



## FCC PART 18

## EMI MEASUREMENT AND TEST REPORT

For

**CANEL LIGHTING CO., LTD.**

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**FCC ID: Q3CCANEL878**

July 28, 2006

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Equipment Type:</b> ENERGY SAVING LAMPS
<b>Test Engineer:</b> Louise Lu	
<b>Report Number:</b>	RSZ06063083
<b>Test Date:</b>	July 26, 2006
<b>Reviewed By:</b>	
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**Note:** The test report is specially limited to the above company and this particular sample only.  
It may not be duplicated without prior written consent of Bay Area Compliance Lab Corp. (ShenZhen). This report **must not** be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

The *CANEL LIGHTING CO., LTD.*.'s model: E14 Series: MAE-SP-5WL (D), MAE-SP-7WL (D), MAE-SP-9WL (D), or the "EUT" as referred to in this report is a *ENERGY SAVING LAMPS* which measures approximately

5W: 9.0 cm L x 4.0 cm W,  
7W: 9.5 cm L x 4.0 cm W,  
9W: 11.0 cm L x 4.0 cm W,  
rated input voltage: AC 120V/60Hz.

*\* The test data gathered are from production sample, serial number: 0606007. Provided by the manufacturer, we received EUT on 2006-06-30.*

### Objective

The following test report is prepared on behalf of *CANEL LIGHTING CO., LTD.* in accordance with Part 2, Subpart J, and Part 18, Subparts A, B and C of the Federal Communication Commissions rules and regulations.

The objective of the manufacturer is to determine compliance with FCC Part 18 limits.

### Related Submittal(s)/Grant(s)

No related submittal(s).

### Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All measurements were performed at Bay Area Compliance Lab Corp. (ShenZhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

### Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect radiated and conducted emission measurement data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, GuangDong 518038, P.R.China.

Test site at Bay Area Compliance Lab Corp. (ShenZhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC Live conducted test site criteria set forth in ANSI C63.4-2003 and FCC MP-5.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>

### External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded Detachable AC Cable	1.2	EUT	AC Power

## SYSTEM TEST CONFIGURATION

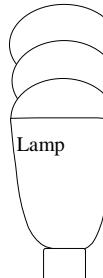
### Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

### Equipment Modifications

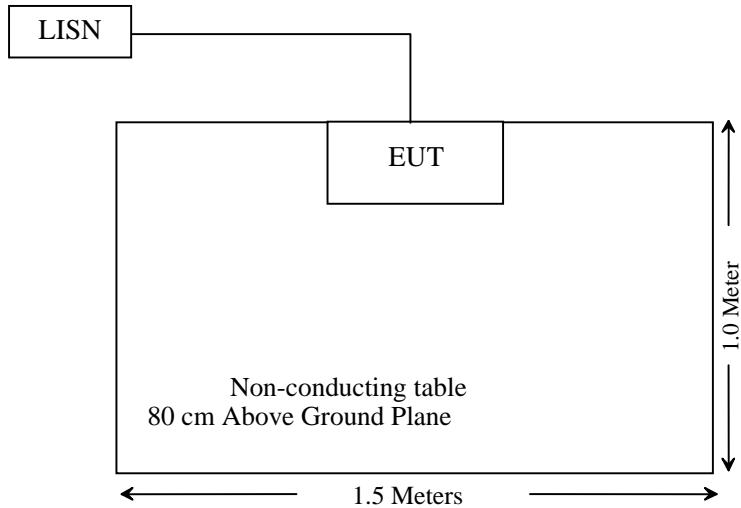
Bay Area Compliance Lab Corp. (Shenzhen) has not done any modification on the EUT.

### Configuration of Test Setup



EUT

### Block Diagram of Test Setup



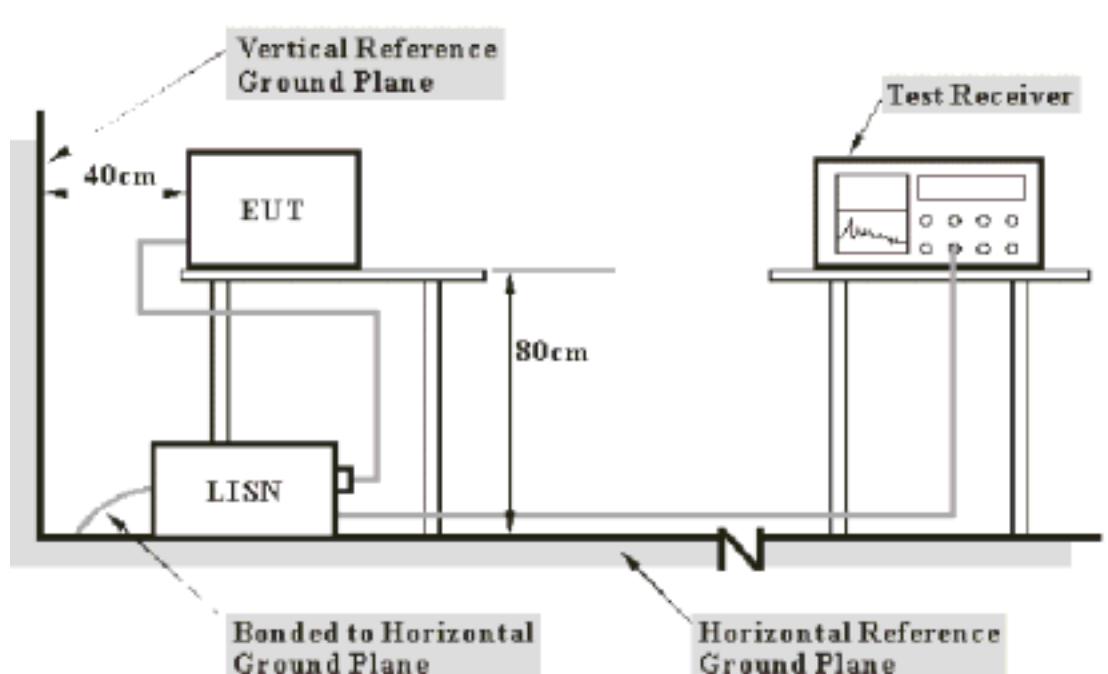
## CONDUCTED EMISSION

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is  $\pm 2.4$  dB.

### EUT Setup



**Note:**

1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with MP-5: 1986 measurement procedure. Specification used was with the FCC Part 18 limits.

The EUT was connected to a 120 VAC/ 60Hz power source.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 450 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<i>Frequency Range</i>	<i>IFBW</i>
450 kHz – 30 MHz	9 kHz

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12008	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2005-8-17	2006-8-17
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2006-2-28	2007-2-28

\* Com-Power's LISN were used as the supporting equipment.

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### Test Procedure

During the conducted emission test, the EUT power cord was connected to the outlet of the LISN.

Maximizing procedure were performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 18, with the worst margin reading of:

**MAE-SP-5WL (D): -6.60 dB at 0.500 MHz** in the **Live** conductor mode.  
**MAE-SP-7WL (D): -12.70 dB at 0.4917 MHz** in the **Neutral** conductor mode.  
**MAE-SP-9WL (D): -10.10 dB at 0.721 MHz** in the **Live** conductor mode.

## Test Data

### Environmental Conditions

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	940mbar

*Testing was performed by Louise Lu on 2006-7-26.*

*Test mode: On*

*Model: MAE-SP-5WL (D)*

Frequency MHz	LIVE CONDUCTED EMISSIONS			Phase Neutral/Live	FCC Part 18		
	Amplitude (dB $\mu$ V)	Detector QP	Detector AV		Limit (dB $\mu$ V) QP	Margin dB	
0.500	41.40	QP	*	Live	48.00	N/A	-6.60
1.279	39.30	QP	*	Live	48.00	N/A	-8.70
0.812	38.30	QP	*	Live	48.00	N/A	-9.70
0.458	32.50	QP	*	Neutral	48.00	N/A	-15.50
0.825	31.10	QP	*	Neutral	48.00	N/A	-16.90
0.851	28.80	QP	*	Neutral	48.00	N/A	-19.20
1.718	24.60	QP	*	Live	48.00	N/A	-23.40
2.165	21.80	QP	*	Live	48.00	N/A	-26.20
1.561	21.50	QP	*	Neutral	48.00	N/A	-26.50
1.831	20.50	QP	*	Neutral	48.00	N/A	-27.50
2.080	20.00	QP	*	Neutral	48.00	N/A	-28.00
1.952	17.20	QP	*	Live	48.00	N/A	-30.80

*Model: MAE-SP-7WL (D)*

Frequency MHz	LIVE CONDUCTED EMISSIONS			Phase Neutral/Live	FCC Part 18		
	Amplitude (dB $\mu$ V)	Detector QP	Detector AV		Limit (dB $\mu$ V) QP	Margin dB	
0.4917	35.3	QP	*	Neutral	48.00	N/A	-12.70
0.69264	34.4	QP	*	Live	48.00	N/A	-13.60
0.46875	34.2	QP	*	Live	48.00	N/A	-13.80
0.78683	33.8	QP	*	Live	48.00	N/A	-14.20
1.23917	30.9	QP	*	Live	48.00	N/A	-17.10
0.7094	30.3	QP	*	Neutral	48.00	N/A	-17.70
1.54891	30.3	QP	*	Live	48.00	N/A	-17.70
1.05662	29.0	QP	*	Live	48.00	N/A	-19.00
1.04823	28.8	QP	*	Neutral	48.00	N/A	-19.20
0.93015	26.8	QP	*	Neutral	48.00	N/A	-21.20
1.28953	23.8	QP	*	Neutral	48.00	N/A	-24.20
1.35269	22.0	QP	*	Neutral	48.00	N/A	-26.00

Model: MAE-SP-9WL (D)

Frequency MHz	LIVE CONDUCTED EMISSIONS			Phase Neutral/Live	FCC Part 18		
	Amplitude (dB $\mu$ V)	Detector QP	AV		Limit (dB $\mu$ V)	Margin dB	
QP	AV	QP	AV	QP	AV	QP	
0.721	37.90	QP	*	Live	48.00	N/A	-10.10
0.469	35.80	QP	*	Live	48.00	N/A	-12.20
0.508	35.70	QP	*	Live	48.00	N/A	-12.30
0.806	35.60	QP	*	Live	48.00	N/A	-12.40
0.629	35.20	QP	*	Live	48.00	N/A	-12.80
0.541	33.70	QP	*	Live	48.00	N/A	-14.30
0.635	32.50	QP	*	Neutral	48.00	N/A	-15.50
0.545	31.20	QP	*	Neutral	48.00	N/A	-16.80
0.799	30.90	QP	*	Neutral	48.00	N/A	-17.10
0.887	30.60	QP	*	Neutral	48.00	N/A	-17.40
0.461	30.30	QP	*	Neutral	48.00	N/A	-17.70
0.727	28.70	QP	*	Neutral	48.00	N/A	-19.30

#### REMARKS:

1. If the data table appeared symbol “\*” means the value was too low and the QP value is under the limit for Average, so the Average level value had been omitted.

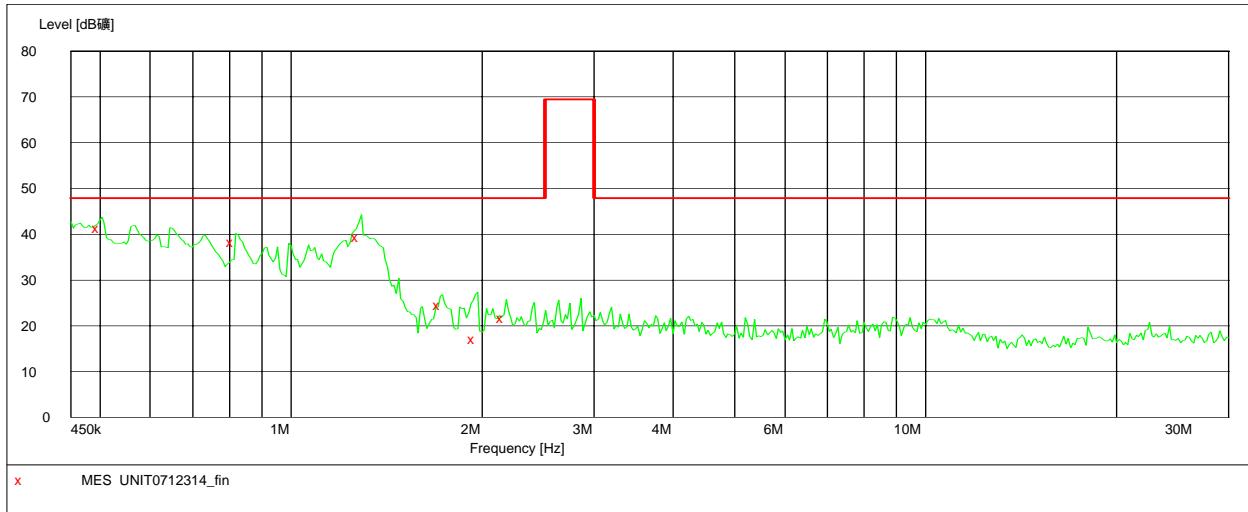
#### Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference..

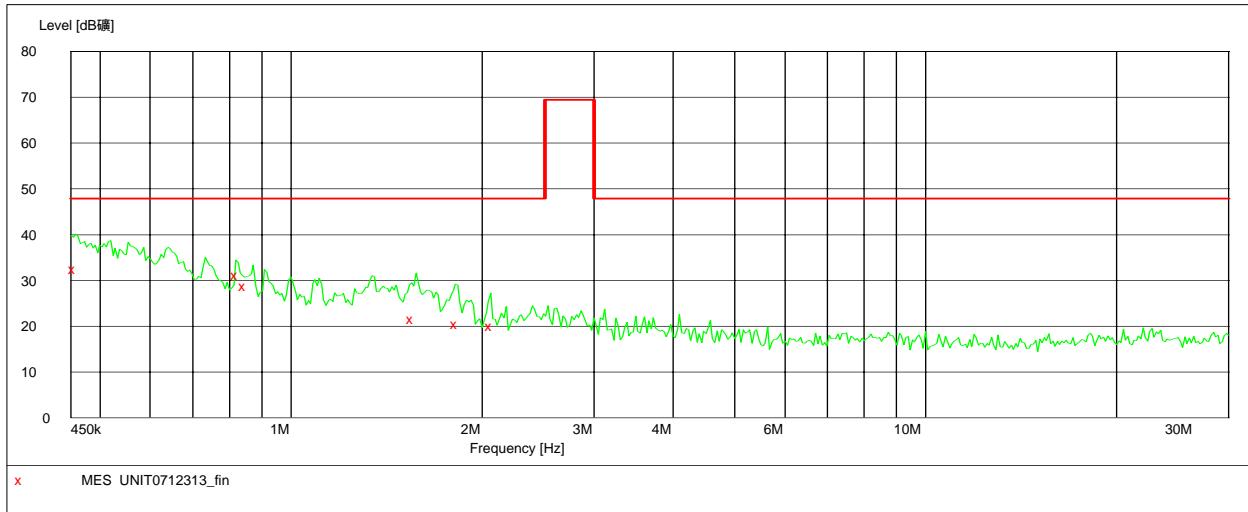
Model: MAE-SP-5WL (D)

Scan range: 450KHz-30MHz

Live



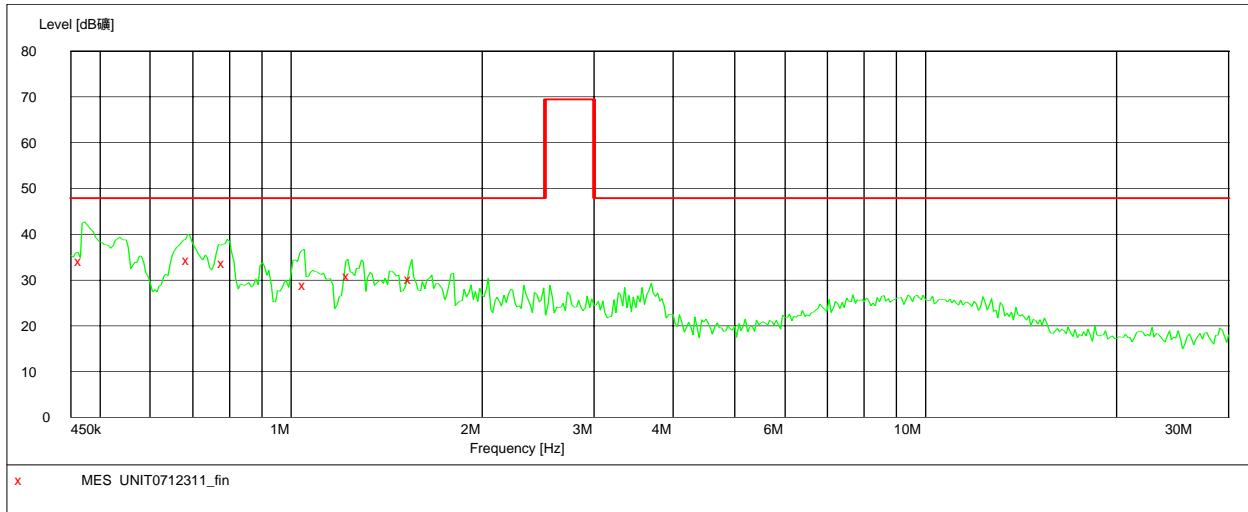
Neutral



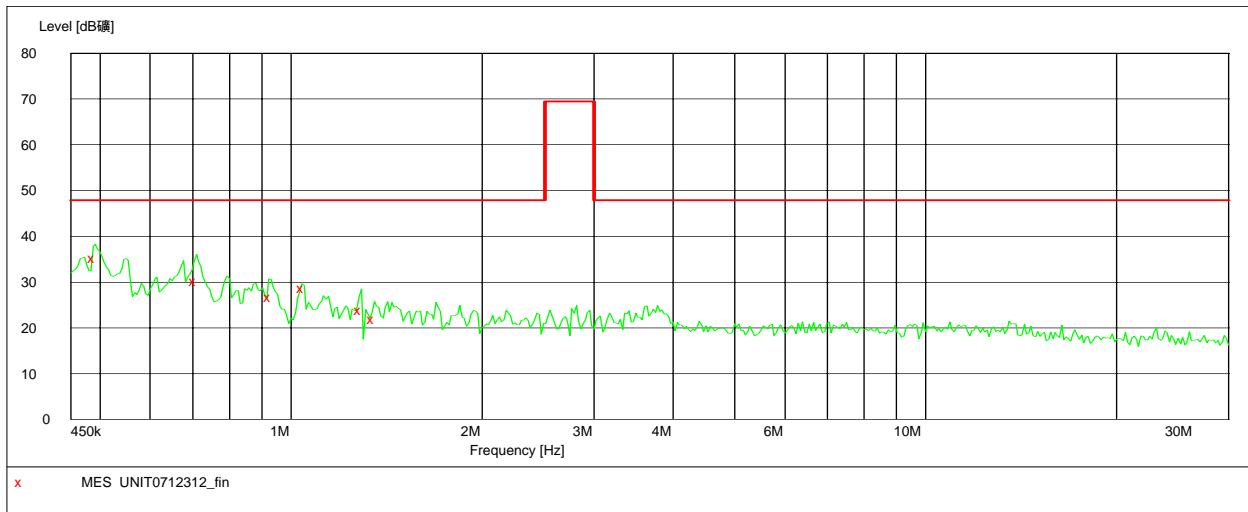
Model: MAE-SP-7WL (D)

Scan range: 450KHz-30MHz

Live:



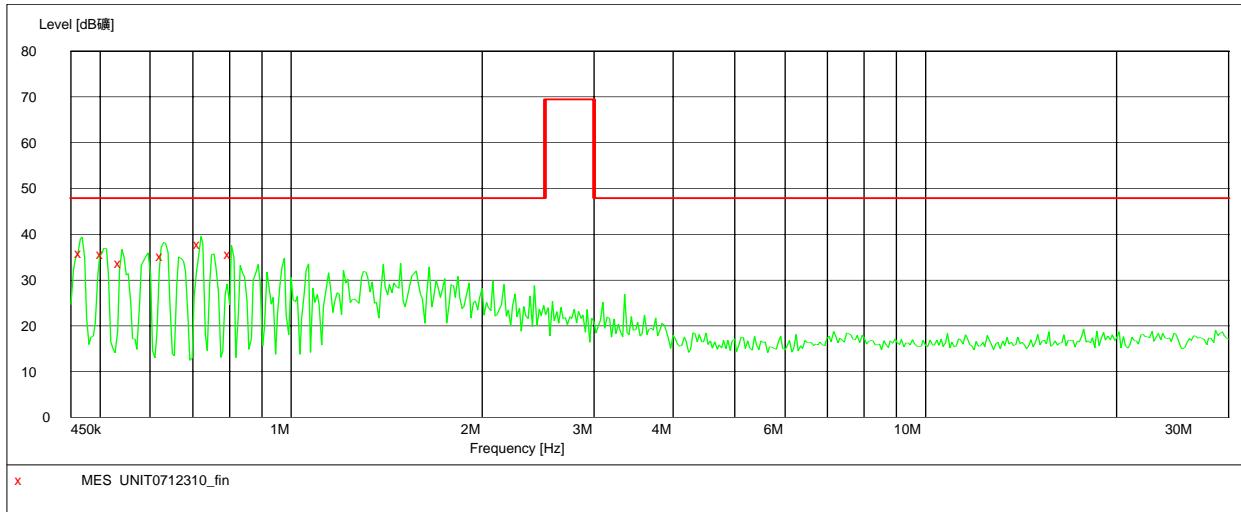
Neutral:



Model: MAE-SP-9WL (D)

Scan range: 450KHz-30MHz

Live:



Neutral:

