

Test Report of FCC Part 22, Part 24 and Part 15B for FCC Certificate

On Behalf of

Cellstar I.L Ltd

Product Description: Mobile Phone

Brand Name: N/A

Model No.: KT618

FCC ID: WX2-KT618

Prepared for: Cellstar I.L Ltd

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Applicant: **Cellstar I.L Ltd**
Address of applicant: 16 Haadasha st., Haifa, Israel
Manufacturer: **KINGTECH TELECOM (HK) LIMITED**
Address of manufacturer: Floor 3, No.9, East Area of Shangxue Sci.&Tech.Industry Park, Buji Town, Longgang District, Shenzhen City, PRC

Equipment Under Test: **Mobile Phone**
Model No.: KT618
Cellular Phone Protocol: GSM (PCS)
Frequency Band: TX: 824 ~ 849 MHz / 1850 ~ 1910 MHz
RX: 869 ~ 894 MHz / 1930 ~ 1990 MHz
Type of Emission: 252KGXW
Antenna Type: Built-in Antenna
Power Supply: DC 4.2 V from inner rechargeable Li-ion battery

*Remark: * The test data gathered are from the production sample provided by the manufacturer.*

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Part 22, Part 24 and Part 15B of the FCC 47 CFR Rules. It is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 - 2003.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 - 2003 and FCC CFR 47, 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

1.4 Test Facility

All measurement required was performed at laboratory of Bontek Compliance Testing Laboratory Ltd at 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China and Compliance Certification Services Inc. (China Kunshan) Lab at 10#, Weiye Rd, Innovation Park Eco. & Tec. Development Zone, Kunshan City, JiangSu, (215300) China.

The test facility is recognized, certified, or accredited by the following organizations:

Bontek Compliance Testing Laboratory Ltd:**FCC – Registration No.: 338263**



Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March 24, 2008.

IC Registration No.: 126111

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 126111 on March, 2008.

Compliance Certification Services Inc. (China Kunshan) Lab:

Test site at Compliance Certification Services Inc. (China Kunshan) Lab has been accredited as showed in following table.

| Country | Agency | Logo |
|---------|--------|---|
| USA | A2LA |  The logo for A2LA Accredited, featuring a stylized 'A2LA' and the text 'ACCREDITED' and 'TESTING CERT #2541.01'. |
| USA | FCC |  The FCC logo, featuring the letters 'FCC' and the numbers '93105, 90471' below it. |

Additionally, Compliance Certification Services Inc. (China Kunshan) Lab is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200581-0).

2. SYSTEM TEST CONFIGURATION

The tests documented in this report were performed in accordance with ANSI C63.4-2003 and FCC CFR 47 Part 22 H and Part 24 E.

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

2.3 General Test Procedures

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on a turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

2.4 Description of Test Modes

The EUT had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed. Channel Low, Mid and High were chosen for full testing.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only. The field strength of spurious emission was measured as EUT stand-up position (H mode) and lie-down position (E1, E2 mode) for both GSM and GPRS with all power adaptors. The worst emission was found in stand-up position (H mode) and the worst case was recorded.

2.5 Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.6 List of Measuring Equipments Used

For Conducted Emission and other tests: Bontek Compliance Testing Laboratory Ltd

| Items | Equipment | Manufacturer | Model No. | Serial No. | Last Cal | Calibration Period |
|-------|------------------------------------|-----------------|-----------|------------|------------|--------------------|
| 1 | EMI Test Receiver | R&S | ESCI | 100687 | 2008/11/17 | 1 Year |
| 2 | EMI Test Receiver | R&S | ESPI | 100097 | 2008/11/17 | 1 Year |
| 3 | Amplifier | HP | 8447D | 1937A02492 | 2008/11/17 | 1 Year |
| 4 | 3 phase Artificial Mains (L.I.S.N) | SCHWARZBECK | NSLK 8128 | 8128247 | 2008/11/17 | 1 Year |
| 5 | TRILOG Broadband Test-Antenna | SCHWARZBECK | VULB9163 | 9163-324 | 2008/11/17 | 1 Year |
| 6 | Horn Antenna | SCHWARZBECK | BBHA9120A | D69250 | 2008/11/17 | 1 Year |
| 7 | High Field Biconical Antenna | ELECTRO-METRICS | EM-6913 | 166 | 2008/11/17 | 1 Year |
| 8 | Log Periodic Antenna | ELECTRO-METRICS | EM-6950 | 811 | 2008/11/17 | 1 Year |
| 9 | Remote Active Vertical Antenna | ELECTRO-METRICS | EM-6892 | 304 | 2008/11/17 | 1 Year |
| 10 | Power Clamp | SCHWARZBECK | MDS-21 | 3812 | 2008/11/17 | 1 Year |

For Radiated Emission test: Compliance Certification Services Inc. (China Kunshan) Lab:

| Items | Equipment | Manufacturer | Model No. | Serial No. | Calibration Due |
|-------|---------------------------------|---------------|-------------|------------|-----------------|
| 1 | Peak and Avg Power Sensor | Agilent | E9327A | US40441788 | 07/30/2008 |
| 2 | EPM-P Series Power Meter | Agilent | E4416A | QB41292714 | 07/30/2008 |
| 3 | Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| 4 | Wireless communication test set | Agilent | 8960 | QB44051695 | 10/06/2008 |
| 5 | Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| 6 | EMI Test Receiver | R&S | ESPI3 | 101026 | 11/11/2008 |
| 7 | Pre-Amplifier | MINI-circuits | ZFL-1000VH2 | d041703 | 12/13/2008 |
| 8 | Pre-Amplifier | Miteq | NSP4000-NF | 870731 | 01/28/2008 |
| 9 | Bilog Antenna | Sunol | JB1 | A110204-2 | 11/22/2008 |
| 10 | Horn-antenna | SCHWARZBECK | BBHA9120D | D:266 | 02/01/2008 |
| 11 | PSG Analog Signal Generator | Agilent | E8257C | MY43321570 | 12/19/2008 |

| | | | | | |
|----|---------------------------------|---------|---------|------------|------------|
| 12 | Wireless communication test set | Agilent | 8960 | QB44051695 | 10/06/2008 |
| 13 | Turn Table | CT | CT123 | 4165 | N.C.R |
| 14 | Antenna Tower | CT | CTERG23 | 3256 | N.C.R |
| 15 | Controller | CT | CT100 | 95637 | N.C.R |
| 16 | Site NSA | CCS | N/A | N/A | 04/06/2008 |

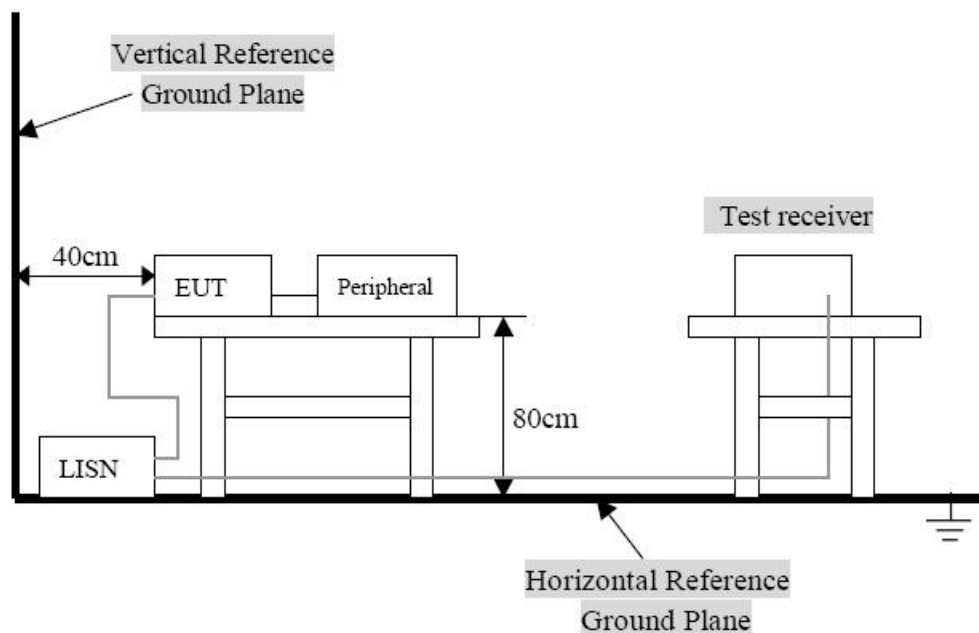
3. TEST OF CONDUCTED EMISSION

3.1 Applicable Standard

Section 15.207: For a Low-power Radio-frequency Device is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

| Frequency Range (MHz) | Limits (dBuV) | |
|-----------------------|----------------|---------|
| | Quasi-Peak | Average |
| 0.150~0.500 | 66~56 | 56~46 |
| 0.500~5.000 | 56 | 46 |
| 5.000~30.00 | 60 | 50 |

3.2 Test Setup Diagram



Remark: 1. The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC 15.207 limits.

2. The EUT was connected to a 120 VAC/ 60Hz power source.

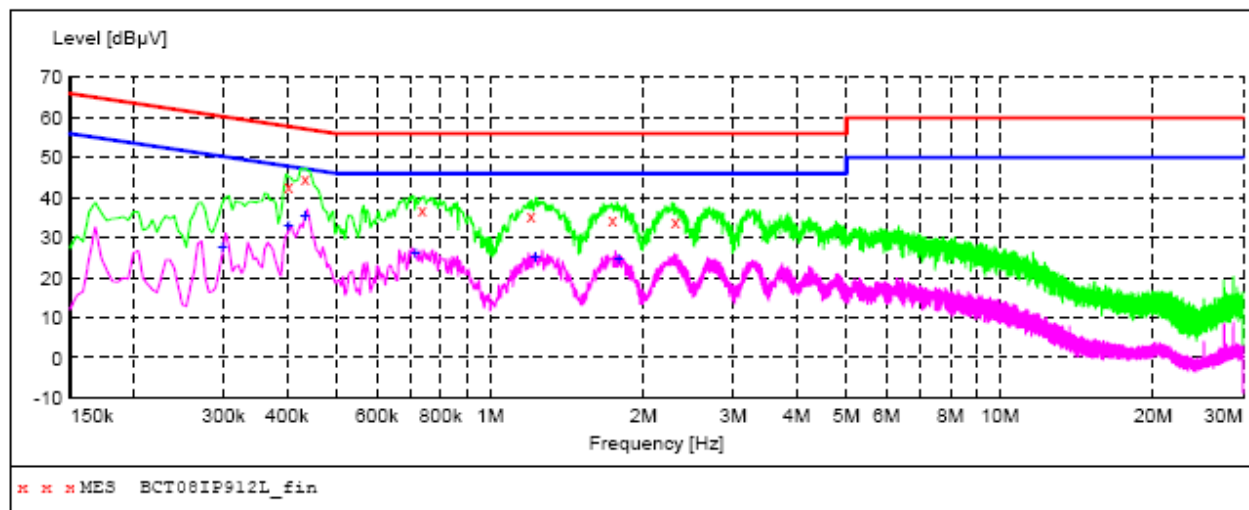
3.3 Test Result

| | |
|---|------------------------------------|
| Temperature (°C) : 23~25 | EUT: Mobile Phone |
| Humidity (%RH) : 45~58 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Charging Mode |

Conducted Emission from AC/DC Adaptor:

EUT: Mobile Phone
Operating Condition: Charging Mode
Test Site: Shielded Room
Operator: Andy
Test Specification: DC 3.7V from AC/DC adaptor (AC 120V/60Hz)
Comment: Live Line

SCAN TABLE: "Voltage (150K-30M) FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "BCT08IP912L_fin"

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| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.402000 | 42.90 | 10.4 | 58 | 14.9 | QP | L1 | GND |
| 0.433500 | 45.10 | 10.3 | 57 | 12.1 | QP | L1 | GND |
| 0.735000 | 37.10 | 10.2 | 56 | 18.9 | QP | L1 | GND |
| 1.203000 | 35.60 | 10.3 | 56 | 20.4 | QP | L1 | GND |
| 1.738500 | 34.60 | 10.2 | 56 | 21.4 | QP | L1 | GND |
| 2.310000 | 34.00 | 10.2 | 56 | 22.0 | QP | L1 | GND |

MEASUREMENT RESULT: "BCT08IP912L_fin2"

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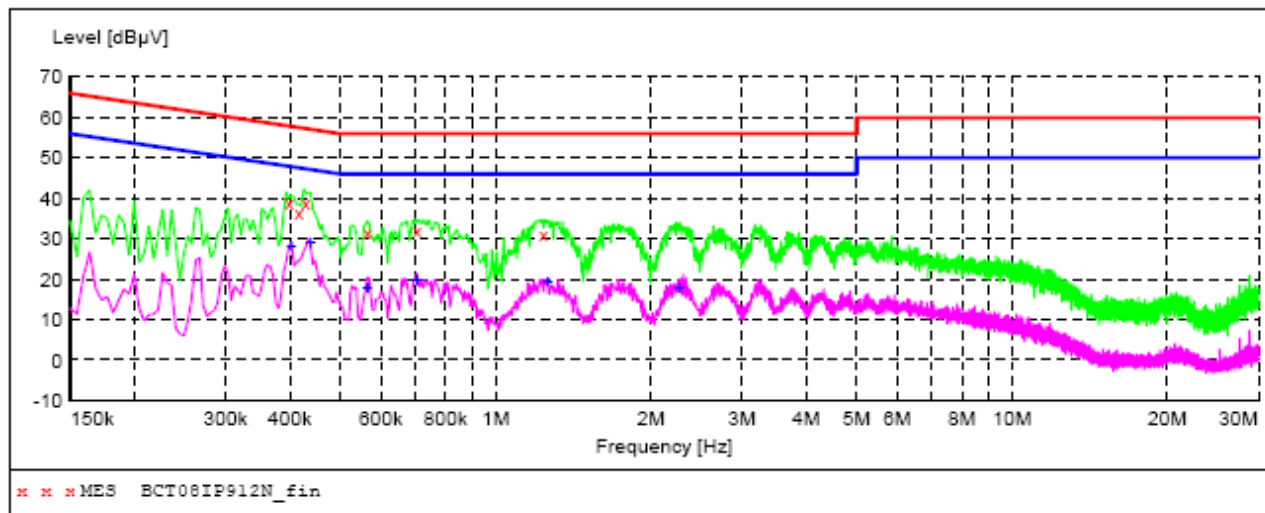
| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.298500 | 27.90 | 10.6 | 50 | 22.4 | AV | L1 | GND |
| 0.402000 | 33.20 | 10.4 | 48 | 14.6 | AV | L1 | GND |
| 0.433500 | 35.50 | 10.3 | 47 | 11.7 | AV | L1 | GND |
| 0.712500 | 26.40 | 10.2 | 46 | 19.6 | AV | L1 | GND |
| 1.225500 | 25.40 | 10.3 | 46 | 20.6 | AV | L1 | GND |
| 1.788000 | 24.60 | 10.2 | 46 | 21.4 | AV | L1 | GND |

Conducted Emission from AC/DC Adaptor:

EUT: Mobile Phone
Operating Condition: Charging Mode
Test Site: Shielded Room
Operator: Andy
Test Specification: DC 3.7V from AC/DC adaptor (AC 120V/60Hz)
Comment: Neutral Line

SCAN TABLE: "Voltage (150K-30M) FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "BCT08IP912N_fin"

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| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | FE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.397500 | 38.90 | 10.4 | 58 | 19.0 | QP | N | GND |
| 0.415500 | 36.40 | 10.4 | 58 | 21.1 | QP | N | GND |
| 0.429000 | 38.80 | 10.3 | 57 | 18.5 | QP | N | GND |
| 0.564000 | 31.50 | 10.2 | 56 | 24.5 | QP | N | GND |
| 0.703500 | 32.20 | 10.2 | 56 | 23.8 | QP | N | GND |
| 1.239000 | 31.40 | 10.3 | 56 | 24.6 | QP | N | GND |

MEASUREMENT RESULT: "BCT08IP912N_fin2"

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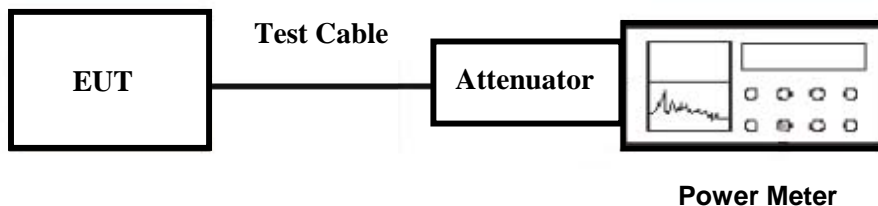
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | FE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.402000 | 28.20 | 10.4 | 46 | 19.6 | AV | N | GND |
| 0.438000 | 29.00 | 10.3 | 47 | 18.1 | AV | N | GND |
| 0.564000 | 18.00 | 10.2 | 46 | 28.0 | AV | N | GND |
| 0.703500 | 20.10 | 10.2 | 46 | 25.9 | AV | N | GND |
| 1.261500 | 19.30 | 10.3 | 46 | 26.7 | AV | N | GND |
| 2.269500 | 18.10 | 10.2 | 46 | 27.9 | AV | N | GND |

4. TEST OF PEAK POWER

4.1 Applicable Standard

According to FCC § 2.1046.

4.2 EUT Setup



4.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|--------------|--------|---------------|-----------------|
| Peak and Avg Power Sensor | Agilent | E9327A | US40441788 | 07/30/2008 |
| EPM-P Series Power Meter | Agilent | E4416A | QB41292714 | 07/30/2008 |
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |

4.4 Test Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

4.5 Test Result

| | |
|---|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Tx Mode |

| Test Mode | CH | Frequency (MHz) | Power Meter Reading (dBm) | Factor (dB) | Peak Power (dBm) |
|-----------|-----|-----------------|---------------------------|-------------|------------------|
| GSM 850 | 128 | 824.20 | 7.84 | 22.00 | 29.84 |
| | 190 | 836.60 | 8.17 | | 30.17 |
| | 251 | 848.80 | 8.36 | | 30.36 |

Remark: The value of factor includes both the loss of cable and external attenuator

| Test Mode | CH | Frequency (MHz) | Power Meter Reading (dBm) | Factor (dB) | Peak Power (dBm) |
|-----------|-----|-----------------|---------------------------|-------------|------------------|
| GSM 1900 | 512 | 1850.20 | 4.80 | 22.00 | 26.80 |
| | 661 | 1880.00 | 4.59 | | 26.59 |
| | 810 | 1910.00 | 4.40 | | 26.40 |

Remark: The value of factor includes both the loss of cable and external attenuator

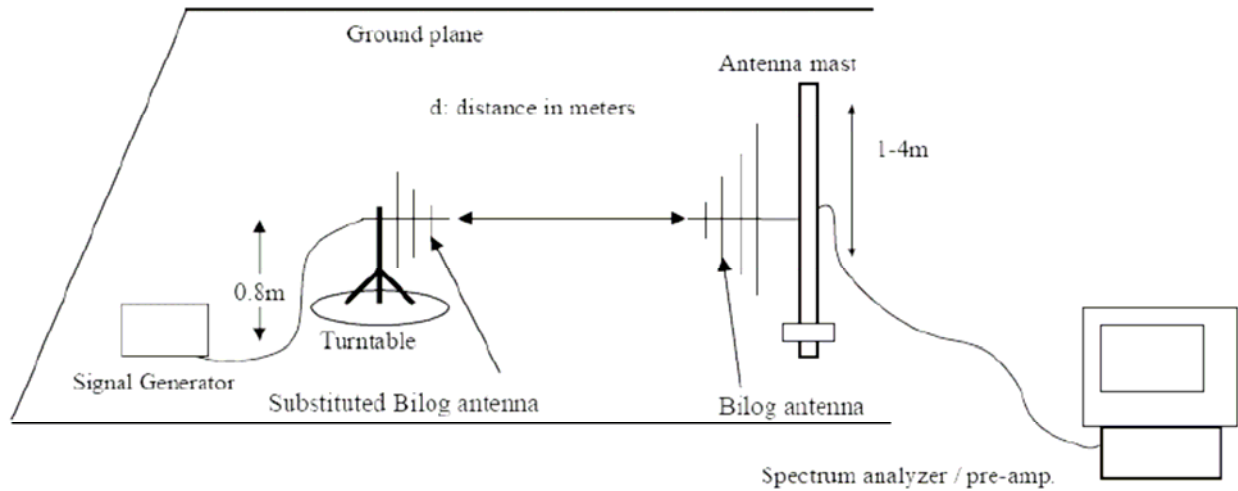


Figure 3: Substitution Method

5.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|---------------|-------------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| EMI Test Receiver | R&S | ESPI3 | 101026 | 11/11/2008 |
| Pre-Amplifier | MINI-circuits | ZFL-1000VH2 | d041703 | 12/13/2008 |
| Pre-Amplifier | Miteq | NSP4000-NF | 870731 | 01/28/2008 |
| Bilog Antenna | Sunol | JB1 | A110204-2 | 11/22/2008 |
| Horn-antenna | SCHWARZBECK | BBHA9120D | D:266 | 02/01/2008 |
| PSG Analog Signal Generator | Agilent | E8257C | MY43321570 | 12/19/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |
| Turn Table | CT | CT123 | 4165 | N.C.R |
| Antenna Tower | CT | CTERG23 | 3256 | N.C.R |
| Controller | CT | CT100 | 95637 | N.C.R |
| Site NSA | CCS | N/A | N/A | 04/06/2008 |

5.4 Test Procedure

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

5.5 Test Result

| | |
|---|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Tx Mode |

GSM 850 Test Data:

| EUT Pol. | Channel | Frequency (MHz) | Reading level (dBuV) | Antenna Pol. | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|----------|---------|-----------------|----------------------|--------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| H | 128 | 824.20 | 129.31 | V | 27.55 | 2.87 | 4.05 | 28.73 | 38.5 | -7.62 |
| | | 824.20 | 118.62 | H | 21.83 | 2.87 | 4.05 | 23.01 | 38.5 | -13.34 |
| | 190 | 836.60 | 129.75 | V | 27.97 | 2.88 | 4.25 | 29.34 | 38.5 | -7.01 |
| | | 836.60 | 119.13 | H | 22.04 | 2.88 | 4.25 | 23.41 | 38.5 | -12.94 |
| | 251 | 848.80 | 129.33 | V | 27.67 | 2.94 | 4.35 | 29.08 | 38.5 | -7.27 |
| | | 848.80 | 118.79 | H | 22.82 | 2.94 | 4.35 | 24.23 | 38.5 | -12.12 |

GSM 1900 Test Data:

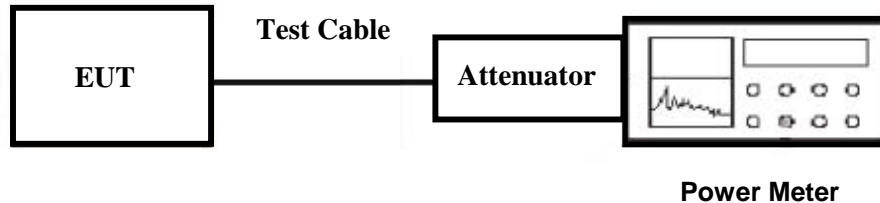
| EUT Pol. | Channel | Frequency (MHz) | Reading level (dBuV) | Antenna Pol. | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBi) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|----------|---------|-----------------|----------------------|--------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| H | 512 | 1850.20 | 120.98 | V | 23.96 | 4.31 | 8.45 | 28.10 | 33 | -4.90 |
| | | 1850.20 | 118.77 | H | 19.65 | 4.31 | 8.45 | 23.79 | 33 | -9.21 |
| | 661 | 1880.00 | 121.56 | V | 24.45 | 4.53 | 8.48 | 28.40 | 33 | -4.60 |
| | | 1880.00 | 119.23 | H | 20.32 | 4.53 | 8.48 | 24.27 | 33 | -8.73 |
| | 810 | 1909.80 | 121.04 | V | 24.01 | 4.55 | 8.52 | 27.98 | 33 | -5.02 |
| | | 1909.80 | 119.89 | H | 19.76 | 4.55 | 8.52 | 23.73 | 33 | -9.27 |

6. TEST OF OCCUPIED BANDWIDTH

6.1 Applicable Standard

According to § FCC 2.1049.

6.2 EUT Setup



6.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |

6.4 Test Procedure

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

The spectrum analyzer is set to: RBW = 3 kHz, VBW = 10 kHz, Span = 1 MHz, Sweep = auto

6.5 Test Result

| | |
|---|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Tx Mode |

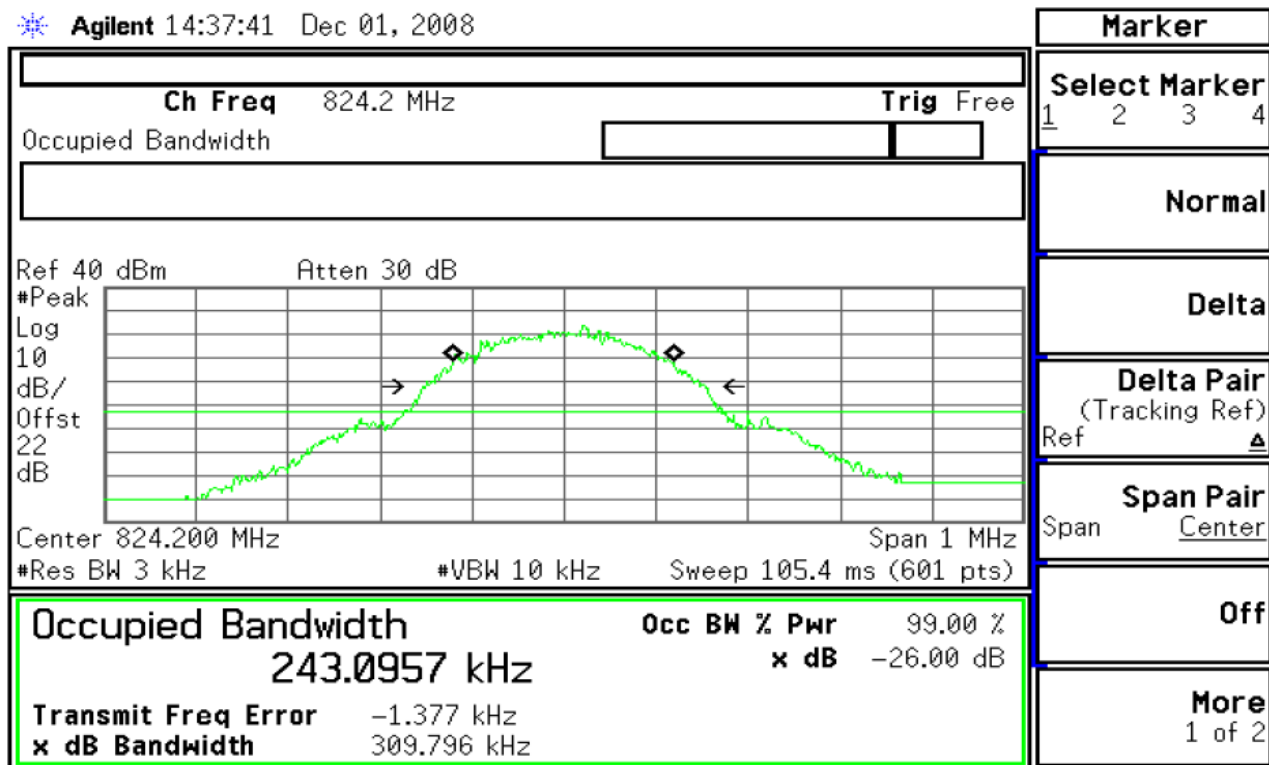
| Test Mode | Channel | Frequency (MHz) | Bandwidth (kHz) |
|-----------|---------|-----------------|-----------------|
| GSM 850 | 128 | 824.20 | 243.10 |
| | 190 | 836.00 | 244.82 |
| | 251 | 848.00 | 242.63 |
| | 128 | 824.20 | 243.10 |

| Test Mode | Channel | Frequency (MHz) | Bandwidth (kHz) |
|-----------|---------|-----------------|-----------------|
| GSM 1900 | 512 | 1850.20 | 251.51 |
| | 661 | 1880.00 | 246.12 |
| | 810 | 1909.80 | 245.84 |
| | 512 | 1850.20 | 251.51 |

Test plots see following pages

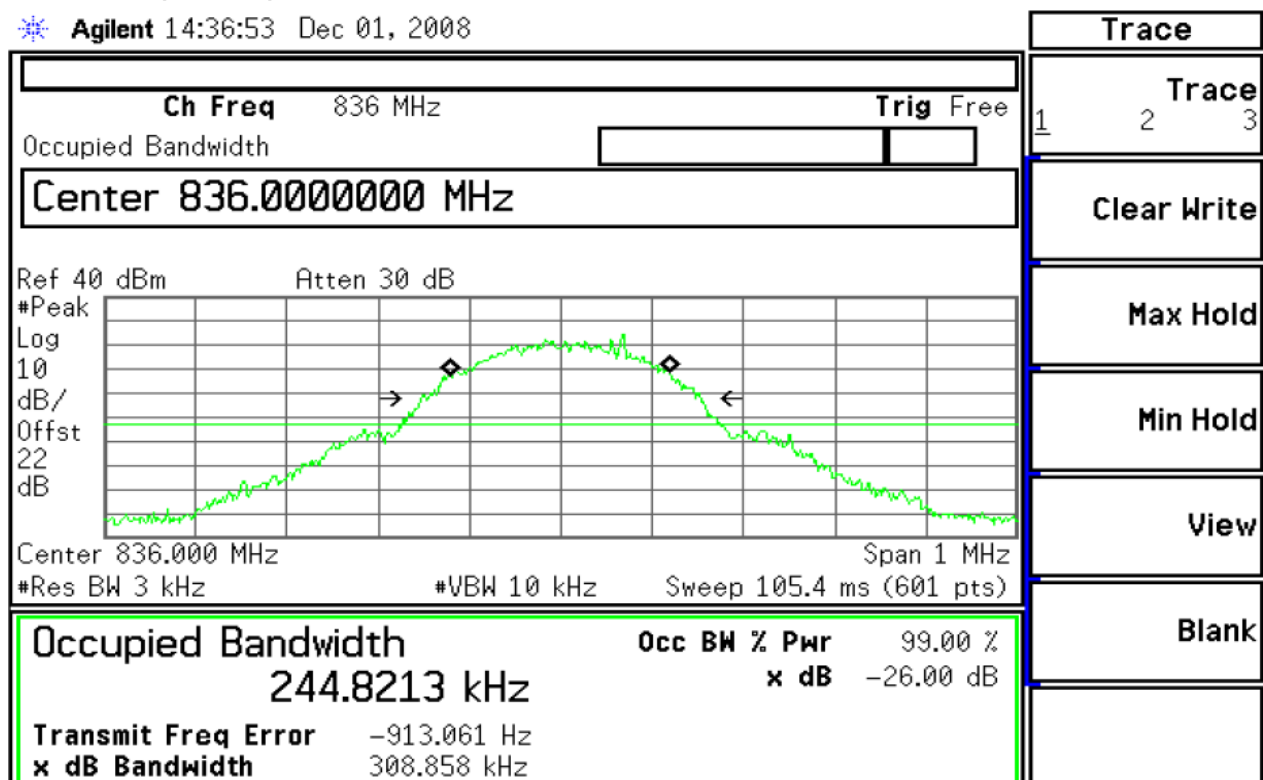
GSM 850 (CH Low) :

Agilent 14:37:41 Dec 01, 2008



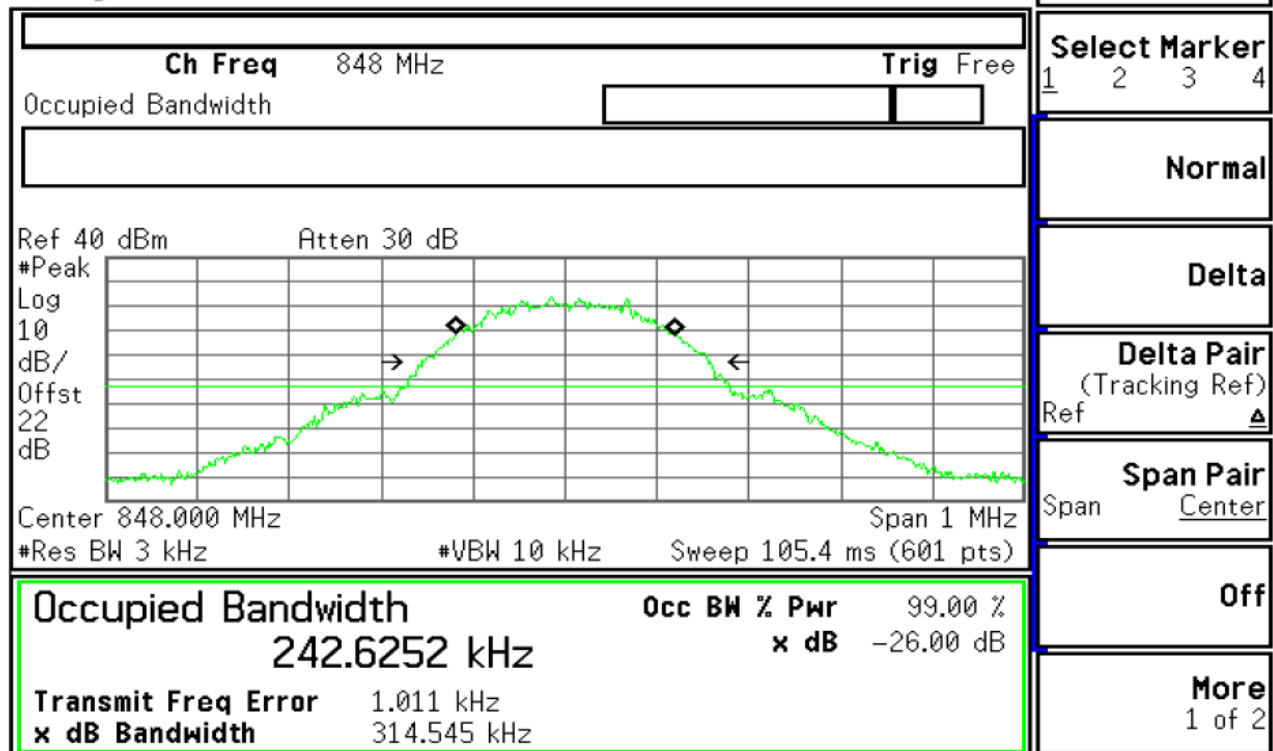
GSM 850 (CH Mid) :

Agilent 14:36:53 Dec 01, 2008



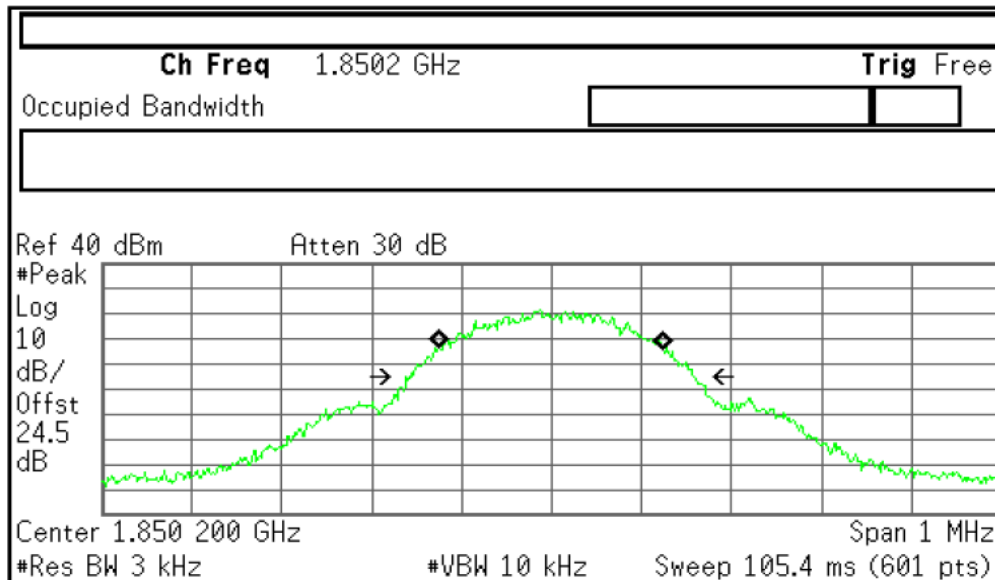
GSM 850 (CH High) :

Agilent 14:35:59 Dec 01, 2008



GSM 1900(CH Low) :

Agilent 10:31:03 Dec 01, 2008



Occupied Bandwidth 251.5120 kHz Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -132.510 Hz

x dB Bandwidth 320.174 kHz

Measure

Meas Off

Channel Power

Occupied BW

ACP

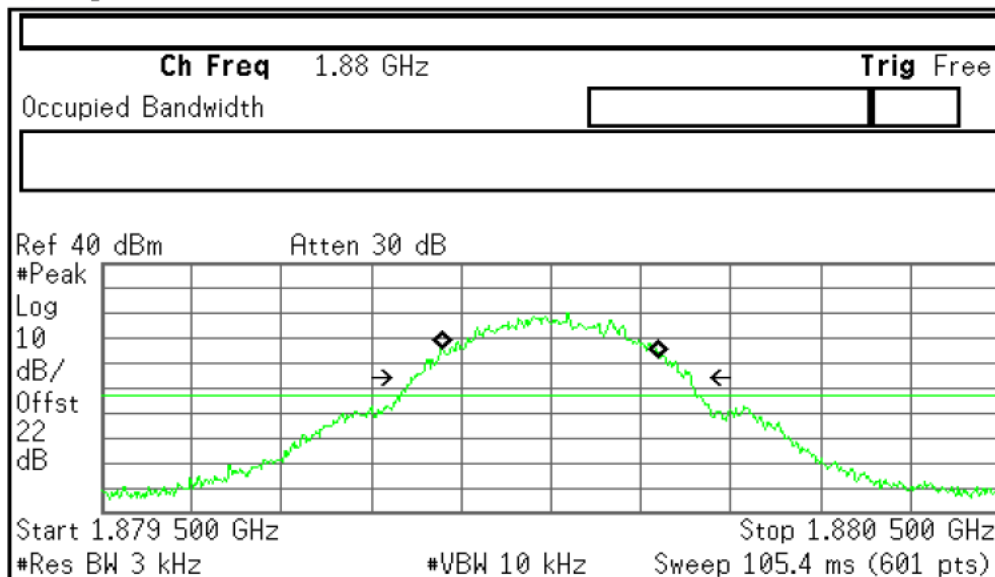
Multi Carrier Power

Power Stat CCDF

More 1 of 2

GSM 1900(CH Mid) :

Agilent 14:39:04 Dec 01, 2008



Occupied Bandwidth 246.1233 kHz Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -845.168 Hz

x dB Bandwidth 313.542 kHz

Trace

Trace 1 2 3

Clear Write

Max Hold

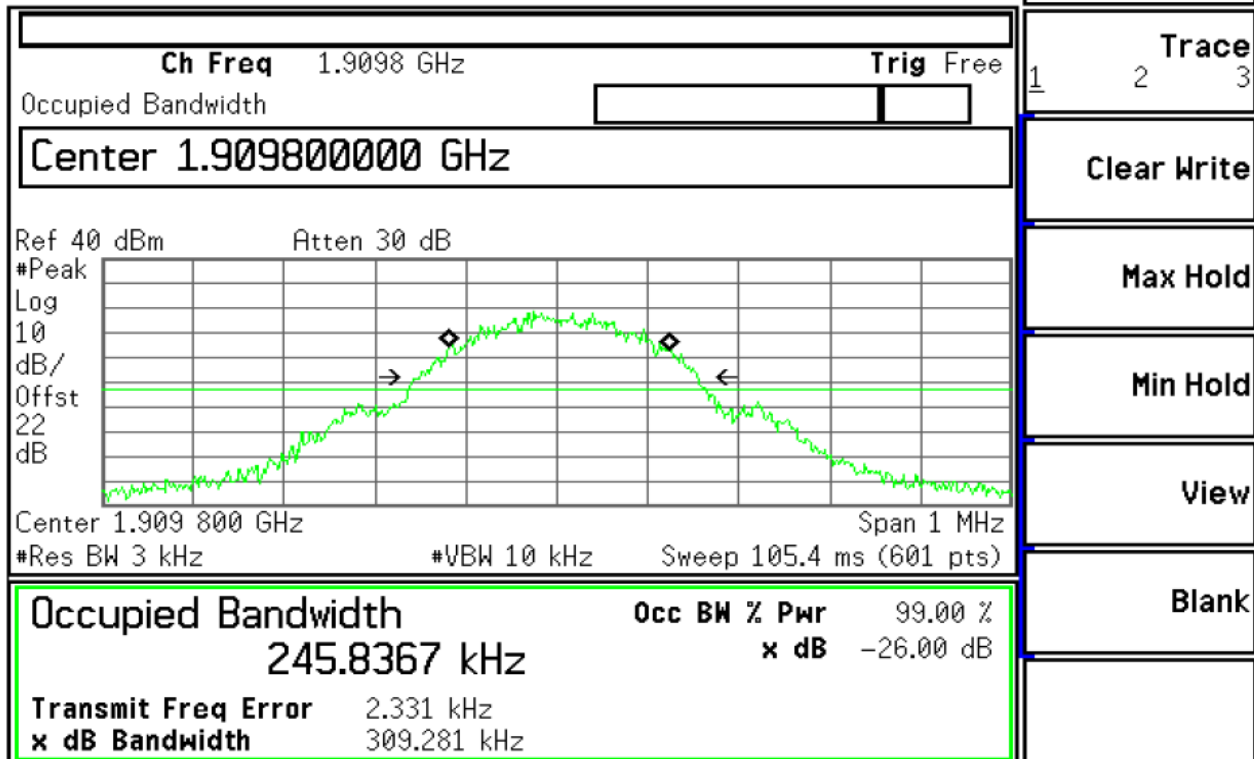
Min Hold

View

Blank

GSM 1900(CH High) :

Agilent 14:40:33 Dec 01, 2008



7. TEST OF OUT OF BAND EMISSION AT ANTENNA TERMINALS

7.1 Applicable Standard

According to FCC § 2.1051, FCC § 2.2917(f), FCC § 22.917(f), FCC § 24.238(a).

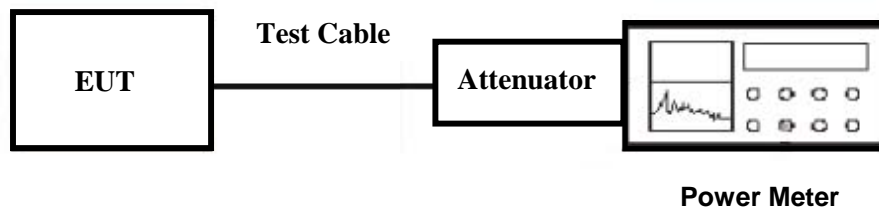
Out of Band Emissions:

The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log P$ dB.

Mobile Emissions in Base Frequency Range:

The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed -80 dBm at the transmit antenna connector. Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

7.2 EUT Setup



7.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |

7.4 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

For the Band Edge: The spectrum analyzer is set to: RBW = 3 kHz, VBW = 10 kHz, Span = 1 MHz, Sweep = auto

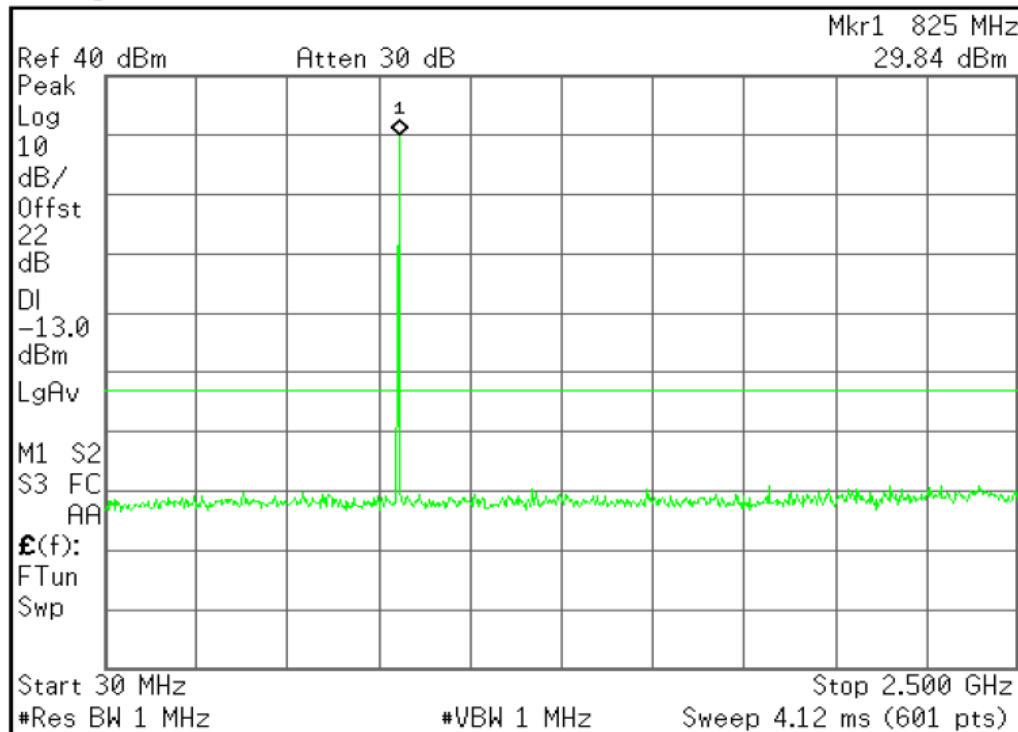
7.5 Test Result of Out of Band emission at antenna terminals

| | |
|--|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH): 50~54 | M/N: KT618 |
| Barometric Pressure (mbar): 950~1000 | Operation Condition: Tx Mode |

Test plots see following pages

GSM 850: Out of Band emission at antenna terminals –CH Low (30MHz~2.5GHz)

Agilent 14:26:38 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

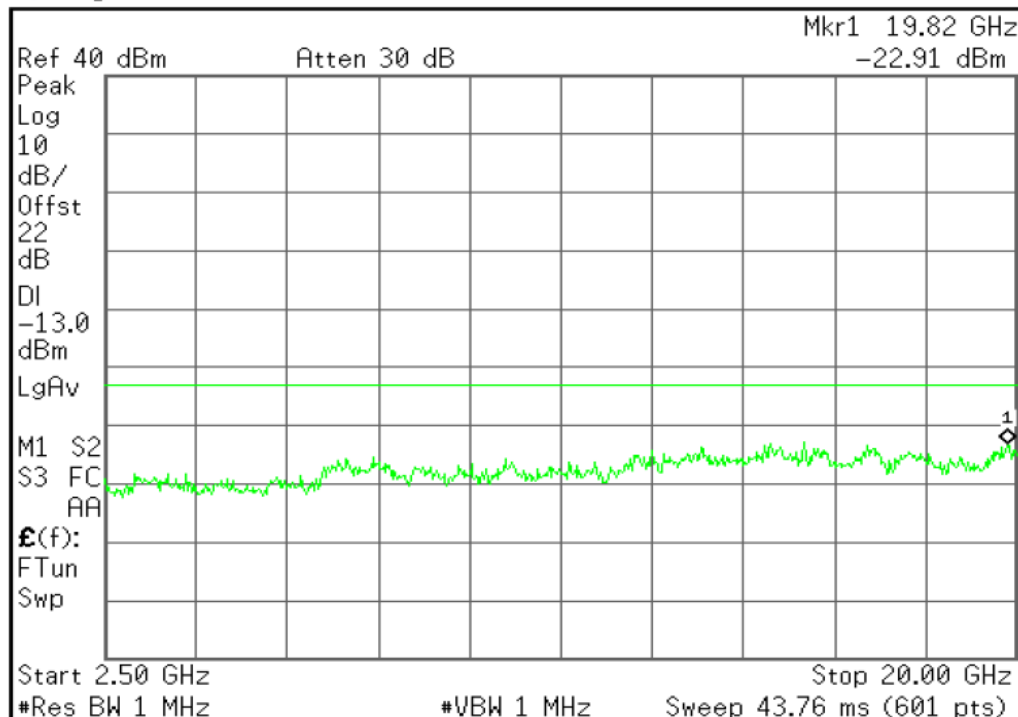
Pk-Pk Search

Mkr → CF

More
1 of 2

GSM 850: Out of Band emission at antenna terminals –CH Low (2.5GHz ~20GHz)

Agilent 14:26:58 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

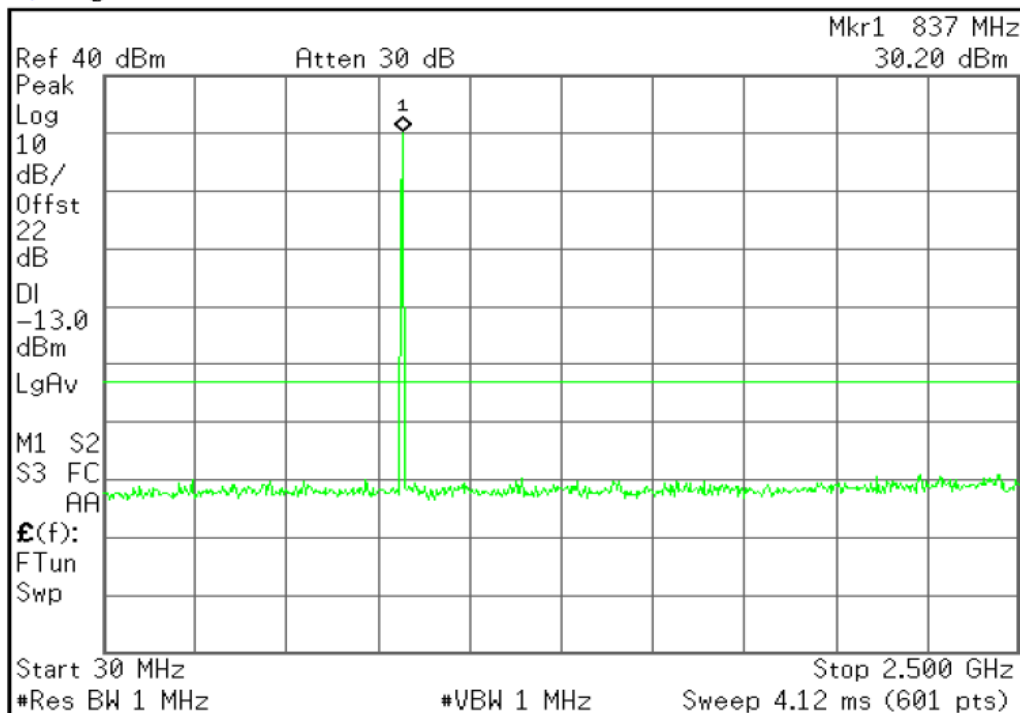
Pk-Pk Search

Mkr → CF

More
1 of 2

GSM 850: Out of Band emission at antenna terminals –CH Mid (30MHz~2.5GHz)

Agilent 14:26:14 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

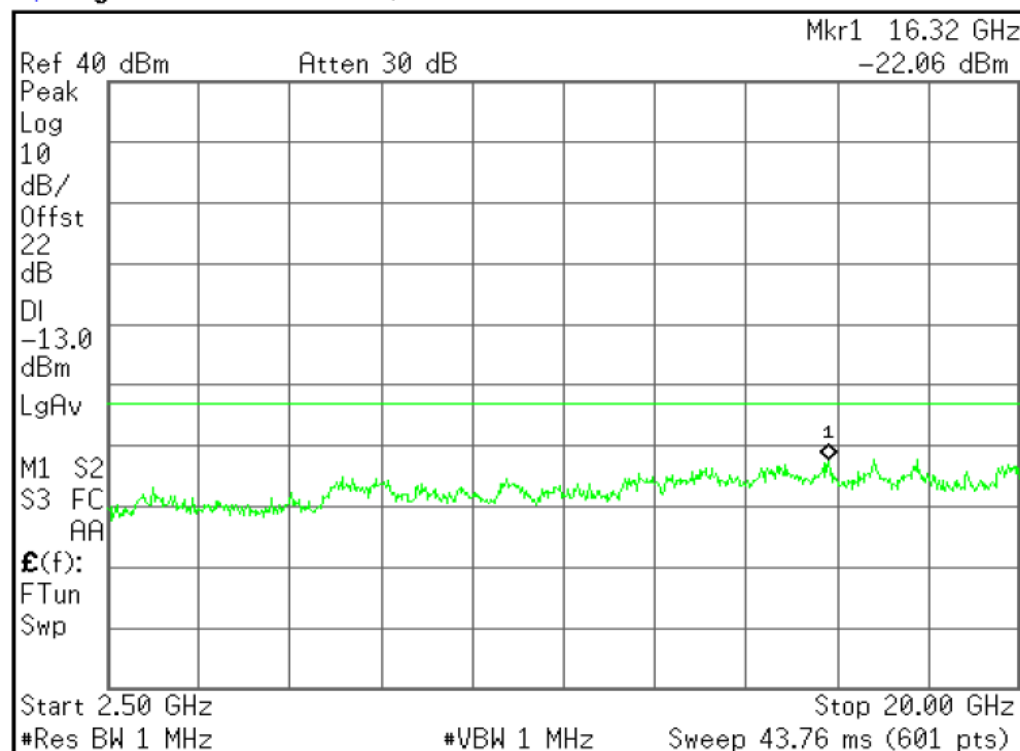
Pk-Pk Search

Mkr → CF

More
1 of 2

GSM 850: Out of Band emission at antenna terminals –CH Mid (2.5GHz ~20GHz)

Agilent 14:25:52 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

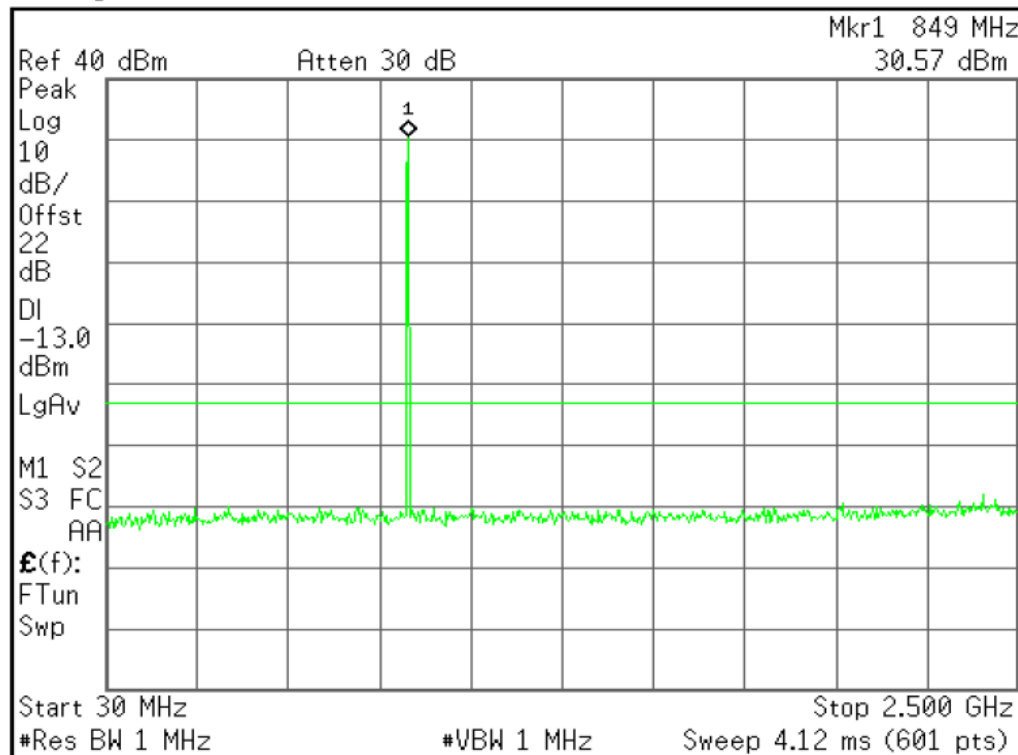
Pk-Pk Search

Mkr → CF

More
1 of 2

GSM 850: Out of Band emission at antenna terminals –CH High (30MHz~2.5GHz)

Agilent 14:27:54 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

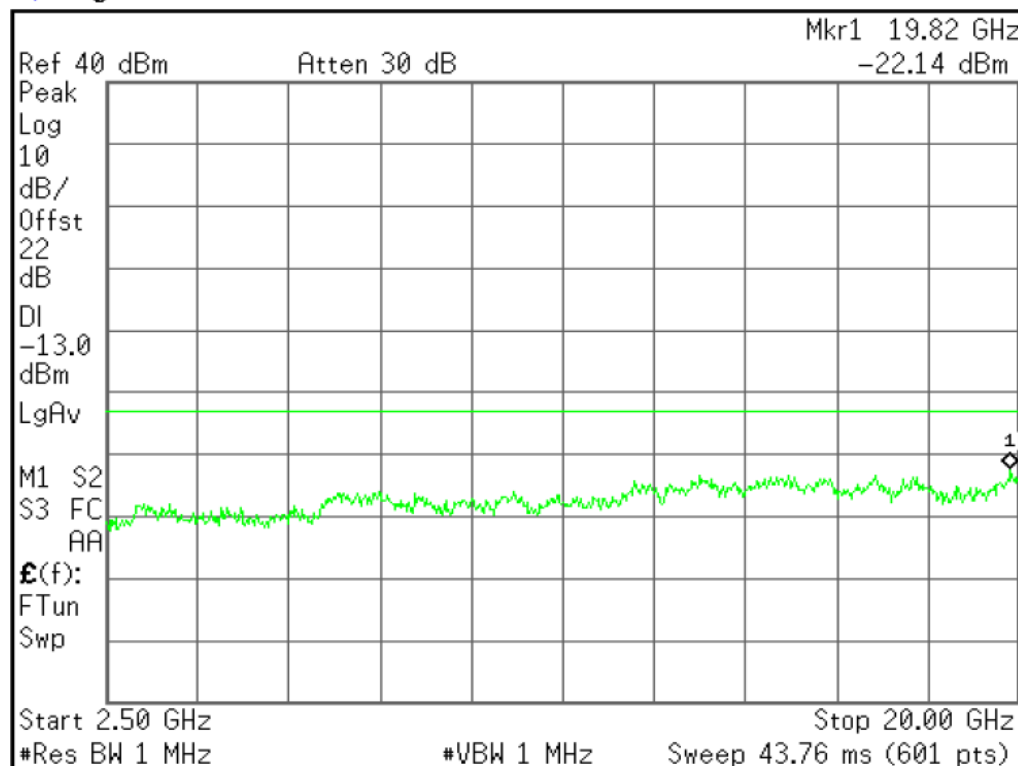
Pk-Pk Search

Mkr → CF

More 1 of 2

GSM 850: Out of Band emission at antenna terminals –CH High (2.5GHz ~20GHz)

Agilent 14:27:28 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

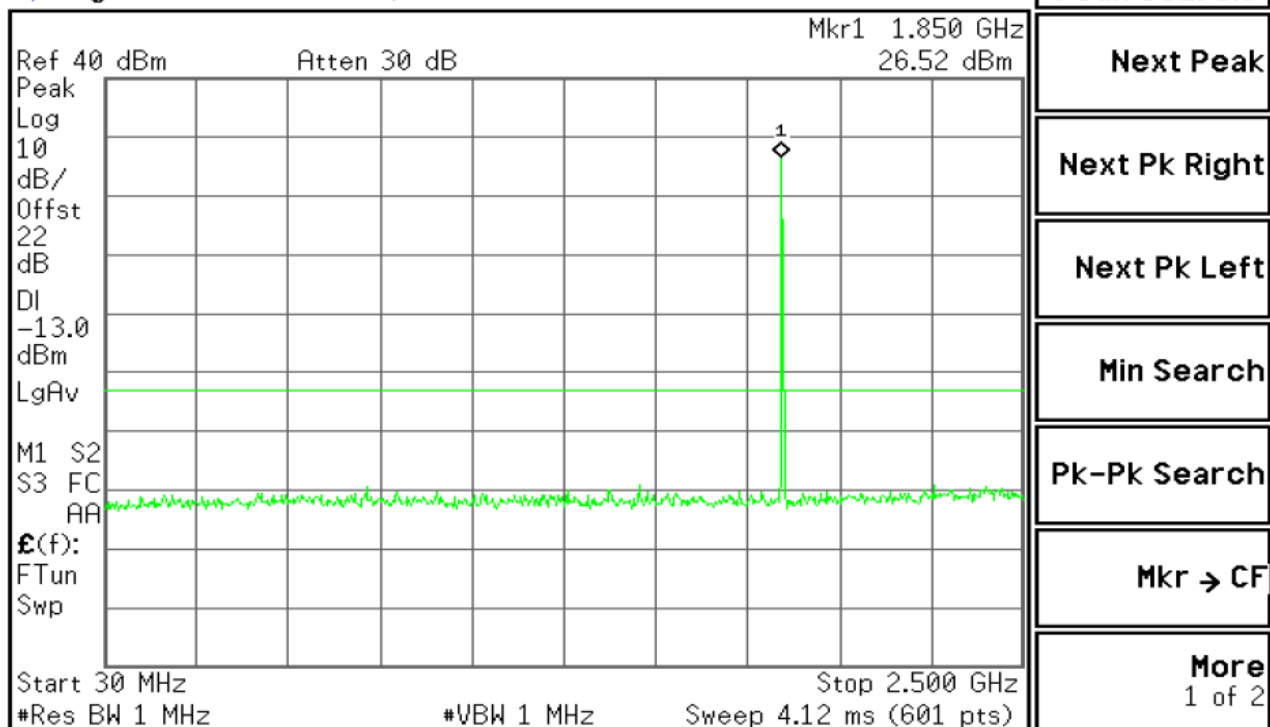
Pk-Pk Search

Mkr → CF

More 1 of 2

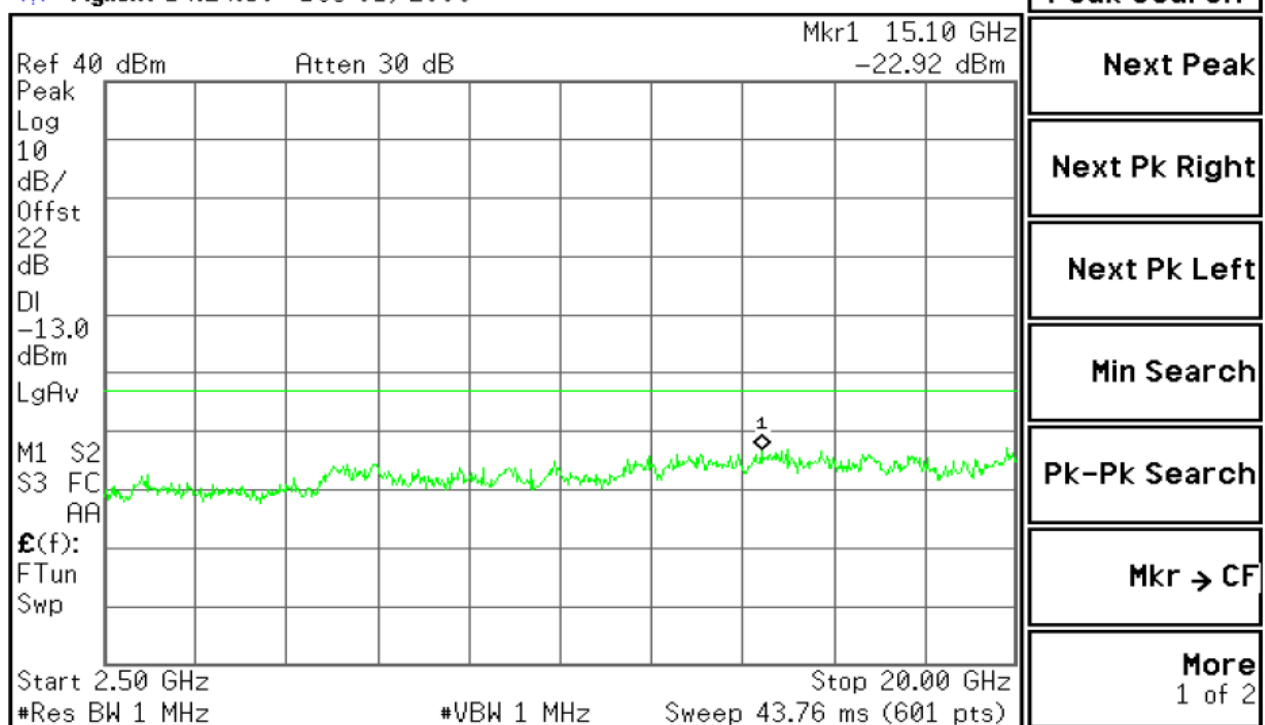
GSM 1900: Out of Band emission at antenna terminals –CH Low (30MHz~2.5GHz)

✱ Agilent 14:24:27 Dec 01, 2008



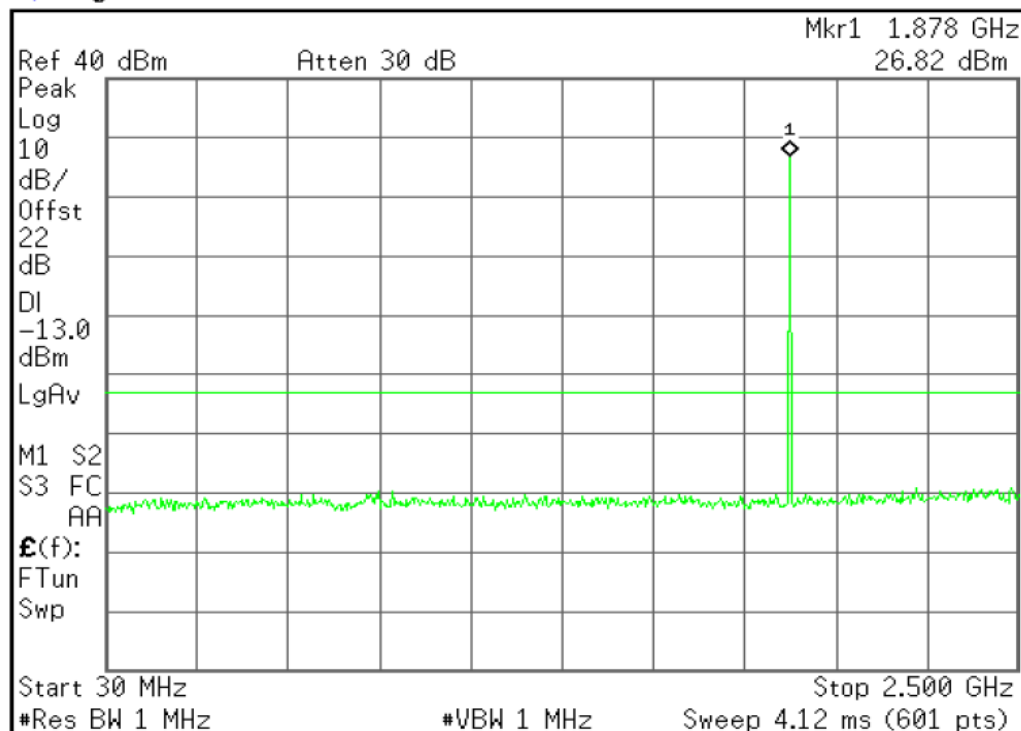
GSM 1900: Out of Band emission at antenna terminals –CH Low (2.5GHz ~20GHz)

✱ Agilent 14:24:50 Dec 01, 2008



GSM 1900: Out of Band emission at antenna terminals –CH Mid (30MHz~2.5GHz)

Agilent 14:23:59 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

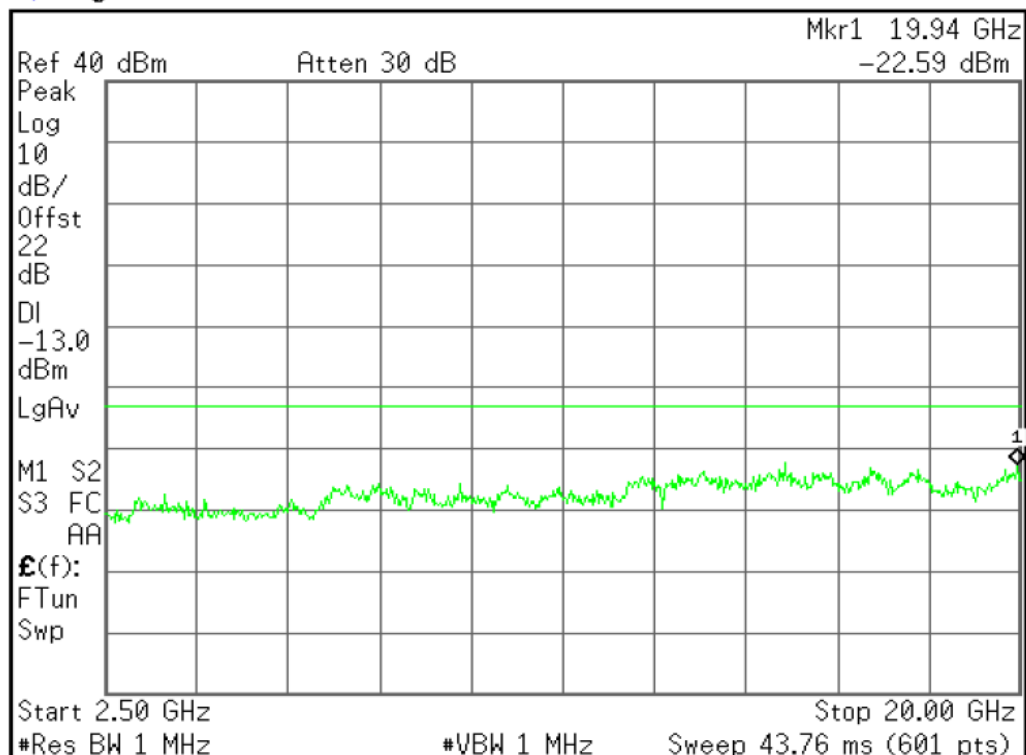
Pk-Pk Search

Mkr → CF

More
1 of 2

GSM 1900: Out of Band emission at antenna terminals –CH Mid (2.5GHz ~20GHz)

Agilent 14:23:31 Dec 01, 2008



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

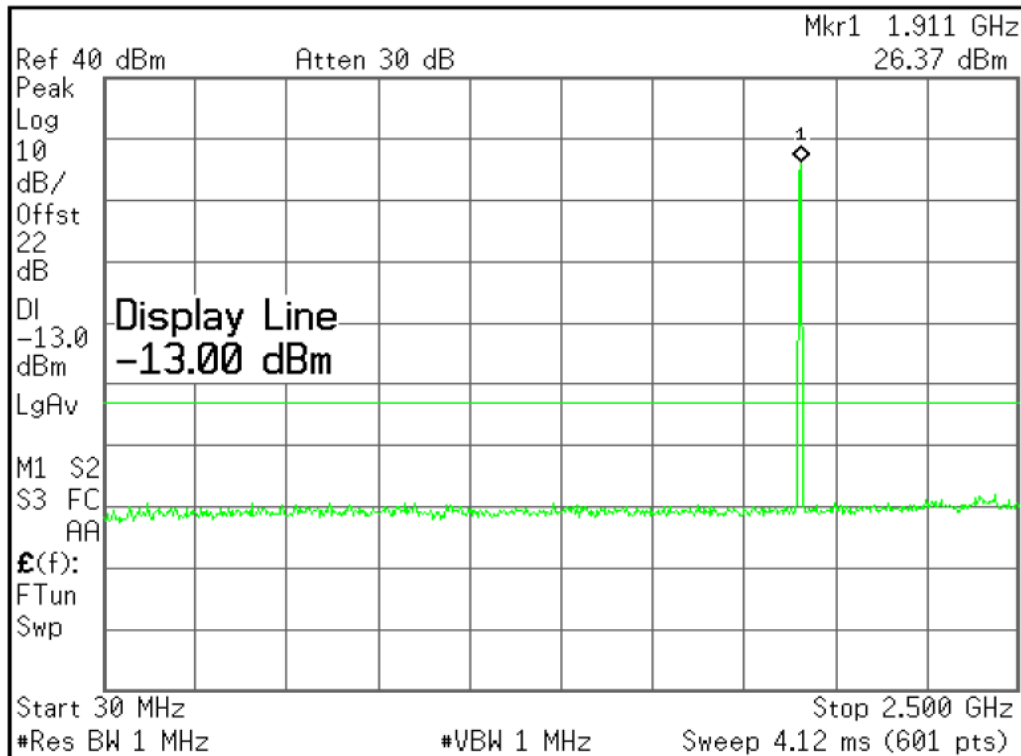
Pk-Pk Search

Mkr → CF

More
1 of 2

GSM 1900: Out of Band emission at antenna terminals –CH High (30MHz~2.5GHz)

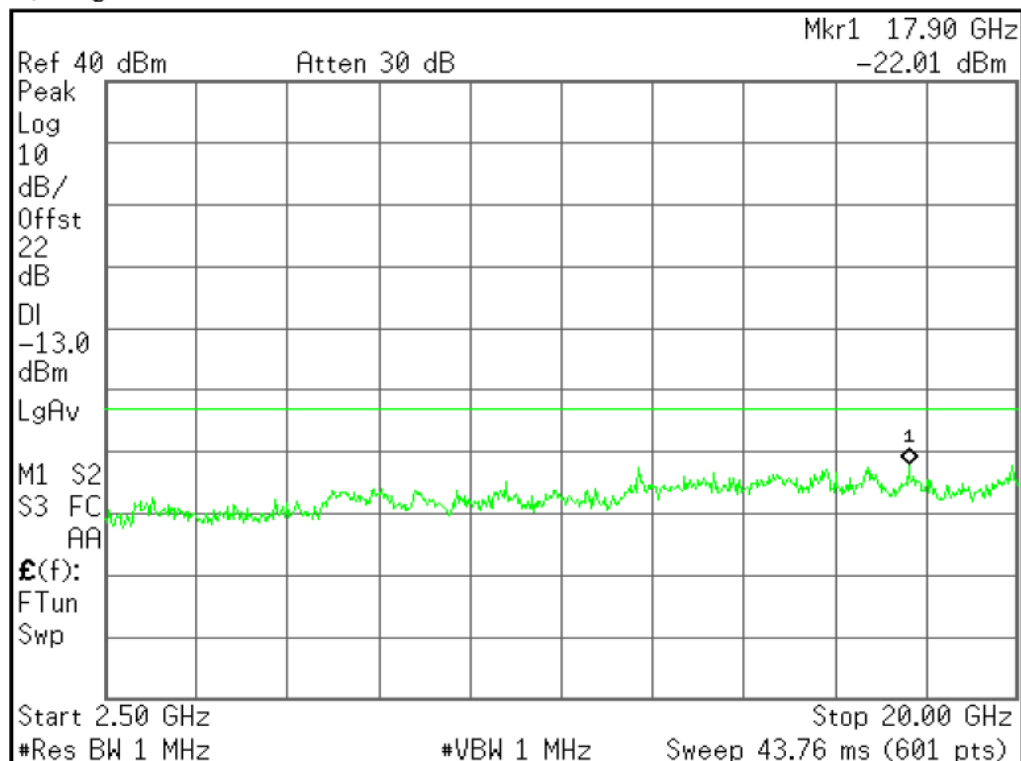
Agilent 14:21:33 Dec 01, 2008



| |
|--------------------------------------|
| Display |
| Full Screen |
| Display Line -13.00 dBm On Off |
| Limits |
| Active Fctn Position Center |
| Title |
| Preferences |

GSM 1900: Out of Band emission at antenna terminals –CH High (2.5GHz ~20GHz)

Agilent 14:22:01 Dec 01, 2008



| |
|----------------|
| Peak Search |
| Next Peak |
| Next Pk Right |
| Next Pk Left |
| Min Search |
| Pk-Pk Search |
| Mkr → CF |
| More 1 of 2 |

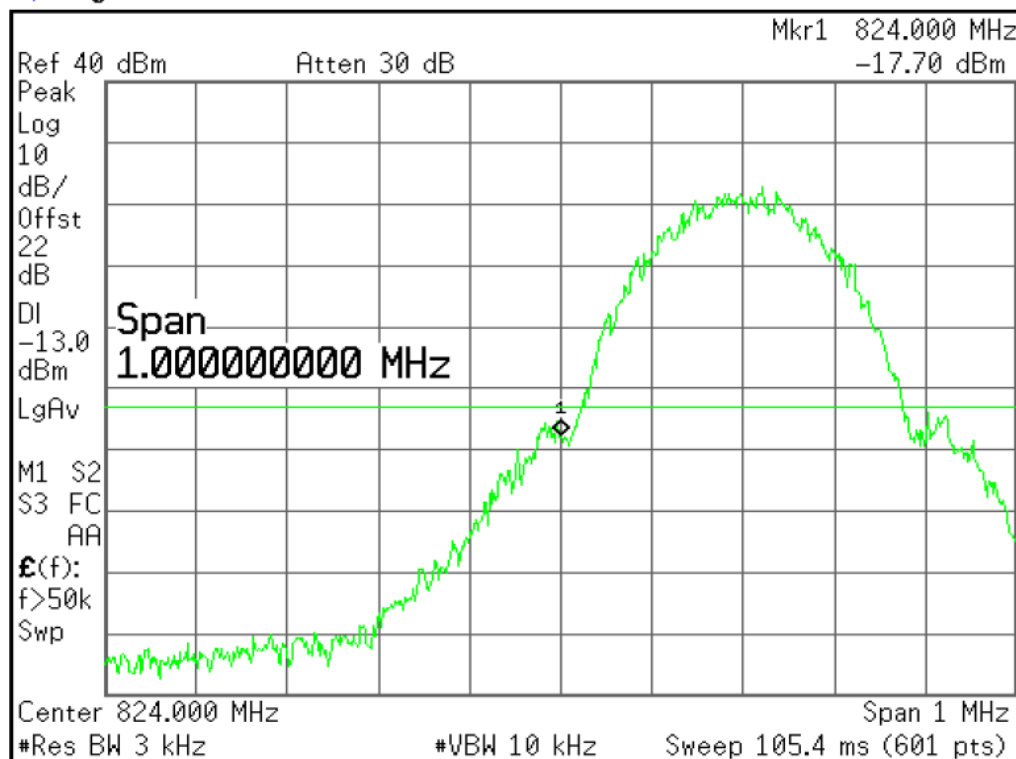
7.6 Test Result of Band Edge emissions

| | |
|---|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Tx Mode |

Test plots see following pages

GSM 850: Band Edge emissions –CH Low

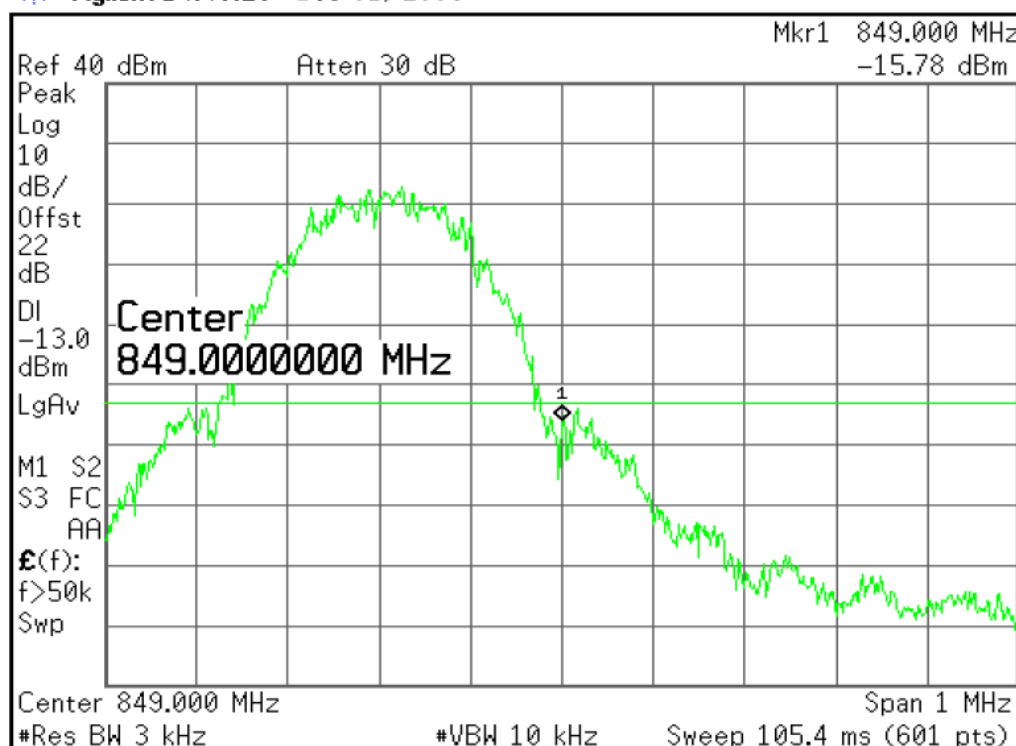
Agilent 14:52:34 Dec 01, 2008



| Trace | | |
|-------------|---|---|
| 1 | 2 | 3 |
| Trace | | |
| Clear Write | | |
| Max Hold | | |
| Min Hold | | |
| View | | |
| Blank | | |

GSM 850: Band Edge emissions –CH High

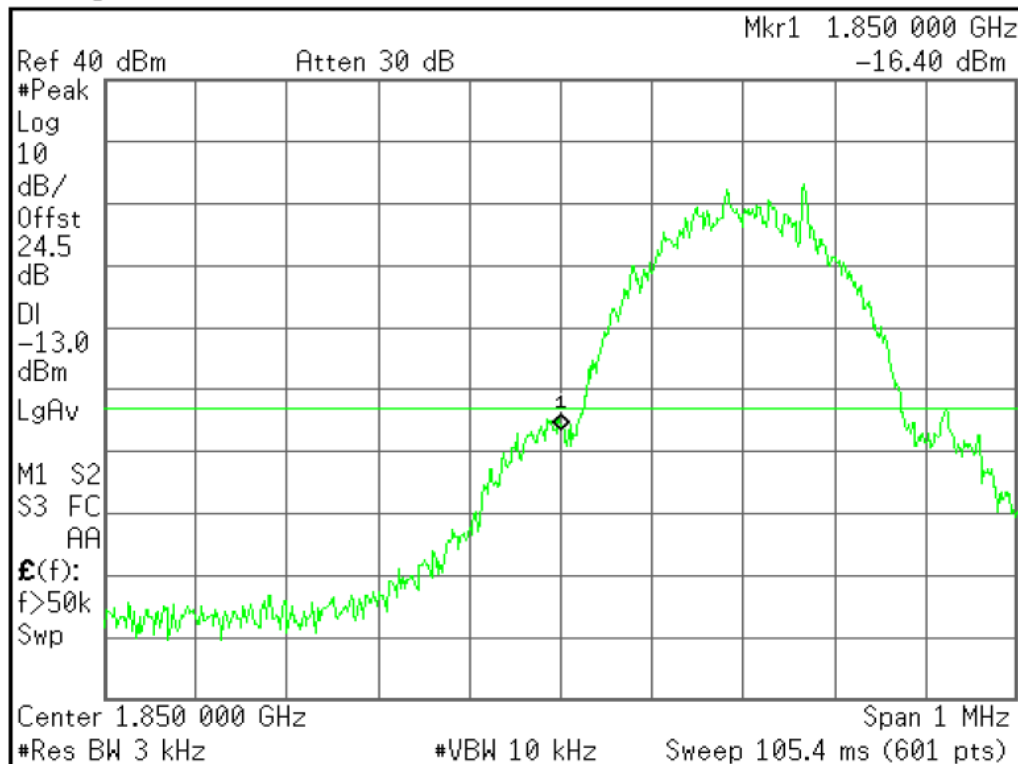
Agilent 14:48:26 Dec 01, 2008



| Trace | | |
|-------------|---|---|
| 1 | 2 | 3 |
| Trace | | |
| Clear Write | | |
| Max Hold | | |
| Min Hold | | |
| View | | |
| Blank | | |

GSM 1900: Band Edge emissions –CH Low

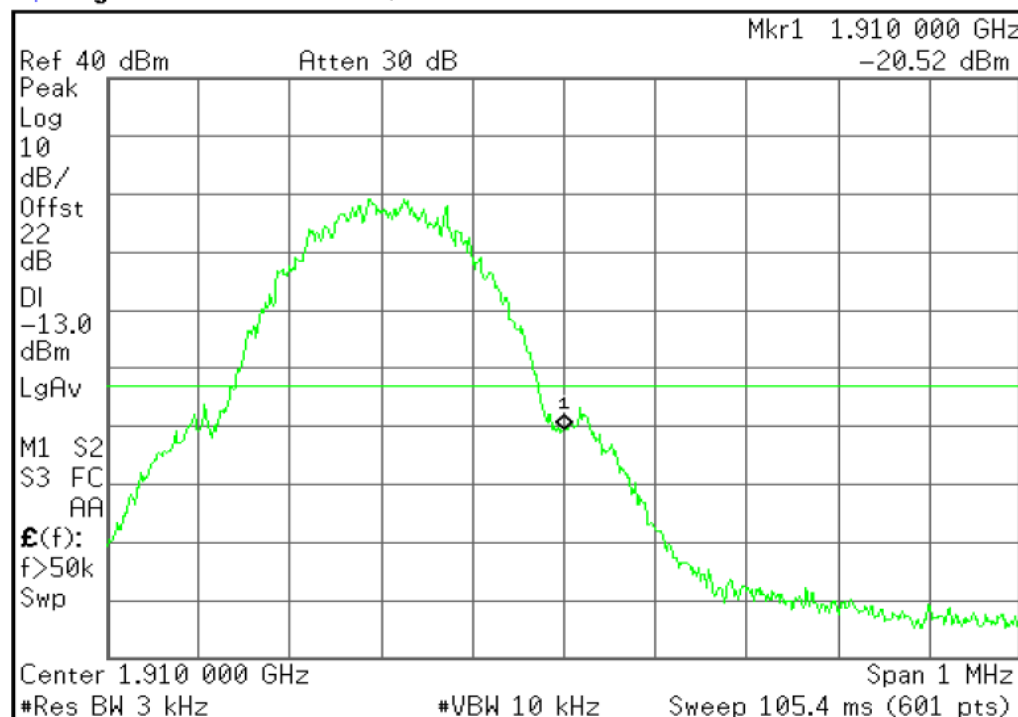
Agilent 10:34:35 Dec 01, 2008



| 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 |

GSM 1900: Band Edge emissions –CH High

Agilent 14:47:42 Dec 01, 2008



| Marker |
|---------------------------------------|
| Select Marker 1 2 3 4 |
| Normal |
| Delta |
| Delta Pair (Tracking Ref) Ref ▲ |
| Span Pair Span Center |
| Off |
| More 1 of 2 |

8. SPURIOUS RADIATION MEASUREMENT OF GSM MODE

8.1 Applicable Standard

According to FCC §2.1053

8.2 EUT Setup

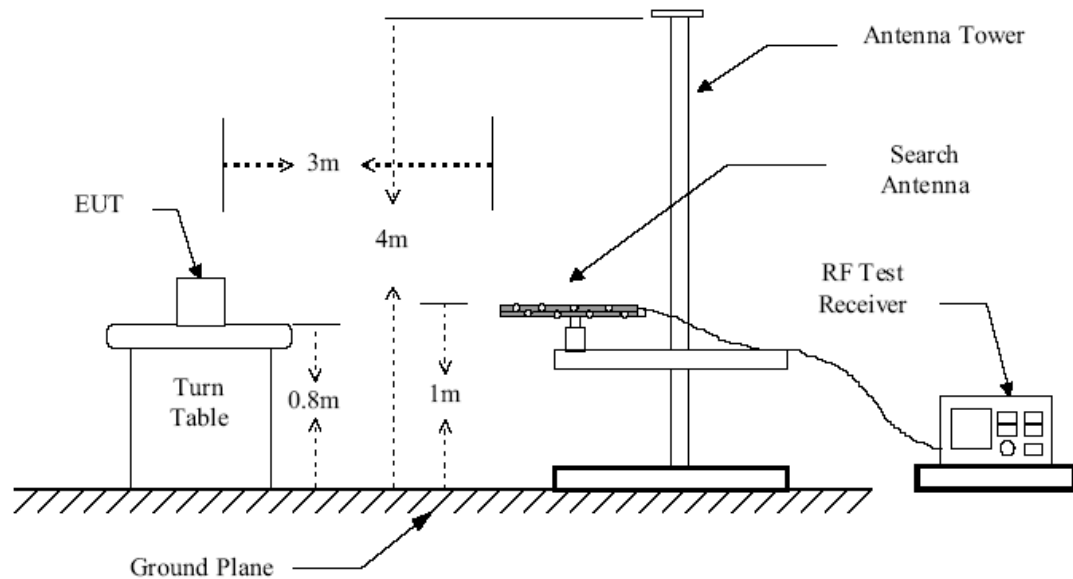


Figure 1 : Frequencies measured below 1 GHz configuration

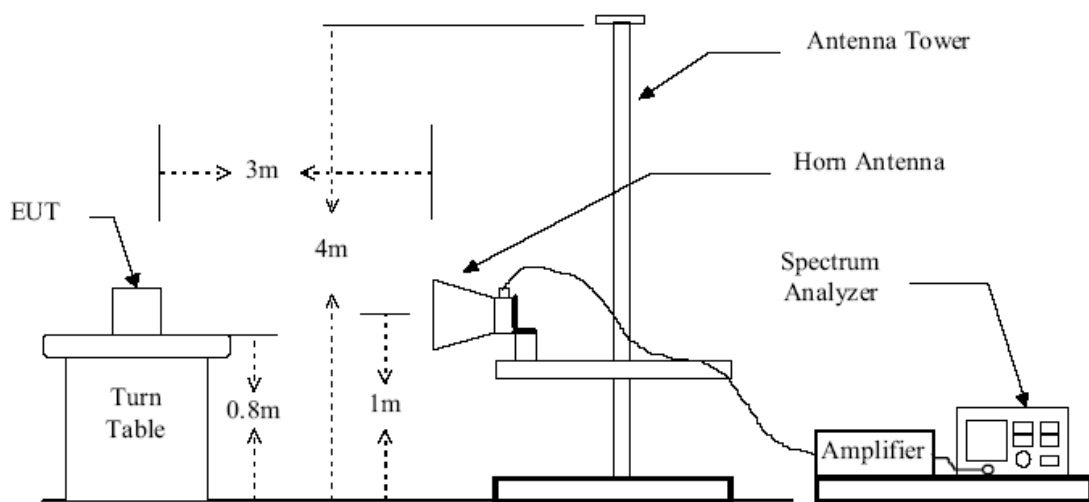


Figure 2 : Frequencies measured above 1 GHz configuration

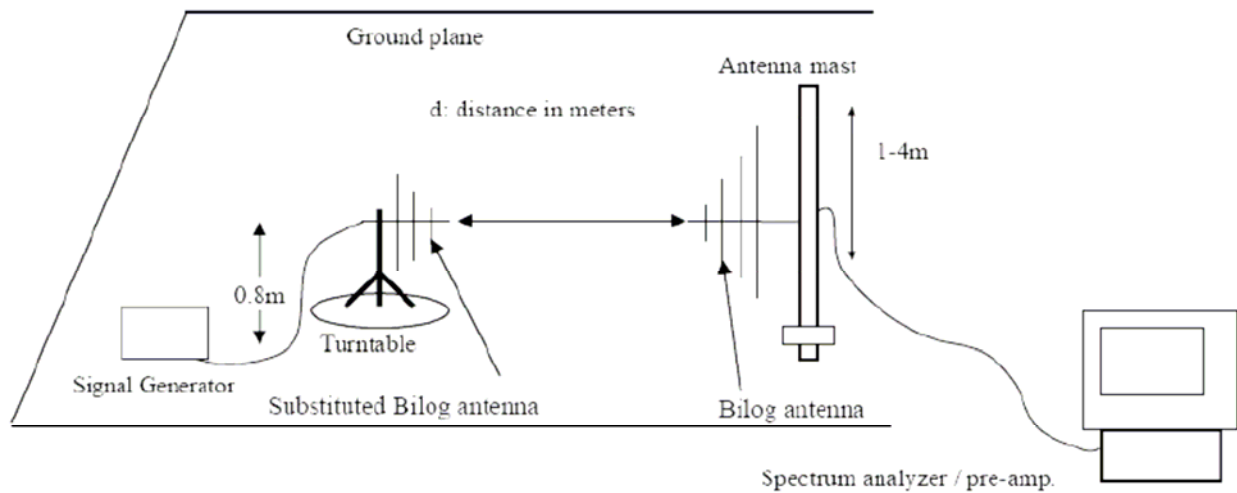


Figure 3: Substitution Method

8.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|---------------|-------------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| EMI Test Receiver | R&S | ESPI3 | 101026 | 11/11/2008 |
| Pre-Amplifier | MINI-circuits | ZFL-1000VH2 | d041703 | 12/13/2008 |
| Pre-Amplifier | Miteq | NSP4000-NF | 870731 | 01/28/2008 |
| Bilog Antenna | Sunol | JB1 | A110204-2 | 11/22/2008 |
| Horn-antenna | SCHWARZBECK | BBHA9120D | D:266 | 02/01/2008 |
| PSG Analog Signal Generator | Agilent | E8257C | MY43321570 | 12/19/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |
| Turn Table | CT | CT123 | 4165 | N.C.R |
| Antenna Tower | CT | CTERG23 | 3256 | N.C.R |
| Controller | CT | CT100 | 95637 | N.C.R |
| Site NSA | CCS | N/A | N/A | 04/06/2008 |

8.4 Test Procedure

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

8.5 Test Result

GSM 850: Radiated Spurious Emission Measurement Result Below 1GHz

No emissions to be recorded. (Since no specific emission noted beyond the background noise floor)

GSM 850: Radiated Spurious Emission Measurement Result Above 1GHz

| | |
|---|---|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: GSM 850 / TX / CH128 |

| Frequency (MHz) | Reading level (dBuV) | Antenna Polarization | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|----------------------|----------------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| 1648.44 | 31.89 | V | -81.56 | 4.01 | 7.86 | -77.71 | -13.00 | -64.71 |
| 1648.58 | 33.66 | H | -83.66 | 4.01 | 7.86 | -79.81 | -13.00 | -66.81 |

| | |
|---|---|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: GSM 850 / TX / CH190 |

| Frequency (MHz) | Reading level (dBuV) | Antenna Polarization | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|----------------------|----------------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| 1673.88 | 34.54 | V | -76.56 | 4.21 | 7.95 | -72.82 | -13.00 | -59.82 |
| 1673.76 | 35.73 | H | -78.18 | 4.21 | 7.95 | -74.44 | -13.00 | -61.44 |

| | |
|---|---|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: GSM 850 / TX / CH251 |

| Frequency (MHz) | Reading level (dBuV) | Antenna Polarization | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|----------------------|----------------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| 1697.85 | 36.18 | V | -74.17 | 4.53 | 8.12 | -70.58 | -13.00 | -57.81 |
| 1697.13 | 34.72 | H | -75.09 | 4.53 | 8.12 | -71.50 | -13.00 | -58.50 |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above shown only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
5. Spectrum setting:
 - a). Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b). AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

GSM 1900: Radiated Spurious Emission Measurement Result Below 1GHz

No emissions to be recorded. (Since no specific emission noted beyond the background noise floor)

GSM 1900: Radiated Spurious Emission Measurement Result Above 1GHz

| | |
|---|---|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: GSM1900 / TX / CH512 |

| Frequency (MHz) | Reading level (dBuV) | Antenna Polarization | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|----------------------|----------------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| 3700.41 | 27.85 | V | -74.24 | 6.65 | 13.40 | -67.49 | -13.00 | -54.49 |
| 3700.44 | 25.62 | H | -70.12 | 6.65 | 13.40 | -63.37 | -13.00 | -50.37 |

| | |
|---|---|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: GSM1900 / TX / CH661 |

| Frequency (MHz) | Reading level (dBuV) | Antenna Polarization | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|----------------------|----------------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| 3760.66 | 28.11 | V | -74.33 | 6.75 | 13.56 | -67.52 | -13.00 | -54.52 |
| 3759.85 | 25.57 | H | -75.49 | 6.75 | 13.56 | -68.68 | -13.00 | -55.68 |

| | |
|---|--|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: GSM 1900 / TX / CH810 |

| Frequency (MHz) | Reading level (dBuV) | Antenna Polarization | S.G. (dBm) | Cable loss (dB) | Ant.Gain (dBd) | level Emission (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|----------------------|----------------------|------------|-----------------|----------------|----------------------|-------------|-------------|
| 3819.82 | 27.91 | V | -74.14 | 6.84 | 14.25 | -66.73 | -13.00 | -53.73 |
| 3819.77 | 26.03 | H | -73.54 | 6.84 | 14.25 | -66.13 | -13.00 | -53.13 |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

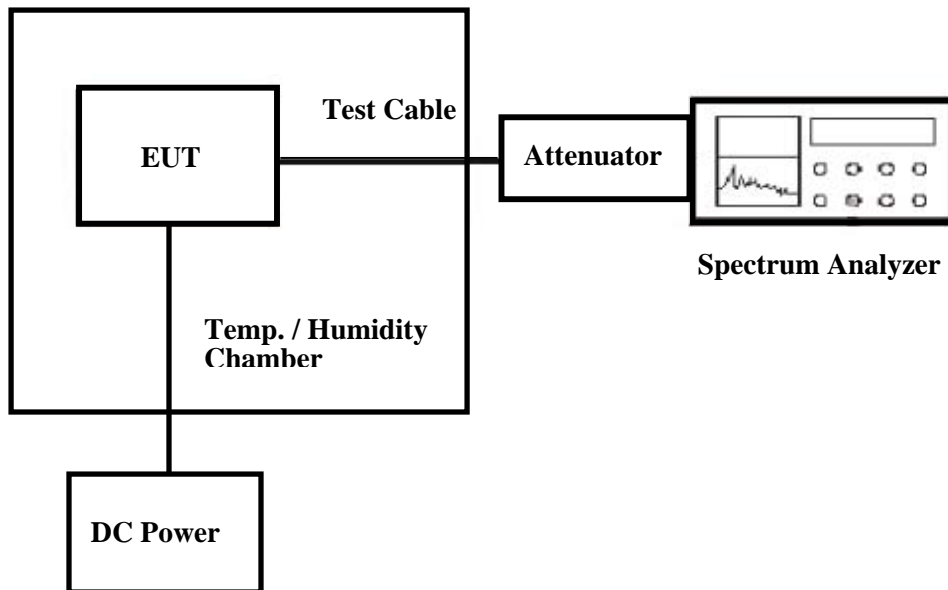
2. Measurements above shown only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
5. Spectrum setting:
 - a). Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b). AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

9. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

9.1 Applicable Standard

According to FCC § 2.1055, FCC § 24.235. Frequency Tolerance: 2.5 ppm

9.2 EUT Setup



9.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|--------------|-----------|---------------|-----------------|
| DC Power Supply | GW instek | GPS-3303C | E903131 | 04/15/2008 |
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |
| Temp. / Humidity Chamber | Kingson | THS-M1 | 242 | 05/26/2008 |

9.4 Test Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20oC operating

frequency as reference frequency. Turn EUT off and set the chamber temperature to -30oC. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10oC increased per stage until the highest temperature of +50oC reached.

9.5 Test Result

| | |
|---|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Tx Mode |

| Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C | | | | |
|---|------------------------------|----------------|------------|------------|
| Limit: ± 2.5 ppm = 2091.5 Hz | | | | |
| Power Supply V/DC | Environment Temperature (°C) | Frequency (Hz) | Delta (Hz) | Limit (Hz) |
| 3.7 | 50 | 836600021 | 39.00 | 2091.5 |
| | 40 | 836600025 | 43.00 | |
| | 30 | 836600019 | 37.00 | |
| | 20 | 836599982 | 0.00 | |
| | 10 | 836600023 | 41.00 | |
| | 0 | 836600021 | 39.00 | |
| | -10 | 836600030 | 48.00 | |
| | -20 | 836600028 | 46.00 | |
| | -30 | 836600032 | 50.00 | |

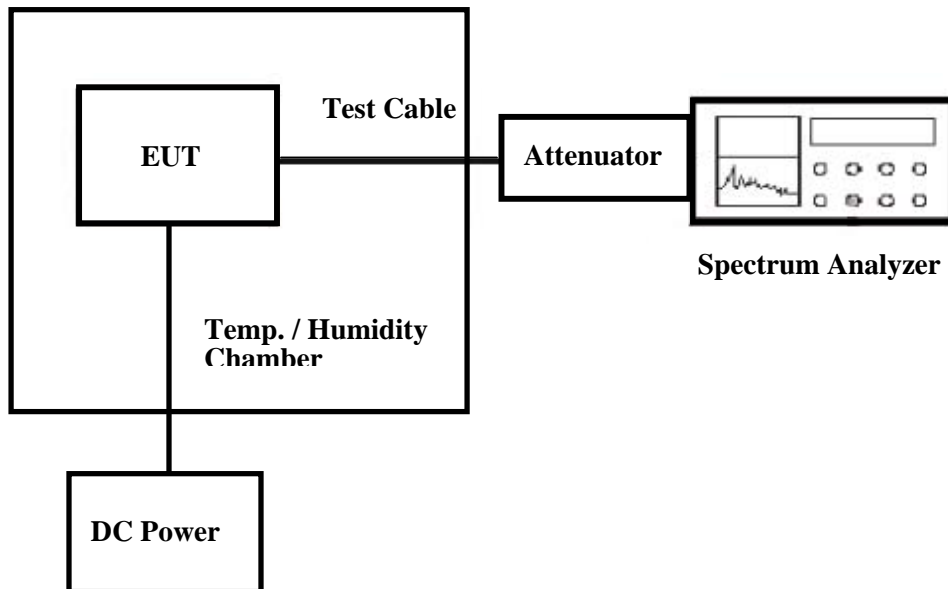
| Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C | | | | |
|--|------------------------------|----------------|------------|------------|
| Limit: ± 2.5 ppm = 4700 Hz | | | | |
| Power Supply V/DC | Environment Temperature (°C) | Frequency (Hz) | Delta (Hz) | Limit (Hz) |
| 3.7 | 50 | 1879999975 | -38.00 | 4700 |
| | 40 | 1879999977 | -36.00 | |
| | 30 | 1879999973 | -40.00 | |
| | 20 | 1880000013 | 0.00 | |
| | 10 | 1879999986 | -27.00 | |
| | 0 | 1879999974 | -39.00 | |
| | -10 | 1879999978 | -35.00 | |
| | -20 | 1879999980 | -33.00 | |
| | -30 | 1879999978 | -35.00 | |

10. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

10.1 Applicable Standard

According to FCC § 2.1055, FCC § 24.235, Frequency Tolerance: 2.5 ppm.

10.2 EUT Setup



10.3 Test Equipment List and Details

| Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------------|--------------|-----------|---------------|-----------------|
| DC Power Supply | GW instek | GPS-3303C | E903131 | 04/15/2008 |
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/16/2008 |
| Wireless Communication Test Set | Agilent | 8960 | QB44051695 | 10/06/2008 |
| Temp. / Humidity Chamber | Kingson | THS-M1 | 242 | 05/26/2008 |

10.4 Test Procedure

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

10.5 Test Result

| | |
|---|------------------------------|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Tx Mode |

| Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C | | | | |
|---|------------------------------|----------------|------------|------------|
| Limit: ± 2.5 ppm = 2091.5Hz | | | | |
| Power Supply V/DC | Environment Temperature (°C) | Frequency (Hz) | Delta (Hz) | Limit (Hz) |
| 4.3 | 20 | 836599978 | -3 | 2091.5 |
| 3.7 | | 836599981 | 0 | |
| 3.2 (End Point) | | 836599974 | -7 | |

| Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C | | | | |
|--|------------------------------|----------------|------------|------------|
| Limit: ± 2.5 ppm = 4700 Hz | | | | |
| Power Supply V/DC | Environment Temperature (°C) | Frequency (Hz) | Delta (Hz) | Limit (Hz) |
| 4.3 | 20 | 1880000028 | 7 | 4700 |
| 3.7 | | 1880000021 | 0 | |
| 3.2 (End Point) | | 1880000022 | 1 | |

11. SPURIOUS RADIATION MEASUREMENT OF OTHER MODE

11.1 Applicable Standard

According to FCC Section 15.209 (a), the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|--------------------|--------------------------------------|----------------------------------|
| 0.009 - 0.490 | 2400/F(kHz) | 300 |
| 0.490 - 1.705 | 24000/F(kHz) | 30 |
| 1.705 - 30.0 | 30 | 30 |
| 30 - 88 | 100 ** | 3 |
| 88 - 216 | 150 ** | 3 |
| 216 - 960 | 200 ** | 3 |
| Above 960 | 500 | 3 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

11.2 EUT Setup

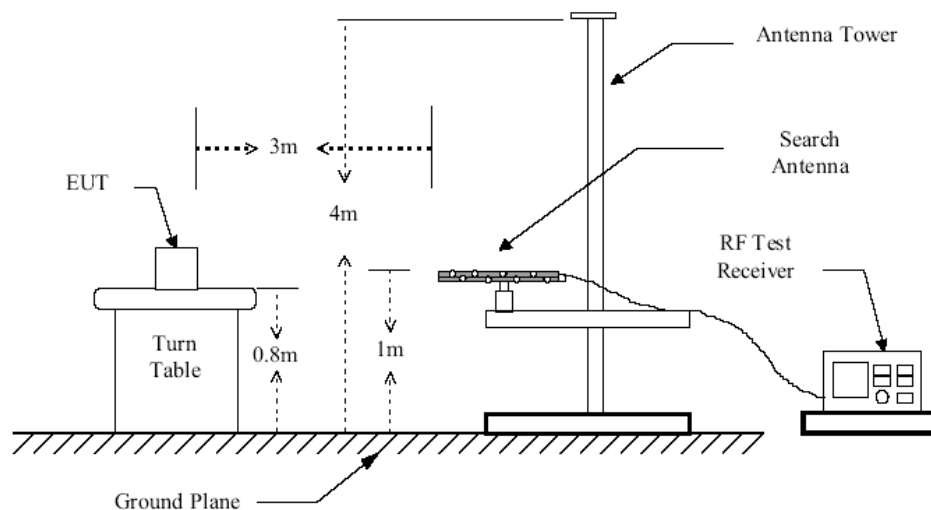


Figure 1 : Frequencies measured below 1 GHz configuration

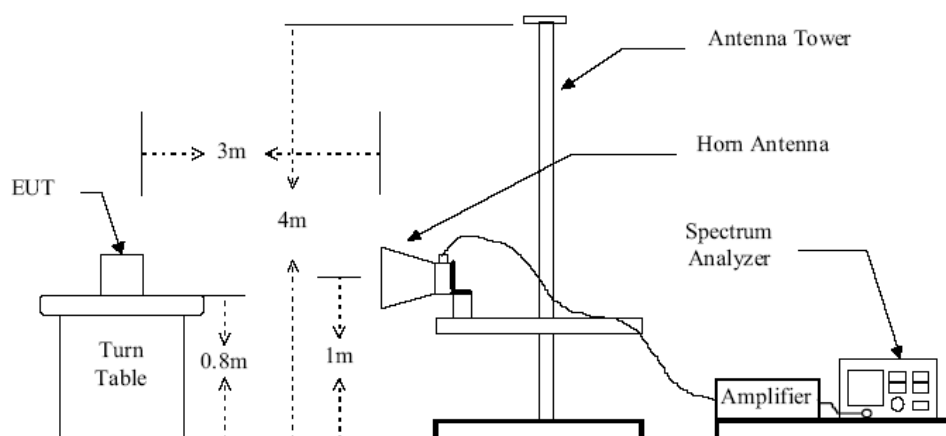


Figure 2 : Frequencies measured above 1 GHz configuration

11.3 Test Equipment List and Details

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal | Calibration Period |
|-------------------------------|--------------|-----------|------------|------------|--------------------|
| EMI Test Receiver | R&S | ESCI | 100687 | 2008/11/17 | 1 Year |
| EMI Test Receiver | R&S | ESPI | 100097 | 2008/11/17 | 1 Year |
| Amplifier | HP | 8447D | 1937A02492 | 2008/11/17 | 1 Year |
| TRILOG Broadband Test-Antenna | SCHWARZBECK | VULB9163 | 9163-324 | 2008/11/17 | 1 Year |
| Horn Antenna | SCHWARZBECK | BBHA9120A | D69250 | 2008/11/17 | 1 Year |

11.4 Test Procedure

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. Power on the EUT and all the supporting units.
5. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scanned (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.

8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

11.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB μ V means the emission is 7dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

11.6 Test Result

| | |
|---|---|
| Temperature (°C) : 22~23 | EUT: Mobile Phone |
| Humidity (%RH) : 50~54 | M/N: KT618 |
| Barometric Pressure (mbar) : 950~1000 | Operation Condition: Charging Mode/ FM Mode |

Remark: (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.

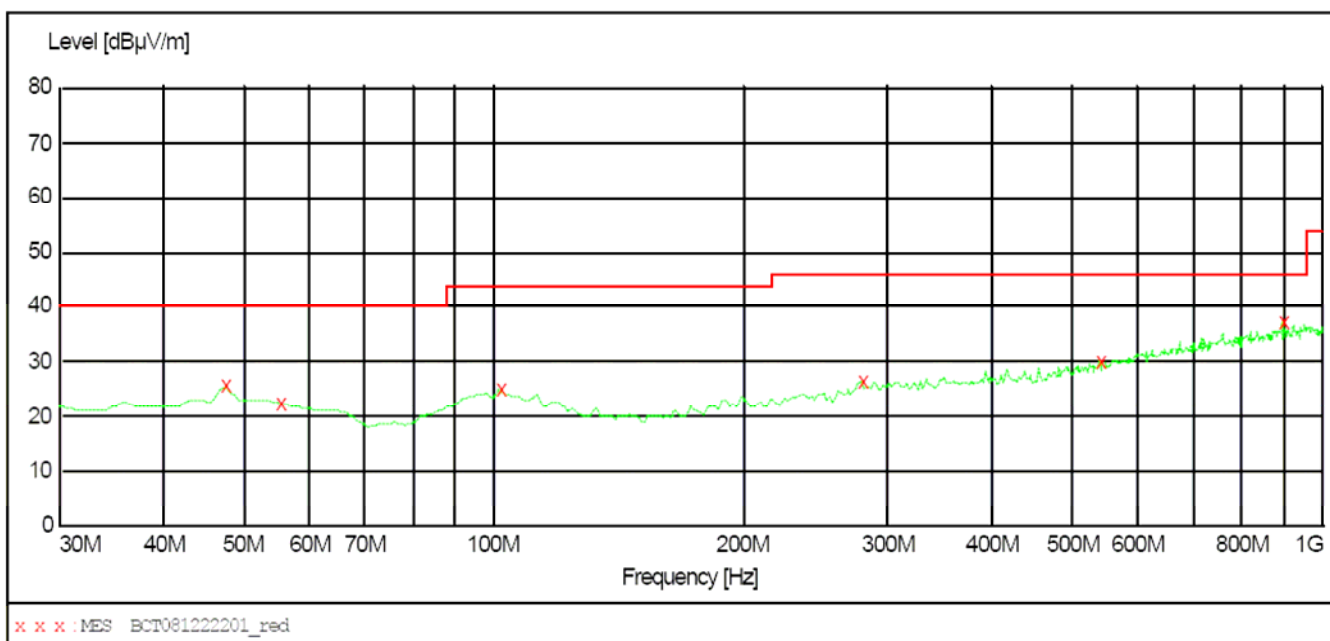
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: Charging
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: AC 120V/60Hz from AC/DC adaptor
Comment: Polarisation:H

SWEEP TABLE: "test (30M-1G)1"

| | | | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Short Description: | | Field Strength | | | |
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081222201_red"

12/22/2008 09:44

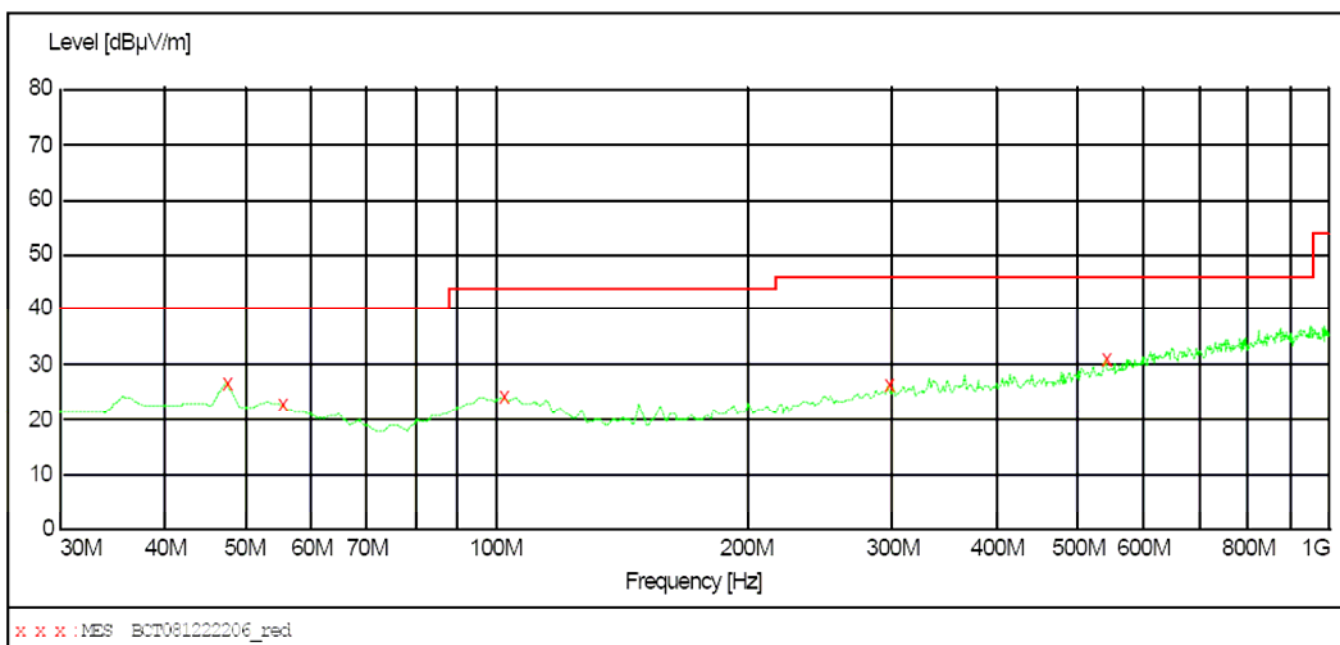
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 25.60 | 16.7 | 40.0 | 14.4 | --- | 100.0 | 0.00 | HORIZONTAL |
| 55.220000 | 22.40 | 16.5 | 40.0 | 17.6 | --- | 100.0 | 0.00 | HORIZONTAL |
| 101.780000 | 24.90 | 18.2 | 43.5 | 18.6 | --- | 100.0 | 0.00 | HORIZONTAL |
| 278.320000 | 26.40 | 19.4 | 46.0 | 19.6 | --- | 100.0 | 0.00 | HORIZONTAL |
| 540.220000 | 30.00 | 23.8 | 46.0 | 16.0 | --- | 100.0 | 0.00 | HORIZONTAL |
| 895.240000 | 37.20 | 29.2 | 46.0 | 8.8 | --- | 100.0 | 0.00 | HORIZONTAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: Charging
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: AC 120V/60Hz from AC/DC adaptor
Comment: Polarisation:V

SWEEP TABLE: "test (30M-1G)1"

| | | | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Short Description: | | Field Strength | | | |
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081222206_red"

12/22/2008 09:52

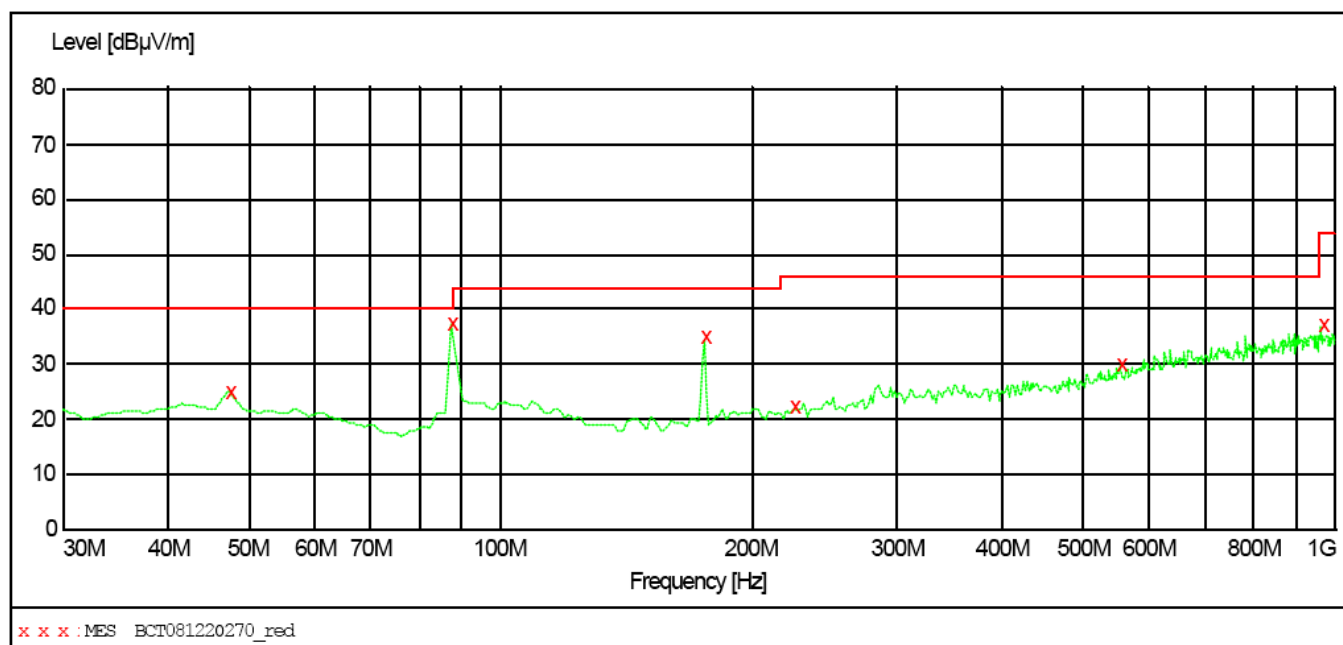
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 26.80 | 16.7 | 40.0 | 13.2 | --- | 100.0 | 0.00 | VERTICAL |
| 55.220000 | 22.60 | 16.5 | 40.0 | 17.4 | --- | 100.0 | 0.00 | VERTICAL |
| 101.780000 | 24.10 | 18.2 | 43.5 | 19.4 | --- | 100.0 | 0.00 | VERTICAL |
| 295.780000 | 26.40 | 20.0 | 46.0 | 19.6 | --- | 100.0 | 0.00 | VERTICAL |
| 540.220000 | 30.90 | 23.8 | 46.0 | 15.1 | --- | 100.0 | 0.00 | VERTICAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: FM receiving mode (88MHz)
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
Comment: Polarisation:H

SWEEP TABLE: "test (30M-1G) "

| Short Description: | | Field Strength | | | |
|--------------------|-----------|----------------|------------|-----------|--------------|
| Start | Stop | Detector | Meas. Time | IF Bandw. | Transducer |
| Frequency | Frequency | | | | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220270_red"

12/20/2008 20:25

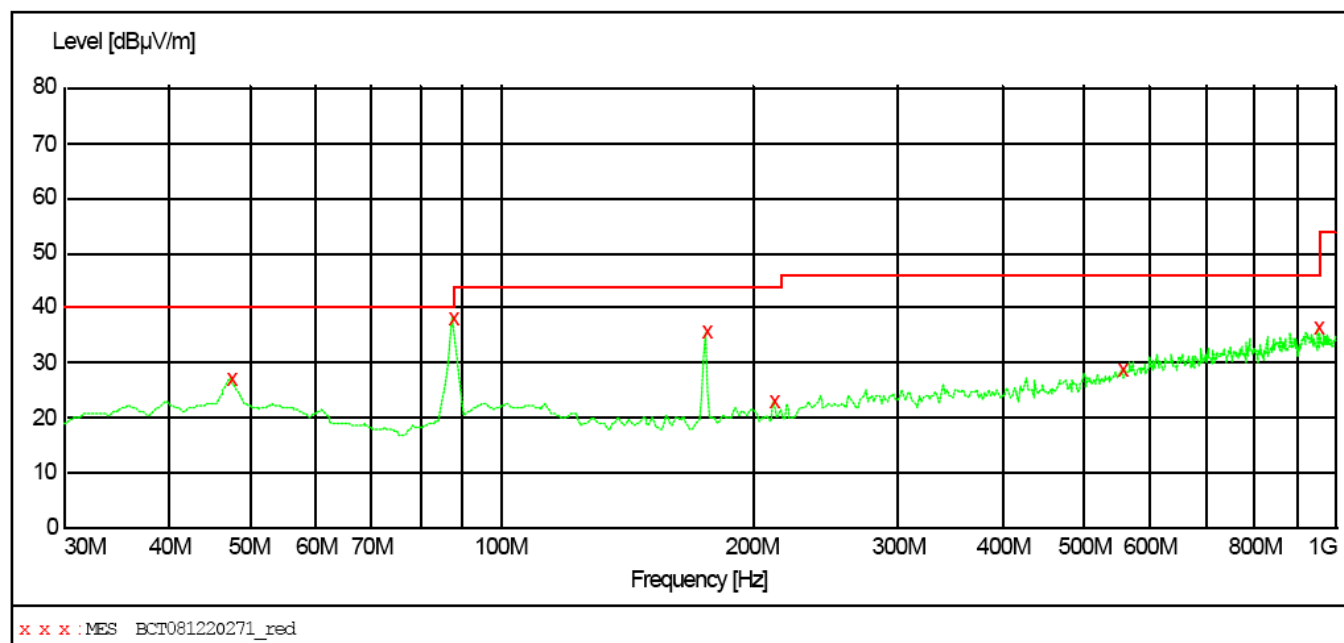
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 25.10 | 16.7 | 40.0 | 14.9 | QP | 100.0 | 0.00 | HORIZONTAL |
| 88.000000 | 37.40 | 17.0 | 40.0 | 2.6 | QP | 100.0 | 0.00 | HORIZONTAL |
| 175.500000 | 34.80 | 17.6 | 43.5 | 8.7 | QP | 100.0 | 0.00 | HORIZONTAL |
| 225.940000 | 22.20 | 17.4 | 46.0 | 23.8 | QP | 100.0 | 0.00 | HORIZONTAL |
| 553.800000 | 29.80 | 24.1 | 46.0 | 16.2 | QP | 100.0 | 0.00 | HORIZONTAL |
| 965.080000 | 36.90 | 29.8 | 54.0 | 17.1 | QP | 100.0 | 0.00 | HORIZONTAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: FM receiving mode (88MHz)
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
Comment: Polarisation:V

SWEEP TABLE: "test (30M-1G) "

| Short Description: | | Field Strength | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220271_red"

12/20/2008 20:22

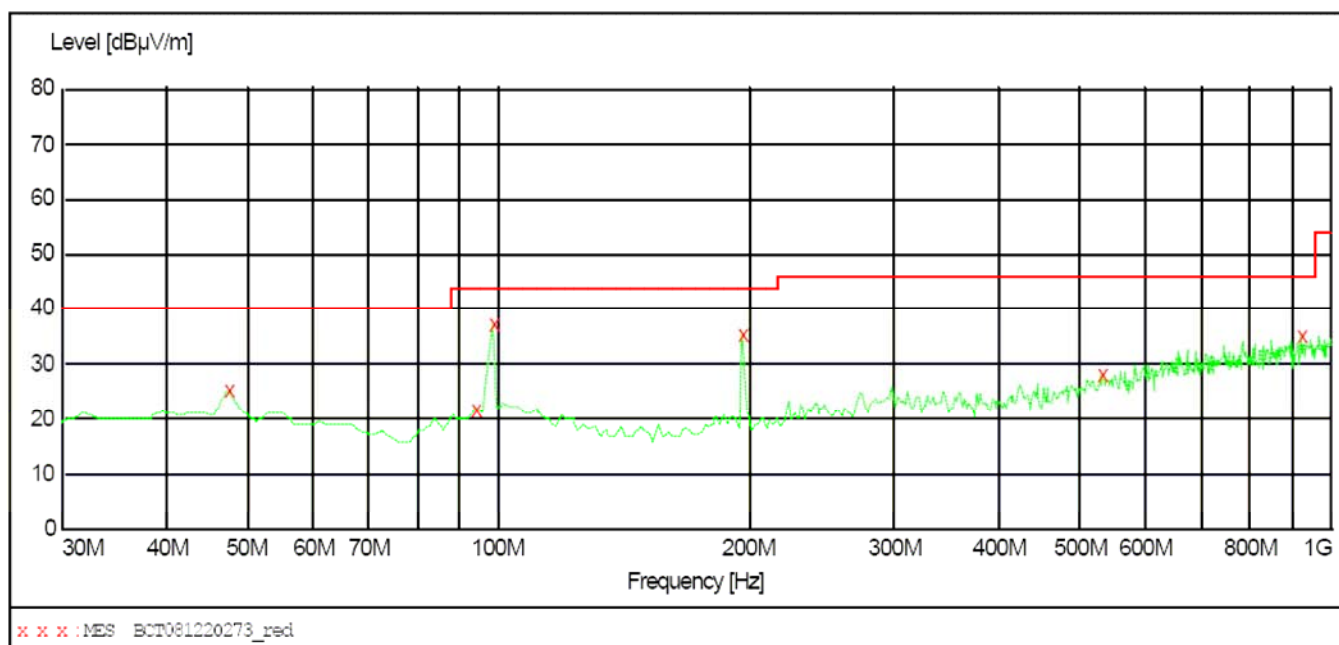
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 27.10 | 16.7 | 40.0 | 12.9 | QP | 100.0 | 0.00 | VERTICAL |
| 88.000000 | 38.20 | 15.7 | 40.0 | 1.8 | QP | 100.0 | 0.00 | VERTICAL |
| 175.500000 | 35.50 | 18.2 | 43.5 | 8.0 | QP | 100.0 | 0.00 | VERTICAL |
| 212.360000 | 23.10 | 16.9 | 43.5 | 20.4 | QP | 100.0 | 0.00 | VERTICAL |
| 553.800000 | 28.60 | 24.1 | 46.0 | 17.4 | QP | 100.0 | 0.00 | VERTICAL |
| 951.500000 | 36.40 | 29.7 | 46.0 | 9.6 | QP | 100.0 | 0.00 | VERTICAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: FM receiving mode (98MHz)
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
Comment: Polarisation:H

SWEEP TABLE: "test (30M-1G)"

| Short Description: | | Field Strength | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220273_red"

12/20/2008 20:13

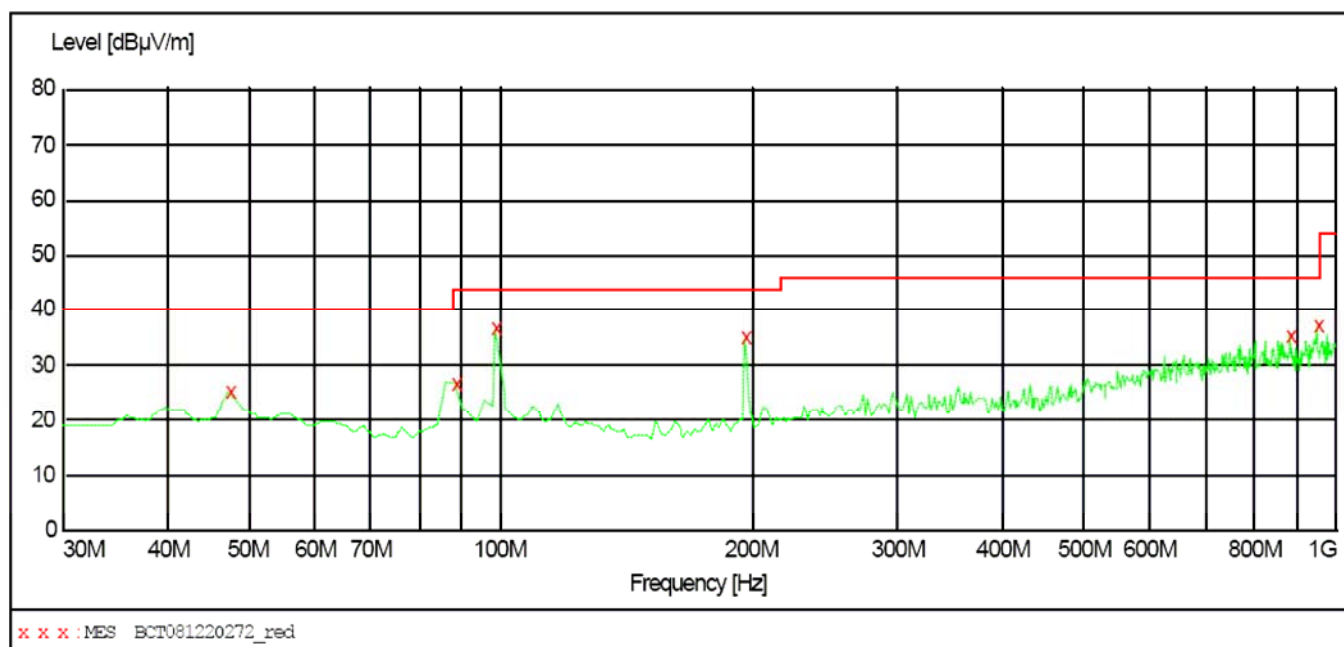
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 25.30 | 16.7 | 40.0 | 14.7 | QP | 100.0 | 0.00 | HORIZONTAL |
| 94.020000 | 21.70 | 17.8 | 43.5 | 21.8 | QP | 100.0 | 0.00 | HORIZONTAL |
| 98.000000 | 37.20 | 18.2 | 43.5 | 6.3 | QP | 100.0 | 0.00 | HORIZONTAL |
| 196.500000 | 35.30 | 17.2 | 43.5 | 8.2 | QP | 100.0 | 0.00 | HORIZONTAL |
| 528.580000 | 28.30 | 23.4 | 46.0 | 17.7 | QP | 100.0 | 0.00 | HORIZONTAL |
| 922.400000 | 35.00 | 29.4 | 46.0 | 11.0 | QP | 100.0 | 0.00 | HORIZONTAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
 Operating Condition: FM receiving mode (98MHz)
 Test Site: 3m CHAMBER
 Operator: Jimmy
 Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
 Comment: Polarisation:V

SWEEP TABLE: "test (30M-1G)"

| | | | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Short Description: | | Field Strength | | | |
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220272_red"

12/20/2008 20:19

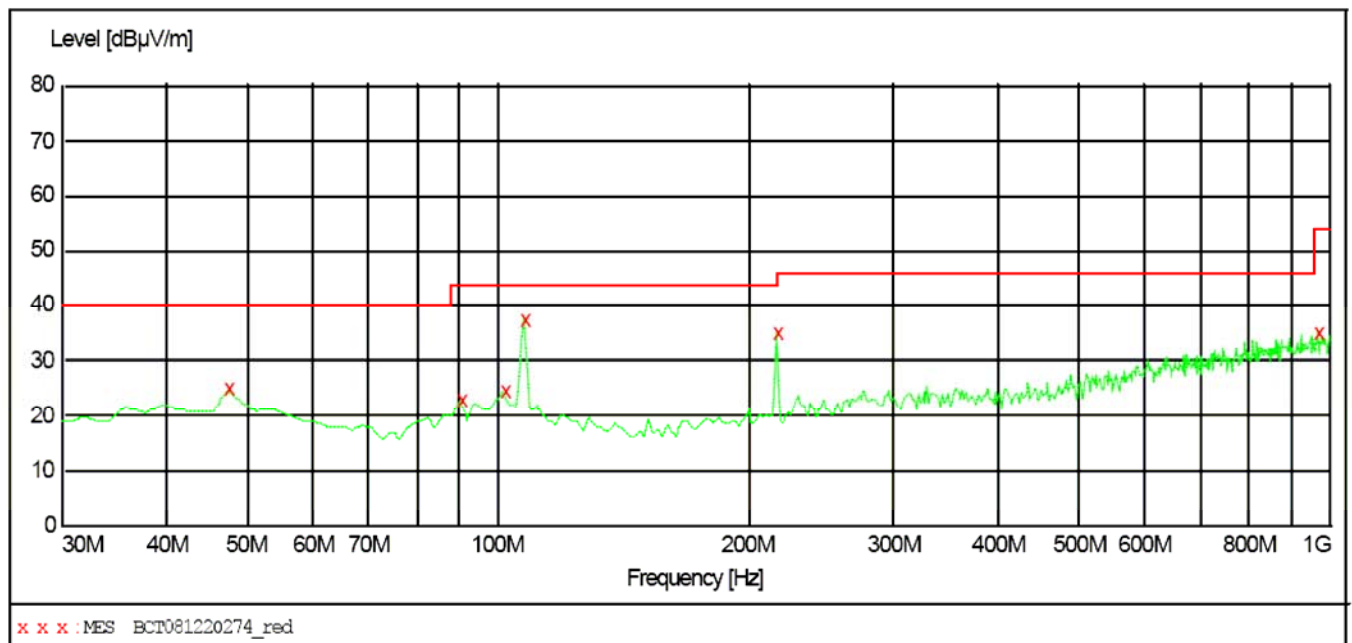
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 25.30 | 16.7 | 40.0 | 14.7 | QP | 100.0 | 0.00 | VERTICAL |
| 88.200000 | 26.80 | 16.4 | 43.5 | 16.7 | QP | 100.0 | 0.00 | VERTICAL |
| 98.000000 | 36.80 | 16.4 | 43.5 | 6.7 | QP | 100.0 | 0.00 | VERTICAL |
| 196.500000 | 35.00 | 16.9 | 43.5 | 8.5 | QP | 100.0 | 0.00 | VERTICAL |
| 885.540000 | 35.40 | 29.1 | 46.0 | 10.6 | QP | 100.0 | 0.00 | VERTICAL |
| 951.500000 | 37.00 | 29.7 | 46.0 | 9.0 | QP | 100.0 | 0.00 | VERTICAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: FM receiving mode (108MHz)
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
Comment: Polarisation:H

SWEEP TABLE: "test (30M-1G) "

| Short Description: | | Field Strength | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220274_red"

12/20/2008 20:11

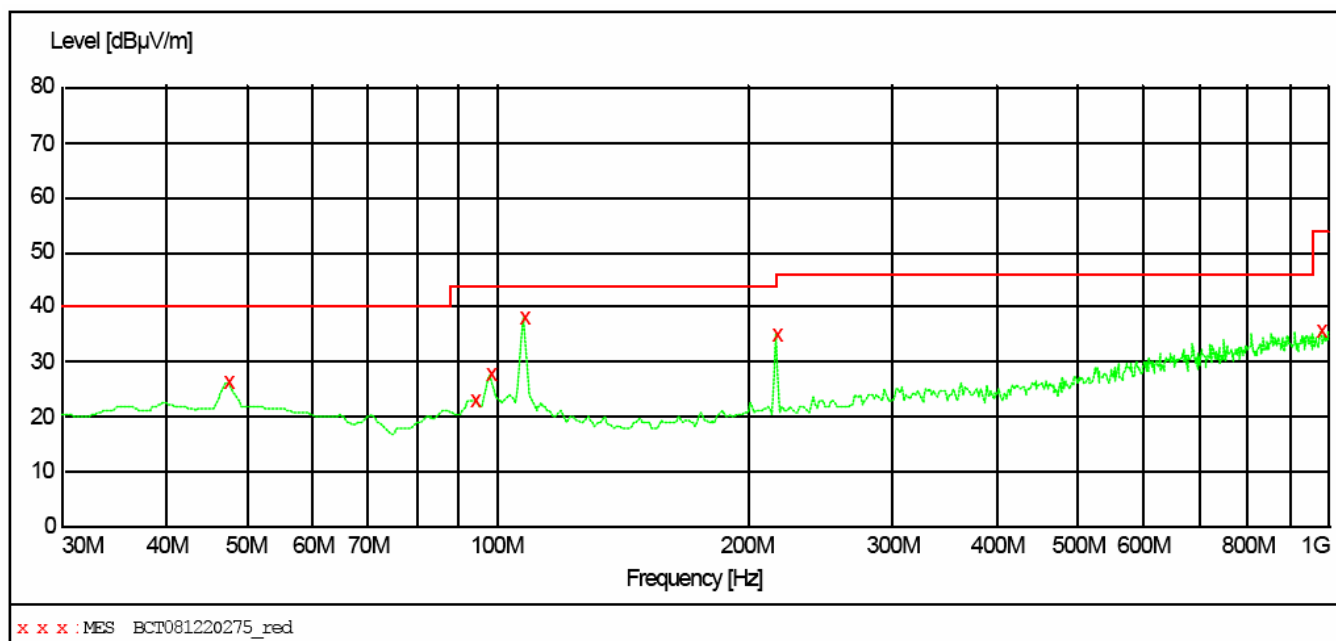
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 24.60 | 16.7 | 40.0 | 15.4 | QP | 100.0 | 0.00 | HORIZONTAL |
| 90.140000 | 22.70 | 17.0 | 43.5 | 20.8 | | 100.0 | 0.00 | HORIZONTAL |
| 101.780000 | 24.50 | 18.2 | 43.5 | 19.0 | QP | 100.0 | 0.00 | HORIZONTAL |
| 108.000000 | 37.50 | 17.6 | 43.5 | 5.5 | QP | 100.0 | 0.00 | HORIZONTAL |
| 216.500000 | 35.00 | 23.9 | 46.0 | 18.7 | QP | 100.0 | 0.00 | HORIZONTAL |
| 970.900000 | 35.20 | 29.8 | 54.0 | 18.8 | QP | 100.0 | 0.00 | HORIZONTAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: FM receiving mode (108MHz)
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
Comment: Polarisation:V

SWEEP TABLE: "test (30M-1G) "

| Short Description: | | Field Strength | | | |
|--------------------|-----------|----------------|------------|-----------|--------------|
| Start | Stop | Detector | Meas. Time | IF Bandw. | Transducer |
| Frequency | Frequency | | | | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220275_red"

12/20/2008 20:06

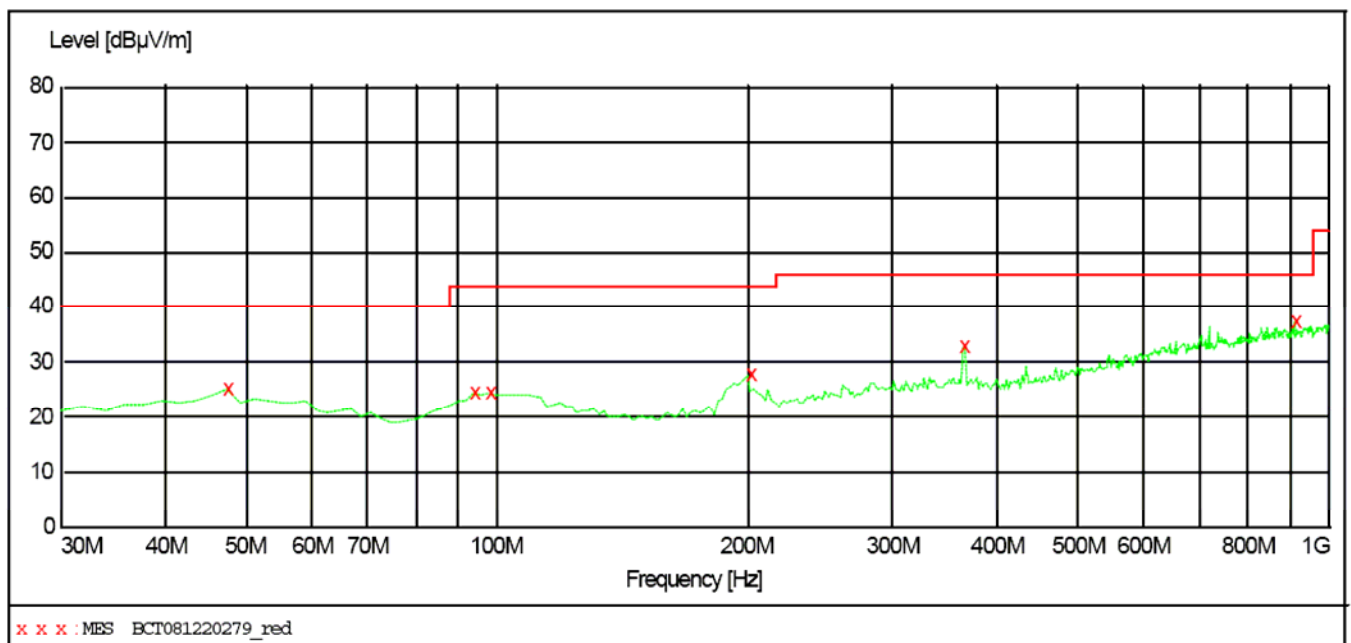
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 26.40 | 16.7 | 40.0 | 13.6 | QP | 100.0 | 0.00 | VERTICAL |
| 94.020000 | 23.00 | 17.8 | 43.5 | 17.0 | QP | 100.0 | 0.00 | VERTICAL |
| 97.900000 | 27.80 | 18.2 | 43.5 | 12.2 | QP | 100.0 | 0.00 | VERTICAL |
| 108.000000 | 38.00 | 16.9 | 43.5 | 5.5 | QP | 100.0 | 0.00 | VERTICAL |
| 216.500000 | 35.00 | 23.3 | 46.0 | 11.0 | QP | 100.0 | 0.00 | VERTICAL |
| 980.600000 | 35.70 | 29.9 | 54.0 | 18.3 | QP | 100.0 | 0.00 | VERTICAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
Operating Condition: MP3 playing mode
Test Site: 3m CHAMBER
Operator: Jimmy
Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
Comment: Polarisation:H

SWEEP TABLE: "test (30M-1G)"

| Short Description: | | Field Strength | | | |
|--------------------|-----------|----------------|---------|---------|--------------|
| Start | Stop | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | | Time | Bandw. | |
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220279_red"

12/20/2008 20:25

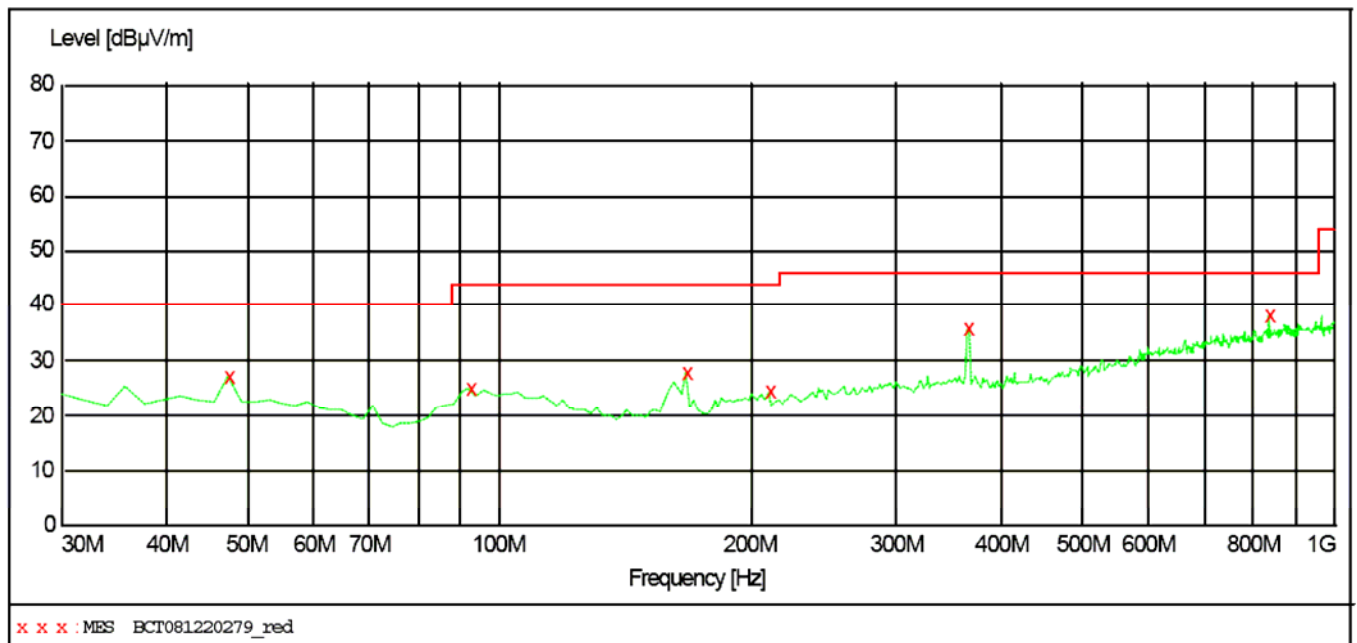
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 25.30 | 16.7 | 40.0 | 14.7 | QP | 100.0 | 0.00 | HORIZONTAL |
| 94.020000 | 24.50 | 17.8 | 43.5 | 19.0 | QP | 100.0 | 0.00 | HORIZONTAL |
| 97.900000 | 24.50 | 18.2 | 43.5 | 19.0 | QP | 100.0 | 0.00 | HORIZONTAL |
| 200.720000 | 27.70 | 16.9 | 43.5 | 15.8 | QP | 100.0 | 0.00 | HORIZONTAL |
| 365.620000 | 32.70 | 20.8 | 46.0 | 13.3 | QP | 100.0 | 0.00 | HORIZONTAL |
| 908.820000 | 37.50 | 29.3 | 46.0 | 8.5 | QP | 100.0 | 0.00 | HORIZONTAL |

RADIATED EMISSION TEST DATA

EUT: Mobile Phone
 Operating Condition: MP3 playing mode
 Test Site: 3m CHAMBER
 Operator: Jimmy
 Test Specification: DC 4.2 V from inner rechargeable Li-ion battery
 Comment: Polarisation:V

SWEEP TABLE: "test (30M-1G)"

| Short Description: | | Field Strength | | | |
|--------------------|-------------------|----------------|------------|-----------|--------------|
| Start | Stop | Detector | Meas. Time | IF Bandw. | Transducer |
| Frequency 30.0 MHz | Frequency 1.0 GHz | MaxPeak | Coupled | 100 kHz | VULB9163 NEW |



MEASUREMENT RESULT: "BCT081220280_red"

12/20/2008 20:29

| Frequency MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 47.460000 | 27.20 | 16.7 | 40.0 | 12.8 | QP | 100.0 | 0.00 | VERTICAL |
| 92.080000 | 25.00 | 17.4 | 43.5 | 18.5 | QP | 100.0 | 0.00 | VERTICAL |
| 167.740000 | 28.00 | 14.9 | 43.5 | 15.5 | QP | 100.0 | 0.00 | VERTICAL |
| 210.420000 | 24.40 | 16.9 | 43.5 | 19.1 | QP | 100.0 | 0.00 | VERTICAL |
| 365.620000 | 35.50 | 20.8 | 46.0 | 10.5 | QP | 100.0 | 0.00 | VERTICAL |
| 835.100000 | 38.00 | 28.5 | 46.0 | 8.0 | QP | 100.0 | 0.00 | VERTICAL |