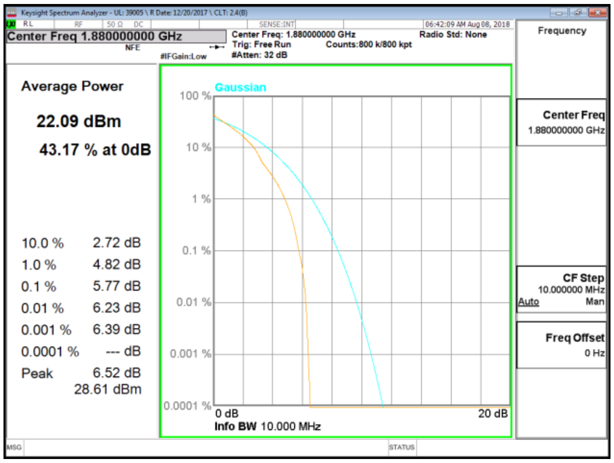
10.1.3. LTE BAND 2


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:42:09 AM Aug 08, 2018

Center Freq 1.880000000 GHz

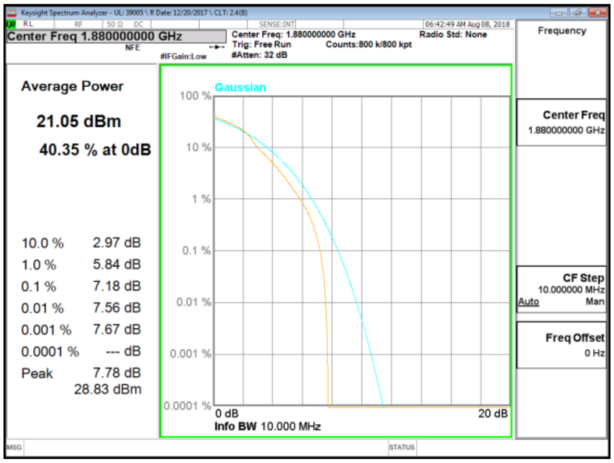
Center Freq: 1.880000000 GHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.09 dBm
43.17 % at 0dB

10.0 %	2.72 dB
1.0 %	4.82 dB
0.1 %	5.77 dB
0.01 %	6.23 dB
0.001 %	6.39 dB
0.0001 %	--- dB
Peak	6.52 dB 28.61 dBm

Info BW 10.000 MHz

LTE B2 1.4MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:42:49 AM Aug 08, 2018

Center Freq 1.880000000 GHz

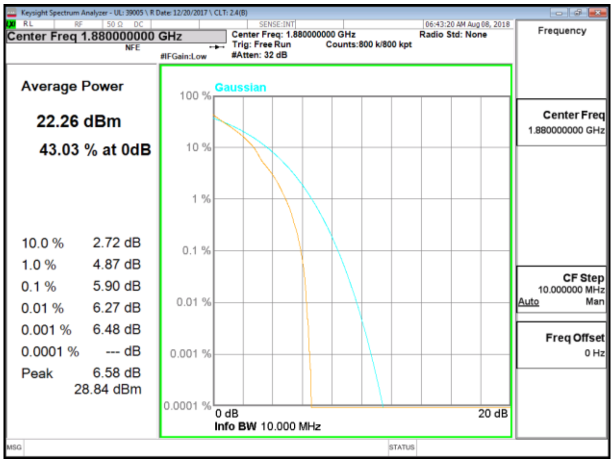
Center Freq: 1.880000000 GHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.05 dBm
40.35 % at 0dB

10.0 %	2.97 dB
1.0 %	5.84 dB
0.1 %	7.18 dB
0.01 %	7.56 dB
0.001 %	7.67 dB
0.0001 %	--- dB
Peak	7.78 dB 28.83 dBm

Info BW 10.000 MHz

LTE B2 1.4MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:43:20 AM Aug 08, 2018

Center Freq 1.880000000 GHz

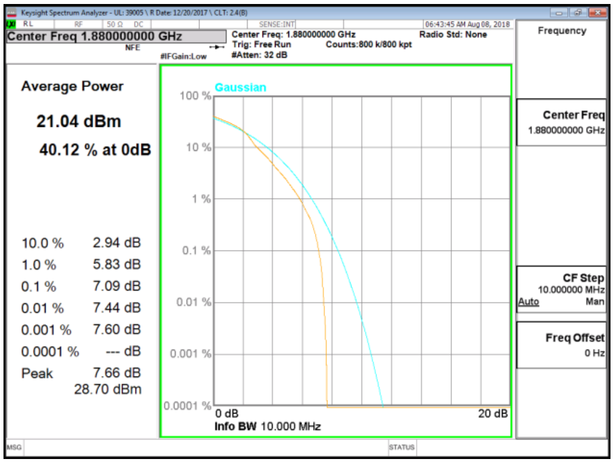
Center Freq: 1.880000000 GHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.26 dBm
43.03 % at 0dB

10.0 %	2.72 dB
1.0 %	4.87 dB
0.1 %	5.90 dB
0.01 %	6.27 dB
0.001 %	6.48 dB
0.0001 %	--- dB
Peak	6.58 dB 28.84 dBm

Info BW 10.000 MHz

LTE B2 3MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:43:45 AM Aug 08, 2018

Center Freq 1.880000000 GHz

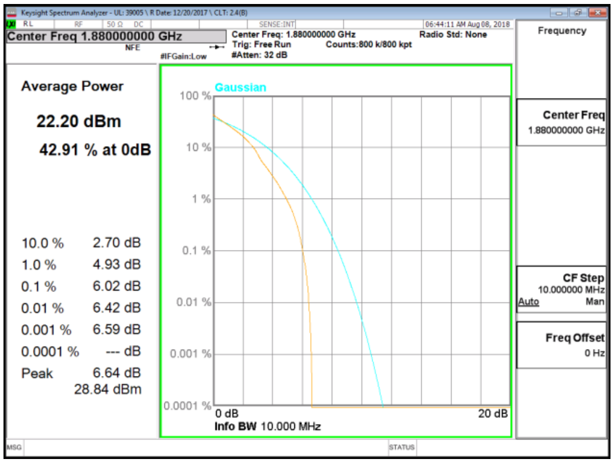
Center Freq: 1.880000000 GHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.04 dBm
40.12 % at 0dB

10.0 %	2.94 dB
1.0 %	5.83 dB
0.1 %	7.09 dB
0.01 %	7.44 dB
0.001 %	7.60 dB
0.0001 %	--- dB
Peak	7.66 dB 28.70 dBm

Info BW 10.000 MHz

LTE B2 3MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:44:11 AM Aug 08, 2018

Center Freq 1.880000000 GHz

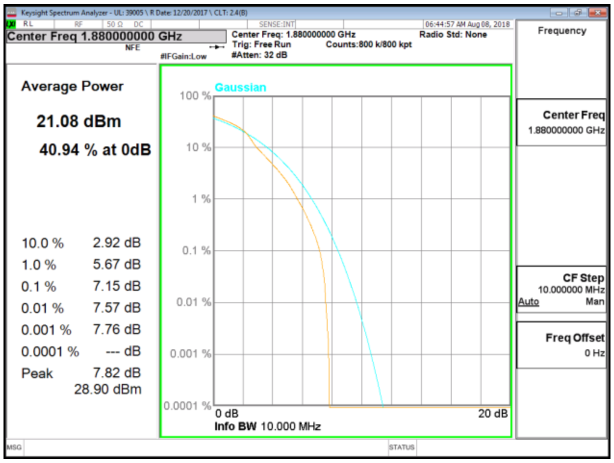
Center Freq: 1.880000000 GHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.20 dBm
42.91 % at 0dB

10.0 %	2.70 dB
1.0 %	4.93 dB
0.1 %	6.02 dB
0.01 %	6.42 dB
0.001 %	6.59 dB
0.0001 %	--- dB
Peak	6.64 dB 28.84 dBm

Info BW 10.000 MHz

LTE B2 5MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:44:57 AM Aug 08, 2018

Center Freq 1.880000000 GHz

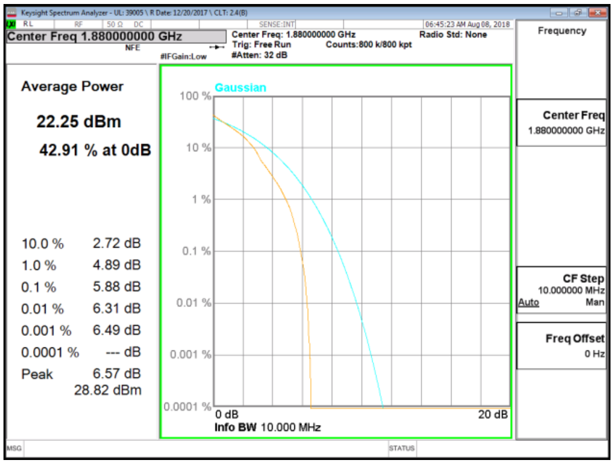
Center Freq: 1.880000000 GHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.08 dBm
40.94 % at 0dB

10.0 %	2.92 dB
1.0 %	5.67 dB
0.1 %	7.15 dB
0.01 %	7.57 dB
0.001 %	7.76 dB
0.0001 %	--- dB
Peak	7.82 dB 28.90 dBm

Info BW 10.000 MHz

LTE B2 5MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:45:23 AM Aug 08, 2018

Center Freq 1.880000000 GHz

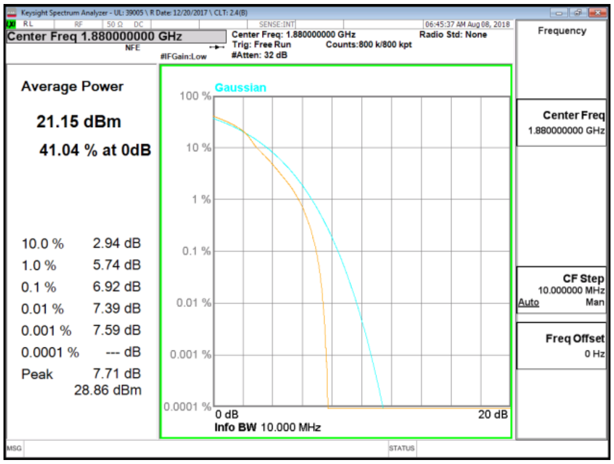
Center Freq: 1.880000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
22.25 dBm
42.91 % at 0dB

10.0 %	2.72 dB
1.0 %	4.89 dB
0.1 %	5.88 dB
0.01 %	6.31 dB
0.001 %	6.49 dB
0.0001 %	--- dB
Peak	6.57 dB 28.82 dBm

Info BW 10.000 MHz

LTE B2 10MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:45:37 AM Aug 08, 2018

Center Freq 1.880000000 GHz

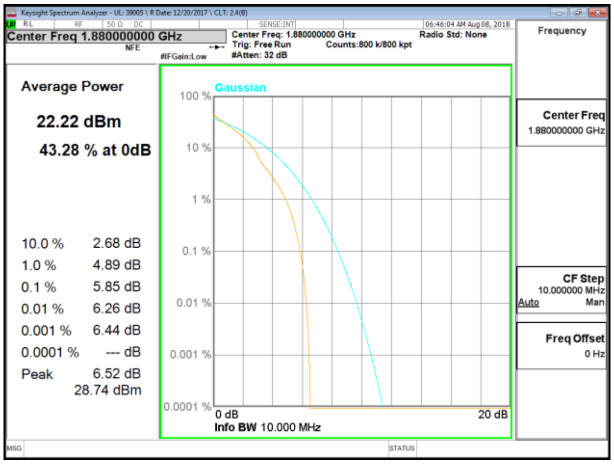
Center Freq: 1.880000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
21.15 dBm
41.04 % at 0dB

10.0 %	2.94 dB
1.0 %	5.74 dB
0.1 %	6.92 dB
0.01 %	7.39 dB
0.001 %	7.59 dB
0.0001 %	--- dB
Peak	7.71 dB 28.86 dBm

Info BW 10.000 MHz

LTE B2 10MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:46:04 AM Aug 08, 2018

Center Freq 1.880000000 GHz

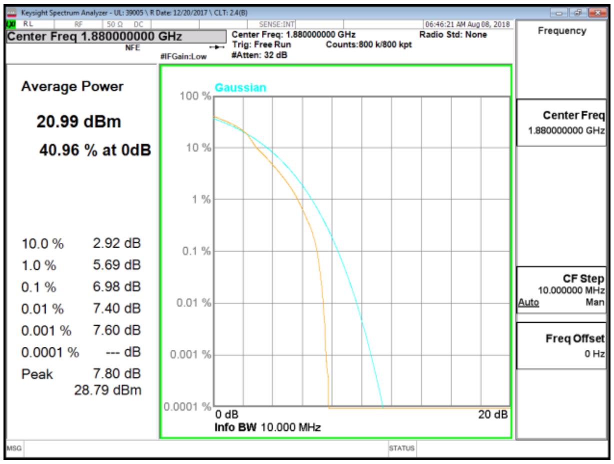
Center Freq: 1.880000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
22.22 dBm
43.28 % at 0dB

10.0 %	2.68 dB
1.0 %	4.89 dB
0.1 %	5.85 dB
0.01 %	6.26 dB
0.001 %	6.44 dB
0.0001 %	--- dB
Peak	6.52 dB 28.74 dBm

Info BW 10.000 MHz

LTE B2 15MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:46:21 AM Aug 08, 2018

Center Freq 1.880000000 GHz

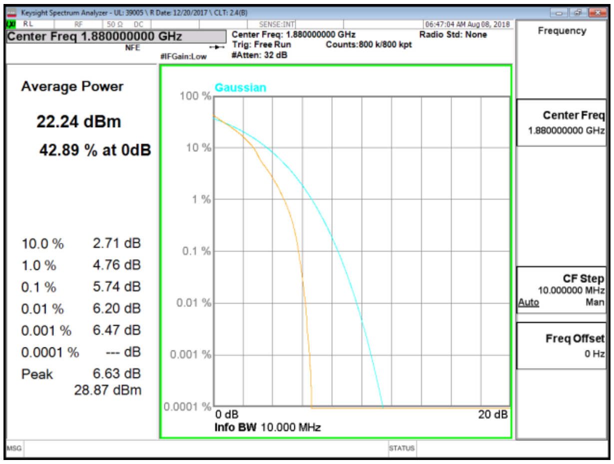
Center Freq: 1.880000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
20.99 dBm
40.96 % at 0dB

10.0 %	2.92 dB
1.0 %	5.69 dB
0.1 %	6.98 dB
0.01 %	7.40 dB
0.001 %	7.60 dB
0.0001 %	--- dB
Peak	7.80 dB 28.79 dBm

Info BW 10.000 MHz

LTE B2 15MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:47:04 AM Aug 08, 2018

Center Freq 1.880000000 GHz

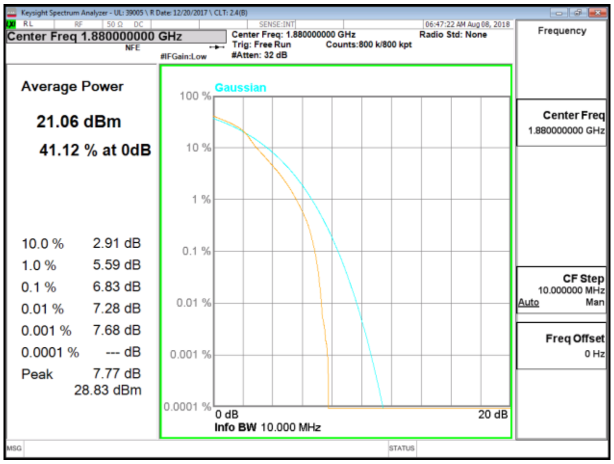
Center Freq: 1.880000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
22.24 dBm
42.89 % at 0dB

10.0 %	2.71 dB
1.0 %	4.76 dB
0.1 %	5.74 dB
0.01 %	6.20 dB
0.001 %	6.47 dB
0.0001 %	--- dB
Peak	6.63 dB 28.87 dBm

Info BW 10.000 MHz

LTE B2 20MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

06:47:22 AM Aug 08, 2018

Center Freq 1.880000000 GHz

Center Freq: 1.880000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

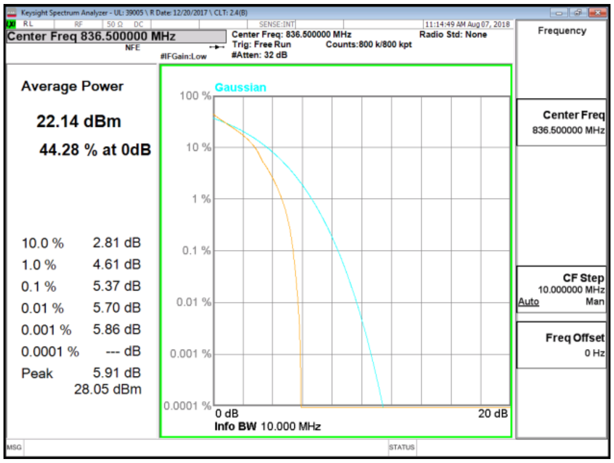
Average Power
21.06 dBm
41.12 % at 0dB

10.0 %	2.91 dB
1.0 %	5.59 dB
0.1 %	6.83 dB
0.01 %	7.28 dB
0.001 %	7.68 dB
0.0001 %	--- dB
Peak	7.77 dB 28.83 dBm

Info BW 10.000 MHz

LTE B2 20MHz 16QAM Mid Channel

10.1.4. LTE BAND 5

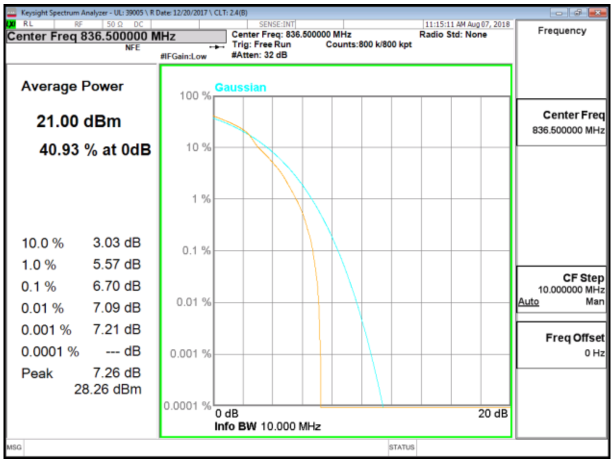

Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
Center Freq 836.500000 MHz
Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None
11:14:49 AM Aug 07, 2018

Average Power
22.14 dBm
44.28 % at 0dB

10.0 %	2.81 dB
1.0 %	4.61 dB
0.1 %	5.37 dB
0.01 %	5.70 dB
0.001 %	5.86 dB
0.0001 %	--- dB
Peak	5.91 dB 28.05 dBm

Info BW 10.000 MHz

LTE B5 1.4MHz QPSK Mid Channel

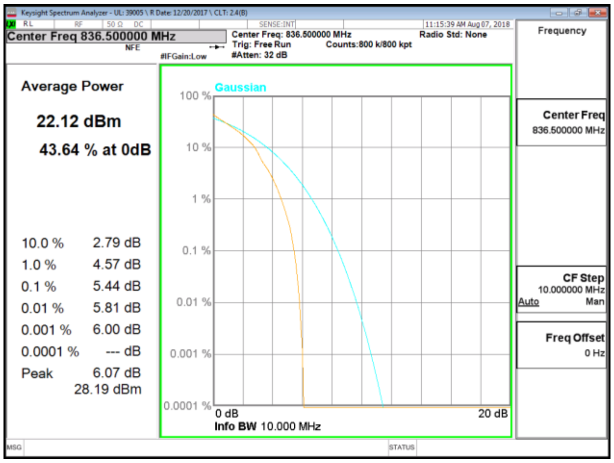

Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
Center Freq 836.500000 MHz
Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None
11:15:11 AM Aug 07, 2018

Average Power
21.00 dBm
40.93 % at 0dB

10.0 %	3.03 dB
1.0 %	5.57 dB
0.1 %	6.70 dB
0.01 %	7.09 dB
0.001 %	7.21 dB
0.0001 %	--- dB
Peak	7.26 dB 28.26 dBm

Info BW 10.000 MHz

LTE B5 1.4MHz 16QAM Mid Channel

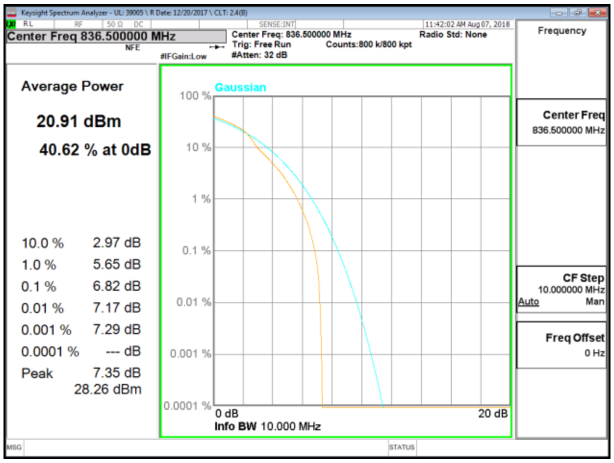

Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
Center Freq 836.500000 MHz
Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None
11:15:39 AM Aug 07, 2018

Average Power
22.12 dBm
43.64 % at 0dB

10.0 %	2.79 dB
1.0 %	4.57 dB
0.1 %	5.44 dB
0.01 %	5.81 dB
0.001 %	6.00 dB
0.0001 %	--- dB
Peak	6.07 dB 28.19 dBm

Info BW 10.000 MHz

LTE B5 3MHz QPSK Mid Channel

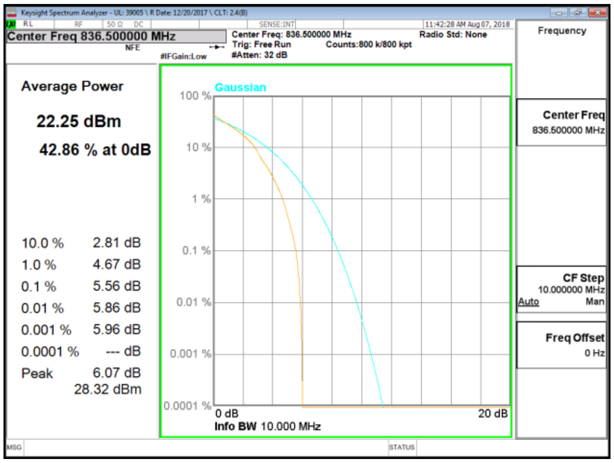

Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
Center Freq 836.500000 MHz
Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None
11:42:02 AM Aug 07, 2018

Average Power
20.91 dBm
40.62 % at 0dB

10.0 %	2.97 dB
1.0 %	5.65 dB
0.1 %	6.82 dB
0.01 %	7.17 dB
0.001 %	7.29 dB
0.0001 %	--- dB
Peak	7.35 dB 28.26 dBm

Info BW 10.000 MHz

LTE B5 3MHz 16QAM Mid Channel

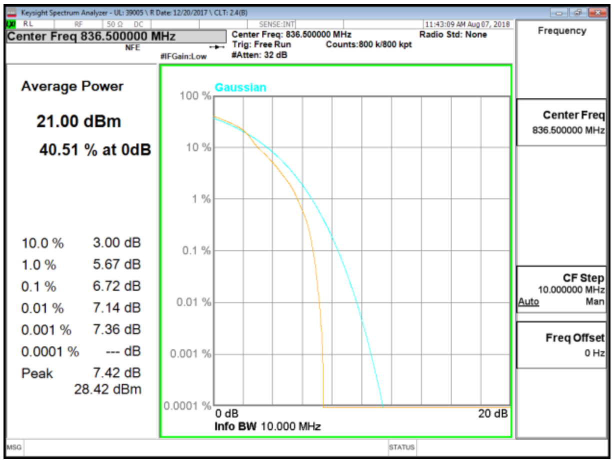

Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
Center Freq 836.500000 MHz
Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None
11:42:28 AM Aug 07, 2018

Average Power
22.25 dBm
42.86 % at 0dB

10.0 %	2.81 dB
1.0 %	4.67 dB
0.1 %	5.56 dB
0.01 %	5.86 dB
0.001 %	5.96 dB
0.0001 %	--- dB
Peak	6.07 dB 28.32 dBm

Info BW 10.000 MHz

LTE B5 5MHz QPSK Mid Channel

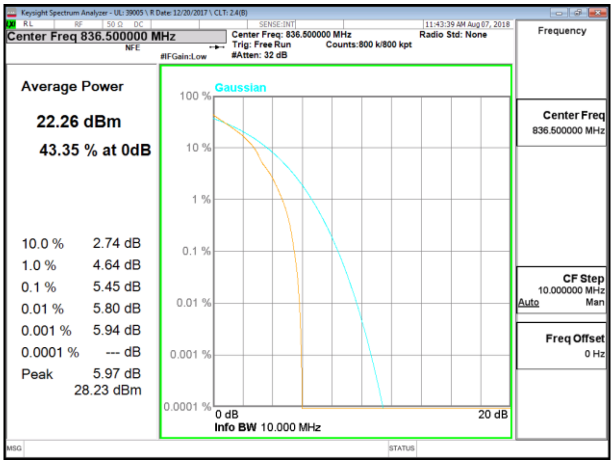

Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
Center Freq 836.500000 MHz
Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None
11:43:09 AM Aug 07, 2018

Average Power
21.00 dBm
40.51 % at 0dB

10.0 %	3.00 dB
1.0 %	5.67 dB
0.1 %	6.72 dB
0.01 %	7.14 dB
0.001 %	7.36 dB
0.0001 %	--- dB
Peak	7.42 dB 28.42 dBm

Info BW 10.000 MHz

LTE B5 5MHz 16QAM Mid Channel



11:43:39 AM Aug 07, 2018

Center Freq 836.500000 MHz

Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power

22.26 dBm

43.35 % at 0dB

10.0 %	2.74 dB
1.0 %	4.64 dB
0.1 %	5.45 dB
0.01 %	5.80 dB
0.001 %	5.94 dB
0.0001 %	--- dB
Peak	5.97 dB 28.23 dBm

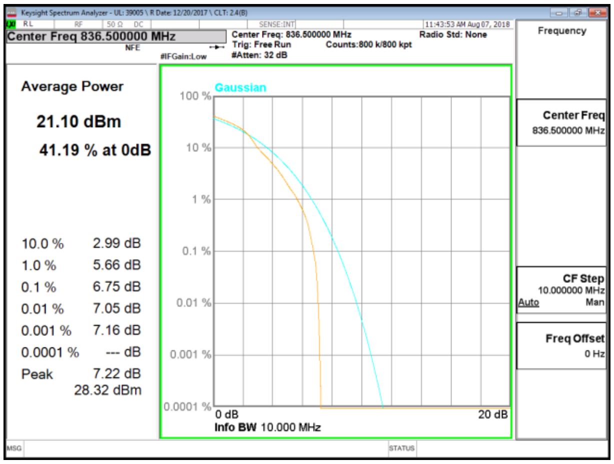
Info BW 10.000 MHz

Center Freq 836.500000 MHz

CF Step 10.000000 MHz

Freq Offset 0 Hz

LTE B5 10MHz QPSK Mid Channel



11:43:53 AM Aug 07, 2018

Center Freq 836.500000 MHz

Center Freq: 836.500000 MHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power

21.10 dBm

41.19 % at 0dB

10.0 %	2.99 dB
1.0 %	5.66 dB
0.1 %	6.75 dB
0.01 %	7.05 dB
0.001 %	7.16 dB
0.0001 %	--- dB
Peak	7.22 dB 28.32 dBm

Info BW 10.000 MHz

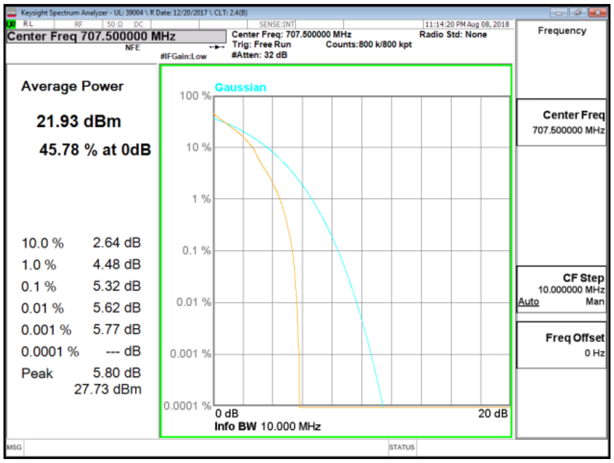
Center Freq 836.500000 MHz

CF Step 10.000000 MHz

Freq Offset 0 Hz

LTE B5 10MHz 16QAM Mid Channel

10.1.5. LTE BAND 12

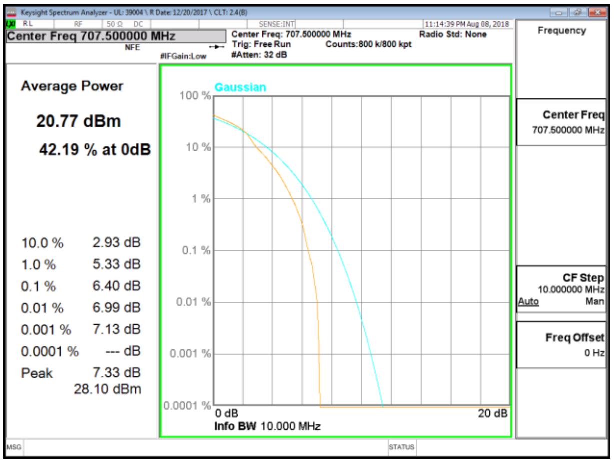

Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:14:20 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.93 dBm
45.78 % at 0dB

10.0 %	2.64 dB
1.0 %	4.48 dB
0.1 %	5.32 dB
0.01 %	5.62 dB
0.001 %	5.77 dB
0.0001 %	--- dB
Peak	5.80 dB 27.73 dBm

Info BW 10.000 MHz

LTE B12 1.4MHz QPSK Mid Channel

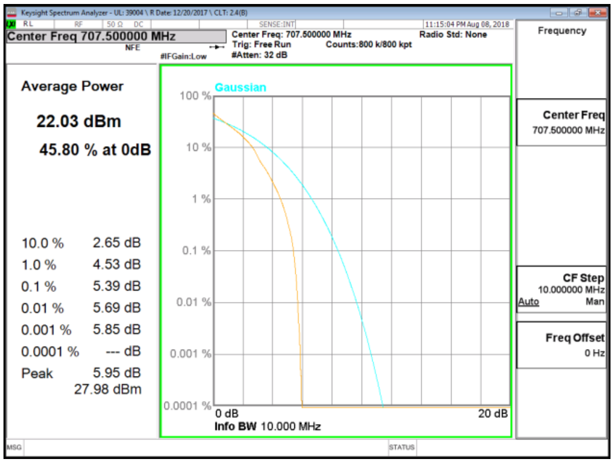

Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:14:39 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
20.77 dBm
42.19 % at 0dB

10.0 %	2.93 dB
1.0 %	5.33 dB
0.1 %	6.40 dB
0.01 %	6.99 dB
0.001 %	7.13 dB
0.0001 %	--- dB
Peak	7.33 dB 28.10 dBm

Info BW 10.000 MHz

LTE B12 1.4MHz 16QAM Mid Channel

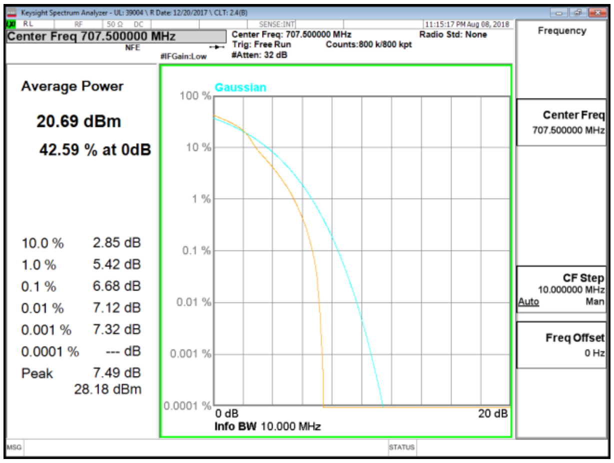

Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:15:04 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.03 dBm
45.80 % at 0dB

10.0 %	2.65 dB
1.0 %	4.53 dB
0.1 %	5.39 dB
0.01 %	5.69 dB
0.001 %	5.85 dB
0.0001 %	--- dB
Peak	5.95 dB 27.98 dBm

Info BW 10.000 MHz

LTE B12 3MHz QPSK Mid Channel

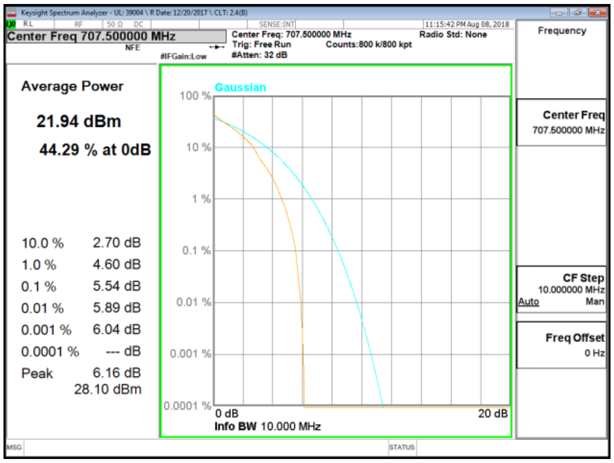

Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:15:17 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
20.69 dBm
42.59 % at 0dB

10.0 %	2.85 dB
1.0 %	5.42 dB
0.1 %	6.68 dB
0.01 %	7.12 dB
0.001 %	7.32 dB
0.0001 %	--- dB
Peak	7.49 dB 28.18 dBm

Info BW 10.000 MHz

LTE B12 3MHz 16QAM Mid Channel

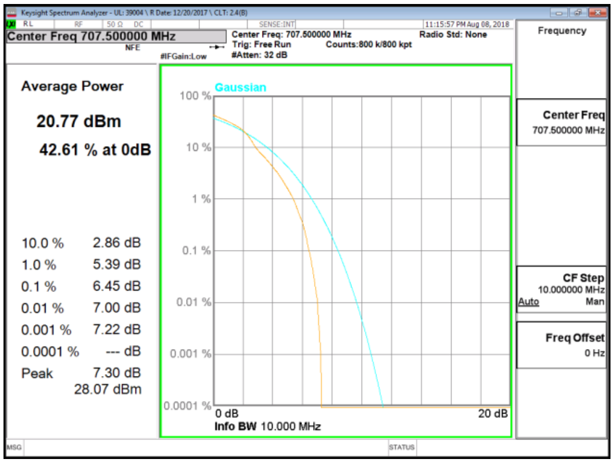

Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:15:42 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.94 dBm
44.29 % at 0dB

10.0 %	2.70 dB
1.0 %	4.60 dB
0.1 %	5.54 dB
0.01 %	5.89 dB
0.001 %	6.04 dB
0.0001 %	--- dB
Peak	6.16 dB 28.10 dBm

Info BW 10.000 MHz

LTE B12 5MHz QPSK Mid Channel

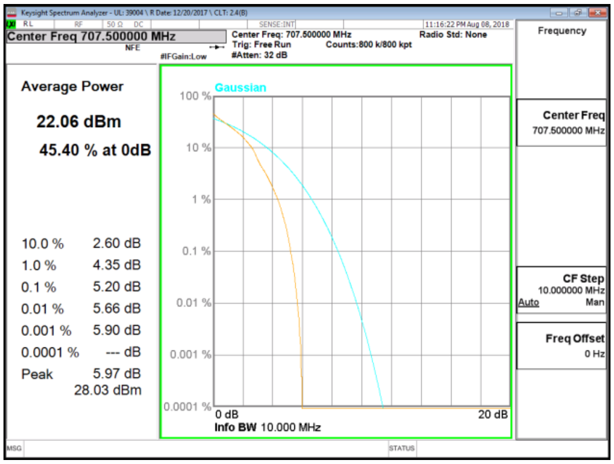

Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:15:57 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz Radio Std: None
Trig: Free Run Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
20.77 dBm
42.61 % at 0dB

10.0 %	2.86 dB
1.0 %	5.39 dB
0.1 %	6.45 dB
0.01 %	7.00 dB
0.001 %	7.22 dB
0.0001 %	--- dB
Peak	7.30 dB 28.07 dBm

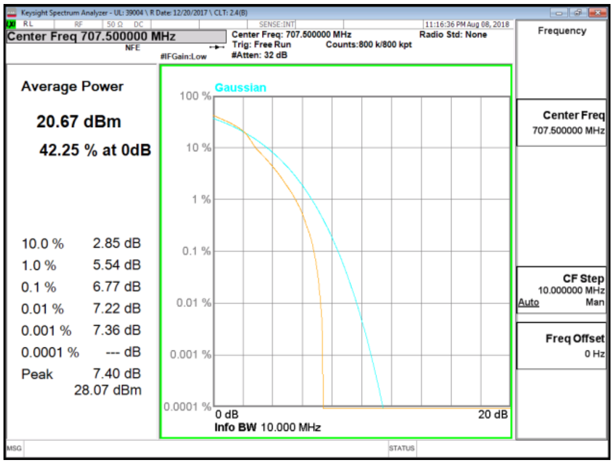
Info BW 10.000 MHz

LTE B12 5MHz 16QAM Mid Channel



```
11:16:22 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz          Radio Std: None
Trig: Free Run      Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.06 dBm
45.40 % at 0dB

10.0 %      2.60 dB
1.0 %       4.35 dB
0.1 %       5.20 dB
0.01 %      5.66 dB
0.001 %     5.90 dB
0.0001 %    --- dB
Peak        5.97 dB
           28.03 dBm

Info BW 10.000 MHz
Center Freq
707.500000 MHz
```

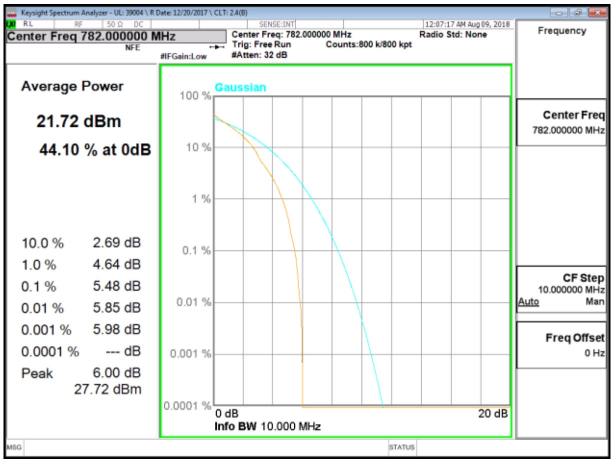
LTE B12 10MHz QPSK Mid Channel



```
11:16:36 PM Aug 08, 2018
Center Freq 707.500000 MHz
Center Freq: 707.500000 MHz          Radio Std: None
Trig: Free Run      Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
20.67 dBm
42.25 % at 0dB

10.0 %      2.85 dB
1.0 %       5.54 dB
0.1 %       6.77 dB
0.01 %      7.22 dB
0.001 %     7.36 dB
0.0001 %    --- dB
Peak        7.40 dB
           28.07 dBm

Info BW 10.000 MHz
Center Freq
707.500000 MHz
```

LTE B12 10MHz 16QAM Mid Channel

10.1.6. LTE BAND 13



Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)

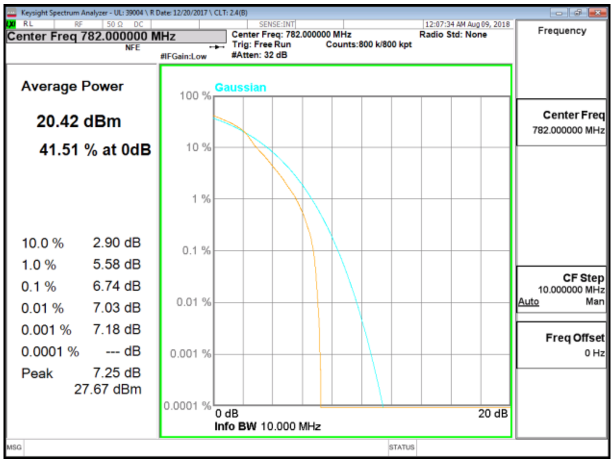
Center Freq 782.000000 MHz
Center Freq: 782.000000 MHz
Trig: Free Run
Counts:800 k/800 kpt
#Atten: 32 dB
Radio Std: None
12:07:17 AM Aug 09, 2018

Average Power
21.72 dBm
44.10 % at 0dB

10.0 %	2.69 dB
1.0 %	4.64 dB
0.1 %	5.48 dB
0.01 %	5.85 dB
0.001 %	5.98 dB
0.0001 %	--- dB
Peak	6.00 dB 27.72 dBm

Info BW 10.000 MHz

LTE B13 5MHz QPSK Mid Channel



Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)

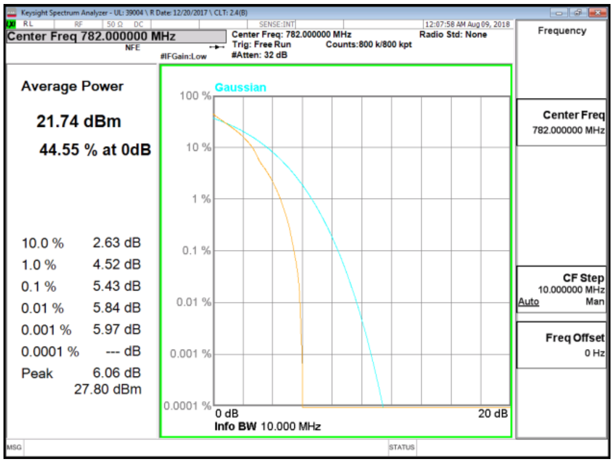
Center Freq 782.000000 MHz
Center Freq: 782.000000 MHz
Trig: Free Run
Counts:800 k/800 kpt
#Atten: 32 dB
Radio Std: None
12:07:34 AM Aug 09, 2018

Average Power
20.42 dBm
41.51 % at 0dB

10.0 %	2.90 dB
1.0 %	5.58 dB
0.1 %	6.74 dB
0.01 %	7.03 dB
0.001 %	7.18 dB
0.0001 %	--- dB
Peak	7.25 dB 27.67 dBm

Info BW 10.000 MHz

LTE B13 5MHz 16QAM Mid Channel



Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)

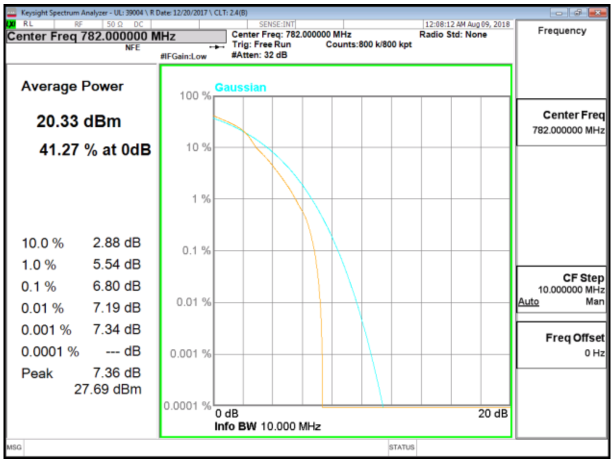
Center Freq 782.000000 MHz
Center Freq: 782.000000 MHz
Trig: Free Run
Counts:800 k/800 kpt
#Atten: 32 dB
Radio Std: None
12:07:58 AM Aug 09, 2018

Average Power
21.74 dBm
44.55 % at 0dB

10.0 %	2.63 dB
1.0 %	4.52 dB
0.1 %	5.43 dB
0.01 %	5.84 dB
0.001 %	5.97 dB
0.0001 %	--- dB
Peak	6.06 dB 27.80 dBm

Info BW 10.000 MHz

LTE B13 10MHz QPSK Mid Channel



Keysight Spectrum Analyzer - UL: 39004 \ R Date: 12/20/2017 \ CLT: 2.4(B)

Center Freq 782.000000 MHz
Center Freq: 782.000000 MHz
Trig: Free Run
Counts:800 k/800 kpt
#Atten: 32 dB
Radio Std: None
12:08:12 AM Aug 09, 2018

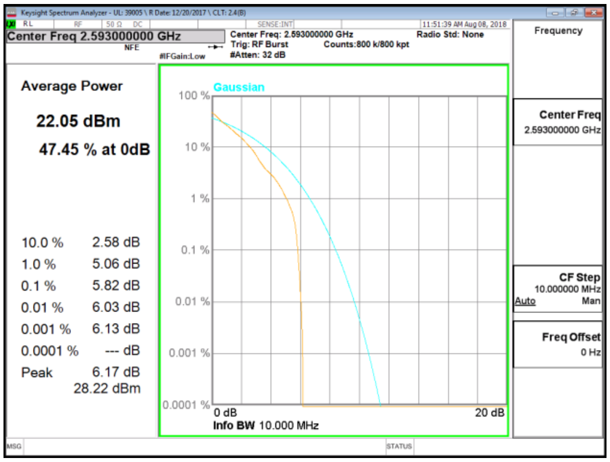
Average Power
20.33 dBm
41.27 % at 0dB

10.0 %	2.88 dB
1.0 %	5.54 dB
0.1 %	6.80 dB
0.01 %	7.19 dB
0.001 %	7.34 dB
0.0001 %	--- dB
Peak	7.36 dB 27.69 dBm

Info BW 10.000 MHz

LTE B13 10MHz 16QAM Mid Channel

10.1.7. LTE BAND 41



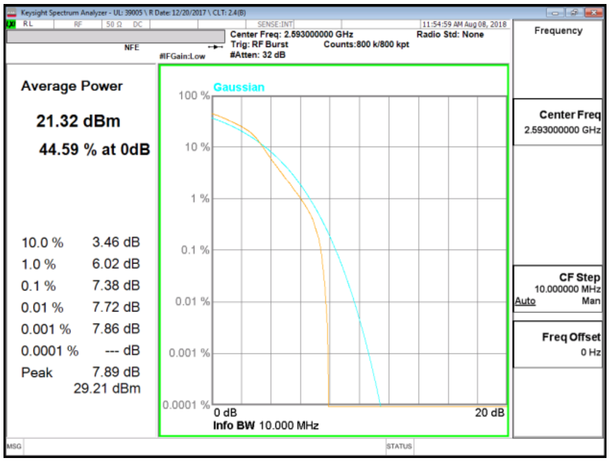
Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:51:39 AM Aug 08, 2018
Center Freq 2.593000000 GHz
Center Freq: 2.593000000 GHz Radio Std: None
Trig: RF Burst Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.05 dBm
47.45 % at 0dB

10.0 %	2.58 dB
1.0 %	5.06 dB
0.1 %	5.82 dB
0.01 %	6.03 dB
0.001 %	6.13 dB
0.0001 %	--- dB
Peak	6.17 dB 28.22 dBm

Info BW 10.000 MHz

LTE B41 5MHz QPSK Middle Channel



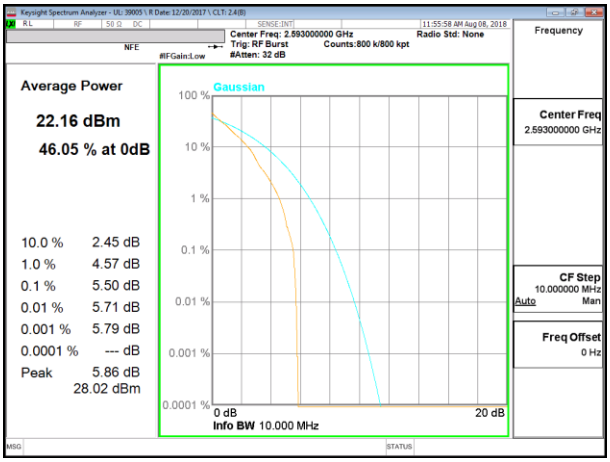
Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:54:59 AM Aug 08, 2018
Center Freq: 2.593000000 GHz Radio Std: None
Trig: RF Burst Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.32 dBm
44.59 % at 0dB

10.0 %	3.46 dB
1.0 %	6.02 dB
0.1 %	7.38 dB
0.01 %	7.72 dB
0.001 %	7.86 dB
0.0001 %	--- dB
Peak	7.89 dB 29.21 dBm

Info BW 10.000 MHz

LTE B41 5MHz 16QAM Middle Channel



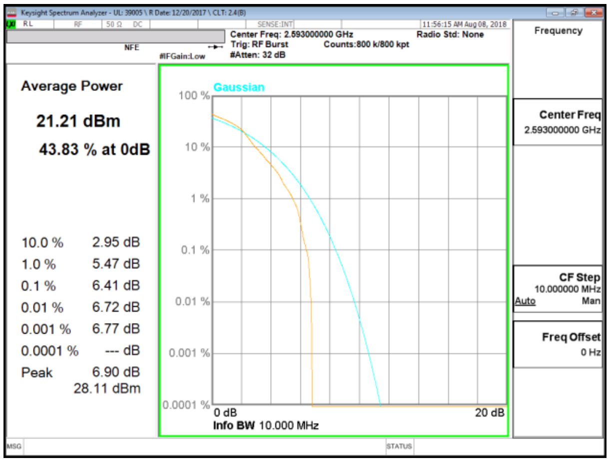
Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:55:58 AM Aug 08, 2018
Center Freq: 2.593000000 GHz Radio Std: None
Trig: RF Burst Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.16 dBm
46.05 % at 0dB

10.0 %	2.45 dB
1.0 %	4.57 dB
0.1 %	5.50 dB
0.01 %	5.71 dB
0.001 %	5.79 dB
0.0001 %	--- dB
Peak	5.86 dB 28.02 dBm

Info BW 10.000 MHz

LTE B41 10MHz QPSK Middle Channel



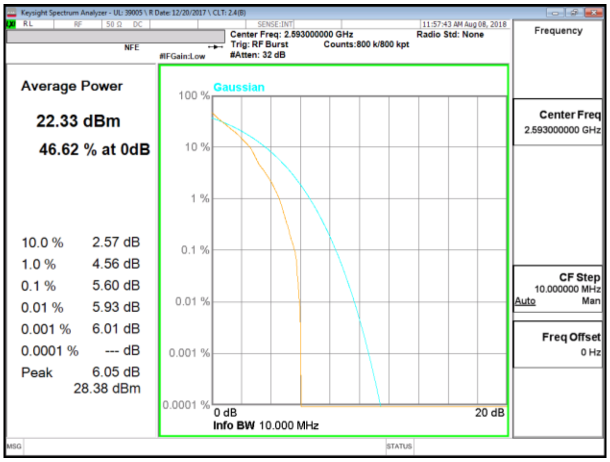
Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:56:15 AM Aug 08, 2018
Center Freq: 2.593000000 GHz Radio Std: None
Trig: RF Burst Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.21 dBm
43.83 % at 0dB

10.0 %	2.95 dB
1.0 %	5.47 dB
0.1 %	6.41 dB
0.01 %	6.72 dB
0.001 %	6.77 dB
0.0001 %	--- dB
Peak	6.90 dB 28.11 dBm

Info BW 10.000 MHz

LTE B41 10MHz 16QAM Middle Channel



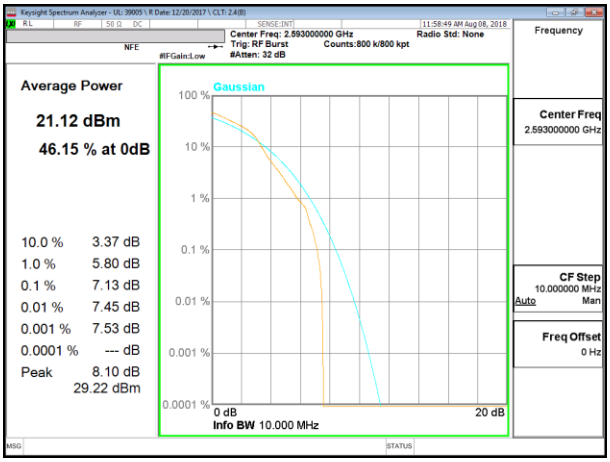
Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:57:43 AM Aug 08, 2018
Center Freq: 2.593000000 GHz Radio Std: None
Trig: RF Burst Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
22.33 dBm
46.62 % at 0dB

10.0 %	2.57 dB
1.0 %	4.56 dB
0.1 %	5.60 dB
0.01 %	5.93 dB
0.001 %	6.01 dB
0.0001 %	--- dB
Peak	6.05 dB 28.38 dBm

Info BW 10.000 MHz

LTE B41 15MHz QPSK Middle Channel



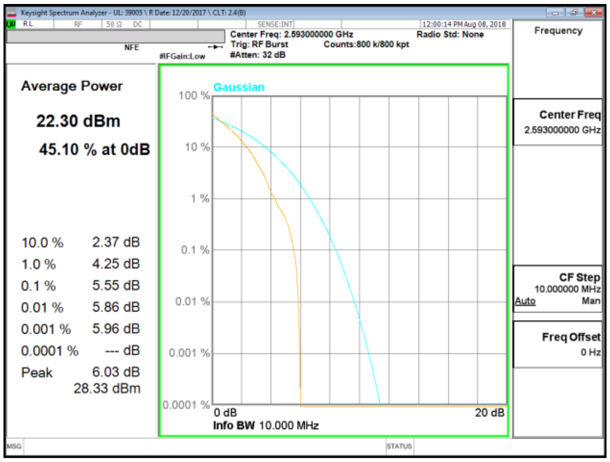
Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)
11:58:49 AM Aug 08, 2018
Center Freq: 2.593000000 GHz Radio Std: None
Trig: RF Burst Counts:800 k/800 kpt
#Atten: 32 dB

Average Power
21.12 dBm
46.15 % at 0dB

10.0 %	3.37 dB
1.0 %	5.80 dB
0.1 %	7.13 dB
0.01 %	7.45 dB
0.001 %	7.53 dB
0.0001 %	--- dB
Peak	8.10 dB 29.22 dBm

Info BW 10.000 MHz

LTE B41 15MHz 16QAM Middle Channel



12:00:14 PM Aug 08, 2018
Center Freq: 2.593000000 GHz
Trig: RF Burst
#IFGain:Low
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power

22.30 dBm

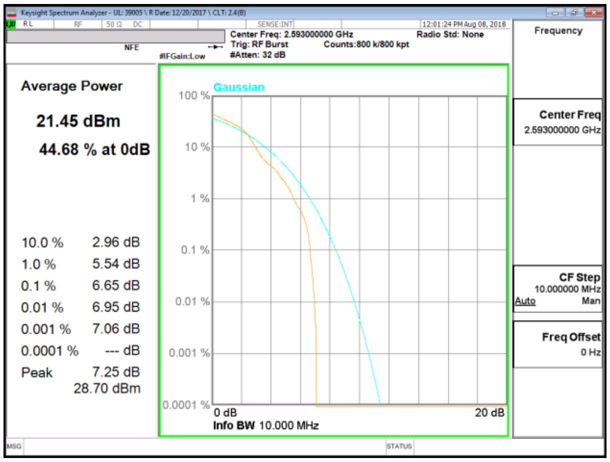
45.10 % at 0dB

10.0 %	2.37 dB
1.0 %	4.25 dB
0.1 %	5.55 dB
0.01 %	5.86 dB
0.001 %	5.96 dB
0.0001 %	--- dB
Peak	6.03 dB 28.33 dBm

Info BW 10.000 MHz

Center Freq 2.593000000 GHz
CF Step 10.000000 MHz Auto Man
Freq Offset 0 Hz

LTE B41 20MHz QPSK Middle Channel



12:01:24 PM Aug 08, 2018
Center Freq: 2.593000000 GHz
Trig: RF Burst
#IFGain:Low
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power

21.45 dBm

44.68 % at 0dB

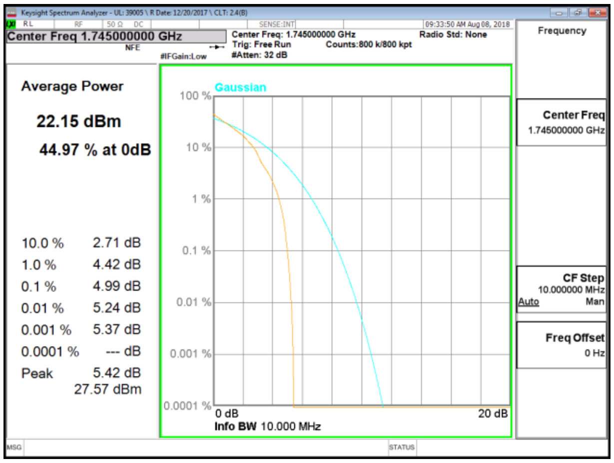
10.0 %	2.96 dB
1.0 %	5.54 dB
0.1 %	6.65 dB
0.01 %	6.95 dB
0.001 %	7.06 dB
0.0001 %	--- dB
Peak	7.25 dB 28.70 dBm

Info BW 10.000 MHz

Center Freq 2.593000000 GHz
CF Step 10.000000 MHz Auto Man
Freq Offset 0 Hz

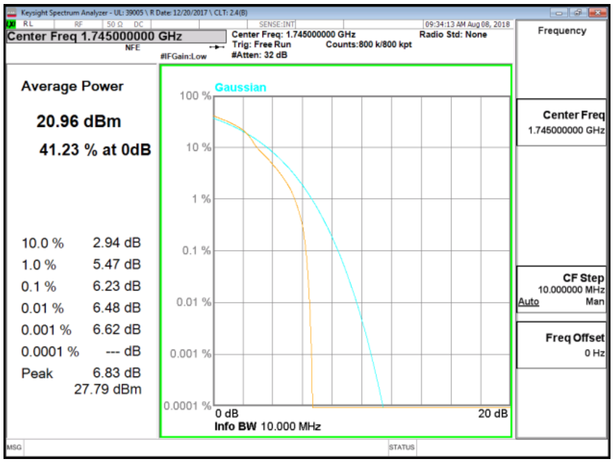
LTE B41 20MHz 16QAM Middle Channel

10.1.8. LTE BAND 66



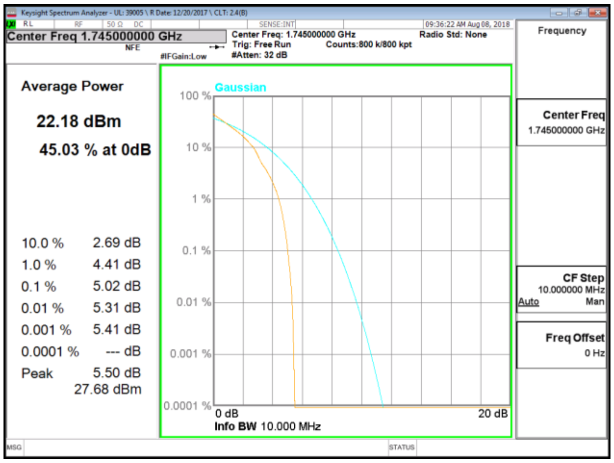
```
Center Freq 1.745000000 GHz    Center Freq: 1.745000000 GHz    Radio Std: None
                               Trig: Free Run   Counts: 800 k/800 kpt
                               #Atten: 32 dB
09:33:50 AM Aug 08, 2018

Average Power
22.15 dBm
44.97 % at 0dB

10.0 %     2.71 dB
1.0 %      4.42 dB
0.1 %      4.99 dB
0.01 %     5.24 dB
0.001 %    5.37 dB
0.0001 %   --- dB
Peak       5.42 dB
       27.57 dBm

Info BW 10.000 MHz
```

LTE B66 1.4MHz QPSK Mid Channel



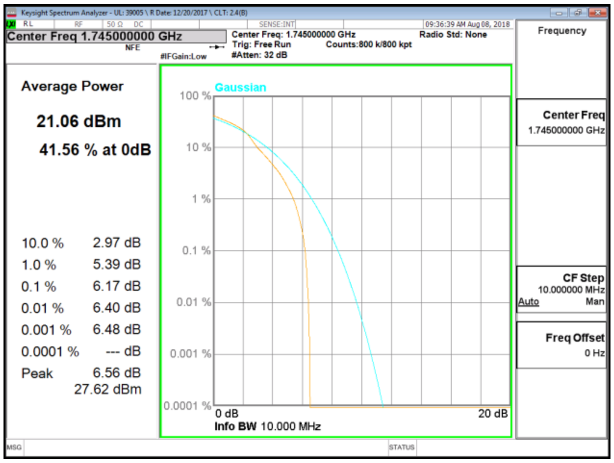
```
Center Freq 1.745000000 GHz    Center Freq: 1.745000000 GHz    Radio Std: None
                               Trig: Free Run   Counts: 800 k/800 kpt
                               #Atten: 32 dB
09:34:13 AM Aug 08, 2018

Average Power
20.96 dBm
41.23 % at 0dB

10.0 %     2.94 dB
1.0 %      5.47 dB
0.1 %      6.23 dB
0.01 %     6.48 dB
0.001 %    6.62 dB
0.0001 %   --- dB
Peak       6.83 dB
       27.79 dBm

Info BW 10.000 MHz
```

LTE B66 1.4MHz 16QAM Mid Channel



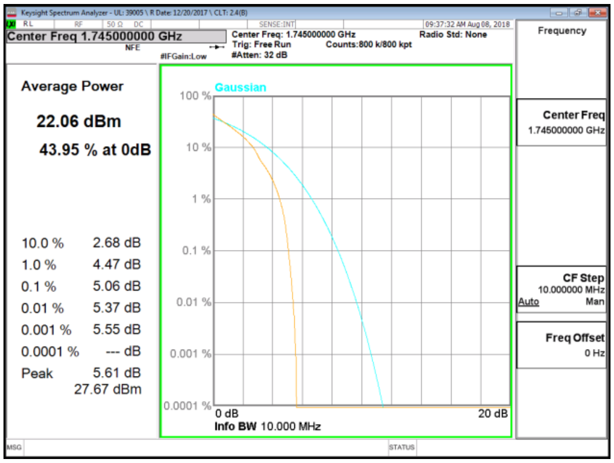
```
Center Freq 1.745000000 GHz    Center Freq: 1.745000000 GHz    Radio Std: None
                               Trig: Free Run   Counts: 800 k/800 kpt
                               #Atten: 32 dB
09:36:22 AM Aug 08, 2018

Average Power
22.18 dBm
45.03 % at 0dB

10.0 %     2.69 dB
1.0 %      4.41 dB
0.1 %      5.02 dB
0.01 %     5.31 dB
0.001 %    5.41 dB
0.0001 %   --- dB
Peak       5.50 dB
       27.68 dBm

Info BW 10.000 MHz
```

LTE B66 3MHz QPSK Mid Channel



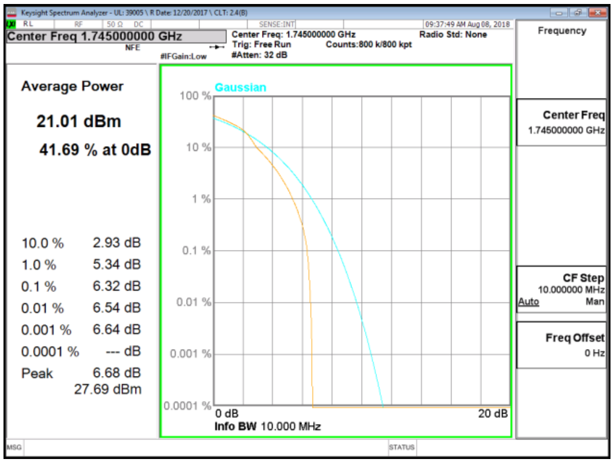
```
Center Freq 1.745000000 GHz    Center Freq: 1.745000000 GHz    Radio Std: None
                               Trig: Free Run   Counts: 800 k/800 kpt
                               #Atten: 32 dB
09:36:39 AM Aug 08, 2018

Average Power
21.06 dBm
41.56 % at 0dB

10.0 %     2.97 dB
1.0 %      5.39 dB
0.1 %      6.17 dB
0.01 %     6.40 dB
0.001 %    6.48 dB
0.0001 %   --- dB
Peak       6.56 dB
       27.62 dBm

Info BW 10.000 MHz
```

LTE B66 3MHz 16QAM Mid Channel



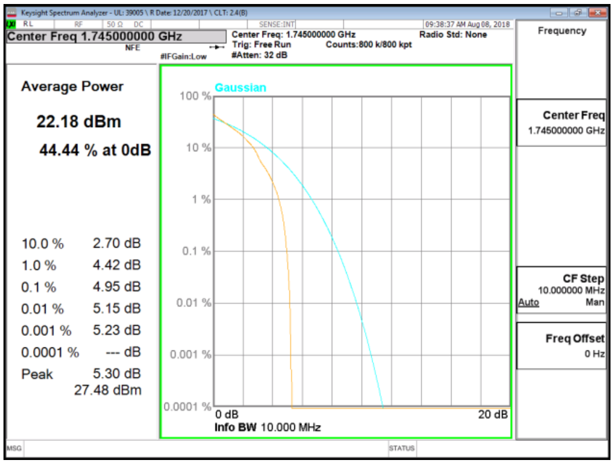
```
Center Freq 1.745000000 GHz    Center Freq: 1.745000000 GHz    Radio Std: None
                               Trig: Free Run   Counts: 800 k/800 kpt
                               #Atten: 32 dB
09:37:32 AM Aug 08, 2018

Average Power
22.06 dBm
43.95 % at 0dB

10.0 %     2.68 dB
1.0 %      4.47 dB
0.1 %      5.06 dB
0.01 %     5.37 dB
0.001 %    5.55 dB
0.0001 %   --- dB
Peak       5.61 dB
       27.67 dBm

Info BW 10.000 MHz
```

LTE B66 5MHz QPSK Mid Channel



```
Center Freq 1.745000000 GHz    Center Freq: 1.745000000 GHz    Radio Std: None
                               Trig: Free Run   Counts: 800 k/800 kpt
                               #Atten: 32 dB
09:37:49 AM Aug 08, 2018

Average Power
21.01 dBm
41.69 % at 0dB

10.0 %     2.93 dB
1.0 %      5.34 dB
0.1 %      6.32 dB
0.01 %     6.54 dB
0.001 %    6.64 dB
0.0001 %   --- dB
Peak       6.68 dB
       27.69 dBm

Info BW 10.000 MHz
```

LTE B66 5MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

09:38:37 AM Aug 08, 2018

Center Freq 1.745000000 GHz

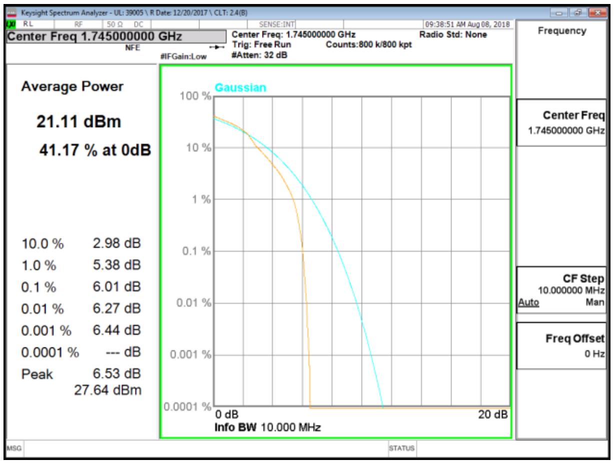
Center Freq: 1.745000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
22.18 dBm
44.44 % at 0dB

10.0 %	2.70 dB
1.0 %	4.42 dB
0.1 %	4.95 dB
0.01 %	5.15 dB
0.001 %	5.23 dB
0.0001 %	--- dB
Peak	5.30 dB 27.48 dBm

Info BW 10.000 MHz

LTE B66 10MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

09:38:51 AM Aug 08, 2018

Center Freq 1.745000000 GHz

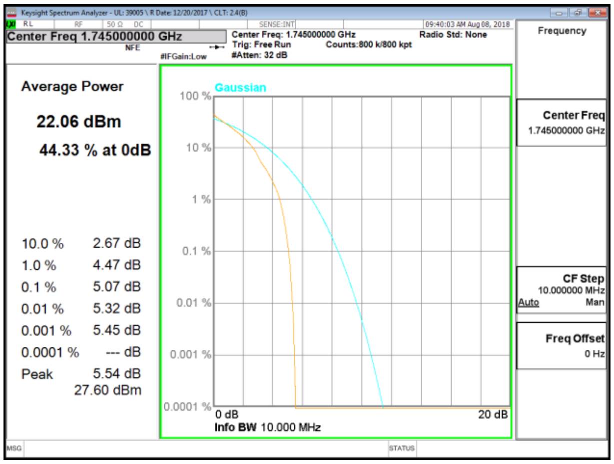
Center Freq: 1.745000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
21.11 dBm
41.17 % at 0dB

10.0 %	2.98 dB
1.0 %	5.38 dB
0.1 %	6.01 dB
0.01 %	6.27 dB
0.001 %	6.44 dB
0.0001 %	--- dB
Peak	6.53 dB 27.64 dBm

Info BW 10.000 MHz

LTE B66 10MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

09:40:03 AM Aug 08, 2018

Center Freq 1.745000000 GHz

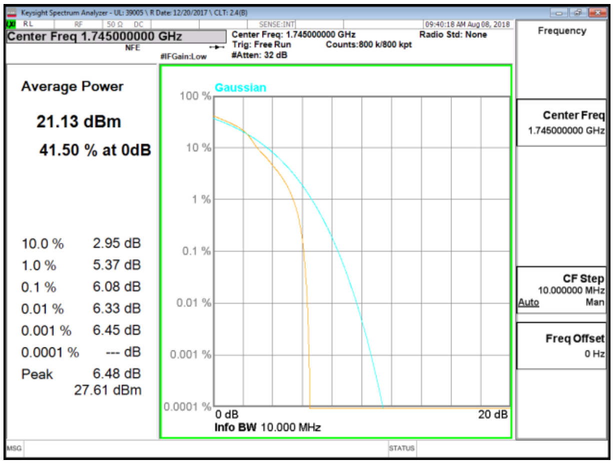
Center Freq: 1.745000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
22.06 dBm
44.33 % at 0dB

10.0 %	2.67 dB
1.0 %	4.47 dB
0.1 %	5.07 dB
0.01 %	5.32 dB
0.001 %	5.45 dB
0.0001 %	--- dB
Peak	5.54 dB 27.60 dBm

Info BW 10.000 MHz

LTE B66 15MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

09:40:18 AM Aug 08, 2018

Center Freq 1.745000000 GHz

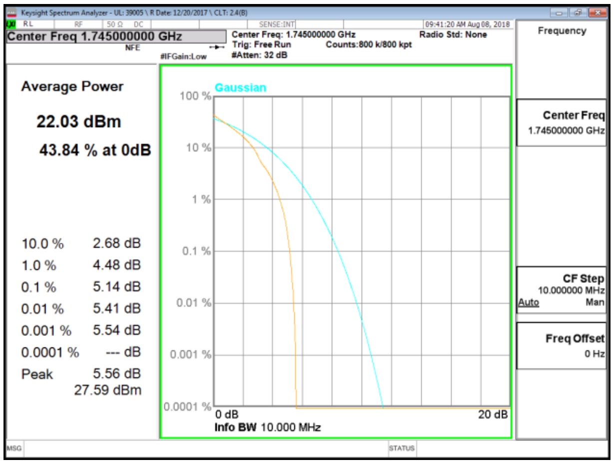
Center Freq: 1.745000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
21.13 dBm
41.50 % at 0dB

10.0 %	2.95 dB
1.0 %	5.37 dB
0.1 %	6.08 dB
0.01 %	6.33 dB
0.001 %	6.45 dB
0.0001 %	--- dB
Peak	6.48 dB 27.61 dBm

Info BW 10.000 MHz

LTE B66 15MHz 16QAM Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

09:41:20 AM Aug 08, 2018

Center Freq 1.745000000 GHz

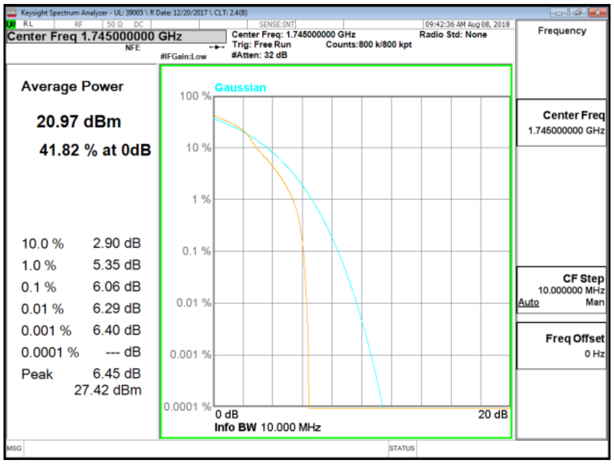
Center Freq: 1.745000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
22.03 dBm
43.84 % at 0dB

10.0 %	2.68 dB
1.0 %	4.48 dB
0.1 %	5.14 dB
0.01 %	5.41 dB
0.001 %	5.54 dB
0.0001 %	--- dB
Peak	5.56 dB 27.59 dBm

Info BW 10.000 MHz

LTE B66 20MHz QPSK Mid Channel


Keysight Spectrum Analyzer - UL: 39005 \ R Date: 12/20/2017 \ CLT: 2.4(B)

09:42:36 AM Aug 08, 2018

Center Freq 1.745000000 GHz

Center Freq: 1.745000000 GHz
Trig: Free Run
#Atten: 32 dB
Counts:800 k/800 kpt
Radio Std: None

Average Power
20.97 dBm
41.82 % at 0dB

10.0 %	2.90 dB
1.0 %	5.35 dB
0.1 %	6.06 dB
0.01 %	6.29 dB
0.001 %	6.40 dB
0.0001 %	--- dB
Peak	6.45 dB 27.42 dBm

Info BW 10.000 MHz

LTE B66 20MHz 16QAM Mid Channel

11. RADIATED TEST RESULTS

11.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53

LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (g), (h), §90.691
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.

FCC: §27.53 (Band 13)
(c) 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.
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

FCC: §27.53 (m) (Band 7, 41)
At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

FCC: §96.41 (Band 42)
(e) 3.5 GHz Emissions and Interference Limits—
(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

TEST PROCEDURE

KDB 971168 D01 v02r02/D02 v01
TIA-603-E, Section 2.2.12.

MODES TESTED

- GSM 850
- GSM 1900
- WCDM Band 5
- WCDM Band 2
- WCDM Band 4
- LTE Band 2
- LTE Band 5
- LTE Band 12
- LTE Band 13
- LTE Band 41
- LTE Band 66

NOTE: All bandwidths were tested but only highest bandwidth recorded on the report as worst case.

RESULTS

11.1.1. GSM

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	GPRS 850MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.648	-60.5	Pk	28.5	-35.5	10.1	-57.4	-13	-44.4	0-360	150	H
2.472	-65.95	Pk	32.2	-35.4	11	-58.15	-13	-45.15	0-360	150	H
3.291	-67.28	Pk	32.8	-33.6	10.8	-57.28	-13	-44.28	0-360	150	H
1.648	-65.97	Pk	28.5	-35.5	10.9	-62.07	-13	-49.07	0-360	150	V
2.476	-66.55	Pk	32.3	-35.3	10.9	-58.65	-13	-45.65	0-360	150	V
3.292	-67.57	Pk	32.8	-33.6	10.9	-57.47	-13	-44.47	0-360	150	V
Mid Channel											
* 1.673	-62.66	Pk	28.6	-35.5	9.9	-59.66	-13	-46.66	0-360	150	H
2.507	-64.99	Pk	32.3	-35.3	10	-57.99	-13	-44.99	0-360	150	H
* 3.338	-67.83	Pk	32.8	-33.4	10.7	-57.73	-13	-44.73	0-360	150	H
* 1.672	-65.54	Pk	28.6	-35.5	11.3	-61.14	-13	-48.14	0-360	150	V
2.51	-64.64	Pk	32.3	-35.3	11.5	-56.14	-13	-43.14	0-360	150	V
* 3.35	-67.96	Pk	32.8	-33.5	10.7	-57.96	-13	-44.96	0-360	150	V
High Channel											
* 1.697	-61.61	Pk	28.7	-35.5	11.5	-56.91	-13	-43.91	0-360	150	H
2.548	-65.31	Pk	32.3	-35.3	10.1	-58.21	-13	-45.21	0-360	150	H
3.391	-67.64	Pk	32.6	-33.3	11.1	-57.24	-13	-44.24	0-360	150	H
* 1.7	-65.67	Pk	28.7	-35.5	11.7	-60.77	-13	-47.77	0-360	150	V
2.55	-66.46	Pk	32.3	-35.3	11	-58.46	-13	-45.46	0-360	150	V
3.391	-67.57	Pk	32.6	-33.3	11.1	-57.17	-13	-44.17	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	EGPRS 850MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.648	-62.82	Pk	28.5	-35.5	10.1	-59.72	-13	-46.72	0-360	150	H
2.473	-63.62	Pk	32.2	-35.3	10.9	-55.82	-13	-42.82	0-360	150	H
3.304	-68.28	Pk	32.8	-33.5	10.7	-58.28	-13	-45.28	0-360	150	H
1.645	-65.12	Pk	28.5	-35.5	10.9	-61.22	-13	-48.22	0-360	150	V
2.472	-66.55	Pk	32.2	-35.4	11.1	-58.65	-13	-45.65	0-360	150	V
3.301	-67.46	Pk	32.8	-33.4	11.1	-56.96	-13	-43.96	0-360	150	V
Mid Channel											
1.673	-63.29	Pk	28.6	-35.5	9.9	-60.29	-13	-47.29	0-360	150	H
2.503	-65.58	Pk	32.3	-35.2	10	-58.48	-13	-45.48	0-360	150	H
3.354	-67.43	Pk	32.8	-33.5	10.6	-57.53	-13	-44.53	0-360	150	H
1.678	-65.29	Pk	28.6	-35.5	11.2	-60.99	-13	-47.99	0-360	150	V
2.51	-65.84	Pk	32.3	-35.3	11.5	-57.34	-13	-44.34	0-360	150	V
3.343	-68.05	Pk	32.8	-33.4	10.8	-57.85	-13	-44.85	0-360	150	V
High Channel											
1.698	-62.65	Pk	28.7	-35.5	11.5	-57.95	-13	-44.95	0-360	150	H
2.544	-65.75	Pk	32.3	-35.3	10	-58.75	-13	-45.75	0-360	150	H
3.389	-66.47	Pk	32.6	-33.4	11	-56.27	-13	-43.27	0-360	150	H
1.692	-65.1	Pk	28.7	-35.5	11.9	-60	-13	-47	0-360	150	V
2.55	-66.14	Pk	32.3	-35.3	11	-58.14	-13	-45.14	0-360	150	V
3.406	-67.34	Pk	32.6	-33.4	11.1	-57.04	-13	-44.04	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	GPRS1900MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.699	-66.94	Pk	33.2	-32.5	10.8	-55.44	-13	-42.44	0-360	150	H
5.549	-70.07	Pk	34.6	-29.9	10.7	-54.67	-13	-41.67	0-360	150	H
7.383	-72.87	Pk	35.5	-27	10.4	-53.97	-13	-40.97	0-360	150	H
3.701	-67.96	Pk	33.2	-32.5	11.1	-56.16	-13	-43.16	0-360	150	V
5.551	-69.92	Pk	34.6	-29.9	10.9	-54.32	-13	-41.32	0-360	150	V
7.392	-73.15	Pk	35.5	-27	10.9	-53.75	-13	-40.75	0-360	150	V
Mid Channel											
3.76	-67.46	Pk	33.3	-32.5	10.4	-56.26	-13	-43.26	0-360	150	H
5.636	-71.04	Pk	34.6	-29.5	10.5	-55.44	-13	-42.44	0-360	150	H
7.515	-73.25	Pk	35.6	-26.8	10.5	-53.95	-13	-40.95	0-360	150	H
3.764	-67.12	Pk	33.4	-32.5	10.5	-55.72	-13	-42.72	0-360	150	V
5.65	-69.96	Pk	34.6	-29.4	10.6	-54.16	-13	-41.16	0-360	150	V
7.518	-73.76	Pk	35.6	-26.8	10.7	-54.26	-13	-41.26	0-360	150	V
High Channel											
3.828	-68.41	Pk	33.4	-32	10.4	-56.61	-13	-43.61	0-360	150	H
5.72	-70.52	Pk	34.9	-29.4	10.1	-54.92	-13	-41.92	0-360	150	H
7.623	-73.19	Pk	35.6	-26.5	10.4	-53.69	-13	-40.69	0-360	150	H
3.822	-68.45	Pk	33.4	-32.2	10.4	-56.85	-13	-43.85	0-360	150	V
5.73	-71.5	Pk	34.9	-29.4	10.6	-55.4	-13	-42.4	0-360	150	V
7.636	-74.03	Pk	35.6	-26.6	10.6	-54.43	-13	-41.43	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	EGPRS1900MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.697	-67.92	Pk	33.2	-32.5	10.9	-56.32	-13	-43.32	0-360	150	H
5.549	-70.57	Pk	34.6	-29.9	10.7	-55.17	-13	-42.17	0-360	150	H
7.393	-72.34	Pk	35.5	-27	10.7	-53.14	-13	-40.14	0-360	150	H
3.696	-68.51	Pk	33.2	-32.5	11.2	-56.61	-13	-43.61	0-360	150	V
5.551	-71.06	Pk	34.6	-29.9	10.9	-55.46	-13	-42.46	0-360	150	V
7.394	-73.34	Pk	35.6	-27	10.9	-53.84	-13	-40.84	0-360	150	V
Mid Channel											
3.778	-68.35	Pk	33.4	-32.5	10.8	-56.65	-13	-43.65	0-360	150	H
5.653	-69.94	Pk	34.6	-29.4	10.2	-54.54	-13	-41.54	0-360	150	H
7.52	-72.76	Pk	35.6	-26.8	10.5	-53.46	-13	-40.46	0-360	150	H
3.766	-68.59	Pk	33.4	-32.5	10.4	-57.29	-13	-44.29	0-360	150	V
5.662	-69.6	Pk	34.7	-29.4	10.7	-53.6	-13	-40.6	0-360	150	V
7.538	-73.88	Pk	35.6	-26.8	10.5	-54.58	-13	-41.58	0-360	150	V
High Channel											
3.821	-67.74	Pk	33.4	-32.2	10.1	-56.44	-13	-43.44	0-360	150	H
5.716	-70.72	Pk	34.9	-29.3	10	-55.12	-13	-42.12	0-360	150	H
7.63	-73.63	Pk	35.6	-26.6	10.5	-54.13	-13	-41.13	0-360	150	H
3.826	-68.92	Pk	33.4	-32.1	10.5	-57.12	-13	-44.12	0-360	150	V
5.727	-70.54	Pk	34.9	-29.4	10.6	-54.44	-13	-41.44	0-360	150	V
7.646	-73.5	Pk	35.6	-26.6	10.4	-54.1	-13	-41.1	0-360	150	V

11.1.2. WCDMA

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	REL99 B5
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.654	-61.57	Pk	28.5	-35.5	10.2	-58.37	-13	-45.37	0-360	150	H
2.482	-63.94	Pk	32.3	-35.3	10.4	-56.54	-13	-43.54	0-360	150	H
3.299	-65.97	Pk	32.8	-33.4	10.6	-55.97	-13	-42.97	0-360	150	H
1.655	-65.84	Pk	28.5	-35.5	11.1	-61.74	-13	-48.74	0-360	150	V
2.476	-66.15	Pk	32.3	-35.3	10.9	-58.25	-13	-45.25	0-360	150	V
3.307	-67.98	Pk	32.8	-33.5	11.3	-57.38	-13	-44.38	0-360	150	V
Mid Channel											
1.67	-62.82	Pk	28.6	-35.5	10	-59.72	-13	-46.72	0-360	150	H
2.518	-65.76	Pk	32.3	-35.4	10.5	-58.36	-13	-45.36	0-360	150	H
3.343	-67.77	Pk	32.8	-33.4	10.6	-57.77	-13	-44.77	0-360	150	H
1.675	-65.67	Pk	28.6	-35.5	11.3	-61.27	-13	-48.27	0-360	150	V
2.507	-66.14	Pk	32.3	-35.3	11.3	-57.84	-13	-44.84	0-360	150	V
3.348	-67.17	Pk	32.8	-33.5	10.7	-57.17	-13	-44.17	0-360	150	V
High Channel											
1.691	-59.87	Pk	28.7	-35.4	11	-55.57	-13	-42.57	0-360	150	H
2.531	-65.85	Pk	32.3	-35.3	9.9	-58.95	-13	-45.95	0-360	150	H
3.389	-66.82	Pk	32.6	-33.4	11	-56.62	-13	-43.62	0-360	150	H
1.692	-65	Pk	28.7	-35.5	12	-59.8	-13	-46.8	0-360	150	V
2.54	-66.76	Pk	32.3	-35.3	10.5	-59.26	-13	-46.26	0-360	150	V
3.387	-67.41	Pk	32.6	-33.4	11.1	-57.11	-13	-44.11	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	HSDPA B5
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.654	-61.93	Pk	28.5	-35.5	10.2	-58.73	-13	-45.73	0-360	150	H
2.476	-63.47	Pk	32.3	-35.3	10.8	-55.67	-13	-42.67	0-360	150	H
3.314	-67.06	Pk	32.8	-33.4	10.9	-56.76	-13	-43.76	0-360	150	H
1.651	-65.17	Pk	28.5	-35.5	11	-61.17	-13	-48.17	0-360	150	V
2.476	-66.37	Pk	32.3	-35.3	10.9	-58.47	-13	-45.47	0-360	150	V
3.311	-68.44	Pk	32.8	-33.4	11.2	-57.84	-13	-44.84	0-360	150	V
Mid Channel											
1.67	-63.67	Pk	28.6	-35.5	10	-60.57	-13	-47.57	0-360	150	H
2.511	-64.67	Pk	32.3	-35.3	10.2	-57.47	-13	-44.47	0-360	150	H
3.341	-67.59	Pk	32.8	-33.3	10.6	-57.49	-13	-44.49	0-360	150	H
1.675	-65.89	Pk	28.6	-35.5	11.3	-61.49	-13	-48.49	0-360	150	V
2.509	-66.59	Pk	32.3	-35.3	11.5	-58.09	-13	-45.09	0-360	150	V
3.348	-67.77	Pk	32.8	-33.5	10.7	-57.77	-13	-44.77	0-360	150	V
High Channel											
1.694	-63.07	Pk	28.7	-35.5	11.4	-58.47	-13	-45.47	0-360	150	H
2.532	-64.47	Pk	32.3	-35.3	9.9	-57.57	-13	-44.57	0-360	150	H
3.378	-68.24	Pk	32.7	-33.4	10.9	-58.04	-13	-45.04	0-360	150	H
1.695	-65.96	Pk	28.7	-35.5	11.9	-60.86	-13	-47.86	0-360	150	V
2.543	-66	Pk	32.3	-35.3	10.6	-58.4	-13	-45.4	0-360	150	V
3.386	-68.54	Pk	32.7	-33.4	11.1	-58.14	-13	-45.14	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	REL99 B2
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.683	-67.68	Pk	33.1	-32.6	11.1	-56.08	-13	-43.08	0-360	150	H
5.524	-69.59	Pk	34.6	-29.9	10.6	-54.29	-13	-41.29	0-360	150	H
7.376	-72.64	Pk	35.5	-26.9	10.4	-53.64	-13	-40.64	0-360	150	H
3.706	-67.09	Pk	33.2	-32.6	11	-55.49	-13	-42.49	0-360	150	V
5.547	-69.79	Pk	34.6	-29.9	11	-54.09	-13	-41.09	0-360	150	V
7.408	-72.97	Pk	35.6	-26.9	10.7	-53.57	-13	-40.57	0-360	150	V
Mid Channel											
3.758	-66.31	Pk	33.3	-32.5	10.4	-55.11	-13	-42.11	0-360	150	H
5.667	-69.08	Pk	34.7	-29.4	10.6	-53.18	-13	-40.18	0-360	150	H
7.559	-72.85	Pk	35.6	-26.7	10.5	-53.45	-13	-40.45	0-360	150	H
3.766	-67.26	Pk	33.4	-32.5	10.4	-55.96	-13	-42.96	0-360	150	V
5.646	-69.27	Pk	34.6	-29.4	10.5	-53.57	-13	-40.57	0-360	150	V
7.531	-72.21	Pk	35.6	-26.8	10.6	-52.81	-13	-39.81	0-360	150	V
High Channel											
3.831	-68.94	Pk	33.4	-32.1	10.5	-57.14	-13	-44.14	0-360	150	H
5.734	-70.94	Pk	34.9	-29.3	10.4	-54.94	-13	-41.94	0-360	150	H
7.645	-73.24	Pk	35.6	-26.6	10.2	-54.04	-13	-41.04	0-360	150	H
3.823	-68.82	Pk	33.4	-32.2	10.4	-57.22	-13	-44.22	0-360	150	V
5.705	-70.92	Pk	34.9	-29.2	10.2	-55.02	-13	-42.02	0-360	150	V
7.612	-73.78	Pk	35.6	-26.6	10.6	-54.18	-13	-41.18	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	HSDPA B2
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.707	-66.06	Pk	33.2	-32.6	10.5	-54.96	-13	-41.96	0-360	150	H
5.554	-71	Pk	34.6	-29.9	10.8	-55.5	-13	-42.5	0-360	150	H
7.401	-73.52	Pk	35.6	-26.9	10.4	-54.42	-13	-41.42	0-360	150	H
3.705	-67.8	Pk	33.2	-32.6	11	-56.2	-13	-43.2	0-360	150	V
5.557	-70.87	Pk	34.6	-29.9	10.9	-55.27	-13	-42.27	0-360	150	V
7.416	-74.16	Pk	35.6	-26.9	10.6	-54.86	-13	-41.86	0-360	150	V
Mid Channel											
3.758	-64.82	Pk	33.3	-32.5	10.4	-53.62	-13	-40.62	0-360	150	H
5.644	-70.25	Pk	34.6	-29.4	10.1	-54.95	-13	-41.95	0-360	150	H
7.518	-72.73	Pk	35.6	-26.8	10.5	-53.43	-13	-40.43	0-360	150	H
3.763	-67.21	Pk	33.3	-32.5	10.5	-55.91	-13	-42.91	0-360	150	V
5.636	-70.74	Pk	34.6	-29.5	10.7	-54.94	-13	-41.94	0-360	150	V
7.513	-73.73	Pk	35.6	-26.8	10.8	-54.13	-13	-41.13	0-360	150	V
High Channel											
3.816	-66.23	Pk	33.4	-32.2	10.1	-54.93	-13	-41.93	0-360	150	H
5.724	-70.73	Pk	34.9	-29.3	10.4	-54.73	-13	-41.73	0-360	150	H
7.606	-73.49	Pk	35.5	-26.6	10.3	-54.29	-13	-41.29	0-360	150	H
3.819	-68.77	Pk	33.4	-32.2	10.3	-57.27	-13	-44.27	0-360	150	V
5.729	-70.4	Pk	34.9	-29.4	10.6	-54.3	-13	-41.3	0-360	150	V
7.636	-73.03	Pk	35.6	-26.6	10.6	-53.43	-13	-40.43	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	REL99 B4
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.423	-61.14	Pk	32.6	-33.4	11	-50.94	-13	-37.94	0-360	150	H
5.141	-33.58	Pk	34.4	-30.6	10.2	-19.58	-13	-6.58	0-360	150	H
6.831	-71.01	Pk	35.5	-27.5	10.5	-52.51	-13	-39.51	0-360	150	H
3.422	-63.83	Pk	32.6	-33.4	11.2	-53.43	-13	-40.43	0-360	150	V
5.14	-34.05	Pk	34.4	-30.6	10.4	-19.85	-13	-6.85	0-360	150	V
6.862	-71.42	Pk	35.5	-27.3	10.5	-52.72	-13	-39.72	0-360	150	V
Mid Channel											
3.462	-64	Pk	32.6	-33.3	11	-53.7	-13	-40.7	0-360	150	H
5.194	-35.02	Pk	34.4	-30.4	10.2	-20.82	-13	-7.82	0-360	150	H
6.913	-70.44	Pk	35.5	-27.3	10.1	-52.14	-13	-39.14	0-360	150	H
3.467	-66.01	Pk	32.6	-33.3	10.9	-55.81	-13	-42.81	0-360	150	V
5.195	-36.9	Pk	34.4	-30.4	10.3	-22.6	-13	-9.6	0-360	150	V
6.917	-71.84	Pk	35.5	-27.3	10.4	-53.24	-13	-40.24	0-360	150	V
High Channel											
3.503	-62.17	Pk	32.7	-33.2	11.2	-51.47	-13	-38.47	0-360	150	H
5.254	-36.52	Pk	34.4	-30.2	10.6	-21.72	-13	-8.72	0-360	150	H
6.987	-71.7	Pk	35.5	-27.3	10.1	-53.4	-13	-40.4	0-360	150	H
3.506	-64.35	Pk	32.7	-33.2	10.7	-54.15	-13	-41.15	0-360	150	V
5.254	-36.85	Pk	34.4	-30.2	10.7	-21.95	-13	-8.95	0-360	150	V
7	-72.09	Pk	35.5	-27.4	10.7	-53.29	-13	-40.29	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	HSDPA B4
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.423	-60.67	Pk	32.6	-33.4	11	-50.47	-13	-37.47	0-360	150	H
5.14	-32.86	Pk	34.4	-30.6	10.2	-18.86	-13	-5.86	0-360	150	H
6.823	-70.62	Pk	35.5	-27.5	10.4	-52.22	-13	-39.22	0-360	150	H
3.423	-64.06	Pk	32.6	-33.4	11.2	-53.66	-13	-40.66	0-360	150	V
5.134	-33.59	Pk	34.4	-30.5	10.5	-19.19	-13	-6.19	0-360	150	V
6.862	-72.22	Pk	35.5	-27.3	10.5	-53.52	-13	-40.52	0-360	150	V
Mid Channel											
3.463	-62.38	Pk	32.6	-33.3	11	-52.08	-13	-39.08	0-360	150	H
5.194	-34.87	Pk	34.4	-30.4	10.2	-20.67	-13	-7.67	0-360	150	H
6.929	-71.8	Pk	35.5	-27.4	10.4	-53.3	-13	-40.3	0-360	150	H
3.47	-66.98	Pk	32.6	-33.2	10.9	-56.68	-13	-43.68	0-360	150	V
5.201	-36.48	Pk	34.4	-30.4	10.5	-21.98	-13	-8.98	0-360	150	V
6.926	-71.72	Pk	35.5	-27.3	10.5	-53.02	-13	-40.02	0-360	150	V
High Channel											
3.503	-63.1	Pk	32.7	-33.2	11.2	-52.4	-13	-39.4	0-360	150	H
5.26	-36.89	Pk	34.4	-30.1	10.5	-22.09	-13	-9.09	0-360	150	H
7.005	-71.6	Pk	35.5	-27.4	10.1	-53.4	-13	-40.4	0-360	150	H
3.508	-66.34	Pk	32.7	-33.2	10.7	-56.14	-13	-43.14	0-360	150	V
5.26	-36.66	Pk	34.4	-30.1	10.7	-21.66	-13	-8.66	0-360	150	V
6.994	-72.11	Pk	35.5	-27.4	10.6	-53.41	-13	-40.41	0-360	150	V

11.1.3. LTE BAND 2

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/10/18
Test Engineer:	39004
Configuration:	EUT+ Support Equipment
Mode:	LTE 2 QPSK 20MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.721	-69.22	Pk	33.2	-32.6	10.5	-58.12	-13	-45.12	0-360	151	H
5.57	-71.03	Pk	34.6	-29.9	10.5	-55.83	-13	-42.83	0-360	151	H
7.429	-73.35	Pk	35.5	-26.8	10.5	-54.15	-13	-41.15	0-360	151	H
3.711	-68.5	Pk	33.2	-32.5	10.9	-56.9	-13	-43.9	0-360	151	V
5.562	-71.13	Pk	34.6	-30	11	-55.53	-13	-42.53	0-360	151	V
7.401	-73.83	Pk	35.6	-26.9	10.6	-54.53	-13	-41.53	0-360	151	V
Mid Channel											
3.735	-69.2	Pk	33.3	-32.6	10.3	-58.2	-13	-45.2	0-360	151	H
5.664	-70.7	Pk	34.7	-29.4	10.6	-54.8	-13	-41.8	0-360	151	H
7.524	-74.4	Pk	35.6	-26.8	10.4	-55.2	-13	-42.2	0-360	151	H
3.746	-69.15	Pk	33.3	-32.5	10.7	-57.65	-13	-44.65	0-360	151	V
5.658	-71.14	Pk	34.7	-29.4	10.5	-55.34	-13	-42.34	0-360	151	V
7.496	-73.63	Pk	35.6	-26.8	10.7	-54.13	-13	-41.13	0-360	151	V
High Channel											
3.798	-67.93	Pk	33.4	-32.4	10.5	-56.43	-13	-43.43	0-360	150	H
5.686	-71.72	Pk	34.8	-29.3	10	-56.22	-13	-43.22	0-360	150	H
7.581	-72.92	Pk	35.6	-26.7	10.3	-53.72	-13	-40.72	0-360	150	H
3.768	-68.06	Pk	33.4	-32.5	10.4	-56.76	-13	-43.76	0-360	150	V
5.688	-71.21	Pk	34.8	-29.3	10.5	-55.21	-13	-42.21	0-360	150	V
7.585	-73.45	Pk	35.6	-26.7	10.4	-54.15	-13	-41.15	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/10/18
Test Engineer:	39004
Configuration:	EUT+ Support Equipment
Mode:	LTE 2 16QAM 20MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.715	-68.47	Pk	33.2	-32.6	10.5	-57.37	-13	-44.37	0-360	151	H
5.582	-71.47	Pk	34.6	-29.6	10.1	-56.37	-13	-43.37	0-360	151	H
7.456	-73.38	Pk	35.5	-26.8	10.6	-54.08	-13	-41.08	0-360	151	H
3.707	-68.55	Pk	33.2	-32.6	11	-56.95	-13	-43.95	0-360	151	V
5.572	-70.94	Pk	34.6	-29.9	10.9	-55.34	-13	-42.34	0-360	151	V
7.426	-73.52	Pk	35.5	-26.8	10.6	-54.22	-13	-41.22	0-360	151	V
Mid Channel											
3.738	-69.55	Pk	33.3	-32.5	10.4	-58.35	-13	-45.35	0-360	150	H
5.611	-71.05	Pk	34.6	-29.6	10.5	-55.55	-13	-42.55	0-360	150	H
7.491	-74.48	Pk	35.6	-26.8	10.4	-55.28	-13	-42.28	0-360	150	H
3.71	-69.22	Pk	33.2	-32.5	10.9	-57.62	-13	-44.62	0-360	150	V
5.584	-70.74	Pk	34.6	-29.6	10.4	-55.34	-13	-42.34	0-360	150	V
7.456	-73.88	Pk	35.5	-26.8	10.8	-54.38	-13	-41.38	0-360	150	V
High Channel											
3.793	-68.35	Pk	33.4	-32.3	10.7	-56.55	-13	-43.55	0-360	150	H
5.699	-70.9	Pk	34.9	-29.3	9.9	-55.4	-13	-42.4	0-360	150	H
7.673	-74.69	Pk	35.6	-26.6	10.4	-55.29	-13	-42.29	0-360	150	H
3.775	-69.29	Pk	33.4	-32.4	10.6	-57.69	-13	-44.69	0-360	150	V
5.71	-70.89	Pk	34.9	-29.3	10.3	-54.99	-13	-41.99	0-360	150	V
7.646	-75.01	Pk	35.6	-26.6	10.4	-55.61	-13	-42.61	0-360	150	V

11.1.4. LTE BAND 5

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/10/18
Test Engineer:	39004
Configuration:	EUT+ Support Equipment
Mode:	LTE 5 QPSK 10MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.656	-62.26	Pk	28.5	-35.5	10.3	-58.96	-13	-45.96	0-360	150	H
2.467	-65.21	Pk	32.2	-35.3	10.8	-57.51	-13	-44.51	0-360	150	H
3.281	-65.02	Pk	32.9	-33.7	10.8	-55.02	-13	-42.02	0-360	150	H
1.661	-64.84	Pk	28.5	-35.4	10.9	-60.84	-13	-47.84	0-360	150	V
2.522	-64.41	Pk	32.3	-35.4	11.2	-56.31	-13	-43.31	0-360	150	V
3.313	-67.4	Pk	32.8	-33.4	11.2	-56.8	-13	-43.8	0-360	150	V
Mid Channel											
1.771	-65.34	Pk	29.8	-35.4	12.6	-58.34	-13	-45.34	0-360	150	H
2.437	-65.27	Pk	32.2	-35.3	11.3	-57.07	-13	-44.07	0-360	150	H
3.4	-66.11	Pk	32.6	-33.4	10.8	-56.11	-13	-43.11	0-360	150	H
1.761	-64.54	Pk	29.7	-35.4	11.9	-58.34	-13	-45.34	0-360	150	V
2.525	-64.9	Pk	32.3	-35.4	11	-57	-13	-44	0-360	150	V
3.326	-66.25	Pk	32.8	-33.3	11	-55.75	-13	-42.75	0-360	150	V
High Channel											
1.695	-64.96	Pk	28.7	-35.5	11.5	-60.26	-13	-47.26	0-360	150	H
2.571	-64.77	Pk	32.3	-35.2	10.8	-56.87	-13	-43.87	0-360	150	H
3.349	-66.06	Pk	32.8	-33.5	10.5	-56.26	-13	-43.26	0-360	150	H
1.71	-64.86	Pk	28.9	-35.5	12.2	-59.26	-13	-46.26	0-360	150	V
2.55	-65.21	Pk	32.3	-35.3	11	-57.21	-13	-44.21	0-360	150	V
3.349	-67.09	Pk	32.8	-33.5	10.7	-57.09	-13	-44.09	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/10/18
Test Engineer:	39004
Configuration:	EUT+ Support Equipment
Mode:	LTE 5 16QAM 10MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.659	-62.12	Pk	28.5	-35.4	10.3	-58.72	-13	-45.72	0-360	150	H
2.445	-64.95	Pk	32.2	-35.3	11	-57.05	-13	-44.05	0-360	150	H
3.271	-65.78	Pk	32.9	-33.4	10.7	-55.58	-13	-42.58	0-360	150	H
1.629	-64.83	Pk	28.3	-35.5	12.3	-59.73	-13	-46.73	0-360	150	V
2.47	-65.37	Pk	32.2	-35.4	11.1	-57.47	-13	-44.47	0-360	150	V
3.291	-66.99	Pk	32.8	-33.6	10.9	-56.89	-13	-43.89	0-360	150	V
Mid Channel											
1.724	-64.23	Pk	29.2	-35.4	12	-58.43	-13	-45.43	0-360	150	H
2.425	-65.1	Pk	32.1	-35.3	11.4	-56.9	-13	-43.9	0-360	150	H
3.449	-65.63	Pk	32.6	-33.2	11.1	-55.13	-13	-42.13	0-360	150	H
1.732	-66.2	Pk	29.3	-35.5	12.6	-59.8	-13	-46.8	0-360	150	V
2.443	-64.34	Pk	32.2	-35.3	10.4	-57.04	-13	-44.04	0-360	150	V
3.409	-65.73	Pk	32.6	-33.4	11.1	-55.43	-13	-42.43	0-360	150	V
High Channel											
1.63	-63.54	Pk	28.3	-35.5	11.3	-59.44	-13	-46.44	0-360	150	H
2.477	-65.48	Pk	32.3	-35.3	10.8	-57.68	-13	-44.68	0-360	150	H
3.456	-66.65	Pk	32.6	-33.2	11.2	-56.05	-13	-43.05	0-360	150	H
1.635	-64.96	Pk	28.3	-35.5	12.1	-60.06	-13	-47.06	0-360	150	V
2.506	-65.22	Pk	32.3	-35.2	11.2	-56.92	-13	-43.92	0-360	150	V
3.474	-67.56	Pk	32.6	-33.2	10.8	-57.36	-13	-44.36	0-360	150	V

11.1.5. LTE BAND 12

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/11/18
Test Engineer:	39004
Configuration:	EUT+ Support Equipment
Mode:	LTE 12 QPSK 10MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.409	-63.79	Pk	28.8	-35.4	11	-59.39	-13	-46.39	0-360	150	H
2.12	-63.83	Pk	31.6	-35.4	10.3	-57.33	-13	-44.33	0-360	150	H
2.685	-64.7	Pk	32.2	-35.1	11.2	-56.4	-13	-43.4	0-360	150	H
1.48	-64.83	Pk	28.2	-35.5	11.3	-60.83	-13	-47.83	0-360	150	V
2.092	-65	Pk	31.5	-35.4	11.5	-57.4	-13	-44.4	0-360	150	V
2.697	-66.02	Pk	32.2	-35.1	10.9	-58.02	-13	-45.02	0-360	150	V
Mid Channel											
1.765	-64.84	Pk	29.8	-35.5	12.9	-57.64	-13	-44.64	0-360	150	H
2.95	-64.42	Pk	32.6	-34.7	11.2	-55.32	-13	-42.32	0-360	150	H
4.248	-67.85	Pk	33.4	-31.8	11	-55.25	-13	-42.25	0-360	150	H
1.673	-63.79	Pk	28.6	-35.5	11.3	-59.39	-13	-46.39	0-360	150	V
3.039	-65.78	Pk	32.9	-34.4	11.1	-56.18	-13	-43.18	0-360	150	V
4.13	-68.33	Pk	33.5	-31.9	11.1	-55.63	-13	-42.63	0-360	150	V
High Channel											
1.482	-63.63	Pk	28.2	-35.5	11	-59.93	-13	-46.93	0-360	150	H
2.01	-65.05	Pk	31.1	-35.3	11.7	-57.55	-13	-44.55	0-360	150	H
2.899	-65.69	Pk	32.5	-34.7	11.7	-56.19	-13	-43.19	0-360	150	H
1.477	-65.54	Pk	28.3	-35.5	11.3	-61.44	-13	-48.44	0-360	150	V
2.031	-65.61	Pk	31.2	-35.4	11.5	-58.31	-13	-45.31	0-360	150	V
2.906	-65.34	Pk	32.5	-34.7	11.3	-56.24	-13	-43.24	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/11/18
Test Engineer:	39004
Configuration:	EUT+ Support Equipment
Mode:	LTE 12 16QAM 10MHz
Chamber #:	Chamber K

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
1.482	-63.63	Pk	28.2	-35.5	11	-59.93	-13	-46.93	0-360	150	H
2.01	-65.05	Pk	31.1	-35.3	11.7	-57.55	-13	-44.55	0-360	150	H
2.964	-64.93	Pk	32.7	-34.6	11.1	-55.73	-13	-42.73	0-360	150	H
1.477	-65.54	Pk	28.3	-35.5	11.3	-61.44	-13	-48.44	0-360	150	V
2.063	-64.99	Pk	31.3	-35.4	11.7	-57.39	-13	-44.39	0-360	150	V
2.906	-65.34	Pk	32.5	-34.7	11.3	-56.24	-13	-43.24	0-360	150	V
Mid Channel											
1.833	-64.93	Pk	30.3	-35.4	12	-58.03	-13	-45.03	0-360	150	H
2.95	-64.42	Pk	32.6	-34.7	11.2	-55.32	-13	-42.32	0-360	150	H
4.835	-67.44	Pk	34.1	-31.1	10.6	-53.84	-13	-40.84	0-360	150	H
1.673	-63.79	Pk	28.6	-35.5	11.3	-59.39	-13	-46.39	0-360	150	V
2.584	-65.13	Pk	32.3	-35.3	11.2	-56.93	-13	-43.93	0-360	150	V
4.763	-67.84	Pk	34.1	-31.1	11	-53.84	-13	-40.84	0-360	150	V
High Channel											
1.531	-64.56	Pk	28.1	-35.5	12.1	-59.86	-13	-46.86	0-360	150	H
2.185	-65.61	Pk	31.7	-35.4	11.7	-57.61	-13	-44.61	0-360	150	H
2.964	-63.67	Pk	32.7	-34.6	11.1	-54.47	-13	-41.47	0-360	150	H
1.497	-64.38	Pk	28.1	-35.4	11.2	-60.48	-13	-47.48	0-360	150	V
2.262	-64.41	Pk	31.8	-35.4	10.7	-57.31	-13	-44.31	0-360	150	V
2.976	-66.03	Pk	32.7	-34.6	11.7	-56.23	-13	-43.23	0-360	150	V

11.1.6. LTE BAND 13

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/11/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	LTE 13 QPSK 10MHz
Chamber #:	Chamber L

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Mid Channel											
1.564	-64.8	Pk	28.1	-34.4	11.5	-59.6	-40	-19.6	0-360	151	H
2.346	-67.13	Pk	31.5	-33.1	11	-57.73	-13	-44.73	0-360	151	H
3.119	-69.94	Pk	33.3	-31.7	10.7	-57.64	-13	-44.64	0-360	151	H
1.564	-65.77	Pk	28.1	-34.4	11.6	-60.47	-40	-20.47	0-360	151	V
2.346	-64.8	Pk	31.5	-33.1	11.7	-54.7	-13	-41.7	0-360	151	V
3.132	-69.23	Pk	33.1	-31.8	10.9	-57.03	-13	-44.03	0-360	151	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/11/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	LTE 13 16QAM 10MHz
Chamber #:	Chamber L

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Mid Channel											
1.564	-66.42	Pk	28.1	-34.4	11.5	-61.22	-40	-21.22	0-360	150	H
2.346	-65.51	Pk	31.5	-33.1	11	-56.11	-13	-43.11	0-360	150	H
3.128	-69.45	Pk	33.2	-31.8	10.7	-57.35	-13	-44.35	0-360	150	H
1.564	-67.34	Pk	28.1	-34.4	11.6	-62.04	-40	-22.04	0-360	150	V
2.346	-65.42	Pk	31.5	-33.1	11.7	-55.32	-13	-42.32	0-360	150	V
3.124	-70.66	Pk	33.2	-31.8	11	-58.26	-13	-45.26	0-360	150	V

11.1.7. LTE BAND 41

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/14/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	LTE 41 QPSK 20MHz
Chamber #:	Chamber L

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
5.001	-72.03	Pk	34.4	-28.7	10.4	-55.93	-25	-30.93	0-360	150	H
7.506	-74.94	Pk	35.7	-25.4	10.6	-54.04	-25	-29.04	0-360	150	H
10.02	-77.38	Pk	37.2	-21.7	10.5	-51.38	-25	-26.38	0-360	150	H
5.006	-72.56	Pk	34.4	-28.8	10.7	-56.26	-25	-31.26	0-360	150	V
7.511	-74.1	Pk	35.7	-25.4	10.8	-53	-25	-28	0-360	150	V
10.02	-77.69	Pk	37.2	-21.7	10.6	-51.59	-25	-26.59	0-360	150	V
Mid Channel											
5.186	-69.97	Pk	34.4	-29.1	10.5	-54.17	-25	-29.17	0-360	151	H
7.786	-75.76	Pk	35.8	-25.3	10.4	-54.86	-25	-29.86	0-360	151	H
10.372	-75.48	Pk	37.5	-21.3	10.3	-48.98	-25	-23.98	0-360	151	H
5.186	-71.59	Pk	34.4	-29.1	10.6	-55.69	-25	-30.69	0-360	151	V
7.778	-72.47	Pk	35.8	-25.3	10.4	-51.57	-25	-26.57	0-360	151	V
10.373	-76.87	Pk	37.5	-21.3	10.5	-50.17	-25	-25.17	0-360	151	V
High Channel											
5.366	-71.97	Pk	34.5	-28.7	10.6	-55.57	-25	-30.57	0-360	150	H
8.04	-74	Pk	35.8	-24.8	10.5	-52.5	-25	-27.5	0-360	150	H
10.7	-77.13	Pk	37.6	-21.9	9.9	-51.53	-25	-26.53	0-360	150	H
5.36	-73.29	Pk	34.5	-28.6	10.9	-56.49	-25	-31.49	0-360	150	V
8.04	-73.49	Pk	35.8	-24.8	10.7	-51.79	-25	-26.79	0-360	150	V
10.724	-77.42	Pk	37.7	-22	10.2	-51.52	-25	-26.52	0-360	150	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/14/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	LTE 41 16QAM 20MHz
Chamber #:	Chamber L

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
5.012	-71.55	Pk	34.4	-29	10.5	-55.65	-25	-30.65	0-360	150	H
7.517	-75.37	Pk	35.7	-25.4	10.5	-54.57	-25	-29.57	0-360	150	H
10.036	-77.26	Pk	37.2	-21.8	10.5	-51.36	-25	-26.36	0-360	150	H
5.012	-69.91	Pk	34.4	-29	10.7	-53.81	-25	-28.81	0-360	150	V
7.51	-73.8	Pk	35.7	-25.4	10.8	-52.7	-25	-27.7	0-360	150	V
10.019	-78	Pk	37.2	-21.7	10.6	-51.9	-25	-26.9	0-360	150	V
Mid Channel											
5.186	-71.15	Pk	34.4	-29.1	10.5	-55.35	-25	-30.35	0-360	150	H
7.779	-74.53	Pk	35.8	-25.3	10.2	-53.83	-25	-28.83	0-360	150	H
10.372	-75.51	Pk	37.5	-21.3	10.3	-49.01	-25	-24.01	0-360	150	H
5.186	-72.01	Pk	34.4	-29.1	10.6	-56.11	-25	-31.11	0-360	150	V
7.779	-73.52	Pk	35.8	-25.3	10.4	-52.62	-25	-27.62	0-360	150	V
10.372	-75.97	Pk	37.5	-21.3	10.5	-49.27	-25	-24.27	0-360	150	V
High Channel											
5.36	-72.38	Pk	34.5	-28.6	10.7	-55.78	-25	-30.78	0-360	150	H
8.048	-74.72	Pk	35.8	-24.8	10.5	-53.22	-25	-28.22	0-360	150	H
10.717	-77.52	Pk	37.7	-21.9	9.8	-51.92	-25	-26.92	0-360	150	H
5.36	-73.29	Pk	34.5	-28.6	10.9	-56.49	-25	-31.49	0-360	150	V
8.04	-73.9	Pk	35.8	-24.8	10.7	-52.2	-25	-27.2	0-360	150	V
10.728	-76.19	Pk	37.7	-22	10.1	-50.39	-25	-25.39	0-360	150	V

11.1.8. LTE BAND 66

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	LTE 66 QPSK 20MHz
Chamber #:	Chamber L

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.44	-55.09	Pk	32.6	-33.3	10.8	-44.99	-13	-31.99	0-360	151	H
5.189	-68.64	Pk	34.4	-30.4	10.5	-54.14	-13	-41.14	0-360	151	H
6.861	-69.34	Pk	35.5	-27.3	10.5	-50.64	-13	-37.64	0-360	151	H
3.44	-58.65	Pk	32.6	-33.3	11	-48.35	-13	-35.35	0-360	150	V
5.152	-68.73	Pk	34.4	-30.6	10.5	-54.43	-13	-41.43	0-360	150	V
6.88	-71.4	Pk	35.5	-27.4	10.7	-52.6	-13	-39.6	0-360	150	V
Mid Channel											
3.49	-57.02	Pk	32.6	-33.2	11.1	-46.52	-13	-33.52	0-360	151	H
5.206	-69.53	Pk	34.4	-30.4	10.9	-54.63	-13	-41.63	0-360	151	H
6.937	-71.66	Pk	35.5	-27.4	10.4	-53.16	-13	-40.16	0-360	151	H
3.489	-59.81	Pk	32.6	-33.2	11.1	-49.31	-13	-36.31	0-360	151	V
5.225	-69.38	Pk	34.4	-30.3	10.8	-54.48	-13	-41.48	0-360	151	V
6.996	-71.43	Pk	35.5	-27.4	10.6	-52.73	-13	-39.73	0-360	151	V
High Channel											
3.54	-57.84	Pk	32.8	-33.1	10.5	-47.64	-13	-34.64	0-360	151	H
5.328	-69.22	Pk	34.5	-30.2	10.8	-54.12	-13	-41.12	0-360	151	H
7.102	-72.63	Pk	35.6	-27.1	10.4	-53.73	-13	-40.73	0-360	151	H
3.54	-63.52	Pk	32.8	-33.1	10.2	-53.62	-13	-40.62	0-360	151	V
5.302	-70.18	Pk	34.5	-29.9	10.8	-54.78	-13	-41.78	0-360	151	V
7.093	-72.26	Pk	35.6	-27	10.6	-53.06	-13	-40.06	0-360	151	V

Company:	SAMSUNG ELECTRONICS CO., LTD.
Project #:	12440598
Date:	8/15/18
Test Engineer:	43575
Configuration:	EUT+ Support Equipment
Mode:	LTE 66 16QAM 20MHz
Chamber #:	Chamber L

Frequency (MHz)	Meter Reading (dBm)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	ETSI 417 TX Below 1GHz	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
Low Channel											
3.44	-55.02	Pk	32.6	-33.3	10.8	-44.92	-13	-31.92	0-360	150	H
5.18	-68.83	Pk	34.4	-30.4	10.4	-54.43	-13	-41.43	0-360	150	H
6.843	-71.33	Pk	35.5	-27.4	10.4	-52.83	-13	-39.83	0-360	150	H
3.44	-58.91	Pk	32.6	-33.3	11	-48.61	-13	-35.61	0-360	150	V
5.172	-69.15	Pk	34.4	-30.4	10.5	-54.65	-13	-41.65	0-360	150	V
6.875	-72.4	Pk	35.5	-27.4	10.7	-53.6	-13	-40.6	0-360	150	V
Mid Channel											
3.49	-56.32	Pk	32.6	-33.2	11.1	-45.82	-13	-32.82	0-360	151	H
5.235	-69.06	Pk	34.4	-30.1	10.5	-54.26	-13	-41.26	0-360	151	H
6.972	-72.11	Pk	35.5	-27.3	10.1	-53.81	-13	-40.81	0-360	151	H
3.489	-59.43	Pk	32.6	-33.2	11.1	-48.93	-13	-35.93	0-360	151	V
5.219	-70.03	Pk	34.4	-30.4	10.8	-55.23	-13	-42.23	0-360	151	V
6.964	-71.97	Pk	35.5	-27.3	10.3	-53.47	-13	-40.47	0-360	151	V
High Channel											
3.54	-58.61	Pk	32.8	-33.1	10.5	-48.41	-13	-35.41	0-360	150	H
5.31	-69.49	Pk	34.5	-30.1	10.5	-54.59	-13	-41.59	0-360	150	H
7.1	-71.82	Pk	35.6	-27	10.3	-52.92	-13	-39.92	0-360	150	H
3.539	-62.44	Pk	32.8	-33.2	10.2	-52.64	-13	-39.64	0-360	150	V
5.288	-69.73	Pk	34.4	-30	10.9	-54.43	-13	-41.43	0-360	150	V
7.037	-72.21	Pk	35.6	-27.2	10.6	-53.21	-13	-40.21	0-360	150	V