Application
For
Certification
(FCC ID: NLDAP-9FEA)

ISM Equipment

WO# 9900153
CKL/at
11 February, 1999

FCC ID : NLDAP-9FEA

LIST OF EXHIBITS

INTRODUCTION

EXHIBIT 1:	General Description
EXHIBIT 2:	System Test Configuration
EXHIBIT 3:	Emission Results
EXHIBIT 4:	Equipment Photographs
EXHIBIT 5:	Product Labelling
EXHIBIT 6:	Technical Specifications
EXHIBIT 7:	Instruction Manual

MEASUREMENT/TECHNICAL REPORT

Soft Lines Ltd. - MODEL: AP-9FEA
FCC ID: NLDAP-9FEA

11 February, 1999

This report concerns (check one:) Original Grant X Class II Change _____

Equipment Type: ISM Equipment (example: computer, printer, modem, etc.)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes ___ No X

If yes, defer until: _____ date

Company Name agrees to notify the Commission by: _____ date

of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by: Samuel Wu
Intertek Testing Services
2/F., Garment Center,
576, Castle Peak Road,
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Table of Contents

1.0 **General Description** 2
1.1 Product Description 2
1.2 Related Submittal(s) Grants 2
1.3 Test Methodology 3
1.4 Test Facility 3
1.5 Equipment List 4

2.0 **System Test Configuration** 6
2.1 Justification 6
2.2 EUT Exercising Software 6
2.3 Special Accessories 6
2.4 Equipment Modification 7
2.5 Support Equipment List and Description 7

3.0 **Emission Results** 9
3.1 Field Strength Calculation 10
3.1 Field Strength Calculation (cont) 11
3.2 Radiated Emission Configuration Photograph 12
3.3 Radiated Emission Data 13

4.0 **Equipment Photographs** 16

5.0 **Product Labelling** 18

6.0 **Technical Specifications** 20

7.0 **Instruction Manual** 22

List of attached file

Exhibit type	File Description	filename
Cover Letter	Letter of Agency	letter.pdf
Test Report	Test Report	report.doc
Test Setup Photo	Radiated Emission	radiated.jpg
External Photo	External Photo	ophoto1.jpg, ophoto2.jpg
Internal Photo	Internal Photo	iphoto1.jpg to iphoto4.jpg
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a hair remover operating at 27.125MHz. The EUT is powered by 120VAC mains. It is classified as a consumer ISM equipment and subject to the FCC part 18 approval procedure. It useds the RF energy to damage the hair structure and then remove it.

The brief circuit description is shown as follows:
Q_1 and the associated circuit act as an oscillator.
Q_2 , Q_3 and the associated circuit act as a power amplifier and output control.
IC4042 act as a control unit.

1.2 Related Submittal(s) Grants

This is a single application for certification of ISM equipment.

1.3 Test Methodology

Radiated emission measurements was performed according to the procedures in MP-5. 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 Section 5 and 6 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 emission data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.

1.5 Equipment List

1) Radiated Emissions Test for FCC Part 18

Equipment	Registration No.	Manufacturer	Model No.	Serial No.	Calibration Due Date
Loop Antenna	EI034	EMCO	6502	9206-2706	August 1999
Spectrum Analyzer	EW-0134	Advantest	R3271	15060393	December 1999
Biconical Antenna	EI-088	CDI	B100 B200 B300	3098 3112 3118	December 1999

2) Disturbance Voltage Tests for FCC Part 18

Equipment	Registration No.	Manufacturer	Model No.	Serial No.	Calibration Due Date
EMI Test Receiver	EI-025	R&S	ESHS30	827128/009	December 1999
LISN	EI-130	R&S	ESH3-Z5	840731/013	February 1999

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in MP-5.

The EUT was powered from 120V AC mains.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it).

For simplicity of testing, the unit was wired to transmit continuously.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the button is depressed, the EUT emits the RF noise. For simplicity of testing, the EUT was wired to emit the RF noise continuously.

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

2.4 Equipment Modification

Any modifications installed previous to testing by Soft Lines Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

2.5 Support Equipment List and Description

This product was tested in a standalone configuration.

All the items listed under section 2.0 of this report are

Confirmed by:

Samuel Wu
Manager
Intertek Testing Services
Agent for Soft Lines Ltd.


Signature

February 25, 1999 Date

EXHIBIT 3

EMISSION RESULTS

3.0 **Emission Results**

Data is included 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.

3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

3.1 Field Strength Calculation (cont)

Example

Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB

AV = -10 dB

FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 dBμV/m

Level in mV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

4.365 MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated.jpg

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 16.5 dB

TEST PERSONNEL:

Signature

Kenneth H.M.Lam, Compliance Engineer
Typed/Printed Name

February 25, 1999
Date

Company: Soft Lines Ltd. Date of Test: 14 January, 1999
Model: AP-9FEA

Table 1

Radiated Emissions

Frequency (MHz)	Reading (dBµV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Distance Factor (-dB)	Net at 300m (dBµV/m)	Limit at 300m (dBµV/m)	Margin (dB)
1.265	21.6	11.0	16	40	-23.4	5.6	-29.0
2.915	23.4	11.8	16	40	-20.8	-1.7	-19.1
4.365	22.6	11.7	16	40	-21.7	-5.2	-16.5
5.140	19.5	11.7	16	40	-24.8	-6.6	-18.2
27.125	56.7	10.8	16	40	11.5	N/A*	N/A

Notes: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. The above data is measured by the loop antenna.

Test Engineer: Kenneth H.M.Lam

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: ophoto1.jpg to ophoto2.jpg and iphoto1.jpg to iphoto4.jpg

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and the label location are saved with filename: label.pdf

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

For electronic filing, the block diagram and schematics are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7

INSTRUCTION MANUAL

7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf

This manual will be provided to the end-user with each unit sold/leased in the United States.