

# TEST REPORT

**REPORT NUMBER: I13MQ0955-FCC-PART15B**

**ON**

**Type of Equipment:** W1981-PLUS Contact Smart Card Reader  
**Type of Designation:** W1981-PLUS  
**Manufacturer:** Watchdata Technologies Pte Ltd.

**ACCORDING TO**  
**Part 15B: Radio Frequency Devices, Oct 1, 2011**

**China Telecommunication Technology Labs.**

*Month date, year*

*Oct 10, 2013*

*Signature*

A handwritten signature in black ink, appearing to be 'He Guili'.

He Guili

**Director**

**FCC ID:** Y97WATCHW1981-PLUS

**Report Date:** 2013-10-10

**Test Firm Name:** China Telecommunication Technology Labs

**Registration Number:** 840587

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 15B. The sample tested was found to comply with the requirements defined in the applied rules.

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## 1 General Information

### 1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 15B.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

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FCC Part 15B  
Equipment: W1981-PLUS

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## 1.2 Testers

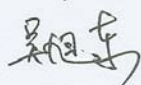
Name: Lv Ke  
Position: Engineer  
Department: Department of EMC test

Signature:



Name: Wu Xudong  
Position: Engineer  
Department: Department of EMC test

Signature:



Editor of this test report:

Name: Zhang Xiaomei  
Position: Engineer  
Department: Department of EMC test

Date: 2013-10-10

Signature:

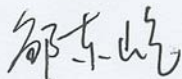


Technical responsibility for area of testing:

Name: Zou Dongyi  
Position: Manager  
Department: Department of EMC test

Date: 2013-10-10

Signature:



## 1.3 Testing Laboratory information

### 1.3.1 Location

Name: China Telecommunication Technology Labs.

Address: No. 11, Yue Tan Nan Jie, Xi Cheng District  
BEIJING

P. R. CHINA, 100083

Tel: +86 10 68094053

Fax: +86 10 68011404

Email: [emc@chinattl.com](mailto:emc@chinattl.com)

### 1.3.2 Details of accreditation status

Accredited by: China National Accreditation Service for Conformity  
Assessment (CNAS)

Registration number: CNAS Registration No. CNAS L0570

Standard: ISO/IEC 17025:2005

### 1.3.3 Test location, where different from section 1.3.1

Name: -----

Street: -----

City: -----

Country: -----

Telephone: -----

Fax: -----

Postcode: -----

## 1.4 Details of applicant or manufacturer

### 1.4.1 Applicant

Name: Watchdata Technologies Pte Ltd  
Address: 8 Admiralty Street, 02-08 Admirax, Singapore 757438  
Country: Singapore  
Telephone: (+65) 6572 9300  
Fax: (+65) 6779 2460  
Contact: Liu Cui  
Telephone: (+65) 6572 9300  
Email: cui.liu@watchdata.com.sg

### 1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name: --  
Address: --  
Contact: --  
Telephone: --  
Email: --

## 2 Test Item

### 2.1 General Information

Manufacturer: Watchdata Technologies Pte Ltd.  
Name: W1981-PLUS Contact Smart Card Reader  
Model Number: W1981-PLUS  
Serial Number: --  
Production Status: Product  
Receipt date of test item: 2013-08-09

### 2.2 Outline of EUT

EUT is a Card Reader.

### 2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

### 2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Contact Smart Card Reader	Watchdata Technologies Pte Ltd.	W1981-PLUS	--	None
B	Computer	HP	--	--	None
C	Monitor	PHILIPS	--	--	None
D	Mouse	PHILIPS	--	--	None
E	Keyboard	HP	--	--	None
F	Printer	HP	C6414A	--	None
G	Iphone	--	--	--	None

Cables:

Item	Cable Type	Manufacturer	Length	Shield	Quantity	Remarks
--	--	--	--	--	--	None

### 2.5 Other Information

----

### 2.6 E.U.T Photographs:

See Annex A and B for external and internal photos.



### 3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

Specification Clause	Name of Test	Result
15.109	Radiated Emission	Pass
15.107	Conducted Emission	Pass
Note: The EUT complies with the requirements of the Class B digital devices.		

## 4 Test Results

### 4.1 Radiated Emission

Specifications:	15.109, ANSI C63.4-2003					
Date of Tests	2013-08-19					
Test conditions:	Ambient Temperature: 15°C-35°C Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	Transfer data					
Test Results:	Pass					
Test equipment Used:						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESIB26	100211	2014-03-03	Normal
7330	Ultra Broadband Antenna	SCHWARZBECK	VULB 9160	--	2013-11-24	Normal
7330	Double-Ridged Horn Antenna	R/S	HF906	100038	2016-01-14	Normal
713	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2013-10-17	Normal

#### Limit Level Construction:

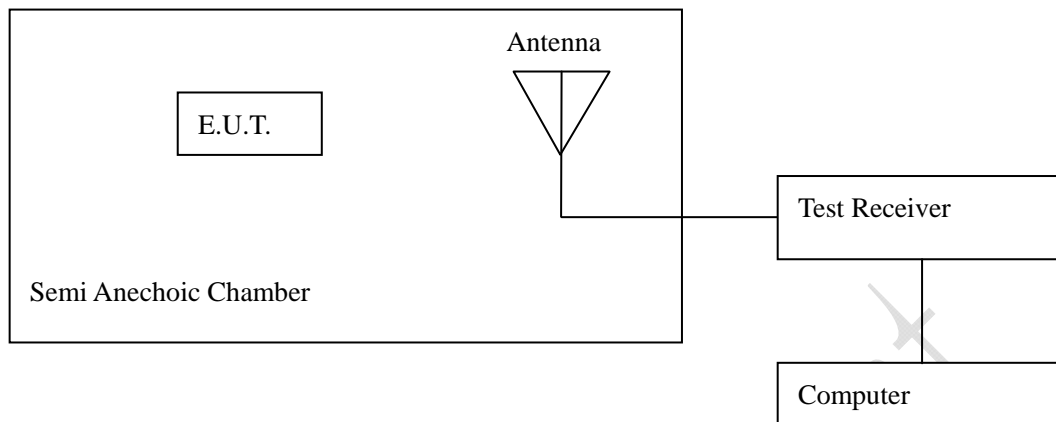
According to Part 15.109(a).

#### Limits

Frequency [MHz]	Field Strength [ $\mu$ V/m]	Field Strength [dB $\mu$ V/m]	Measurement distance [m]
30 -88	100	40.0	3
88-216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

Note: The tighter limit applies at the band edges.

## Test Configuration



The measuring distance between E.U.T and antenna is 3m.

## Test Setup:

The EUT was placed in an anechoic chamber, see figure RE. The EUT is tested as tabletop EUT. The EUT is positioned on an 80cm height wood table.

The EUT is used as the peripheral equipment of the PC.

The setup is according to Figure 11a of ANSI C63.4-2003.

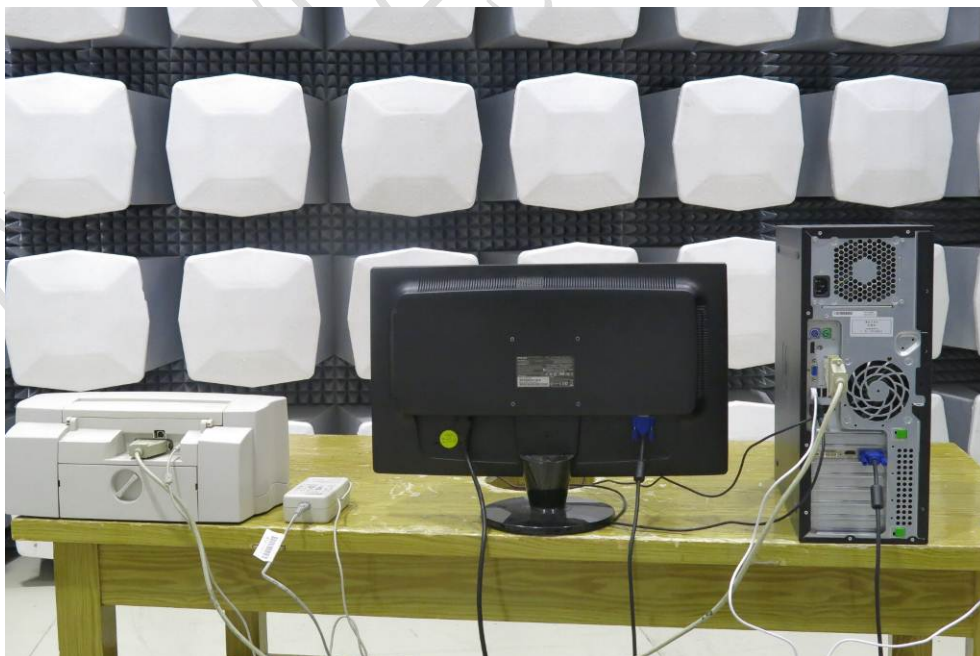


Figure RE: Ports



Figure RE

## Test Method

During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. The measurement was done by the automated test system.

RBW: 100kHz

## Test Data:

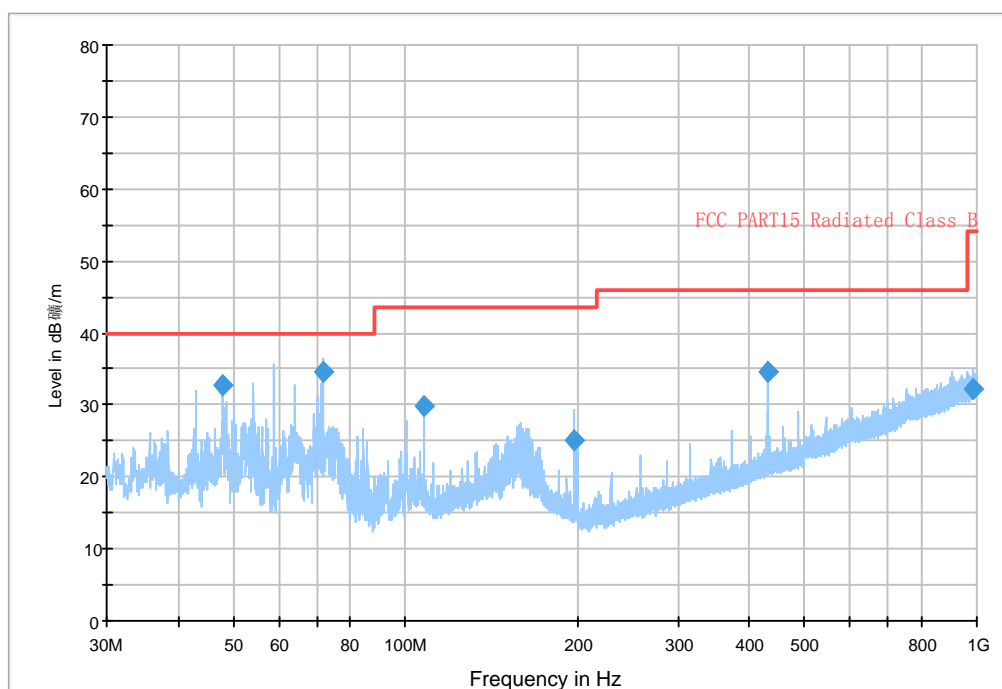
Frequency [MHz]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Antenna Height [cm]	Turntable Azimuth [degree]	Antenna Polarisation (V/H)
48.000000	32.7	40.00	100.0	59.0	V
71.600000	34.5	40.00	100.0	177.0	V
108.000000	29.9	43.50	216.0	206.0	V
197.200000	25.0	43.50	350.0	274.0	V
429.560000	34.7	46.00	100.0	28.0	V
983.200000	32.2	54.00	118.0	4.0	V
51.160000	20.0	40.00	118.0	45.0	H
71.600000	26.6	40.00	350.0	121.0	H
125.280000	22.6	43.50	300.0	86.0	H
171.840000	27.2	43.50	150.0	190.0	H
601.360000	31.3	46.00	100.0	0.0	H
871.040000	26.5	46.00	100.0	63.0	H
Remarks: --					

**FCC Part 15B**  
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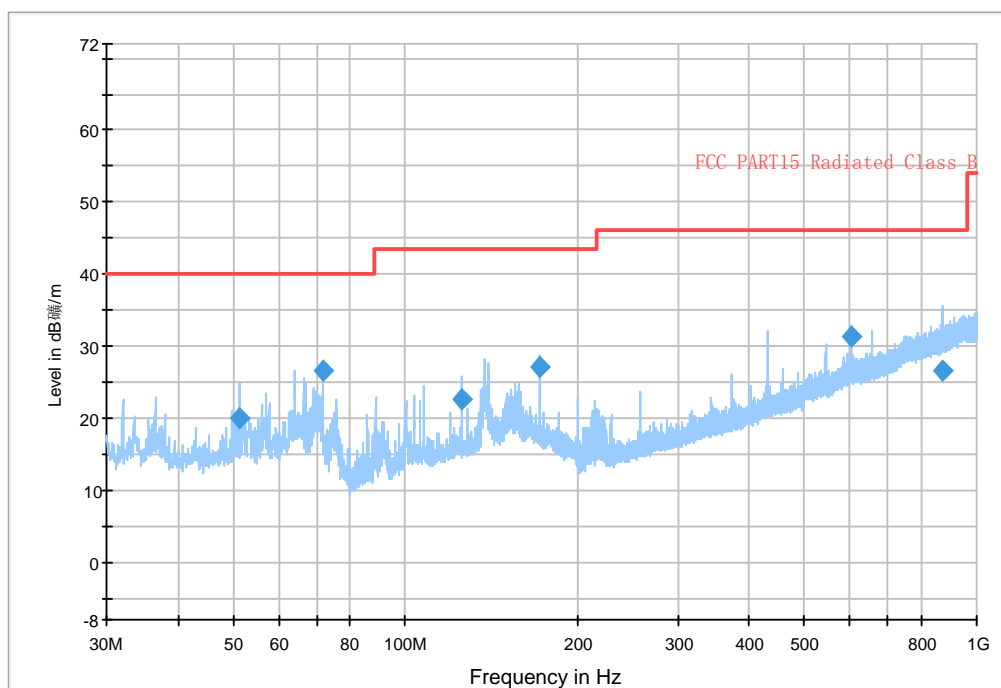
## Graphical Results:

EN55022 Radiated



Graphical results vertical

EN55022 Radiated



Graphical results horizontal

## 4.2 Conducted Emission

Specifications:	15.107, ANSI C63.4-2003					
Date of Tests	2013-08-19					
Test conditions:	Ambient Temperature: 15°C-35°C Relative Humidity: 30%-60% Air pressure: 86-106kPa					
Operation Mode	Transfer data					
Test Results:	Pass					
Test equipment Used:						
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7330	EMI Test Receiver	R/S	ESIB40	839283/007	2014-02-26	Normal
7330	Artificial Mains Network	R/S	ESH2-Z5	837480/002	2014-04-06	Normal
7330	Artificial Mains Network	R/S	ESH2-Z5	100268	2014-01-28	Normal
714	Shielding Room	ETS	--	19003	2013-11-15	Normal

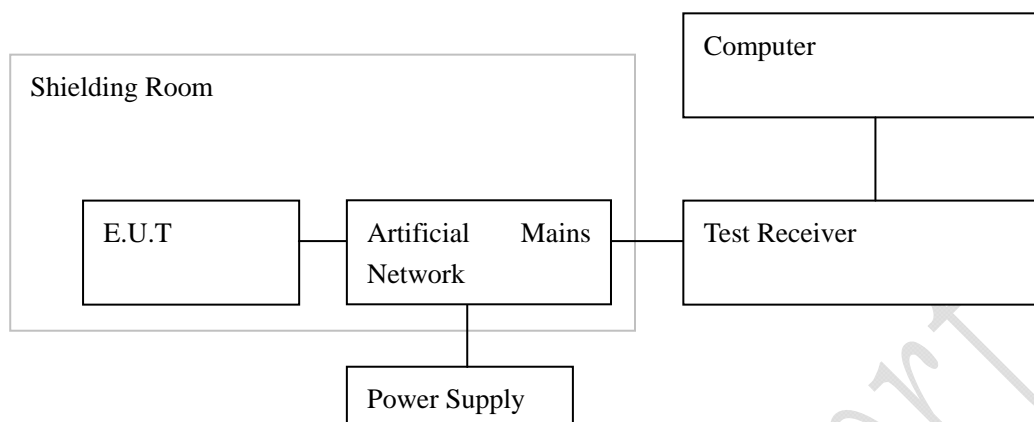
### Limit Level Construction:

According to Part 15.107 (a)

Limits for Conducted Emission		
Frequency of Emission [MHz]	Conducted limit [dB $\mu$ V]	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

\* Decreases with the logarithm of the frequency.

## Test Configuration



### Test Setup:

The EUT was placed in a shielding room, see figure CE. The EUT is positioned on an 80cm height wood table. The EUT is used as the peripheral equipment of the PC.

The setup is according to Figure 10a of ANSI C63.4-2003.

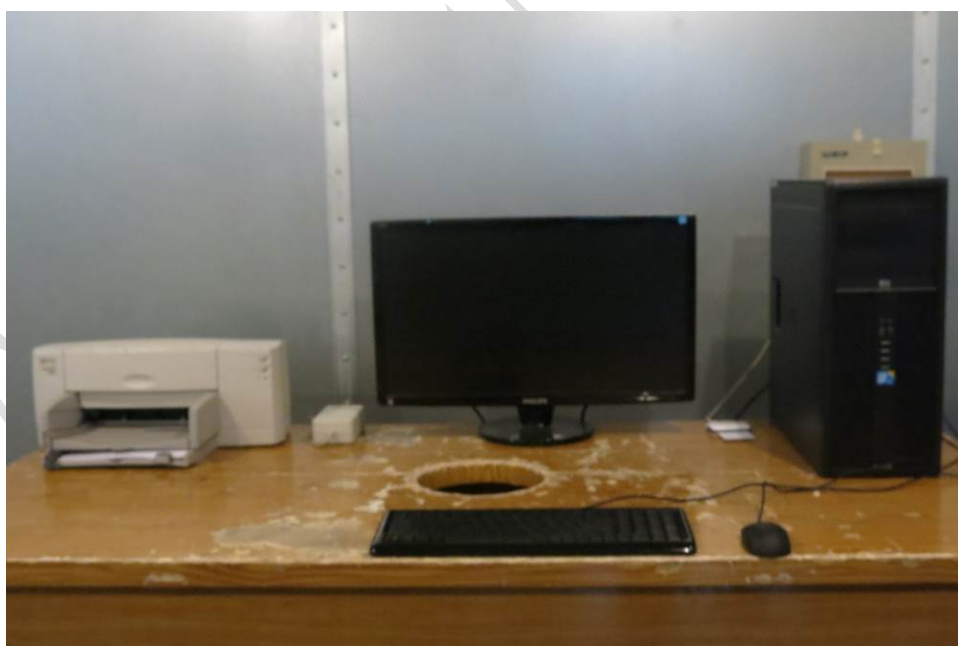


Figure CE





Figure CE: Ports

**Test Method:**

During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. The AC power line of the Notebook was connected to the artificial mains network then to EMI receiver. The measurement was done by the automated test system.

**RBW:** 9kHz**Line N:**

Detector (QP/AV)	Frequency (MHz)	Level (dB $\mu$ V)	Transducer (dB)	Limit (dB)	PE
QP	0.469500	24.4	9.9	57	Grounded
QP	28.162500	31.1	10.3	60	Grounded
QP	28.315500	32.2	10.3	60	Grounded
QP	28.540500	32.9	10.3	60	Grounded
QP	28.644000	32.9	10.3	60	Grounded
QP	28.743000	32.7	10.3	60	Grounded
AV	4.488000	17.8	10.3	46	Grounded
AV	4.555500	17.3	10.3	46	Grounded
AV	4.762500	20.5	10.3	46	Grounded
AV	4.830000	20.9	10.3	46	Grounded
AV	4.897500	19.2	10.3	46	Grounded
AV	4.965000	19.0	10.3	46	Grounded

**Remarks: The test result is the worst case.**



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## Line L:

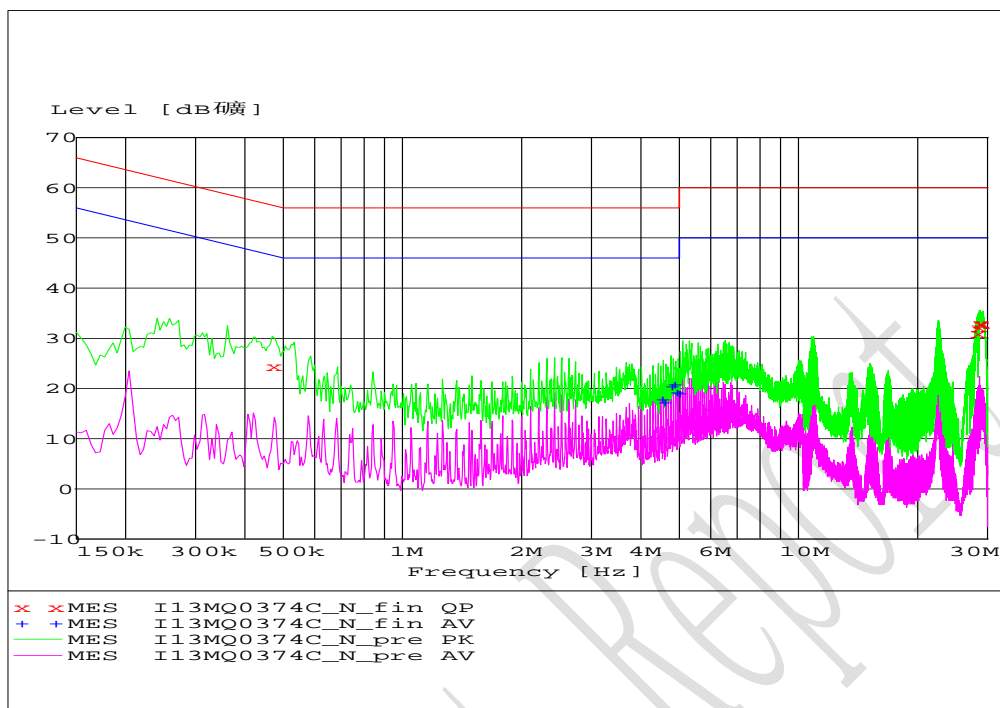
Detector (QP/AV)	Frequency (MHz)	Level (dBμV)	Transducer (dB)	Limit (dB)	PE
QP	22.474500	31.6	10.3	60	Grounded
QP	22.519500	31.3	10.3	60	Grounded
QP	22.582500	31.6	10.3	60	Grounded
QP	22.632000	31.1	10.3	60	Grounded
QP	28.450500	32.2	10.3	60	Grounded
QP	28.716000	31.8	10.3	60	Grounded
AV	4.758000	20.7	10.3	46	Grounded
AV	4.825500	20.7	10.3	46	Grounded
AV	4.893000	19.8	10.3	46	Grounded
AV	4.960500	18.6	10.3	46	Grounded
AV	5.640000	21.6	10.2	50	Grounded
AV	22.573500	22.7	10.3	50	Grounded

**Remarks: The test result is the worst case.**

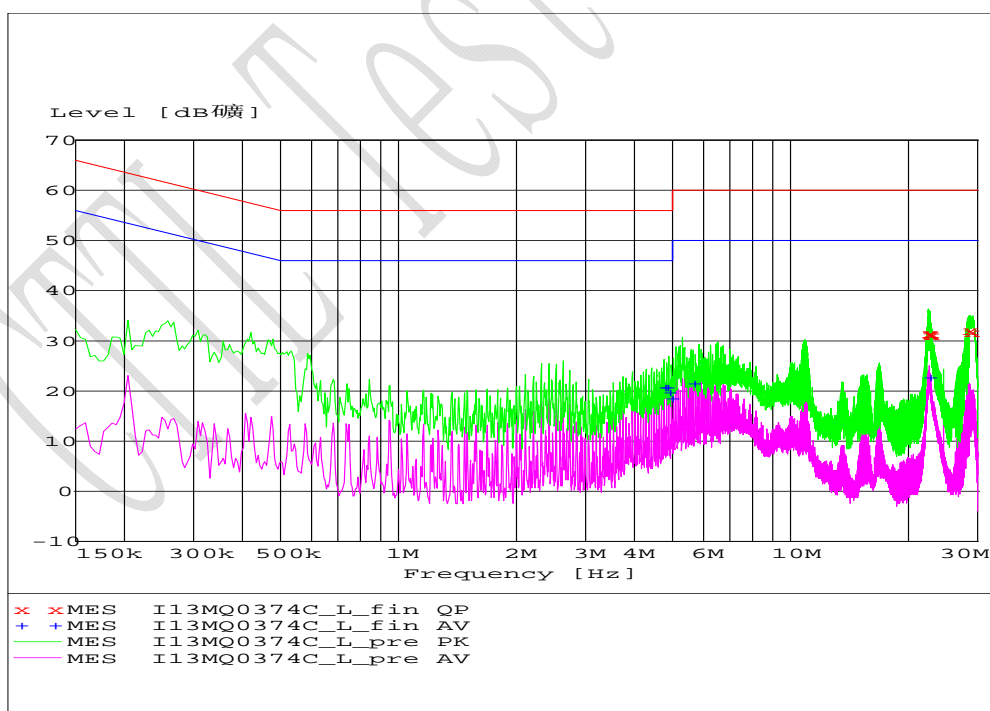
FCC Part 15B  
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## Graphical results:



Graphical results Line N



Graphical results Line L

## ANNEX A External Photos

See Annex A for the external photos.

Test Report

## ANNEX B External Photos

See Annex B for the internal photos.

Test Report

## ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

\_\_\_\_\_ The End of this Report \_\_\_\_\_

CTL Test Report