

FCC CERTIFICATION  
On Behalf of  
Coulisse B.V.

Tubular motor  
Model No.: ABC-06-QC120, ABC-07-QC120

FCC ID: ZY4ABC06

Prepared for : Coulisse B.V.  
Address : Vonderweg 48, Enter, Netherlands

Prepared by : ACCURATE TECHNOLOGY CO. LTD  
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Date of Test : May 28-31, 2012  
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## Test Report Certification

Applicant : Coulisse B.V.  
Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY CO., LTD  
EUT Description : Tubular motor  
(A) MODEL NO.: ABC-06-QC120, ABC-07-QC120  
(B) POWER SUPPLY: AC 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 Section 15.249 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 : May 28-31, 2012

Prepared by :   
( Kitty Chen, Engineer )

Approved & Authorized Signer :   
( Sean Liu , Manager )

# 1. GENERAL INFORMATION

## 1.1. Description of Device (EUT)

EUT	:	Tubular motor
Model Number	:	ABC-06-QC120, ABC-07-QC120 (Note: These samples are identical in schematic, structure and critical components except for appearance. Therefore only model ABC-06-QC120 is tested for FCC tests.)
Power Supply	:	AC 120V/60Hz
Operate Frequency	:	2402.000-2480.000MHz
Applicant	:	Coulisse B.V.
Address	:	Vonderweg 48, Enter, Netherlands
Manufacturer	:	NINGBO DOOYA MECHANIC & ELECTRONIC TECHNOLOGY CO.,LTD
Address	:	LOUTOU INDUSTRIAL AREA, ZHENHAI NINGBO ZHEJIANG, CHINA
Date of sample received	:	May 28, 2012
Date of Test	:	May 28-31, 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  
(9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty  
(30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty  
(Above 1GHz) = 4.06dB, k=2

## 2. MEASURING DEVICE AND TEST EQUIPMENT

**Table 1: List of Test and Measurement Equipment**

Kind of equipment	Manufacturer	Type	S/N	Calibrated date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 8, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 8, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 8, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 8, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 8, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 8, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 8, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 8, 2012	Jan. 7, 2013

### 3. SUMMARY OF TEST RESULTS

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

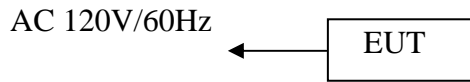
Remark: "N/A" means "Not applicable".



## 4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A)

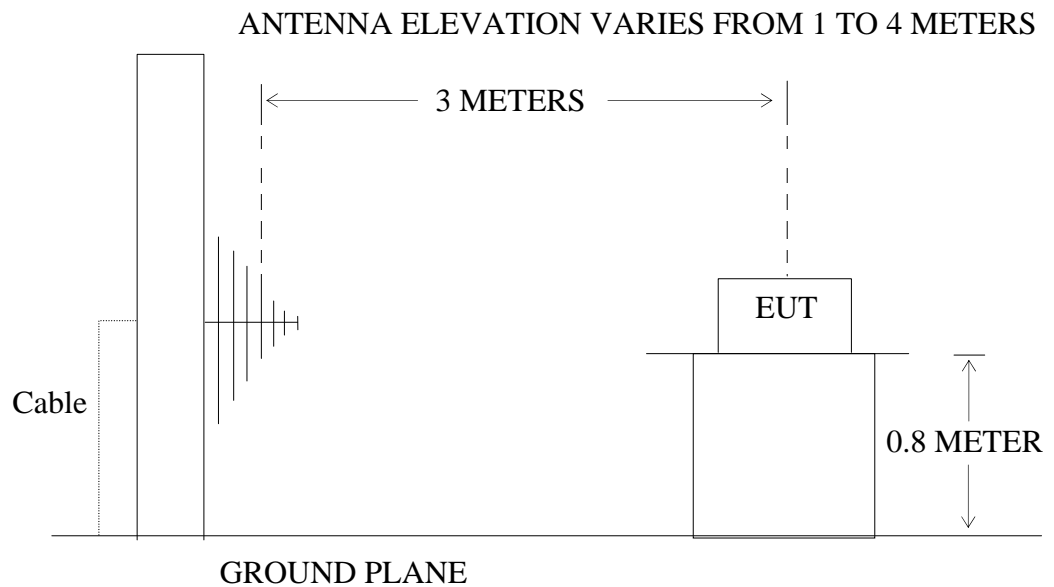
### 4.1. Block Diagram of Test Setup

#### 4.1.1. Block diagram of connection between the EUT and simulators



(EUT: Tubular motor)

#### 4.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: Tubular 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 $\mu$ V/m and the harmonics shall not exceed 54 dB $\mu$ V/m.

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of harmonics (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. Tubular motor (EUT)

Model Number : ABC-06-QC120  
 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. The transmit frequency are 2402.000 - 2480.000 MHz MHz. We are select 2402.000MHz, 2441.000MHz, 2480.000MHz 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 bi-log 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 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

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

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

Date of Test:	<u>May 28, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX 2402.000MHz</u>	Test Engineer:	<u>Bob</u>

### Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2402.000	80.67	85.02	-7.45	73.22	77.57	94	114	-20.78	-36.43	Vertical
2402.000	79.68	84.90	-7.45	72.23	77.45	94	114	-21.77	-36.55	Horizontal

### Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
---	---	---	---	---	---	---	---	---	---	Vertical
---	---	---	---	---	---	---	---	---	---	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:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>May 28, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX 2441.000MHz</u>	Test Engineer:	<u>Bob</u>

**Fundamental Radiated Emissions**

Frequency (MHz)	Reading(dBµV/m)		Factor(dB) Corr.	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2441.000	80.17	85.24	-7.35	72.82	77.89	94	114	-21.18	-36.11	Vertical
2441.000	80.93	85.09	-7.35	73.58	77.74	94	114	-20.42	-36.26	Horizontal

**Harmonics Radiated Emissions**

Frequency (MHz)	Reading(dBµV/m)		Factor(dB) Corr.	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
---	---	---	---	---	---	---	---	---	---	Vertical
---	---	---	---	---	---	---	---	---	---	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:  

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>May 28, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX 2480.000MHz</u>	Test Engineer:	<u>Bob</u>

### Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2480.000	79.96	85.61	-7.37	72.59	78.24	94	114	-21.41	-35.76	Vertical
2480.000	80.47	85.58	-7.37	73.10	78.21	94	114	-20.90	-35.79	Horizontal

### Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
---	---	---	---	---	---	---	---	---	---	Vertical
---	---	---	---	---	---	---	---	---	---	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:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

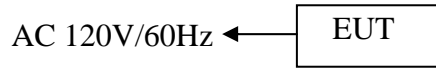
$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

## 5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)

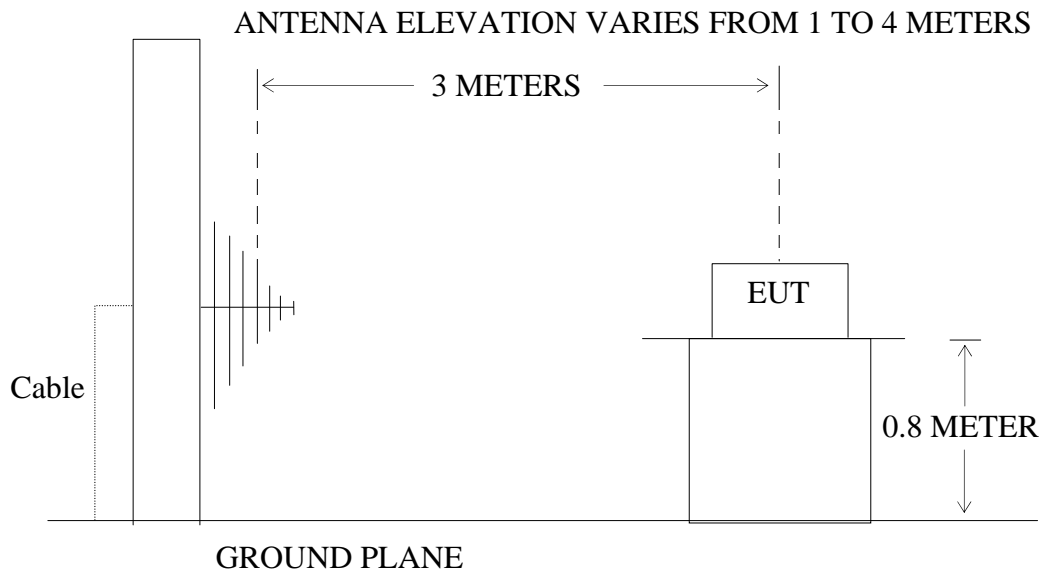
### 5.1. Block Diagram of Test Setup

#### 5.1.1. Block diagram of connection between the EUT and simulators



(EUT: Tubular motor)

#### 5.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: Tubular 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

Frequency (MHz)	Limit		
	Field Strength (microvolts/meter)	Measurement Distance (meters)	
0.009 – 0.490	2400/F(kHz)	300	The final measurement in band 9-90kHz, 110-490kHz 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.
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	

## 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. Tubular motor (EUT)

Model Number : ABC-06-QC120  
 Serial Number : N/A  
 Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC 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 2402.000 - 2480.000 MHz. We are select 2402.000MHz, 2441.000MHz, and 2480.000MHz 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 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9kHz to 25GHz is checked.

The final measurement in band 9-90kHz, 110-490kHz 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:	<u>May 28, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX 2402.000MHz</u>	Test Engineer:	<u>Bob</u>

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	X
---	---	---	---	---	---	Y
---	---	---	---	---	---	Z

30MHz-25GHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
118.0956	5.36	14.52	19.88	43.50	-23.62	Vertical
251.3676	6.08	17.62	23.70	46.00	-22.30	
631.1070	6.79	26.07	32.86	46.00	-13.14	
125.8058	5.40	15.04	20.44	43.50	-23.06	Horizontal
412.5394	6.63	22.96	29.59	46.00	-16.41	
862.8015	5.78	28.64	34.42	46.00	-11.58	

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:  

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	May 28, 2012	Temperature:	25°C
EUT:	Tubular motor	Humidity:	50%
Model No.:	ABC-06-QC120	Power Supply:	AC 120V/60Hz
Test Mode:	TX 2441.000MHz	Test Engineer:	Bob

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	X
---	---	---	---	---	---	Y
---	---	---	---	---	---	Z

30MHz-25GH

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
45.5728	4.18	14.88	19.06	40.00	-20.94	Vertical
542.6104	5.53	25.06	30.59	46.00	-15.41	
925.6132	5.08	29.16	34.24	46.00	-11.76	
36.1405	4.52	15.43	19.95	46.00	-20.05	Horizontal
208.6579	5.44	16.30	21.74	43.50	-21.76	
754.9628	6.66	27.64	34.30	46.00	-11.70	

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:  

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	May 28, 2012	Temperature:	25°C
EUT:	Tubular motor	Humidity:	50%
Model No.:	ABC-06-QC120	Power Supply:	AC 120V/60Hz
Test Mode:	TX 2480.000MHz	Test Engineer:	Bob

Below 30MHz

Frequency (MHz)	Reading (dBµV/m)	Factor(dB) Corr.	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	X
---	---	---	---	---	---	Y
---	---	---	---	---	---	Z

30MHz-25GH

Frequency (MHz)	Reading (dBµV/m)	Factor(dB) Corr.	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
35.0157	4.02	15.69	19.71	40.00	-20.29	Vertical
428.7959	5.92	23.01	28.93	46.00.	-17.07	
812.7744	5.46	28.00	33.46	46.00	-12.54	
35.8875	4.01	15.49	19.50	40.00	-20.50	Horizontal
129.8477	3.88	14.92	18.80	43.50	-24.70	
631.1070	5.30	26.07	31.37	46.00	-14.63	

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:  

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

## 6. BAND EDGES

### 6.1.The Requirement

6.1.1.Band Edge from 2400MHz to 2483.5MHz 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. Tubular motor (EUT)

Model Number : ABC-06-QC120  
 Serial Number : N/A  
 Manufacturer : NINGBO DOOYA MECHANIC & ELECTRONIC  
 TECHNOLOGY 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 2402.000-2480.000MHz MHz. We are select 2402.000MHz, 2480.000MHz 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:  
 RBW=1MHz, VBW=1MHz

## 6.5.The Measurement Result

**Pass.**

Date of Test:	<u>May 31, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX 2402.000MHz</u>	Test Engineer:	<u>Bob</u>

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2310.000	42.62	47.26	-7.81	34.81	39.45	54	74	-19.19	-34.55	Vertical
2374.150	41.34	46.80	-7.63	33.71	39.17	54	74	-20.29	-34.83	
2390.000	41.32	46.79	-7.53	33.79	39.26	54	74	-20.21	-34.74	
2310.000	42.69	47.00	-7.81	34.88	39.19	54	74	-19.12	-34.81	Horizontal
2374.150	41.68	46.78	-7.63	34.05	39.15	54	74	-19.95	-34.85	
2390.000	41.21	46.93	-7.53	33.68	39.40	54	74	-20.32	-34.60	

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:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>May 31, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX 2480.000MHz</u>	Test Engineer:	<u>Bob</u>

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.310	41.62	46.74	-7.37	34.25	39.37	54	74	-19.75	-34.63	Vertical
2487.190	41.37	46.06	-7.38	33.97	38.68	54	74	-20.03	-35.32	
2500.000	42.69	48.42	-7.40	35.29	41.02	54	74	-18.71	-32.98	
2483.079	43.74	49.07	-7.37	36.37	41.70	54	74	-17.63	-32.30	Horizontal
2487.190	40.11	45.52	-7.38	32.73	38.14	54	74	-21.27	-35.86	
2500.000	41.36	46.38	-7.40	33.96	38.98	54	74	-20.04	-35.02	

## Note:

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

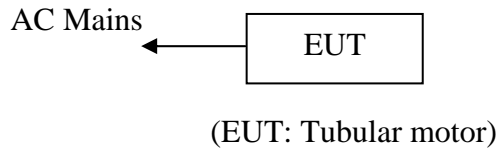
$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
- The spectral diagrams in appendix I display the measurement of peak values.

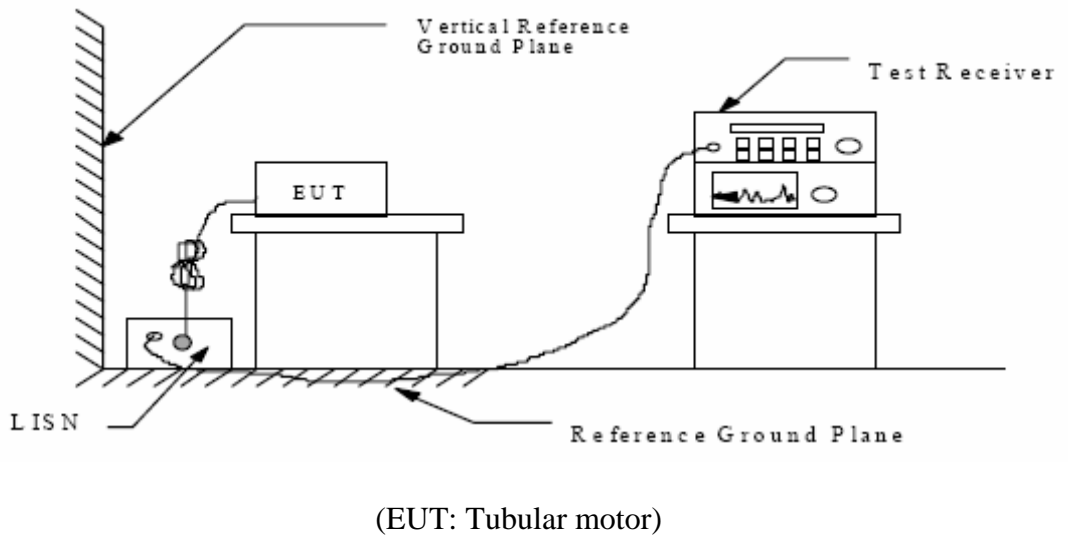
## 7. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

### 7.1. Block Diagram of Test Setup

#### 7.1.1. Block diagram of connection between the EUT and simulators



#### 7.1.2. Shielding Room Test Setup Diagram



### 7.2. The Emission Limit

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

Frequency (MHz)	Limit dB(μV)	
	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.Tubular motor (EUT)

Model Number : ABC-06-QC120  
 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 7.1.

7.4.2.Turn on the power of all equipment.

7.4.3. Let the EUT work in Tx (Middle Channel: 2441MHz) 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 50ohm 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 9kHz.

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

## 7.6. Power Line Conducted Emission Measurement Results

### PASS.

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

Date of Test:	<u>May 29, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Tubular motor</u>	Humidity:	<u>50%</u>
Model No.:	<u>ABC-06-QC120</u>	Power Supply:	<u>AC 120V/ 60Hz</u>
Test Mode:	<u>TX (Middle Channel: 2441MHz)</u>	Test Engineer:	<u>Bob</u>

Frequency (MHz)	Result (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Detector	Line
0.208925	33.20	63.2	-30.0	QP	Neutral
0.397299	36.90	57.9	-21.0	QP	
4.874037	32.90	56	-23.1	QP	
0.316443	28.40	49.8	-21.4	AV	
0.398888	19.80	47.9	-28.1	AV	
26.910261	16.30	50	-33.7	AV	
0.173183	34.10	64.8	-30.7	QP	Live
0.387896	36.90	58.1	-21.2	QP	
2.394903	26.80	56	-29.2	QP	
0.315182	29.00	49.8	-20.8	AV	
0.391005	21.20	48	-26.8	AV	
1.692213	12.20	46	-33.8	AV	
26.483968	17.60	50	-32.4	AV	

Emissions attenuated more than 20 dB below the permissible value are not reported.  
The spectral diagrams are attached as below.

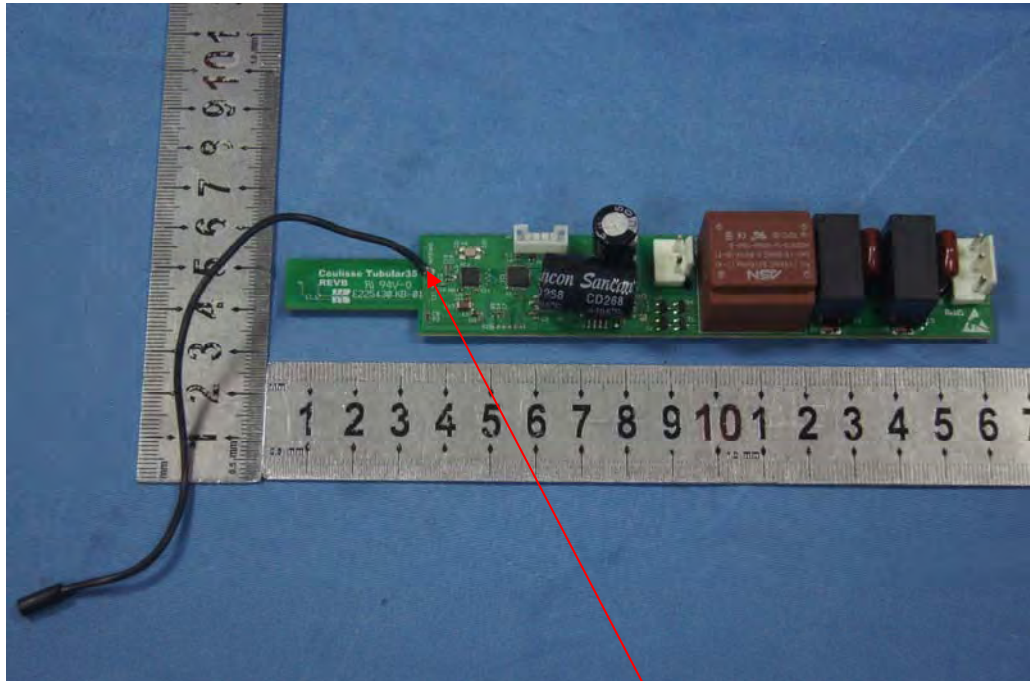
## 8. ANTENNA REQUIREMENT

### 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

Device is equipped with unique antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna

# APPENDIX I (Test Curves)



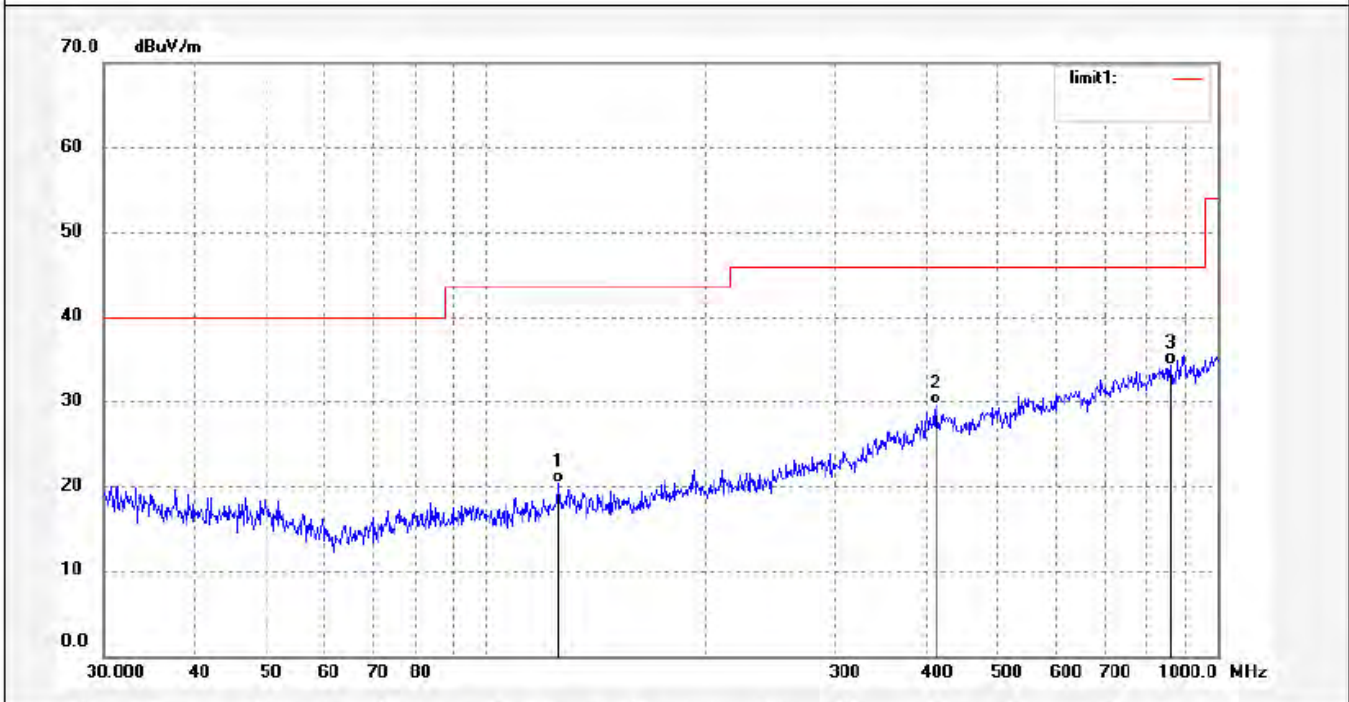
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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2145	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:10:04
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	125.8058	5.40	15.04	20.44	43.50	-23.06	QP			
2	412.5394	6.63	22.96	29.59	46.00	-16.41	QP			
3	862.8015	5.78	28.64	34.42	46.00	-11.58	QP			



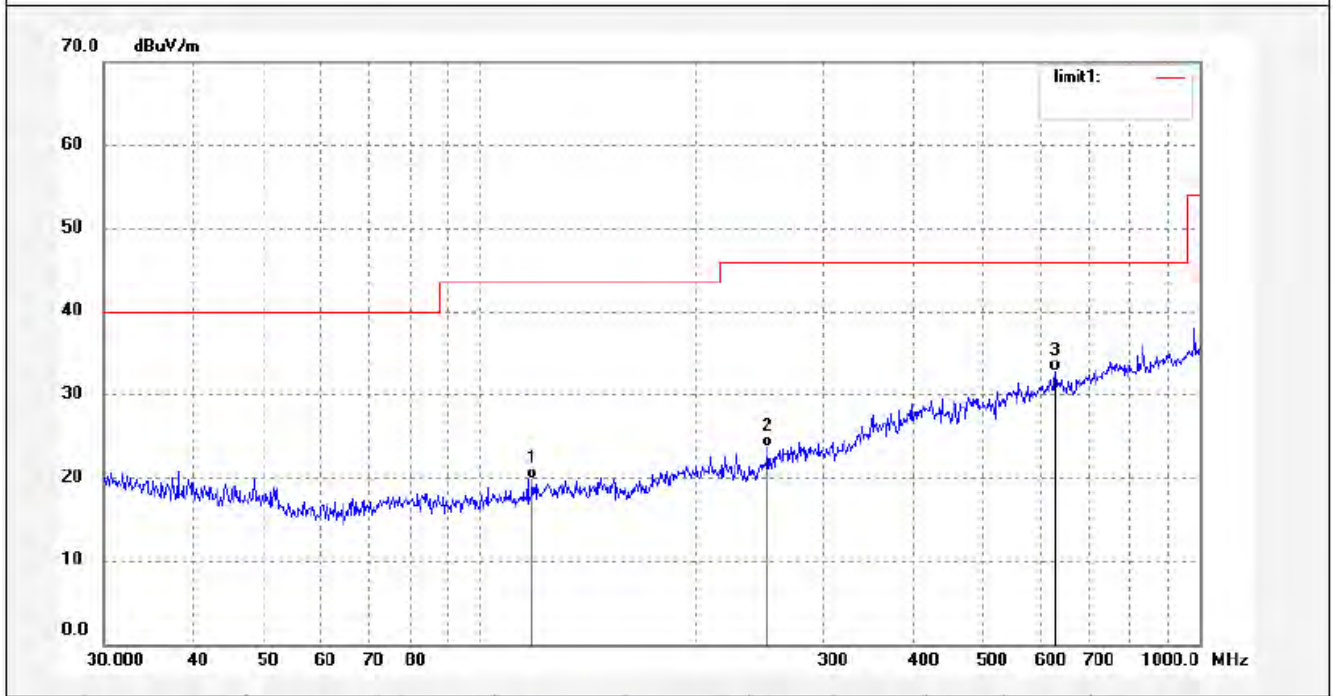
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #2146	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:14:53
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	118.0956	5.36	14.52	19.88	43.50	-23.62	QP			
2	251.3676	6.08	17.62	23.70	46.00	-22.30	QP			
3	631.1070	6.79	26.07	32.86	46.00	-13.14	QP			



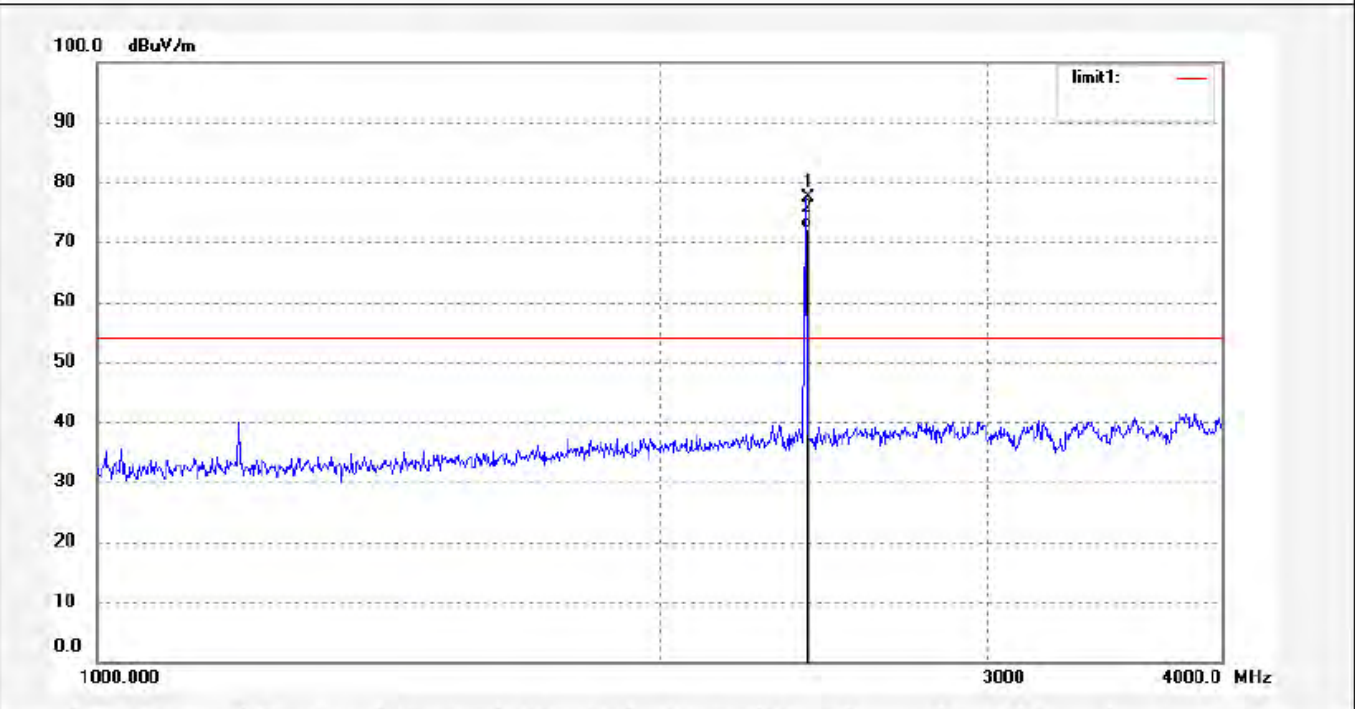
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #2152	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:33:12
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



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	84.90	-7.45	77.45	114.00	-36.55	peak			
2	2402.000	79.68	-7.45	72.23	94.00	-21.77	AVG			



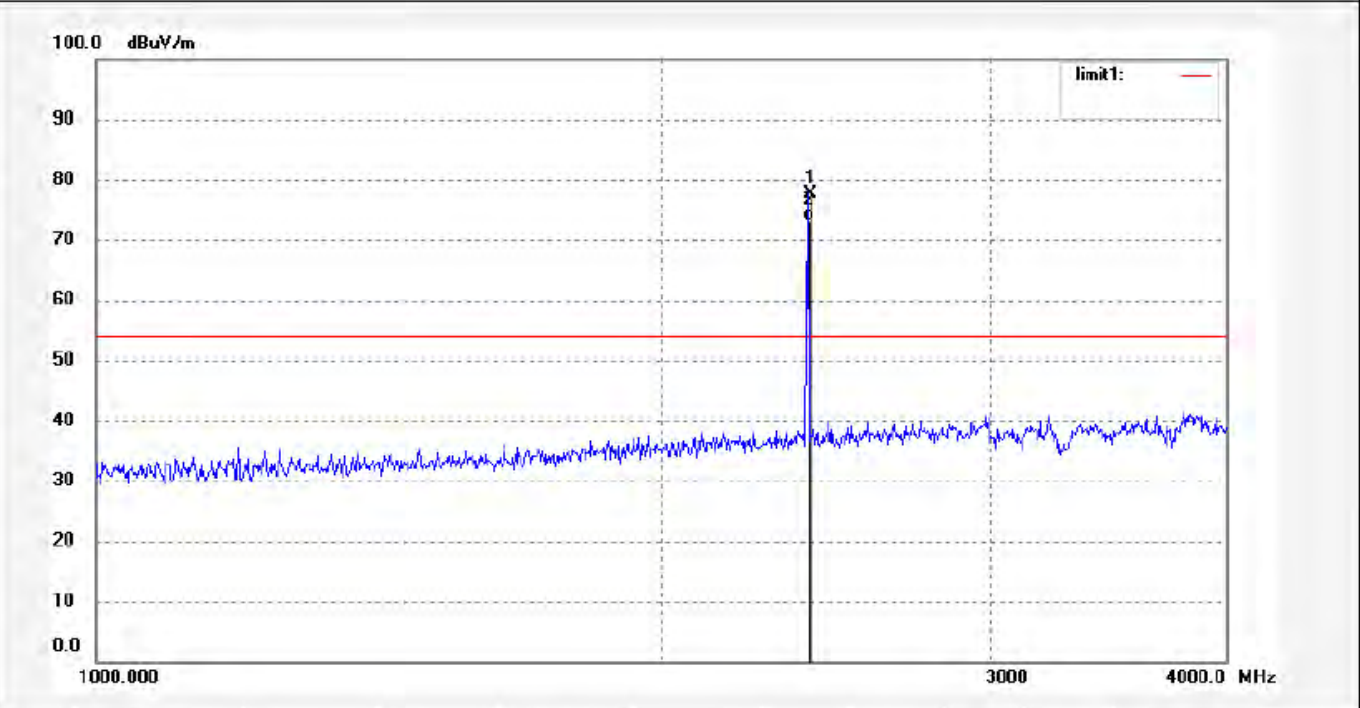
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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2151	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:30:25
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



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	85.02	-7.45	77.57	114.00	-36.43	peak			
2	2402.000	80.67	-7.45	73.22	94.00	-20.78	AVG			





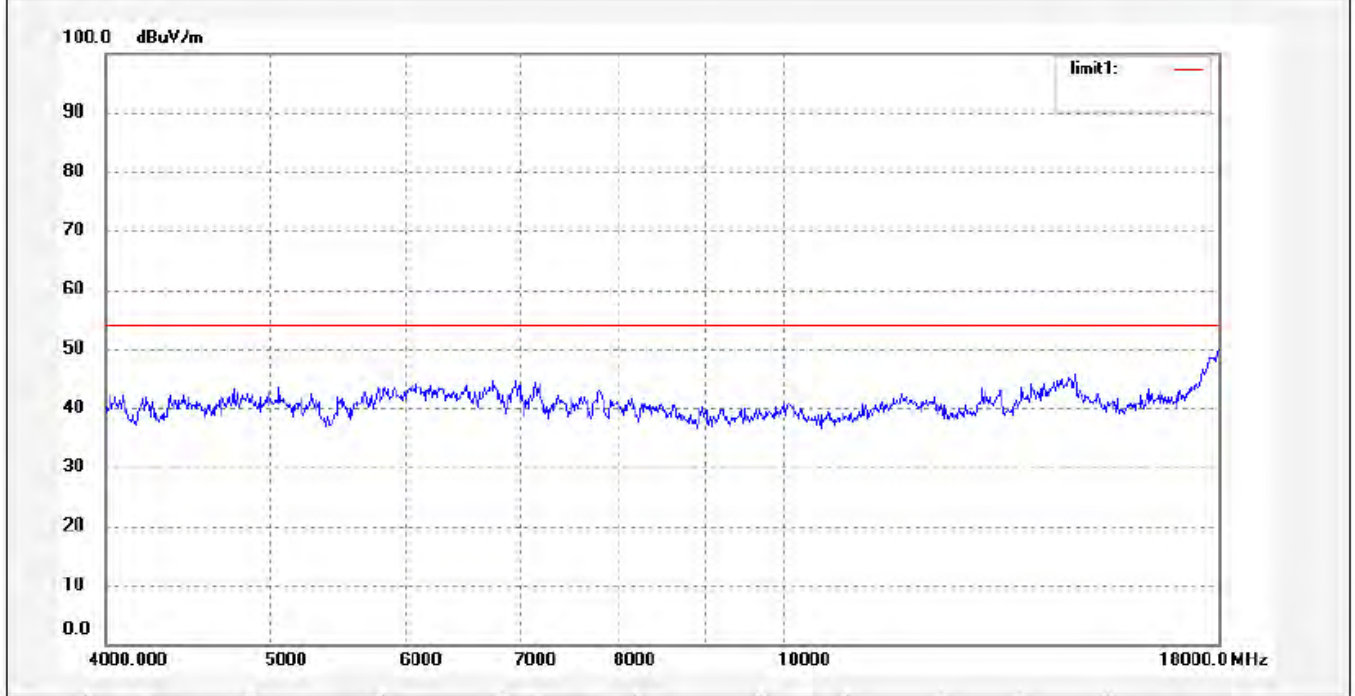
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #2153	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:36:01
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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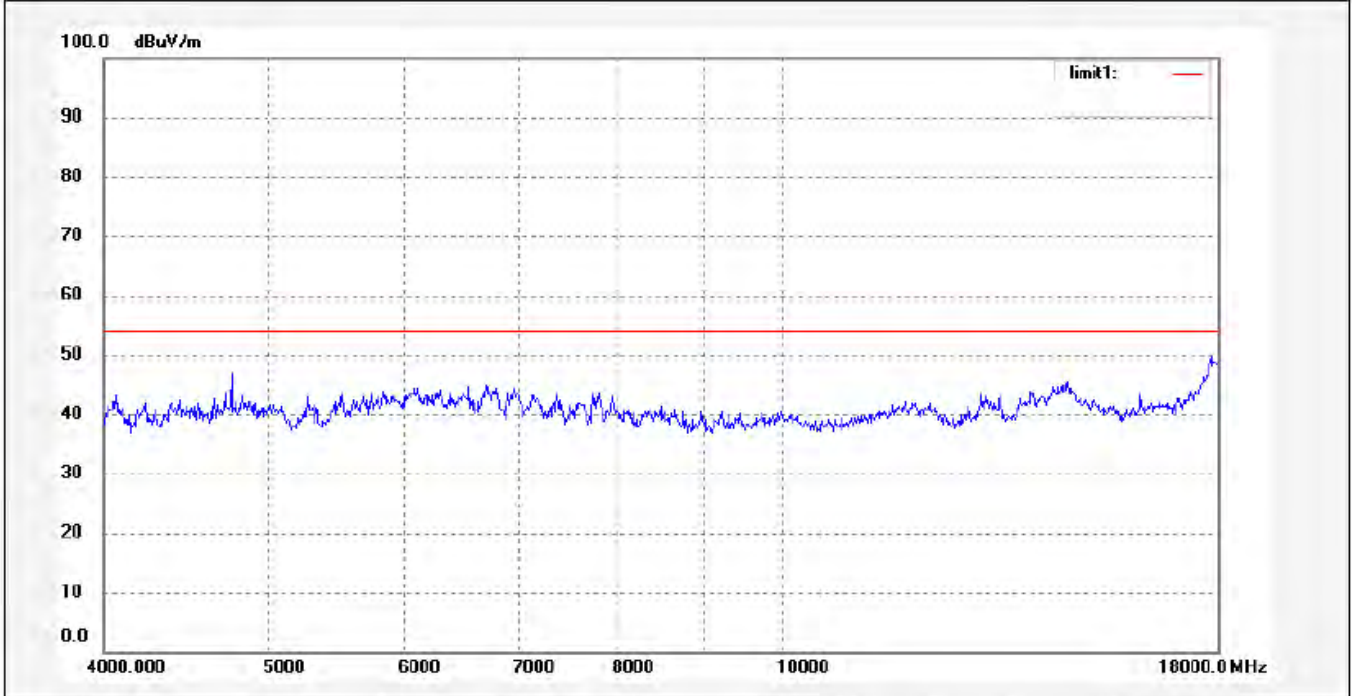
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #2154	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:39:22
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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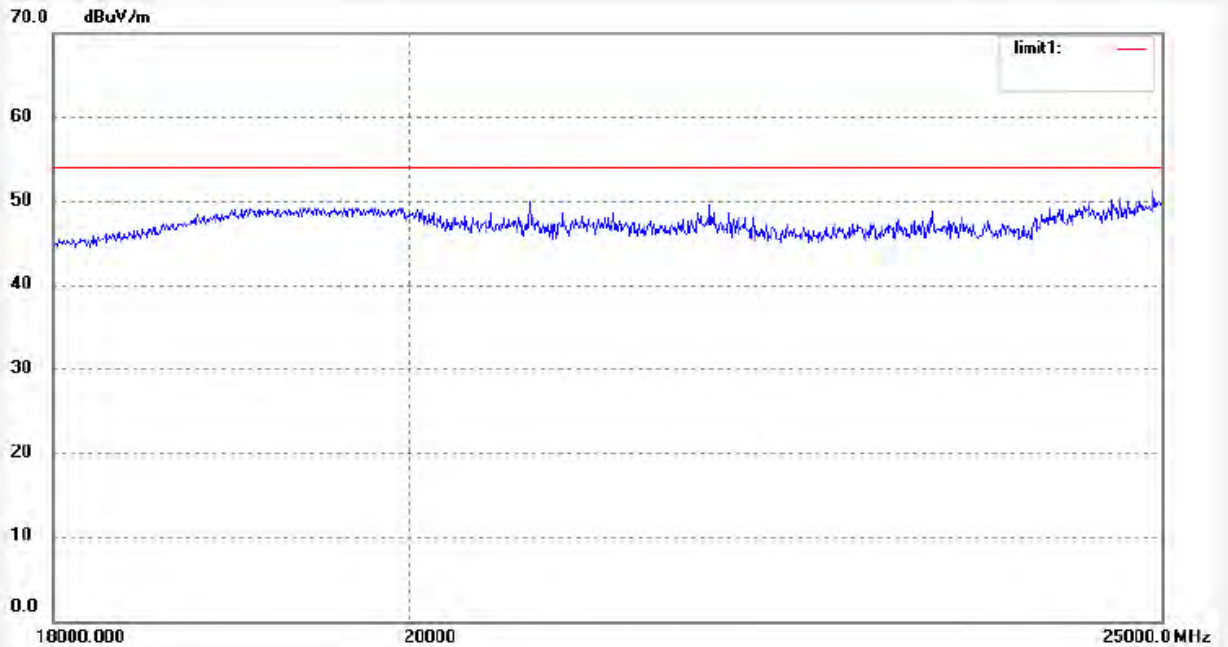
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #1238	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/5/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 5/47/15
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance:
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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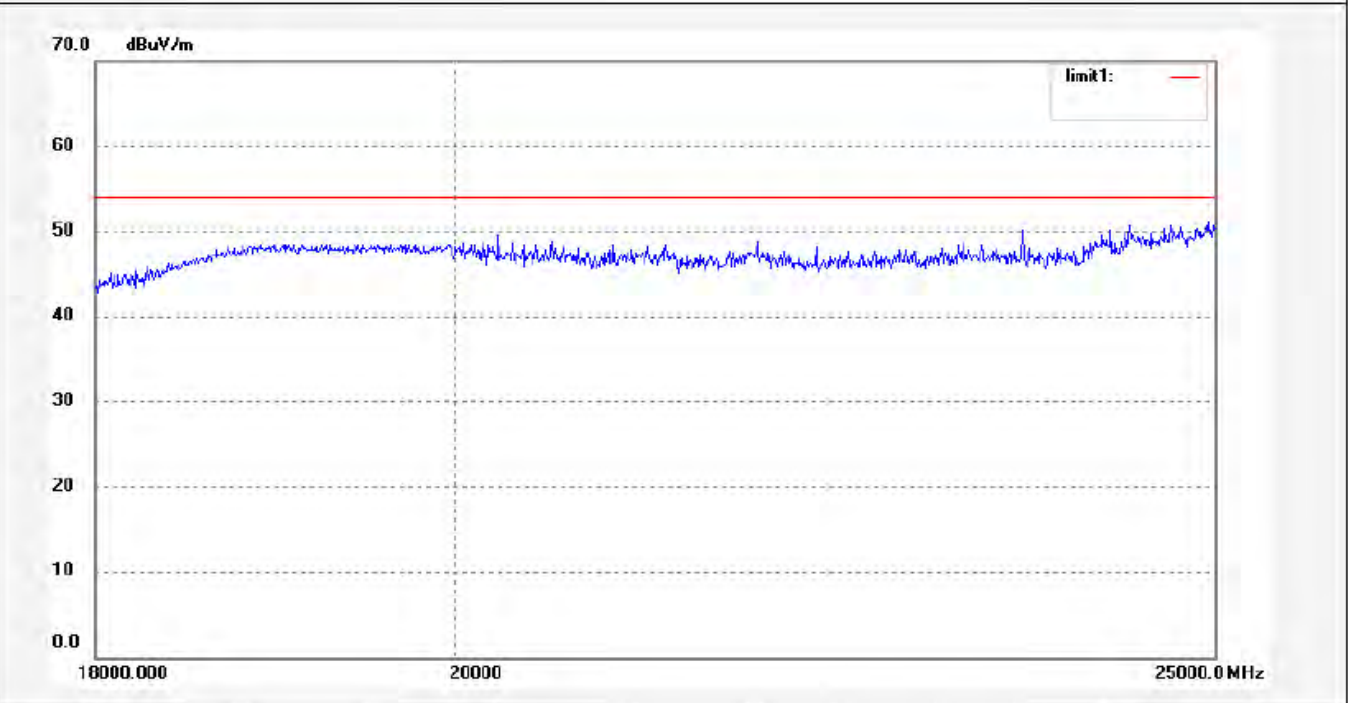
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #1239	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/5/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 5/49/05
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance:
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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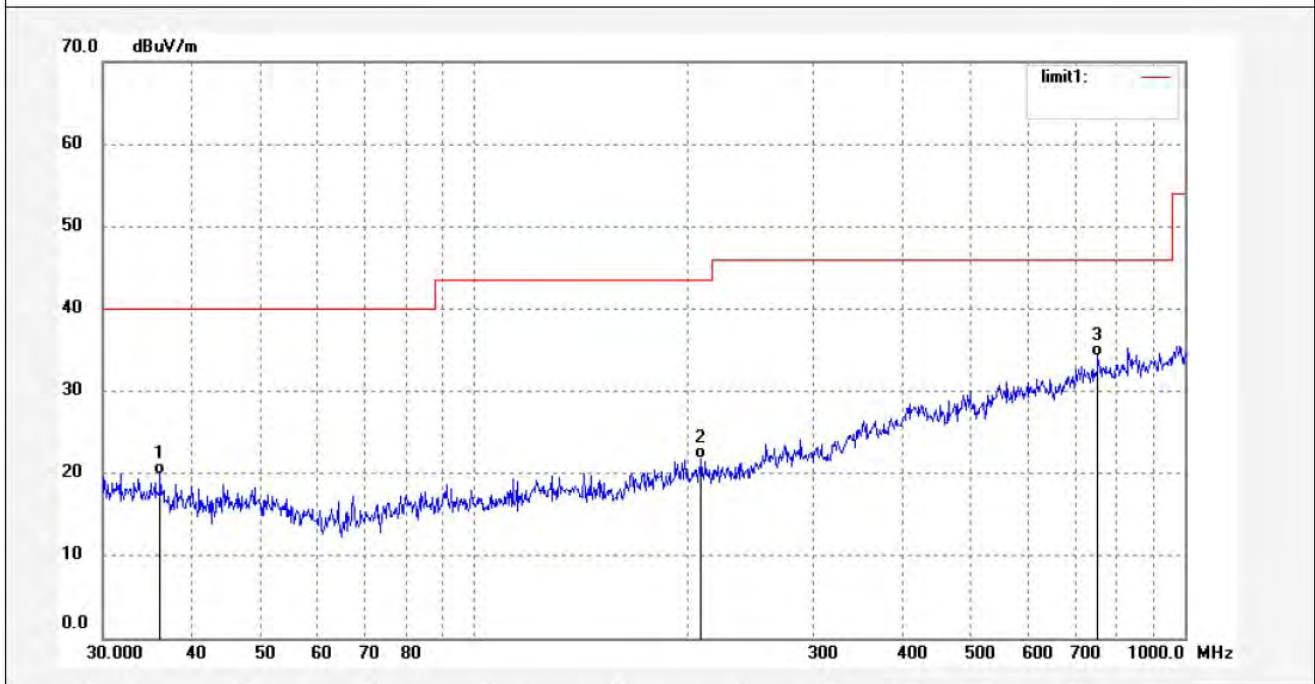
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #2148	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:20:27
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	36.1405	4.52	15.43	19.95	40.00	-20.05	QP			
2	208.6579	5.44	16.30	21.74	43.50	-21.76	QP			
3	754.9628	6.66	27.64	34.30	46.00	-11.70	QP			



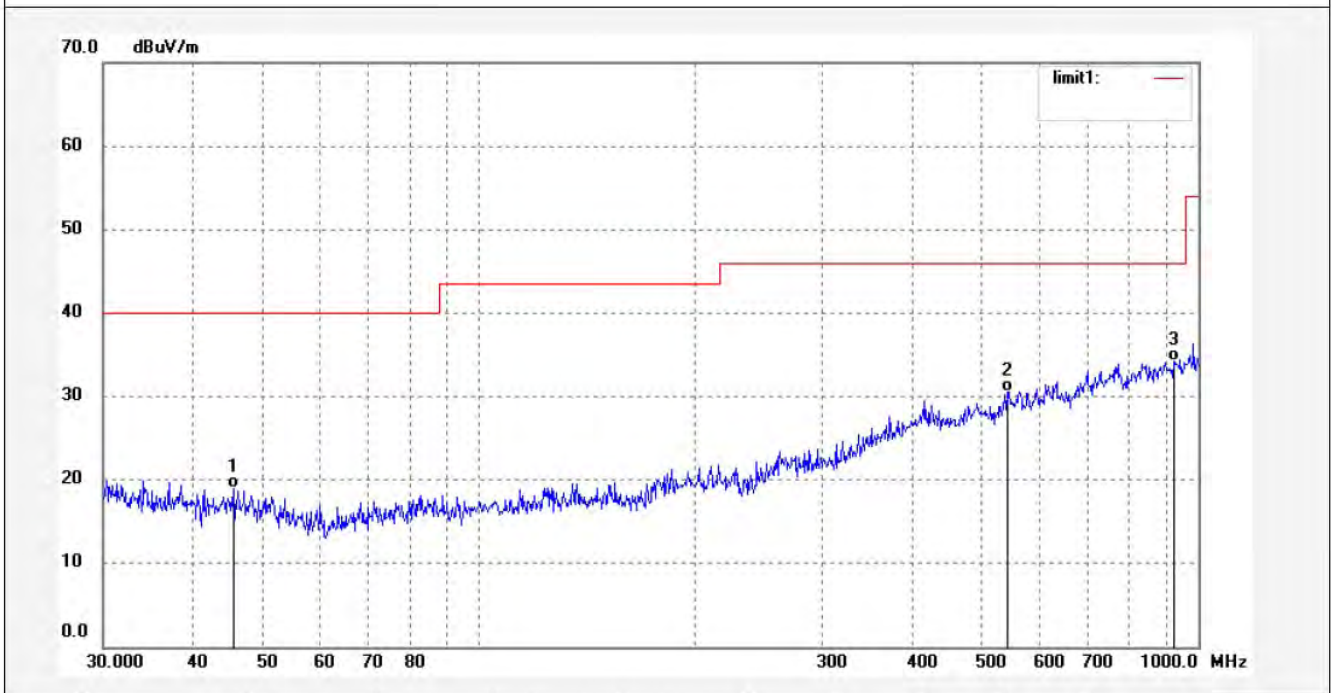
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Bob #2147	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:17:07
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	45.5728	4.18	14.88	19.06	40.00	-20.94	QP			
2	542.6104	5.53	25.06	30.59	46.00	-15.41	QP			
3	925.6132	5.08	29.16	34.24	46.00	-11.76	QP			



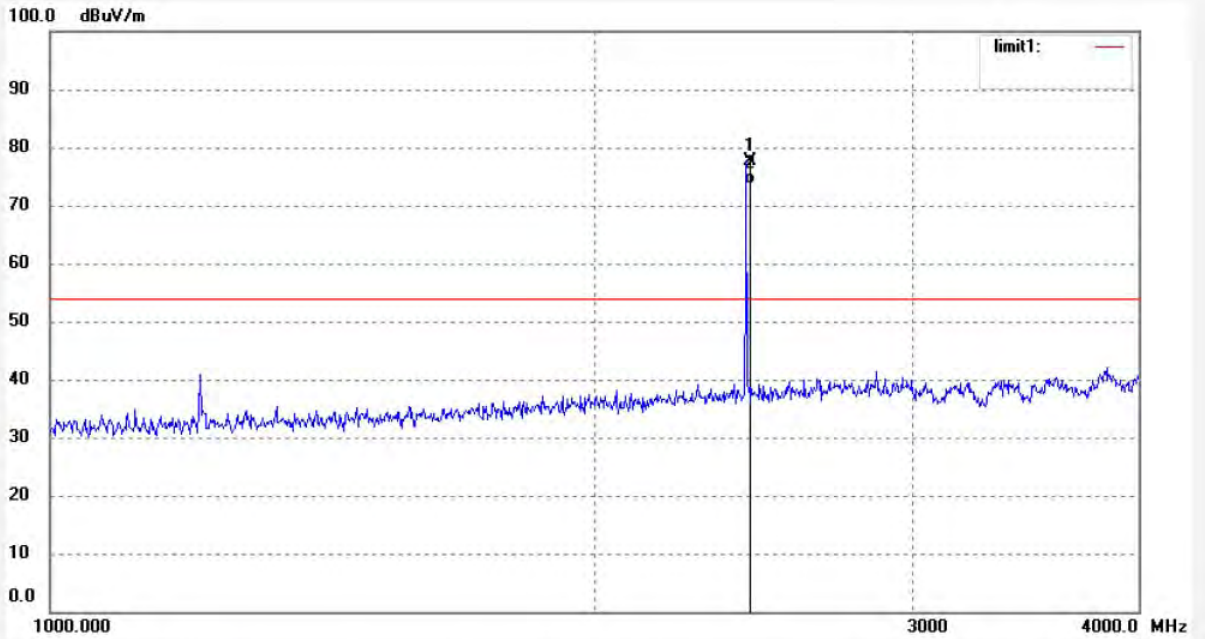
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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2157	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:48:08
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	85.09	-7.35	77.74	114.00	-36.26	peak			
2	2441.000	80.93	-7.35	73.58	94.00	-20.42	AVG			



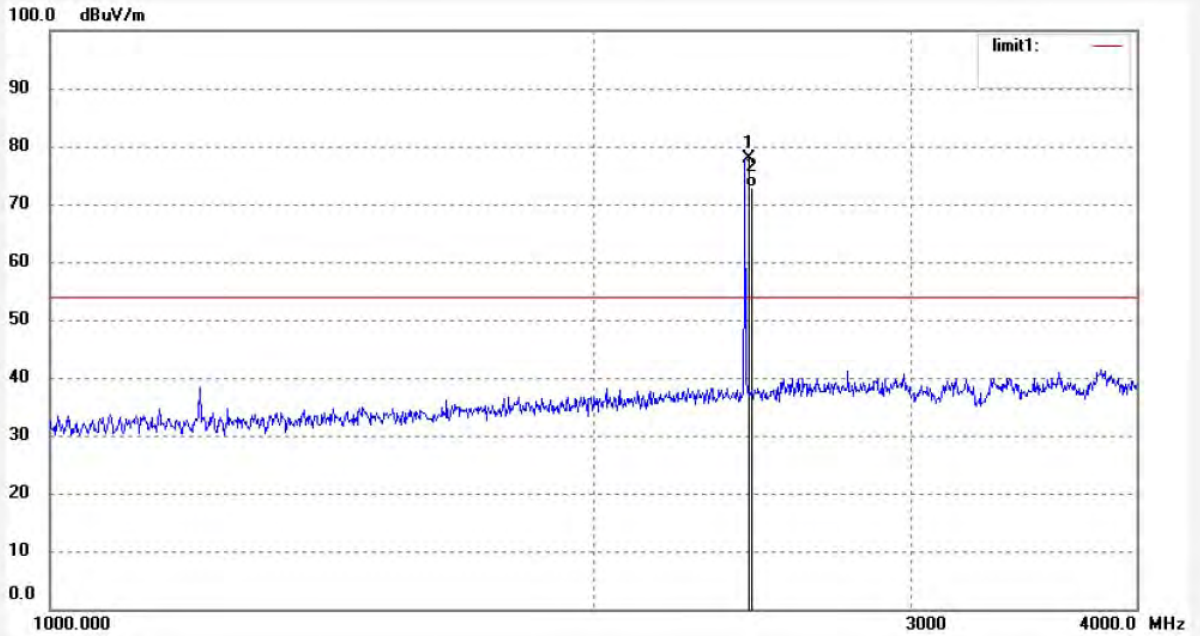
**ACCURATE TECHNOLOGY CO., LTD.**

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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2158	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:51:24
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	85.24	-7.35	77.89	114.00	-36.11	peak			
2	2441.000	80.17	-7.35	72.82	94.00	-21.18	AVG			





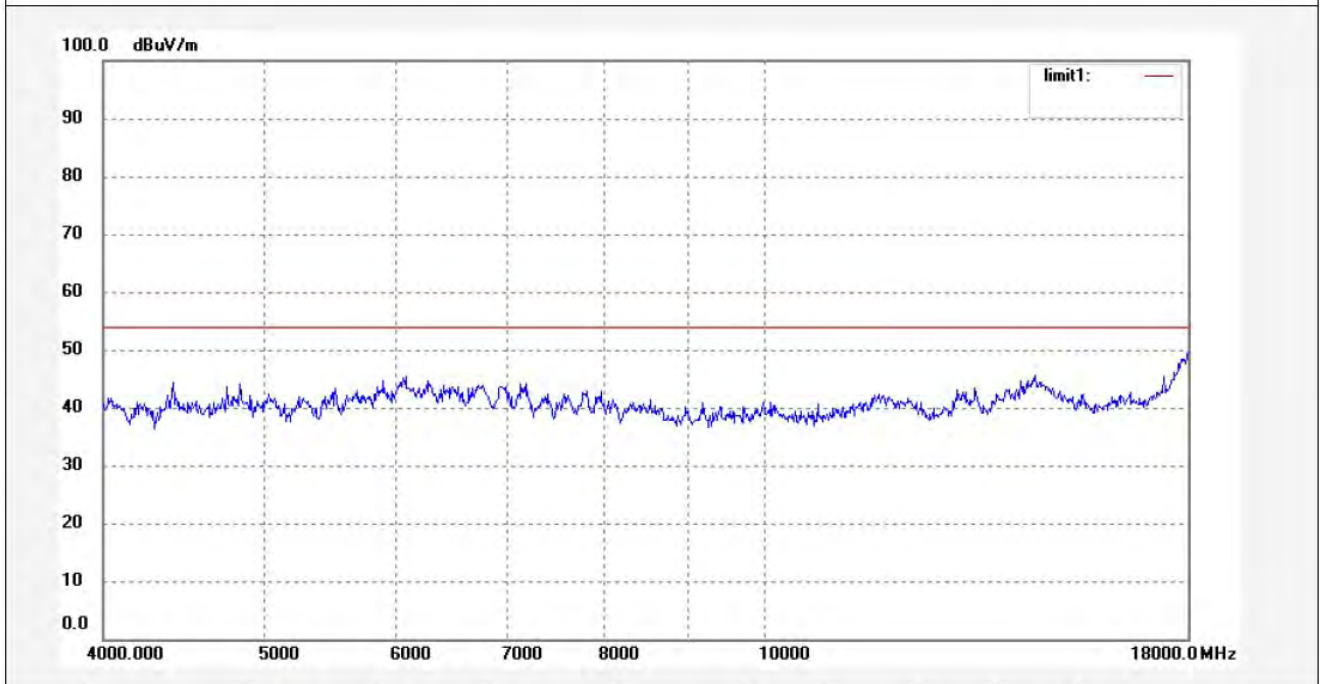
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2156	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:45:19
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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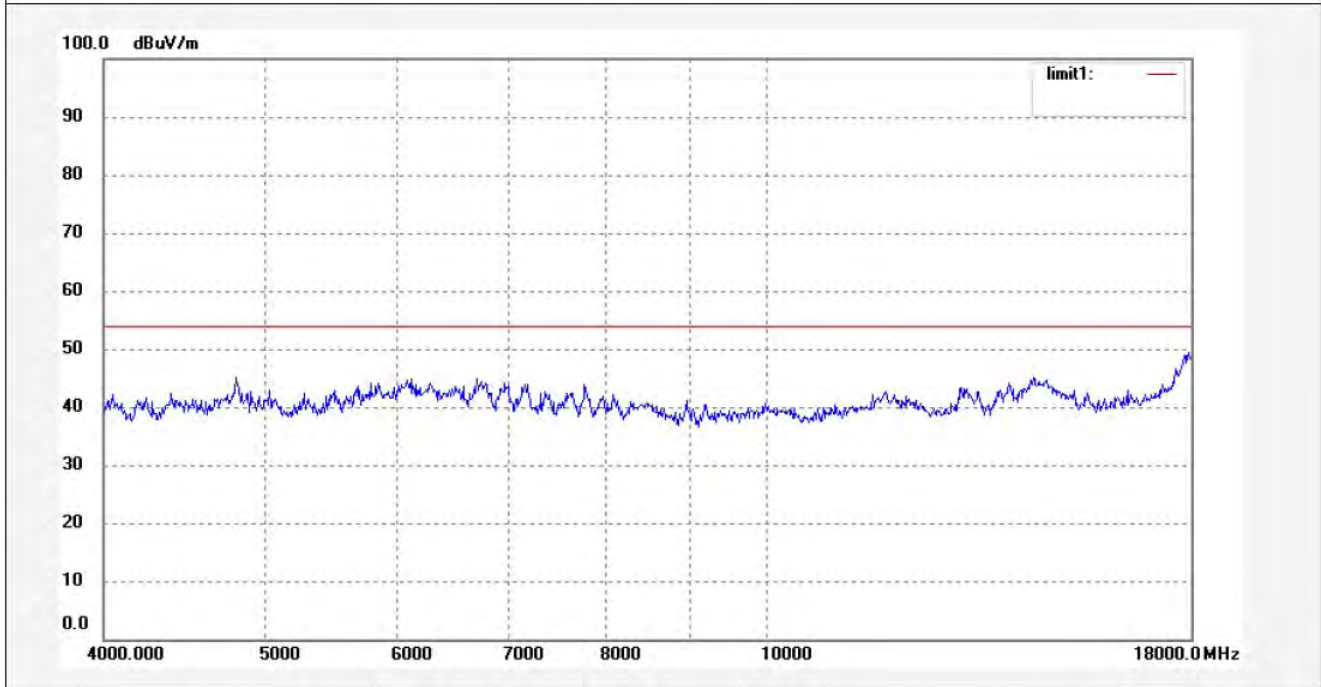
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2155	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:42:47
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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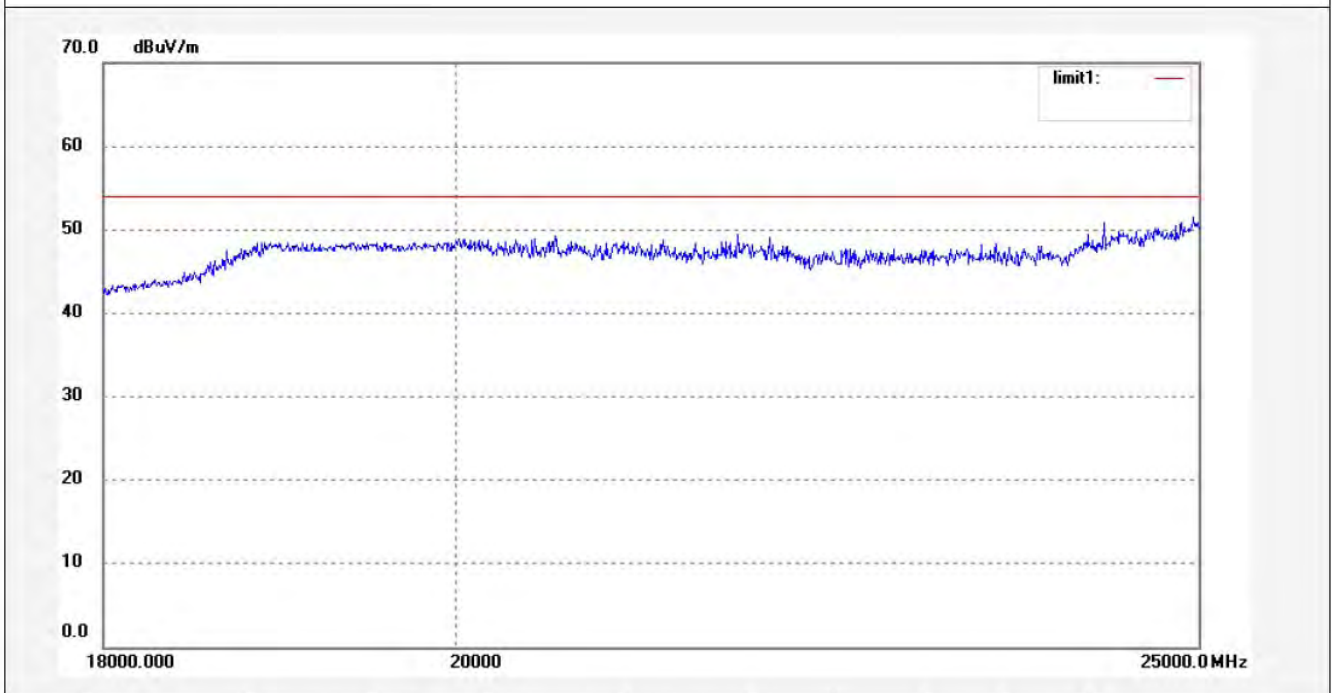
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #1241	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/5/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 5/53/01
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance:
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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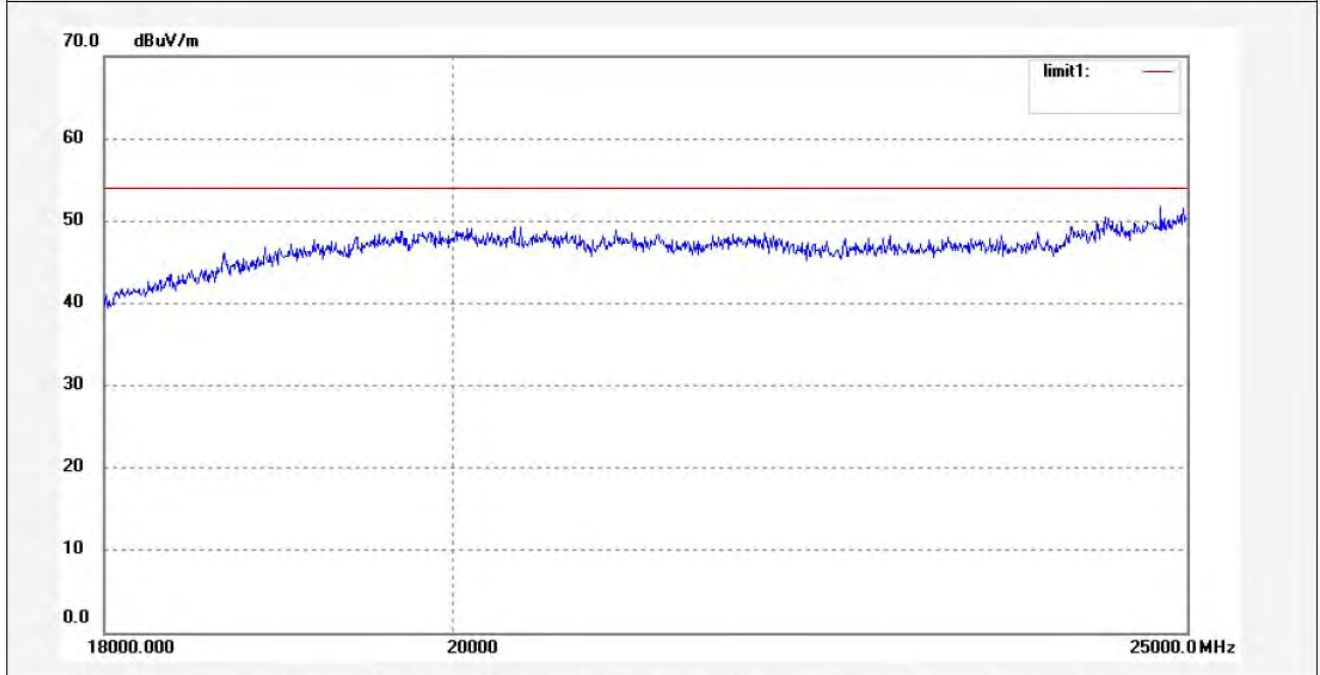
**ACCURATE TECHNOLOGY CO., LTD.**

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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #1240	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/5/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 5/51/02
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2441	Distance:
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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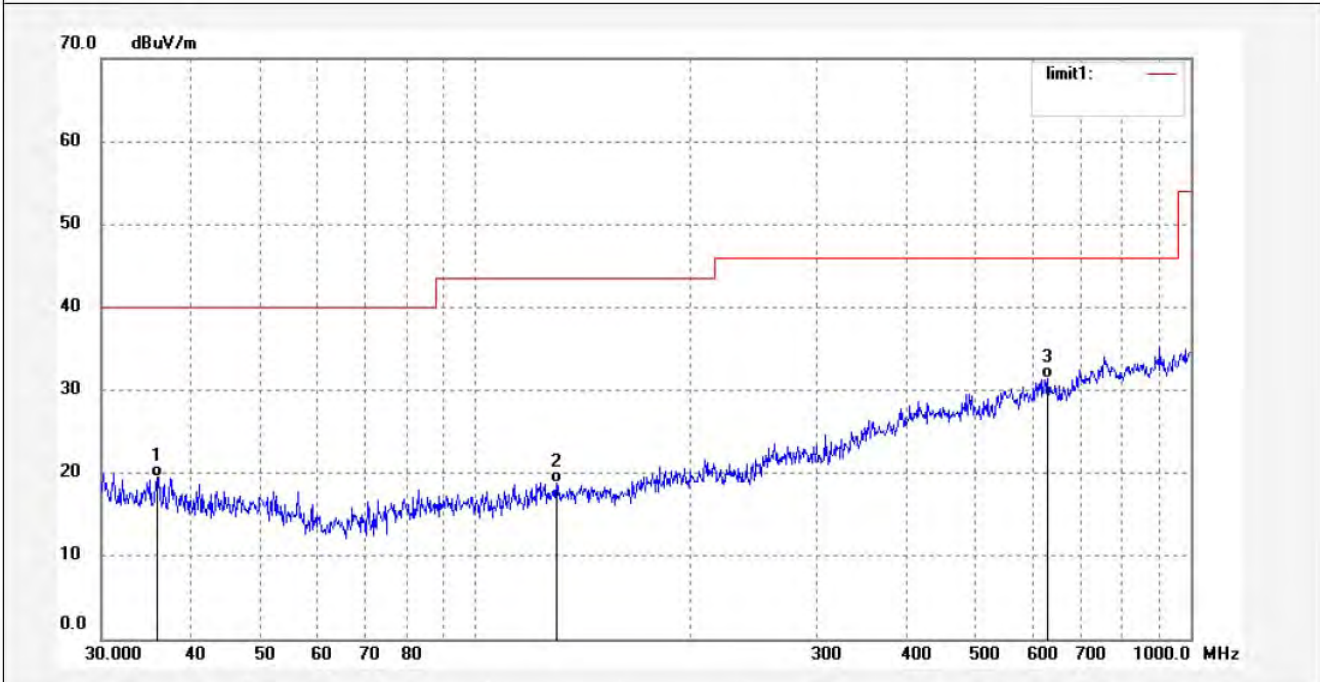
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2149	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:23:36
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.8875	4.01	15.49	19.50	40.00	-20.50	QP			
2	129.8477	3.88	14.92	18.80	43.50	-24.70	QP			
3	631.1070	5.30	26.07	31.37	46.00	-14.63	QP			



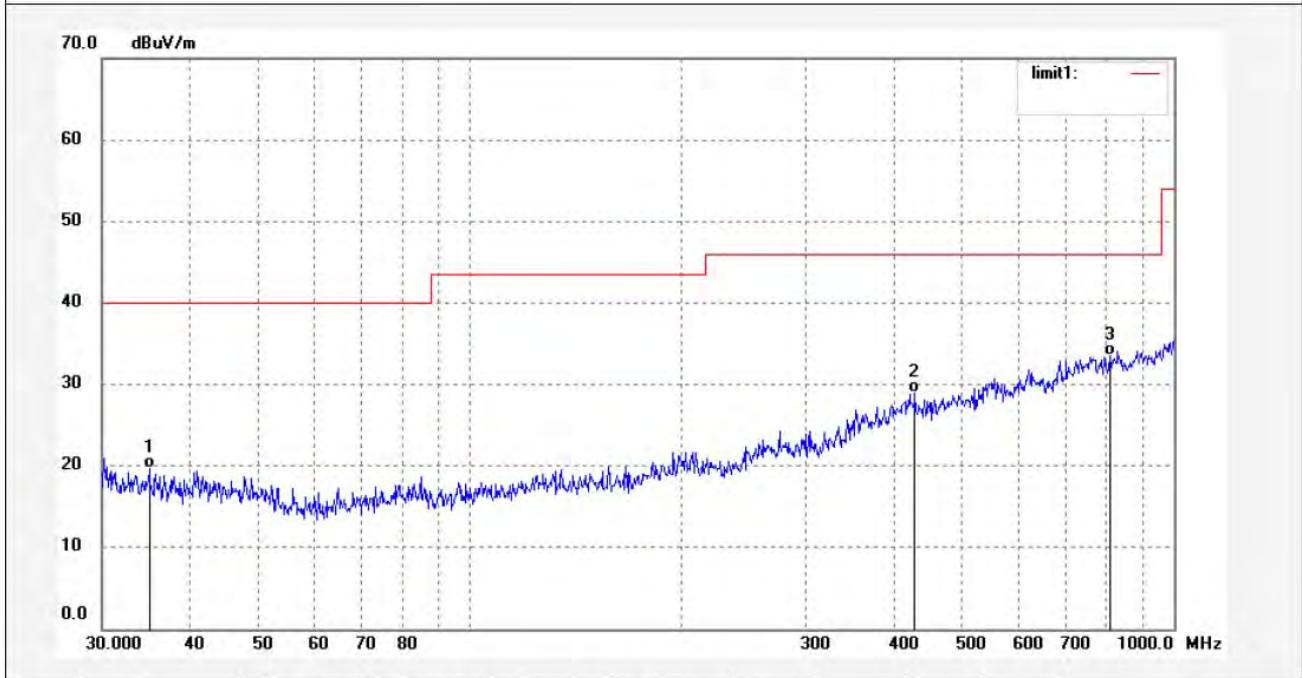
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2150	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:26:03
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.0157	4.02	15.69	19.71	40.00	-20.29	QP			
2	428.7959	5.92	23.01	28.93	46.00	-17.07	QP			
3	812.7744	5.46	28.00	33.46	46.00	-12.54	QP			



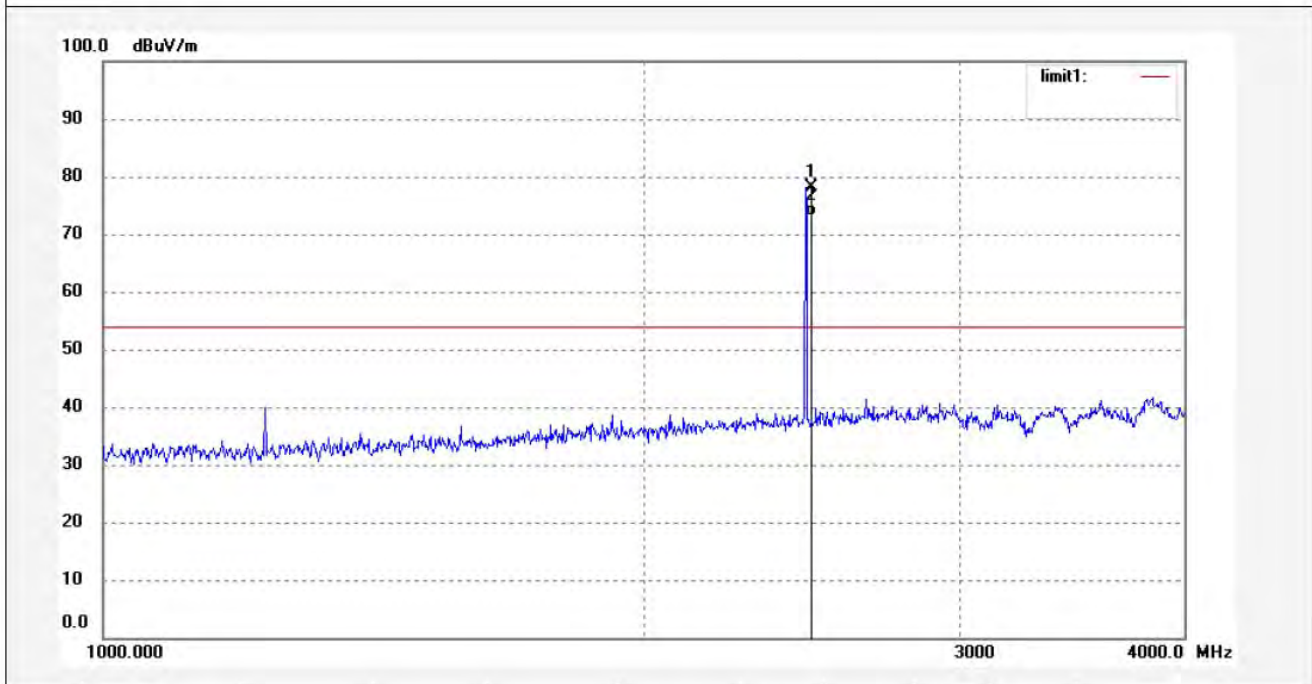
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2160	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:57:36
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



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	85.58	-7.37	78.21	114.00	-35.79	peak			
2	2480.000	80.47	-7.37	73.10	94.00	-20.90	AVG			



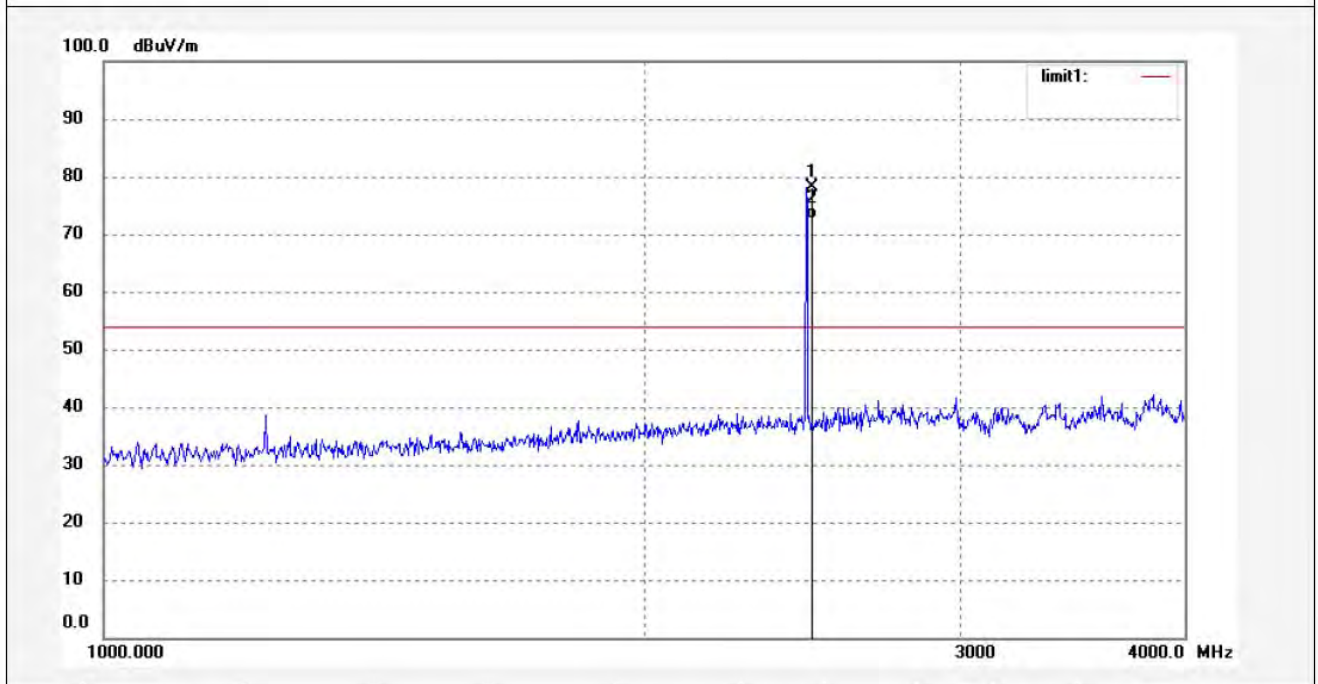
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2159	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:54:02
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



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	85.61	-7.37	78.24	114.00	-35.76	peak			
2	2480.000	79.96	-7.37	72.59	94.00	-21.41	AVG			





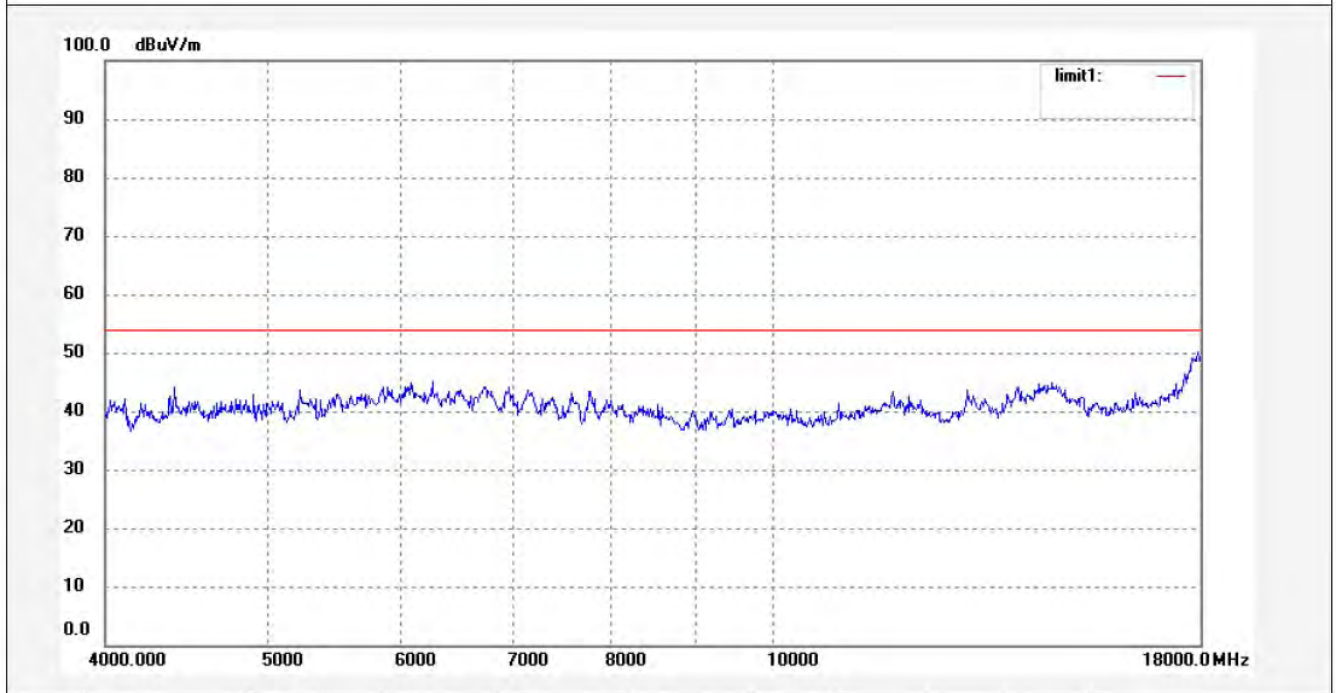
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2161	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:59:16
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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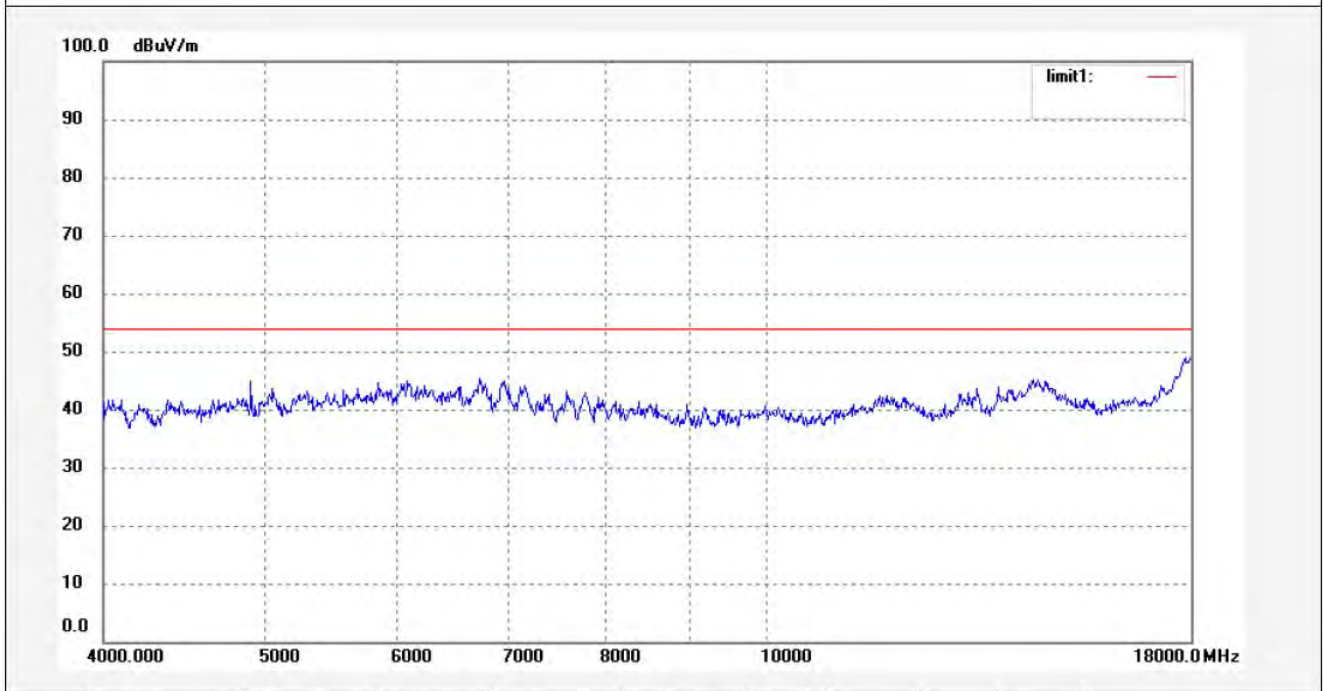
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2162	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/28
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 22:04:37
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report NO.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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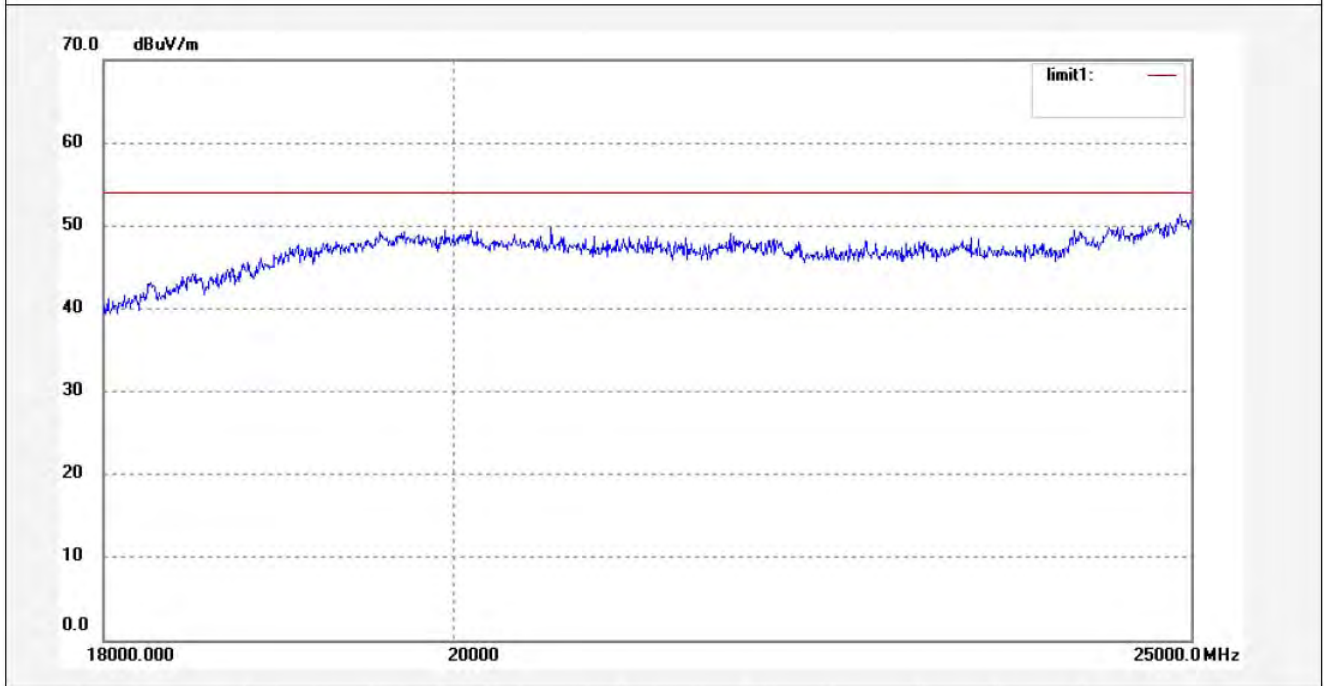
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #1242	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/5/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 5/55/57
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance:
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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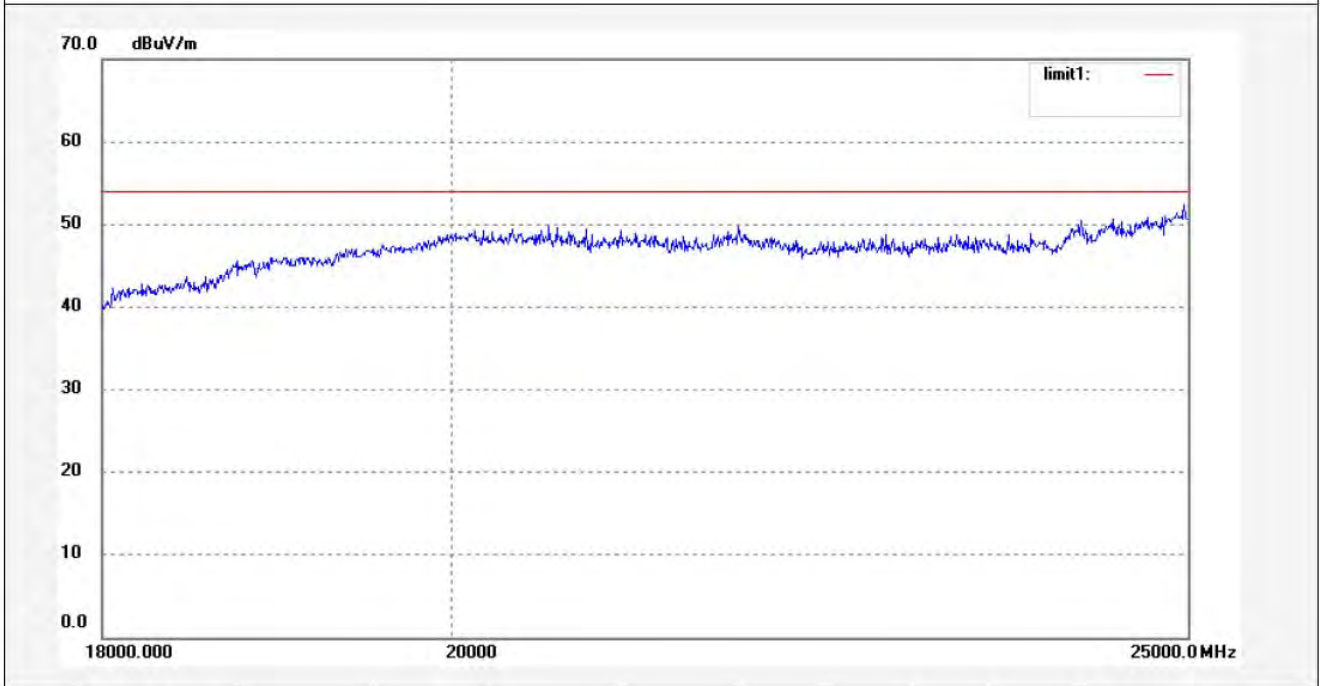
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #1243	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/5/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 5/57/43
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance:
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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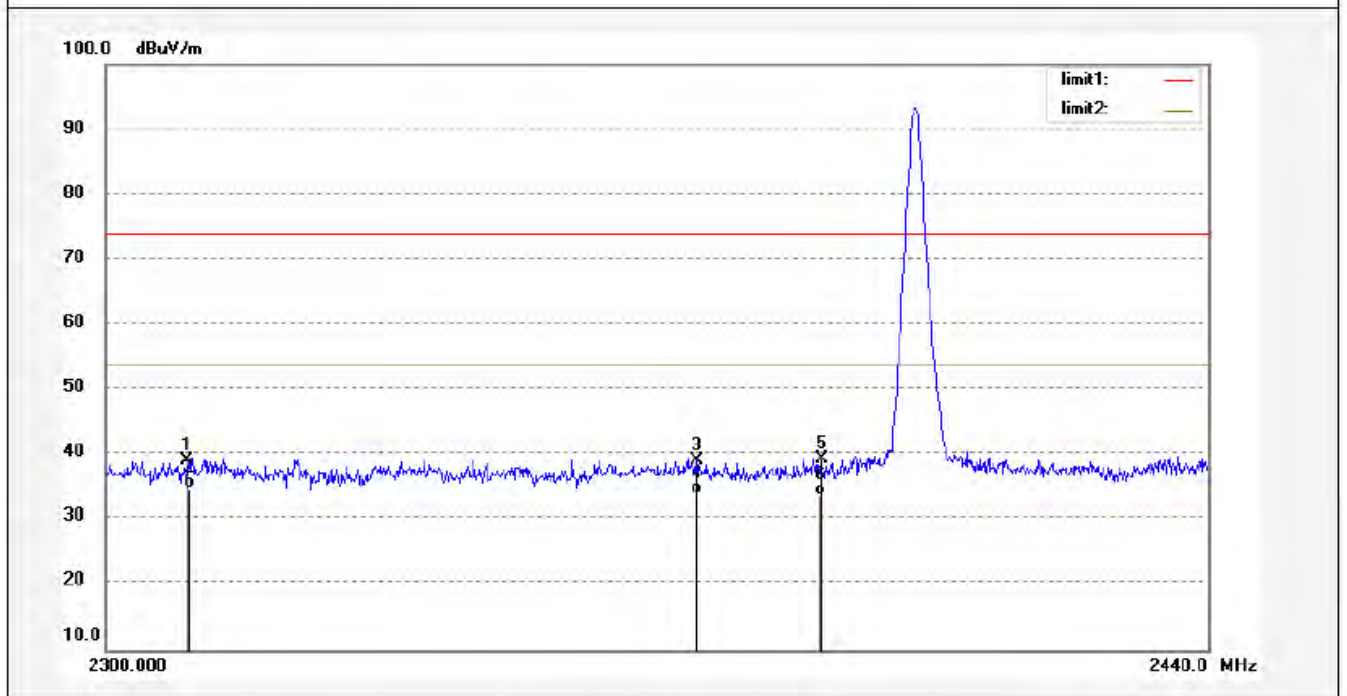
**ACCURATE TECHNOLOGY CO., LTD.**

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.: Bob #2310	Polarization: Horizontal
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/31
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 14:41:20
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	47.00	-7.81	39.19	74.00	-34.81	peak			
2	2310.000	42.69	-7.81	34.88	54.00	-19.12	AVG			
3	2374.150	46.78	-7.63	39.15	74.00	-34.85	peak			
4	2374.150	41.68	-7.63	34.05	54.00	-19.95	AVG			
5	2390.000	46.93	-7.53	39.40	74.00	-34.60	peak			
6	2390.000	41.21	-7.53	33.68	54.00	-20.32	AVG			



**ACCURATE TECHNOLOGY CO., LTD.**

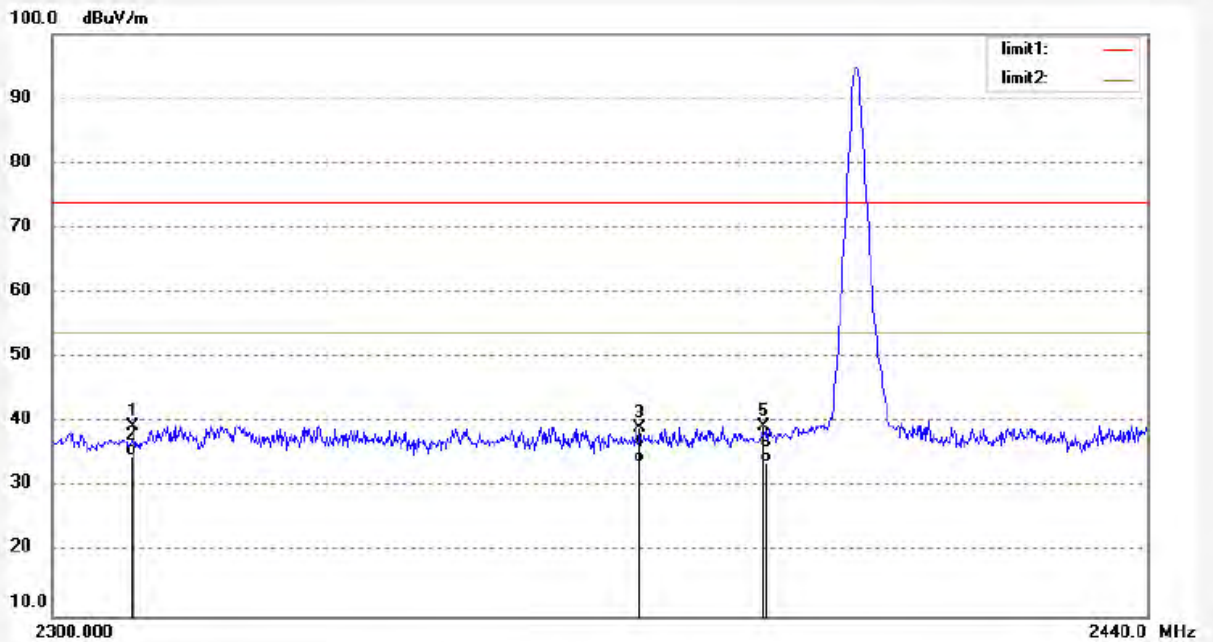
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2311  
Standard: FCC 15C PK  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Tubular motor  
Mode: TX2402  
Model: ABC-06-QC120  
Manufacturer: DOOYA MECHANIC

Polarization: Vertical  
Power Source: AC 120V/60Hz  
Date: 2012/05/31  
Time: 14:45:22  
Engineer Signature: Bob  
Distance: 3m

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	47.26	-7.81	39.45	74.00	-34.55	peak			
2	2310.000	42.62	-7.81	34.81	54.00	-19.19	AVG			
3	2374.150	46.80	-7.63	39.17	74.00	-34.83	peak			
4	2374.150	41.34	-7.63	33.71	54.00	-20.29	AVG			
5	2390.000	46.79	-7.53	39.26	74.00	-34.74	peak			
6	2390.000	41.32	-7.53	33.79	54.00	-20.21	AVG			



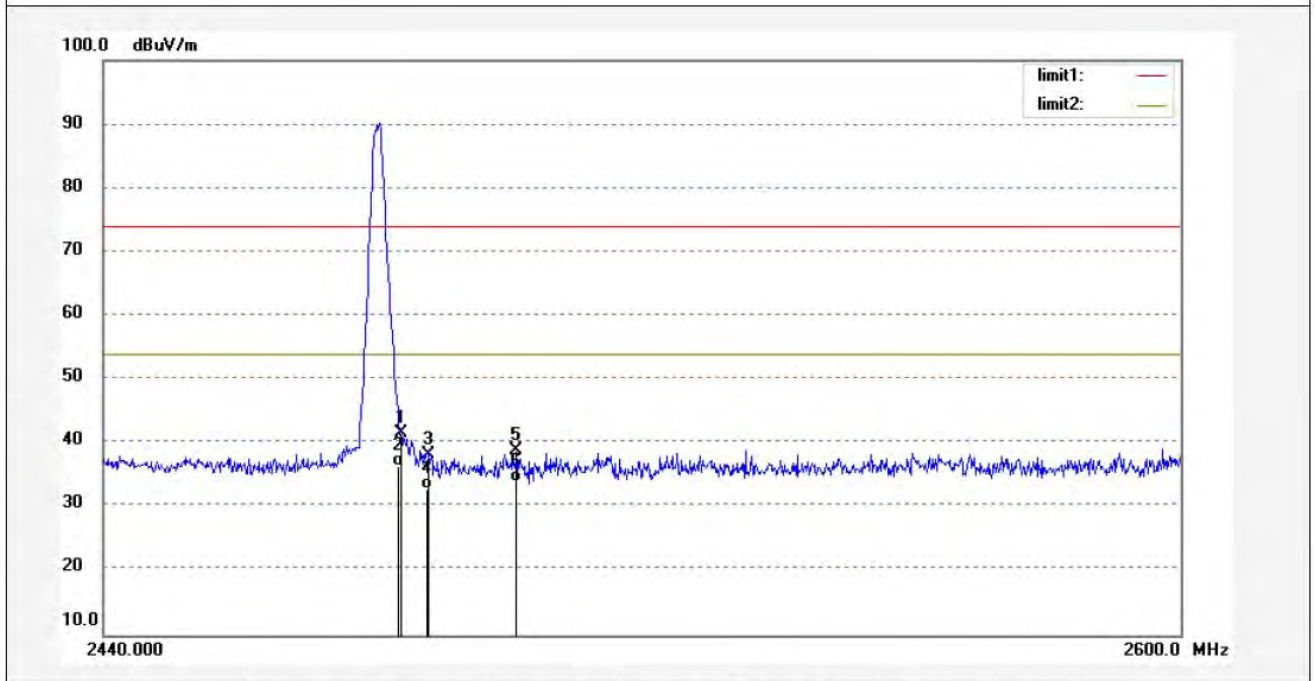
**ACCURATE TECHNOLOGY CO., LTD.**

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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2313	Polarization: Horizontal
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2012/05/31
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 14:54:54
EUT: Tubular motor	Engineer Signature: Bob
Mode: TX2480	Distance: 3m
Model: ABC-06-QC120	
Manufacturer: DOOYA MECHANIC	

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.079	49.07	-7.37	41.70	74.00	-32.30	peak			
2	2483.079	43.74	-7.37	36.37	54.00	-17.63	AVG			
3	2487.190	45.52	-7.38	38.14	74.00	-35.86	peak			
4	2487.190	40.11	-7.38	32.73	54.00	-21.27	AVG			
5	2500.000	46.38	-7.40	38.98	74.00	-35.02	peak			
6	2500.000	41.36	-7.40	33.96	54.00	-20.04	AVG			



**ACCURATE TECHNOLOGY CO., LTD.**

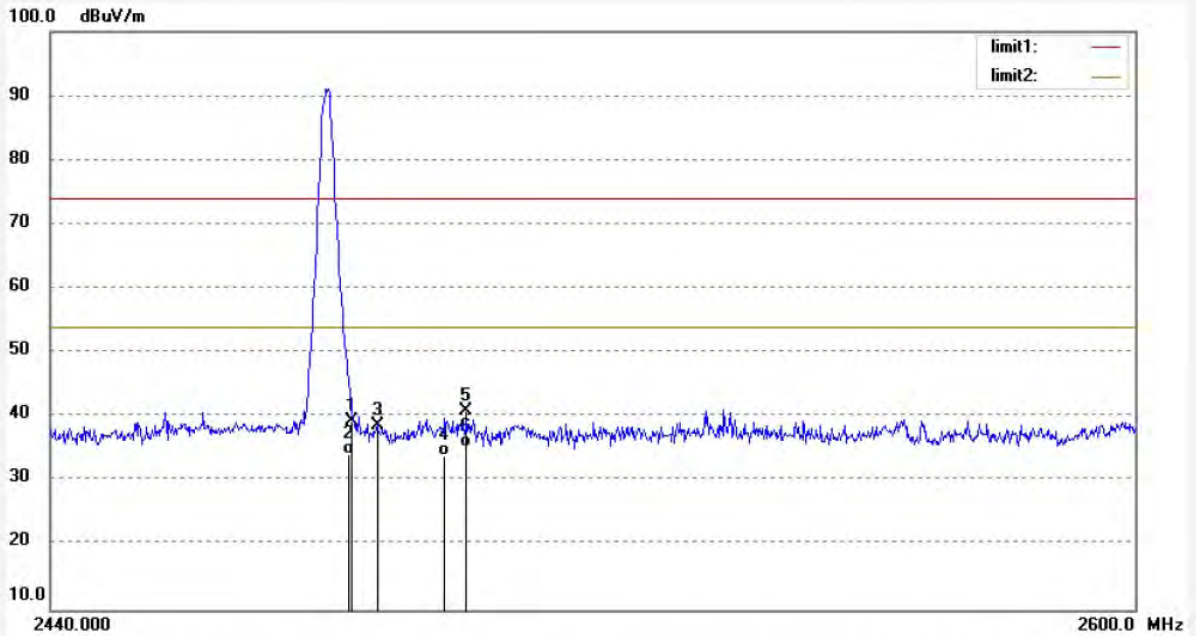
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #2312  
Standard: FCC 15C PK  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Tubular motor  
Mode: TX2480  
Model: ABC-06-QC120  
Manufacturer: DOOYA MECHANIC

Polarization: Vertical  
Power Source: AC 120V/60Hz  
Date: 2012/05/31  
Time: 14:49:02  
Engineer Signature: Bob  
Distance: 3m

Note: Report No.:ATE20121024



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.310	46.74	-7.37	39.37	74.00	-34.63	peak			
2	2483.310	41.62	-7.37	34.25	54.00	-19.75	AVG			
3	2487.190	46.06	-7.38	38.68	74.00	-35.32	peak			
4	2487.190	41.37	-7.38	33.97	54.00	-20.03	AVG			
5	2500.000	48.42	-7.40	41.02	74.00	-32.98	peak			
6	2500.000	42.69	-7.40	35.29	54.00	-18.71	AVG			



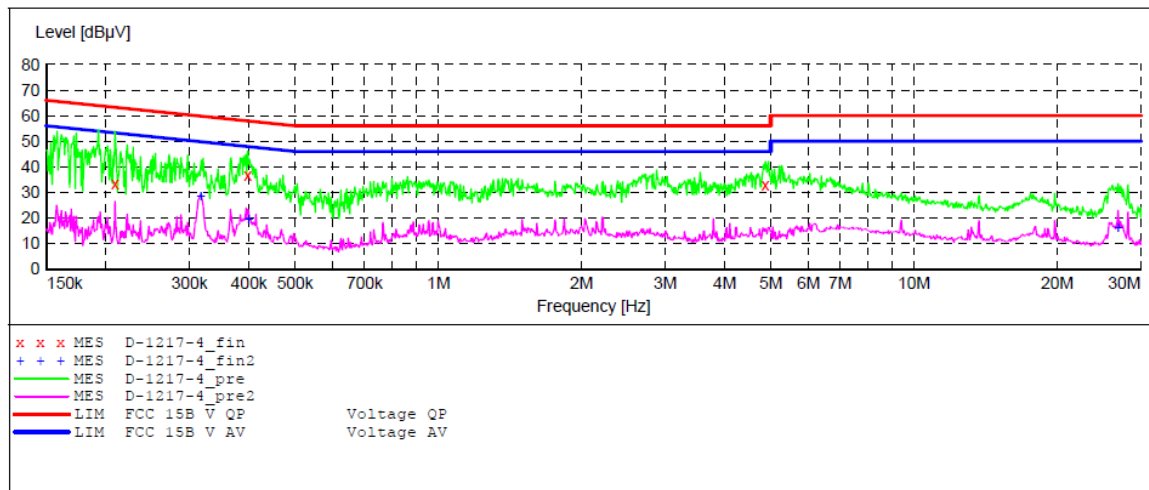
**ACCURATE TECHNOLOGY CO.,LTD**

**CONDUCTED EMISSION STANDARD FCC PART 15**

EUT: Tubular motor M/N:ABC-06-QC120  
 Manufacturer: DOOYA MECHANIC  
 Operating Condition: TX  
 Test Site: 1#Shielding Room  
 Operator: Bob  
 Test Specification: N 120V/60Hz  
 Comment: Mains port  
 Report NO.:ATE20121024

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

Short Description: SUB STD VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



**MEASUREMENT RESULT: "D-1217-4\_fin"**

29/5/2012 9:10AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.208925	33.20	11.3	63.2	30.0	QP	N	GND
0.397299	36.90	11.8	57.9	21.0	QP	N	GND
4.874037	32.90	11.4	56	23.1	QP	N	GND

**MEASUREMENT RESULT: "D-1217-4\_fin2"**

29/5/2012 9:10AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.316443	28.40	11.6	49.8	21.4	AV	N	GND
0.398888	19.80	11.8	47.9	28.1	AV	N	GND
26.910261	16.30	11.0	50	33.7	AV	N	GND

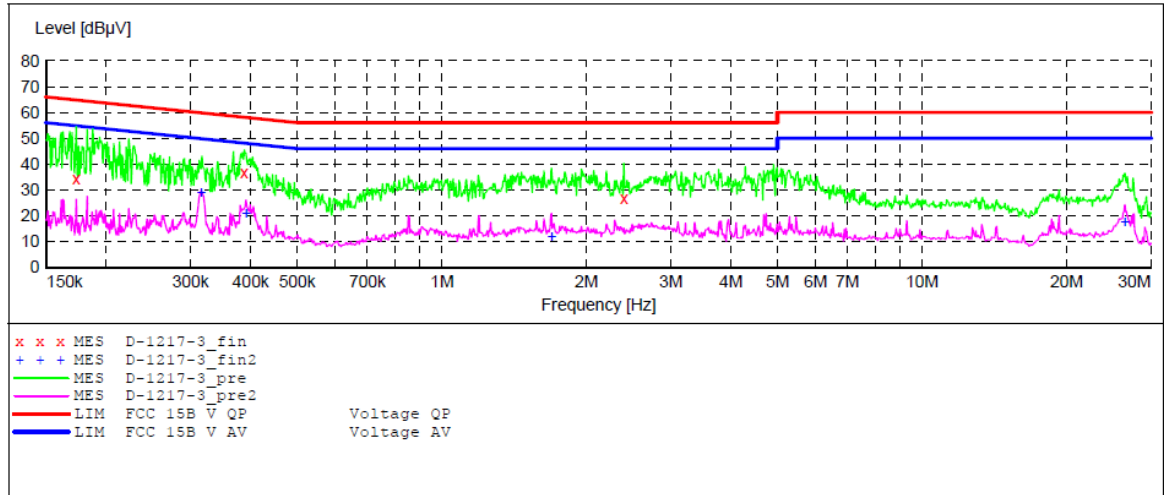
**ACCURATE TECHNOLOGY CO., LTD**

**CONDUCTED EMISSION STANDARD FCC PART 15**

EUT: Tubular motor M/N:ABC-06-QC120  
 Manufacturer: DOOYA MECHANIC  
 Operating Condition: TX  
 Test Site: 1#Shielding Room  
 Operator: Bob  
 Test Specification: L 120V/60Hz  
 Comment: Mains port  
 Report NO.:ATE20121024

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

Short Description: SUB STD VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



**MEASUREMENT RESULT: "D-1217-3\_fin"**

29/5/2012 9:06AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.173183	34.10	11.1	64.8	30.7	QP	L1	GND
0.387896	36.90	11.8	58.1	21.2	QP	L1	GND
2.394903	26.80	11.6	56	29.2	QP	L1	GND

**MEASUREMENT RESULT: "D-1217-3\_fin2"**

29/5/2012 9:06AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.315182	29.00	11.6	49.8	20.8	AV	L1	GND
0.391005	21.20	11.8	48	26.8	AV	L1	GND
1.692213	12.20	11.7	46	33.8	AV	L1	GND
26.483968	17.60	11.0	50	32.4	AV	L1	GND