



FCC CFR47 PART 24 SUBPART E

CERTIFICATION REPORT

FOR

GSM 1900 SINGLE MODULATION CELLULAR PHONE

MODEL: SGH-N625

FCC ID: A3LSGHN625

REPORT NUMBER: 01U1041-2

ISSUE DATE: NOVEMBER 4, 2001

Prepared for
SAMSUNG ELECTRONIC CO., LTD.
SAN#14, NONGSEO-RI, KIHEUNG-EUP
YONGIN - CITY, 449-900
KOREA

Prepared by
COMPLIANCE CERTIFICATION SERVICES
561F Monterey Road
Morgan Hill, Ca 95037-9001
U.S.A.
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FCC CERTIFICATION INFORMATION

The following information is in accordance with FCC Rules, 47CFR Part 2, Subpart J, Sections 2.1033 – 2.1055.

2.1033(c)(1): Applicant: Samsung Electronic Co., Ltd.
San#14, Nongseo-Ri, Kiheung-Eup
Yongin-City, 449-900
Korea

Contact person: Mr. Yong-Han Lee / Engineer

Telephone number: +82-31-280-1650

2.1033(c)(2) FCC ID: A3LSGHN625

2.1033(c)(3) Instructions/Installation Manual

Refer to **Attachment:** User manual.

2.1033(c)(4) Type of emissions

250KGXW

2.1033(c)(5) Frequency Range

Transmit: **1850.2MHz to 1909.8MHz**

Receive: **1930.2MHz to 1989.8MHz**

2.1033(c)(7) Maximum Power Rating

29.81dBm, 0.957WATTS.

TEST RESULT CERTIFICATION

COMPANY NAME: Samsung Electronic Co., Ltd.
San#14, Nongseo-Ri, Kiheung-Eup
Yongin-City, 449-900
Korea

Page 3 of 45

CONTACT PERSON: MR. YONG – HAN LEE / ENGINEER
TELEPHONE NO: +82-31-280-1650
EUT DESCRIPTION: GSM 1900 SINGLE MODULATION CELLULAR PHONE
MODEL NAME: SGH – N625
DATE TESTED: NOVEMBER 4, 20001

TYPE OF EQUIPMENT	GSM CELLULAR PHONE
AUTHORIZATION PROCEDURE	CERTIFICATION
FCC RULE PARTS	FCC Part 2, 15 , & 24
MEASUREMENT PROCEDURE	FCC Part 2,15,24, and ANSI C63.4

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirements set forth in FCC Parts 2, 15 and 24. The said equipment, in the configuration described in this report, fulfills the technical characteristics of the specified standard.

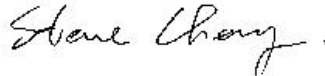
Warning : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document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

Tested By:



HUE LY VANG
ASSOCIATE EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Released For CCS By:



STEVE CHENG
EMC ENGINEER MANAGER
COMPLIANCE CERTIFICATION SERVICES

EUT DESCRIPTION

The Samsung SGH-N625 is a single modulation GSM cellular phone. Its basic purpose is used for communications. It transmits from 1850.2 MHz to 1909.8 MHz and receives from 1930.2 MHz to 1989.8 MHz. The RF power is rated at 957.2 mW.

TEST FACILITY

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 22.

ACCREDITATION AND LISTING

The 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. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2))

MEASURING 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.

TEST EQUIPMENT LIST

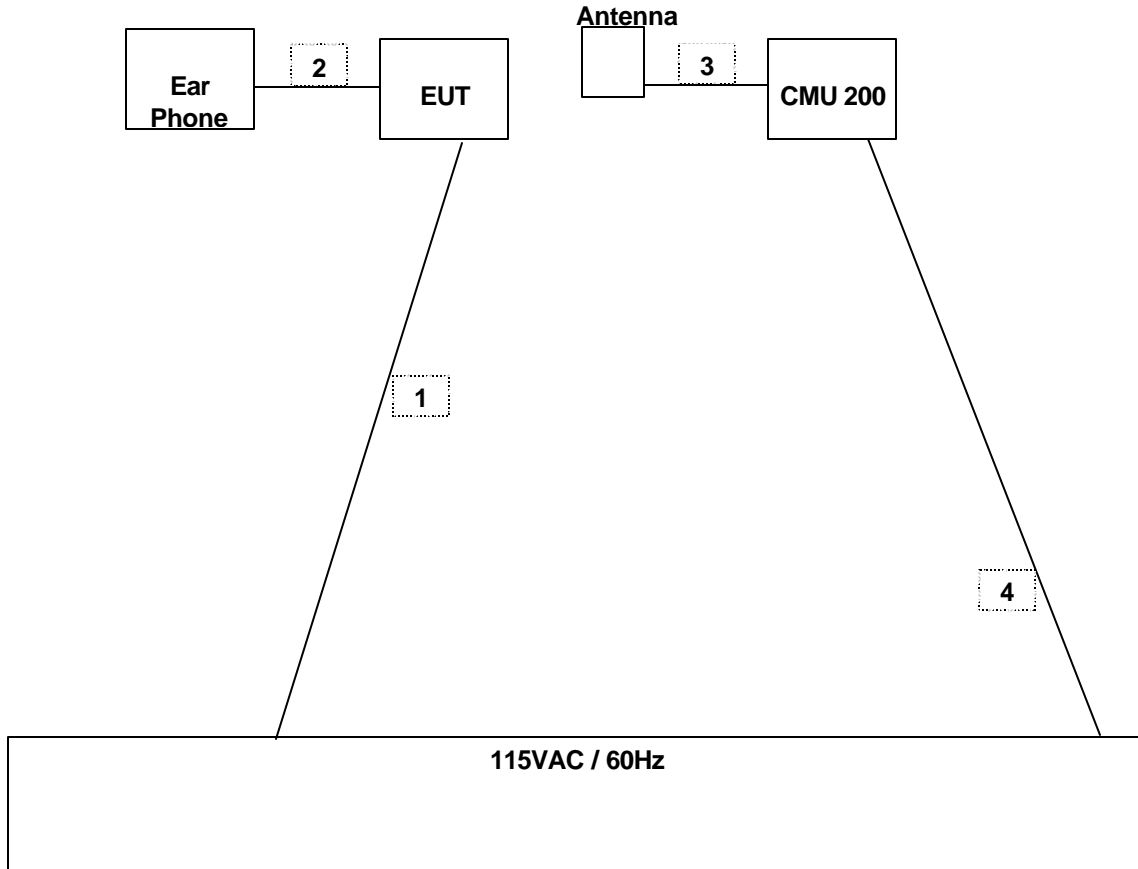
TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Spectrum Analyzer	HP100Hz - 1.5GHz	8568B	2841A04227	1/18/02
Spectrum Display	HP	85662A	2810A15728	1/18/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	2521A01038	1/18/02
Pre-Amplifier,25 dB	HP0.1 - 1300MHz	8447D (P8)	2944A06589	8/10/02
Antenna, Bilog	Schaffner-Chase30M-2GHz	CBL6112B	2586	8/2/02
LISN	Fisher Cus. Comm.	C-I.ISN-50/250-2	2023	8/8/02
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/2/02
Horn Antenna(1 - 18GHz)	EMCO	3115	9001-3245	6/20/02
Horn Antenna(1 - 18GHz)	EMCO	3115	2238	6/20/02
Pre-Amplifier	MITEQ1-26GHz	NSP2600-44	646456	4/12/02
Signal Generator(10Mhz-20GHz)	HP	83732B	US34490599	2/21/02
High Pass Filter	FSY Microwave	4570-9S8	3	N.C.R.

FCC PART 15 TEST RESULTS

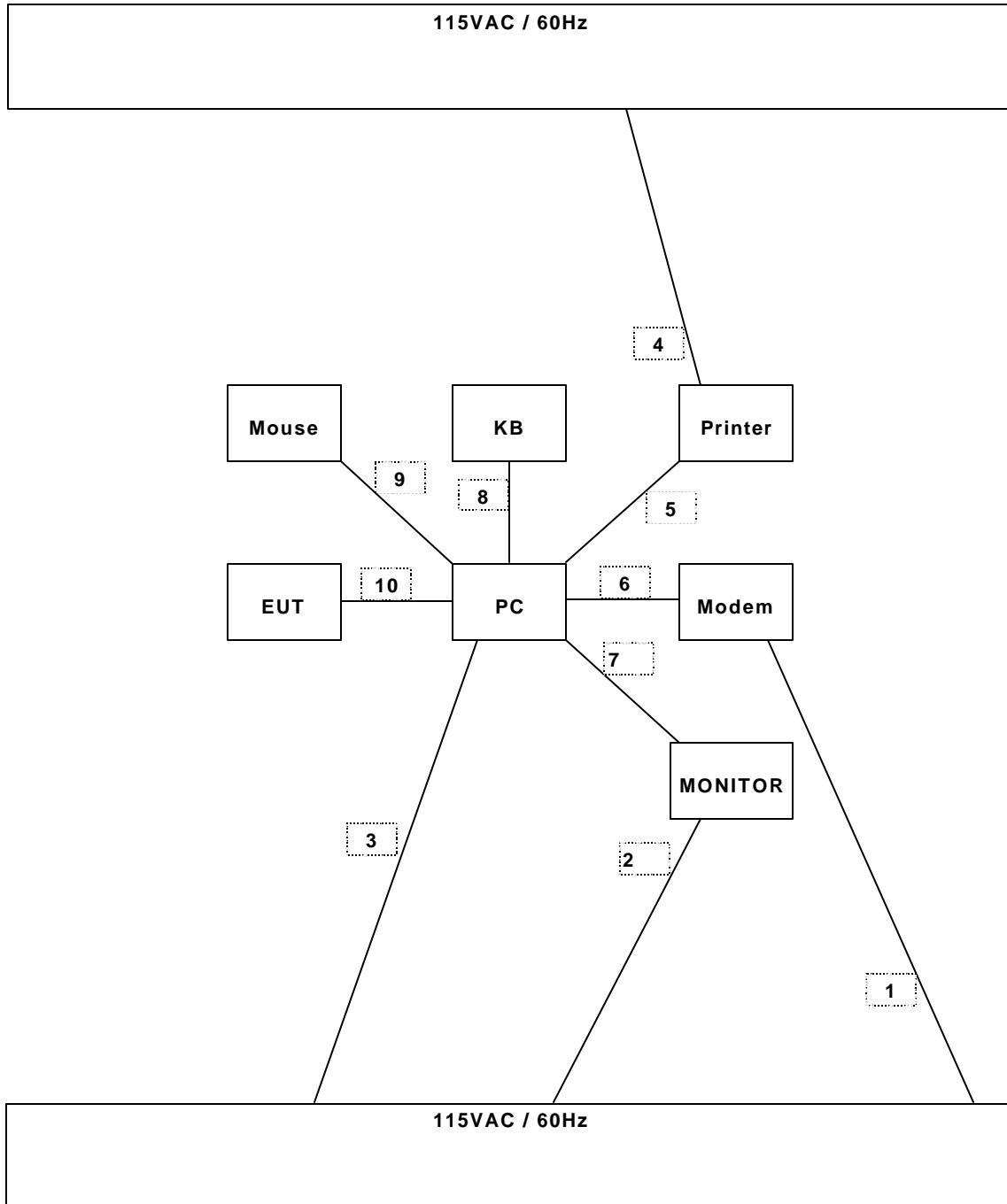
TESTED SYSTEMS DETAILS

TEST PERIPHERALS				
Device Type	Manufacturer	Model Number	Serial Number	FCC ID
PC	GATEWAY	G6-350	11501002	DoC
MONITOR	WESTINGHOUSE	TE767A	1401	DoC
MOUSE	HP.	M-S34	LZB81100298	DZL211029
KEYBOARD	HP.	FDA-104EB	8019633	F42FDA104EB
PRINTER	HP	2225C	2930S52614	DSI6XU2225
MODEM	ACEEX	1414	9013537	IFAXDM1414
TEST HEAD	RHODE&SCHWARZ	CMU200	830371	DoC

CONFIGURATION BLOCK DIAGRAM



Note: Used during continuous transmit operations.



Note: Used in Serial port connections test.

EXTERNAL I/O CABLE CONSTRUCTION DESCRIPTION


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	1	US 115V	Un-shielded	2m	No	No	Yes, in LC test only
2	Ear Phone	1	Din	Un-shielded	1m	Yes	No	N/A
3	Antenna	1	SMA	Un-shielded	1m	Yes	No	Used only in Wireless testing
4	AC	1	US 115V	Un-shielded	2m	No	No	N/A

Note: Used during wireless testing.

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	1	US 115V	Un-shielded	2m	No	No	N/A
2	AC	1	US 115V	Un-shielded	2m	No	No	N/A
3	AC	1	US 115V	Un-shielded	2m	No	No	N/A
4	AC	1	US 115V	Un-shielded	2m	No	No	N/A
5	Parallel	1	DB25	Shielded	2m	Yes	Yes	N/A
6	Serial	1	DB9	Shielded	1m	Yes	No	N/A
7	Video	1	DB15	Shielded	2m	Yes	Yes	One Torroid on Each End
8	KB	1	PS/2	Shielded	2m	Yes	No	N/A
9	Mouse	1	PS/2	Un-shielded	2m	Yes	No	N/A
10	Serial	1	DB9	Shielded	1m	Yes	No	N/A

Note:Used during serial port connection test.

RADIATED EMISSION

		Project #: <u>01U1041-2</u> Report #: <u>011103b</u> Date & Time: <u>11/03/01 3:00 PM</u> Test Engr: <u>Hue Ly Vang</u>									
		FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP 561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888									
Company: <u>Samsung Electronics Co. LTD.</u> EUT Description: <u>GSM 1900 Single Modulation Cell Phone</u> Test Configuration: <u>EUT/Headset</u> Type of Test: <u>FCC Class B</u> Mode of Operation: <u>charging batteries/waiting for call</u>											
<input type="radio"/> A-Site <input checked="" type="radio"/> B-Site <input type="radio"/> C-Site <input type="radio"/> F-Site <input type="button" value="6 Worst Data"/> <input type="button" value="Descending"/>											
Freq. (MHz)	Reading (dBuV)	AF (dB)	Class (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
40.13	45.90	9.70	1.61	29.69	27.52	40.00	-12.48	3mV	90.00	1.00	P
300.00	35.00	12.71	3.78	28.82	22.67	46.00	-23.33	3mV	90.00	2.00	P
900.00	31.00	20.68	7.62	28.91	30.39	46.00	-15.61	3mV	90.00	1.00	P
30.00	33.60	18.32	1.38	29.74	23.56	40.00	-16.44	3mH	90.00	1.00	P
450.00	40.00	17.31	4.90	29.55	32.66	46.00	-13.35	3mH	90.00	1.00	P
900.00	38.00	21.74	7.62	28.91	38.45	46.00	-7.55	3mH	90.00	1.00	P
Total data #: 6 V.2b											



FCC, VCCI, CISPR, CE, AUSTEL, NZ
 UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
 PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 01U1041-2
Report #: 011210b
Date & Time: 12/10/01 7:58 PM
Test Engr: Hue Ly Vang

Company: Samsung
EUT Description: GSM Phone with serial connections
Test Configuration: EUT/PC/Monitor/Mouse/KB/Printer/Modem
Type of Test: Fcc Class B
Mode of Operation: Com 2 Exercise

<< 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)
176.00	54.00	10.18	2.79	29.29	37.68	43.50	-5.82	3mH	90.00	1.00	P
144.00	54.00	10.20	2.54	29.42	37.32	43.50	-6.18	3mH	90.00	1.00	P
136.00	53.00	10.56	2.47	29.45	36.58	43.50	-6.92	3mH	90.00	1.00	P
56.00	54.00	6.25	1.83	29.66	32.42	40.00	-7.58	3mH	90.00	1.00	P
64.00	54.00	5.70	1.92	29.64	31.98	40.00	-8.02	3mH	90.00	1.00	P
39.00	46.90	12.63	1.59	29.70	31.42	40.00	-8.58	3mH	90.00	1.00	P
6 Worst Data											

CONDUCTED EMISSION

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	FCC B AV	Margin		Remark L1/L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.87	42.00	--	--	0.00	48.00	--	-6.00	--	L1
3.00	32.00	--	--	0.00	48.00	--	-16.00	--	L1
27.00	27.00	--	--	0.00	48.00	--	-21.00	--	L1
0.67	42.00	--	--	0.00	48.00	--	-6.00	--	L2
0.98	39.00	--	--	0.00	48.00	--	-9.00	--	L2
2.89	39.00	--	--	0.00	48.00	--	-9.00	--	L2
6 Worst Data									

Note : Charging Batteries

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	FCC B AV	Margin		Remark L1/L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.51	27.58	--	--	0.00	48.00	--	-20.42	--	L1
19.96	28.82	--	--	0.00	48.00	--	-19.18	--	L1
25.25	31.57	--	--	0.00	48.00	--	-16.43	--	L1
0.63	19.55	--	--	0.00	48.00	--	-28.45	--	L2
10.02	27.22	--	--	0.00	48.00	--	-20.78	--	L2
18.12	31.69	--	--	0.00	48.00	--	-16.31	--	L2
6 Worst Data									

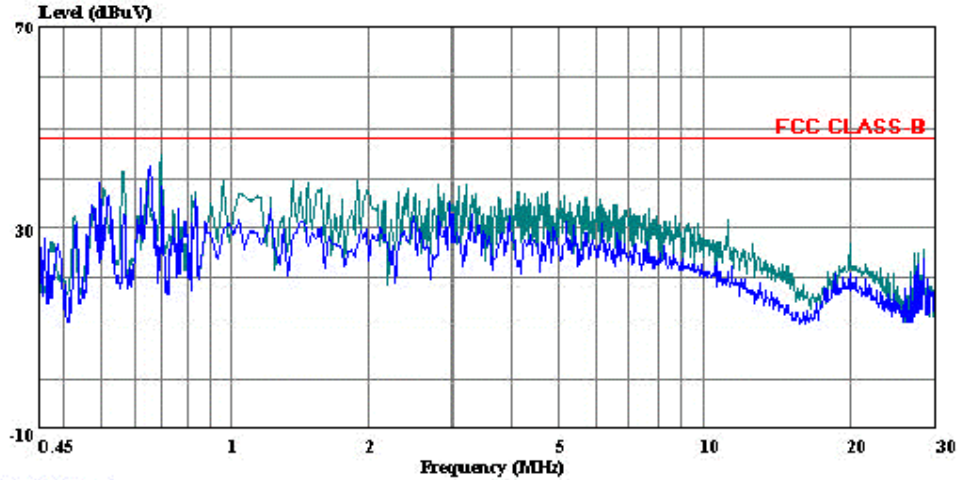
Note: Serial Port Exercise

LINE CONDUCTION PLOT



561F Monterey Road,
Morgan Hill, CA 95037
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 7 File#: 01u1041-2.EMI Date: 11-03-2001 Time: 12:06:56



(Audio ATC)

Trace: 3

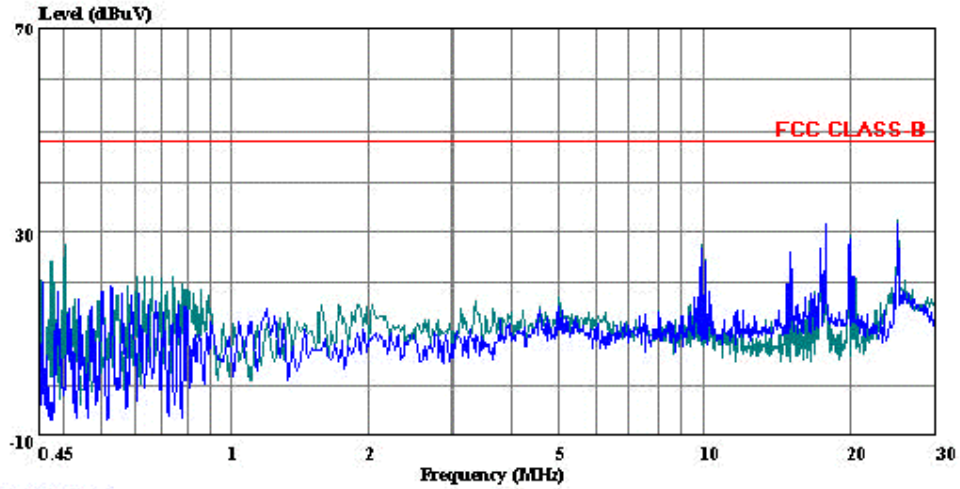
Ref Trace:

Report : 01u1041-2
Project# : 0111031c
Tested By : Hue Ly Vang
Manufacture : Samsung
EUT Description : GSM 1900 Single Modulation Cell Phone
Model : SGH-N625
Test Config. : EUT/headset
Test Target : FCC Class B
Mode of Operation: Charging batteries
: 115VAC, 60Hz
: L1: PEAK (blue), L2: PEAK (green)



561F Monterey Road,
Morgan Hill, CA 95037
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 7 File#: serial.EMI Date: 12-16-2001 Time: 13:46:49



(Audix ATC)
Trace: 3

Ref Trace:

Report : 01U1041-2
Project# : 0111096-1
Tested By : Hue Ly Vang
Manufacture : Samsung
EUT Description : GSM 1900 Single Modulation Cell Phone
Model : SGH-N625
Test Config. : EUT/Monitor/Keyboard/Mouse/Modem/Printer
Test Target : FCC Class B
Mode of Operation: serial port exercise
: Peak: L1(Green), L2(Blue)
: 115VAC 60Hz

SETUP PHOTOS

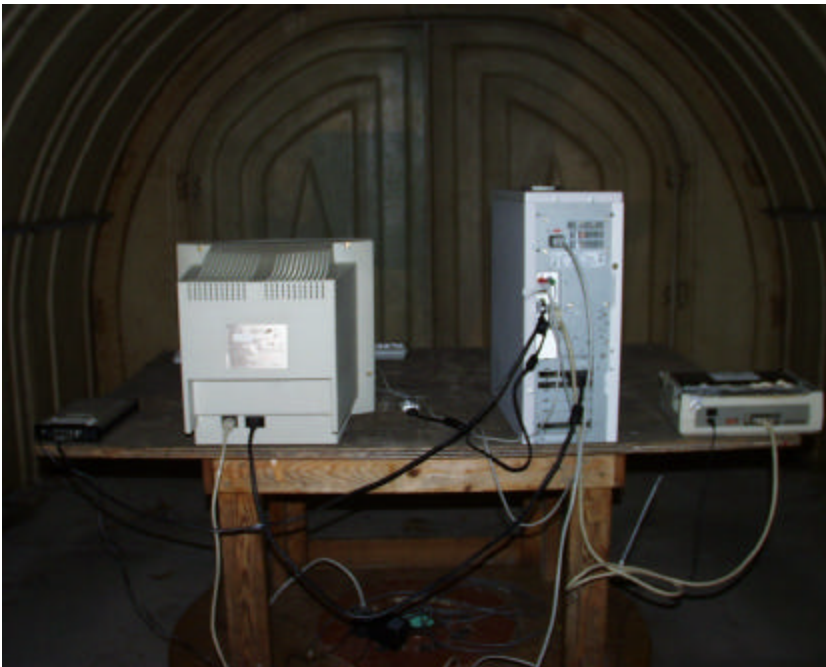
Radiated Emission



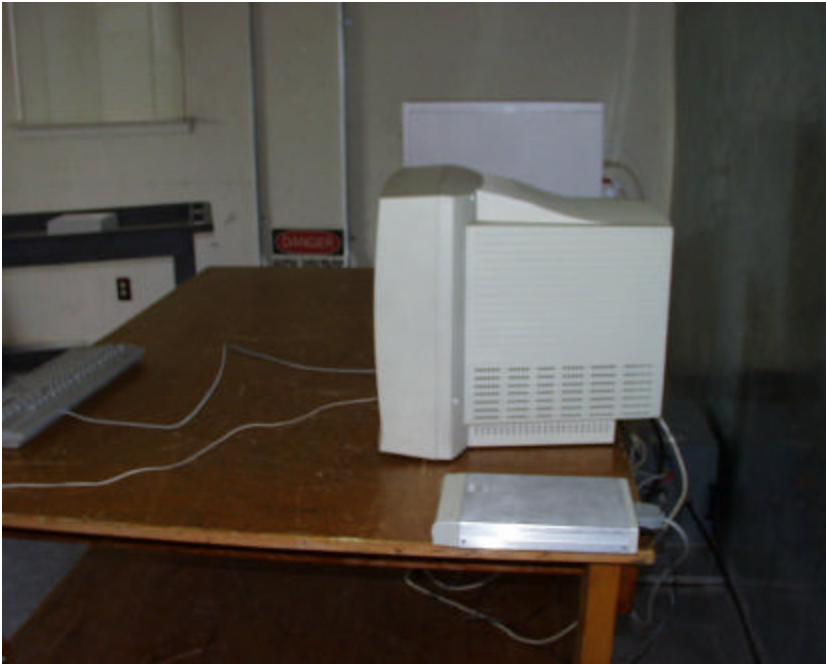
Line Conduction Emission



Radiated Emission (w/ Serial Connection)

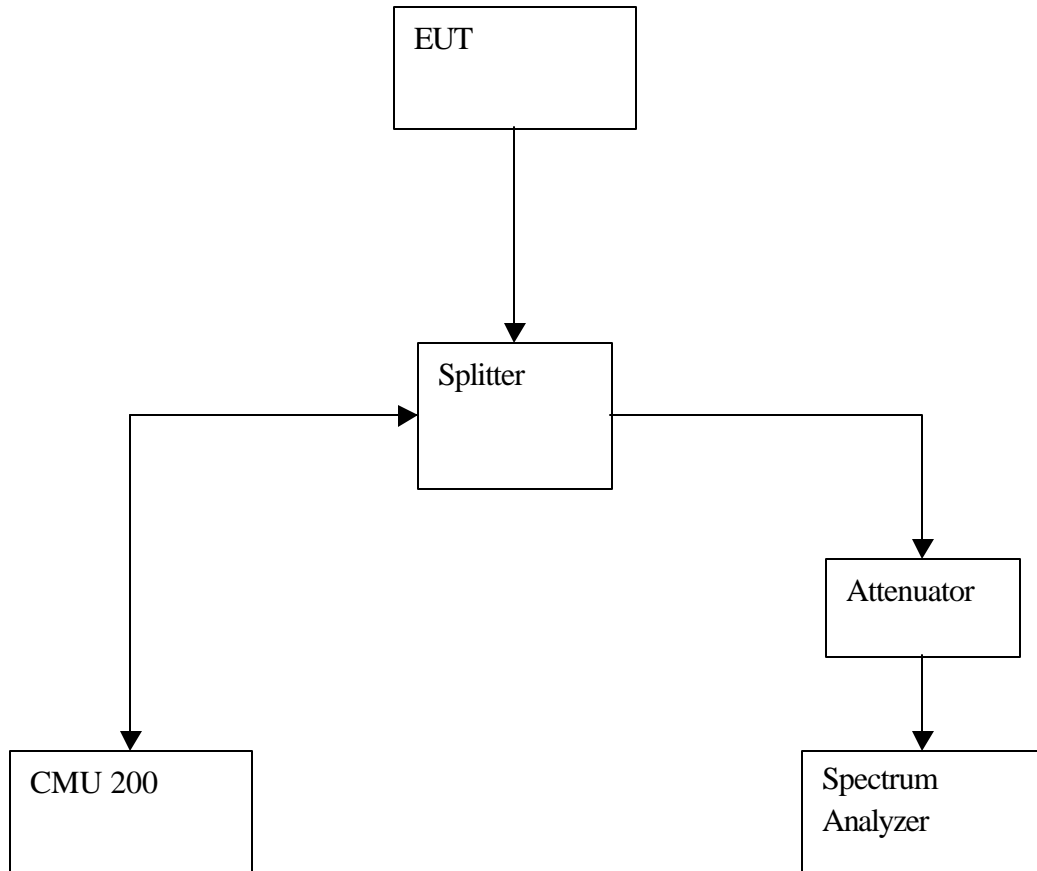


Line Conduction Emissions (w/ Serial Connection)



FCC PART 2 CERTIFICATION TEST RESULTS:

Test Set-up for the following conducted tests:



SECTION 2.1046: RF POWER OUTPUT

Minimum Requirement:

24.232(B); Mobile/Portable stations are limited to 2 Watts EIRP peak power.

Test Procedure conducted:

The EUT was setup to maximum output power (maximum gain) at its lowest channel. The output power was measured using a universal radio tester CMU200. The measurements are repeated for the highest and a middle channel. The EIRP was measured in OATS by substitution method.

Test Result:

Complies.

Readings taken from CMU power meter display

Channel	Readings (dBm)
512	29.3
661	29.1
810	29

Substitution measurement

Channel: 512

fo = 1850 MHz

Frequency (MHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1850	103.5	22.09	1.08	8.8	29.81	33	-3.19

Channel: 661

fo = 1880 MHz

Frequency (MHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1880	102.6	21.81	1.08	8.8	29.53	33	-3.47

Channel: 810

fo = 1909 MHz

Frequency (MHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1909	102	21.3	1.08	8.8	29.02	33	-4.95

SECTION 2.1047: MODULATION CHARACTERISTICS

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

Not applicable. No modulation requirements for PCS. PCS licensees may provide any mobile communications services on their assigned spectrum (FCC 24.3).

SECTION 2.1049: OCCUPIED BANDWIDTH

Test Procedure:

The EUT was setup to maximum output power at its lowest channel. The occupied bandwidth was measured using a spectrum analyzer. The measurements are repeated for the highest and a middle channel. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

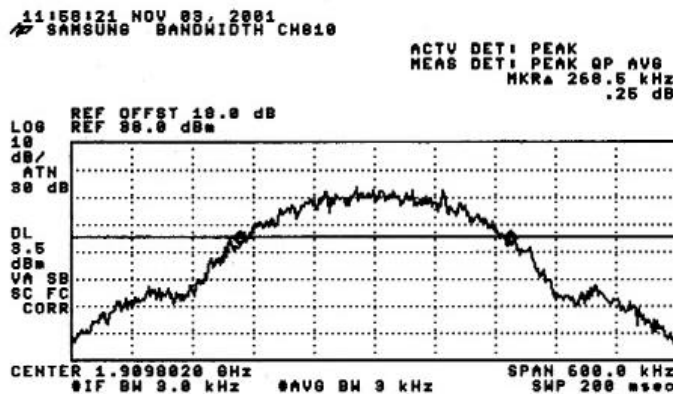
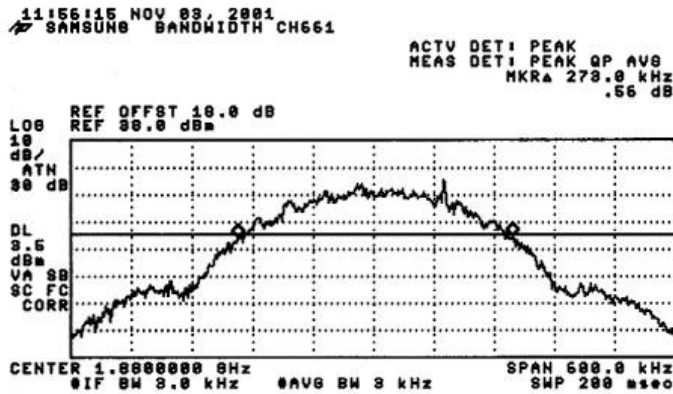
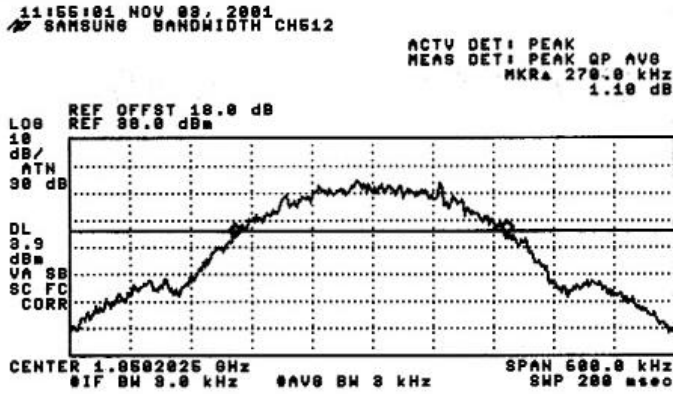
Test Result:

Channel 512: 270 kHz

Channel 661: 273 kHz

Channel 810: 268.5 kHz

Plots of the EUT's output bandwidth are shown below.



SECTION 2.1051: SPURIOUS EMISSION AT ANTENNA TERMINAL

Minimum standard:

FCC 24.238(a); On any frequency outside a license frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. Limit equivalent to -13dBm , calculation shown below.

$$43 + 10 \log (0.316\text{W}) = 38\text{dB}$$
$$25\text{dBm} - 38\text{dB} = -13\text{dBm}$$

FCC 24.238 (b):

Compliance with the out-of-band emissions requirement is based on test being performed with an analyzer resolution bandwidth of 1 MHz. However in the 1 MHz band immediately outside and adjacent to the frequency block a resolution bandwidth of at least 1% of the fundamental emissions bandwidth may be employed.

GSM:

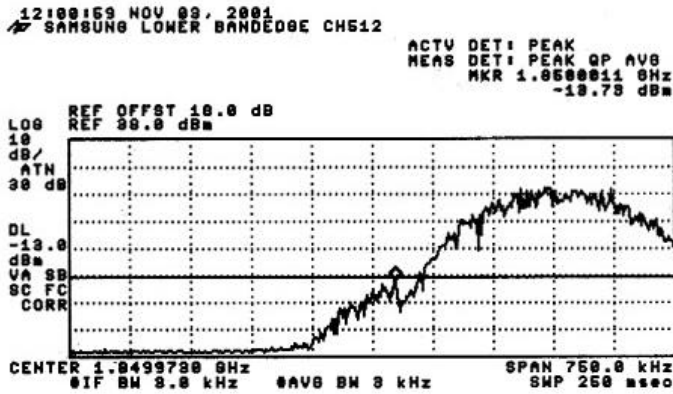
$0.01 * 273\text{kHz} = 2.73 \text{ kHz}$. A RES BW of 3 kHz was used for measurement at the band edges.

Test Procedure:

The EUT was setup to maximum output power at its lowest channel, channel 512 (1850 MHz). The RES BW of the analyzer is set to 1% of the emission bandwidth to show compliance with the -13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. The measurements are repeated for the EUT's highest channel, channel 810 (1909 MHz). For the Out-of-Band measurements a 1 MHz RES BW was used to scan from 30 MHz to 20GHz. A display line was placed at -13 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

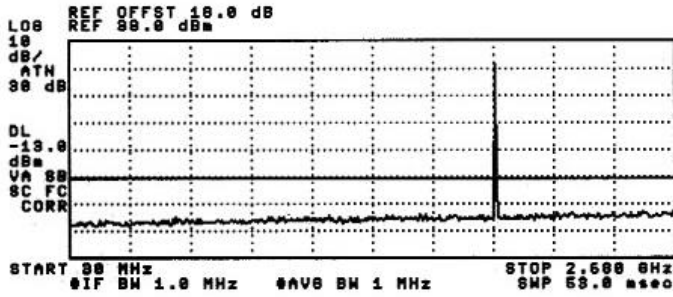
Test Results:

Complies. Plots are shown below.



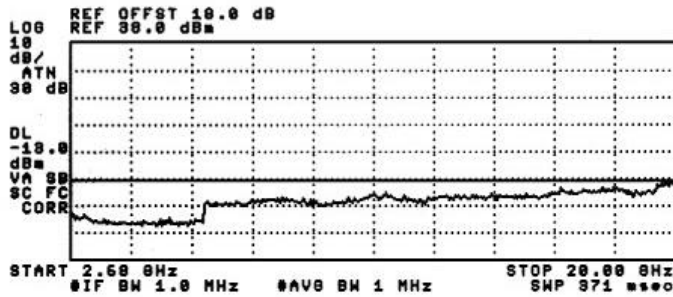
12:14:39 NOV 03, 2001
SAMSUNG OUT OF BAND CH512

ACTV DET: PEAK
MEAS DET: PEAK QP AVG



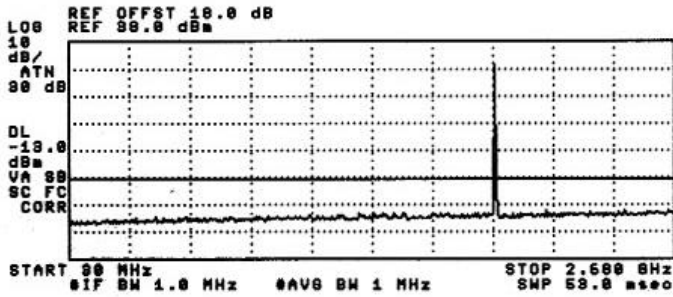
12:15:04 NOV 03, 2001
SAMSUNG OUT OF BAND CH512

ACTV DET: PEAK
MEAS DET: PEAK QP AVG



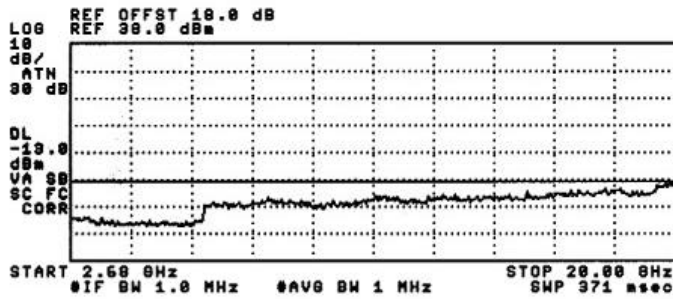
12:13:31 NOV 03, 2001
SAMSUNG OUT OF BAND CH661

ACTV DET: PEAK
MEAS DET: PEAK QP AVG



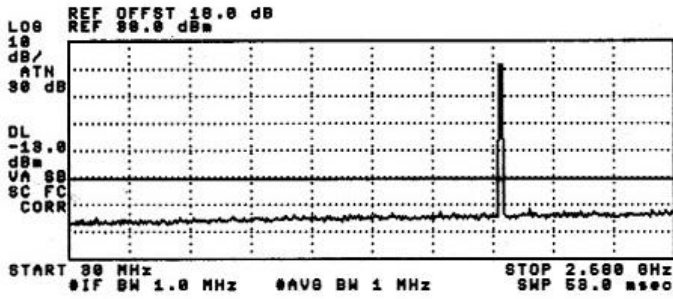
12:13:55 NOV 03, 2001
SAMSUNG OUT OF BAND CH661

ACTV DET: PEAK
MEAS DET: PEAK QP AVG



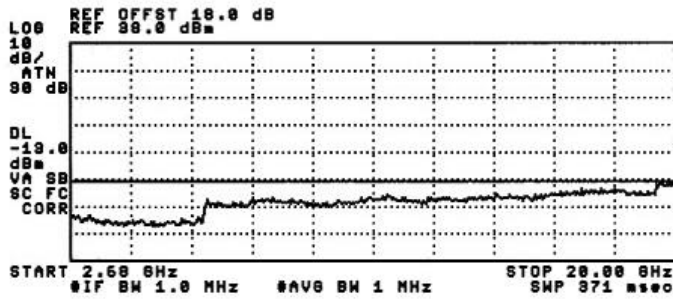
12:08:27 NOV 03, 2001
SAMSUNG OUT OF BAND CH010

ACTV DET: PEAK
MEAS DET: PEAK QP AVG



12:12:33 NOV 03, 2001
SAMSUNG OUT OF BAND CH010

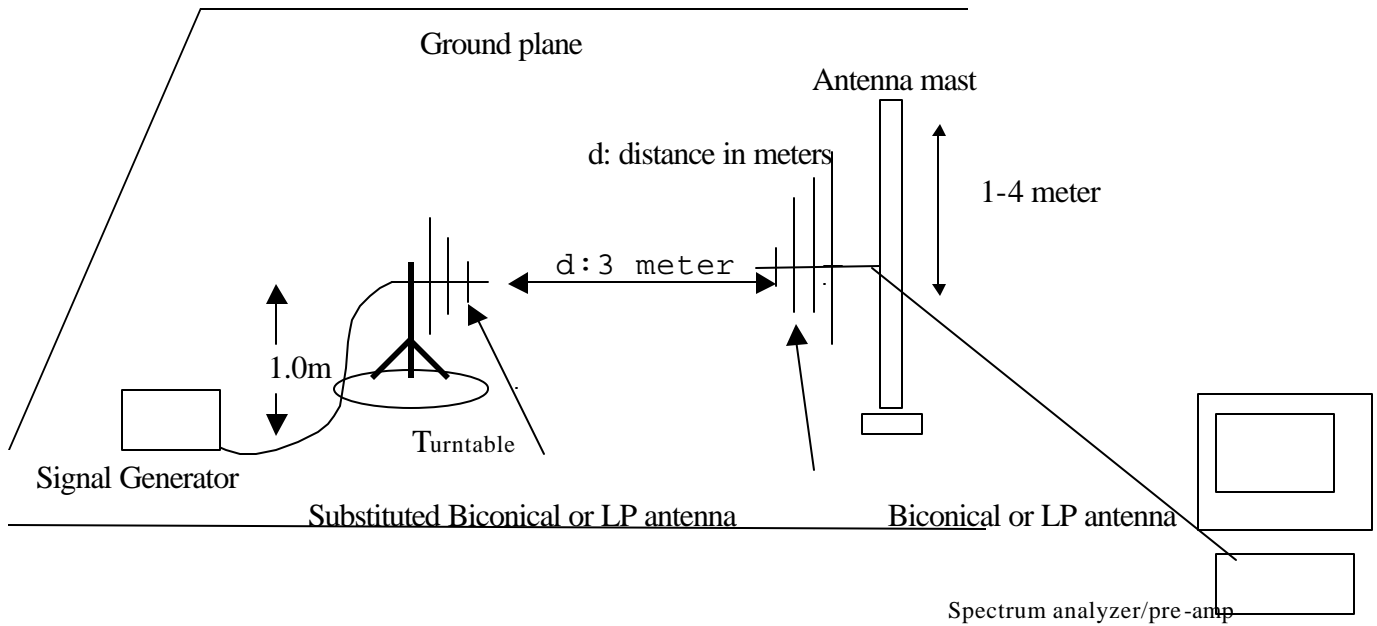
ACTV DET: PEAK
MEAS DET: PEAK QP AVG



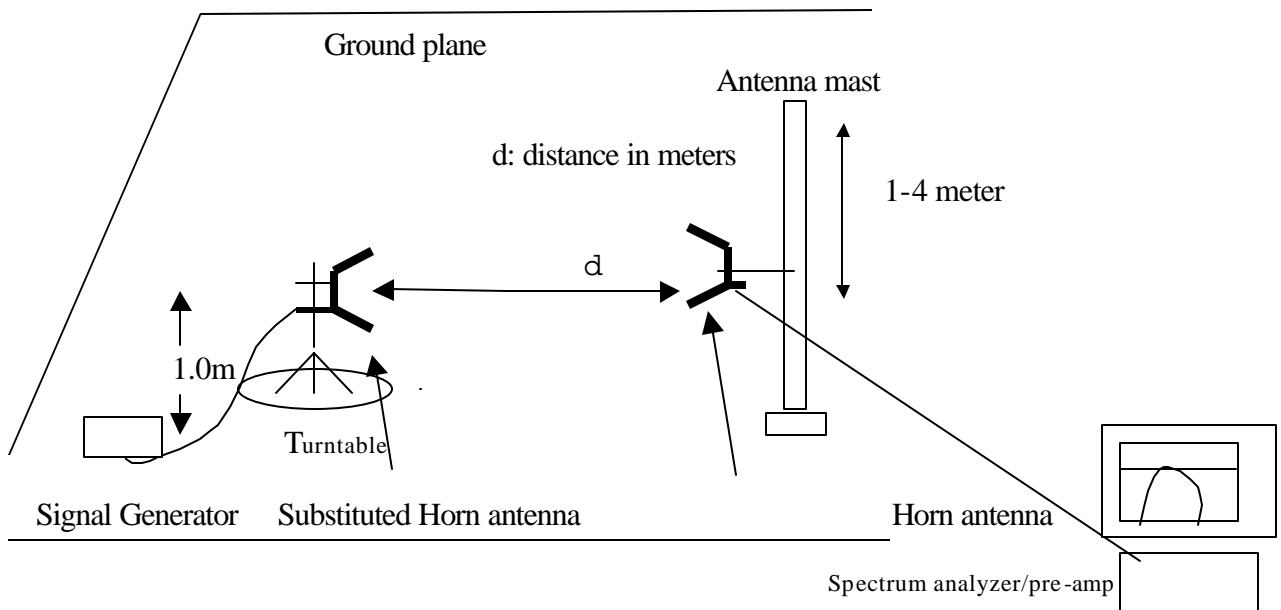
**SECTION 2.1053: FIELD STRENGTH OF SPURIOUS RADIATION.
SUBSTITUTION METHOD: (Radiated Emissions)**

Test Set-up:

Radiated BELOW 1GHz



Radiated ABOVE 1 GHz



The actual signal generated by the measured equipment may be determined by means of a substitution measurement in which a known signal source replaces the device to be measured.

The substitution antenna will replace the EUT antenna in the same position and in vertical polarization. The frequency of the signal generator shall be set to the frequencies that were measured on the EUT. The test antenna shall be raised and lowered, if necessary, to ensure that the maximum signal is still being received. The signal generator, output level, shall be adjusted until an equal or a known related level to what was measured from the EUT is obtained in the spectrum analyzer.

The radiated power is equal to the power supplied by the signal generator
The formula, to calculate the true reading, is: True reading = dBm +GdBd - CL

dBm = signal generator output level
GdBd = the gain in dBd of the substitution antenna
CL = the cable loss

The calculated True reading is then compared to the limit and should not exceed the limit. This method must be performed for every emission measured from the Eut. This shall also be repeated for horizontal polarization.

Minimum Requirement:

The magnitude of each spurious and harmonic emissions detected as being radiated from the EUT must be at a level no more than $43 + 10 \log$ (mean output power, watts) dB below the mean power output.

Test procedure:

EUT's antenna port was terminated with a 50-ohm load. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 1 meter from the EUT. The EUT was setup to its maximum output power at its lowest channel. All spurious emissions were measured. The measurements are repeated for the highest and a middle channel.

Test Result:

Complies. Spreadsheet shown below.

Compliance Certification Services

Radiated Emissions
 24.229

Samsung
 GSM 1900 Single modulation cell phone

11/3/01
 A-Site (1 meter)
 Hue Ly Vang
 Report#:01U1041-2

Channel: 512

fo = 1850 MHz

Frequency (MHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3700V	75.7	-31.96	0.7	8.1	-24.56	-13	-11.56
3700H	75.3	-32.8	0.7	8.1	-25.4	-13	-12.4
5550V	61.9	-45	1	9.9	-36.1	-13	-23.1
5550H	68.1	-37.5	1	9.9	-28.6	-13	-15.6
7400V	54.5	-48	1.14	10.2	-38.94	-13	-25.94
7400H	55.6	-45.6	1.14	10.2	-36.54	-13	-23.54
9250V	59.1	-42.5	1.29	10.8	-32.99	-13	-19.99
9250H	58.1	-43.5	1.29	10.8	-33.99	-13	-20.99
11100V	56.7	-44.5	1.44	12.2	-33.74	-13	-20.74
11100H	64.7	-35.66	1.44	12.2	-24.9	-13	-11.9
12950V	49.4	-60	1.5	13.1	-48.4	-13	-35.4
12950H	49.9	-60	1.5	13.1	-48.4	-13	-35.4
14800V	-50.5	-60	1.68	12.2	-49.48	-13	-36.48
14800H	50.2	-60	1.68	12.2	-49.48	-13	-36.48
16650V	50.6	-60	1.89	14.4	-47.49	-13	-34.49
16650H	51.1	-60	1.89	14.4	-47.49	-13	-34.49
18500V	50.9	-60	2.07	10.4	-51.67	-13	-38.67
18500H	51.3	-60	2.07	10.4	-51.67	-13	-38.67

NOTE1: Used High Pass Filter (4750MHz) starting from frequencies of 5550 MHz

NOTE2: H=horizontal and V=vertical

EIRP = SG reading - CL + Gain (dBi)

Margin = EIRP - Limit

Compliance Certification Services

Radiated Emissions
 24.229

Samsung
 GSM 1900 Single modulation cell phone

11/3/01
 A-Site (1 meter)
 Hue Ly Vang
 Report#:01U1041-2

Channel: 661
fo = 1880 MHz

Frequency (MHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3760V	72.2	-34.9	0.7	8.1	-27.5	-13	-14.5
3760H	72.5	-34.8	0.7	8.1	-27.4	-13	-14.4
5640V	59	-47.2	1	9.9	-38.3	-13	-25.3
5640H	64	-43.2	1	9.9	-34.3	-13	-21.3
7520V	53.8	-49.2	1.14	10.2	-40.14	-13	-27.14
7520H	57.4	45	1.14	10.2	54.06	-13	67.06
9400V	58.4	-41.2	1.29	10.8	-31.69	-13	-18.69
9400H	58	-41.9	1.29	10.8	-32.39	-13	-19.39
11280V	53.8	-47.2	1.44	12.2	-36.44	-13	-23.44
11280H	59.3	-42.1	1.44	12.2	-31.34	-13	-18.34
13160V	48.1	-60	1.5	13.1	-48.4	-13	-35.4
13160H	49.6	-60	1.5	13.1	-48.4	-13	-35.4
15040V	59.1	-60	1.68	12.2	-49.48	-13	-36.48
15040H	59.4	-60	1.68	12.2	-49.48	-13	-36.48
16920V	59.9	-60	1.89	14.4	-47.49	-13	-34.49
16920H	61	-60	1.89	14.4	-47.49	-13	-34.49
18800V	60.9	-60	2.07	10.4	-51.67	-13	-38.67
18800H	61.3	-60	2.07	10.4	-51.67	-13	-38.67

NOTE1: Used High Pass Filter (4750MHz) starting from frequencies of 5640 MHz

NOTE2: H=horizontal and V=vertical

EIRP = SG reading - CL + Gain (dBi)

Margin = EIRP - Limit

Compliance Certification Services

Radiated Emissions
 24.229

Samsung
 GSM 1900 Single modulation cell phone

11/3/01
 A-Site (1 meter)
 Hue Ly Vang
 Report#:01U1041-2

Channel: 810
fo = 1909 MHz

Frequency (MHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3820V	72.5	-34.7	0.7	8.1	-27.3	-13	-14.3
3820H	72.4	-34.8	0.7	8.1	-27.4	-13	-14.4
5730V	57.9	-49.5	1	9.9	-40.6	-13	-27.6
5730H	61.5	-44.3	1	9.9	-35.4	-13	-22.4
7639V	58.4	-45.76	1.14	10.2	-36.7	-13	-23.7
7639H	61.6	-41.46	1.14	10.2	-32.4	-13	-19.4
9548V	54.4	-45.46	1.29	10.8	-35.95	-13	-22.95
9548H	53.4	-46.46	1.29	10.8	-36.95	-13	-23.95
11457V	43.2	-60	1.44	12.2	-49.24	-13	-36.24
11457H	44.6	-60	1.44	12.2	-49.24	-13	-36.24
13366V	49.5	-60	1.5	13.1	-48.4	-13	-35.4
13366H	49.9	-60	1.5	13.1	-48.4	-13	-35.4
15275V	49.6	-60	1.68	12.2	-49.48	-13	-36.48
15275H	49.9	-60	1.68	12.2	-49.48	-13	-36.48
17184V	50.2	-60	1.89	14.4	-47.49	-13	-34.49
17184H	50.6	-60	1.89	14.4	-47.49	-13	-34.49
19093V	50.8	-60	2.07	10.4	-51.67	-13	-38.67
19093H	50.9	-60	2.07	10.4	-51.67	-13	-38.67

NOTE1: Used High Pass Filter (4750MHz) starting from frequencies of 5730 MHz

NOTE2: H=horizontal and V=vertical

EIRP = SG reading - CL + Gain (dBi)

Margin = EIRP - Limit

SECTION 2.1055: FREQUENCY STABILITY

Minimum standard:

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

Test Procedure frequency/temperature:

The EUT was setup in a temperature chamber. The EUT was setup to its maximum output power at its lowest channel (channel 25). The temperature was varied in 10 degree steps from -30° C to +50° C. Enough time was allowed for the EUT's temperature to stabilize at each temperature. The block edge emissions were measured at each temperature after the temperature stabilized. The procedure described in the *Spurious Emissions at Antenna Terminal* section for measuring block edge emissions was used.

Test Procedure frequency/voltage AC:

Band edge emissions were measured with the AC voltage to the EUT's SMPS adjusted to 85% and 115% of nominal. The procedure described in the *Spurious Emissions at Antenna Terminal* section of this report for measuring block edge emissions was used.

Test Results:

Block edge measurements were compliant with the FCC 24.238 limits for all of the conditions listed above.

Compliance Certification Services

Radiated Emissions
24.235

11/3/01
A-Site (1 meter)
Hue Ly Vang
Report#:01U1041-2

Samsung
GSM 1900 Single modulation cell phone

Channel: 512

fo = 1850 MHz

Reference Pint at: 1880MHz

Frequency Stability

Voltage (DC)	Temperature (C)	Frequency		Shift (Hz)	Deviation PPM	Limit PPM
		Start (Hz)	Stop (Hz)			
3.7	-30	1880000000	1879999950	-50	-0.03	2.50
3.7	-20	1880000000	1879999955	-45	-0.02	2.50
3.7	-10	1880000000	1879999955	-45	-0.02	2.50
3.7	0	1880000000	1879999972	-28	-0.01	2.50
3.7	10	1880000000	1879999947	-53	-0.03	2.50
3.7	20	1880000000	1879999955	-45	-0.02	2.50
3.7	30	1880000000	1879999962	-38	-0.02	2.50
3.7	40	1880000000	1879999952	-48	-0.03	2.50
3.7	50	1880000000	1879999958	-42	-0.02	2.50
3.7	60	1880000000	1879999952	-48	-0.03	2.50
4.3	25	1880000000	1879999940	-60	-0.03	2.50
3.15	25	1880000000	18799999450	-550	-0.29	2.50

SETUP PHOTOS



FREQUENCY STABILITY & ANTENNA PORT TEST



HIGH FREQUENCY TEST

ATTACHMENTS

EUT PHOTOGRAPHS

PROPOSED FCC ID LABEL FORMAT

TECHNICAL DESCRIPTION & TUNE UP PROCEDURE

REQUEST OF CONFIDENTIALITY LETTER

INSTALLATION & SERVICE MANUAL

BLOCK DIAGRAM, SCHEMATIC DIAGRAM & PART LIST