Report No.: GTSE12030014801

TEST REPORT

Applicant:	BYD Auto Industry Company Limited
Address of Applicant:	No. 3001, 3007, Hengping Road, Pingshan, Shenzhen, 518118, P.R.China

Equipment Under Test (EUT)

Product Name:	TPMS Control Module
Model No.:	3609100
Trade Mark:	BYD
FCC ID:	SD43609100
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B:2012
Date of sample receipt:	March 06, 2013
Date of Test:	March 06-12, 2013
Date of report issue:	March 13, 2013
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*March 13, 2013*	*Original*

Prepared By: hank.yan ***Date:*** *March 13, 2013*

Project Engineer

Check By: Hans.Hu ***Date:*** *March 13, 2013*

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	N/A
Radiated Emissions	Part15.109	PASS

PASS: The EUT complies with the essential requirements in the standard.

N/A: not applicable.

5 General Information

5.1 Client Information

Applicant:	BYD Auto Industry Company Limited
Address of Applicant:	No. 3001, 3007, Hengping Road, Pingshan, Shenzhen, 518118, P.R.China
Manufacturer:	BYD Auto Industry Company Limited
Address of Manufacturer	No. 3001, 3007, Hengping Road, Pingshan, Shenzhen, 518118, P.R.China

5.2 General Description of EUT

Product Name:	TPMS Control Module
Model No.:	3609100
Power supply:	DC 12V

5.3 Test mode

Receiving mode	Keep the EUT in Receiving mode.

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● CNAS —Registration No.: CNAS L5775

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

● FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, July 20, 2010.

● Industry Canada (IC)

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number
GS	Supreme maintenance Free	S5D26R-MFZ	9442804454
BYD	TPMS Sensor Module	3609200	N/A

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	Mar. 30 2011	Mar. 29 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 03 2012	Jul. 02 2013
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 24 2013	Feb. 23 2014
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 29 2012	June 28 2013
6	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 03 2012	Jul. 02 2013
7	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 03 2012	Jul. 02 2013
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	Mar. 31 2012	Mar. 30 2013
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 31 2012	Mar. 30 2013
11	Thermo meter	N/A	N/A	GTS256	Jul. 06 2012	Jul. 05 2013

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Barometer	ChangChun	DYM3	GTS257	July 10 2012	July 09 2013

7 Test Results and Measurement Data

7.1 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 2GHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Receiver setup:	

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

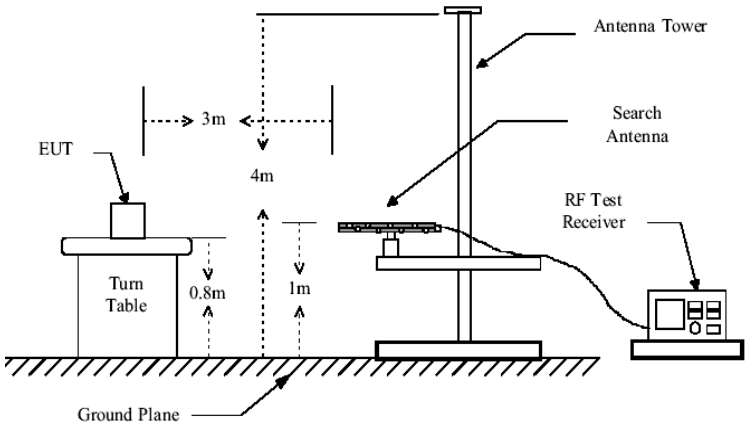
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

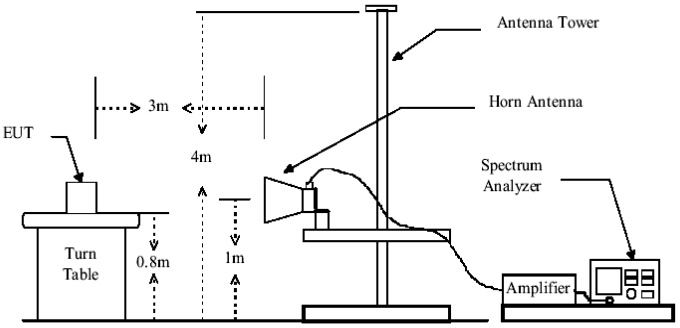
Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup: Below 1GHz



Above 1GHz



Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

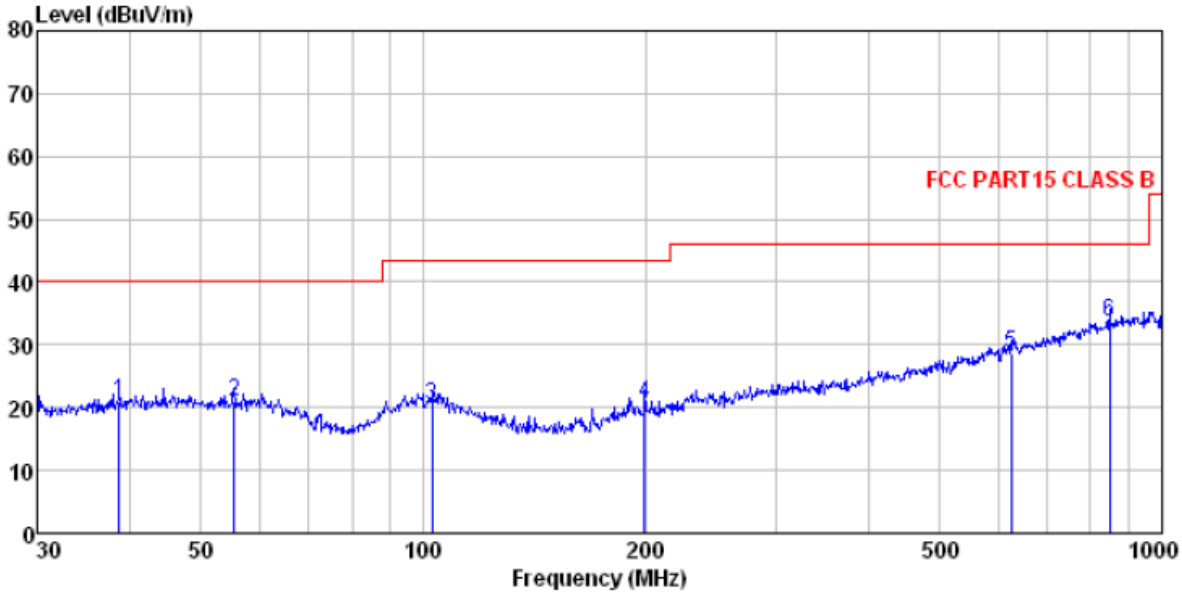
Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

Measurement Data

Below 1GHz

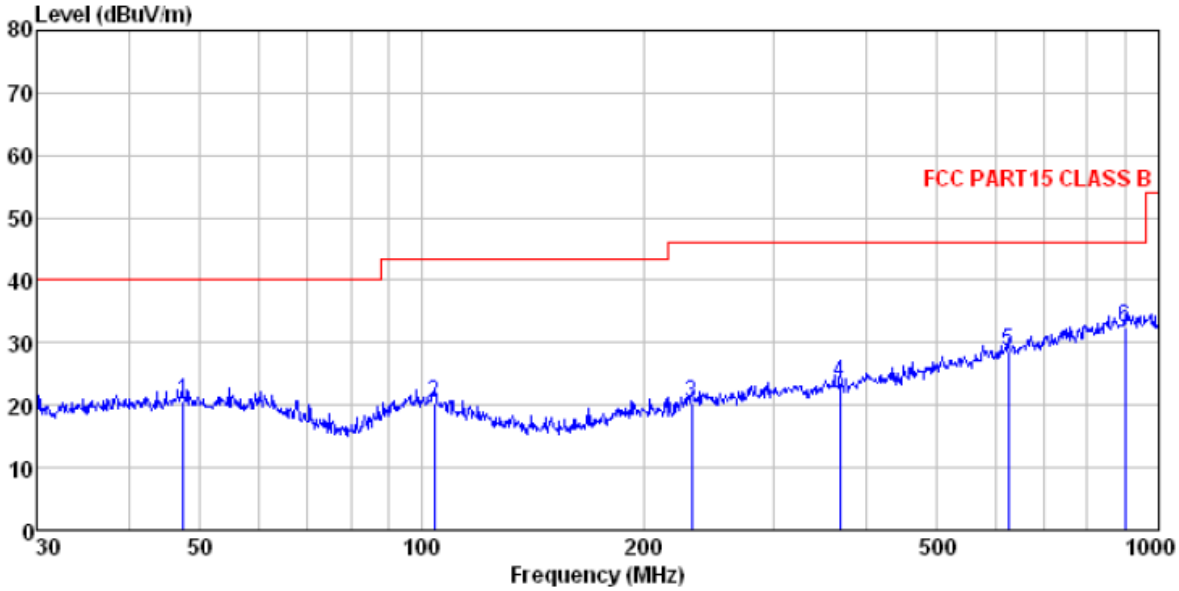
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 HORIZONTAL
Job No. : 0148RF
Test Mode : Receive mode
Test Engineer: Hank

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	38.752	36.00	16.51	0.65	32.06	21.10	40.00	-18.90	QP
2	55.415	35.95	16.08	0.82	31.95	20.90	40.00	-19.10	QP
3	102.719	34.97	15.98	1.22	31.77	20.40	43.50	-23.10	QP
4	199.286	37.39	13.60	1.84	32.14	20.69	43.50	-22.81	QP
5	625.078	35.15	20.80	3.82	31.08	28.69	46.00	-17.31	QP
6	848.056	36.80	23.55	4.65	31.25	33.75	46.00	-12.25	QP

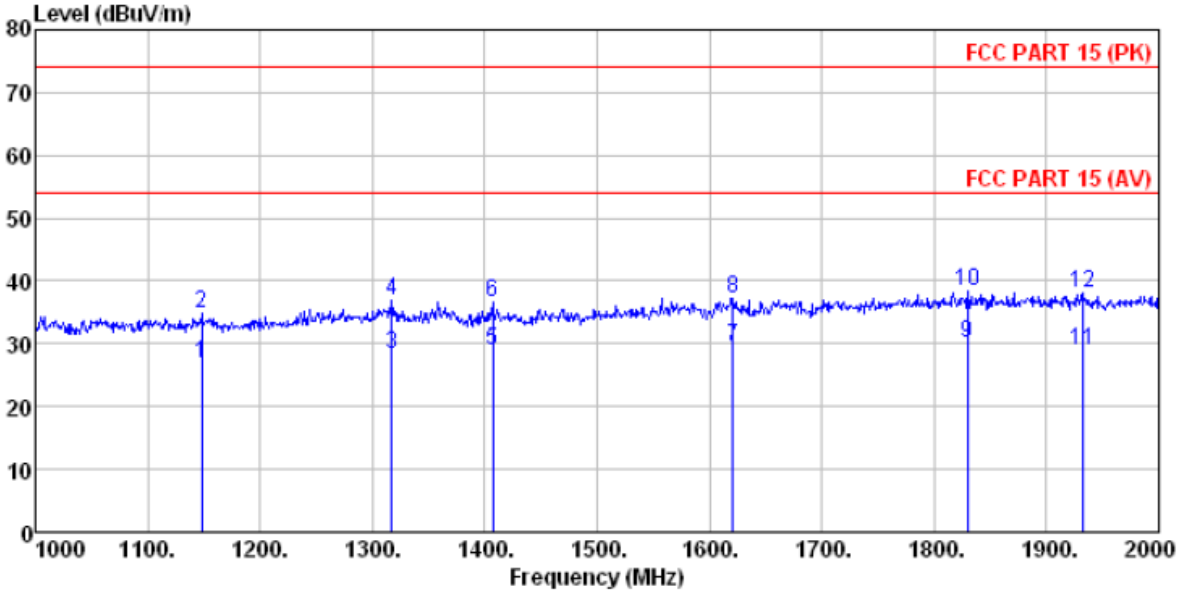
Vertical:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 VERTICAL
Job No. : 0148RF
Test Mode : Receive mode
Test Engineer: Hank

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	47.492	35.28	16.52	0.74	31.98	20.56	40.00	-19.44	QP
2	103.806	35.26	15.73	1.22	31.78	20.43	43.50	-23.07	QP
3	232.532	35.64	14.78	2.03	32.16	20.29	46.00	-25.71	QP
4	369.405	36.33	16.51	2.72	31.97	23.59	46.00	-22.41	QP
5	625.078	35.19	20.80	3.82	31.08	28.73	46.00	-17.27	QP
6	900.147	34.74	24.09	4.85	31.18	32.50	46.00	-13.50	QP

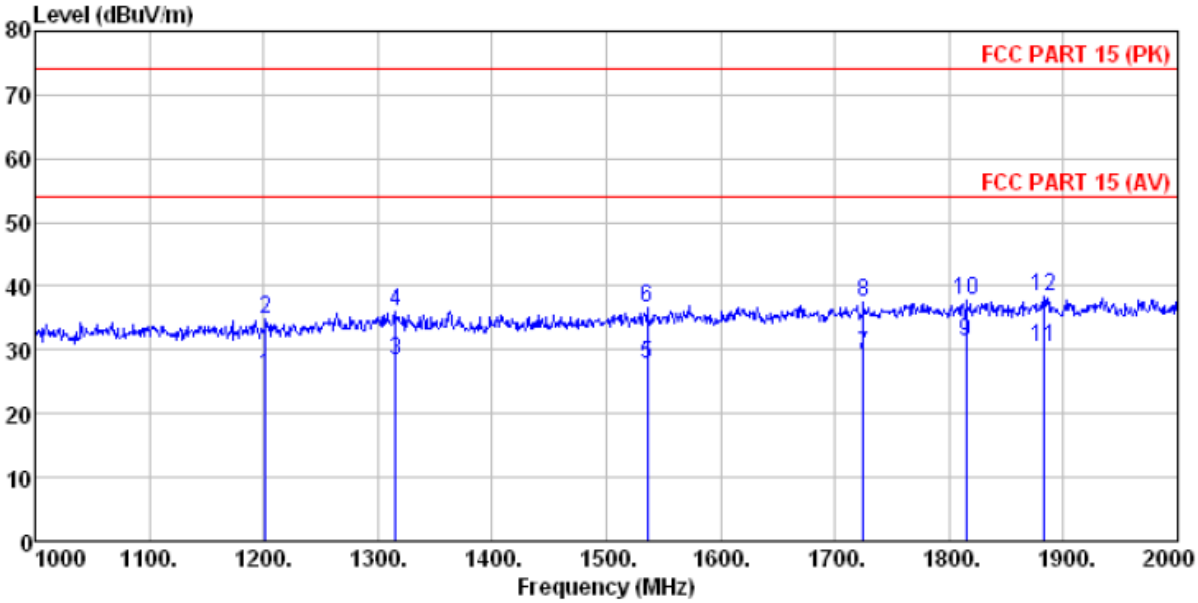
Above 1GHz
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m VULB9163 -2012-05 HORIZONTAL
Job No. : 0148RF
Test Mode : Receive mode
Test Engineer: Hank

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1148.000	29.85	24.11	4.42	31.42	26.96	54.00	-27.04	Average
2	1148.000	37.58	24.11	4.42	31.42	34.69	74.00	-39.31	Peak
3	1317.000	29.62	25.64	4.56	31.59	28.23	54.00	-25.77	Average
4	1317.000	38.24	25.64	4.56	31.59	36.85	74.00	-37.15	Peak
5	1407.000	30.57	25.31	4.62	31.67	28.83	54.00	-25.17	Average
6	1407.000	38.41	25.31	4.62	31.67	36.67	74.00	-37.33	Peak
7	1621.000	30.25	26.00	4.76	31.57	29.44	54.00	-24.56	Average
8	1621.000	38.04	26.00	4.76	31.57	37.23	74.00	-36.77	Peak
9	1830.000	28.77	27.66	4.87	31.30	30.00	54.00	-24.00	Average
10	1830.000	37.23	27.66	4.87	31.30	38.46	74.00	-35.54	Peak
11	1932.000	27.49	27.82	4.93	31.18	29.06	54.00	-24.94	Average
12	1932.000	36.58	27.82	4.93	31.18	38.15	74.00	-35.85	Peak

Vertical:

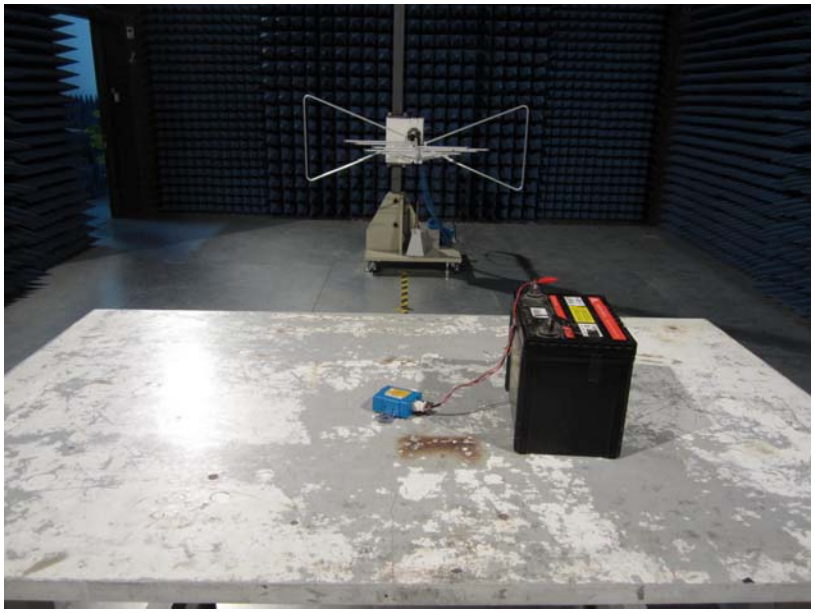


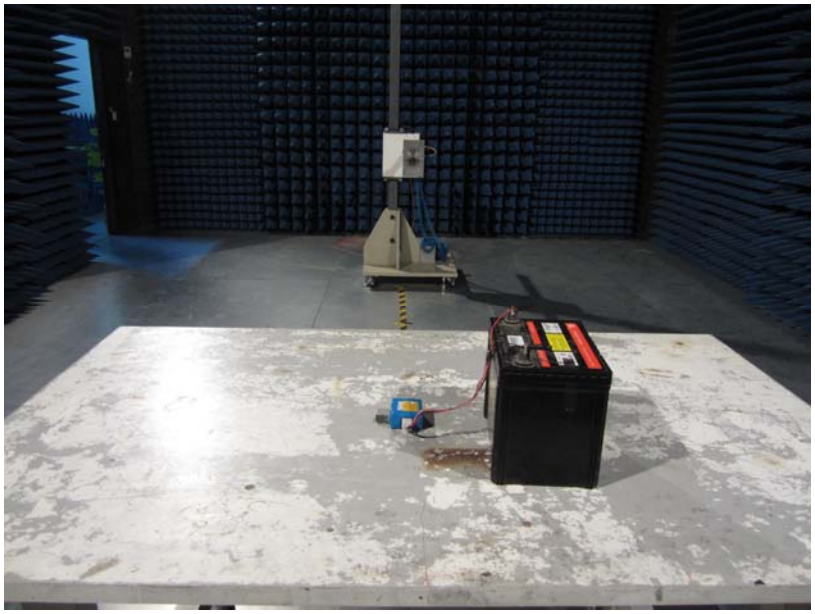
Site : 3m chamber
Condition : FCC PART 15 (PK) 3m VULB9163 -2012-05 VERTICAL
Job No. : 0148RF
Test Mode : Receive mode
Test Engineer: Hank

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1202.000	28.78	24.21	4.47	31.48	25.98	54.00	-28.02	Average
2	1202.000	37.61	24.21	4.47	31.48	34.81	74.00	-39.19	Peak
3	1316.000	29.67	25.64	4.56	31.59	28.28	54.00	-25.72	Average
4	1316.000	37.35	25.64	4.56	31.59	35.96	74.00	-38.04	Peak
5	1536.000	29.13	25.63	4.70	31.69	27.77	54.00	-26.23	Average
6	1536.000	37.86	25.63	4.70	31.69	36.50	74.00	-37.50	Peak
7	1725.000	29.34	26.46	4.82	31.43	29.19	54.00	-24.81	Average
8	1725.000	37.73	26.46	4.82	31.43	37.58	74.00	-36.42	Peak
9	1815.000	30.21	27.59	4.87	31.32	31.35	54.00	-22.65	Average
10	1815.000	36.70	27.59	4.87	31.32	37.84	74.00	-36.16	Peak
11	1883.000	28.86	27.99	4.90	31.24	30.51	54.00	-23.49	Average
12	1883.000	36.62	27.99	4.90	31.24	38.27	74.00	-35.73	Peak

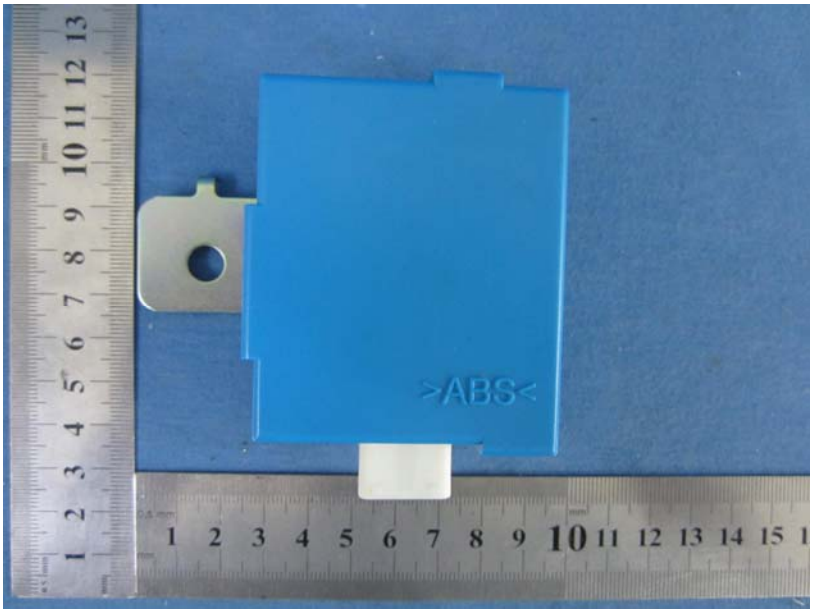
8 Test Setup Photo

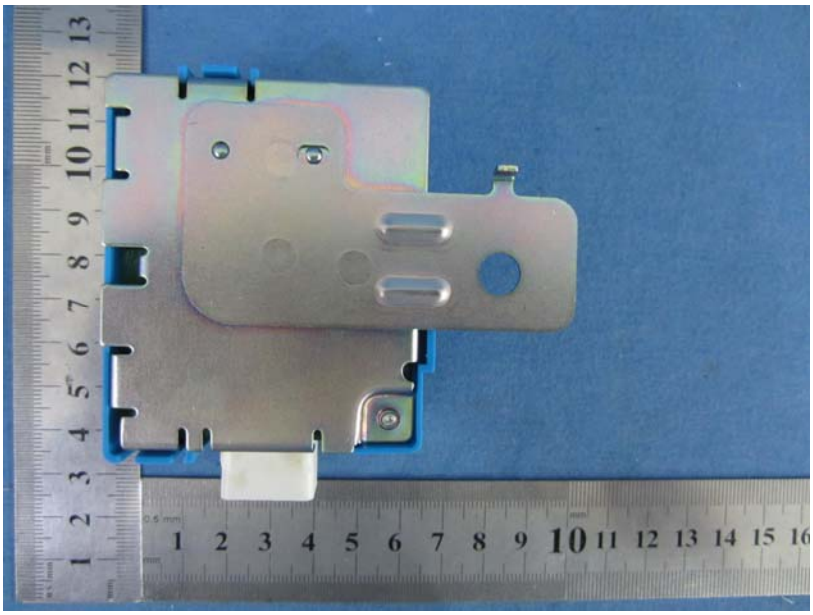
Radiated Emission

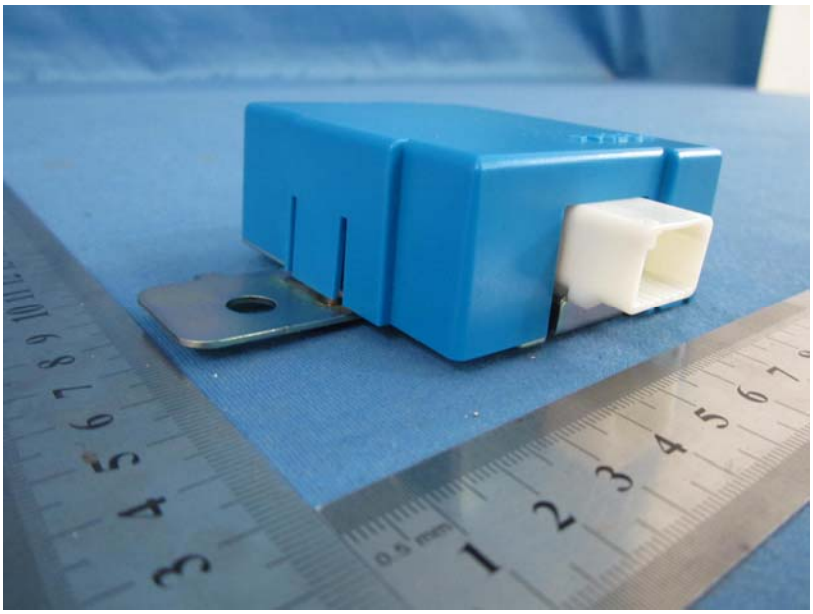


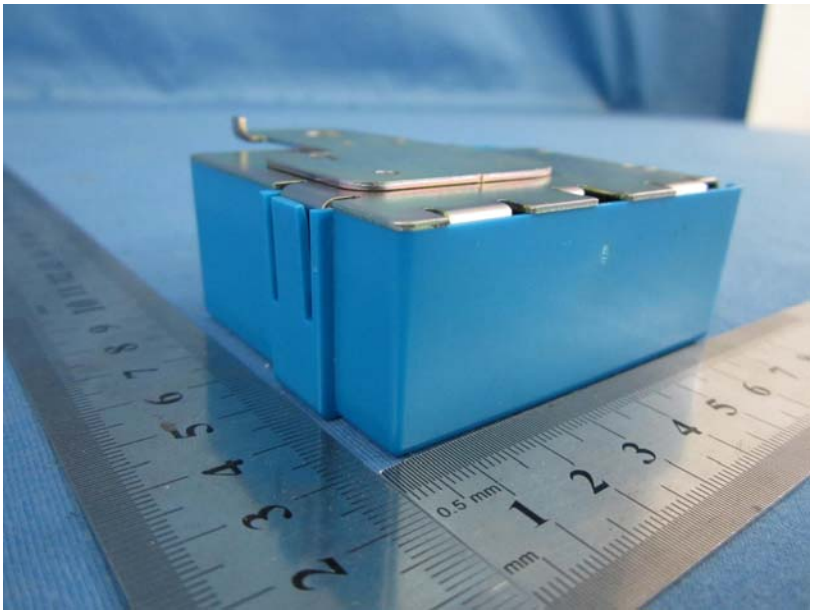


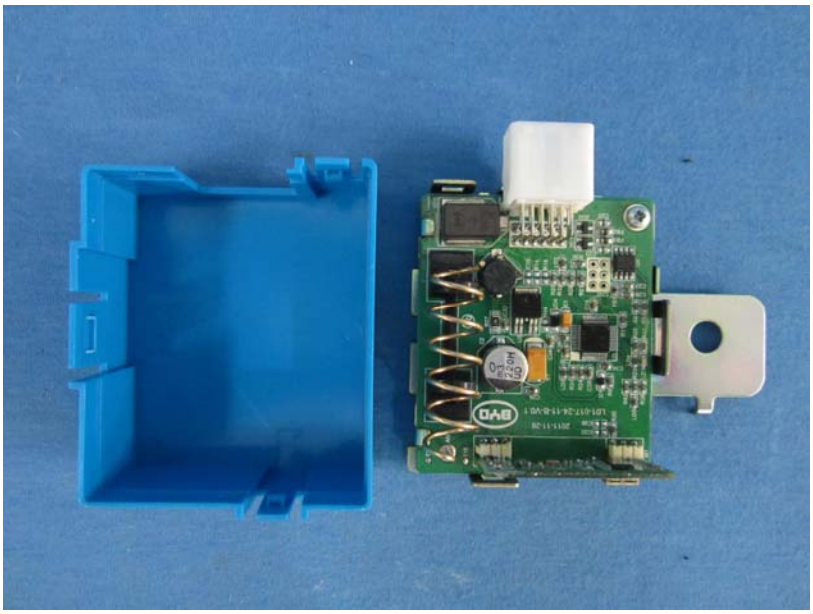
9 EUT Constructional Details

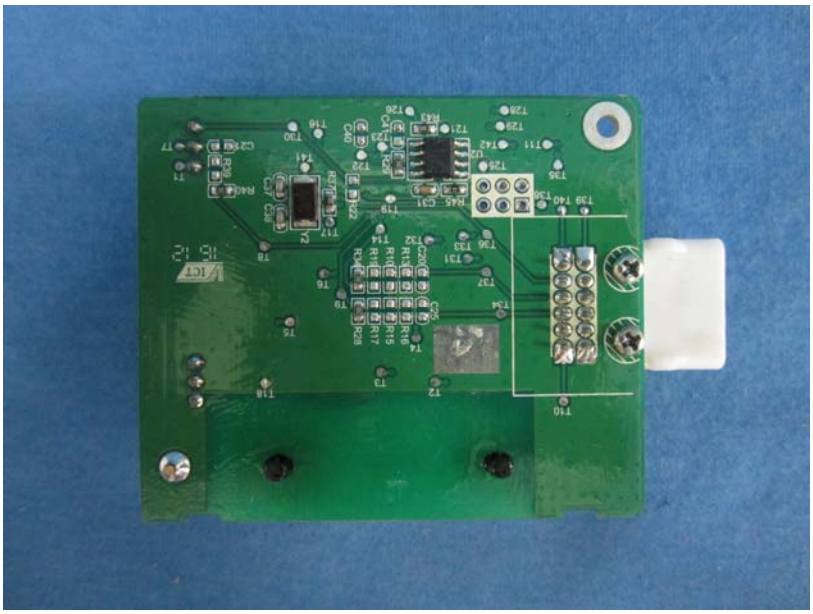










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