PCTEST Engineering Laboratory, Inc.

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CERTIFICATE OF COMPLIANCE
FCC Part 24 & 22 - Class II Permissive Change

LG ELECTRONICS, INC.
2000 Milbrook Drive
Lincolnshire, IL 60069

Dates of Tests: August 5-6, 2003
Test Report S/N: 22/24.230801369.BEJ
Test Site: PCTEST Lab, Columbia MD

FCC ID	**BEJG4010**
APPLICANT	**LG ELECTRONICS, INC.**

Classification:	**Licensed Portable Transmitter Held to Ear (PCE)**
FCC Rule Part(s):	**§24(E), §22.901(d); §2**
EUT Type:	**Dual-Band GSM Phone**
Model:	***G4010***
Tx Frequency Range:	**824.20 – 848.80MHz (GSM850) / 1850.20MHz – 1909.80MHz (GSM1900)**
Rx Frequency Range:	**869.20 – 893.80MHz (GSM850) / 1930.20MHz – 1989.80MHz (GSM1900)**
Max. RF Output Power:	**0.461 W ERP GSM850 (26.633 dBm) / 0.437 W EIRP GSM1900 (26.391 dBm)**
Max. SAR Measurement:	**1.47W/kg GSM850 Head SAR; 0.46W/kg GSM850 Body SAR; 1.29W/kg GSM1900 Head SAR; 0.20W/kg GSM1900 Body SAR**
Emission Designator(s):	**300KGXW (GSM)**
Test Device Serial No.	**Identical Prototype [S/N: 3101]**
Original Grant Date:	**June 12, 2003**
Class II Permissive Change(s):	**See Attachment M**

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Grant conditions: Power output listed is ERP for Part 22 and EIRP for Part 24. SAR compliance for body-worn operating configuration is based on a separation distance of 1.5 cm between the back of the unit and the body of the user. End-users must be informed of the body-worn operating requirements for satisfying RF exposure compliance. Belt clips or holsters may not contain metallic components.

PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Alfred Cirwithian
Vice President Engineering

22/24.230801369.BEJ

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ATTACHMENT L: COPY OF GRANT

ATTACHMENT M: PERMISSIVE CHANGE(S)

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MEASUREMENT REPORT

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

§2.1033 General Information

Applicant Name: **LG ELECTRONICS INC.**
Address: **2000 Milbrook Drive**
Lincolnshire, IL 60069

- FCC ID: **BEJG4010**
- Quantity: Quantity production is planned
- Emission Designators: 300KGXW (GSM)
- Tx Freq. Range: 824.20 – 848.80 MHz (GSM850)
  1850.20 – 1909.80 MHz (GSM1900)
- Rx Freq. Range: 869.20 – 893.80 MHz (GSM850)
  1930.20 – 1989.80 MHz (GSM1900)
- Max. Power Rating: 0.461 W ERP GSM850 (26.633 dBm)
  0.437 W EIRP GSM1900 (26.391 dBm)
- FCC Classification(s): Licensed Portable Tx Held to Ear (PCE)
- Equipment (EUT) Type: Dual-Band GSM Phone
- Modulation(s): GSM
- Frequency Tolerance: ± 0.00025% (2.5 ppm)
- FCC Rule Part(s): § 24(E), §22.901(d)
- Dates of Tests: August 5-6, 2003
- Place of Tests: PCTEST Lab, Columbia, MD U.S.A.
- Test Report S/N: 22/24.230801369.BEJ
- Original Grant Date: June 12, 2003
- Permissive Change(s): See Attachment M

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2.1 INTRODUCTION

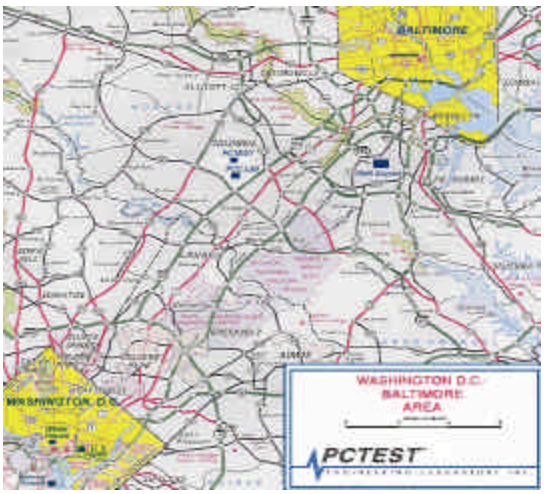

Figure 1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area.

These measurement tests were conducted at ***PCTEST Engineering Laboratory, Inc.*** facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4 on October 19, 1992.

Measurement Procedure

The radiated and spurious measurements were made outdoors at a 3-meter test range (see Figure2). The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

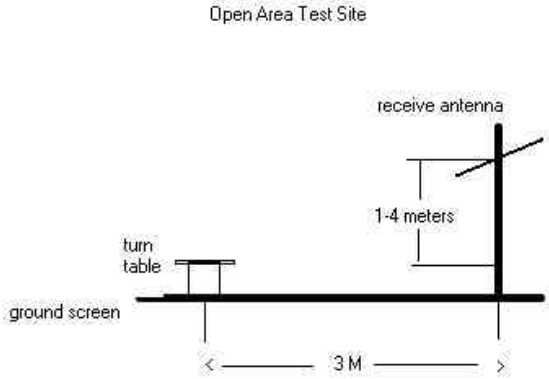

Figure 2. Diagram of 3-meter outdoor test range

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3.1 INSERTS

Function of Active Devices (Confidential)

Block & Schematic Diagrams (Confidential)

Operating Instructions

Parts List & Tune-Up Procedure (Confidential)

Description of Freq. Stabilization Circuit (Confidential)

Description for Suppression of Spurious Radiation, for Limiting Modulation, and Harmonic Suppresion Circuits (Confidential)

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4.1 DESCRIPTION OF TESTS

4.2 Occupied Bandwidth Emission Limits

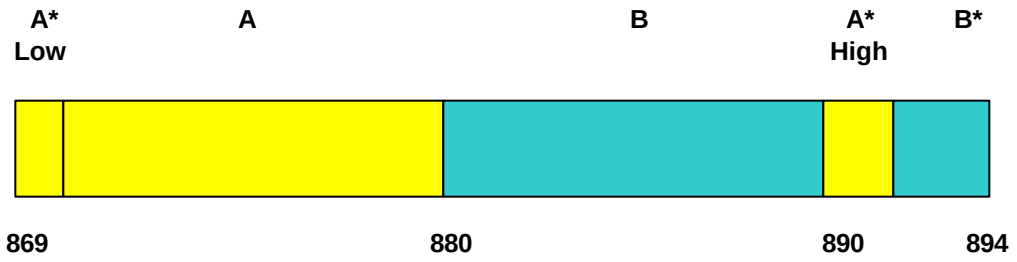
(a) On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB.

(b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

(c) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(d) The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

4.3 Cellular - Base Frequency Blocks



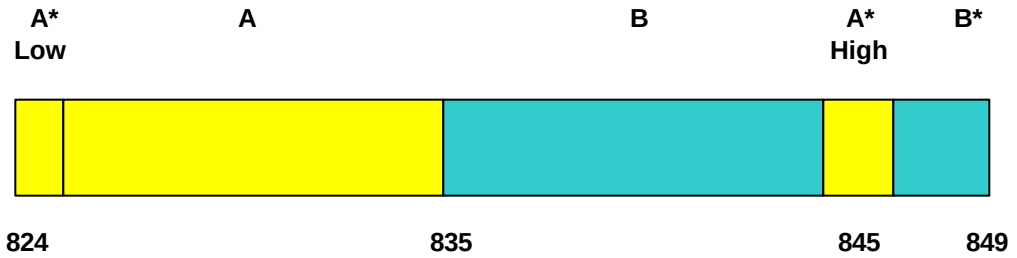
BLOCK 1: 869 – 880 MHz (A* Low + A)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 4: 891.5 – 894 MHz (B*)

4.4 Cellular - Mobile Frequency Blocks



BLOCK 1: 824 – 835 MHz (A* Low + A)

BLOCK 2: 835 – 845 MHz (B)

BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 4: 846.5 – 849 MHz (B*)

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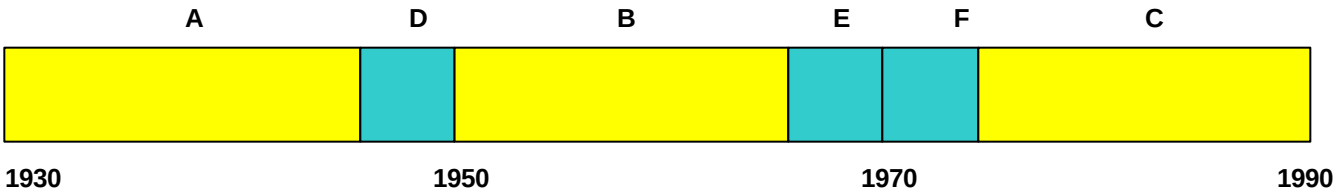
4.1 DESCRIPTION OF TESTS (CONTINUED)

4.5 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 2: 1945 – 1950 MHz (D)

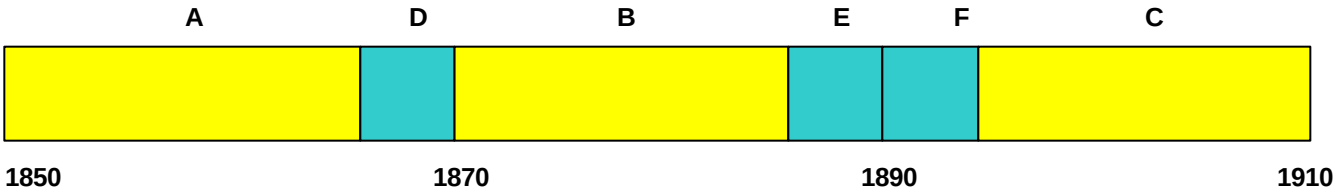
BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 6: 1975 – 1990 MHz (C)

4.6 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 6: 1895 – 1910 MHz (C)

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4.7 Spurious and Harmonic Emissions at Antenna Terminal

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to 10 GHz. The transmitter is modulated with a 2500Hz tone at a level of 16dB greater than that required to provided 50% modulation.

At the input terminals of the spectrum analyzer, an isolator (RF circulator with on port terminated with 50 ohms) and an 870 MHz to 890 MHz bandpass filter is connected between the test transceiver (for conducted tests) or the receive antenna (for radiated tests) and the analyzer. The rejection of the bandpass filter to signals in the 825 – 845 MHz range is adequate to limit the transmit energy from the test transceiver which appears to a level which will allow the analyzer to measure signals less than –90dBm. Calibration of the test receiver is performed in the 870 – 890 MHz range to insure accuracy to allow variation in the bandpass filter insertion loss to be calibrated.

4.8 Frequencies

At the input terminals of the spectrum analyzer, an isolator (RF pad) and a high-pass filter are connected between the test transceiver (for conducted tests) or the receive antenna (for radiated tests) and the analyzer. The high-pass filter (signals below 1.6 GHz) is to limit the fundamental frequency from interfering with the measurement of low-level spurious and harmonic emissions and to ensure that the preamplifier is not saturated.

4.9 Radiation Spurious and Harmonic Emissions

Radiation and harmonic emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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5.0 Frequency Stability/Temperature Variation.

The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +60°C using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025 (±2.5 ppm) of the center frequency.

Time Period and Procedure:

1. The carrier frequency of the transmitter and the individual oscillators is measured at room temperature (25°C to 27°C to provide a reference).
2. The equipment is subjected to an overnight "soak" at -30°C without any power applied.
3. After the overnight "soak" at -30°C (usually 14-16 hours), the equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter and the individual oscillators is made within a three minute interval after applying power to the transmitter.
4. Frequency measurements are made at 10°C interval up to room temperature. At least a period of one and one half-hour is provided to allow stabilization of the equipment at each temperature level.
5. Again the transmitter carrier frequency and the individual oscillators is measured at room temperature to begin measurement of the upper temperature levels.
6. Frequency measurements are at 10 intervals starting at -30°C up to +50°C allowing at least two hours at each temperature for stabilization. In all measurements the frequency is measured within three minutes after re-applying power to the transmitter.
7. The artificial load is mounted external to the temperature chamber.

NOTE: The EUT is tested down to the battery endpoint.

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5.1 Test Data

5.2 Effective Radiated Power Output

A. POWER: High (GSM850 Mode)

Freq. Tuned (MHz)	REF. LEVEL (dBm)	POL (H/V)	ERP (W)	ERP (dBm)	BATTERY
824.20	-14.640	V	0.461	26.633	Standard
836.60	-14.850	V	0.455	26.583	Standard
849.80	-14.980	V	0.457	26.603	Standard

Note: Standard batteries are the only option for this phone.

NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

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6.1 Test Data

6.2 Equivalent Isotropic Radiated Power (E.I.R.P.)

Radiated measurements at 3 meters

Supply Voltage: 3.7 VDC

Modulation: GSM1900

FREQ. (MHz)	REF. LEVEL (dBm)	POL (H/V)	Azimuth (o angle)	EIRP (dBm)	EIRP (W)	Battery
1850.20	-16.690	H	60	26.391	0.437	Standard
1880.00	-16.900	H	60	26.351	0.433	Standard
1909.80	-17.100	H	60	26.321	0.430	Standard

Note: Standard batteries are the only option for this phone.

NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

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7.1 Test Data

7.2 GSM850 Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.20 MHz
CHANNEL: 128 (Low)
MEASURED OUTPUT POWER: 26.633 dBm = 0.461 W
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: 43 + 10 $\log_{10}$ (W) = 39.63 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1648.40	-51.88	6.10	-45.78	V	72.4
2472.60	-55.78	6.70	-49.08	V	75.7
3296.80	-60.58	6.80	-53.78	V	80.4
4121.00	-65.18	6.50	-58.68	V	85.3
4945.20	-78.28	7.00	-71.28	V	97.9

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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7.1 Test Data (Continued)

7.3 GSM850 Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.60 MHz
CHANNEL: 190 (Mid)
MEASURED OUTPUT POWER: 26.633 dBm = 0.461 W
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: 43 + 10 $\log_{10}$ (W) = 39.63 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-55.28	6.10	-49.18	V	75.8
2509.80	-57.58	6.70	-50.88	V	77.5
3346.40	-65.48	6.80	-58.68	V	85.3
4183.00	-70.78	6.50	-64.28	V	90.9
5019.60	-76.58	7.00	-69.58	V	96.2

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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7.1 Test Data (Continued)

7.4 GSM850 Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 849.80 MHz
CHANNEL: 251 (High)
MEASURED OUTPUT POWER: 26.633 dBm = 0.461 W
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: 43 + 10 $\log_{10}$ (W) = 39.63 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1699.60	-57.18	6.10	-51.08	V	77.7
2549.40	-58.78	6.70	-52.08	V	78.7
3399.20	-64.58	6.80	-57.78	V	84.4
4249.00	-70.38	6.50	-63.88	V	90.5
5098.80	-76.88	7.00	-69.88	V	96.5

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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7.1 Test Data (Continued)

7.5 GSM1900 Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1850.20 MHz
CHANNEL: 512 (Low)
MEASURED OUTPUT POWER: 26.391 dBm = 0.437 W
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: 43 + 10 $\log_{10}$ (W) = 39.40 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3700.40	-42.03	8.70	-33.33	V	59.7
5550.60	-43.93	9.70	-34.23	V	60.6
7400.80	-52.13	9.90	-42.23	V	68.6
9251.00	-62.03	11.40	-50.63	V	77.0
11101.20	-69.03	12.10	-56.93	V	83.3

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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7.1 Test Data (Continued)

7.6 GSM1900 Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
CHANNEL: 661 (Mid)
MEASURED OUTPUT POWER: 26.391 dBm = 0.437 W
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: 43 + 10 $\log_{10}$ (W) = 39.40 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-45.23	8.70	-36.53	V	62.9
5640.00	-48.53	9.70	-38.83	V	65.2
7520.00	-58.13	9.90	-48.23	V	74.6
9400.00	-63.73	11.40	-52.33	V	78.7
11280.00	-73.13	12.10	-61.03	V	87.4

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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7.1 Test Data (Continued)

7.7 GSM1900 Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1909.80 MHz
CHANNEL: 810 (High)
MEASURED OUTPUT POWER: 26.391 dBm = 0.437 W
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: 43 + 10 $\log_{10}$ (W) = 39.40 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3819.60	-46.43	8.70	-37.73	V	64.1
5729.40	-53.83	9.70	-44.13	V	70.5
7639.20	-55.43	9.90	-45.53	V	71.9
9549.00	-63.43	11.40	-52.03	V	78.4
11458.80	-70.93	12.10	-58.83	V	85.2

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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8.1 Test Data

8.2 FREQUENCY STABILITY (GSM850)

OPERATING FREQUENCY: 836,600,002 Hz

CHANNEL: 190

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (ºC)	FREQ. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,600,002	0.000000
100 %		- 30	836,599,910	0.000011
100 %		- 20	836,599,918	0.000010
100 %		- 10	836,599,918	0.000010
100 %		0	836,599,927	0.000009
100 %		+ 10	836,599,952	0.000006
100 %		+ 20	836,600,002	0.000000
100 %		+ 25	836,599,985	0.000002
100 %		+ 30	836,599,969	0.000004
100 %		+ 40	836,600,077	-0.000009
100 %		+ 50	836,600,069	-0.000008
100 %		+ 60	836,600,086	-0.000010
85 %	3.17	+ 20	836,600,002	0.000000
115 %	4.26	+ 20	836,600,002	0.000000
BATT. ENDPOINT	2.91	+ 20	836,600,002	0.000000

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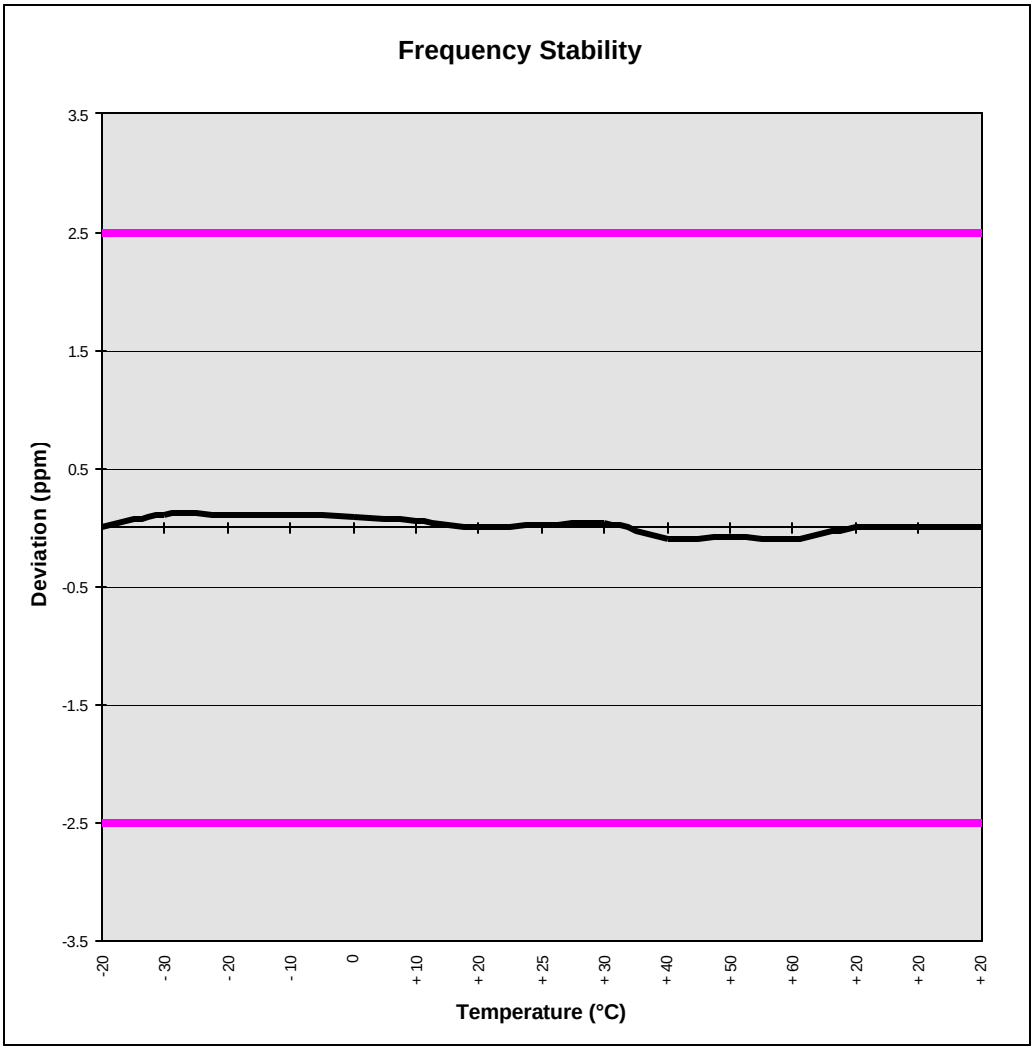
8.1 Test Data (Continued)

8.3 FREQUENCY STABILITY (GSM850)



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8.1 Test Data (Continued)

8.4 FREQUENCY STABILITY (GSM1900)

OPERATING FREQUENCY: 1,880,000,004 Hz

CHANNEL: 661

REFERENCE VOLTAGE: 3.7 VAC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (ºC)	FREQ. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,880,000,004	0.000000
100 %		- 30	1,879,999,816	0.000010
100 %		- 20	1,879,999,797	0.000011
100 %		- 10	1,879,999,816	0.000010
100 %		0	1,879,999,910	0.000005
100 %		+ 10	1,879,999,948	0.000003
100 %		+ 20	1,880,000,004	0.000000
100 %		+ 25	1,879,999,966	0.000002
100 %		+ 30	1,879,999,891	0.000006
100 %		+ 40	1,880,000,173	-0.000009
100 %		+ 50	1,880,000,173	-0.000009
100 %		+ 60	1,880,000,192	-0.000010
85 %	3.17	+ 20	1,880,000,004	0.000000
115 %	4.26	+ 20	1,880,000,004	0.000000
BATT. ENDPOINT	2.91	+ 20	1,880,000,004	0.000000

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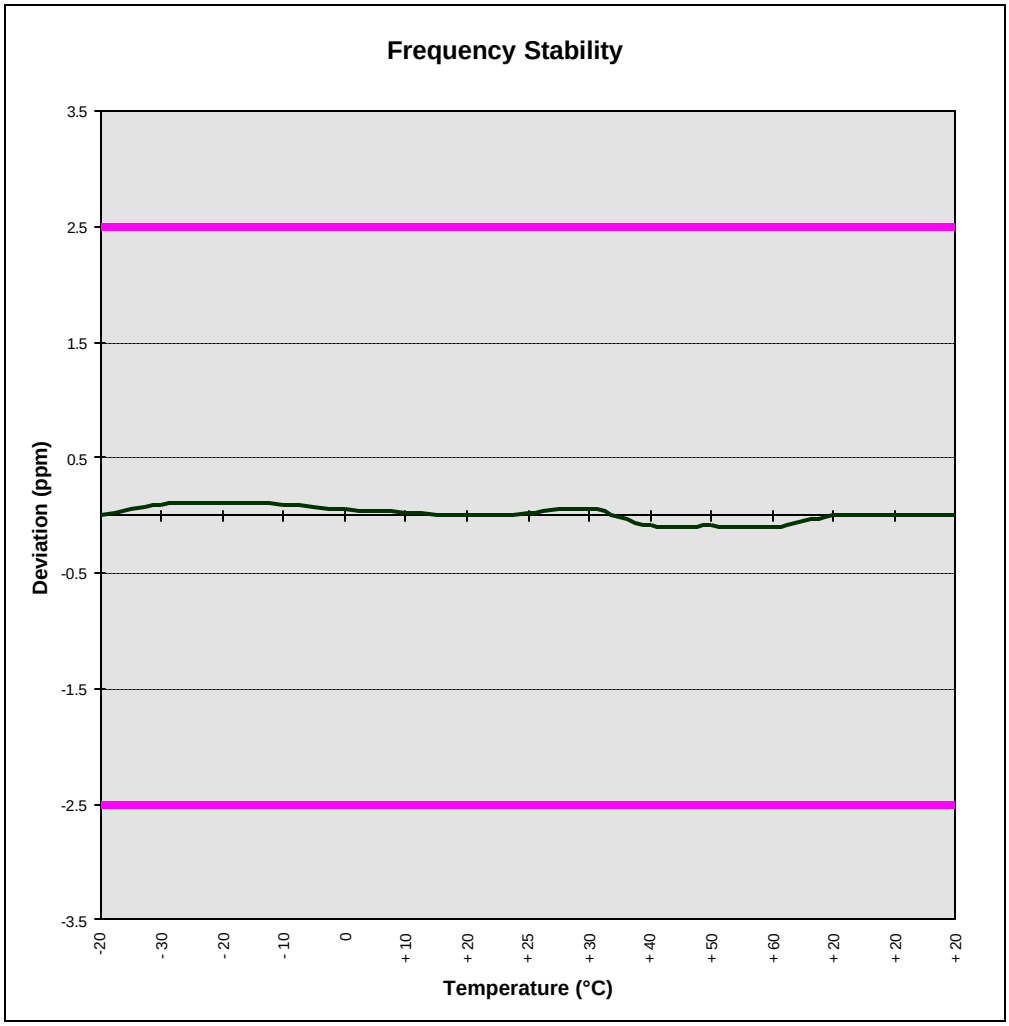
8.1 Test Data (Continued)

8.5 FREQUENCY STABILITY (GSM1900)



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9.1 PLOT(S) OF EMISSIONS

(SEE ATTACHMENT D)

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10.1 TEST EQUIPMENT

Type	Model	Cal. Due Date	S/N
Microwave Spectrum Analyzer	HP 8566B (100Hz-22GHz)	08/15/03	3638A08713
Microwave Spectrum Analyzer	HP 8566B (100Hz-22GHz)	04/17/04	2542A11898
Spectrum Analyzer/Tracking Gen.	HP 8591A (100Hz-1.8GHz)	08/10/03	3144A02458
Signal Generator*	HP 8640B (500Hz-1GHz)	06/03/04	2232A19558
Signal Generator*	HP 8640B (500Hz-1GHz)	06/03/04	1851A09816
Signal Generator*	Rohde & Schwarz (0.1-1000MHz)	09/11/03	894215/012
Ailtech/Eaton Receiver	NM 37/57A-SL (30-1000MHz)	04/12/04	0792-03271
Ailtech/Eaton Receiver	NM 37/57A (30-1000MHz)	03/11/04	0805-03334
Ailtech/Eaton Receiver	NM 17/27A (0.1-32MHz)	09/17/03	0608-03241
Quasi-Peak Adapter	HP 85650A	08/15/03	2043A00301
Ailtech/Eaton Adapter	CCA-7 CISPR/ANSI QP Adapter	03/11/04	0194-04082
Gigatronics Universal Power Meter	8657A		1835256
Gigatronics Power Sensor	80701A (0.05-18GHz)		1833460
Signal Generator	HP 8648D (9kHz-4GHz)		3613A00315
Amplifier Research	5S1G4 (5W, 800MHz-4.2GHz)		22322
Network Analyzer	HP 8753E (30kHz-3GHz)		JP38020182
Audio Analyzer	HP 8903B		3011A09025
Modulation Analyzer	HP 8901A		2432A03467
Power Meter	HP 437B		3125U24437
Power Sensor	HP 8482H (30µW-3W)		2237A02084
Harmonic/Flicker Test System	HP 6841A (IEC 555-2/3)		3531A00115
Broadband Amplifier (2)	HP 8447D		1145A00470, 1937A03348
Broadband Amplifier	HP 8447F		2443A03784
Horn Antenna	EMCO Model 3115 (1-18GHz)		9704-5182
Horn Antenna	EMCO Model 3115 (1-18GHz)		9205-3874
Horn Antenna	EMCO Model 3116 (18-40GHz)		9203-2178
Biconical Antenna (4)	Eaton 94455/Eaton 94455-1/Singer 94455-1/Compliance Design		1295, 1332, 0355
Log-Spiral Antenna (3)	Ailtech/Eaton 93490-1		0608, 1103, 1104
Roberts Dipoles	Compliance Design (1 set)		
Ailtech Dipoles	DM-105A (1 set)		33448-111
EMCO LISN (6)	3816/2		1079
Microwave Preamplifier 40dB Gain	HP 83017A (0.5-26.5GHz)		3123A00181
Microwave Cables	MicroCoax (1.0-26.5GHz)		
Ailtech/Eaton Receiver	NM37/57A-SL		0792-03271
Spectrum Analyzer	HP 8594A		3051A00187
Spectrum Analyzer (2)	HP 8591A		3034A01395, 3108A02053
Microwave Survey Meter	Holaday Model 1501 (2.450GHz)		80931
Digital Thermometer	Extech Instruments 421305		426966
Attenuator	HP 8495A (0-70dB) DC-4GHz		
Bi-Directional Coax Coupler	Narda 3020A (50-1000MHz)		
Shielded Screen Room	RF Lindgren Model 26-2/2-0		6710 (PCT270)
Shielded Semi-Anechoic Chamber	Ray Proof Model S81		R2437 (PCT278)
Enviromental Chamber	Associated Systems Model 1025 (Temperature/Humidity)		PCT285

* Calibration traceable to the National Institute of Standards and Technology (NIST).

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11.1 SAMPLE CALCULATIONS

A. Emission Designator

Emission Designator = 300KGXW

GSM BW = 300 KHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

Emission Designator = 300KGXW

B. Spurious Radiated Emission - PCS Band

Example: Channel 25 PCS Mode 2nd Harmonic (3702.50 MHz)

The receive analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3702.50 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80) = 50.3 dBc

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12.1 CONCLUSION

The data collected shows that the **LG Electronics Dual-Band GSM Phone FCC ID: BEJG4010** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

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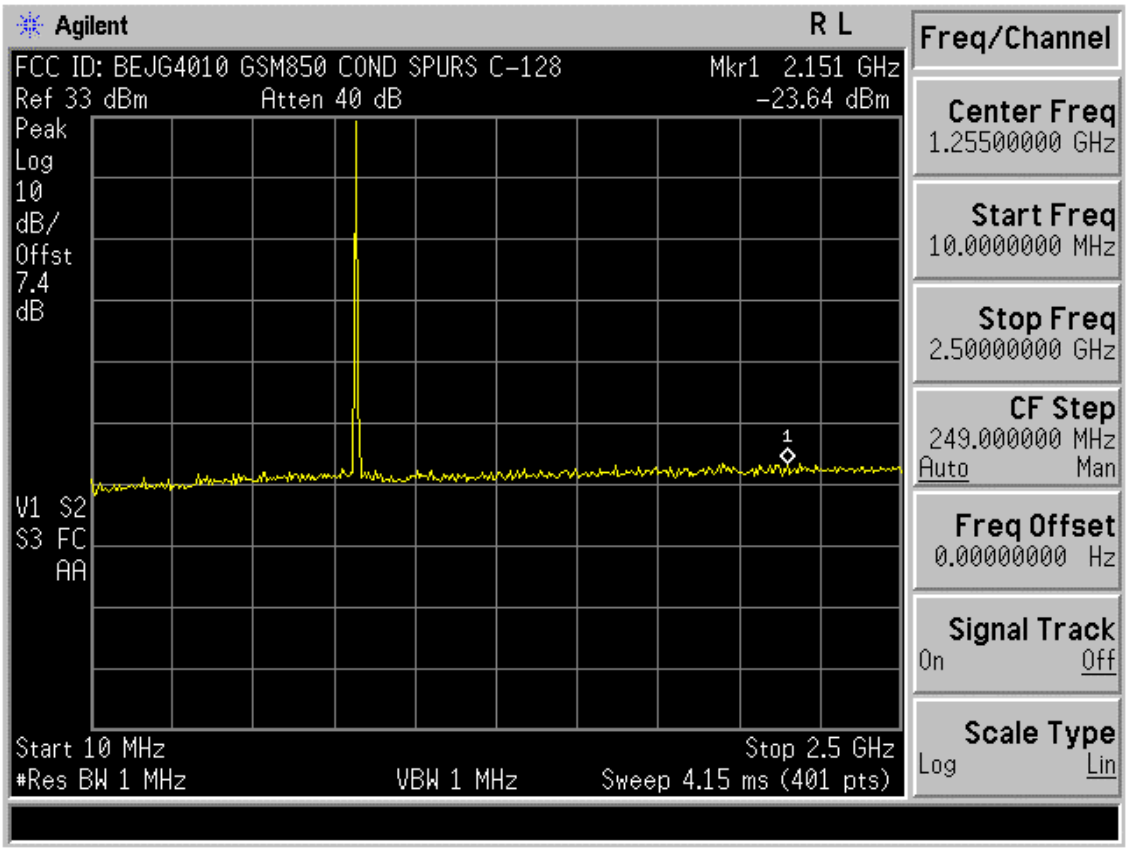
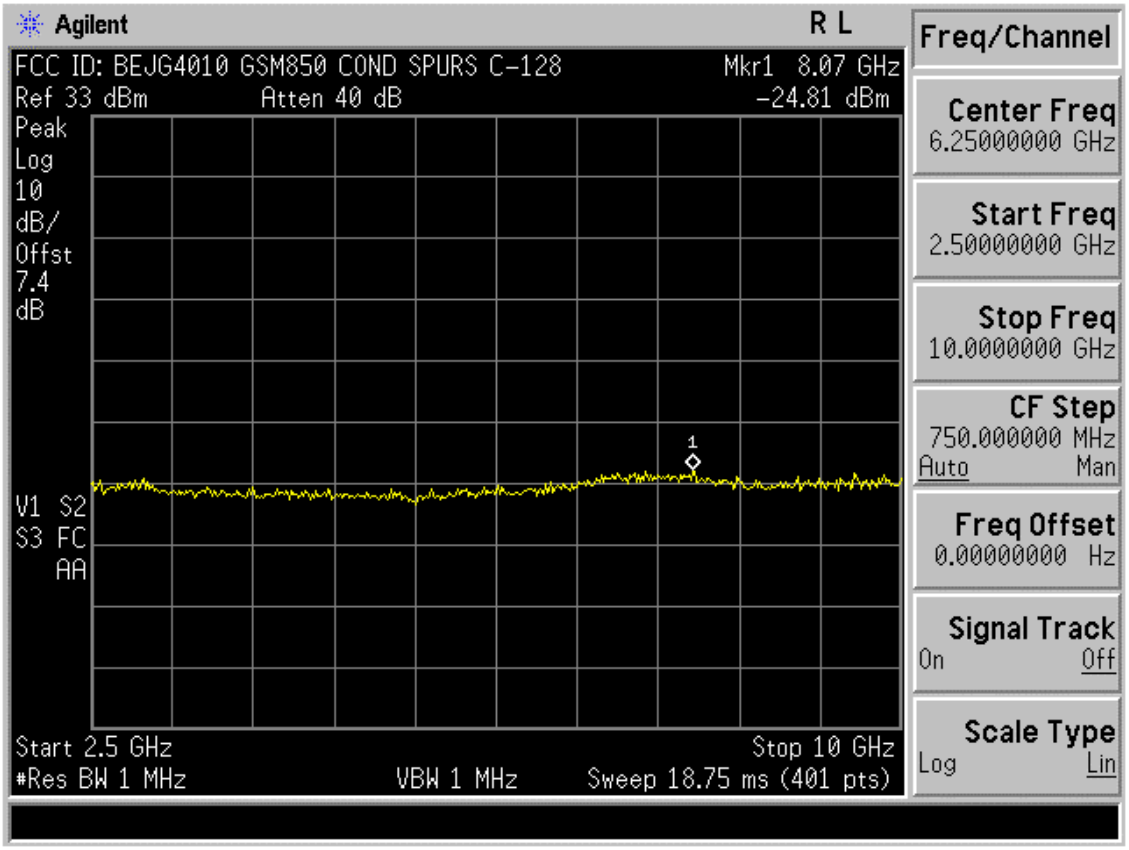
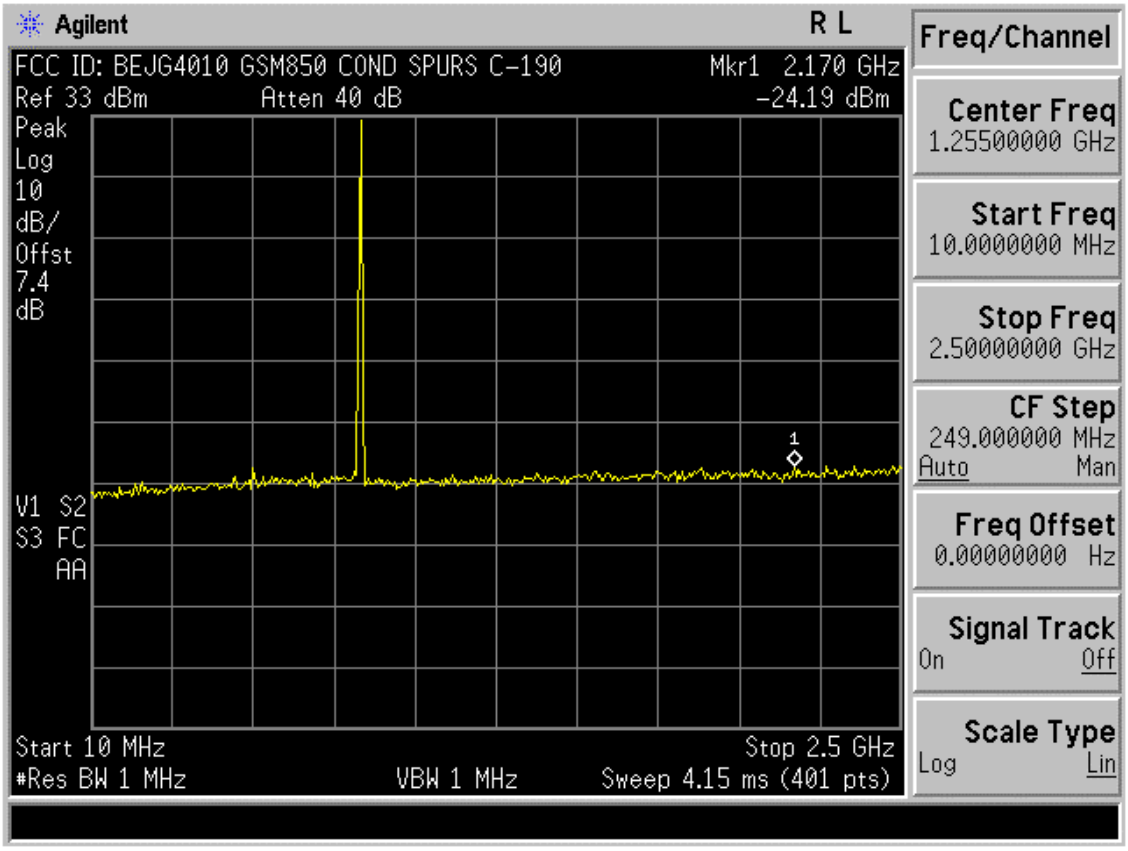
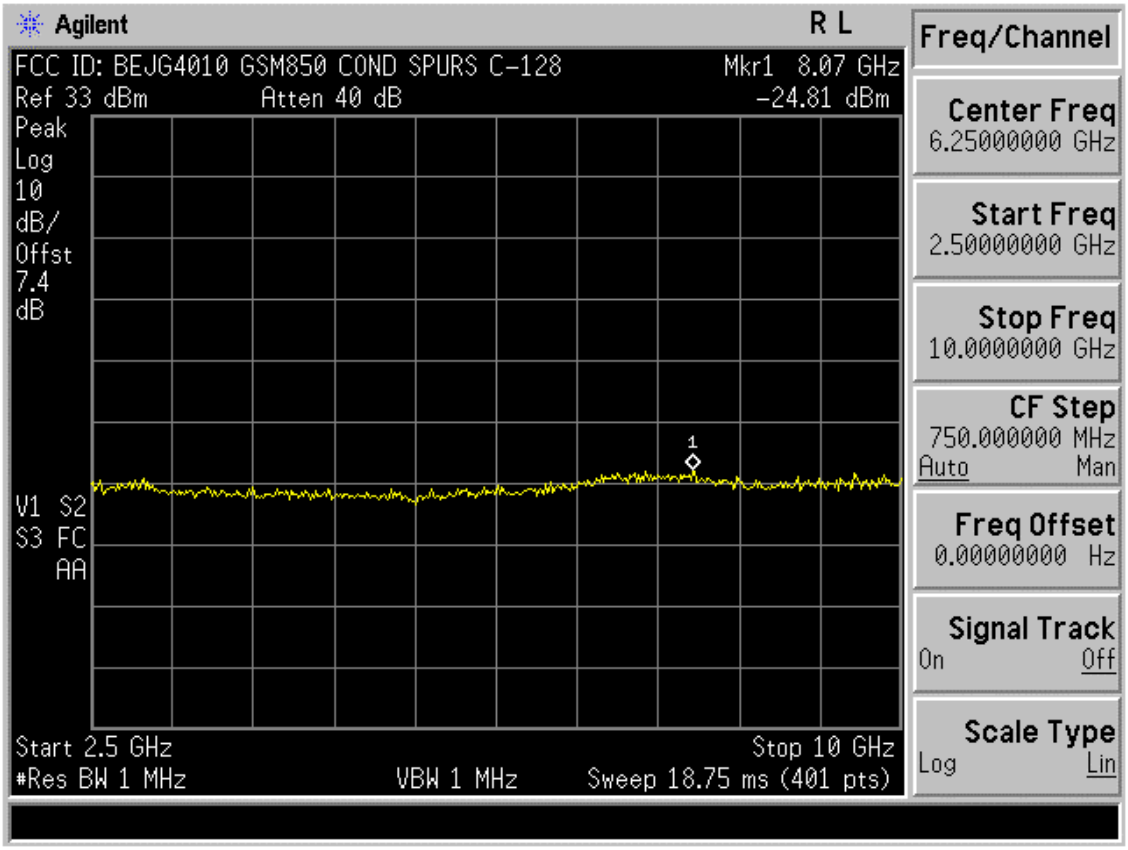
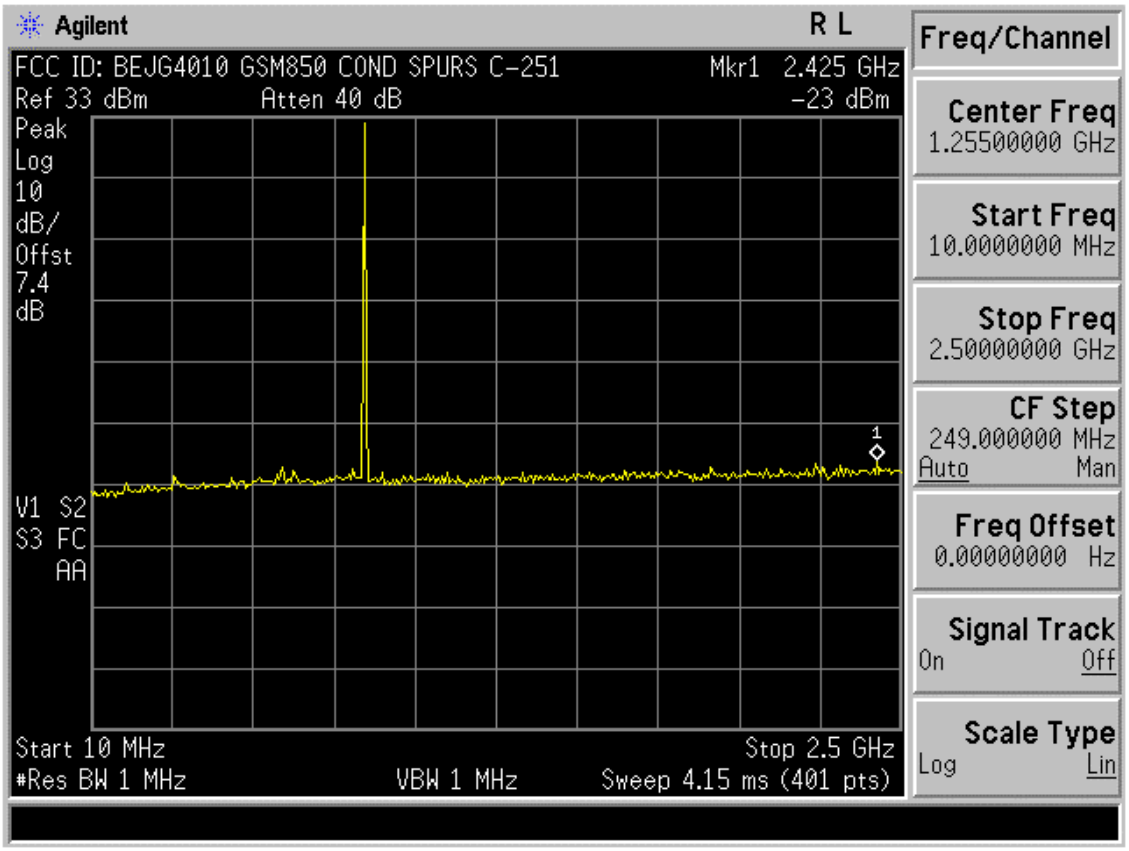
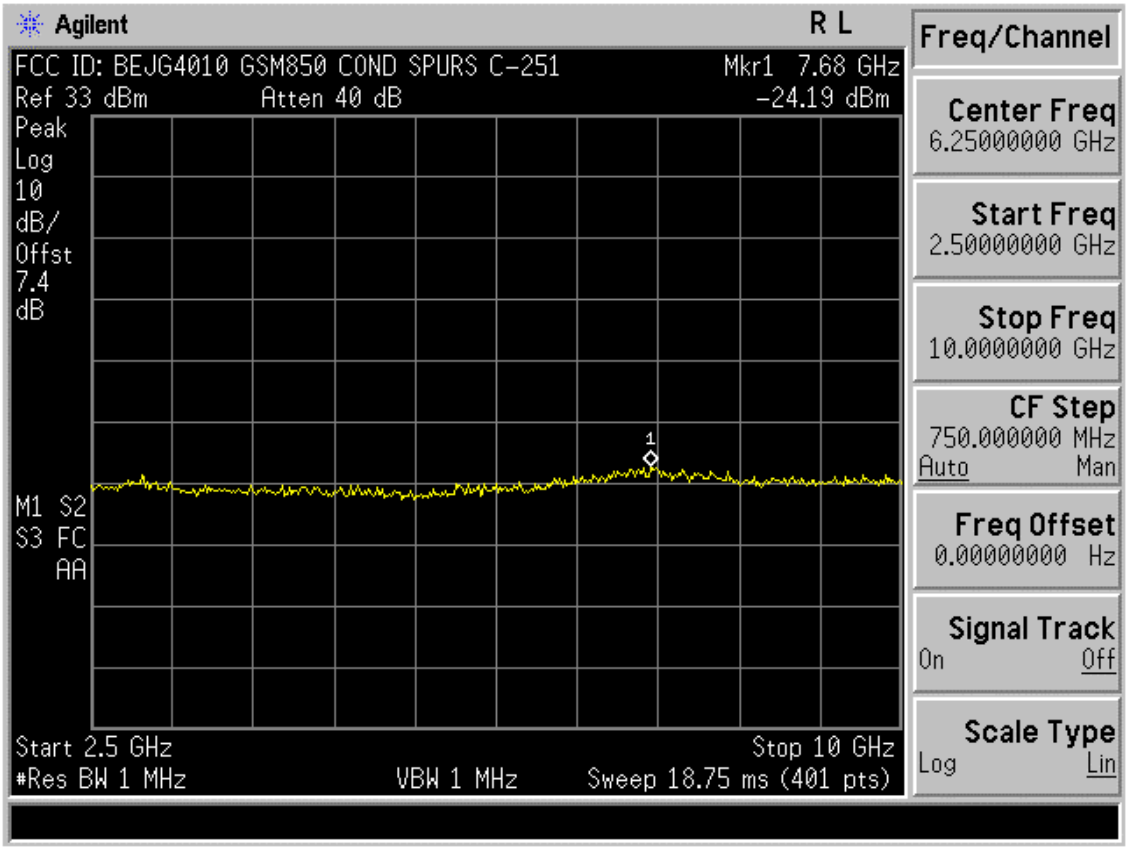

Agilent
R L
FCC ID: BEJG4010 GSM850 COND SPURS C-128
Mkr1 2.151 GHz
Ref 33 dBm
Atten 40 dB
-23.64 dBm
Peak
Log
10
dB/
Offst
7.4
dB
1
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

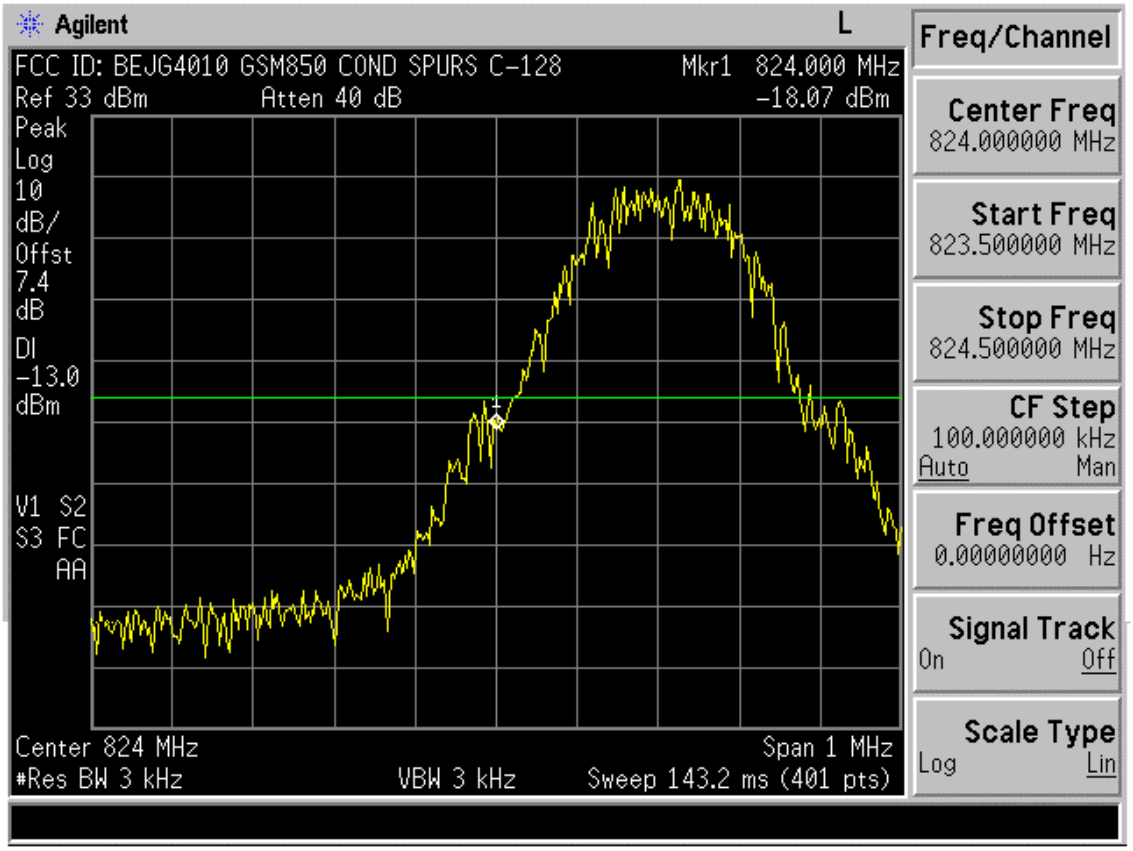

Agilent
R L
FCC ID: BEJG4010 GSM850 COND SPURS C-128
Mkr1 8.07 GHz
Ref 33 dBm
Atten 40 dB
-24.81 dBm
Peak
Log
10
dB/
Offst
7.4
dB
1
V1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms (401 pts)
Freq/Channel
Center Freq
6.25000000 GHz
Start Freq
2.50000000 GHz
Stop Freq
10.0000000 GHz
CF Step
750.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

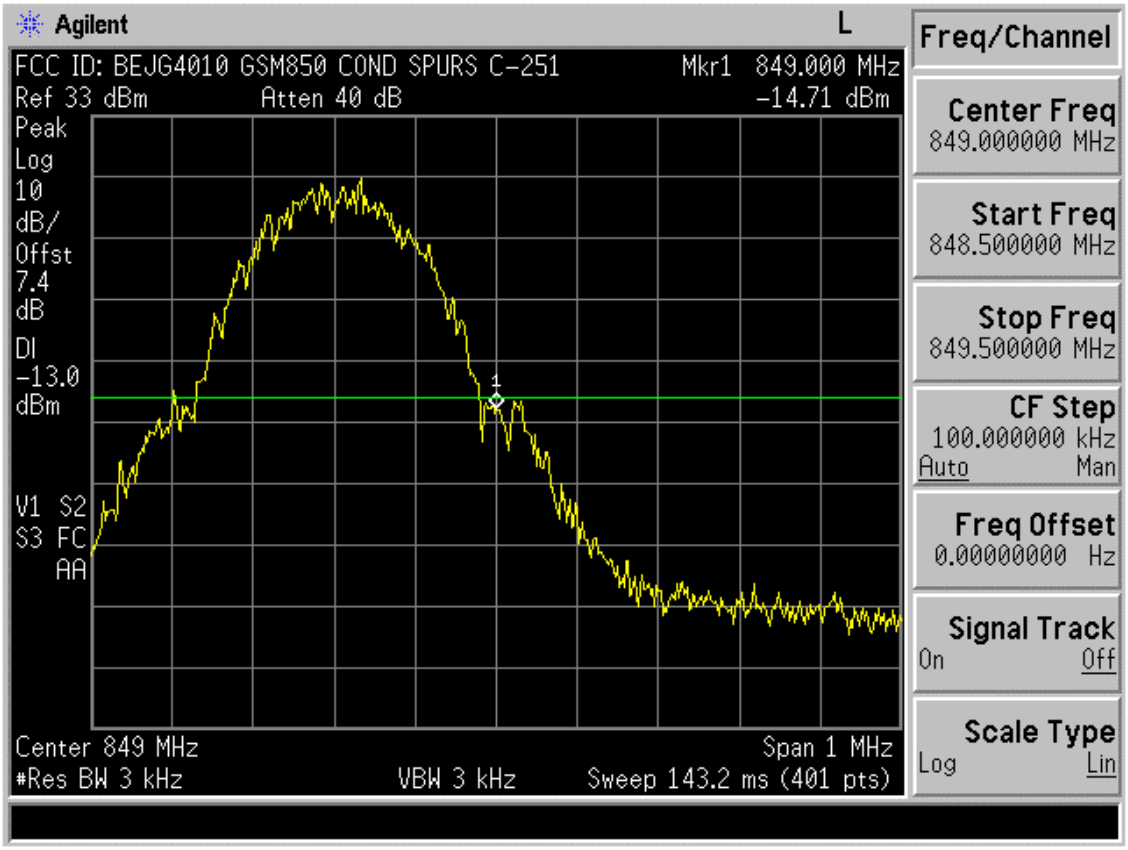

Agilent
R L
FCC ID: BEJG4010 GSM850 COND SPURS C-190
Mkr1 2.170 GHz
Ref 33 dBm
Atten 40 dB
-24.19 dBm
Peak
Log
10
dB/
Offst
7.4
dB
1
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

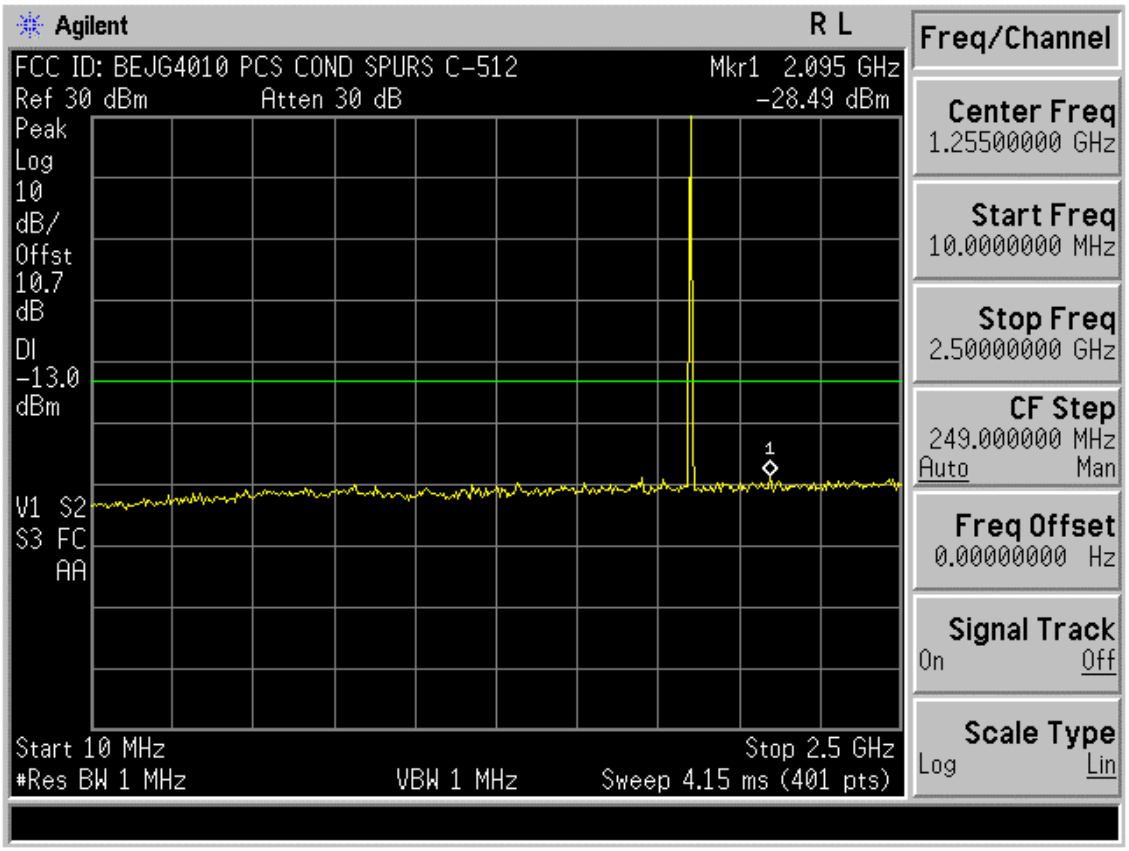

Agilent
R L
FCC ID: BEJG4010 GSM850 COND SPURS C-128
Mkr1 8.07 GHz
Ref 33 dBm
Atten 40 dB
-24.81 dBm
Peak
Log
10
dB/
Offst
7.4
dB
1
V1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms (401 pts)
Freq/Channel
Center Freq
6.25000000 GHz
Start Freq
2.50000000 GHz
Stop Freq
10.0000000 GHz
CF Step
750.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

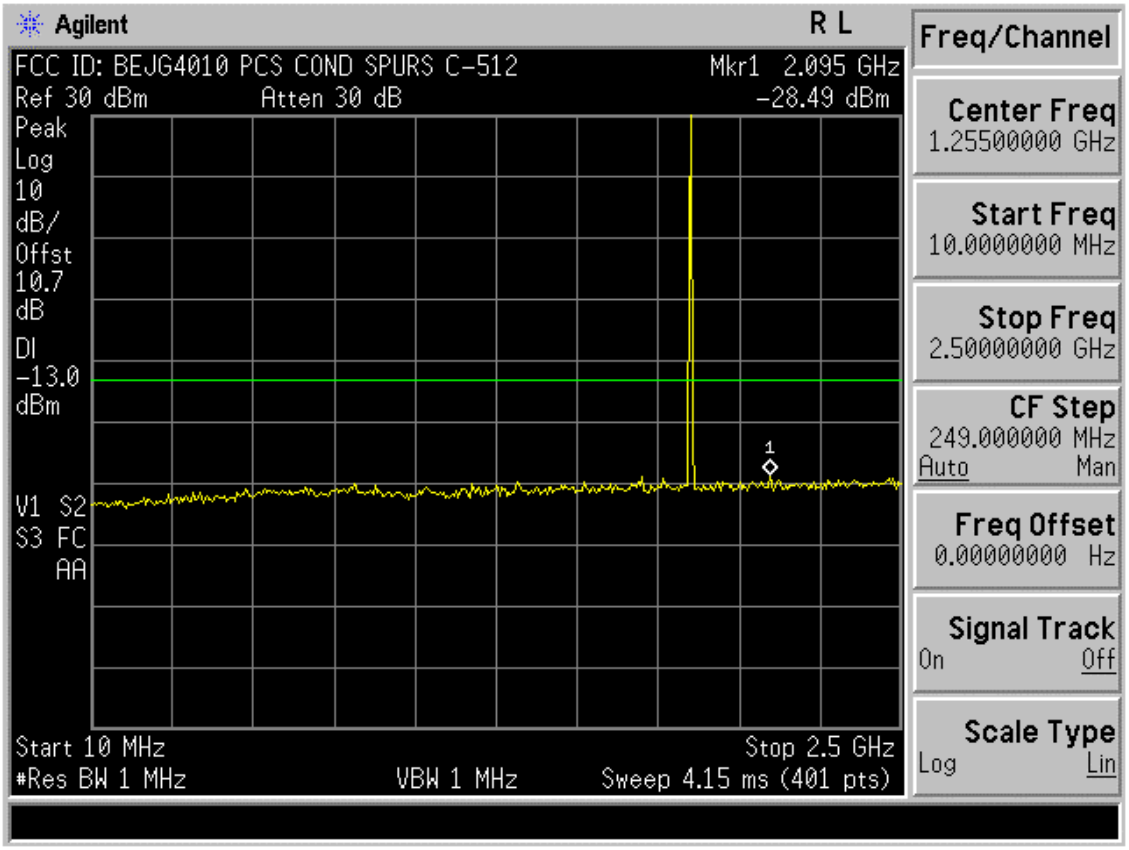

Agilent
R L
FCC ID: BEJG4010 GSM850 COND SPURS C-251
Mkr1 2.425 GHz
Ref 33 dBm
Atten 40 dB
-23 dBm
Peak
Log
10
dB/
Offst
7.4
dB
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

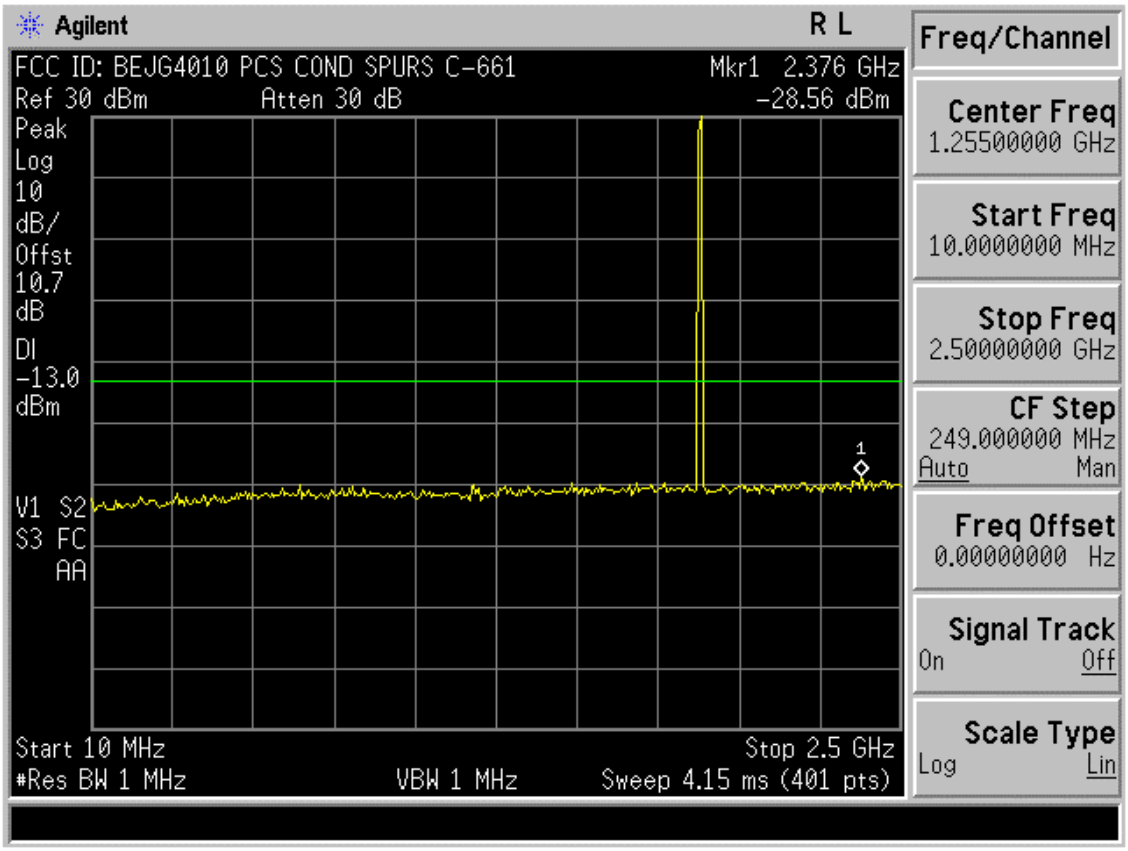

Agilent
R L
FCC ID: BEJG4010 GSM850 COND SPURS C-251
Mkr1 7.68 GHz
Ref 33 dBm
Atten 40 dB
-24.19 dBm
Peak
Log
10
dB/
Offst
7.4
dB
M1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms (401 pts)
Freq/Channel
Center Freq
6.25000000 GHz
Start Freq
2.50000000 GHz
Stop Freq
10.0000000 GHz
CF Step
750.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin


Agilent
L
FCC ID: BEJG4010 GSM850 COND SPURS C-128
Mkr1 824.000 MHz
Ref 33 dBm
Atten 40 dB
-18.07 dBm
Peak
Log
10
dB/
Offst
7.4
dB
Dl
-13.0
dBm
V1 S2
S3 FC
AA
Center 824 MHz
Span 1 MHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 143.2 ms (401 pts)
Freq/Channel
Center Freq
824.000000 MHz
Start Freq
823.500000 MHz
Stop Freq
824.500000 MHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin


Agilent
L
FCC ID: BEJG4010 GSM850 COND SPURS C-251
Mkr1 849.000 MHz
Ref 33 dBm
Atten 40 dB
-14.71 dBm
Peak
Log
10
dB/
Offst
7.4
dB
Dl
-13.0
dBm
V1 S2
S3 FC
AA
Center 849 MHz
Span 1 MHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 143.2 ms (401 pts)
Freq/Channel
Center Freq
849.000000 MHz
Start Freq
848.500000 MHz
Stop Freq
849.500000 MHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin


Agilent
R L
FCC ID: BEJG4010 PCS COND SPURS C-512
Mkr1 2.095 GHz
Ref 30 dBm
Atten 30 dB
-28.49 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
1
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin


Agilent
R L
FCC ID: BEJG4010 PCS COND SPURS C-512
Mkr1 2.095 GHz
Ref 30 dBm
Atten 30 dB
-28.49 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
1
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin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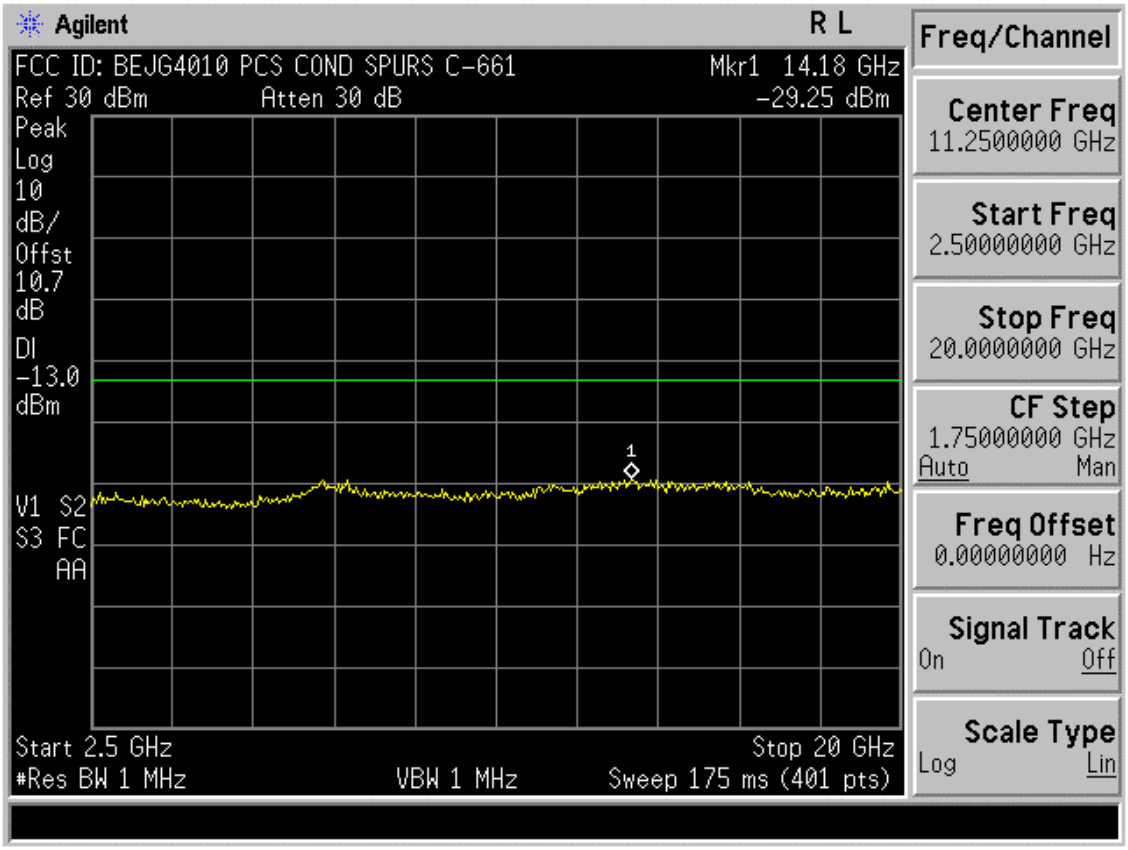
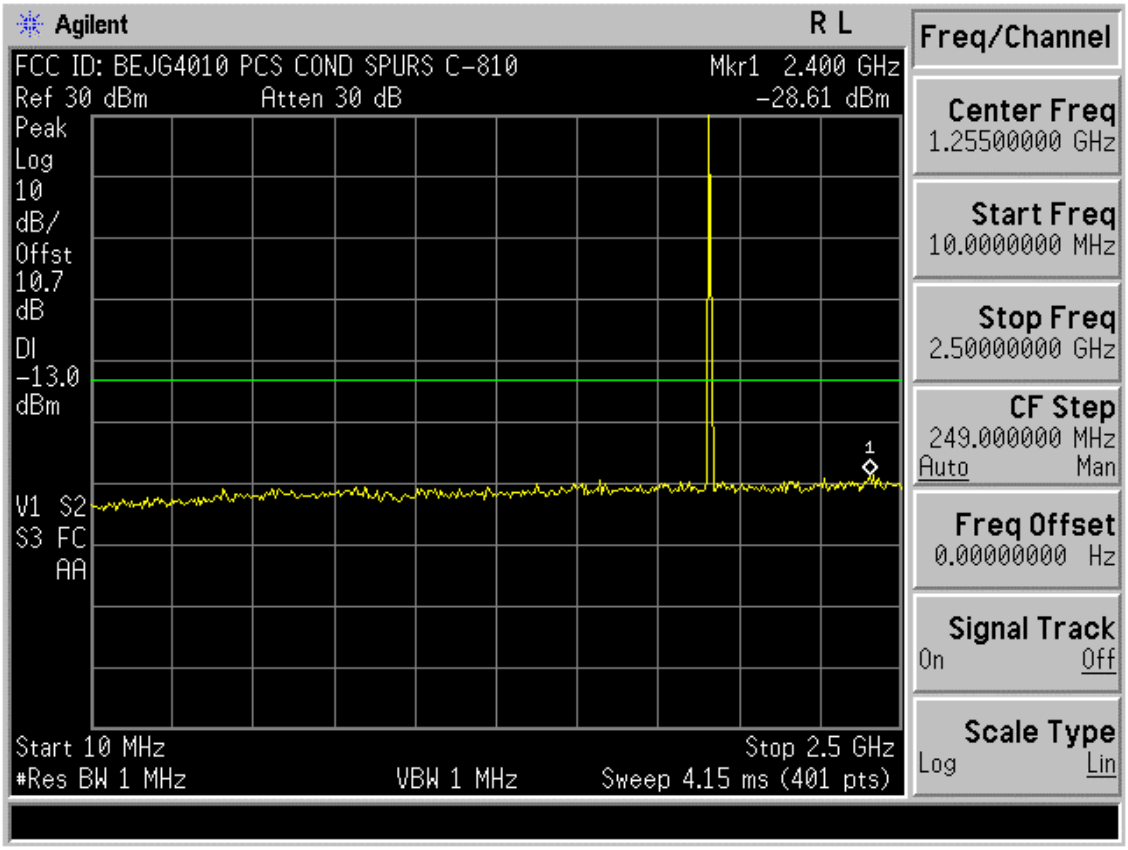
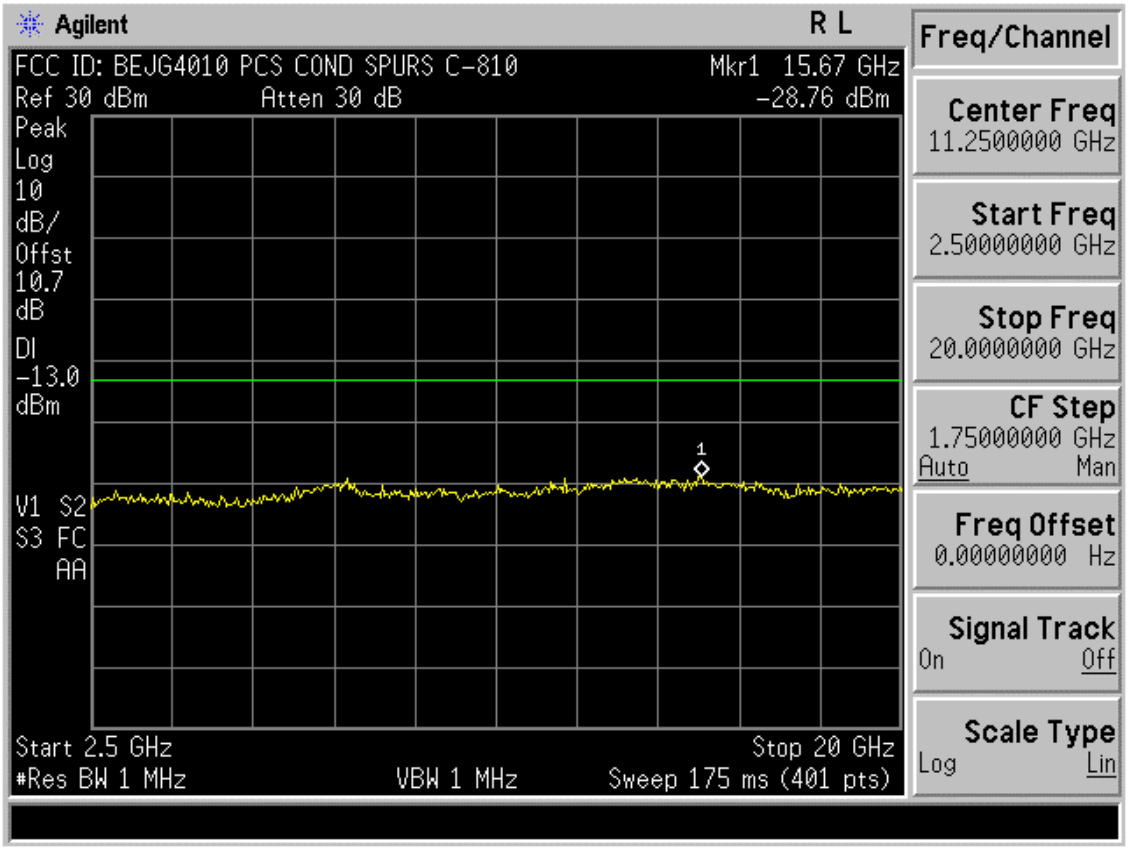
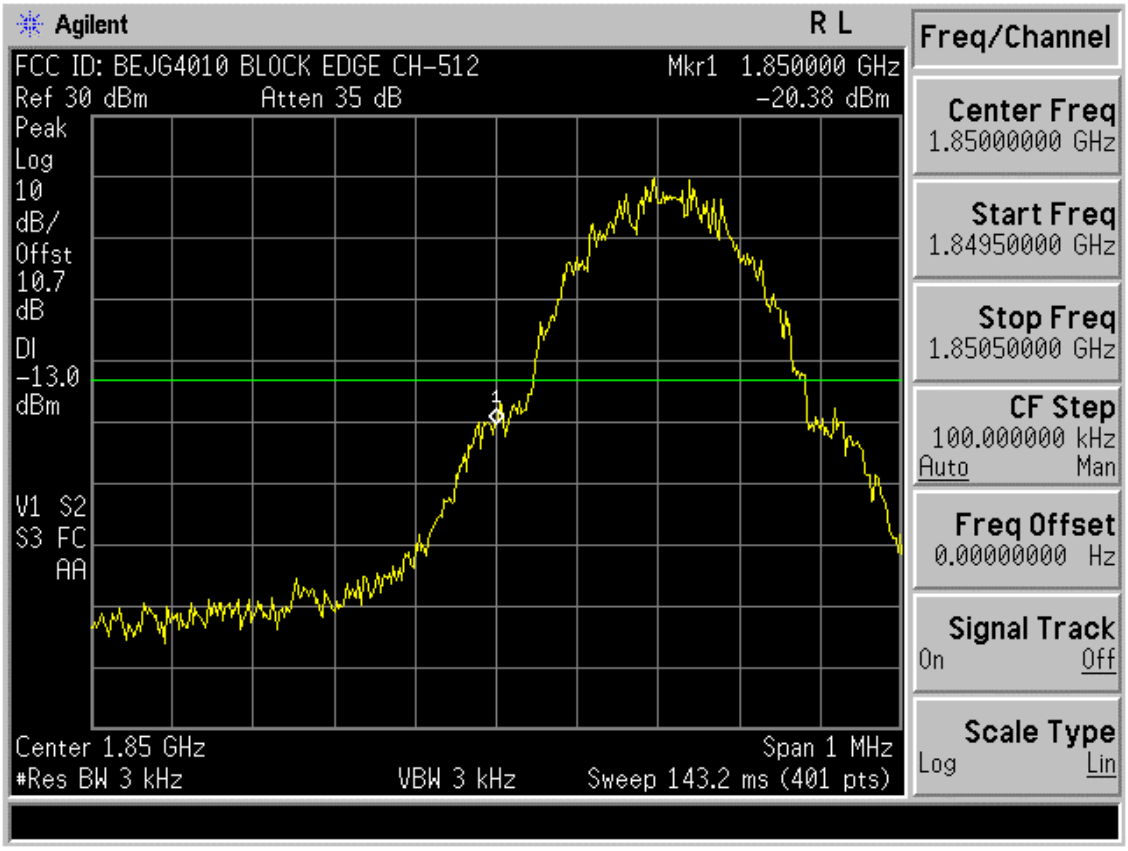
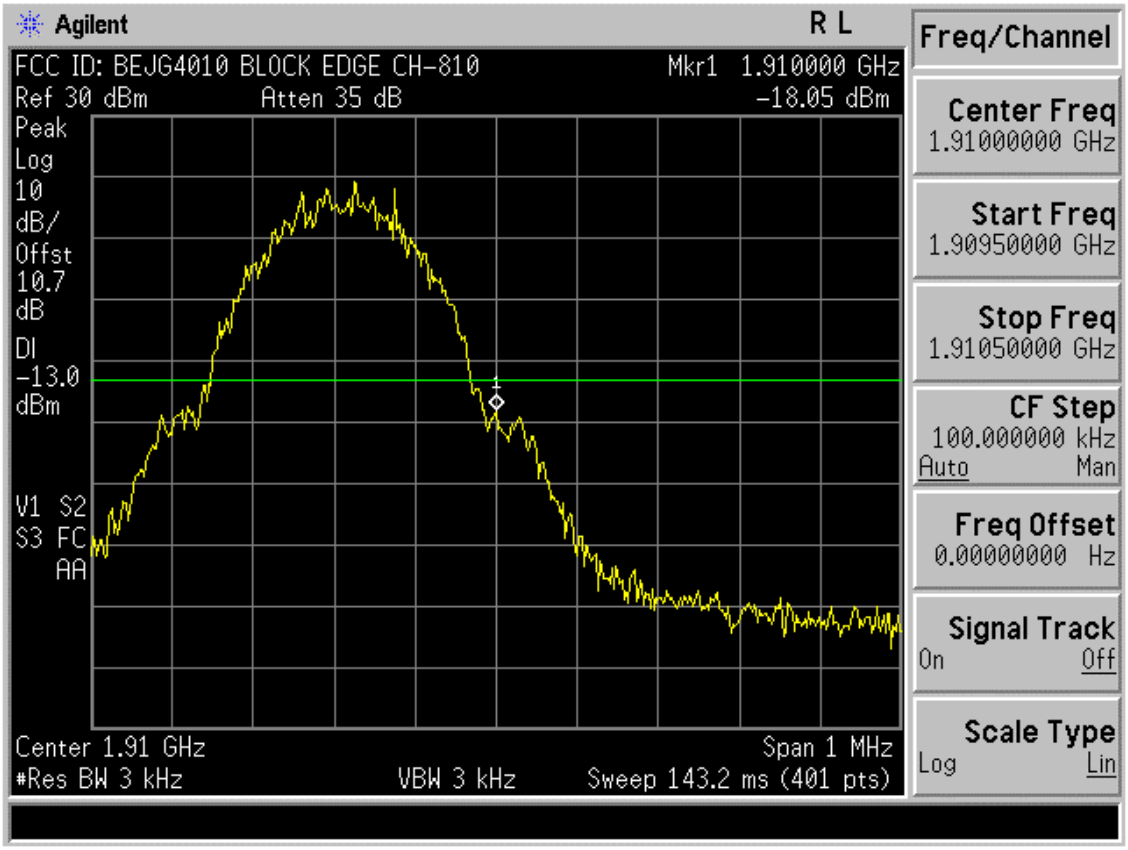
R L
FCC ID: BEJG4010 PCS COND SPURS C-661
Mkr1 2.376 GHz
Ref 30 dBm
Atten 30 dB
-28.56 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

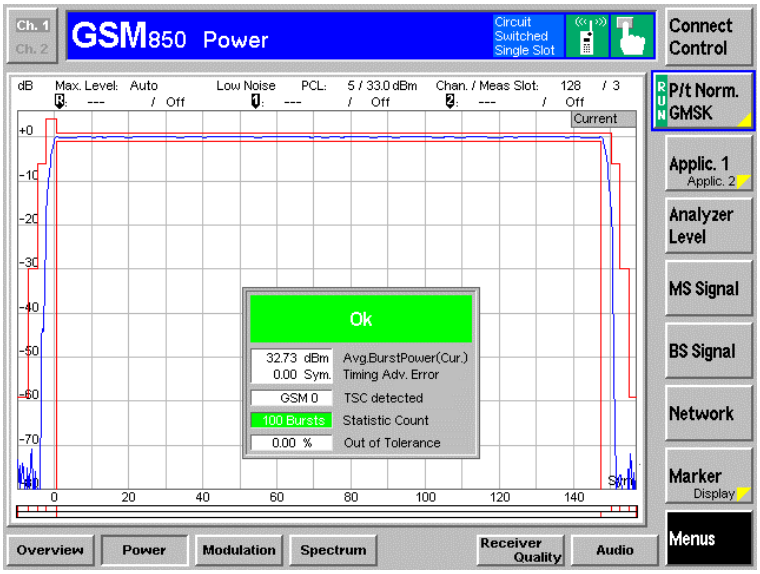

Agilent
R L
FCC ID: BEJG4010 PCS COND SPURS C-661
Mkr1 14.18 GHz
Ref 30 dBm
Atten 30 dB
-29.25 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
V1 S2
S3 FC
AA
Start 2.5 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 175 ms (401 pts)
Freq/Channel
Center Freq
11.2500000 GHz
Start Freq
2.50000000 GHz
Stop Freq
20.0000000 GHz
CF Step
1.75000000 GHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

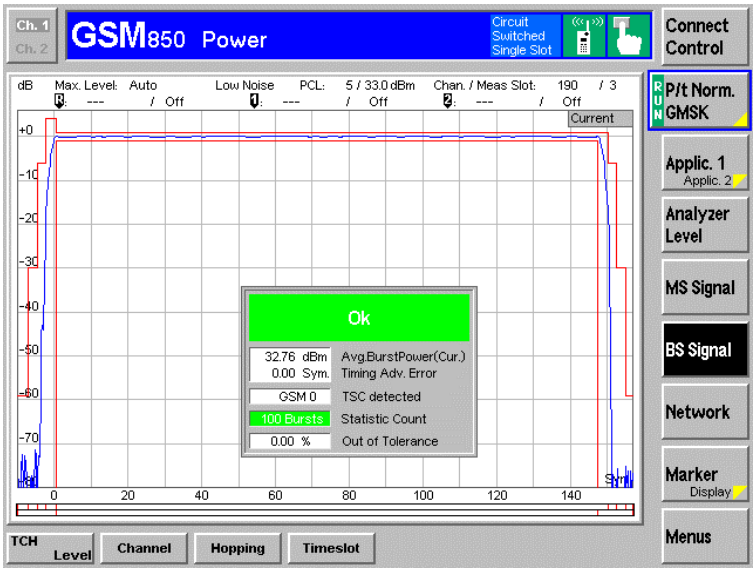

Agilent
R L
FCC ID: BEJG4010 PCS COND SPURS C-810
Mkr1 2.400 GHz
Ref 30 dBm
Atten 30 dB
-28.61 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
1
V1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.15 ms (401 pts)
Freq/Channel
Center Freq
1.25500000 GHz
Start Freq
10.0000000 MHz
Stop Freq
2.50000000 GHz
CF Step
249.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

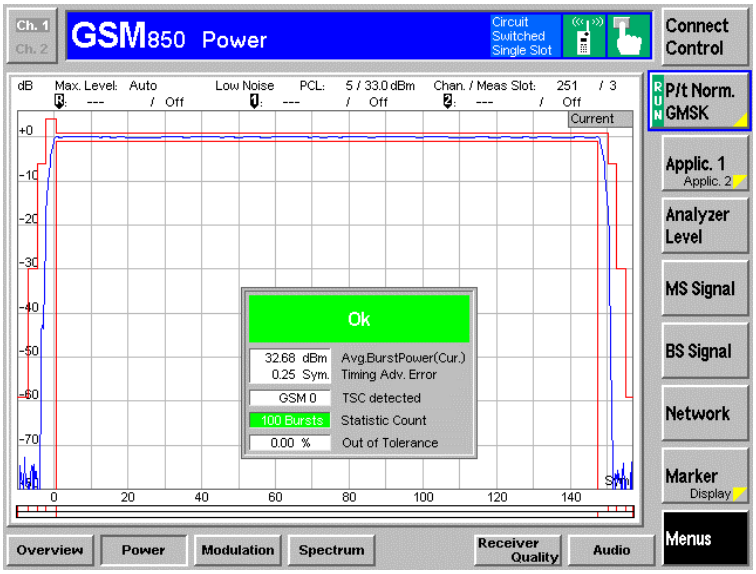

Agilent
R L
FCC ID: BEJG4010 PCS COND SPURS C-810
Mkr1 15.67 GHz
Ref 30 dBm
Atten 30 dB
-28.76 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
1
V1 S2
S3 FC
AA
Start 2.5 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 175 ms (401 pts)
Freq/Channel
Center Freq
11.2500000 GHz
Start Freq
2.50000000 GHz
Stop Freq
20.0000000 GHz
CF Step
1.75000000 GHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

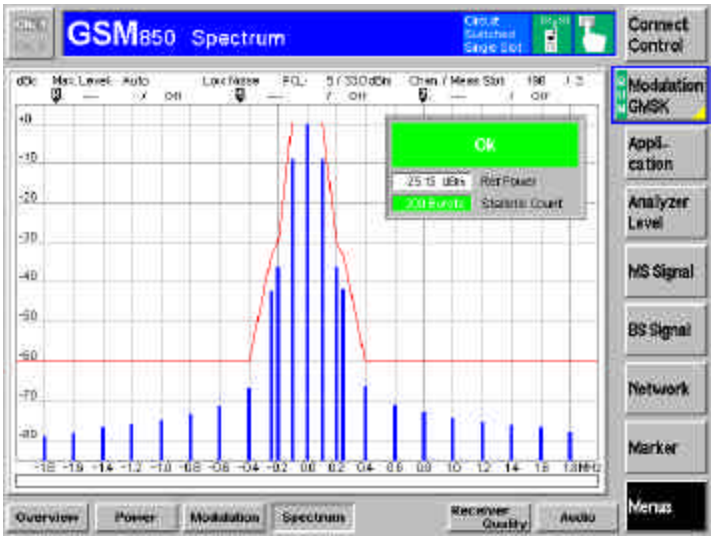

Agilent
R L
FCC ID: BEJG4010 BLOCK EDGE CH-512
Mkr1 1.850000 GHz
Ref 30 dBm
Atten 35 dB
-20.38 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
V1 S2
S3 FC
AA
Center 1.85 GHz
Span 1 MHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 143.2 ms (401 pts)
Freq/Channel
Center Freq
1.85000000 GHz
Start Freq
1.84950000 GHz
Stop Freq
1.85050000 GHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

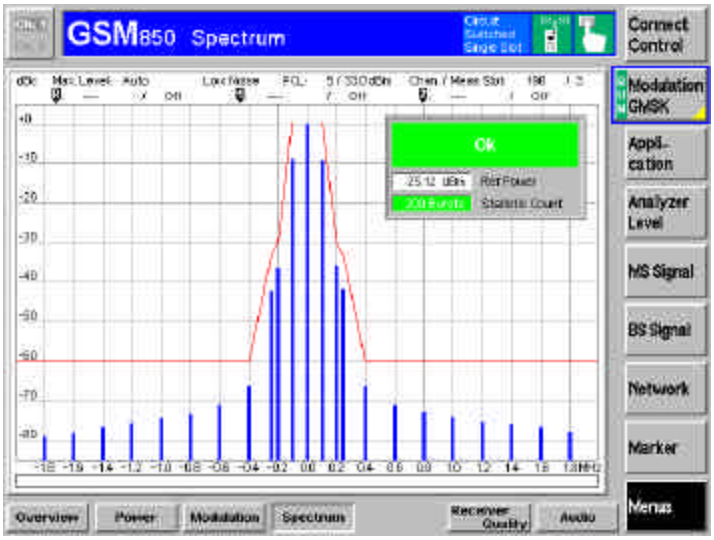

Agilent
R L
FCC ID: BEJG4010 BLOCK EDGE CH-810
Mkr1 1.910000 GHz
Ref 30 dBm
Atten 35 dB
-18.05 dBm
Peak
Log
10
dB/
Offst
10.7
dB
Dl
-13.0
dBm
V1 S2
S3 FC
AA
Center 1.91 GHz
Span 1 MHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 143.2 ms (401 pts)
Freq/Channel
Center Freq
1.91000000 GHz
Start Freq
1.90950000 GHz
Stop Freq
1.91050000 GHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

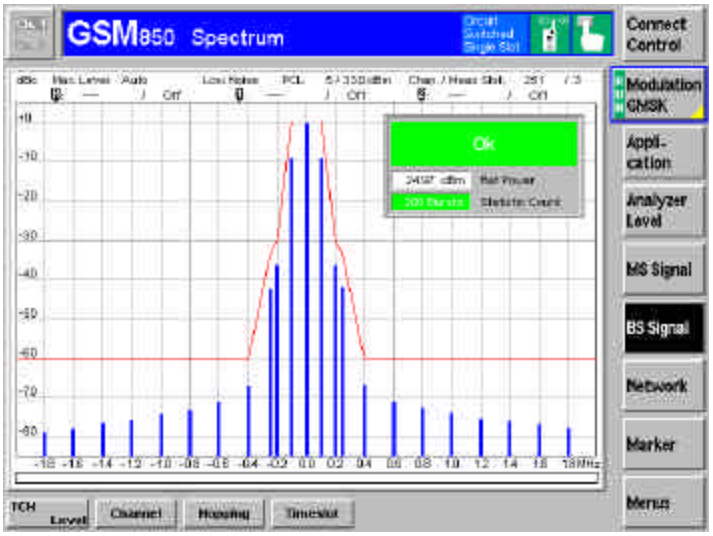

Ch. 1
Ch. 2
GSM850 Power
Circuit Switched Single Slot
Connect Control
dB Max. Level: Auto Low Noise PCL: 5 / 33.0 dBm Chan. / Meas Slot: 128 / 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
MS Signal
BS Signal
Network
Marker
Display
Ok
32.73 dBm Avg.BurstPower(Cur.)
0.00 Sym. Timing Adv. Error
GSM 0 TSC detected
100 Bursts Statistic Count
0.00 % Out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio
Menus

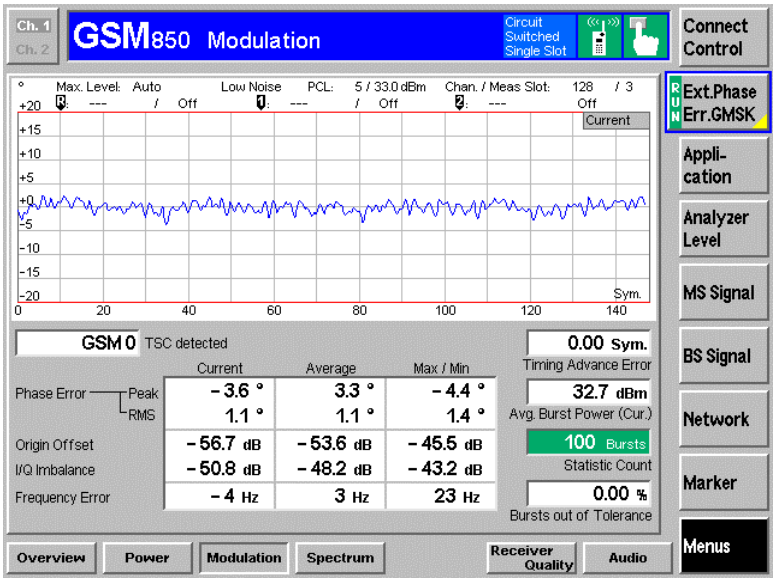

Ch. 1
Ch. 2
GSM850 Power
Circuit Switched Single Slot
Connect Control
dB Max. Level: Auto Low Noise PCL: 5 / 33.0 dBm Chan. / Meas Slot: 190 / 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
MS Signal
BS Signal
Network
Marker
Display
Ok
32.76 dBm Avg.BurstPower(Cur.)
0.00 Sym. Timing Adv. Error
GSM 0 TSC detected
100 Bursts Statistic Count
0.00 % Out of Tolerance
TCH Level
Channel
Hopping
Timeslot
Menus

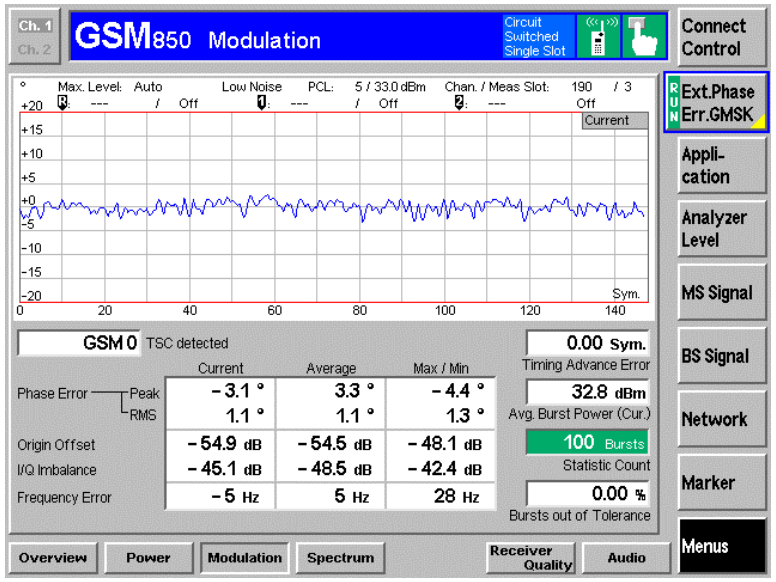

Ch. 1
Ch. 2
GSM850 Power
Circuit Switched Single Slot
Connect Control
dB Max. Level: Auto Low Noise PCL: 5 / 33.0 dBm Chan. / Meas Slot: 251 / 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
MS Signal
BS Signal
Network
Marker
Display
Ok
32.68 dBm Avg.BurstPower(Cur.)
0.25 Sym. Timing Adv. Error
GSM 0 TSC detected
100 Bursts Statistic Count
0.00 % Out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio
Menus

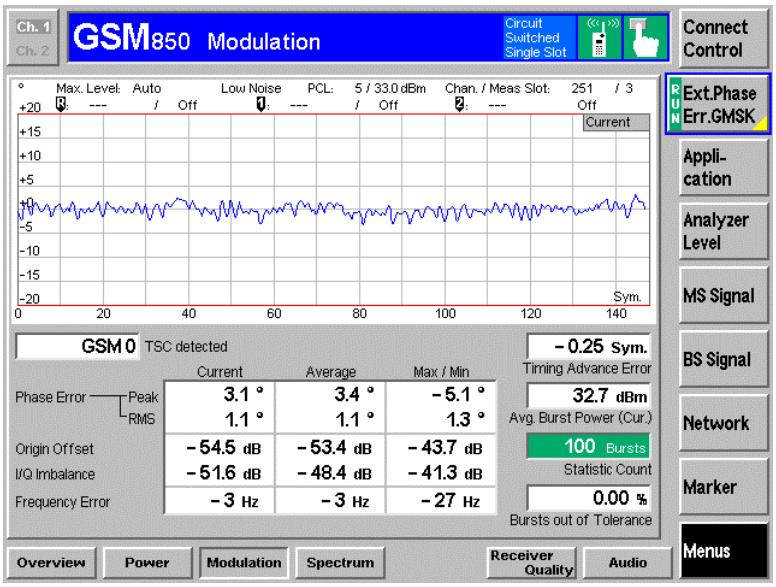

GSM850 Spectrum
Connect Control
Modulation GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
Ok
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

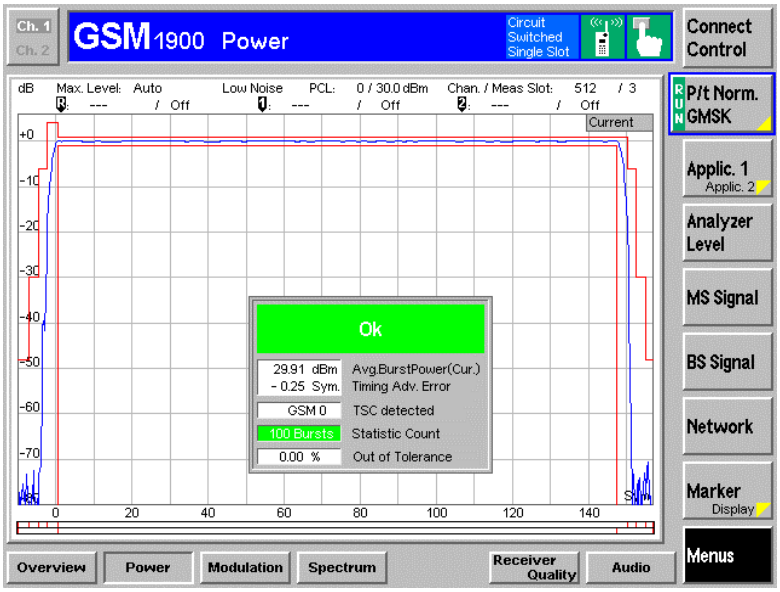

GSM850 Spectrum
Connect Control
Modulation GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
Ok
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

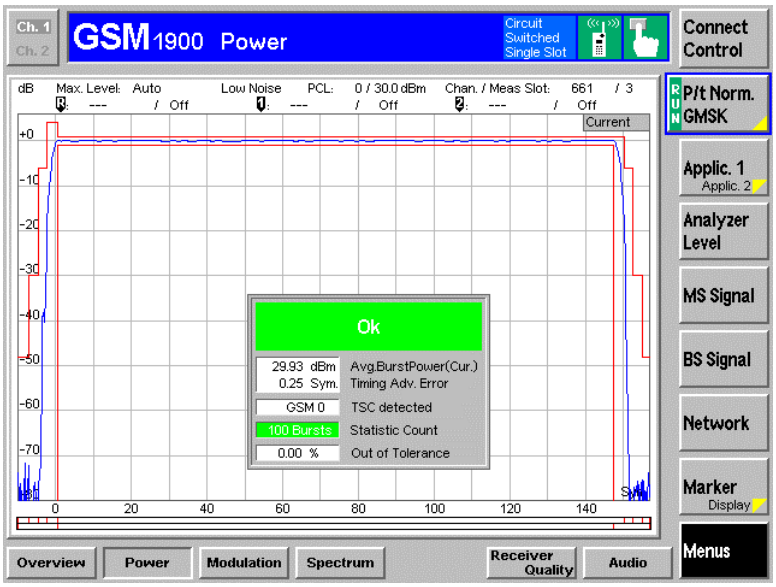

GSM850 Spectrum
Connect Control
Modulation GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
Ok
TCH Level
Channel
Hopping
Timeslot

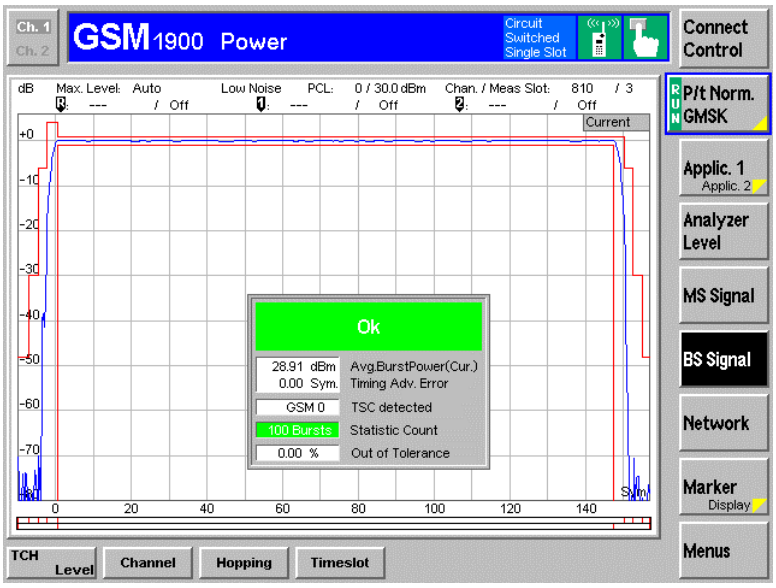

Ch. 1
Ch. 2
GSM850 Modulation
Circuit Switched Single Slot
Connect Control
Max. Level: Auto Low Noise PCL: 5 / 33.0 dBm Chan. / Meas Slot: 128 / 3
Ext.Phase Err.GMSK
Current
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
GSM 0 TSC detected
Current Average Max / Min
Phase Error Peak -3.6 ° 3.3 ° -4.4 °
RMS 1.1 ° 1.1 ° 1.4 °
Origin Offset -56.7 dB -53.6 dB -45.5 dB
I/Q Imbalance -50.8 dB -48.2 dB -43.2 dB
Frequency Error -4 Hz 3 Hz 23 Hz
0.00 Sym.
Timing Advance Error
32.7 dBm
Avg. Burst Power (Cur.)
100 Bursts
Statistic Count
0.00 %
Bursts out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

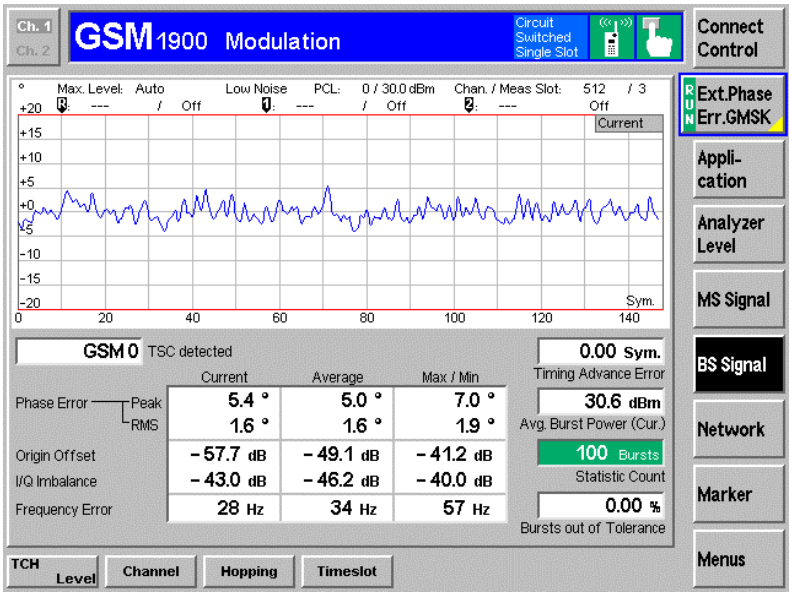

Ch. 1
Ch. 2
GSM850 Modulation
Circuit Switched Single Slot
Connect Control
Max. Level: Auto Low Noise PCL: 5 / 33.0 dBm Chan. / Meas Slot: 190 / 3
Ext.Phase Err.GMSK
Current
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
GSM 0 TSC detected
Current Average Max / Min
Phase Error Peak -3.1 ° 3.3 ° -4.4 °
RMS 1.1 ° 1.1 ° 1.3 °
Origin Offset -54.9 dB -54.5 dB -48.1 dB
I/Q Imbalance -45.1 dB -48.5 dB -42.4 dB
Frequency Error -5 Hz 5 Hz 28 Hz
0.00 Sym.
Timing Advance Error
32.8 dBm
Avg. Burst Power (Cur.)
100 Bursts
Statistic Count
0.00 %
Bursts out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

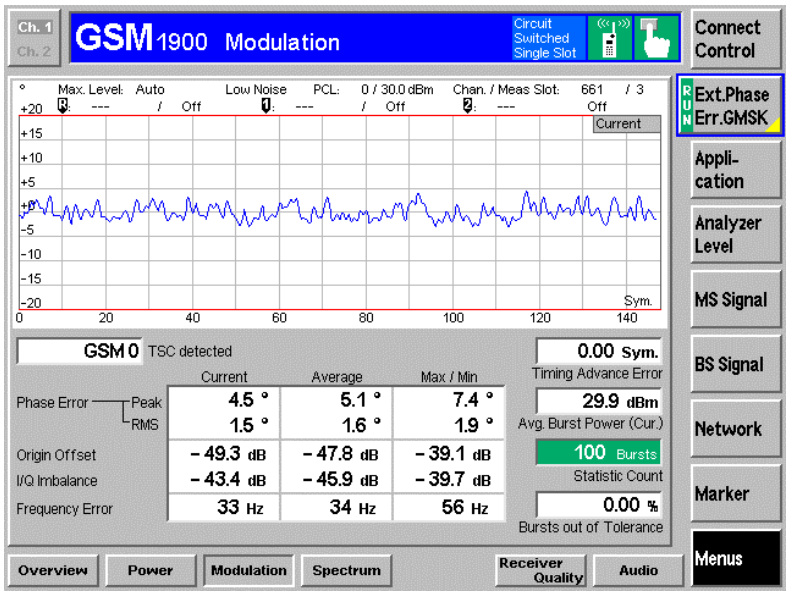

Ch. 1
Ch. 2
GSM850 Modulation
Circuit Switched Single Slot
Connect Control
Max. Level: Auto Low Noise PCL: 5 / 33.0 dBm Chan. / Meas Slot: 251 / 3
Ext.Phase Err.GMSK
Current
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
GSM 0 TSC detected
Current Average Max / Min
Phase Error Peak 3.1 ° 3.4 ° -5.1 °
RMS 1.1 ° 1.1 ° 1.3 °
Origin Offset -54.5 dB -53.4 dB -43.7 dB
I/Q Imbalance -51.6 dB -48.4 dB -41.3 dB
Frequency Error -3 Hz -3 Hz -27 Hz
-0.25 Sym.
Timing Advance Error
32.7 dBm
Avg. Burst Power (Cur.)
100 Bursts
Statistic Count
0.00 %
Bursts out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

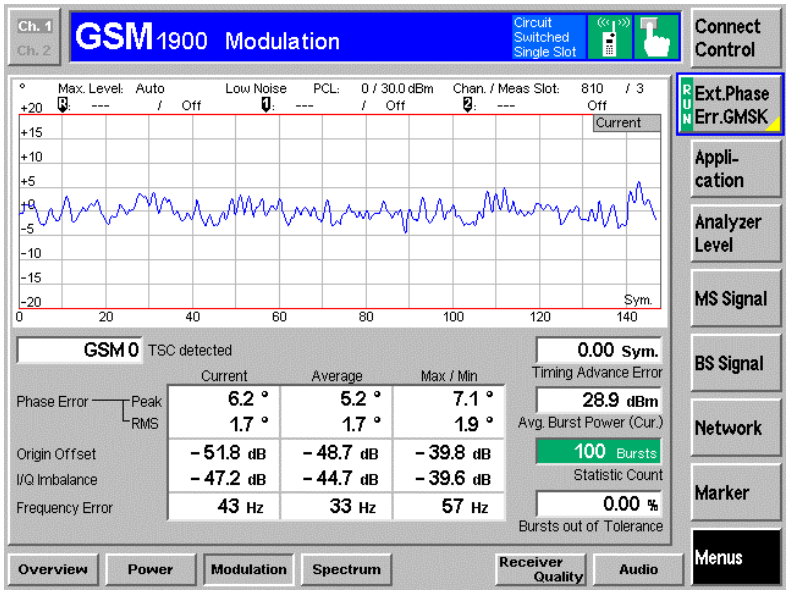

Ch. 1
Ch. 2
GSM 1900 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Chan. / Meas Slot: 512 / 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
29.91 dBm Avg.BurstPower(Cur.)
- 0.25 Sym. Timing Adv. Error
GSM 0 TSC detected
100 Bursts Statistic Count
0.00 % Out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

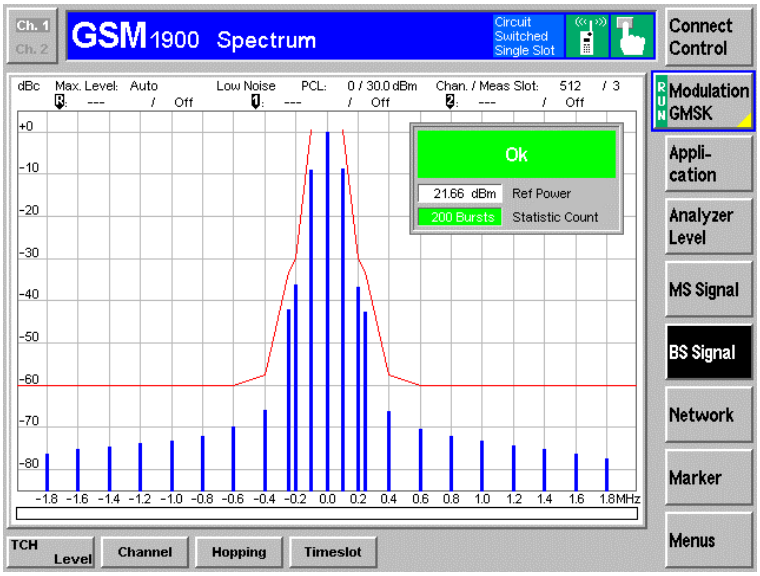

Ch. 1
Ch. 2
GSM 1900 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Chan. / Meas Slot: 661 / 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
29.93 dBm Avg.BurstPower(Cur.)
0.25 Sym. Timing Adv. Error
GSM 0 TSC detected
100 Bursts Statistic Count
0.00 % Out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio

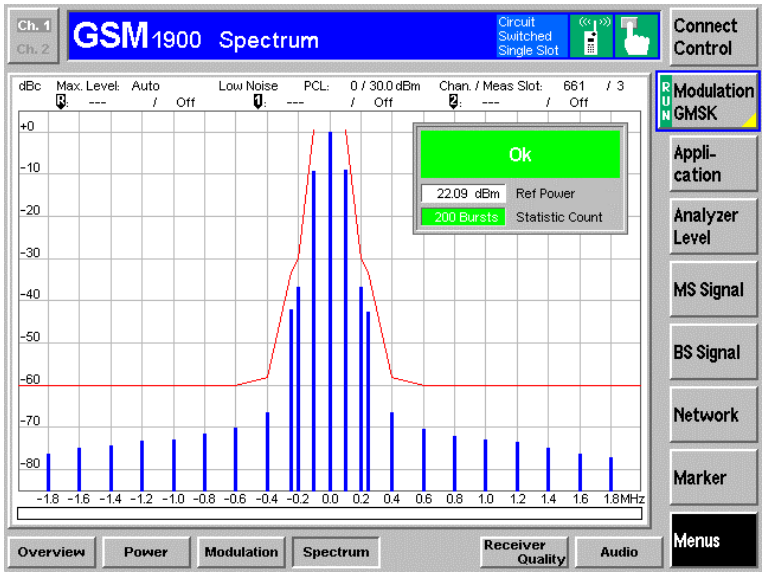

Ch. 1
Ch. 2
GSM 1900 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Chan. / Meas Slot: 810 / 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
28.91 dBm Avg.BurstPower(Cur.)
0.00 Sym. Timing Adv. Error
GSM 0 TSC detected
100 Bursts Statistic Count
0.00 % Out of Tolerance
TCH Level
Channel
Hopping
Timeslot

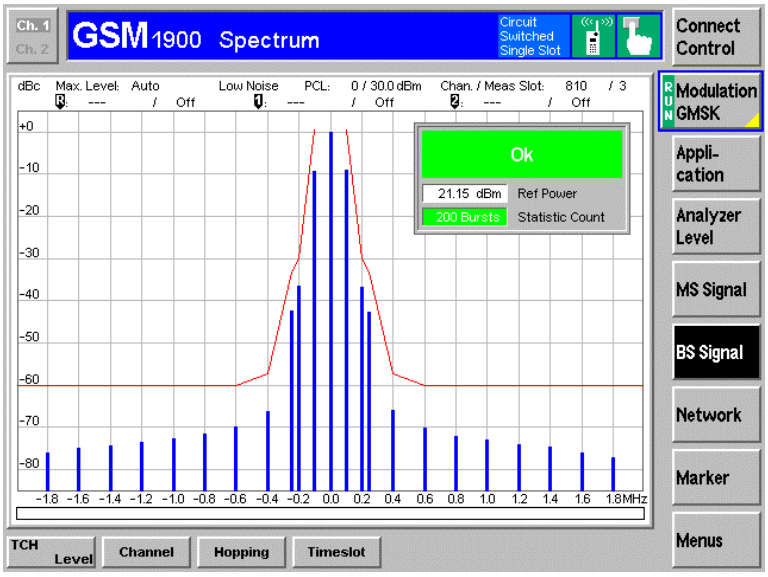

Ch. 1
Ch. 2
GSM 1900 Modulation
Circuit Switched Single Slot
Connect Control
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Chan. / Meas Slot: 512 / 3
Current
Sym.
Ext.Phase Err.GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
GSM 0 TSC detected
Current
Average
Max / Min
Phase Error
Peak
RMS
5.4 °
5.0 °
7.0 °
1.6 °
1.6 °
1.9 °
Origin Offset
-57.7 dB
-49.1 dB
-41.2 dB
I/Q Imbalance
-43.0 dB
-46.2 dB
-40.0 dB
Frequency Error
28 Hz
34 Hz
57 Hz
0.00 Sym.
Timing Advance Error
30.6 dBm
Avg. Burst Power (Cur.)
100 Bursts
Statistic Count
0.00 %
Bursts out of Tolerance
TCH Level
Channel
Hopping
Timeslot


Ch. 1
Ch. 2
GSM 1900 Modulation
Circuit Switched Single Slot
Connect Control
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Chan. / Meas Slot: 661 / 3
Current
Sym.
Ext.Phase Err.GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
GSM 0 TSC detected
Current
Average
Max / Min
Phase Error
Peak
RMS
4.5 °
5.1 °
7.4 °
1.5 °
1.6 °
1.9 °
Origin Offset
-49.3 dB
-47.8 dB
-39.1 dB
I/Q Imbalance
-43.4 dB
-45.9 dB
-39.7 dB
Frequency Error
33 Hz
34 Hz
56 Hz
0.00 Sym.
Timing Advance Error
29.9 dBm
Avg. Burst Power (Cur.)
100 Bursts
Statistic Count
0.00 %
Bursts out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio


Ch. 1
Ch. 2
GSM 1900 Modulation
Circuit Switched Single Slot
Connect Control
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Chan. / Meas Slot: 810 / 3
Current
Sym.
Ext.Phase Err.GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
GSM 0 TSC detected
Current
Average
Max / Min
Phase Error
Peak
RMS
6.2 °
5.2 °
7.1 °
1.7 °
1.7 °
1.9 °
Origin Offset
-51.8 dB
-48.7 dB
-39.8 dB
I/Q Imbalance
-47.2 dB
-44.7 dB
-39.6 dB
Frequency Error
43 Hz
33 Hz
57 Hz
0.00 Sym.
Timing Advance Error
28.9 dBm
Avg. Burst Power (Cur.)
100 Bursts
Statistic Count
0.00 %
Bursts out of Tolerance
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio


Ch. 1
Ch. 2
GSM 1900 Spectrum
Circuit Switched Single Slot
Connect Control
dBc Max. Level: Auto Low Noise PCL: 0 / 30.0 dBm Chan. / Meas Slot: 512 / 3
Ok
21.66 dBm Ref Power
200 Bursts Statistic Count
Modulation GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
TCH Level
Channel
Hopping
Timeslot


Ch. 1
Ch. 2
GSM 1900 Spectrum
Circuit Switched Single Slot
Connect Control
dBc Max. Level: Auto Low Noise PCL: 0 / 30.0 dBm Chan. / Meas Slot: 661 / 3
Ok
22.09 dBm Ref Power
200 Bursts Statistic Count
Modulation GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
Overview
Power
Modulation
Spectrum
Receiver Quality
Audio


Ch. 1
Ch. 2
GSM 1900 Spectrum
Circuit Switched Single Slot
Connect Control
dBc Max. Level: Auto Low Noise PCL: 0 / 30.0 dBm Chan. / Meas Slot: 810 / 3
Ok
21.15 dBm Ref Power
200 Bursts Statistic Count
Modulation GMSK
Appli-cation
Analyzer Level
MS Signal
BS Signal
Network
Marker
Menus
TCH Level
Channel
Hopping
Timeslot