LTE Band 7　　10MHz BW　　Low Channel
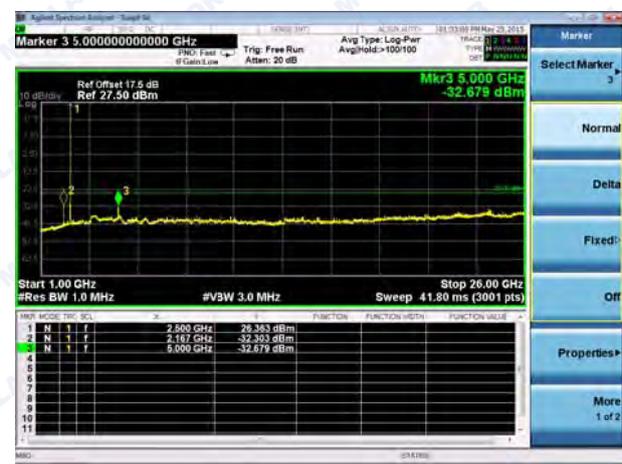
QPSK

16QAM

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MORLAB

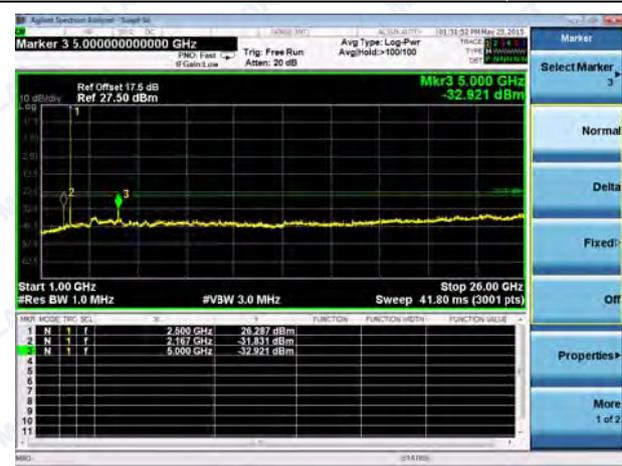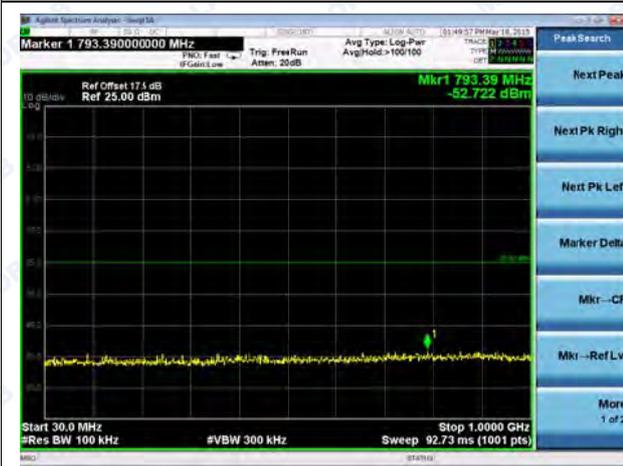| LTE Band 7   15MHz BW   Low Channel |
|---|
| **QPSK** |

| **16QAM** |

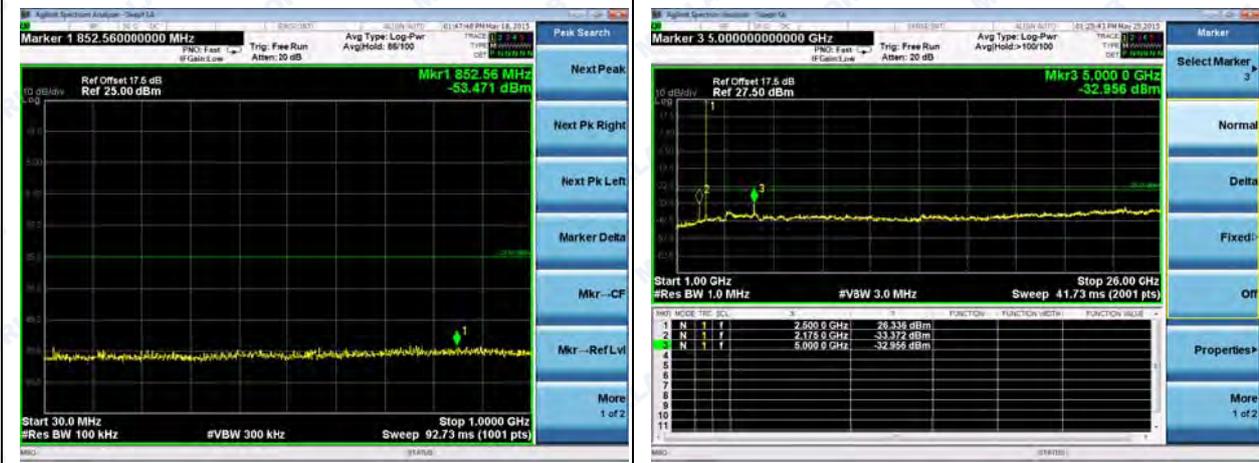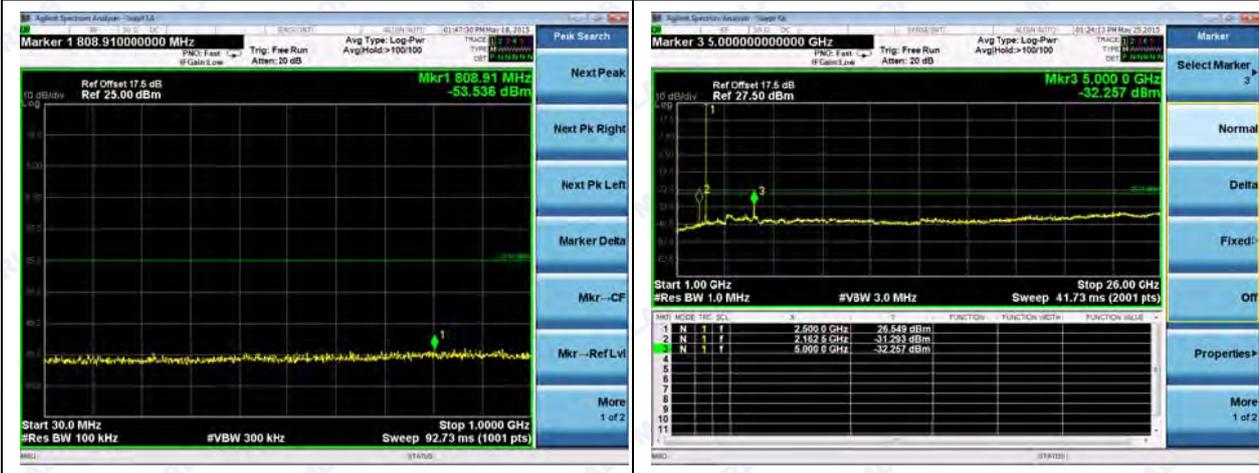## LTE Band 7   20MHz BW   Low Channel
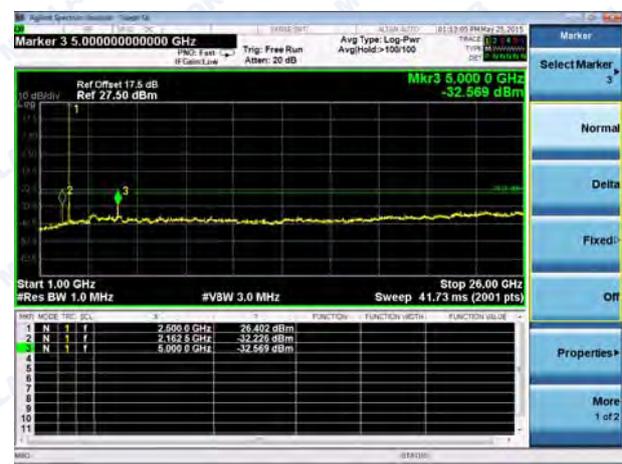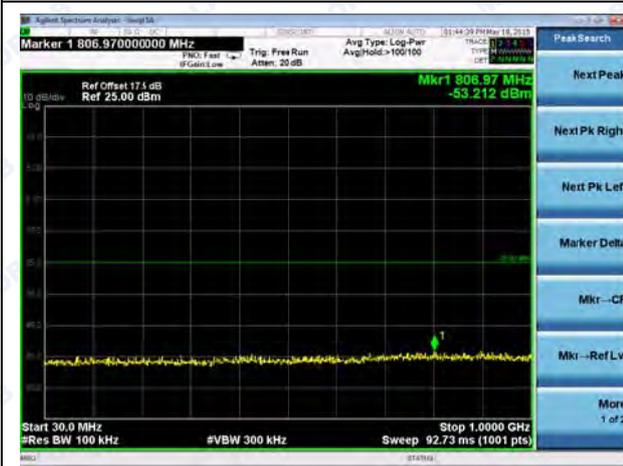
QPSK

16QAM

Middle channel:

LTE Band 7   5MHz BW   Mid Channel
QPSK

16QAM

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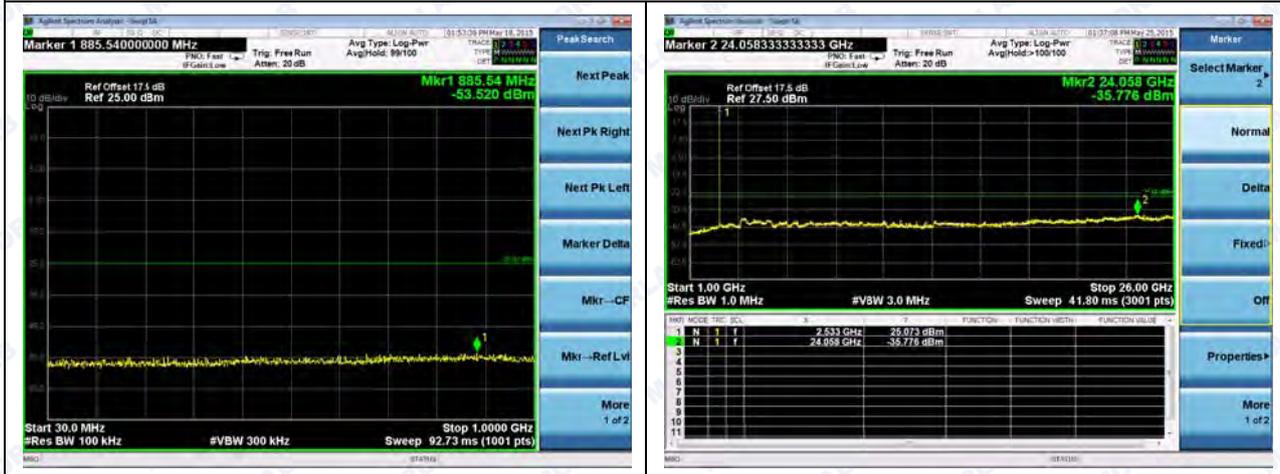
LTE Band 7	10MHz BW	Mid Channel

QPSK

16QAM

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Page **145** 0f **243**
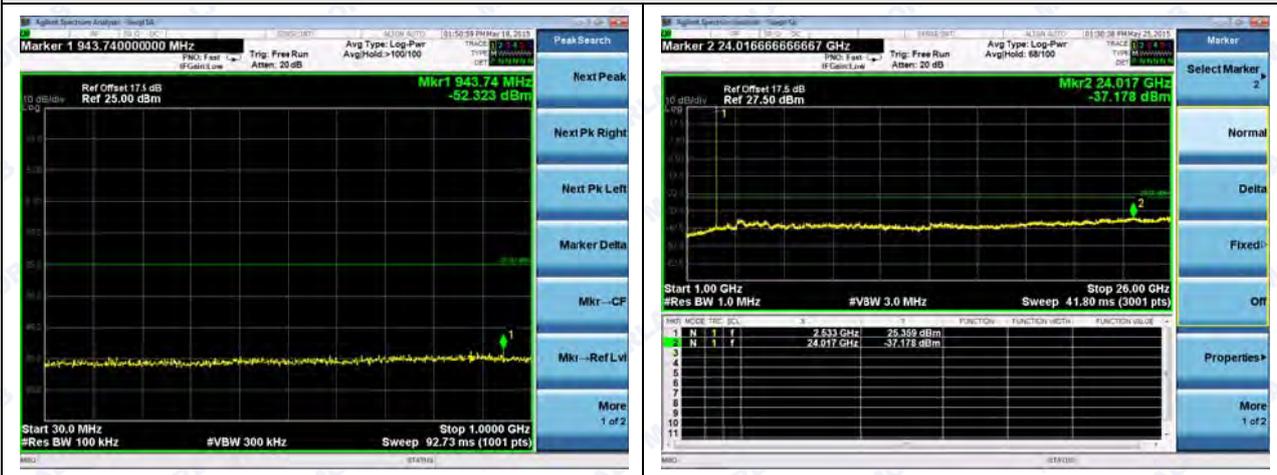
LTE Band 7	15MHz BW	Mid Channel
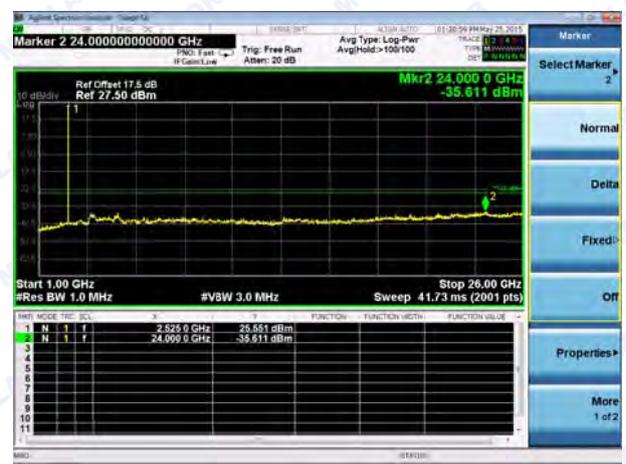
QPSK

16QAM

LTE Band 7   20MHz BW   Mid Channel
QPSK

16QAM

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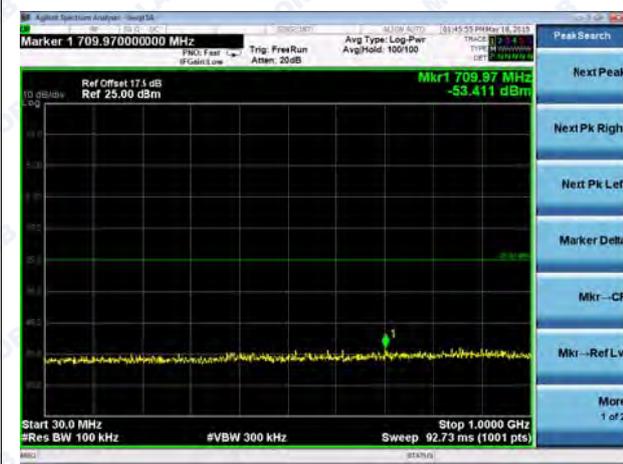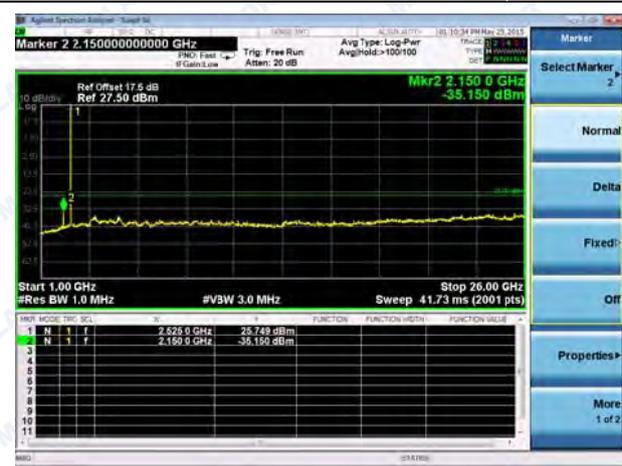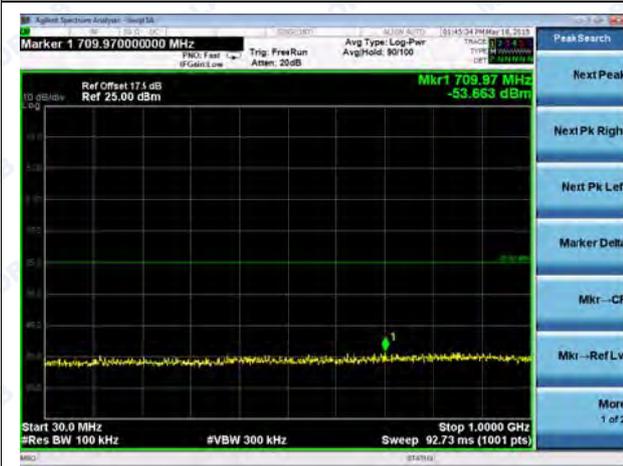
LTE Band 7   5MHz BW   High Channel
QPSK
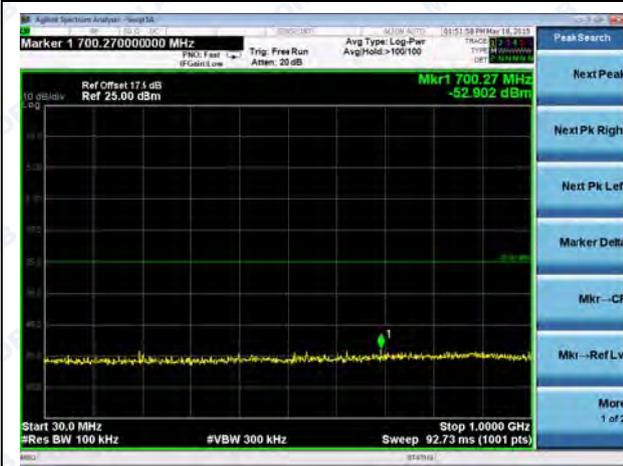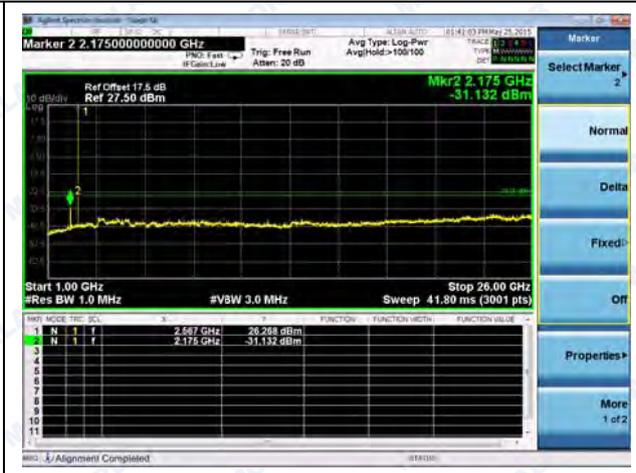
| **16QAM** |

LTE Band 7   10MHz BW   High Channel

QPSK

16QAM

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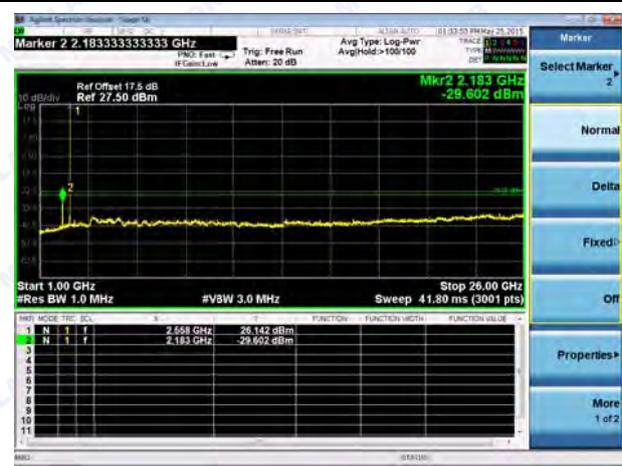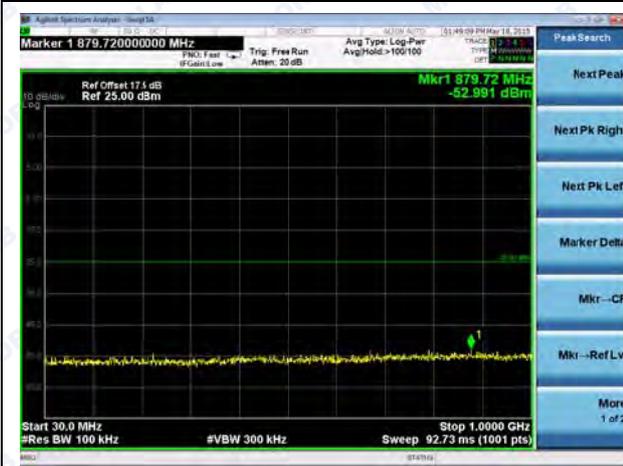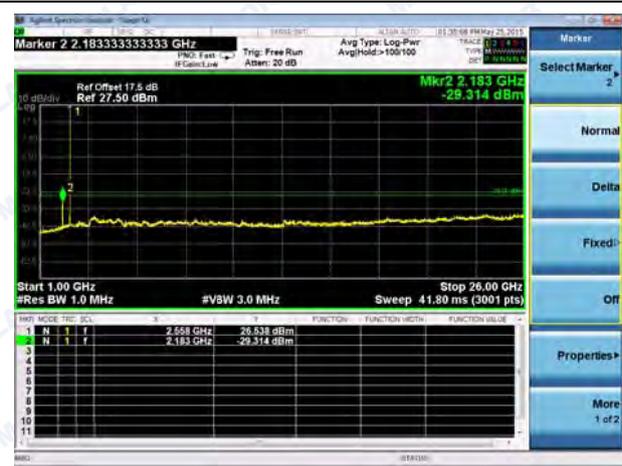
LTE Band 7   15MHz BW   High Channel
QPSK
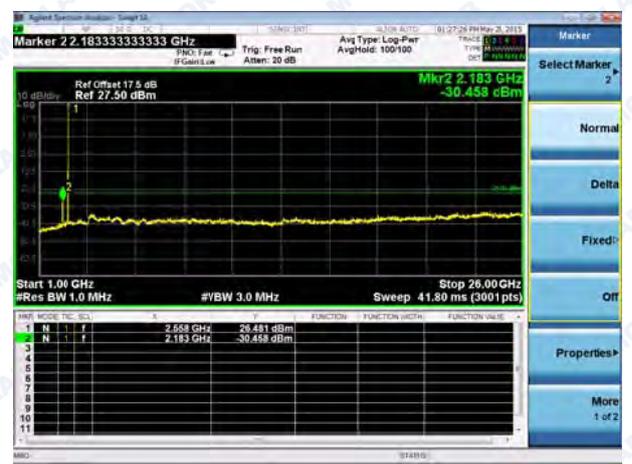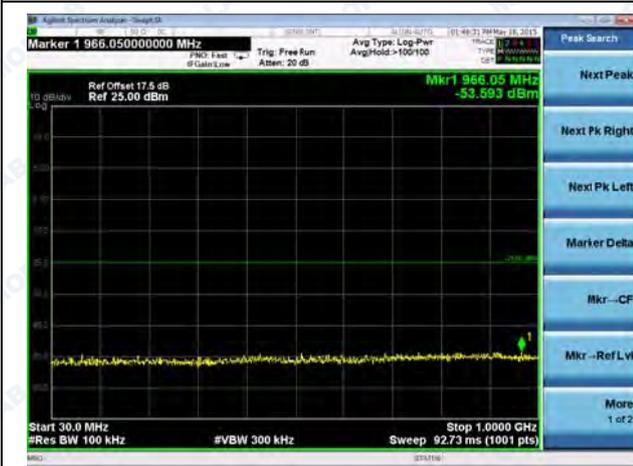
16QAM

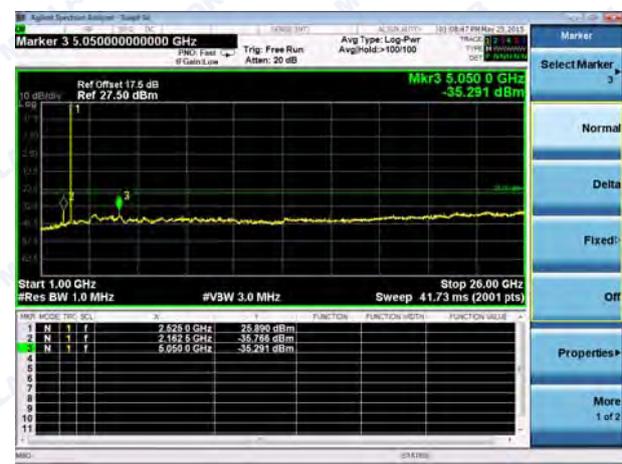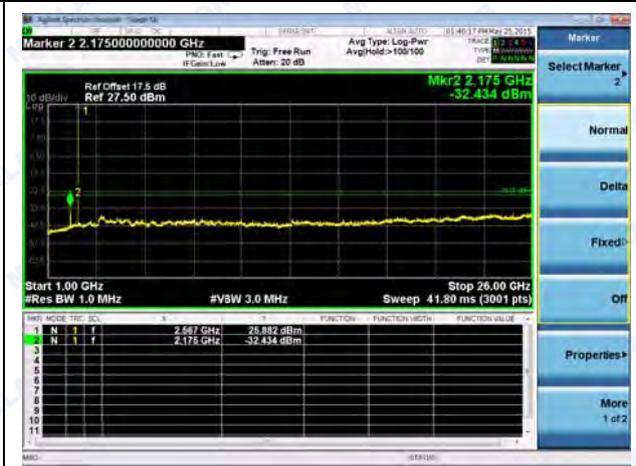## LTE Band 7   20MHz BW   High Channel

QPSK
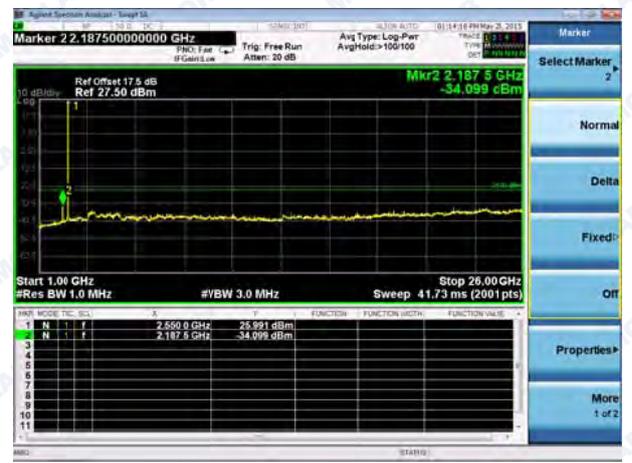
16QAM
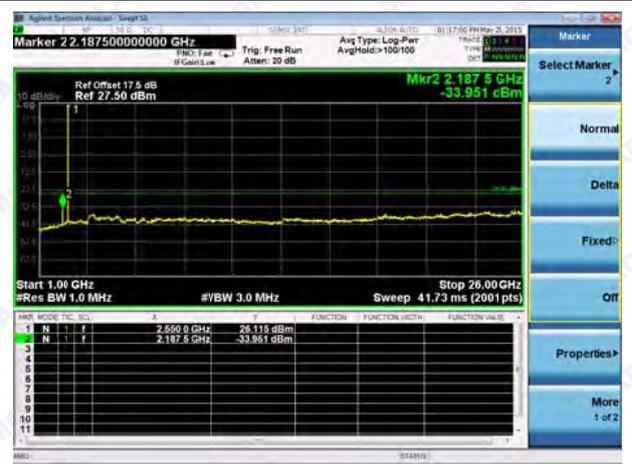
2.6 Band Edge
2.6.1 Requirement

According to FCC section 27.53(g) (h), (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

2.6.2 Test Description

See section 2.1.2 of this report.

2.6.3 Test Result

The center frequency of spectrum is the band edge frequency and span is 2MHz, Record the max trace into the test report.

 PASS. See the attached plots.

LTE Band 2							
Channel Bandwidth: 1.4MHz							
Channel	18607	RB Size 1	RB Offset 0	Channel	18607	RB Size 6	RB Offset 0

Channel Bandwidth: 1.4MHz							
Channel	19192	RB Size 1	RB Offset 5	Channel	19192	RB Size 6	RB Offset 0

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LTE Band 2

Channel Bandwidth: 3MHz

Channel	18165	RB Size 1	RB Offset 0	Channel	18165	RB Size 15	RB Offset 0

Channel Bandwidth: 3MHz

Channel	19184	RB Size 1	RB Offset 14	Channel	19184	RB Size 15	RB Offset 0

LTE Band 2

Channel Bandwidth: 5MHz

Channel	18625	RB Size 1	RB Offset 0	Channel	18625	RB Size 25	RB Offset 0

Channel Bandwidth: 5MHz

Channel	19175	RB Size 1	RB Offset 24	Channel	19175	RB Size 25	RB Offset 0
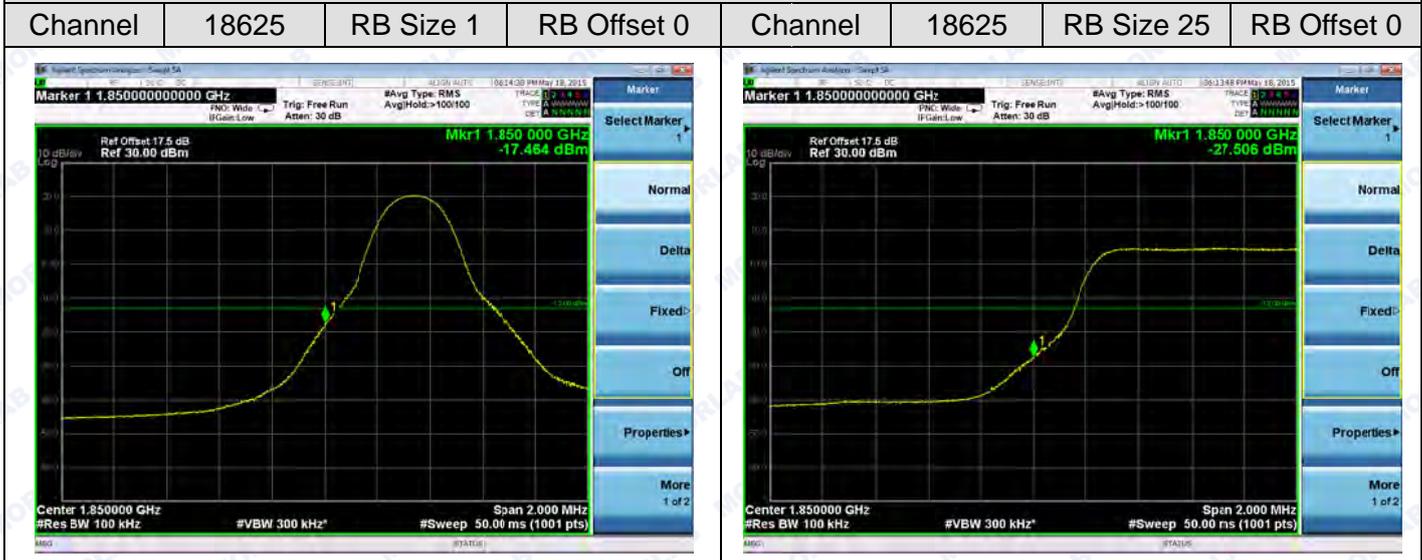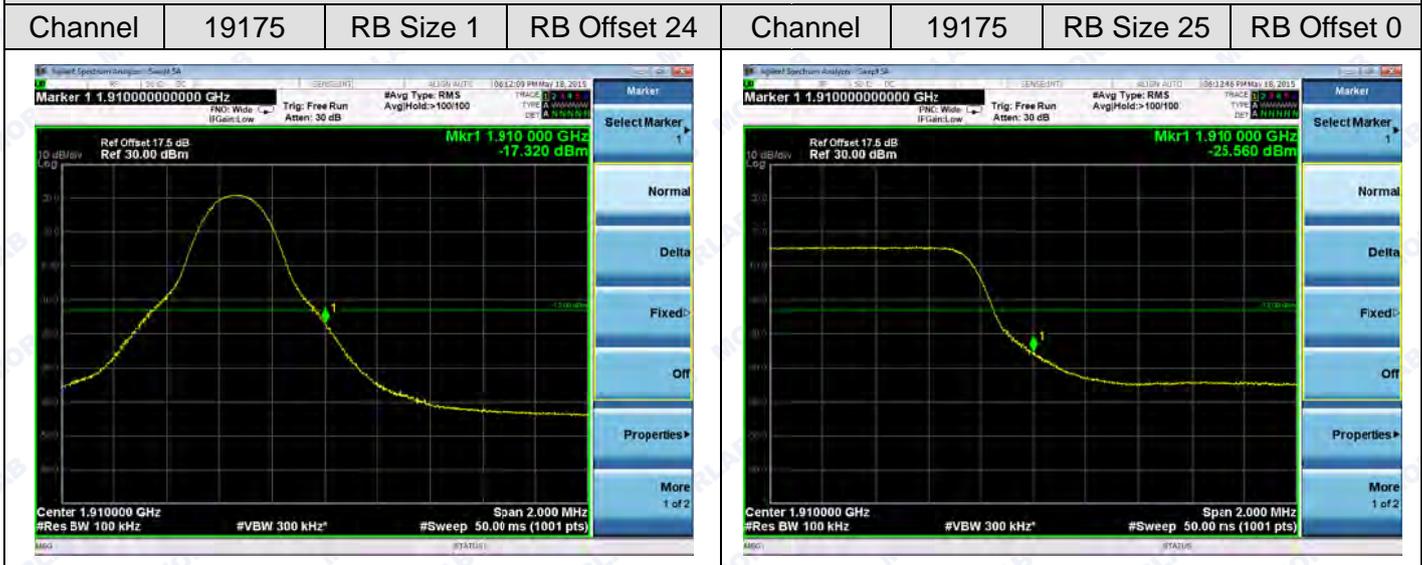
LTE Band 2

Channel Bandwidth: 10MHz

Channel	18650	RB Size 1	RB Offset 0	Channel	18650	RB Size 50	RB Offset 0

Channel Bandwidth: 10MHz

Channel	19150	RB Size 1	RB Offset 49	Channel	19150	RB Size 50	RB Offset 0

LTE Band 2

Channel Bandwidth: 15MHz							
Channel	18675	RB Size 1	RB Offset 0	Channel	18675	RB Size 75	RB Offset 0

Channel Bandwidth: 15MHz							
Channel	19125	RB Size 1	RB Offset 74	Channel	19125	RB Size 75	RB Offset 0

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LTE Band 2							
Channel Bandwidth: 20MHz							
Channel	18700	RB Size 1	RB Offset 0	Channel	18700	RB Size 100	RB Offset 0

Channel Bandwidth: 20MHz							
Channel	19100	RB Size 1	RB Offset 99	Channel	19100	RB Size 100	RB Offset 0
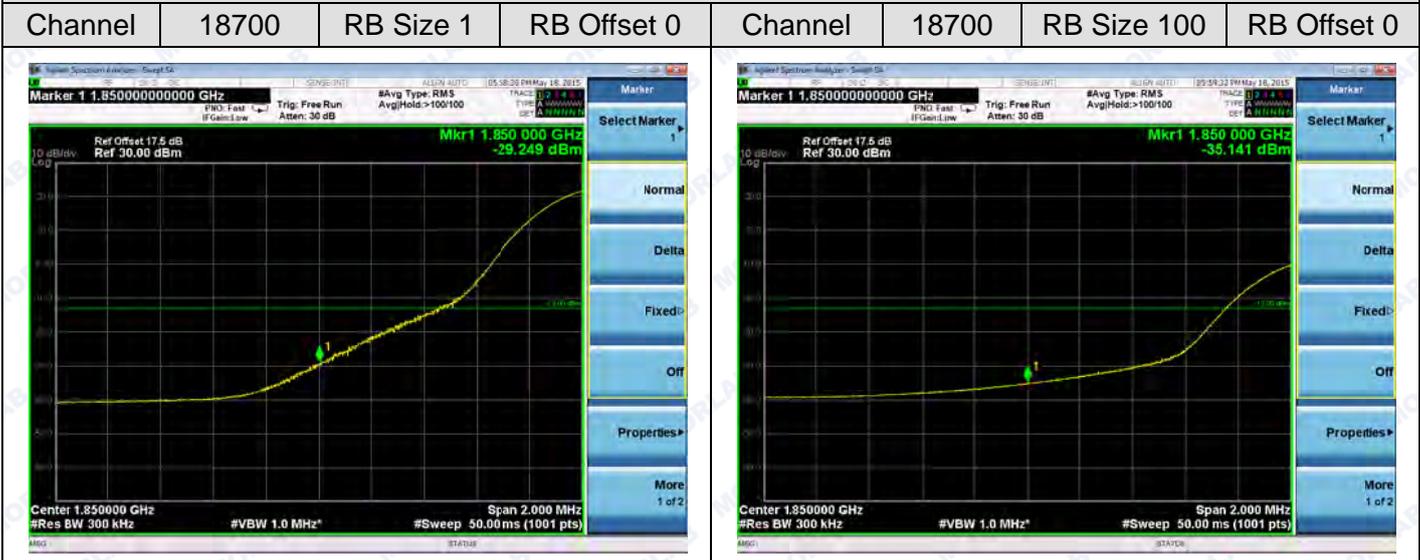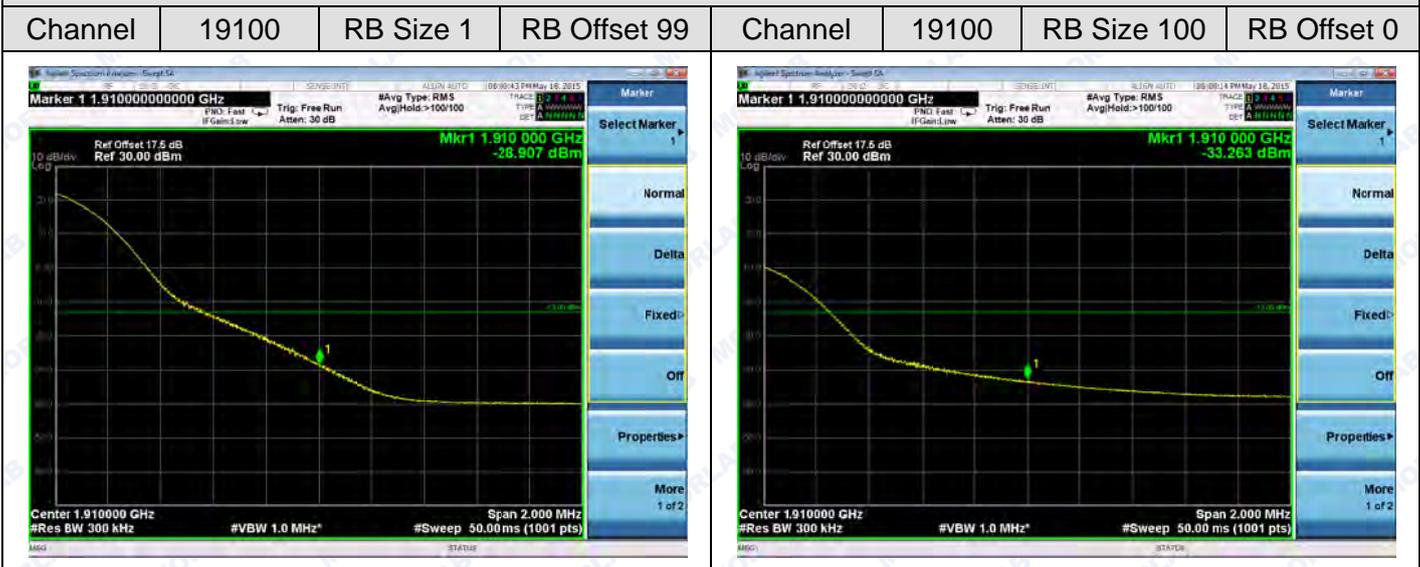
LTE Band 4							
Channel Bandwidth: 1.4MHz							
Channel	19957	RB Size 1	RB Offset 0	Channel	20393	RB Size 6	RB Offset 0

Channel Bandwidth: 1.4MHz							
Channel	19957	RB Size 1	RB Offset 5	Channel	20393	RB Size 6	RB Offset 0

LTE Band 4							

Channel Bandwidth: 3MHz							
Channel	19965	RB Size 1	RB Offset 0	Channel	20385	RB Size 15	RB Offset 0
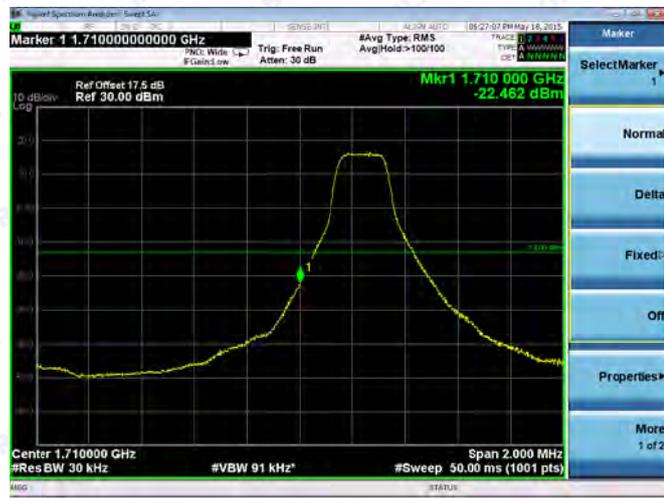
Channel Bandwidth: 3MHz							
Channel	19965	RB Size 1	RB Offset 14	Channel	20385	RB Size 15	RB Offset 0
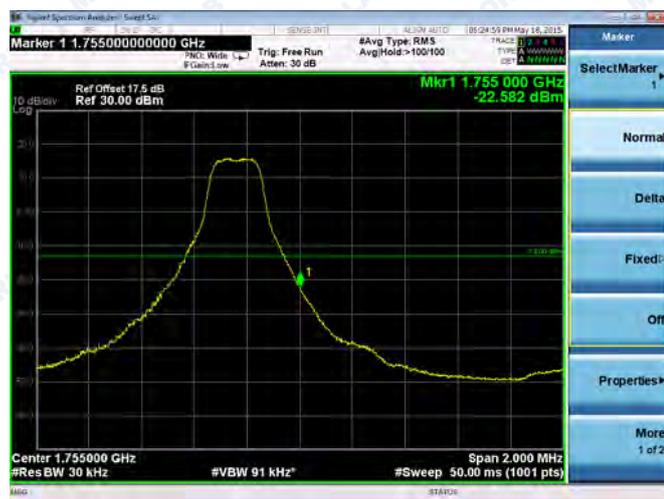
LTE Band 4

Channel Bandwidth: 5MHz							
Channel	19975	RB Size 1	RB Offset 0	Channel	20375	RB Size 25	RB Offset 0

Channel Bandwidth: 5MHz							
Channel	19975	RB Size 1	RB Offset 24	Channel	20375	RB Size 25	RB Offset 0

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LTE Band 4							
Channel Bandwidth: 10MHz							
Channel	20000	RB Size 1	RB Offset 0	Channel	20350	RB Size 50	RB Offset 0

Channel Bandwidth: 10MHz							
Channel	20000	RB Size 1	RB Offset 49	Channel	20350	RB Size 50	RB Offset 0

LTE Band 4							
Channel Bandwidth: 15MHz							
Channel	20025	RB Size 1	RB Offset 0	Channel	20325	RB Size 75	RB Offset 0

Channel Bandwidth: 15MHz							
Channel	20025	RB Size 1	RB Offset 74	Channel	20325	RB Size 75	RB Offset 0

LTE Band 4

Channel Bandwidth: 20MHz							
Channel	20050	RB Size 1	RB Offset 0	Channel	20300	RB Size 100	RB Offset 0

Channel Bandwidth: 20MHz							
Channel	20050	RB Size 1	RB Offset 99	Channel	20300	RB Size 100	RB Offset 0

LTE Band 5

Channel Bandwidth: 1.4MHz							
Channel	20407	RB Size 1	RB Offset 0	Channel	20407	RB Size 6	RB Offset 0

Channel Bandwidth: 1.4MHz							
Channel	20642	RB Size 1	RB Offset 5	Channel	20642	RB Size 6	RB Offset 0

LTE Band 5

Channel Bandwidth: 3MHz							
Channel	20415	RB Size 1	RB Offset 0	Channel	20415	RB Size 15	RB Offset 0

Channel Bandwidth: 3MHz							
Channel	20634	RB Size 1	RB Offset 14	Channel	20634	RB Size 15	RB Offset 0

LTE Band 5							
Channel Bandwidth: 5MHz							
Channel	20425	RB Size 1	RB Offset 0	Channel	20425	RB Size 25	RB Offset 0
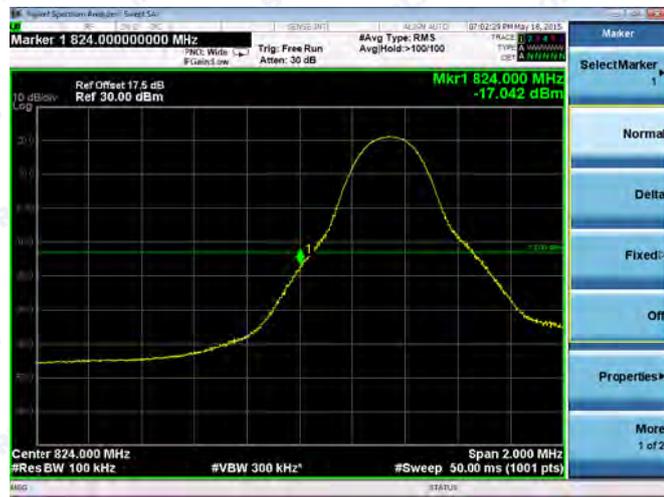
Channel Bandwidth: 5MHz							
Channel	20625	RB Size 1	RB Offset 24	Channel	20625	RB Size 25	RB Offset 0
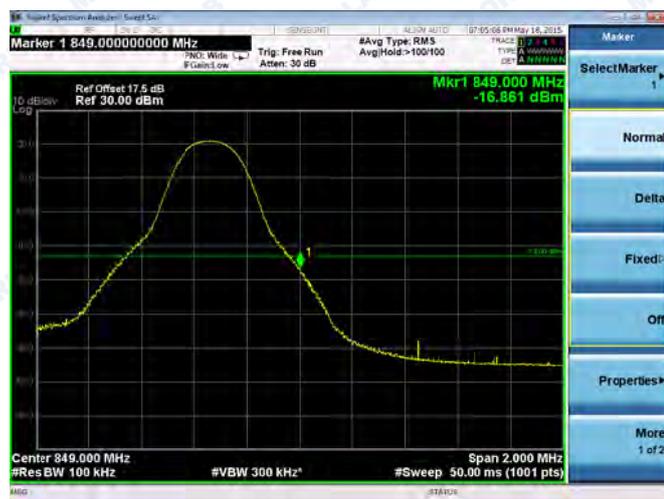
LTE Band 5

Channel Bandwidth: 10MHz							
Channel	20450	RB Size 1	RB Offset 0	Channel	20450	RB Size 50	RB Offset 0

Channel Bandwidth: 10MHz							
Channel	20600	RB Size 1	RB Offset 49	Channel	20600	RB Size 50	RB Offset 0

LTE Band 7			
Channel Bandwidth: 5MHz X=5.054Hz			
Channel	20775	RB Size 1	RB Offset 0

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.495000000 GHz
Center Freq: 22.005000000 GHz
Trig: Free Run Avg|Hold:>10/10
Radio Std: None
SENSE:INT ALIGN AUTO 01:40:53 PM May 19, 2015
PASS
IFGain:Low #Atten: 30 dB Radio Device: BTS

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div

Start 2.475 GHz Stop 2.505 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4940 GHz	1.000 MHz	2.487958000 GHz	-41.35 dBm	-16.35 dB
2	2	2.4940 GHz	2.4950 GHz	1.000 MHz	2.494811000 GHz	-40.73 dBm	-27.73 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.499680000 GHz	-33.17 dBm	-23.17 dB
4	4	2.5000 GHz	2.5050 GHz	100.0 kHz	2.500380000 GHz	22.10 dBm	-7.897 dB

Range Table
Range 3 On Off
Start Freq 2.495000000 GHz
Stop Freq 2.500000000 GHz
Res BW 100.00 kHz Auto Man
Video BW 300.00 kHz Auto Man
Filter Type Gaussian
More 1 of 3

MSG STATUS

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.475000000 GHz
Center Freq: 22.005000000 GHz
Trig: Free Run Avg|Hold:>10/10
Radio Std: None
SENSE:INT ALIGN AUTO 01:46:24 PM May 19, 2015
PASS
IFGain:Low #Atten: 30 dB Radio Device: BTS

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div

Start 2.475 GHz Stop 2.496 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.487012500 GHz	-40.97 dBm	-15.97 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.495961500 GHz	-44.45 dBm	-31.45 dB

Range Table
Range 1 On Off
Start Freq 2.475000000 GHz
Stop Freq 2.490500000 GHz
Res BW 1.0000 MHz Auto Man
Video BW 3.0000 MHz Auto Man
Filter Type Gaussian
More 1 of 3

MSG STATUS

LTE Band 7			
Channel Bandwidth: 5MHz X=5.054MHz			
Channel	20775	RB Size 25	RB Offset 0

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.494000000 GHz
Center Freq: 22.005000000 GHz   Radio Std: None
Trig: Free Run   Avg|Hold:>10/10
PASS   IFGain:Low   #Atten: 30 dB   Radio Device: BTS

Ref Offset 17.5 dB
10 dB/div   Ref 30.00 dBm

Start 2.475 GHz   Stop 2.505 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4940 GHz	1.000 MHz	2.493696000 GHz	-35.74 dBm	-10.74 dB
2	2	2.4940 GHz	2.4950 GHz	1.000 MHz	2.494856000 GHz	-31.56 dBm	-18.56 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.499980000 GHz	-23.78 dBm	-13.78 dB
4	4	2.5000 GHz	2.5050 GHz	100.0 kHz	2.500365000 GHz	11.00 dBm	-19.00 dB

Range Table
Range 2   On   Off
Start Freq 2.494000000 GHz
Stop Freq 2.495000000 GHz
Res BW 1.0000 MHz   Auto   Man
Video BW 3.0000 MHz   Auto   Man
Filter Type Gaussian
More 1 of 3

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.475000000 GHz
Center Freq: 22.005000000 GHz   Radio Std: None
Trig: Free Run   Avg|Hold:>10/10
PASS   IFGain:Low   #Atten: 30 dB   Radio Device: BTS

Ref Offset 17.5 dB
10 dB/div   Ref 30.00 dBm

Start 2.475 GHz   Stop 2.496 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.480394000 GHz	-41.14 dBm	-16.14 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.495939500 GHz	-33.66 dBm	-20.66 dB

Range Table
Range 1   On   Off
Start Freq 2.475000000 GHz
Stop Freq 2.490500000 GHz
Res BW 1.0000 MHz   Auto   Man
Video BW 3.0000 MHz   Auto   Man
Filter Type Gaussian
More 1 of 3

LTE Band 7

Channel Bandwidth: 5MHz X=5.025MHz

Channel	21425	RB Size 1	RB Offset 24

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5650 GHz	2.5700 GHz	100.0 kHz	2.569640000 GHz	20.36 dBm	-9.639 dB
2	2	2.5700 GHz	2.5710 GHz	150.0 kHz	2.570030000 GHz	-9.63 dBm	0.37 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571908000 GHz	-33.80 dBm	-23.80 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575482000 GHz	-41.46 dBm	-28.46 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.594373000 GHz	-37.29 dBm	-12.29 dB

Channel	21425	RB Size 25	RB Offset 0

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5650 GHz	2.5700 GHz	100.0 kHz	2.567220000 GHz	7.937 dBm	-22.06 dB
2	2	2.5700 GHz	2.5710 GHz	150.0 kHz	2.570009000 GHz	-19.38 dBm	-9.378 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.572412000 GHz	-23.25 dBm	-13.25 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575643000 GHz	-33.96 dBm	-20.96 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.576437000 GHz	-32.65 dBm	-7.646 dB

LTE Band 7			
Channel Bandwidth: 10MHz X=9.895 MHz			
Channel	20800	RB Size 1	RB Offset 0

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4901 GHz	1.000 MHz	2.476827705 GHz	-41.05 dBm	-16.05 dB
2	2	2.4901 GHz	2.4950 GHz	1.000 MHz	2.491416860 GHz	-37.16 dBm	-24.16 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.499915000 GHz	-34.76 dBm	-24.76 dB
4	4	2.5000 GHz	2.5100 GHz	100.0 kHz	2.500590000 GHz	21.84 dBm	-8.157 dB

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.477728000 GHz	-41.35 dBm	-16.35 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.491583500 GHz	-41.59 dBm	-28.59 dB

LTE Band 7			
Channel Bandwidth: 10MHz X=9.895 MHz			
Channel	20800	RB Size 50	RB Offset 0

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4901 GHz	1.000 MHz	2.488670025 GHz	-36.85 dBm	-11.85 dB
2	2	2.4901 GHz	2.4950 GHz	1.000 MHz	2.493183955 GHz	-29.20 dBm	-16.20 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.498200000 GHz	-32.84 dBm	-22.84 dB
4	4	2.5000 GHz	2.5100 GHz	100.0 kHz	2.508560000 GHz	8.602 dBm	-21.40 dB

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.488531500 GHz	-39.01 dBm	-14.01 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.495928500 GHz	-30.59 dBm	-17.59 dB

LTE Band 7			
Channel Bandwidth: 10MHz X=10.01 MHz			
Channel	21400	RB Size 1	RB Offset 49

Channel	21400	RB Size 50	RB Offset 0

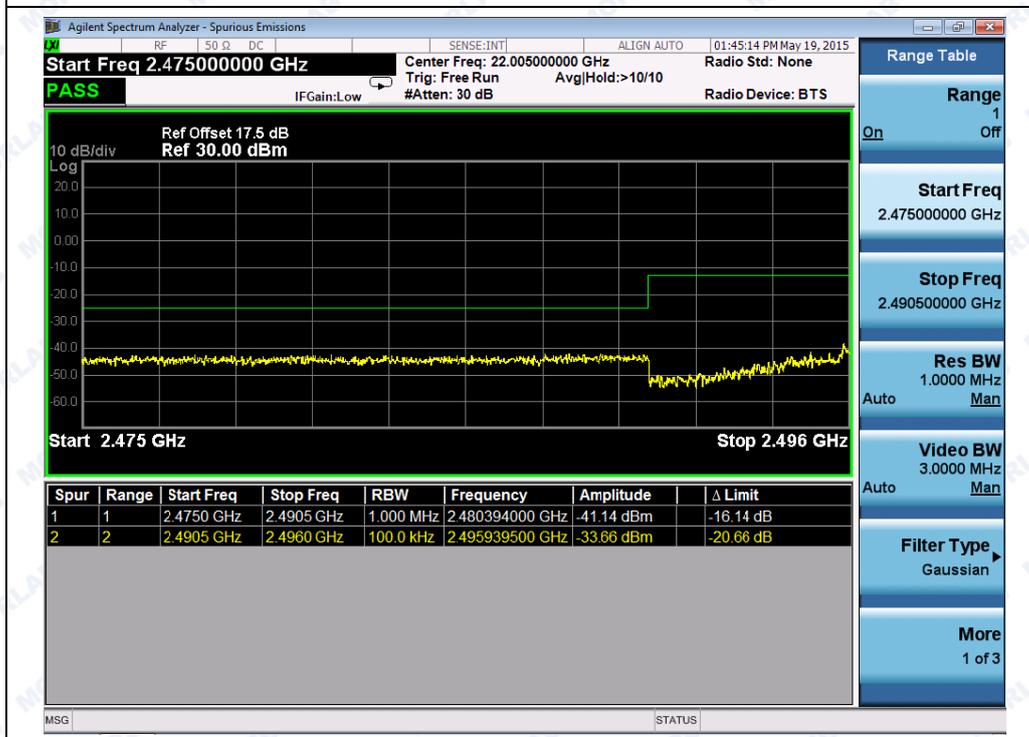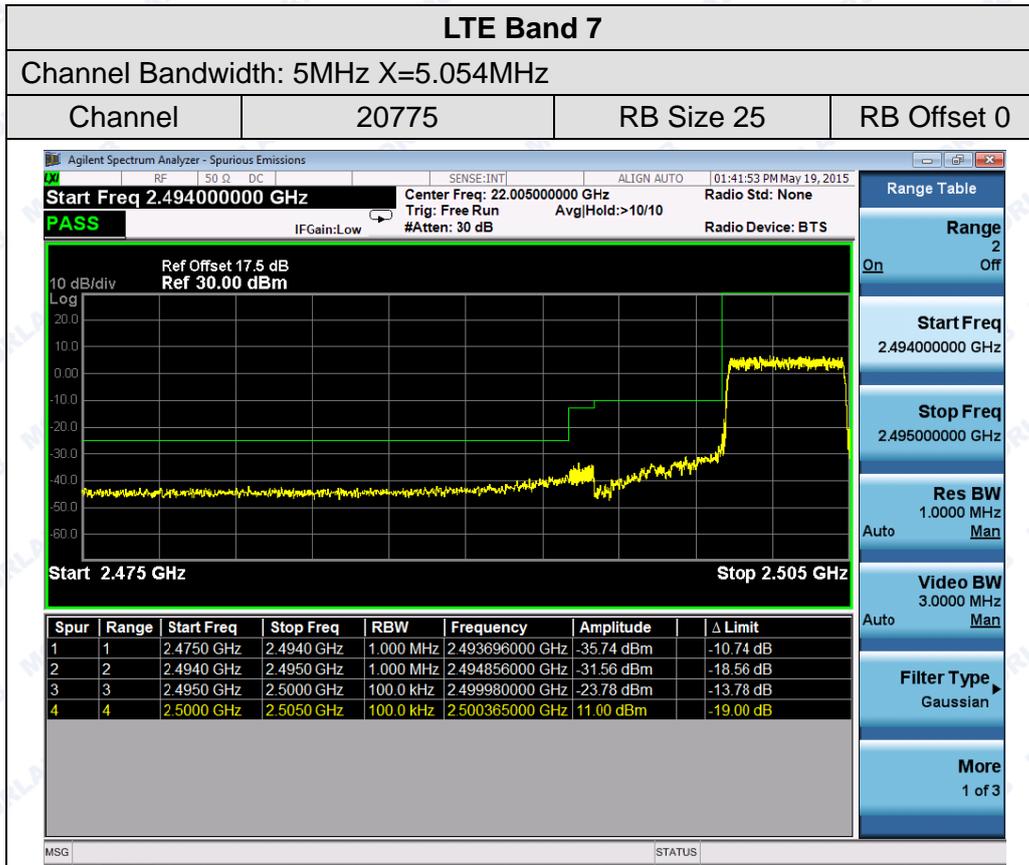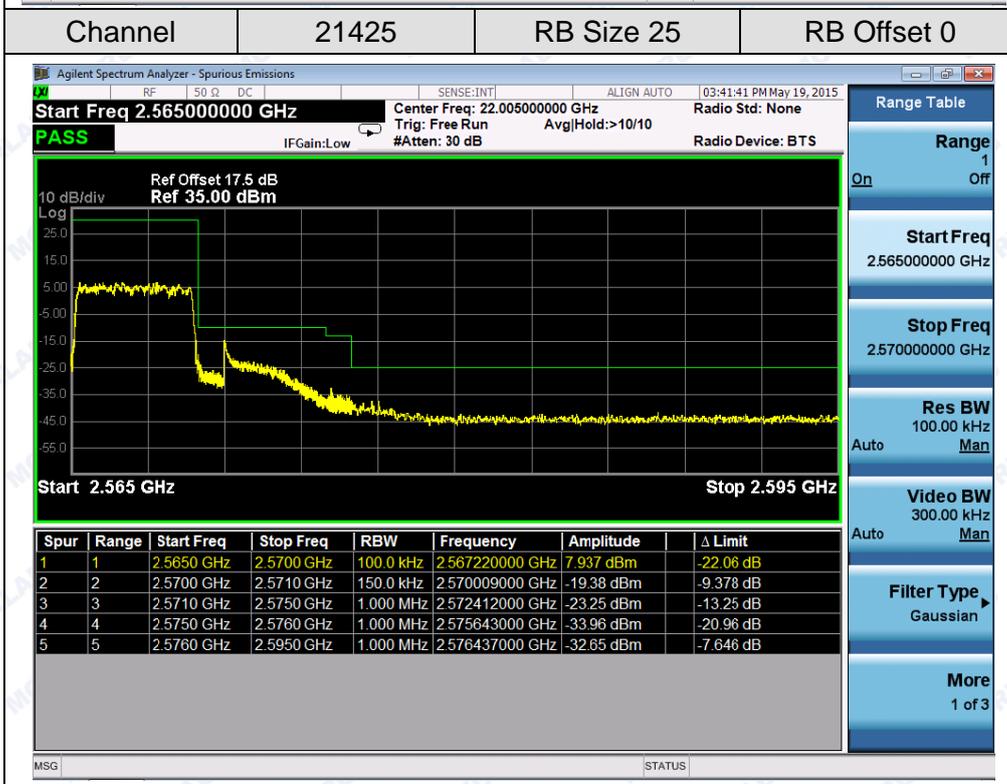| LTE Band 7			
Channel Bandwidth: 15MHz X=14.63 MHz			
Channel	20825	RB Size 1	RB Offset 0

Agilent Spectrum Analyzer - Spurious Emissions

RF 50 Ω DC SENSE:INT ALIGN AUTO 01:33:30 PM May 19, 2015

Start Freq 2.475000000 GHz   Center Freq: 22.005000000 GHz   Radio Std: None
PASS   Trig: Free Run   Avg|Hold:>10/10
IFGain:Low   #Atten: 30 dB   Radio Device: BTS

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div
Log

Start 2.475 GHz   Stop 2.515 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4854 GHz	1.000 MHz	2.478235440 GHz	-41.94 dBm	-16.94 dB
2	2	2.4854 GHz	2.4950 GHz	1.000 MHz	2.494219970 GHz	-38.98 dBm	-25.98 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.499930000 GHz	-32.83 dBm	-22.83 dB
4	4	2.5000 GHz	2.5150 GHz	100.0 kHz	2.500870000 GHz	20.40 dBm	-9.599 dB

MSG   STATUS

Range Table
Range 1 On Off
Start Freq 2.475000000 GHz
Stop Freq 2.485370000 GHz
Res BW 1.0000 MHz Auto Man
Video BW 3.0000 MHz Auto Man
Filter Type Gaussian
More 1 of 3

Agilent Spectrum Analyzer - Spurious Emissions

RF 50 Ω DC SENSE:INT ALIGN AUTO 01:50:01 PM May 19, 2015

Stop Freq 2.490500000 GHz   Center Freq: 22.005000000 GHz   Radio Std: None
PASS   Trig: Free Run   Avg|Hold:>10/10
IFGain:Low   #Atten: 30 dB   Radio Device: BTS

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div
Log

Start 2.475 GHz   Stop 2.496 GHz

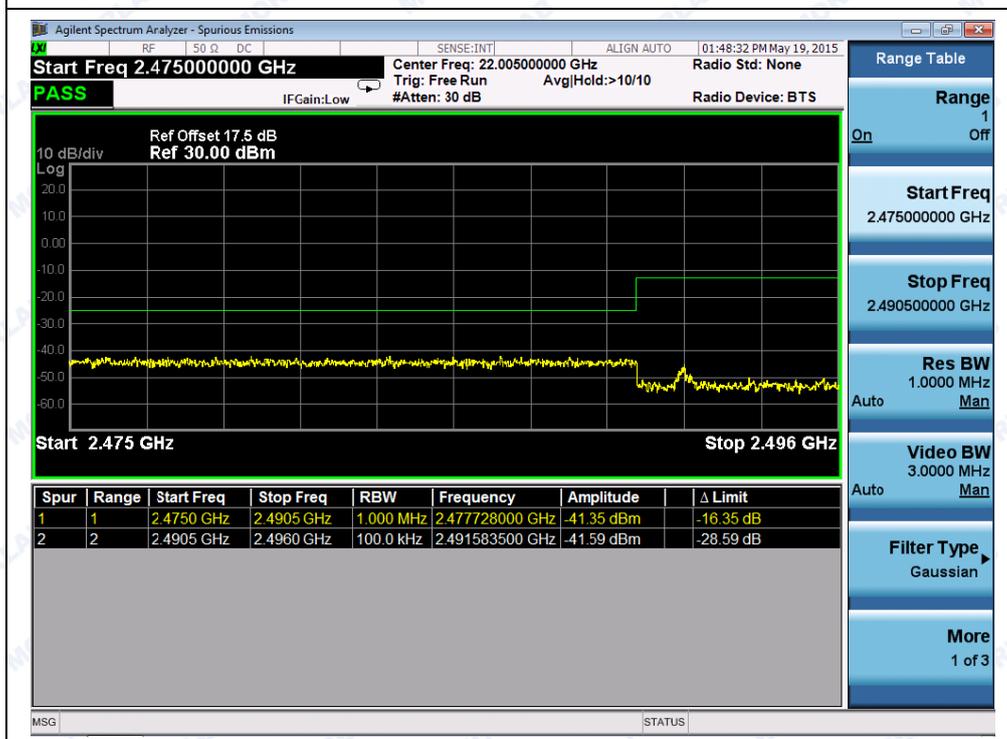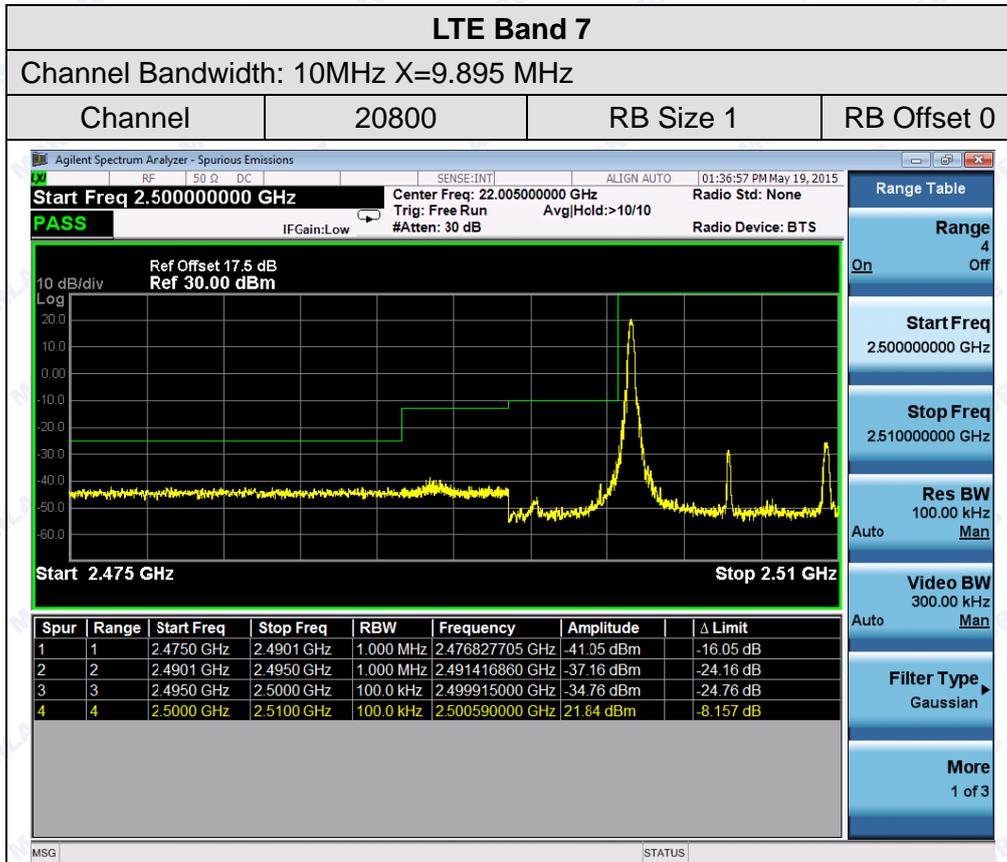| Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.487508500 GHz	-40.57 dBm	-15.57 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.494251000 GHz	-41.15 dBm	-28.15 dB

MSG Alignment Completed   STATUS

Range Table
Range 1 On Off
Start Freq 2.475000000 GHz
Stop Freq 2.490500000 GHz
Res BW 1.0000 MHz Auto Man
Video BW 3.0000 MHz Auto Man
Filter Type Gaussian
More 1 of 3

LTE Band 7			
Channel Bandwidth: 15MHz X=14.63MHz			
Channel	20825	RB Size 75	RB Offset 0

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.500000000 GHz
RF 50 Ω DC   SENSE:INT   ALIGN AUTO   01:32:36 PM May 19, 2015
Center Freq: 22.005000000 GHz   Radio Std: None
PASS   IFGain:Low   Trig: Free Run   Avg|Hold:>10/10
#Atten: 30 dB   Radio Device: BTS

Ref Offset 17.5 dB
10 dB/div Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Start 2.475 GHz   Stop 2.515 GHz

Range Table
Range 4
On   Off
Start Freq 2.500000000 GHz
Stop Freq 2.515000000 GHz
Res BW 100.00 kHz
Auto   Man
Video BW 300.00 kHz
Auto   Man
Filter Type Gaussian
More 1 of 3

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4854 GHz	1.000 MHz	2.476711050 GHz	-41.71 dBm	-16.71 dB
2	2	2.4854 GHz	2.4950 GHz	1.000 MHz	2.490868730 GHz	-30.92 dBm	-17.92 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.497870000 GHz	-30.00 dBm	-20.00 dB
4	4	2.5000 GHz	2.5150 GHz	100.0 kHz	2.512750000 GHz	7.464 dBm	-22.54 dB

MSG   STATUS

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.475000000 GHz
RF 50 Ω DC   SENSE:INT   ALIGN AUTO   01:50:38 PM May 19, 2015
Center Freq: 22.005000000 GHz   Radio Std: None
PASS   IFGain:Low   Trig: Free Run   Avg|Hold:>10/10
#Atten: 30 dB   Radio Device: BTS

Ref Offset 17.5 dB
10 dB/div Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Start 2.475 GHz   Stop 2.496 GHz

Range Table
Range 1
On   Off
Start Freq 2.475000000 GHz
Stop Freq 2.490500000 GHz
Res BW 1.0000 MHz
Auto   Man
Video BW 3.0000 MHz
Auto   Man
Filter Type Gaussian
More 1 of 3

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490329500 GHz	-32.80 dBm	-7.801 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.494102500 GHz	-30.57 dBm	-17.57 dB

MSG   STATUS

LTE Band 7

Channel Bandwidth: 15MHz X=14.81MHz

Channel	21375	RB Size 1	RB Offset 74

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5550 GHz	2.5700 GHz	100.0 kHz	2.569145000 GHz	19.15 dBm	-10.85 dB
2	2	2.5700 GHz	2.5710 GHz	150.0 kHz	2.570065000 GHz	-26.41 dBm	-16.41 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571164000 GHz	-30.05 dBm	-20.05 dB
4	4	2.5750 GHz	2.5850 GHz	1.000 MHz	2.575850000 GHz	-37.20 dBm	-24.20 dB
5	5	2.5850 GHz	2.5950 GHz	1.000 MHz	2.586830000 GHz	-37.47 dBm	-12.47 dB

Channel	21375	RB Size 75	RB Offset 0

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5550 GHz	2.5700 GHz	100.0 kHz	2.559275000 GHz	3.756 dBm	-26.24 dB
2	2	2.5700 GHz	2.5710 GHz	150.0 kHz	2.570939000 GHz	-27.88 dBm	-17.88 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.572764000 GHz	-24.41 dBm	-14.41 dB
4	4	2.5750 GHz	2.5850 GHz	1.000 MHz	2.579050000 GHz	-30.61 dBm	-17.61 dB
5	5	2.5850 GHz	2.5950 GHz	1.000 MHz	2.587070000 GHz	-34.40 dBm	-9.397 dB

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LTE Band 7			
Channel Bandwidth: 20MHz X=19.56MHz			
Channel	20850	RB Size 1	RB Offset 0

Agilent Spectrum Analyzer - Spurious Emissions

RF 50 Ω DC SENSE:INT ALIGN AUTO 01:24:55 PM May 19, 2015

Start Freq 2.500000000 GHz

Center Freq: 22.005000000 GHz Trig: Free Run Avg|Hold:>10/10 Radio Std: None

PASS IFGain:Low #Atten: 30 dB Radio Device: BTS

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div
Log

Start 2.475 GHz Stop 2.52 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4804 GHz	1.000 MHz	2.477986560 GHz	-41.77 dBm	-16.77 dB
2	2	2.4804 GHz	2.4950 GHz	1.000 MHz	2.492350080 GHz	-39.65 dBm	-26.65 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.499910000 GHz	-40.73 dBm	-30.73 dB
4	4	2.5000 GHz	2.5200 GHz	100.0 kHz	2.501120000 GHz	21.99 dBm	-8.015 dB

Range Table
Range 4
On Off
Start Freq 2.500000000 GHz
Stop Freq 2.520000000 GHz
Res BW 100.00 kHz
Auto Man
Video BW 300.00 kHz
Auto Man
Filter Type ▶ Gaussian
More 1 of 3

MSG STATUS

Agilent Spectrum Analyzer - Spurious Emissions

RF 50 Ω DC SENSE:INT ALIGN AUTO 01:52:34 PM May 19, 2015

Start Freq 2.475000000 GHz

Center Freq: 22.005000000 GHz Trig: Free Run Avg|Hold:>10/10 Radio Std: None

PASS IFGain:Low #Atten: 30 dB Radio Device: BTS

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div
Log

Start 2.475 GHz Stop 2.496 GHz

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.481727000 GHz	-41.13 dBm	-16.13 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.492161000 GHz	-42.37 dBm	-29.37 dB

Range Table
Range 1
On Off
Start Freq 2.475000000 GHz
Stop Freq 2.490500000 GHz
Res BW 1.0000 MHz
Auto Man
Video BW 3.0000 MHz
Auto Man
Filter Type ▶ Gaussian
More 1 of 3

MSG STATUS

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LTE Band 7			
Channel Bandwidth: 20MHz X=19.56MHz			
Channel	20850	RB Size 100	RB Offset 0

Agilent Spectrum Analyzer - Spurious Emissions

Marker 1 --- Hz

PASS

Center Freq: 22.005000000 GHz　Radio Std: None
Trig: Free Run　Avg|Hold:>10/10
#Atten: 30 dB　Radio Device: BTS
SENSE:INT　ALIGN AUTO　01:27:19 PM May 19, 2015
IFGain:Low

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div

Start 2.475 GHz　Stop 2.52 GHz

Marker / Couple Markers On Off / All Markers Off / More 2 of 2

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4804 GHz	1.000 MHz	2.477807040 GHz	-41.43 dBm	-16.43 dB
2	2	2.4804 GHz	2.4950 GHz	1.000 MHz	2.494592320 GHz	-26.77 dBm	-13.77 dB
3	3	2.4950 GHz	2.5000 GHz	100.0 kHz	2.499475000 GHz	-31.51 dBm	-21.51 dB
4	4	2.5000 GHz	2.5200 GHz	100.0 kHz	2.508540000 GHz	7.661 dBm	-22.34 dB

MSG　STATUS

Agilent Spectrum Analyzer - Spurious Emissions

Start Freq 2.475000000 GHz

PASS

Center Freq: 22.005000000 GHz　Radio Std: None
Trig: Free Run　Avg|Hold:>10/10
#Atten: 30 dB　Radio Device: BTS
SENSE:INT　ALIGN AUTO　01:52:02 PM May 19, 2015
IFGain:Low

Ref Offset 17.5 dB
Ref 30.00 dBm
10 dB/div

Start 2.475 GHz　Stop 2.496 GHz

Range Table / Range 1 On Off / Start Freq 2.475000000 GHz / Stop Freq 2.490500000 GHz / Res BW 1.0000 MHz Auto Man / Video BW 3.0000 MHz Auto Man / Filter Type Gaussian / More 1 of 3

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.487338000 GHz	-33.88 dBm	-8.878 dB
2	2	2.4905 GHz	2.4960 GHz	100.0 kHz	2.495461000 GHz	-30.16 dBm	-17.16 dB

MSG　STATUS

LTE Band 7

Channel Bandwidth: 20MHz X=19.71MHz			
Channel	21350	RB Size 1	RB Offset 99

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5500 GHz	2.5700 GHz	100.0 kHz	2.568940000 GHz	20.45 dBm	-9.554 dB
2	2	2.5700 GHz	2.5710 GHz	200.0 kHz	2.570089000 GHz	-28.22 dBm	-18.22 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571036000 GHz	-33.26 dBm	-23.26 dB
4	4	2.5750 GHz	2.5900 GHz	1.000 MHz	2.577760000 GHz	-40.67 dBm	-27.67 dB
5	5	2.5900 GHz	2.5950 GHz	1.000 MHz	2.591065000 GHz	-36.18 dBm	-11.18 dB

Channel	21350	RB Size 100	RB Offset 0

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5500 GHz	2.5700 GHz	100.0 kHz	2.566340000 GHz	2.535 dBm	-27.47 dB
2	2	2.5700 GHz	2.5710 GHz	200.0 kHz	2.570747000 GHz	-30.50 dBm	-20.50 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.572492000 GHz	-26.33 dBm	-16.33 dB
4	4	2.5750 GHz	2.5900 GHz	1.000 MHz	2.585050000 GHz	-37.03 dBm	-24.03 dB
5	5	2.5900 GHz	2.5950 GHz	1.000 MHz	2.591675000 GHz	-36.93 dBm	-11.93 dB

2.7 Transmitter Radiated Power (EIRP/ERP)
2.7.1 Requirement

According to FCC section 27.50 (d), fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.

Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts ERP.

2.7.2 Test Description

Test Setup:
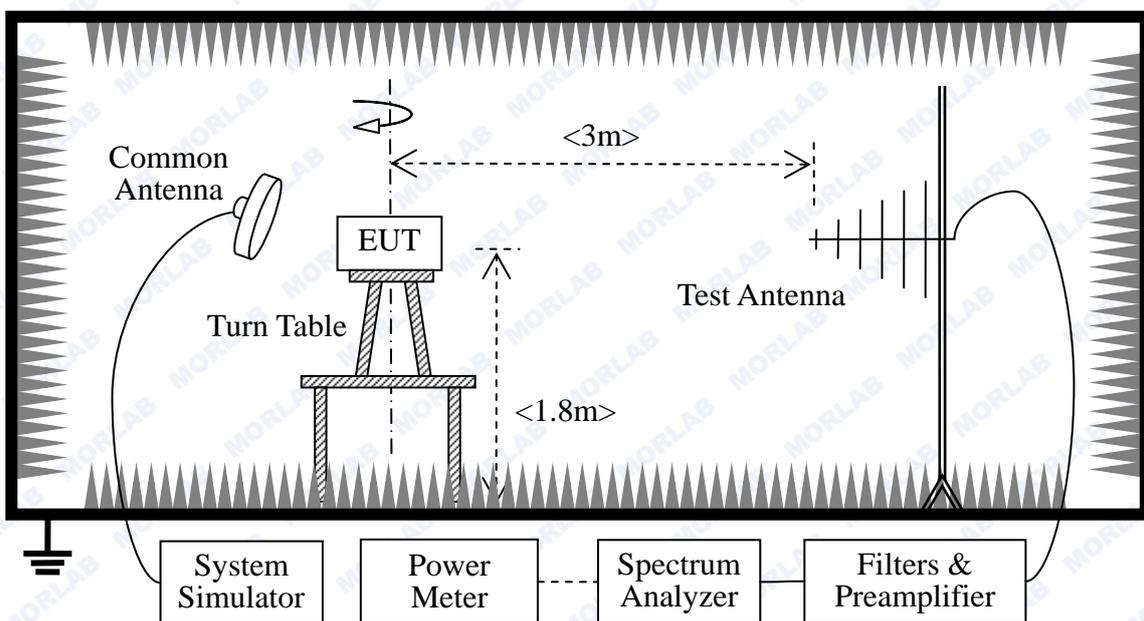
The EUT, which is powered by the PC, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), and it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2015.02.26	2016.02.25
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2015.02.26	2016.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2015.02.26	2016.02.25
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2015.02.26	2016.02.25
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2015.02.26	2016.02.25
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2015.02.26	2016.02.25

2.7.3 Test Result

The EUT was verified under all configurations (RB size and offset) and the worst case radiated power reported for each modulation/channel bandwidth.

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$

$A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST\_TX\_ANT}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT}.

| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP |
					RB Size	RB Offset	(dBm)
LTE Band 2	20MHz	L 18700	1860	QPSK	1	0	21.17
					1	49	21.33
					1	99	20.74
					50	0	20.85
					50	25	20.62
					50	49	20.71
					100	0	20.54
				16-QAM	1	0	20.37
					1	49	20.17
					1	99	20.08
					50	0	20.31
					50	25	19.96
					50	49	19.87
					100	0	19.88
		M 18900	1880	QPSK	1	0	21.62
					1	49	21.71
					1	99	21.32
					50	0	20.83
					50	25	20.29
					50	49	20.37
					100	0	20.41
				16-QAM	1	0	20.53
					1	49	20.41
					1	99	20.69
					50	0	20.32
					50	25	20.41
					50	49	19.98
					100	0	19.68
		H 19100	1900	QPSK	1	0	21.34
					1	49	21.59
					1	99	21.33
					50	0	20.87
					50	25	20.92
					50	49	20.34
					100	0	20.18
				16-QAM	1	0	20.44
					1	49	20.36
					1	99	20.41
					50	0	19.89
					50	25	20.08
					50	49	20.17
					100	0	20.01

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 2	15MHz	L 18675	1857.5	QPSK	1	0	21.46
					1	37	20.77
					1	74	21.13
					36	0	20.87
					36	18	20.55
					36	35	20.82
					75	0	20.37
				16-QAM	1	0	20.45
					1	37	20.31
					1	74	20.44
					36	0	20.05
					36	18	19.83
					36	35	19.95
					75	0	19.45
		M 18900	1880	QPSK	1	0	21.10
					1	37	21.02
					1	74	21.17
					36	0	20.49
					36	18	20.52
					36	35	20.31
					75	0	20.16
				16-QAM	1	0	20.84
					1	37	20.71
					1	74	20.43
					36	0	19.88
					36	18	19.92
					36	35	20.11
					75	0	19.89
		H 19125	1902.5	QPSK	1	0	21.33
					1	37	21.52
					1	74	21.44
					36	0	20.71
					36	18	20.34
					36	35	20.41
					75	0	20.22
				16-QAM	1	0	20.33
					1	37	20.35
					1	74	20.29
					36	0	20.16
					36	18	20.28
					36	35	20.06
					75	0	19.74

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Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 2	10MHz	L 18650	1855	QPSK	1	0	20.66
					1	24	20.44
					1	49	20.86
					25	0	20.07
					25	12	20.14
					25	24	20.03
					50	0	20.13
				16-QAM	1	0	20.23
					1	24	20.46
					1	49	20.57
					25	0	20.33
					25	12	20.17
					25	24	20.29
					50	0	19.12
		M 18900	1880	QPSK	1	0	21.17
					1	24	21.25
					1	49	21.08
					25	0	20.13
					25	12	20.33
					25	24	20.19
					50	0	20.13
				16-QAM	1	0	20.14
					1	24	20.03
					1	49	20.17
					25	0	20.41
					25	12	19.87
					25	24	20.02
					50	0	19.24
		H 19150	1905	QPSK	1	0	20.09
					1	24	21.03
					1	49	20.98
					25	0	20.17
					25	12	20.08
					25	24	20.16
					50	0	20.21
				16-QAM	1	0	20.13
					1	24	20.11
					1	49	20.09
					25	0	19.85
					25	12	20.33
					25	24	19.48
					50	0	19.35

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 2	5MHz	L 18625	1852.5	QPSK	1	0	21.34
					1	12	21.28
					1	24	20.87
					12	0	20.56
					12	6	20.34
					12	11	20.48
					25	0	20.42
				16-QAM	1	0	20.18
					1	12	20.21
					1	24	20.23
					12	0	19.34
					12	6	19.53
					12	11	19.66
					25	0	19.86
		M 18900	1880	QPSK	1	0	21.01
					1	12	20.74
					1	24	20.83
					12	0	20.12
					12	6	20.51
					12	11	20.33
					25	0	20.52
				16-QAM	1	0	20.17
					1	12	20.23
					1	24	20.11
					12	0	19.58
					12	6	19.75
					12	11	19.62
					25	0	20.09
		H 19175	1907.5	QPSK	1	0	21.48
					1	12	21.37
					1	24	21.24
					12	0	20.56
					12	6	20.33
					12	11	20.41
					25	0	20.71
				16-QAM	1	0	20.96
					1	12	20.81
					1	24	21.02
					12	0	19.85
					12	6	20.05
					12	11	19.96
					25	0	19.88

| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP |
					RB Size	RB Offset	(dBm)
LTE Band 2	3MHz	L 18615	1851.5	QPSK	1	0	21.02
					1	7	20.91
					1	14	20.84
					8	0	19.52
					8	4	19.71
					8	7	19.63
					15	0	20.72
				16-QAM	1	0	21.01
					1	7	21.09
					1	14	21.07
					8	0	19.82
					8	4	19.56
					8	7	20.01
					15	0	19.63
		M 18900	1880	QPSK	1	0	21.28
					1	7	21.35
					1	14	21.12
					8	0	20.10
					8	4	20.09
					8	7	20.03
					15	0	20.67
				16-QAM	1	0	20.54
					1	7	20.48
					1	14	20.33
					8	0	19.85
					8	4	19.72
					8	7	19.63
					15	0	19.86
		H 19185	1908.5	QPSK	1	0	20.87
					1	7	20.64
					1	14	20.77
					8	0	19.52
					8	4	19.85
					8	7	19.67
					15	0	20.11
				16-QAM	1	0	20.83
					1	7	20.46
					1	14	20.37
					8	0	20.06
					8	4	19.83
					8	7	19.92
					15	0	19.64

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 2	1.4MHz	L 18607	1850.7	QPSK	1	0	20.48
					1	2	20.52
					1	5	20.71
					3	0	20.88
					3	1	20.71
					3	2	20.80
					6	0	20.15
				16-QAM	1	0	20.11
					1	2	20.32
					1	5	20.24
					3	0	19.52
					3	1	19.71
					3	2	19.66
					6	0	19.83
		M 18900	1880	QPSK	1	0	21.03
					1	2	21.07
					1	5	21.11
					3	0	21.14
					3	1	20.85
					3	2	21.21
					6	0	20.84
				16-QAM	1	0	20.01
					1	2	20.27
					1	5	20.40
					3	0	19.78
					3	2	20.11
					3	5	19.82
					6	0	19.77
		H 19193	1909.3	QPSK	1	0	21.81
					1	2	21.94
					1	5	21.65
					3	0	21.77
					3	1	21.38
					3	2	21.53
					6	0	20.51
				16-QAM	1	0	20.34
					1	2	20.23
					1	5	20.17
					3	0	19.85
					3	1	20.06
					3	2	19.90
					6	0	19.93

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 4	20MHz	L 20050	1720.0	QPSK	1	0	21.65
					1	49	21.72
					1	99	21.77
					50	0	21.62
					50	25	21.08
					50	49	21.34
					100	0	21.48
				16-QAM	1	0	20.82
					1	49	21.37
					1	99	21.02
					50	0	20.45
					50	25	20.62
					50	49	20.38
					100	0	20.01
		M 20175	1732.5	QPSK	1	0	21.84
					1	49	21.79
					1	99	21.68
					50	0	21.15
					50	25	21.08
					50	49	21.02
					100	0	21.10
				16-QAM	1	0	21.64
					1	49	21.55
					1	99	21.47
					50	0	20.52
					50	25	20.39
					50	49	20.46
					100	0	20.34
		H 20300	1745.0	QPSK	1	0	21.31
					1	49	21.73
					1	99	21.62
					50	0	21.44
					50	25	21.53
					50	49	21.67
					100	0	21.44
				16-QAM	1	0	20.37
					1	49	20.64
					1	99	20.51
					50	0	19.82
					50	25	20.06
					50	49	19.94
					100	0	20.12

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 4	15MHz	L 20025	1717.5	QPSK	1	0	21.77
					1	37	21.54
					1	74	21.83
					36	0	21.23
					36	18	21.39
					36	35	21.30
					75	0	21.02
				16-QAM	1	0	21.25
					1	37	20.72
					1	74	20.77
					36	0	20.04
					36	18	19.86
					36	35	20.11
					75	0	20.15
		M 20175	1732.5	QPSK	1	0	21.85
					1	37	21.69
					1	74	21.81
					36	0	21.19
					36	18	21.08
					36	35	21.24
					75	0	21.17
				16-QAM	1	0	21.62
					1	37	21.41
					1	74	21.67
					36	0	20.51
					36	18	20.33
					36	35	20.44
					75	0	20.09
		H 20325	1747.5	QPSK	1	0	21.89
					1	37	21.72
					1	74	21.91
					36	0	20.93
					36	18	20.47
					36	35	20.86
					75	0	20.63
				16-QAM	1	0	21.02
					1	37	20.63
					1	74	20.71
					36	0	20.14
					36	18	19.97
					36	35	20.08
					75	0	20.03

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 4	10MHz	L 20000	1715.0	QPSK	1	0	21.14
					1	24	21.83
					1	49	21.94
					25	0	21.27
					25	12	21.53
					25	24	21.34
					50	0	21.42
				16-QAM	1	0	21.13
					1	24	21.26
					1	49	20.98
					25	0	20.57
					25	12	20.46
					25	24	20.62
					50	0	20.24
		M 20175	1732.5	QPSK	1	0	21.97
					1	24	21.53
					1	49	21.37
					25	0	20.62
					25	12	20.33
					25	24	20.47
					50	0	21.32
				16-QAM	1	0	20.59
					1	24	21.18
					1	49	21.47
					25	0	20.37
					25	12	20.16
					25	24	19.92
					50	0	19.83
		H 20350	1750.0	QPSK	1	0	21.75
					1	24	21.63
					1	49	21.77
					25	0	20.84
					25	12	20.55
					25	24	20.72
					50	0	20.79
				16-QAM	1	0	21.09
					1	24	21.01
					1	49	20.58
					25	0	20.13
					25	12	20.22
					25	24	20.04
					50	0	19.69

| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP |
					RB Size	RB Offset	(dBm)
LTE Band 4	5MHz	L 19975	1712.5	QPSK	1	0	21.92
					1	12	21.81
					1	24	21.90
					12	0	20.88
					12	6	20.71
					12	11	20.95
					25	0	20.28
				16-QAM	1	0	21.06
					1	12	21.17
					1	24	20.93
					12	0	20.14
					12	6	19.99
					12	11	20.08
					25	0	20.42
		M 20175	1732.5	QPSK	1	0	21.88
					1	12	21.73
					1	24	21.92
					12	0	20.89
					12	6	21.02
					12	11	20.75
					25	0	21.33
				16-QAM	1	0	20.56
					1	12	20.82
					1	24	20.71
					12	0	19.96
					12	6	20.16
					12	11	20.05
					25	0	20.01
		H 20375	1752.5	QPSK	1	0	20.17
					1	12	20.43
					1	24	21.03
					12	0	20.32
					12	6	20.41
					12	11	20.50
					25	0	20.87
				16-QAM	1	0	21.08
					1	12	21.12
					1	24	21.46
					12	0	20.52
					12	6	20.44
					12	11	20.23
					25	0	19.65

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 4	3MHz	L 19965	1711.5	QPSK	1	0	21.89
					1	7	21.92
					1	14	21.53
					8	0	21.08
					8	4	20.96
					8	7	21.23
					15	0	21.32
				16-QAM	1	0	21.07
					1	7	20.98
					1	14	21.11
					8	0	20.35
					8	4	20.27
					8	7	20.46
					15	0	20.08
		M 20175	1732.5	QPSK	1	0	21.96
					1	7	21.76
					1	14	21.83
					8	0	20.89
					8	4	21.08
					8	7	21.11
					15	0	21.18
				16-QAM	1	0	20.89
					1	7	20.53
					1	14	20.69
					8	0	20.14
					8	4	20.09
					8	7	20.23
					15	0	20.16
		H 20385	1753.5	QPSK	1	0	21.55
					1	7	21.73
					1	14	21.68
					8	0	20.44
					8	4	20.75
					8	7	20.37
					15	0	21.06
				16-QAM	1	0	20.51
					1	7	20.49
					1	14	20.82
					8	0	20.03
					8	4	19.85
					8	7	19.56
					15	0	19.87

| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP |
					RB Size	RB Offset	(dBm)
LTE Band 4	1.4MHz	L 19957	1710.7	QPSK	1	0	21.77
					1	2	21.99
					1	5	22.07
					3	0	21.74
					3	1	21.33
					3	2	21.16
					6	0	20.63
				16-QAM	1	0	20.82
					1	2	21.09
					1	5	21.21
					3	0	20.21
					3	1	20.38
					3	2	20.13
					6	0	20.42
		M 20175	1732.5	QPSK	1	0	21.87
					1	2	21.92
					1	5	22.09
					3	0	21.56
					3	1	21.64
					3	2	21.98
					6	0	20.28
				16-QAM	1	0	21.09
					1	2	21.34
					1	5	21.11
					3	0	20.81
					3	2	20.48
					3	5	20.30
					6	0	20.38
		H 20393	1754.3	QPSK	1	0	21.65
					1	2	21.27
					1	5	21.78
					3	0	20.86
					3	1	20.77
					3	2	21.02
					6	0	20.44
				16-QAM	1	0	20.88
					1	2	20.57
					1	5	20.68
					3	0	20.10
					3	1	20.24
					3	2	20.17
					6	0	20.03

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 5	10MHz	L 20450	829	QPSK	1	0	22.34
					1	24	22.53
					1	49	22.41
					25	0	21.30
					25	12	21.41
					25	24	21.52
					50	0	21.49
				16-QAM	1	0	21.55
					1	24	21.43
					1	49	21.22
					25	0	20.85
					25	12	20.79
					25	24	20.34
					50	0	20.63
		M 20525	836.5	QPSK	1	0	22.31
					1	24	22.46
					1	49	22.37
					25	0	21.52
					25	12	21.21
					25	24	21.49
					50	0	21.44
				16-QAM	1	0	21.37
					1	24	21.44
					1	49	21.18
					25	0	20.88
					25	12	20.31
					25	24	20.58
					50	0	20.43
		H 20600	844	QPSK	1	0	22.45
					1	24	22.37
					1	49	22.49
					25	0	21.45
					25	12	21.88
					25	24	21.63
					50	0	21.52
				16-QAM	1	0	21.18
					1	24	21.26
					1	49	21.03
					25	0	20.77
					25	12	20.49
					25	24	20.11
					50	0	20.44

| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP (dBm) |
					RB Size	RB Offset	
LTE Band 5	5MHz	L 20425	826.5	QPSK	1	0	22.43
					1	12	22.51
					1	24	22.33
					12	0	21.32
					12	6	21.16
					12	11	21.52
					25	0	21.43
				16-QAM	1	0	21.07
					1	12	21.62
					1	24	21.28
					12	0	20.86
					12	6	20.44
					12	11	20.52
					25	0	20.33
		M 20525	836.5	QPSK	1	0	22.37
					1	12	22.41
					1	24	22.19
					12	0	21.30
					12	6	21.27
					12	11	21.09
					25	0	21.37
				16-QAM	1	0	21.18
					1	12	21.36
					1	24	21.03
					12	0	20.77
					12	6	20.59
					12	11	20.42
					25	0	20.49
		H 20625	846.5	QPSK	1	0	22.14
					1	12	22.06
					1	24	22.43
					12	0	21.39
					12	6	21.66
					12	11	21.45
					25	0	21.36
				16-QAM	1	0	21.17
					1	12	21.52
					1	24	21.35
					12	0	20.31
					12	6	20.44
					12	11	20.69
					25	0	20.41

| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP |
					RB Size	RB Offset	(dBm)
LTE Band 5	3MHz	L 20415	825.5	QPSK	1	0	22.14
					1	7	22.31
					1	14	22.43
					8	0	21.12
					8	4	20.89
					8	7	21.03
					15	0	21.16
				16-QAM	1	0	21.28
					1	7	21.19
					1	14	21.55
					8	0	20.94
					8	4	20.82
					8	7	20.58
					15	0	20.43
		M 20525	836.5	QPSK	1	0	22.38
					1	7	22.41
					1	14	22.19
					8	0	21.33
					8	4	21.26
					8	7	21.19
					15	0	21.53
				16-QAM	1	0	20.37
					1	7	21.07
					1	14	21.43
					8	0	20.55
					8	4	20.72
					8	7	20.34
					15	0	20.51
		H 20635	847.5	QPSK	1	0	22.22
					1	7	22.18
					1	14	22.13
					8	0	21.46
					8	4	21.82
					8	7	21.22
					15	0	21.45
				16-QAM	1	0	21.29
					1	7	21.06
					1	14	21.27
					8	0	20.46
					8	4	20.39
					8	7	20.11
					15	0	20.13

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 5	1.4MHz	L 20407	824.7	QPSK	1	0	22.37
					1	2	22.18
					1	5	22.23
					3	0	22.33
					3	1	21.56
					3	2	21.77
					6	0	21.38
				16-QAM	1	0	21.49
					1	2	21.64
					1	5	20.76
					3	0	20.84
					3	1	21.08
					3	2	20.85
					6	0	20.46
		M 20525	836.5	QPSK	1	0	22.17
					1	2	22.43
					1	5	22.26
					3	0	21.83
					3	1	22.09
					3	2	22.35
					6	0	21.29
				16-QAM	1	0	21.53
					1	2	21.88
					1	5	21.44
					3	0	20.79
					3	2	20.55
					3	5	20.64
					6	0	20.34
		H 20643	848.3	QPSK	1	0	22.63
					1	2	22.27
					1	5	22.46
					3	0	22.19
					3	1	21.63
					3	2	21.29
					6	0	21.37
				16-QAM	1	0	21.26
					1	2	21.44
					1	5	21.33
					3	0	20.51
					3	1	20.30
					3	2	20.69
					6	0	20.55

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 7	20MHz	L 20850	2510	QPSK	1	0	20.96
					1	49	20.84
					1	99	20.57
					50	0	20.07
					50	25	20.13
					50	49	20.02
					100	0	19.94
				16-QAM	1	0	20.37
					1	49	20.26
					1	99	20.14
					50	0	19.92
					50	25	20.03
					50	49	19.84
					100	0	19.71
		M 21100	2535	QPSK	1	0	21.49
					1	49	21.11
					1	99	21.02
					50	0	20.15
					50	25	19.77
					50	49	19.81
					100	0	19.83
				16-QAM	1	0	20.01
					1	49	20.37
					1	99	20.13
					50	0	19.82
					50	25	19.72
					50	49	19.91
					100	0	19.53
		H 21350	2560	QPSK	1	0	21.14
					1	49	20.52
					1	99	20.63
					50	0	20.48
					50	25	20.16
					50	49	19.83
					100	0	20.01
				16-QAM	1	0	20.75
					1	49	20.37
					1	99	20.61
					50	0	19.86
					50	25	20.04
					50	49	19.78
					100	0	19.13

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 7	15MHz	L 20825	2507.5	QPSK	1	0	21.46
					1	37	21.33
					1	74	21.13
					36	0	20.15
					36	18	20.49
					36	35	20.73
					75	0	20.68
				16-QAM	1	0	20.33
					1	37	20.58
					1	74	19.93
					36	0	20.04
					36	18	19.86
					36	35	19.92
					75	0	19.42
		M 21100	2535	QPSK	1	0	21.48
					1	37	20.96
					1	74	21.13
					36	0	20.01
					36	18	20.08
					36	35	19.85
					75	0	19.67
				16-QAM	1	0	19.42
					1	37	20.05
					1	74	19.33
					36	0	19.24
					36	18	19.16
					36	35	19.53
					75	0	19.34
		H 21375	2562.5	QPSK	1	0	21.43
					1	37	21.01
					1	74	20.91
					36	0	20.03
					36	18	20.16
					36	35	19.85
					75	0	19.93
				16-QAM	1	0	20.14
					1	37	20.28
					1	74	20.07
					36	0	19.73
					36	18	20.05
					36	35	19.85
					75	0	19.21

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP
					RB Size	RB Offset	(dBm)
LTE Band 7	10MHz	L 20800	2505	QPSK	1	0	21.41
					1	24	21.39
					1	49	21.33
					25	0	20.75
					25	12	20.34
					25	24	20.03
					50	0	20.07
				16-QAM	1	0	20.85
					1	24	20.49
					1	49	20.53
					25	0	19.86
					25	12	20.03
					25	24	19.76
					50	0	19.73
		M 21100	2535	QPSK	1	0	21.09
					1	24	20.78
					1	49	20.83
					25	0	19.85
					25	12	19.73
					25	24	19.58
					50	0	19.34
				16-QAM	1	0	19.89
					1	24	20.05
					1	49	19.48
					25	0	19.86
					25	12	19.28
					25	24	19.53
					50	0	19.37
		H 21400	2565	QPSK	1	0	21.01
					1	24	20.81
					1	49	20.95
					25	0	19.37
					25	12	20.05
					25	24	19.56
					50	0	19.71
				16-QAM	1	0	19.69
					1	24	19.88
					1	49	19.45
					25	0	19.24
					25	12	19.53
					25	24	19.72
					50	0	19.10

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| Band | Band Width | Channel | Freq.(MHz) | Modulation | RB Configuration | | EIRP |
					RB Size	RB Offset	(dBm)
LTE Band 7	5MHz	L 20775	2502.5	QPSK	1	0	21.34
					1	12	21.45
					1	24	21.27
					12	0	20.85
					12	6	20.76
					12	11	20.91
					25	0	19.83
				16-QAM	1	0	20.18
					1	12	20.05
					1	24	19.76
					12	0	19.48
					12	6	19.53
					12	11	19.66
					25	0	19.52
		M 21100	2535	QPSK	1	0	20.87
					1	12	20.78
					1	24	20.69
					12	0	20.41
					12	6	20.33
					12	11	20.59
					25	0	20.53
				16-QAM	1	0	20.48
					1	12	20.82
					1	24	19.33
					12	0	19.58
					12	6	19.44
					12	11	19.38
					25	0	19.21
		H 21425	2567.5	QPSK	1	0	20.86
					1	12	20.85
					1	24	20.73
					12	0	19.74
					12	6	19.59
					12	11	19.69
					25	0	19.83
				16-QAM	1	0	20.09
					1	12	20.18
					1	24	19.45
					12	0	19.82
					12	6	19.55
					12	11	19.89
					25	0	19.13

2.8   Radiated Spurious Emissions

2.8.1   Requirement

According to FCC section 2.1053 and section 27.53(g), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.8.2   Test Description

See section 2.7.2 of this report.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.8.3   Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

Test Plots for the Whole Measurement Frequency Range:

Note1: the power of the EUT transmitting frequency should be ignored.

Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

LTE Band 2 1.4MHz BW, Mid Channel, QPSK
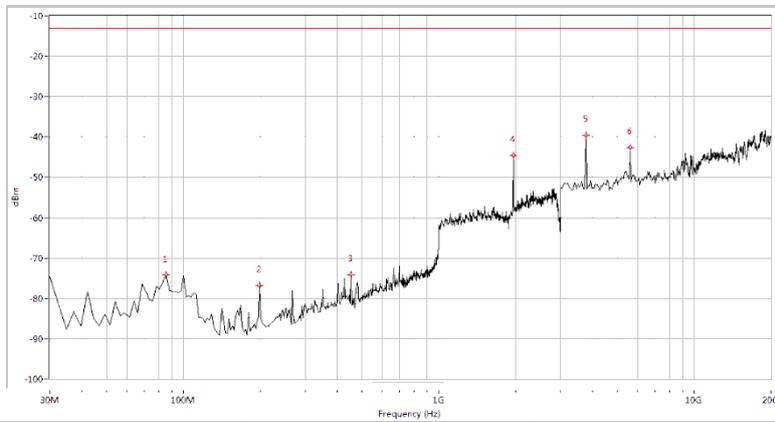
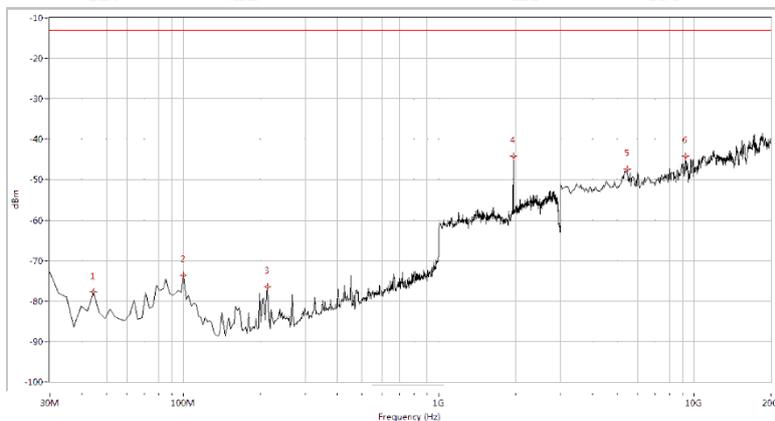| Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-74.23	-13.0	61.2	-3.0	Horizontal	PASS
199.327	-76.86	-13.0	63.9	252.4	Horizontal	PASS
453.317	-74.23	-13.0	61.2	274.3	Horizontal	PASS
1957.606	-44.56	-13.0	31.6	309.7	Horizontal	N.A
3763.092	-39.67	-13.0	26.7	42.5	Horizontal	PASS
5628.429	-42.70	-13.0	29.7	23.2	Horizontal	PASS
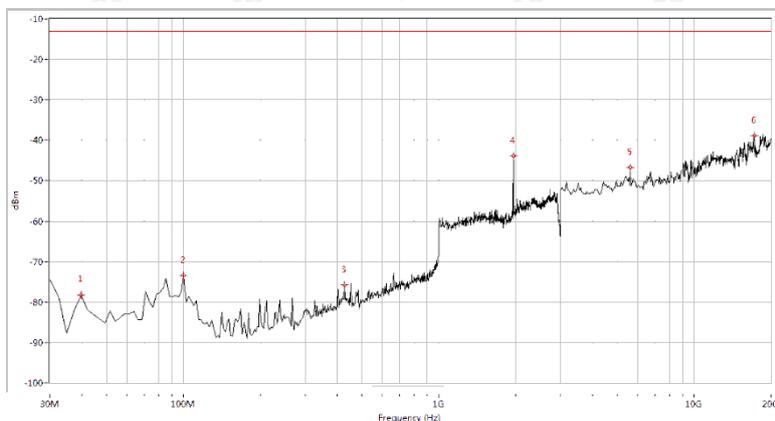
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
39.676	-78.20	-13.0	65.2	244.7	Vertical	PASS
100.150	-73.45	-13.0	60.4	288.5	Vertical	PASS
426.708	-75.72	-13.0	62.7	259.9	Vertical	PASS
1957.606	-43.86	-13.0	30.9	249.5	Vertical	N.A
5628.429	-46.73	-13.0	33.7	36.5	Vertical	PASS
17159.601	-38.95	-13.0	26.0	198.6	Vertical	PASS

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LTE Band 2 1.4MHz BW, Mid Channel, 16QAM
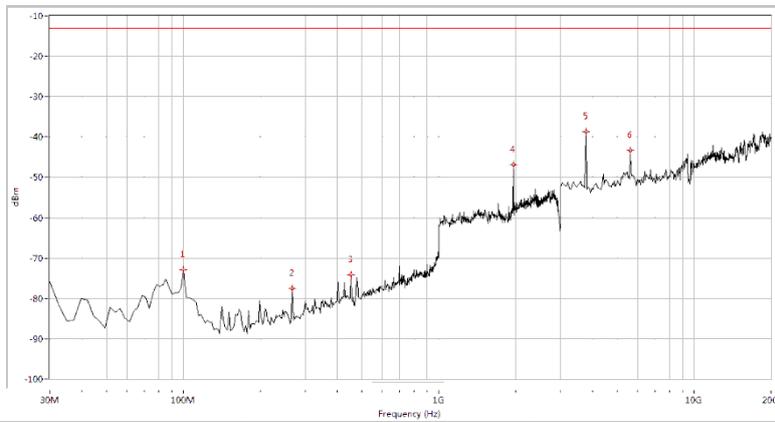
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-72.95	-13.0	59.9	357.0	Horizontal	PASS
267.057	-77.56	-13.0	64.6	335.1	Horizontal	PASS
453.317	-74.22	-13.0	61.2	265.6	Horizontal	PASS
1957.606	-46.93	-13.0	33.9	301.4	Horizontal	N.A
3763.092	-38.65	-13.0	25.6	242.9	Horizontal	PASS
5628.429	-43.39	-13.0	30.4	357.0	Horizontal	PASS
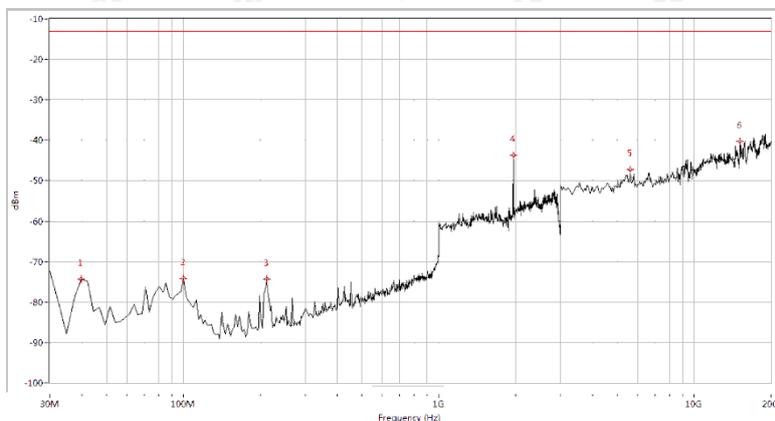
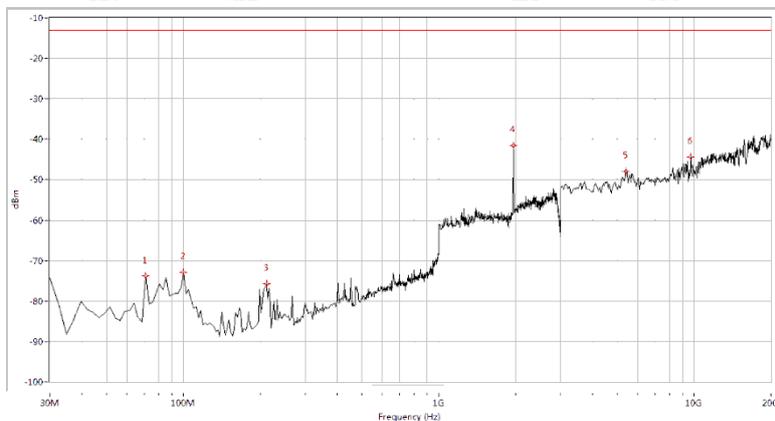| Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
39.676	-74.36	-13.0	61.4	351.3	Vertical	PASS
100.150	-74.23	-13.0	61.2	2.9	Vertical	PASS
211.421	-74.26	-13.0	61.3	253.2	Vertical	PASS
1957.606	-43.71	-13.0	30.7	269.6	Vertical	N.A
5628.429	-47.31	-13.0	34.3	150.5	Vertical	PASS
15124.688	-40.37	-13.0	27.4	187.3	Vertical	PASS

LTE Band 2 3MHz BW, Mid Channel, QPSK
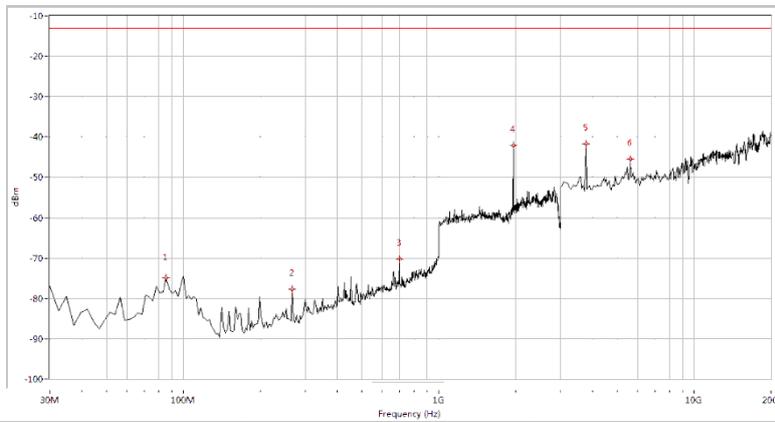
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-74.95	-13.0	61.9	308.4	Horizontal	PASS
267.057	-77.68	-13.0	64.7	267.9	Horizontal	PASS
700.050	-70.25	-13.0	57.3	326.8	Horizontal	PASS
1957.606	-42.15	-13.0	29.1	289.7	Horizontal	N.A
3763.092	-41.64	-13.0	28.6	129.1	Horizontal	PASS
5628.429	-45.39	-13.0	32.4	196.0	Horizontal	PASS
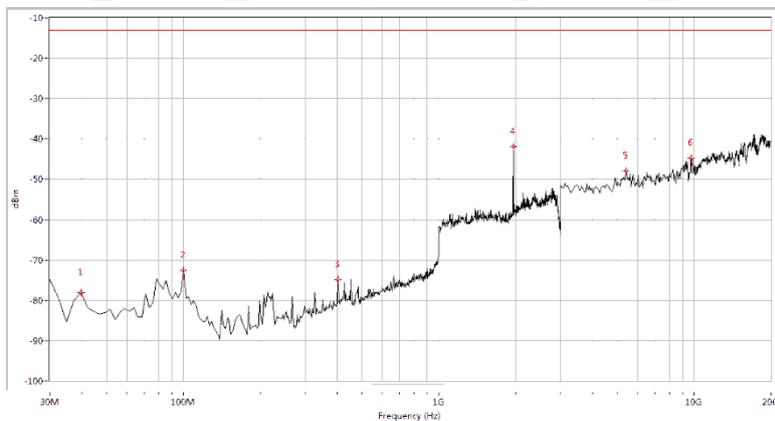
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
39.676	-78.02	-13.0	65.0	354.3	Vertical	PASS
100.150	-72.55	-13.0	59.6	29.1	Vertical	PASS
402.519	-74.86	-13.0	61.9	251.1	Vertical	PASS
1957.606	-41.98	-13.0	29.0	293.3	Vertical	N.A
5416.459	-48.02	-13.0	35.0	256.6	Vertical	PASS
9740.648	-44.70	-13.0	31.7	164.0	Vertical	PASS

LTE Band 2 3MHz BW, Mid Channel, 16QAM
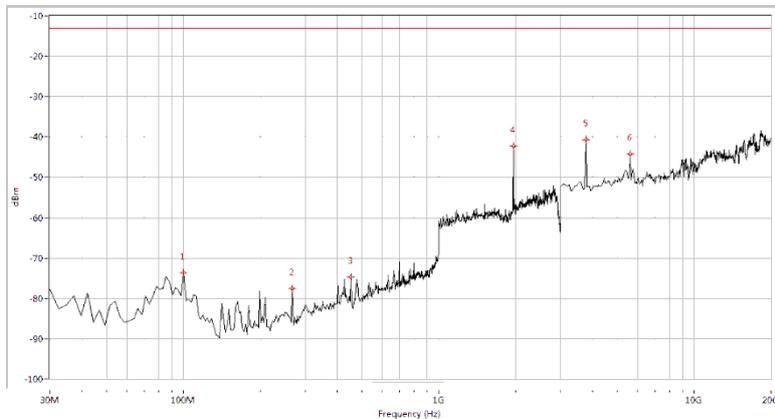
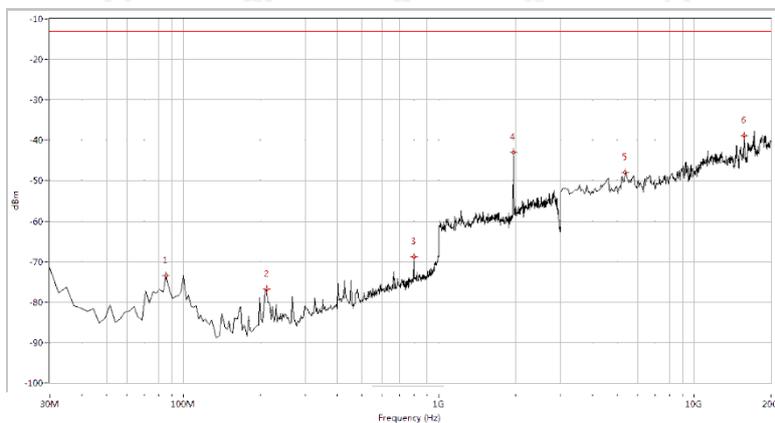| Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-73.66	-13.0	60.7	142.3	Horizontal	PASS
267.057	-77.61	-13.0	64.6	294.4	Horizontal	PASS
453.317	-74.75	-13.0	61.7	274.4	Horizontal	PASS
1957.606	-42.28	-13.0	29.3	305.3	Horizontal	N.A
3763.092	-40.71	-13.0	27.7	296.7	Horizontal	PASS
5628.429	-44.25	-13.0	31.3	79.9	Horizontal	PASS

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
44.514	-77.73	-13.0	64.7	-0.0	Vertical	PASS
100.150	-73.68	-13.0	60.7	87.7	Vertical	PASS
213.840	-76.56	-13.0	63.6	263.2	Vertical	PASS
1957.606	-44.24	-13.0	31.2	282.6	Vertical	N.A
5458.853	-47.51	-13.0	34.5	205.9	Vertical	PASS
9231.920	-44.23	-13.0	31.2	45.5	Vertical	PASS

LTE Band 2 5MHz BW, Mid Channel, QPSK
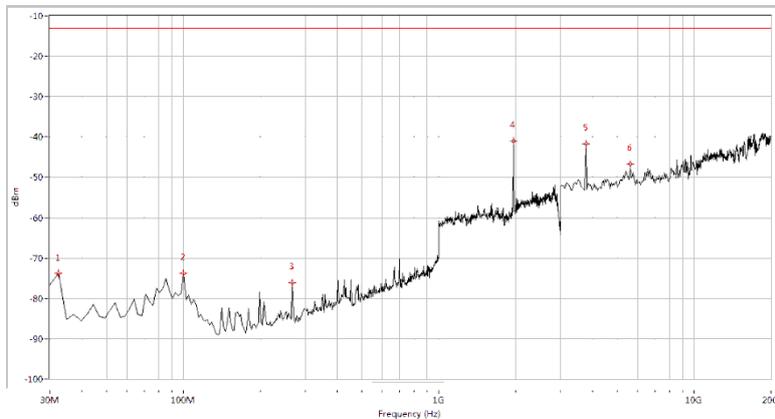
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-73.79	-13.0	60.8	318.1	Horizontal	PASS
100.150	-73.83	-13.0	60.8	312.1	Horizontal	PASS
267.057	-76.19	-13.0	63.2	265.3	Horizontal	PASS
1957.606	-41.09	-13.0	28.1	306.4	Horizontal	N.A
3763.092	-41.69	-13.0	28.7	299.1	Horizontal	PASS
5628.429	-46.65	-13.0	33.6	222.8	Horizontal	PASS

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
71.122	-73.72	-13.0	60.7	-3.0	Vertical	PASS
100.150	-72.87	-13.0	59.9	260.6	Vertical	PASS
211.421	-75.84	-13.0	62.8	34.0	Vertical	PASS
1957.606	-41.57	-13.0	28.6	269.2	Vertical	N.A
5416.459	-48.05	-13.0	35.0	0.0	Vertical	PASS
9698.254	-44.34	-13.0	31.3	1.5	Vertical	PASS

## LTE Band 2 5MHz BW, Mid Channel, 16QAM
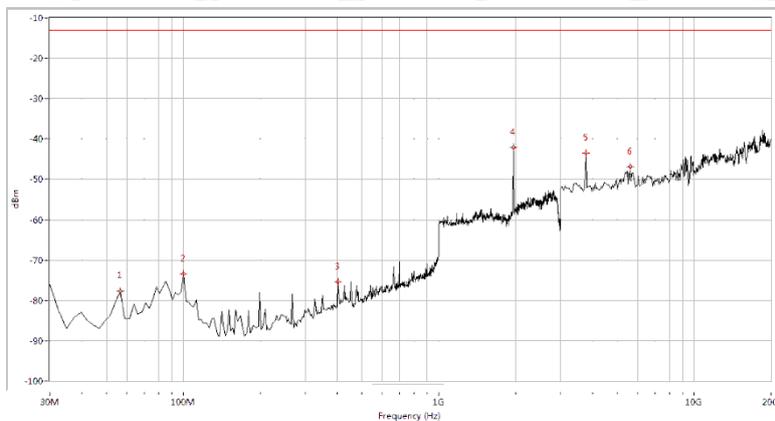
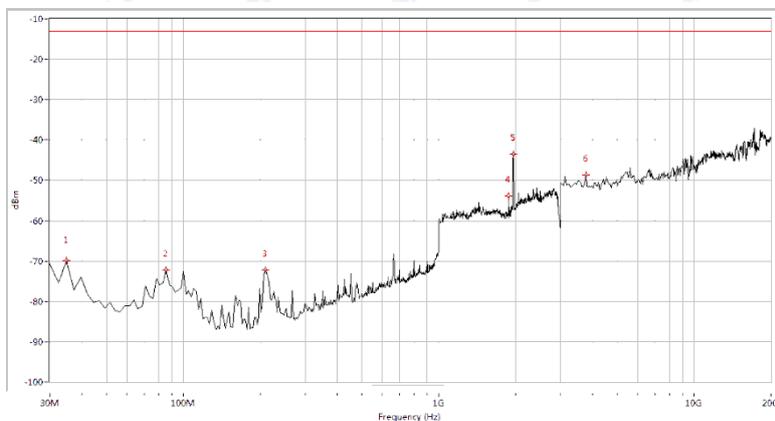| Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
56.608	-77.66	-13.0	64.7	298.5	Horizontal	PASS
100.150	-73.38	-13.0	60.4	93.2	Horizontal	PASS
402.519	-75.42	-13.0	62.4	266.9	Horizontal	PASS
1957.606	-42.15	-13.0	29.2	308.3	Horizontal	N.A
3763.092	-43.54	-13.0	30.5	272.5	Horizontal	PASS
5628.429	-46.91	-13.0	33.9	142.6	Horizontal	PASS

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-73.39	-13.0	60.4	160.7	Vertical	PASS
211.421	-76.89	-13.0	63.9	218.3	Vertical	PASS
799.227	-68.78	-13.0	55.8	277.2	Vertical	PASS
1957.606	-43.03	-13.0	30.0	264.6	Vertical	N.A
5374.065	-48.03	-13.0	35.0	342.5	Vertical	PASS
15718.204	-38.86	-13.0	25.9	104.2	Vertical	PASS

LTE Band 2 10MHz BW, Mid Channel, QPSK
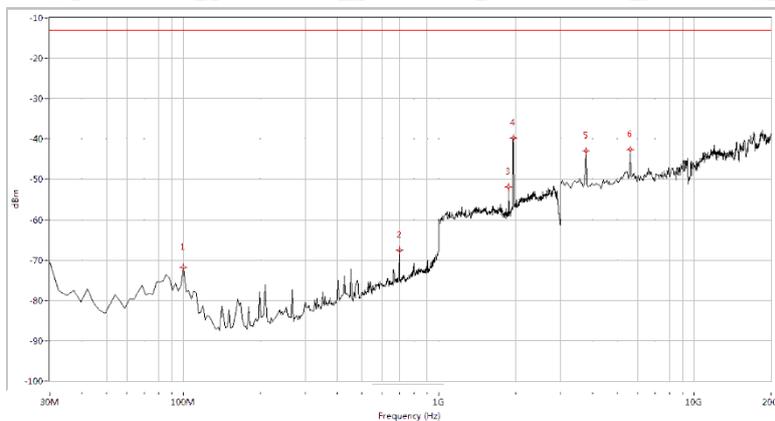
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-71.76	-13.0	58.8	360.0	Horizontal	PASS
700.050	-67.57	-13.0	54.6	74.5	Horizontal	PASS
1872.818	-51.94	-13.0	38.9	297.2	Horizontal	N.A
1957.606	-39.85	-13.0	26.9	127.3	Horizontal	N.A
3763.092	-42.97	-13.0	30.0	268.1	Horizontal	PASS
5628.429	-42.59	-13.0	29.6	-0.0	Horizontal	PASS

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-69.96	-13.0	57.0	256.1	Vertical	PASS
85.636	-72.20	-13.0	59.2	271.0	Vertical	PASS
209.002	-72.25	-13.0	59.2	54.4	Vertical	PASS
1872.818	-53.87	-13.0	40.9	205.5	Vertical	N.A
1957.606	-43.58	-13.0	30.6	222.2	Vertical	N.A
3763.092	-48.59	-13.0	35.6	-0.0	Vertical	PASS