FCC Part 15
EMI TEST REPORT

of

E.U.T. : Label and Sign Printer
FCC ID. : WD6GPDL4
Model : DuraLabel 4000
Working Frequency : 13.56 MHz

for

APPLICANT : Godex International Co., Ltd.

ADDRESS : 13F, NO.168, JIAN-KANG ROAD, CHUNG-HO CITY, TAIPEI HSIEN 235, TAIWAN

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO. 34, LIN 5, DING FU TSUN, LINKOU HSIANG
TAIPEI HSIEN, TAIWAN, R.O.C.
Tel : (02)26023052 Fax : (02)26010910
http://www.etc.org.tw ; e-mail: emc@etc.org.tw

Report Number : 10-01-RBF-061-02

TEST REPORT CERTIFICATION

Applicant : Godex International Co., Ltd.
13F, NO.168, JIAN-KANG ROAD, CHUNG-HO CITY,
TAIPEI HSIEN 235, TAIWAN

Manufacture : Godex International Co., Ltd.
13F, NO.168, JIAN-KANG ROAD, CHUNG-HO CITY,
TAIPEI HSIEN 235, TAIWAN

Description of EUT :

a) Type of EUT	: Label and Sign Printer
b) Trade Name	: Graphic Products
c) Model No.	: DuraLabel 4000 Motor Model: 1. PM42L-048-XTB3(PM42L-048-XTB3A) 2. M42SP-5N 3. T4216R07
d) FCC ID	: WD6GPDL4
e) Working Frequency	: 13.5608 MHz
f) Power Supply	: Adapter: WDS060240 I/P: 100-240V 1.6A 50-60Hz O/P: 24V 2.5A

Regulation Applied : FCC Rules and Regulations Part 15 Subpart C (2008)

I HEREBY CERTIFY THAT; The data shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note : 1. The results of the testing report relate only to the items tested.
2. The testing report shall not be reproduced except in full, without the written approval of ETC.

Date Test Item Received	:	*Jan. 13, 2010*
Date Test Campaign Completed	:	*Mar. 02, 2010*
Date of Issue	:	*Mar. 03, 2010*

Test Engineer : Vincent Chang
(Vincent Chang, Engineer)

Check By : Charles Wang
(Charles Wang, Supervisor)

Approve & Authorized : Will Yauo
(Will Yauo, Manager)
EMC Dept. II of ELECTRONICS TESTING CENTER, TAIWAN

Table of Contents *Page*

1. GENERAL INFORMATION

1.1 Product Description

a) Type of EUT	: Label and Sign Printer
b) Trade Name	: Graphic Products
c) Model No.	: DuraLabel 4000 Motor Model: 1. PM42L-048-XTB3(PM42L-048-XTB3A) 2. M42SP-5N 3. T4216R07
d) FCC ID	: WD6GPDL4
e) Working Frequency	: 13.56 MHz
f) Power Supply	: Adapter: WDS060240 I/P: 100-240V 1.6A 50-60Hz O/P: 24V 2.5A

1.2 Characteristics of Device:

A 13.56MHz RFID module was installed in the Label and Sign Printer.

1. RF Transmit Frequency: 13.56MHz
2. Supported Transponder: ISO15693 Complied Read/ Write Transponders; TI HF-I Plus; TI HF-I Pro/Standard; I-Code II
3. Antenna impedance: 50 ohm Loop Antenna
4. Communication Protocol: The Nation standard UART format

1.3 Test Methodology

Both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.4 (2003). Other required measurements were illustrated in separate sections of this test report for details.

The RFID transmitter was installed in a class A printer. Tests were conducted with the following method to determine the compliance.

1. Test with the printer working and RFID ON. FCC 15.225 limits apply to RFID signals.
2. Test with the printer working but RFID OFF. FCC class A limits apply to the printer.

The motor inside the printer has three options. Tests were conducted to each one of the motors.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at NO.34, LIN 5, DINGFU TSUEN, LINKOU SHIANG TAIPEI COUNTY, TAIWAN, 24442, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Aug. 05, 2008.

2. DEFINITION AND LIMITS

2.1 Definition

Unintentional radiator:

A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:

A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :

A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:

A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

Except for Class A digital devices, for equpment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency MHz	Quasi Peak dB μV	Average dB μV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

* Decreases with the logarithm of the frequency

(2) Radiated Emission Limits:

According to 15.225, the requirement of radiated emission is:

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

According to § 15.209 Radiated emission limits, general requirements.
(a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100 **	3
88 – 216	150 **	3
216 – 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional

radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

(3) Frequency Stability Limit:

According to 15.225, the requirement of frequency stability is:

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performe using a new battery.

(4) Antenna Requirement

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.15
0.495 - 0.505 **	16.69475 - 16.69525	608-614	5.35-5.46
2.1735 - 2.1905	16.80425 - 16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475 - 156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3360-4400	Above 38.6
13.36-13.41			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

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.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3 SYSTEM TEST CONFIGURATION

3.1 Justification

All measurements were intentional to maximum the emissions from EUT by varying the connection cables, therefore, the test result is sure to meet the applicable requirement.

3.2 Devices for Tested System

Device	Manufacture	Model / FCC ID.	Description
Label and Sign Printer*	Godex International Co., Ltd.	DuraLabel 4000 / WD6GPDL4	1.5m Unshielded AC Adapter 0.8m Unshielded USB Cable
Monitor	BenQ	FP756	1.5m Unshielded AC Power Cord 1.5m Unshielded VGA Cable
PC	IBM	M/T6824-RCV	1.5m Unshielded AC Power Cord
Modem	SmarTEAM	1200AT	1.5m Unshielded AC Adapter Cable
Keyboard	IBM	KB-0225	1.5m Unshielded PS2 Line
Mouse	IBM	MU29J	1.5m Unshielded PS2 Line
Printer	EPSON	Stylus 700	1.5m Unshielded AC Power Cord 1.5m Unshielded Parallel Cable

Remark "*" means equipment under test.

4. RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For periodic operation intentional radiator, the radiated emission shall comply with § 15.231(b).

According to 15.225, the requirement of radiated emission is:

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

4.2 Measurement Procedure

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively.

2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on an open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.

3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.

4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0° to 360° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.

5. Repeat step 4 until all frequencies need to be measured were complete.

6. Repeat step 5 with search antenna in vertical polarized orientations.

7. Check the three frequencies of highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 30 MHz configuration

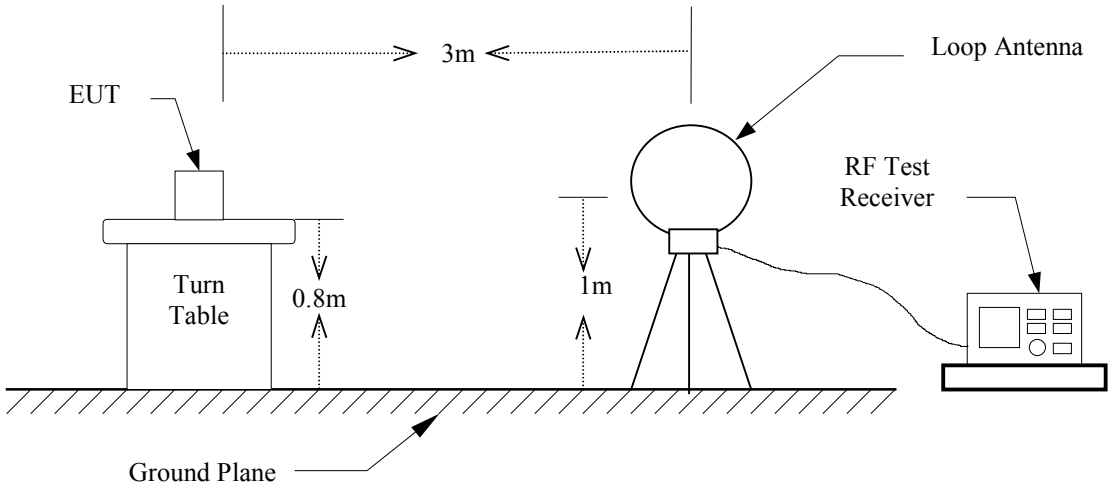
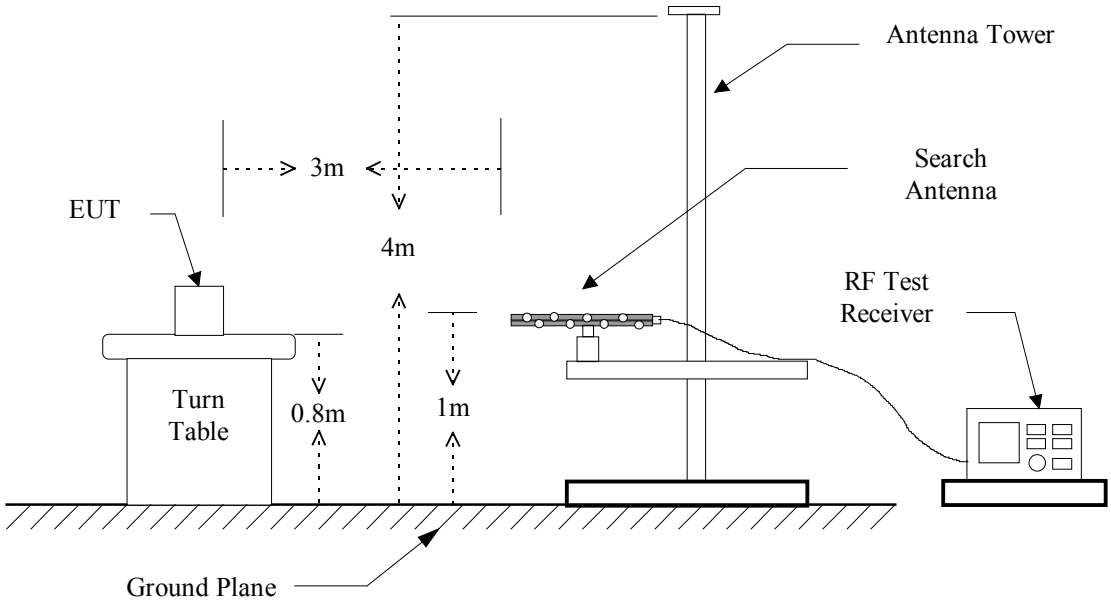


Figure 2 : Frequencies measured above 30 MHz configuration



4.3 Test Data

4.3.1 Below 30MHz

Test Motor Model: PM42L-048-XTB3(PM42L-048-XTB3A)

Operation Mode : Transmitting

Test Date : Feb. 24, 2010 Temperature : 20 °C Humidity : 65 %

Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
13.5608	48.2	8.6	56.8	124.0	-67.2
27.1216	---	---	---	69.5	---

Test Motor Model: T4216R07

Operation Mode : Transmitting

Test Date : Feb. 24, 2010 Temperature : 20 °C Humidity : 65 %

Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
13.5608	49.1	8.6	57.7	124.0	-66.3
27.1216	---	---	---	69.5	---

Test Motor Model: M42SP-5N

Operation Mode : Transmitting

Test Date : Feb. 24, 2010 Temperature : 20 °C Humidity : 65 %

Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
13.5608	48.3	8.6	56.9	124.0	-67.1
27.1216	---	---	---	69.5	---

Note :

1. *Result = Reading + C. Factor*
2. *If the result of peak value is under the limit of Quasi-Peak, the Quasi-Peak valuedoesn't need to be measured.*
3. *With a distant extrapolation of 40log(30m/3m) on the offset level of receiverduring the test.*

Limit Calculation:

Fundamental (§15.225(a)) : 20 log (15848) + 40 log (30/3) = 124.0 dBuV/m

Harmonic (§15.225(d)) : 20 log (30) + 40 log (30/3) = 69.5 dBuV/m

4.3.2 Harmonics in 30MHz – 1GHz

Test Motor Model: PM42L-048-XTB3(PM42L-048-XTB3A)

Test Date : Feb. 24, 2010 Temperature : 26 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
40.682	H	5.7	12.5	18.2	40.0	-21.8	78	1.5
54.243	H	13.0	11.1	24.1	40.0	-15.9	92	1.5
67.804	H	13.8	10.4	24.2	40.0	-15.8	79	1.5
81.365	H	17.7	10.5	28.2	40.0	-11.8	83	1.5
94.365	H	18.8	11.2	30.0	43.5	-13.5	92	1.5
108.486	H	24.4	11.8	36.2	43.5	-7.3	74	1.5

Test Motor Model: T4216R07

Test Date : Feb. 24, 2010 Temperature : 26 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
40.682	V	6.7	12.5	19.2	40.0	-20.8	167	1.0
54.243	H	13.1	11.1	24.2	40.0	-15.8	92	1.5
64.804	H	14.0	10.5	24.5	40.0	-15.5	94	1.5
81.365	H	19.3	10.5	29.8	40.0	-10.2	85	1.5
94.926	H	19.5	11.2	30.7	43.5	-12.8	78	1.5
108.486	H	25.6	11.8	37.4	43.5	-6.1	92	1.5

Note :

1. Remark "---" means that the emission level is too low to be measured.
2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

Test Motor Model: M42SP-5N

Test Date : Feb. 24, 2010 Temperature : 26 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
40.682	H	5.4	12.5	17.9	40.0	-22.1	62	1.5
54.243	H	13.0	11.1	24.1	40.0	-15.9	78	1.5
67.804	H	13.4	10.4	23.8	40.0	-16.2	92	1.5
81.365	H	18.9	10.5	29.4	40.0	-10.6	79	1.5
94.926	H	18.9	11.2	30.1	43.5	-13.4	83	1.5
108.486	H	21.5	11.8	33.3	43.5	-10.2	94	1.5

Note :

1. Remark "---" means that the emission level is too low to be measured.
2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

4.3.3 Spurious Emissions (RFID Off)

Test Motor Model: PM42L-048-XTB3(PM42L-048-XTB3A)

Test Date : Feb. 24, 2010 Temperature : 26 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
40.180	H	5.5	12.5	18.0	40.0	-22.0	72	1.5
158.620	H	6.7	14.6	21.3	43.5	-22.2	62	1.5
188.920	H	5.9	17.5	23.4	43.5	-20.1	79	1.5
218.710	H	6.1	18.7	24.8	46.0	-21.2	84	1.5
252.920	H	5.5	20.4	25.9	46.0	-20.1	92	1.5
312.170	H	8.8	18.1	26.9	46.0	-19.1	79	1.5

Test Motor Model: T4216R07

Test Date : Feb. 24, 2010 Temperature : 26 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
38.150	H	4.7	13.1	17.8	40.0	-22.2	72	1.5
155.640	H	6.6	14.6	21.2	43.5	-22.3	79	1.5
192.820	H	5.5	17.9	23.4	43.5	-20.1	82	1.5
224.140	H	6.0	18.9	24.9	46.0	-21.1	84	1.5
248.620	H	5.4	20.3	25.7	46.0	-20.3	75	1.5
309.110	H	8.8	18.1	26.9	46.0	-19.1	79	1.5

Note :

1. Remark "---" means that the emission level is too low to be measured.
2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

Test Motor Model: M42SP-5N

Test Date : Feb. 24, 2010 Temperature : 26 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
40.110	H	5.3	12.6	17.9	40.0	-22.1	62	1.5
162.990	H	7.4	14.7	22.1	43.5	-21.4	79	1.5
182.980	H	7.5	16.7	24.2	43.5	-19.3	83	1.5
239.340	H	5.5	19.6	25.1	46.0	-20.9	92	1.5
258.910	H	6.1	20.6	26.7	46.0	-19.3	74	1.5
318.110	H	9.8	18.0	27.8	46.0	-18.2	78	1.5

Note :

1. Remark "---" means that the emission level is too low to be measured.
2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

4.4 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. For the limit is employed average value, therefore the peak value can be transferred to average value by subtracting the duty factor. The basic equation with a sample calculation is as follows:

Result = Reading + Corrected Factor

where

Corr. Factor = Antenna Factor + Cable Factor - Amplifier Gain (if any)

4.5 Radiated Test Equipment

Equipment	Manufacturer	Model No.	Next Cal. Date
Test Receiver	Rohde & Schwarz	ESVS30	2010/05/07
Amplifier	HP	8447D	2010/05/06
Spectrum	Advantest	R3162	2011/02/07
Log-periodic Antenna	EMCO	3146	2010/09/29
Biconical Antenna	EMCO	3110B	2010/09/21
Loop Antenna	EMCO	6512	2010/07/18
Amplifier	HP	8449B	2010/12/15
Amplifier	HP	83051A	2010/05/10
Spectrum	Rohde & Schwarz	FSP 40	2010/09/09
Spectrum	HP	8564E	2010/05/07

4.8 Measuring Instrument Setup

Explanation of measuring instrument setup in frequency band measured is as following :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
0.009 to 30	RF Test Receiver	Quasi-Peak	10 kHz	N/A
	Spectrum Analyzer	Peak	10 kHz	30 kHz
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz

4.9 Radiated Measurement Photos

5 FREQUENCY STABILITY MEASUREMENT

5.1 Provisions Applicable

According to sec. 15.225(e) the frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

5.2 Measurement Procedure

A) Frequency stability versus environmental temperature

1. Setup the configuration per figure 3 for frequencies measured at an environmental chamber set for a temperature of 20°C.

2. Turn on EUT and set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. Set the temperature of chamber to 50°C. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.

4. Repeat step 2 with a 10°C decreased per stage until the lowest temperature -20°C is measured, record all measurement frequencies.

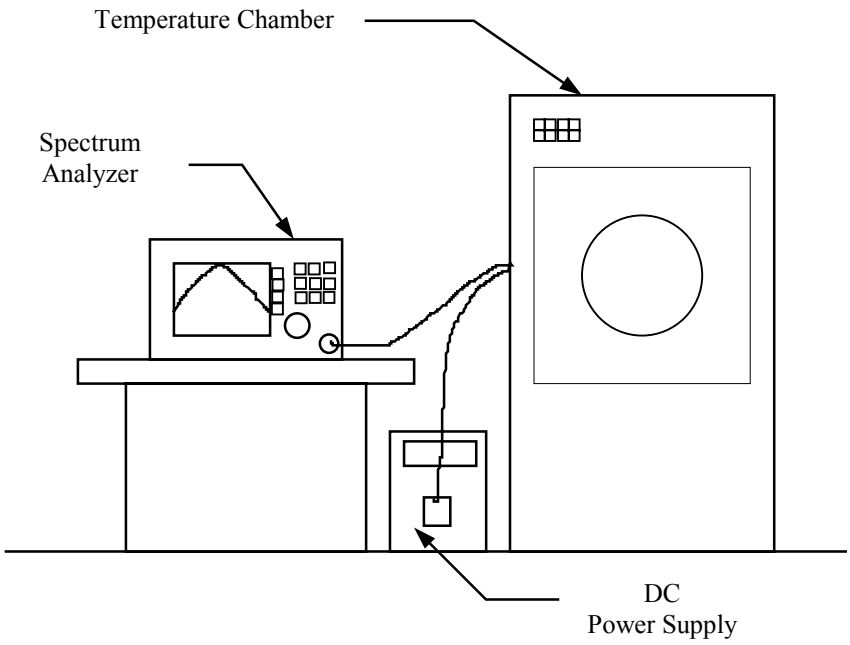
B) Frequency stability versus input voltage

1. Setup the configuration per figure 3 for frequencies measured at an environmental chamber set for a temperature of 20°C.

2. Set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. The EUT is powered with the DC Power Supply, supplied it with 85% and 115% voltage, and measured the EUT operating frequency.

Figure 3 : Frequency stability measurement configuration



5.3 Measurement Instrument

Equipment	Manufacturer	Model No.	Next Cal. Date
Spectrum Analyzer	HP	8564E	2010/05/07
Temperature Chamber	MALLIER	MCT-2X-M	2010/12/02

5.4 Measurement Data

A1. Frequency stability versus enviroment tempture

Reference Frequency : 13.5608 MHz Limit：0.01%							
Enviroment Tempture (°C)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	120	13.5617	0.00694	13.5612	0.00276	13.5608	-0.00018
40		13.5599	-0.00693	13.5602	-0.00436	13.5603	-0.00380
30		13.5600	-0.00619	13.5599	-0.00632	13.5608	-0.00029
20		13.5613	0.00335	13.5603	-0.00399	13.5612	0.00319
10		13.5618	0.00734	13.5610	0.00168	13.5614	0.00410
0		13.5612	0.00295	13.5601	-0.00528	13.5610	0.00113
-10		13.5611	0.00200	13.5617	0.00649	13.5612	0.00263
-20		13.5609	0.00043	13.5617	0.00659	13.5613	0.00369

A2. Frequency stability versus input voltage (±15%)

Reference Frequency : 13.5608 MHz Limit：0.01%							
Enviroment Tempture (°C)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
20	102	13.5599	-0.00641	13.5612	0.00294	13.5601	-0.00508
20	138	13.5612	0.00301	13.5613	0.00389	13.5611	0.00211

6. CONDUCTED EMISSION MEASUREMENT

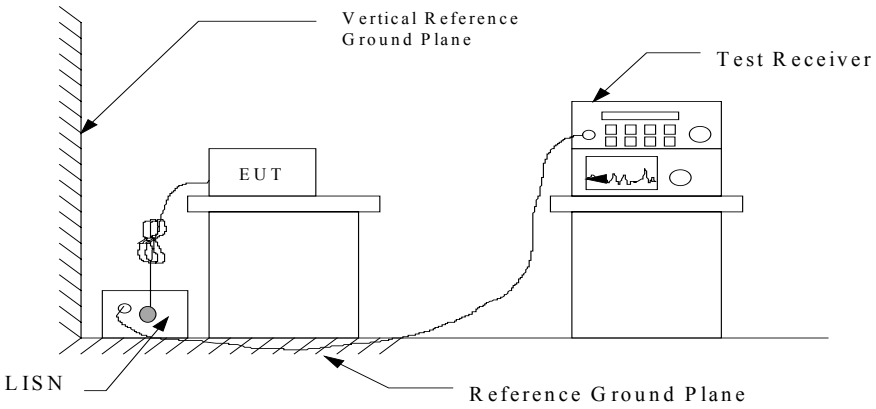
6.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to § 15.107(a) and § 15.207(a) respectively. Both Limits are identical specification.

6.2 Measurement Procedure

1. Setup the configuration per figure 4.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 4 : Conducted emissions measurement configuration



5.3 Conducted Emission Data

Test Motor Model: PM42L-048-XTB3(PM42L-048-XTB3A)

Operation Mode : RFID On / Printer Working

Test Date : Feb. 24, 2010 Temperature : 20 °C Humidity : 65 %

Mode: RFID On / Printer Working Neutral

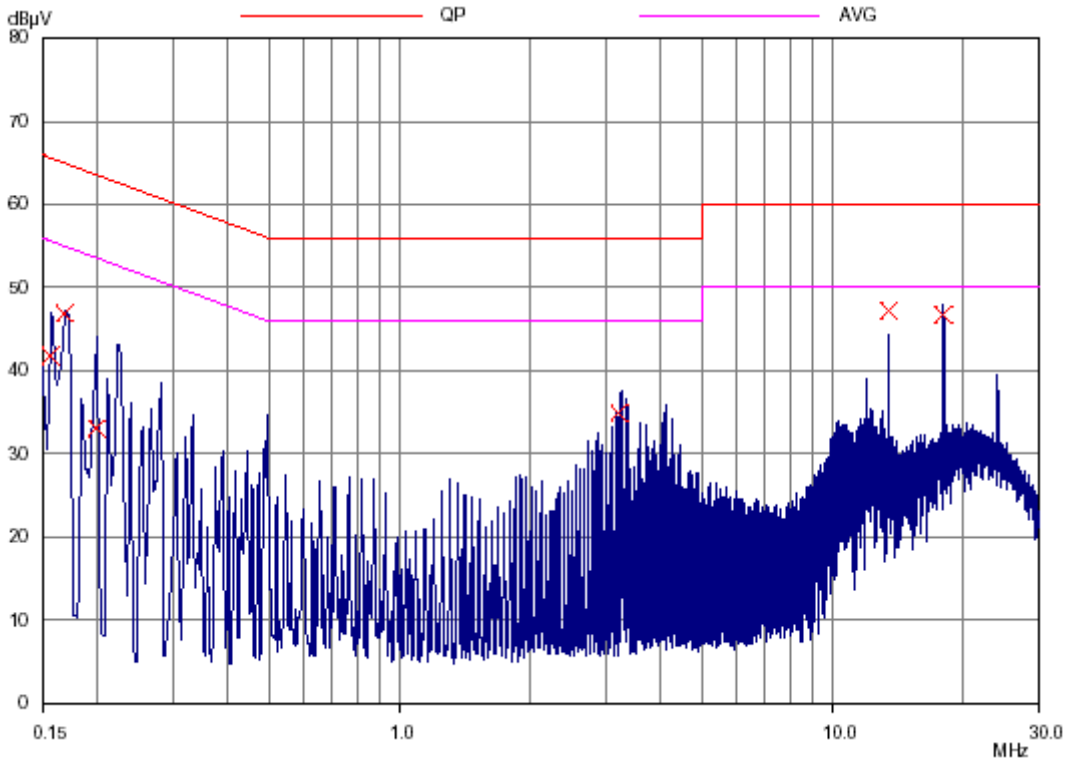
Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.119	46.8	----	0.4	47.2	----	67.9	57.9	-20.7	----
0.157	41.7	----	0.4	42.1	----	65.6	55.6	-23.5	----
0.210	33.0	----	0.4	33.4	----	63.2	53.2	-29.8	----
3.224	34.8	----	0.5	35.3	----	56.0	46.0	-20.7	----
13.562	47.2	----	0.9	48.1	----	60.0	50.0	-11.9	----
18.105	46.6	----	1.0	47.6	----	60.0	50.0	-12.4	----

Mode: RFID On / Printer Working Line

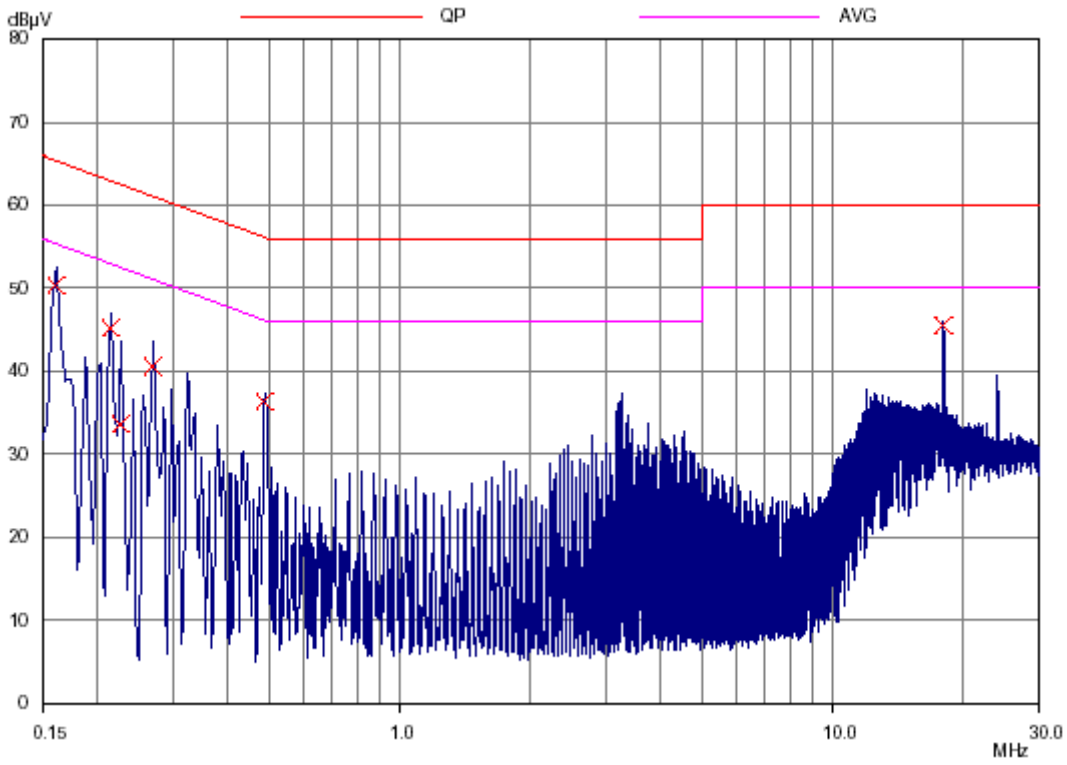
Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.161	50.3	----	0.3	50.6	----	65.4	55.4	-14.8	----
0.216	45.1	----	0.3	45.4	----	63.0	53.0	-17.6	----
0.228	33.6	----	0.3	33.9	----	62.5	52.5	-28.6	----
0.271	40.5	----	0.3	40.8	----	61.1	51.1	-20.3	----
0.489	36.3	----	0.4	36.7	----	56.2	46.2	-19.5	----
18.105	45.5	----	1.2	46.7	----	60.0	50.0	-13.3	----

Note : 1. The expanded uncertainty of the conducted emission tests is 2.45 dB.

Mode: RFID On / Printer Working Neutral



Mode: RFID On / Printer Working Line



Test Motor Model: T4216R07

Operation Mode : RFID On / Printer Working

Test Date : Feb. 24, 2010 Temperature : 20 °C Humidity : 65 %

Mode: RFID On / Printer Working Neutral

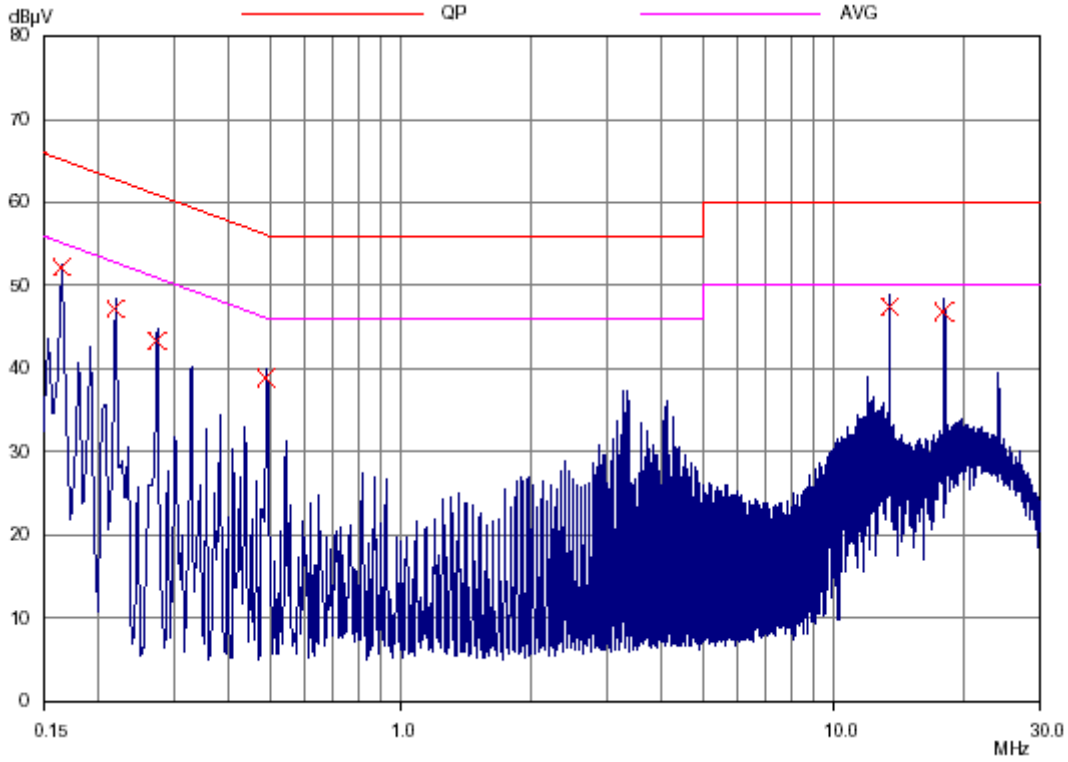
Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.165	52.2	----	0.4	52.6	----	65.2	55.2	-12.6	----
0.220	47.1	----	0.4	47.5	----	62.8	52.8	-15.3	----
0.275	43.3	----	0.4	43.7	----	61.0	51.0	-17.3	----
0.493	38.8	----	0.4	39.2	----	56.1	46.1	-16.9	----
13.562	47.3	----	0.9	48.2	----	60.0	50.0	-11.8	----
18.105	46.8	----	1.0	47.8	----	60.0	50.0	-12.2	----

Mode: RFID On / Printer Working Line

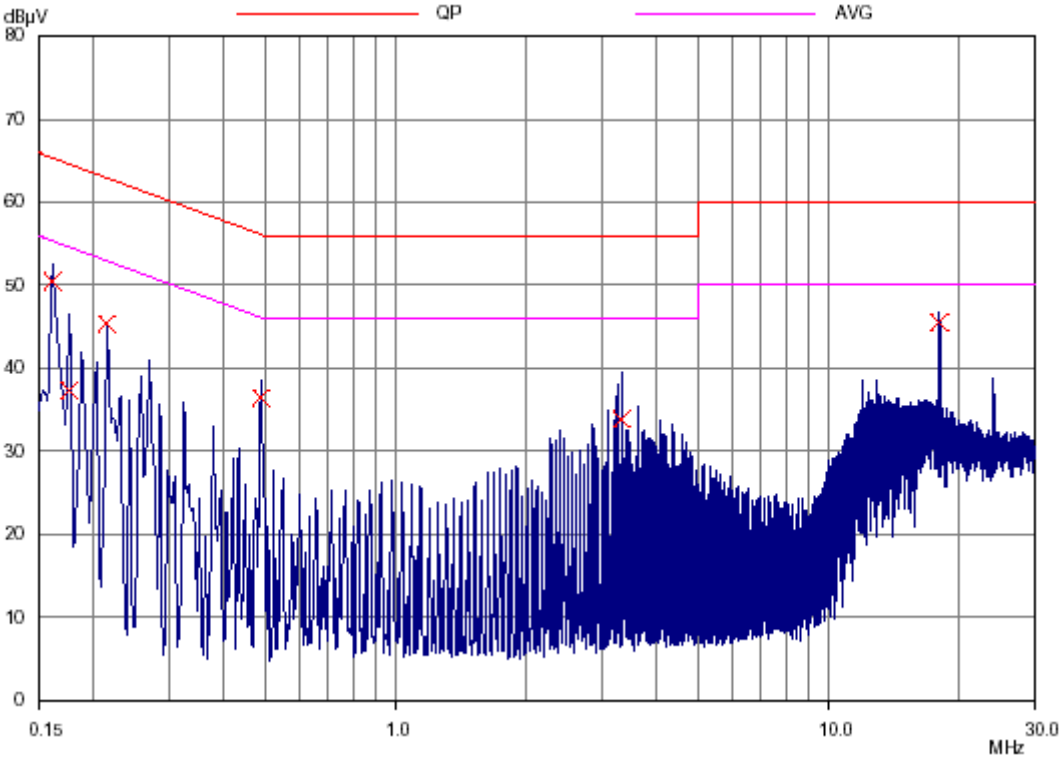
Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.161	50.4	----	0.3	50.7	----	65.4	55.4	-14.7	----
0.177	37.3	----	0.3	37.6	----	64.6	54.6	-27.0	----
0.216	45.1	----	0.3	45.4	----	63.0	53.0	-17.6	----
0.489	36.4	----	0.4	36.8	----	56.2	46.2	-19.4	----
3.339	33.8	----	0.5	34.3	----	56.0	46.0	-21.7	----
18.105	45.6	----	1.2	46.8	----	60.0	50.0	-13.2	----

Note : 1. The expanded uncertainty of the conducted emission tests is 2.45 dB.

Mode: RFID On / Printer Working Neutral



Mode: RFID On / Printer Working Line



Test Motor Model: M42SP-5N

Operation Mode : RFID On / Printer Working

Test Date : Feb. 24, 2010 Temperature : 20 °C Humidity : 65 %

Mode: RFID On / Printer Working Neutral

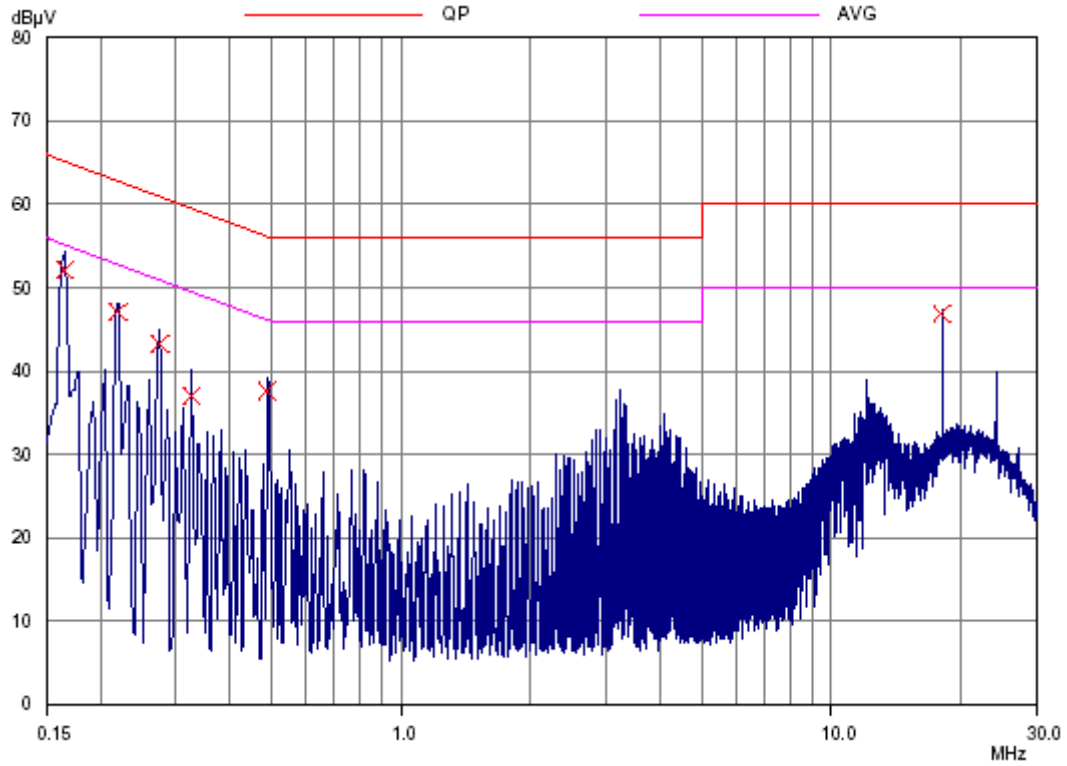
Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.165	52.1	----	0.4	52.5	----	65.2	55.2	-12.7	----
0.220	47.0	----	0.4	47.4	----	62.8	52.8	-15.4	----
0.275	43.2	----	0.4	43.6	----	61.0	51.0	-17.4	----
0.325	37.0	----	0.4	37.4	----	59.6	49.6	-22.2	----
0.489	37.6	----	0.4	38.0	----	56.2	46.2	-18.2	----
18.105	46.8	----	1.0	47.8	----	60.0	50.0	-12.2	----

Mode: RFID On / Printer Working Line

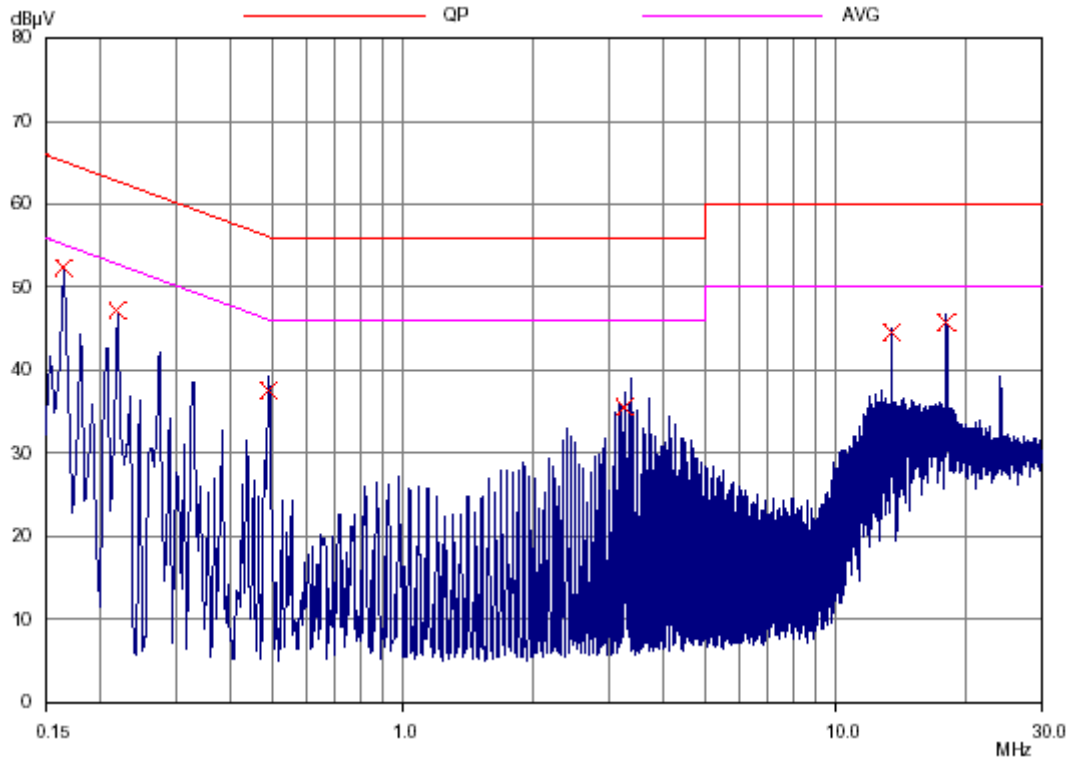
Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.165	52.3	----	0.3	52.6	----	65.2	55.2	-12.6	----
0.220	47.1	----	0.3	47.4	----	62.8	52.8	-15.4	----
0.493	37.4	----	0.4	37.8	----	56.1	46.1	-18.3	----
3.275	35.5	----	0.5	36.0	----	56.0	46.0	-20.0	----
13.562	44.4	----	1.0	45.4	----	60.0	50.0	-14.6	----
18.105	45.6	----	1.2	46.8	----	60.0	50.0	-13.2	----

Note : 1. The expanded uncertainty of the conducted emission tests is 2.45 dB.

Mode: RFID On / Printer Working Neutral



Mode: RFID On / Printer Working Line



6.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dB μ V is obtained, and LISN Factor is 0.1 dB, then the total of field strength is 22.6 dB μ V.

RESULT = 22.5 + 0.1 = 22.6 dB μ V
Level in μ V = Common Antilogarithm[(22.6 dB μ V)/20]
= 13.48 μ V

6.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test .

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2010/02/03	2011/02/02
LISN	EMCO	3625/2	2010/02/08	2011/02/07
LISN	Rohde & Schwarz	ESH2-Z5	2009/07/16	2010/07/15

Note: The standards used to perform this calibration are traceable to NML/ROC and NIST/USA.

6.6 Photos of Conduction Measuring Setup

7 ANTENNA REQUIREMENT

7.1 Standard Applicable

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.2 Antenna Construction

The antenna is permanently attached to the main PCB, no consideration of replacement.

Please see photos submitted in Exhibit B.