

3.5 Conducted Band Edge Measurement

3.5.1 Description of Conducted Band Edge Measurement

27.53 (f) and RSS – 130

For operations in the 698 -746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. 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.

27.53 (g) and RSS – 139

For operations in the 1710 – 1755 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (l)(4) and RSS – 199

The emissions be operated in the 2496-2690 MHz band, the attenuation factor of transmitter Power (P) shall be not less than $55 + 10 \log (P)$ dB at the channel edge.

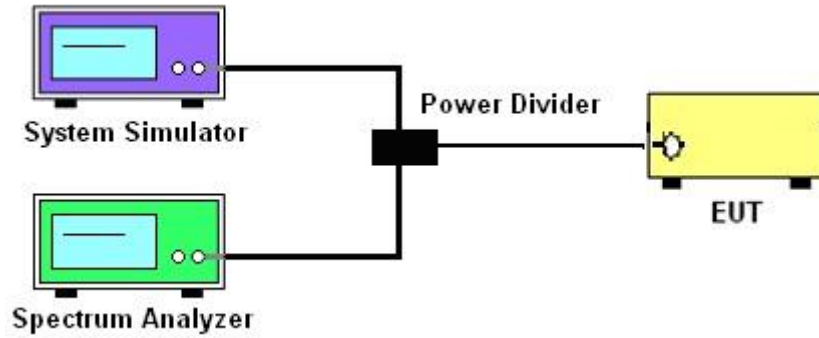
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
3. Set spectrum analyzer with RMS detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power $P(\text{Watts})$
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

3.5.4 Test Setup

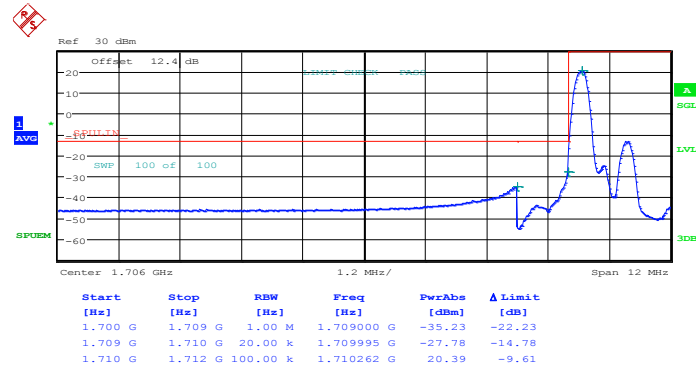




3.5.5 Test Result (Plots) of Conducted Band Edge

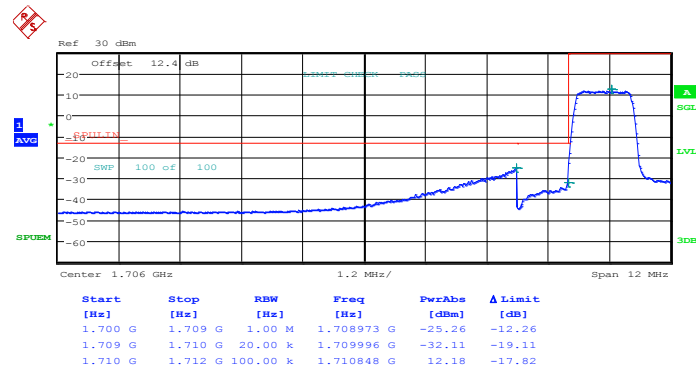
Band :	LTE Band 4	Band Width :	1.4MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 14:51:55

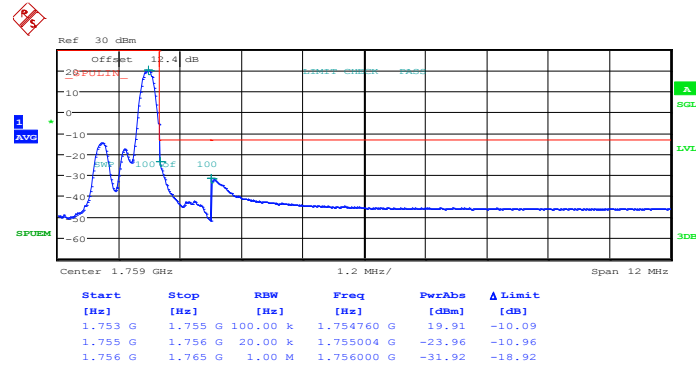
Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 7.MAY.2014 14:53:29

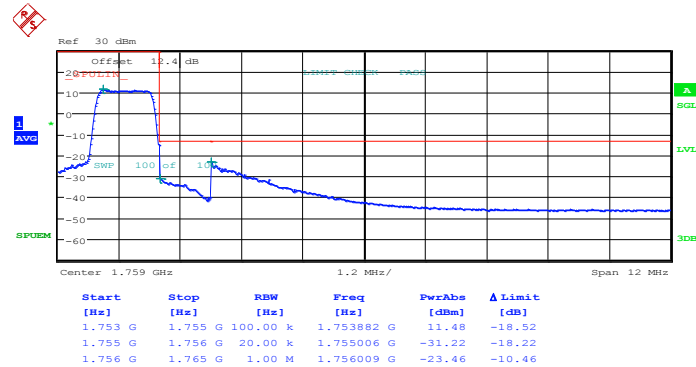


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



Date: 7.MAY.2014 15:01:17

Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0

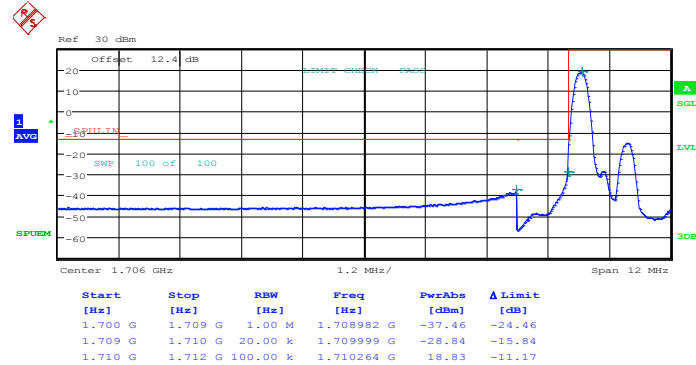


Date: 7.MAY.2014 15:02:51



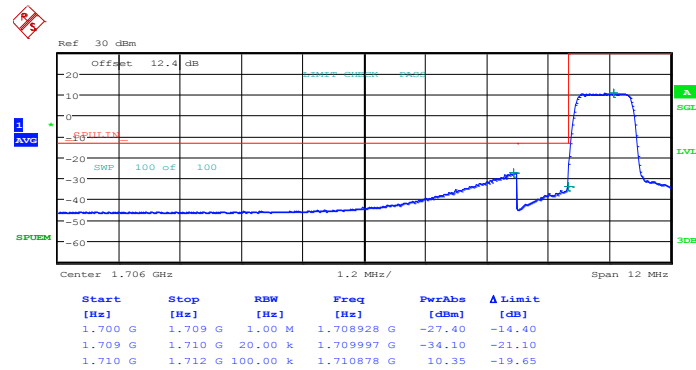
Band :	LTE Band 4	Band Width :	1.4MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 7.MAY.2014 14:52:42

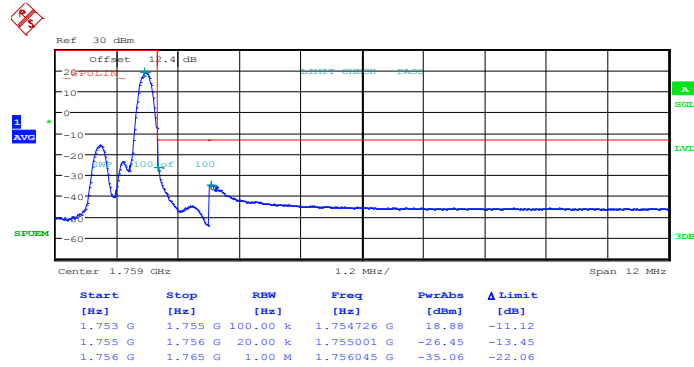
Lower Band Edge Plot for 16QAM-RB Size 6, RB Offset 0



Date: 7.MAY.2014 14:54:16

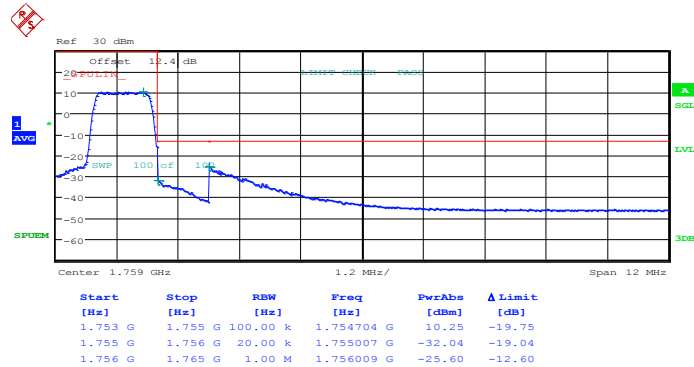


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 5



Date: 7.MAY.2014 15:02:04

Higher Band Edge Plot for 16QAM-RB Size 6, RB Offset 0

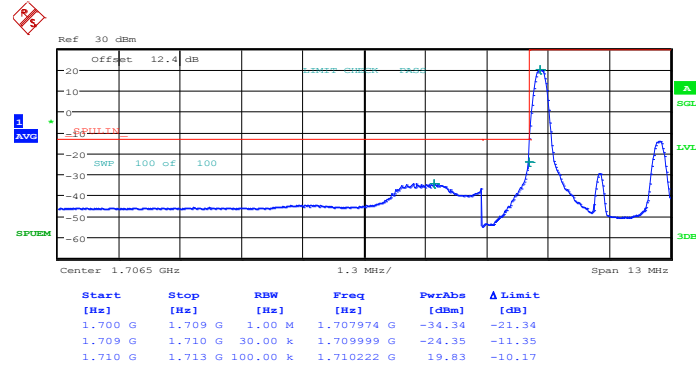


Date: 7.MAY.2014 15:03:38



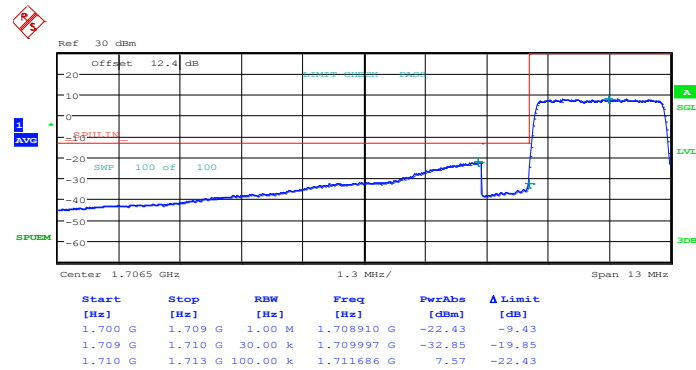
Band :	LTE Band 4	Band Width :	3MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 15:19:14

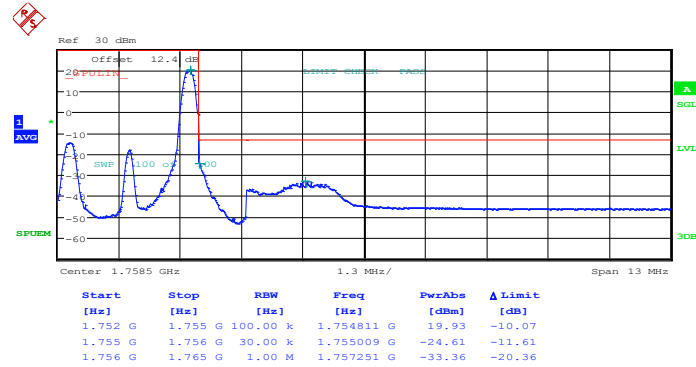
Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0



Date: 7.MAY.2014 15:20:49

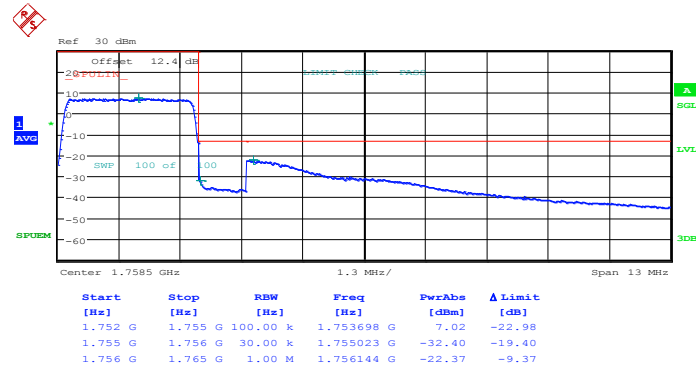


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



Date: 7.MAY.2014 15:28:37

Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0

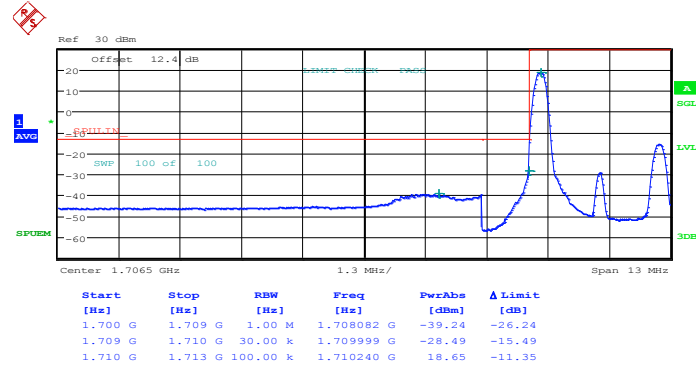


Date: 7.MAY.2014 15:30:11



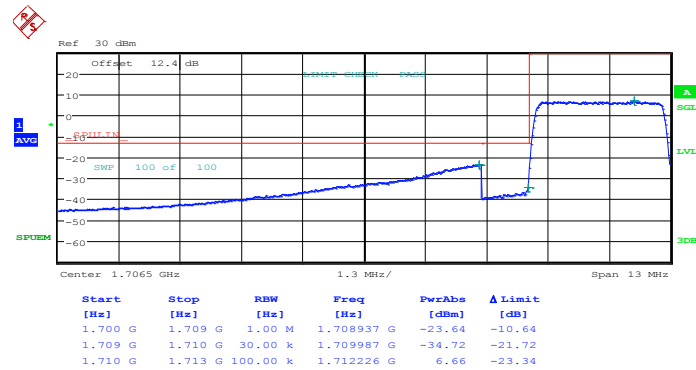
Band :	LTE Band 4	Band Width :	3MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 15:20:02

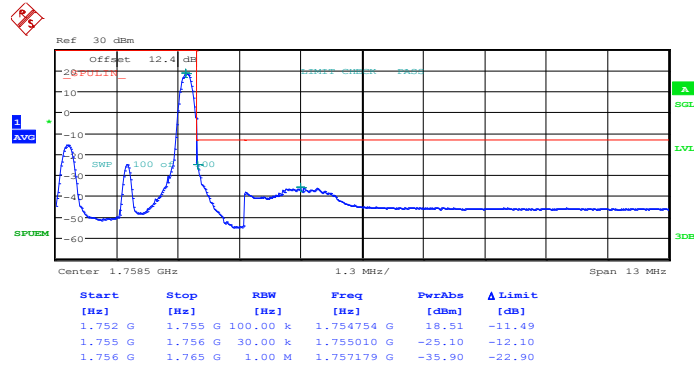
Lower Band Edge Plot for 16QAM-RB Size 15, RB Offset 0



Date: 7.MAY.2014 15:21:36

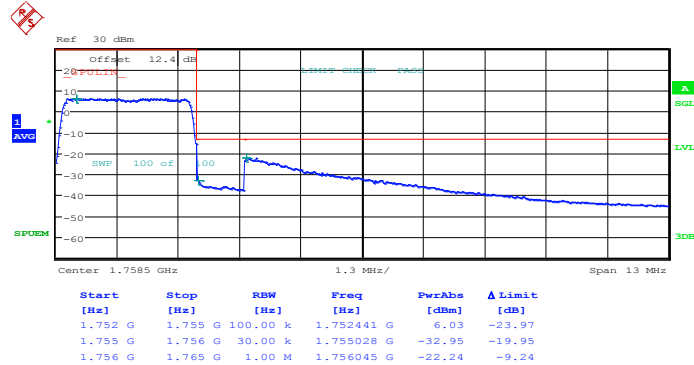


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 14



Date: 7.MAY.2014 15:29:24

Higher Band Edge Plot for 16QAM-RB Size 15, RB Offset 0

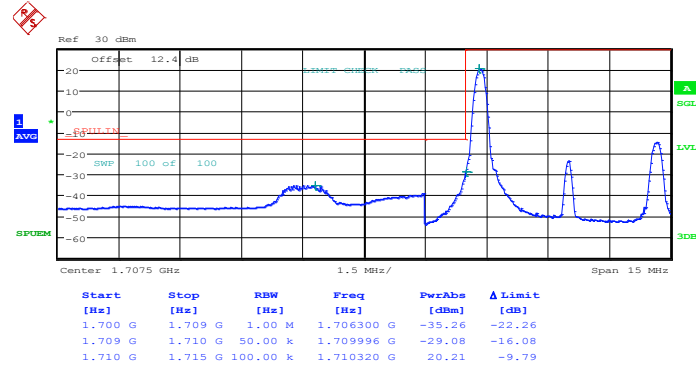


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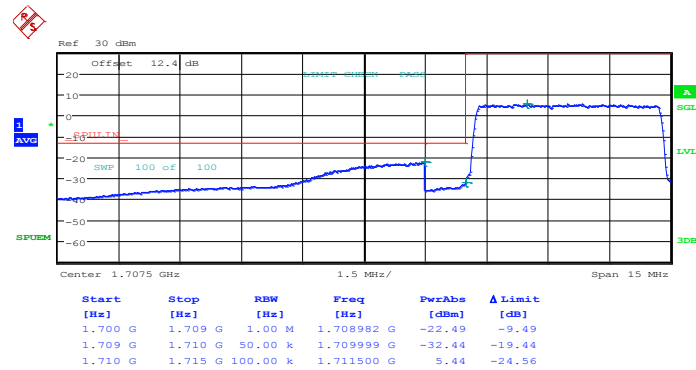
Band :	LTE Band 4	Band Width :	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 15:34:57

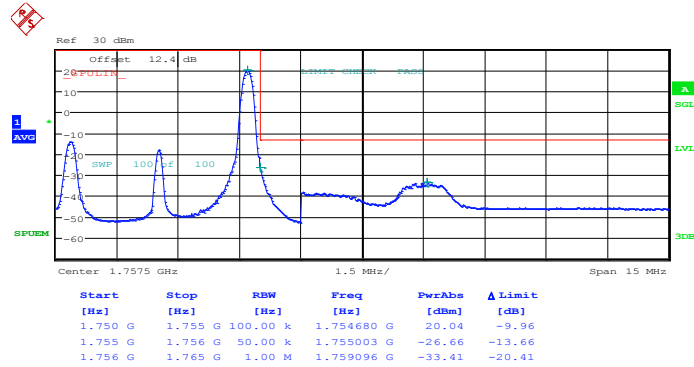
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 7.MAY.2014 15:36:32

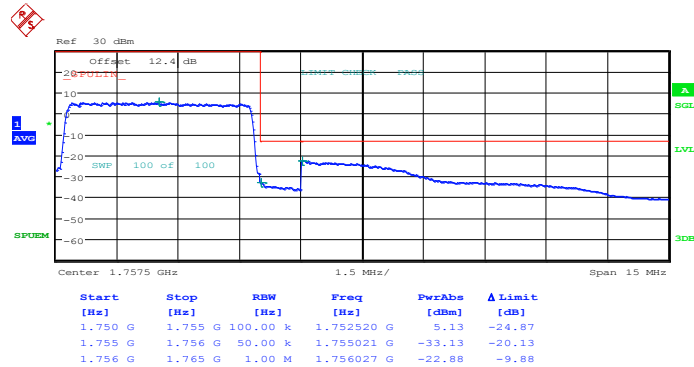


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 7.MAY.2014 15:44:21

Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

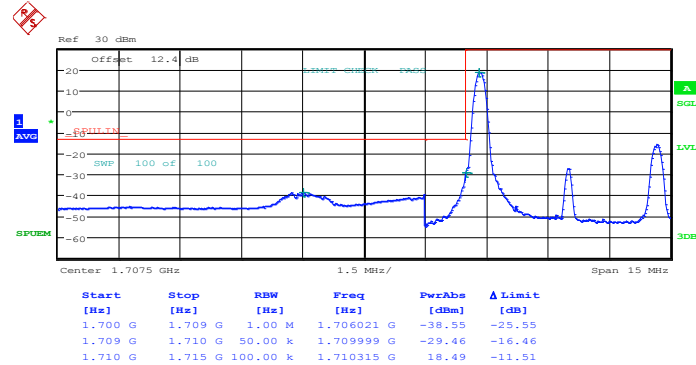


Date: 7.MAY.2014 15:45:55



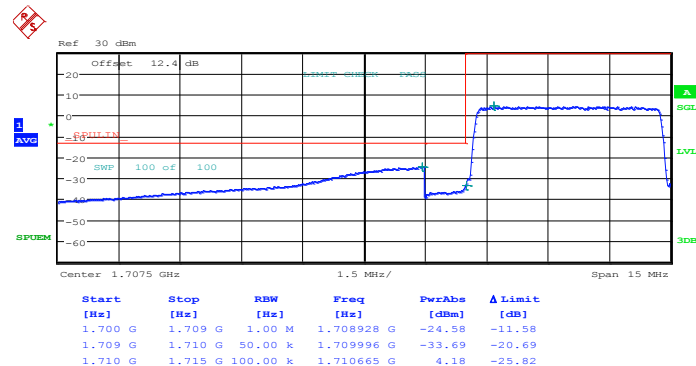
Band :	LTE Band 4	Band Width :	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



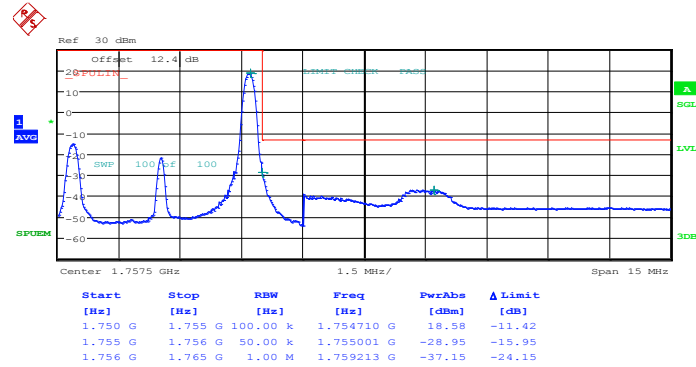
Date: 7.MAY.2014 15:35:44

Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



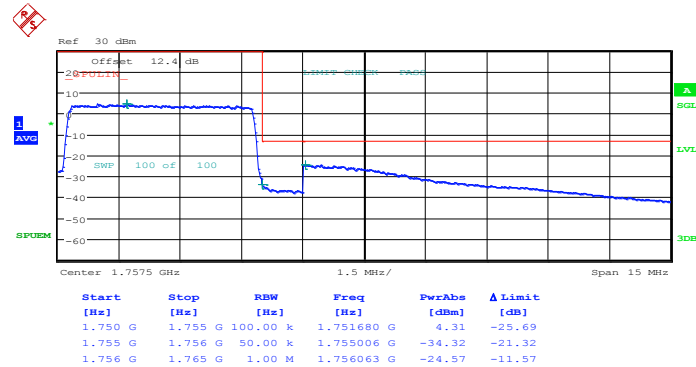
Date: 7.MAY.2014 15:37:19

Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24



Date: 7.MAY.2014 15:45:08

Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0

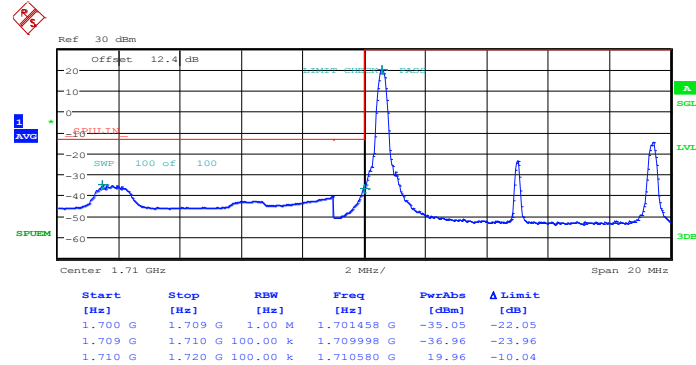


Date: 7.MAY.2014 15:46:43



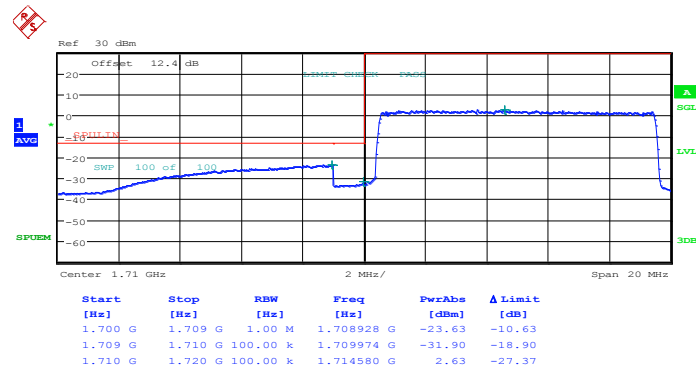
Band :	LTE Band 4	Band Width :	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 15:50:42

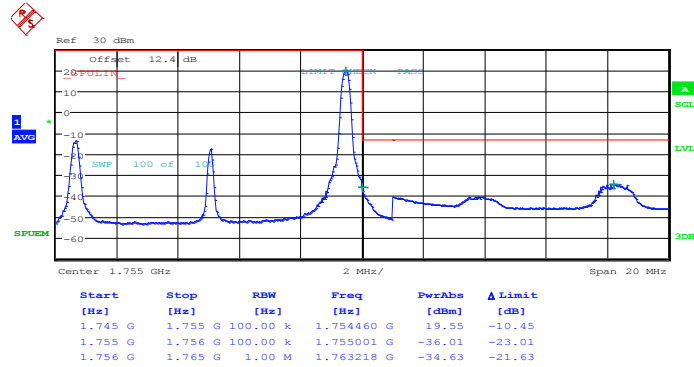
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 7.MAY.2014 15:52:16

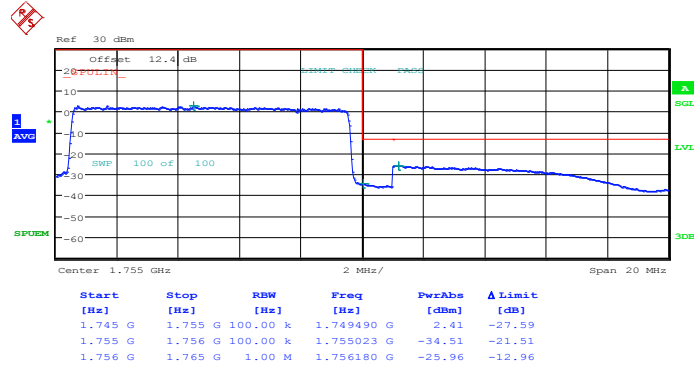


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 7.MAY.2014 16:00:05

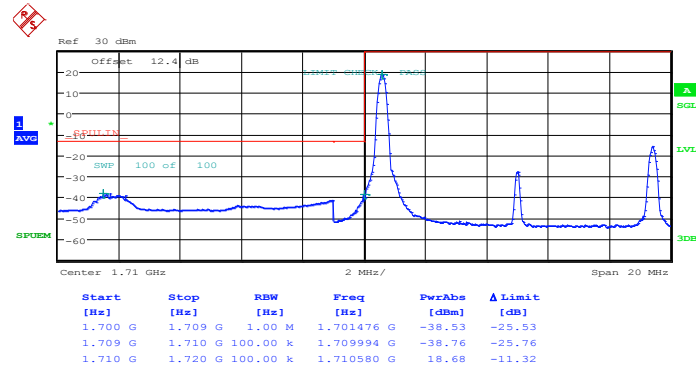
Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 7.MAY.2014 16:01:39

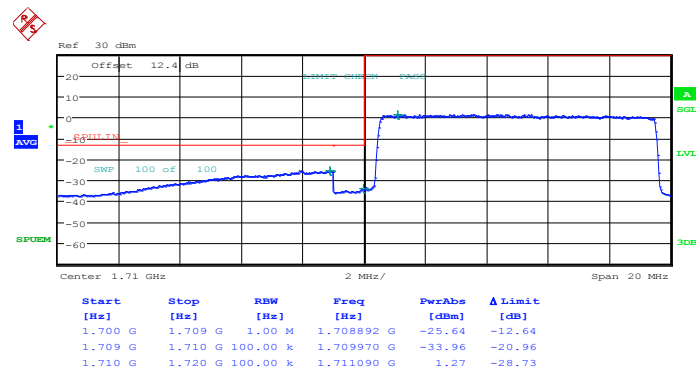
Band :	LTE Band 4	Band Width :	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 15:51:29

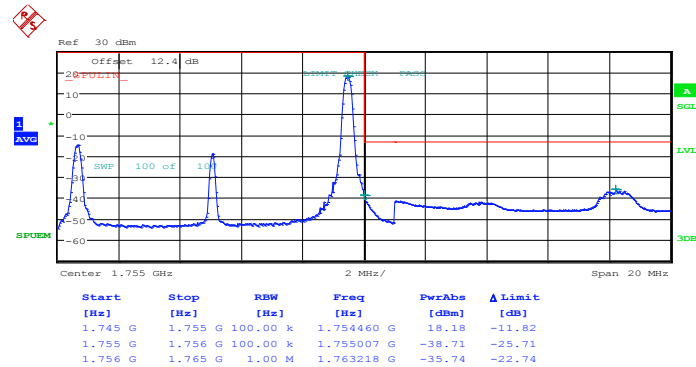
Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 7.MAY.2014 15:53:03

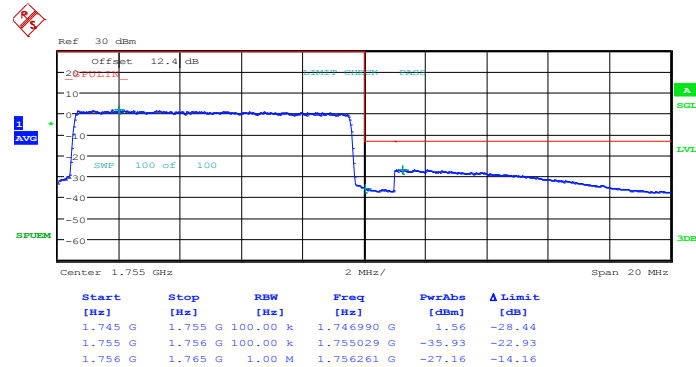


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49



Date: 7.MAY.2014 16:00:52

Higher Band Edge Plot for 16QAM-RB Size 50, RB Offset 0

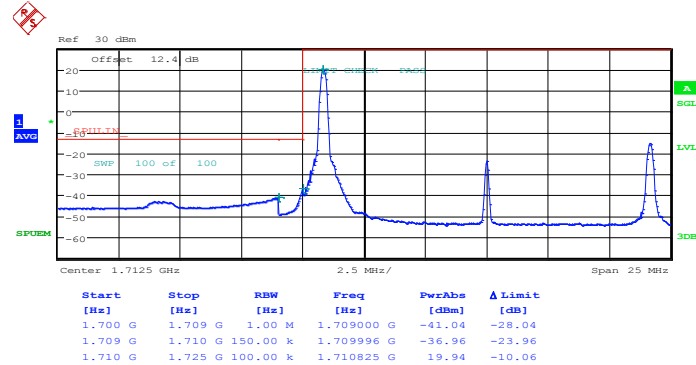


Date: 7.MAY.2014 16:02:26



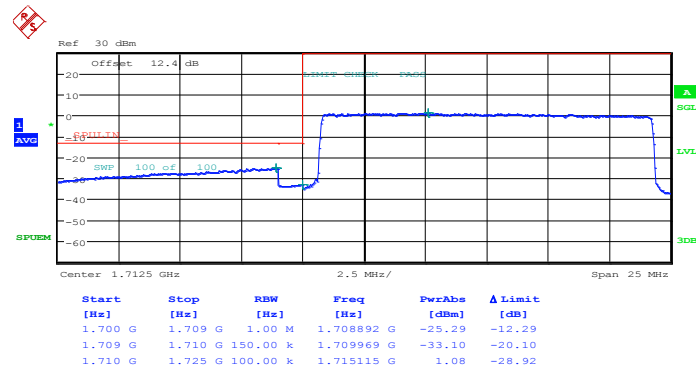
Band :	LTE Band 4	Band Width :	15MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:06:25

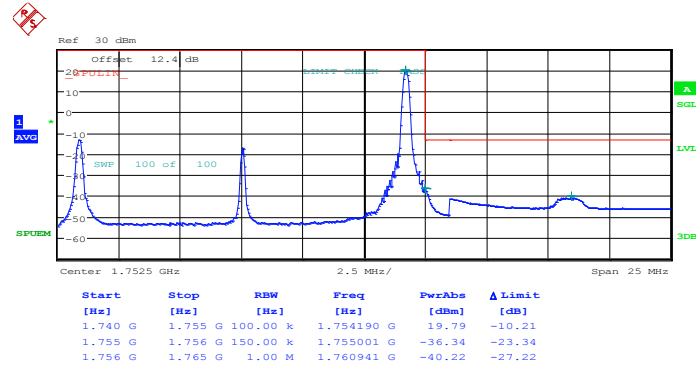
Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0



Date: 7.MAY.2014 16:07:59

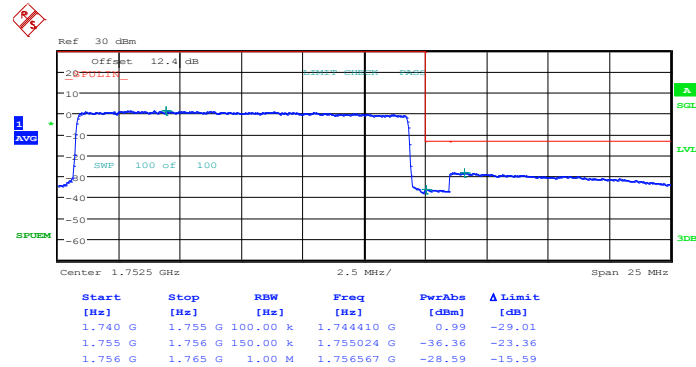


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74



Date: 7.MAY.2014 16:15:49

Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0

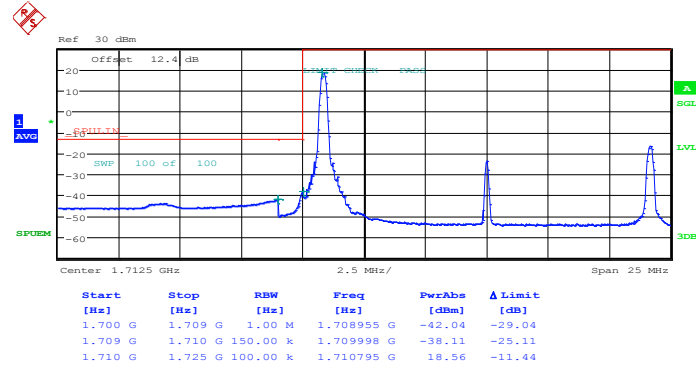


Date: 7.MAY.2014 16:17:23



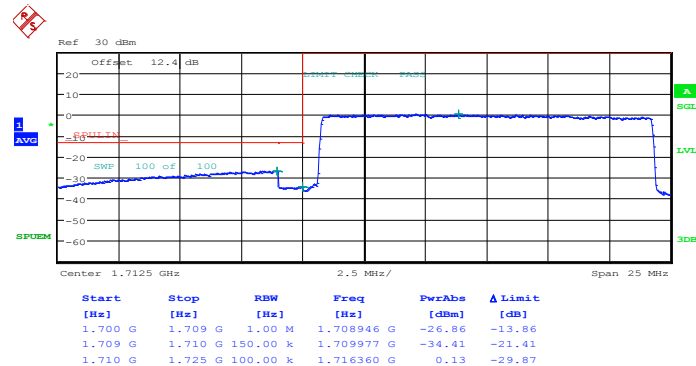
Band :	LTE Band 4	Band Width :	15MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:07:12

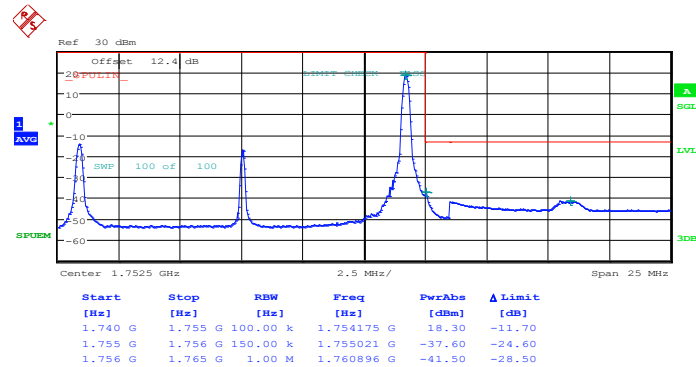
Lower Band Edge Plot for 16QAM-RB Size 75, RB Offset 0



Date: 7.MAY.2014 16:08:47

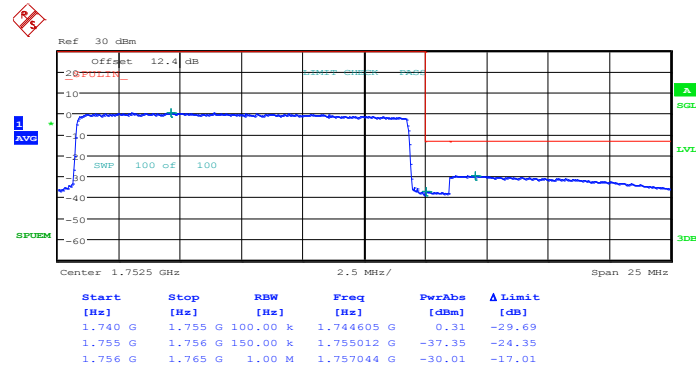


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 74



Date: 7.MAY.2014 16:16:36

Higher Band Edge Plot for 16QAM-RB Size 75, RB Offset 0

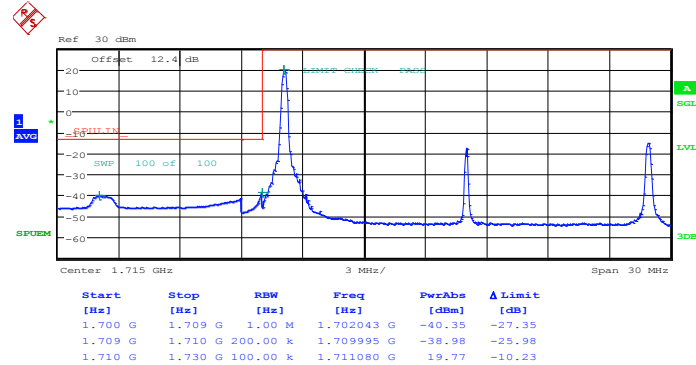


Date: 7.MAY.2014 16:18:10



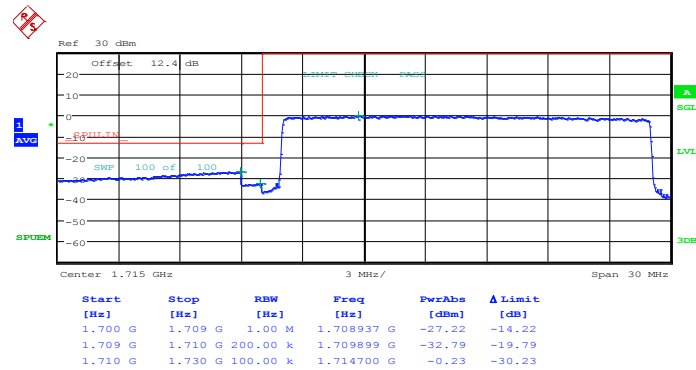
Band :	LTE Band 4	Band Width :	20MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:22:09

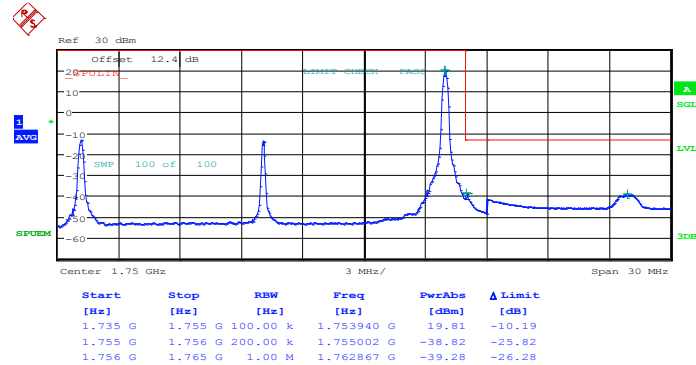
Lower Band Edge Plot for QPSK-RB Size 100, RB Offset 0



Date: 7.MAY.2014 16:23:43

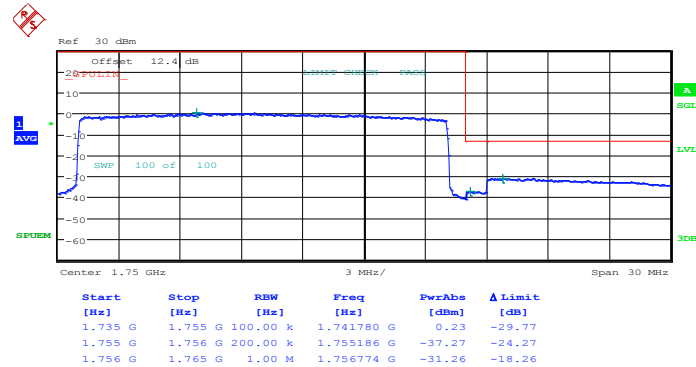


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99



Date: 7.MAY.2014 16:31:33

Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0

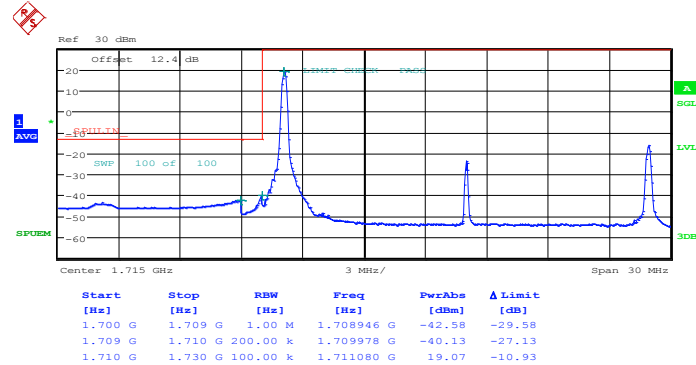


Date: 7.MAY.2014 16:33:07



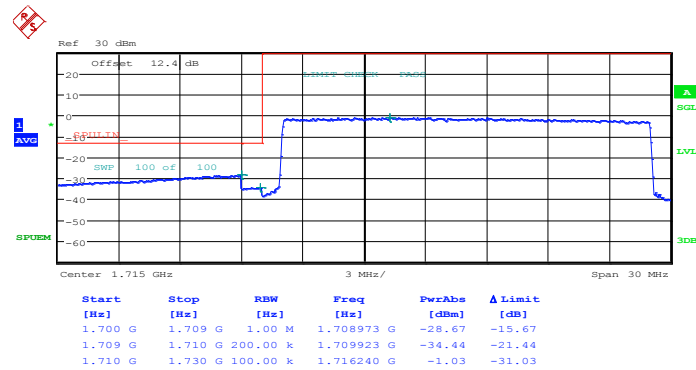
Band :	LTE Band 4	Band Width :	20MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:22:56

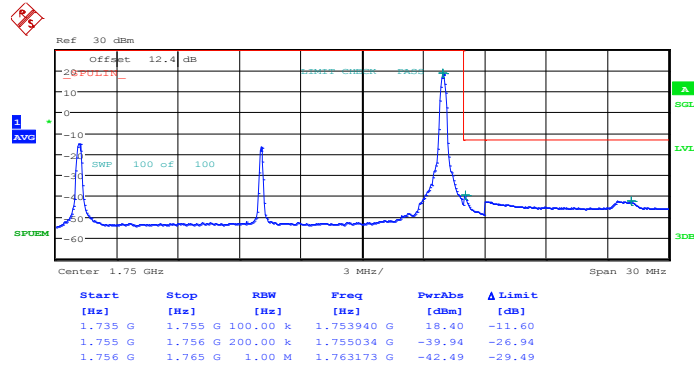
Lower Band Edge Plot for 16QAM-RB Size 100, RB Offset 0



Date: 7.MAY.2014 16:24:30

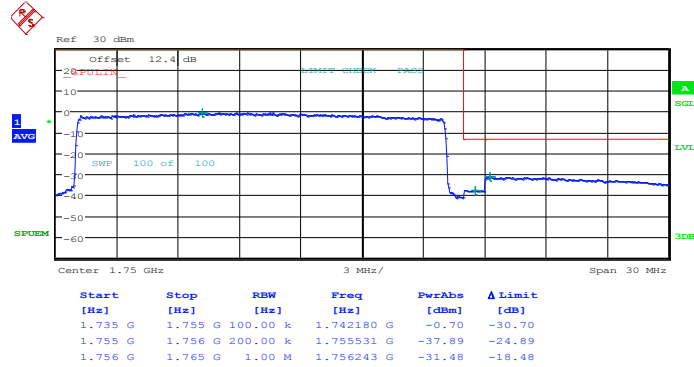


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 99



Date: 7.MAY.2014 16:32:20

Higher Band Edge Plot for 16QAM-RB Size 100, RB Offset 0

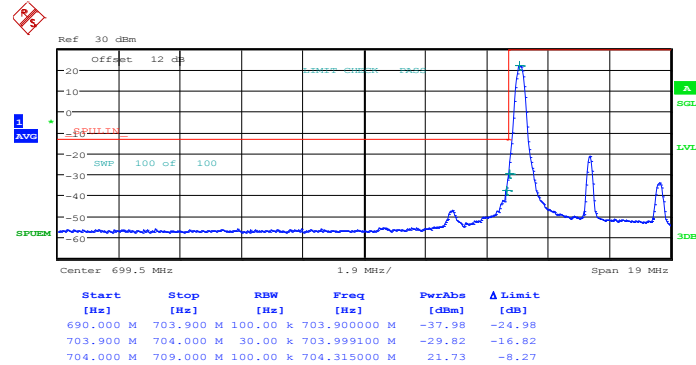


Date: 7.MAY.2014 16:33:54



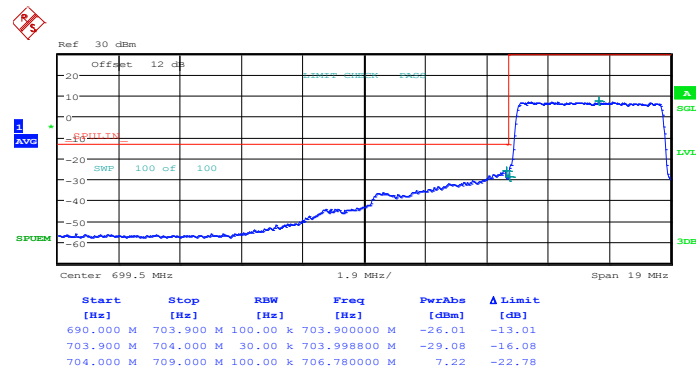
Band :	LTE Band 17	Band Width :	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



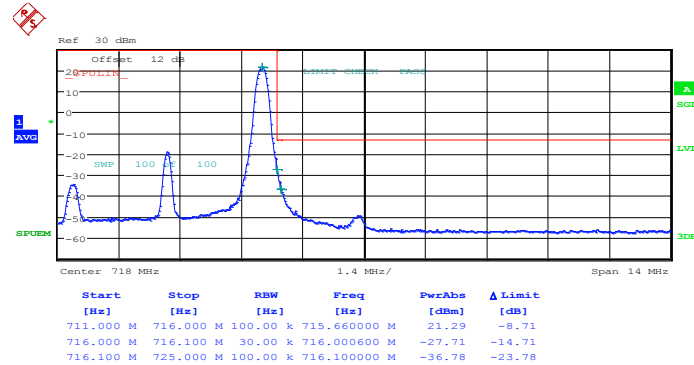
Date: 8.MAY.2014 13:59:29

Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



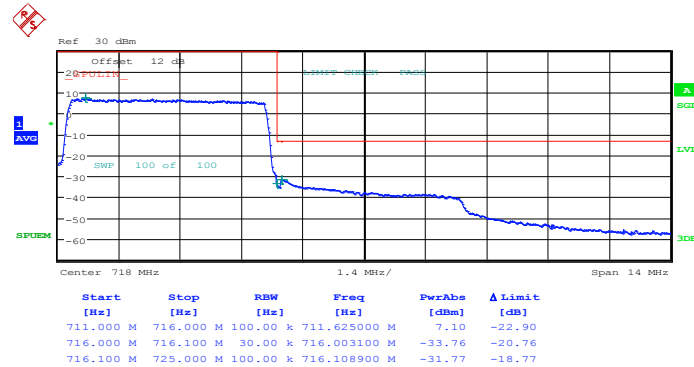
Date: 8.MAY.2014 14:01:02

Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 8.MAY.2014 14:08:50

Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

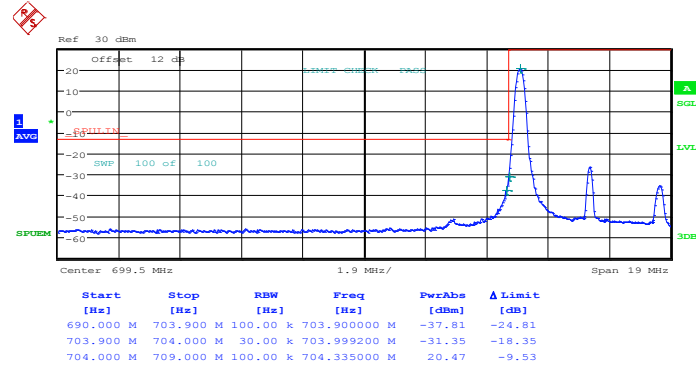


Date: 8.MAY.2014 14:10:24



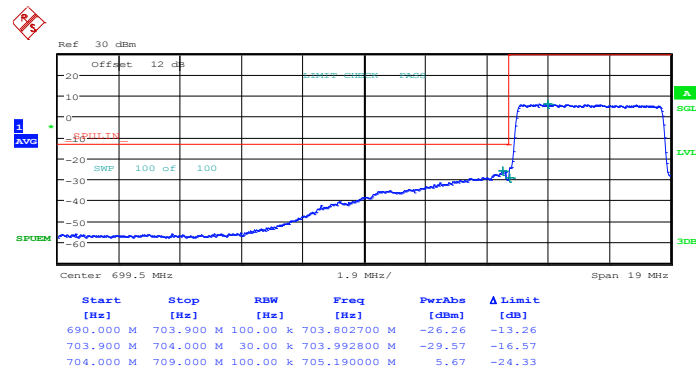
Band :	LTE Band 17	Band Width :	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 8.MAY.2014 14:00:16

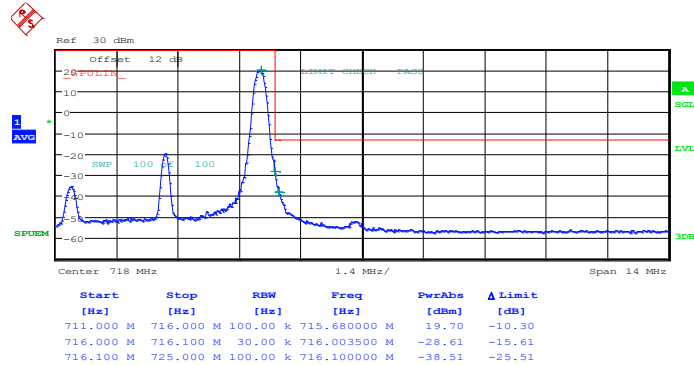
Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 8.MAY.2014 14:01:49

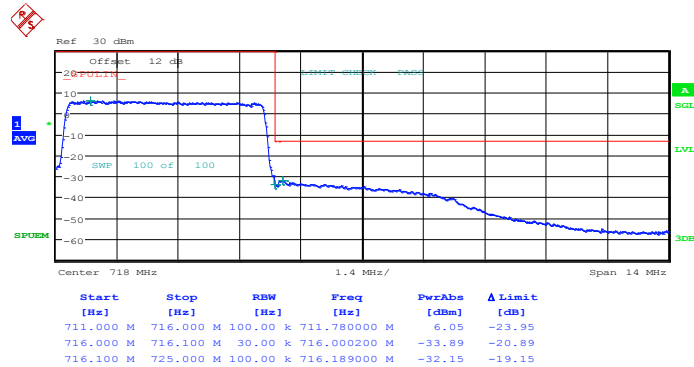


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24



Date: 8.MAY.2014 14:09:37

Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0

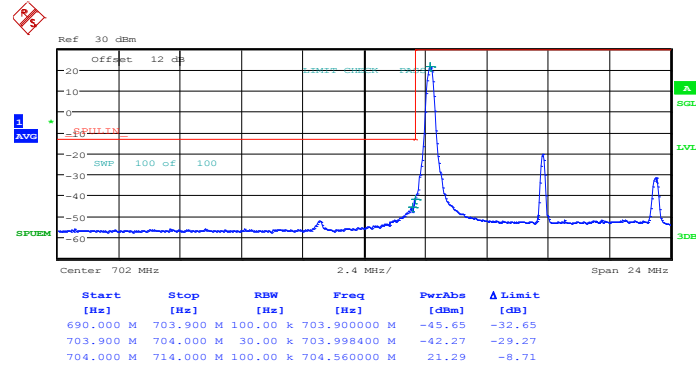


Date: 8.MAY.2014 14:11:10



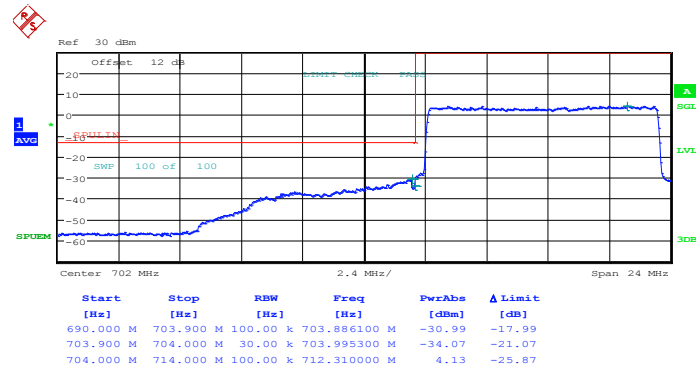
Band :	LTE Band 17	Band Width :	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 8.MAY.2014 14:15:04

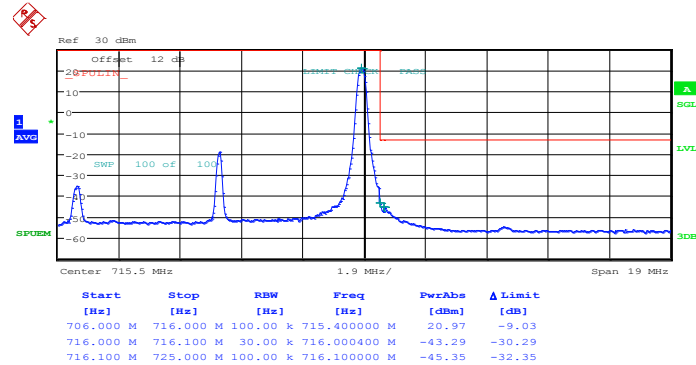
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 8.MAY.2014 14:16:38

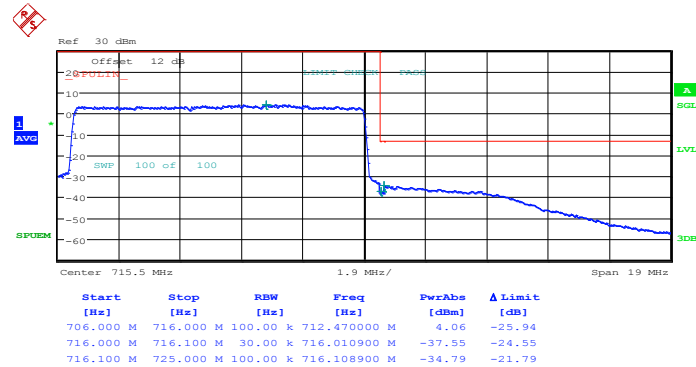


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 8.MAY.2014 14:24:28

Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

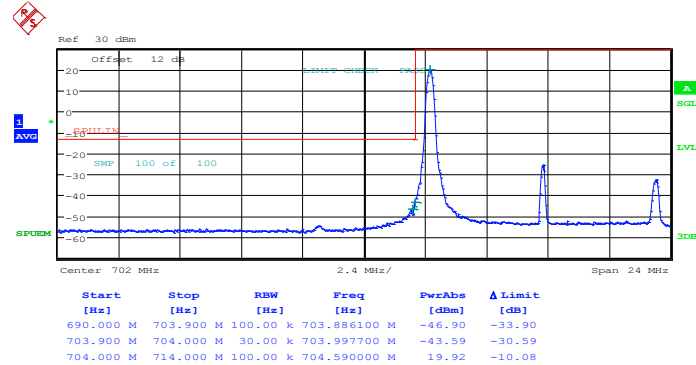


Date: 8.MAY.2014 14:26:01



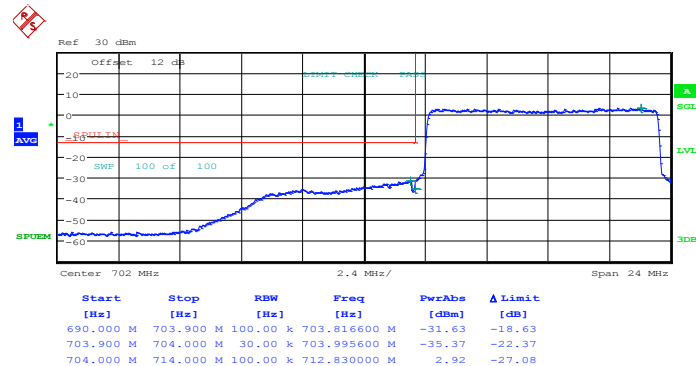
Band :	LTE Band 17	Band Width :	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 8.MAY.2014 14:15:51

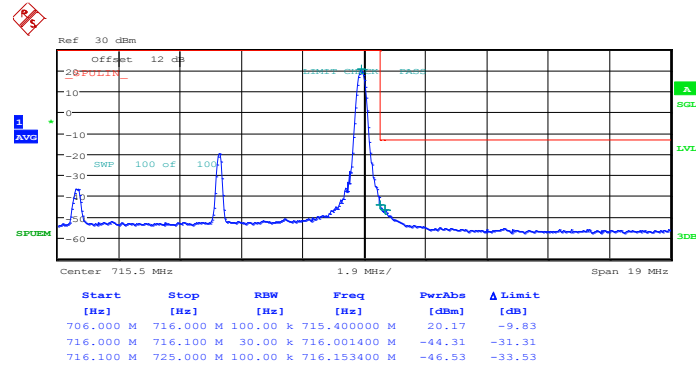
Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 8.MAY.2014 14:17:24

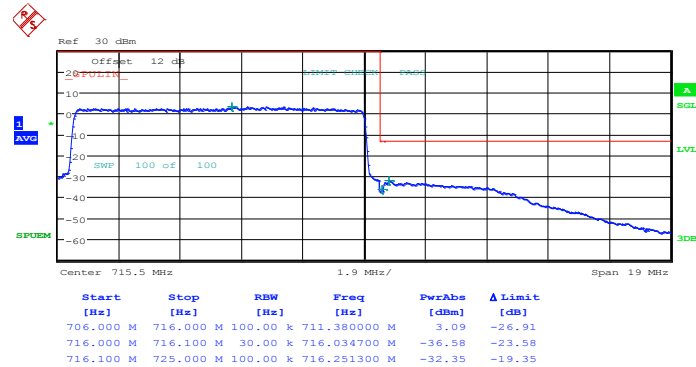


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49



Date: 8.MAY.2014 14:25:15

Higher Band Edge Plot for 16QAM-RB Size 50, RB Offset 0

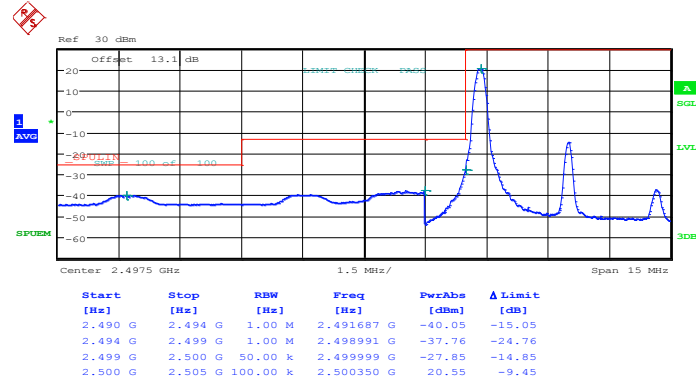


Date: 8.MAY.2014 14:26:48



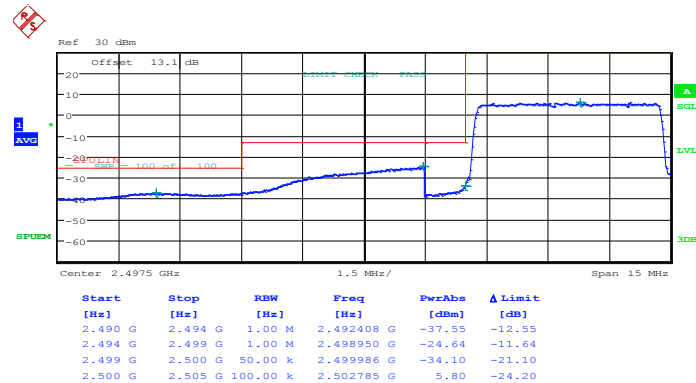
Band :	LTE Band 7	Band Width :	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:43:34

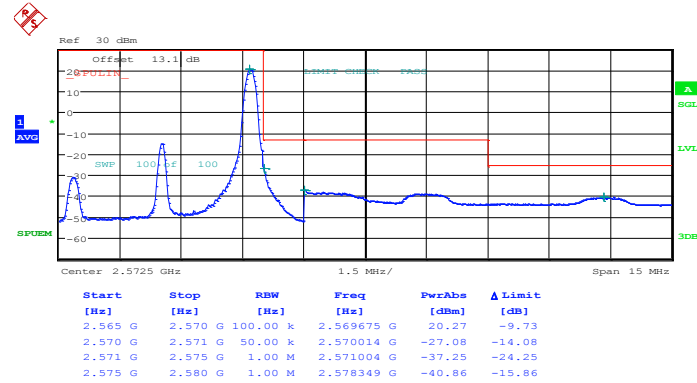
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 7.MAY.2014 16:45:09

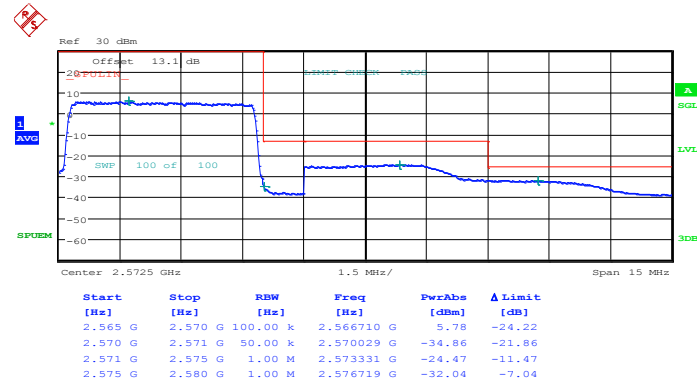


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 7.MAY.2014 16:53:09

Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

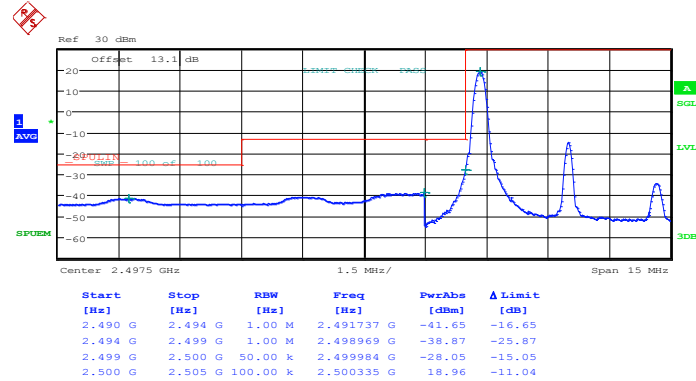


Date: 7.MAY.2014 16:54:42



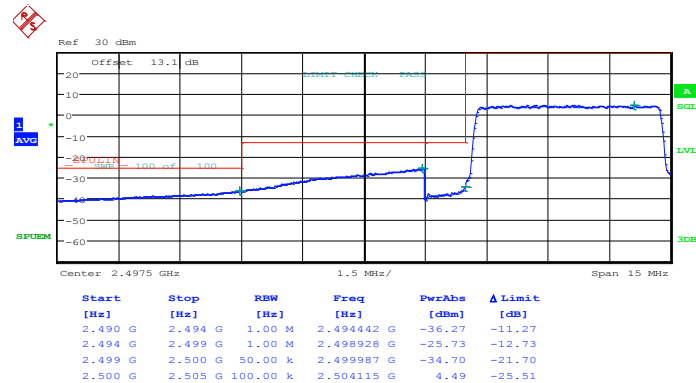
Band :	LTE Band 7	Band Width :	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:44:21

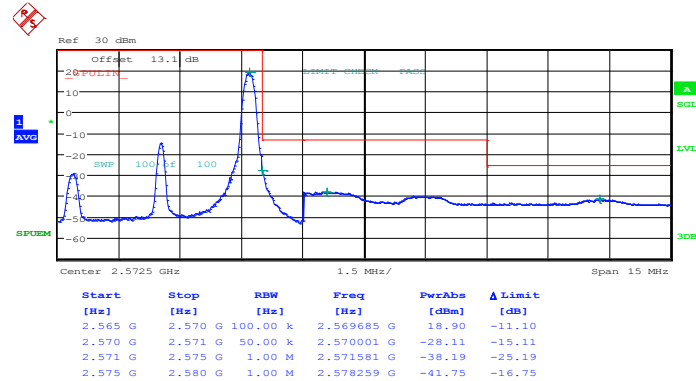
Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 7.MAY.2014 16:45:56

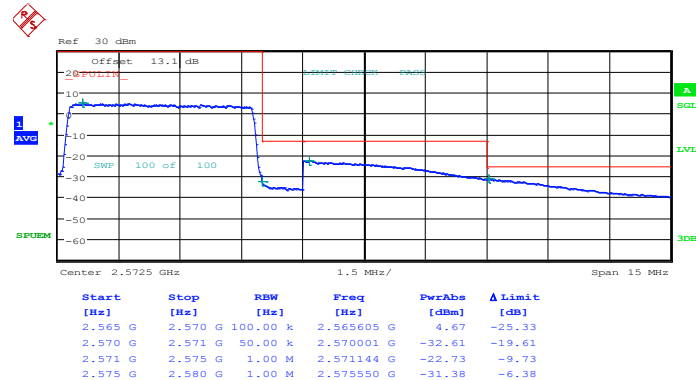


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24



Date: 7.MAY.2014 16:53:55

Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0

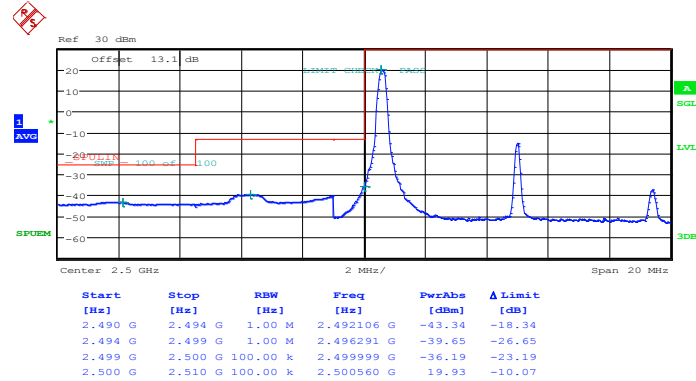


Date: 7.MAY.2014 16:55:28



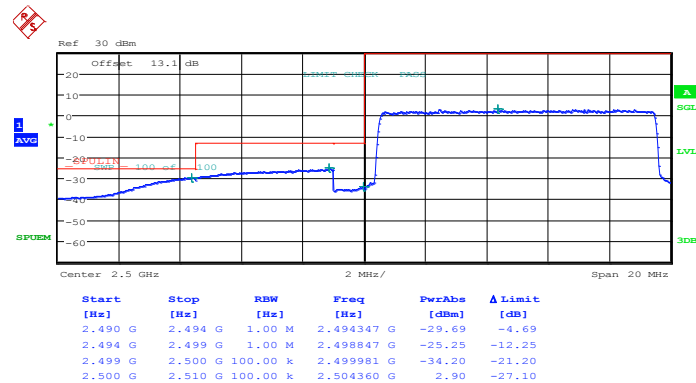
Band :	LTE Band 7	Band Width :	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 16:59:33

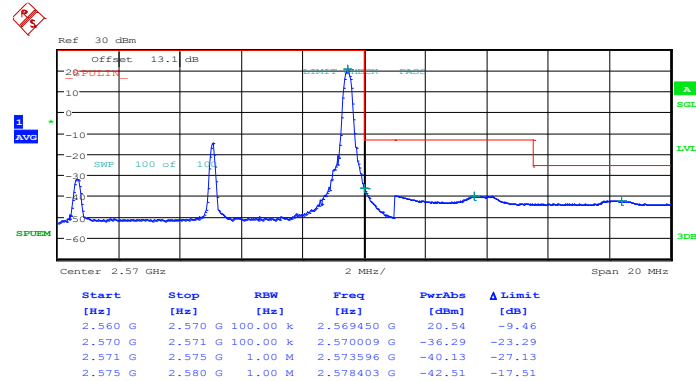
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 7.MAY.2014 17:01:06

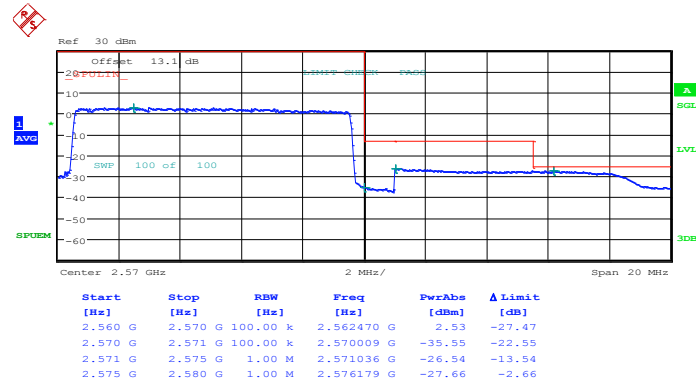


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 7.MAY.2014 17:09:07

Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

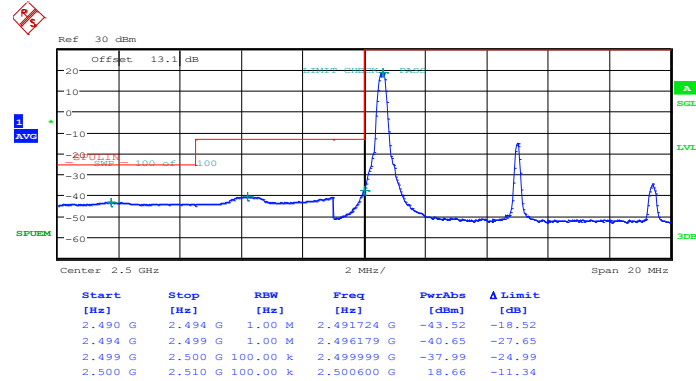


Date: 7.MAY.2014 17:10:40



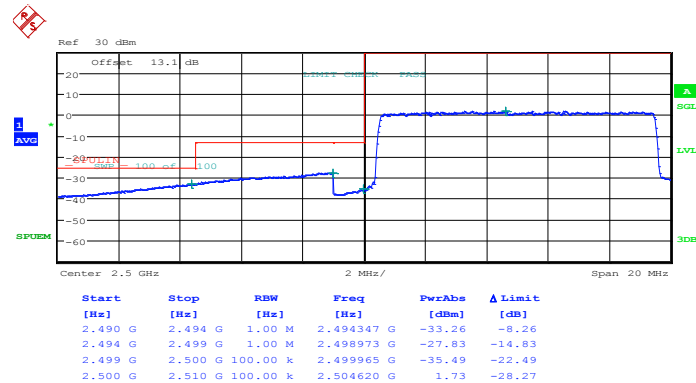
Band :	LTE Band 7	Band Width :	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 17:00:19

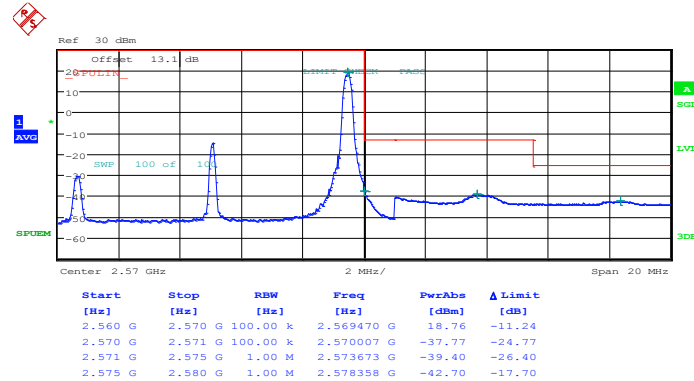
Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 7.MAY.2014 17:01:53

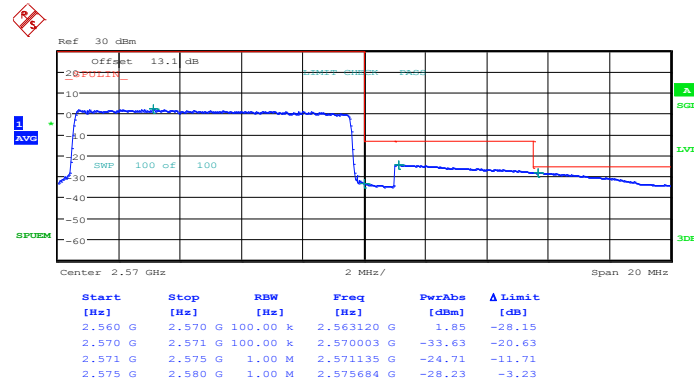


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49



Date: 7.MAY.2014 17:09:54

Higher Band Edge Plot for 16QAM-RB Size 50, RB Offset 0

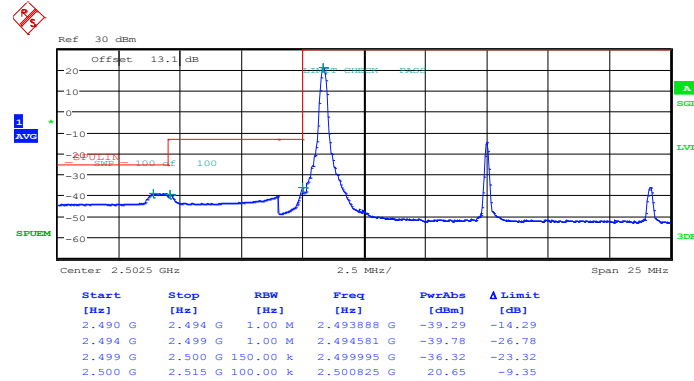


Date: 7.MAY.2014 17:11:27



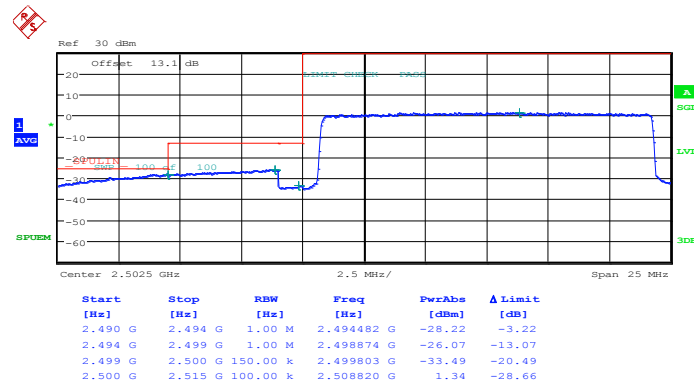
Band :	LTE Band 7	Band Width :	15MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 17:15:31

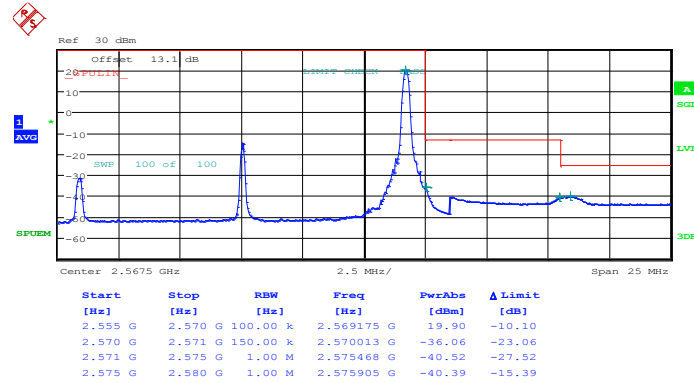
Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0



Date: 7.MAY.2014 17:17:04

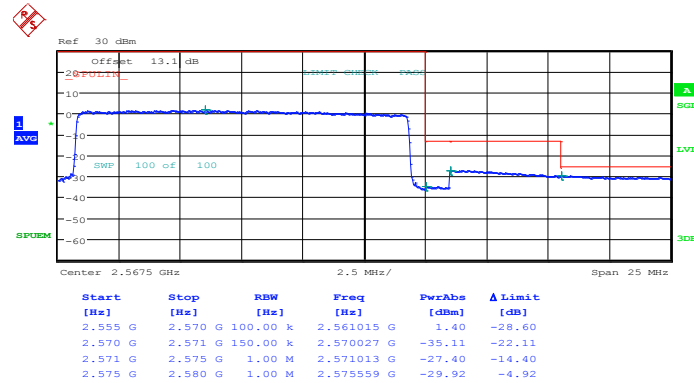


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74



Date: 7.MAY.2014 17:25:04

Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0

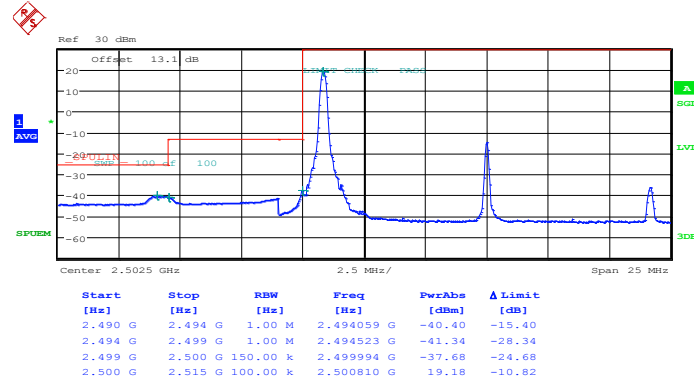


Date: 7.MAY.2014 17:26:37



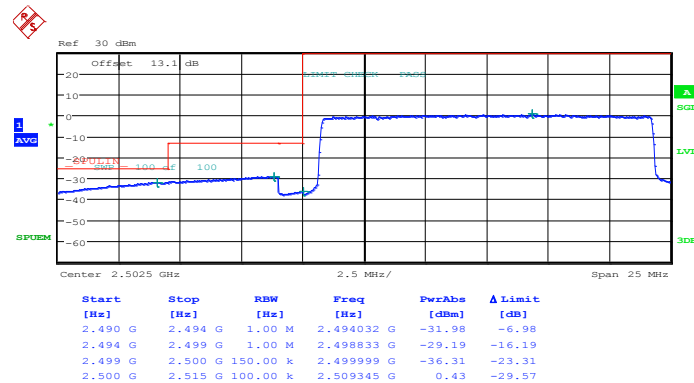
Band :	LTE Band 7	Band Width :	15MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 17:16:17

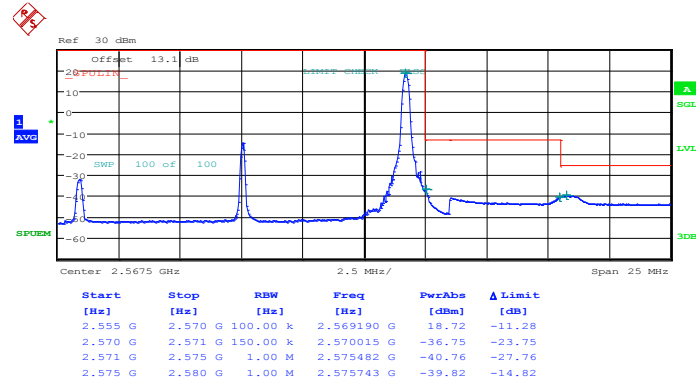
Lower Band Edge Plot for 16QAM-RB Size 75, RB Offset 0



Date: 7.MAY.2014 17:17:51

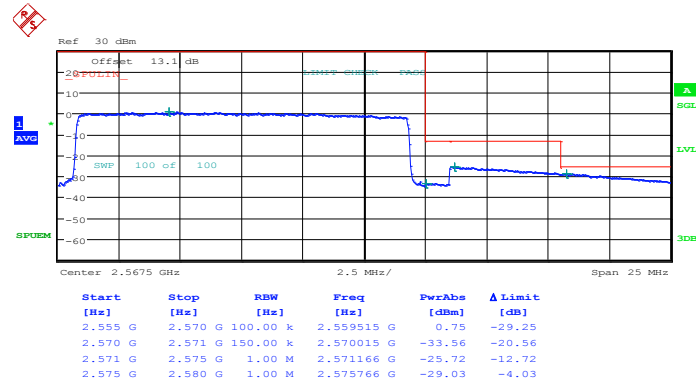


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 74



Date: 7.MAY.2014 17:25:50

Higher Band Edge Plot for 16QAM-RB Size 75, RB Offset 0

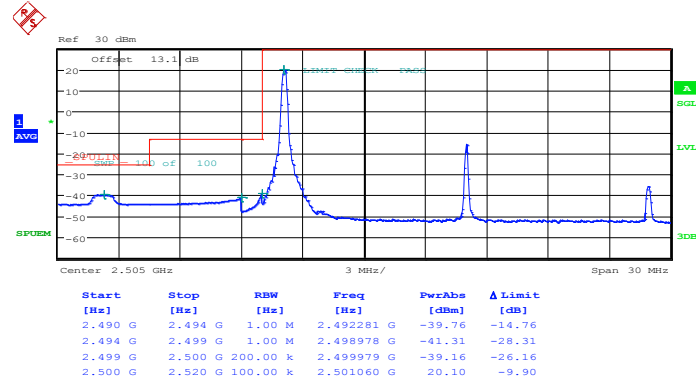


Date: 7.MAY.2014 17:27:24



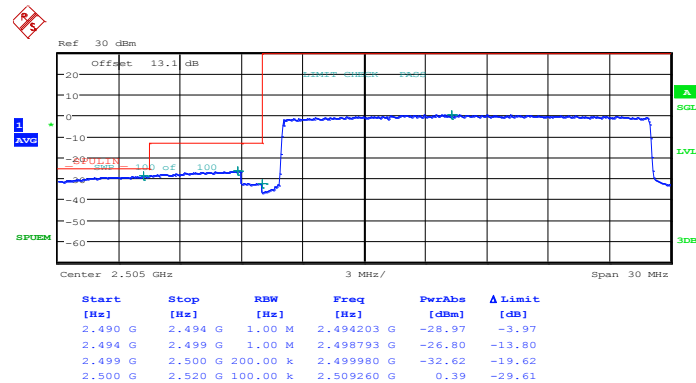
Band :	LTE Band 7	Band Width :	20MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 7.MAY.2014 17:31:28

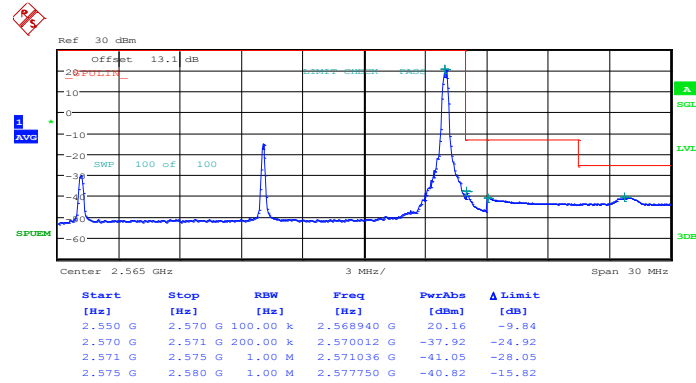
Lower Band Edge Plot for QPSK-RB Size 100, RB Offset 0



Date: 7.MAY.2014 17:33:01

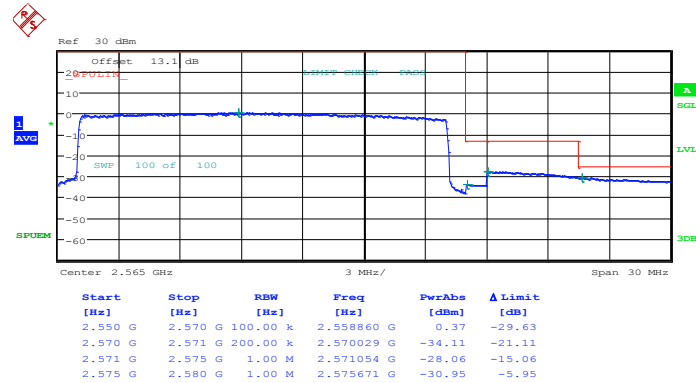


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99



Date: 7.MAY.2014 17:41:00

Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0

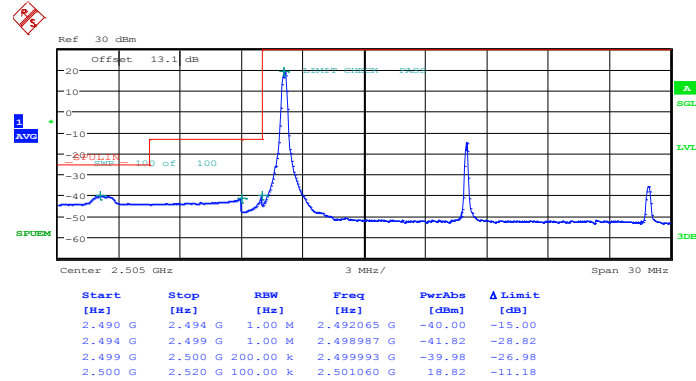


Date: 7.MAY.2014 17:43:19



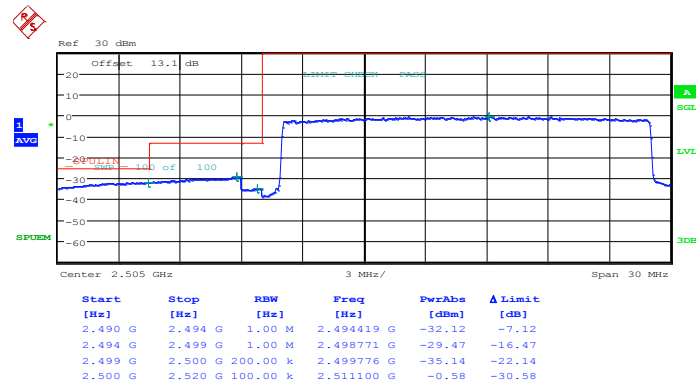
Band :	LTE Band 7	Band Width :	20MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 7.MAY.2014 17:32:14

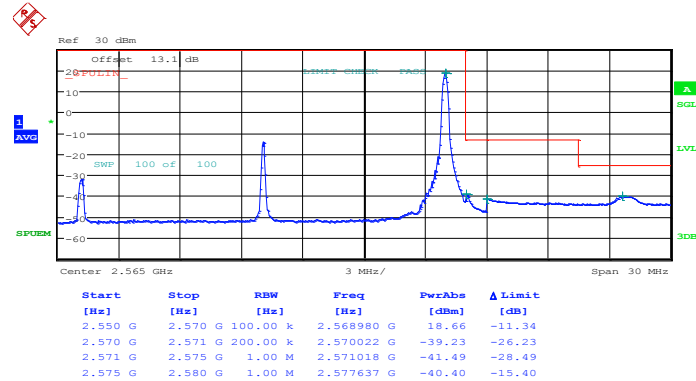
Lower Band Edge Plot for 16QAM-RB Size 100, RB Offset 0



Date: 7.MAY.2014 17:33:48

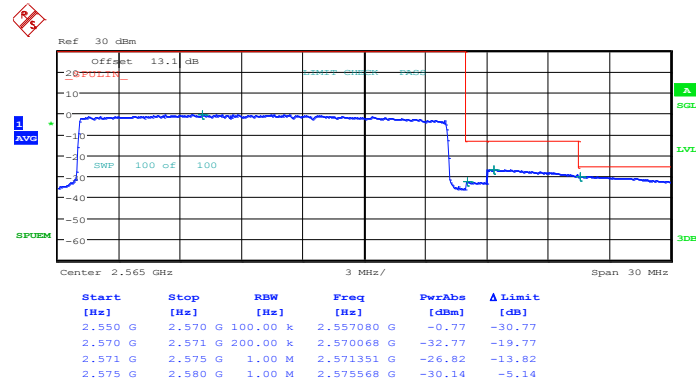


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 99



Date: 7.MAY.2014 17:41:47

Higher Band Edge Plot for 16QAM-RB Size 100, RB Offset 0



Date: 7.MAY.2014 17:42:33

3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

For Band 4 and 17

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For Band 7

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30MHz up to a frequency including its 10th harmonic.

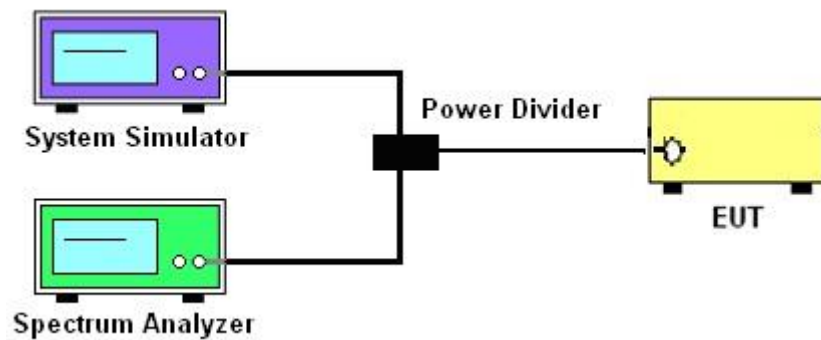
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13$ dBm.
8. The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)

3.6.4 Test Setup

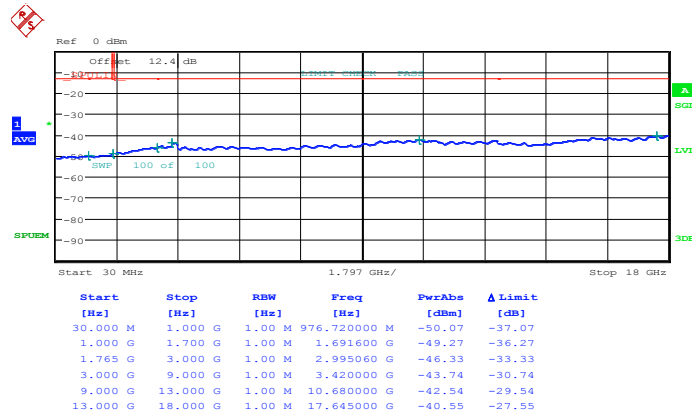




3.6.5 Test Result (Plots) of Conducted Spurious Emission

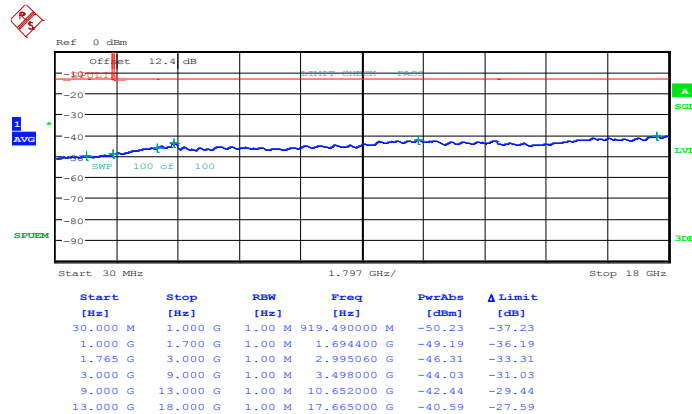
Band :	LTE Band 4	Channel :	CH19957 (Low)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 14:55:16

16QAM (RB Size 1, RB Offset 0)

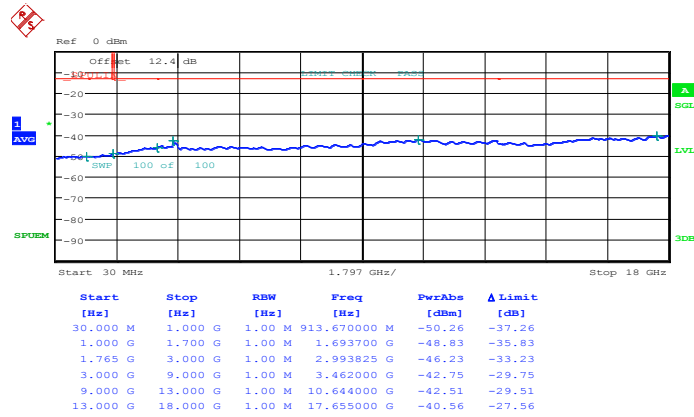


Date: 7.MAY.2014 14:56:16



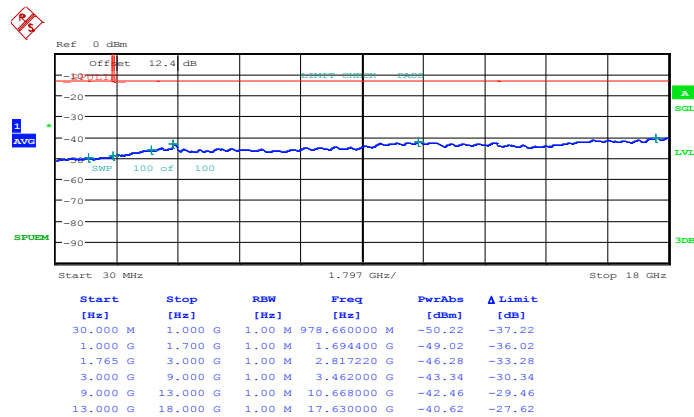
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 14:58:23

16QAM (RB Size 1, RB Offset 0)

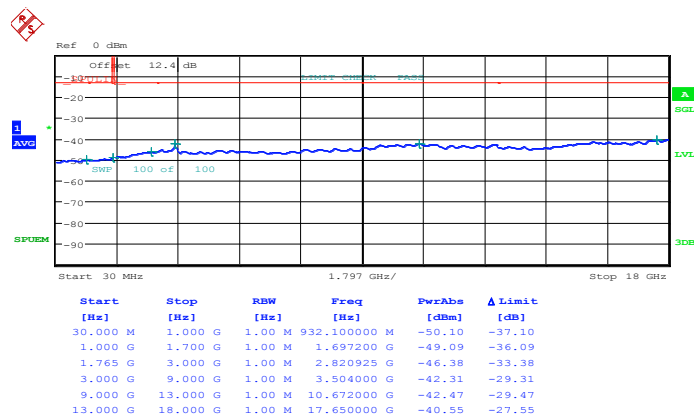


Date: 7.MAY.2014 14:59:23



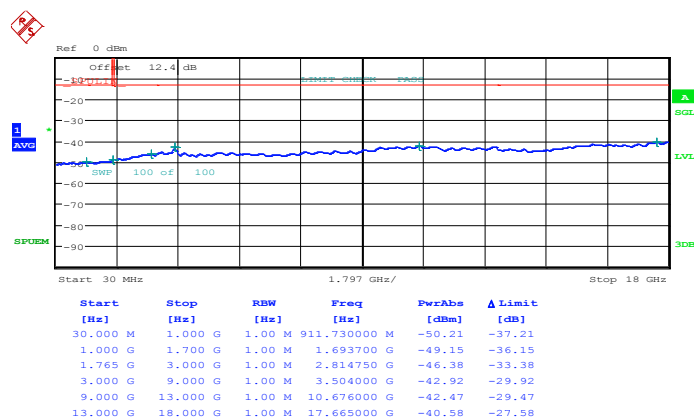
Band :	LTE Band 4	Channel :	CH20393 (High)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:04:38

16QAM (RB Size 1, RB Offset 0)

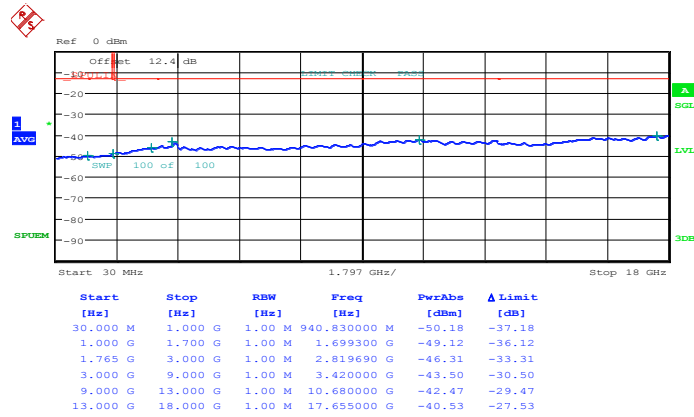


Date: 7.MAY.2014 15:05:39



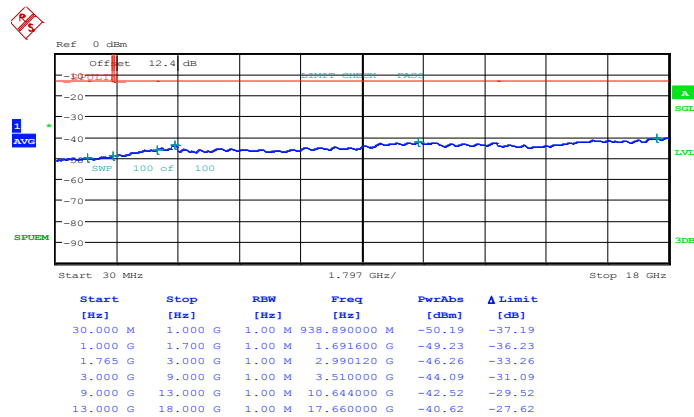
Band :	LTE Band 4	Channel :	CH19965 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:22:36

16QAM (RB Size 1, RB Offset 0)

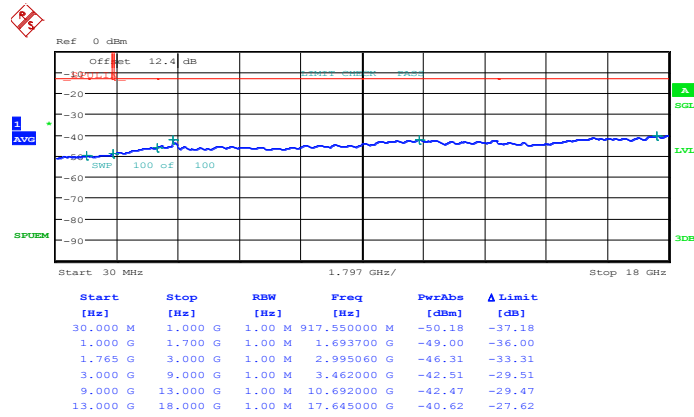


Date: 7.MAY.2014 15:23:36



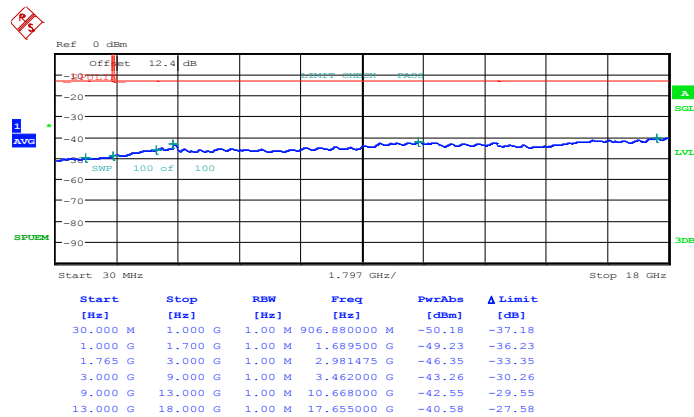
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:25:43

16QAM (RB Size 1, RB Offset 0)

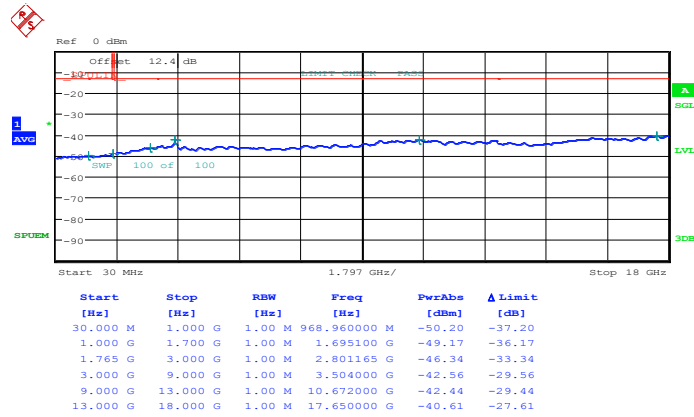


Date: 7.MAY.2014 15:26:43



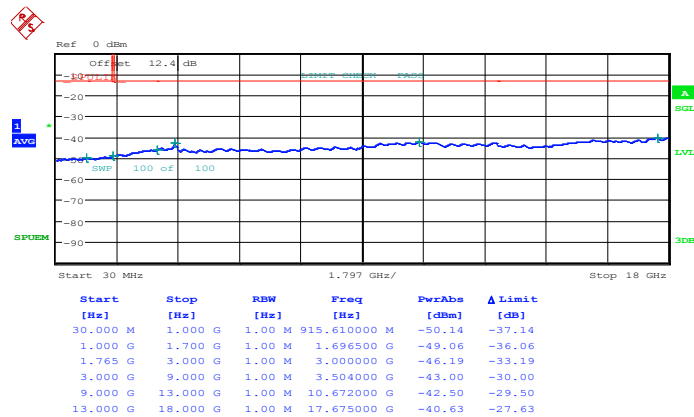
Band :	LTE Band 4	Channel :	CH20385 (High)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:31:58

16QAM (RB Size 1, RB Offset 0)

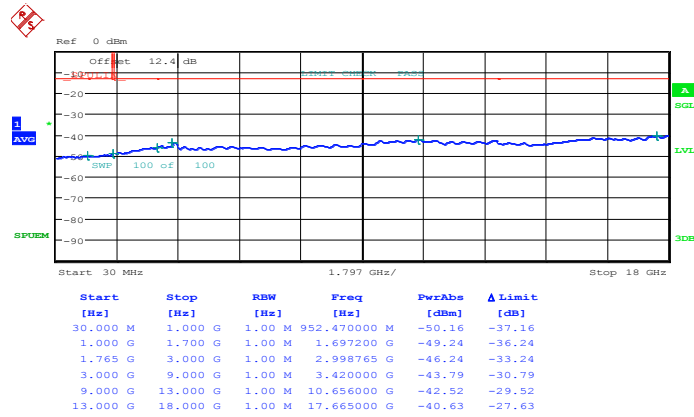


Date: 7.MAY.2014 15:32:59



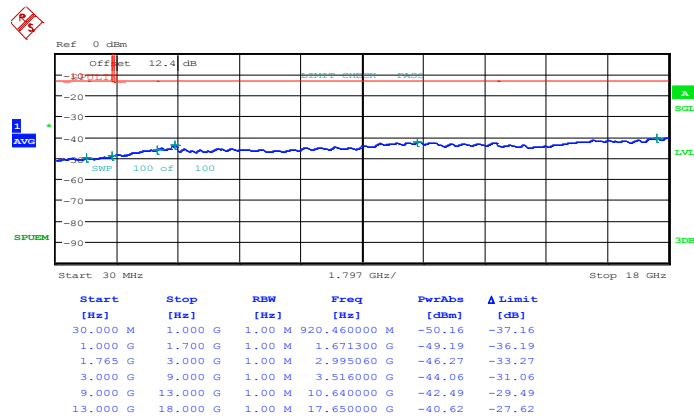
Band :	LTE Band 4	Channel :	CH19975 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:38:19

16QAM (RB Size 1, RB Offset 0)

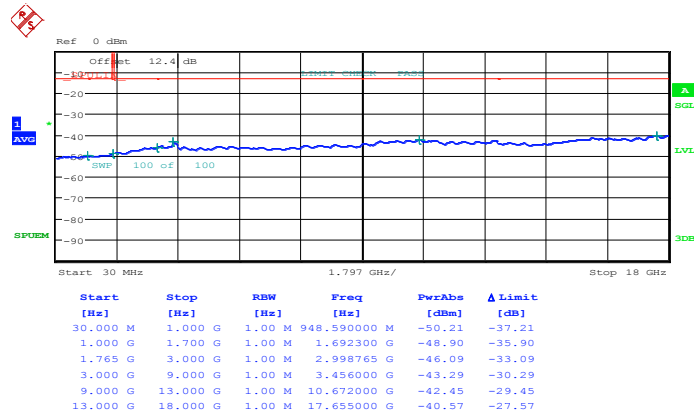


Date: 7.MAY.2014 15:39:19



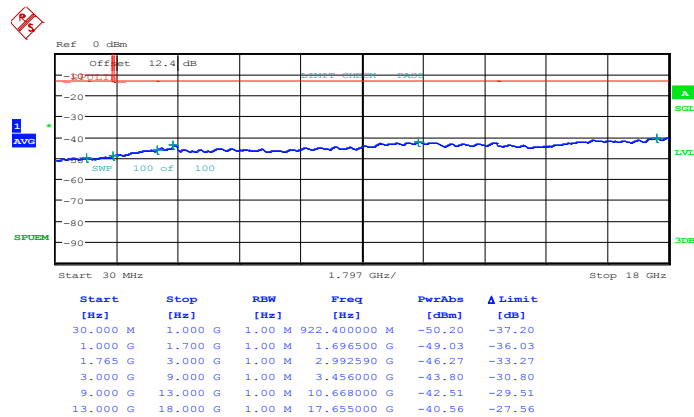
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:41:27

16QAM (RB Size 1, RB Offset 0)

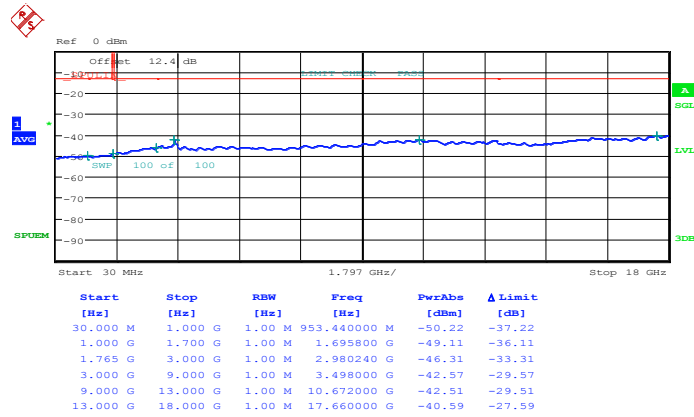


Date: 7.MAY.2014 15:42:27



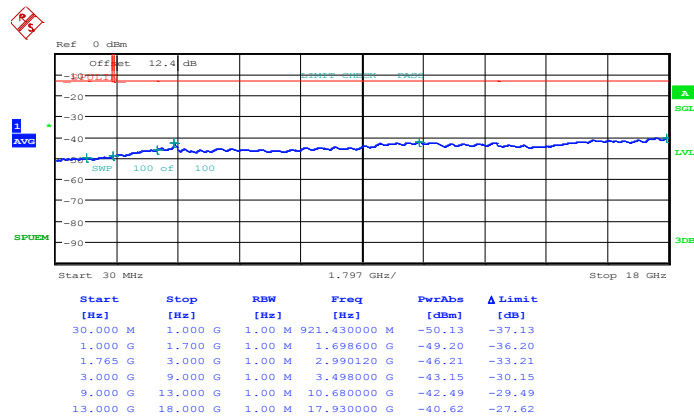
Band :	LTE Band 4	Channel :	CH20375 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:47:43

16QAM (RB Size 1, RB Offset 0)

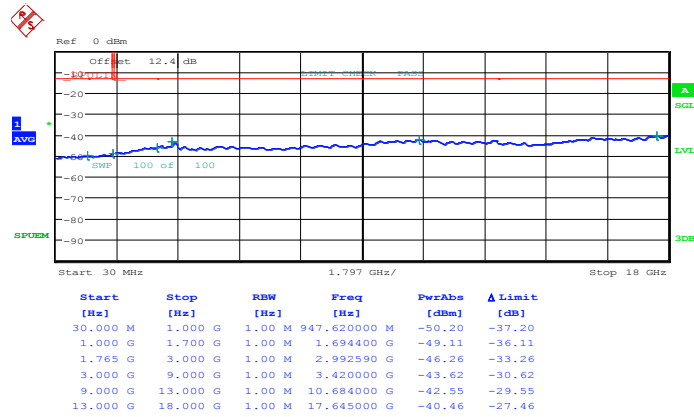


Date: 7.MAY.2014 15:48:43



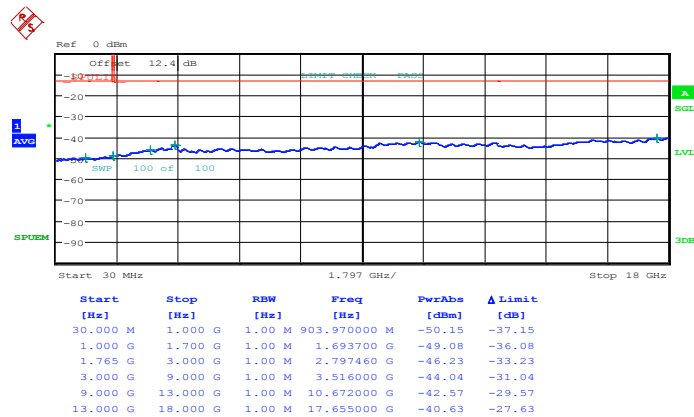
Band :	LTE Band 4	Channel :	CH20000 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:54:03

16QAM (RB Size 1, RB Offset 0)

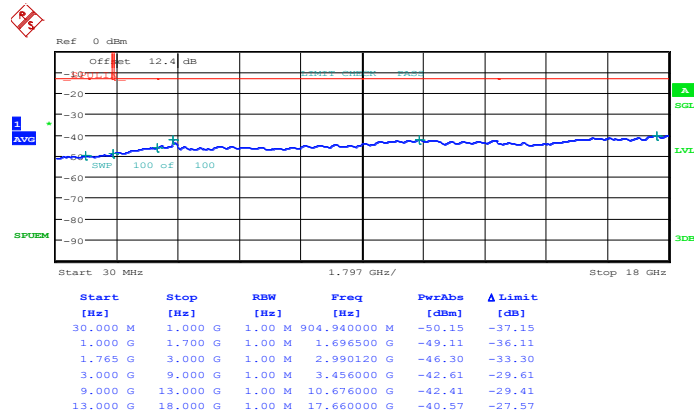


Date: 7.MAY.2014 15:55:03



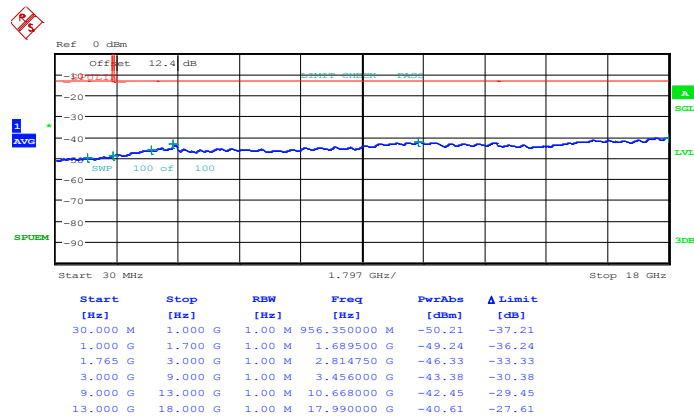
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 15:57:10

16QAM (RB Size 1, RB Offset 0)

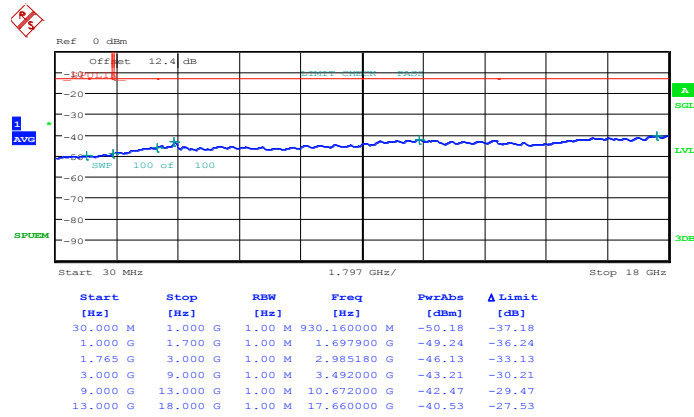


Date: 7.MAY.2014 15:58:11



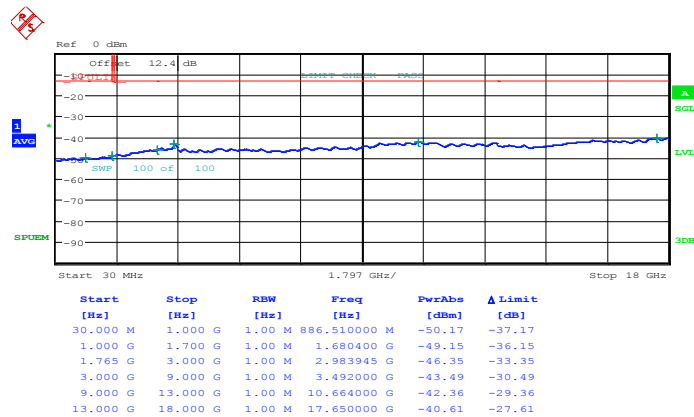
Band :	LTE Band 4	Channel :	CH20350 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:03:26

16QAM (RB Size 1, RB Offset 0)

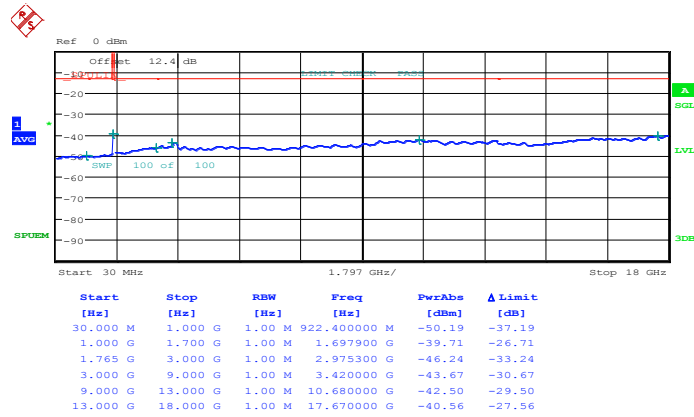


Date: 7.MAY.2014 16:04:27



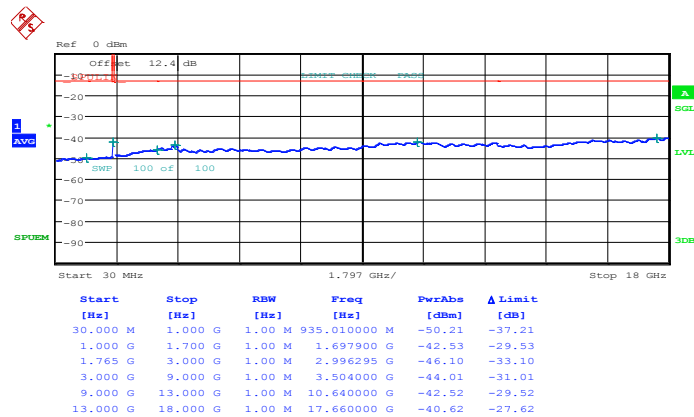
Band :	LTE Band 4	Channel :	CH20025 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:09:47

16QAM (RB Size 1, RB Offset 0)

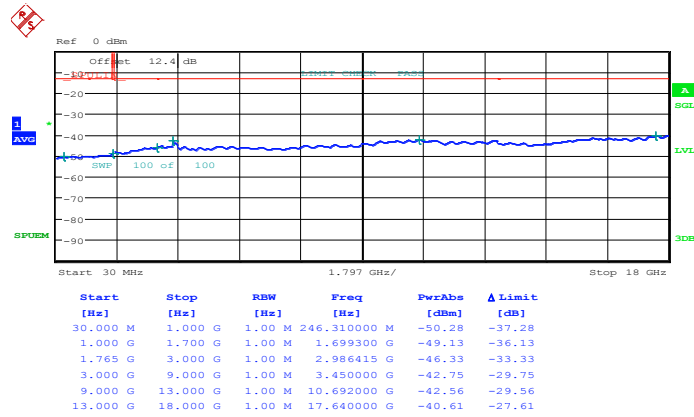


Date: 7.MAY.2014 16:10:47



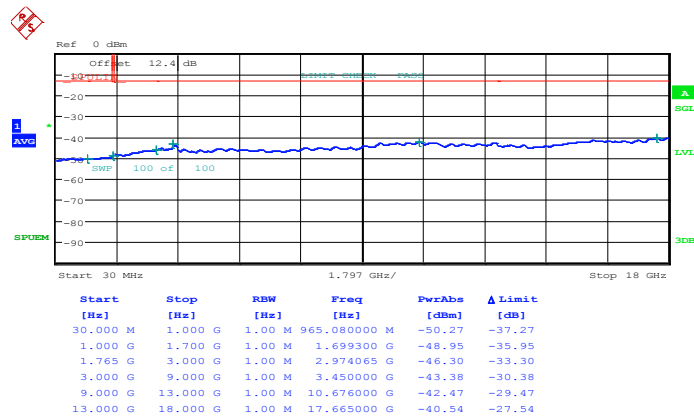
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:12:54

16QAM (RB Size 1, RB Offset 0)

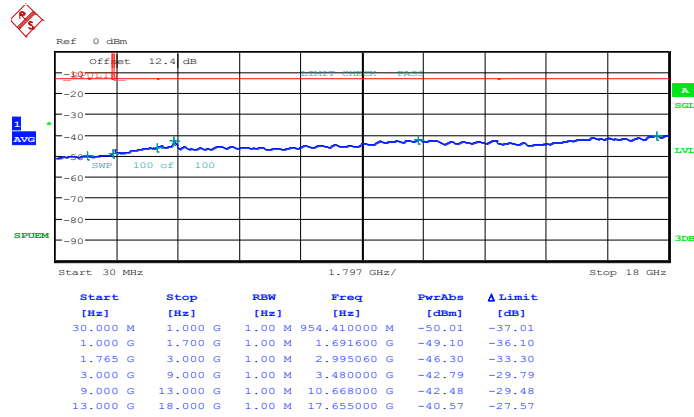


Date: 7.MAY.2014 16:13:54



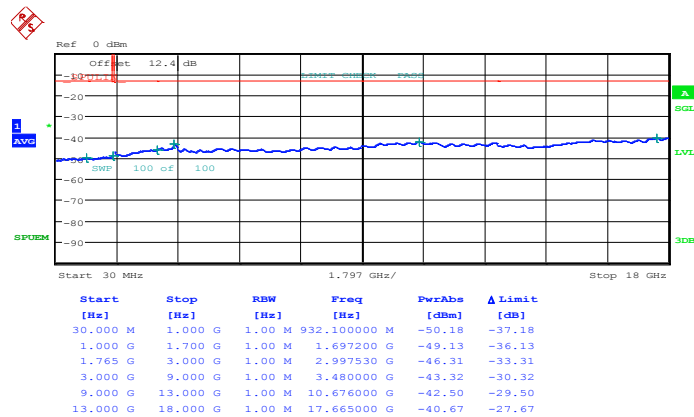
Band :	LTE Band 4	Channel :	CH20325 (High)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:19:11

16QAM (RB Size 1, RB Offset 0)

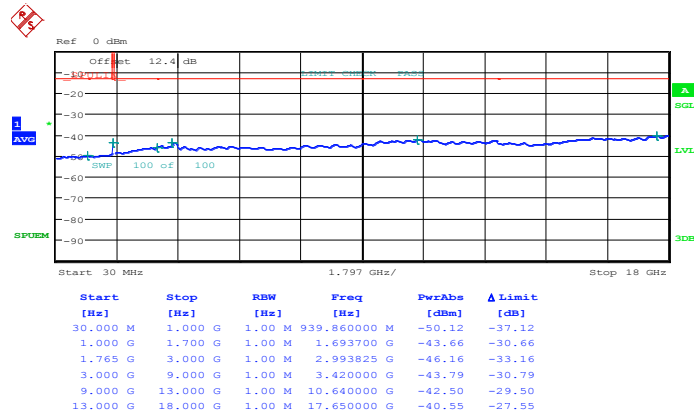


Date: 7.MAY.2014 16:20:11



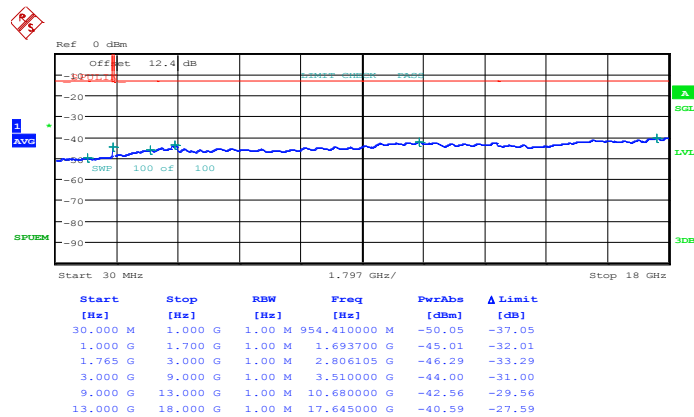
Band :	LTE Band 4	Channel :	CH20050 (Low)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:25:31

16QAM (RB Size 1, RB Offset 0)

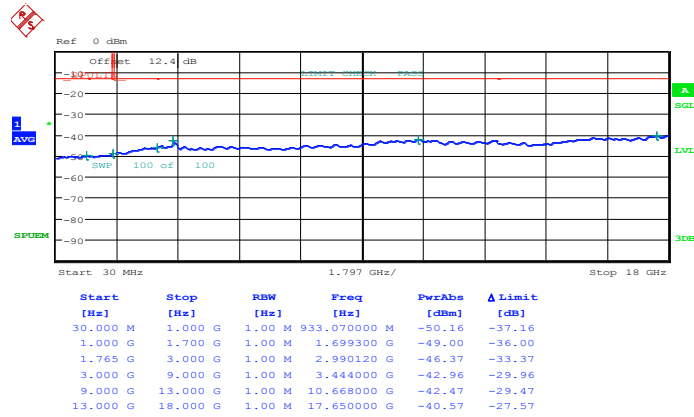


Date: 7.MAY.2014 16:26:31



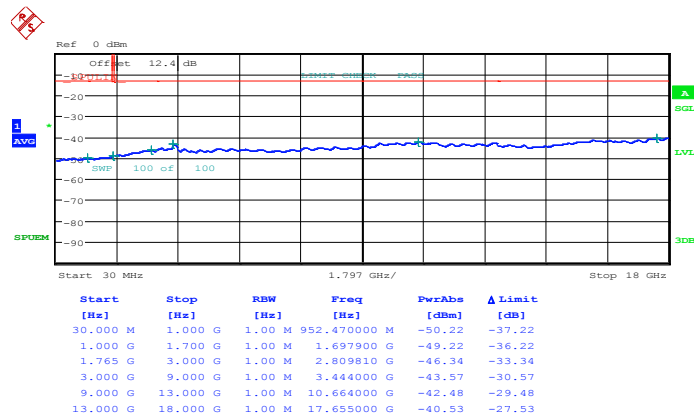
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:28:38

16QAM (RB Size 1, RB Offset 0)

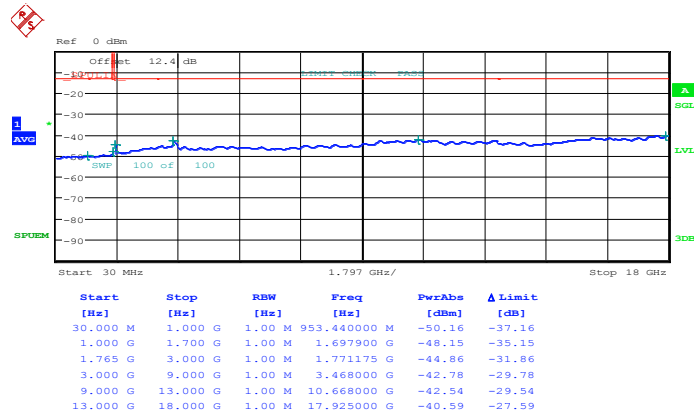


Date: 7.MAY.2014 16:29:39



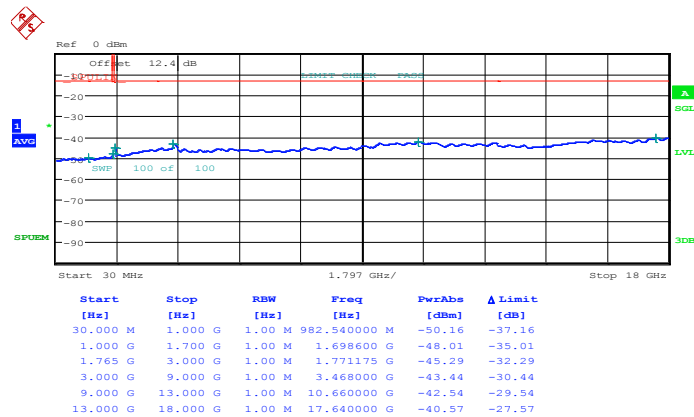
Band :	LTE Band 4	Channel :	CH20300 (High)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:34:55

16QAM (RB Size 1, RB Offset 0)

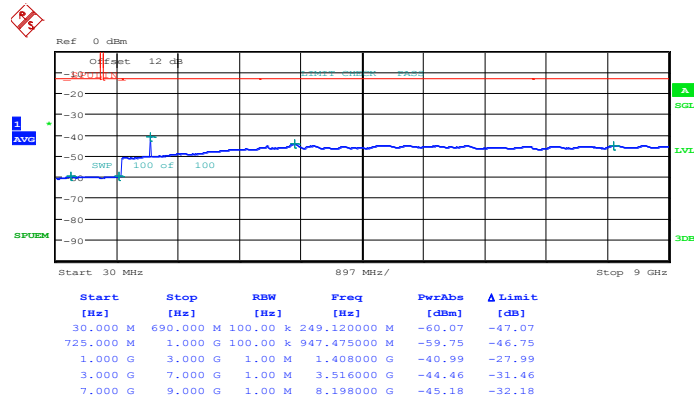


Date: 7.MAY.2014 16:35:55



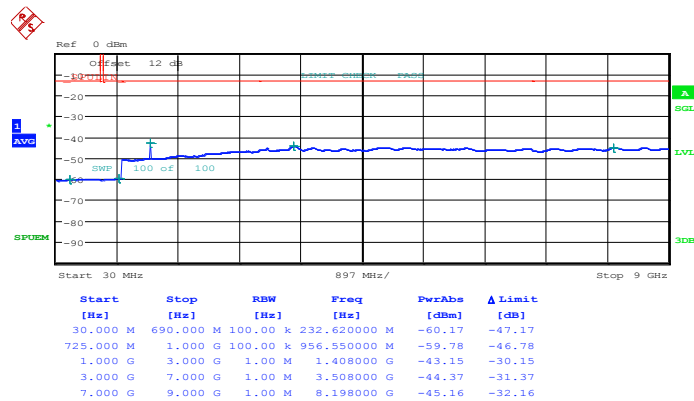
Band :	LTE Band 17	Channel :	CH23755 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 8.MAY.2014 14:02:49

16QAM (RB Size 1, RB Offset 0)

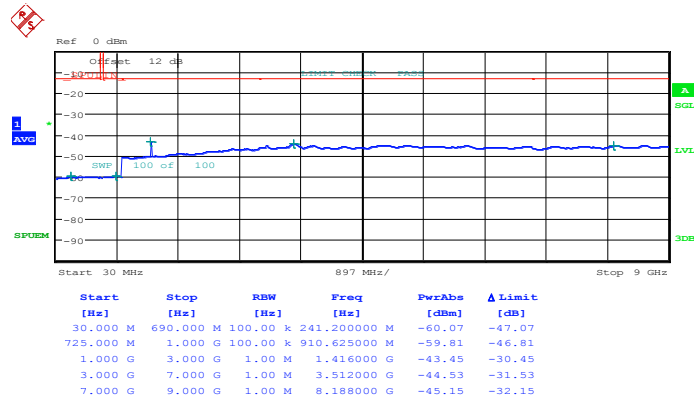


Date: 8.MAY.2014 14:03:49



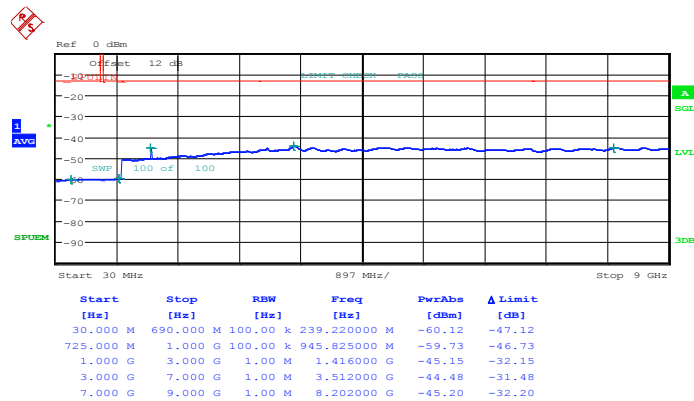
Band :	LTE Band 17	Channel :	CH23790 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 8.MAY.2014 14:05:56

16QAM (RB Size 1, RB Offset 0)

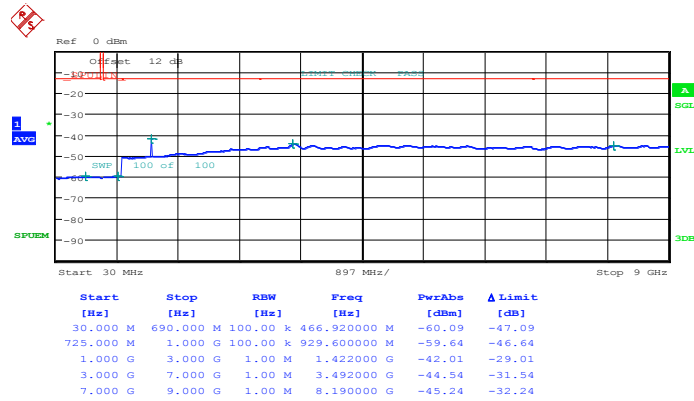


Date: 8.MAY.2014 14:06:56



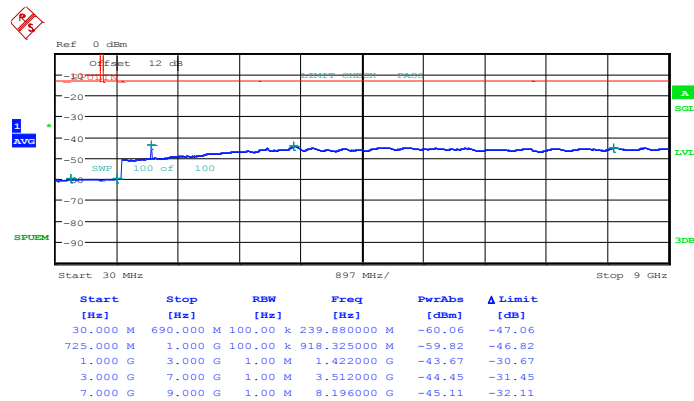
Band :	LTE Band 17	Channel :	CH23825 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 8.MAY.2014 14:12:10

16QAM (RB Size 1, RB Offset 0)

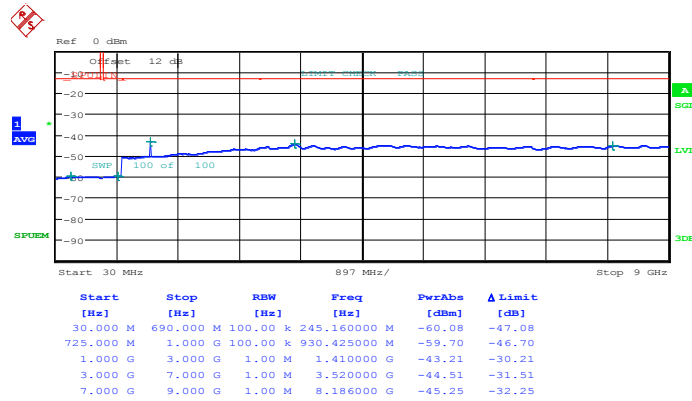


Date: 8.MAY.2014 14:13:10



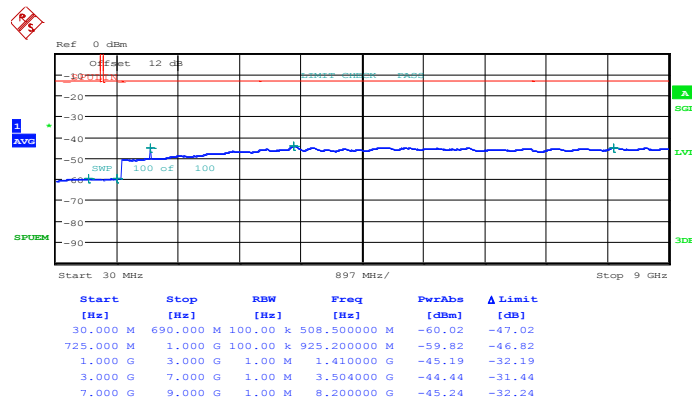
Band :	LTE Band 17	Channel :	CH23780 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 8.MAY.2014 14:18:24

16QAM (RB Size 1, RB Offset 0)

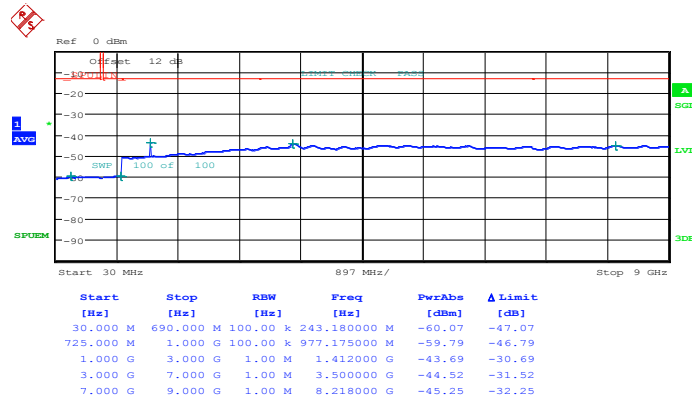


Date: 8.MAY.2014 14:19:24



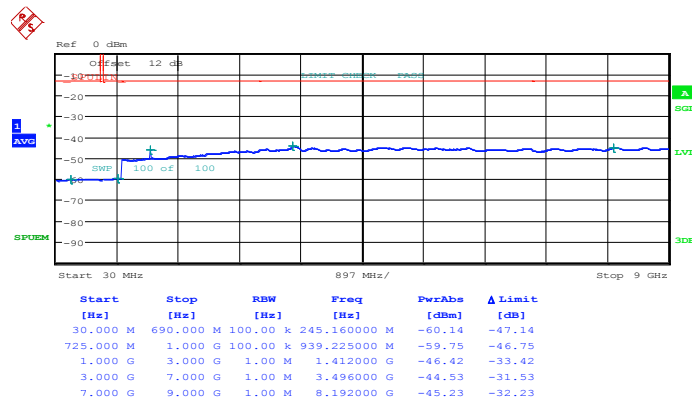
Band :	LTE Band 17	Channel :	CH23790 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 8.MAY.2014 14:21:34

16QAM (RB Size 1, RB Offset 0)

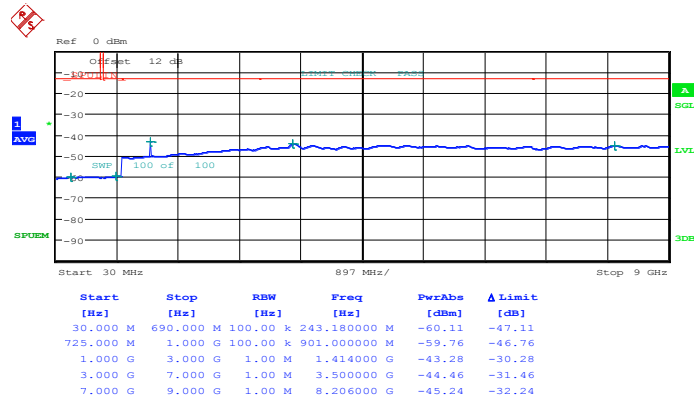


Date: 8.MAY.2014 14:22:34



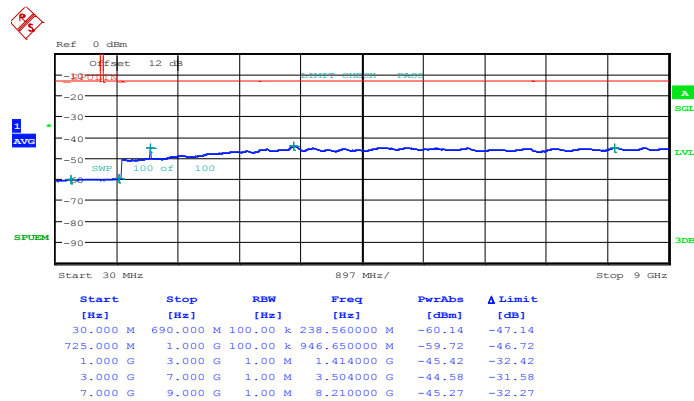
Band :	LTE Band 17	Channel :	CH23800 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 8.MAY.2014 14:27:48

16QAM (RB Size 1, RB Offset 0)

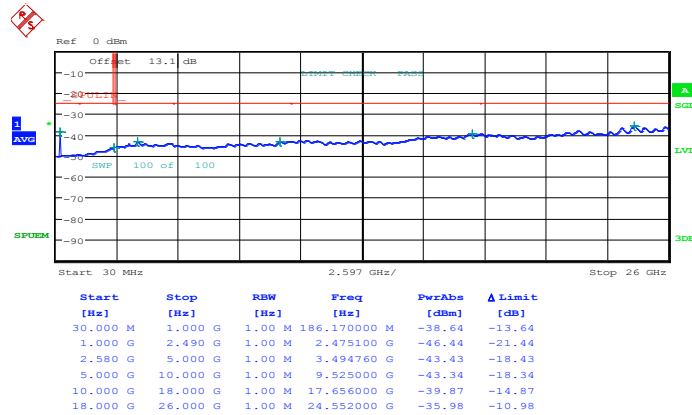


Date: 8.MAY.2014 14:28:48



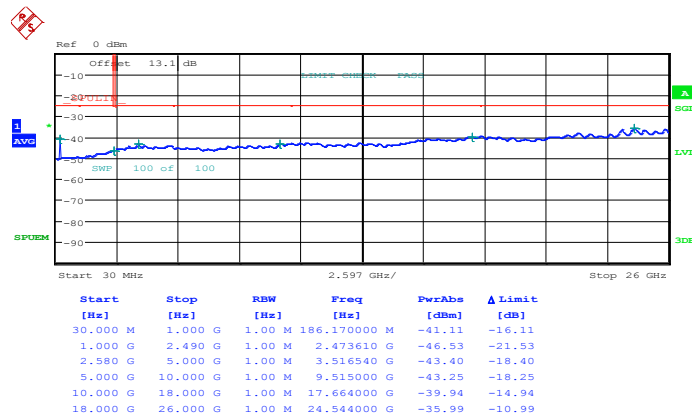
Band :	LTE Band 7	Channel :	CH20775 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:46:59

16QAM (RB Size 1, RB Offset 0)

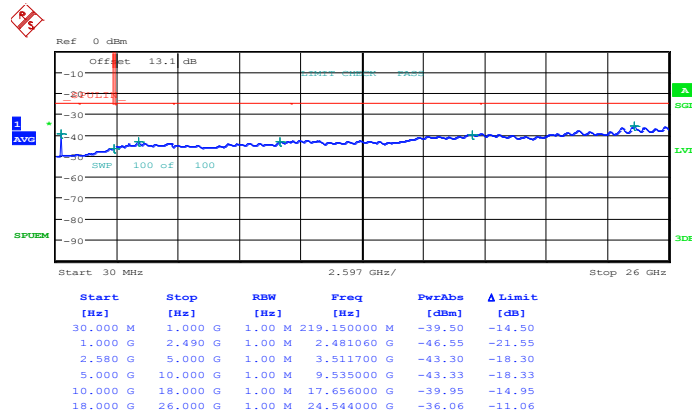


Date: 7.MAY.2014 16:48:02



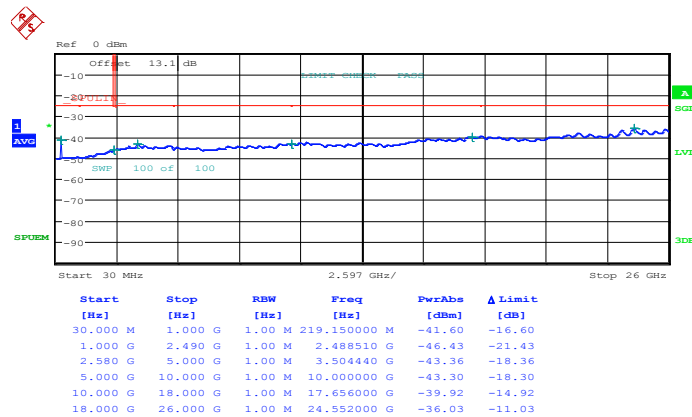
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:50:12

16QAM (RB Size 1, RB Offset 0)

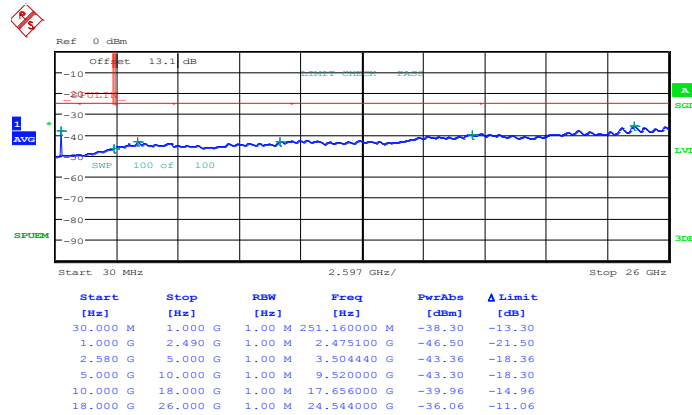


Date: 7.MAY.2014 16:51:15



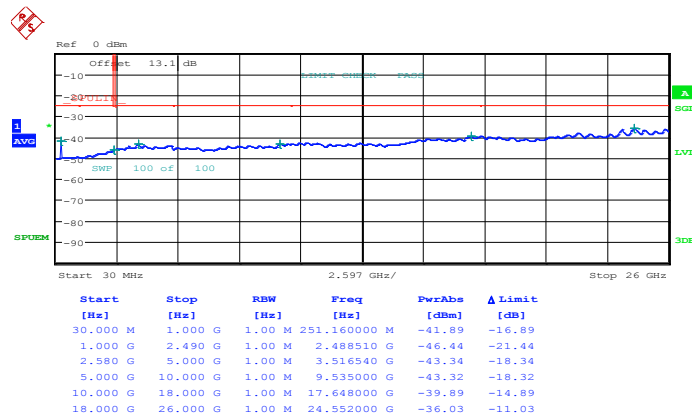
Band :	LTE Band 7	Channel :	CH21425 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 16:56:32

16QAM (RB Size 1, RB Offset 0)

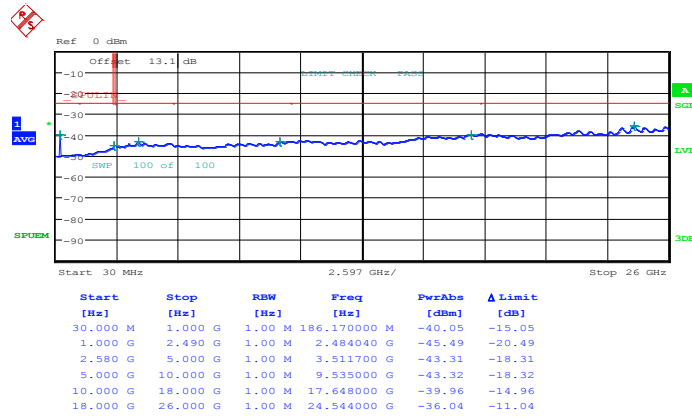


Date: 7.MAY.2014 16:57:35



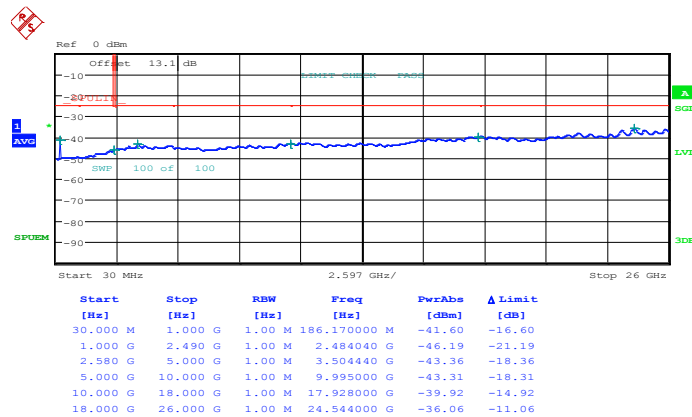
Band :	LTE Band 7	Channel :	CH20800 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:02:56

16QAM (RB Size 1, RB Offset 0)

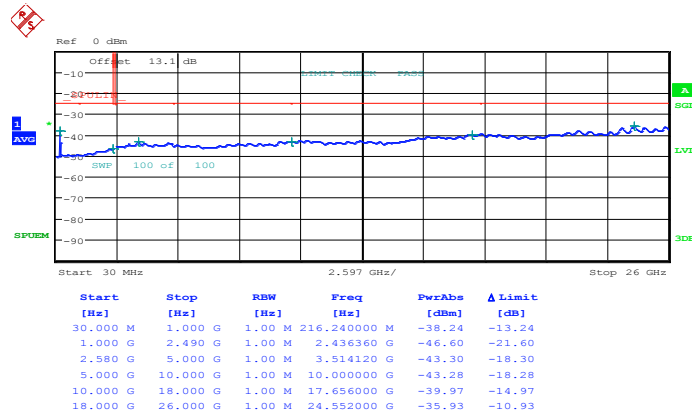


Date: 7.MAY.2014 17:03:59



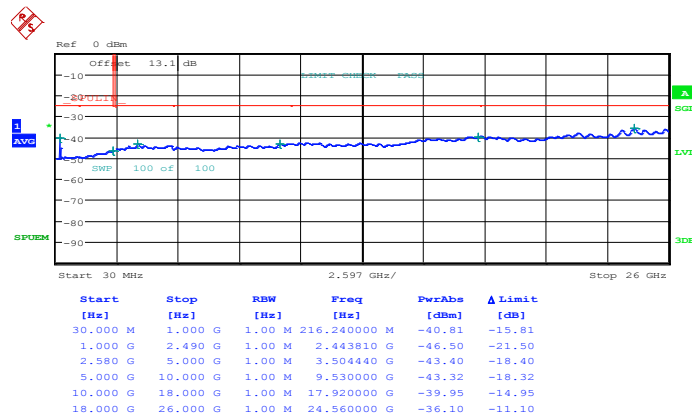
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:06:09

16QAM (RB Size 1, RB Offset 0)

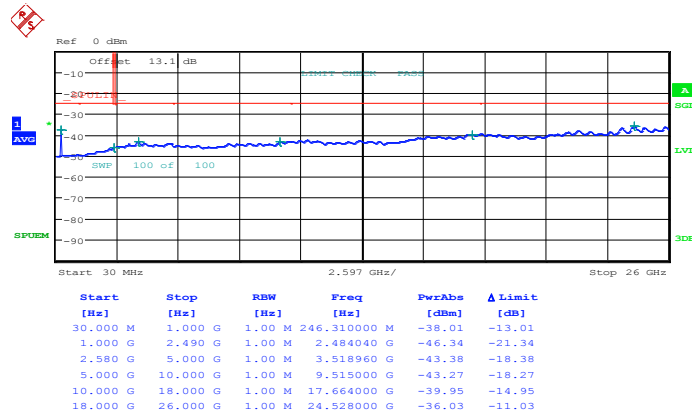


Date: 7.MAY.2014 17:07:12



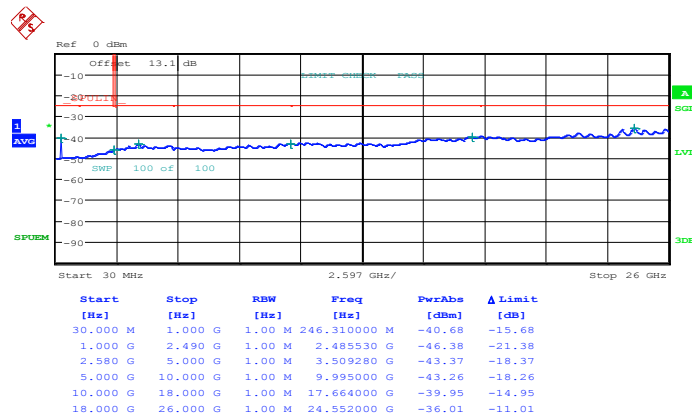
Band :	LTE Band 7	Channel :	CH21400 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:12:30

16QAM (RB Size 1, RB Offset 0)

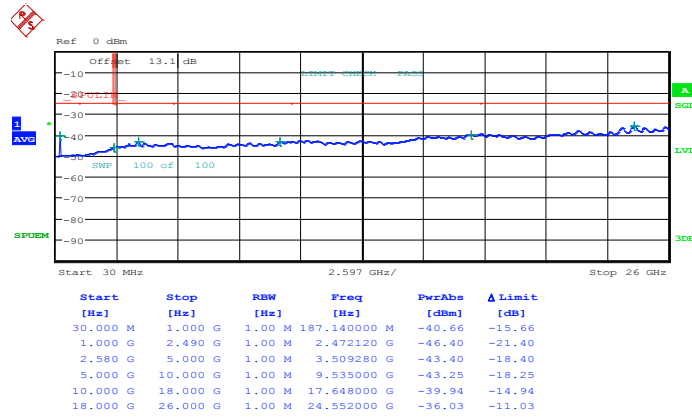


Date: 7.MAY.2014 17:13:33



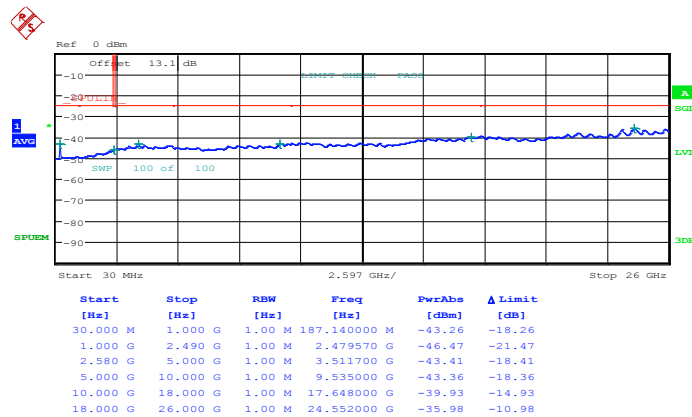
Band :	LTE Band 7	Channel :	CH20825 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:18:54

16QAM (RB Size 1, RB Offset 0)

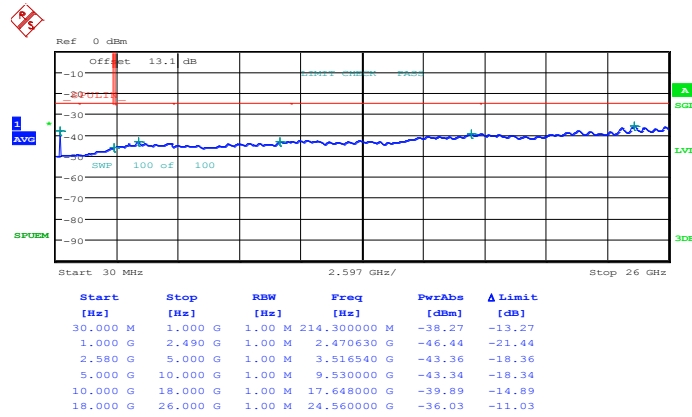


Date: 7.MAY.2014 17:19:57



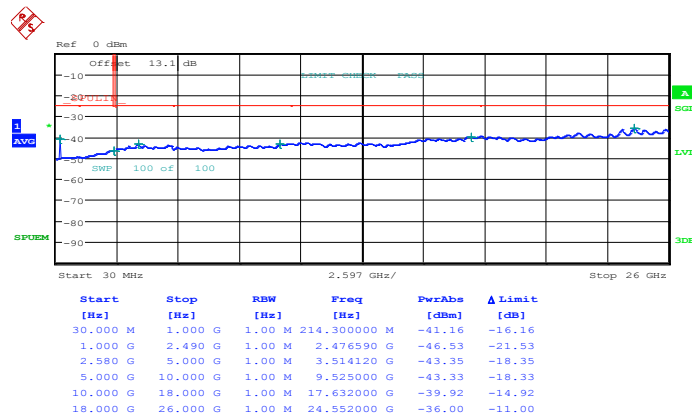
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:22:07

16QAM (RB Size 1, RB Offset 0)

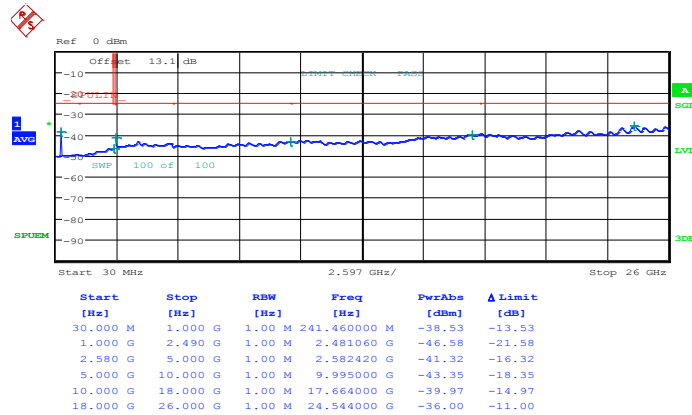


Date: 7.MAY.2014 17:23:10



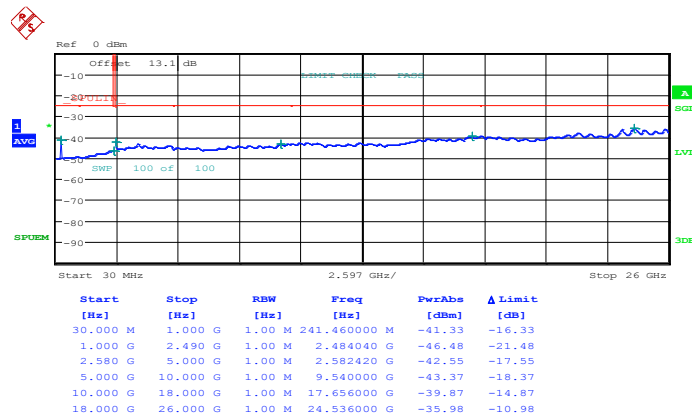
Band :	LTE Band 7	Channel :	CH21375 (High)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:28:27

16QAM (RB Size 1, RB Offset 0)

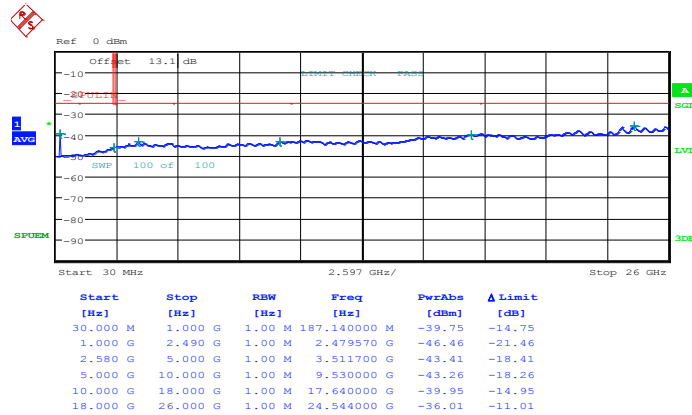


Date: 7.MAY.2014 17:29:30



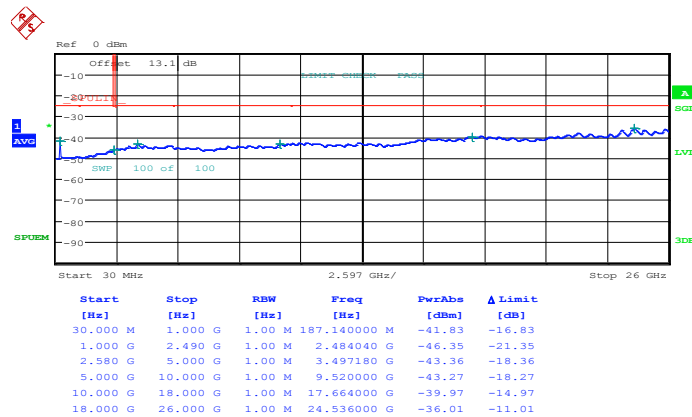
Band :	LTE Band 7	Channel :	CH20850 (Low)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:34:51

16QAM (RB Size 1, RB Offset 0)

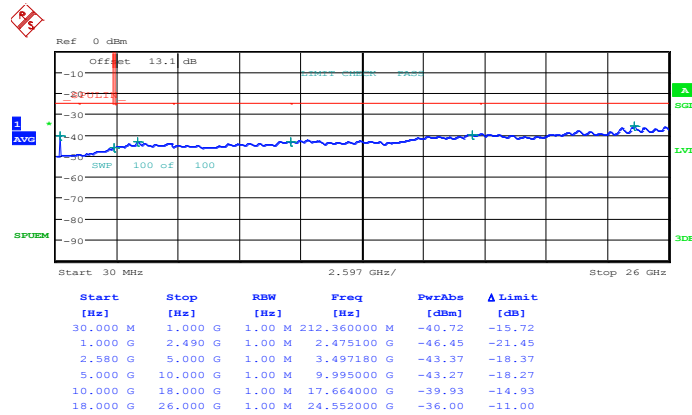


Date: 7.MAY.2014 17:35:54



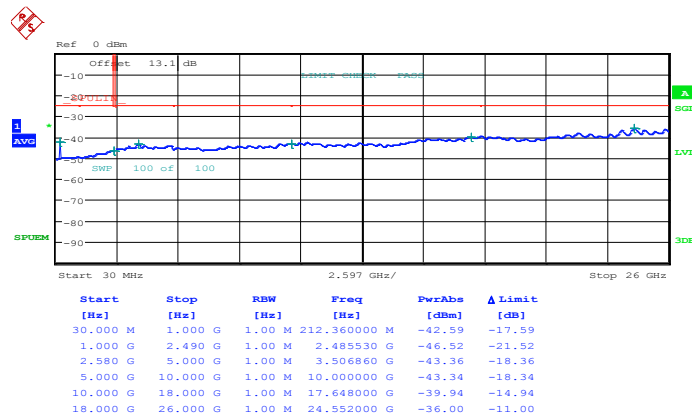
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:38:04

16QAM (RB Size 1, RB Offset 0)

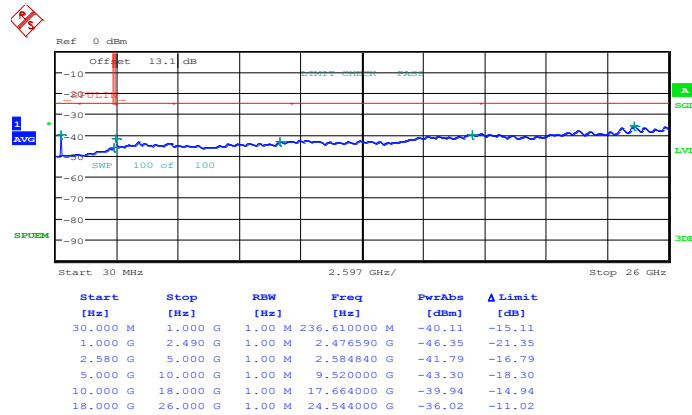


Date: 7.MAY.2014 17:39:07



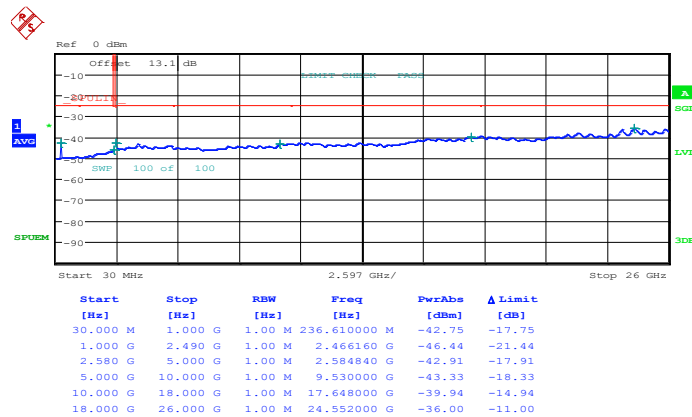
Band :	LTE Band 7	Channel :	CH21350 (High)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:44:23

16QAM (RB Size 1, RB Offset 0)



Date: 7.MAY.2014 17:45:26

3.7 Radiated Spurious Emission Measurement

3.7.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

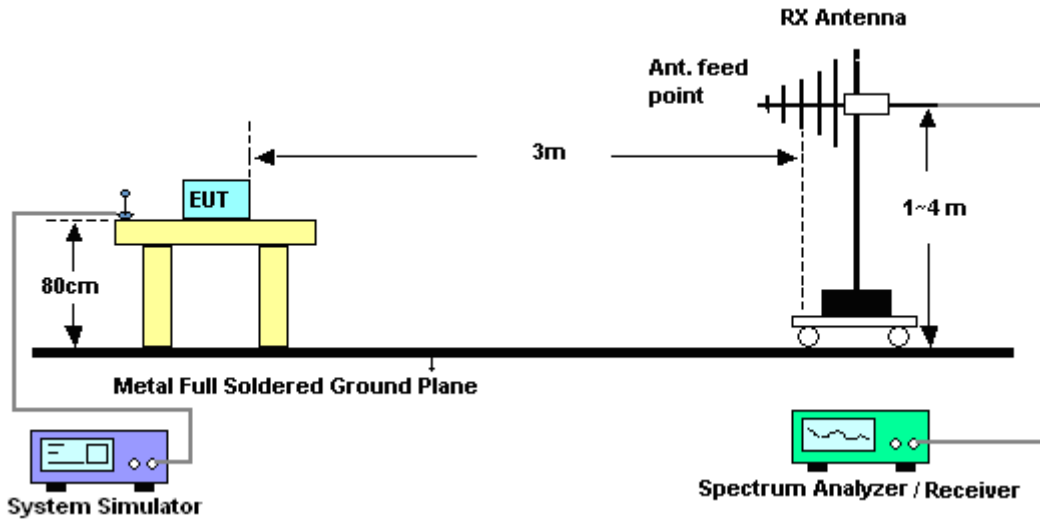
The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13$ dBm.

The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)

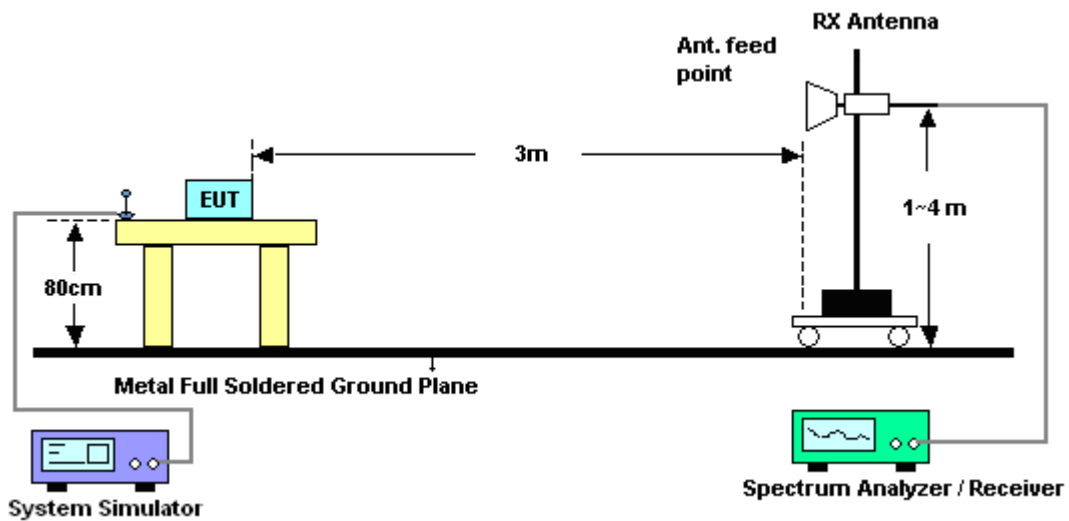
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

Band :	LTE Band 4					Temperature :	21~24℃		
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-53.27	-13	-40.27	-67.61	-57.14	4.41	8.28	H	Pass
5128	-50.75	-13	-37.75	-69.23	-55.32	5.28	9.85	H	Pass
6843	-43.16	-13	-30.16	-68.86	-48.39	6.01	11.24	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-52.04	-13	-39.04	-67.59	-55.91	4.41	8.28	V	Pass
5128	-51.30	-13	-38.30	-69.81	-55.87	5.28	9.85	V	Pass
6843	-44.43	-13	-31.43	-69.31	-49.66	6.01	11.24	V	Pass

**<Middle Channel>**

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3462	-52.49	-13	-39.49	-66.89	-56.32	4.48	8.31	H	Pass
5191	-50.72	-13	-37.72	-69.56	-55.36	5.332	9.98	H	Pass
6927	-43.04	-13	-30.04	-69.25	-48.28	6.1	11.34	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3462	-52.51	-13	-39.51	-68.08	-56.34	4.48	8.31	V	Pass
5191	-49.50	-13	-36.50	-68.32	-54.14	5.332	9.98	V	Pass
6927	-43.86	-13	-30.86	-69.15	-49.1	6.1	11.34	V	Pass



<High Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3504	-50.32	-13	-37.32	-64.61	-54.59	4.14	8.41	H	Pass
5254	-50.10	-13	-37.10	-69.16	-55.05	5.12	10.07	H	Pass
7011	-42.85	-13	-29.85	-69.36	-48.14	6.13	11.42	H	Pass

Band :	LTE Band 4					Temperature :	21~24°C		
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3504	-52.36	-13	-39.36	-67.8	-56.63	4.14	8.41	V	Pass
5254	-50.50	-13	-37.50	-69.55	-55.45	5.12	10.07	V	Pass
7011	-43.71	-13	-30.71	-69.43	-49	6.13	11.42	V	Pass



<Low Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	3MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-54.01	-13	-41.01	-68.26	-57.89	4.43	8.31	H	Pass
5128	-50.98	-13	-37.98	-69.41	-55.55	5.31	9.88	H	Pass
6843	-43.21	-13	-30.21	-68.83	-48.54	6.02	11.35	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	3MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-52.06	-13	-39.06	-67.63	-55.94	4.43	8.31	V	Pass
5128	-50.91	-13	-37.91	-69.49	-55.48	5.31	9.88	V	Pass
6843	-44.06	-13	-31.06	-69.1	-49.39	6.02	11.35	V	Pass



<Middle Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	3MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3462	-53.75	-13	-40.75	-68.01	-57.58	4.48	8.31	H	Pass
5191	-50.04	-13	-37.04	-68.83	-54.68	5.332	9.98	H	Pass
6927	-42.52	-13	-29.52	-68.61	-47.76	6.1	11.34	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	3MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3462	-52.79	-13	-39.79	-68.32	-56.62	4.48	8.31	V	Pass
5191	-50.40	-13	-37.40	-69.27	-55.04	5.332	9.98	V	Pass
6927	-43.77	-13	-30.77	-69.09	-49.01	6.1	11.34	V	Pass

**<High Channel>**

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	3MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3504	-51.61	-13	-38.61	-66.03	-55.88	4.14	8.41	H	Pass
5254	-49.70	-13	-36.70	-68.71	-54.65	5.12	10.07	H	Pass
7011	-43.18	-13	-30.18	-69.81	-48.47	6.13	11.42	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	3MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3504	-52.92	-13	-39.92	-68.49	-57.19	4.14	8.41	V	Pass
5254	-50.06	-13	-37.06	-69.09	-55.01	5.12	10.07	V	Pass
7011	-43.42	-13	-30.42	-69.25	-48.71	6.13	11.42	V	Pass

**<Low Channel>**

Band :	LTE Band 4					Temperature :	21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3420	-53.20	-13	-40.20	-67.42	-57.03	4.48	8.31	H	Pass
5128	-50.05	-13	-37.05	-68.55	-54.69	5.332	9.98	H	Pass
6843	-43.18	-13	-30.18	-68.79	-48.42	6.1	11.34	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3420	-52.54	-13	-39.54	-68.08	-56.37	4.48	8.31	V	Pass
5128	-50.40	-13	-37.40	-68.97	-55.04	5.332	9.98	V	Pass
6843	-43.52	-13	-30.52	-68.61	-48.76	6.1	11.34	V	Pass



<Middle Channel>

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3462	-52.72	-13	-39.72	-67.06	-56.55	4.48	8.31	H	Pass
5191	-50.10	-13	-37.10	-68.83	-54.74	5.332	9.98	H	Pass
6927	-43.14	-13	-30.14	-69.26	-48.38	6.1	11.34	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3462	-52.34	-13	-39.34	-67.88	-56.17	4.48	8.31	V	Pass
5191	-49.95	-13	-36.95	-68.77	-54.59	5.332	9.98	V	Pass
6927	-43.37	-13	-30.37	-68.59	-48.61	6.1	11.34	V	Pass



<High Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3497	-51.87	-13	-38.87	-66.21	-56.14	4.16	8.43	H	Pass
5247	-50.41	-13	-37.41	-69.4	-55.37	5.13	10.09	H	Pass
6997	-42.38	-13	-29.38	-68.71	-47.66	6.15	11.43	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3497	-51.47	-13	-38.47	-66.94	-55.74	4.16	8.43	V	Pass
5247	-49.19	-13	-36.19	-68.2	-54.15	5.13	10.09	V	Pass
6997	-43.36	-13	-30.36	-69.02	-48.64	6.15	11.43	V	Pass



<Low Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-53.29	-13	-40.29	-67.58	-57.11	4.51	8.33	H	Pass
5128	-42.68	-13	-29.68	-61.23	-47.35	5.36	10.03	H	Pass
6836	-43.40	-13	-30.40	-68.94	-48.63	6.13	11.36	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3420	-52.51	-13	-39.51	-68.15	-56.33	4.51	8.33	V	Pass
5128	-45.33	-13	-32.33	-63.88	-50	5.36	10.03	V	Pass
6836	-44.43	-13	-31.43	-69.4	-49.66	6.13	11.36	V	Pass



<Middle Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3455	-53.72	-13	-40.72	-67.96	-57.55	4.48	8.31	H	Pass
5184	-41.50	-13	-28.50	-60.15	-46.14	5.332	9.98	H	Pass
6913	-43.31	-13	-30.31	-69.3	-48.55	6.1	11.34	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3455	-51.84	-13	-38.84	-67.45	-55.67	4.48	8.31	V	Pass
5184	-50.36	-13	-37.36	-69.02	-55	5.332	9.98	V	Pass
6913	-44.15	-13	-31.15	-69.3	-49.39	6.1	11.34	V	Pass



<High Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3490	-52.73	-13	-39.73	-67.11	-56.92	4.2	8.39	H	Pass
5233	-50.24	-13	-37.24	-69.21	-55.12	5.17	10.05	H	Pass
6983	-41.25	-13	-28.25	-67.66	-46.45	6.2	11.40	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3490	-51.55	-13	-38.55	-67.17	-55.74	4.2	8.39	V	Pass
5233	-49.64	-13	-36.64	-68.65	-54.52	5.17	10.05	V	Pass
6983	-43.03	-13	-30.03	-68.55	-48.23	6.2	11.40	V	Pass



<Low Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-52.86	-13	-39.86	-67.04	-56.63	4.59	8.36	H	Pass
5135	-50.62	-13	-37.62	-69.08	-55.26	5.41	10.05	H	Pass
6843	-42.39	-13	-29.39	-68.27	-47.63	6.15	11.39	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	Gain	(H/V)	
3420	-52.48	-13	-39.48	-68.09	-56.25	4.59	8.36	V	Pass
5135	-49.48	-13	-36.48	-67.93	-54.12	5.41	10.05	V	Pass
6843	-44.04	-13	-31.04	-69.02	-49.28	6.15	11.39	V	Pass



<Middle Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3455	-53.79	-13	-40.79	-68.14	-57.62	4.48	8.31	H	Pass
5177	-50.25	-13	-37.25	-68.85	-54.89	5.332	9.98	H	Pass
6906	-42.88	-13	-29.88	-68.93	-48.12	6.1	11.34	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3455	-52.05	-13	-39.05	-67.55	-55.88	4.48	8.31	V	Pass
5177	-50.36	-13	-37.36	-69.04	-55	5.332	9.98	V	Pass
6906	-43.52	-13	-30.52	-68.74	-48.76	6.1	11.34	V	Pass



<High Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3483	-52.65	-13	-39.65	-66.96	-56.79	4.24	8.38	H	Pass
5226	-50.74	-13	-37.74	-69.82	-55.61	5.18	10.05	H	Pass
6962	-42.91	-13	-29.91	-69.24	-48.1	6.19	11.38	H	Pass

Band :	LTE Band 4					Temperature :	21~24°C		
Test Mode :	15MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3483	-52.00	-13	-39.00	-67.53	-56.14	4.24	8.38	V	Pass
5226	-50.65	-13	-37.65	-69.57	-55.52	5.18	10.05	V	Pass
6962	-43.38	-13	-30.38	-68.9	-48.57	6.19	11.38	V	Pass



<Low Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3420	-53.44	-13	-40.44	-67.65	-57.22	4.62	8.40	H	Pass
5135	-50.72	-13	-37.72	-69.24	-55.35	5.45	10.08	H	Pass
6843	-43.53	-13	-30.53	-69.29	-48.77	6.18	11.42	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3420	-51.00	-13	-38.00	-66.56	-54.78	4.62	8.40	V	Pass
5135	-50.81	-13	-37.81	-69.43	-55.44	5.45	10.08	V	Pass
6843	-43.75	-13	-30.75	-68.62	-48.99	6.18	11.42	V	Pass



<Middle Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3448	-52.83	-13	-39.83	-66.99	-56.66	4.48	8.31	H	Pass
5170	-50.50	-13	-37.50	-69.08	-55.14	5.332	9.98	H	Pass
6899	-42.02	-13	-29.02	-68.03	-47.26	6.1	11.34	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3448	-52.49	-13	-39.49	-68.07	-56.32	4.48	8.31	V	Pass
5170	-50.07	-13	-37.07	-68.79	-54.71	5.332	9.98	V	Pass
6899	-43.31	-13	-30.31	-68.63	-48.55	6.1	11.34	V	Pass



<High Channel>

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3469	-53.65	-13	-40.65	-67.93	-57.74	4.28	8.37	H	Pass
5205	-50.19	-13	-37.19	-68.95	-55	5.22	10.03	H	Pass
6941	-42.59	-13	-29.59	-68.71	-47.72	6.23	11.36	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3469	-51.14	-13	-38.14	-66.66	-55.23	4.28	8.37	V	Pass
5205	-50.30	-13	-37.30	-69.14	-55.11	5.22	10.03	V	Pass
6941	-43.13	-13	-30.13	-68.49	-48.26	6.23	11.36	V	Pass



<Low Channel>

Band :	LTE Band 17					Temperature :	21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1408	-55.65	-13	-42.65	-63.83	-59.74	1.51	5.60	H	Pass
2112	-56.51	-13	-43.51	-67.65	-60.69	1.82	6.00	H	Pass
2816	-53.44	-13	-40.44	-66.98	-58.22	2.2	6.98	H	Pass

Band :	LTE Band 17					Temperature :	21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1408	-54.91	-13	-41.91	-65.29	-59	1.51	5.60	V	Pass
2112	-54.76	-13	-41.76	-68.02	-58.94	1.82	6.00	V	Pass
2816	-53.34	-13	-40.34	-68.45	-58.12	2.2	6.98	V	Pass

**<Middle Channel>**

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1416	-50.84	-13	-37.84	-58.89	-54.92	1.53	5.61	H	Pass
2120	-54.67	-13	-41.67	-65.88	-58.84	1.85	6.02	H	Pass
2832	-50.30	-13	-37.30	-63.72	-55.06	2.24	7.00	H	Pass

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1416	-55.79	-13	-42.79	-66.22	-59.87	1.53	5.61	V	Pass
2120	-54.97	-13	-41.97	-68.05	-59.14	1.85	6.02	V	Pass
2832	-52.39	-13	-39.39	-67.44	-57.15	2.24	7.00	V	Pass

**<High Channel>**

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1424	-51.07	-13	-38.07	-59.11	-55.17	1.54	5.64	H	Pass
2136	-56.31	-13	-43.31	-67.54	-60.52	1.87	6.08	H	Pass
2848	-52.70	-13	-39.70	-66.14	-57.55	2.26	7.11	H	Pass

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1424	-54.77	-13	-41.77	-65.02	-58.87	1.54	5.64	V	Pass
2136	-54.41	-13	-41.41	-67.58	-58.62	1.87	6.08	V	Pass
2848	-53.22	-13	-40.22	-68.33	-58.07	2.26	7.11	V	Pass



<Low Channel>

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1408	-55.57	-13	-42.57	-63.63	-59.66	1.52	5.61	H	Pass
2112	-54.38	-13	-41.38	-65.52	-58.57	1.83	6.02	H	Pass
2816	-53.94	-13	-40.94	-67.41	-58.71	2.24	7.01	H	Pass

Band :	LTE Band 17	Temperature :	21~24°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
1408	-55.41	-13	-42.41	-65.85	-59.51	1.51	5.61	V	Pass
2112	-54.57	-13	-41.57	-67.51	-58.77	1.82	6.02	V	Pass
2816	-53.38	-13	-40.38	-68.29	-58.19	2.2	7.01	V	Pass



<Middle Channel>

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1410	-53.08	-13	-40.08	-61.3	-57.16	1.53	5.61	H	Pass
2112	-55.51	-13	-42.51	-66.56	-59.68	1.85	6.02	H	Pass
2824	-53.72	-13	-40.72	-67.14	-58.48	2.24	7.00	H	Pass

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1408	-55.33	-13	-42.33	-65.75	-59.41	1.53	5.61	V	Pass
2112	-54.52	-13	-41.52	-67.53	-58.69	1.85	6.02	V	Pass
2824	-52.24	-13	-39.24	-67.04	-57	2.24	7.00	V	Pass

**<High Channel>**

Band :	LTE Band 17				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1416	-52.15	-13	-39.15	-60.32	-56.25	1.53	5.63	H	Pass
2120	-51.48	-13	-38.48	-62.67	-55.68	1.88	6.08	H	Pass
2824	-51.82	-13	-38.82	-65.21	-56.66	2.27	7.11	H	Pass

Band :	LTE Band 17				Temperature :	21~24℃			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1416	-55.52	-13	-42.52	-65.93	-59.62	1.53	5.63	V	Pass
2120	-54.54	-13	-41.54	-67.54	-58.74	1.88	6.08	V	Pass
2824	-52.28	-13	-39.28	-67.25	-57.12	2.27	7.11	V	Pass

**<Low Channel>**

Band :	LTE Band 7					Temperature :	21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
4998	-49.73	-25	-24.73	-67.25	-53.29	6.78	10.34	H	Pass
7500	-41.60	-25	-16.60	-68.95	-44.64	9.22	12.26	H	Pass
10002	-40.81	-25	-15.81	-69.37	-45.15	8.51	12.85	H	Pass

Band :	LTE Band 7					Temperature :	21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
4998	-50.15	-25	-25.15	-67.71	-53.71	6.78	10.34	V	Pass
7500	-42.82	-25	-17.82	-69.94	-45.86	9.22	12.26	V	Pass
10002	-40.79	-25	-15.79	-68.32	-45.13	8.51	12.85	V	Pass

**<Middle Channel>**

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5064	-52.12	-25	-27.12	-70	-55.61	6.86	10.35	H	Pass
7596	-41.95	-25	-16.95	-68.61	-44.84	9.34	12.23	H	Pass
10128	-40.56	-25	-15.56	-69.12	-44.66	8.64	12.74	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5064	-50.55	-25	-25.55	-68.57	-54.04	6.86	10.35	V	Pass
7596	-43.78	-25	-18.78	-69.98	-46.67	9.34	12.23	V	Pass
10128	-41.06	-25	-16.06	-68.9	-45.16	8.64	12.74	V	Pass



<High Channel>

Band :	LTE Band 7				Temperature :		21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0				Relative Humidity :		44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :		Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5130	-51.73	-25	-26.73	-70.09	-55.26	6.9	10.43	H	Pass
7698	-42.70	-25	-17.70	-68.46	-45.63	9.39	12.32	H	Pass
10260	-40.37	-25	-15.37	-69.24	-44.51	8.71	12.85	H	Pass

Band :	LTE Band 7					Temperature :	21~24°C		
Test Mode :	5MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5130	-49.97	-25	-24.97	-68.37	-53.5	6.9	10.43	V	Pass
7698	-42.87	-25	-17.87	-68.56	-45.8	9.39	12.32	V	Pass
10260	-42.40	-25	-17.40	-70.24	-46.54	8.71	12.85	V	Pass



<Low Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
4998	-50.87	-25	-25.87	-68.51	-54.41	6.81	10.35	H	Pass
7500	-42.38	-25	-17.38	-69.72	-45.36	9.26	12.24	H	Pass
10002	-40.93	-25	-15.93	-69.35	-45.22	8.54	12.83	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
4998	-51.19	-25	-26.19	-68.8	-54.73	6.81	10.35	V	Pass
7500	-42.34	-25	-17.34	-69.58	-45.32	9.26	12.24	V	Pass
10002	-42.26	-25	-17.26	-69.96	-46.55	8.54	12.83	V	Pass



<Middle Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5058	-52.16	-25	-27.16	-69.97	-55.65	6.86	10.35	H	Pass
7590	-42.40	-25	-17.40	-68.93	-45.29	9.34	12.23	H	Pass
10122	-41.03	-25	-16.03	-69.71	-45.13	8.64	12.74	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5058	-51.99	-25	-26.99	-70.17	-55.48	6.86	10.35	V	Pass
7590	-43.86	-25	-18.86	-69.89	-46.75	9.34	12.23	V	Pass
10122	-42.72	-25	-17.72	-70.15	-46.82	8.64	12.74	V	Pass

**<High Channel>**

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5118	-51.88	-25	-26.88	-70.04	-55.42	6.88	10.42	H	Pass
7680	-42.95	-25	-17.95	-68.63	-45.89	9.37	12.31	H	Pass
10242	-40.36	-25	-15.36	-69.21	-44.55	8.64	12.83	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	10MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5118	-50.37	-25	-25.37	-68.74	-53.91	6.88	10.42	V	Pass
7680	-43.19	-25	-18.19	-68.8	-46.13	9.37	12.31	V	Pass
10242	-41.82	-25	-16.82	-69.56	-46.01	8.64	12.83	V	Pass



<Low Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5028	-51.05	-25	-26.05	-68.65	-54.6	6.82	10.37	H	Pass
7542	-42.42	-25	-17.42	-69.26	-45.41	9.27	12.26	H	Pass
10056	-40.70	-25	-15.70	-69.29	-45.03	8.55	12.88	H	Pass

Band :	LTE Band 7	Temperature :	21~24°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	44~48%						
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
5028	-51.06	-25	-26.06	-68.69	-54.61	6.82	10.37	V	Pass
7542	-43.20	-25	-18.20	-69.72	-46.19	9.27	12.26	V	Pass
10056	-42.23	-25	-17.23	-69.75	-46.56	8.55	12.88	V	Pass



<Middle Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5082	-52.33	-25	-27.33	-70.25	-55.82	6.86	10.35	H	Pass
7626	-42.37	-25	-17.37	-68.88	-45.26	9.34	12.23	H	Pass
10164	-41.00	-25	-16.00	-69.7	-45.1	8.64	12.74	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
5082	-51.56	-25	-26.56	-69.82	-55.05	6.86	10.35	V	Pass
7626	-43.03	-25	-18.03	-69.17	-45.92	9.34	12.23	V	Pass
10164	-42.33	-25	-17.33	-69.68	-46.43	8.64	12.74	V	Pass



<High Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5136	-50.69	-25	-25.69	-68.93	-54.23	6.87	10.41	H	Pass
7710	-43.11	-25	-18.11	-68.79	-46.06	9.35	12.30	H	Pass
10278	-39.94	-25	-14.94	-68.86	-44.13	8.63	12.82	H	Pass

Band :	LTE Band 7				Temperature :		21~24°C		
Test Mode :	15MHz QPSK RB Size 1 Offset 0				Relative Humidity :		44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :		Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5136	-50.98	-25	-25.98	-69.35	-54.52	6.87	10.41	V	Pass
7710	-43.72	-25	-18.72	-69.12	-46.67	9.35	12.30	V	Pass
10278	-41.54	-25	-16.54	-69.21	-45.73	8.63	12.82	V	Pass



<Low Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5040	-52.18	-25	-27.18	-69.83	-55.73	6.83	10.38	H	Pass
7554	-42.85	-25	-17.85	-69.46	-45.82	9.28	12.25	H	Pass
10074	-40.95	-25	-15.95	-69.38	-45.3	8.54	12.89	H	Pass

Band :	LTE Band 7					Temperature :	21~24°C		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	44~48%		
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5040	-52.05	-25	-27.05	-69.87	-55.6	6.83	10.38	V	Pass
7554	-42.92	-25	-17.92	-69.55	-45.89	9.28	12.25	V	Pass
10074	-42.39	-25	-17.39	-69.86	-46.74	8.54	12.89	V	Pass



<Middle Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5088	-51.86	-25	-26.86	-69.71	-55.35	6.86	10.35	H	Pass
7632	-43.07	-25	-18.07	-69.12	-45.96	9.34	12.23	H	Pass
10176	-41.11	-25	-16.11	-69.76	-45.21	8.64	12.74	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5088	-52.14	-25	-27.14	-70.41	-55.63	6.86	10.35	V	Pass
7632	-43.32	-25	-18.32	-69.32	-46.21	9.34	12.23	V	Pass
10176	-41.95	-25	-16.95	-69.35	-46.05	8.64	12.74	V	Pass



<High Channel>

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5136	-50.48	-25	-25.48	-68.83	-55.02	5.84	10.38	H	Pass
7710	-43.02	-25	-18.02	-68.69	-45.96	9.33	12.27	H	Pass
10278	-40.55	-25	-15.55	-69.32	-44.75	8.6	12.80	H	Pass

Band :	LTE Band 7				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	44~48%			
Test Engineer :	Kai Wang, Stan Hsieh, and Ken Wu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
5136	-50.78	-25	-25.78	-69.05	-55.32	5.84	10.38	V	Pass
7704	-43.56	-25	-18.56	-68.89	-46.5	9.33	12.27	V	Pass
10278	-41.26	-25	-16.26	-68.92	-45.46	8.6	12.80	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

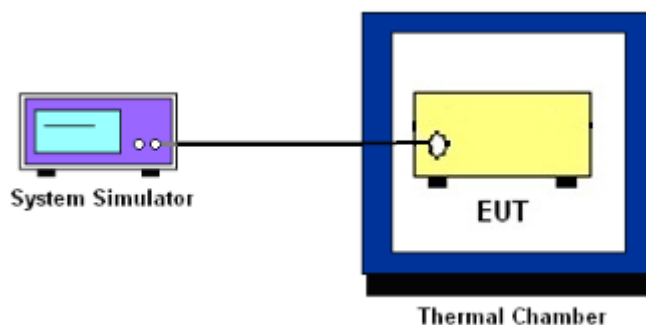
3.8.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.8.5 Test Procedures for Frequency Stability (IC)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The EUT was operated at the lowest and highest channel
3. Using RBW= 1% OBW and displaying line = -13dBm.
4. The frequency at these points shall be recorded as f_L and f_H respectively.
5. Calculate frequency stability within the 706.5 – 713.5MHz and 736.5 – 743.5band.

3.8.6 Test Setup



3.8.7 Test Result of Temperature Variation (FCC)

Band :	LTE Band 4 (QPSK)	Limit (ppm) :	2.5
Temperature (°C)	BW 10MHz	Result	
	Deviation (ppm)		
50	0.0003	PASS	
40	0.0126		
30	0.0002		
20(Ref.)	0.0000		
10	0.0129		
0	0.0119		
-10	0.0002		
-20	0.0128		
-30	0.0007		



Band :	LTE Band 17 (QPSK)	Limit (ppm) :	2.5
Temperature (°C)	BW 10MHz	Result	
	Deviation (ppm)		
50	0.0014	PASS	
40	0.0066		
30	0.0003		
20(Ref.)	0.0000		
10	0.0058		
0	0.0030		
-10	0.0017		
-20	0.0004		
-30	0.0056		

Band :	LTE Band 7 (QPSK)	Limit (ppm) :	2.5
Temperature (°C)	BW 10MHz	Result	
	Deviation (ppm)		
50	0.0015	PASS	
40	0.0089		
30	0.0094		
20(Ref.)	0.0000		
10	0.0095		
0	0.0013		
-10	0.0007		
-20	0.0097		
-30	0.0092		

3.8.8 Test Result of Voltage Variation (FCC)

Band	Bandwidth	Voltage (Volt)	Deviation(ppm)	Limit (ppm)	Result
LTE Band 4	10M	4.10	0.0008	2.5	PASS
		Normal	0.0003		
		3.50	0.0126		
LTE Band 17	10M	4.10	0.0022	2.5	PASS
		Normal	0.0018		
		3.50	0.0053		
LTE Band 7	10M	4.10	0.0100	2.5	PASS
		Normal	0.0012		
		3.50	0.0093		

Remark:

1. Normal Voltage = 3.70V.
2. The manufacturer declared that the EUT could work properly between voltage 3.50V ~ 4.10V.

3.8.9 Test Result of Temperature and Voltage Variation (IC)

Band :		LTE Band 17	
Condition		Frequency Offset (Δf) (Hz)	Note
Temperature	50 °C	2.6	MAX(Δf) 3.70= Hz
	40 °C	-3.1	
	30 °C	1.8	
	20 °C(Ref.)	1.6	
	10 °C	-2.5	
	0 °C	3.7	
	-10 °C	2.8	
	-20 °C	1.9	
	-30 °C	-2.4	
Voltage	4.10	3.2	
	Normal	2.9	
	3.50	-2.2	

Remark:

1. Normal Voltage = 3.70V.
2. The manufacturer declared that the EUT could work properly between voltage 3.50V ~ 4.10V.

3.8.10 Test Result of Frequency Stability (IC)

Band :	LTE Band 17		
Frequency Stability	Frequency (MHz)	Limit Line	Result
$f_L - \text{MAX}(\Delta f) $	704.119996	$\geq 704 \text{ MHz}$	PASS
$f_H + \text{MAX}(\Delta f) $	715.870004	$\leq 716 \text{ MHz}$	



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LTE Base Station	Anritsu	MT8820C	6201026480	30MHz~2.7GHz SISO (FDD Band 1~26)	Jan. 07, 2014	May 07, 2014~ May 15, 2014	Jan. 06, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	May 07, 2014~ May 15, 2014	Jun. 06, 2014	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 19, 2013	May 07, 2014~ May 15, 2014	Jul. 18, 2014	Conducted (TH02-HY)
Hygrometer	Testo	608-H2	41410069	N/A	Jul. 18, 2013	May 07, 2014~ May 15, 2014	Jul. 17, 2014	Conducted (TH02-HY)
Filter	WAINWRIGHT	whkx2..0/18g	N/A	2GHighPass Filter	Nov. 28, 2013	May 07, 2014~ May 15, 2014	Nov. 27, 2014	Conducted (TH02-HY)
RF cable	WOKEN	SMA(M)-SMA (M) for SS405 Cable Assembly	S05-130703-32	N/A	Jul. 09, 2013	May 07, 2014~ May 15, 2014	Jul. 08, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Jun. 19, 2014~ Jun. 20, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Jun. 19, 2014~ Jun. 20, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Jun. 19, 2014~ Jun. 20, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Jun. 19, 2014~ Jun. 20, 2014	Oct. 02, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30MHz~1GHz	Mar. 17, 2014	Jun. 19, 2014~ Jun. 20, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Nov. 29, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Filter	Microwave Circuits	H1G013G1	SN477215	1GHz HPF	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Wainwright Instruments GmbH	WHKX1.5G/1 5G-10SS	SN32	1.5GHz HPF	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Wainwright Instruments GmbH	WLKS1200-8 SS	SN3	1.2GHz LPF	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Wainwright Instruments GmbH	WHKX2.0/18 G-10SS	SN12	2GHz HPF	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Microwave Circuits	H3G018G1	SN477220	3GHz HPF	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Notch Filter	Wainwright	WRCT 1800/2000-20 /40-10ssk	SN1	GSM 1900	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Notch Filter	Wainwright	WRCG 824/849/814/8 59-40 8SS	SN35	GSM850 / WCDMA 850	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
HF RF Cable	HUBER SUHNER	SUCOFLEX 104	38411/6	1GHz ~ 18GHz	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
LF RF Cable	Warison+HUBER SUHNER	WCBA-WC04 NM.NM2	N/A	30MHz ~ 1GHz	Nov. 28, 2013	Jun. 19, 2014~ Jun. 20, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jun. 19, 2014~ Jun. 20, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/80006 04/L	N/A	N/A	Jun. 19, 2014~ Jun. 20, 2014	N/A	Radiation (03CH07-HY)
Test Software	Audix	E3	Version 6.2009-08- 24	N/A	N/A	Jun. 19, 2014~ Jun. 20, 2014	N/A	Radiation (03CH07-HY)
Hygrometer	Testo	608-H1	34897197	N/A	May 06, 2014	Jun. 19, 2014~ Jun. 20, 2014	May 05, 2015	Radiation (03CH07-HY)

Note: Test equipment calibration is traceable to the procedure of ISO17025.



5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.50
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