

## FCC PART 15B

## TEST REPORT

For

### Shenzhen Xinguodu Technology Co., Ltd.

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**FCC ID: XDQN5-1**

<b>Report Type:</b> Original Report	<b>Product Name:</b> POS TERMINAL
<b>Report Number:</b> RDG190313003-00E	
<b>Report Date:</b> 2019-04-19	
Jerry Zhang	
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## **TABLE OF CONTENTS**

<b>General Information .....</b>	<b>3</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	3
OBJECTIVE .....	3
RELATED SUBMITTAL(S)/GRANT(S) .....	3
TEST METHODOLOGY .....	3
MEASUREMENT UNCERTAINTY .....	4
TEST FACILITY .....	4
<b>System Test Configuration .....</b>	<b>5</b>
DESCRIPTION OF TEST CONFIGURATION .....	5
EQUIPMENT MODIFICATIONS .....	5
EUT EXERCISE SOFTWARE .....	5
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS .....	5
SUPPORT CABLE LIST AND DETAILS .....	5
BLOCK DIAGRAM OF TEST SETUP .....	6
TEST EQUIPMENT LIST .....	7
ENVIRONMENTAL CONDITIONS .....	7
<b>Summary of Test Results .....</b>	<b>8</b>
<b>Conducted emissions .....</b>	<b>9</b>
EUT SETUP .....	9
EMI TEST RECEIVER SETUP .....	9
TEST PROCEDURE .....	9
TEST DATA .....	11
<b>Radiated emissions .....</b>	<b>13</b>
EUT SETUP .....	13
EMI TEST RECEIVER SETUP .....	14
TEST PROCEDURE .....	14
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	14
TEST DATA .....	15

## GENERAL INFORMATION

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

<b>EUT Name:</b>		POS TERMINAL
<b>EUT Model:</b>		N5
<b>Highest Operation Frequency:</b>		2480 MHz
<b>Rated Input Voltage:</b>		DC3.7V from Battery or DC5V from adapter
<b>Adapter Information</b>	<b>Model:</b>	ADS-12CG-06 05010EPCU
	<b>Input:</b>	AC 100-240V, 50/60Hz, 0.3A
	<b>Output:</b>	DC5V, 2000mA
<b>External Dimension:</b>		186 mm(L)* 82 mm(W)* 64 mm(H)
<b>Serial Number:</b>		190313003
<b>EUT Received Date:</b>		2019.03.28

### Objective

This report is prepared on behalf of *Shenzhen Xinguodu Technology Co., Ltd.* in accordance with FCC Part 15B Part 2, subpart J, and Part 15, Subpart A and B of the Federal Communications Commission's rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 B Class B.

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

FCC Part 27 TNB submissions with FCC ID: XDQN5-1  
FCC Part 15C DTS submissions with FCC ID: XDQN5-1  
FCC Part 15C DSS submissions with FCC ID: XDQN5-1  
FCC Part 15C DXX submissions with FCC ID: XDQN5-1.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan).

## Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in downloading mode.

### Equipment Modifications

No modification was made to the EUT.

### EUT Exercise Software

The software "Winthrax.exe" was used during test.

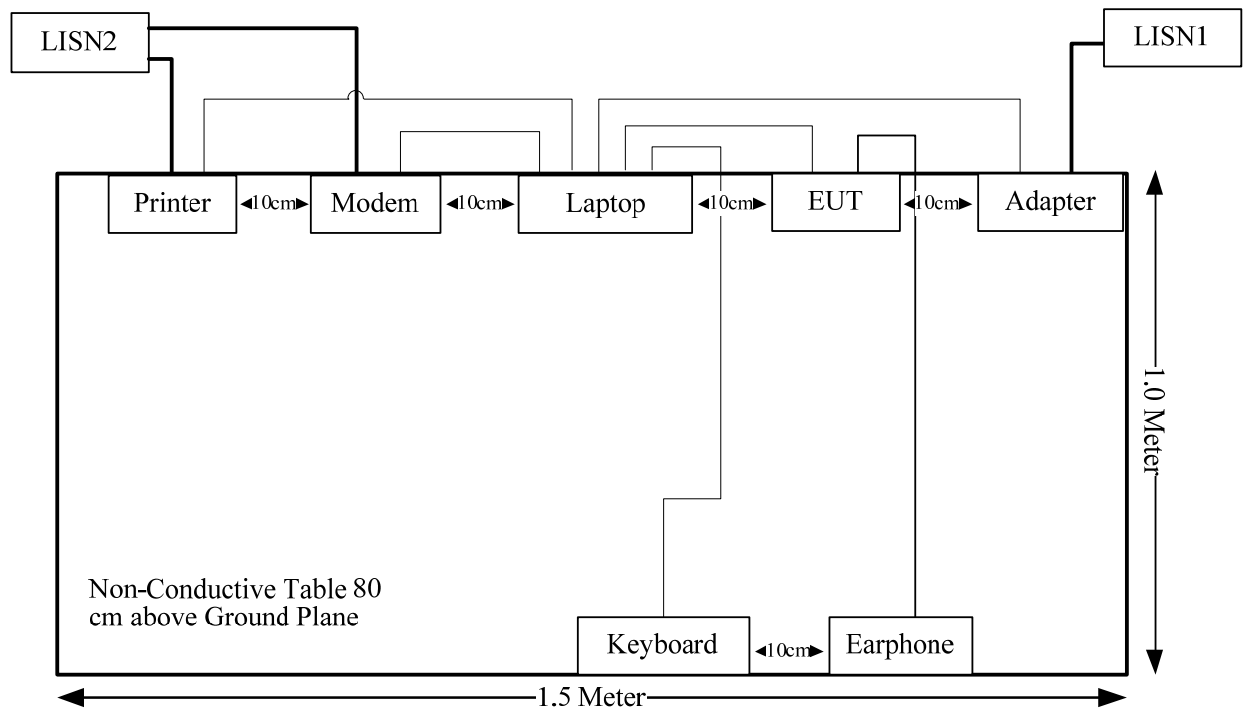
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	PP11L	1CVM0C1
SAST	modem	AEM-2100	90200213
DELL	Keyboard	SK-8115	CN-0J4628-71616-52H-0RT6
HP	Printer	C3941A	JPTV013237

### Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	yes	No	1.2	Serial Port of Laptop	Modem
Parallel Cable	yes	No	1.2	Parallel Port of Laptop	Printer
Keyboard Cable	yes	No	1.8	USB Port of Laptop	Keyboard
USB Cable	No	No	1.0	USB Port of Laptop	EUT
Earphone Cable	No	No	1.2	EUT	Earphone

## Block Diagram of Test Setup



**Test Equipment List**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Conducted emissions</b>					
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2018-12-10	2019-12-10
R&S	EMI Test Receiver	ESCI	101121	2019-03-23	2020-03-23
R&S	L.I.S.N	ESH2-Z5	892107/021	2018-09-19	2019-09-19
<b>Radiated emissions Below 1GHz</b>					
R&S	EMI Test Receiver	ESCI	100224	2018-12-10	2019-12-10
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2018-05-06	2019-05-06
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
<b>Radiated emissions Above 1GHz</b>					
R&S	Spectrum Analyzer	FSP 38	100478	2018-12-10	2019-12-10
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
MICRO-COAX	Coaxial Cable	UFA147-1-2362-100100	64639 231029-001	2019-02-24	2020-02-24
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2018-09-05	2019-09-05

\* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Environmental Conditions**

Test Item:	Conducted emissions	Radiated emissions Below 1GHz	Radiated emissions Above 1GHz
<b>Test Date:</b>	2019-04-08	2019-04-08	2019-04-08
<b>Tester:</b>	Lily Xie	Neil Liao	Vern Shen
<b>Temperature:</b>	25.1°C	23.3°C	23.6°C
<b>Relative Humidity:</b>	46%	31 %	30%
<b>ATM Pressure:</b>	100.6kPa	100.6kPa	100.5kPa

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**SUMMARY OF TEST RESULTS**

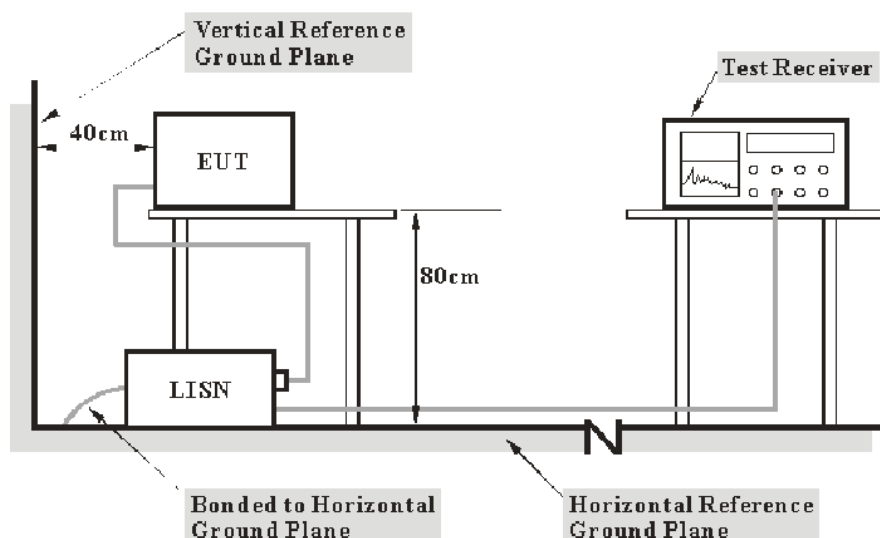
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Rule and Clause	Description of Test	Test Result
FCC §15.107	Conducted emissions	Compliance
FCC §15.109	Radiated emissions	Compliance



## CONDUCTED EMISSIONS

### 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 per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to the Main LISN with 120V/60Hz AC power source.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

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

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### Test Procedure

During the conducted emission test, the Adapter of Laptop was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

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

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

## Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

Herein,

$V_C$ : corrected voltage amplitude

$V_R$ : reading voltage amplitude

$A_C$ : attenuation caused by cable loss

VDF: voltage division factor of AMN or ISN

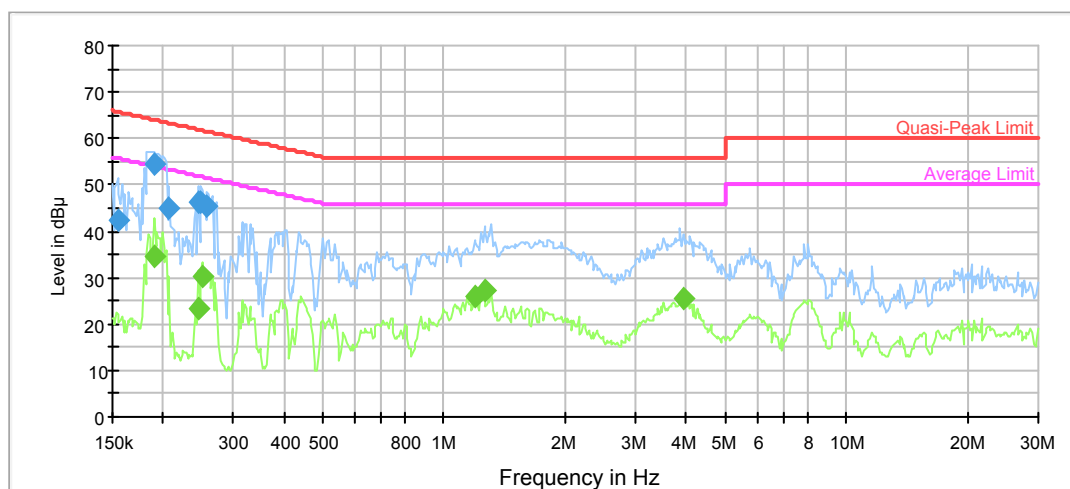
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Data

Please refer to following table and plots:

Model Number: N5  
 Port: L  
 Test Mode: Downloading  
 Power Source: AC120V/60Hz



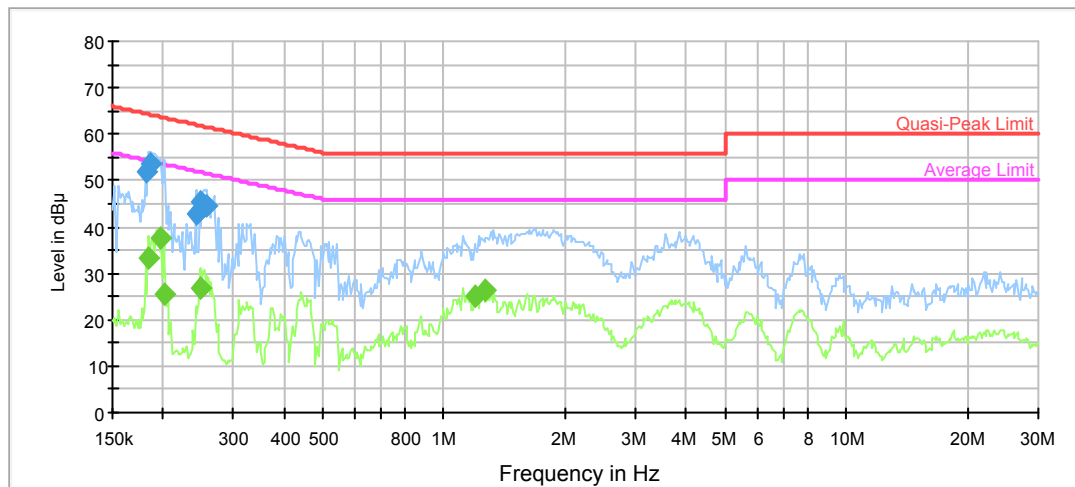
## Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154858	42.2	9.000	L1	11.1	23.5	65.7
0.190505	54.6	9.000	L1	10.7	9.4	64.0
0.207957	44.9	9.000	L1	10.6	18.4	63.3
0.245835	46.2	9.000	L1	10.3	15.7	61.9
0.249785	46.4	9.000	L1	10.3	15.4	61.8
0.257874	45.5	9.000	L1	10.3	16.0	61.5

## Final Result 2

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190505	34.8	9.000	L1	10.7	19.2	54.0
0.245835	23.5	9.000	L1	10.3	28.4	51.9
0.251783	30.4	9.000	L1	10.3	21.3	51.7
1.190776	25.8	9.000	L1	9.8	20.2	46.0
1.259081	27.3	9.000	L1	9.8	18.7	46.0
3.934683	25.7	9.000	L1	9.8	20.3	46.0

Model Number: N5  
Port: N  
Test Mode: Downloading  
Power Source: AC120V/60Hz



### Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181612	52.0	9.000	N	10.8	12.4	64.4
0.187494	53.5	9.000	N	10.7	10.6	64.1
0.241949	42.9	9.000	N	10.4	19.1	62.0
0.247802	45.2	9.000	N	10.3	16.6	61.8
0.253797	44.4	9.000	N	10.3	17.2	61.6
0.257874	44.4	9.000	N	10.3	17.1	61.5

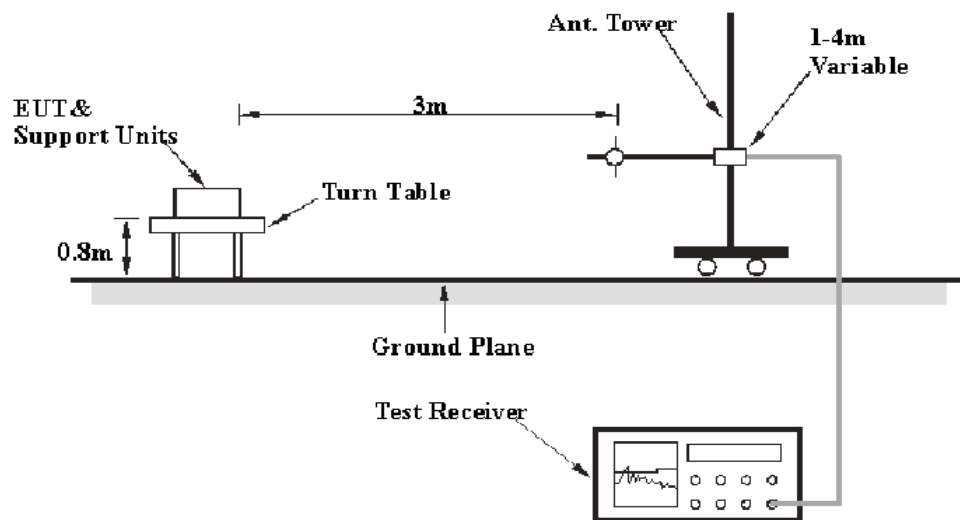
### Final Result 2

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.184529	33.4	9.000	N	10.7	20.9	54.3
0.198249	37.7	9.000	N	10.6	16.0	53.7
0.201433	25.6	9.000	N	10.6	28.0	53.6
0.247802	26.9	9.000	N	10.3	24.9	51.8
1.190776	25.2	9.000	N	9.8	20.8	46.0
1.259081	26.6	9.000	N	9.8	19.4	46.0

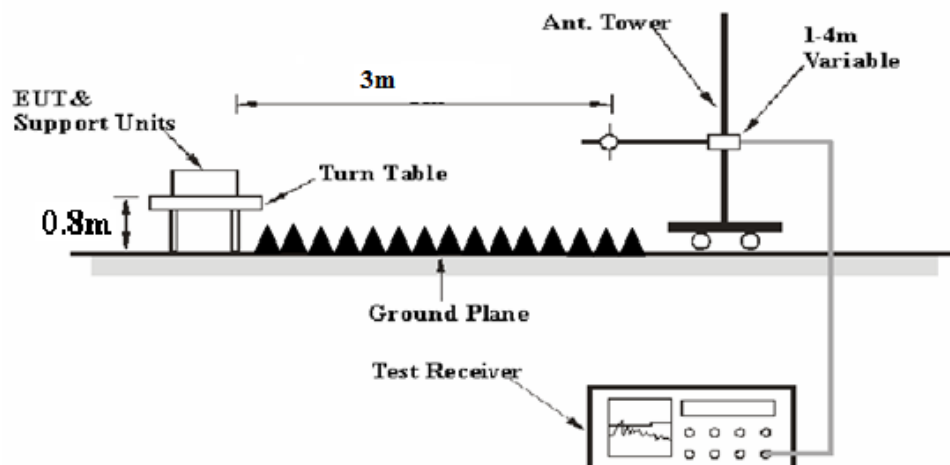
## RADIATED EMISSIONS

### EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site A, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class B limits.

## EMI Test Receiver Setup

The system was investigated from 30 MHz to 13 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	Reduced video bandwidth	/	AVG

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

## Test Procedure

During the radiated emissions, the adapter of laptop was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

## Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:

Corrected = Antenna Factor + Cable Loss - Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

## Test Data

Please refer to following table and plots:

**Condition:** FCC Part 15B Class B  
**EUT:** POS TERMINAL  
**Model:** N5  
**Test Mode:** Downloading

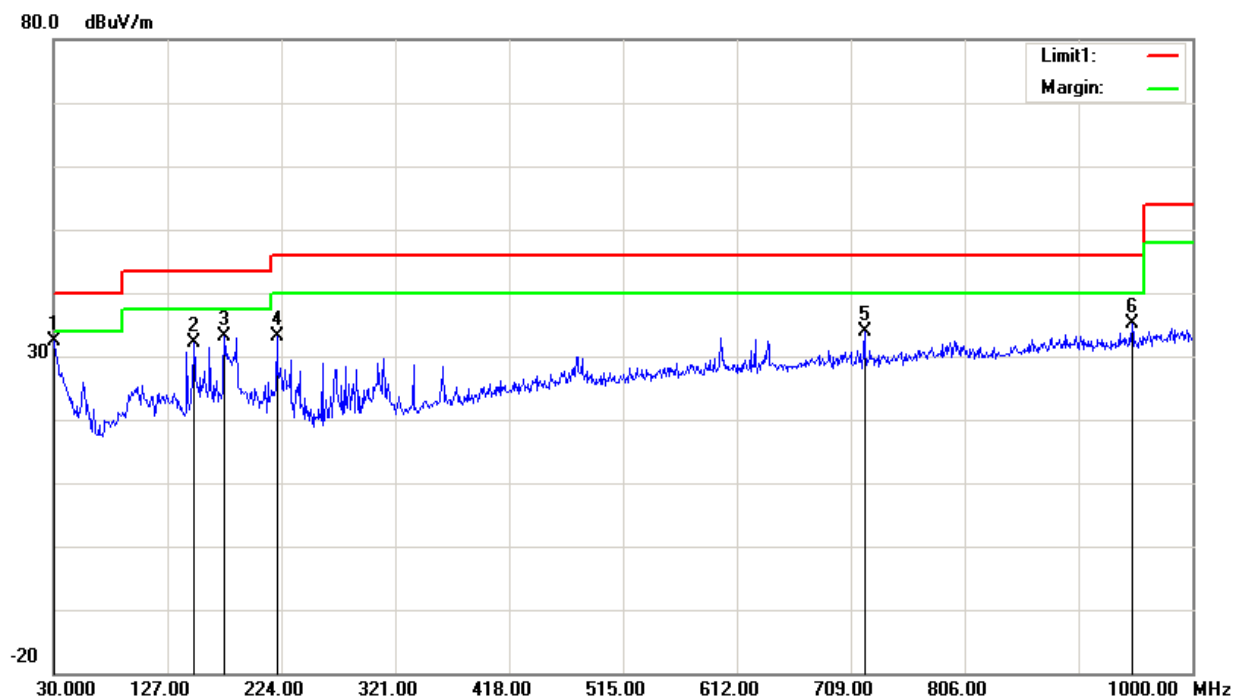
**Polarization:** Horizontal  
**Power:** AC 120V/60Hz  
**Distance:** 3m



Frequency (MHz)	Reading (dB $\mu$ V)	Detector	Corrected (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
30.0000	27.62	peak	1.72	29.34	40.00	10.66
159.9800	39.11	peak	-5.86	33.25	43.50	10.25
185.2000	43.85	peak	-7.40	36.45	43.50	7.05
221.0900	40.64	peak	-6.92	33.72	46.00	12.28
288.0200	41.86	peak	-4.03	37.83	46.00	8.17
307.4200	41.04	peak	-3.65	37.39	46.00	8.61

**Condition:** FCC Part 15B Class B  
**EUT:** POS TERMINAL  
**Model:** N5002L  
**Test Mode:** Downloading

**Polarization:** Vertical  
**Power:** AC 120V/60Hz  
**Distance:** 3m

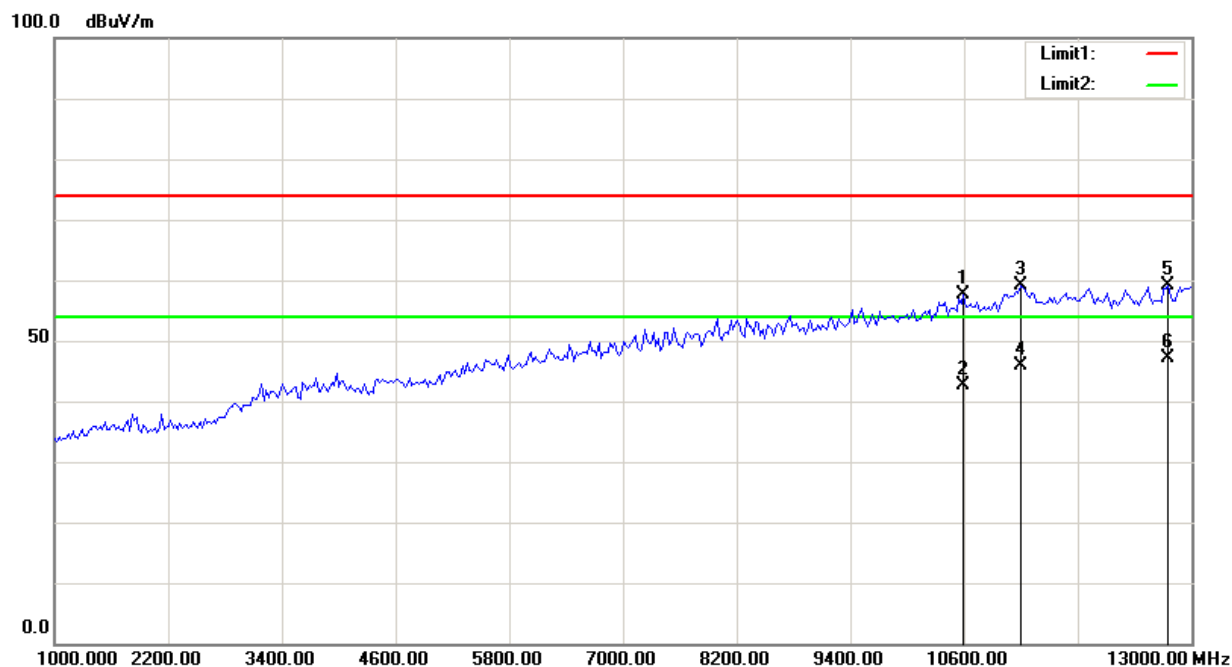


Frequency (MHz)	Reading (dB $\mu$ V)	Detector	Corrected (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
30.0000	30.58	peak	1.72	32.30	40.00	7.70
149.3100	38.10	peak	-6.02	32.08	43.50	11.42
175.5000	39.95	peak	-6.88	33.07	43.50	10.43
220.1200	40.23	peak	-6.99	33.24	46.00	12.76
720.6400	30.69	peak	3.27	33.96	46.00	12.04
948.5900	38.36	peak	-3.35	35.01	46.00	10.99



**Condition:** FCC Part 15 Class B  
**EUT:** POS TERMINAL  
**Model:** N5  
**Test Mode:** Downloading

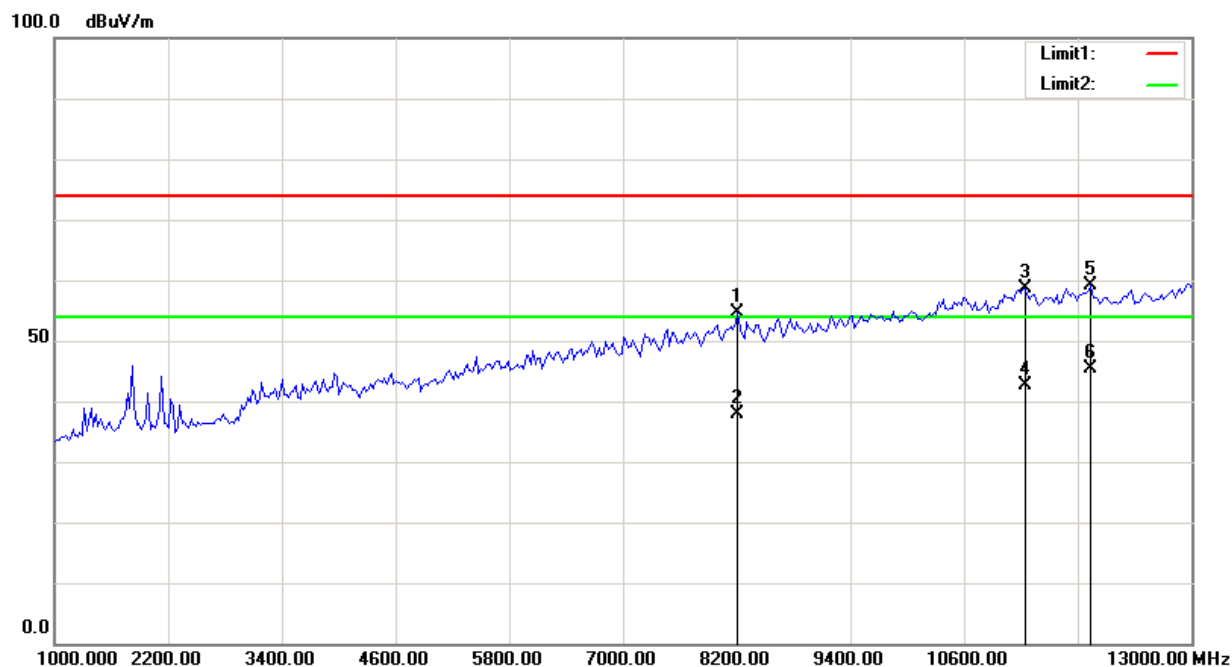
**Polarization:** Horizontal  
**Power:** AC 120V/60Hz  
**Distance:** 3m



Frequency (MHz)	Reading (dB $\mu$ V)	Detector	Corrected (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
10595.190	40.21	peak	17.43	57.64	74.00	16.36
10595.190	25.11	AVG	17.43	42.54	54.00	11.46
11196.393	41.10	peak	18.10	59.20	74.00	14.80
11196.393	27.77	AVG	18.10	45.87	54.00	8.13
12759.519	39.09	peak	20.06	59.15	74.00	14.85
12759.519	27.04	AVG	20.06	47.10	54.00	6.90

**Condition:** FCC Part 15 Class B  
**EUT:** POS TERMINAL  
**Model:** N5  
**Test Mode:** Downloading

**Polarization:** Vertical  
**Power:** AC 120V/60Hz  
**Distance:** 3m



Frequency (MHz)	Reading (dB $\mu$ V)	Detector	Corrected (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
8214.429	40.75	peak	13.94	54.69	74.00	19.31
8214.429	23.86	AVG	13.94	37.80	54.00	16.20
11244.489	40.38	peak	18.22	58.60	74.00	15.40
11244.489	24.48	AVG	18.22	42.70	54.00	11.30
11941.884	40.28	peak	18.92	59.20	74.00	14.80
11941.884	26.58	AVG	18.92	45.50	54.00	8.50

\*\*\*\*\*END OF REPORT\*\*\*\*\*