Technical Compliance Statement

AS/NZS Report

For the following information **Ref. File No.: C1M1603236 (EM981999)**

Product	:	Screwdrivers, Impact wrenches and driver drill
Model Number	:	44514MPD
Applicant	:	King Tony Tools Co., Ltd.
Manufacturer	:	King Tony Tools Co., Ltd.
Standards	:	AS/NZS CISPR 22:2009 +A1:2010, Class B (CISPR 22 Ed. 6.0: 2008)

We hereby certify that the above product has been tested by us and complied with the Australian/New Zealand official limits. The test was performed accordance to the procedures from AS/NZS CISPR 22:2009 +A1:2010 (CISPR 22 Ed 6.0:2008).
The test data & results are issued on the test report no. **EM-A160016**.

Signature

Ben Cheng/Manager
Date: 2016. 04. 26

Test Laboratory:
AUDIX Technology Corporation, EMC Department
NVLAP Lab Code: 200077-0
FCC OET Designation: TW1004
Web Site: www.audixtech.com

NVLAP Lab Code 200077-0

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

EMI TEST REPORT FOR AS/NZS
King Tony Tools Co., Ltd.
Screwdrivers, Impact wrenches and driver drill
Model: 44514MPD

Prepared for : King Tony Tools Co., Ltd.
No 11, 150 Alley, 516 Lane, 2 Sec.
Hsi Nan Rd. Wu-Jih Shiang,
Taichung Hsien Taiwan

Prepared By : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan

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File Number	:	C1M1603236 (EM981999)
Report Number	:	EM-A160016
Date of Test	:	2009. 09. 28 ~ 2016. 04. 22
Date of Report	:	2016. 04. 26

TABLE OF CONTENTS

TEST REPORT VERIFICATION

Applicant	:	King Tony Tools Co., Ltd.
Manufacturer	:	King Tony Tools Co., Ltd.
EUT Description	:	Screwdrivers, Impact wrenches and driver drill
	(A) Model No.	: 44514MPD
	(B) Serial No.	: N/A
	(C) Power Supply	: DC 10.8V
	(D) Test Voltage	: DC 10.8V (Via Battery)

Measurement Standard Used:

AS/NZS CISPR 22:2009 +A1:2010, RULES AND REGULATIONS OF CLASS B (CISPR 22 Ed. 6.0: 2008)

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the AS/NZS CISPR 22 Class B limits for both radiated and conducted emissions. The measurement results were contained in this test report and AUDIX Technology Corporation was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the AS/NZS CISPR 22 official limits.

This report applies to above tested sample only and shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: 2009. 09. 28 ~ 2016. 04. 22 Date of Report : 2016. 04. 26

Producer: Annie Yu
(Annie Yu/Administrator)

Signatory: Ben Cheng
(Ben Cheng/Manager)

1. DESCRIPTION OF VERSION

Edition No.	Date of Revision	Revision Summary	Report Number
0	2016. 04. 26	Original Report.	EM-A160016

2. SUMMARY OF STANDARDS AND RESULTS

2.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	**Standard**	**Limits**	**Results**
Conducted Disturbance Measurement	AS/NZS CISPR 22: 2009 +A1:2010 (CISPR 22 Ed. 6.0: 2008)	Class B	N/A
Conducted common mode disturbance at telecommunication port	AS/NZS CISPR 22: 2009 +A1:2010 (CISPR 22 Ed. 6.0: 2008)	Class B	N/A
Radiated Disturbance Measurement	AS/NZS CISPR 22: 2009 +A1:2010 (CISPR 22 Ed. 6.0: 2008)	Class B	PASS
Above items shown N/A are not applicable in this report and regarded as compliance due to EUT which only employ DC power for operation.			

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

Description	:	Screwdrivers, Impact wrenches and driver drill
Model Number	:	44514MPD
Applicant	:	King Tony Tools Co., Ltd. No 11, 150 Alley, 516 Lane, 2 Sec. Hsi Nan Rd. Wu-Jih Shiang, Taichung Hsien Taiwan
Manufacturer	:	King Tony Tools Co., Ltd. No 11, 150 Alley, 516 Lane, 2 Sec. Hsi Nan Rd. Wu-Jih Shiang, Taichung Hsien Taiwan
Input Rating	:	DC 10.8V
Battery	:	LANCER, DC 10.8V
Date of Receipt of Sample	:	#1 2009. 09. 10 #2 2016. 04. 21
Date of Test	:	2009. 09. 28 ~ 2016. 04. 22

3.2. Tested Supporting System Details

3.2.1. CHARGER (FOR CHARGING MODE TEST USED)

Model Number	:	UP0181A-12PA
Manufacturer	:	GRAND POWER
Output Power Cord	:	Unshielded, Undetachable, 1.0m

3.3. Test Facility

Name of Firm	:	**AUDIX Technology Corporation** **EMC Department** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Facility & Location	:	**No. 4 Open Area Test Site &** **No. 8 Open Area Test Site** No. 67-4, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

3.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	± 3.5dB
Radiation Test	30MHz~1000MHz	± 4.3dB
	1GHz~6GHz	± 4.8dB
	6GHz~18GHz	± 4.8dB

Remark：Uncertainty = $ku_c(y)$

4. CONDUCTED DISTURBANCE MEASUREMENT

The conducted disturbance voltage limits are not required for EUT which only employ Battery for operation.

5. RADIATED DISTURBANCE MEASUREMENT

5.1. Test Equipment

5.1.1. The following test equipments are used during the radiated disturbance measurement: (At No. 4 Open Area Test Site)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	2008. 10. 16	1 Year
2.	Test Receiver	R&S	ESCI	100556	2009. 05. 25	1 Year
3.	Amplifier	HP	8447D	1937A02488	NCR	NCR
4.	Log Periodic Antenna	CHASE	UPA6109	1039	2009. 03 .20	1 Year
5.	Biconical Antenna	CHASE	VBA6106A	1231	2009. 03 .20	1 Year

5.1.2. The following test equipments are used during the radiated disturbance measurement: (At No. 8 Open Area Test Site)

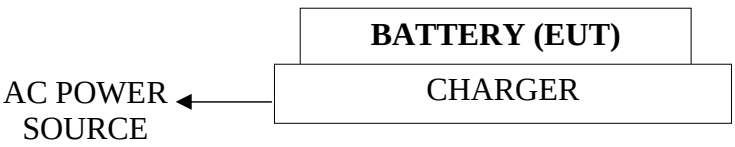
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-507	MY51250907	2016. 04. 15	1 Year
2.	Test Receiver	R&S	ESCI	100558	2015. 10. 30	1 Year
3.	Amplifier	HP	8447D	2944A06891	NCR	NCR
4.	Bilog Antenna	ETC	MCTD 2786	BL13F03010	2016. 01 .22	1 Year

5.2. Block Diagram of Test Setup

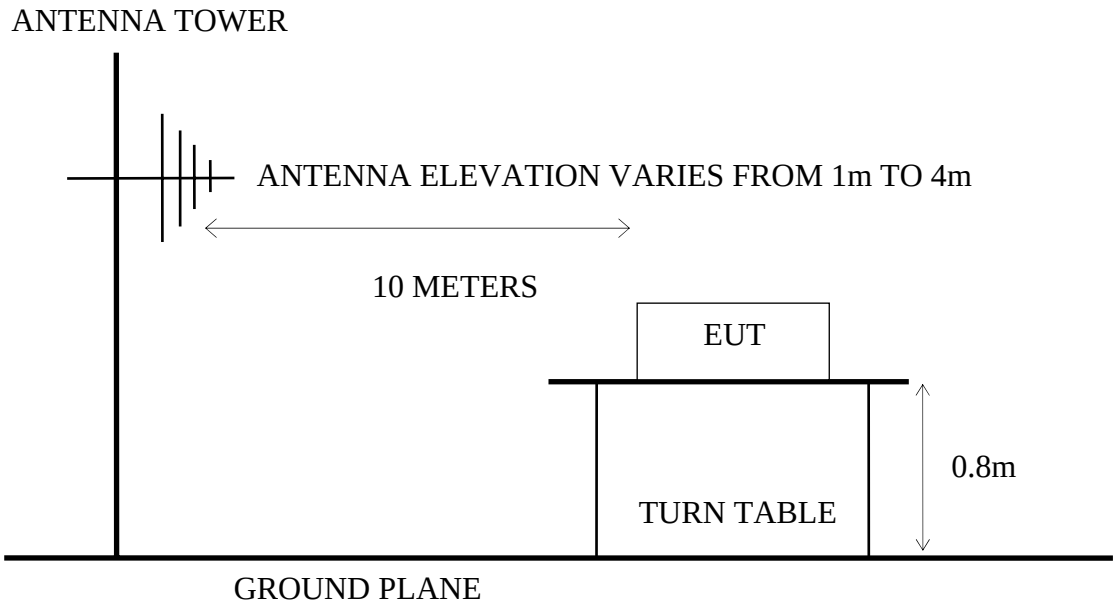
5.2.1. Block Diagram of connection between EUT and simulators

Stand Alone Mode

Charging Mode



5.2.2. Open Area Test Site (10m) Setup Diagram



5.3. Limits for Radiated Disturbance (AS/NZS CISPR 22, Class B)

5.3.1. Limit below 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	10	30
230 ~ 1000	10	37

Notes: (1) The tighter limit applies at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.

5.3.2. Limit above 1GHz (CISPR 22)

Frequency (GHz)	Distance (Meters)	Average Limits (dBμV/m)	Peak Limits (dBμV/m)
1 ~ 3	3	50	70
3 ~ 6	3	54	74

Note： (1) The lower limit applies at the transition frequency.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.

5.4. Operating Condition of EUT

5.4.1. Set up the EUT and simulator as shown on 5.2.

5.4.2. Turn on the power of all equipments.

5.4.3. The EUT (Screwdrivers, Impact wrenches and driver drill) was on normal function during all testing.

5.4.4. Charging Mode: The EUT (Screwdrivers, Impact wrenches and driver drill) linked to charger and on discharging mode during the testing.

5.5. Test Procedure

The EUT was placed on a turn table which was 0.8 meter above ground.
The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 10 meters away from the receiving antenna which was mounted on a antenna tower. The antenna could be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antennas were used as receiving antennas. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to AS/NZS CISPR 22 on radiated measurement.

The bandwidth of the R&S Test Receiver ESCI was set at 120 kHz.

The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector. The all final readings from test receiver were measured with Quasi-Peak detector.

5.6. Radiated Disturbance Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

For 30MHz~1000MHz frequency range:

The EUT was performed during this section testing and all the test results are attached in the following list and next pages.

EUT：Screwdrivers, Impact wrenches and driver drill M/N：44514MPD

Test Date：2009. 09. 28 Temperature：28℃ Humidity：60%
Test Date：2016. 04. 22 Temperature：24℃ Humidity：62%

The details of test mode is as follows：

No.	Test Mode	Operation	Reference Data No.	
			Horizontal	Vertical
※1.	Stand Alone	**Operating (+)**	**# 2**	**# 1**
2.		Operating (-)	# 3	# 4
3.	Link to charger	Charging	# 4	# 3

(※ mode for maximum detected emission)

For Above 1GHz frequency range:

Due to the EUT's highest frequency generated is less than 108MHz, therefore the above 1GHz frequency is no need to measure.
(According to AS/NAS CISPR 22 standard)

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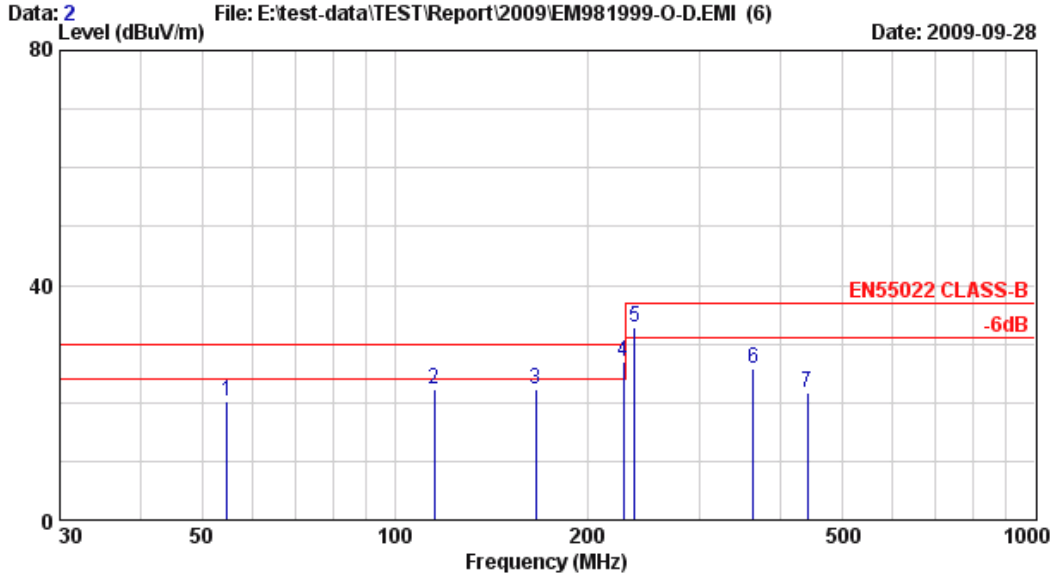

Site no. : No.4 OATS Data no. : 2
Dis. / Ant. : 10m VBA6106A/UPA6109(08) Ant. pol. : HORIZONTAL
Limit : EN55022 CLASS-B
Env. / Ins. : 28*C / 60% ESCI(556) Engineer : TIM
EUT : Screwdrivers,Impact wrenches and driver drill
Power Rating : DC 10.8V
Test Mode : Operating (+)
M/N: 44514MPD

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	54.660	14.27	0.79	5.03	20.08	30.00	9.92	
2	115.250	18.42	1.10	2.66	22.18	30.00	7.82	
3	166.250	20.59	1.37	0.32	22.27	30.00	7.73	
4	227.423	21.85	1.56	3.67	27.08	30.00	2.92	*
5	237.250	22.25	1.61	9.01	32.87	37.00	4.13	
6	363.260	14.80	2.11	9.01	25.93	37.00	11.07	
7	441.360	16.61	2.33	2.66	21.60	37.00	15.40	

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

3. The worst emission was detected at 227.423MHz with corrected signal level of 27.08dBµV/m (limit is 30.0dBµV/m) when the antenna was at horizontal polarization and was at 4m high and the turn table was at 360°.

4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.

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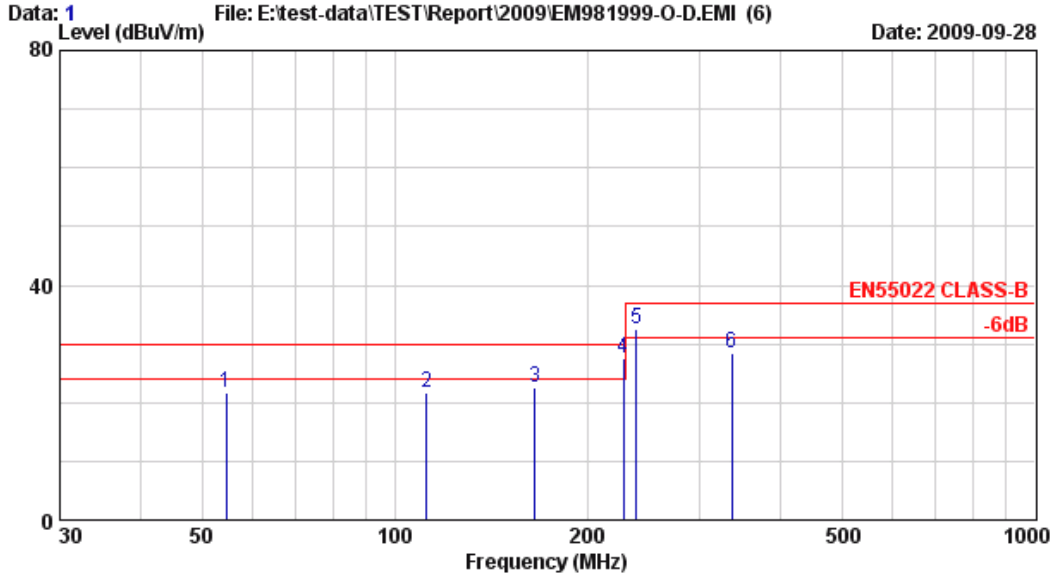

Site no. : No.4 OATS Data no. : 1
Dis. / Ant. : 10m VBA6106A/UPA6109(08) Ant. pol. : VERTICAL
Limit : EN55022 CLASS-B
Env. / Ins. : 28*C / 60% ESCI(556) Engineer : TIM
EUT : Screwdrivers,Impact wrenches and driver drill
Power Rating : DC 10.8V
Test Mode : Operating (+)
M/N: 44514MPD

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	54.575	14.27	0.79	6.76	21.81	30.00	8.19	
2	112.330	18.31	1.11	2.37	21.78	30.00	8.22	
3	165.660	20.59	1.36	0.66	22.61	30.00	7.39	
4	227.425	21.85	1.56	4.00	27.41	30.00	2.59	*
5	238.188	22.25	1.61	8.64	32.50	37.00	4.50	
6	336.252	14.54	2.04	11.74	28.32	37.00	8.68	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. **The worst emission was detected at 227.425MHz with corrected signal level of 27.41dBµV/m (limit is 30.0dBµV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 340°.**
4. **0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.**

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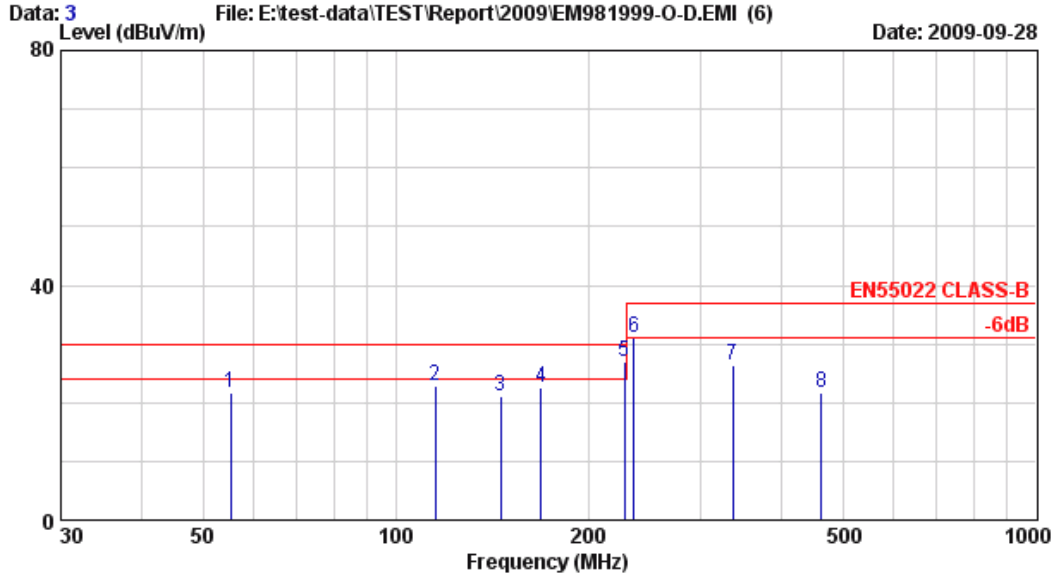

Site no. : No.4 OATS Data no. : 3
Dis. / Ant. : 10m VBA6106A/UPA6109(08) Ant. pol. : HORIZONTAL
Limit : EN55022 CLASS-B
Env. / Ins. : 28*C / 60% ESCI(556) Engineer : TIM
EUT : Screwdrivers,Impact wrenches and driver drill
Power Rating : DC 10.8V
Test Mode : Operating (-)
M/N:44514MPD

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	55.196	13.88	0.80	7.02	21.70	30.00	8.30	
2	115.404	18.42	1.10	3.28	22.80	30.00	7.20	
3	145.698	19.95	1.35	-0.29	21.01	30.00	8.99	
4	168.609	20.67	1.37	0.58	22.62	30.00	7.38	
5	227.976	21.85	1.56	3.61	27.03	30.00	2.97	
6	235.398	22.20	1.60	7.13	30.93	37.00	6.07	
7	336.686	14.54	2.04	9.87	26.45	37.00	10.55	
8	462.538	16.93	2.39	2.27	21.59	37.00	15.41	

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

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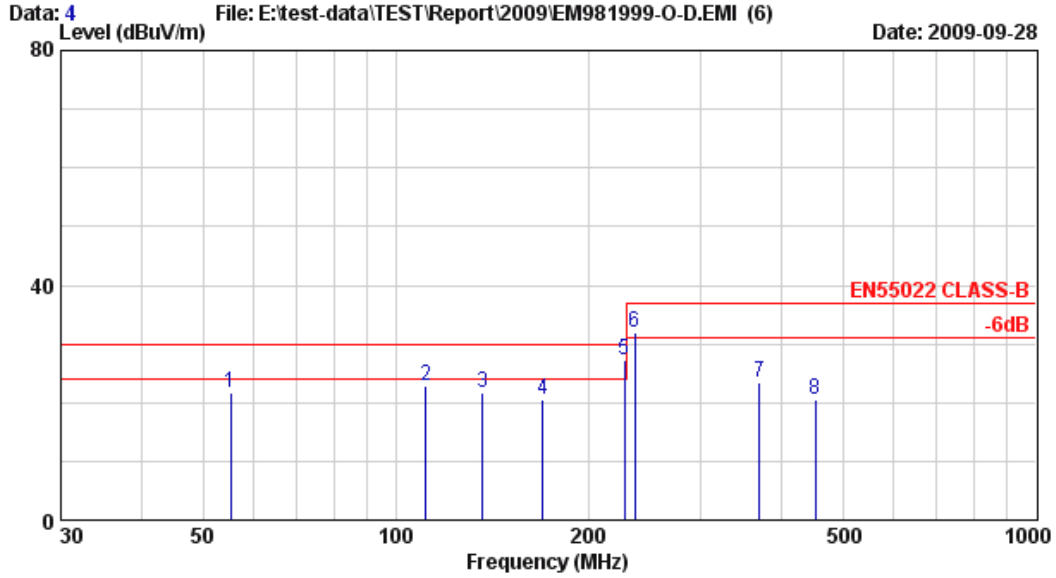

Site no. : No.4 OATS Data no. : 4
Dis. / Ant. : 10m VBA6106A/UPA6109(08) Ant. pol. : VERTICAL
Limit : EN55022 CLASS-B
Env. / Ins. : 28*C / 60% ESCI(556) Engineer : TIM
EUT : Screwdrivers,Impact wrenches and driver drill
Power Rating : DC 10.8V
Test Mode : Operating (-)
M/N:44514MPD

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	55.212	13.88	0.80	7.14	21.82	30.00	8.18	
2	111.620	18.29	1.11	3.34	22.74	30.00	7.26	
3	136.588	19.70	1.26	0.79	21.75	30.00	8.25	
4	169.711	20.67	1.37	-1.40	20.65	30.00	9.35	
5	228.024	21.85	1.57	3.79	27.21	30.00	2.79	
6	236.698	22.22	1.60	8.14	31.96	37.00	5.04	
7	369.698	14.79	2.11	6.60	23.51	37.00	13.49	
8	452.248	16.86	2.36	1.32	20.54	37.00	16.46	

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

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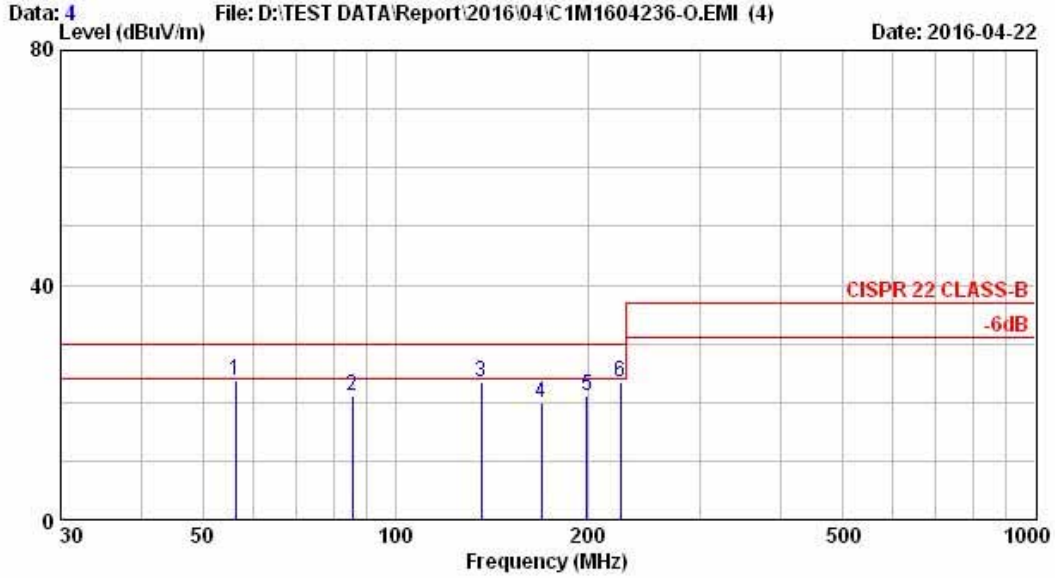

Site no. : OATS NO.8 Data no. : 4
Dis. / Ant. : 10m MCTD 0286/2856 10/12 Ant. pol. : HORIZONTAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 24*C / 62% ESCI (558) Engineer : Gary Tsai
EUT : 44514MPD
Power Rating : 240Vac / 50Hz
Test Mode : Charging

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	56.321	15.69	1.18	6.98	23.85	30.00	6.15	QP
2	85.692	15.42	1.49	4.12	21.03	30.00	8.97	QP
3	136.294	17.68	1.94	3.96	23.59	30.00	6.41	QP
4	169.480	18.58	2.25	-1.01	19.81	30.00	10.19	QP
5	199.438	20.94	2.49	-2.34	21.09	30.00	8.91	QP
6	224.787	21.91	2.67	-1.17	23.42	30.00	6.58	QP

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

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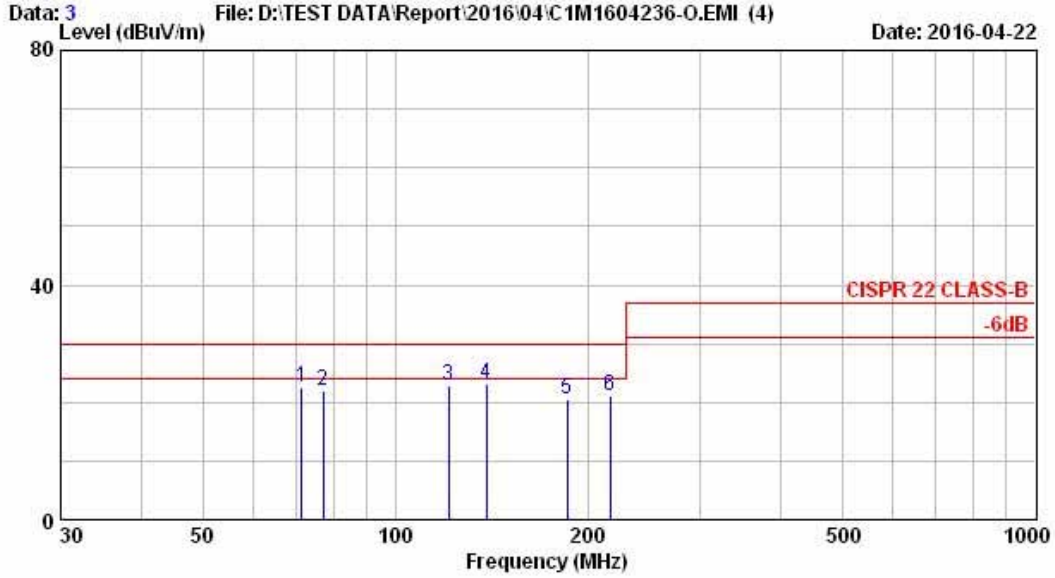

Site no. : OATS NO.8 Data no. : 3
Dis. / Ant. : 10m MCTD 0286/2856 10/12 Ant. pol. : VERTICAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 24*C / 62% ESCI (558) Engineer : Gary Tsai
EUT : 44514MPD
Power Rating : 240Vac / 50Hz
Test Mode : Charging

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	71.482	15.37	1.34	5.78	22.48	30.00	7.52	QP
2	77.154	15.39	1.40	5.16	21.95	30.00	8.05	QP
3	121.065	17.24	1.81	3.91	22.96	30.00	7.04	QP
4	138.954	17.75	1.96	3.46	23.17	30.00	6.83	QP
5	185.642	19.70	2.39	-1.49	20.59	30.00	9.41	QP
6	216.549	21.65	2.62	-3.13	21.14	30.00	8.86	QP

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

6. PHOTOGRAPHS

6.1. Photos of Radiated Disturbance Measurement at Open Area Test Site

Test Mode: Stand Alone

FRONT VIEW OF RADIATED MEASUREMENT

BACK VIEW OF RADIATED MEASUREMENT

Test Mode: Stand Alone, Operating (+)

SETUP WITH MAXIMUM DETECTED EMISSION AT HORIZONTAL POLARIZATION

SETUP WITH MAXIMUM DETECTED EMISSION AT VERTICAL POLARIZATION

Test Mode: Link to Charger

FRONT VIEW OF RADIATED MEASUREMENT

BACK VIEW OF RADIATED MEASUREMENT

APPENDIX I

(Photos of EUT)

(Total Pages: 5 Pages)

Figure 1
General Appearance (Front & Side View)

Figure 2
General Appearance (Back & Side View)

Figure 3
General Appearance (Bottom View, Removed Battery)

Figure 4
Internal View (Removed Cover)

Figure 5
Internal View

Figure 6
Internal View

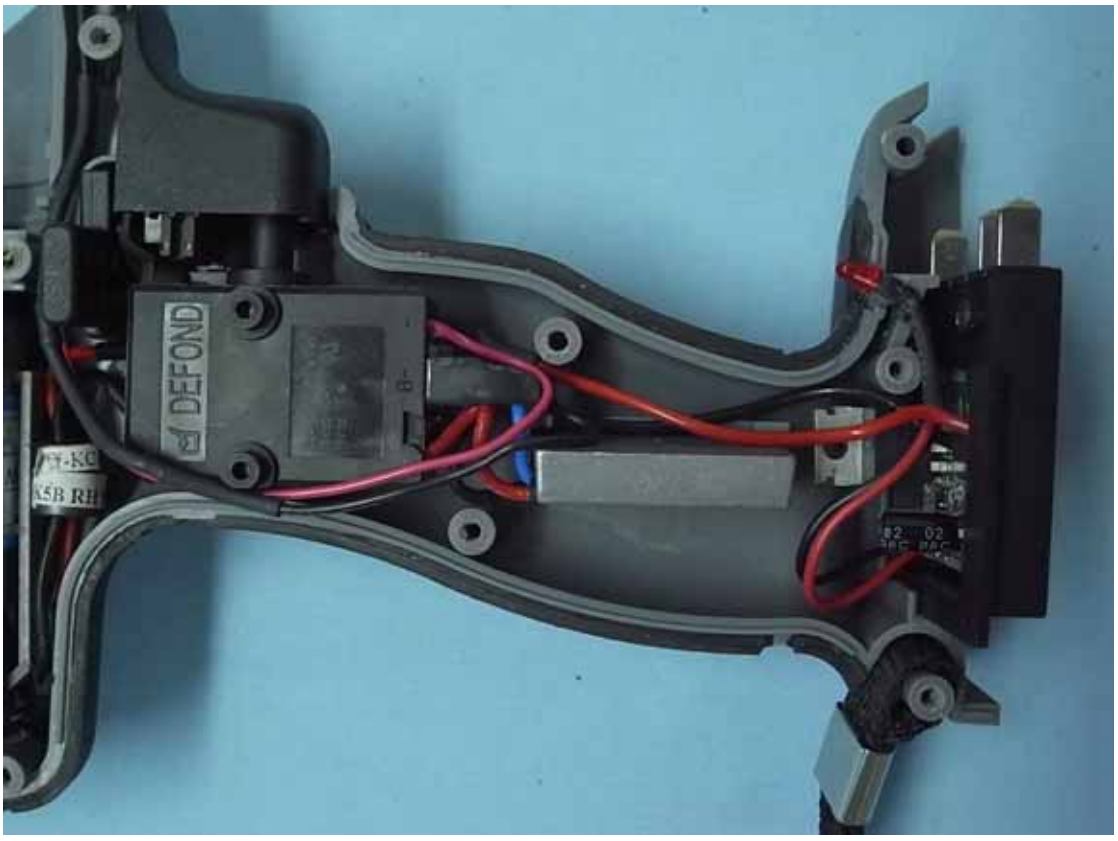

Figure 7
Internal View (Removed Main Board)

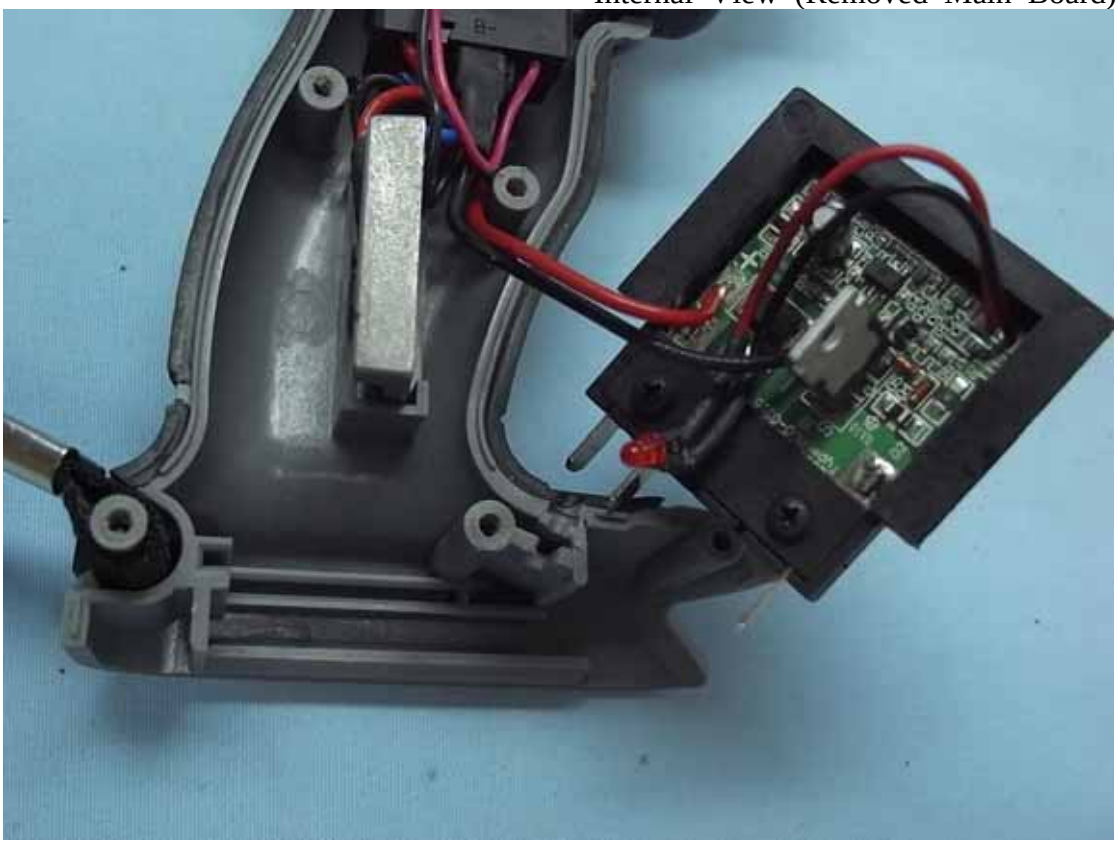

Figure 8
Internal View (Main Board/ Front View)

Figure 9
Internal View (Main Board/Back View)

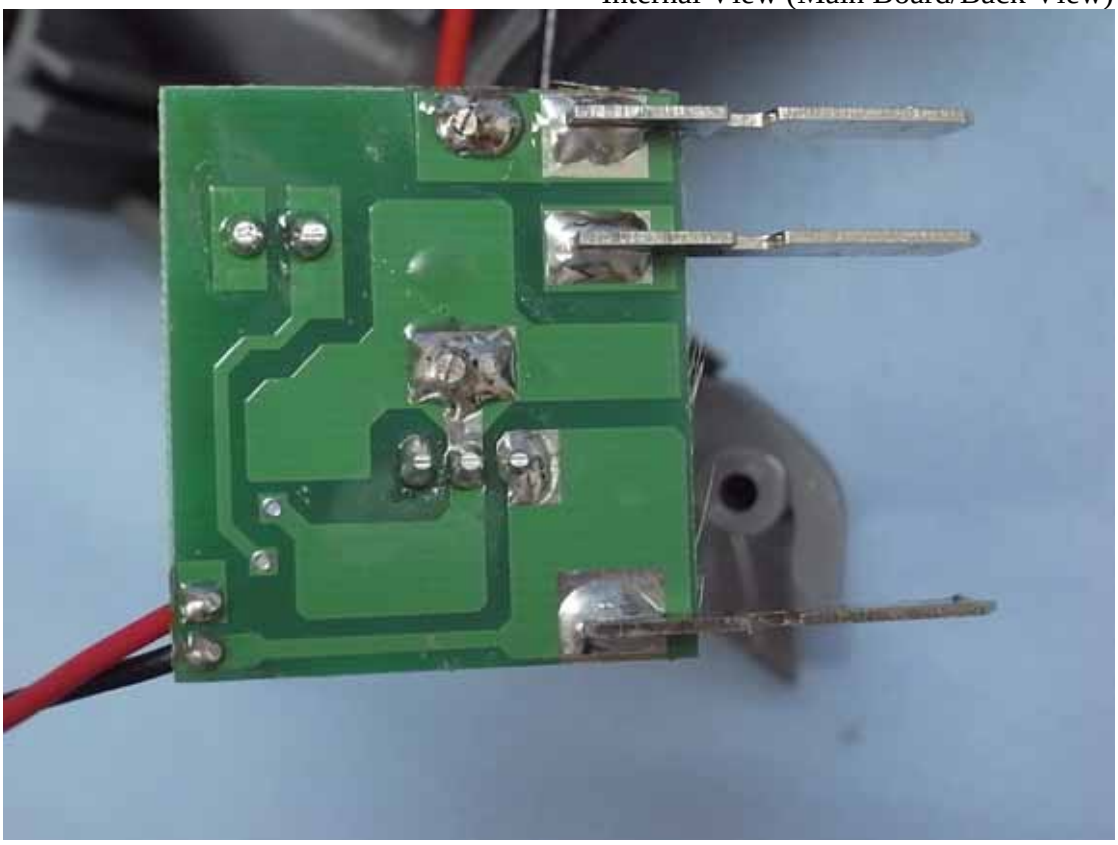

Figure 10
Internal View (Motor)