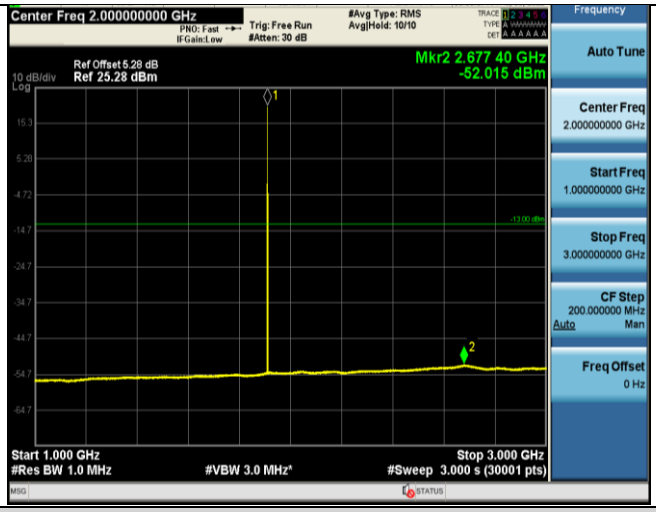
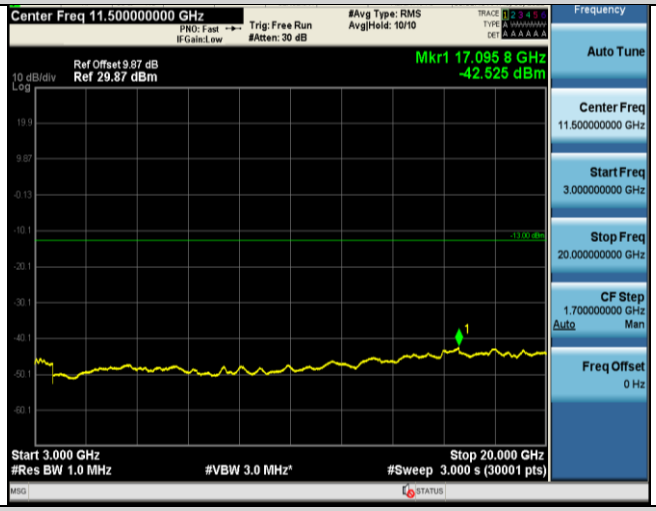
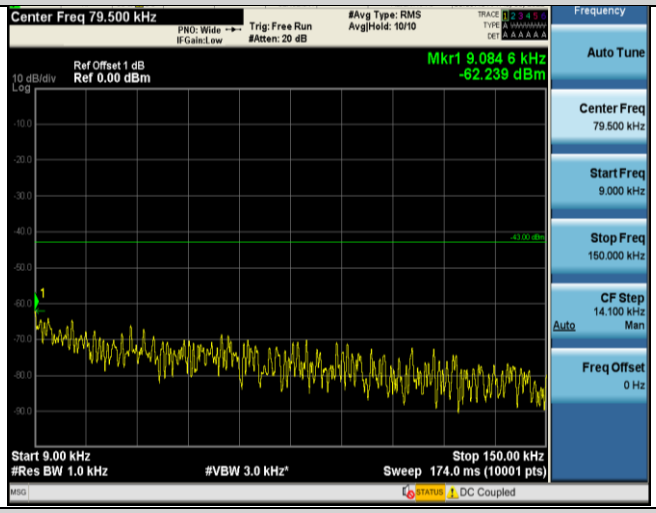


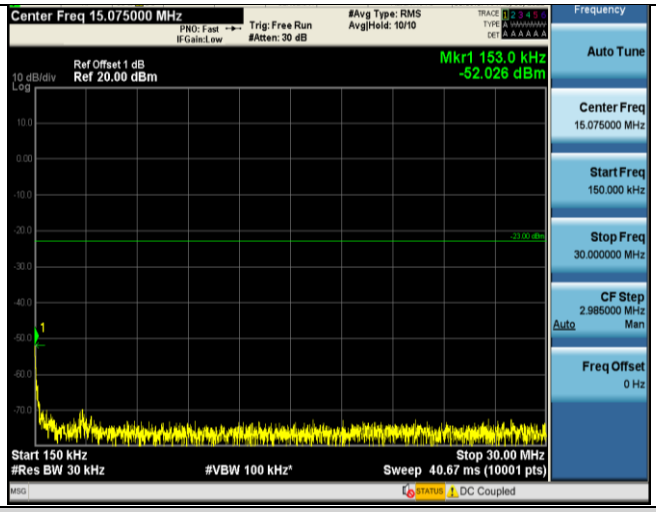
GPRS1900-810-3000~20000MHz



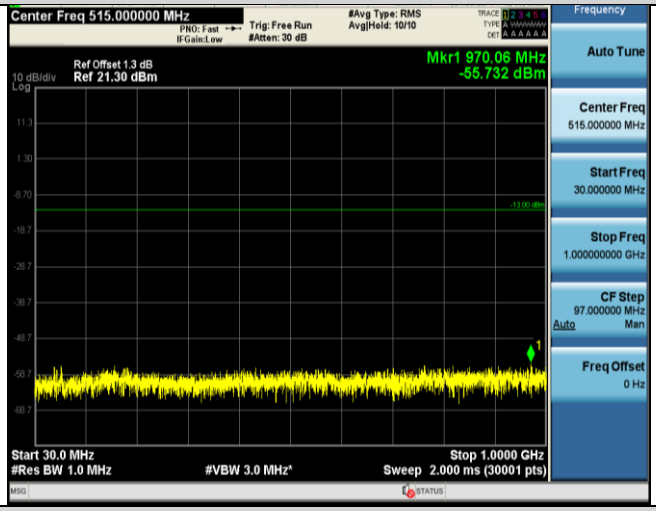
EGPRS1900-512-0.009~0.15MHz



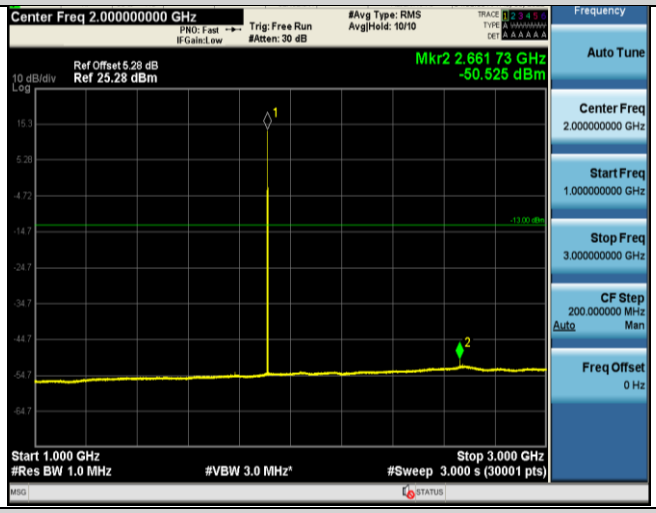
EGPRS1900-512-0.15~30MHz



EGPRS1900-512-30~1000MHz

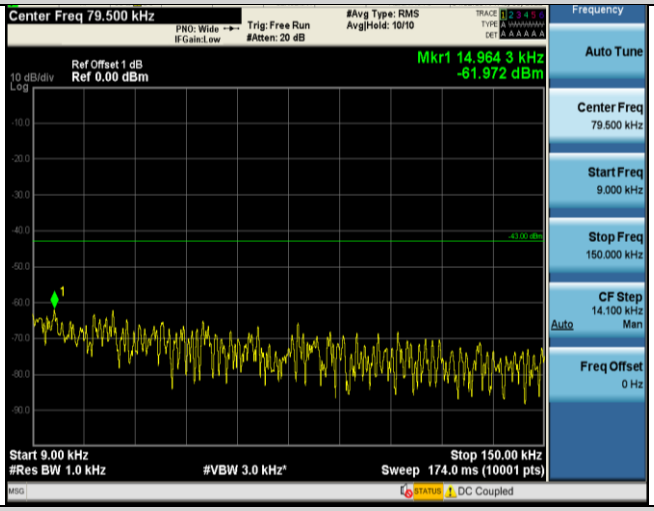


EGPRS1900-512-1000~3000MHz

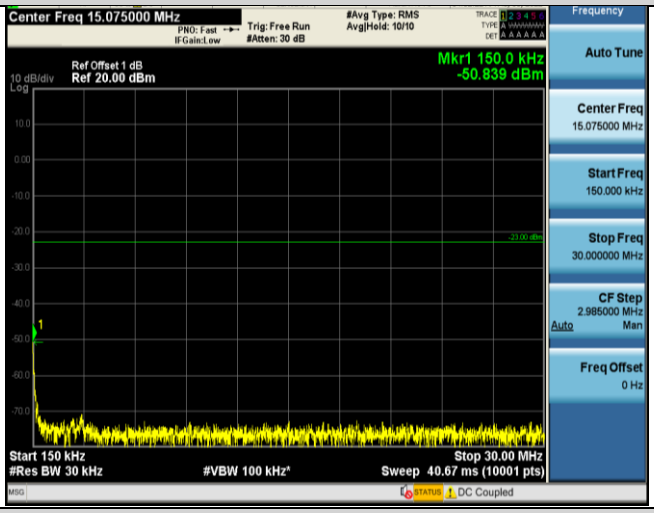


EGPRS1900-512-3000~20000MHz

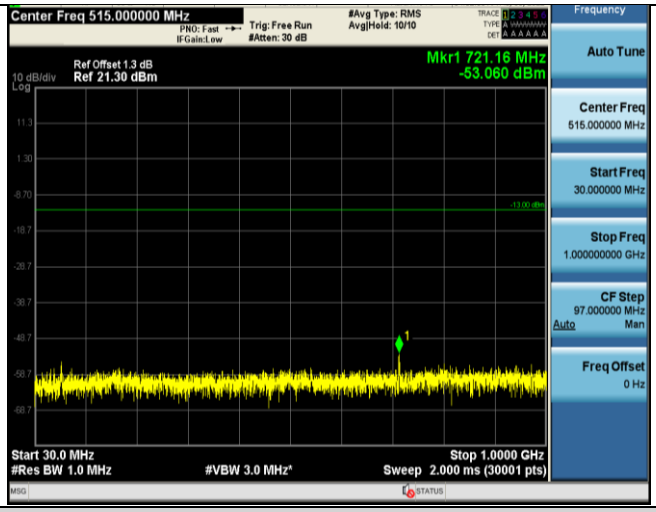
EGPRS1900-661-0.009~0.15MHz



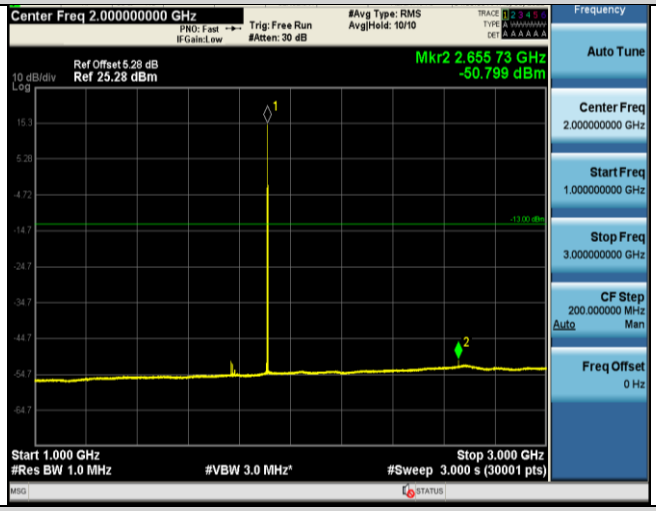
EGPRS1900-661-0.15~30MHz



EGPRS1900-661-30~1000MHz

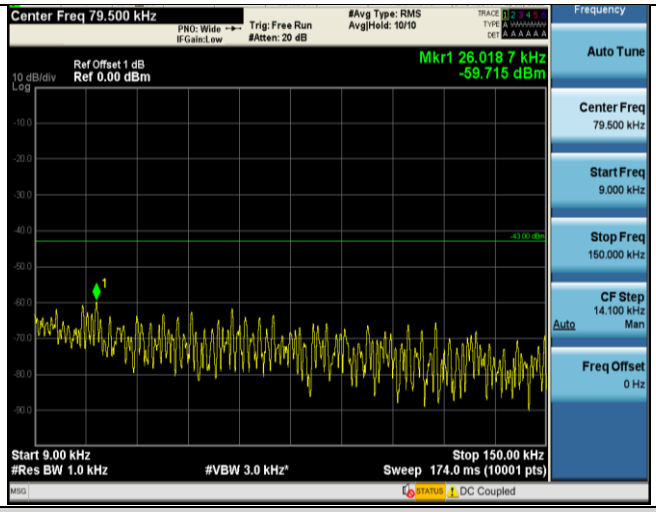


EGPRS1900-661-1000~3000MHz

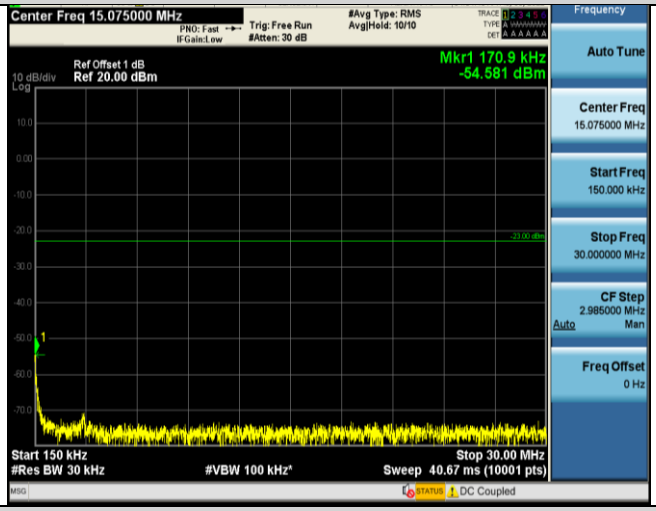


EGPRS1900-661-3000~20000MHz

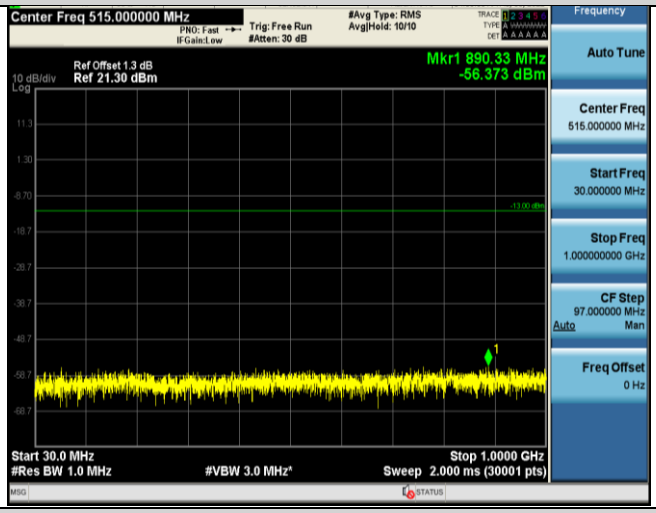
EGPRS1900-810-0.009~0.15MHz



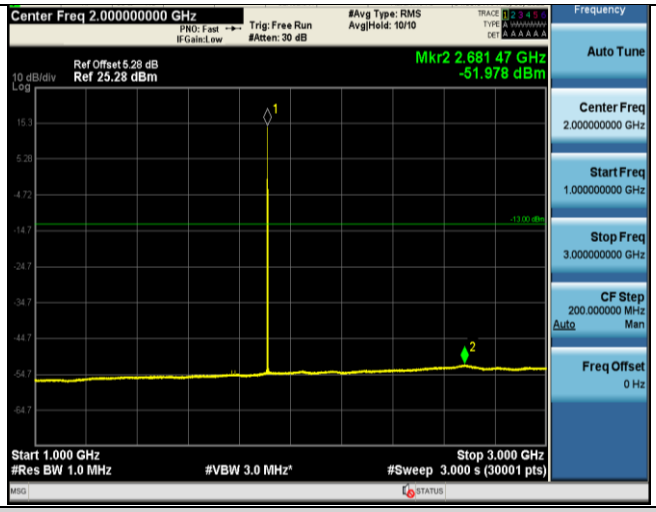
EGPRS1900-810-0.15~30MHz



EGPRS1900-810-30~1000MHz



EGPRS1900-810-1000~3000MHz



EGPRS1900-810-3000~20000MHz

Radiated method

Test limit:

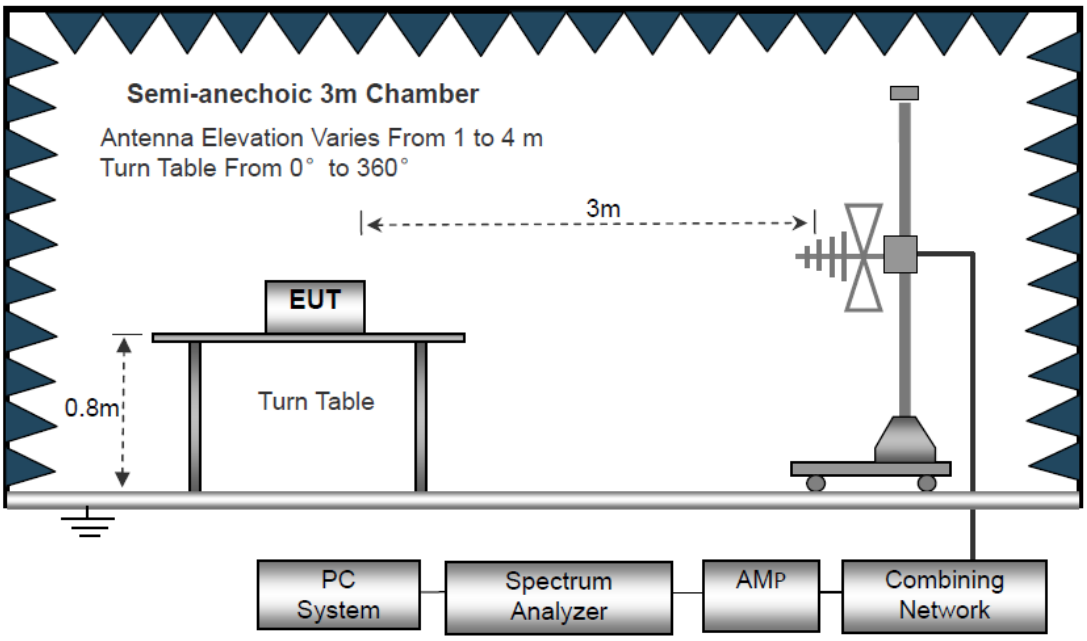
The spurious (unwanted) emission limits specified in the individual FCC rule parts applicable to licensed digital transmitters (typically referred to under the heading 'emission limits') normally apply to any and all emissions that are present outside of the authorized frequency band/block and apply to emissions in both the out-of-band and spurious domains. In some rule parts, the unwanted emission limits are specified by an emission mask that defines the applicable limit as a function of the frequency range relative to the authorized frequency block.
Typically, unwanted emissions are required by the licensed rule parts to be attenuated below the transmitter power by a factor of at least X + 10log(P) dB, where P represents the transmitter power expressed in watts and X is a specified scalar value (e.g., 43). This specification can be interpreted in one of two equivalent ways. First, the required attenuation can be construed to be relative to the mean carrier power, with the resultant of the equation X + 10log(P) being expressed in dBc (dB relative to the maximum carrier power). Alternatively, the specification can be interpreted as an absolute limit when the specified attenuation is actually subtracted from the maximum permissible transmitter power [i.e., 10log(P) – {X + 10log(P)}], resulting in an absolute level of -X dBW [or (-X + 30) dBm]. See section 4.

Test procedure:

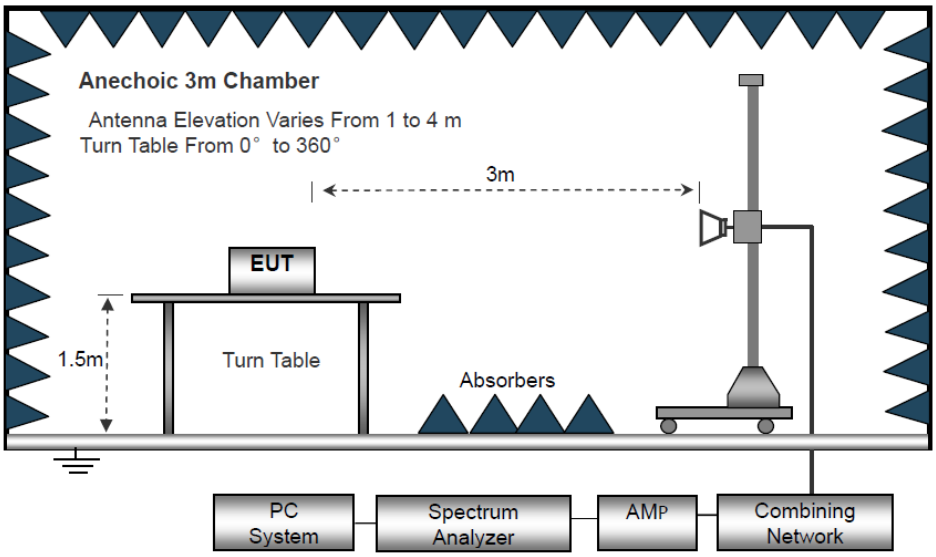
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The resolution bandwidth of the spectrum analyzer was set at 100 kHz below 1 GHz and 1 MHz above 1 GHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.

Test setup:

（A）Radiated Emission Test-Up Frequency 30MHz~1GHz



（B）Radiated Emission Test-Up Frequency Above 1GHz



Note:
1, Below 30MHz no Spurious found.
2, UE is poistioned at 3 axis at the pre-scan stage, and only the measurement of the worst case is reported in this part.

List of final test modes:
GSM850:

Mode	UL Channel	Frequency	Judgement
1	128	824.2	Pass
2	190	836.6	Pass
3	251	848.8	Pass

WCDMA BANDS

PCS 1900:

Mode	UL Channel	Frequency	Judgement
1	512	1850.2	Pass
2	661	1880	Pass
3	810	1909.8	Pass

Test record:

GSM850:

Lowest Channel

Frequency(MHz)	Reading level(dBm)	Factor(dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1648.40	-48.51	-11.00	-59.51	-13.00	46.51	Horizontal
2472.60	-40.23	-6.08	-46.31	-13.00	33.31	Horizontal
3296.80	-47.50	-4.81	-52.31	-13.00	39.31	Horizontal
1648.40	-48.81	-11.00	-59.81	-13.00	46.81	Vertical
2472.60	-30.43	-6.08	-36.51	-13.00	23.51	Vertical
3296.80	-46.48	-4.81	-51.29	-13.00	38.29	Vertical

Middle Channel

Frequency(MHz)	Reading level(dBm)	Factor(dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1673.20	-49.31	-11.02	-60.33	-13.00	47.33	Horizontal
2509.80	-40.19	-6.13	-46.32	-13.00	33.32	Horizontal
3346.40	-47.22	-4.93	-52.15	-13.00	39.15	Horizontal
1673.20	-49.24	-11.02	-60.26	-13.00	47.26	Vertical
2509.80	-31.33	-6.13	-37.46	-13.00	24.46	Vertical
3346.40	-45.90	-4.93	-50.83	-13.00	37.83	Vertical

Highest Channel

Frequency(MHz)	Reading level(dBm)	Factor(dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.60	-49.20	-11.08	-60.28	-13.00	47.28	Horizontal
2546.40	-40.42	-6.35	-46.77	-13.00	33.77	Horizontal
3395.20	-46.81	-5.17	-51.98	-13.00	38.98	Horizontal
1697.60	-49.46	-11.08	-60.54	-13.00	47.54	Vertical
2546.40	-30.13	-6.35	-36.48	-13.00	23.48	Vertical
3395.20	-46.95	-5.17	-52.12	-13.00	39.12	Vertical

Note:1. Level= Reading level+ Factor. Margin=Limit-Level.

PCS 1900:

Lowest Channel

Frequency(MHz)	Reading level(dBm)	Factor(dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3700.40	-49.15	-1.60	-50.75	-13.00	37.75	Horizontal
5550.60	-40.26	5.38	-34.88	-13.00	21.88	Horizontal
3700.40	-49.46	-2.08	-51.54	-13.00	38.54	Vertical
5550.60	-31.32	3.81	-27.51	-13.00	14.51	Vertical

Middle Channel

Frequency(MHz)	Reading level(dBm)	Factor(dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3760.00	-48.98	-1.31	-50.29	-13.00	37.29	Horizontal
5640.00	-40.09	6.94	-33.15	-13.00	20.15	Horizontal
3760.00	-49.03	-1.82	-50.85	-13.00	37.85	Vertical
5640.00	-30.43	4.26	-26.17	-13.00	13.17	Vertical

Highest Channel

Frequency(MHz)	Reading level(dBm)	Factor(dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.60	-48.61	-1.01	-49.62	-13.00	36.62	Horizontal
5729.40	-39.94	8.23	-31.71	-13.00	18.71	Horizontal
3819.60	-49.00	-1.49	-50.49	-13.00	37.49	Vertical
5729.40	-30.77	5.74	-25.03	-13.00	12.03	Vertical

Note:1. Level= Reading level+ Factor. Margin=Limit-Level.

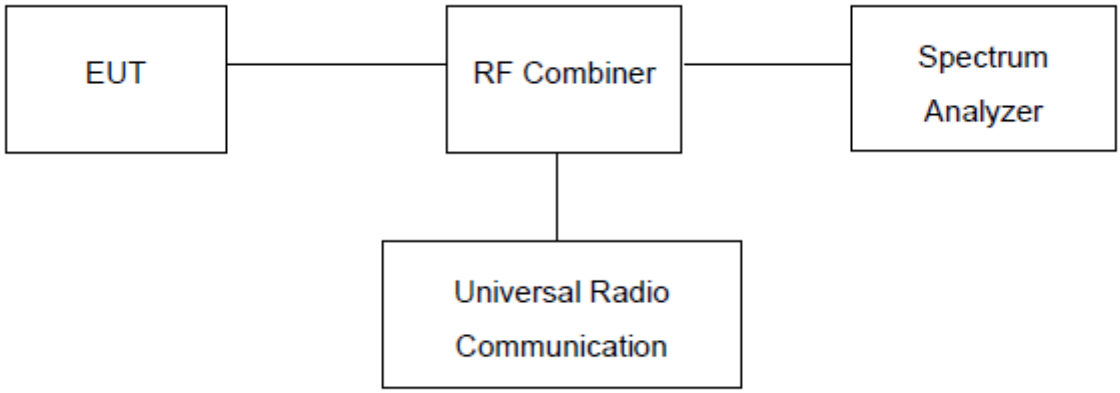
7. Occupied Bandwidth and Emission Bandwidth

Test limit:
The occupied bandwidth (OBW), that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission, shall be measured when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user. [¡ì2.1049(h)]
Many of the individual rule parts specify a relative OBW in lieu of the 99% OBW. In such cases, the OBW is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least X dB below the transmitter power, where the value of X is typically specified as 26.
The relative OBW must be measured and reported when it is specified in the applicable rule part; otherwise, the 99% OBW shall be measured and reported. The test report shall specify which OBW is reported.
A spectrum/signal analyzer or other instrument providing a spectral display is recommended for these measurements and the video bandwidth shall be set to a value at least three times greater than the IF/resolution bandwidth to avoid any amplitude smoothing. Video filtering shall not be used during occupied bandwidth tests.
The OBW shall be measured for all operating conditions that will affect the bandwidth results (e.g. variable modulations, coding, or channel bandwidth settings). See section 4.

Test procedure:
Occupied bandwidth – relative measurement procedure
The reference value is the highest level of the spectral envelope of the modulated signal.
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
b) The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
c) Set the reference level of the instrument as required to prevent the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.
d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.
e) The dynamic range of the spectrum analyzer at the selected RBW shall be at least 10 dB below the target “-X dB down” requirement (i.e., if the requirement calls for measuring the –26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference value).
f) Set the detection mode to peak, and the trace mode to max hold.
g) Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
h) Determine the “-X dB down amplitude” as equal to (Reference Value – X). Alternatively,

this calculation can be performed by the analyzer by using the marker-delta function.
i) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "–X dB down amplitude" determined in step g). If a marker is below this "-X dB down amplitude" value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
j) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).
Occupied bandwidth – power bandwidth (99%) measurement procedure
The following procedure shall be used for measuring (99 %) power bandwidth
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the OBW).
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.
d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.
e) Set the detection mode to peak, and the trace mode to max hold..
f) Use the 99 % power bandwidth function of the spectrum analyzer (if available) and report the measured bandwidth.
g) If the instrument does not have a 99 % power bandwidth function, the trace data points are to be recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % power bandwidth is the difference between these two frequencies.
h) The OBW shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Test setup:

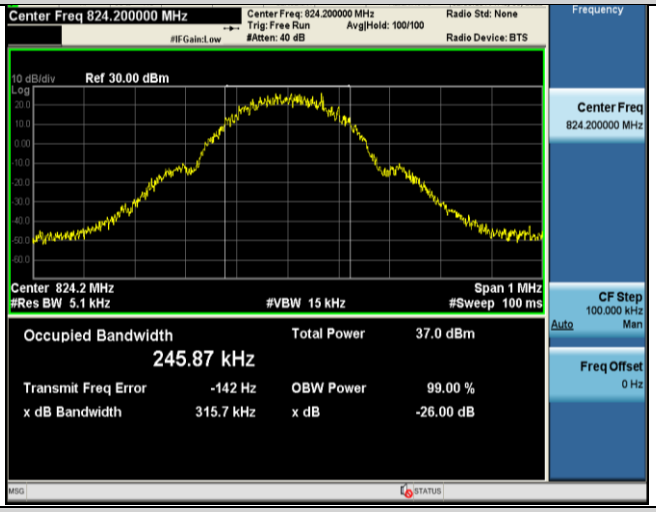


Measurement Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM850	128	0.24587	0.3157	---	PASS
GSM850	190	0.24631	0.3089	---	PASS
GSM850	251	0.24534	0.3178	---	PASS
GPRS850	128	0.24702	0.3119	---	PASS
GPRS850	190	0.24955	0.3119	---	PASS
GPRS850	251	0.24583	0.3105	---	PASS
EGPRS850	128	0.25061	0.3201	---	PASS
EGPRS850	190	0.24497	0.3137	---	PASS
EGPRS850	251	0.24481	0.3065	---	PASS
GSM1900	512	0.24639	0.3101	---	PASS
GSM1900	661	0.24350	0.3094	---	PASS
GSM1900	810	0.24365	0.3085	---	PASS
GPRS1900	512	0.24545	0.3137	---	PASS
GPRS1900	661	0.24200	0.3141	---	PASS
GPRS1900	810	0.24536	0.3110	---	PASS
EGPRS1900	512	0.25365	0.3092	---	PASS
EGPRS1900	661	0.25107	0.3065	---	PASS
EGPRS1900	810	0.25143	0.3117	---	PASS

Test Plot(s)

GSM850-128



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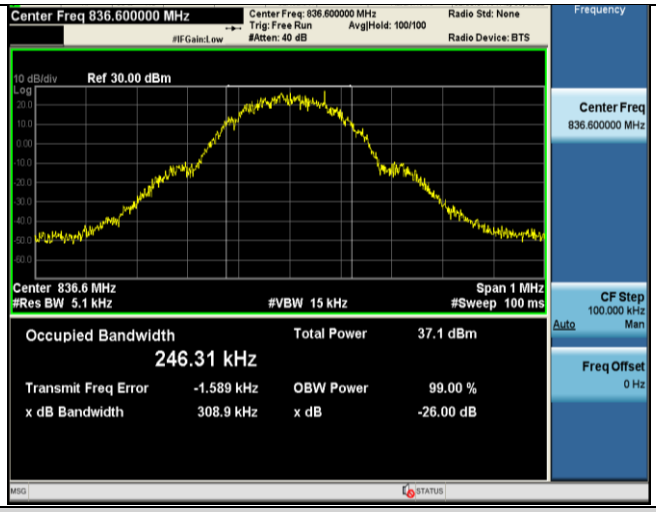
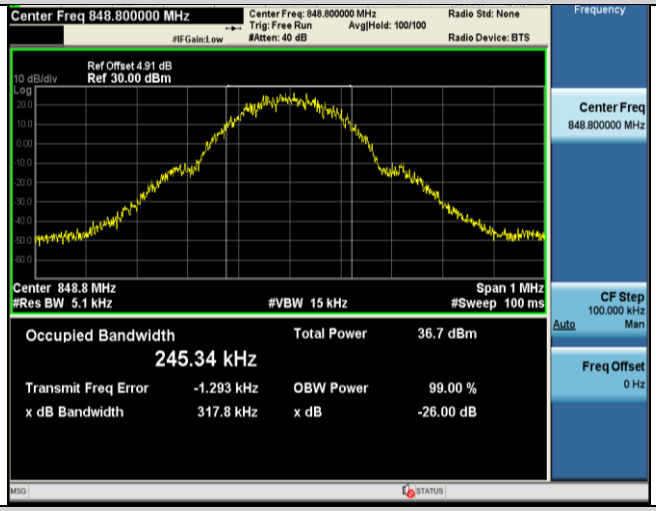
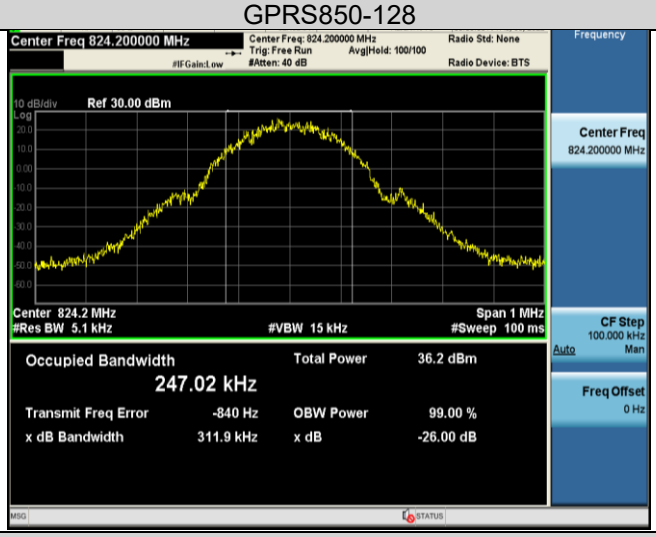


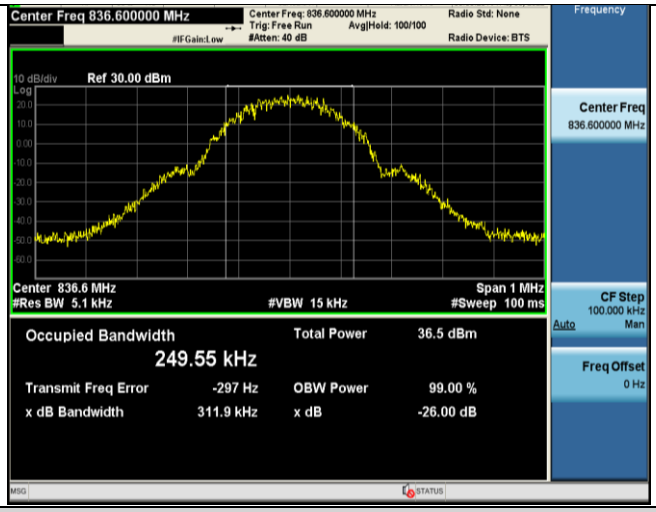
GSM850-251



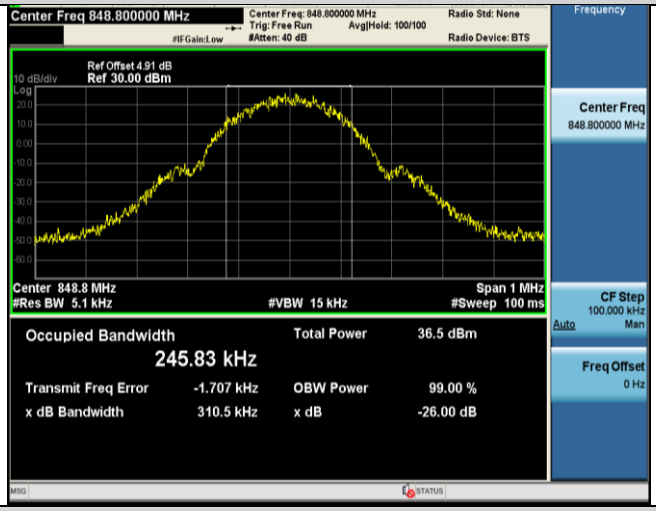
GPRS850-128



GPRS850-190



GPRS850-251



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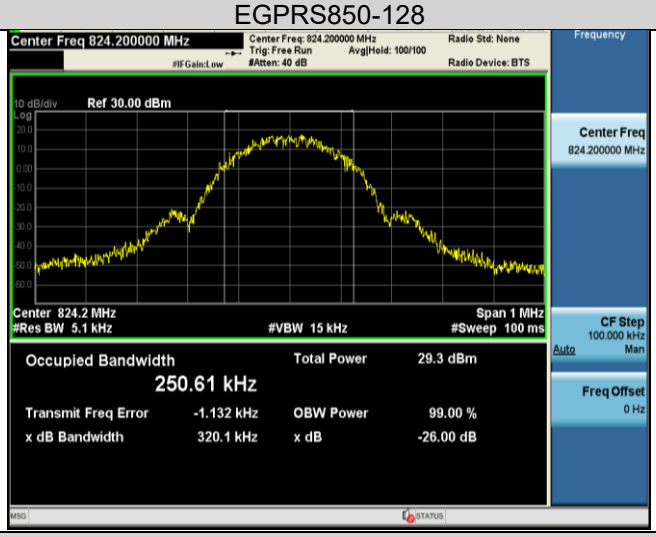
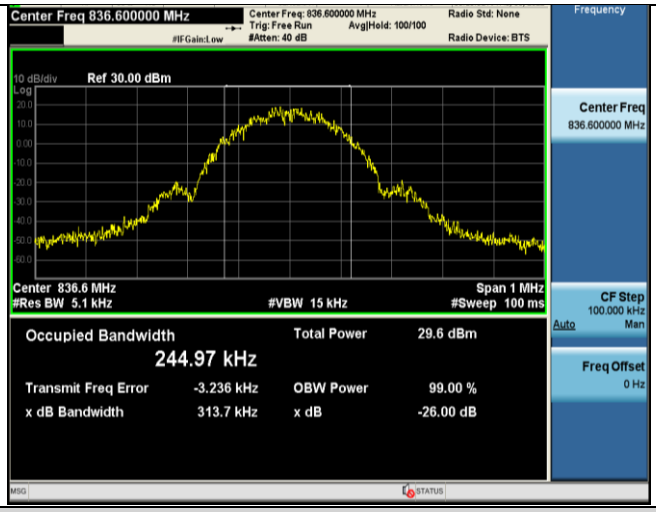


EGPRS850-190



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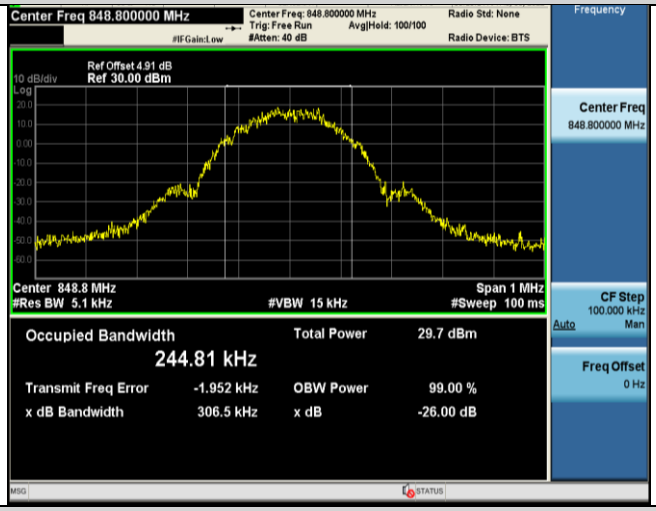
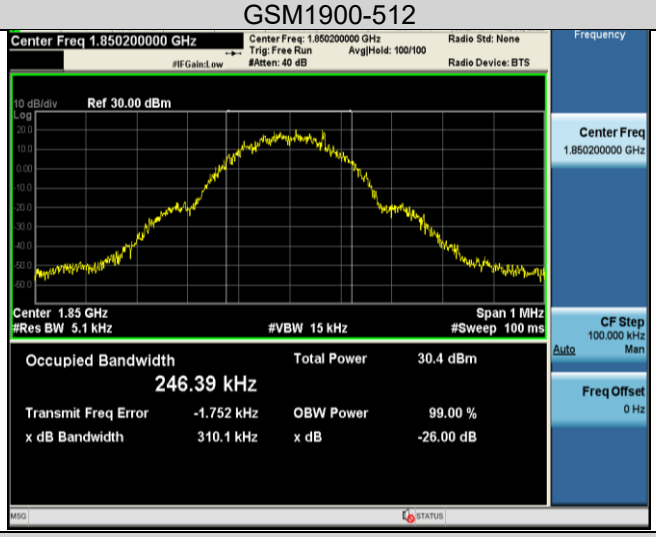
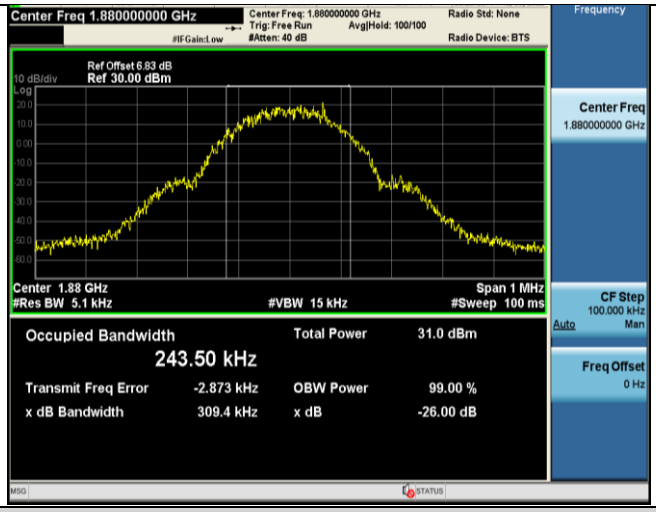


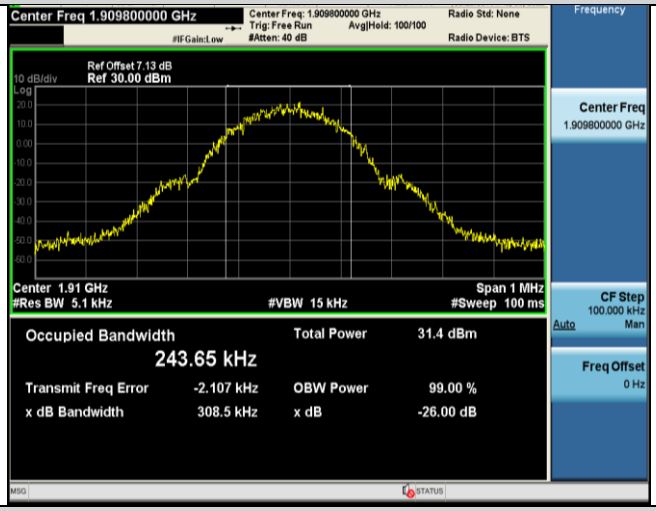
GSM1900-512



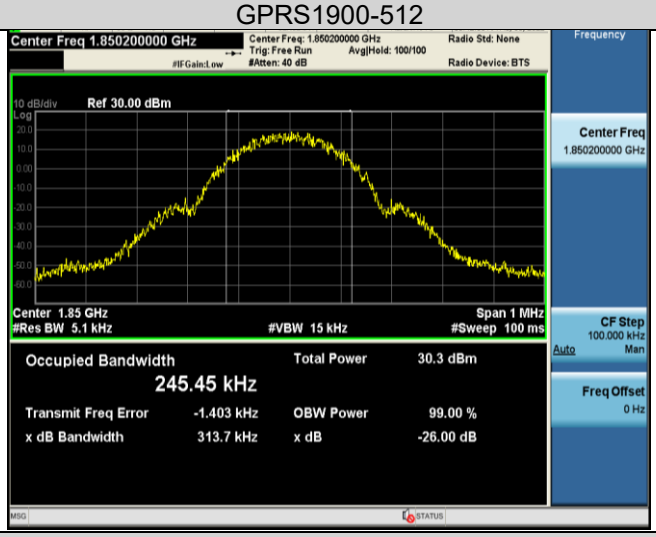
GSM1900-661



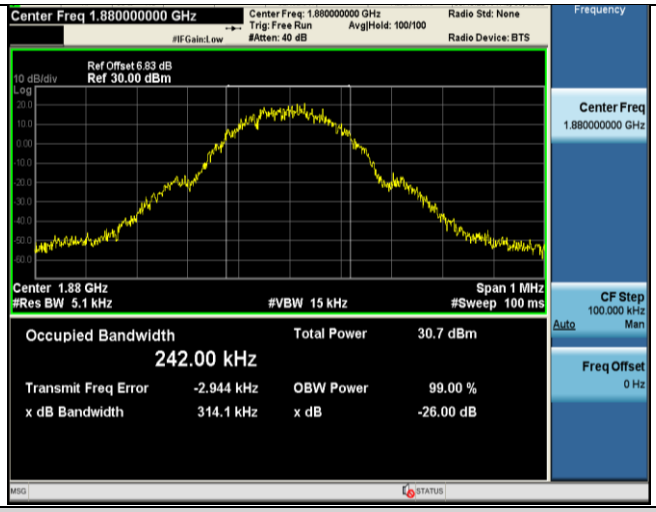
GSM1900-810



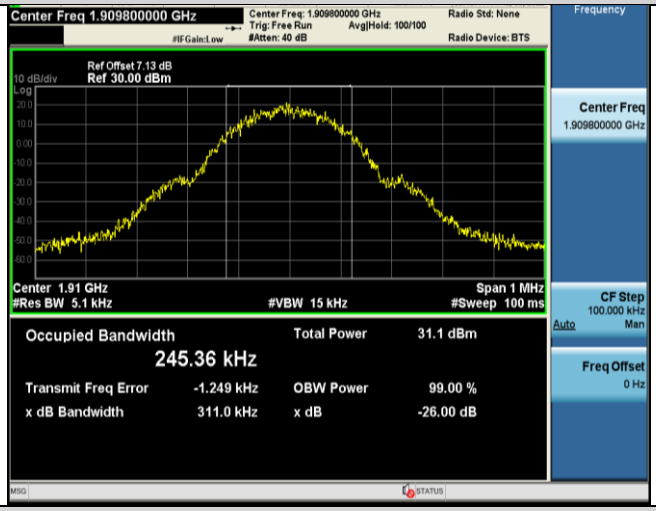
GPRS1900-512



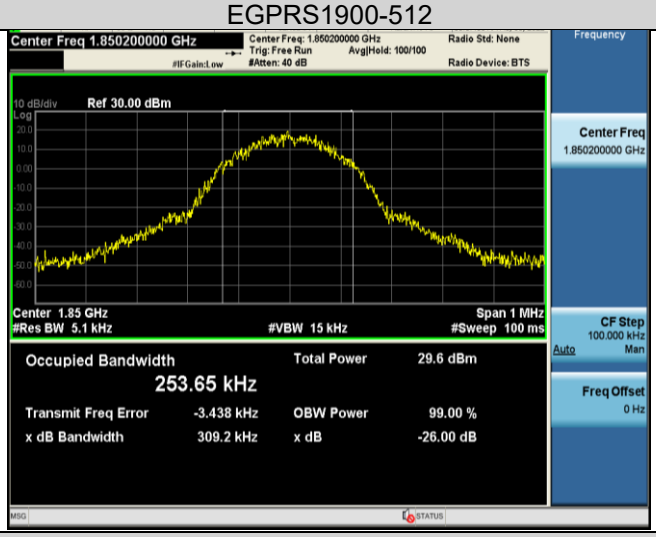
GPRS1900-661



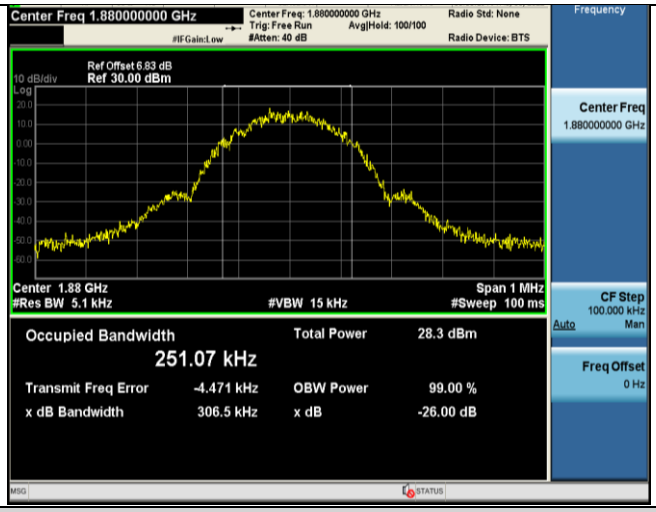
GPRS1900-810



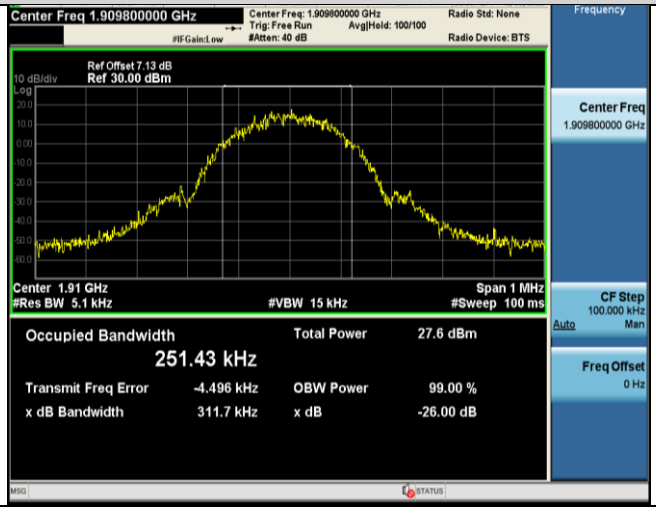
EGPRS1900-512



EGPRS1900-661



EGPRS1900-810

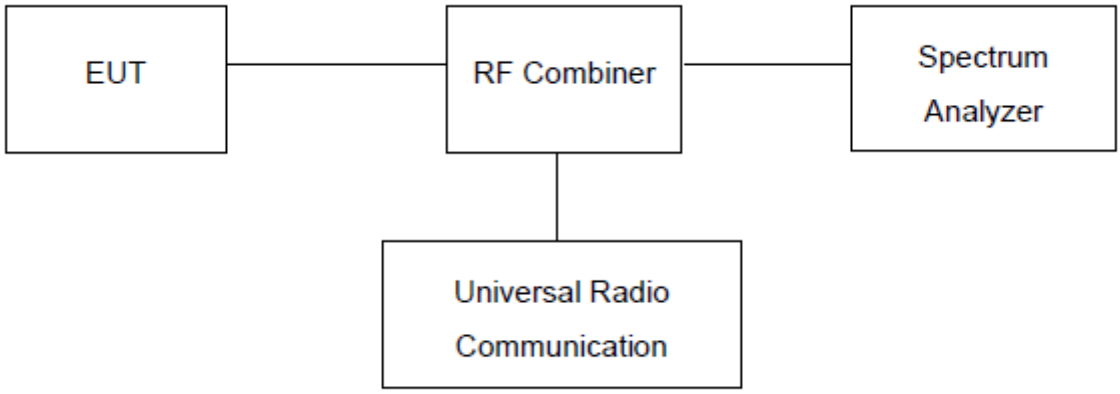


8. Band Edge

Test Limit:
The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified. See section 4.

Test procedure:
The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Test setup:

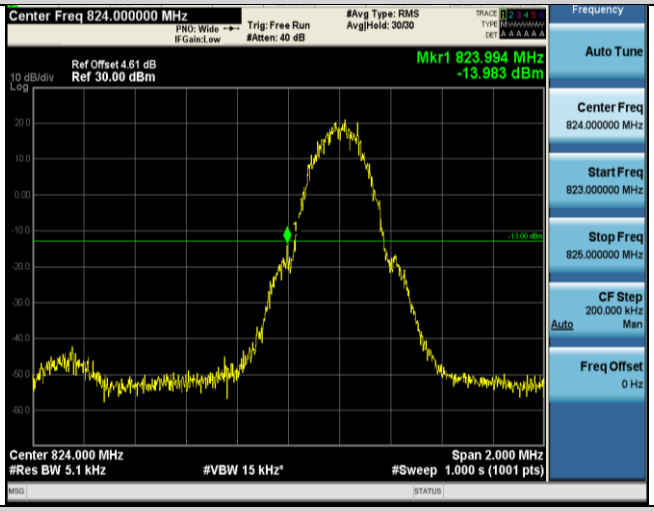


Measurement Result:

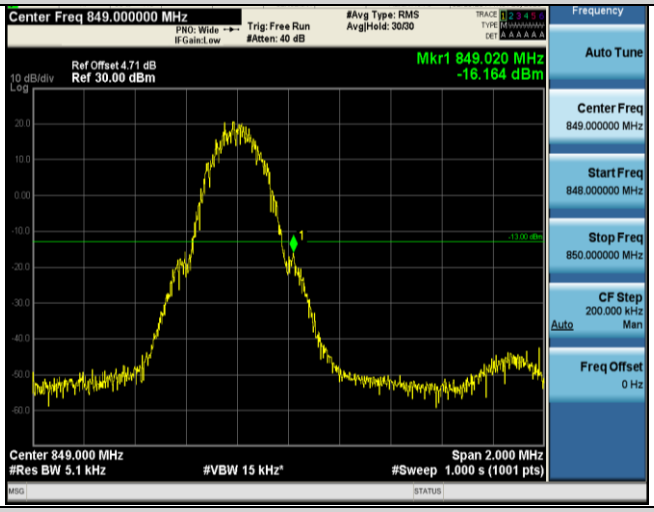
Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM850	128	823.99	-13.98	-13	PASS
GSM850	251	849.02	-16.16	-13	PASS
GPRS850	128	823.98	-15.85	-13	PASS
GPRS850	251	849.01	-17.14	-13	PASS
EGPRS850	128	823.97	-19.89	-13	PASS
EGPRS850	251	849.04	-21.72	-13	PASS
GSM1900	512	1849.99	-18.16	-13	PASS
GSM1900	810	1910.02	-16.70	-13	PASS
GPRS1900	512	1849.98	-18.29	-13	PASS
GPRS1900	810	1910.02	-17.15	-13	PASS
EGPRS1900	512	1850.00	-20.93	-13	PASS
EGPRS1900	810	1910.02	-25.28	-13	PASS

Test Graphs:

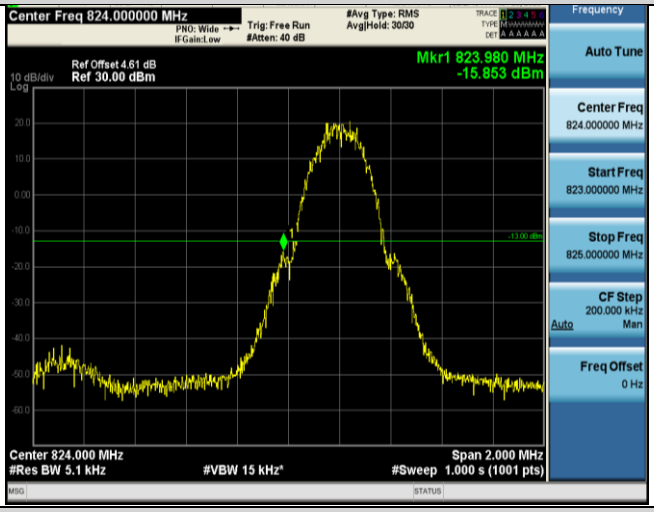
GSM850-128



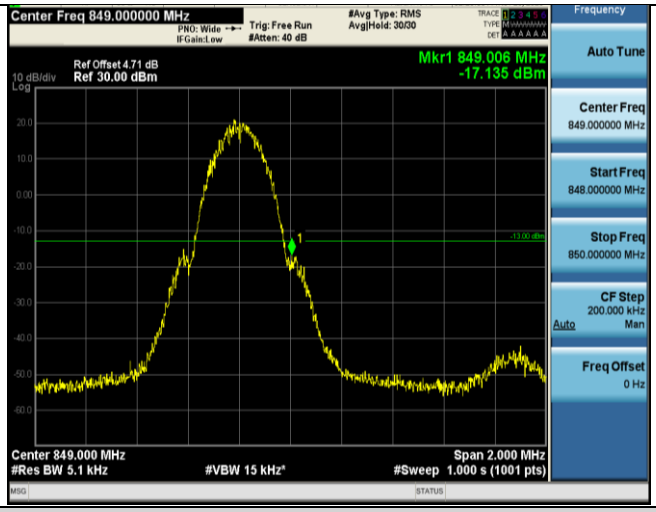
GSM850-251



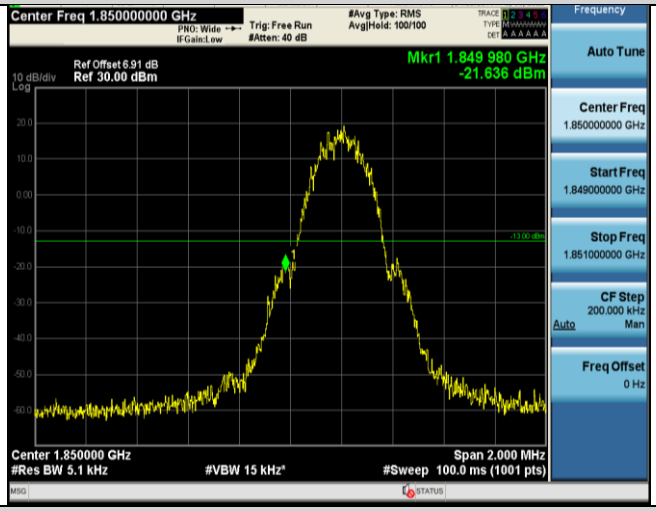
GPRS850-128



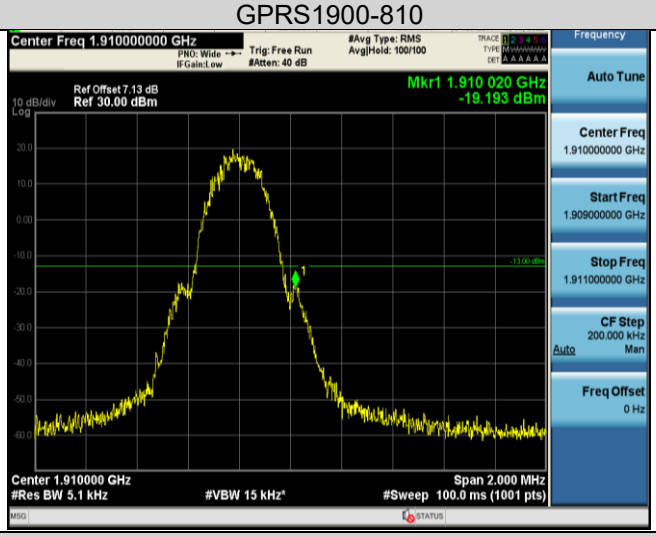
GPRS850-251



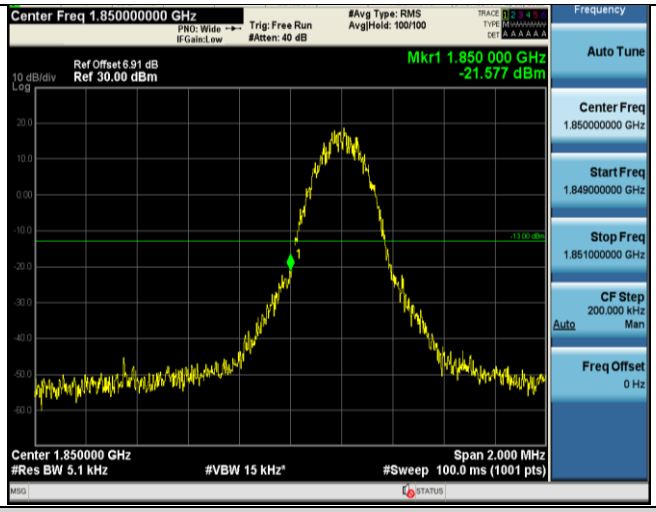
GPRS1900-512



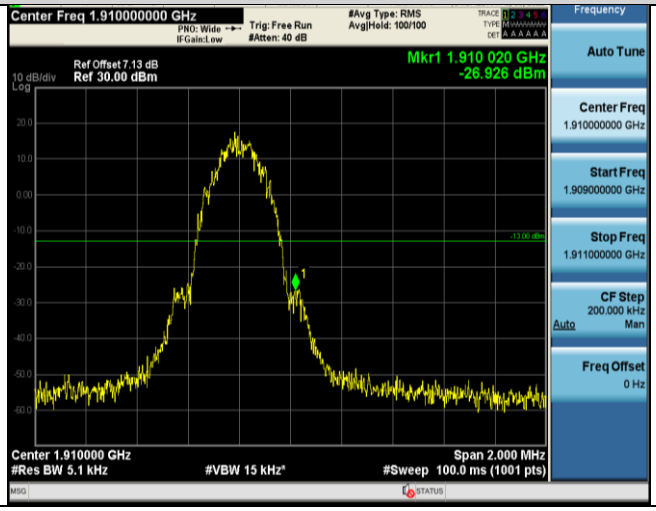
GPRS1900-810



EGPRS1900-512



EGPRS1900-810



9. Frequency Stability

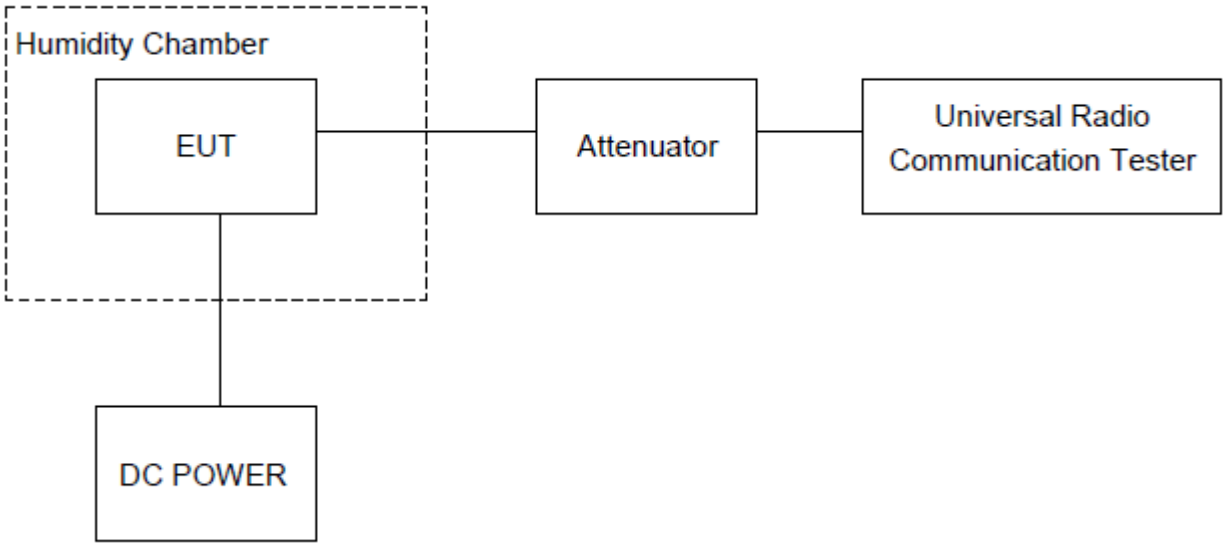
Test limit:

The frequency stability of the transmitter shall be measured while varying the ambient temperatures and supply voltages over the ranges specified in §2.1055. The specific frequency stability limits are provided in the relevant rules section(s). see section 4.

Test procedure:

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

Test setup:



9.1. Measurement Result (Worst)

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VL	NT	12.20	0.014802	±2.5	PASS
GSM850	128	VN	NT	12.62	0.015312	±2.5	PASS
GSM850	128	VH	NT	11.88	0.014414	±2.5	PASS
GSM850	190	VL	NT	8.49	0.010148	±2.5	PASS
GSM850	190	VN	NT	7.01	0.008379	±2.5	PASS
GSM850	190	VH	NT	8.07	0.009646	±2.5	PASS
GSM850	251	VL	NT	8.91	0.010497	±2.5	PASS
GSM850	251	VN	NT	8.78	0.010344	±2.5	PASS
GSM850	251	VH	NT	7.88	0.009284	±2.5	PASS
GPRS850	128	VL	NT	8.39	0.010180	±2.5	PASS
GPRS850	128	VN	NT	7.59	0.009209	±2.5	PASS
GPRS850	128	VH	NT	2.49	0.003021	±2.5	PASS
GPRS850	190	VL	NT	5.62	0.006718	±2.5	PASS
GPRS850	190	VN	NT	5.29	0.006323	±2.5	PASS
GPRS850	190	VH	NT	-0.55	-0.000657	±2.5	PASS
GPRS850	251	VL	NT	3.10	0.003652	±2.5	PASS
GPRS850	251	VN	NT	6.55	0.007717	±2.5	PASS
GPRS850	251	VH	NT	3.75	0.004418	±2.5	PASS
EGPRS850	128	VL	NT	5.46	0.006625	±2.5	PASS
EGPRS850	128	VN	NT	3.33	0.004040	±2.5	PASS
EGPRS850	128	VH	NT	3.45	0.004186	±2.5	PASS
EGPRS850	190	VL	NT	4.07	0.004865	±2.5	PASS
EGPRS850	190	VN	NT	-1.39	-0.001661	±2.5	PASS
EGPRS850	190	VH	NT	2.71	0.003239	±2.5	PASS
EGPRS850	251	VL	NT	1.65	0.001944	±2.5	PASS
EGPRS850	251	VN	NT	-0.29	-0.000342	±2.5	PASS
EGPRS850	251	VH	NT	-1.55	-0.001826	±2.5	PASS
GSM1900	512	VL	NT	35.48	0.019176	±2.5	PASS
GSM1900	512	VN	NT	30.70	0.016593	±2.5	PASS
GSM1900	512	VH	NT	28.09	0.015182	±2.5	PASS
GSM1900	661	VL	NT	35.29	0.018771	±2.5	PASS
GSM1900	661	VN	NT	34.45	0.018324	±2.5	PASS
GSM1900	661	VH	NT	30.22	0.016074	±2.5	PASS
GSM1900	810	VL	NT	25.93	0.013577	±2.5	PASS
GSM1900	810	VN	NT	18.53	0.009703	±2.5	PASS
GSM1900	810	VH	NT	29.19	0.015284	±2.5	PASS
GPRS1900	512	VL	NT	23.57	0.012739	±2.5	PASS
GPRS1900	512	VN	NT	20.50	0.011080	±2.5	PASS
GPRS1900	512	VH	NT	24.92	0.013469	±2.5	PASS
GPRS1900	661	VL	NT	29.15	0.015505	±2.5	PASS
GPRS1900	661	VN	NT	22.41	0.011920	±2.5	PASS
GPRS1900	661	VH	NT	34.93	0.018580	±2.5	PASS
GPRS1900	810	VL	NT	21.50	0.011258	±2.5	PASS
GPRS1900	810	VN	NT	25.02	0.013101	±2.5	PASS
GPRS1900	810	VH	NT	23.50	0.012305	±2.5	PASS

EGPRS1900	512	VL	NT	17.56	0.009491	±2.5	PASS
EGPRS1900	512	VN	NT	21.60	0.011674	±2.5	PASS
EGPRS1900	512	VH	NT	19.31	0.010437	±2.5	PASS
EGPRS1900	661	VL	NT	22.86	0.012160	±2.5	PASS
EGPRS1900	661	VN	NT	18.11	0.009633	±2.5	PASS
EGPRS1900	661	VH	NT	26.47	0.014080	±2.5	PASS
EGPRS1900	810	VL	NT	13.24	0.006933	±2.5	PASS
EGPRS1900	810	VN	NT	13.37	0.007001	±2.5	PASS
EGPRS1900	810	VH	NT	21.50	0.011258	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	NV	-30	15.14	0.018369	±2.5	PASS
GSM850	128	NV	-20	12.04	0.014608	±2.5	PASS
GSM850	128	NV	-10	13.95	0.016926	±2.5	PASS
GSM850	128	NV	0	14.75	0.017896	±2.5	PASS
GSM850	128	NV	10	14.40	0.017471	±2.5	PASS
GSM850	128	NV	20	14.27	0.017314	±2.5	PASS
GSM850	128	NV	30	15.27	0.018527	±2.5	PASS
GSM850	128	NV	40	14.63	0.017751	±2.5	PASS
GSM850	128	NV	50	11.72	0.014220	±2.5	PASS
GSM850	190	NV	-30	8.94	0.010686	±2.5	PASS
GSM850	190	NV	-20	7.30	0.008726	±2.5	PASS
GSM850	190	NV	-10	8.52	0.010184	±2.5	PASS
GSM850	190	NV	0	7.88	0.009419	±2.5	PASS
GSM850	190	NV	10	9.62	0.011499	±2.5	PASS
GSM850	190	NV	20	9.14	0.010925	±2.5	PASS
GSM850	190	NV	30	9.43	0.011272	±2.5	PASS
GSM850	190	NV	40	10.40	0.012431	±2.5	PASS
GSM850	190	NV	50	7.85	0.009383	±2.5	PASS
GSM850	251	NV	-30	7.68	0.009048	±2.5	PASS
GSM850	251	NV	-20	11.27	0.013278	±2.5	PASS
GSM850	251	NV	-10	8.30	0.009779	±2.5	PASS
GSM850	251	NV	0	7.52	0.008860	±2.5	PASS
GSM850	251	NV	10	6.36	0.007493	±2.5	PASS
GSM850	251	NV	20	11.72	0.013808	±2.5	PASS
GSM850	251	NV	30	8.94	0.010533	±2.5	PASS
GSM850	251	NV	40	10.20	0.012017	±2.5	PASS
GSM850	251	NV	50	6.07	0.007151	±2.5	PASS
GPRS850	128	NV	-30	10.40	0.012618	±2.5	PASS
GPRS850	128	NV	-20	9.69	0.011757	±2.5	PASS
GPRS850	128	NV	-10	5.55	0.006734	±2.5	PASS
GPRS850	128	NV	0	11.62	0.014099	±2.5	PASS
GPRS850	128	NV	10	7.36	0.008930	±2.5	PASS
GPRS850	128	NV	20	9.85	0.011951	±2.5	PASS
GPRS850	128	NV	30	10.17	0.012339	±2.5	PASS
GPRS850	128	NV	40	9.49	0.011514	±2.5	PASS
GPRS850	128	NV	50	13.24	0.016064	±2.5	PASS
GPRS850	190	NV	-30	6.75	0.008068	±2.5	PASS

GPRS850	190	NV	-20	7.94	0.009491	±2.5	PASS
GPRS850	190	NV	-10	4.13	0.004937	±2.5	PASS
GPRS850	190	NV	0	7.33	0.008762	±2.5	PASS
GPRS850	190	NV	10	7.97	0.009527	±2.5	PASS
GPRS850	190	NV	20	5.17	0.006180	±2.5	PASS
GPRS850	190	NV	30	7.49	0.008953	±2.5	PASS
GPRS850	190	NV	40	6.65	0.007949	±2.5	PASS
GPRS850	190	NV	50	8.14	0.009730	±2.5	PASS
GPRS850	251	NV	-30	5.52	0.006503	±2.5	PASS
GPRS850	251	NV	-20	1.36	0.001602	±2.5	PASS
GPRS850	251	NV	-10	3.29	0.003876	±2.5	PASS
GPRS850	251	NV	0	6.17	0.007269	±2.5	PASS
GPRS850	251	NV	10	3.00	0.003534	±2.5	PASS
GPRS850	251	NV	20	-0.13	-0.000153	±2.5	PASS
GPRS850	251	NV	30	4.07	0.004795	±2.5	PASS
GPRS850	251	NV	40	3.42	0.004029	±2.5	PASS
GPRS850	251	NV	50	4.29	0.005054	±2.5	PASS
EGPRS850	128	NV	-30	2.23	0.002706	±2.5	PASS
EGPRS850	128	NV	-20	2.62	0.003179	±2.5	PASS
EGPRS850	128	NV	-10	4.10	0.004975	±2.5	PASS
EGPRS850	128	NV	0	3.94	0.004780	±2.5	PASS
EGPRS850	128	NV	10	3.81	0.004623	±2.5	PASS
EGPRS850	128	NV	20	0.39	0.000473	±2.5	PASS
EGPRS850	128	NV	30	0.87	0.001056	±2.5	PASS
EGPRS850	128	NV	40	-1.45	-0.001759	±2.5	PASS
EGPRS850	128	NV	50	-0.03	-0.000036	±2.5	PASS
EGPRS850	190	NV	-30	0.16	0.000191	±2.5	PASS
EGPRS850	190	NV	-20	-2.36	-0.002821	±2.5	PASS
EGPRS850	190	NV	-10	2.55	0.003048	±2.5	PASS
EGPRS850	190	NV	0	5.75	0.006873	±2.5	PASS
EGPRS850	190	NV	10	2.62	0.003132	±2.5	PASS
EGPRS850	190	NV	20	-0.94	-0.001124	±2.5	PASS
EGPRS850	190	NV	30	-0.39	-0.000466	±2.5	PASS
EGPRS850	190	NV	40	0.48	0.000574	±2.5	PASS
EGPRS850	190	NV	50	3.23	0.003861	±2.5	PASS
EGPRS850	251	NV	-30	-0.29	-0.000342	±2.5	PASS
EGPRS850	251	NV	-20	-5.42	-0.006385	±2.5	PASS
EGPRS850	251	NV	-10	-0.03	-0.000035	±2.5	PASS
EGPRS850	251	NV	0	-3.68	-0.004336	±2.5	PASS
EGPRS850	251	NV	10	-0.45	-0.000530	±2.5	PASS
EGPRS850	251	NV	20	2.23	0.002627	±2.5	PASS
EGPRS850	251	NV	30	-1.16	-0.001367	±2.5	PASS
EGPRS850	251	NV	40	3.55	0.004182	±2.5	PASS
EGPRS850	251	NV	50	-0.39	-0.000459	±2.5	PASS
GSM1900	512	NV	-30	30.83	0.016663	±2.5	PASS
GSM1900	512	NV	-20	29.38	0.015879	±2.5	PASS
GSM1900	512	NV	-10	32.00	0.017295	±2.5	PASS
GSM1900	512	NV	0	29.44	0.015912	±2.5	PASS
GSM1900	512	NV	10	30.28	0.016366	±2.5	PASS
GSM1900	512	NV	20	29.28	0.015825	±2.5	PASS

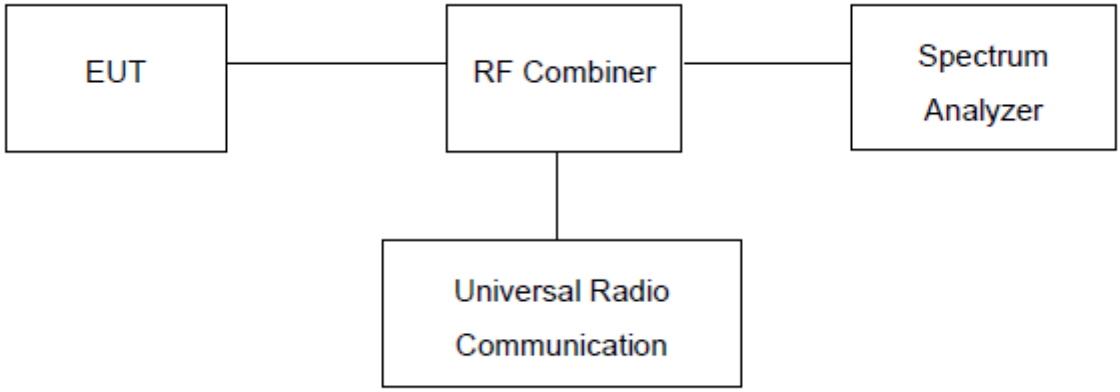
GSM1900	512	NV	30	29.93	0.016177	±2.5	PASS
GSM1900	512	NV	40	26.83	0.014501	±2.5	PASS
GSM1900	512	NV	50	27.12	0.014658	±2.5	PASS
GSM1900	661	NV	-30	27.67	0.014718	±2.5	PASS
GSM1900	661	NV	-20	34.03	0.018101	±2.5	PASS
GSM1900	661	NV	-10	32.29	0.017176	±2.5	PASS
GSM1900	661	NV	0	35.64	0.018957	±2.5	PASS
GSM1900	661	NV	10	34.61	0.018410	±2.5	PASS
GSM1900	661	NV	20	28.19	0.014995	±2.5	PASS
GSM1900	661	NV	30	31.12	0.016553	±2.5	PASS
GSM1900	661	NV	40	33.87	0.018016	±2.5	PASS
GSM1900	661	NV	50	32.71	0.017399	±2.5	PASS
GSM1900	810	NV	-30	25.57	0.013389	±2.5	PASS
GSM1900	810	NV	-20	27.96	0.014640	±2.5	PASS
GSM1900	810	NV	-10	26.76	0.014012	±2.5	PASS
GSM1900	810	NV	0	24.80	0.012986	±2.5	PASS
GSM1900	810	NV	10	24.05	0.012593	±2.5	PASS
GSM1900	810	NV	20	29.35	0.015368	±2.5	PASS
GSM1900	810	NV	30	28.96	0.015164	±2.5	PASS
GSM1900	810	NV	40	23.05	0.012069	±2.5	PASS
GSM1900	810	NV	50	24.28	0.012713	±2.5	PASS
GPRS1900	512	NV	-30	25.54	0.013804	±2.5	PASS
GPRS1900	512	NV	-20	27.83	0.015042	±2.5	PASS
GPRS1900	512	NV	-10	29.74	0.016074	±2.5	PASS
GPRS1900	512	NV	0	24.89	0.013453	±2.5	PASS
GPRS1900	512	NV	10	26.41	0.014274	±2.5	PASS
GPRS1900	512	NV	20	23.67	0.012793	±2.5	PASS
GPRS1900	512	NV	30	19.63	0.010610	±2.5	PASS
GPRS1900	512	NV	40	23.15	0.012512	±2.5	PASS
GPRS1900	512	NV	50	27.02	0.014604	±2.5	PASS
GPRS1900	661	NV	-30	22.99	0.012229	±2.5	PASS
GPRS1900	661	NV	-20	29.44	0.015660	±2.5	PASS
GPRS1900	661	NV	-10	27.89	0.014835	±2.5	PASS
GPRS1900	661	NV	0	24.70	0.013138	±2.5	PASS
GPRS1900	661	NV	10	21.60	0.011489	±2.5	PASS
GPRS1900	661	NV	20	27.77	0.014771	±2.5	PASS
GPRS1900	661	NV	30	26.02	0.013840	±2.5	PASS
GPRS1900	661	NV	40	26.18	0.013926	±2.5	PASS
GPRS1900	661	NV	50	28.25	0.015027	±2.5	PASS
GPRS1900	810	NV	-30	23.73	0.012425	±2.5	PASS
GPRS1900	810	NV	-20	18.53	0.009703	±2.5	PASS
GPRS1900	810	NV	-10	20.66	0.010818	±2.5	PASS
GPRS1900	810	NV	0	20.95	0.010970	±2.5	PASS
GPRS1900	810	NV	10	16.89	0.008844	±2.5	PASS
GPRS1900	810	NV	20	26.67	0.013965	±2.5	PASS
GPRS1900	810	NV	30	23.76	0.012441	±2.5	PASS
GPRS1900	810	NV	40	23.92	0.012525	±2.5	PASS
GPRS1900	810	NV	50	18.02	0.009436	±2.5	PASS
EGPRS1900	512	NV	-30	21.31	0.011518	±2.5	PASS
EGPRS1900	512	NV	-20	20.37	0.011010	±2.5	PASS

EGPRS1900	512	NV	-10	20.92	0.011307	±2.5	PASS
EGPRS1900	512	NV	0	18.08	0.009772	±2.5	PASS
EGPRS1900	512	NV	10	18.76	0.010139	±2.5	PASS
EGPRS1900	512	NV	20	17.56	0.009491	±2.5	PASS
EGPRS1900	512	NV	30	19.02	0.010280	±2.5	PASS
EGPRS1900	512	NV	40	22.57	0.012199	±2.5	PASS
EGPRS1900	512	NV	50	14.75	0.007972	±2.5	PASS
EGPRS1900	661	NV	-30	21.28	0.011319	±2.5	PASS
EGPRS1900	661	NV	-20	27.86	0.014819	±2.5	PASS
EGPRS1900	661	NV	-10	19.40	0.010319	±2.5	PASS
EGPRS1900	661	NV	0	22.24	0.011830	±2.5	PASS
EGPRS1900	661	NV	10	25.25	0.013431	±2.5	PASS
EGPRS1900	661	NV	20	25.89	0.013771	±2.5	PASS
EGPRS1900	661	NV	30	25.34	0.013479	±2.5	PASS
EGPRS1900	661	NV	40	25.57	0.013601	±2.5	PASS
EGPRS1900	661	NV	50	22.18	0.011798	±2.5	PASS
EGPRS1900	810	NV	-30	18.34	0.009603	±2.5	PASS
EGPRS1900	810	NV	-20	19.86	0.010399	±2.5	PASS
EGPRS1900	810	NV	-10	13.04	0.006828	±2.5	PASS
EGPRS1900	810	NV	0	21.11	0.011054	±2.5	PASS
EGPRS1900	810	NV	10	22.89	0.011986	±2.5	PASS
EGPRS1900	810	NV	20	13.88	0.007268	±2.5	PASS
EGPRS1900	810	NV	30	14.43	0.007556	±2.5	PASS
EGPRS1900	810	NV	40	17.34	0.009079	±2.5	PASS
EGPRS1900	810	NV	50	14.85	0.007776	±2.5	PASS

10. Peak-to-Average Ratio (PAR)

Test Limit:
The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB .

Test setup:



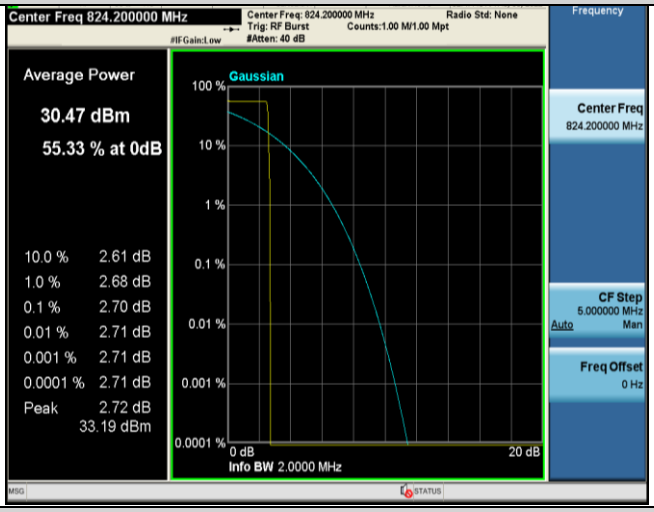
Test Procedure:
Use spectrum to measure the total peak power and record as P_{pk}. Use spectrum to measure the total average power and record as P_{Avg}. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm).Determine the PAPR from:
$PAPR(dB)=P_{pk}(dBm)-P_{Avg}(dBm)$.
Record the maximum PAPR level associated with a probability of 0.1%.

Measurement Result:

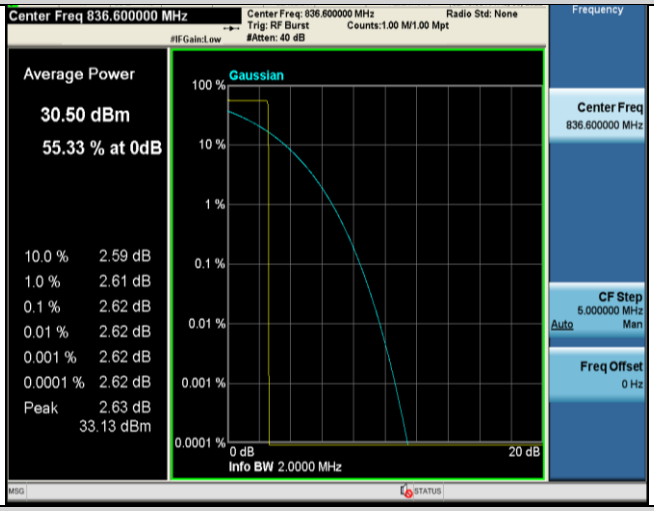
Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM850	128	2.7	13	PASS
GSM850	190	2.62	13	PASS
GSM850	251	2.62	13	PASS
GPRS850	128	2.66	13	PASS
GPRS850	190	2.62	13	PASS
GPRS850	251	3.17	13	PASS
EGPRS850	128	5.46	13	PASS
EGPRS850	190	5.5	13	PASS
EGPRS850	251	5.45	13	PASS
GSM1900	512	2.6	13	PASS
GSM1900	661	2.6	13	PASS
GSM1900	810	2.61	13	PASS
GPRS1900	512	2.61	13	PASS
GPRS1900	661	2.6	13	PASS
GPRS1900	810	2.61	13	PASS
EGPRS1900	512	5.3	13	PASS
EGPRS1900	661	5.5	13	PASS
EGPRS1900	810	5.45	13	PASS

Test Graphs:

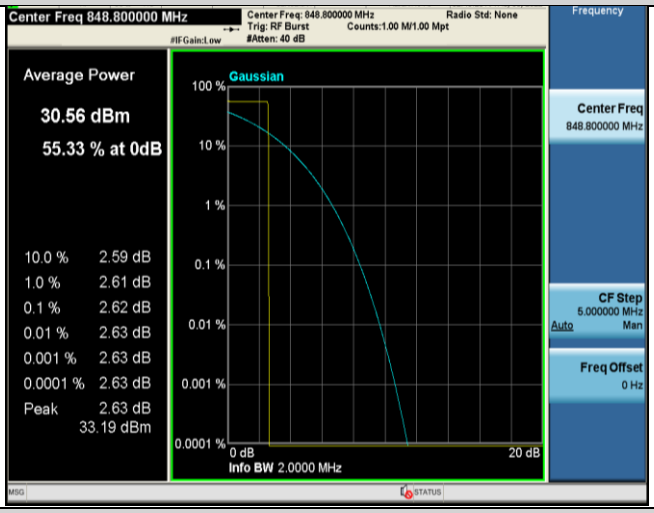
GSM850-128



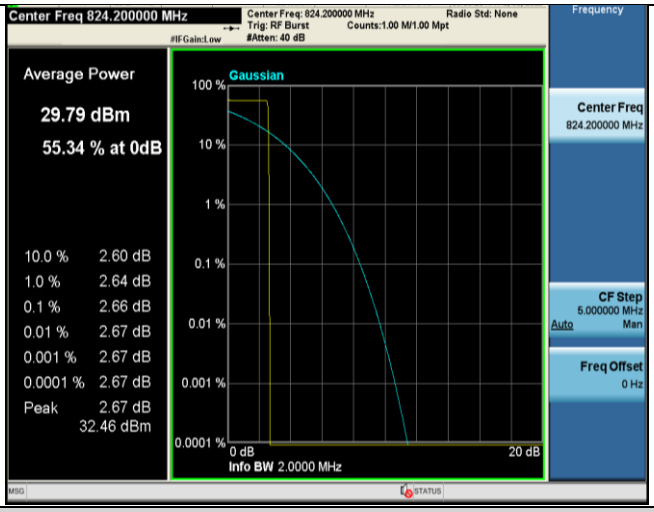
GSM850-190



GSM850-251



GPRS850-128



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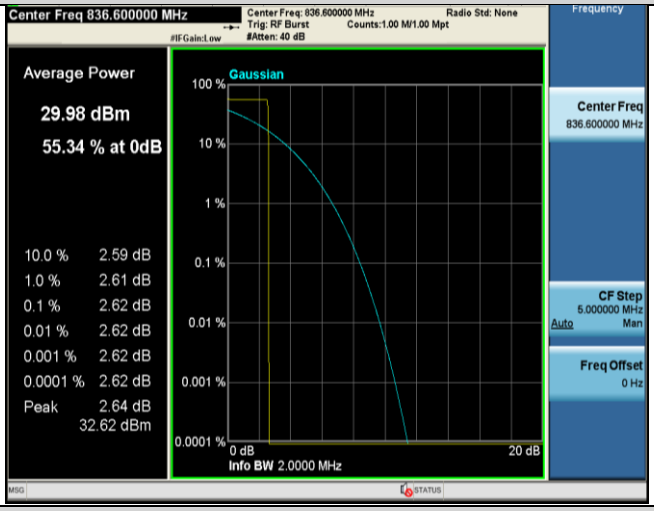

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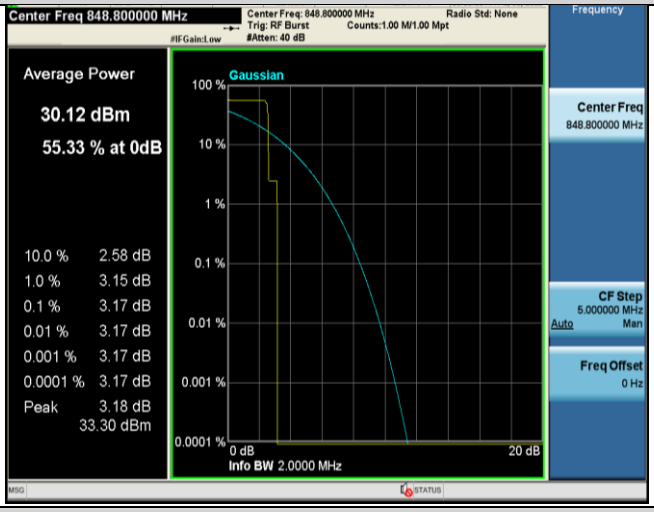
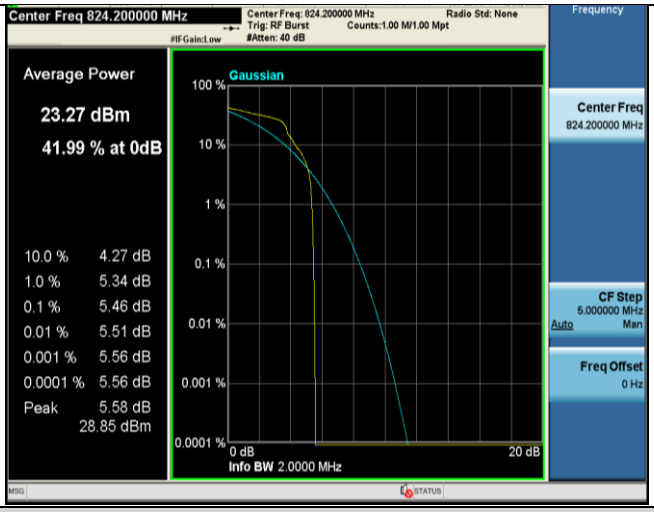


EGPRS850-128



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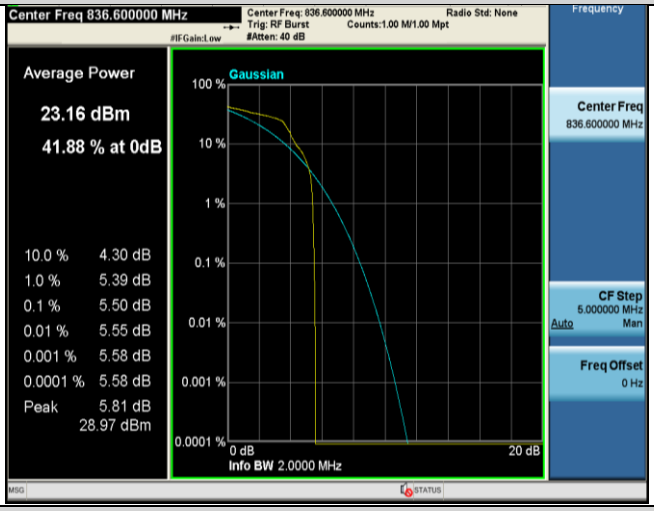
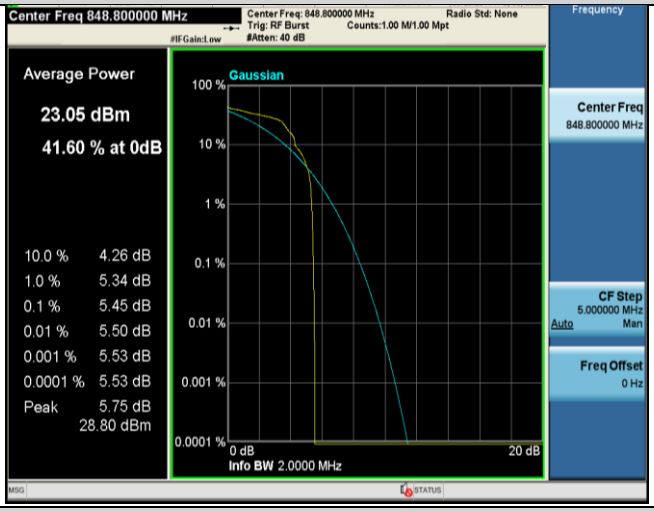
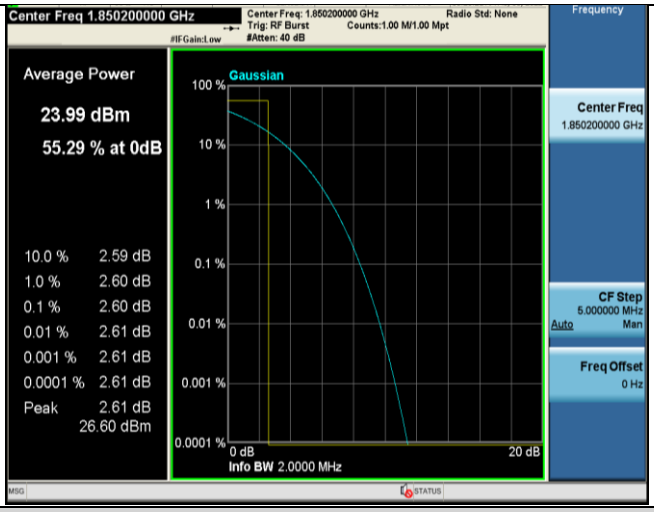


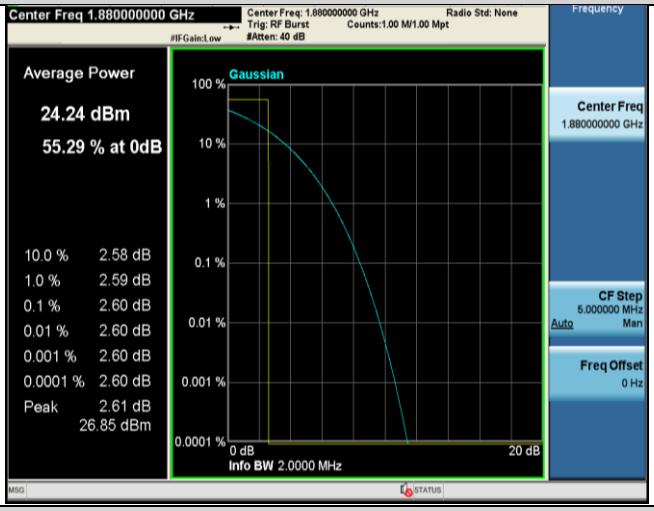
EGPRS850-251



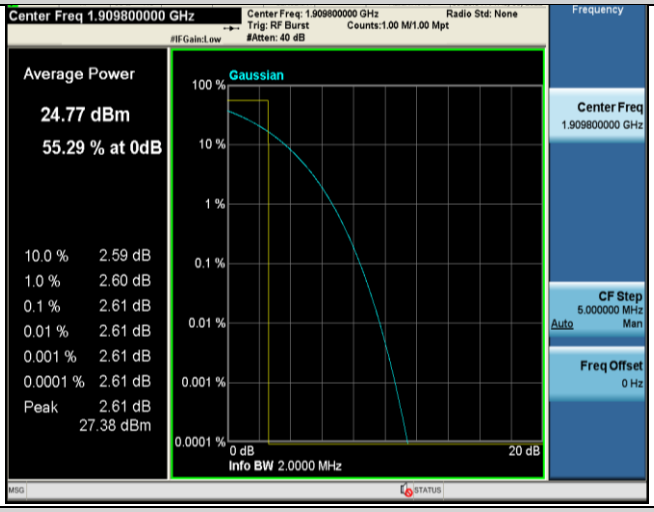
GSM1900-512



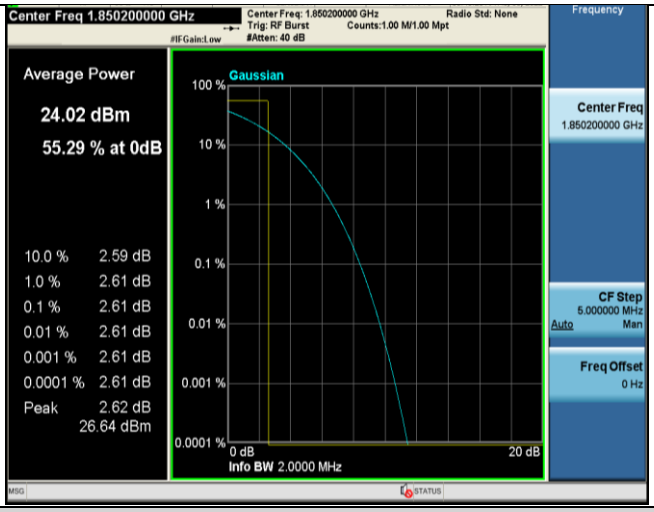
GSM1900-661



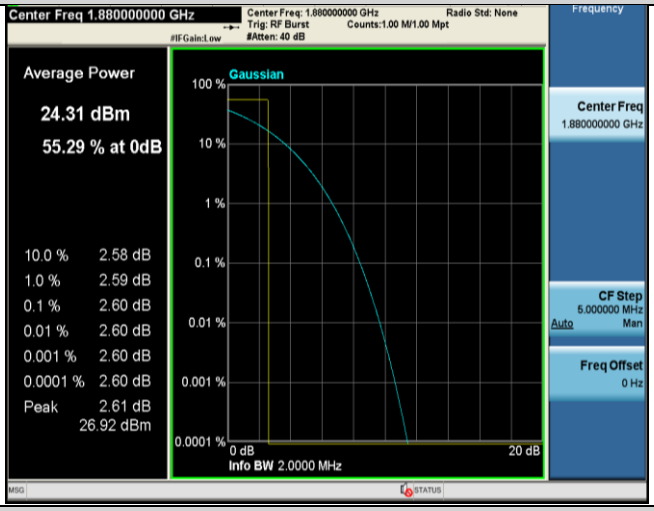
GSM1900-810



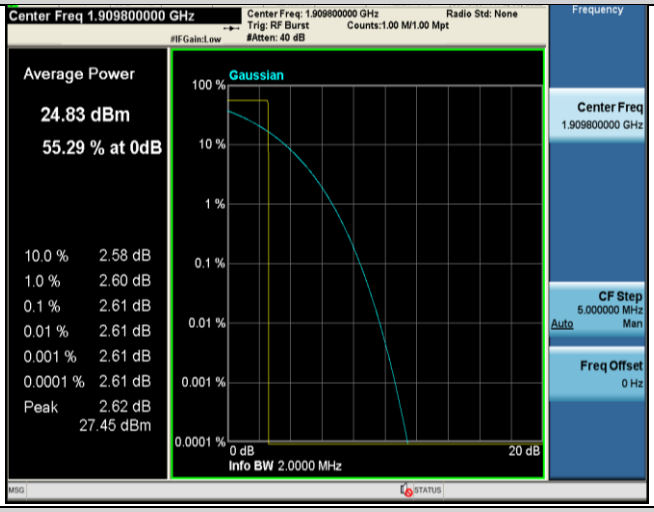
GPRS1900-512



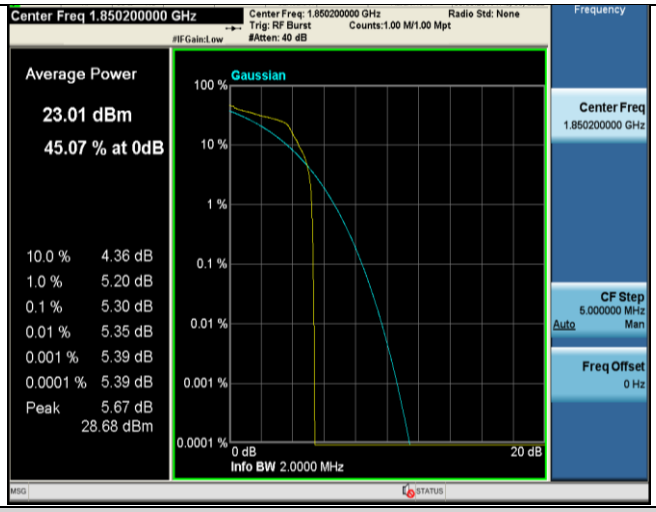
GPRS1900-661



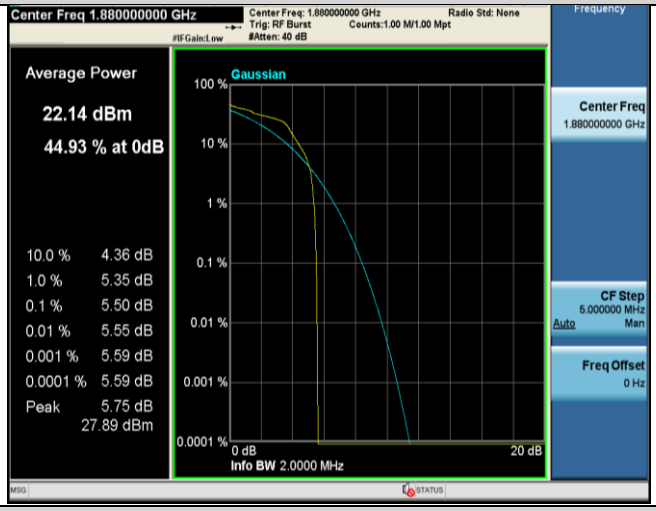
GPRS1900-810



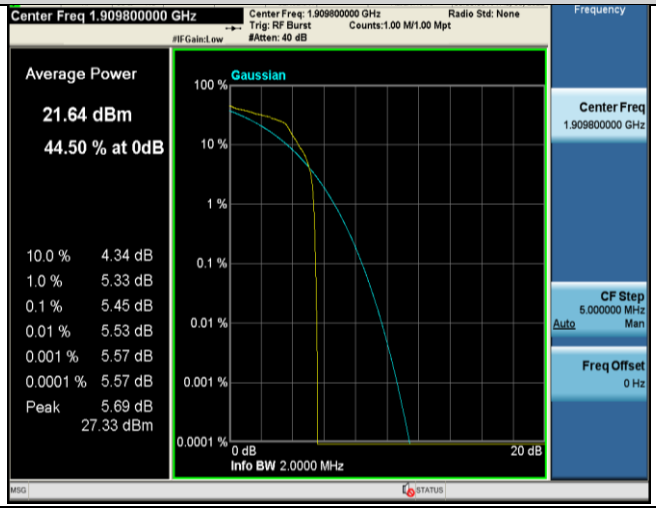
EGPRS1900-512

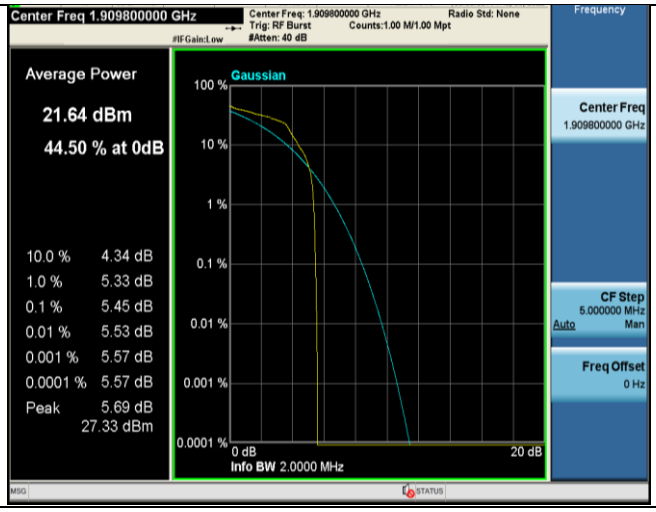


EGPRS1900-661



EGPRS1900-810




Center Freq 1.909800000 GHz
Center Freq: 1.909800000 GHz
Trig: RF Burst
#Atten: 40 dB
Counts:1.00 M/1.00 Mpt
Radio Std: None
Frequency
Average Power
21.64 dBm
44.50 % at 0dB
10.0 % 4.34 dB
1.0 % 5.33 dB
0.1 % 5.45 dB
0.01 % 5.53 dB
0.001 % 5.57 dB
0.0001 % 5.57 dB
Peak 5.69 dB
27.33 dBm
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0 dB
20 dB
Info BW 2.0000 MHz
Center Freq
1.909800000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

11 APPENDIX I -- TEST SETUP PHOTOGRAPH

Refer to ”Test Setup Photos”.

12 APPENDIX II -- EUT PHOTOGRAPH

Refer to " External Photos" and "Internal Photos".

********THE END REPORT********