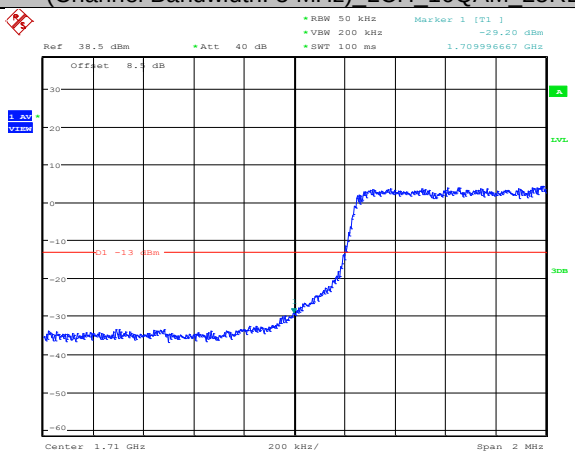
Band edge measurement
LTE Band 4
Test Mode = 16QAM /TM5
Channel Bandwidth: 5 MHz
Test Channel = LCH/HCH

(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#0



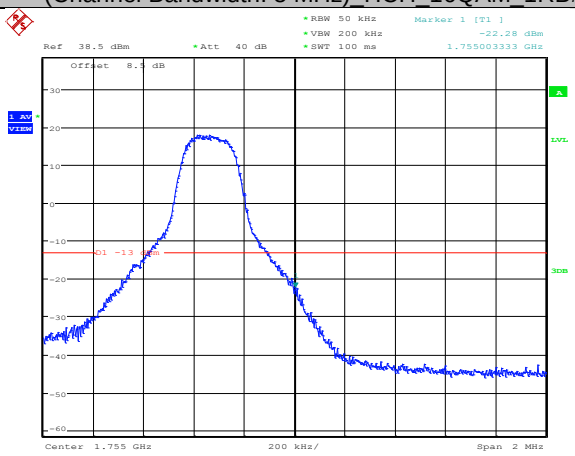
Date: 6.SEP.2018 11:37:29

(Channel Bandwidth: 5 MHz)_LCH_16QAM_25RB#0



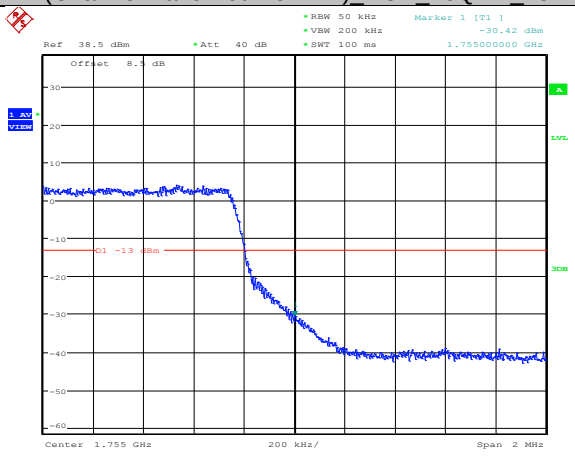
Date: 6.SEP.2018 11:38:08

(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#24



Date: 6.SEP.2018 11:39:49

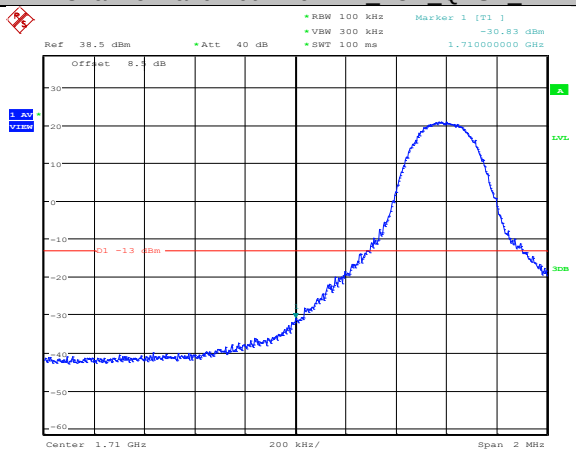
(Channel Bandwidth: 5 MHz)_HCH_16QAM_25RB#0



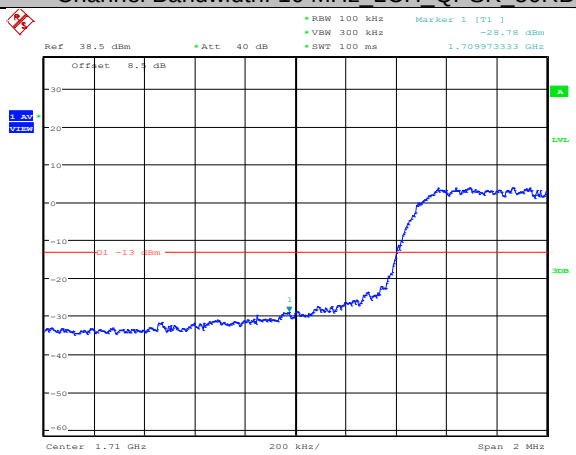
Date: 6.SEP.2018 11:40:53

Band edge measurement
LTE Band 4
Test Mode = QPSK /TM4
Channel Bandwidth: 10 MHz
Test Channel = LCH/HCH

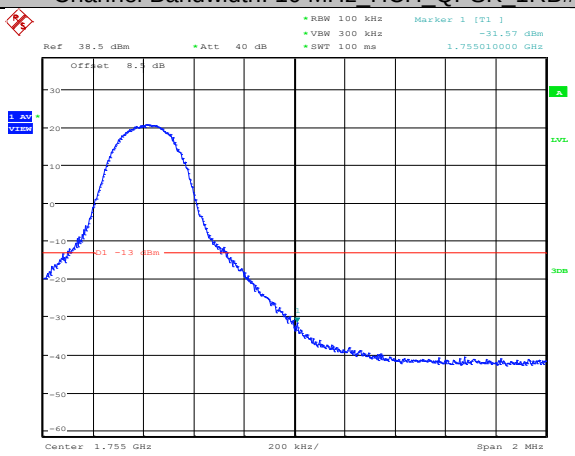
Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0

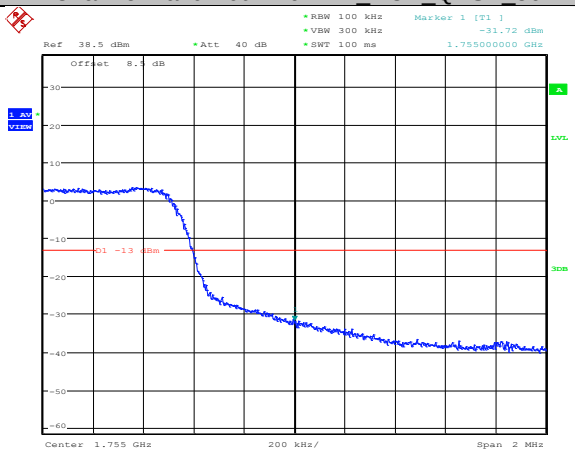


Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49



Date: 6.SEP.2018 12:05:12

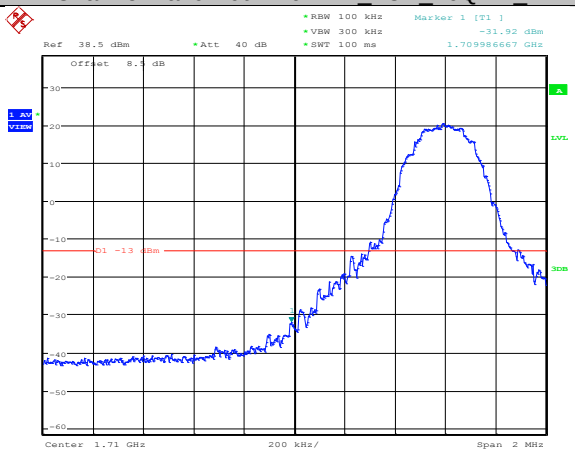
Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0



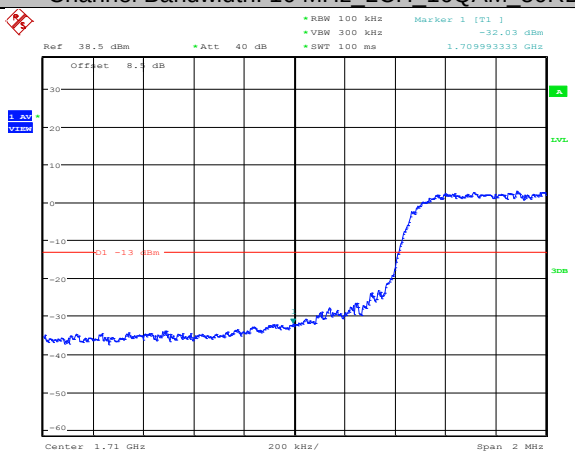
Date: 6.SEP.2018 12:05:31

Band edge measurement
LTE Band 4
Test Mode = 16QAM /TM5
Channel Bandwidth: 10 MHz
Test Channel = LCH/HCH

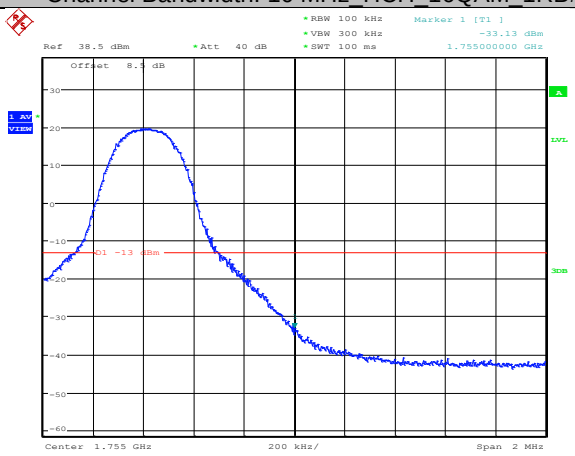
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0

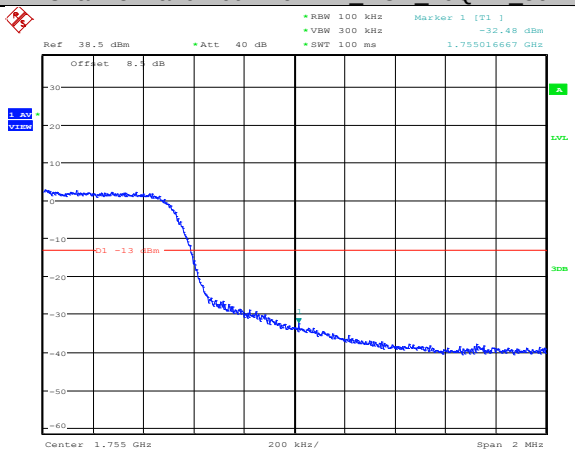


Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49



Date: 6.SEP.2018 12:05:21

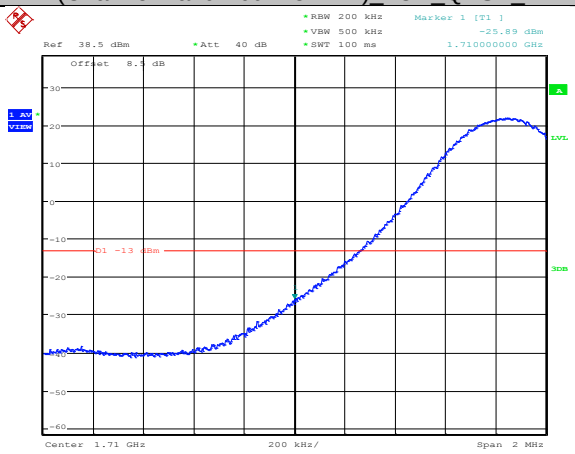
Channel Bandwidth: 10 MHz_HCH_16QAM_50RB#0



Date: 6.SEP.2018 12:05:41

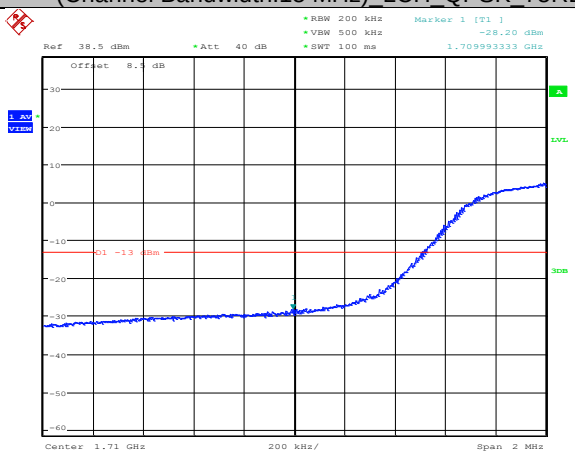
Band edge measurement
LTE Band 4
Test Mode = QPSK /TM4
Channel Bandwidth: 15 MHz
Test Channel = LCH/HCH

(Channel Bandwidth:15 MHz)_LCH_QPSK_1RB#0



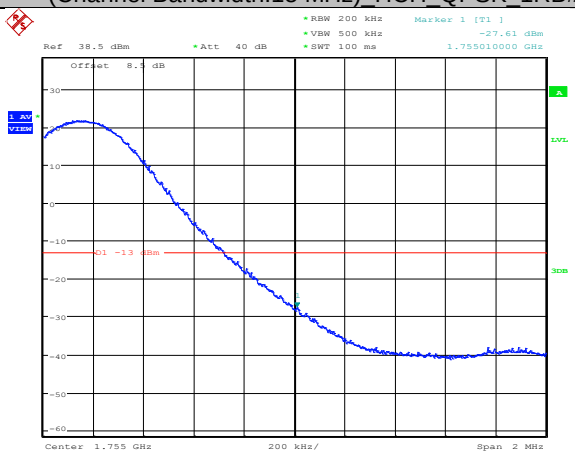
Date: 6.SEP.2018 12:27:11

(Channel Bandwidth:15 MHz)_LCH_QPSK_75RB#0



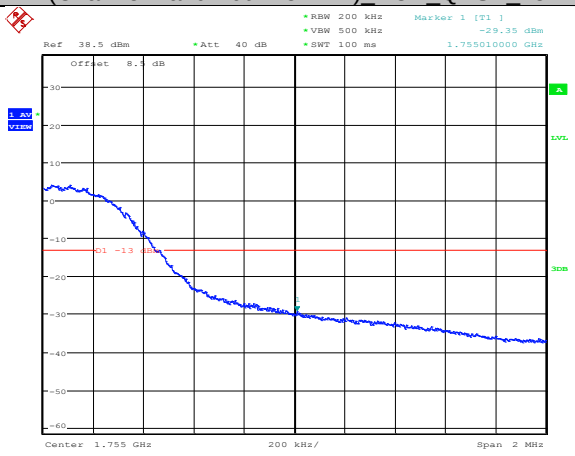
Date: 6.SEP.2018 12:27:52

(Channel Bandwidth:15 MHz)_HCH_QPSK_1RB#74



Date: 6.SEP.2018 12:28:45

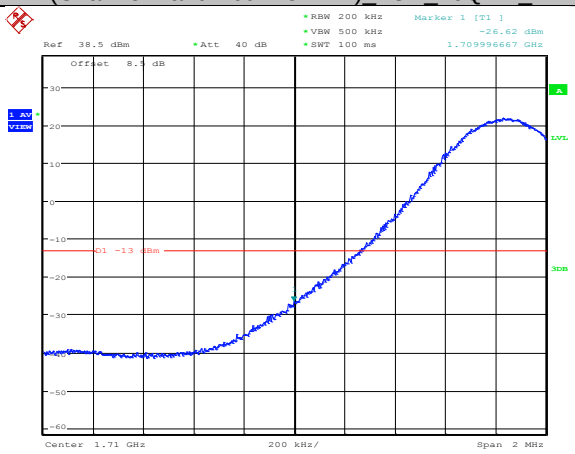
(Channel Bandwidth:15 MHz)_HCH_QPSK_75RB#0



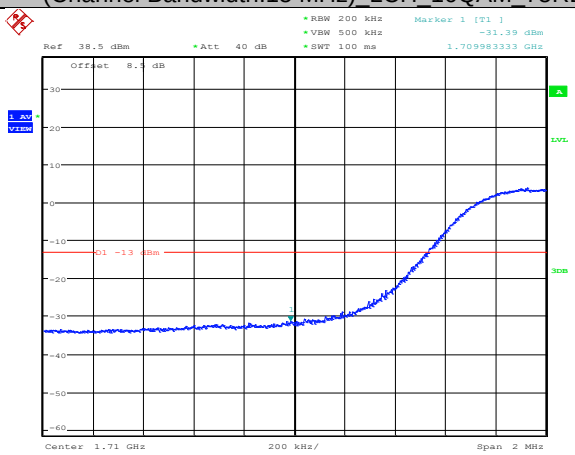
Date: 6.SEP.2018 12:29:05

Band edge measurement
LTE Band 4
Test Mode = 16QAM /TM5
Channel Bandwidth: 15 MHz
Test Channel = LCH/HCH

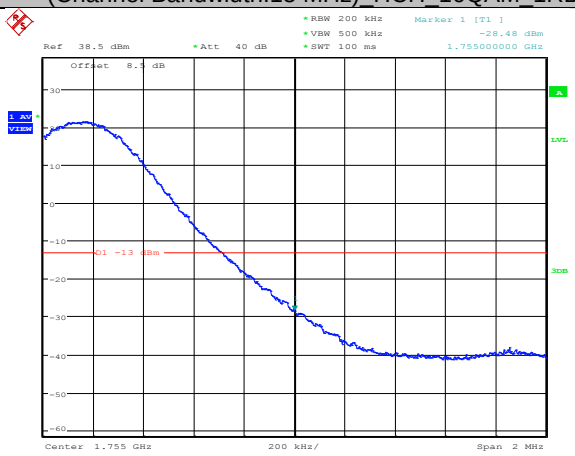
(Channel Bandwidth:15 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth:15 MHz)_LCH_16QAM_75RB#0

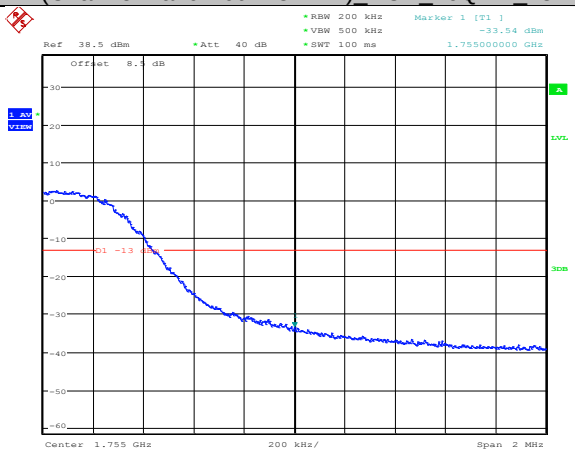


(Channel Bandwidth:15 MHz)_HCH_16QAM_1RB#74



Date: 6.SEP.2018 12:28:55

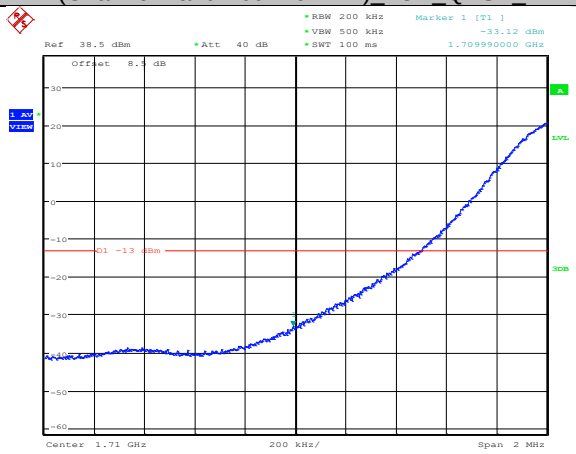
(Channel Bandwidth:15 MHz)_HCH_16QAM_75RB#0



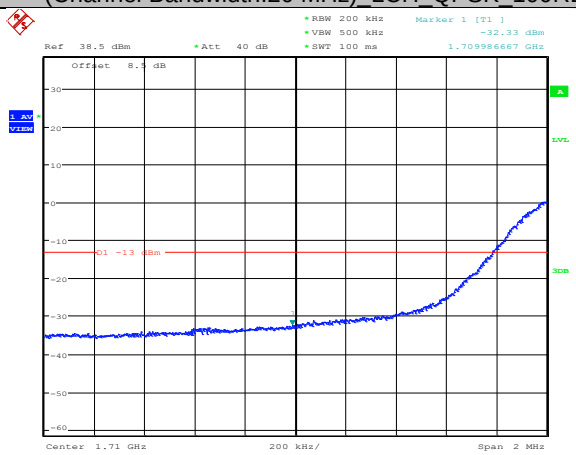
Date: 6.SEP.2018 12:29:16

Band edge measurement
LTE Band 4
Test Mode = QPSK /TM4
Channel Bandwidth: 20 MHz
Test Channel = LCH/HCH

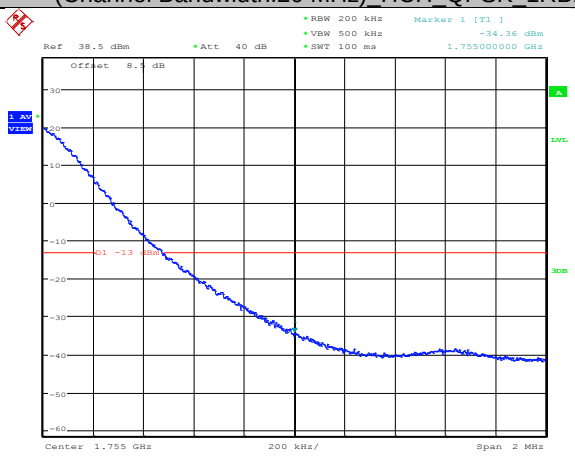
(Channel Bandwidth:20 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth:20 MHz)_LCH_QPSK_100RB#0

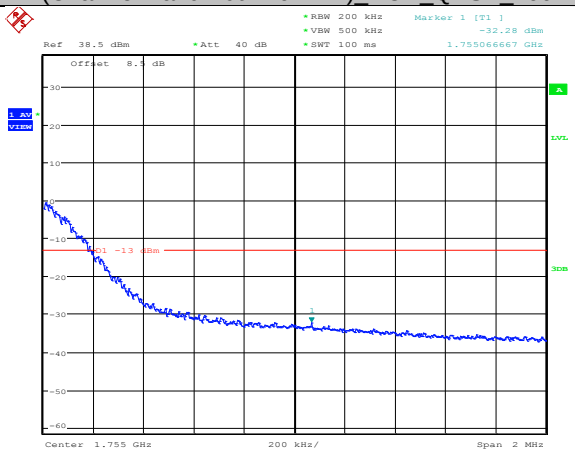


(Channel Bandwidth:20 MHz)_HCH_QPSK_1RB#99



Date: 6.SEP.2018 13:38:22

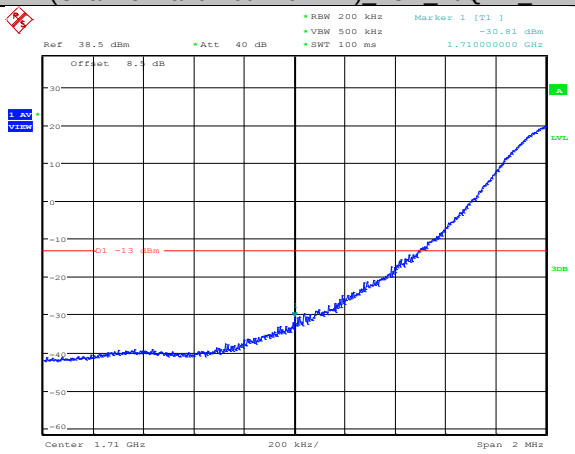
(Channel Bandwidth:20 MHz)_HCH_QPSK_100RB#0



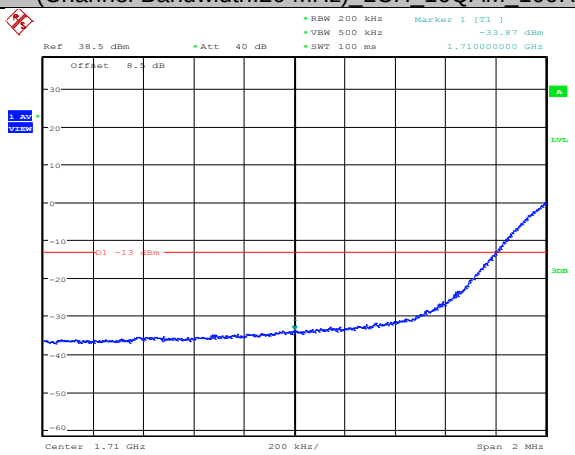
Date: 6.SEP.2018 13:38:44

Band edge measurement
LTE Band 4
Test Mode = 16QAM /TM5
Channel Bandwidth: 20 MHz
Test Channel = LCH/HCH

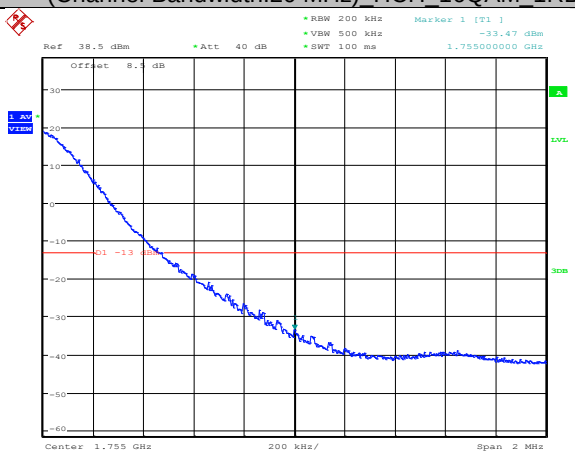
(Channel Bandwidth:20 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth:20 MHz)_LCH_16QAM_100RB#0

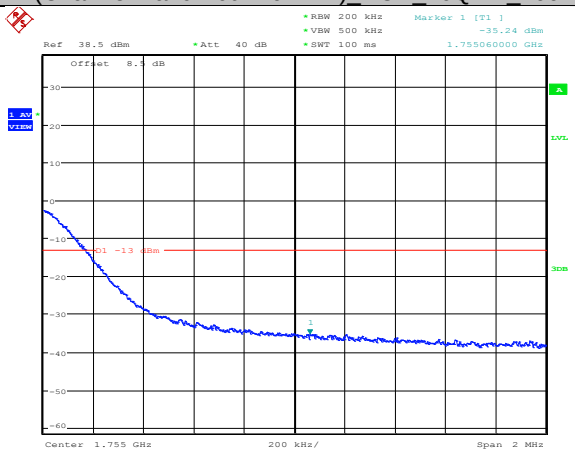


(Channel Bandwidth:20 MHz)_HCH_16QAM_1RB#99



Date: 6.SEP.2018 13:38:33

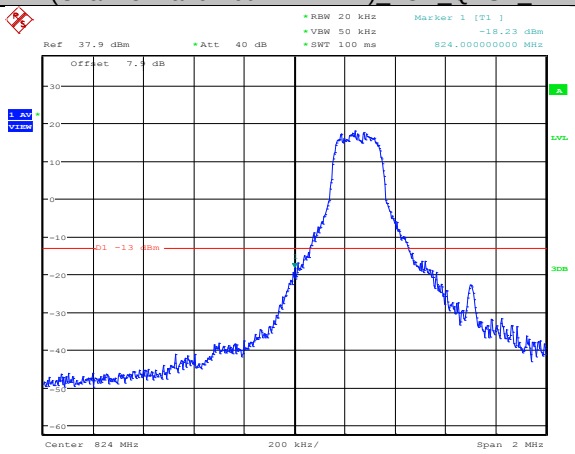
(Channel Bandwidth:20 MHz)_HCH_16QAM_100RB#0



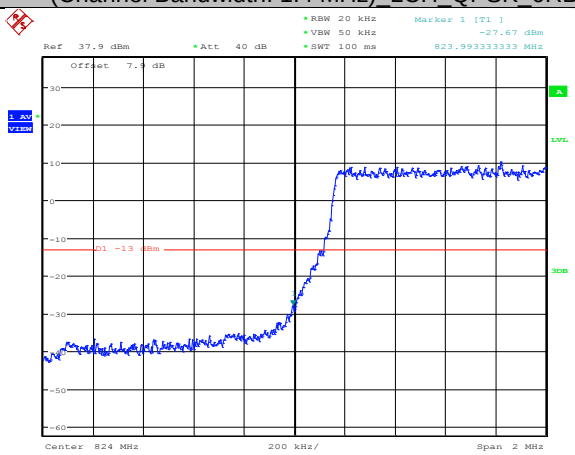
Date: 6.SEP.2018 13:38:55

Band edge measurement
LTE Band 5
Test Mode = QPSK /TM4
Channel Bandwidth: 1.4 MHz
Test Channel = LCH/HCH

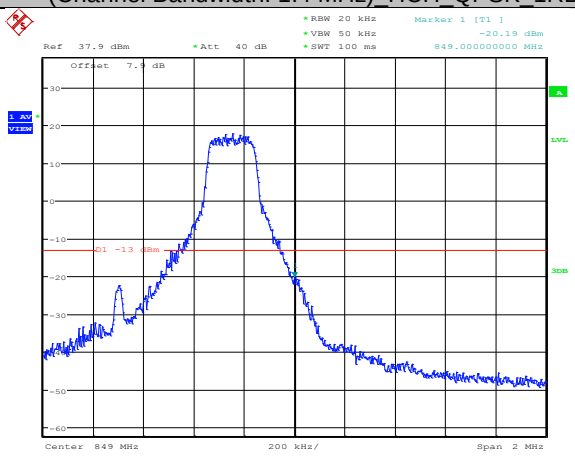
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0

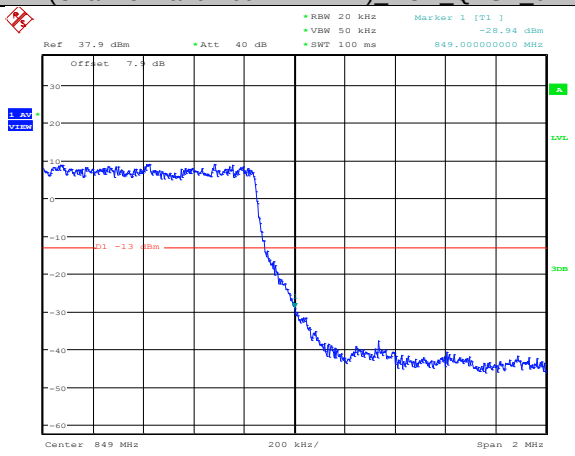


(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#5



Date: 6.SEP.2018 15:29:36

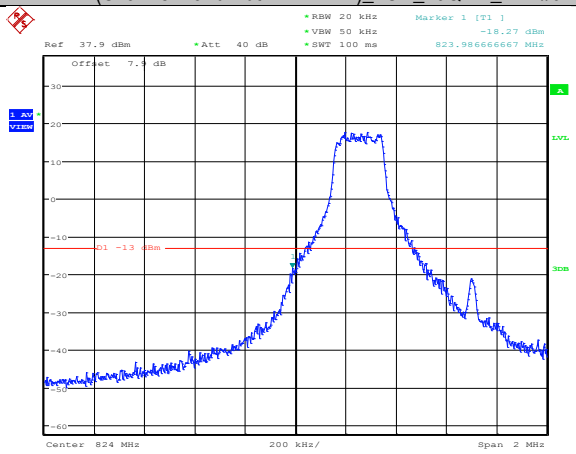
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0



Date: 6.SEP.2018 15:29:55

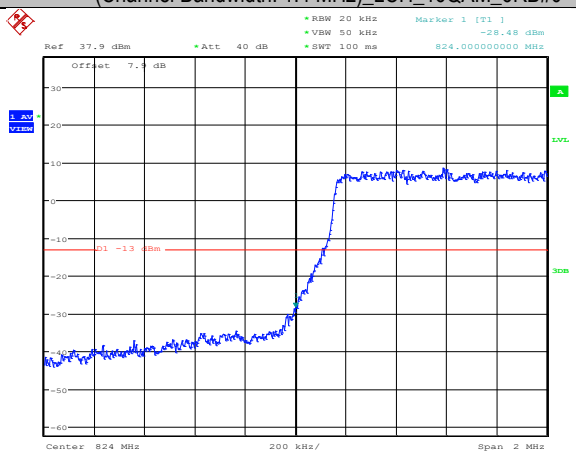
Band edge measurement
LTE Band 5
Test Mode = 16QAM /TM5
Channel Bandwidth: 1.4 MHz
Test Channel = LCH/HCH

(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#0



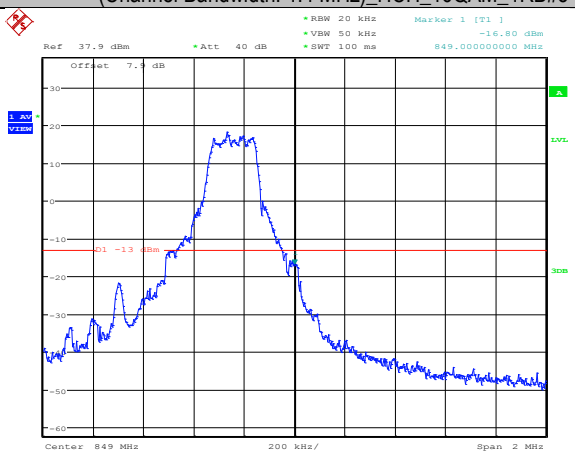
Date: 6.SEP.2018 15:28:15

(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_6RB#0



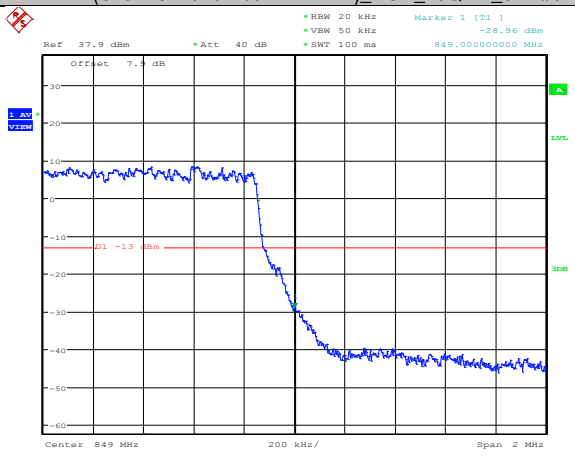
Date: 6.SEP.2018 15:28:53

(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#5



Date: 6.SEP.2018 15:29:45

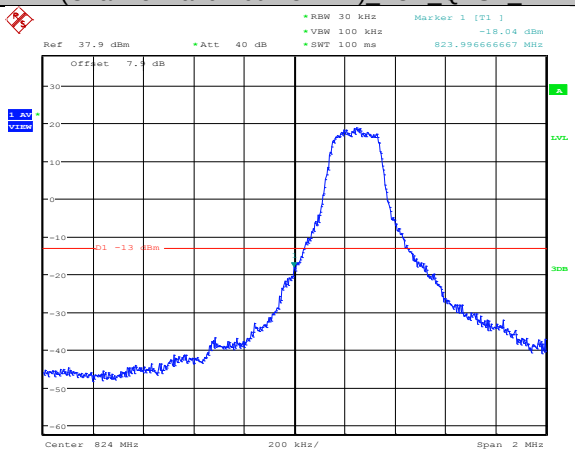
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_6RB#0



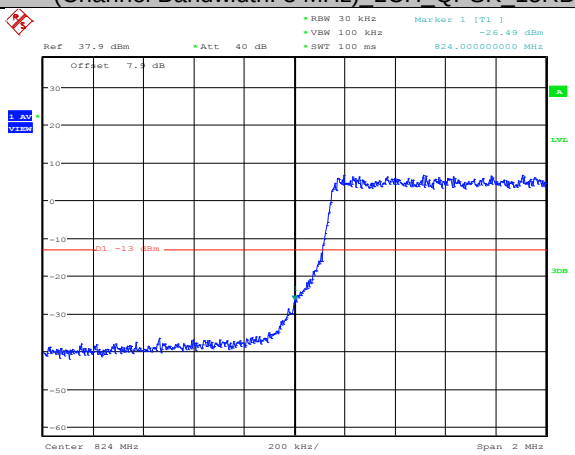
Date: 6.SEP.2018 15:30:04

Band edge measurement
LTE Band 5
Test Mode = QPSK /TM4
Channel Bandwidth: 3 MHz
Test Channel = LCH/HCH

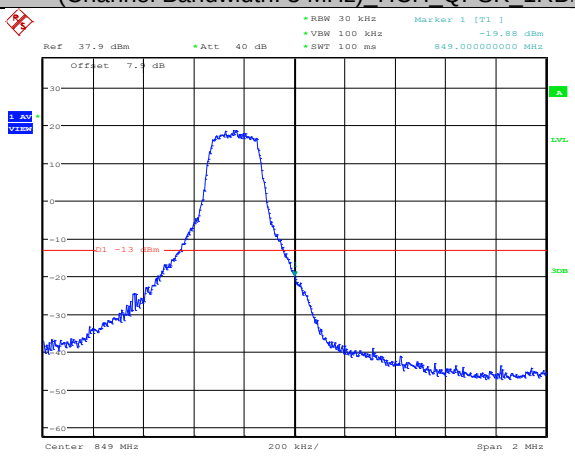
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0

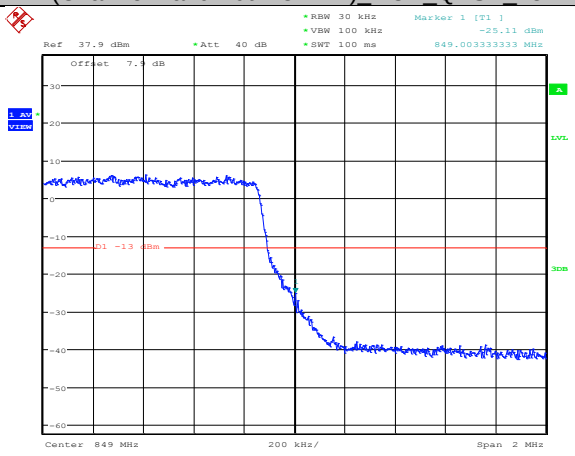


(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14



Date: 6.SEP.2018 15:51:25

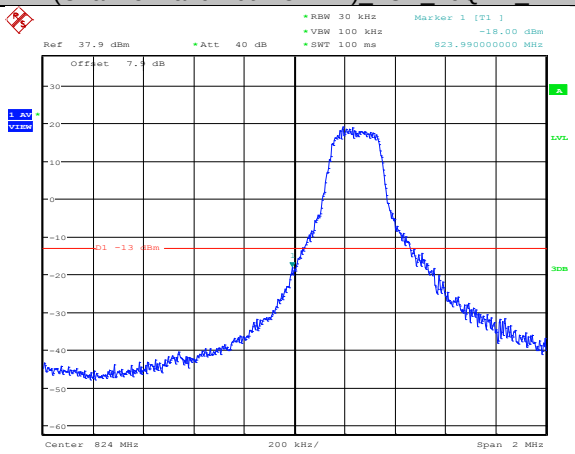
(Channel Bandwidth: 3 MHz)_HCH_QPSK_15RB#0



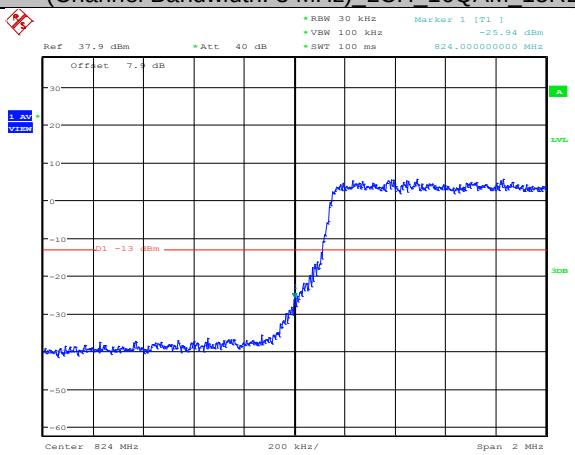
Date: 6.SEP.2018 15:51:44

Band edge measurement
LTE Band 5
Test Mode = 16QAM /TM5
Channel Bandwidth: 3 MHz
Test Channel = LCH/HCH

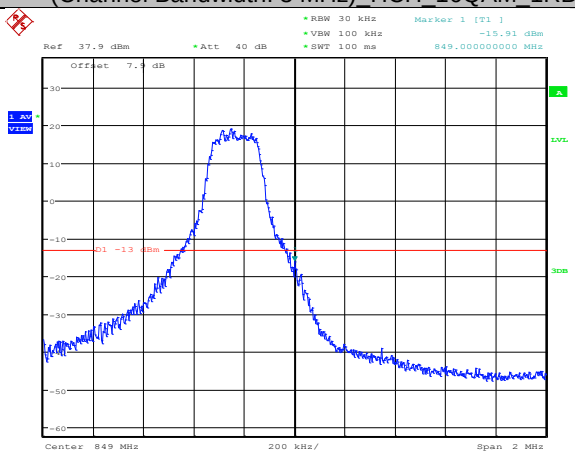
(Channel Bandwidth: 3 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth: 3 MHz)_LCH_16QAM_15RB#0

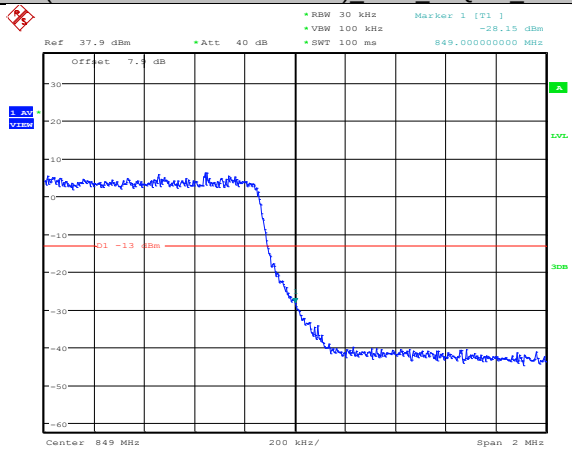


(Channel Bandwidth: 3 MHz)_HCH_16QAM_1RB#14



Date: 6.SEP.2018 15:51:35

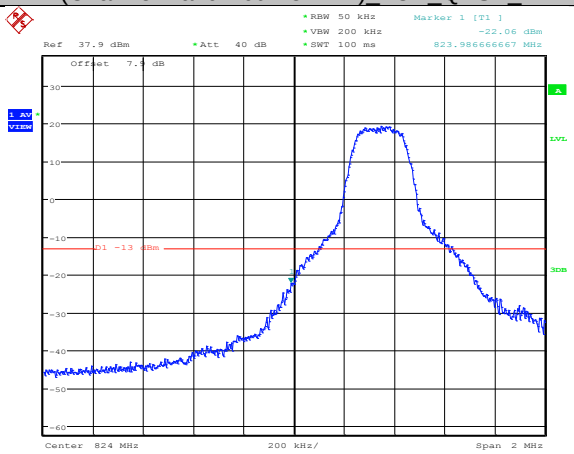
(Channel Bandwidth: 3 MHz)_HCH_16QAM_15RB#0



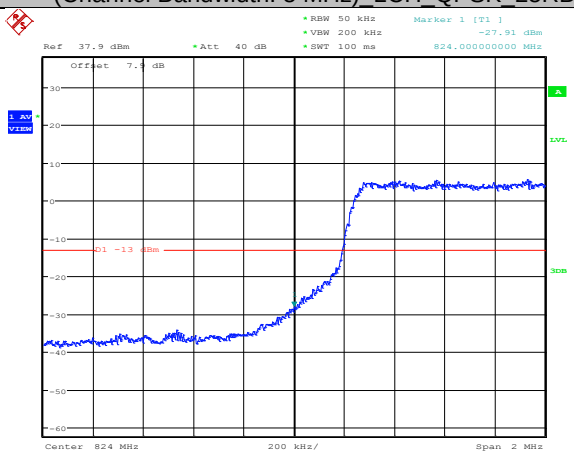
Date: 6.SEP.2018 15:51:54

Band edge measurement
LTE Band 5
Test Mode = QPSK /TM4
Channel Bandwidth: 5 MHz
Test Channel = LCH/HCH

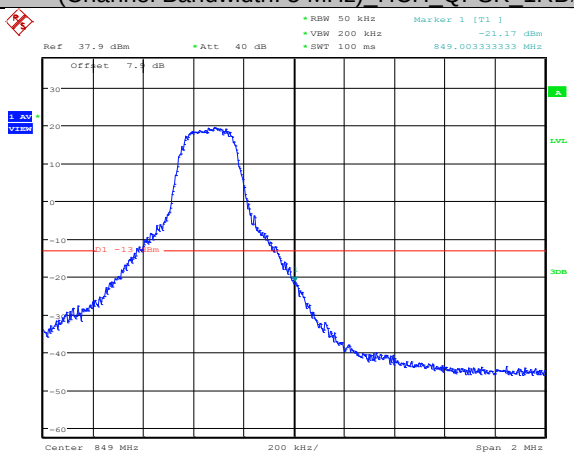
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0

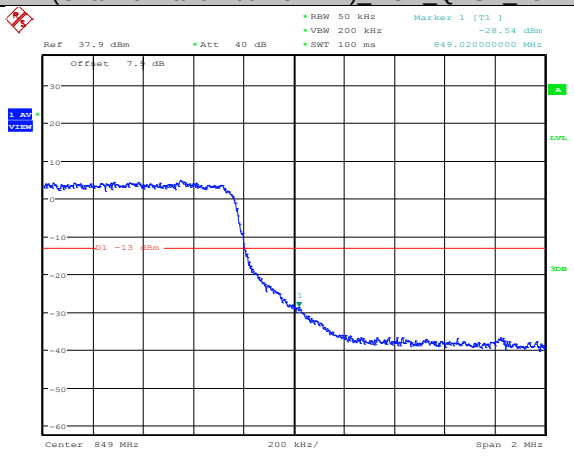


(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#24



Date: 6.SEP.2018 16:16:13

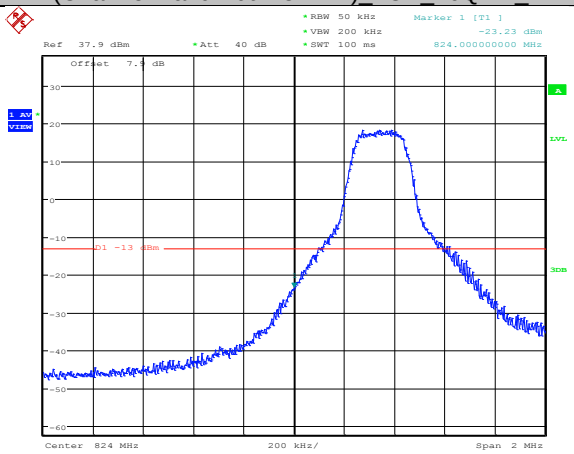
(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0



Date: 6.SEP.2018 16:16:32

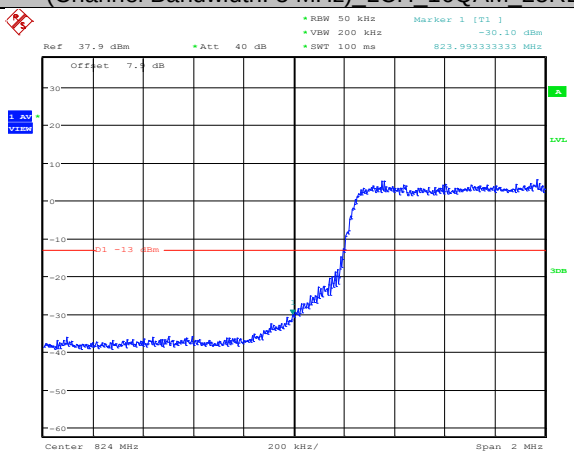
Band edge measurement
LTE Band 5
Test Mode = 16QAM /TM5
Channel Bandwidth: 5 MHz
Test Channel = LCH/HCH

(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#0



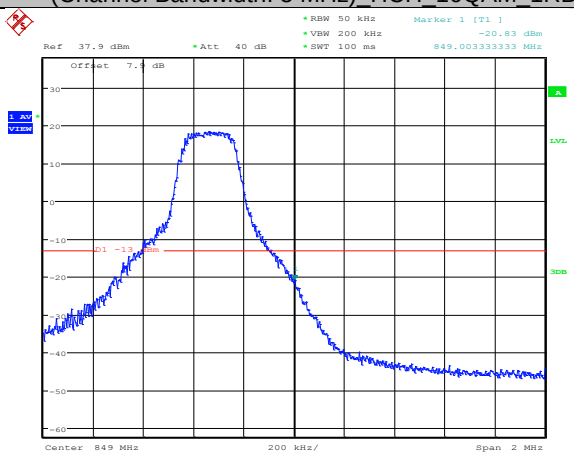
Date: 6.SEP.2018 16:14:53

(Channel Bandwidth: 5 MHz)_LCH_16QAM_25RB#0



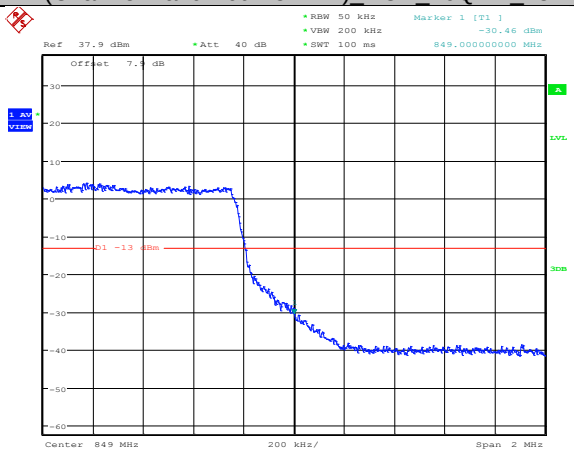
Date: 6.SEP.2018 16:15:31

(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#24



Date: 6.SEP.2018 16:16:22

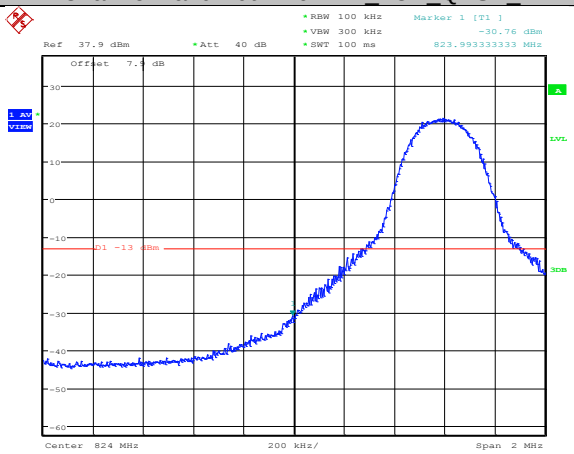
(Channel Bandwidth: 5 MHz)_HCH_16QAM_25RB#0



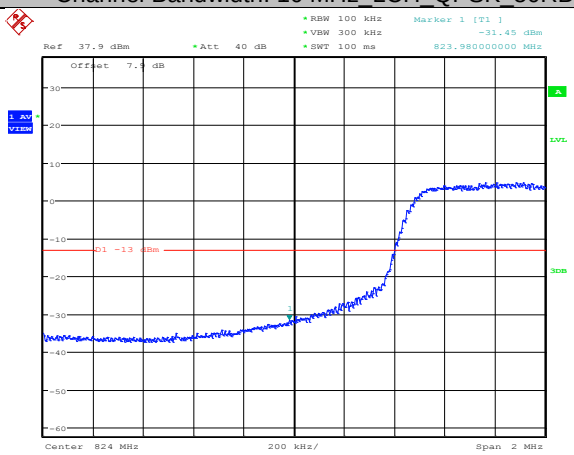
Date: 6.SEP.2018 16:16:41

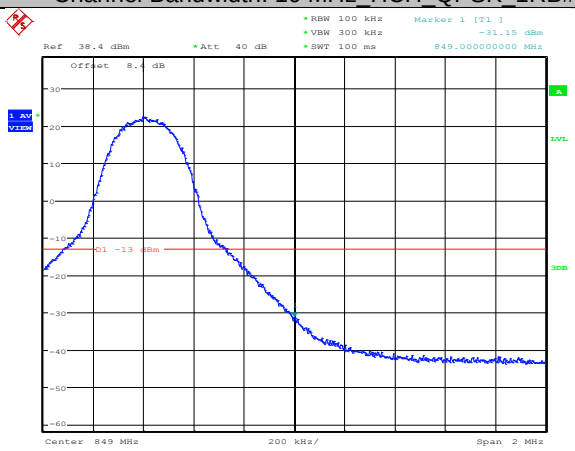
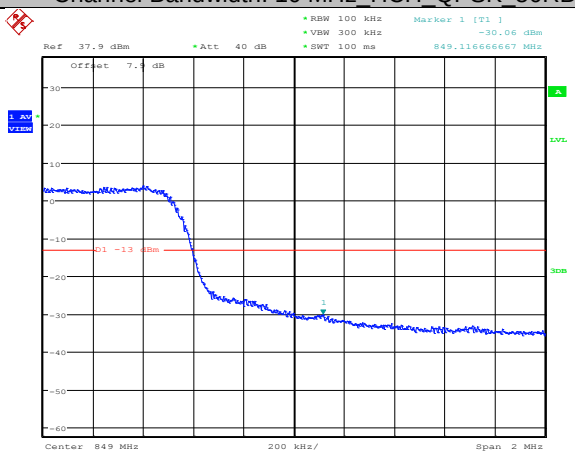
Band edge measurement
LTE Band 5
Test Mode = QPSK /TM4
Channel Bandwidth: 10 MHz
Test Channel = LCH/HCH

Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0



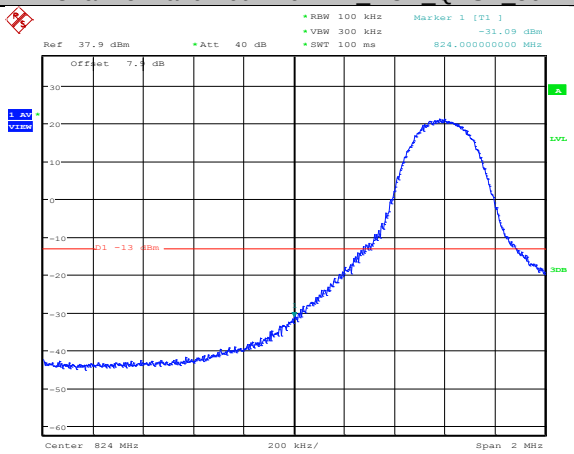
Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0



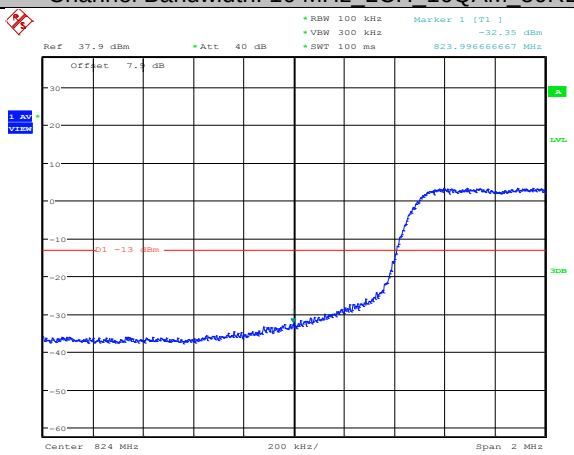
Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49
 Date: 13.NOV.2018 18:01:27
Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0
 Date: 6.SEP.2018 16:38:11

Band edge measurement
LTE Band 5
Test Mode = 16QAM /TM5
Channel Bandwidth: 10 MHz
Test Channel = LCH/HCH

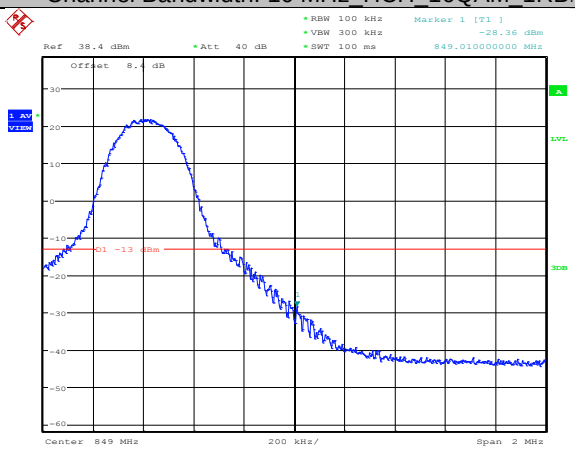
Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0

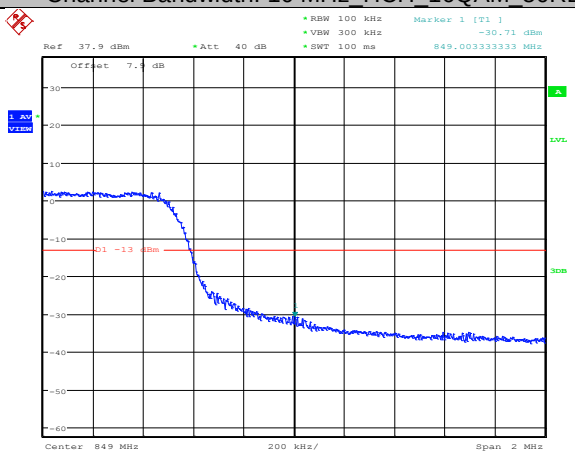


Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49



Date: 13.NOV.2018 18:01:37

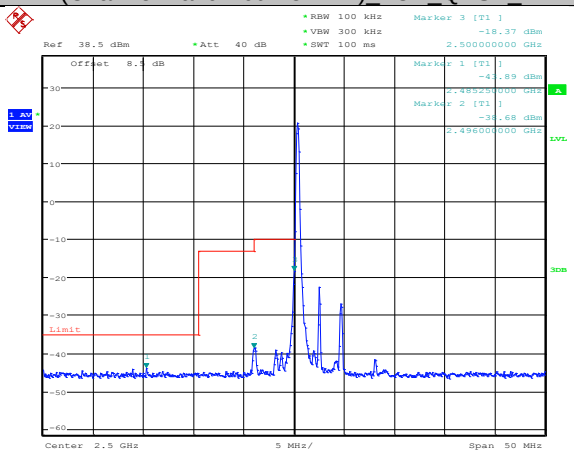
Channel Bandwidth: 10 MHz_HCH_16QAM_50RB#0



Date: 6.SEP.2018 16:38:21

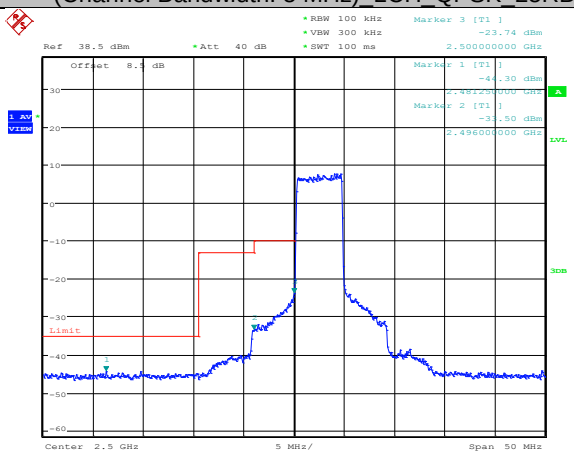
Band edge measurement
LTE Band 7
Test Mode = QPSK /TM4
Channel Bandwidth: 5 MHz
Test Channel = LCH/HCH

(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0



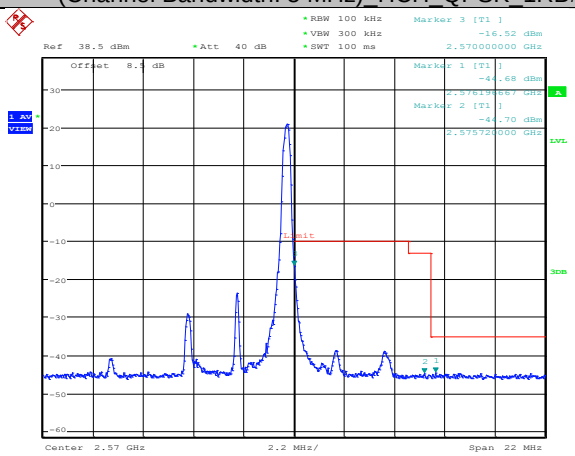
Date: 6.SEP.2018 17:34:12

(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0



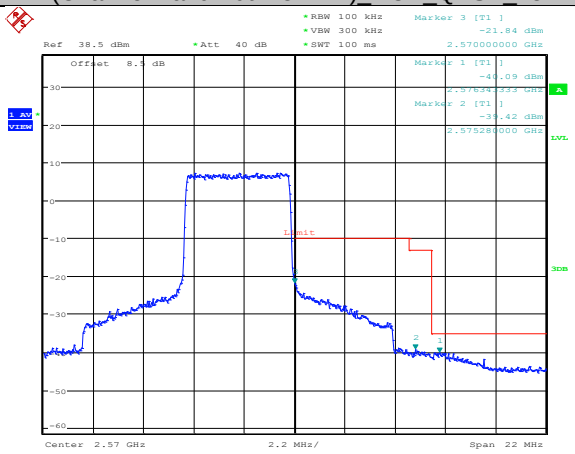
Date: 7.SEP.2018 16:07:03

(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#24



Date: 7.SEP.2018 16:07:58

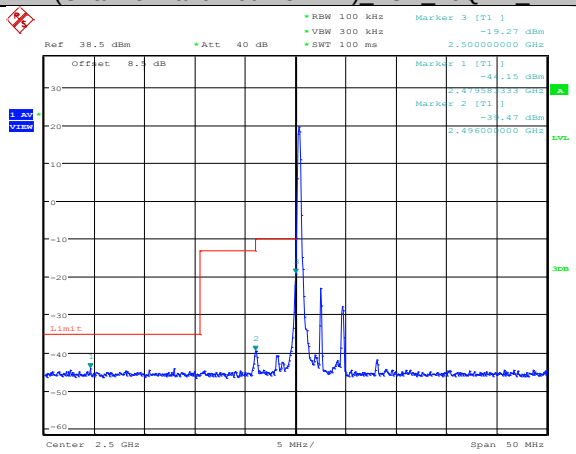
(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0



Date: 7.SEP.2018 16:08:19

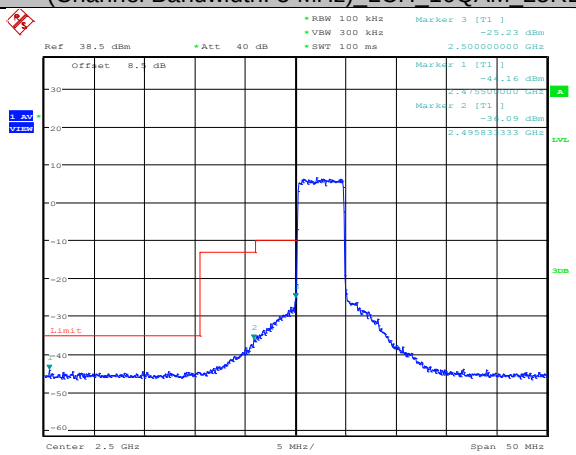
Band edge measurement
LTE Band 7
Test Mode = 16QAM /TM5
Channel Bandwidth: 5 MHz
Test Channel = LCH/HCH

(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#0



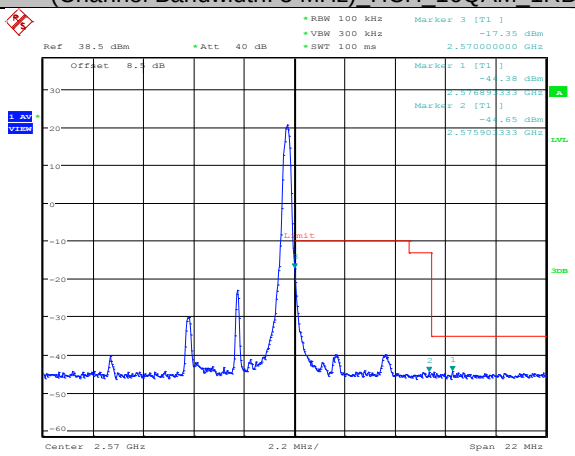
Date: 6.SEP.2018 17:34:22

(Channel Bandwidth: 5 MHz)_LCH_16QAM_25RB#0



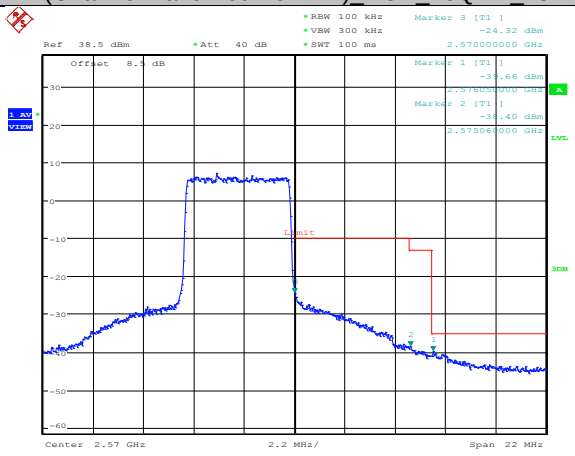
Date: 7.SEP.2018 16:07:14

(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#24



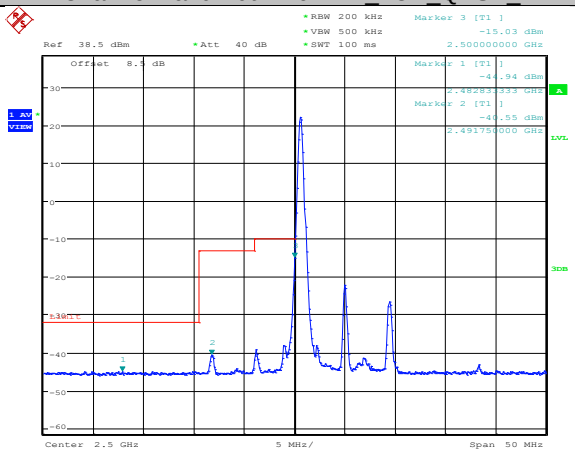
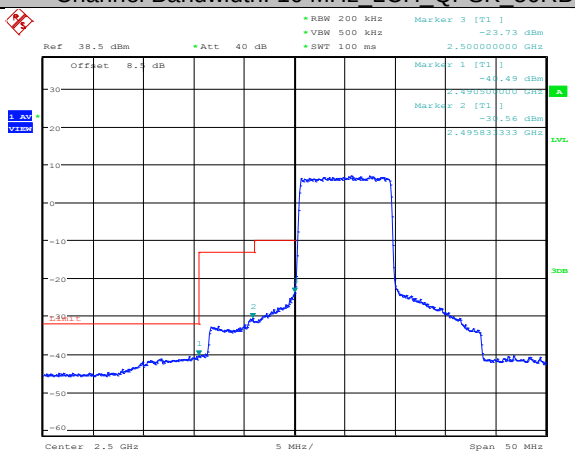
Date: 7.SEP.2018 16:08:08

(Channel Bandwidth: 5 MHz)_HCH_16QAM_25RB#0

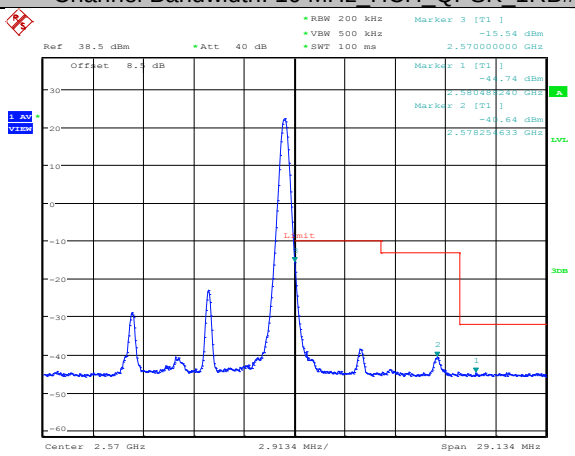


Date: 7.SEP.2018 16:08:30

Band edge measurement
LTE Band 7
Test Mode = QPSK /TM4
Channel Bandwidth: 10 MHz
Test Channel = LCH/HCH

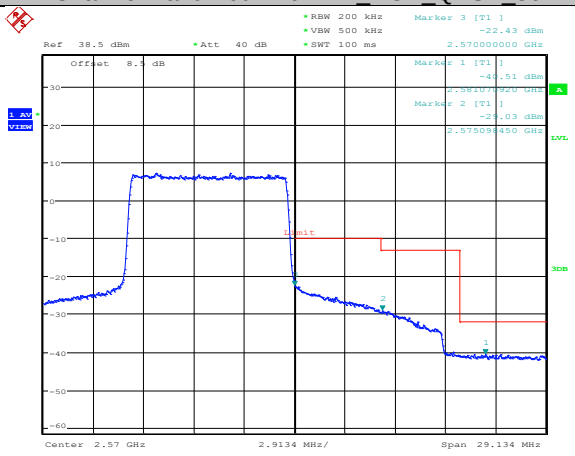
Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0
 Date: 6.SEP.2018 17:57:01
Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0
 Date: 7.SEP.2018 16:10:46

Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49



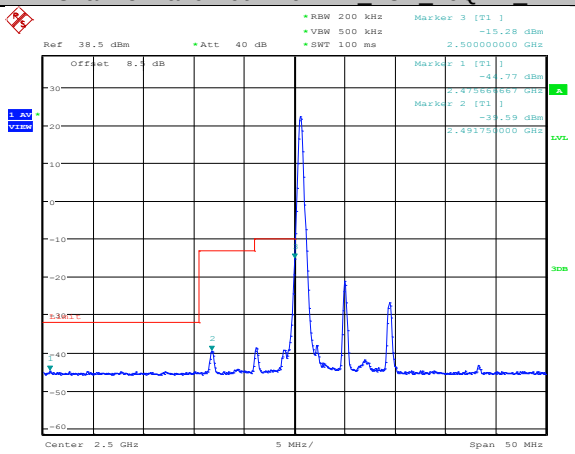
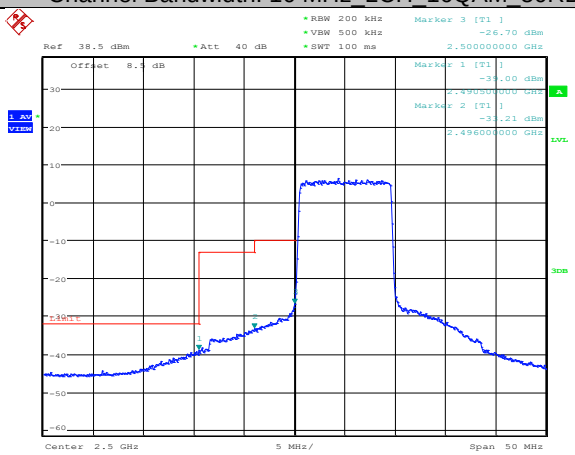
Date: 7.SEP.2018 16:11:42

Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0

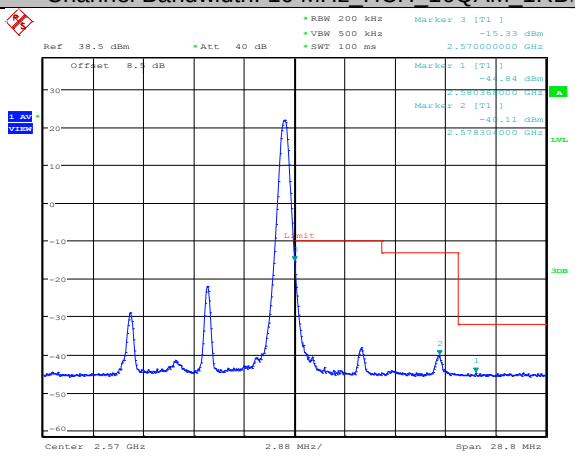


Date: 7.SEP.2018 16:12:03

Band edge measurement
LTE Band 7
Test Mode = 16QAM /TM5
Channel Bandwidth: 10 MHz
Test Channel = LCH/HCH

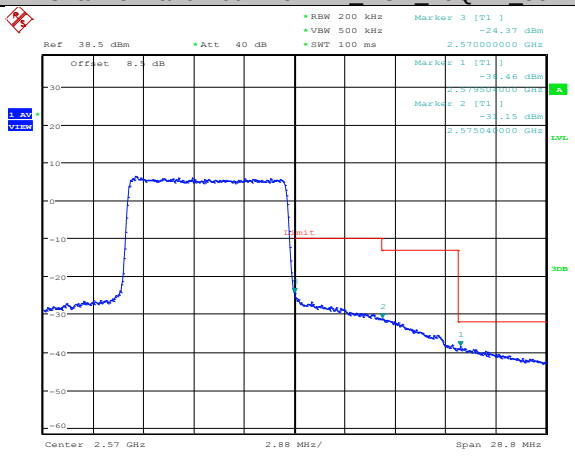
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#0
 Date: 6.SEP.2018 17:57:12
Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0
 Date: 7.SEP.2018 16:10:57

Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49



Date: 7.SEP.2018 16:11:52

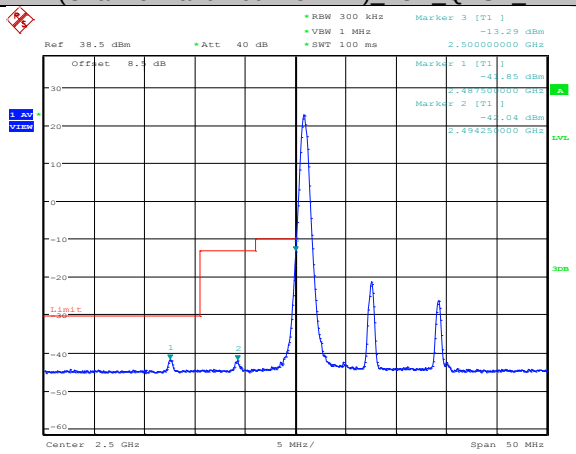
Channel Bandwidth: 10 MHz_HCH_16QAM_50RB#0



Date: 7.SEP.2018 16:12:14

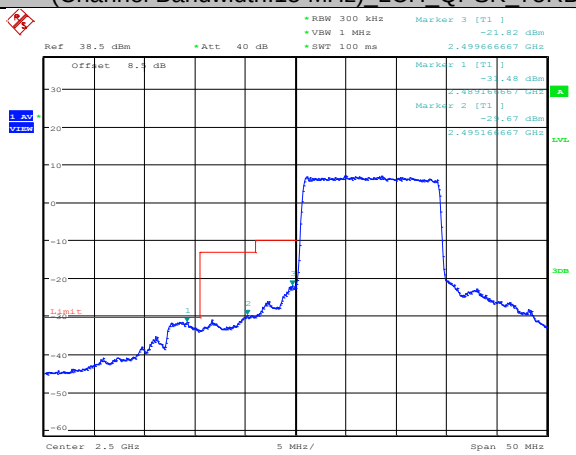
Band edge measurement
LTE Band 7
Test Mode = QPSK /TM4
Channel Bandwidth: 15 MHz
Test Channel = LCH/HCH

(Channel Bandwidth:15 MHz)_LCH_QPSK_1RB#0



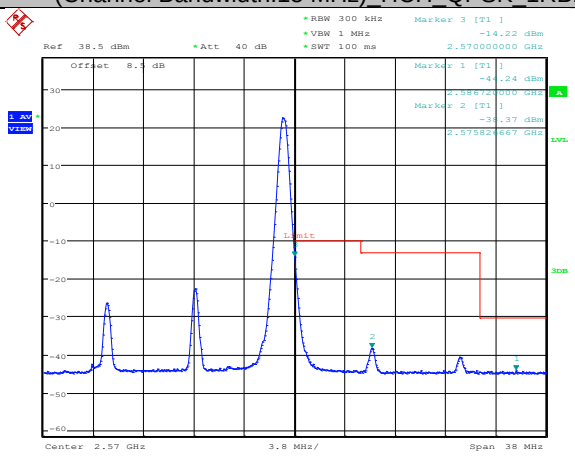
Date: 7.SEP.2018 15:07:17

(Channel Bandwidth:15 MHz)_LCH_QPSK_75RB#0



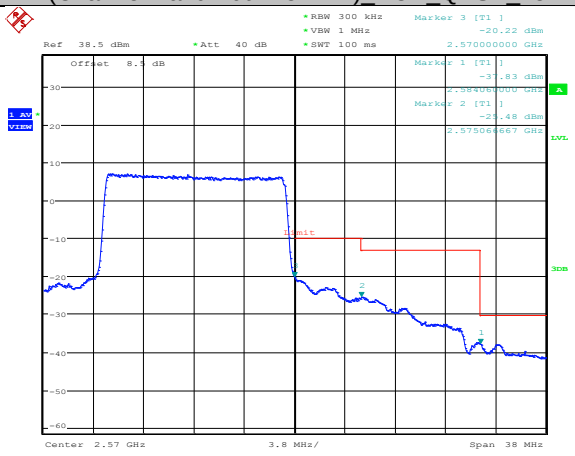
Date: 7.SEP.2018 16:14:33

(Channel Bandwidth:15 MHz)_HCH_QPSK_1RB#74



Date: 7.SEP.2018 16:15:30

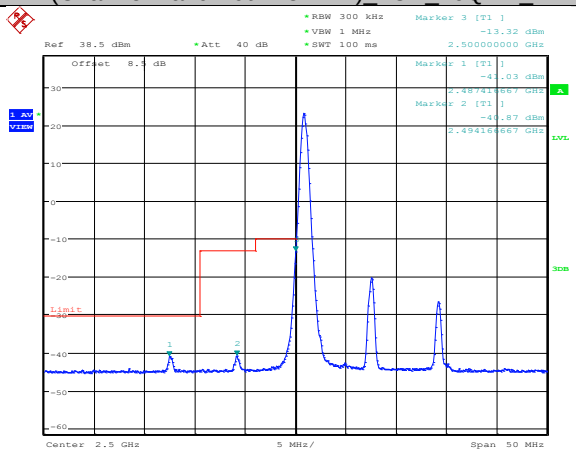
(Channel Bandwidth:15 MHz)_HCH_QPSK_75RB#0



Date: 7.SEP.2018 16:15:53

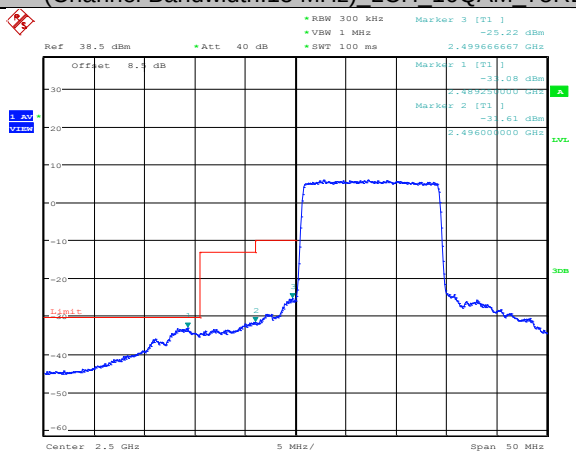
Band edge measurement
LTE Band 7
Test Mode = 16QAM /TM5
Channel Bandwidth: 15 MHz
Test Channel = LCH/HCH

(Channel Bandwidth:15 MHz)_LCH_16QAM_1RB#0



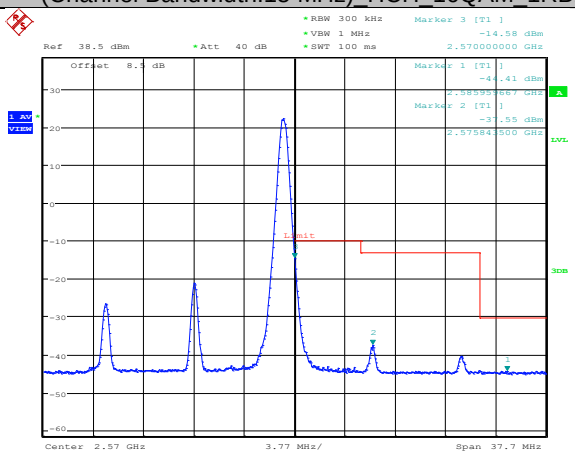
Date: 7.SEP.2018 15:07:28

(Channel Bandwidth:15 MHz)_LCH_16QAM_75RB#0



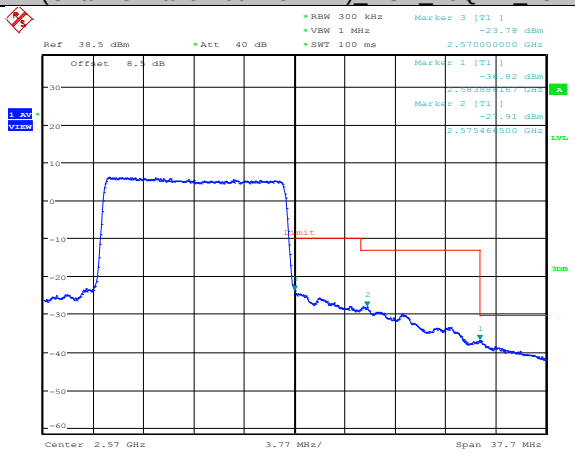
Date: 7.SEP.2018 16:14:44

(Channel Bandwidth:15 MHz)_HCH_16QAM_1RB#74



Date: 7.SEP.2018 16:15:41

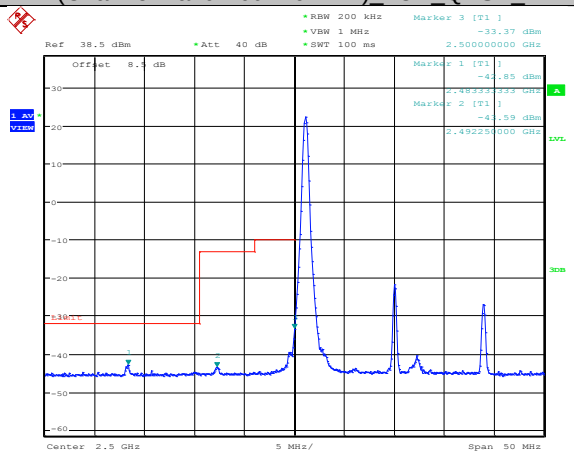
(Channel Bandwidth:15 MHz)_HCH_16QAM_75RB#0



Date: 7.SEP.2018 16:16:04

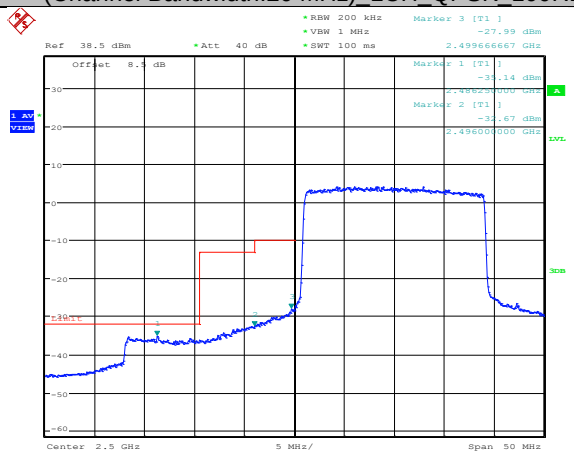
Band edge measurement
LTE Band 7
Test Mode = QPSK /TM4
Channel Bandwidth: 20 MHz
Test Channel = LCH/HCH

(Channel Bandwidth:20 MHz)_LCH_QPSK_1RB#0



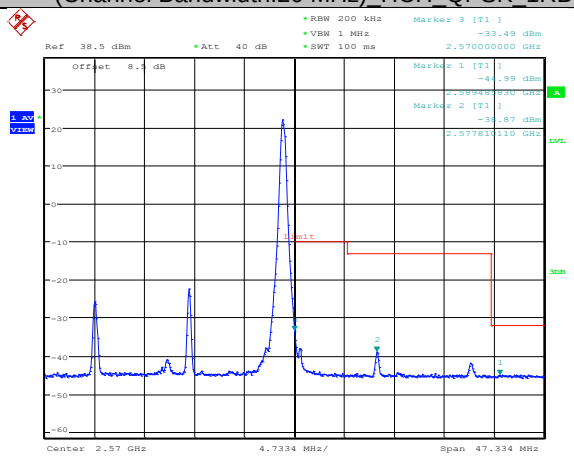
Date: 18.SEP.2018 11:40:26

(Channel Bandwidth:20 MHz)_LCH_QPSK_100RB#0



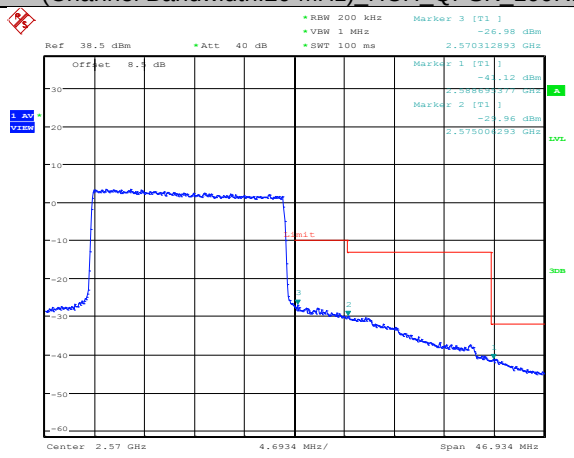
Date: 18.SEP.2018 11:41:14

(Channel Bandwidth:20 MHz)_HCH_QPSK_1RB#99



Date: 18.SEP.2018 11:42:12

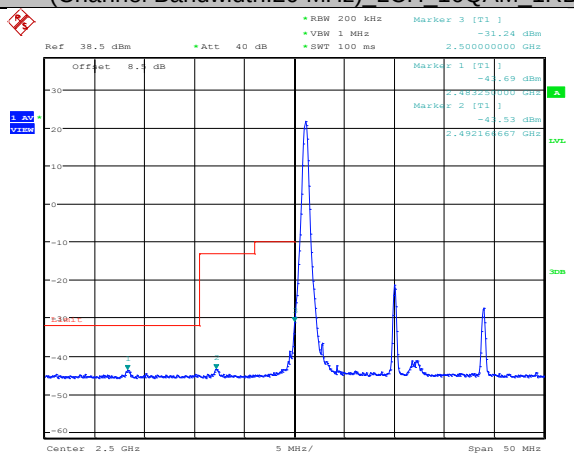
(Channel Bandwidth:20 MHz)_HCH_QPSK_100RB#0



Date: 18.SEP.2018 11:42:48

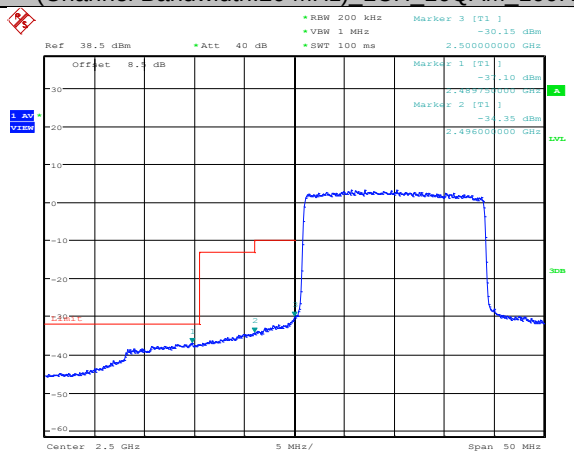
Band edge measurement
LTE Band 7
Test Mode = 16QAM /TM5
Channel Bandwidth: 20 MHz
Test Channel = LCH/HCH

(Channel Bandwidth:20 MHz)_LCH_16QAM_1RB#0



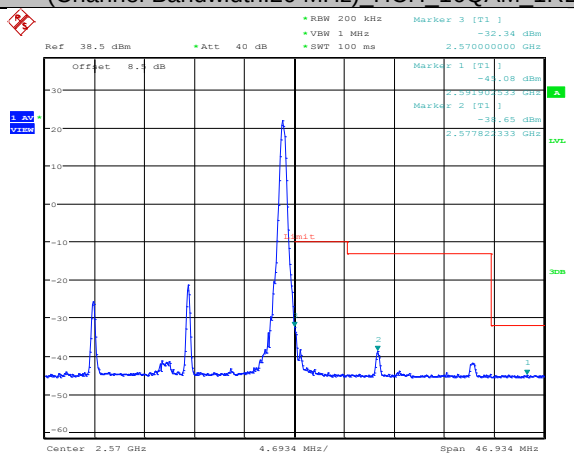
Date: 18.SEP.2018 11:40:39

(Channel Bandwidth:20 MHz)_LCH_16QAM_100RB#0



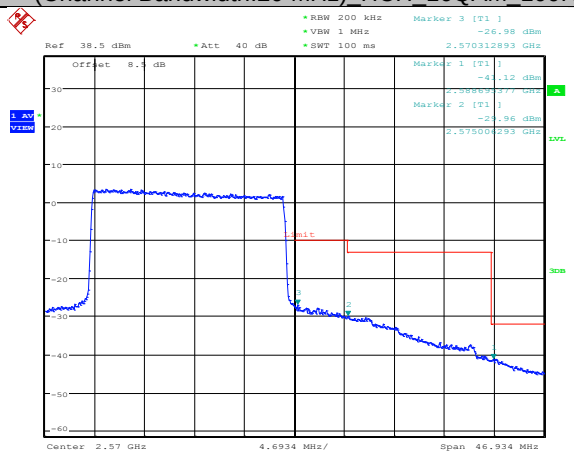
Date: 18.SEP.2018 11:41:26

(Channel Bandwidth:20 MHz)_HCH_16QAM_1RB#99



Date: 18.SEP.2018 11:42:24

(Channel Bandwidth:20 MHz)_HCH_16QAM_100RB#0



Date: 18.SEP.2018 11:42:48

5.5. Spurious Emissions Radiated

5.5.1. Test Standard

FCC: CFR Part 2.1053, CFR Part 22.917, CFR Part 24.238,CFR Part 27

5.5.2. Test Limit

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission.

(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.
For all power levels +30dBm to 0dBm, this becomes a constant specification of -13dBm.
5.5.3.1 FCC 22.917 Emission limitations for cellular equipment.
The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.
(b) Measurement procedure. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1MHz 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 the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz of 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.

5.5.3.2 FCC 24.238 Emission limitations for Broadband PCS equipment.
The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.
(b) Measurement procedure. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz of 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.

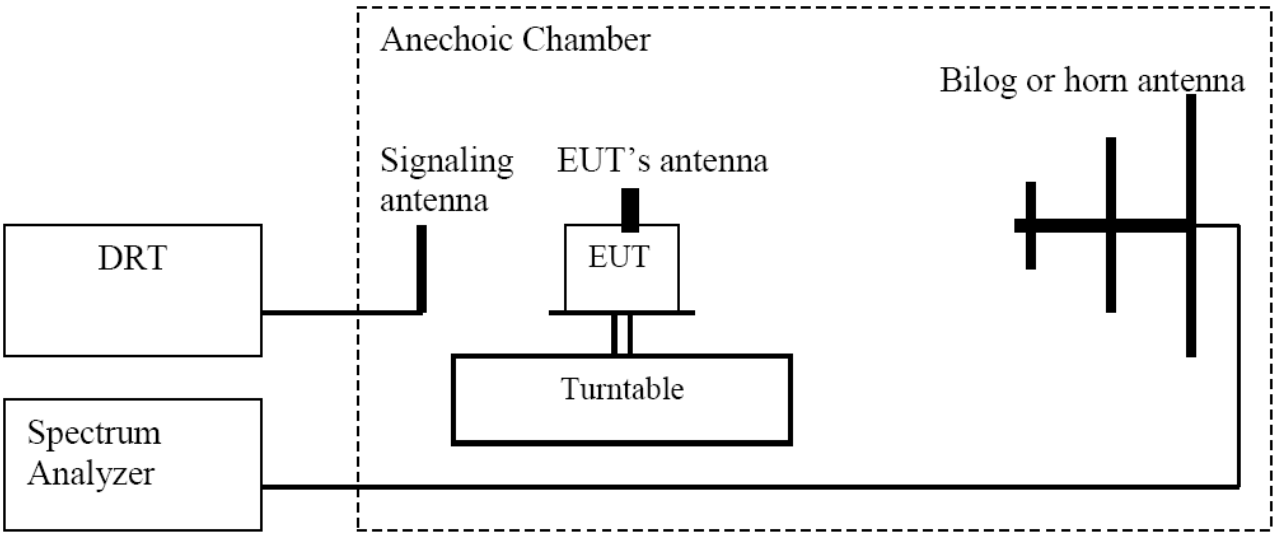
§ 27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power
(P) by at least 43 + 10 log10(P) dB.
The unwanted emission power shall be measured with a resolution bandwidth of at least 1% ofthe occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.
The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:
a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10
(p), dB at the channel edges and 55 + 10 Log10 (p) at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts

5.5.3.Test Procedure

1. Connect the equipment as shown in the above diagram with the EUT's antenna in a horizontal orientation.
2. Adjust the settings of the Universal Radio Communication Tester (CMU) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to measure peak hold with the required settings.
4. Place the measurement antenna in a horizontal orientation. Rotate the EUT 360 . Raise the measurement antenna at 1.5 meters increments and rotate the EUT 360 at maximize all emissions. Measure and record all spurious emissions (LVL) up to the tenth harmonic of the carrier frequency.
5. Replace the EUT with a horizontally polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
6. Connect the antenna to a signal generator with known output power and record the path loss in dB (LOSS). LOSS = Generator Output Power (dBm) – Analyzer reading (dBm).
7. Determine the level of spurious emissions using the following equation:
Spurious (dBm) = LVL (dBm) + LOSS (dB):
8. Repeat steps 4, 5 and 6 with all antennas vertically polarized.
9. Determine the level of spurious emissions using the following equation:
Spurious (dBm) = LVL (dBm) + LOSS (dB):
10. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.
(Note: Steps 5 and 6 above are performed prior to testing and LOSS is recorded by test software. Steps 3, 4 and 7 above are performed with test software.)

Spectrum analyzer settings: RBW=VBW=1MHz

5.5.4.Test Setup



5.5.5.Test Data

Test Band = GSM850
Test Mode = GSM/TM1
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1673.2	-2.49	0.9	6.49	40.6	-37.5	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = GSM850
Test Mode = EDGE /TM2
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1673.2	-4.29	0.9	6.77	40.6	-39.3	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = WCDMA850
Test Mode = UMTS/TM3
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1672.8	-5.19	0.9	6.49	40.6	-40.2	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = GSM1900
Test Mode = GPRS/TM1
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.03	4.6	9.53	39	-39.1	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = GSM1900
Test Mode = EDGE /TM2
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-4.63	4.6	9.53	39	-38.7	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = WCDMA1900
Test Mode = UMTS /TM3
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.73	4.6	9.53	39	-39.8	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = WCDMA1700
Test Mode = UMTS /TM3
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465.2	-6.41	4.1	9.41	39	-40.1	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = QPSK /TM4
Bandwidth=1.4MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.73	4.6	9.53	39	-39.8	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = 16QAM /TM5
Bandwidth=1.4MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.33	4.6	9.53	39	-39.4	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = QPSK /TM4
Bandwidth=3MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-4.83	4.6	9.53	39	-38.9	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = 16QAM /TM5
Bandwidth=3MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.53	4.6	9.53	39	-39.6	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = QPSK /TM4
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-7.03	4.6	9.53	39	-41.1	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = 16QAM /TM5
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-6.43	4.6	9.53	39	-40.5	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = QPSK /TM4
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.33	4.6	9.53	39	-39.4	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = 16QAM /TM5
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-6.13	4.6	9.53	39	-40.2	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = QPSK /TM4
Bandwidth=15MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.63	4.6	9.53	39	-39.7	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = 16QAM /TM5
Bandwidth=15MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-4.63	4.6	9.53	39	-38.7	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = QPSK /TM4
Bandwidth=20MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-6.13	4.6	9.53	39	-40.2	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 2
Test Mode = 16QAM /TM5
Bandwidth=20MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3760	-5.73	4.6	9.53	39	-39.8	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = QPSK /TM4
Bandwidth=1.4MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-5.91	4.1	9.41	39	-39.6	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = 16QAM /TM5
Bandwidth=1.4MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-6.31	4.1	9.41	39	-40	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = QPSK /TM4
Bandwidth=3MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-6.01	4.1	9.41	39	-39.7	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = 16QAM /TM5
Bandwidth=3MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-4.61	4.1	9.41	39	-38.3	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = QPSK /TM4
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-4.91	4.1	9.41	39	-38.6	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = 16QAM /TM5
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-6.61	4.1	9.41	39	-40.3	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = QPSK /TM4
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-5.51	4.1	9.41	39	-39.2	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = 16QAM /TM5
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-4.81	4.1	9.41	39	-38.5	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = QPSK /TM4
Bandwidth=15MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-5.51	4.1	9.41	39	-39.2	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = 16QAM /TM5
Bandwidth=15MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-6.41	4.1	9.41	39	-40.1	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = QPSK /TM4
Bandwidth=20MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-5.01	4.1	9.41	39	-38.7	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
Test Mode = 16QAM /TM5
Bandwidth=20MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (ERP) [dBm]		[dBm]
3465	-5.51	4.1	9.41	39	-39.2	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = QPSK /TM4
Bandwidth=1.4MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-4.87	0.9	6.77	40.6	-39.6	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = 16QAM /TM5
Bandwidth=1.4MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-5.57	0.9	6.77	40.6	-40.3	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = QPSK /TM4
Bandwidth=3MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-4.37	0.9	6.77	40.6	-39.1	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = 16QAM /TM5
Bandwidth=3MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-5.87	0.9	6.77	40.6	-40.6	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = QPSK /TM4
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-5.57	0.9	6.77	40.6	-40.3	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = 16QAM /TM5
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-4.87	0.9	6.77	40.6	-39.6	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = QPSK /TM4
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-4.17	0.9	6.77	40.6	-38.9	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 5
Test Mode = 16QAM /TM5
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
1673	-5.57	0.9	6.77	40.6	-40.3	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = QPSK /TM4
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-5.98	6.32	10	38.5	-40.8	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = 16QAM /TM5
Bandwidth=5MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-6.38	6.32	10	38.5	-41.2	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = QPSK /TM4
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-5.88	6.32	10	38.5	-40.7	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = 16QAM /TM5
Bandwidth=10MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-5.08	6.32	10	38.5	-39.9	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = QPSK /TM4
Bandwidth=15MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-5.38	6.32	10	38.5	-40.2	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = 16QAM /TM5
Bandwidth=15MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-4.88	6.32	10	38.5	-39.7	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = QPSK /TM4
Bandwidth=20MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-3.68	6.32	10	38.5	-38.5	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 7
Test Mode = 16QAM /TM5
Bandwidth=20MHz
Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
5070	-4.48	6.32	10	38.5	-39.3	Vertical	-25

The emissions don't show in above result tables are more than 20dB below the limits

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

5.6. Frequency Stability

CFR 47 (FCC) part 2.1055, 22.355 , 24.235 and 27.54

5.6.1. Test Limit

According to part 22.355, from 821MHz to 896MHz, for mobile device, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances 2.5ppm.

5.6.2. Test Procedure

GSM/WCDMA

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMU 200 Universal Radio Communication Tester.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMU 200 and in a simulated call on mid channel (190 for GSM 850 & 4183 for WCDMA 850 & 661 for PCS1900 & 9400 for WCDMA 1900& 1413 for WCDMA 1700), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10 C increments from -30 ℃ to +50 ℃. Allow at least 1 1/2 hours at each temperature, un-powered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Re-measure carrier frequency at low and high voltage. Pause at nominal voltage for 1 1/2 hours un-powered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50 ℃.
7. With the EUT, powered via nominal voltage, connected to the CMU 200 and in a simulated call on mid channel (190 for GSM 850 & 4183 for WCDMA 850 & 661 for PCS1900 & 9400 for WCDMA 1900 & 1413 for WCDMA 1700), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃ increments from +50 ℃ to -30 ℃. Allow at least 1 1/2 hours at each temperature, un-powered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5 ℃ during the measurement procedure.

LTE

1. The transmitter output (antenna port) was connected to the BS Simulator.
2. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.
3. BS simulator used the frequency error function and measured the peak frequency error. Power must be removed when changingfrom one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
4. EUT is connected the external power supply to control the DC input power. The various Volts from the minimum 3.5 Volts to 4.35 Volts. Each step shall be record the frequency error rate.

5. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
6. Extreme temperature rule is-30°C~50°C.

5.6.3.Test Setup

Connect the EUT to the Wireless Communication test set CMWD10000 or CMW 500 via the connector. Then measure the frequency error by the Wireless Communication test set CMWD10000/CMW 500. The EUT's output is matched with a 50 Ω load.

5.6.4.Test Data

Measurement Results vs. Variation of Temperature—GSM850

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	836.6	4.91	Pass
-20 °C	836.6	6.91	Pass
-10 °C	836.6	5.68	Pass
0 °C	836.6	5.68	Pass
+10 °C	836.6	5.81	Pass
+20 °C	836.6	5.10	Pass
+30 °C	836.6	5.17	Pass
+40 °C	836.6	5.36	Pass
+50 °C	836.6	2.45	Pass

Measurement Results vs. Variation of Voltage—GSM850

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	836.6	5.23	Pass
3.7 V	836.6	4.26	Pass
4.35 V	836.6	**7.17**	Pass

Measurement Results vs. Variation of Temperature—EDGE850

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	836.6	17.89	Pass
-20 °C	836.6	**18.11**	Pass
-10 °C	836.6	16.69	Pass
0 °C	836.6	18.11	Pass
+10 °C	836.6	15.43	Pass
+20 °C	836.6	17.43	Pass
+30 °C	836.6	17.01	Pass
+40 °C	836.6	17.27	Pass
+50 °C	836.6	16.66	Pass

Measurement Results vs. Variation of Voltage—EDGE850

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	836.6	15.59	Pass
3.7 V	836.6	15.98	Pass
4.35 V	836.6	15.17	Pass

Measurement Results vs. Variation of Temperature—WCDMA850

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	836.6	**-9.22**	Pass
-20 °C	836.6	-5.22	Pass
-10 °C	836.6	-1.56	Pass
0 °C	836.6	-2.98	Pass
+10 °C	836.6	-3.91	Pass
+20 °C	836.6	-1.13	Pass
+30 °C	836.6	-6.27	Pass
+40 °C	836.6	-5.72	Pass
+50 °C	836.6	-5.48	Pass

Measurement Results vs. Variation of Voltage—WCDMA850

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	836.6	-4.12	Pass
3.7 V	836.6	-4.94	Pass
4.35 V	836.6	-3.39	Pass

Measurement Results vs. Variation of Temperature—GSM1900

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1880.0	1.74	Pass
-20 °C	1880.0	1.23	Pass
-10 °C	1880.0	3.42	Pass
0 °C	1880.0	1.23	Pass
+10 °C	1880.0	3.23	Pass
+20 °C	1880.0	2.65	Pass
+30 °C	1880.0	-1.68	Pass
+40 °C	1880.0	-0.84	Pass
+50 °C	1880.0	0.00	Pass

Measurement Results vs. Variation of Voltage—GSM1900

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1880.0	2.32	Pass
3.7 V	1880.0	0.26	Pass
4.35 V	1880.0	-1.16	Pass

Measurement Results vs. Variation of Temperature—EDGE1900

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1880.0	6.07	Pass
-20 °C	1880.0	**7.81**	Pass
-10 °C	1880.0	7.75	Pass
0 °C	1880.0	7.81	Pass
+10 °C	1880.0	6.72	Pass
+20 °C	1880.0	6.46	Pass
+30 °C	1880.0	6.33	Pass
+40 °C	1880.0	5.10	Pass
+50 °C	1880.0	7.49	Pass

Measurement Results vs. Variation of Voltage—EDGE1900

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1880.0	5.55	Pass
3.7 V	1880.0	4.81	Pass
4.35 V	1880.0	6.20	Pass

Measurement Results vs. Variation of Temperature—WCDMA1900

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1880.0	-1.54	Pass
-20 °C	1880.0	-1.46	Pass
-10 °C	1880.0	0.76	Pass
0 °C	1880.0	-2.90	Pass
+10 °C	1880.0	-2.52	Pass
+20 °C	1880.0	-2.06	Pass
+30 °C	1880.0	-1.33	Pass
+40 °C	1880.0	-1.75	Pass
+50 °C	1880.0	-2.21	Pass

Measurement Results vs. Variation of Voltage—WCDMA1900

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1880.0	-0.40	Pass
3.7 V	1880.0	**4.41**	Pass
4.35 V	1880.0	0.06	Pass

Measurement Results vs. Variation of Temperature—WCDMA1700

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1732.6	-0.23	Pass
-20 °C	1732.6	0.20	Pass
-10 °C	1732.6	-0.14	Pass
0 °C	1732.6	4.21	Pass
+10 °C	1732.6	-0.14	Pass
+20 °C	1732.6	3.33	Pass
+30 °C	1732.6	1.31	Pass
+40 °C	1732.6	-0.37	Pass
+50 °C	1732.6	0.02	Pass

Measurement Results vs. Variation of Voltage—WCDMA1700

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1732.6	-0.79	Pass
3.7 V	1732.6	**23.04**	Pass
4.35 V	1732.6	1.30	Pass

Measurement Results vs. Variation of Voltage－LTE Band 2(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1880	3.5	-7.07	PASS
		3.7	-5.38	PASS
		4.35	-5.74	PASS
16QAM	1880	3.5	-7.40	PASS
		3.7	-7.72	PASS
		4.35	-7.58	PASS

Measurement Results vs. Variation of Temperature－LTE Band 2(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1880	-30 °C	-4.51	PASS
		-20 °C	-6.08	PASS
		-10 °C	-4.75	PASS
		0 °C	-6.32	PASS
		+10 °C	-6.59	PASS
		+20 °C	-6.07	PASS
		+30 °C	-7.14	PASS
		+40 °C	-5.92	PASS
		+50 °C	-7.74	PASS
16QAM	1880	-30 °C	-5.49	PASS
		-20 °C	-5.75	PASS
		-10 °C	-4.98	PASS
		0 °C	-5.58	PASS
		+10 °C	-5.06	PASS
		+20 °C	-7.57	PASS
		+30 °C	**-9.34**	PASS
		+40 °C	-7.85	PASS
		+50 °C	-7.48	PASS

Measurement Results vs. Variation of Voltage－LTE Band 2(3MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1880	3.5	3.43	PASS
		3.7	4.31	PASS
		4.35	-6.65	PASS
16QAM	1880	3.5	-5.59	PASS
		3.7	-5.98	PASS
		4.35	-6.09	PASS

Measurement Results vs. Variation of Temperature－LTE Band 2(3MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1880	-30 °C	-8.57	PASS
		-20 °C	-7.97	PASS
		-10 °C	-7.70	PASS
		0 °C	4.52	PASS
		+10 °C	4.33	PASS
		+20 °C	4.22	PASS
		+30 °C	-4.09	PASS
		+40 °C	-4.15	PASS
		+50 °C	-5.56	PASS
16QAM	1880	-30 °C	-8.48	PASS
		-20 °C	-6.78	PASS
		-10 °C	**-8.77**	PASS
		0 °C	-4.69	PASS
		+10 °C	3.48	PASS
		+20 °C	-3.79	PASS
		+30 °C	-6.67	PASS
		+40 °C	-5.64	PASS
		+50 °C	-4.86	PASS

Measurement Results vs. Variation of Voltage－LTE Band 2(5MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1880	3.5	-8.48	PASS
		3.7	-7.70	PASS
		4.35	-4.59	PASS
16QAM	1880	3.5	4.32	PASS
		3.7	-3.29	PASS
		4.35	-6.65	PASS

Measurement Results vs. Variation of Temperature－LTE Band 2(5MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1880	-30 °C	-5.82	PASS
		-20 °C	-6.68	PASS
		-10 °C	-6.51	PASS
		0 °C	-8.15	PASS
		+10 °C	-7.84	PASS
		+20 °C	3.86	PASS
		+30 °C	5.08	PASS
		+40 °C	4.63	PASS
		+50 °C	-6.25	PASS
16QAM	1880	-30 °C	-5.85	PASS
		-20 °C	-6.32	PASS
		-10 °C	-8.64	PASS
		0 °C	-7.91	PASS
		+10 °C	-7.01	PASS
		+20 °C	-5.12	PASS
		+30 °C	4.12	PASS
		+40 °C	5.99	PASS
		+50 °C	**-9.30**	PASS

Measurement Results vs. Variation of Voltage－LTE Band 2(10MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1880	3.5	-7.55	PASS
		3.7	-6.79	PASS
		4.35	-6.95	PASS
16QAM	1880	3.5	-7.97	PASS
		3.7	-6.79	PASS
		4.35	-7.80	PASS

Measurement Results vs. Variation of Temperature－LTE Band 2(10MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1880	-30 °C	-8.55	PASS
		-20 °C	-8.50	PASS
		-10 °C	-7.10	PASS
		0 °C	-8.00	PASS
		+10 °C	-7.71	PASS
		+20 °C	**-9.28**	PASS
		+30 °C	-7.32	PASS
		+40 °C	-8.07	PASS
		+50 °C	-7.47	PASS
16QAM	1880	-30 °C	-8.00	PASS
		-20 °C	-8.78	PASS
		-10 °C	5.28	PASS
		0 °C	3.35	PASS
		+10 °C	4.11	PASS
		+20 °C	-6.71	PASS
		+30 °C	-7.62	PASS
		+40 °C	-6.55	PASS
		+50 °C	-6.91	PASS

Measurement Results vs. Variation of Voltage－LTE Band 2(15MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1880	3.5	-7.94	PASS
		3.7	-7.80	PASS
		4.35	4.15	PASS
16QAM	1880	3.5	5.49	PASS
		3.7	5.72	PASS
		4.35	-7.78	PASS

Measurement Results vs. Variation of Temperature－LTE Band 2(15MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1880	-30 °C	-7.12	PASS
		-20 °C	-7.04	PASS
		-10 °C	-8.45	PASS
		0 °C	-7.22	PASS
		+10 °C	-8.33	PASS
		+20 °C	-6.08	PASS
		+30 °C	-6.32	PASS
		+40 °C	-6.39	PASS
		+50 °C	-6.37	PASS
16QAM	1880	-30 °C	-6.01	PASS
		-20 °C	**-10.01**	PASS
		-10 °C	-7.42	PASS
		0 °C	-6.82	PASS
		+10 °C	-8.18	PASS
		+20 °C	-7.62	PASS
		+30 °C	-3.65	PASS
		+40 °C	-4.32	PASS
		+50 °C	-4.39	PASS

Measurement Results vs. Variation of Voltage－LTE Band 2(20MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1880	3.5	-4.26	PASS
		3.7	-4.45	PASS
		4.35	-6.62	PASS
16QAM	1880	3.5	-6.91	PASS
		3.7	-7.97	PASS
		4.35	**-8.38**	PASS

Measurement Results vs. Variation of Temperature－LTE Band 2(20MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1880	-30 °C	-6.48	PASS
		-20 °C	-6.31	PASS
		-10 °C	-6.41	PASS
		0 °C	-6.47	PASS
		+10 °C	-6.59	PASS
		+20 °C	-6.17	PASS
		+30 °C	-3.96	PASS
		+40 °C	4.61	PASS
		+50 °C	-5.42	PASS
16QAM	1880	-30 °C	-6.27	PASS
		-20 °C	-4.51	PASS
		-10 °C	-4.66	PASS
		0 °C	-6.19	PASS
		+10 °C	-5.54	PASS
		+20 °C	-6.62	PASS
		+30 °C	-6.22	PASS
		+40 °C	-7.18	PASS
		+50 °C	-7.11	PASS

Measurement Results vs. Variation of Voltage－LTE Band 4(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	7.64	PASS
		3.7	6.64	PASS
		4.35	5.04	PASS
16QAM	1732.5	3.5	-3.92	PASS
		3.7	4.35	PASS
		4.35	3.40	PASS

Measurement Results vs. Variation of Temperature－LTE Band 4(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	-7.54	PASS
		-20 °C	-6.95	PASS
		-10 °C	-5.81	PASS
		0 °C	5.18	PASS
		+10 °C	6.22	PASS
		+20 °C	4.18	PASS
		+30 °C	4.84	PASS
		+40 °C	-5.26	PASS
		+50 °C	-4.33	PASS
16QAM	1732.5	-30 °C	**-9.54**	PASS
		-20 °C	-6.94	PASS
		-10 °C	-7.51	PASS
		0 °C	-4.03	PASS
		+10 °C	4.72	PASS
		+20 °C	-4.15	PASS
		+30 °C	6.52	PASS
		+40 °C	4.09	PASS
		+50 °C	4.23	PASS

Measurement Results vs. Variation of Voltage－LTE Band 4(3MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	-4.26	PASS
		3.7	-6.69	PASS
		4.35	-4.65	PASS
16QAM	1732.5	3.5	3.65	PASS
		3.7	4.25	PASS
		4.35	5.46	PASS

Measurement Results vs. Variation of Temperature－LTE Band 4(3MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	6.64	PASS
		-20 °C	4.98	PASS
		-10 °C	5.92	PASS
		0 °C	5.06	PASS
		+10 °C	-4.72	PASS
		+20 °C	-4.63	PASS
		+30 °C	6.54	PASS
		+40 °C	6.55	PASS
		+50 °C	**7.55**	PASS
16QAM	1732.5	-30 °C	6.24	PASS
		-20 °C	-4.65	PASS
		-10 °C	5.36	PASS
		0 °C	-6.02	PASS
		+10 °C	-6.88	PASS
		+20 °C	-6.31	PASS
		+30 °C	5.54	PASS
		+40 °C	5.79	PASS
		+50 °C	-5.08	PASS

Measurement Results vs. Variation of Voltage－LTE Band 4(5MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	5.71	PASS
		3.7	5.75	PASS
		4.35	4.88	PASS
16QAM	1732.5	3.5	-5.41	PASS
		3.7	-5.98	PASS
		4.35	-5.31	PASS

Measurement Results vs. Variation of Temperature－LTE Band 4(5MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	-7.22	PASS
		-20 °C	-6.94	PASS
		-10 °C	-7.60	PASS
		0 °C	4.62	PASS
		+10 °C	6.25	PASS
		+20 °C	4.39	PASS
		+30 °C	6.18	PASS
		+40 °C	-5.32	PASS
		+50 °C	5.06	PASS
16QAM	1732.5	-30 °C	-8.24	PASS
		-20 °C	**-10.63**	PASS
		-10 °C	-8.57	PASS
		0 °C	4.99	PASS
		+10 °C	4.76	PASS
		+20 °C	4.84	PASS
		+30 °C	8.10	PASS
		+40 °C	8.23	PASS
		+50 °C	7.85	PASS

Measurement Results vs. Variation of Voltage－LTE Band 4(10MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	6.90	PASS
		3.7	-6.08	PASS
		4.35	4.88	PASS
16QAM	1732.5	3.5	-4.55	PASS
		3.7	5.78	PASS
		4.35	5.82	PASS

Measurement Results vs. Variation of Temperature－LTE Band 4(10MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	-6.77	PASS
		-20 °C	-6.12	PASS
		-10 °C	-5.22	PASS
		0 °C	3.92	PASS
		+10 °C	4.82	PASS
		+20 °C	-4.99	PASS
		+30 °C	-5.97	PASS
		+40 °C	6.97	PASS
		+50 °C	**-8.81**	PASS
16QAM	1732.5	-30 °C	-4.21	PASS
		-20 °C	-6.41	PASS
		-10 °C	-4.71	PASS
		0 °C	5.68	PASS
		+10 °C	6.19	PASS
		+20 °C	7.98	PASS
		+30 °C	-4.63	PASS
		+40 °C	6.27	PASS
		+50 °C	5.45	PASS

Measurement Results vs. Variation of Voltage－LTE Band 4(15MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	**-9.76**	PASS
		3.7	-6.59	PASS
		4.35	-6.79	PASS
16QAM	1732.5	3.5	6.48	PASS
		3.7	4.85	PASS
		4.35	-7.50	PASS

Measurement Results vs. Variation of Temperature－LTE Band 4(15MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	4.98	PASS
		-20 °C	4.96	PASS
		-10 °C	4.32	PASS
		0 °C	3.72	PASS
		+10 °C	4.96	PASS
		+20 °C	7.58	PASS
		+30 °C	3.23	PASS
		+40 °C	-4.66	PASS
		+50 °C	-3.35	PASS
16QAM	1732.5	-30 °C	-3.86	PASS
		-20 °C	-6.52	PASS
		-10 °C	-7.28	PASS
		0 °C	-7.25	PASS
		+10 °C	-6.04	PASS
		+20 °C	-6.84	PASS
		+30 °C	5.74	PASS
		+40 °C	4.96	PASS
		+50 °C	5.11	PASS

Measurement Results vs. Variation of Voltage－LTE Band 4(20MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	-4.96	PASS
		3.7	-4.21	PASS
		4.35	-4.48	PASS
16QAM	1732.5	3.5	-8.20	PASS
		3.7	-8.57	PASS
		4.35	-5.62	PASS

Measurement Results vs. Variation of Temperature－LTE Band 4(20MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	**-8.75**	PASS
		-20 °C	-6.71	PASS
		-10 °C	5.25	PASS
		0 °C	-4.76	PASS
		+10 °C	4.43	PASS
		+20 °C	-7.11	PASS
		+30 °C	4.39	PASS
		+40 °C	7.31	PASS
		+50 °C	-4.48	PASS
16QAM	1732.5	-30 °C	5.56	PASS
		-20 °C	5.56	PASS
		-10 °C	4.88	PASS
		0 °C	4.06	PASS
		+10 °C	-5.11	PASS
		+20 °C	-5.65	PASS
		+30 °C	5.92	PASS
		+40 °C	6.87	PASS
		+50 °C	4.23	PASS

Measurement Results vs. Variation of Voltage－LTE Band 5(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	3.5	-4.59	PASS
		3.7	-4.19	PASS
		4.35	-5.41	PASS
16QAM	836.5	3.5	-3.76	PASS
		3.7	-3.29	PASS
		4.35	-2.70	PASS

Measurement Results vs. Variation of Temperature－LTE Band 5(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	-30 °C	-3.56	PASS
		-20 °C	-3.85	PASS
		-10 °C	-3.59	PASS
		0 °C	**-5.95**	PASS
		+10 °C	-5.55	PASS
		+20 °C	-4.82	PASS
		+30 °C	-5.78	PASS
		+40 °C	-4.58	PASS
		+50 °C	-4.59	PASS
16QAM	836.5	-30 °C	-3.75	PASS
		-20 °C	-3.43	PASS
		-10 °C	-3.82	PASS
		0 °C	-3.33	PASS
		+10 °C	-3.26	PASS
		+20 °C	-2.20	PASS
		+30 °C	-3.58	PASS
		+40 °C	-4.66	PASS
		+50 °C	-4.05	PASS

Measurement Results vs. Variation of Voltage－LTE Band 5(3MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	3.5	-4.65	PASS
		3.7	-4.38	PASS
		4.35	-4.94	PASS
16QAM	836.5	3.5	-4.38	PASS
		3.7	-2.66	PASS
		4.35	-3.56	PASS

Measurement Results vs. Variation of Temperature－LTE Band 5(3MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	-30 °C	-2.78	PASS
		-20 °C	-3.81	PASS
		-10 °C	-4.12	PASS
		0 °C	-3.69	PASS
		+10 °C	-4.43	PASS
		+20 °C	**-5.65**	PASS
		+30 °C	-4.35	PASS
		+40 °C	-4.79	PASS
		+50 °C	-4.58	PASS
16QAM	836.5	-30 °C	-3.29	PASS
		-20 °C	-3.36	PASS
		-10 °C	-3.43	PASS
		0 °C	-2.90	PASS
		+10 °C	-4.25	PASS
		+20 °C	3.96	PASS
		+30 °C	-3.71	PASS
		+40 °C	-4.52	PASS
		+50 °C	-5.55	PASS

Measurement Results vs. Variation of Voltage－LTE Band 5(5MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	3.5	-3.33	PASS
		3.7	-2.99	PASS
		4.35	-3.20	PASS
16QAM	836.5	3.5	2.82	PASS
		3.7	-3.56	PASS
		4.35	-4.59	PASS

Measurement Results vs. Variation of Temperature－LTE Band 5(5MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	-30 °C	-3.00	PASS
		-20 °C	-3.93	PASS
		-10 °C	-2.69	PASS
		0 °C	-3.96	PASS
		+10 °C	-3.78	PASS
		+20 °C	3.55	PASS
		+30 °C	-3.55	PASS
		+40 °C	-3.71	PASS
		+50 °C	-4.46	PASS
16QAM	836.5	-30 °C	-4.06	PASS
		-20 °C	-4.72	PASS
		-10 °C	-3.42	PASS
		0 °C	-3.20	PASS
		+10 °C	-2.75	PASS
		+20 °C	**-5.66**	PASS
		+30 °C	-3.45	PASS
		+40 °C	-4.23	PASS
		+50 °C	-3.89	PASS

Measurement Results vs. Variation of Voltage－LTE Band 5(10MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	3.5	**-6.31**	PASS
		3.7	-4.45	PASS
		4.35	-5.01	PASS
16QAM	836.5	3.5	-4.46	PASS
		3.7	-4.59	PASS
		4.35	-4.32	PASS

Measurement Results vs. Variation of Temperature－LTE Band 5(10MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	836.5	-30 °C	-3.10	PASS
		-20 °C	-4.85	PASS
		-10 °C	-2.49	PASS
		0 °C	-3.68	PASS
		+10 °C	-2.82	PASS
		+20 °C	3.30	PASS
		+30 °C	-3.45	PASS
		+40 °C	2.40	PASS
		+50 °C	3.00	PASS
16QAM	836.5	-30 °C	-6.01	PASS
		-20 °C	-5.19	PASS
		-10 °C	-4.84	PASS
		0 °C	-4.63	PASS
		+10 °C	-5.14	PASS
		+20 °C	-4.88	PASS
		+30 °C	-4.23	PASS
		+40 °C	-5.78	PASS
		+50 °C	-4.23	PASS

Measurement Results vs. Variation of Voltage－LTE Band 7(5MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	2535	3.5	11.03	PASS
		3.7	9.07	PASS
		4.35	8.13	PASS
16QAM	2535	3.5	-10.93	PASS
		3.7	**-13.45**	PASS
		4.35	-12.87	PASS

Measurement Results vs. Variation of Temperature－LTE Band 7(5MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	2535	-30 °C	8.04	PASS
		-20 °C	-10.40	PASS
		-10 °C	11.83	PASS
		0 °C	9.88	PASS
		+10 °C	7.94	PASS
		+20 °C	7.71	PASS
		+30 °C	-12.76	PASS
		+40 °C	-13.13	PASS
		+50 °C	-13.36	PASS
16QAM	2535	-30 °C	9.54	PASS
		-20 °C	-6.88	PASS
		-10 °C	10.19	PASS
		0 °C	-11.22	PASS
		+10 °C	-8.37	PASS
		+20 °C	-9.63	PASS
		+30 °C	-12.60	PASS
		+40 °C	-11.50	PASS
		+50 °C	-9.70	PASS

Measurement Results vs. Variation of Voltage－LTE Band 7(10MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	2535	3.5	-10.16	PASS
		3.7	-12.09	PASS
		4.35	-9.94	PASS
16QAM	2535	3.5	-12.27	PASS
		3.7	-11.30	PASS
		4.35	-12.33	PASS

Measurement Results vs. Variation of Temperature－LTE Band 7(10MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	2535	-30 °C	-13.56	PASS
		-20 °C	-11.97	PASS
		-10 °C	-11.50	PASS
		0 °C	-10.41	PASS
		+10 °C	-10.73	PASS
		+20 °C	-10.51	PASS
		+30 °C	-8.25	PASS
		+40 °C	8.11	PASS
		+50 °C	-6.82	PASS
16QAM	2535	-30 °C	-10.10	PASS
		-20 °C	-12.39	PASS
		-10 °C	-11.17	PASS
		0 °C	**20.56**	PASS
		+10 °C	19.63	PASS
		+20 °C	9.46	PASS
		+30 °C	-6.87	PASS
		+40 °C	-9.11	PASS
		+50 °C	11.34	PASS

Measurement Results vs. Variation of Voltage－LTE Band 7(15MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	2535	3.5	-11.03	PASS
		3.7	-10.59	PASS
		4.35	-13.03	PASS
16QAM	2535	3.5	7.57	PASS
		3.7	-9.13	PASS
		4.35	8.91	PASS

Measurement Results vs. Variation of Temperature－LTE Band 7(15MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	2535	-30 °C	-8.41	PASS
		-20 °C	10.23	PASS
		-10 °C	17.24	PASS
		0 °C	-11.64	PASS
		+10 °C	-10.57	PASS
		+20 °C	-11.06	PASS
		+30 °C	-9.40	PASS
		+40 °C	-12.47	PASS
		+50 °C	-8.18	PASS
16QAM	2535	-30 °C	**-17.62**	PASS
		-20 °C	-8.25	PASS
		-10 °C	10.29	PASS
		0 °C	-12.35	PASS
		+10 °C	-10.59	PASS
		+20 °C	-10.76	PASS
		+30 °C	-7.95	PASS
		+40 °C	-9.73	PASS
		+50 °C	10.37	PASS

Measurement Results vs. Variation of Voltage－LTE Band 7(20MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	2535	3.5	9.17	PASS
		3.7	-10.46	PASS
		4.35	11.19	PASS
16QAM	2535	3.5	9.04	PASS
		3.7	10.13	PASS
		4.35	-14.83	PASS

Measurement Results vs. Variation of Temperature－LTE Band 7(20MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	2535	-30 °C	-9.46	PASS
		-20 °C	-10.96	PASS
		-10 °C	-11.19	PASS
		0 °C	-9.64	PASS
		+10 °C	9.90	PASS
		+20 °C	**-12.29**	PASS
		+30 °C	-6.84	PASS
		+40 °C	9.11	PASS
		+50 °C	-9.16	PASS
16QAM	2535	-30 °C	-9.43	PASS
		-20 °C	7.12	PASS
		-10 °C	9.91	PASS
		0 °C	10.04	PASS
		+10 °C	9.81	PASS
		+20 °C	-11.50	PASS
		+30 °C	-10.11	PASS
		+40 °C	-8.00	PASS
		+50 °C	8.88	PASS

END OF REPORT