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## EMC Test report for Multipurpose driving motor

**Model: VRN1400**

Shanghai, date of issue: 2013-10-29

Author : Richie Tang

By order of Lee Yeong Industrial Co., Ltd. at Yunlin County 64057, Taiwan

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Handwritten signature of Sky Zhang in black ink.

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DEKRA Testing and Certification (Shanghai) Ltd.  
Document

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## 1 CONCLUSION

The equipment under test (EUT) does meet the essential requirements of the clause 13 of standard EN 60034-1: 2010.

The tests described in this report do not result in the right to use any approval mark as conferred by DEKRA. As far as the tests were based on certain specifications, these are mentioned in the report.

The conclusion and results stated in this test report are based on a non-recurrent examination of sample(s) provided by the applicant.

### 1.1 Model description

The apparatus as supplied for the test is a multipurpose driving motor; model VRN1400.



Figure 1 Overview

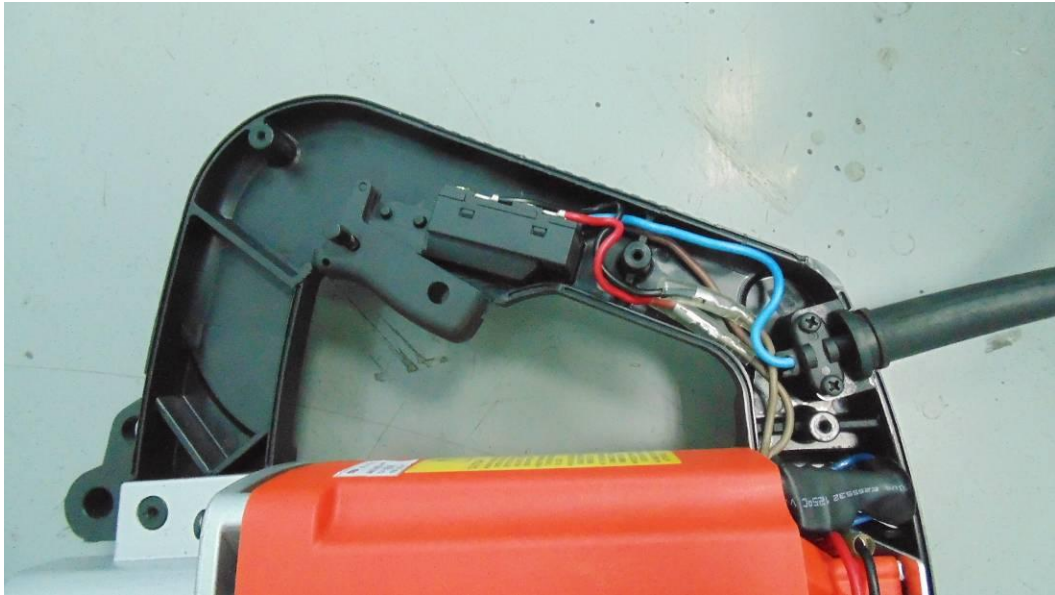


Figure 2 Internal view



Figure 3 Internal view

## 2 SUMMARY

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

### 2.1 Applied standards

Standard	Year	Title
EN 60034-1	2010	Rotating electrical machines - Part 1: Rating and performance

### 2.2 Overview of results

Emission tests	Result
Mains conducted emission	<b>PASS</b>
Radiated emission	<b>PASS</b>

The equipment has no active electronic components. According to clause 13.2.1 of EN 60034-1, the equipment is deemed to comply without testing.

### 3 GENERAL INFORMATION

#### 3.1 Product Information

Equipment under test	Multipurpose driving motor
Trade mark	AGP
Tested Type	VRN1400
Ratings	220-240 Vac; 50-60 Hz; 8,4 A; 830 W; 16 000 /min;

#### 3.2 Customer Information

Applicant/Manufacturer	Lee Yeong Industrial Co., Ltd.
Contact person	Ms. Diane Wu
Telephone	+886 5 551 8689
Telefax	+886 5 551 8635
Address	No.2, Kejia Road, Douliu City, Yunlin County 64057, Taiwan

Factory	Lee Yeong Industrial Co., Ltd.
Contact person	Ms. Diane Wu
Telephone	+886 5 551 8689
Telefax	+886 5 551 8635
Address	No.2, Kejia Road, Douliu City, Yunlin County 64057, Taiwan

### 3.3 Test data

Location	Audix Technology (Shanghai) Co., Ltd.
Address	3 F., 34 Building, No. 680, Guiping Road, Shanghai, China
Date	Aug. 2013
Supervised by	Richie Tang

### 3.4 Environmental conditions

Tests have been performed in a controlled laboratory environment, where the environmental conditions are maintained within the applicable ranges.

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

### Measurement Uncertainty

Conducted Emission Expanded Uncertainty:  $U = 3.38$  dB

Radiated Emission Expanded Uncertainty (30-200MHz):

$U = 4.14$  dB (horizontal)

$U = 4.28$  dB (vertical)

Radiated Emission Expanded Uncertainty (200M-1000MHz):

$U = 4.18$  dB (horizontal)

$U = 4.26$  dB (vertical)

## 4 EMISSION TEST RESULTS

### 4.1 Mains conducted emission

Standard	EN 60034-1:2010, clause 13.3.2	
Frequency [MHz]	QP [dB( $\mu$ V)]	AV [dB( $\mu$ V)]
0,15 – 0,5	79	66
0,5 – 5	73	60
5 – 30	73	60

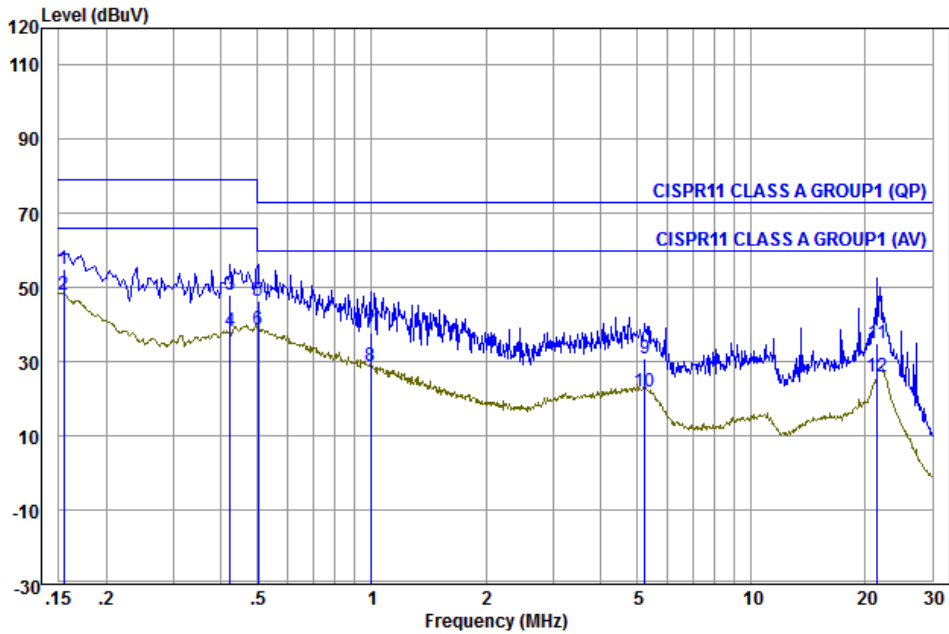
\*) Limits decreasing linearly with the logarithm of the frequency

Port	AC mains
Test method	LISN
Mode	On mode



Line

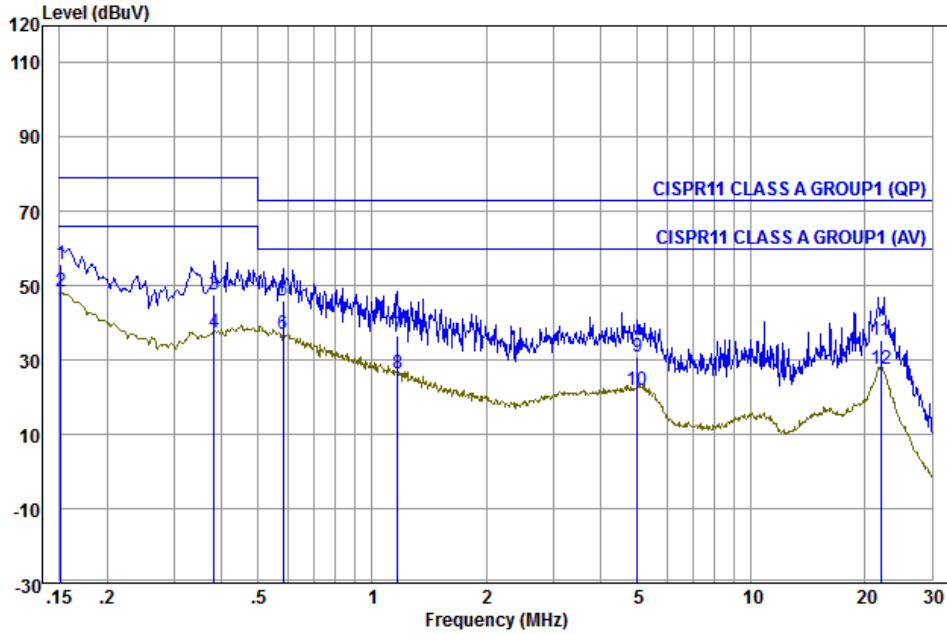
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	Freq	Level	Limit	Read	Cable	Over	Remark
	MHz	dBuV	dBuV	dBuV	dB	dB	
1	qp	0.15	55.02	79.00	44.17	1.17	-23.98 QP
2	pp	0.15	48.21	66.00	37.36	1.17	-17.79 Average
3		0.42	48.12	79.00	37.43	1.10	-30.88 QP
4		0.42	38.17	66.00	27.48	1.10	-27.83 Average
5		0.50	46.49	73.00	35.79	1.10	-26.51 QP
6		0.50	38.57	60.00	27.87	1.10	-21.43 Average
7		0.99	37.83	73.00	26.89	1.30	-35.17 QP
8		0.99	28.73	60.00	17.79	1.30	-31.27 Average
9		5.25	30.81	73.00	19.84	1.31	-42.19 QP
10		5.25	22.09	60.00	11.12	1.31	-37.91 Average
11		21.49	34.84	73.00	24.89	0.24	-38.16 QP
12		21.49	26.19	60.00	16.24	0.24	-33.81 Average

**Neutral**

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	Freq	Level	Limit	Read	Cable	Over	Remark
	MHz	dBuV	dBuV	Level	Loss	Limit	
				dBuV	dB	dB	
1	qp	0.15	55.68	79.00	44.79	10.89	1.18 -23.32 QP
2	pp	0.15	48.46	66.00	37.57	10.89	1.18 -17.54 Average
3		0.38	47.59	79.00	36.86	10.73	1.10 -31.41 QP
4		0.38	37.52	66.00	26.79	10.73	1.10 -28.48 Average
5		0.58	45.93	73.00	35.13	10.80	1.18 -27.07 QP
6		0.58	36.84	60.00	26.04	10.80	1.18 -23.16 Average
7		1.17	36.55	73.00	25.60	10.95	1.32 -36.45 QP
8		1.17	26.59	60.00	15.64	10.95	1.32 -33.41 Average
9		5.00	30.99	73.00	20.02	10.97	1.30 -42.01 QP
10		5.00	22.10	60.00	11.13	10.97	1.30 -37.90 Average
11		22.02	35.26	73.00	25.26	10.00	0.23 -37.74 QP
12		22.02	27.56	60.00	17.56	10.00	0.23 -32.44 Average

Refer to chapter 5 for the test set-up.

**Conclusion:**

**PASS**

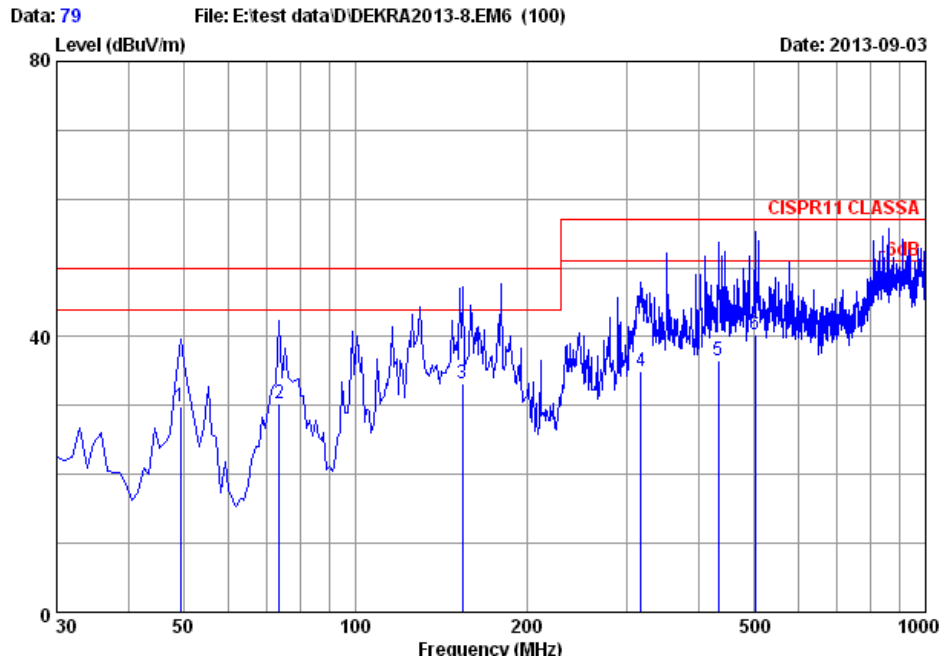
## 4.2 Radiated emission

Standard	EN 60034-1:2010, clause 13.3.2
Measuring distance	3 meters

Frequency [MHz]	QP [dB(μV/m)] @ 3 m
30 – 230	50
230 – 1000	57

Port	Enclosure
Mode	On mode

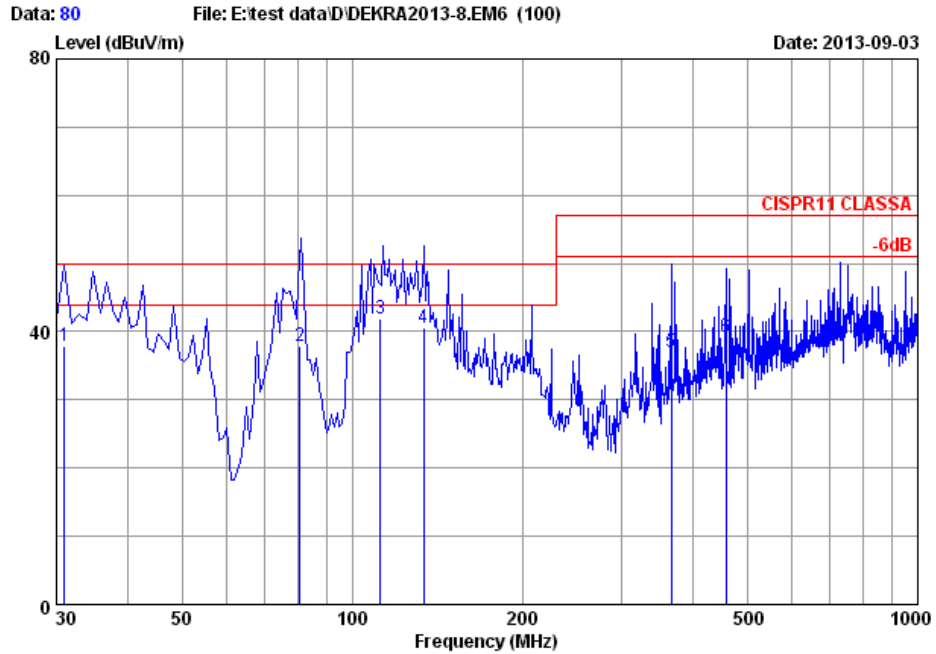
### Horizontal



	Freq. (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
1	49.400	8.03	0.91	20.81	29.75	50.00	20.25
2	73.650	6.80	1.49	22.10	30.39	50.00	19.61
3	154.160	9.64	2.25	21.30	33.19	50.00	16.81
4	317.120	13.58	2.80	18.59	34.97	57.00	22.03
5	433.520	17.20	3.08	16.37	36.65	57.00	20.35
6	502.390	18.17	3.27	18.88	40.32	57.00	16.68

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading.

**Vertical**



	Freq. (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)
1	31.030	18.10	0.81	19.00	37.91	50.00	12.09
2	80.750	7.20	1.59	29.00	37.79	50.00	12.21
3	112.280	12.00	1.96	28.00	41.96	50.00	8.04
4	133.790	11.27	2.12	27.25	40.64	50.00	9.36
5	366.590	15.17	2.92	18.87	36.96	57.00	20.04
6	457.770	16.55	3.15	19.44	39.14	57.00	17.86

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading.  
 2.The emission levels that are 20dB below the official limits are not report.

Refer to chapter 5 for a photo of the test set-up.

**Conclusion:**

**PASS**

## 5 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

The photograph shows the tested device.



Figure 4 Conducted emission test setup



Figure 5 Radiated emission test setup

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