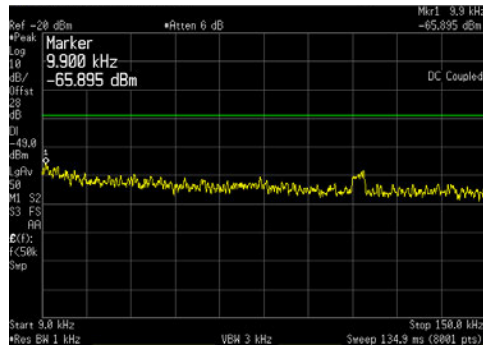
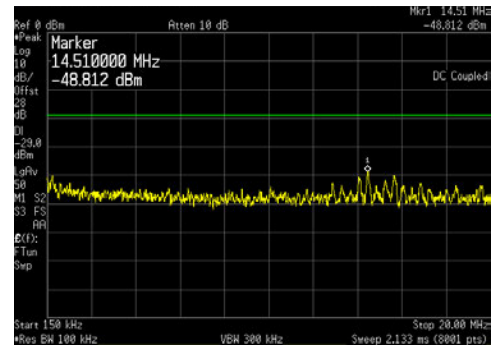


LTE10 Channel Bandwidth _ 16QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

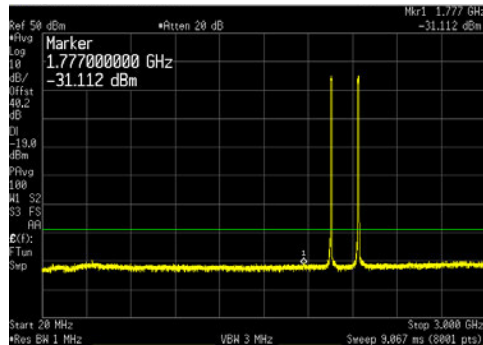
9kHz to 150kHz



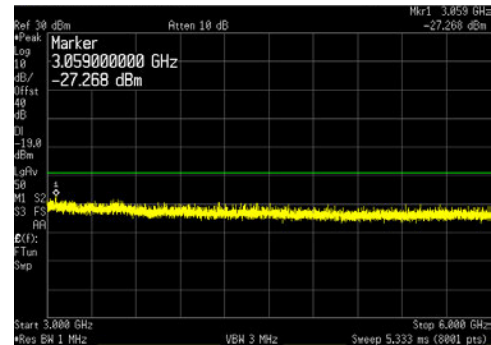
150kHz to 20MHz



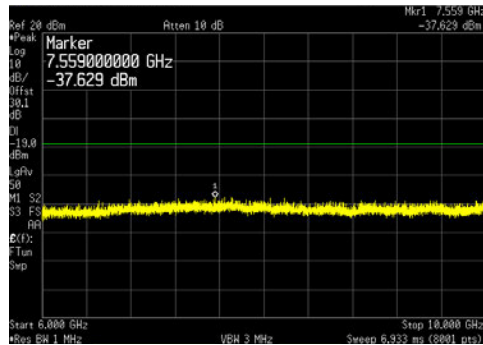
20MHz to 3GHz



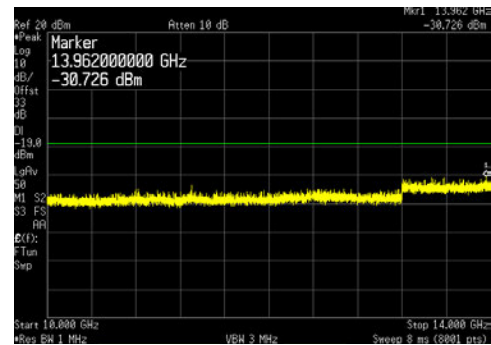
3GHz to 6GHz



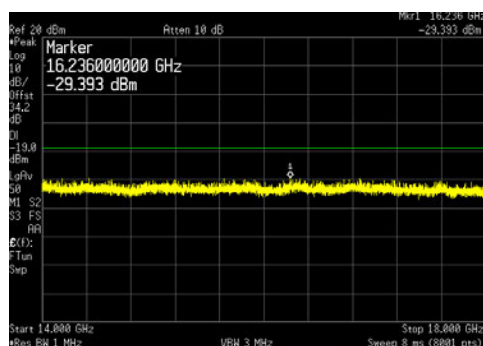
6GHz to 10GHz



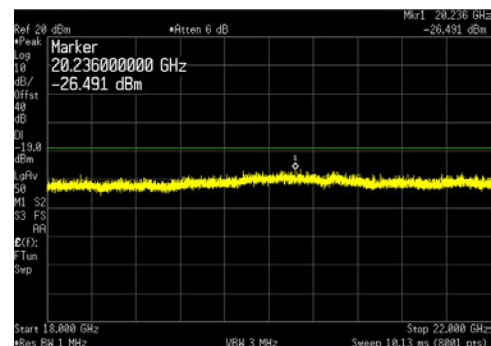
10GHz to 14GHz



14GHz to 18GHz

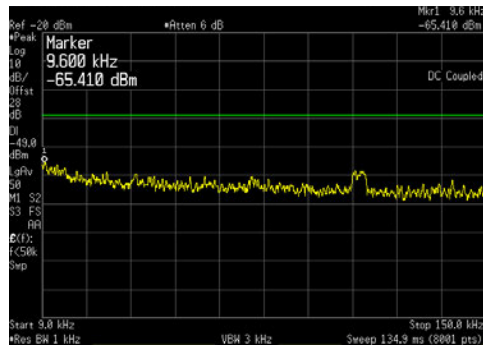


18GHz to 22GHz

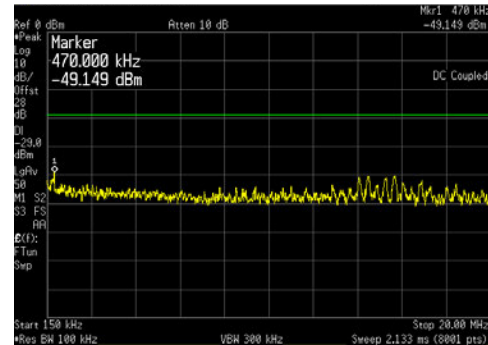


LTE10 Channel Bandwidth _ 64QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

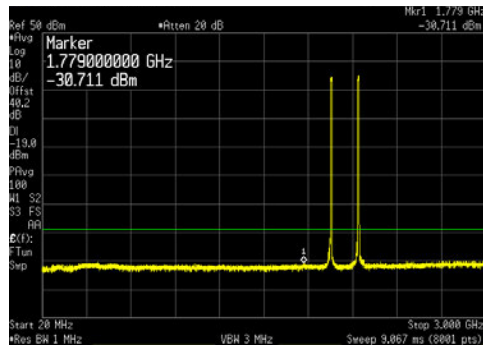
9kHz to 150kHz



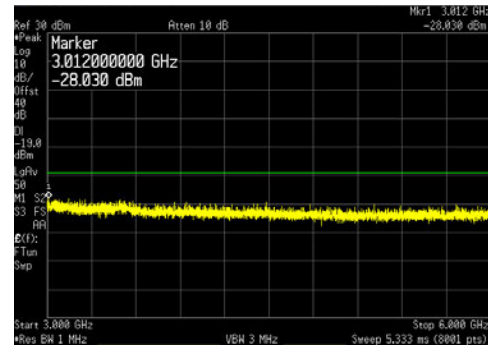
150kHz to 20MHz



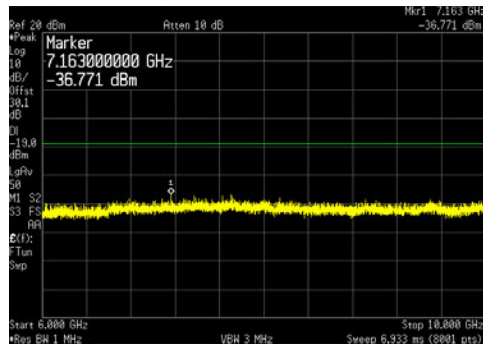
20MHz to 3GHz



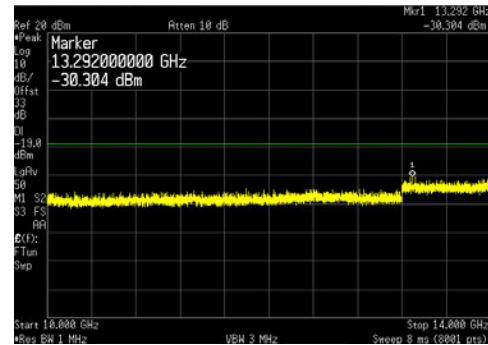
3GHz to 6GHz



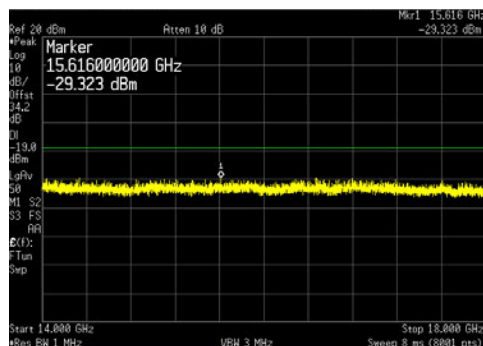
6GHz to 10GHz



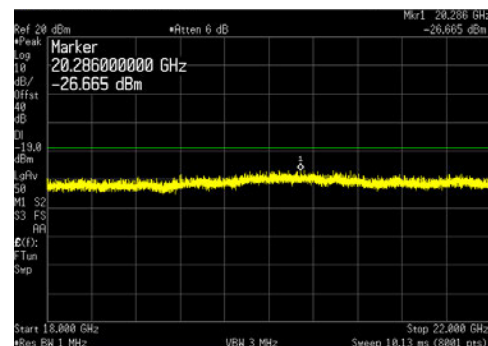
10GHz to 14GHz



14GHz to 18GHz

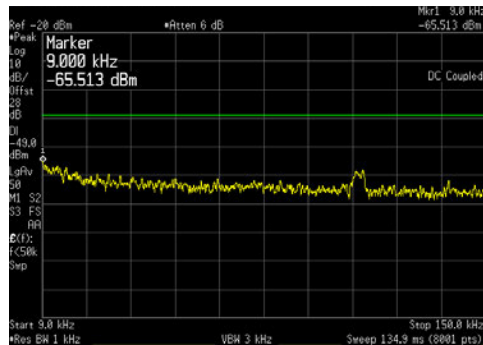


18GHz to 22GHz

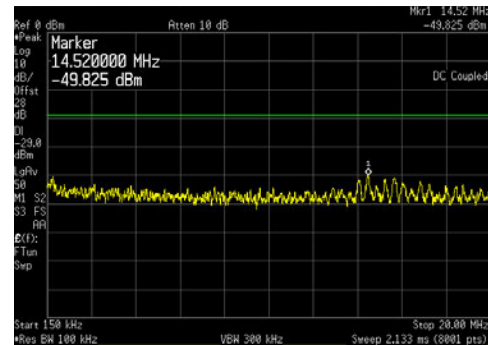


LTE10 Channel Bandwidth _ 256QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

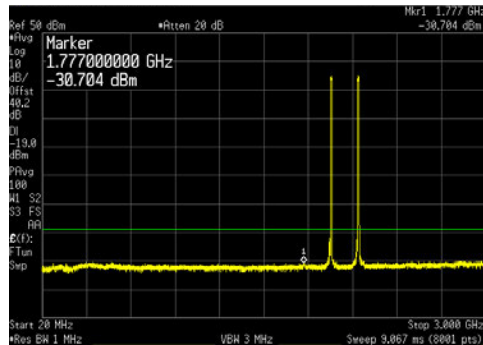
9kHz to 150kHz



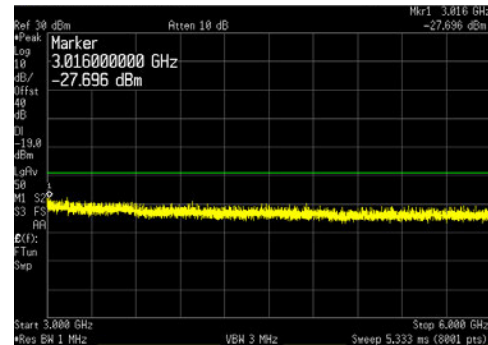
150kHz to 20MHz



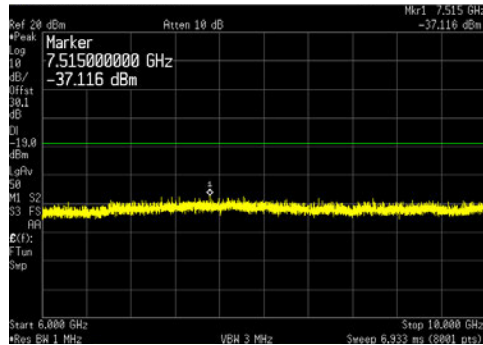
20MHz to 3GHz



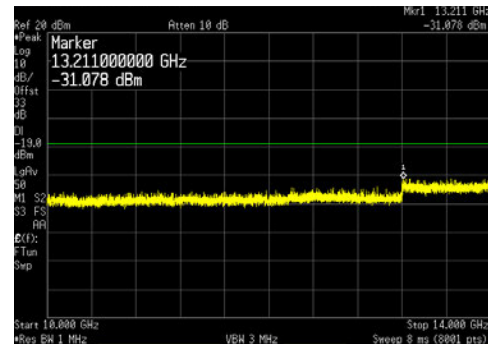
3GHz to 6GHz



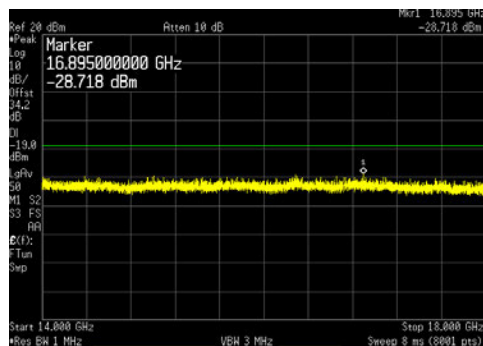
6GHz to 10GHz



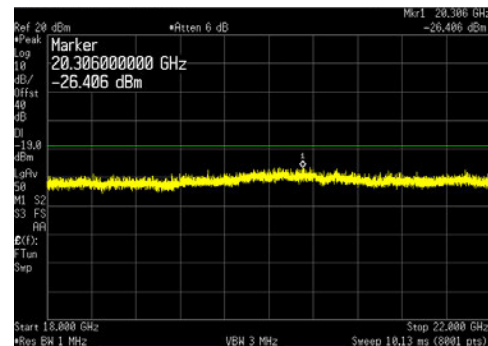
10GHz to 14GHz



14GHz to 18GHz

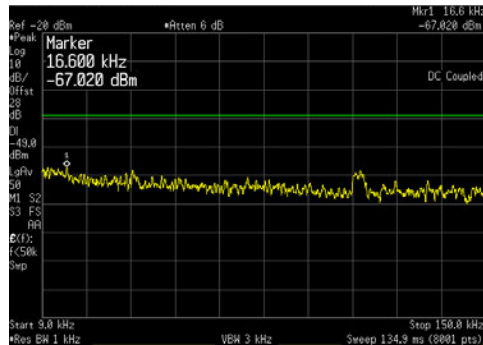


18GHz to 22GHz

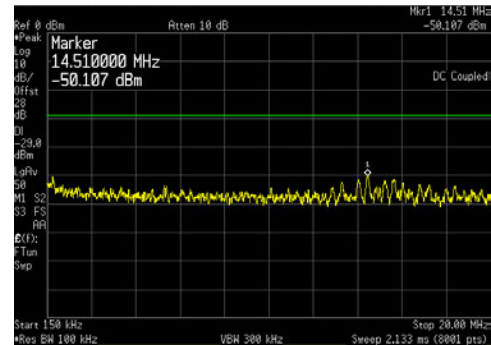


LTE15 Channel Bandwidth _ QPSK _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

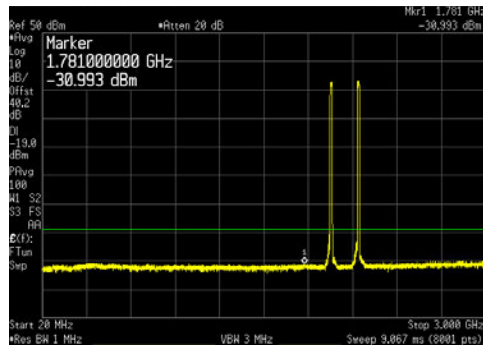
9kHz to 150kHz



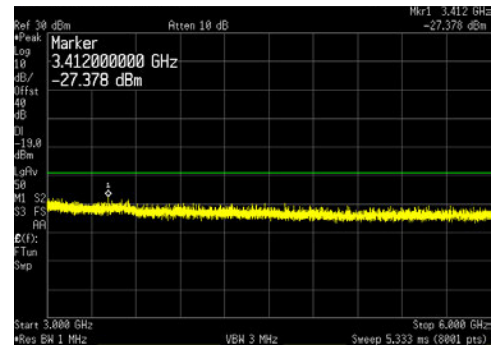
150kHz to 20MHz



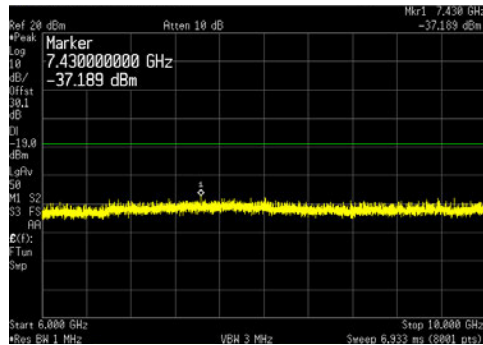
20MHz to 3GHz



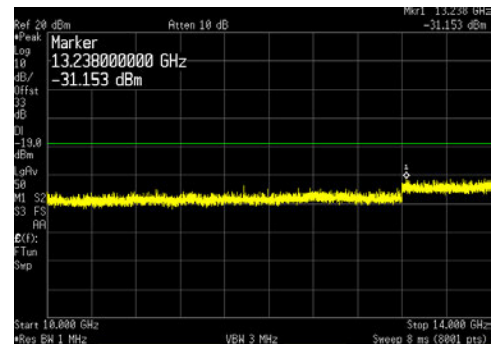
3GHz to 6GHz



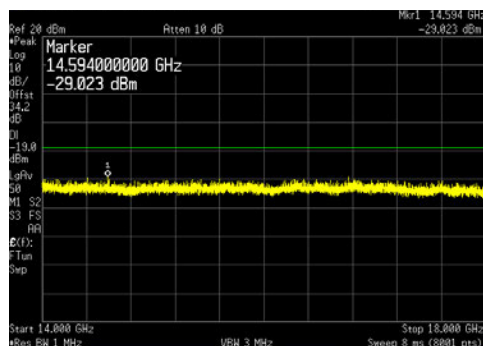
6GHz to 10GHz



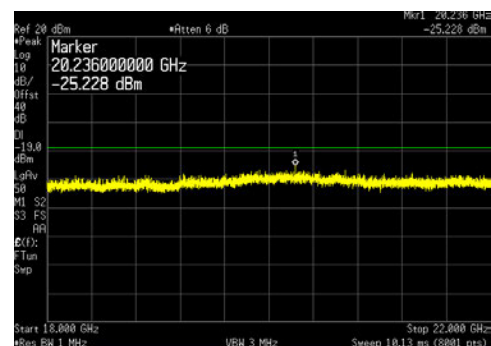
10GHz to 14GHz



14GHz to 18GHz

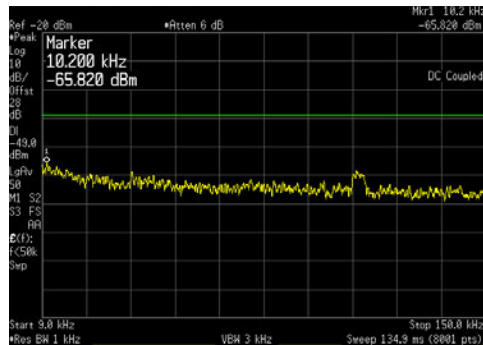


18GHz to 22GHz

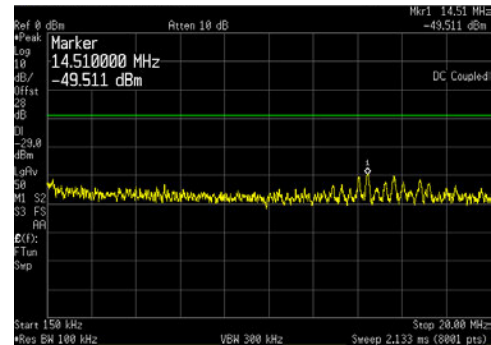


LTE15 Channel Bandwidth _ 16QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

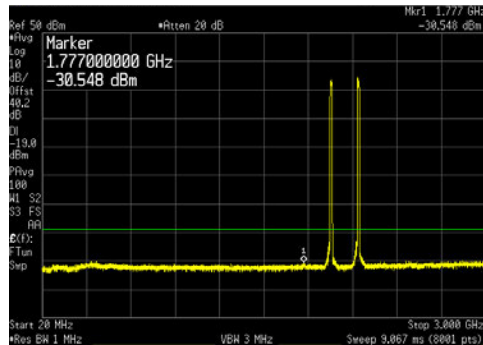
9kHz to 150kHz



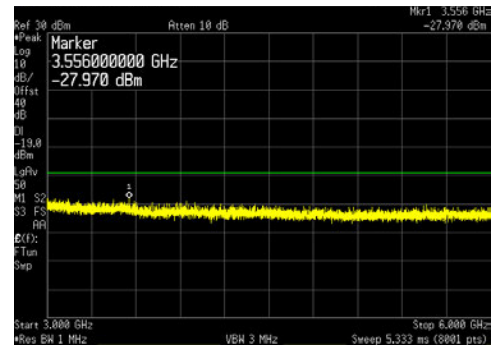
150kHz to 20MHz



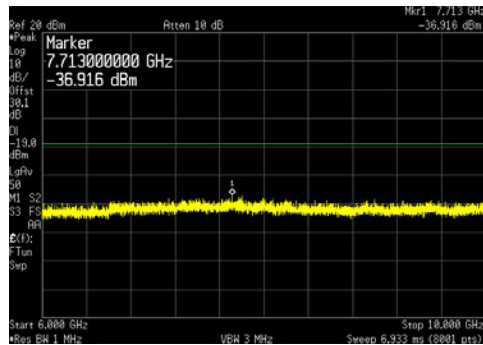
20MHz to 3GHz



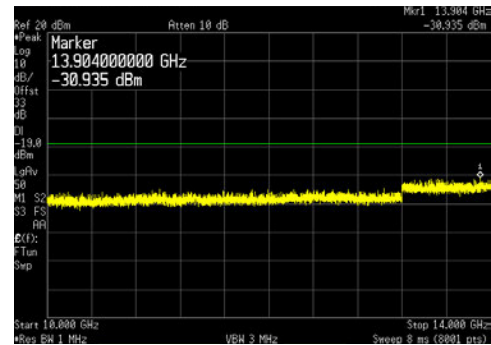
3GHz to 6GHz



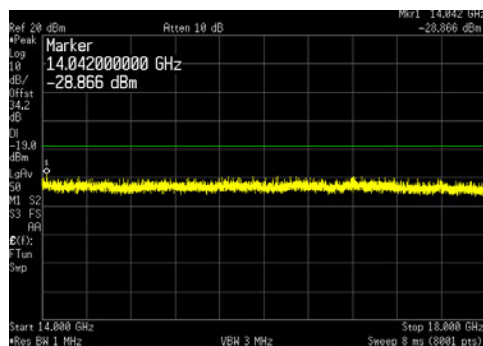
6GHz to 10GHz



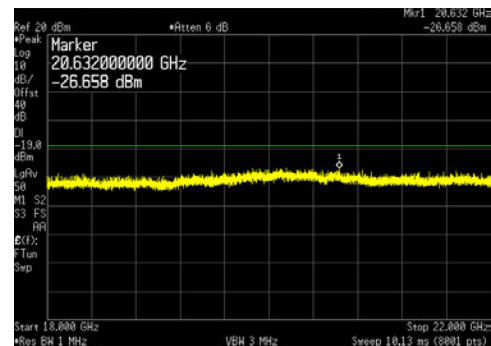
10GHz to 14GHz



14GHz to 18GHz

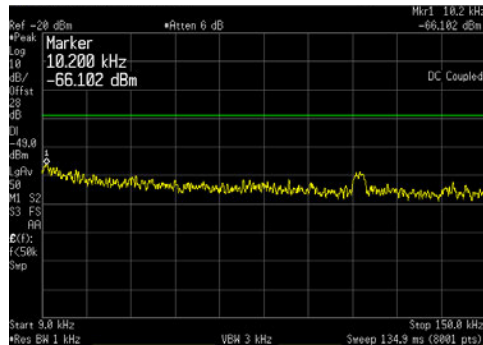


18GHz to 22GHz

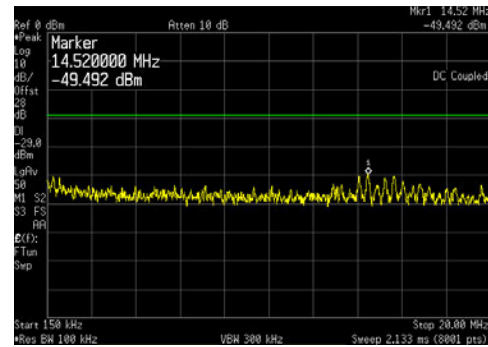


LTE15 Channel Bandwidth _ 64QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

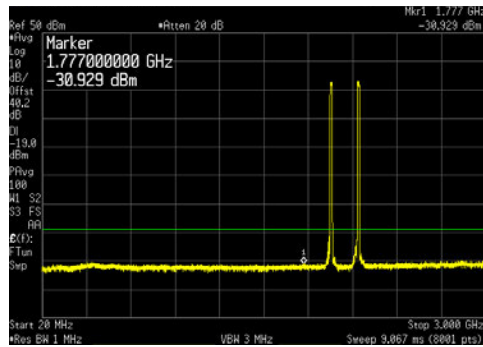
9kHz to 150kHz



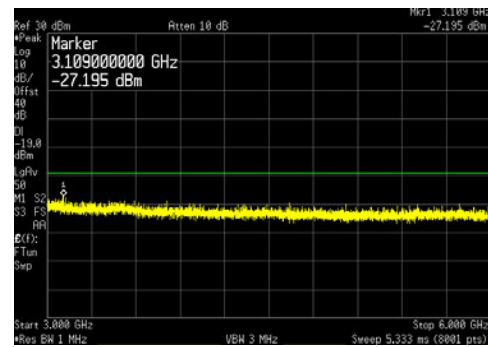
150kHz to 20MHz



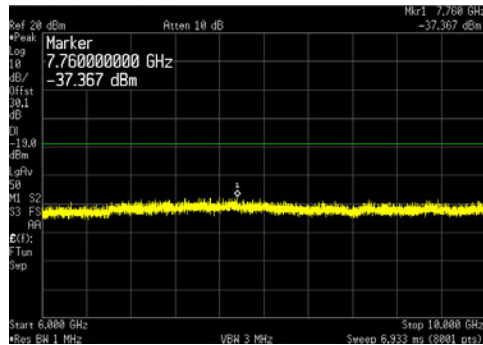
20MHz to 3GHz



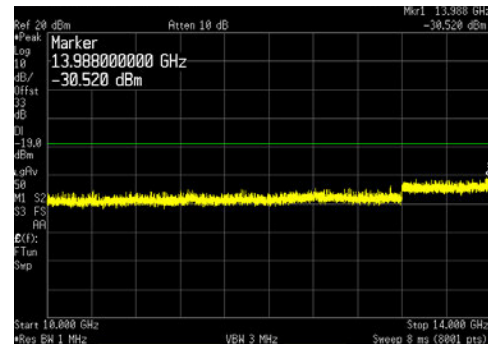
3GHz to 6GHz



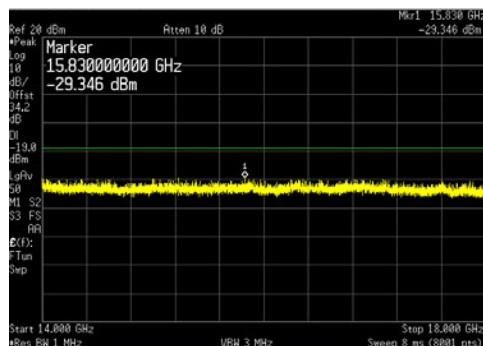
6GHz to 10GHz



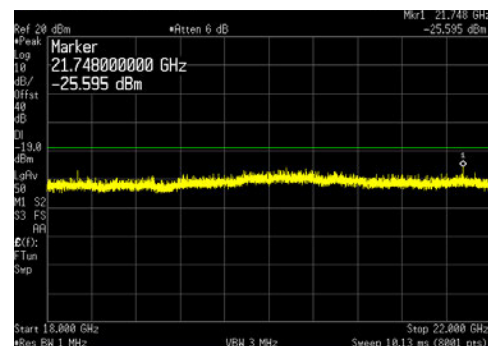
10GHz to 14GHz



14GHz to 18GHz

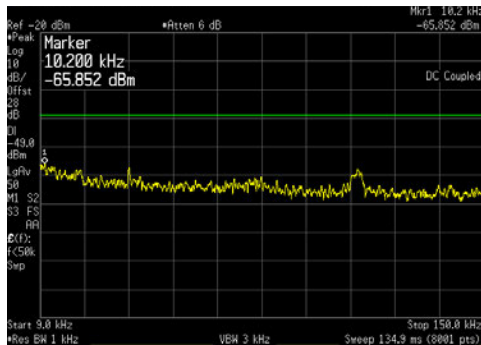


18GHz to 22GHz

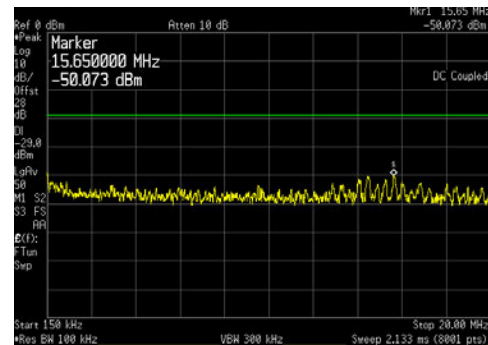


LTE15 Channel Bandwidth _ 256QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

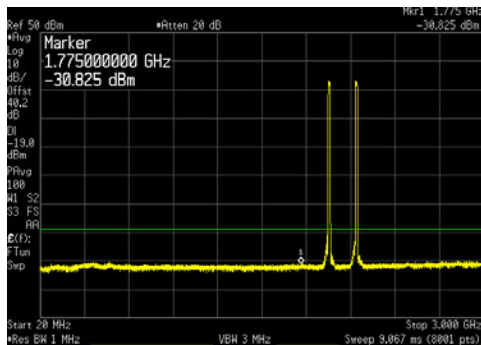
9kHz to 150kHz



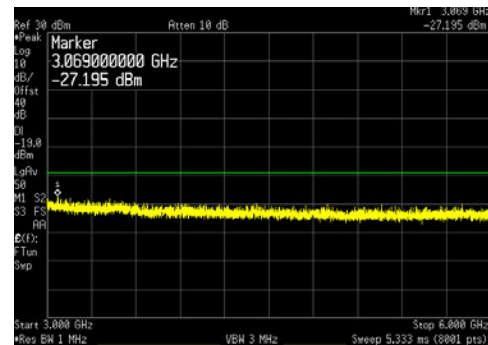
150kHz to 20MHz



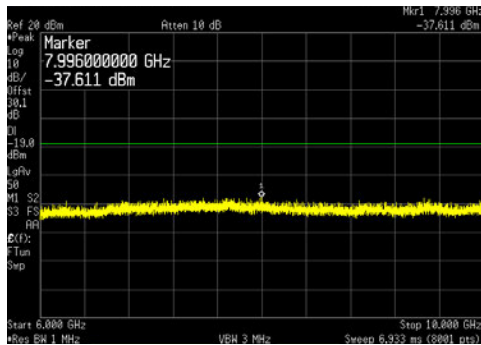
20MHz to 3GHz



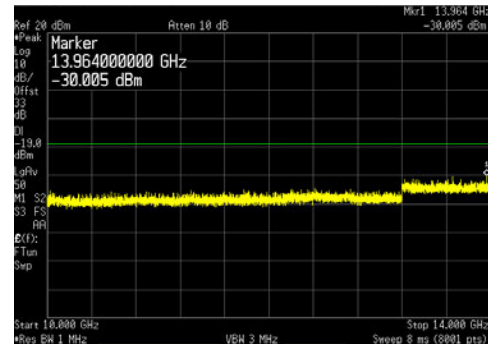
3GHz to 6GHz



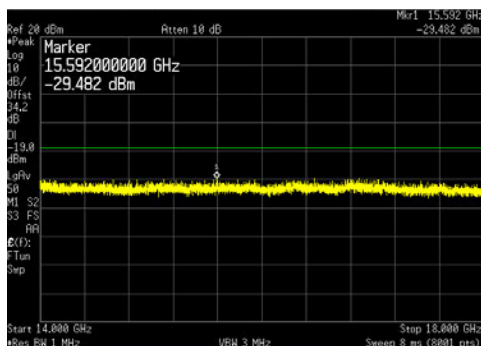
6GHz to 10GHz



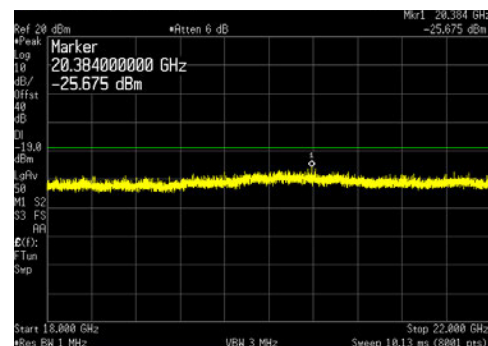
10GHz to 14GHz



14GHz to 18GHz

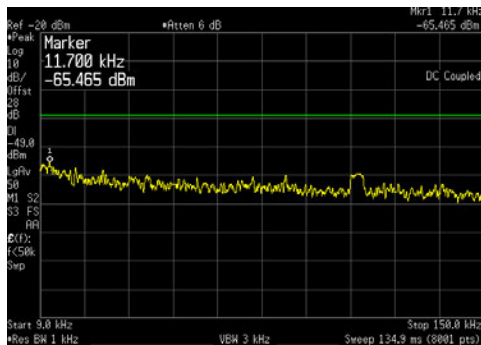


18GHz to 22GHz

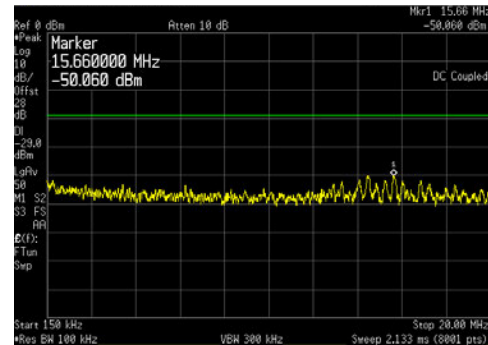


LTE20 Channel Bandwidth _ QPSK _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

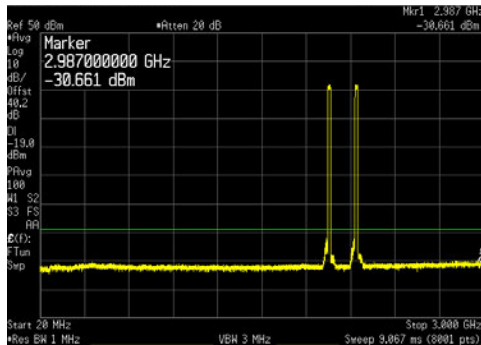
9kHz to 150kHz



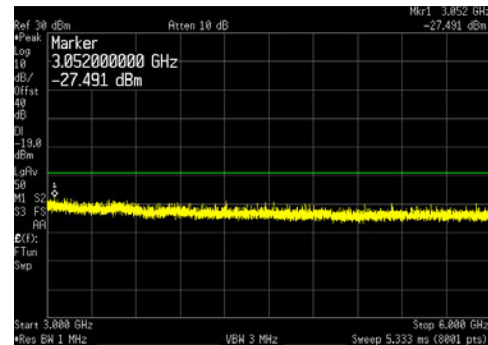
150kHz to 20MHz



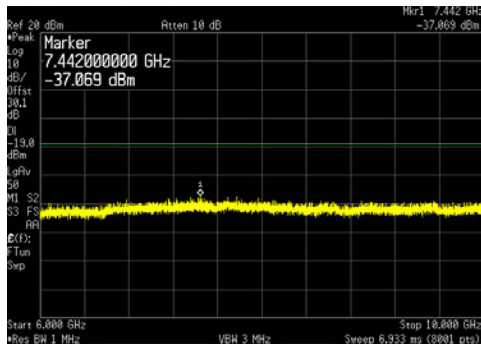
20MHz to 3GHz



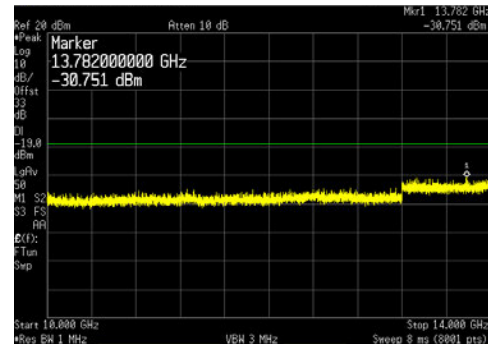
3GHz to 6GHz



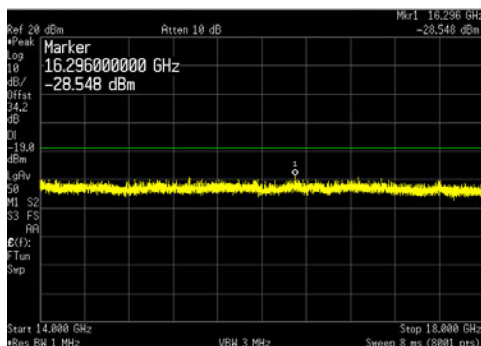
6GHz to 10GHz



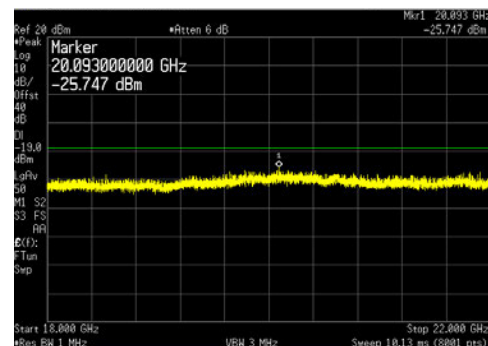
10GHz to 14GHz



14GHz to 18GHz

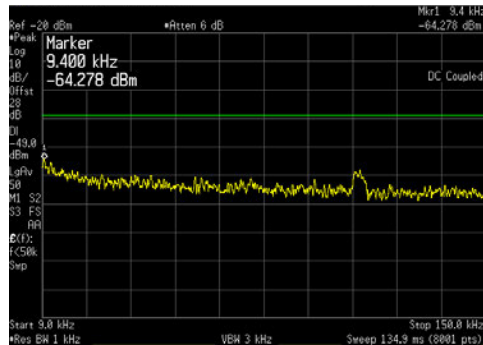


18GHz to 22GHz

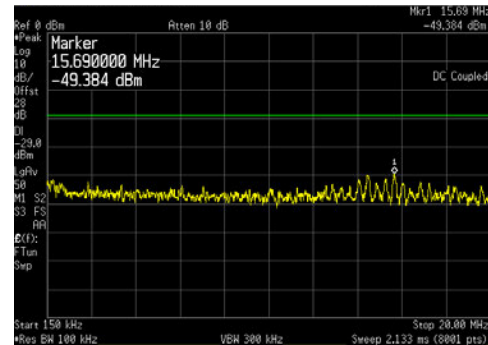


LTE20 Channel Bandwidth _ 16QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

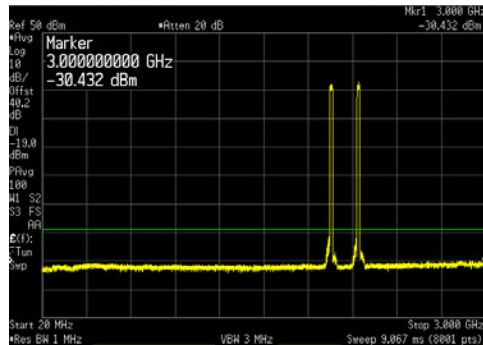
9kHz to 150kHz



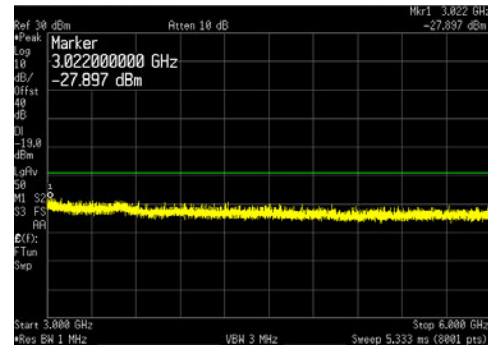
150kHz to 20MHz



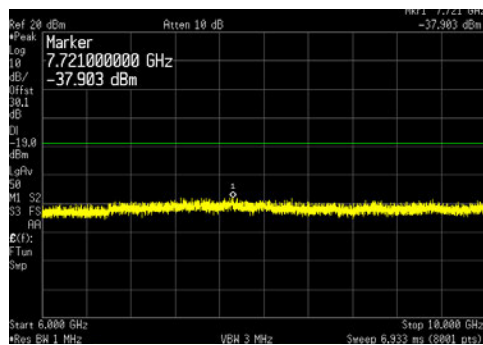
20MHz to 3GHz



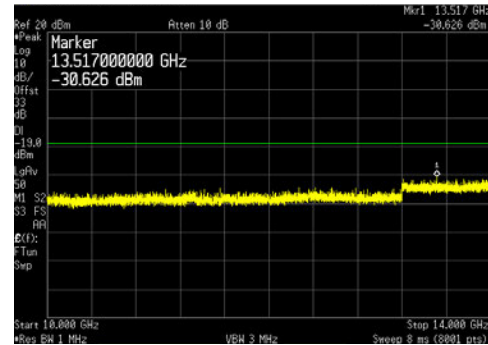
3GHz to 6GHz



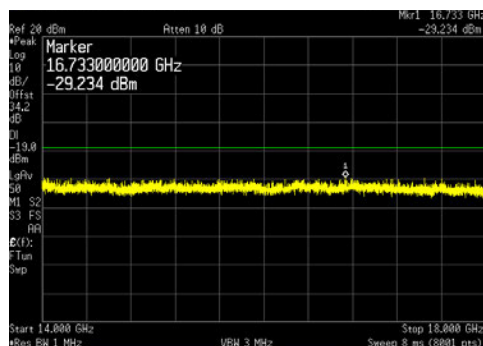
6GHz to 10GHz



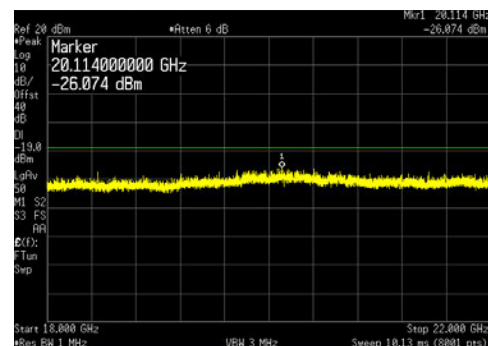
10GHz to 14GHz



14GHz to 18GHz

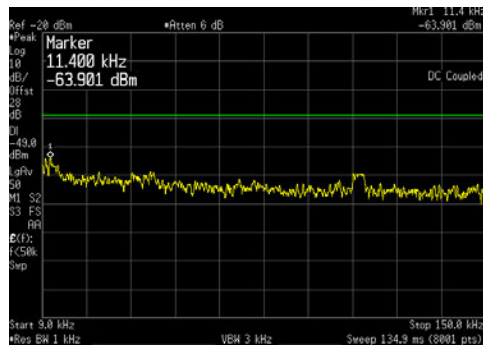


18GHz to 22GHz

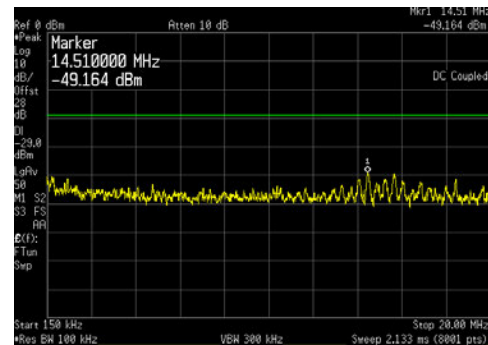


LTE20 Channel Bandwidth _ 64QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

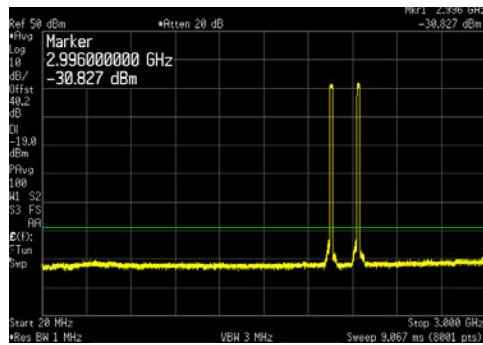
9kHz to 150kHz



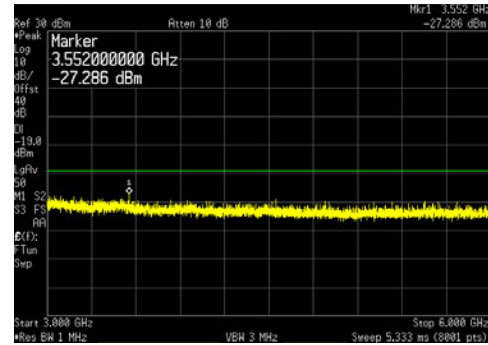
150kHz to 20MHz



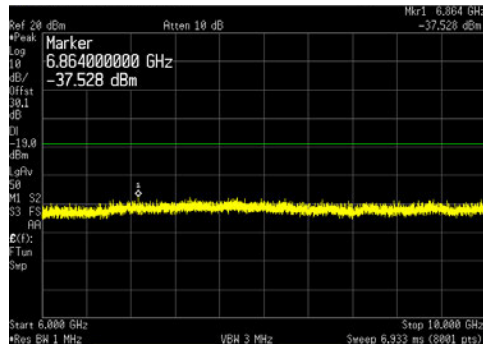
20MHz to 3GHz



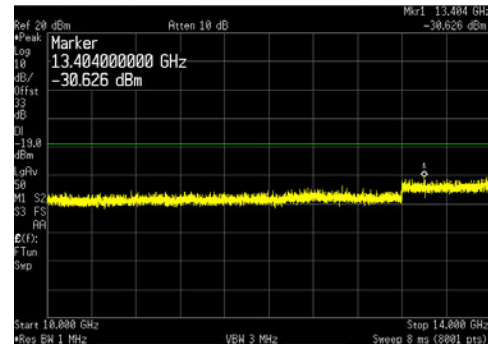
3GHz to 6GHz



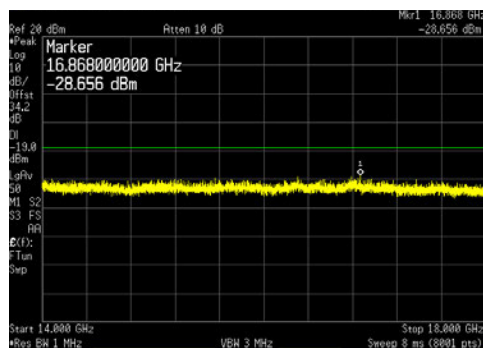
6GHz to 10GHz



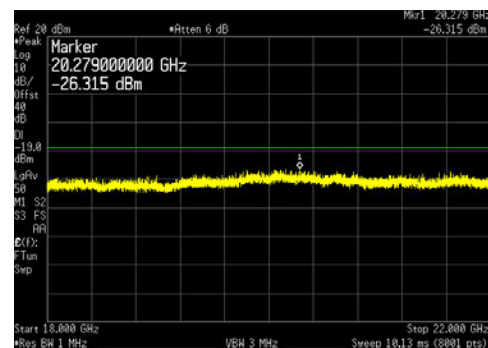
10GHz to 14GHz



14GHz to 18GHz

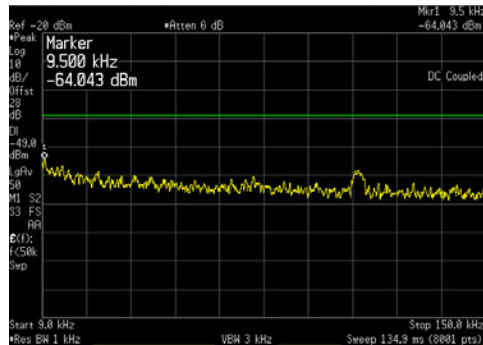


18GHz to 22GHz

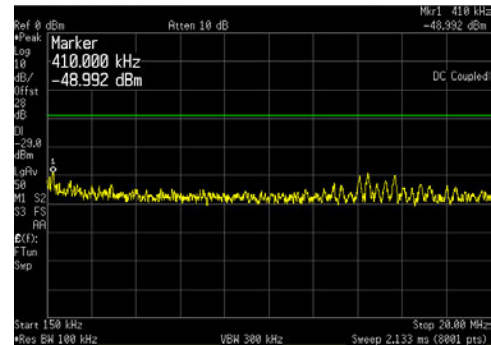


LTE20 Channel Bandwidth _ 256QAM _ Middle Channels (1962.5MHz and 2145MHz) at 20W/Carrier:

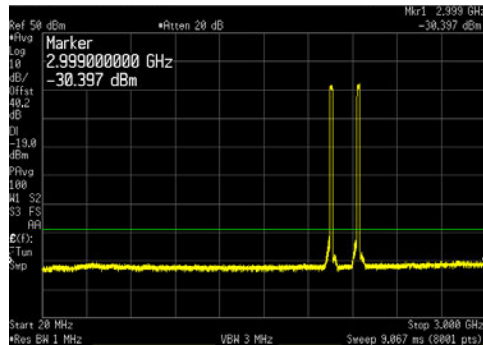
9kHz to 150kHz



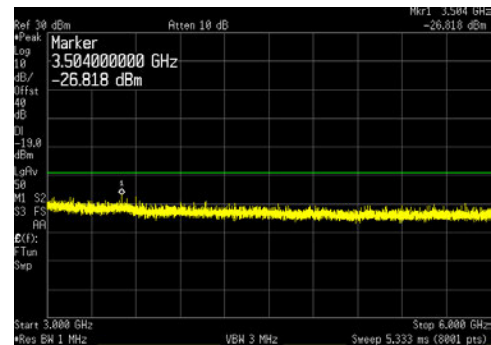
150kHz to 20MHz



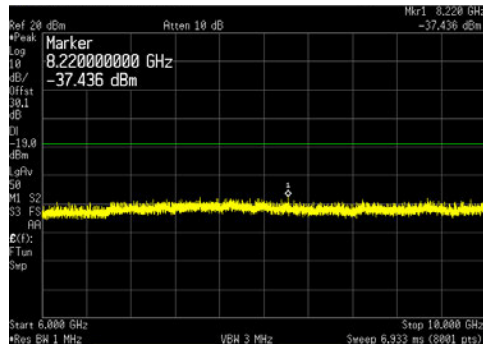
20MHz to 3GHz



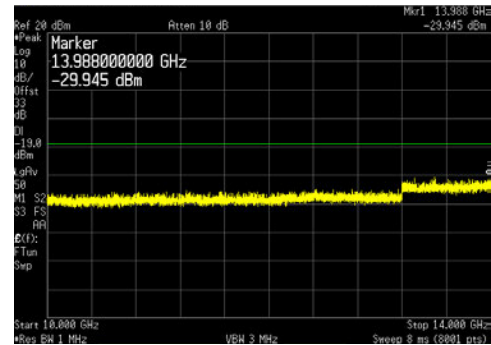
3GHz to 6GHz



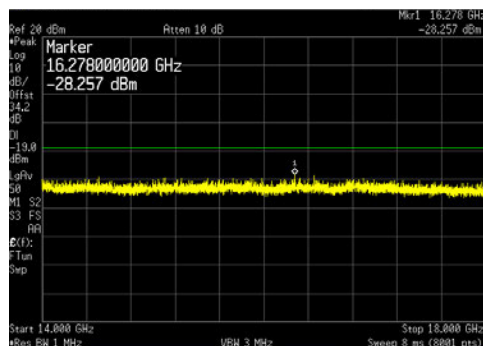
6GHz to 10GHz



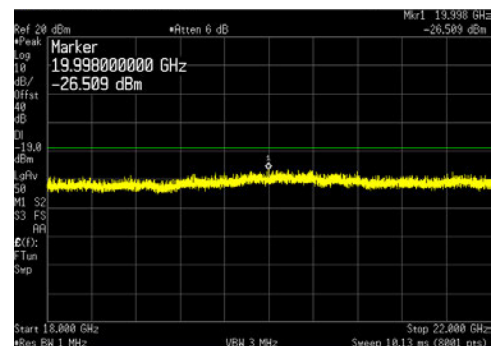
10GHz to 14GHz



14GHz to 18GHz

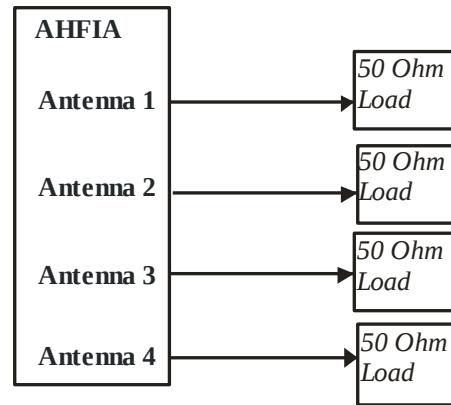


18GHz to 22GHz



Transmitter Radiated Spurious Emissions

During radiated emission testing all antenna ports of the base station were terminated with 50ohm termination blocks as shown in the diagram below.



Based on antenna port conducted spurious emissions tests results, preliminary scans for radiated spurious emissions were performed in 30MHz – 22GHz frequency range. Two test configurations are needed for PCS radiated spurious emission measurements. The first test will be with the 3GPP Band 25 transmitters enabled at 40 watts per carrier (the 3GPP Band 66 transmitters will not be enabled). The second test will be with the 3GPP Band 25 and the 3GPP Band 66 transmitters enabled simultaneously at 20 watts per carrier (or 40 watts/antenna port).

The test includes channel bandwidth with the highest spectral density (LTE5) for both frequency bands. The bottom, middle and top frequency channels for each band were enabled. The carrier configurations for the radiated emission testing are provided below. Final maximized radiated emissions were measured in these modes.

Frequency Band	Ant Port	RF BW	EARFCN	Transmit Frequency	Carrier Power
PCS	1	5 MHz	8065 (Bottom Channel)	1932.5 MHz	40 Watts
PCS	2	5 MHz	8365 (Middle Channel)	1962.5 MHz	40 Watts
PCS	3	5 MHz	8365 (Middle Channel)	1962.5 MHz	40 Watts
PCS	4	5 MHz	8665 (Top Channel)	1992.5 MHz	40 Watts

AHFIA PCS Carriers Enabled at Maximum Power (AWS Carriers Off)

Frequency Band	Ant Port	RF BW	EARFCN	Transmit Frequency	Carrier Power
PCS	1	5 MHz	8065 (Bottom Channel)	1932.5 MHz	20 Watts
PCS	2	5 MHz	8365 (Middle Channel)	1962.5 MHz	20 Watts
PCS	3	5 MHz	8365 (Middle Channel)	1962.5 MHz	20 Watts
PCS	4	5 MHz	8665 (Top Channel)	1992.5 MHz	20 Watts
AWS	1	5 MHz	66461 (Bottom Channel)	2112.5 MHz	20 Watts
AWS	2	5 MHz	66786 (Middle Channel)	2145.0 MHz	20 Watts
AWS	3	5 MHz	66786 (Middle Channel)	2145.0 MHz	20 Watts
AWS	4	5 MHz	67111 (Top Channel)	2177.5 MHz	20 Watts

PCS & AWS Carriers Enabled Simultaneously at Maximum Power

RE Data for PCS Carriers enabled (AWS carriers off)

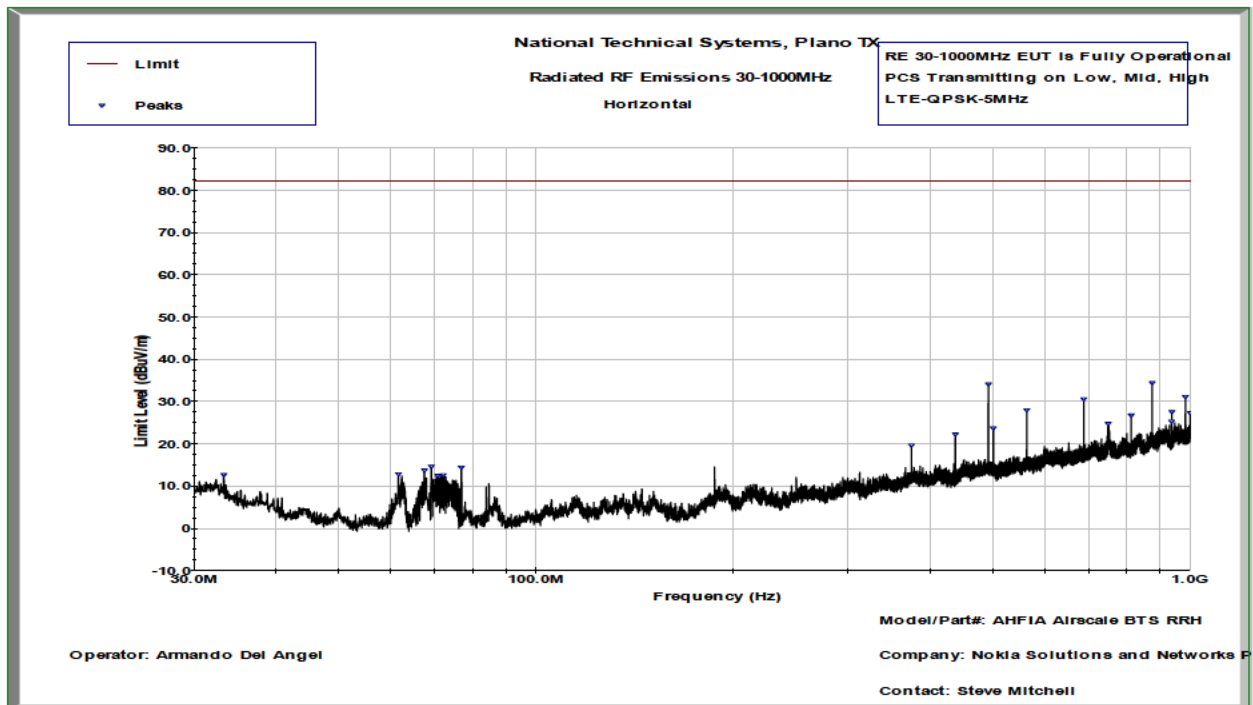
Frequency	Polarity	Peaks Raw	Antenna	Pre Amp	Cables	Peaks	Limit	Margin	Tower	Turntable
MHz	H/V	dBuV/m	dB	dB	dB	dBuV/m	dBuV/m	dB	cm	Degrees
9026.470	H	33.075	37.774	-31.772	8.105	47.182	82.2	-35.018	200.1	223
17693.100	V	33.453	45.102	-28.69	6.75	56.614	91.7	-35.086	149.7	359
17999.100	V	31.402	46.542	-28.923	6.856	55.876	91.7	-35.824	149.7	359
8846.250	V	31.863	37.795	-31.358	7.742	46.042	82.2	-36.158	100	223
17999.600	H	27.498	46.544	-28.924	6.856	51.974	91.7	-39.726	149.7	359
9832.180	H	28.033	38.126	-31.741	7.729	42.146	82.2	-40.054	200	223
8887.110	V	27.744	37.819	-31.475	7.954	42.041	82.2	-40.159	100	223
13760.600	V	33.19	41.515	-29.347	6.05	51.407	91.7	-40.293	149.7	359
17752.500	H	27.808	45.389	-28.699	6.777	51.274	91.7	-40.426	149.7	359
17751.200	V	27.662	45.383	-28.698	6.776	51.123	91.7	-40.577	149.7	359
7821.930	H	29.776	36.673	-31.875	6.133	40.706	82.2	-41.494	200.1	223
9891.590	V	24.479	38.208	-31.418	7.909	39.176	82.2	-43.024	100	223
17697.000	H	24.922	45.13	-28.69	6.75	48.112	91.7	-43.588	149.7	359
6186.650	V	29.009	34.79	-32.058	6.544	38.285	82.2	-43.915	100	223
3932.270	V	31.283	32.579	-32.199	4.967	36.63	82.2	-45.57	100	223
12780.800	H	30.925	40.072	-29.998	5.109	46.109	91.7	-45.591	149.7	359
18000	H	27.308	45.029	-28.924	2.5	45.913	91.7	-45.787	100	359
3932.180	H	31.045	32.579	-32.199	4.966	36.392	82.2	-45.808	180	223
2949.110	V	35.062	29.587	-33.732	4.173	35.087	82.2	-47.113	100	223
874.997	V	45.674	23	-37.066	3.365	34.972	82.2	-47.228	129	208
18000	V	25.348	45.029	-28.924	2.5	43.953	91.7	-47.747	100	359
875.002	H	44.992	23	-37.066	3.365	34.289	82.2	-47.911	146	120
491.512	H	51.425	18.33	-37.537	1.755	33.972	82.2	-48.228	139	40
491.511	V	51.18	18.33	-37.537	1.755	33.727	82.2	-48.473	129	221
687.500	V	44.864	21.6	-37.203	2.228	31.488	82.2	-50.712	100	14
687.505	H	43.861	21.6	-37.203	2.228	30.485	82.2	-51.715	138	180
2265.280	H	33.624	27.578	-34.311	3.585	30.474	82.2	-51.726	100	223
12780.900	V	24.19	40.073	-29.998	5.109	39.374	91.7	-52.326	149.7	359
3211.750	V	27.029	30.666	-33.204	5.064	29.554	82.2	-52.646	100	223

A three meter measurement distance was used for radiated emission less than 10GHz. A one meter measurement distance was used for radiated emission greater than 10GHz. The highest radiated emissions detected were more than 20dB below the three meter limit of 82.2dBuV/m and the one meter limit of 91.7dBuV/m (equivalent to -13dBm EIRP). Since all maximized measurements were more than 20dB below these levels, substitution measurements were not performed. TILE software was used for all preliminary scans and plots that are included on the following pages.

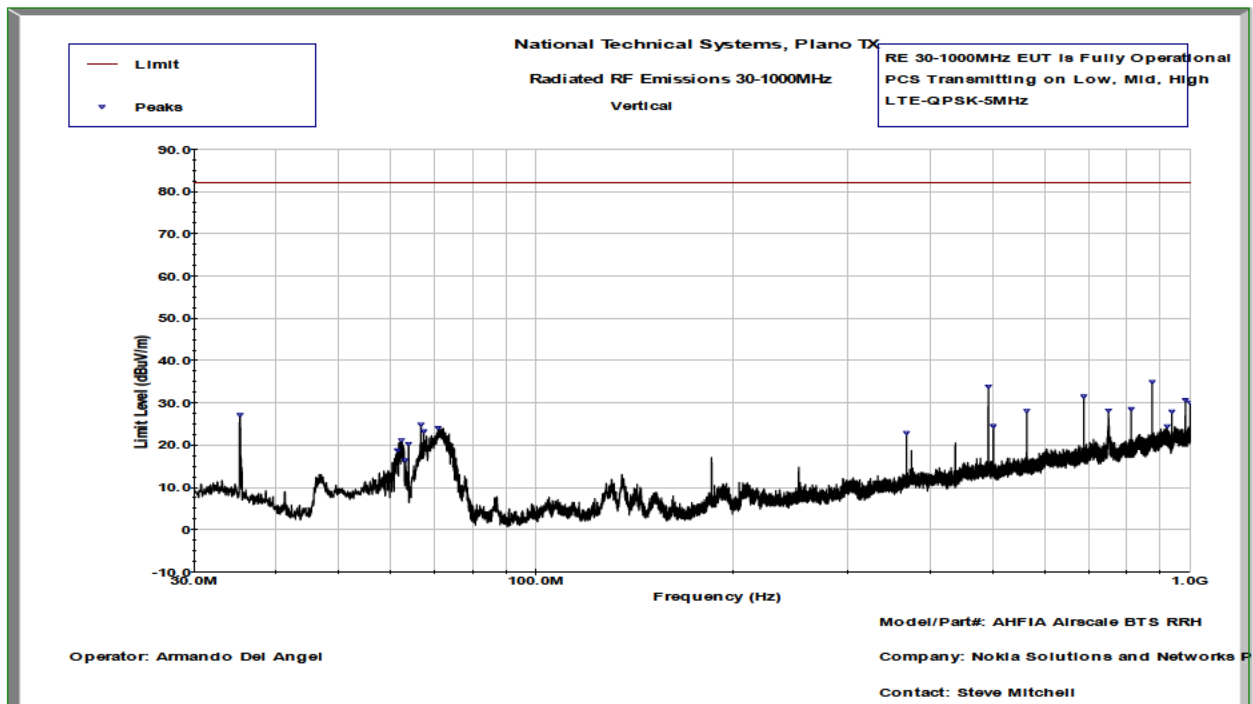
RE Data for PCS and AWS Carriers enabled simultaneously

Frequency	Polarity	Peaks Raw	Antenna	Pre Amp	Cables	Peaks	Limit	Margin	Tower	Turntable
MHz	H/V	dBuV/m	dB	dB	dB	dBuV/m	dBuV/m	dB	cm	Degrees
17750.900	V	35.08	45.382	-28.698	6.776	58.54	91.7	-33.16	149.7	359
18000.000	V	32.519	46.546	-28.924	6.856	56.997	91.7	-34.703	149.7	359
830.416	V	58.286	23.017	-37.136	2.915	47.082	82.2	-35.118	100	257
3932.300	H	40.578	32.579	-32.199	4.967	45.925	82.2	-36.275	200	192
9978.310	V	29.541	38.28	-30.95	8.39	45.26	82.2	-36.94	103	192
17752.200	H	30.645	45.388	-28.699	6.777	54.11	91.7	-37.59	149.7	359
17694.800	H	30.477	45.114	-28.69	6.75	53.651	91.7	-38.049	149.7	359
9979.090	H	28.416	38.281	-30.945	8.394	44.145	82.2	-38.055	200.1	192
7270.610	V	30.028	36.414	-31.502	6.609	41.548	82.2	-40.652	103	192
5797.200	H	31.25	34.013	-31.941	6.363	39.684	82.2	-42.516	200.1	192
4224.970	V	34.312	32.083	-31.948	4.354	38.801	82.2	-43.399	120	192
3931.890	V	33.305	32.58	-32.199	4.966	38.651	82.2	-43.549	100	192
4289.630	V	33.53	32.105	-32.036	4.825	38.424	82.2	-43.776	103	192
7547.710	H	27.514	36.589	-31.941	6.24	38.402	82.2	-43.798	200	192
18000.000	H	22.121	46.546	-28.924	6.856	46.599	91.7	-45.101	149.7	359
2949.190	V	36.119	29.588	-33.732	4.174	36.145	82.2	-46.055	146	192
7268.010	H	24.472	36.403	-31.497	6.608	35.986	82.2	-46.214	200.1	192
4227.000	H	30.757	32.084	-31.947	4.369	35.263	82.2	-46.937	200.1	192
874.988	V	45.614	23	-37.066	3.364	34.912	82.2	-47.288	128	207
491.528	H	51.419	18.331	-37.537	1.755	33.966	82.2	-48.234	111	69
491.529	V	50.87	18.331	-37.537	1.755	33.418	82.2	-48.782	120	210
874.983	H	43.787	23	-37.066	3.364	33.084	82.2	-49.116	100	100
17695.900	V	19.332	45.123	-28.69	6.75	42.514	91.7	-49.186	149.7	359
7546.870	V	20.907	36.589	-31.942	6.241	31.795	82.2	-50.405	103	192
4288.480	H	26.634	32.104	-32.033	4.817	31.522	82.2	-50.678	200.1	192
12779.400	V	24.451	40.068	-29.997	5.109	39.631	91.7	-52.069	149.7	359
687.484	H	42.838	21.6	-37.203	2.228	29.461	82.2	-52.739	100	191
13758.900	V	20.475	41.515	-29.343	6.048	38.695	91.7	-53.005	149.7	359
812.500	H	40.622	22.35	-37.13	2.806	28.648	82.2	-53.552	100	15
562.493	H	44.873	19.15	-37.359	1.898	28.561	82.2	-53.639	120	239

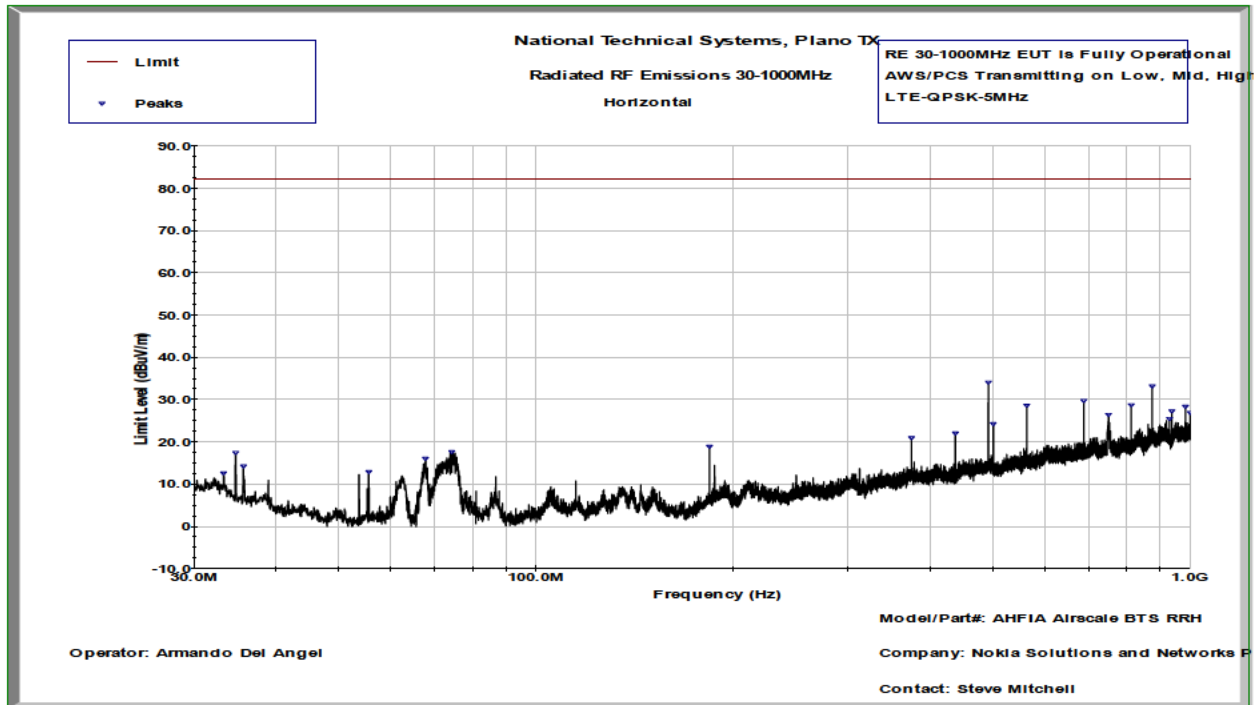
A three meter measurement distance was used for radiated emission less than 10GHz. A one meter measurement distance was used for radiated emission greater than 10GHz. The highest radiated emissions detected were more than 20dB below the three meter limit of 82.2dBuV/m and the one meter limit of 91.7dBuV/m (equivalent to -13dBm EIRP). Since all maximized measurements were more than 20dB below these levels, substitution measurements were not performed. TILE software was used for all preliminary scans and plots that are included on the following pages.



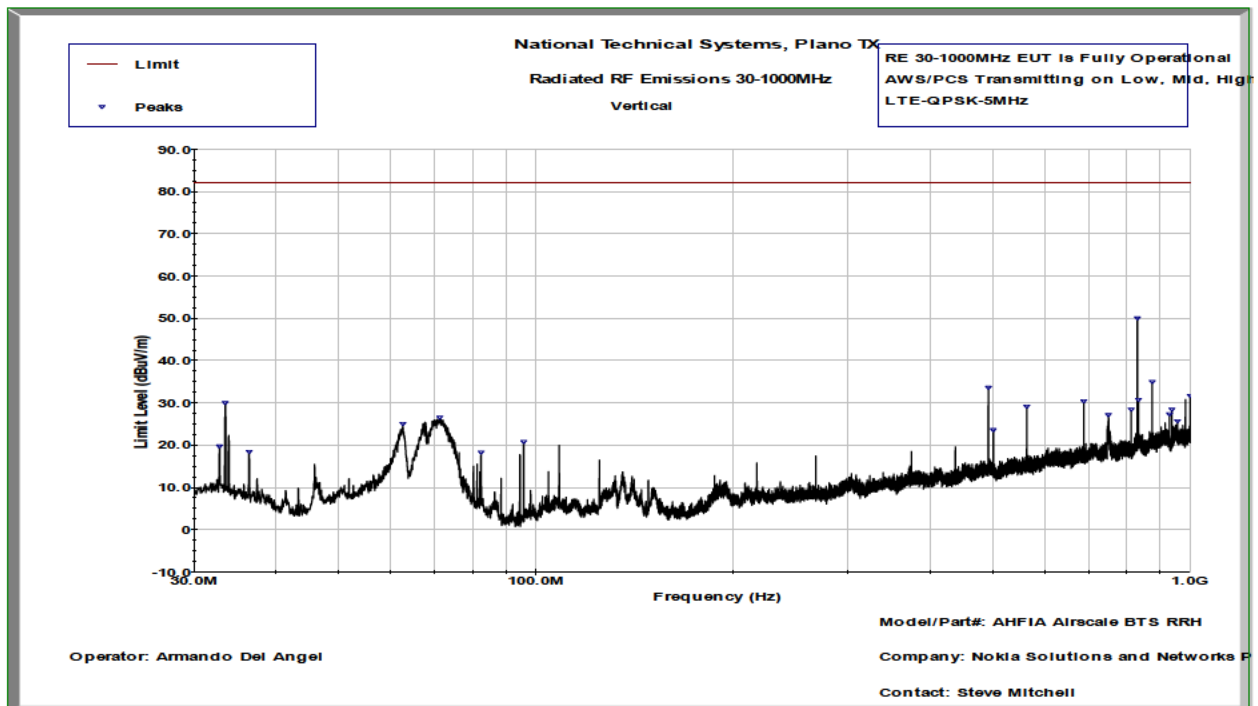
PCS Carriers 30-1000MHz – Horizontal at 3m



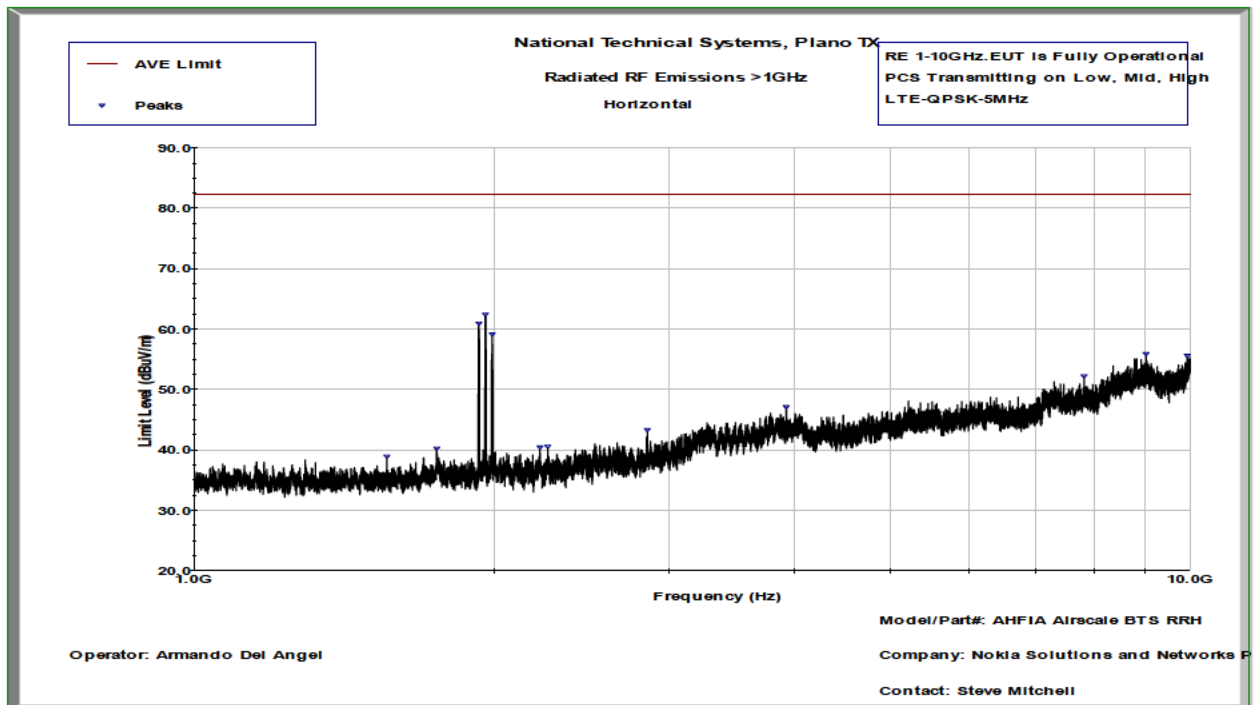
PCS Carriers 30-1000MHz – Vertical at 3m



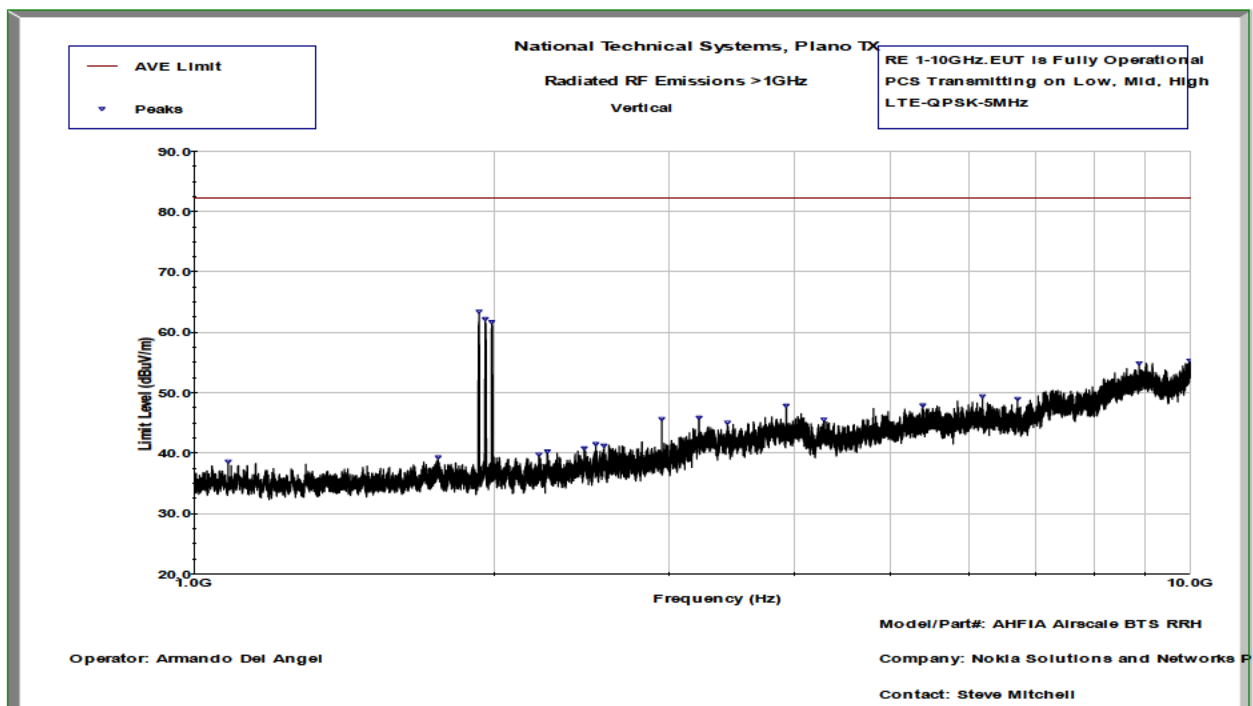
PCS/AWS Carriers 30-1000MHz – Horizontal at 3m



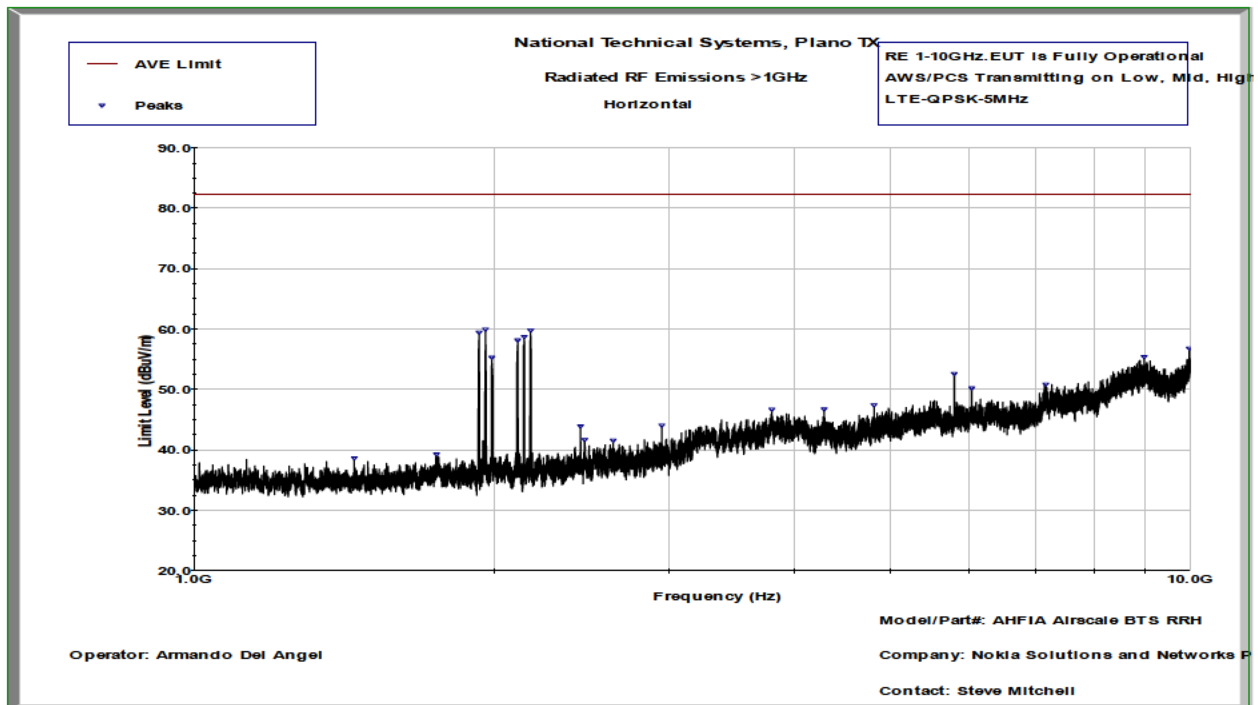
PCS/AWS Carriers 30-1000MHz – Vertical at 3m



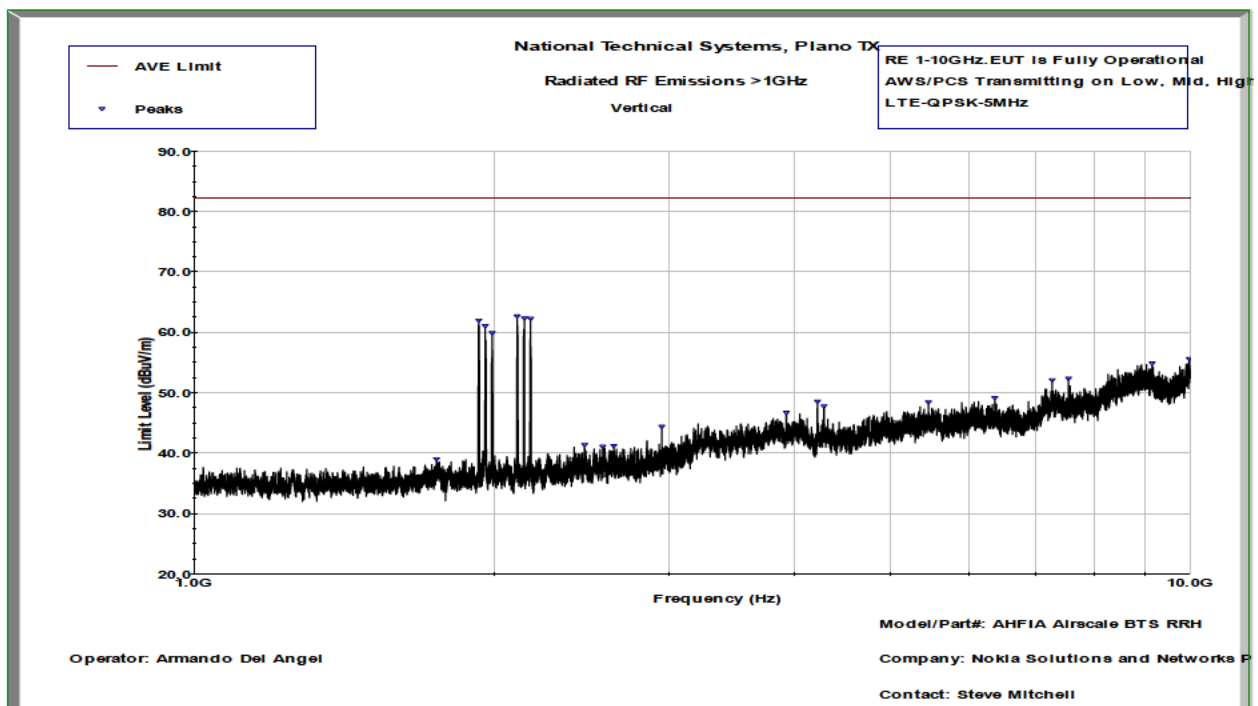
PCS Carriers 1-10GHz – Horizontal at 3m



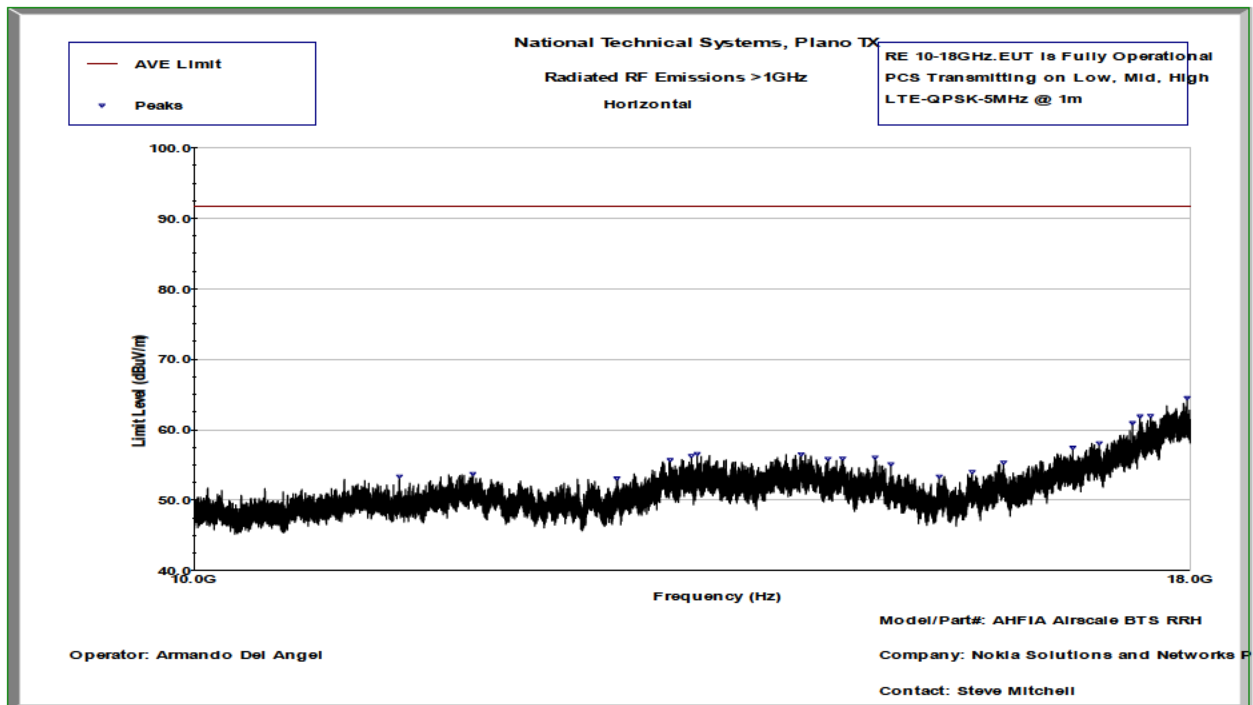
PCS Carriers 1-10GHz – Vertical at 3m



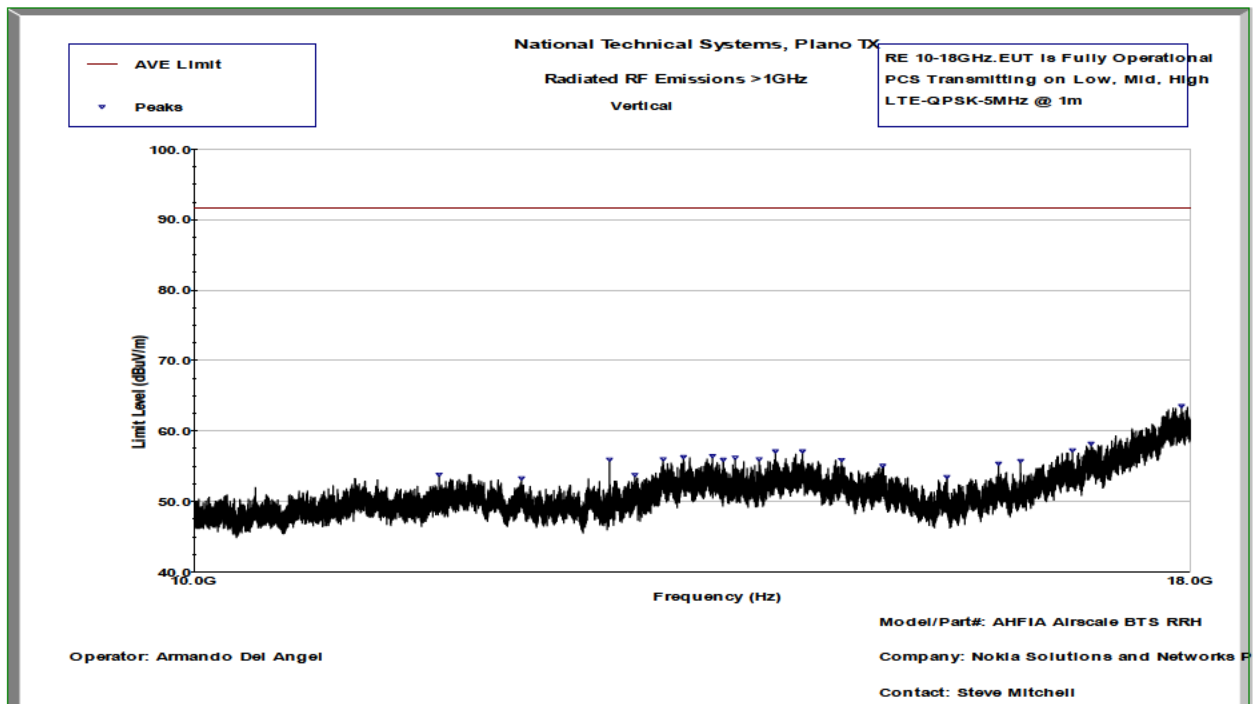
PCS/AWS Carriers 1-10GHz – Horizontal at 3m



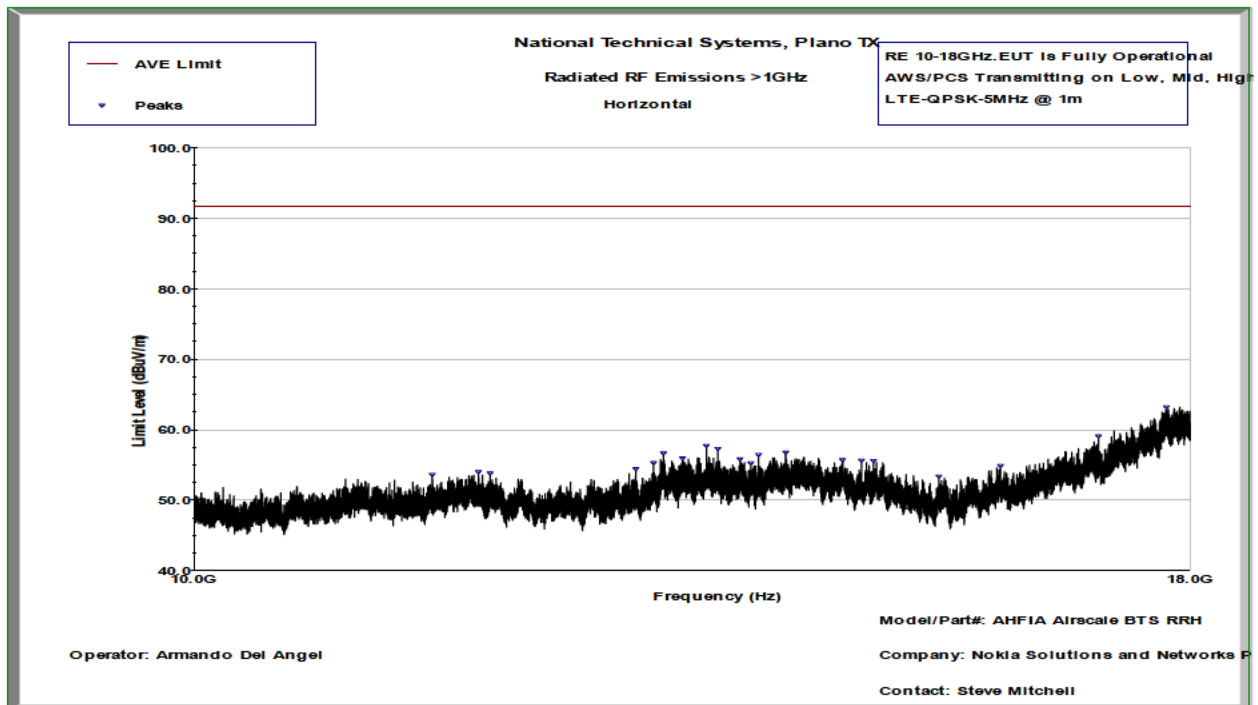
PCS/AWS Carriers 1-10GHz – Vertical at 3m



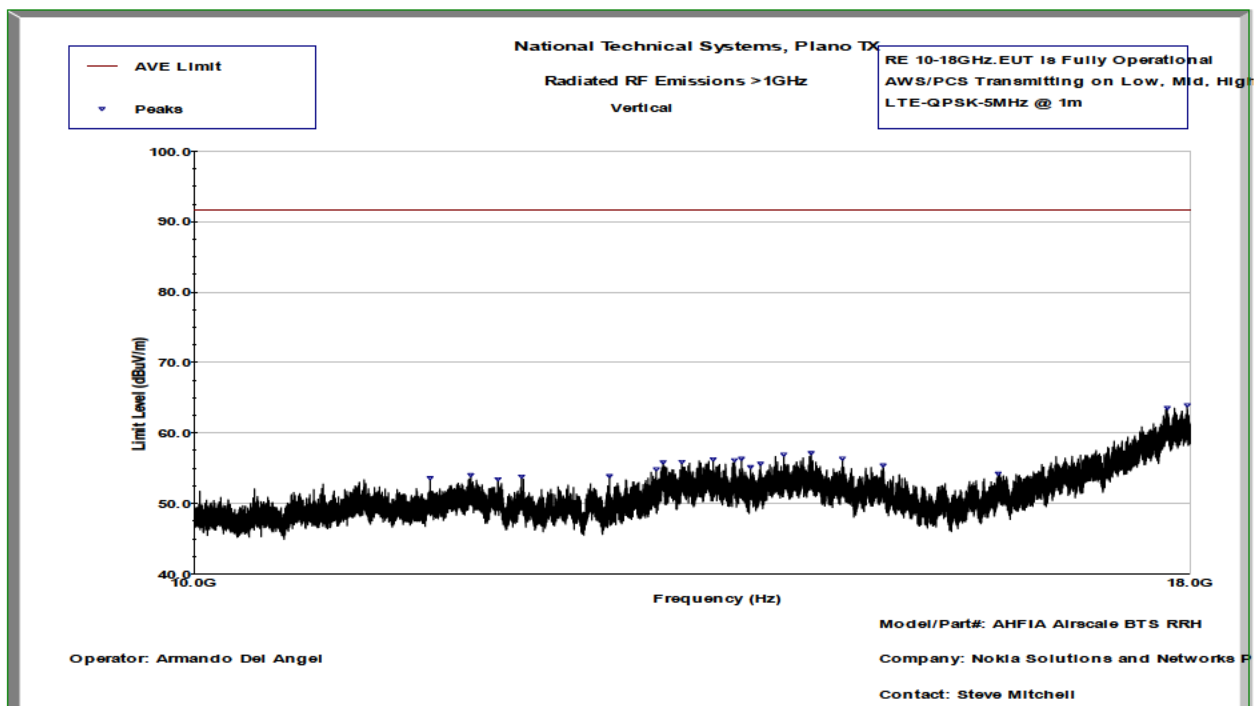
PCS Carriers 10-18GHz – Horizontal at 1m



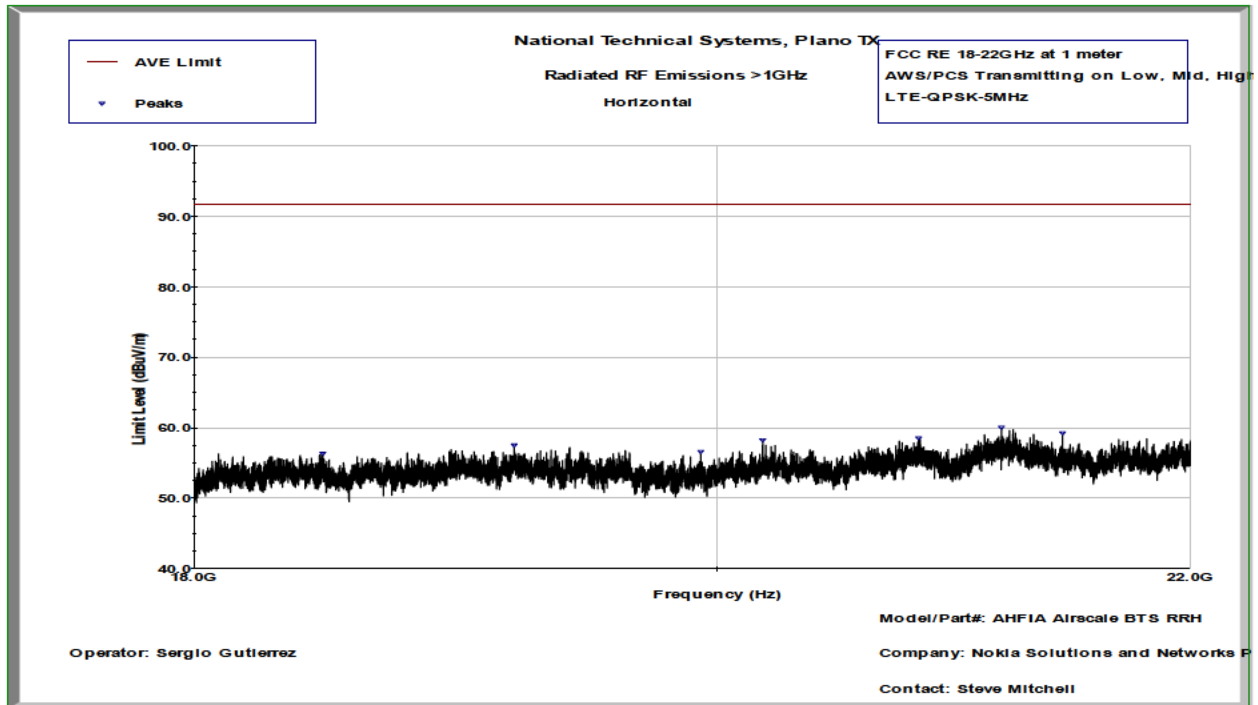
PCS Carriers 10-18GHz – Vertical at 1m



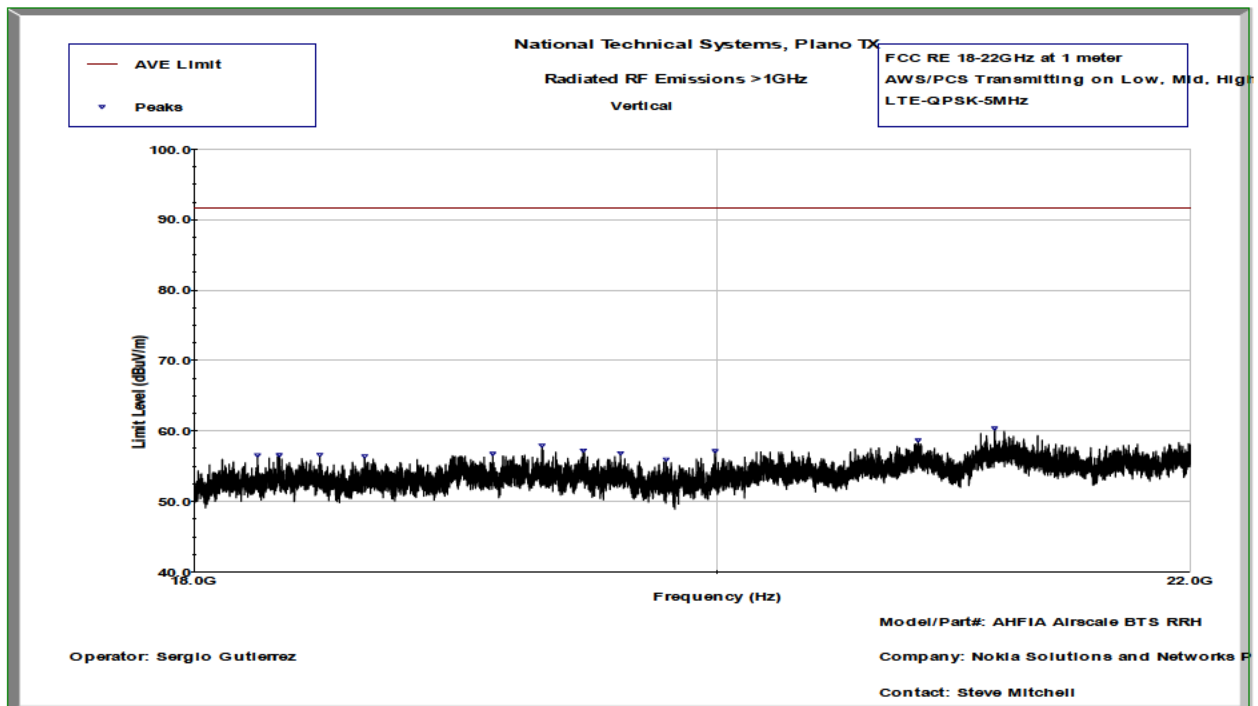
PCS/AWS Carriers 10-18GHz – Horizontal at 1m



PCS/AWS Carriers 10-18GHz – Vertical at 1m



PCS Carriers 18-22GHz – Horizontal at 1m



PCS Carriers 18-22GHz – Vertical at 1m