Intertek Testing Services
ETL Testing Laboratories

Greatsino Ltd.

Application
For
Certification

900MHz Cordless Telephone

(FCC ID: NQL9830)

WO# 98021741
CKL/at
May 4, 1998

FCC ID: NQL9830

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Telephone (852) 2746 8600 Fax (852) 2785 5487

ITS Intertek Testing Services
ETL Testing Laboratories

May 4, 1998

Federal Communications Commission
c/o Mellon Bank
Three Mellon Bank
525 William Penn Way
27th Floor, Room 153-2713
Pittsburgh, PA 15251-5315
Attn: Wholesale Lockbox Shift Supervisor

To The Federal Communications Commission:

Enclosed you will find an original Part 15 Application for Certification for Greatsino Ltd. (FCC ID: NQL9830).

Also enclosed you will find a check in the amount of $895.00 to cover the application fee.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

C. K. Lam
Assistant Manager

CKL
Enclosure

FCC ID: NQL9830

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Telephone (852) 2746 8600 Fax (852) 2785 5487

LIST OF EXHIBITS

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EXHIBIT 1
GENERAL DESCRIPTION

SMOOTHLINE LIMITED

2608 Miramar Tower, 1 Kimberley Road, TST Kowloon Hong Kong
Tel: 2480-3396(10 Lines) Fax:2480-3463, 2420-4961

CIRCUIT DESCRIPTION OF 9043

HAND SET :

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.5 of CN1 is connected to IC2B Pin no.15 Expander input. The audio output from IC2B Pin no.19 is finally amplified by Q2 and a.c coupled to the Receiver unit with HAC compatibility.

The demodulated data code from CN1 Pin no.5 is fed to IC1B Pin no.7 of IC1B is connected to (DATA IN) Pin no.14 of IC4.

Voice signal from C-MIC is coupled to Pin no.8 of IC2. The voice signal is compressed by IC2 & output Pin no.1 is connected to Pin no.11 of CN1 for modulation.

Pin no.31 of IC4 is the output port for data code that should be transmitted to the base unit. This data code is connected to the Pin no.11 of CN1 for modulation.

During the charging, it is detected by IC4 Pin no.5.

Key board operation is monitored by Pin no.11,16~18,28~30 of IC4.

Key Tone and the ringing from Pin no.10 of IC4 drives the BUZZER.

SMOOTHLINE LIMITED
2608 Miramar Tower, 1 Kimberley Road, TST Kowloon Hong Kong
Tel: 2480-3396(10 Lines) Fax:2480-3463, 2420-4961

BASE UNIT :

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.5 of CN1 is sent to IC102 (Compander IC) Pin no.15 for Expansion. The expended audio signal output from Pin no.19 is coupled to Q107,108 during the TELE mode. The audio signal is sent to the Telephone Line via hybrid Transformer HY101.

The demodulated data code from CN101 Pin no.5 is Generated by IC101A. Its output is connected to CODE Input Pin no.11 OF IC4.

The Audio signal receiving from TEL-LINE is input to IC102 Pin no.2 for compression. The compressed audio signal from Pin no.3 of IC102 is connected to Pin no.11 of CN101 for modulation.

Pin no.55 of IC4 is the output port for data codes that should be transmitted to the handset. the data code is connected to Pin no.11 of CN101 for modulation.

Relay controlling is done by Pin no.50 of IC4.
Ring signal monitored by PC102 (PHOTO COUPLER IC) is detected by Pin no.4 of IC4 resulting a data code to the handset.

DTMF dialling is generated by IC4 Pin no.31 this signal output through the Q110.

When the handset is placed on the base cradle, the charging is detected by Pin no.48 of IC4 and IC4 sends data codes to handset for security code setting.

SMOOTHLINE LIMITED

2608 Miramar Tower, 1 Kimberley Road, TST Kowloon Hong Kong
Tel: 2480-3396(10 Lines) Fax:2480-3463, 2420-4961

When the handset is far away form bas unit, squelch circuit of IC302 operates and Pin no.11 of IC302 goes "HI". This will be detected by the micro processor and after 20 secs. go to Stand by mode.

The power to the base unit is supplied by IC12 (6v REGULATOR IC).

Key det, answering system control by pin no.56~63 of IC4.

LED display control Pin no.38,39 of IC4.

Mail box INDICATOR controled by Pin no.8,40,51 of IC4.

Answering System control by Pin no.35 and Pin no.12~24 of IC4.

ICM signal come through IC1A.

All of the voice signal memoried in IC7 through IC6.

DATE : MAR. 17, 1998

D. O. AHN
ENGINEERING MANAGER
SMOOTHLINE LTD.

900MHz DESCRIPTION OF CIRCUIT

1. BASE RF MODULE

1) RX PART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AN RF LOW NOISE AMPLIFIER, A BAND PASS FILTER, A ACTIVE TRANSISTOR MIXER, A MONOLITHIC CRYSTAL FILTER AND 10.7MHz IF AMPLIFIER.

ALSO IT INCLUDES BUFFER AMPLIFIERS FOR THE GENERATION OF LOCAL OSCILLATOR POWER.

THIS FRONT-END RECEIVER RECEIVERS AN RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 926.12MHz~927.29MHz PASS THROUGH RF AMP (Q303) AND BAND PASS FILTER, SAW FILTER.

AFTER PASSING THROUGH THE BAND PASS FILTER AND SAW FILTER, THE SIGNAL IS MIXED WITHIN 1'ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE IF AMP TRANSISTOR (Q305) AND THE SIGNAL PASS THROUGH THE MONOLITHIC CRYSTAL FILTER (10.7MHz). AFTER THE IF SIGNAL PASS THE MCF FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC. AND THE SIGNAL IS MIXED IN THE FM IF IC (MC3361). THE SIGNAL PASS THROUGH THE CERAMIC FILTER (450KHz). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR TO THE BASE.

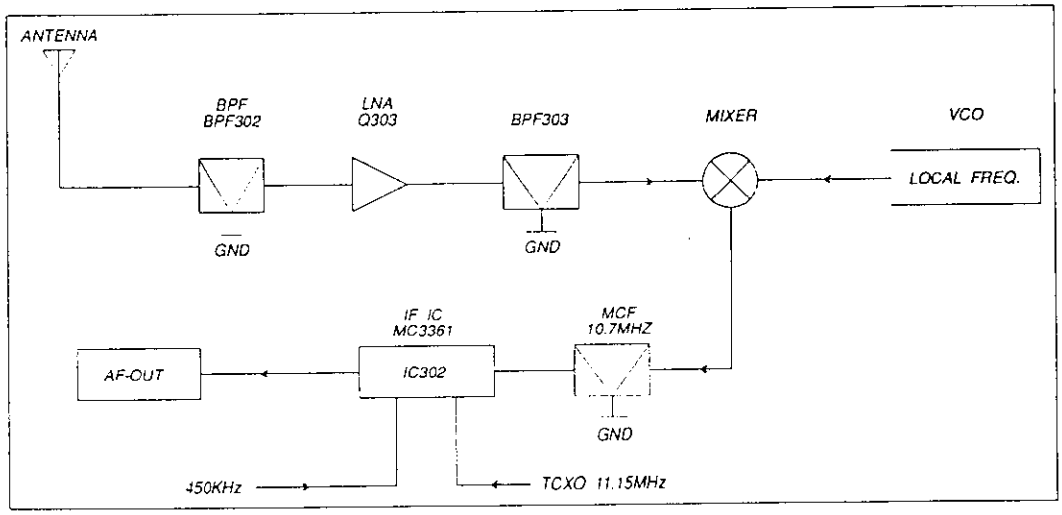


FIG. 1

2) TX PART

THE SIGNAL IS MAD TO THE PORTABLE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR.

THE SIGNAL SEND THE MOD TERMINAL OF THE TX VCO.

THE SIGNAL IS MIXED IN THE TX VCO MIXING THE RF SIGNAL, THE RF SIGNAL ADJUST THE TRIMMER CAPACITOR VC301).

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR (Q301, Q302). ENTER BY THE BAND PASS FILTER.

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TOWARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 902.12MHz ~ 903.29MHz.

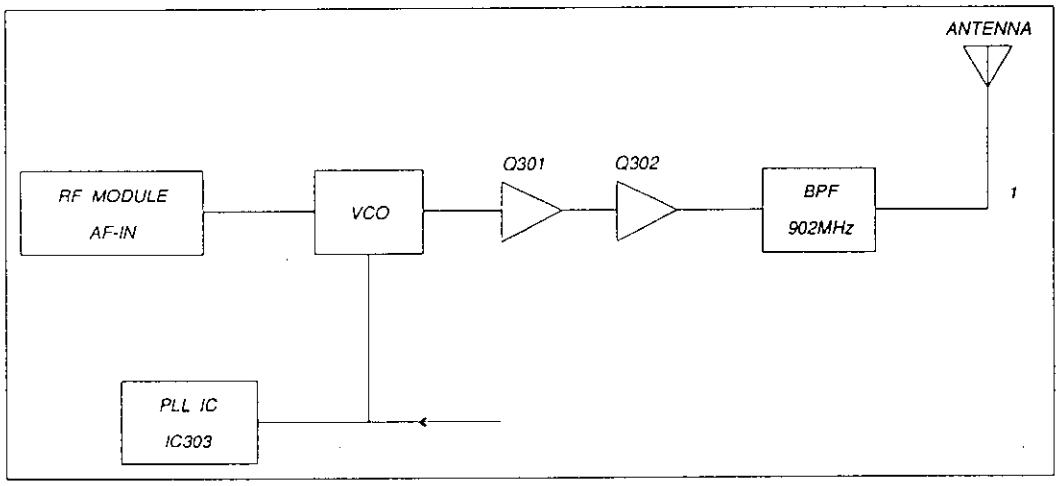


FIG. 2

2. PORTABLE RF MODULE

1) RX PART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AN RF LOW NOISE AMPLIFIER, A BPF, A ACTIVE TRANSISTOR MIXER, A MONOLITHIC CRYSTAL FILTER AND 10.7MHz "IF" AMPLIFIER.

ALSO IT INCLUDES BUFFER AMPLIFIERS OR THE GENERATION OF LOCAL OSCILLATOR POWER.

THIS FRONT-END RECEIVERS AN RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 902.12MHz ~ 903.29MHz PASS THROUGH RF AMP (Q303) AND BAND PASS FILTER.

AFTER PASSING THROUGH THE BAND PASS FILTER, THE SIGNAL IS MIXED WITHIN 1'ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE IF AMP TRANSISTOR (Q301) AND THE SIGNAL PASS THROUGH THE MONOLITHIC CRYSTAL FILTER (10.7MHz) AFTER THE IF SIGNAL PASS THE MCF FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC. AND THE SIGNAL IS MIXED IN THE FM IF IC (MC3361). THE SIGNAL PASS THROUGH THE CERAMIC FILTER (450KHz). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR 1 TO THE BASE.

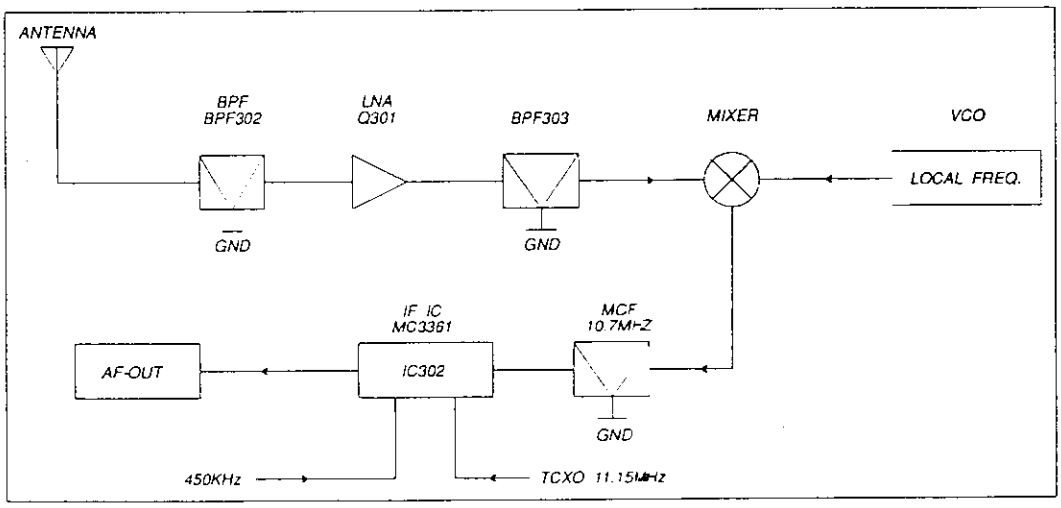


FIG.3

2) TX PART

THE SIGNAL IS MADE TO THE PORTABLE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR.

THE SIGNAL SEND THE MOD TERMINAL OF THE TX VCO.

THE SIGNAL IS MIXED IN THE TX VCO MIXING THE RF SIGNAL, THE RF SIGNAL ADJUST THE TRIMMER CAPACITOR (VC301).

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR (Q304 Q305). THE SIGNAL IS AMPLITUDE IN THE Q304,Q305. ENTER BY THE BAND PASS FILTER.

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TOWARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 926.12MHz ~ 927.29MHz.

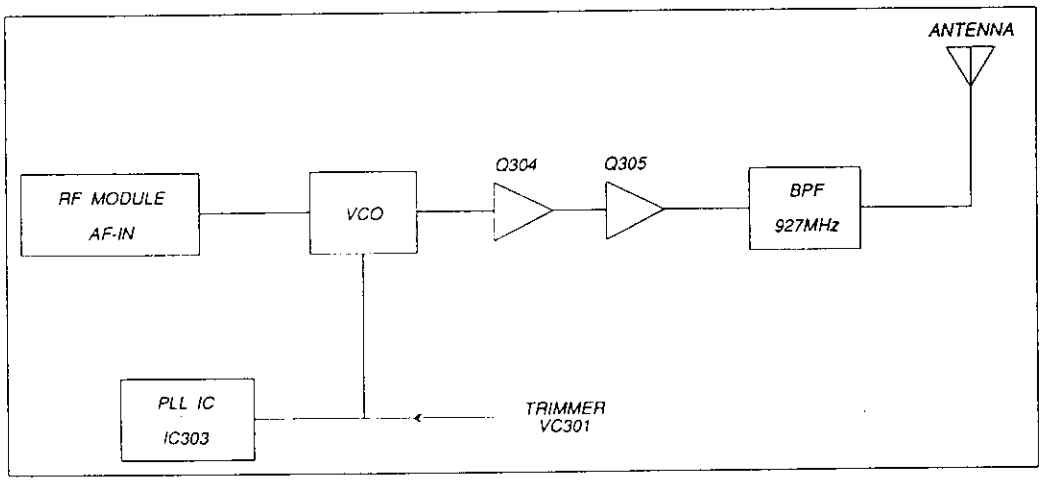


FIG.4

- CHANNEL SPACE : 30KHz
- 1'ST I.F : 10.7MHz
- 2'ND I.F : 450KHz
- TCXO(X-TAL) : 11.15MHz

CH	BASE(MHZ)		PORTABLE(MHZ)	
	TX	LOCAL(10.7)	TX	LOCAL(10.7)
1	902.12	936.82	926.12	891.42
2	902.15	936.85	926.15	891.45
3	902.18	936.88	926.18	891.48
4	902.21	936.91	926.21	891.51
5	902.24	936.94	926.24	891.54
6	902.27	936.97	926.27	891.57
7	902.30	937.00	926.30	891.60
8	902.33	937.03	926.33	891.63
9	902.36	937.06	926.36	891.66
10	902.39	937.09	926.39	891.69
11	902.42	937.12	926.42	891.72
12	902.45	937.15	926.45	891.75
13	902.48	937.18	926.48	891.78
14	902.51	937.21	926.51	891.81
15	902.54	937.24	926.54	891.84
16	902.57	937.27	926.57	891.87
17	902.60	937.30	926.60	891.90
18	902.63	937.33	926.63	891.93
19	902.66	937.36	926.66	891.96
20	902.69	937.39	926.69	891.99
21	902.72	937.42	926.72	892.02
22	902.75	937.45	926.75	892.05
23	902.78	937.48	926.78	892.08
24	902.81	937.51	926.81	892.11
25	902.84	937.54	926.84	892.14
26	902.87	937.57	926.87	892.17
27	902.90	937.60	926.90	892.20
28	902.93	937.63	926.93	892.23
29	902.96	937.66	926.96	892.26
30	903.99	937.69	926.99	892.29
31	903.02	937.72	927.02	892.32
32	903.05	937.75	927.05	892.35
33	903.08	937.78	927.08	892.38
34	903.11	937.81	927.11	892.41
35	903.14	937.84	927.14	892.44
36	903.17	937.87	927.17	892.47
37	903.20	93790	927.20	892.50
38	903.23	937.93	927.23	892.53
39	903.26	937.96	927.26	892.56
40	903.29	937.99	927.29	892.59

1.2 Related Submittal(s) Grants

This is an Application for Certification of a cordless telephone system. Two transmitters are included in this Application. This specific report details the emission characteristics of each transmitter. The receivers are subject to the verification authorization process, in accordance with 15.101(b). A verification report has been prepared for the receiver sections of each device. The device is also subject to Part 68 Registration.

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 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.

EXHIBIT 2
SYSTEM TEST CONFIGURATION

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. The handset was powered by a fully charged battery.

For the measurements, the EUT is attached to a cardboard box and placed on the wooden turntable. If the base unit attaches to peripherals, they are connected and operational (as typical as possible). The handset is remotely located as far from the antenna and the base as possible to ensure full power transmission from the base. Else, the base 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. Analyzer resolution is 100 kHz or greater. All emissions greater than 20 dBμV/m are recorded.

Radiated emission measurement were performed from 30 MHz to tenth harmonics.

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 Support Equipment List and Description

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system (included inserted cards, which have grants) are:

HARDWARE:

The unit was operated standalone. An AC adapter (provided with the unit) was used to power the device. Its description is listed below.

(1) AC adapter with two meter unshielded power cord permanently affixed.

CABLES:

(1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated

OTHERS:

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

2.4 Equipment Modification

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

No modifications were installed by ETL Division, Intertek Testing Services Hong Kong Ltd.

All the items listed under section 2.0 of this report are confirmed by:

Confirmed by:

C. K. Lam
Assistant Manager
Intertek Testing Services
Agent for Greatsino Ltd.

_____ Signature

May 4, 1998
_____ Date

EXHIBIT 3
EMISSION RESULTS

3.0 **Emission Results**

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.

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 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

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 dBμV/m
RR = RA - AG in dBμV
LF = CF + AF in dB

Assume a receiver reading of 52.0 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, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV/m
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
FS = RR + LF
FS = 23 + 9 = 32 dBμV/m

RR = 23.0 dBμV
LF = 9.0 dB

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

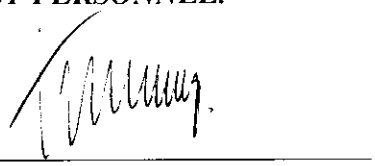
3.3 Radiated Emission Data - Base Unit

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

Judgement : Passed by 5.7 dB

****

TEST PERSONNEL:



Tester Signature

Tommy W. L. Leung, Engineer
Typed/Printed Name

April 20, 98
Date

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX-Channel 1

Date of Test: April 20, 1998

Table 1, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
H	902.120	68.2	32.0	16	84.2	94	-9.8
V	1804.240	37.7	26.5	34	30.2	54	-23.8
V	*3608.480	48.6	32.8	34	47.4	54	-6.6

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX-Channel 19

Date of Test: April 20, 1998

Table 2, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
H	902.660	68.8	32.0	16	84.8	94	-9.2
V	1805.323	37.6	26.5	34	30.1	54	-23.9
H	*3610.652	48.7	32.8	34	47.5	54	-6.5

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX-Channel 37

Date of Test: April 20, 1998

Table 3, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
H	903.204	69.3	32.0	16	85.3	94	-8.7
V	1806.408	38.2	26.5	34	30.7	54	-23.3
H	*3612.816	49.5	32.8	34	48.3	54	-5.7

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

Company: Greatsino Ltd. Date of Test: April 20, 1998
Model: MH9043B
Mode : Answering Machine & Charging

Table 4, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
V	58.968	37.3	11	16	32.3	40.0	-7.7
V	88.453	37.2	9	16	30.2	43.5	-13.3
V	103.196	28.6	12	16	24.6	43.5	-18.9
V	117.938	24.5	13	16	21.5	43.5	-22.0
V	147.423	27.2	13	16	24.2	43.5	-19.3
V	162.164	27.4	16	16	27.4	43.5	-16.1
V	206.391	31.3	17	16	32.3	43.5	-11.2
V	221.134	29.7	17	16	30.7	46.0	-15.3

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

3.5 Radiated Emission Data - Handset

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

Judgement : Passed by 6.2 dB

****

TEST PERSONNEL:

Tester Signature

Tommy W. L. Leung, Engineer
Typed/Printed Name

April 20, 98
Date

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX-Channel 1

Date of Test: April 20, 1998

Table 5, Handset

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
H	926.120	66.1	33.0	16	83.1	94	-10.9
V	1852.241	40.9	26.5	34	33.4	54	-20.6
H	*2778.362	52.7	29.1	34	47.8	54	-6.2
H	*3704.482	39.4	32.8	34	38.2	54	-15.8
H	*4630.604	37.6	34.0	34	37.6	54	-16.4

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX-Channel 20

Date of Test: April 20, 1998

Table 6, Handset

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
H	926.705	65.8	33.0	16	82.8	94	-11.2
V	1853.410	41.7	26.5	34	34.2	54	-19.8
H	*2780.116	52.4	29.1	34	47.5	54	-6.5
H	*3706.824	39.3	32.8	34	38.1	54	-15.9
H	*4633.527	36.2	34.0	34	36.2	54	-17.8

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX-Channel 40

Date of Test: April 20, 1998

Table 7, Handset

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)
H	927.290	65.1	33.0	16	82.1	94	-11.9
V	1854.580	41.0	26.5	34	33.5	54	-20.5
H	*2781.870	51.1	29.1	34	46.2	54	-7.8
H	*3709.162	39.9	32.8	34	38.7	54	-15.3
H	*4636.451	32.4	34.0	34	32.4	54	-21.6

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. 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. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Tommy W. L. Leung

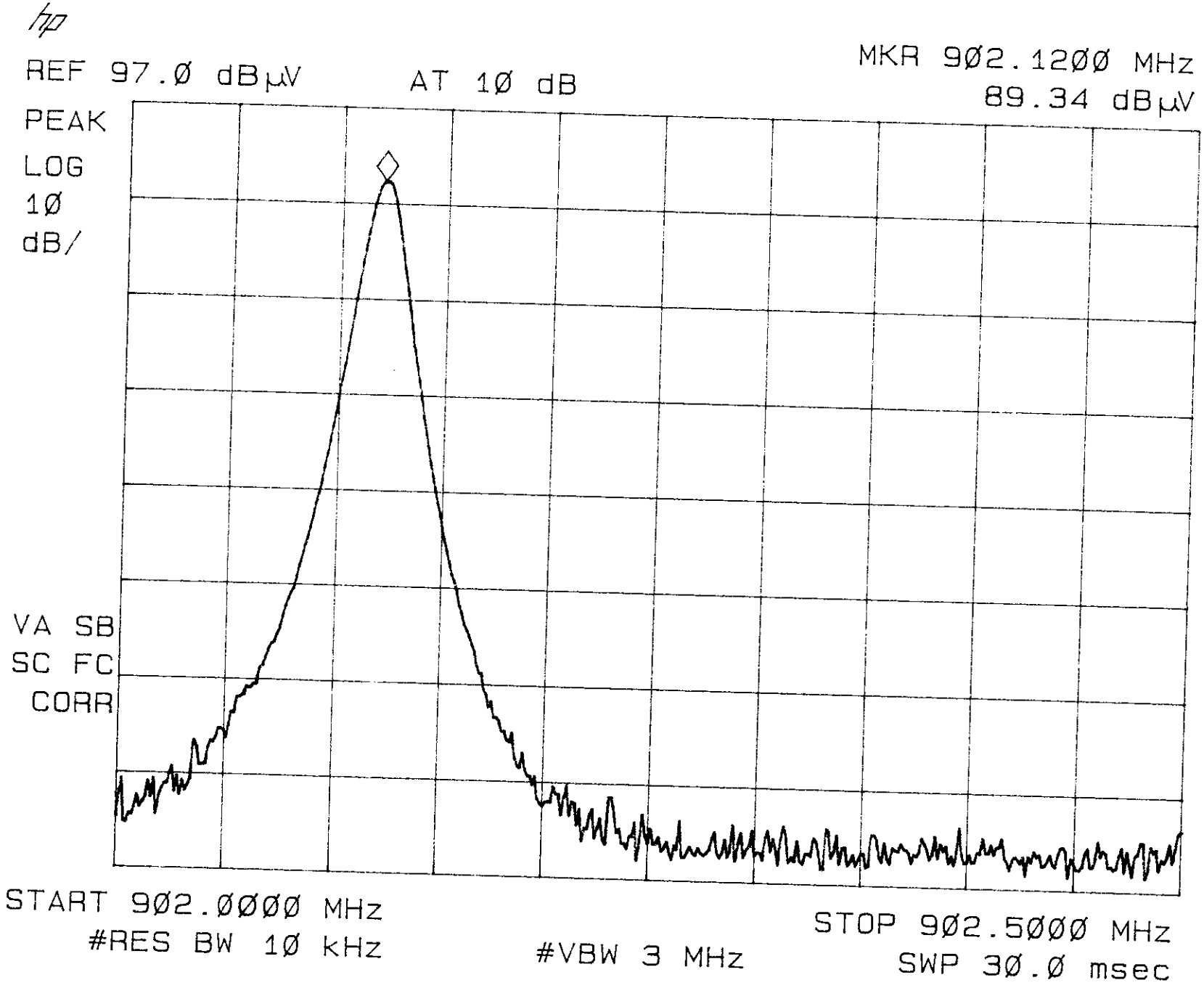
3.6 Radiated Emission on the bandedge

From the following plot, it shows that the fundamental emission is confined in the specified band. And there are shows that the emissions are at least 60 dB below the carrier level at band edge (902 and 928 MHz). It meet the requirement of section 15.249(c).

Emission Plot -Base

FCC ID: NQL9830

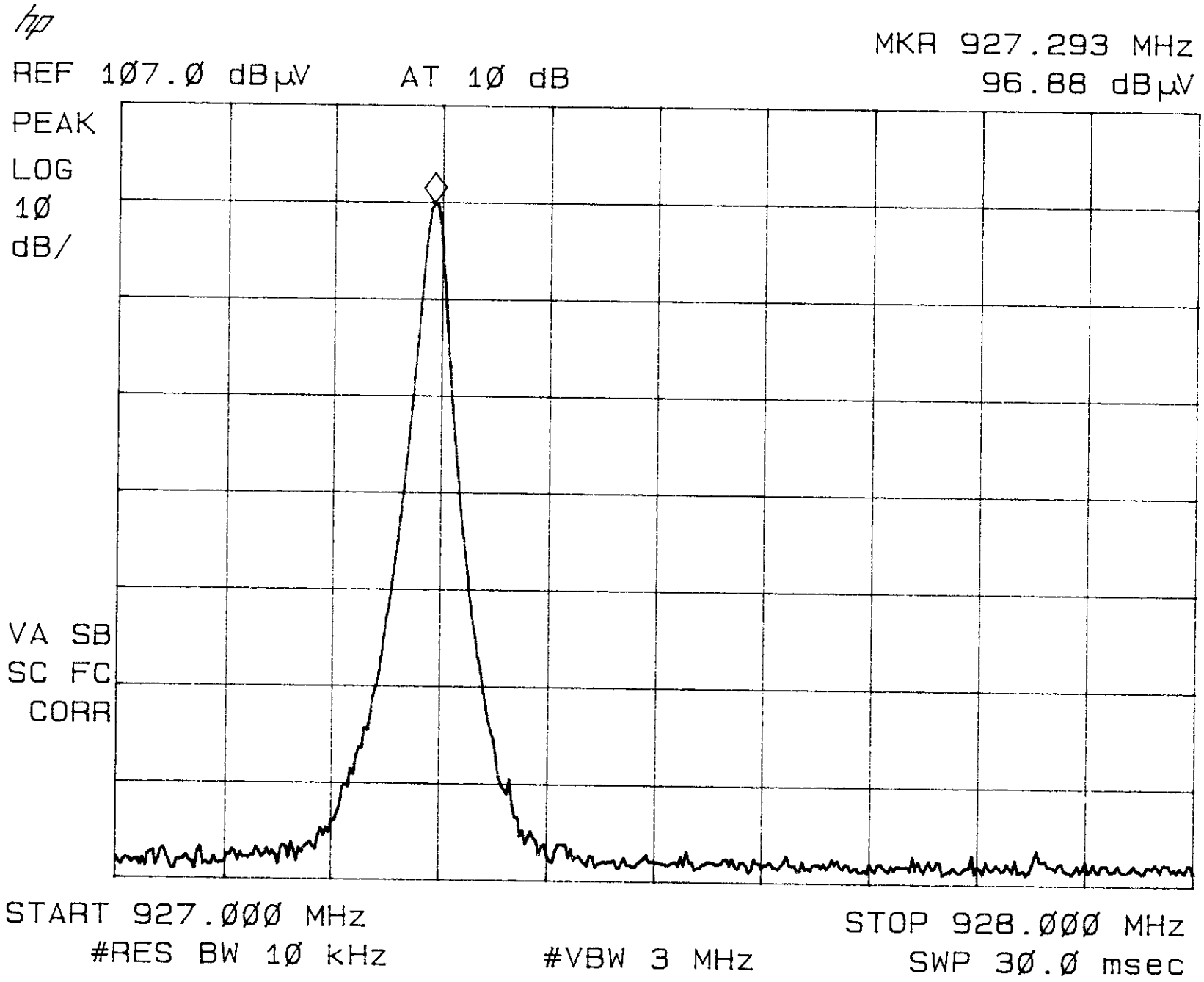
Base Unit, Channel 1



Emission Plot - Handset

FCC ID: NQL9830

Handset, Channel 40



3.8 Line Conducted Emission Configuration Data

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

Judgement : Passed by more than 30 dB margin

TEST PERSONNEL:

Tester Signature

Tommy W. L. Leung, Engineer
Typed/Printed Name

April 20, 98
Date

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX

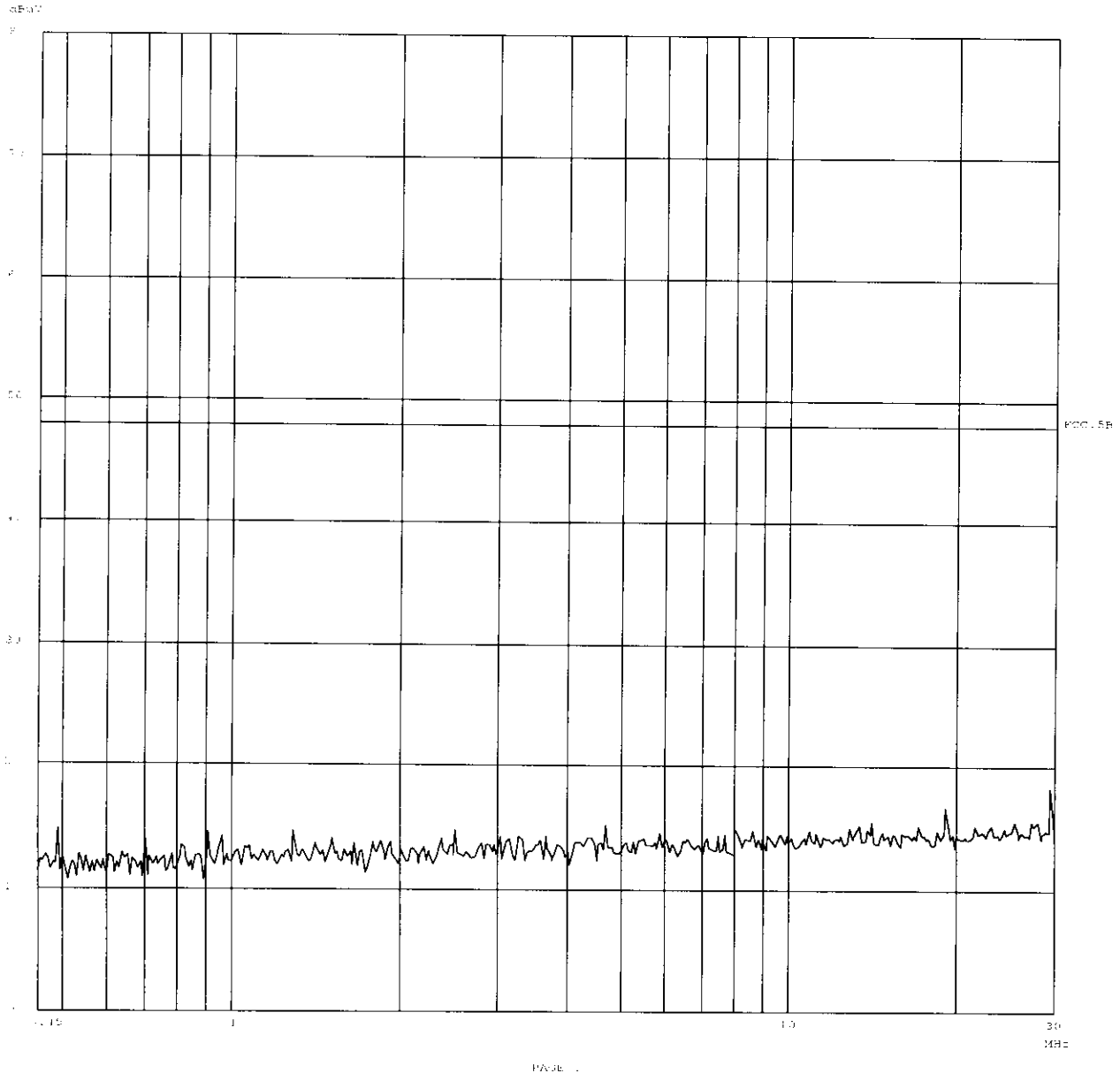
Date of Test: April 20, 1998

Graph 1, Base Unit

Conducted Emissions

Mode: TX

Report No.: 98021741



Ctrl. No.: N/A

FCC ID: NQL9830

Company: Greatsino Ltd.
Model: MH9043B
Mode : TX

Date of Test: April 20, 1998

Table 8, Base Unit

Conducted Emissions

Mode: TX

Report No.: 98021741

Tested By:Hong, Report No.:98021741
Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450k	30M	5k	10k	PK	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

no Results

Ctrl. No.: N/A

FCC ID: NQL9830

Company: Greatsino Ltd.
Model: MH9043B
Mode : Charging

Date of Test: April 20, 1998

Graph 2, Base Unit

Conducted Emissions

Mode = Charging

Report No.: 98021741

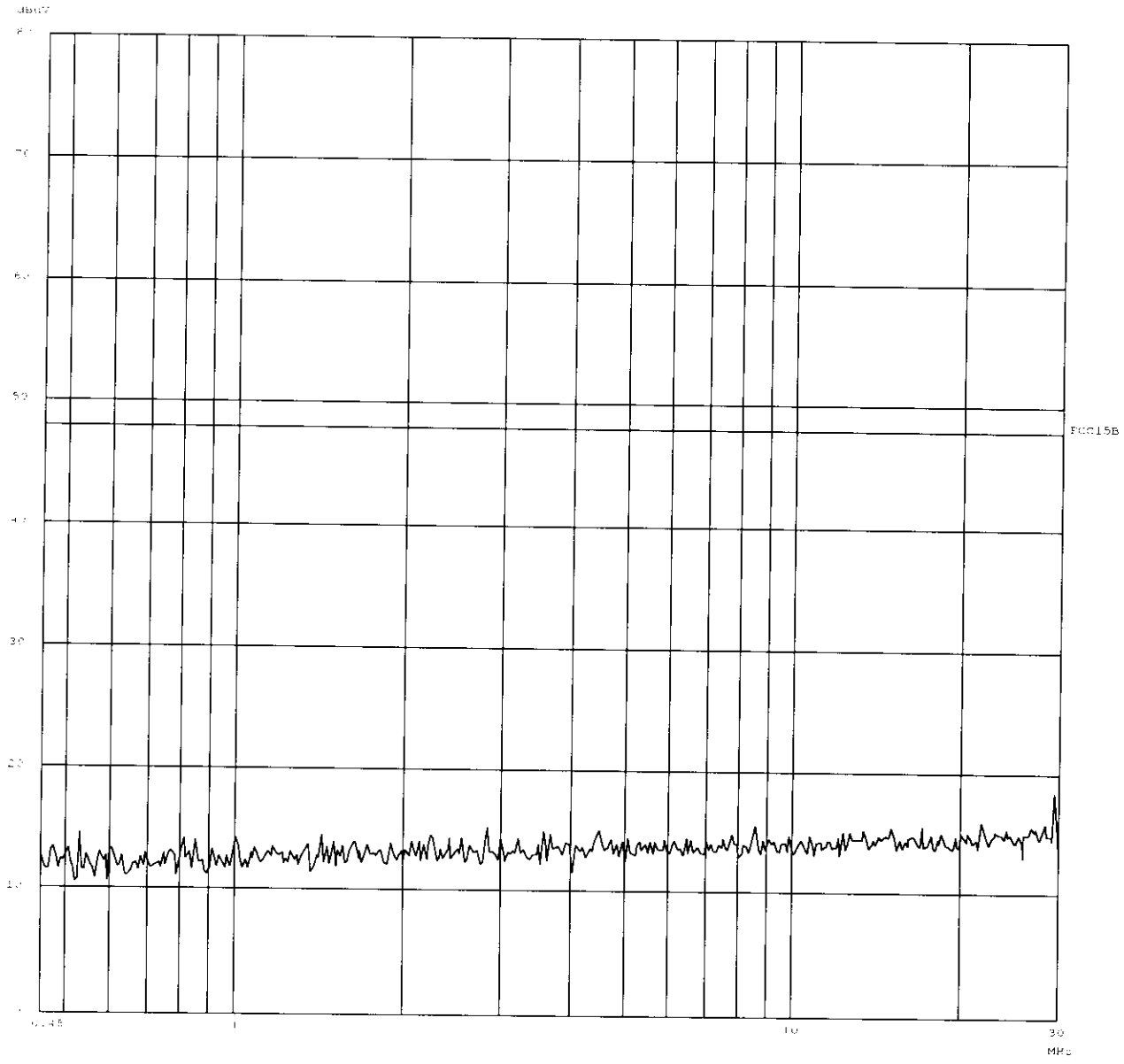
Tested By:Hong, Report No.:98021741
Scan Settings: 1 Range,

Frequencies				Receiver Settings			
Start	Stop	Step	IF BW	Detector	M Time	Atten	Preamp
450k	30M	5k	10k	PK	20ms	AUTO	ON OFF

OpRge: 60dB

Final Measurement: 2 QP
Meas Time: 1 s
Subranges: 10
Amb Margin: 10dB

Transducer No.	Start	Stop	Name
3	9k	30M	E107B



Ctrl. No.: N/A

FCC ID: NQL9830

Company: Greatsino Ltd.
Model: MH9043B
Mode : Charging

Date of Test: April 20, 1998

Table 9, Base Unit

Conducted Emissions

Mode = Charging

Report No.: 98021741

Tested By:Hong, Report No.:98021741
Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450k	30M	5k	10k	PK	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

no Results

Ctrl. No.: N/A

FCC ID: NQL9830

Company: Greatsino Ltd.
Model: MH9043B
Mode : Stand by

Date of Test: April 20, 1998

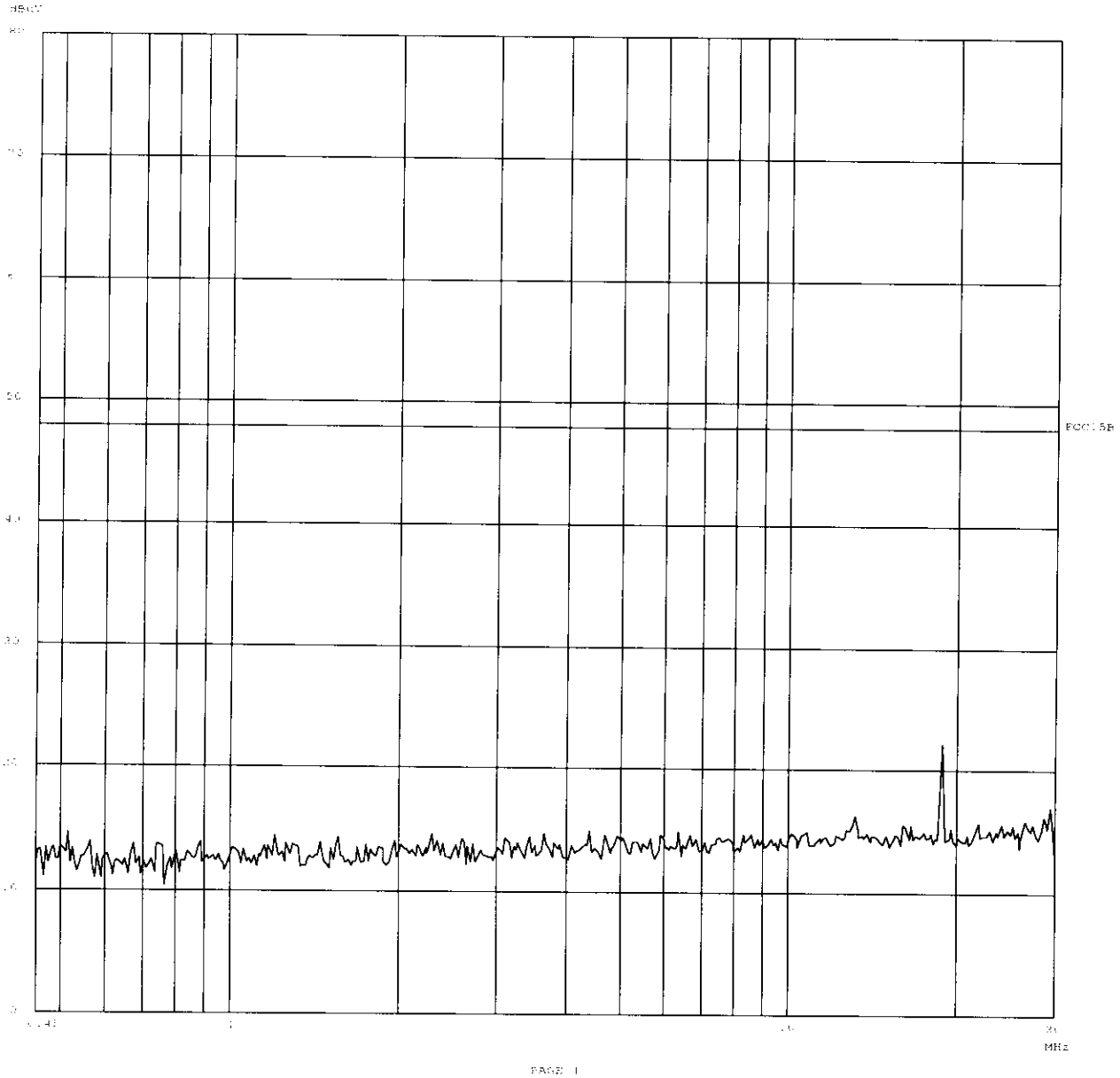
Graph 3. Base Unit

Conducted Emissions

Intertek Testing Services
ETL Testing Laboratories

Mode = Stand By

Report No.: 98021741



Ctrl. No.: N/A

FCC ID: NQL9830

Company: Greatsino Ltd.
Model: MH9043B
Mode : Stand by

Date of Test: April 20, 1998

Table 10, Base Unit

Conducted Emissions

Mode = Stand By

Report No.: 98021741

Tested By:Hong, Report No.:98021741
Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450k	30M	5k	10k	PK	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

no Results

Ctrl. No.: N/A

EXHIBIT 4
EQUIPMENT PHOTOGRAPHS

4.0 **Equipment Photographs**

Photographs of the tested EUT are attached.