



FCC Part15 Subpart B

TEST REPORT

For

Pedestrian MULTIDRIVE Sliding Door Operator

MODEL NUMBER: MULTIDRIVE AS8

REPORT NUMBER: 4788771104.1.1

ISSUE DATE: Dec 18, 2018

FCC ID No.: 2ARVQ-AS8

Prepared for

**AUTOSLIDE PTY LTD
Unit 3/413, Wetherill Park, 2164 NSW, Australia**

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	12/18/2018	Initial Issue	--



Summary of Test Results				
Standard	Test Item	Limit	Result	Remark
FCC Part15, Subpart B ANSI C63.4-2014	Conducted Disturbance	Class B	PASS	
	Radiated Disturbance below 1 GHz	Class B	PASS	
	Radiated Disturbance above 1 GHz	Class B	PASS	NOTE (1) NOTE (2)

Note:

(1) "N/A" denotes test is not applicable in this Test Report

(2) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.

The highest internal frequency is 433MHz.

This report does not include a test of the intentional part.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: AUTOSLIDE PTY LTD
Address: Unit 3/413, Wetherill Park, 2164 NSW, Australia

Manufacturer Information

Company Name: Same as the applicant
Address: Same as the applicant

Factory Information

Company Name: Qingdao Autoslide Smart Door System Co. Ltd
Address: No.26, Xianshan Dong Road, Chengyang District, Qingdao
Qingdao 266107,China

EUT Information

EUT Name: Pedestrian MULTIDRIVE Sliding Door Operator
Model: MULTIDRIVE AS8
Brand: MULTIDRIVE
Sample Status: Normal
Sample ID: #1
Sample Received Date: Dec 07, 2018
Date of Tested: Dec 07, 2018 ~ Dec 14, 2018

APPLICABLE STANDARDS	
STANDARDS	TEST RESULTS
FCC Part15, Subpart B ANSI C63.4-2014	PASS

Tested By:

Checked By:

Chris Chen
Engineer Project Associate
Approved By:

Shawn Wen
Laboratory Leader

Stephen Guo
Laboratory Manager



2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC Part15 Subpart B and ANSI C63.4-2014.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p>A2LA (Certificate No.: 4338.01) Shenzhen STS Test Services Co., Ltd. has been assessed and proved to be in compliance with A2LA.</p> <p>CNAS (Registration No.: L7649) Shenzhen STS Test Services Co., Ltd. has been assessed and proved to be in compliance with CNAS.</p> <p>FCC (FCC Designation No.: 625569) Shenzhen STS Test Services Co., Ltd. has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p>IC (Company No.: 12108A) Shenzhen STS Test Services Co., Ltd. has been registered and fully described in a report filed with Industry Canada. The Company Number is 12108A.</p>
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Note: All tests measurement facilities use to collect the measurement data are located at 1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China

4. CALIBRATION AND UNCERTAINTY

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Measurement Frequency Range	K	U(dB)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	2.67 dB
Radiated disturbance Test	Below 1GHz	2	3.92 dB
Radiated disturbance Test	Above 1GHz	2	3.31 dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



5. EQUIPMENT UNDER TEST

5.1. Description of EUT

EUT Name	Pedestrian MULTIDRIVE Sliding Door Operator
EUT Description	The device is an Electronic Sliding Door Operator with RF receiver
Model	MULTIDRIVE AS8
Series Model	--
Model Difference	--
Rated Input	AC 120V 60Hz
Power Supply	AC 120V 60Hz

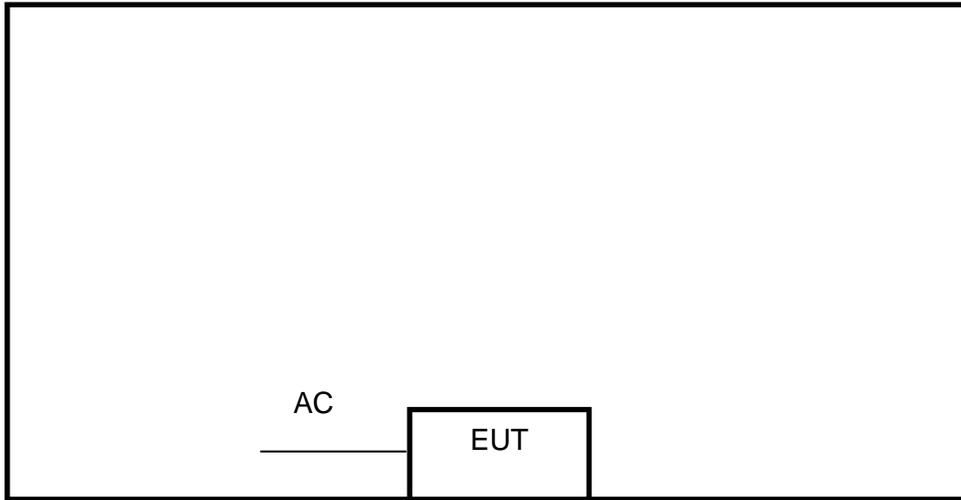
5.2. Test Mode

Test Mode	Description
Mode 1	Normal Working .

5.3. EUT Accessory

Item	Accessory	Brand Name	Model Name	Description
1	--	--	--	--

5.4. Block Diagram Showing the Configuration of System Tested



The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
--	--	--	--	--	--

Item	Type of cable	Shielded Type	Ferrite Core	Length
--	--	--	--	--



6. MEASURING EQUIPMENT AND SOFTWARE USED

Conducted Emissions						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
⊗	Test Receiver	R&S	ESCI	101427	2018.10.15	2019.10.14
⊗	LISN	R&S	ENV216	101242	2018.10.15	2019.10.14
⊗	Conduction Cable	EM	C01	N/A	2018.10.18	2019.10.17
⊗	Temperature & Humidity	Mieo	HH660	N/A	2018.10.15	2019.10.14
Radiated Emissions						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
⊗	EMI Test Receiver	R&S	ESW	101535	2018.06.01	2019.05.31
⊗	Bilog Antenna	TESEQ	CBL6111D	34678	2018.10.30	2019.10.29
⊗	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1343	2018.10.27	2019.10.26
⊗	SHF-EHF Horn Antenna (15G-40GHz)	BBHA 9170	SCHWARZBECK	BBHA917036 7	2018.05.02	2019.05.01
⊗	Temperature & Humidity	HH660	Mieo	N/A	2018.10.15	2019.10.14
⊗	Temperature & Humidity	HH660	Mieo	N/A	2018.10.15	2019.10.14
⊗	Pre-Amplifier (0.1M-3GHz)	EM	EM330	60538	2018.10.28	2019.10.27
⊗	Pre Amplifier (1G- 26.5GHz)	Agilent	8449B	60538	2018.10.15	2019.10.14
⊗	Operational Manual Passive Loop (9K--30MHz)	ETS	6512	00165355	2018.10.18	2019.10.17
⊗	Low Frequency Cable	EM	R01	N/A	2018.10.18	2019.10.17
⊗	Low Frequency Cable	EM	R06	N/A	2018.10.18	2019.10.17
⊗	High Frequency Cable	SCHWARZBECK	R04	N/A	2018.10.18	2019.10.17
⊗	High Frequency Cable	SCHWARZBECK	R02	N/A	2018.10.18	2019.10.17
⊗	Semi-anechoic Chamber	Changling	966	N/A	2018.10.15	2019.10.14
⊗	Turn Table	EM	SC100_1	60531	N/A	N/A
⊗	Antenna Mast	EM	SC100	N/A	N/A	N/A
⊗	Max-full Antenna Corp	MF	MFA-440H	N/A	N/A	N/A

7. EMISSION TEST

7.1. Conducted Disturbance Measurement

7.1.1. Limits of conducted disturbance voltage

FREQUENCY (MHz)	<input type="checkbox"/> Class A (dB μ V)		<input checked="" type="checkbox"/> Class B (dB μ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor
 Margin Level = Measurement Value - Limit Value

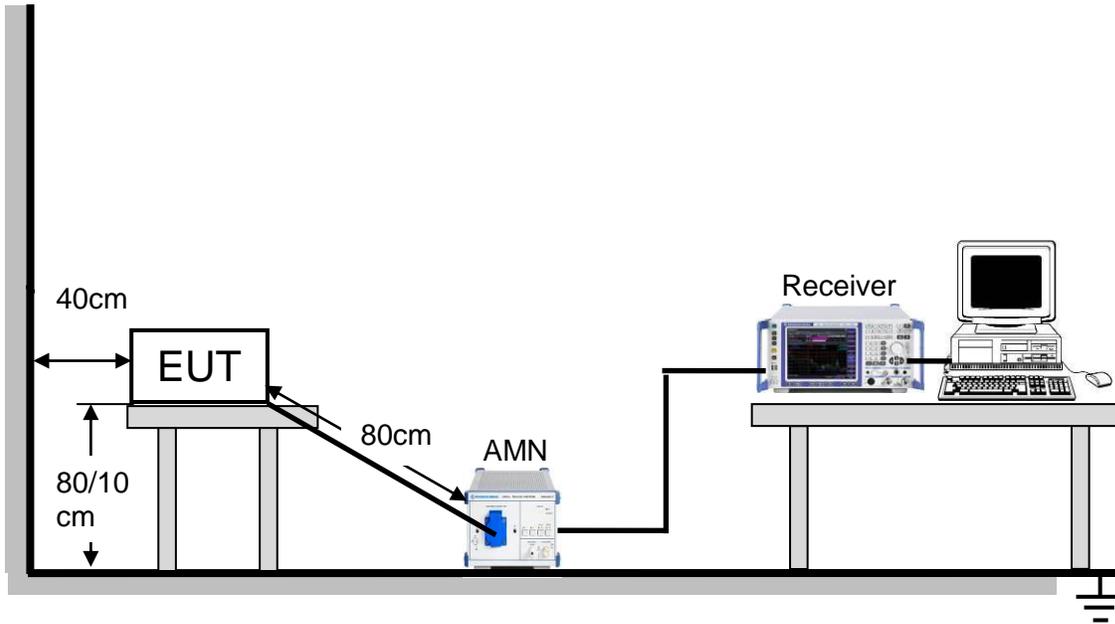
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

7.1.2. Test Procedure

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item:EUT Test Photos.

7.1.3. Test Setup



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

7.1.4. Test Environment

Temperature:	25.2°C
Humidity:	60%
ATM pressure:	101kPa

7.1.5. Test Mode

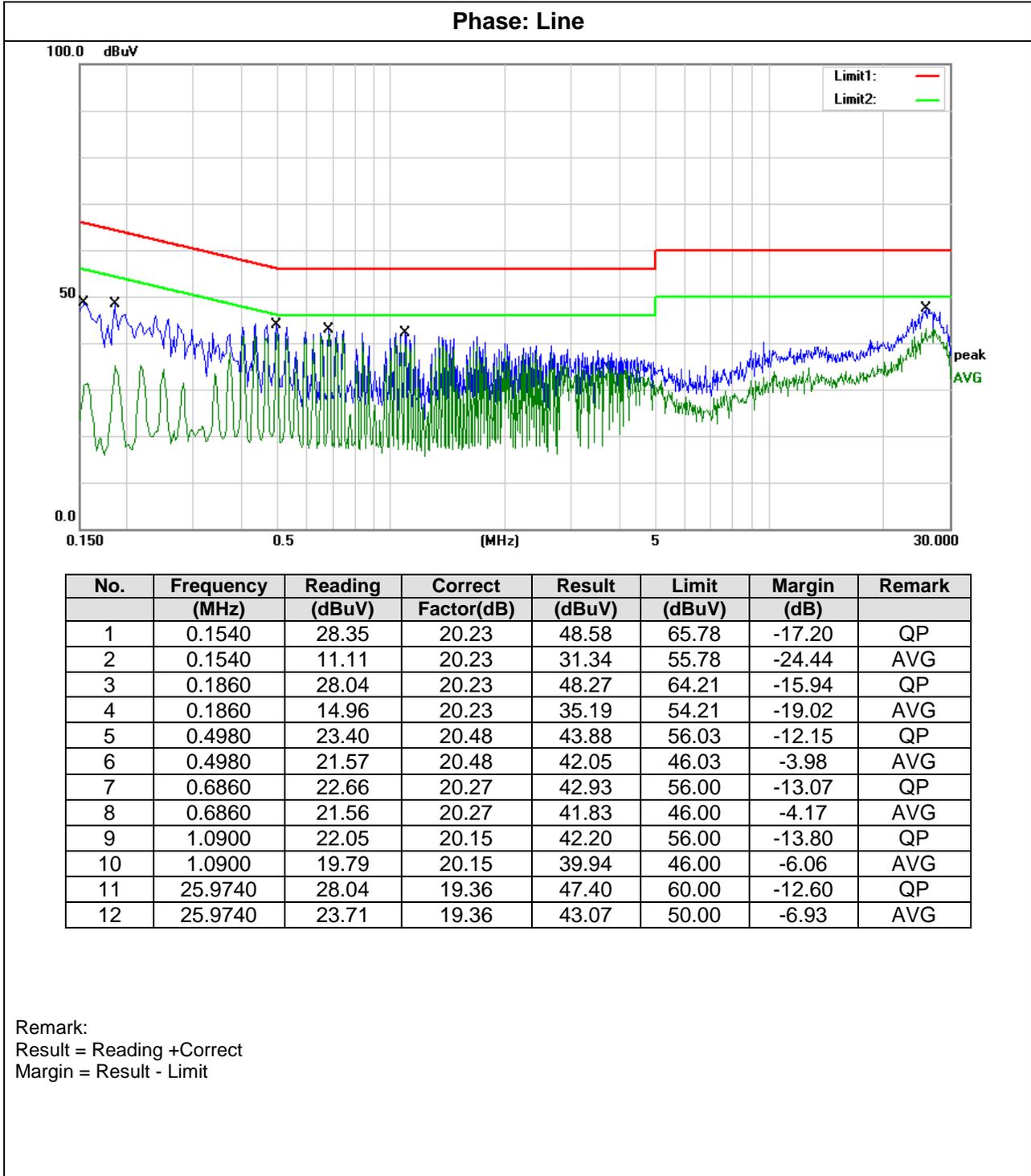
Pre-test Mode:	Mode 1
Final Test Mode:	Mode 1

Note: According to pre-test results, the final test mode is each independent function's worst case and only shown in the report.



7.1.6. Test Results

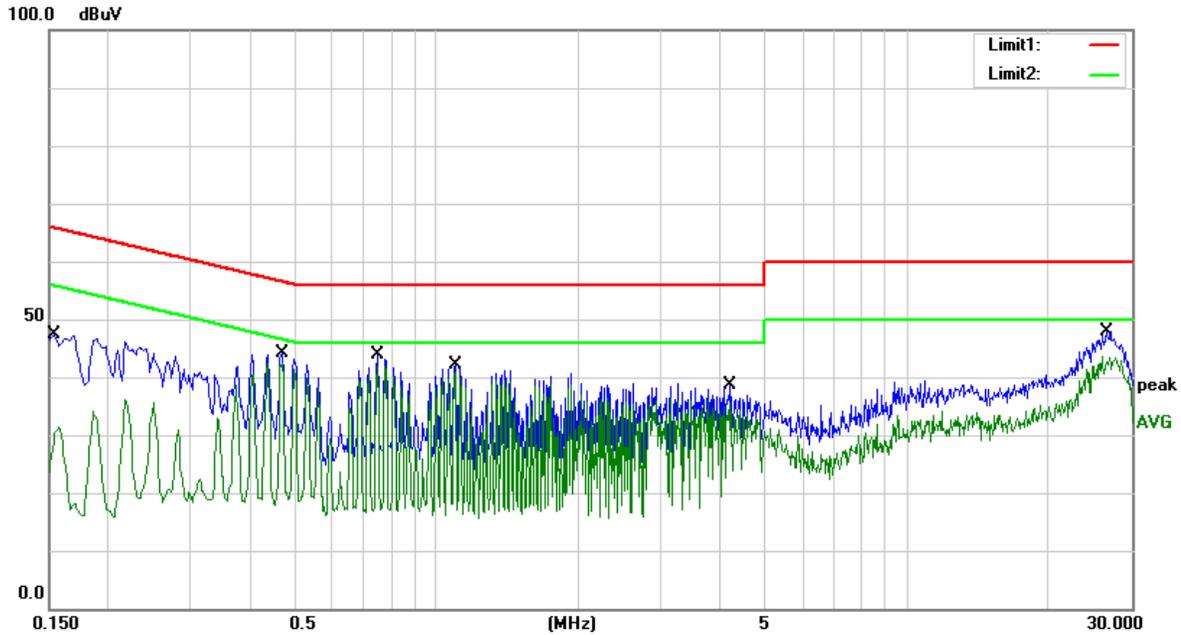
Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz
Model:	MULTIDRIVE AS8





Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz
Model:	MULTIDRIVE AS8

Phase: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1540	27.24	20.23	47.47	65.78	-18.31	QP
2	0.1540	11.22	20.23	31.45	55.78	-24.33	AVG
3	0.4700	23.74	20.48	44.22	56.51	-12.29	QP
4	0.4700	21.87	20.48	42.35	46.51	-4.16	AVG
5	0.7500	23.56	20.24	43.80	56.00	-12.20	QP
6	0.7500	21.75	20.24	41.99	46.00	-4.01	AVG
7	1.0940	21.86	20.15	42.01	56.00	-13.99	QP
8	1.0940	20.67	20.15	40.82	46.00	-5.18	AVG
9	4.2100	18.57	19.95	38.52	56.00	-17.48	QP
10	4.2100	15.70	19.95	35.65	46.00	-10.35	AVG
11	26.5060	28.51	19.37	47.88	60.00	-12.12	QP
12	26.5060	24.19	19.37	43.56	50.00	-6.44	AVG

Remark:
 Result = Reading +Correct
 Margin = Result – Limit

7.2. Radiated Disturbance Measurement

7.2.1. Limits of radiated disturbance measurement

Below 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:

Frequency (MHz)	<input type="checkbox"/> Class A		<input checked="" type="checkbox"/> Class B
	Field strength (uV/m) (at 10m)	Field strength (dBuV/m) (at 3m)	Field strength (dBuV/m) (at 3m)
30 - 88	90	49.5	40
88 - 216	150	53.9	43.5
216 - 960	210	56.9	46
Above 960	300	60	54

Above 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:

Frequency (MHz)	<input type="checkbox"/> Class A				<input checked="" type="checkbox"/> Class B	
	(dBuV/m) (at 3m)		(dBuV/m) (at 10m)		(dBuV/m) (at 3m)	
	Peak	Average	Peak	Average	Peak	Average
Above 1000	80	60	69.5	49.5	74	54

Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:

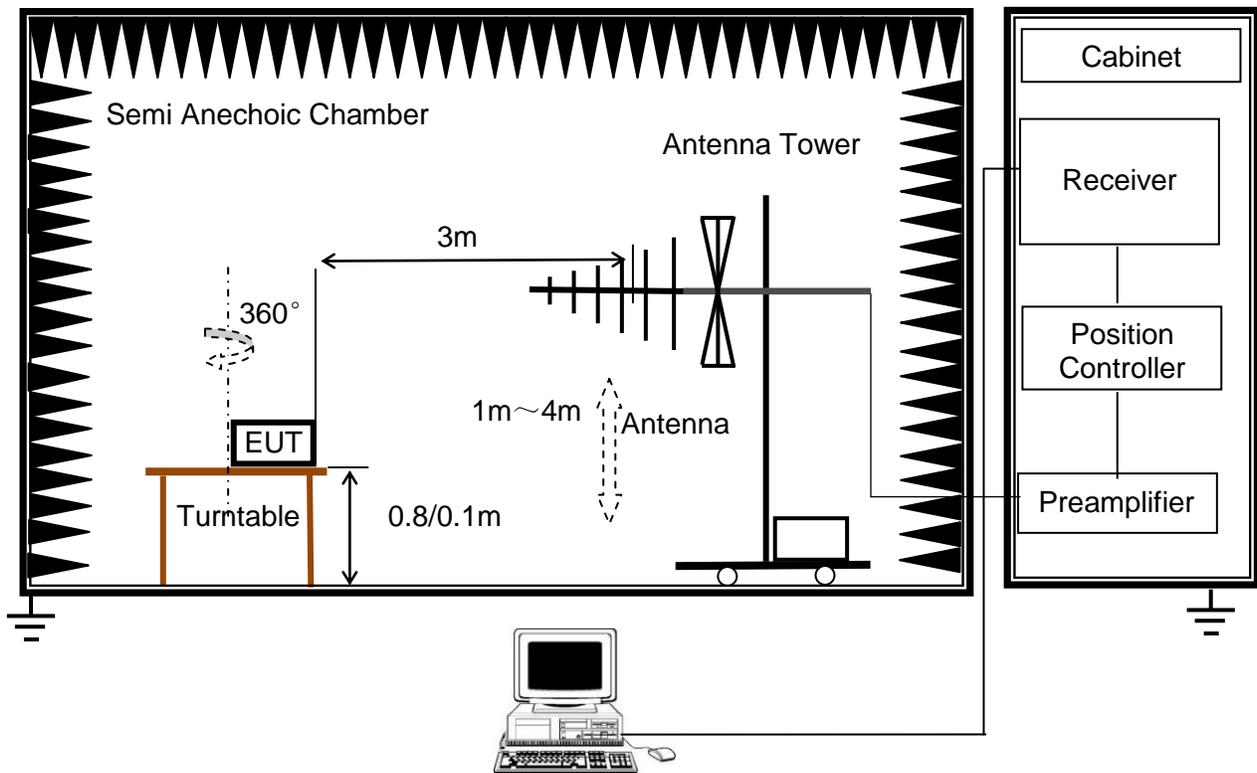
- (1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
- (2) The tighter limit applies at the band edges;
- (3) Emission level (dBuV/m) = 20log Emission level (uV/m),
3m Emission level = 10m Emission level + 20log(10m/3m);
- (4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use),
Margin Level = Measurement Value - Limit Value.

7.2.2. Test Procedure

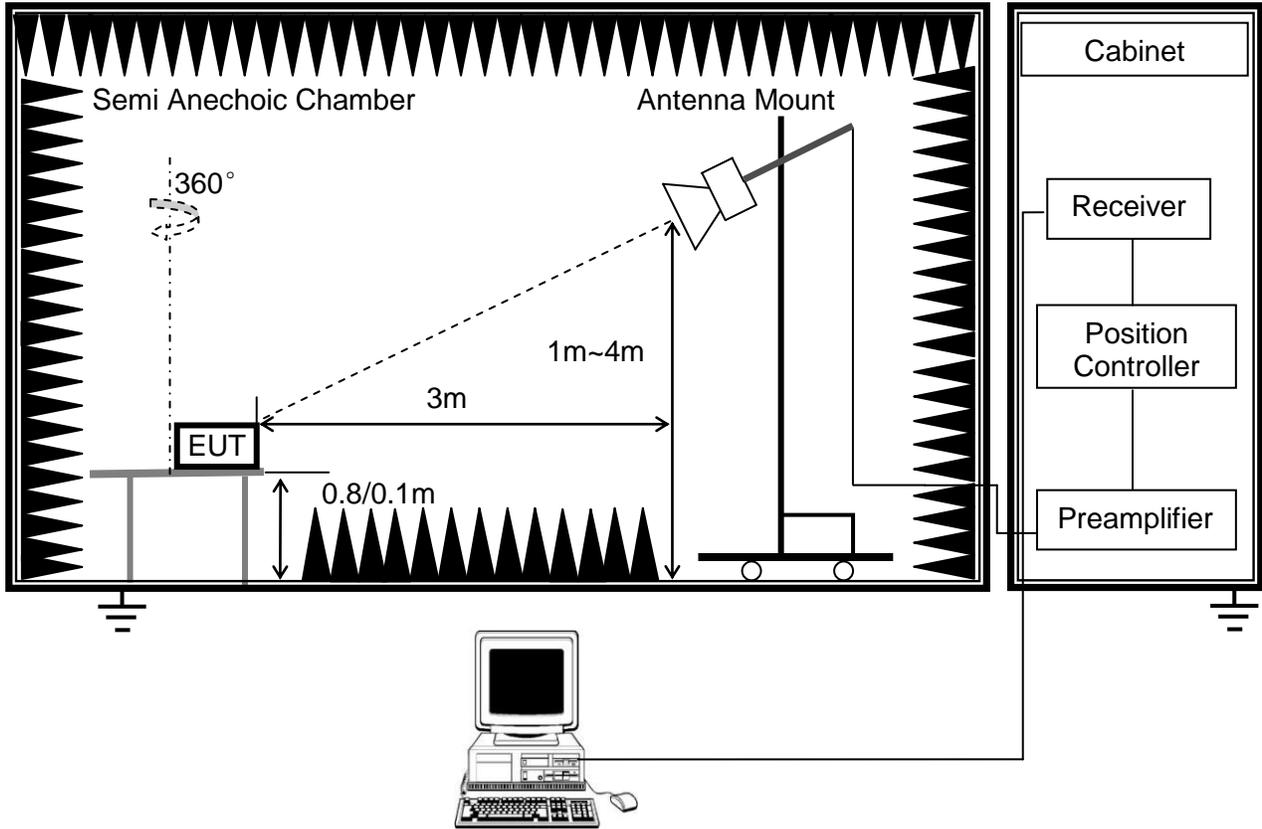
- a. The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For the actual test configuration, please refer to the related Item:EUT Test Photos.

7.2.3. Test Setup

(a) Radiated Disturbance Test Set-Up Frequency 30MHz - 1GHz



(b) Radiated Disturbance Test Set-Up Frequency above 1GHz



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

7.2.4. Test Environment

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz	
Temperature:	25.3°C	Temperature:	N/A
Humidity:	51%	Humidity:	N/A
ATM pressure:	101kPa	ATM pressure:	N/A

7.2.5. Test Mode

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz	
Pre-test Mode:	Mode 1	Pre-test Mode:	N/A
Final Test Mode:	Mode 1	Final Test Mode:	N/A

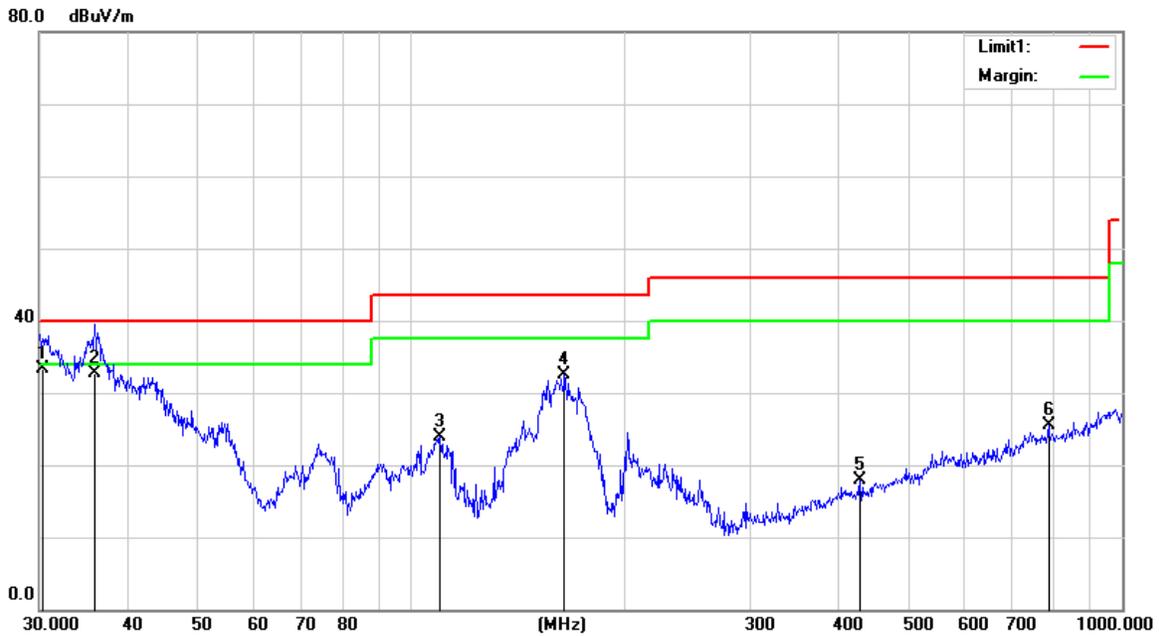
Note: According to pre-test results, the final test mode is each independent function's worst case and only shown in the report.



7.2.6. Test Results – below 1GHz

Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz
Model:	MULTIDRIVE AS8

Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.3818	44.73	-11.39	33.34	40.00	-6.66	QP
2	35.8550	46.89	-14.19	32.70	40.00	-7.30	QP
3	109.7960	42.19	-18.36	23.83	43.50	-19.67	QP
4	164.3301	51.41	-18.86	32.55	43.50	-10.95	QP
5	428.0192	28.80	-10.90	17.90	46.00	-28.10	QP
6	787.8513	28.67	-3.24	25.43	46.00	-20.57	QP

Remark:
 Result = Reading +Correct
 Margin = Result – Limit



Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz
Model:	MULTIDRIVE AS8

Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	35.6240	37.68	-14.07	23.61	40.00	-16.39	QP
2	74.3955	52.27	-23.49	28.78	40.00	-11.22	QP
3	103.0800	44.19	-18.93	25.26	43.50	-18.24	QP
4	154.8204	50.06	-18.22	31.84	43.50	-11.66	QP
5	215.2678	46.49	-19.41	27.08	43.50	-16.42	QP
6	612.0642	32.95	-6.74	26.21	46.00	-19.79	QP

Remark:

Result = Reading +Correct

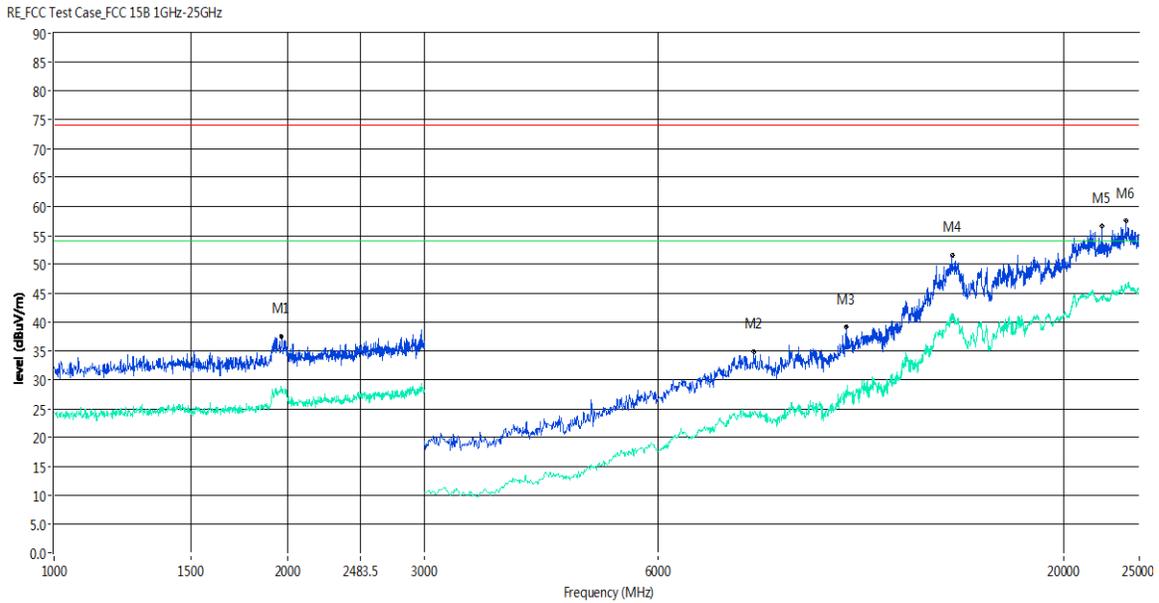
Margin = Result - Limit



Test Results – Above 1GHz

Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz
Model:	MULTIDRIVE AS8

Polarization: Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	ANT	Verdict
1**	1964.000	27.62	-0.58	54.0	-26.38	AV	V	Pass
1	1964.000	37.52	-0.58	74.0	-36.48	Peak	V	Pass
2**	7970.000	24.29	10.25	54.0	-29.71	AV	V	Pass
2	7970.000	34.93	10.25	74.0	-39.07	Peak	V	Pass
3**	10490.000	27.68	13.93	54.0	-26.32	AV	V	Pass
3	10490.000	39.13	13.93	74.0	-34.87	Peak	V	Pass
4**	14356.000	41.18	25.12	54.0	-12.82	AV	V	Pass
4	14356.000	51.55	25.12	74.0	-22.45	Peak	V	Pass
5**	22407.999	44.27	23.78	54.0	-9.73	AV	V	Pass
5	22407.999	56.56	23.78	74.0	-17.44	Peak	V	Pass
6**	24039.999	46.52	23.29	54.0	-7.48	AV	V	Pass
6	24039.999	57.48	23.29	74.0	-16.52	Peak	V	Pass

Remark:
Result = Reading +Correct
Margin = Result – Limit

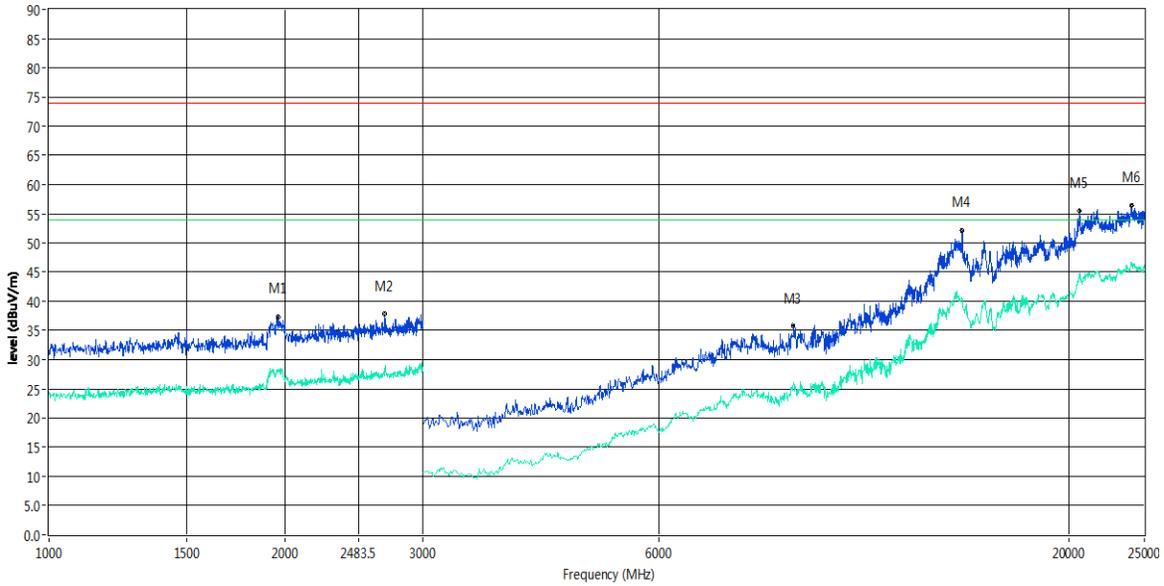
Test Mode:	Mode 1
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Test Voltage:	AC 120V/60Hz
Model:	MULTIDRIVE AS8

Polarization: Horizontal

RE_FCC Test Case_FCC 15B 1GHz-25GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	ANT	Verdict
1**	1964.000	27.92	-0.58	54.0	-26.08	AV	H	Pass
1	1964.000	37.37	-0.58	74.0	-36.63	Peak	H	Pass
2**	2684.000	27.60	0.38	54.0	-26.40	AV	H	Pass
2	2684.000	37.79	0.38	74.0	-36.21	Peak	H	Pass
3**	8910.000	25.78	12.48	54.0	-28.22	AV	H	Pass
3	8910.000	35.85	12.48	74.0	-38.15	Peak	H	Pass
4**	14631.999	40.13	23.56	54.0	-13.87	AV	H	Pass
4	14631.999	52.11	23.56	74.0	-21.89	Peak	H	Pass
5**	20656.001	44.80	23.85	54.0	-9.20	AV	H	Pass
5	20656.001	55.59	23.85	74.0	-18.41	Peak	H	Pass
6**	24039.999	46.36	23.29	54.0	-7.64	AV	H	Pass
6	24039.999	56.42	23.29	74.0	-17.58	Peak	H	Pass

Remark:
Result = Reading +Correct
Margin = Result – Limit

Appendix I: Photographs of EMC Test Configuration

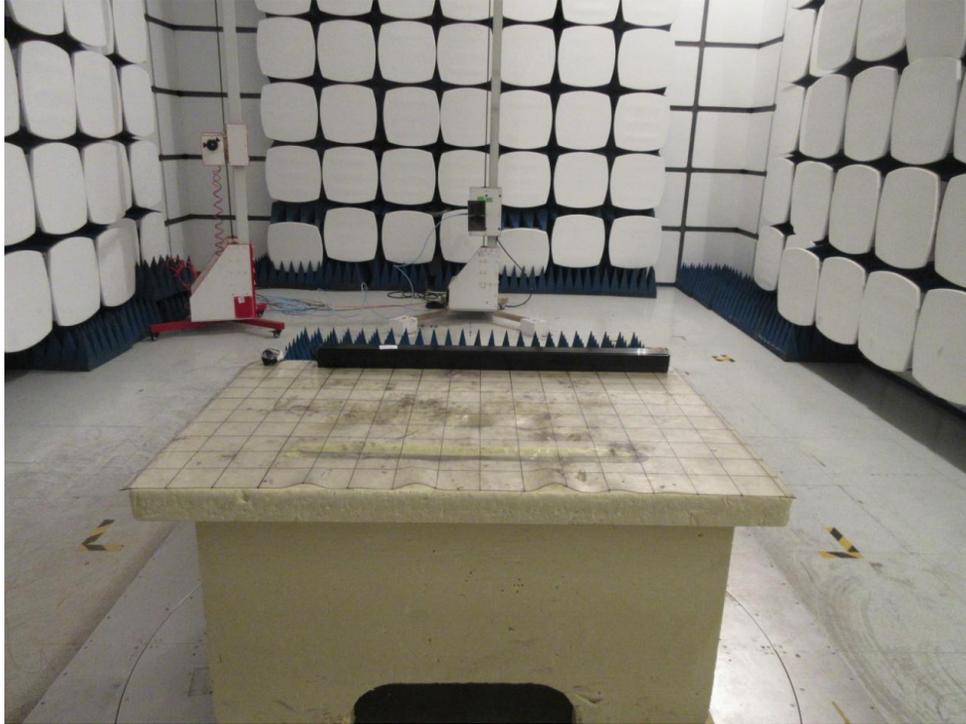
Conducted Disturbance



Radiated Disturbance Below 1 GHz



Radiated Disturbance Above 1 GHz





Appendix II: Photographs of the EUT

Refer to appendix report No.: 4788771104.1.2-A1 & 4788771104.1.2-A2

END OF REPORT