TEST REPORT

Product	:	Aurora
Trade mark	:	N/A
Model/Type reference	:	AER002-S, AER002-B
Serial number	:	N/A
Ratings	:	DC 5V
FCC ID	:	2ADLR-AER002
Report number	:	EESZG09260014-1
Date	:	Oct. 16, 2014
Regulations	:	See below

Test Standards	Results
☒ 47 CFR FCC Part 15 Subpart C: 2013	PASS

Prepared for:

Aerios Group Pty Ltd
Unit 25B 33 - 37 College St Gladesville NSW 2111 Australia

Prepared by:

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Tested by: _____ Reviewed by: _____

Approved by: _____ Date: Oct. 16, 2014

Jimmy Li
Lab manager

Check No.: 1727813462

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N/A means not applicable.

1. GENERAL INFORMATION

Applicant:	Aerios Group Pty Ltd Unit 25B 33 - 37 College St Gladesville NSW 2111 Australia
Manufacturer:	Aerios Group Pty Ltd Unit 25B 33 - 37 College St Gladesville NSW 2111 Australia
FCC ID:	2ADLR-AER002
Product:	Aurora
Model/Type reference:	AER002-S, AER002-B
Trade Name:	N/A
Serial Number:	N/A
Report Number:	EESZG09260014-1
Sample Received Date:	Sep. 27, 2014
Sample tested Date:	Sep. 27, 2014 to Oct. 16, 2014

The above equipment was tested by Centre Testing International (Shenzhen) Corporation for compliance with the requirements set forth in the FCC Rules and the measurement procedure according to ANSI C63.4:2009.

2. TEST SUMMARY

No.	Test Item	Rule	Test Result
1	Conducted Emission	FCC 15.207	**PASS**
2	Radiated Emission	FCC 15.209	**PASS**

3. PRODUCT INFORMATION

Items	Description
Rating	DC 5V
Antenna Type	Coil antenna
Operated frequency	110kHz-200kHz

All the models are same product just different model names and outer colors. The test model is AER002-S, and test results are applicable to other.

4. MEASUREMENT UNCERTAINTY

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

Measurement items	Uncertainty
Conducted Emission Test	3.2 dB
Radiated Emissions / Bandedge Emission	4.5 dB

5. TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	06/01/2016
Spectrum Analyzer	Agilent	E4443A	MY45300910	01/15/2015
Receiver	R&S	ESCI	100435	07/19/2015
Loop Antenna	ETS-LINDGREN	6502	00071730	07/22/2015
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	617	06/25/2015
Multi device Controller	maturo	NCD/070/10711112	---	N/A
Spectrum Analyzer	R&S	FSP40	100416	07/06/2015
Receiver	R&S	ESCI	100009	07/19/2015
LISN	R&S	ENV216	100098	07/19/2015

6. SUPPORT EQUIPMENT LIST

Device Type	Brand	Model	Series No.	Data Cable	Remark
Notebook	DELL	Vostro 3400	GYQTVP1	N/A	FCC DOC
Mouse	L.Selectron	M004	02284699	Un-shielded 1.2M	FCC DOC
Mobile phone	HTC	T528W	---	N/A	FCC ID

7. AC CONDUCTED EMISSION TEST

7.1. LIMITS

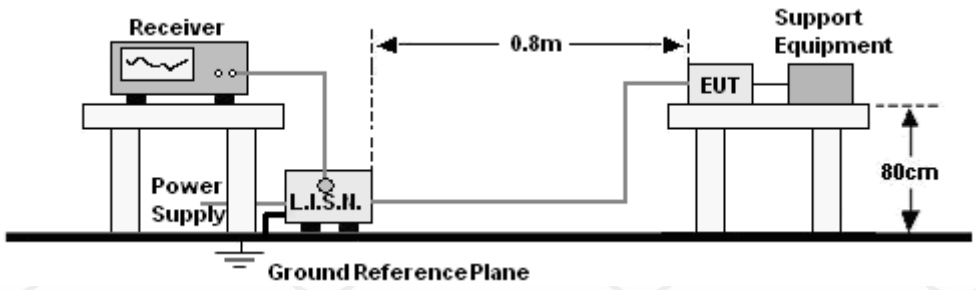
Limits for Class B digital devices

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

7.2. BLOCK DIAGRAM OF TEST SETUP



7.3. PROCEDURE OF CONDUCTED EMISSION TEST

a. The Product was placed on a nonconductive table above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

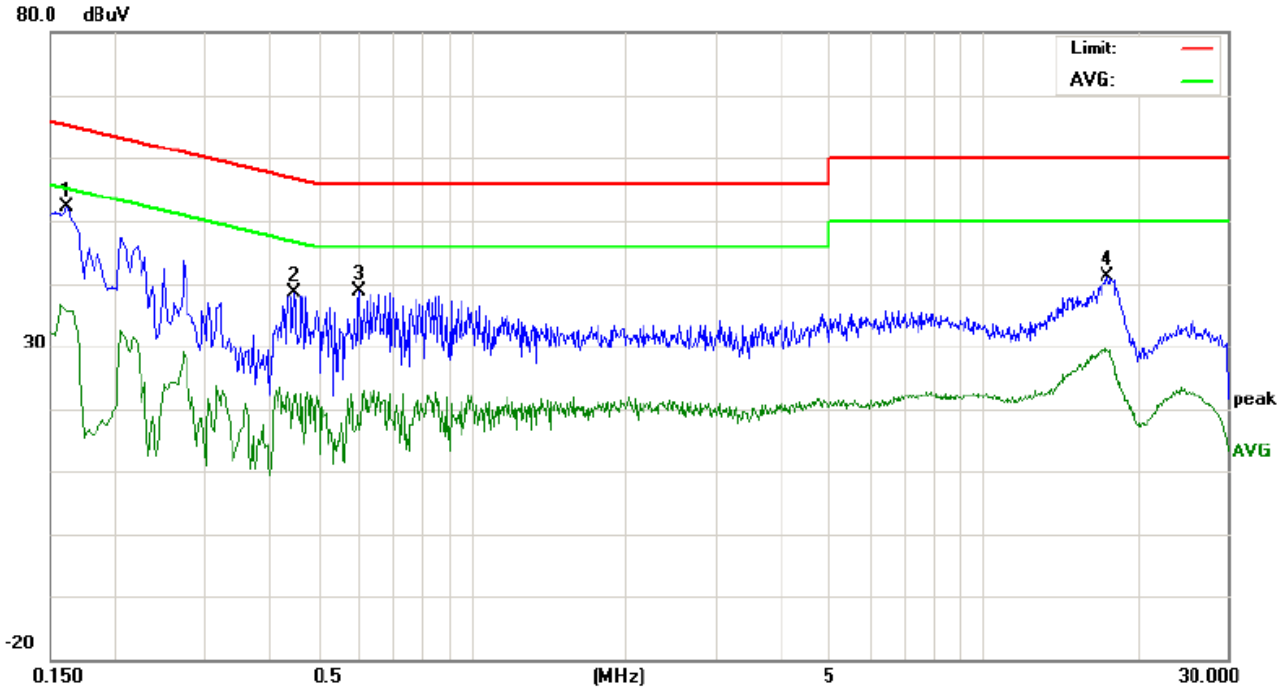
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

7.4. GRAPHS AND DATA

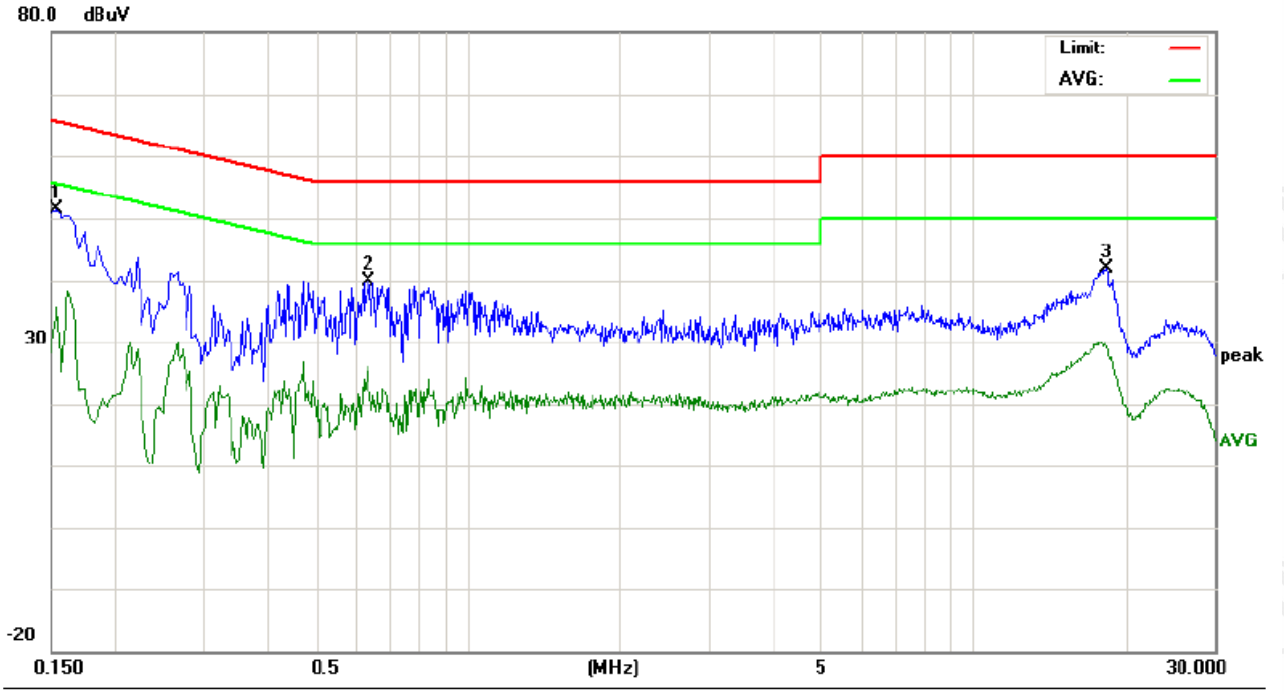
Product	:	Aurora	**Model/Type reference**	:	AER002-S
Power	:	AC 120V/60Hz	**Temperature**	:	22℃
Mode	:	Charging	**Humidity**	:	52%

L:



No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1620	42.25		25.84	9.76	52.01		35.60	65.36	55.36	-13.35	-19.76	P	
2	0.4500	28.73		12.48	9.80	38.53		22.28	56.87	46.87	-18.34	-24.59	P	
3	0.6020	29.14		6.99	9.80	38.94		16.79	56.00	46.00	-17.06	-29.21	P	
4	17.5300	30.83		19.17	10.25	41.08		29.42	60.00	50.00	-18.92	-20.58	P	

N:



No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1539	41.50		25.91	9.75	51.25		35.66	65.78	55.78	-14.53	-20.12	P	
2	0.6340	30.08		16.36	9.80	39.88		26.16	56.00	46.00	-16.12	-19.84	P	
3	18.3660	31.58		18.91	10.30	41.88		29.21	60.00	50.00	-18.12	-20.79	P	

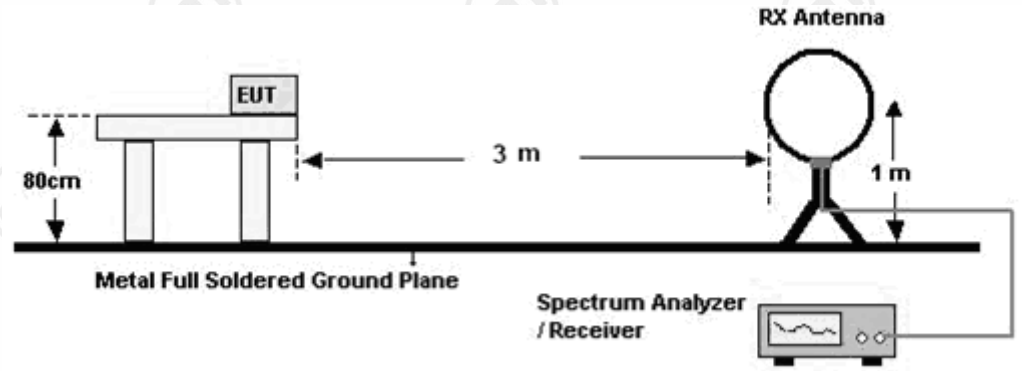
8. RADIATED EMISSION MEASUREMENT

8.1. LIMITS

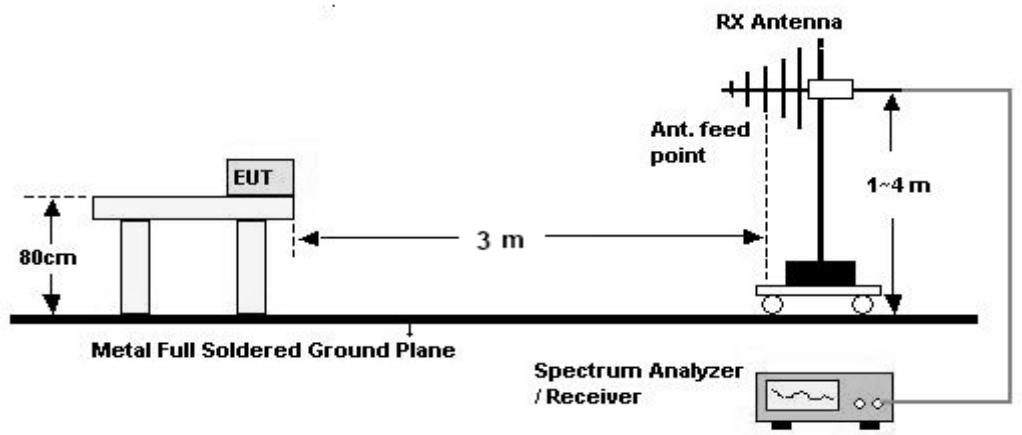
Frequency (MHz)	Field strength (μV/m)	Distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

8.2. BLOCK DIAGRAM OF TEST SETUP

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz - 1000MHz



8.3. TEST PROCEDURE

Below 30MHz

a. The Product is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.

b. For each suspected emission, the Product was arranged to its worst case and then turn table was turned from 0 degrees to 360 degrees to find the maximum reading.

c. The test frequency analyzer system was set to Peak Detect (300Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

30MHz ~ 1GHz:

a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value (120 kHz RBW): vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

8.4. TEST RESULT

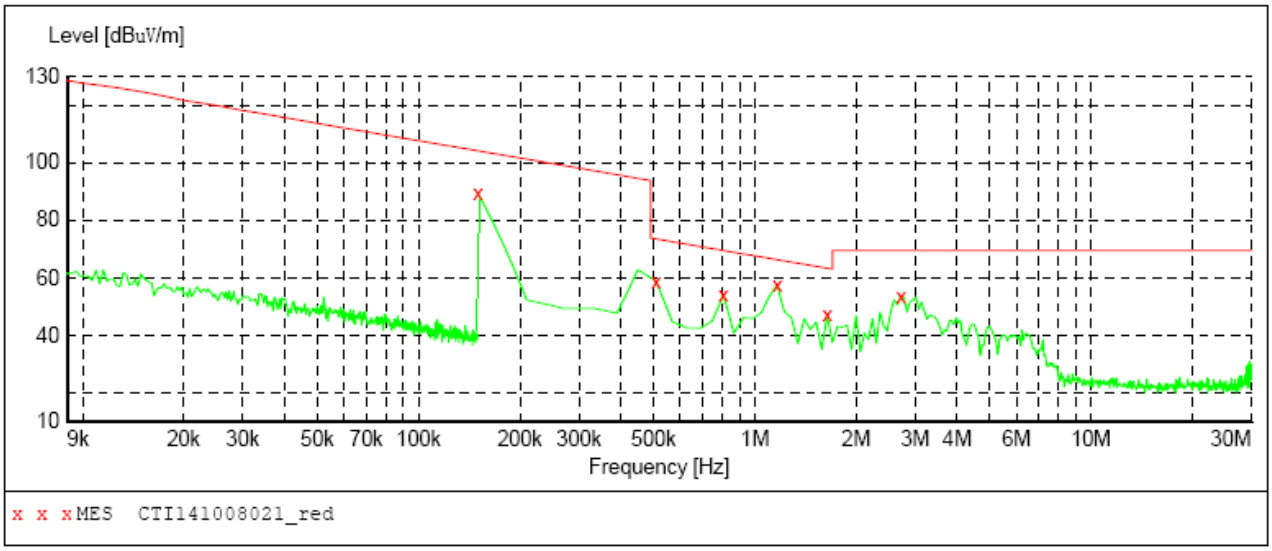
The TX operated frequency is 110 kHz~200 kHz.

A. Below 30MHz:

The radiation measurements are performed in X, Y, Z axis positioning. And worst case mode is recorded in the report.

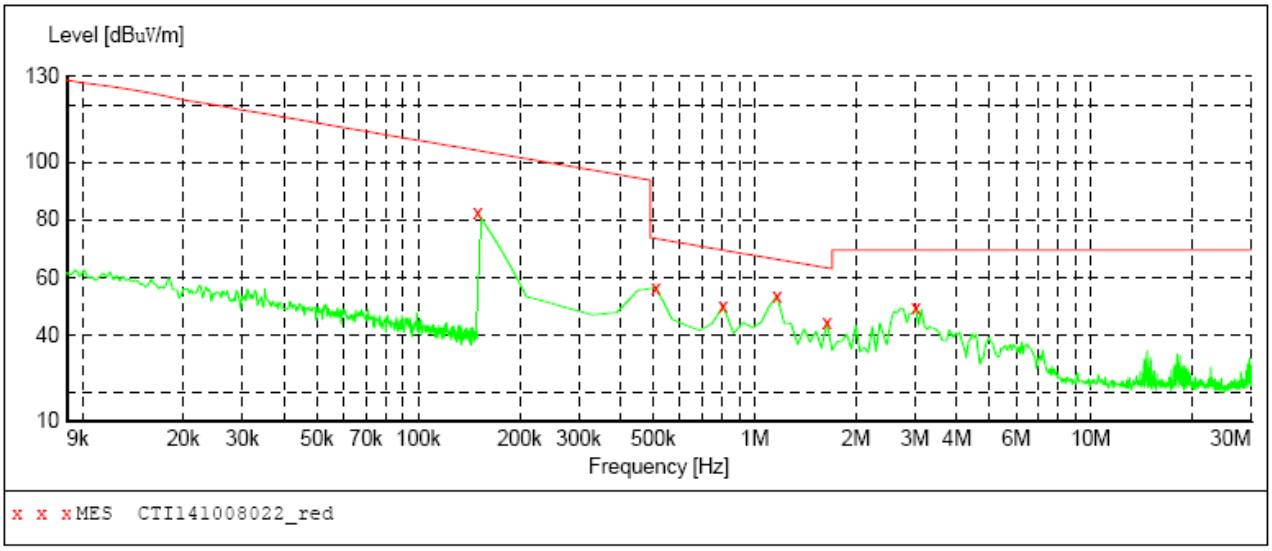
Product	:	Aurora	**Model/Type reference**	:	AER002-S
Power	:	DC 5V	**Temperature**	:	22℃
Mode	:	Charging	**Humidity**	:	52%

X:



Frequency (MHz)	Level (dBuV/m)	Transd. (dB)	Limit@3M (dBuV/m)	Margin (dB)	Detector Type
0.150	89.4	13.9	104.1	14.7	AV
0.508	58.8	13.6	73.5	14.7	QP
0.807	54.1	13.5	69.5	15.4	QP
1.165	57.7	13.5	66.3	8.6	QP
1.643	47.0	13.6	63.3	16.3	QP
2.717	53.5	13.8	69.5	16.0	QP

Y:

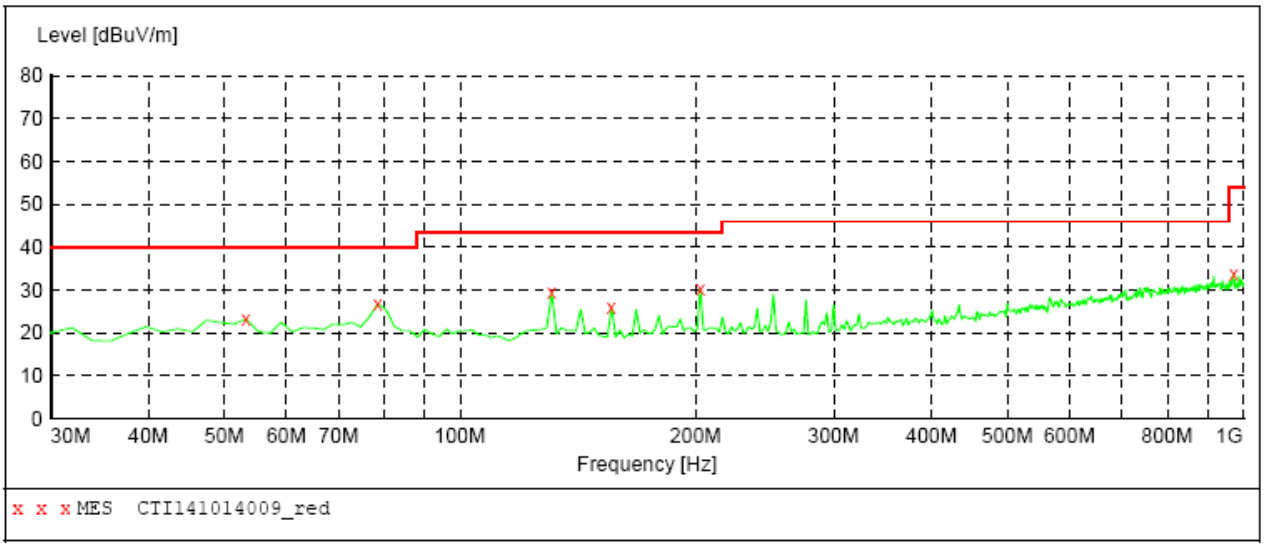


Frequency (MHz)	Level (dBuV/m)	Transd. (dB)	Limit@3M (dBuV/m)	Margin (dB)	Detector Type
0.150	82.4	13.9	104.1	21.7	AV
0.508	56.5	13.6	73.5	17.0	QP
0.807	49.9	13.5	69.5	19.6	QP
1.165	53.7	13.5	66.3	12.6	QP
1.643	44.4	13.6	63.3	18.9	QP
3.016	49.4	13.7	69.5	20.1	QP

B. 30MHz ～ 1GHz:

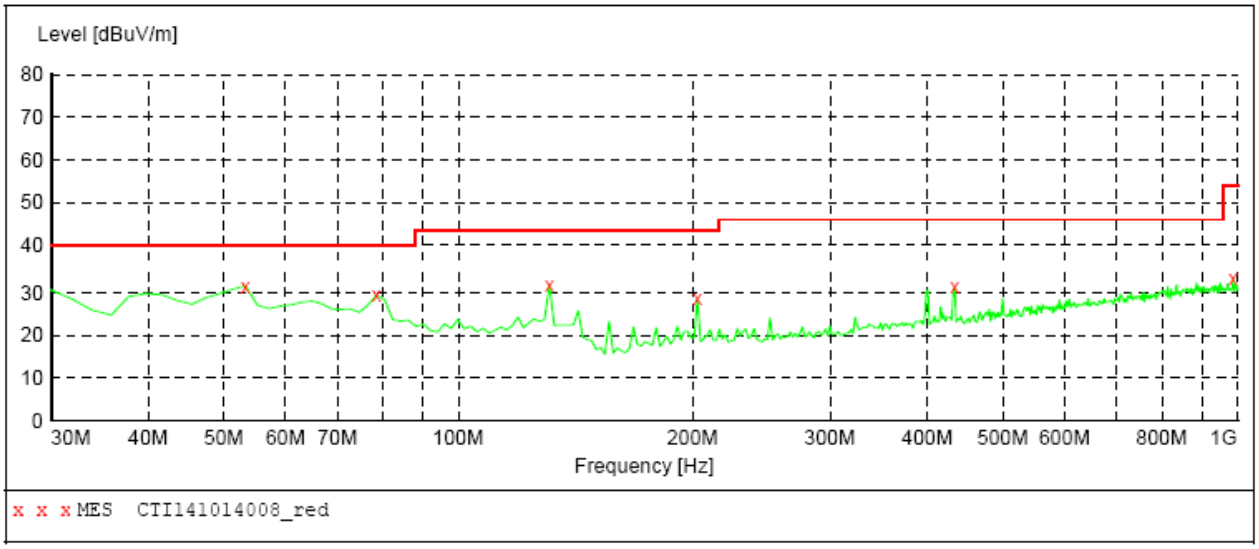
Product	:	Aurora	**Model/Type reference**	:	AER002-S
Power	:	DC 5V	**Temperature**	:	22℃
Mode	:	Charging	**Humidity**	:	52%

H:



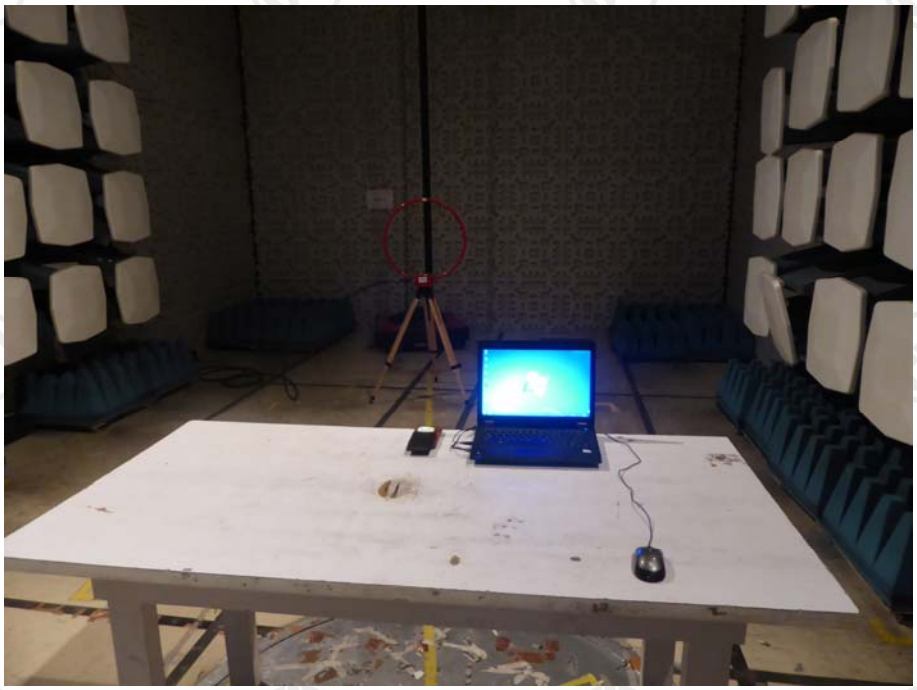
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	23.20	14.6	40.0	16.8	QP	200.0	283.00	HORIZONTAL
78.500000	26.80	8.4	40.0	13.2	QP	200.0	283.00	HORIZONTAL
130.880000	29.30	10.7	43.5	14.2	QP	200.0	65.00	HORIZONTAL
156.100000	26.00	10.2	43.5	17.5	QP	200.0	254.00	HORIZONTAL
202.660000	30.30	13.5	43.5	13.2	QP	200.0	283.00	HORIZONTAL
972.840000	33.60	26.7	54.0	20.4	QP	200.0	14.00	HORIZONTAL

V:

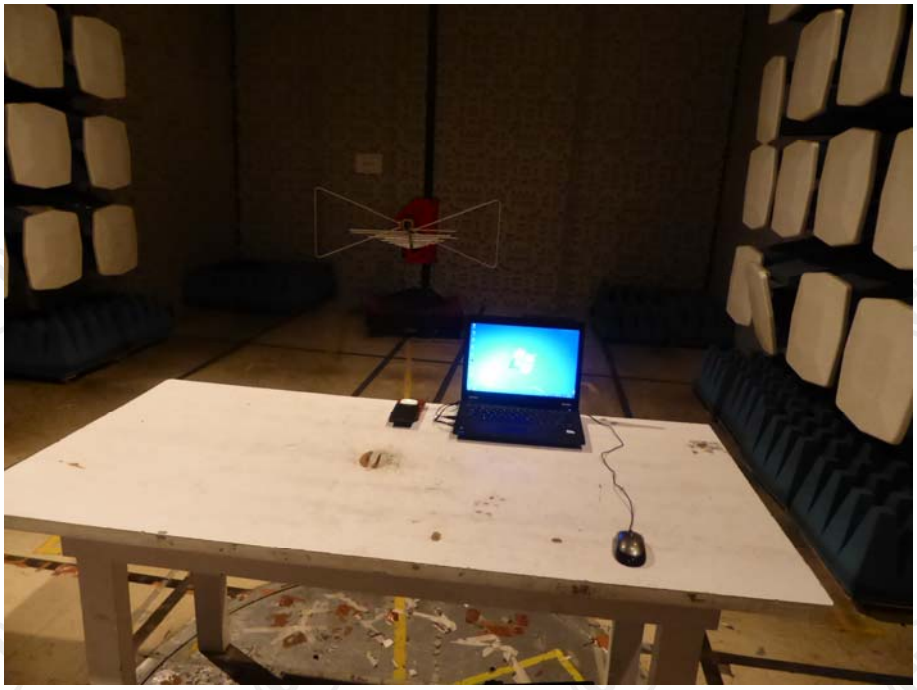


Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	31.60	14.6	40.0	8.4	QP	100.0	156.00	VERTICAL
78.500000	29.50	8.4	40.0	10.5	QP	200.0	370.00	VERTICAL
130.880000	31.80	10.7	43.5	11.7	QP	100.0	156.00	VERTICAL
202.660000	28.70	13.5	43.5	14.8	QP	100.0	216.00	VERTICAL
433.520000	31.30	18.8	46.0	14.7	QP	100.0	87.00	VERTICAL
986.420000	33.50	26.8	54.0	20.5	QP	100.0	194.00	VERTICAL

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



TEST SETUP OF RADIATED EMISSION (9kHz-30MHz)



TEST SETUP OF RADIATED EMISSION (30MHz-1GHz)

TEST SETUP OF CONDUCTED EMISSION

APPENDIX 2 EXTERNAL PHOTOGRAPHS OF PRODUCT

External View of product-1 (AER002-S)

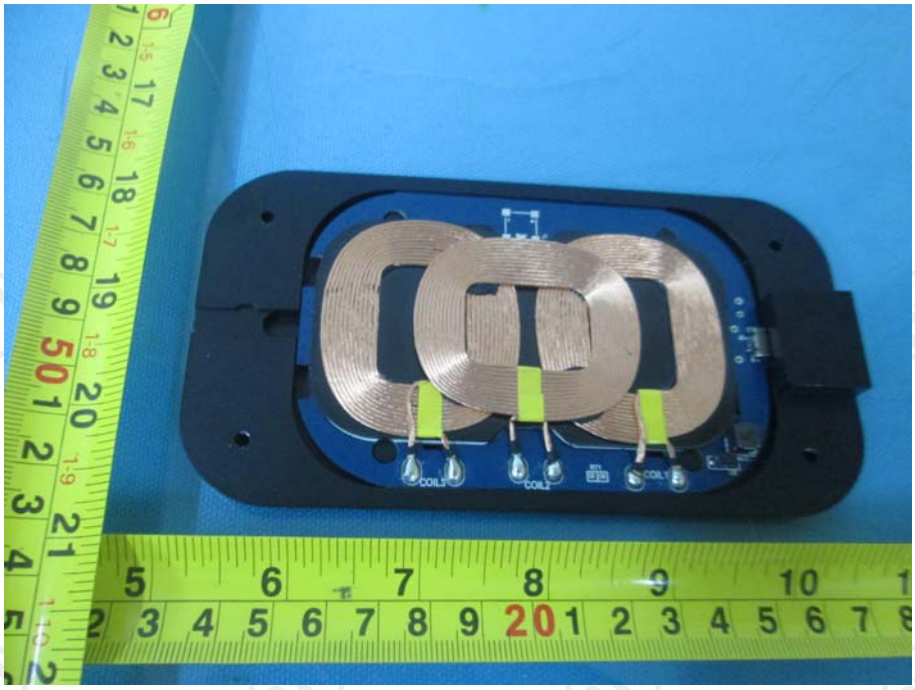
External View of product-2 (AER002-S)

External View of product-3 (AER002-B)

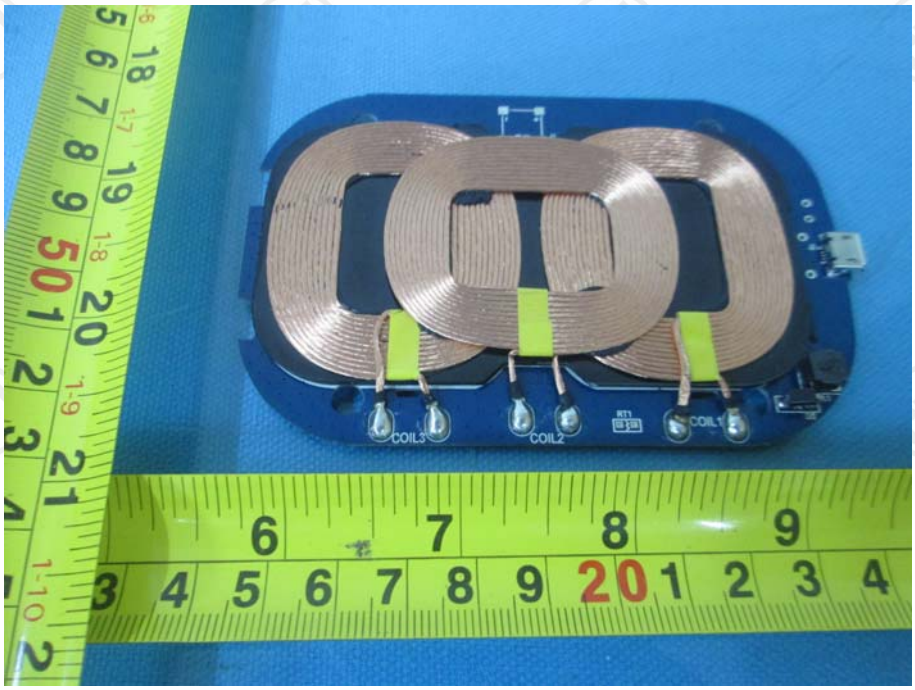
External View of product-4 (AER002-B)

APPENDIX 3 INTERNAL PHOTOGRAPHS OF PRODUCT

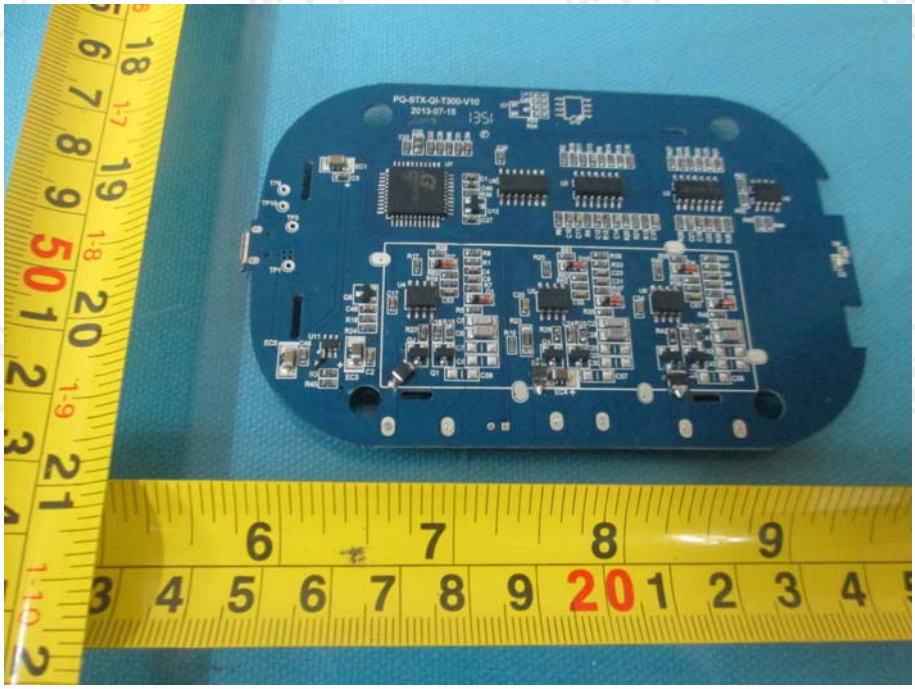
Internal View of product-1



Internal View of product-2



Internal View of product-3



Internal View of product-4

*** End of Report ***

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