



Product Service

FCC - TEST REPORT

Report Number : **68.760.13.047.01** Date of Issue: **28 June 2013**

Model : **KT700 VMI**

Product Type : **Vehicle Oscillograph**

Applicant : **Bosch Automotive Diagnostics Equipment (Shenzhen) Limited**

Address : **5/F,A, Garden City Cyber Port, Nanhai Road No.1079,
Nanshan District, Shenzhen518067 P.R. China**

Production Facility : **Bosch Automotive Diagnostics Equipment (Shenzhen) Limited**

Address : **5/F,A, Garden City Cyber Port, Nanhai Road No.1079,
Nanshan District, Shenzhen518067 P.R. China**

Test Result : **Positive Negative**

Total pages including Appendices : **26**

Jiangsu TÜV Product Service Ltd. – Shenzhen Branch is a subcontractor to TÜV SÜD Product Service GmbH according to the principles outlined in ISO 17025.

Jiangsu TÜV Product Service Ltd. – Shenzhen Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. Jiangsu TÜV Product Service Ltd. – Shenzhen Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Jiangsu TÜV Product Service Ltd. – Shenzhen Branch issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval

1 Table of Contents

1	Table of Contents.....	2
2	Details about the Test Laboratory.....	3
3	Description of the Equipment Under Test.....	4
4	Summary of Test Standards.....	5
5	Summary of Test Results.....	6
6	General Remarks.....	7
7	Technical Requirements	8
7.1	Radiated Emissions	8
7.2	Conducted Emission Test.....	21
8	System Measurement Uncertainty.....	26

2 Details about the Test Laboratory

Details about the Test Laboratory

Test site1:

Company name: Jiangsu TÜV Product Service Ltd. – Shenzhen Branch
6th Floor, H Hall,
Century Craftwork Culture Square,
No. 4001, Fuqiang Road,
Futian District 518048,
Shenzhen, P.R.C.

Telephone: 86 755 8828 6998
Fax: 86 755 8828 5299

Test site2:

Company name: Shenzhen Academy of Metrology & Quality Inspection
Longzhu road,
Nan Shan,
Shenzhen 518055, Guangdong, China

Telephone: 86 755 2694 1723
Fax: 86 755 2694 1545

3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product: Vehicle Oscillograph

Model no.: KT700 VMI

Brand Name: BOSCH

Options and accessories: NIL

Rating: 7-32VDC
Charged by external adapter FJ-SW1402800T:
Adaptor Input: 100-240VAC, 50/60Hz, 1.5A Max
Adaptor Output: 14VDC, 2800mA
or charged by Lead-acid battery power sources used on vehicles

Description of the EUT: NIL

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Notebook	Lenovo	X220	-
Unshielded USB cable	-	-	1.2m
DC source cable	-	-	1.0m
Probes	-	-	1.2m



Product Service

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart B, 10-1-2012 Edition	Unintentional Radiators

5 Summary of Test Results

Emission Tests						
FCC Part 15 Subpart B		Pages	Test Result			Test Site
Test Condition			Pass	Fail	N/A	
Radiated Emission 30MHz to 6000MHz		8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site 2
Conducted Emission on AC 150kHz to 30MHz		21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site 2

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: WSO-KT700VMI complies with Section 15.107, 15.109 of the FCC Part 15, Subpart B Rules.

All the configurations of the product were tested and only the worst test results are listed in the report.

SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

The Equipment Under Test

- **Fulfills** the general approval requirements.

- **Does not** fulfill the general approval requirements.

Sample Received Date: 01 June 2013

Testing Start Date: 02 June 2013

Testing End Date: 27 June 2013

- Jiangsu TÜV Product Service Ltd. – Shenzhen Branch -

Reviewed by:



Cookies Bu
Senior EMC Project
Engineer

Prepared by:



Felix Li
EMC Project Engineer

Tested by:



Eric Gao
EMC Test Engineer

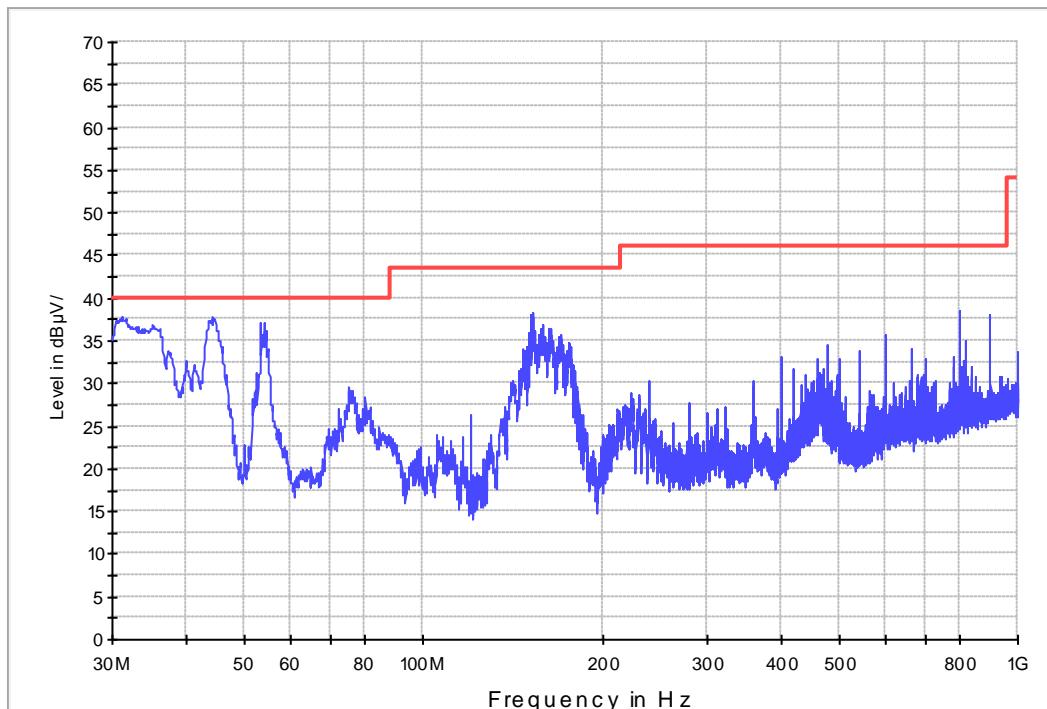
7 Emission Test Results

7.1 Radiated Emission Test 30MHz – 6000MHz

EUT: KT700 VMI
Op Cond: Diagnostic and data transmitting
Test Spec: Vertical and Horizontal, 30MHz-1GHz
Comment: AC 120V/60Hz

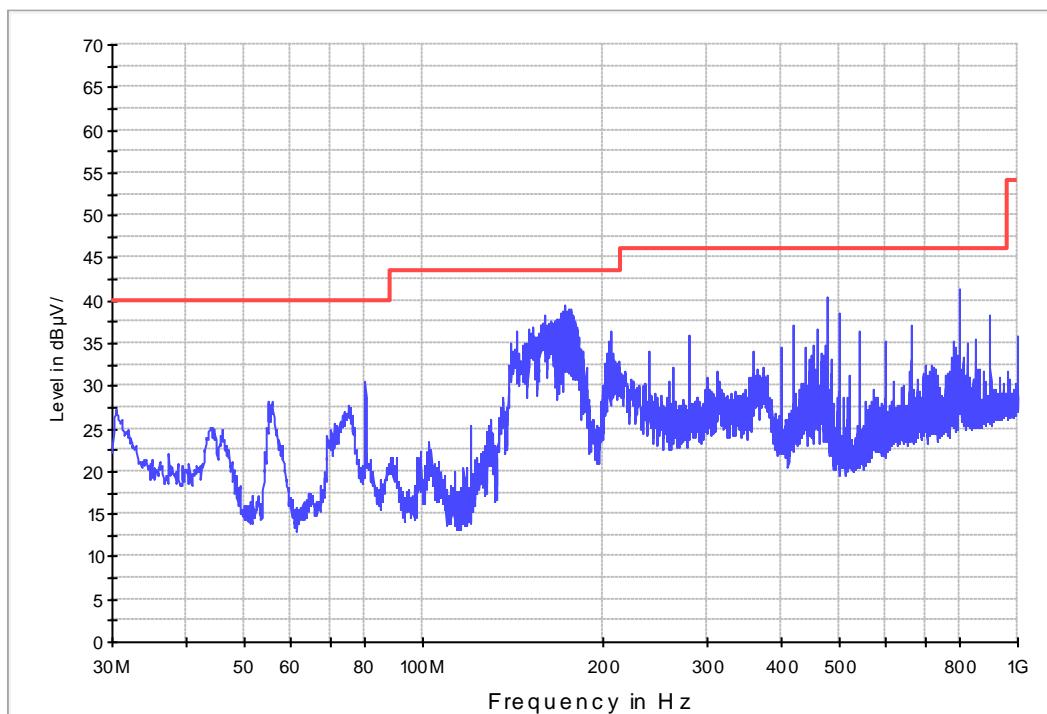
Vertical

Field strength 30M-1GHz



Horizontal

Field strength 30M -1GHz





Product Service

Radiated Emission Test 30MHz – 6000MHz

Date of test : 25 June 2013

Test requirement : FCC Part 15 Subpart B

Test method : FCC Part 15 Subpart B

Operating mode : Diagnostic and data transmitting

Test Specification : Vertical and Horizontal, 30MHz-1GHz

Model No : KT700 VMI

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

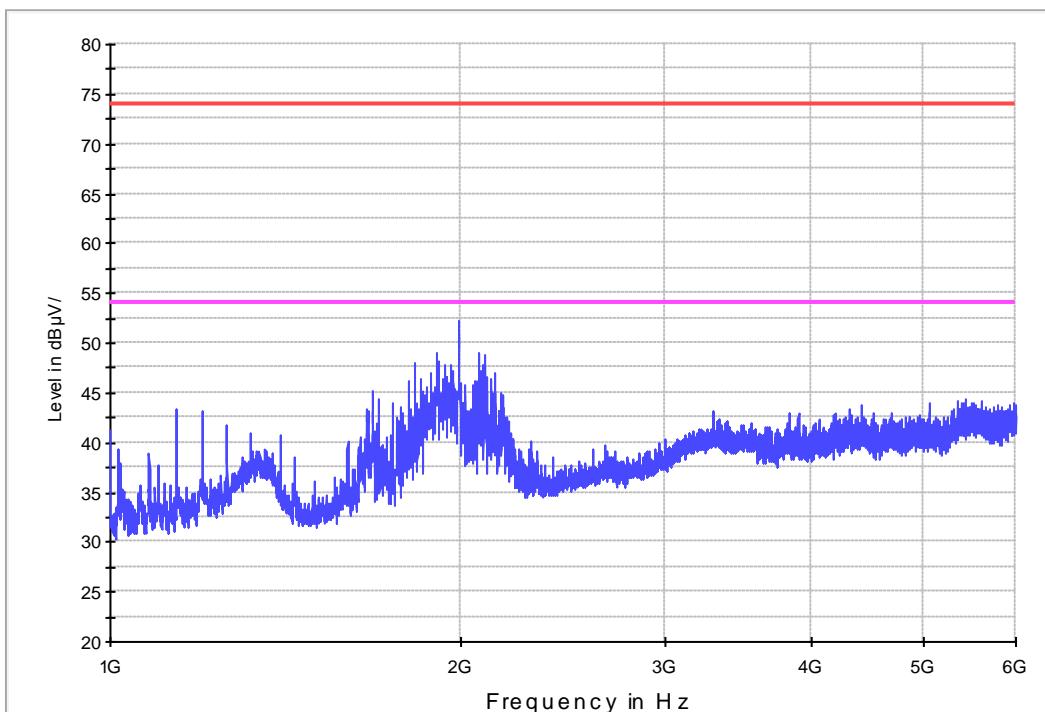
Frequency MHz	Vertical dB μ V/m	Limit dB μ V/m	Margin dB	Remark
31.164	35.3	40.0	4.7	QP
44.356	34.5	40.0	5.5	QP
54.056	32.1	40.0	7.9	QP

Frequency MHz	Vertical dB μ V/m	Limit dB μ V/m	Margin dB	Remark
173.463	39.4	43.5	4.1	QP
479.983	40.4	46.0	5.6	QP
800.083	41.3	46.0	4.7	QP

Radiated Emission Test 30MHz – 6000MHz

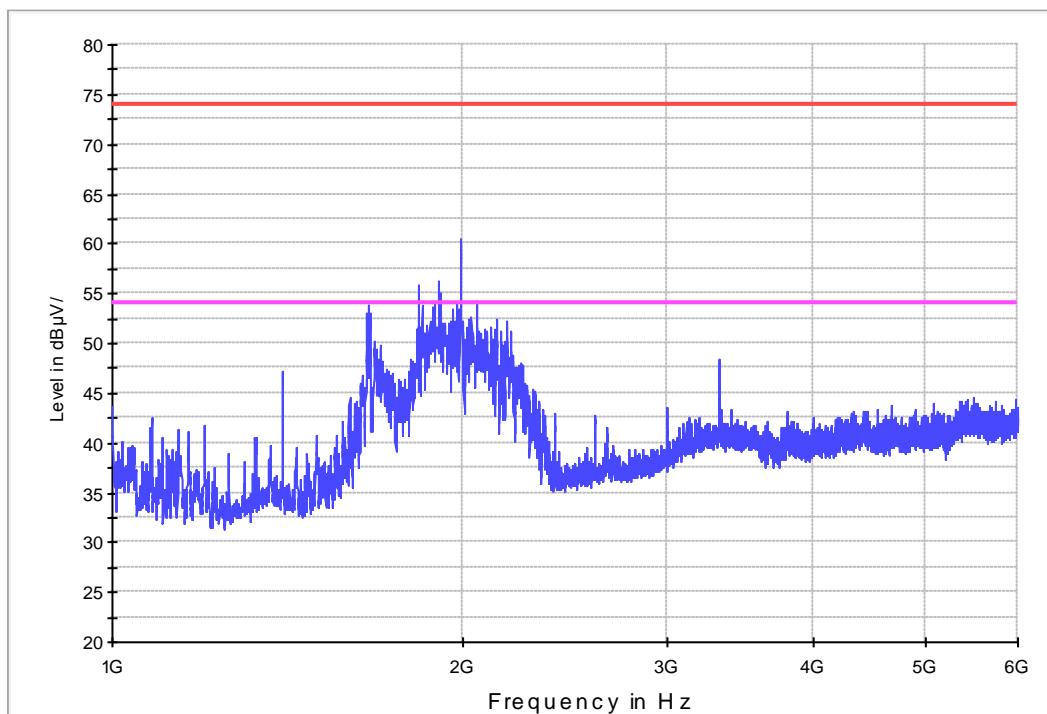
EUT: KT700 VMI
Op Cond: Diagnostic and data transmitting
Test Spec: Vertical and Horizontal, above 1GHz
Comment: AC 120V/60Hz

Vertical
Field strength 1-6GHz



Horizontal

Field strength 1-6 GHz





Product Service

Radiated Emission Test 30MHz – 6000MHz

Date of test : 27 June 2013

Test requirement : FCC Part 15 Subpart B

Test method : FCC Part 15 Subpart B

Operating mode : Diagnostic and data transmitting

Test Specification : Horizontal and Vertical, above 1GHz

Model No : KT700 VMI

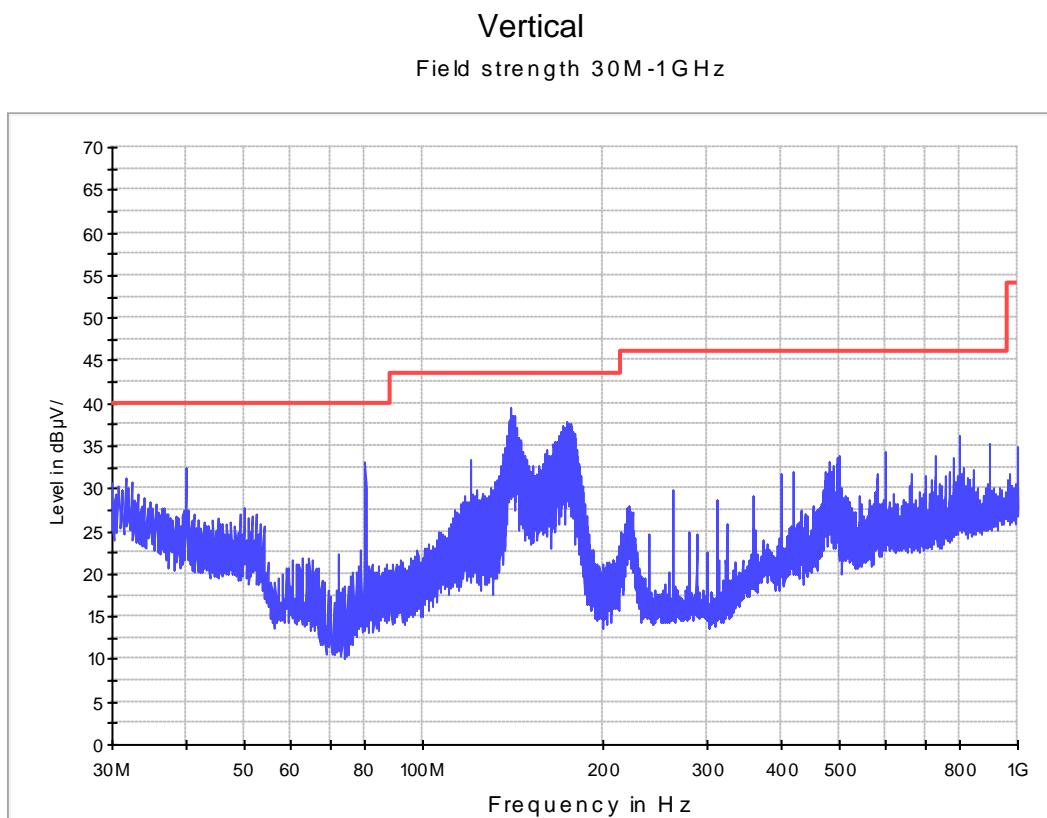
Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	Vertical dB μ V/m	Limit dB μ V/m	Margin dB	Remark
1992.5	56.5	74.0	17.5	Peak
1992.5	30.1	54.0	23.9	Average

Frequency MHz	Horizontal dB μ V/m	Limit dB μ V/m	Margin dB	Remark
1832	59.7	74.0	14.3	Peak
1908.5	62.5	74.0	11.5	Peak
1955.5	60.7	74.0	13.3	Peak
1832	29.9	54.0	24.1	Average
1908.5	31.5	54.0	22.5	Average
1955.5	33.1	54.0	20.9	Average

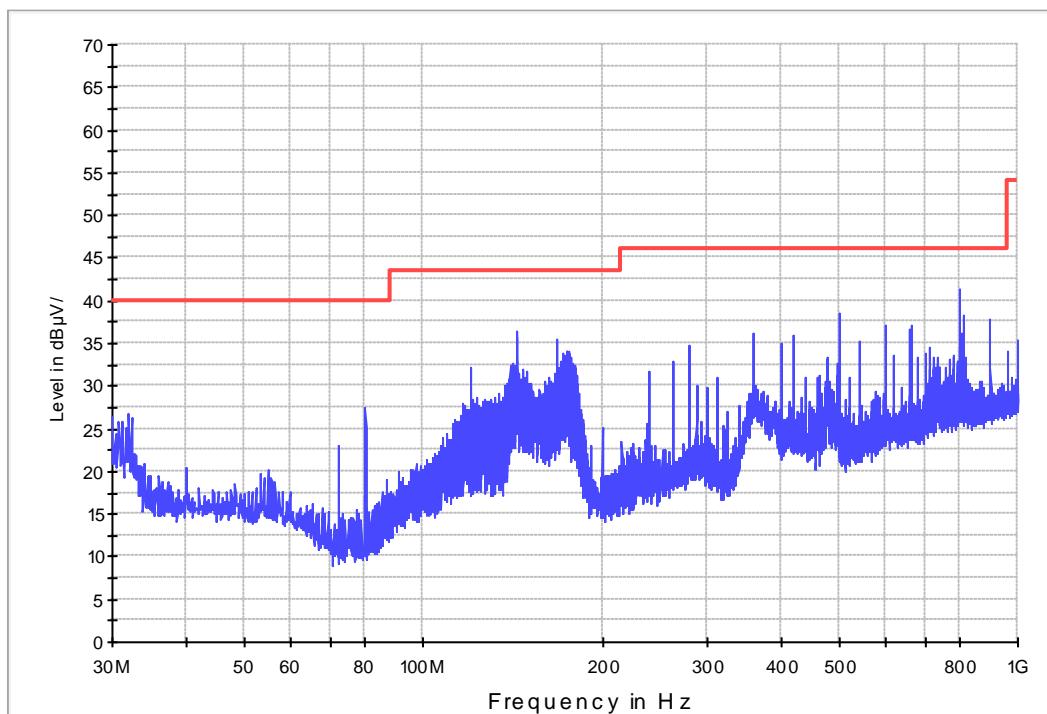
Radiated Emission Test 30MHz – 6000MHz

EUT: KT700 VMI
Op Cond: Diagnostic and data transmitting
Test Spec: Vertical and Horizontal, 30MHz-1GHz
Comment: DC 12V



Horizontal

Field strength 30M -1GHz





Product Service

Radiated Emission Test 30MHz – 6000MHz

Date of test : 25 June 2013
Test requirement : FCC Part 15 Subpart B
Test method : FCC Part 15 Subpart B
Operating mode : Diagnostic and data transmitting
Test Specification : Vertical and Horizontal, 30MHz-1GHz
Model No : KT700 VMI

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

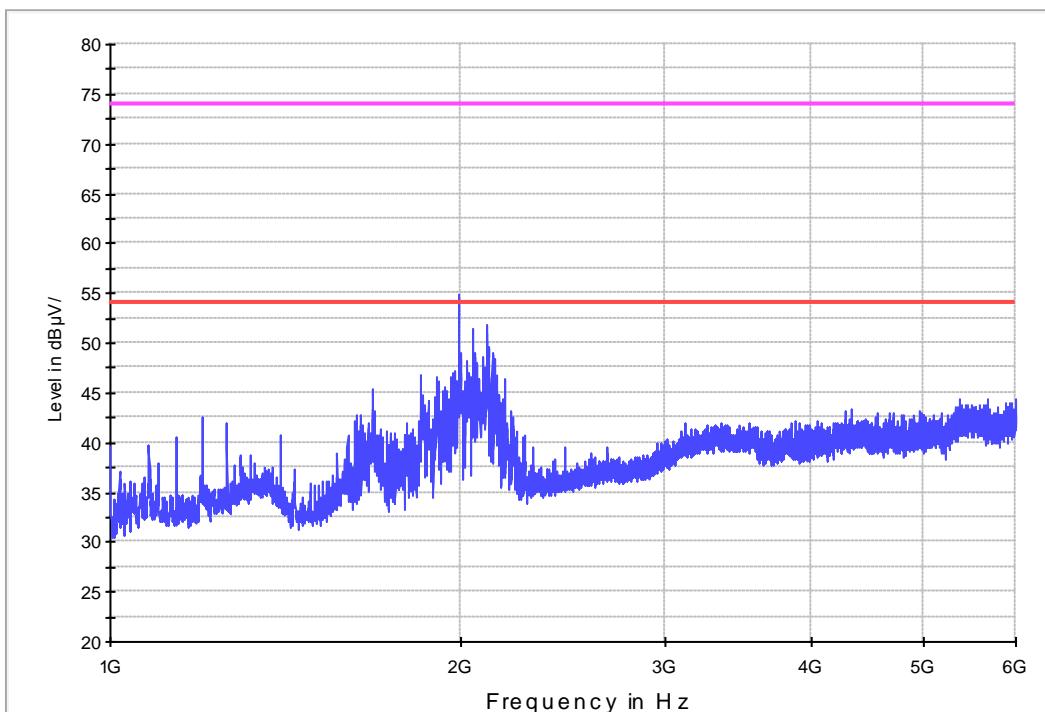
Frequency MHz	Vertical dB μ V/m	Limit dB μ V/m	Margin dB	Remark
140.927	39.4	43.5	4.1	QP
172.581	35.8	43.5	7.7	QP

Frequency MHz	Horizontal dB μ V/m	Limit dB μ V/m	Margin dB	Remark
144.21	33.4	43.5	10.1	QP
168.031	32.0	43.5	11.5	QP

Radiated Emission Test 30MHz – 6000MHz

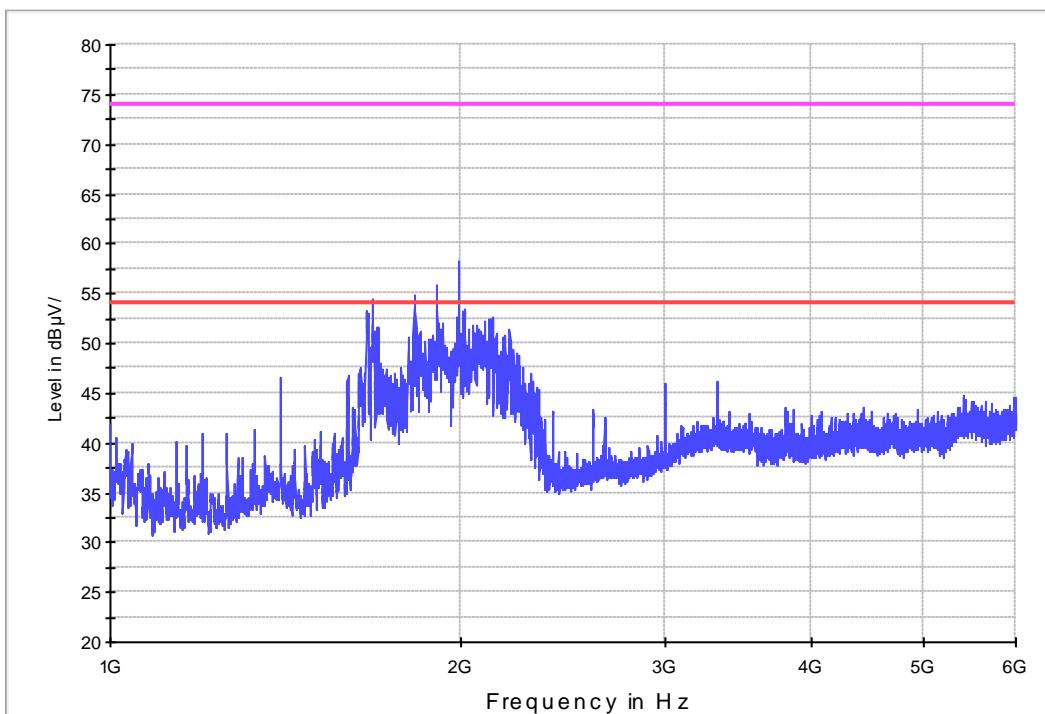
EUT: KT700 VMI
Op Cond: Diagnostic and data transmitting
Test Spec: Vertical and Horizontal, above 1GHz
Comment: DC12V

Vertical
Field strength 1-6GHz



Horizontal

Field strength 1-6 GHz





Product Service

Radiated Emission Test 30MHz – 6000MHz

Date of test : 3 July 2012
Test requirement : FCC Part 15 Subpart B
Test method : FCC Part 15 Subpart B
Operating mode : Diagnostic and data transmitting
Test Specification : Horizontal and Vertical, above 1GHz
Model No : KT700 VMI

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	Vertical dB μ V/m	Limit dB μ V/m	Margin dB	Remark
1993	62.4	74.0	11.6	Peak
2050	56.2	74.0	17.8	Peak
2108.5	56.4	74.0	17.6	Peak
1993	32.1	54.0	21.9	Average
2050	29.3	54.0	24.7	Average
2108.5	29.5	54.0	24.5	Average

Frequency MHz	Horizontal dB μ V/m	Limit dB μ V/m	Margin dB	Remark
1828	58.2	74.0	15.8	Peak
1905	61.2	74.0	12.8	Peak
1993.9	64.4	74.0	9.6	Peak
1828	30.0	54.0	24.0	Average
1905	31.3	54.0	22.7	Average
1993.9	35.8	54.0	18.2	Average



Product Service

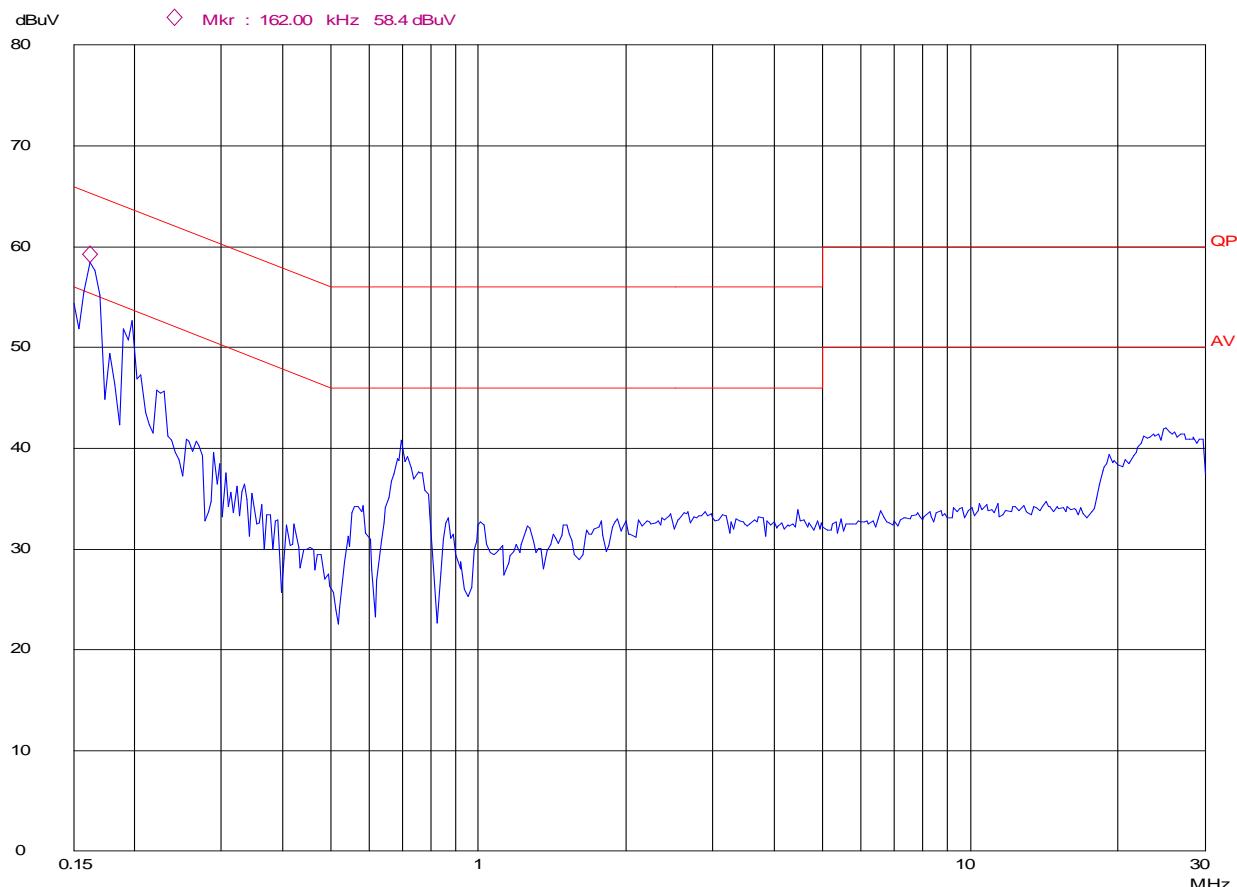
Test Equipment List

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESI26	838786/013	2014-01-20
Bilog Antenna	Chase	CBL6112B	2591	2014-01-20
Horn Antenna	Rohde & Schwarz	HF906	100014	2014-01-20
3m Semi-anechoic chamber	Albatross Project	9X6X6	----	2013-10-09

7.2 Conducted Emission Test 150kHz – 30MHz

EUT: KT700 VMI
Op Cond: Diagnostic and data transmitting
Test Spec: Power line, Live
Comment: AC 120V/60Hz





Product Service

Conducted Emission Test 150kHz – 30MHz

Date of test : 20 June 2013

Test requirement : FCC Part 15 Subpart B

Test method : FCC Part 15 Subpart B

Operating mode : Diagnostic and data transmitting

Tested on : Power Line, Live

Model No : KT700 VMI

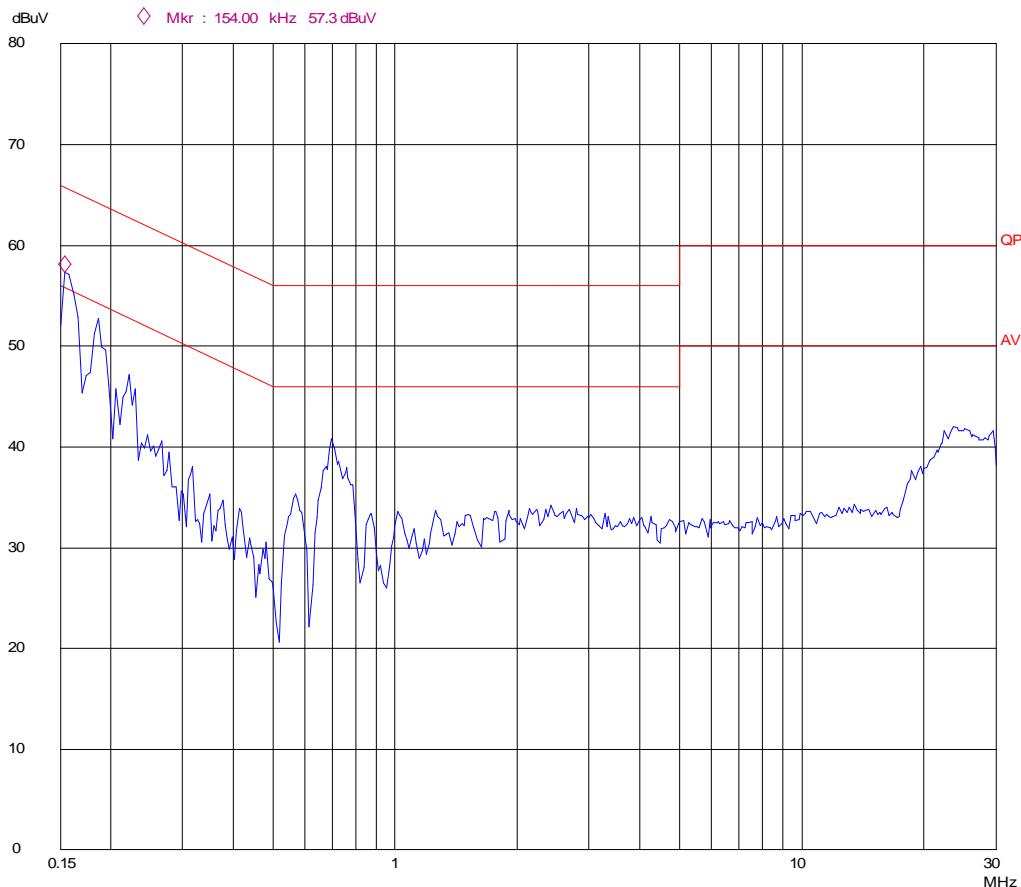
Test Result
 Passed
 Not Passed

Frequency MHz	QP Test result dB μ V	QP Limit dB μ V	Margin dB
0.162	55.8	65.4	9.6
0.198	47.0	63.7	16.7
0.698	38.0	56.0	18.0

Frequency MHz	AV Test result dB μ V	AV Limit dB μ V	Margin dB
0.162	44.8	55.4	10.6
0.198	34.1	53.7	19.6
0.698	33.9	46.0	12.1

Conducted Emission Test 150kHz – 30MHz

EUT: KT700 VMI
Op Cond: Diagnostic and data transmitting
Test Spec: Power line, Neutral
Comment: AC 120V/60Hz





Product Service

Conducted Emission Test 150kHz – 30MHz

Date of test : 20 June 2013

Test requirement : FCC Part 15 Subpart B

Test method : FCC Part 15 Subpart B

Operating mode : Diagnostic and data transmitting

Tested on : Power Line, Neutral

Model No : KT700 VMI

Test Result
 Passed
 Not Passed

Frequency MHz	QP Test result dB μ V	QP Limit dB μ V	Margin dB
0.154	55.0	65.8	10.8
0.186	48.8	64.2	15.4
0.699	38.0	56.0	18.0

Frequency MHz	AV Test result dB μ V	AV Limit dB μ V	Margin dB
0.154	44.1	55.8	11.7
0.186	37.6	54.2	16.6
0.699	33.9	46.0	12.1



Product Service

Test Equipment List

Conducted Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESCS30	100003	2014-01-20
AMN	Rohde & Schwarz	ESH3-Z5	100229	2014-01-20
AMN	Rohde & Schwarz	ENV216	100042	2014-01-20

8 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

Items		Extended Uncertainty
RE	Field strength (dB μ V/m)	U=4.60dB (30MHz-25GHz)
CE	Disturbance Voltage (dB μ V)	U=3.50dB(150KHz-30MHz)