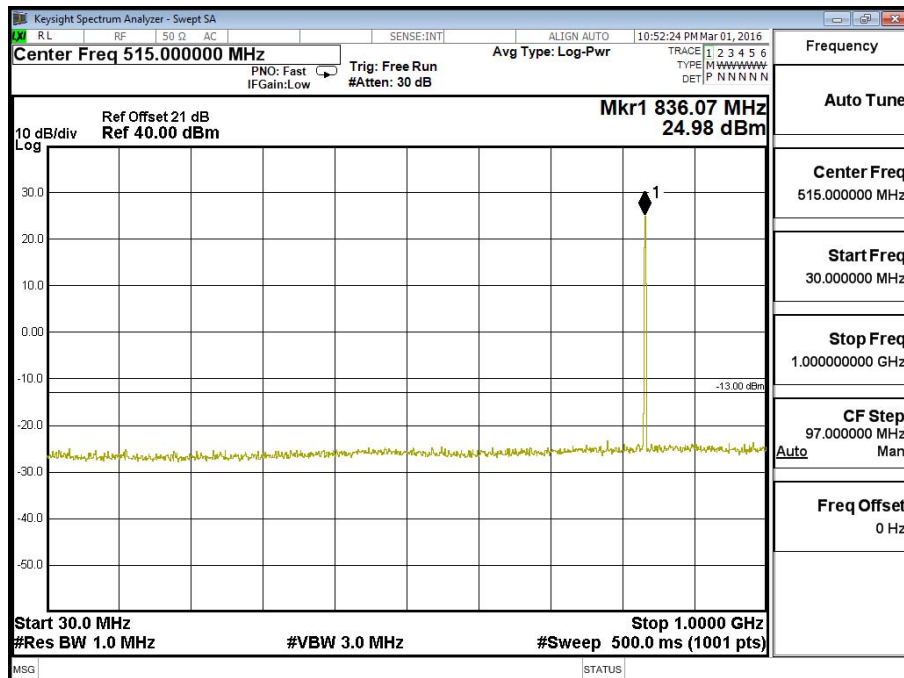
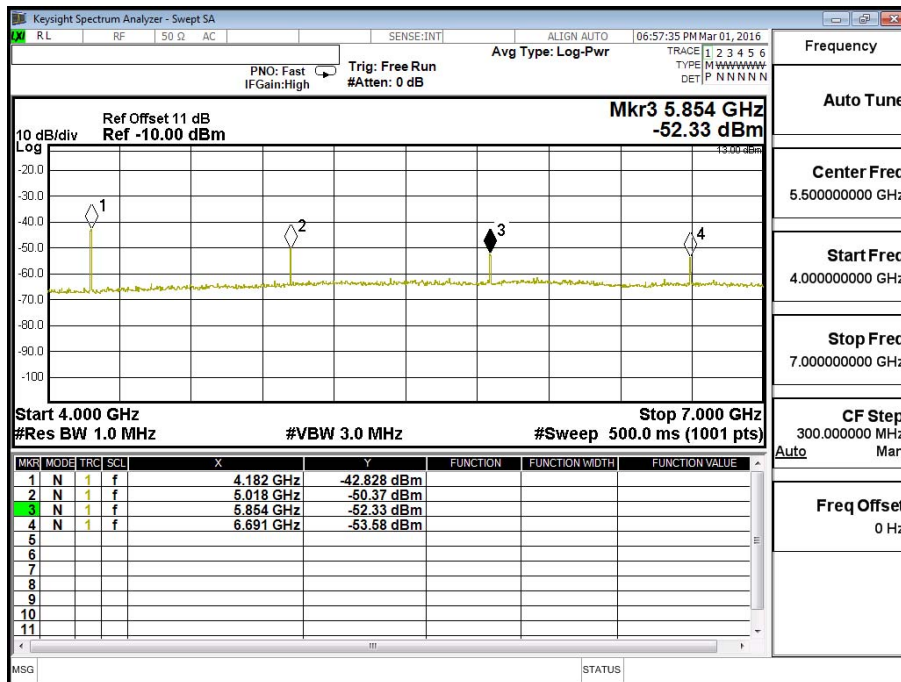
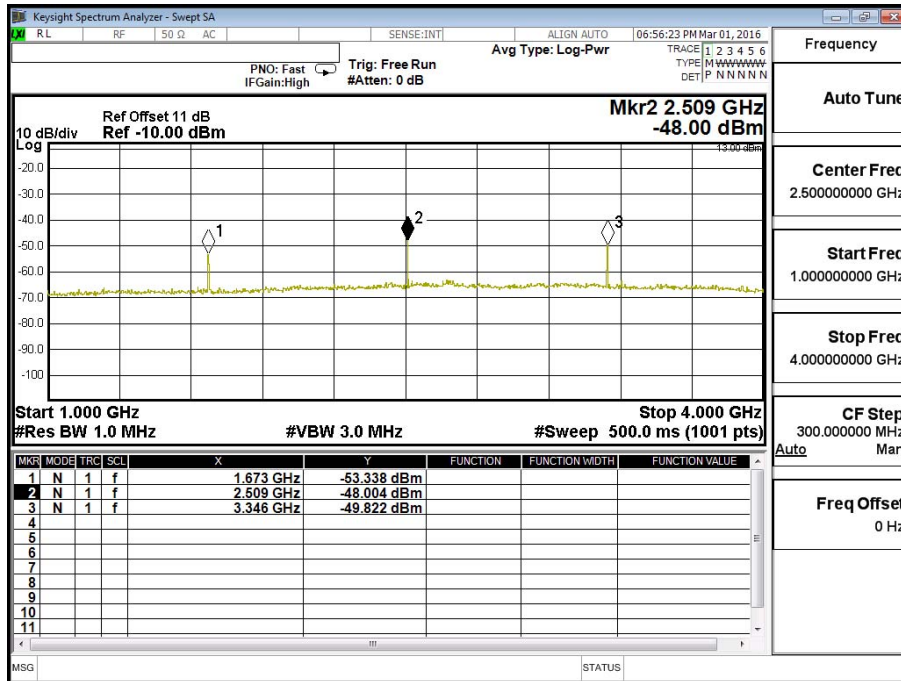


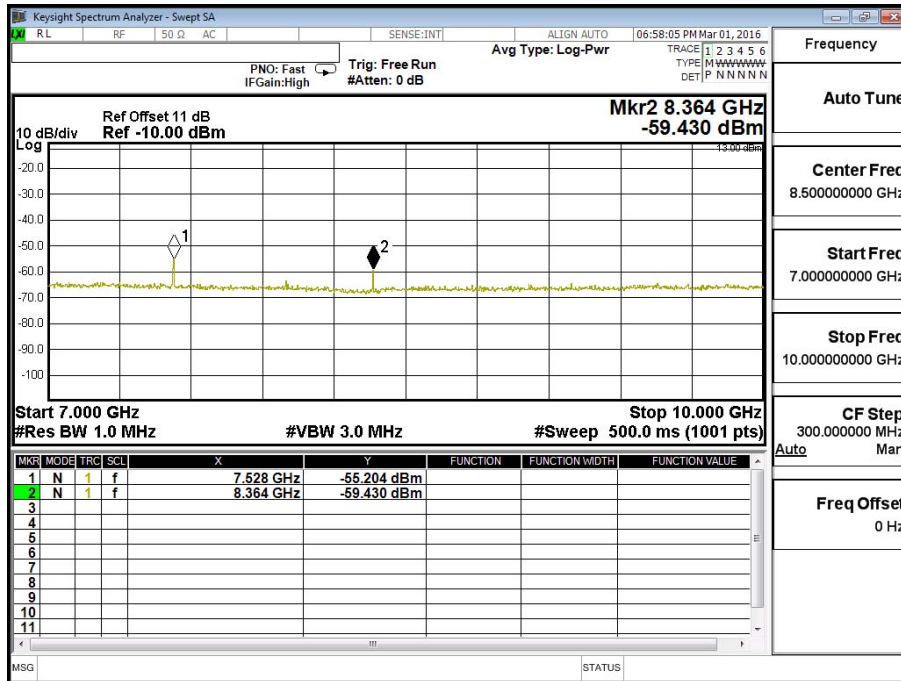
Product	Wireless Motherboard		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2016/03/01	Test Site	CTR
Test Condition	GSM 850 EGPRS	Test Range	30MHz~10GHz

**GSM 850 EGPRS Mid-Channel 189**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
1672.8	-53.338	0.58	-52.758	-13
2509.2	-48.004	0.7	-47.304	-13
3345.6	-49.822	1.01	-48.812	-13
4182	-42.828	1.18	-41.648	-13
5018.4	-50.370	1.23	-49.140	-13
5854.8	-52.330	1.45	-50.880	-13
6691.2	-53.580	1.56	-52.020	-13
7527.6	-55.204	1.59	-53.614	-13
8364	-59.430	1.82	-57.610	-13



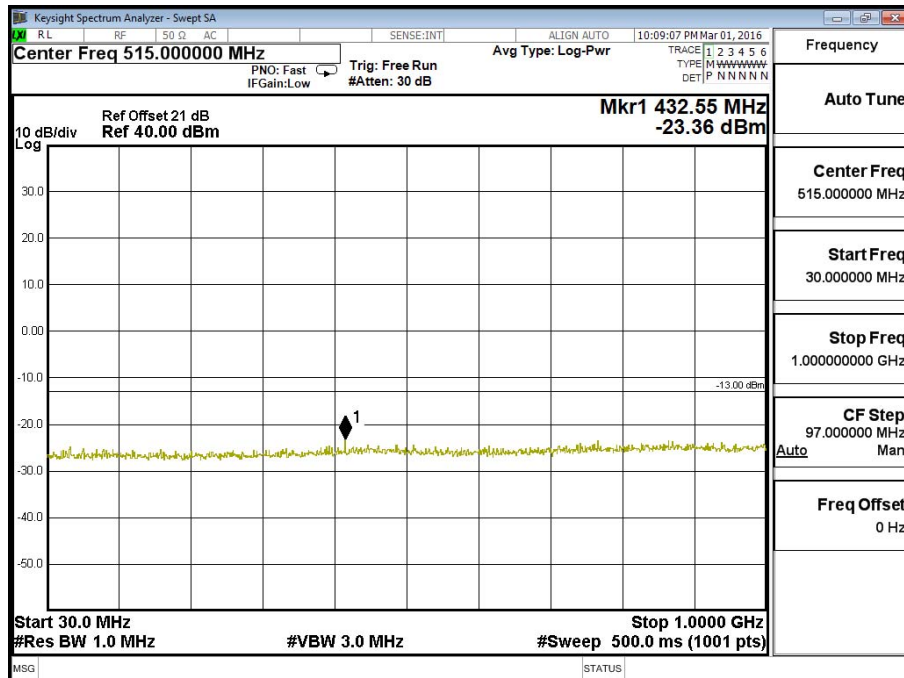


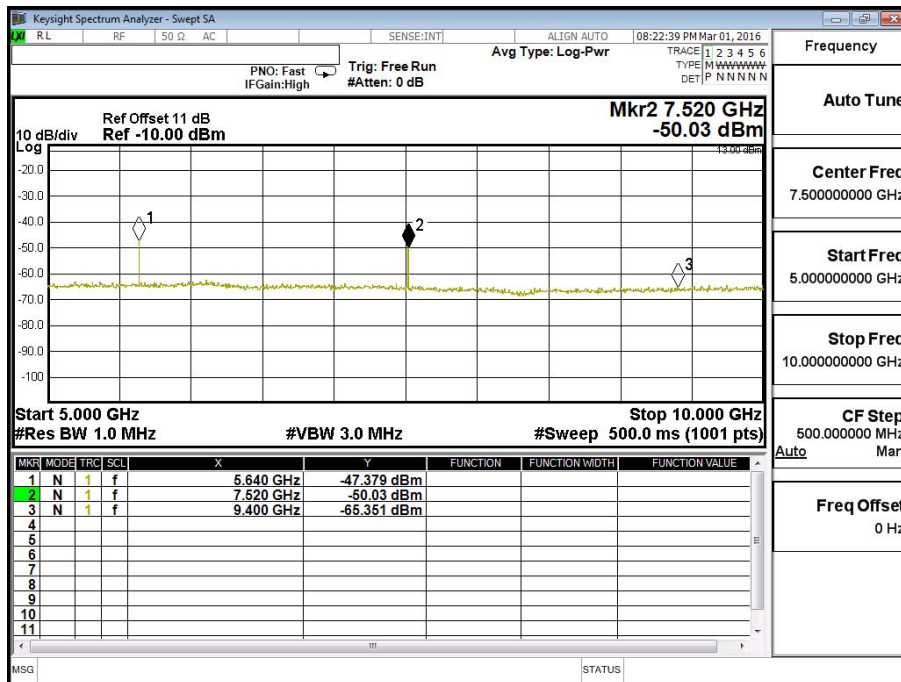
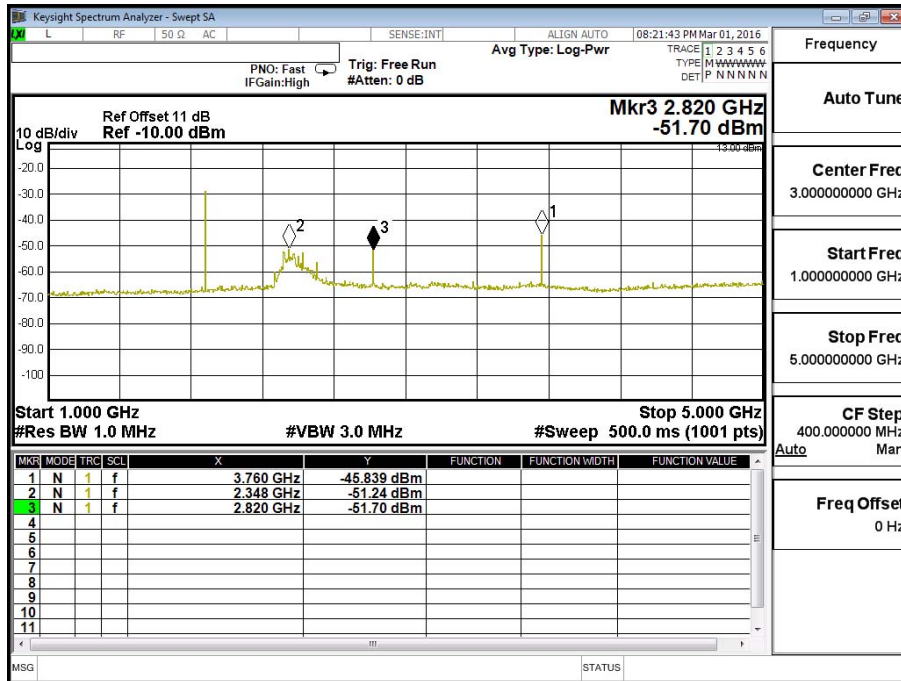


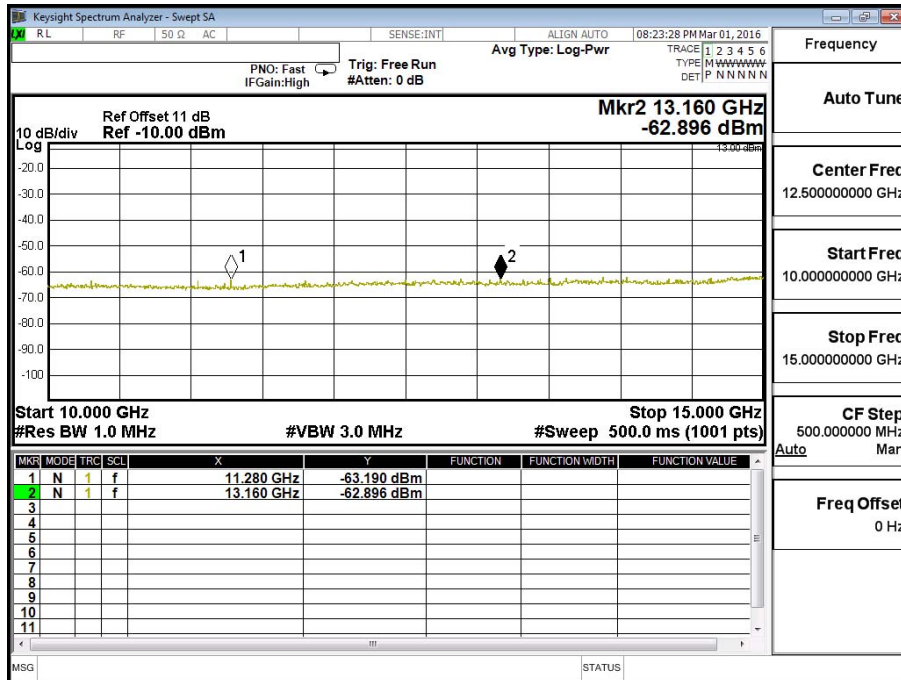
Product	Wireless Motherboard		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2016/03/01	Test Site	CTR
Test Condition	PCS 1900 GPRS	Test Range	30MHz~20GHz

**PCS 1900 GPRS Mid-Channel 661**

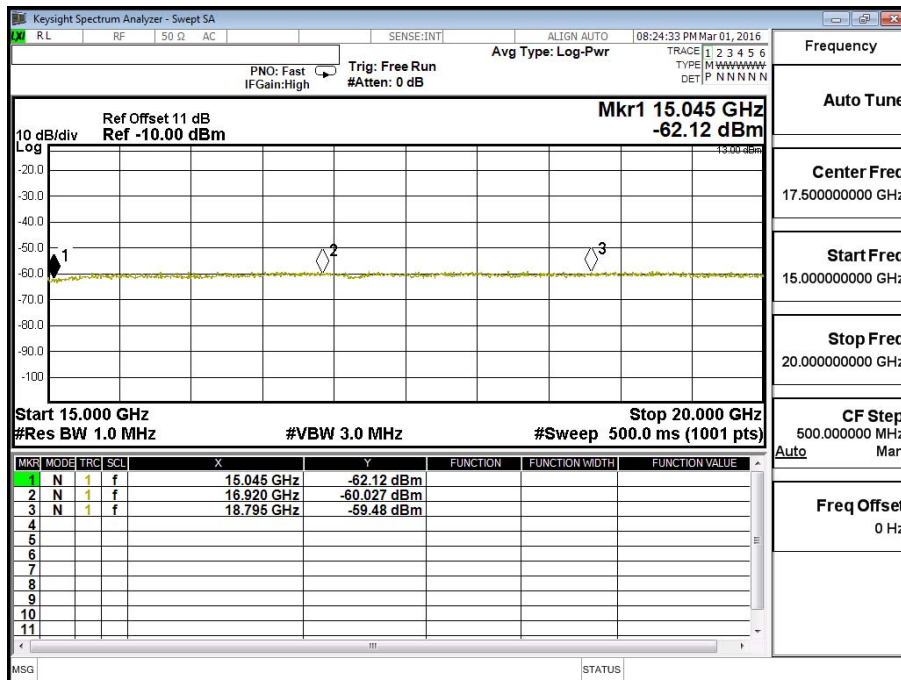
Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3760	-45.839	1.1	-44.739	-13
5640	-47.379	1.23	-46.149	-13
7520	-50.030	1.59	-48.440	-13
9400	-65.351	1.89	-63.461	-13
11280	-63.190	2.07	-61.120	-13
13160	-62.896	2.26	-60.636	-13
15040	-62.120	2.64	-59.480	-13
16920	-60.027	3.5	-56.527	-13
18800	-59.480	3.7	-55.780	-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

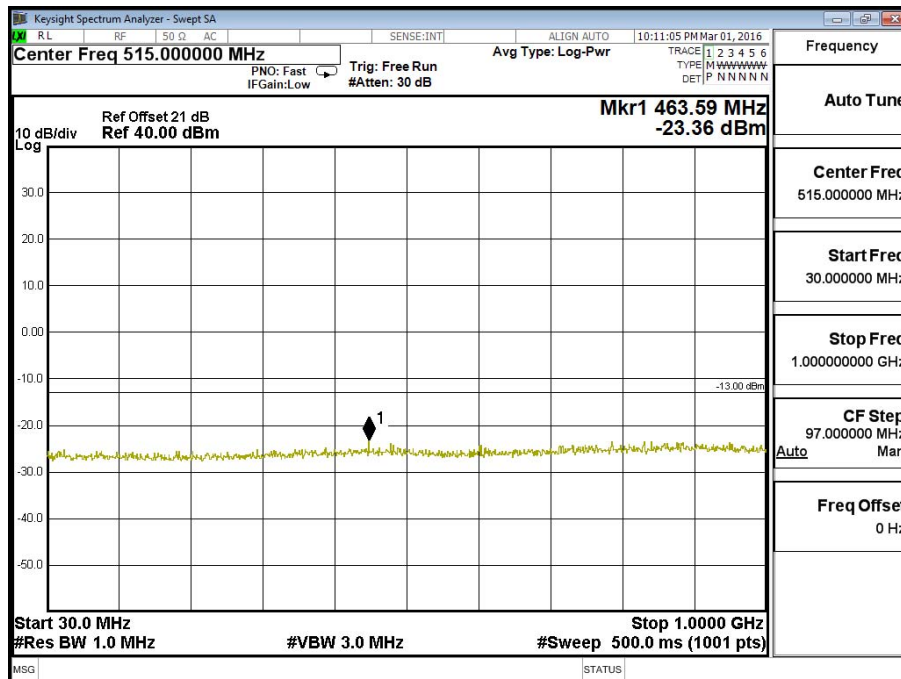


Frequency	Auto Tune
Center Freq	17.500000000 GHz
Start Freq	15.000000000 GHz
Stop Freq	20.000000000 GHz
CF Step	500.0000000 MHz
Auto Man	
Freq Offset	0 Hz

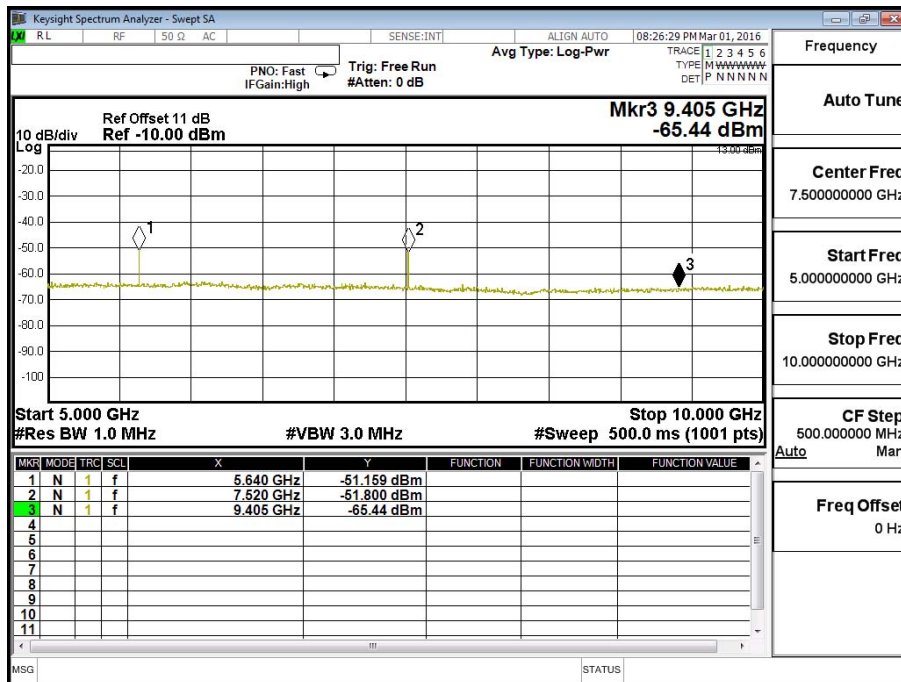
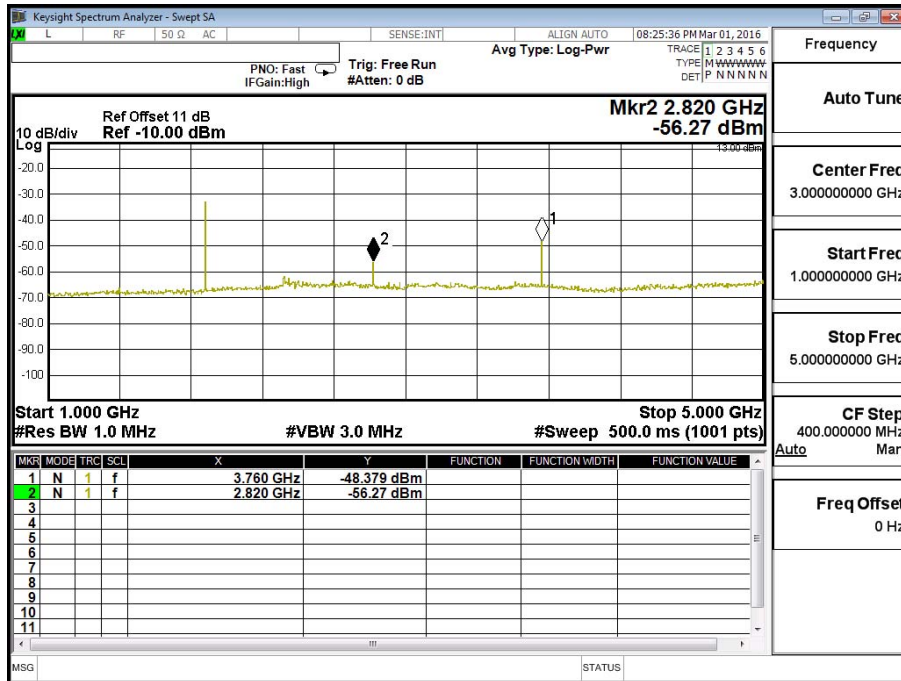
Product	Wireless Motherboard		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2016/03/01	Test Site	CTR
Test Condition	PCS 1900 EGPRS	Test Range	30MHz~20GHz

**PCS 1900 EGPRS Mid-Channel 661**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3760	-48.379	1.1	-47.279	-13
5640	-51.159	1.23	-49.929	-13
7520	-51.800	1.59	-50.210	-13
9405	-65.440	1.89	-63.550	-13
11275	-64.360	2.07	-62.290	-13
13160	-61.347	2.26	-59.087	-13
15045	-62.690	2.64	-60.050	-13
16900	-59.000	3.5	-55.500	-13
18800	-59.260	3.7	-55.560	-13





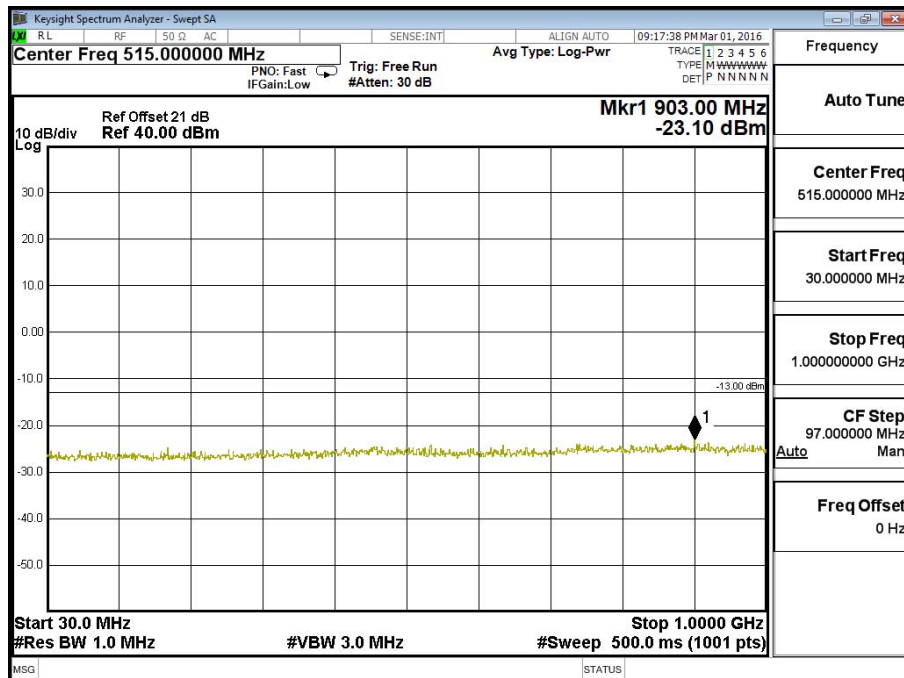


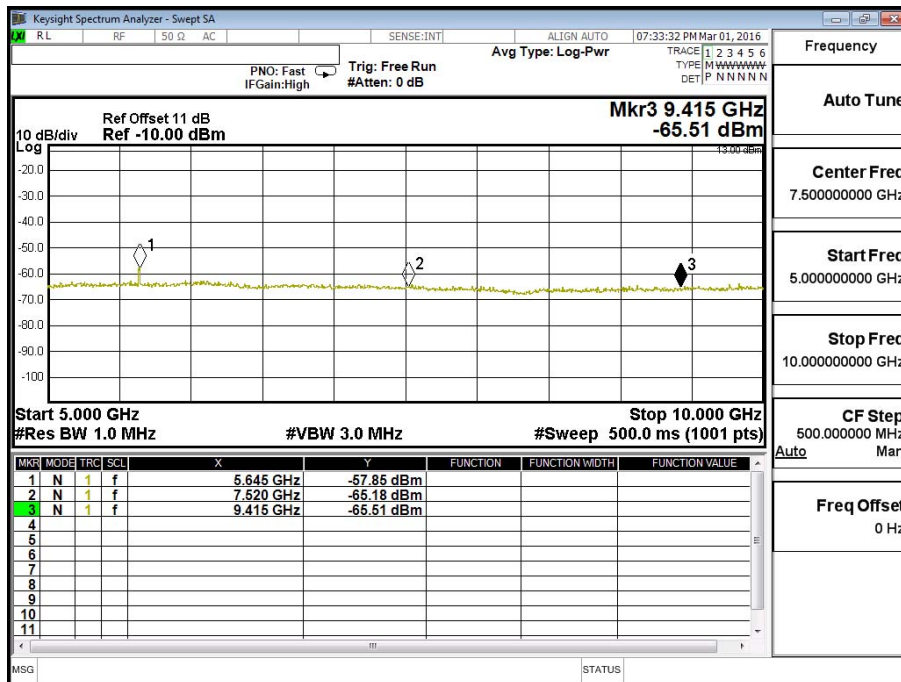
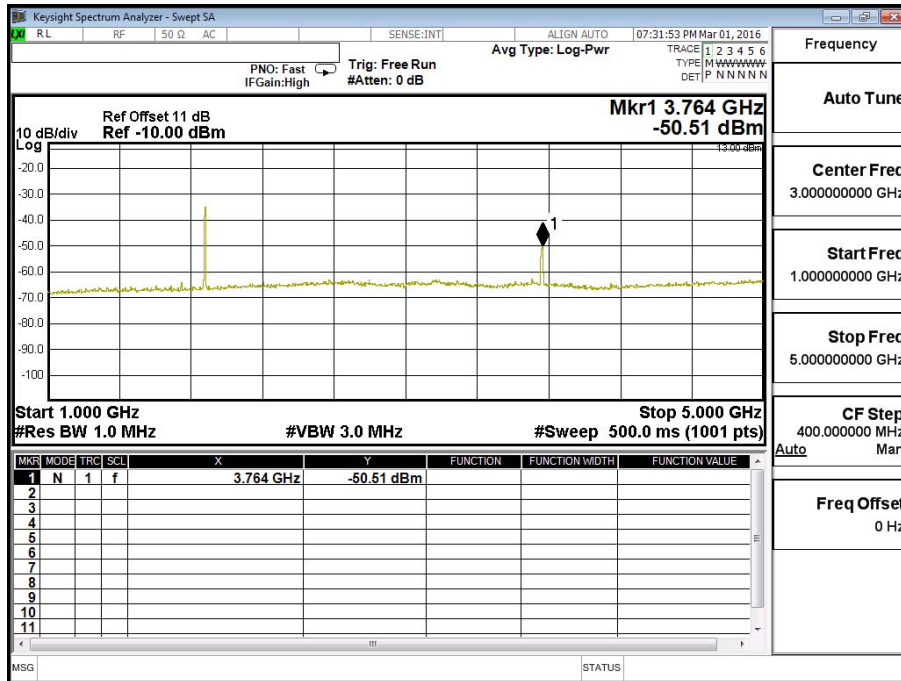


Product	Wireless Motherboard		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2016/03/01	Test Site	CTR
Test Condition	WCDMA BAND 2	Test Range	30MHz~20GHz

**WCDMA BAND 2 Mid-Channel 9400**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
3764	-50.510	1.1	-49.410	-13
5645	-57.850	1.23	-56.620	-13
7520	-65.180	1.59	-63.590	-13
9415	-65.510	1.89	-63.620	-13
11275	-64.960	2.07	-62.890	-13
13160	-63.530	2.26	-61.270	-13
15045	-62.030	2.64	-59.390	-13
16920	-59.860	3.5	-56.360	-13
18800	-59.310	3.7	-55.610	-13



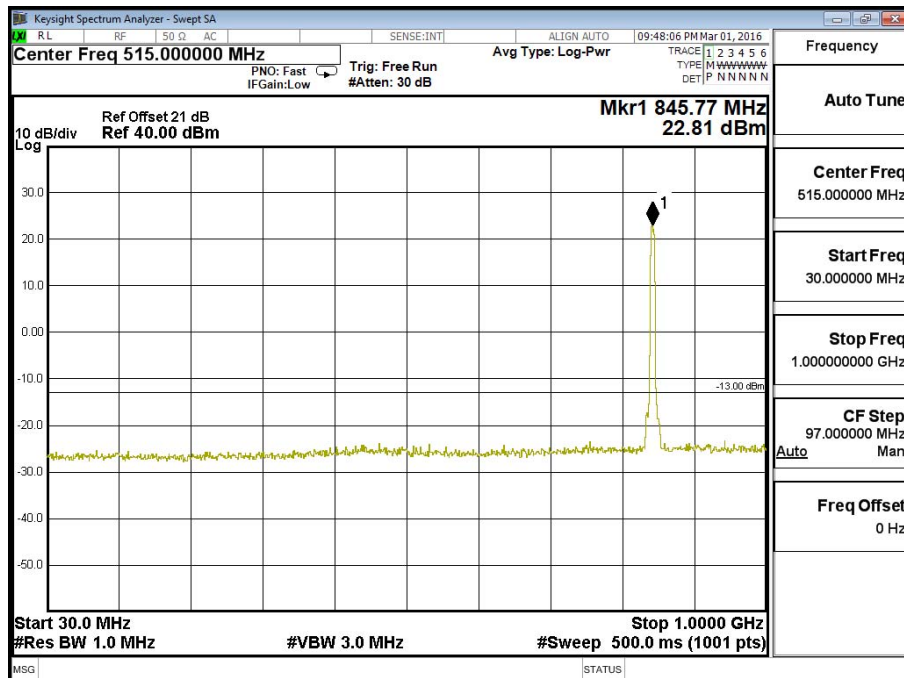


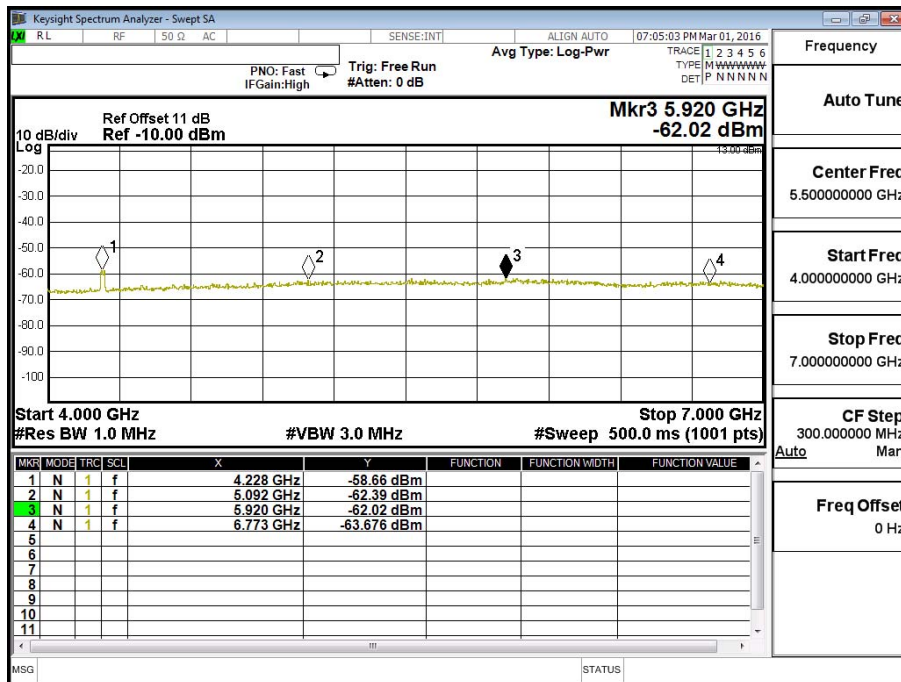
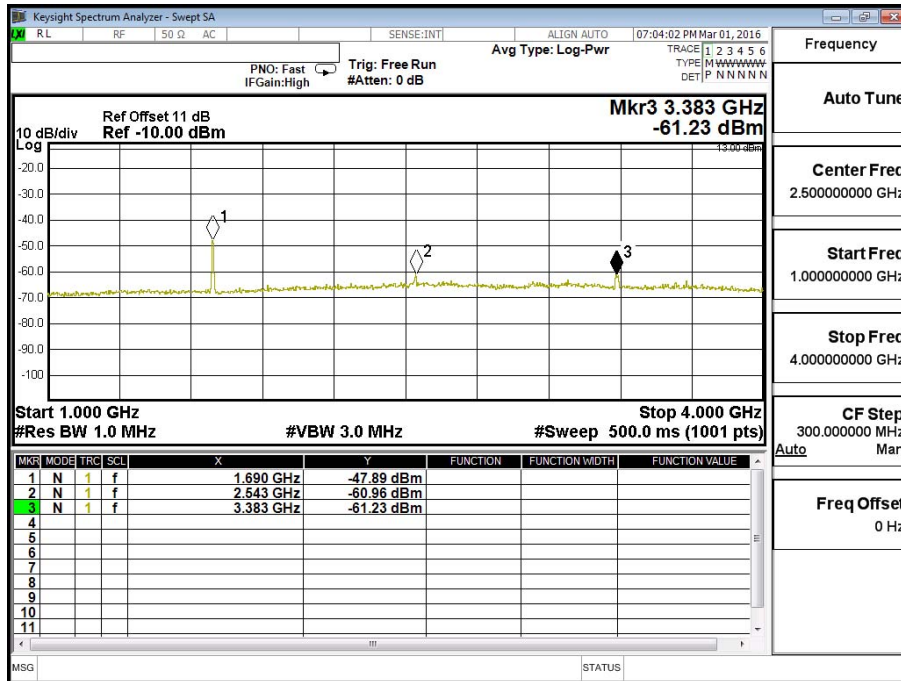


Product	Wireless Motherboard		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2016/03/01	Test Site	CTR
Test Condition	WCDMA BAND 5	Test Range	30MHz~10GHz

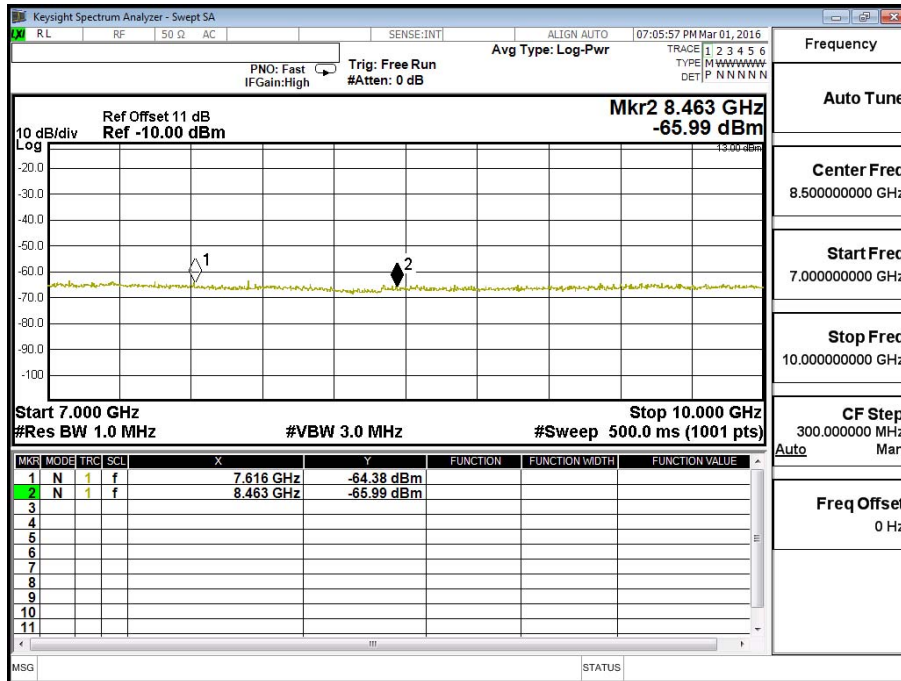
**WCDMA BAND 5 High-Channel 4233**

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
1693.2	-47.890	0.58	-47.310	-13
2543	-60.960	0.7	-60.260	-13
3383	-61.230	1.01	-60.220	-13
4228	-58.660	1.18	-57.480	-13
5092	-62.390	1.23	-61.160	-13
5920	-62.020	1.45	-60.570	-13
6772.8	-63.676	1.56	-62.116	-13
7616	-64.380	1.59	-62.790	-13
8463	-65.990	1.82	-64.170	-13











Product	Wireless Motherboard		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2016/03/01	Test Site	Site3
Test Condition	Channel 251(GSM 850 GPRS)	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**

1698.000	-50.177	-52.913	1.630	9.800	-44.743	-13
2546.000	-50.873	-51.710	2.100	10.600	-43.210	-13
3395.000	-57.841	-59.326	2.350	12.300	-49.376	-13
4244.000	-57.968	-56.252	2.700	12.600	-46.352	-13
5093.000	-59.038	-54.474	2.830	12.700	-44.604	-13
5942.000	-60.465	-56.256	3.200	13.000	-46.456	-13

**Vertical Emissions**

1698.000	-59.552	-61.866	1.630	9.800	-53.696	-13
2534.000	-57.964	-57.973	2.100	10.600	-49.473	-13
3395.000	-60.057	-60.442	2.350	12.300	-50.492	-13
4244.000	-61.474	-58.610	2.700	12.600	-48.710	-13
5093.000	-61.195	-56.351	2.830	12.700	-46.481	-13
5942.000	-60.109	-55.841	3.200	13.000	-46.041	-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	Wireless Motherboard		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2016/03/01	Test Site	Site3
Test Condition	Channel 251 (GSM 850 EGPRS)	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**

1698.000	-56.923	-59.659	1.630	9.800	-51.489	-13
2546.000	-54.224	-55.061	2.100	10.600	-46.561	-13
3395.000	-58.728	-60.213	2.350	12.300	-50.263	-13
4244.000	-58.481	-56.765	2.700	12.600	-46.865	-13
5093.000	-60.003	-55.439	2.830	12.700	-45.569	-13
5942.000	-60.418	-56.209	3.200	13.000	-46.409	-13

**Vertical Emissions**

1701.000	-58.028	-60.333	1.630	9.800	-52.163	-13
2546.000	-59.277	-59.268	2.100	10.600	-50.768	-13
3395.000	-59.897	-60.282	2.350	12.300	-50.332	-13
4244.000	-61.792	-58.928	2.700	12.600	-49.028	-13
5093.000	-61.250	-56.406	2.830	12.700	-46.536	-13
5942.000	-61.524	-57.256	3.200	13.000	-47.456	-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	Wireless Motherboard		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2016/03/01	Test Site	Site3
Test Condition	Channel 512 (PCS1900 GPRS)	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**

3696.000	-57.148	-57.797	2.530	12.600	-47.727	-13
5551.000	-56.829	-53.453	3.050	13.100	-43.403	-13
7401.000	-58.324	-43.644	3.650	11.500	-35.794	-13
9251.000	-59.102	-44.267	3.850	12.000	-36.117	-13
11106.000	-59.947	-42.433	4.580	12.000	-35.013	-13
12941.000	-57.075	-37.193	4.800	13.300	-28.693	-13

**Vertical Emissions**

3724.000	-56.838	-55.079	2.530	12.600	-45.009	-13
5551.000	-56.930	-52.951	3.050	13.100	-42.901	-13
7401.000	-57.347	-42.266	3.650	11.500	-34.416	-13
9261.000	-58.004	-42.524	3.850	12.000	-34.374	-13
11101.000	-59.113	-41.371	4.580	12.000	-33.951	-13
12951.000	-58.133	-38.495	4.800	13.300	-29.995	-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 13GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Wireless Motherboard					
Test Mode	Spurious Emission (Radiated)					
Date of Test	2016/03/01	Test Site		Site3		
Test Condition	Channel 661 (PCS1900 EGPRS)	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**

3700.000	-57.505	-58.135	2.530	12.600	-48.065	-13
5551.000	-56.042	-52.666	3.050	13.100	-42.616	-13
7401.000	-58.464	-43.784	3.650	11.500	-35.934	-13
9221.000	-58.132	-43.422	3.850	12.000	-35.272	-13
11101.000	-57.583	-40.040	4.580	12.000	-32.620	-13
12951.000	-57.306	-37.372	4.800	13.300	-28.872	-13

**Vertical Emissions**

3704.000	-57.858	-56.223	2.530	12.600	-46.153	-13
5551.000	-56.734	-52.755	3.050	13.100	-42.705	-13
7376.000	-56.417	-41.375	3.650	11.500	-33.525	-13
9266.000	-58.206	-42.699	3.850	12.000	-34.549	-13
11106.000	-58.533	-40.836	4.580	12.000	-33.416	-13
12966.000	-56.800	-37.119	4.800	13.300	-28.619	-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 13GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Wireless Motherboard		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2016/03/01	Test Site	OATS 3
Test Condition	Channel 9400 (WCDMA BAND 2)	Test Range	30MHz~20GHz

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

**Horizontal Emissions**

3760.000	-56.194	-56.542	2.530	12.600	-46.472	-13
5630.000	-56.731	-53.973	3.050	13.100	-43.923	-13
7535.000	-57.703	-43.367	3.650	11.500	-35.517	-13
9400.000	-59.294	-43.976	3.850	12.000	-35.826	-13
11295.000	-58.431	-41.901	4.580	12.000	-34.481	-13
13160.000	-57.541	-37.700	4.800	13.300	-29.200	-13

**Vertical Emissions**

3760.000	-57.384	-55.402	2.530	12.600	-45.332	-13
5640.000	-57.742	-54.592	3.050	13.100	-44.542	-13
7520.000	-58.153	-43.171	3.650	11.500	-35.321	-13
9400.000	-59.554	-43.723	3.850	12.000	-35.573	-13
11280.000	-59.245	-42.591	4.580	12.000	-35.171	-13
13160.000	-57.463	-37.479	4.800	13.300	-28.979	-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 13GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	Wireless Motherboard		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2016/03/01	Test Site	OATS 1
Test Condition	Channel 4183 (WCDMA BAND 5)	Test Range	30MHz~10GHz

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

**Horizontal Emissions**

1673.000	-56.717	-59.744	1.630	9.800	-51.574	-13
2510.000	-59.507	-60.048	2.100	10.600	-51.548	-13
3346.000	-58.841	-60.493	2.350	12.300	-50.543	-13
4183.000	-61.492	-60.663	2.700	12.600	-50.763	-13
5020.000	-61.204	-56.846	2.830	12.700	-46.976	-13
5856.000	-60.305	-57.174	3.200	13.000	-47.374	-13

**Vertical Emissions**

1673.000	-59.215	-61.909	1.630	9.800	-53.739	-13
2510.000	-59.753	-59.798	2.100	10.600	-51.298	-13
3328.000	-57.820	-58.399	2.350	12.300	-48.449	-13
4183.000	-60.752	-58.357	2.700	12.600	-48.457	-13
5020.000	-61.286	-56.288	2.830	12.700	-46.418	-13
5856.000	-61.068	-57.981	3.200	13.000	-48.181	-13

Note:

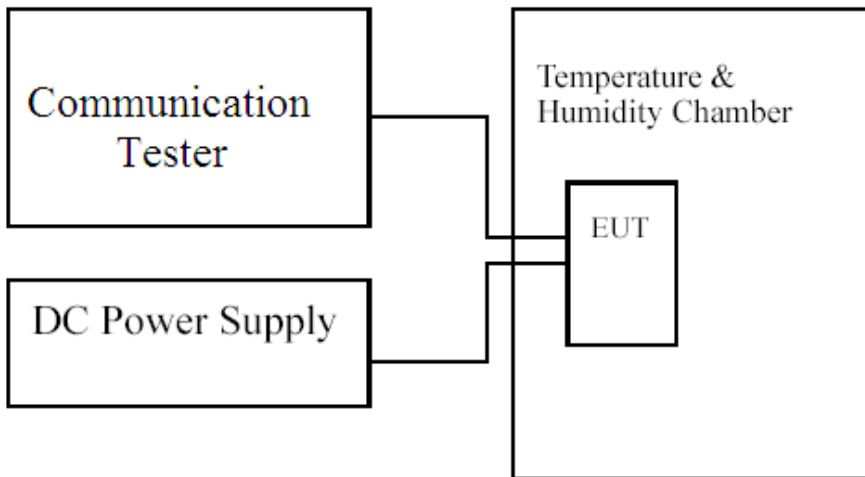
1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

## 7. Frequency Stability Under Temperature & Voltage Variations

### 7.1. Test Specification

According to Part 2.1055, 22.355, 24.235

### 7.2. Test Setup



### 7.3. Limits

Limit	<±2.5ppm
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### 7.4. Test Procedure

The frequency stability of transmitter is measured by:

- (a) Temperature: The temperature is varied from -30 °C to 50 °C in 10 °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, was used to measure The Frequency Error. The maximum result of measurements was recorded.

### 7.5. Test Result of Frequency Stability Under Temperature Variations

Product	Wireless Motherboard		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2016/03/15	Test Site	CTR
Test Condition	GSM 850 GPRS / Channel 189	Test Range	0°C~+35°C

#### Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	0.836	--	±2.09
-20	0.836	--	±2.09
-10	0.836	--	±2.09
0	0.836	-8	±2.09
10	0.836	10	±2.09
20	0.836	21	±2.09
35	0.836	-11	±2.09
40	0.836	--	±2.09
50	0.836	--	±2.09

Note : Test Temperature specified by the manufacturer .

#### Voltage Variations

DC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
4.2	0.836	19	±2.09
3.3	0.836	21	±2.09
3.5	0.836	18	±2.09



Product	Wireless Motherboard		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2016/03/15	Test Site	CTR
Test Condition	GSM 850 EGPRS / Channel 189	Test Range	0°C~+35°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	0.836	--	±2.09
-20	0.836	--	±2.09
-10	0.836	--	±2.09
0	0.836	142	±2.09
10	0.836	140	±2.09
20	0.836	130	±2.09
35	0.836	105	±2.09
40	0.836	--	±2.09
50	0.836	--	±2.09

Note : Test Temperature specified by the manufacturer .

Voltage Variations

DC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
4.2	0.836	122	±2.09
3.7	0.836	130	±2.09
3.5	0.836	138	±2.09

Product	Wireless Motherboard		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2016/03/15	Test Site	CTR
Test Condition	PCS 1900 GPRS / Channel 661	Test Range	0°C~+35°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	1.88	--	±4.7
-20	1.88	--	±4.7
-10	1.88	--	±4.7
0	1.88	29	±4.7
10	1.88	26	±4.7
20	1.88	-30	±4.7
35	1.88	31	±4.7
40	1.88	--	±4.7
50	1.88	--	±4.7

Note : Test Temperature specified by the manufacturer .

Voltage Variations

DC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
4.2	1.88	24	±4.7
3.7	1.88	-30	±4.7
3.5	1.88	28	±4.7

Product	Wireless Motherboard		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2016/03/15	Test Site	CTR
Test Condition	PCS 1900 EGPRS / Channel 661	Test Range	0°C~+35°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	1.88	--	±4.7
-20	1.88	--	±4.7
-10	1.88	--	±4.7
0	1.88	175	±4.7
10	1.88	196	±4.7
20	1.88	169	±4.7
35	1.88	223	±4.7
40	1.88	--	±4.7
50	1.88	--	±4.7

Note : Test Temperature specified by the manufacturer .

Voltage Variations

DC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
4.2	1.88	180	±4.7
3.7	1.88	169	±4.7
3.5	1.88	187	±4.7

Product	Wireless Motherboard		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2016/03/15	Test Site	CTR
Test Condition	WCDMA BAND 2 / Channel 9400	Test Range	0°C~+35°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	1.88	--	±4.7
-20	1.88	--	±4.7
-10	1.88	--	±4.7
0	1.88	-56	±4.7
10	1.88	-53	±4.7
20	1.88	-51	±4.7
35	1.88	-50	±4.7
40	1.88	--	±4.7
50	1.88	--	±4.7

Note : Test Temperature specified by the manufacturer .

Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
4.2	1.88	-52	±4.7
3.7	1.88	-51	±4.7
3.5	1.88	-55	±4.7

Product	Wireless Motherboard		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2016/03/15	Test Site	CTR
Test Condition	WCDMA BAND 5 / Channel 4183	Test Range	0°C~+35°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	0.836	--	±2.09
-20	0.836	--	±2.09
-10	0.836	--	±2.09
0	0.836	54	±2.09
10	0.836	-59	±2.09
20	0.836	-51	±2.09
33	0.836	-48	±2.09
40	0.836	--	±2.09
50	0.836	--	±2.09

Note : Test Temperature specified by the manufacturer .

Voltage Variations

AC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
4.2	0.836	47	±2.09
3.7	0.836	-51	±2.09
3.5	0.836	-58	±2.09

## 7. EMI Reduction Method During Compliance Testing

No modification was made during testing.

## Attachment 1: EUT Test Photographs

## Attachment 2: EUT Detailed Photographs