ECMG Worldwide Certification Solutions™
EMC Compliance Management Group
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NVLAP LAB CODE: 200068-0
ISO/IEC 17025:1999, ISO 9002:1994

EMI Test Report

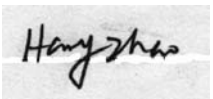
On Model Name: Hand-held Type Digital Storage Oscilloscope
Model Numbers: HDS1022 / HDS1022M / HDS1042 / HDS1042M / HDS2022 / HDS2022M / HDS2042 / HDS2042M / HDS2062 / HDS2062M / HDS2102 / HDS2102M / HDS3042 / HDS3042M / HDS3062 / HDS3062M / HDS3102 / HDS3102M / HDS4062 / HDS4062M / HDS4102 / HDS4102M / HDS4202 / HDS4202M
Brand Names: LILLIPUT / OWON
Trademarks: LILLIPUT / OWON

FCC ID: TXF-OWON2005DS01
Prepared for Zhangzhou Lilliput Optoelectronics Institute Co., Ltd.

According to FCC Part 15, Class B

Test Report #: *ZHA-0512-5055-FCC*
Prepared by: *Chris Huang*

QC Manager: *Harry Zhao*

Test Report Released by: 

Harry Zhao *Date* *2006，February 9*

Test Location

Tests performed at EMC Compliance Management Group (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

Test Site Location:	*Fujian Provincial Central Inspection Institute* *121 XiMenwai, ShanTouJiao, West YangQiao Road, Fuzhou, FuJian , PRC*
Tel:	*86-591-3729754*
Fax:	*86-591-3777049*
Registration Number:	*100213*

Accreditation Bodies

EMC Compliance Management Group is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.

In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public.

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.

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Administrative Data

Test Sample : Hand-held Type Digital Storage Oscilloscope

Model Numbers : HDS1022 / HDS1022M / HDS1042 / HDS1042M / HDS2022 / HDS2022M / HDS2042 / HDS2042M / HDS2062 / HDS2062M / HDS2102 / HDS2102M / HDS3042 / HDS3042M / HDS3062 / HDS3062M / HDS3102 / HDS3102M / HDS4062 / HDS4062M / HDS4102 / HDS4102M / HDS4202 / HDS4202M

Model Tested : HDS1022M

Brand Names : LILLIPUT / OWON

Trademarks : LILLIPUT / OWON

Date Tested : 2006, January 26th

Applicant : Zhangzhou Lilliput Optoelectronics Institute Co., Ltd.
The Mansion of Optoelectronic HengSan Road, Lantian Industrial Zone, Zhangzhou, Fujian, China

Telephone : 86-596-2130430

Fax : 86-596-2109815

Manufacturer : Zhangzhou Lilliput Optoelectronics Institute Co., Ltd.
The Mansion of Optoelectronic HengSan Road, Lantian Industrial Zone, Zhangzhou, Fujian, China

EUT Description

Zhangzhou Lilliput Optoelectronics Institute Co., Ltd. model HDS1022M (referred to as the EUT in this report) is a Hand-held Type Digital Storage Oscilloscope.

Type of Deriver

1. Model:

HDS1022	*HDS1022M*
HDS1042	*HDS1042M*
HDS2022	*HDS2022M*
HDS2042	*HDS2042M*
HDS2062	*HDS2062M*
HDS2102	*HDS2102M*
HDS3042	*HDS3042M*
HDS3062	*HDS3062M*
HDS3102	*HDS3102M*
HDS4062	*HDS4062M*
HDS4102	*HDS4102M*
HDS4202	*HDS4202M*

2. All the models mentioned above are the same on appearance, principle and circuit. Also they adapt the same component and PCB board; the main difference is as follow:
A: Different model has a different CPU menu. (changed software, different menu language, function increase/decrease)
B: The serial number of different model, represent different menu language, different input sample rating and different bandwidth.
The input sample rating of this serial oscilloscope storage multi-meter is 100M and the bandwidth is 20M collected in real-time, and
sample rating above 100M is real time sampling, bandwidth above 20M is equivalent sampling .
The sample is collected when the software is changed and the peripheral circuit is not disturbed.
C: Model without postfix is only oscilloscope function, model with postfix "M" is oscilloscope storage function, postfix is "F" with FFT function.

Description of "LILLIPUT/OWON" instrument model:
Model Format

H	DS	X	XX	X	X
1	2	3	4	5	6

1 :Handheld -----Hand
2 :DS ------Digital oscilloscope storage multi-meter

3 :SERIES	*1*	*sample rating 100M*
	2	*sample rating 250M*
	3	*sample rating 400M*
	4	*sample rating 1G*
4 :BANDWIDTH	*02*	*20M*
	04	*40M*
	06	*60M*
	10	*100M*
	20	*200M*
5 :CHANNEL	*1*	*1 channel*
	2	*2 channels*
6 :FUNCTION		*oscilloscope*
	M	*oscilloscope+multi-meter*

Tested sample is HDS1022M: 2 channels digital oscilloscope multi-meter. Its sample rating is 100M and the bandwidth is 20M, multi-meter is incidental.

Test Summary

The Electromagnetic Compatibility requirements on model tested HDS1022M for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	***Description***	***Test Results***	***Test Point***	***Remark***
ANSI C63.4 2003 Class B	*Conducted Emission*	**On Multimeter Mode** *Passed by 17.7 dB of QP* *Passed by 42.8 dB of AVE* **On Oscillograph Mode** *Passed by 16.4 dB of QP* *Passed by 42.5 dB of AVE* **On Transferring Mode** *Passed by 17.3 dB of QP* *Passed by 31.0 dB of AVE*	*AC Input Port*	*Attachment 1*
ANSI C63.4 2003 Class B	*Radiated Emission*	**On Multimeter Mode** *Passed by 3.3 dB of QP* **On Oscillograph Mode** *Passed by 3.3 dB of QP* **On Transferring Mode** *Passed by 1.3 dB of QP*	*Enclosure*	*Attachment 2*
Note: Multimeter Mode is to measure a resistance; Oscillograph Mode is to measure a voltage signal from a RC Oscillator; Transferring mode is to transfer storage data to PC.				

Video Mode Justification

The system was tested in two modes:
(1) Multimeter Mode: measuring a resistance.
(2) Oscillograph Mode: measuring a voltage signal from a RC Oscillator.
(3) Transferring mode: transferring storage data to PC.

Test Mode Justification

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

EUT Exercise Software

The EUT was not programmable and does not use any software. When EUT was connected to PC, a "copy and delete" program was executed.

Equipment Modification

Any modifications installed previous to testing by Zhangzhou Lilliput Optoelectronics Institute Co., Ltd. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by EMC Compliance Management Group (China) test personnel.

EUT Sample Photos for Model HDS1022M

General View

Front View #1

Back View #1

Left View #1

Right View #1

Top View #1

Bottom View #1

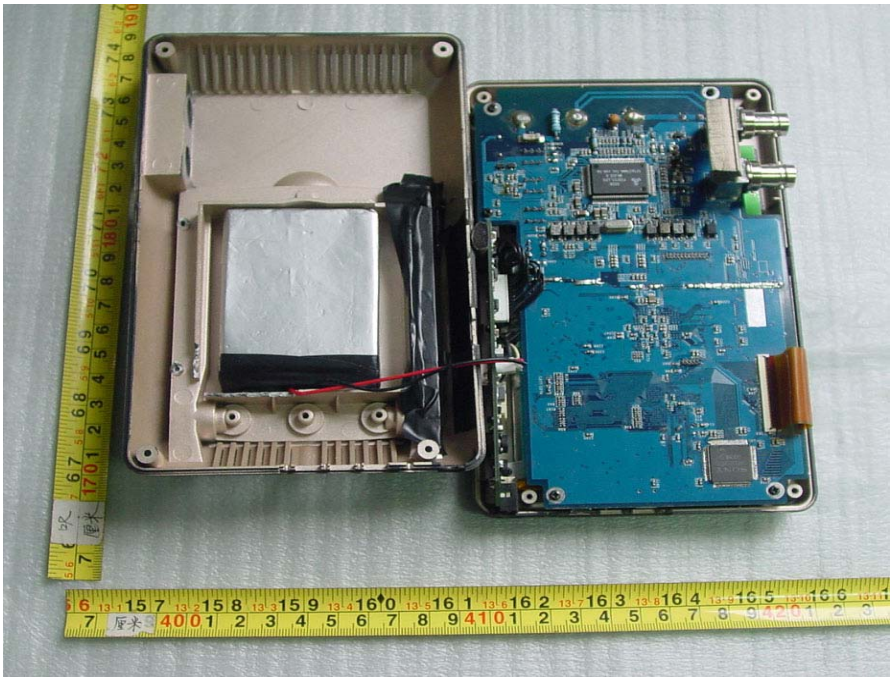
Front View #2

Left View #2

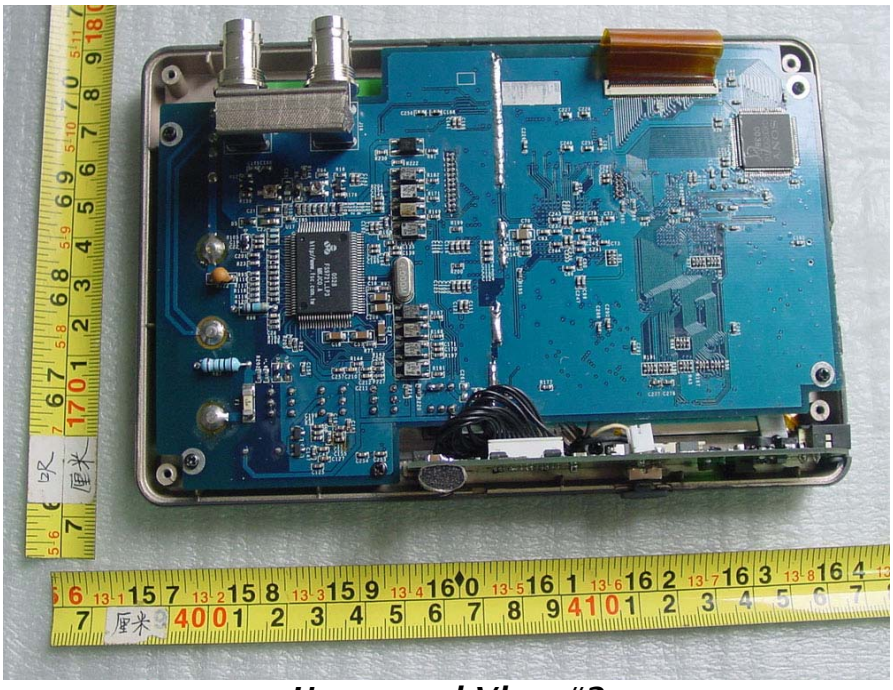
Right View #2

Top View #2

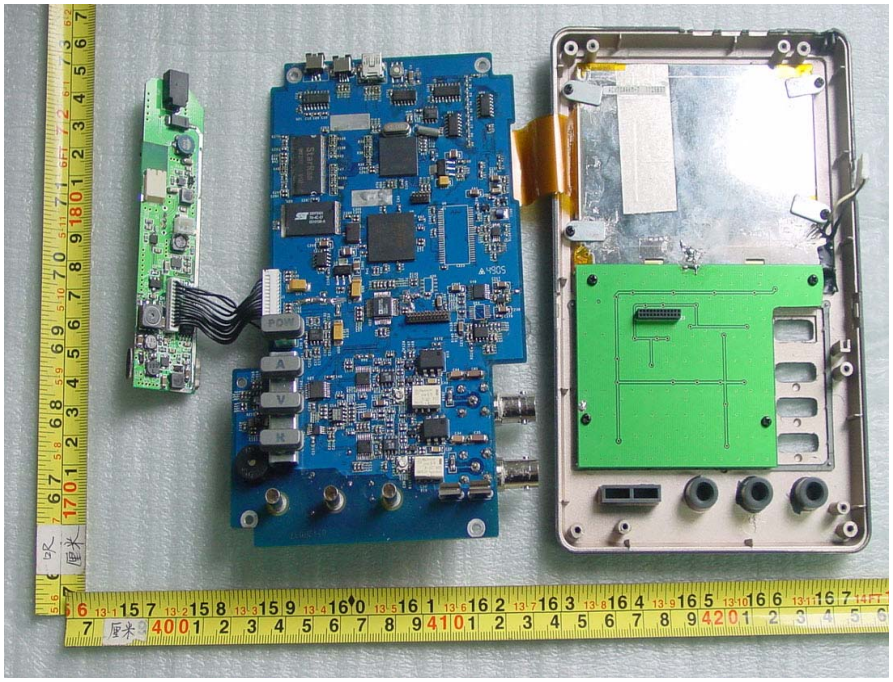
Bottom View #2



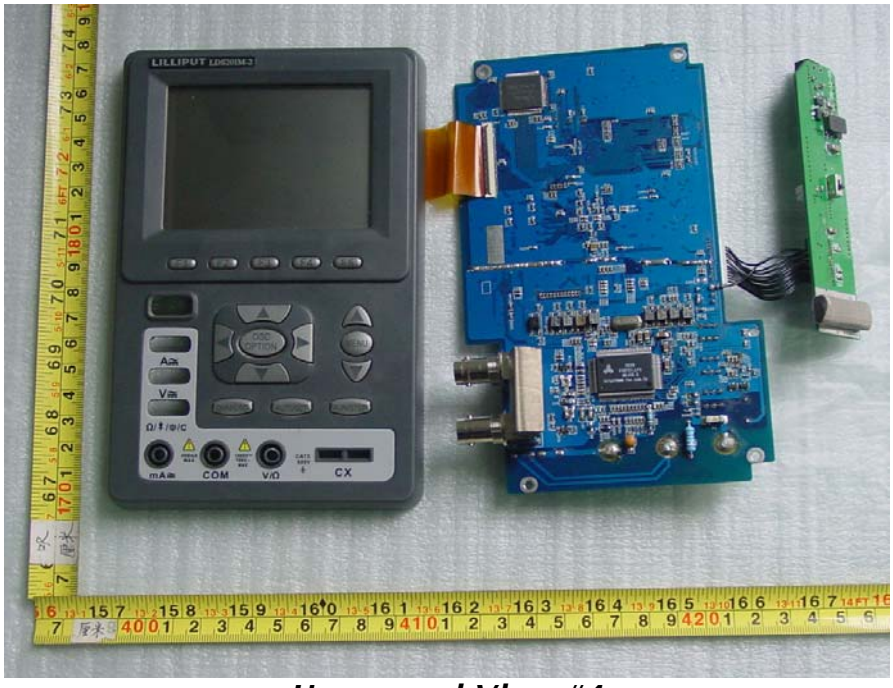
Uncovered View #1



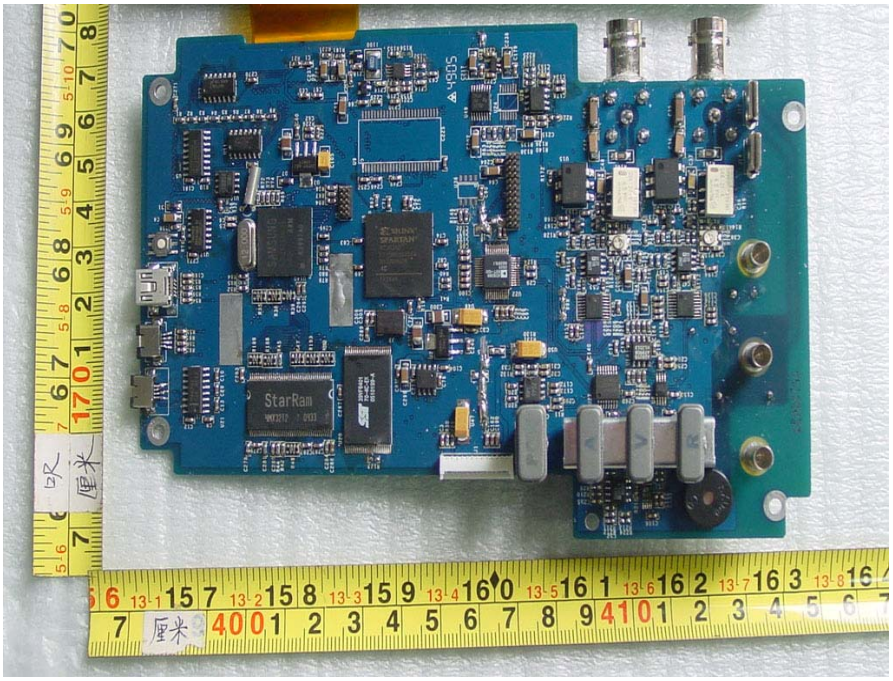
Uncovered View #2



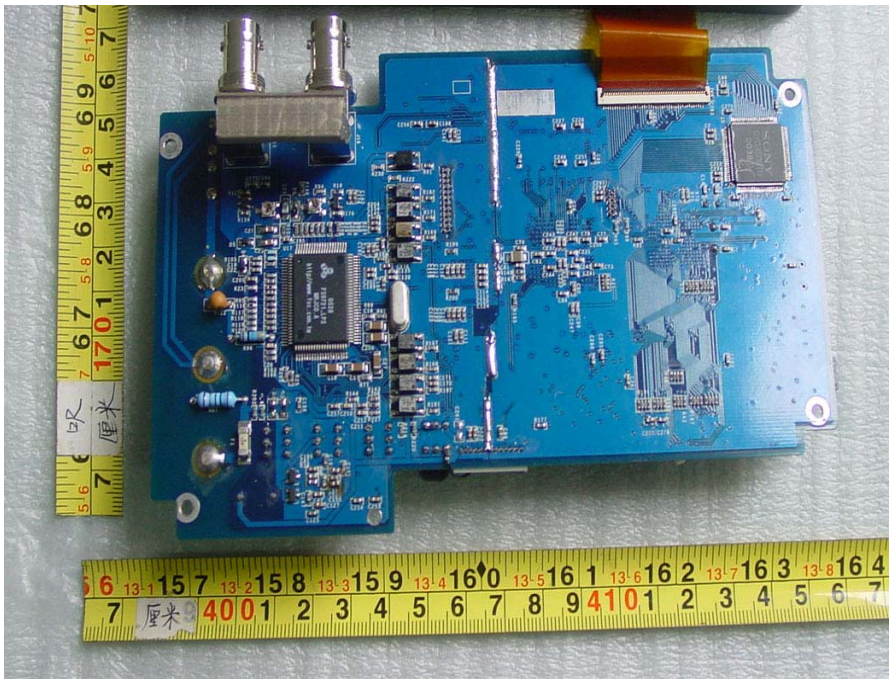
Uncovered View #3



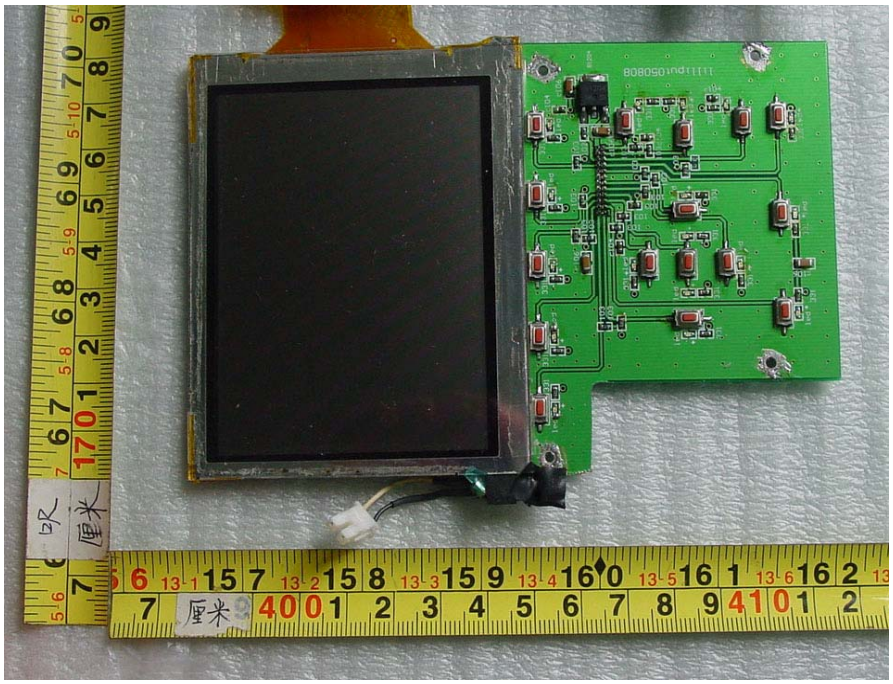
Uncovered View #4



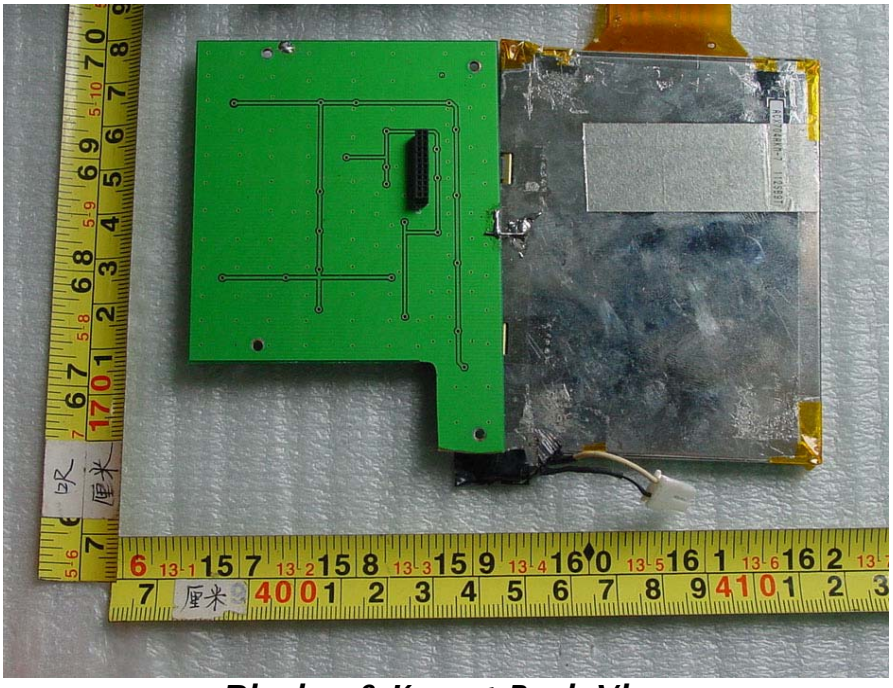
Main Board Front View



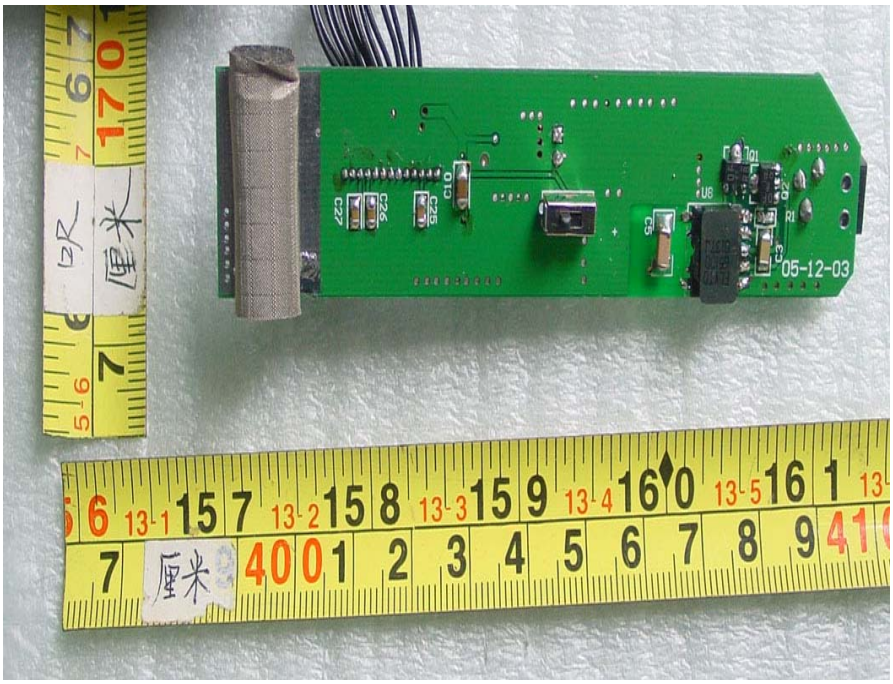
Main Board Back View



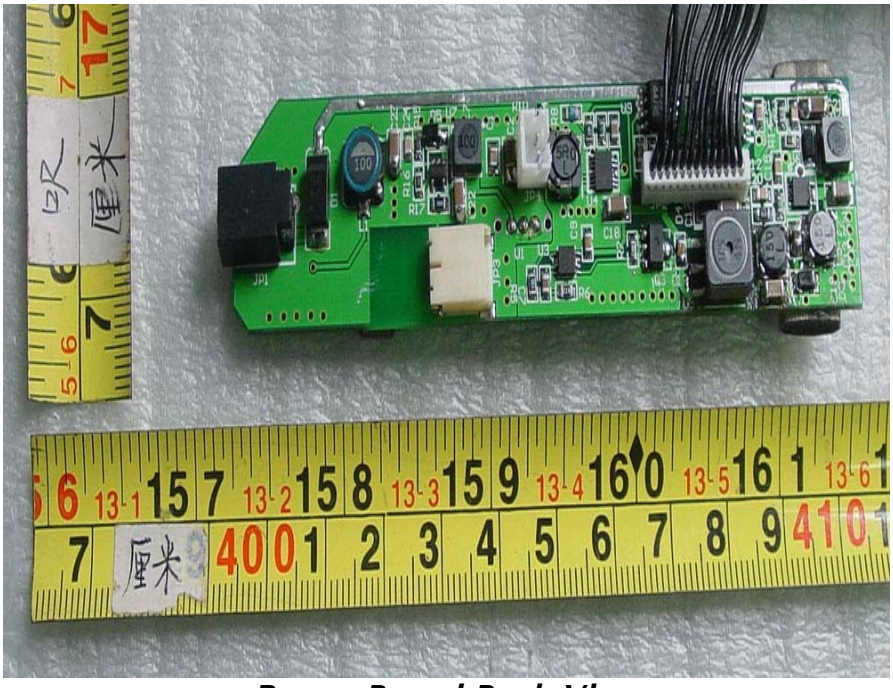
Display & Keyset Front View



Display & Keyset Back View



Power Board Front View



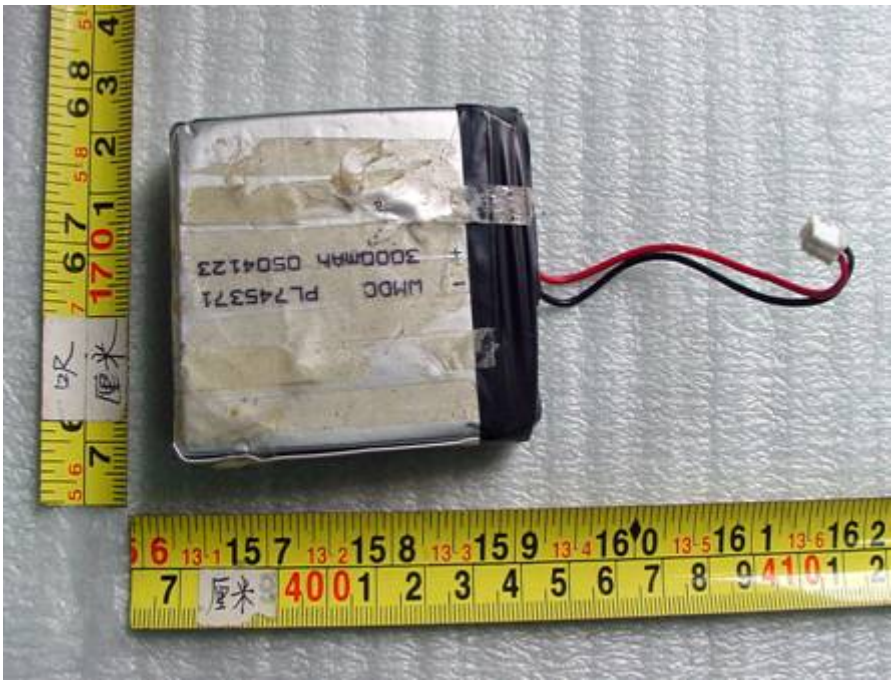
Power Board Back View

Adaptor - Front View

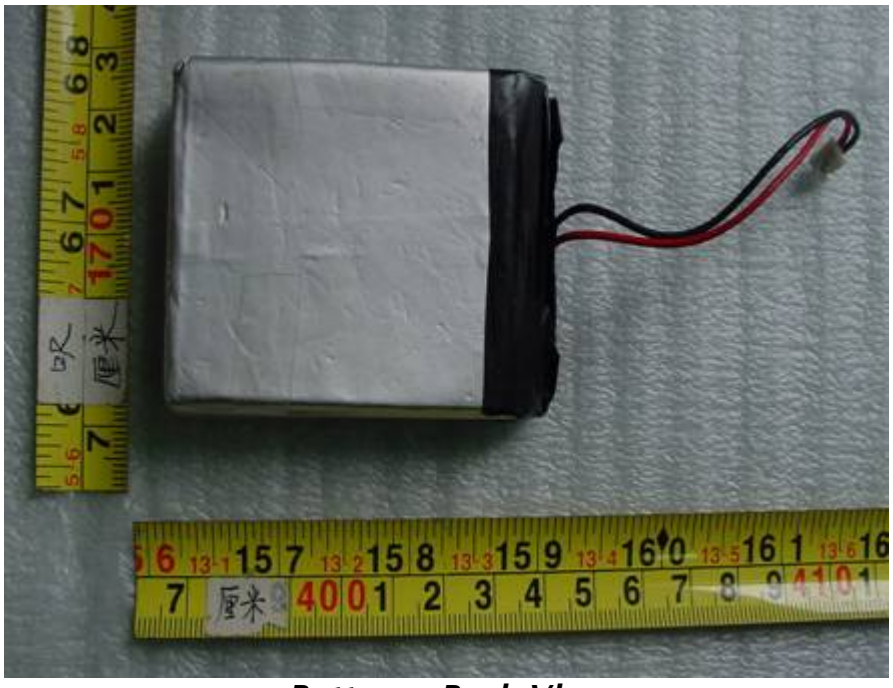
Adaptor - Back View

Adaptor - Left View

Adaptor - Right View

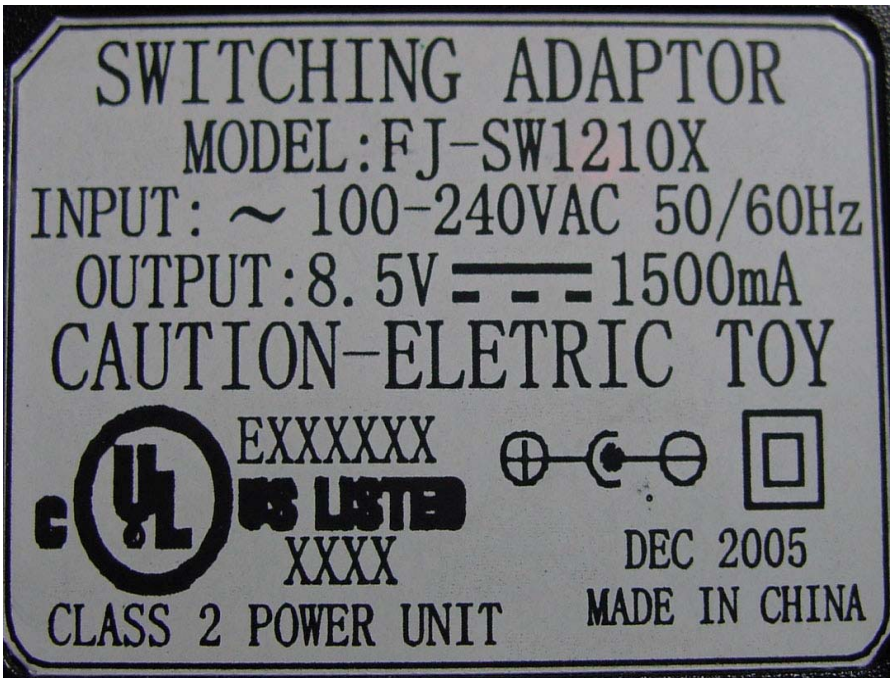


Battery - Front View



Battery - Back View

I/O View



Adaptor - Nameplate View

Test System Details

EUT	
Model Numbers:	**HDS1022 / HDS1022M / HDS1042 / HDS1042M / HDS2022 / HDS2022M / HDS2042 / HDS2042M / HDS2062 / HDS2062M / HDS2102 / HDS2102M / HDS3042 / HDS3042M / HDS3062 / HDS3062M / HDS3102 / HDS3102M / HDS4062 / HDS4062M / HDS4102 / HDS4102M / HDS4202 / HDS4202M**
Model Tested:	**HDS1022M**
Trademarks:	**LILLIPUT / OWON**
Serial Number:	**Engineering Sample**
Description:	**Hand-held Type Digital Storage Oscilloscope**
Operating Frequency:	**100MHz**
Manufacturer:	**Zhangzhou Lilliput Optoelectronics Institute Co., Ltd.**

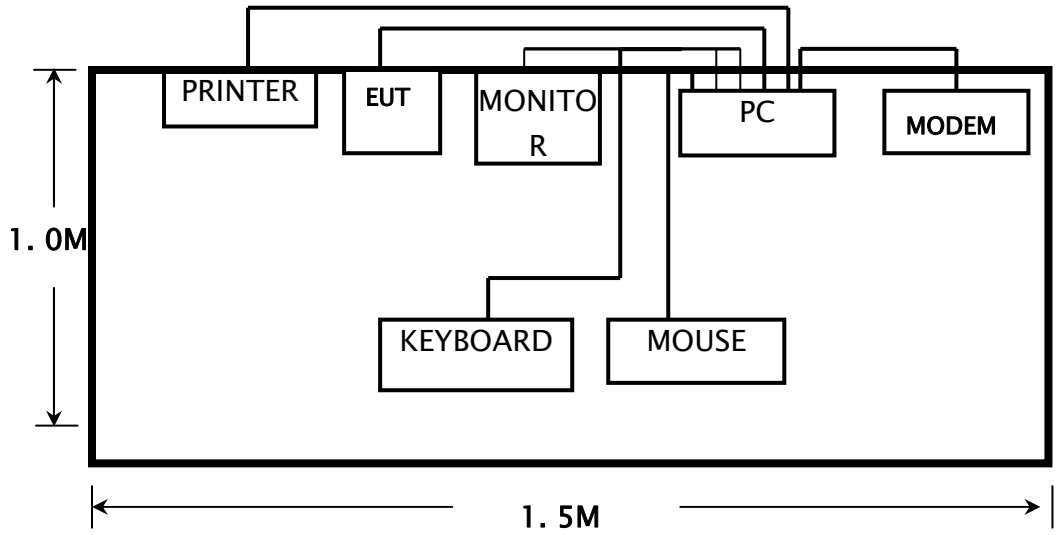
EUT Power Supply	
Model Number:	**FJ-SW1210X**
Serial Number:	**50054113**
Input Voltage:	**100-240VAC**
Output Voltage:	**8.5VDC**
Manufacturer:	**Shenzhen Fujia Electronics Co., Ltd.**

Support Equipment

DESCRIPTION	MODEL NUMBER	SERIAL NUMBER	MANUFACTURER	POWER CABLE DESCRIPTION
RESISTANCE	100Ω	N/A	Yageo	N/A
RC OSCILLATOR	VP7201	3N0041 D122	NATIONAL	1.5m
Host PC	VL420 MT	CN21003298	Hewlett-Packard company	1.6m
LCD Monitor	FP71E	CN49008647	Hewlett-Packard company	1.5m
Keyboard	SK-2502C	C4739-60101	Hewlett-Packard company	N/A
Mouse	M-S48A	C4737-60001	Hewlett-Packard company	N/A
Printer	Laser jet 6L	N1262823	Hewlett-Packard company	1.6m
Modem	N1414	1414	Hewlett-Packard company	1.5m

Cable Description
Unshielded detachable 1.2m

Configuration of Tested System



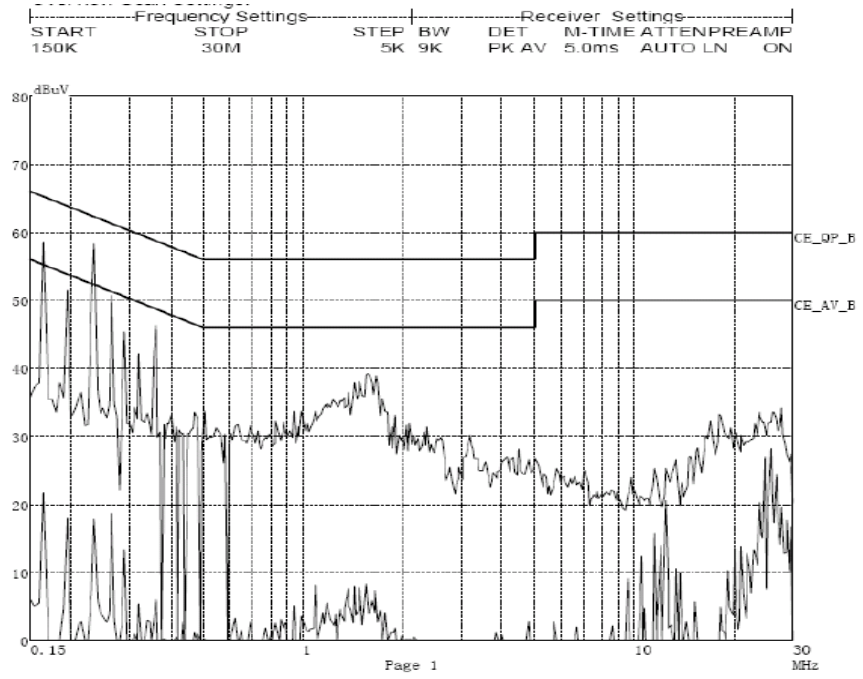
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Zhangzhou Lilliput Optoelectronics Institute Co., Ltd.	**TEST REFERENCE:**	FCC Part 15 Class B
MODEL TESTED:	HDS1022M	**PRODUCT:**	Hand-held Type Digital Storage Oscilloscope
MODEL NUMBERS:	HDS1022 / HDS1022M / HDS1042 / HDS1042M / HDS2022 / HDS2022M / HDS2042 / HDS2042M / HDS2062 / HDS2062M / HDS2102 / HDS2102M / HDS3042 / HDS3042M / HDS3062 / HDS3062M / HDS3102 / HDS3102M / HDS4062 / HDS4062M / HDS4102 / HDS4102M / HDS4202 / HDS4202M		
BRAND NAME:	LILLIPUT / OWON	**TRADE MARKS:**	LILLIPUT / OWON
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	Measurement Equipment
TEMPERATURE:	23.3°C	**HUMIDITY:**	56%
ATM PRESSURE:	101.3kPa	**GROUNDING:**	No Grounding
TESTED BY:	Yu Zhifeng	**DATE OF TEST:**	2005, December 28
SETUP METHOD:	ANSI C63.4: 2003		
TEST PROCEDURE:	a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface. b. Connect EUT to the power mains through a line impedance stabilization network (LISN) c. The LISN provides 50ohm coupling impedance for the measuring instrument d. Both sides of AC line were checked for maximum conduced interference. e. The frequency range from 150KHz to 30MHz was searched.. f. Set the test-receiver system to Peak Detect Function and Specified bandwidth. g. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.		
TESTED RANGE:	150kHz to 30MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	**On Multimeter Mode** The EUT meets the requirements of test reference for Conducted Emissions on line L by 17.7 dB of Quasi-Peak detector and 42.8 dB of Average Detector. **On Oscillograph Mode** The EUT meets the requirements of test reference for Conducted Emissions on line L by 16.4 dB of Quasi-Peak detector and 42.5 dB of Average Detector. **On Transferring Mode** The EUT meets the requirements of test reference for Conducted Emissions on line L by 17.3 dB of Quasi-Peak detector and 31.0dB of Average Detector. The test results relate only to the equipment under test provided by client.		

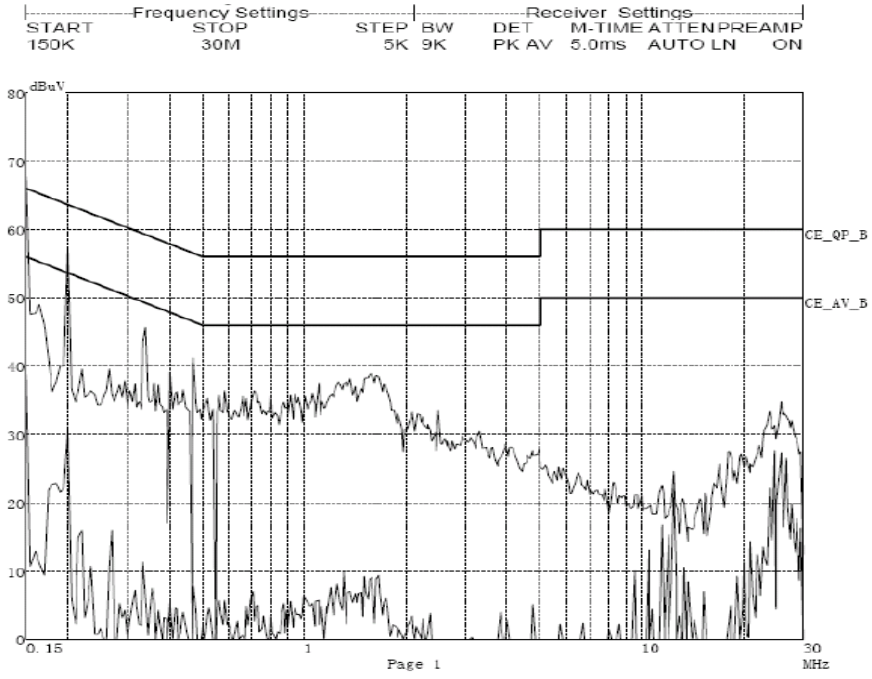
Continue on to next page...

CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.
M. UNCERTAINTY:	Freq. $\pm$ 2x10^{-7} x Center Freq., Amp $\pm$ 2.6 dB

On Multimeter Mode



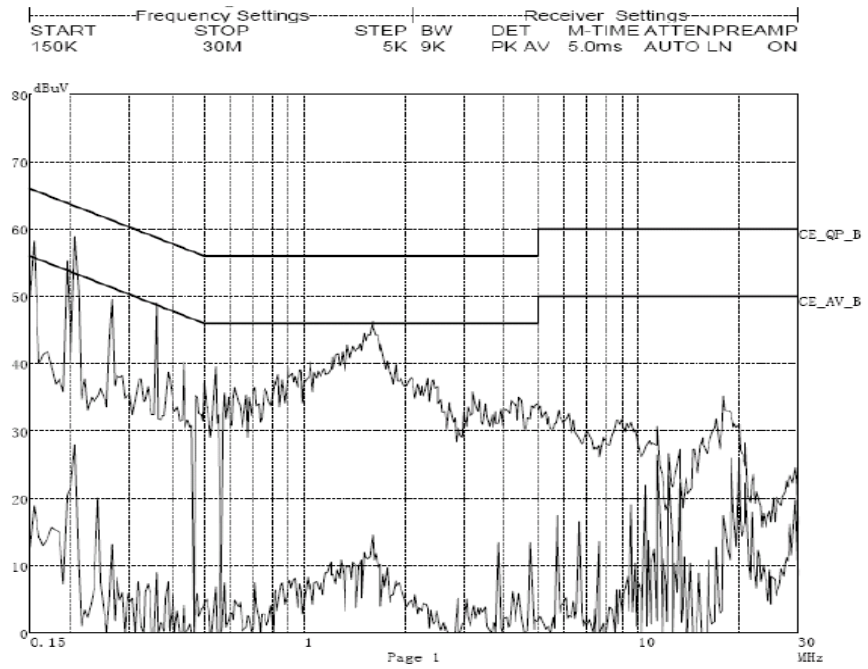
Line L Conducted Emission Graph



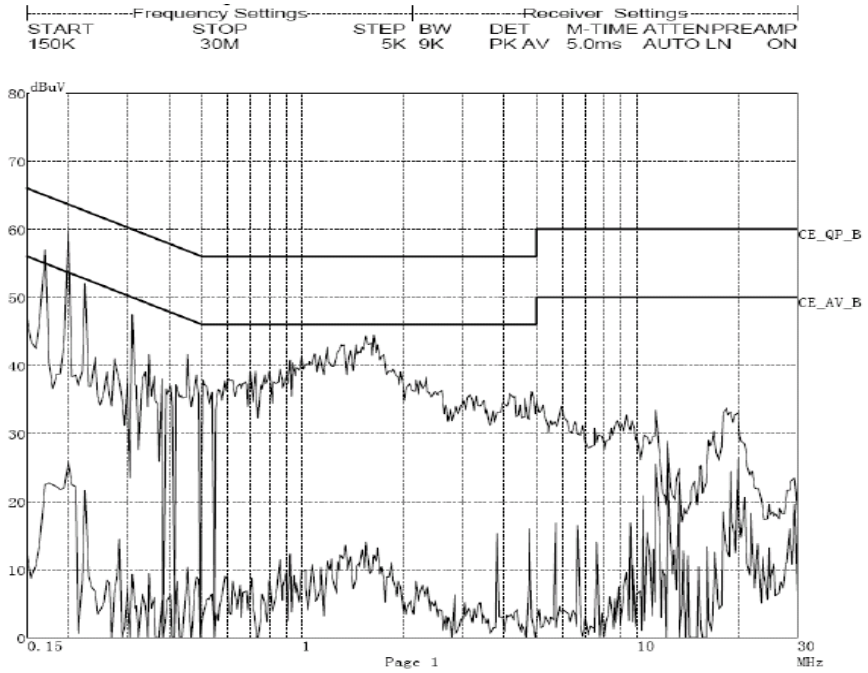
Line N Conducted Emission Graph

Line L (Hot Lead)							
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	0.1650	47.5	65.2	-17.7	12.5	55.2	-42.8
2	0.1950	45.1	63.8	-18.7	10.9	53.8	-42.9
3	0.2350	39.8	62.3	-22.5	5.3	51.3	-46.0
Line N (Neutral Lead)							
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB**
1	0.1500	48.1	66.0	-17.9	12.0	56.0	-44.0
2	0.2000	43.1	63.6	-20.5	9.5	53.6	-44.1
3	1.5750	32.0	56.0	-24.0	2.0	46.0	-44.0
Note: All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.							

On Oscillograph Mode



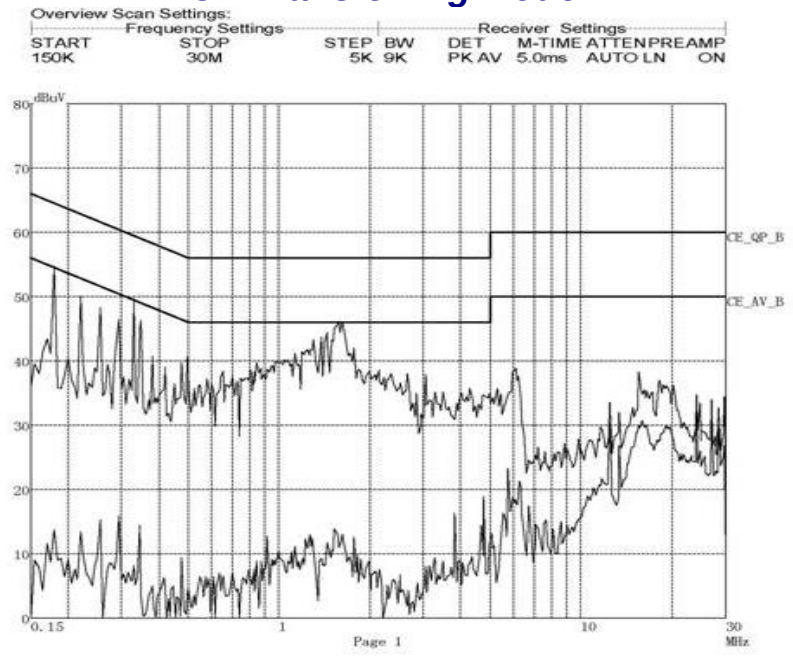
Line L Conducted Emission Graph



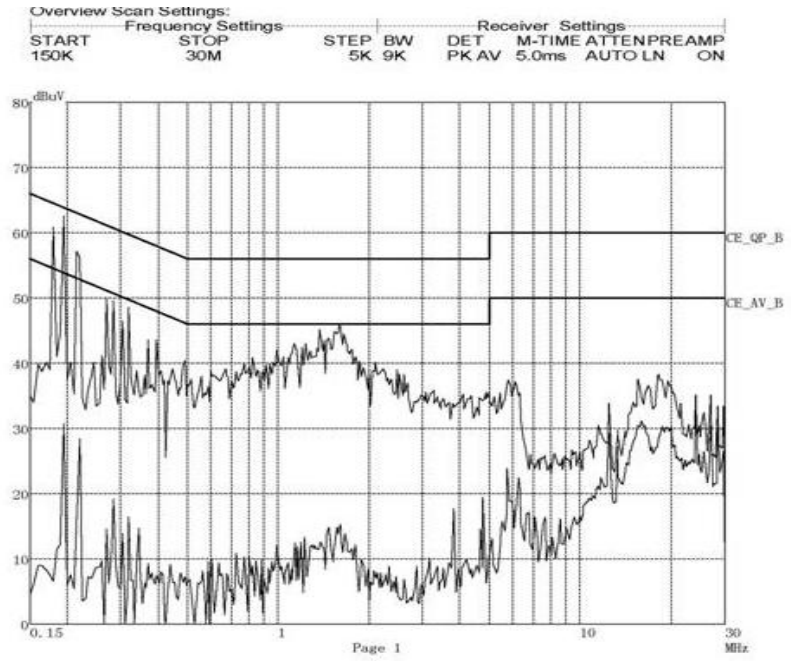
Line N Conducted Emission Graph

Line L (Hot Lead)							
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	0.1550	49.4	65.7	-16.4	13.2	55.7	-42.5
2	0.2050	42.8	63.4	-20.6	30.4	53.4	-23.0
3	1.6000	37.7	56.0	-18.3	7.1	46.0	-43.5
Line N (Neutral Lead)							
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB**
1	0.1700	45.2	65.0	-19.8	12.0	54.5	-42.5
2	1.3350	35.4	56.0	-20.6	5.4	46.0	-40.6
3	1.6350	37.9	56.0	-18.1	7.5	46.0	-38.5
Note: All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.							

On Transferring Mode



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Line L (Hot Lead)							
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	0.1800	44.2	64.5	-17.3	23.5	54.5	-31.0
2	1.5850	36.9	56.0	-19.1	26.8	46.0	-19.2
3	4.9700	34.6	56.0	-21.4	12.7	46.0	-33.3
Line N (Neutral Lead)							
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB**
1	0.1950	45.8	63.8	-18.0	22.6	53.8	-31.2
2	0.9900	31.4	56.0	-24.6	13.9	46.0	-32.1
3	27.1100	33.4	60.0	-26.6	31.0	50.0	-19.0
Note: All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.							

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
EMI Receiver	R&S	ESIB26	1088.7490.26	06/20/05	06/19/06
AMN	R&S	ENV4200	1107.2387.02	06/20/05	06/19/06
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST)					

SIGNED BY: _____ **REVIEWED BY:** _____

ENGINEER **QC**

On Multimeter Mode

Model Number: HDS1022M

Conducted Emission Test Set-up Front View

Conducted Emission Test Set-up Side View

On Oscillograph Mode

Model Number: HDS1022M

Conducted Emission Test Set-up Front View

Conducted Emission Test Set-up Side View

On Transferring Mode

Model Number: HDS1022M

Conducted Emission Test Set-up Front View

Conducted Emission Test Set-up Side View

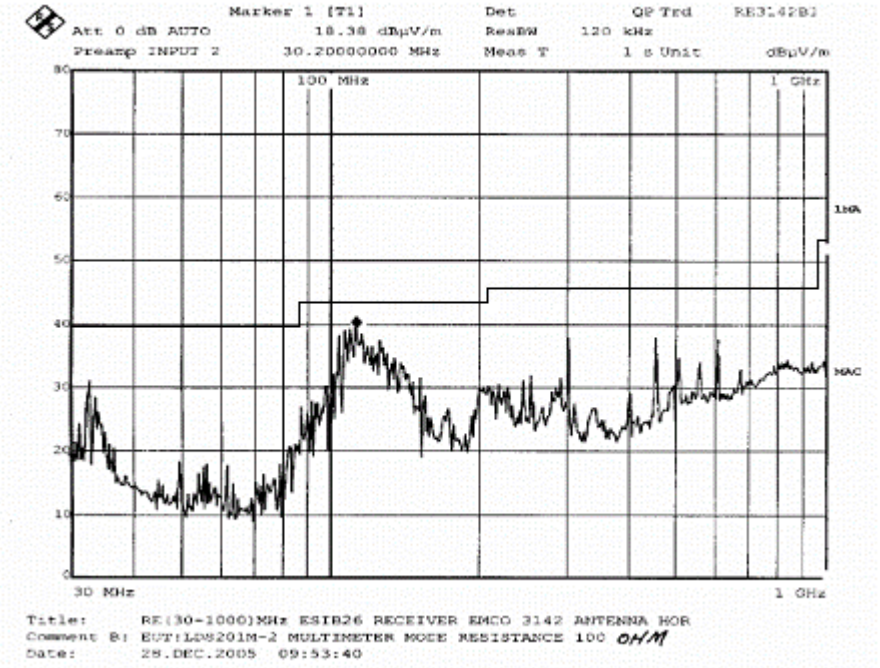
ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

CLIENT:	Zhangzhou Lilliput Optoelectronics Institute Co., Ltd.	**TEST REFERENCE:**	FCC Part 15 Class B
MODEL TESTED:	HDS1022M	**PRODUCT:**	Hand-held Type Digital Storage Oscilloscope
MODEL NUMBERS:	HDS1022 / HDS1022M / HDS1042 / HDS1042M / HDS2022 / HDS2022M / HDS2042 / HDS2042M / HDS2062 / HDS2062M / HDS2102 / HDS2102M / HDS3042 / HDS3042M / HDS3062 / HDS3062M / HDS3102 / HDS3102M / HDS4062 / HDS4062M / HDS4102 / HDS4102M / HDS4202 / HDS4202M		
BRAND NAME:	LILLIPUT / OWON	**TRADE MARKS:**	LILLIPUT / OWON
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	Measurement Equipment
TEMPERATURE:	25°C	**HUMIDITY:**	60%
ATM PRESSURE:	103kPa	**GROUNDING:**	No Grounding
TESTED BY:	Yu Zhifeng	**DATE OF TEST:**	2006, February 10
SETUP METHOD:	ANSI C63.4: 2003		
TEST PROCEDURE:	a. The EUT was placed on a rotatable table with 1.0 meter above ground. b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower. c. The antenna was varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarizations of the antenna were set to make measurement. d. For each suspected emission the EUT was arranged to its worst case and then change the antenna tower height (from 1M to 4M) and turn table (from 0 degree to 360 degree) to find the maximum reading. e. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported. Explanation of the Correction Factor are given as follows: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TESTED RANGE:	30MHz to 1,000MHz		
TEST VOLTAGE:	120VAC / 60Hz		

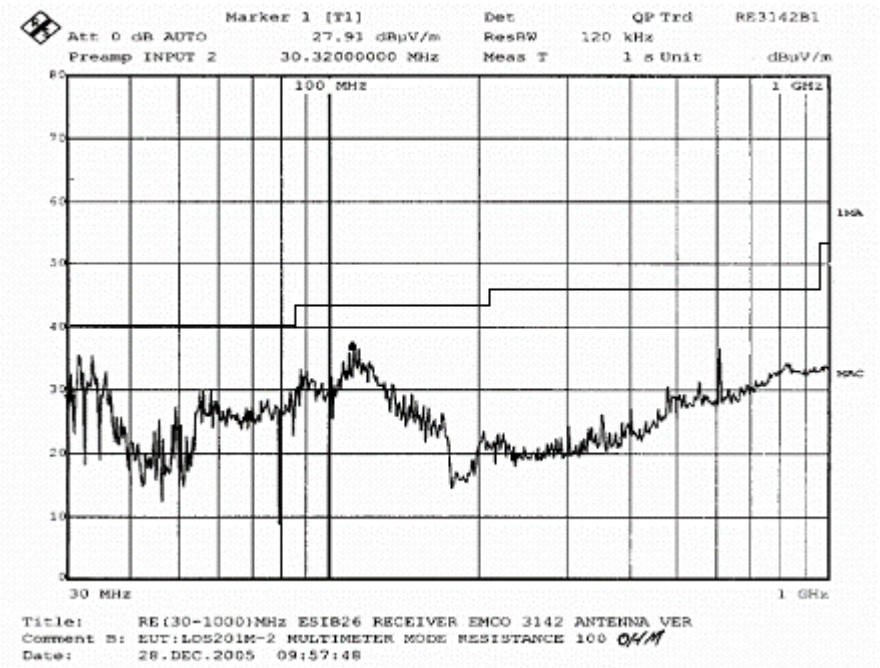
Continue on to next page...

RESULTS:	**On Multimeter Mode** The EUT meets the requirements of test reference for Radiated Emissions on horizontal polarization by 3.3 dB at 112.60 MHz. **On Oscillograph Mode** The EUT meets the requirements of test reference for Radiated Emissions on horizontal polarization by 3.3 dB at 134.72 MHz. **On Transferring Mode** The EUT meets the requirements of test reference for Radiated Emissions on vertical polarization by 1.3dB at 30.12 MHz. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.
M. UNCERTAINTY:	Freq. $\pm$ $2x10^{-7}$ x Center Freq., Amp $\pm$ 2.6 dB

On Multimeter Mode



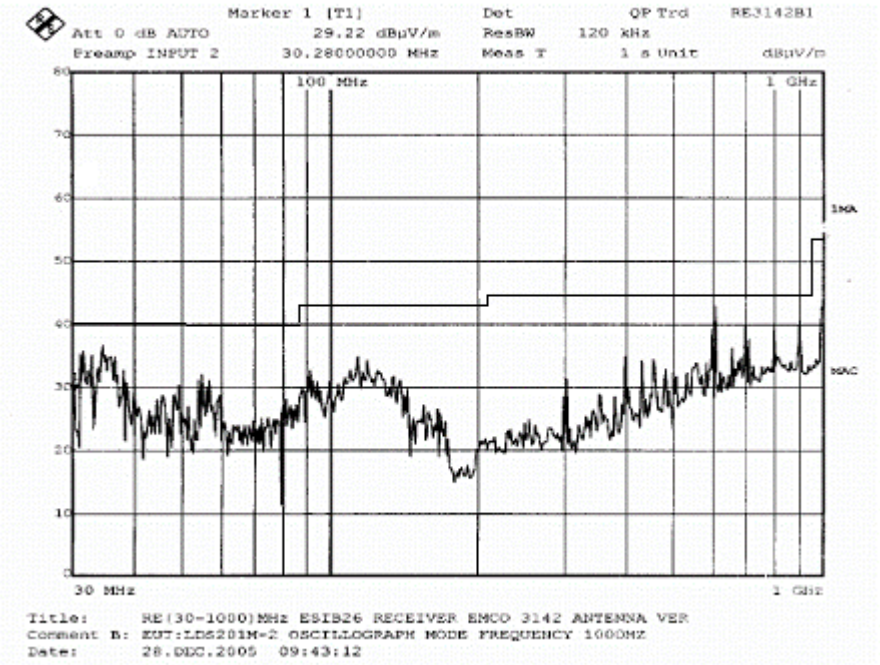
Horizontal Radiated Emission Plot (Peak, Max Hold Mode)



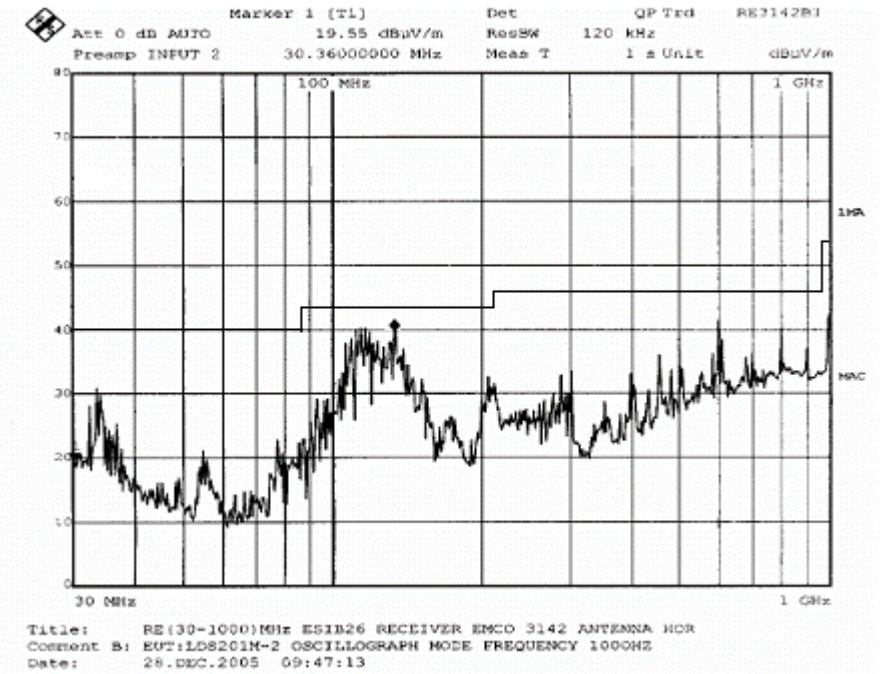
Vertical Radiated Emission Plot (Peak, Max Hold Mode)

Horizontal								
Signal	**Frequency (MHz)**	**Antenna Factor (dB)**	**Cable Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	104.0800	8.2	0.8	37.4	43.5	-6.1	25	150
2	112.6000	8.4	0.9	40.2	43.5	-3.3	40	150
3	126.2000	7.6	1.0	36.6	43.5	-6.9	50	150
4	304.1600	14.0	2.1	37.1	46.0	-8.9	0	100
5	457.6800	18.6	2.7	37.4	46.0	-8.6	0	100
6	608.7200	19.9	3.1	36.7	46.0	-9.3	0	100
Vertical								
Signal	**Frequency (MHz)**	**Antenna Factor (dB)**	**Cable Factor (Db)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	33.7600	15.0	0.4	34.5	40.0	-5.5	0	100
2	112.6000	8.4	0.9	36.1	43.5	-7.4	42	150
3	122.3200	7.5	1.0	33.1	43.5	-10.4	46	150
4	608.3600	19.9	3.1	35.8	46.0	-10.2	0	100
5	830.4000	22.4	3.8	33.2	46.0	-12.8	180	100
6	990.7200	24.8	4.3	33.2	54.0	-20.8	0	100
Set-up/Configuration: FCC/OST MP-5: 1986								
Comments: None								
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.								

On Oscillograph Mode



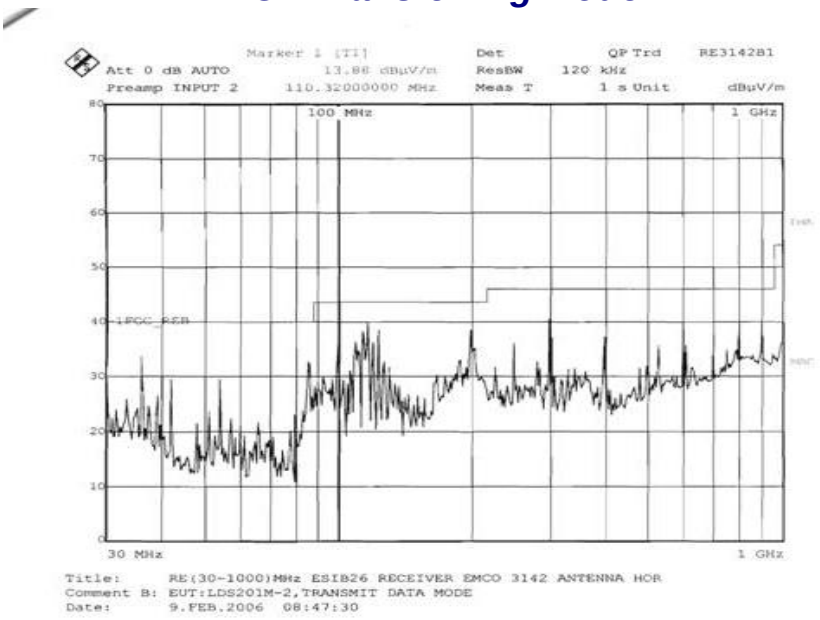
Horizontal Radiated Emission Plot (Peak, Max Hold Mode)



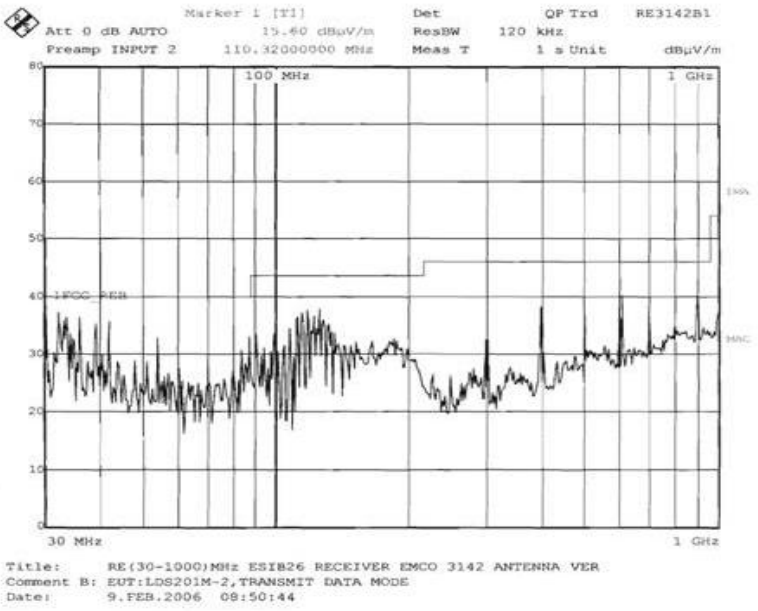
Vertical Radiated Emission Plot (Peak, Max Hold Mode)

Horizontal								
Signal	**Frequency (MHz)**	**Antenna Factor (dB)**	**Cable Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	114.7600	8.3	1.0	39.8	43.5	-3.7	42	150
2	134.7200	7.6	1.1	40.2	43.5	-3.3	38	150
3	500.0000	17.8	2.9	38.2	46.0	-7.8	0	100
4	599.9600	19.8	3.1	40.4	46.0	-5.6	0	100
5	800.0000	22.3	3.7	39.1	46.0	-6.9	0	100
6	1000.0000	25.0	4.4	41.8	54.0	-12.2	0	100
Vertical								
Signal	**Frequency (MHz)**	**Antenna Factor (dB)**	**Cable Factor (Db)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	31.6800	16.6	0.4	34.8	40.0	-5.2	63	110
2	34.5200	14.2	0.4	35.2	40.0	-4.8	63	110
3	608.4400	19.9	3.1	42.2	46.0	-3.8	0	100
4	699.9600	22.0	3.3	39.1	46.0	-6.9	0	100
5	799.9600	22.3	3.7	39.8	46.0	-6.2	0	100
6	1000.0000	25.0	4.4	42.1	54.0	-11.9	0	100
Set-up/Configuration: FCC/OST MP-5: 1986								
Comments: None								
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.								

On Transferring Mode



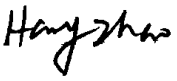
Horizontal Radiated Emission Plot (Peak, Max Hold Mode)



Vertical Radiated Emission Plot (Peak, Max Hold Mode)

Horizontal								
Signal	**Frequency (MHz)**	**Antenna Factor (dB)**	**Cable Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	116.8400	8.3	1.0	39.2	43.5	-4.3	44	140
2	123.8000	7.6	1.1	37.6	43.5	-5.9	57	150
3	200.0000	17.8	1.9	37.7	43.5	-5.8	0	100
4	300.0000	19.8	3.1	39.8	46	-6.2	0	100
5	600.0000	22.3	3.7	39.7	46	-6.3	0	100
6	899.9600	25.0	4.4	39.9	46	-6.1	0	100
Vertical								
Signal	**Frequency (MHz)**	**Antenna Factor (dB)**	**Cable Factor (Db)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	30.1200	16.6	0.4	38.7	40	-1.3	0	100
2	36.1600	14.2	0.4	35.6	40	-4.4	0	100
3	42.1600	13.9	0.5	34.9	40	-5.1	0	100
4	125.8000	7.6	1.1	37.1	43.5	-6.4	34	140
5	500.0000	20.6	3.5	40.5	46	-5.5	0	100
6	900.0000	25.0	4.4	42.4	46	-3.6	0	100
Set-up/Configuration: FCC/OST MP-5: 1986								
Comments: None								
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.								

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	85422E	HP	3906A00282	05/18/05	05/17/06
Bi-logarithm Antenna	CBL6112B	SCHAFFNER	US99349005	07/18/04	07/17/09
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST)					

SIGNED BY:  **REVIEWED BY:** 

ENGINEER **QC**

On Multimeter Mode

Model Number: HDS1022M

Radiated Emission Test Set-Up – Horizontal View

On Oscillograph Mode

Model Number: HDS1022M

Radiated Emission Test Set-Up – Horizontal View

On Transferring Mode

Model Number: HDS1022M

Radiated Emission Test Set-Up – Vertical View