

Technical Compliance Statement

FCC Verification

For the following information

Ref. File No.: C1M1603236
(EM981999)

Product : Screwdrivers, Impact wrenches and driver drill
Model Number : 44514MPB
Applicant : King Tony Tools Co., Ltd.
Manufacturer : King Tony Tools Co., Ltd.
Standards : 47 CFR FCC Part 15 Subpart B:2015 and
ICES-003 (Class B Limit)

We hereby certify that the above product has been tested by us and complied with the FCC and IC official limits. The product might be marketed in US in accordance with the standard 47 CFR Part 2 and Part 15 Subpart B Class B equipment regulations under FCC Rules. The test was performed according to the procedures mentioned in ANSI C63.4-2009. The test data and results are issued on the test report no. EM-F160195.

Signature


Ben Cheng/Manager
Date: 2016. 04. 26

Test Laboratory:
AUDIX Technology Corporation, EMC Department
NVLAP Lab. Code: 200077-0
FCC OET Designation: TW1004 & TW1090
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.

TEST REPORT FOR VERIFICATION
On Behalf of
King Tony Tools Co., Ltd.
Screwdrivers, Impact wrenches and driver drill
Model No. : 44514MPB

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-F160195
Date of Test : 2009. 09. 28 ~ 2016. 04. 22
Date of Report : 2016. 04. 26

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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. : 44514MPB

(B) Serial No. : N/A

(C) Power Supply : DC 10.8V

(D) Test Voltage : DC 10.8V (Via Battery)

Rules of Compliance and Measurement Standards:

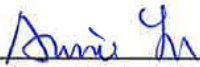
47 CFR FCC Part 15 Subpart B:2015
 ANSI C63.4-2009
 ICES-003 Issue 6:2016

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 FCC Part 15 subpart B with the provisions of sections 15.107 and 15.109 and ICES-003 Class B limits both conducted and radiated emissions.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC and IC official limits.

This report applies to above tested sample only and which 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/Administrator)

Signatory: 
 (Ben Cheng/Manager)

1. DESCRIPTION OF VERSION

Edition No.	Date of Revision	Revision Summary	Report Number
0	2016. 04. 26	Original Report.	EM-F160195

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
Powerline Conducted Emission Measurement	47 CFR FCC Part 15 Subpart B: 2015 and ICES-003:2016	Class B	N/A
Radiated Emission Measurement	47 CFR FCC Part 15 Subpart B: 2015 and ICES-003:2016	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	:	44514MPB
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 Site : **No. 4 Open Area Test Site**
 No. 67-4, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan
 Federal Communication Commission
 Registration Number: 90991
 Renewal on January 24, 2012

No. 8 Open Area Test Site
 No. 67-4, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan
 Federal Communication Commission
 Registration Number: 220521
 Renewal on September 06, 2013

NVLAP Lab Code : 200077-0

TAF Accreditation No : 1724

FCC OET Designation : TW1004 & TW1090

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 = $k_{uc}(y)$

4. POWERLINE CONDUCTED EMISSION MEASUREMENT

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

5. RADIATED EMISSION MEASUREMENT

5.1. Test Equipment

5.1.1. The following test equipment was used during the radiated emission 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 equipment was used during the radiated emission measurement: (At No. 8 Open Area Test Site)

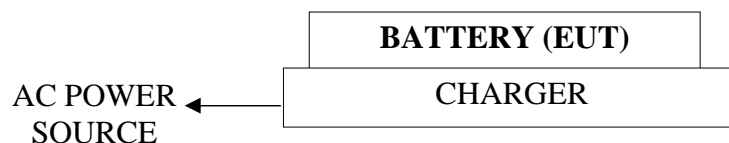
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-507	MY51250907	2016. 04. 15	1 Year
2.	Test Receiver	R&S	ESCI	100558	2015. 10. 30	1 Year
3.	Amplifier	HP	8447D	2944A06891	NCR	NCR
4.	Bilog Antenna	ETC	MCTD 2786	BL13F03010	2016. 01 .22	1 Year

5.2. Block Diagram of Test Setup

5.2.1. Block Diagram of connection between EUT and simulators
Stand Alone Mode

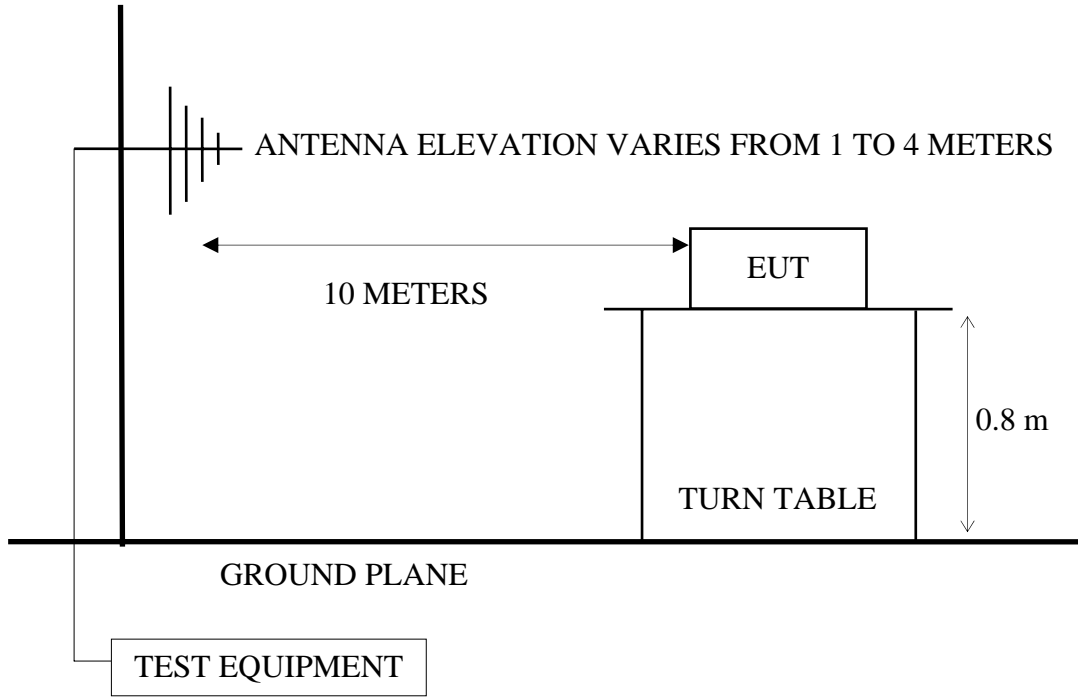
**SCREWDRIVERS, IMPACT WRENCHES
AND DRIVER DRILL (EUT)**

Charging Mode



5.2.2. Open Area Test Site Setup Diagram (10m) for 30-1000MHz

ANTENNA TOWER



5.3. Radiation Emission Limit

(FCC§15.109/ICES-003/CISPR 22, Class B)

All emanations from a class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	10	30
230 ~ 1000	10	37
Above 1000	3	73.98 (Peak)
Above 1000	3	53.98 (Average)

- Note :
- (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.
 - (3) There is no over 1GHz limits in CISPR 22 standard. Therefore, a FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.109 (a)(g).

5.4. Operating Condition of EUT

- 5.4.1. Set up the Screwdrivers, Impact wrenches and driver drill (EUT) and simulator as shown on 5.2.
- 5.4.2. To turn on the power of all equipment.
- 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 an 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 a receiving antenna.

Both horizontal and vertical polarization of the antennas were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2009 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 Peak detector and all the final readings of measurement were with Quasi-Peak detector.

5.6. Radiated Emission Measurement Results

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

For 30MHz~1000MHz frequency range:

The EUT was measured during this section testing and all the test results are listed in next pages

EUT : Screwdrivers, Impact wrenches and driver drill Model No. : 44514MPB

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	# 2	# 1

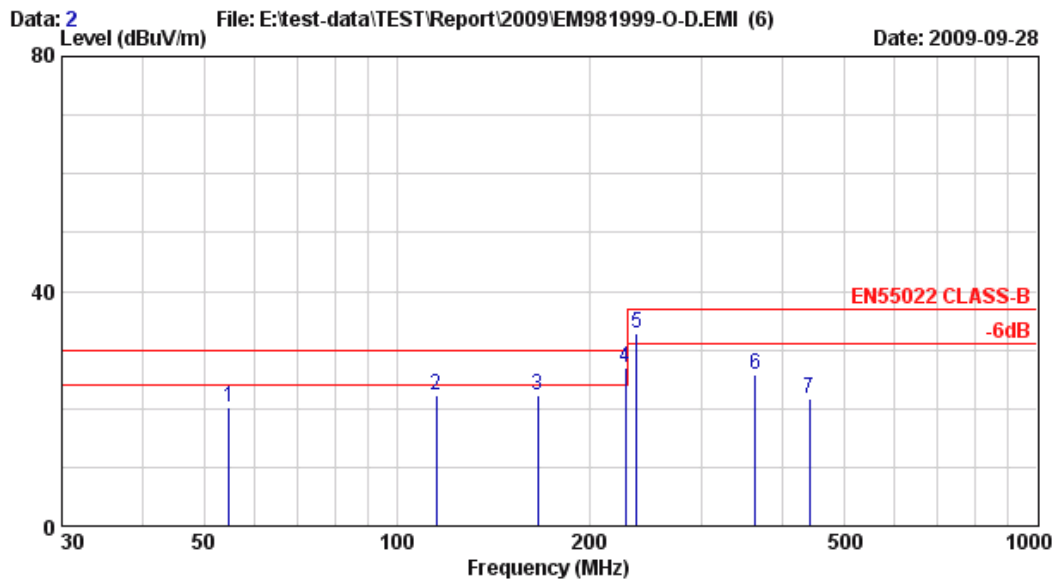
(mode for maximum detected emission)

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 section 15.33(b) of FCC Part 15 B standard)



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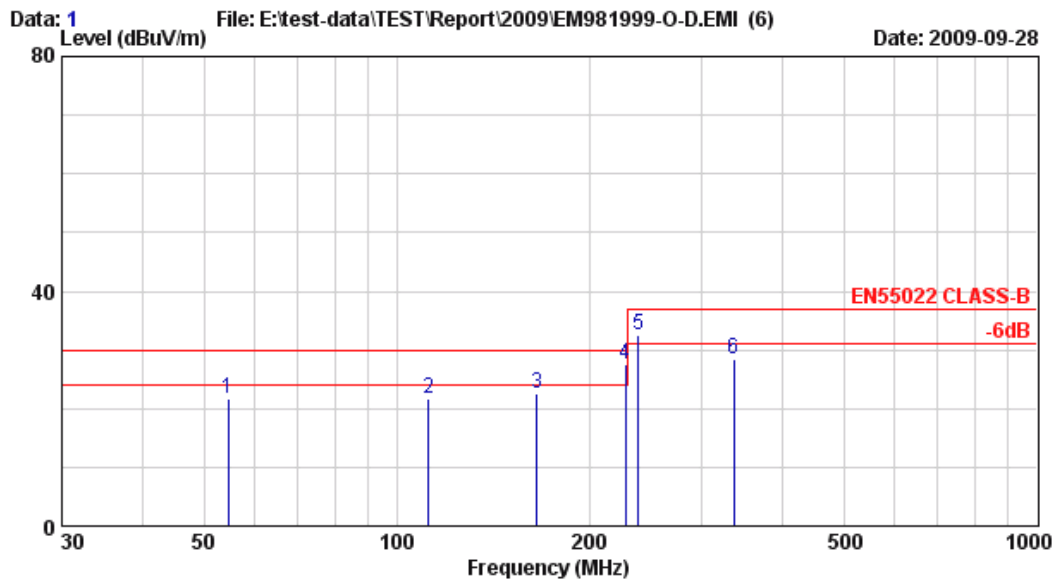
Site no. : No.4 OATS Data no. : 2
 Dis. / Ant. : 10m VBA6106A/UPA6109 (08) Ant. pol. : HORIZONTAL
 Limit : EN55022 CLASS-B
 Env. / Ins. : 28°C / 60% ESCI (556) Engineer : TIM
 EUT : Screwdrivers, Impact wrenches and driver
 Power Rating : DC 10.8V drill
 Test Mode : Operating (+)
 M/N:44514MPB

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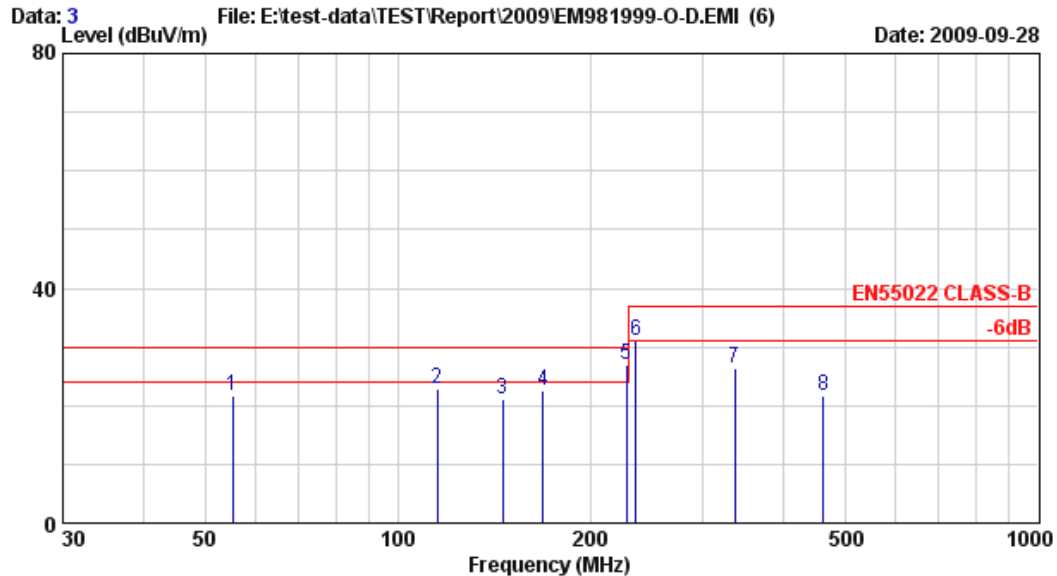
Site no. : No.4 OATS Data no. : 1
 Dis. / Ant. : 10m VBA6106A/UPA6109(08) Ant. pol. : VERTICAL
 Limit : EN55022 CLASS-B
 Env. / Ins. : 28°C / 60% ESCI(556) Engineer : TIM
 EUT : Screwdrivers, Impact wrenches and driver
 Power Rating : DC 10.8V drill
 Test Mode : Operating (+)
 M/N:44514MPB

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/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 27.41dB μ V/m (limit is 30.0dB μ V/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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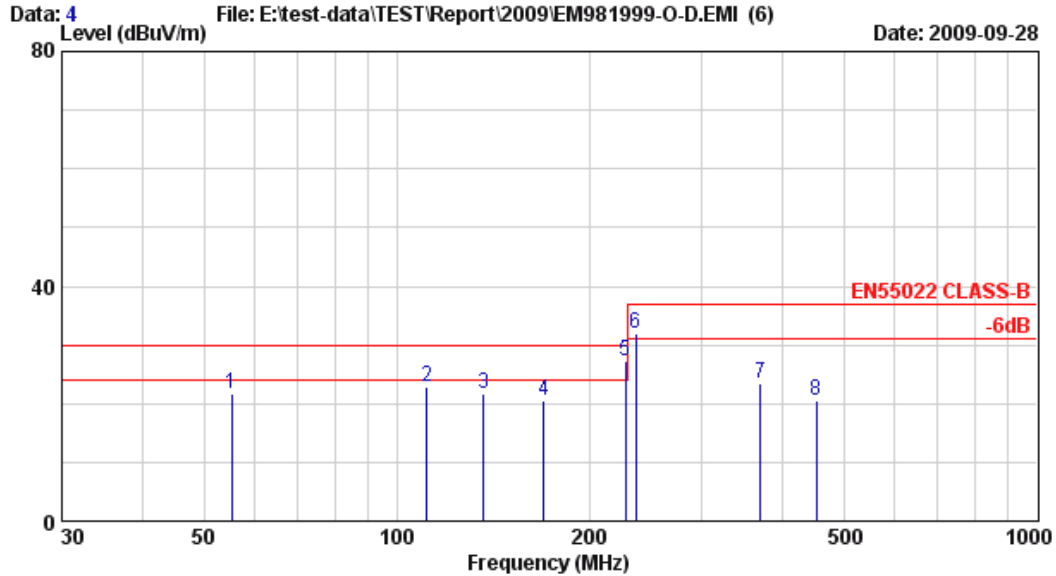
Site no. : No.4 OATS Data no. : 3
 Dis. / Ant. : 10m VBA6106A/UPA6109 (08) Ant. pol. : HORIZONTAL
 Limit : EN55022 CLASS-B
 Env. / Ins. : 28°C / 60% ESCI (556) Engineer : TIM
 EUT : Screwdrivers, Impact wrenches and driver
 Power Rating : DC 10.8V drill
 Test Mode : Operating (-)
 M/N: 44514MPB

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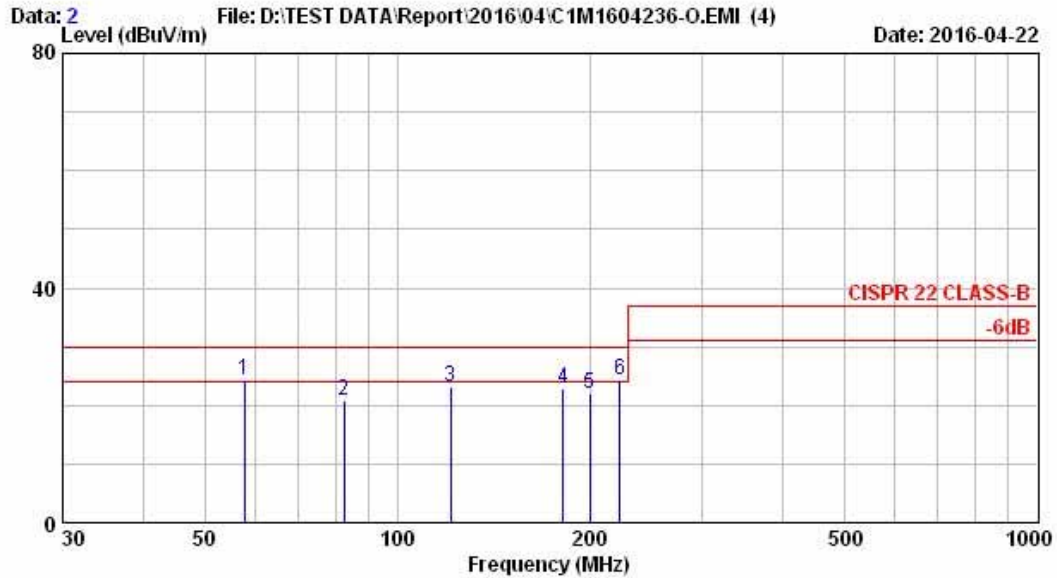
Site no. : No.4 OATS Data no. : 4
 Dis. / Ant. : 10m VBA6106A/UPA6109 (08) Ant. pol. : VERTICAL
 Limit : EN55022 CLASS-B
 Env. / Ins. : 28°C / 60% ESCI (556) Engineer : TIM
 EUT : Screwdrivers, Impact wrenches and driver
 Power Rating : DC 10.8V drill
 Test Mode : Operating (-)
 M/N: 44514MPB

	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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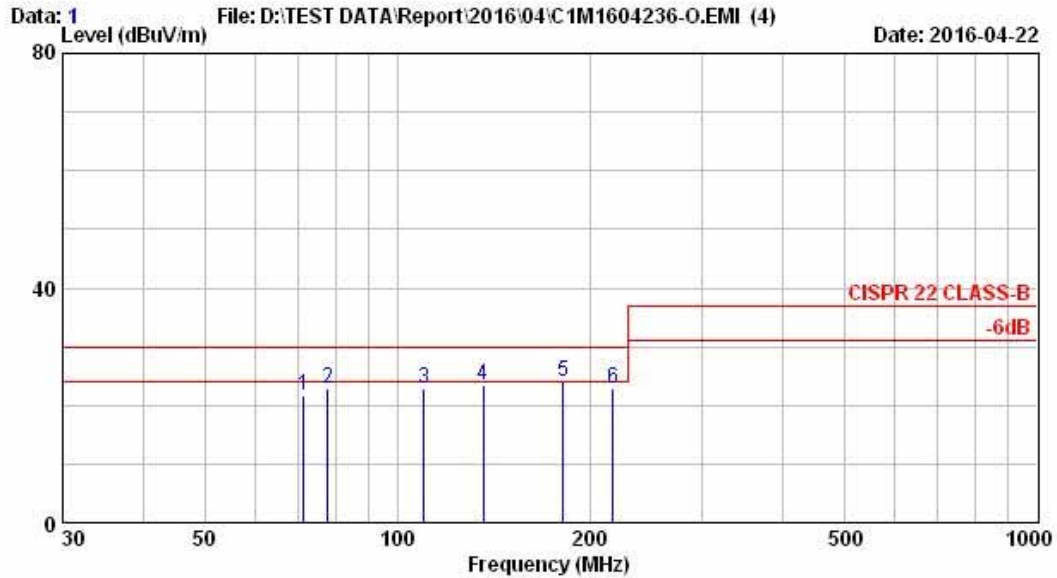
Site no. : OATS NO.8 Data no. : 2
 Dis. / Ant. : 10m MCTD 0286/2856 10/12 Ant. pol. : HORIZONTAL
 Limit : CISPR 22 CLASS-B
 Env. / Ins. : 24°C / 62% ESCI (558) Engineer : Gary Tsai
 EUT : 44514MPB
 Power Rating : 120Vac / 60Hz
 Test Mode : Charging

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	57.756	15.59	1.19	7.41	24.20	30.00	5.80	QP
2	82.615	15.41	1.46	3.92	20.79	30.00	9.21	QP
3	121.247	17.24	1.81	4.22	23.27	30.00	6.73	QP
4	181.594	19.28	2.35	1.35	22.98	30.00	7.02	QP
5	200.262	21.00	2.50	-1.58	21.92	30.00	8.08	QP
6	222.615	21.86	2.66	-0.27	24.25	30.00	5.75	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. : 1
 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 : 44514MPB
 Power Rating : 120Vac / 60Hz
 Test Mode : Charging

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	71.521	15.37	1.34	5.04	21.74	30.00	8.26	QP
2	77.809	15.39	1.41	6.16	22.96	30.00	7.04	QP
3	110.240	16.63	1.72	4.51	22.86	30.00	7.14	QP
4	136.411	17.68	1.94	3.95	23.58	30.00	6.42	QP
5	181.529	19.28	2.35	2.28	23.91	30.00	6.09	QP
6	217.305	21.68	2.62	-1.49	22.81	30.00	7.19	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. DEVIATION TO TEST SPECIFICATIONS

【NONE】

7. PHOTOGRAPHS

7.1. Photos of Radiated Emission 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