FCC CFR47 CERTIFICATION

PART 24E

TEST REPORT

FOR

SMARTPHONE

MODEL: PC20B

FCC ID: NM8TANAGER

REPORT NUMBER: 02T1665-1

ISSUE DATE: DECEMBER 6, 2002

Prepared for
HIGH TECH COMPUTER, CORP.
1F, 6-3, BAU-CHIAN ROAD
HSINTIEN, TAIPEI, TAIWAN

Prepared by
COMPLIANCE CERTIFICATION SERVICES
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TABLE OF CONTENT

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1. TEST RESULT CERTIFICATION

COMPANY NAME: HIGH TECH COMPUTER, CORP.
1F, 6-3, BAU-CHIAN ROAD
HSINTIEN, TAIPEI, TAIWAN

CONTACT PERSON: JESSE KUO

EUT DESCRIPTION: SMARTPHONE

MODEL NAME: PC20B

DATE TESTED: DECEMBER 6, 2002

TYPE OF EQUIPMENT	LICENSED PORTABLE TRANSMITTER
EQUIPMENT TYPE	LICENSED PART 24 GSM/GPRS CELLULAR PHONE
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992, TIA/EIA 603
PROCEDURE	CERTIFICATION
FCC RULE	CFR 47 PART 24 Subpart E

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirement set forth in CFR 47, PART 24 Subpart E-Broadband PCS. The equipment in the configuration described in this report, shows the measured emission levels emanating from the equipment do not exceed the specified limit.

Note : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document.

Tested By:

FRANK IBRAHIM
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Tested By:

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COMPLIANCE CERTIFICATION SERVICES

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CHIEF ENGINEER
COMPLIANCE CERTIFICATION SERVICES

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2. EUT DESCRIPTION

This equipment is a single mode portable mobile station of which the frequency range is 1850 – 1909 MHz. It has output power ~29.3dBm / 851.13mW (EIRP).

3. FACILITIES, LABORATORY AND ACCREDITATION

3.1. Facilities

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 16.

3.2. Laboratory Accreditation

The laboratory and associated test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2)).

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3.3. List of Accreditations

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	FCC Part 15, CISPR 22, AS/NZS 3548,IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, CNS 13438	NVLAP® 200065-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	FC 1300
Japan	VCCI	CISPR 22 Two OATS and one conducted Site	VCCI R-1014, R-619, C-640
Norway	NEMKO	EN50081-1, EN50081-2, EN50082-1, EN50082-2, IEC61000-6-1, IEC61000-6-2, EN50083-2, EN50091-2, EN50130-4, EN55011, EN55013, EN55014-1, EN55104, EN55015, EN61547, EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60945, EN61326-1	N ELA 117
Norway	NEMKO	EN60601-1-2 and IEC 60601-1-2, the Collateral Standards for Electro-Medical Products. MDD, 93/42/EEC, AIMD 90/385/EEC	N ELA-171
Taiwan	BSMI	CNS 13438	SL2-IN-E-1012
Canada	Industry Canada	RSS210 Low Power Transmitter and Receiver	Canada IC2324 A,B,C, and F

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4. CALIBRATION, METHODOLOGY AND UNCERTAINTY

4.1. Equipment 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.

4.2. Test Methodology

Conducted and radiated testing were performed according to the procedures documented on chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specifications for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

4.3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Radiated Emission	
30MHz – 200 MHz	+/- 3.3dB
200MHz – 1000MHz	+4.5/-2.9dB
1000MHz – 2000MHz	+4.6/-2.2dB
Power Line Conducted Emission	
150kHz – 30MHz	+/-2.9

Any results falling within the above values are deemed to be marginal.

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4.4. Test and Measurement Equipment

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENTS LIST				
Name of Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Due Date**
Spectrum Display	**HP**	**85662A**	**2152A03066**	**6/1/03**
Spectrum Analyzer	**HP100Hz - 22GHz**	**8566B**	**3014A06685**	**6/1/03**
Quasi-Peak Detector	**HP9K - 1GHz**	**85650A**	**3145A01654**	**6/1/03**
Horn Antenna	**EMCO**	**3115**	**6739**	**1/31/03**
Horn Antenna(1 - 18GHz)	**EMCO**	**3115**	**2238**	**N/A**
Signal Generator	**HP**	**83732B**	**US34490599**	**3/9/03**
Pre-amplifier,35.5 dB (1 - 26.5GHz)	**HP**	**8449B**	**3008A00369**	**6/30/03**
DC Power Supply	**HP**	**6235**	**2450A-08312**	**N/A**
Multimeter	**Fluke**	**26III**	**74380619**	**N/A**
Environmental Chamber	**Thermotron**	**SE-600-10-10**	**29800**	**4/26/03**

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5. APPLICABLE RULES

5.1. RF POWER OUTPUT §2.1046

§ 24.232- POWER LIMIT

§24.232(a) Maximum Peak output power for base station transmitters should not exceed 100 Watts EIRP (equivalent isotropically radiated power).

§24.232(b) Mobile stations are limited to 2 Watts EIRP.

5.2. MODULATION CHARACTERISTICS §2.1047

Not applicable.

5.3. OCCUPIED BANDWIDTH §2.1049

§2.1049(i) Transmitters designed for other types of modulation – when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

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5.4. SPURIOUS EMISSIONS AT ANTENNA TERMINALS §2.1051

§ 24.238- EMISSION LIMITS

§24.238(a) The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not be less than 43+10 log (mean output power in watts) dBc below the mean power output outside a licensee's frequency block (-13dBm).

5.5. FIELD STRENGTH OF SPURIOUS RADIATION §2.1053

§ 24.238- EMISSION LIMITS

§24.238(a) The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not be less than 43+10 log (mean output power in watts) dBc below the mean power output outside a licensee's frequency block (-13dBm).

5.6. FREQUENCY STABILITY §2.1055

§24.235 The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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5.7. FREQUENCY RANGE TO BE INVESTIGATED §2.1057

§2.1057(a) In all of the measurements set forth in §2.1051 and §2.1053, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the equipment operates at or above 10 GHz and below 30 GHz:
to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the equipment operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.

§2.1057(b) Particular attention should be paid to harmonics and sub-harmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

§2.1057(c) The amplitude of spurious emissions, which are attenuated more than 20 dB below the permissible value, need not be reported.

§2.1057(d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

Spec limit: Frequency investigation range from 10 MHz to 20 GHz.

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6. TEST SETUP, PROCEDURE AND RESULT

6.1. SECTION 2.1046: RF POWER OUTPUT

INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/11/03
Amplifier	MITEQ	NSP2600-44	4/26/03
Horn Antenna	EMCO	3115 SN: 6739	1/31/03
Horn Antenna	EMCO	3115 SN: 6717	1/31/03

MEASUREMENT PROCEDURE

1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.

2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the frequency of the transmitter.

3). The output of the test antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.

6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.

8). The maximum signal level detected by the measuring receiver shall be noted.

9). The transmitter shall be replaced by a tuned dipole (substitution antenna).

10). The substitution antenna shall be oriented for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.

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11). The substitution antenna shall be connected to a calibrated signal generator.

12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

Test result:

Modulation	***Max Output Power(dBm)***	***Max Output Power(mW)***
PCS 1900MHz	***29.3 (EIRP)***	***851.13***

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PCS 1900MHz Output Power (EIRP):

12/5/02 **FCC Measurement**

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Frank Ibrahim
Project #: 02T1665-1
Company: High Tech Computer, Corp.
EUT Descrip.: Smart Phone
EUT M/N: PC20B
Test Target: FCC Part 24
Mode Oper: TX

Frequency (GHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Fundamental Low, Mid,& High Channels:								
1.850	102.50	22.00	0.9	8.20	**29.30**	33.00	-3.70	H
1.880	103.10	21.80	0.9	8.20	**29.10**	33.00	-3.90	H
1.910	102.00	21.70	0.9	8.20	**29.00**	33.00	-4.00	H

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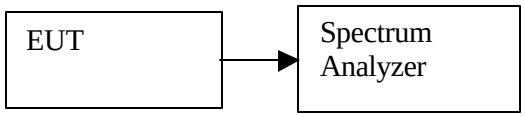
6.2. OCCUPIED BANDWIDTH

TEST SETUP

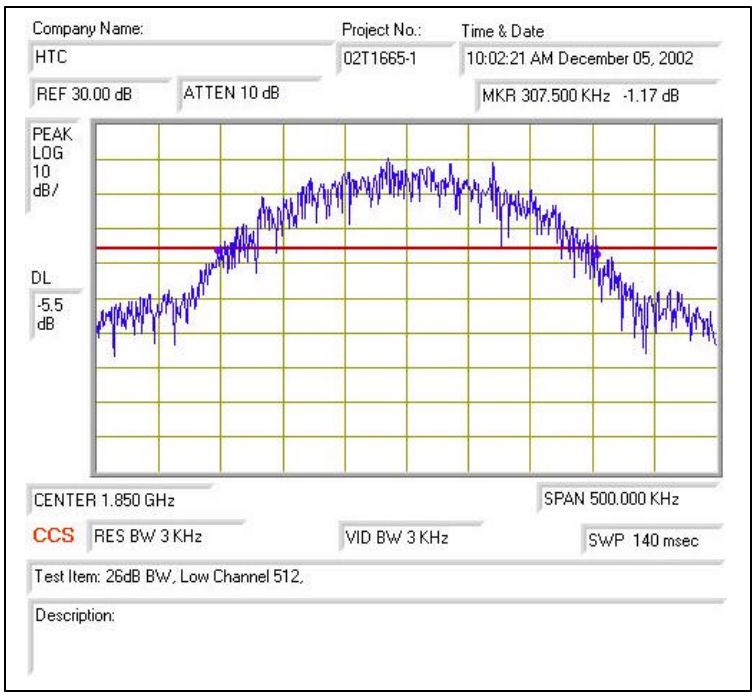


TEST PROCEDURE

The EUT's output RF connector (made solely for the purpose of the test) was connected with a short cable to the spectrum analyzer, RES BW was set to about 1% of emission BW , -26 dBc display line was placed on the screen, the occupied BW is the delta frequency between the two points where the display line intersects the signal trace.

RESULT

No non-compliance noted.



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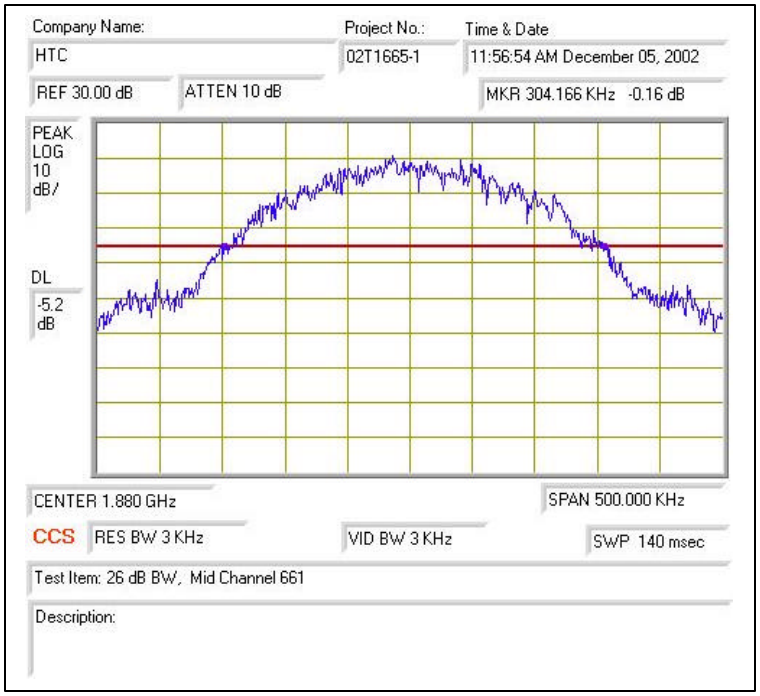

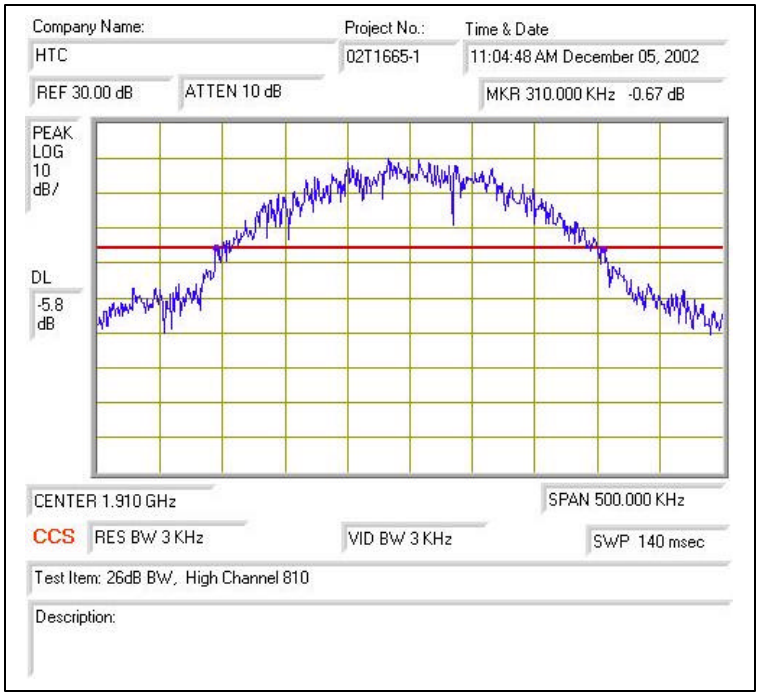

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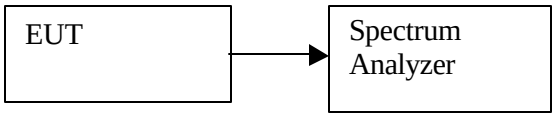
6.3. SPURIOUS EMISSION AT ANTENNA TERMINAL

TEST SETUP



TEST PROCEDURE

1) EUT's RF output connector (made solely for the purpose of the test) is connected to the spectrum analyzer, RBW was set to 1MHz and VBW to 1MHz, the spectrum of 10MHz to 20GHz was investigated for any spurious emissions, a close up investigation for band edges for the low and high channels was also investigated with RBW and VBW of 3kHz.

RESULT

No non-compliance noted.

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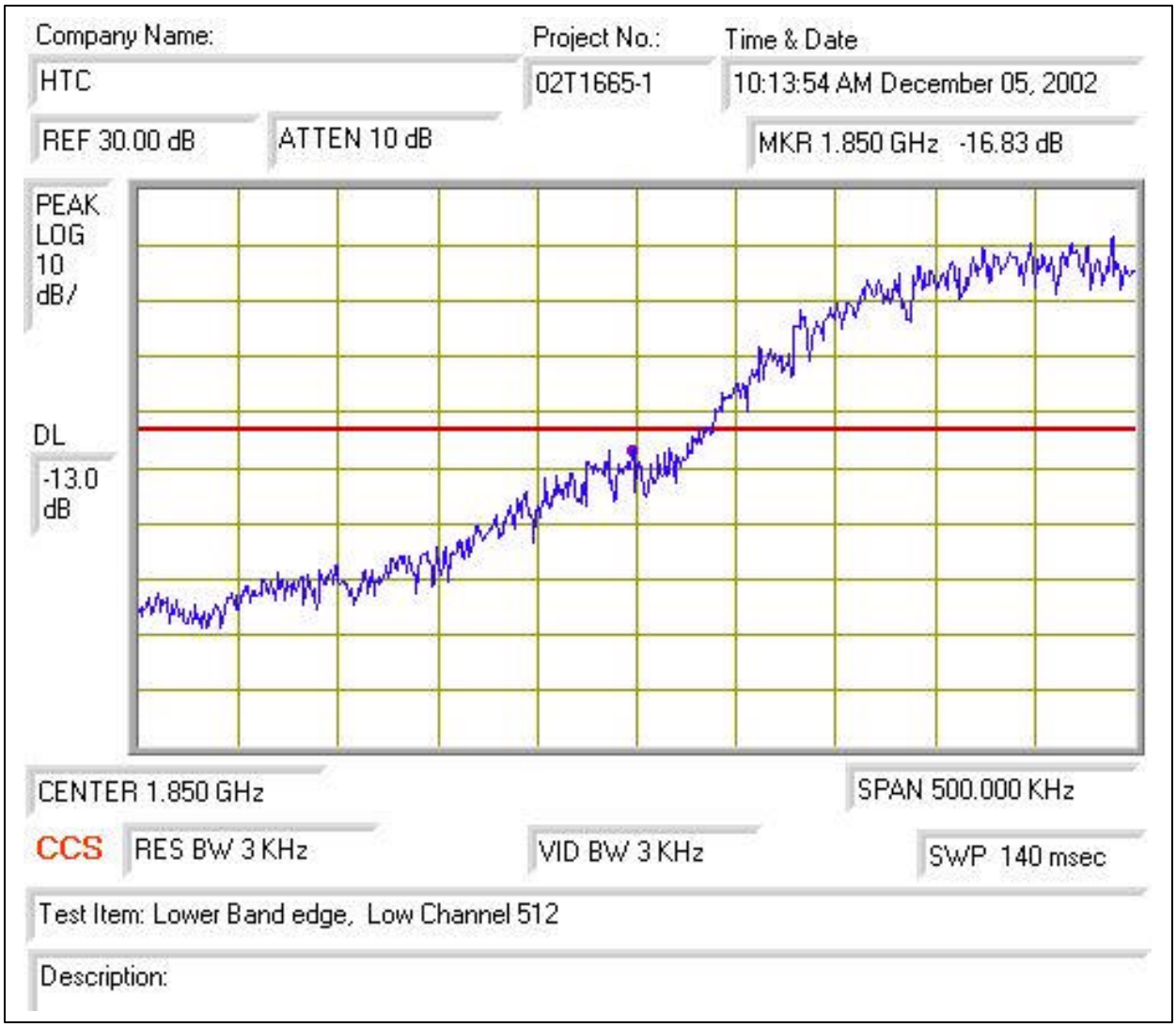
Low Channel:



Lower Band Edge

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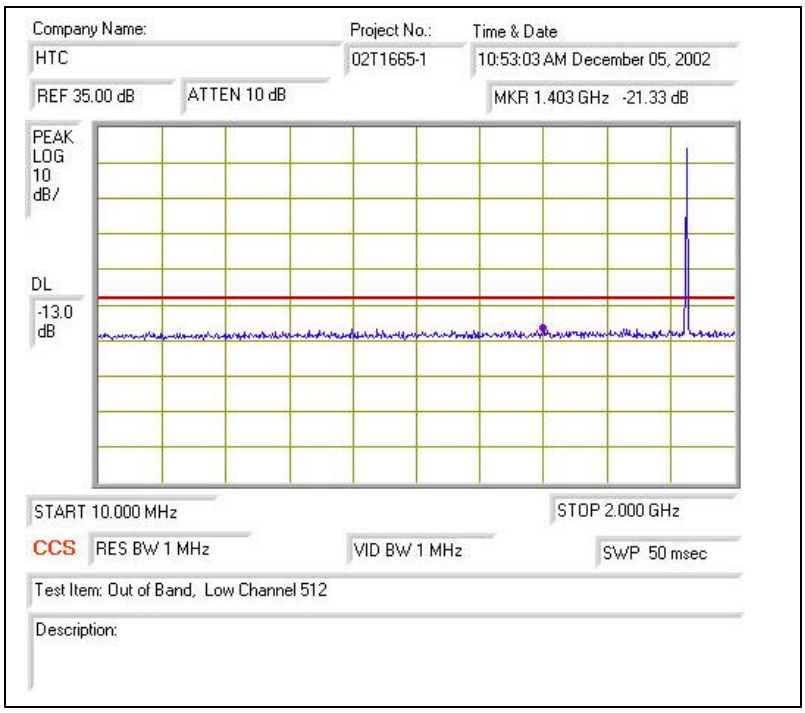

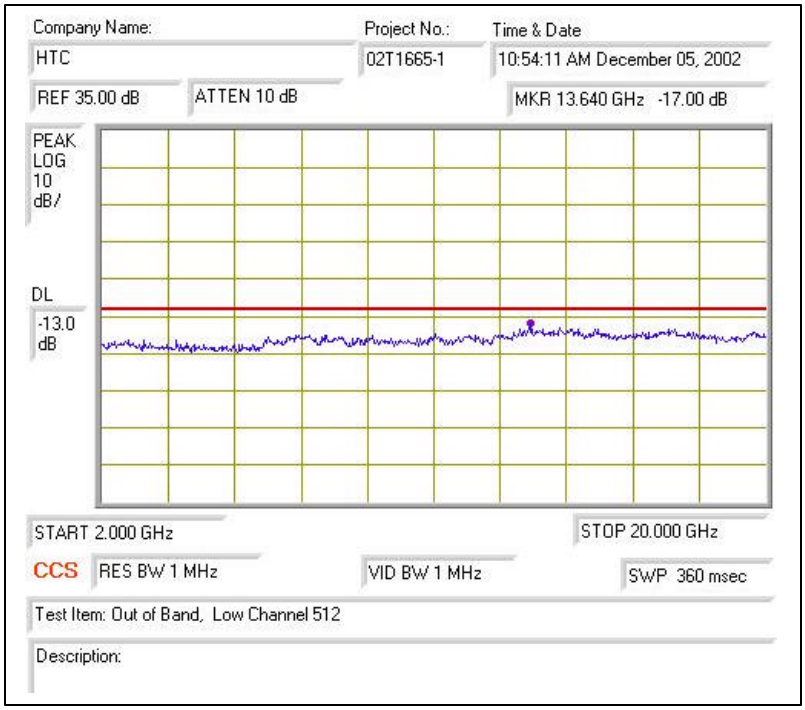

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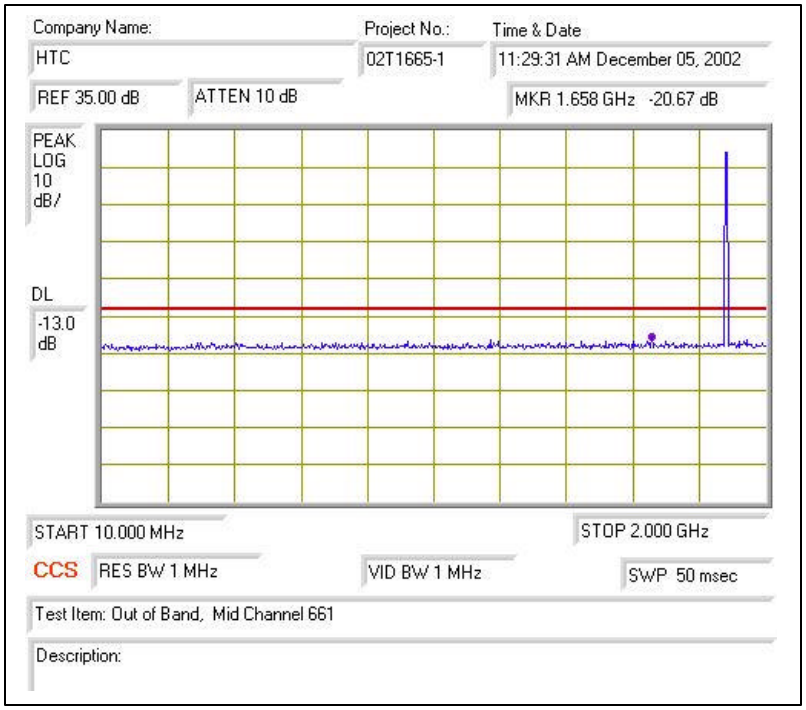
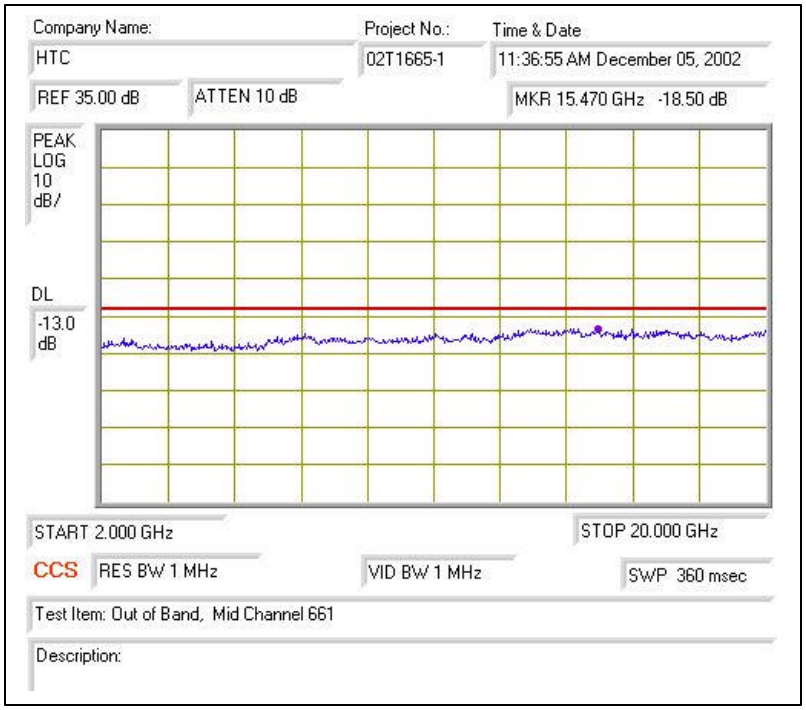
Mid Channel:





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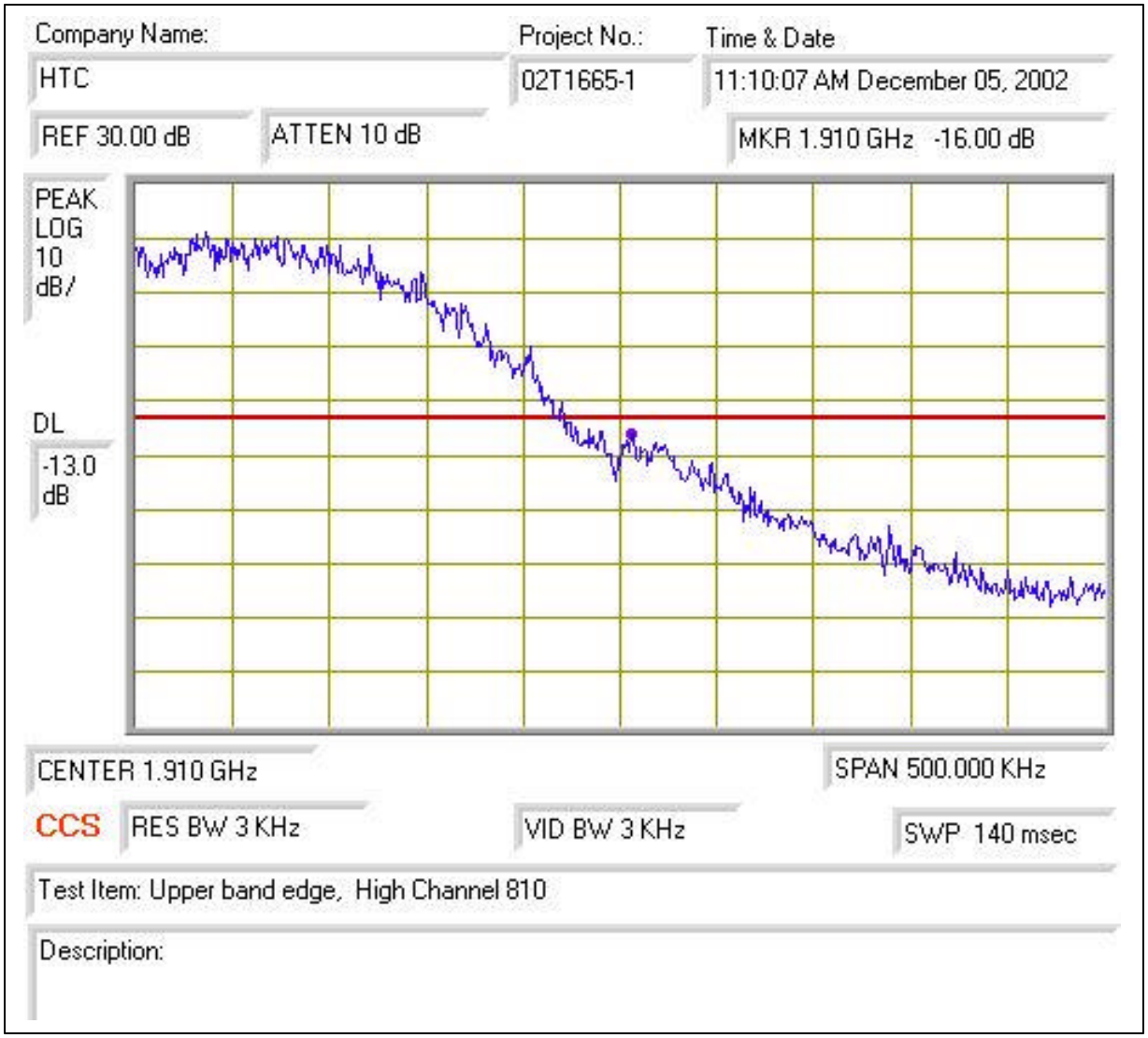
High Channel:



Upper Band Edge

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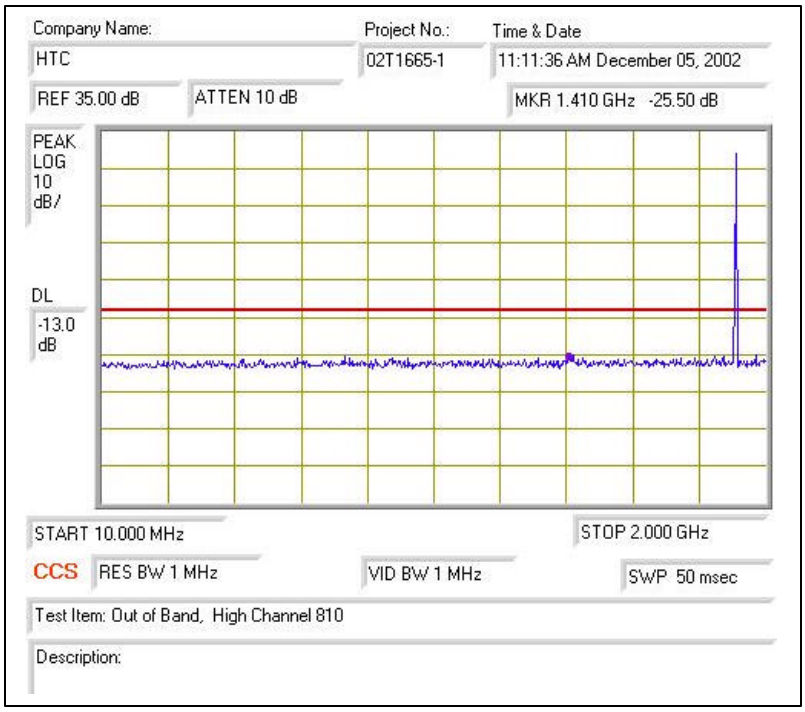

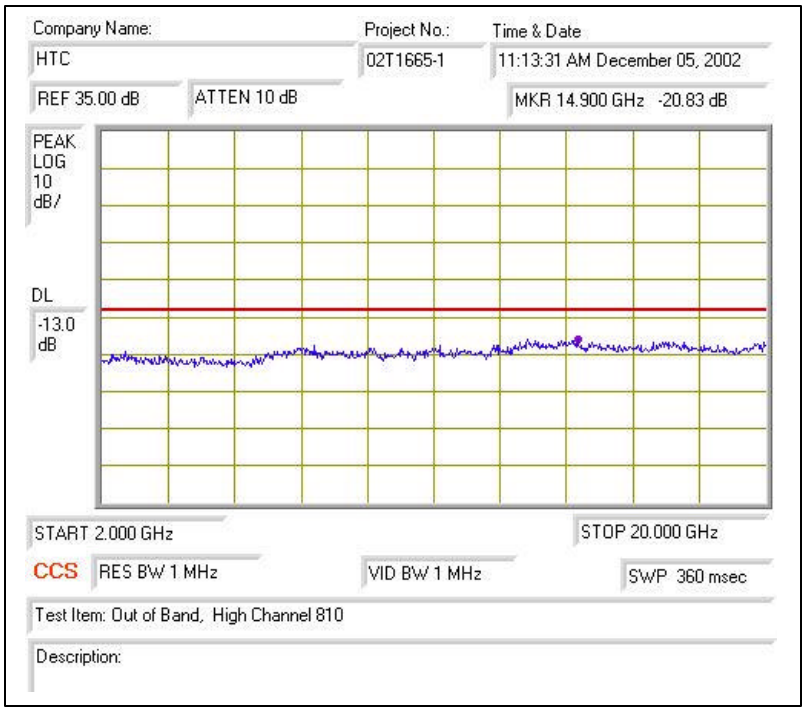

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6.4. FIELD STRENGTH OF SPURIOUS RADIATION

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
Above 1000	☒ Peak ☐ Average	☒ 1 MHz ☐ 1 MHz	☒ 1 MHz ☐ 10 Hz

TEST SETUP

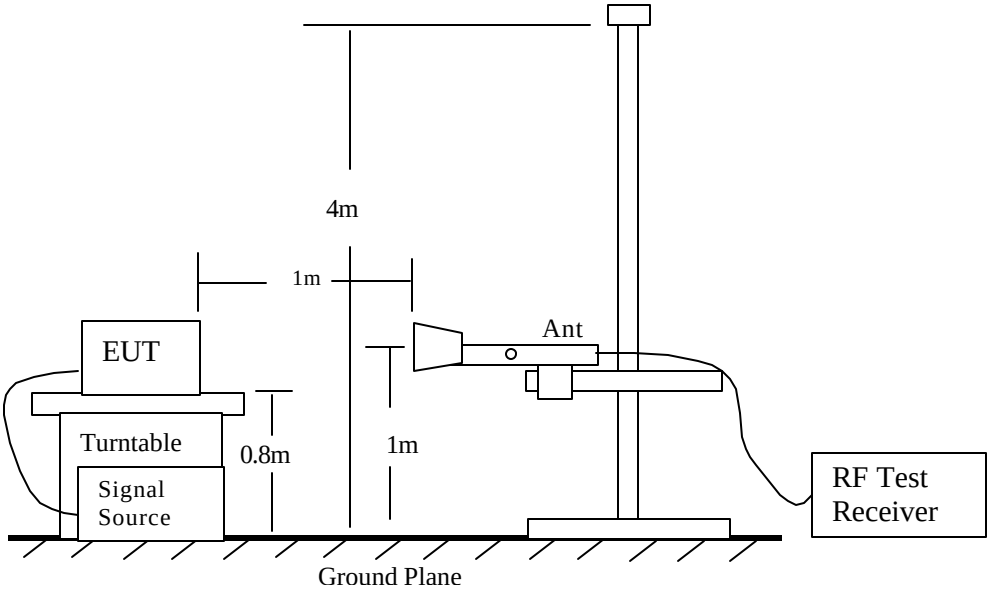

Fig 1: Radiated Emission Measurement

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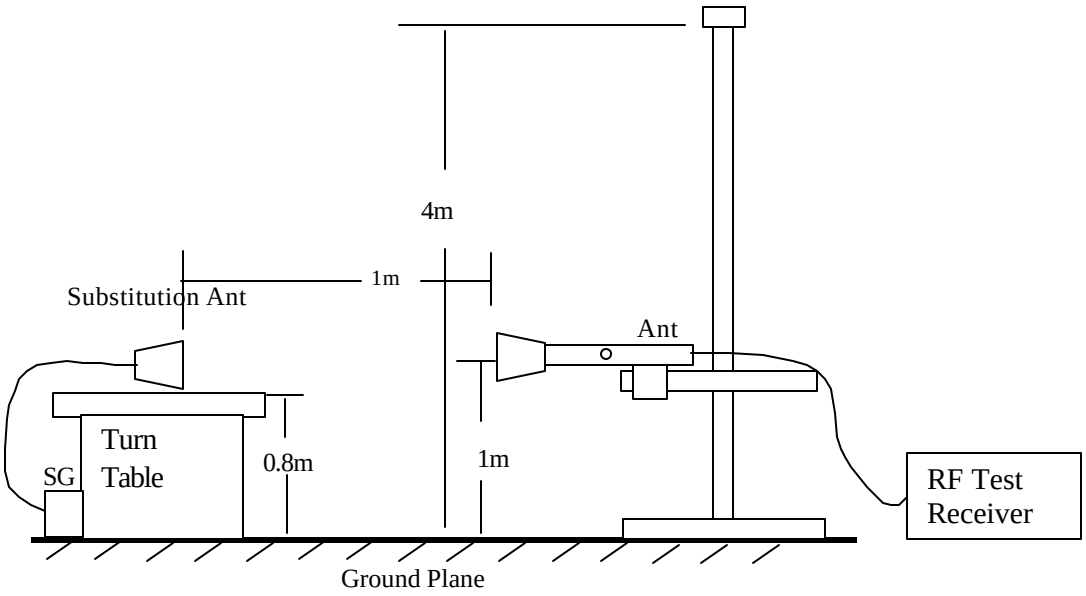

Fig 2: Radiated Emission – Substitution Method set-up

TEST PROCEDURE

1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
2). The test antenna shall be oriented initially for vertical polarization located 1m from the EUT to correspond to the frequency of the transmitter.
3). The output of the test antenna shall be connected to the measuring receiver and either a peak or average detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
8). The maximum signal level detected by the measuring receiver shall be noted.
9). The transmitter shall be replaced by a substitution antenna.
10). The substitution antenna shall be oriented for vertical polarization.
11). The substitution antenna shall be connected to a calibrated signal generator.
12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

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14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

RESULT

No non-compliance noted:

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Frequency (GHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Spurious Emissions: Low Channel								
5.55	58.23	-47.10	1.3	10.30	**-38.10**	-13.00	-25.10	H
7.40	64.07	-38.60	1.5	10.20	**-29.90**	-13.00	-16.90	H
9.25	53.23	-45.80	1.7	11.30	**-36.20**	-13.00	-23.20	H
11.10	50.73	-48.50	1.8	11.90	**-38.40**	-13.00	-25.40	H
12.95	47.90	-49.60	2.0	11.80	**-39.80**	-13.00	-26.80	H
14.80	49.23	-50.50	2.2	15.00	**-37.70**	-13.00	-24.70	H
16.65	42.00	-56.80	2.4	13.00	**-46.20**	-13.00	-33.20	H, Noise Floor
18.50	42.00	-47.60	2.6	13.00	**-37.20**	-13.00	-24.20	H, Noise Floor
Mid Channel								
3.76	30.16	-44.00	1.0	8.90	**-36.10**	-13.00	-23.10	H, Noise Floor
5.64	62.23	-43.00	1.3	10.30	**-34.00**	-13.00	-21.00	H
7.52	65.07	-37.20	1.5	10.20	**-28.50**	-13.00	-15.50	H
9.40	53.90	-45.60	1.7	11.30	**-36.00**	-13.00	-23.00	H
11.28	48.57	-50.20	1.8	11.90	**-40.10**	-13.00	-27.10	H
13.16	47.57	-50.30	2.0	11.80	**-40.50**	-13.00	-27.50	H
15.04	50.73	-50.30	2.3	15.00	**-37.60**	-13.00	-24.60	H
16.92	42.00	-53.90	2.5	13.00	**-43.40**	-13.00	-30.40	H, Noise Floor
18.80	42.00	-47.80	2.7	13.00	**-37.50**	-13.00	-24.50	H, Noise Floor
High Channel								
3.82	31.00	-44.00	1.0	8.90	**-36.10**	-13.00	-23.10	H, Noise Floor
5.73	61.90	-44.20	1.3	10.30	**-35.20**	-13.00	-22.20	H
7.64	61.70	-41.00	1.5	10.20	**-32.30**	-13.00	-19.30	H
9.55	53.20	-45.60	1.7	11.30	**-36.00**	-13.00	-23.00	H
11.46	46.40	-52.30	1.8	11.90	**-42.20**	-13.00	-29.20	H
13.37	48.70	-48.20	2.0	11.80	**-38.40**	-13.00	-25.40	H
15.28	42.00	-59.50	2.3	15.00	**-46.80**	-13.00	-33.80	H, Noise Floor
17.19	42.00	-52.50	2.5	13.00	**-42.00**	-13.00	-29.00	H, Noise Floor
19.10	42.00	-46.20	2.7	13.00	**-35.90**	-13.00	-22.90	H, Noise Floor

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6.5. FREQUENCY STABILITY

TEST SETUP

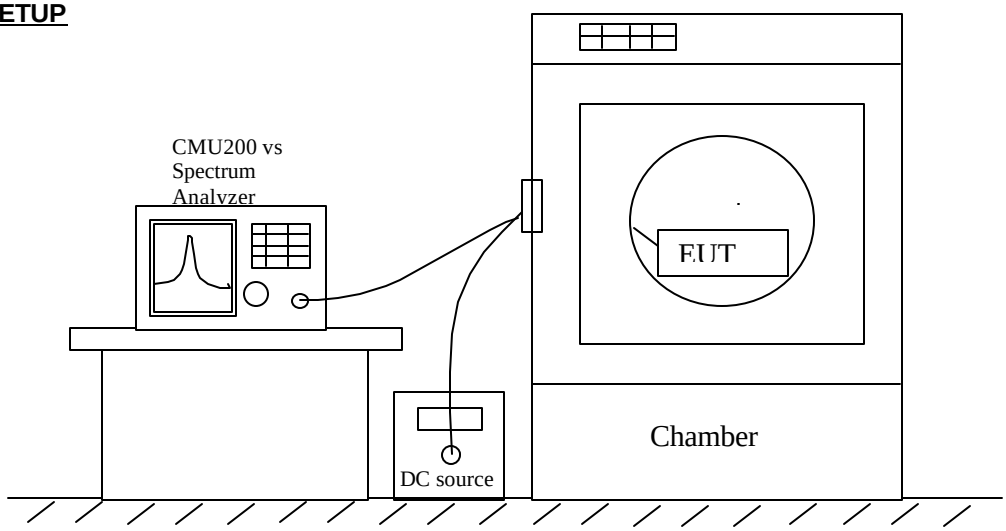

Fig. 3: Frequency Stability Setup

TEST PROCEDURE

- **Frequency stability versus environmental temperature**

1). Setup the configuration per figure 6 for frequencies measurement inside the environmental chamber. Set the temperature of the chamber to 25°C. Set SA Resolution Bandwidth low enough to obtain the desired frequency resolution and measure the EUT 25°C operating frequency as reference frequency.
2). Turn EUT off and set Chamber temperature to -30°C.
3). Allow sufficient time (approximately 20 to 30 minus after chamber reach the assigned temperature) for EUT to stabilize. Turn on EUT and measure the EUT operating frequency. Turn off EUT after the measurement.
4). Repeat step 3 with a 10°C increased per stage until the highest temperature of +50°C reached, record all measured frequencies on each temperature step.

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- **Frequency stability Ac Voltage**

1). Setup the configuration per figure 6 and set chamber temperature to 25°C. Use a variable DC power supply to power the EUT and set DC output voltage to EUT nominal input DC voltage. Set SA Resolution Bandwidth low enough to obtain the desired frequency resolution and measure the EUT 25°C operating frequency as reference frequency.
2). Slowly reduce the EUT input voltage to specified extreme voltage variation and record the maximum frequency change.

RESULT

No non-compliance noted.

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Reference Frequency: PCS Mid Channel 1880.000012MHz @ 25°C Limit: to stay ± 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.90	50	1879.999999	0.007	± 2.5
3.90	40	1879.999983	0.015	± 2.5
3.90	30	1880.000015	-0.002	± 2.5
3.90	***25***	***1880.000012***	***0***	**± 2.5**
3.90	20	1879.999986	0.014	± 2.5
3.90	10	1879.999978	0.018	± 2.5
3.90	0	1879.999971	0.022	± 2.5
3.90	-10	1879.999980	0.017	± 2.5
3.90	-20	1879.999977	0.019	± 2.5
3.90	-30	1879.999974	0.020	± 2.5
3.6 (end point)	25	1879.999863	0.079	± 2.5
4.2	25	1879.999863	0.079	± 2.5

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6.6. RADIATED EMISSION

Detector Setting of Spectrum Analyzer

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	☒ Peak ☒ Quasi Peak	☒ 100 KHz ☒ 1 MHz	☒ 100 KHz ☒ 1 MHz

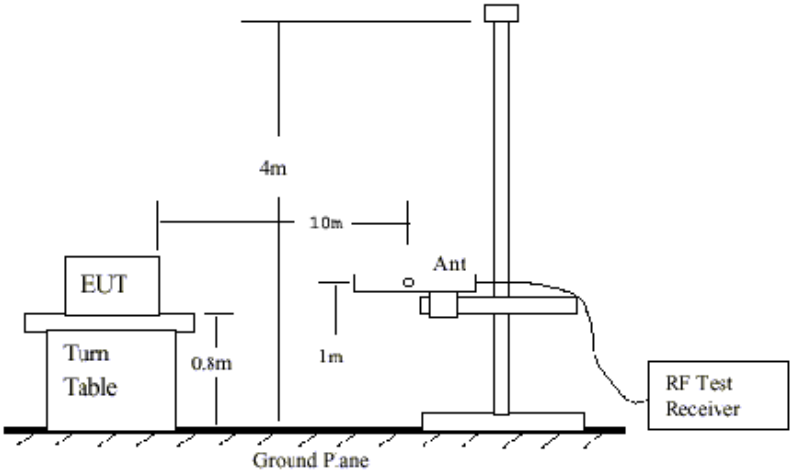

Fig 1: Radiated Emission Measurement 30 to 1000 MHz

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TEST SETUP & PROCEDURE

1. The EUT was placed on the turn table 0.8 meter above ground in 3 meter open area test site.
2. Set the resolution bandwidth to 120KHz in the test receiver and select Peak function to scan the frequency below 1 GHz.
3. Shift the interference-receiving antenna located in antenna tower upwards and downwards between 1 and 4 meters above ground and find out the local peak emission on frequency domain.
4. Locate the interference-receiving antenna at the position where the local peak reach the maximum emission.
5. Rotate the turn table and stop at the angle where the measurement device has maximum reading
6. Shift the interference-receiving antenna again to detect the maximum emission of the local peak
7. If the reading of the local peak under Peak function is lower than limit by 6dB, then Quasi Peak detection is not needed and this reading should be recorded. And if it is higher than Peak limit, then the test is fail. Others, switch the receiver to Quasi Peak function, set the resolution bandwidth to 100kHz and repeat the procedures (3)~(6). If the reading is lower than limit, this reading should be recorded, otherwise, the test is fail.
8. Set the resolution and video bandwidth of the spectrum analyzer to 1MHz and repeat procedures (3)~(6) for frequency band from 1 GHz to 10 times carrier frequency.
9. If the reading for the local peak is lower than the Average limit, no further testing is needed in this local peak and this reading should be recorded. If it is higher than Average limit but lower than Peak limit, then set the resolution bandwidth to 1MHz and video bandwidth to 300Hz. Repeat procedures (3)~(6). If the maximum reading is lower than Average limit, then this reading should be recorded. If it is higher, then the test is fail.

RESULT

No non-compliance noted, as shown below.

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COMPLIANCE Certification Services

FCC, VCCI, CISPR, CE, AUSTEL,
UL, CSA, TUV, BSMI, DHHS, NVLAI

561F MONTEREY ROAD, SAN JOSE, CA 95037-90
PHONE: (408) 463-088 FAX: (408) 463-0888

Project #: 02T1665-1
Report #: 021127C01
Date& Time: 11/27/02 2:27 PM
Test Engr: Frank Ibrahim

Company: High Tech Computer Corp.
EUT Description: Smart Phone, Model: PC20B
Test Configuration : EUT, USB Cradle, Laptop, Mouse
Type of Test: FCC Part 15,Class B
Mode of Operation: EUT connected to Laptop via USB port

<< Main Sheet

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
495.80	48.10	17.93	4.02	27.54	42.51	46.00	-3.49	3mV	0.00	1.00	P
61.30	54.00	7.28	1.22	27.16	35.35	40.00	-4.65	3mV	0.00	1.00	P
495.80	44.50	17.93	4.02	27.54	38.91	46.00	-7.09	3mH	0.00	1.00	P
61.30	51.00	7.28	1.22	27.16	32.35	40.00	-7.65	3mH	0.00	1.00	P
396.70	44.70	15.45	3.54	27.10	36.60	46.00	-9.40	3mH	0.00	1.00	P
390.18	44.10	15.40	3.51	27.05	35.96	46.00	-10.04	3mV	0.00	1.00	P
6 Worst Data											

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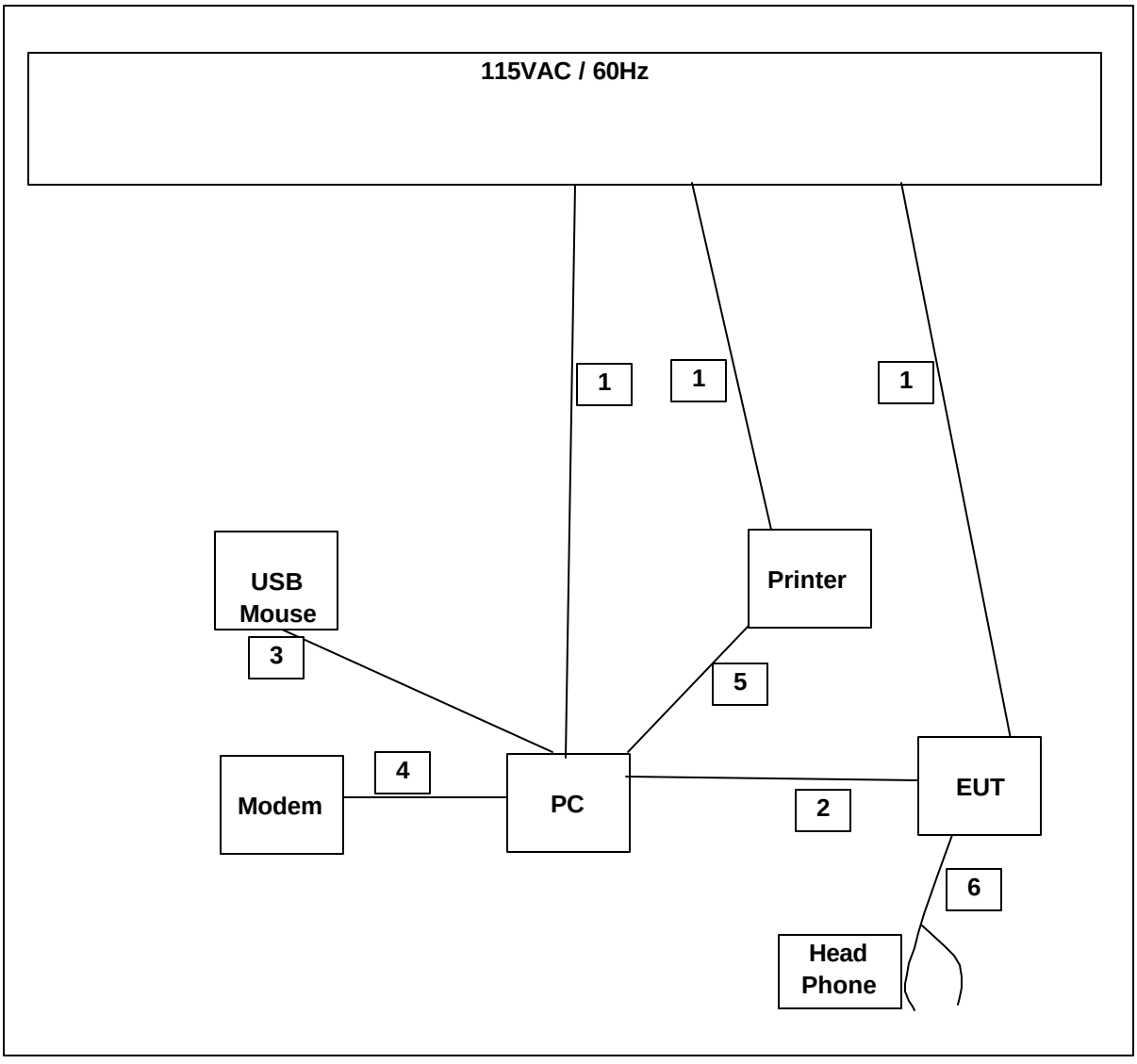
6.7. POWER LINE CONDUCTED EMISSION

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
450 KHz to 30 MHz	☒ Peak ☐ CISPR Quasi Peak	☒ 9 KHz	☒ 9 KHz

TEST SETUP:



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TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	4	US 115VAC	Un-shielded	2m	No	No	
2	USB/IO	1	USB	Shielded	2m	Yes	No	
3	Mouse	1	USB	Shielded	2m	Yes	No	
4	Modem	1	DB9	Shielded	1m	Yes	No	
5	Printer	1	DB25	Shielded	2m	Yes	Yes	
6	Head Phon	1	Din	Un-shielded	1.8m	Yes	No	

TEST PROCEDURE

1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in a continuous mode.

2. Line conducted data was recorded for both NEUTRAL and HOT lines.

RESULT

No non-compliance noted. See Line Conduction plot

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.51	54.30	--	34.90	0.00	56.00	46.00	-1.70	-11.10	L1
0.32	54.40	--	35.08	0.00	61.20	51.20	-6.80	-16.12	L1
0.26	48.28	--	33.69	0.00	62.86	52.86	-14.58	-19.17	L1
0.51	43.88	--	24.53	0.00	56.00	46.00	-12.12	-21.47	L2
0.31	36.90	--	--	0.00	61.43	51.43	-24.53	-14.53	L2
28.00	36.78	--	--	0.00	60.00	50.00	-23.22	-13.22	L2
6 Worst Data									

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561F Monterey Road,
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Fax: (408) 463-0888

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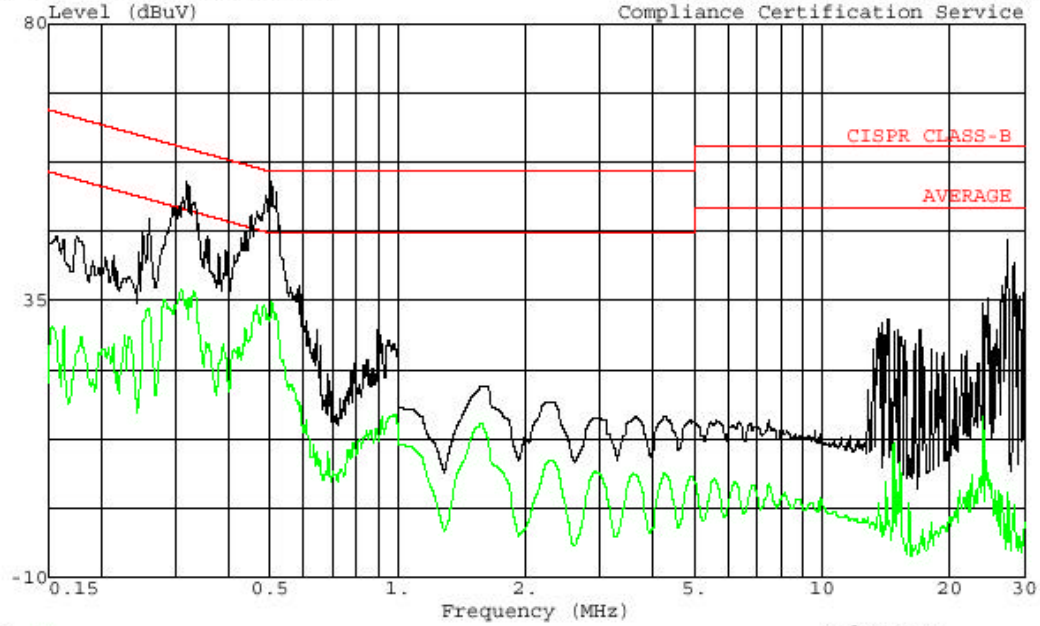

Trace: 12 Ref Trace:
Project # : 02T1665-1 Charger
Test Engineer : Frank Ibrahim
Company : High Tech Computer Corp.
EUT : Smart Phone
Model Name : PC20B
Test Config. : EUT, AC/DC Charger,Modem,Printer,Mouse
Test of Target: FCC Part 15, Class B
Mode of Op. : EUT connected to Laptop & AC-DC vs USB
: Synchronized Mode
: 115Vac @ 60Hz, L1 PEAK;BLACK AVG;GREEN

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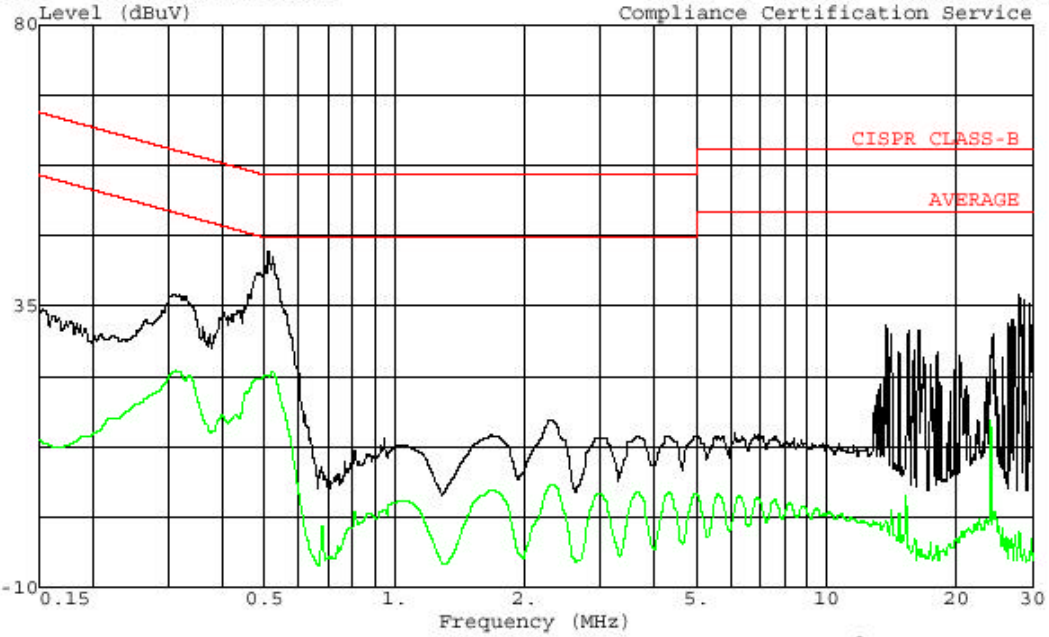

Trace: 19 Ref Trace:
Project # : 02T1665-1 Charger
Test Engineer : Frank Ibrahim
Company : High Tech Computer Corp.
EUT : Smart Phone
Model Name : PC20B
Test Config. : EUT, AC/DC Charger,Modem,Printer,Mouse
Test of Target: FCC Part 15, Class B
Mode of Op. : EUT connected to Laptop & AC-DC vs USB
: Synchronized Mode
: 115Vac @ 60Hz, PK: L2(BLACK), L2(GREEN)

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Radiated Emission photos

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Conducted Emission Photos

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7. APENDIX

7.1. EXTERNAL & INTERNAL PHOTOS

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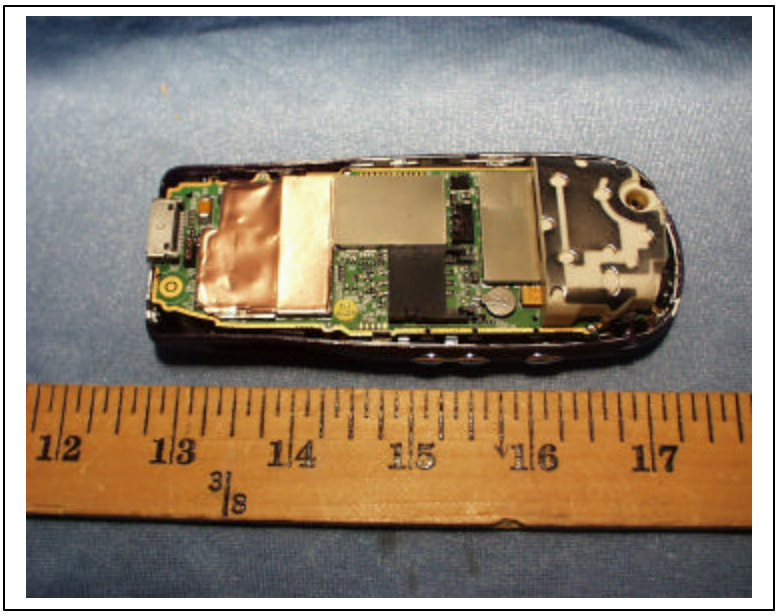

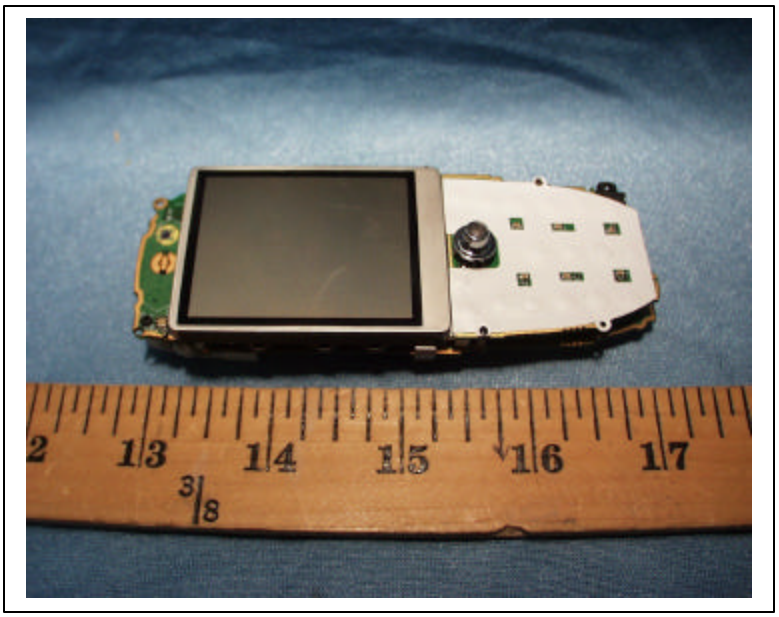

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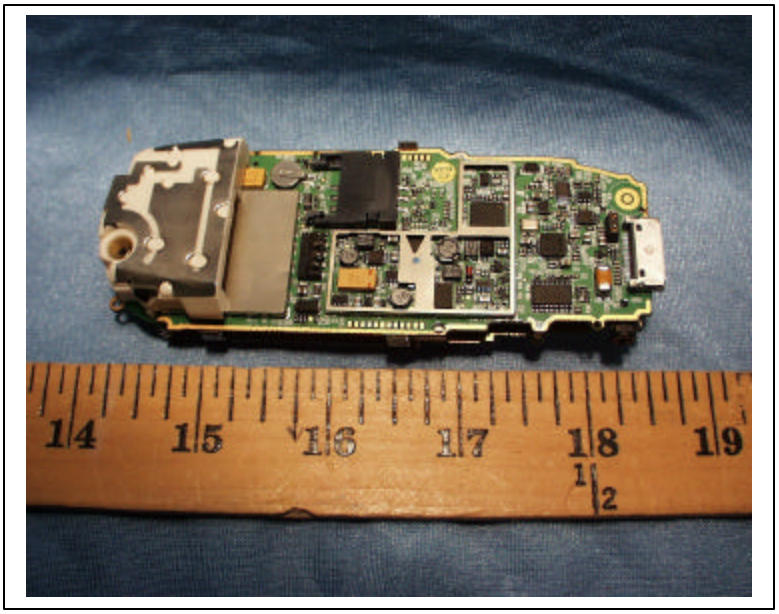

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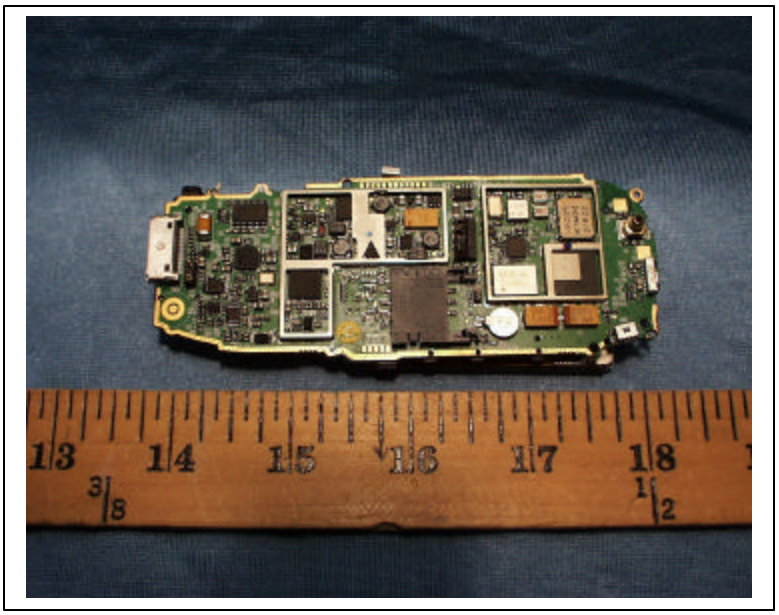

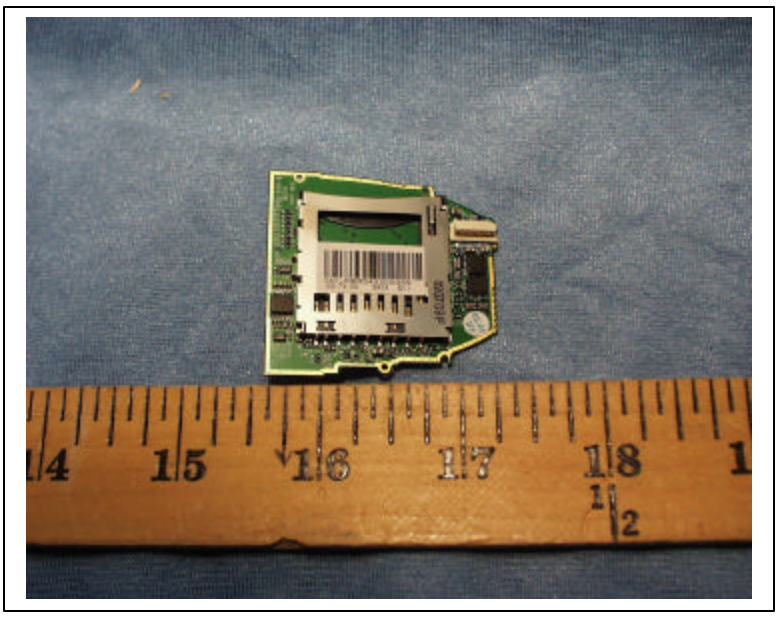

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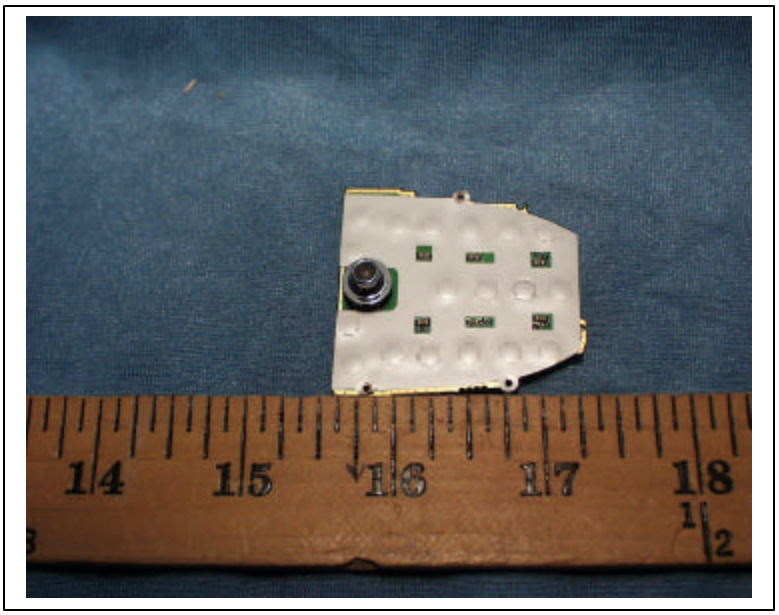

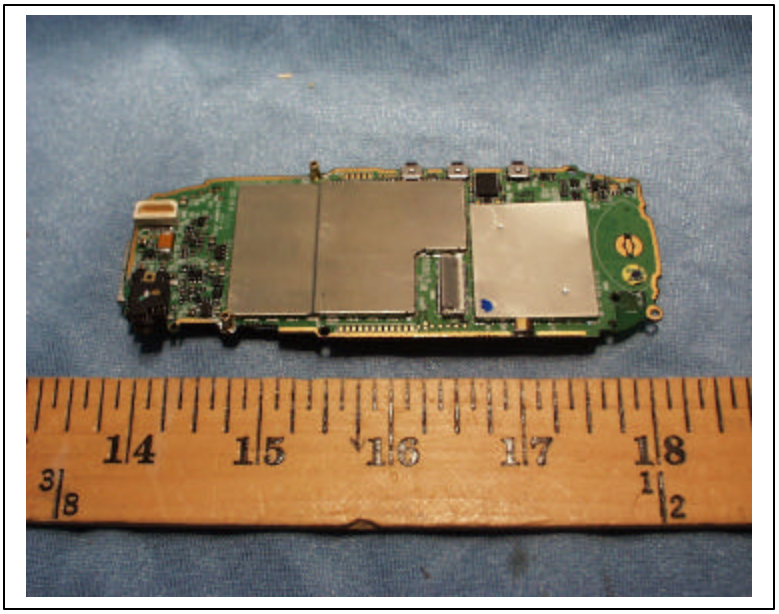

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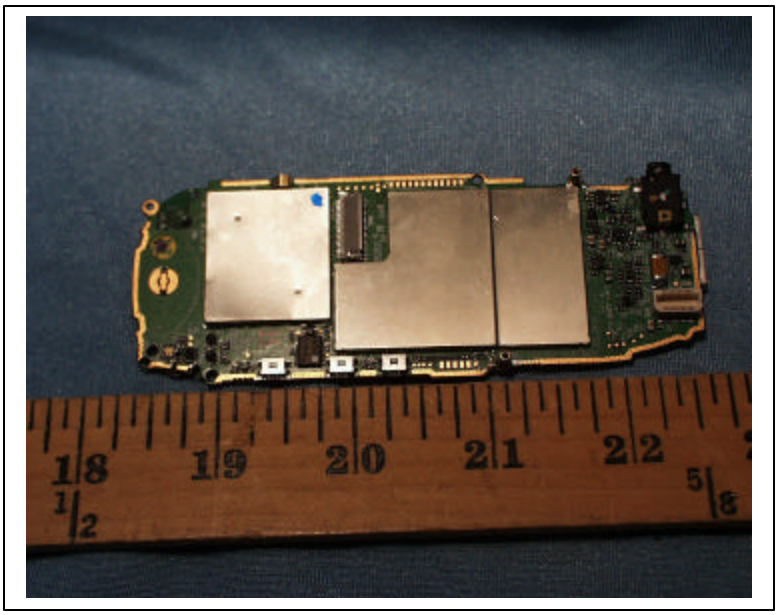

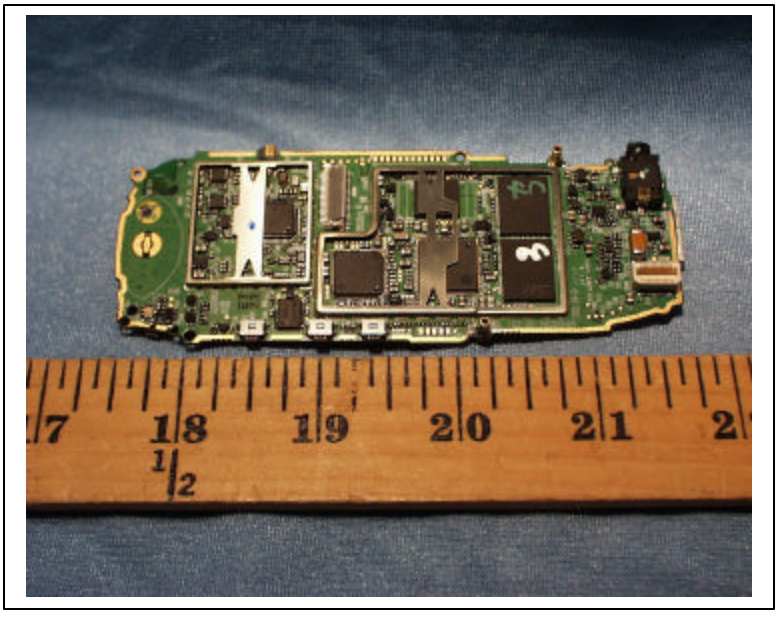

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