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TEST REPORT

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Project Number: 3023649
June 25, 2002

Evaluation of the
Dual Band five-mode TDMA/GSM Cellular Phone
Model Number: T62u
FCC ID: PXITR-502-A2
IC: 4170A-TR502
to

FCC Part 15
FCC Part 22 Subpart H
FCC Part 24 Subpart E
IC RSS-128
IC RSS-133

For

Sony Ericsson Mobile Communications Inc.

Test Performed by:	Test Authorized by:
Intertek Testing Services 1950 Evergreen Blvd, Suite 100 Duluth, GA 30096	Sony Ericsson Mobile Communications Inc. 7001 Development Drive Research Triangle Park, NC 27709

Prepared by: (FOR GL) Date: 7.11.02
Grace Lin, Sr. Project Engineer

Reviewed by: Date: 7/11/02
David J. Schramm, EMC Team Leader

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Executive Summary

Testing performed for: Sony Ericsson Mobile Communications Inc.

Equipment Under Test: T62u, Dual Band five-mode TDMA/GSM Cellular Phone

FCC RULE	IC RULE	DESCRIPTION OF TEST	RESULT	PAGE
§2.1046	RSS-128 §7.1 RSS-133 §6.2	RF Power Output	Passed	8
§22.913, §24.232	RSS-128 §7.1 RSS-133 §6.2	ERP, EIRP	Passed	11
§2.1047 §22.915(b)(c)	RSS-128 §7.2	Modulation Deviation Limiting	Passed	12
§22.915(d)(1)	RSS-128 §7.3	Audio Filter Characteristics	Passed	15
§2.1049 §22.917(b)(d)	RSS-128 §7.4	Emission Limitation, Occupied Bandwidth	Passed	18
§2.1051 §22.917(e) §22.917(f) §24.238(a)	RSS-128 §7.4 RSS-133 §6.3	Out of Band Emissions at Antenna Terminals Mobile Emissions In Base Frequency Range	Passed	24
§2.1053	RSS-128 §7.4 RSS-133 §6.3	Field Strength of Spurious Radiation	Passed	34
§15.107, §15.207	IC ES-003	Power Line Conducted Emissions	Passed	36
§2.1055, §22.355, §24.235	RSS-128 §9 RSS-133 §7	Frequency Stability vs. Temperature	Passed	40
§2.1055, §22.355, §24.235	RSS-128 §9 RSS-133 §7	Frequency Stability vs. Voltage	Passed	42
§2.1091, §2.1093	RSS-128 §21, RSS-133 §8	Specific Absorption Rate	N/S	See Note [1]
§15.109	IC ES-003 RSS-128 §9, RSS-133 §9	Receiver Spurious Emission	Passed	44

N/S: Not under scope of this evaluation

[1] Specific Absorption Rate testing was not under the scope of this evaluation.

1 JOB DESCRIPTION

1.1 Client information

The Dual Band five-mode TDMA/GSM Cellular Phone has been tested at the request of

Company: Sony Ericsson Mobile Communications Inc.
7001 Development Drive
Research Triangle Park, NC 27709

Name of contact: Pierre Chery
Telephone: 919-472-1697
Fax: 919-472-6382

1.2 Test plan reference:

Tests were performed to the following standards:

- FCC Part 15
- FCC Part 22 Subpart H rules for an intentional radiator
- FCC Part 24 Subpart E rules for an intentional radiator
- IC RSS-128
- IC RSS-133

1.3 Equipment Under Test (EUT)

Product	Dual Band five-mode TDMA/GSM Cellular Phone	
EUT Model Number	T62u	
EUT Serial Number	UA2020MZV1	
Whether quantity (>1) production is planned	Quantity production is planned.	
Cellular Phone standards	AMPS, TDMA800, TDMA1900, GSM800 and GSM1900	
Type(s) of Emission	40K0F8W, 40K0F1D, 30K0DXW, 255KGXW	
RF Output Power	See Section 3.3 for RF Output Power	
Frequency Range	824 – 849	AMPS, TDMA800 and GSM800
	1850 – 1910	TDMA1900 and GSM1900
Antenna & Gain	Integrated, non-retractable	
Detachable Antenna ?	No	
External input	[X] Audio [ ] Digital Data	

EUT receive date: May 15, 2002

EUT receive condition: The EUT was received in good condition with no apparent damage.

Test start date: May 16, 2002

Test completion date: June 24, 2002

The test results in this report pertain only to the item(s) tested.

1.4 Related Submittal(s) Grants

None

2 TEST FACILITY

The ITS-Duluth site is located at 1950 Evergreen Blvd., Suite 100, Duluth, Georgia. The radiated emission test site is a 10-meter semi-anechoic chamber. The chamber meets the characteristics of CISPR 16-1: 1993 and ANSI C63.4: 1992. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan the antenna height from one to four meters.

This site is on file with the FCC.

The Industry Canada file number for this site is IC 2077.

3 RF POWER OUTPUT

FCC §2.1046, RSS-128 §7.1, and RSS-133 §6.2

3.1 Test Procedure

The transmitter output was connected to a calibrated coaxial 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.

Tests were performed at three frequencies (low, middle, and high channels) and on the highest power levels, which can be setup on the transmitters.

3.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Power meter	HP	436A	1930A05553	3/29/03
Power sensor	HP	8481A	173690	3/29/03
Attenuator	Weinschel	2 (10 dB)	BK2313	5/6/03

3.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the RF power output requirements of FCC Part 22 Subpart H, FCC Part 24 Subpart E, RSS-128, and RSS-133. The test results are located in Table 3.3-1.

Table 3.3-1 RF Power Output

EUT Mode	Frequency MHz	Channel	Measured Power dBm
AMPS	824.04	991	25.9
	836.49	383	26.2
	848.97	799	25.4
TDMA800	824.04	991	26.3
	836.49	383	25.7
	848.97	799	26.1
TDMA1900	1850.04	2	26.2
	1879.98	1000	26.2
	1909.92	1998	26.1
GSM800	824.20	128	27.8
	836.40	189	28.9
	848.80	251	28.8
GSM1900	1850.20	512	29.9
	1880.00	661	30.2
	1909.80	810	30.3

Table 3.3-2 RF Output Power Stability

EUT Mode	Frequency MHz	Channel	Measured Power dBm		
			+60°C	+20°C	-30°C
AMPS	824.04	991	25.4	25.9	26.1
	836.49	383	25.9	26.2	26.4
	848.97	799	25	25.4	25.4
TDMA800	824.04	991	25.8	26.3	26.4
	836.49	383	25.4	25.7	25.8
	848.97	799	25.1	26.1	25.9
TDMA1900	1850.04	2	25.7	26.2	26.4
	1879.98	1000	25.7	26.2	26.5
	1909.92	1998	25.4	26.1	26.5
GSM800	128	824.2	27.8	27.8	28.1
	189	836.4	28.9	28.9	29
	251	848.8	28.5	28.8	29.2
GSM1900	512	1850.2	30.1	29.9	30.1
	661	1880	30.2	30.2	30.4
	810	1909.8	30.3	30.3	30.7

4 RADIATED POWER

FCC §22.913 and IC RSS-128 §7.1: The Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

FCC §24.232 and IC RSS-133 §6.2: The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

4.1 Test Procedure

The EUT was positioned on a non-conductive tripod, 1.5m above the ground plane inside a 10 meter semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3m with a test antenna and EMI receiver.

During the measurement of the EUT, the receiver resolution bandwidth was set to 3 MHz and the average bandwidth was set to 10 kHz. These settings matched the power readings of a power meter with a thermocouple power sensor. The highest emission was recorded with the rotation of the turntable and the raising and lowering of the test antenna. The receiver reading was recorded and the field strength (E in dBμV/m) was calculated.

ERP in frequency band 824-849 MHz, and EIRP in frequency band 1851.25-1910 MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849 MHz) or horn antenna (1851.25-1910 MHz) connected to a signal generator, which was set to approximately 23 dBm. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$ERP = E_1 - E_2 + V_g$$

$$EIRP = E_1 - E_2 + V_g + G$$

where,

E_1 is the receiver reading in dBμV/m when measuring the field strength of the EUT

E_2 is the receiver reading in dBμV/m when measured field strength from the generator

V_g is the generator output in dBm

G is the gain of the transmitting antenna in dBi.

4.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Power Meter	HP	436A	1930A05553	3/29/03
Power Sensor	HP	8481A	173690	3/29/03
Signal Generator	HP	83620B	3722A00537	2/11/03
Dipole Antenna	CDI	A100	R4	8/1/02
Horn Antenna	A.H. Systems	SAS-200/571	246	1/13/03
Receive Antenna	Schaffner-Chase	CBL6112B	2622	8/14/02
EMI Receiver	HP	8546A	3410A00173/ 3448A00203	3/28/03
Attenuator	Weinschel	2 (10dB)	BK2313	5/6/03

4.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the radiated power requirements of FCC §22.913, FCC §24.232, IC RSS-128 §7.1, and IC RSS-133 §6.2. The test results are located in Table 4.3-1.

Table 4.3-1 RF Power Output

EUT Mode	Measurement Method	Frequency MHz	Channel	Measured Power dBm
AMPS	ERP	824.04	991	25.1
	ERP	836.49	383	25.3
	ERP	848.97	799	25.0
TDMA800	ERP	824.04	991	26.0
	ERP	836.49	383	26.0
	ERP	848.97	799	25.7
GSM800	ERP	824.70	128	27.2
	ERP	836.52	189	28.2
	ERP	848.31	251	28.7
TDMA1900	EIRP	1850.04	2	25.3
	EIRP	1879.98	1000	24.2
	EIRP	1909.92	1998	23.5
GSM1900	EIRP	1851.25	512	28.4
	EIRP	1880.00	661	26.7
	EIRP	1908.75	810	26.2

5 MODULATION DEVIATION LIMITING

FCC §2.1047, FCC §22.915(b)(c), RSS-128 §7.2

5.1 Test Procedure

The RF output of the transceiver was connected to the input of a mobile station test set with PCS interface through sufficient attenuation so as not to overload the meter or distort the readings. The mobile station test set was configured as an audio signal generator and was coupled into the external microphone jack of the transceiver, or alternatively, the microphone element was removed and the generator output was connected to the microphone wires by clip leads. The compander is enabled during this test.

At three different modulating frequencies, the output level of the audio generator was varied from –30 to +30 dB in reference to the level required to generate 8kHz deviation at 1kHz. The mobile station test set was setup to generate the audio input and record the modulation output of the EUT.

5.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Mobile station test set	HP	8924C	US37111069	11/6/02
PCS Interface	HP	83236B	3711J02934	11/6/02
Attenuator	Weinschel	2 (10dB)	BK2313	5/6/03

5.3 Test Results

The deviation for voice only is not to exceed 12 kHz. The deviation for voice and SAT is not to exceed 14 kHz. The test results are located in Figure 5.3-1. The audio input level was to 76 mV in order to obtain 8 kHz deviation. This value was set as the 0 dB reference.

Figure 5.3-1: Modulation Deviation Limiting – Voice

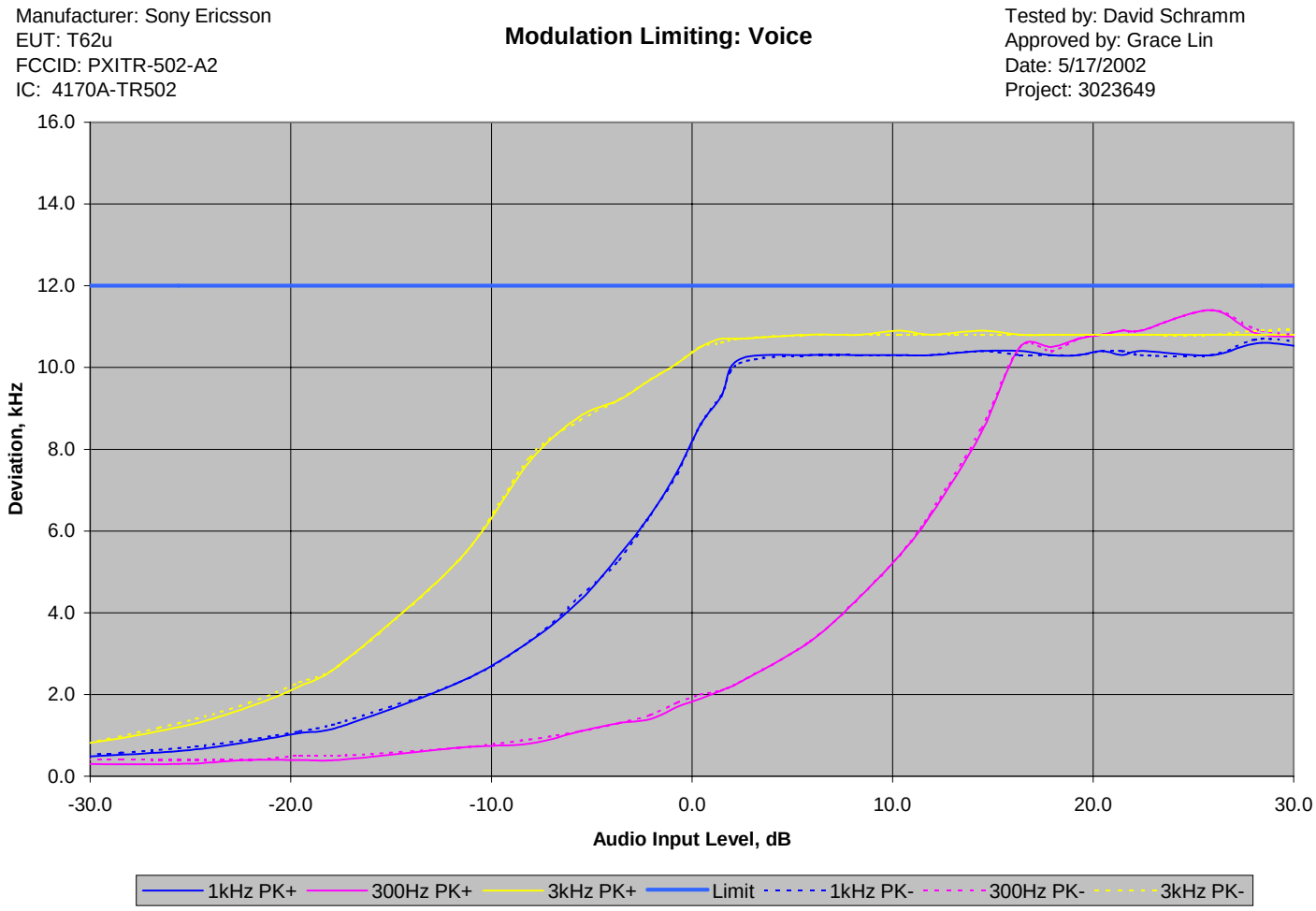
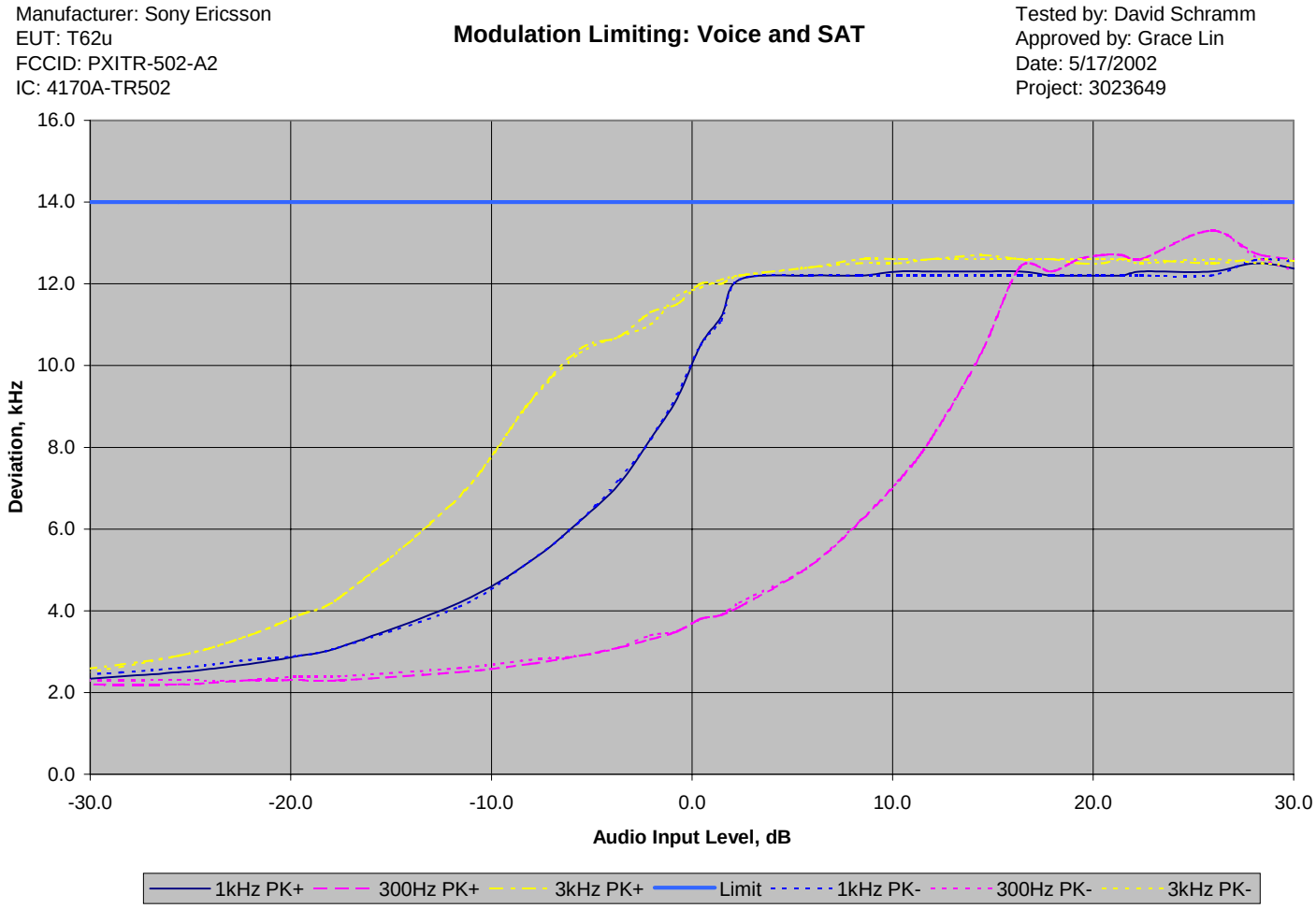


Figure 5.3-2: Modulation Deviation Limiting – Voice and SAT



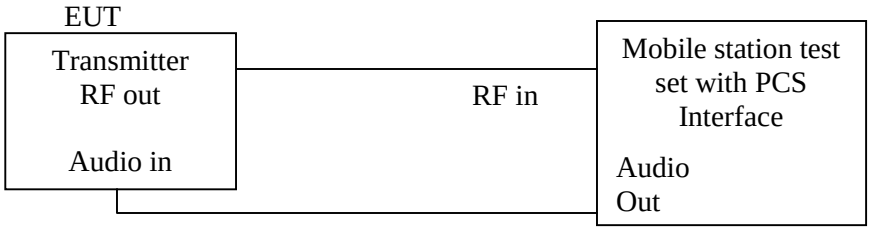
6 AUDIO FILTER CHARACTERISTICS

CFR 47 §22.915(D), IC RSS-128 §7.3

6.1 Test Procedure

The RF output of the transceiver was connected to the input of a Mobile station test set through sufficient attenuation so as not to overload the meter or distort the readings. An audio signal generator of the Mobile station test set was coupled into the external microphone jack of the transceiver, or alternatively, the microphone element was removed and the generator output was connected to the microphone wires by clip leads.

The test was performed according to the block diagram shown below.



Audio Filter Characteristics

Operate the transmitter with the compander disabled, and monitor the output with a deviation meter without standard 750 microsecond de-emphasis, and without C-message weighted filter. Apply a sine wave audio input to the transmitter external audio input port, vary the modulating frequency from 300 to 3000 Hz, and observe the input levels necessary to maintain a constant ±2.9 kHz system deviation.

From 300 to 3000 Hz the audio frequency response shall not vary more than +1 to –3 dB from a true 6 dB/octave pre-emphasis characteristic referred to the 1000 Hz level (with the exception of a permissible 6 dB/octave roll-off from 2500 to 3000 Hz).

Post Limiter Attenuation

Adjust the audio imput frequency to 1000 Hz, and adjust the input level to 20 dB greater than that required to produce ±8 kHz deviation. Note the output level on the frequency deviation meter. Using this output as reference (0 dB), vary the modulating frequency from 3000 Hz to 30,000 Hz, and observe the change in output while maintaining a constant audio input level.

For mobile stations, these signals must be attenuated, relative to the level at 1 kHz, as follows:

- In the frequency ranges of 3.0 to 5.9 kHz and 6.1 to 15.0 kHz, signals must be attenuated by at least 40 log (f/3) dB, where f is the frequency of the signal in kHz.
- In the frequency range of 5.9 to 6.1 kHz, signals must be attenuated at least 35 dB.
- In the frequency range above 15 kHz, signals must be attenuated at least 28 dB.

6.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Mobile station test set	HP	8924C	US37111069	11/6/02
PCS Interface	HP	83236B	3711J02934	11/6/02
Attenuator	Weinschel	2 (10dB)	BK2313	5/6/03

6.3 Test Results

The test results are located in Figure 6.3-1 and Figure 6.3-2.

Figure 6.3-1: Audio Filter Characteristics

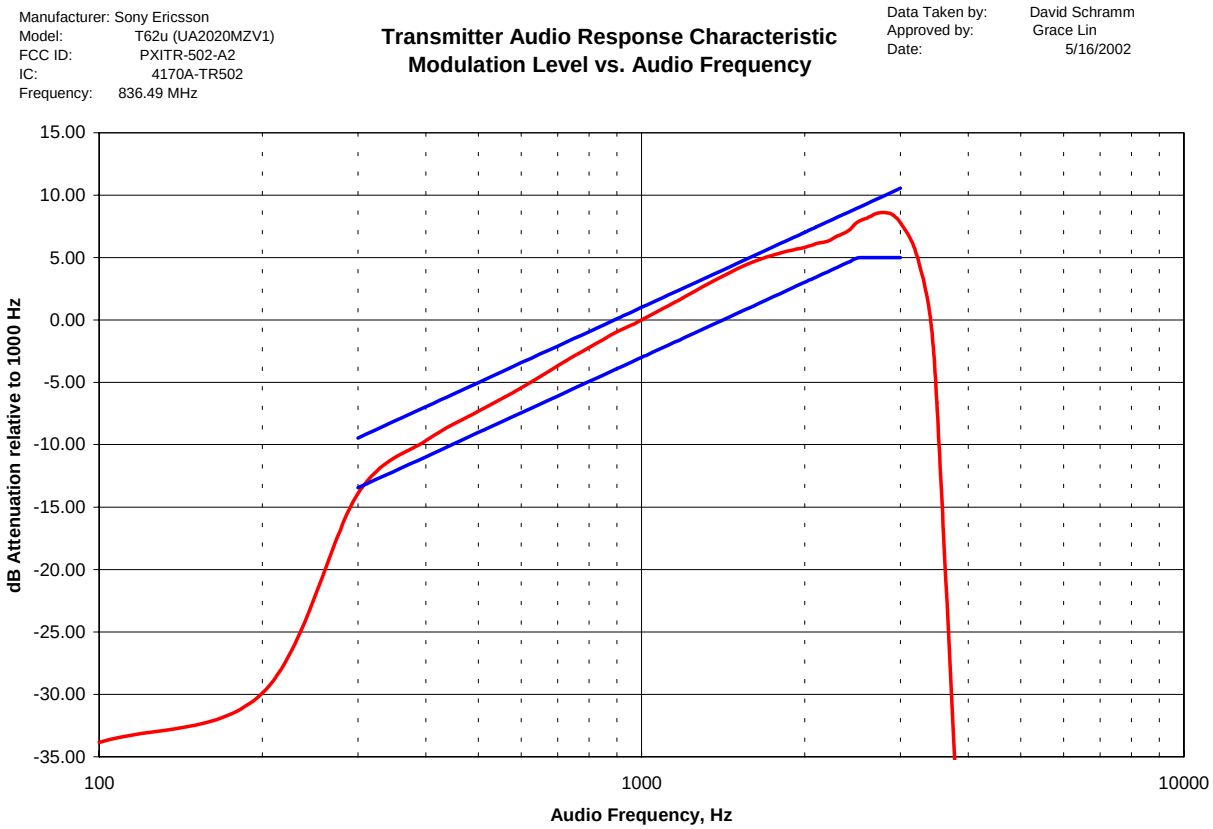
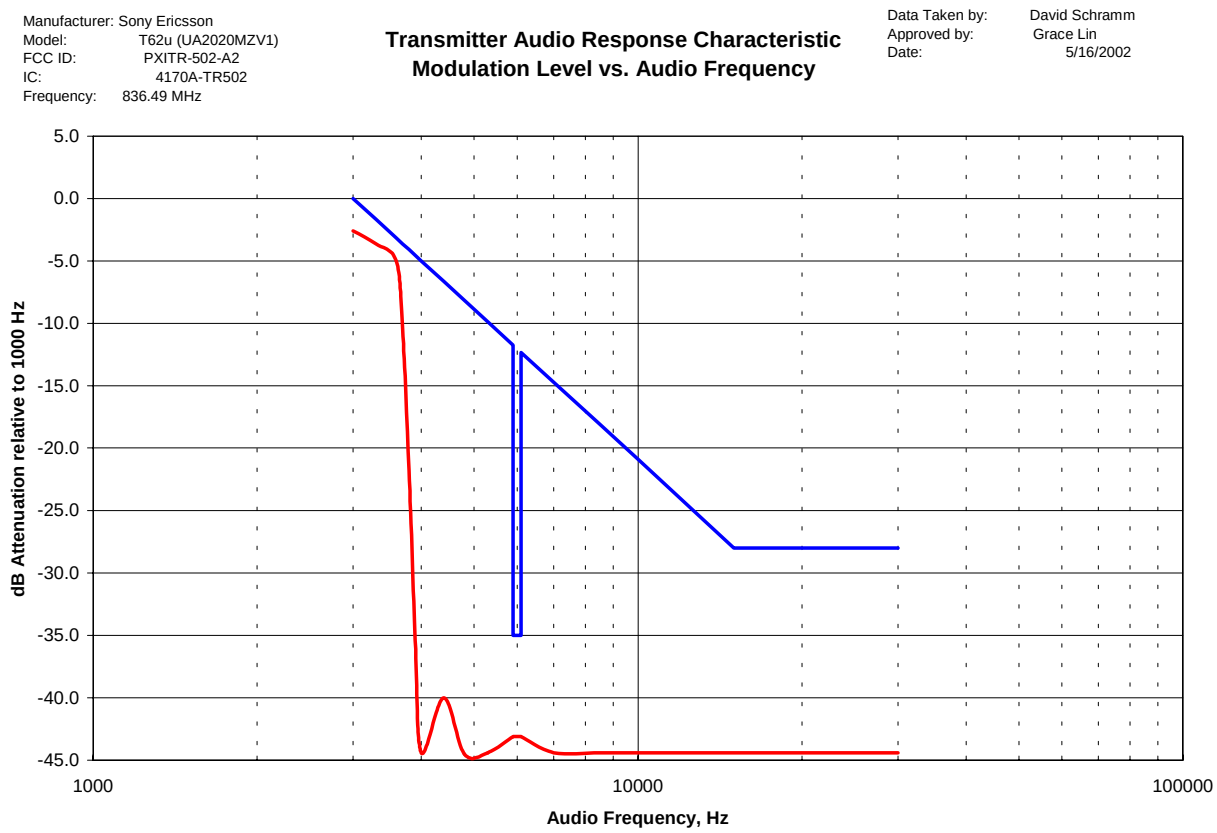


Figure 6.3-2: Post Limiter Filter Attenuation



7 EMISSION LIMITATIONS, OCCUPIED BANDWIDTH

CFR 47 §2.1049, §22.917(b)(d), IC RSS-128 §§7.4 and 7.5 and RSS-133 §6.3

For F3E/F3D emission mask uses with audio filter, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier wave (P) as follows:

- On any frequency removed from the carrier frequency by more than 20 kHz but not more than 45 kHz: at least 26 dB;
- On any frequency removed from the carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency: at least 60 dB or 43 + 10 log P dB, whichever is the lesser attenuation.

For F1D emission mask, the mean power of emissions must be attenuated below the mean power of the unmodualted carrier (P) as follows:

- On any frequency removed from the carrier frequency by more than 20 kHz but no more than 45 kHz: at least 26 dB;
- On any frequency removed from the carrier frequency by more than 45 kHz but not more than 90 kHz: at least 45 dB;
- On any frequency removed from the carrier frequency by more than 90 kHz, up to the first multiple ofthe carrier frequency: at least 60 dB or 43 +10 log P db, whichever is the lesser attenuation.

7.1 Test Procedure

The RF output of the transceiver was connected to the input of the spectrum analyzer through sufficient attenuation. The audio generator was connected to the audio input of the transceiver.

The spectrum with no modulation was recorded. The audio input signal was adjusted to obtain the frequencies deviation equal 6 kHz at the audio frequency of maximum response which was determined measuring deviation versus frequency from 300 Hz to 3.5 kHz and was found 2.8 kHz. The audio input level was increased by 16 dB. The audio frequency was set to the frequency 2.5 kHz.

The resolution and video bandwidths of the spectrum analyzer were set to 300 Hz.

The spectrum was recorded in the frequency band 100 kHz above and 100 kHz below the carrier frequency. The same plots were generated for wideband emissions, SAT, ST, DTMF9, Voice, and some of the combinations of these modulating signals.

7.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Spectrum Analyzer	HP	8566B	2134A01032/ 2344A05843	12/3/02
Attenuator	Weinschel	2 (10dB)	BK2313	5/6/03

7.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the occupied bandwidth requirements of FCC §22.917(b)(d) and IC RSS-128 §§7.4 and 7.5 and RSS-133 §6.3.

Table 7.3-1: Summary of test result locations

Location	Mode	Channel	Description
Figure 7.3-1	AMPS	383	Occupied Bandwidth – SAT
Figure 7.3-2	AMPS	383	Occupied Bandwidth – Signaling Tone
Figure 7.3-3	AMPS	383	Occupied bandwidth – SAT and ST
Figure 7.3-4	AMPS	383	Occupied bandwidth – DTMF3
Figure 7.3-5	AMPS	383	Occupied Bandwidth – Voice
Figure 7.3-6	AMPS	383	Occupied bandwidth – Voice and SAT
Figure 7.3-7	AMPS	383	Occupied Bandwidth – 10kb Wideband Data

Table 7.3-2: Occupied bandwidth measurements for TDMA and GSM modes

Mode	Channel	Resolution Bandwidth	Video Bandwidth	Sweep time	Measured Bandwidth
TDMA800	383	300 Hz	300 Hz	10 s	29.3 kHz
TDMA800	799	300 Hz	300 Hz	10 s	29.0 kHz
TDMA800	991	300 Hz	300 Hz	10 s	28.8 kHz
TDMA1900	2	300 Hz	300 Hz	10 s	28.5 kHz
TDMA1900	1000	300 Hz	300 Hz	10 s	28.5 kHz
TDMA1900	1998	300 Hz	300 Hz	10 s	28.8 kHz
GSM800	128	3 kHz	3 kHz	10 s	250 kHz
GSM800	189	3 kHz	3 kHz	10 s	250 kHz
GSM800	251	3 kHz	3 kHz	10 s	250 kHz
GSM1900	512	3 kHz	3 kHz	10 s	255 kHz
GSM1900	661	3 kHz	3 kHz	10 s	255 kHz
GSM1900	810	3 kHz	3 kHz	10 s	250 kHz

Figure 7.3-1: Occupied Bandwidth – SAT

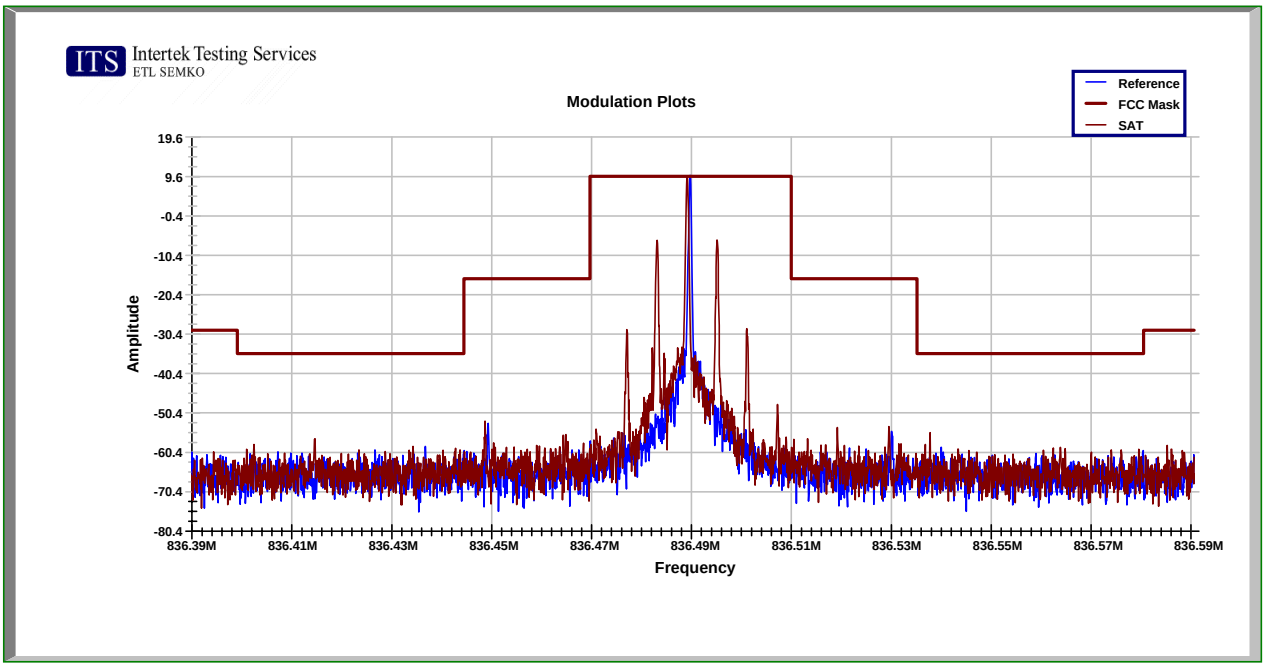


Figure 7.3-2: Occupied Bandwidth – Signaling Tone

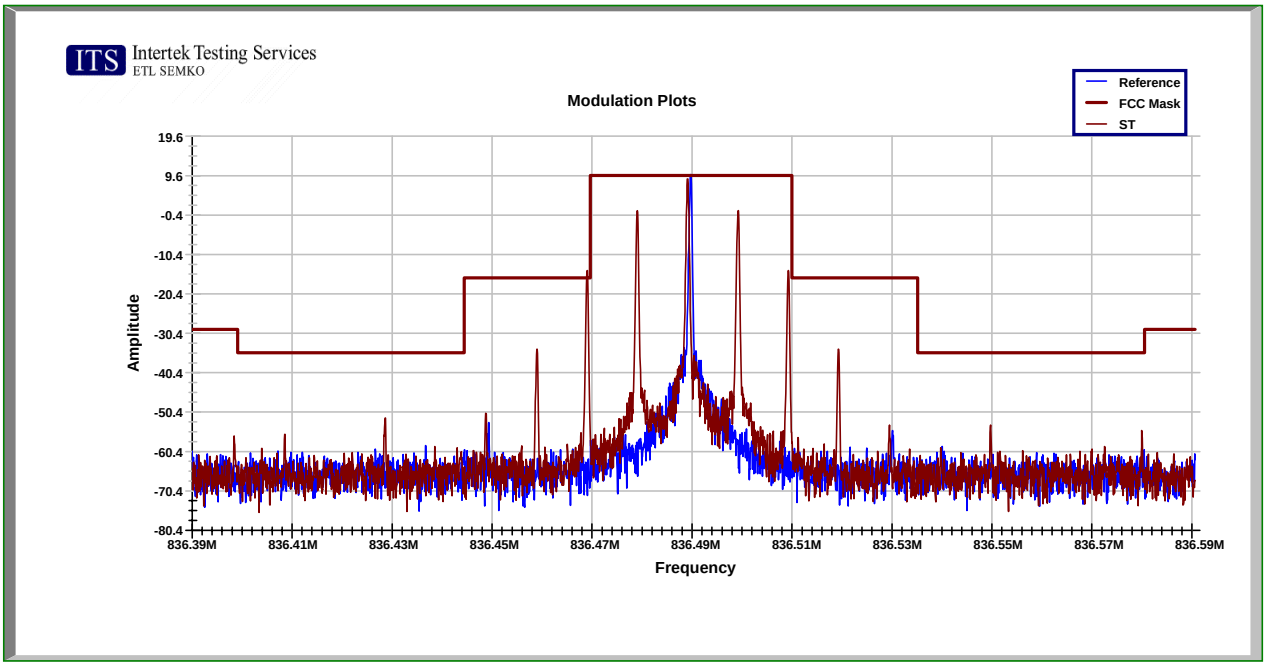


Figure 7.3-3: Occupied bandwidth – SAT and ST

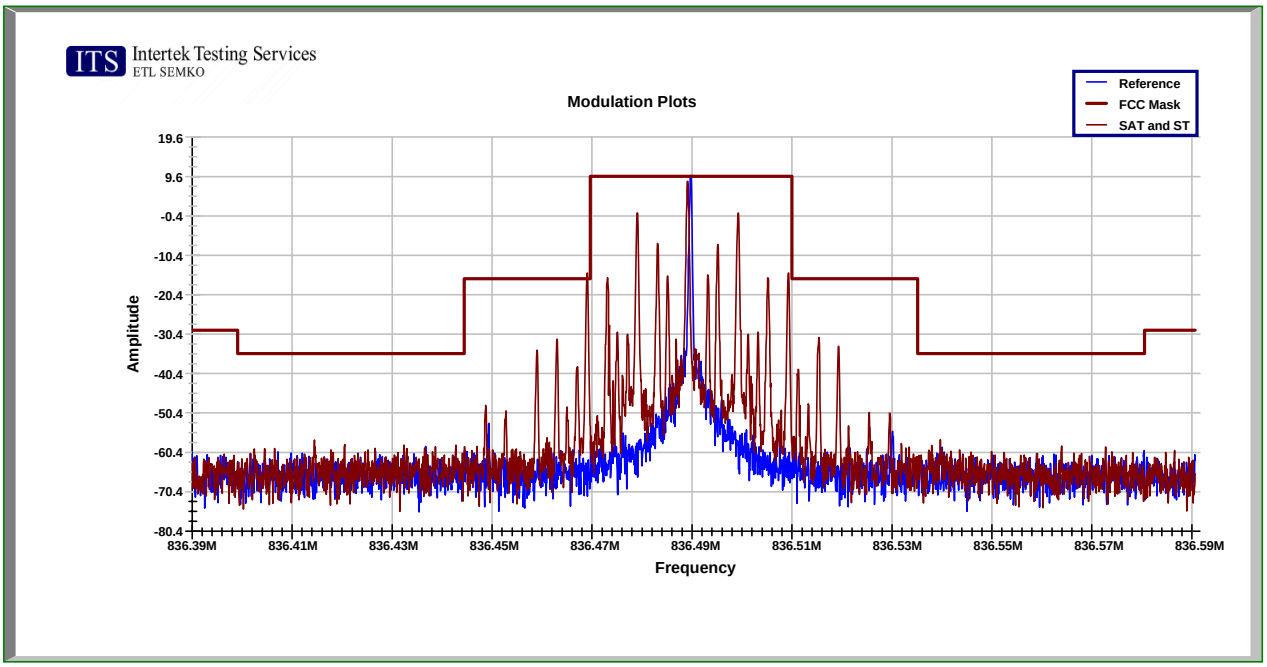


Figure 7.3-4: Occupied bandwidth – DTMF3

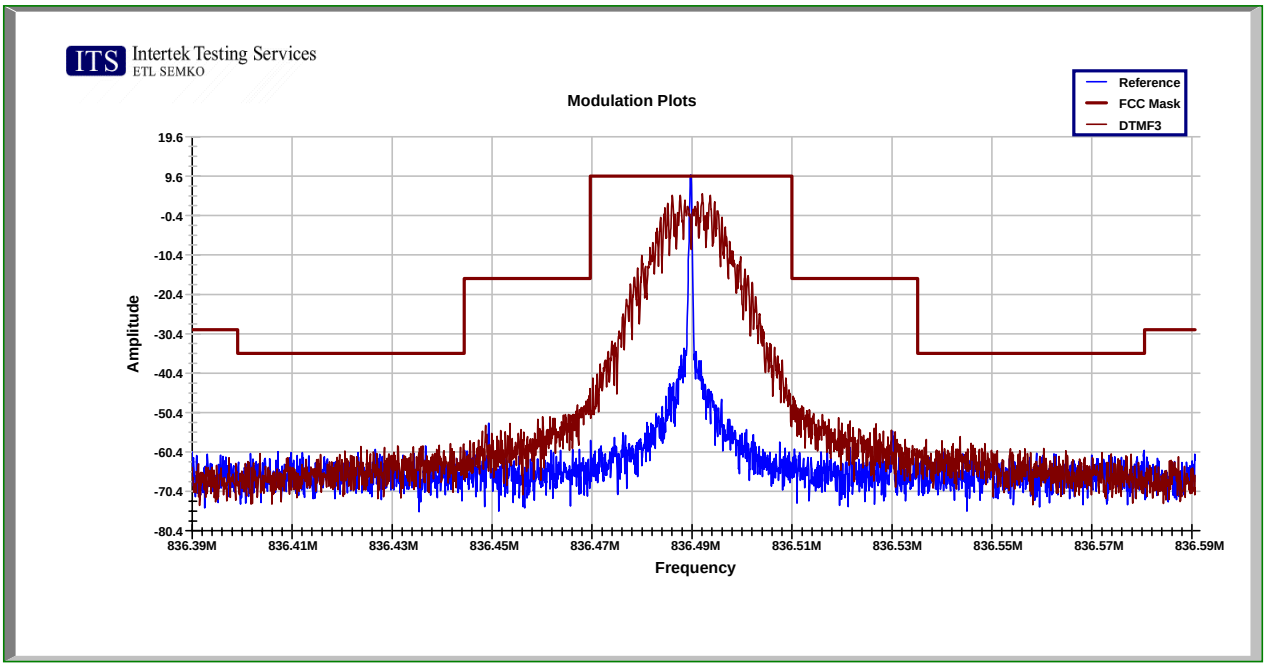


Figure 7.3-5: Occupied Bandwidth – Voice

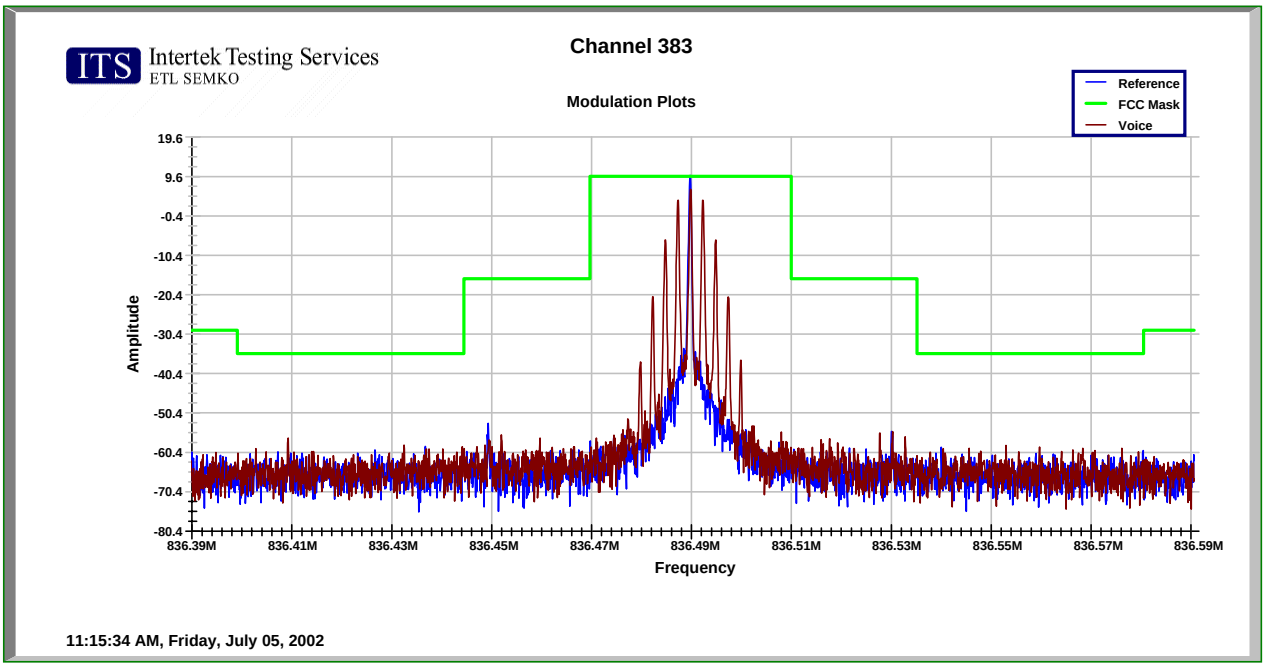


Figure 7.3-6: Occupied bandwidth – Voice and SAT

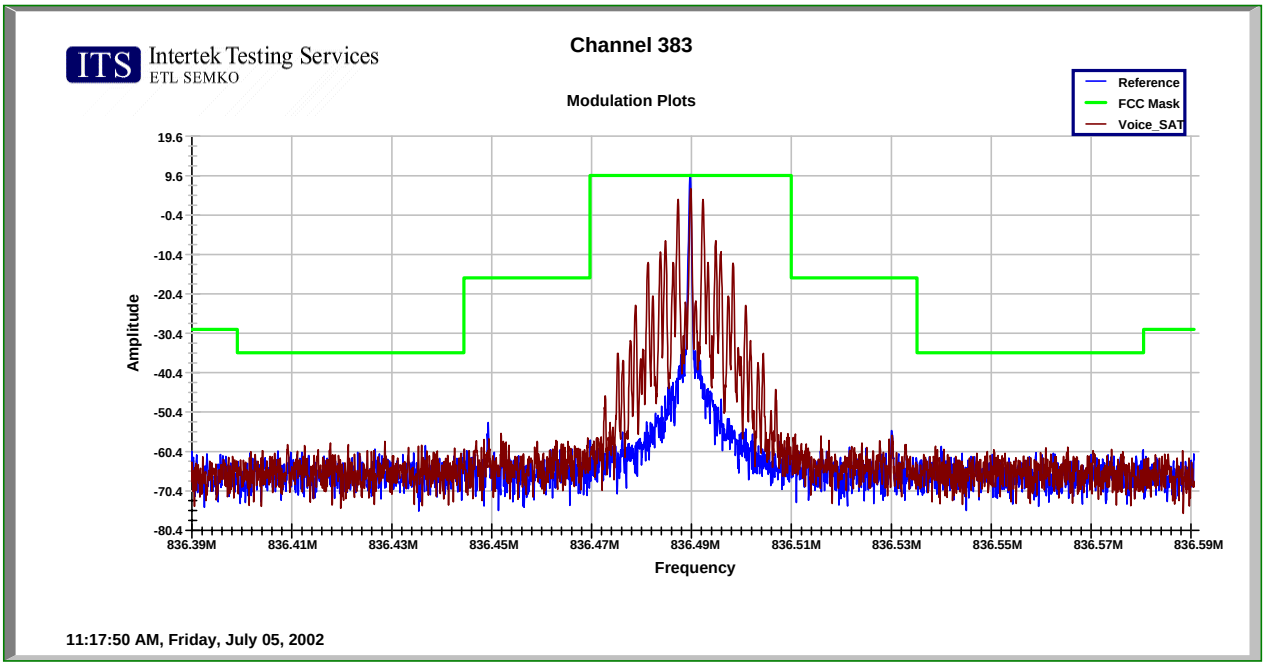
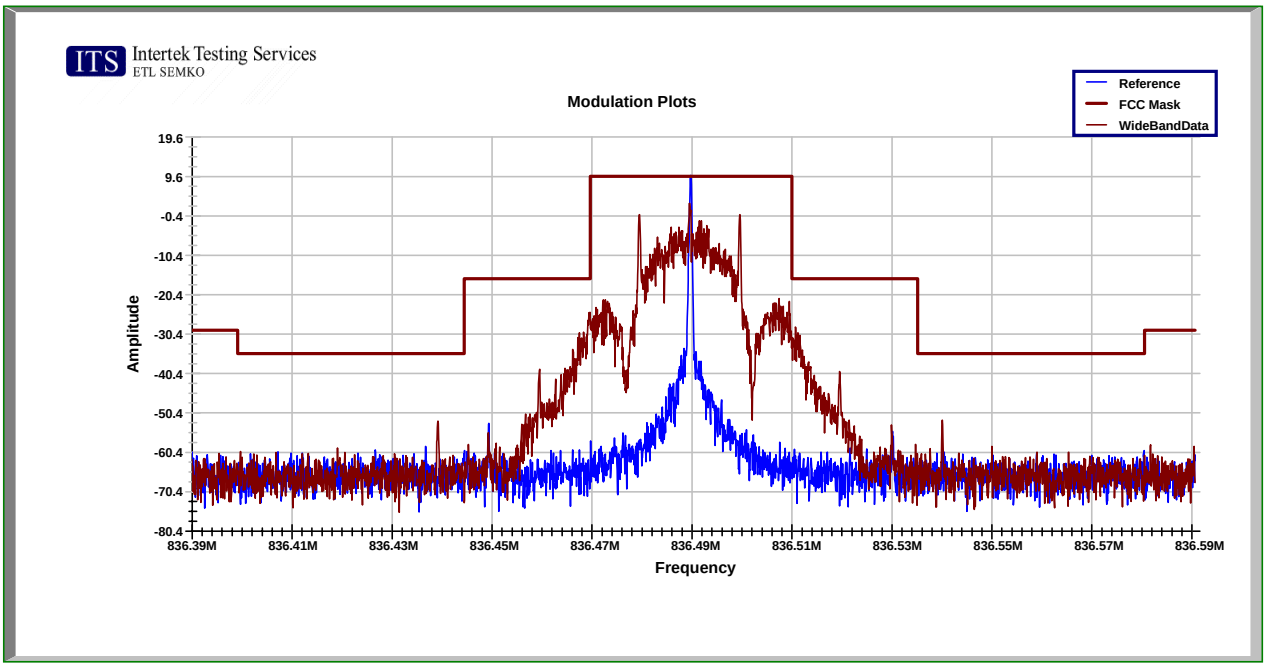


Figure 7.3-7: Occupied Bandwidth – 10kb Wideband Data



8 OUT OF BAND EMISSION AT ANTENNA TERMINALS

FCC §2.1047, FCC §22.901(d)(2), FCC §22.917(f), FCC §24.238(a) and (b), IC RSS-128 §7.4, §7.5, and IC RSS-133 §6.3

Out of Band Emissions: The mean power of emissions must be attenuated below the mean power of the unmodulated 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 to exceed -80 dBm at the transmit antenna connector.

Band Edge Requirements: 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.

8.1 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 30 kHz. The audio modulating signal was adjusted like it is described in Section 6.1 of this report. Sufficient scans were taken to show the out of band Emissions, if any, up to 10th harmonic.

8.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Spectrum Analyzer	HP	8566B	2134A01032/ 2344A05843	12/3/02
Highpass Filter	FILTEK	HP12/1000-5AB	ITS213156	5/6/03
Highpass Filter	FILTEK	HP12/2000-5AB	ITS213156	5/6/03
Notch Filter, tunable	Wainwright Instruments GmbH	WRCO880/960-8 EEK	5	5/14/03
Attenuator	Weinschel	2 (10dB)	BK2313	5/6/03

8.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the out of band emission at antenna terminal requirements of FCC §2.1047, FCC §22.901(d)(2), FCC §22.917(f), FCC §24.238(a) and (b), IC RSS-128 §7.4, §7.5, and IC RSS-133 §6.3.

Table 8.3-1: Summary of test result locations

Location	Mode (Band)	Channel	Description
Figure 8.3-1	AMPS	383	Conducted spurious emissions, 30MHz to 10 GHz
Figure 8.3-2	TDMA800	383	Conducted spurious emissions, 30MHz to 10 GHz
Figure 8.3-3	TDMA1900	1000	Conducted spurious emissions, 30MHz to 20 GHz
Figure 8.3-4	GSM800	189	Conducted spurious emissions, 30MHz to 10 GHz
Figure 8.3-5	GSM1900	661	Conducted spurious emissions, 30MHz to 20 GHz
Figure 8.3-6	AMPS	383, 799, 991	Emissions in base frequency range, 869 to 894 MHz
Figure 8.3-7	TDMA800	383, 799, 991	Emissions in base frequency range, 869 to 894 MHz
Figure 8.3-8	GSM800	128, 189, 251	Emissions in base frequency range, 869 to 894 MHz
Figure 8.3-9	TDMA800	991	1 MHz band edge conducted spurious emissions
Figure 8.3-10	TDMA800	799	1 MHz band edge conducted spurious emissions
Figure 8.3-11	GSM800	128	1 MHz band edge conducted spurious emissions
Figure 8.3-12	GSM800	251	1 MHz band edge conducted spurious emissions
Figure 8.3-13	TDMA1900	2	1 MHz band edge conducted spurious emissions
Figure 8.3-14	TDMA1900	1998	1 MHz band edge conducted spurious emissions
Figure 8.3-15	GSM1900	512	1 MHz band edge conducted spurious emissions
Figure 8.3-16	GSM1900	810	1 MHz band edge conducted spurious emissions

Figure 8.3-1: Out of band emissions at antenna terminals – AMPS Channel 383

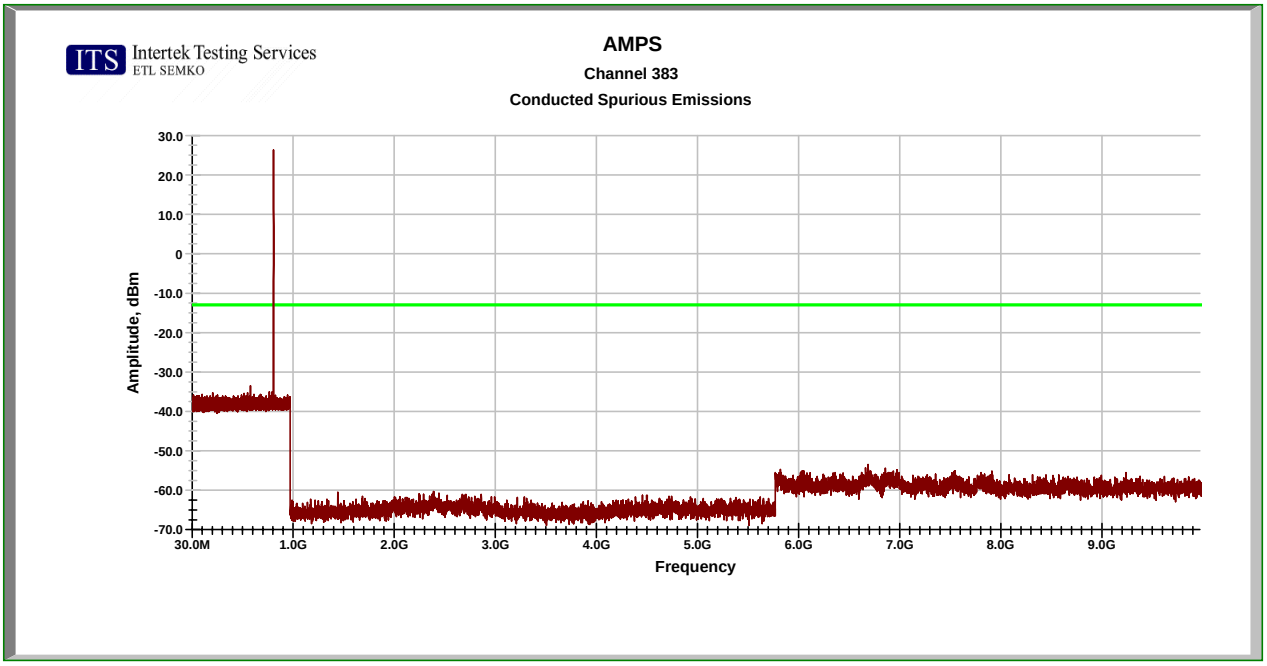


Figure 8.3-2: Out of band emissions at antenna terminals – TDMA800 Channel 383

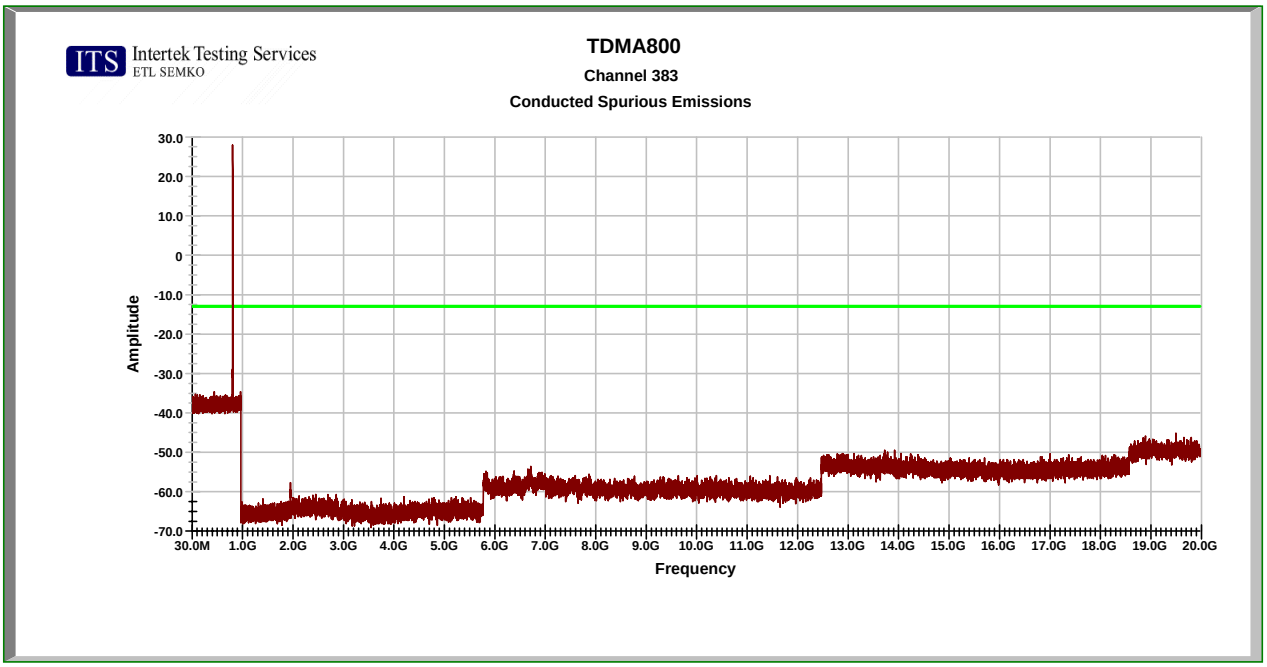


Figure 8.3-3: Out of band emissions at antenna terminals – TDMA1900 Channel 1000

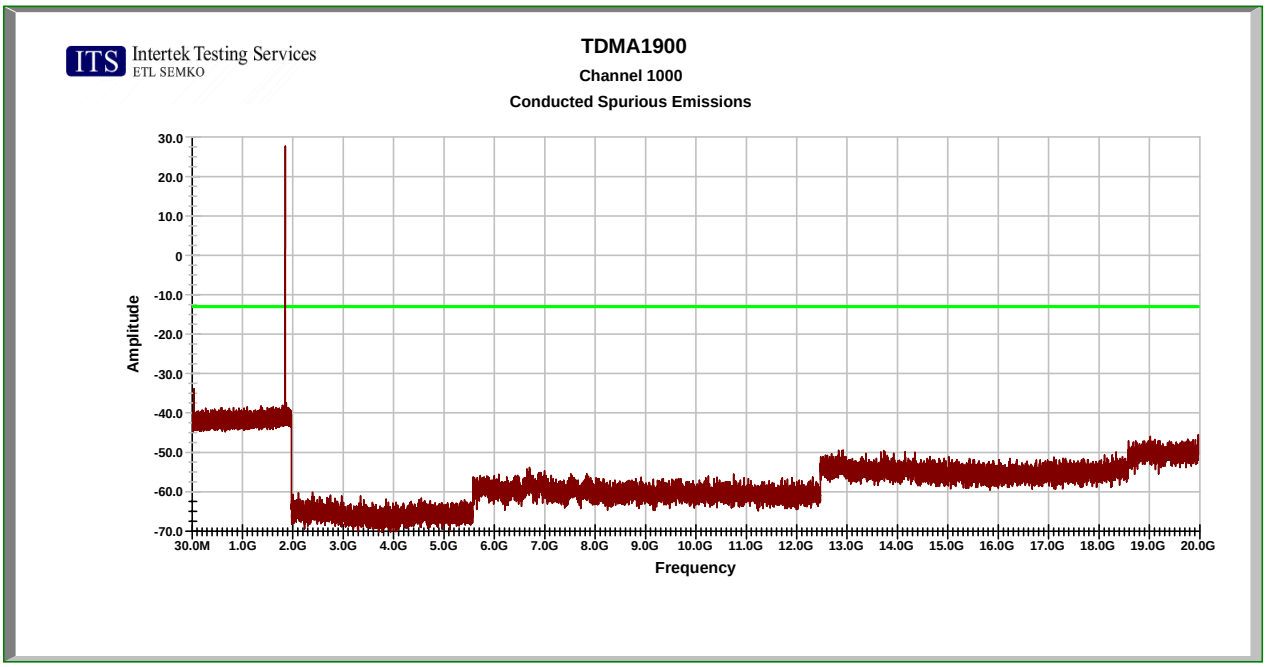


Figure 8.3-4: Out of band emissions at antenna terminals – GSM800 Channel 189

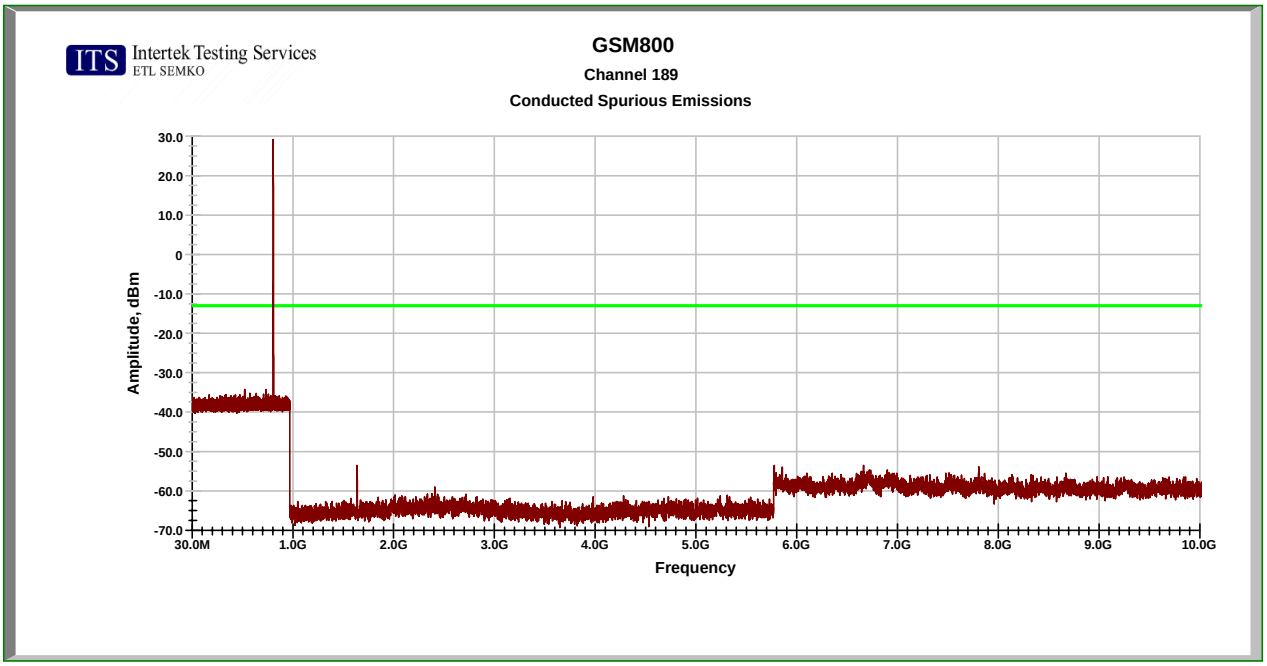


Figure 8.3-5: Out of band emissions at antenna terminals – GSM1900 Channel 661

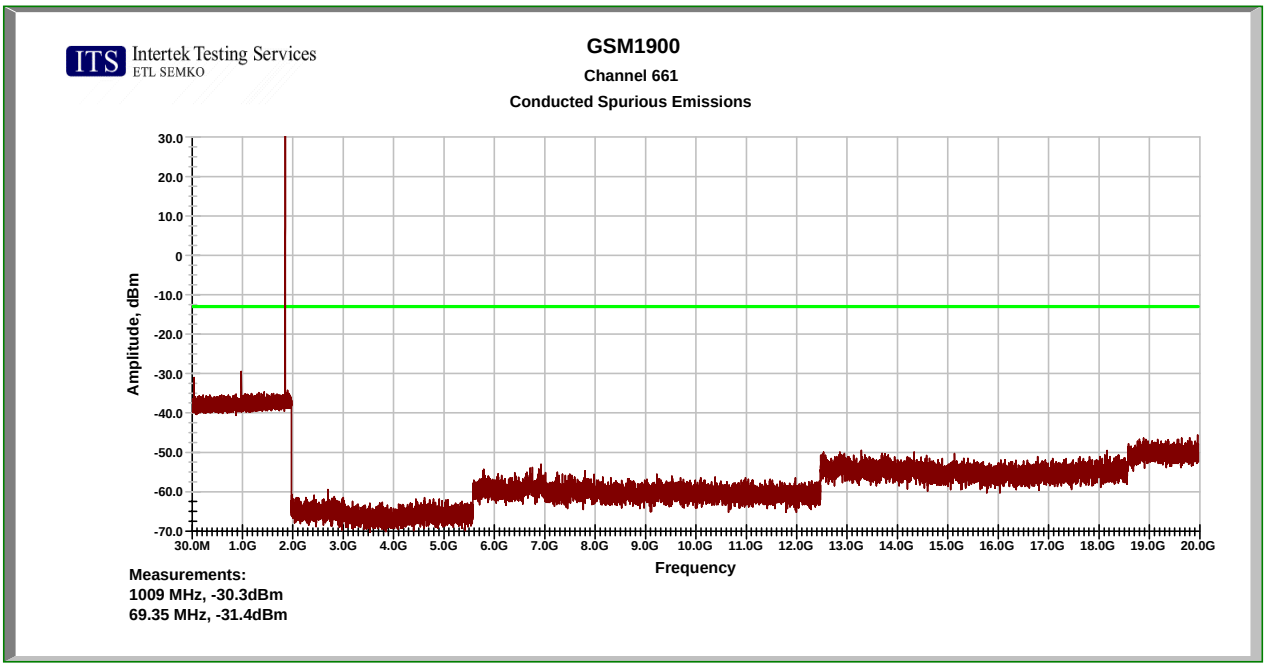


Figure 8.3-6: Emissions in base frequency range – AMPS Channels 383, 799, and 991

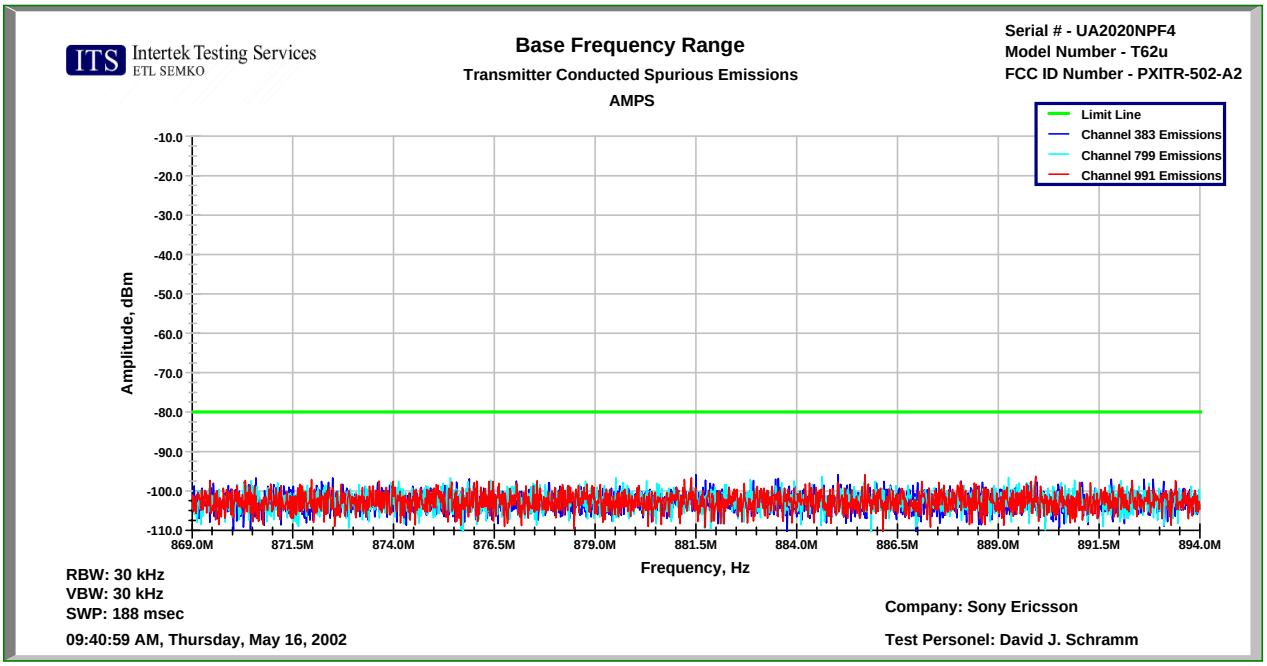


Figure 8.3-7: Emissions in base frequency range – TDMA800 Channels 383, 799 and 991

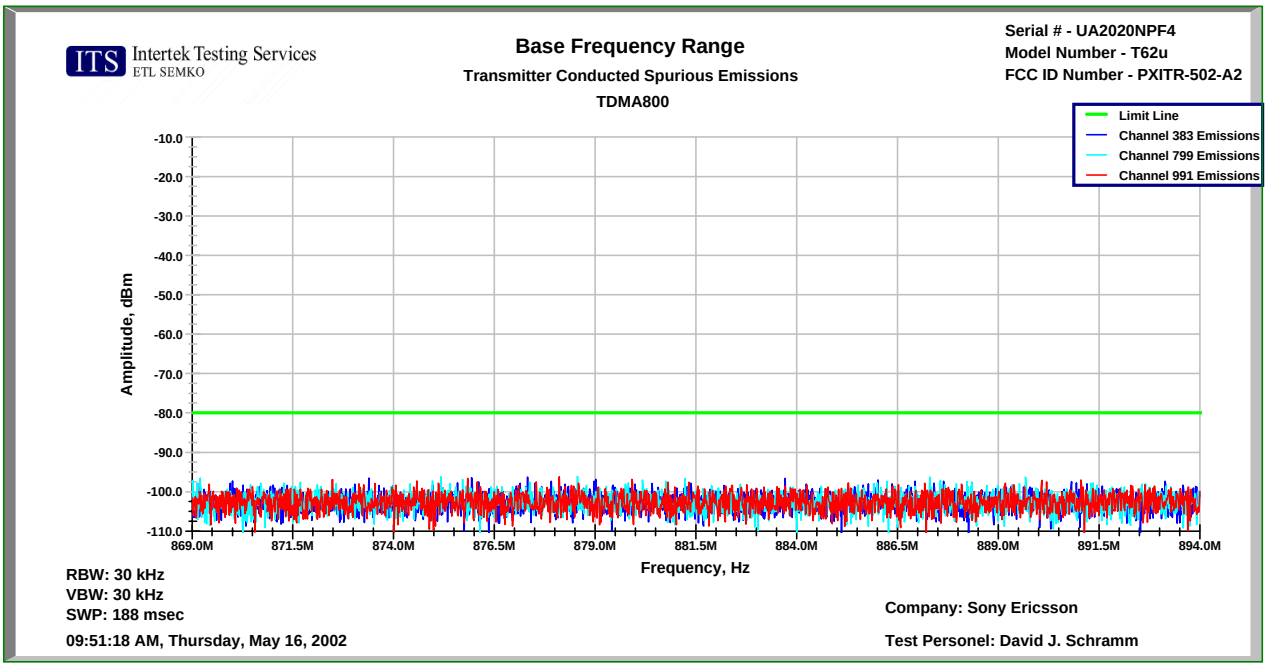


Figure 8.3-8: Emissions in base frequency range – GSMA800 Channels 128, 189 and 251

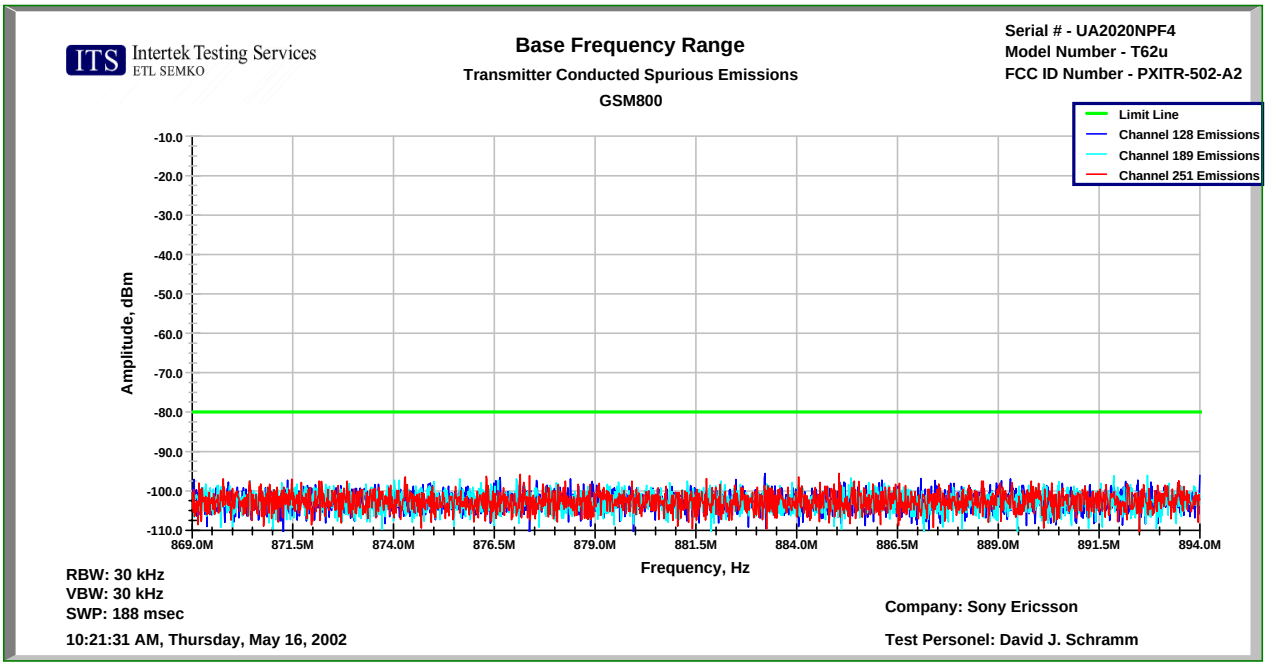


Figure 8.3-9: Band edge – TDMA800 Low Channel

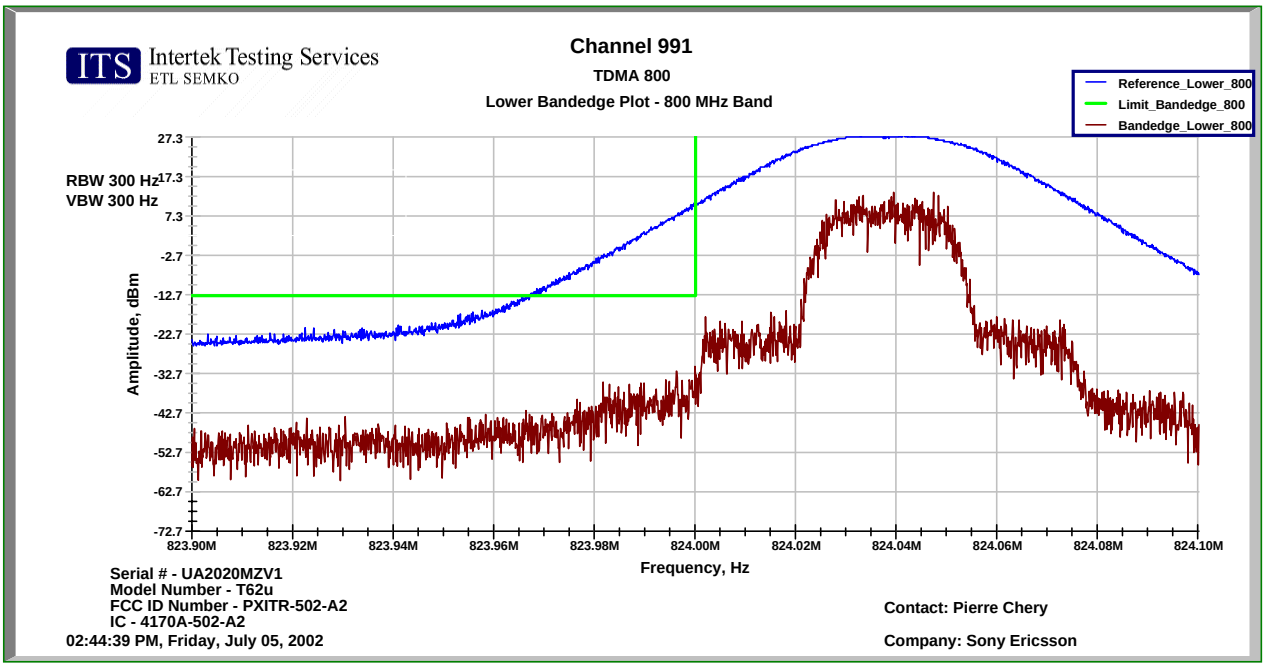


Figure 8.3-10: Band edge – TDMA800 High Channel

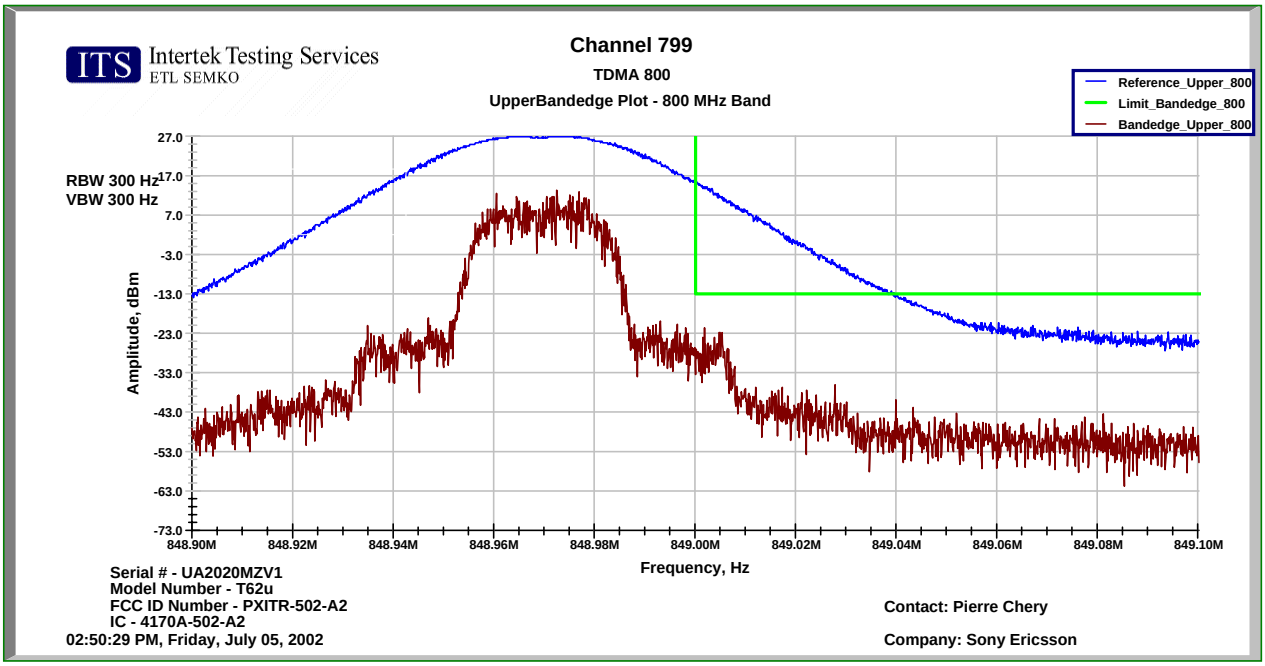


Figure 8.3-11: Band edge – TDMA1900 Low Channel

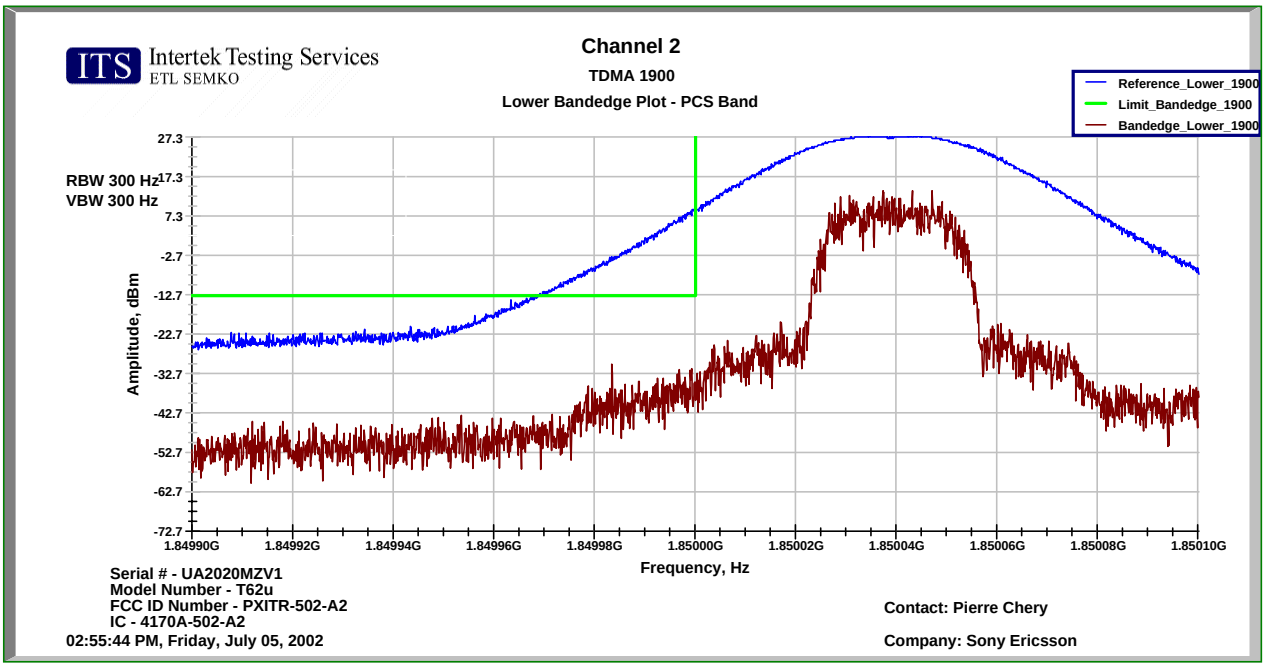


Figure 8.3-12: Band edge – TDMA1900 High Channel

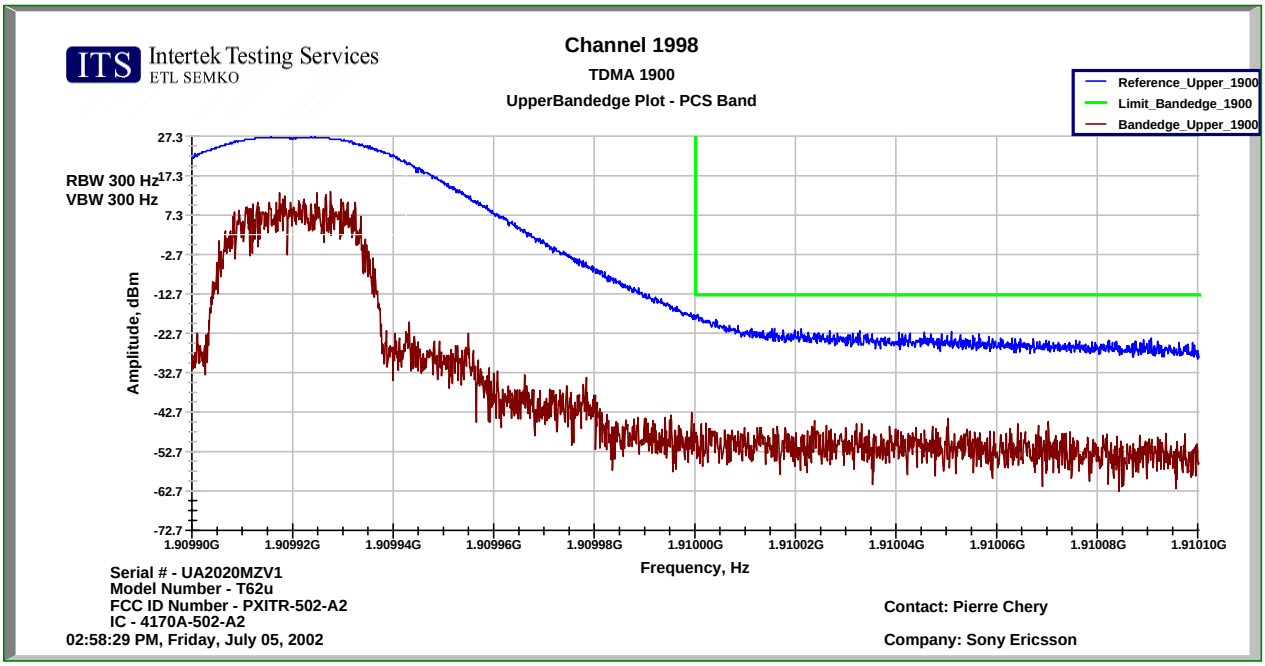


Figure 8.3-13: Band edge – GSM800 Low Channel

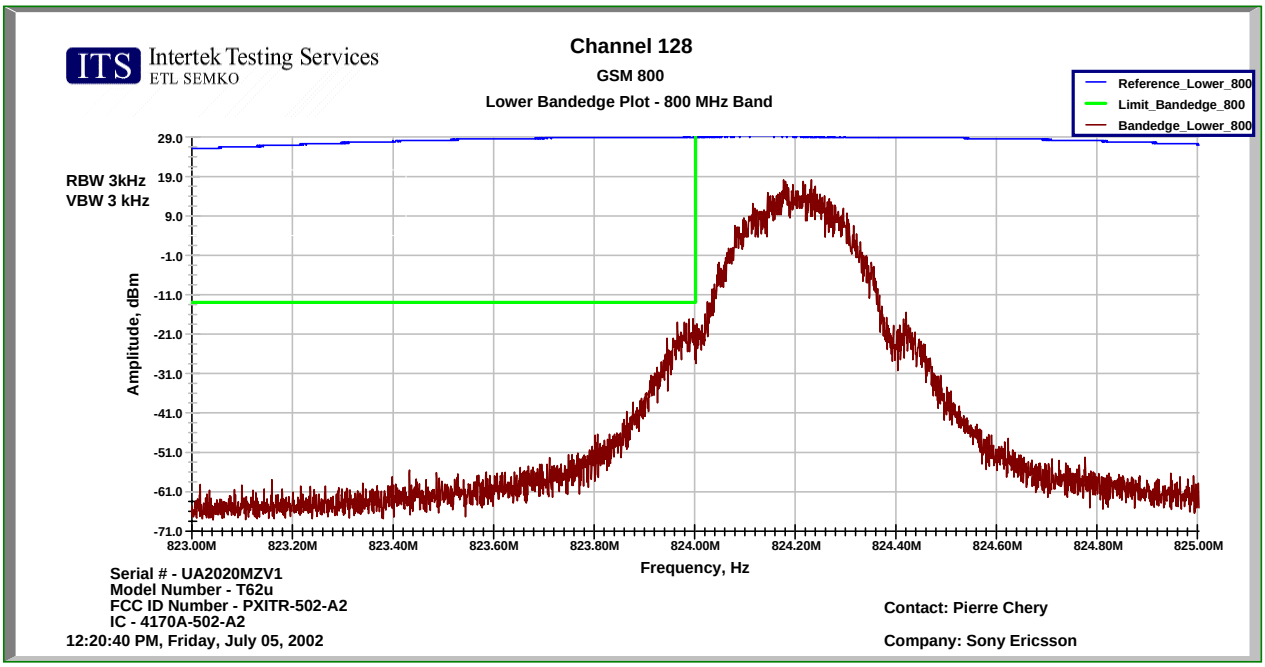


Figure 8.3-14: Band edge – GSM800 High Channel

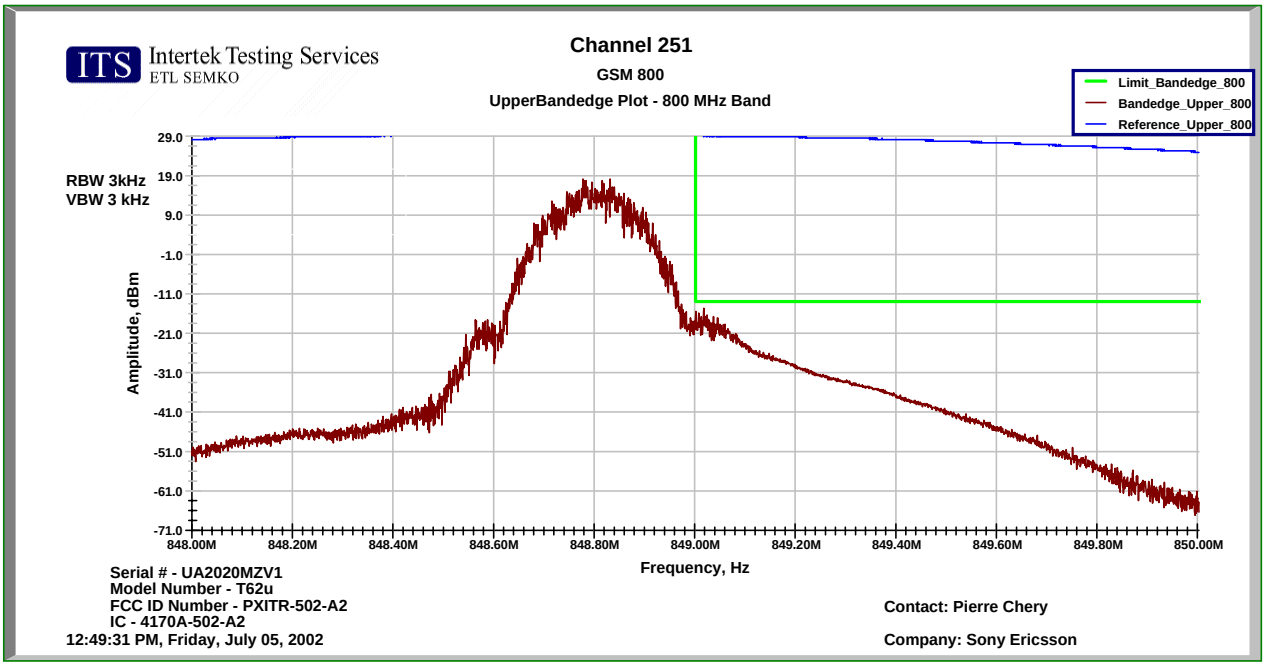


Figure 8.3-15: Band edge – GSM1900 Low Channel

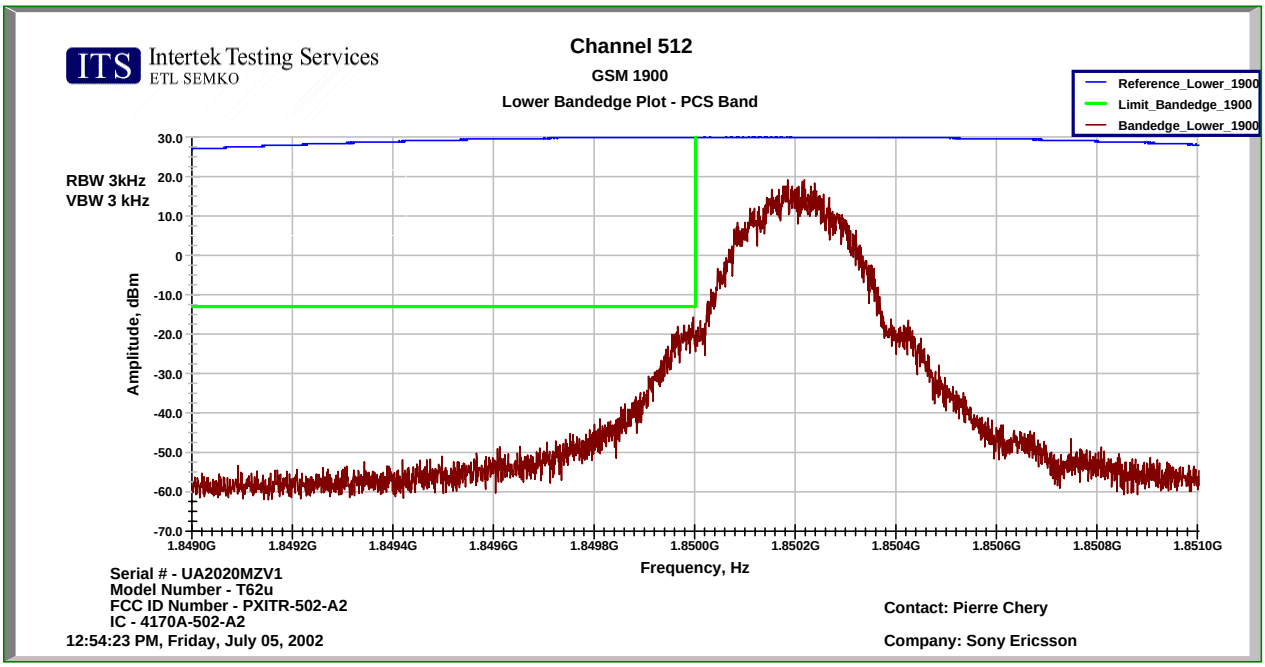
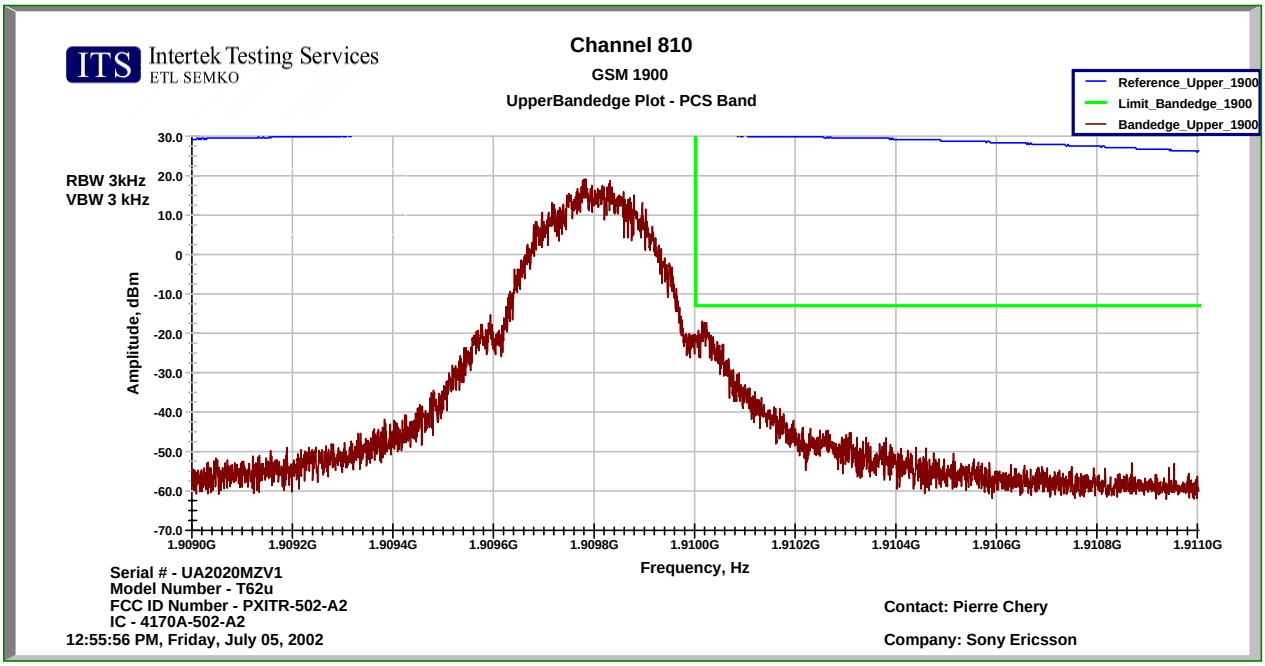


Figure 8.3-16: Band edge – GSM1900 High Channel



9 FIELD STRENGTH OF SPURIOUS RADIATION

FCC §2.1053, IC RSS-128 §7.4 and §7.5

9.1 Test Procedure

The measurement antenna was placed at a distance of 3 meters from the EUT. The EUT was configured to operate at maximum power and was connected to the earpiece. During the tests, the antenna height and EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with measurement antenna in both vertical and horizontal polarizations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle, and high channels). Once spurious emissions 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 at the spurious emissions frequency.

9.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Spectrum Analyzer	HP	8566B	2134A01032/ 2344A05843	12/3/02
Spectrum Analyzer	HP	8546A	3410A00173/ 3448A00203	3/28/03
Preamplifier	HP	8447D	2648A04926	2/22/03
Preamplifier	HP	8449B	3008A00989	10/24/02
Antenna	Schaffner-Chase	CBL6112B	2622	8/14/02
High pass Filter	FILTEK	HP12/1000-5AB	ITS213156	5/6/03
High pass Filter	FILTEK	HP12/2000-5AB	ITS213156	5/6/03
Receiving Biconilog Antenna	Chase	CBL6112	2622	8/15/02
Receiving Horn Antenna	AH-Systems	SAS-200/571	246	1/13/03
Transmitting Dipole Antenna	CDI	A100	R4	8/1/02
Transmitting Horn Antenna	EMCO	3115	9208-3919	2/20/03

9.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone (S/N: BD3ZZSZQ1R) met of spurious radiation requirements of FCC §2.1053 and IC RSS-128 §7.4 and §7.5. The test results are located in Table 9.3-1. There were no other emissions detected within 20 dB of the limit.

Table 9.3-1: Radiated spurious emissions

Company: **Sony Ericsson**
Model: **T62u**
Project No.: **3023649**
Date: 07/11/02
Notes:

Tested by: David J. Schramm
Location: Duluth
Detector: HP8566
Antenna: EMCO 3115
Cable(s): HS7kNSMA TW3+HS4kNN
Distance: **3**

Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Path Loss	Antenna Gain dBi	Radiated Power EIRP, dB	EIRP Limit dB	Margin dB
GSM 1900, Channel 661							
H	3760.000	-51.0	9.1	7.8	-34.1	-13.0	-21.1
H	5640.000	-65.9	12.4	8.3	-45.2	-13.0	-32.2
H	7520.000	-65.1	18.0	8.8	-38.3	-13.0	-25.3
H	9400.000	-58.1	19.8	9.3	-29.0	-13.0	-16.0
H	11280.000	-68.6	22.2	10.7	-35.7	-13.0	-22.7
V	3760.000	-48.4	9.1	7.8	-31.5	-13.0	-18.5
V	5640.000	-58.5	12.4	8.3	-37.8	-13.0	-24.8
V	7520.000	-68.0	18.0	8.8	-41.2	-13.0	-28.2
V	9400.000	-56.5	19.8	9.3	-27.4	-13.0	-14.4
V	11280.000	-69.2	22.2	10.7	-36.3	-13.0	-23.3
GSM 1900, Channel 810							
H	3819.600	-48.2	9.1	8.8	-30.3	-13.0	-17.3
H	5729.400	-64.6	12.4	7.8	-44.4	-13.0	-31.4
H	7639.200	-68.4	18.0	8.3	-42.1	-13.0	-29.1
H	9549.000	-61.3	19.8	8.8	-32.7	-13.0	-19.7
H	11458.800	-66.6	22.2	9.3	-35.1	-13.0	-22.1
V	3819.600	-44.5	9.1	7.8	-27.6	-13.0	-14.6
V	5729.400	-63.6	12.4	8.3	-42.9	-13.0	-29.9
V	7639.200	-67.4	18.0	8.8	-40.6	-13.0	-27.6
V	9549.000	-64.2	19.8	9.3	-35.1	-13.0	-22.1
V	11458.800	-67.6	22.2	10.7	-34.7	-13.0	-21.7
GSM 1900, Channel 512							
H	3700.400	-51.5	9.1	8.8	-33.6	-13.0	-20.6
H	5550.600	-65.3	12.4	7.8	-45.1	-13.0	-32.1
H	7400.800	-60.8	18.0	8.3	-34.5	-13.0	-21.5
H	9251.000	-49.4	19.8	8.8	-20.8	-13.0	-7.8
H	11101.200	-68.8	22.2	9.3	-37.3	-13.0	-24.3
V	3700.400	-54.8	9.1	7.8	-37.9	-13.0	-24.9
V	5550.600	-56.7	12.4	8.3	-36.0	-13.0	-23.0
V	7400.800	-64.9	18.0	8.8	-38.1	-13.0	-25.1
V	9251.000	-50.2	19.8	9.3	-21.1	-13.0	-8.1
V	11101.200	-73.5	22.2	10.7	-40.6	-13.0	-27.6
GSM 1900, Channel 512							
H	1672.800	-53.0	-3.1	6.4	-49.7	-13.0	-36.7
TDMA 800, Channel 383							
V	1672.980	-61.0	-2.9	6.4	-57.5	-13.0	-44.5
H	2509.470	-58.6	0.7	7.5	-50.4	-13.0	-37.4
AMPS 800, Channel 383							
V	1672.980	-58.9	-2.9	6.4	-55.4	-13.0	-42.4
H	3345.960	-52.9	7.7	7.9	-37.3	-13.0	-24.3
TDMA 1900, Channel 1000							
V	3759.960	-60.3	9.7	7.8	-42.8	-13.0	-29.8

NOTE: There were no other emission detected within 20 dB of the limit.

10 POWER LINE CONDUCTED EMISSIONS

FCC §15.107, FCC §15.207, and ICES-003

10.1 Test Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUTs are placed on a horizontal metal ground plane and isolated from the ground plane by 3 to 12 mm of insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

Equipment setup for conducted disturbance tests followed the guidelines of ANSI C63.4: 1992.

10.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Spectrum Analyzer	HP	8566B	2134a010321/ 2344A05843	12/3/02
EMI Receiver	HP	8546A	3410A00173/ 3448A00203	3/28/03
LISN	FCC	FCC-LISN-50-50-M	2020	5/12/03

10.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the power line conducted emission requirements of FCC §15.107 and §15.207 and ICES-003. The test results are located in Table 10.3-1.

Table 10.3-1 FCC §15.107, §15.207 and ICES-003 Power line Conducted Emissions

Company: **Sony Ericsson**
Model: **T62u**
Job No.: **3023649**
Date: 06/13/02
Standard: FCC Part 15
Class: B

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Cable(s): CABLETT5
Limiter: no

Notes: Tested at 120 Vac. Used new FCC rules for test methods and limits.
Salcomp power supply, M/N: 771250, S/N: 019014396Q

Frequency MHz	Reading Side A dB	Reading Side B dB	Attenuator Factor dB	System Loss dB	Qausi-Peak Net dB(uV)	Qausi-Peak Limit dB(uV)	Qausi-Peak Margin dB
0.273	50.3	53.3	0.0	1.0	54.3	61.0	-6.7
0.525	51.3	50.6	0.0	1.0	52.3	56.0	-3.7
0.539	51.7	50.2	0.0	1.0	52.7	56.0	-3.3
0.798	50.3	48.7	0.0	1.0	51.3	56.0	-4.7
1.068	47.6	43.1	0.0	1.0	48.6	56.0	-7.4
1.233	30.5	28.7	0.0	1.0	31.5	56.0	-24.5

Frequency MHz	Reading Side A dB	Reading Side B dB	Attenuator Factor dB	System Loss dB	Average Net dB(uV)	Average Limit dB(uV)	Average Margin dB
0.273	40.8	43.9	0.0	1.0	44.9	51.0	-6.1
0.525	39.4	39.8	0.0	1.0	40.8	46.0	-5.2
0.539	41.7	40.7	0.0	1.0	42.7	46.0	-3.3
0.798	37.8	32.9	0.0	1.0	38.8	46.0	-7.2
1.068	31.9	29.2	0.0	1.0	32.9	46.0	-13.1
1.233	17.9	14.7	0.0	1.0	18.9	46.0	-27.1

Company: **Ericsson, Inc.**
Model: **T62U**
Job No.: **3023649**
Date: 05/20/02
Standard: EN55022
Class: B Group: None

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Cable(s): CABLETT5
Limiter: no

Notes: Ericsson Power Supply - Model 316AMS43001 - S/N 0116
Tested at 120VAC/60Hz

Frequency MHz	Reading Side A dB	Reading Side B dB	Attenuator Factor dB	System Loss dB	Qausi-Peak Net dB(uV)	Qausi-Peak Limit dB(uV)	Qausi-Peak Margin dB
0.451	23.7	24.9	0.0	1.0	25.9	56.9	-31.0
0.475	22.6	24.1	0.0	1.0	25.1	56.4	-31.4
0.892	10.5	19.1	0.0	1.0	20.1	56.0	-35.9
0.916	12.4	19.5	0.0	1.0	20.5	56.0	-35.5
1.139	13.1	13.4	0.0	1.0	14.4	56.0	-41.6
1.766	10.9	12.3	0.0	1.0	13.3	56.0	-42.7

10.4 Test Configuration Photograph

Figure 10.4-1 and Figure 10.4-2 show the testing configurations used.

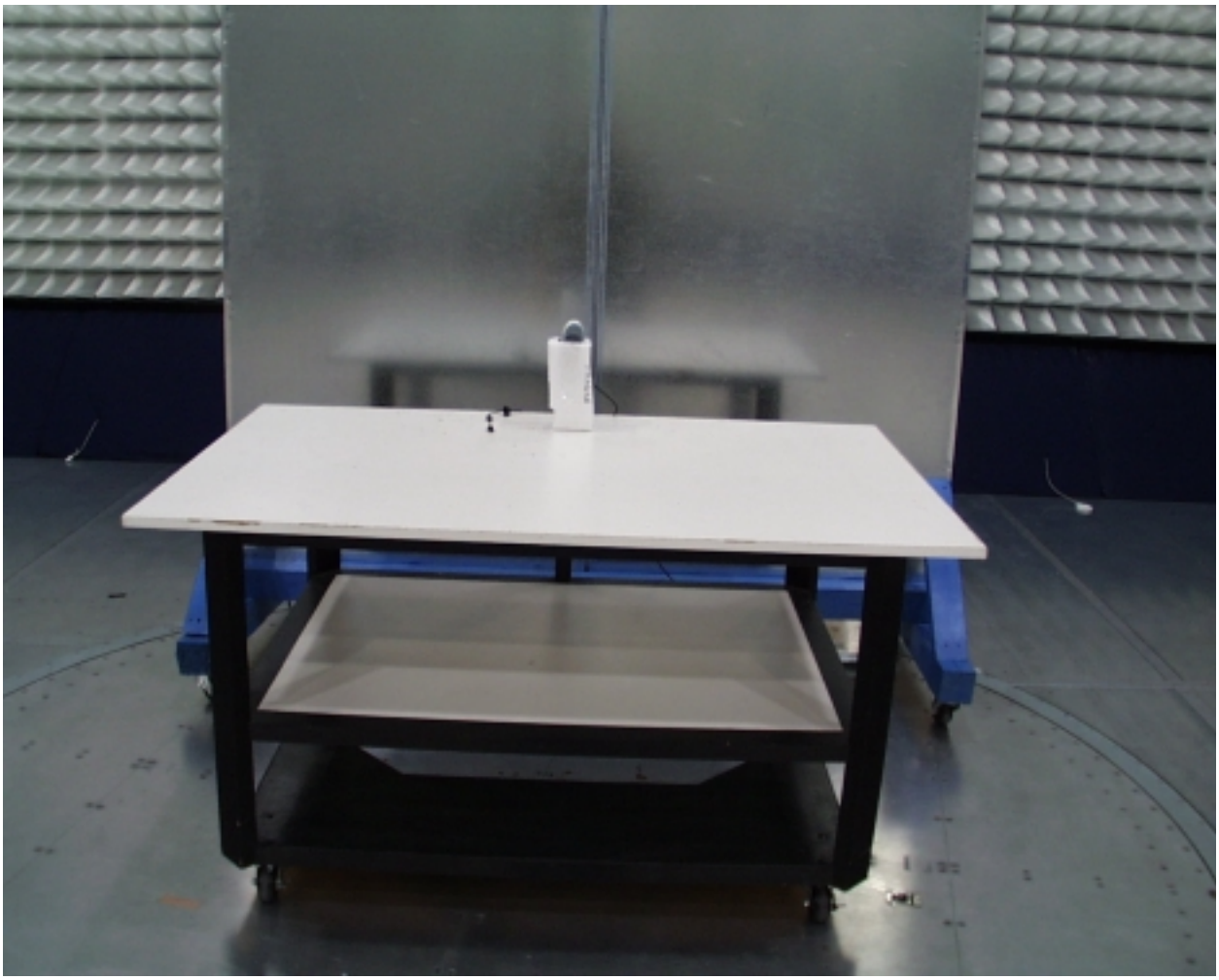


Figure 10.4-1: Configuration photograph, AC mains conducted emission, front view

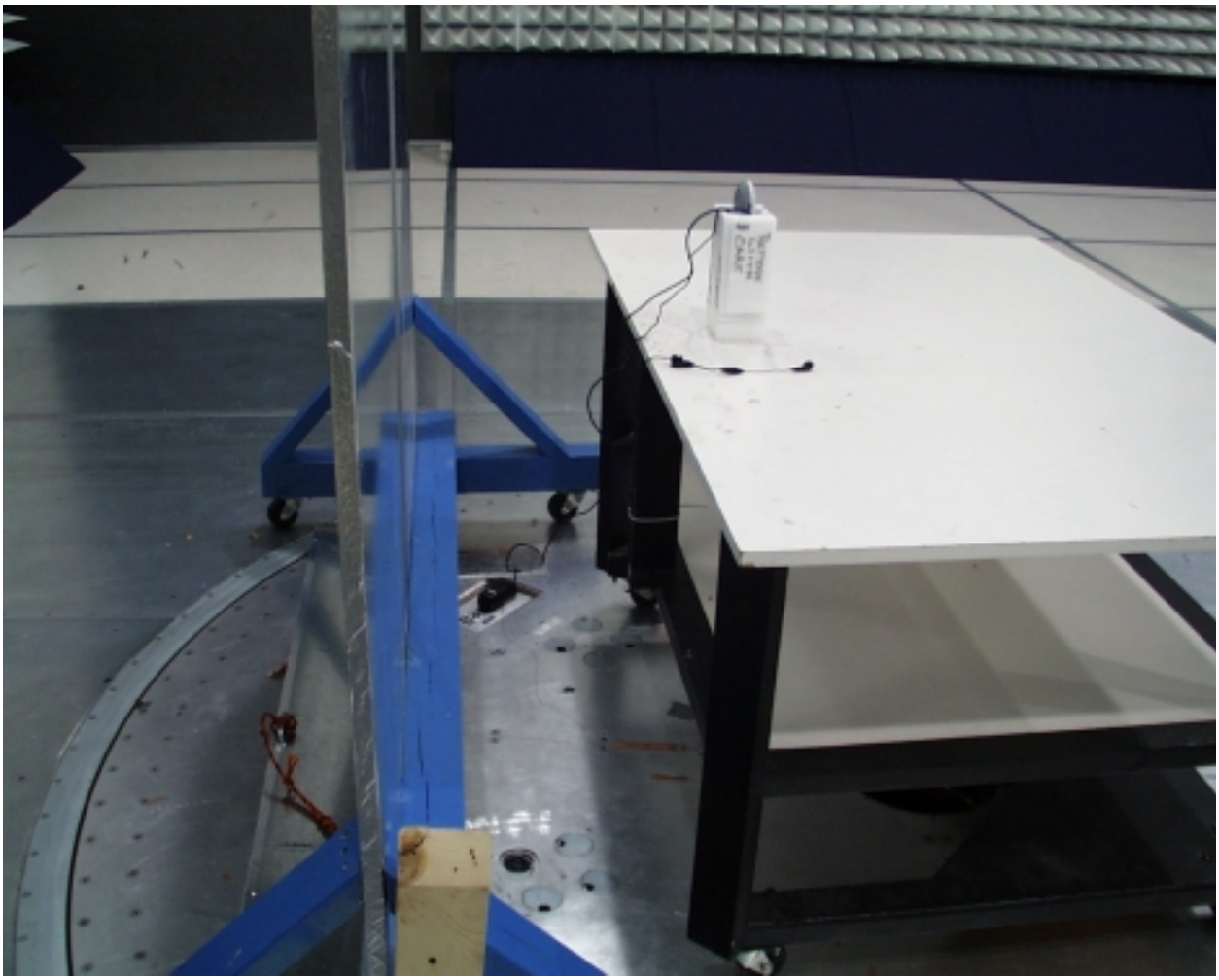


Figure 10.4-2: Configuration photograph, AC mains conducted emission, rear view

11 FREQUENCY STABILITY VS TEMPERATURE

FCC §2.1055, FCC §22.355, FCC §24.235, IC RSS-128 §8, IC RSS-133 §7

Frequency tolerance: 2.5ppm

11.1 Test Procedure

The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feedthrough attenuators. The EUT was placed inside the temperature chamber. The DC leads, RF output cable, and external PTT cable exited the chamber through an opening made for that purpose.

After the temperature stabilized for approximately 30 minutes, the external PTT switch was activated, and the frequency output was recorded from the counter.

11.2 Test Equipment

/

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Communications Test Set	Hewlett Packard	HP8920B	US36412227	2/21/2003
TDMA Cellular Adapter	Hewlett Packard	HP83206A	US37501260	2/21/2003
PCS Interface	Hewlett Packard	HP83236B	3711J03547	2/27/2003
Temperature Chamber	Thermotron	SE-600-3-3	29411	2/4/2003

11.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the frequency stability requirements of FCC §2.1055, FCC §22.355, FCC §24.235, IC RSS-128 §8, IC RSS-133 §7. The test results are located in Table 11.3-1 and Table 11.3-2.

Table 11.3-1: TDMA800 Channel 384, Frequency stability vs. Temperature

Tx Frequency: 836.52 MHz
Tolerance: +/- 2091 Hz

Temperature	Frequency	Difference
(°C)	(MHz)	(Hz)
60	836.519977	-23
50	836.519980	-20
40	836.519996	-4
30	836.520000	0
20	836.519959	-41
10	836.519999	-1
0	836.520016	16
-10	836.519951	-49
-20	836.520010	10
-30	836.519994	-6

Table 11.3-2: TDMA1900 Channel 1000, Frequency stability vs. Temperature

Tx Frequency: 1879.98 MHz
Tolerance: +/-4700 Hz

Temperature	Frequency	Difference
(°C)	(MHz)	(Hz)
60	1879.980028	28
50	1879.979911	-89
40	1879.980033	33
30	1879.979969	-31
20	1879.979894	-106
10	1879.979961	-39
0	1879.979906	-94
-10	1879.980052	52
-20	1879.980017	17
-30	1879.980070	70

12 FREQUENCY STABILITY VS VOLTAGE

FCC §2.1055, FCC §22.355, IC RSS-128 §8, IC RSS-133 §7

Frequency tolerance: 2.5ppm

12.1 Test Procedure

An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminates; i.e., the battery end point. The output frequency was recorded for each battery voltage.

12.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration due date
Communications Test Set	Hewlett Packard	HP8920B	US36412227	2/21/2003
TDMA Cellular Adapter	Hewlett Packard	HP83206A	US37501260	2/21/2003
PCS Interface	Hewlett Packard	HP83236B	3711J03547	2/27/2003
Power Supply	Kiethley	2304	0673281	1/31/2003

12.3 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the frequency stability requirements of FCC §2.1055, FCC §22.355, IC RSS-128 §8, IC RSS-133 §7. The test results are located in Table 12.3-1 and Table 12.3-2.

Table 12.3-1: AMPS Channel 384, Frequency stability vs. input voltage

Tx Frequency: 836.52 MHz
Tolerance: +/- 2091 Hz

Supply (Battery)	Frequency	Difference
Volts	(MHz)	(Hz)
3.4	836.519982	-17.8
3.5	836.520034	34.0
3.6	836.519952	-48.4
3.7	836.519927	-72.6
3.8	836.519971	-29.0
3.9	836.519943	-56.7
4.0	836.519958	-41.6
4.1	836.519956	-43.6
4.2	836.520032	32.4

Table 12.3-2: TDMA 1900 Channel 1000, Frequency stability vs. input voltage

Tx Frequency: 1879.98 MHz
Tolerance: +/-4700 Hz

Supply (Battery)	Frequency	Difference
Volts	(MHz)	(Hz)
3.4	1879.979927	-72.7
3.5	1879.980093	93.4
3.6	1879.979996	-3.7
3.7	1879.979935	-65.0
3.8	1879.979907	-93.0
3.9	1879.979966	-33.7
4.0	1879.980016	15.9
4.1	1879.980013	13.4
4.2	1879.980099	99.1

13 RECEIVER SPURIOUS EMISSION

§15.109, ICES-003, RSS-128 §9, RSS-133 §9

13.1 Test Limits

Table 13.1-1 Radiated Emission Limit for FCC §15.109, ICES-003, IC RSS-128 §9, and IC RSS-133 §9

Radiated Emission Limits at 3 meters	
Frequency (MHz)	Quasi-Peak limits, dB (μV/m)
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
960 and up	54.0

13.2 Test Equipment

Description	Make	Model	Serial #	Cal Due Date
EMI Receiver	HP	85462A	3650A00362	3/28/03
RF Filter Selector	HP	85460A	3704A00331	3/28/03
Spectrum Analyzer	HP	8566B	2134A01032 / 2344A05843	12/4/02
PreAmp	HP	8449B	3008A0089	10/24/02
BiLog Antenna	Chase	CBL6112B	2622	8/14/02
Horn Antenna	AH Systems	SAS200/571	246	1/21/03
Cable	N/A	Cable N2	ITS# 211999a2	6/7/02
Cable	N/A	CableTW2	ITS# 211411	6/7/02
Cable	N/A	CableTW3	ITS# 211412	6/7/02

13.2.1 System Support Equipment

Table 13.2-1 contains the details of the support equipment associated with the Equipment Under Test during the FCC Part 15 and ICES-003, RSS-128 §9, RSS-133 §9 testing.

Table 13.2-1: System Support Equipment

Description	Manufacturer	Model Number	Serial Number	FCC ID number
Portable Handsfree with answering button	Sony Ericsson	HPB-10	DPY 1010 2297	Not labeled
Home charging base	Sony Ericsson	316AMS43001	0116	Not labeled
Home charging base	Sony Ericsson	771250	019104396Q	Not labeled

13.2.2 Cables associated with EUT

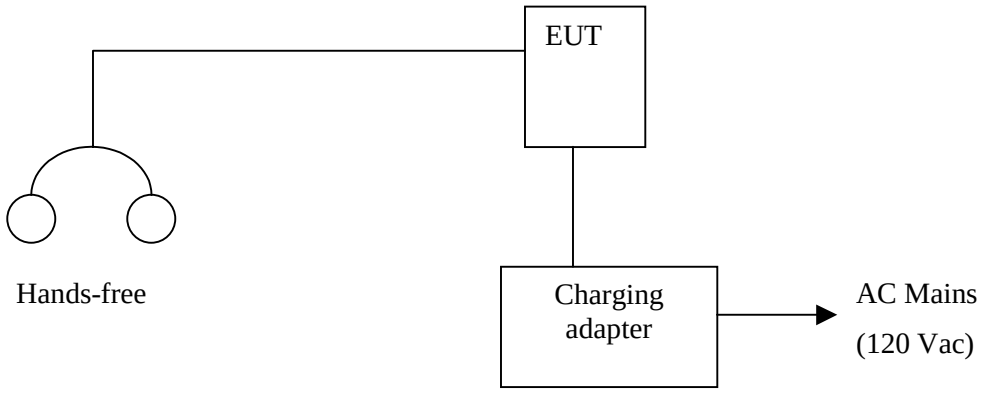
Table 13.2-2 contains the details of the cables associated with the EUT.

Table 13.2-2: Interconnecting cables between modules of EUT

Cables					
Description	**Length**	**Shielding**	**Ferrites**	**Connection**	
				From	**To**
Adapter cable	2m	None	None	EUT	Charging adapter
Hands free	1.2m	None	None	EUT	Ear piece

13.2.3 System Block Diagram

The diagram shown below details the interconnection of the EUT and its accessories during FCC Part 15 testing. For specific layout, refer to the test configuration photograph in the relevant section of this report.



13.2.4 Justification

The EUT was operated in the stand-alone configuration.

13.2.5 Mode(s) of operation

The EUT was powered from 3.8 Vdc.

The EUT was set to the AMPS, TDMA800, or TDMA1900, GSM800, and GSM1900 modes during testing.

13.3 Modifications required for compliance

No modifications were implemented by Intertek Testing Services.

13.4 Test Procedure

Measurements are made over the frequency range of 30 MHz to five times the highest frequency operating within the device. The measuring receiver meets the requirements of Section One of CISPR 16 and the measuring antenna correlates to a balanced dipole. From 30 to 1000 MHz, a quasi-peak detector was used for measurement. Above 1000 MHz, average measurements were performed.

Measurements of the radiated field are made with the antenna located at a distance of 3 meters from the EUT. If the field-strength measurements at 3m cannot be made because of high ambient noise level or for other reasons, measurements may be made at a closer distance, for example 1m. An inverse proportionality factor of 20 dB per decade should be used to normalize the measured data to the specified distance for determining compliance.

The antenna is adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth is varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) is varied during the measurements to find the maximum field-strength readings.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUTs are placed on a horizontal metal ground plane and isolated from the ground plane by 3 to 12 mm of insulating material.

Equipment setup for radiated disturbance tests followed the guidelines of ANSI C63.4: 1992.

13.5 Test Results

The Dual Band five-mode TDMA/GSM Cellular Phone met the radiated disturbance requirements of FCC §15.109, ICES-003, IC RSS-129 §10, and IC RSS-133 §9. The test results are located in Table 13.5-1. There were no emissions detected within 10 dB of the limit. The highest frequency scanned was 5 GHz for AMPS, TDMA800 and GSM800 modes and 10 GHz for TDMA1900 and GSM1900 modes.

Table 13.5-1 Amps Channel 383 receiver mode spurious emissions

Company: **Ericsson**
Model: **T62u**
Project No.: **3023649**
Date: 05/29/02
Standard: FCC15
Class: B Group: None
Notes: AMPS800 - CH.383

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Antenna: CHAS2622
PreAmp: HP-1G
Cable(s): CABLEN2 CABLETW2
Distance: **10**

Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB
V	62.463	26.4	6.3	1.6	26.1	-10.5	18.8	40.0	-21.2
H	79.300	20.5	7.1	1.7	26.1	-10.5	13.7	40.0	-26.3
H	194.400	30.0	9.0	2.8	25.5	-10.5	26.8	43.5	-16.7
V	224.175	29.1	9.0	3.0	25.3	-10.5	26.3	46.0	-19.7
H	236.575	22.4	10.3	3.1	25.2	-10.5	21.0	46.0	-25.0
V	500.025	22.6	17.5	4.7	26.6	-10.5	28.8	46.0	-17.2

Table 13.5-2 TDMA800 Channel 383 receiver mode spurious emissions

Company: **Ericsson**
Model: **T62u**
Project No.: **3023649**
Date: 05/29/02
Standard: FCC15
Class: B Group: None
Notes: TDMA800 - CH.383

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Antenna: CHAS2622
PreAmp: HP-1G
Cable(s): CABLEN2 CABLETW2
Distance: **10**

Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB
H	74.675	24.3	6.7	1.7	26.1	-10.5	17.0	40.0	-23.0
V	191.200	19.9	9.0	2.8	25.5	-10.5	16.6	43.5	-26.9
V	225.575	21.0	9.2	3.0	25.3	-10.5	18.4	46.0	-27.6
H	493.418	19.8	17.5	4.7	26.6	-10.5	25.9	46.0	-20.1
V	496.350	23.4	17.6	4.7	26.6	-10.5	29.6	46.0	-16.4
H	568.125	19.2	18.7	4.9	26.6	-10.5	26.7	46.0	-19.3

Table 13.5-3 TDMA1900 Channel 1000 receiver mode spurious emissions

Company: **Ericsson**
Model: **T62u**
Project No.: **3023649**
Date: 05/29/02
Standard: FCC15
Class: B Group: None
Notes: TDMA1900 - CH.1000

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Antenna: CHAS2622
PreAmp: HP-1G
Cable(s): CABLEN2 CABLETW2
Distance: **10**

Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB
H	53.250	21.5	7.4	1.6	26.1	-10.5	14.8	40.0	-25.2
V	53.425	36.9	7.3	1.6	26.1	-10.5	30.1	40.0	-9.9
V	235.500	39.1	10.2	3.1	25.3	-10.5	37.6	46.0	-8.4
H	238.225	33.9	10.5	3.1	25.2	-10.5	32.7	46.0	-13.3
V	490.350	28.4	17.4	4.6	26.6	-10.5	34.3	46.0	-11.7
H	588.350	22.0	18.6	5.0	26.6	-10.5	29.4	46.0	-16.6

Table 13.5-4 GSM800 Channel 189 receiver mode spurious emissions

Company: **Ericsson**
Model: **T62u**
Project No.: **3023649**
Date: 05/29/02
Standard: FCC15
Class: B Group: None
Notes: GSM800 - CH.190

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Antenna: CHAS2622
PreAmp: HP-1G
Cable(s): CABLEN2 CABLETW2
Distance: **10**

Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB
V	51.825	19.6	7.9	1.6	26.1	-10.5	13.3	40.0	-26.7
H	164.100	19.9	9.8	2.5	25.6	-10.5	17.0	43.5	-26.5
V	233.000	23.9	9.9	3.1	25.3	-10.5	22.0	46.0	-24.0
V	494.875	19.4	17.6	4.7	26.6	-10.5	25.6	46.0	-20.4
H	509.175	19.1	17.4	4.7	26.6	-10.5	25.0	46.0	-21.0
H	750.000	18.6	19.3	5.6	26.6	-10.5	27.4	46.0	-18.6

Table 13.5-5 GSM1900 Channel 661 receiver mode spurious emissions

Company: **Ericsson**
Model: **T62u**
Project No.: **3023649**
Date: 05/29/02
Standard: FCC15
Class: B Group: None
Notes: GSM1900 - CH.661

Tested by: Matthew Van Steen
Location: Duluth
Detector: HP8546
Antenna: CHAS2622
PreAmp: HP-1G
Cable(s): CABLEN2 CABLETW2
Distance: **10**

Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB
H	37.775	23.6	15.0	1.3	26.2	-10.5	24.1	40.0	-15.9
V	73.413	21.8	6.6	1.7	26.1	-10.5	14.5	40.0	-25.5
V	204.463	20.3	9.2	2.9	25.4	-10.5	17.5	43.5	-26.0
V	234.863	35.5	10.1	3.1	25.3	-10.5	33.9	46.0	-12.1
H	249.725	20.2	12.0	3.5	25.2	-10.5	21.0	46.0	-25.0
H	587.000	18.8	18.7	5.0	26.6	-10.5	26.3	46.0	-19.7

13.6 Test Configuration Photograph

Figure 13.6-1 and Figure 13.6-2 show the testing configurations used.

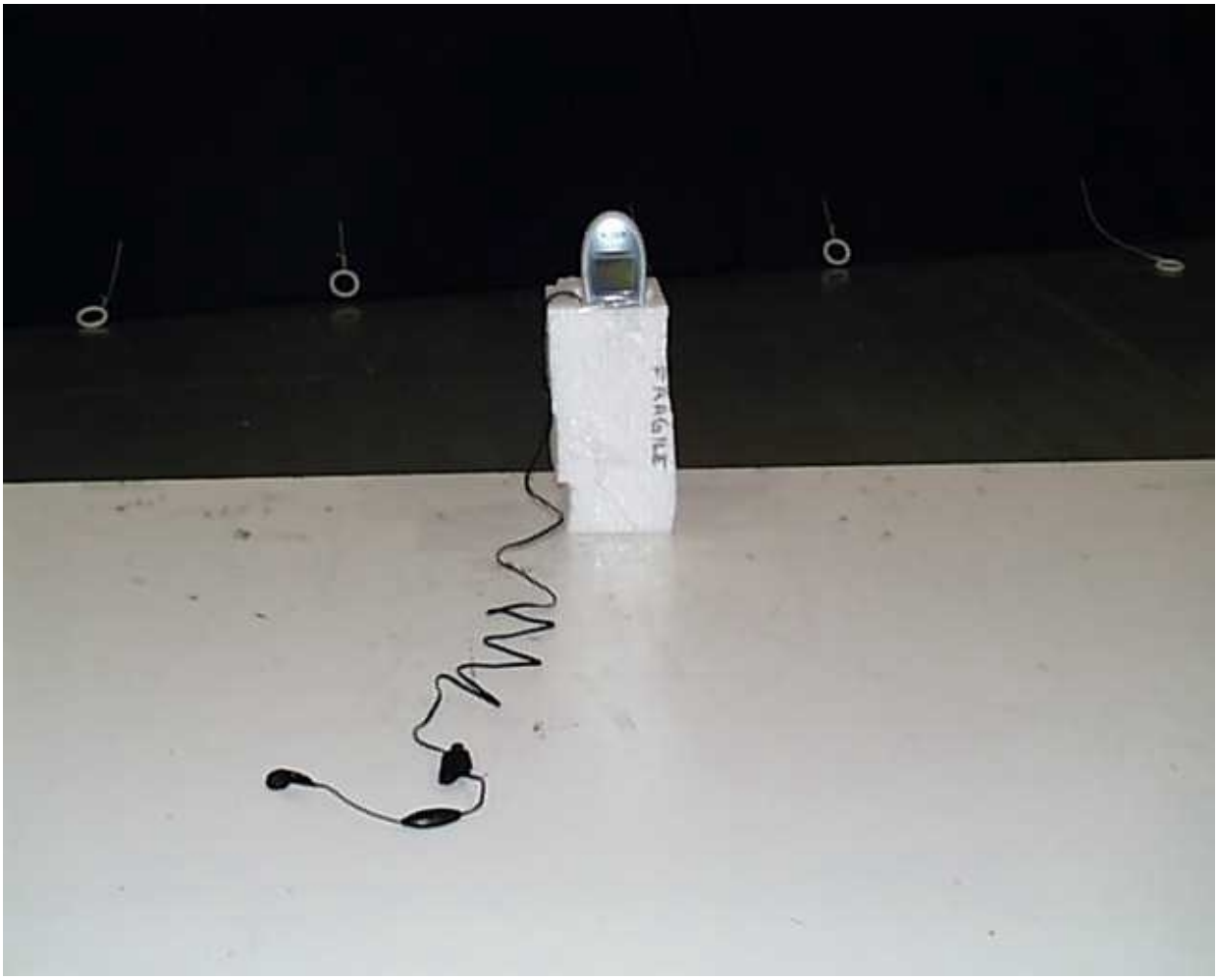


Figure 13.6-1: Configuration photograph, radiated emission, front view

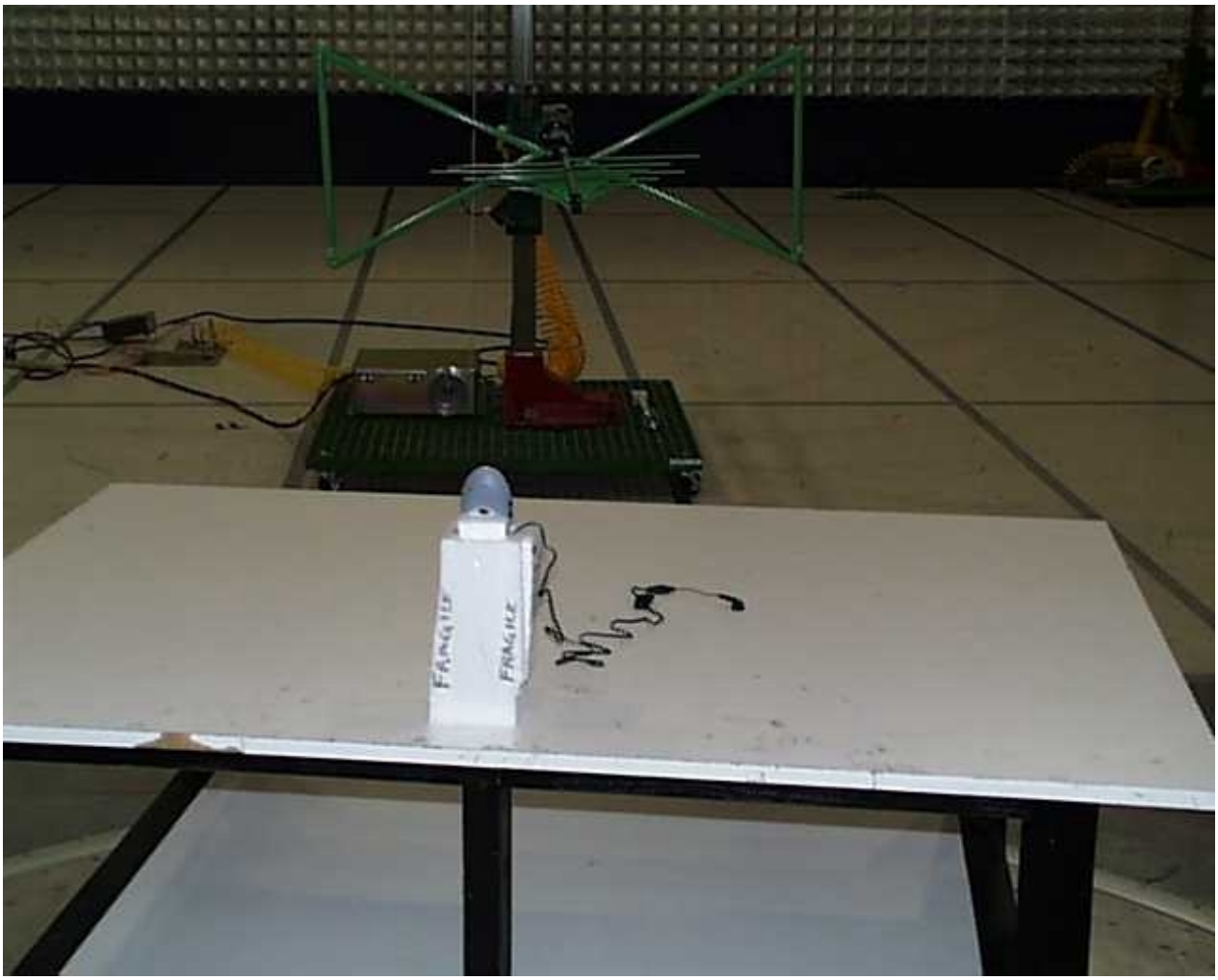


Figure 13.6-2: Configuration photograph, radiated emission, rear view