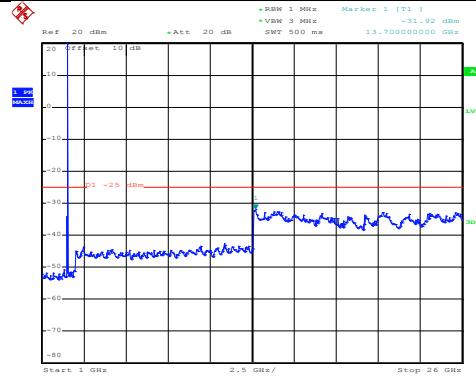
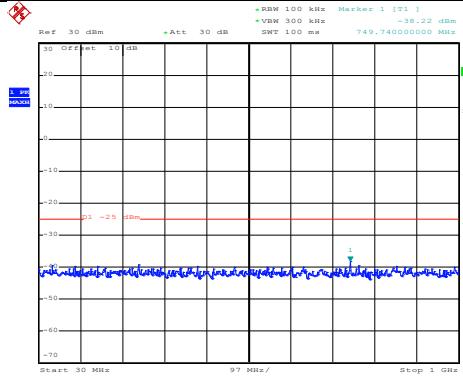


| Test Mode: | LTE band 7(5MHz 16QAM) RB Size 25 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



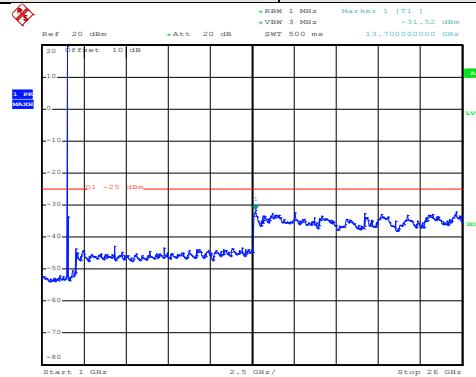
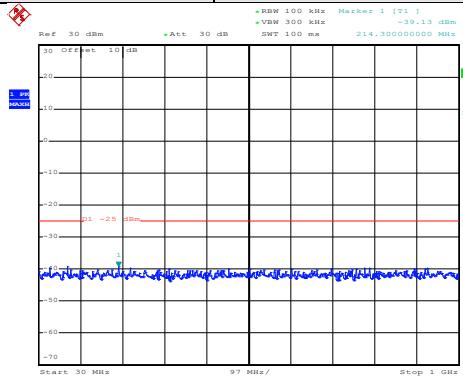
Date: 1.JUL.2017 21:25:32

30MHz~1GHz

Date: 1.JUL.2017 17:59:19

1GHz~26GHz

| Test Mode: | LTE band 7(5MHz 16QAM) RB Size 25 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



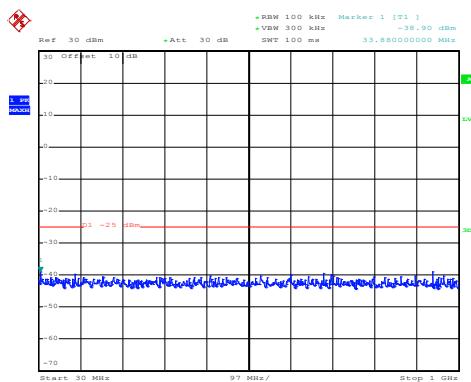
Date: 1.JUL.2017 21:26:13

30MHz~1GHz

Date: 1.JUL.2017 18:00:23

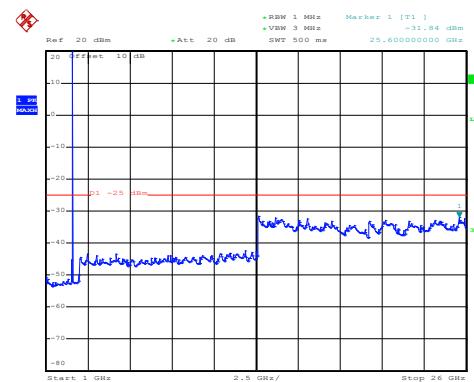
1GHz~26GHz

| | | | |
|------------|--|---------------|-----------------|
| Test Mode: | LTE band 7(5MHz 16QAM) RB Size 25 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:26:51

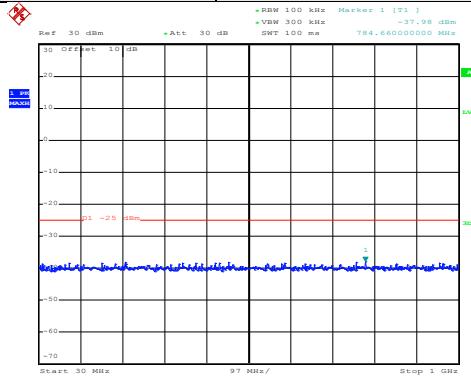
30MHz~1GHz



Date: 1.JUL.2017 18:01:43

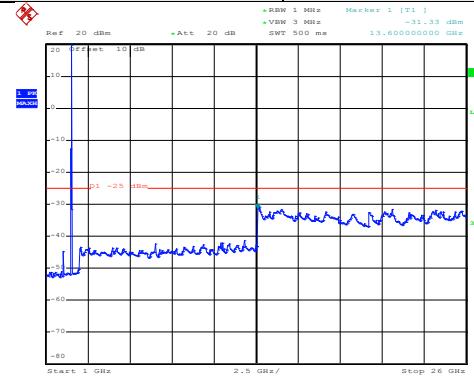
1GHz~26GHz

| | | | |
|------------|--|---------------|----------------|
| Test Mode: | LTE band 7(5MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:24:56

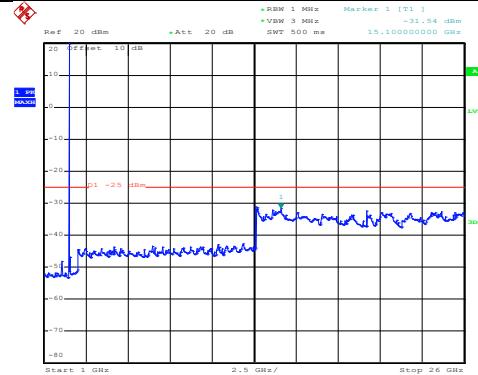
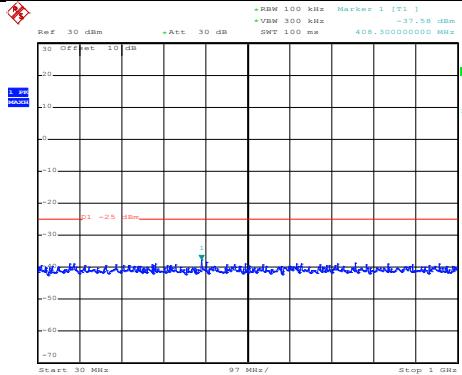
30MHz~1GHz



Date: 1.JUL.2017 17:58:25

1GHz~26GHz

| Test Mode: | LTE band 7(5MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



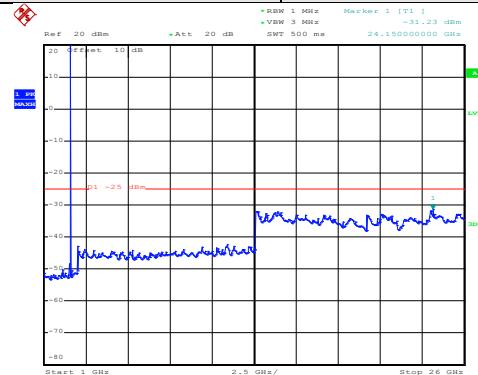
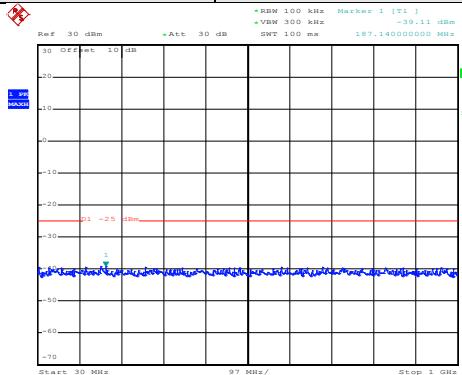
Date: 1.JUL.2017 21:25:46

30MHz~1GHz

Date: 1.JUL.2017 17:59:38

1GHz~26GHz

| Test Mode: | LTE band 7(5MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|
|------------|--|---------------|-----------------|

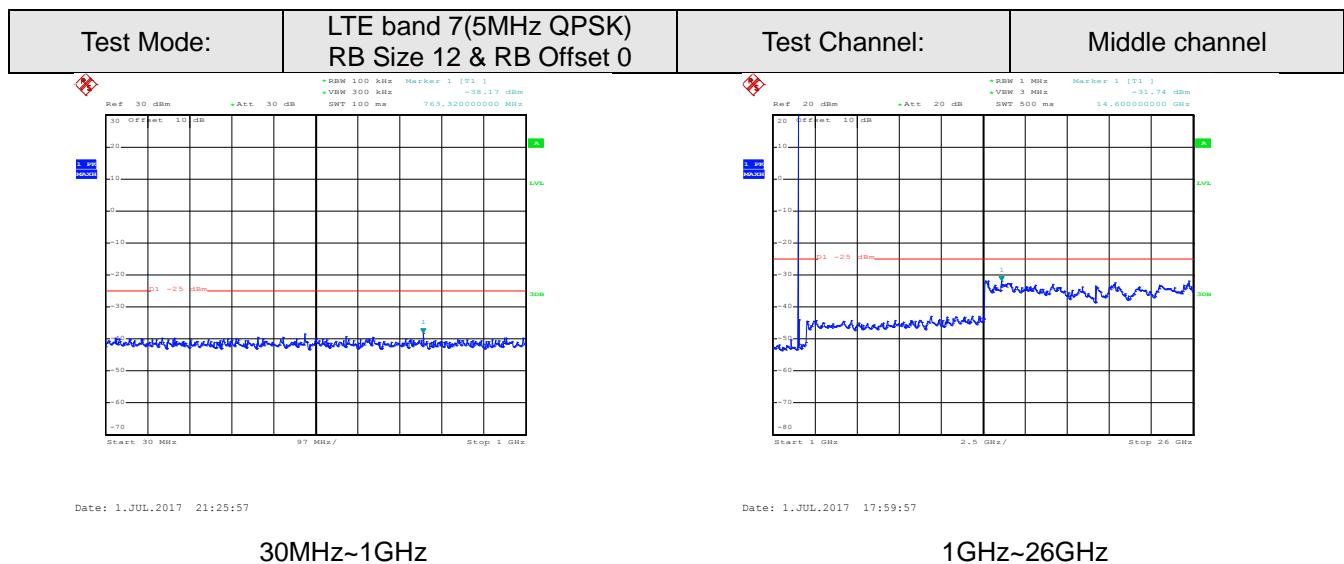
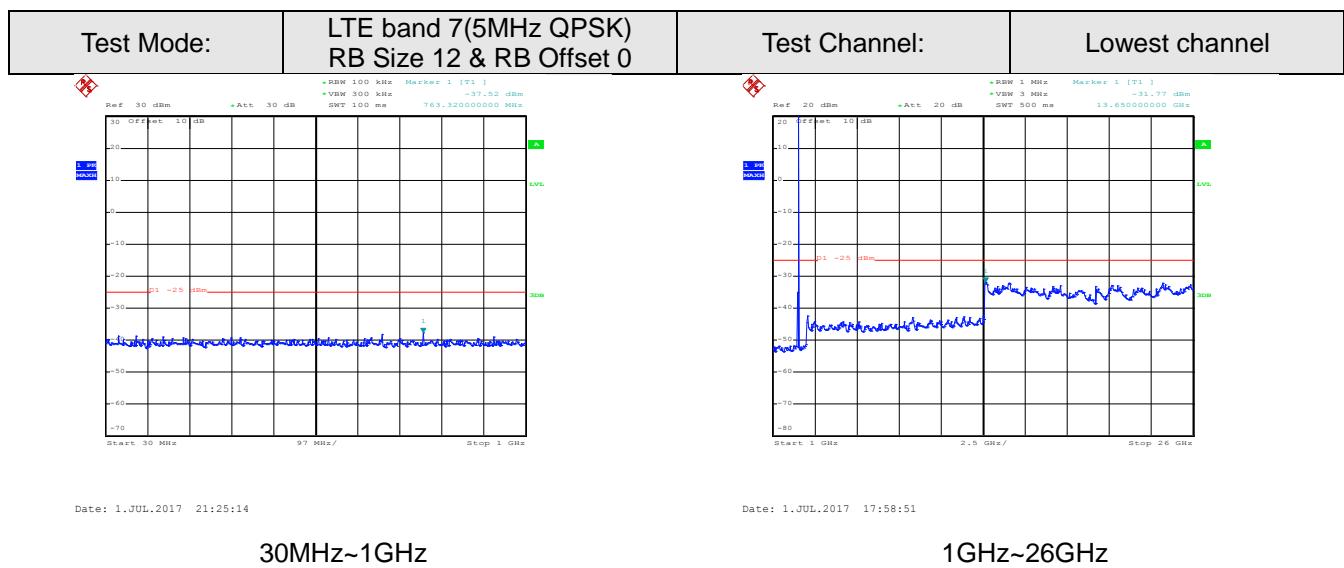


Date: 1.JUL.2017 21:26:22

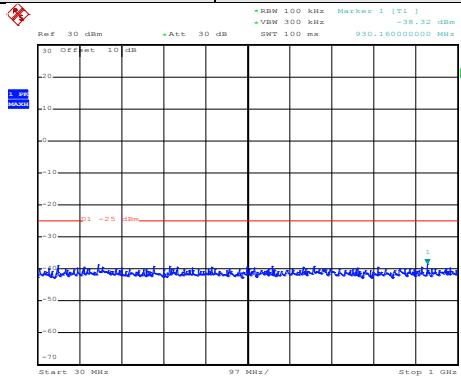
30MHz~1GHz

Date: 1.JUL.2017 18:00:41

1GHz~26GHz

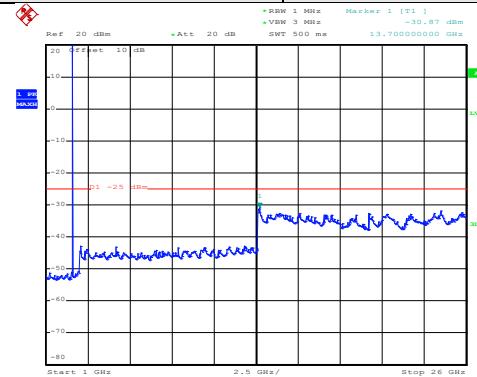


| Test Mode: | LTE band 7(5MHz QPSK) RB Size 12 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|



Date: 1.JUL.2017 21:26:34

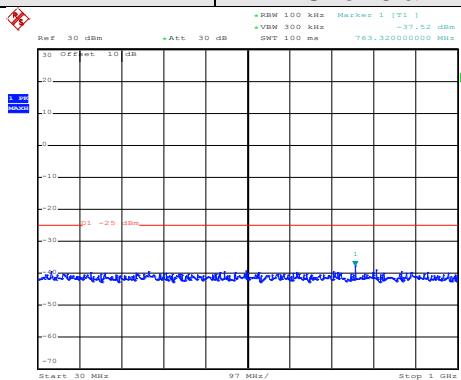
30MHz~1GHz



Date: 1.JUL.2017 18:01:01

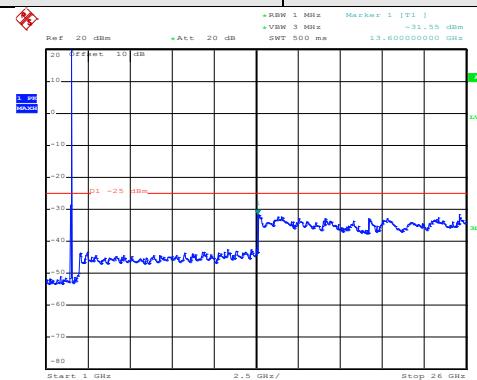
1GHz~26GHz

| Test Mode: | LTE band 7(5MHz QPSK) RB Size 25 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



Date: 1.JUL.2017 21:25:26

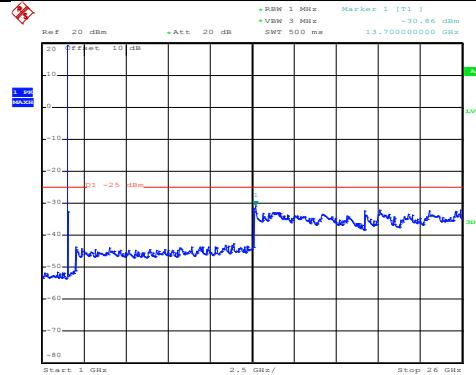
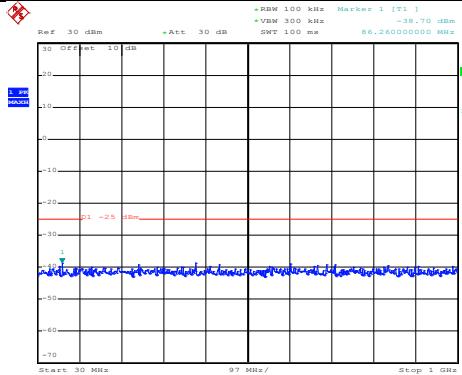
30MHz~1GHz



Date: 1.JUL.2017 17:59:11

1GHz~26GHz

| Test Mode: | LTE band 7(5MHz QPSK) RB Size 25 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



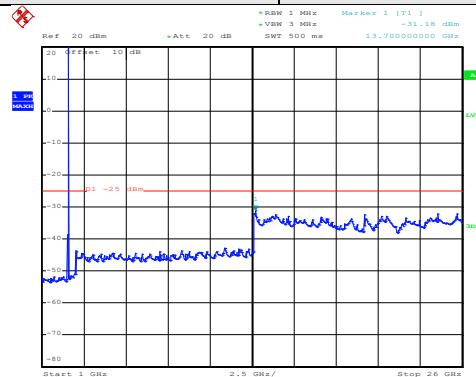
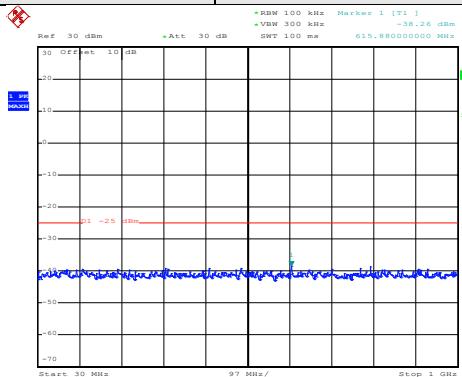
Date: 1.JUL.2017 21:26:08

30MHz~1GHz

Date: 1.JUL.2017 18:00:16

1GHz~26GHz

| Test Mode: | LTE band 7(5MHz QPSK) RB Size 25 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|



Date: 1.JUL.2017 21:26:47

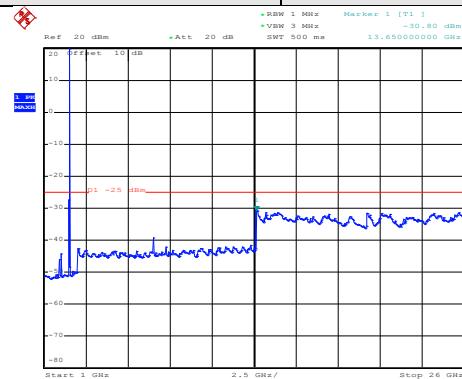
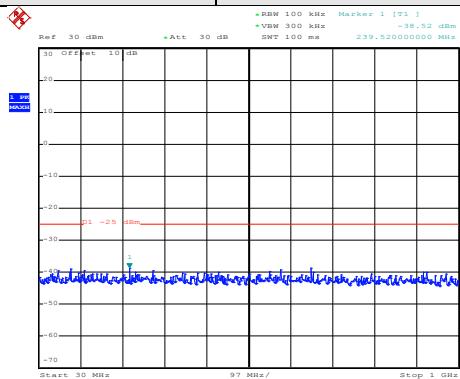
30MHz~1GHz

Date: 1.JUL.2017 18:01:28

1GHz~26GHz

10MHz

| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 1 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



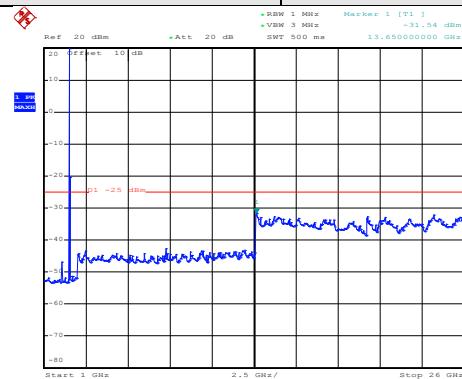
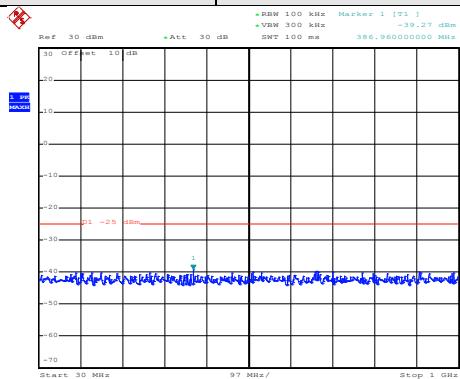
Date: 1.JUL.2017 21:27:05

Date: 1.JUL.2017 18:08:44

30MHz~1GHz

1GHz~26GHz

| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 1 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



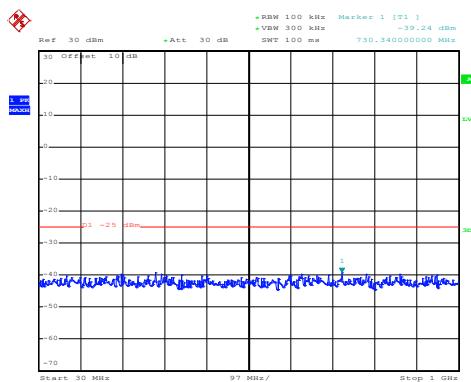
Date: 1.JUL.2017 21:27:46

Date: 1.JUL.2017 18:10:03

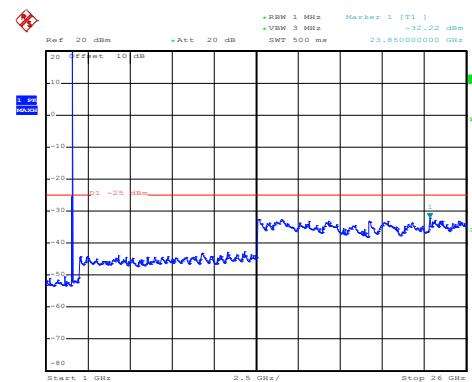
30MHz~1GHz

1GHz~26GHz

| | | | |
|------------|--|---------------|-----------------|
| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|



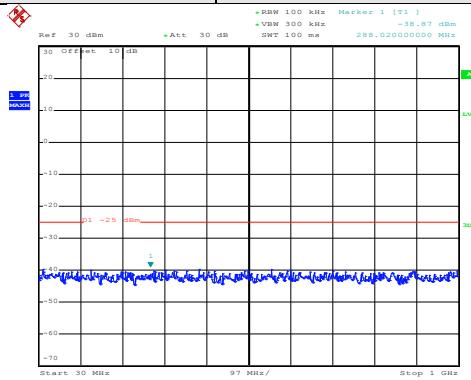
30MHz~1GHz



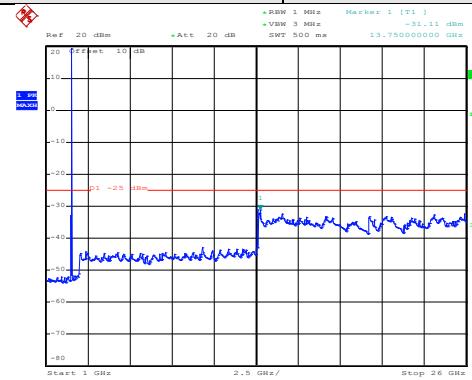
Date: 1.JUL.2017 21:28:21

1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 25 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



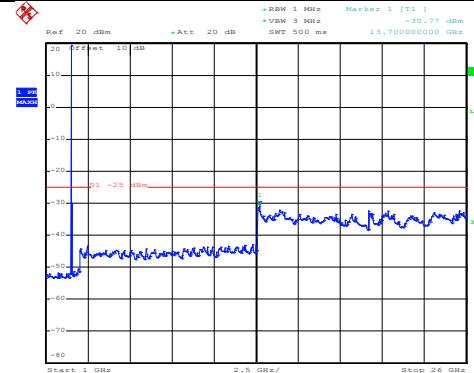
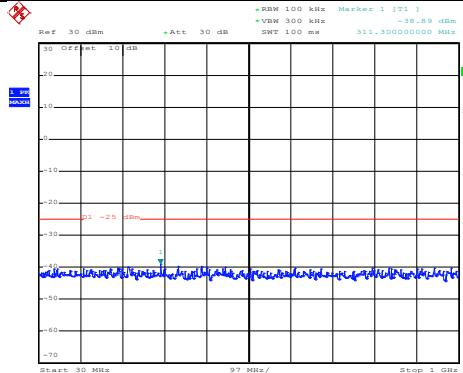
30MHz~1GHz



Date: 1.JUL.2017 21:27:18

1GHz~26GHz

| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 25 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



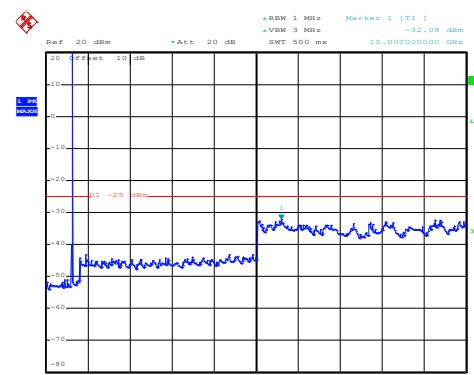
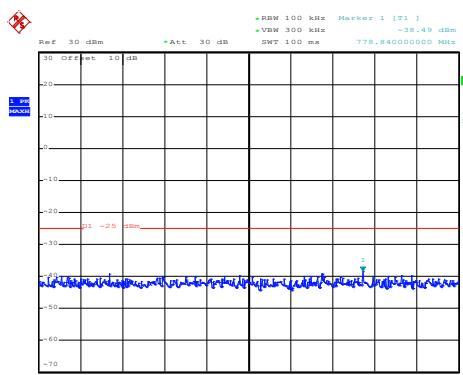
Date: 1.JUL.2017 21:27:57

30MHz~1GHz

Date: 1.JUL.2017 18:10:26

1GHz~26GHz

| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 25 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|



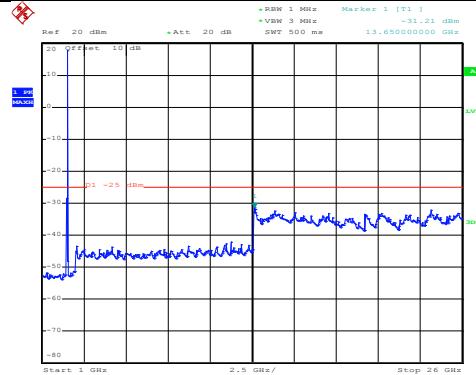
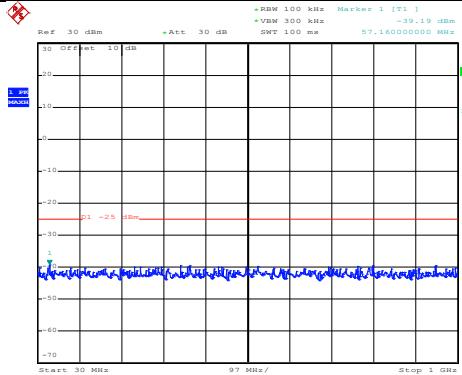
Date: 1.JUL.2017 21:28:32

30MHz~1GHz

Date: 1.JUL.2017 18:11:37

1GHz~26GHz

| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 50 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



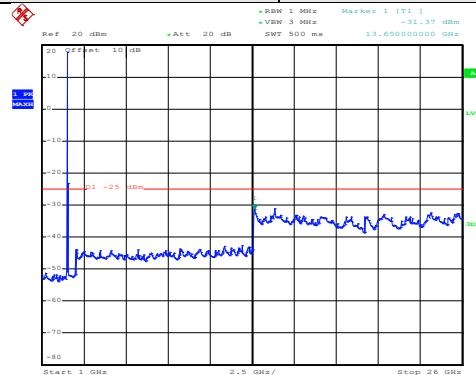
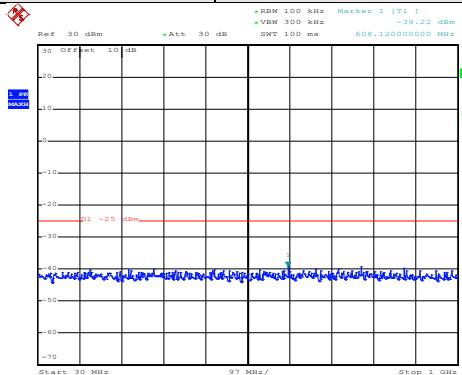
Date: 1.JUL.2017 21:27:30

Date: 1.JUL.2017 18:09:35

30MHz~1GHz

1GHz~26GHz

| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 50 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



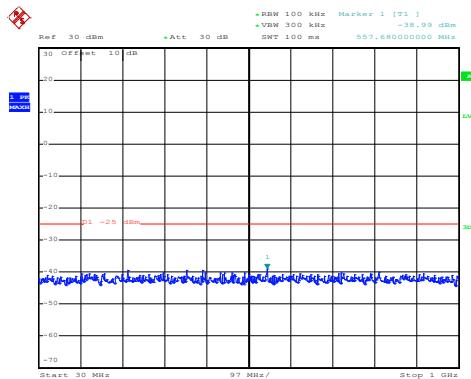
Date: 1.JUL.2017 21:28:08

Date: 1.JUL.2017 18:10:48

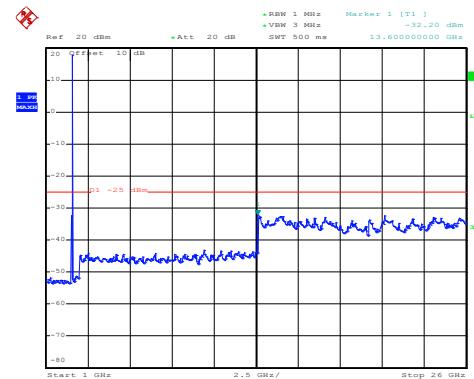
30MHz~1GHz

1GHz~26GHz

| | | | |
|------------|---|---------------|-----------------|
| Test Mode: | LTE band 7(10MHz 16QAM) RB Size 50 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|



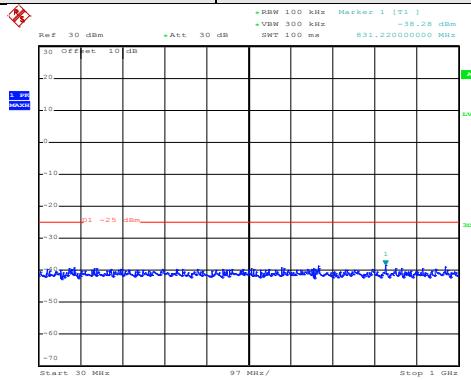
30MHz~1GHz



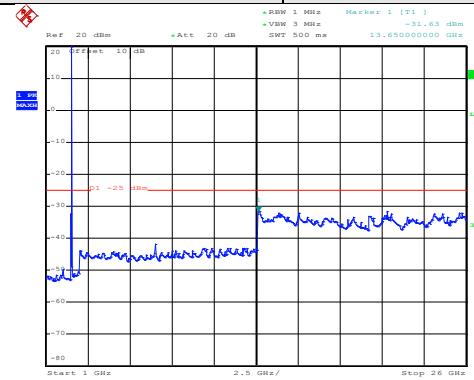
Date: 1.JUL.2017 18:11:56

1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(10MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



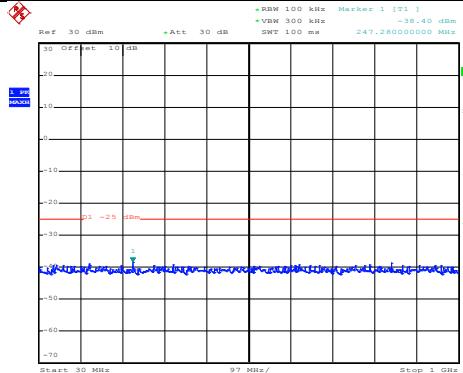
30MHz~1GHz



Date: 1.JUL.2017 21:27:01

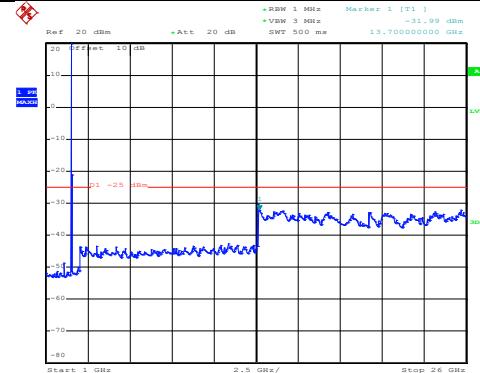
1GHz~26GHz

| Test Mode: | LTE band 7(10MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



Date: 1.JUL.2017 21:27:42

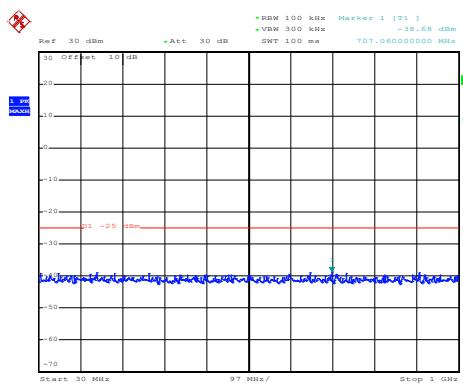
30MHz~1GHz



Date: 1.JUL.2017 18:09:53

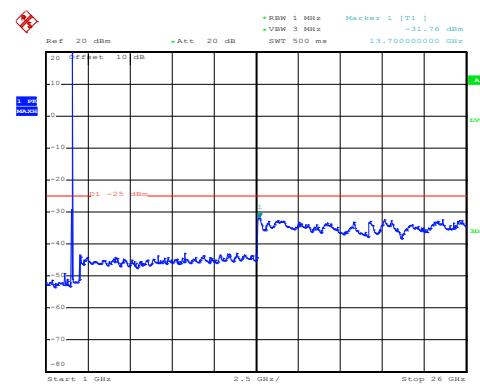
1GHz~26GHz

| Test Mode: | LTE band 7(10MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|



Date: 1.JUL.2017 21:28:17

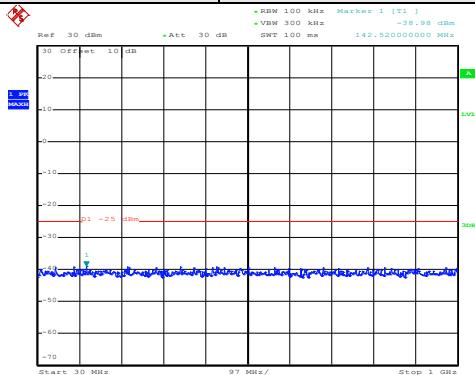
30MHz~1GHz



Date: 1.JUL.2017 18:11:07

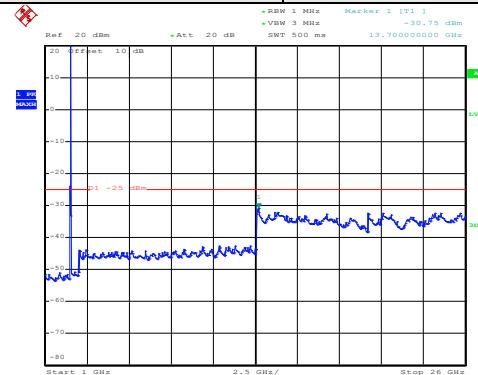
1GHz~26GHz

| | | | |
|------------|--|---------------|----------------|
| Test Mode: | LTE band 7(10MHz QPSK) RB Size 25 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:27:14

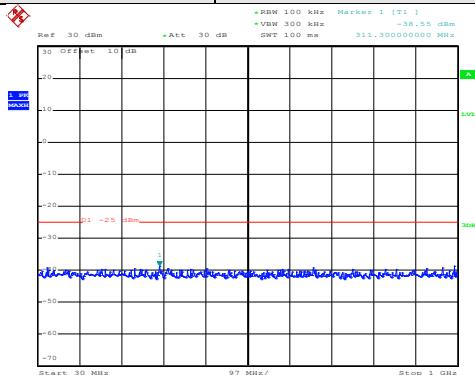
30MHz~1GHz



Date: 1.JUL.2017 18:09:07

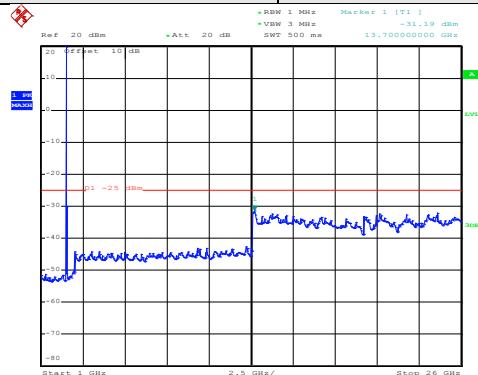
1GHz~26GHz

| | | | |
|------------|--|---------------|----------------|
| Test Mode: | LTE band 7(10MHz QPSK) RB Size 25 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:27:53

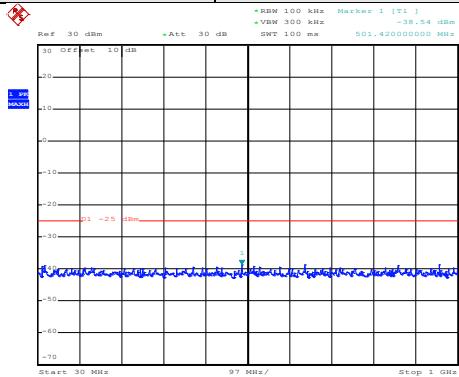
30MHz~1GHz



Date: 1.JUL.2017 18:10:16

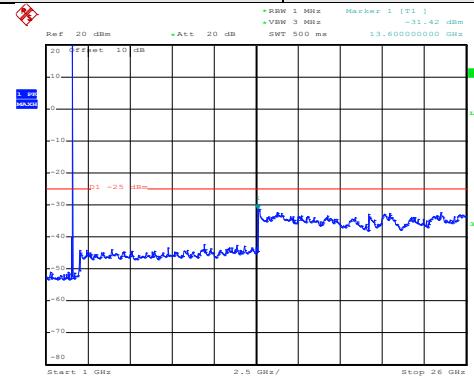
1GHz~26GHz

| Test Mode: | LTE band 7(10MHz QPSK) RB Size 25 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:28:28

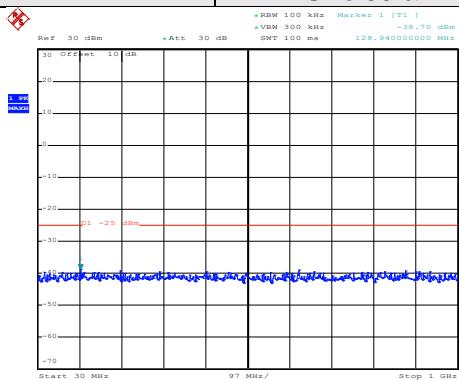
30MHz~1GHz



Date: 1.JUL.2017 18:11:29

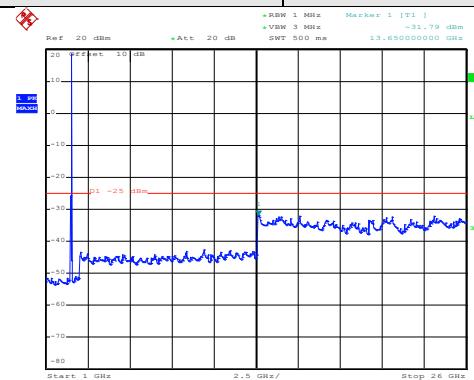
1GHz~26GHz

| Test Mode: | LTE band 7(10MHz QPSK) RB Size 50 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:27:26

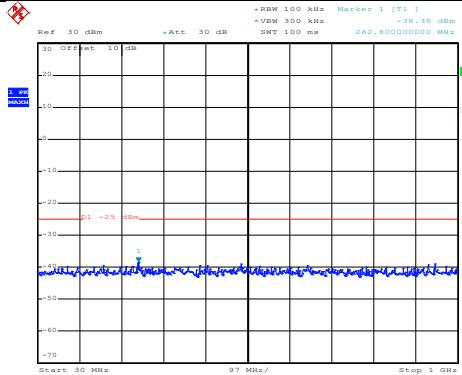
30MHz~1GHz



Date: 1.JUL.2017 18:09:28

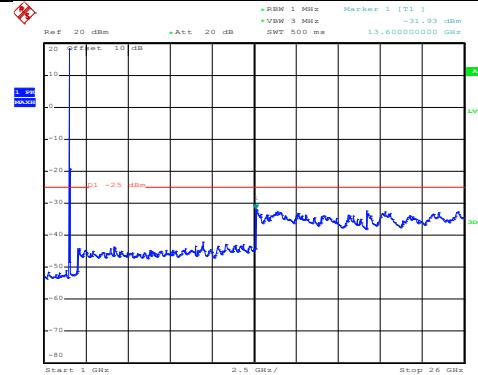
1GHz~26GHz

| Test Mode: | LTE band 7(10MHz QPSK) RB Size 50 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:28:04

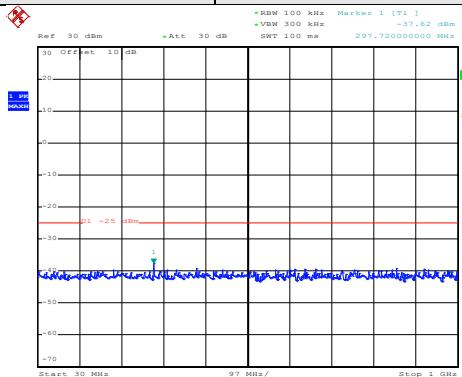
30MHz~1GHz



Date: 1.JUL.2017 18:10:38

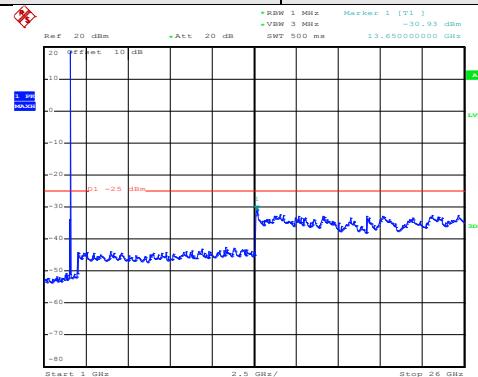
1GHz~26GHz

| Test Mode: | LTE band 7(10MHz QPSK) RB Size 50 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:28:38

30MHz~1GHz

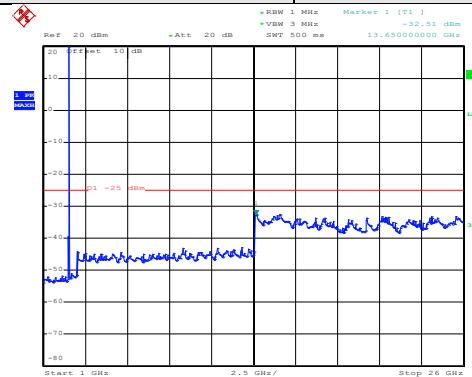
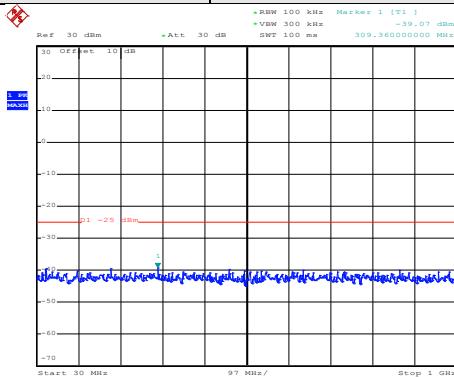


Date: 1.JUL.2017 18:11:48

1GHz~26GHz

15MHz

| Test Mode: | LTE band 7(15MHz 16QAM) RB Size 1 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:28:56

Date: 1.JUL.2017 18:13:33

30MHz~1GHz

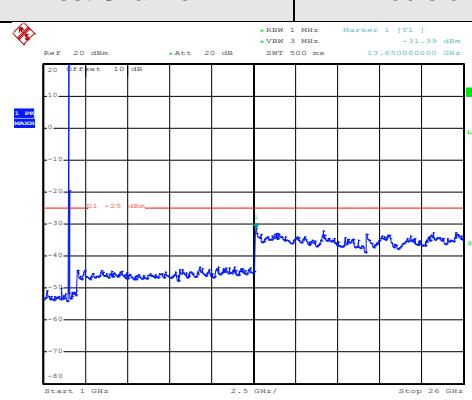
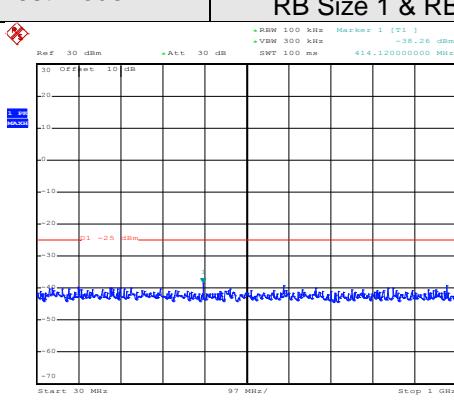
1GHz~26GHz

Test Mode:

LTE band 7(15MHz 16QAM)
RB Size 1 & RB Offset 0

Test Channel:

Middle channel



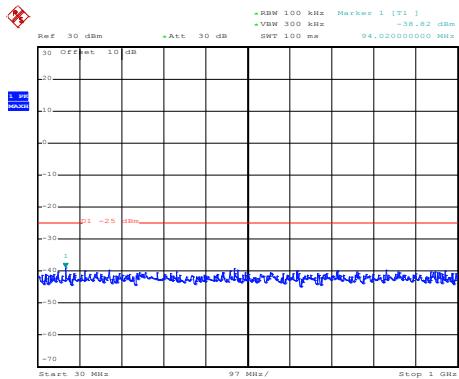
Date: 1.JUL.2017 21:29:32

Date: 1.JUL.2017 18:14:40

30MHz~1GHz

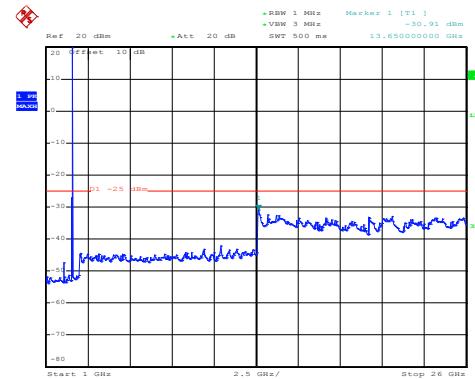
1GHz~26GHz

| | | | |
|------------|--|---------------|-----------------|
| Test Mode: | LTE band 7(15MHz 16QAM) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:30:08

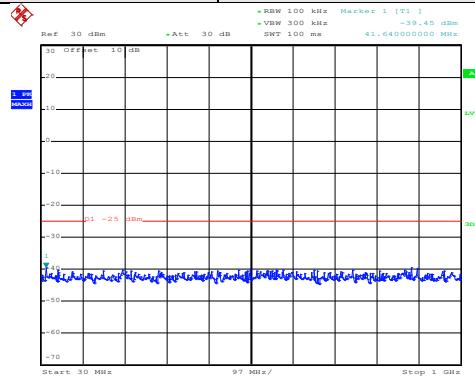
30MHz~1GHz



Date: 1.JUL.2017 18:15:44

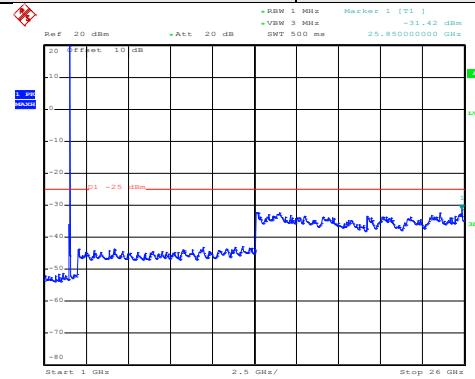
1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(15MHz 16QAM) RB Size 36 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



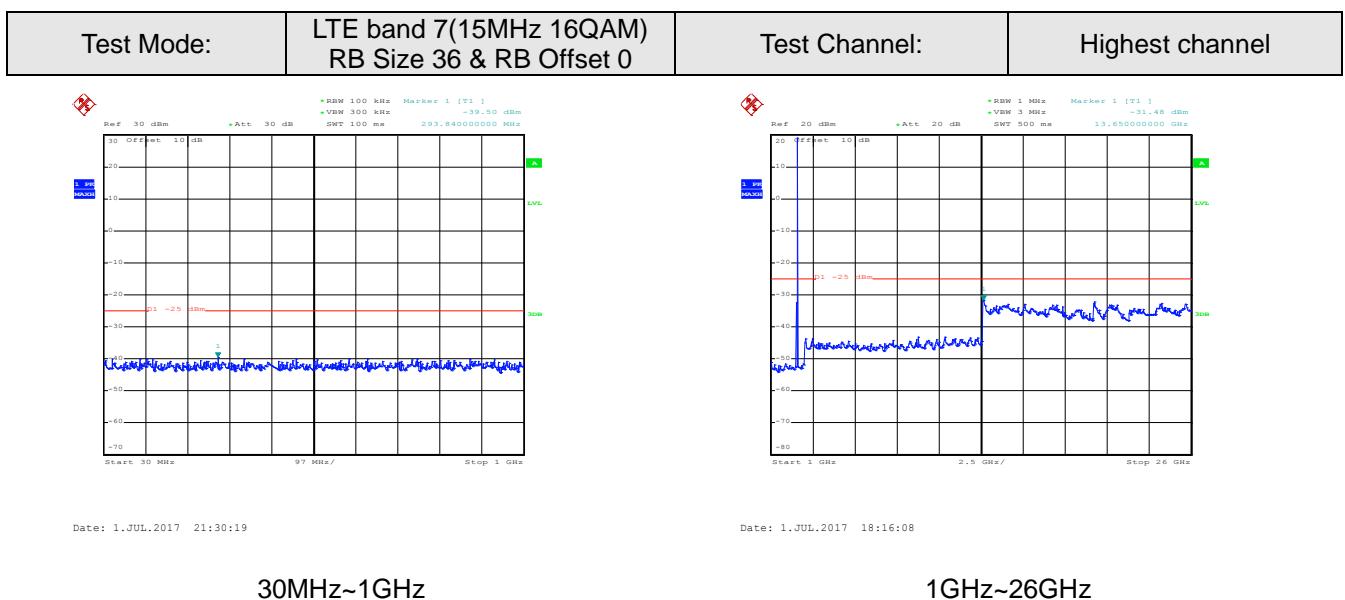
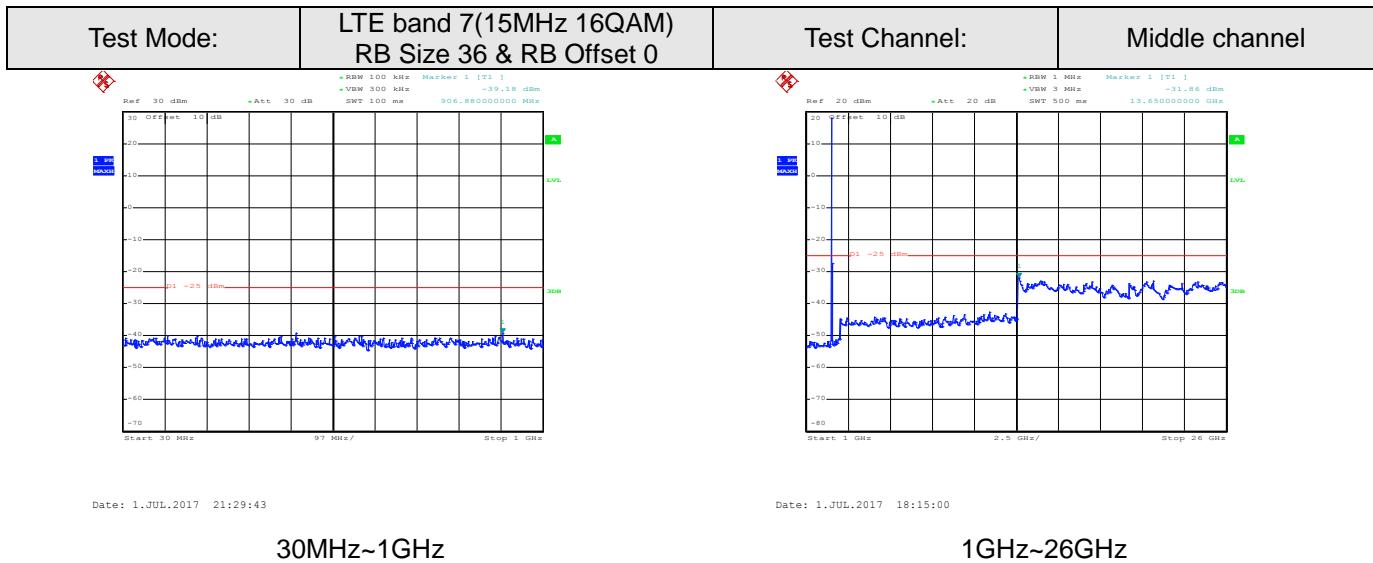
Date: 1.JUL.2017 21:29:06

30MHz~1GHz

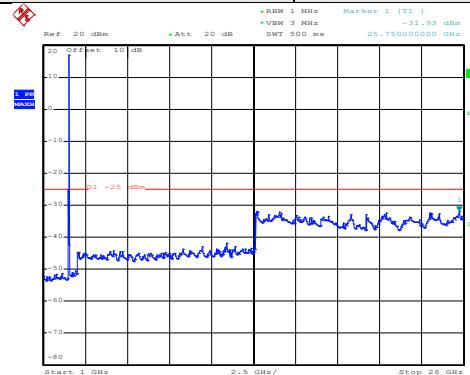
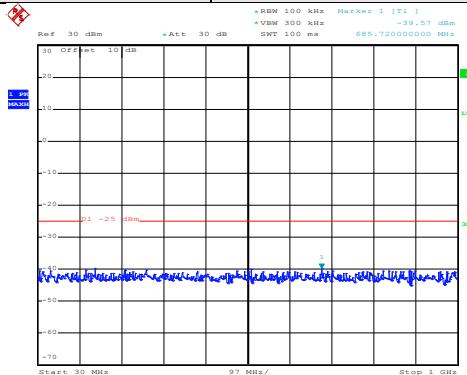


Date: 1.JUL.2017 18:13:15

1GHz~26GHz



| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(15MHz 16QAM) RB Size 75 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



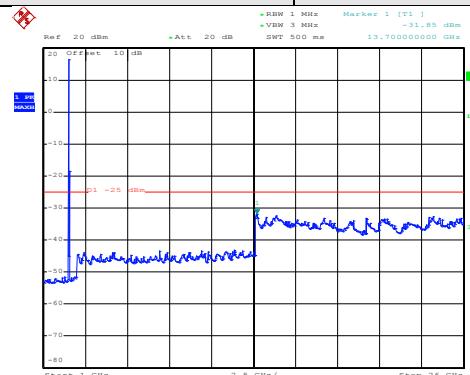
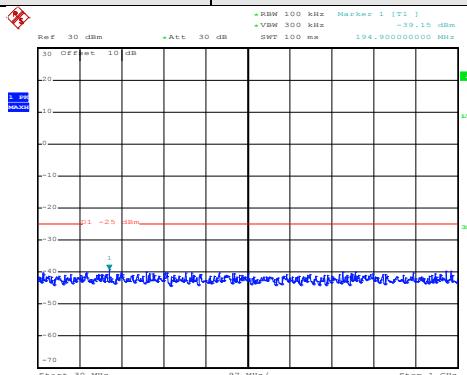
Date: 1.JUL.2017 21:29:17

Date: 1.JUL.2017 18:13:54

30MHz~1GHz

1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(15MHz 16QAM) RB Size 75 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|



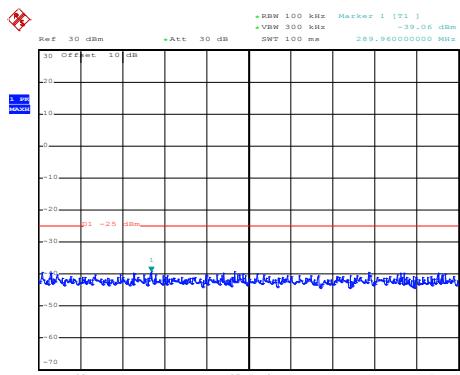
Date: 1.JUL.2017 21:29:55

Date: 1.JUL.2017 18:15:17

30MHz~1GHz

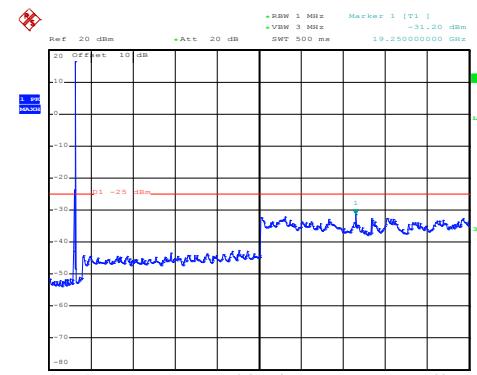
1GHz~26GHz

| | | | |
|------------|---|---------------|-----------------|
| Test Mode: | LTE band 7(15MHz 16QAM) RB Size 75 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|



Date: 1.JUL.2017 21:30:30

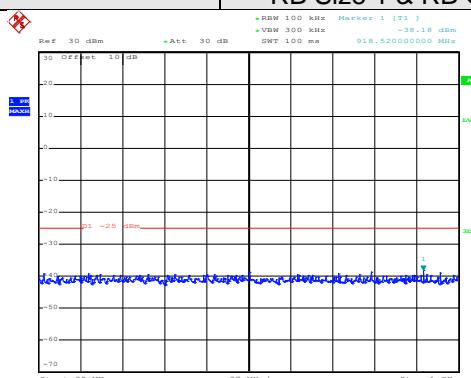
30MHz~1GHz



Date: 1.JUL.2017 18:16:37

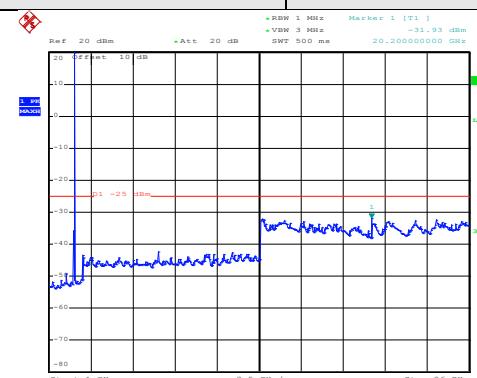
1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(15MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



Date: 1.JUL.2017 21:28:52

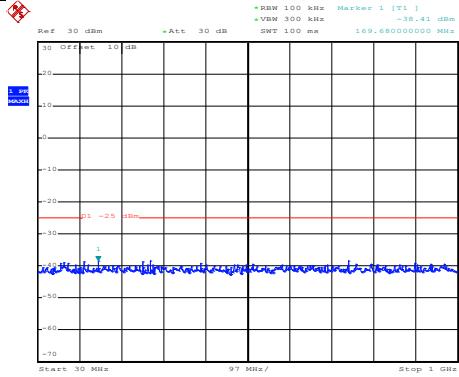
30MHz~1GHz



Date: 1.JUL.2017 18:13:25

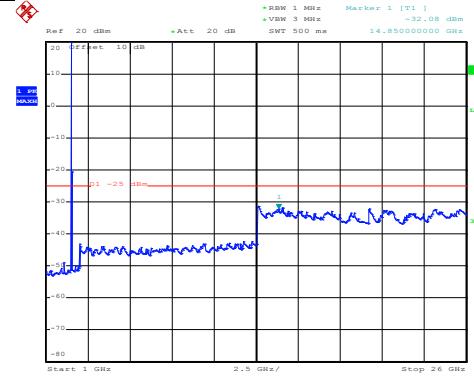
1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



Date: 1.JUL.2017 21:29:28

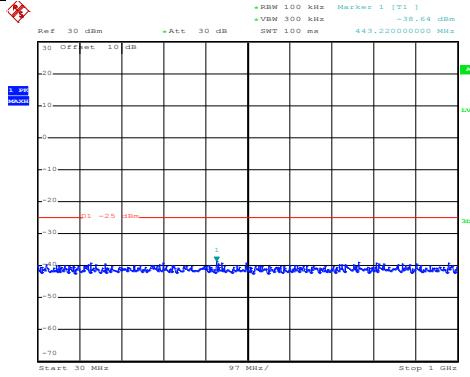
30MHz~1GHz



Date: 1.JUL.2017 18:14:32

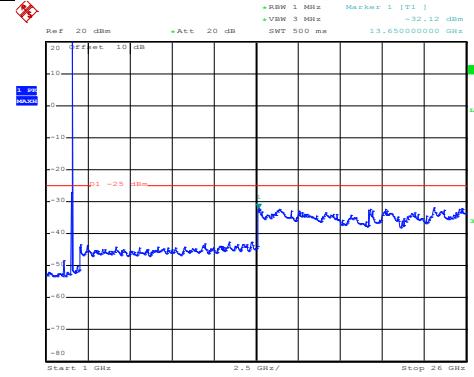
1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|



Date: 1.JUL.2017 21:30:04

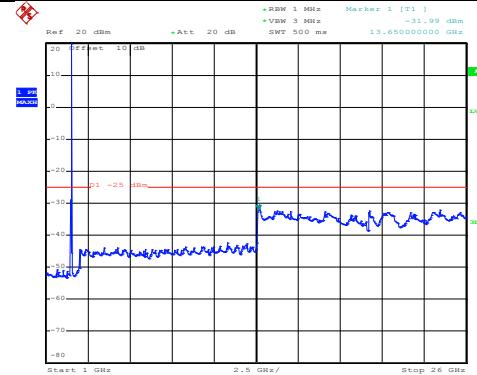
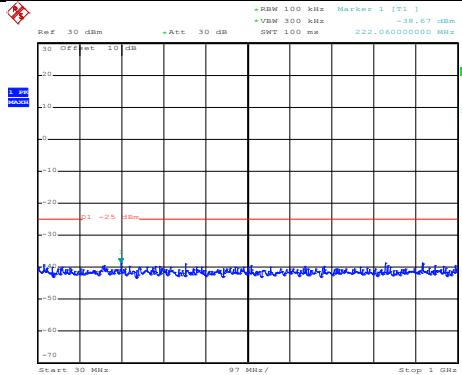
30MHz~1GHz



Date: 1.JUL.2017 18:15:36

1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 36 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



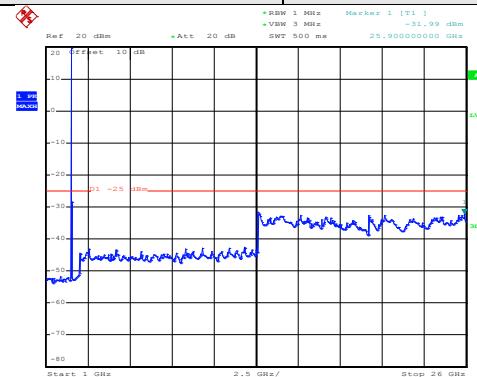
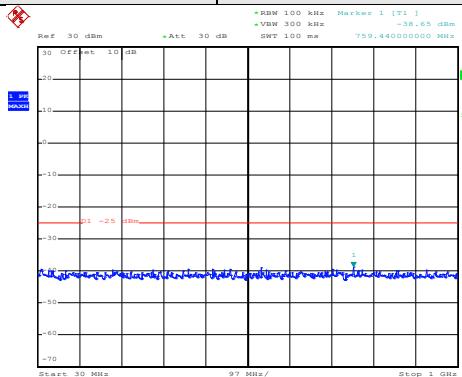
Date: 1.JUL.2017 21:29:02

30MHz~1GHz

Date: 1.JUL.2017 18:13:05

1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 36 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



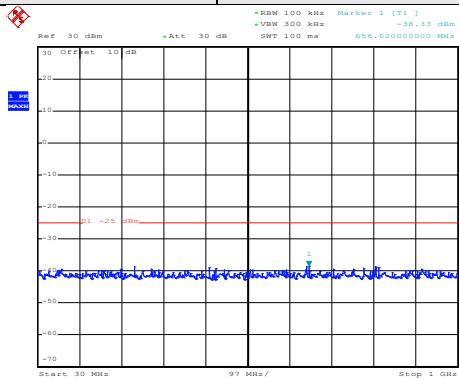
Date: 1.JUL.2017 21:29:39

30MHz~1GHz

Date: 1.JUL.2017 18:14:51

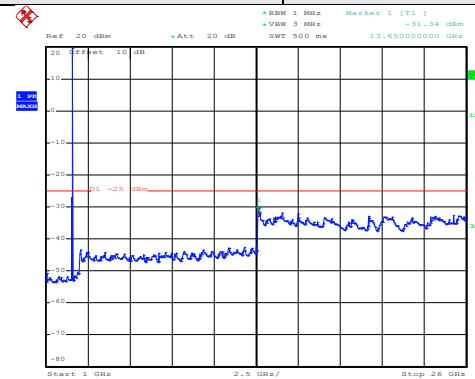
1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 36 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:30:15

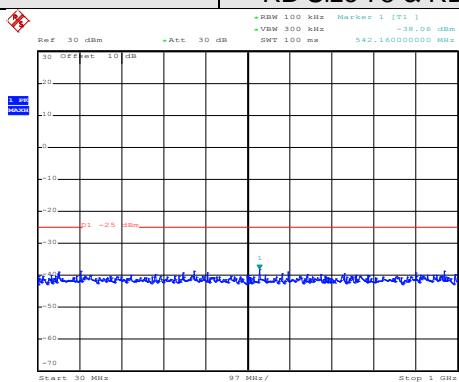
30MHz~1GHz



Date: 1.JUL.2017 18:15:59

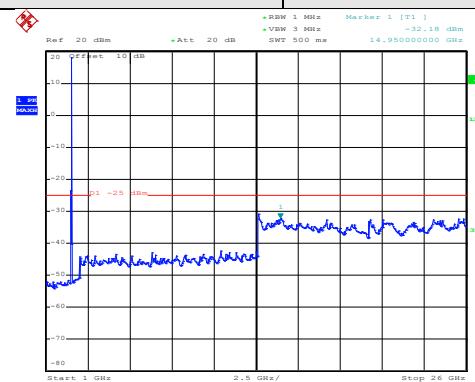
1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 75 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:29:13

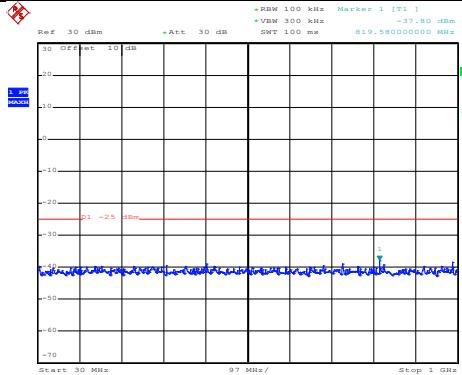
30MHz~1GHz



Date: 1.JUL.2017 18:13:45

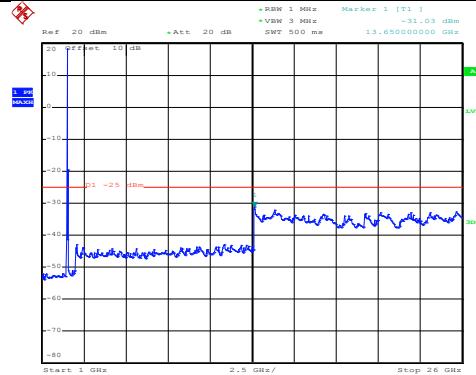
1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 75 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:29:51

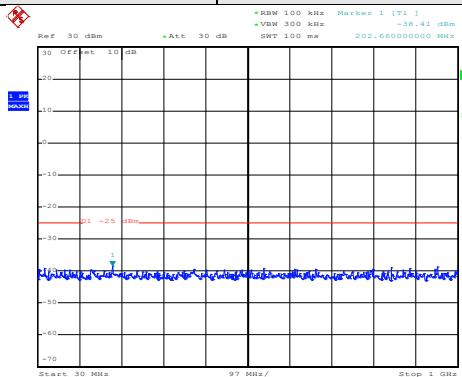
30MHz~1GHz



Date: 1.JUL.2017 18:15:10

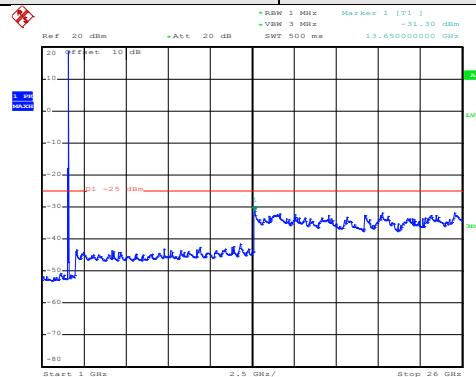
1GHz~26GHz

| Test Mode: | LTE band 7(15MHz QPSK) RB Size 75 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:30:26

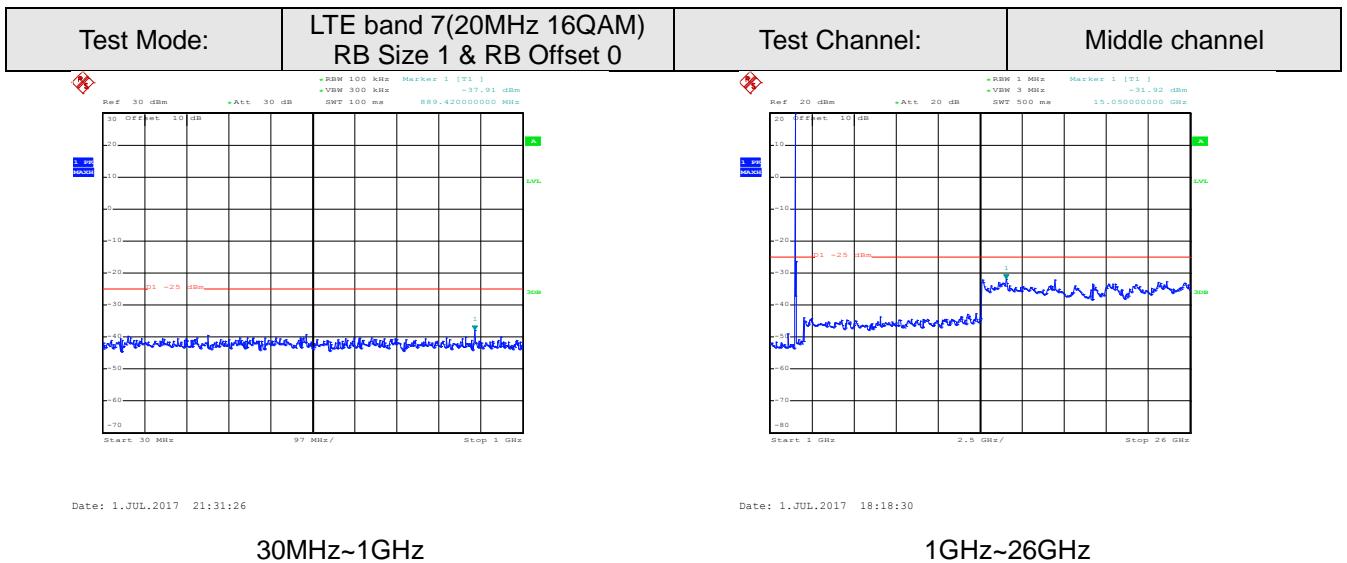
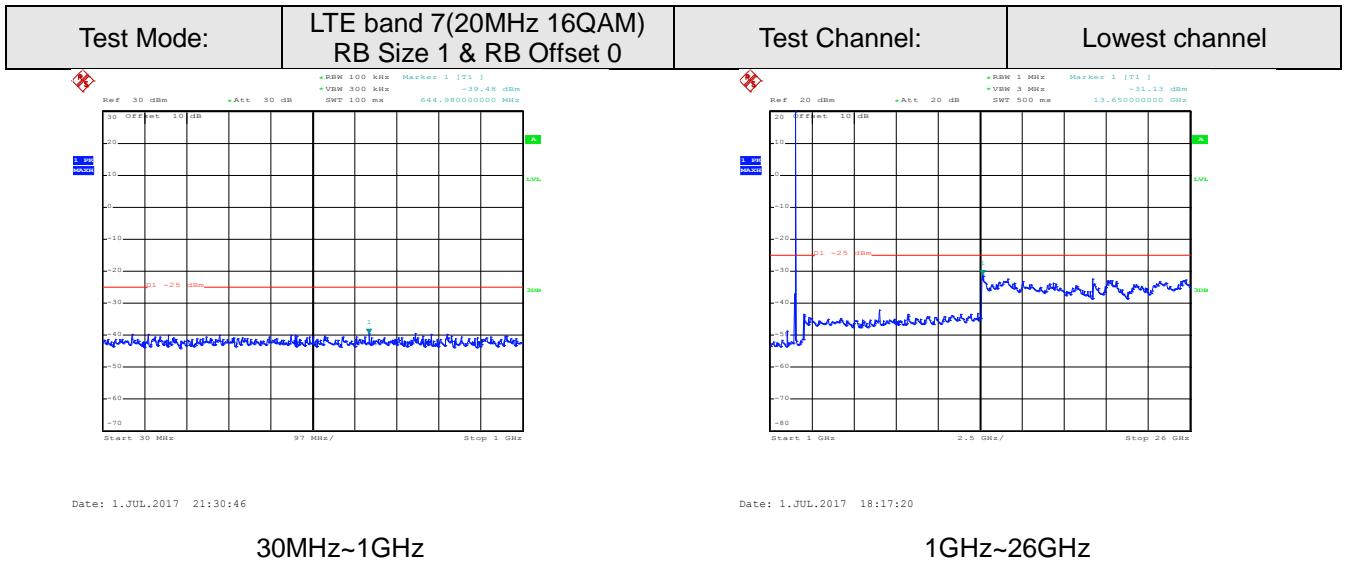
30MHz~1GHz



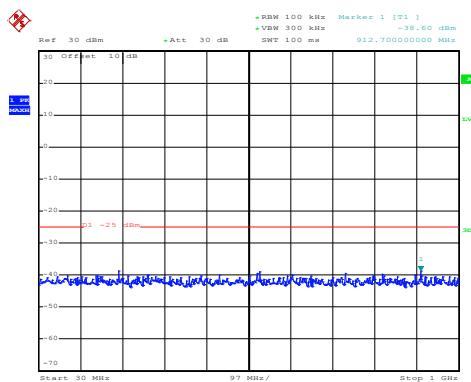
Date: 1.JUL.2017 18:16:25

1GHz~26GHz

20MHz

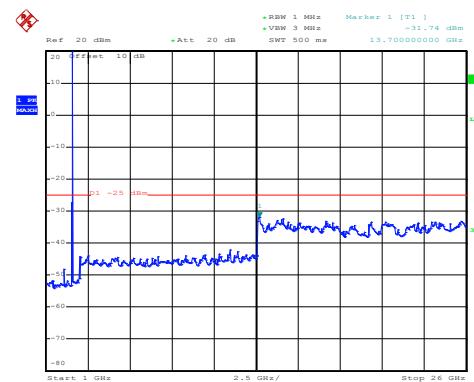


| | | | |
|------------|--|---------------|-----------------|
| Test Mode: | LTE band 7(20MHz 16QAM) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:32:10

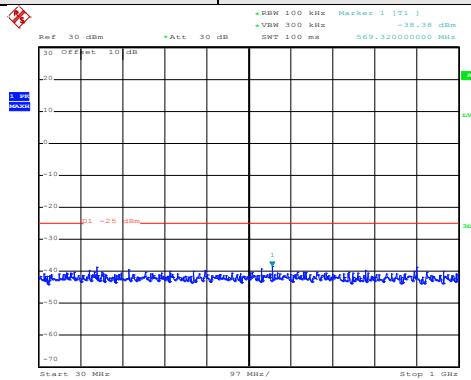
30MHz~1GHz



Date: 1.JUL.2017 18:19:39

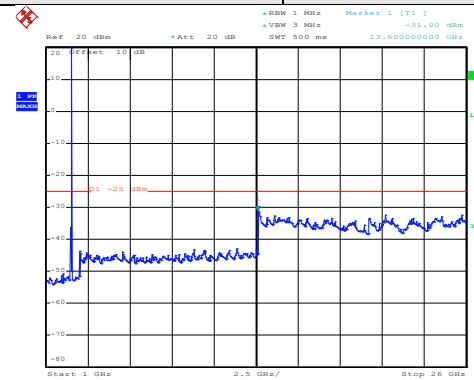
1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(20MHz 16QAM) RB Size 50 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



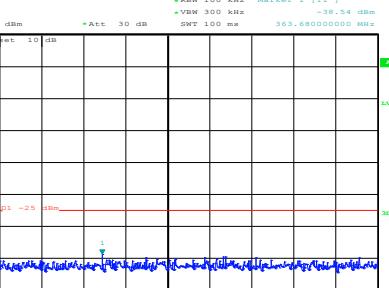
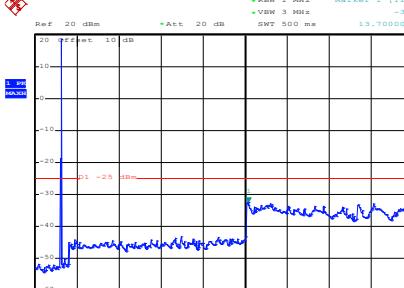
Date: 1.JUL.2017 21:31:01

30MHz~1GHz

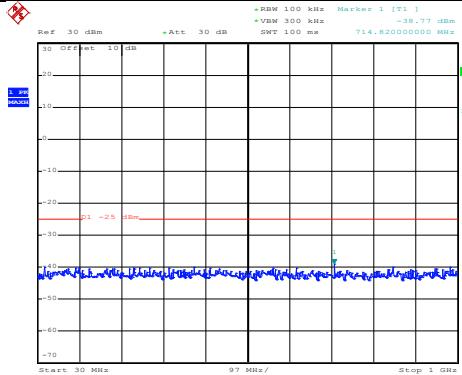


Date: 1.JUL.2017 18:17:42

1GHz~26GHz

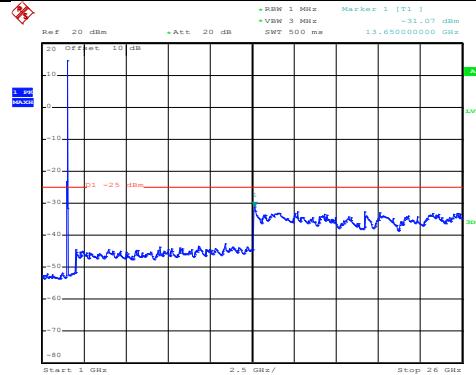
| Test Mode: | LTE band 7(20MHz 16QAM) RB Size 50 & RB Offset 0 | Test Channel: | Highest channel |
|--|---|---------------|-----------------|
|  |  | | |
| Date: 1.JUL.2017 21:32:23 | Date: 1.JUL.2017 18:20:06 | 30MHz~1GHz | 1GHz~26GHz |

| Test Mode: | LTE band 7(20MHz 16QAM) RB Size 100 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:31:12

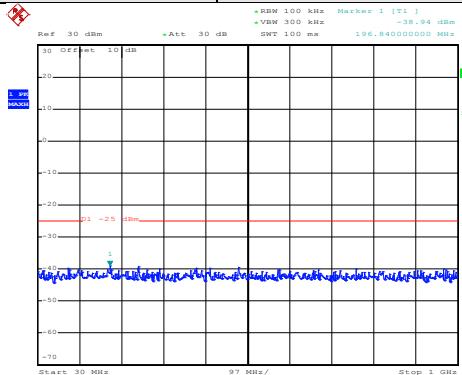
30MHz~1GHz



Date: 1.JUL.2017 18:18:05

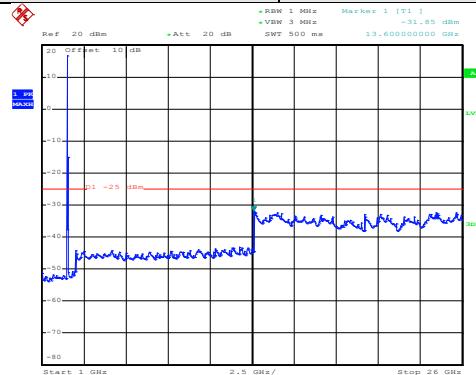
1GHz~26GHz

| Test Mode: | LTE band 7(20MHz 16QAM) RB Size 100 & RB Offset 0 | Test Channel: | Middle channel |
|------------|--|---------------|----------------|
|------------|--|---------------|----------------|



Date: 1.JUL.2017 21:31:51

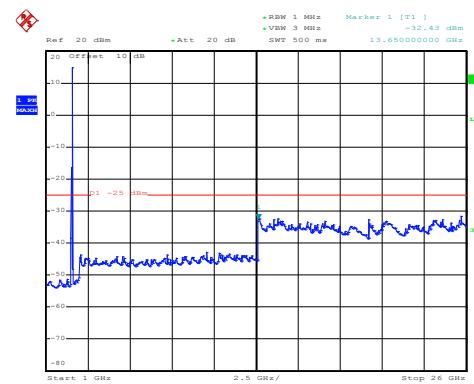
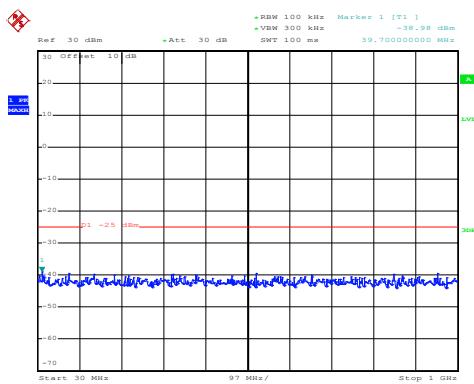
30MHz~1GHz



Date: 1.JUL.2017 18:19:12

1GHz~26GHz

| | | | |
|------------|--|---------------|-----------------|
| Test Mode: | LTE band 7(20MHz 16QAM) RB Size 100 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|



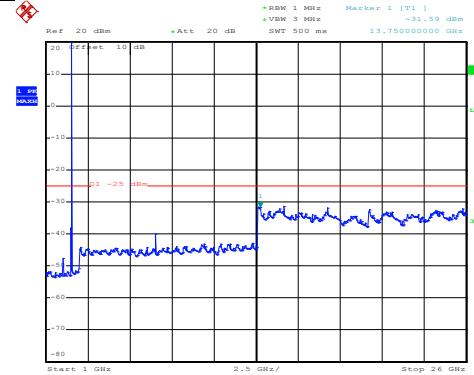
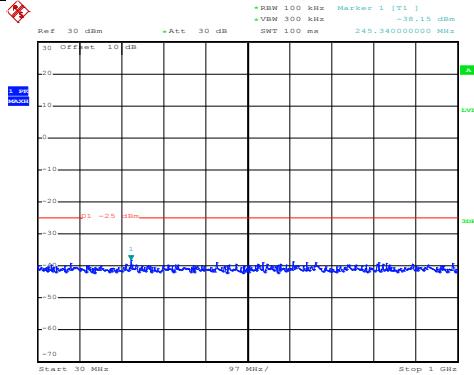
Date: 1.JUL.2017 21:32:34

30MHz~1GHz

Date: 1.JUL.2017 18:20:24

1GHz~26GHz

| | | | |
|------------|---|---------------|----------------|
| Test Mode: | LTE band 7(20MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|



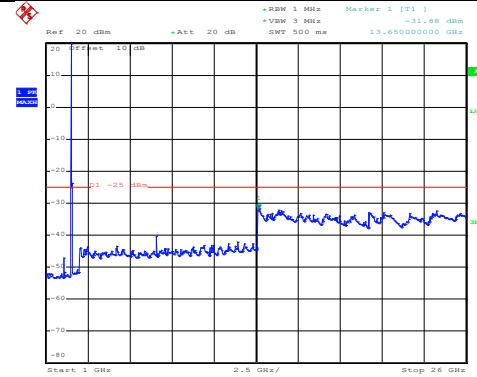
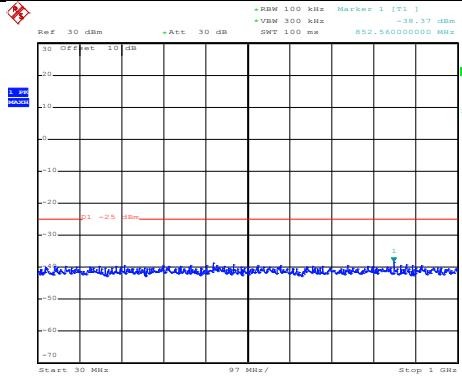
Date: 1.JUL.2017 21:30:42

30MHz~1GHz

Date: 1.JUL.2017 18:17:12

1GHz~26GHz

| Test Mode: | LTE band 7(20MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



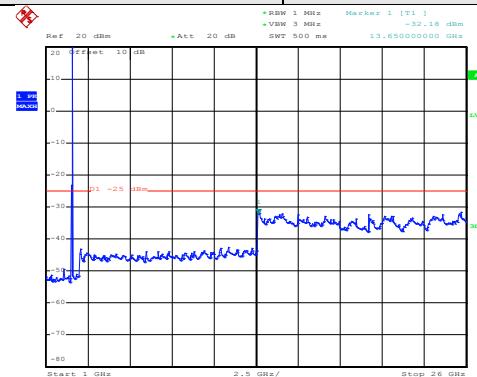
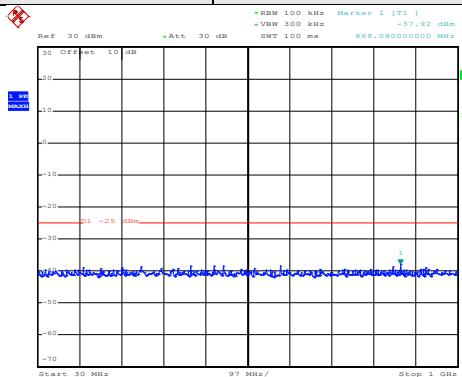
Date: 1.JUL.2017 21:31:21

Date: 1.JUL.2017 18:18:22

30MHz~1GHz

1GHz~26GHz

| Test Mode: | LTE band 7(20MHz QPSK) RB Size 1 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|

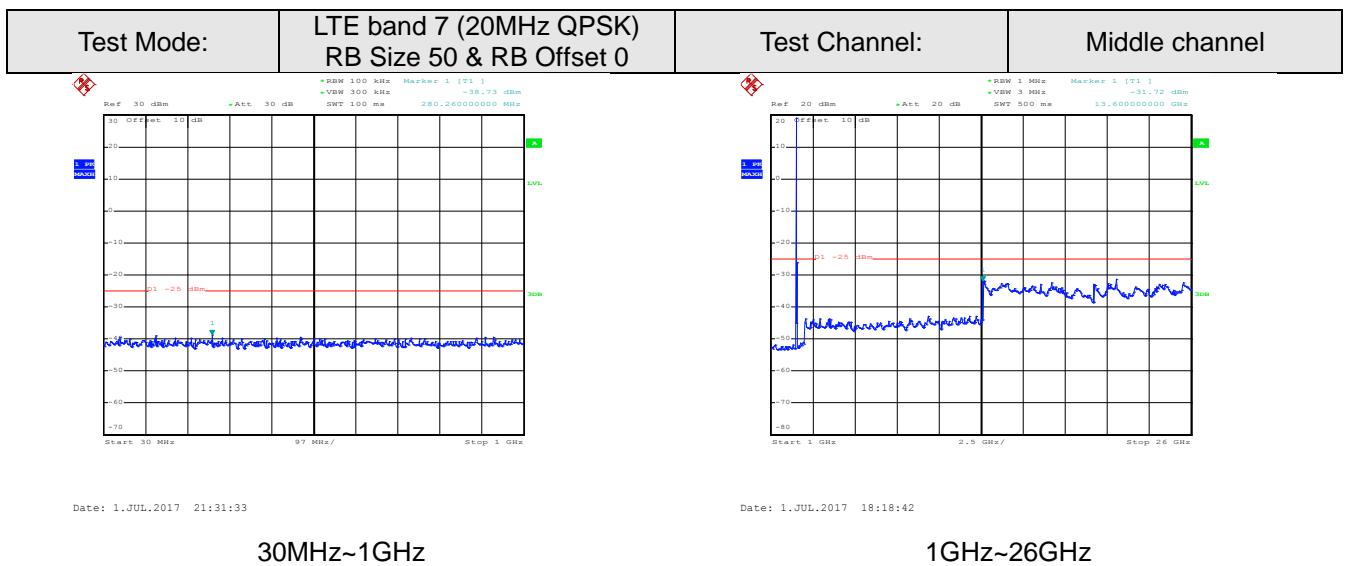
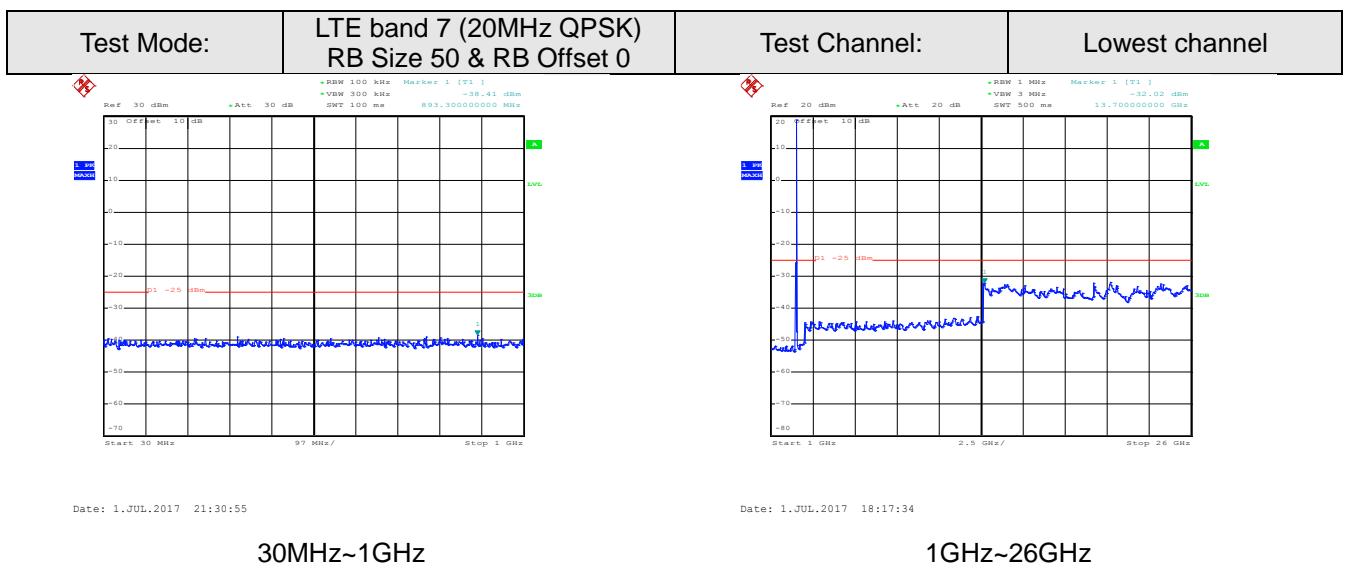


Date: 1.JUL.2017 21:32:06

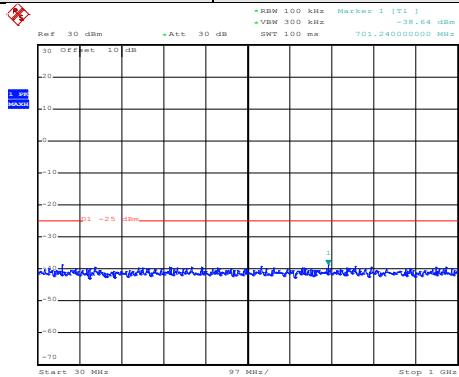
Date: 1.JUL.2017 18:19:30

30MHz~1GHz

1GHz~26GHz

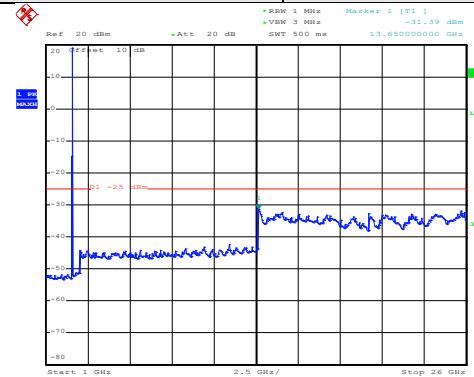


| Test Mode: | LTE band 7(20MHz QPSK) RB Size 50 & RB Offset 0 | Test Channel: | Highest channel |
|------------|--|---------------|-----------------|
|------------|--|---------------|-----------------|



Date: 1.JUL.2017 21:32:19

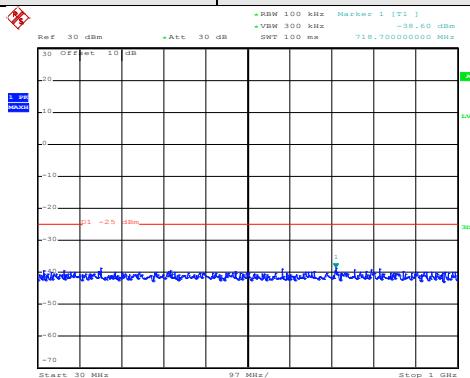
30MHz~1GHz



Date: 1.JUL.2017 18:19:55

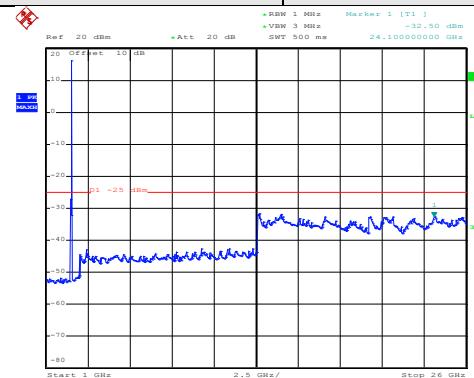
1GHz~26GHz

| Test Mode: | LTE band 7(20MHz QPSK) RB Size 100 & RB Offset 0 | Test Channel: | Lowest channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



Date: 1.JUL.2017 21:31:08

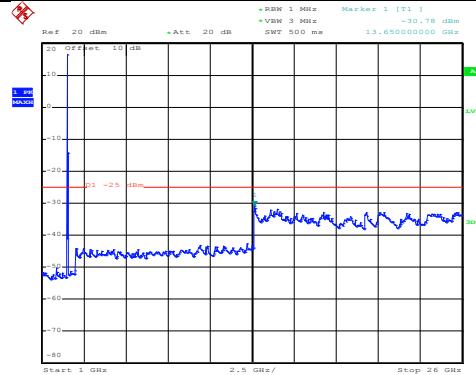
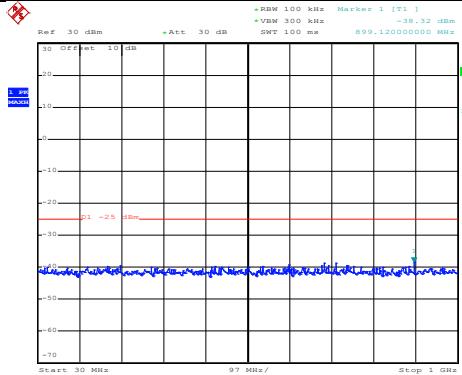
30MHz~1GHz



Date: 1.JUL.2017 18:17:55

1GHz~26GHz

| Test Mode: | LTE band 7(20MHz QPSK) RB Size 100 & RB Offset 0 | Test Channel: | Middle channel |
|------------|---|---------------|----------------|
|------------|---|---------------|----------------|



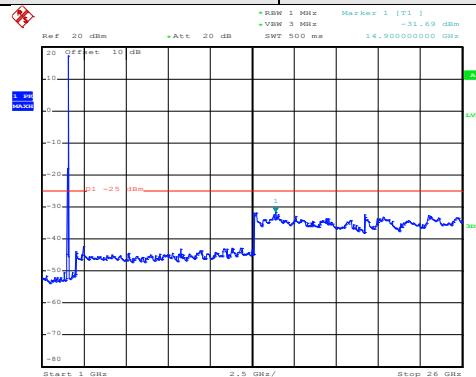
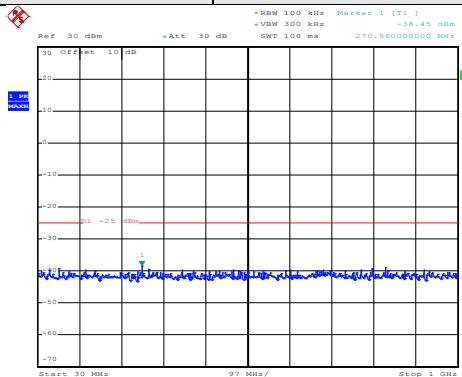
Date: 1.JUL.2017 21:31:47

30MHz~1GHz

Date: 1.JUL.2017 18:19:03

1GHz~26GHz

| Test Mode: | LTE band 7(20MHz QPSK) RB Size 100 & RB Offset 0 | Test Channel: | Highest channel |
|------------|---|---------------|-----------------|
|------------|---|---------------|-----------------|



Date: 1.JUL.2017 21:32:30

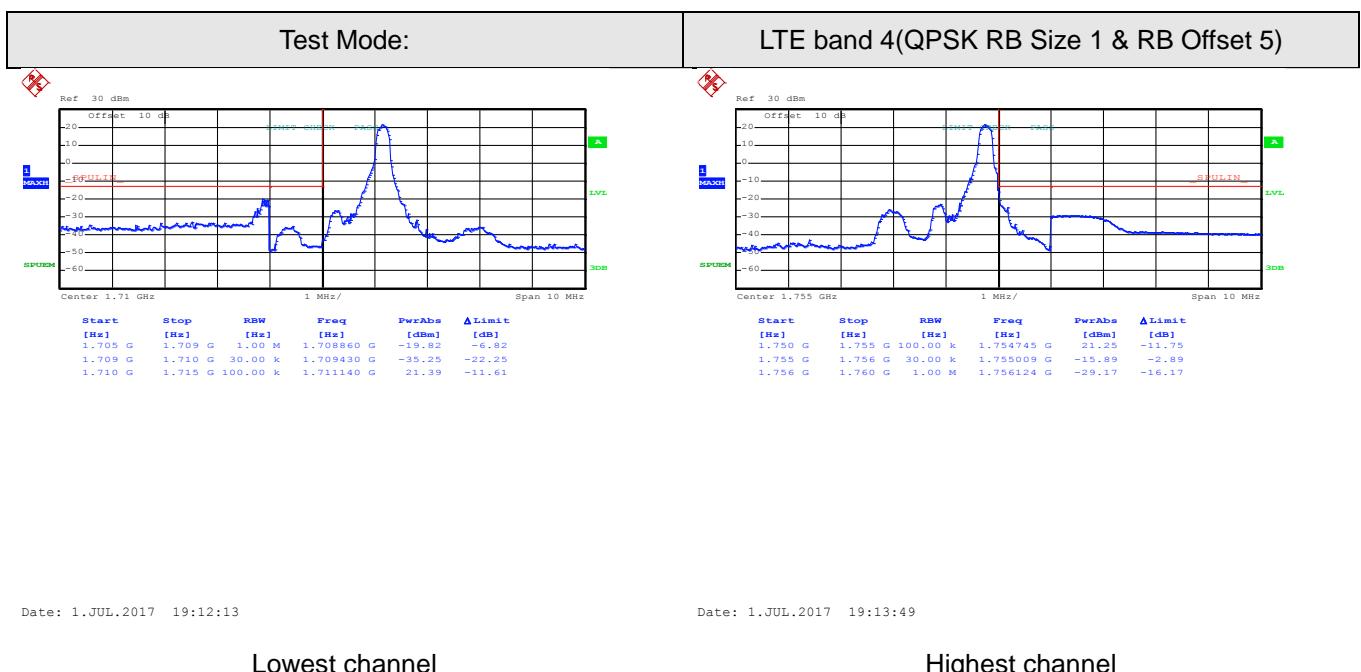
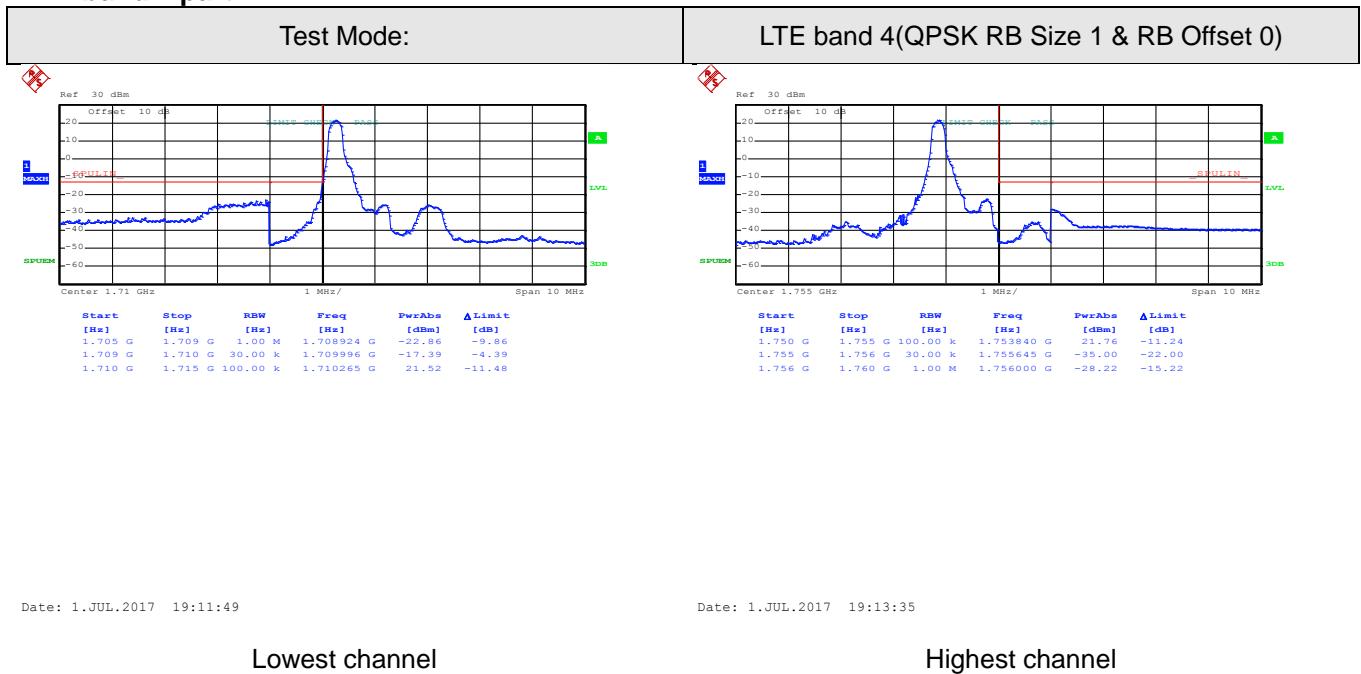
30MHz~1GHz

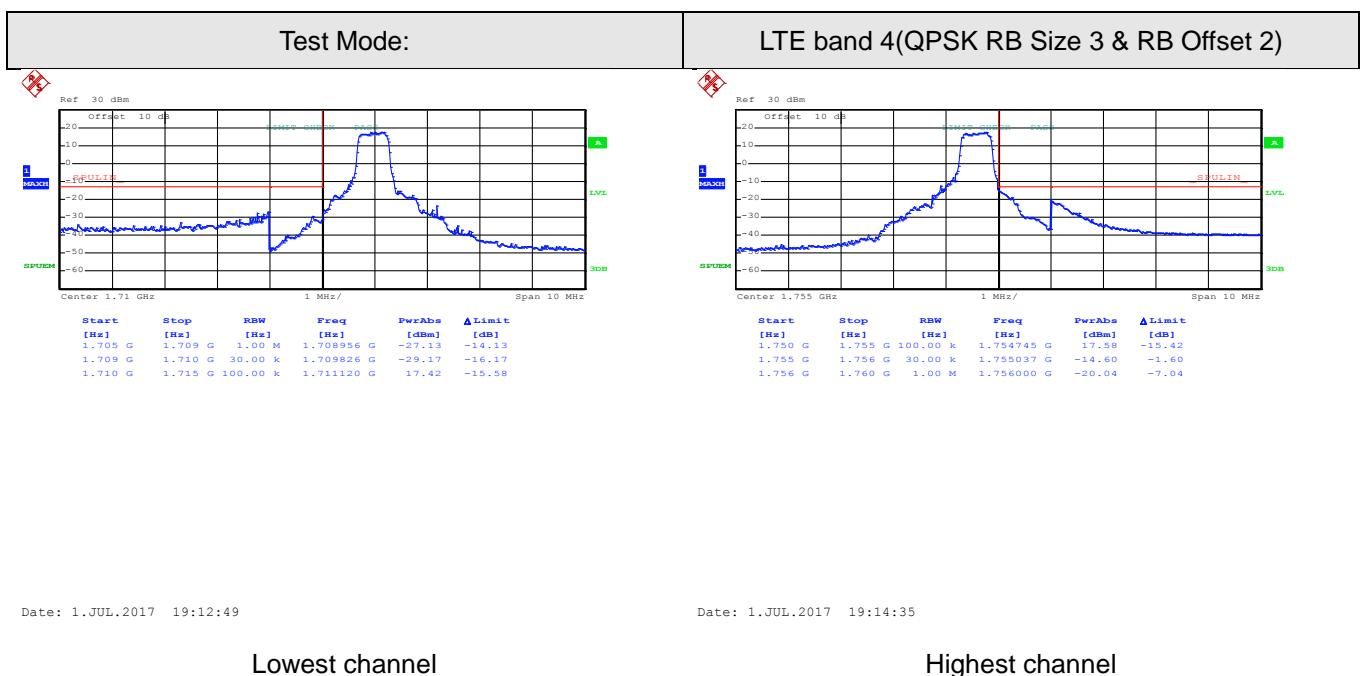
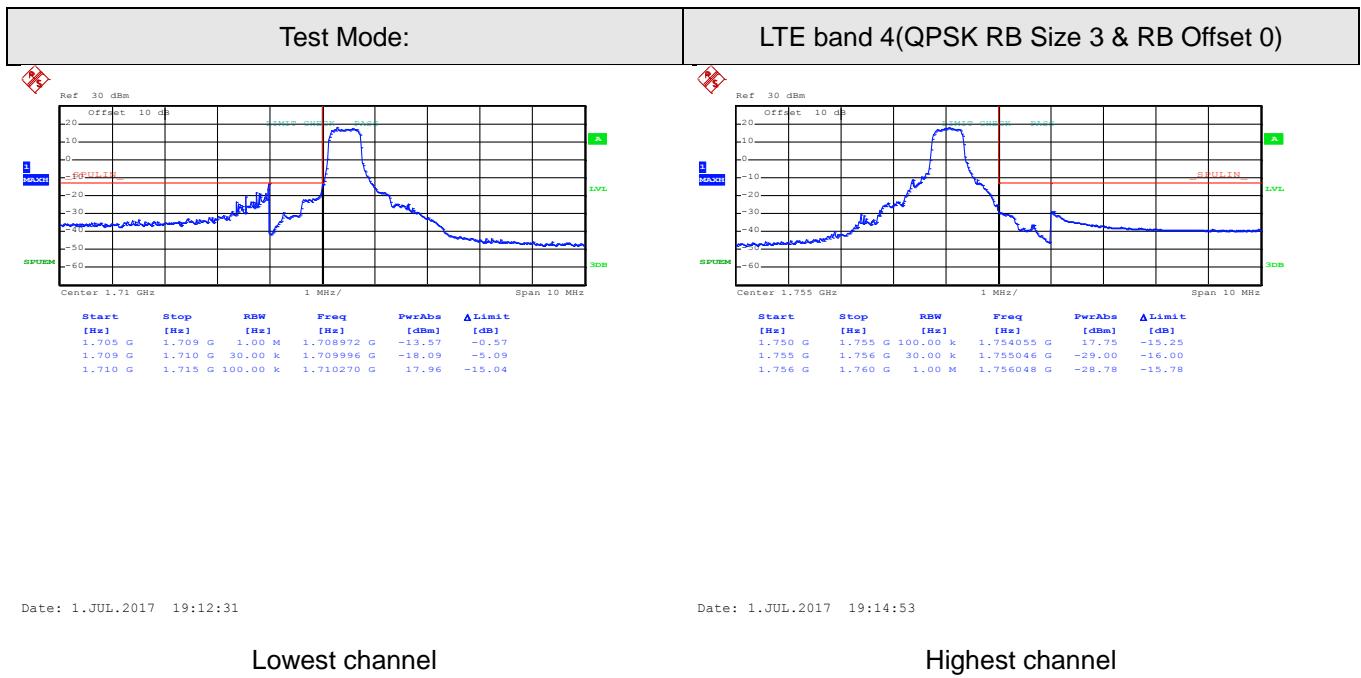
Date: 1.JUL.2017 18:20:16

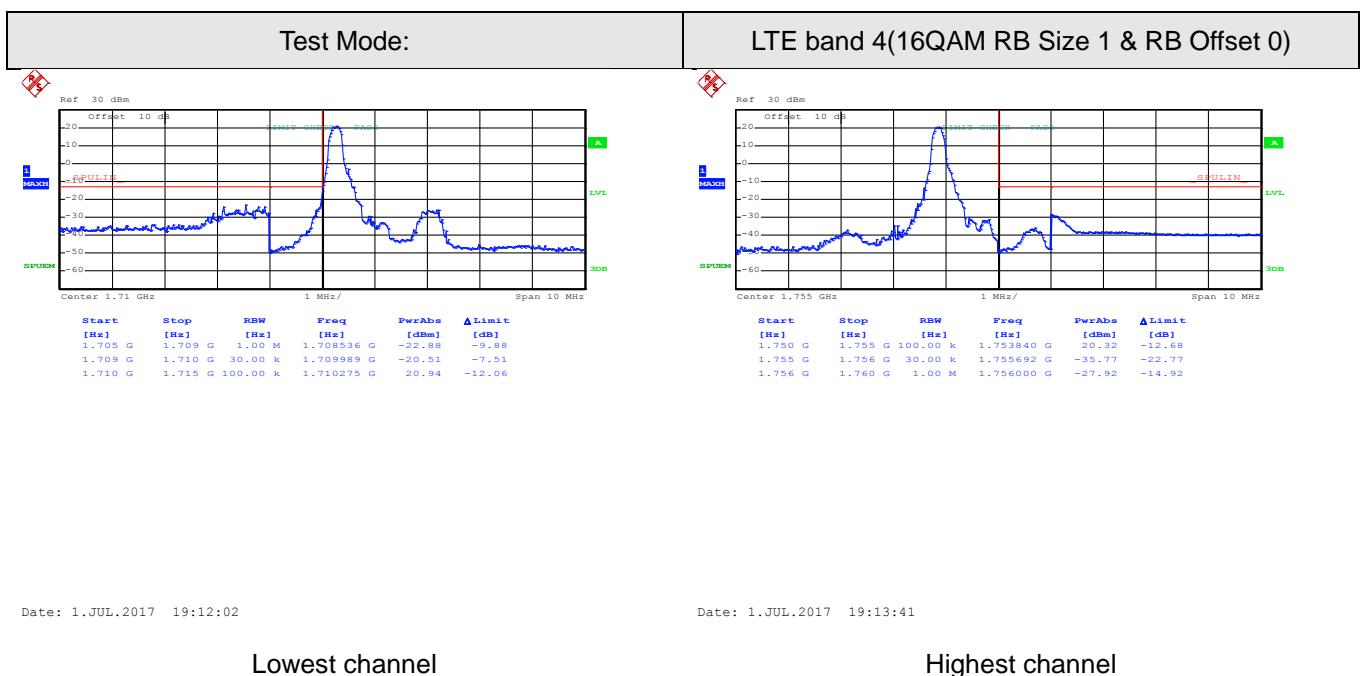
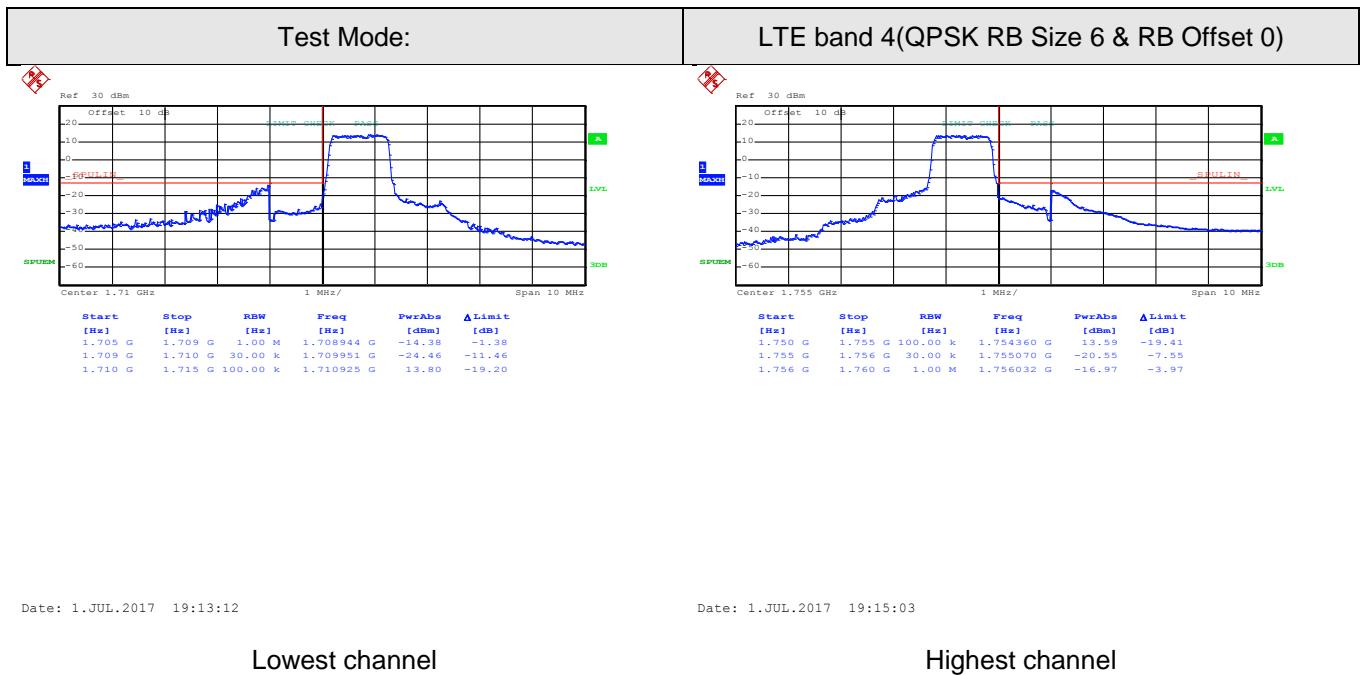
1GHz~26GHz

Band edge emission:

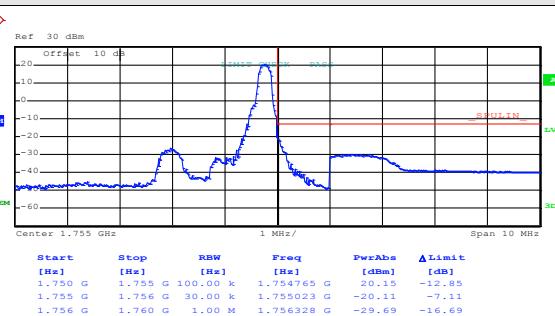
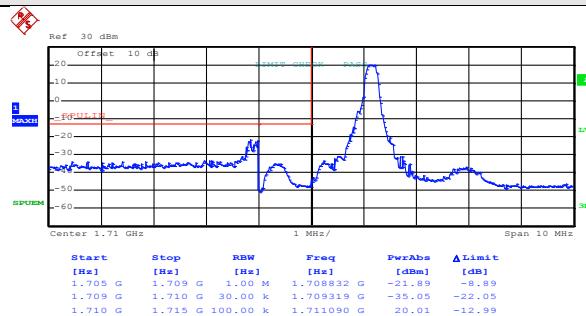
LTE band 4 part:1.4MHz:







| Test Mode: | LTE band 4(16QAM RB Size 1 & RB Offset 5) |
|------------|---|
|------------|---|



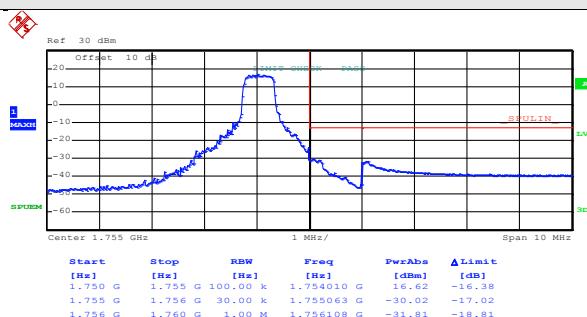
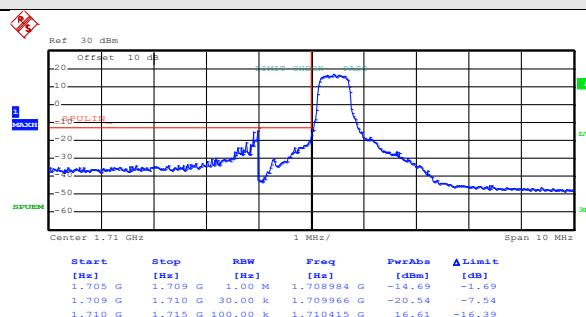
Date: 1.JUL.2017 19:12:19

Lowest channel

Date: 1.JUL.2017 19:13:59

Highest channel

| Test Mode: | LTE band 4(16QAM RB Size 3 & RB Offset 0) |
|------------|---|
|------------|---|

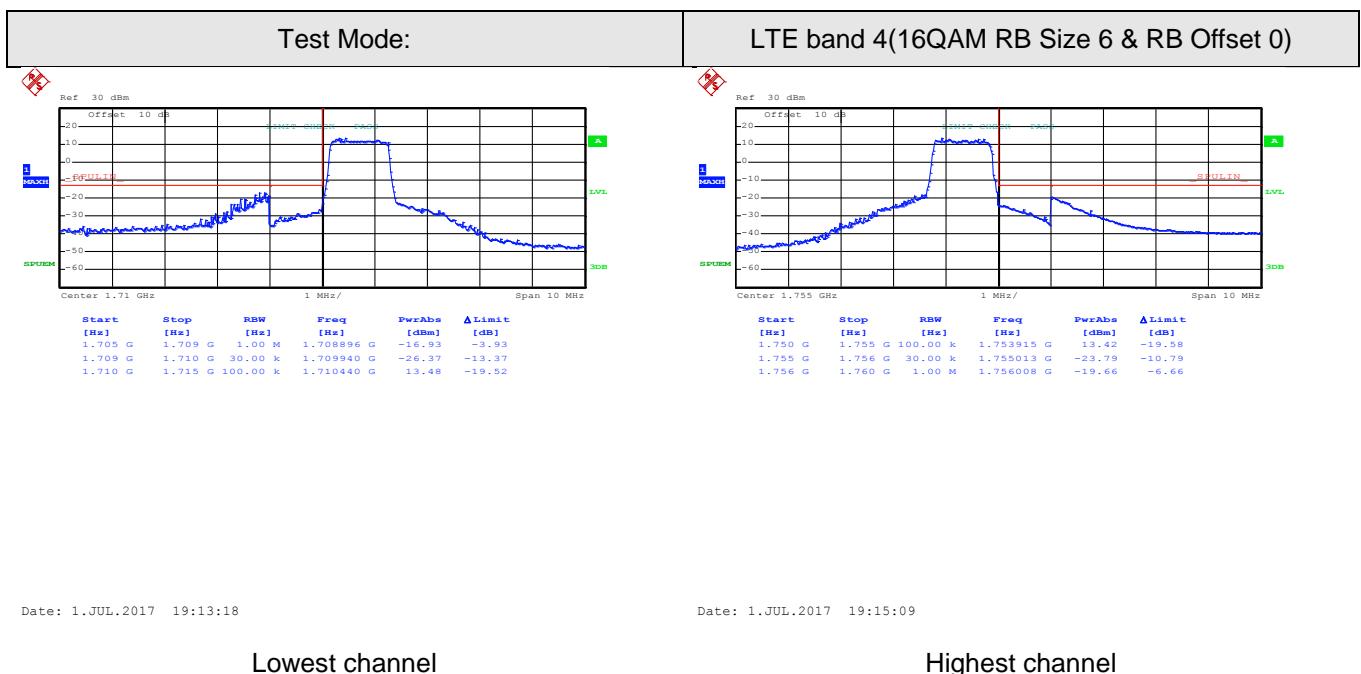
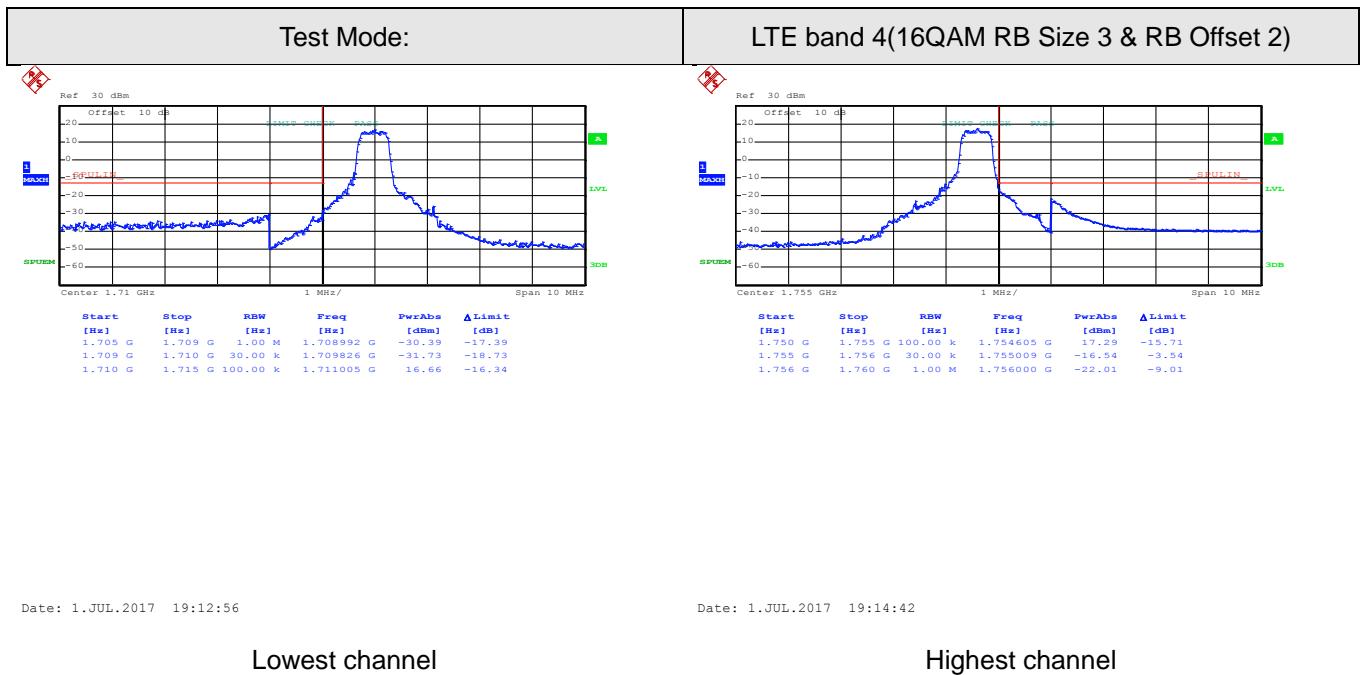


Date: 1.JUL.2017 19:12:39

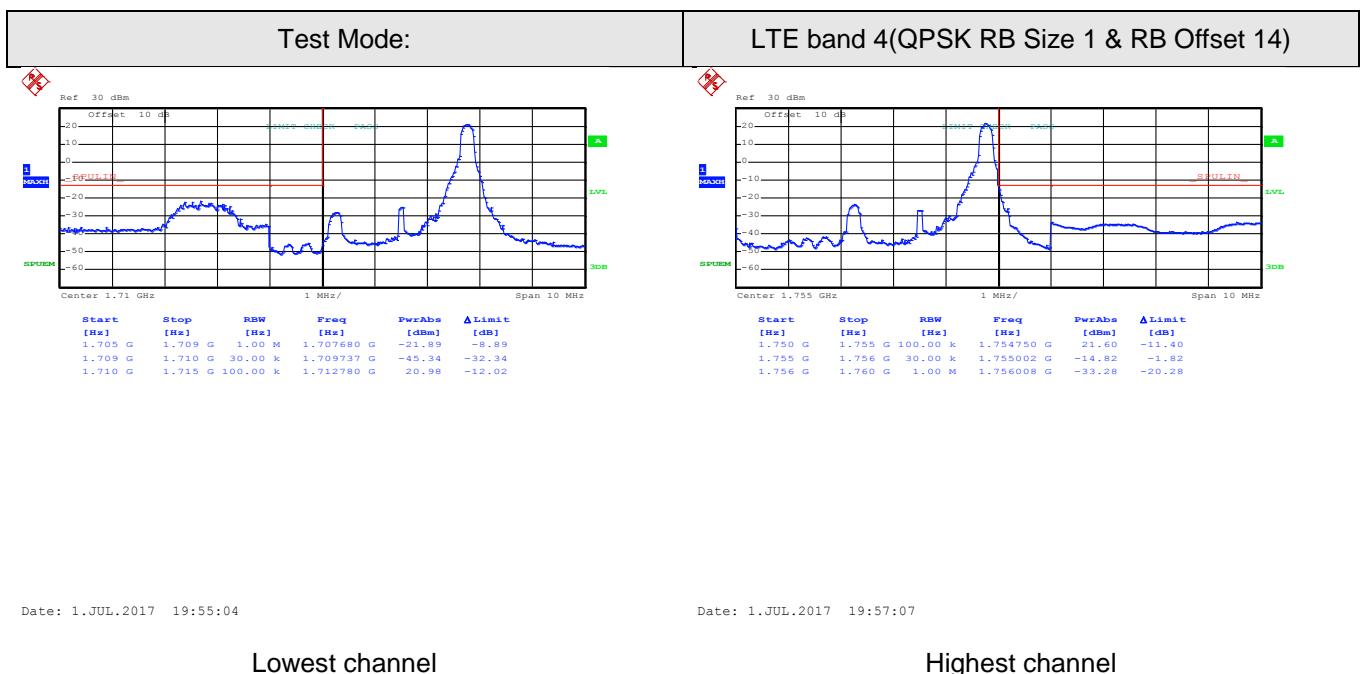
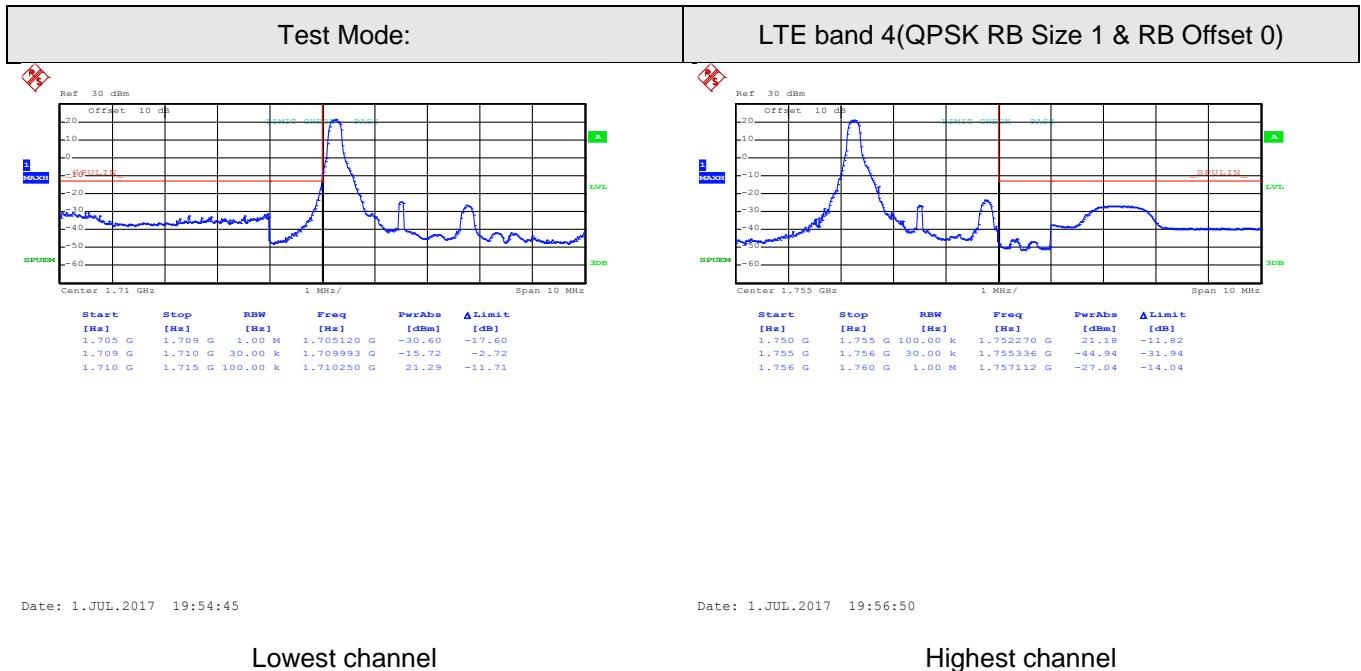
Lowest channel

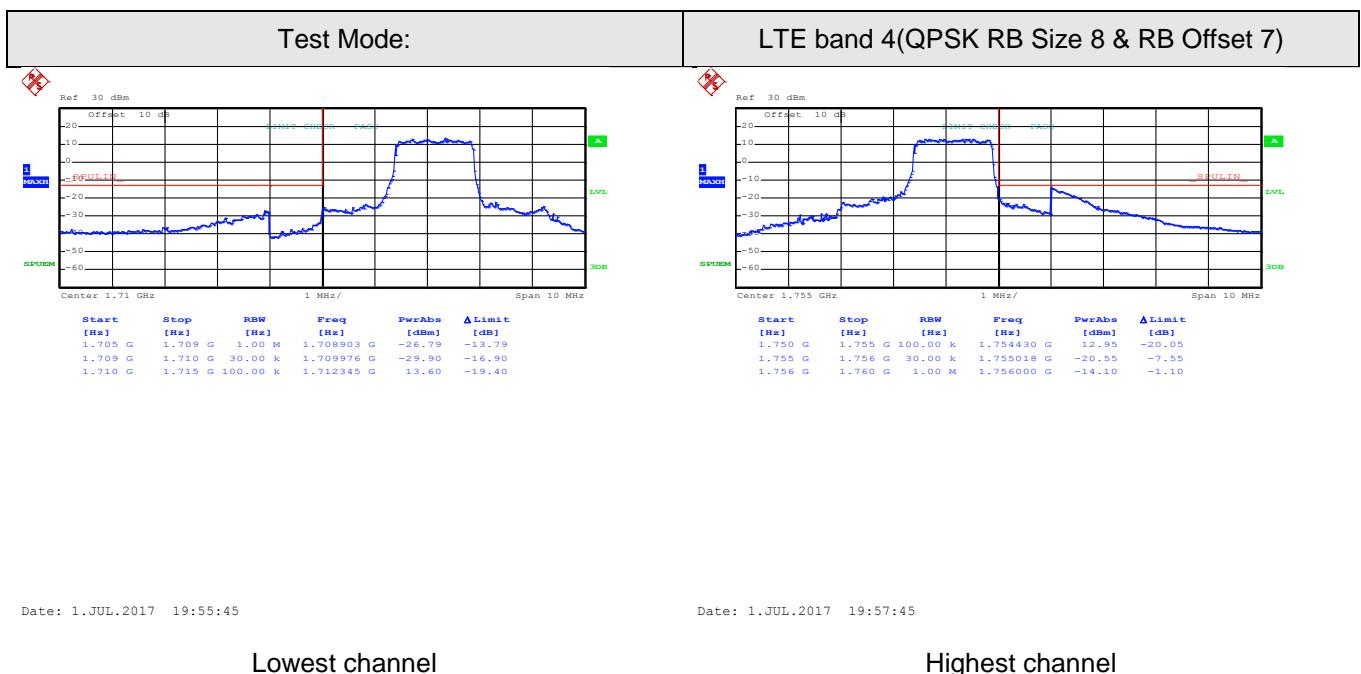
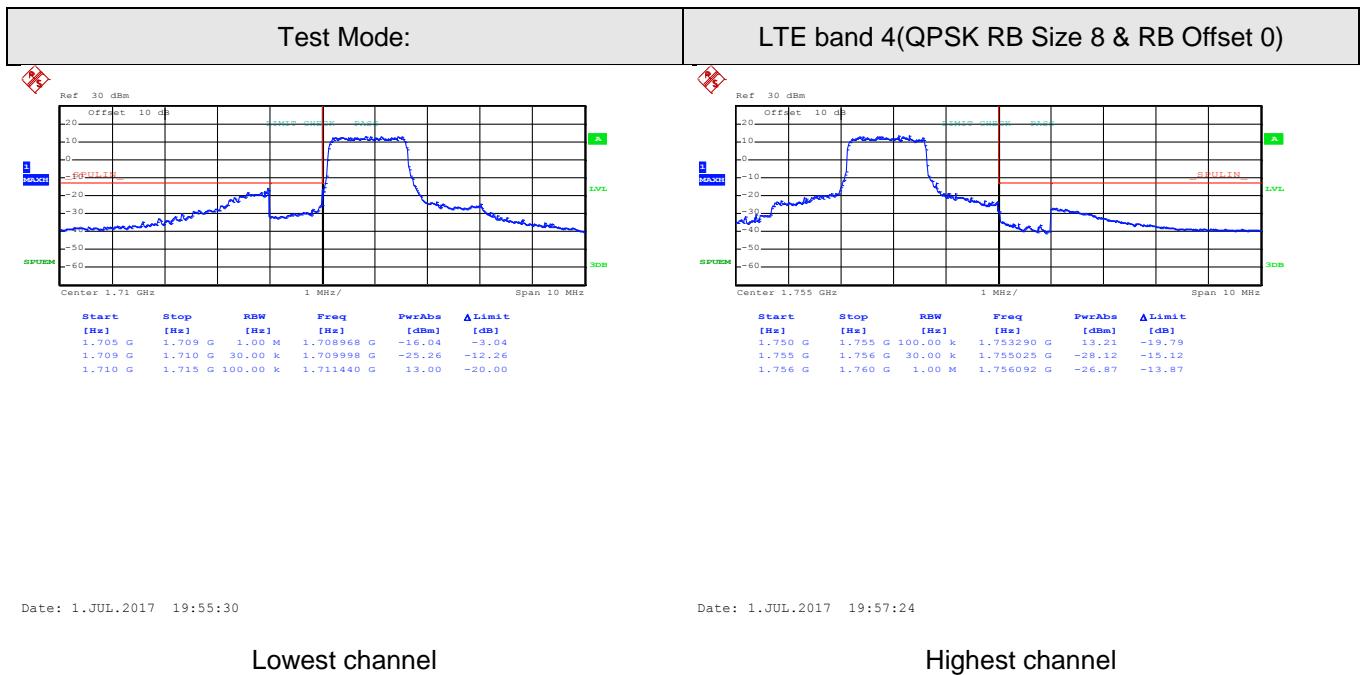
Date: 1.JUL.2017 19:14:17

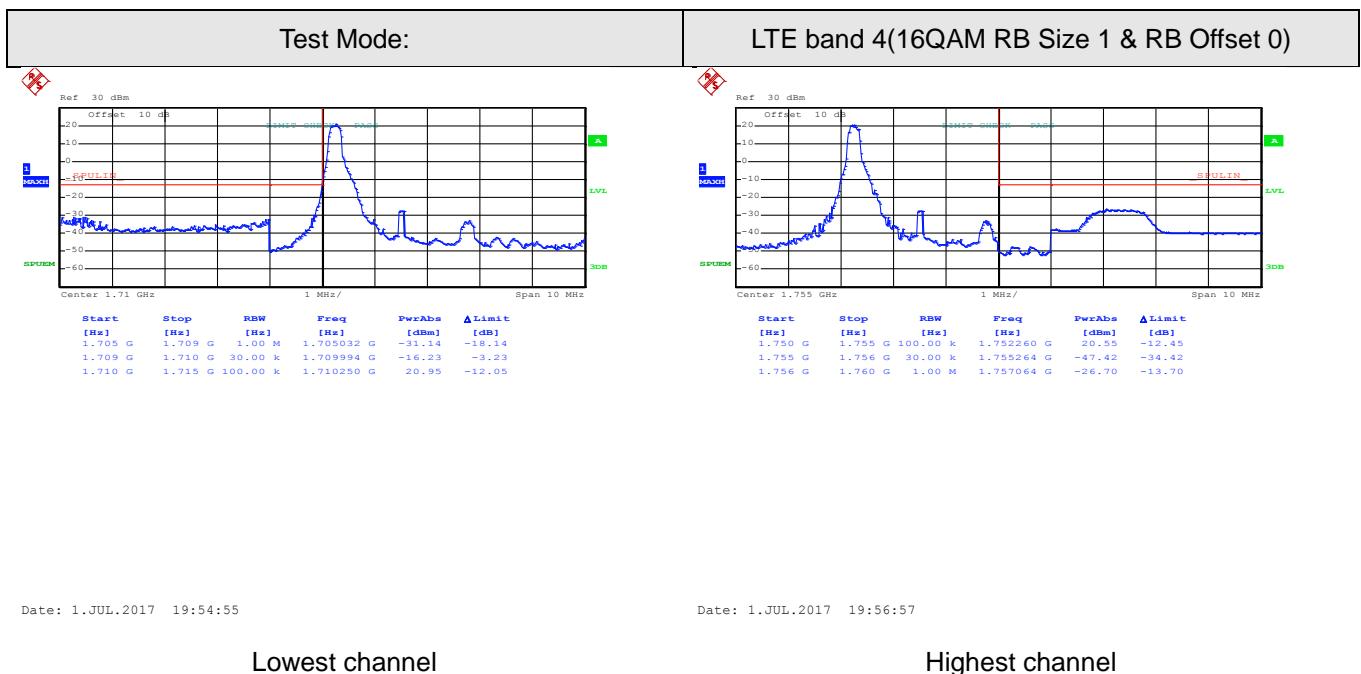
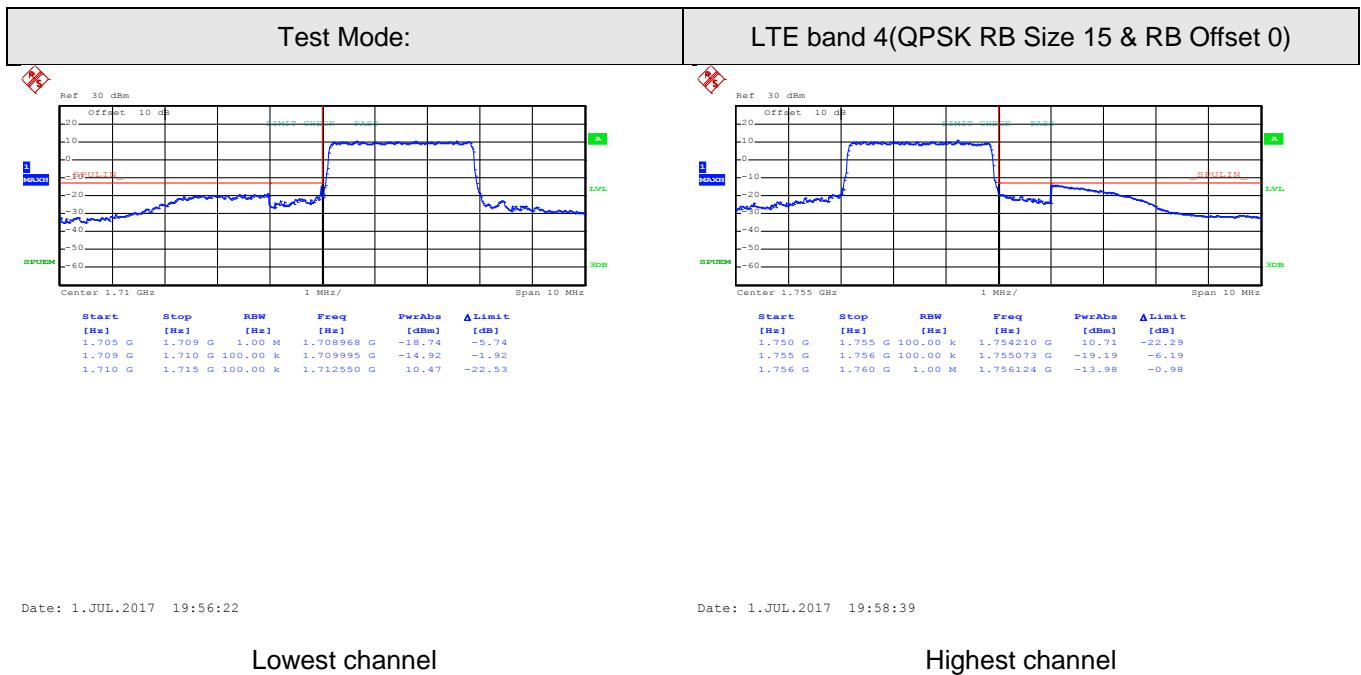
Highest channel

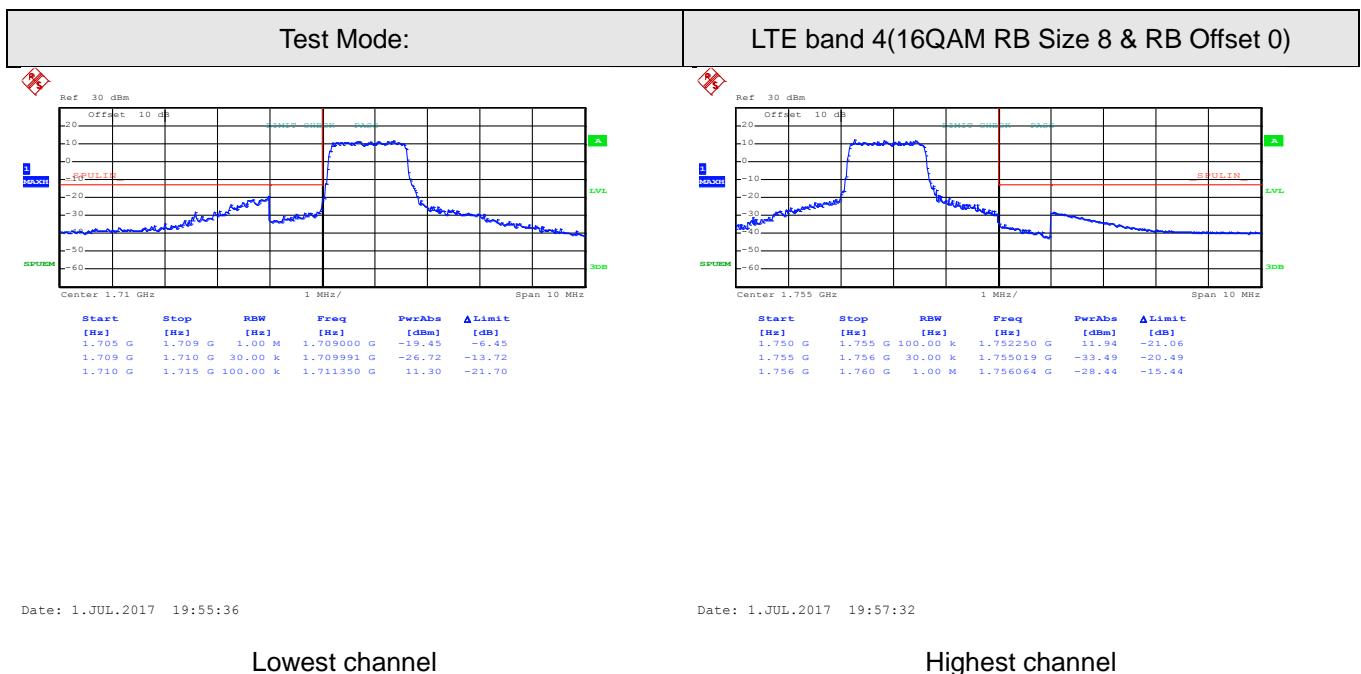
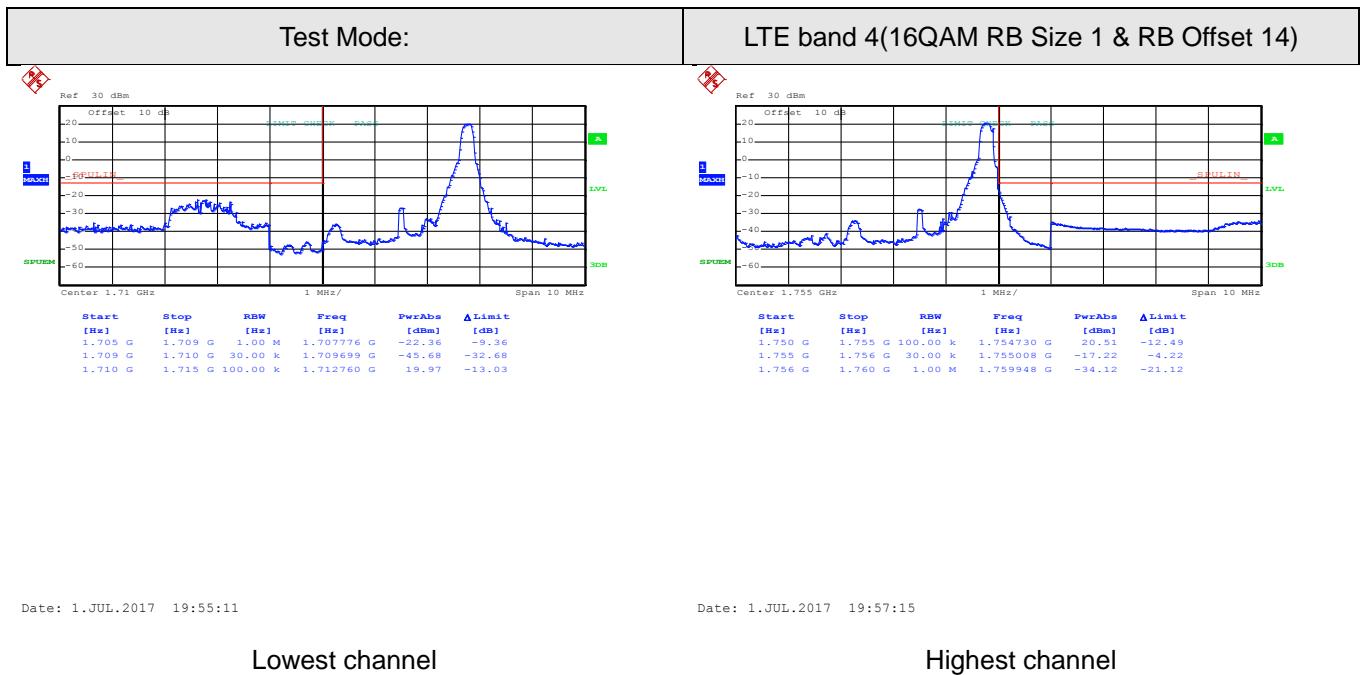


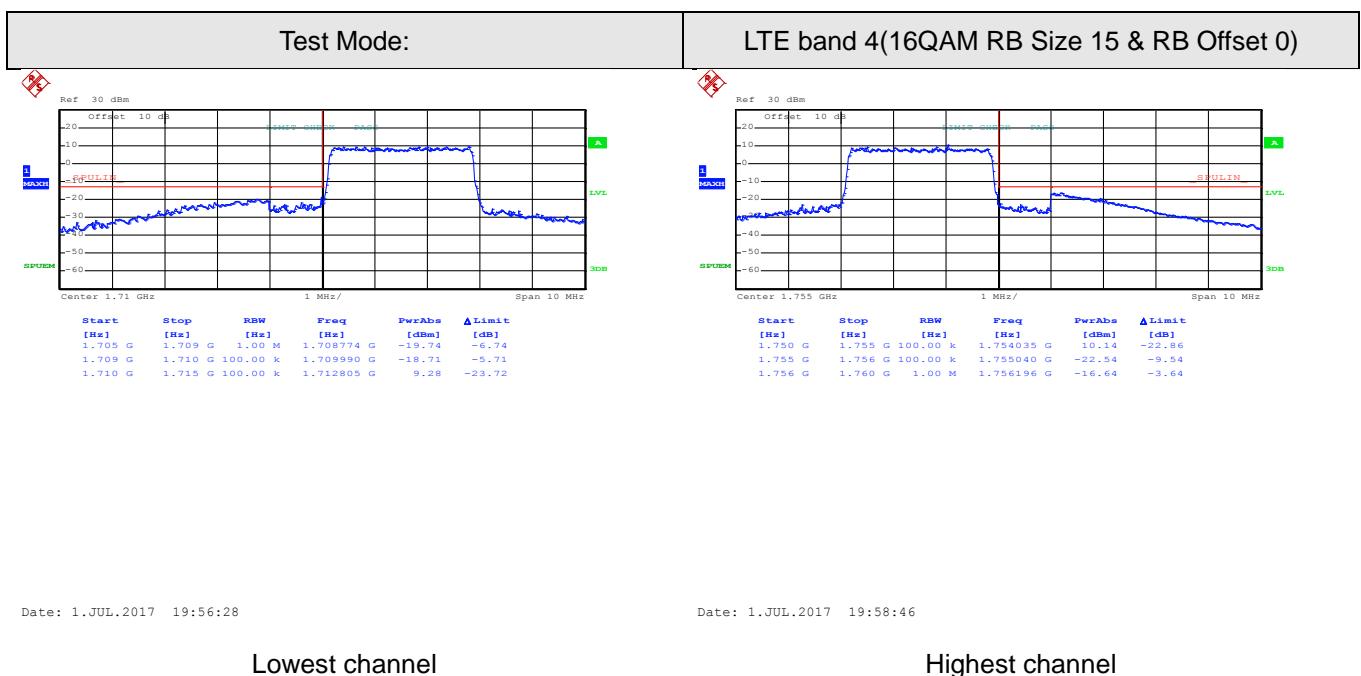
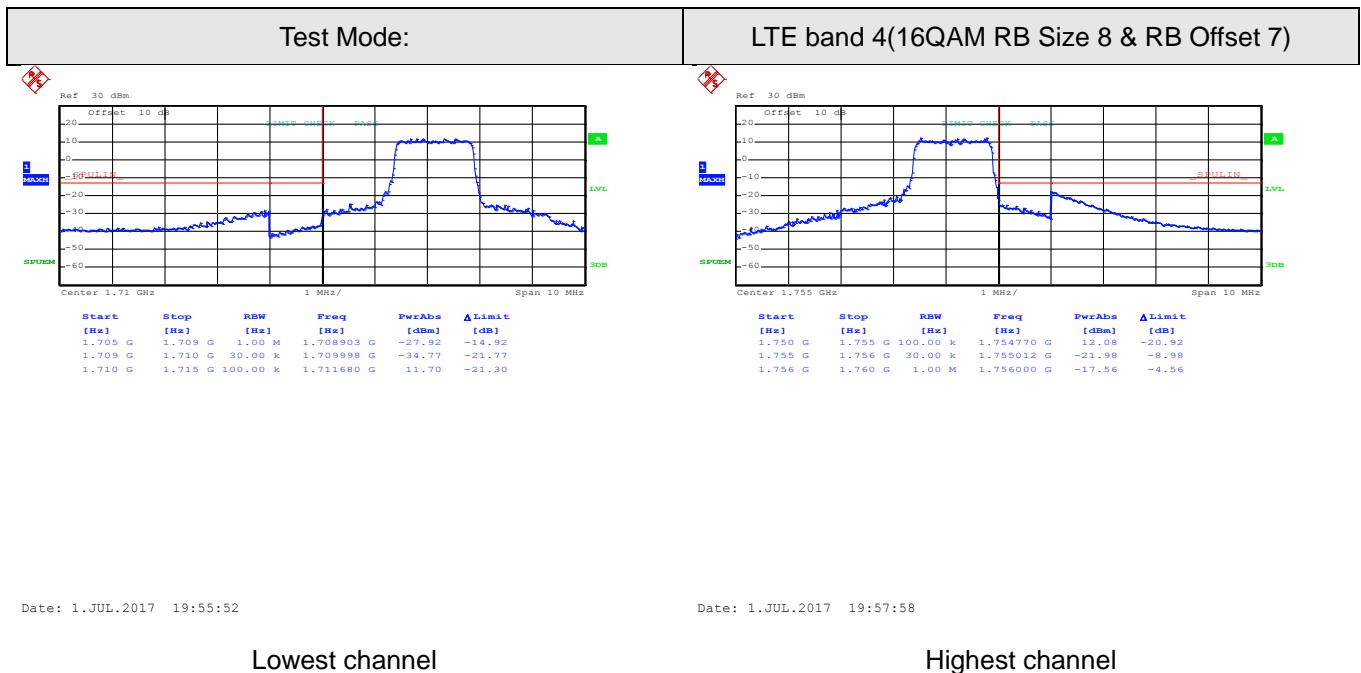
3MHz:



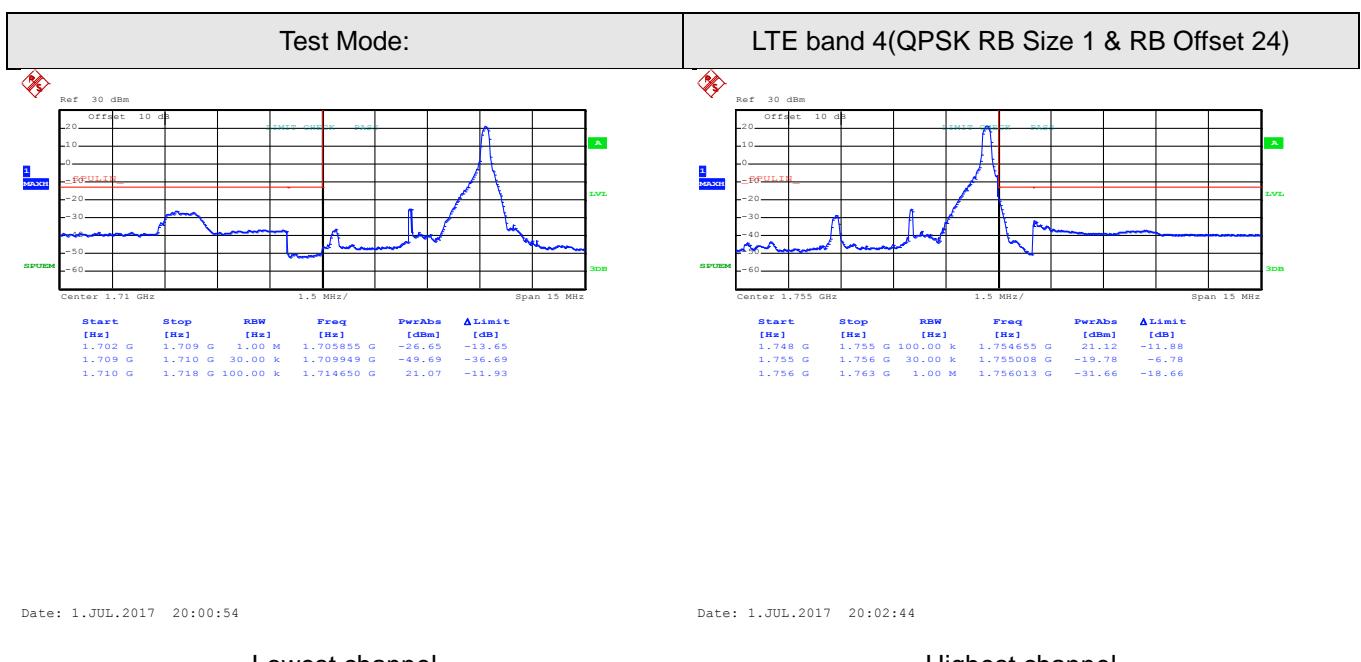
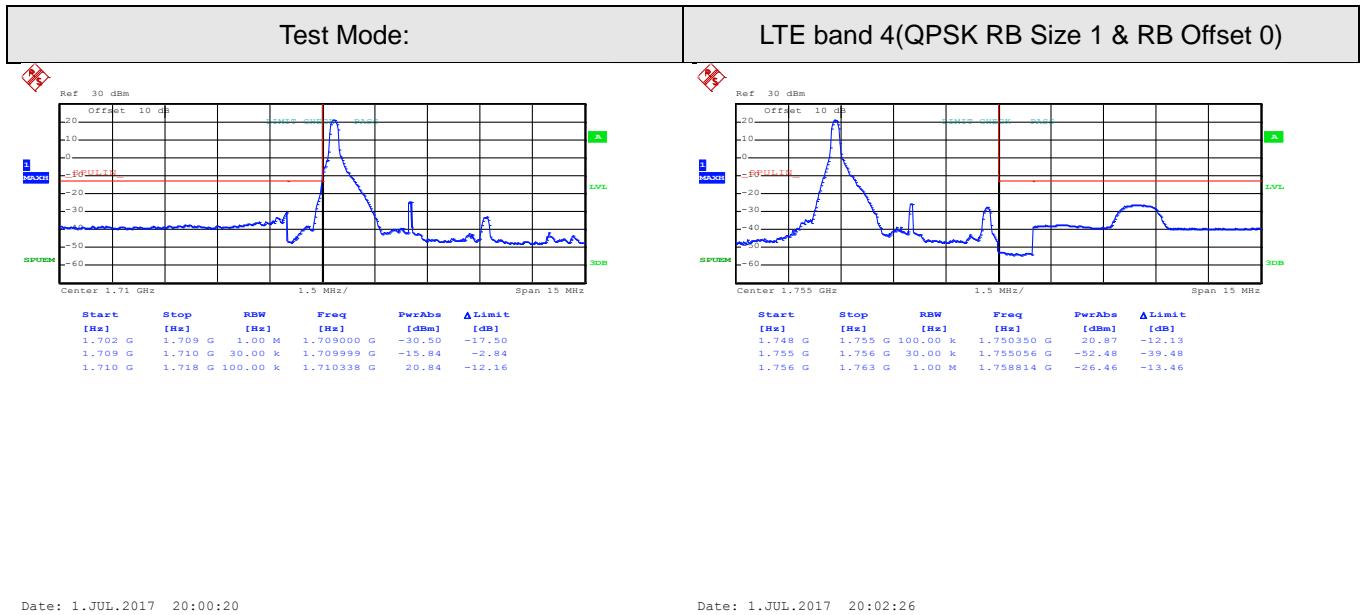


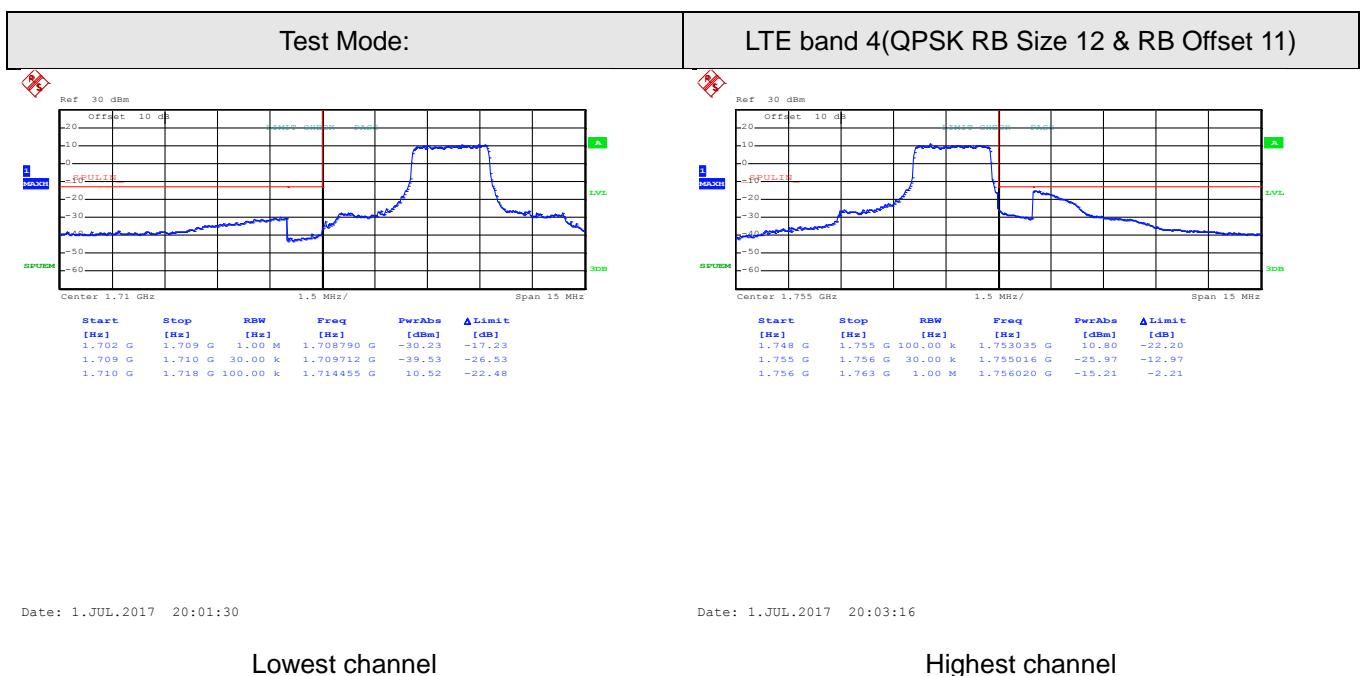
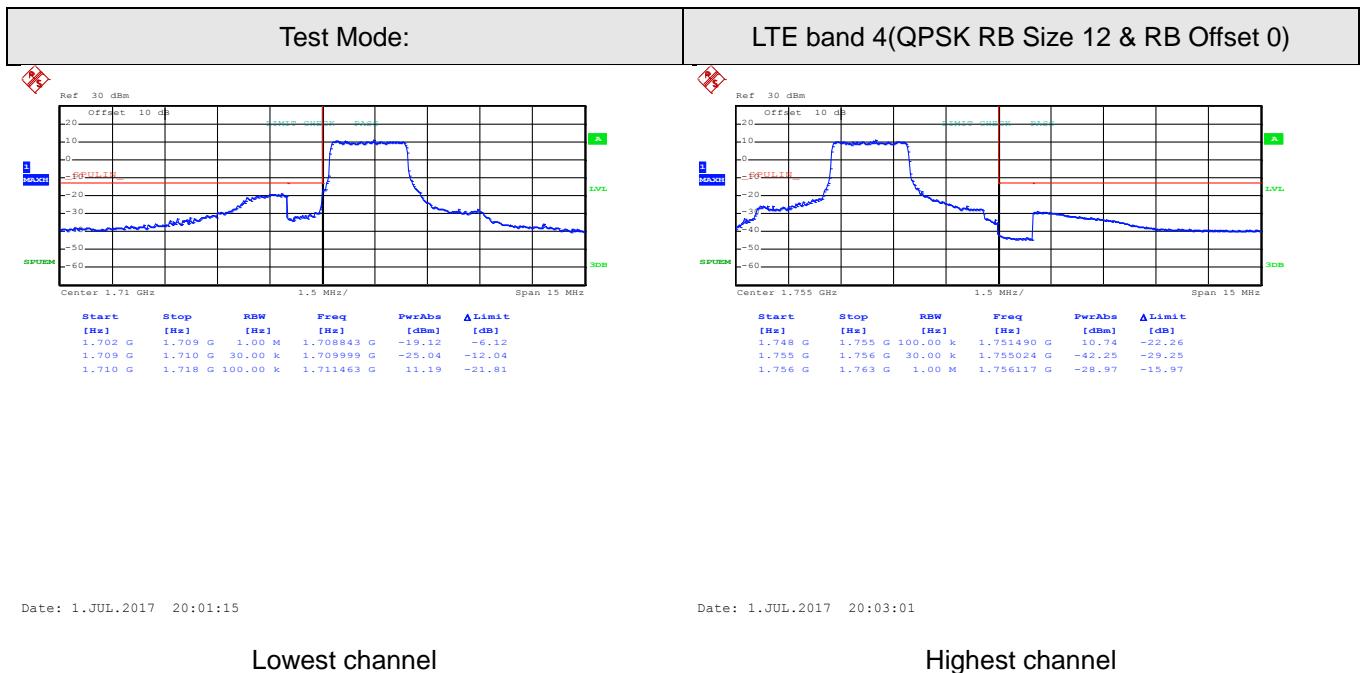


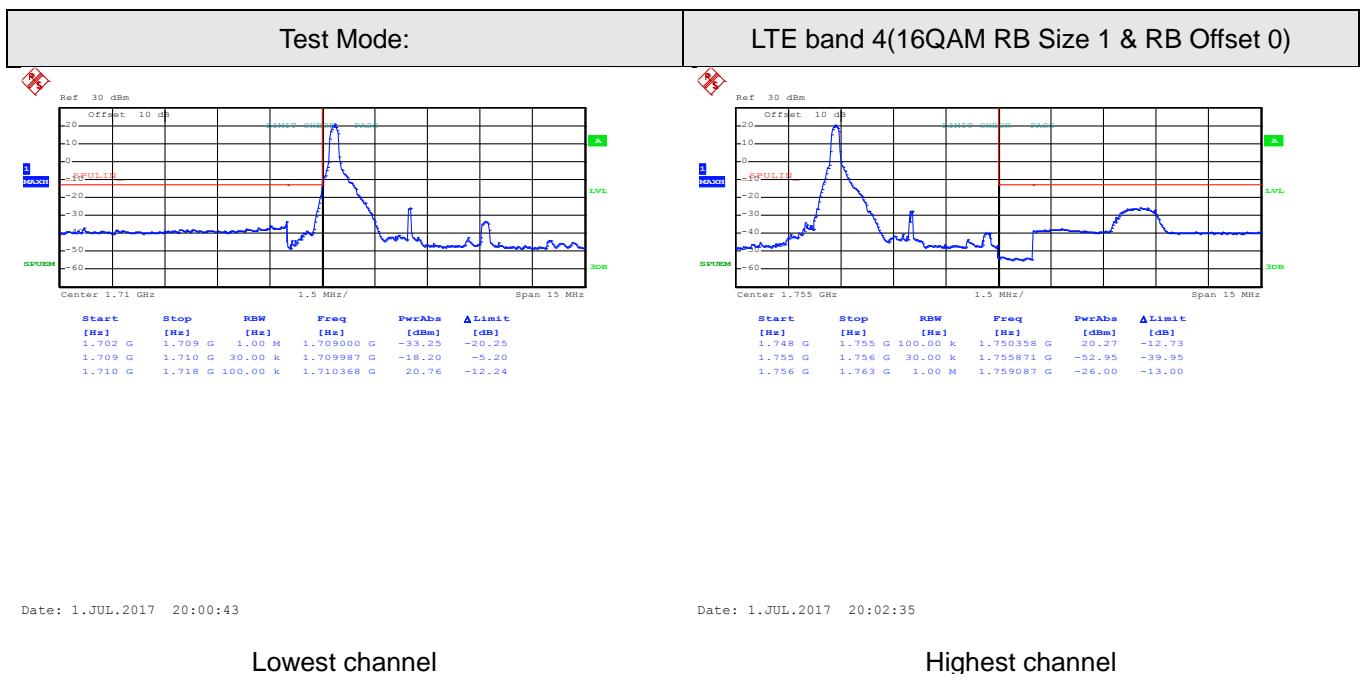
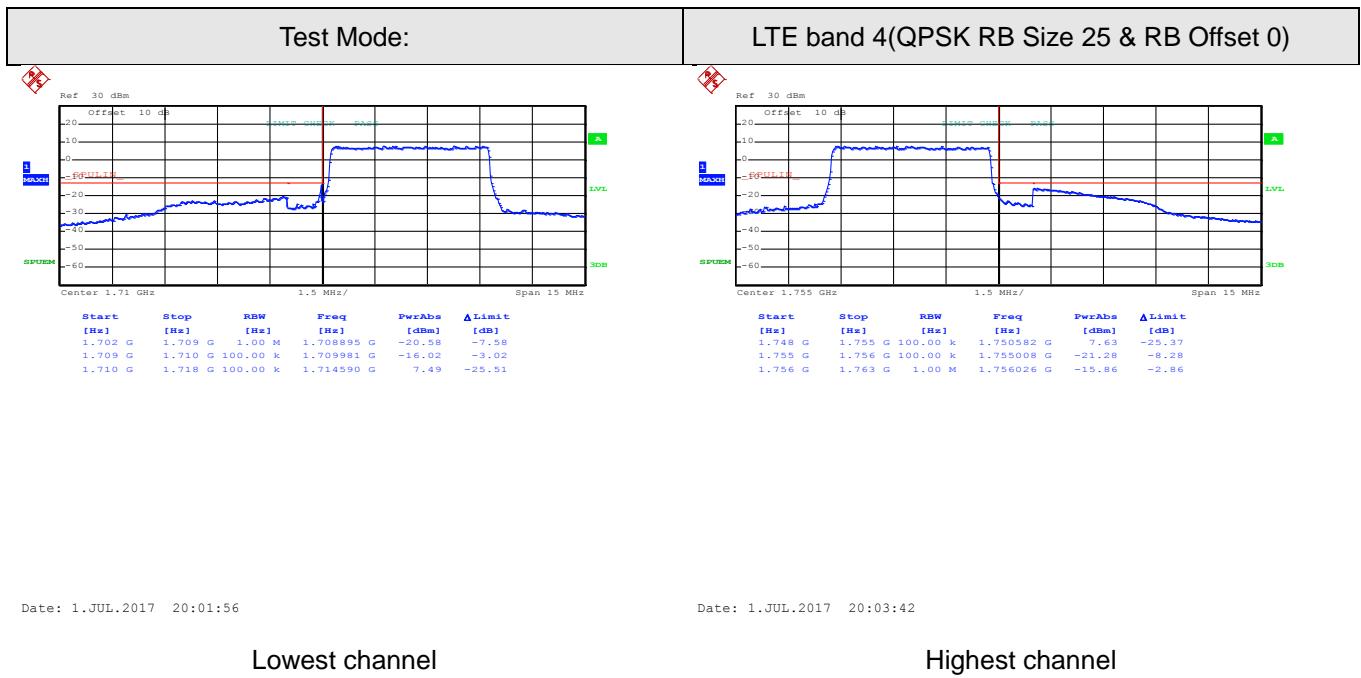


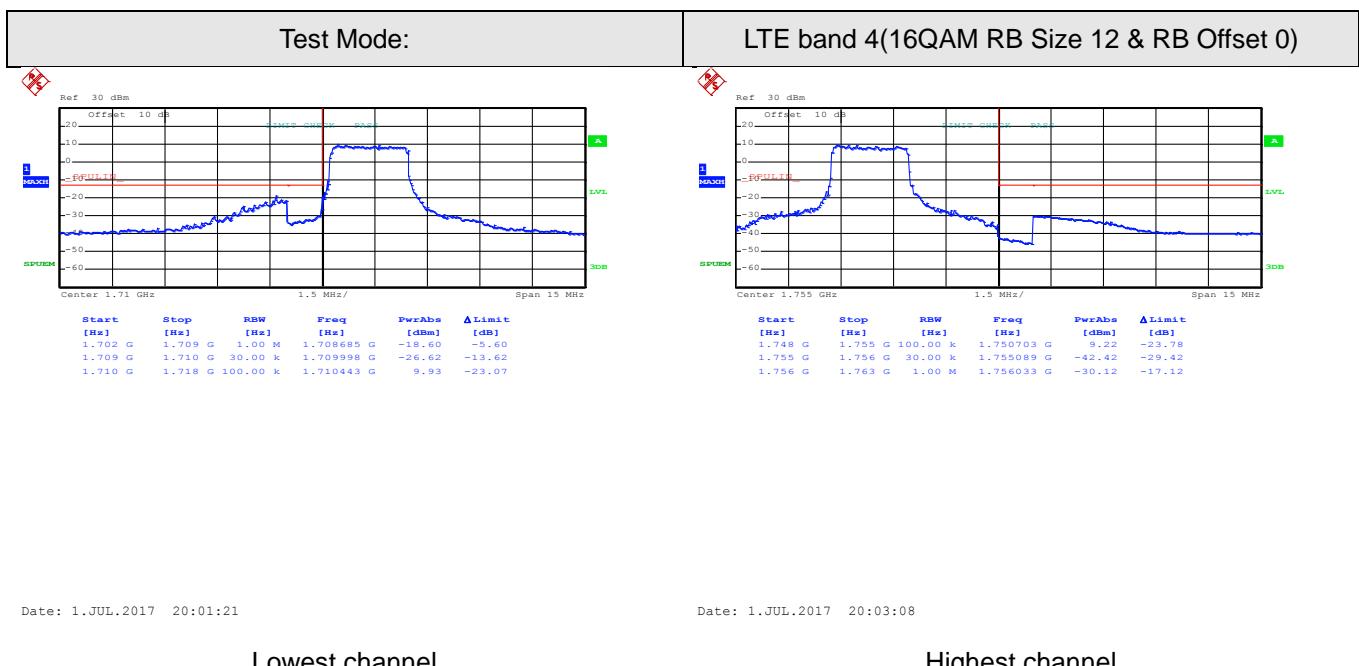
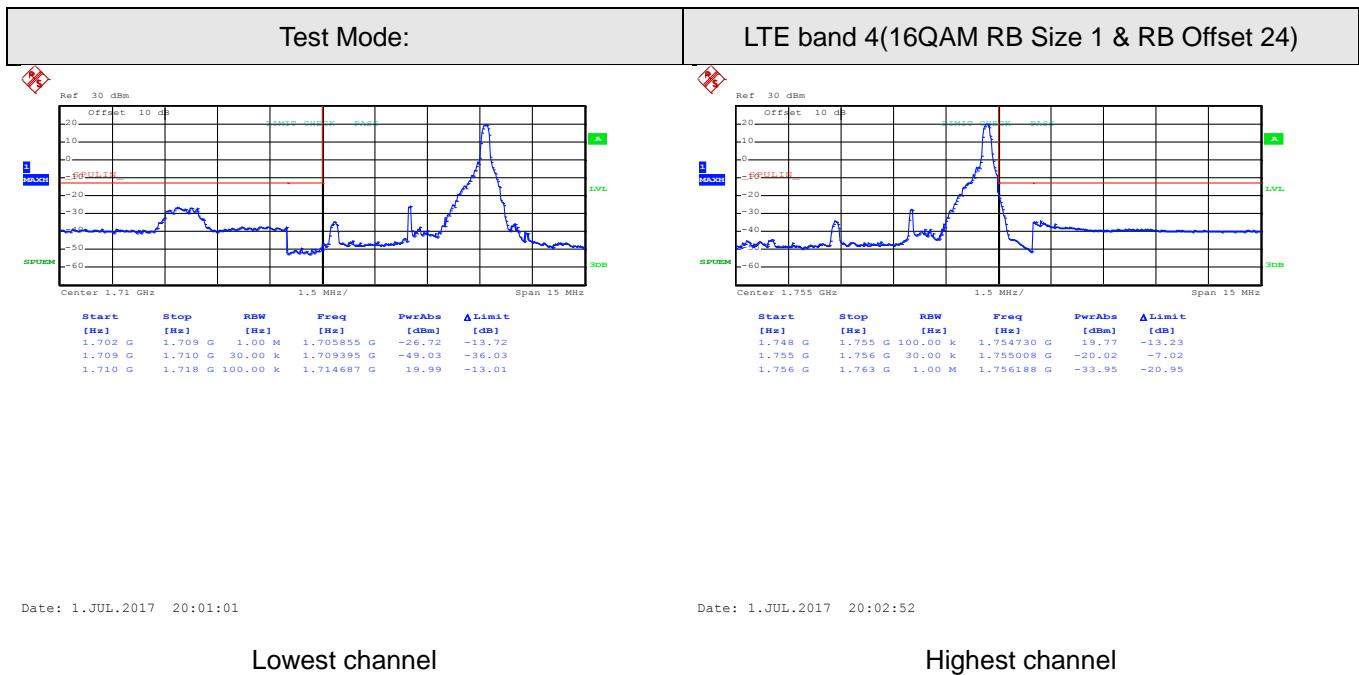


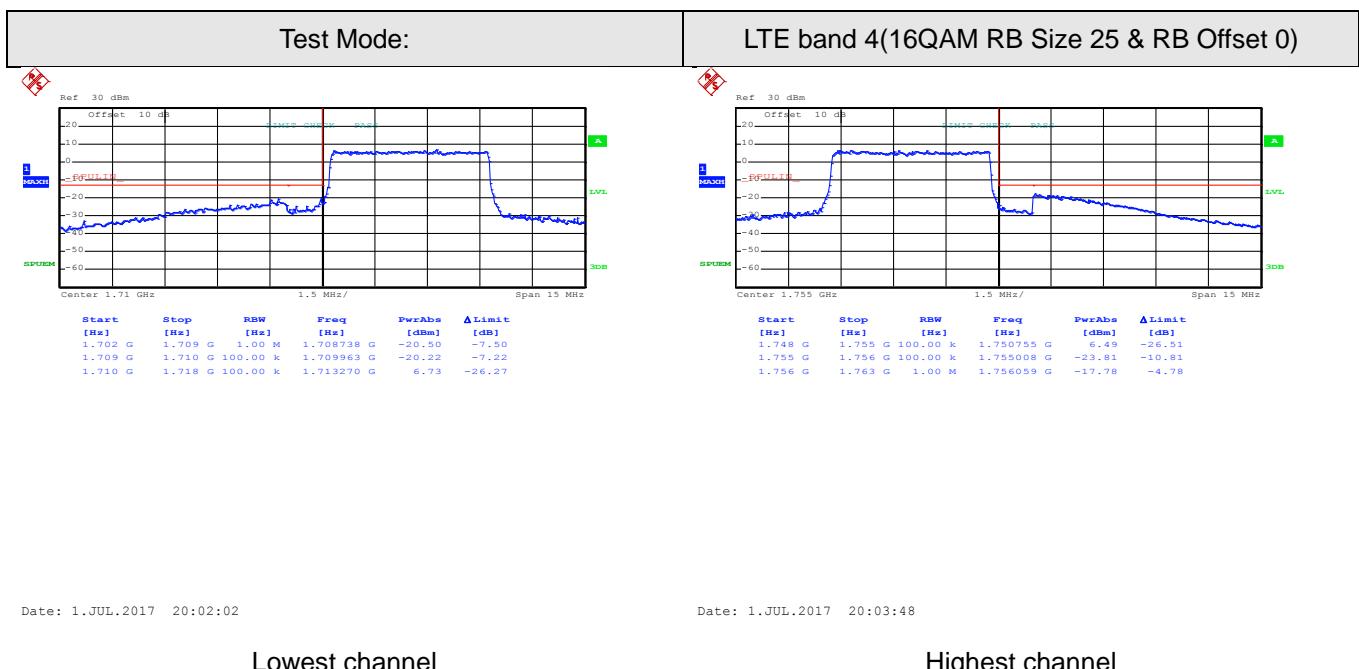
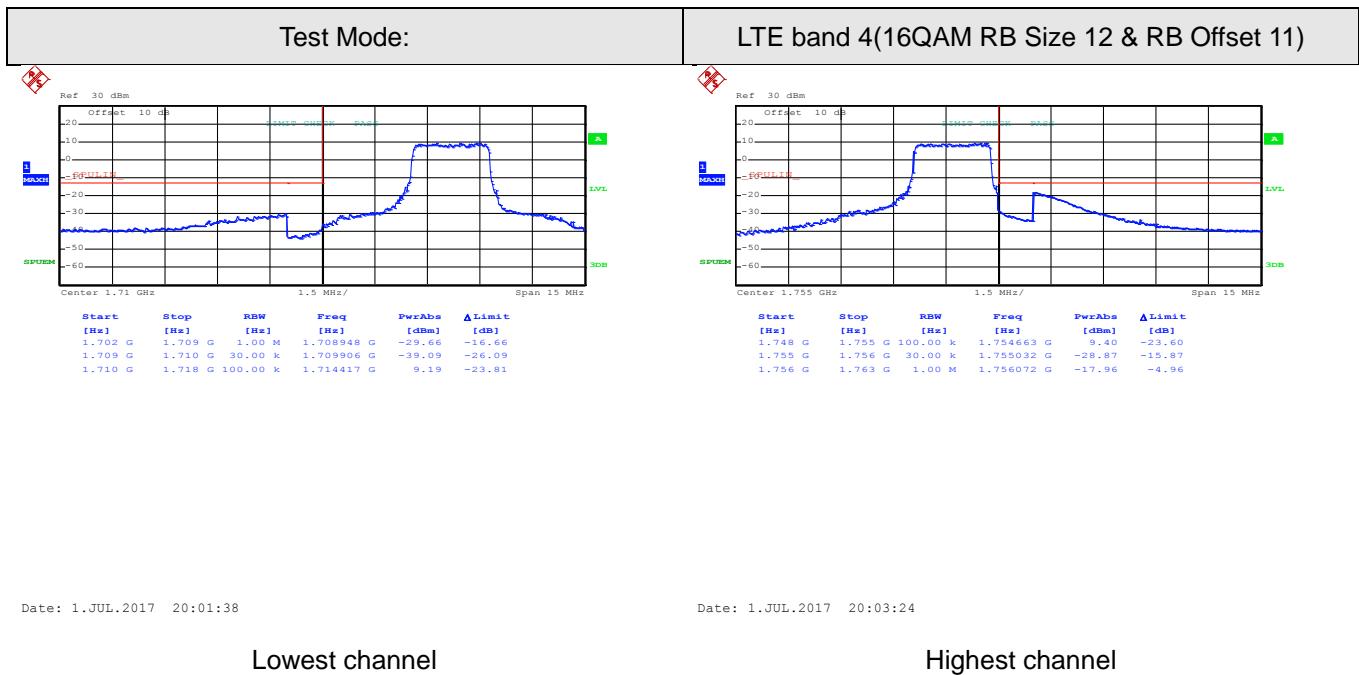
5MHz:



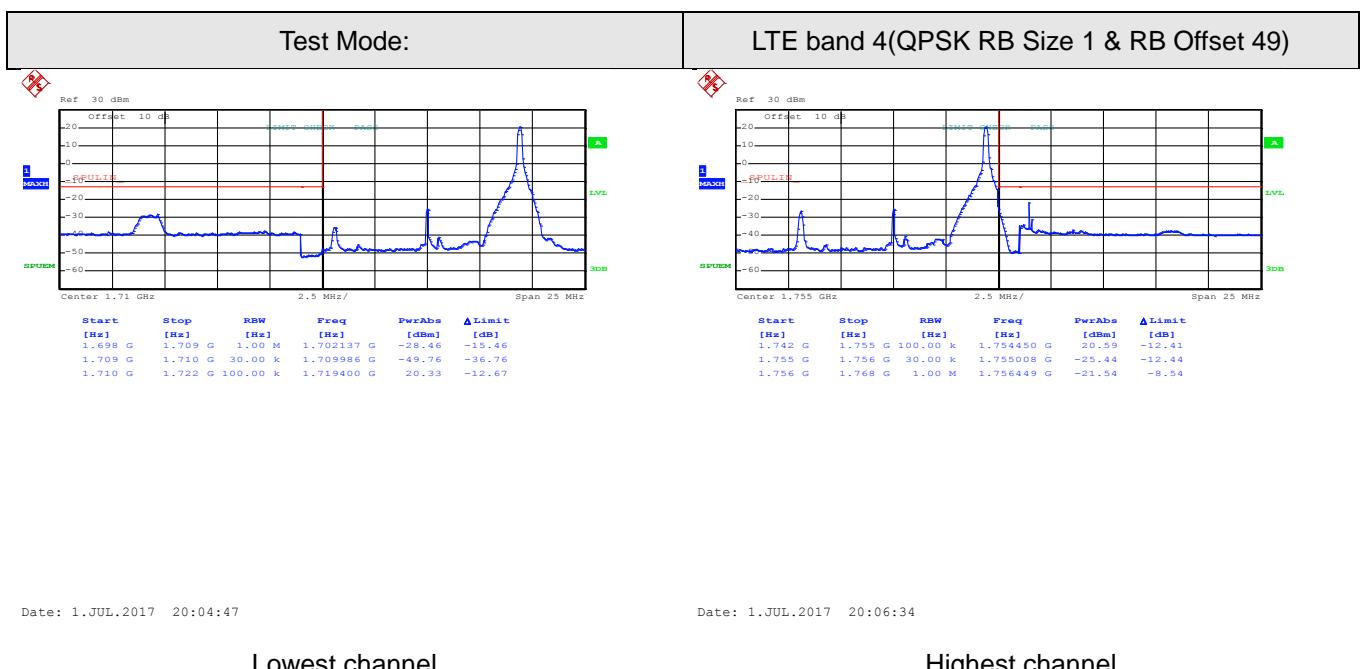
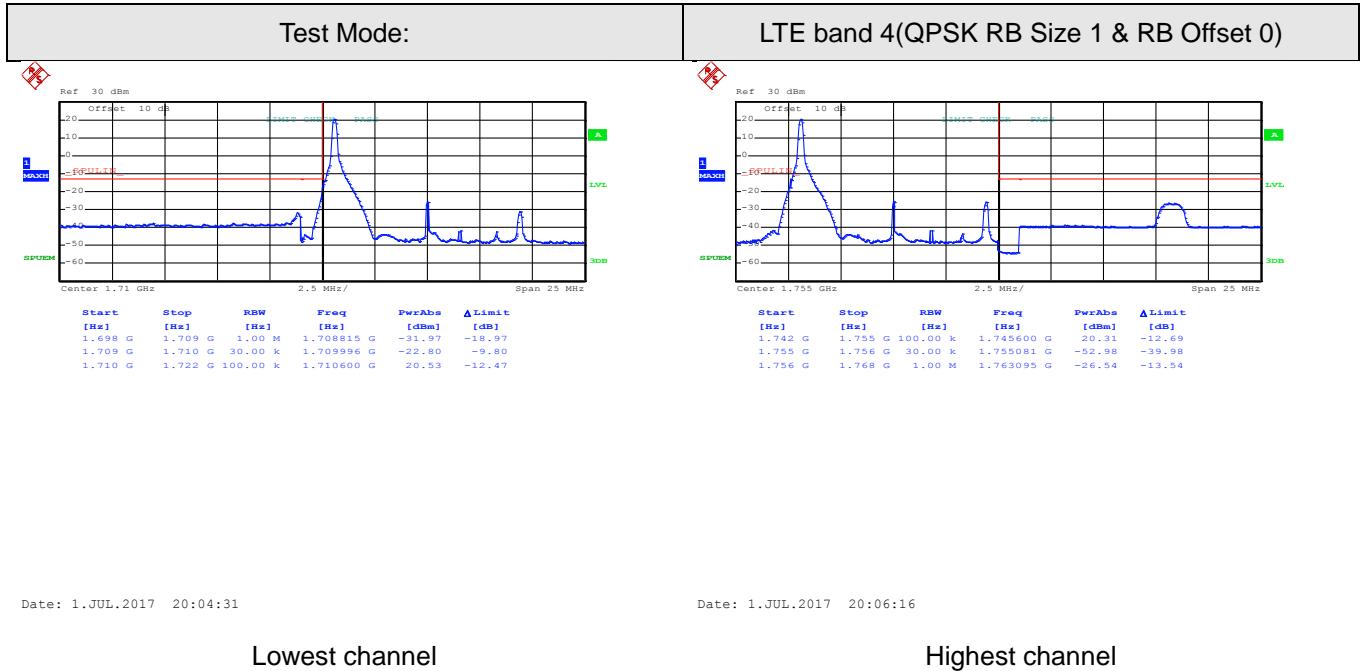


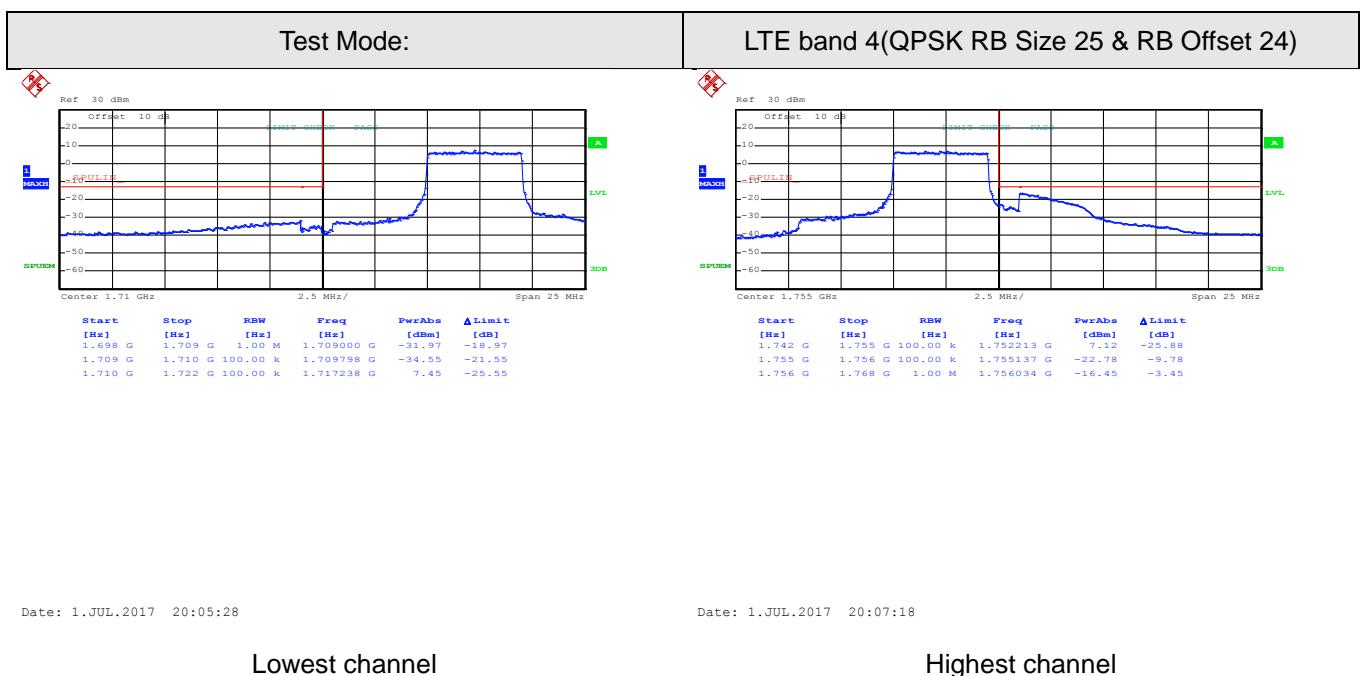
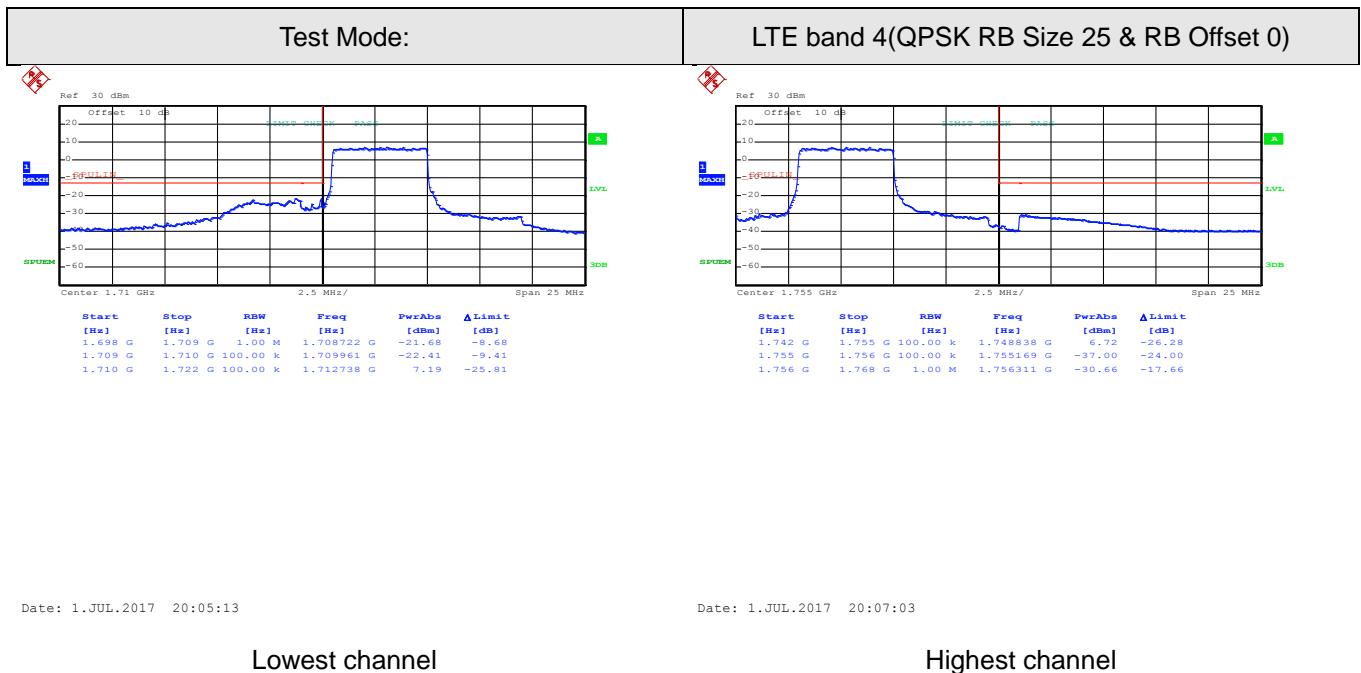


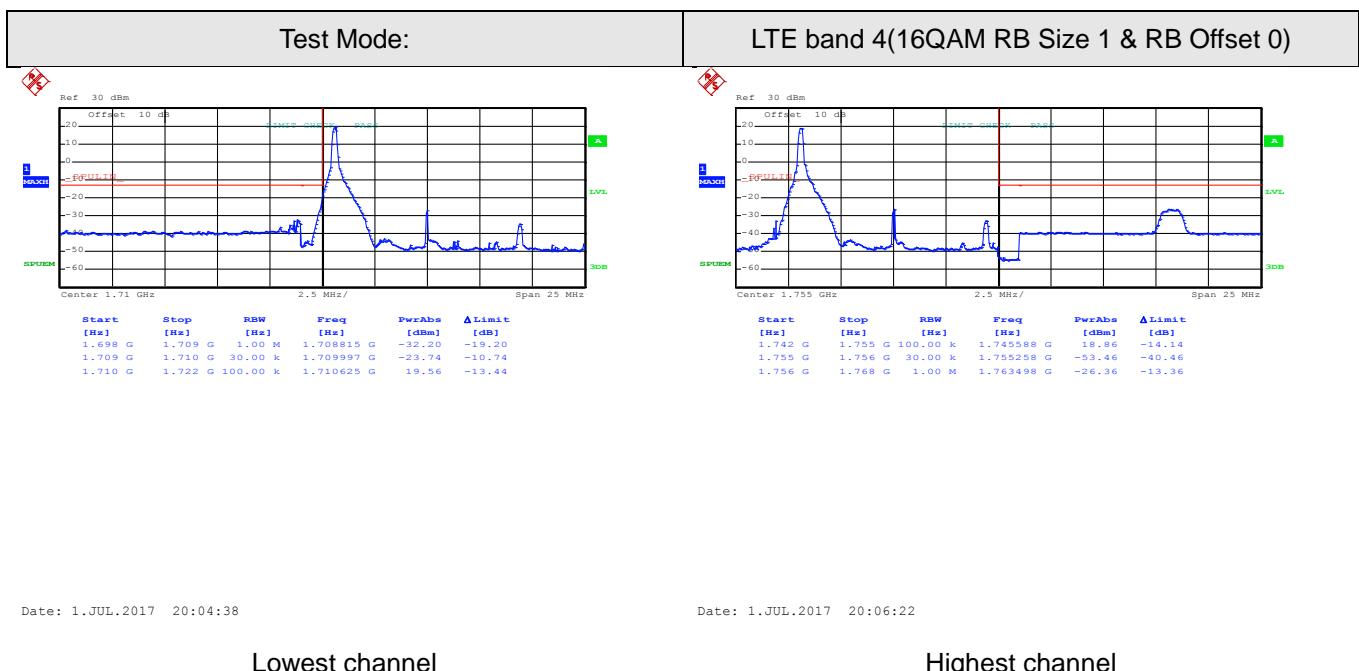
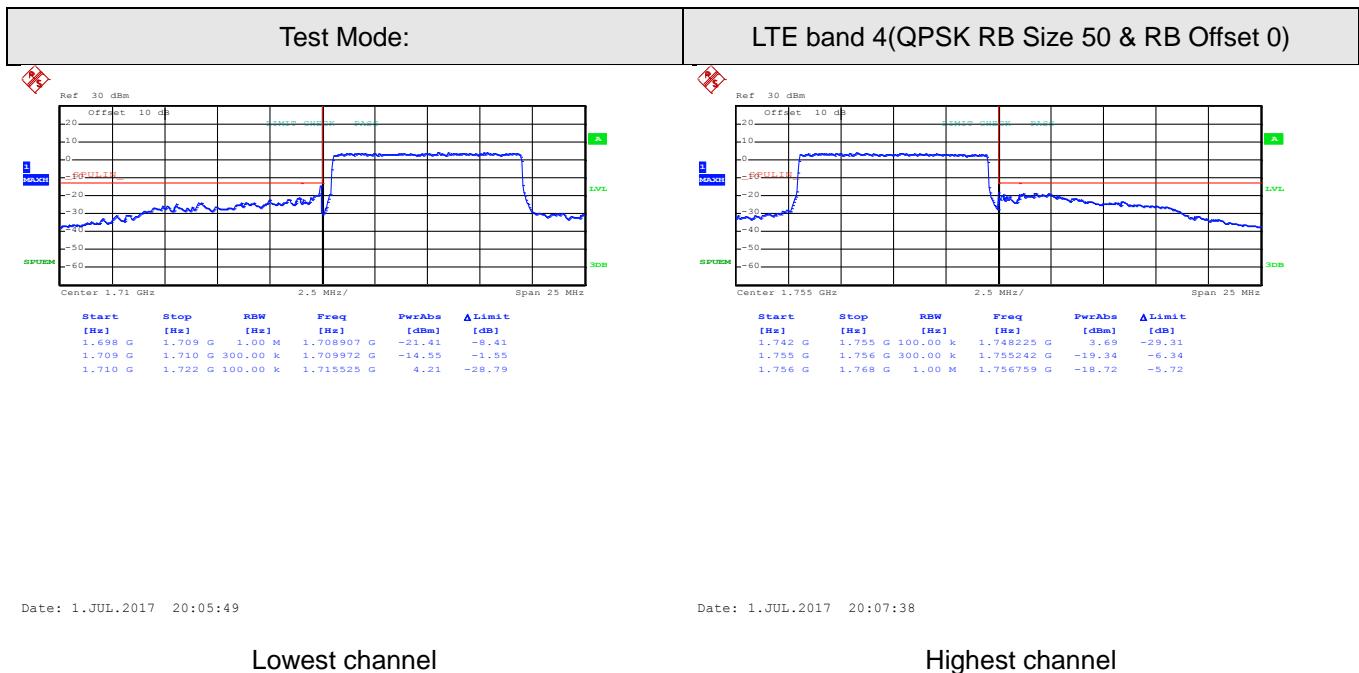




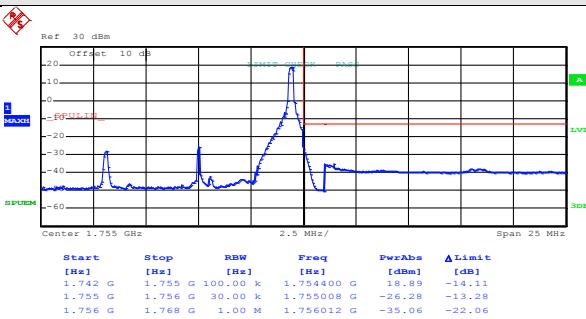
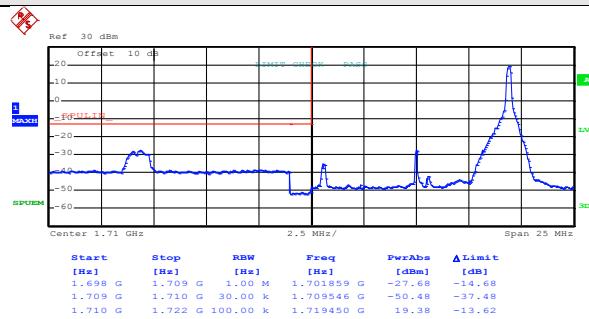
10MHz:







| | |
|------------|--|
| Test Mode: | LTE band 4(16QAM RB Size 1 & RB Offset 49) |
|------------|--|



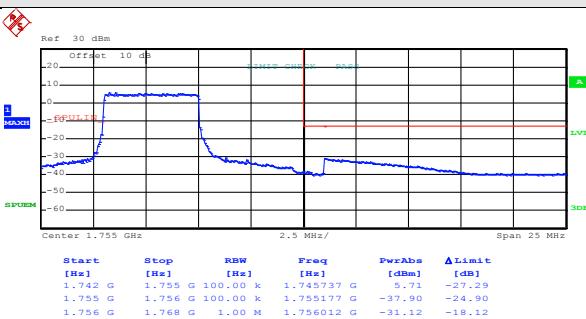
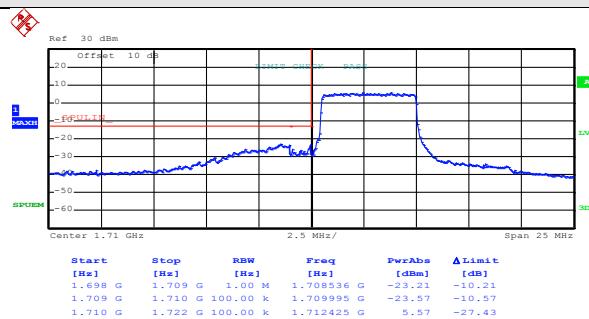
Date: 1.JUL.2017 20:04:55

Lowest channel

Date: 1.JUL.2017 20:06:44

Highest channel

| | |
|------------|--|
| Test Mode: | LTE band 4(16QAM RB Size 25 & RB Offset 0) |
|------------|--|

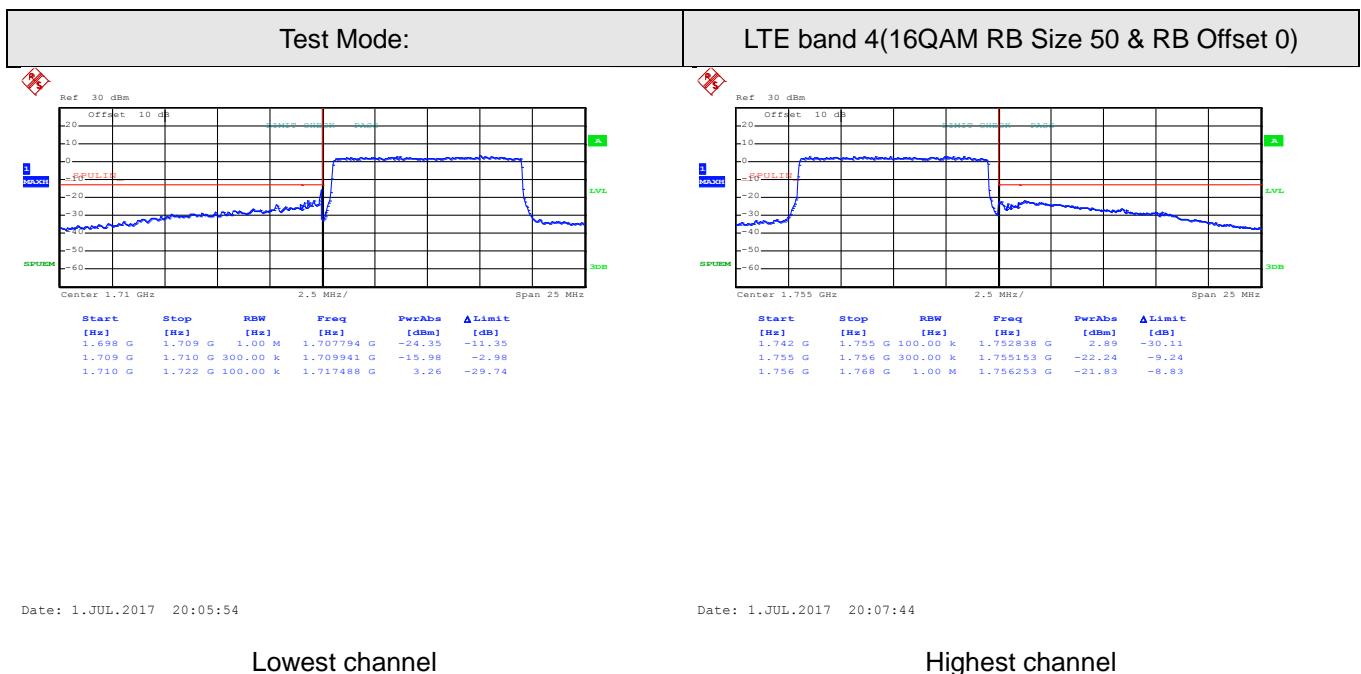
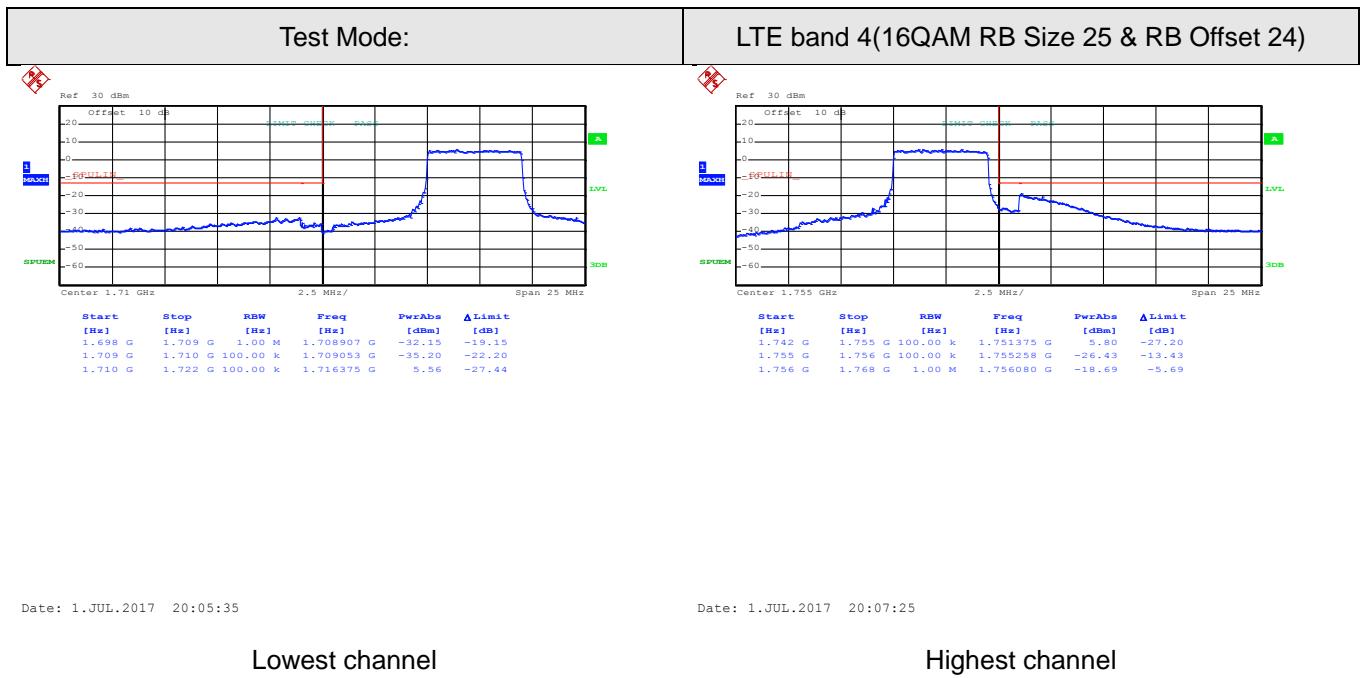


Date: 1.JUL.2017 20:05:19

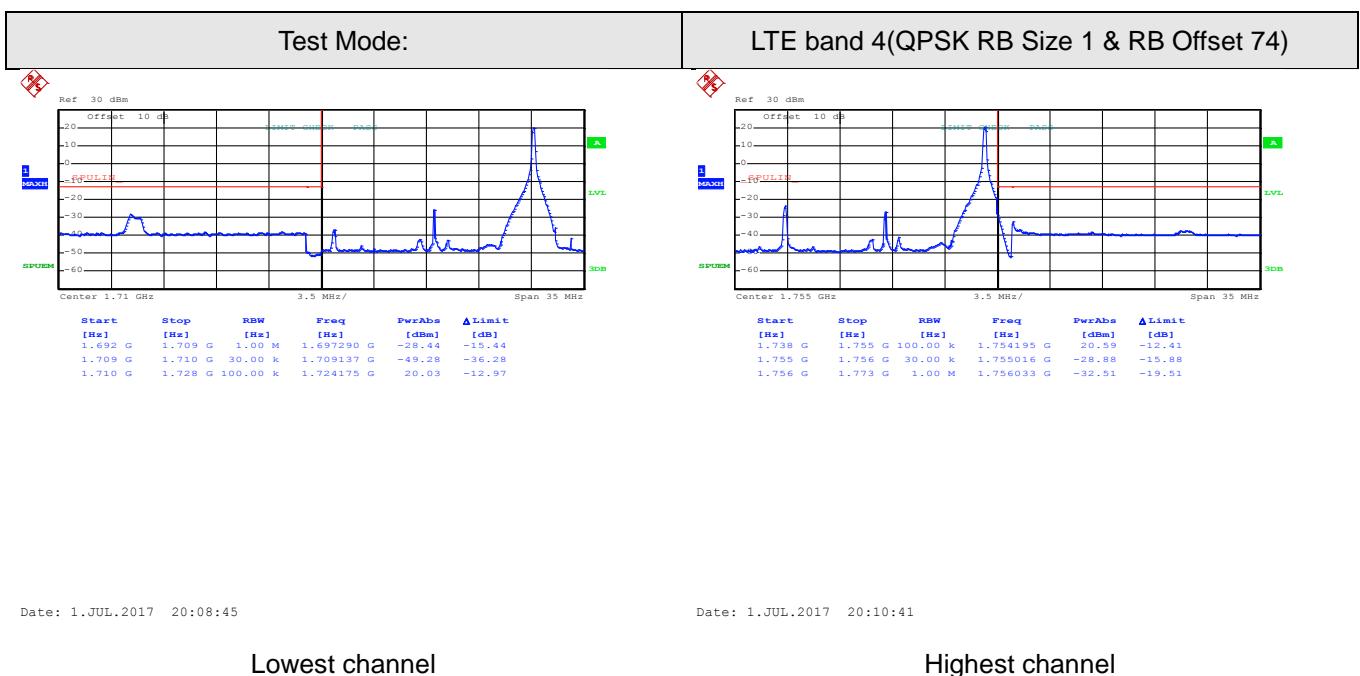
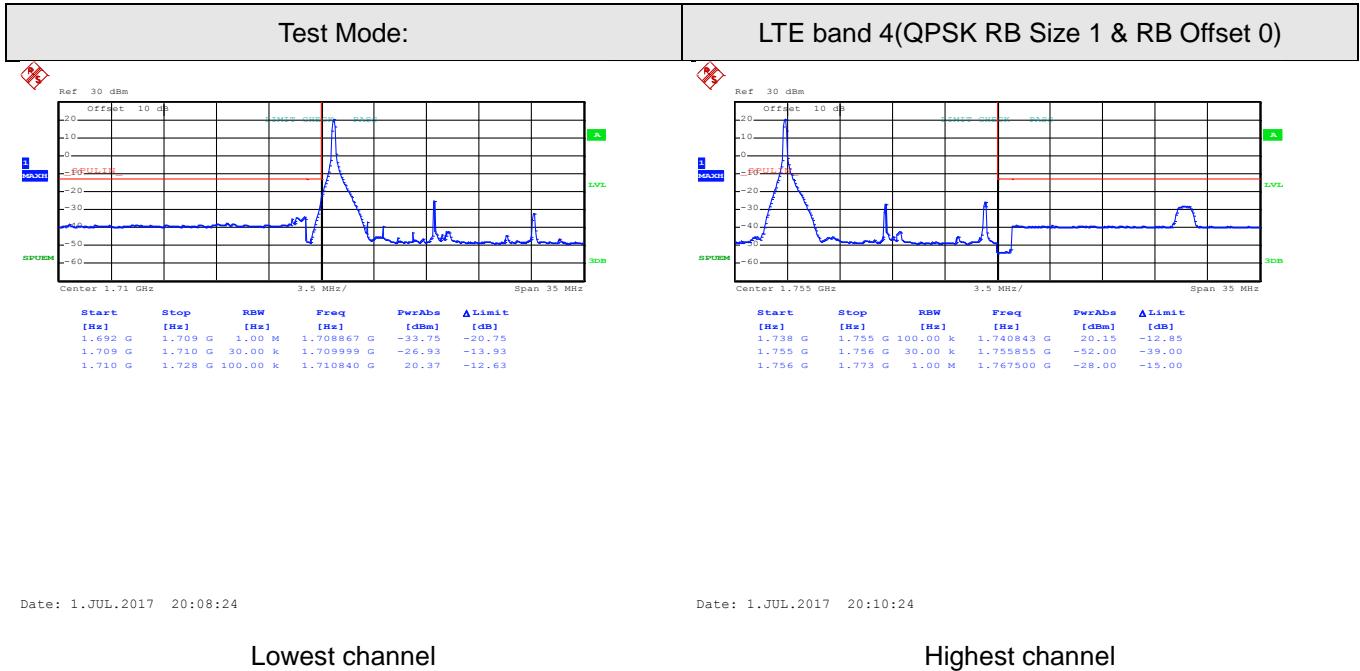
Lowest channel

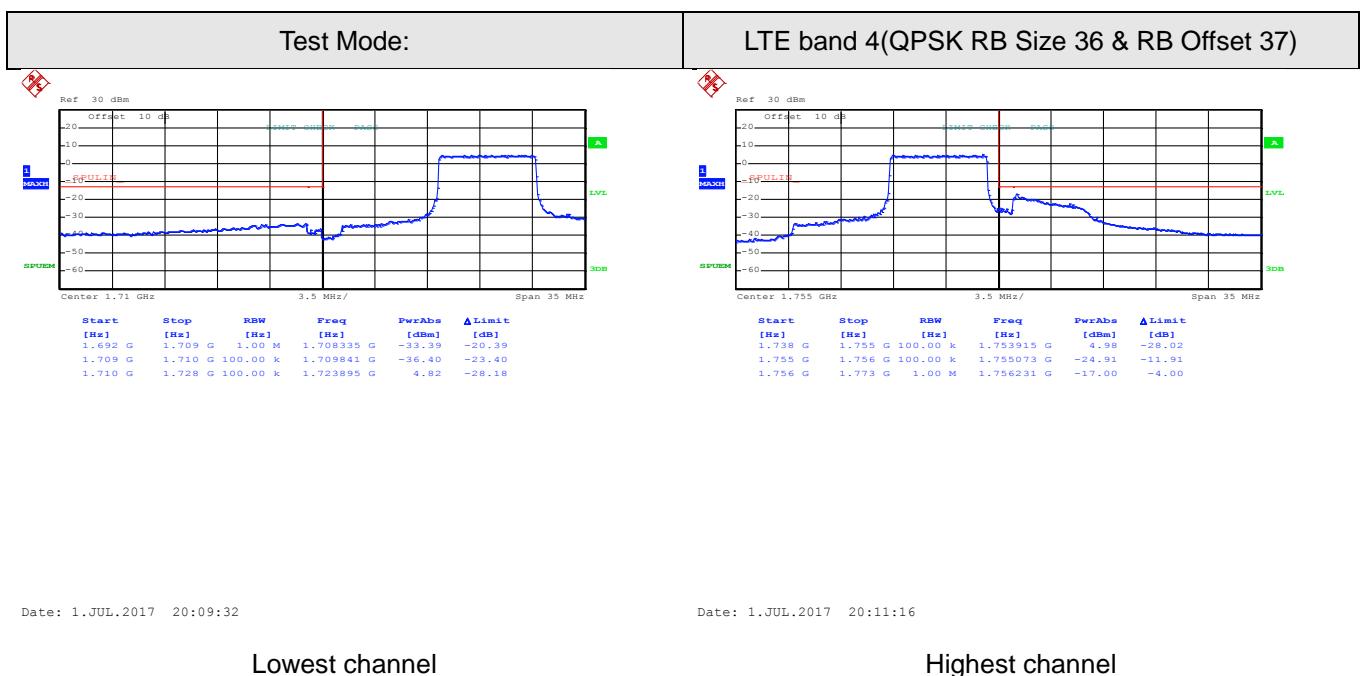
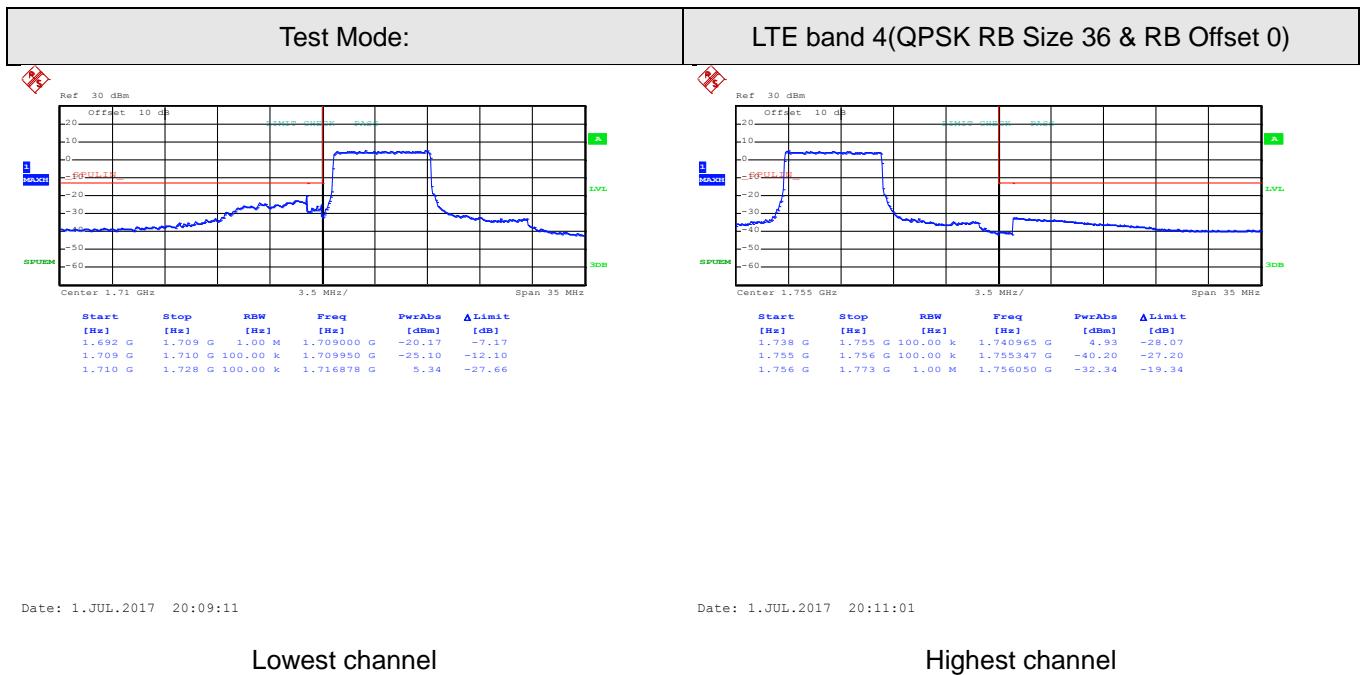
Date: 1.JUL.2017 20:07:09

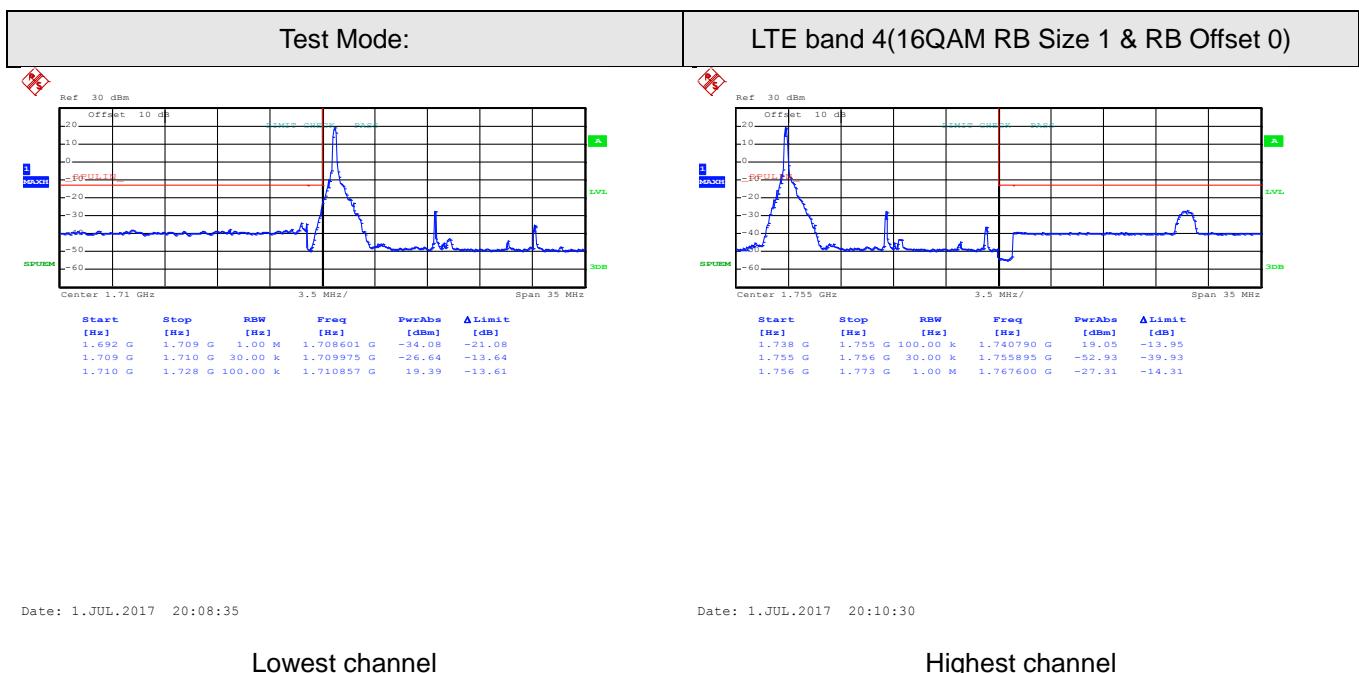
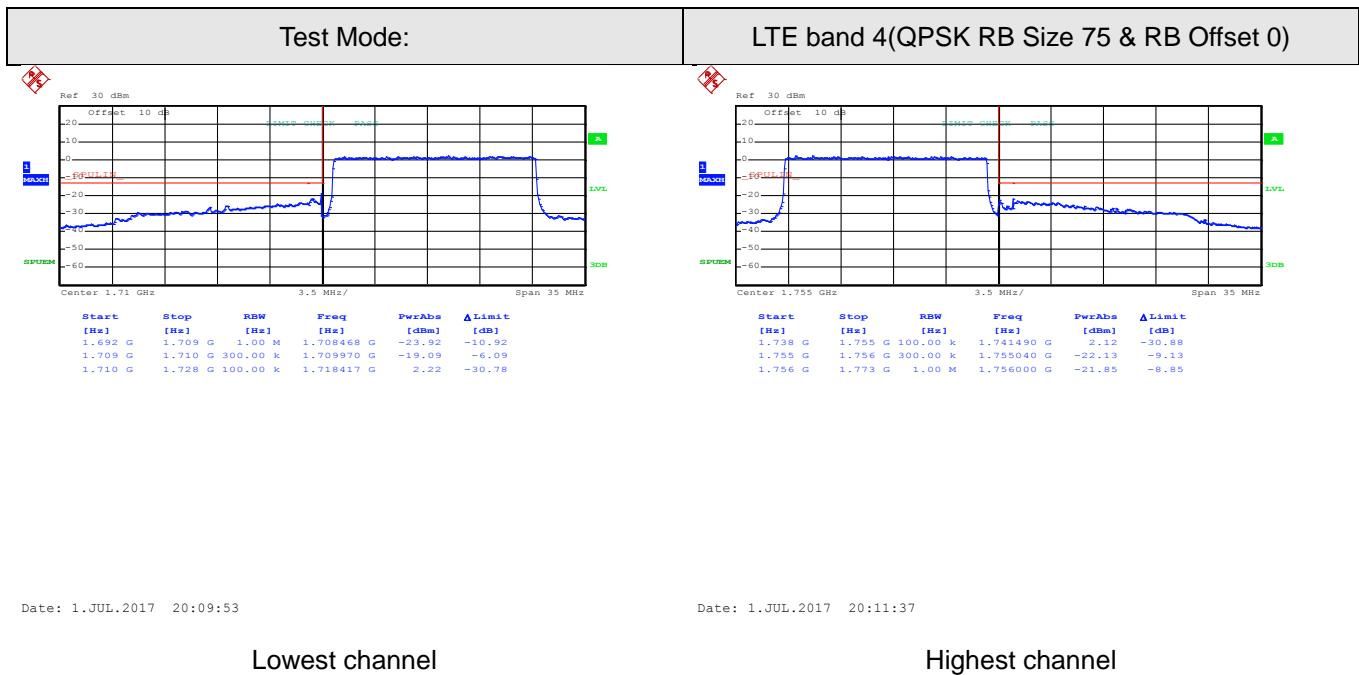
Highest channel

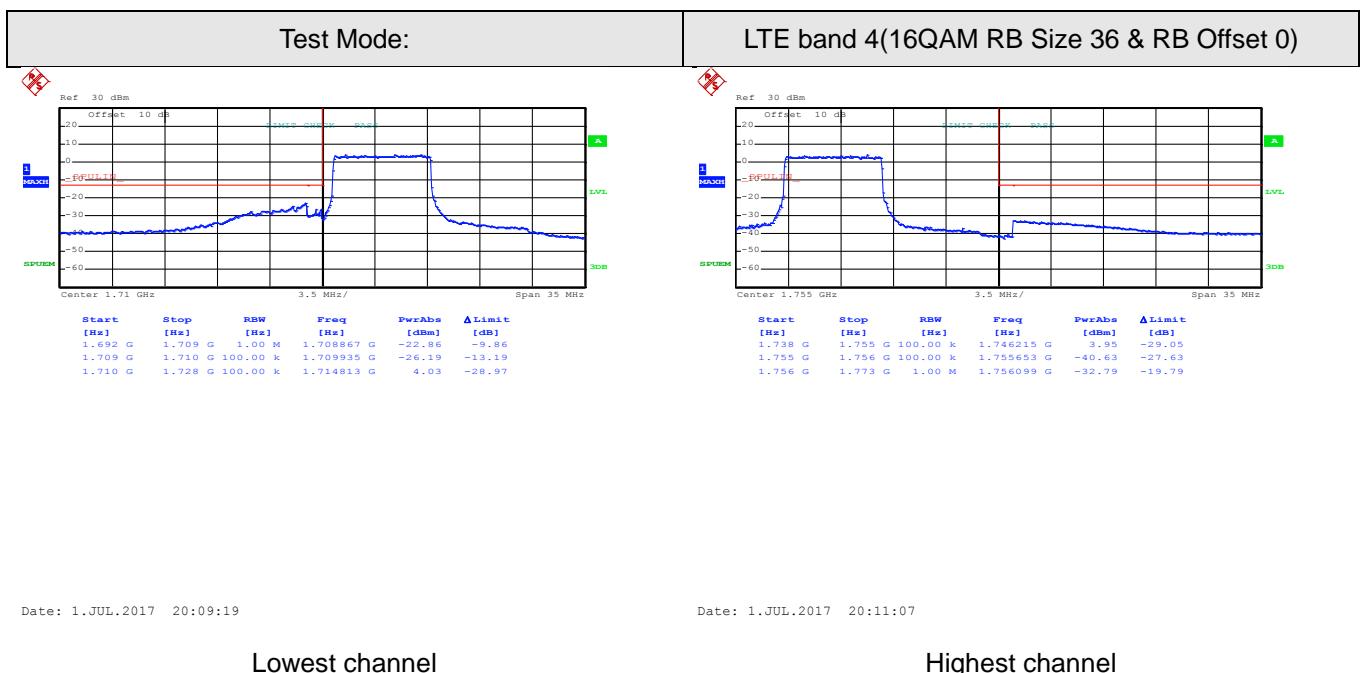
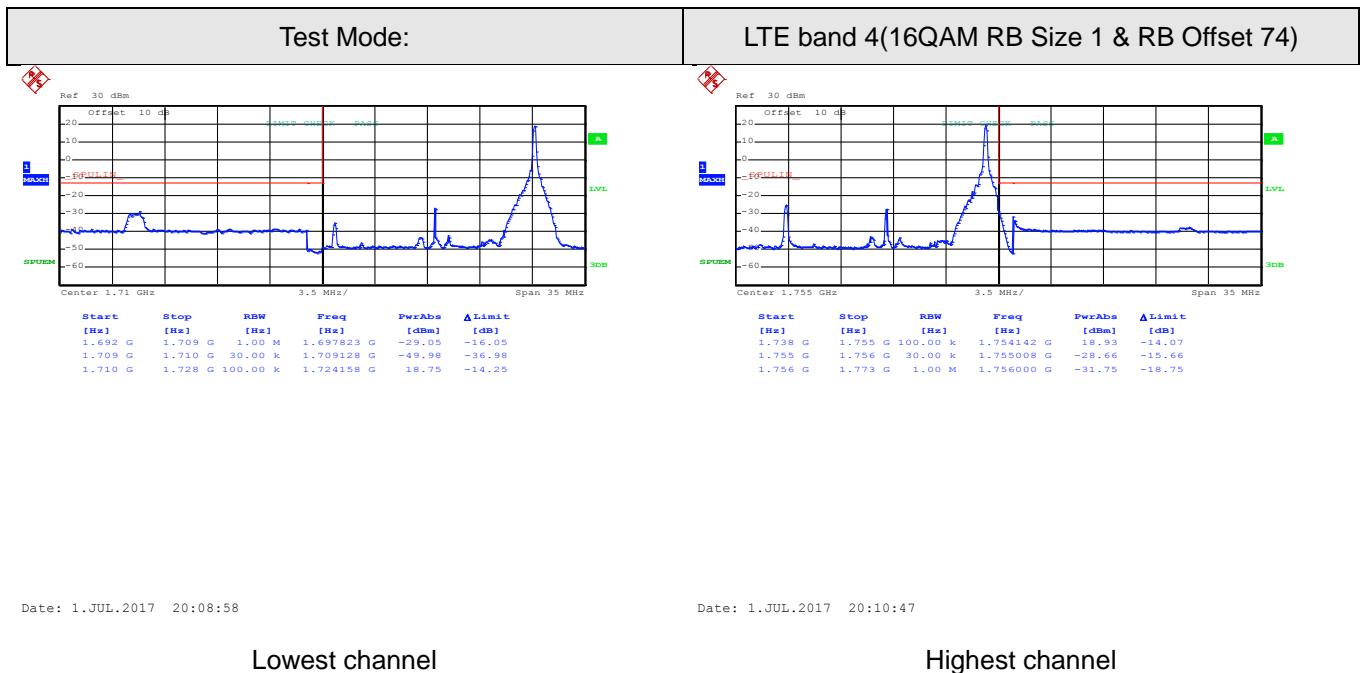


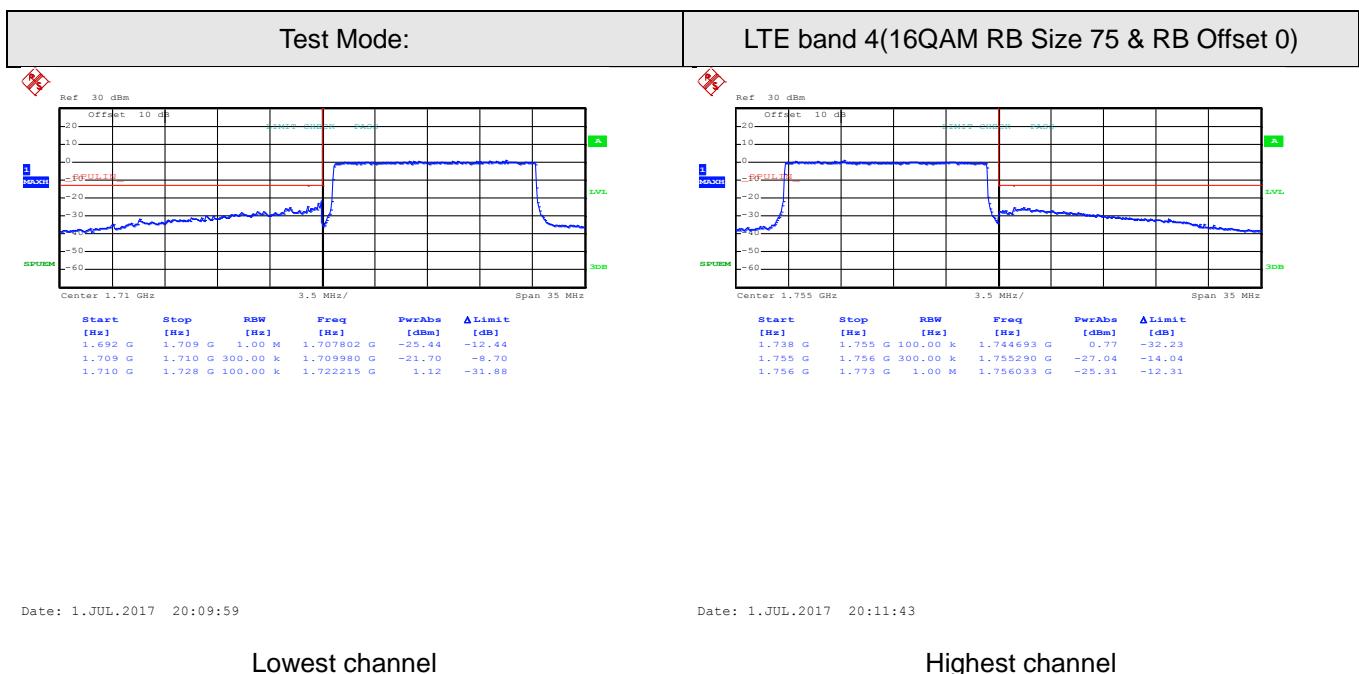
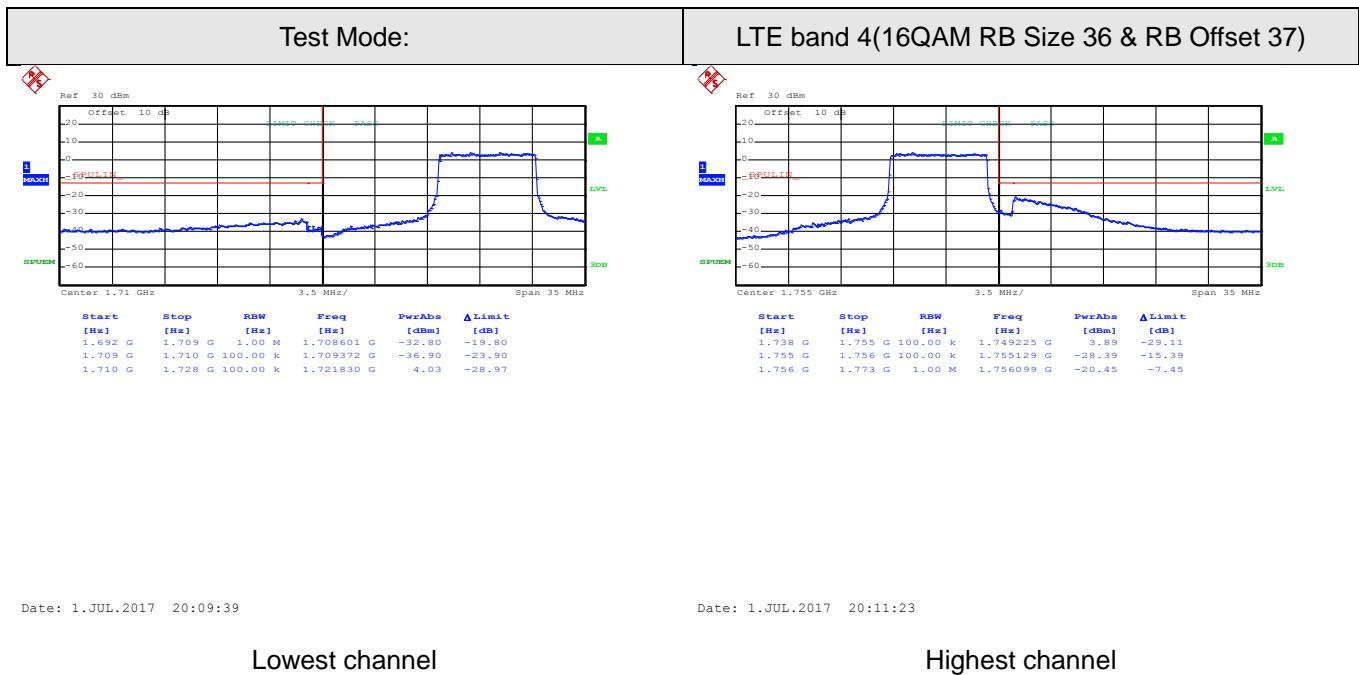
15MHz:



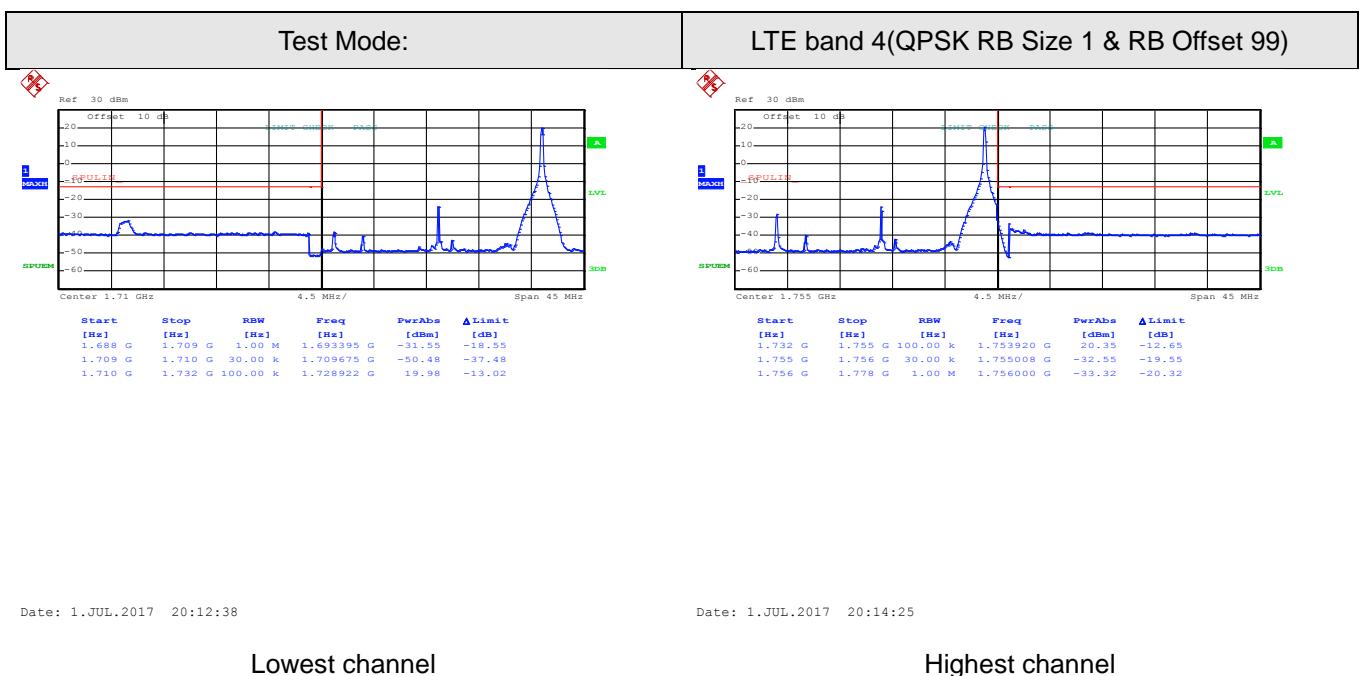
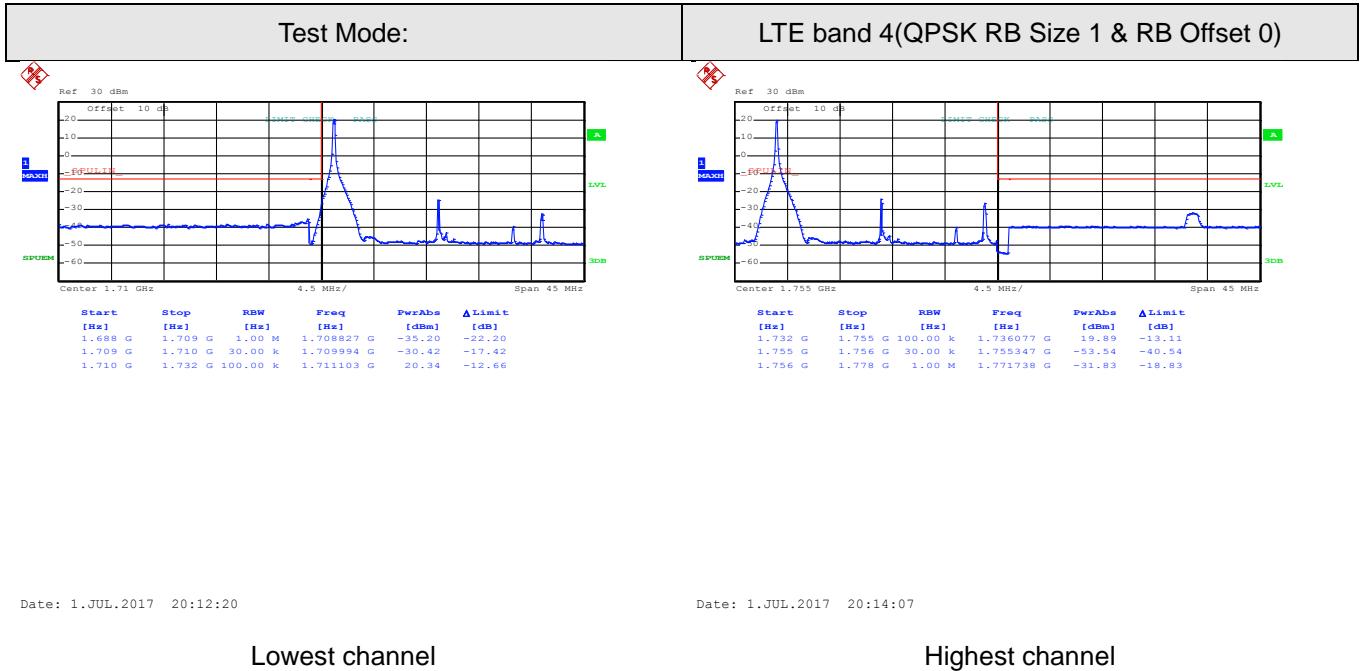


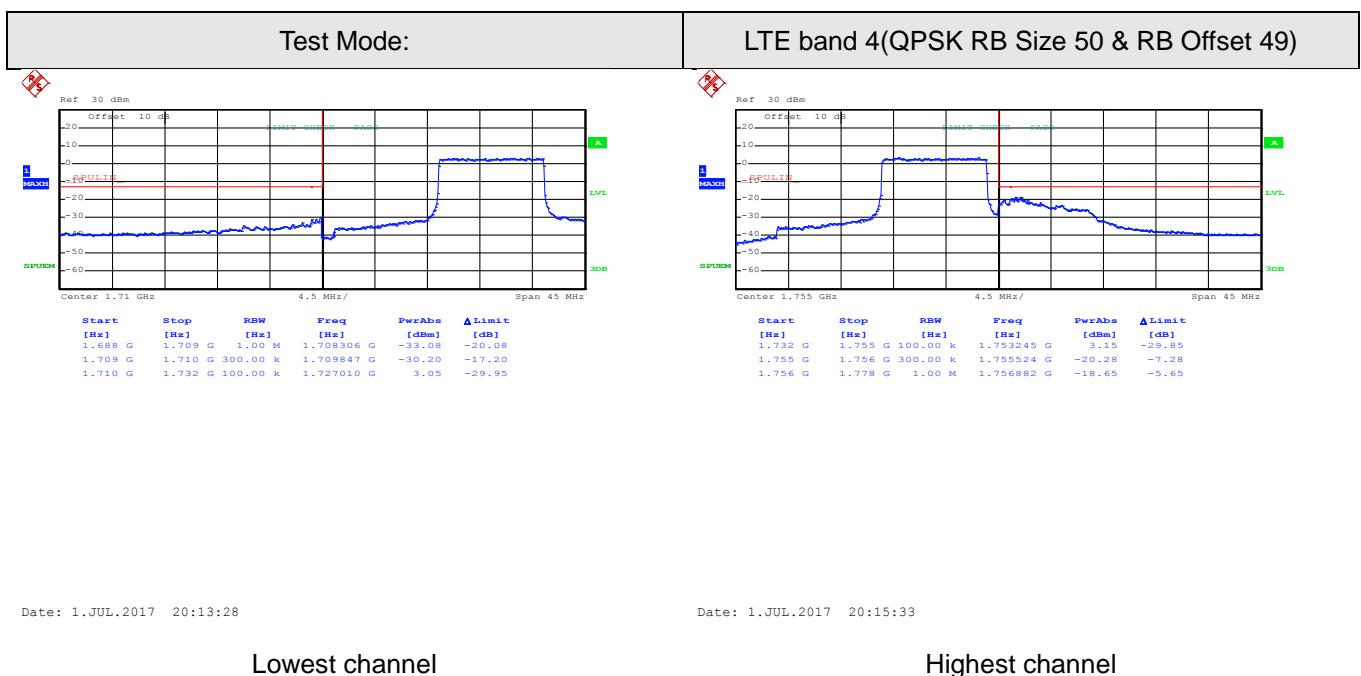
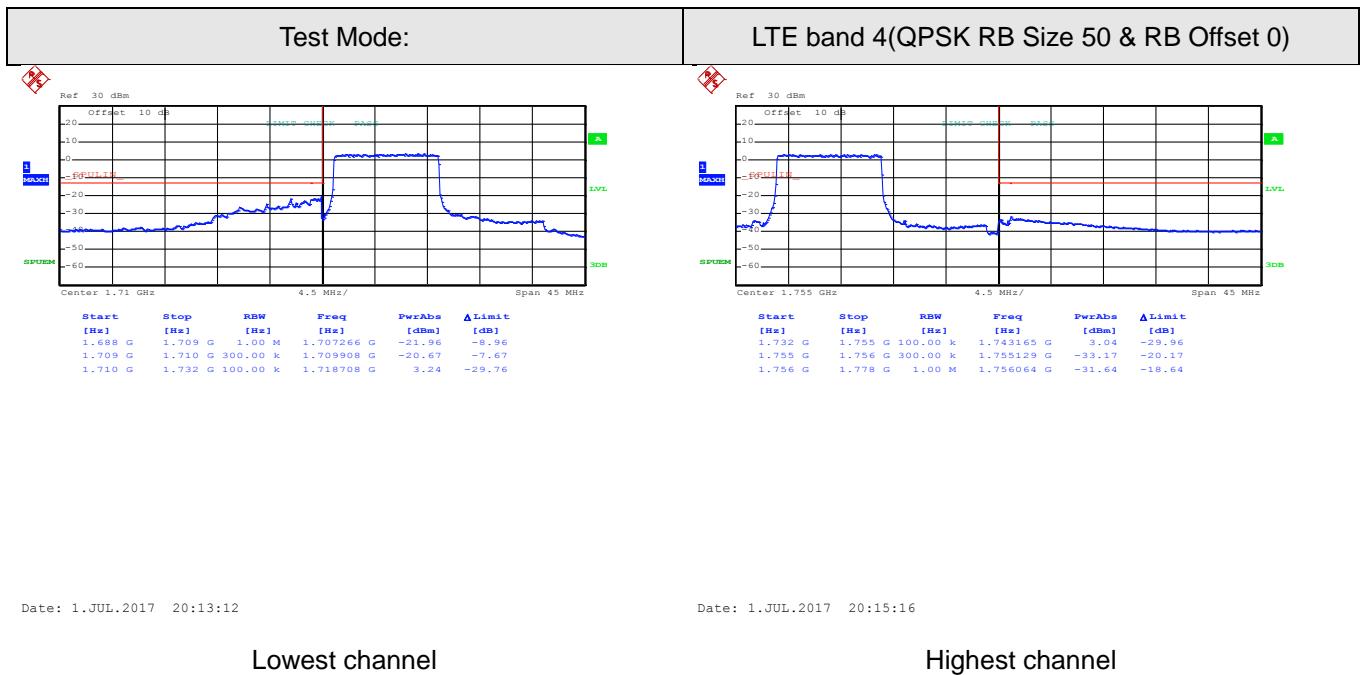




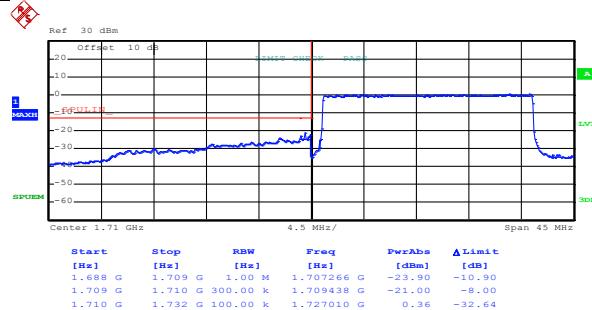


20MHz:



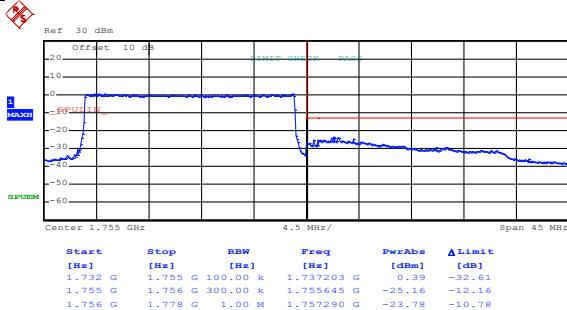


| Test Mode: | LTE band 4(QPSK RB Size 100 & RB Offset 0) |
|------------|--|
|------------|--|



Date: 1.JUL.2017 20:13:45

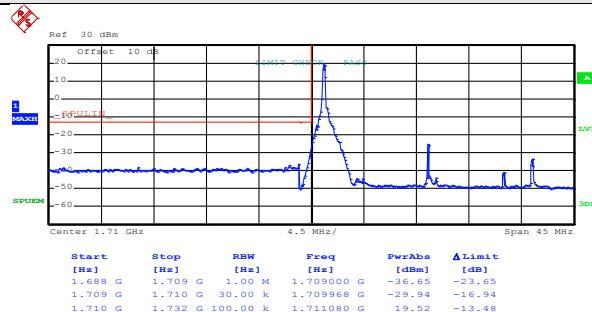
Lowest channel



Date: 1.JUL.2017 20:15:51

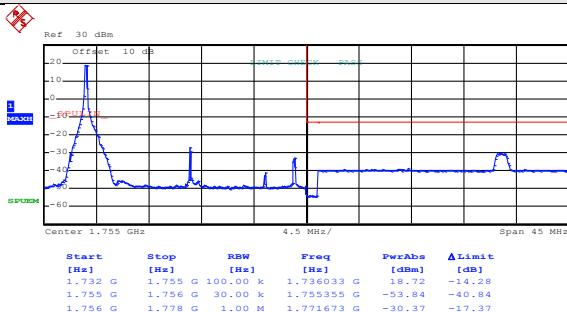
Highest channel

| Test Mode: | LTE band 4(16QAM RB Size 1 & RB Offset 0) |
|------------|---|
|------------|---|



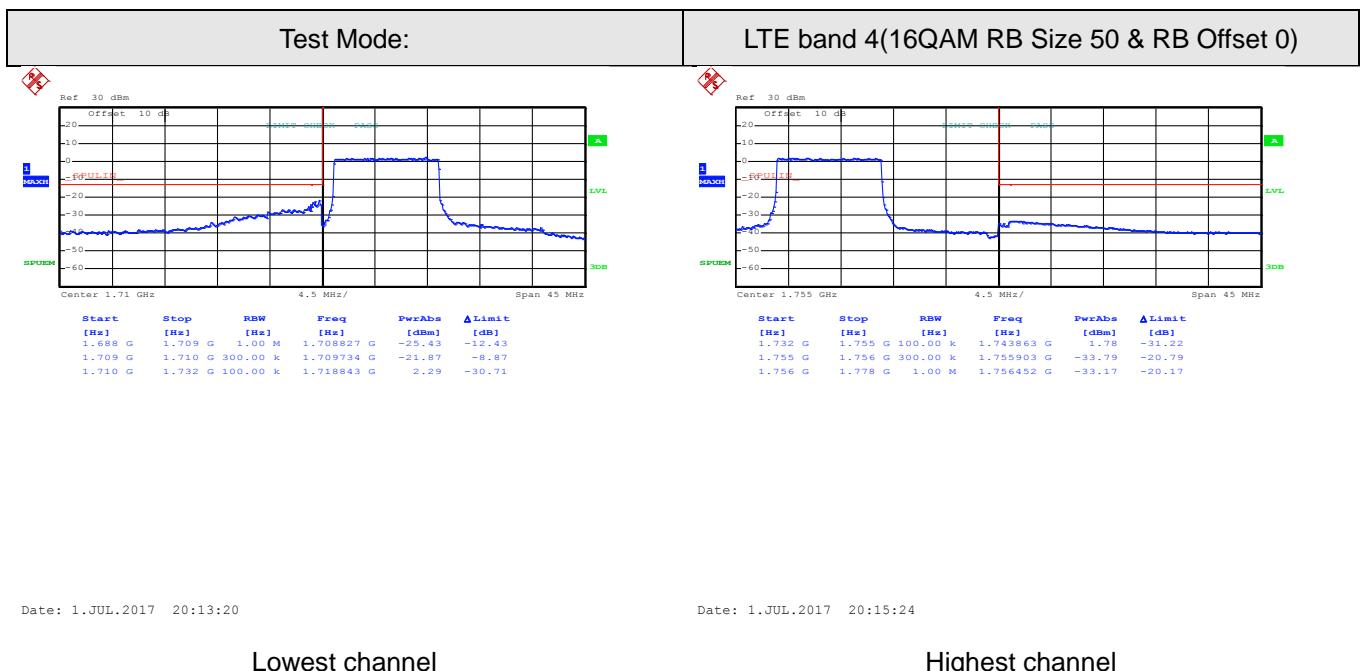
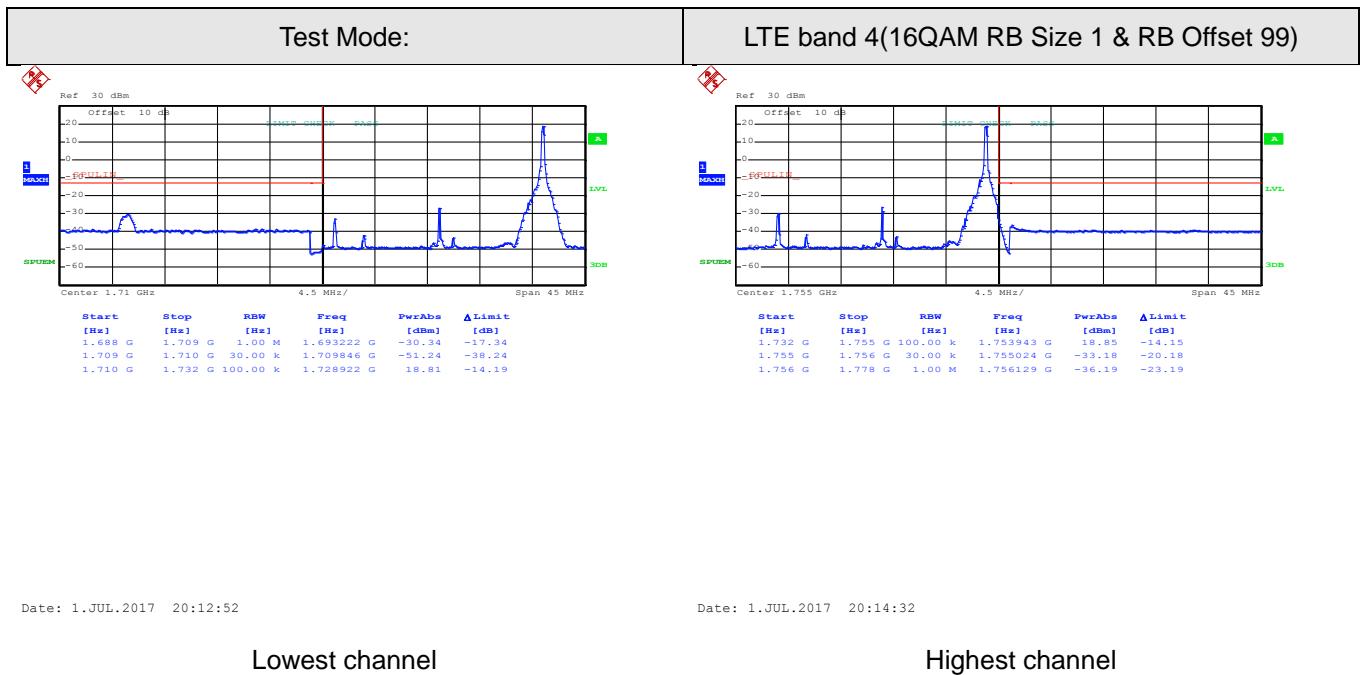
Date: 1.JUL.2017 20:12:27

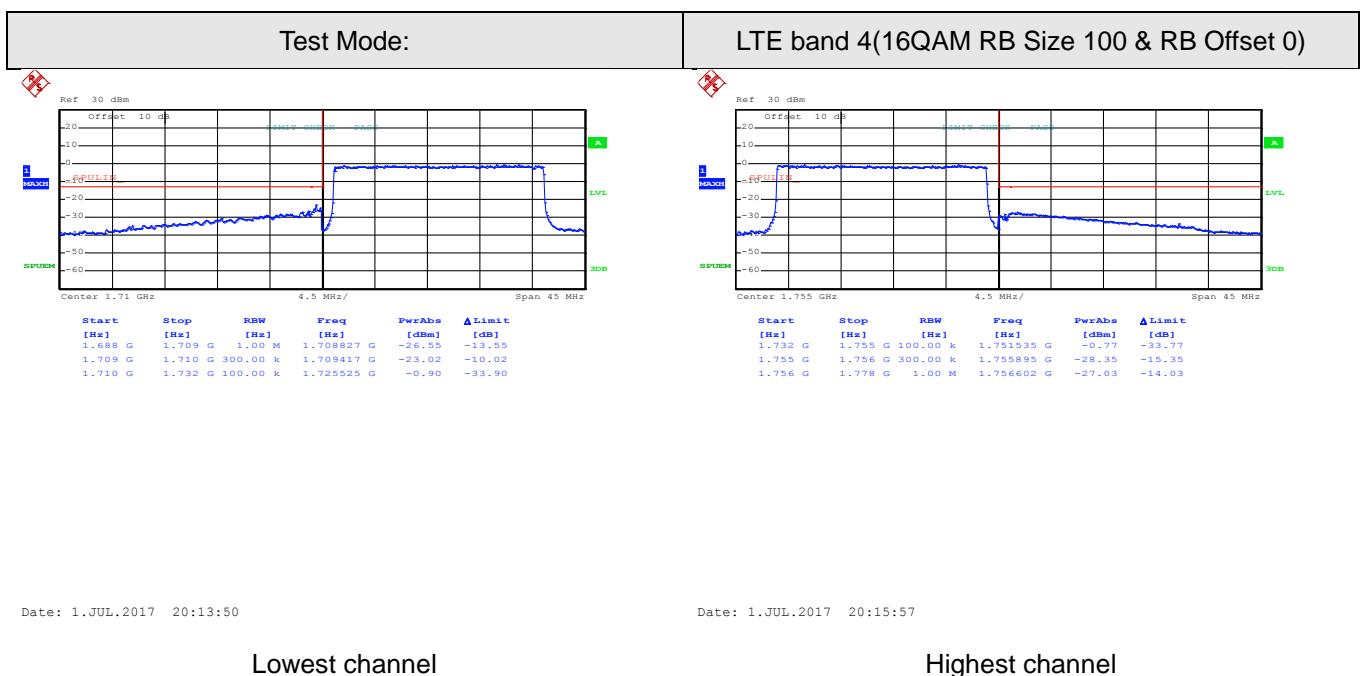
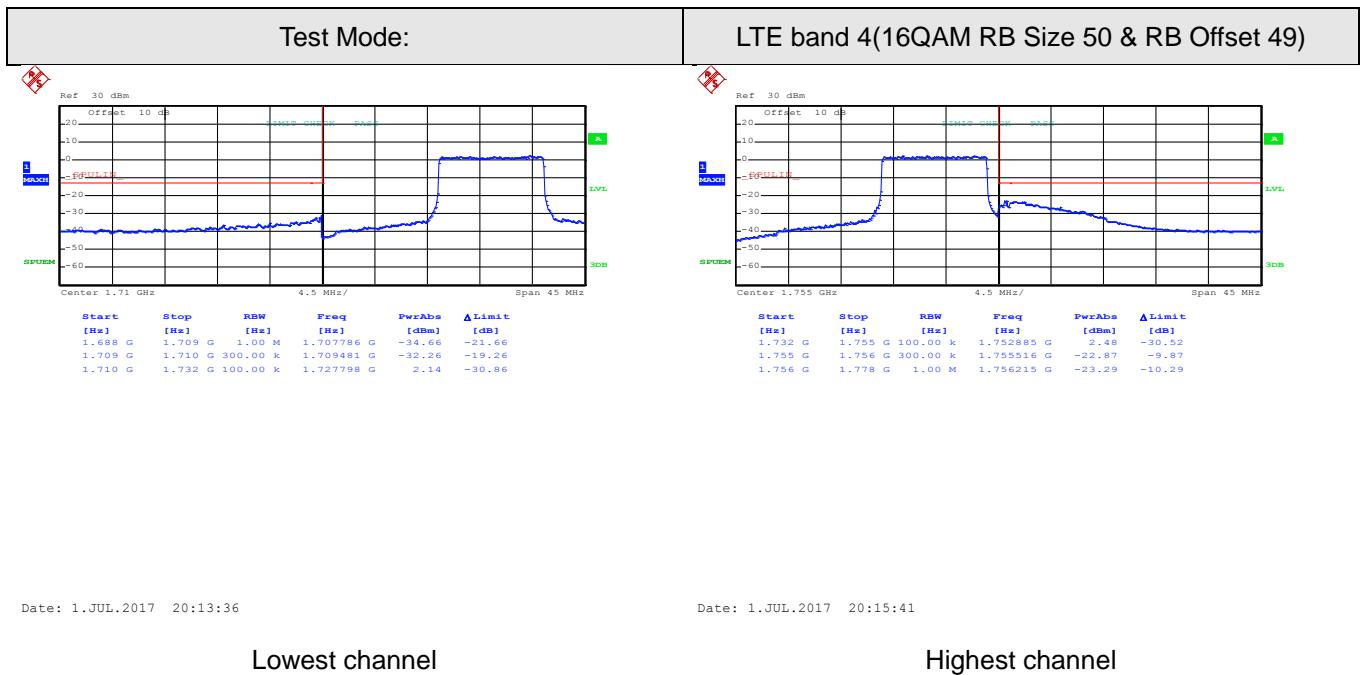
Lowest channel



Date: 1.JUL.2017 20:14:15

Highest channel

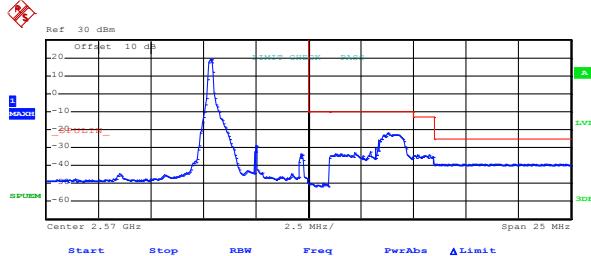
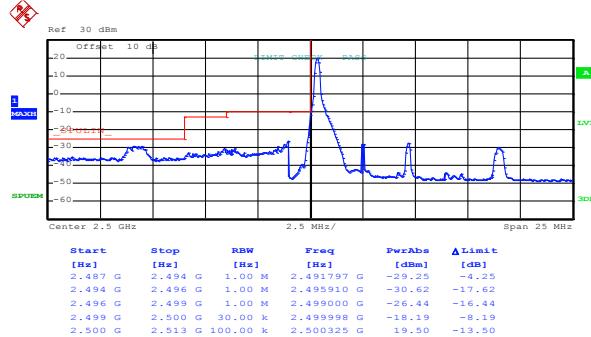




LTE band 7 part:

5MHz:

| Test Mode: | LTE band 7(QPSK RB Size 1 & RB Offset 0) |
|------------|--|
|------------|--|



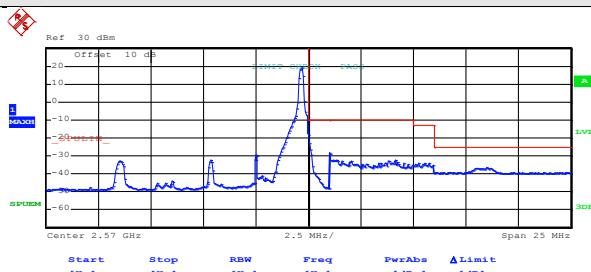
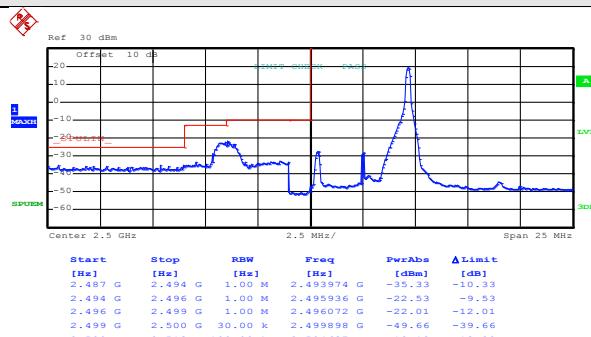
Date: 1.JUL.2017 20:22:09

Date: 1.JUL.2017 20:23:59

Lowest channel

Highest channel

| Test Mode: | LTE band 7(QPSK RB Size 1 & RB Offset 24) |
|------------|---|
|------------|---|

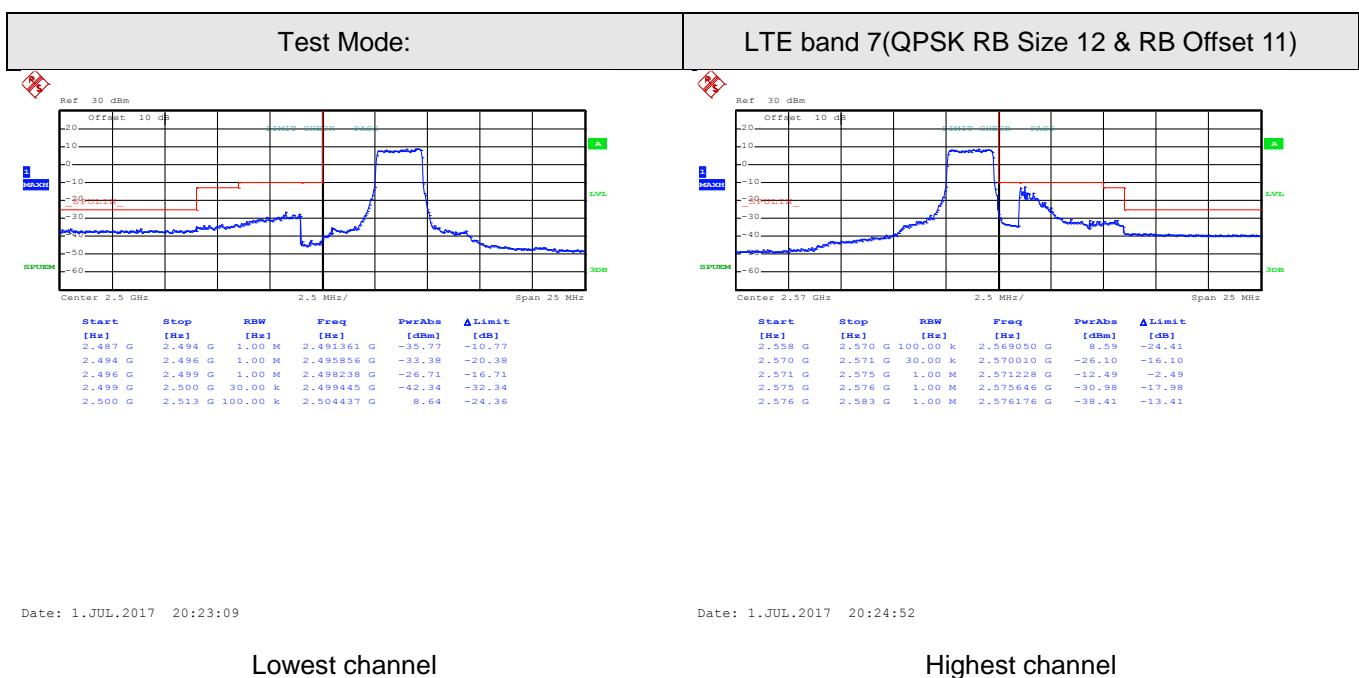
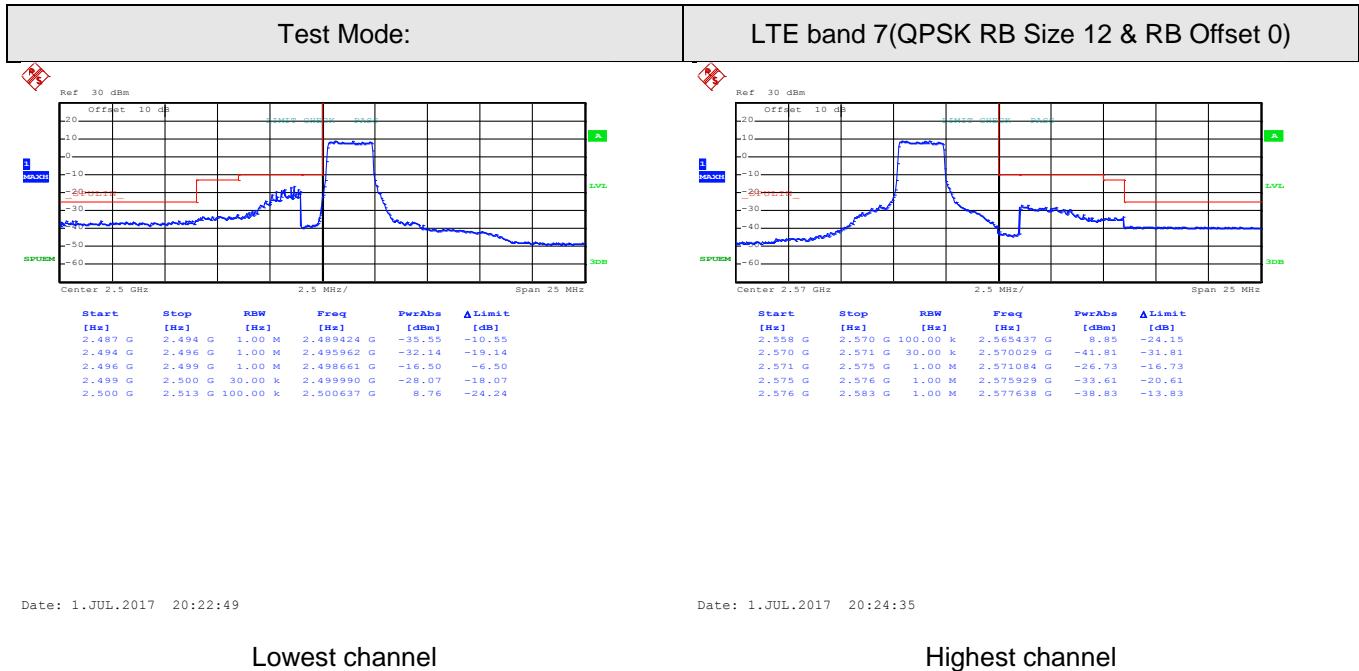


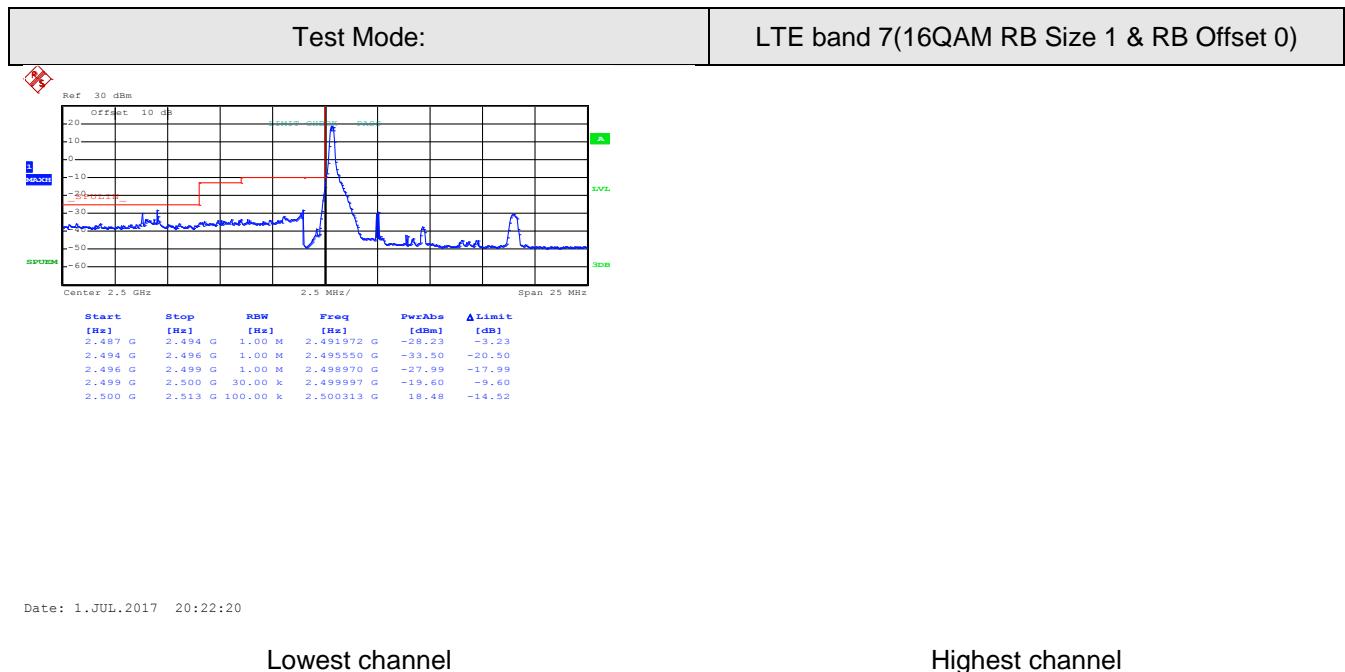
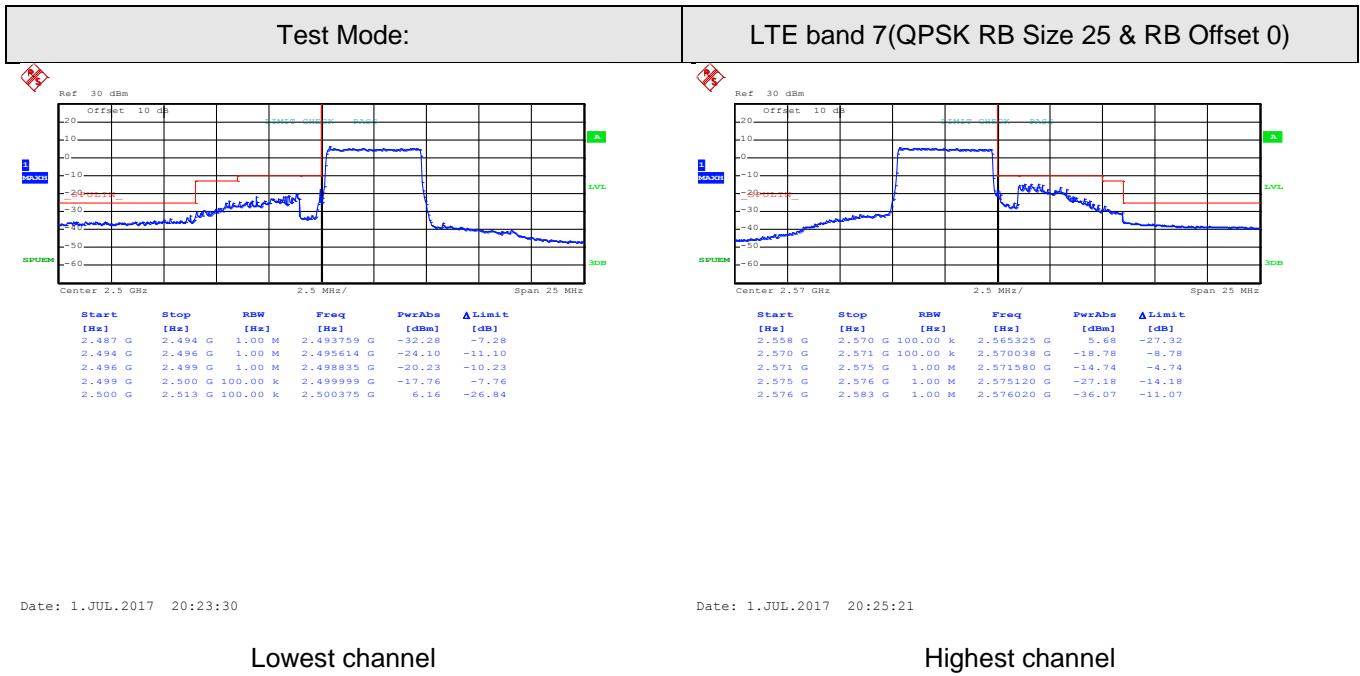
Date: 1.JUL.2017 20:22:30

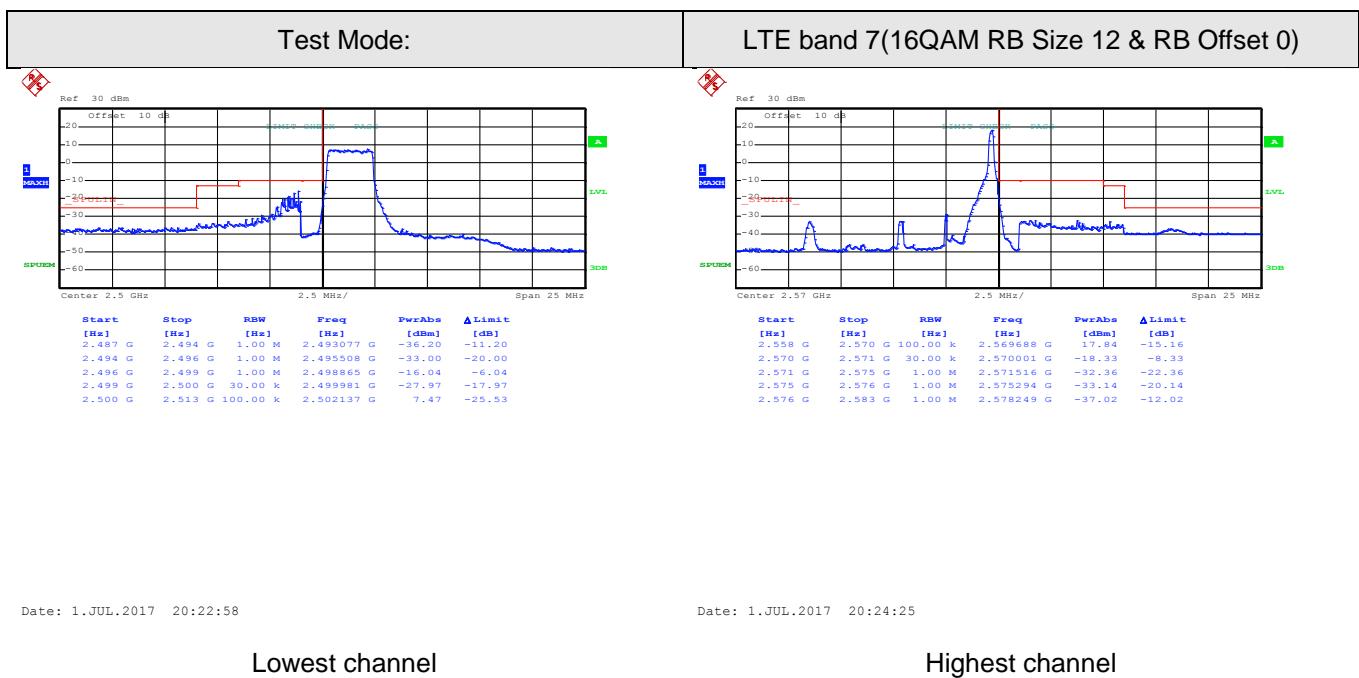
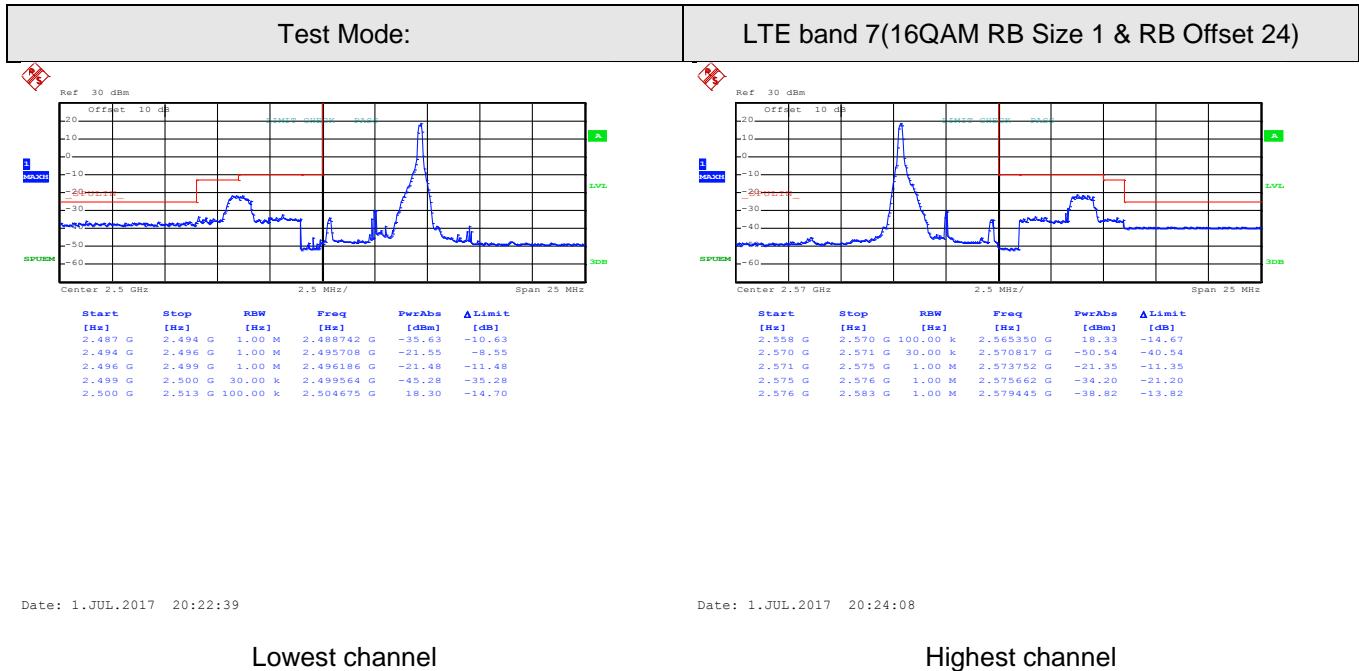
Date: 1.JUL.2017 20:24:18

Lowest channel

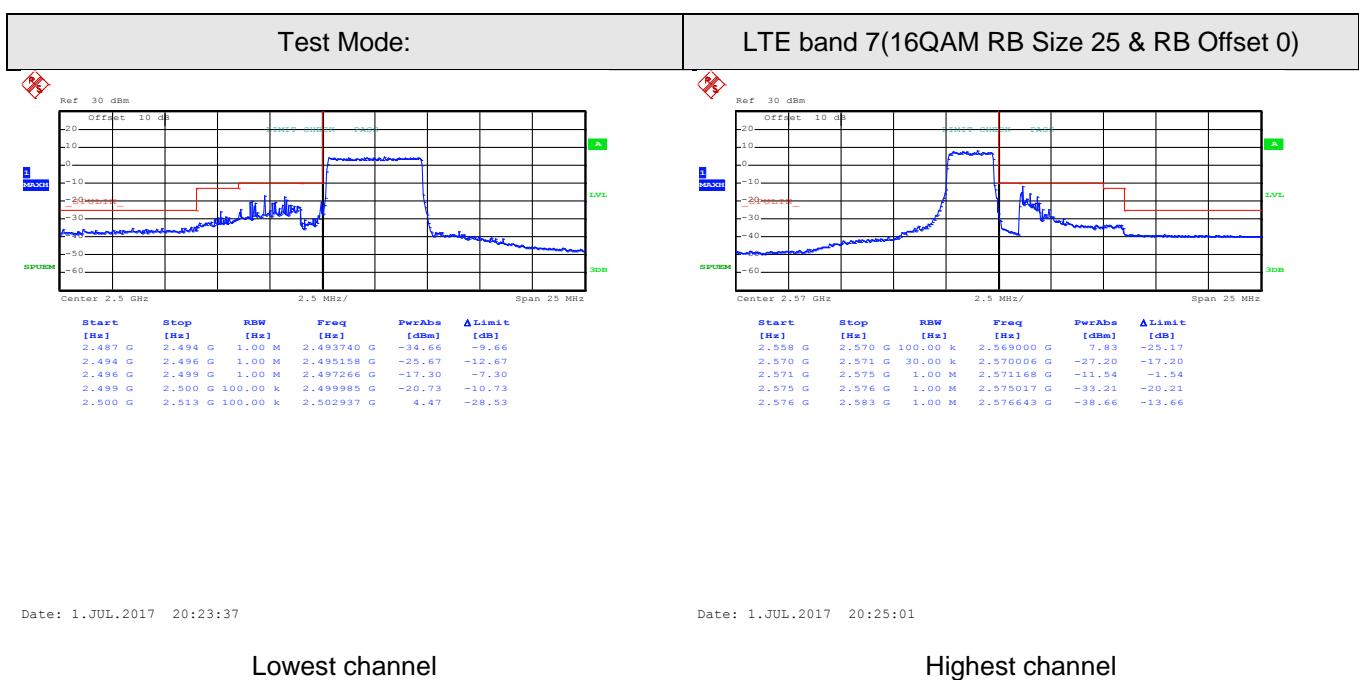
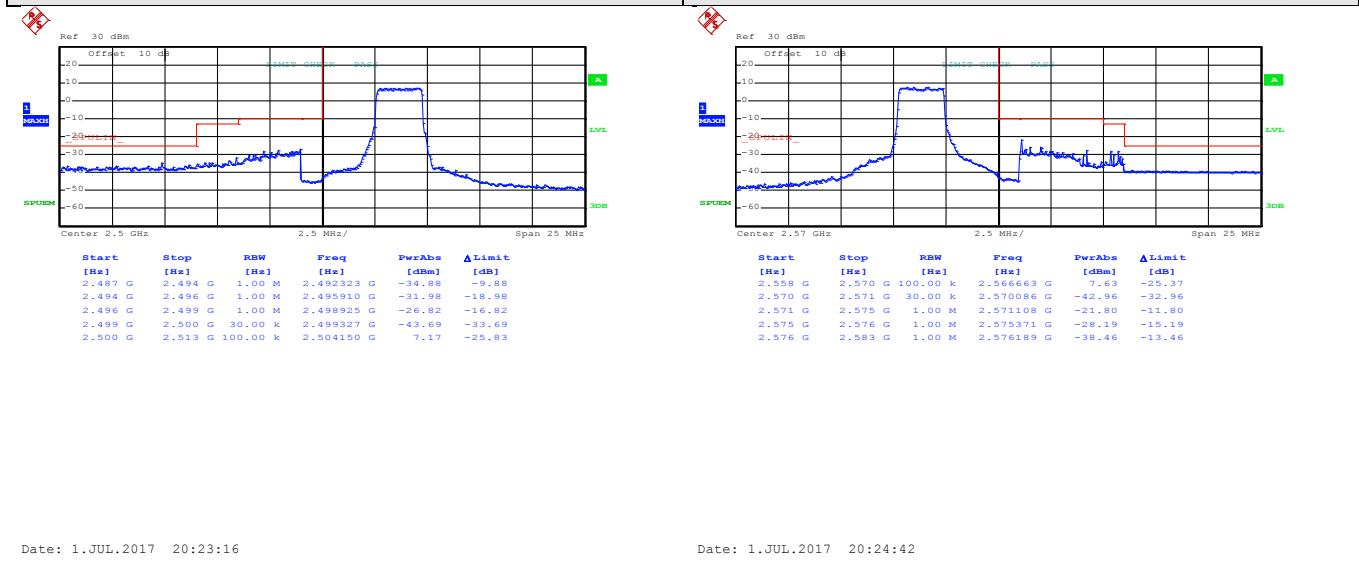
Highest channel



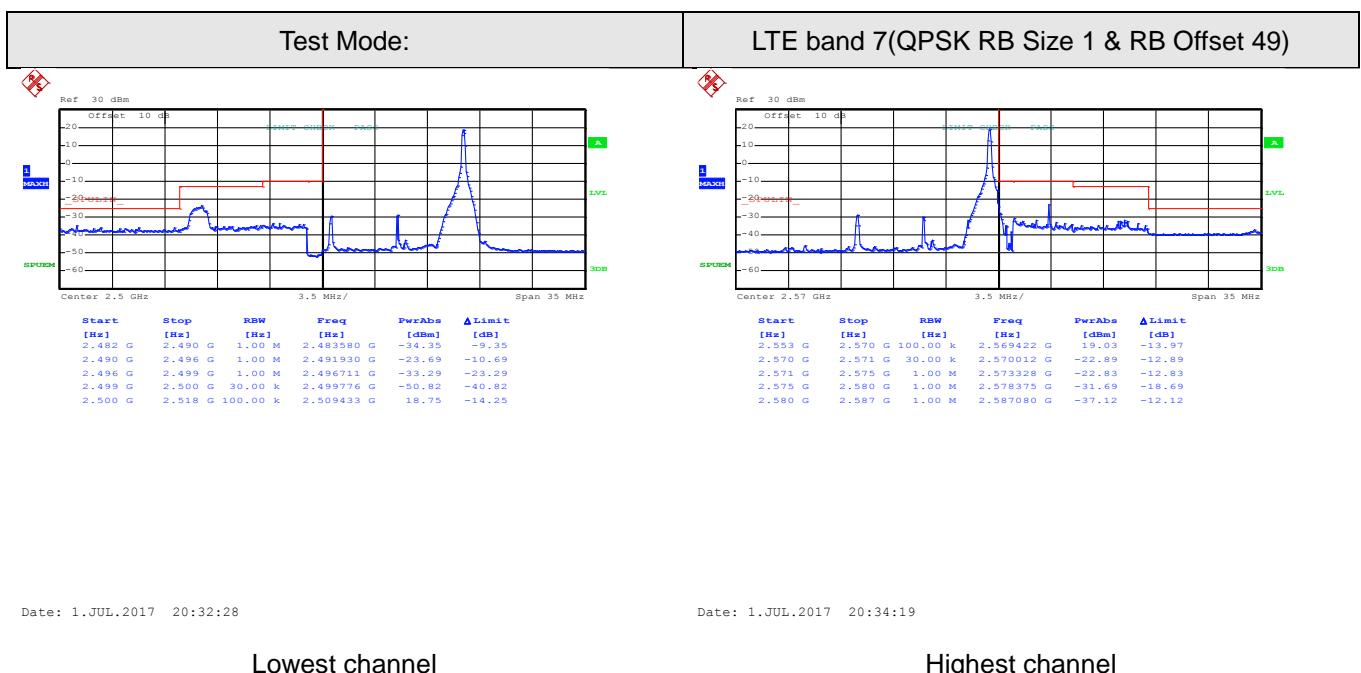
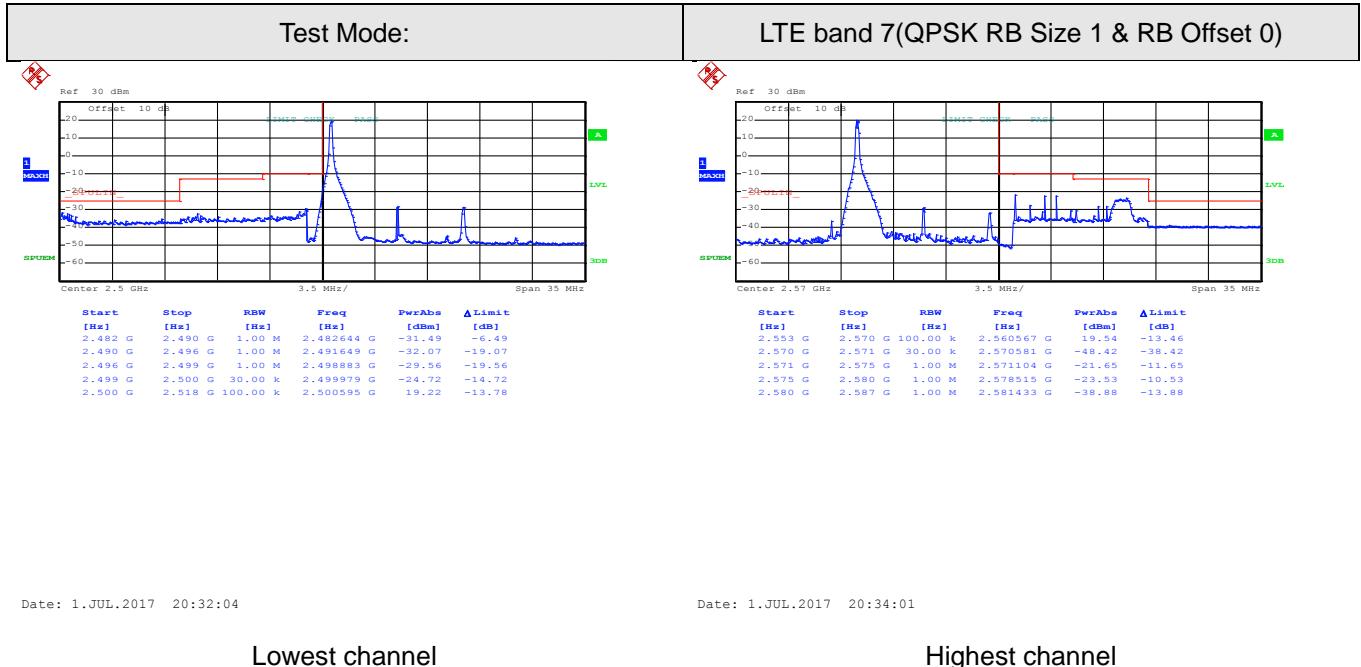


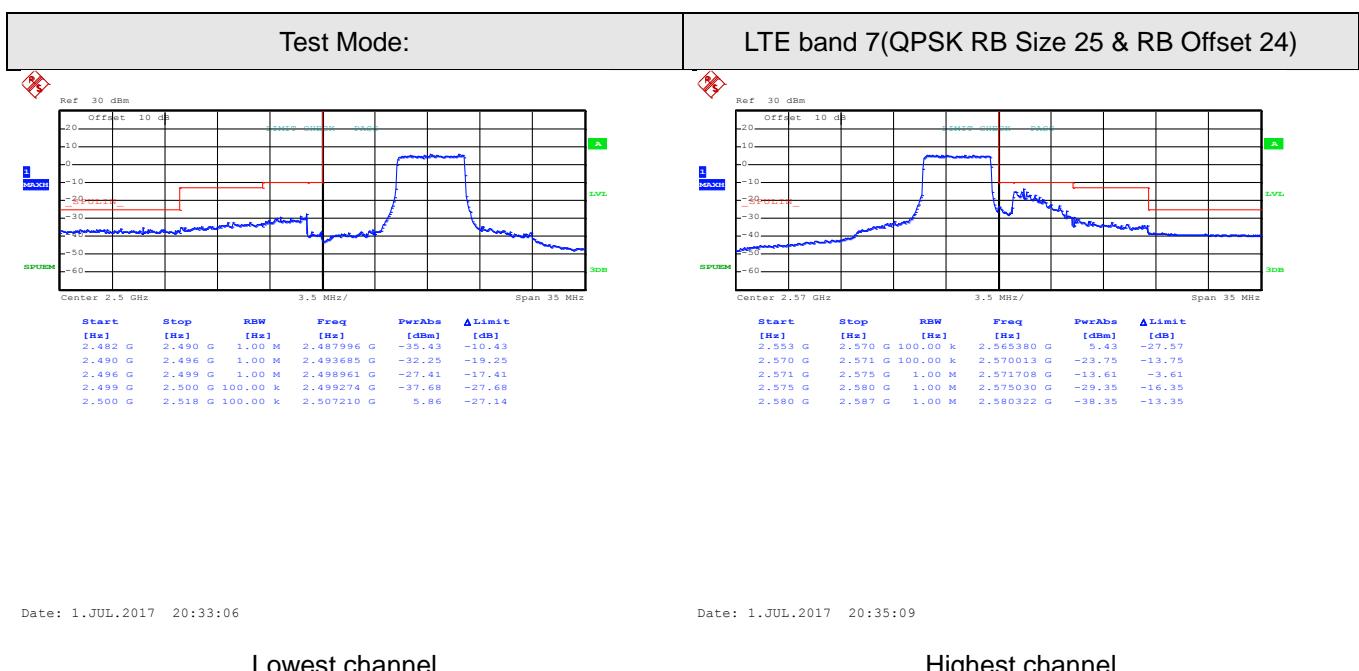
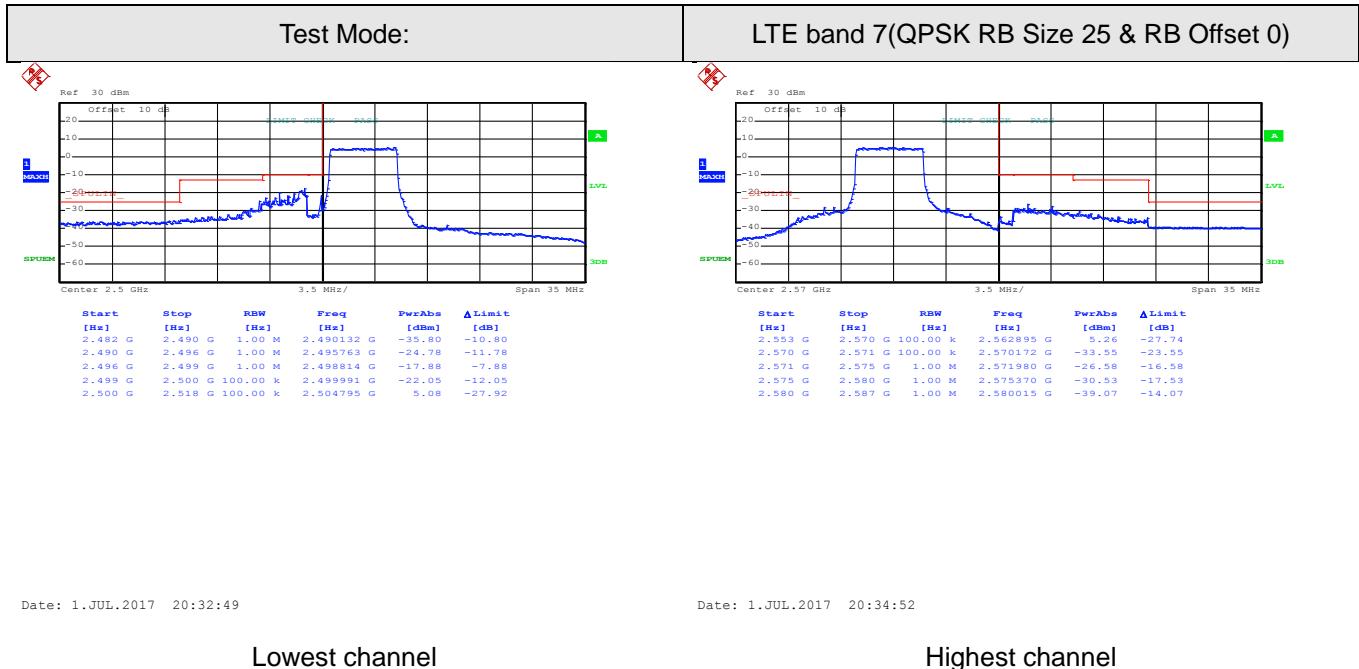


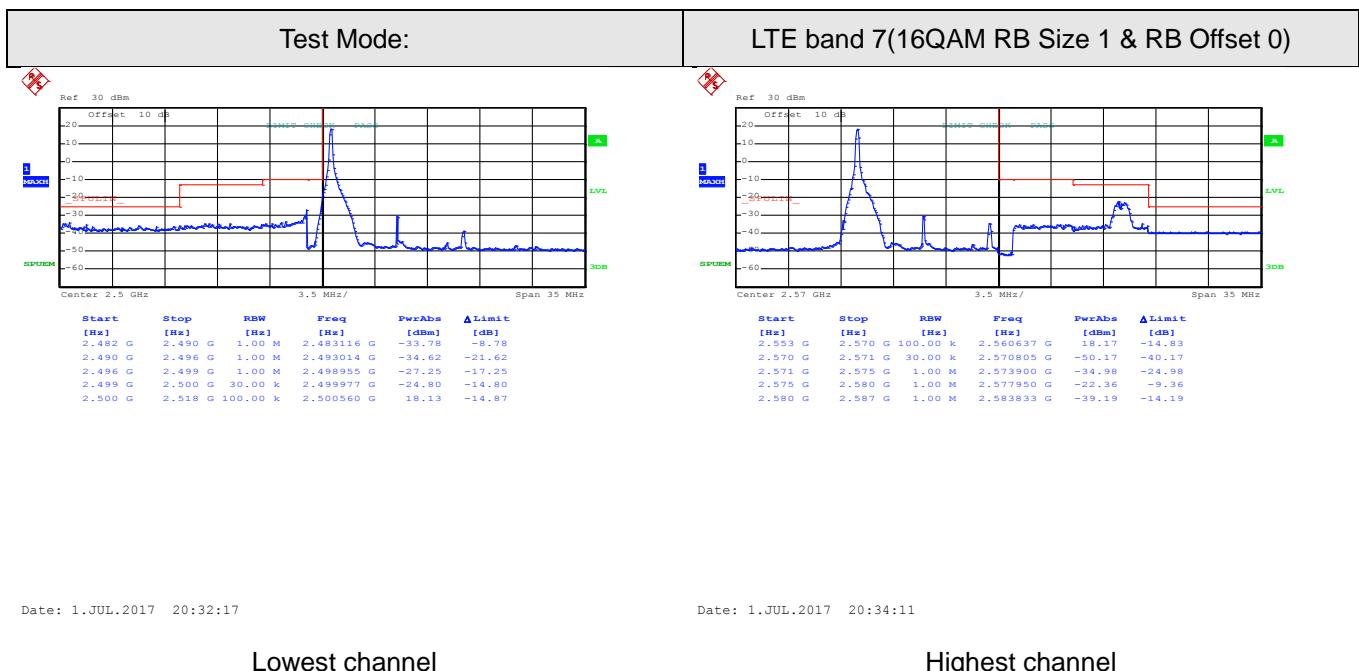
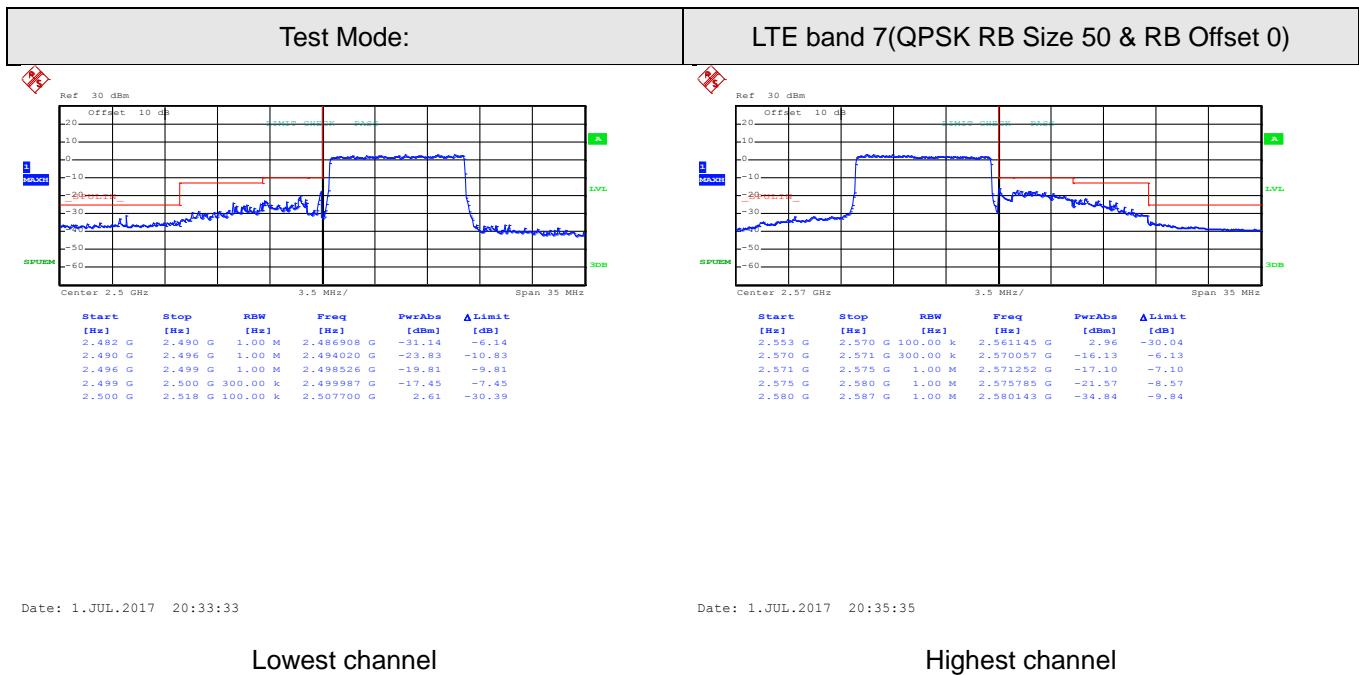
| Test Mode: | LTE band 7(16QAM RB Size 12 & RB Offset 11) |
|------------|---|
|------------|---|

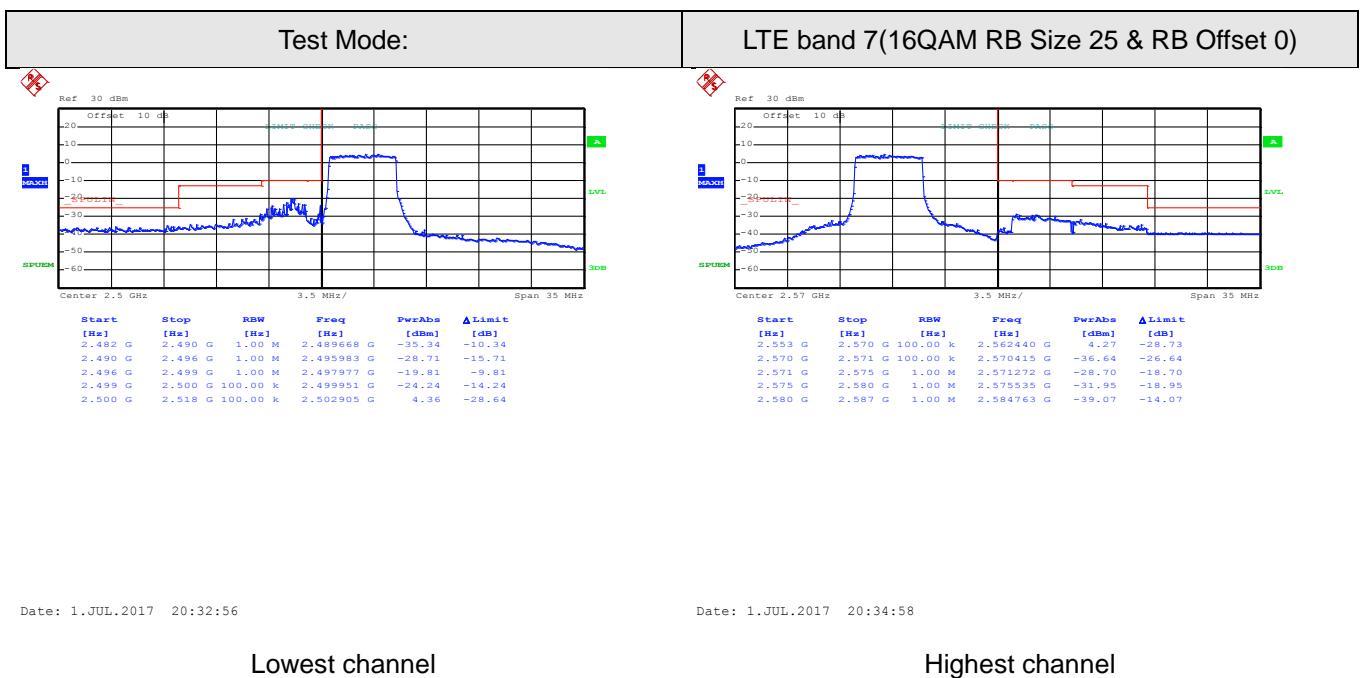
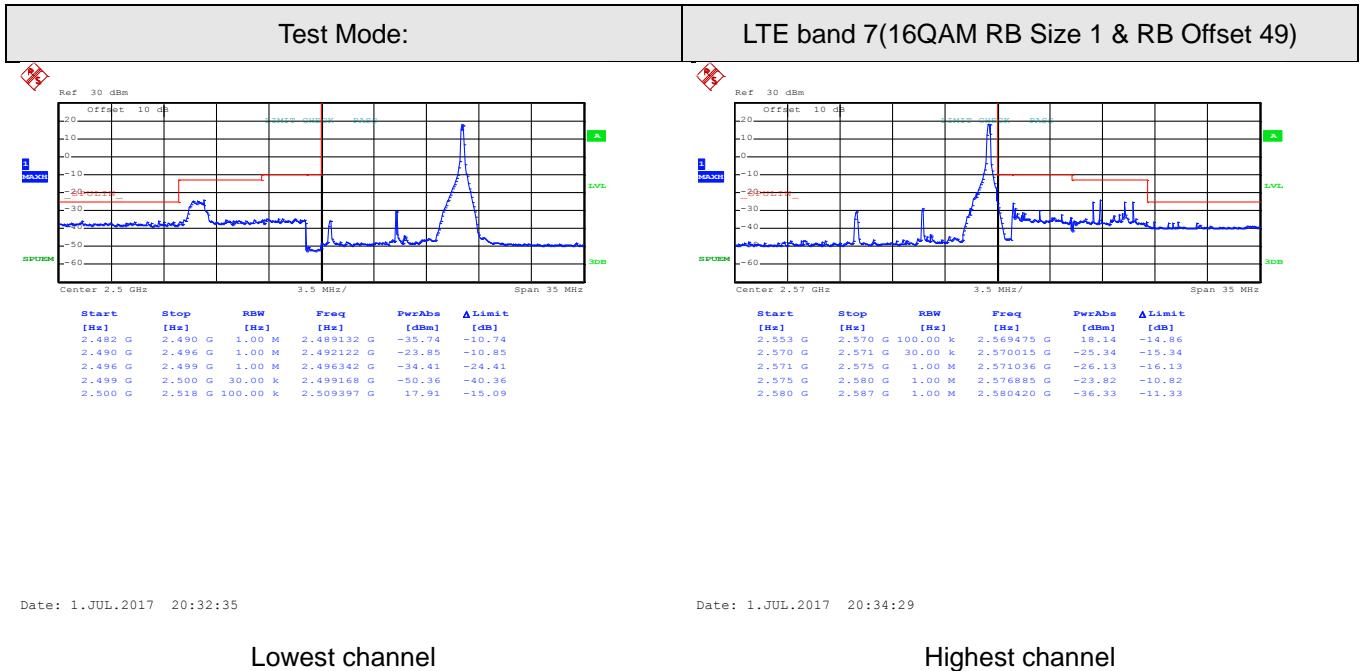


10MHz:

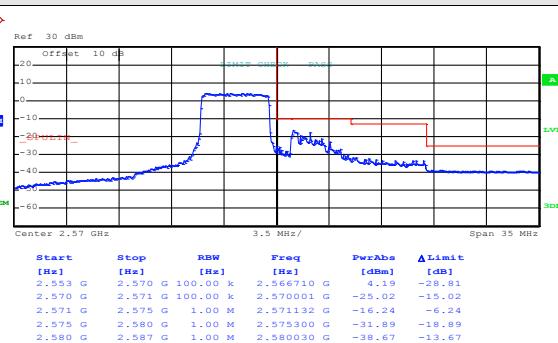
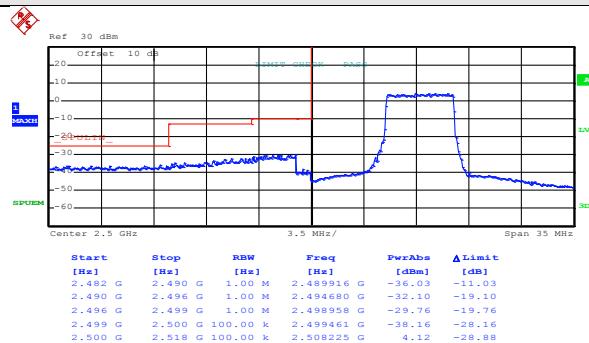








| Test Mode: | LTE band 7(16QAM RB Size 25 & RB Offset 24) |
|------------|---|
|------------|---|



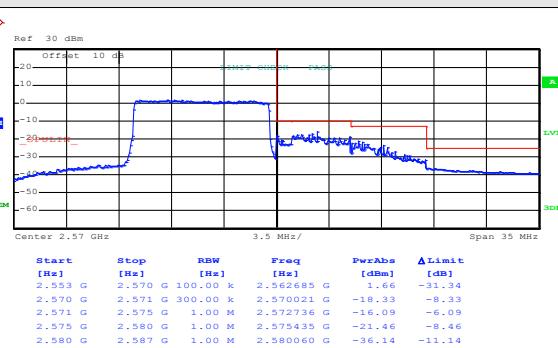
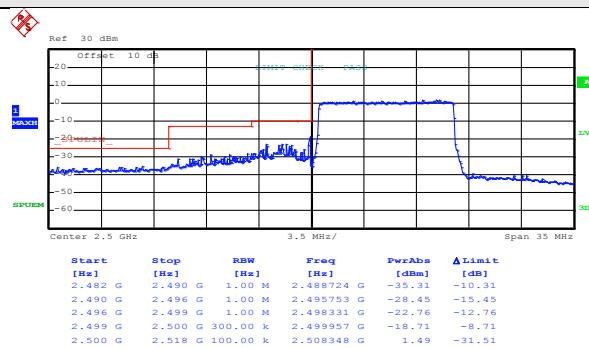
Date: 1.JUL.2017 20:33:21

Date: 1.JUL.2017 20:35:17

Lowest channel

Highest channel

| Test Mode: | LTE band 7(16QAM RB Size 50 & RB Offset 0) |
|------------|--|
|------------|--|



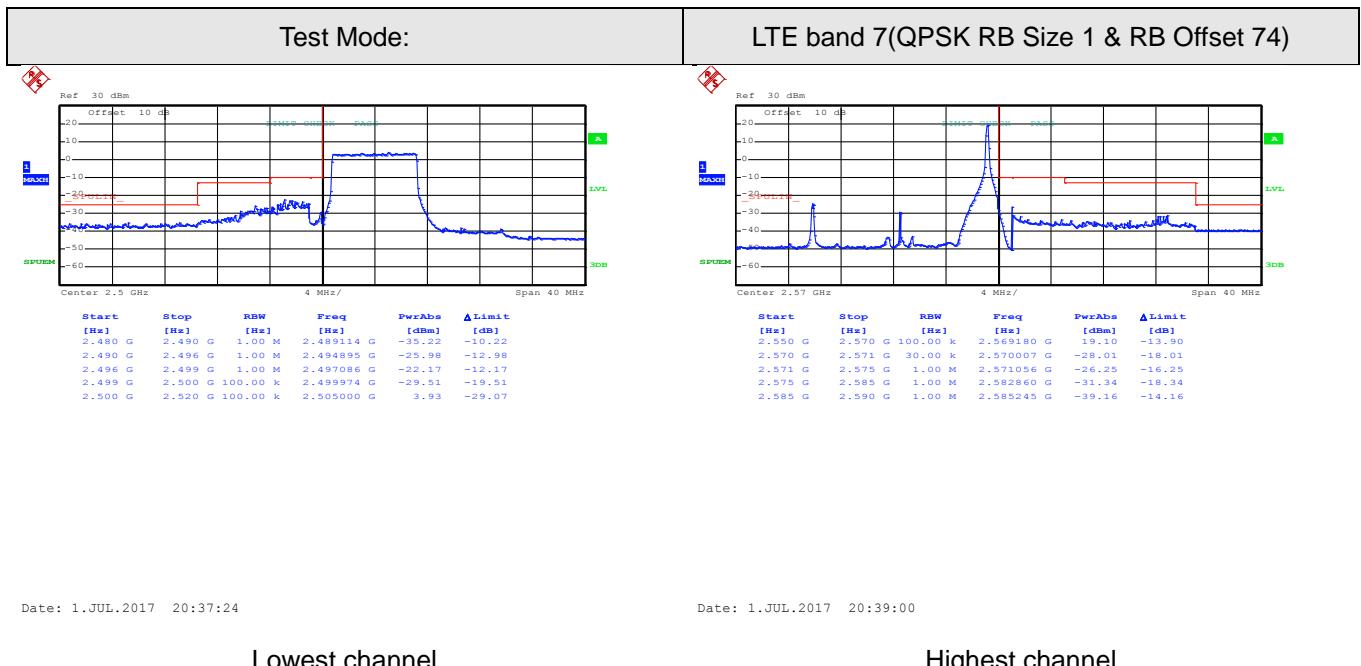
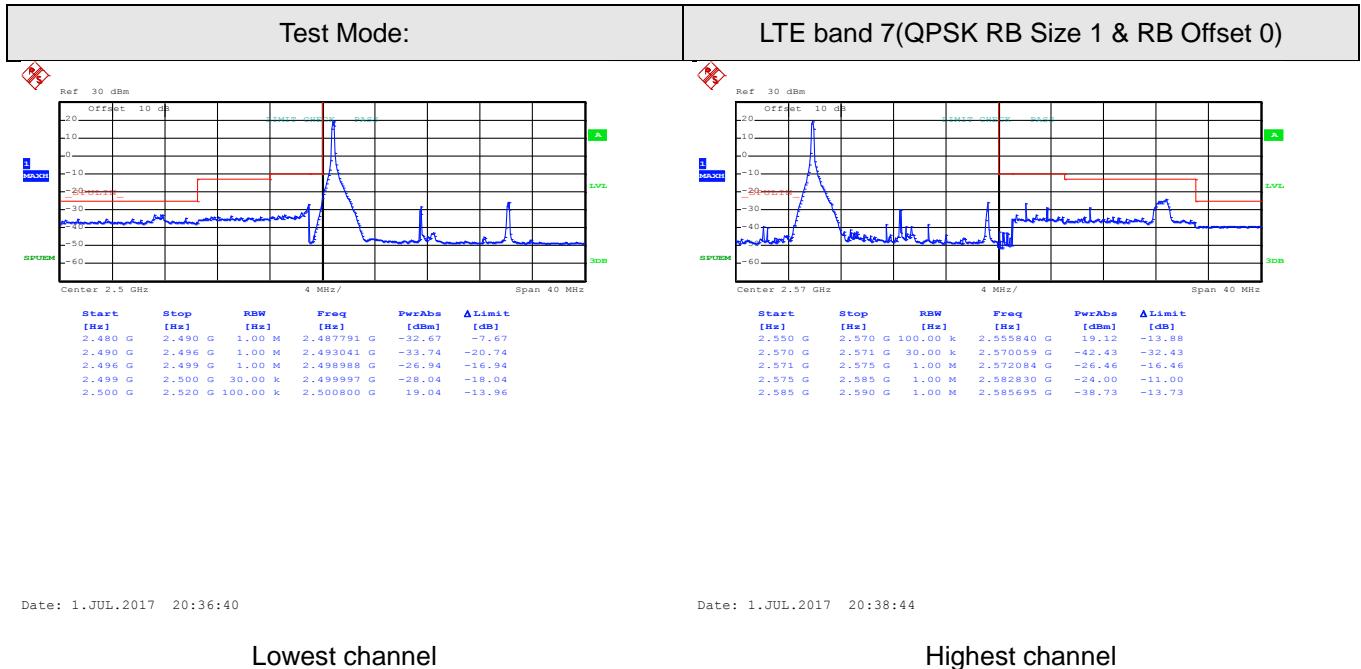
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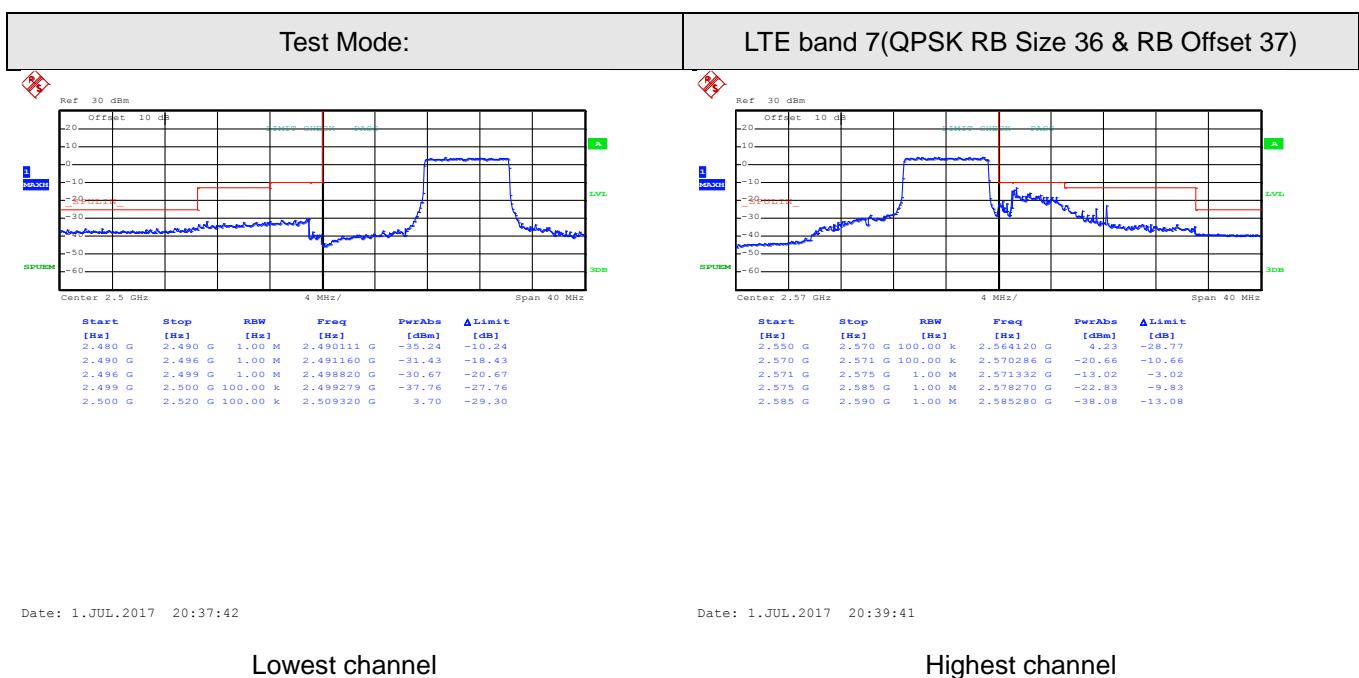
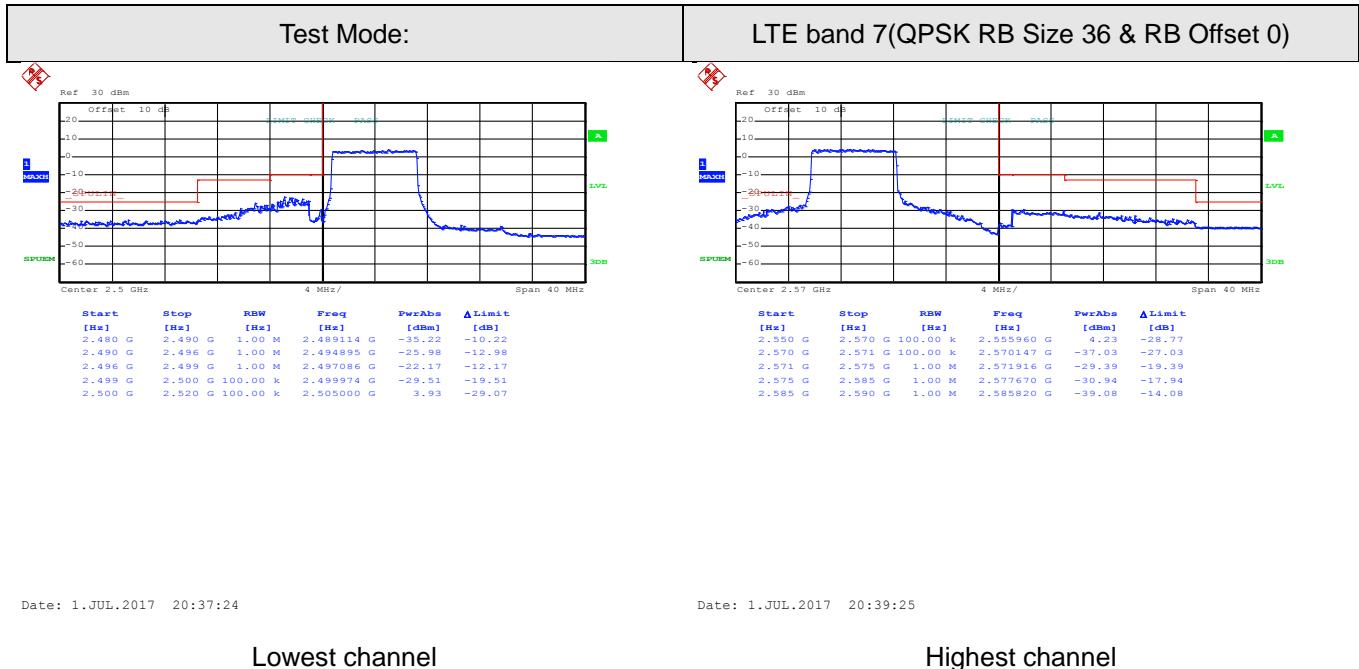
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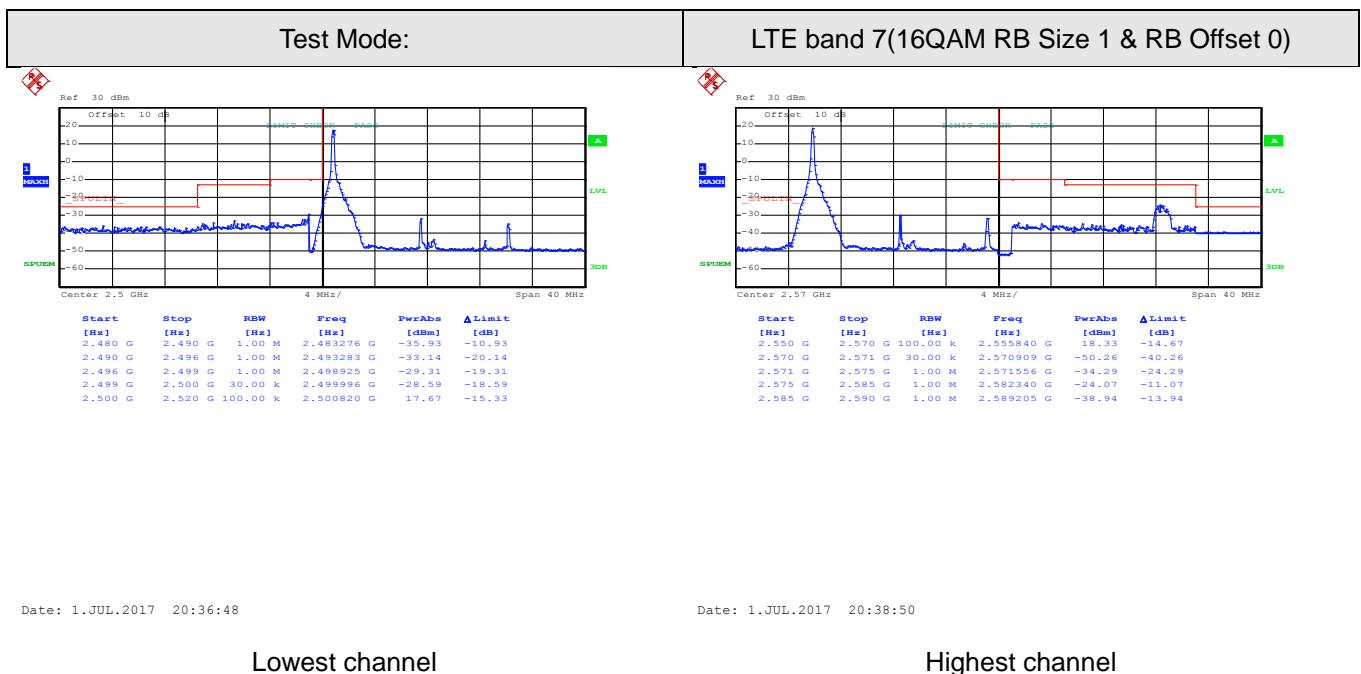
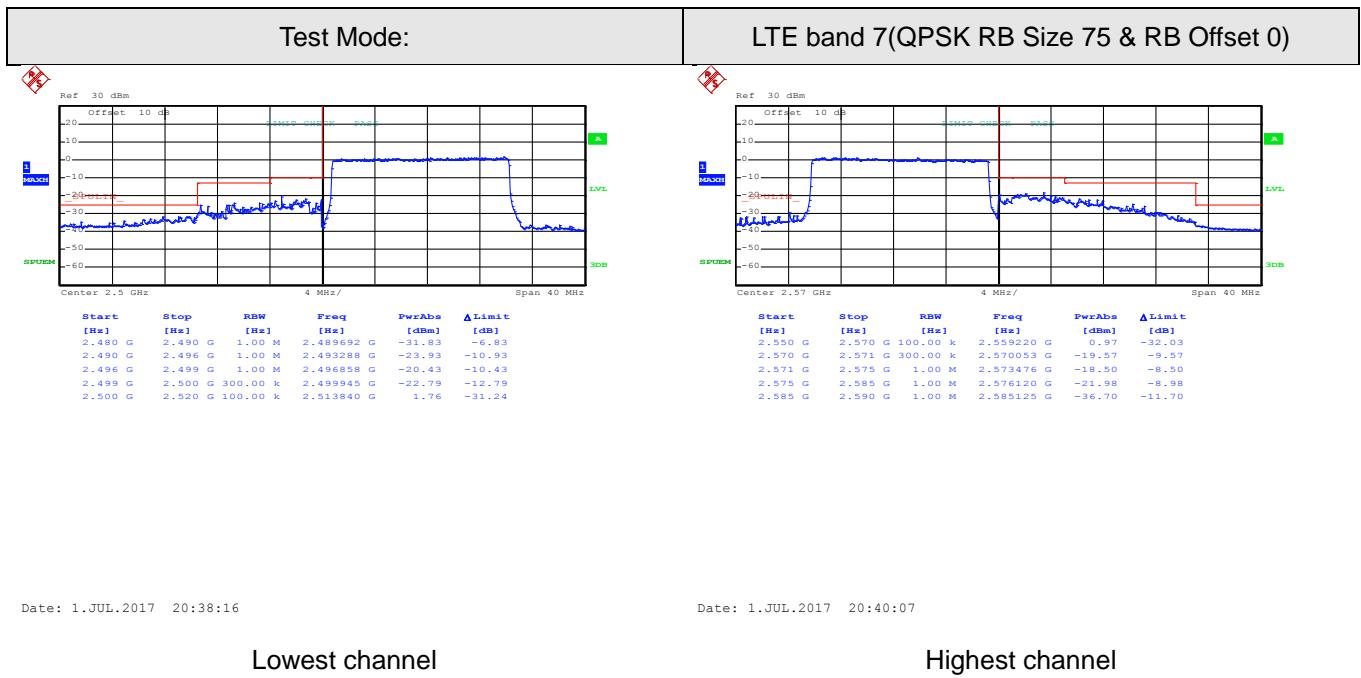
Lowest channel

Highest channel

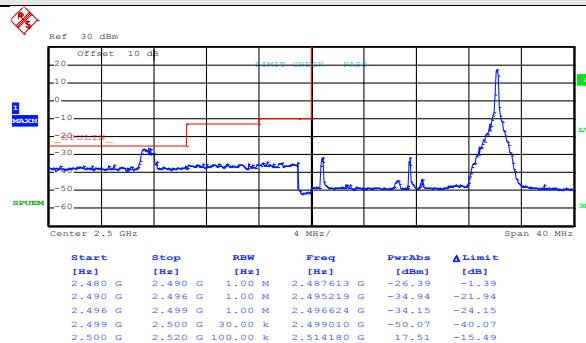
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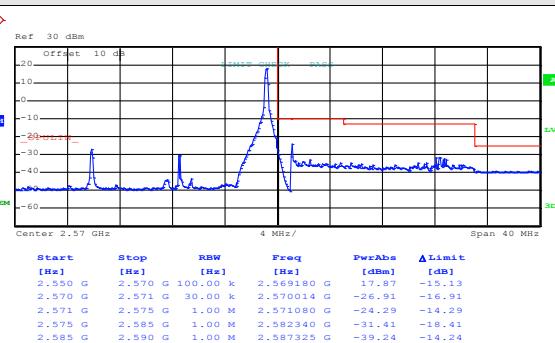


| Test Mode: | LTE band 7(16QAM RB Size 1 & RB Offset 74) |
|------------|--|
|------------|--|



Date: 1.JUL.2017 20:37:08

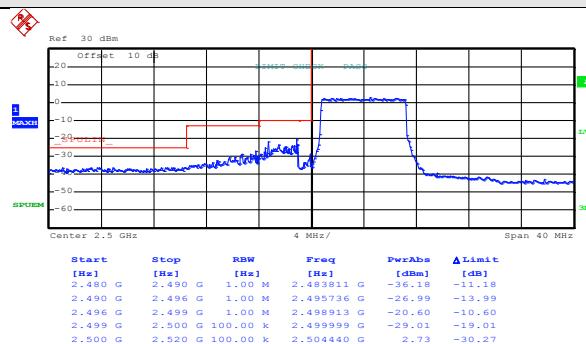
Lowest channel



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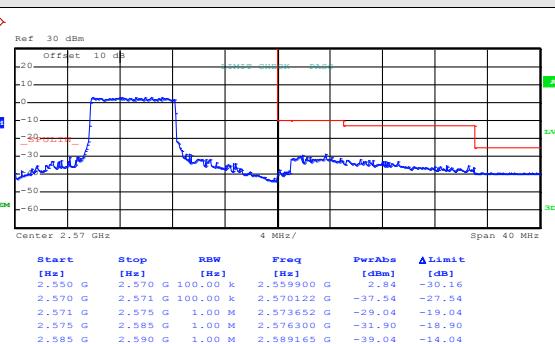
Highest channel

| Test Mode: | LTE band 7(16QAM RB Size 36 & RB Offset 0) |
|------------|--|
|------------|--|



Date: 1.JUL.2017 20:37:31

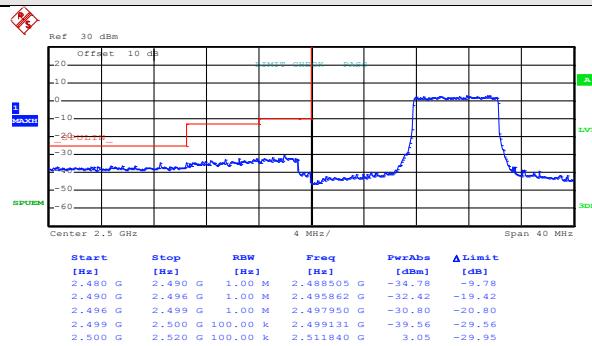
Lowest channel



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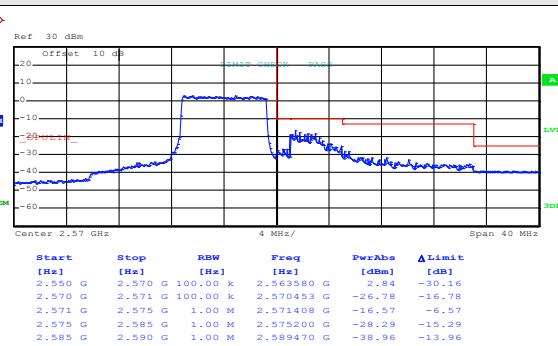
Highest channel

| Test Mode: | LTE band 7(16QAM RB Size 36 & RB Offset 37) |
|------------|---|
|------------|---|



Date: 1.JUL.2017 20:37:55

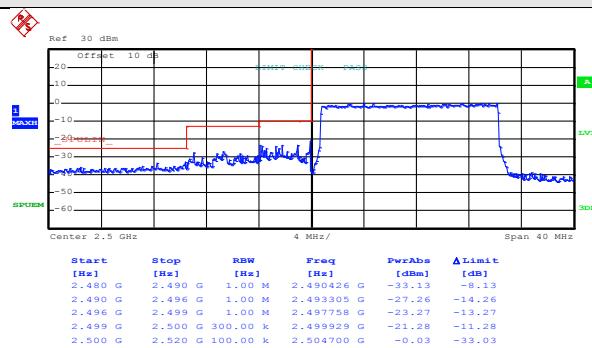
Lowest channel



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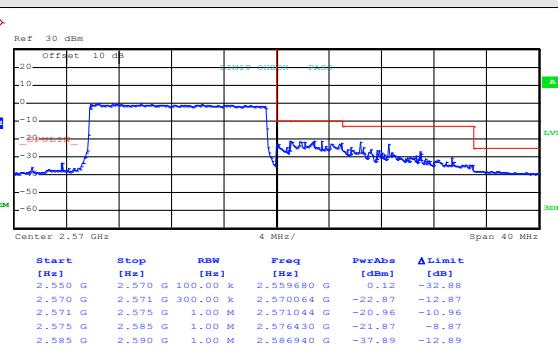
Highest channel

| Test Mode: | LTE band 7(16QAM RB Size 75 & RB Offset 0) |
|------------|--|
|------------|--|



Date: 1.JUL.2017 20:38:22

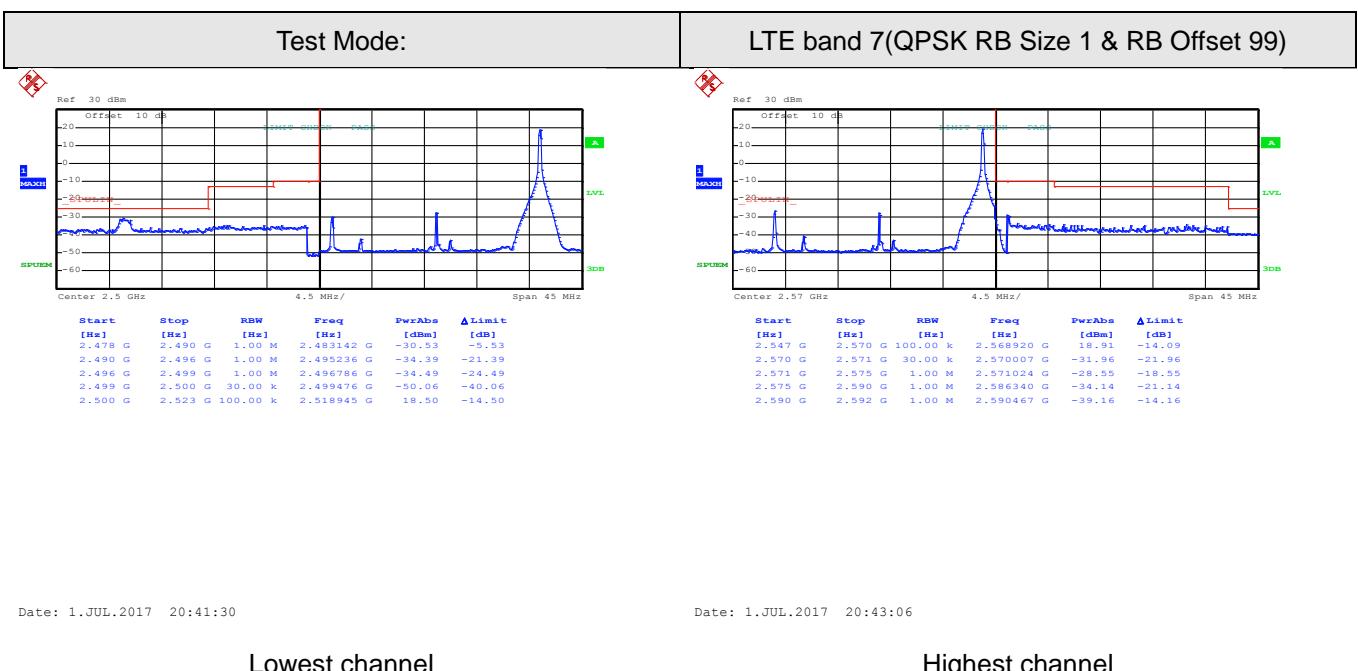
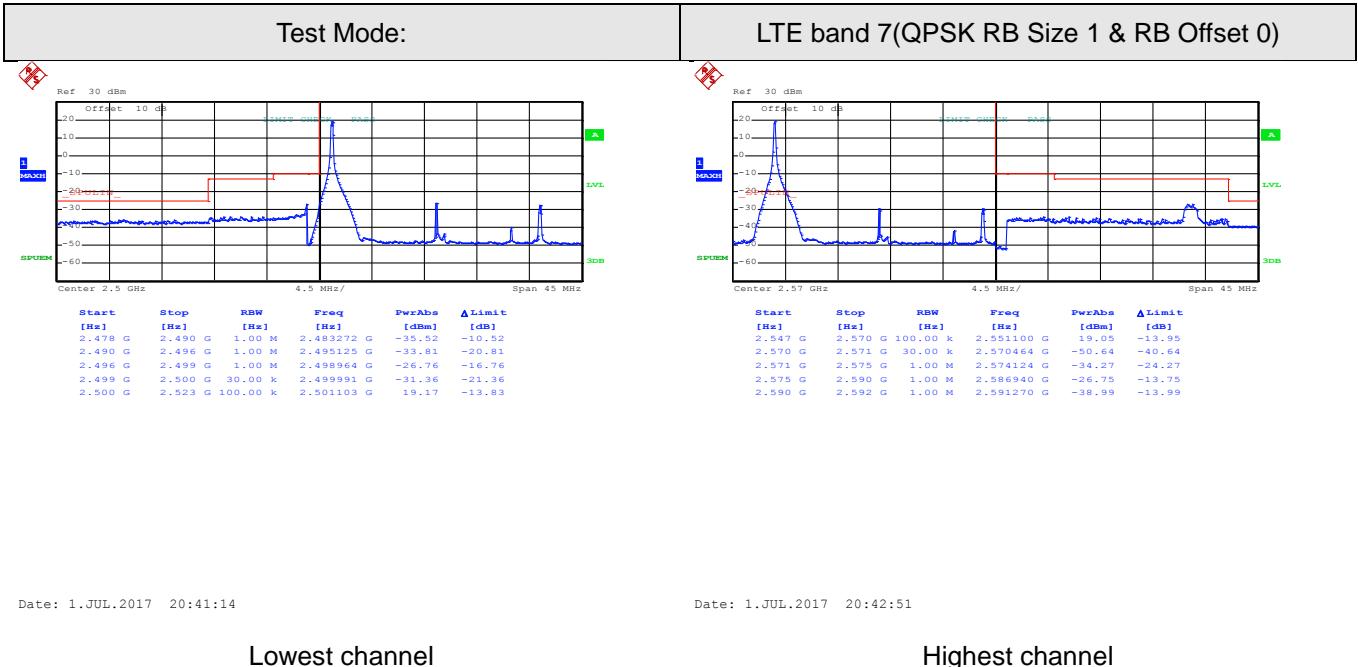
Lowest channel

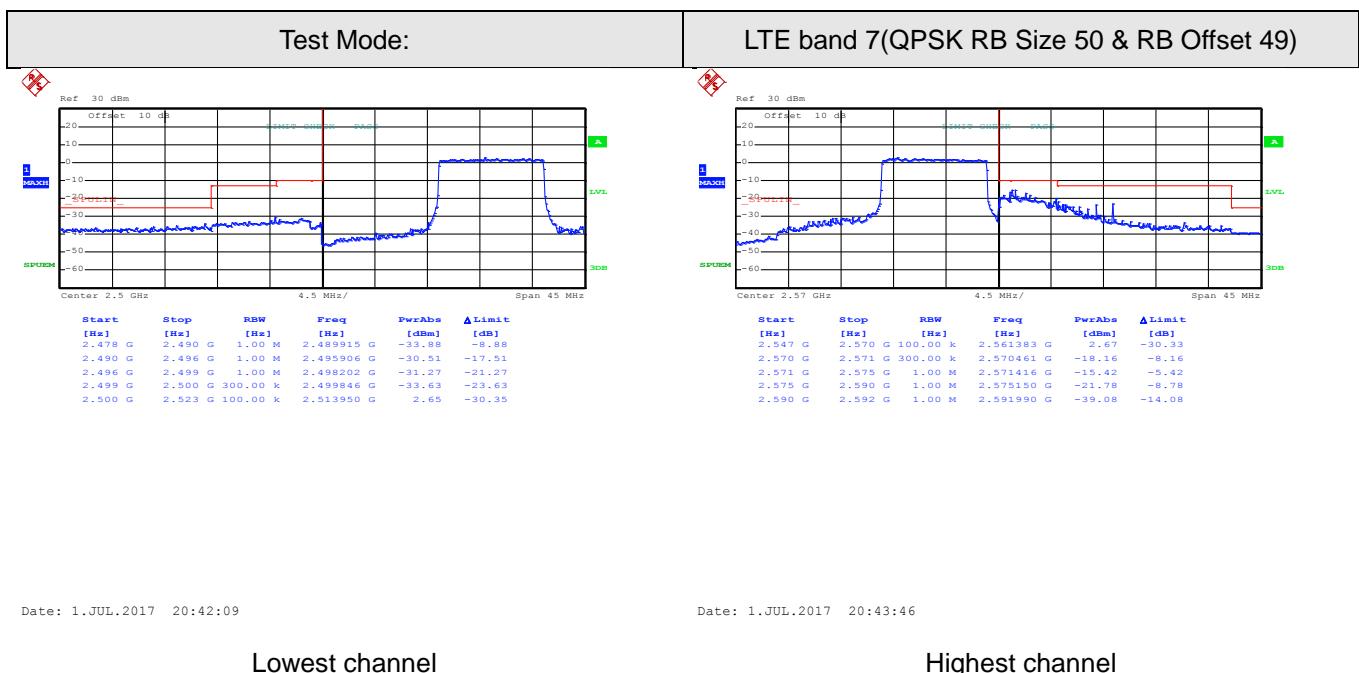
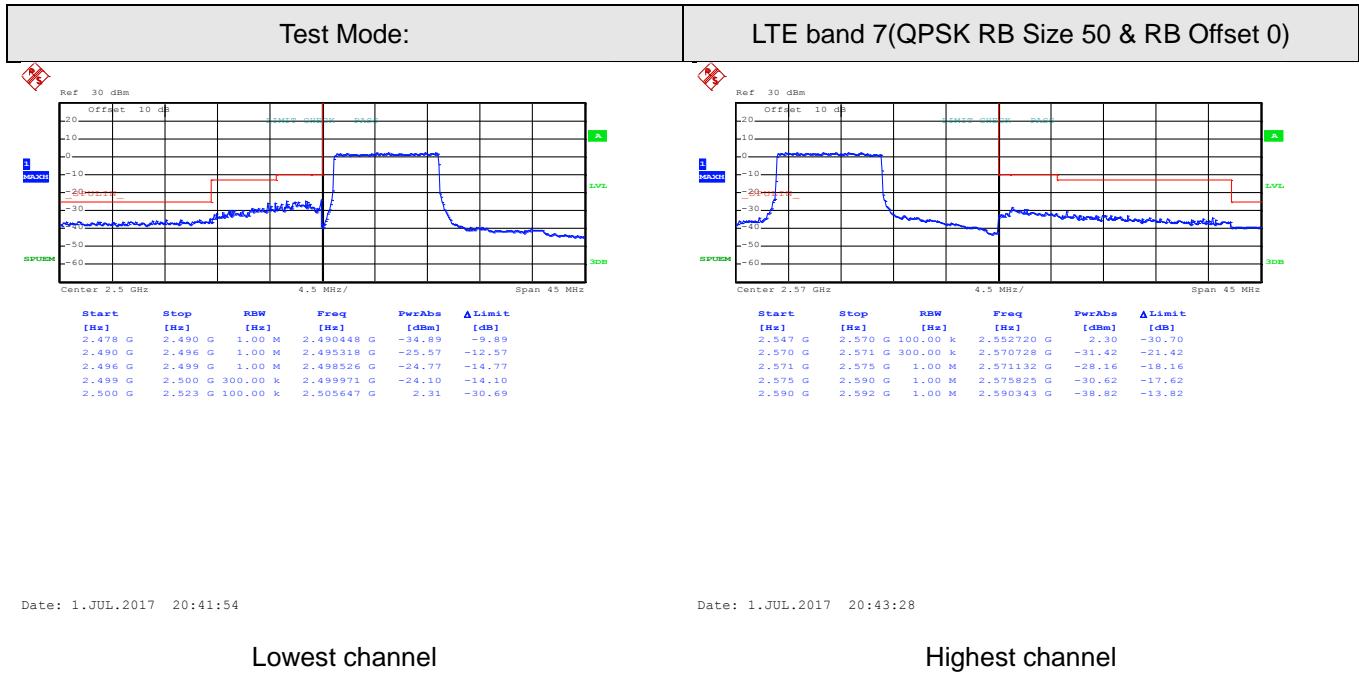


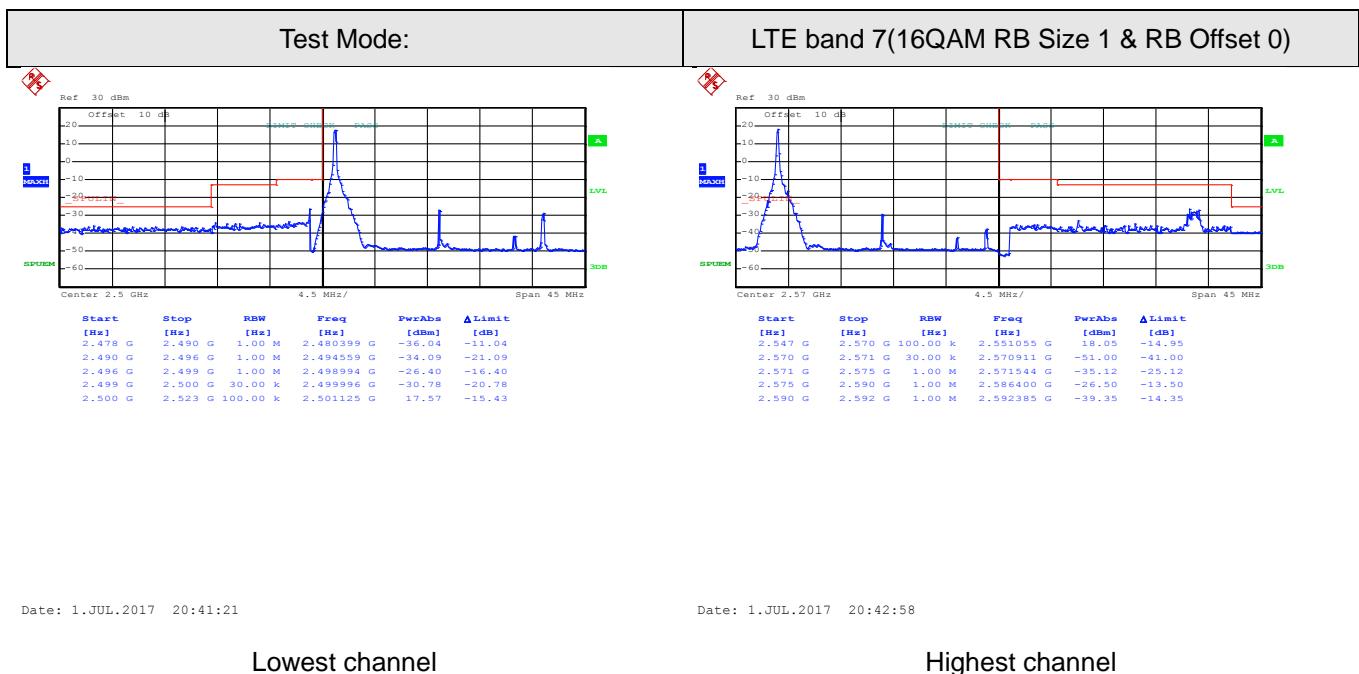
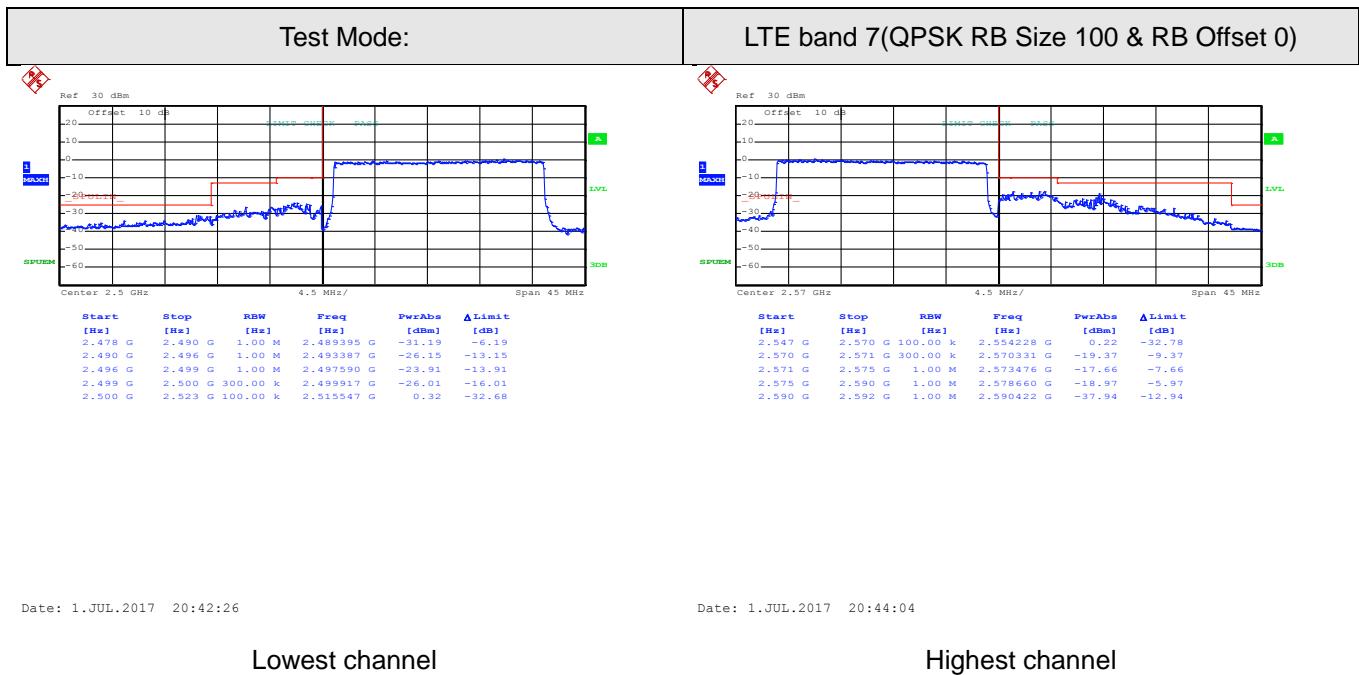
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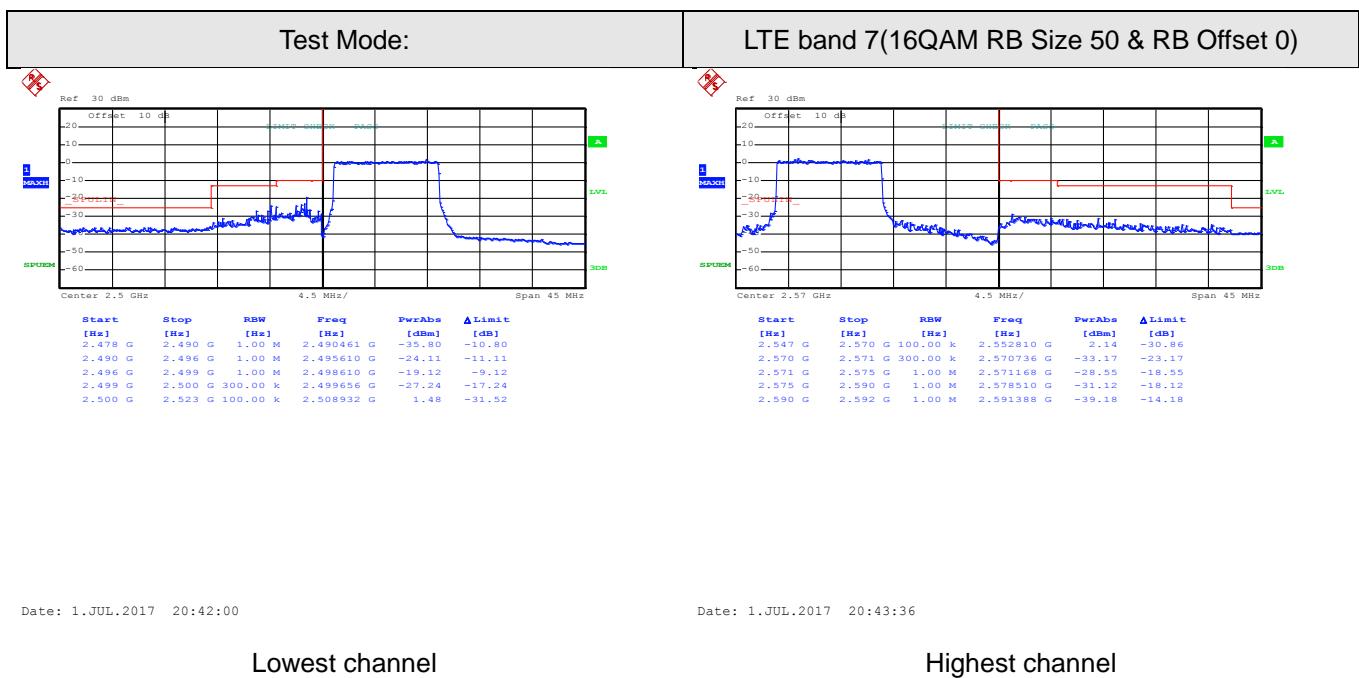
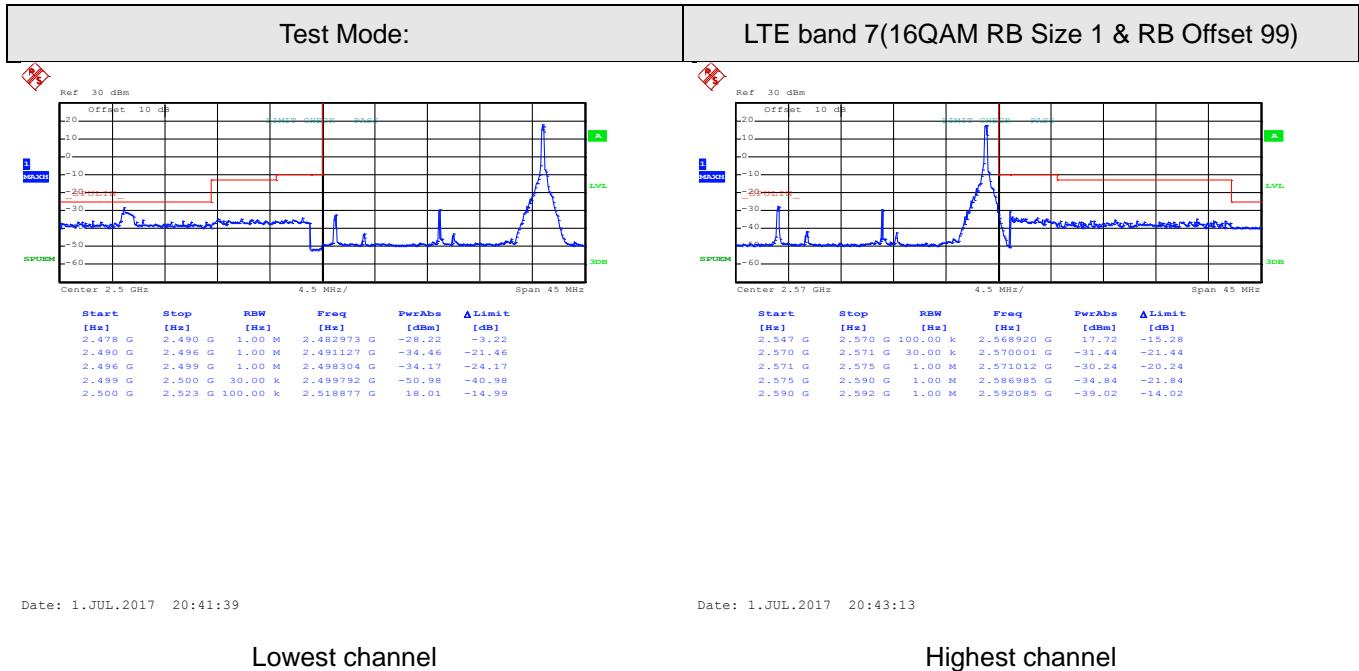
Highest channel

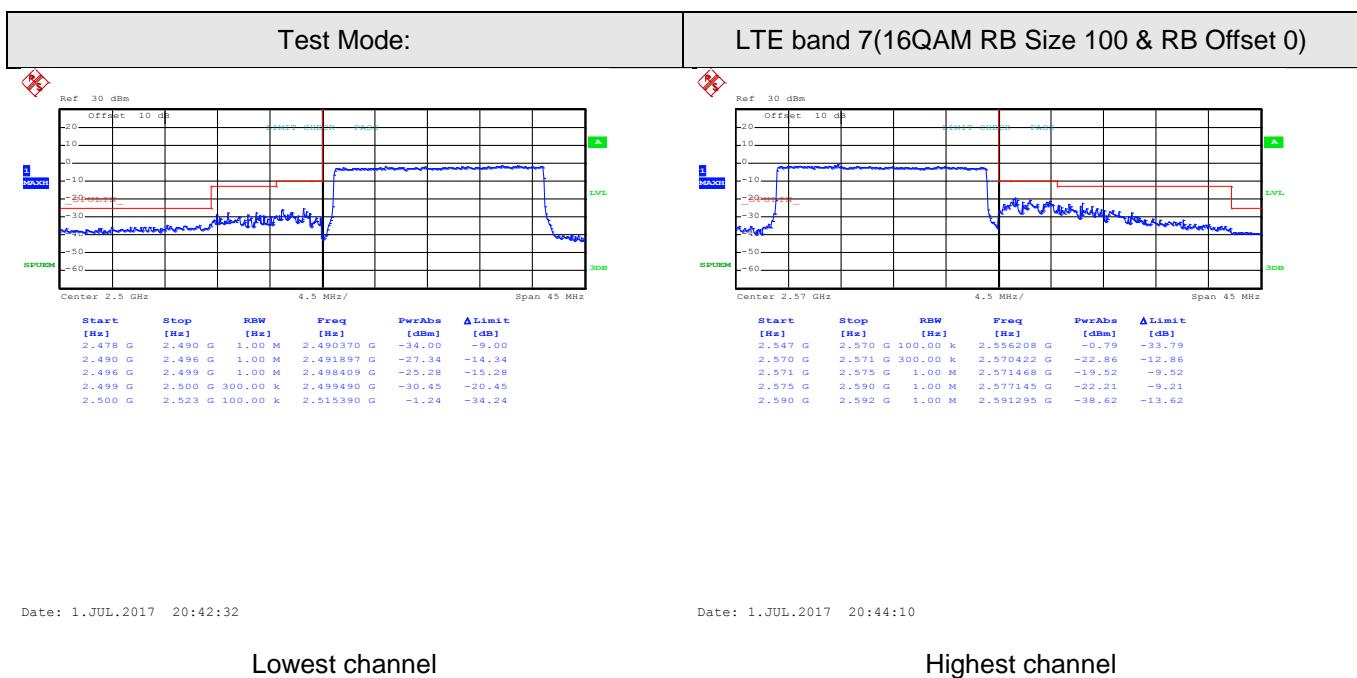
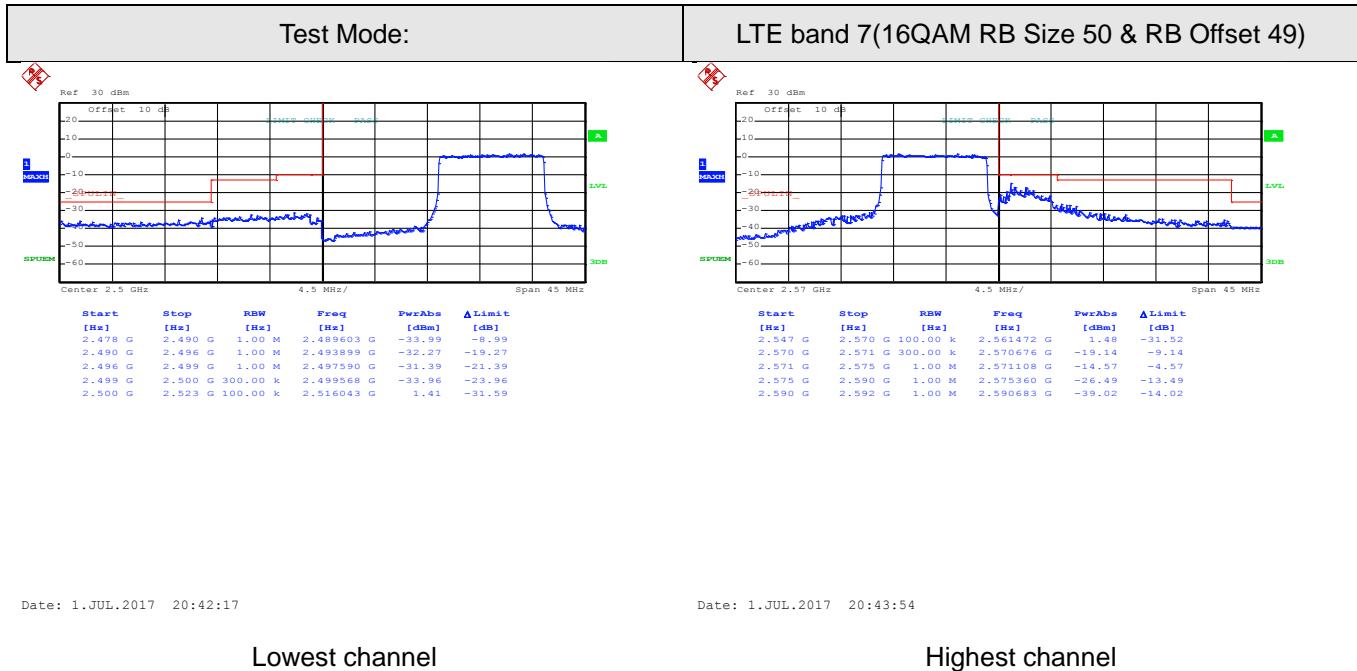
20MHz:











6.10 ERP, EIRP Measurement

| | |
|-------------------|--|
| Test Requirement: | part 27.50(c), part 27.50(d) |
| Test Method: | FCC part 2.1046 |
| Limit: | LTE Band 4: 1W EIRP LTE Band 7: 2W EIRP |
| Test setup: | <p>Below 1GHz</p> <p>Above 1GHz</p> |

| | |
|-------------------|--|
| Test Procedure: | <ol style="list-style-type: none">1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.3. ERP in frequency band below 1GHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows: $\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$4. EIRP in frequency band above 1GHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows: $\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$5. The worse case was relating to the conducted output power. |
| Test Instruments: | Refer to section 5.8 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

Measurement Data (worst case):**LTE band 4 part****Lowest channel**

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|---------------------------------|------------|------------|----------|----------|--------------|-----------|-------------|--------|
| 1.4MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 1710.70 | 19957 | QPSK | 1.4 | H | V | 22.68 | 30.00 | Pass |
| | | | | | H | 25.30 | | |
| 1710.70 | 19957 | 16QAM | 1.4 | H | V | 22.82 | 30.00 | Pass |
| | | | | | H | 25.33 | | |
| 1.4MHz(RB size 3 & RB offset 0) | | | | | | | | |
| 1710.70 | 19957 | QPSK | 1.4 | H | V | 22.39 | 30.00 | Pass |
| | | | | | H | 25.14 | | |
| 1710.70 | 19957 | 16QAM | 1.4 | H | V | 22.52 | 30.00 | Pass |
| | | | | | H | 25.07 | | |
| 1.4MHz(RB size 6 & RB offset 0) | | | | | | | | |
| 1710.70 | 19957 | QPSK | 1.4 | H | V | 21.45 | 30.00 | Pass |
| | | | | | H | 24.10 | | |
| 1710.70 | 19957 | 16QAM | 1.4 | H | V | 21.65 | 30.00 | Pass |
| | | | | | H | 24.36 | | |

Middle channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|---------------------------------|------------|------------|----------|----------|--------------|-----------|-------------|--------|
| 1.4MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 1732.50 | 20175 | QPSK | 1.4 | H | V | 22.17 | 30.00 | Pass |
| | | | | | H | 25.15 | | |
| 1732.50 | 20175 | 16QAM | 1.4 | H | V | 22.24 | 30.00 | Pass |
| | | | | | H | 25.34 | | |
| 1.4MHz(RB size 3 & RB offset 0) | | | | | | | | |
| 1732.50 | 20175 | QPSK | 1.4 | H | V | 22.41 | 30.00 | Pass |
| | | | | | H | 25.39 | | |
| 1732.50 | 20175 | 16QAM | 1.4 | H | V | 22.24 | 30.00 | Pass |
| | | | | | H | 25.91 | | |
| 1.4MHz(RB size 6 & RB offset 0) | | | | | | | | |
| 1732.50 | 20175 | QPSK | 1.4 | H | V | 21.68 | 30.00 | Pass |
| | | | | | H | 24.39 | | |
| 1732.50 | 20175 | 16QAM | 1.4 | H | V | 21.91 | 30.00 | Pass |
| | | | | | H | 24.24 | | |

Highest channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|---------------------------------|------------|------------|----------|----------|--------------|-----------|-------------|--------|
| 1.4MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 1754.30 | 20393 | QPSK | 1.4 | H | V | 22.34 | 30.00 | Pass |
| | | | | | H | 25.14 | | |
| 1754.30 | 20393 | 16QAM | 1.4 | H | V | 22.91 | 30.00 | Pass |
| | | | | | H | 25.44 | | |
| 1.4MHz(RB size 3 & RB offset 0) | | | | | | | | |
| 1754.30 | 20393 | QPSK | 1.4 | H | V | 22.24 | 30.00 | Pass |
| | | | | | H | 25.17 | | |
| 1754.30 | 20393 | 16QAM | 1.4 | H | V | 22.23 | 30.00 | Pass |
| | | | | | H | 25.93 | | |
| 1.4MHz(RB size 6 & RB offset 0) | | | | | | | | |
| 1754.30 | 20393 | QPSK | 1.4 | H | V | 21.24 | 30.00 | Pass |
| | | | | | H | 24.68 | | |
| 1754.30 | 20393 | 16QAM | 1.4 | H | V | 21.36 | 30.00 | Pass |
| | | | | | H | 24.18 | | |

Lowest channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|----------------------------------|------------|------------|----------|----------|--------------|-----------|-------------|--------|
| 20MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 1720.00 | 20050 | QPSK | 20 | H | V | 22.38 | 30.00 | Pass |
| | | | | | H | 25.34 | | |
| 1720.00 | 20050 | 16QAM | 20 | H | V | 22.37 | 30.00 | Pass |
| | | | | | H | 25.74 | | |
| 20MHz(RB size 50 & RB offset 0) | | | | | | | | |
| 1720.00 | 20050 | QPSK | 20 | H | V | 22.37 | 30.00 | Pass |
| | | | | | H | 25.18 | | |
| 1720.00 | 20050 | 16QAM | 20 | H | V | 22.82 | 30.00 | Pass |
| | | | | | H | 25.44 | | |
| 20MHz(RB size 100 & RB offset 0) | | | | | | | | |
| 1720.00 | 20050 | QPSK | 20 | H | V | 21.38 | 30.00 | Pass |
| | | | | | H | 24.41 | | |
| 1720.00 | 20050 | 16QAM | 20 | H | V | 21.71 | 30.00 | Pass |
| | | | | | H | 24.44 | | |

Middle channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|----------------------------------|------------|------------|----------|----------|--------------|-----------|-------------|--------|
| 20MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 1732.50 | 20175 | QPSK | 20 | H | V | 22.44 | 30.00 | Pass |
| | | | | | H | 25.37 | | |
| 1732.50 | 20175 | 16QAM | 20 | H | V | 22.36 | 30.00 | Pass |
| | | | | | H | 25.41 | | |
| 20MHz(RB size 50 & RB offset 0) | | | | | | | | |
| 1732.50 | 20175 | QPSK | 20 | H | V | 22.33 | 30.00 | Pass |
| | | | | | H | 25.14 | | |
| 1732.50 | 20175 | 16QAM | 20 | H | V | 22.93 | 30.00 | Pass |
| | | | | | H | 25.25 | | |
| 20MHz(RB size 100 & RB offset 0) | | | | | | | | |
| 1732.50 | 20175 | QPSK | 20 | H | V | 21.34 | 30.00 | Pass |
| | | | | | H | 24.37 | | |
| 1732.50 | 20175 | 16QAM | 20 | H | V | 21.41 | 30.00 | Pass |
| | | | | | H | 24.69 | | |

High channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|----------------------------------|------------|------------|----------|----------|--------------|-----------|-------------|--------|
| 20MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 1745.00 | 20300 | QPSK | 20 | H | V | 22.39 | 30.00 | Pass |
| | | | | | H | 25.41 | | |
| 1745.00 | 20300 | 16QAM | 20 | H | V | 22.01 | 30.00 | Pass |
| | | | | | H | 25.54 | | |
| 20MHz(RB size 50 & RB offset 0) | | | | | | | | |
| 1745.00 | 20300 | QPSK | 20 | H | V | 22.34 | 30.00 | Pass |
| | | | | | H | 25.64 | | |
| 1745.00 | 20300 | 16QAM | 20 | H | V | 22.34 | 30.00 | Pass |
| | | | | | H | 25.73 | | |
| 20MHz(RB size 100 & RB offset 0) | | | | | | | | |
| 1745.00 | 20300 | QPSK | 20 | H | V | 21.33 | 30.00 | Pass |
| | | | | | H | 24.24 | | |
| 1745.00 | 20300 | 16QAM | 20 | H | V | 21.15 | 30.00 | Pass |
| | | | | | H | 24.25 | | |

LTE band 7 part

Lowest channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|-------------------------------|---------------|------------|-------------|-------------|-----------------|-----------|----------------|--------|
| 5MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 2502.50 | 20775 | QPSK | 5 | H | V | 16.57 | 33.00 | Pass |
| | | | | | H | 23.86 | | |
| 2502.50 | 20775 | 16QAM | 5 | H | V | 16.78 | 33.00 | Pass |
| | | | | | H | 23.99 | | |
| 5MHz(RB size 12& RB offset 0) | | | | | | | | |
| 2502.50 | 20775 | QPSK | 5 | H | V | 16.73 | 33.00 | Pass |
| | | | | | H | 23.44 | | |
| 2502.50 | 20775 | 16QAM | 5 | H | V | 16.57 | 33.00 | Pass |
| | | | | | H | 23.87 | | |
| 5MHz(RB size 25& RB offset 0) | | | | | | | | |
| 2502.50 | 20775 | QPSK | 5 | H | V | 14.45 | 33.00 | Pass |
| | | | | | H | 21.29 | | |
| 2502.50 | 20775 | 16QAM | 5 | H | V | 14.75 | 33.00 | Pass |
| | | | | | H | 22.07 | | |

Middle channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|-------------------------------|---------------|------------|-------------|-------------|-----------------|-----------|----------------|--------|
| 5MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 2535.00 | 21100 | QPSK | 5 | H | V | 16.25 | 33.00 | Pass |
| | | | | | H | 23.22 | | |
| 2535.00 | 21100 | 16QAM | 5 | H | V | 16.83 | 33.00 | Pass |
| | | | | | H | 23.27 | | |
| 5MHz(RB size 12& RB offset 0) | | | | | | | | |
| 2535.00 | 21100 | QPSK | 5 | H | V | 16.39 | 33.00 | Pass |
| | | | | | H | 23.01 | | |
| 2535.00 | 21100 | 16QAM | 5 | H | V | 16.94 | 33.00 | Pass |
| | | | | | H | 23.73 | | |
| 5MHz(RB size 25& RB offset 0) | | | | | | | | |
| 2535.00 | 21100 | QPSK | 5 | H | V | 14.83 | 33.00 | Pass |
| | | | | | H | 21.22 | | |
| 2535.00 | 21100 | 16QAM | 5 | H | V | 14.44 | 33.00 | Pass |
| | | | | | H | 22.52 | | |

Highest channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|-------------------------------|---------------|------------|-------------|-------------|-----------------|-----------|----------------|--------|
| 5MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 2567.50 | 21425 | QPSK | 5 | H | V | 16.53 | 33.00 | Pass |
| | | | | | H | 23.33 | | |
| 2567.50 | 21425 | 16QAM | 5 | H | V | 16.83 | 33.00 | Pass |
| | | | | | H | 23.48 | | |
| 5MHz(RB size 12& RB offset 0) | | | | | | | | |
| 2567.50 | 21425 | QPSK | 5 | H | V | 16.45 | 33.00 | Pass |
| | | | | | H | 23.14 | | |
| 2567.50 | 21425 | 16QAM | 5 | H | V | 16.39 | 33.00 | Pass |
| | | | | | H | 23.78 | | |
| 5MHz(RB size 25& RB offset 0) | | | | | | | | |
| 2567.50 | 21425 | QPSK | 5 | H | V | 14.41 | 33.00 | Pass |
| | | | | | H | 21.56 | | |
| 2567.50 | 21425 | 16QAM | 5 | H | V | 14.87 | 33.00 | Pass |
| | | | | | H | 22.38 | | |

Lowest channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|----------------------------------|---------------|------------|-------------|-------------|-----------------|-----------|----------------|--------|
| 20MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 2510.00 | 20850 | QPSK | 20 | H | V | 16.76 | 33.00 | Pass |
| | | | | | H | 23.52 | | |
| 2510.00 | 20850 | 16QAM | 20 | H | V | 16.20 | 33.00 | Pass |
| | | | | | H | 23.12 | | |
| 20MHz(RB size 50 & RB offset 0) | | | | | | | | |
| 2510.00 | 20850 | QPSK | 20 | H | V | 16.43 | 33.00 | Pass |
| | | | | | H | 23.31 | | |
| 2510.00 | 20850 | 16QAM | 20 | H | V | 16.38 | 33.00 | Pass |
| | | | | | H | 23.89 | | |
| 20MHz(RB size 100 & RB offset 0) | | | | | | | | |
| 2510.00 | 20850 | QPSK | 20 | H | V | 14.67 | 33.00 | Pass |
| | | | | | H | 21.37 | | |
| 2510.00 | 20850 | 16QAM | 20 | H | V | 14.76 | 33.00 | Pass |
| | | | | | H | 22.57 | | |

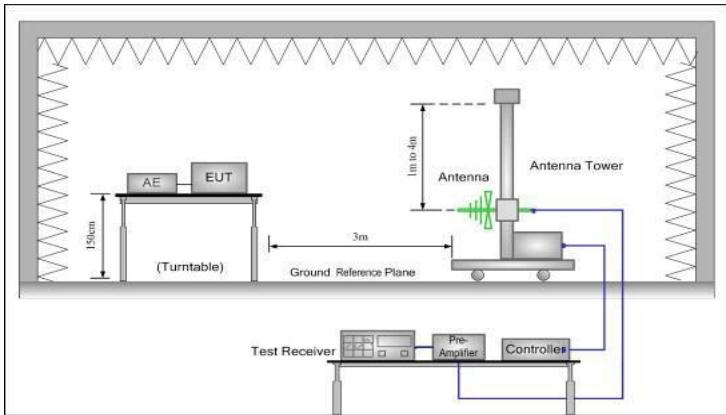
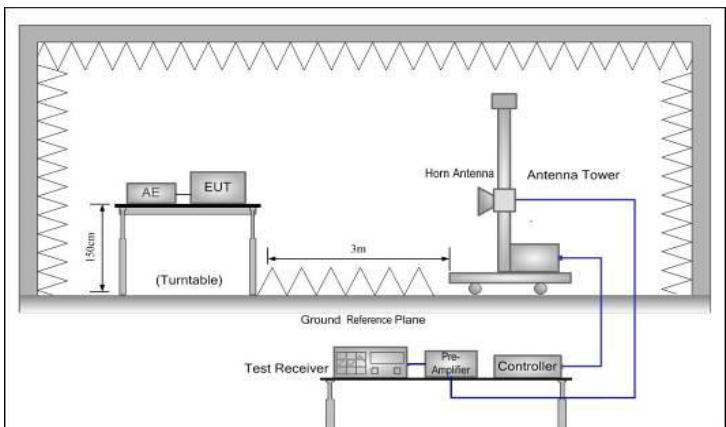
Middle channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|----------------------------------|---------------|------------|-------------|-------------|-----------------|-----------|----------------|--------|
| 20MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 2535.00 | 21100 | QPSK | 20 | H | V | 16.56 | 33.00 | Pass |
| | | | | | H | 23.54 | | |
| 2535.00 | 21100 | 16QAM | 20 | H | V | 16.16 | 33.00 | Pass |
| | | | | | H | 23.75 | | |
| 20MHz(RB size 50 & RB offset 0) | | | | | | | | |
| 2535.00 | 21100 | QPSK | 20 | H | V | 16.45 | 33.00 | Pass |
| | | | | | H | 23.18 | | |
| 2535.00 | 21100 | 16QAM | 20 | H | V | 16.15 | 33.00 | Pass |
| | | | | | H | 23.81 | | |
| 20MHz(RB size 100 & RB offset 0) | | | | | | | | |
| 2535.00 | 21100 | QPSK | 20 | H | V | 14.45 | 33.00 | Pass |
| | | | | | H | 21.39 | | |
| 2535.00 | 21100 | 16QAM | 20 | H | V | 14.87 | 33.00 | Pass |
| | | | | | H | 22.65 | | |

High channel

| Frequency (MHz) | UL Channel | Modulation | BW (MHz) | EUT Pol. | Antenna Pol. | EIRP(dBm) | Limit (dBm) | Result |
|----------------------------------|---------------|------------|-------------|-------------|-----------------|-----------|----------------|--------|
| 20MHz(RB size 1 & RB offset 0) | | | | | | | | |
| 2560.00 | 21350 | QPSK | 20 | H | V | 16.21 | 33.00 | Pass |
| | | | | | H | 23.48 | | |
| 2560.00 | 21350 | 16QAM | 20 | H | V | 16.39 | 33.00 | Pass |
| | | | | | H | 23.78 | | |
| 20MHz(RB size 50 & RB offset 0) | | | | | | | | |
| 2560.00 | 21350 | QPSK | 20 | H | V | 16.12 | 33.00 | Pass |
| | | | | | H | 23.38 | | |
| 2560.00 | 21350 | 16QAM | 20 | H | V | 16.42 | 33.00 | Pass |
| | | | | | H | 23.33 | | |
| 20MHz(RB size 100 & RB offset 0) | | | | | | | | |
| 2560.00 | 21350 | QPSK | 20 | H | V | 14.31 | 33.00 | Pass |
| | | | | | H | 21.41 | | |
| 2560.00 | 21350 | 16QAM | 20 | H | V | 14.23 | 33.00 | Pass |
| | | | | | H | 22.28 | | |

6.11 Field strength of spurious radiation measurement

| | |
|-------------------|--|
| Test Requirement: | Part 27.53(m), Part 27.53(h) |
| Test Method: | FCC part 2.1053 |
| Limit: | LTE Band 4 & LTE Band 17: -13dBm. |
| Test setup: | <p>Below 1GHz</p>  <p>Above 1GHz</p>  |
| Test Procedure: | <ol style="list-style-type: none"> The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. $\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$ |
| Test Instruments: | Refer to section 5.8 for details |
| Test mode: | Refer to section 5.3 for details. |
| Test results: | Passed |

Measurement Data (worst case):

| LTE Band 4 Part: 1.4MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|--|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 3421.40 | Vertical | -47.20 | -13.00 | Pass |
| 5132.10 | V | -45.59 | | |
| 6842.80 | V | -38.49 | | |
| 3421.40 | Horizontal | -43.70 | | |
| 5132.10 | H | -44.26 | | |
| 6842.80 | H | -36.77 | | |
| Middle | | | | |
| 3465.00 | Vertical | -47.77 | -13.00 | Pass |
| 5197.50 | V | -45.24 | | |
| 6930.00 | V | -34.83 | | |
| 3465.00 | Horizontal | -48.41 | | |
| 5197.50 | H | -43.97 | | |
| 6930.00 | H | -35.80 | | |
| Highest | | | | |
| 3508.60 | Vertical | -47.59 | -13.00 | Pass |
| 5262.90 | V | -45.44 | | |
| 7017.20 | V | -37.68 | | |
| 3508.60 | Horizontal | -42.71 | | |
| 5262.90 | H | -43.40 | | |
| 7017.20 | H | -39.30 | | |

Note

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 3MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|--|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 3423.00 | Vertical | -47.92 | -13.00 | Pass |
| 5134.50 | V | -45.16 | | |
| 6846.00 | V | -38.16 | | |
| 3423.00 | Horizontal | -43.46 | | |
| 5134.50 | H | -44.30 | | |
| 6846.00 | H | -36.54 | | |
| Middle | | | | |
| 3465.00 | Vertical | -47.27 | -13.00 | Pass |
| 5197.50 | V | -45.23 | | |
| 6930.00 | V | -34.77 | | |
| 3465.00 | Horizontal | -48.92 | | |
| 5197.50 | H | -43.41 | | |
| 6930.00 | H | -35.45 | | |
| Highest | | | | |
| 3507.00 | Vertical | -47.44 | -13.00 | Pass |
| 5260.50 | V | -45.45 | | |
| 7014.00 | V | -37.32 | | |
| 3507.00 | Horizontal | -42.68 | | |
| 5260.50 | H | -43.34 | | |
| 7014.00 | H | -39.45 | | |

Note

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 5MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|--|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 3425.00 | Vertical | -47.35 | -13.00 | Pass |
| 5137.50 | V | -45.62 | | |
| 6850.00 | V | -38.54 | | |
| 3425.00 | Horizontal | -43.41 | | |
| 5137.50 | H | -44.45 | | |
| 6850.00 | H | -36.59 | | |
| Middle | | | | |
| 3465.00 | Vertical | -47.54 | -13.00 | Pass |
| 5197.50 | V | -45.33 | | |
| 6930.00 | V | -34.27 | | |
| 3465.00 | Horizontal | -48.57 | | |
| 5197.50 | H | -43.45 | | |
| 6930.00 | H | -35.34 | | |
| Highest | | | | |
| 3505.00 | Vertical | -47.44 | -13.00 | Pass |
| 5257.50 | V | -45.94 | | |
| 7010.00 | V | -37.94 | | |
| 3505.00 | Horizontal | -42.37 | | |
| 5257.50 | H | -43.12 | | |
| 7010.00 | H | -39.45 | | |

Note

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 10MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|---|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 3430.00 | Vertical | -47.34 | -13.00 | Pass |
| 5145.00 | V | -45.63 | | |
| 6860.00 | V | -38.42 | | |
| 3430.00 | Horizontal | -43.71 | | |
| 5145.00 | H | -44.52 | | |
| 6860.00 | H | -36.38 | | |
| Middle | | | | |
| 3465.00 | Vertical | -47.71 | -13.00 | Pass |
| 5197.50 | V | -45.12 | | |
| 6930.00 | V | -34.99 | | |
| 3465.00 | Horizontal | -48.98 | | |
| 5197.50 | H | -43.35 | | |
| 6930.00 | H | -35.41 | | |
| Highest | | | | |
| 3500.00 | Vertical | -45.88 | -13.00 | Pass |
| 5250.00 | V | -37.84 | | |
| 7000.00 | V | -42.55 | | |
| 3500.00 | Horizontal | -43.94 | | |
| 5250.00 | H | -39.38 | | |
| 7000.00 | H | -45.88 | | |

Note

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 15MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|---|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 3435.00 | Vertical | -47.33 | -13.00 | Pass |
| 5152.50 | V | -45.71 | | |
| 6870.00 | V | -38.84 | | |
| 3435.00 | Horizontal | -43.44 | | |
| 5152.50 | H | -44.12 | | |
| 6870.00 | H | -36.99 | | |
| Middle | | | | |
| 3465.00 | Vertical | -47.84 | -13.00 | Pass |
| 5197.50 | V | -45.16 | | |
| 6930.00 | V | -34.33 | | |
| 3465.00 | Horizontal | -48.54 | | |
| 5197.50 | H | -43.16 | | |
| 6930.00 | H | -35.47 | | |
| Highest | | | | |
| 3495.00 | Vertical | -47.49 | -13.00 | Pass |
| 5242.50 | V | -45.54 | | |
| 6990.00 | V | -37.57 | | |
| 3495.00 | Horizontal | -42.82 | | |
| 5242.50 | H | -43.23 | | |
| 6990.00 | H | -39.94 | | |

Note

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 20MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|---|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 3440.00 | Vertical | -47.88 | -13.00 | Pass |
| 5160.00 | V | -45.97 | | |
| 6880.00 | V | -38.42 | | |
| 3440.00 | Horizontal | -43.22 | | |
| 5160.00 | H | -44.12 | | |
| 6880.00 | H | -36.35 | | |
| Middle | | | | |
| 3465.00 | Vertical | -47.48 | -13.00 | Pass |
| 5197.50 | V | -45.43 | | |
| 6930.00 | V | -34.35 | | |
| 3465.00 | Horizontal | -48.35 | | |
| 5197.50 | H | -43.42 | | |
| 6930.00 | H | -35.12 | | |
| Highest | | | | |
| 3490.00 | Vertical | -47.19 | -13.00 | Pass |
| 5235.00 | V | -45.94 | | |
| 6980.00 | V | -37.42 | | |
| 3490.00 | Horizontal | -42.48 | | |
| 5235.00 | H | -43.12 | | |
| 6980.00 | H | -39.71 | | |

Note

- The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
- For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 7 Part:

5MHz(RB size 1 & RB offset 0) for QPSK

| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
|-----------------|-------------------|-------------|-------------|--------|
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 5005.00 | Vertical | -46.74 | -25.00 | Pass |
| 7507.50 | V | -33.35 | | |
| 10010.00 | V | -39.90 | | |
| 5005.00 | Horizontal | -45.90 | | |
| 7507.50 | H | -34.17 | | |
| 10010.00 | H | -38.21 | | |
| Middle | | | | |
| 5070.00 | Vertical | -45.10 | -25.00 | Pass |
| 7605.00 | V | -40.26 | | |
| 10140.00 | V | -38.93 | | |
| 5070.00 | Horizontal | -43.70 | | |
| 7605.00 | H | -37.21 | | |
| 10140.00 | H | -37.51 | | |
| Highest | | | | |
| 5135.00 | Vertical | -45.40 | -25.00 | Pass |
| 7702.50 | V | -33.99 | | |
| 10270.00 | V | -36.89 | | |
| 5135.00 | Horizontal | -46.26 | | |
| 7702.50 | H | -30.54 | | |
| 10270.00 | H | -38.48 | | |

Note

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 10MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|---|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 5010.00 | Vertical | -46.72 | -25.00 | Pass |
| 7515.00 | V | -33.57 | | |
| 10020.00 | V | -39.41 | | |
| 5010.00 | Horizontal | -45.83 | | |
| 7515.00 | H | -34.72 | | |
| 10020.00 | H | -38.83 | | |
| Middle | | | | |
| 5070.00 | Vertical | -45.56 | -25.00 | Pass |
| 7605.00 | V | -40.47 | | |
| 10140.00 | V | -38.95 | | |
| 5070.00 | Horizontal | -43.42 | | |
| 7605.00 | H | -37.74 | | |
| 10140.00 | H | -37.75 | | |
| Highest | | | | |
| 5130.00 | Vertical | -45.83 | -25.00 | Pass |
| 7695.00 | V | -33.79 | | |
| 10260.00 | V | -36.41 | | |
| 5130.00 | Horizontal | -46.72 | | |
| 7695.00 | H | -30.61 | | |
| 10260.00 | H | -38.02 | | |

Note

- The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
- For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 15MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|---|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 5015.00 | Vertical | -46.38 | -25.00 | Pass |
| 7522.50 | V | -33.46 | | |
| 10030.00 | V | -39.41 | | |
| 5015.00 | Horizontal | -45.26 | | |
| 7522.50 | H | -34.93 | | |
| 10030.00 | H | -38.24 | | |
| Middle | | | | |
| 5070.00 | Vertical | -45.27 | -25.00 | Pass |
| 7605.00 | V | -40.21 | | |
| 10140.00 | V | -38.55 | | |
| 5070.00 | Horizontal | -43.49 | | |
| 7605.00 | H | -37.24 | | |
| 10140.00 | H | -37.54 | | |
| Highest | | | | |
| 5125.00 | Vertical | -45.61 | -25.00 | Pass |
| 7687.50 | V | -33.75 | | |
| 10250.00 | V | -36.26 | | |
| 5125.00 | Horizontal | -46.61 | | |
| 7687.50 | H | -30.57 | | |
| 10250.00 | H | -38.72 | | |

Note

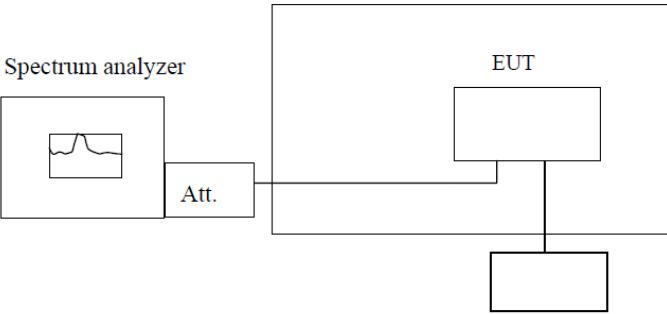
1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

| 20MHz(RB size 1 & RB offset 0) for QPSK | | | | |
|---|-------------------|-------------|-------------|--------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Result |
| | Polarization | Level (dBm) | | |
| Lowest | | | | |
| 5020.00 | Vertical | -46.26 | -25.00 | Pass |
| 7530.00 | V | -33.99 | | |
| 10040.00 | V | -39.27 | | |
| 5020.00 | Horizontal | -45.42 | | |
| 7530.00 | H | -34.61 | | |
| 10040.00 | H | -38.83 | | |
| Middle | | | | |
| 5070.00 | Vertical | -45.72 | -25.00 | Pass |
| 7605.00 | V | -40.56 | | |
| 10140.00 | V | -38.47 | | |
| 5070.00 | Horizontal | -43.78 | | |
| 7605.00 | H | -37.35 | | |
| 10140.00 | H | -37.41 | | |
| Highest | | | | |
| 5120.00 | Vertical | -45.83 | -25.00 | Pass |
| 7680.00 | V | -33.51 | | |
| 10240.00 | V | -36.89 | | |
| 5120.00 | Horizontal | -46.72 | | |
| 7680.00 | H | -30.57 | | |
| 10240.00 | H | -38.27 | | |

Note

- The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
- For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

6.12 Frequency stability V.S. Temperature measurement

| | |
|-------------------|---|
| Test Requirement: | Part 24.235, Part 27.54, Part 2.1055(a)(1)(b) |
| Test Method: | FCC Part 2.1055(a)(1)(b) |
| Limit: | $\pm 2.5\text{ppm}$ |
| Test setup: | <p style="text-align: center;">Temperature Chamber</p>  <p style="text-align: center;">Spectrum analyzer</p> <p style="text-align: center;">Att.</p> <p style="text-align: center;">EUT</p> <p style="text-align: center;">Variable Power Supply</p> <p>Note : Measurement setup for testing on Antenna connector</p> |
| Test procedure: | <ol style="list-style-type: none"> 1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached |
| Test Instruments: | Refer to section 5.8 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |
| Remark: | All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item. |

Measurement Data (the worst channel):

LTE Band 4(QPSK):

| Reference Frequency: LTE Band 4(1.4MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
|---|---|-----------------|----------|-------------|--------|
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 194 | 0.111977 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 145 | 0.083694 | | |
| | 0 | 179 | 0.103319 | | |
| | 10 | 158 | 0.091198 | | |
| | 20 | 149 | 0.086003 | | |
| | 30 | 130 | 0.075036 | | |
| | 40 | 105 | 0.060606 | | |
| | 50 | 116 | 0.066955 | | |
| | Reference Frequency: LTE Band 4(3MHz) Middle channel=20175 channel=1732.50MHz | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 154 | 0.088889 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 132 | 0.076190 | | |
| | 0 | 172 | 0.099278 | | |
| | 10 | 144 | 0.083117 | | |
| | 20 | 126 | 0.072727 | | |
| | 30 | 148 | 0.085426 | | |
| | 40 | 106 | 0.061183 | | |
| | 50 | 115 | 0.066378 | | |
| | Reference Frequency: LTE Band 4(5MHz) Middle channel=20175 channel=1732.50MHz | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 163 | 0.094084 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 132 | 0.076190 | | |
| | 0 | 126 | 0.072727 | | |
| | 10 | 169 | 0.097547 | | |
| | 20 | 146 | 0.084271 | | |
| | 30 | 106 | 0.061183 | | |
| | 40 | 153 | 0.088312 | | |
| | 50 | 148 | 0.085426 | | |

| Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
|--|------------------|-----------------|----------|-------------|--------|
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 166 | 0.095815 | ±2.5 | Pass |
| | -20 | 169 | 0.097547 | | |
| | -10 | 150 | 0.086580 | | |
| | 0 | 130 | 0.075036 | | |
| | 10 | 102 | 0.058874 | | |
| | 20 | 142 | 0.081962 | | |
| | 30 | 146 | 0.084271 | | |
| | 40 | 127 | 0.073304 | | |
| | 50 | 116 | 0.066955 | | |
| Reference Frequency: LTE Band 4(15MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 150 | 0.086580 | ±2.5 | Pass |
| | -20 | 160 | 0.092352 | | |
| | -10 | 130 | 0.075036 | | |
| | 0 | 136 | 0.078499 | | |
| | 10 | 142 | 0.081962 | | |
| | 20 | 158 | 0.091198 | | |
| | 30 | 169 | 0.097547 | | |
| | 40 | 103 | 0.059452 | | |
| | 50 | 116 | 0.066955 | | |
| Reference Frequency: LTE Band 4(20MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 196 | 0.113131 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 163 | 0.094084 | | |
| | 0 | 169 | 0.097547 | | |
| | 10 | 178 | 0.102742 | | |
| | 20 | 142 | 0.081962 | | |
| | 30 | 148 | 0.085426 | | |
| | 40 | 156 | 0.090043 | | |
| | 50 | 106 | 0.061183 | | |

LTE Band 4(16QAM):

| Reference Frequency: LTE Band 4(1.4MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
|---|------------------|-----------------|----------|-------------|--------|
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 121 | 0.069841 | ±2.5 | Pass |
| | -20 | 148 | 0.085426 | | |
| | -10 | 142 | 0.081962 | | |
| | 0 | 124 | 0.071573 | | |
| | 10 | 153 | 0.088312 | | |
| | 20 | 136 | 0.078499 | | |
| | 30 | 129 | 0.074459 | | |
| | 40 | 146 | 0.084271 | | |
| | 50 | 107 | 0.061760 | | |
| | | | | | |
| Reference Frequency: LTE Band 4(3MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 162 | 0.093506 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 136 | 0.078499 | | |
| | 0 | 128 | 0.073882 | | |
| | 10 | 164 | 0.094661 | | |
| | 20 | 158 | 0.091198 | | |
| | 30 | 153 | 0.088312 | | |
| | 40 | 156 | 0.090043 | | |
| | 50 | 147 | 0.084848 | | |
| | | | | | |
| Reference Frequency: LTE Band 4(5MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 156 | 0.090043 | ±2.5 | Pass |
| | -20 | 160 | 0.092352 | | |
| | -10 | 130 | 0.075036 | | |
| | 0 | 142 | 0.081962 | | |
| | 10 | 169 | 0.097547 | | |
| | 20 | 121 | 0.069841 | | |
| | 30 | 136 | 0.078499 | | |
| | 40 | 127 | 0.073304 | | |
| | 50 | 116 | 0.066955 | | |
| | | | | | |

| Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
|--|------------------|-----------------|----------|-------------|--------|
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 163 | 0.094084 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 133 | 0.076768 | | |
| | 0 | 142 | 0.081962 | | |
| | 10 | 166 | 0.095815 | | |
| | 20 | 158 | 0.091198 | | |
| | 30 | 153 | 0.088312 | | |
| | 40 | 148 | 0.085426 | | |
| | 50 | 107 | 0.061760 | | |
| Reference Frequency: LTE Band 4(15MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 153 | 0.088312 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 142 | 0.081962 | | |
| | 0 | 146 | 0.084271 | | |
| | 10 | 126 | 0.072727 | | |
| | 20 | 131 | 0.075613 | | |
| | 30 | 134 | 0.077345 | | |
| | 40 | 103 | 0.059452 | | |
| | 50 | 114 | 0.065801 | | |
| Reference Frequency: LTE Band 4(20MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 163 | 0.094084 | ±2.5 | Pass |
| | -20 | 121 | 0.069841 | | |
| | -10 | 128 | 0.073882 | | |
| | 0 | 142 | 0.081962 | | |
| | 10 | 148 | 0.085426 | | |
| | 20 | 153 | 0.088312 | | |
| | 30 | 106 | 0.061183 | | |
| | 40 | 117 | 0.067532 | | |
| | 50 | 99 | 0.057143 | | |

LTE Band 7(QPSK):

| Reference Frequency: LTE Band 7(5MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
|--|------------------|-----------------|----------|-------------|--------|
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 196 | 0.077318 | ±2.5 | Pass |
| | -20 | 121 | 0.047732 | | |
| | -10 | 134 | 0.052860 | | |
| | 0 | 118 | 0.046548 | | |
| | 10 | 128 | 0.050493 | | |
| | 20 | 142 | 0.056016 | | |
| | 30 | 145 | 0.057199 | | |
| | 40 | 158 | 0.062327 | | |
| | 50 | 167 | 0.065878 | | |
| Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 153 | 0.060355 | ±2.5 | Pass |
| | -20 | 121 | 0.047732 | | |
| | -10 | 128 | 0.050493 | | |
| | 0 | 158 | 0.062327 | | |
| | 10 | 142 | 0.056016 | | |
| | 20 | 140 | 0.055227 | | |
| | 30 | 116 | 0.045759 | | |
| | 40 | 107 | 0.042209 | | |
| | 50 | 101 | 0.039842 | | |
| Reference Frequency: LTE Band 7(15MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 153 | 0.060355 | ±2.5 | Pass |
| | -20 | 121 | 0.047732 | | |
| | -10 | 134 | 0.052860 | | |
| | 0 | 132 | 0.052071 | | |
| | 10 | 118 | 0.046548 | | |
| | 20 | 112 | 0.044181 | | |
| | 30 | 106 | 0.041815 | | |
| | 40 | 142 | 0.056016 | | |
| | 50 | 144 | 0.056805 | | |
| Reference Frequency: LTE Band 7(20MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 196 | 0.077318 | ±2.5 | Pass |
| | -20 | 121 | 0.047732 | | |
| | -10 | 126 | 0.049704 | | |
| | 0 | 164 | 0.064694 | | |
| | 10 | 175 | 0.069034 | | |
| | 20 | 148 | 0.058383 | | |
| | 30 | 178 | 0.070217 | | |
| | 40 | 131 | 0.051677 | | |
| | 50 | 140 | 0.055227 | | |

LTE Band 7(16QAM):

| Reference Frequency: LTE Band 7(5MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
|--|------------------|-----------------|----------|-------------|--------|
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 163 | 0.064300 | ±2.5 | Pass |
| | -20 | 121 | 0.047732 | | |
| | -10 | 132 | 0.052071 | | |
| | 0 | 124 | 0.048915 | | |
| | 10 | 128 | 0.050493 | | |
| | 20 | 142 | 0.056016 | | |
| | 30 | 146 | 0.057594 | | |
| | 40 | 105 | 0.041420 | | |
| | 50 | 107 | 0.042209 | | |
| Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 155 | 0.061144 | ±2.5 | Pass |
| | -20 | 144 | 0.056805 | | |
| | -10 | 158 | 0.062327 | | |
| | 0 | 130 | 0.051282 | | |
| | 10 | 128 | 0.050493 | | |
| | 20 | 164 | 0.064694 | | |
| | 30 | 139 | 0.054832 | | |
| | 40 | 103 | 0.040631 | | |
| | 50 | 114 | 0.044970 | | |
| Reference Frequency: LTE Band 7(15MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 153 | 0.060355 | 2.5 | Pass |
| | -20 | 130 | 0.051282 | | |
| | -10 | 134 | 0.052860 | | |
| | 0 | 142 | 0.056016 | | |
| | 10 | 138 | 0.054438 | | |
| | 20 | 121 | 0.047732 | | |
| | 30 | 126 | 0.049704 | | |
| | 40 | 158 | 0.062327 | | |
| | 50 | 127 | 0.050099 | | |
| Reference Frequency: LTE Band 7(20MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 3.80 | -30 | 154 | 0.060750 | 2.5 | Pass |
| | -20 | 121 | 0.047732 | | |
| | -10 | 128 | 0.050493 | | |
| | 0 | 142 | 0.056016 | | |
| | 10 | 146 | 0.057594 | | |
| | 20 | 114 | 0.044970 | | |
| | 30 | 102 | 0.040237 | | |
| | 40 | 107 | 0.042209 | | |
| | 50 | 158 | 0.062327 | | |

6.13 Frequency stability V.S. Voltage measurement

| | |
|-------------------|---|
| Test Requirement: | Part 24.235, Part 27.54, Part 2.1055(d)(2) |
| Test Method: | FCC Part 2.1055(d)(1)(2) |
| Limit: | $\pm 2.5\text{ppm}$ |
| Test setup: | <p style="text-align: center;"> Temperature Chamber Spectrum analyzer Att. EUT Variable Power Supply </p> <p>Note : Measurement setup for testing on Antenna connector</p> |
| Test procedure: | <ol style="list-style-type: none"> Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change. |
| Test Instruments: | Refer to section 5.8 for details |
| Test mode: | Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report. |
| Test results: | Passed |

Measurement Data (the worst channel):**LTE Band 4(QPSK):**

| Reference Frequency: LTE Band 4(1.4MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
|---|----------------------|-----------------|----------|-------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 90 | 0.051948 | ±2.5 | Pass |
| | 3.80 | 56 | 0.032323 | | |
| | 3.23 | 81 | 0.046753 | | |
| Reference Frequency: LTE Band 4(3MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 80 | 0.046176 | ±2.5 | Pass |
| | 3.80 | 45 | 0.025974 | | |
| | 3.23 | 68 | 0.039250 | | |
| Reference Frequency: LTE Band 4(5MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 87 | 0.050216 | ±2.5 | Pass |
| | 3.80 | 90 | 0.051948 | | |
| | 3.23 | 45 | 0.025974 | | |
| Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 50 | 0.028860 | ±2.5 | Pass |
| | 3.80 | 81 | 0.046753 | | |
| | 3.23 | 65 | 0.037518 | | |
| Reference Frequency: LTE Band 4(15MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 90 | 0.051948 | ±2.5 | Pass |
| | 3.80 | 85 | 0.049062 | | |
| | 3.23 | 48 | 0.027706 | | |
| Reference Frequency: LTE Band 4(20MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 99 | 0.057143 | ±2.5 | Pass |
| | 3.80 | 84 | 0.048485 | | |
| | 3.23 | 62 | 0.035786 | | |

LTE Band 4(16QAM):

| Reference Frequency: LTE Band 4(1.4MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
|---|----------------------|-----------------|----------|-------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 83 | 0.047908 | ±2.5 | Pass |
| | 3.80 | 62 | 0.035786 | | |
| | 3.23 | 72 | 0.041558 | | |
| Reference Frequency: LTE Band 4(3MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 78 | 0.045022 | ±2.5 | Pass |
| | 3.80 | 43 | 0.024820 | | |
| | 3.23 | 69 | 0.039827 | | |
| Reference Frequency: LTE Band 4(5MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 86 | 0.049639 | ±2.5 | Pass |
| | 3.80 | 88 | 0.050794 | | |
| | 3.23 | 63 | 0.036364 | | |
| Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 78 | 0.045022 | ±2.5 | Pass |
| | 3.80 | 89 | 0.051371 | | |
| | 3.23 | 43 | 0.024820 | | |
| Reference Frequency: LTE Band 4(15MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 64 | 0.036941 | ±2.5 | Pass |
| | 3.80 | 80 | 0.046176 | | |
| | 3.23 | 46 | 0.026551 | | |
| Reference Frequency: LTE Band 4(20MHz) Middle channel=20175 channel=1732.50MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 88 | 0.050794 | ±2.5 | Pass |
| | 3.80 | 72 | 0.041558 | | |
| | 3.23 | 78 | 0.045022 | | |

LTE Band 7(QPSK):

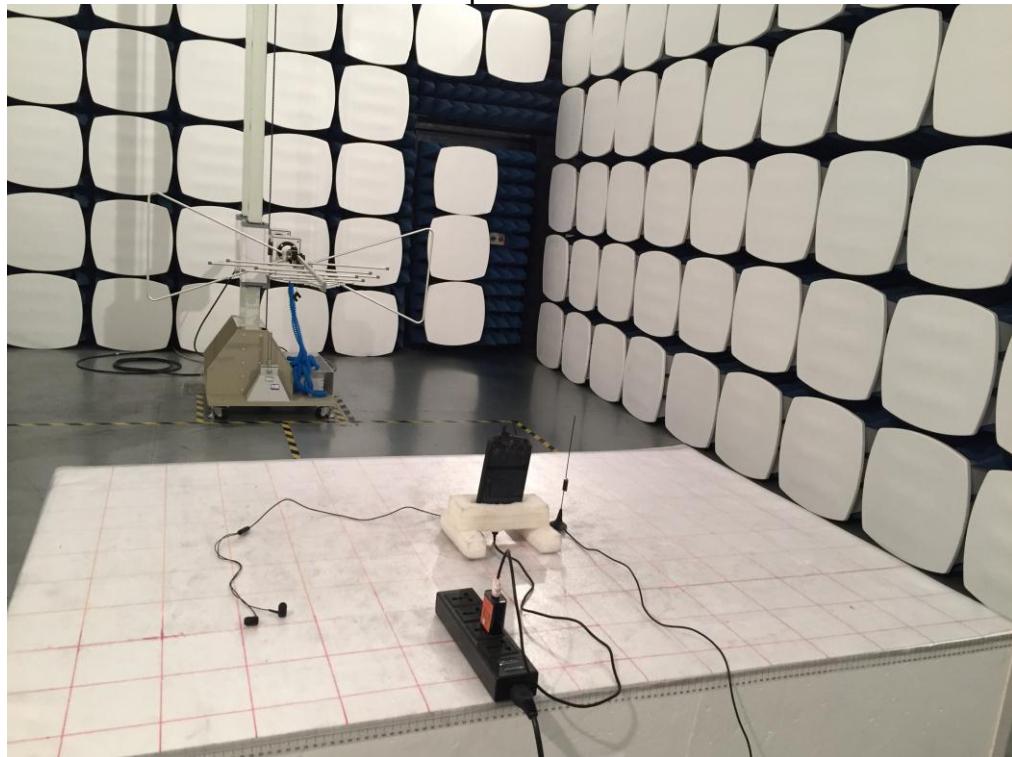
| Reference Frequency: LTE Band 7(5MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
|--|----------------------|-----------------|-----------|-------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 64 | 0.0252465 | ±2.5 | Pass |
| | 3.80 | 89 | 0.0351085 | | |
| | 3.23 | 86 | 0.0339250 | | |
| Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 72 | 0.0284024 | ±2.5 | Pass |
| | 3.80 | 66 | 0.0260355 | | |
| | 3.23 | 78 | 0.0307692 | | |
| Reference Frequency: LTE Band 7(15MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 91 | 0.0358974 | ±2.5 | Pass |
| | 3.80 | 82 | 0.0323471 | | |
| | 3.23 | 44 | 0.0173570 | | |
| Reference Frequency: LTE Band 7(20MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 88 | 0.0347140 | ±2.5 | Pass |
| | 3.80 | 63 | 0.0248521 | | |
| | 3.23 | 78 | 0.0307692 | | |

LTE Band 7(16QAM):

| Reference Frequency: LTE Band 7(5MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
|--|----------------------|-----------------|-----------|-------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 93 | 0.0366864 | ±2.5 | Pass |
| | 3.80 | 66 | 0.0260355 | | |
| | 3.23 | 72 | 0.0284024 | | |
| Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 82 | 0.0323471 | ±2.5 | Pass |
| | 3.80 | 46 | 0.0181460 | | |
| | 3.23 | 88 | 0.0347140 | | |
| Reference Frequency: LTE Band 7(15MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 86 | 0.0339250 | ±2.5 | Pass |
| | 3.80 | 43 | 0.0169625 | | |
| | 3.23 | 88 | 0.0347140 | | |
| Reference Frequency: LTE Band 7(20MHz) Middle channel=21100 Frequency=2535.00MHz | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| 25 | 4.37 | 88 | 0.0347140 | ±2.5 | Pass |
| | 3.80 | 63 | 0.0248521 | | |
| | 3.23 | 79 | 0.0311637 | | |

7 Test Setup Photo

Radiated Spurious Emission



8 EUT Constructional Details

Reference to the test report No. CCISE170903901.

-----End of report-----