



World Standardization Certification & Testing CO., LTD  
World Standardization Safety and EMC Testing Centre

## FCC ID TEST REPORT

for

TPMS-RD

Trade Mark: N/A

Model: 203

Test Report Number: WSCT10120410E

Issued Date: December 26, 2010

Issued for

VALOR HONG KONG COMPANY LIMITED

3905 TWO EXCHANGE SQUARE 8 CONNAUGHT PLACE CENTRAL HK

Issued by:

WORLD STANDARDIZATION CERTIFICATION & TESTING CO., LTD.

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### **Revision History of report**

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	WSCT10120410E	Initial Issue	ALL	Kallen Wang



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## 1 TEST RESULT CERTIFICATION

<b>Product:</b>	TPMS-RD
<b>Model:</b>	203
<b>Trade Mark:</b>	N/A
<b>Applicant:</b>	VALOR HONG KONG COMPANY LIMITED 3905 TWO EXCHANGE SQUARE 8 CONNAUGHT PLACE CENTRAL HK
<b>Factory</b>	Shanghai Qunying Auto Electronics Co., Ltd. 5500 Shenzhuan Rd., Dongjing, Songjiang, Shanghai 201619, China.
<b>Tested Date:</b>	December 16-18, 2010
<b>Test Voltage:</b>	DC 12V/DC24V

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC PART 15B	No non-compliance noted
ANSI C63.4: 2003	No non-compliance noted

Note: 1. The test result judgment is decided by the limit of measurement standard  
2. The information of measurement uncertainty is available upon the customer's request.

Deviation from Applicable Standard
None

The above equipment has been tested by World Standardization Certification & Testing Co., Ltd and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Davis Zhou

Date: 2010-12-26

(Davis Zhou)

Check By: Kelly Wu

Date: 2010-12-26

(Kelly Wu)

Approved By: Kallen Wang

Date: 2010-12-26

(Kallen Wang)



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## 2 TEST RESULT SUMMARY

Test Item	Test Result
Conduct Emission	N/A
Radiation Emission	Pass

**Note:** 1. The test result judgment is decided by the limit of test standard  
2. The information of measurement uncertainty is available upon the customer's request.  
3. N/A means to no applicable.



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### 3 EUT DESCRIPTION

<b>Product</b>	TPMS-RD
<b>Brand Name</b>	N/A
<b>Model</b>	203
<b>Applicant</b>	VALOR HONG KONG COMPANY LIMITED
<b>EUT Type</b>	Prototype production.
<b>Serial Number</b>	N/A
<b>Antenna Type</b>	The antenna used in this product is directional with SMA plug reverse connector. Please refer to EUT.
<b>Receiver type</b>	Specialized superheterodyne receivers type
<b>EUT Power Rating</b>	DC 12V/24V
<b>Temperature Range(Operating)</b>	15-35°C
<b>Operating Frequency</b>	N/A

N/A mean to no applicable

### I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
USB PORT	1	1
DC PORT	1	1
ANT PORT	1	1

### Models difference

N/A



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## 4 TEST METHODOLOGY

### 4.1 DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and configuration, which produced the worst emission levels, was selected and recorded in this report.

An un-modulated 433.92Hz CW signal from signal generator is supplied to EUT for all measurements.

The EUT was tested at DC 12V and DC 24V, and the EUT produce the worst emission levels at DC 24V, so only the data for DC 24V was reported.

the following test mode was recorder in this report.

Test Item	Test mode
Conduct Emission	N/A
Radiation Emission	Normal operation

### 4.2 EUT SYSTEM OPERATION

1. Set up EUT with the relative support equipments.
2. Make sure the EUT normal operation during the test.

## 5 SETUP OF EQUIPMENT UNDER TEST

### 5.1 DESCRIPTION OF SUPPORT UNITS

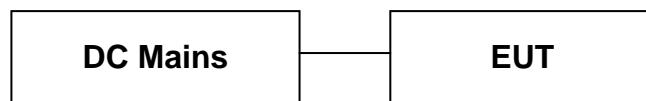
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	DC power supply	K1225	/	/	KDB	/	
2.	U-disk	L1567	/	/	Lenvo	/	/

**Note:**

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 5.2 CONFIGURATION OF SYSTEM UNDER TEST



(EUT:TPMS-RD)

## 6 FACILITIES AND ACCREDITATIONS

### 6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at **Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District, Shenzhen, Guangdong, China**

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 15. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 6.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC (The certificate registration number is 131628)
Japan	TIMCO (The certificate registration number is Q2001)
Canada	VCCI (The certificate registration number is C-2912, R-2662) <b>INDUSTRY CANADA</b> (The certificated registration number is 46405-7700)
Germany	TUV (The certificate registration number is UA50138086-0001,UA50138086-0002)
China	EMCC (The certificated registration number is 080380) <b>CNAS</b> (The certificated registration number is L3732)

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.wsct.org.cn>

### 6.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency		Uncertainty
Conducted emissions	450kHz~30MHz		+/- 3.59dB
Radiated emissions	Horizontal	30MHz ~ 200MHz	+/- 4.77dB
		200MHz ~ 1000MHz	+/- 4.93dB
	Vertical	30MHz ~ 200MHz	+/- 5.04dB
		200MHz ~ 1000MHz	+/- 4.93dB

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



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## 7 CONDUCTED EMISSION MEASUREMENT

### 7.1 LIMITS

FREQUENCY (MHz)	LIMIT(dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

**NOTE:**

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from EUT or system, shall not exceed the level of field strengths specified above.

### 7.2 TEST INSTRUMENTS

Conducted Emission Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100005	09/24/2011
LISN	AFJ	LS16	16010222119	09/24/2011
LISN(EUT)	Mestec	AN3016	04/10040	09/24/2011

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).  
2. N.C.R = No Calibration Request.

### 7.3 TEST PROCEDURES

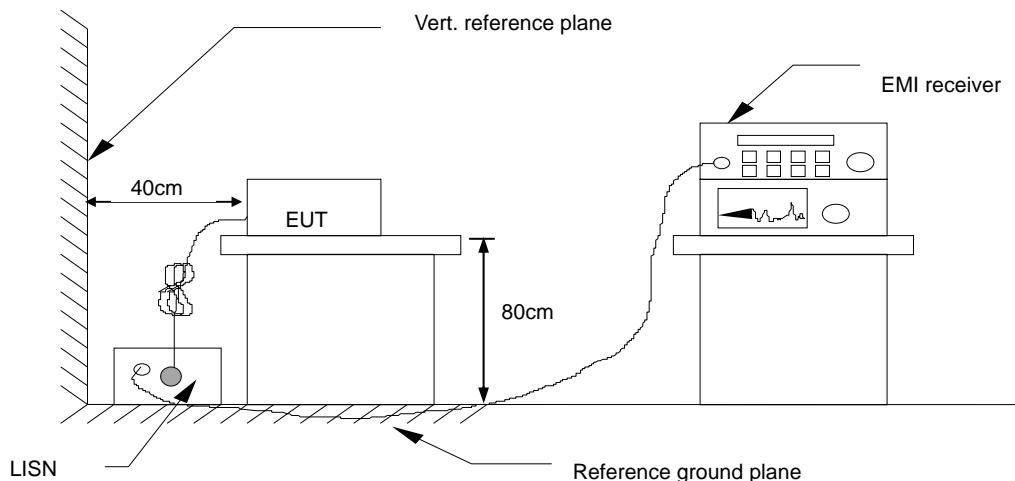
The EUT was put on a wooden table which was 0.8metre high above the ground and connected to the AC mains through a Artificial Mains Network (A.M.N). The mains lead in excess of 1 m separating the EUT from the AMN was folded back and forth parallel to the lead so as to form a bundle with a length of 0.3m to 0.4m. The EUT was kept 0.4m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during conducted emission test.

The bandwidth of the test receiver (ESCI) was set at 9KHz.

The frequency range from 150 KHz to 30 MHz was investigated.

The test data of the worst-case condition(s) was recorded.

## 7.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 7.5. TEST RESULTS

No applicable.due to this product is supplied power by DC mains.

## 8 RADIATED EMISSION MEASUREMENT

### 8.1. LIMITS OF RADIATED EMISSION MEASUREMENT

#### Maximum permissible level of Radiated Emission measured at 3 meter

FREQUENCY (MHz)	dBuV/m (At 3m)
	Class B
30~88	40.00
88~216	43.50
216~960	46.00
960~1000	54.00
>1000	PK:74;AV:54

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

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) The limit below 1GHz use QP detector

### 8.2. TEST INSTRUMENTS

966 Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	09/24/2011
Spectrum Analyzer	R&S	FSU	100114	09/24/2011
Pre Amplifier	H.P.	HP8447E	2945A02715	09/24/2011
Pre-Amplifier	Compliance	PAM0118	1360976	09/24/2011
Bilog Antenna	SUNOL Sciences	JB3	A021907	09/24/2011
Horn Antenna	Compliance	CE18000	001	09/24/2011
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	09/24/2011
Cable	TIME MICROWAVE	--	--	09/24/2011
Signal generator	HP	8657B	101059-999	09/24/2011
System-Controller	CCS	N/A	N/A	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).

2. N.C.R = No Calibration Request.



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### 8.3.TEST PROCEDURES

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency band of 30MHz to 1GHz,The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna (calibrated by dipole antenna) was used as a receiving antenna. At the frequency band of 1GHz to 2GHz,The measuring antenna moved from 1 to 4 m for horizontal and vertical polarization. The horn antenna was used as a receiving antenna.

The resolution bandwidth and video bandwidth of the test receiver was 120 KHz and 300KHz for Quasi-peak detection at frequency below 1GHz.

The resolution bandwidth and video bandwidth of the test receiver was 1MHz and 3MHz for Peak emssion mesurement above 1GHz .

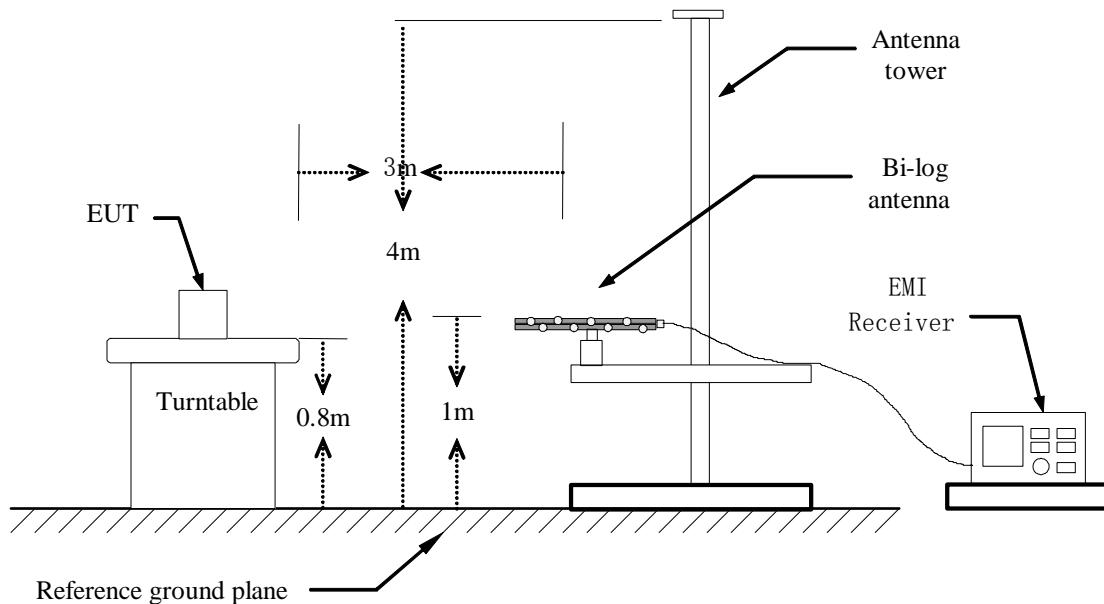
The resolution bandwidth of the test receiver was 1MHz and the video bandwidth are 10Hz for Average emssion mesurement above 1GHz .

The EUT was tested in Chamber Site.

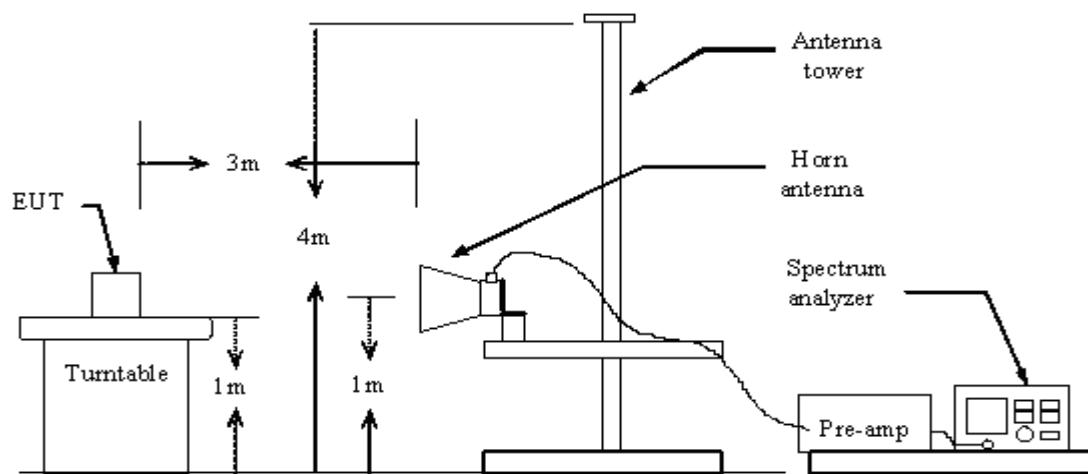
The test data of the worst case condition(s) was reported on the following pages.

## 8.4. TEST SETUP

### Below 1GHz



### Above 1GHz





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## 8.5.TEST RESULTS

Model No.	203	Test Mode	Normal operation ( worse case )
Environmental Conditions	25°C, 55% RH	Test Result	Pass

Frequency (MHz)	Ant. Pol.	Corr.Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin	Note	Result
74.6200	H	-12.03	35.55	40.00	-4.45	QP	Pass
148.34	H	-6.83	30.56	43.50	-12.94	QP	Pass
223.03	H	-5.90	35.34	46.00	-10.66	QP	Pass
259.89	H	-4.52	34.54	46.00	-11.46	QP	Pass
296.75	H	-3.64	33.25	46.00	-12.75	QP	Pass
1238.00	H	26.51	47.50	74.00	-26.5	Peak	Pass
1238.00	H	26.51	--	54.00	--	AV	Pass
74.62	V	-11.64	31.82	40.00	-8.18	QP	Pass
200.72	V	-3.27	31.94	43.50	-11.56	QP	Pass
259.89	V	-3.60	30.43	46.00	-15.57	QP	Pass
296.75	V	-1.70	29.90	46.00	-16.1	QP	Pass
401.51	V	1.19	29.25	46.00	-16.75	QP	Pass
1200.00	V	26.50	48.53	74.00	-25.47	Peak	Pass
1200.00	V	26.50	--	54.00	--	AV	Pass

Note: 1. Level = Correction factor + Meter Reading

2. Correction factor=antenna factor + cable loss - preamplifier gain.

3. – means to the measure is no necessary,due to the PK value comply with AV limits.