



Appendix B

Test Data for SZEM160300168002



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1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Part 1 – RF Conducted Power of Transmitter for GSM850

| RF Output Power(Conducted) | | | | | | |
|----------------------------|----------------|-------------|----------------|-------------|----------------|-------------|
| TEST CONDITIONS | 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) | 33.12 | 38.5 | 33.07 | 38.5 | 33.12 | 38.5 |
| GSM/TM1 (GPRS) | 33.11 | 38.5 | 33.04 | 38.5 | 33.1 | 38.5 |
| GSM/TM2 (EGPRS) | 26.87 | 38.5 | 26.73 | 38.5 | 26.46 | 38.5 |



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

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain(dBd) | Cable Loss (dB) | Substitution Level(ERP) / dBm | Limit (dBm) | Result |
|--------------------|-------------|-------------------|---------------------------|-----------|------------------------|-----------------|-------------------------------|-------------|--------|
| GSM/TM1 (GSM ONLY) | 824.2 | 26.65 | Dipole | 32.13 | -4.90 | 0.6 | 26.63 | 38.5 | Pass |
| GSM/TM1 (GSM ONLY) | 836.6 | 26.6 | Dipole | 32.2 | -5.02 | 0.6 | 26.58 | 38.5 | Pass |
| GSM/TM1 (GSM ONLY) | 848.8 | 26.65 | Dipole | 32.24 | -5.00 | 0.6 | 26.64 | 38.5 | Pass |
| GSM/TM1 (GPRS) | 824.2 | 26.64 | Dipole | 32.13 | -4.90 | 0.6 | 26.63 | 38.5 | Pass |
| GSM/TM1 (GPRS) | 836.6 | 26.57 | Dipole | 32.17 | -5.02 | 0.6 | 26.55 | 38.5 | Pass |
| GSM/TM1 (GPRS) | 848.8 | 26.63 | Dipole | 32.2 | -5.00 | 0.6 | 26.6 | 38.5 | Pass |
| GSM/TM2 (EGPRS) | 824.2 | 20.4 | Dipole | 25.88 | -4.90 | 0.6 | 20.38 | 38.5 | Pass |
| GSM/TM2 (EGPRS) | 836.6 | 20.26 | Dipole | 25.89 | -5.02 | 0.6 | 20.27 | 38.5 | Pass |
| GSM/TM2 (EGPRS) | 848.8 | 19.99 | Dipole | 25.58 | -5.00 | 0.6 | 19.98 | 38.5 | Pass |

Note:

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

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

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

| RF Output Power(Conducted) | | | | | | |
|----------------------------|----------------|-------------|----------------|-------------|----------------|-------------|
| TEST CONDITIONS | 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) | 30.28 | 38.5 | 30.11 | 38.5 | 30.17 | 38.5 |
| GSM/TM1 (GPRS) | 30.19 | 38.5 | 30.05 | 38.5 | 30.14 | 38.5 |
| GSM/TM2 (EGPRS) | 26.05 | 38.5 | 25.58 | 38.5 | 25.67 | 38.5 |

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

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain(dBd) | Cable Loss (dB) | Substitution Level(EIRP) / dBm | Limit (dBm) | Result |
|--------------------|-------------|-------------------|---------------------------|-----------|------------------------|-----------------|--------------------------------|-------------|--------|
| GSM/TM1 (GSM ONLY) | 1850.2 | 26.43 | Dipole | 31.9 | -4.90 | 0.6 | 26.4 | 38.5 | Pass |
| GSM/TM1 (GSM ONLY) | 1880 | 26.26 | Dipole | 31.86 | -5.02 | 0.6 | 26.24 | 38.5 | Pass |
| GSM/TM1 (GSM ONLY) | 1909.8 | 26.32 | Dipole | 31.91 | -5.00 | 0.6 | 26.31 | 38.5 | Pass |
| GSM/TM1 (GPRS) | 1850.2 | 26.34 | Dipole | 31.82 | -4.90 | 0.6 | 26.32 | 38.5 | Pass |
| GSM/TM1 (GPRS) | 1880 | 26.2 | Dipole | 31.8 | -5.02 | 0.6 | 26.18 | 38.5 | Pass |
| GSM/TM1 (GPRS) | 1909.8 | 26.29 | Dipole | 31.87 | -5.00 | 0.6 | 26.27 | 38.5 | Pass |
| GSM/TM2 (EGPRS) | 1850.2 | 22.2 | Dipole | 27.67 | -4.90 | 0.6 | 22.17 | 38.5 | Pass |
| GSM/TM2 (EGPRS) | 1880 | 21.73 | Dipole | 27.34 | -5.02 | 0.6 | 21.72 | 38.5 | Pass |
| GSM/TM2 (EGPRS) | 1909.8 | 21.82 | Dipole | 27.41 | -5.00 | 0.6 | 21.81 | 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,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

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 | 22.93 | 38.5 | 23.02 | 38.5 | 23.06 | 38.5 |
| HSDPA | 22.04 | 38.5 | 22.13 | 38.5 | 22.09 | 38.5 |
| HSUPA | 21.5 | 38.5 | 21.6 | 38.5 | 21.59 | 38.5 |

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

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain(dBd) | Cable Loss (dB) | Substitution Level(ERP) / dBm | Limit (dBm) | Result |
|-----------|-------------|-------------------|---------------------------|-----------|------------------------|-----------------|-------------------------------|-------------|--------|
| WCDMA | 1852.4 | 19.08 | Dipole | 24.55 | -4.90 | 0.6 | 19.05 | 38.5 | Pass |
| HSDPA | 1852.4 | 18.19 | Dipole | 23.79 | -5.02 | 0.6 | 18.17 | 38.5 | Pass |
| HSUPA | 1852.4 | 17.65 | Dipole | 23.24 | -5.00 | 0.6 | 17.64 | 38.5 | Pass |
| WCDMA | 1880.0 | 19.17 | Dipole | 24.65 | -4.90 | 0.6 | 19.15 | 38.5 | Pass |
| HSDPA | 1880.0 | 18.28 | Dipole | 23.89 | -5.02 | 0.6 | 18.27 | 38.5 | Pass |
| HSUPA | 1880.0 | 17.75 | Dipole | 23.34 | -5.00 | 0.6 | 17.74 | 38.5 | Pass |
| WCDMA | 1907.6 | 19.21 | Dipole | 24.69 | -4.90 | 0.6 | 19.19 | 38.5 | Pass |
| HSDPA | 1907.6 | 18.24 | Dipole | 23.83 | -5.02 | 0.6 | 18.21 | 38.5 | Pass |
| HSUPA | 1907.6 | 17.74 | Dipole | 23.31 | -5.00 | 0.6 | 17.71 | 38.5 | Pass |

Note:

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

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

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

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain(dBd) | Cable Loss (dB) | Substitution Level(ERP) / dBm | Limit (dBm) | Result |
|-----------|-------------|-------------------|---------------------------|-----------|------------------------|-----------------|-------------------------------|-------------|--------|
| WCDMA | 1712.4 | 15 | Dipole | 20.48 | -4.90 | 0.6 | 14.98 | 38.5 | Pass |
| HSDPA | 1712.4 | 14.03 | Dipole | 19.64 | -5.02 | 0.6 | 14.02 | 38.5 | Pass |
| HSUPA | 1712.4 | 13.9 | Dipole | 19.48 | -5.00 | 0.6 | 13.88 | 38.5 | Pass |
| WCDMA | 1732.6 | 14.99 | Dipole | 20.47 | -4.90 | 0.6 | 14.97 | 38.5 | Pass |
| HSDPA | 1732.6 | 14.04 | Dipole | 19.64 | -5.02 | 0.6 | 14.02 | 38.5 | Pass |
| HSUPA | 1732.6 | 14.02 | Dipole | 19.61 | -5.00 | 0.6 | 14.01 | 38.5 | Pass |
| WCDMA | 1752.6 | 15.17 | Dipole | 20.65 | -4.90 | 0.6 | 15.15 | 38.5 | Pass |
| HSDPA | 1752.6 | 14.15 | Dipole | 19.76 | -5.02 | 0.6 | 14.14 | 38.5 | Pass |
| HSUPA | 1752.6 | 13.95 | Dipole | 19.54 | -5.00 | 0.6 | 13.94 | 38.5 | Pass |

Note:

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

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b: SGP=Signal Generator Level

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

Detector: RMS



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Part9 – 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 | 22.97 | 38.5 | 23.07 | 38.5 | 23.09 | 38.5 |
| HSDPA | 22.36 | 38.5 | 22.58 | 38.5 | 22.33 | 38.5 |
| HSUPA | 21.79 | 38.5 | 22.05 | 38.5 | 21.77 | 38.5 |

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

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain(dBd) | Cable Loss (dB) | Substitution Level(ERP) / dBm | Limit (dBm) | Result |
|-----------|-------------|-------------------|---------------------------|-----------|------------------------|-----------------|-------------------------------|-------------|--------|
| WCDMA | 826.4 | 16.5 | Dipole | 21.98 | -4.90 | 0.6 | 16.48 | 38.5 | Pass |
| HSDPA | 836.4 | 15.89 | Dipole | 21.5 | -5.02 | 0.6 | 15.88 | 38.5 | Pass |
| HSUPA | 846.6 | 15.32 | Dipole | 20.9 | -5.00 | 0.6 | 15.3 | 38.5 | Pass |
| WCDMA | 826.4 | 16.6 | Dipole | 22.09 | -4.90 | 0.6 | 16.59 | 38.5 | Pass |
| HSDPA | 836.4 | 16.11 | Dipole | 21.72 | -5.02 | 0.6 | 16.1 | 38.5 | Pass |
| HSUPA | 846.6 | 15.58 | Dipole | 21.16 | -5.00 | 0.6 | 15.56 | 38.5 | Pass |
| WCDMA | 826.4 | 16.62 | Dipole | 22.1 | -4.90 | 0.6 | 16.6 | 38.5 | Pass |
| HSDPA | 836.4 | 15.86 | Dipole | 21.46 | -5.02 | 0.6 | 15.84 | 38.5 | Pass |
| HSUPA | 846.6 | 15.3 | Dipole | 20.88 | -5.00 | 0.6 | 15.28 | 38.5 | Pass |

Note:

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

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b: SGP=Signal Generator Level

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

Detector: RMS



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 | 22.67 | 38.5 | 22.46 | 38.5 | 22.49 | 38.5 |
| | 16QAM/ TM2 | 21.99 | 38.5 | 21.46 | 38.5 | 21.61 | 38.5 |
| 3MHz | QPSK/ TM1 | 22.63 | 38.5 | 22.29 | 38.5 | 22.44 | 38.5 |
| | 16QAM/ TM2 | 21.56 | 38.5 | 21.41 | 38.5 | 21.76 | 38.5 |
| 5MHz | QPSK/ TM1 | 22.75 | 38.5 | 22.47 | 38.5 | 22.59 | 38.5 |
| | 16QAM/ TM2 | 22.23 | 38.5 | 21.62 | 38.5 | 21.61 | 38.5 |
| 10MHz | QPSK/ TM1 | 22.81 | 38.5 | 22.5 | 38.5 | 22.48 | 38.5 |
| | 16QAM/ TM2 | 21.66 | 38.5 | 21.52 | 38.5 | 22.08 | 38.5 |
| 15MHz | QPSK/ TM1 | 22.82 | 38.5 | 22.57 | 38.5 | 22.56 | 38.5 |
| | 16QAM/ TM2 | 22.07 | 38.5 | 21.47 | 38.5 | 21.86 | 38.5 |
| 20MHz | QPSK/ TM1 | 22.83 | 38.5 | 22.61 | 38.5 | 22.58 | 38.5 |
| | 16QAM/ TM2 | 22.06 | 38.5 | 22.06 | 38.5 | 22.09 | 38.5 |

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Part 12–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 2

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain (dBd) | Cable Loss (dB) | Substitution Level (EIRP) / dBm | Limit (dBm) | Result |
|-----------------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|---------------------------------|-------------|--------|
| LTE TM1/1.4M Hz | 1850.7 | 18.82 | Dipole | 24.31 | -4.90 | 0.6 | 18.81 | 38.5 | Pass |
| | 1880 | 18.61 | Dipole | 24.22 | -5.02 | 0.6 | 18.6 | 38.5 | Pass |
| | 1909.3 | 18.64 | Dipole | 24.23 | -5.00 | 0.6 | 18.63 | 38.5 | Pass |
| LTE TM2/1.4M Hz | 1850.7 | 18.14 | Dipole | 23.63 | -4.90 | 0.6 | 18.13 | 38.5 | Pass |
| | 1880 | 17.61 | Dipole | 23.22 | -5.02 | 0.6 | 17.6 | 38.5 | Pass |
| | 1909.3 | 17.76 | Dipole | 23.34 | -5.00 | 0.6 | 17.74 | 38.5 | Pass |
| LTE TM1/3MHz | 1851.5 | 18.78 | Dipole | 24.26 | -4.90 | 0.6 | 18.76 | 38.5 | Pass |
| | 1880 | 18.44 | Dipole | 24.04 | -5.02 | 0.6 | 18.42 | 38.5 | Pass |
| | 1908.5 | 18.59 | Dipole | 24.17 | -5.00 | 0.6 | 18.57 | 38.5 | Pass |
| LTE TM2/3MHz | 1851.5 | 17.71 | Dipole | 23.2 | -4.90 | 0.6 | 17.7 | 38.5 | Pass |
| | 1880 | 17.56 | Dipole | 23.16 | -5.02 | 0.6 | 17.54 | 38.5 | Pass |
| | 1908.5 | 17.91 | Dipole | 23.49 | -5.00 | 0.6 | 17.89 | 38.5 | Pass |
| LTE TM1/5MHz | 1852.5 | 18.9 | Dipole | 24.38 | -4.90 | 0.6 | 18.88 | 38.5 | Pass |
| | 1880 | 18.62 | Dipole | 24.23 | -5.02 | 0.6 | 18.61 | 38.5 | Pass |
| | 1907.5 | 18.74 | Dipole | 24.32 | -5.00 | 0.6 | 18.72 | 38.5 | Pass |
| LTE TM2/5MHz | 1852.5 | 18.38 | Dipole | 23.86 | -4.90 | 0.6 | 18.36 | 38.5 | Pass |
| | 1880 | 17.77 | Dipole | 23.38 | -5.02 | 0.6 | 17.76 | 38.5 | Pass |
| | 1907.5 | 17.76 | Dipole | 23.35 | -5.00 | 0.6 | 17.75 | 38.5 | Pass |
| LTE TM1/10MHz | 1855 | 18.96 | Dipole | 24.43 | -4.90 | 0.6 | 18.93 | 38.5 | Pass |
| | 1880 | 18.65 | Dipole | 24.24 | -5.02 | 0.6 | 18.62 | 38.5 | Pass |
| | 1905 | 18.63 | Dipole | 24.21 | -5.00 | 0.6 | 18.61 | 38.5 | Pass |
| LTE TM2/10MHz | 1855 | 17.81 | Dipole | 23.3 | -4.90 | 0.6 | 17.8 | 38.5 | Pass |
| | 1880 | 17.67 | Dipole | 23.26 | -5.02 | 0.6 | 17.64 | 38.5 | Pass |
| | 1905 | 18.23 | Dipole | 23.81 | -5.00 | 0.6 | 18.21 | 38.5 | Pass |
| LTE TM1/15MHz | 1857.5 | 18.97 | Dipole | 24.44 | -4.90 | 0.6 | 18.94 | 38.5 | Pass |
| | 1880 | 18.72 | Dipole | 24.33 | -5.02 | 0.6 | 18.71 | 38.5 | Pass |
| | 1902.5 | 18.71 | Dipole | 24.3 | -5.00 | 0.6 | 18.7 | 38.5 | Pass |
| LTE TM2/15MHz | 1857.5 | 18.22 | Dipole | 23.71 | -4.90 | 0.6 | 18.21 | 38.5 | Pass |
| | 1880 | 17.62 | Dipole | 23.23 | -5.02 | 0.6 | 17.61 | 38.5 | Pass |
| | 1902.5 | 18.01 | Dipole | 23.6 | -5.00 | 0.6 | 18 | 38.5 | Pass |
| LTE TM1/20MHz | 1860 | 18.98 | Dipole | 24.46 | -4.90 | 0.6 | 18.96 | 38.5 | Pass |
| | 1880 | 18.76 | Dipole | 24.36 | -5.02 | 0.6 | 18.74 | 38.5 | Pass |
| | 1900 | 18.73 | Dipole | 24.32 | -5.00 | 0.6 | 18.72 | 38.5 | Pass |
| LTE TM2/20MHz | 1860 | 18.21 | Dipole | 23.7 | -4.90 | 0.6 | 18.2 | 38.5 | Pass |
| | 1880 | 18.21 | Dipole | 23.8 | -5.02 | 0.6 | 18.18 | 38.5 | Pass |
| | 1900 | 18.24 | Dipole | 23.82 | -5.00 | 0.6 | 18.22 | 38.5 | Pass |

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Note:

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

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b: SGP=Signal Generator Level

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

Detector: RMS

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 | 23.26 | 38.5 | 23.36 | 38.5 | 23.33 | 38.5 |
| | 16QAM/ TM2 | 22.47 | 38.5 | 22.45 | 38.5 | 22.49 | 38.5 |
| 3MHz | QPSK/ TM1 | 23.26 | 38.5 | 23.19 | 38.5 | 23.26 | 38.5 |
| | 16QAM/ TM2 | 22.42 | 38.5 | 22.22 | 38.5 | 22.39 | 38.5 |
| 5MHz | QPSK/ TM1 | 23.28 | 38.5 | 23.45 | 38.5 | 23.41 | 38.5 |
| | 16QAM/ TM2 | 22.26 | 38.5 | 22.92 | 38.5 | 22.57 | 38.5 |
| 10MHz | QPSK/ TM1 | 23.32 | 38.5 | 23.37 | 38.5 | 23.33 | 38.5 |
| | 16QAM/ TM2 | 22.56 | 38.5 | 22.39 | 38.5 | 22.47 | 38.5 |
| 15MHz | QPSK/ TM1 | 23.35 | 38.5 | 23.27 | 38.5 | 23.41 | 38.5 |
| | 16QAM/ TM2 | 22.18 | 38.5 | 22.72 | 38.5 | 22.83 | 38.5 |
| 20MHz | QPSK/ TM1 | 23.33 | 38.5 | 23.31 | 38.5 | 23.36 | 38.5 |
| | 16QAM/ TM2 | 22.71 | 38.5 | 22.9 | 38.5 | 22.92 | 38.5 |

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Part 14–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 4

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain (dBd) | Cable Loss (dB) | Substitution Level (EIRP) / dBm | Limit (dBm) | Result |
|-----------------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|---------------------------------|-------------|--------|
| LTE TM1/1.4M Hz | 1710.7 | 17.17 | Dipole | 22.66 | -4.90 | 0.6 | 17.16 | 38.5 | Pass |
| | 1732.5 | 17.27 | Dipole | 22.87 | -5.02 | 0.6 | 17.25 | 38.5 | Pass |
| | 1754.3 | 17.24 | Dipole | 22.83 | -5.00 | 0.6 | 17.23 | 38.5 | Pass |
| LTE TM2/1.4M Hz | 1710.7 | 16.38 | Dipole | 21.87 | -4.90 | 0.6 | 16.37 | 38.5 | Pass |
| | 1732.5 | 16.36 | Dipole | 21.97 | -5.02 | 0.6 | 16.35 | 38.5 | Pass |
| | 1754.3 | 16.4 | Dipole | 21.98 | -5.00 | 0.6 | 16.38 | 38.5 | Pass |
| LTE TM1/3MHz | 1711.5 | 17.17 | Dipole | 22.65 | -4.90 | 0.6 | 17.15 | 38.5 | Pass |
| | 1732.5 | 17.1 | Dipole | 22.7 | -5.02 | 0.6 | 17.08 | 38.5 | Pass |
| | 1753.5 | 17.17 | Dipole | 22.76 | -5.00 | 0.6 | 17.16 | 38.5 | Pass |
| LTE TM2/3MHz | 1711.5 | 16.33 | Dipole | 21.81 | -4.90 | 0.6 | 16.31 | 38.5 | Pass |
| | 1732.5 | 16.13 | Dipole | 21.74 | -5.02 | 0.6 | 16.12 | 38.5 | Pass |
| | 1753.5 | 16.3 | Dipole | 21.88 | -5.00 | 0.6 | 16.28 | 38.5 | Pass |
| LTE TM1/5MHz | 1712.5 | 17.19 | Dipole | 22.67 | -4.90 | 0.6 | 17.17 | 38.5 | Pass |
| | 1732.5 | 17.36 | Dipole | 22.97 | -5.02 | 0.6 | 17.35 | 38.5 | Pass |
| | 1752.5 | 17.32 | Dipole | 22.91 | -5.00 | 0.6 | 17.31 | 38.5 | Pass |
| LTE TM2/5MHz | 1712.5 | 16.17 | Dipole | 21.66 | -4.90 | 0.6 | 16.16 | 38.5 | Pass |
| | 1732.5 | 16.83 | Dipole | 22.43 | -5.02 | 0.6 | 16.81 | 38.5 | Pass |
| | 1752.5 | 16.48 | Dipole | 22.05 | -5.00 | 0.6 | 16.45 | 38.5 | Pass |
| LTE TM1/10MHz | 1715 | 17.23 | Dipole | 22.71 | -4.90 | 0.6 | 17.21 | 38.5 | Pass |
| | 1732.5 | 17.28 | Dipole | 22.88 | -5.02 | 0.6 | 17.26 | 38.5 | Pass |
| | 1750 | 17.24 | Dipole | 22.83 | -5.00 | 0.6 | 17.23 | 38.5 | Pass |
| LTE TM2/10MHz | 1715 | 16.47 | Dipole | 21.95 | -4.90 | 0.6 | 16.45 | 38.5 | Pass |
| | 1732.5 | 16.3 | Dipole | 21.9 | -5.02 | 0.6 | 16.28 | 38.5 | Pass |
| | 1750 | 16.38 | Dipole | 21.96 | -5.00 | 0.6 | 16.36 | 38.5 | Pass |
| LTE TM1/15MHz | 1717.5 | 17.26 | Dipole | 22.75 | -4.90 | 0.6 | 17.25 | 38.5 | Pass |
| | 1732.5 | 17.18 | Dipole | 22.78 | -5.02 | 0.6 | 17.16 | 38.5 | Pass |
| | 1747.5 | 17.32 | Dipole | 22.91 | -5.00 | 0.6 | 17.31 | 38.5 | Pass |
| LTE TM2/15MHz | 1717.5 | 16.09 | Dipole | 21.58 | -4.90 | 0.6 | 16.08 | 38.5 | Pass |
| | 1732.5 | 16.63 | Dipole | 22.23 | -5.02 | 0.6 | 16.61 | 38.5 | Pass |
| | 1747.5 | 16.74 | Dipole | 22.32 | -5.00 | 0.6 | 16.72 | 38.5 | Pass |
| LTE TM1/20MHz | 1720 | 17.24 | Dipole | 22.73 | -4.90 | 0.6 | 17.23 | 38.5 | Pass |
| | 1732.5 | 17.22 | Dipole | 22.82 | -5.02 | 0.6 | 17.2 | 38.5 | Pass |
| | 1745 | 17.27 | Dipole | 22.85 | -5.00 | 0.6 | 17.25 | 38.5 | Pass |
| LTE TM2/20MHz | 1720 | 16.62 | Dipole | 22.11 | -4.90 | 0.6 | 16.61 | 38.5 | Pass |
| | 1732.5 | 16.81 | Dipole | 22.41 | -5.02 | 0.6 | 16.79 | 38.5 | Pass |
| | 1745 | 16.83 | Dipole | 22.42 | -5.00 | 0.6 | 16.82 | 38.5 | Pass |

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Note:

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

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b: SGP=Signal Generator Level

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

Detector: RMS

Part 15 – RF Conducted Power of Transmitter for LTE BAND 7

| 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) |
| 5MHz | QPSK/ TM1 | 22.16 | 38.5 | 22.21 | 38.5 | 22.24 | 38.5 |
| | 16QAM/ TM2 | 21.34 | 38.5 | 21.52 | 38.5 | 21.17 | 38.5 |
| 10MHz | QPSK/ TM1 | 22.11 | 38.5 | 22.23 | 38.5 | 22.16 | 38.5 |
| | 16QAM/ TM2 | 21.32 | 38.5 | 21.21 | 38.5 | 21.23 | 38.5 |
| 15MHz | QPSK/ TM1 | 22.14 | 38.5 | 22.22 | 38.5 | 22.05 | 38.5 |
| | 16QAM/ TM2 | 21.21 | 38.5 | 21.44 | 38.5 | 21.04 | 38.5 |
| 20MHz | QPSK/ TM1 | 22.33 | 38.5 | 22.35 | 38.5 | 22.08 | 38.5 |
| | 16QAM/ TM2 | 21.09 | 38.5 | 21.52 | 38.5 | 21.28 | 38.5 |

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Part 16–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 7

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain (dBd) | Cable Loss (dB) | Substitution Level (EIRP) / dBm | Limit (dBm) | Result |
|---------------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|---------------------------------|-------------|--------|
| LTE TM1/5MHz | 2502.5 | 16.99 | Dipole | 22.47 | -4.90 | 0.6 | 16.97 | 38.5 | Pass |
| | 2535 | 17.04 | Dipole | 22.63 | -5.02 | 0.6 | 17.01 | 38.5 | Pass |
| | 2567.5 | 17.07 | Dipole | 22.66 | -5.00 | 0.6 | 17.06 | 38.5 | Pass |
| LTE TM2/5MHz | 2502.5 | 16.17 | Dipole | 21.65 | -4.90 | 0.6 | 16.15 | 38.5 | Pass |
| | 2535 | 16.35 | Dipole | 21.95 | -5.02 | 0.6 | 16.33 | 38.5 | Pass |
| | 2567.5 | 16 | Dipole | 21.61 | -5.00 | 0.6 | 16.01 | 38.5 | Pass |
| LTE TM1/10MHz | 2505 | 16.94 | Dipole | 22.42 | -4.90 | 0.6 | 16.92 | 38.5 | Pass |
| | 2535 | 17.06 | Dipole | 22.65 | -5.02 | 0.6 | 17.03 | 38.5 | Pass |
| | 2565 | 16.99 | Dipole | 22.57 | -5.00 | 0.6 | 16.97 | 38.5 | Pass |
| LTE TM2/10MHz | 2505 | 16.15 | Dipole | 21.63 | -4.90 | 0.6 | 16.13 | 38.5 | Pass |
| | 2535 | 16.04 | Dipole | 21.64 | -5.02 | 0.6 | 16.02 | 38.5 | Pass |
| | 2565 | 16.06 | Dipole | 21.63 | -5.00 | 0.6 | 16.03 | 38.5 | Pass |
| LTE TM1/15MHz | 2507.5 | 16.97 | Dipole | 22.45 | -4.90 | 0.6 | 16.95 | 38.5 | Pass |
| | 2535 | 17.05 | Dipole | 22.64 | -5.02 | 0.6 | 17.02 | 38.5 | Pass |
| | 2562.5 | 16.88 | Dipole | 22.46 | -5.00 | 0.6 | 16.86 | 38.5 | Pass |
| LTE TM2/15MHz | 2507.5 | 16.04 | Dipole | 21.52 | -4.90 | 0.6 | 16.02 | 38.5 | Pass |
| | 2535 | 16.27 | Dipole | 21.86 | -5.02 | 0.6 | 16.24 | 38.5 | Pass |
| | 2562.5 | 15.87 | Dipole | 21.43 | -5.00 | 0.6 | 15.83 | 38.5 | Pass |
| LTE TM1/20MHz | 2510 | 17.16 | Dipole | 22.64 | -4.90 | 0.6 | 17.14 | 38.5 | Pass |
| | 2535 | 17.18 | Dipole | 22.79 | -5.02 | 0.6 | 17.17 | 38.5 | Pass |
| | 2560 | 16.91 | Dipole | 22.5 | -5.00 | 0.6 | 16.9 | 38.5 | Pass |
| LTE TM2/20MHz | 2510 | 15.92 | Dipole | 21.41 | -4.90 | 0.6 | 15.91 | 38.5 | Pass |
| | 2535 | 16.35 | Dipole | 21.95 | -5.02 | 0.6 | 16.33 | 38.5 | Pass |
| | 2560 | 16.11 | Dipole | 21.68 | -5.00 | 0.6 | 16.08 | 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,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b: SGP=Signal Generator Level

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

Detector: RMS



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

| Bandwidth | RF Output Power(Conducted) | | | | | | |
|-----------|----------------------------|-------------------|-------------|----------------|-------------|-------------------|-------------|
| | TEST CONDITIONS | Channel (L) | | Channel (M) | | Channel (H) | |
| | | 2502.5 ~ 2510 MHz | | 2535 MHz | | 2560 ~ 2567.5 MHz | |
| | Tnom/ Vnom | Measured (dBm) | Limit (dBm) | Measured (dBm) | Limit (dBm) | Measured (dBm) | Limit (dBm) |
| 5MHz | QPSK/ TM1 | 23.32 | 38.5 | 23.39 | 38.5 | 23.34 | 38.5 |
| | 16QAM/ TM2 | 22.36 | 38.5 | 22.44 | 38.5 | 22.56 | 38.5 |
| 10MHz | QPSK/ TM1 | 23.35 | 38.5 | 23.28 | 38.5 | 23.44 | 38.5 |
| | 16QAM/ TM2 | 22.62 | 38.5 | 22.31 | 38.5 | 22.5 | 38.5 |

Part 18–Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 17

| Test Mode | Freq. (MHz) | Meas. Level (dBm) | Substitution Antenna Type | SGP (dBm) | Substitution Gain (dBd) | Cable Loss (dB) | Substitution Level (EIRP) / dBm | Limit (dBm) | Result |
|----------------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|---------------------------------|-------------|--------|
| LTE TM1/5MHz | 706.5 | 14.79 | Dipole | 20.27 | -4.90 | 0.6 | 14.77 | 38.5 | Pass |
| | 710 | 14.86 | Dipole | 20.47 | -5.02 | 0.6 | 14.85 | 38.5 | Pass |
| | 713.5 | 14.81 | Dipole | 20.4 | -5.00 | 0.6 | 14.8 | 38.5 | Pass |
| LTE TM2/5MHz | 706.5 | 13.83 | Dipole | 19.31 | -4.90 | 0.6 | 13.81 | 38.5 | Pass |
| | 710 | 13.91 | Dipole | 19.5 | -5.02 | 0.6 | 13.88 | 38.5 | Pass |
| | 713.5 | 14.03 | Dipole | 19.61 | -5.00 | 0.6 | 14.01 | 38.5 | Pass |
| LTE TM1/ 10MHz | 709 | 14.82 | Dipole | 20.31 | -4.90 | 0.6 | 14.81 | 38.5 | Pass |
| | 710 | 14.75 | Dipole | 20.34 | -5.02 | 0.6 | 14.72 | 38.5 | Pass |
| | 711 | 14.91 | Dipole | 20.48 | -5.00 | 0.6 | 14.88 | 38.5 | Pass |
| LTE TM2/ 10MHz | 709 | 14.09 | Dipole | 19.57 | -4.90 | 0.6 | 14.07 | 38.5 | Pass |
| | 710 | 13.78 | Dipole | 19.38 | -5.02 | 0.6 | 13.76 | 38.5 | Pass |
| | 711 | 13.97 | Dipole | 19.56 | -5.00 | 0.6 | 13.96 | 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,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

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 | 9.86 | 13 | PASS |
| | | MCH | 9.77 | 13 | PASS |
| | | HCH | 9.32 | 13 | PASS |
| | GSM/TM2 | LCH | 12.45 | 13 | PASS |
| | | MCH | 12.68 | 13 | PASS |
| | | HCH | 12.47 | 13 | PASS |
| GSM1900 | GSM/TM1 | LCH | 9.58 | 13 | PASS |
| | | MCH | 9.70 | 13 | PASS |
| | | HCH | 9.83 | 13 | PASS |
| | GSM/TM2 | LCH | 12.56 | 13 | PASS |
| | | MCH | 12.68 | 13 | PASS |
| | | HCH | 12.68 | 13 | PASS |
| WCDMA850 | UMTS/TM1 | LCH | 3.22 | 13 | PASS |
| | | MCH | 2.57 | 13 | PASS |
| | | HCH | 2.88 | 13 | PASS |
| WCDMA1700 | UMTS/TM1 | LCH | 2.61 | 13 | PASS |
| | | MCH | 2.75 | 13 | PASS |
| | | HCH | 2.71 | 13 | PASS |
| WCDMA1900 | UMTS/TM1 | LCH | 2.93 | 13 | PASS |
| | | MCH | 3.02 | 13 | PASS |
| | | HCH | 2.45 | 13 | PASS |
| LTE 750 | LTE TM1/ 10MHz | LCH | 5.68 | 13 | PASS |
| | | MCH | 5.66 | 13 | PASS |
| | | HCH | 5.62 | 13 | PASS |
| | LTE TM2/ 10MHz | LCH | 6.45 | 13 | PASS |
| | | MCH | 6.47 | 13 | PASS |
| | | HCH | 6.43 | 13 | PASS |
| LTE1700 | LTE TM1/ 20MHz | LCH | 5.29 | 13 | PASS |
| | | MCH | 5.22 | 13 | PASS |
| | | HCH | 5.21 | 13 | PASS |
| | LTE TM2/ 20MHz | LCH | 5.26 | 13 | PASS |
| | | MCH | 5.28 | 13 | PASS |
| | | HCH | 5.18 | 13 | PASS |
| LTE1900 | LTE TM1/ 20MHz | LCH | 5.15 | 13 | PASS |

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| Test Band | Test Mode | Test Channel | Measured[dB] | Limit [dB] | Verdict |
|-------------------|-------------------|-------------------|--------------|------------|---------|
| LTE1900 | LTE TM1/ 20MHz | MCH | 5.30 | 13 | PASS |
| | | HCH | 4.58 | 13 | PASS |
| | LTE TM2/ 20MHz | LCH | 5.90 | 13 | PASS |
| | | MCH | 6.05 | 13 | PASS |
| | | HCH | 5.33 | 13 | PASS |
| | LTE2600 | LTE TM1/ 20MHz | LCH | 5.09 | 13 |
| MCH | | | 5.36 | 13 | PASS |
| HCH | | | 5.68 | 13 | PASS |
| LTE TM2/ 20MHz | | LCH | 5.14 | 13 | PASS |
| | | MCH | 5.78 | 13 | PASS |
| | | HCH | 5.95 | 13 | PASS |

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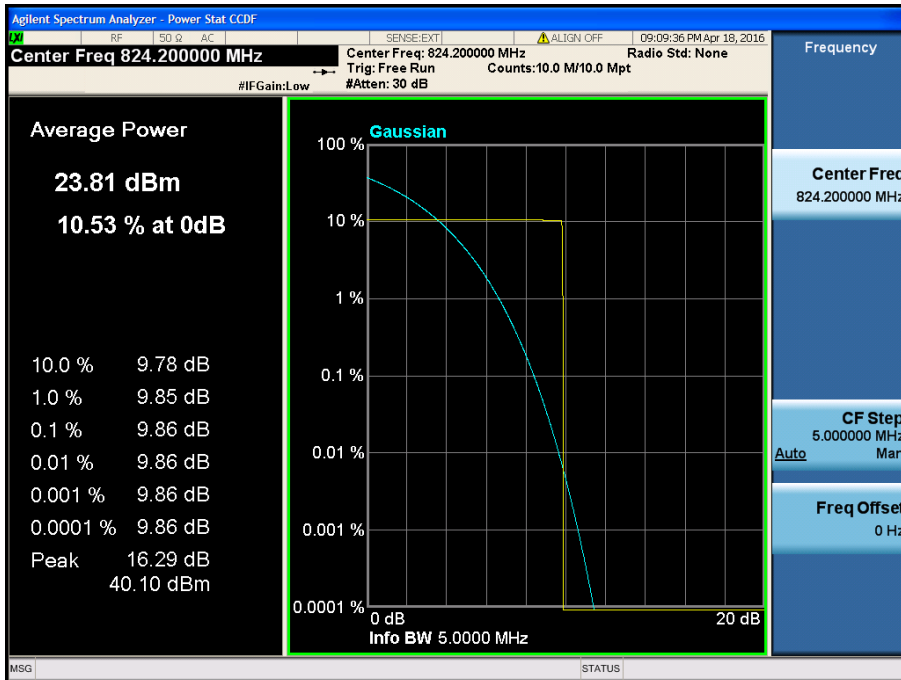
Part II - Test Plots

2.1 For GSM

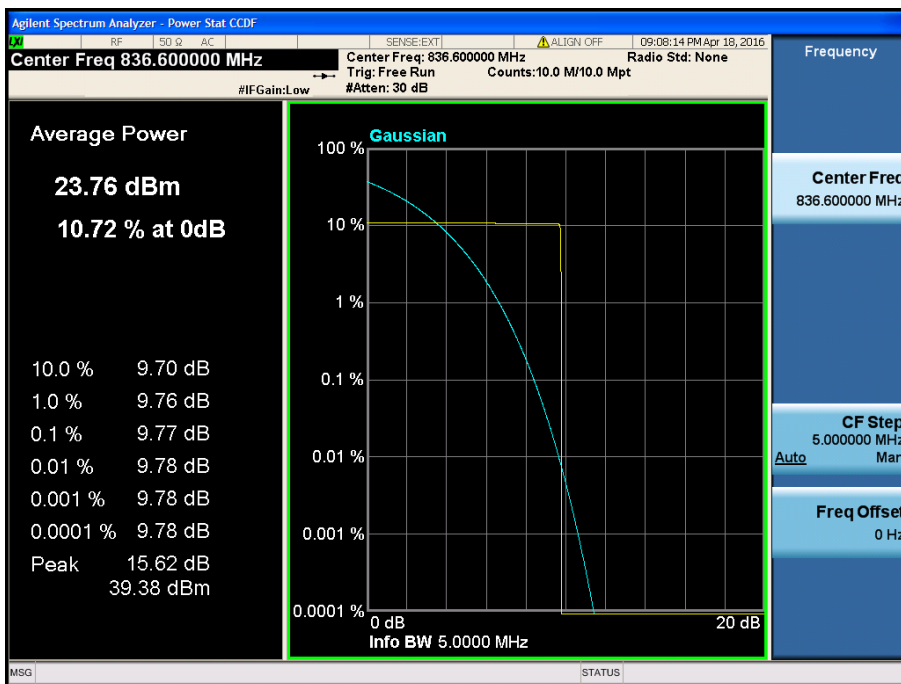
2.1.1 Test Band = GSM850

2.1.1.1 Test Mode = GSM/TM1

2.1.1.1.1 Test Channel = LCH



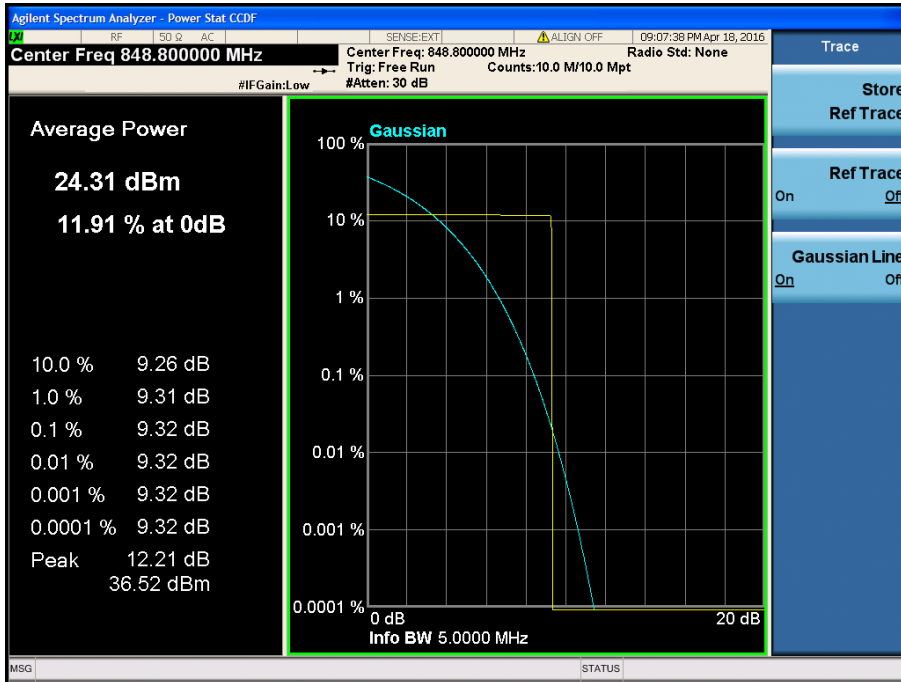
2.1.1.1.2 Test Channel = MCH



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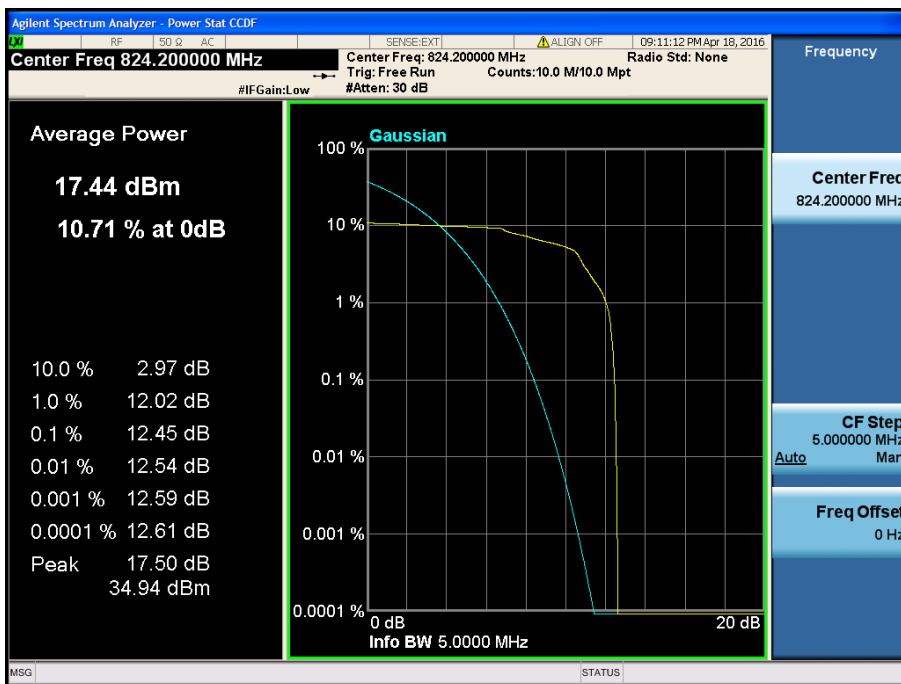


2.1.1.1.3 Test Channel = HCH



2.1.1.2 Test Mode = GSM/TM2

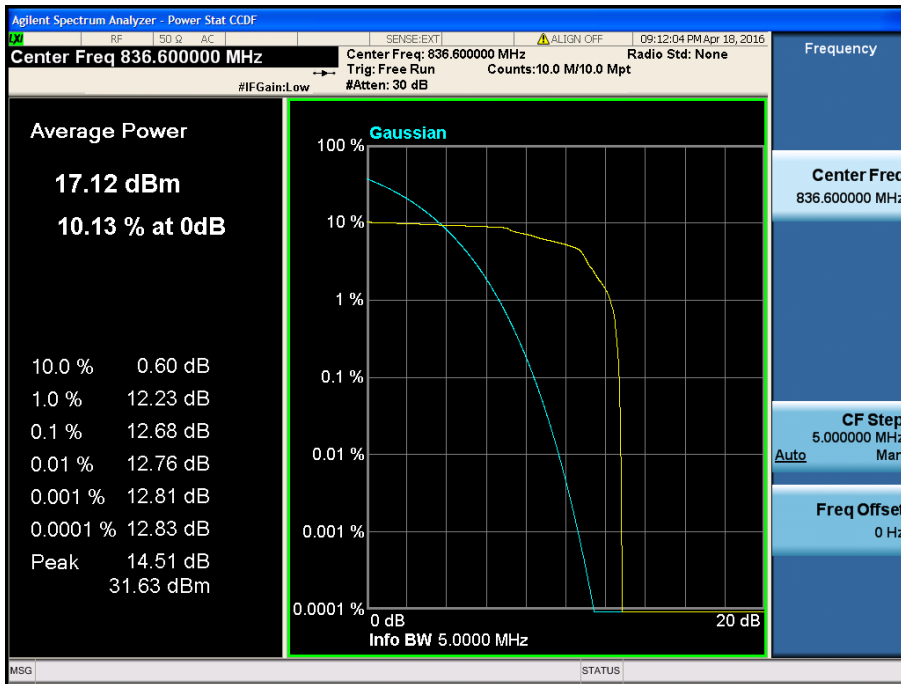
2.1.1.2.1 Test Channel = LCH



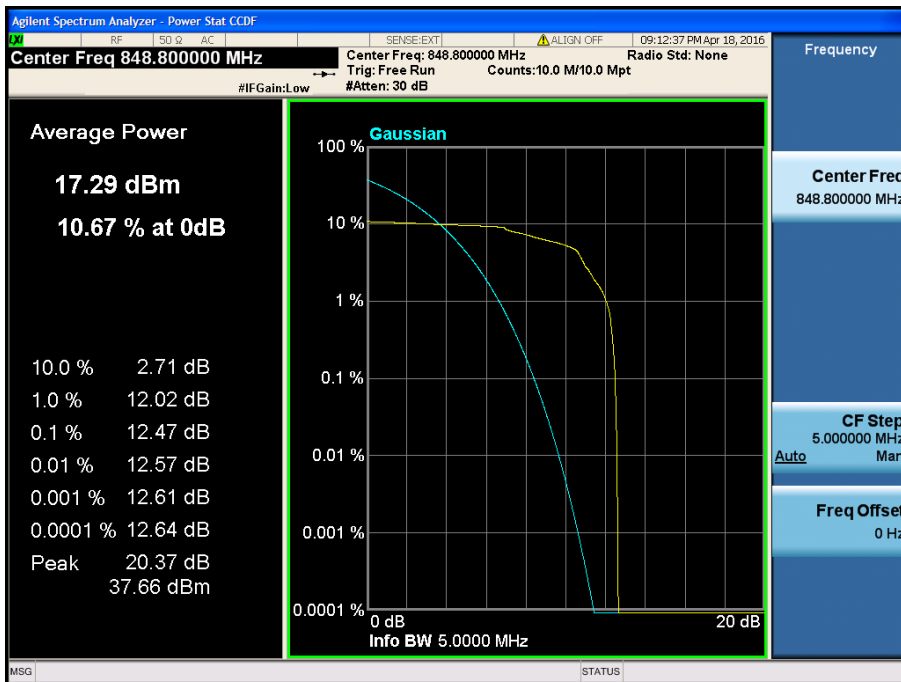
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2.1.1.2.2 Test Channel = MCH



2.1.1.2.3 Test Channel = HCH



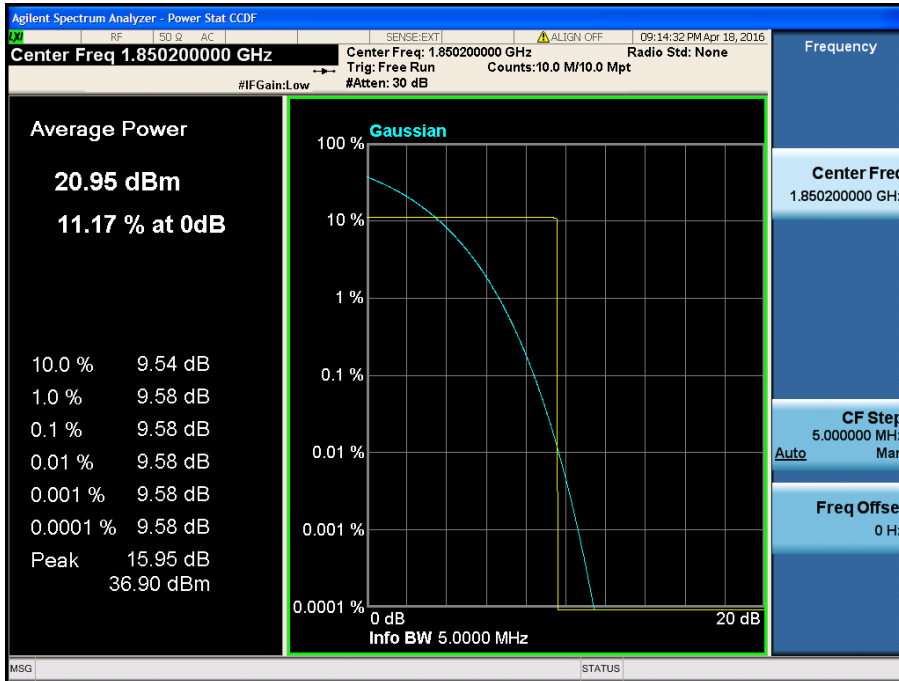
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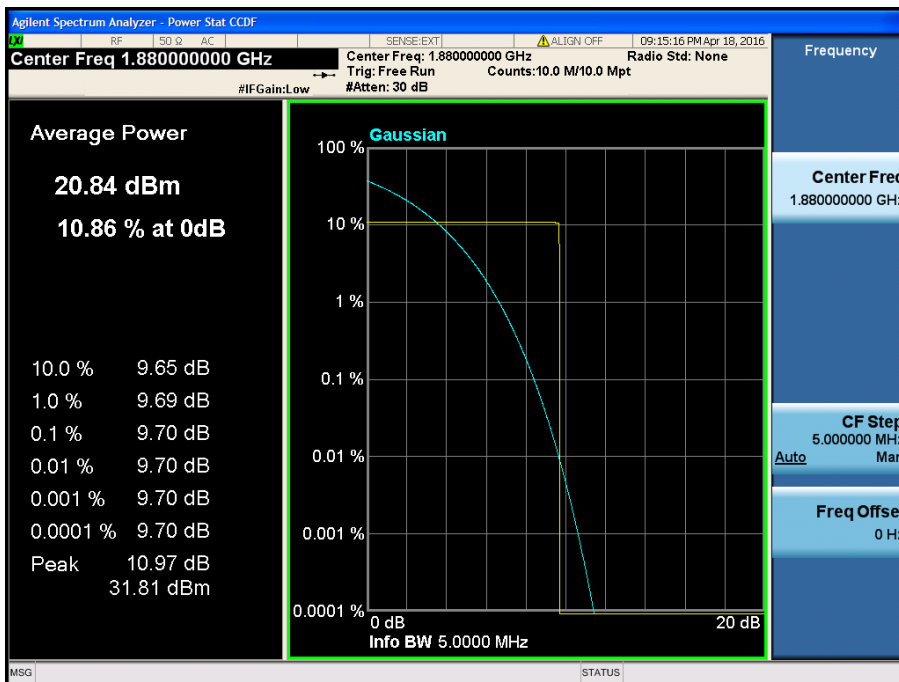
2.1.2 Test Band = GSM1900

2.1.2.1 Test Mode = GSM/TM1

2.1.2.1.1 Test Channel = LCH

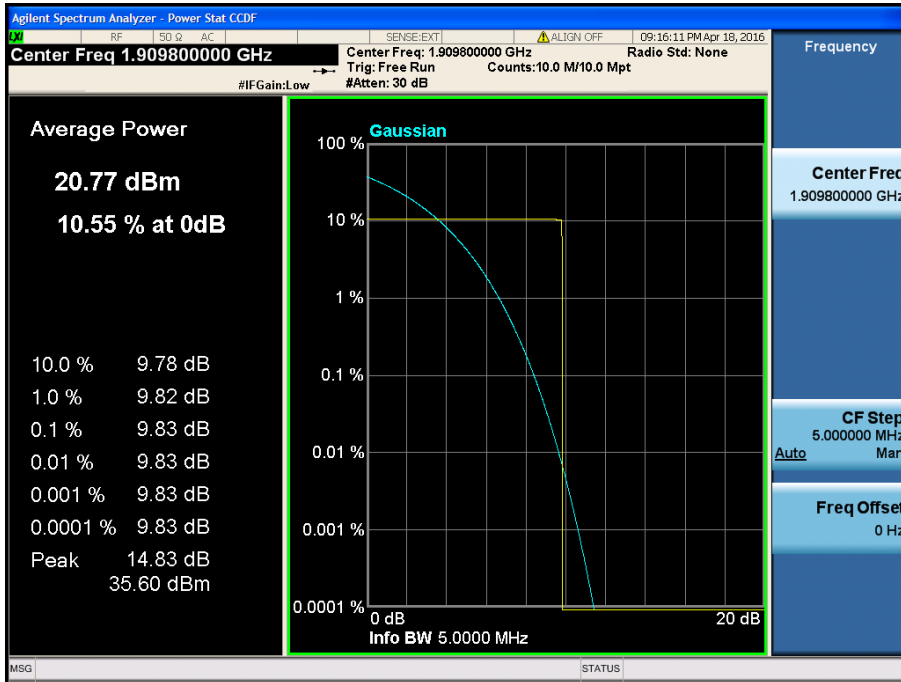


2.1.2.1.2 Test Channel = MCH



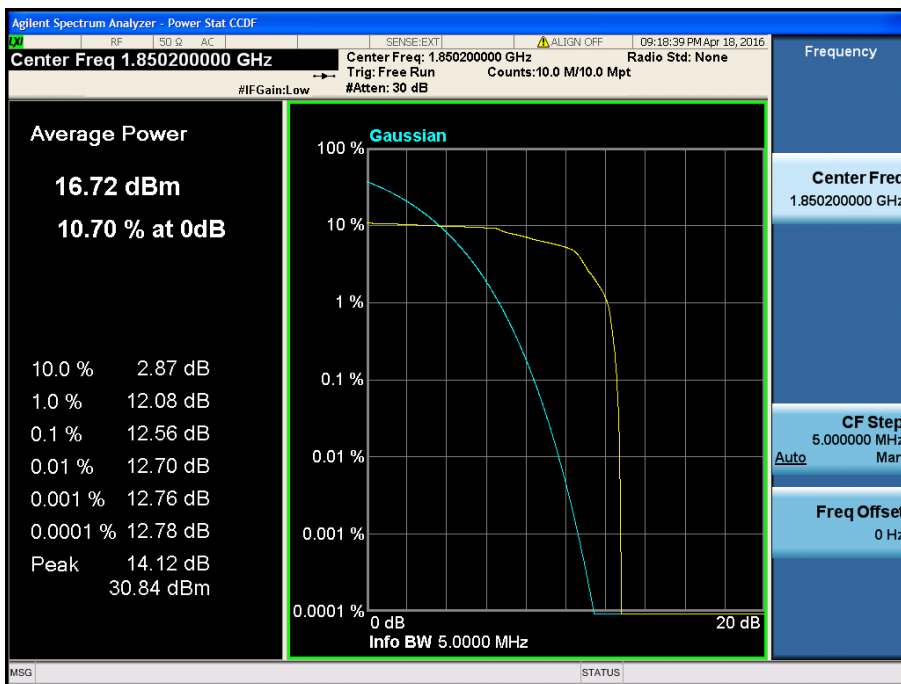


2.1.2.1.3 Test Channel = HCH



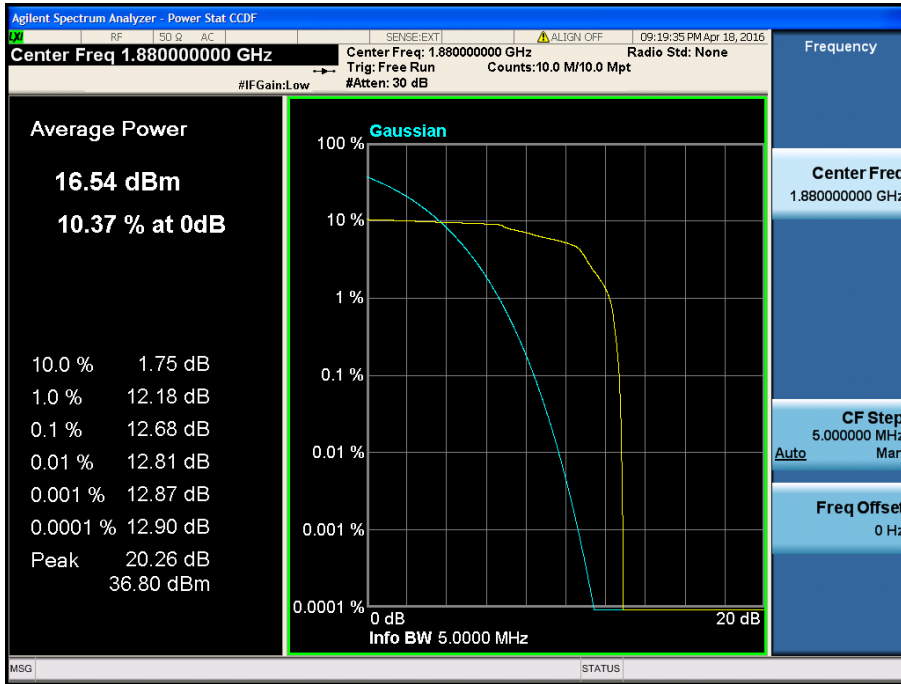
2.1.2.2 Test Mode = GSM/TM2

2.1.2.2.1 Test Channel = LCH

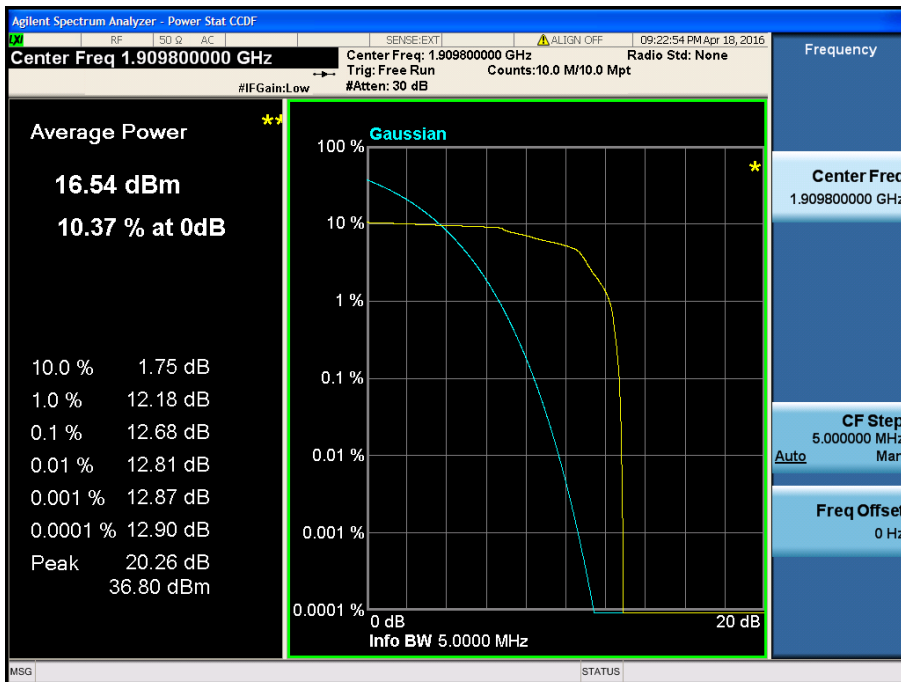




2.1.2.2.2 Test Channel = MCH



2.1.2.2.3 Test Channel = HCH



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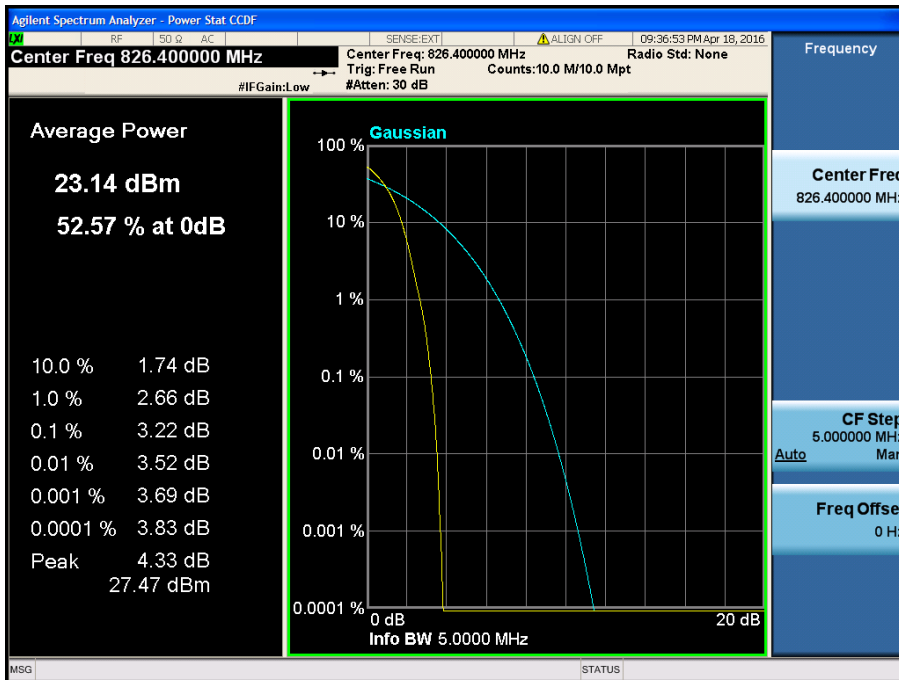


2.2 For WCDMA

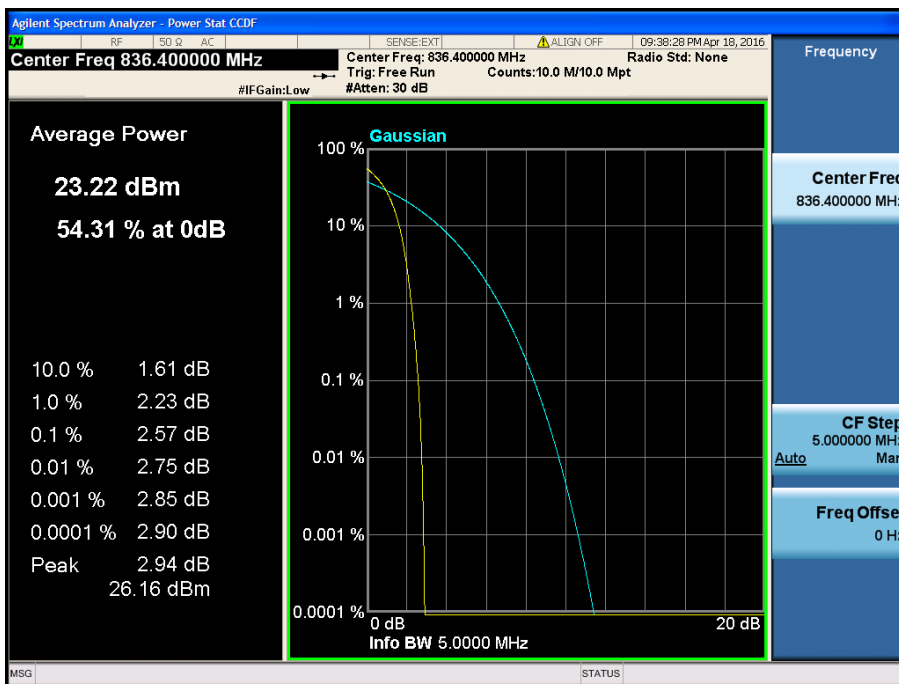
2.2.1 Test Band = WCDMA850

2.2.1.1 Test Mode = WCDMA /TM1

2.2.1.1.1 Test Channel = LCH



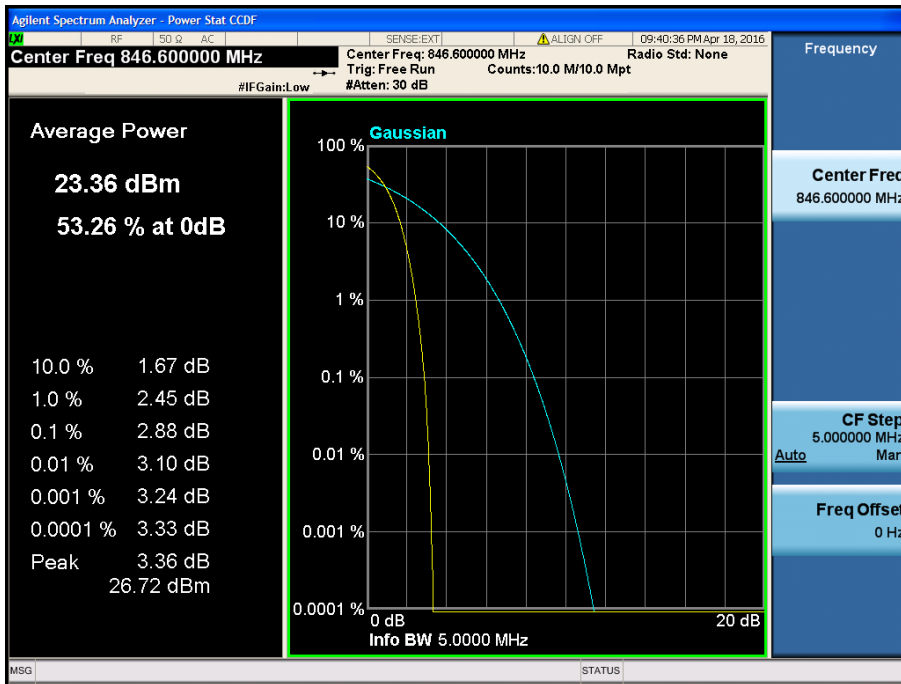
2.2.1.1.2 Test Channel = MCH



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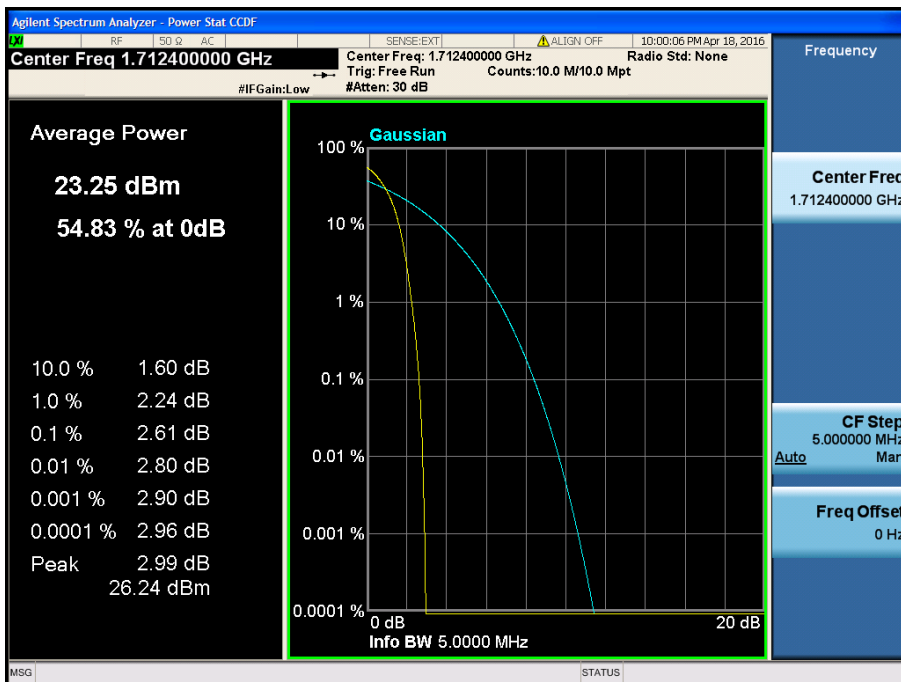
2.2.1.1.3 Test Channel = HCH



2.2.2 Test Band = WCDMA 1700

2.2.2.1 Test Mode = WCDMA /TM1

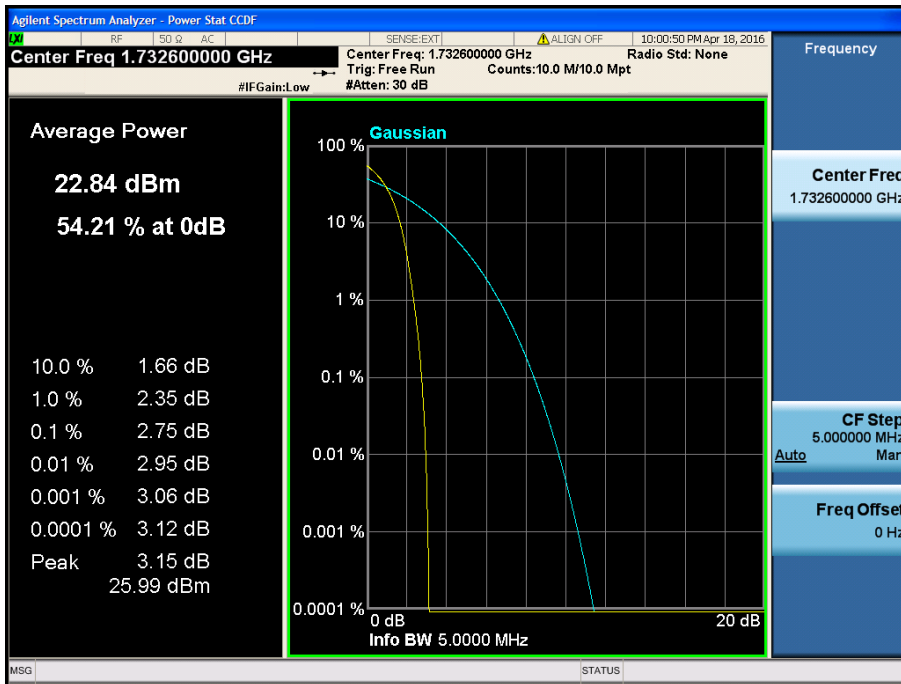
2.2.2.1.1 Test Channel = LCH



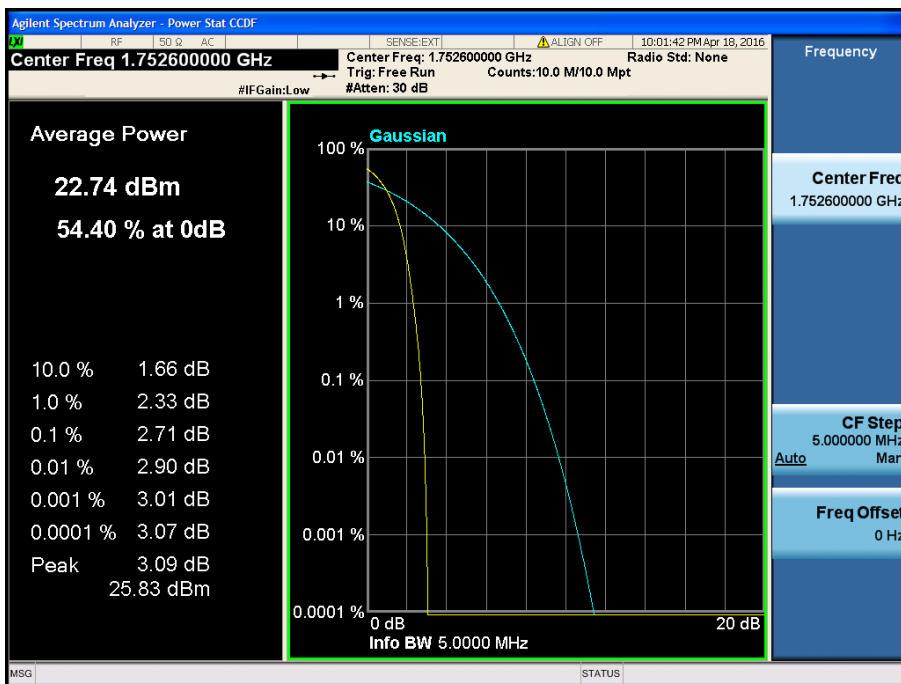
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2.2.2.1.2 Test Channel = MCH



2.2.2.1.3 Test Channel = HCH



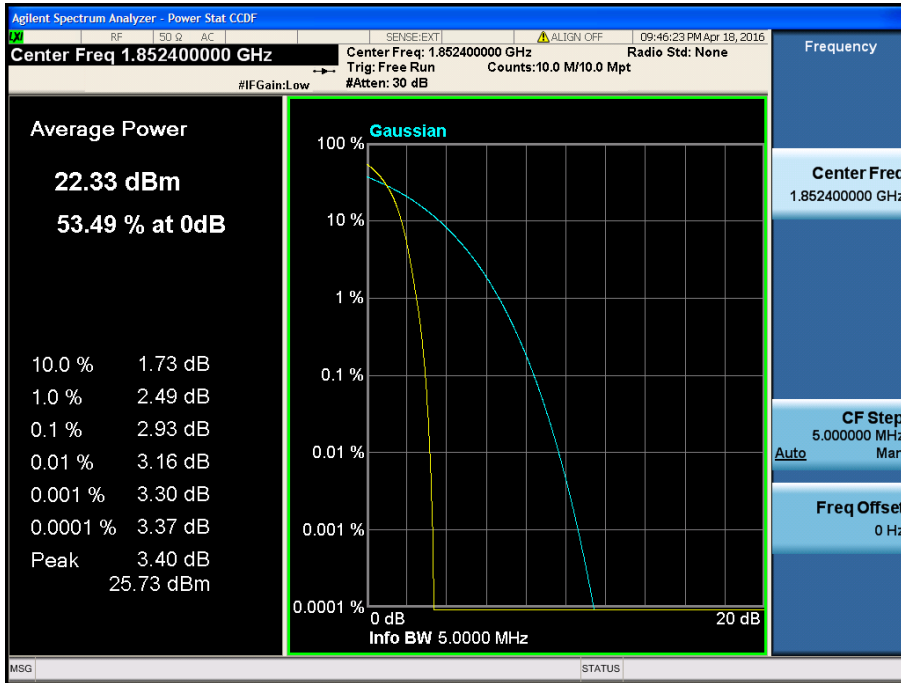
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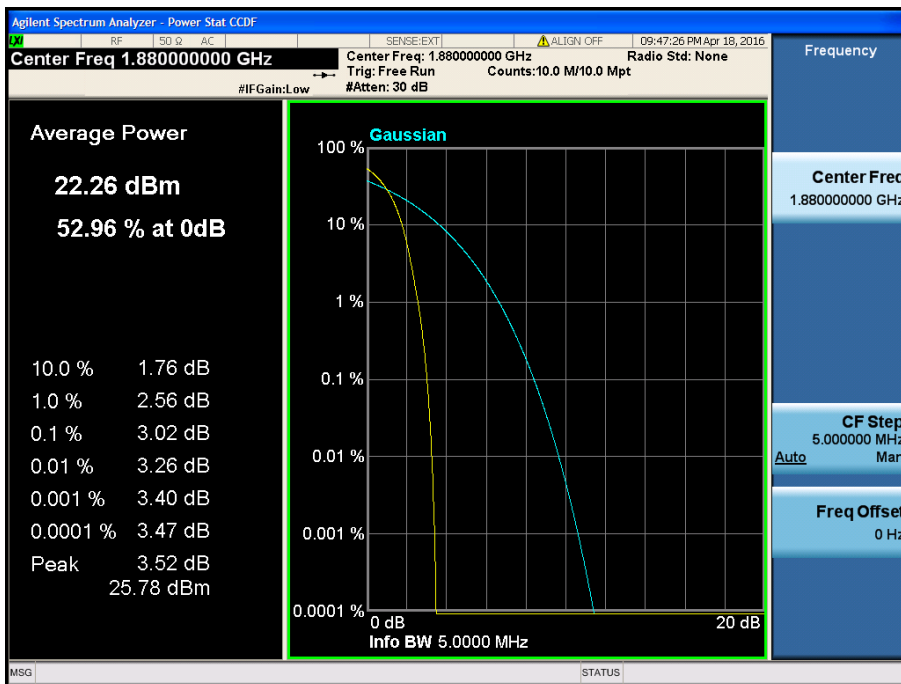
2.2.3 Test Band = WCDMA 1900

2.2.3.1 Test Mode = WCDMA /TM1

2.2.3.1.1 Test Channel = LCH

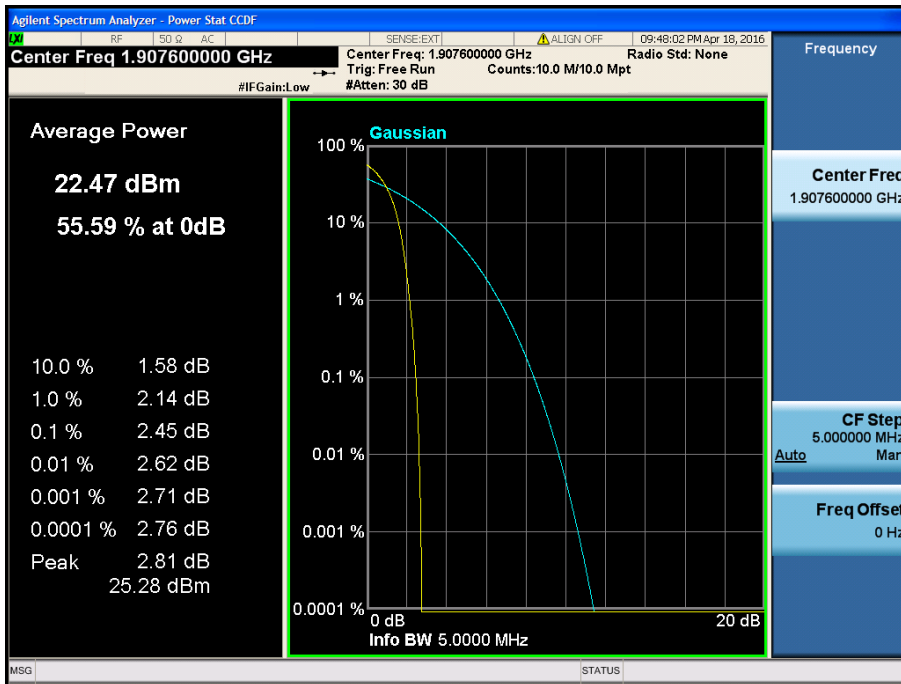


2.2.3.1.2 Test Channel = MCH





2.2.3.1.3 Test Channel = HCH

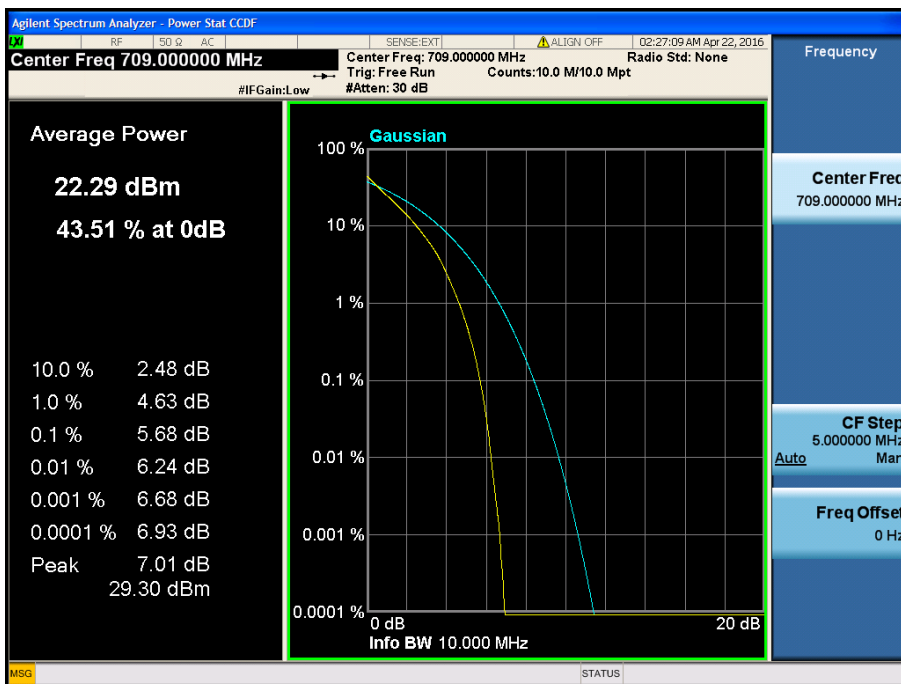


2.3 For LTE

2.3.1 Test Band = LTE 700

2.3.1.1 Test Mode = LTE/TM1.Bandwidth=10MHz

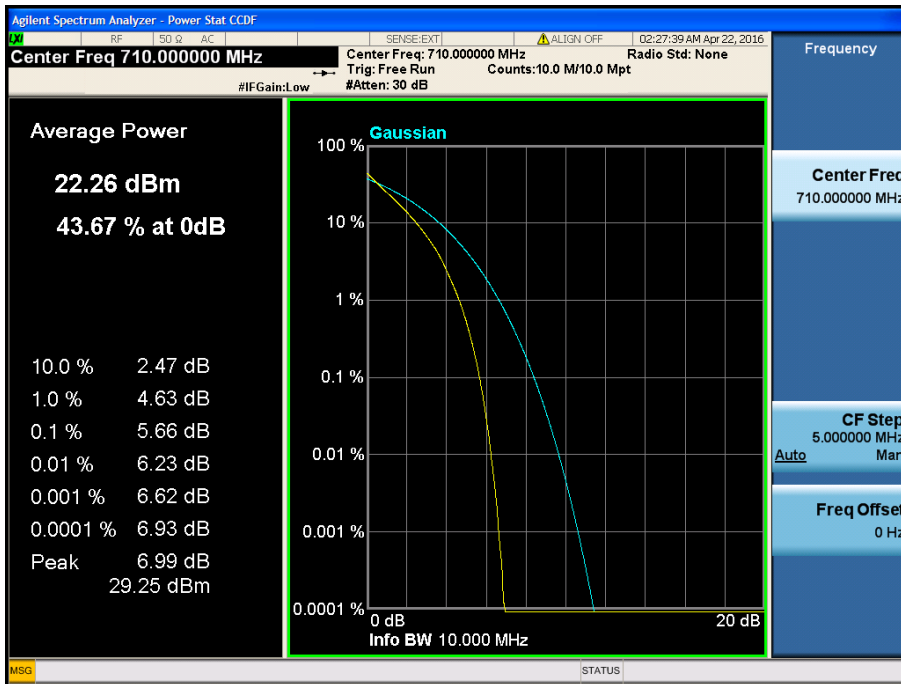
2.3.1.1.1 Test Channel = LCH



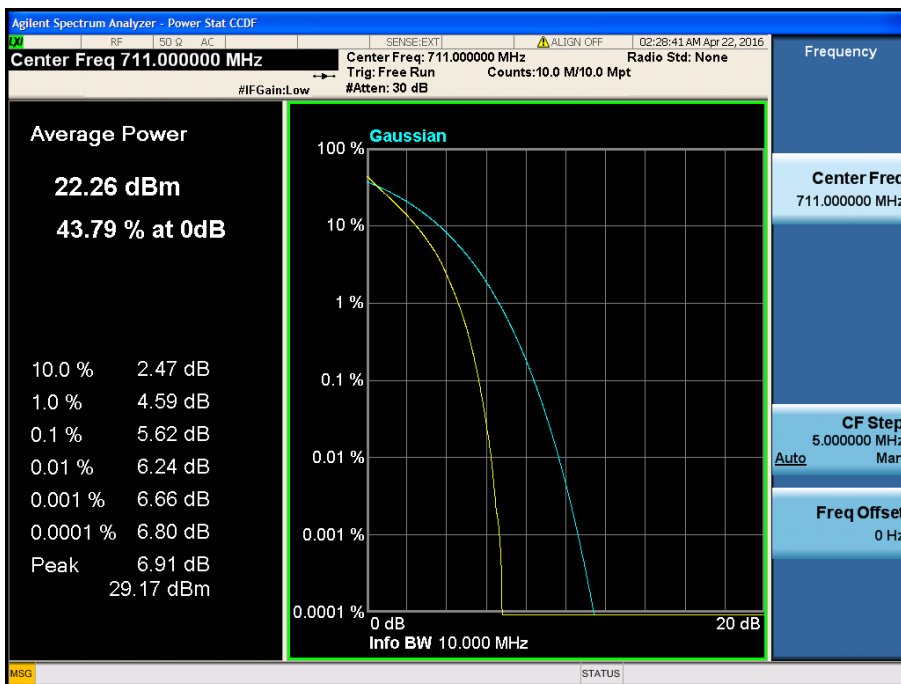
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2.3.1.1.2 Test Channel = MCH



2.3.1.1.3 Test Channel = HCH

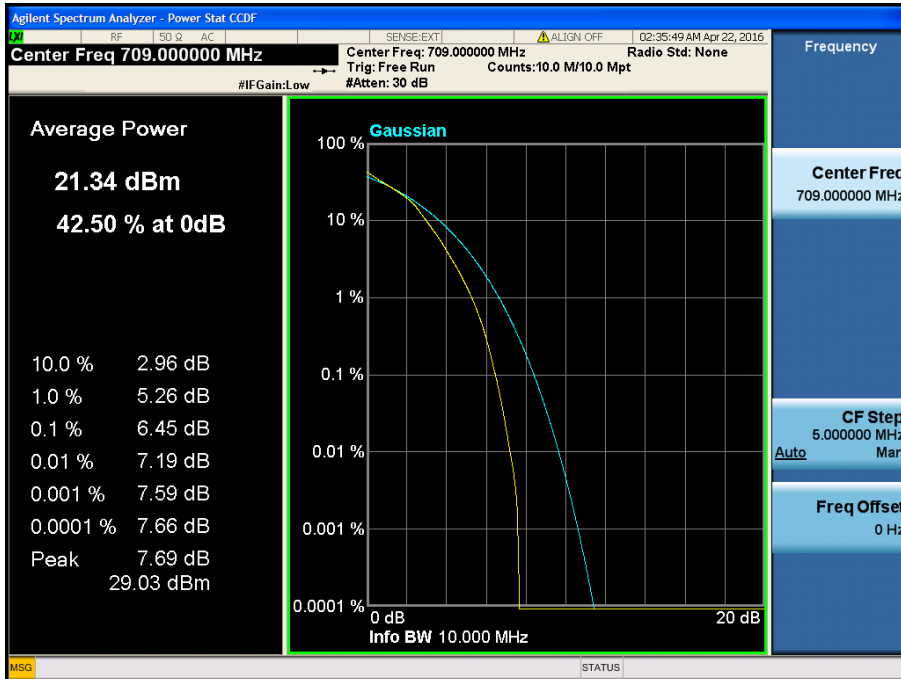


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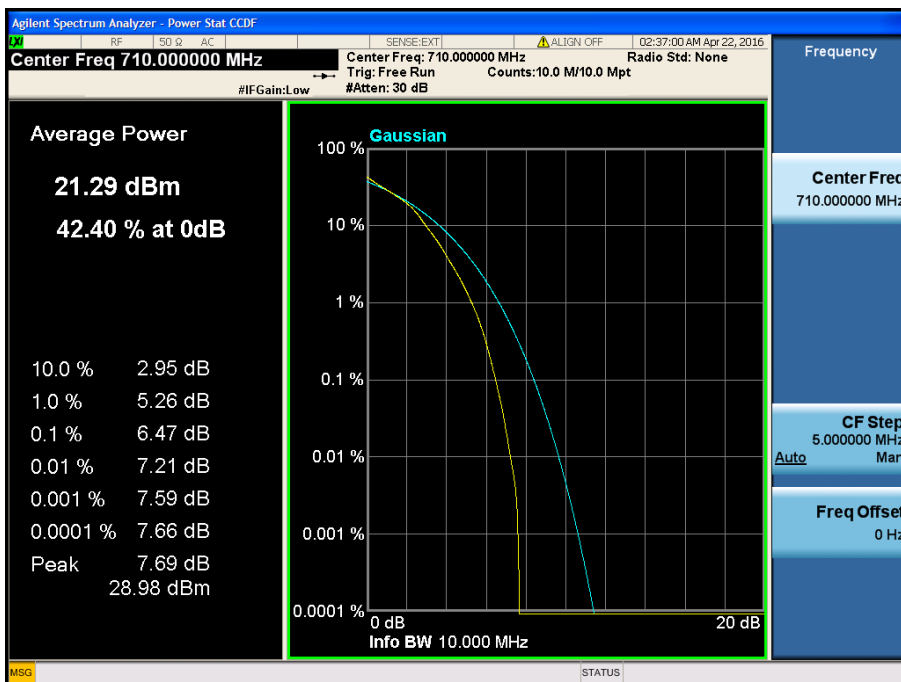


2.3.1.2 Test Mode = LTE/TM2.Bandwidth=10MHz

2.3.1.2.1 Test Channel = LCH

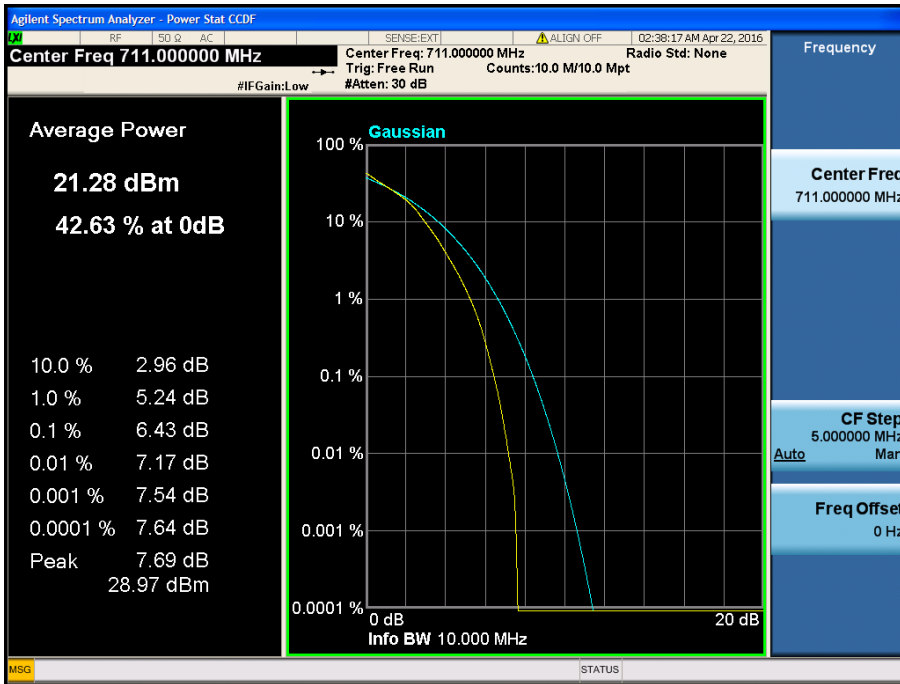


2.3.1.2.2 Test Channel = MCH





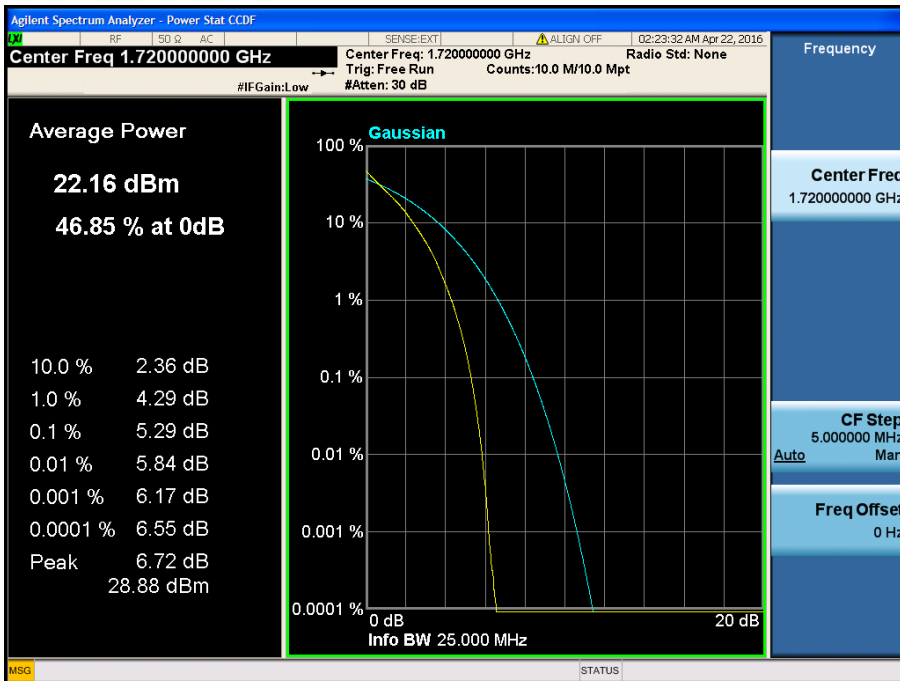
2.3.1.2.3 Test Channel = HCH



2.3.2 Test Band = LTE 1700.Bandwidth=20MHz

2.3.2.1 Test Mode = LTE/TM1

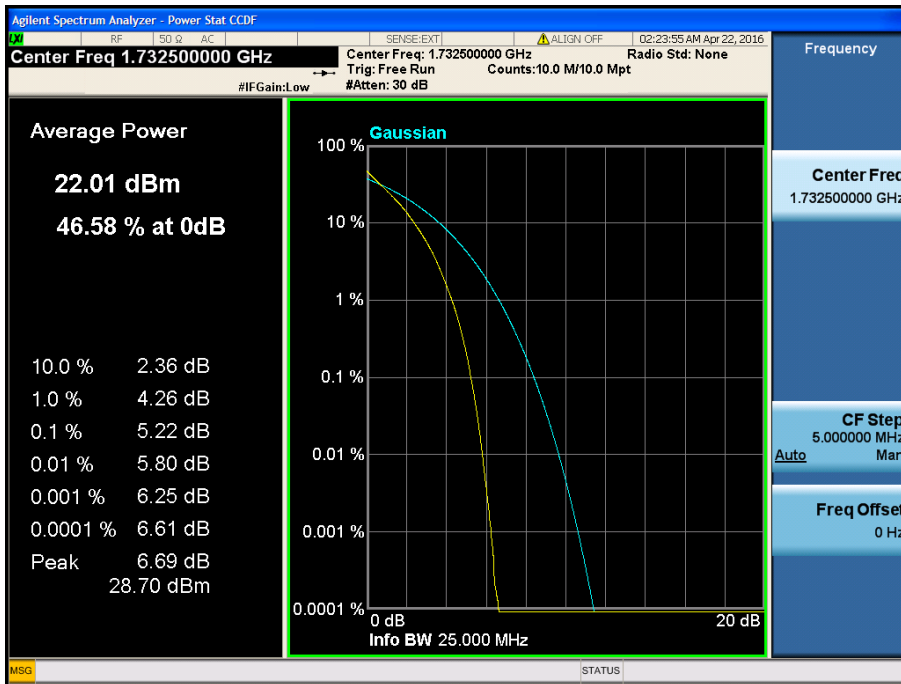
2.3.2.1.1 Test Channel = LCH



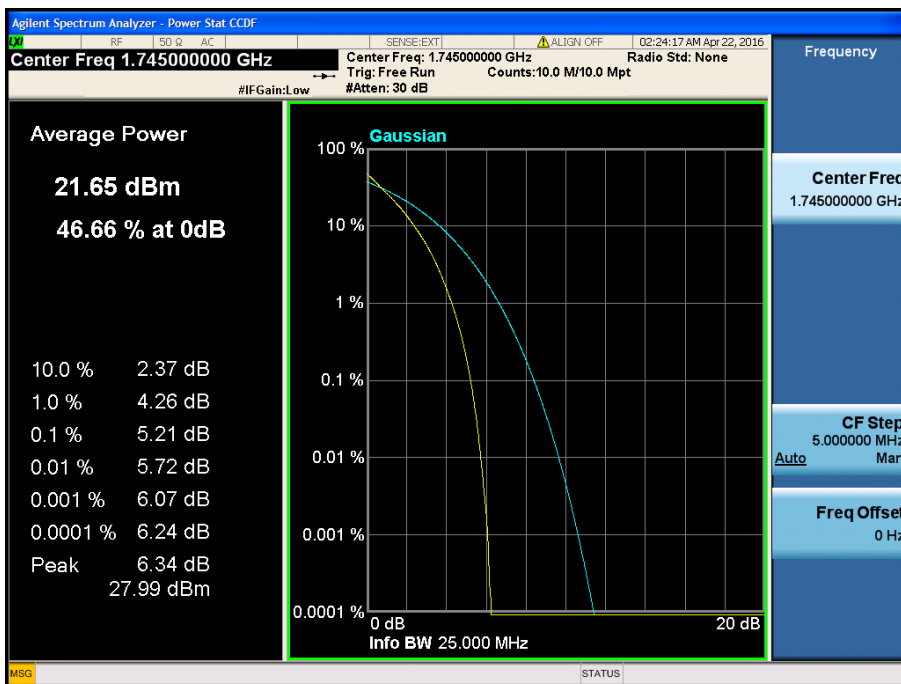
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2.3.2.1.2 Test Channel = MCH



2.3.2.1.3 Test Channel = HCH

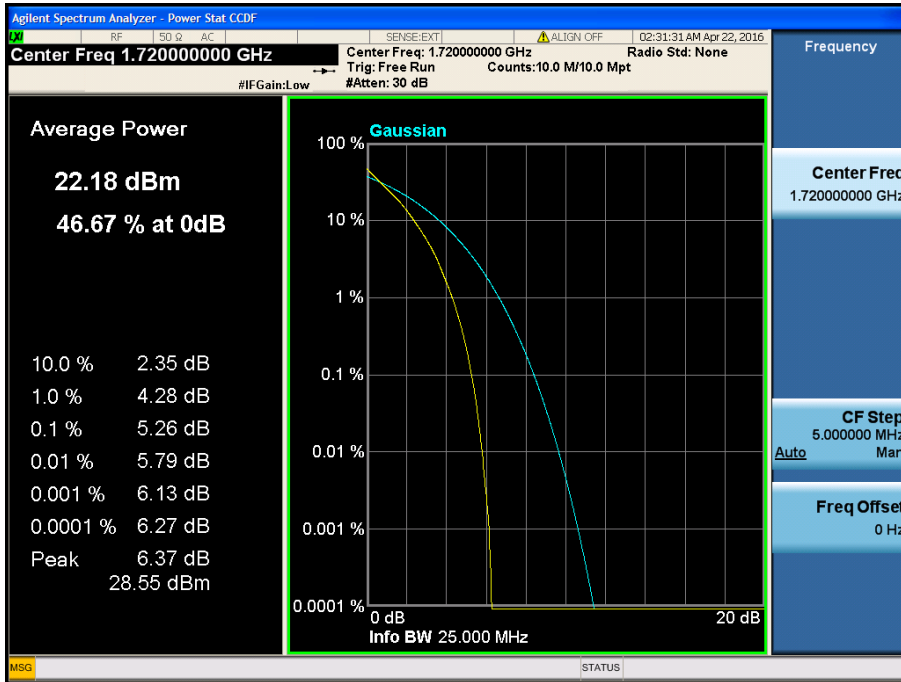


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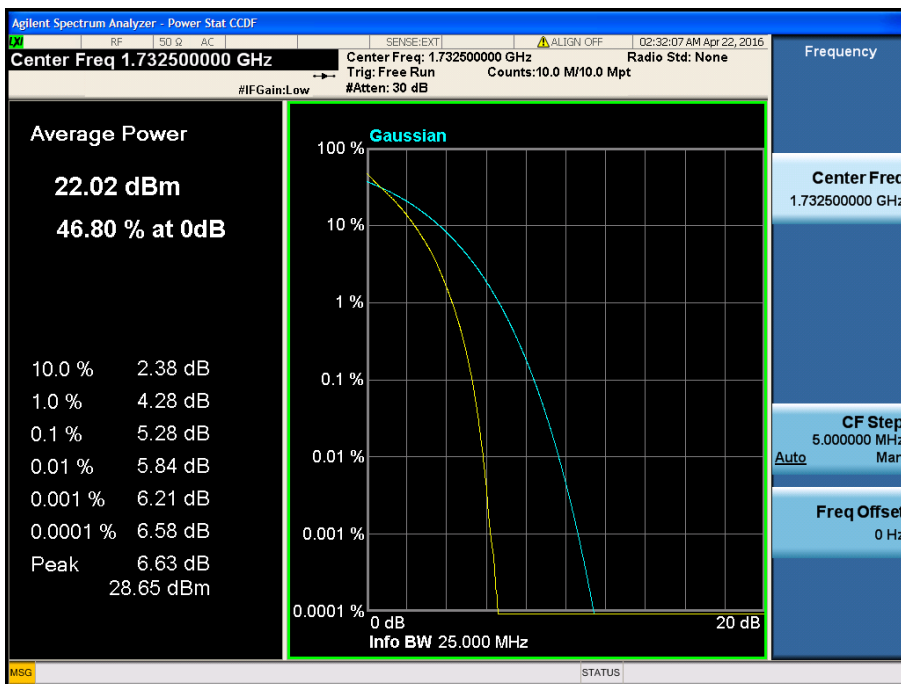


2.3.2.2 Test Mode = LTE/TM2.Bandwidth=20MHz

2.3.2.2.1 Test Channel = LCH

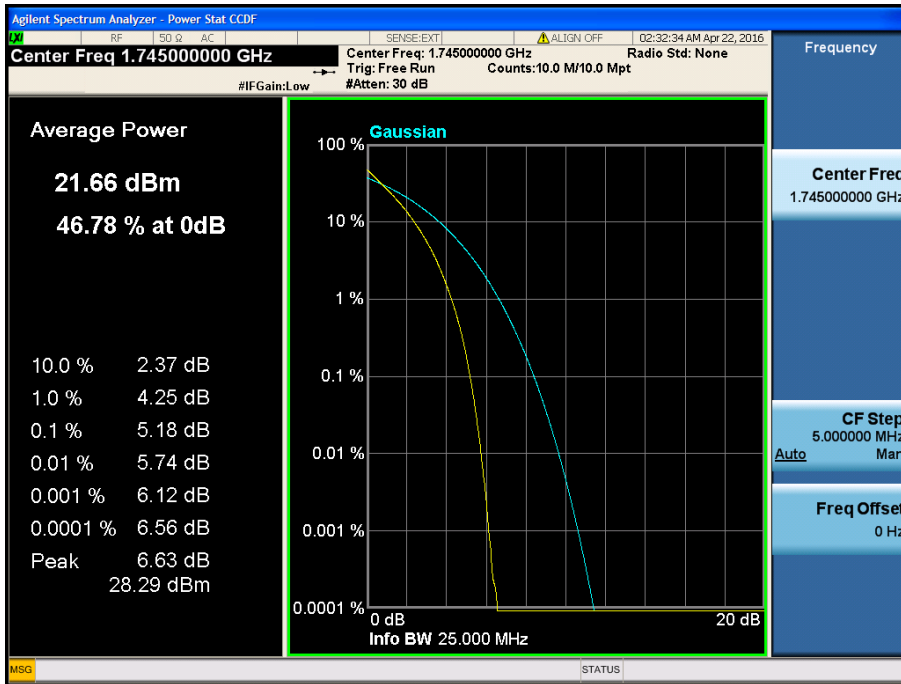


2.3.2.2.2 Test Channel = MCH





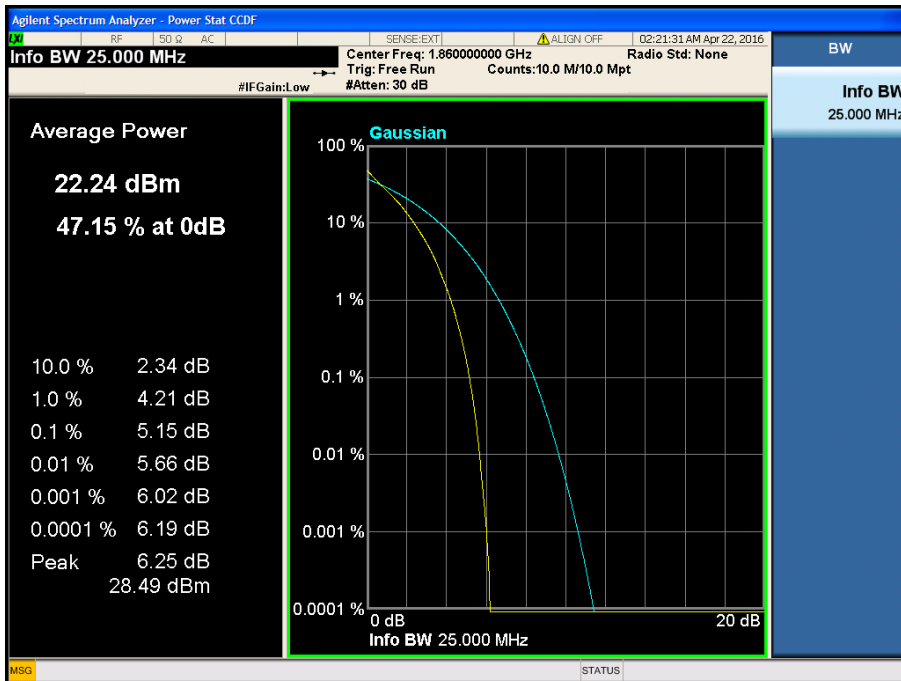
2.3.2.2.3 Test Channel = HCH



2.3.3 Test Band = LTE 1900.Bandwidth=20MHz

2.3.3.1 Test Mode = LTE/TM1

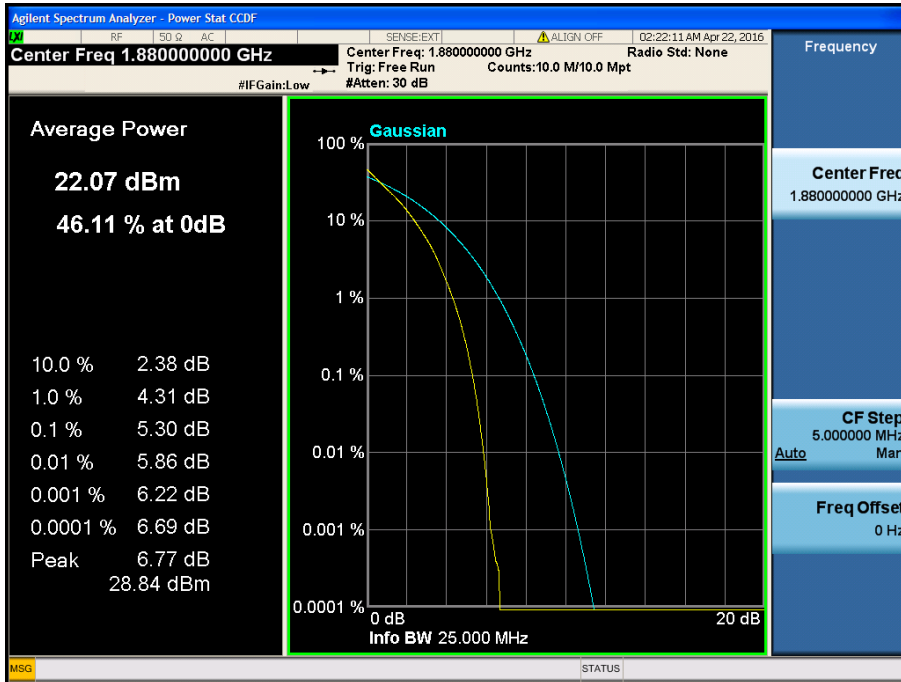
2.3.3.1.1 Test Channel = LCH



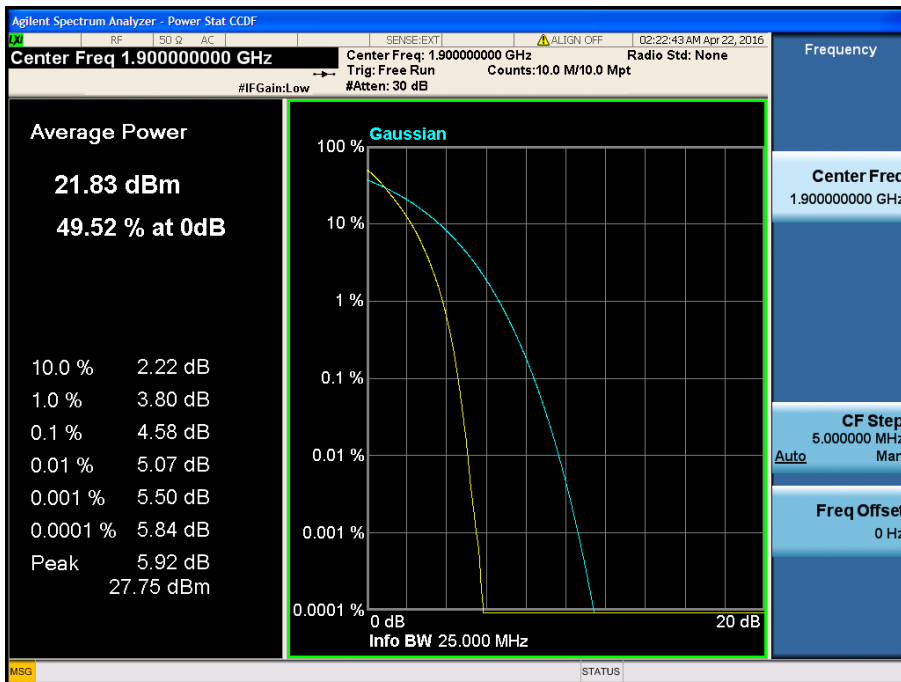
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2.3.3.1.2 Test Channel = MCH



2.3.3.1.3 Test Channel = HCH

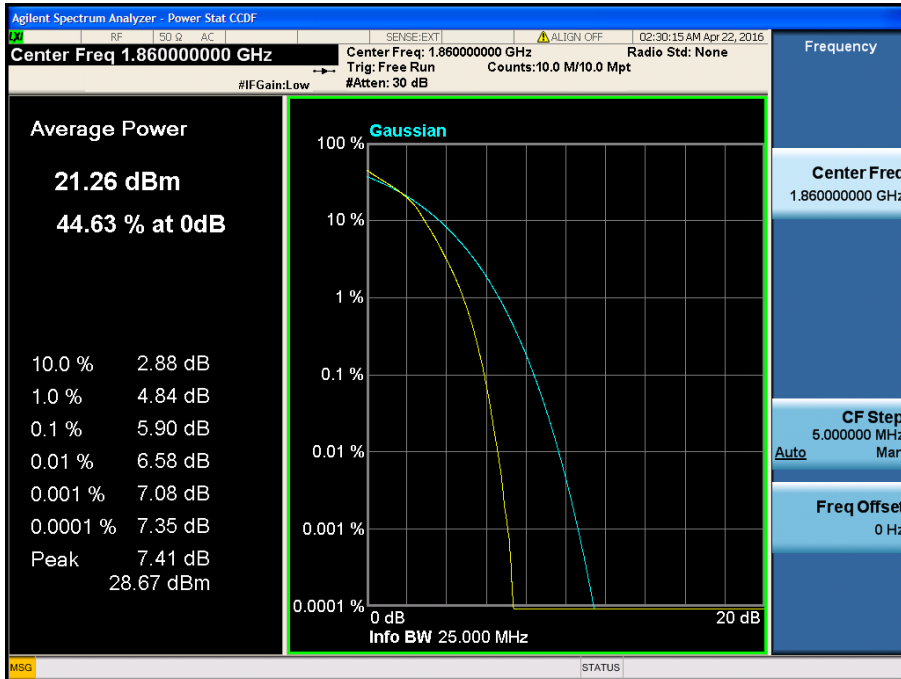


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2.3.3.2 Test Mode = LTE/TM2

2.3.3.2.1 Test Channel = LCH

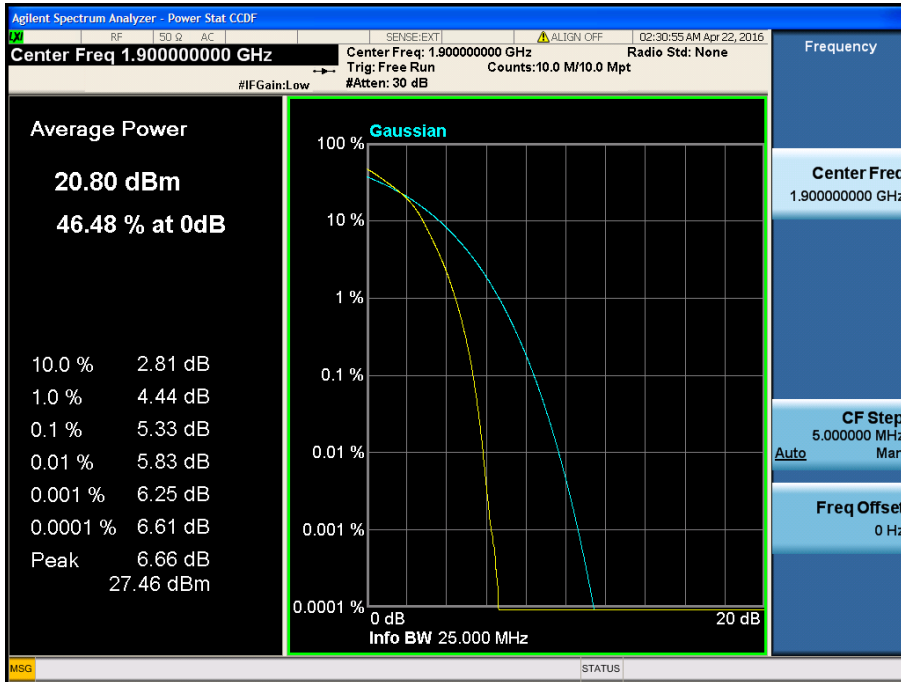


2.3.3.2.2 Test Channel = MCH





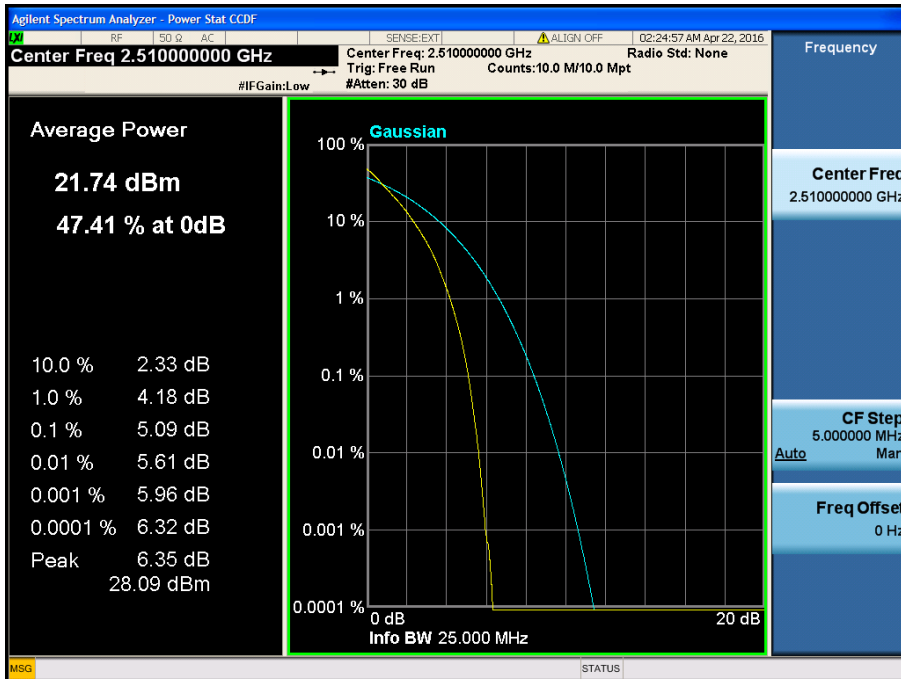
2.3.3.2.3 Test Channel = HCH



2.3.4 Test Band = LTE 2600.Bandwidth=20MHz

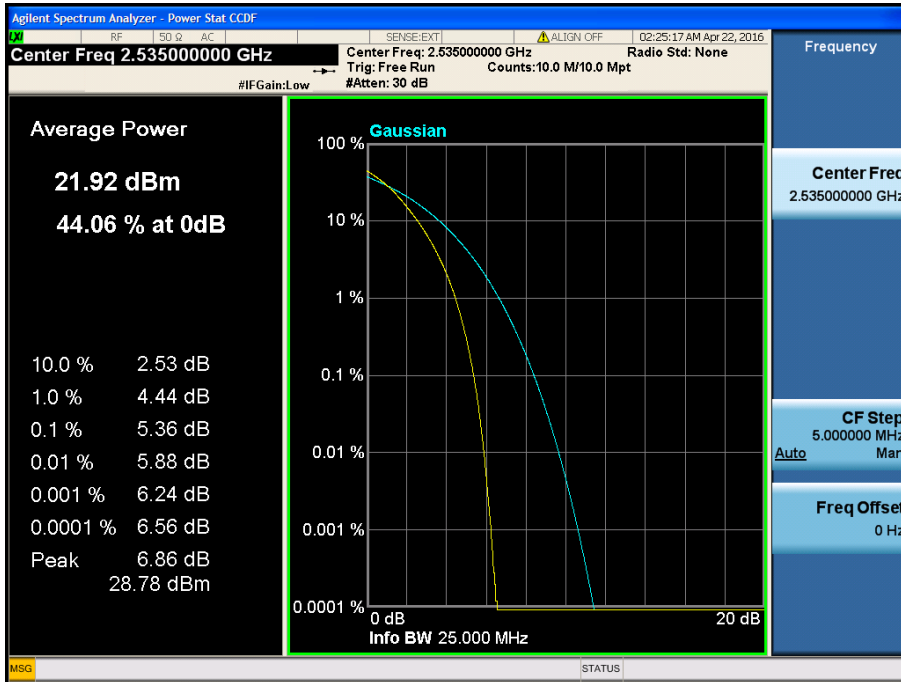
2.3.4.1 Test Mode = LTE/TM1

2.3.4.1.1 Test Channel = LCH





2.3.4.1.2 Test Channel = MCH



2.3.4.1.3 Test Channel = HCH

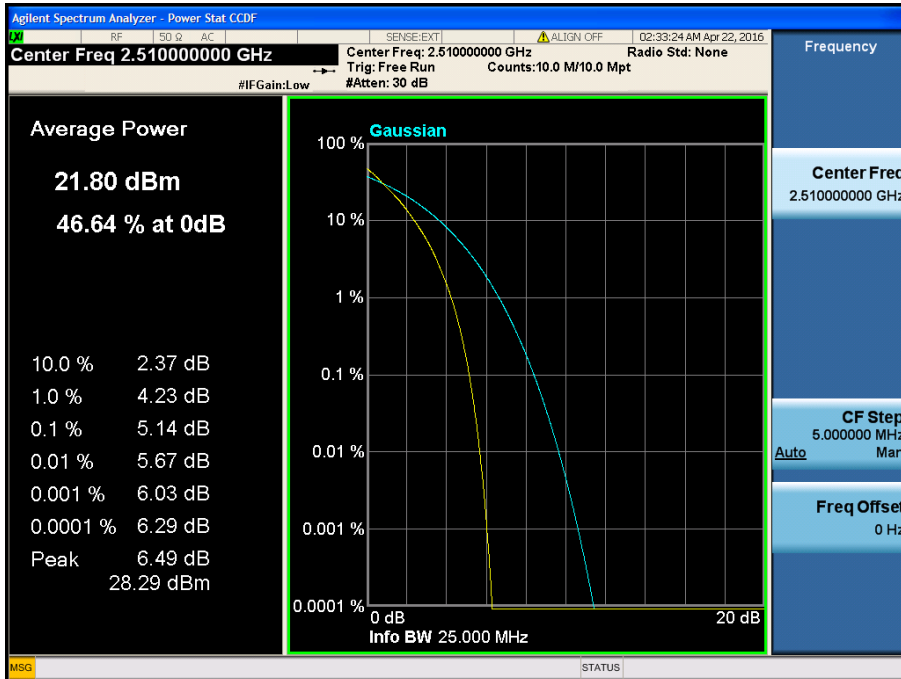


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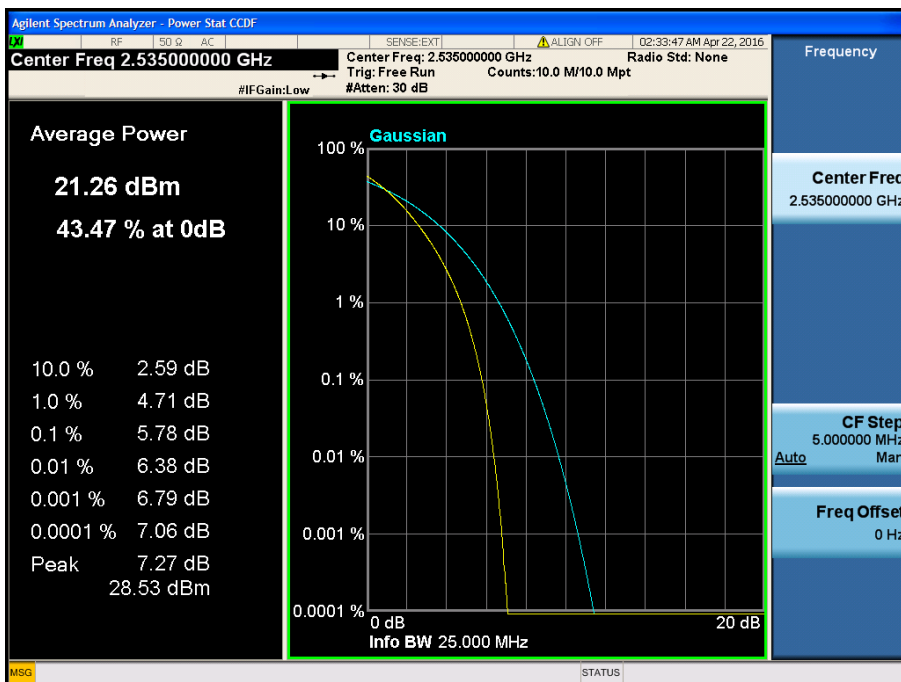


2.3.4.2 Test Mode = LTE/TM2.Bandwidth=20MHz

2.3.4.2.1 Test Channel = LCH

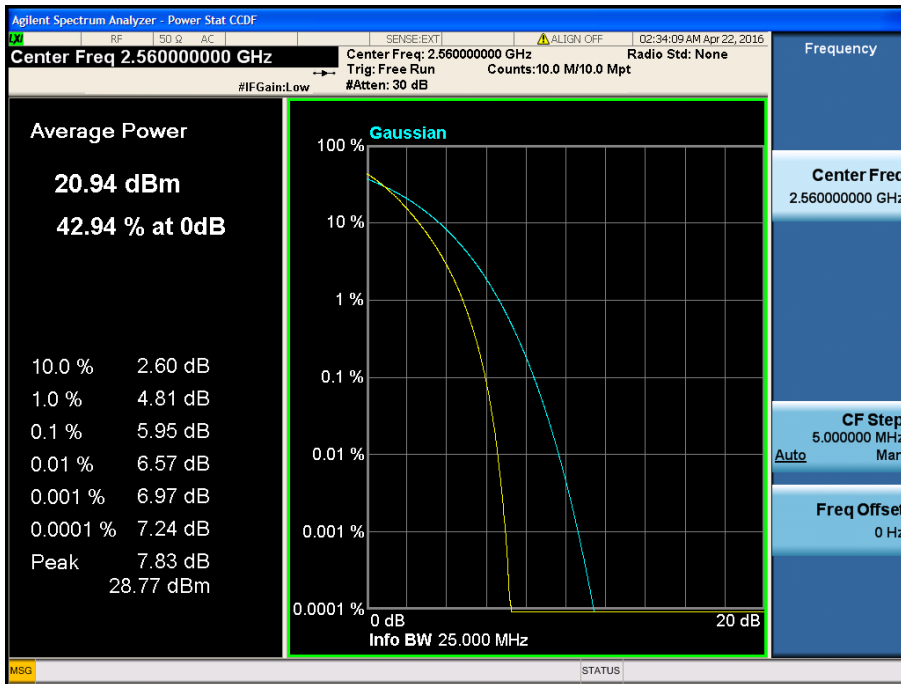


2.3.4.2.2 Test Channel = MCH





2.3.4.2.3 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





3.1.2 Test Band = GSM1900

3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



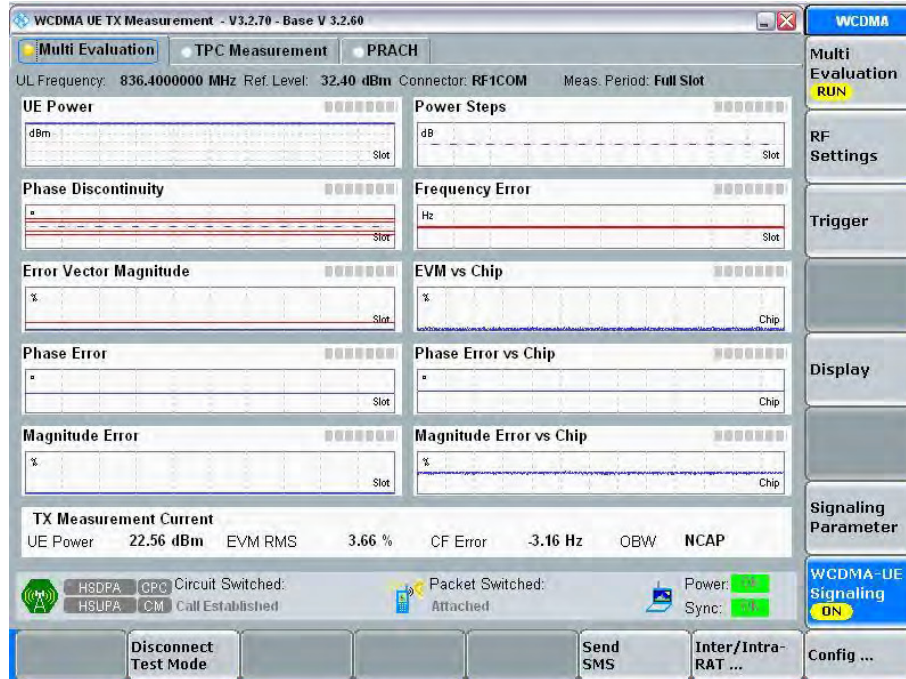


3.2 For WCDMA

3.2.1 Test Band = WCDMA 850

3.2.1.1 Test Mode = WCDMA /TM1

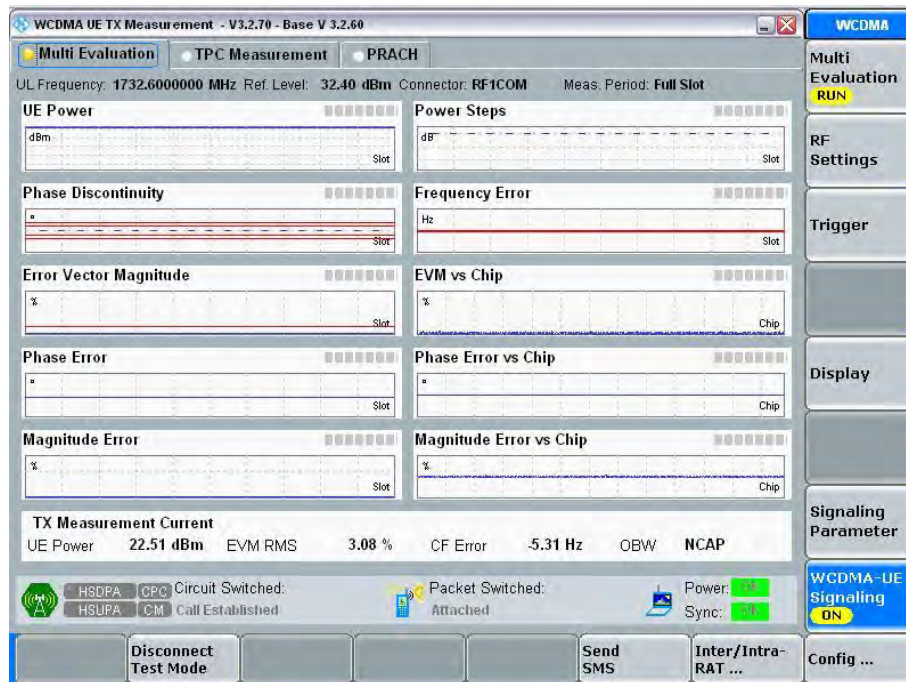
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA 1700

3.2.2.1 Test Mode = WCDMA /TM1

3.2.2.1.1 Test Channel = MCH



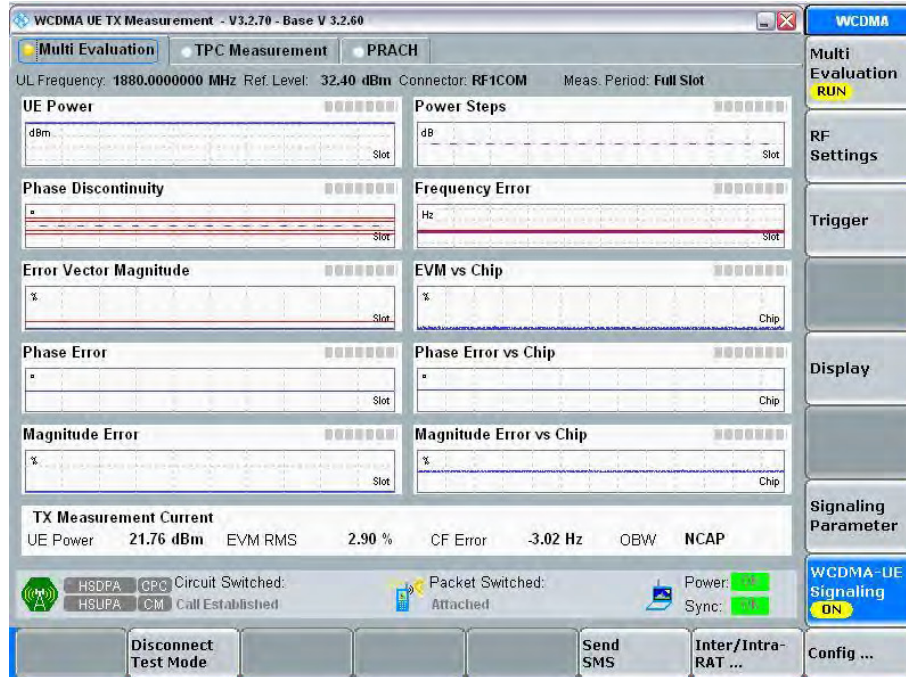
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3.2.3 Test Band = WCDMA 1900

3.2.3.1 Test Mode = WCDMA /TM1

3.2.3.1.1 Test Channel = MCH



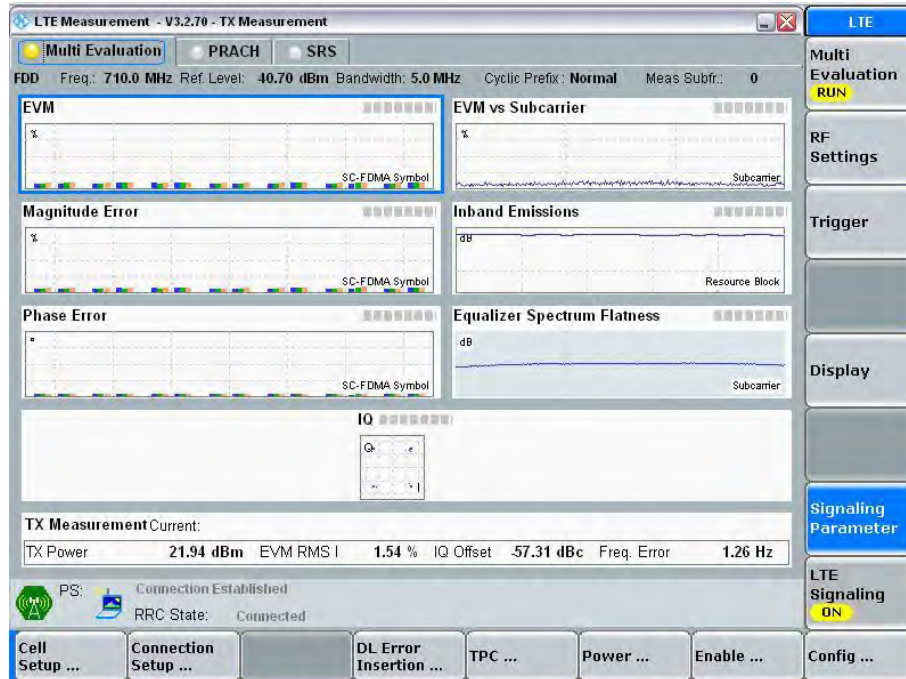


3.3 For LTE

3.3.1 Test Band = LTE 750

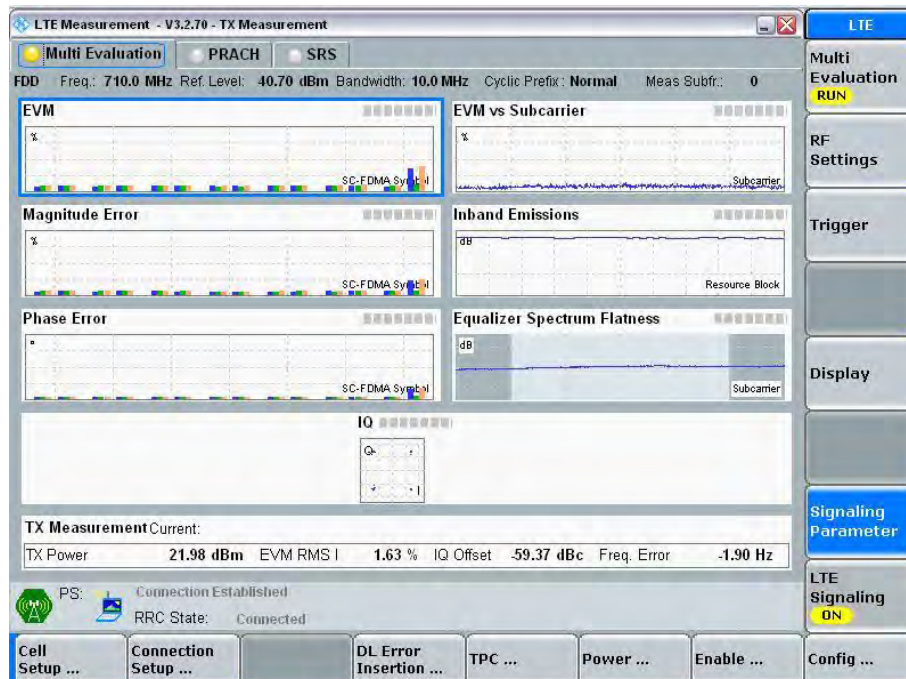
3.3.1.1 Test Mode = LTE /TM1 5MHz

3.3.1.1.1 Test Channel = MCH



3.3.1.2 Test Mode = LTE /TM1 10MHz

3.3.1.2.1 Test Channel = MCH

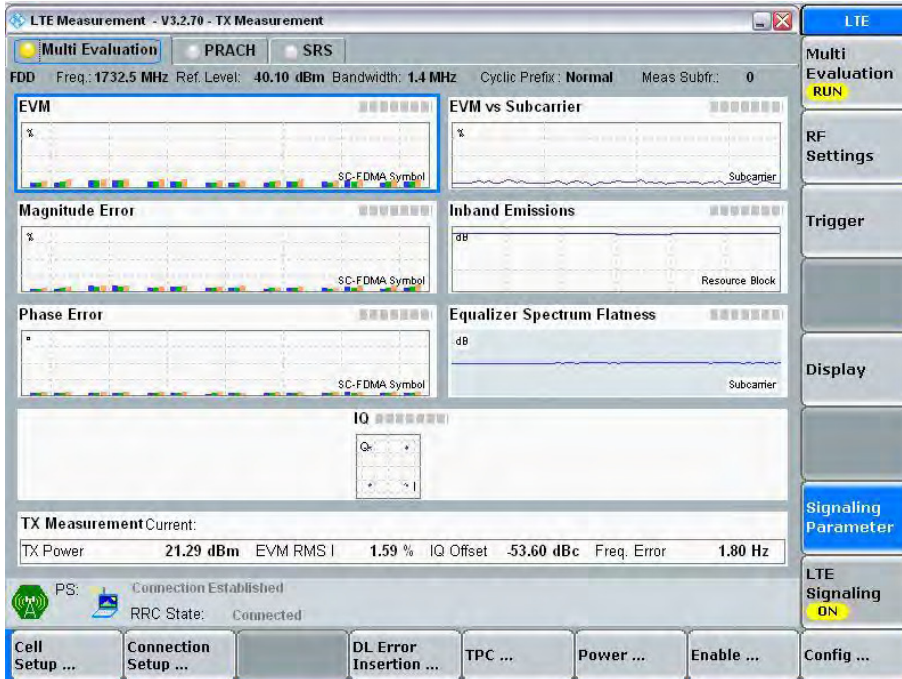




3.3.2 Test Band = LTE 1700

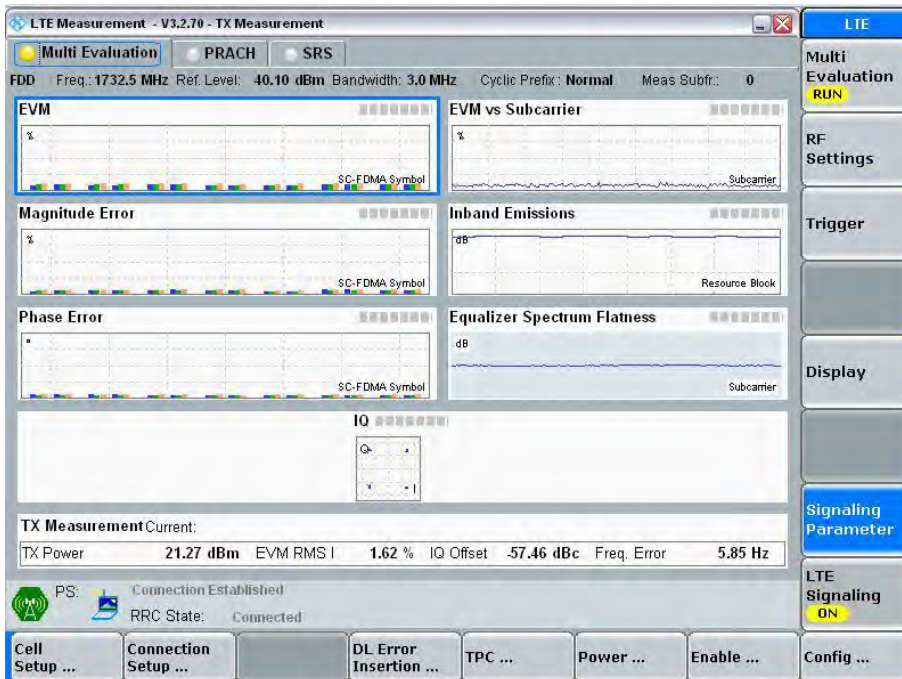
3.3.2.1 Test Mode = LTE /TM1 1.4MHz

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

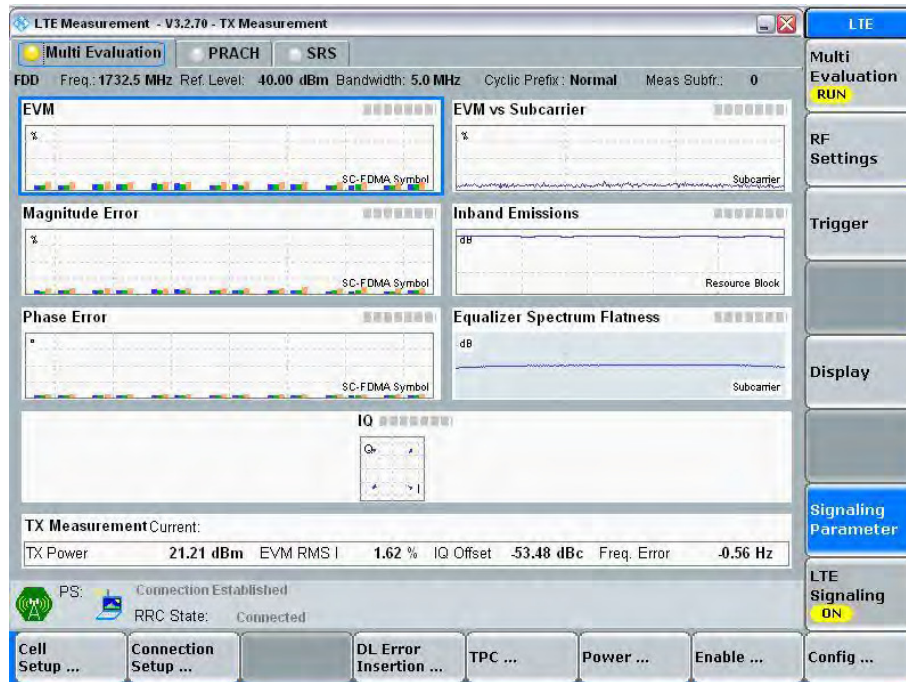


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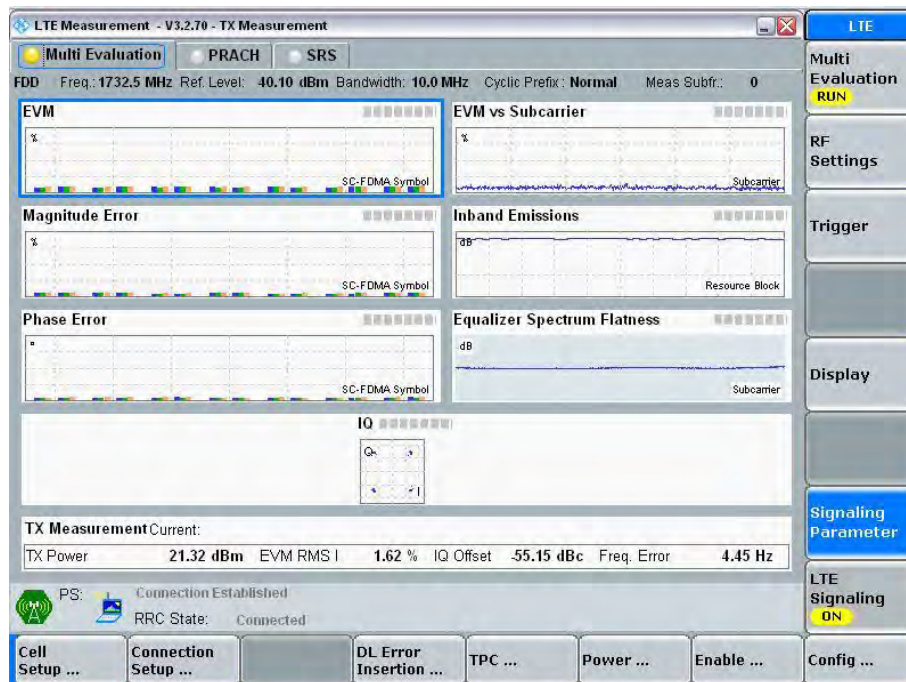
3.3.2.3 Test Mode = LTE /TM1 5MHz

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

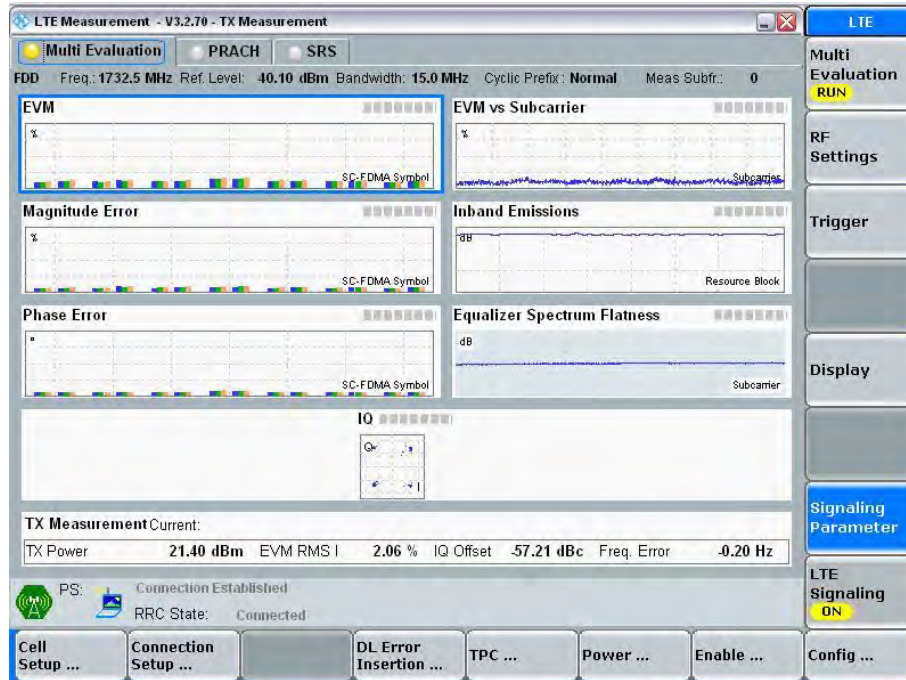


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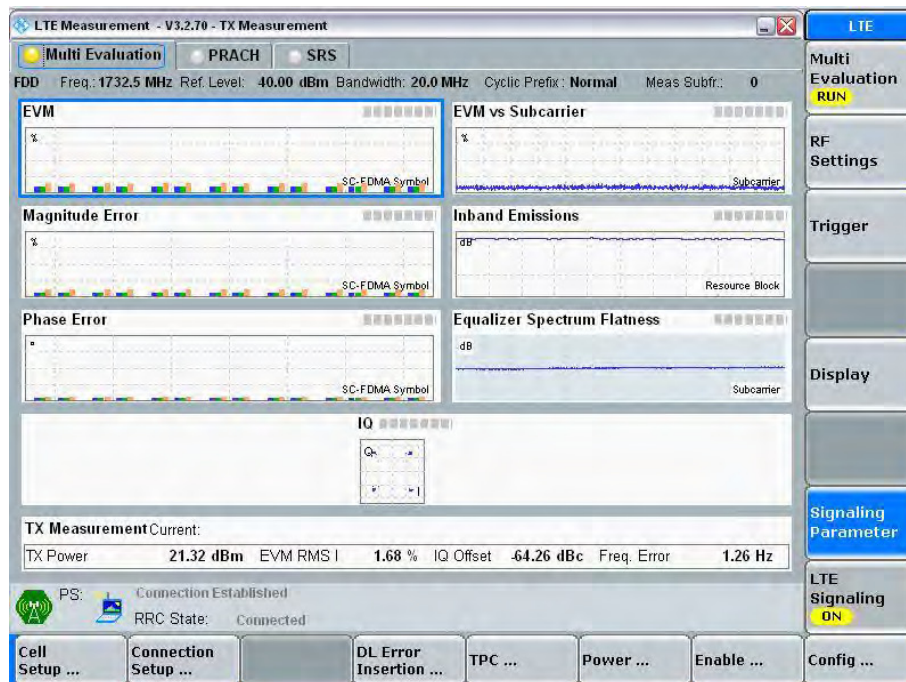
3.3.2.5 Test Mode = LTE /TM1 15MHz

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



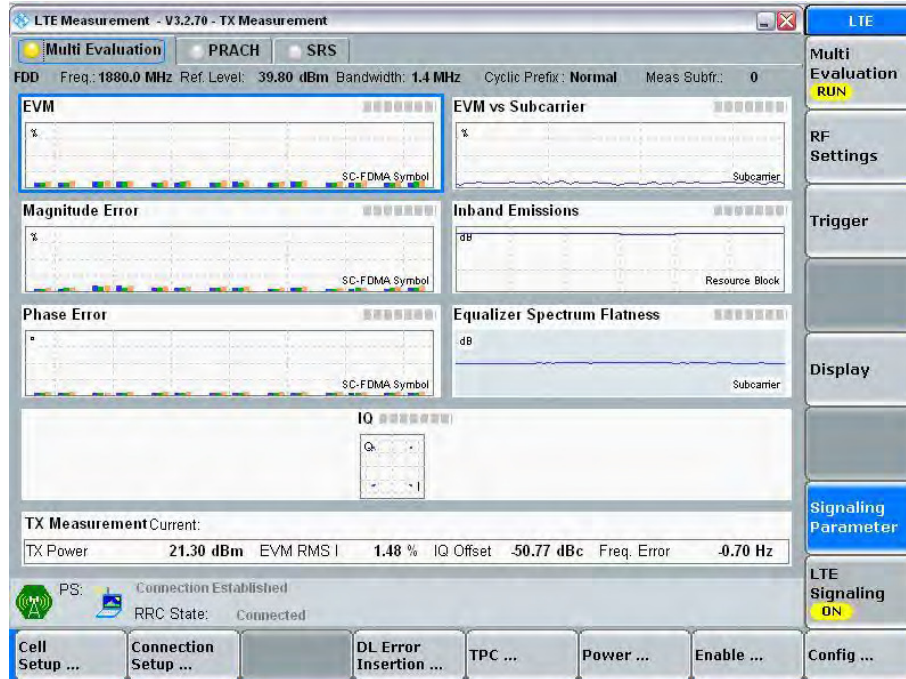
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3.3.3 Test Band = LTE 1900

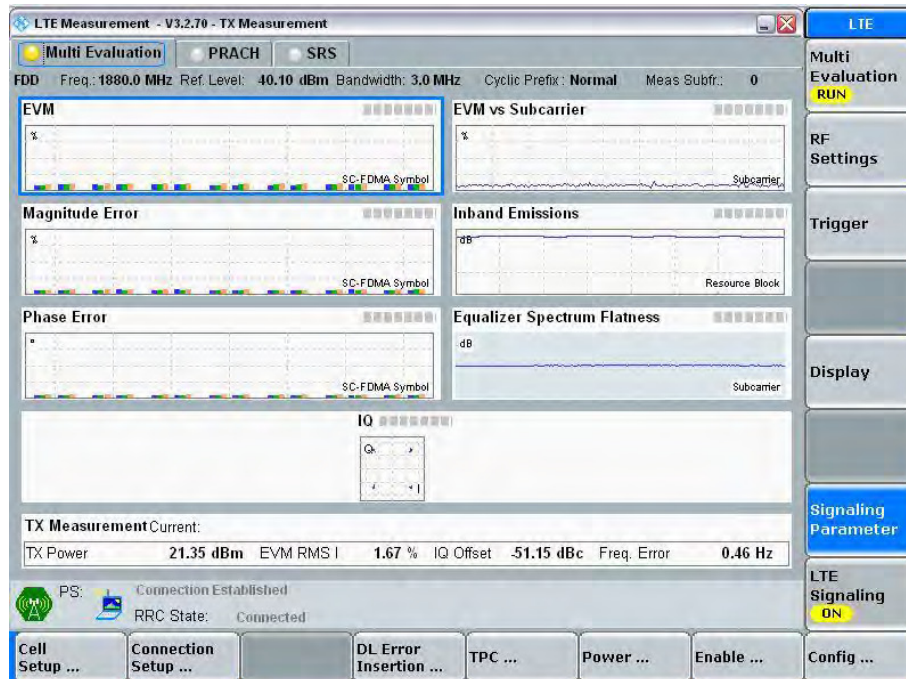
3.3.3.1 Test Mode = LTE /TM1 1.4MHz

3.3.3.1.1 Test Channel = MCH



3.3.3.2 Test Mode = LTE /TM1 3MHz

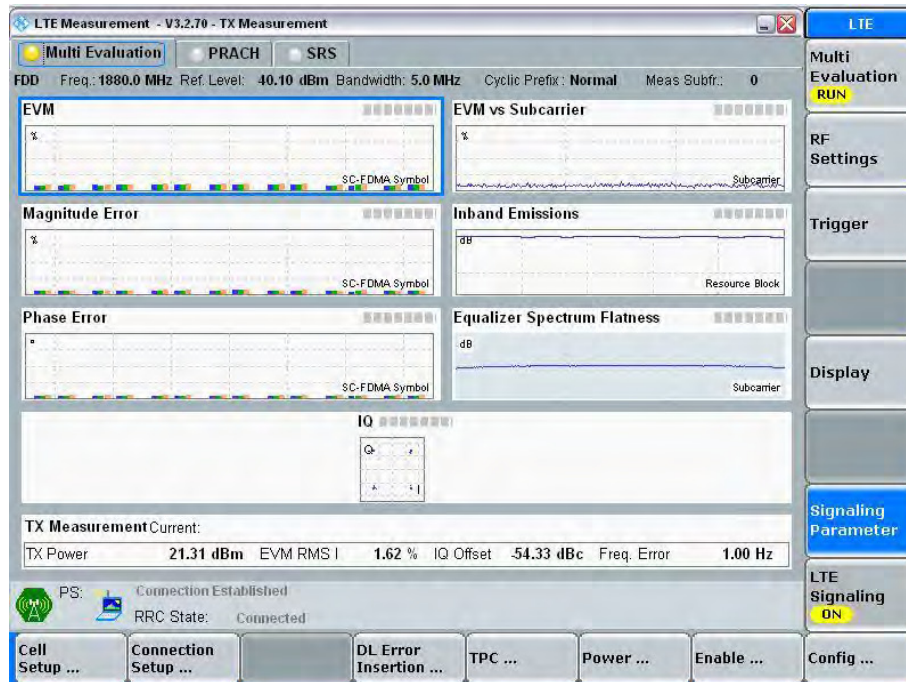
3.3.3.2.1 Test Channel = MCH





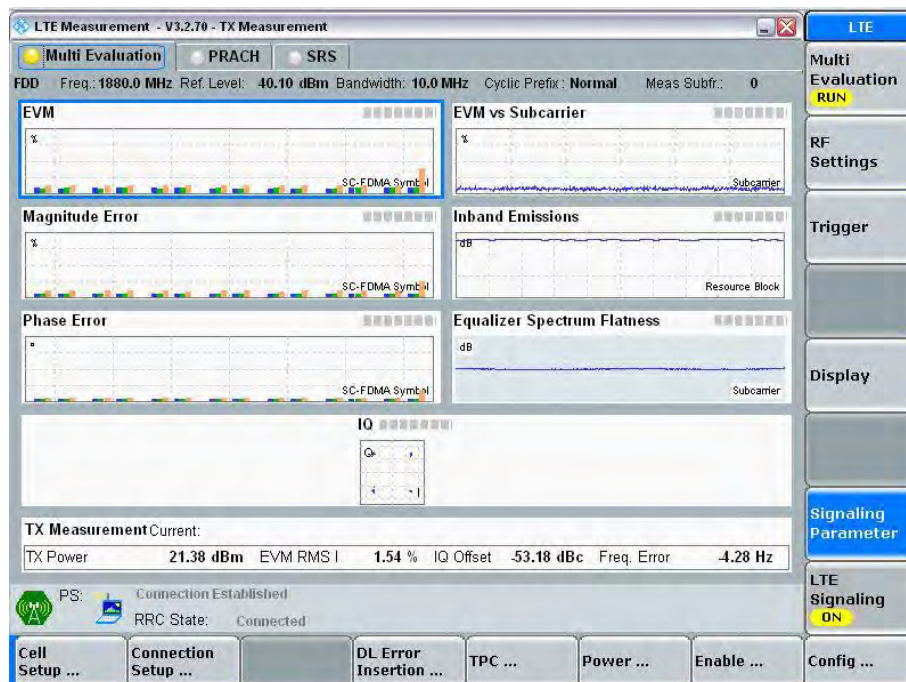
3.3.3.3 Test Mode = LTE /TM1 5MHz

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

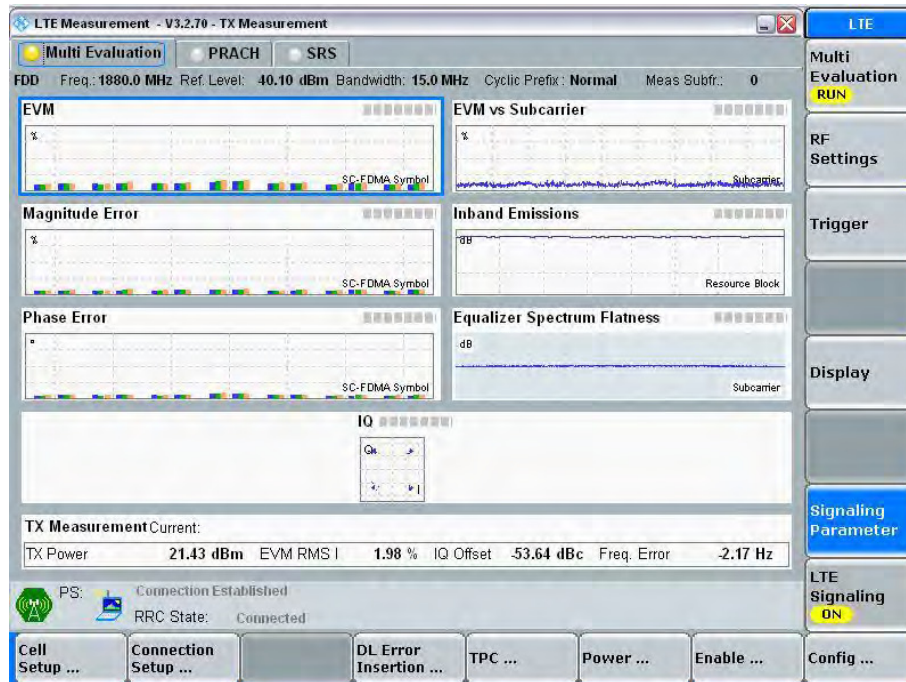


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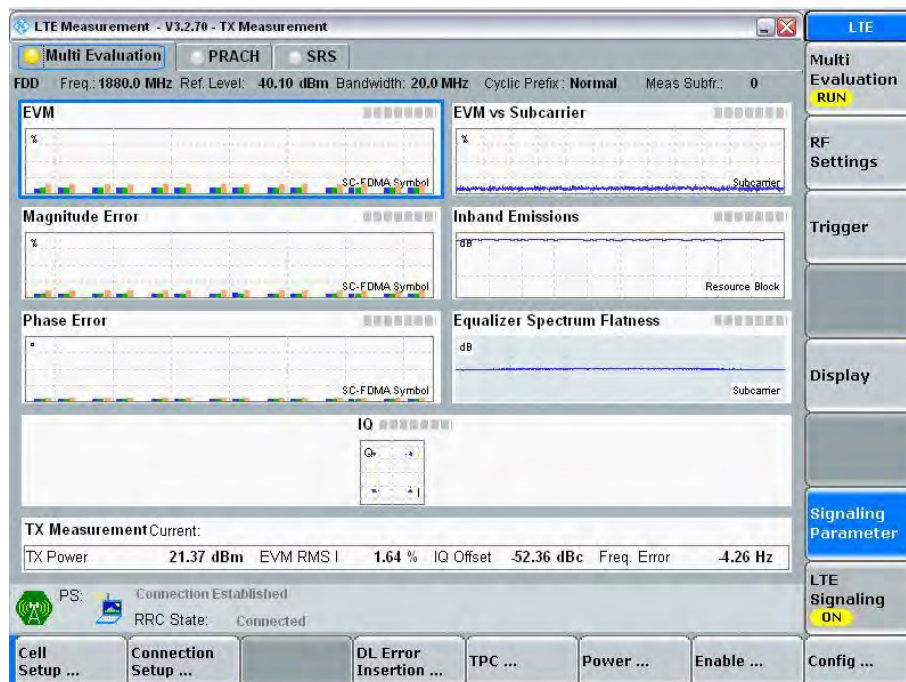
3.3.3.5 Test Mode = LTE /TM1 15MHz

3.3.3.5.1 Test Channel = MCH



3.3.3.6 Test Mode = LTE /TM1 20MHz

3.3.3.6.1 Test Channel = MCH



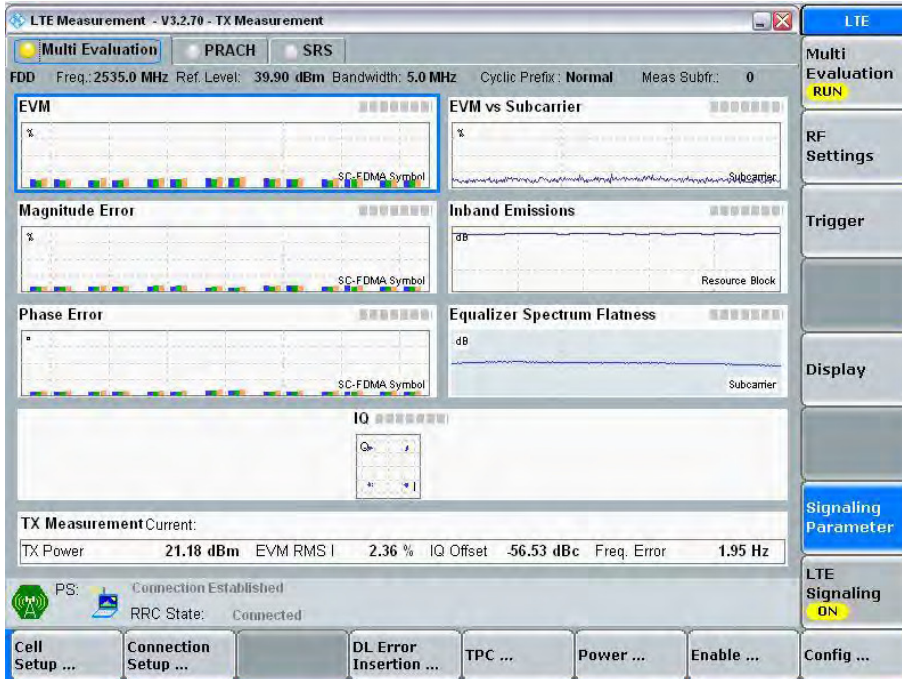
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3.3.4 Test Band = LTE 2600

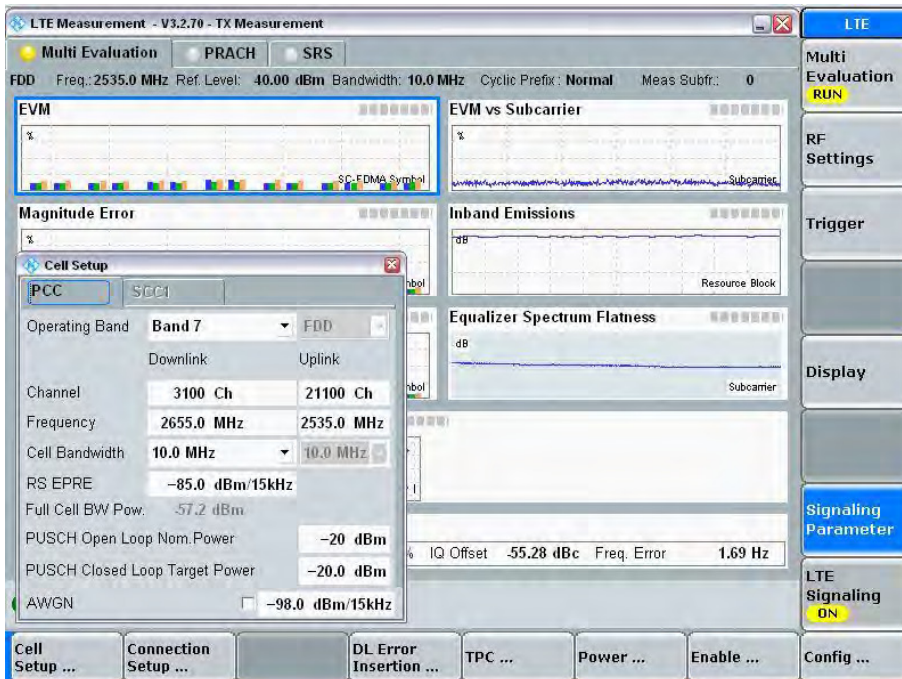
3.3.4.1 Test Mode = LTE /TM1 5MHz

3.3.4.1.1 Test Channel = MCH



3.3.4.2 Test Mode = LTE /TM1 10MHz

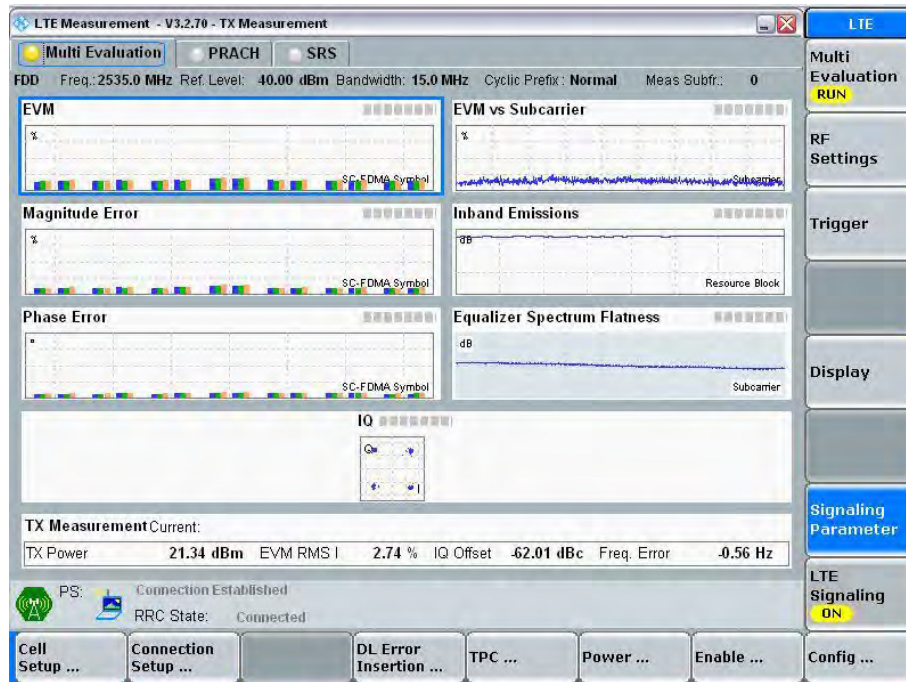
3.3.4.2.1 Test Channel = MCH





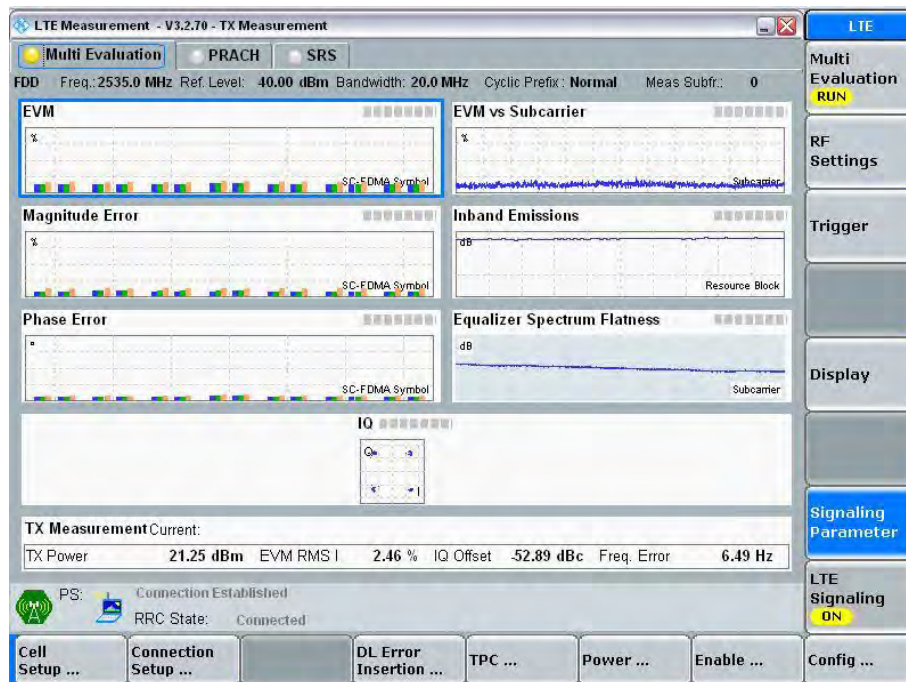
3.3.4.3 Test Mode = LTE /TM1 15MHz

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 | 244.54 | 316.6 | PASS |
| | | MCH | 247.26 | 317.7 | PASS |
| | | HCH | 245.75 | 317.1 | PASS |
| | GSM/TM2 | LCH | 246.33 | 319.5 | PASS |
| | | MCH | 247.49 | 341.0 | PASS |
| | | HCH | 250.86 | 313.7 | PASS |
| GSM1900 | GSM/TM1 | LCH | 244.92 | 319.7 | PASS |
| | | MCH | 241.77 | 317.7 | PASS |
| | | HCH | 244.16 | 320.0 | PASS |
| | GSM/TM2 | LCH | 249.81 | 312.8 | PASS |
| | | MCH | 245.25 | 318.5 | PASS |
| | | HCH | 245.71 | 317.0 | PASS |

| Test Band | Test Mode | Test Channel | Occupied Bandwidth [MHz] | Emission Bandwidth [MHz] | Verdict |
|-----------|---------------|--------------|--------------------------|--------------------------|---------|
| WCDMA850 | UMTS/TM1 | LCH | 4.2074 | 4.828 | PASS |
| | | MCH | 4.2160 | 4.857 | PASS |
| | | HCH | 4.2016 | 4.871 | PASS |
| WCDMA1700 | UMTS/TM1 | LCH | 4.1901 | 4.867 | PASS |
| | | MCH | 4.2115 | 4.896 | PASS |
| | | HCH | 4.2128 | 4.893 | PASS |
| WCDMA1900 | UMTS/TM1 | LCH | 4.2014 | 4.871 | PASS |
| | | MCH | 4.2035 | 4.859 | PASS |
| | | HCH | 4.2144 | 4.884 | PASS |
| LTE 750 | LTE TM1/5MHz | LCH | 4.5316 | 5.116 | PASS |
| | | MCH | 4.5237 | 5.023 | PASS |
| | | HCH | 4.5283 | 5.028 | PASS |
| | LTE TM2/5MHz | LCH | 4.5242 | 5.047 | PASS |
| | | MCH | 4.5289 | 5.059 | PASS |
| | | HCH | 4.5252 | 4.997 | PASS |
| | LTE TM1/10MHz | LCH | 8.9899 | 9.912 | PASS |
| | | MCH | 8.9695 | 9.845 | PASS |
| | | HCH | 8.9736 | 9.893 | PASS |
| | LTE TM2/10MHz | LCH | 8.9822 | 9.719 | PASS |
| | | MCH | 8.9840 | 9.828 | PASS |

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| Test Band | Test Mode | Test Channel | Occupied Bandwidth [MHz] | Emission Bandwidth [MHz] | Verdict |
|-----------|----------------|--------------|--------------------------|--------------------------|---------|
| LTE 750 | LTE TM2/10MHz | HCH | 8.9626 | 9.899 | PASS |
| LTE 1700 | LTE TM1/1.4MHz | LCH | 1.0969 | 1.275 | PASS |
| | | MCH | 1.1003 | 1.280 | PASS |
| | | HCH | 1.1037 | 1.268 | PASS |
| | LTE TM2/1.4MHz | LCH | 1.0959 | 1.258 | PASS |
| | | MCH | 1.0981 | 1.266 | PASS |
| | | HCH | 1.0987 | 1.295 | PASS |
| | LTE TM1/3MHz | LCH | 2.6971 | 2.976 | PASS |
| | | MCH | 2.7061 | 2.947 | PASS |
| | | HCH | 2.7027 | 2.968 | PASS |
| | LTE TM2/3MHz | LCH | 2.6963 | 2.983 | PASS |
| | | MCH | 2.6957 | 2.964 | PASS |
| | | HCH | 2.6938 | 2.966 | PASS |
| | LTE TM1/5MHz | LCH | 4.5195 | 5.057 | PASS |
| | | MCH | 4.5341 | 5.081 | PASS |
| | | HCH | 4.5251 | 5.042 | PASS |
| | LTE TM2/5MHz | LCH | 4.5269 | 5.073 | PASS |
| | | MCH | 4.5306 | 5.046 | PASS |
| | | HCH | 4.5255 | 5.087 | PASS |
| | LTE TM1/10MHz | LCH | 8.9790 | 9.890 | PASS |
| | | MCH | 8.9585 | 9.829 | PASS |
| | | HCH | 8.9630 | 9.884 | PASS |
| | LTE TM2/10MHz | LCH | 8.9533 | 9.746 | PASS |
| | | MCH | 8.9572 | 9.872 | PASS |
| | | HCH | 8.9686 | 9.803 | PASS |
| | LTE TM1/15MHz | LCH | 13.461 | 14.75 | PASS |
| | | MCH | 13.433 | 14.71 | PASS |
| | | HCH | 13.442 | 14.86 | PASS |
| | LTE TM2/15MHz | LCH | 13.454 | 14.70 | PASS |
| | | MCH | 13.454 | 14.63 | PASS |
| | | HCH | 13.454 | 14.64 | PASS |
| | LTE TM1/20MHz | LCH | 17.926 | 19.35 | PASS |
| | | MCH | 17.910 | 19.34 | PASS |
| | | HCH | 17.944 | 19.64 | PASS |
| | LTE TM2/20MHz | LCH | 17.932 | 19.32 | PASS |
| | | MCH | 17.930 | 19.28 | PASS |
| | | HCH | 17.905 | 19.37 | PASS |

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| Test Band | Test Mode | Test Channel | Occupied Bandwidth [MHz] | Emission Bandwidth [MHz] | Verdict |
|---------------|----------------|--------------|--------------------------|--------------------------|---------|
| LTE 1900 | LTE TM1/1.4MHz | LCH | 1.0983 | 1.273 | PASS |
| | | MCH | 1.1001 | 1.283 | PASS |
| | | HCH | 1.1098 | 1.292 | PASS |
| | LTE TM2/1.4MHz | LCH | 1.1034 | 1.287 | PASS |
| | | MCH | 1.0932 | 1.264 | PASS |
| | | HCH | 1.0999 | 1.280 | PASS |
| | LTE TM1/3MHz | LCH | 2.6948 | 2.951 | PASS |
| | | MCH | 2.7001 | 2.947 | PASS |
| | | HCH | 2.7016 | 2.969 | PASS |
| | LTE TM2/3MHz | LCH | 2.7015 | 2.978 | PASS |
| | | MCH | 2.6964 | 2.974 | PASS |
| | | HCH | 2.6956 | 2.982 | PASS |
| | LTE TM1/5MHz | LCH | 4.5327 | 5.021 | PASS |
| | | MCH | 4.5342 | 5.098 | PASS |
| | | HCH | 4.5299 | 5.056 | PASS |
| | LTE TM2/5MHz | LCH | 4.5262 | 5.081 | PASS |
| | | MCH | 4.5262 | 5.093 | PASS |
| | | HCH | 4.5463 | 5.118 | PASS |
| | LTE TM1/10MHz | LCH | 8.9582 | 9.832 | PASS |
| | | MCH | 8.9490 | 9.766 | PASS |
| | | HCH | 8.9739 | 10.02 | PASS |
| | LTE TM2/10MHz | LCH | 8.9631 | 9.768 | PASS |
| | | MCH | 8.9608 | 9.790 | PASS |
| | | HCH | 8.9804 | 9.915 | PASS |
| LTE TM1/15MHz | LCH | 13.392 | 14.72 | PASS | |
| | MCH | 13.432 | 14.70 | PASS | |
| | HCH | 13.492 | 14.95 | PASS | |
| LTE TM2/15MHz | LCH | 13.445 | 14.76 | PASS | |
| | MCH | 13.477 | 14.73 | PASS | |
| | HCH | 13.503 | 14.81 | PASS | |
| LTE TM1/20MHz | LCH | 17.898 | 19.34 | PASS | |
| | MCH | 17.943 | 19.55 | PASS | |
| | HCH | 17.932 | 19.40 | PASS | |
| LTE TM2/20MHz | LCH | 17.914 | 19.40 | PASS | |
| | MCH | 17.938 | 19.34 | PASS | |
| | HCH | 17.906 | 19.44 | PASS | |
| LTE 2600 | LTE TM1/5MHz | LCH | 4.5252 | 5.076 | PASS |

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| Test Band | Test Mode | Test Channel | Occupied Bandwidth [MHz] | Emission Bandwidth [MHz] | Verdict |
|---------------|---------------|--------------|--------------------------|--------------------------|---------|
| LTE 2600 | LTE TM1/5MHz | MCH | 4.5247 | 5.070 | PASS |
| | | HCH | 4.5228 | 5.058 | PASS |
| | LTE TM2/5MHz | LCH | 4.5272 | 5.092 | PASS |
| | | MCH | 4.5262 | 5.062 | PASS |
| | | HCH | 4.5408 | 5.040 | PASS |
| | LTE TM1/10MHz | LCH | 8.9800 | 9.927 | PASS |
| | | MCH | 8.9572 | 9.799 | PASS |
| | | HCH | 8.9638 | 9.882 | PASS |
| | LTE TM2/10MHz | LCH | 8.9749 | 9.802 | PASS |
| | | MCH | 8.9724 | 9.800 | PASS |
| | | HCH | 8.9531 | 9.818 | PASS |
| | LTE TM1/15MHz | LCH | 13.491 | 14.87 | PASS |
| | | MCH | 13.427 | 14.80 | PASS |
| | | HCH | 13.451 | 14.84 | PASS |
| | LTE TM2/15MHz | LCH | 13.486 | 14.65 | PASS |
| | | MCH | 13.455 | 14.77 | PASS |
| | | HCH | 13.466 | 14.82 | PASS |
| | LTE TM1/20MHz | LCH | 17.915 | 19.37 | PASS |
| | | MCH | 17.893 | 19.38 | PASS |
| | | HCH | 17.971 | 19.71 | PASS |
| LTE TM2/20MHz | LCH | 17.976 | 19.42 | PASS | |
| | MCH | 17.907 | 19.27 | PASS | |
| | HCH | 17.933 | 19.36 | PASS | |

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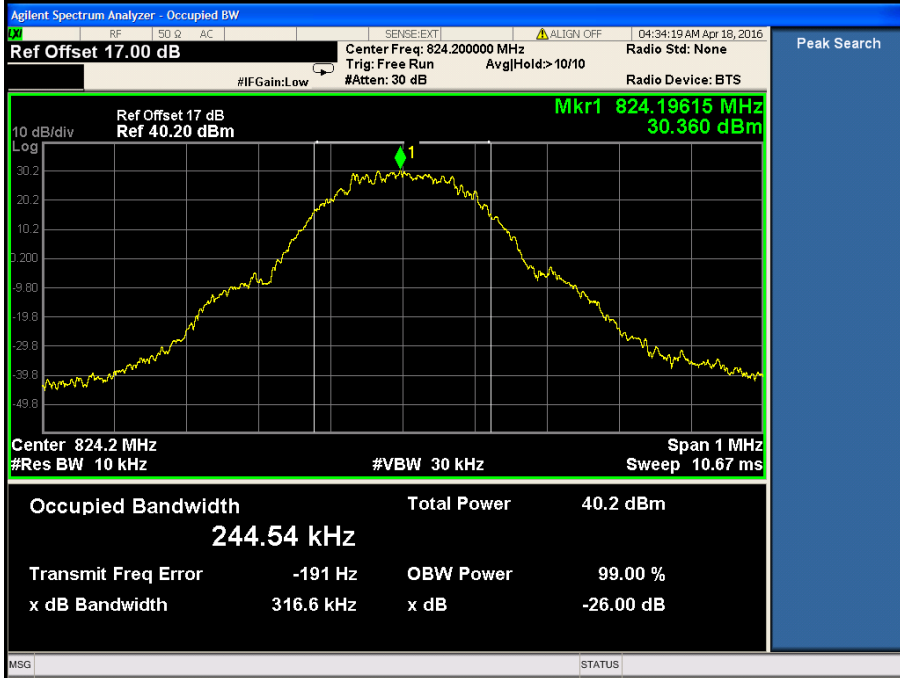


4.1 For GSM

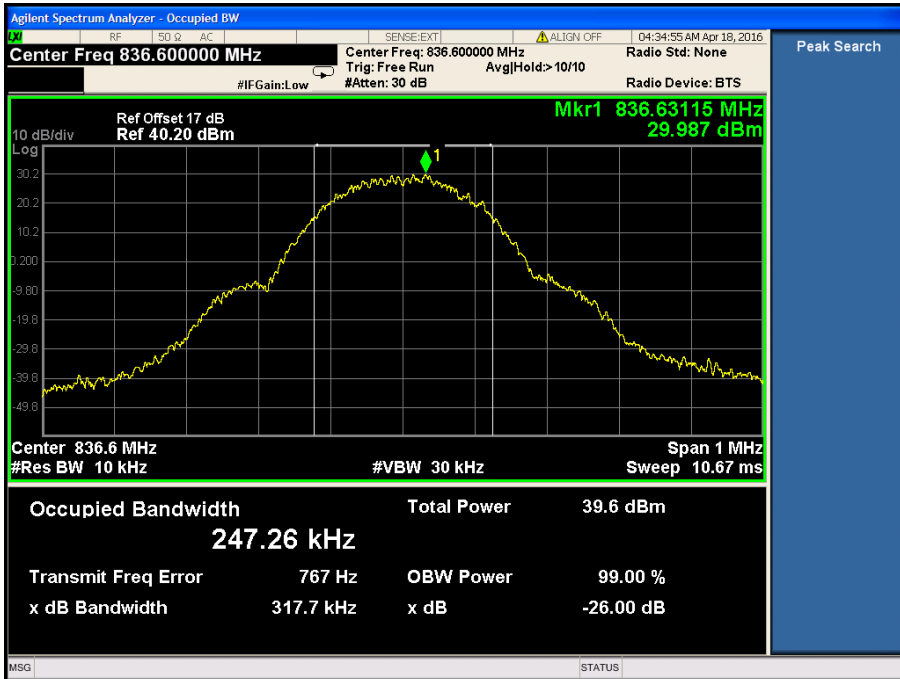
4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH

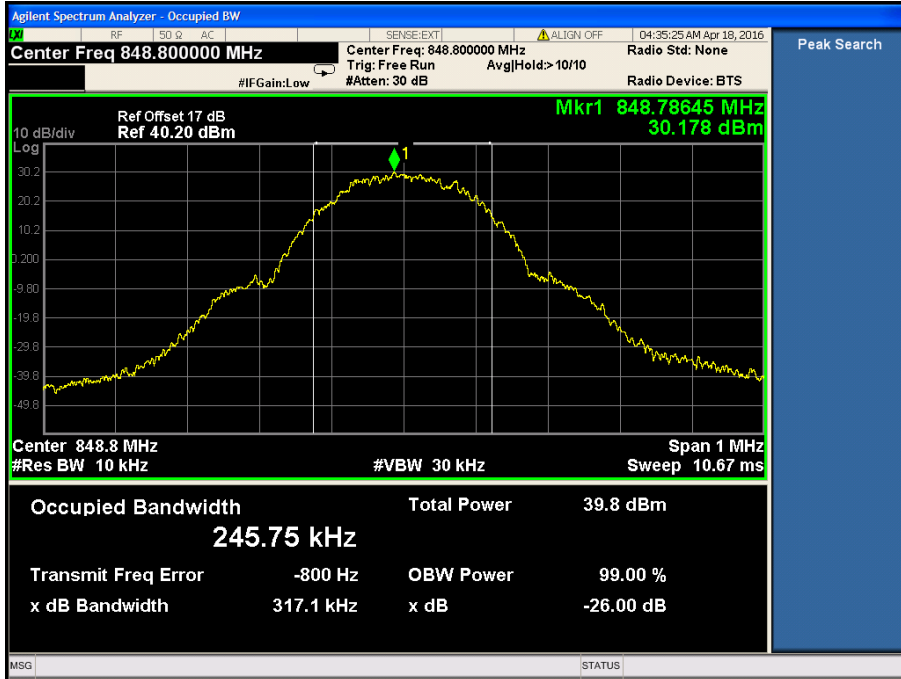


4.1.1.1.2 Test Channel = MCH



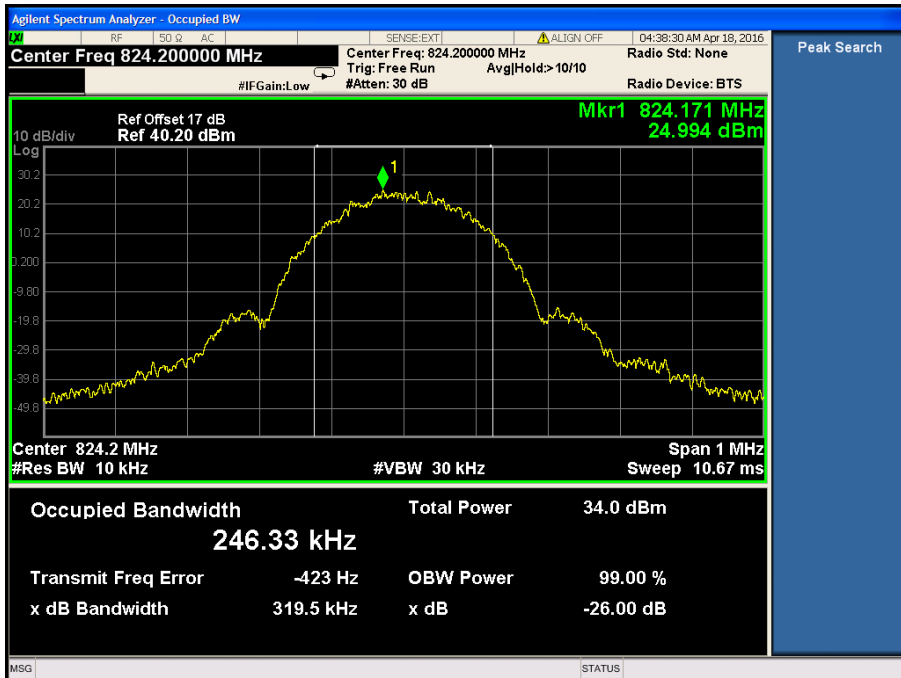


4.1.1.1.3 Test Channel = HCH



4.1.1.2 Test Mode = GSM/TM2

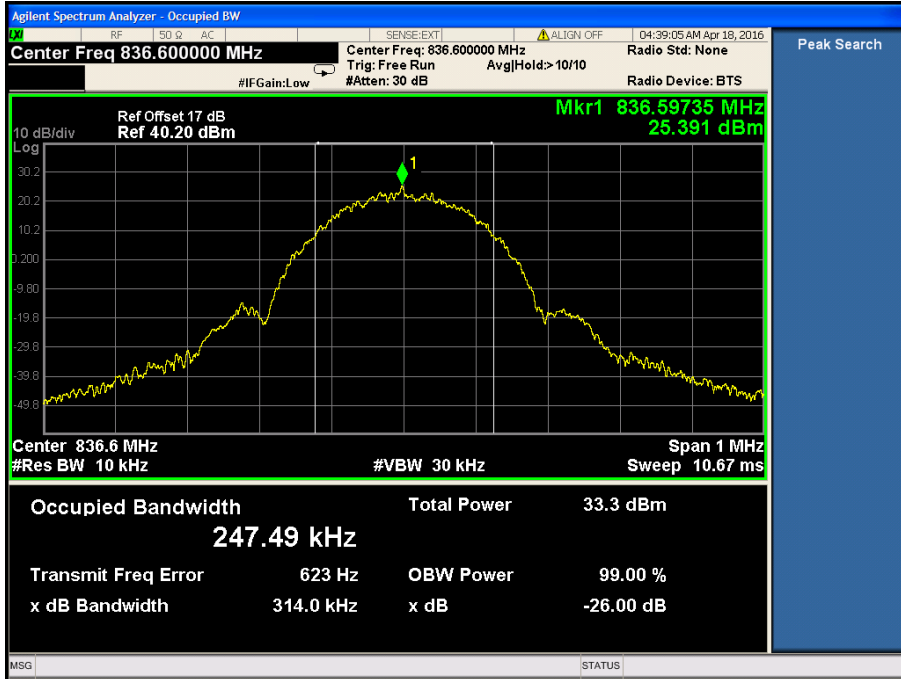
4.1.1.2.1 Test Channel = LCH



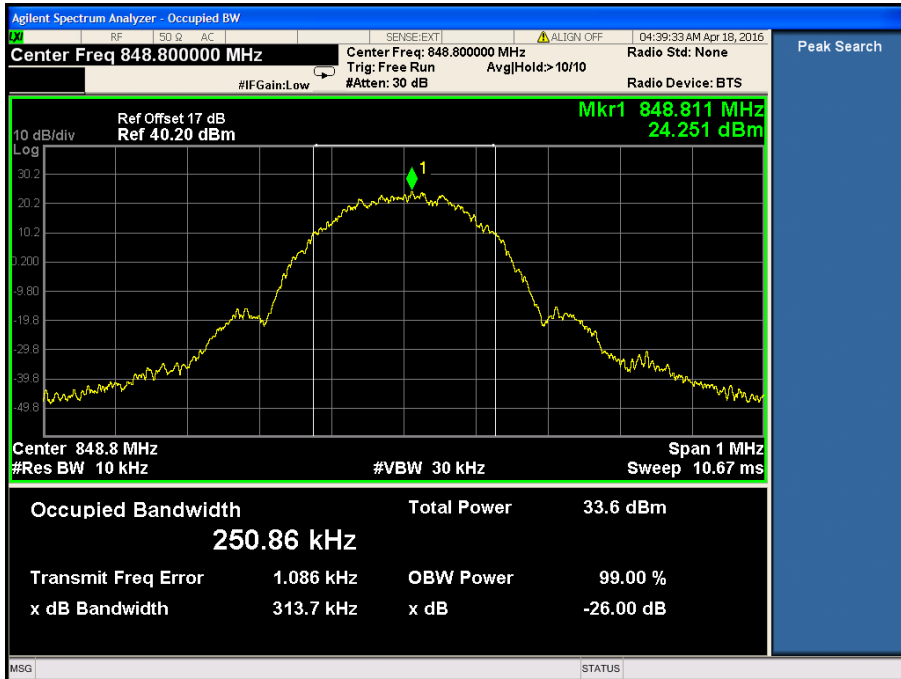
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4.1.1.2.2 Test Channel = MCH



4.1.1.2.3 Test Channel = HCH



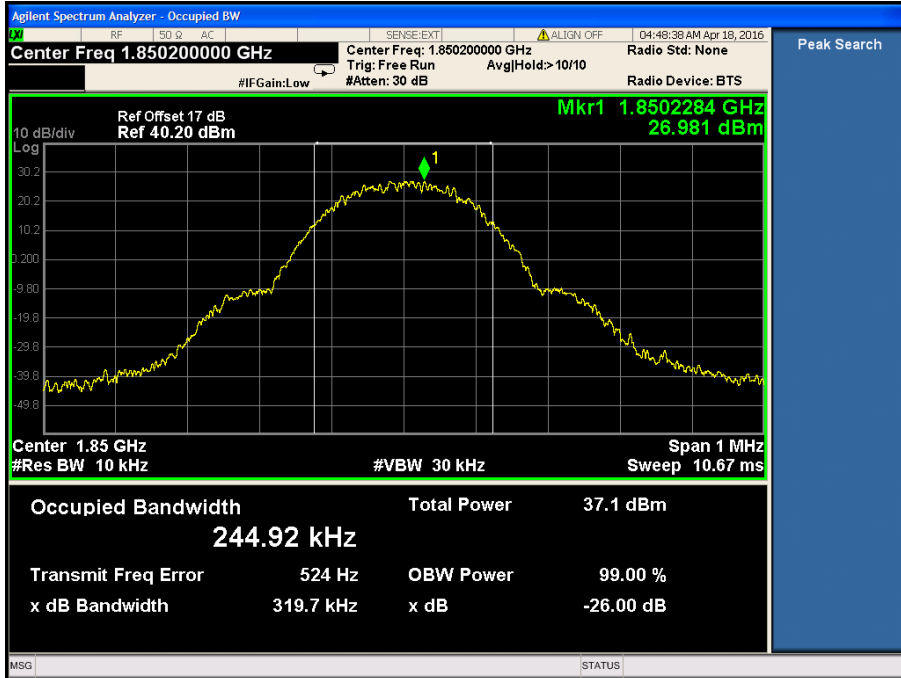
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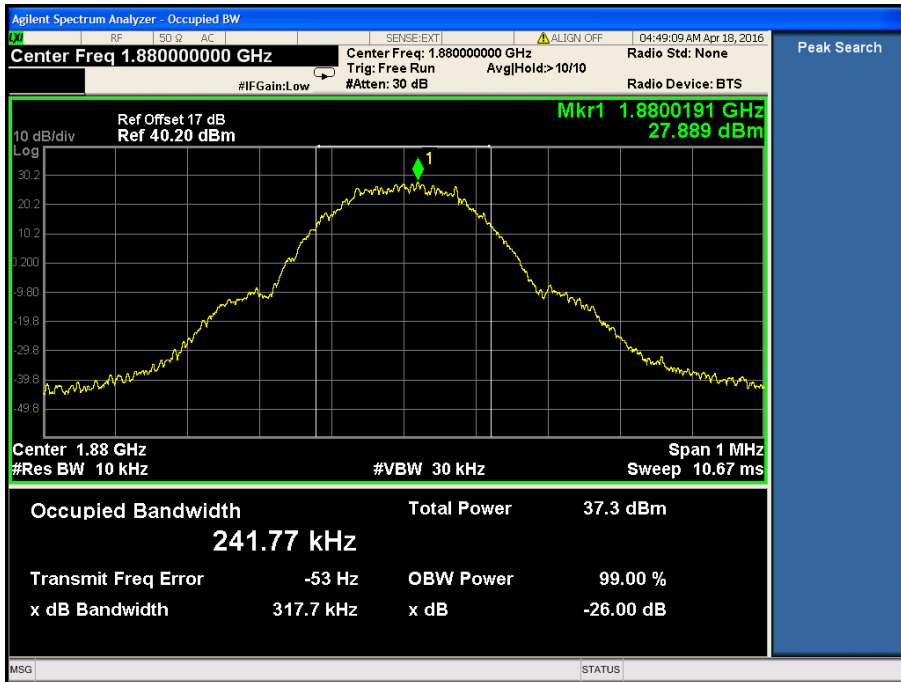
4.1.2 Test Band = GSM1900

4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



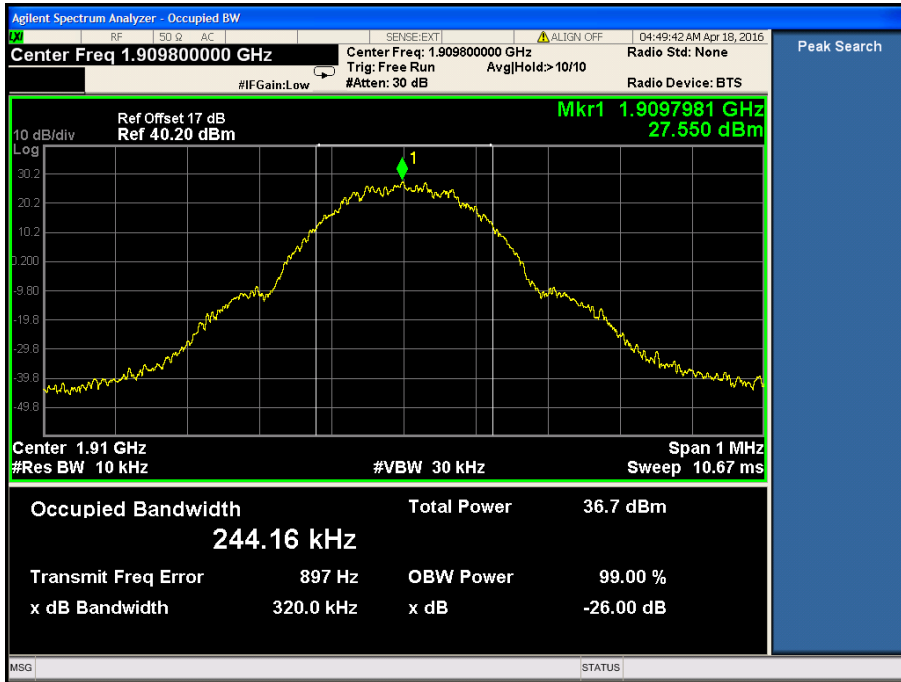
4.1.2.1.2 Test Channel = MCH



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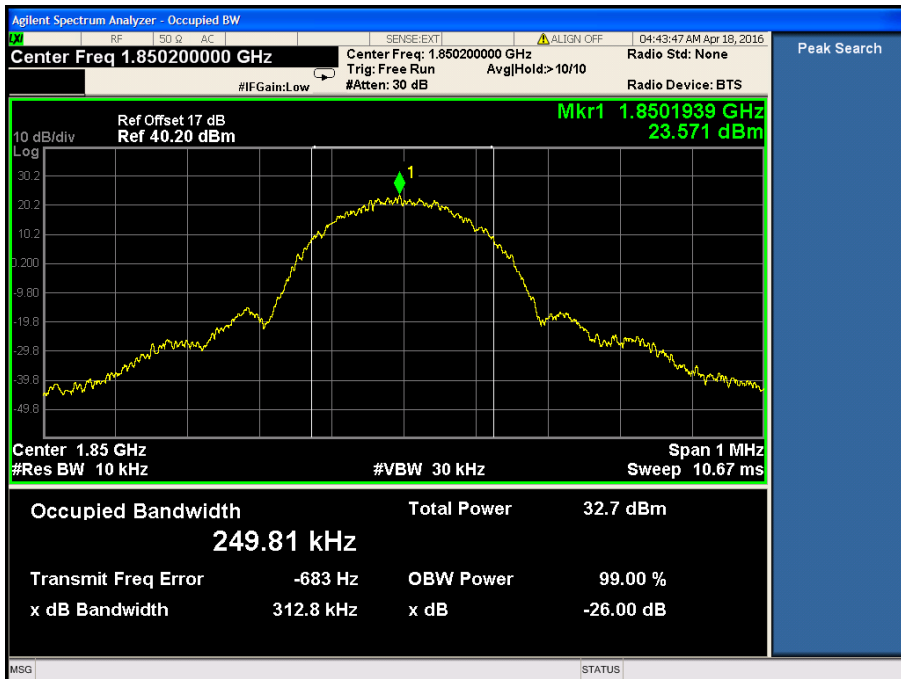


4.1.2.1.3 Test Channel = HCH



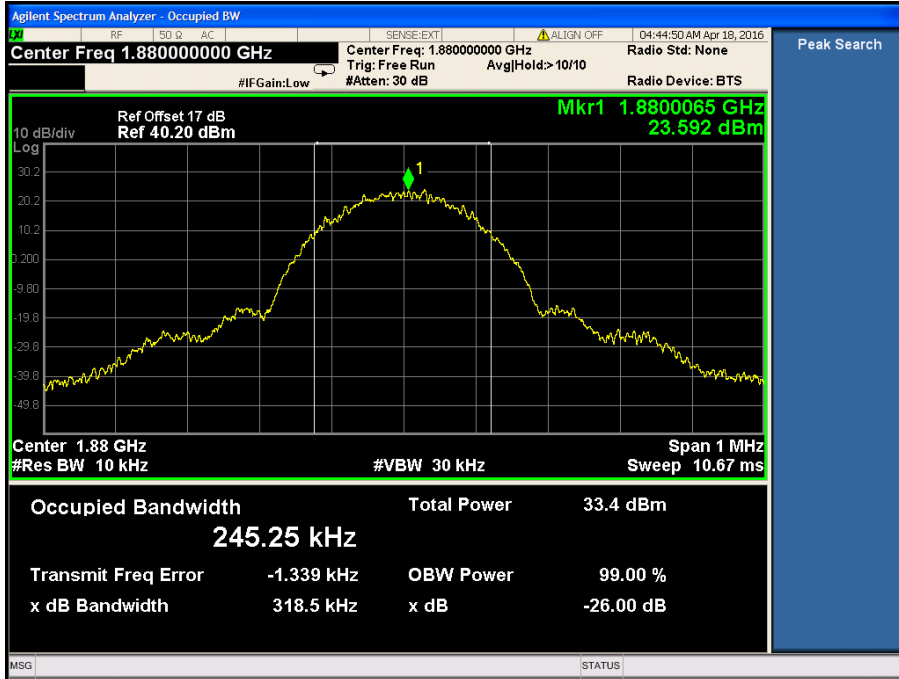
4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH

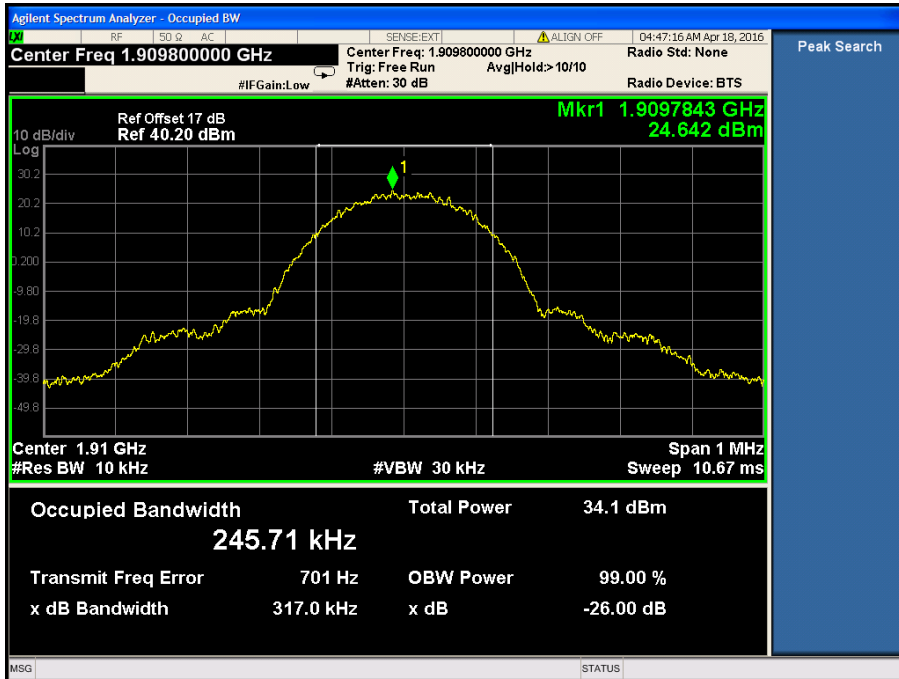




4.1.2.2.2 Test Channel = MCH



4.1.2.2.3 Test Channel = HCH



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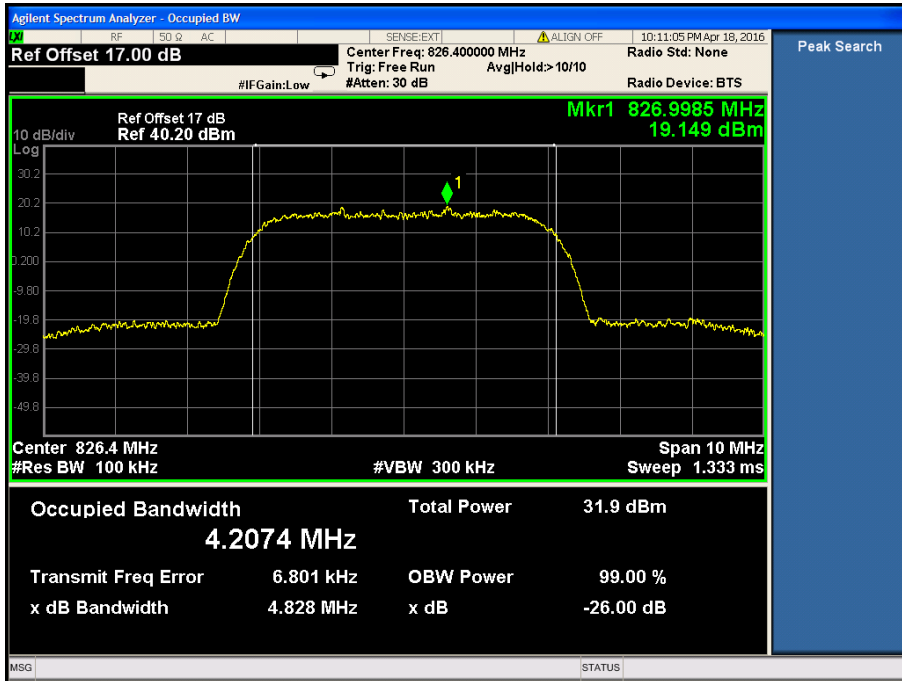


4.2 For WCDMA

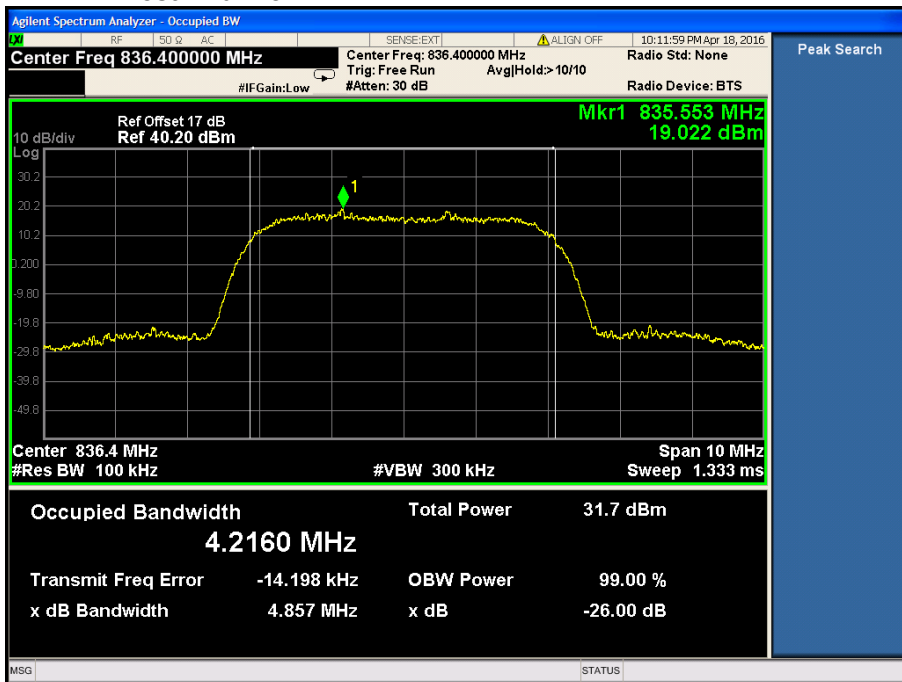
4.2.1 Test Band = WCDMA850

4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH

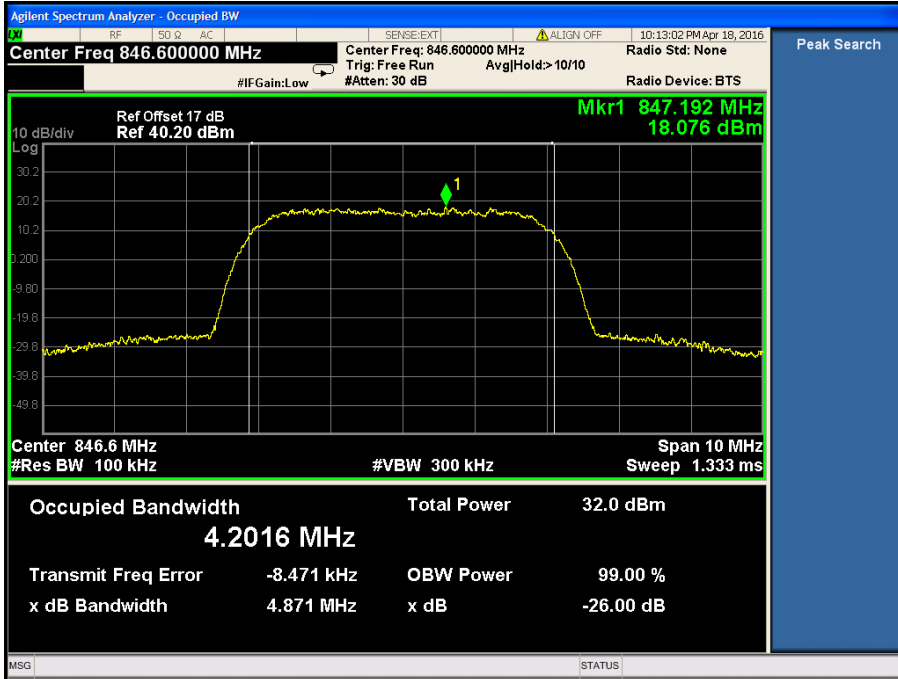


4.2.1.1.2 Test Channel = MCH





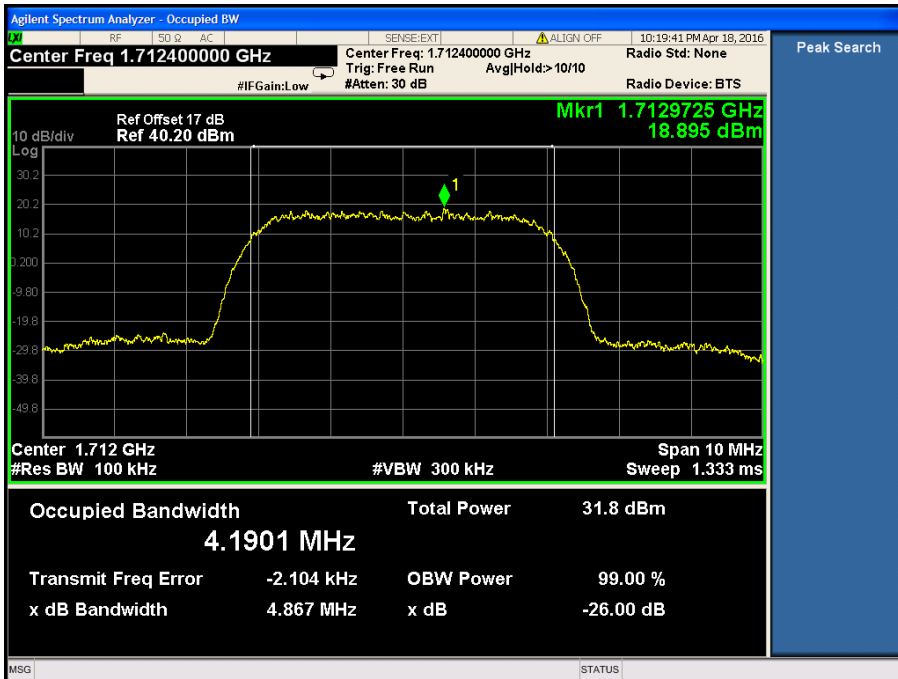
4.2.1.1.3 Test Channel = HCH



4.2.2 Test Band = WCDMA1700

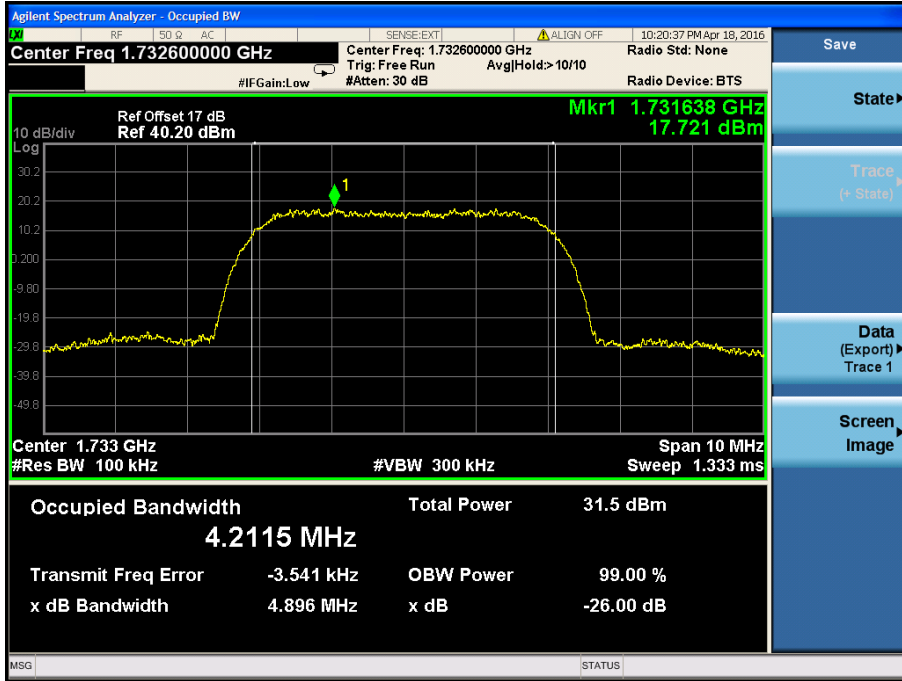
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH

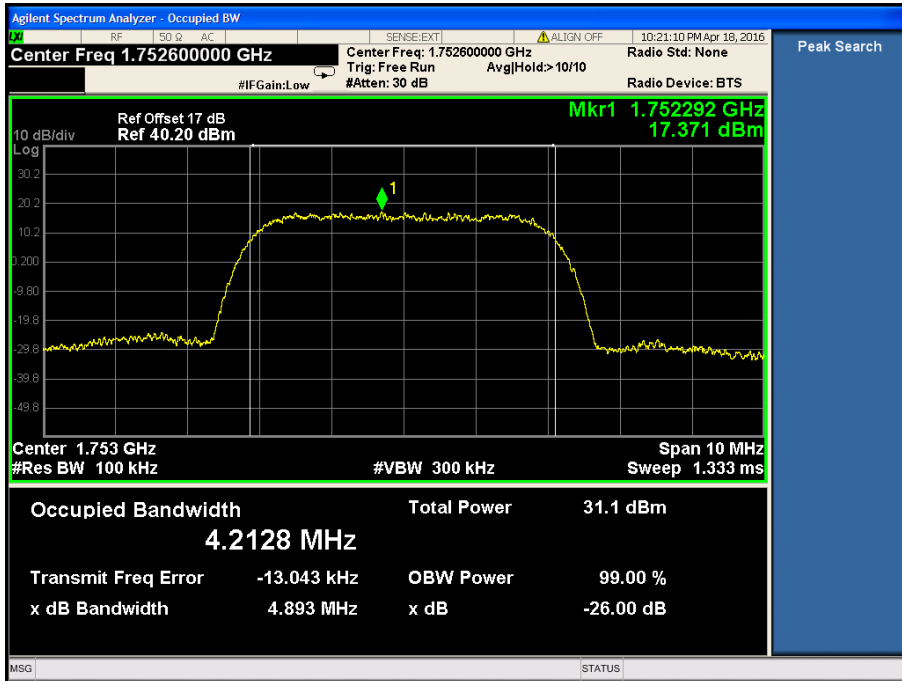




4.2.2.1.2 Test Channel = MCH



4.2.2.1.3 Test Channel = HCH



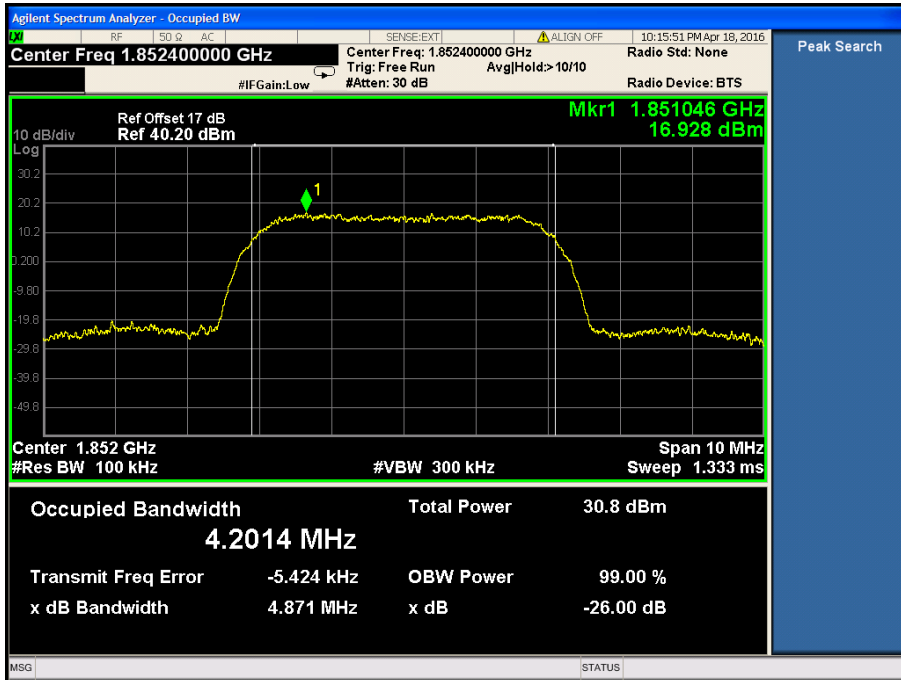
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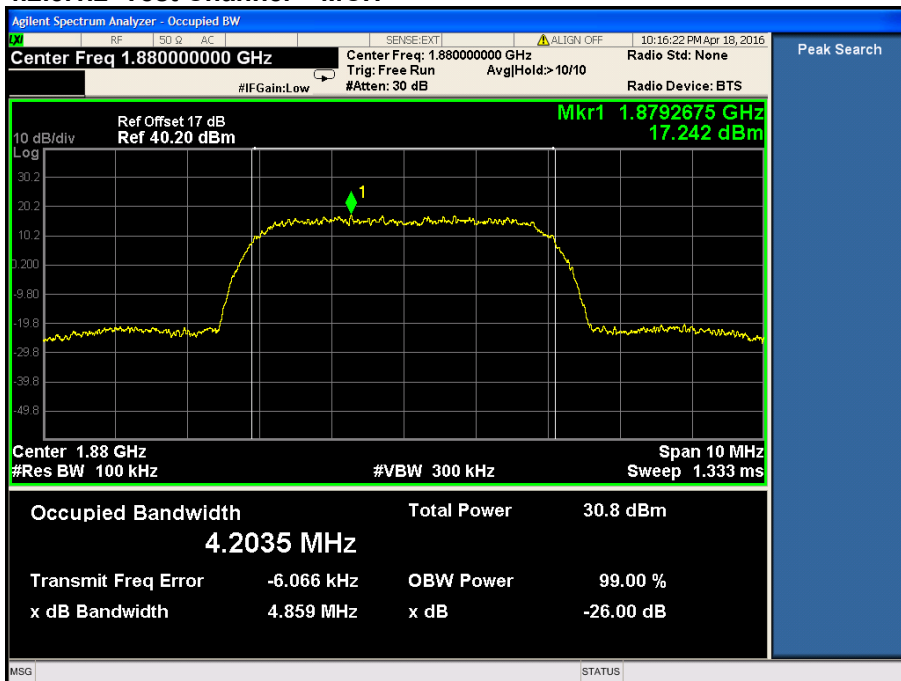
4.2.3 Test Band = WCDMA1900

4.2.3.1 Test Mode = UMTS/TM1

4.2.3.1.1 Test Channel = LCH

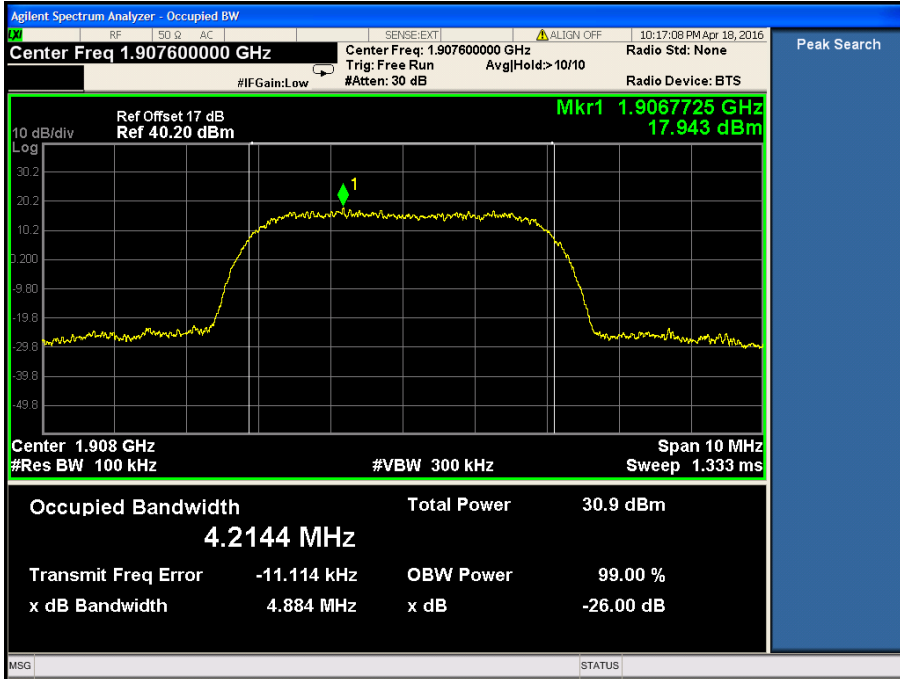


4.2.3.1.2 Test Channel = MCH





4.2.3.1.3 Test Channel = HCH

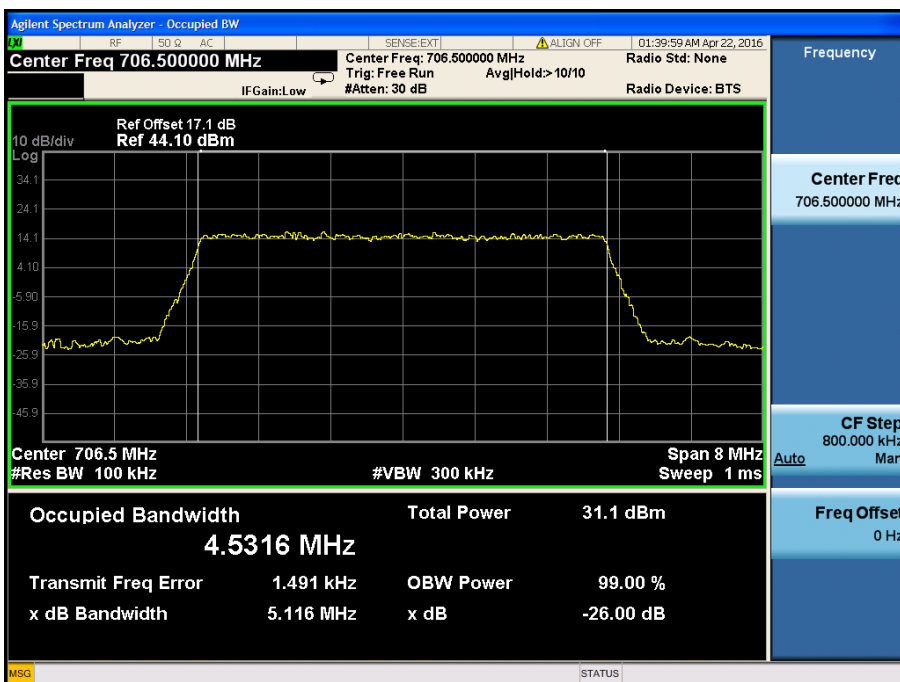


4.3 For LTE

4.3.1 Test Band = LTE 750

4.3.1.1 Test Mode = LTE/TM1 5MHz

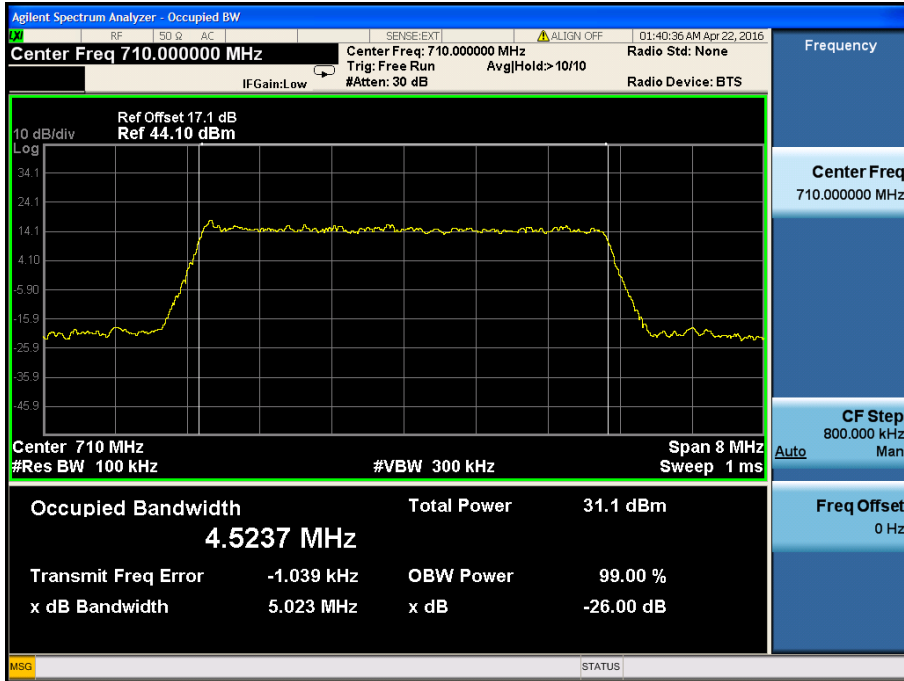
4.3.1.1.1 Test Channel = LCH



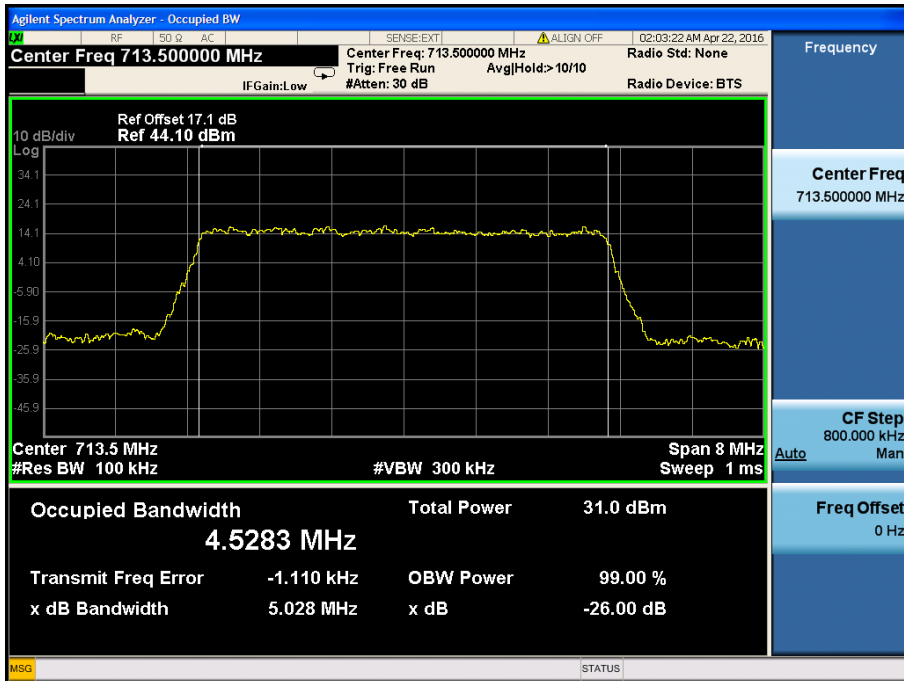
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4.3.1.1.2 Test Channel = MCH



4.3.1.1.3 Test Channel = HCH

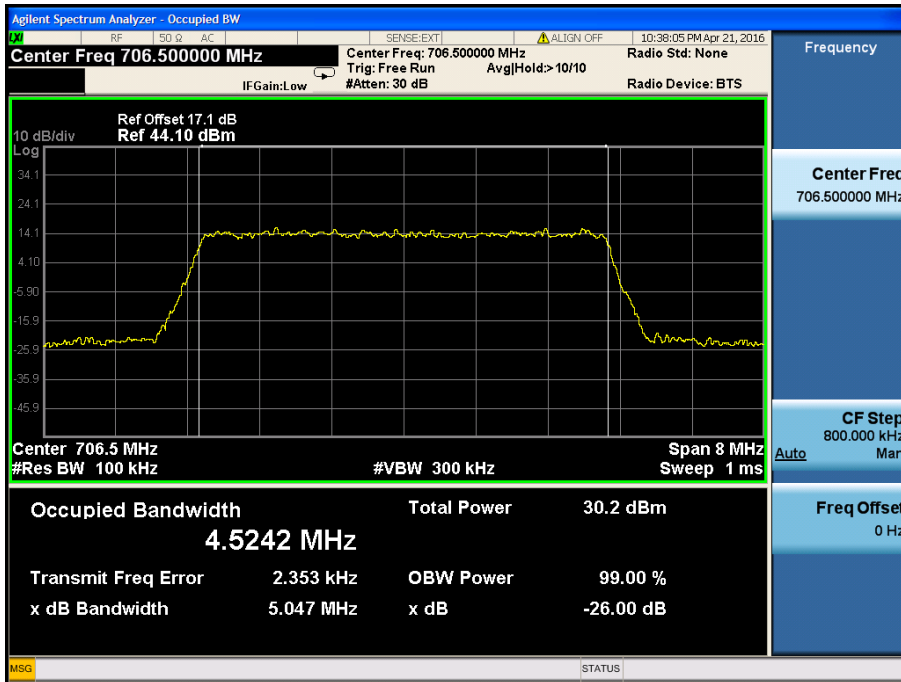


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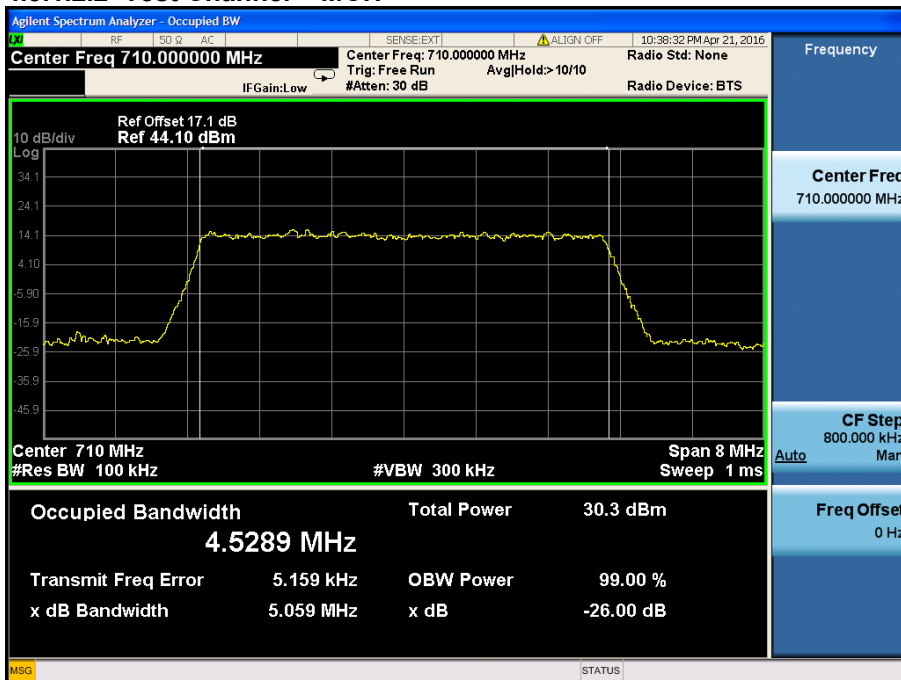


4.3.1.2 Test Mode = LTE/TM2 5MHz

4.3.1.2.1 Test Channel = LCH



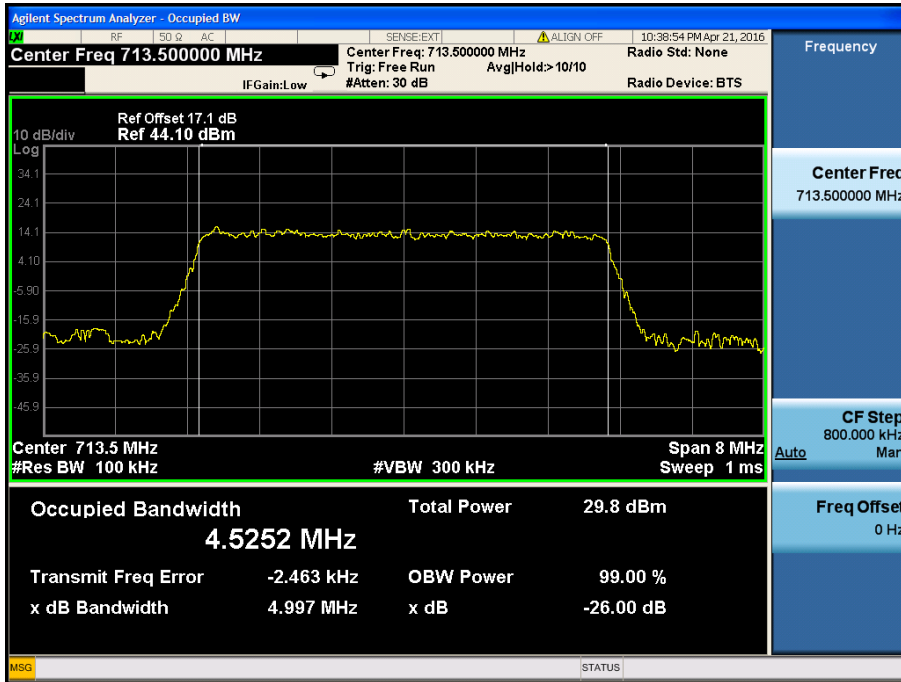
4.3.1.2.2 Test Channel = MCH



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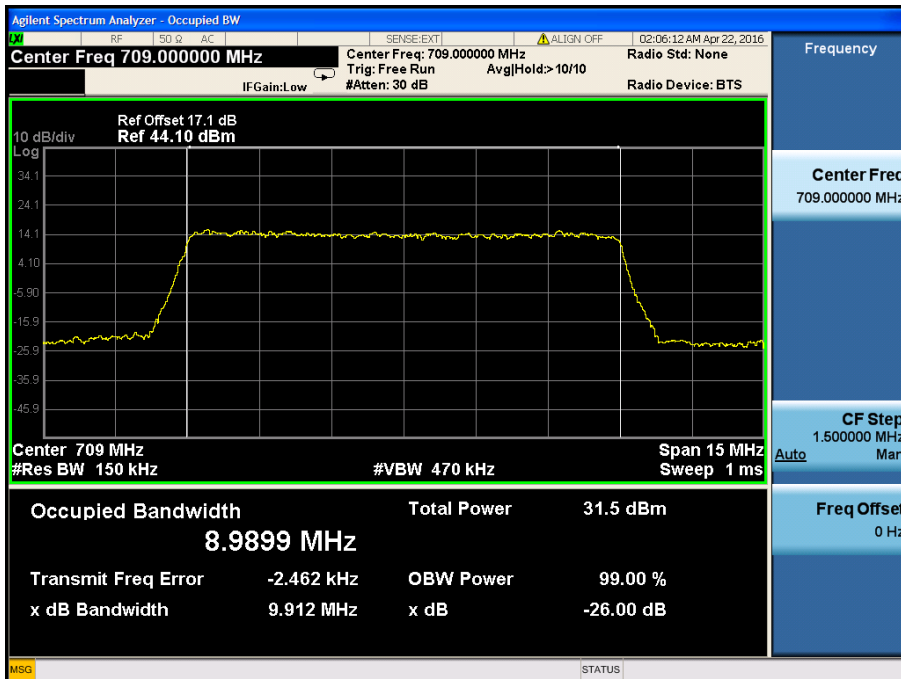


4.3.1.2.3 Test Channel = HCH



4.3.1.3 Test Mode = LTE/TM1 10MHz

4.3.1.3.1 Test Channel = LCH



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