FCC CERTIFICATION On Behalf of Coulisse B.V.

Curtain motor Model No.: ABC-23-W120

FCC ID: ZY4ABC23

Prepared for : Coulisse B.V.

Address : Vonderweg 48, 7468 DC Enter The Netherlands

Prepared by : ACCURATE TECHNOLOGY CO. LTD

Address : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.

Science & Industry Park, Nanshan, Shenzhen, Guangdong

P.R. China

Tel: (0755) 26503290 Fax: (0755) 26503396

Report Number : ATE20121494
Date of Test : Jul. 4-Aug.6, 2012
Date of Report : Aug. 6, 2012

TABLE OF CONTENTS

Description Page **Test Report Certification** GENERAL INFORMATION4 Description of Device (EUT)......4 1.1. 1.2. Description of Test Facility4 1.3. Measurement Uncertainty......5 MEASURING DEVICE AND TEST EQUIPMENT......6 2. 3. SUMMARY OF TEST RESULTS......7 FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A) 8 4. 4.1. 4.2. The Emission Limit9 Configuration of EUT on Measurement9 4.3. 4.4. Operating Condition of EUT9 4.5. Test Procedure _______10 4.6. 5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)14 5.1. 5.2. 5.3. 5.4. 5.5. Test Procedure 16 5.6. 6. The Requirement20 6.1. 6.2. 6.3. Test Procedure 20 6.4. 6.5. 7. ANTENNA REQUIREMENT......27 7.1. The Requirement 32

Antenna Construction 32

APPENDIX I (TEST CURVES)

7.2.

Test Report Certification

Applicant : Coulisse B.V.

Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY

CO., LTD

EUT Description : Curtain motor

(A) MODEL NO.: ABC-23-W120

(B) Trade Name. Coulisse B.V.

(C) POWER SUPPLY: 120V /60Hz

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249 ANSI C63.4: 2003

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section15.249 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test :	Jul. 4-Aug. 6, 2012	
Prepared by :	Terry. Young	
	(Engineer)	
Approved & Authorized Signer :	Searle)	
	(Manager)	

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT : Curtain motor

Model Number : ABC-23-W120

Power Supply : 120V/60Hz

Operate Frequency : 2402MHz-2480MHz

Applicant : Coulisse B.V.

Address : Vonderweg 48, 7468 DC Enter The Netherlands

Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC

TECHNOLOGY CO.,LTD

Address : LOUTOU INDUSTRIAL AREA ZHENHAI NINGBO

ZHEJIANG, CHINA

Date of sample received: Jul. 4, 2012

Date of Test : Jul.4-Aug. 6, 2012

1.2.Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC

The Registration Number is 752051

Listed by Industry Canada

The Registration Number is 5077A-2

Accredited by China National Accreditation Committee

for Laboratories

The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.

Science & Industry Park, Nanshan, Shenzhen, Guangdong

P.R. China

1.3. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2

(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2

(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2

(Above 1GHz)

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Туре	S/N	Calibrated date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 7, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 7, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 7, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 7, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 7, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 7, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 7, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 7, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 7, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 7, 2012	Jan. 7, 2013

3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	Compliant
Section 15.249(a)	Fundamental Radiated Emission	Compliant
Section 15.249(d)	Spurious Radiated Emission	Compliant
Section 15.249(d)	Band Edge	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: "N/A" means "Not applicable".

4. FUNDAMENTAL RADIATED EMISSION FOR SECTION 15.249(A)

4.1.Block Diagram of Test Setup

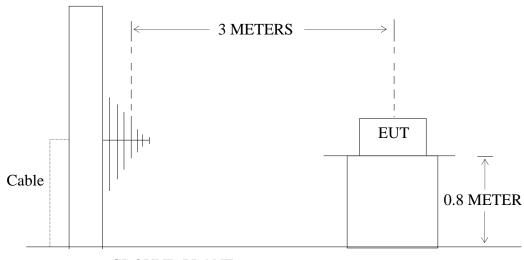
4.1.1.Block diagram of connection between the EUT and simulators



(EUT: Curtain motor)

4.1.2.Semi-Anechoic Chamber Test Setup Diagram

ANTENNA ELEVATION VARIES FROM 1 TO 4 METERS



GROUND PLANE

(EUT: Curtain motor)

4.2. The Emission Limit

4.2.1.For intentional radiators, According to section 15.249(a), Operation within the frequency band of 2.4 to 2.4835GHz, The fundamental field strength shall not exceed 94 dB μ V/m and the harmonics shall not exceed 54 dB μ V/m.

Fundamental	Field Strength of Fundamental	Field Strength of harmonics
Frequency	(millivolts/meter)	(microvolts/meter)
902-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

4.2.2.According to section 15.249(e), as shown in section 15.35(b), 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.

4.3. Configuration of EUT on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.3.1. Curtain motor (EUT)

Model Number : ABC-23-W120

Serial Number : N/A

Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC

TECHNOLOGY CO., LTD

4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT and simulator as shown as Section 4.1.
- 4.4.2. Turn on the power of all equipment.
- 4.4.3. Let the EUT work in TX modes measure it.. We are select 2402MHz, 2442MHz, and 2480MHz TX frequency to transmit.

4.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 1000 kHz.

4.6. The Field Strength of Radiation Emission Measurement Results **PASS.**

Date of Test:	Aug 2, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX2402MHz	Test Engineer:	Ricky

Fundamental Radiated Emissions

Frequency	Reading(dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2402.000	98.95	119.47	-7.45	91.50	112.02	94	114	-2.50	-1.98	Vertical
2402.000	95.69	115.78	-7.45	88.24	108.30	94	114	-5.76	-5.70	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

Date of Test:	Aug 2, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX 2442MHz	Test Engineer:	Ricky

Fundamental Radiated Emissions

Frequency	Reading(dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2442.000	77.54	98.23	-7.42	70.12	90.81	94	114	-23.88	-23.19	Horizon
2442.000	90.31	112.34	-7.42	82.89	104.92	94	114	-11.11	-9.08	Vertical

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

Date of Test:Aug 2, 2012Temperature:25°CEUT:Curtain motorHumidity:50%Model No.:ABC-23-W120Power Supply:AC 120VTest Mode:TX 2480MHzTest Engineer:Ricky

Fundamental Radiated Emissions

Frequency	Reading(c	dBμV/m)	Factor(dB)	tor(dB) Result(dB μ V/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2480.000	74.24	96.37	-7.42	66.82	88.95	94	114	-27.18	-25.05	Horizon
2480.000	87.65	109.42	-7.42	80.23	102.00	94	114	-13.77	-12.00	Vertical

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)

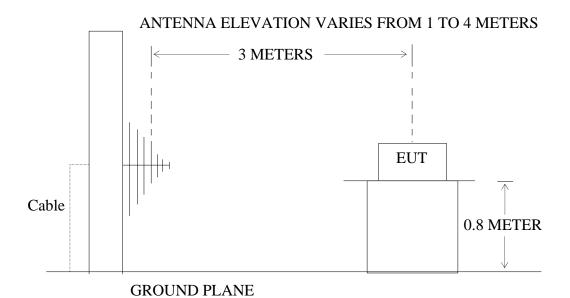
5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: Curtain motor)

5.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: Curtain motor)

5.2. The Emission Limit For Section 15.249(d)

5.2.1.Emission radiated outside of the specified frequency bands, except for harmonics, shall be comply with the general radiated emission limits in Section 15.209.

Radiation Emission Measurement Limits According to Section 15.209

	Limit							
Frequency (MHz)	Field Strength of Quasi-peak Value (microvolt/m)	Field Strength of Quasi-peak Value (dBµV/m)	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is					
30 - 88	100	40	performed with Average detector.					
88 - 216	150	43.5	Except those frequency bands mention above, the					
216 - 960	200	46	final measurement for frequencies below					
Above 960	500	54	1000MHz is performed with Quasi Peak detector.					

5.3.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1. Curtain motor (EUT)

Model Number : ABC-23-W120

Serial Number : N/A

Manufacturer : NINGBO DOOYA MECHANIC TECHNOLOGY CO..

LTD

5.4. Operating Condition of EUT

- 5.4.1. Setup the EUT and simulator as shown as Section 5.1.
- 5.4.2. Turn on the power of all equipment.
- 5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402MHz-2480MHz. We are select 2402MHz, 2442MHz, and 2480MHz TX frequency to transmit.

5.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 120 kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

5.6. The Emission Measurement Result

PASS.

Date of Test:	Aug 2, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX 2402MHz	Test Engineer:	Ricky

spurious Radiated Emissions (≤1000MHz)

Frequency	Reading	Factor(dB)	Result	Limit	Margin	Polarization
(MHz)	(dBµV/m)	Corr.	(dBµV/m)	(dBµV/m)	(dB)	
	QP		QP	QP	QP	
						Vertical
						Horizontal

spurious Radiated Emissions (>1000MHz)

Frequency	Reading(dBμV/m)	Factor(dB)	Result(c	lBμV/m)	Limit(dI	BμV/m)	Margi	n(dB)	Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
4804.000	38.64	52.45	-0.71	37.93	51.74	54	74	-16.07	-22.26	Vertical
4804.000	40.32	55.92	-0.71	39.61	55.21	54	74	-18.79	-17.68	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

Date of Test:	Aug 2, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX 2442MHz	Test Engineer:	Ricky

spurious Radiated Emissions (≤1000MHz)

Frequency	Reading	Factor(dB)	Result	Limit	Margin	Polarization
(MHz)	(dBµV/m)	Corr.	(dBµV/m)	(dBµV/m)	(dB)	
	QP		QP	QP	QP	
						Vertical
						Horizontal

spurious Radiated Emissions (>1000MHz)

Frequency	Reading(dBμV/m)	Factor(dB)	Result(c	lBμV/m)	Limit(dI	BμV/m)	Margi	n(dB)	Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
4884.000	41.21	56.52	-0.23	40.98	56.29	54	74	-13.02	-17.71	Vertical
4884.000	40.12	46.20	-0.23	39.89	45.97	54	74	-14.11	-28.03	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

Date of Test:	Aug 2, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX 2480MHz	Test Engineer:	Ricky

spurious Radiated Emissions (≤1000MHz)

Frequency	Reading	Factor(dB)	Result	Limit	Margin	Polarization
(MHz)	(dBµV/m)	Corr.	(dBµV/m)	(dBµV/m)	(dB)	
	QP		QP	QP	QP	
						Vertical
						Horizontal

spurious Radiated Emissions (>1000MHz)

Frequency	Reading(c	dBμV/m)	Factor(dB)	Result(c	lBμV/m)	Limit(dI	BμV/m)	Margi	n(dB)	Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
4960.000	40.10	54.25	-0.23	39.87	54.02	54	74	-14.13	-19.98	Vertical
4960.000	43.45	55.32	-0.23	43.22	55.09	54	74	-10.78	-18.91	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

6. BAND EDGES

6.1.The Requirement

6.1.1.Band Edge from 2402MHz to 2480MHz. Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

6.2.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.2.1. Curtain motor (EUT)

Model Number : Curtain motor

Serial Number : N/A

Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC

TECHNOLONIC CO., LTD

6.3. Operating Condition of EUT

- 6.3.1. Setup the EUT and simulator as shown as Section 4.1.
- 6.3.2. Turn on the power of all equipment.
- 6.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We are select 2402MHz and 2480MHz TX frequency to transmit.

6.4. Test Procedure

- 1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
- 2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

The Measurement Result

Pass.

Date of Test:	Aug 6, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX 2402MHz	Test Engineer:	Rickey

Frequency	Reading(c	dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2400.000	52.34	66.01	-7.46	44.88	58.55	54.00	74.00	-9.12	-15.45	Vertical
2400.000	53.25	64.68	-7.46	45.79	57.22	54.00	74.00	-8.21	-16.78	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

 $Result = Reading + Corrected \ Factor$

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

3. The spectral diagrams in appendix I display the measurement of QP (up to 1G) and peak (above 1G) values.

Date of Test:	Aug 6, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V
Test Mode:	TX 2480MHz	Test Engineer:	Ricky

Frequency	Reading(c	dBμV/m)	Factor(dB)	Result(c	lBμV/m)	Limit(dl	BμV/m)	Margi	n(dB)	Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	37.13	48.63	-7.37	29.76	41.26	54.00	74.00	-24.24	-32.74	Vertical
2483.500	35.32	47.15	-7.37	27.95	39.78	54.00	74.00	-26.05	-34.22	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

3. The spectral diagrams in appendix I display the measurement of QP (up to 1G) and peak (above 1G) values.



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Job No.: DAZA #314 Polarization: Horizontal Standard: FCC 15C PK Power Source: AC 120V

 Test item:
 Radiation Test
 Date: 12/08/06

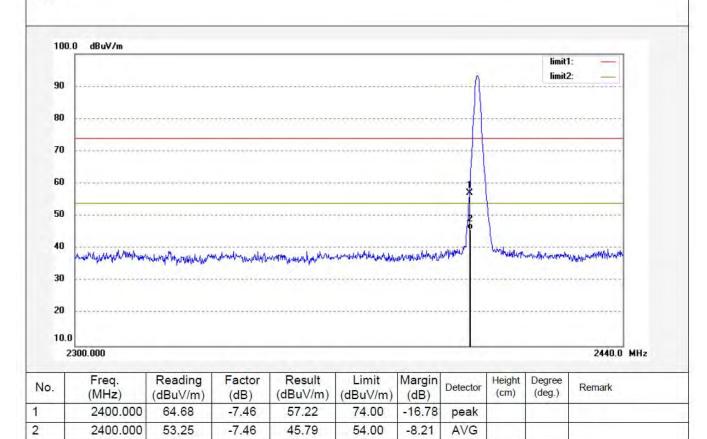
 Temp.(
 C)/Hum.(%)
 24
 C / 48 %
 Time: 13:46:10

EUT: Curtain motor Engineer Signature: Ricky

Mode: Transmitting(2402MHz) Distance: 3m

Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/06

Time: 13:47:32

Distance: 3m

Power Source: AC 120V

Engineer Signature: Ricky

Vertical

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #315 Standard: FCC 15C PK Test item: Radiation Test

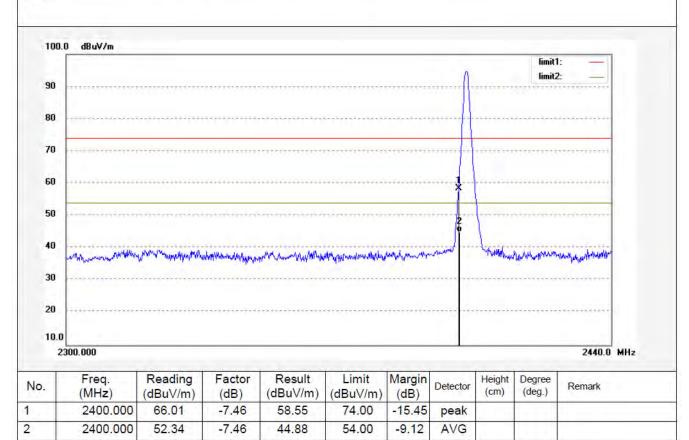
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2402MHz)

Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY..LTD



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ACCURATE TECHNOLOGY CO., LTD.

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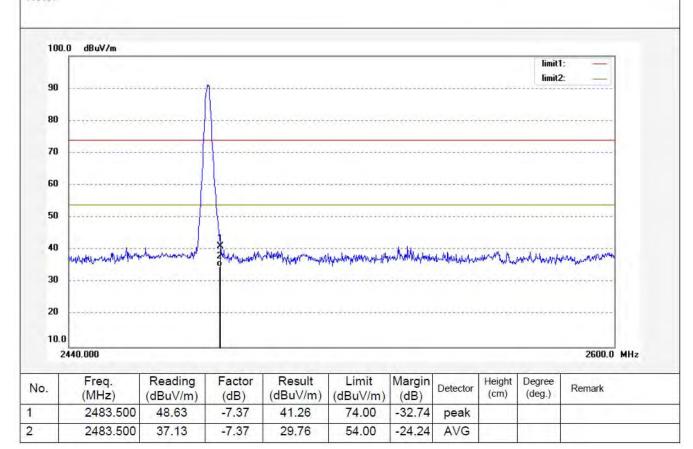
Job No.: DAZA #316 Polarization: Vertical Standard: FCC 15C PK Power Source: AC 120V

Test item: Radiation Test Date: 2012/05/15
Temp.(C)/Hum.(%) 24 C / 48 % Time: 13:49:00

EUT: Curtain motor Engineer Signature: Ricky

Mode: Transmitting(2480MHz) Distance: 3m Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #317 Polarization: Horizontal Standard: FCC 15C PK Power Source: AC 120V

 Test item:
 Radiation Test
 Date: 12/08/06

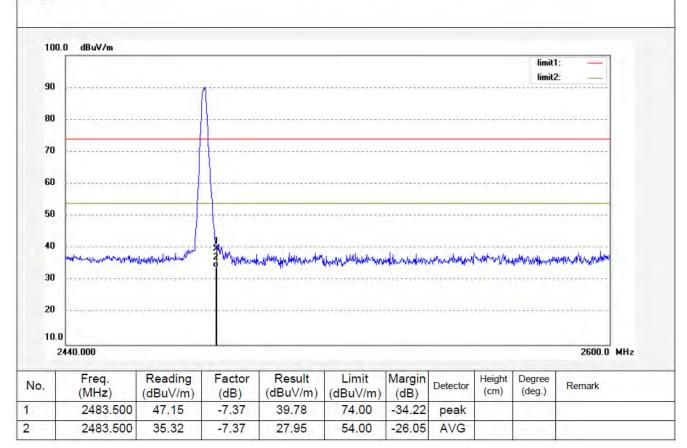
 Temp.(C)/Hum.(%)
 24 C / 48 %
 Time: 13:49:28

EUT: Curtain motor Engineer Signature: Ricky

Mode: Transmitting(2480MHz) Distance: 3m

Mode: Transmitting(2480MHz) Distance: 3r Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD



7. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

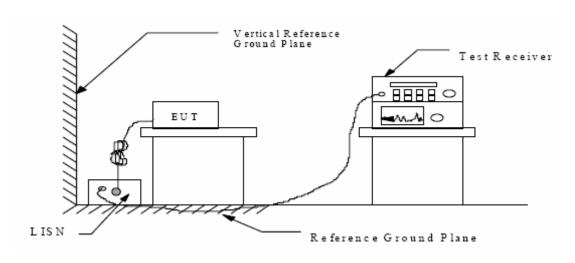
7.1.Block Diagram of Test Setup

7.1.1.Block diagram of connection between the EUT and simulators



(EUT: Curtain motor)

7.1.2. Shielding Room Test Setup Diagram



(EUT: Curtain motor)

7.2. The Emission Limit

7.2.1.Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency	Limit dB(μV)					
(MHz)	Quasi-peak Level	Average Level				
0.15 - 0.50	66.0 - 56.0 *	56.0 – 46.0 *				
0.50 - 5.00	56.0	46.0				
5.00 - 30.00	60.0	50.0				

^{*} Decreases with the logarithm of the frequency.

7.3. Configuration of EUT on Measurement

The following equipment are installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.3.1. Curtain motor (EUT)

Model Number : ABC-23-W120

Serial Number : N/A

Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC

TECHNOLOGY CO., LTD

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 5.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in Operation mode measure it.

7.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 500hm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

The frequency range from 150 kHz to 30MHz is checked.

7.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150 kHz to 30MHz is checked.

Date of Test:	Aug 6, 2012	Temperature:	25°C
EUT:	Curtain motor	Humidity:	50%
Model No.:	ABC-23-W120	Power Supply:	AC 120V/ 60Hz
Test Mode:	Operation	Test Engineer:	Ricky

Frequency	Result	Limit	Margin	Detector	
(MHz)	(dBµV)	(dBµV)	(dB)		
				QP	Line
				AV	
				QP	N
				AV	

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

CONDUCTED EMISSION STANDARD FCC PART 15.207

Curtain motor M/N:ABC-23-W120 EUT:

Manufacturer: NINBO DOOYA MECHANIC & ELECTORNIC CO., LTD

Operating Condition: Operation

Test Site: 1#Shielding Room

Operator: Ricky

Test Specification: L 120V/60Hz

Comment:

8/06/2012 / 8:30:51AM Start of Test:

SCAN TABLE: "V 150K-30MHz fin"

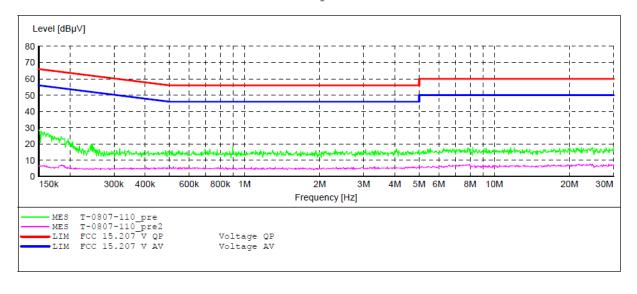
_SUB_STD_VTERM2 1.70 Short Description:

Step ΙF Start Stop Detector Meas. Transducer

Time Bandw. Width

Frequency Frequency 150.0 kHz 30.0 MHz NSLK8126 2008 0.8 % QuasiPeak 1.0 s 9 kHz

Average



CONDUCTED EMISSION STANDARD FCC PART 15.207

Curtain motor M/N:ABC-23-W120 EUT:

Manufacturer: NINBO DOOYA MECHANIC & ELECTORNIC CO., LTD

Operating Condition: Operation

Test Site: 1#Shielding Room

Operator: Ricky

Test Specification: N 120V/60Hz

Comment:

8/06/2012 / 8:36:26AM Start of Test:

SCAN TABLE: "V 150K-30MHz fin"

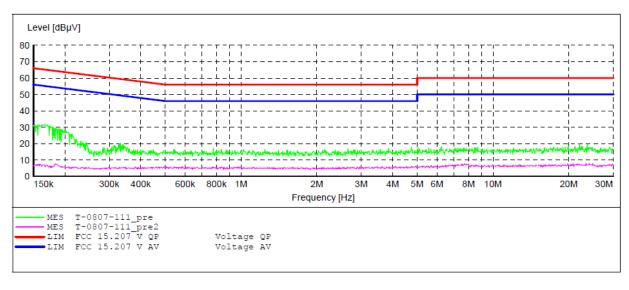
_SUB_STD_VTERM2 1.70 Short Description:

Stop Step Detector Meas. ΙF Transducer

Width Time Bandw.

Frequency Frequency 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008

Average



8. ANTENNA REQUIREMENT

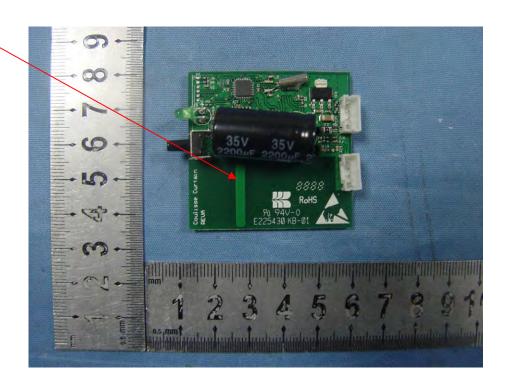
8.1.The Requirement

8.1.1.According to Section 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.

8.2. Antenna Construction

The antenna is PCB antenna.

Antenna



APPENDIX I (Test Curves)



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 12/08/01/

Time: 9/25/01

Distance: 3m

Vertical

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #295

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

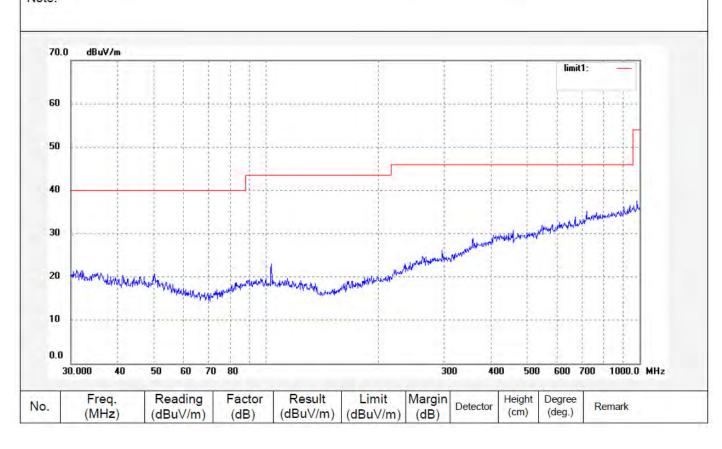
EUT: Curtain motor

Mode:

Model: ABC-23-W120

Transmitting(2402MHz)

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY., LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/01/

Time: 9/27/36

Distance: 3m

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Job No.: DAZA #296

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

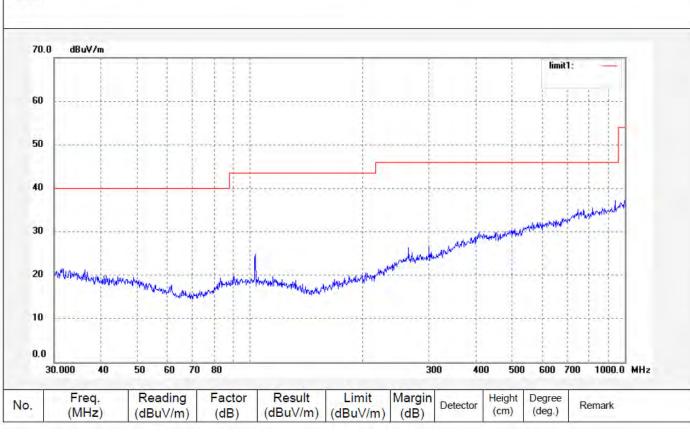
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2402MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Polarization: Vertical

Date: 12/08/01/ Time: 9/28/48

Distance: 3m

Power Source: AC 120V/50Hz

Engineer Signature: Ricky

Job No.: DAZA #297

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

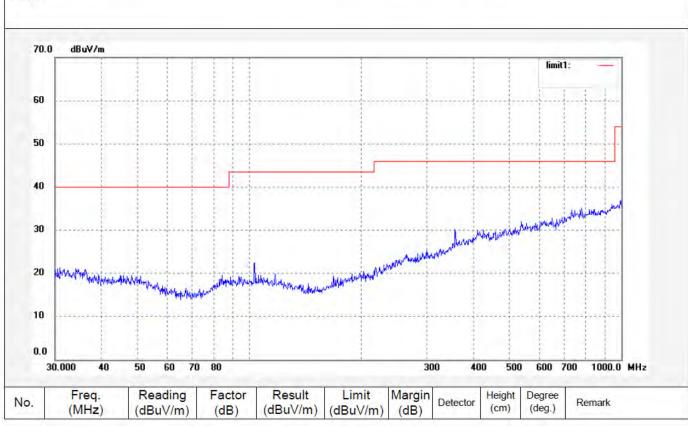
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2442MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY,,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Polarization: Vertical

Date: 12/08/01/

Time: 9/28/48

Distance: 3m

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Job No.: DAZA #297

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

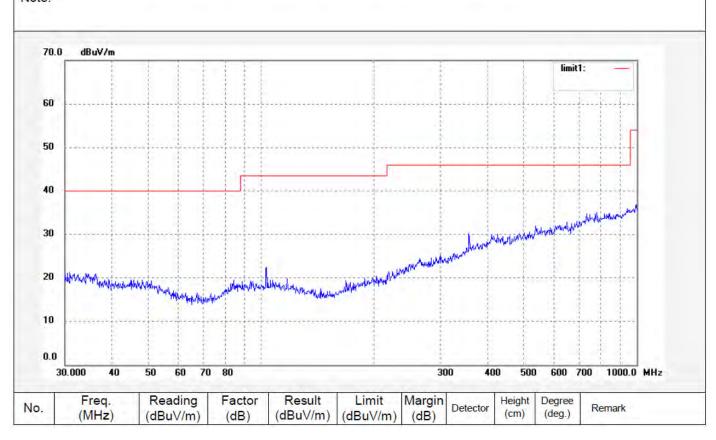
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2442MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/01/

Time: 9/29/46

Distance: 3m

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Job No.: DAZA #298

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

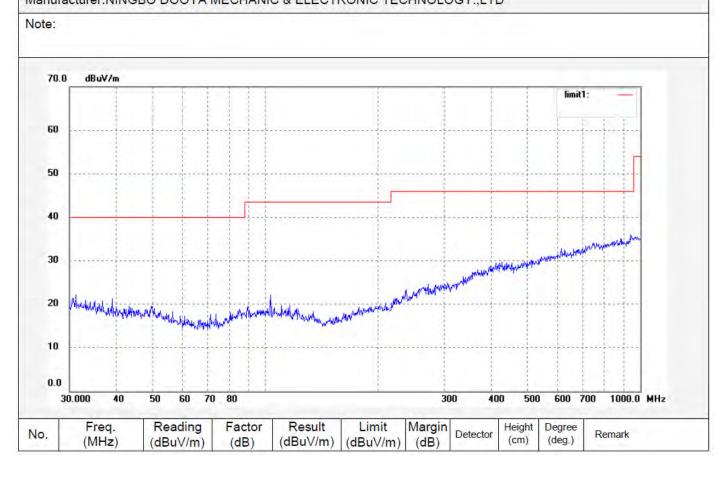
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2442MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/01/ Time: 9/30/39

Distance: 3m

Vertical

Power Source: AC 120V/50Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #299

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

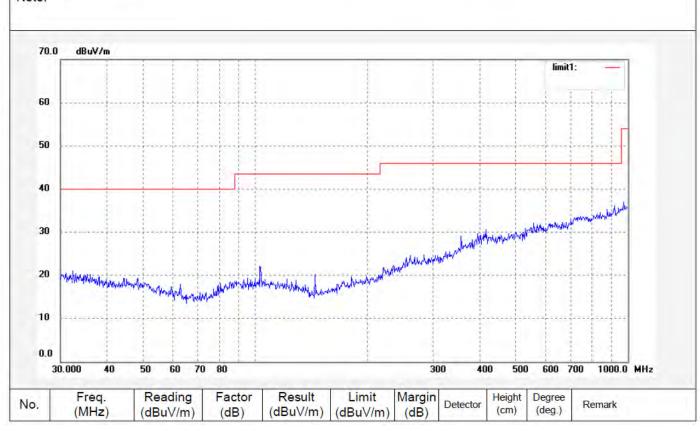
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2480MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 12/08/01/

Time: 9/30/39

Distance: 3m

Vertical

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #299

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

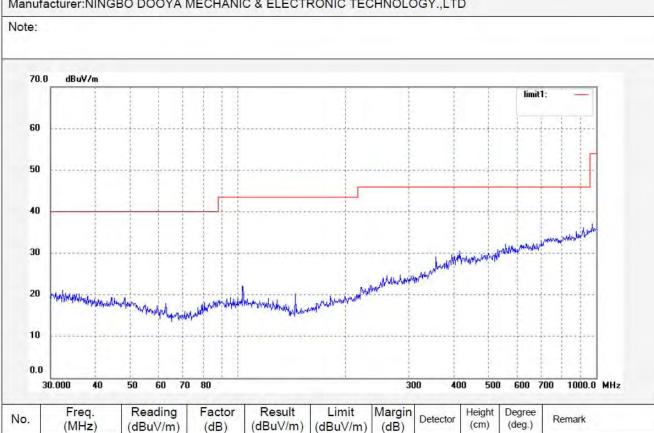
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2480MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 12/08/01/

Time: 9/31/46

Distance: 3m

Horizontal

Power Source: AC 120V/50Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #300

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

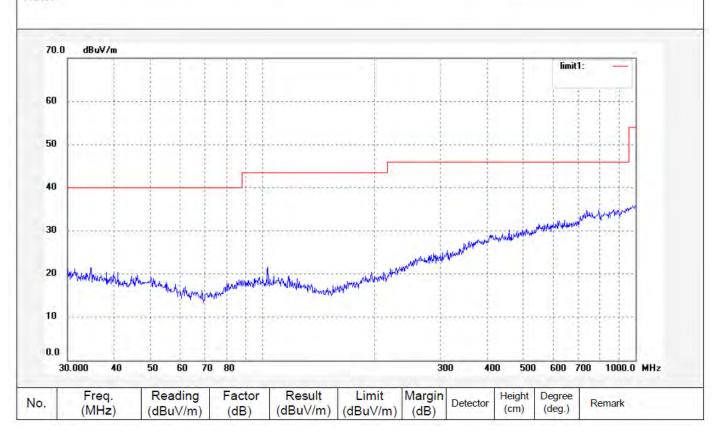
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2480MHz)

Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY., LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/01/

Time: 9/31/46

Distance: 3m

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Job No.: DAZA #300

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

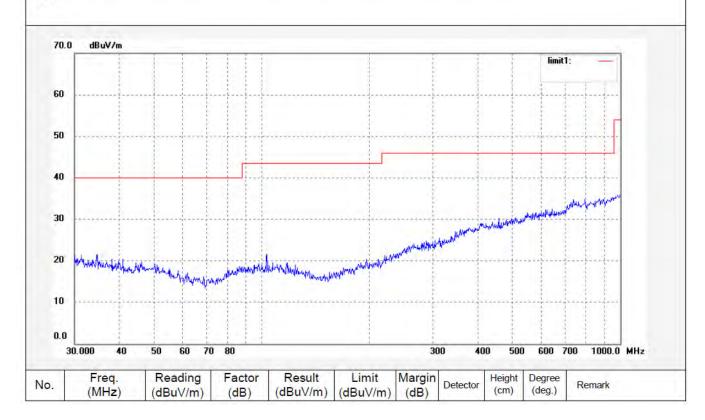
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2480MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY..LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/02/

Time: 9/18/52

Distance: 3m

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Job No.: DAZA #301

Standard: FCC PART 15B (PK)

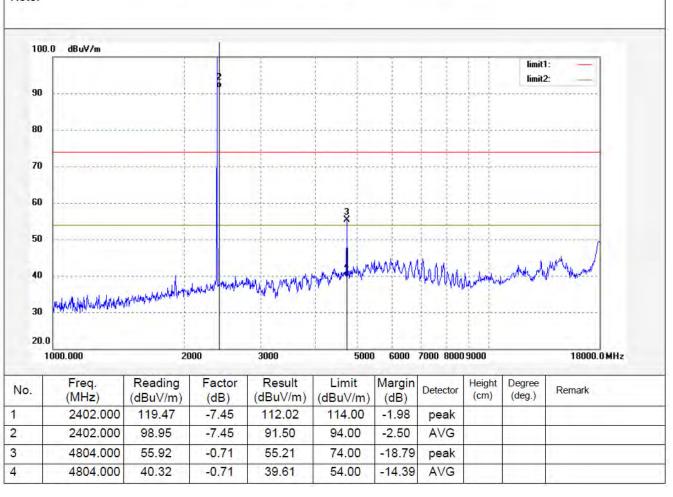
Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2402MHz)







F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/02/

Time: 9/25/08

Distance: 3m

Vertical

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #302

Standard: FCC PART 15B (PK)

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT:

Curtain motor

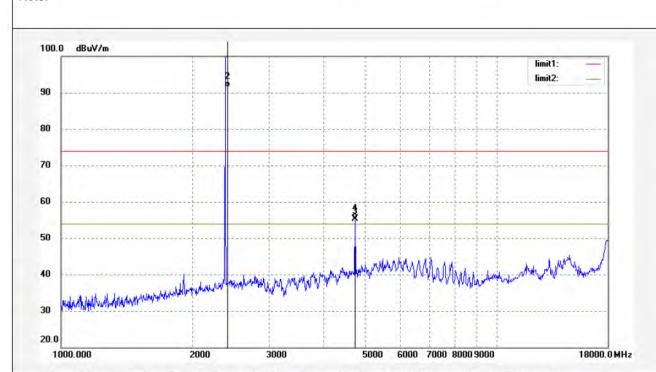
Mode: Tra

Transmitting(2402MHz)

Model:

ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	
1	2402.000	115.75	-7.45	108.30	114.00	-5.70	peak		77-9-1		
2	2402.012	95.69	-7.45	88.24	94.00	-5.76	AVG	11 50	717		
3	4804.000	52.45	-0.71	51.74	74.00	-22.26	peak				
4	4804.000	38.64	-0.71	37.93	54.00	-16.07	AVG		- 11		



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Polarization: Vertical

Date: 12/08/02/

Time: 9/26/47

Distance: 3m

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Job No.: DAZA #305

Standard: FCC PART 15B (PK)

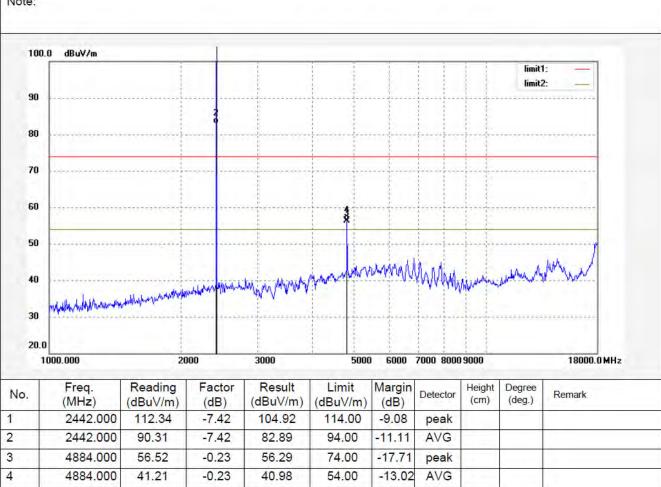
Test item: Radiation Test Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2442MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 12/08/02/

Time: 9/41/10

Distance: 3m

Horizontal

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #307

Standard: FCC PART 15B (PK)

Test item: Radiation Test
Temp.(C)/Hum.(%) 24 C / 48 %

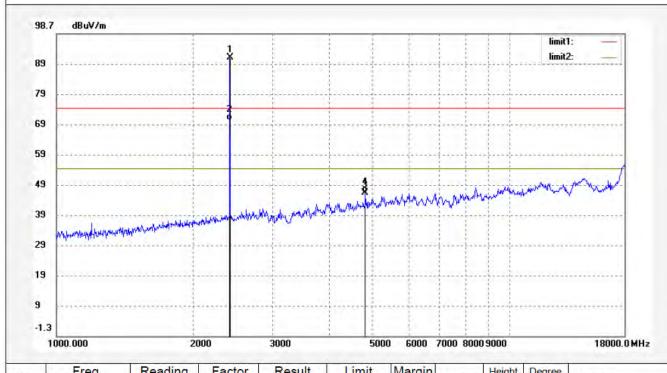
Temp.(C)/Hum.(%) 24 C/46

EUT: Curtain motor

Mode: Transmitting(2442MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	
1	2442.000	98.23	-7.42	90.81	114.0	-23.19	peak	1 1			
2	2442.000	77.54	-7.42	70.12	94.00	-23.88	AVG				
3	4884.000	46.20	-0.23	45.97	74.00	-28.03	peak				
4	4884.000	46.20	-0.23	45.97	54.00	-8.03	AVG			1	



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 12/08/02/

Time: 9/33/25

Distance: 3m

Vertical

Power Source: AC 120V/60Hz

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DAZA #306

Standard: FCC PART 15B (PK) Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

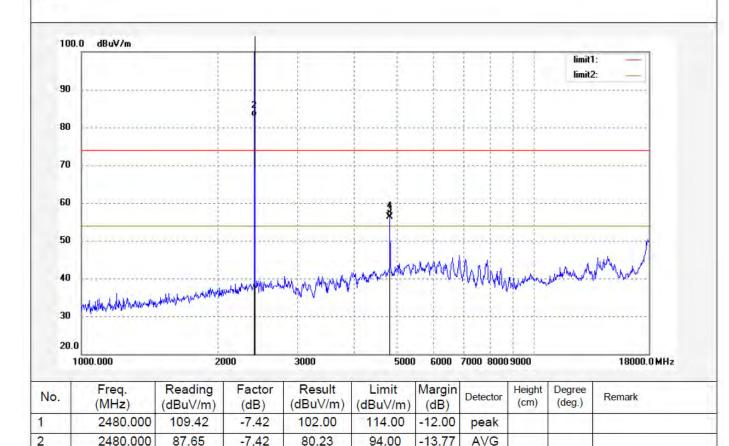
EUT: Curtain motor

Mode: Transmitting (2480MHz)

Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY., LTD

Note:



3

4

4960.000

4960.000

54.25

40.10

-0.23

-0.23

54.02

39.87

74.00

54.00

-19.98

-14.13

peak

AVG



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Polarization: Horizontal

Engineer Signature: Ricky

Date: 12/08/02/

Time: 9/53/48

Distance: 3m

Power Source: AC 120V/60Hz

Job No.: DAZA #308

Standard: FCC PART 15B (PK)

Test item: Radiation Test

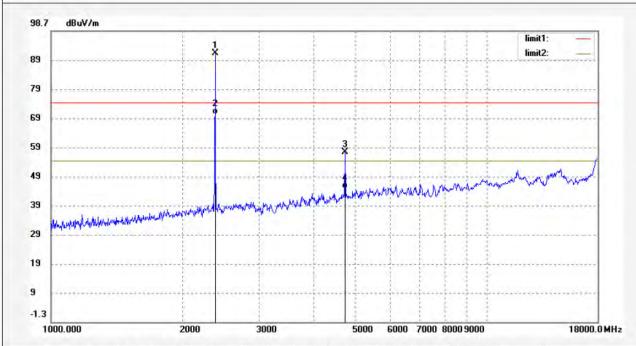
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2480MHz)

Model: ABC-23-W120

Manufacturer:NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	
1	2480.000	96.37	-7.42	88.95	114.00	-25.05	peak				
2	2480.000	74.24	-7.42	66.82	94.00	-27.18	AVG				
3	4960.000	55.32	-0.23	55.09	74.00	-18.91	peak				
4	4960.000	43.45	-0.23	43.22	54.00	-10.78	AVG				



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 2012/08/06

Time: 9:43:40

Distance: 3m

Power Source: AC 120V

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Job No.: R #001

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

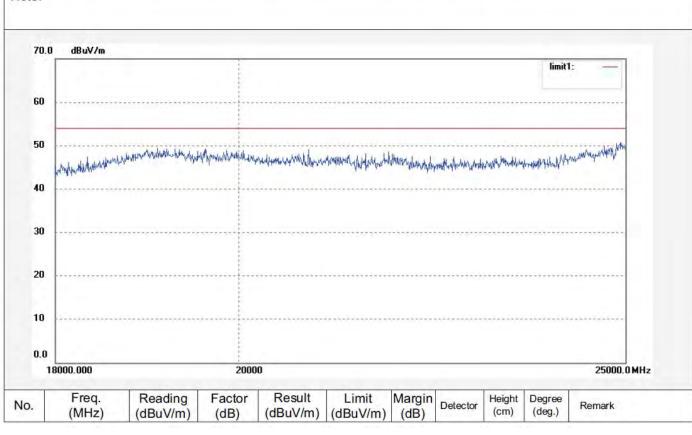
Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transimitting (2402MHz)

Model: ABC-23-W120

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 2012/08/06

Engineer Signature:

Time: 9:52:03

Distance: 3m

Vertical

Ricky

Power Source: AC 120 V

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: R #002

Standard: FCC Class B 3M Radiated

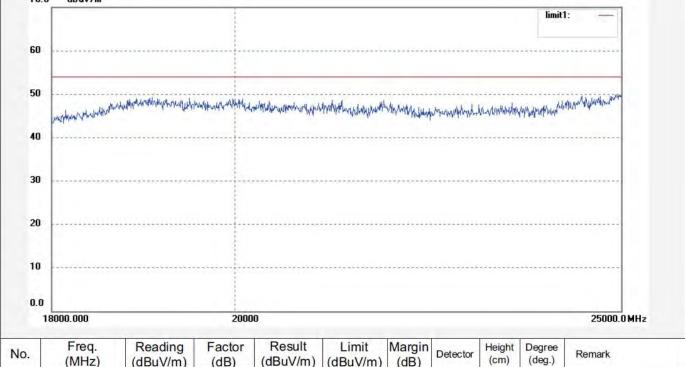
Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode: Transmitting(2402MHz)

Model: ABC-23-W120 Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD Note: 70.0 dBuV/m





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Polarization:

Date: 2012/08/06

Engineer Signature:

Time: 9:59:24

Distance: 3m

Vertical

Ricky

Power Source: AC 120 V

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: R #003

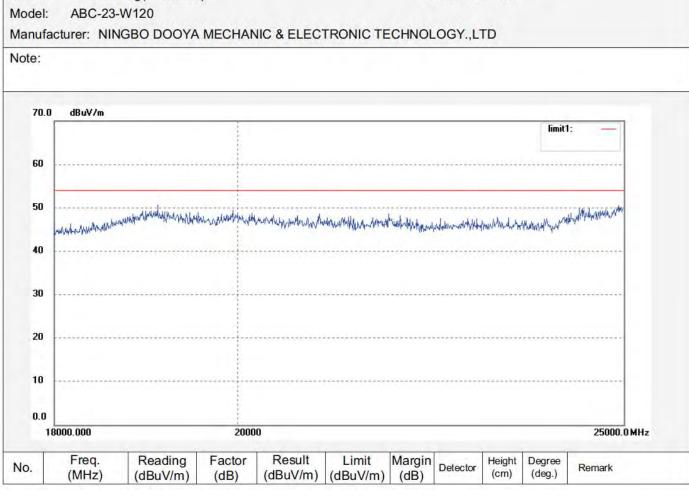
Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain moto

Mode: Transmitting(2442MHz)





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 2012/08/06

Time: 10:06:37

Power Source: AC 120 V

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

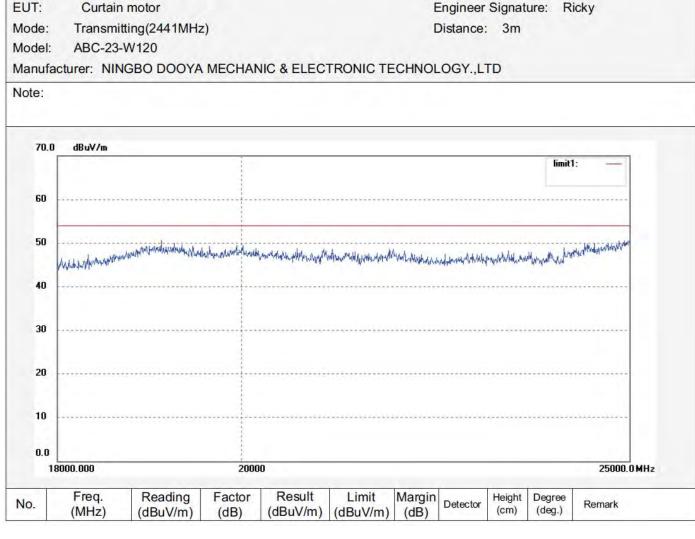
Job No.: R#004

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Polarization:

Date: 2012/08/06

Time: 10:13:57

Power Source: AC 120 V

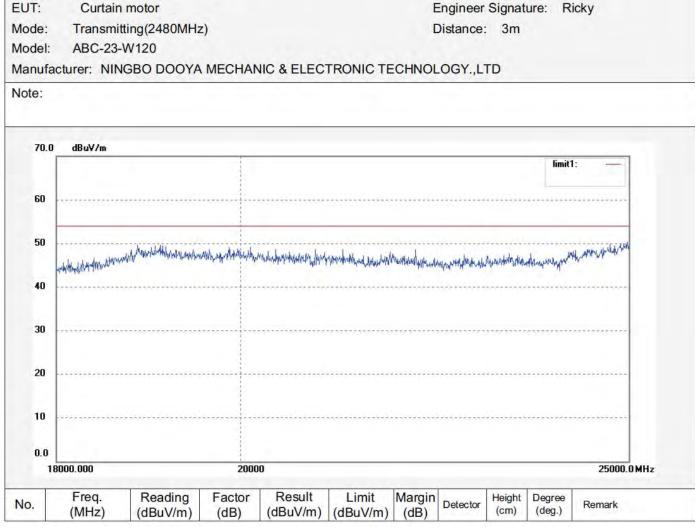
Job No.: R #005

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Polarization:

Date: 2012/08/06

Time: 10:21:02

Distance: 3m

Vertical

Power Source: AC 120 V

Engineer Signature: Ricky

Site: 966 chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: R #006

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: Curtain motor

Mode:

Model: ABC-23-W120

Transmitting(2480MHz)

Manufacturer: NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY.,LTD

