EXHIBIT C

Measurement Report

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CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (1992) as a reference. All test were conducted by ***Training Research Co., Ltd.***, No. 5-3, Lane 21, Yen-Chiu-Yuan Rd., Sec. 4, Taipei, 11521 Taiwan, R.O.C. Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.233.

Applicant : Thomson Consumer Electronics Inc. Audio & Communications
Equipment : 900MHz Digital Spread Spectrum Telephone
Model No. : 2-913SST
FCC ID : G9H2-910SST
Report No. : K1215754
Test Date : May 4, 1998

Prepared by : STEPHEN CHEN

Approved by : JACOB LIN

Test by :

Training Research Co., Ltd.

TEL : 886-2-27881332 FAX : 886-2-7857408

No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec. 4, Taipei, 11521 Taiwan R.O.C.

MEASUREMENT REPORT
of
CORDLESS TELEPHONE

Applicant : Thomson Consumer Electronics Inc. Audio & Communications

Model :2-913SST

EUT :900 MHz Digital Spread Spectrum Telephone

FCC ID :G9H2-910SST

Test by :

Training Research Co., Ltd.

TEL : 886-2-7820280 FAX : 886-2-7857408

No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec. 4, Taipei, 11521 Taiwan R.O.C.

I. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of Thomson Consumer Electronics Inc. Audio & Communications in support of a Cordless Telephone certification in accordance with Part 2 Subpart J and Part 15 Subpart A and C of the Commission's Rules and Regulations.

1.2 Description of EUT

EUT	:	900MHz Digital Spread Spectrum Telephone
Model	:	2-913SST
FCC ID	:	G9H2-910SST
Frequency Range	:	Base: 902 - 928 MHz
		Handset : 902 - 928 MHz
Support Channel	:	20 Channel
Modulation Skill	:	TDMA / Spread spectrum
Security Code	:	12-bit P/N code, 8-bit scramble, 16-bit 2D
Power Type	:	Base Powered by 120 Vac 60 Hz 10W / 9 Vdc 600 mA
		Handset powered by 3.6 V / 600 mA.
Power Cord	:	Nonshielded
Phone Line	:	RJ-11C => Nonshielded, 7' long, Plastic hoods, No bead

Applicant : Thomson Consumer Electronics Inc. Audio & Communications
Product Develop. 101 West 103rd. street,
Indianapolis, IN .

The handset can connect a earphone .

1.3 Description of Support Equipment

In order to construct the minimum testing , following equipment were used as the support units.

PSTN Simulator: TRC Public Switched Telephone Network Simulator
Model No. : RC-PSTN-130
Serial No.: N/A
Notebook : CER Notebook
Model No.: 386SL
Serial No.: 001855
Power Type: Linear
Power Core: unshielded, 6' long, Plastic hoods, No ferrite bead
FCC ID: Q8V486S

1.4 Configuration of System Under Test

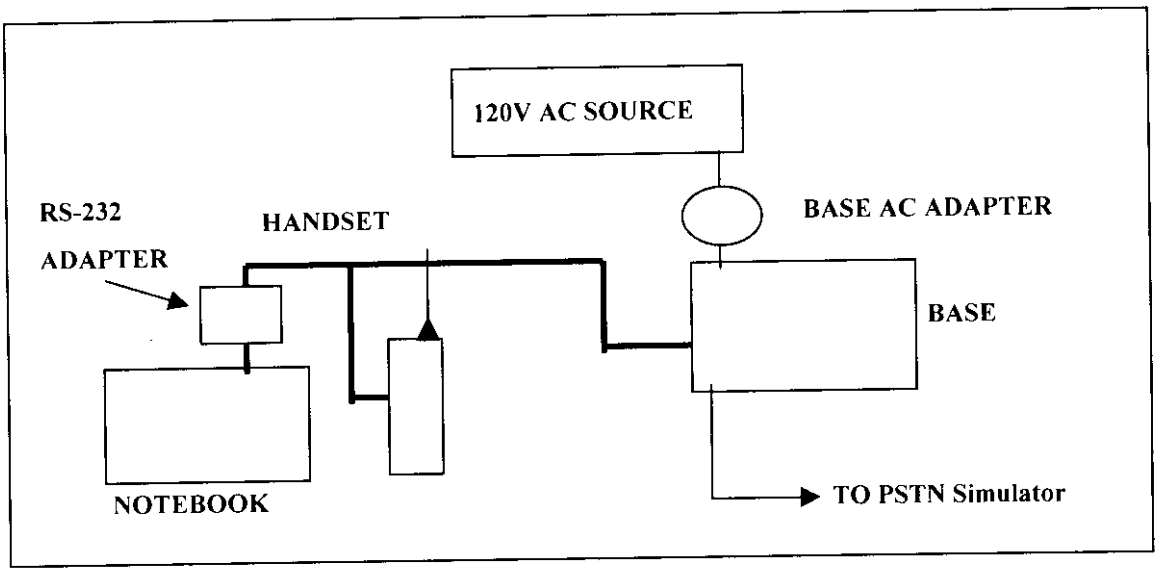


Fig. 1 Configuration of system under test

The tests below are run with the DCT transmitter set at high power in TDD mode .A serial port from a computer to the DCT UUT is needed to force selection of output power level and channel number.

The setting up procedure was recorded in Appendix A.

1.5 Verify the frequency and channel

1.5.1 Verify the Frequency Pairs

Channel	Base (MHz)	Handset (MHz)	Channel	Base (MHz)	Handset (MHz)
1	903.82505	903.78810	11	915.60242	915.59671
2	904.81143	904.79671	12	916.79945	916.80062
3	906.01145	906.00810	13	918.04500	918.04538
4	907.15847	907.17316	14	919.25428	919.26000
5	908.41281	908.40250	15	920.39976	920.39681
6	909.59705	909.59813	16	921.59892	921.60090
7	910.81230	910.79984	17	922.79943	922.79990
8	912.00220	912.01145	18	924.00045	924.00472
9	914.25116	914.20350	19	925.62306	925.61200
10	914.72520	914.78813	20	926.552513	926.72550

Note:

1. This is for sure that all frequencies are in 902 MHz to 928 MHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz. (The locations of these frequencies one near the top, one near the middle and one near the bottom.)
3. After test, the EUT operating frequencies are in 903.78 MHz to 926.72 MHz. So all the items as followed in testing report are need to test these three frequencies: top: channel 1, middle: channel 10, bottom: channel 20.

1.6 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (1992) and the pre-setup was written on Appendix A, the detail setup was written on each test item.

1.7 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the three-meter, open-field test site maintained by Training Research Co., Ltd. No. 5-3, Lane 21, Yen-Chiu-Yuan Rd., Sec. 4, Taipei, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a shielded enclosure also located at Training Research Co., Ltd. 1F, No. 569, Chung Hsiao E. Sec. 7, Taipei, Taiwan, R.O.C. Training Research Co., Ltd. is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.8 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests was chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated.

During test , the base and handset are tested separately. They were set in high power and continuously transmitting mode that controlled by computer. The ch01, ch10 and ch20 of base and handset were all tested .The setting up procedure is recorded on Appendix A.

II. Section 15.207: Power line conducted emissions for AC powered units

2.1 Test Condition & Setup

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3825/2 Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPER quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 450 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.4.

There are tree test condition apply in this test item, the test procedure description as the following:

1. Base station transmit only:
   Using the RS-232 port of notebook and Rockwell software to control the base, handset.
   Then making access to the mode of continuous transmission. Three channel is tested, one in the top (CH01), one in the middle (CH10) and the other in bottom (CH20).
2. Idle state (handset park, on hook mode)
3. Intercom mode (off hook mode)

The setting up procedure is recorded on Appendix A.

2.2 List of Test Instruments

Manufacturer	Device	Model	Input impedance
Hewlett Packard	100Hz-1.5GHz Spectrum Analyzer	HP8591EM	50.00
EMCO	Line Impedance Stabilization Network	3825/2	50.00
TRC	Shielded Room	TRC-SR!	N/A

2.4 Test Result of Conducted Emissions

2.4.1 Base station transmit only

The following table shows a summary of the highest emissions of power line conducted emissions on the HOT and NATURAL conductors of the EUT power cord.

Model No. : 2-913SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 1 Power Line Conducted Emissions (Channel 01)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
Line 1	12.745	25.37	48	-22.63
	14.359	27.78	48	-20.22
	14.945	29.32	48	-18.68
	20.871	32.84	48	-15.16
	22.259	33.33	48	-14.67
	23.645	36.40	48	-11.60
	26.122	37.53	48	-10.47
	27.506	37.31	48	-10.69
	28.088	36.28	48	-11.72
	29.033	33.30	48	-14.70
Line 2	18.532	30.40	48	-17.60
	20.871	31.65	48	-16.35
	21.602	33.09	48	-14.91
	21.894	33.67	48	-14.33
	23.134	34.98	48	-13.02
	24.009	36.48	48	-11.52
	26.268	36.99	48	-11.01
	27.287	36.37	48	-11.63
	27.651	34.43	48	-13.57
	29.469	34.35	48	-13.65

NOTE :

1. Margin = Peak Amplitude - Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 2 Power Line Conducted Emissions (Channel 10)

Power Conductor	Connected Frequency (MHz)	Emissions Peak Amplitude (dBuV)	FCC Class B Limit (dBuV)	Margin (dB)
LINE 1	15.165	30.64	48	-17.36
	20.506	30.40	48	-17.60
	22.259	34.02	48	-13.98
	22.477	36.46	48	-11.54
	24.520	35.79	48	-12.21
	25.977	36.53	48	-11.47
	27.287	35.76	48	-12.24
	27.724	35.12	48	-12.88
	28.306	34.63	48	-13.37
Line 2	15.238	28.83	48	-19.17
	18.679	29.50	48	-18.50
	18.898	30.26	48	-17.74
	21.456	32.91	48	-15.09
	22.186	33.66	48	-14.34
	22.842	34.52	48	-13.48
	26.341	35.92	48	-12.08
	26.923	34.93	48	-13.07
	28.088	34.09	48	-13.91
	28.306	32.93	48	-15.07

NOTE :

1. Margin = Peak Amplitude - Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 3 Power Line Conducted Emissions (Channel 20)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
LINE1	14.872	28.99	48	-19.01
	15.385	30.16	48	-17.84
	16.264	30.57	48	-17.43
	17.655	31.04	48	-16.96
	18.898	30.49	48	-17.51
	22.332	32.72	48	-15.28
	24.082	35.77	48	-12.23
	25.904	36.39	48	-11.61
	28.088	38.85	48	-9.15
	28.524	34.78	48	-13.22
Line 2	17.069	29.01	48	-18.99
	20.141	30.83	48	-17.17
	20.433	31.03	48	-16.97
	21.675	32.46	48	-15.54
	22.259	34.12	48	-13.88
	23.863	35.17	48	-12.83
	25.103	36.49	48	-11.51
	25.904	37.11	48	-10.89
	26.122	37.53	48	-10.47
	27.869	35.57	48	-12.43

NOTE :

1. Margin = Peak Amplitude- Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 4 Power Line Conducted Emissions (Idle state)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
Line 1	15.458	18.17	48	-29.83
	16.483	18.46	48	-29.54
	16.776	17.84	48	-30.16
	22.405	19.99	48	-28.01
	22.988	23.24	48	-24.76
	24.082	27.87	48	-20.13
	25.248	26.07	48	-21.93
	26.075	20.90	48	-27.10
	27.433	21.44	48	-26.56
	29.542	20.32	48	-27.68
	***			
Line 2	9.955	17.49	48	-30.51
	15.312	17.44	48	-30.56
	22.259	18.95	48	-29.05
	23.061	22.37	48	-25.63
	23.645	22.68	48	-25.32
	24.082	27.27	48	-20.73
	25.248	21.03	48	-26.97
	26.341	19.25	48	-28.75
	28.015	20.90	48	-27.10
	28.451	19.43	48	-28.57

NOTE :

1. Margin = Peak Amplitude - Limit .
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 5 Power Line Conducted Emissions (Intercom)

Power Conductor	Connected Frequency (MHz)	Emissions Peak Amplitude (dBuV)	FCC Class B Limit (dBuV)	Margin (dB)
Line 1	15.018	18.43	48	-29.57
	15.238	18.33	48	-29.67
	16.776	19.10	48	-28.90
	22.405	22.49	48	-25.51
	22.915	23.40	48	-24.60
	24.082	26.21	48	-21.79
	24.957	21.63	48	-26.37
	25.540	20.14	48	-27.86
	28.015	20.10	48	-27.90
Line 2	5.319	15.93	48	-32.07
	22.405	18.32	48	-29.68
	23.061	22.25	48	-25.75
	23.572	23.37	48	-24.63
	24.082	27.80	48	-20.20
	25.248	24.98	48	-23.02
	25.394	18.96	48	-29.04
	28.088	19.70	48	-28.30
	29.469	19.76	48	-28.24
	***			

NOTE :

1. Margin = Peak Amplitude - Limit .
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

III. 0Section 15.247(a)(2): Bandwidth for direct sequence system.

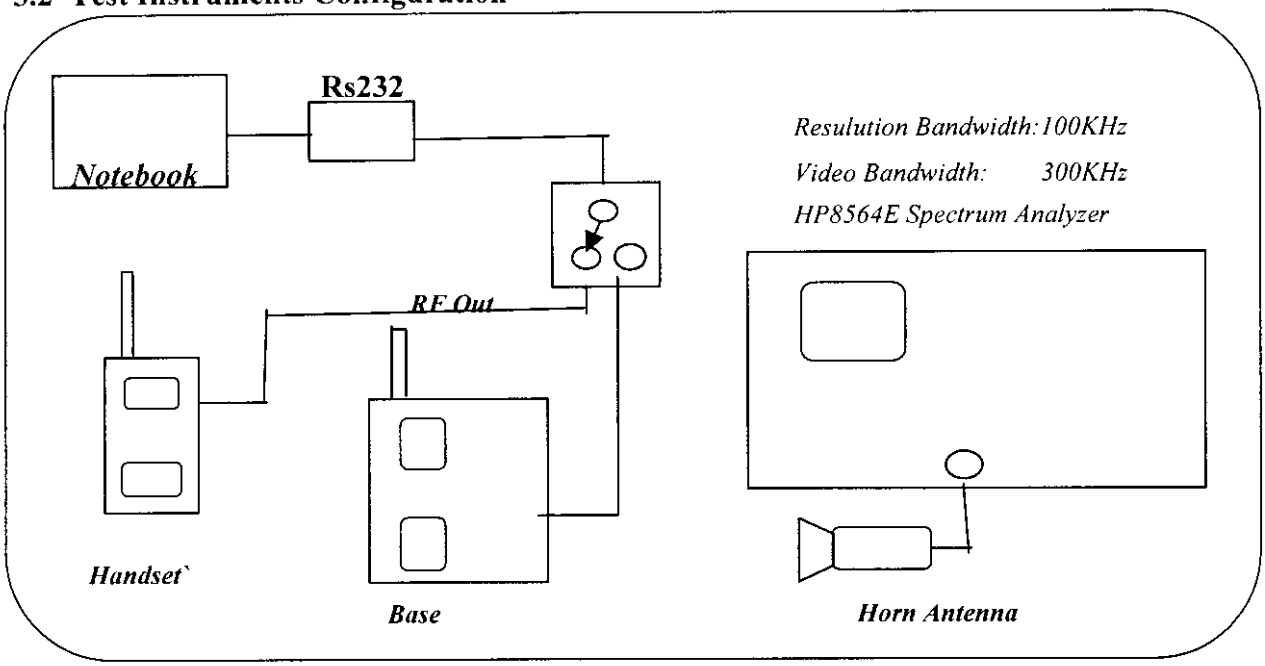
3.1 Test Condition & Setup

The transmitter bandwidth measurements were performed in a shielded enclosure. The EUT was placed on a wooded table which is 0.8 meters height. the EUT was set to transmit continuously. Various channels were also investigated to find the maximum occupied bandwidth. The minimum 6 dB bandwidth shall be at least 500 KHz.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Set the span>> RBW. The detector function was set to peak and hold mode to clearly observe the components.

Setting up procedure is written on Appendix A.

3.2 Test Instruments Configuration

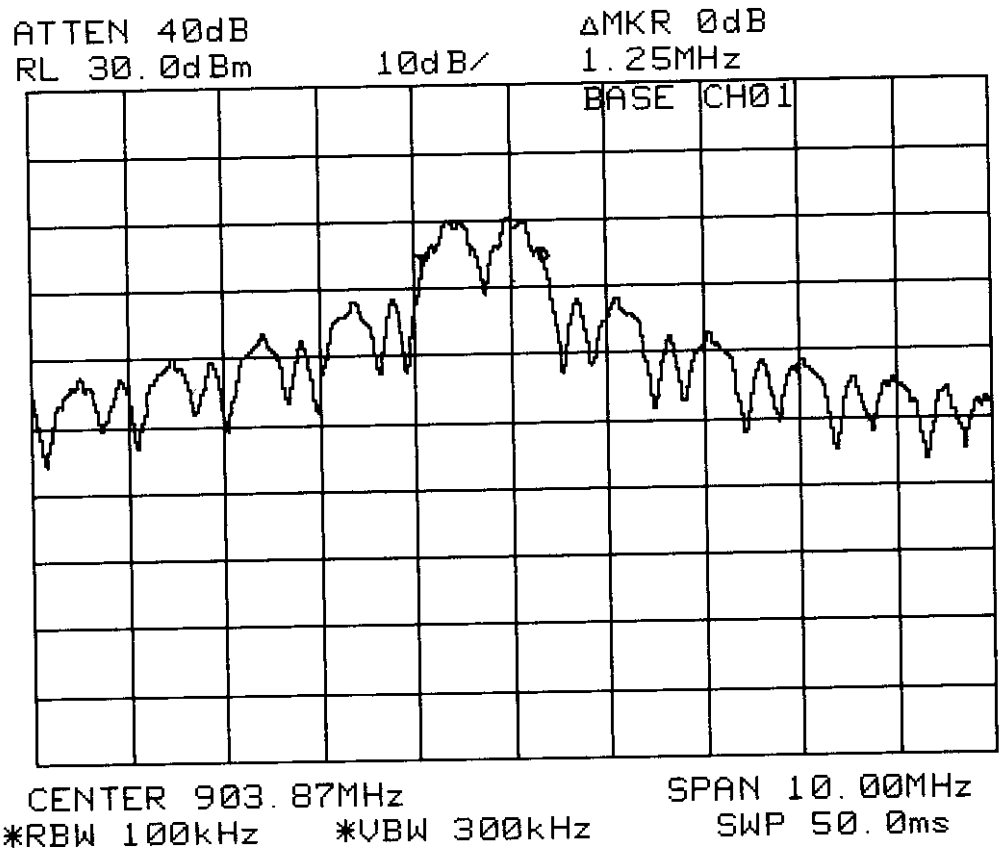


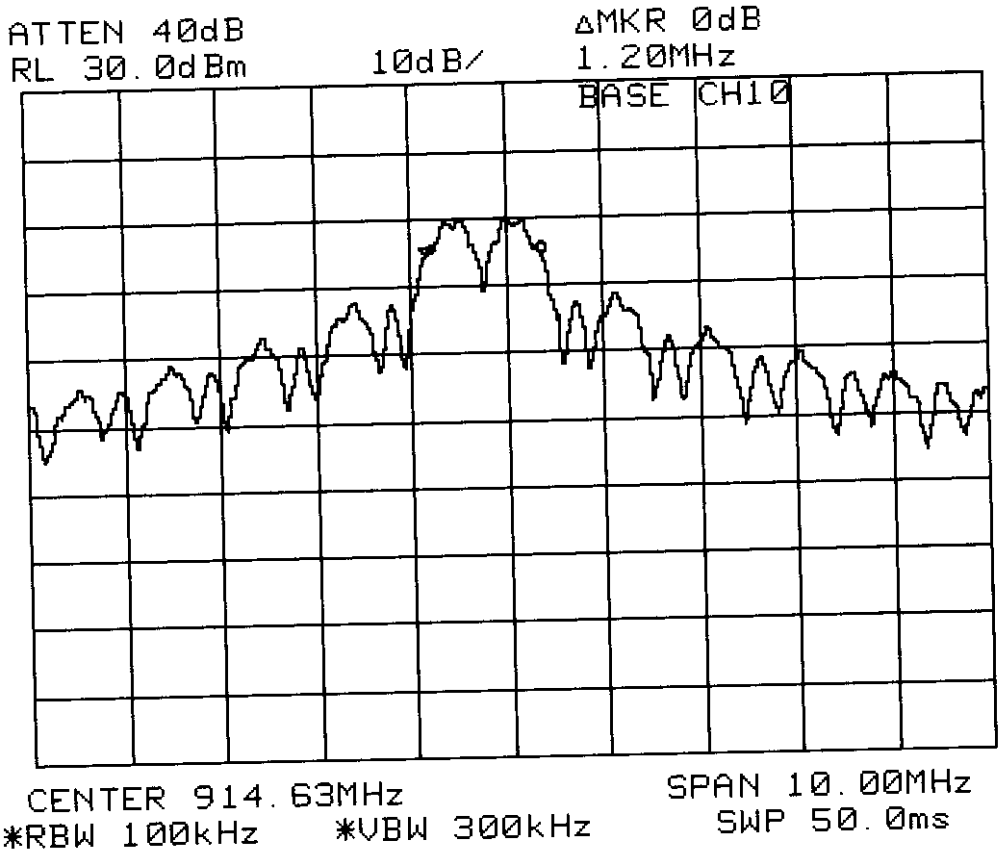
P.S.A serial port from notebook computer to control the EUT at maximal power output and channel Number.

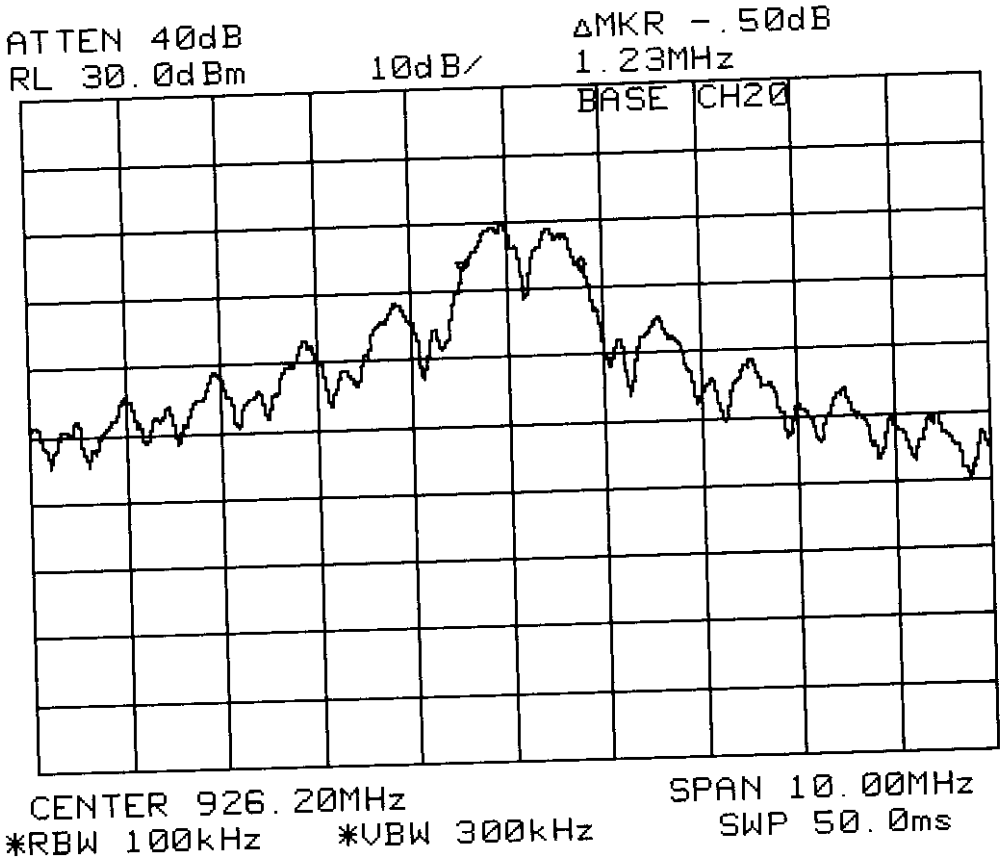
Fig 10. Test Configuration of bandwidth for direct sequence system

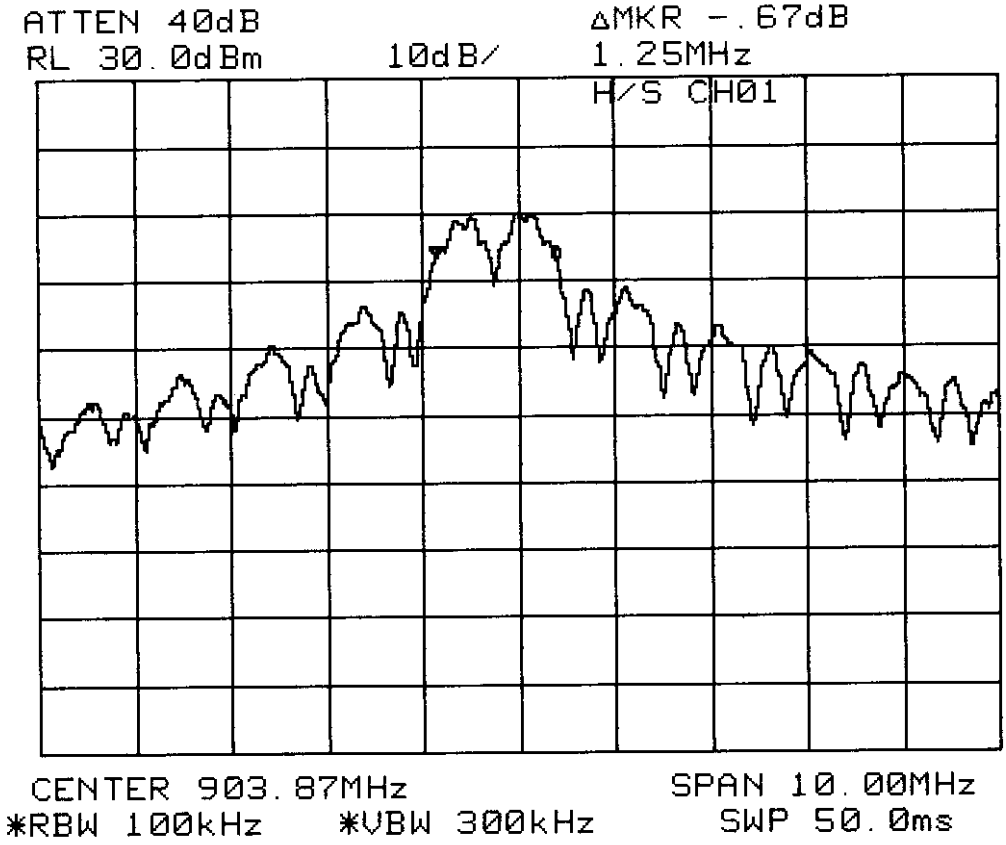
3.3 List of Test Instruments

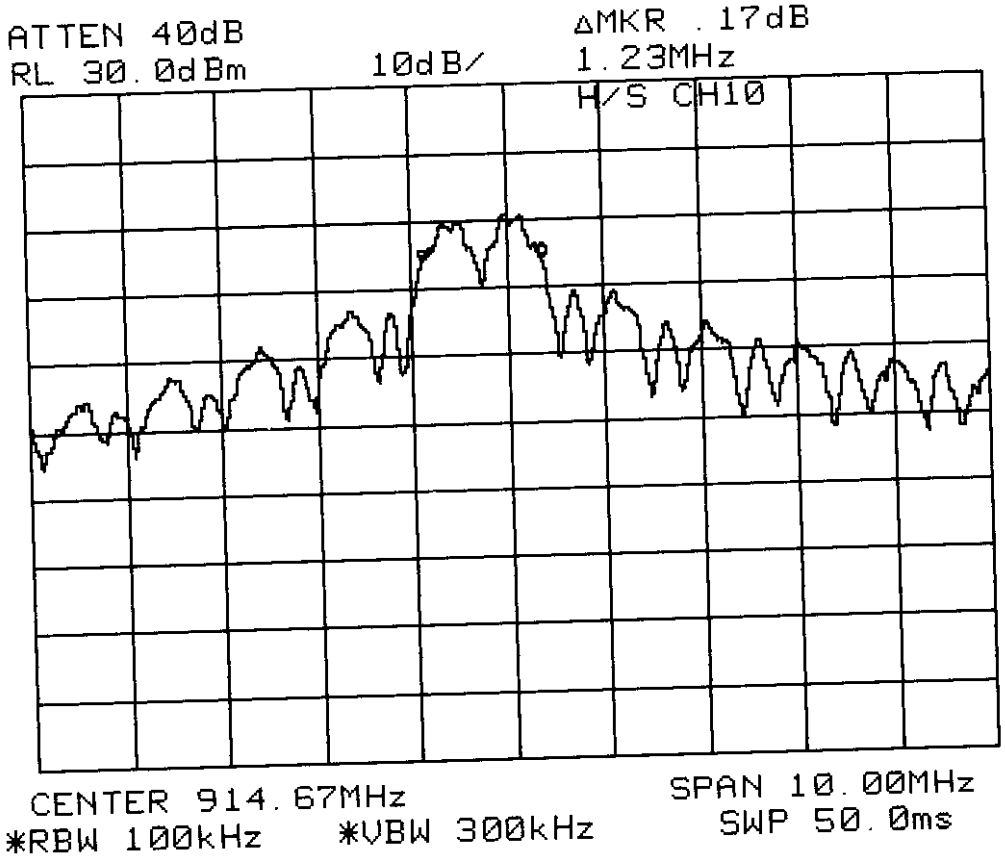
Manufacturer	Device	Model	Input	Impedance
Hewlett Packard	.9KHz – 40 GHz Spectrum Analyzer	HP8564E		50.00

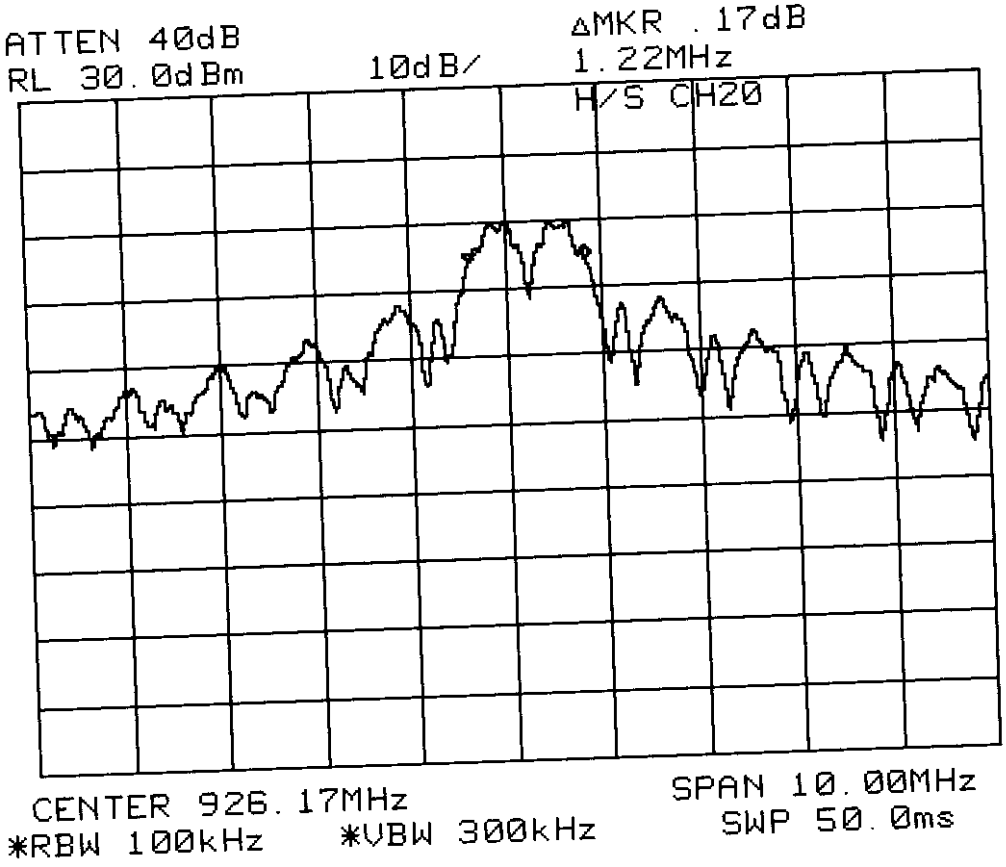

ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR 0dB
1.25MHz
BASE CH01
CENTER 903.87MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR 0dB
1.20MHz
BASE CH10
CENTER 914.63MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR -.50dB
1.23MHz
BASE CH20
CENTER 926.20MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR -.67dB
1.25MHz
H/S CH01
CENTER 903.87MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR .17dB
1.23MHz
H/S CH10
CENTER 914.67MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR .17dB
1.22MHz
H/S CH20
CENTER 926.17MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms

3.4 Test Result of Bandwidth

Bandwidth of Channel 1

Bandwidth of Base : 1.25 MHz
Bandwidth of Handset : 1.25 MHz
The min. 6 dB BW at least : 500 KHz

Bandwidth of Channel 10

Bandwidth of Base : 1.20 MHz
Bandwidth of Handset : 1.23 MHz
The min. 6 dB BW at least : 500 KHz

Bandwidth of Channel 20

Bandwidth of Base : 1.23 MHz
Bandwidth of Handset : 1.22 MHz
The min. 6 dB BW at least : 500 KHz

Note :

1. The data in the above table are summarize the following attachment spectrum analyzer hard copy.
2. The attachment follow by this page and there is no page number.

IV. Section 15.247(B): Power Output

4.1 Test Condition & Setup

Prior to open-field testing, the EUT was placed in a shielded enclosure and scanned at a close distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the open-field tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, open-field test site. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 8591A Spectrum Analyzer, EMCO Biconical Antenna (Model 3110) for 30 - 200 MHz, EMCO Log-Periodic Antenna (Model 3146) for 200 - 1000 MHz .

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. The spectrum analyzer HP8568b used on this testing for frequency 30MHz to 1000MHz. No post-detector video filters were used in the test. Set the RB= 3 MHz, VB = 3MHz and the span = 5 MHz. The analyzer was operated in the maximum hold mode.

There are two test condition apply in this test item, the test procedure description as the following:

(1) Base and handset station transmit only :

Using the RS-232 port of notebook and Rockwell software to control the base , handset. Then making access to the mode of continuous transmission. three channel is tested, one in the top (CH01), one in the middle (CH10) and the other in bottom (CH20).

With the transmitter operating from a fully charged battery and using the internal antenna,

Radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to low, mid and high channels in the 902-928 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

4.2 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	100Hz-1.5GHz Spectrum Analyze	HP8568B	50.00
Hewlett Packard	50kHz-22GHz Spectrum Analyzer	HP8592B	50.00
Hewlett Packard	10KHz-1GHz Quasi-peak Adapte	HP85650A	50.00
Hewlett Packard	20Hz-2GHz RF Preselector	HP85685A	50.00
Anritsu	0.1-1200MHz Preamplifier	MH648A	50.00
EMCO	20-300MHz Biconical Antenna	3110.00	50.00
EMCO	200-1000MHz Log-Periodic Antenna	3146.00	50.00
TRC	Open Field Test Site	TRC-OFTS1	N/A
TRC	Notch Filter	N/A	50.00

4.3 Test Result of Fundamental Emissions

The peak values of fundamental emissions from the EUT at various antenna heights , antenna polarization, EUT orientation , etc. are recorded on the following .

Model No. : 2-913SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 6 Open Field Fundamental Emissions

Channel	Frequency (MHz)	A.P. (H/V)	A.H. (CM)	Table (degree)	Amplitude (Peak) (dBuV/m)	E.R.P.(Peak)	
						mW	dBm
Base 01	903.825	H	100.00	149.00	109.96	18.12	11.25
		V	100.00	48.00	117.23	96.66	19.85
Base 10	914.725	H	100.00	273.00	110.33	19.73	12.95
		V	100.00	156.00	117.67	106.97	20.29
Base 20	926.525	H	100.00	176.00	106.81	8.77	9.42
		V	100.00	307.00	116.97	91.04	19.59
Handset 01	903.788	H	100.00	250.00	103.58	4.17	6.2
		V	100.00	357.00	114.26	48.78	16.88
Handset 10	914.788	H	100.00	290.00	104.56	5.22	7.17
		V	100.00	109.00	113.48	40.76	16.10
Handset 20	926.625	H	100.00	133.00	106.65	8.45	9.26
		V	100.00	298.00	115.12	59.46	17.74

Note :

1. A.P. means antenna polarization, horizontal and vertical.
2. A.H. means antenna height.
3. Table means turntable turning position.
4. Amplitude means the fundamental emission measured.
5. Effective Radiation Power (E.R.P.) = $(E\ d)^2 / 30G$

   E is the measured maximum field strength in V/m utilizing the maximum hold mode RBW (3MHz).

   G is the numeric gain of the transmitting antenna over an isotropic radiator (1.64).

   d is the distance in meters from which the field strength was measured (3M).

Example : the Max Radiation Emission of base ch01 = 117.23 dBuV/m

$10^{(117.23/20)} \times 10^{-6} = 0.72694$ V

E.R.P. = $(0.72694 \times 3)^2 / 49.2 = 96.66$ mW = 10 x log(96.66 mW/1mW)

= 19.85dBm

V. Section 15.247 (C)(2): Spurious emissions (Radiated)

5.1 Test Condition & Setup

Prior to open-field testing, the EUT was placed in a shielded enclosure and scanned at a close distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the open-field tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, open-field test site. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 8591A Spectrum Analyzer, EMCO Biconical Antenna (Model 3110) for 30 - 200 MHz, EMCO Log-Periodic Antenna (Model 3146) for 200 - 1000 MHz and spectrum was examined from 1 GHz to 18GHz using an Hewlett Packard 8592A Spectrum Analyzer, EMCO Horn Antenna (Model 3115) for 1 G - 18 GMHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. there are two spectrum analyzers use on this testing ,HP8568b for frequency 30MHz to 1000MHz, and HP8592A for frequency 1 GHz to 18 GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6 dB bandwidth was set to 120 KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1 GHz to 18GHz) and the analyzer was operated in the maximum hold mode.

There are two test condition apply in this test item, the test procedure description as the following:

(1) Base and handset station transmit only :

Using the RS-232 port of notebook and Rockwell software to control the base , handset. Then making access to the mode of continuous transmission. three channel is tested, one in the top (CH01), one in the middle (CH10) and the other in bottom (CH20).

With the transmitter operating from a fully charged battery and using the internal antenna, radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to low, mid and high channels in the 902-928 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

For frequency between 30MHz to 1000MHz

FIa (dBuV/m) = FIr (dBuV) + Correction Factors

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss

For frequency between 1 GHz to 18 GMHz

FIa(dBuV/m) = FIr(dBuV) + Correction Factor - Duty Cycle

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Distance Factor (9.54dB)- Amplifier Gain

The setting up procedure is recorded on Appendix A.

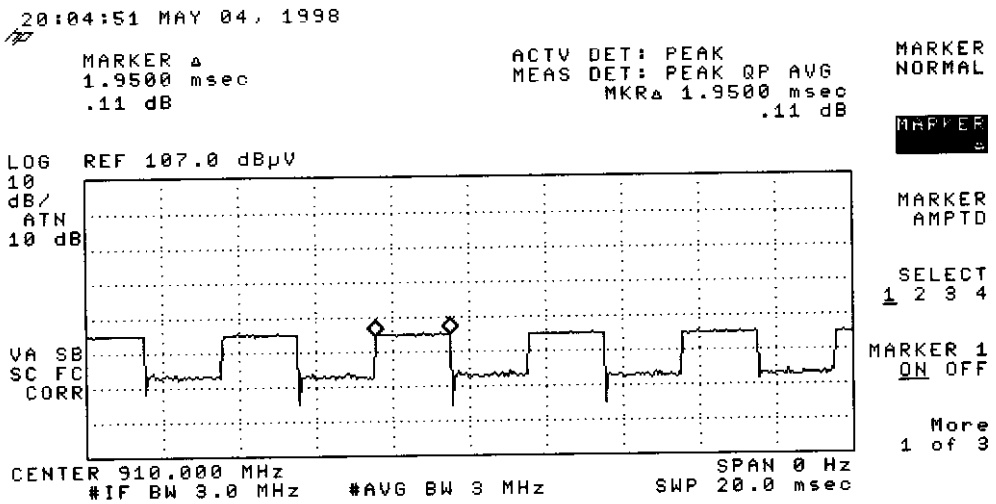
5.2 List of Test Instruments

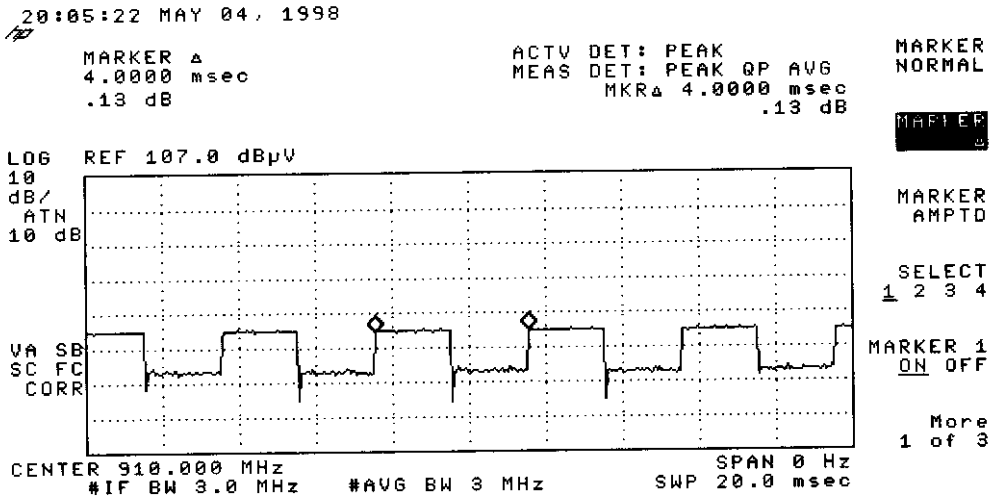
Manufacturer	Device	Model	Input Impedance
Hewlett Packard	9KHz-2.9 GHz Spectrum Analyze	HP8594EM	50.00
Hewlett Packard	50kHz-22GHz Spectrum Analyzer	HP8592A	50.00
Hewlett Packard	10KHz-1GHz Quasi-peak Adapte	HP85650A	50.00
Hewlett Packard	20Hz-2GHz RF Preselector	HP85685A	50.00
Hewlett Packard	1GHz-26.5GHz Preamplifier	HP8449B	50.00
Anritsu	0.1-1200MHz Preamplifier	MH648A	50.00
EMCO	20-300MHz Biconical Antenna	3110.00	50.00
EMCO	200-1000MHz Log-Periodic Antenna	3146.00	50.00
EMCO	1G-18GMHz Double Ridge Antenna	3115.00	50.00
TRC	Open Field Test Site	TRC-OFTS1	N/A
TRC	Notch Filter	N/A	50.00
TRC	Horn Antenna with Amplifier	TRC1	50.00

5.2.1 Duty Cycle Factor Measurement

The duty cycle factor measurement is performed in a shield enclosure . The test condition and setup is as same as paragraph III . Set the RB = 1MHz, VB=1MHz, and span = 0 MHz. Link the base and handset in the ch 10.Then get the Time of duty and cycle as follow page .

The duty cycle factor = 20 log (T_{duty} / T_{cycle}) = 20 log (1.95 /4)= -6.24


20:04:51 MAY 04, 1998
MARKER Δ
1.9500 msec
.11 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 1.9500 msec
.11 dB
MARKER
NORMAL
LOG REF 107.0 dBµV
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 3
CENTER 910.000 MHz
#IF BW 3.0 MHz
#AVG BW 3 MHz
SPAN 0 Hz
SWP 20.0 msec


20:05:22 MAY 04, 1998
MARKER Δ
4.0000 msec
.13 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 4.0000 msec
.13 dB
MARKER
NORMAL
LOG REF 107.0 dBµV
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 3
CENTER 910.000 MHz
#IF BW 3.0 MHz
#AVG BW 3 MHz
SPAN 0 Hz
SWP 20.0 msec

5.4 Test Result of Second Harmonic

Set the spectrum RB= 3 MHz , VB = 3MHz and span = 5MHz. The correction factors of the second harmonic is . The second harmonic must lower 20 dB than the fundamental .

Model No. : 2-913SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 31. Second Harmonic Attendation

Channel	Fundamental (MHz)	Fundamental (dBuV/m)	2nd Harmonic (MHz)	2nd Har. (dBuV/m)	Result (F/H dB)	Limit (dBc)	Margin (dBc)
B/S CH 01	903.825	117.23	1807	59.13	58.1	20.00	38.1
B/S CH 10	914.725	117.67	1829	56.47	61.2	20.00	41.2
B/S CH 20	926.525	116.97	1852	53.30	63.67	20.00	43.67
H/S CH 01	903.788	114.26	1807	61.30	52.96	20.00	32.96
H/S CH 10	914.788	113.48	1828	58.13	55.35	20.00	35.35
H/S CH 20	926.725	115.12	1852	57.30	57.82	20.00	37.82

Note :

1. The data in the above table are summarize the following attachment spectrum analyzer hard copy.
2. The attachment follow by this page and there is no page number.
3. Result = Fundamental – 2nd Harmonic must over 20 dBc .

5.5 Test Result of Spurious Radiated Emissions

5.5.1 Base and handset station transmit only

The highest peak values of radiated emissions form the EUT at various antenna heights, antenna polarizations, EUT orientation, etc. are recorded on the following.

Model No. : 2-913SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 7. Open Field Radiated Emissions For 30MHz -1 GMHz [Channel 1, Base Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
331.196	54.13	100.00	175	-19.00	35.13	46	-10.87
422.395	59.08	100.00	66	-16.92	42.16	46	-3.84
499.194	56.38	100.00	237	-14.73	41.65	46	-4.35
556.793	57.27	100.00	1	-12.35	44.92	46	-1.08
575.991	54.01	100.00	330	-11.56	42.45	46	-3.55
585.591	52.37	100.00	313	-10.92	41.45	46	-4.55
623.992	47.32	100.00	337	-9.17	38.15	46	-7.58

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude +Correction Factors = Corrected
3.

Table 8. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 1, Base Horizontal]

Radiated Emission—				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2710	50.1	100.00	201	-6.84	-6.24	37.02	54	-16.98
3614	53.73	100.00	146	-5.64	-6.24	41.85	54	-12.15
4518	38.35	100.00	273	3.91	-6.24	36.02	54	-17.98
5420	40.71	100.00	37	9.72	-6.24	44.19	54	-9.81

Note:

1. Margin = Corrected - Limit.
2. peak amplitude+ Correction Factor + Duty Cycle = Corrected

Table 9. Open Field Radiated Emissions For 30MHz -1 GMHz [Channel 1, Base Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
331.196	50.45	101.00	278	-19.00	31.45	46	-14.55
422.395	61.38	101.00	131	-16.92	44.46	46	-1.54
499.194	53.41	101.00	211	-14.73	38.68	46	-7.32
556.793	56.44	101.00	131	-12.35	44.09	46	-1.91
575.991	52.41	100.00	107	-11.56	40.85	46	-5.15
585.591	52.83	101.00	187	-10.92	41.91	46	-4.09
623.992	49.24	101.00	82	-9.17	40.07	46	-5.93

Note:

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 10. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 1, Base Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2710	51.6	100.00	173	-6.84	-6.24	38.52	54	-15.48
3614	62.9	100.00	43	-5.64	-6.24	51.02	54	-2.98
4518	36.02	100.00	307	3.91	-6.24	33.69	54	-20.31
5420	34.87	100.00	49	9.72	-6.24	38.35	54	-15.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude+ Correction Factor + Duty Cycle = Corrected

Table 11. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Base Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
38.194	43.31	401.00	285	-9.11	34.20	40	-5.80
345.595	57.14	100.00	250	-18.64	38.50	46	-7.50
383.995	60.05	100.00	261	-17.21	42.84	46	-3.16
451.196	59.16	100.00	126	-16.23	42.93	46	-3.07
475.194	50.54	100.00	232	-15.47	35.07	46	-10.93
537.596	55.87	100.00	91	-13.13	42.74	46	-3.26
585.592	52.14	100.00	343	-9.72	42.42	46	-3.58

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 12. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Base Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2743	47.6	100.00	206	-6.84	-6.24	34.52	54	-19.48
3657	50.07	100.00	46	-5.64	-6.24	38.19	54	-15.81
4572	36.68	100.00	156	3.91	-6.24	34.35	54	-19.65
5485	37.87	100.00	319	9.72	-6.24	41.35	54	-12.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor+ Duty Cycle = Corrected

Table 13. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Base Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
38.194	47.37	100.00	278	-9.11	38.26	40	-1.74
345.595	48.95	401.00	263	-18.64	30.31	46	-15.69
383.995	53.45	100.00	160	-17.21	36.24	46	-9.76
451.196	56.14	100.00	166	-16.23	39.91	46	-6.09
475.194	45.53	100.00	177	-15.47	30.06	46	-15.94
537.596	48.44	100.00	159	-13.13	35.31	46	-10.69
585.592	52.70	100.00	132	-9.72	42.35	46	-3.65

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 14. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Base Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2743	50.1	100.00	93	-6.84	-6.24	37.02	54	-16.98
3657	58.23	100.00	128	-5.64	-6.24	46.35	54	-7.65
4572	34.18	100.00	267	3.91	-6.24	31.69	54	-22.31
5485	32.87	100.00	73	9.72	-6.24	36.35	54	-17.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 15. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Base Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
239.998	46.44	100.00	189	-7.85	38.59	46	-7.41
364.790	58.93	100.00	107	-17.69	41.24	46	-4.76
403.197	56.59	100.00	159	-16.98	39.61	46	-6.39
547.204	57.27	100.00	3	-12.71	44.56	46	-1.44
556.789	56.91	100.00	194	-12.35	44.56	46	-1.44
585.589	54.85	100.00	309	-10.92	43.93	46	-2.07
614.385	51.88	100	182	-9.37	42.51	46	-3.49

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

3. Table 16. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Base Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2779	45.93	100.00	265	-6.84	-6.24	32.89	54	-21.11
3705	45.9	100.00	273	-5.64	-6.24	34.02	54	-19.98
***								

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 17. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Base Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
239.998	42.99	100.00	242	-7.85	35.14	46	-10.86
364.790	52.06	100.00	213	-17.69	34.37	46	-11.63
403.197	55.08	100.00	157	-16.98	38.10	46	-7.90
547.204	55.75	100.00	224	-12.71	43.04	46	-2.96
556.789	57.20	100.00	212	-12.35	44.85	46	-1.15
585.589	55.64	100.00	189	-10.92	44.72	46	-1.28
614.385	51.22	100	137	-9.37	41.85	46	-4.15

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 18. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Base Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2779	49.9	100.00	346	-6.84	-6.24	36.82	54	-17.18
3705	51.57	100.00	48	-5.64	-6.24	39.69	54	-14.31
***								

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 19. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 01, Handset Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
259.225	37.25	100.00	261	-6.87	30.38	46	-15.62
355.233	52.46	100.00	255	-18.13	34.33	46	-11.67
384.036	50.72	100.00	31	-17.21	33.32	46	-12.68
394.631	39.14	100.00	188	-17.04	22.10	46	-23.90
499.248	43.30	100.00	301	-14.72	28.58	46	-17.42
508.848	38.22	100.00	218	-14.36	23.86	46	-22.14
537.651	40.09	100.00	189	-13.13	26.96	46	-19.04
547.253	42.46	100.00	124	-12.71	29.75	46	-16.25

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 20. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 01, Handset Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2711	59.13	100.00	250	-6.84	-6.24	46.05	54	-7.95
3615	64.57	100.00	136	-5.64	-6.24	52.69	54	-1.31
4518	44.35	100.00	76	3.91	-6.24	42.02	54	-11.98
5421	33.87	100.00	92	9.72	-6.24	37.35	54	-16.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 21. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 01, Handset Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
259.225	41.37	100.00	341	-6.87	34.50	46	-11.50
355.233	58.94	100.00	190	-18.13	40.81	46	-5.19
384.036	61.18	100.00	184	-17.21	43.97	46	-2.03
394.631	48.18	100.00	278	-17.04	31.14	46	-14.86
499.248	56.50	100.00	166	-14.72	41.78	46	-4.22
508.848	53.64	100.00	102	-14.36	39.28	46	-6.72
537.651	50.48	100.00	300	-13.13	37.35	46	-8.65
547.253	53.65	100.00	165	-12.71	40.94	46	-5.06

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 22. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 01, Handset Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2711	53.30	100.00	186	-6.84	-6.24	40.22	54	-13.78
3615	59.9	100.00	64	-5.64	-6.24	48.02	54	-5.98
4518	42.35	100.00	273	3.91	-6.24	40.02	54	-13.98
5421	34.87	100.00	340	9.72	-6.24	38.35	54	-15.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 23. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Handset Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
259.221	37.63	100.00	225	-6.87	30.76	46	-15.24
326.433	48.01	401.00	148	-19.03	28.98	46	-17.02
354.641	38.56	100.00	177	-18.16	20.40	46	-25.60
384.045	48.38	100.00	36	-17.21	31.17	46	-14.83
499.245	44.51	100.00	89	-14.72	29.79	46	-16.21
508.845	42.83	100.00	266	-14.36	28.47	46	-17.53
528.048	41.16	100.00	65	-13.60	27.56	46	-18.44
547.253	39.48	100.00	58	-12.71	26.77	46	-19.23

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 24. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Handset Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2743	56.93	100.00	251	-6.84	-6.24	43.85	54	-10.15
3657	65.23	100.00	63	-5.64	-6.24	52.35	54	-1.65
4572	38.68	100.00	193	3.91	-6.24	36.35	54	-17.65
5486	33.71	100.00	248	9.72	-6.24	37.19	54	-16.81

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 25. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Handset Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
259.221	41.05	100.00	308	-6.87	34.18	46	-11.82
326.433	57.21	401.00	127	-19.03	38.18	46	-7.82
354.641	41.70	100.00	309	-18.16	23.54	46	-22.46
384.045	59.77	100.00	42	-17.21	42.56	46	-3.44
499.245	56.64	100.00	291	-14.72	41.92	46	-4.08
508.845	56.03	100.00	284	-14.36	41.67	46	-4.33
528.048	54.07	100.00	55	-13.60	40.47	46	-5.53
547.253	53.27	100.00	166	-12.71	40.56	46	-5.44

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 26. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Handset Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2743	52.1	100.00	307	-6.84	-6.24	39.02	54	-14.98
3657	60.9	100.00	170	-5.64	-6.24	49.02	54	-4.98
4572	39.52	100.00	37	3.91	-6.24	37.19	54	-16.81
5486	31.54	100.00	270	9.72	-6.24	35.02	54	-18.98

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 27. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Handset Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
259.226	36.83	100.00	65	-6.87	29.96	46	-16.04
364.036	45.82	100.00	49	-17.21	28.61	46	-17.39
412.838	54.03	100.00	194	-17.01	37.02	46	-8.98
441.642	44.29	100.00	207	-16.56	27.73	46	-18.27
508.856	41.02	100.00	211	-14.36	26.66	46	-19.34
518.457	43.04	400.00	125	-14.01	29.03	46	-16.97
556.855	41.32	100.00	277	-12.34	28.98	46	-17.02
***							

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 28. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Handset Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2778	54.93	100.00	247	-6.84	-6.24	41.85	54	-12.15
3706	61.9	100.00	64	-5.64	-6.24	50.02	54	-3.98
4632	37.85	100.00	143	3.91	-6.24	35.52	54	-18.48
5559	31.71	100.00	318	9.72	-6.24	34.67	54	-19.33

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 29. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Handset Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
259.226	38.72	100.00	224	-6.87	31.85	46	-14.15
364.036	54.89	100.00	97	-17.21	37.20	46	-8.80
412.838	56.01	100.00	348	-17.01	38.80	46	-7.20
441.642	56.95	100.00	130	-16.56	39.94	46	-6.06
508.856	53.18	100.00	278	-14.36	36.62	46	-9.38
518.457	45.76	100.00	55	-14.01	31.40	46	-14.60
556.855	40.66	100.00	183	-12.34	28.32	46	-17.68
***							

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 30. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Handset Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2778	54.43	100.00	28	-6.84	-6.24	41.35	54	-12.65
3706	60.73	100.00	175	-5.64	-6.24	48.85	54	-5.15
4632	38.85	100.00	217	3.91	-6.24	36.52	54	-17.48
5557	31.71	100.00	160	9.72	-6.24	35.19	54	-18.81

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

VI Section 15.247(d): Power spectral density.

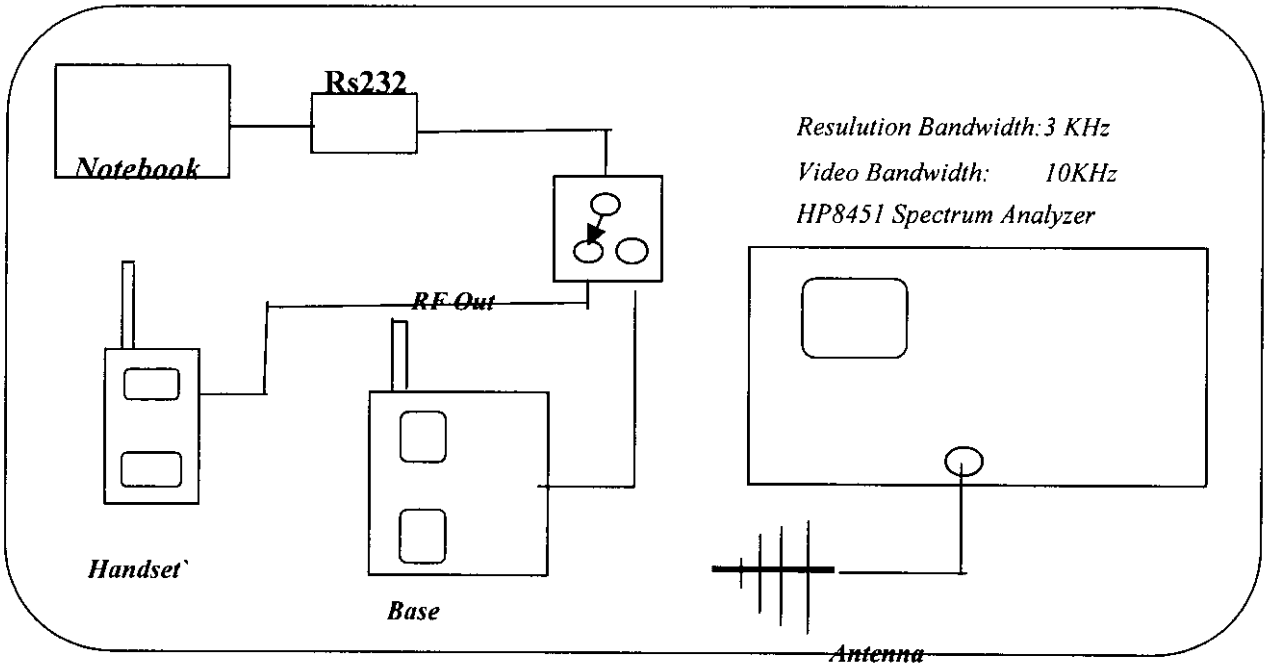
6.1 Test Condition & Setup

The tests below are running with the DCT transmitter set at high power in TDD mode .A serial port from a computer to the DCT UUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. A log antenna was connected with the spectrum analyzer .

The EUT is tested in open field site. Put EUT on the middle of a wooden table. Set spectrum analyzer RBW = 3 KHz, VBW > RBW (e.g. VBW = 10 KHz), Span = 1.5 MHz. Turn around the table to find maximum emission . Then set the Span = 300 KHz and sweep time = 100 sec. Peak the maximum emission again . The peak level measured must be no greater than +8 dBm.

The setting up procedure is recorded on Appendix A.

6.2 Test Instruments Configuration

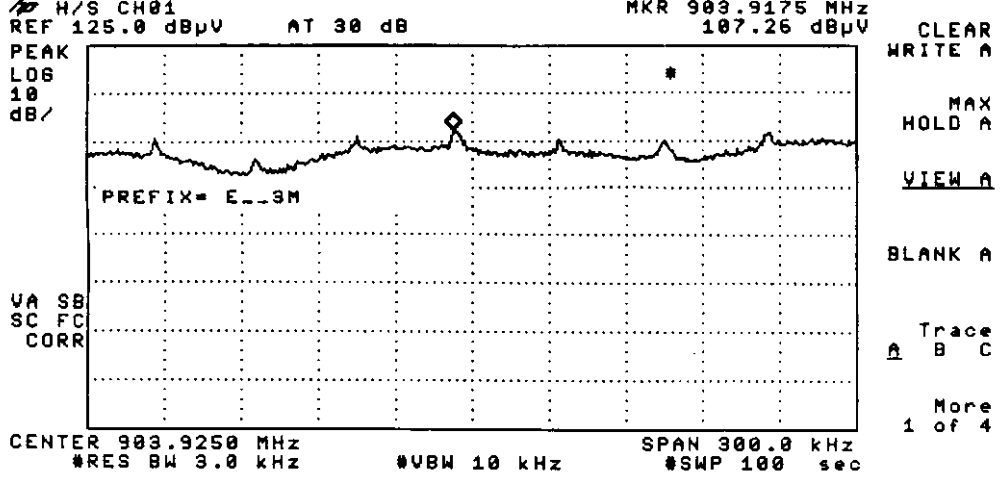


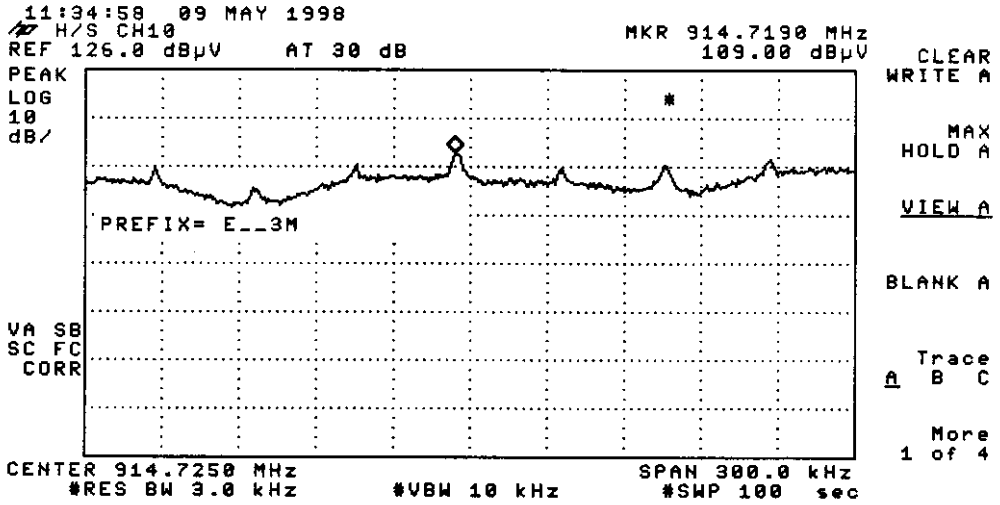
P.S.A serial port from notebook computer to control the EUT at maximal power output and channel Number.

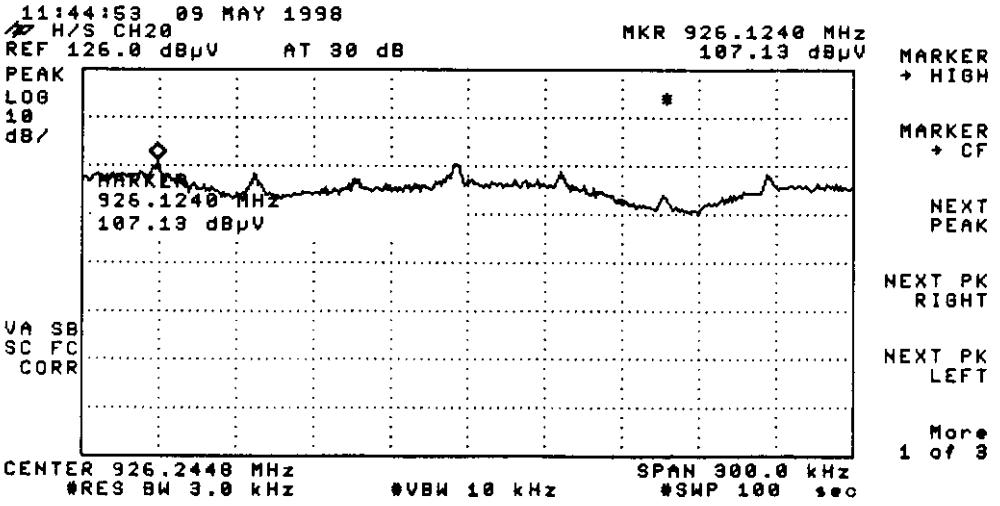
Fig 12. Test Configuration of power spectral density

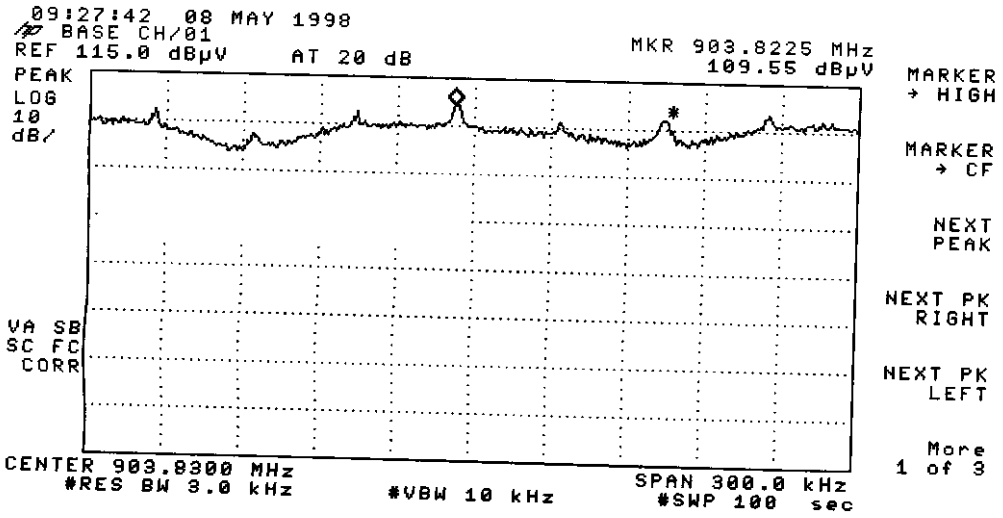
6.3 List of Test Instruments

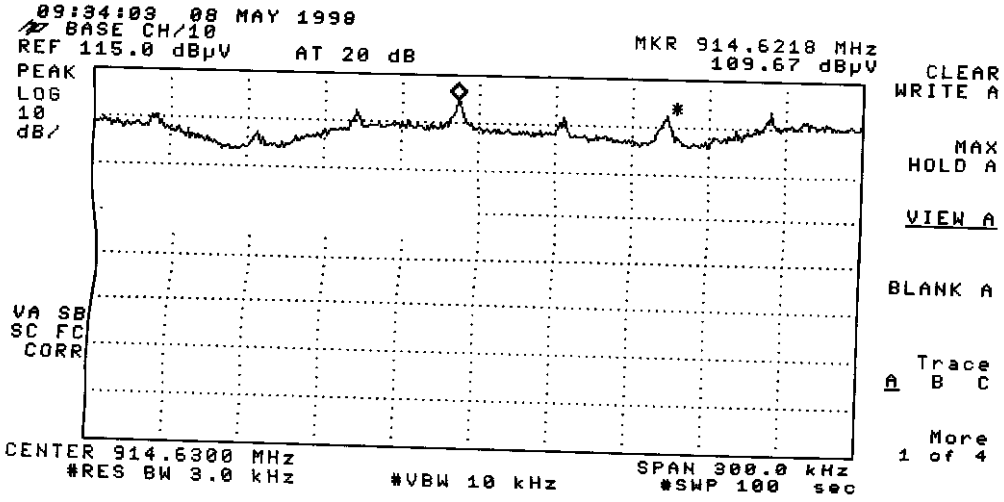
Manufacturer	Device	Model	Input	Impedance
Hewlett Packard	9KHz-2.9 GHz Spectrum Analyze	HP8594EM		50.00

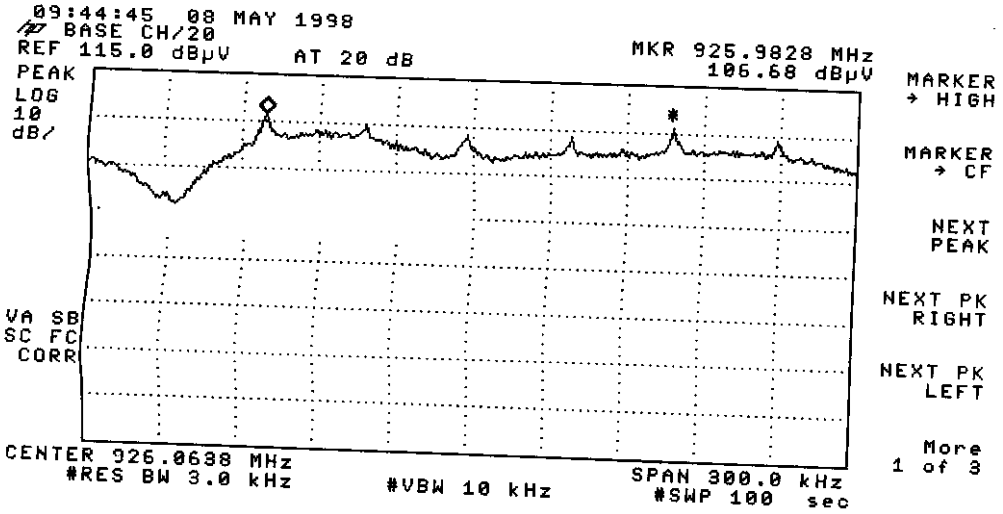

H/S CH01
REF 125.0 dBµV
AT 30 dB
MKR 903.9175 MHz
107.26 dBµV
PEAK
LOG
10
dB/
PREFIX= E__3M
VA SB
SC FC
CORR
CENTER 903.9250 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec
CLEAR
WRITE A
MAX
HOLD A
VIEW A
BLANK A
Trace
A B C
More
1 of 4


11:34:58 09 MAY 1998
H/S CH10
REF 126.0 dBµV
AT 30 dB
MKR 914.7190 MHz
109.00 dBµV
PEAK
LOG
10
dB/
PREFIX= E__3M
VA SB
SC FC
CORR
CENTER 914.7250 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec
CLEAR
WRITE A
MAX
HOLD A
VIEW A
BLANK A
Trace
A B C
More
1 of 4


11:44:53 09 MAY 1998
H/S CH20
REF 126.0 dBµV
AT 30 dB
MKR 926.1240 MHz
107.13 dBµV
PEAK
LOG
10
dB/
MARKER
926.1240 MHz
107.13 dBµV
VA SB
SC FC
CORR
CENTER 926.2448 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec
MARKER
→ HIGH
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 3


09:27:42 08 MAY 1998
BASE CH/01
REF 115.0 dBµV
AT 20 dB
MKR 903.8225 MHz
109.55 dBµV
PEAK
LOG
10
dB/
MARKER
→ HIGH
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 3
VA SB
SC FC
CORR
CENTER 903.8300 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec


09:34:03 08 MAY 1998
BASE CH/10
REF 115.0 dBµV
AT 20 dB
MKR 914.6218 MHz
109.67 dBµV
PEAK
LOG
10
dB/
CLEAR
WRITE A
MAX
HOLD A
VIEW A
BLANK A
Trace
A B C
More
1 of 4
VA SB
SC FC
CORR
CENTER 914.6300 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec


09:44:45 08 MAY 1998
BASE CH/20
REF 115.0 dBµV
AT 20 dB
MKR 925.9828 MHz
106.68 dBµV
PEAK
LOG
10
dB/
MARKER
→ HIGH
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 3
VA SB
SC FC
CORR
CENTER 926.0638 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec

6.4 Test Result of Power spectral density.

The following table shows a summary of the highest power out of UT.

Table 33. Power Spectral Density

Channel	Frequency (MHz)	Ppr (dBuV)	CF (dB)	Ppq (dBm)	Limit (dB)	Margin (dB)
B/S CH 01	903.822	109.55	-5.62	6.55	8.00	-1.45
B/S CH 10	914.621	109.67	-5.74	6.55	8.00	-1.45
B/S CH 20	925.982	106.68	-5.79	3.50	8.00	-4.5
H/S CH 01	903.917	107.26	-5.63	4.24	8.00	-3.76
H/S CH 10	914.719	109.00	-5.74	5.87	8.00	-2.13
H/S CH 20	926.124	107.13	-5.81	3.92	8.00	-4.08

Note :

1. The attachment follow by this page and there is no page number.
2. Ppr: spectrum read power density (using peak search mode), CF: correct factor Ppq: actual peak power density in the spread spectrum band.
3. Ppq = Ppr + CF
4. Effective Radiation Power (E.R.P.) = $(E\ d)^2 / 30G$

   E is the measured maximum field strength in V/m utilizing the maximum hold mode RBW (3KHz).

   G is the numeric gain of the transmitting antenna over an isotropic radiator (1.64).

   d is the distance in meters from which the field strength was measured (3M).

Example : the Max Radiation Emission of base ch01 = 109.55-5.62=103.93 dBuV/m

$10^{(103.93/20)} \times 10^{-6} = 0.15721$ V

E.R.P. = (0.15721 x 3) ^{2} / 49.2 = 4.52 mW = 10 x log(4.52 mW/1mW)

= 6.55 dBm

VII Section 15.247(e): Processing Gain.

7.1 Test Condition & Setup

A. Bit Error Rate (Pe)

The subjective device RF module (base & handset) digital modulation by Differential Phase -Shift Keying (DPSK), the DPSK can use it's previous waveform as the phase reference for demodulation and thus requires no coherent detection, which greatly simplifies the receiver structure but with some Bit Error Rate (BER) degradation because of noisy phase reference. There is tradeoff between system complexity and system performance. In order to driver the DPSK error probability , we observe that DPSK using differential coding , we observable that DPSK using different coding is essentially an orthogonal signal scheme. A binary 1 is transmitted a sequence of two pulse (P,P) or (-P,-P) over 2 To seconds (no transition). Similarly, a binary 0 is transmitted by a sequence of two plus (P,-P) or (-P,P) over 2 TO seconds (transition). Either of the pulse sequences used for binary 1 is orthogonal to either of the pulse sequences used for binary 0. Because no local carrier is generated for demodulation, the detection is noncoherent , with an effective pulse energy equal to 2 Ep (twice the energy of pulse P). The actual energy transmitted per digit only Ep, however, the same as in noncoherent FSK, Consequently, the performance of DPSK is 3 dB superior to that of noncoherent FSK, We can write Pe for DPSK as :

The major component inside the subjective device are supplied by Rock well , Included RF block transmitter (RF101), Receiver (RF 100), and Base band block ASIC (c8502-13), CODEC (10497-14), above 4 IC chips are affected the processing gain as following :

J/S = (W/RD) / (ED/NO) [without CODING]

Where : W= Spread Chip Rate = Required Transmitted Base band Bandwidth.

Rb = Information Data Rate

Eb/No = Require Energy per Bit over noise Spectral Density for a Specific Bit Error Probability.

The subjective Device Information Data Rate are 80k and the Spread Chip Rate are 960k So the processing gain (10 log w/Rb) at least 10.79 dB(without Coding).

The ASIC (c8502-13) and CODEC (10497-14) these two chip included the coding function, So, it is great improve the processing gain and also improve the J/S ratio.

The Engineer work for Rock well System in Taiwan had pass us the information about the probability of error rate (Pe) must be lower than 0.001 that the system performance will satisfy for communication between Handset and Base station.

Why we need the Pe lower than 0.001, the Rockwell Semiconductor System is not explained , Since it relative with ASIC and Codec, it is confidential area that Rockwell is not allow to disdouse to the public.

When Pe = 0.001 and then Signal to Noise Ratio (S/N) = 6.2194 = 7.9dB.

B. Jamming Margin Method

The Rockwell Semiconductor System give us a software operated in the personal computer, and use the computer series port COM1 and COM2 connect Handset and Base than we can measure the Bit Error Rate.

Using this software we can perform Jamming Margin method testing , The test consists of stepping a signal generator in 50 KHz increments across the pass band of the system (up to 960 KHz away in RI's DCT). At each point, the generator level required to produce the recommend Bit Error Rate (BER = 10e - 3) is recorded. This level is the jamming level. The maximum implementation loss a system can claim in calculating processing gain is 2 dB. The equation to calculate the processing gain (Gp) is the following:

$$Gp = (S/N) + Mj + Lsys$$

$$Gp = 8\ dB + Mj + 2\ dB$$

FCC regulation section 15.247 (e) rewire the processing gain of a direct sequence system shall be at least 10 dB, when Gp must be greater than 10 dB, then the Jammer must be greater than 0 dB.

The processing gain may be measured using the CW jamming margin method. The Jammer to Signal (J/S) ratio is then calculated. Discard the worst 20% of the J/S data points.

1. For avoid the handset and basestation are situation, so, the UUT were in low power mode.

2. The signal generator was selected in interference band, using this software we can perform Jamming Margin method testing, the test consists of stepping a signal generator is 50 KHz increments across the pass band of the system (up to 960 KHz away in RI's DCT). So, the BER will keep in 0.1%.

The setting up procedure is recorded on Appendix A.

7.2Test Instruments Configuration

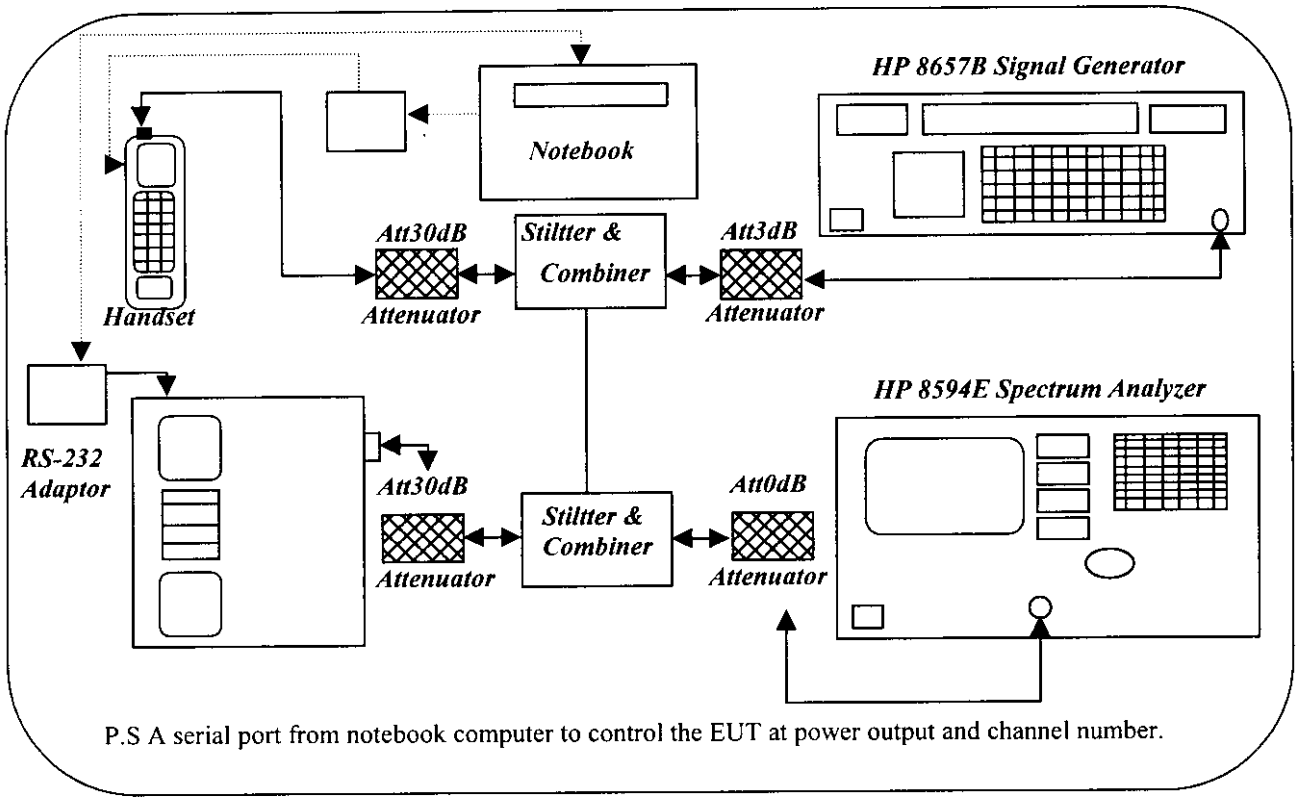


Fig 13. Test Configuration of processing gain for base station

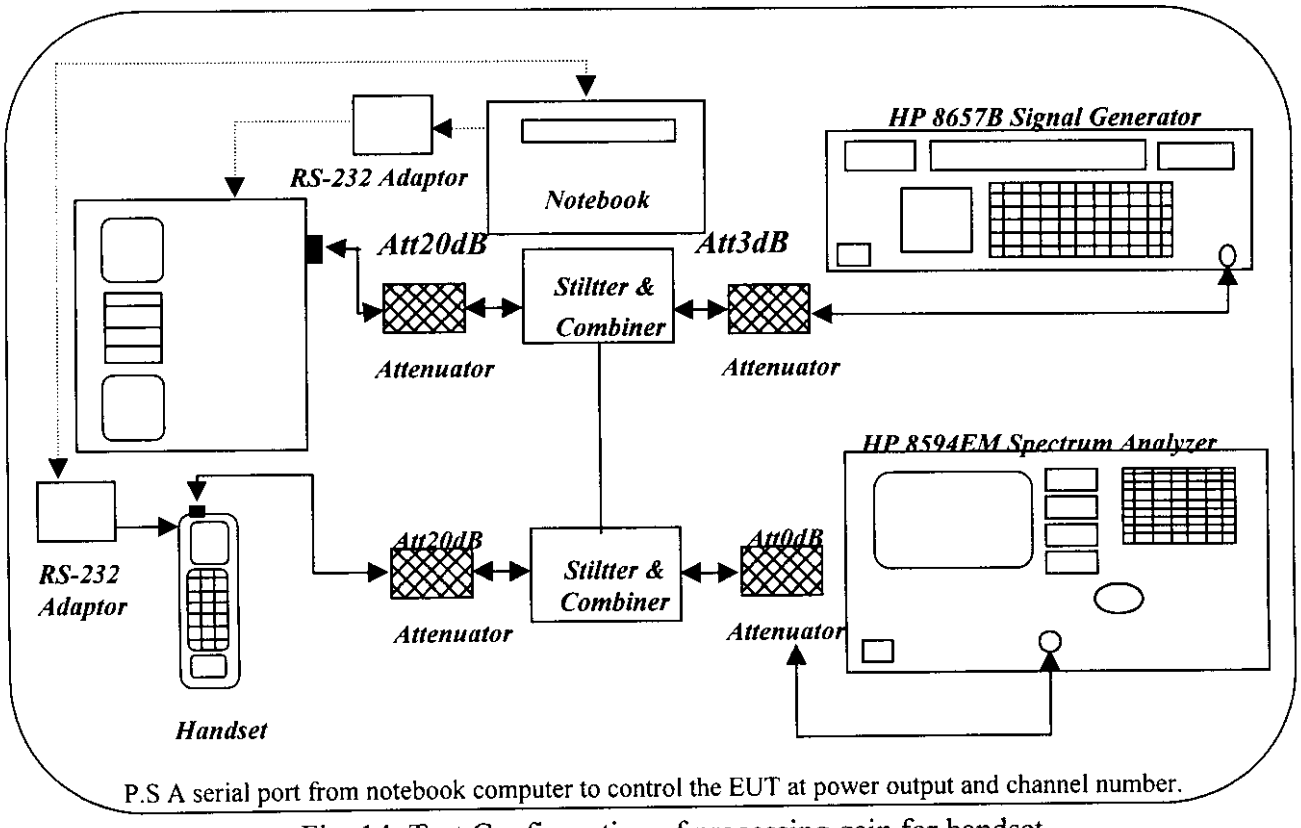


Fig. 14, Test Configuration of processing gain for handset

7.3 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	100Hz-1.8GHz Spectrum Analyzer	HP8592A	50.00
Hewlett Packard	100Hz-2.6GHz Signal Generator	HP8657B	50.00
Mini Circuits	10MHz-2GHz Power Stlitter/Combiner	ZESC-2-11	50.00
Mini Circuits	DC-1.5GHz 3dB Attenuator	CAT-3	50.00
Mini Circuits	DC-1.5GHz 20dB Attenuator	CAT-20	50.00
Mini Circuits	DC-1.5GHz 30dB Attenuator	CAT-30	50.00

7.4 Test Procedure

According to the Fig. 13 of the page 42, combine the stuffs.

Measure the low power output of the channel 10 of the handset while the handset is in "Transmit-Only-Test" and the whole circuit is as same as Fig. 13. What we measure in this step is "S".

Change to the "BER Test " program. Increase the RF output of the signal generator till the BER is close to the 0.1% but under 0.1%.

Stop the program and turn off the base, handset then record the highest point of the spectrum. What we measure in this step is "J".

Star the Program again and test the next point.

7.5 Test Result of Processing Gain.

Table. 34 Processing Gain [Channel 10, Base]

Jammer Frequency (MHz)	S (dBm)	J (dBm)	Mj (J/S)	Process Gain (dB)
913.65	-29.86	-25.97	3.89	13.79
913.70	-29.86	-26.26	3.60	13.50
913.75	-29.86	-27.30	2.66	12.56
913.80	-29.86	-28.64	1.22	11.12
913.85	-29.86	-27.30	2.56	12.46
913.90	-29.86	-28.57	1.29	11.19
913.95	-29.86	-26.90	2.96	12.86
914.00	-29.86	-29.32	0.54	10.44
914.05	-29.86	-29.36	0.50	10.40
914.10	-29.86	-29.22	0.64	10.54
914.15	-29.86	-29.38	0.48	10.38
914.20	-29.86	-29.44	0.42	10.32
914.25	-29.86	-28.66	1.20	11.10
914.30	-29.86	-29.66	0.20	10.10
914.35	-29.86	-28.34	1.52	11.42
914.40	-29.86	-28.80	1.06	10.96
914.45	-29.86	-28.76	1.10	11.00
914.50	-29.86	-29.58	0.28	10.18
914.55	-29.86	-28.62	1.24	11.14
914.60	-29.86	-29.54	0.32	10.22
914.65	-29.86	-29.43	0.43	10.33
914.70	-29.86	-29.01	0.85	10.75
914.75	-29.86	-29.40	0.46	10.36
914.80	-29.86	-29.06	0.80	10.70
914.85	-29.86	-28.08	1.78	11.68
914.90	-29.86	-27.80	2.06	11.96
914.95	-29.86	-28.57	1.29	11.19
915.00	-29.86	-28.23	1.63	11.53
915.05	-29.86	-26.90	2.96	12.86
915.10	-29.86	-25.70	4.16	14.06

Test Result:

Processing Gain : 10.38 dB

Note:

1. GP=(S/No)+Mj+Lsys=7.9dB+Mj+2 dB
2. S = Signal Level
3. J = Signal Generator RF Output

Table 35. Processing Gain [Channel 10, Handset]

Jammer Frequency (MHz)	S (dBm)	J (dBm)	Mj (J/S)	Process Gain (dB)
913.95	-29.05	-24.05	5.00	14.90
914.00	-29.05	-27.12	2.93	12.83
914.05	-29.05	-27.55	1.45	11.35
914.10	-29.05	-28.24	0.81	10.71
914.15	-29.05	-27.18	1.87	11.77
914.20	-29.05	-28.38	0.67	10.57
914.25	-29.05	-26.97	2.08	11.98
914.30	-29.05	-28.72	0.33	10.23
914.35	-29.05	-28.64	0.41	10.31
914.40	-29.05	-28.75	0.30	10.20
914.45	-29.05	-28.72	0.33	10.23
914.50	-29.05	-28.78	0.27	10.17
914.55	-29.05	-28.90	0.15	10.05
914.60	-29.05	-28.09	0.96	10.86
914.65	-29.05	-26.50	2.45	12.35
914.70	-29.05	-28.74	0.31	10.21
914.75	-29.05	-28.90	0.15	10.05
914.80	-29.05	-28.53	0.52	10.42
914.85	-29.05	-28.40	0.65	10.55
914.90	-29.05	-29.02	0.03	9.93
914.95	-29.05	-28.94	0.11	10.01
915.00	-29.05	-28.89	0.16	10.06
915.05	-29.05	-29.10	-0.05	9.85
915.10	-29.05	-28.65	0.40	10.30
915.15	-29.05	-28.57	0.48	10.38
915.20	-29.05	-27.79	1.26	11.16
915.25	-29.05	-28.76	0.29	10.19
915.30	-29.05	-28.40	0.65	10.55
915.35	-29.05	-27.59	1.46	11.36
915.40	-29.05	-27.20	1.85	11.75

Test Result:

Processing Gain : 10.17 dB

Note:

1. GP = (S/No) + Mj + Lsys = 7.9 dB + Mj + 2 dB
2. S = Signal Level
3. J = Signal Generator RF Output

Appendix A

Setting up Procedure

1. Using a RS-232 adaptor which is given by customer connected with the com 1 of the computer.
2. The other end of the RS-232 adaptor is connected with the EUT.
3. Use the software which is given by the customer and operated in the windows to control the EUT's continuous transmission.

Appendix B

The antenna of the device is screwed inside the device, the user can not remove it freely without any tools from outside the device. This is comply with the FCC rules part 15.203

Appendix C
Security Code

Description of 900 MHz Direct Spectrum Cordless Phone

The subject device's 20 independent channels, autoscan at link establishment and smart channel hopping combine to find the clearest channels at all times, automaticlly.
Spread spectrum technology ensures the highest level of security available in a cordless phone.

The spread cpectrum technique provides better security than other solutionssince only the receiver has a copy of the pre-assigned spreading code, making iterception virtually impossible. The trainsmitting singal diluted over a large bandwidth with power density at any point being very light, so the singal goes unnoticed by other systems since they are not tuned to receive it. Moreover the scambling code changes every 8 times the phone is parked, and there are millions of codes.

Scambler / Descrambler A16-code randomizes the voice and supervisory data for trainsmission and reception, more than 64K scramble codes are availble from the 16-bit maximal length pesudo-noise sequencu generator.

Sread Spectrum Spreader Each trainsmitted bit is multiplied with a 12-chip spreading code, meeting FCC Part 15.247 requirements.

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MEASUREMENT REPORT
of
CORDLESS TELEPHONE

Applicant : Thomson Consumer Electronics Inc. Audio & Communications

Model :2-912SST

EUT :900 MHz Digital Spread Spectrum Telephone

FCC ID :G9H2-910SST

Test by :

Training Research Co., Ltd.

TEL : 886-2-7820280 FAX : 886-2-7857408

No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec. 4, Taipei, 11521 Taiwan R.O.C.

CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (1992) as a reference. All test were conducted by ***Training Research Co., Ltd.***, No. 5-3, Lane 21, Yen-Chiu-Yuan Rd., Sec. 4, Taipei, 11521 Taiwan, R.O.C. Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.233.

Applicant : Thomson Consumer Electronics Inc. Audio & Communications
Equipment : 900MHz Digital Spread Spectrum Telephone
Model No. : 2-912SST
FCC ID : G9H2-910SST
Report No. : K1215969
Test Date : May 4, 1998

Prepared by : Stephen Chen
STEPHEN CHEN

Approved by : Jacob Lin
JACOB LIN

Test by :

Training Research Co., Ltd.

TEL : 886-2-27881332 FAX : 886-2-7857408

No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec. 4, Taipei, 11521 Taiwan R.O.C.

I. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of Thomson Consumer Electronics Inc. Audio & Communications in support of a Cordless Telephone certification in accordance with Part 2 Subpart J and Part 15 Subpart A and C of the Commission's Rules and Regulations.

1.2 Description of EUT

EUT	:	900MHz Digital Spread Spectrum Telephone
Model	:	2-912SST
FCC ID	:	G9H2-910SST
Frequency Range	:	Base: 902 - 928 MHz
		Handset : 902 - 928 MHz
Support Channel	:	20 Channel
Modulation Skill	:	TDMA / Spread spectrum
Security Code	:	12-bit P/N code, 8-bit scramble, 16-bit 2D
Power Type	:	Base Powered by 120 Vac 60 Hz 10W / 9 Vdc 600 mA
		Handset powered by 3.6 V / 600 mA.
Power Cord	:	Nonshielded
Phone Line	:	RJ-11C => Nonshielded, 7' long, Plastic hoods, No bead

Applicant : Thomson Consumer Electronics Inc. Audio & Communications
Product Develop. 101 West 103rd. street,
Indianapolis, IN .

This device contains a base , handset and a charge set .

1.3 Description of Support Equipment

In order to construct the minimum testing , following equipment were used as the support units.

PSTN Simulator: TRC Public Switched Telephone Network Simulator
Model No. : RC-PSTN-130
Serial No.: N/A
Notebook : CER Notebook
Model No.: 386SL
Serial No.: 001855
Power Type: Linear
Power Core: unshielded, 6' long, Plastic hoods, No ferrite bead
FCC ID: Q8V486S

1.4 Configuration of System Under Test

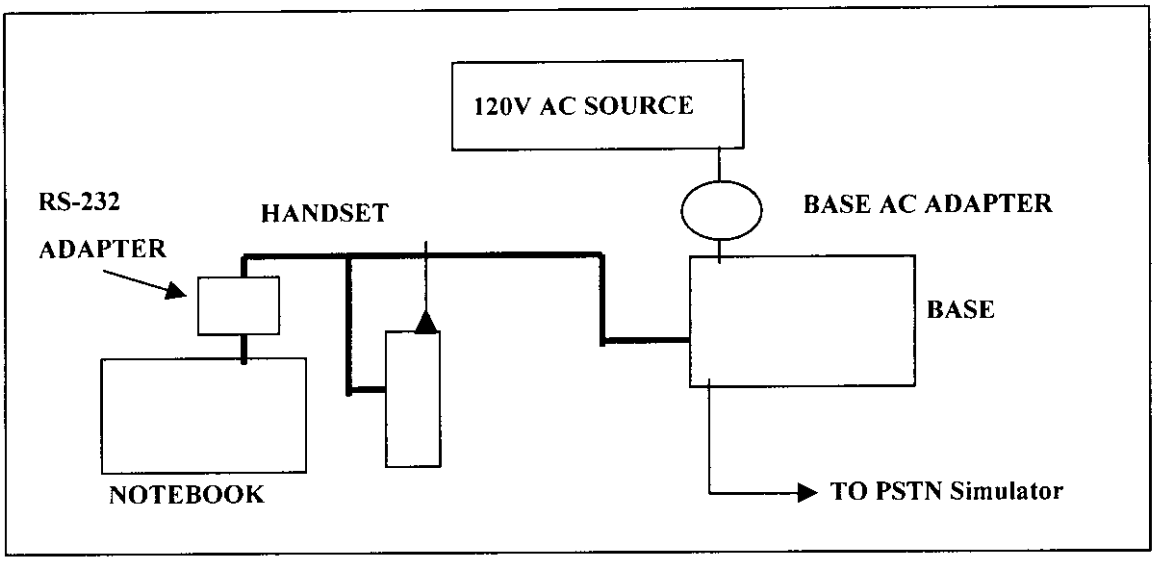


Fig. 1 Configuration of system under test

The tests below are run with the DCT transmitter set at high power in TDD mode .A serial port from a computer to the DCT UUT is needed to force selection of output power level and channel number.

The setting up procedure was recorded in Appendix A.

1.5 Verify the frequency and channel

1.5.1 Verify the Frequency Pairs

Channel	Base (MHz)	Handset (MHz)	Channel	Base (MHz)	Handset (MHz)
1	903.82505	903.67510	11	915.60242	915.59671
2	904.81143	904.79671	12	916.79945	916.80062
3	906.01145	906.00810	13	918.04500	918.04538
4	907.15847	907.17316	14	919.25428	919.26000
5	908.41281	908.40250	15	920.39976	920.39681
6	909.59705	909.59813	16	921.59892	921.60090
7	910.81230	910.79984	17	922.79943	922.79990
8	912.00220	912.01145	18	924.00045	924.00472
9	914.25116	914.20350	19	925.62306	925.61200
10	914.72520	914.67513	20	926.552513	926.62550

Note:

1. This is for sure that all frequencies are in 902 MHz to 928 MHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz. (The locations of these frequencies one near the top, one near the middle and one near the bottom.)
3. After test, the EUT operating frequencies are in 903.67 MHz to 926.62 MHz. So all the items as followed in testing report are need to test these three frequencies: top: channel 1, middle: channel 10, bottom: channel 20.

1.6 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (1992) and the pre-setup was written on Appendix A, the detail setup was written on each test item.

1.7 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the three-meter, open-field test site maintained by Training Research Co., Ltd. No. 5-3, Lane 21, Yen-Chiu-Yuan Rd., Sec. 4, Taipei, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a shielded enclosure also located at Training Research Co., Ltd. 1F, No. 569, Chung Hsiao E. Sec. 7, Taipei, Taiwan, R.O.C. Training Research Co., Ltd. is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.8 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests was chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated.

During test , the base and handset are tested separately. They were set in high power and continuously transmitting mode that controlled by computer. The ch01, ch10 and ch20 of base and handset were all tested .The setting up procedure is recorded on Appendix A.

II. Section 15.207: Power line conducted emissions for AC powered units

2.1 Test Condition & Setup

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3825/2 Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPER quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 450 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.4.

There are tree test condition apply in this test item, the test procedure description as the following:

1. Base station transmit only:
   Using the RS-232 port of notebook and Rockwell software to control the base, handset.
   Then making access to the mode of continuous transmission. Three channel is tested, one in the top (CH01), one in the middle (CH10) and the other in bottom (CH20).
2. Idle state (handset park, on hook mode)
3. Intercom mode (off hook mode)

The setting up procedure is recorded on Appendix A.

2.2 List of Test Instruments

Manufacturer	Device	Model	Input impedance
Hewlett Packard	100Hz-1.5GHz Spectrum Analyzer	HP8591EM	50.00
EMCO	Line Impedance Stabilization Network	3825/2	50.00
TRC	Shielded Room	TRC-SR!	N/A

2.4 Test Result of Conducted Emissions

2.4.1 Base station transmit only

The following table shows a summary of the highest emissions of power line conducted emissions on the HOT and NATURAL conductors of the EUT power cord.

Model No. : 2-912SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 1 Power Line Conducted Emissions (Channel 01)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
Line 1	12.745	25.37	48	-22.63
	14.359	27.78	48	-20.22
	14.945	29.32	48	-18.68
	20.871	32.84	48	-15.16
	22.259	33.33	48	-14.67
	23.645	36.40	48	-11.60
	26.122	37.53	48	-10.47
	27.506	37.31	48	-10.69
	28.088	36.28	48	-11.72
	29.033	33.30	48	-14.70
Line 2	18.532	30.40	48	-17.60
	20.871	31.65	48	-16.35
	21.602	33.09	48	-14.91
	21.894	33.67	48	-14.33
	23.134	34.98	48	-13.02
	24.009	36.48	48	-11.52
	26.268	36.99	48	-11.01
	27.287	36.37	48	-11.63
	27.651	34.43	48	-13.57
	29.469	34.35	48	-13.65

NOTE :

1. Margin = Peak Amplitude - Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 2 Power Line Conducted Emissions (Channel 10)

Power Conductor	Connected Frequency (MHz)	Emissions Peak Amplitude (dBuV)	FCC Class B Limit (dBuV)	Margin (dB)
LINE 1	15.165	30.64	48	-17.36
	20.506	30.40	48	-17.60
	22.259	34.02	48	-13.98
	22.477	36.46	48	-11.54
	24.520	35.79	48	-12.21
	25.977	36.53	48	-11.47
	27.287	35.76	48	-12.24
	27.724	35.12	48	-12.88
	28.306	34.63	48	-13.37
Line 2	15.238	28.83	48	-19.17
	18.679	29.50	48	-18.50
	18.898	30.26	48	-17.74
	21.456	32.91	48	-15.09
	22.186	33.66	48	-14.34
	22.842	34.52	48	-13.48
	26.341	35.92	48	-12.08
	26.923	34.93	48	-13.07
	28.088	34.09	48	-13.91
	28.306	32.93	48	-15.07

NOTE :

1. Margin = Peak Amplitude - Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 3 Power Line Conducted Emissions (Channel 20)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
LINE1	14.872	28.99	48	-19.01
	15.385	30.16	48	-17.84
	16.264	30.57	48	-17.43
	17.655	31.04	48	-16.96
	18.898	30.49	48	-17.51
	22.332	32.72	48	-15.28
	24.082	35.77	48	-12.23
	25.904	36.39	48	-11.61
	28.088	38.85	48	-9.15
	28.524	34.78	48	-13.22
Line 2	17.069	29.01	48	-18.99
	20.141	30.83	48	-17.17
	20.433	31.03	48	-16.97
	21.675	32.46	48	-15.54
	22.259	34.12	48	-13.88
	23.863	35.17	48	-12.83
	25.103	36.49	48	-11.51
	25.904	37.11	48	-10.89
	26.122	37.53	48	-10.47
	27.869	35.57	48	-12.43

NOTE :

1. Margin = Peak Amplitude- Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 4 Power Line Conducted Emissions (Idle state)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
Line 1	15.458	18.17	48	-29.83
	16.483	18.46	48	-29.54
	16.776	17.84	48	-30.16
	22.405	19.99	48	-28.01
	22.988	23.24	48	-24.76
	24.082	27.87	48	-20.13
	25.248	26.07	48	-21.93
	26.075	20.90	48	-27.10
	27.433	21.44	48	-26.56
	29.542	20.32	48	-27.68
	***			
Line 2	9.955	17.49	48	-30.51
	15.312	17.44	48	-30.56
	22.259	18.95	48	-29.05
	23.061	22.37	48	-25.63
	23.645	22.68	48	-25.32
	24.082	27.27	48	-20.73
	25.248	21.03	48	-26.97
	26.341	19.25	48	-28.75
	28.015	20.90	48	-27.10
	28.451	19.43	48	-28.57

NOTE :

1. Margin = Peak Amplitude - Limit .
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 5 Power Line Conducted Emissions (Intercom)

Power Conductor	Connected Frequency (MHz)	Emissions Peak Amplitude (dBuV)	FCC Class B Limit (dBuV)	Margin (dB)
Line 1	15.018	18.43	48	-29.57
	15.238	18.33	48	-29.67
	16.776	19.10	48	-28.90
	22.405	22.49	48	-25.51
	22.915	23.40	48	-24.60
	24.082	26.21	48	-21.79
	24.957	21.63	48	-26.37
	25.540	20.14	48	-27.86
	28.015	20.10	48	-27.90
Line 2	5.319	15.93	48	-32.07
	22.405	18.32	48	-29.68
	23.061	22.25	48	-25.75
	23.572	23.37	48	-24.63
	24.082	27.80	48	-20.20
	25.248	24.98	48	-23.02
	25.394	18.96	48	-29.04
	28.088	19.70	48	-28.30
	29.469	19.76	48	-28.24
	***			

NOTE :

1. Margin = Peak Amplitude - Limit .
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 6 Power Line Conducted Emissions (Charge with charge set)

Power	Connected	Emissions	FCC Class B	
Conductor	Frequency (MHz)	Peak Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
Line 1	0.450	21.31	48	-26.69
	10.423	15.56	48	-32.44
	13.674	15.70	48	-32.30
	14.265	16.19	48	-31.81
	20.913	18.34	48	-29.66
	23.721	18.01	48	-29.99
	24.238	23.21	48	-24.79
	25.715	19.27	48	-28.73
	***			
Line 2	0.524	19.94	48	-28.06
	3.700	14.76	48	-33.24
	8.281	15.01	48	-32.99
	9.167	15.11	48	-32.89
	17.884	17.18	48	-30.82
	20.913	17.63	48	-30.37
	24.755	18.19	48	-29.81
	25.420	23.84	48	-24.16
	25.567	20.13	48	-27.87
	26.306	18.33	48	-29.67

NOTE :

3. Margin = Peak Amplitude - Limit .
4. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

III. 0Section 15.247(a)(2): Bandwidth for direct sequence system.

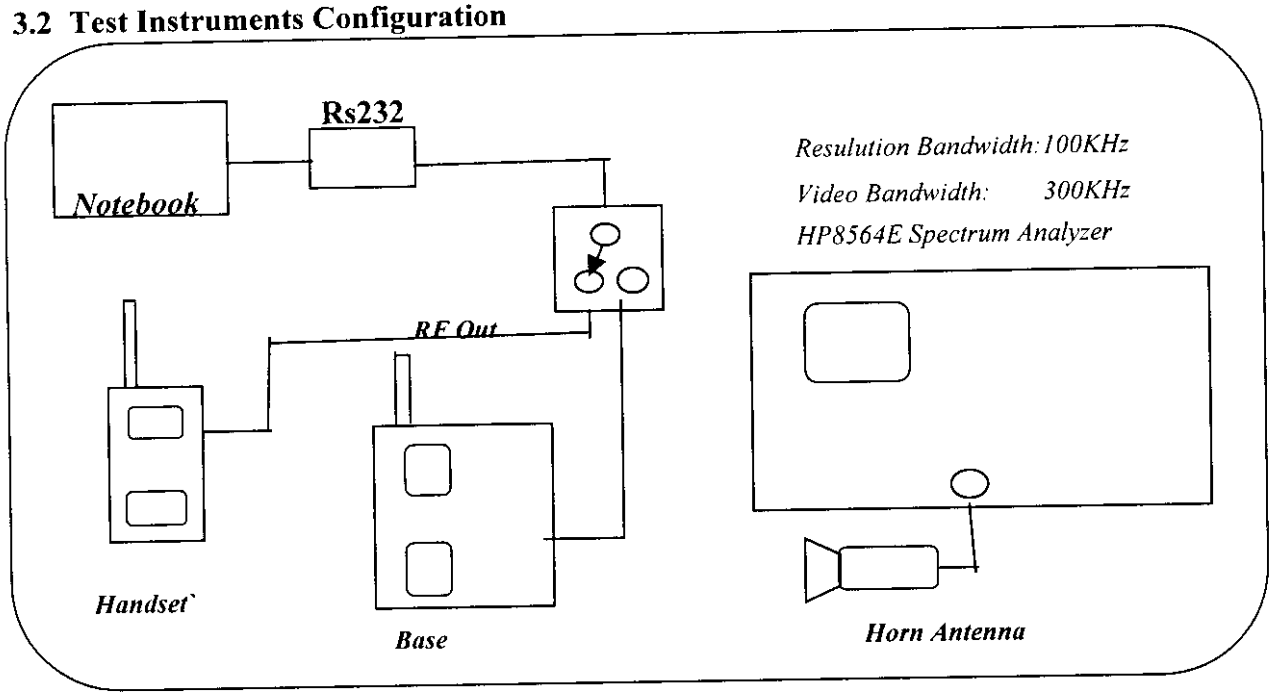
3.1 Test Condition & Setup

The transmitter bandwidth measurements were performed in a shielded enclosure. The EUT was placed on a wooded table which is 0.8 meters height. the EUT was set to transmit continuously. Various channels were also investigated to find the maximum occupied bandwidth. The minimum 6 dB bandwidth shall be at least 500 KHz.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Set the span>> RBW. The detector function was set to peak and hold mode to clearly observe the components.

Setting up procedure is written on Appendix A.

3.2 Test Instruments Configuration

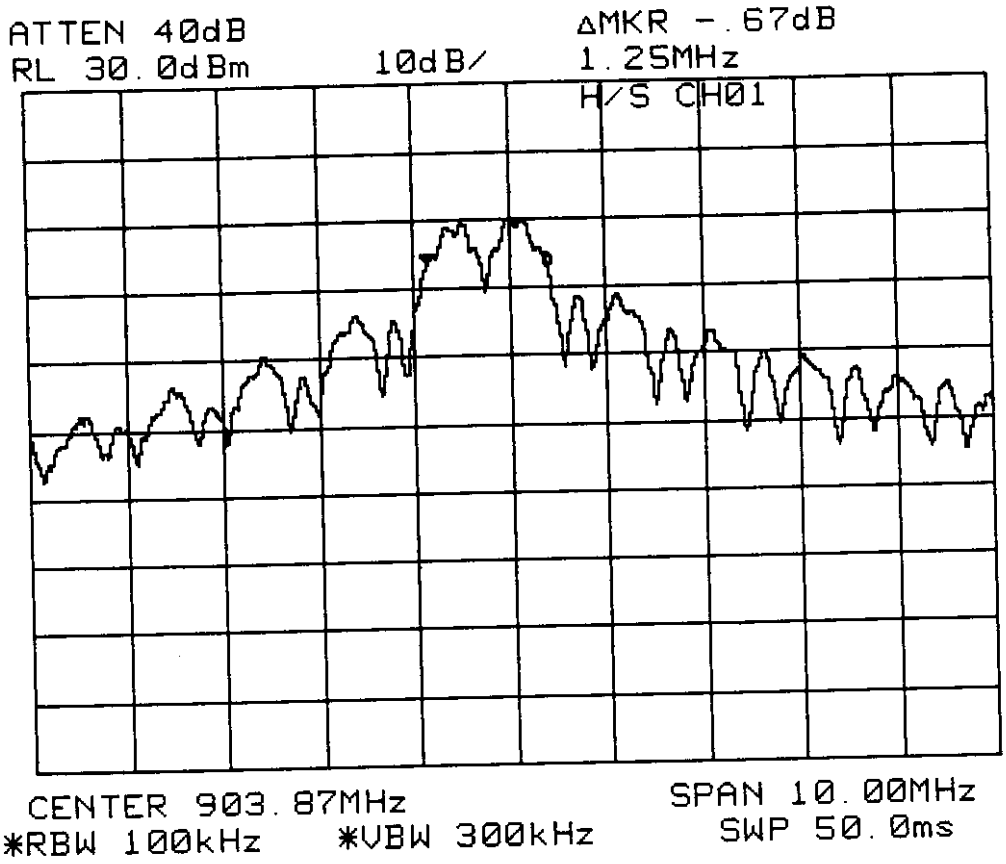


P.S.A serial port from notebook computer to control the EUT at maximal power output and channel Number.

Fig 10. Test Configuration of bandwidth for direct sequence system

3.3 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	.9KHz – 40 GHz Spectrum Analyzer	HP8564E	50.00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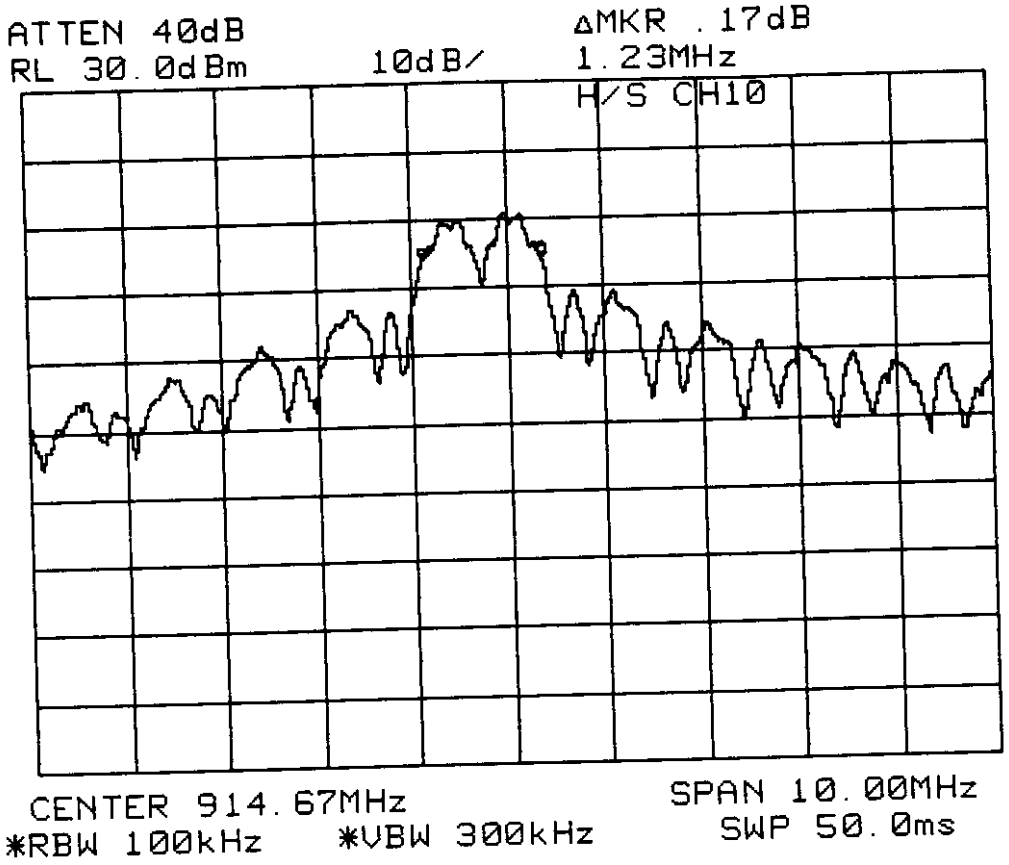
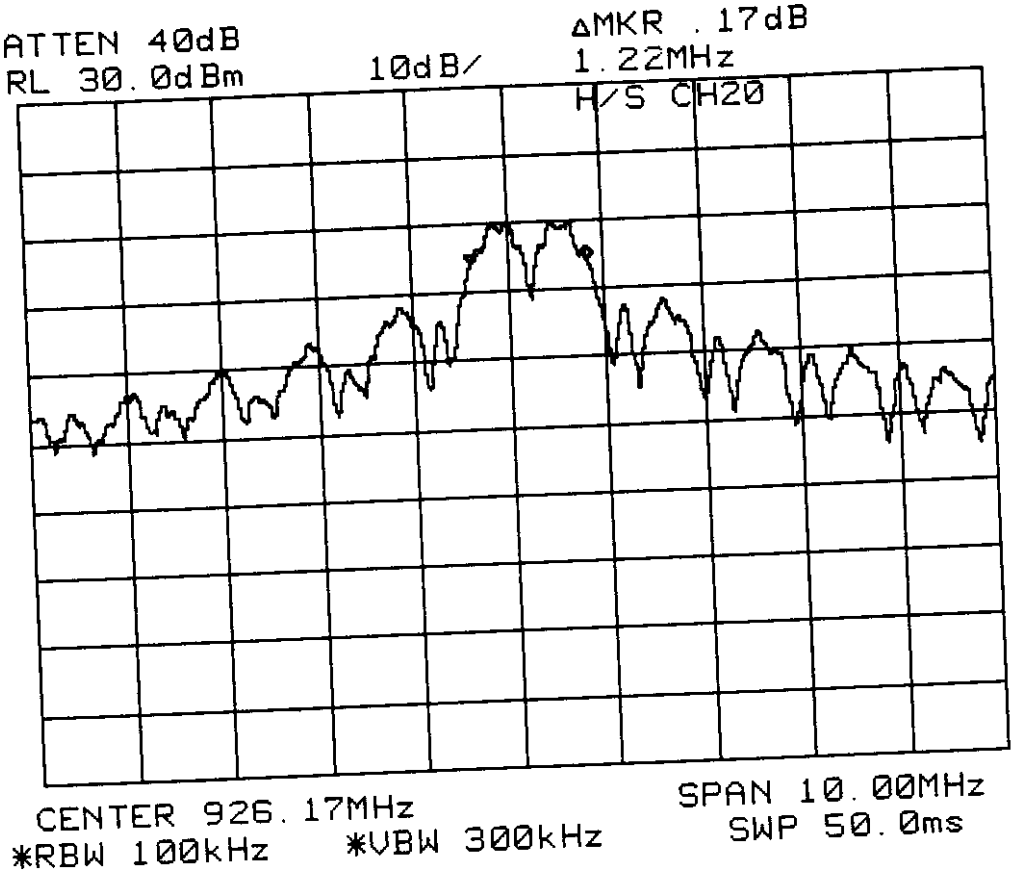
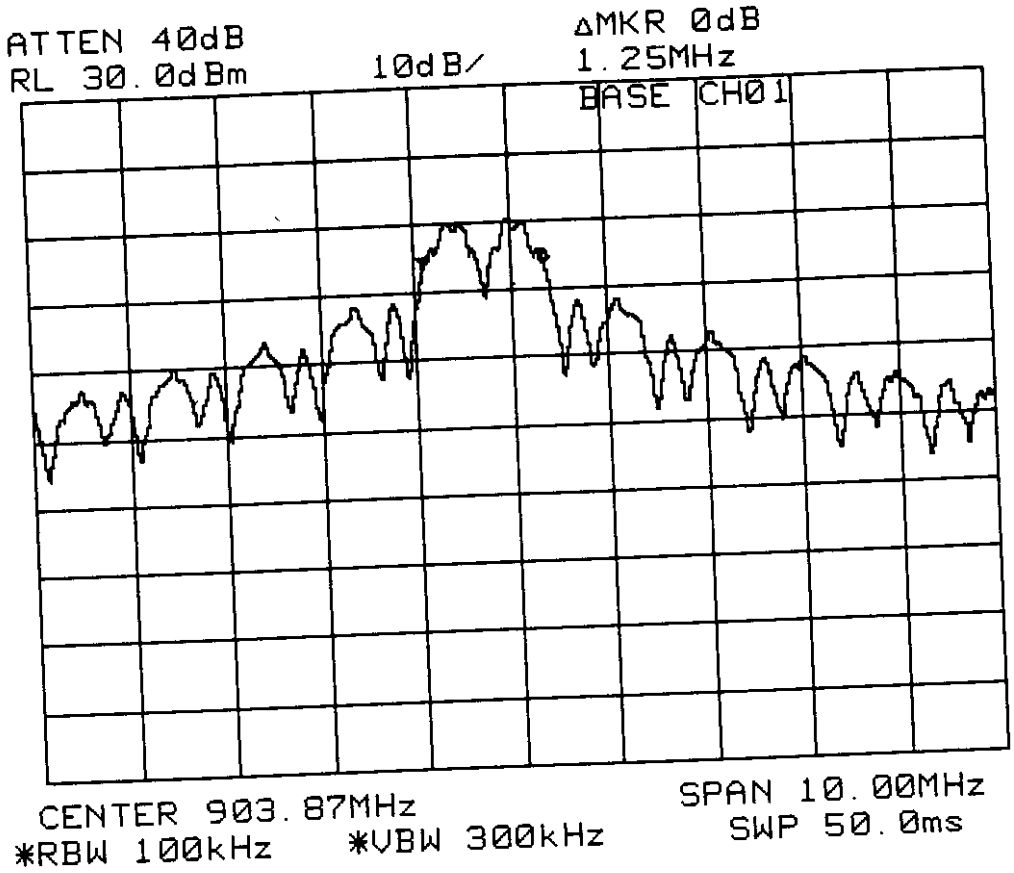
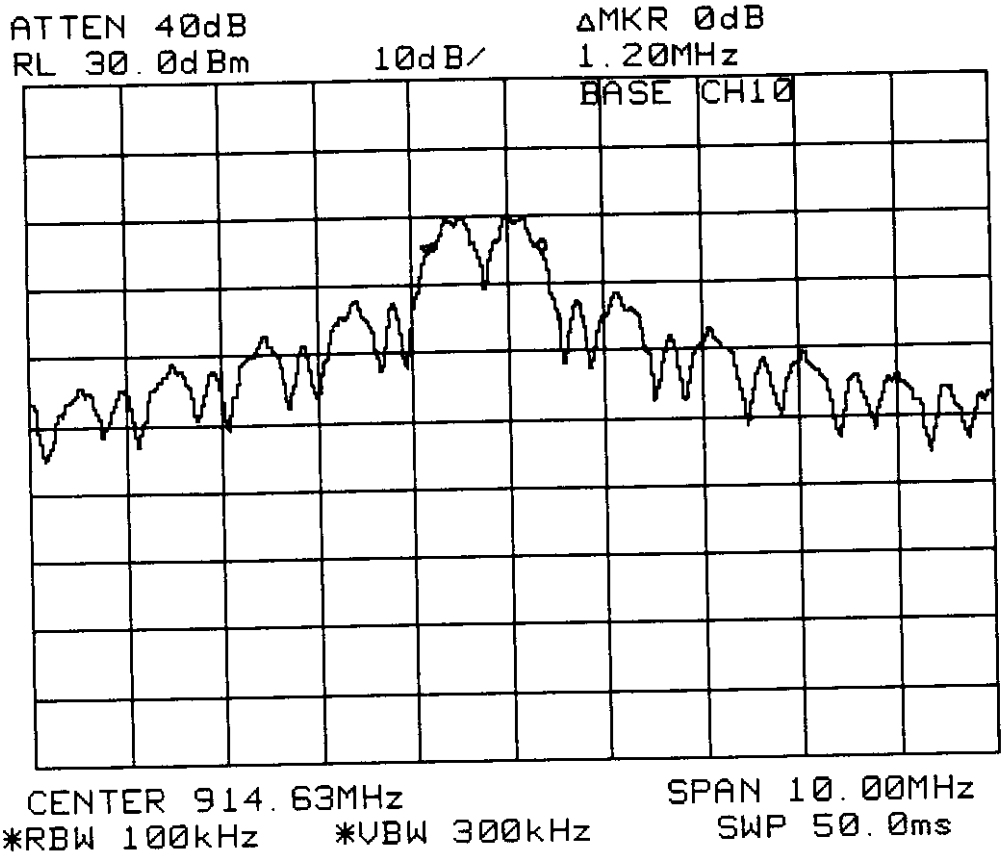
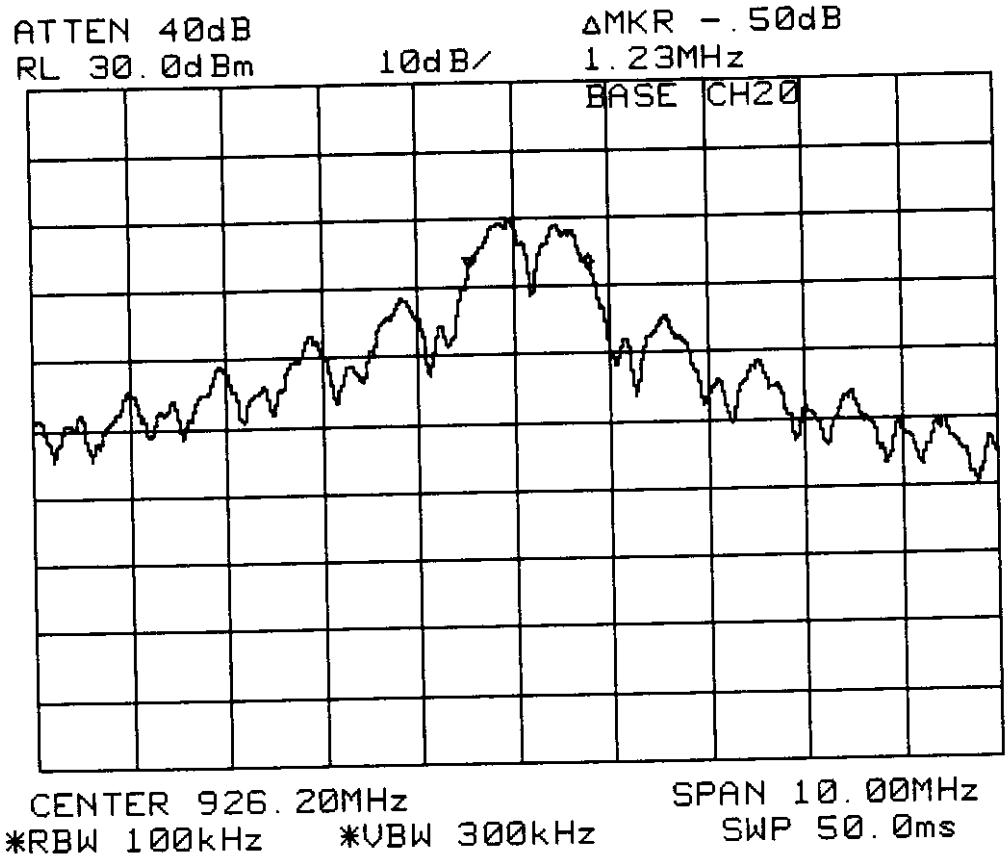
RL 30.0dBm
10dB/
ΔMKR -.67dB
1.25MHz
H/S CH01
CENTER 903.87MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR .17dB
1.23MHz
H/S CH10
CENTER 914.67MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR .17dB
1.22MHz
H/S CH20
CENTER 926.17MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR 0dB
1.25MHz
BASE CH01
CENTER 903.87MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR 0dB
1.20MHz
BASE CH10
CENTER 914.63MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR -.50dB
1.23MHz
BASE CH20
CENTER 926.20MHz
SPAN 10.00MHz
*RBW 100kHz
*VBW 300kHz
SWP 50.0ms

3.4 Test Result of Bandwidth

Bandwidth of Channel 1

Bandwidth of Base : 1.25 MHz
Bandwidth of Handset : 1.25 MHz
The min. 6 dB BW at least : 500 KHz

Bandwidth of Channel 10

Bandwidth of Base : 1.20 MHz
Bandwidth of Handset : 1.23 MHz
The min. 6 dB BW at least : 500 KHz

Bandwidth of Channel 20

Bandwidth of Base : 1.23 MHz
Bandwidth of Handset : 1.22 MHz
The min. 6 dB BW at least : 500 KHz

Note :

1. The data in the above table are summarize the following attachment spectrum analyzer hard copy.
2. The attachment follow by this page and there is no page number.

IV. Section 15.247(B): Power Output

4.1 Test Condition & Setup

Prior to open-field testing, the EUT was placed in a shielded enclosure and scanned at a close distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the open-field tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, open-field test site. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 8591A Spectrum Analyzer, EMCO Biconical Antenna (Model 3110) for 30 - 200 MHz, EMCO Log-Periodic Antenna (Model 3146) for 200 - 1000 MHz .

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. The spectrum analyzer HP8568b used on this testing for frequency 30MHz to 1000MHz. No post-detector video filters were used in the test. Set the RB= 3 MHz, VB = 3MHz and the span = 5 MHz. The analyzer was operated in the maximum hold mode.

There are two test condition apply in this test item, the test procedure description as the following:

(1) Base and handset station transmit only :

Using the RS-232 port of notebook and Rockwell software to control the base , handset. Then making access to the mode of continuous transmission. three channel is tested, one in the top (CH01), one in the middle (CH10) and the other in bottom (CH20).

With the transmitter operating from a fully charged battery and using the internal antenna,

Radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to low, mid and high channels in the 902-928 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

4.2 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	100Hz-1.5GHz Spectrum Analyze	HP8568B	50.00
Hewlett Packard	50kHz-22GHz Spectrum Analyzer	HP8592B	50.00
Hewlett Packard	10KHz-1GHz Quasi-peak Adapte	HP85650A	50.00
Hewlett Packard	20Hz-2GHz RF Preselector	HP85685A	50.00
Anritsu	0.1-1200MHz Preamplifier	MH648A	50.00
EMCO	20-300MHz Biconical Antenna	3110.00	50.00
EMCO	200-1000MHz Log-Periodic Antenna	3146.00	50.00
TRC	Open Field Test Site	TRC-OFTS1	N/A
TRC	Notch Filter	N/A	50.00

4.3 Test Result of Fundamental Emissions

The peak values of fundamental emissions from the EUT at various antenna heights , antenna polarization, EUT orientation , etc. are recorded on the following .

Model No. : 2-912SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 6 Open Field Fundamental Emissions

Channel	Frequency (MHz)	A.P. (H/V)	A.H. (CM)	Table (degree)	Amplitude (Peak) (dBuV/m)	E.R.P.(Peak)	
						mW	dBm
Base 01	903.825	H	100.00	149.00	109.96	18.12	11.25
		V	100.00	48.00	117.23	96.66	19.85
Base 10	914.725	H	100.00	273.00	110.33	19.73	12.95
		V	100.00	156.00	117.67	106.97	20.29
Base 20	926.525	H	100.00	176.00	106.81	8.77	9.42
		V	100.00	307.00	116.97	91.04	19.59
Handset 01	903.675	H	100.00	250.00	108.18	12.02	10.79
		V	100.00	357.00	115.46	64.30	18.08
Handset 10	914.675	H	100.00	290.00	108.65	13.40	11.27
		V	100.00	109.00	116.27	77.49	18.89
Handset 20	926.625	H	100.00	133.00	109.10	14.86	11.72
		V	100.00	298.00	115.21	60.71	17.83

Note :

1. A.P. means antenna polarization, horizontal and vertical.
2. A.H. means antenna height.
3. Table means turntable turning position.
4. Amplitude means the fundamental emission measured.
5. Effective Radiation Power (E.R.P.) = $(E\ d)^2 / 30G$

   E is the measured maximum field strength in V/m utilizing the maximum hold mode RBW (3MHz).

   G is the numeric gain of the transmitting antenna over an isotropic radiator (1.64).

   d is the distance in meters from which the field strength was measured (3M).

Example : the Max Radiation Emission of base ch01 = 117.23 dBuV/m

$10^{(117.23/20)} \times 10^{-6} = 0.72694$ V

E.R.P. = $(0.72694 \times 3)^2 / 49.2 = 96.66$ mW = 10 x log(96.66 mW/1mW)

= 19.85dBm

V. Section 15.247 (C)(2): Spurious emissions (Radiated)

5.1 Test Condition & Setup

Prior to open-field testing, the EUT was placed in a shielded enclosure and scanned at a close distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the open-field tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, open-field test site. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 8591A Spectrum Analyzer, EMCO Biconical Antenna (Model 3110) for 30 - 200 MHz, EMCO Log-Periodic Antenna (Model 3146) for 200 - 1000 MHz and spectrum was examined from 1 GHz to 18GHz using an Hewlett Packard 8592A Spectrum Analyzer, EMCO Horn Antenna (Model 3115) for 1 G - 18 GMHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. there are two spectrum analyzers use on this testing ,HP8568b for frequency 30MHz to 1000MHz, and HP8592A for frequency 1 GHz to 18 GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6 dB bandwidth was set to 120 KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1 GHz to 18GHz) and the analyzer was operated in the maximum hold mode.

There are two test condition apply in this test item, the test procedure description as the following:

(1) Base and handset station transmit only :

Using the RS-232 port of notebook and Rockwell software to control the base , handset. Then making access to the mode of continuous transmission. three channel is tested, one in the top (CH01), one in the middle (CH10) and the other in bottom (CH20).

With the transmitter operating from a fully charged battery and using the internal antenna, radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to low, mid and high channels in the 902-928 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

For frequency between 30MHz to 1000MHz

FIa (dBuV/m) = FIr (dBuV) + Correction Factors

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss

For frequency between 1 GHz to 18 GMHz

FIa(dBuV/m) = FIr(dBuV) + Correction Factor - Duty Cycle

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Distance Factor (9.54dB)- Amplifier Gain

The setting up procedure is recorded on Appendix A.

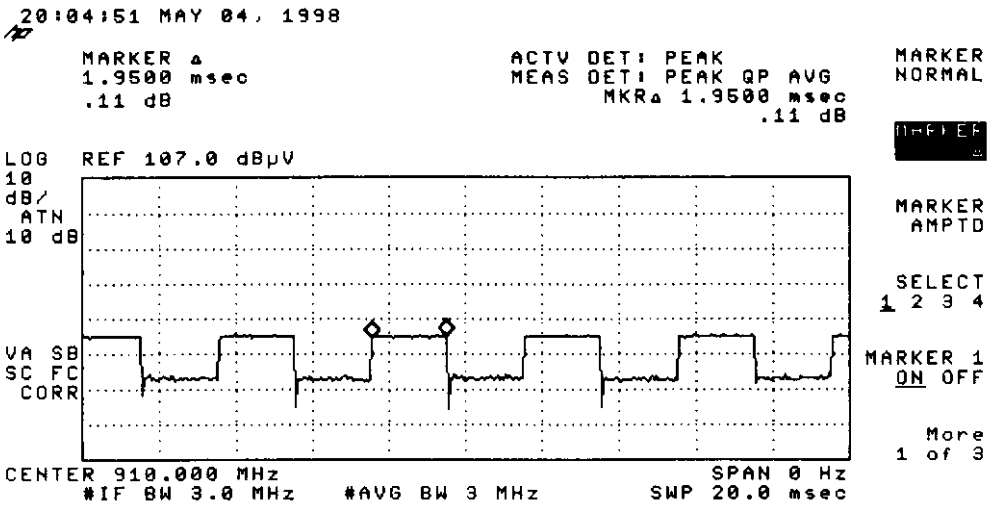
5.2 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	9KHz-2.9 GHz Spectrum Analyze	HP8594EM	50.00
Hewlett Packard	50kHz-22GHz Spectrum Analyzer	HP8592A	50.00
Hewlett Packard	10KHz-1GHz Quasi-peak Adapte	HP85650A	50.00
Hewlett Packard	20Hz-2GHz RF Preselector	HP85685A	50.00
Hewlett Packard	1GHz-26.5GHz Preamplifier	HP8449B	50.00
Anritsu	0.1-1200MHz Preamplifier	MH648A	50.00
EMCO	20-300MHz Biconical Antenna	3110.00	50.00
EMCO	200-1000MHz Log-Periodic Antenna	3146.00	50.00
EMCO	1G-18GMHz Double Ridge Antenna	3115.00	50.00
TRC	Open Field Test Site	TRC-OFTS1	N/A
TRC	Notch Filter	N/A	50.00
TRC	Horn Antenna with Amplifier	TRC1	50.00

5.2.1 Duty Cycle Factor Measurement

The duty cycle factor measurement is performed in a shield enclosure . The test condition and setup is as same as paragraph III . Set the RB = 1MHz, VB=1MHz, and span = 0 MHz. Link the base and handset in the ch 10.Then get the Time of duty and cycle as follow page .

The duty cycle factor = 20 log (T_{duty} / T_{cycle}) = 20 log (1.95 /4)= -6.24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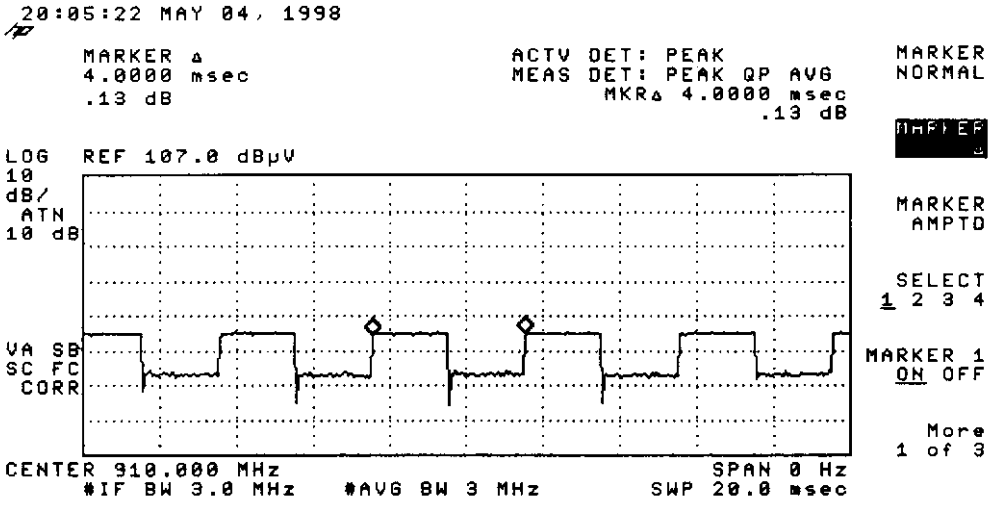
MARKER Δ
1.9500 msec
.11 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 1.9500 msec
.11 dB
MARKER
NORMAL
LOG
10
dB/
ATN
10 dB
REF 107.0 dBµV
VA SB
SC FC
CORR
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 3
CENTER 910.000 MHz
#IF BW 3.0 MHz
#AVG BW 3 MHz
SPAN 0 Hz
SWP 20.0 msec


20:05:22 MAY 04, 1998
MARKER Δ
4.0000 msec
.13 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 4.0000 msec
.13 dB
MARKER
NORMAL
LOG
10
dB/
ATN
10 dB
REF 107.0 dBµV
VA SB
SC FC
CORR
MARKER
AMPTD
SELECT
1 2 3 4
MARKER 1
ON OFF
More
1 of 3
CENTER 910.000 MHz
#IF BW 3.0 MHz
#AVG BW 3 MHz
SPAN 0 Hz
SWP 20.0 msec

5.4 Test Result of Second Harmonic

Set the spectrum RB= 3 MHz , VB = 3MHz and span = 5MHz. The correction factors of the second harmonic is . The second harmonic must lower 20 dB than the fundamental .

Model No. : 2-912SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 31. Second Harmonic Attendation

Channel	Fundamental (MHz)	Fundamental (dBuV/m)	2nd Harmonic (MHz)	2nd Har. (dBuV/m)	Result (F/H dB)	Limit (dBc)	Margin (dBc)
B/S CH 01	903.825	117.23	1807	59.13	58.1	20.00	38.1
B/S CH 10	914.725	117.67	1829	56.47	61.2	20.00	41.2
B/S CH 20	926.525	116.97	1852	53.30	63.67	20.00	43.67
H/S CH 01	903.675	115.46	1807	53.97	61.49	20.00	41.49
H/S CH 10	914.675	116.27	1828	57.30	58.97	20.00	38.97
H/S CH 20	926.625	115.21	1852	55.30	59.91	20.00	39.91

Note :

1. The data in the above table are summarize the following attachment spectrum analyzer hard copy.
2. The attachment follow by this page and there is no page number.
3. Result = Fundamental – 2nd Harmonic must over 20 dBc .

5.5 Test Result of Spurious Radiated Emissions

5.5.1 Base and handset station transmit only

The highest peak values of radiated emissions form the EUT at various antenna heights, antenna polarizations, EUT orientation, etc. are recorded on the following.

Model No. : 2-912SST

EUT : 900MHz Digital Spread Spectrum Telephone

Table 7. Open Field Radiated Emissions For 30MHz -1 GMHz [Channel 1, Base Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
331.196	54.13	100.00	175	-19.00	35.13	46	-10.87
422.395	59.08	100.00	66	-16.92	42.16	46	-3.84
499.194	56.38	100.00	237	-14.73	41.65	46	-4.35
556.793	57.27	100.00	1	-12.35	44.92	46	-1.08
575.991	54.01	100.00	330	-11.56	42.45	46	-3.55
585.591	52.37	100.00	313	-10.92	41.45	46	-4.55
623.992	47.32	100.00	337	-9.17	38.15	46	-7.58

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude +Correction Factors = Corrected
3.

Table 8. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 1, Base Horizontal]

Radiated Emission—				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2710	50.1	100.00	201	-6.84	-6.24	37.02	54	-16.98
3614	53.73	100.00	146	-5.64	-6.24	41.85	54	-12.15
4518	38.35	100.00	273	3.91	-6.24	36.02	54	-17.98
5420	40.71	100.00	37	9.72	-6.24	44.19	54	-9.81

Note:

1. Margin = Corrected - Limit.
2. peak amplitude+ Correction Factor + Duty Cycle = Corrected

Table 9. Open Field Radiated Emissions For 30MHz -1 GMHz [Channel 1, Base Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
331.196	50.45	101.00	278	-19.00	31.45	46	-14.55
422.395	61.38	101.00	131	-16.92	44.46	46	-1.54
499.194	53.41	101.00	211	-14.73	38.68	46	-7.32
556.793	56.44	101.00	131	-12.35	44.09	46	-1.91
575.991	52.41	100.00	107	-11.56	40.85	46	-5.15
585.591	52.83	101.00	187	-10.92	41.91	46	-4.09
623.992	49.24	101.00	82	-9.17	40.07	46	-5.93

Note:

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 10. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 1, Base Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2710	51.6	100.00	173	-6.84	-6.24	38.52	54	-15.48
3614	62.9	100.00	43	-5.64	-6.24	51.02	54	-2.98
4518	36.02	100.00	307	3.91	-6.24	33.69	54	-20.31
5420	34.87	100.00	49	9.72	-6.24	38.35	54	-15.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude+ Correction Factor + Duty Cycle = Corrected

Table 11. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Base Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
38.194	43.31	401.00	285	-9.11	34.20	40	-5.80
345.595	57.14	100.00	250	-18.64	38.50	46	-7.50
383.995	60.05	100.00	261	-17.21	42.84	46	-3.16
451.196	59.16	100.00	126	-16.23	42.93	46	-3.07
475.194	50.54	100.00	232	-15.47	35.07	46	-10.93
537.596	55.87	100.00	91	-13.13	42.74	46	-3.26
585.592	52.14	100.00	343	-9.72	42.42	46	-3.58

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 12. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Base Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2743	47.6	100.00	206	-6.84	-6.24	34.52	54	-19.48
3657	50.07	100.00	46	-5.64	-6.24	38.19	54	-15.81
4572	36.68	100.00	156	3.91	-6.24	34.35	54	-19.65
5485	37.87	100.00	319	9.72	-6.24	41.35	54	-12.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor+ Duty Cycle = Corrected

Table 13. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Base Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
38.194	47.37	100.00	278	-9.11	38.26	40	-1.74
345.595	48.95	401.00	263	-18.64	30.31	46	-15.69
383.995	53.45	100.00	160	-17.21	36.24	46	-9.76
451.196	56.14	100.00	166	-16.23	39.91	46	-6.09
475.194	45.53	100.00	177	-15.47	30.06	46	-15.94
537.596	48.44	100.00	159	-13.13	35.31	46	-10.69
585.592	52.70	100.00	132	-9.72	42.35	46	-3.65

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 14. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Base Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2743	50.1	100.00	93	-6.84	-6.24	37.02	54	-16.98
3657	58.23	100.00	128	-5.64	-6.24	46.35	54	-7.65
4572	34.18	100.00	267	3.91	-6.24	31.69	54	-22.31
5485	32.87	100.00	73	9.72	-6.24	36.35	54	-17.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 15. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Base Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
239.998	46.44	100.00	189	-7.85	38.59	46	-7.41
364.790	58.93	100.00	107	-17.69	41.24	46	-4.76
403.197	56.59	100.00	159	-16.98	39.61	46	-6.39
547.204	57.27	100.00	3	-12.71	44.56	46	-1.44
556.789	56.91	100.00	194	-12.35	44.56	46	-1.44
585.589	54.85	100.00	309	-10.92	43.93	46	-2.07
614.385	51.88	100	182	-9.37	42.51	46	-3.49

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

3. Table 16. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Base Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2779	45.93	100.00	265	-6.84	-6.24	32.89	54	-21.11
3705	45.9	100.00	273	-5.64	-6.24	34.02	54	-19.98
***								

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 17. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Base Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
239.998	42.99	100.00	242	-7.85	35.14	46	-10.86
364.790	52.06	100.00	213	-17.69	34.37	46	-11.63
403.197	55.08	100.00	157	-16.98	38.10	46	-7.90
547.204	55.75	100.00	224	-12.71	43.04	46	-2.96
556.789	57.20	100.00	212	-12.35	44.85	46	-1.15
585.589	55.64	100.00	189	-10.92	44.72	46	-1.28
614.385	51.22	100	137	-9.37	41.85	46	-4.15

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 18. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Base Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2779	49.9	100.00	346	-6.84	-6.24	36.82	54	-17.18
3705	51.57	100.00	48	-5.64	-6.24	39.69	54	-14.31
***								

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 19. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 01, Handset Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
355.197	50.30	100.00	183	-18.13	32.17	46	-13.83
374.397	49.52	100.00	206	-17.40	32.12	46	-13.88
470.396	47.06	100.00	220	-15.60	31.46	46	-14.54
479.996	45.70	100.00	242	-15.34	30.36	46	-15.64
499.192	43.42	100.00	83	-14.73	28.69	46	-17.31
508.796	46.27	100.00	54	-14.37	31.90	46	-14.10
518.395	43.99	100.00	66	-14.01	29.98	46	-16.02
527.995	43.75	100.00	182	-13.60	30.15	46	-15.85

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 20. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 01, Handset Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2710	56.93	100.00	250	-6.84	-6.24	43.85	54	-10.15
3614	62.9	100.00	136	-5.64	-6.24	51.02	54	-2.98
4518	41.68	100.00	76	3.91	-6.24	39.34	54	-14.66
5421	42.21	100.00	92	9.72	-6.24	45.69	54	-8.31

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 21. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 01, Handset Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
355.197	53.63	100.00	4	-18.13	35.50	46	-10.50
374.397	57.48	100.00	59	-17.40	40.08	46	-5.92
470.396	57.25	100.00	295	-15.60	41.65	46	-4.35
479.996	53.14	100.00	35	-15.34	37.80	46	-8.20
499.192	55.69	100.00	161	-14.73	40.96	46	-5.04
508.796	55.60	100.00	106	-14.37	41.23	46	-4.77
518.395	55.47	100.00	101	-14.01	41.46	46	-4.54
527.995	51.51	100.00	229	-13.60	37.91	46	-8.09

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 22. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 01, Handset Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2710	55.1	100.00	186	-6.84	-6.24	42.02	54	-11.98
3614	63.4	100.00	64	-5.64	-6.24	51.52	54	-2.48
4518	43.18	100.00	273	3.91	-6.24	40.85	54	-13.15
5421	39.71	100.00	340	9.72	-6.24	43.19	54	-10.81

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 23. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Handset Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
355.198	47.31	100.00	283	-18.13	29.18	46	-16.82
374.397	45.46	401.00	243	-17.40	28.06	46	-17.94
470.397	43.66	100.00	100	-15.60	28.06	46	-17.94
479.997	42.85	100.00	78	-15.34	27.51	46	-18.49
499.197	41.38	100.00	201	-14.73	26.65	46	-19.35
508.796	41.98	100.00	194	-14.37	27.61	46	-18.39
518.396	42.75	100.00	200	-14.01	28.74	46	-19.24
537.597	39.89	100.00	242	-13.13	26.76	46	-19.24

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 24. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Handset Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)		Limit (dBuV/m)	Margin (dB)
2743	55.27	100.00	251	-6.84	-6.24	42.19	54	-11.81
3657	63.73	100.00	63	-5.64	-6.24	51.85	54	-2.15
4572	39.35	100.00	193	3.91	-6.24	37.02	54	-16.98
5486	37.87	100.00	248	9.72	-6.24	41.35	54	-12.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 25. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 10, Handset Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
355.198	51.89	100.00	120	-18.13	33.76	46	-12.24
374.397	53.35	401.00	42	-17.40	35.95	46	-10.05
470.397	56.04	100.00	125	-15.60	40.44	46	-5.56
479.997	54.22	100.00	201	-15.34	38.88	46	-7.12
499.197	55.13	100.00	165	-14.73	40.40	46	-5.60
508.796	50.99	100.00	200	-14.37	36.62	46	-9.38
518.396	52.69	100.00	219	-14.01	38.68	46	-7.32
537.597	52.19	100.00	295	-13.13	39.06	46	-6.94

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 26. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 10, Handset Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2743	54.77	100.00	307	-6.84	-6.24	41.69	54	-12.31
3657	62.07	100.00	170	-5.64	-6.24	50.19	54	-3.81
4572	41.52	100.00	37	3.91	-6.24	39.19	54	-14.81
5486	36.71	100.00	270	9.72	-6.24	40.19	54	-13.81

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 27. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Handset Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
364.797	50.09	100.00	143	-17.69	32.40	46	-13.60
374.397	43.49	100.00	143	-17.40	26.09	46	-19.91
383.996	44.99	100.00	1	-17.21	27.78	46	-18.22
470.395	42.16	100.00	113	-15.60	26.56	46	-19.44
479.995	42.86	100.00	96	-15.34	27.52	46	-18.48
499.195	40.59	400.00	152	-14.73	25.86	46	-20.14
508.795	42.70	100.00	152	-14.37	28.33	46	-17.67
518.395	39.24	100.00	341	-14.01	25.23	46	-20.77
527.994	41.25	100.00	360	-13.60	27.65	46	-18.35

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors= Corrected

Table 28. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Handset Horizontal]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2778	54.1	100.00	247	-6.84	-6.24	41.02	54	-12.98
3706	62.57	100.00	64	-5.64	-6.24	50.69	54	-3.31
4632	38.18	100.00	143	3.91	-6.24	35.85	54	-18.15
5557	31.71	100.00	318	9.72	-6.24	35.19	54	-18.81

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 29. Open Field Radiated Emissions For 30 MHz -1 GMHz [Channel 20, Handset Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
364.797	55.61	100.00	48	-17.69	37.92	46	-8.08
374.397	52.06	100.00	299	-17.40	34.66	46	-11.34
383.996	54.03	100.00	30	-17.21	36.82	46	-9.18
470.395	55.02	100.00	120	-15.60	39.42	46	-6.58
479.995	55.21	100.00	35	-15.34	39.87	46	-6.52
499.195	52.14	400.00	132	-14.73	39.48	46	-6.52
508.795	52.14	100.00	132	-14.37	37.77	46	-8.23
518.395	52.55	100.00	212	-14.01	38.54	46	-7.46
527.994	55.26	100.00	359	-13.60	41.66	46	-4.34

Note :

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factors = Corrected

Table 30. Open Field Radiated Emissions For 1 GHz -18 GMHz [Channel 20, Handset Vertical]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
2778	54.1	100.00	28	-6.84	-6.24	41.02	54	-12.98
3706	61.23	100.00	175	-5.64	-6.24	49.35	54	-4.65
4632	38.85	100.00	217	3.91	-6.24	36.52	54	-17.48
5557	31.87	100.00	160	9.72	-6.24	35.35	54	-18.65

Note :

1. Margin = Corrected - Limit.
2. peak amplitude + Correction Factor + Duty Cycle = Corrected

Table 31. Open Field Radiated Emissions For 30 MHz -1 GMHz [Charge with charge set]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
163.292	40.03	400.00	278	-11.65	28.38	43.50	-15.12
307.194	50.87	100.00	223	-14.99	35.88	46	-10.12
345.598	40.73	100.00	254	-18.64	22.09	46	-23.91
364.741	48.59	100.00	4	-17.69	30.90	46	-15.10
441.595	46.28	100.00	46	-16.56	29.72	46	-16.28
556.795	38.45	100.00	148	-12.35	26.10	46	-19.90
662.495	36.86	100.00	251	-8.48	28.38	46	-17.62

Table 32. Open Field Radiated Emissions For 30 MHz -1 GMHz [Charge with charge set]

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (MHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
163.292	43.10	400.00	301	-11.65	31.45	43.50	-12.05
307.194	47.91	400.00	178	-14.99	32.92	46	-13.08
345.598	42.02	400.00	12	-18.64	23.38	46	-22.62
364.741	46.66	400.00	94	-17.69	28.97	46	-17.03
441.595	41.74	100.00	24	-16.56	25.18	46	-20.82
556.795	40.50	400.00	59	-12.35	28.15	46	-17.85
662.495	38.37	100.00	131	-8.48	29.89	46	-16.11

Note :

3. Margin = Corrected - Limit.

Peak Amplitude + Correction Factors = Corrected

VI Section 15.247(d): Power spectral density.

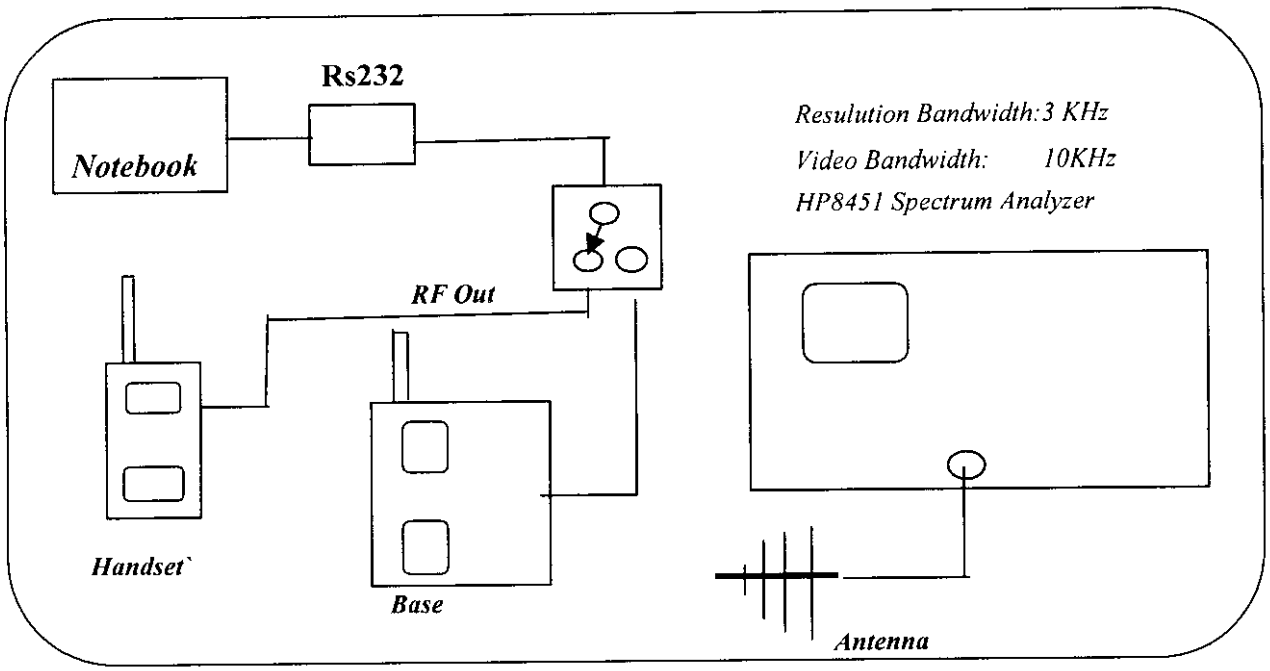
6.1 Test Condition & Setup

The tests below are running with the DCT transmitter set at high power in TDD mode .A serial port from a computer to the DCT UUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. A log antenna was connected with the spectrum analyzer .

The EUT is tested in open field site. Put EUT on the middle of a wooden table. Set spectrum analyzer RBW = 3 KHz, VBW > RBW (e.g. VBW = 10 KHz), Span = 1.5 MHz. Turn around the table to find maximum emission . Then set the Span = 300 KHz and sweep time = 100 sec. Peak the maximum emission again . The peak level measured must be no greater than +8 dBm.

The setting up procedure is recorded on Appendix A.

6.2 Test Instruments Configuration

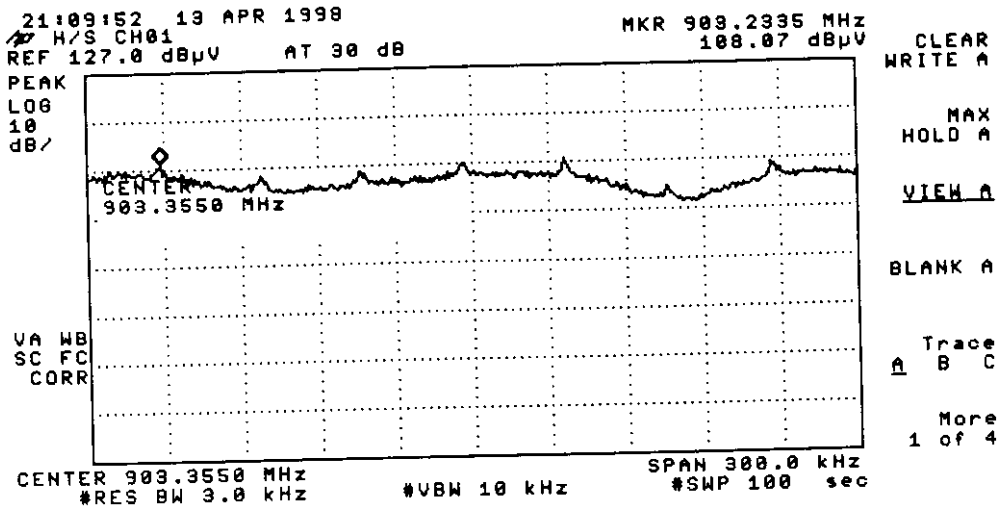


P.S.A serial port from notebook computer to control the EUT at maximal power output and channel Number.

Fig 12. Test Configuration of power spectral density

6.3 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	9KHz-2.9 GHz Spectrum Analyze	HP8594EM	50.00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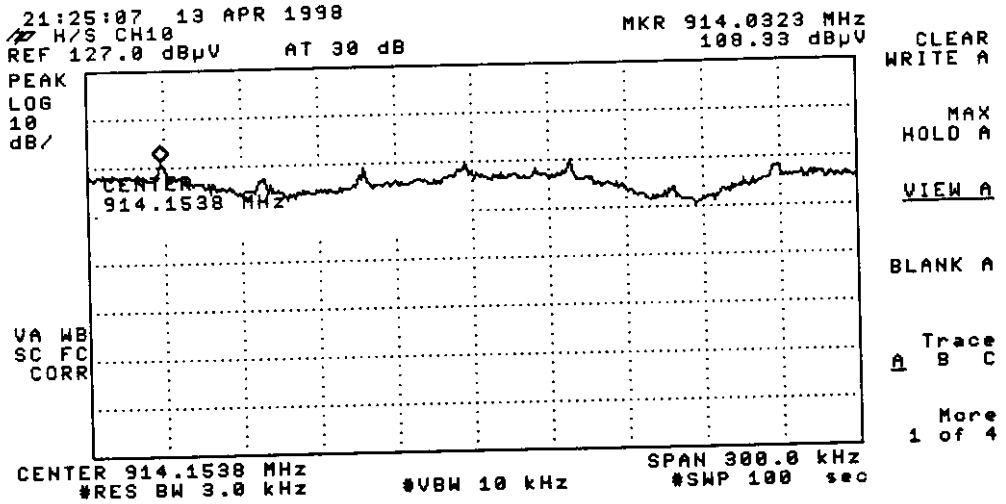
REF 127.0 dBµV
AT 30 dB
MKR 903.2335 MHz
108.07 dBµV
CLEAR
WRITE A
PEAK
LOG
10
dB/
MAX
HOLD A
CENTER
903.3550 MHz
VIEW A
BLANK A
VA WB
SC FC
CORR
Trace
A B C
More
1 of 4
CENTER 903.3550 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec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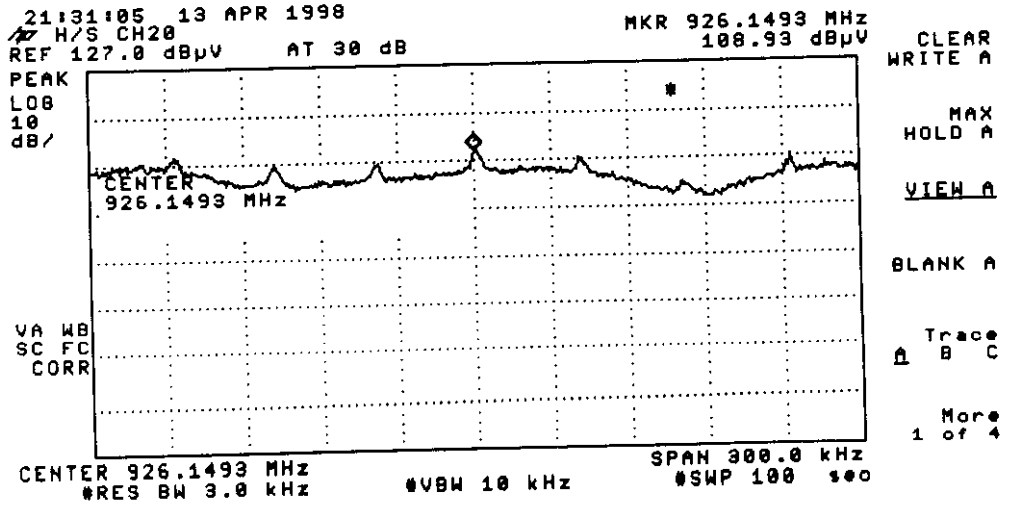
H/S CH10
REF 127.0 dBµV
AT 30 dB
MKR 914.0323 MHz
108.33 dBµV
CLEAR
WRITE A
PEAK
LOG
10
dB/
MAX
HOLD A
CENTER
914.1538 MHz
VIEW A
BLANK A
VA WB
SC FC
CORR
Trace
A B C
More
1 of 4
CENTER 914.1538 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec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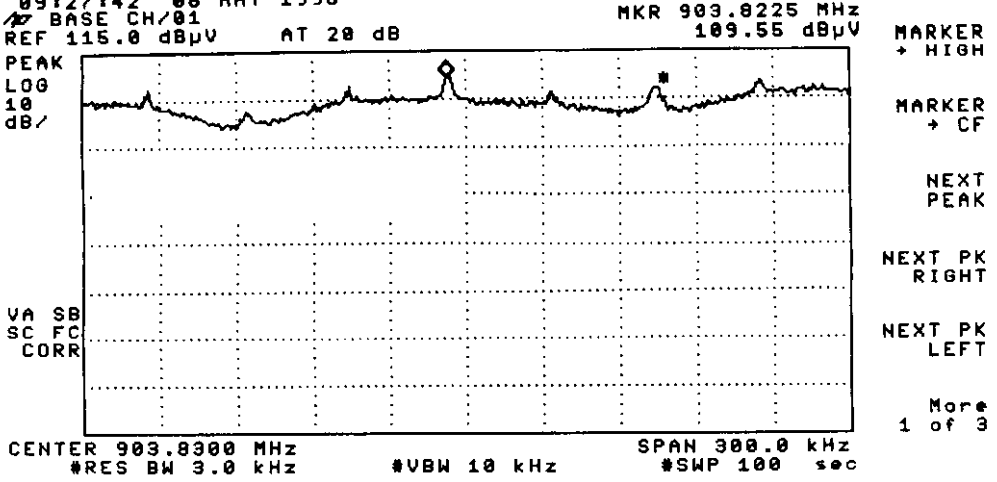
AT 30 dB
MKR 926.1493 MHz
108.93 dBµV
CLEAR
WRITE A
PEAK
LOG
10
dB/
MAX
HOLD A
CENTER
926.1493 MHz
VIEW A
BLANK A
VA WB
SC FC
CORR
Trace
A B C
More
1 of 4
CENTER 926.1493 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec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MKR 903.8225 MHz
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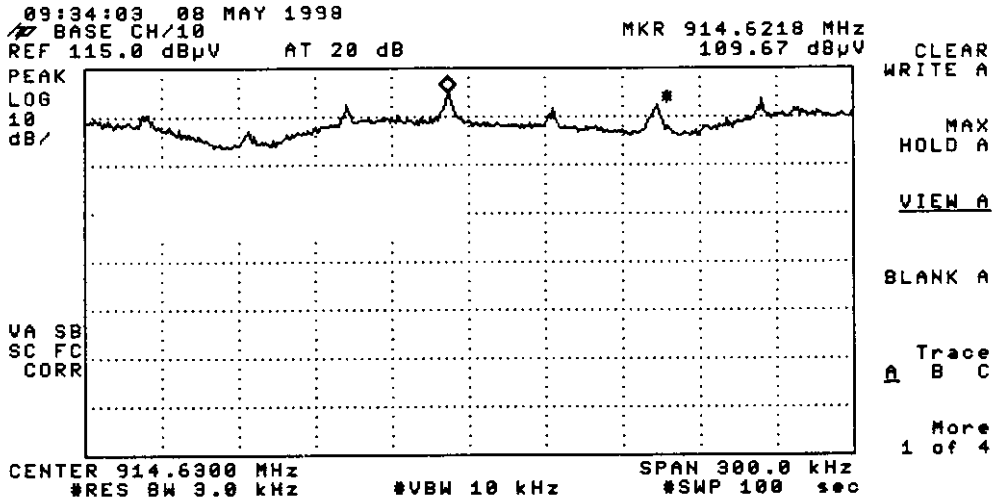
AT 20 dB
109.55 dBµV
PEAK
LOG
10
dB/
MARKER
→ HIGH
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 3
VA SB
SC FC
CORR
CENTER 903.8300 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec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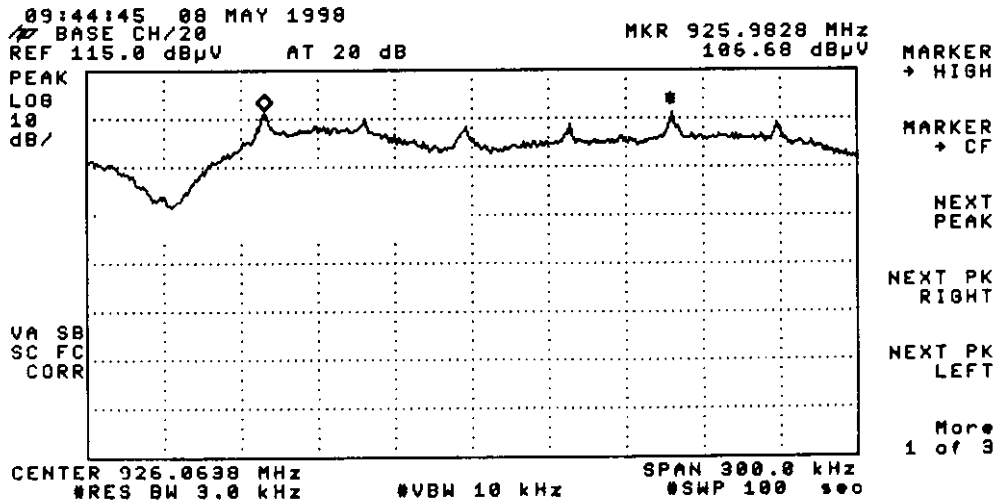
BASE CH/10
MKR 914.6218 MHz
REF 115.0 dBµV
AT 20 dB
109.67 dBµV
PEAK
LOG
10
dB/
CLEAR
WRITE A
MAX
HOLD A
VIEW A
BLANK A
Trace
A B C
More
1 of 4
VA SB
SC FC
CORR
CENTER 914.6300 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec


09:44:45 08 MAY 1998
BASE CH/20
MKR 925.9828 MHz
REF 115.0 dBµV
AT 20 dB
106.68 dBµV
PEAK
LOG
10
dB/
MARKER
→ HIGH
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 3
VA SB
SC FC
CORR
CENTER 926.0638 MHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec

6.4 Test Result of Power spectral density.

The following table shows a summary of the highest power out of UT.

Table 33. Power Spectral Density

Channel	Frequency (MHz)	Ppr (dBuV)	CF (dB)	Ppq (dBm)	Limit (dB)	Margin (dB)
B/S CH 01	903.822	109.55	-5.62	6.55	8.00	-1.45
B/S CH 10	914.621	109.67	-5.74	6.55	8.00	-1.45
B/S CH 20	925.982	106.68	-5.79	3.50	8.00	-4.5
H/S CH 01	903.233	108.07	-5.63	5.05	8.00	-2.95
H/S CH 10	914.032	108.33	-5.74	5.21	8.00	-2.79
H/S CH 20	926.149	108.93	-5.81	5.74	8.00	-2.26

Note :

1. The attachment follow by this page and there is no page number.
2. Ppr: spectrum read power density (using peak search mode), CF: correct factor Ppq: actual peak power density in the spread spectrum band.
3. Ppq = Ppr + CF
4. Effective Radiation Power (E.R.P.) = $(E\ d)^2 / 30G$

E is the measured maximum field strength in V/m utilizing the maximum hold mode

RBW (3KHz).

G is the numeric gain of the transmitting antenna over an isotropic radiator (1.64).

d is the distance in meters from which the field strength was measured (3M).

Example : the Max Radiation Emission of base ch01 = 109.55-5.62=103.93 dBuV/m

$10^{(103.93/20)} \times 10^{-6} = 0.15721$ V

E.R.P. = $(0.15721 \times 3)^2 / 49.2 = 4.52$ mW = 10 x log(4.52 mW/1mW)

= 6.55dBm

VII Section 15.247(e): Processing Gain.

7.1 Test Condition & Setup

A. Bit Error Rate (Pe)

The subjective device RF module (base & handset) digital modulation by Differential Phase -Shift Keying (DPSK), the DPSK can use it's previous waveform as the phase reference for demodulation and thus requires no coherent detection, which greatly simplifies the receiver structure but with some Bit Error Rate (BER) degradation because of noisy phase reference. There is tradeoff between system complexity and system performance. In order to driver the DPSK error probability , we observe that DPSK using differential coding , we observable that DPSK using different coding is essentially an orthogonal signal scheme. A binary 1 is transmitted a sequence of two pulse (P,P) or (-P,-P) over 2 To seconds (no transition). Similarly, a binary 0 is transmitted by a sequence of two plus (P,-P) or (-P,P) over 2 TO seconds (transition). Either of the pulse sequences used for binary 1 is orthogonal to either of the pulse sequences used for binary 0. Because no local carrier is generated for demodulation, the detection is noncoherent , with an effective pulse energy equal to 2 Ep (twice the energy of pulse P). The actual energy transmitted per digit only Ep, however, the same as in noncoherent FSK, Consequently, the performance of DPSK is 3 dB superior to that of noncoherent FSK, We can write Pe for DPSK as :

The major component inside the subjective device are supplied by Rock well , Included RF block transmitter (RF101), Receiver (RF 100), and Base band block ASIC (c8502-13), CODEC (10497-14), above 4 IC chips are affected the processing gain as following :

J/S = (W/RD) / (ED/NO) [without CODING]

Where : W= Spread Chip Rate = Required Transmitted Base band Bandwidth.

Rb = Information Data Rate

Eb/No = Require Energy per Bit over noise Spectral Density for a Specific Bit Error Probability.

The subjective Device Information Data Rate are 80k and the Spread Chip Rate are 960k So the processing gain (10 log w/Rb) at least 10.79 dB(without Coding).

The ASIC (c8502-13) and CODEC (10497-14) these two chip included the coding function, So, it is great improve the processing gain and also improve the J/S ratio.

The Engineer work for Rock well System in Taiwan had pass us the information about the probability of error rate (Pe) must be lower than 0.001 that the system performance will satisfy for communication between Handset and Base station.

Why we need the Pe lower than 0.001, the Rockwell Semiconductor System is not explained , Since it relative with ASIC and Codec, it is confidential area that Rockwell is not allow to disdouse to the public.

When Pe = 0.001 and then Signal to Noise Ratio (S/N) = 6.2194 = 7.9dB.

B. Jamming Margin Method

The Rockwell Semiconductor System give us a software operated in the personal computer, and use the computer series port COM1 and COM2 connect Handset and Base than we can measure the Bit Error Rate.

Using this software we can perform Jamming Margin method testing , The test consists of stepping a signal generator in 50 KHz increments across the pass band of the system (up to 960 KHz away in RI's DCT). At each point, the generator level required to produce the recommend Bit Error Rate (BER = 10e - 3) is recorded. This level is the jamming level. The maximum implementation loss a system can claim in calculating processing gain is 2 dB. The equation to calculate the processing gain (Gp) is the following:

$$Gp = (S/N) + Mj + Lsys$$

$$Gp = 8\ dB + Mj + 2\ dB$$

FCC regulation section 15.247 (e) rewire the processing gain of a direct sequence system shall be at least 10 dB, when Gp must be greater than 10 dB, then the Jammer must be greater than 0 dB.

The processing gain may be measured using the CW jamming margin method. The Jammer to Signal (J/S) ratio is then calculated. Discard the worst 20% of the J/S data points.

1. For avoid the handset and basestation are situation, so, the UUT were in low power mode.

2. The signal generator was selected in interference band, using this software we can perform Jamming Margin method testing, the test consists of stepping a signal generator is 50 KHz increments across the pass band of the system (up to 960 KHz away in RI's DCT). So, the BER will keep in 0.1%.

The setting up procedure is recorded on Appendix A.

7.2Test Instruments Configuration

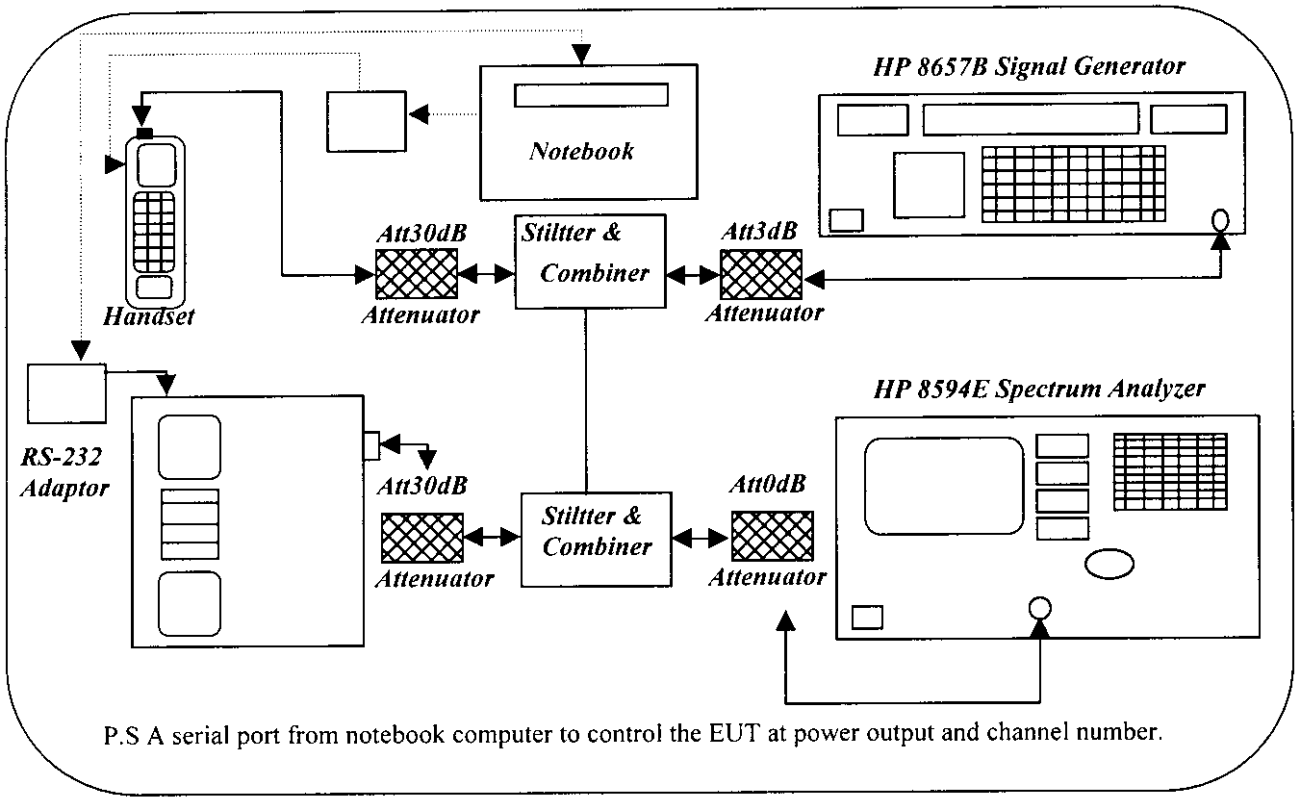


Fig 13. Test Configuration of processing gain for base station

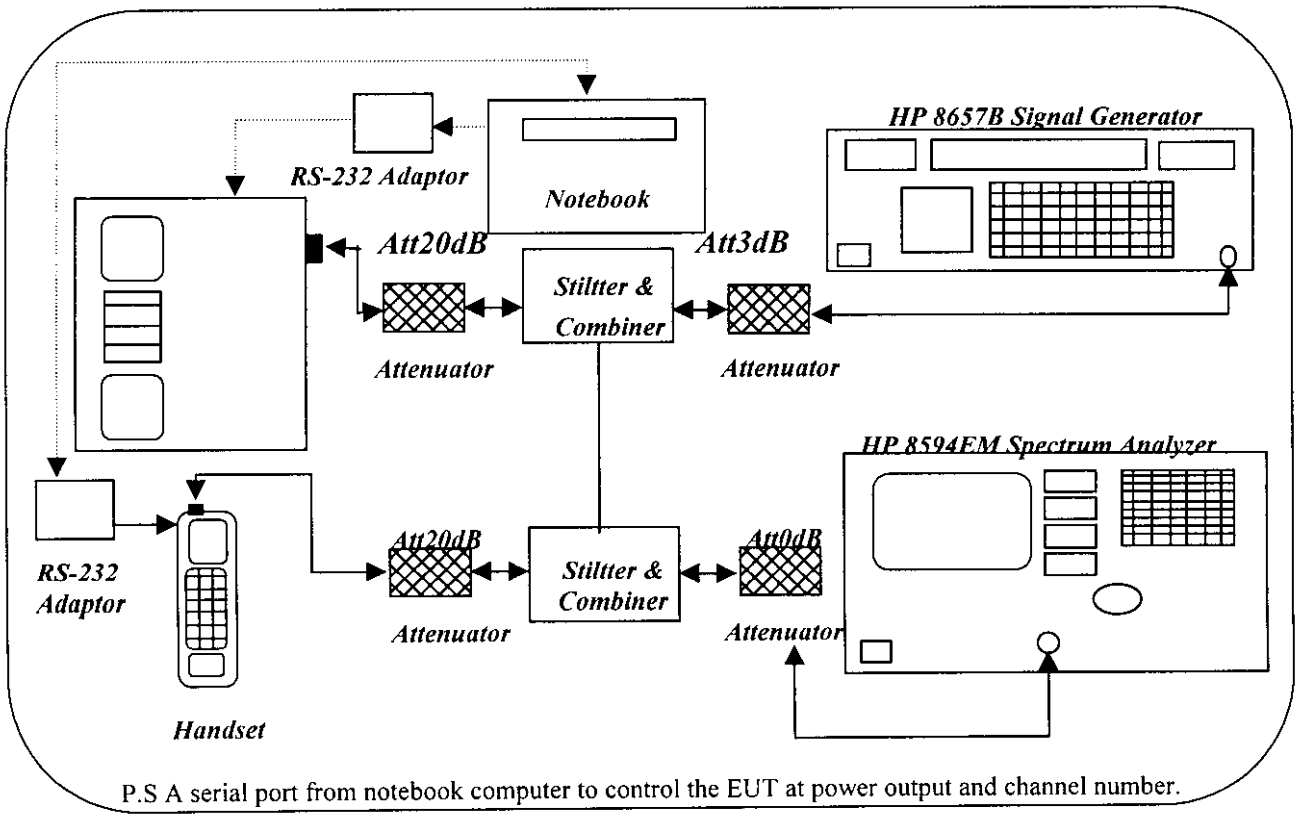


Fig. 14, Test Configuration of processing gain for handset

7.3 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	100Hz-1.8GHz Spectrum Analyzer	HP8592A	50.00
Hewlett Packard	100Hz-2.6GHz Signal Generator	HP8657B	50.00
Mini Circuits	10MHz-2GHz Power Stlitter/Combiner	ZESC-2-11	50.00
Mini Circuits	DC-1.5GHz 3dB Attenuator	CAT-3	50.00
Mini Circuits	DC-1.5GHz 20dB Attenuator	CAT-20	50.00
Mini Circuits	DC-1.5GHz 30dB Attenuator	CAT-30	50.00

7.4 Test Procedure

According to the Fig. 13 of the page 42, combine the stuffs.

Measure the low power output of the channel 10 of the handset while the handset is in "Transmit-Only-Test" and the whole circuit is as same as Fig. 13. What we measure in this step is "S".

Change to the "BER Test " program. Increase the RF output of the signal generator till the BER is close to the 0.1% but under 0.1%.

Stop the program and turn off the base, handset then record the highest point of the spectrum. What we measure in this step is "J".

Star the Program again and test the next point.

7.5 Test Result of Processing Gain.

Table. 34 Processing Gain [Channel 10, Base]

Jammer Frequency (MHz)	S (dBm)	J (dBm)	Mj (J/S)	Process Gain (dB)
913.65	-29.86	-25.97	3.89	13.79
913.70	-29.86	-26.26	3.60	13.50
913.75	-29.86	-27.30	2.66	12.56
913.80	-29.86	-28.64	1.22	11.12
913.85	-29.86	-27.30	2.56	12.46
913.90	-29.86	-28.57	1.29	11.19
913.95	-29.86	-26.90	2.96	12.86
914.00	-29.86	-29.32	0.54	10.44
914.05	-29.86	-29.36	0.50	10.40
914.10	-29.86	-29.22	0.64	10.54
914.15	-29.86	-29.38	0.48	10.38
914.20	-29.86	-29.44	0.42	10.32
914.25	-29.86	-28.66	1.20	11.10
914.30	-29.86	-29.66	0.20	10.10
914.35	-29.86	-28.34	1.52	11.42
914.40	-29.86	-28.80	1.06	10.96
914.45	-29.86	-28.76	1.10	11.00
914.50	-29.86	-29.58	0.28	10.18
914.55	-29.86	-28.62	1.24	11.14
914.60	-29.86	-29.54	0.32	10.22
914.65	-29.86	-29.43	0.43	10.33
914.70	-29.86	-29.01	0.85	10.75
914.75	-29.86	-29.40	0.46	10.36
914.80	-29.86	-29.06	0.80	10.70
914.85	-29.86	-28.08	1.78	11.68
914.90	-29.86	-27.80	2.06	11.96
914.95	-29.86	-28.57	1.29	11.19
915.00	-29.86	-28.23	1.63	11.53
915.05	-29.86	-26.90	2.96	12.86
915.10	-29.86	-25.70	4.16	14.06

Test Result:

Processing Gain : 10.38 dB

Note:

1. GP=(S/No)+Mj+Lsys=7.9dB+Mj+2 dB
2. S = Signal Level
3. J = Signal Generator RF Output

Table 35. Processing Gain [Channel 10, Handset]

Jammer Frequency (MHz)	S (dBm)	J (dBm)	Mj (J/S)	Process Gain (dB)
913.95	-29.05	-24.05	5.00	14.90
914.00	-29.05	-27.12	2.93	12.83
914.05	-29.05	-27.55	1.45	11.35
914.10	-29.05	-28.24	0.81	10.71
914.15	-29.05	-27.18	1.87	11.77
914.20	-29.05	-28.38	0.67	10.57
914.25	-29.05	-26.97	2.08	11.98
914.30	-29.05	-28.72	0.33	10.23
914.35	-29.05	-28.64	0.41	10.31
914.40	-29.05	-28.75	0.30	10.20
914.45	-29.05	-28.72	0.33	10.23
914.50	-29.05	-28.78	0.27	10.17
914.55	-29.05	-28.90	0.15	10.05
914.60	-29.05	-28.09	0.96	10.86
914.65	-29.05	-26.50	2.45	12.35
914.70	-29.05	-28.74	0.31	10.21
914.75	-29.05	-28.90	0.15	10.05
914.80	-29.05	-28.53	0.52	10.42
914.85	-29.05	-28.40	0.65	10.55
914.90	-29.05	-29.02	0.03	9.93
914.95	-29.05	-28.94	0.11	10.01
915.00	-29.05	-28.89	0.16	10.06
915.05	-29.05	-29.10	-0.05	9.85
915.10	-29.05	-28.65	0.40	10.30
915.15	-29.05	-28.57	0.48	10.38
915.20	-29.05	-27.79	1.26	11.16
915.25	-29.05	-28.76	0.29	10.19
915.30	-29.05	-28.40	0.65	10.55
915.35	-29.05	-27.59	1.46	11.36
915.40	-29.05	-27.20	1.85	11.75

Test Result:

Processing Gain : 10.17 dB

Note:

1. GP = (S/No) + Mj + Lsys = 7.9 dB + Mj + 2 dB
2. S = Signal Level
3. J = Signal Generator RF Output

Appendix A

Setting up Procedure

1. Using a RS-232 adaptor which is given by customer connected with the com 1 of the computer.
2. The other end of the RS-232 adaptor is connected with the EUT.
3. Use the software which is given by the customer and operated in the windows to control the EUT's continuous transmission.

Appendix B

The antenna of the device is screwed inside the device, the user can not remove it freely without any tools from outside the device. This is comply with the FCC rules part 15.203

Appendix C
Security Code

Description of 900 MHz Direct Spectrum Cordless Phone

The subject device's 20 independent channels, autoscan at link establishment and smart channel hopping combine to find the clearest channels at all times, automaticlly.
Spread spectrum technology ensures the highest level of security available in a cordless phone.

The spread cpectrum technique provides better security than other solutionssince only the receiver has a copy of the pre-assigned spreading code, making iterception virtually impossible. The trainsmitting singal diluted over a large bandwidth with power density at any point being very light, so the singal goes unnoticed by other systems since they are not tuned to receive it. Moreover the scambling code changes every 8 times the phone is parked, and there are millions of codes.

Scambler / Descrambler A16-code randomizes the voice and supervisory data for trainsmission and reception, more than 64K scramble codes are availble from the 16-bit maximal length pesudo-noise sequencu generator.

Sread Spectrum Spreader Each trainsmitted bit is multiplied with a 12-chip spreading code, meeting FCC Part 15.247 requirements.