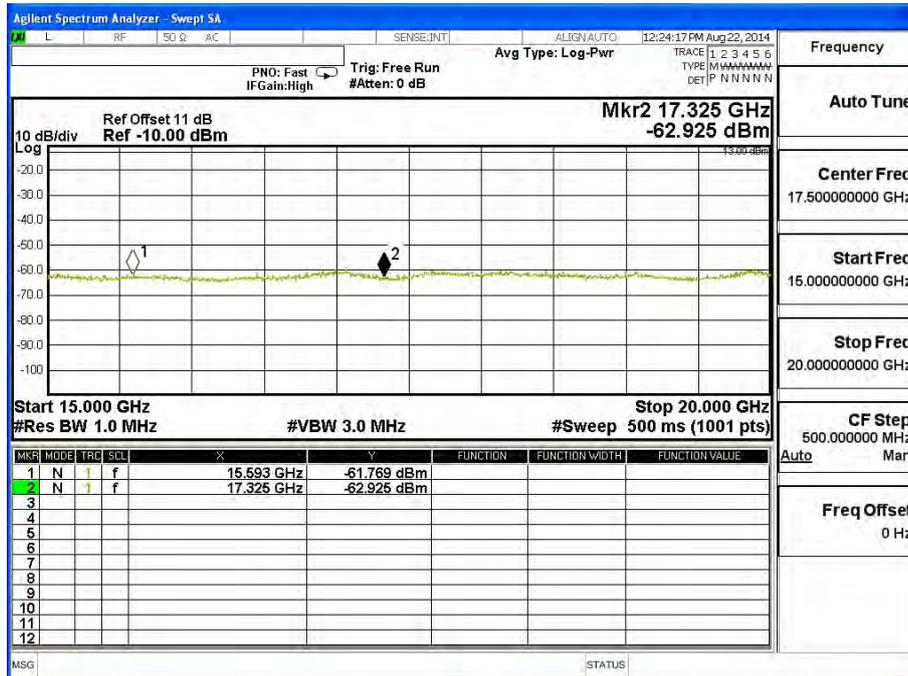


Frequency	
Auto Tune	
Center Freq	12.500000000 GHz
Start Freq	10.000000000 GHz
Stop Freq	15.000000000 GHz
CF Step	500.0000000 MHz
Auto Man	
Freq Offset	0 Hz

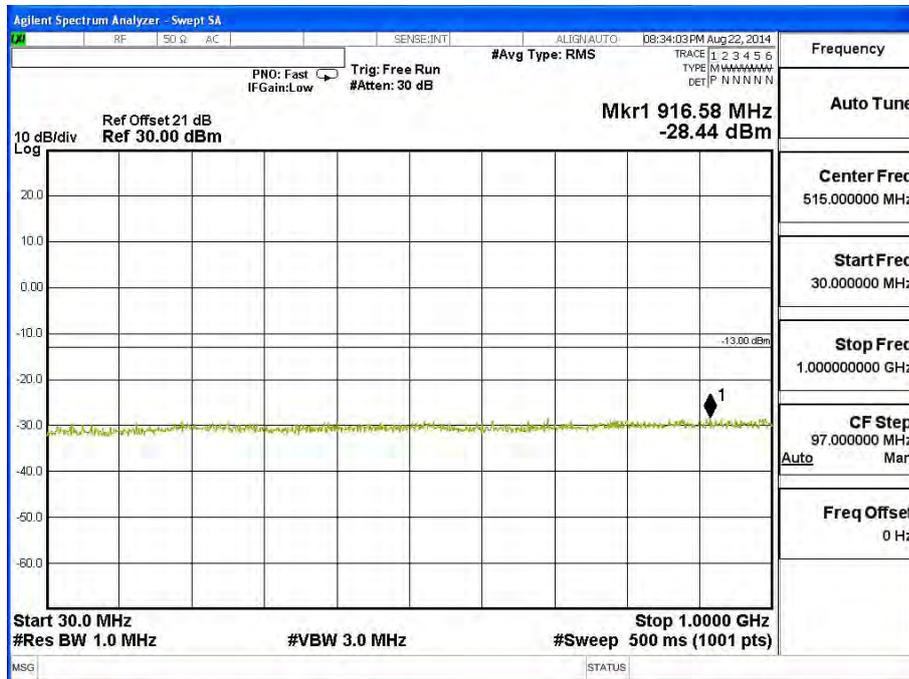


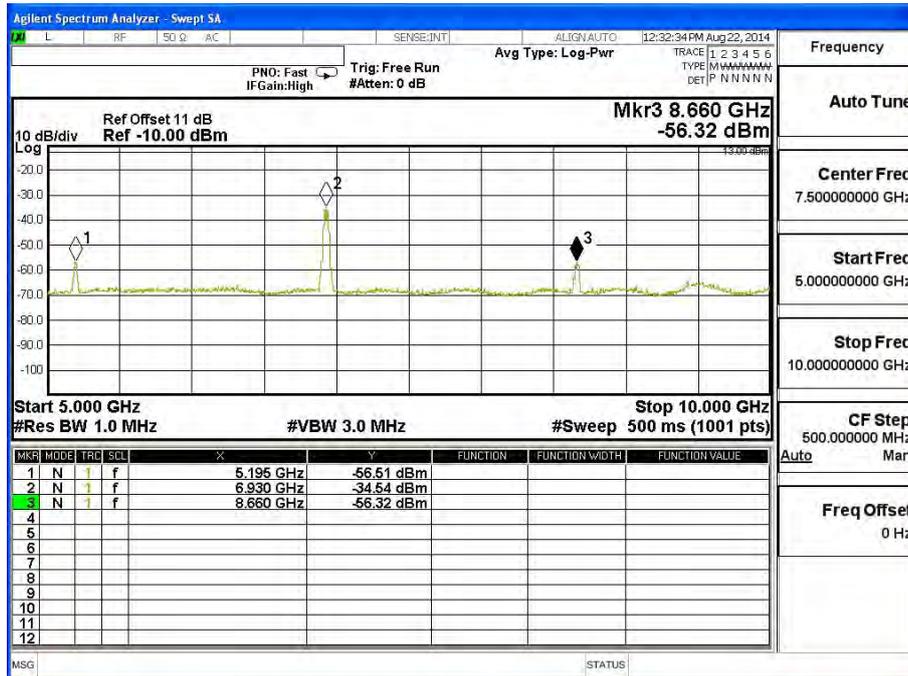
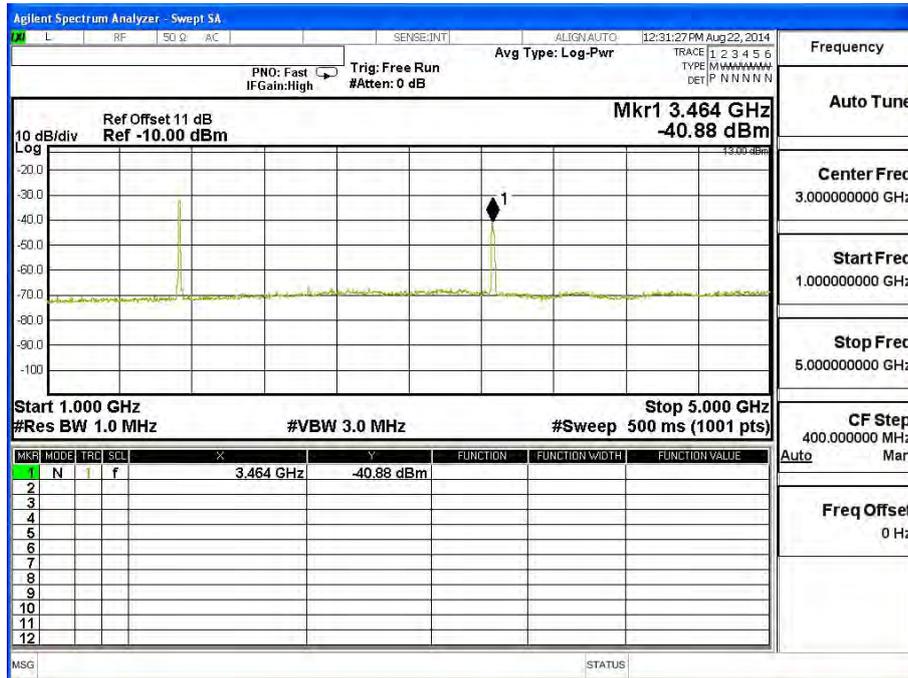
Frequency	
Auto Tune	
Center Freq	17.500000000 GHz
Start Freq	15.000000000 GHz
Stop Freq	20.000000000 GHz
CF Step	500.0000000 MHz
Auto Man	
Freq Offset	0 Hz

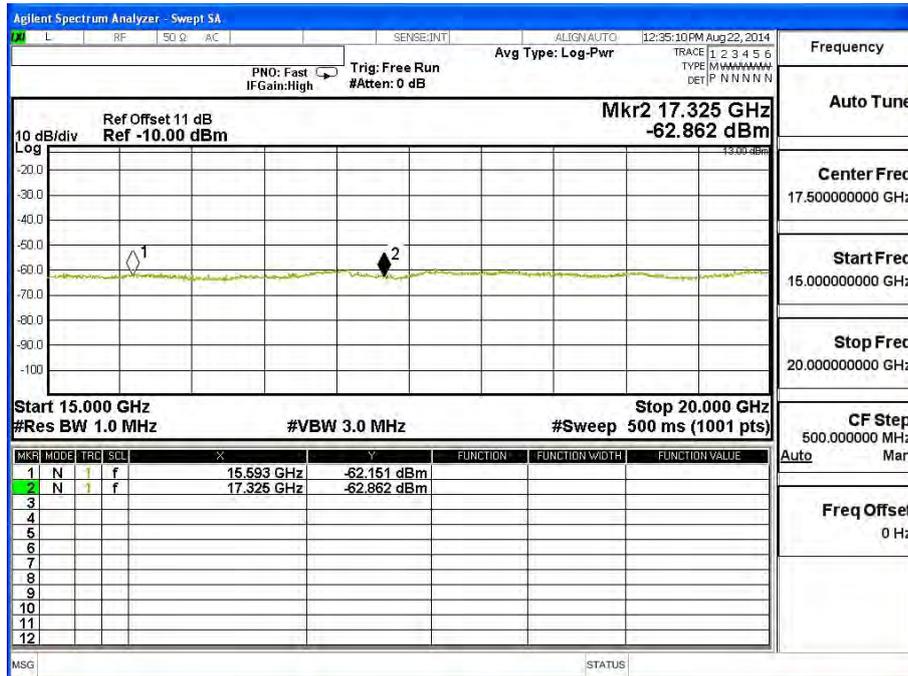
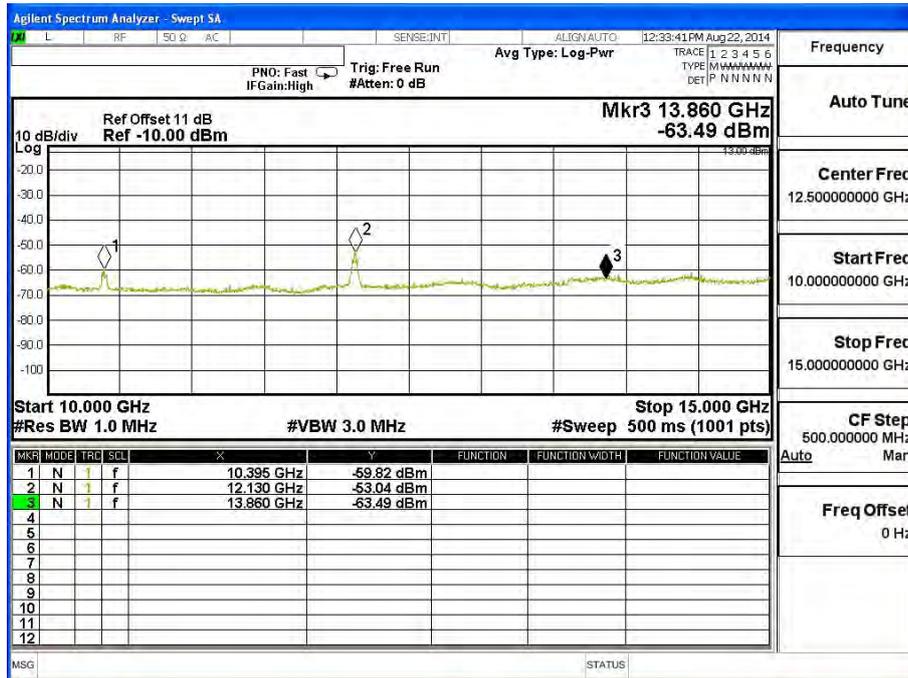
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band IV (10M)	Test Range	30MHz~20GHz

**LTE- Band IV (10M) QPSK(50,0) CH20175**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3464	-40.880	1.1	-39.780	-13
5195	-56.510	1.23	-55.280	-13
6930	-34.540	1.59	-32.950	-13
8660	-56.320	1.89	-54.430	-13
10395	-59.820	2.07	-57.750	-13
12130	-53.040	2.26	-50.780	-13
13860	-63.490	2.64	-60.850	-13
15593	-62.151	3.5	-58.651	-13
17325	-62.862	3.7	-59.162	-13



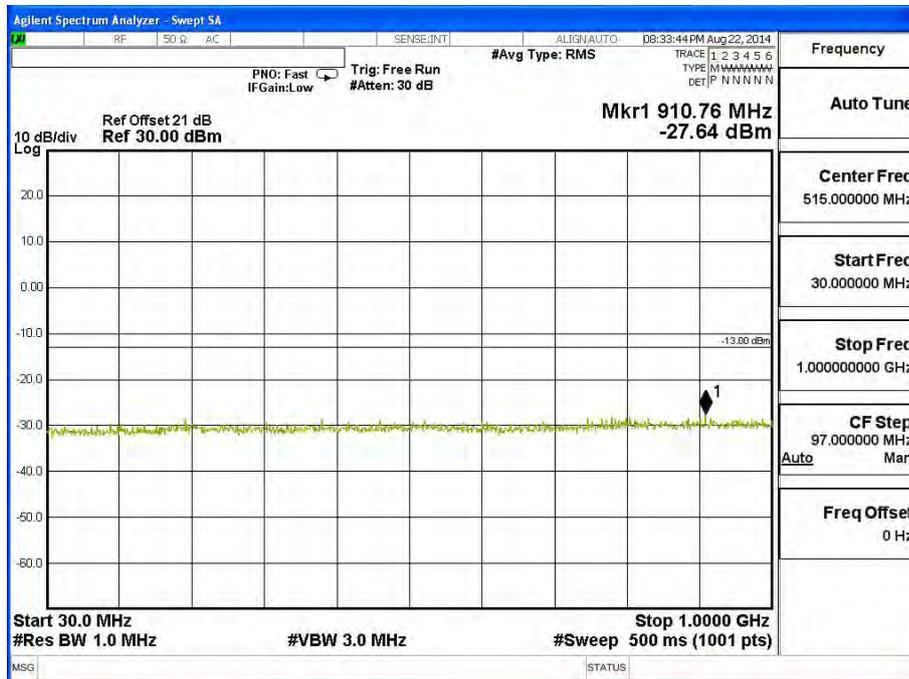


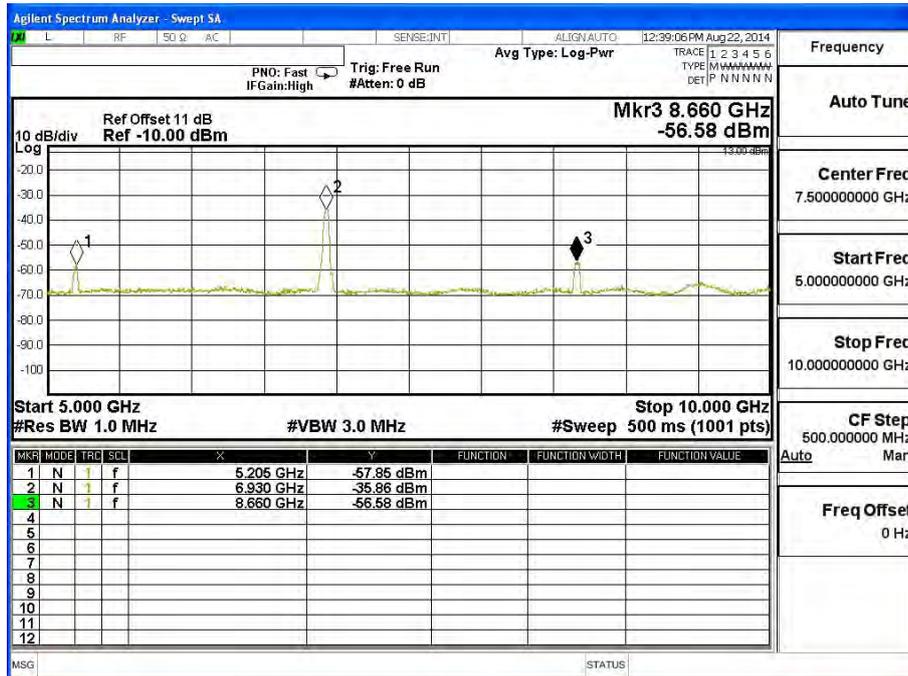
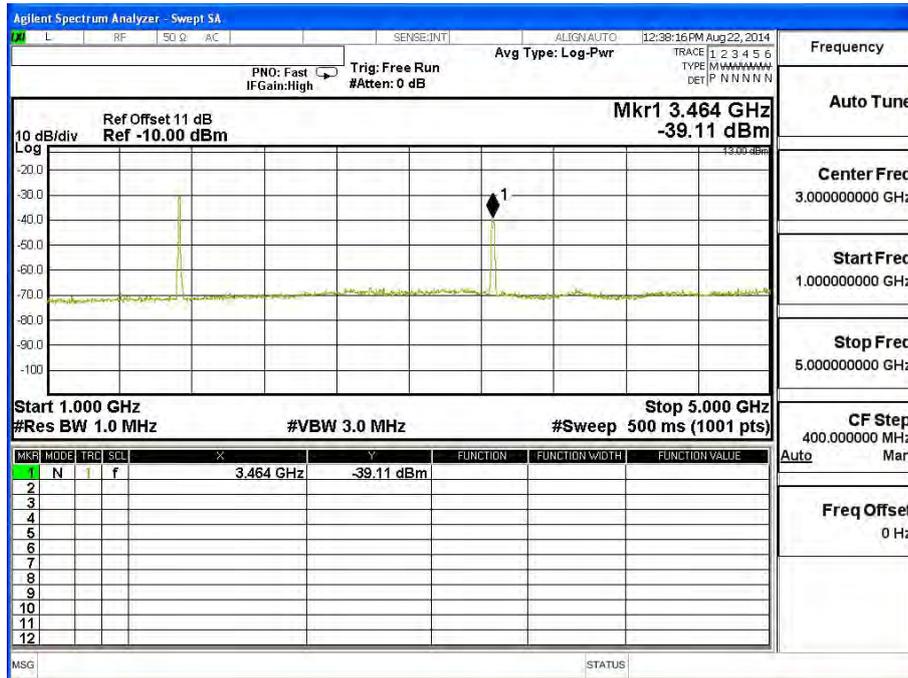


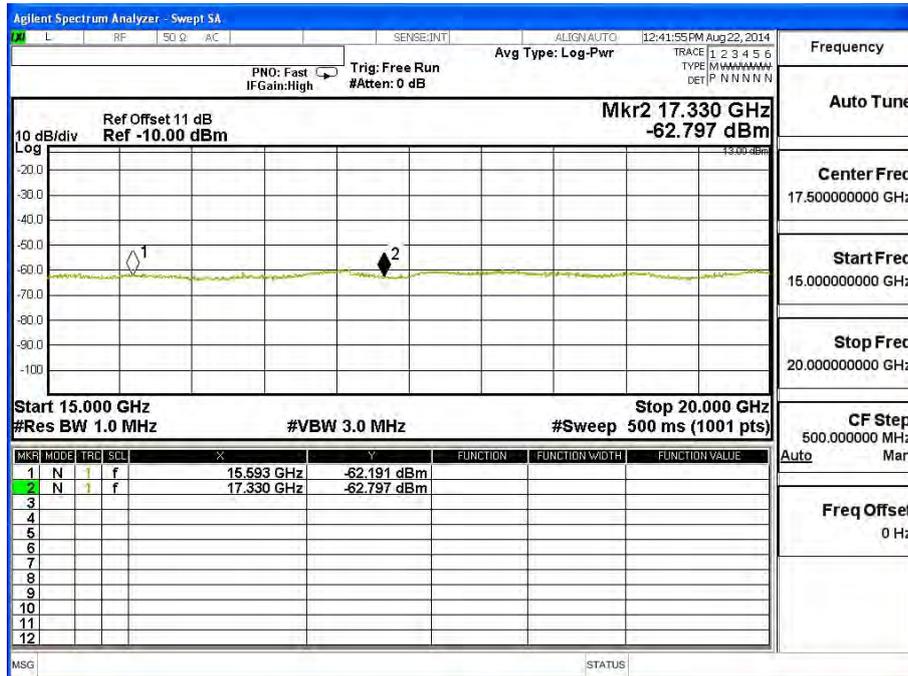
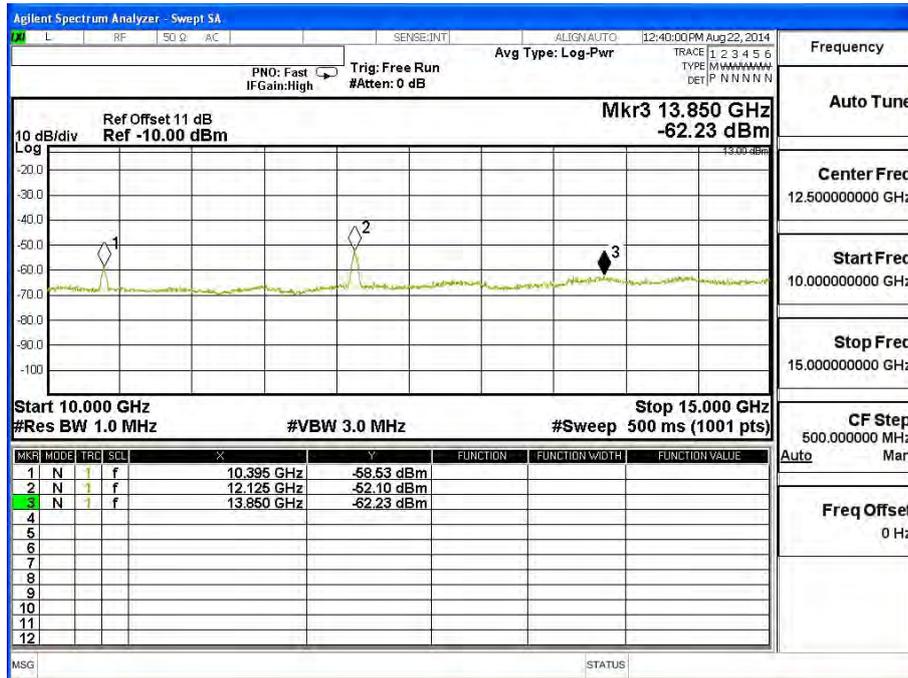
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band IV (10M)	Test Range	30MHz~20GHz

**LTE- Band IV 10M 16QAM(50,0) CH20175**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3464	-39.110	1.1	-38.010	-13
5205	-57.850	1.23	-56.620	-13
6930	-35.860	1.59	-34.270	-13
8660	-56.580	1.89	-54.690	-13
10395	-58.530	2.07	-56.460	-13
12125	-52.100	2.26	-49.840	-13
13850	-62.230	2.64	-59.590	-13
15593	-62.191	3.5	-58.691	-13
17330	-62.797	3.7	-59.097	-13



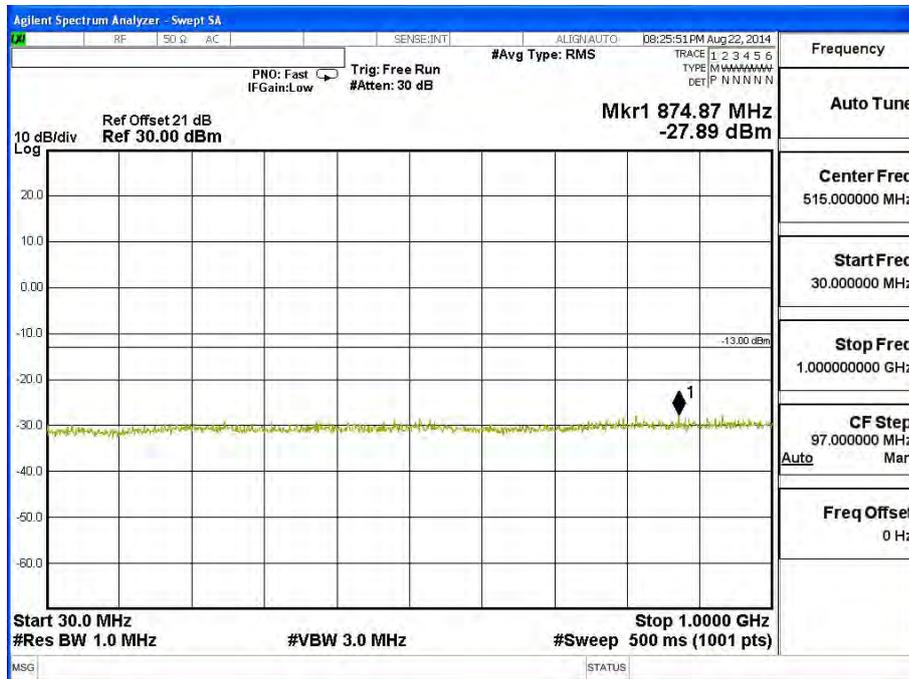


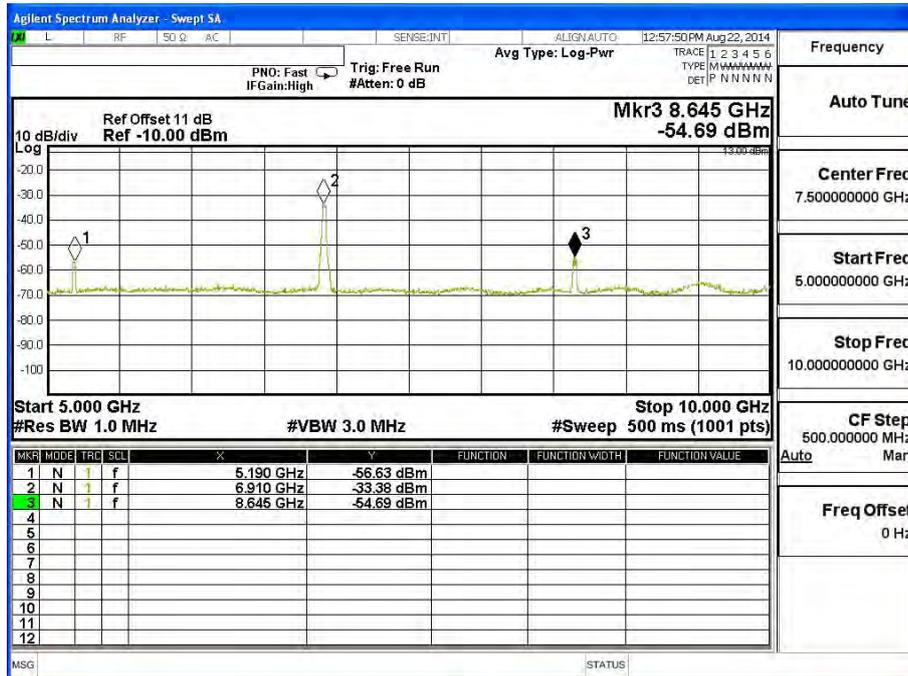
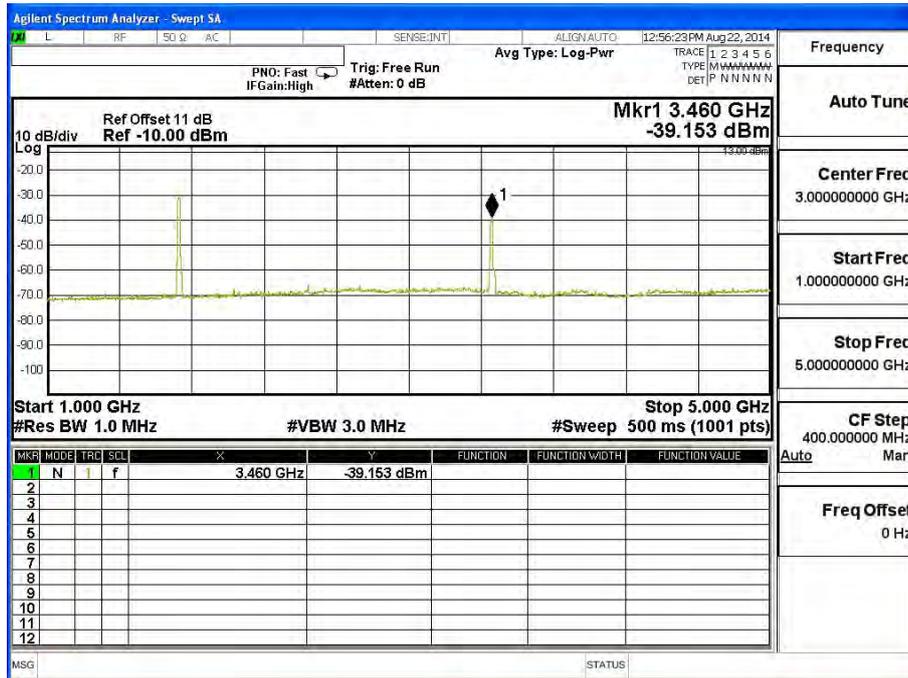


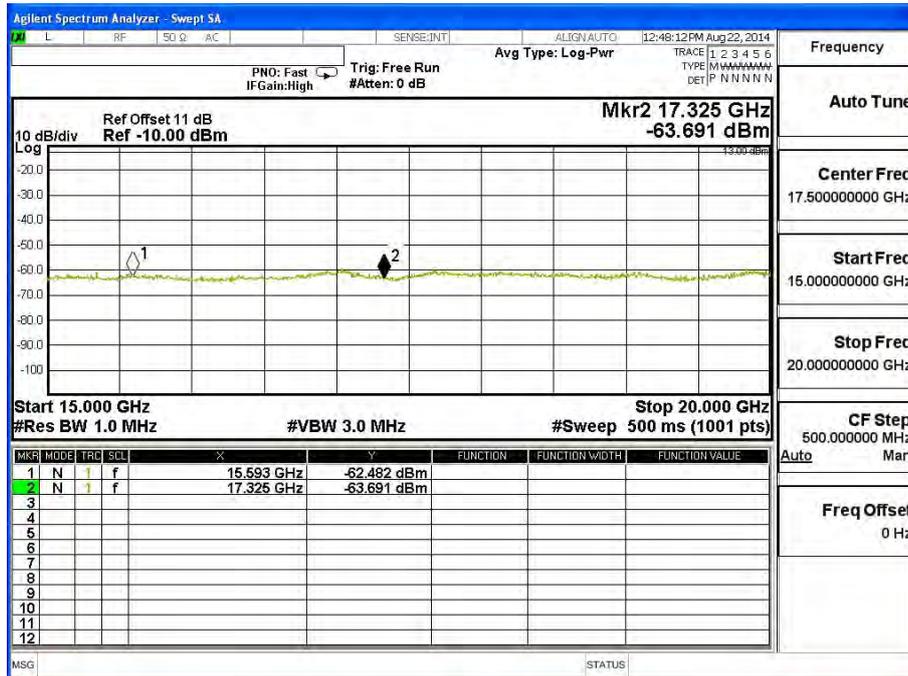
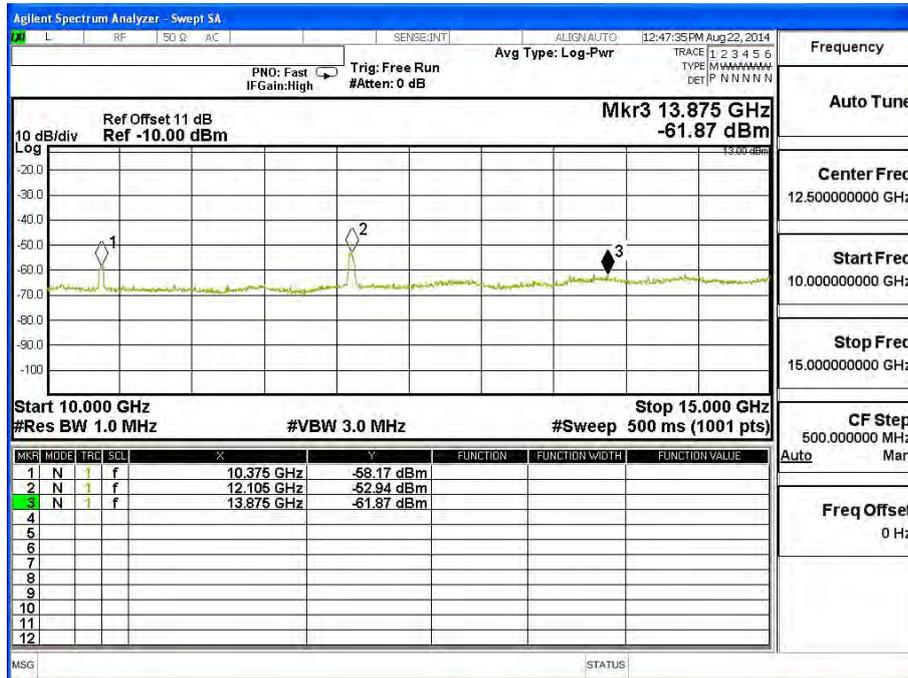
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band IV 15M	Test Range	30MHz~20GHz

**LTE-Band IV 15M QPSK(36,0) CH20175**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3460	-39.153	1.1	-38.053	-13
5190	-56.630	1.23	-55.400	-13
6910	-33.380	1.59	-31.790	-13
8645	-54.690	1.89	-52.800	-13
10375	-58.170	2.07	-56.100	-13
12105	-52.940	2.26	-50.680	-13
13875	-61.870	2.64	-59.230	-13
15593	-62.482	3.5	-58.982	-13
17325	-63.691	3.7	-59.991	-13



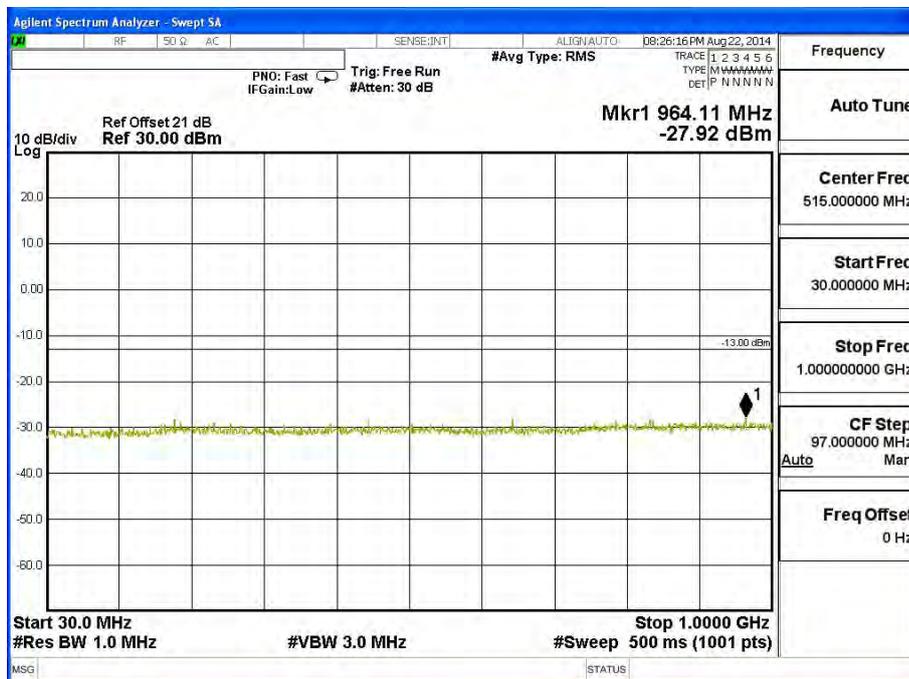


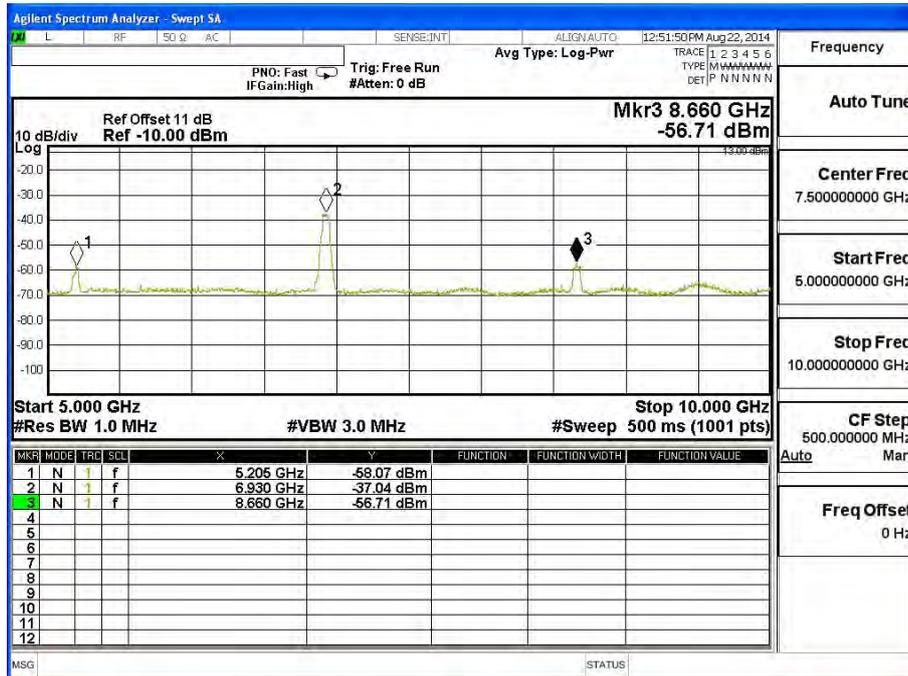
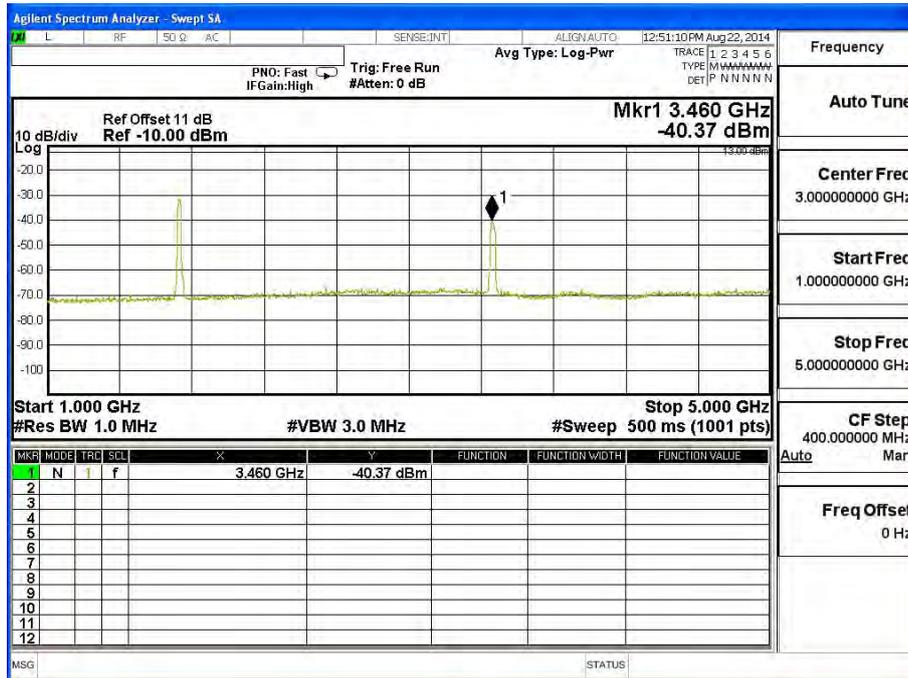


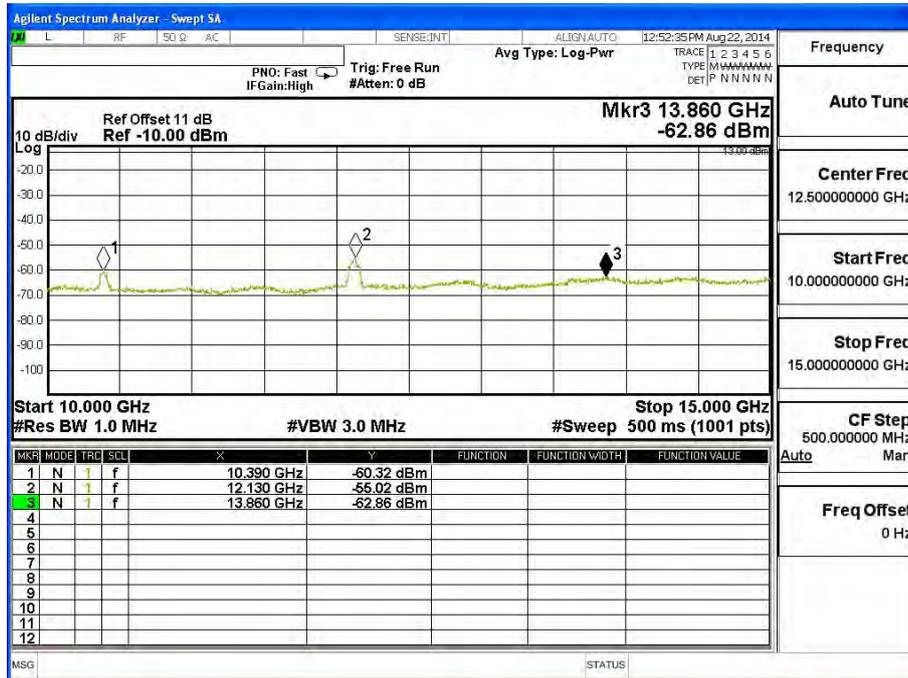
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band IV (15M)	Test Range	30MHz~20GHz

**LTE-Band IV (15M) 16QAM(75,0) CH20175**

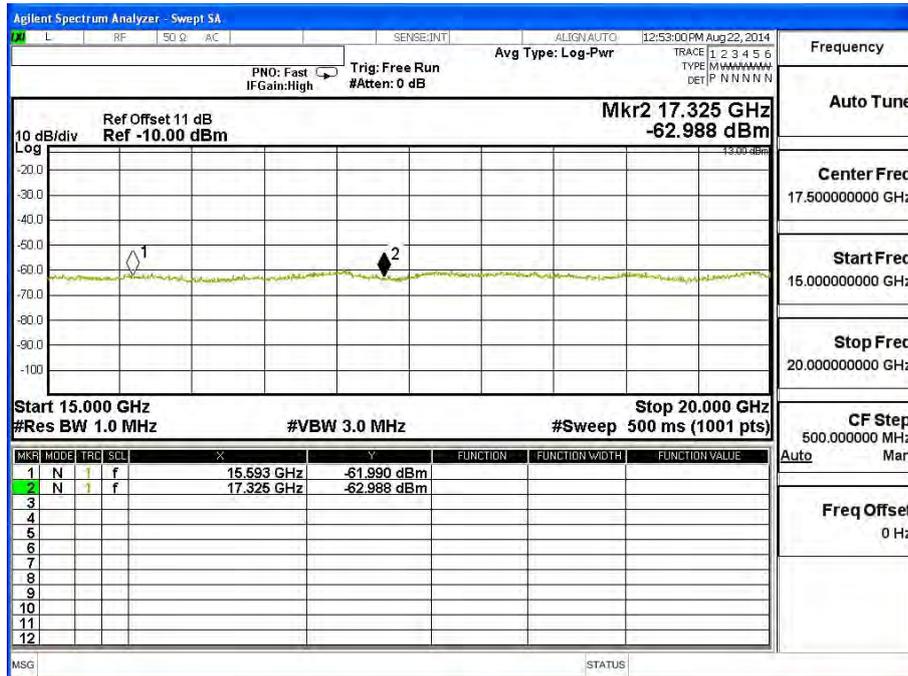
Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3460	-40.370	1.1	-39.270	-13
5205	-58.070	1.23	-56.840	-13
6930	-37.040	1.59	-35.450	-13
8660	-56.710	1.89	-54.820	-13
10390	-60.320	2.07	-58.250	-13
12130	-55.020	2.26	-52.760	-13
13860	-62.860	2.64	-60.220	-13
15593	-61.990	3.5	-58.490	-13
17325	-62.988	3.7	-59.288	-13







Frequency	
Auto Tune	
Center Freq	12.500000000 GHz
Start Freq	10.000000000 GHz
Stop Freq	15.000000000 GHz
CF Step	500.0000000 MHz
Auto	Man
Freq Offset	0 Hz

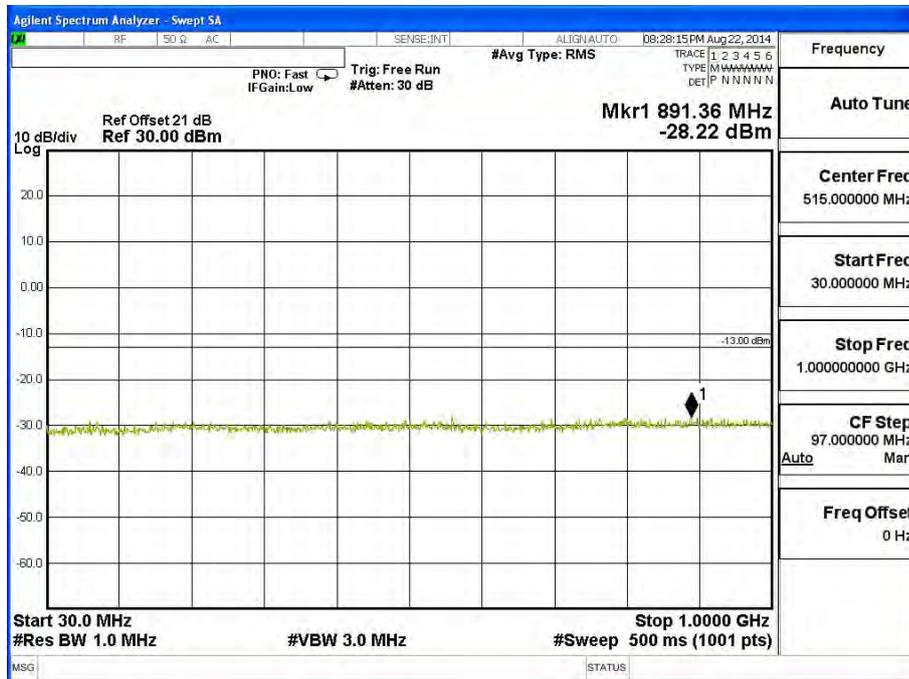


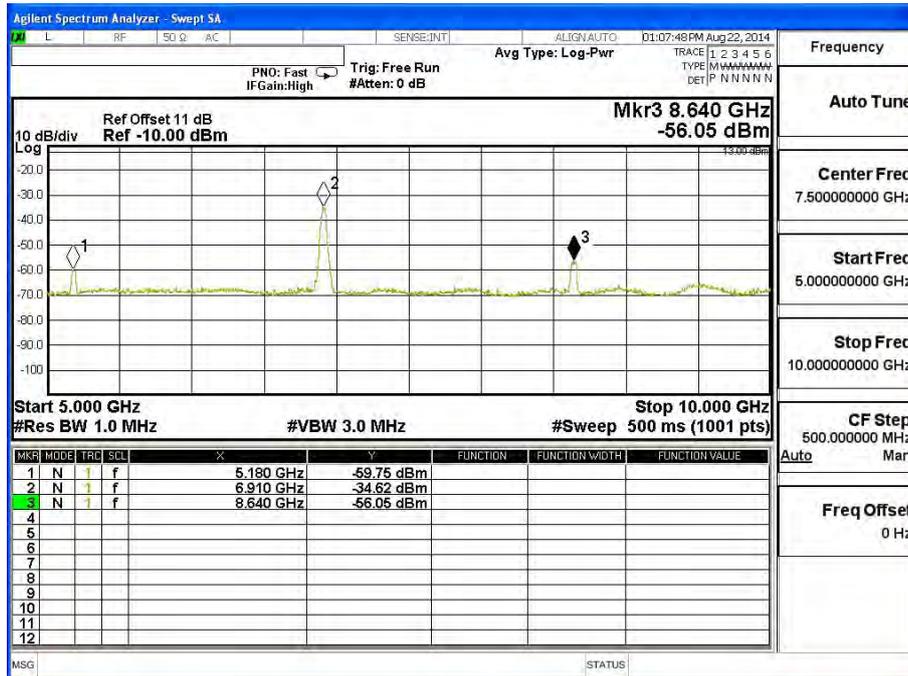
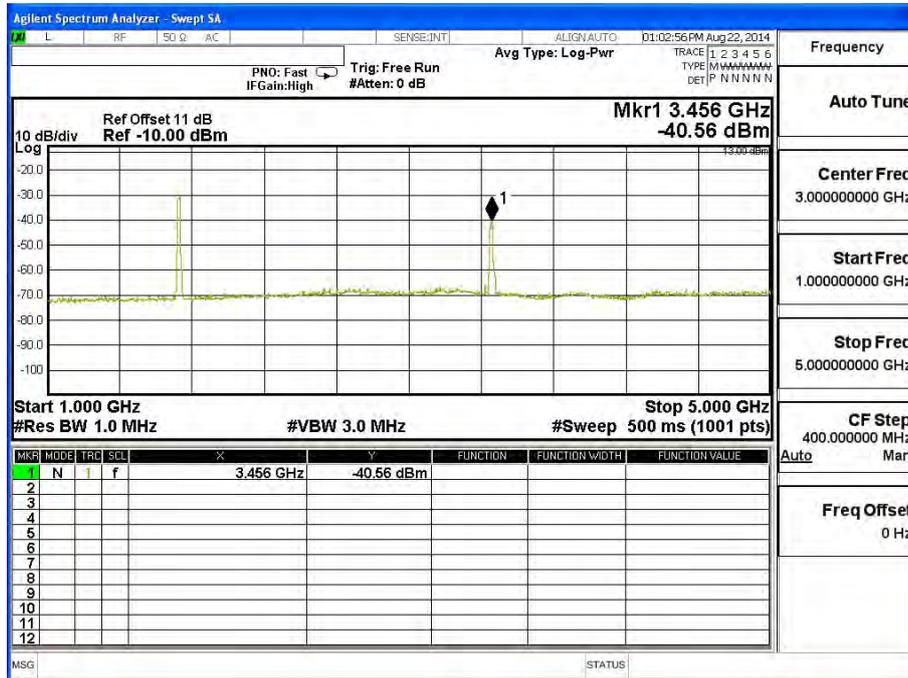
Frequency	
Auto Tune	
Center Freq	17.500000000 GHz
Start Freq	15.000000000 GHz
Stop Freq	20.000000000 GHz
CF Step	500.0000000 MHz
Auto	Man
Freq Offset	0 Hz

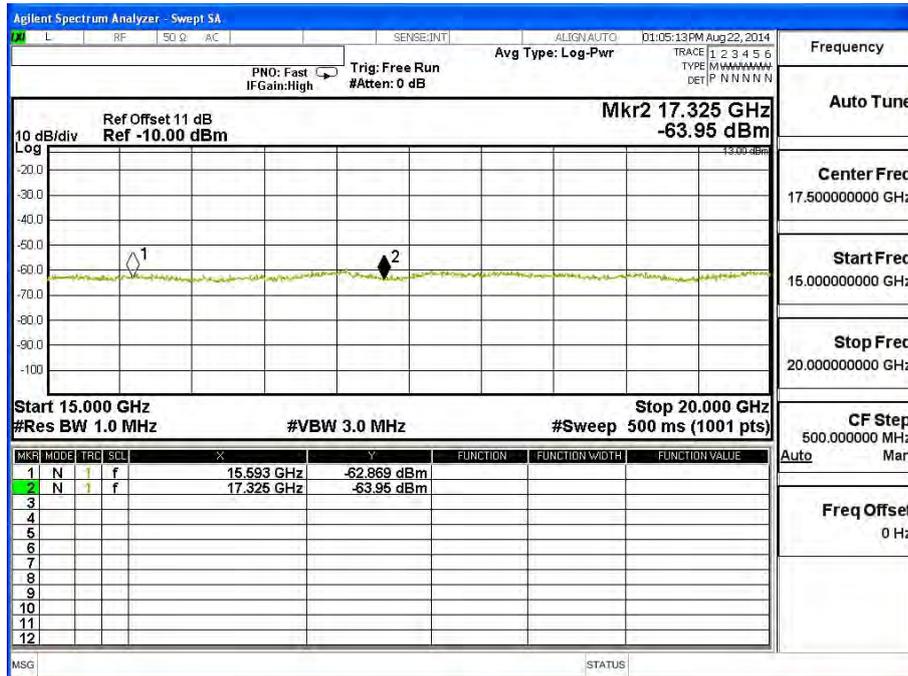
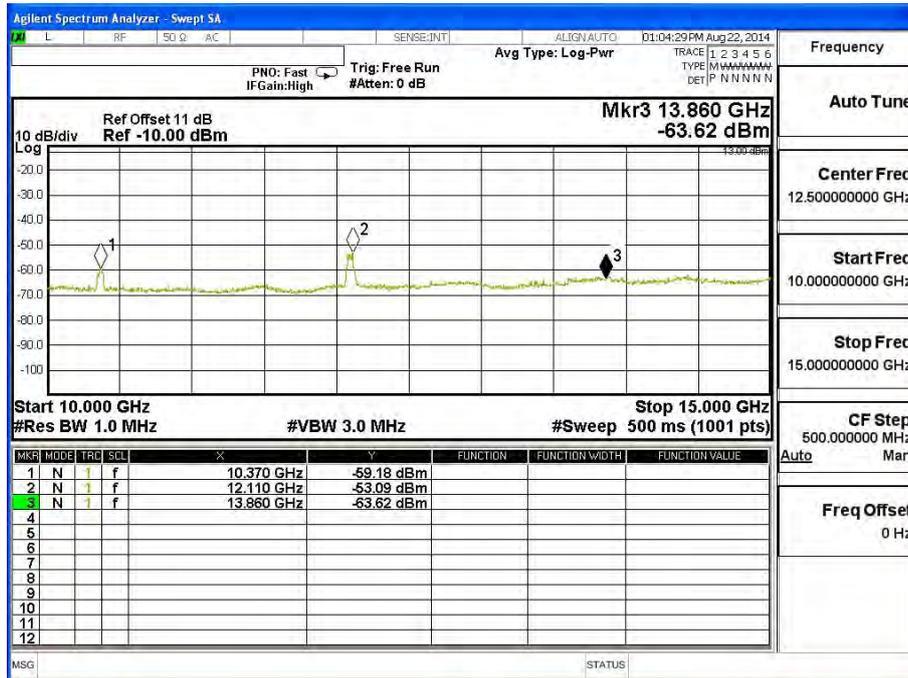
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band IV (20M)	Test Range	30MHz~20GHz

**LTE-Band IV (20M) QPSK(50,0) CH20175**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3456	-40.560	1.1	-39.460	-13
5180	-57.000	1.23	-55.770	-13
6910	-33.610	1.59	-32.020	-13
8650	-56.270	1.89	-54.380	-13
10370	-59.180	2.07	-57.110	-13
12110	-53.090	2.26	-50.830	-13
13860	-63.620	2.64	-60.980	-13
15593	-62.869	3.5	-59.369	-13
17325	-63.950	3.7	-60.250	-13



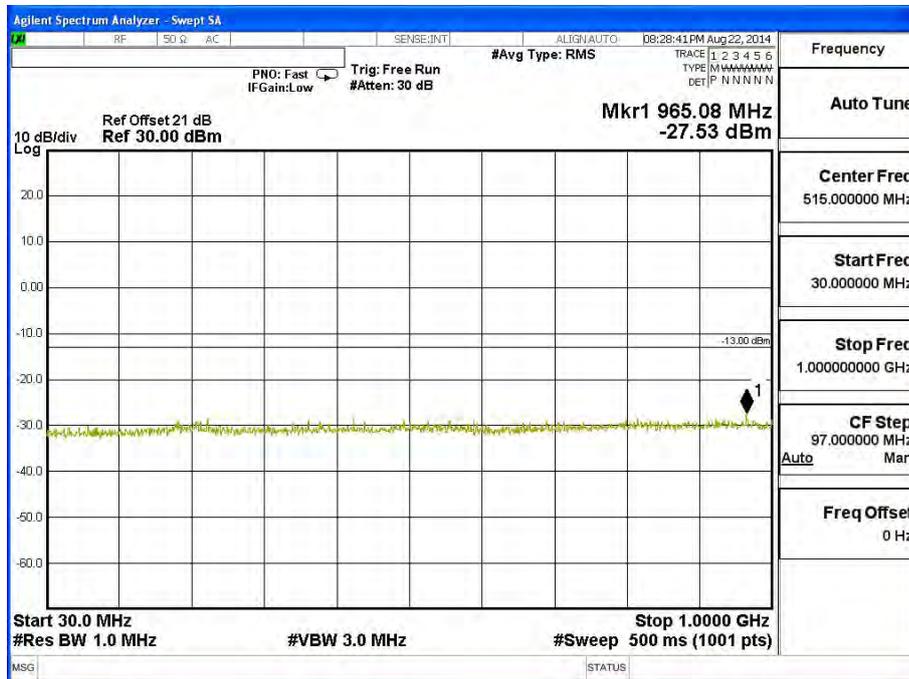


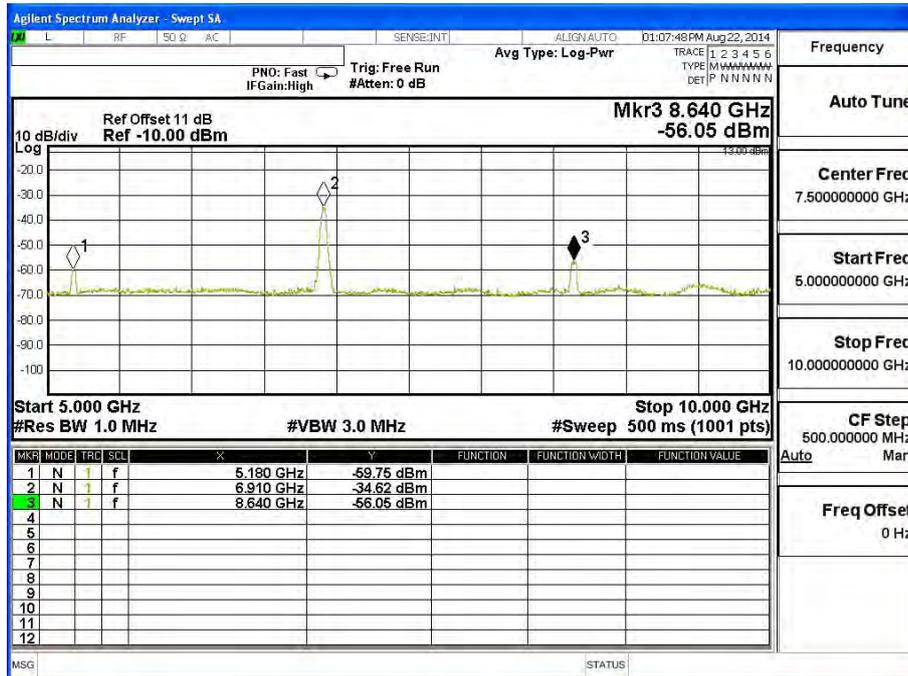
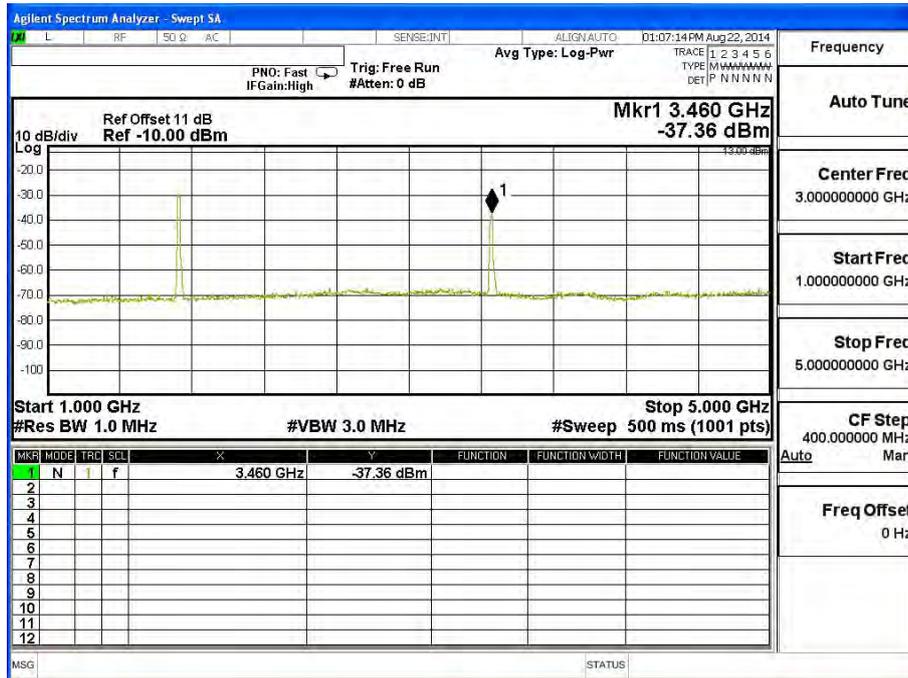


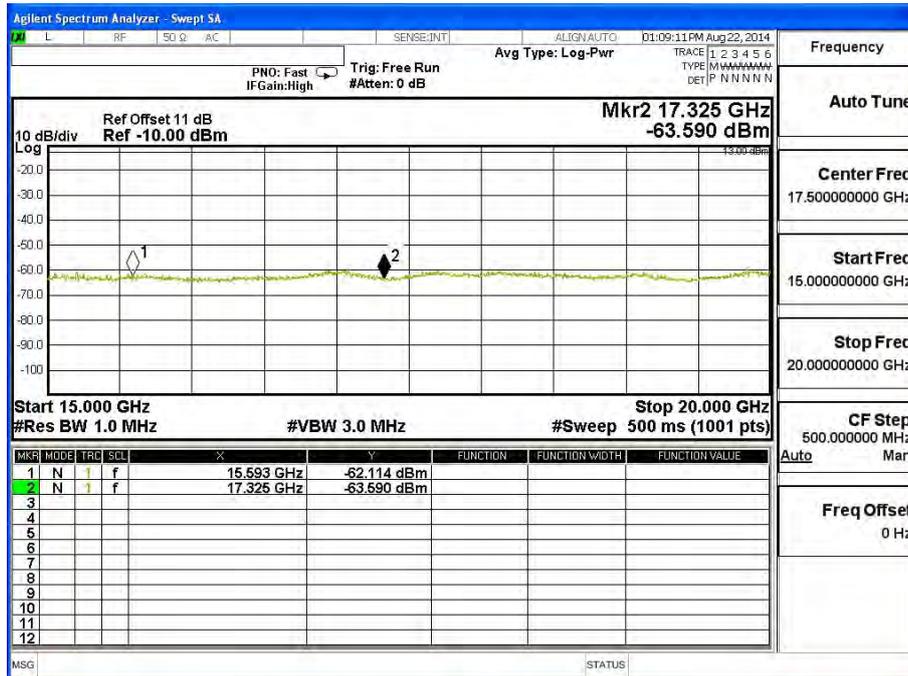
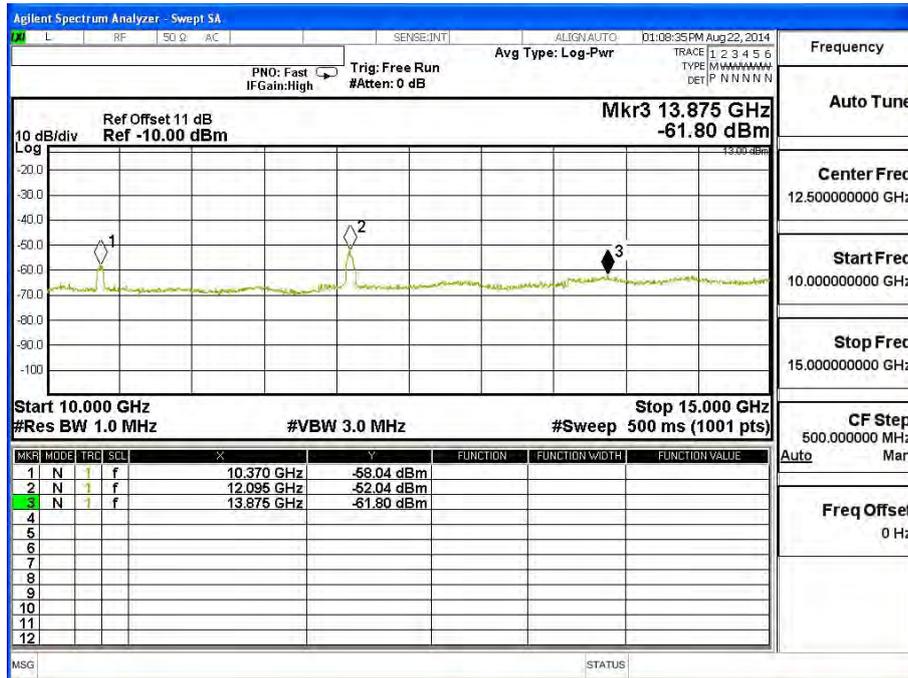
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band IV (20M)	Test Range	30MHz~20GHz

**LTE-Band IV (20M) 16QAM(50,0) CH20175**

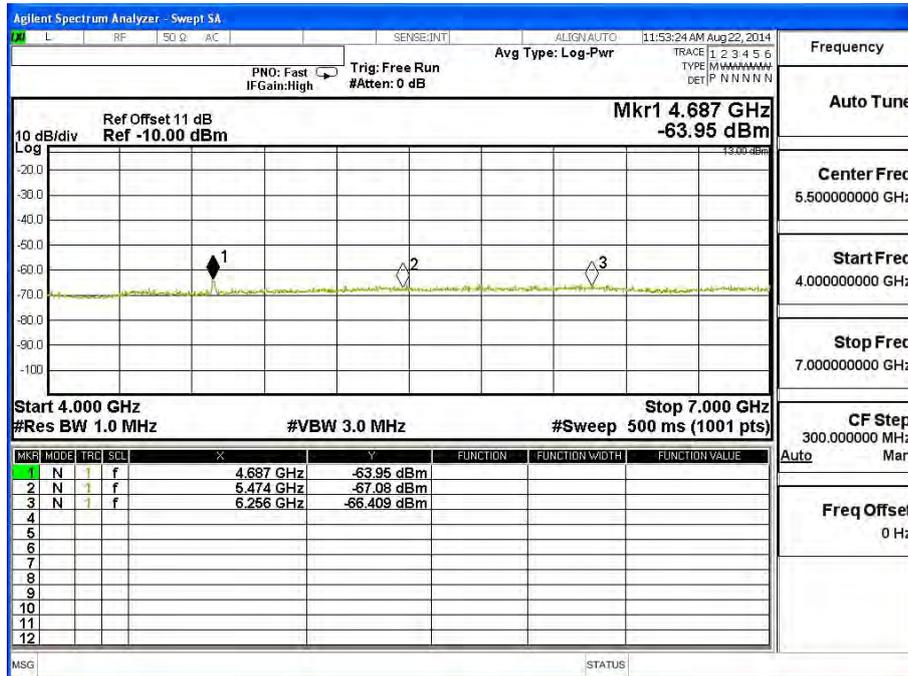
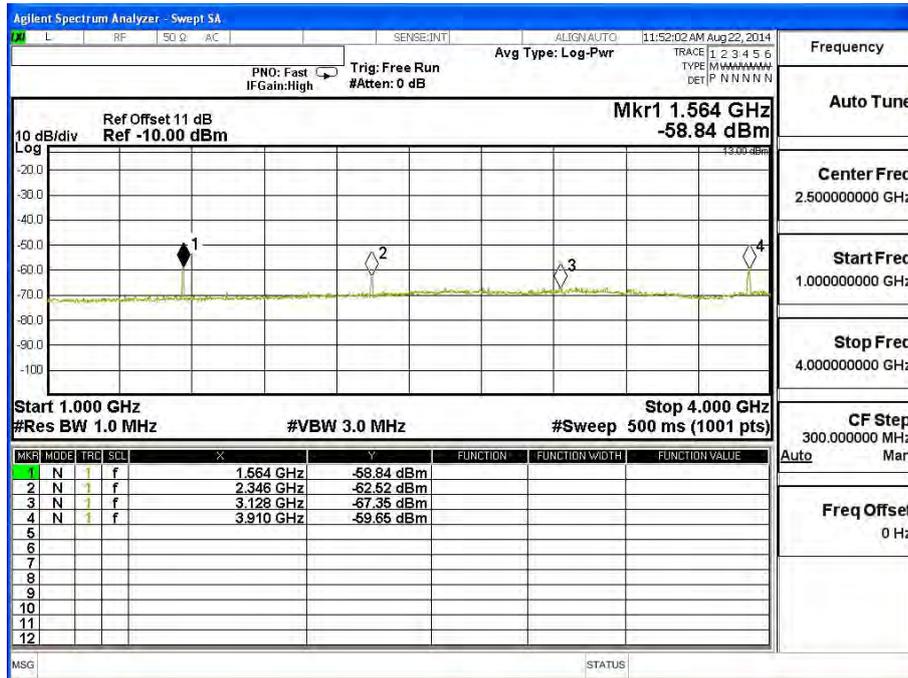
Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3460	-37.360	1.1	-36.260	-13
5180	-59.750	1.23	-58.520	-13
6910	-34.620	1.59	-33.030	-13
8640	-56.050	1.89	-54.160	-13
10375	-58.040	2.07	-55.970	-13
12095	-52.040	2.26	-49.780	-13
13875	-61.800	2.64	-59.160	-13
15593	-62.114	3.5	-58.614	-13
17325	-63.590	3.7	-59.890	-13

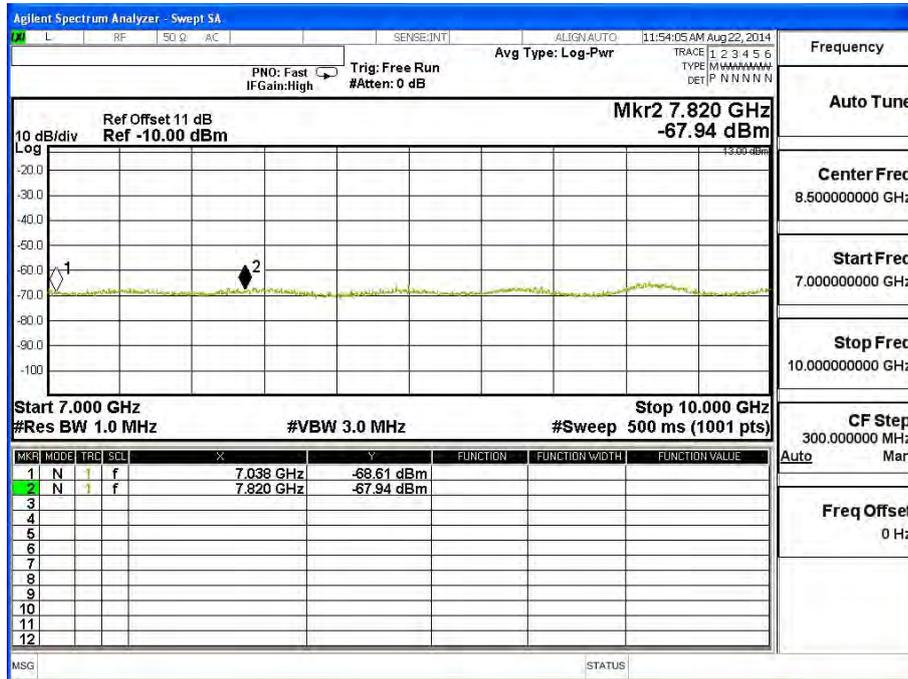








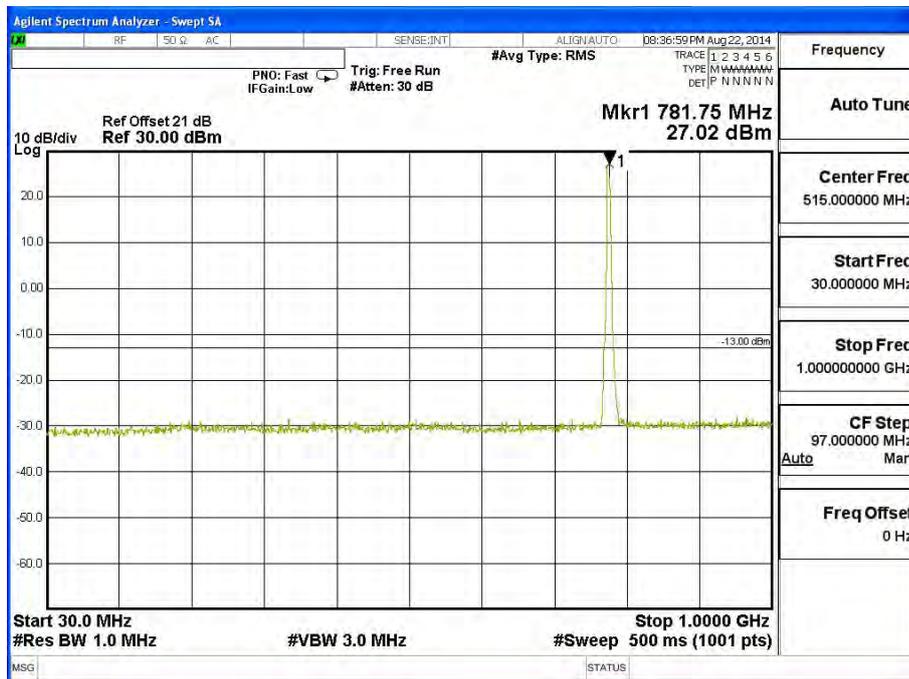


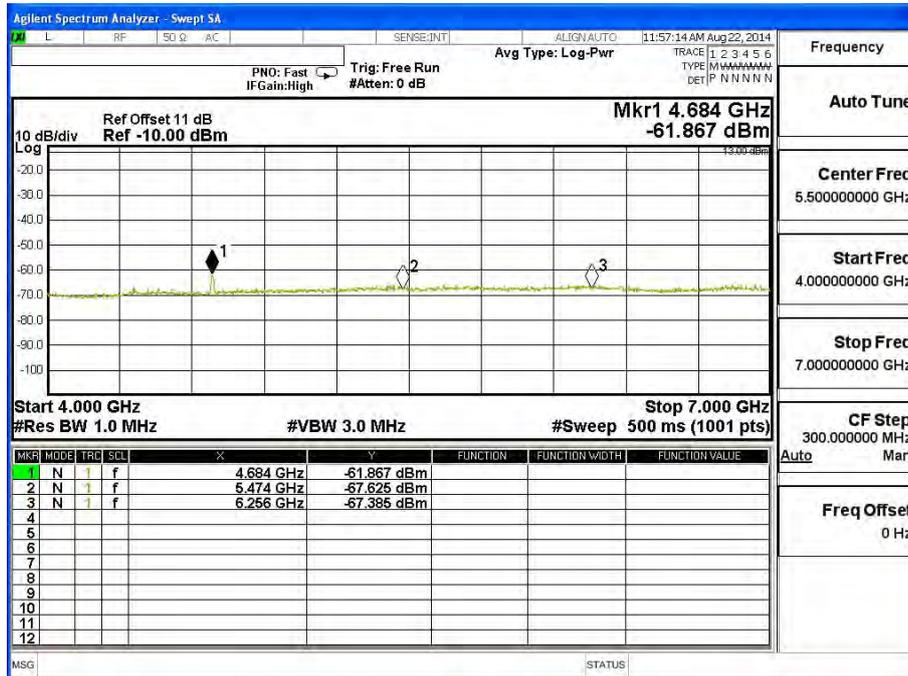
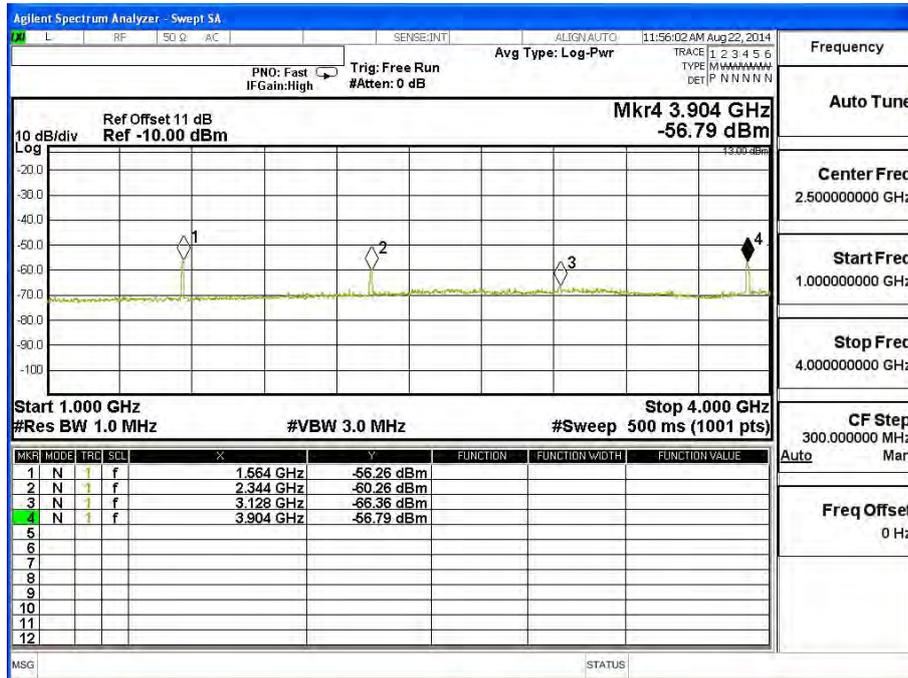


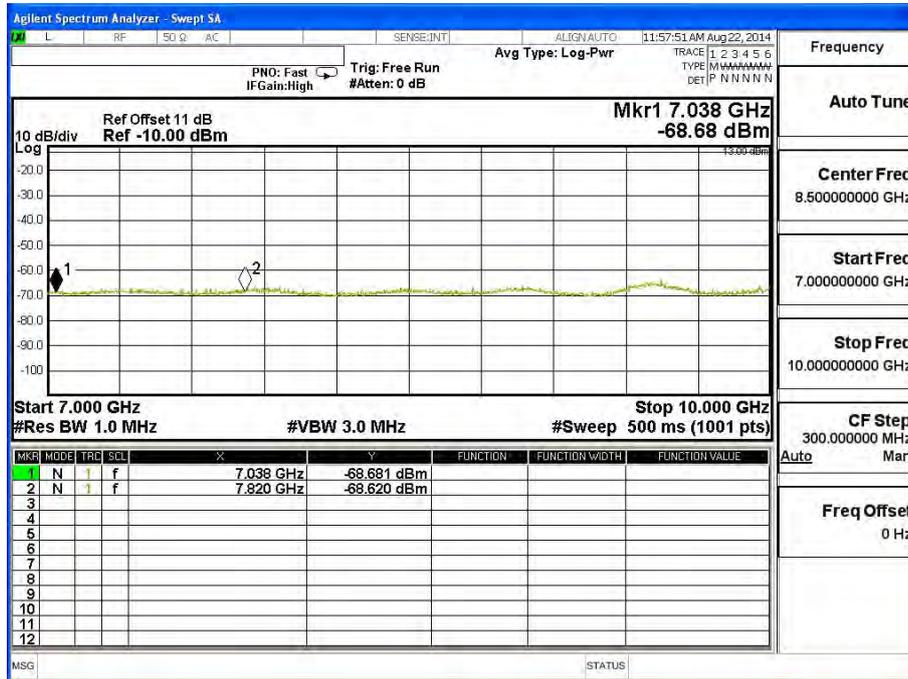
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band XIII (5M)	Test Range	30MHz~10GHz

**LTE-and XIII (5M) 16QAM(12,0) CH23230**

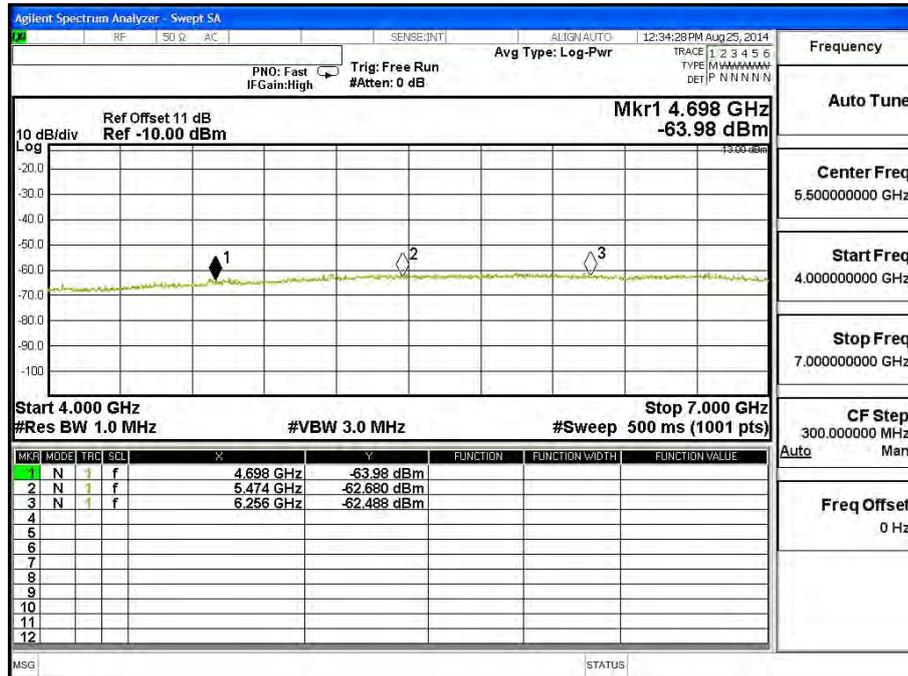
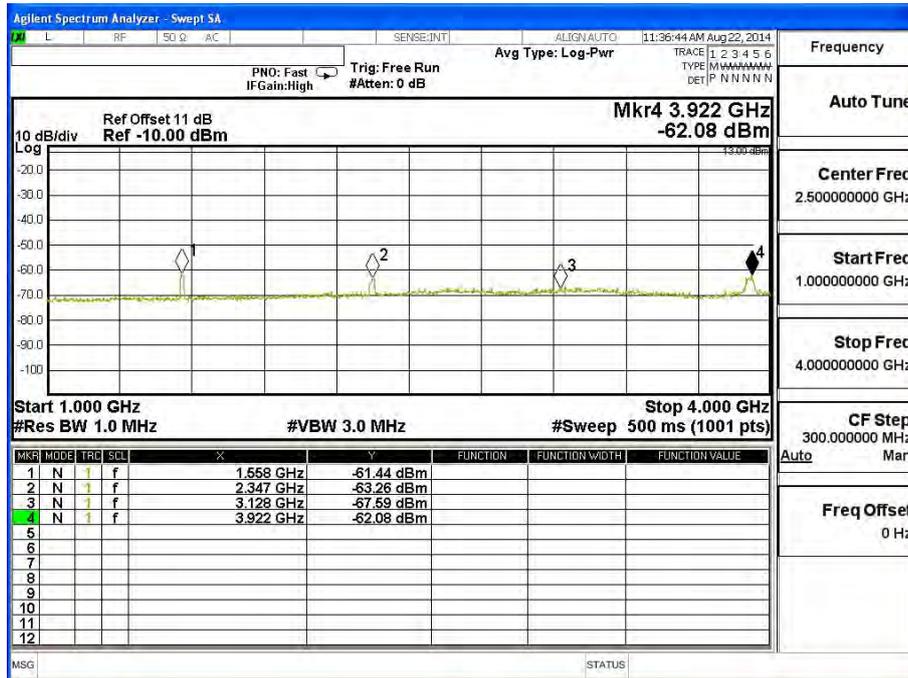
Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
1564	-56.260	0.58	-55.680	-13
2344	-60.260	0.7	-59.560	-13
3128	-66.360	1.01	-65.350	-13
3904	-56.790	1.18	-55.610	-13
4684	-61.867	1.23	-60.637	-13
5474	-67.625	1.45	-66.175	-13
6256	-67.385	1.56	-65.825	-13
7038	-68.681	1.59	-67.091	-13
7820	-68.620	1.82	-66.800	-13

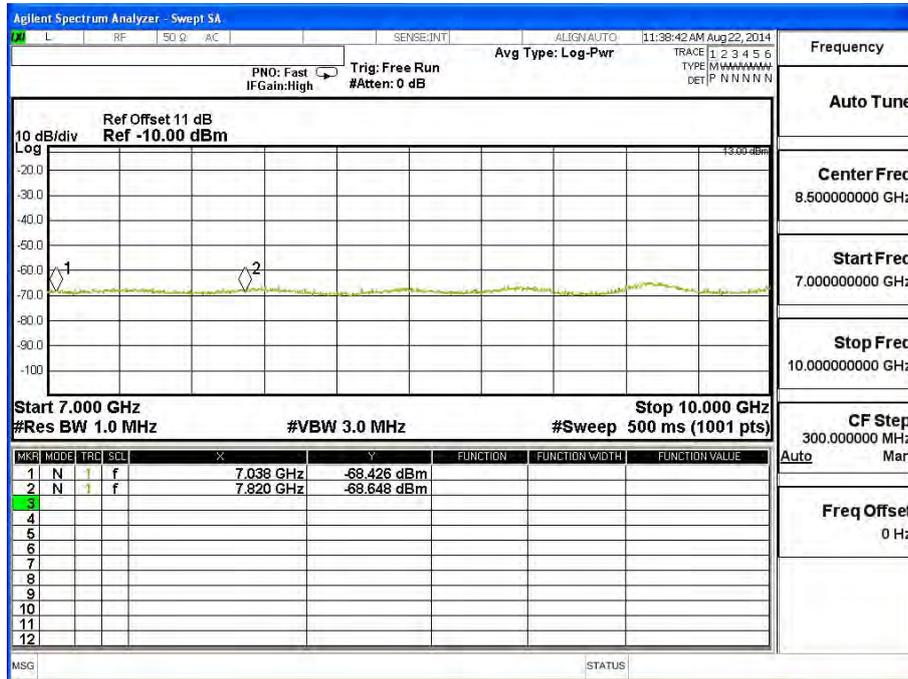








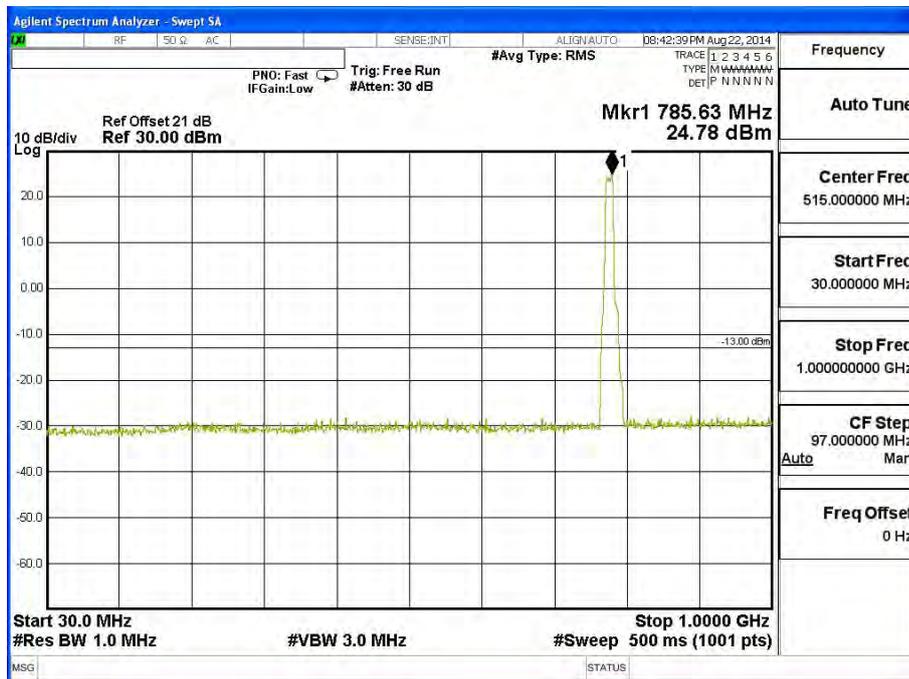


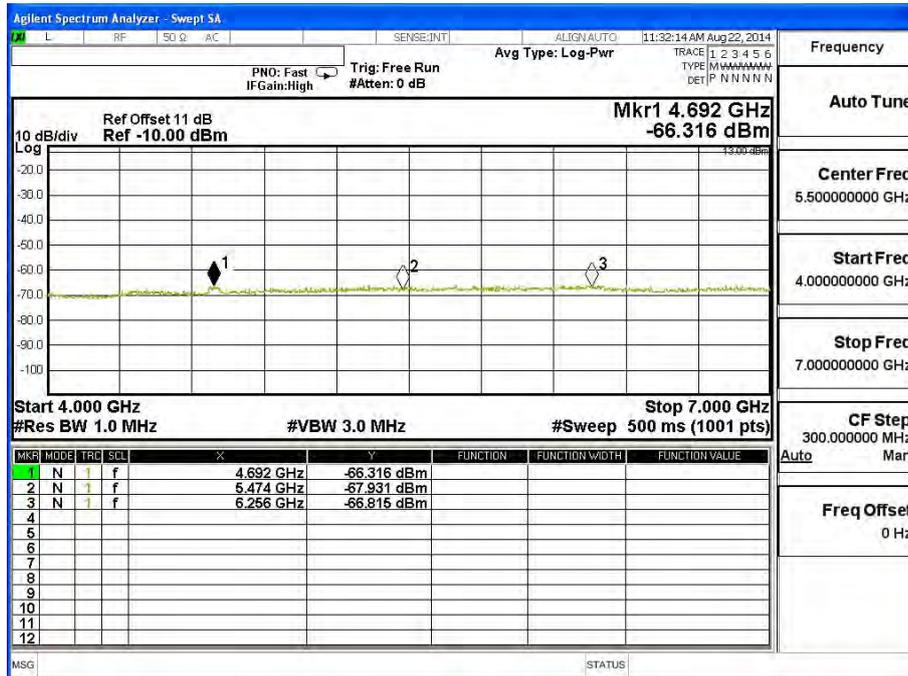
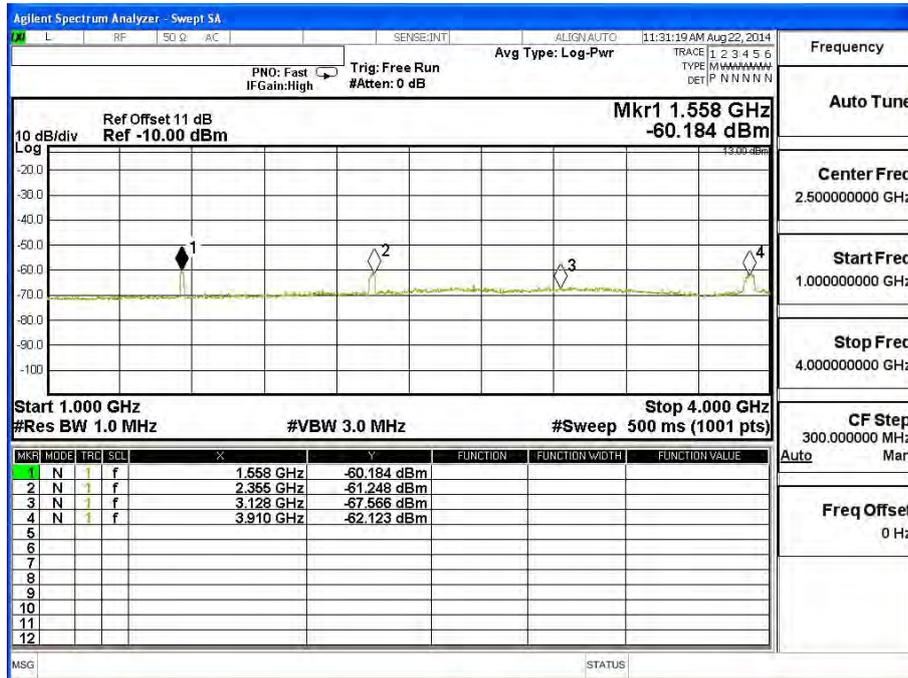


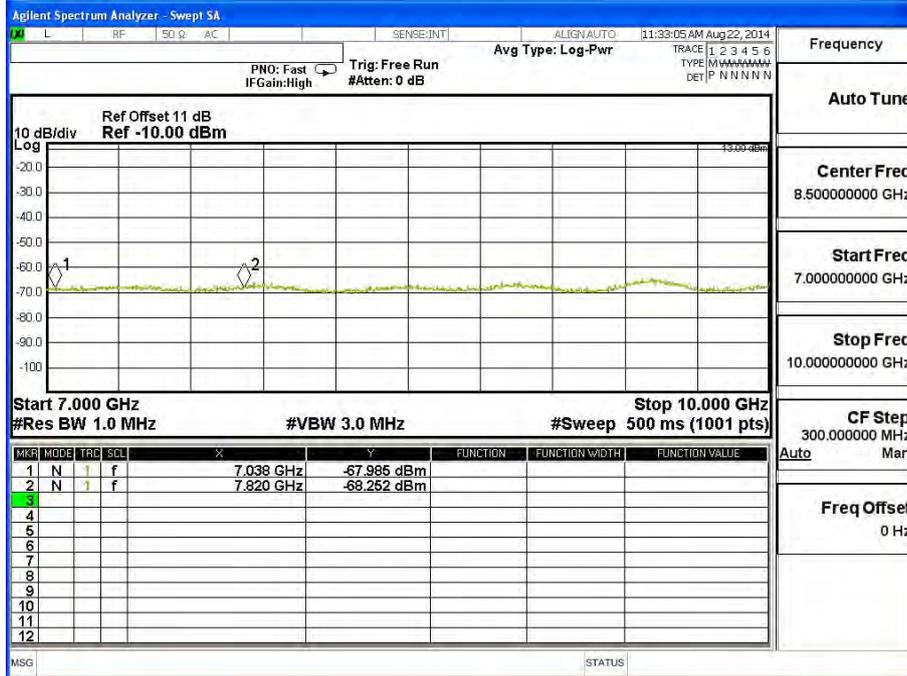
Product	Notebook PC		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2014/09/19	Test Site	CTR
Test Condition	LTE-Band XIII (10M)	Test Range	30MHz~10GHz

**LTE-Band XIII (10M 16QAM(50,0) CH23230**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
1558	-60.184	0.58	-59.604	-13
2355	-61.248	0.7	-60.548	-13
3128	-67.566	1.01	-66.556	-13
3910	-62.123	1.18	-60.943	-13
4692	-66.316	1.23	-65.086	-13
5474	-67.931	1.45	-66.481	-13
6256	-66.815	1.56	-65.255	-13
7038	-67.985	1.59	-66.395	-13
7820	-68.252	1.82	-66.432	-13







Frequency	
Auto Tune	
Center Freq	8.500000000 GHz
Start Freq	7.000000000 GHz
Stop Freq	10.000000000 GHz
CF Step	300.0000000 MHz
Auto	Man
Freq Offset	0 Hz

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band IV (5M) QPSK(1,0)	Test Range	9KHz ~10GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band IV (5M) QPSK(1,0)

3646.000	-38.610	-39.297	2.530	12.600	-29.227	-13
5187.500	-61.520	-57.486	3.050	13.100	-47.436	-13
6920.000	-54.850	-43.146	3.650	11.500	-35.296	-13
8672.500	-65.740	-50.214	3.850	12.000	-42.064	-13
10395.000	-64.510	-47.789	4.580	12.000	-40.369	-13
12127.500	-68.220	-51.125	4.800	13.300	-42.625	-13
13860.000	-58.770	-37.333	5.500	13.700	-29.133	-13
15592.500	-60.490	-40.651	5.560	15.300	-30.911	-13
17325.000	-61.240	-32.743	5.830	8.900	-29.673	-13

#### Vertical Emissions Band IV (5M) QPSK(1,0)

3464.000	-42.260	-42.161	2.530	12.600	-32.091	-13
5187.500	-62.010	-57.640	3.050	13.100	-47.590	-13
6920.000	-50.030	-37.838	3.650	11.500	-29.988	-13
8662.500	-66.630	-50.615	3.850	12.000	-42.465	-13
10395.000	-65.480	-48.543	4.580	12.000	-41.123	-13
12107.500	-67.410	-50.505	4.800	13.300	-42.005	-13
13870.000	-58.140	-36.476	5.500	13.700	-28.276	-13
15592.500	-61.580	-42.552	5.560	15.300	-32.812	-13
17325.000	-61.000	-30.175	5.830	8.900	-27.105	-13

Note:

1. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band IV (10M) QPSK(1,0)	Test Range	9KHz ~20GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band IV (10M) QPSK(1,0)

3456.000	-40.090	-40.978	2.530	12.600	-30.908	-13
5177.500	-62.590	-58.547	3.050	13.100	-48.497	-13
6910.000	-55.740	-44.191	3.650	11.500	-36.341	-13
8672.000	-66.340	-50.816	3.850	12.000	-42.666	-13
10385.000	-65.120	-48.358	4.580	12.000	-40.938	-13
12137.500	-67.250	-50.127	4.800	13.300	-41.627	-13

#### Vertical Emissions Band IV (10M) QPSK(1,0)

3456.000	-37.610	-37.585	2.530	12.600	-27.515	-13
5177.000	-60.460	-56.056	3.050	13.100	-46.006	-13
6910.000	-49.700	-37.675	3.650	11.500	-29.825	-13
8662.500	-66.340	-50.325	3.850	12.000	-42.175	-13
10375.000	-65.220	-48.445	4.580	12.000	-41.025	-13
12097.500	-65.820	-48.952	4.800	13.300	-40.452	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. ERP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 13 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band IV (15M) QPSK(1,0)	Test Range	9KHz ~20GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band IV (15M) QPSK(1,0)

3456.000	-40.550	-41.438	2.530	12.600	-31.368	-13
5167.500	-61.330	-57.246	3.050	13.100	-47.196	-13
6900.000	-56.480	-45.086	3.650	11.500	-37.236	-13
8682.500	-67.660	-52.105	3.850	12.000	-43.955	-13
10395.000	-65.940	-49.219	4.580	12.000	-41.799	-13
12127.500	-68.250	-51.155	4.800	13.300	-42.655	-13

#### Vertical Emissions Band IV (15M) QPSK(1,0)

3456.000	-39.180	-39.155	2.530	12.600	-29.085	-13
5167.500	-58.730	-54.296	3.050	13.100	-44.246	-13
6900.000	-52.140	-40.280	3.650	11.500	-32.430	-13
8672.500	-67.840	-51.781	3.850	12.000	-43.631	-13
10385.000	-65.120	-48.260	4.580	12.000	-40.840	-13
12077.500	-64.670	-47.891	4.800	13.300	-39.391	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 13 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band IV (20M) QPSK(1,0)	Test Range	9KHz ~20GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band IV (20M) QPSK(1,0)

3448.000	-38.930	-39.913	2.530	12.600	-29.843	-13
5167.500	-62.000	-57.916	3.050	13.100	-47.866	-13
6890.000	-55.650	-44.406	3.650	11.500	-36.556	-13
8672.500	-66.400	-50.874	3.850	12.000	-42.724	-13
10395.000	-64.340	-47.619	4.580	12.000	-40.199	-13
12127.500	-67.700	-50.605	4.800	13.300	-42.105	-13

#### Vertical Emissions Band IV (20M) QPSK(1,0)

3448.000	-38.250	-38.298	2.530	12.600	-28.228	-13
5167.500	-58.650	-54.216	3.050	13.100	-44.166	-13
6890.000	-49.090	-37.299	3.650	11.500	-29.449	-13
8622.500	-65.650	-49.811	3.850	12.000	-41.661	-13
10405.000	-66.010	-49.051	4.580	12.000	-41.631	-13
12057.500	-65.220	-48.531	4.800	13.300	-40.031	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 13 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band XIII (5M) QPSK(50,0)	Test Range	9KHz ~10GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band XIII (5M) QPSK(50,0)

1564.000	-60.860	-65.280	1.630	9.800	-57.110	-13
2364.000	-61.900	-62.344	2.100	10.600	-53.844	-13
3128.000	-62.440	-63.509	2.350	12.300	-53.559	-13
3910.000	-62.450	-62.600	2.700	12.600	-52.700	-13
4680.000	-63.680	-60.382	2.830	12.700	-50.512	-13
5456.000	-64.600	-60.454	3.200	13.000	-50.654	-13

#### Vertical Emissions Band XIII (5M) QPSK(50,0)

1552.000	-60.620	-64.335	1.630	9.800	-56.165	-13
2346.000	-62.130	-61.758	2.100	10.600	-53.258	-13
3128.000	-62.010	-62.088	2.350	12.300	-52.138	-13
3910.000	-63.020	-61.135	2.700	12.600	-51.235	-13
4686.000	-64.750	-60.721	2.830	12.700	-50.851	-13
5468.000	-64.970	-60.447	3.200	13.000	-50.647	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band XIII (5M) QPSK(1,12)	Test Range	9KHz ~10GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band XIII (5M) QPSK(1,12)

1564.000	-57.930	-62.350	1.630	9.800	-54.180	-13
2346.000	-55.150	-55.380	2.100	10.600	-46.880	-13
3134.000	-62.190	-63.242	2.350	12.300	-53.292	-13
3916.000	-57.240	-57.308	2.700	12.600	-47.408	-13
4722.000	-63.850	-60.405	2.830	12.700	-50.535	-13
5468.000	-64.900	-60.744	3.200	13.000	-50.944	-13

#### Vertical Emissions Band XIII (5M) QPSK(1,12)

1564.000	-61.350	-65.097	1.630	9.800	-56.927	-13
2346.000	-62.760	-62.388	2.100	10.600	-53.888	-13
3116.000	-61.630	-61.717	2.350	12.300	-51.767	-13
3916.000	-60.200	-58.294	2.700	12.600	-48.394	-13
4728.000	-63.930	-59.698	2.830	12.700	-49.828	-13
5456.000	-64.690	-60.169	3.200	13.000	-50.369	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band XIII (10M) QPSK(50,0)	Test Range	9KHz ~10GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band XIII (10M) QPSK(50,0)

1564.000	-61.710	-66.130	1.630	9.800	-57.960	-13
2340.000	-62.930	-63.088	2.100	10.600	-54.588	-13
3134.000	-61.560	-62.612	2.350	12.300	-52.662	-13
3898.000	-62.070	-62.384	2.700	12.600	-52.484	-13
4692.000	-64.660	-61.311	2.830	12.700	-51.441	-13
5468.000	-64.350	-60.194	3.200	13.000	-50.394	-13

#### Vertical Emissions Band XIII (10M) QPSK(50,0)

1552.000	-60.830	-64.545	1.630	9.800	-56.375	-13
2346.000	-62.580	-62.208	2.100	10.600	-53.708	-13
3128.000	-62.030	-62.108	2.350	12.300	-52.158	-13
3904.000	-62.140	-60.261	2.700	12.600	-50.361	-13
4704.000	-64.640	-60.493	2.830	12.700	-50.623	-13
5486.000	-64.500	-59.972	3.200	13.000	-50.172	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Notebook PC		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2014/09/12	Test Site	Site3
Test Condition	Band XIII (10M) QPSK(1,49)	Test Range	9KHz ~10GHz

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

#### Horizontal Emissions Band XIII (10M) QPSK(1,49)

1570.000	-61.180	-65.578	1.630	9.800	-57.408	-13
2346.000	-62.840	-63.070	2.100	10.600	-54.570	-13
3122.000	-61.770	-62.857	2.350	12.300	-52.907	-13
3934.000	-59.160	-58.981	2.700	12.600	-49.081	-13
4680.000	-63.990	-60.692	2.830	12.700	-50.822	-13
5474.000	-63.910	-59.756	3.200	13.000	-49.956	-13

#### Vertical Emissions Band XIII (10M) QPSK(1,49)

1546.000	-61.520	-65.219	1.630	9.800	-57.049	-13
2364.000	-59.520	-59.315	2.100	10.600	-50.815	-13
3116.000	-61.280	-61.367	2.350	12.300	-51.417	-13
3940.000	-61.210	-59.220	2.700	12.600	-49.320	-13
4674.000	-64.150	-60.215	2.830	12.700	-50.345	-13
5456.000	-64.320	-59.799	3.200	13.000	-49.999	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

## 6. Frequency Stability Under Temperature & Voltage Variations

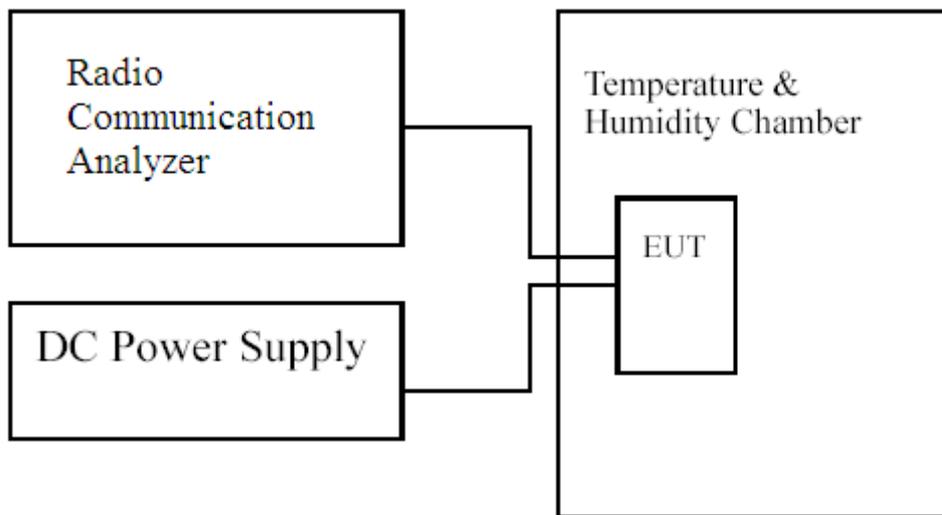
### 6.1. Test Equipment

The following test equipments are used during the frequency stability test:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Radio Communication Analyzer	Anritsu	MT8820C / 6201091166	2014/01/17
Standard Temperature & Humidity Chamber	WIT	TH-1S-B / 108210	2013/09/26

Note: All equipments upon which need to be calibrated are with calibration period of 1 year

### 6.2. Test Setup



### 6.3. Limits

Limit	$<\pm 2.5\text{ppm}$
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#### 6.4. Test Procedure

The frequency stability of transmitter is measured by:

- (a) Temperature: The temperature is varied from  $-30^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  in  $10^{\circ}\text{C}$  increment using a standard temperature & Humidity chamber.
- (b) Primary Supply Voltage: The primary supply voltage is varied 85% to 115% of the nominal value for non hand-carried equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating endpoint which shall be specified by the manufacturer.

The EUT was connected via the base station simulator. Universal Radio Communication Tester, (MT8820C), was used to measure The Frequency Error. The maximum result of measurements was recorded.

#### 6.5. Test Specification

According to Part 2.1055, 27.54

**6.6. Test Result of Frequency Stability Under Temperature Variations**

Product	Notebook PC		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2014/09/20	Test Site	CTR
Test Condition	Band IV (5M) CH20175(1732.5MHz)	Test Range	-20°C ~+50°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	1.73	0.0261	±4.33
-20	1.73	0.0157	±4.33
-10	1.73	0.0218	±4.33
0	1.73	0.0170	±4.33
10	1.73	0.0207	±4.33
20	1.73	0.0201	±4.33
30	1.73	0.0106	±4.33
40	1.73	0.0218	±4.33
50	1.73	0.0205	±4.33

Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
138	1.73	0.0139	±4.33
120	1.73	0.0201	±4.33
102	1.73	0.0109	±4.33

Product	Notebook PC		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2014/09/20	Test Site	CTR
Test Condition	Band IV (10M) CH20175(1732.5MHz)	Test Range	-30°C ~+50°C

#### Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	1.73	0.0204	±4.33
-20	1.73	0.0129	±4.33
-10	1.73	0.0134	±4.33
0	1.73	0.0128	±4.33
10	1.73	0.0128	±4.33
20	1.73	0.0143	±4.33
30	1.73	0.0127	±4.33
40	1.73	0.0149	±4.33
50	1.73	0.0170	±4.33

#### Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
138	1.73	0.0095	±4.33
120	1.73	0.0143	±4.33
102	1.73	0.0110	±4.33

Product	Notebook PC		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2014/09/20	Test Site	CTR
Test Condition	Band IV (15M) CH20175(1732.5MHz)	Test Range	-30°C ~+50°C

#### Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	1.73	0.0178	±4.33
-20	1.73	0.0177	±4.33
-10	1.73	0.0163	±4.33
0	1.73	0.0158	±4.33
10	1.73	0.0157	±4.33
20	1.73	-0.0095	±4.33
30	1.73	0.0083	±4.33
40	1.73	0.0089	±4.33
50	1.73	0.0106	±4.33

#### Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
138	1.73	-0.0080	±4.33
120	1.73	-0.0095	±4.33
102	1.73	-0.0111	±4.33

Product	Notebook PC		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2014/09/20	Test Site	CTR
Test Condition	Band IV (20M) CH20175(1732.5MHz)	Test Range	-30°C ~+50°C

#### Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	1.73	0.0107	±4.33
-20	1.73	0.0211	±4.33
-10	1.73	0.0111	±4.33
0	1.73	0.0120	±4.33
10	1.73	0.0088	±4.33
20	1.73	0.0063	±4.33
30	1.73	0.0118	±4.33
40	1.73	0.0204	±4.33
50	1.73	0.0142	±4.33

#### Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
138	1.73	0.0111	±4.33
120	1.73	0.0063	±4.33
102	1.73	-0.0082	±4.33

Product	Notebook PC		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2014/09/20	Test Site	CTR
Test Condition	Band XIII (5M) CH23230(782MHz)	Test Range	-30°C ~+50°C

#### Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	0.782	0.0181	±1.96
-20	0.782	0.0140	±1.96
-10	0.782	0.0117	±1.96
0	0.782	0.0105	±1.96
10	0.782	0.0169	±1.96
20	0.782	-0.0104	±1.96
30	0.782	-0.0109	±1.96
40	0.782	-0.0125	±1.96
50	0.782	-0.0137	±1.96

#### Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
138	0.782	-0.0123	±1.96
120	0.782	-0.0104	±1.96
102	0.782	-0.0102	±1.96

Product	Notebook PC		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2014/09/20	Test Site	CTR
Test Condition	Band XIII (10M) CH23230(782MHz)	Test Range	-30°C ~+50°C

#### Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	0.782	0.0174	±1.96
-20	0.782	-0.0096	±1.96
-10	0.782	0.0119	±1.96
0	0.782	-0.0023	±1.96
10	0.782	0.0130	±1.96
20	0.782	-0.0133	±1.96
30	0.782	-0.0135	±1.96
40	0.782	-0.0143	±1.96
50	0.782	-0.0154	±1.96

#### Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
138	0.782	-0.0092	±1.96
120	0.782	-0.0133	±1.96
102	0.782	-0.0118	±1.96

## 7. Peak to Average Ratio

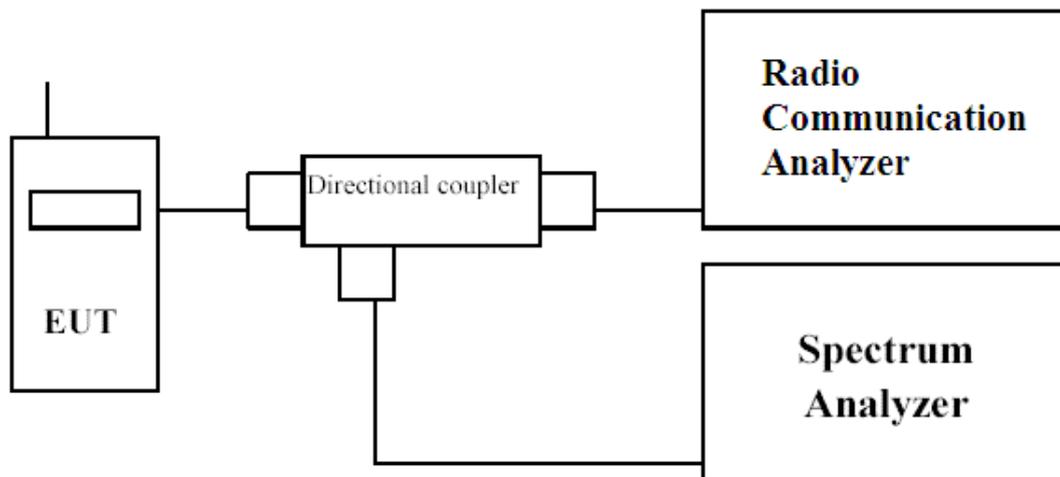
### 7.1 Test Equipment

The following test equipments are used during the occupied bandwidth tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	Agilent	N9020A / MY48010570	2013/12/20
Radio Communication Analyzer	Anritsu	MT8820C / 6201091166	2014/01/17
Directional coupler	Agilent	87300C / MY44300353	2013/11/04
Directional coupler	Agilent	778D / 50550	2013/10/07

Note: All equipments upon which need to be calibrated are with calibration period of 1 year.

### 7.2 Test Setup



### 7.3 Limits

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure.

## 7.4 Test Procedure

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval as follows:
  - 1) for continuous transmissions, set to 1 ms,
  - 2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
- e) Record the maximum PAPR level associated with a probability of 0.1%.

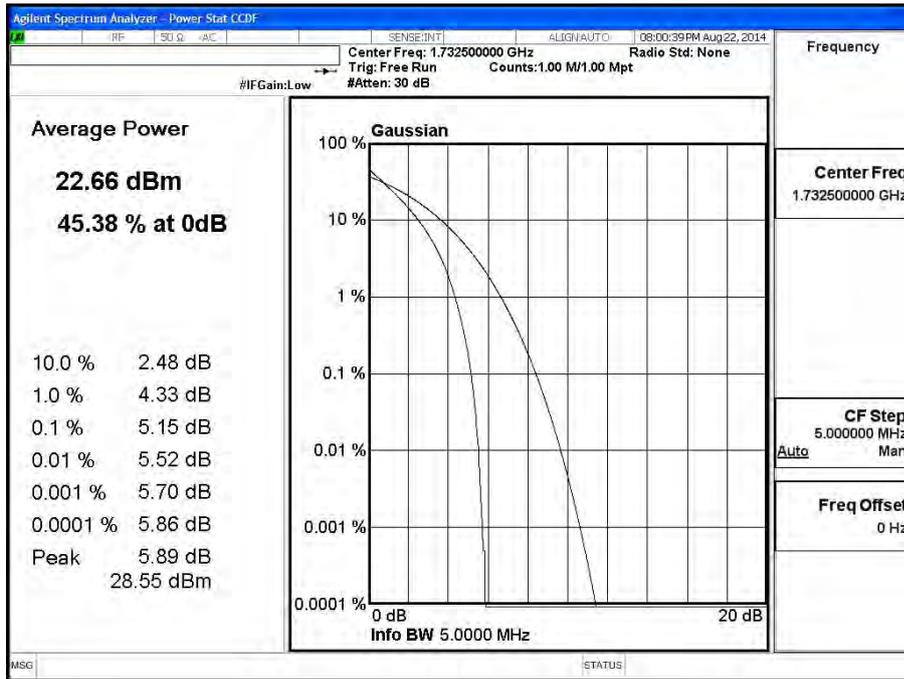
## 7.5 Test Specification

According to Part 27.50(d).

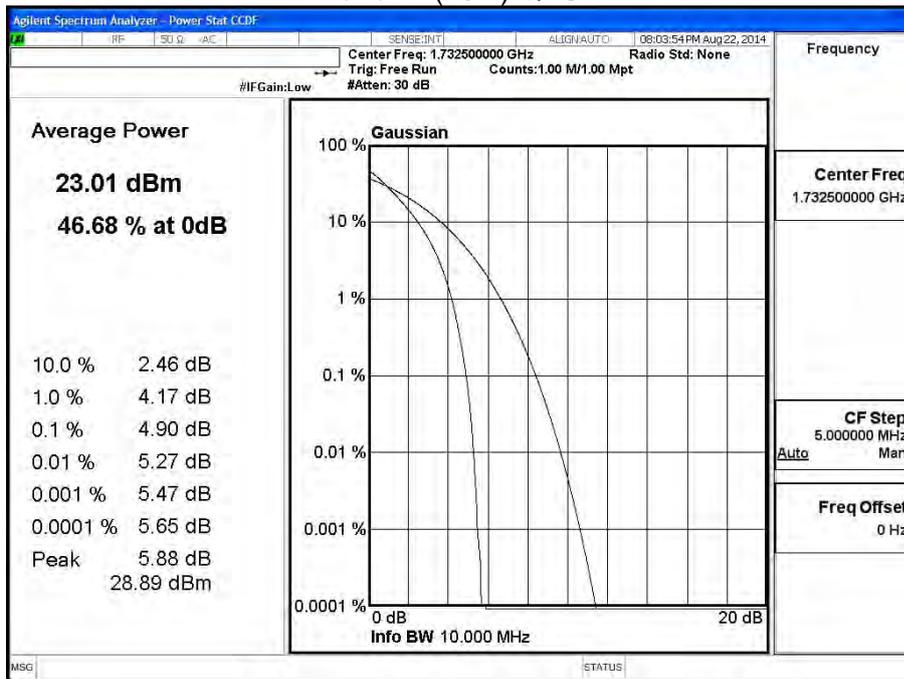
### 7.6 Test Result of Spurious Emission

Product	Notebook PC		
Test Mode	Peak to Average Ratio		
Date of Test	2014/10/06	Test Site	CTR
Test Condition	LTE-Band IV		

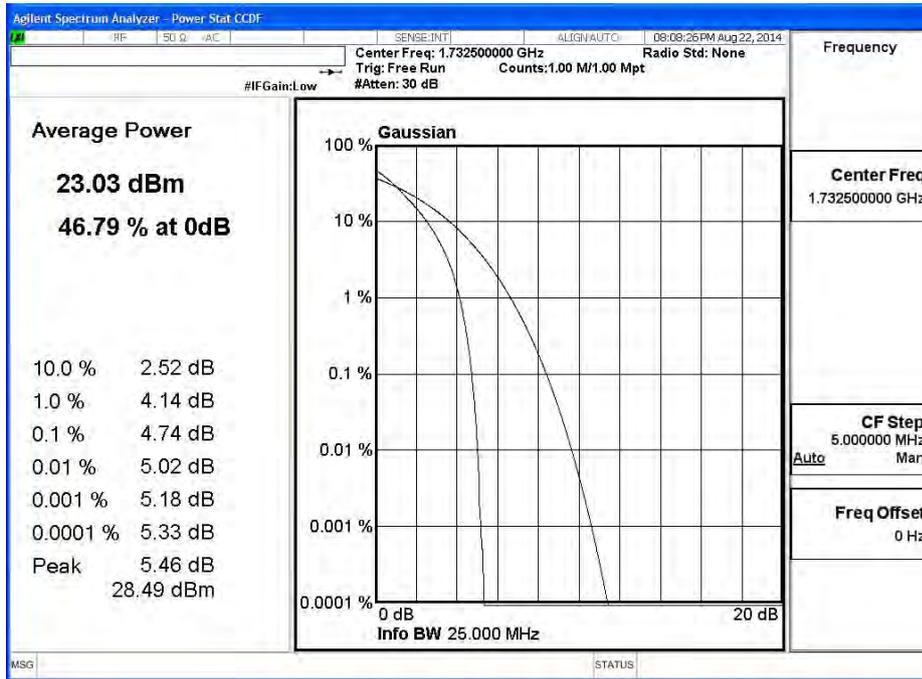
Band IV (5M) QPSK



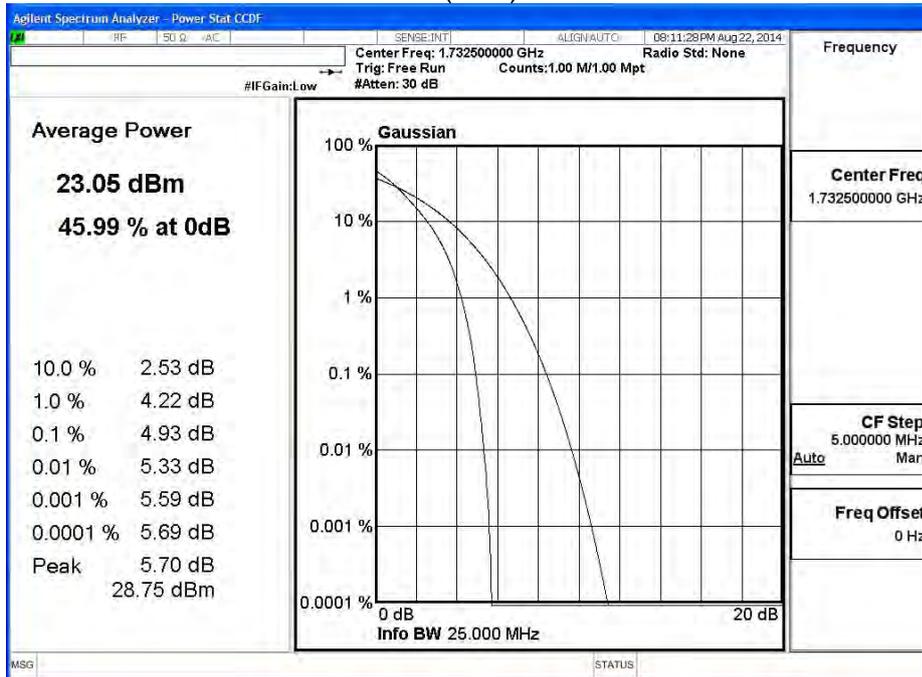
Band IV (10M) QPSK



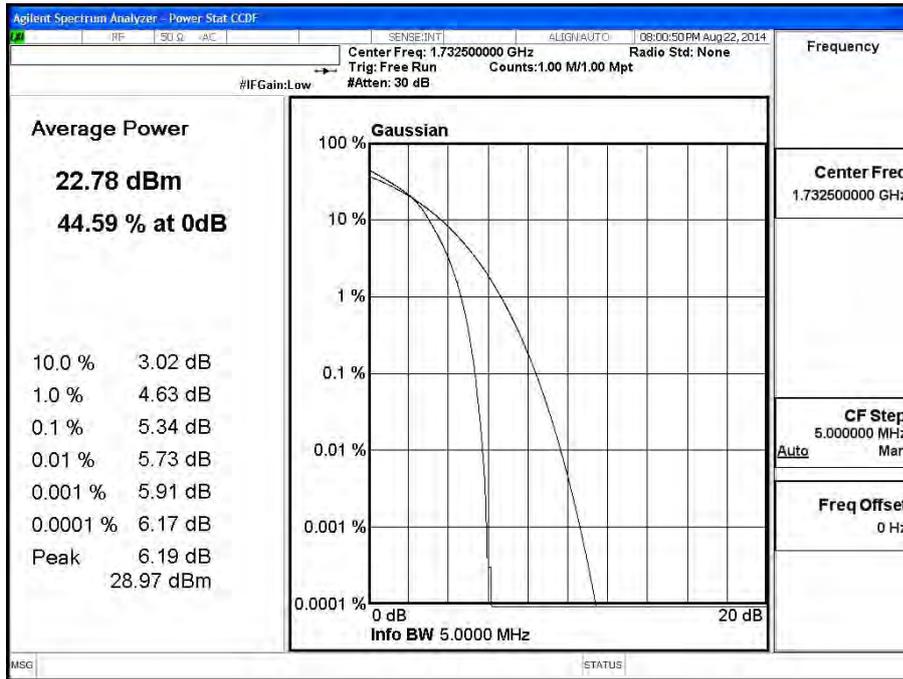
**Band IV (15M) QPSK**



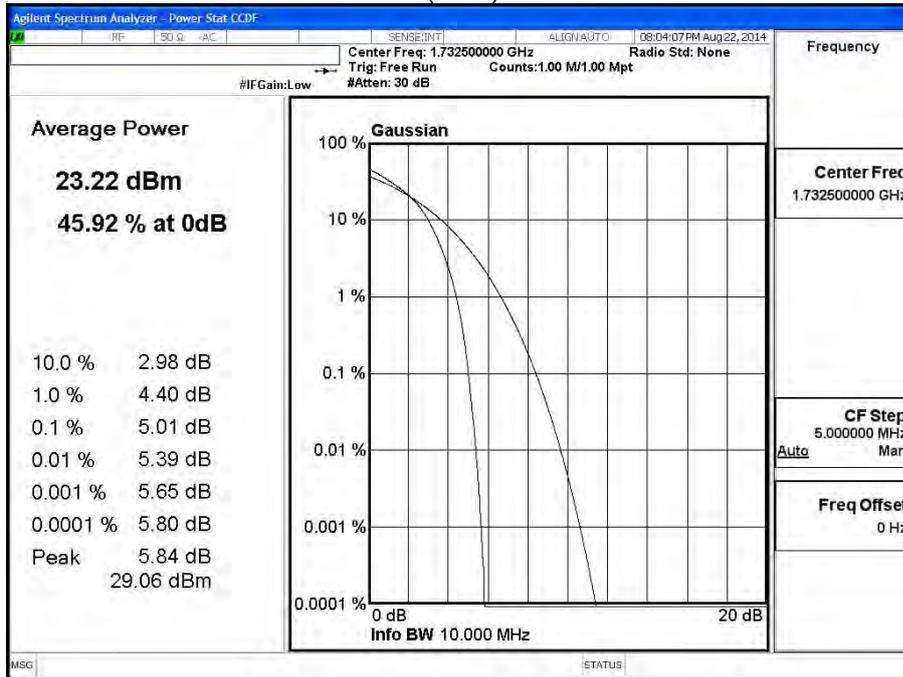
**Band IV (20M) QPSK**



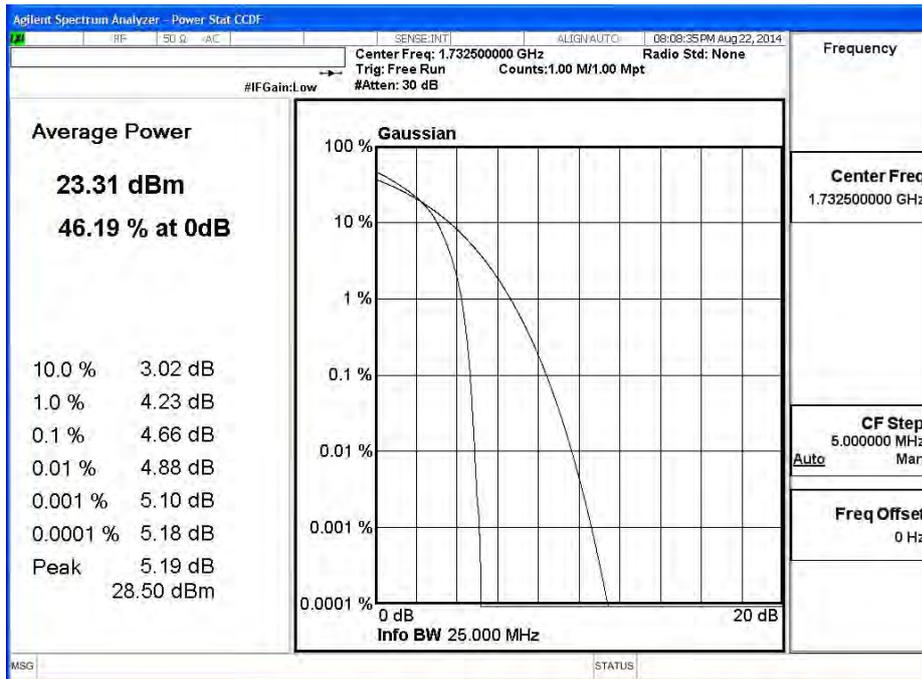
**Band IV (5M) 16QAM**



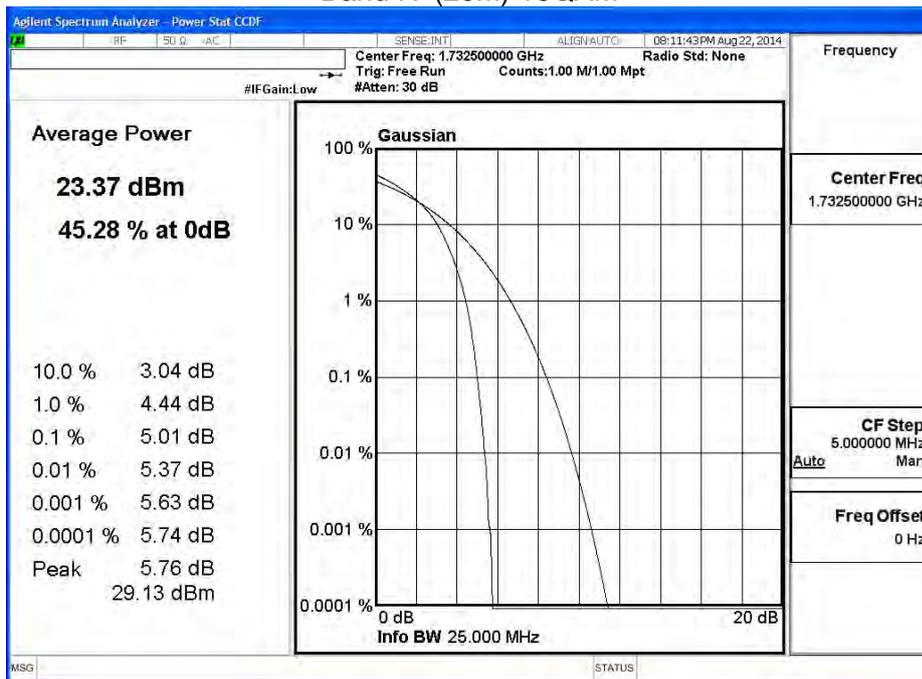
**Band IV (10M) 16QAM**



### Band IV (15M) 16QAM

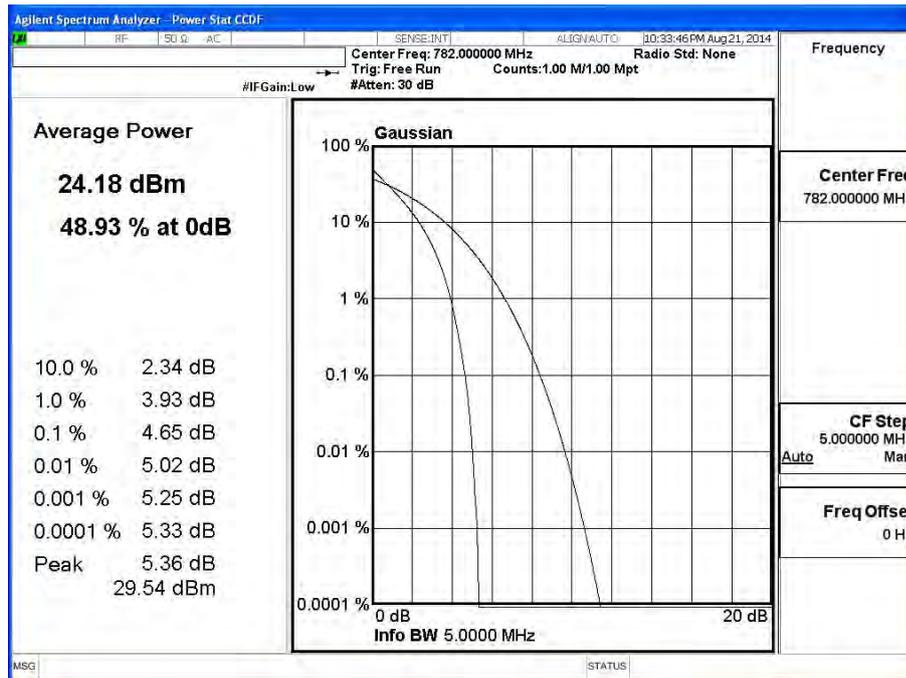


### Band IV (20M) 16QAM

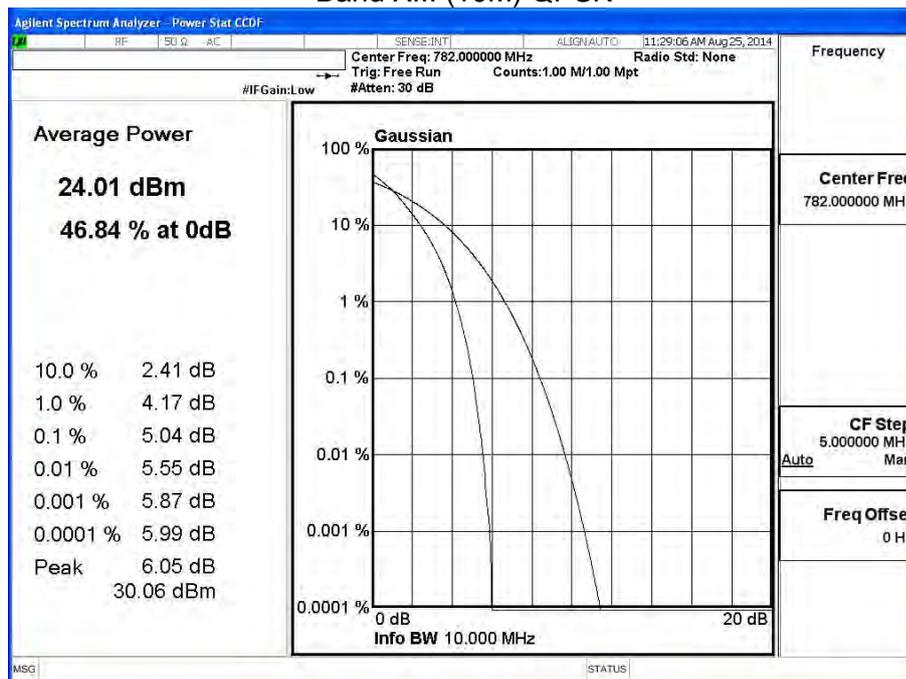


Product	Notebook PC		
Test Mode	Peak to Average Ratio		
Date of Test	2014/10/06	Test Site	CTR
Test Condition	LTE-Band XIII		

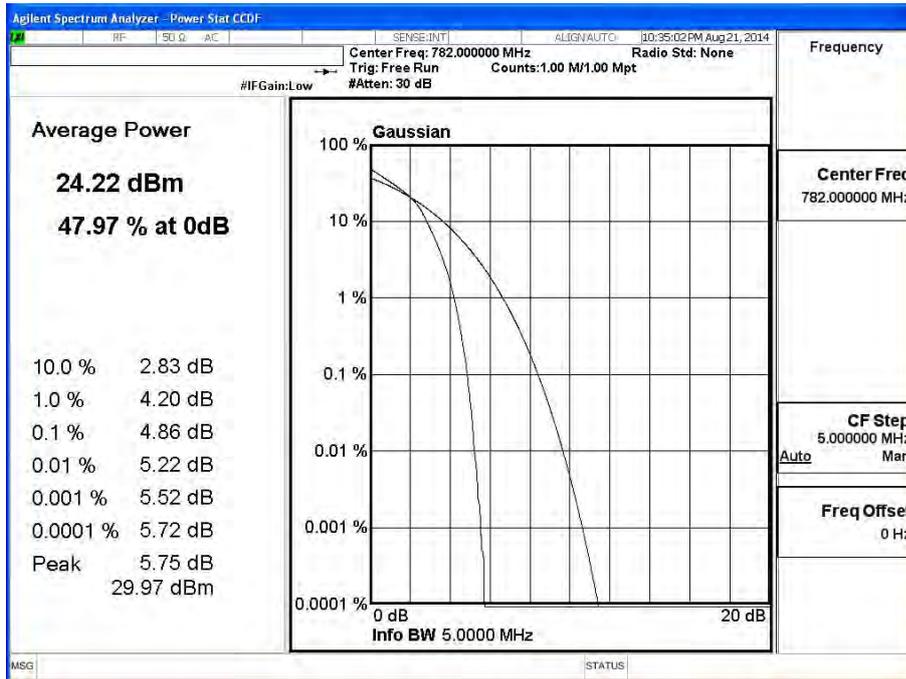
**Band XIII (5M) QPSK**



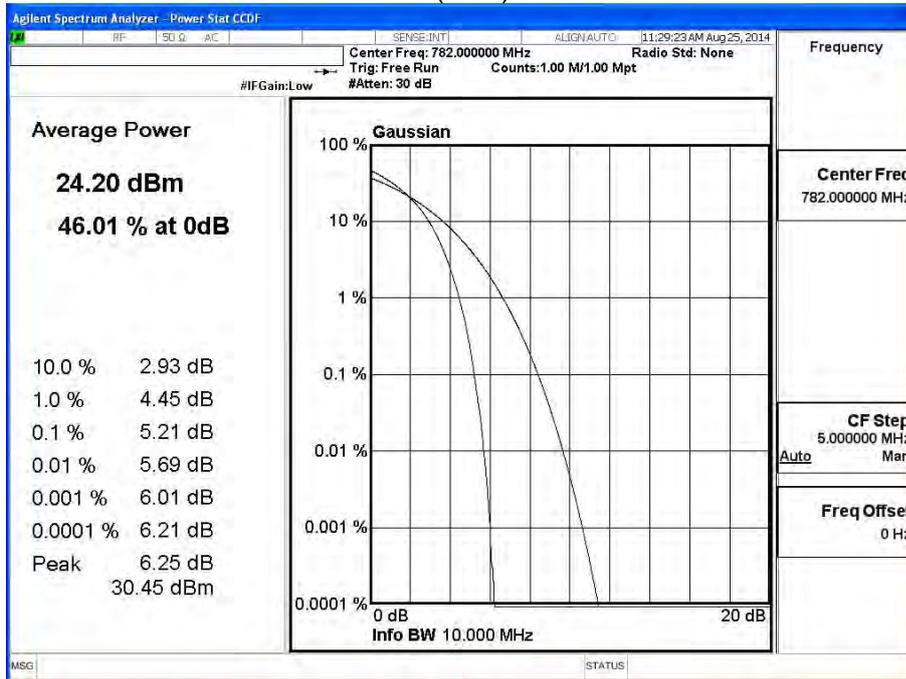
**Band XIII (10M) QPSK**



**Band XIII (5M) 16QAM**



**Band XIII (10M) 16QAM**



## Attachment 1: EUT Test Photographs

## Attachment 2: EUT Detailed Photographs