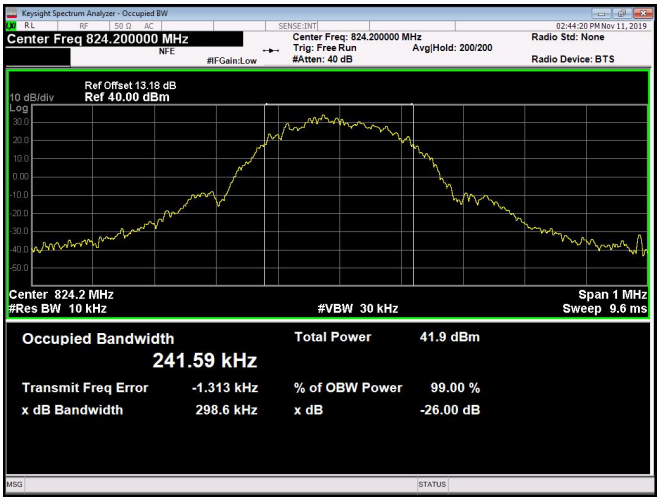
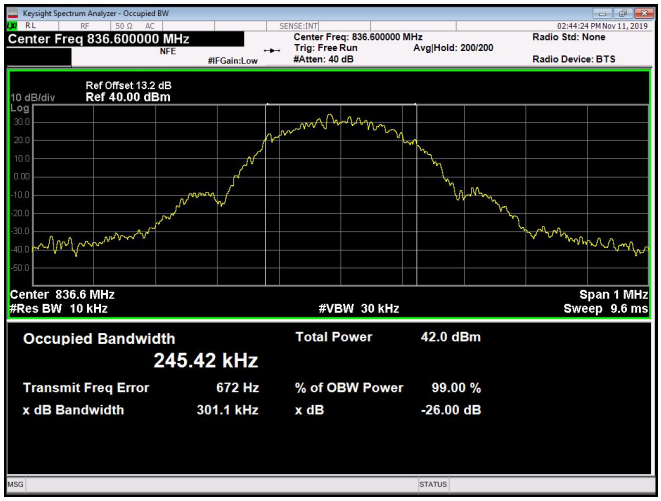
EDGE 850MHz CH128 824.2MHz

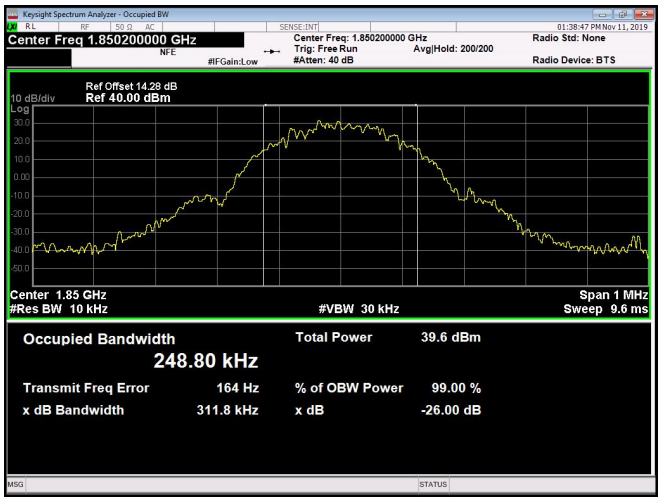


EDGE 850MHz CH190 836.6MHz



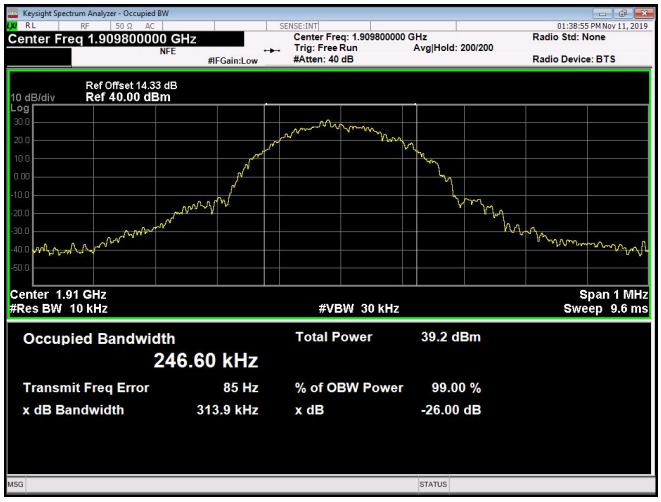
EDGE 850MHz CH251 848.8MHz

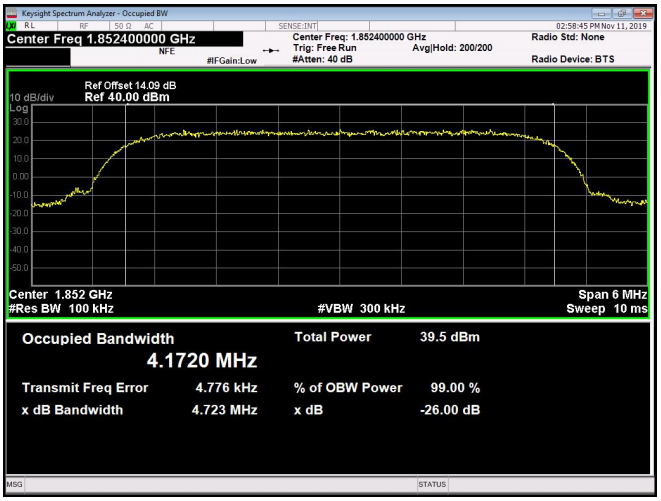
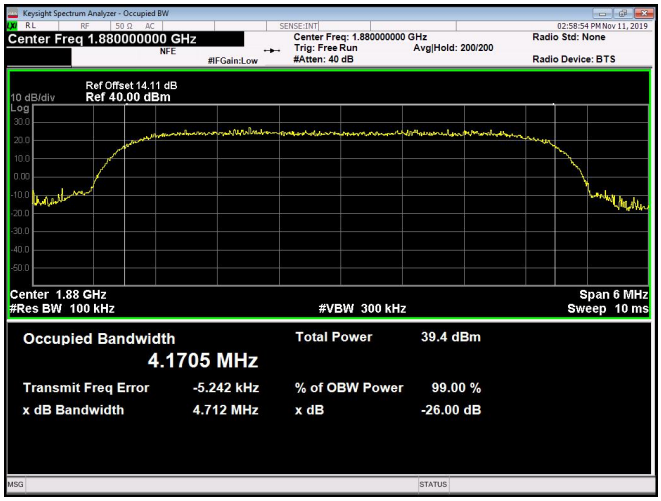
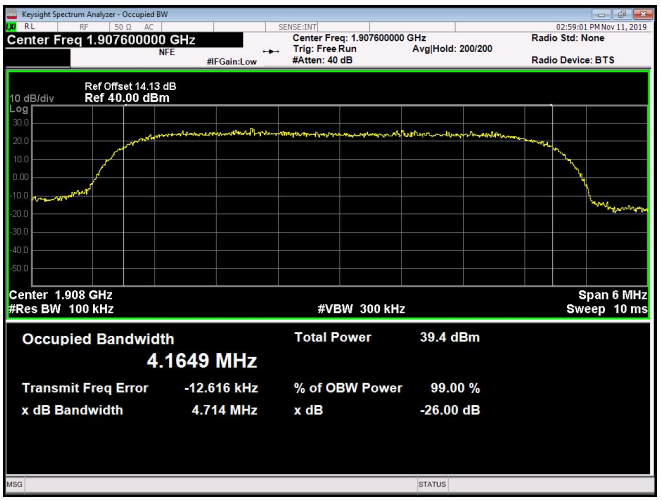
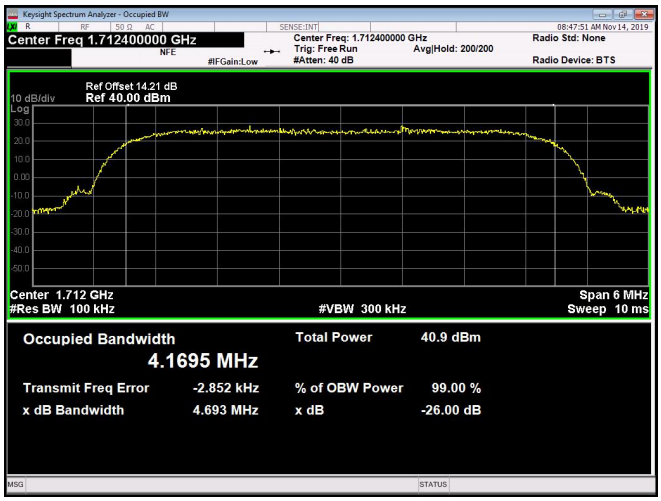
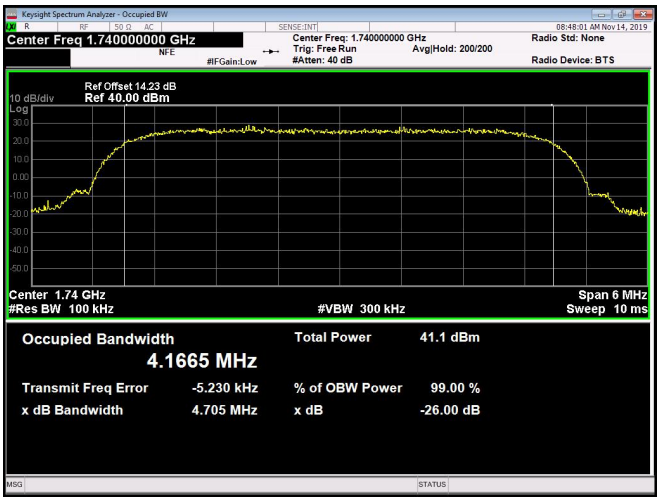
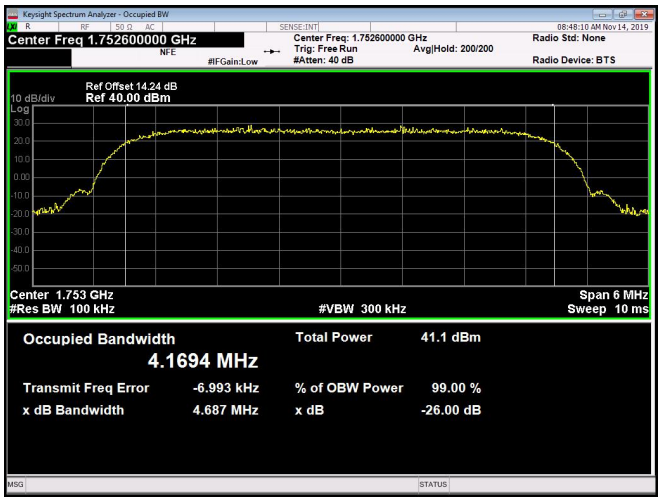
EDGE 1900MHz CH512 1850.2MHz

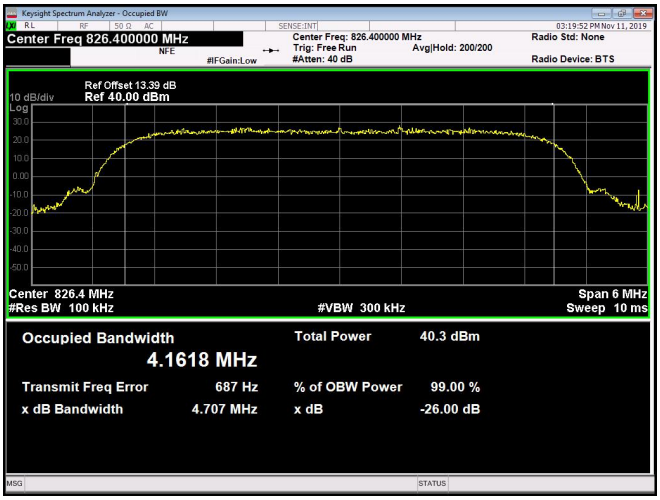
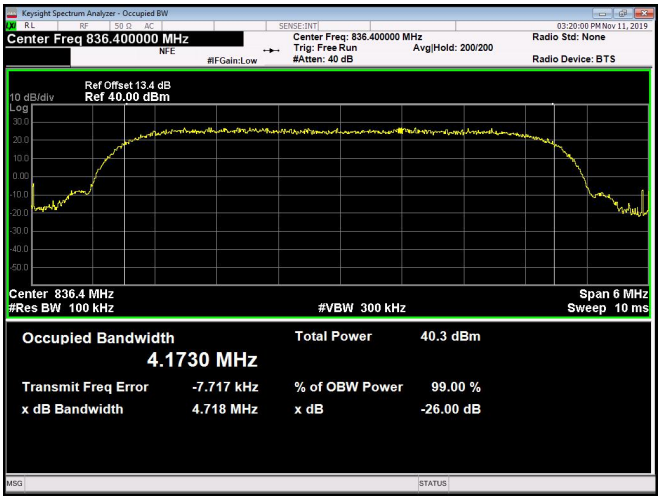


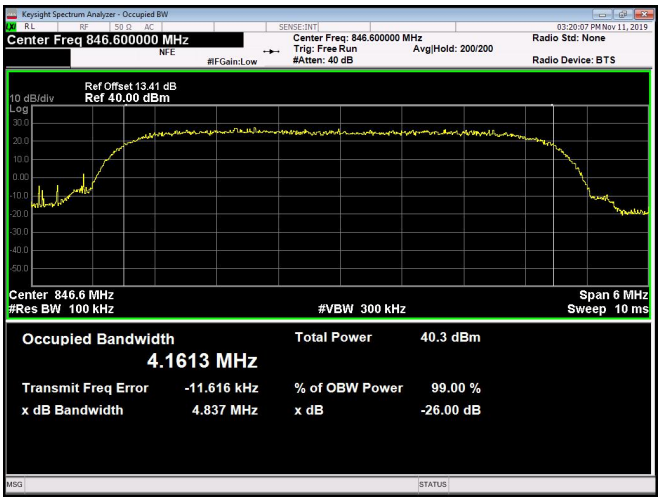
EDGE 1900MHz CH661 1880.0MHz

EDGE 1900MHz CH810 1909.8MHz



WCDMA Band II CH9262 1852.4MHz	WCDMA Band II CH9400 1880.0MHz
	
WCDMA Band II CH9538 1907.6MHz	**WCDMA Band IV CH1312 1712.4MHz**
	
WCDMA Band IV CH1413 1732.6MHz	**WCDMA Band IV CH1513 1752.6MHz**
	

WCDMA Band V CH4132 826.4MHz	WCDMA Band V CH4182 836.4MHz
	

WCDMA Band V CH4233 846.6MHz


2.4. Frequency Stability

2.4.1. Requirement

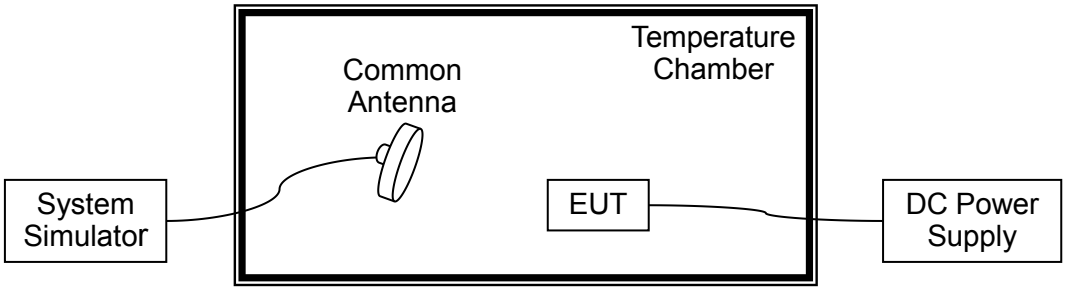
According to FCC section 22.355, 24.235 and 27.54 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -15°C to +55°C at intervals of not more than 10°C.

(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.4.2. Test Description

Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.

2.4.3. Test Result

A. Test Verdict:

GSM 850MHz, Channel 190, Frequency 836.6MHz Limit =±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	43	0.051	PASS
100		-15	56	0.067	
100		-5	-42	-0.050	
100		+5	51	0.061	
100		15	43	0.051	
100		+25	28	0.033	
100		+35	58	0.069	
100		+45	49	0.059	
100		+55	-27	-0.032	
115	4.35	+20	39	0.047	
85	3.5	+20	-16	-0.019	

GSM 1900MHz, Channel 661, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	24	0.029	PASS
100		-15	53	0.063	
100		-5	28	0.033	
100		+5	-45	-0.054	
100		15	53	0.063	
100		+25	51	0.061	
100		+35	2	0.002	
100		+45	-43	-0.051	
100		+55	-16	-0.019	
115	4.35	+20	41	0.049	
85	3.5	+20	32	0.038	

EDGE 850MHz, Channel 190, Frequency 836.6MHz Limit =±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	14	0.017	PASS
100		-15	18	0.022	
100		-5	27	0.032	
100		+5	-13	-0.016	
100		15	-4	-0.005	
100		+25	24	0.029	
100		+35	35	0.042	
100		+45	38	0.045	
100		+55	16	0.019	
115	4.35	+20	40	0.048	
85	3.5	+20	32	0.038	

EDGE 1900MHz, Channel 661, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	26	0.031	PASS
100		-15	28	0.033	
100		-5	19	0.023	
100		+5	37	0.044	
100		15	-8	-0.010	
100		+25	18	0.022	
100		+35	39	0.047	
100		+45	28	0.033	
100		+55	-16	-0.019	
115	4.35	+20	42	0.050	
85	3.5	+20	27	0.032	

WCDMA Band V, Channel 4182, Frequency 836.4MHz Limit =±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	56	0.067	PASS
100		-15	24	0.029	
100		-5	38	0.045	
100		+5	16	0.019	
100		15	27	0.032	
100		+25	-42	-0.050	
100		+35	-16	-0.019	
100		+45	25	0.030	
100		+55	34	0.041	
115	4.35	+20	-52	-0.062	
85	3.5	+20	34	0.041	

WCDMA Band II, Channel 9400, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	29	0.035	PASS
100		-15	34	0.041	
100		-5	6	0.007	
100		+5	18	0.022	
100		15	24	0.029	
100		+25	18	0.022	
100		+35	25	0.030	
100		+45	-40	-0.048	
100		+55	52	0.062	
115	4.35	+20	-17	-0.020	
85	3.5	+20	26	0.031	

WCDMA Band IV, Channel 1413, Frequency 1732.6MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.8	+20(Ref)	34	0.041	PASS
100		-15	31	0.037	
100		-5	26	0.031	
100		+5	-10	-0.012	
100		15	25	0.030	
100		+25	-24	-0.029	
100		+35	35	0.042	
100		+45	-43	-0.051	
100		+55	46	0.055	
115	4.35	+20	-12	-0.014	
85	3.5	+20	36	0.043	

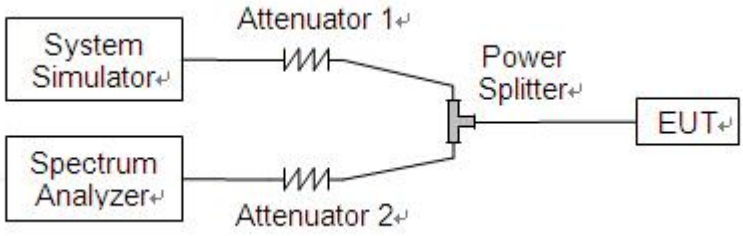
2.5. Conducted Out of Band Emissions

2.5.1. Requirement

According to FCC section 22.917(a), 24.238(a) and 27.53(h) the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.5.2. Test Description

Test Setup:

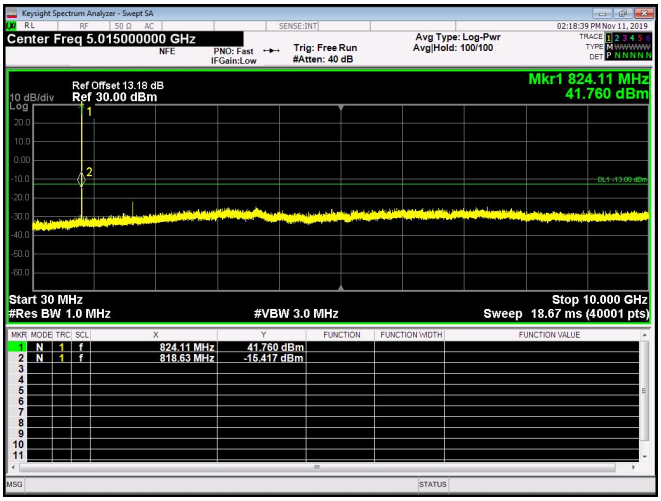


The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

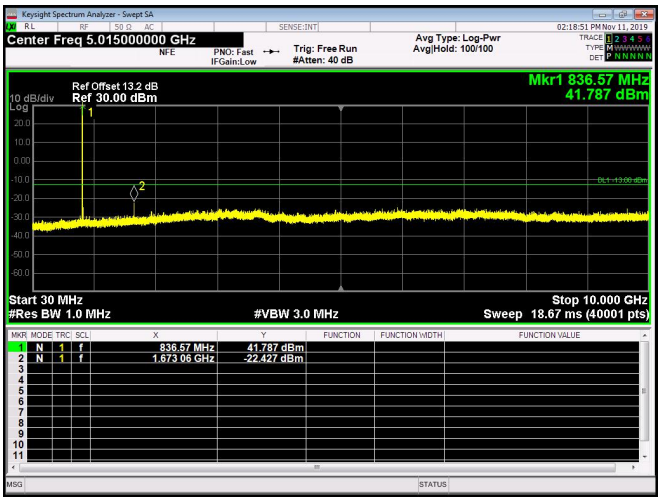
2.5.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

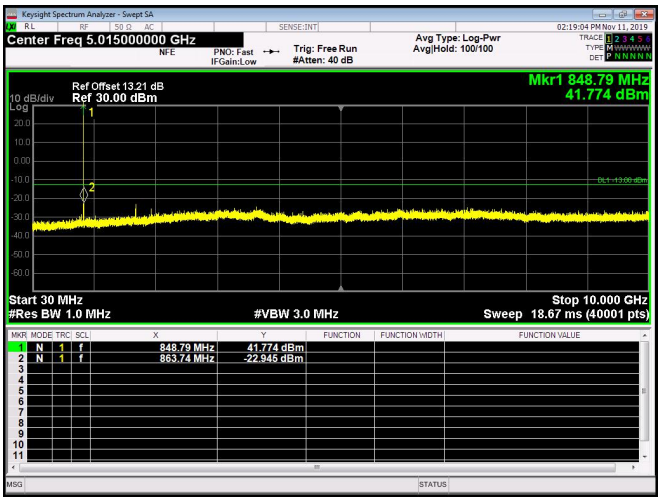
GSM 850MHz CH128 824.2MHz

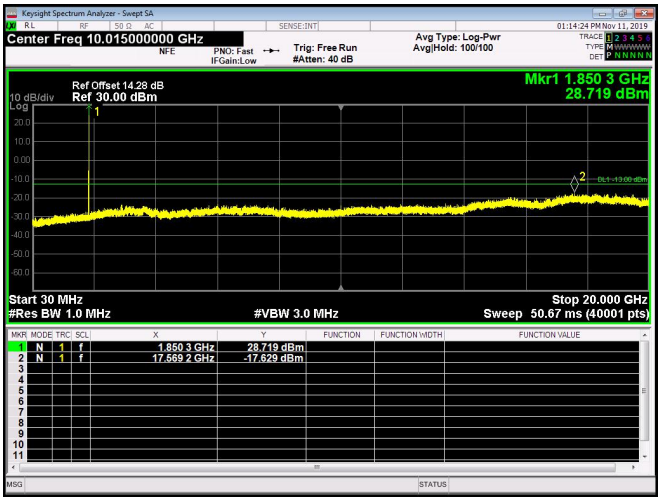
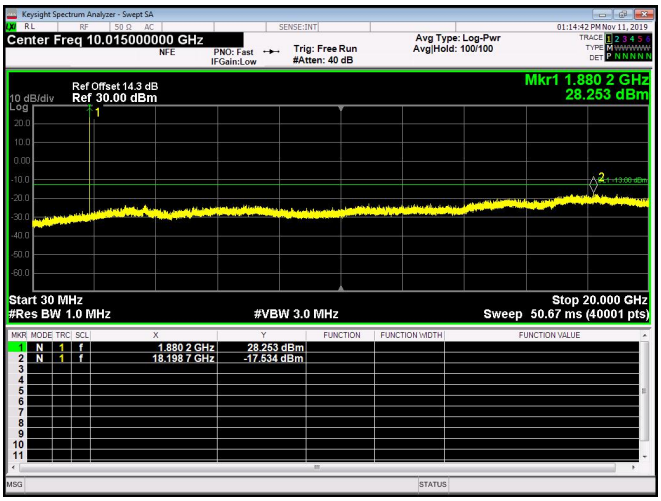
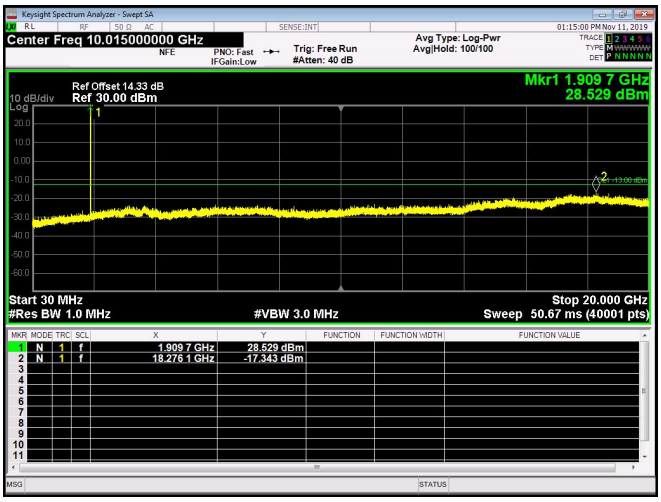


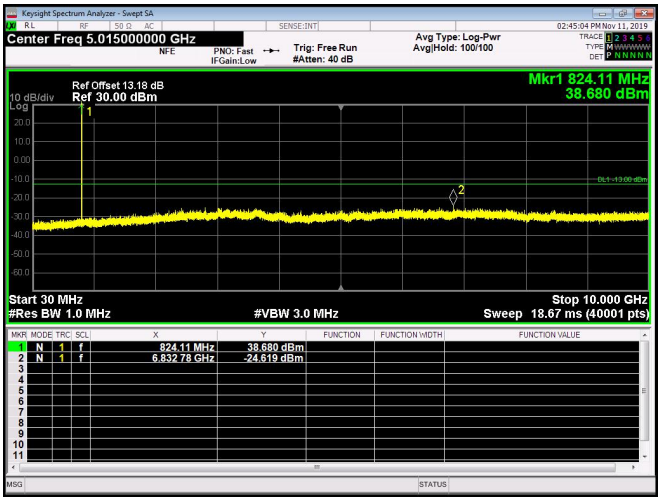
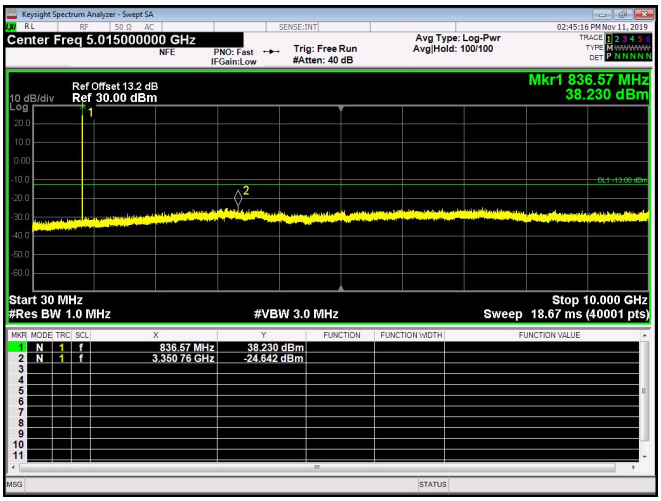
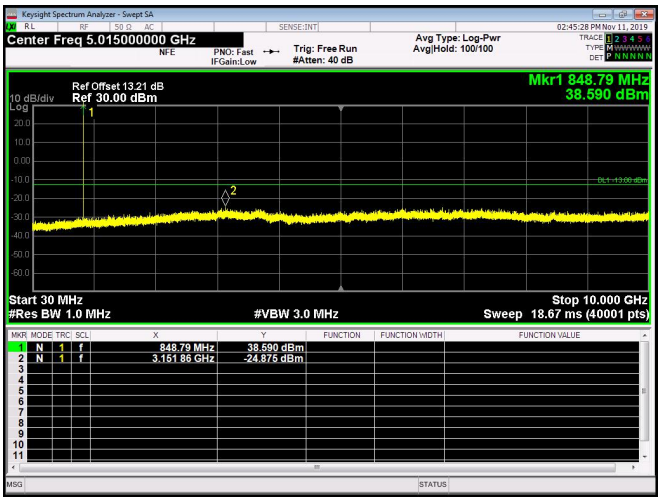
GSM 850MHz CH190 836.6MHz

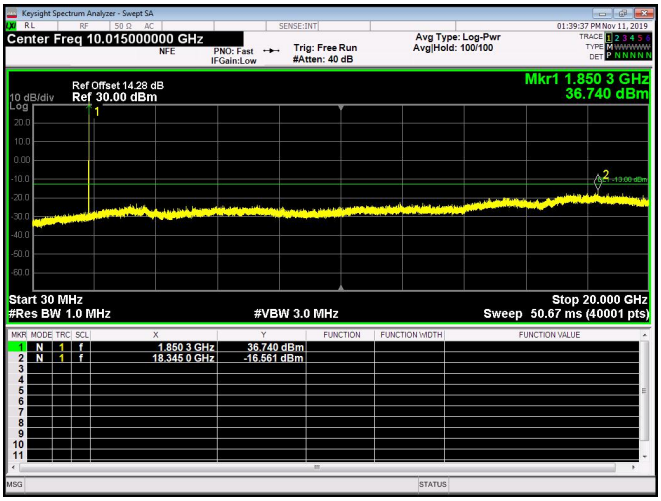
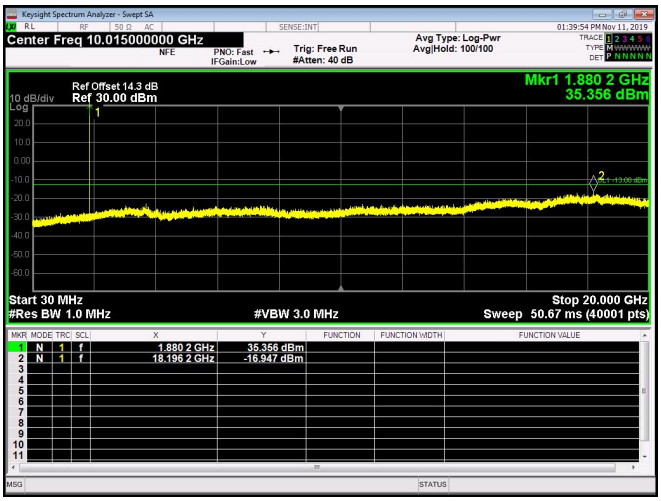
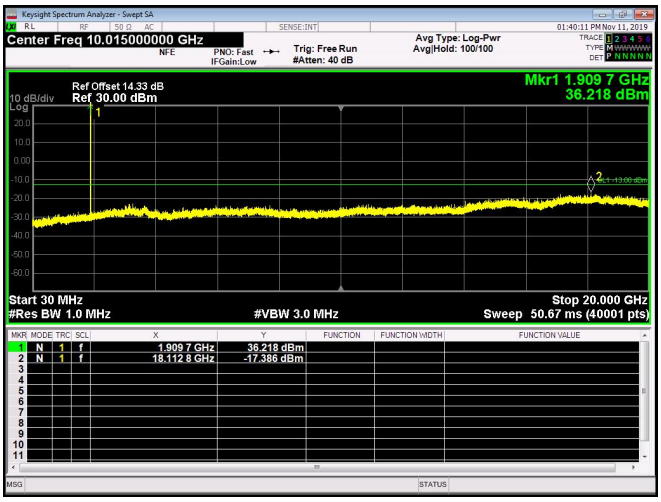


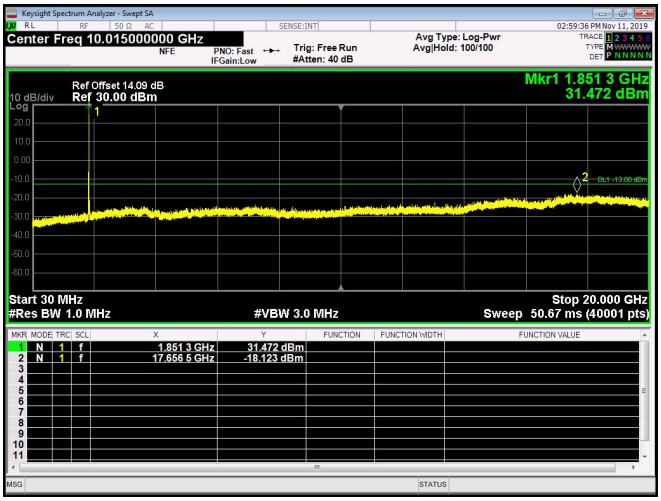
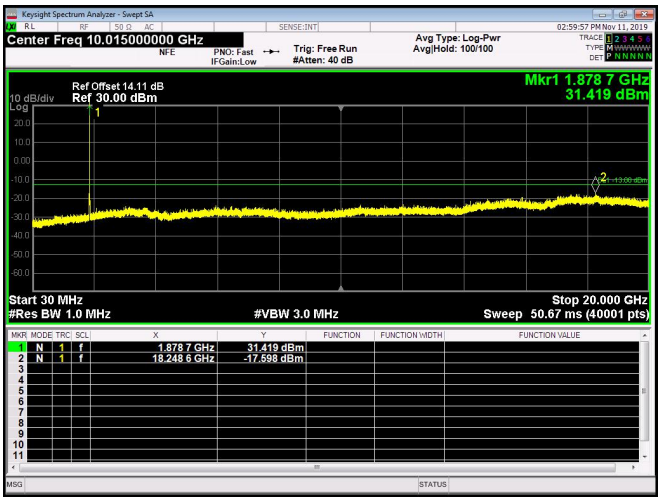
GSM 850MHz CH251 848.8MHz



GSM 1900MHz CH521 1850.2MHz

GSM 1900MHz CH661 1880.0MHz

GSM 1900MHz CH810 1909.8MHz


EDGE 850MHz CH128 824.2MHz

EDGE 850MHz CH190 836.6MHz

EDGE 850MHz CH251 848.8MHz


EDGE 1900MHz CH521 1850.2MHz

EDGE 1900MHz CH661 1880.0MHz

EDGE 1900MHz CH810 1909.8MHz


WCDMA Band II CH9262 1852.4MHz

WCDMA Band II CH9400 1880.0MHz

WCDMA Band II CH9538 1907.6MHz