TEST REPORT

0.0 **Summary of Test Results**

Shen Zhen Taifeng Electronic Co., Ltd. - MODEL: 39625
FCC ID: Not Labelled

TEST	REFERENCE	RESULTS
Radiated Emission	15.249	Complies
Conducted Emission	15.207	Complies
Antenna Requirement	15.203	Complies

Test Engineer: Barry Smith Date: 6/5/98

Barry Smith

EMC Site Mgr.: David Chernomordik Date: _____

David Chernomordik

1.0 General Description

1.1 Product Description

The Shenzhen Taifeng Electronic Co., Ltd. Model No.: 39625 is a 40 channel 900 MHz cordless telephone with answering machine.

For more information, please refer to the attached users manual.

1.2 Related Submittal(s) Grants

This is an Application for Certification of a low power transmitter. One transmitter is included in this Application. This specific report details the emission characteristics of transmitter.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is Site 1. This test facility and site measurement data have been fully placed on file with the FCC and NVLAP accredited.

2.0 System Test Configuration

2.1 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

For the measurements, the EUT is attached to a cardboard box (if necessary) and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). The EUT is wired to transmit full power without modulation.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Detector function is in peak mode. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

2.2 EUT Exercising Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

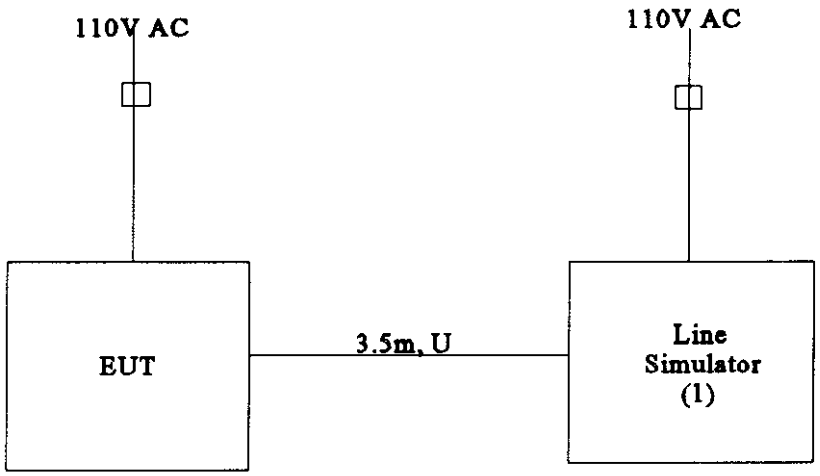
For emissions testing, the units were setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

2.3 System Test Configuration

2.3.1 Support Equipment

Item #	Description	Model No.	Serial No.	FCC ID
1	Teltone Line Simulator	TLS-4	010810	N/A

2.3.2 Block Diagram of Test Setup



* = EUT	S = Shielded;	F = With Ferrite
** = No ferrites on video cable	U = Unshielded	

2.4 Equipment Modification

Any modifications installed previous to testing by Shen Zhen Taifeng Electronic Co., Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were made to the EUT by Intertek Testing Services.

2.5 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

3.0 Emission Results

AC line conducted emission measurements were performed from 0.45 MH to 30 MHz. Analyzer resolution is 10 kHz or greater.

Radiated emission measurements were performed from 30 MHz to 5000 MHz. Analyzer resolution is 100 kHz or greater for 30 MHz to 1000 MHz, 1 MHz for >1000 MHz.

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

where FS = Field Strength in dB(μV/m)
RA = Receiver Amplitude (including preamplifier) in dB(μV)
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB/m
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:-

FS = RR + LF

where FS = Field Strength in dB(μV/m)
RR = RA - AG in dB(μV)
LF = CF + AF in dB

Assume a receiver reading of 52.0 dB(μV) is obtained. The antenna factor of 7.4 dB/m and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB(μV/m). This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dB(μV) AF = 7.4 dB/m
RR = 23.0 dB(μV) CF = 1.6 dB
LF = 9.0 dB AG = 29.0 dB

FS = RR + LF
FS = 23 + 9 = 32 dB(μV/m)

Level in μV/m = Common Antilogarithm {[32 dB(μV/m)]/20} = 39.8 μV/m

3.3 Radiated Emission Data

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Results:	**Passed** by 6.0 dB at 902 MHz

Note: a) All emissions not reported are at least 20 dB below the limits

ITS Intertek Testing Services

1365 Adams Court, Menlo Park CA 94025

Radiated Emissions Test Data

Company: Sam Joo Electronics
EUT: 900 MHz Cordless Phone
Project #:
Test Mode: Base Unit Low Channel

Model #: 39625
S/N or FCC#:
Engineer: Barry
Date of Test: May 20, 1998
Initial: 6.5

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	8	8	12	9	0
Model:	EMCO 311	CDI_P1000	Green_M+L	Green_S	None

Standard_	FCC Part 15.249	
Limits_	12	
Test Distance_	3	meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
902.0	63.1	Q	H	23.4	0.0	1.5	0.0	88.0	94.0	-6.0
1804.0	44.8	A	H	24.7	29.3	2.4	0.0	42.6	54.0	-11.4
1804.1	59.0	P	H	24.7	29.3	2.4	0.0	56.8	74.0	-17.2
2706.1	35.0	A	V	27.9	28.4	3.0	0.0	37.5	54.0	-16.5
2706.1	36.2	P	V	27.9	28.4	3.0	0.0	38.7	74.0	-35.3
3608.2	31.7	A	V	31.3	27.8	3.5	0.0	38.7	54.0	-15.3
3608.2	38.6	P	V	31.3	27.8	3.5	0.0	43.6	74.0	-30.4
4510.2	30.5	A	V	32.1	27.9	4.2	0.0	38.9	54.0	-15.1
4510.2	32.8	P	V	32.1	27.9	4.2	0.0	41.2	74.0	-32.8
5412.2	30.2	A	V	33.1	28.3	4.6	0.0	39.6	54.0	-14.5
5412.2	33.0	P	V	33.1	28.3	4.6	0.0	42.4	74.0	-31.7

Notes:
a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF:Other Correction Factor; DF:Distance Factor
b) Insert. Loss = Cable A + Cable B + OCF.
c) Negative signs (-) in Margin column signify levels below the limits.
d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

ITS Intertek Testing Services

1365 Adams Court, Menlo Park CA 94025

Radiated Emissions Test Data

Company: Sam Joo Electronics
EUT: 900 MHz Cordless Phone
Project #:
Test Mode: Base Unit High Channel

Model #: 39625
S/N or FCC#:
Engineer: Barry
Date of Test: May 20, 1998
Initial: B.S.

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	8	8	12	9	0
Model:	EMCO 311	CDI_P1000	Green_M+L	Green_S	None

Standard_ FCC Part 15.249
Limits_ 12
Test Distance_ 3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
904.0	57.6	Q	H	23.4	0.0	1.5	0.0	82.5	94.0	-11.5
1808.0	37.1	A	H	24.7	29.3	2.4	0.0	34.9	54.0	-19.1
1808.0	43.0	P	H	24.7	29.3	2.4	0.0	40.8	74.0	-33.2
2711.9	34.1	A	V	27.9	28.4	3.0	0.0	36.6	54.0	-17.4
2711.9	37.8	P	V	27.9	28.4	3.0	0.0	40.3	74.0	-33.7
3615.9	31.2	A	V	31.3	27.8	3.5	0.0	38.2	54.0	-15.8
3615.9	39.5	P	V	31.3	27.8	3.5	0.0	46.5	74.0	-27.5
4519.9	30.4	A	V	32.1	27.9	4.2	0.0	38.8	54.0	-15.2
4519.9	39.5	P	V	32.1	27.9	4.2	0.0	47.9	74.0	-26.1
5423.9	29.0	A	V	33.1	28.3	4.6	0.0	38.4	54.0	-15.7
5423.9	39.2	P	V	33.1	28.3	4.6	0.0	48.6	74.0	-25.5

Notes: a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF:Other Correction Factor; DF:Distance Factor
b) Insert. Loss = Cable A + Cable B + OCF.
c) Negative signs (-) in Margin column signify levels below the limits.
d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

ITS Intertek Testing Services

1365 Adams Court, Menlo Park CA 94025

Radiated Emissions Test Data

Company: Sam Joo Electronics
EUT: 900 MHz Cordless Phone
Project #:
Test Mode: Handset Low Channel

Model #: 39625
S/N or FCC#:
Engineer: Barry
Date of Test: May 20, 1998
Initial: B.S

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	8	8	12	9	0
Model:	EMCO 311	CDI_P1000	Green_M+L	Green_S	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
926.0	59.0	QP	H	23.5	0.0	1.5	0.0	84.0	94.0	-10.0
1852.1	36.8	A	V	24.9	29.3	2.4	0.0	34.8	54.0	-19.2
1852.1	43.1	P	V	24.9	29.3	2.4	0.0	41.1	74.0	-32.9
2778.1	34.9	A	H	28.1	28.4	3.0	0.0	37.6	54.0	-16.4
2778.1	40.6	P	H	28.1	28.4	3.0	0.0	43.3	74.0	-30.7
3704.1	38.1	A	V	31.3	27.8	3.5	0.0	45.1	54.0	-8.9
3704.1	44.4	P	V	31.3	27.8	3.5	0.0	51.4	74.0	-22.6
4630.1	30.2	A	V	32.1	28.0	4.2	0.0	38.5	54.0	-15.5
4630.1	35.0	A	H	32.2	28.0	4.2	0.0	43.4	74.0	-30.6
5556.2	29.4	A	H	34.4	28.3	4.8	0.0	40.3	54.0	-13.7
5556.2	39.2	P	H	34.4	28.3	4.8	0.0	50.1	74.0	-23.9

Notes:
a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF:Other Correction Factor; DF:Distance Factor
b) Insert. Loss = Cable A + Cable B + OCF.
c) Negative signs (-) in Margin column signify levels below the limits.
d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

ITS Intertek Testing Services

1365 Adams Court, Menlo Park CA 94025

Radiated Emissions Test Data

Company: Sam Joo Electronics
EUT: 900 MHz Cordless Phone
Project #:
Test Mode: Handset High Channel

Model #: 39625
S/N or FCC#:
Engineer: Barry
Date of Test: May 20, 1998
Initial: B. S.

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	8	8	12	9	0
Model:	EMCO 311	CDI_P1000	Green_M+L	Green_S	None

Standard_	FCC Part 15.249	
Limits_	12	
Test Distance_	3	meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
928.0	62.2	Q	H	23.3	0.0	1.5	0.0	87.0	94.0	-7.0
1856.0	36.1	A	V	24.9	29.3	2.4	0.0	34.1	54.0	-19.9
1856.0	40.3	P	V	24.9	29.3	2.4	0.0	38.3	74.0	-35.7
2783.9	32.9	A	H	28.1	28.4	3.0	0.0	35.6	54.0	-18.4
2783.9	40.4	P	H	28.1	28.4	3.0	0.0	43.1	74.0	-30.9
3711.9	37.9	A	V	31.3	27.8	3.5	0.0	44.9	54.0	-9.1
3711.9	41.9	P	V	31.3	27.8	3.5	0.0	48.9	74.0	-25.1
4639.9	29.5	A	H	32.2	28.0	4.2	0.0	37.9	54.0	-16.1
4639.9	39.9	P	H	32.2	28.0	4.2	0.0	48.3	74.0	-25.7
5567.9	29.3	A	V	34.4	28.3	4.8	0.0	40.2	54.0	-13.8
5567.9	38.8	P	V	34.4	28.3	4.8	0.0	49.7	74.0	-24.3

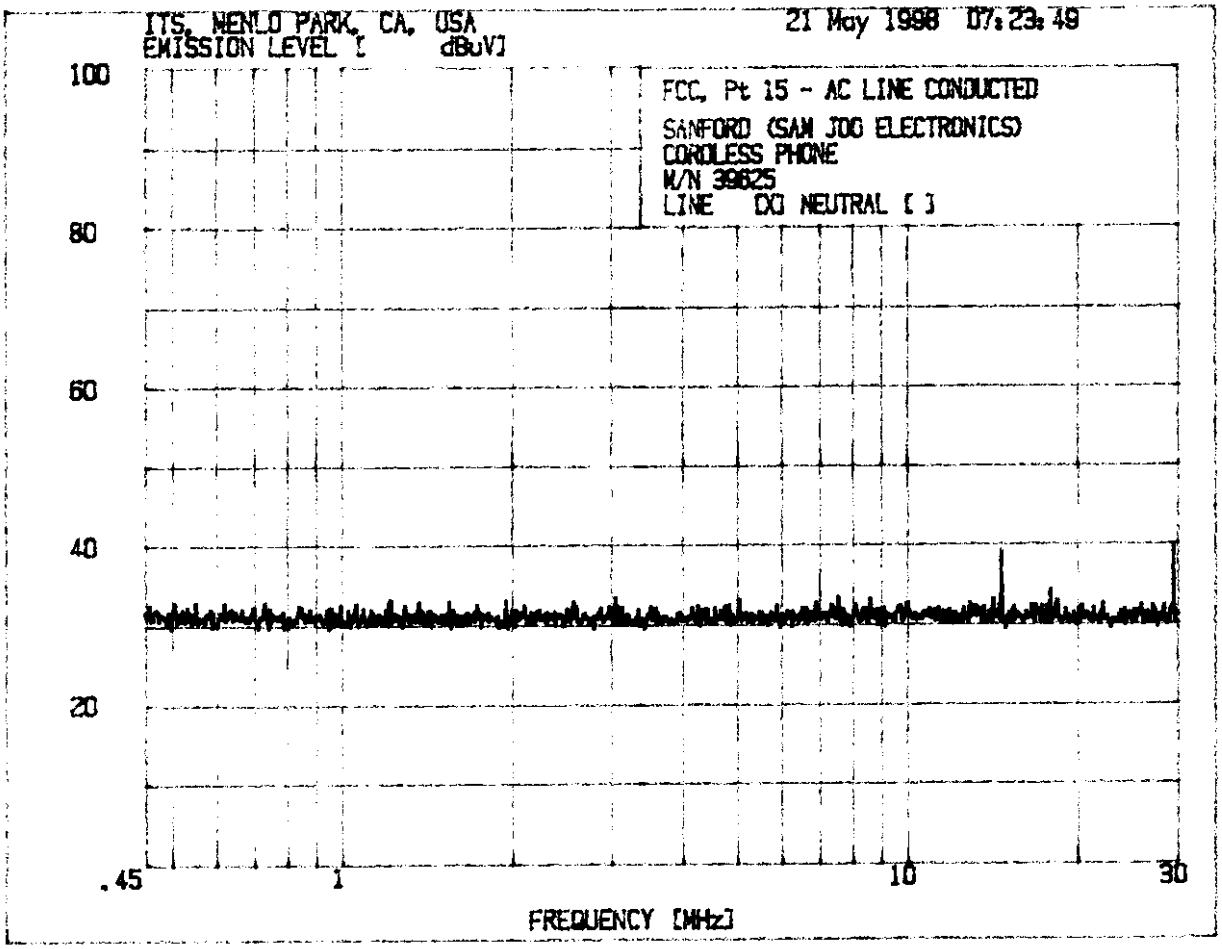
Notes: a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF:Other Correction Factor; DF:Distance Factor
b) Insert. Loss = Cable A + Cable B + OCF.
c) Negative signs (-) in Margin column signify levels below the limits.
d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

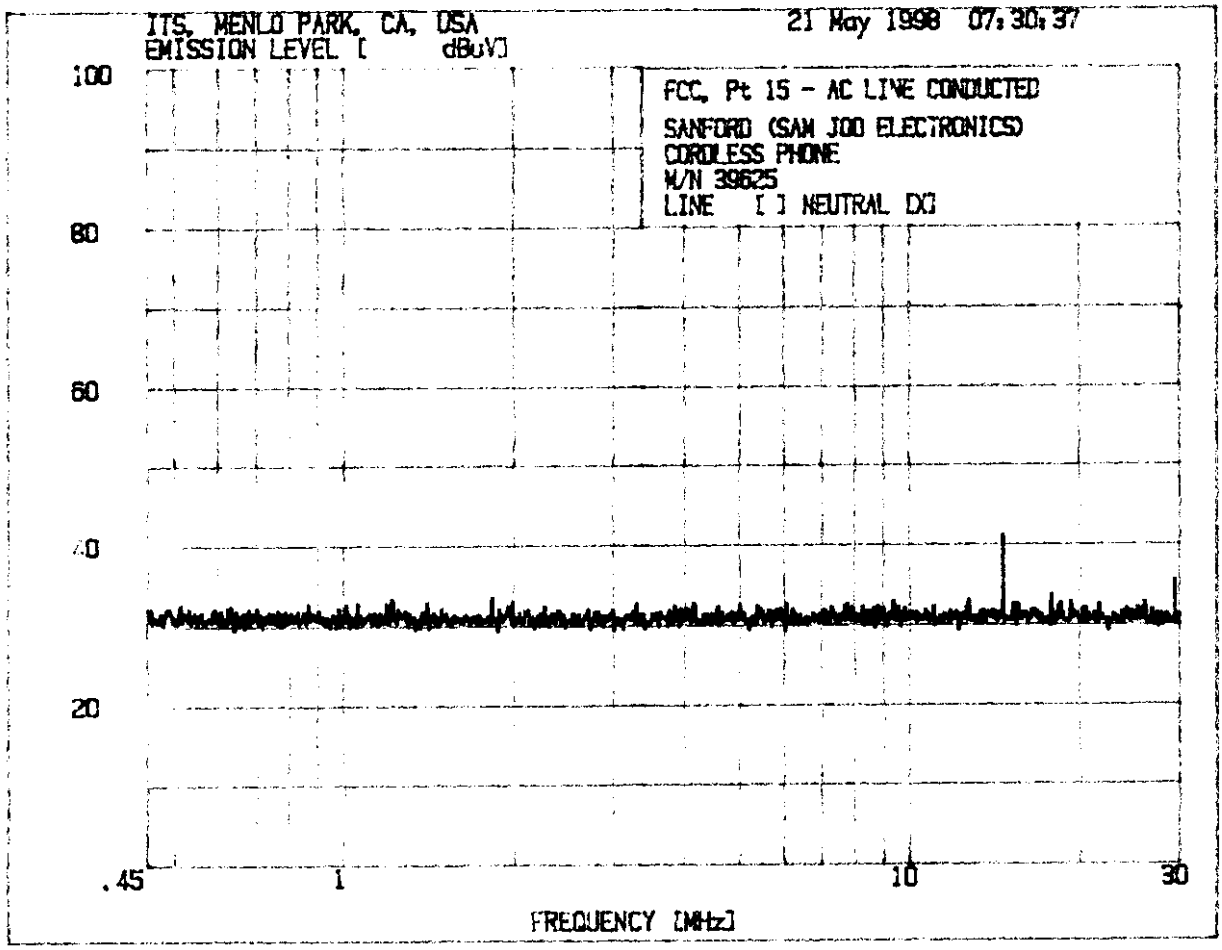
3.5 Conducted Emission Data

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Results:	**Passed** by 6.7 dB at 14.7 MHz

Note: a) A complete scan from 0.45 - 30 MHz was made.


ITS, MENLO PARK, CA, USA
21 May 1998 07:23:49
EMISSION LEVEL [dBuV]
FCC, Pt 15 - AC LINE CONDUCTED
SANFORD (SAM JOO ELECTRONICS)
CORDLESS PHONE
M/N 39625
LINE [X] NEUTRAL [ ]
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]


ITS, MENLO PARK, CA, USA
21 May 1998 07:30:37
EMISSION LEVEL [dBuV]
FCC, Pt 15 - AC LINE CONDUCTED
SANFORD (SAM JOO ELECTRONICS)
CORDLESS PHONE
M/N 39625
LINE [ ] NEUTRAL [X]
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

[illegible]

III, MENLO PARK, CA, USA   21 MAY 1990 07:[illegible]

[illegible]

[illegible]

SANFORD [illegible]

[illegible]

[illegible]

LINE [illegible]

PEAKS FOUND ABOVE 20 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	1.35[illegible]	[illegible]
6	2.[illegible]	[illegible]
7	[illegible]	[illegible]
8	5.085	[illegible]
9	[illegible]	[illegible]
10	[illegible]	[illegible]
11	14.[illegible]	[illegible]
12	[illegible]	[illegible]
13	17.71	34.4
14	[illegible]	[illegible]
15	[illegible]	[illegible]

III, MENLO PARK, CA, USA   21 May 1990 07:30:07

[illegible]

[illegible] AC LINE CONDUCTED

SANFORD [illegible] ELECTRONICS

[illegible]

[illegible]

LINE [illegible]

PEAKS FOUND ABOVE 20 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
1	1.060	[illegible]
2	1.227	[illegible]
3	1.415	[illegible]
4	[illegible]	[illegible]
5	2.244	[illegible]
6	[illegible]	[illegible]
7	[illegible]	[illegible]
8	14.70	[illegible]
9	[illegible]	[illegible]
10	20.58	[illegible]

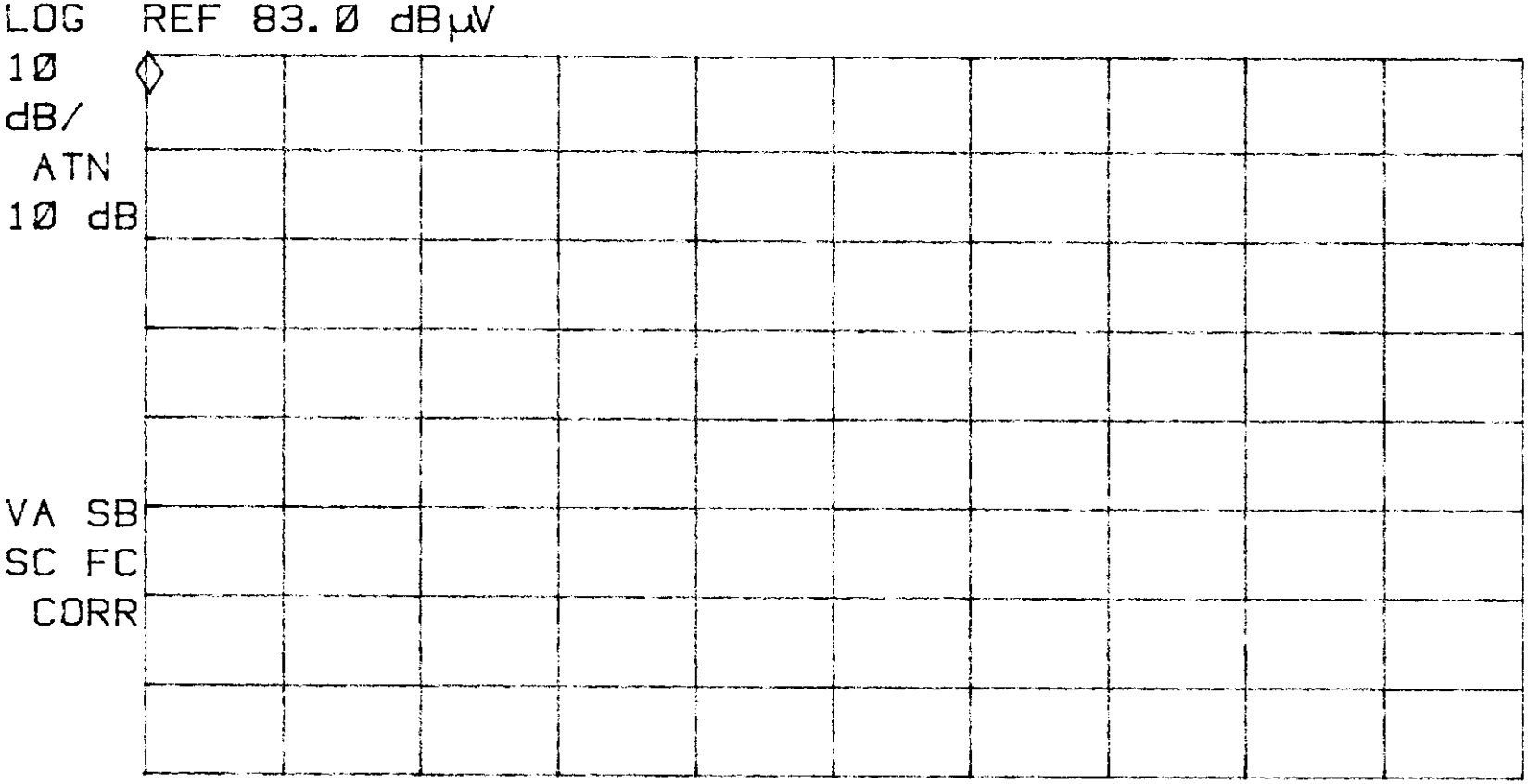
4.0 Out of Band Emission Plot

The following plots show the relative spurious emission level of the transmitter.

Plot #	Description
1	Base Unit @ Low Channel, 902MHz -928MHz
2	Base Unit @ Low Channel, 902MHz -902.5MHz
3	Hand Unit @ High Channel, 902MHz -928MHz
4	Hand Unit @ High Channel, 927.5MHz -928MHz

10:46:51 JUN 05, 1998
M/N 39625

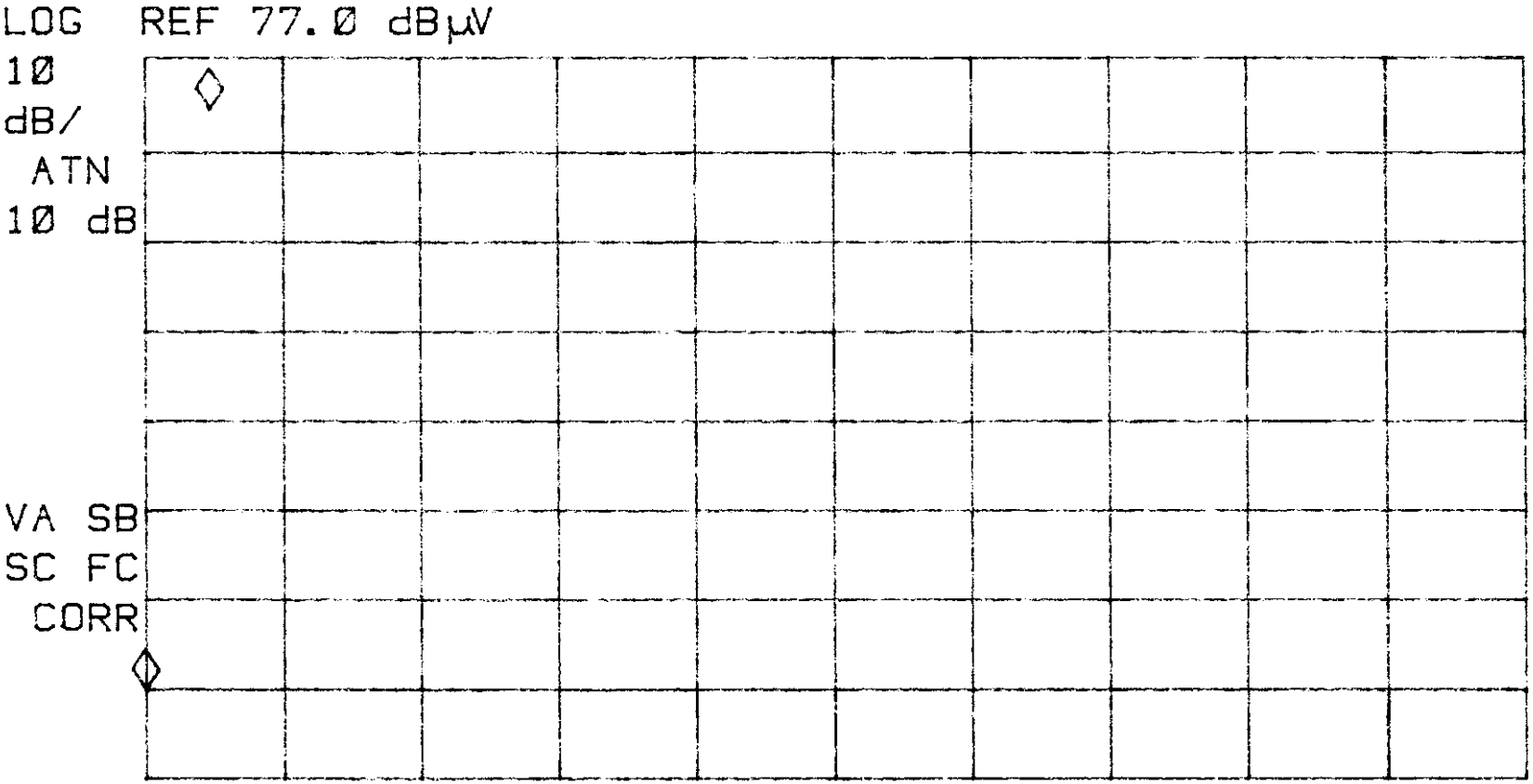
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 902.07 MHz
78.89 dBµV



Plot #7

10:43:17 JUN 05, 1998
M/N 39625

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR -23.8 kHz
-64.50 dB

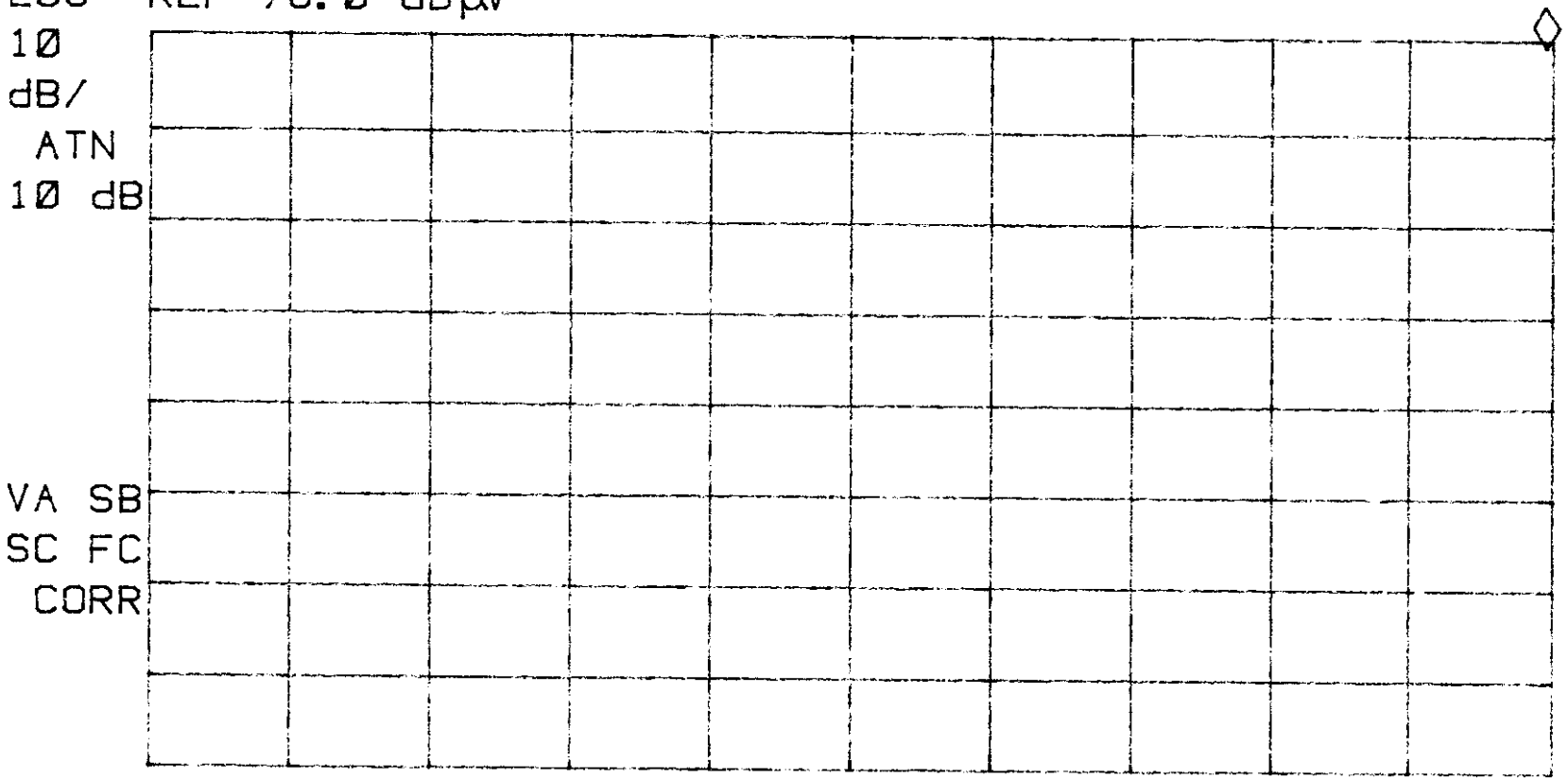


START 902.0000 MHz
STOP 902.5000 MHz
#IF BW 1.0 kHz
#AVG BW 10 kHz
SWP 1.50 sec

CH #2

10:28:29 JUN 05, 1998
M/N 39625

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 927.87 MHz
77.28 dBµV

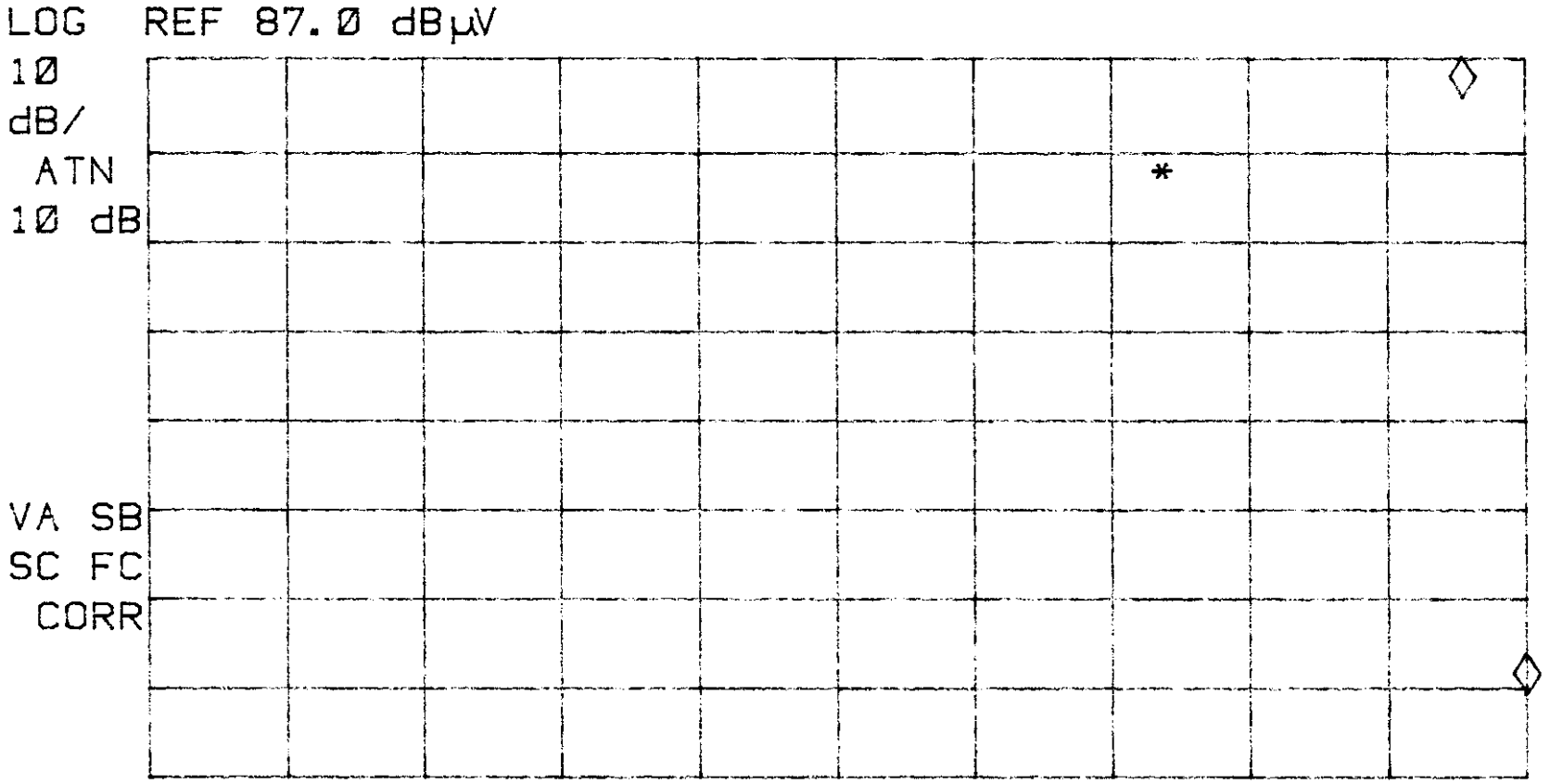


START 902.00 MHz
#IF BW 10 kHz
#AVG BW 10 kHz
STOP 928.00 MHz
SWP 780 msec

Plot #3

10:39:00 JUN 05, 1998
M/N 39625

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 20.0 kHz
-66.41 dB



START 927.5000 MHz
STOP 928.0000 MHz
#IF BW 1.0 kHz
#AVG BW 10 kHz
SWP 1.50 sec

5.0 Antenna Requirement

✔	The transmitter uses a permanently connected antenna.
	The antenna is affixed to the EUT using a unique connector which allows for replacement of a broken antenna, but does NOT use a standard antenna jack or electrical connector.
	The EUT requires professional installation. Please refer to the attached documentation for details).

6.0 Equipment Photographs

Photographs of the EUT are attached.