



TEST REPORT

Ref. Report No.

06-1341-019-05

Name and address of the applicant

Ezze Mobile Tech., Inc.
1F, Bubmuds Bldg., 151-31, Nonhyun-dong, Kangnam-ku,
Seoul, Korea

Standard / Test regulation

FCC Part 2, Part 22(H), Part 24(E)

Test result

Pass

Incoming date : Jun 14, 2006

Test date : Jun 17 ~ 23, 2006

Test item(s) ;

Dual-Band GSM/GPRS Phone with
Bluetooth

Model/type ref. ;

EZ800

Manufacturer ;

Ezze Mobile Tech., Inc.

Additional information ;

-Required Authorization : Certification
-FCC ID. : RV2EZ800

Issue date : Jun 23, 2006

This test report only responds to the tested sample and shall not be reproduced except in full without written approval of the Korea Testing Laboratory.

Tested and reported by

Sung-Kyu Cho, Engineer

Reviewed by

Seok-Jin Kim, Telecommunication Team
Manager

KOREA TESTING LABORATORY

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1. GENERAL INFORMATION**1.1 Applicant (Client)**

Name	Ezze Mobile Tech., Inc.
Address	1F, Bubmuds Bldg., 151-31, Nonhyun-dong, Kangnam-ku, Seoul, Korea
Contact Person	Joseph Chang
Telephone No.	+ 82-02-519-7802
Facsimile No.	+ 82-02-519-7882
E-mail address	joseph@ezzemobile.com

1.2 Equipment (EUT)

Type of equipment	Dual-Band GSM/GPRS Phone with Bluetooth
Model Name	EZ800
Serial No	RV2EZ800-20060600001
FCC ID	RV2EZ800
Hardware Version	1.0
Software Version	1.0
Emission Designator	300KGXW (GSM)
Manufacturer Name	Ezze Mobile Tech., Inc.
Manufacturer Address	Rm. 204, Anyang Megavalley, 799, Guanyang-dong, Dongan-gu, Anyang-city, Gyunggi-do, Korea, 431-767
Tx Frequency Range	824Mhz ~ 849Mhz (GSM 850) / 1850.2~1909.8Mhz(GSM1900)
Rx Frequency Range	869Mhz ~ 894Mhz (GSM 850) / 1930.2~1989.8Mhz(GSM1900)
Additional Information	Type of modulation : GSM Frequency : GSM 850/1900 GPRS Class 8/Class B

1.3 Testing Laboratory

Test Method	FCC Part 2, Part 22(H), Part 24(E)
Testing Place	Korea Testing Laboratory (KTL) 222-13 Guro-dong, Guro-Gu, Seoul 152-848 Korea
Test Engineer	Sungkyu Cho
Telephone number	+82 2 860 1463
Facsimile number	+82 2 860 1468
E-mail address	skcho@ktl.re.kr
Other Comments	-

3. SUMMARY OF TEST RESULTS

Test case	Test	Result
4.1	Effective Radiated Power Output (GSM850 Mode)	Pass
4.2	Field Strength of Spurious Radiation (GSM850 Mode)	Pass
4.3	Frequency Stability (GSM850 Mode)	Pass
4.4	Conducted Spurious Emissions (GSM850 Mode)	Pass
4.5	Occupied Bandwidth (GSM850 Mode)	Pass
5.1	Effective Radiated Power Output (GSM1900 Mode)	Pass
5.2	Field Strength of Spurious Radiation (GSM1900 Mode)	Pass
5.3	Frequency Stability (GSM1900 Mode)	Pass
5.4	Conducted Spurious Emissions (GSM1900 Mode)	Pass
5.5	Occupied Bandwidth (GSM1900 Mode)	Pass

4. TEST DATA (GSM 850)

4.1 Effective Radiated Power

Measurement procedure

Effective Radiated Power Output and Equivalent Isotropic Radiated Power output Measurements by Substitution Method according to ANSI/TIA/EIA-603- B-2002:

The measurement of Effective Radiated Power was carried out in a KTL absorber-lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4. The EUT was placed on a nonconductive turntable 1.0 meter above the ground plane and set up for the max.output power.

These measurements were done at 3 frequencies, 824.2 MHz, 836.6 MHz, 848.8 MHz. (bottom, middle, and top of operational frequency range) and power control level was set to 5 (Maximum power control level) by using CMU200.

The measurement was made in same test set up and configuration with 3 orthogonal planes which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an spectrum analyzer.

The EUT was then replaced by an dipole antenna and polarized in accordance with the EUT's antenna polarization. The dipole antenna was connected to a RF signal generator with a coaxial cable. The signal generator was adjusted to a level that produced the maximum radiated emission level. The signal generator level was recorded and corrected by the power loss in the cable between the signal generator and the antenna and further corrected for the gain of the substitution antenna. The signal generator corrected level is the ERP level.

Limits

Power Control Level	Nominal Peak Output Power
5	38.45 dBm (7 W)

Measurement Results

Frequency (MHz)	Reference Level (dBm)	Polarization (H/V)	Effective Radiated Power (dBm)
824.2	-6.76	V	+ 31.66
836.6	-6.74	V	+ 29.70
848.8	-7.28	V	+ 29.29

4.2 Field Strength of Spurious Radiation

Measurement procedure

Field Strength of Spurious Radiation Measurements by Substitution Method according to ANSI/TIA/EIA-603- B-2002:

The measurement of Effective Radiated Power was carried out in a KTL absorber-lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4. The EUT was placed on a nonconductive turntable 1 meter above the ground plane and set up for the max.output power.

These measurements were done at 3 frequencies, 824.2 MHz, 836.6 MHz, 848.8 MHz. (bottom, middle, and top of operational frequency range) and power control level was set to 5 (Maximum power control level) by using CMU200.

A horn antenna was substituted in place of the EUT. This horn 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 antennas are taken into consideration.

4.2.1 Operating frequency : 824.2 MHz (Bottom channel)

Limits

The Spectrum was investigated from 30 MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1 MHz. The value that we could measure was only reported.

At least $43 + 10 \log (P)$ dB

Measured Output Power : 31.66 dBm = 1.47 W

Limit : $43 + 10 \log (W)$ = 44.7 dBc

Measurement Results

Frequency (MHz)	Level at Antenna Terminals (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	dBc	Margin (dB)
1,648.4	-39.3	6.0	-33.3	65.0	20.3
2,472.6	-46.4	7.2	-39.2	70.9	26.2
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4.2.2 Operating frequency : 836.6 MHz (Middle channel)**Limits**

The Spectrum was investigated from 30 MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1 MHz. The value that we could measure was only reported.

At least $43 + 10 \log (P)$ dB

Measured Output Power : 29.70 dBm = 0.93 W

Limit : $43 + 10 \log (W)$ = 42.7 dBc

Measurement Results

Frequency (MHz)	Level at Antenna Terminals (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	dBc	Margin (dB)
1,673.2	-40.3	6.0	-34.3	64.0	21.3
2,509.8	-43.1	7.2	-35.9	65.6	22.9
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4.2.3 Operating frequency : 848.8 MHz (Top channel)**Limits**

The Spectrum was investigated from 30 MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1 MHz. The value that we could measure was only reported.

At least $43 + 10 \log (P)$ dB

Measured Output Power : 29.29 dBm = 0.85 W

Limit : $43 + 10 \log (W)$ = 42.3 dBc

Measurement Results

Frequency (MHz)	Level at Antenna Terminals (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	dBc	Margin (dB)
1,697.6	-44.2	6.0	-38.2	67.5	25.2
2546.4	-42.8	7.2	-35.6	64.9	22.6
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4.3 Frequency Stability

Measurement procedure

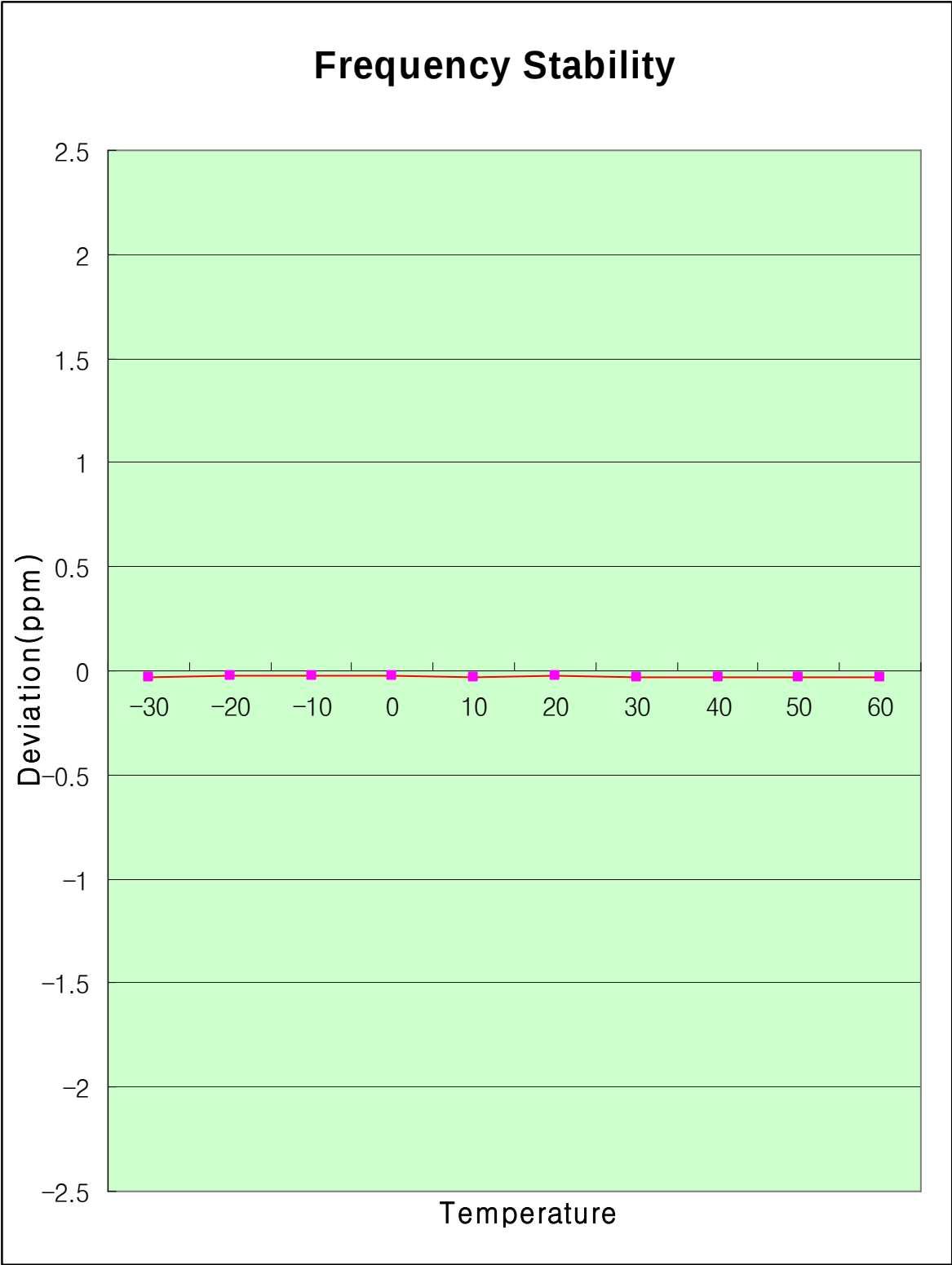
The equipment under test is placed in an environmental chamber. Frequency measurements are made at the extremes of the temperature range -30° C to +60° C and at intervals of 10° C with the primary supply voltage set to the nominal battery operating voltage. A period of time sufficient to stabilize all components of the equipment is allowed at each frequency measurement. The maximum variation of frequency is measured. The test was done at middle channel.

Limits

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.

Measurement Results

Voltage (%)	Power (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)
100 %	3.8	+ 20 (Ref)	-18	-0.022
100 %		- 30	-26	-0.031
100 %		- 20	-23	-0.027
100 %		- 10	-21	-0.025
100 %		0	-22	-0.026
100 %		+ 10	-26	-0.031
100 %		+ 20	-23	-0.027
100 %		+ 30	-24	-0.029
100 %		+ 40	-24	-0.029
100 %		+ 50	-26	-0.031
100 %		+ 60	-24	-0.029
Battery end point	3.47	+ 20	+81	+0.097
115 %	4.37	+ 20	-24	-0.029



4.4 Conducted Spurious Emissions

Measurement procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by calibrated spectrum analyzer.

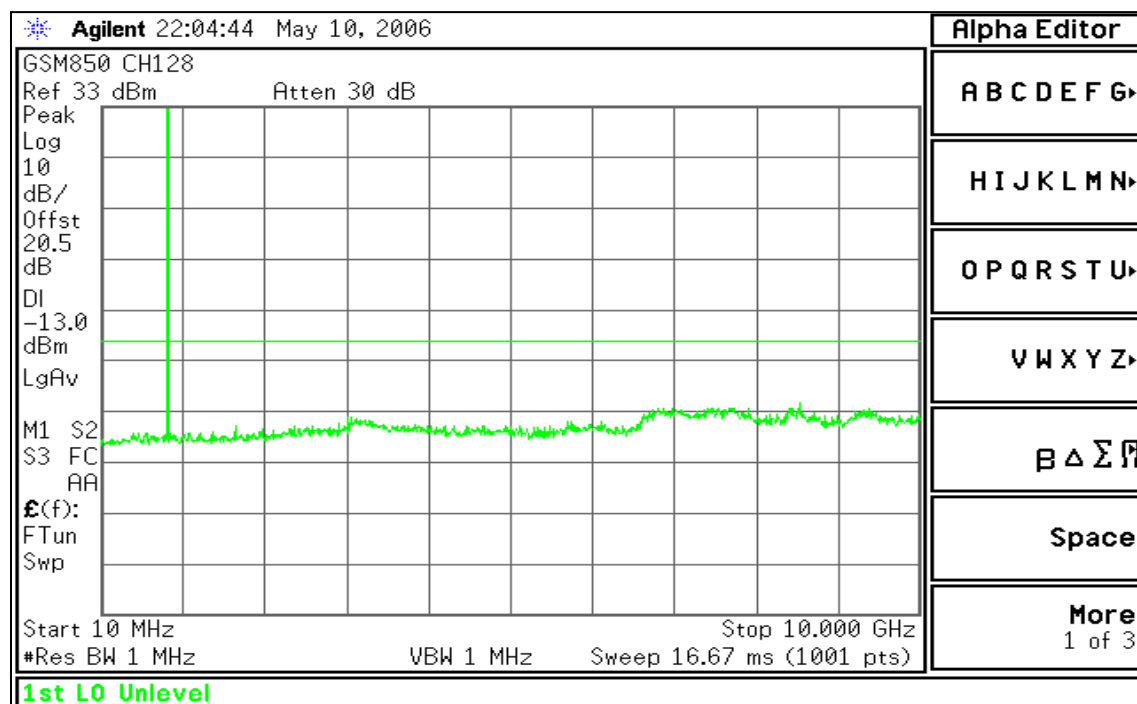
These measurements were done at 3 frequencies, 824.2 MHz, 836.6 MHz, 848.8 MHz. (bottom, middle, and top of operational frequency range) and power control level was set to 5 (Maximum power control level) by using CMU200.

The Resolution BW of the analyzer is set to 1% of the emission bandwidth to show compliance with the – 13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. For the Out-of-Band measurements a 1MHz RBW was used to scan from 10 MHz to 10 GHz. A display line was placed at –13 dBm to show compliance.

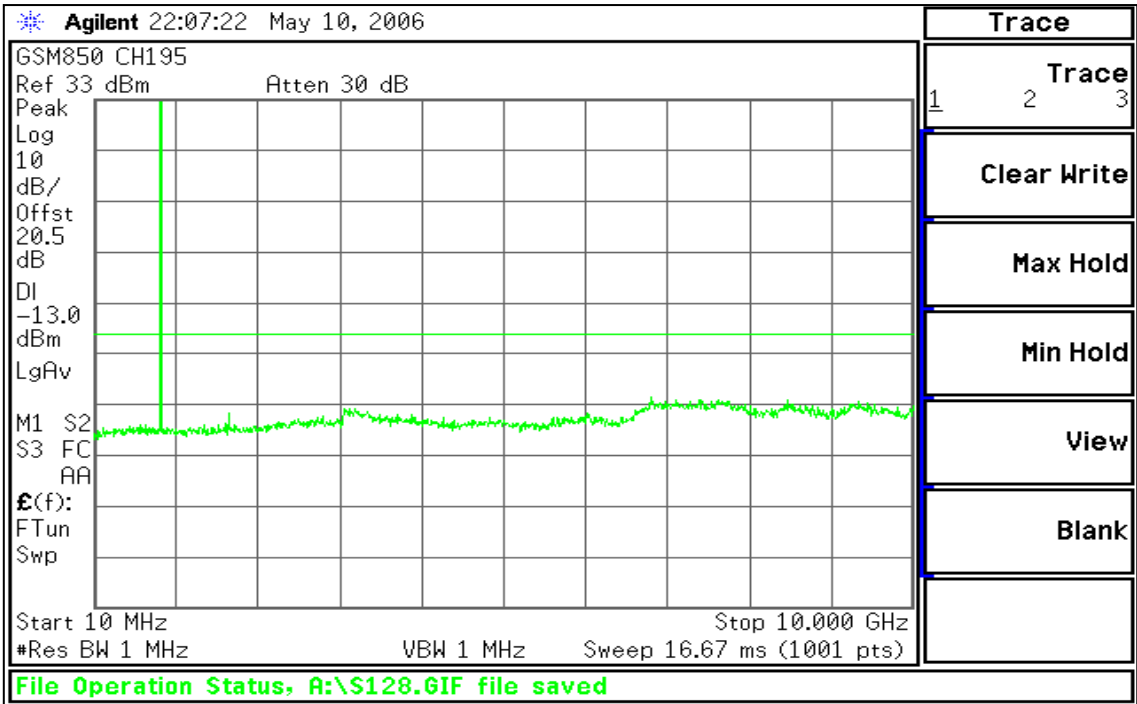
Limits

On any frequency outside frequency band, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least $43+10\log(P)$ dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

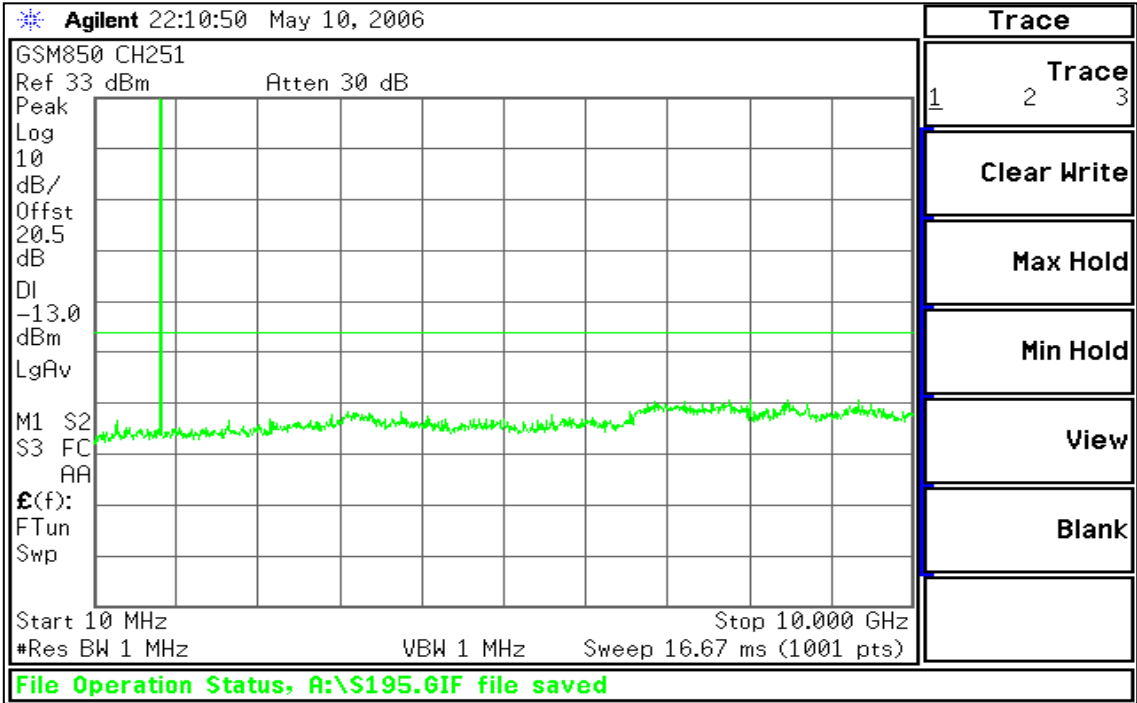
Measurement Results



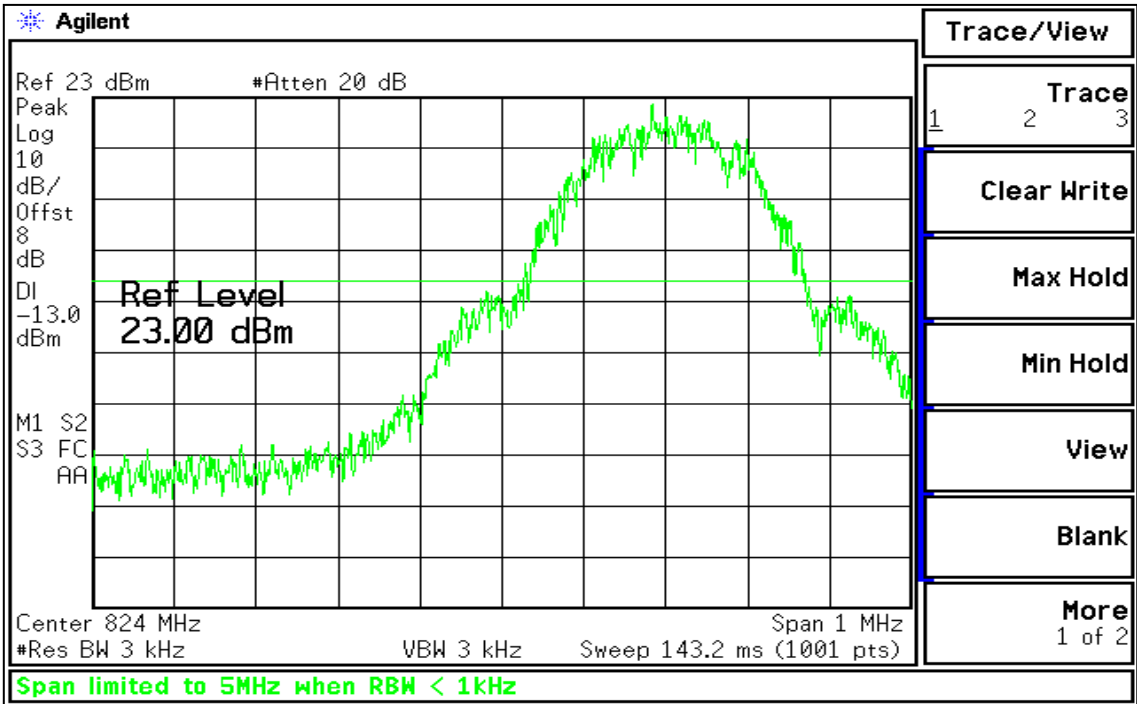
– Operating frequency : 824.2 MHz (Bottom channel) –



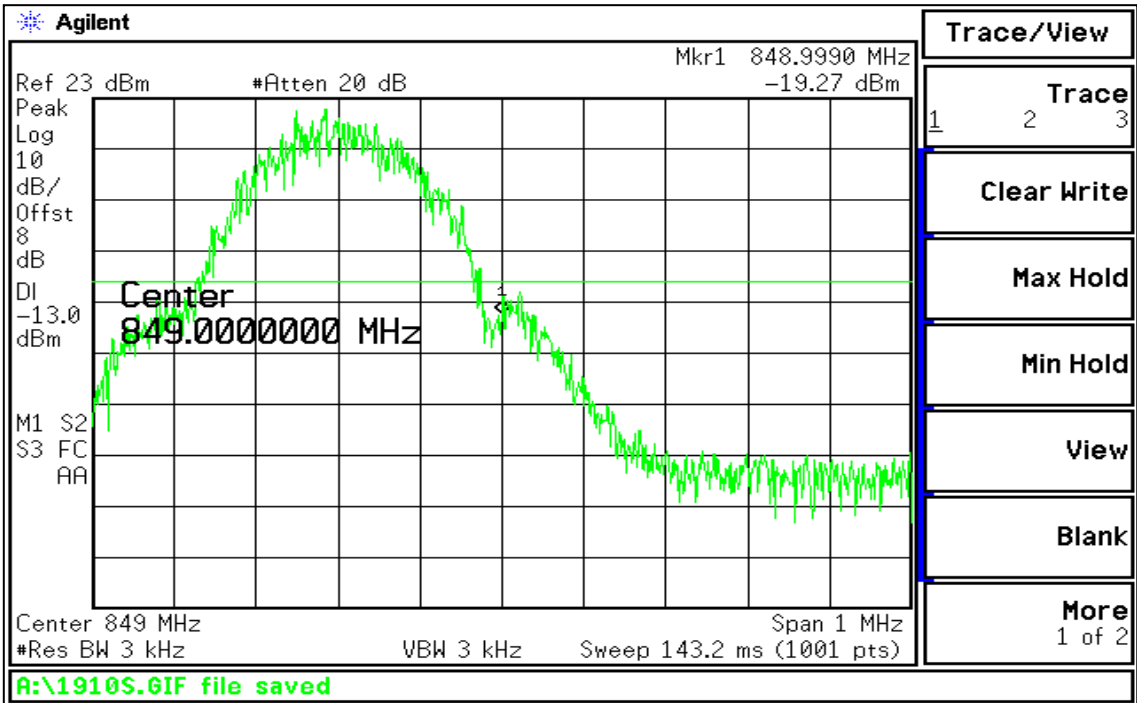
– Operating frequency : 836.6 MHz (Middle channel) –



– Operating frequency : 848.4 MHz (Top channel) –



- Lower Band Edge -



- Higher Band Edge -

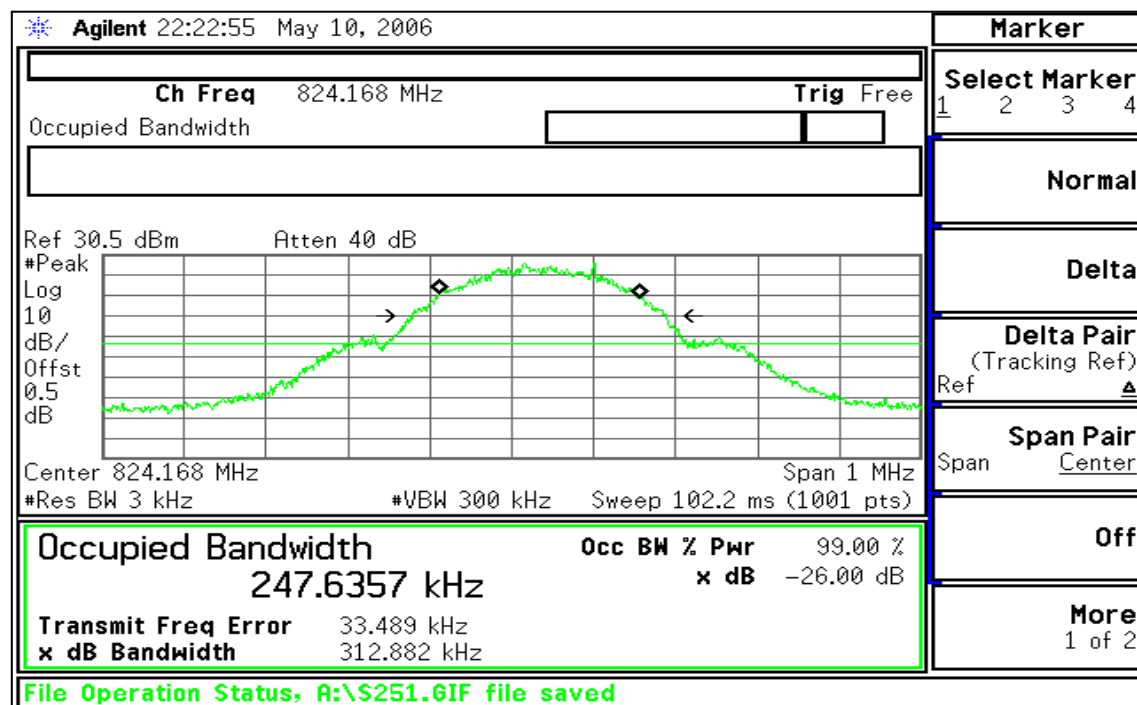
4.5 Occupied Bandwidth

Measurement procedure

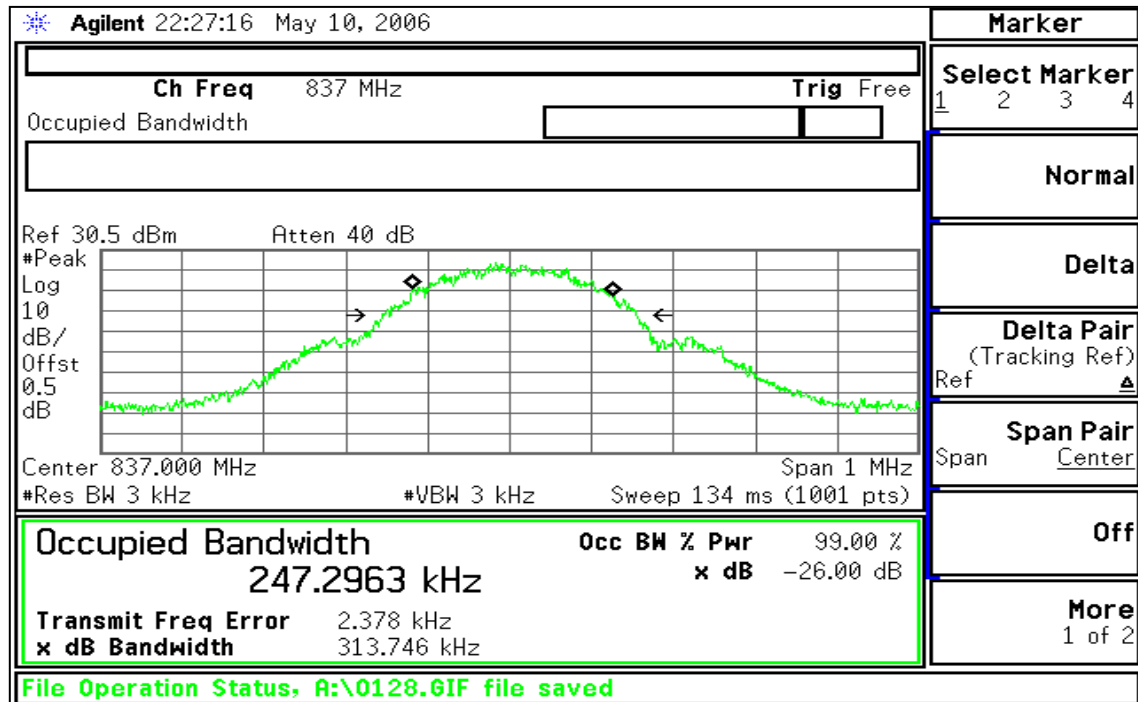
The RF output port of the equipment under test is directly coupled to the input of the Spectrum analyzer through a specialized RF connector. The analyzer is set for Peak Detector and each trace is set for Max Hold. These measurements were done at 3 frequencies, 824.2 MHz, 836.6 MHz, 848.8 MHz. (bottom, middle, and top of operational frequency range)

Measurement Results

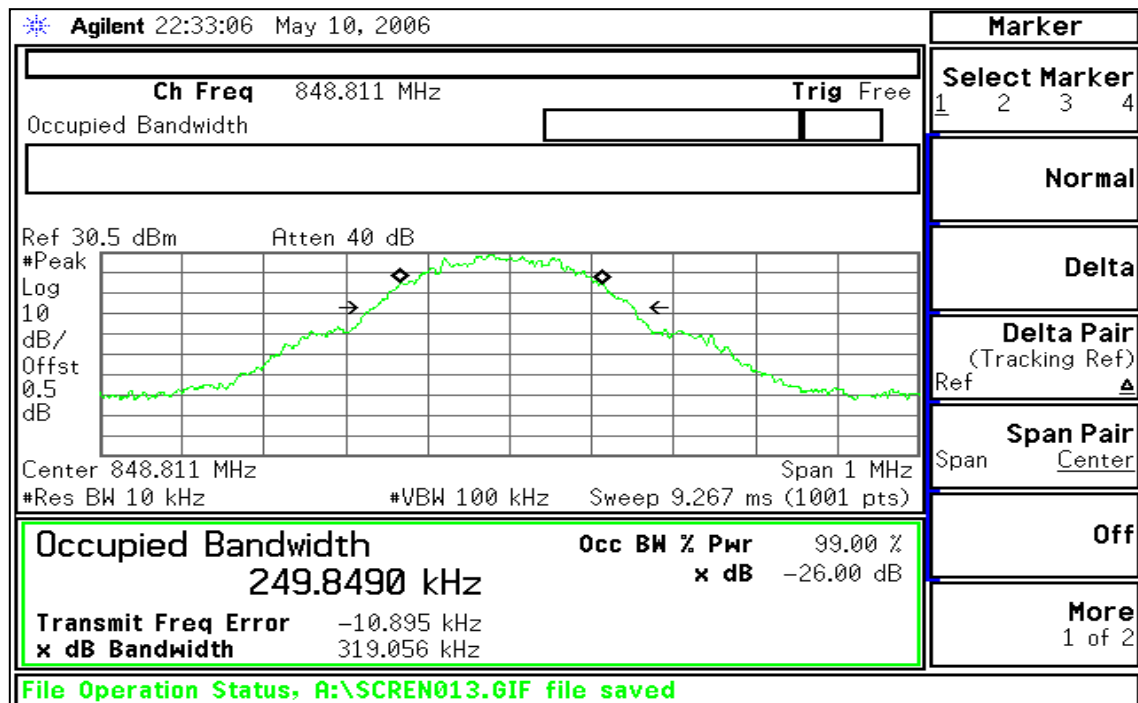
Frequency (MHz)	26 dB Occupied Bandwidth
824.2	312.9 KHz
836.6	313.7 KHz
848.8	319.1 KHz



– Operating frequency : 824.2 MHz (Bottom channel) –



– Operating frequency : 836.6 MHz (Middle channel) –



– Operating frequency : 848.4 MHz (Top channel) –

5. TEST DATA (GSM 1900)

5.1 Effective Isotropic Radiated Power

Measurement procedure

Effective Radiated Power Output and Equivalent Isotropic Radiated Power output Measurements by Substitution Method according to ANSI/TIA/EIA-603- B-2002:

The measurement of Effective Isotropic Radiated Power was carried out in a KTL absorber-lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4.

The EUT was placed on a nonconductive turntable 1 meter above the ground plane and set up for the max.output power.

These measurements were done at 3 frequencies, 1850.2 MHz, 1880.0 MHz, 1909.8 MHz (bottom, middle, and top of operational frequency range) and power control level was set to 0 (Maximum power control level) by using CMU200.

The measurement was made in same test set up and configuration with 3 orthogonal planes which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an spectrum analyzer.

A dipole antenna 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 antenna and the difference between the gain of the horn and an isotropic or dipole antennas are taken into consideration.

Limits

Power Control Level	Nominal Peak Output Power
0	+ 33 dBm (2 W)

Measurement Results

Frequency (MHz)	Reference Level (dBm)	Polarization (H/V)	Peak Output Power (dBm)
1850.2	-16.3	V	31.8
1880.0	-17.6	V	28.9
1909.8	-18.3	V	28.7

5.2 Field Strength of Spurious Radiation

Measurement procedure

Field Strength of Spurious Radiation Measurements by Substitution Method according to ANSI/TIA/EIA-603- B-2002:

The measurement of Effective Radiated Power was carried out in a KTL absorber-lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4. The EUT was placed on a nonconductive turntable 1 meter above the ground plane and set up for the max.output power.

These measurements were done at 3 frequencies, 1850.2 MHz, 1880.0 MHz, 1909.8 MHz. (bottom, middle, and top of operational frequency range) and power control level was set to 0 (Maximum power control level) by using CMU200.

A dipole antenna 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 antennas are taken into consideration.

5.2.1 Operating frequency : 1850.2 MHz (Bottom channel)

Limits

The Spectrum was investigated from 30 MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1 MHz. The value that we could measure was only reported.

At least $43 + 10 \log (P)$ dB

Measured Output Power : 31.8 dBm = 1.51 W

Limit : $43 + 10 \log (W)$ = 44.8 dBc

Measurement Results

Frequency (MHz)	Level at Antenna Terminals (dBm)	Substitute Antenna Gain (dB)	Correct Generator Level (dBm)	dBc	Margin (dB)
3,700.4	-31.5	9.8	-21.7	53.5	8.7
5,550.6	< -41.4	11.3	< -30.1	< 61.9	< 17.1
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5.2.2 Operating frequency : 1880.0 MHz (Middle channel)**Limits**

The Spectrum was investigated from 30 MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1MHz. The value that we could measure was only reported.

At least $43 + 10 \log (P)$ dB

Measured Output Power : 28.9 dBm = 0.78 W

Limit : $43 + 10 \log (W)$ = 41.9 dBc

Measurement Results

Frequency (MHz)	Level at Antenna Terminals (dBm)	Substitute Antenna Gain (dB)	Correct Generator Level (dBm)	dBc	Margin (dB)
3,760.0	-32.4	9.8	-22.6	51.5	9.6
5,640.0	< -41.4	11.3	< -30.1	< 59.0	< 17.1
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5.2.3 Operating frequency : 1909.8 MHz (Top channel)**Limits**

The Spectrum was investigated from 30 MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW= 1 MHz. The value that we could measure was only reported.

At least $43 + 10 \log (P)$ dB

Measured Output Power : 28.7 dBm = 0.74 W

Limit : $43 + 10 \log (W)$ = 41.7 dBc

Measurement Results

Frequency (MHz)	Level at Antenna Terminals (dBm)	Substitute Antenna Gain (dB)	Correct Generator Level (dBm)	dBc	Margin (dB)
3,819.6	-32.5	9.8	-22.7	51.4	9.7
5,729.4	< -41.4	11.3	< -30.1	< 58.8	< 17.1
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5.3 Frequency Stability

Measurement procedure

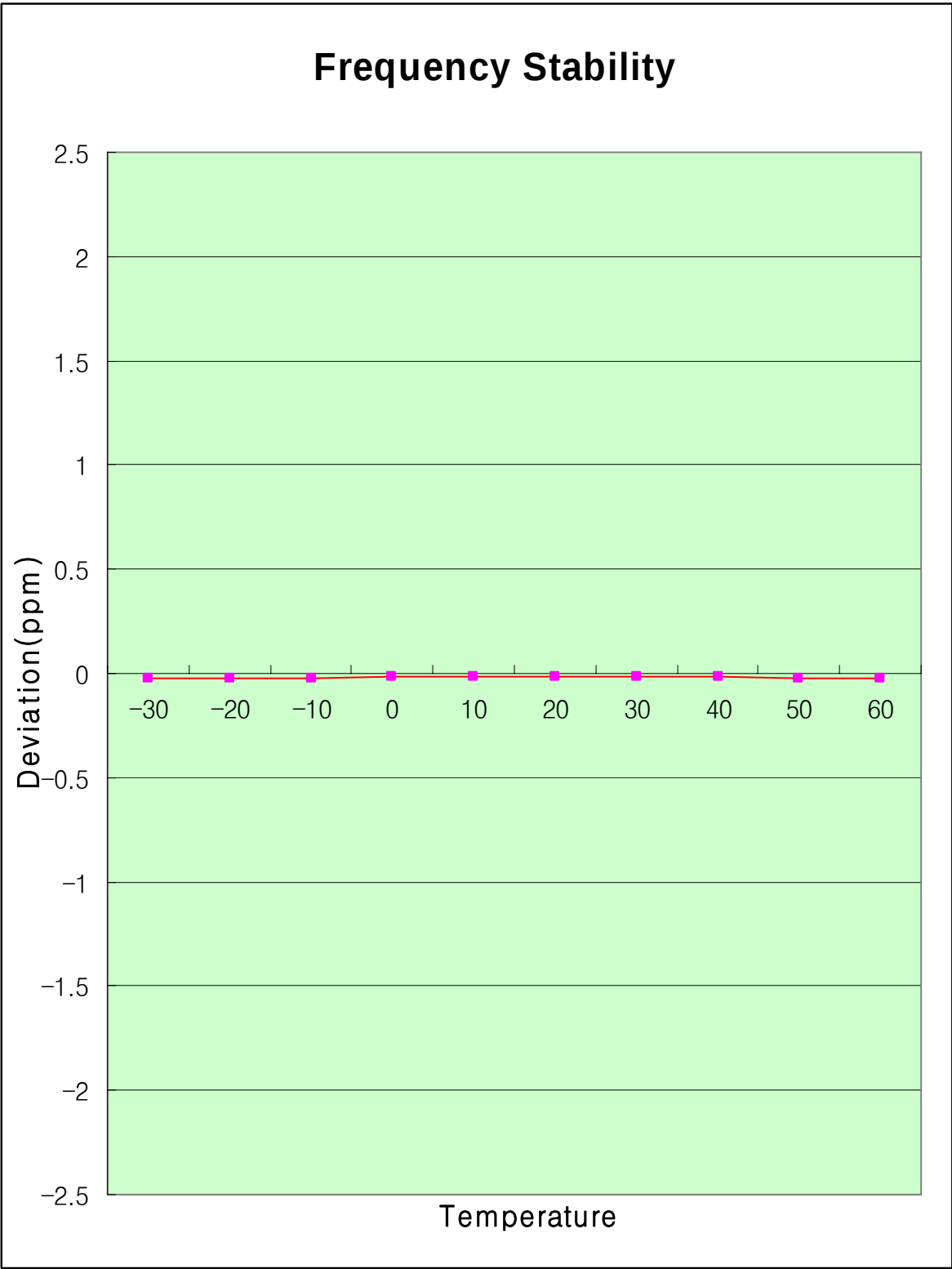
The equipment under test is placed in an environmental chamber. Frequency measurements are made at the extremes of the temperature range -30° C to +60° C and at intervals of 10° C with the primary supply voltage set to the nominal battery operating voltage. A period of time sufficient to stabilize all components of the equipment is allowed at each frequency measurement. The maximum variation of frequency is measured. The test was done at middle channel.

Limits

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.

Measurement Results

Voltage (%)	Power (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)
100 %	3.8	+ 20 (Ref)	-33	-0.018
100 %		- 30	-42	-0.022
100 %		- 20	-39	-0.021
100 %		- 10	-41	-0.022
100 %		0	-32	-0.017
100 %		+ 10	-33	-0.018
100 %		+ 20	-34	-0.018
100 %		+ 30	-34	-0.018
100 %		+ 40	-36	-0.019
100 %		+ 50	-38	-0.020
100 %		+ 60	-43	-0.023
85 %	3	+ 20	-32	-0.017
115 %	4.37	+ 20	-37	-0.020



5.4 Conducted Spurious Emissions

Measurement procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by calibrated spectrum analyzer.

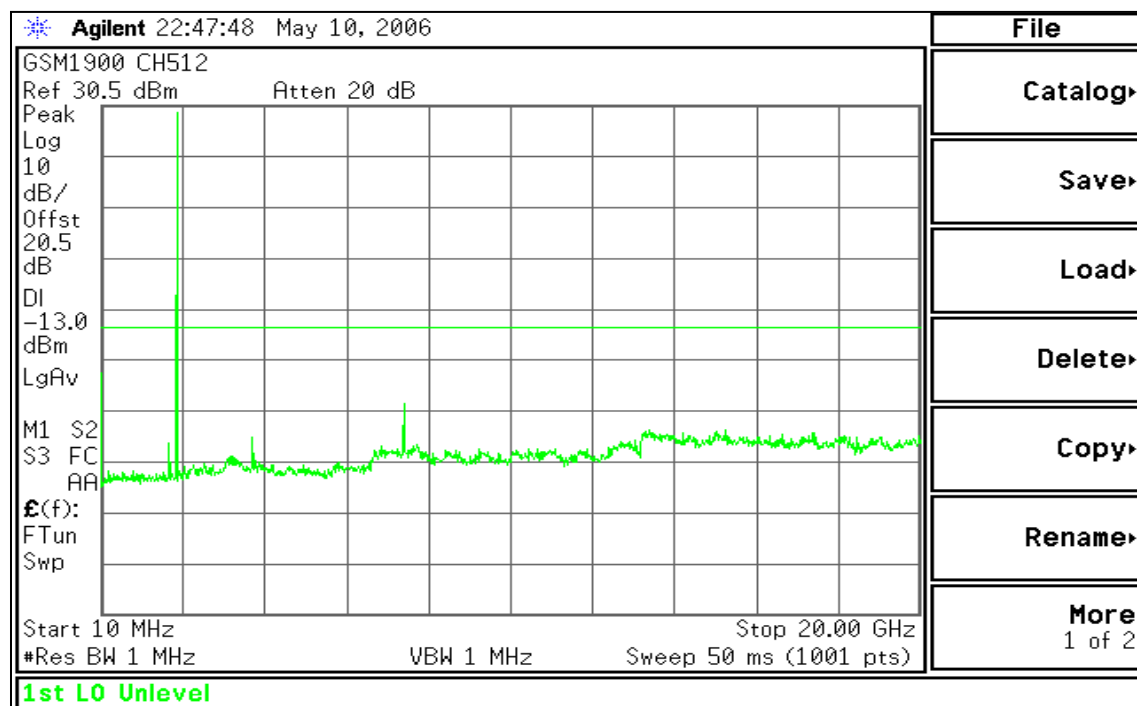
These measurements were done at 3 frequencies, 1850.2 MHz, 1880.0 MHz, 1909.8 MHz. (bottom, middle, and top of operational frequency range) and power control level was set to 0 (Maximum power control level) by using CMU200.

The Resolution BW of the analyzer is set to 1 % of the emission bandwidth to show compliance with the –13dBm limit, in the 1MHz bands immediately outside and adjacent to the edge of the frequency block. For the Out-of-Band measurements a 1 MHz RBW was used to scan from 10 MHz to 20 GHz. A display line was placed at –13 dBm to show compliance.

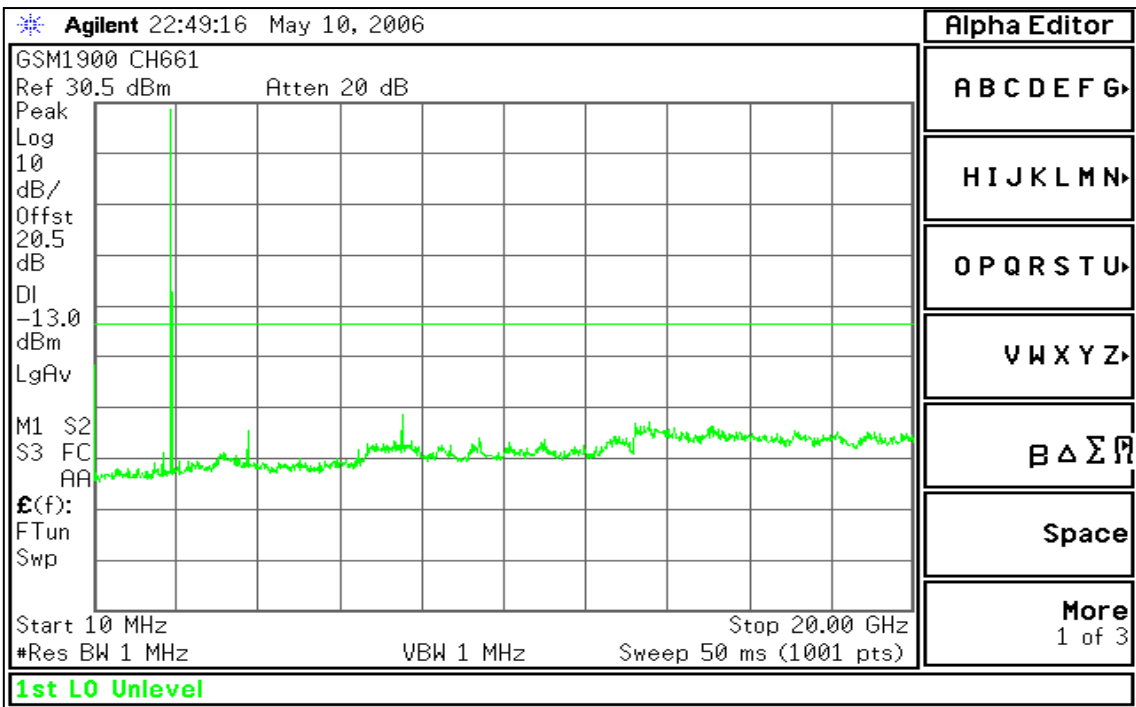
Limits

On any frequency outside frequency band, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least $43+10\log(P)$ dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

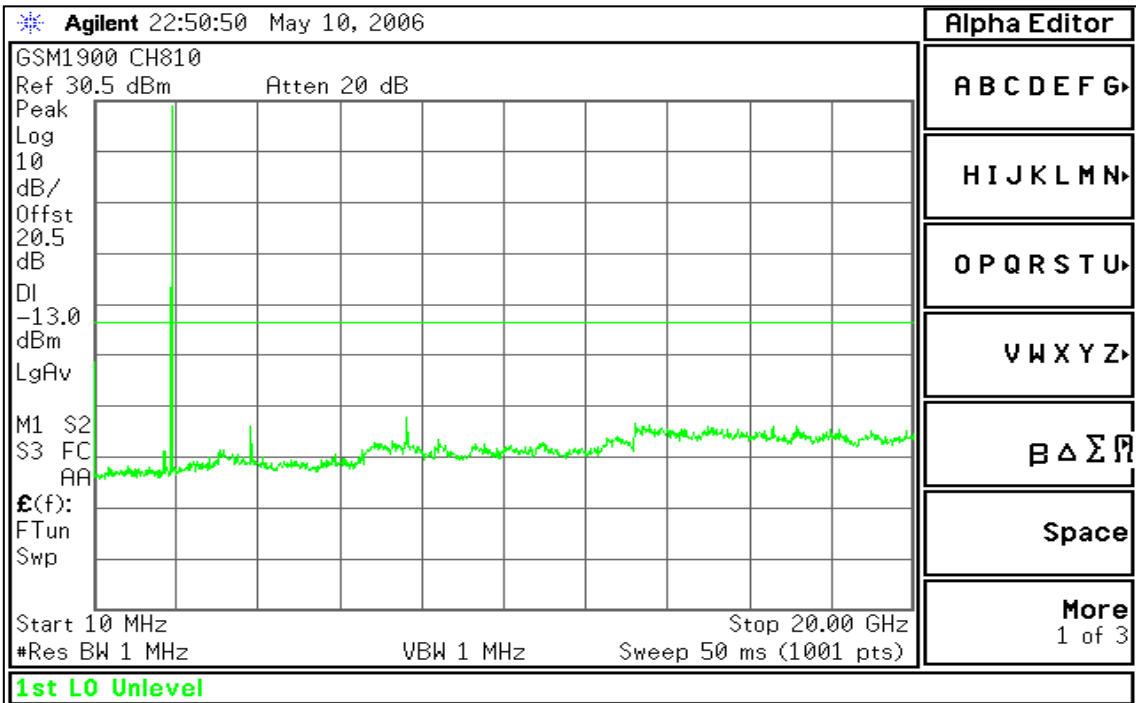
Measurement Results



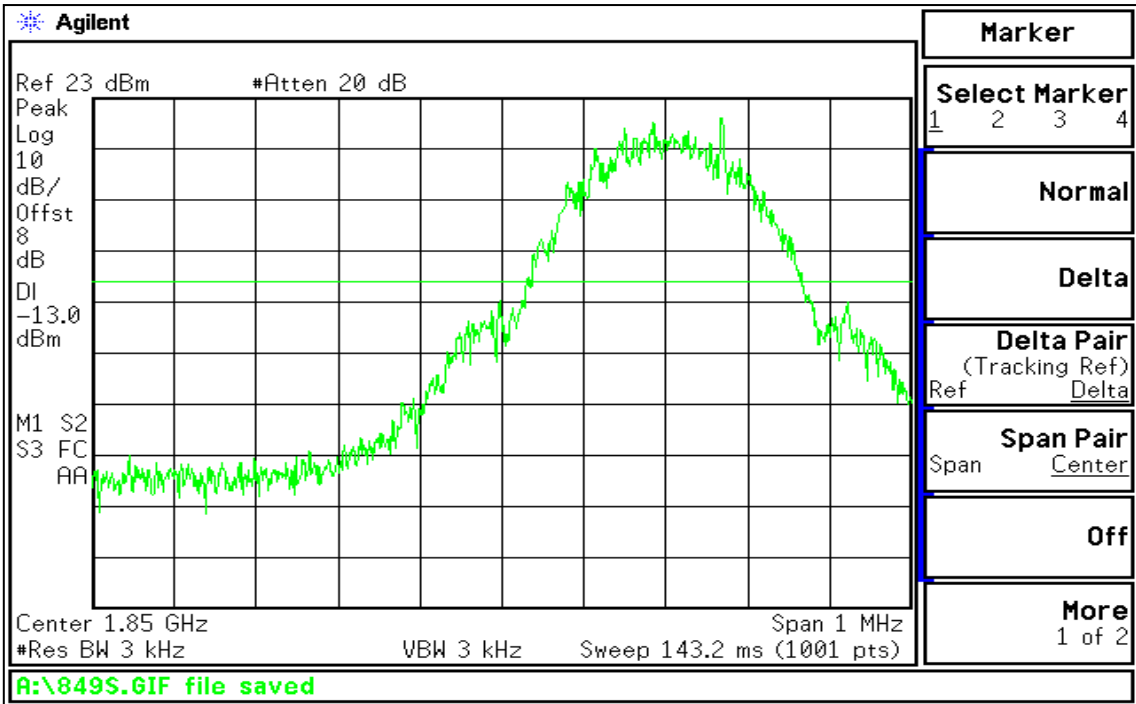
– Operating frequency : 1850.2 MHz (Bottom channel) –



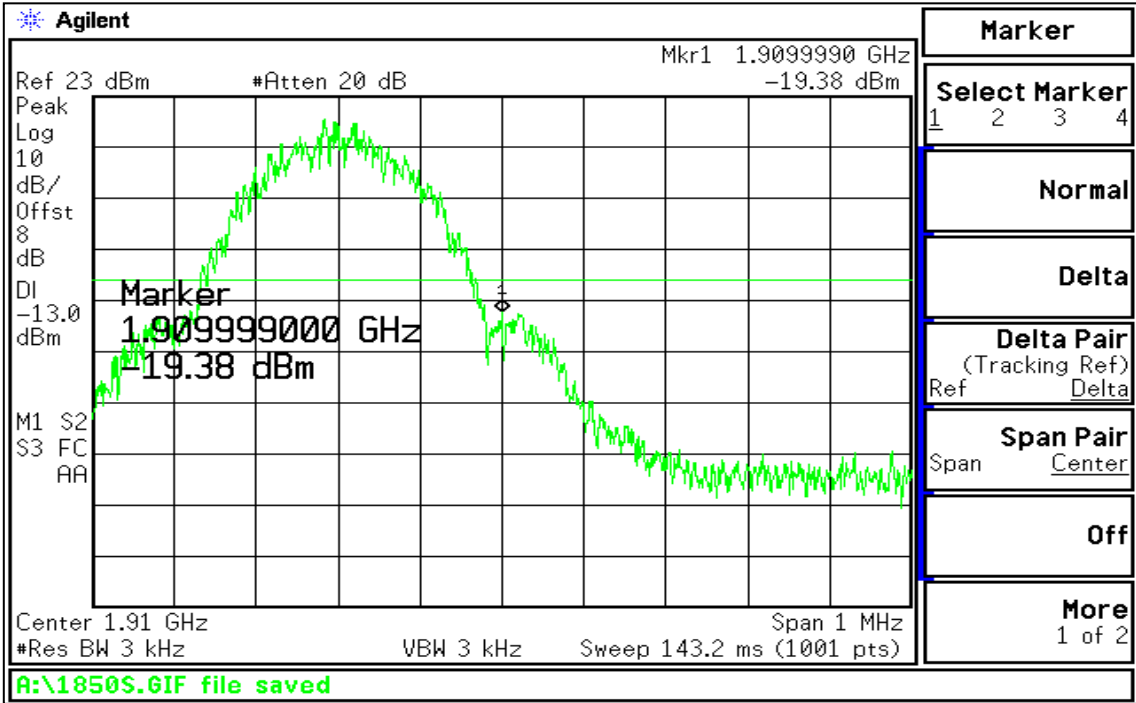
– Operating frequency : 1880.0 MHz (Middle channel) –



– Operating frequency : 1909.8 MHz (Top channel) –



- Lower Band Edge -



- Higher Band Edge -

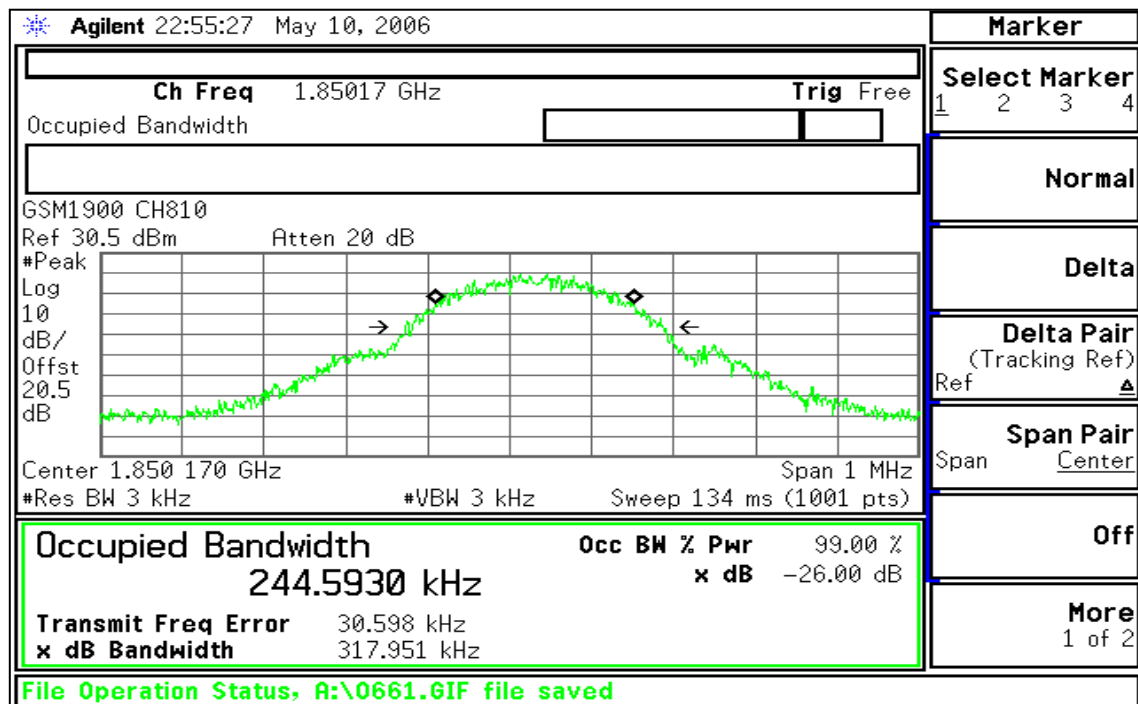
5.5 Occupied Bandwidth

Measurement procedure

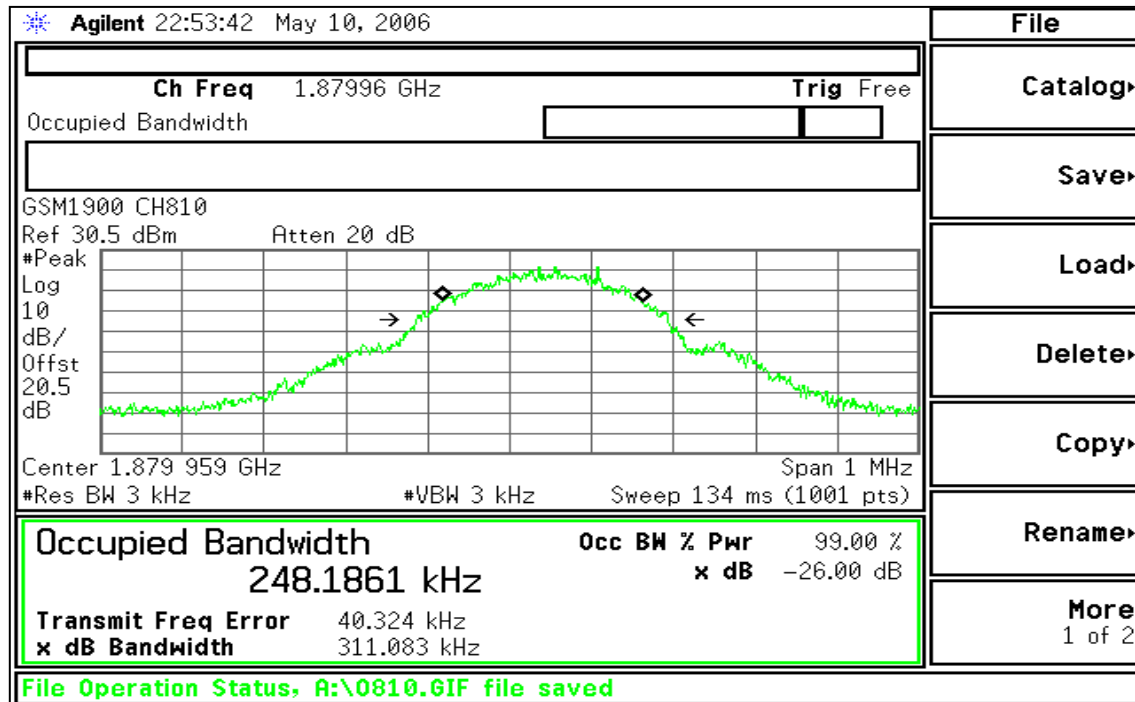
The RF output port of the equipment under test is directly coupled to the input of the Spectrum analyzer through a specialized RF connector. The analyzer is set for Peak Detector and each trace is set for Max Hold. These measurements were done at 3 frequencies, 1850.2 MHz, 1880.0 MHz, 1909.8 MHz. (bottom, middle, and top of operational frequency range)

Measurement Results

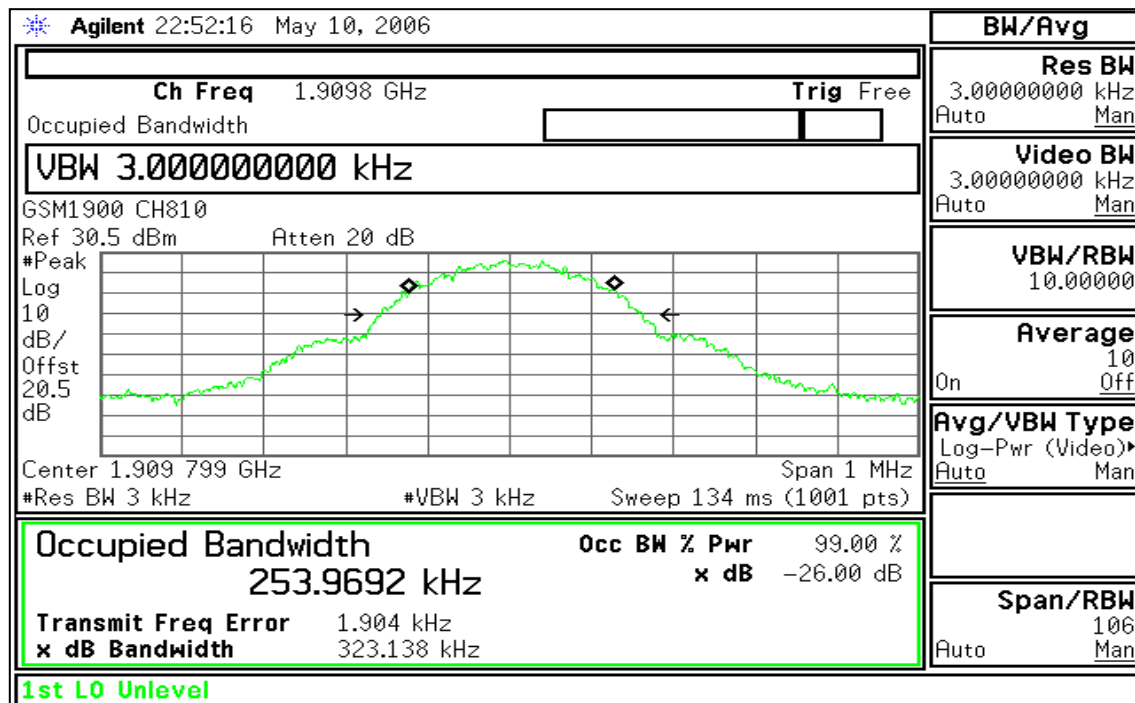
Frequency (MHz)	26 dB Occupied Bandwidth
1850.2	318.0 KHz
1880.0	311.1 KHz
1909.8	323.1 KHz



– Operating frequency : 1850.2 MHz (Bottom channel) –



– Operating frequency : 1880.0 MHz (Middle channel) –



– Operating frequency : 1909.8 MHz (Top channel) –

6. TEST EQUIPMENTS

No.	Equipment	Manufacturer	Model	S/N
1	Spectrum Analyzer	Agilent	E4407B	US41443316
2	Universal Radio Communication tester	R&S	CMU200	110019
3	DC Power Supply	Agilent	E3645A	MY40000851
4	Coaxial Attenuator	TenuLine	8340-200	1087
5	Coaxial Attenuator	TenuLine	8080	7676
6	Power Divider	HP	11636A	6047
7	Power Splitter	HP	11667A	21063
8	RF Attenuator	Lucas Weinschel	1433-3	KR785
9	RF Attenuator	Lucas Weinschel	F1426	AZ3615
10	Signal Generator	HP	8648C	3629U00868
11	Pre-Amplifier	HP	8347A	2834A00543
12	Pre-Amplifier	HP	8449B	3008A00302
13	Biconical Antenna	R&S	BBA9106	1062+1063
14	Tuned Dipole Antenna	Schwarzbeck	VHA 9103	--
15	Tuned Dipole Antenna	The Electro-Mechanics company	3121C-D134	9011-639
16	Biconi-Log Antenna	ETS-Lindgren	3142B	00023784
17	Double Ridge Wave Guide	ETS-Lindgren	3115	6913
18	Double Ridge Wave Guide	ETS-Lindgren	3116	2664
19	Log-Periodic Antenna	ETS-Lindgren	3146	5051

No.	Equipment	Manufacturer	Model	S/N
20	Temp/Humidity Chamber	Korea Power Machine	HI-5050	HI200420
21	High Pass Filter	Wainwright	WHK1.2/15G-10SS	8
22	High Pass Filter	Wainwright	WHK2.0/18G-10SS	13

Appendix 1. Photograph of the test configuration

