Appendix B

Test Data for SZEM160100046801

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1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Part 1 – RF Conducted Power of Transmitter for GSM850

TEST CONDITIONS	RF Output Power(Conducted)					
	Channel128(L)		Channel190(M)		Channel251(H)	
	824.2MHz		836.6 MHz		848.8 MHz	
Tnom/ Vnom	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)
GSM/TM1 (GSM ONLY)	33.21	38.5	33.12	38.5	33.11	38.5
GSM/TM1 (GPRS)	32.82	38.5	32.66	38.5	32.63	38.5
GSM/TM2 (EGPRS)	26.27	38.5	26.37	38.5	26.15	38.5

Part 2– Effective Radiated Power of Transmitter (ERP) for GSM850

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBd)	Cable Loss (dB)	Substitution Level(ERP) / dBm	Limit (dBm)	Result
GSM/TM1 (GSM ONLY)	824.2	33.71	28.34	5.95	0.6	33.69	38.5	Pass
GSM/TM1 (GSM ONLY)	836.6	33.32	27.26	6.65	0.6	33.31	38.5	Pass
GSM/TM1 (GSM ONLY)	848.8	33.77	27.48	6.85	0.6	33.73	38.5	Pass
GSM/TM1 (GPRS)	824.2	32.62	27.26	5.95	0.6	32.61	38.5	Pass
GSM/TM1 (GPRS)	836.6	32.16	26.08	6.65	0.6	32.13	38.5	Pass
GSM/TM1 (GPRS)	848.8	32.87	26.59	6.85	0.6	32.84	38.5	Pass
GSM/TM2 (EGPRS)	824.2	26.61	21.23	5.95	0.6	26.58	38.5	Pass
GSM/TM2 (EGPRS)	836.6	26.13	20.06	6.65	0.6	26.11	38.5	Pass
GSM/TM2 (EGPRS)	848.8	26.65	20.37	6.85	0.6	26.62	38.5	Pass

Note:

a: For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

ERP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 3 – RF Conducted Power of Transmitter for GSM1900

TEST CONDITIONS	RF Output Power(Conducted)					
	Channel512(L)		Channel661(M)		Channel810(H)	
	1850.2MHz		1880 MHz		1909.8 MHz	
Tnom/ Vnom	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)
GSM/TM1 (GSM ONLY)	29.99	33	29.61	33	29.25	33
GSM/TM1 (GPRS)	29.98	33	29.62	33	29.25	33
GSM/TM2 (EGPRS)	26.48	33	26.25	33	25.71	33

Part 4– Effective Isotropic Radiated Power of Transmitter (EIRP) for GSM1900

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
GSM/TM1 (GSM ONLY)	1850.2	30.99	24.05	7.9	1	30.95	33	Pass
GSM/TM1 (GSM ONLY)	1880	30.61	23.68	7.9	1	30.58	33	Pass
GSM/TM1 (GSM ONLY)	1909.8	30.25	23.33	7.9	1	30.23	33	Pass
GSM/TM1 (GPRS)	1850.2	30.98	24.05	7.9	1	30.95	33	Pass
GSM/TM1 (GPRS)	1880	30.62	23.7	7.9	1	30.6	33	Pass
GSM/TM1 (GPRS)	1909.8	30.25	23.31	7.9	1	30.21	33	Pass
GSM/TM2 (EGPRS)	1850.2	27.48	20.54	7.9	1	27.44	33	Pass
GSM/TM2 (EGPRS)	1880	27.25	20.31	7.9	1	27.21	33	Pass
GSM/TM2 (EGPRS)	1909.8	26.71	19.78	7.9	1	26.68	33	Pass

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 5 – RF Conducted Power of Transmitter for WCDMA BAND 2

	RF Output Power(Conducted)					
TEST CONDITIONS	Channel 9262 (L)		Channel 9400 (M)		Channel 9538 (H)	
	1852.4MHz		1880.0MHz		1907.6MHz	
Tnom/ Vnom	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
WCDMA	22.21	33	22.24	33	22.38	33
HSDPA	21.44	33	21.45	33	21.46	33
HSUPA	21.32	33	21.33	33	21.36	33

Part 6– Effective Radiated Power of Transmitter (EIRP) for WCDMA BAND 2

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
WCDMA	1852.4	23.21	16.32	7.9	1	23.22	33	Pass
WCDMA	1880.0	23.24	16.33	7.9	1	23.23	33	Pass
WCDMA	1907.6	23.38	16.47	7.9	1	23.37	33	Pass
HSDPA	1852.4	22.44	15.56	7.9	1	22.46	33	Pass
HSDPA	1880.0	22.45	15.53	7.9	1	22.43	33	Pass
HSDPA	1907.6	22.46	15.54	7.9	1	22.44	33	Pass
HSUPA	1852.4	22.32	15.41	7.9	1	22.31	33	Pass
HSUPA	1880.0	22.33	15.39	7.9	1	22.29	33	Pass
HSUPA	1907.6	22.36	15.44	7.9	1	22.34	33	Pass

Note:

a: For getting the EIRP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 7 – RF Conducted Power of Transmitter for WCDMA BAND 4

	RF Output Power(Conducted)					
TEST CONDITIONS	Channel 1312 (L)		Channel 1413 (M)		Channel 1513 (H)	
	1712.4MHz		1732.6MHz		1752.6MHz	
Tnom/ Vnom	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
WCDMA	22.71	30	22.69	30	22.78	30
HSDPA	21.74	30	21.73	30	21.83	30
HSUPA	21.62	30	21.71	30	21.64	30

Part 8– Effective Radiated Power of Transmitter (ERP) for WCDMA BAND 4

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
WCDMA	1712.4	23.71	16.89	7.8	1	23.69	30	Pass
WCDMA	1732.6	23.69	16.86	7.8	1	23.66	30	Pass
WCDMA	1752.6	23.78	16.93	7.8	1	23.73	30	Pass
HSDPA	1712.4	22.74	15.92	7.8	1	22.72	30	Pass
HSDPA	1732.6	22.73	15.91	7.8	1	22.71	30	Pass
HSDPA	1752.6	22.83	16.02	7.8	1	22.82	30	Pass
HSUPA	1712.4	22.62	15.81	7.8	1	22.61	30	Pass
HSUPA	1732.6	22.71	15.89	7.8	1	22.69	30	Pass
HSUPA	1752.6	22.64	15.83	7.8	1	22.63	30	Pass

Note:

a: For getting the EIRP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 9 – RF Conducted Power of Transmitter for WCDMA BAND 5

	RF Output Power(Conducted)					
TEST CONDITIONS	Channel 4132(L)		Channel 4182 (M)		Channel 4233(H)	
	826.4MHz		836.4MHz		846.6MHz	
Tnom/ Vnom	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
WCDMA	23.21	38.5	23.2	38.5	23.38	38.5
HSDPA	22.24	38.5	22.25	38.5	22.36	38.5
HSUPA	22.11	38.5	22.23	38.5	22.16	38.5

Part 10– Effective Radiated Power of Transmitter (ERP) for WCDMA BAND 5

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBd)	Cable Loss (dB)	Substitution Level(ERP) / dBm	Limit (dBm)	Result
WCDMA	826.4	23.91	17.69	5.95	0.6	23.04	38.5	Pass
WCDMA	836.4	23.90	16.96	6.65	0.6	23.01	38.5	Pass
WCDMA	846.6	24.08	16.82	6.85	0.6	23.07	38.5	Pass
HSDPA	826.4	22.94	16.76	5.95	0.6	22.11	38.5	Pass
HSDPA	836.4	22.95	16.09	6.65	0.6	22.14	38.5	Pass
HSDPA	846.6	23.06	15.93	6.85	0.6	22.18	38.5	Pass
HSUPA	826.4	22.81	16.65	5.95	0.6	22.00	38.5	Pass
HSUPA	836.4	22.93	15.97	6.65	0.6	22.02	38.5	Pass
HSUPA	846.6	22.86	15.78	6.85	0.6	22.03	38.5	Pass

Note:

a: For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

ERP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 11 – RF Conducted Power of Transmitter for LTE BAND 2

Bandwidth		RF Output Power(Conducted)					
	TEST CONDITIONS	Channel (L)		Channel (M)		Channel (H)	
	Tnom/ Vnom	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)
1.4MHz	QPSK/ TM1	23.06	33	22.68	33	22.73	33
	16QAM/ TM2	21.93	33	22.13	33	21.96	33
3MHz	QPSK/ TM1	23.11	33	22.64	33	22.68	33
	16QAM/ TM2	21.89	33	22.08	33	21.89	33
5MHz	QPSK/ TM1	23.08	33	22.56	33	22.69	33
	16QAM/ TM2	21.82	33	22.15	33	21.87	33
10MHz	QPSK/ TM1	22.7	33	22.61	33	22.65	33
	16QAM/ TM2	21.71	33	21.88	33	22.04	33
15MHz	QPSK/ TM1	22.74	33	22.76	33	22.86	33
	16QAM/ TM2	22.05	33	22.06	33	22.21	33
20MHz	QPSK/ TM1	22.67	33	22.77	33	22.88	33
	16QAM/ TM2	22.18	33	22.22	33	22.23	33

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Part 12–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
LTE TM1/1.4M Hz	1850.7	24.06	16.63	7.9	1	24.03	33	Pass
	1880	23.68	16.76	7.9	1	23.66	33	Pass
	1909.3	23.73	16.82	7.9	1	23.72	33	Pass
LTE TM2/1.4M Hz	1850.7	22.93	15.99	7.9	1	22.89	33	Pass
	1880	23.13	16.21	7.9	1	23.11	33	Pass
	1909.3	22.96	16.03	7.9	1	22.93	33	Pass
LTE TM1/3MHz	1851.5	24.11	17.2	7.9	1	24.1	33	Pass
	1880	23.64	16.73	7.9	1	23.63	33	Pass
	1908.5	23.68	16.74	7.9	1	23.64	33	Pass
LTE TM2/3MHz	1851.5	22.89	15.96	7.9	1	22.86	33	Pass
	1880	23.08	16.17	7.9	1	23.07	33	Pass
	1908.5	22.89	15.96	7.9	1	22.86	33	Pass
LTE TM1/5MHz	1852.5	24.08	17.15	7.9	1	24.05	33	Pass
	1880	23.56	16.63	7.9	1	23.53	33	Pass
	1907.5	23.69	16.77	7.9	1	23.67	33	Pass
LTE TM2/5MHz	1852.5	22.82	15.91	7.9	1	22.81	33	Pass
	1880	23.15	16.22	7.9	1	23.12	33	Pass
	1907.5	22.87	15.94	7.9	1	22.84	33	Pass
LTE TM1/ 10MHz	1855	23.7	16.78	7.9	1	23.68	33	Pass
	1880	23.61	16.69	7.9	1	23.59	33	Pass
	1905	23.65	16.73	7.9	1	23.63	33	Pass
LTE TM2/ 10MHz	1855	22.71	15.78	7.9	1	22.68	33	Pass
	1880	22.88	15.95	7.9	1	22.85	33	Pass
	1905	23.04	16.12	7.9	1	23.02	33	Pass
LTE TM1/ 15MHz	1857.5	23.74	16.81	7.9	1	23.71	33	Pass
	1880	23.76	16.82	7.9	1	23.72	33	Pass
	1902.5	23.86	16.95	7.9	1	23.85	33	Pass
LTE TM2/ 15MHz	1857.5	23.05	16.14	7.9	1	23.04	33	Pass
	1880	23.06	16.13	7.9	1	23.03	33	Pass
	1902.5	23.21	16.3	7.9	1	23.2	33	Pass
LTE TM1/ 20MHz	1860	23.67	16.71	7.9	1	23.61	33	Pass
	1880	23.77	16.85	7.9	1	23.75	33	Pass
	1900	23.88	16.96	7.9	1	23.86	33	Pass
LTE TM2/ 20MHz	1860	23.18	16.24	7.9	1	23.14	33	Pass
	1880	23.22	16.29	7.9	1	23.19	33	Pass
	1900	23.23	16.76	7.9	1	23.18	33	Pass

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 13 – RF Conducted Power of Transmitter for LTE BAND 4

Bandwidth		RF Output Power(Conducted)					
	TEST CONDITIONS	Channel (L)		Channel (M)		Channel (H)	
	Tnom/ Vnom	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)
1.4MHz	QPSK/ TM1	22.78	30	22.50	30	22.54	30
	16QAM/ TM2	22.07	30	21.36	30	21.50	30
3MHz	QPSK/ TM1	22.72	30	22.39	30	22.53	30
	16QAM/ TM2	21.59	30	21.48	30	21.83	30
5MHz	QPSK/ TM1	22.83	30	22.55	30	22.66	30
	16QAM/ TM2	22.31	30	21.7	30	21.69	30
10MHz	QPSK/ TM1	22.75	30	22.49	30	22.45	30
	16QAM/ TM2	21.7	30	21.57	30	22.13	30
15MHz	QPSK/ TM1	22.91	30	22.65	30	22.64	30
	16QAM/ TM2	22.12	30	21.53	30	21.92	30
20MHz	QPSK/ TM1	22.84	30	22.69	30	22.65	30
	16QAM/ TM2	22.15	30	22.12	30	22.13	30

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Part 14–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
LTE TM1/1.4M Hz	1710.7	23.78	20.25	7.8	1	23.75	30	Pass
	1732.5	23.50	16.68	7.8	1	23.48	30	Pass
	1754.3	23.54	16.71	7.8	1	23.51	30	Pass
LTE TM2/1.4M Hz	1710.7	23.07	16.25	7.8	1	23.05	30	Pass
	1732.5	22.36	15.54	7.8	1	22.34	30	Pass
	1754.3	22.50	15.68	7.8	1	22.48	30	Pass
LTE TM1/3MHz	1711.5	23.72	16.9	7.8	1	23.7	30	Pass
	1732.5	23.39	16.56	7.8	1	23.36	30	Pass
	1753.5	23.53	16.71	7.8	1	23.51	30	Pass
LTE TM2/3MHz	1711.5	22.59	15.77	7.8	1	22.57	30	Pass
	1732.5	22.48	15.65	7.8	1	22.45	30	Pass
	1753.5	22.83	16.01	7.8	1	22.81	30	Pass
LTE TM1/5MHz	1712.5	23.83	16.99	7.8	1	23.79	30	Pass
	1732.5	23.55	16.73	7.8	1	23.53	30	Pass
	1752.5	23.66	16.82	7.8	1	23.62	30	Pass
LTE TM2/5MHz	1712.5	23.31	16.48	7.8	1	23.28	30	Pass
	1732.5	22.70	15.88	7.8	1	22.68	30	Pass
	1752.5	22.69	15.86	7.8	1	22.66	30	Pass
LTE TM1/ 10MHz	1715	23.75	16.92	7.8	1	23.72	30	Pass
	1732.5	23.49	16.66	7.8	1	23.46	30	Pass
	1750	23.45	16.63	7.8	1	23.43	30	Pass
LTE TM2/ 10MHz	1715	22.70	15.87	7.8	1	22.67	30	Pass
	1732.5	22.57	15.73	7.8	1	22.53	30	Pass
	1750	23.13	16.31	7.8	1	23.11	30	Pass
LTE TM1/ 15MHz	1717.5	23.91	17.09	7.8	1	23.89	30	Pass
	1732.5	23.65	16.82	7.8	1	23.62	30	Pass
	1747.5	23.64	16.83	7.8	1	23.63	30	Pass
LTE TM2/ 15MHz	1717.5	23.12	16.31	7.8	1	23.11	30	Pass
	1732.5	22.53	15.71	7.8	1	22.51	30	Pass
	1747.5	22.92	16.09	7.8	1	22.89	30	Pass
LTE TM1/ 20MHz	1720	23.84	16.99	7.8	1	23.79	30	Pass
	1732.5	23.69	16.86	7.8	1	23.66	30	Pass
	1745	23.65	16.82	7.8	1	23.62	30	Pass
LTE TM2/ 20MHz	1720	23.15	16.33	7.8	1	23.13	30	Pass
	1732.5	23.12	16.31	7.8	1	23.11	30	Pass
	1745	23.13	16.29	7.8	1	23.09	30	Pass

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 15 – RF Conducted Power of Transmitter for LTE BAND 5

Bandwidth		RF Output Power(Conducted)					
	TEST CONDITIONS	Channel (L)		Channel (M)		Channel (H)	
	Tnom/ Vnom	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)
1.4MHz	QPSK/ TM1	22.52	38.5	22.23	38.5	22.36	38.5
	16QAM/ TM2	21.45	38.5	21.34	38.5	21.69	38.5
3MHz	QPSK/ TM1	22.63	38.5	22.35	38.5	22.46	38.5
	16QAM/ TM2	22.17	38.5	21.56	38.5	21.55	38.5
5MHz	QPSK/ TM1	22.73	38.5	22.46	38.5	22.47	38.5
	16QAM/ TM2	21.99	38.5	21.35	38.5	21.78	38.5
10MHz	QPSK/ TM1	22.59	38.5	22.31	38.5	22.27	38.5
	16QAM/ TM2	21.56	38.5	21.43	38.5	21.98	38.5

Part 16–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBd)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
LTE TM1/1.4MHz	824.7	23.52	18.56	5.95	1	23.51	38.5	Pass
	836.5	23.23	17.56	6.65	1	23.21	38.5	Pass
	848.3	23.36	17.49	6.85	1	23.34	38.5	Pass
LTE TM2/1.4MHz	824.7	22.45	17.49	5.95	1	22.44	38.5	Pass
	836.5	22.34	16.66	6.65	1	22.31	38.5	Pass
	848.3	22.69	16.81	6.85	1	22.66	38.5	Pass
LTE TM1/ 3MHz	825.5	23.63	18.66	5.95	1	23.61	38.5	Pass
	836.5	23.35	17.67	6.65	1	23.32	38.5	Pass
	847.5	23.46	17.58	6.85	1	23.43	38.5	Pass
LTE TM2/ 3MHz	825.5	23.17	18.21	5.95	1	23.16	38.5	Pass
	836.5	22.56	16.88	6.65	1	22.53	38.5	Pass
	847.5	22.55	16.67	6.85	1	22.52	38.5	Pass
LTE TM1/ 5MHz	826.5	23.73	18.76	5.95	1	23.71	38.5	Pass
	836.5	23.46	17.78	6.65	1	23.43	38.5	Pass
	846.5	23.47	17.59	6.85	1	23.44	38.5	Pass
LTE TM2/ 5MHz	826.5	22.99	18.03	5.95	1	22.98	38.5	Pass
	836.5	22.35	16.69	6.65	1	22.34	38.5	Pass
	846.5	22.78	16.89	6.85	1	22.74	38.5	Pass
LTE TM1/ 10MHz	829	23.59	18.62	5.95	1	23.57	38.5	Pass
	836.5	23.31	17.64	6.65	1	23.29	38.5	Pass
	844	23.27	17.41	6.85	1	23.26	38.5	Pass
LTE TM2/ 10MHz	829	22.56	17.59	5.95	1	22.54	38.5	Pass
	836.5	22.43	16.75	6.65	1	22.4	38.5	Pass
	844	22.98	17.09	6.85	1	22.94	38.5	Pass

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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Part 17 – RF Conducted Power of Transmitter for LTE BAND 7

Bandwidth	TEST CONDITIONS	RF Output Power(Conducted)					
		Channel (L)		Channel (M)		Channel (H)	
	Tnom/ Vnom	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)
5MHz	QPSK/ TM1	22.14	33	22.20	33	22.26	33
	16QAM/ TM2	21.35	33	21.51	33	21.18	33
10MHz	QPSK/ TM1	22.09	33	22.25	33	22.18	33
	16QAM/ TM2	21.31	33	21.20	33	21.26	33
15MHz	QPSK/ TM1	22.17	33	22.25	33	22.09	33
	16QAM/ TM2	21.24	33	21.47	33	21.08	33
20MHz	QPSK/ TM1	22.32	33	22.38	33	22.11	33
	16QAM/ TM2	21.09	33	21.54	33	21.30	33

Part 18–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE

Test Mode	Freq. (MHz)	Meas. Level (dBm)	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
LTE TM1/5MHz	2502.5	23.14	15.71	8.4	1	23.11	33	Pass
	2535	23.2	15.79	8.4	1	23.19	33	Pass
	2567.5	23.26	15.83	8.4	1	23.23	33	Pass
LTE TM2/5MHz	2502.5	22.35	14.92	8.4	1	22.32	33	Pass
	2535	22.51	15.09	8.4	1	22.49	33	Pass
	2567.5	22.18	14.76	8.4	1	22.16	33	Pass
LTE TM1/ 10MHz	2505	23.09	15.67	8.4	1	23.07	33	Pass
	2535	23.25	15.82	8.4	1	23.22	33	Pass
	2565	23.18	15.75	8.4	1	23.15	33	Pass
LTE TM2/ 10MHz	2505	22.31	14.88	8.4	1	22.28	33	Pass
	2535	22.20	14.79	8.4	1	22.19	33	Pass
	2565	22.26	14.84	8.4	1	22.24	33	Pass
LTE TM1/ 15MHz	2507.5	23.17	15.76	8.4	1	23.16	33	Pass
	2535	23.25	15.83	8.4	1	23.23	33	Pass
	2562.5	23.09	15.67	8.4	1	23.07	33	Pass
LTE TM2/ 15MHz	2507.5	22.24	14.81	8.4	1	22.21	33	Pass
	2535	22.47	15.05	8.4	1	22.45	33	Pass
	2562.5	22.08	14.66	8.4	1	22.06	33	Pass
LTE TM1/ 20MHz	2510	23.32	15.89	8.4	1	23.29	33	Pass
	2535	23.38	15.95	8.4	1	23.35	33	Pass
	2560	23.11	15.69	8.4	1	23.09	33	Pass
LTE TM2/ 20MHz	2510	22.09	14.66	8.4	1	22.06	33	Pass
	2535	22.54	15.12	8.4	1	22.52	33	Pass
	2560	22.3	14.88	8.4	1	22.28	33	Pass

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS

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2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
GSM850	GSM/TM1	LCH	9.09	13	PASS
		MCH	9.41	13	PASS
		HCH	9.47	13	PASS
	GSM/TM2	LCH	12.45	13	PASS
		MCH	12.35	13	PASS
		HCH	12.35	13	PASS

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	2.71	13	PASS
		MCH	2.74	13	PASS
		HCH	2.73	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.91	13	PASS
		MCH	2.72	13	PASS
		HCH	2.82	13	PASS

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Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
LTE Band 4	LTE TM1/ 20MHz	LCH	4.90	13	PASS
		MCH	5.02	13	PASS
		HCH	4.98	13	PASS
	LTE TM2/ 20MHz	LCH	5.67	13	PASS
		MCH	5.80	13	PASS
		HCH	5.79	13	PASS
LTE Band 5	LTE TM1/ 10MHz	LCH	5.53	13	PASS
		MCH	5.60	13	PASS
		HCH	5.56	13	PASS
	LTE TM2/ 10MHz	LCH	6.17	13	PASS
		MCH	6.29	13	PASS
		HCH	6.31	13	PASS
LTE Band 7	LTE TM1/ 20MHz	LCH	5.26	13	PASS
		MCH	5.39	13	PASS
		HCH	5.40	13	PASS
	LTE TM2/ 20MHz	LCH	5.98	13	PASS
		MCH	6.05	13	PASS
		HCH	6.12	13	PASS

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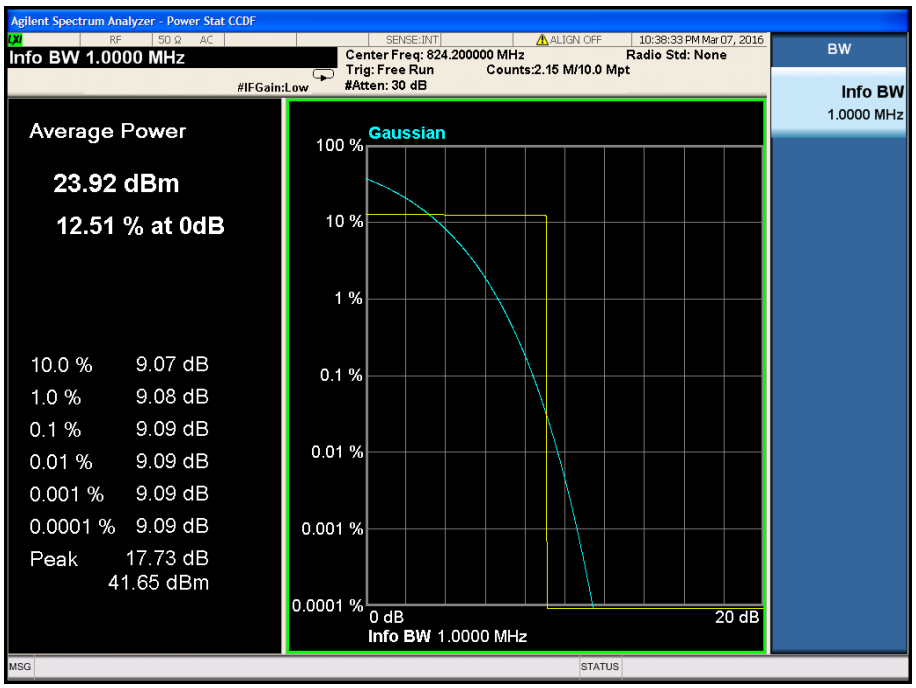
Part II – Test Plots

2.1 For GSM

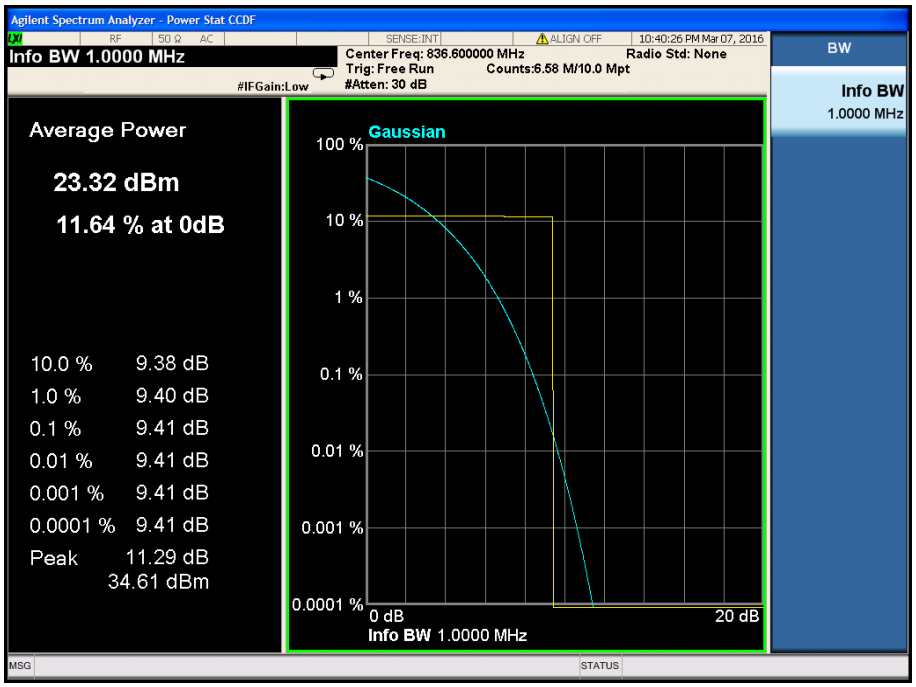
2.1.1 Test Band = GSM850

2.1.1.1 Test Mode = GSM/TM1

2.1.1.1.1 Test Channel = LCH



2.1.1.1.2 Test Channel = MCH



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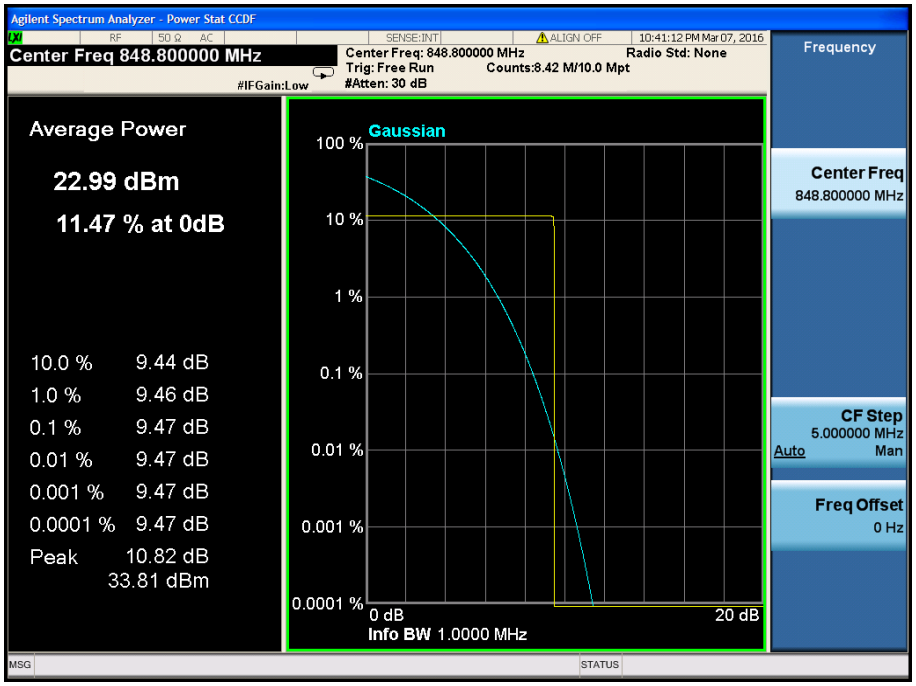
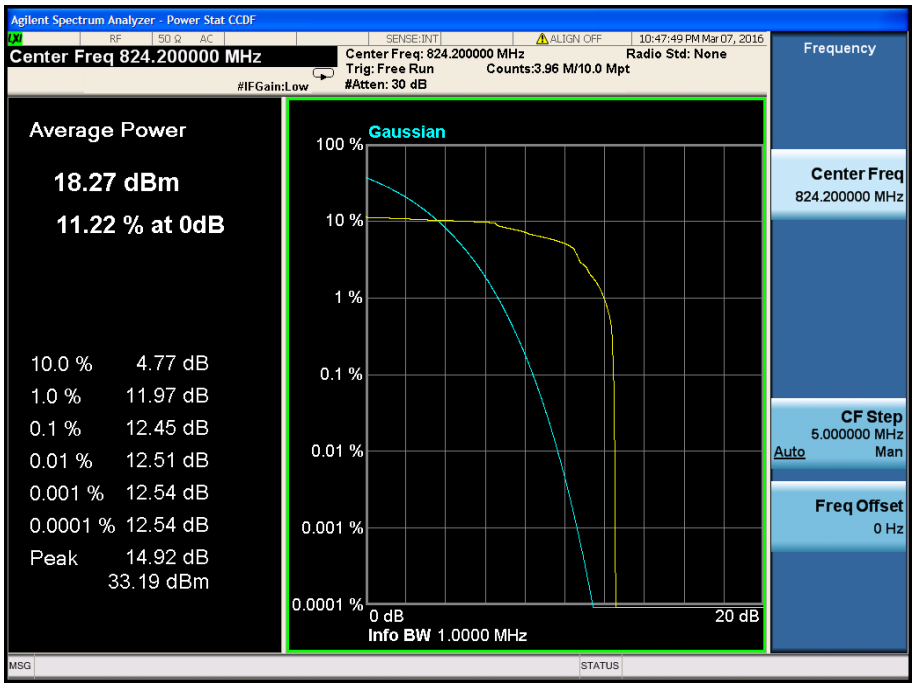
2.1.1.1.3 Test Channel = HCH



2.1.1.2 Test Mode = GSM/TM2

2.1.1.2.1 Test Channel = LCH



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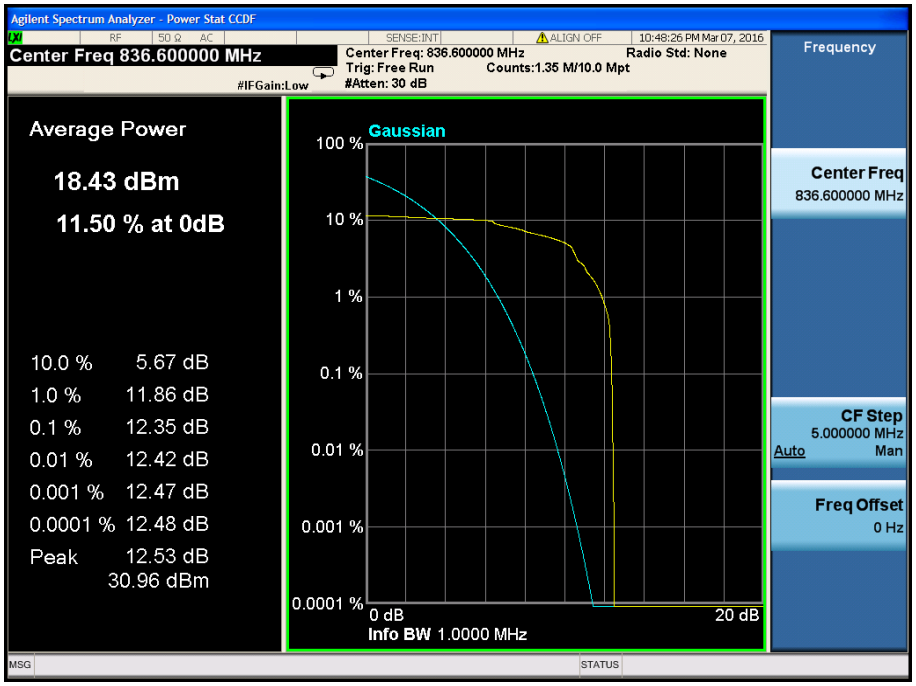
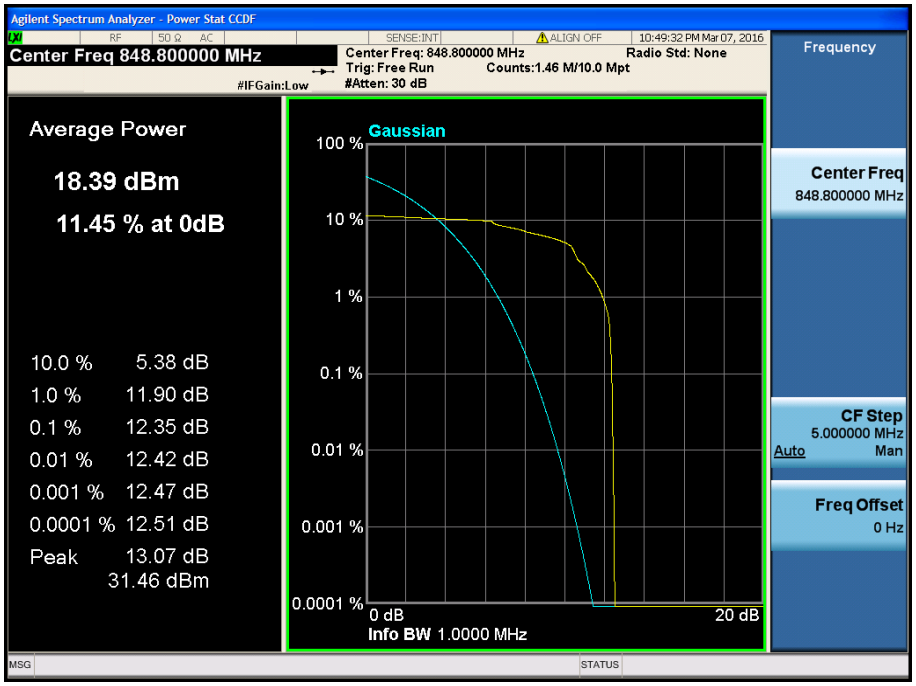
2.1.1.2.2 Test Channel = LCH



2.1.1.2.3 Test Channel = LCH



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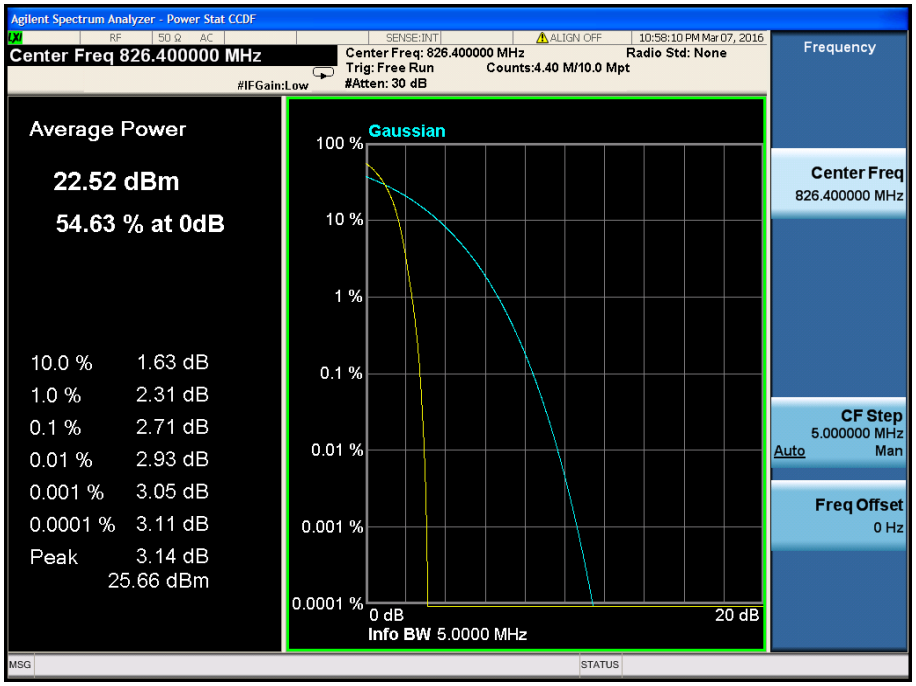
2.2 For WCDMA

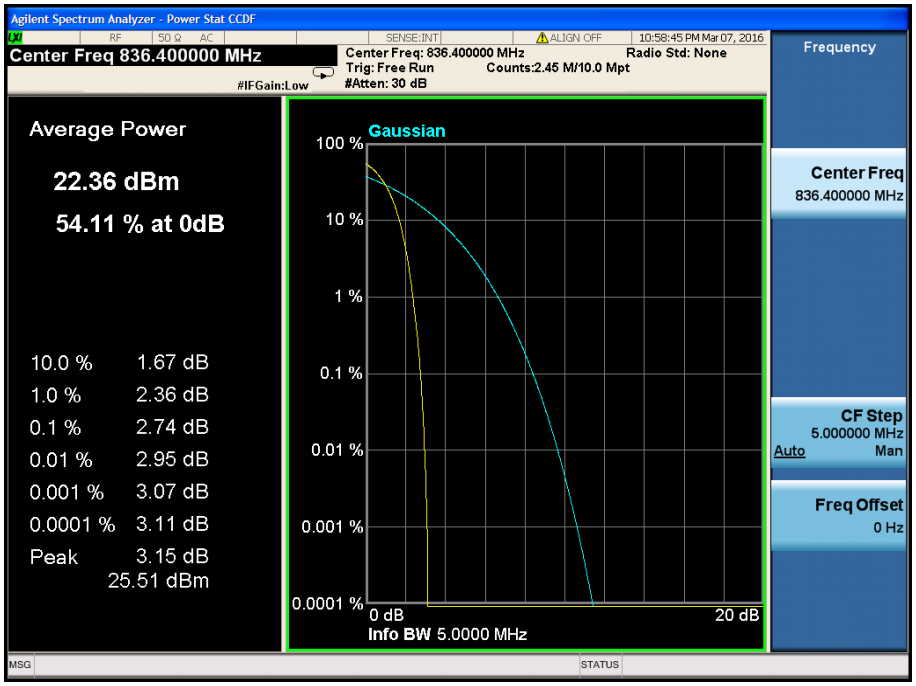
2.2.1 Test Band = WCDMA850

2.2.1.1 Test Mode = UMTS/TM1

2.2.1.1.1 Test Channel = LCH



2.2.1.1.2 Test Channel = MCH



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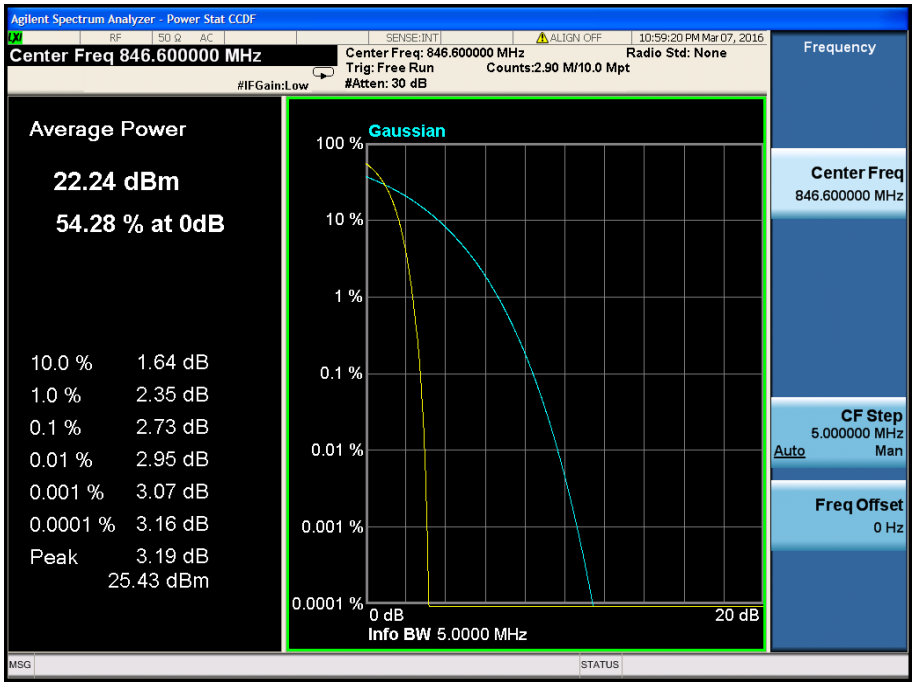
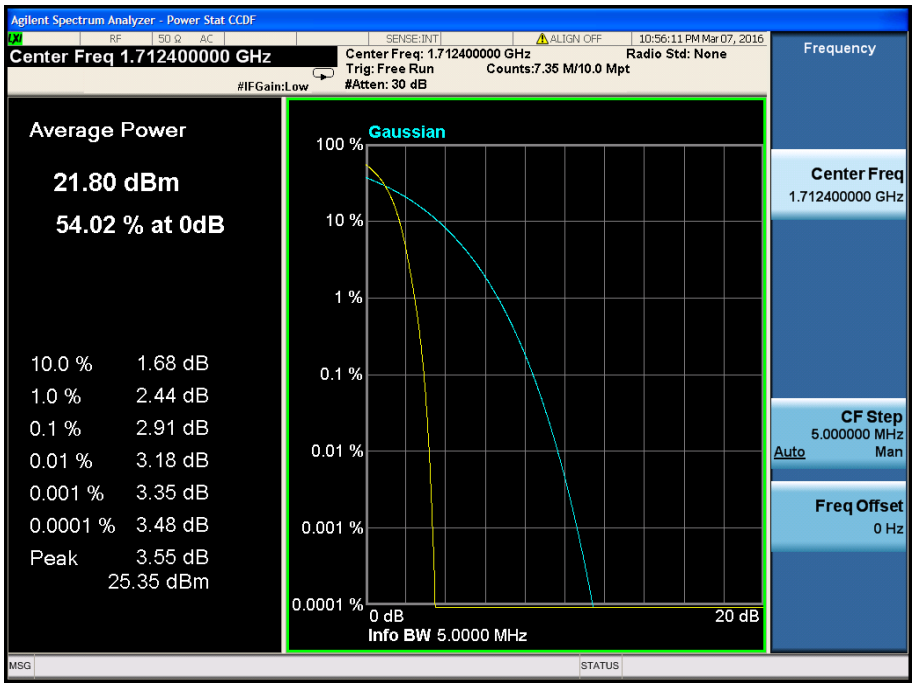
2.2.1.1.3 Test Channel = HCH



2.2.2 Test Band = WCDMA1700

2.2.2.1 Test Mode = UMTS/TM1

2.2.2.1.1 Test Channel = LCH



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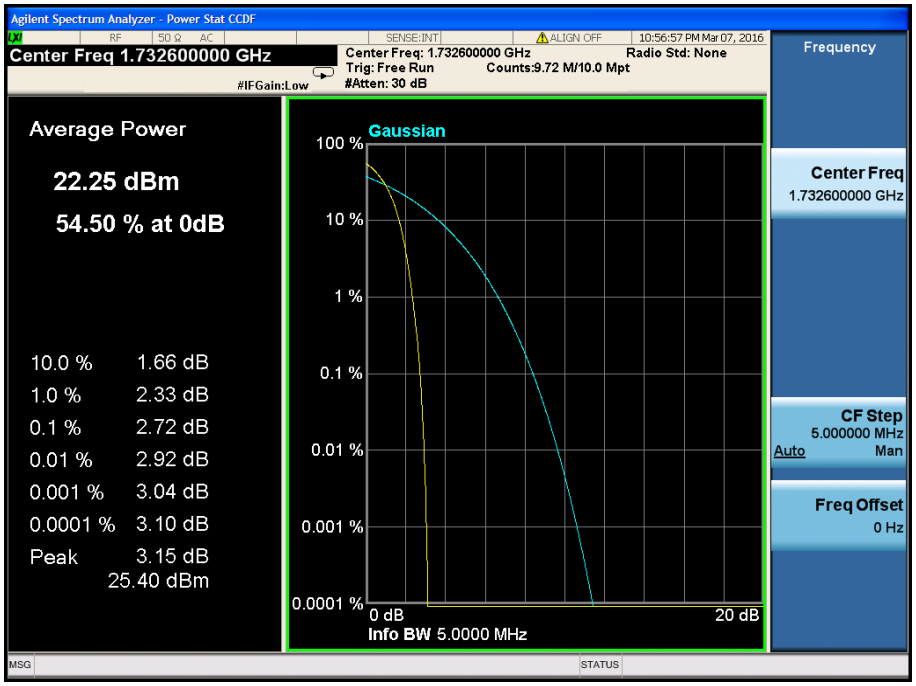
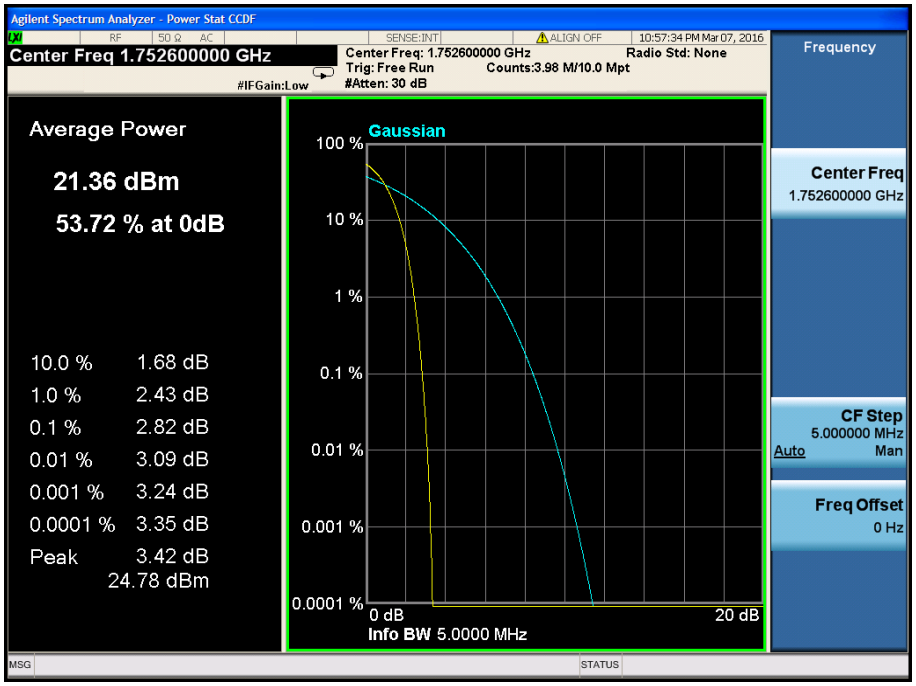
2.2.2.1.2 Test Channel = MCH



2.2.2.1.3 Test Channel =HCH



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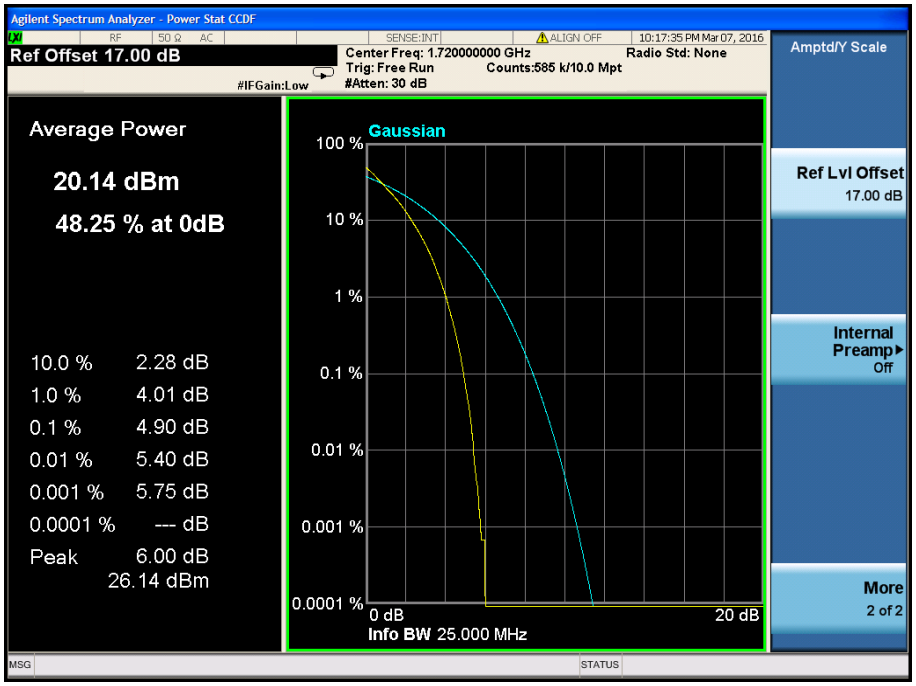
2.3 For LTE

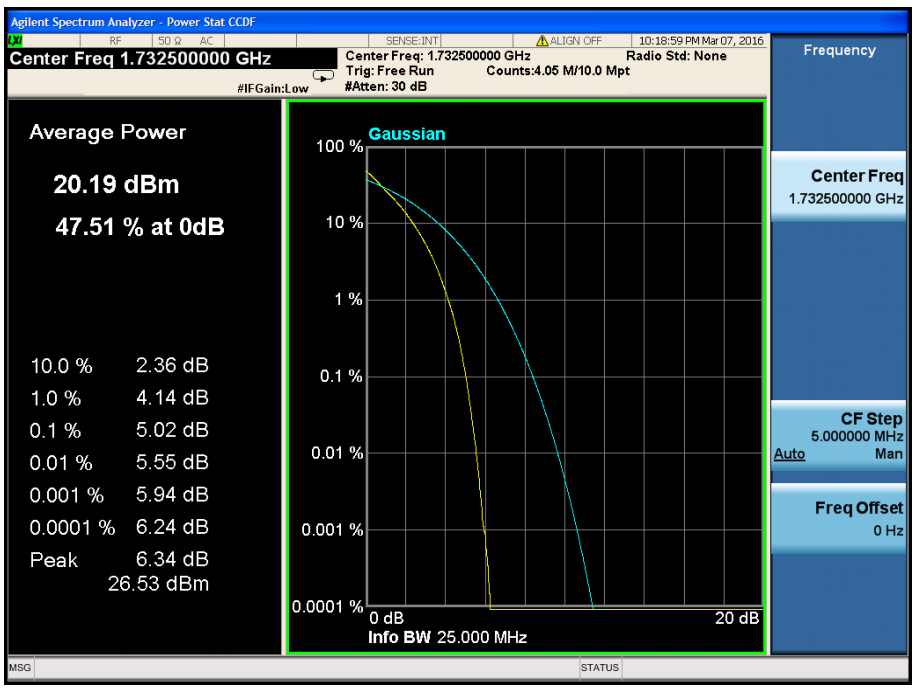
2.3.1 Test Band = LTE Band 4

2.3.1.1 Test Mode = LTE/TM1 20MHz

2.3.1.1.1 Test Channel = LCH



2.3.1.1.2 Test Channel = MCH



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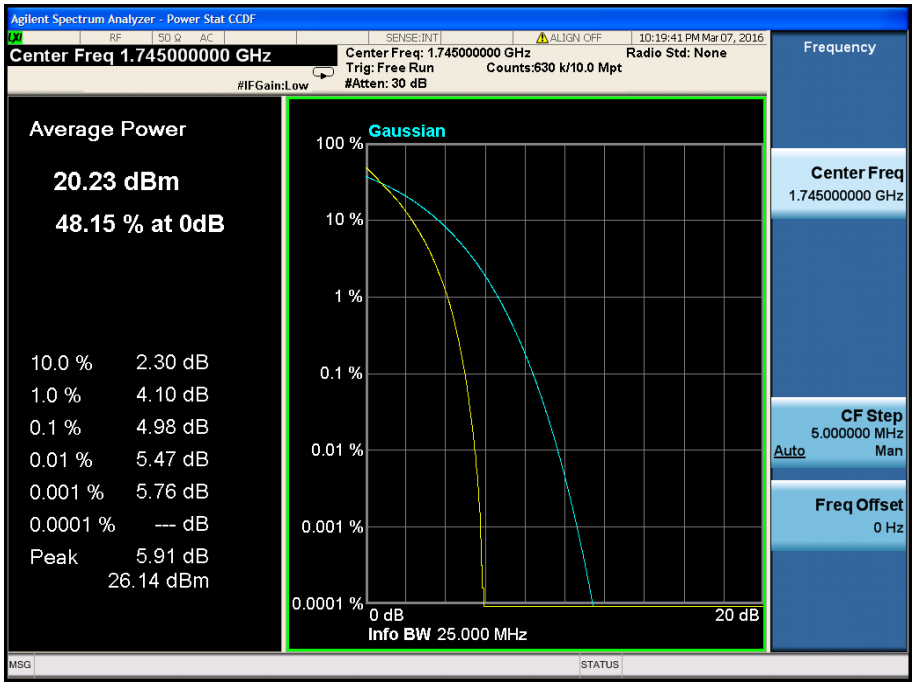
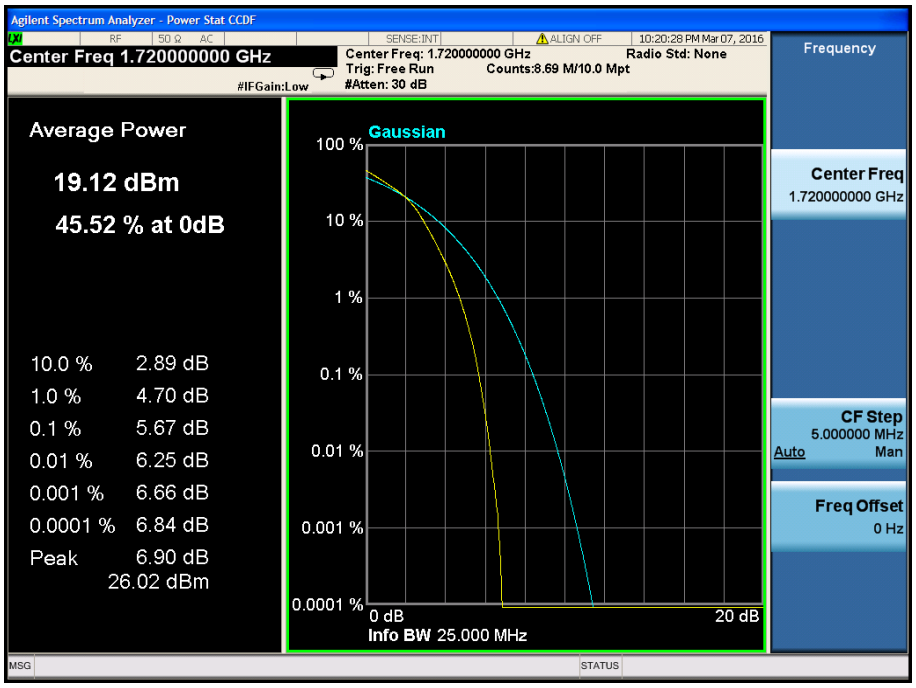
2.3.1.1.3 Test Channel = HCH



2.3.1.2 Test Mode = LTE/TM2 20MHz

2.3.1.2.1 Test Channel = LCH



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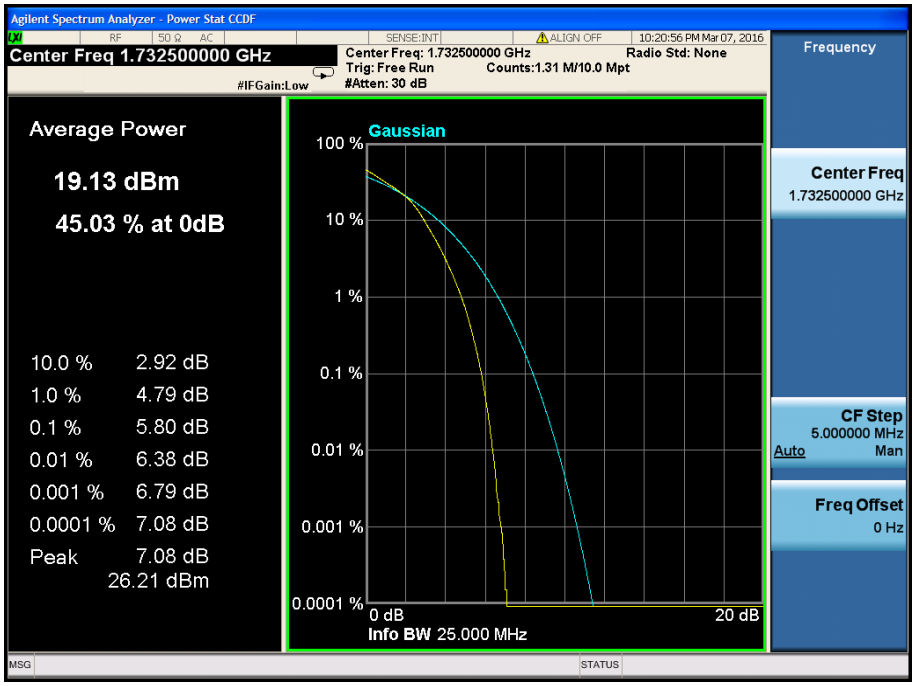
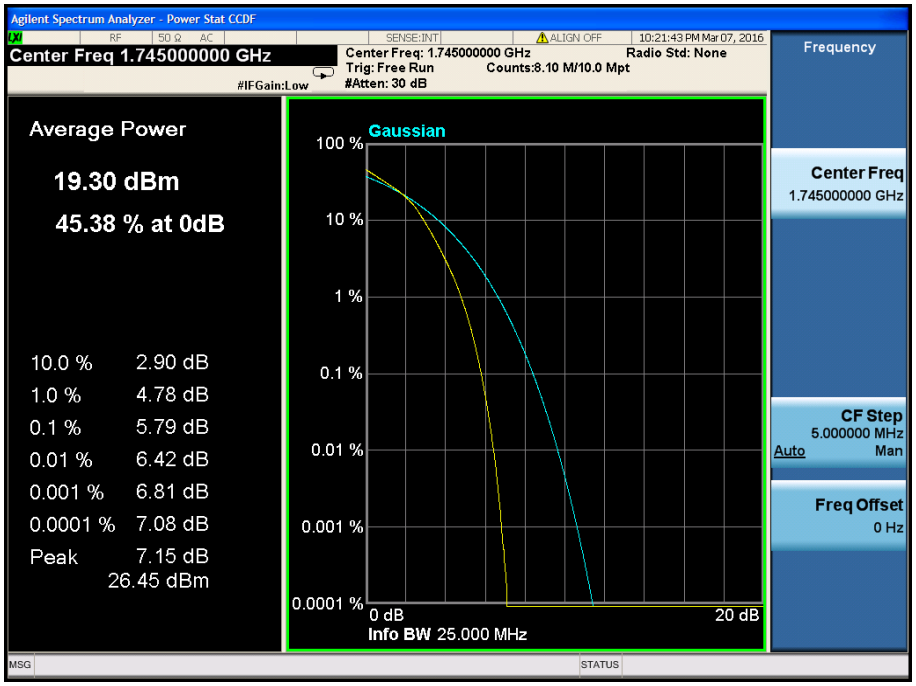
2.3.1.2.2 Test Channel = MCH



2.3.1.2.3 Test Channel = HCH



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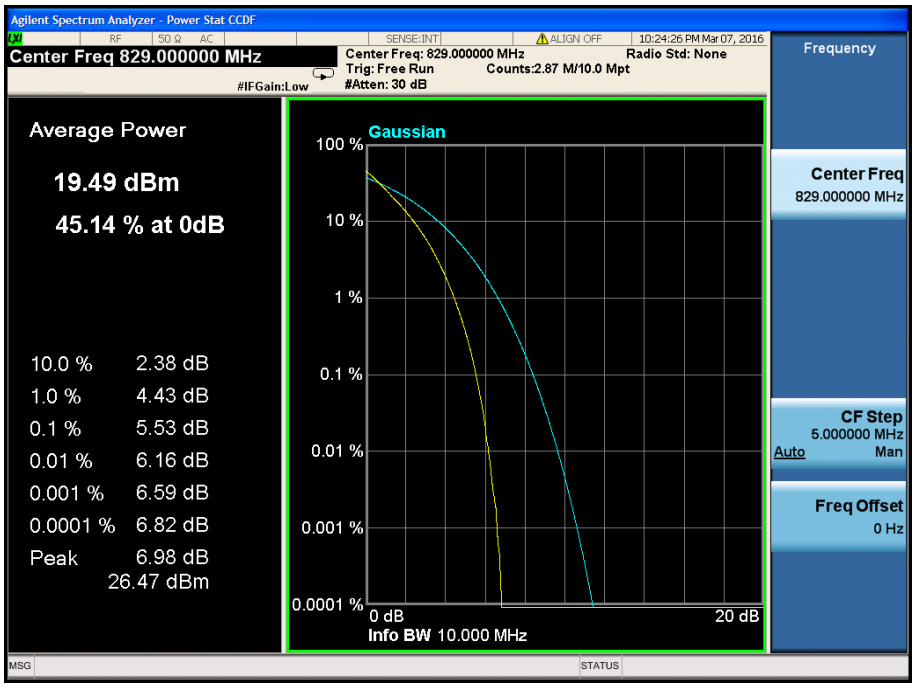
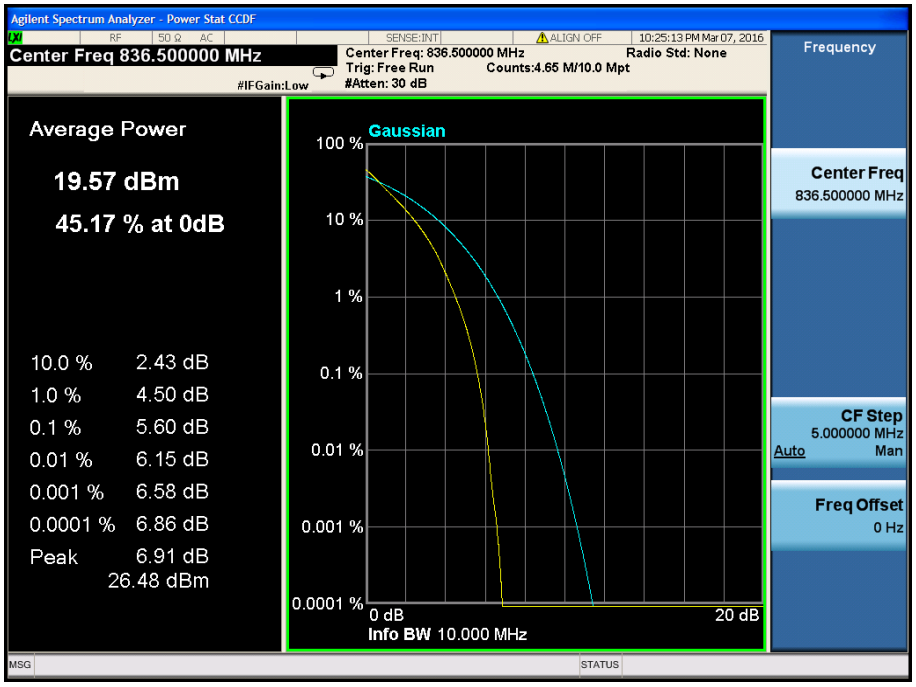
2.3.2 Test Band = LTE Band 5

2.3.2.1 Test Mode = LTE/TM1 10MHz

2.3.2.1.1 Test Channel = LCH



2.3.2.1.2 Test Channel = MCH



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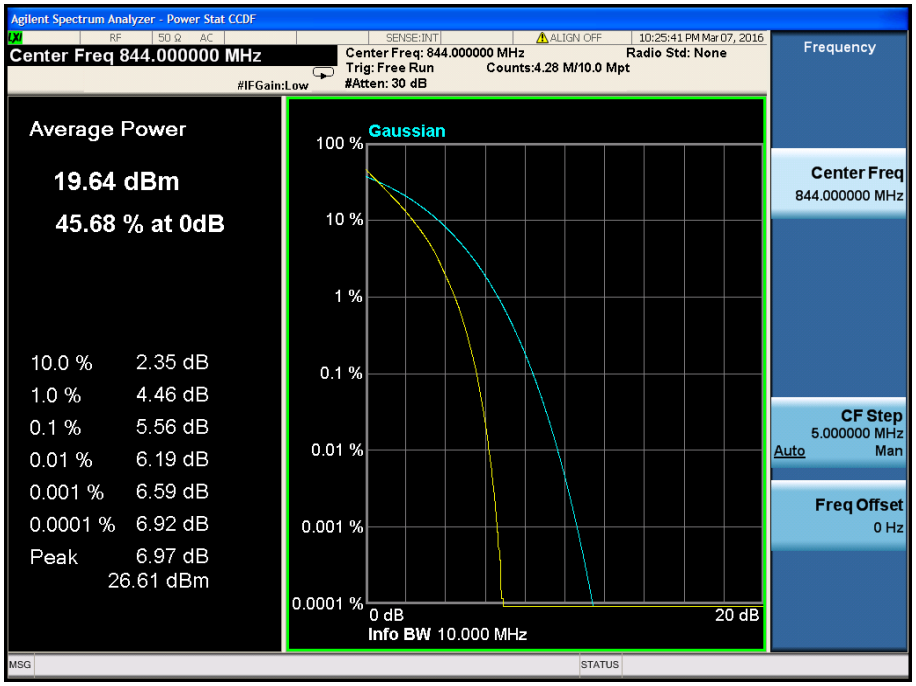
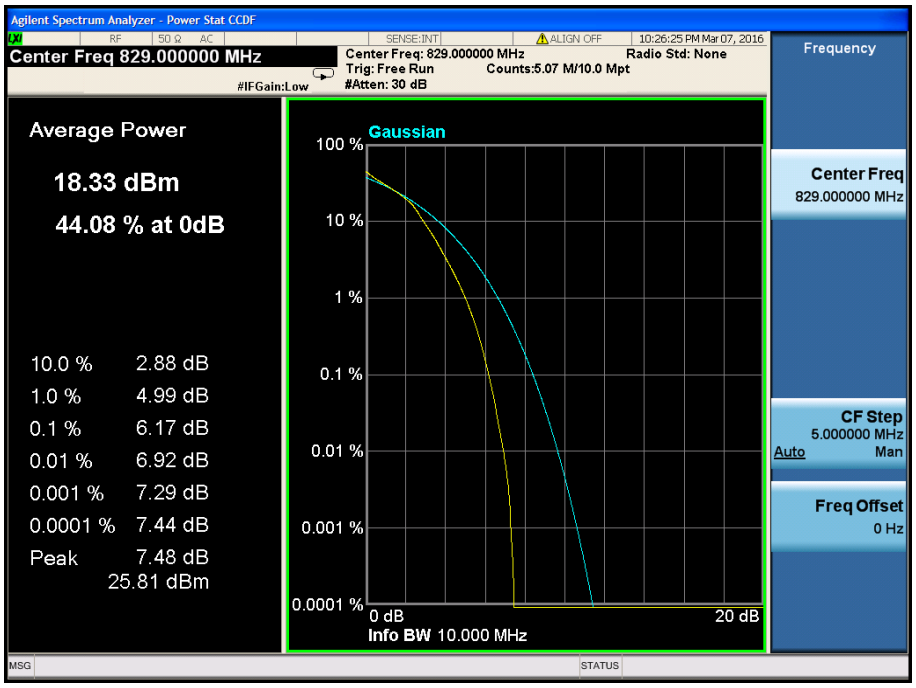
2.3.2.1.3 Test Channel = HCH



2.3.2.2 Test Mode = LTE/TM2 10MHz

2.3.2.2.1 Test Channel = LCH



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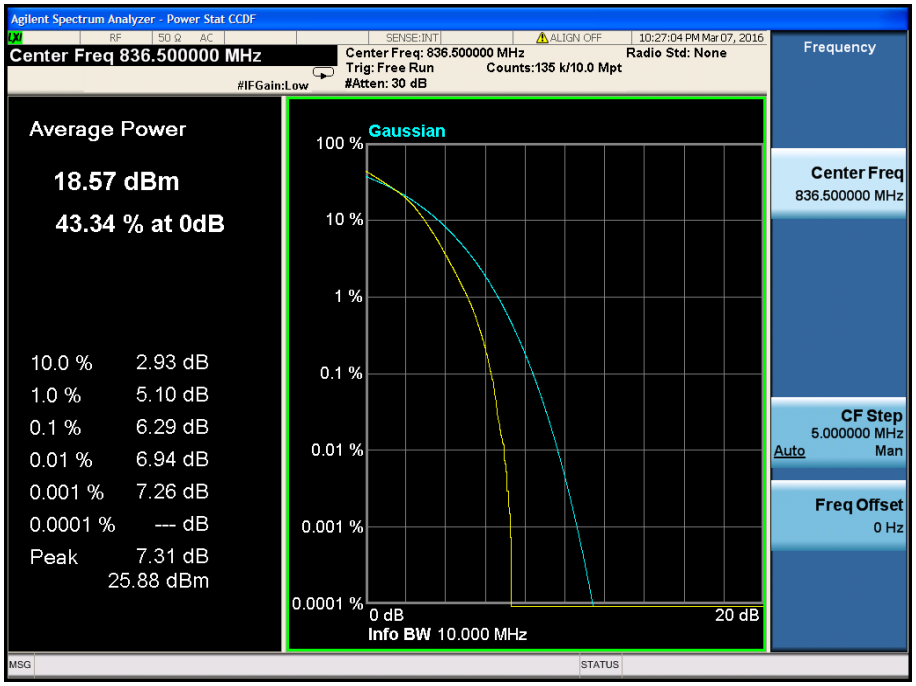
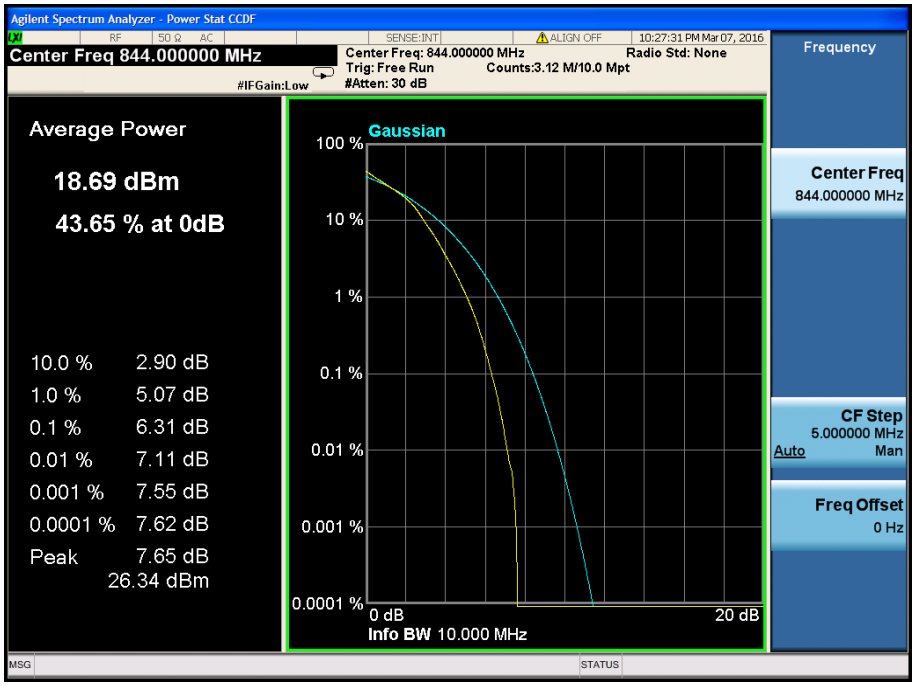
2.3.2.2.2 Test Channel = MCH



2.3.2.2.3 Test Channel = HCH



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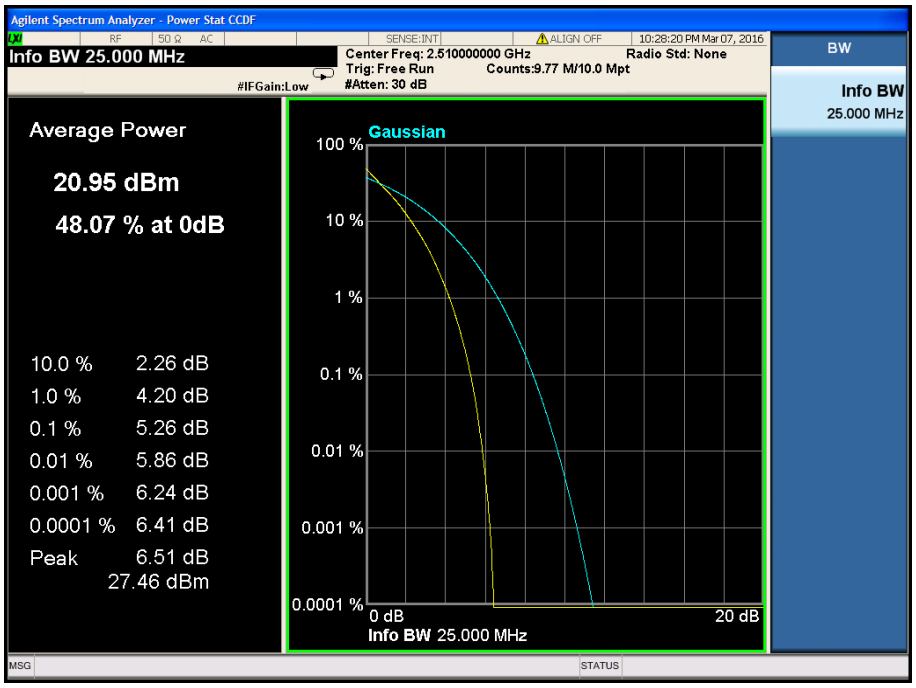
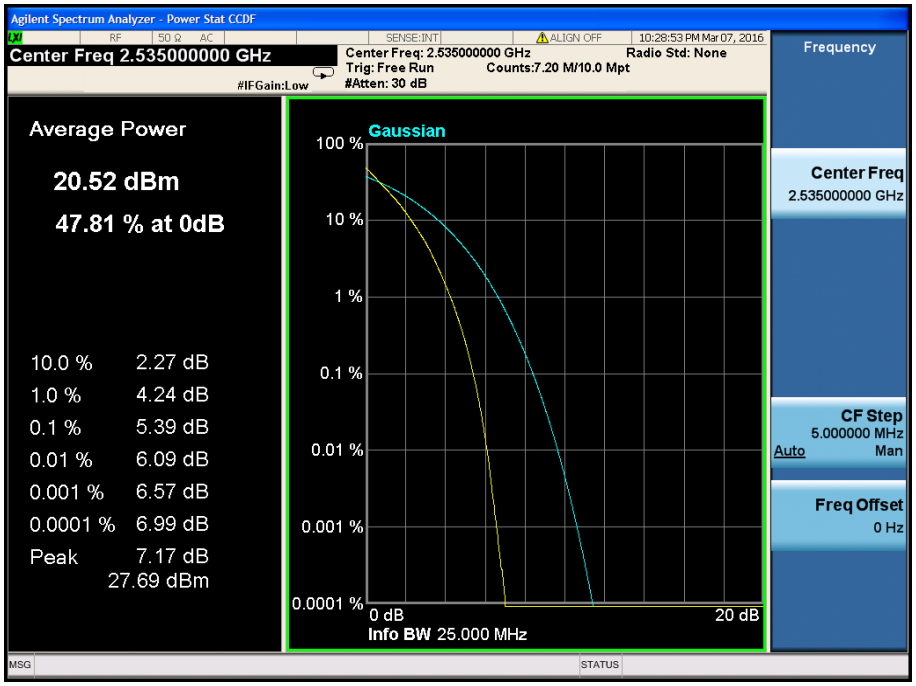
2.3.3 Test Band = LTE Band 7

2.3.3.1 Test Mode = LTE/TM1 20MHz

2.3.3.1.1 Test Channel = LCH



2.3.3.1.2 Test Channel = MCH



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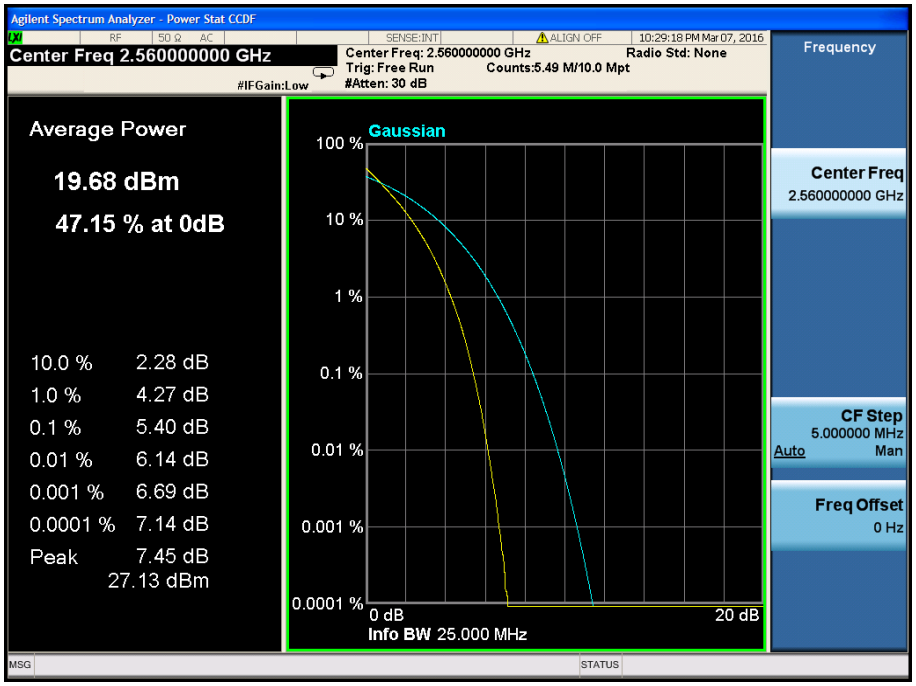
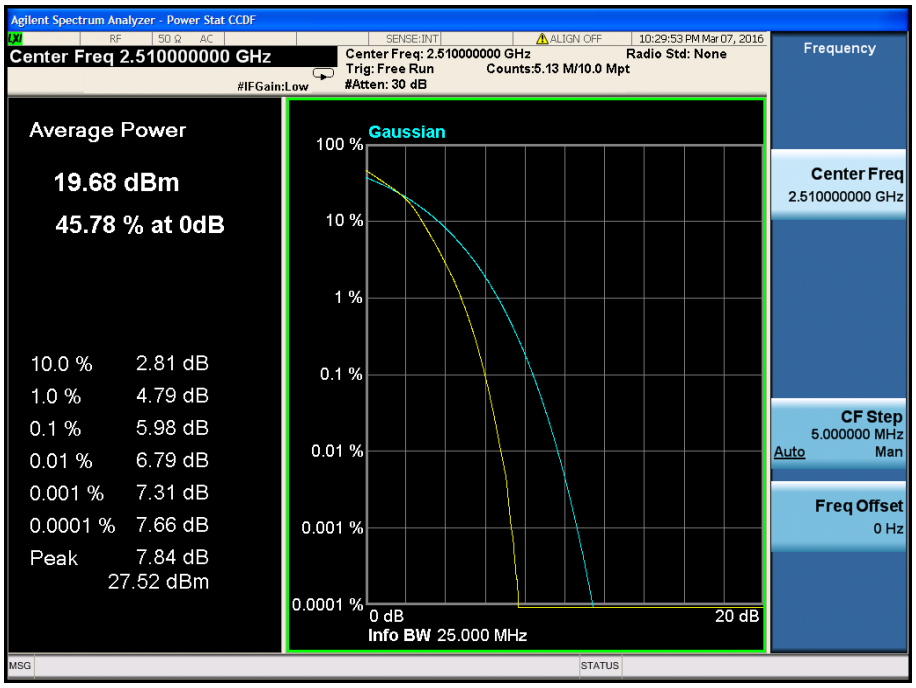
2.3.3.1.3 Test Channel = HCH



2.3.3.2 Test Mode = LTE/TM2 20MHz

2.3.3.2.1 Test Channel = LCH



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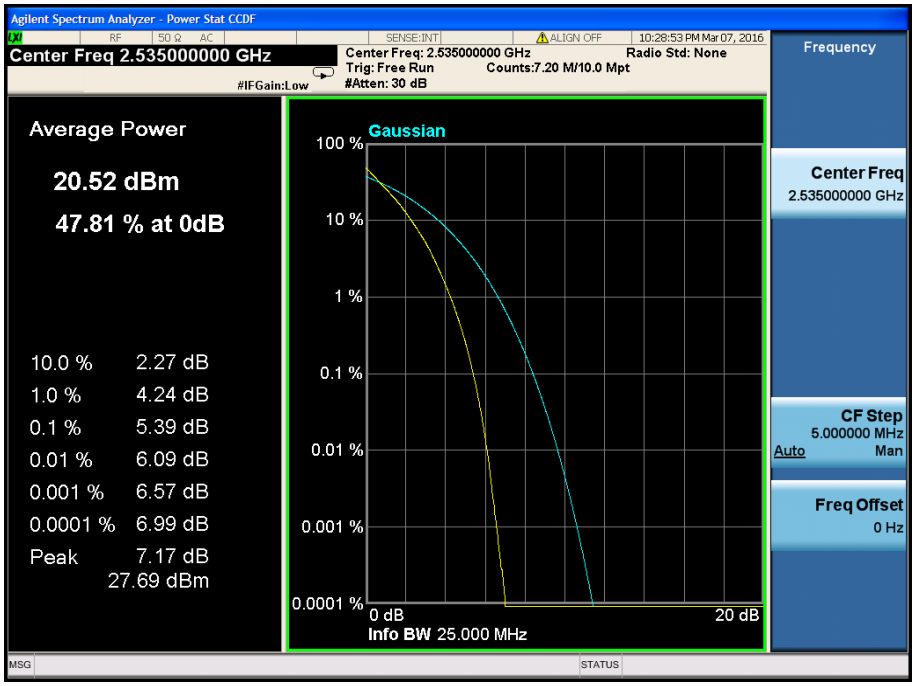
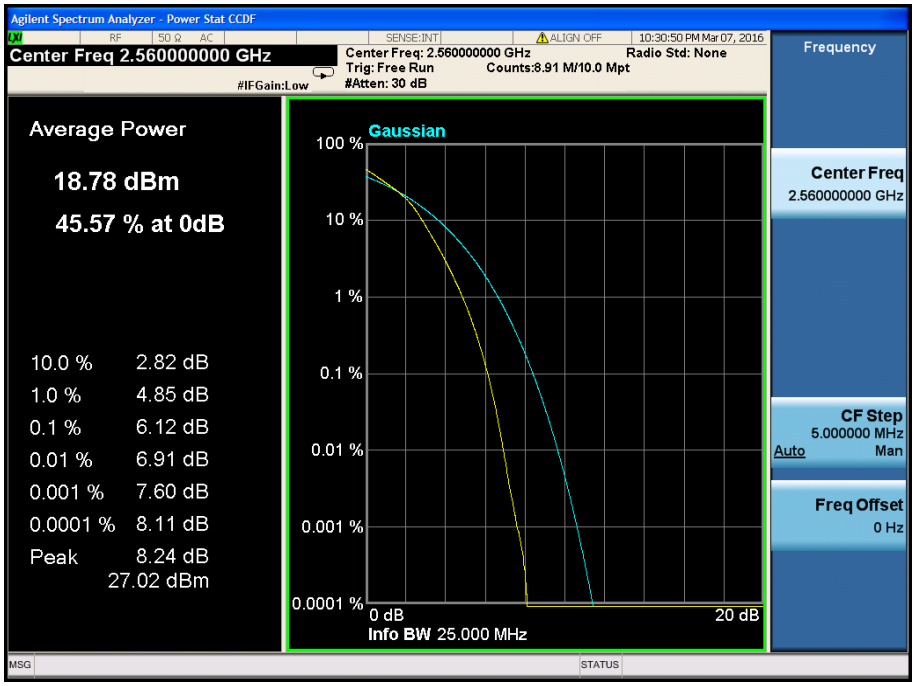
2.3.3.2.2 Test Channel = MCH



2.3.3.2.3 Test Channel = HCH



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3 Modulation Characteristics

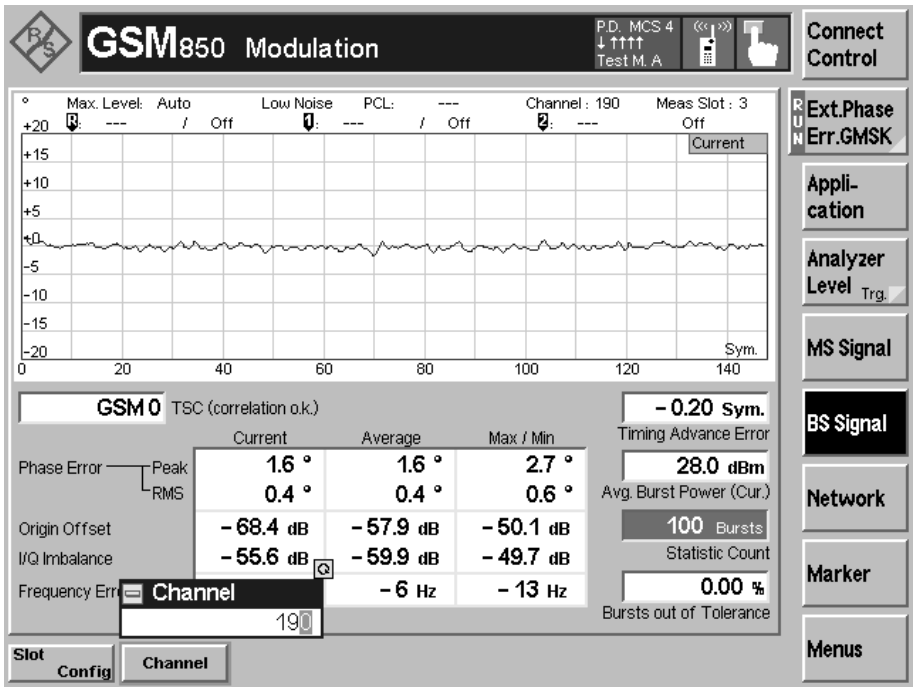
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



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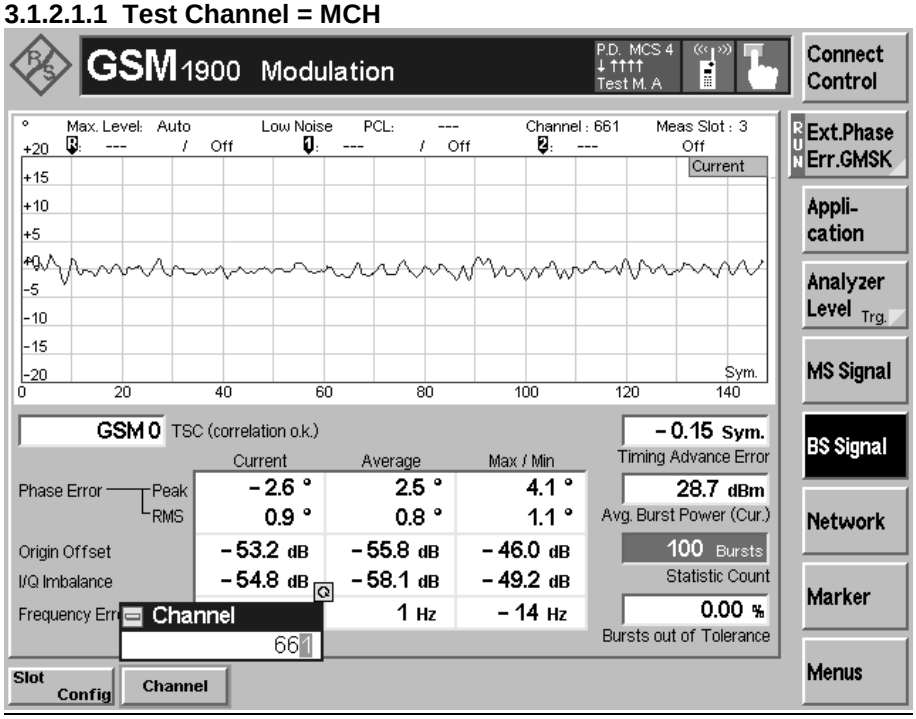
3.1.2 Test Band = GSM1900

3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



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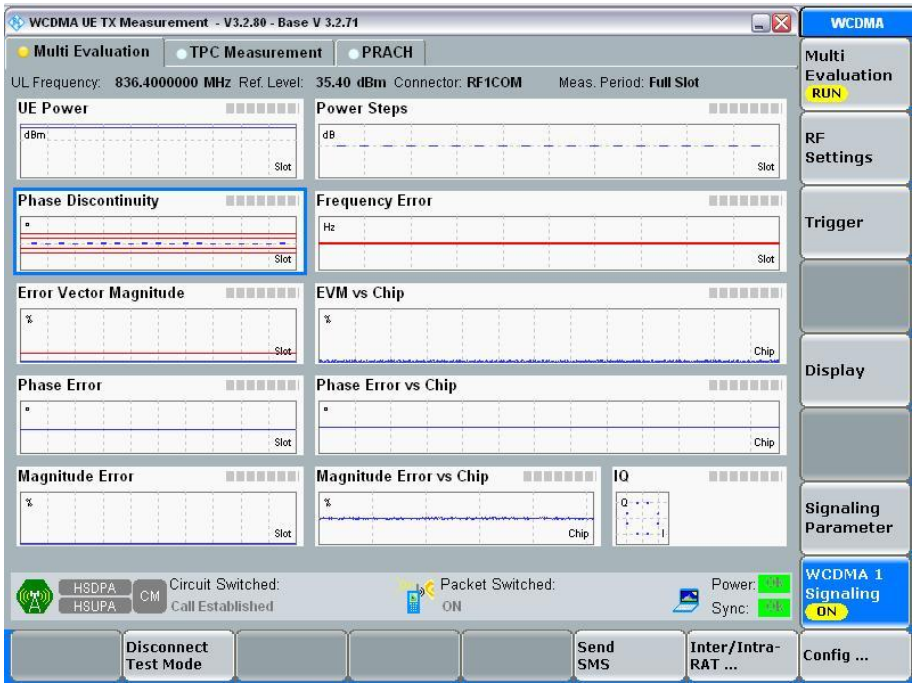
3.2 For WCDMA

3.2.1 Test Band = WCDMA 850

3.2.1.1 Test Mode = WCDMA/TM1

3.2.1.1.1 Test Channel = MCH



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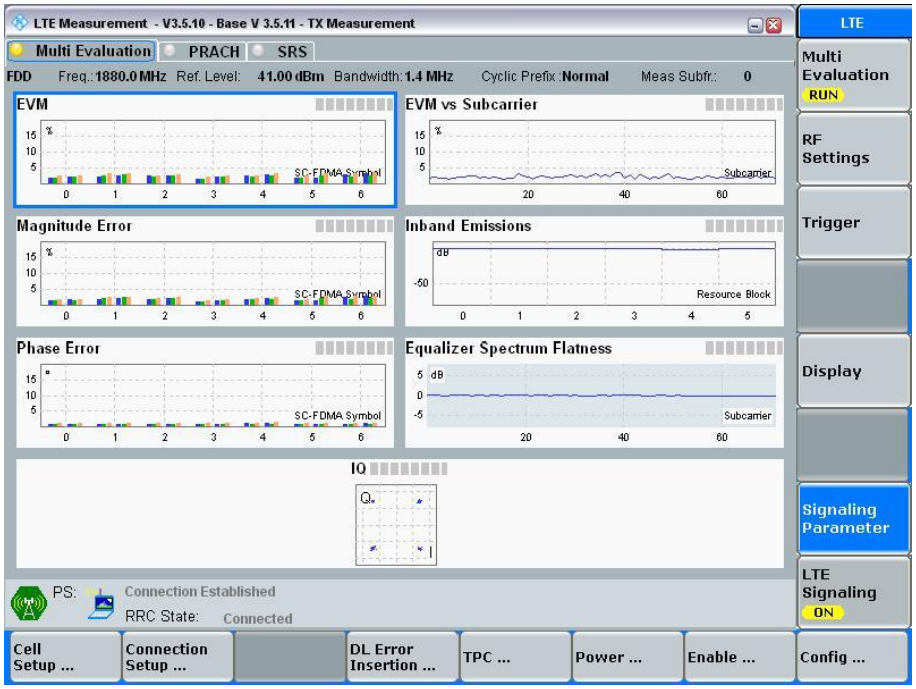
3.3 For LTE

3.3.1 Test Band = LTE Band 2

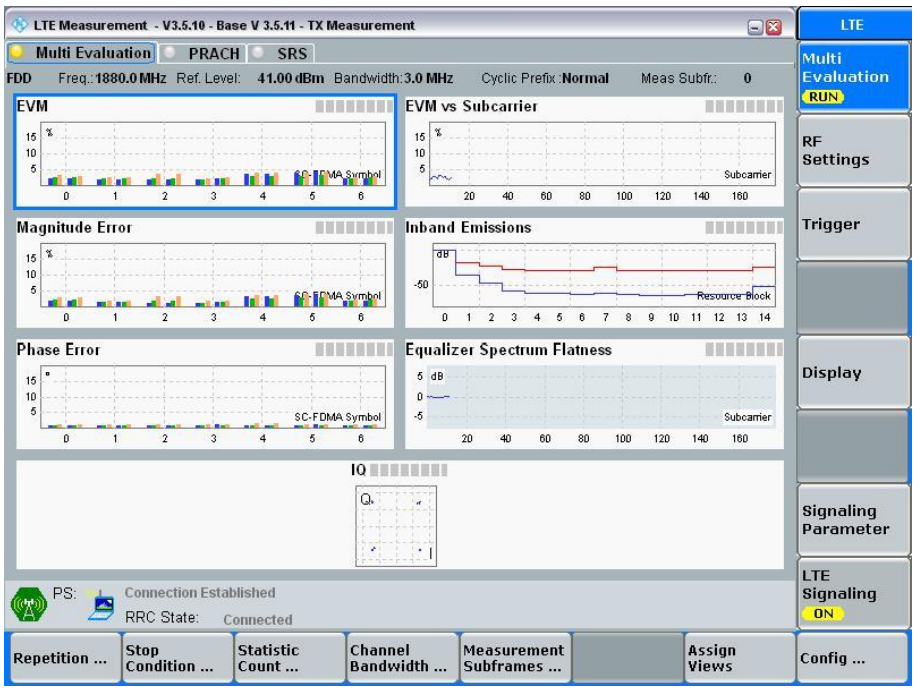
3.3.1.1 Test Mode = LTE/TM1 1.4MHz

3.3.1.1.1 Test Channel = MCH



3.3.1.2 Test Mode = LTE/TM1 3MHz

3.3.1.2.1 Test Channel = MCH



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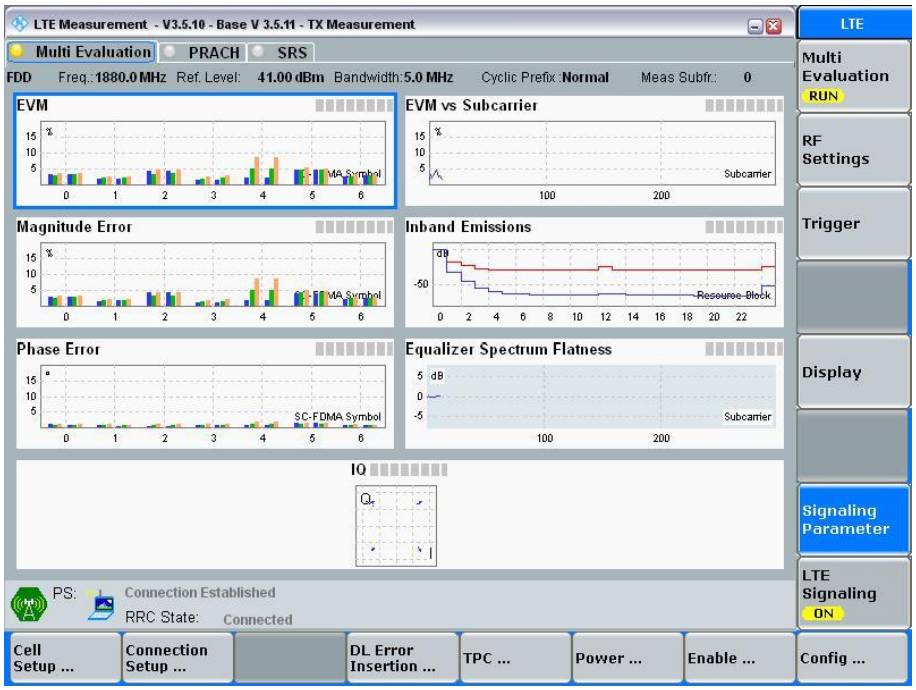
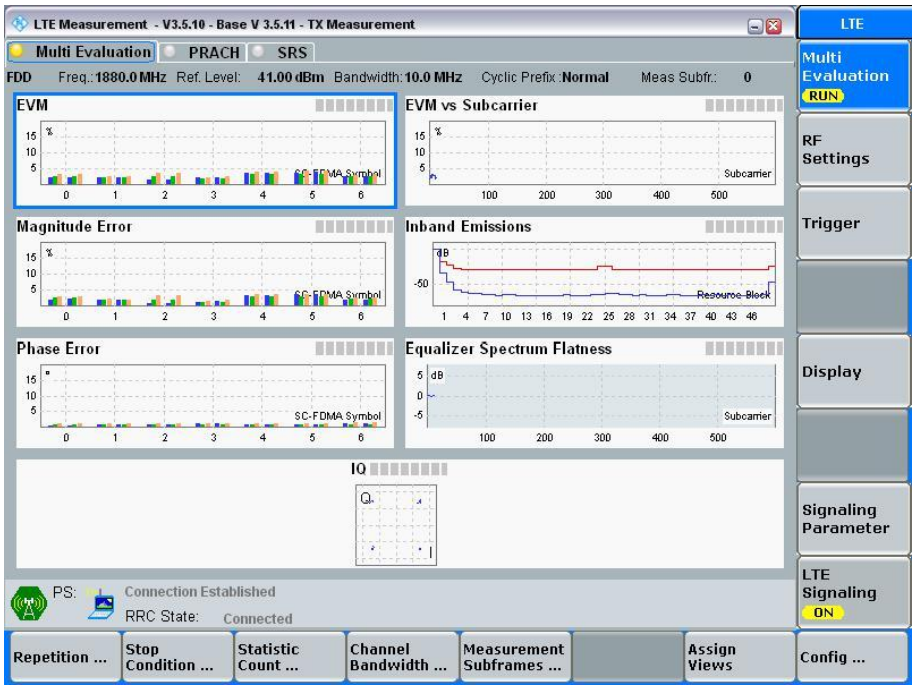
3.3.1.3 Test Mode = LTE/TM1 5MHz

3.3.1.3.1 Test Channel = MCH



3.3.1.4 Test Mode = LTE/TM1 10MHz

3.3.1.4.1 Test Channel = MCH



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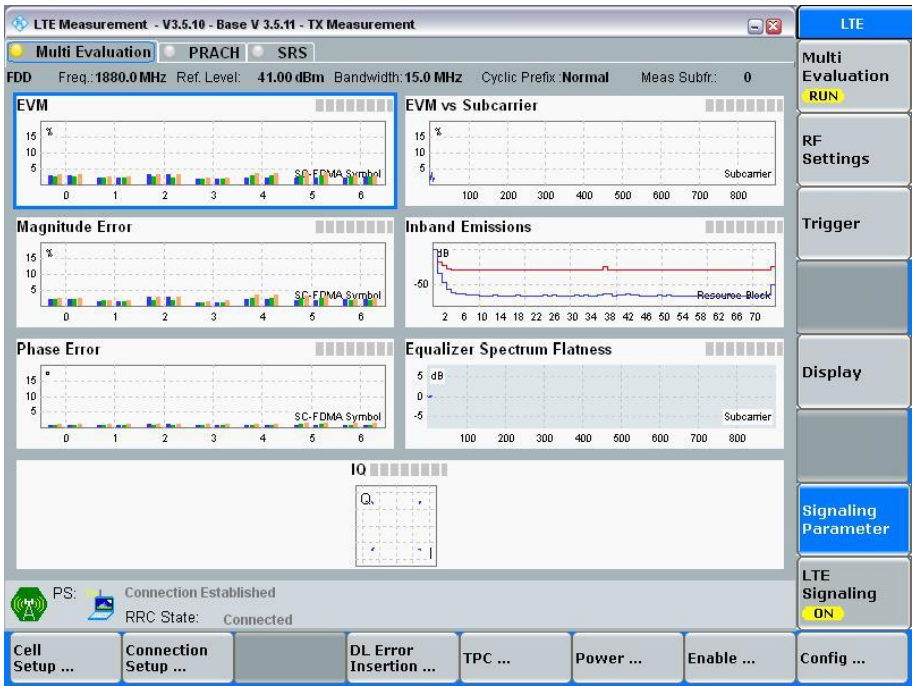
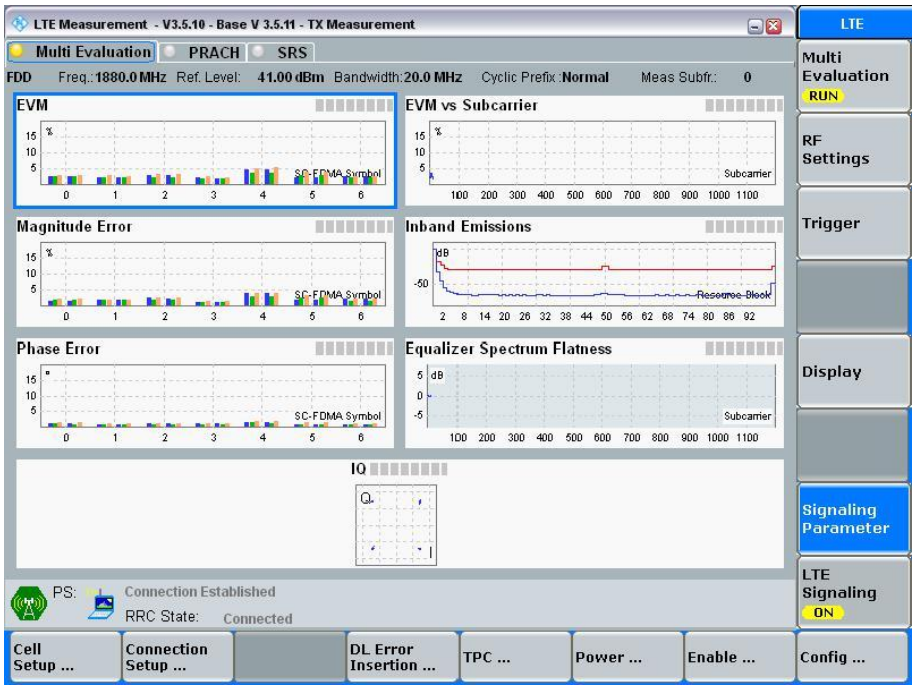
3.3.1.5 Test Mode = LTE/TM1 15MHz

3.3.1.5.1 Test Channel = MCH



3.3.1.6 Test Mode = LTE/TM1 20MHz

3.3.1.6.1 Test Channel = MCH



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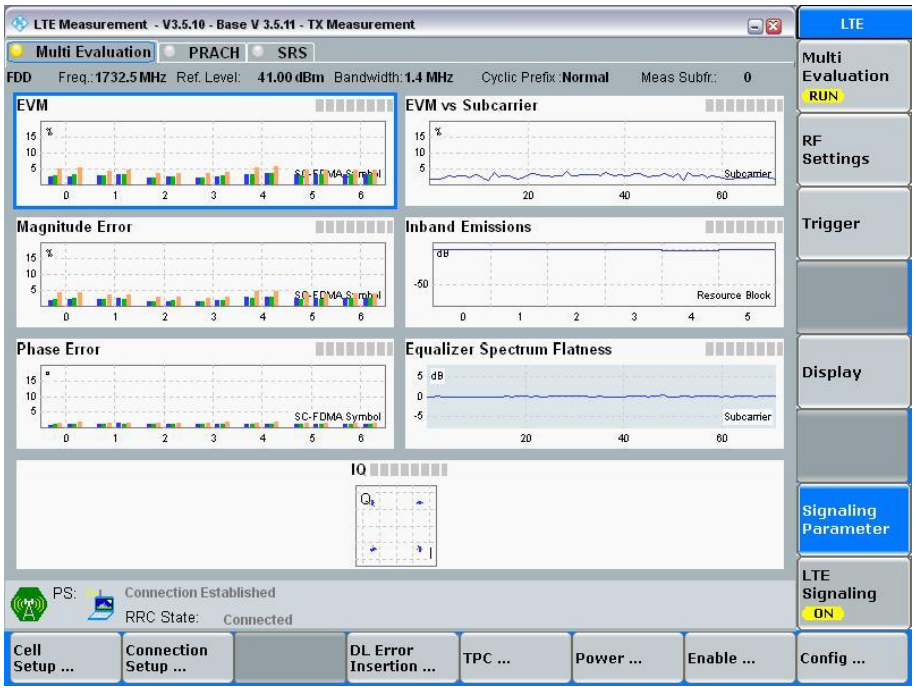
3.3.2 Test Band = LTE Band 4

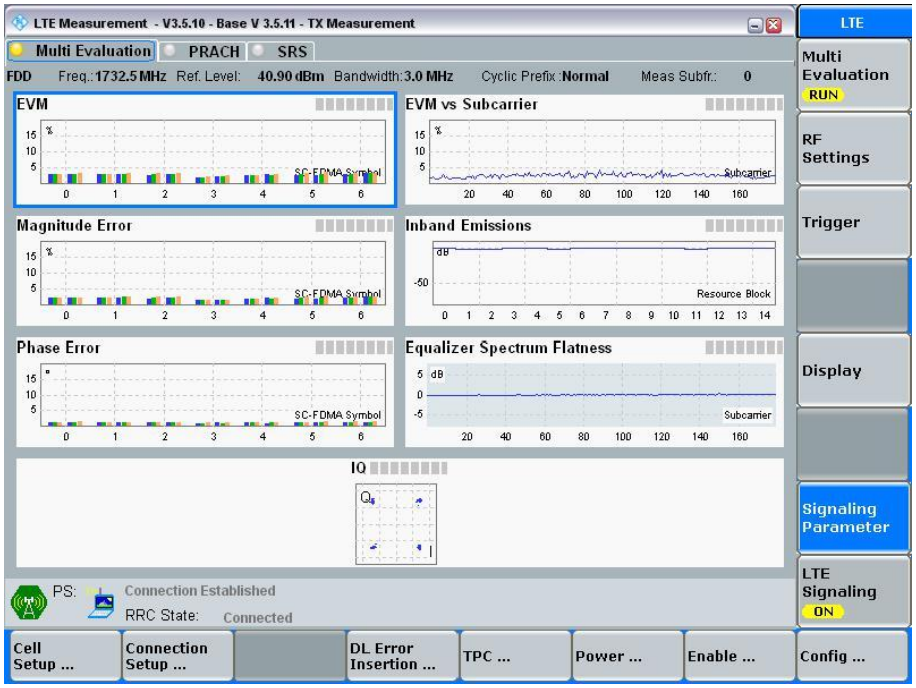
3.3.2.1 Test Mode = LTE/TM1 1.4MHz

3.3.2.1.1 Test Channel = MCH



3.3.2.2 Test Mode = LTE/TM1 3MHz

3.3.2.2.1 Test Channel = MCH



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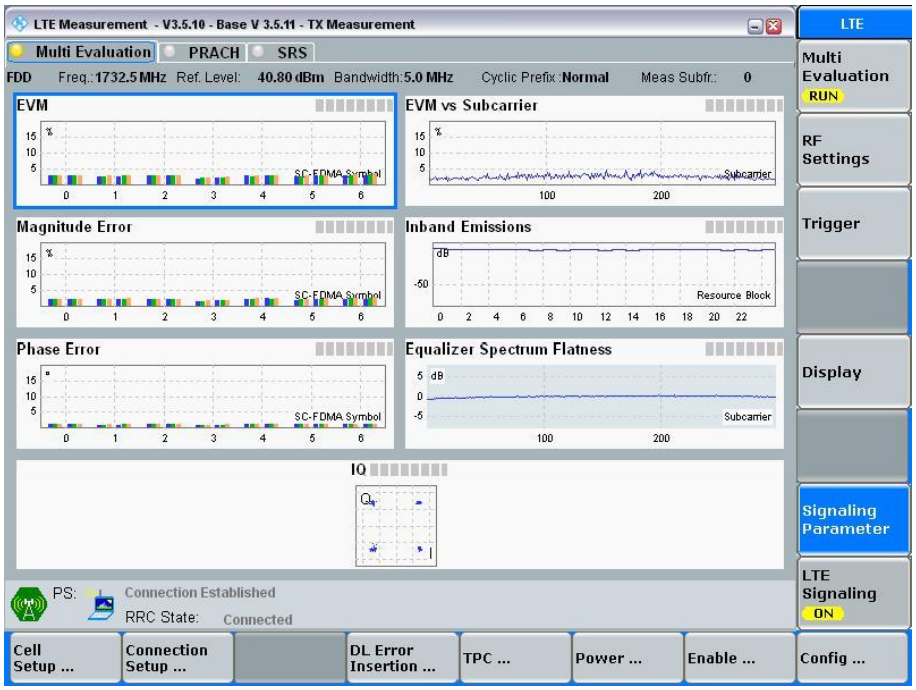
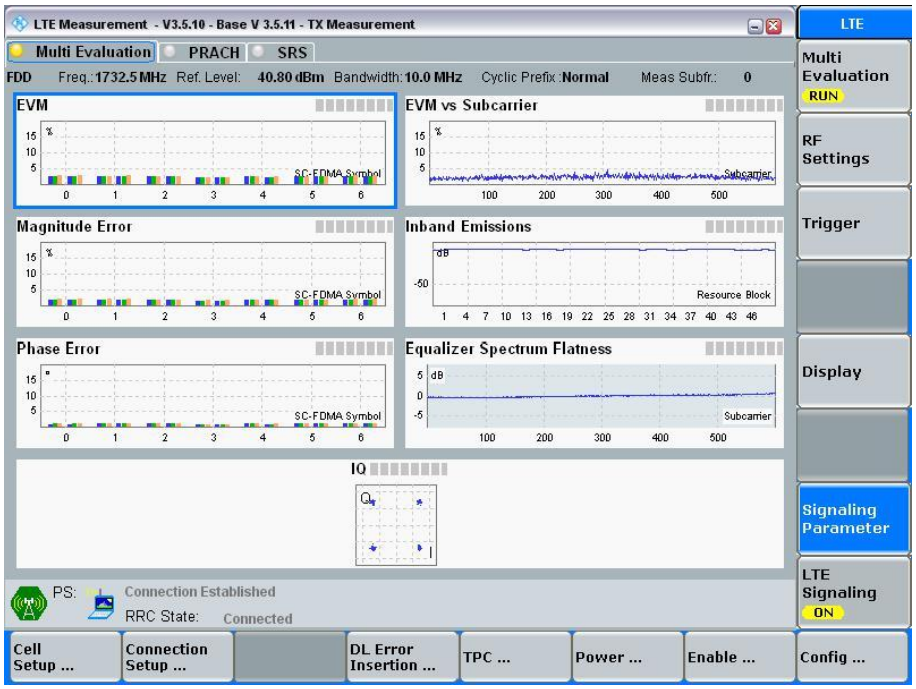
3.3.2.3 Test Mode = LTE/TM1 5MHz

3.3.2.3.1 Test Channel = MCH



3.3.2.4 Test Mode = LTE/TM1 10MHz

3.3.2.4.1 Test Channel = MCH



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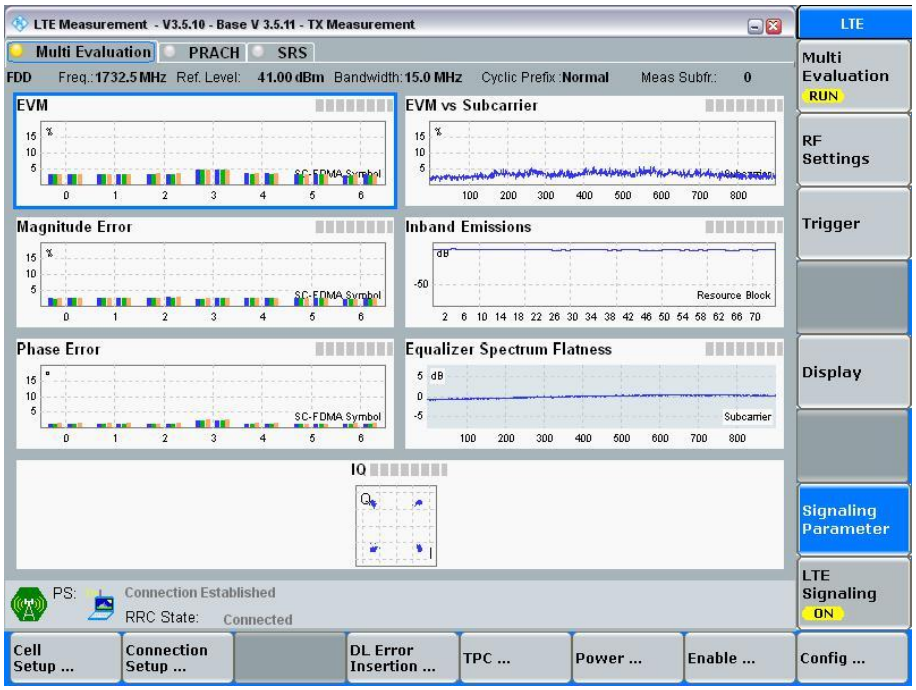
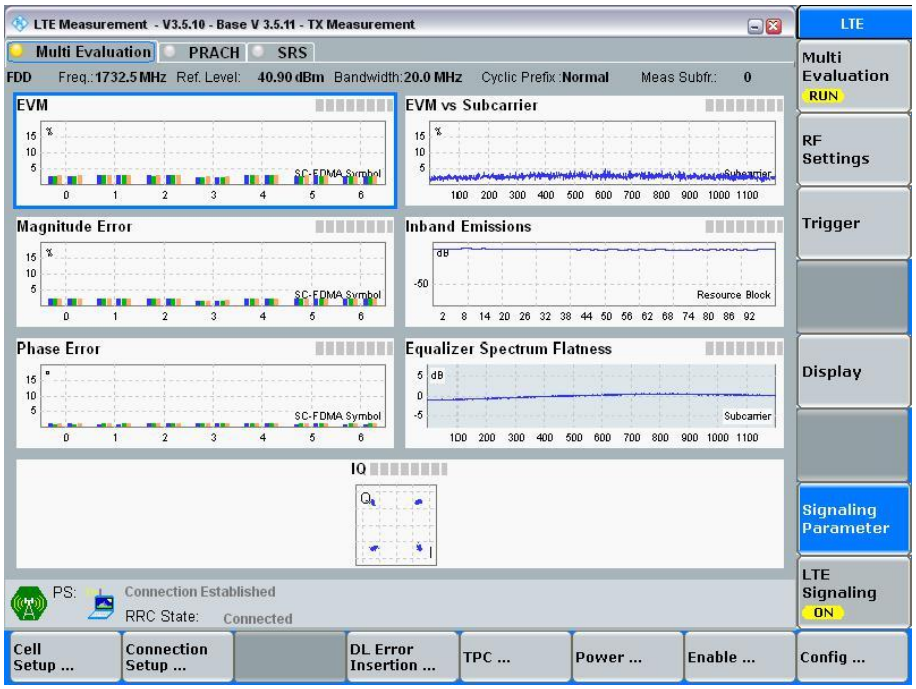
3.3.2.5 Test Mode = LTE/TM1 15MHz

3.3.2.5.1 Test Channel = MCH



3.3.2.6 Test Mode = LTE/TM1 20MHz

3.3.2.6.1 Test Channel = MCH



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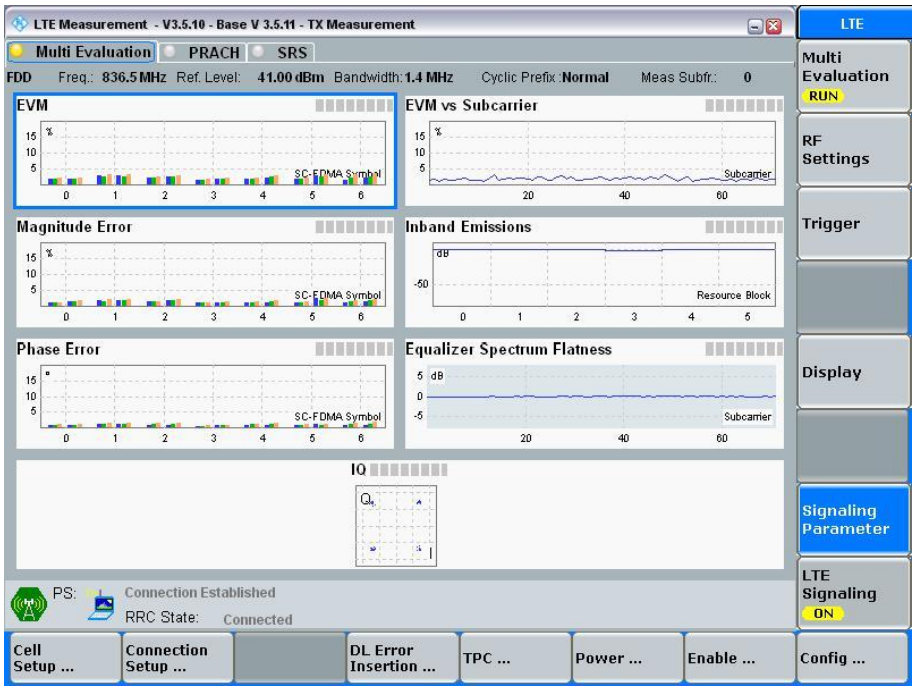
3.3.3 Test Band = LTE Band 5

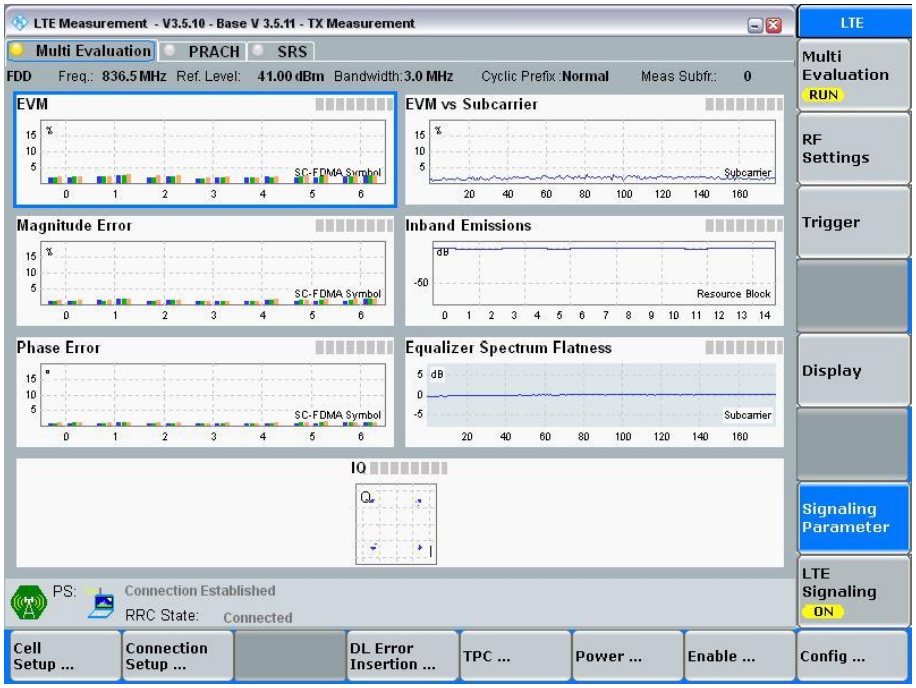
3.3.3.1 Test Mode = LTE/TM1 1.4MHz

3.3.3.1.1 Test Channel = MCH



3.3.3.2 Test Mode = LTE/TM1 3MHz

3.3.3.2.1 Test Channel = MCH



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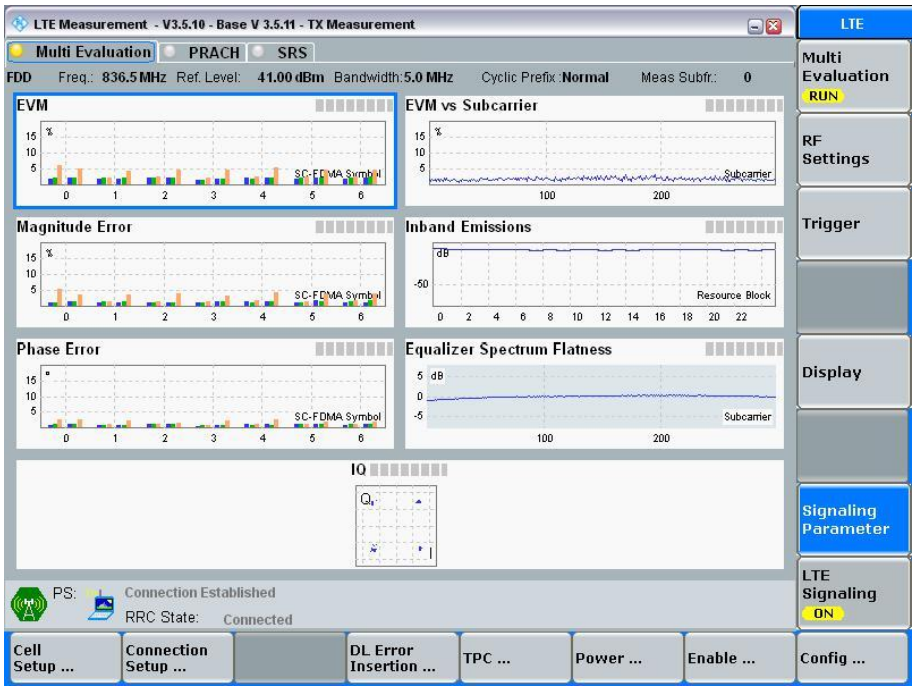
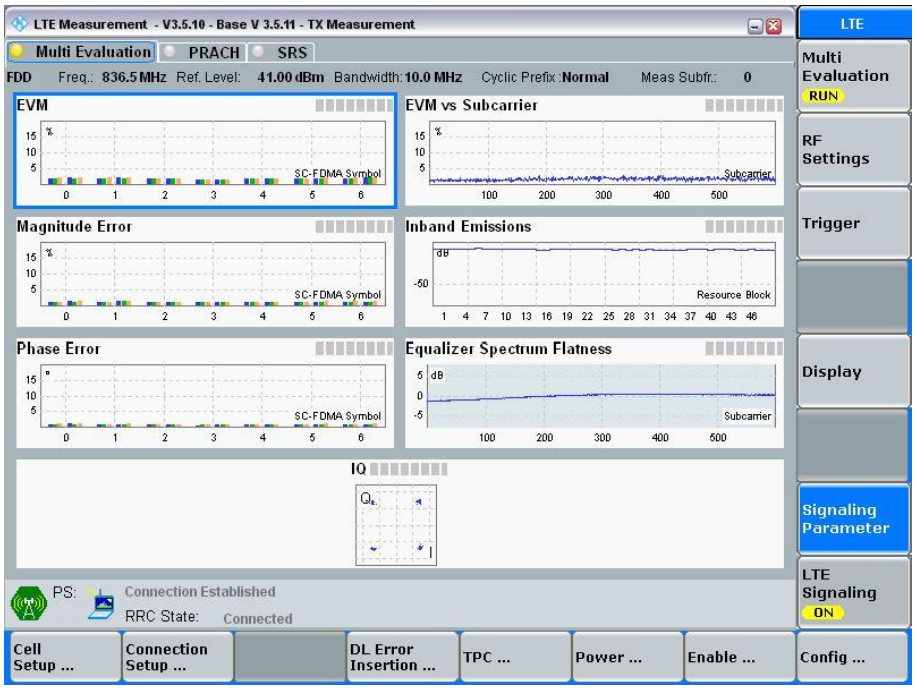
3.3.3.3 Test Mode = LTE/TM1 5MHz

3.3.3.3.1 Test Channel = MCH



3.3.3.4 Test Mode = LTE/TM1 10MHz

3.3.3.4.1 Test Channel = MCH



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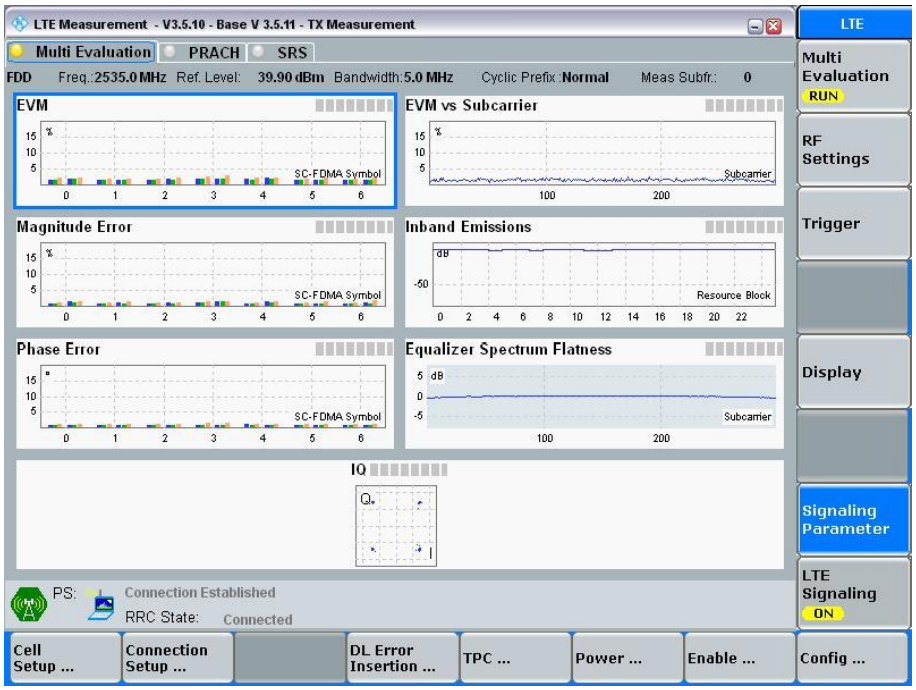
3.3.4 Test Band = LTE Band 7

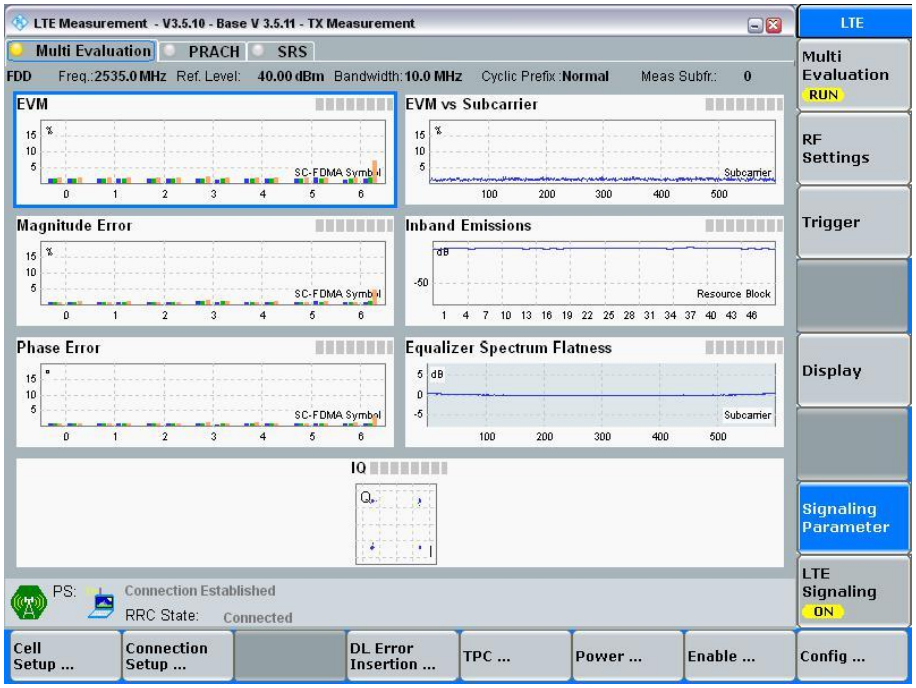
3.3.4.1 Test Mode = LTE/TM1 5MHz

3.3.4.1.1 Test Channel = MCH



3.3.4.2 Test Mode = LTE/TM1 10MHz

3.3.4.2.1 Test Channel = MCH



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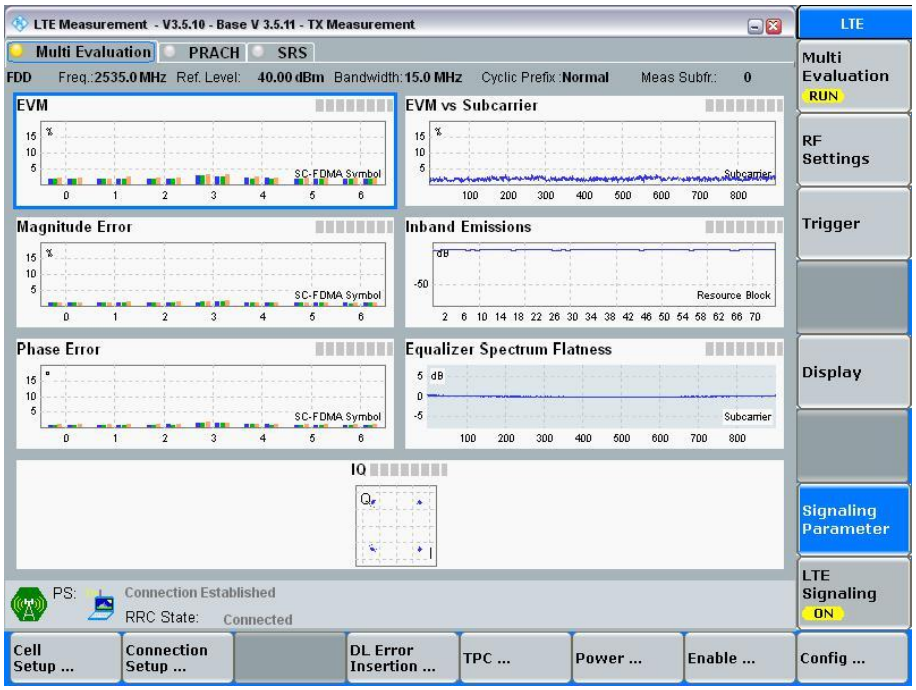
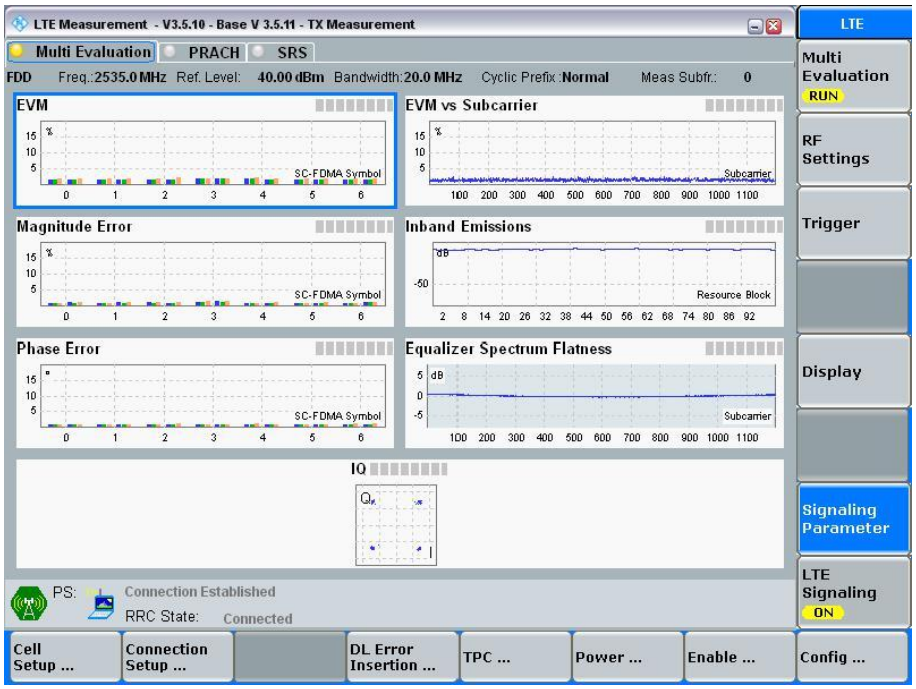
3.3.4.3 Test Mode = LTE/TM1 15MHz

3.3.4.3.1 Test Channel = MCH



3.3.4.4 Test Mode = LTE/TM1 20MHz

3.3.4.4.1 Test Channel = MCH



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4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM850	GSM/TM1	LCH	244.50	324.8	PASS
		MCH	245.60	315.6	PASS
		HCH	246.57	316.6	PASS
	GSM/TM2	LCH	245.90	312.8	PASS
		MCH	247.25	310.7	PASS
		HCH	244.75	314.8	PASS
GSM1900	GSM/TM1	LCH	244.18	319.2	PASS
		MCH	244.54	323.4	PASS
		HCH	243.43	315.5	PASS
	GSM/TM2	LCH	251.69	316.6	PASS
		MCH	247.84	312.3	PASS
		HCH	245.46	312.7	PASS

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.2003	4.861	PASS
		MCH	4.2046	4.850	PASS
		HCH	4.1944	4.863	PASS
WCDMA1700	UMTS/TM1	LCH	4.1917	4.850	PASS
		MCH	4.2008	4.843	PASS
		HCH	4.2117	4.871	PASS
WCDMA1900	UMTS/TM1	LCH	4.1971	4.856	PASS
		MCH	4.2091	4.867	PASS
		HCH	4.1990	4.848	PASS

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Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
LTE B2	LTE TM1/1.4MHz	LCH	1.0980	1.271	PASS
		MCH	1.0993	1.278	PASS
		HCH	1.1058	1.270	PASS
	LTE TM2/1.4MHz	LCH	1.1036	1.284	PASS
		MCH	1.0995	1.264	PASS
		HCH	1.0985	1.270	PASS
	LTE TM1/ 3MHz	LCH	2.6988	2.957	PASS
		MCH	2.7054	2.958	PASS
		HCH	2.7023	2.961	PASS
	LTE TM2/ 3MHz	LCH	2.6986	2.965	PASS
		MCH	2.6968	2.966	PASS
		HCH	2.6933	2.962	PASS
	LTE TM1/ 5MHz	LCH	4.5255	5.054	PASS
		MCH	4.5197	5.049	PASS
		HCH	4.5358	5.071	PASS
	LTE TM2/ 5MHz	LCH	4.5218	5.069	PASS
		MCH	4.5485	5.086	PASS
		HCH	4.5495	5.103	PASS
	LTE TM1/ 10MHz	LCH	8.9819	9.905	PASS
		MCH	8.9782	9.903	PASS
		HCH	8.9396	9.691	PASS
	LTE TM2/ 10MHz	LCH	8.9769	9.807	PASS
		MCH	8.9708	9.902	PASS
		HCH	8.9446	9.833	PASS
	LTE TM1/ 15MHz	LCH	13.508	14.83	PASS
		MCH	13.430	14.73	PASS
		HCH	13.415	14.71	PASS
	LTE TM2/ 15MHz	LCH	13.490	14.79	PASS
		MCH	13.477	14.71	PASS
		HCH	13.421	14.70	PASS
	LTE TM1/ 20MHz	LCH	17.963	19.27	PASS
		MCH	17.915	19.39	PASS
		HCH	17.893	19.49	PASS
	LTE TM2/ 20MHz	LCH	17.986	19.54	PASS
		MCH	17.925	19.47	PASS
		HCH	17.888	19.45	PASS

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Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
LTE B4	LTE TM1/1.4MHz	LCH	1.1005	1.280	PASS
		MCH	1.1078	1.276	PASS
		HCH	1.1015	1.306	PASS
	LTE TM2/1.4MHz	LCH	1.0998	1.263	PASS
		MCH	1.0998	1.273	PASS
		HCH	1.1067	1.282	PASS
	LTE TM1/ 3MHz	LCH	2.6972	2.954	PASS
		MCH	2.7026	2.968	PASS
		HCH	2.7041	2.966	PASS
	LTE TM2/ 3MHz	LCH	2.6955	2.983	PASS
		MCH	2.6952	2.959	PASS
		HCH	2.6930	2.968	PASS
	LTE TM1/ 5MHz	LCH	4.5323	5.077	PASS
		MCH	4.5271	5.100	PASS
		HCH	4.5210	5.085	PASS
	LTE TM2/ 5MHz	LCH	4.5161	5.065	PASS
		MCH	4.5454	5.063	PASS
		HCH	4.5386	5.104	PASS
	LTE TM1/ 10MHz	LCH	8.9594	9.883	PASS
		MCH	8.9541	9.781	PASS
		HCH	8.9537	9.888	PASS
	LTE TM2/ 10MHz	LCH	8.9436	9.717	PASS
		MCH	8.9736	9.862	PASS
		HCH	8.9599	9.895	PASS
	LTE TM1/ 15MHz	LCH	13.438	14.73	PASS
		MCH	13.452	14.83	PASS
		HCH	13.436	14.75	PASS
	LTE TM2/ 15MHz	LCH	13.429	14.74	PASS
		MCH	13.493	14.90	PASS
		HCH	13.448	14.64	PASS
	LTE TM1/ 20MHz	LCH	17.900	19.30	PASS
		MCH	17.925	19.42	PASS
		HCH	17.889	19.57	PASS
	LTE TM2/ 20MHz	LCH	17.918	19.48	PASS
		MCH	17.966	19.69	PASS
		HCH	17.886	19.39	PASS

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Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
LTE B5	LTE TM1/1.4MHz	LCH	1.0984	1.275	PASS
		MCH	1.1019	1.301	PASS
		HCH	1.1019	1.295	PASS
	LTE TM2/1.4MHz	LCH	1.0947	1.264	PASS
		MCH	1.1004	1.262	PASS
		HCH	1.1049	1.272	PASS
	LTE TM1/ 3MHz	LCH	2.6969	2.952	PASS
		MCH	2.7074	2.975	PASS
		HCH	2.6998	2.964	PASS
	LTE TM2/ 3MHz	LCH	2.6995	3.000	PASS
		MCH	2.6945	2.958	PASS
		HCH	2.6900	2.957	PASS
	LTE TM1/ 5MHz	LCH	4.5399	5.098	PASS
		MCH	4.5284	5.094	PASS
		HCH	4.5146	5.057	PASS
	LTE TM2/ 5MHz	LCH	4.5182	5.062	PASS
		MCH	4.5501	5.093	PASS
		HCH	4.5424	5.108	PASS
	LTE TM1/ 10MHz	LCH	8.9772	9.899	PASS
		MCH	8.9772	9.902	PASS
		HCH	8.9737	9.804	PASS
	LTE TM2/ 10MHz	LCH	8.9640	9.769	PASS
		MCH	8.9928	9.892	PASS
		HCH	8.9576	9.893	PASS

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Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
LTE B7	LTE TM1/5MHz	LCH	4.5347	5.092	PASS
		MCH	4.5229	5.083	PASS
		HCH	4.5156	5.081	PASS
	LTE TM2/5MHz	LCH	4.5193	5.061	PASS
		MCH	4.5310	5.053	PASS
		HCH	4.5386	5.097	PASS
	LTE TM1/ 10MHz	LCH	8.9738	9.967	PASS
		MCH	8.9556	9.806	PASS
		HCH	8.9626	9.810	PASS
	LTE TM2/ 10MHz	LCH	8.9667	9.960	PASS
		MCH	8.9548	9.895	PASS
		HCH	8.9608	9.875	PASS
	LTE TM1/ 15MHz	LCH	13.489	14.86	PASS
		MCH	13.419	14.66	PASS
		HCH	13.451	14.79	PASS
	LTE TM2/ 15MHz	LCH	13.475	14.74	PASS
		MCH	13.457	14.75	PASS
		HCH	13.466	14.70	PASS
	LTE TM1/ 20MHz	LCH	17.934	19.37	PASS
		MCH	17.889	19.28	PASS
		HCH	17.972	19.67	PASS
	LTE TM2/ 20MHz	LCH	17.968	19.51	PASS
		MCH	17.915	19.53	PASS
		HCH	17.922	19.47	PASS

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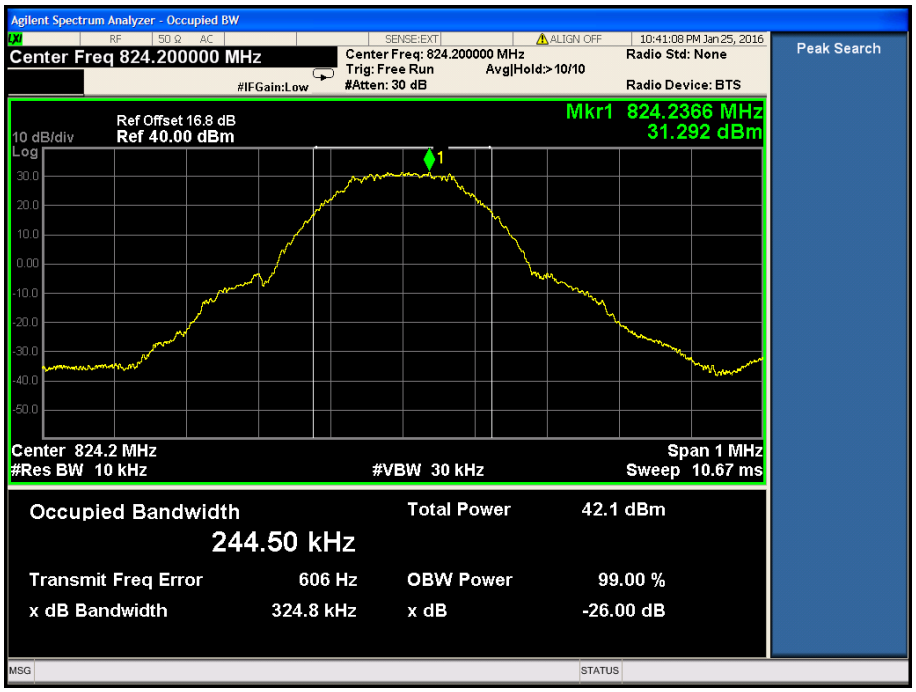
4.1 For GSM

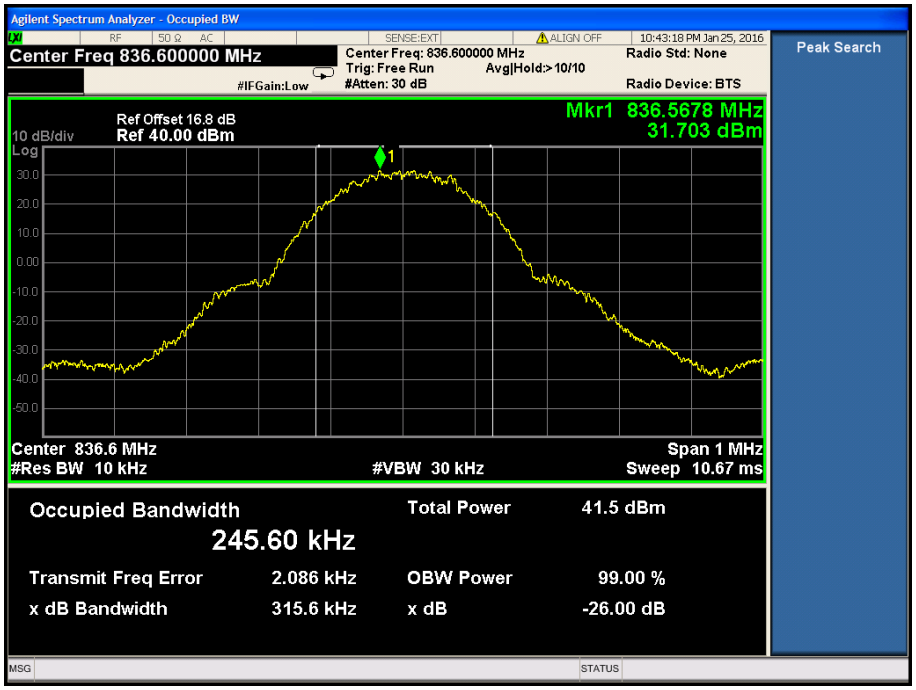
4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH



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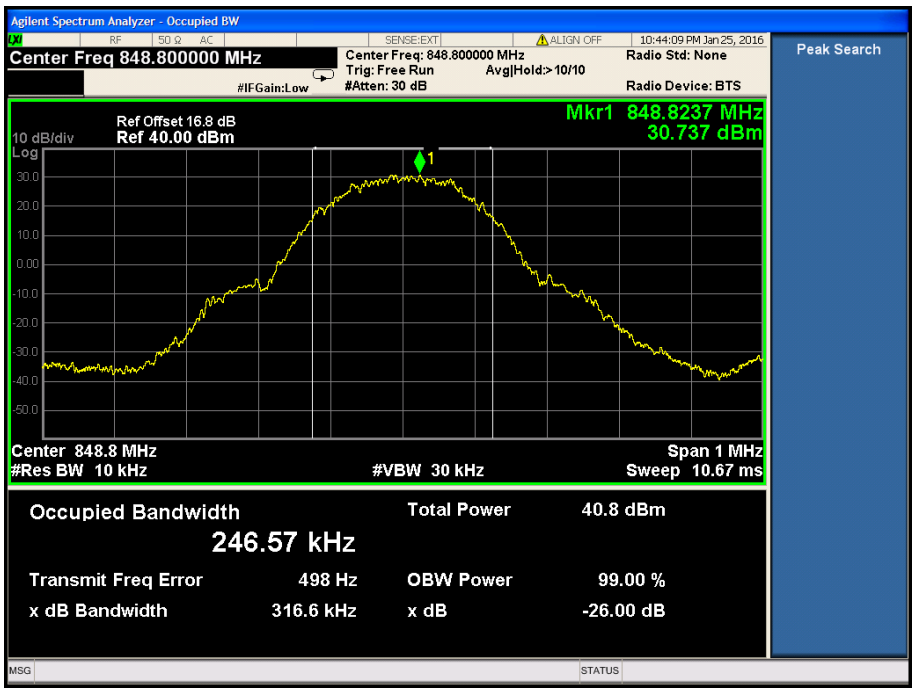
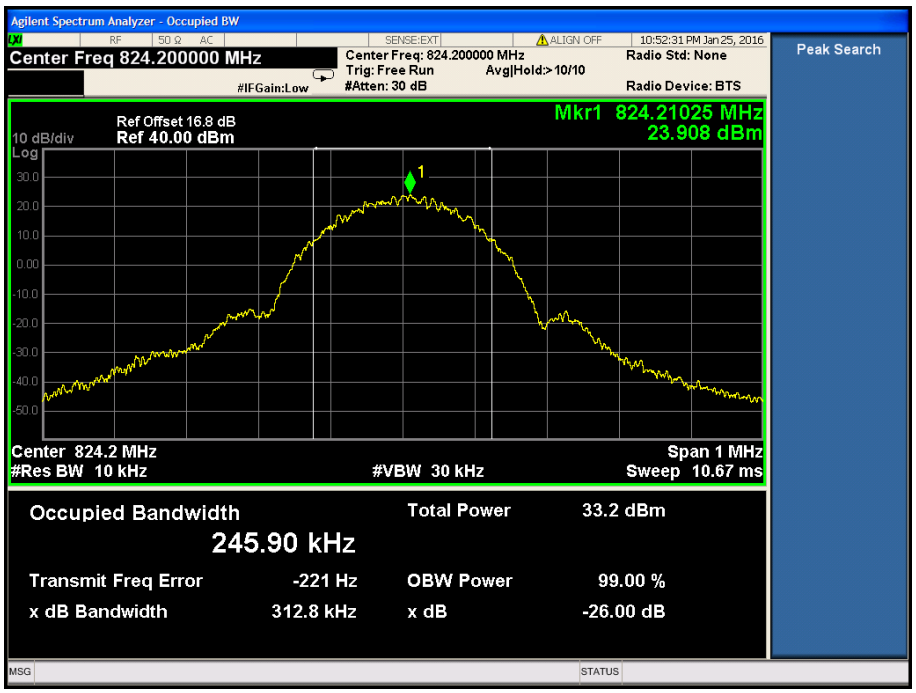
4.1.1.1.3 Test Channel = HCH



4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



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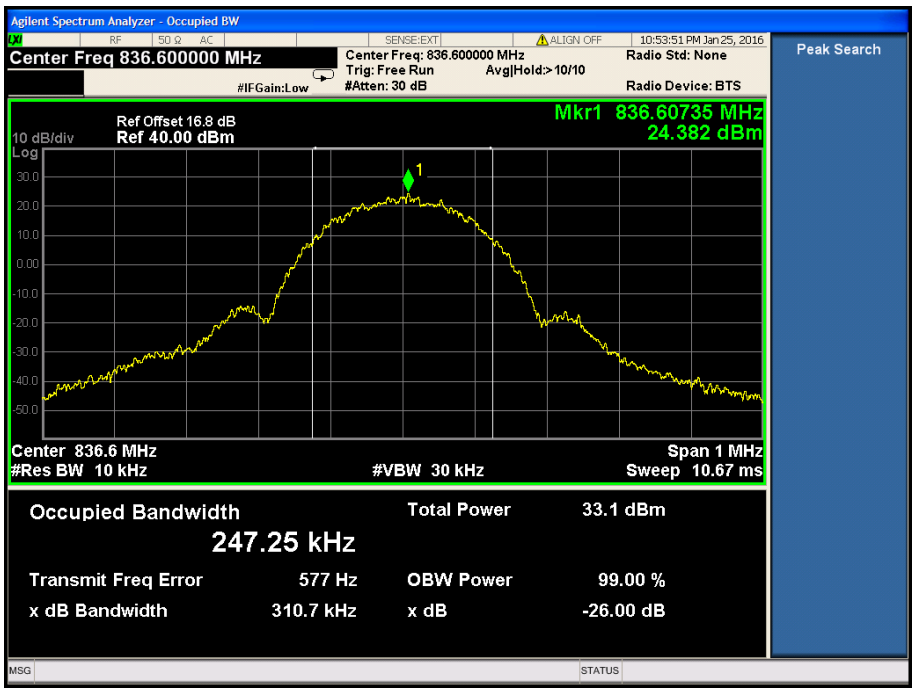
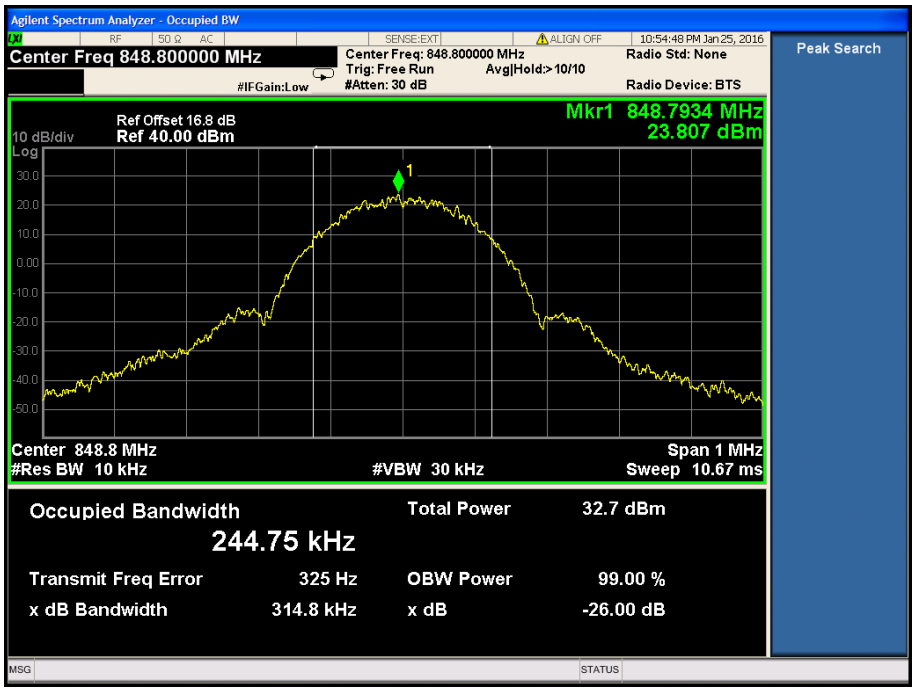
4.1.1.2.2 Test Channel = MCH



4.1.1.2.3 Test Channel = HCH



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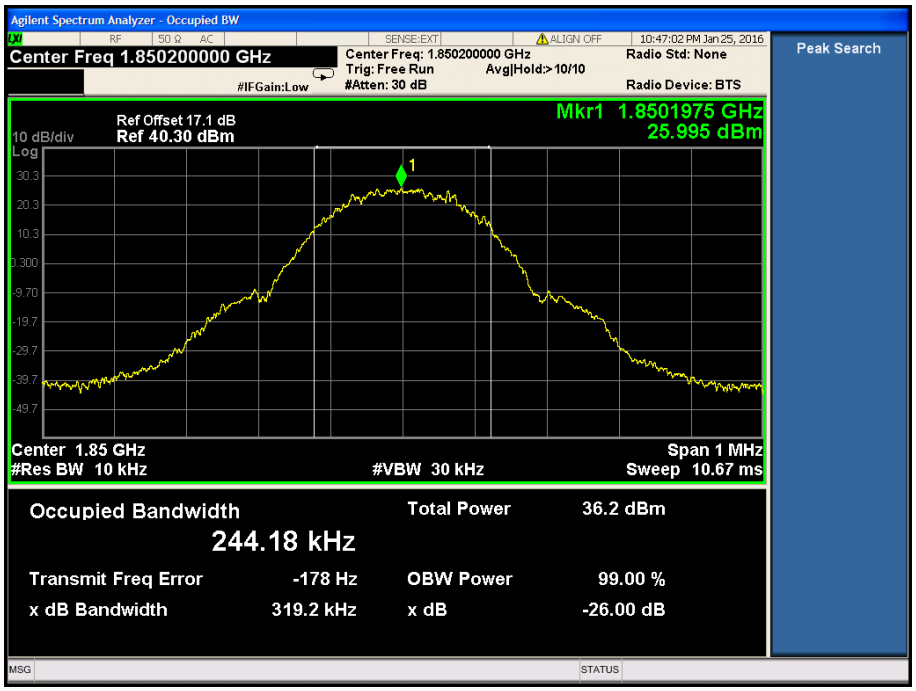
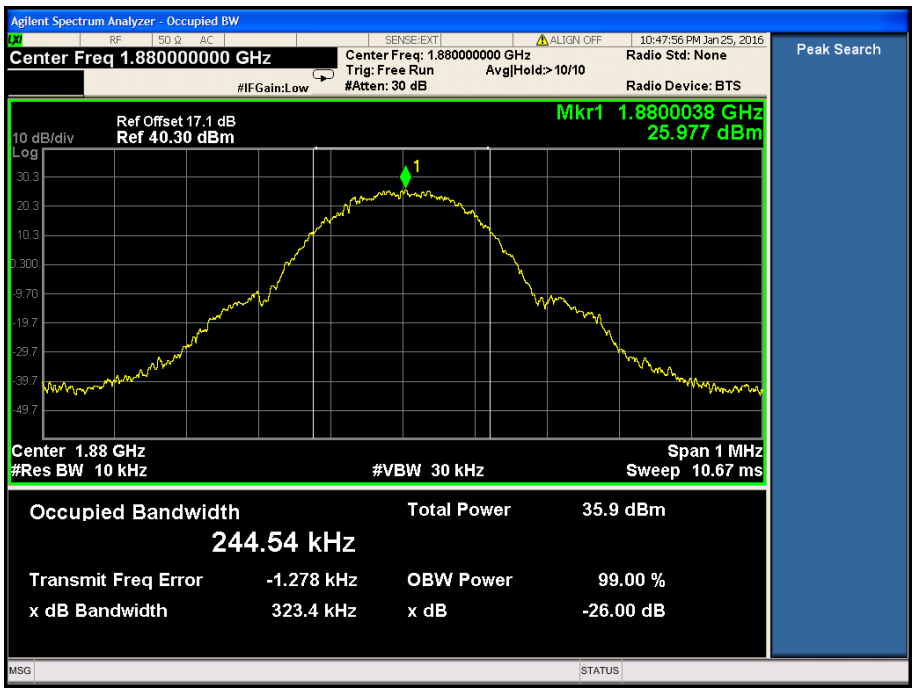
4.1.2 Test Band = GSM1900

4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



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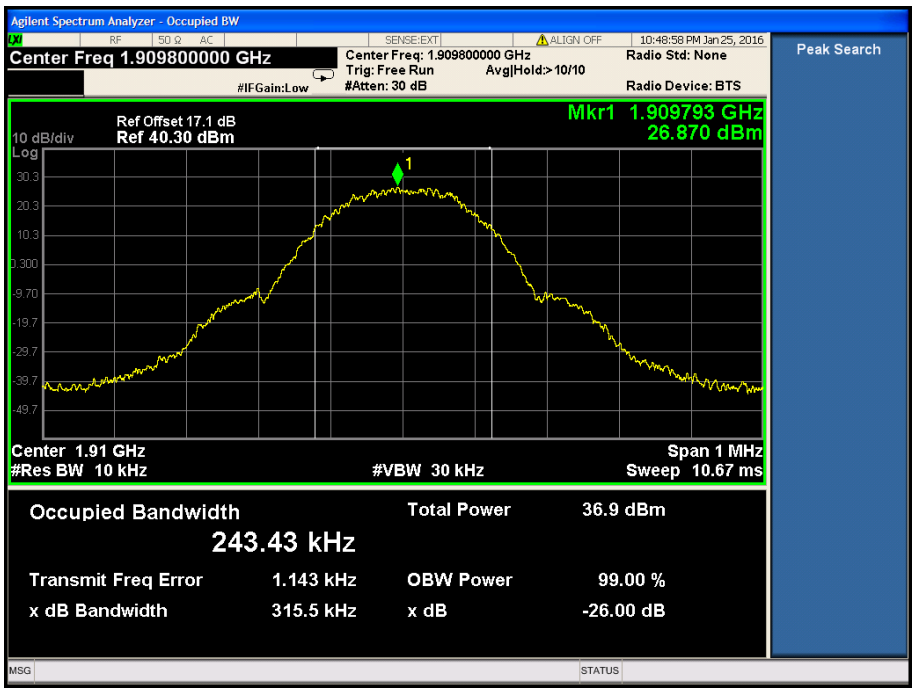
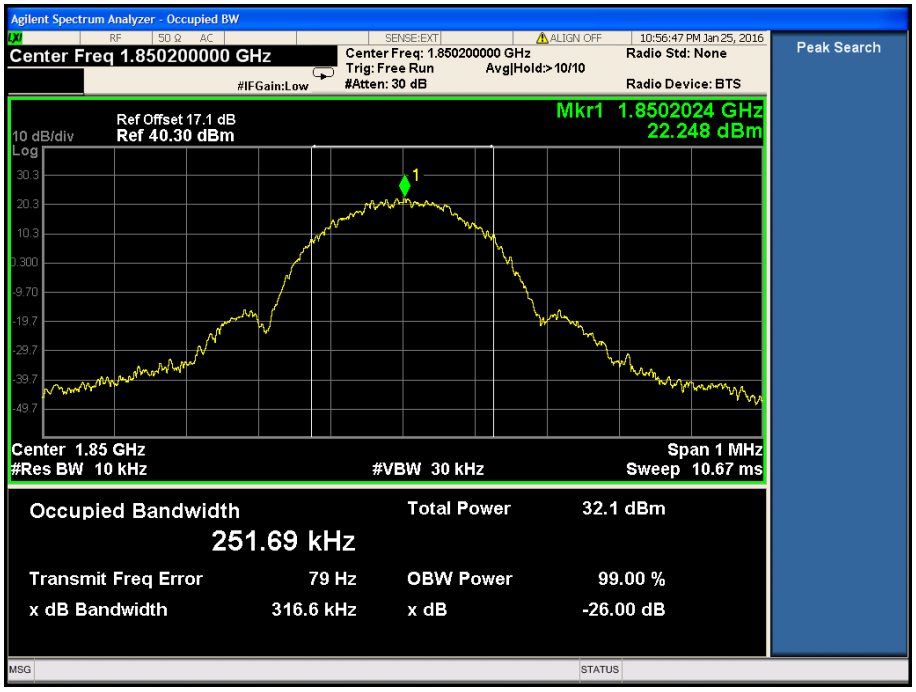
4.1.2.1.3 Test Channel = HCH



4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH



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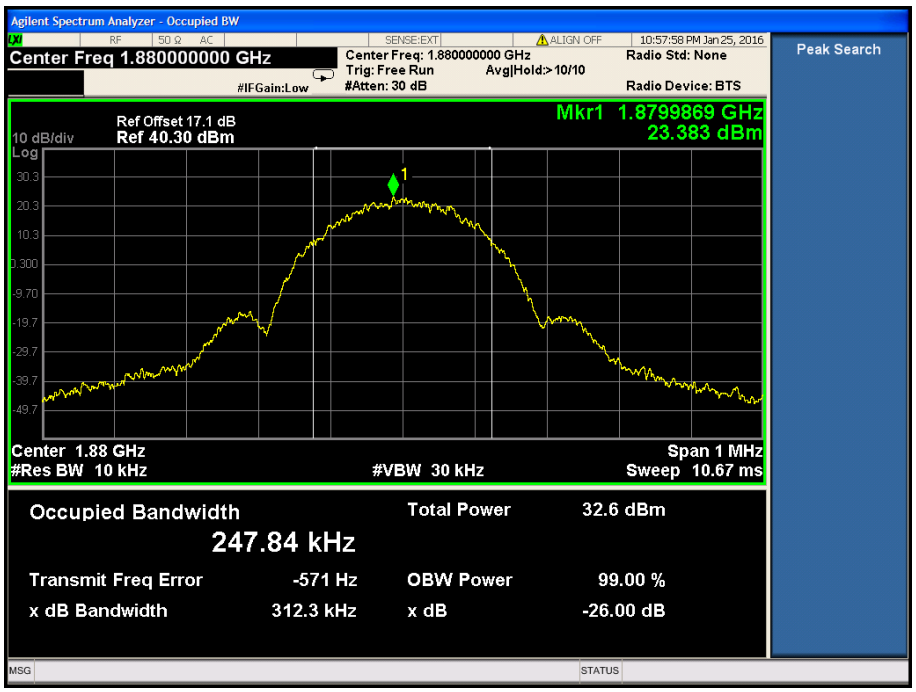
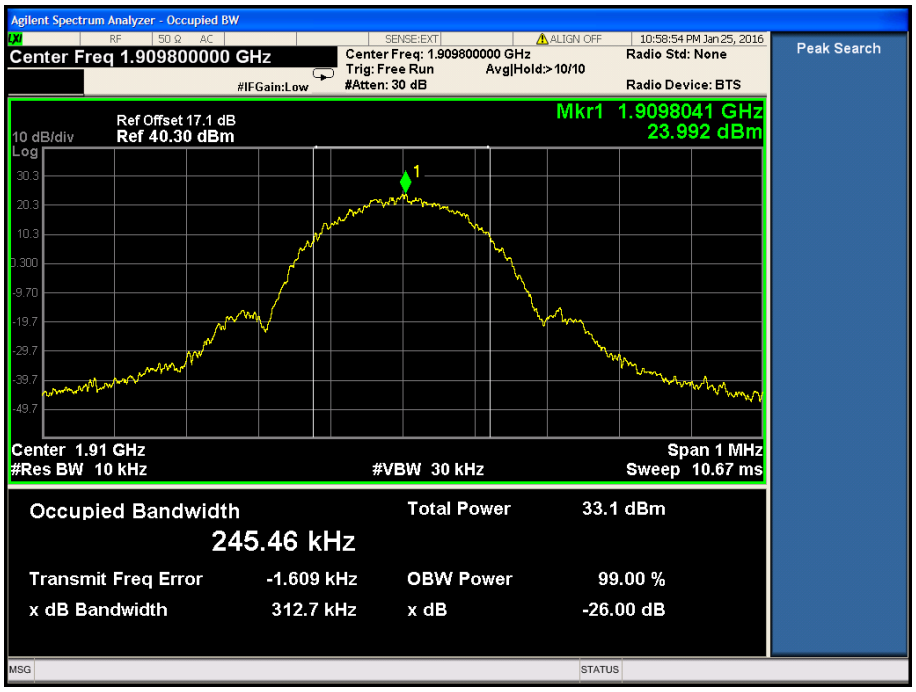
4.1.2.2.2 Test Channel = MCH



4.1.2.2.3 Test Channel = HCH



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