



Product Service

## FCC - TEST REPORT

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

Model : **KT700 VMI**

Product Type : Vehicle Oscilloscope

Applicant : Bosch Automotive Diagnostics Equipment (Shenzhen) Limited

Address : 5/F,A, Garden City Cyber Port, Nanhai Road No.1079,  
Nanshan District, Shenzhen 518067 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, Shenzhen 518067 P.R. China

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including  
Appendices : 26

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## 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

#### 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					
Test Condition	Pages	Test Result			Test Site
		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



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## 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:

Prepared by:

Tested by:

Cookies Bu  
Senior EMC Project  
Engineer

Felix Li  
EMC Project Engineer

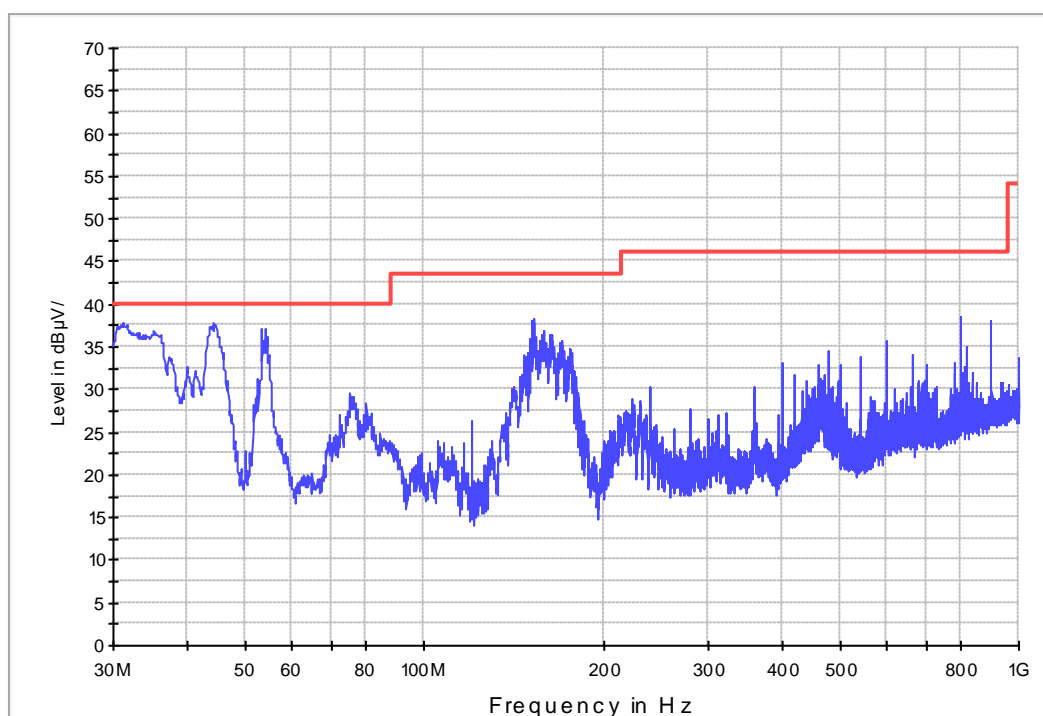
Eric Gao  
EMC Test Engineer

## 7 Emission Test Results

### 7.1 Radiated Emission Test 30MHz – 6000MHz

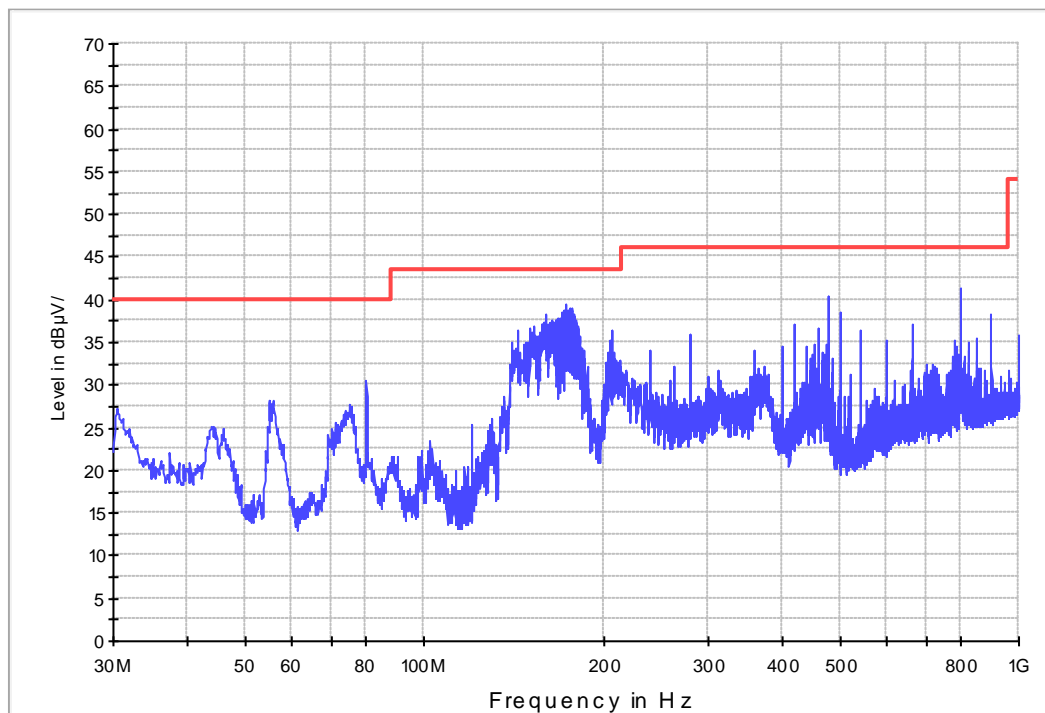
EUT: KT700 VMI  
Op Cond: Diagnostic and data transmitting  
Test Spec: Vertical and Horizontal, 30MHz-1GHz  
Comment: AC 120V/60Hz

Vertical  
Field strength 30M -1GHz



# Horizontal

Field strength 30M-1GHz



# 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 dBμV/m	Limit dBμV/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

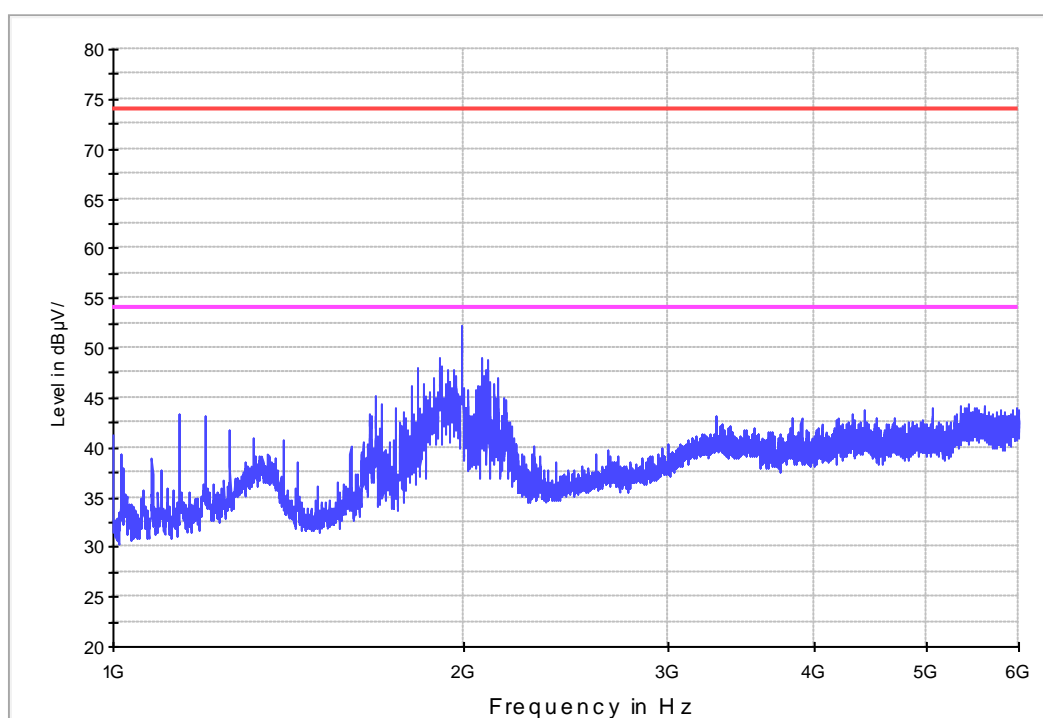
Frequency MHz	Vertical dBμV/m	Limit dBμV/m	Margin dB	Remark
173.463	39.4	43.5	4.1	QP
479.983	40.4	46.0	5.6	QP
800.083	41.3	46.0	4.7	QP

## 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

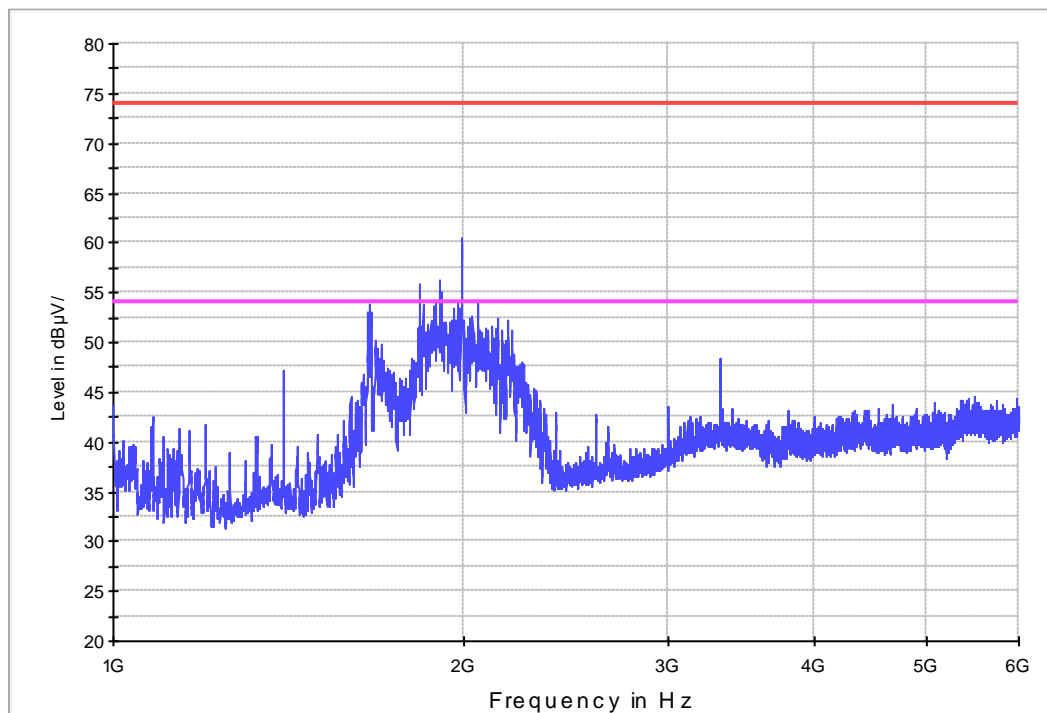
### Vertical

Field strength 1-6GHz



# Horizontal

## Field strength 1-6GHz



## 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

☒ Passed

☐ Not Passed

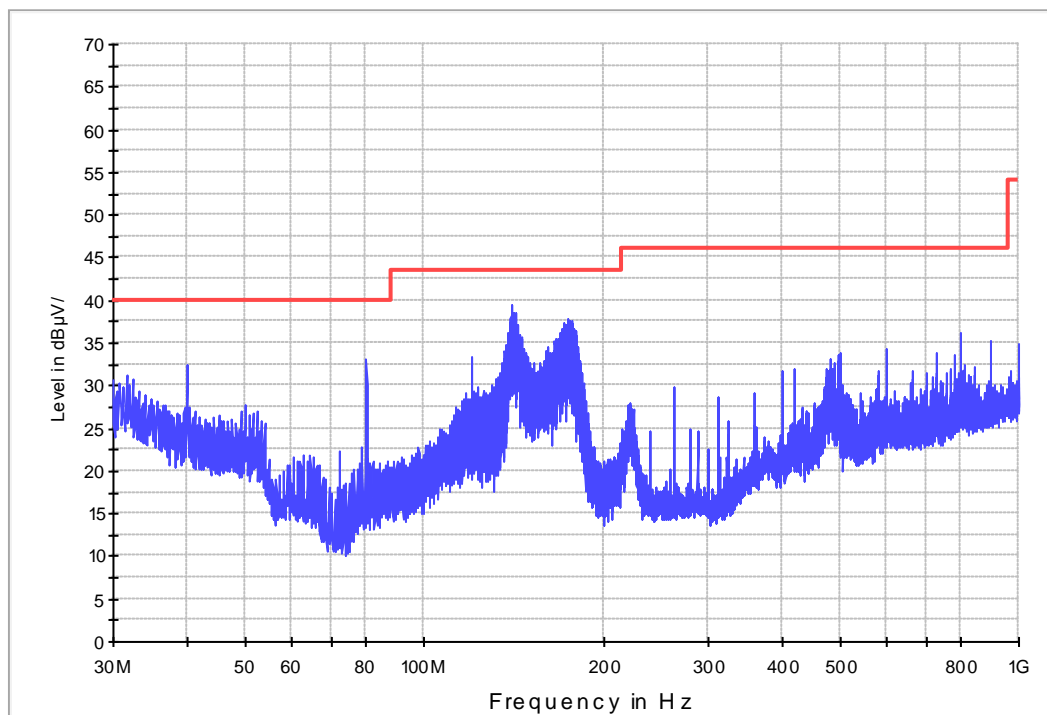
Frequency MHz	Vertical dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Remark
1992.5	56.5	74.0	17.5	Peak
1992.5	30.1	54.0	23.9	Average

Frequency MHz	Horizontal dB $\mu$ V/m	Limit dB $\mu$ 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

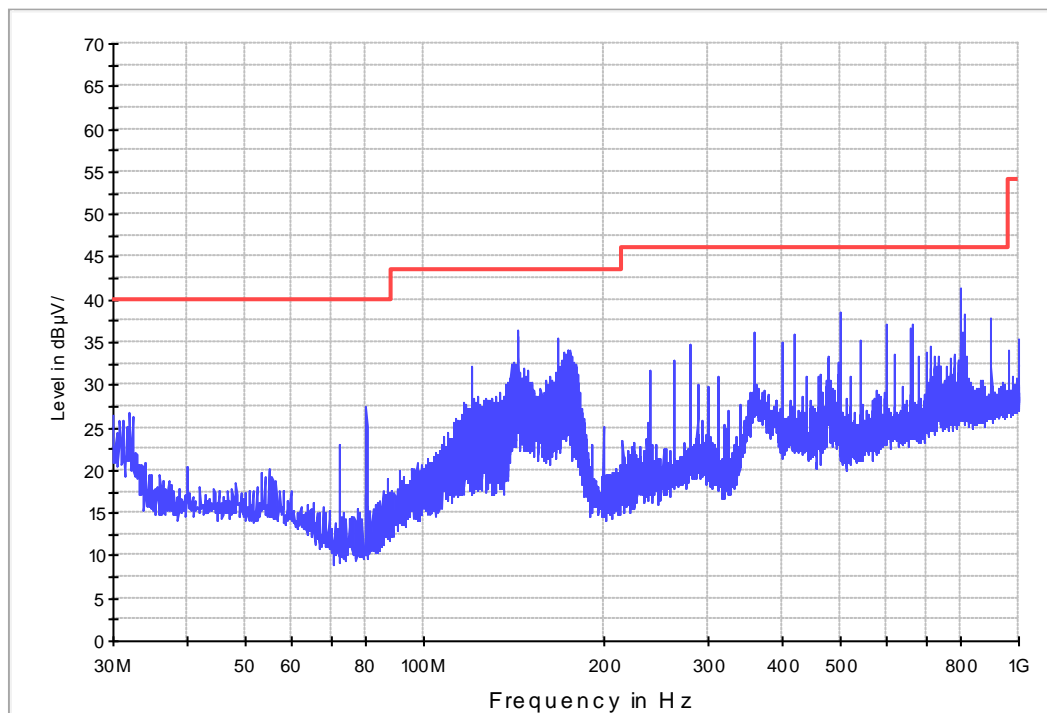
EUT: KT700 VMI  
 Op Cond: Diagnostic and data transmitting  
 Test Spec: Vertical and Horizontal, 30MHz-1GHz  
 Comment: DC 12V

Vertical  
 Field strength 30M-1GHz



## Horizontal

Field strength 30M-1GHz



# 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 $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Remark
140.927	39.4	43.5	4.1	QP
172.581	35.8	43.5	7.7	QP

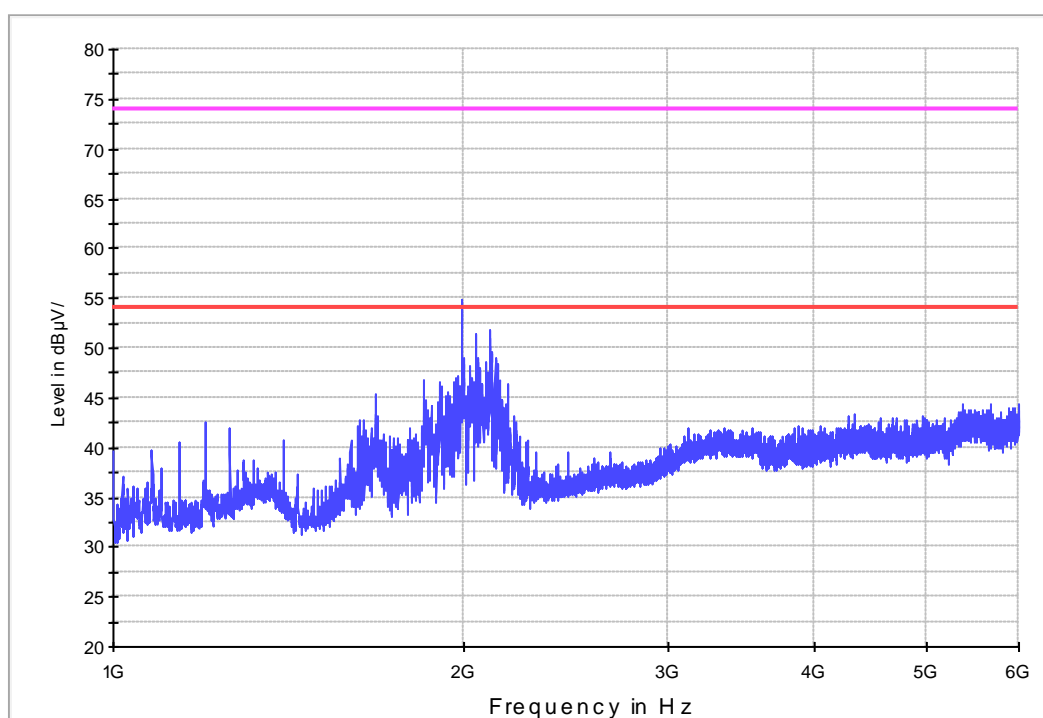
Frequency MHz	Horizontal dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Remark
144.21	33.4	43.5	10.1	QP
168.031	32.0	43.5	11.5	QP

## Radiated Emission Test 30MHz – 6000MHz

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

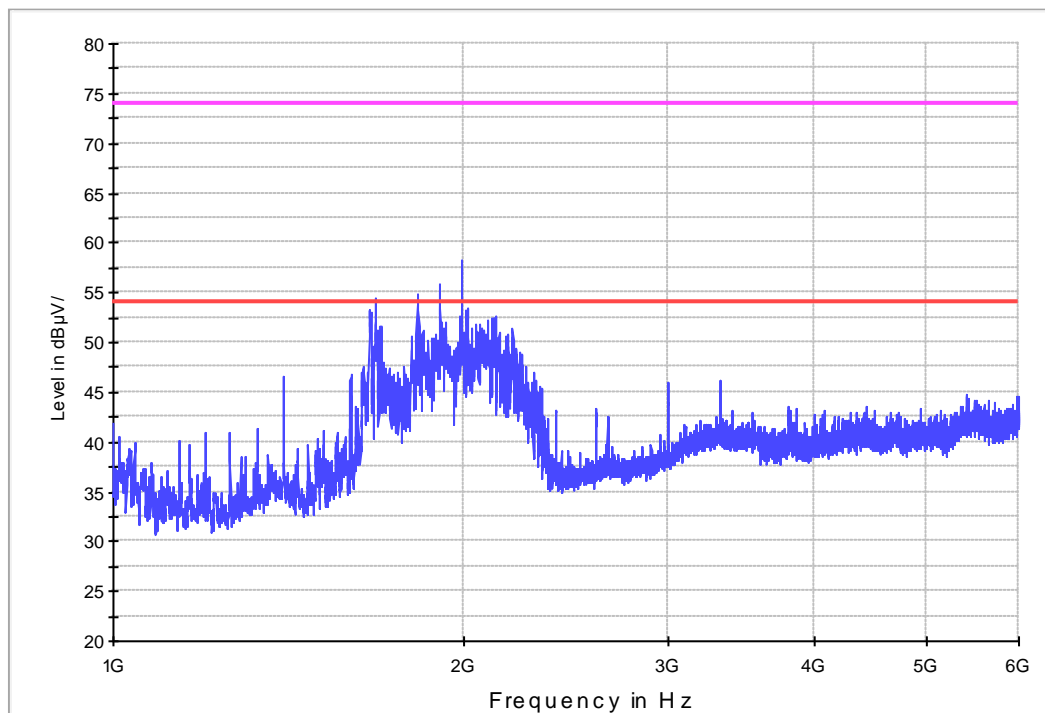
Vertical

Field strength 1-6GHz



# Horizontal

## Field strength 1-6GHz



## 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 dBμV/m	Limit dBμV/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 dBμV/m	Limit dBμV/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

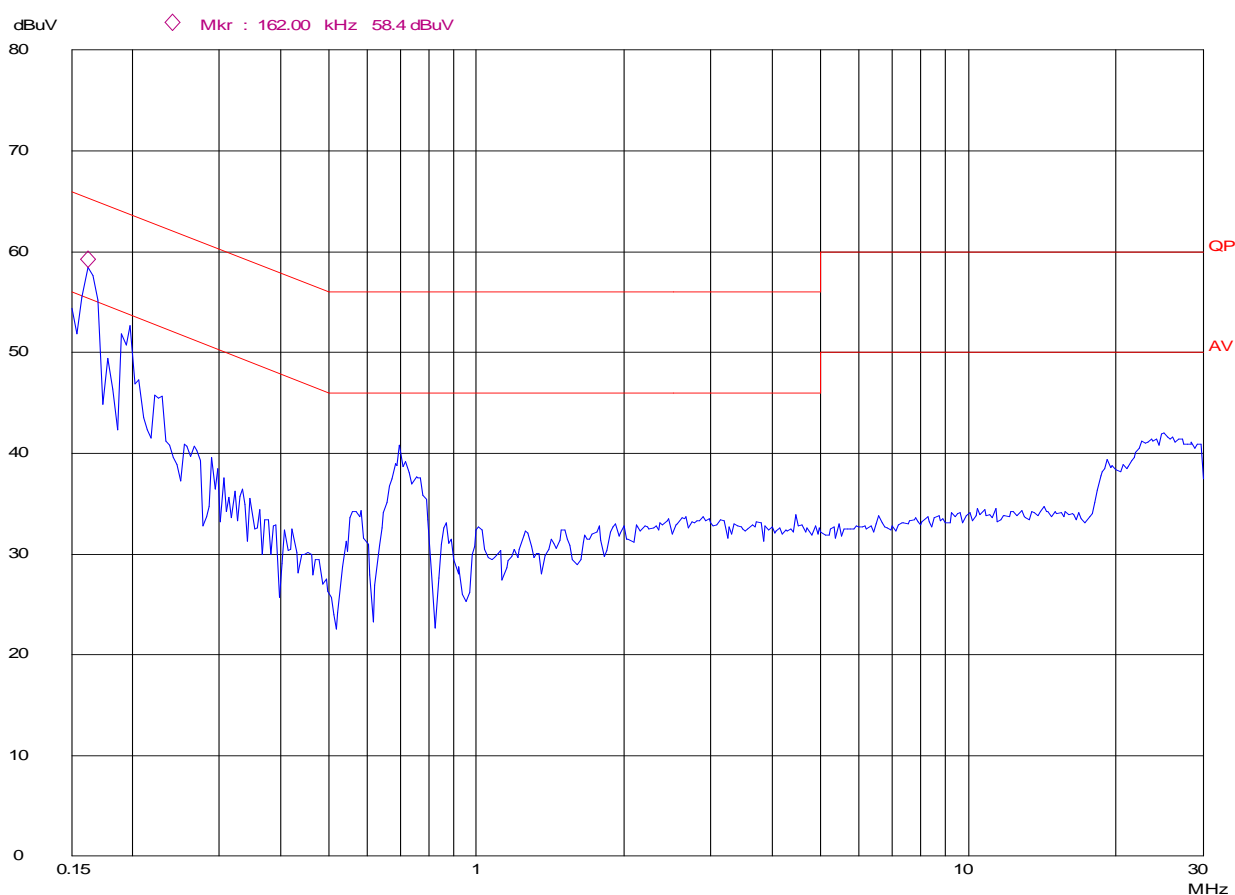
## Test Equipment List

### 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



## 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

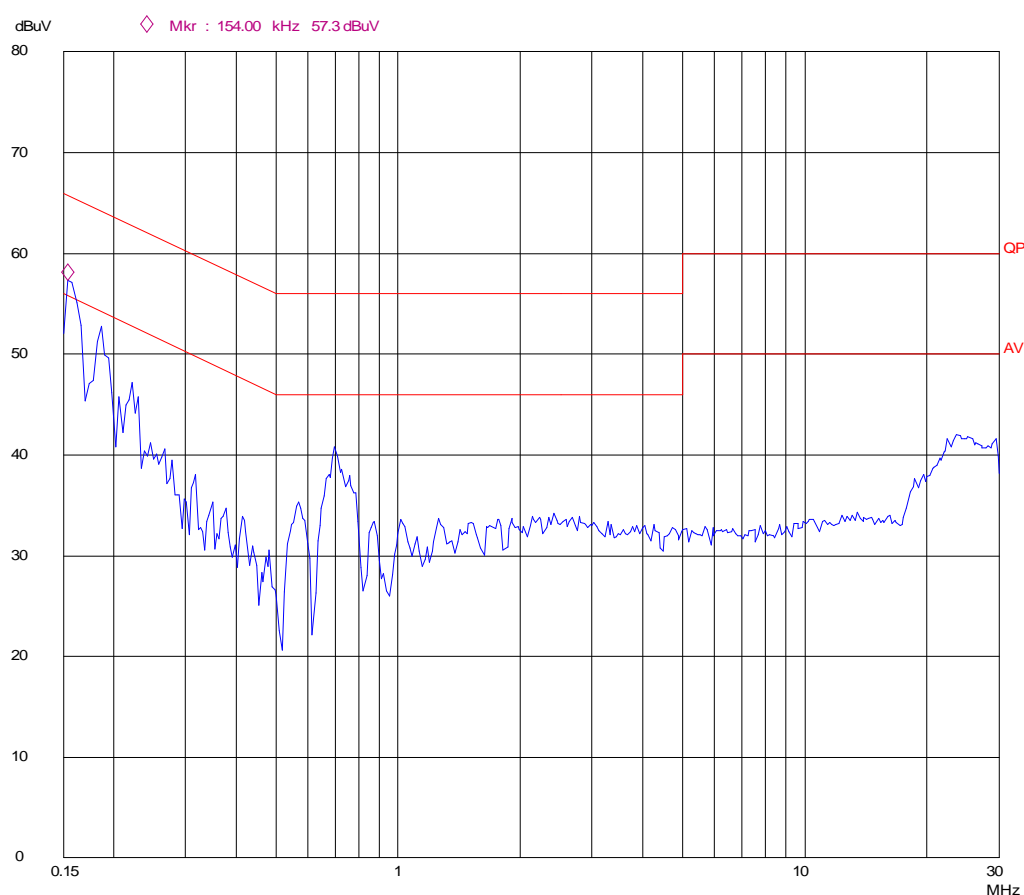
Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	QP Test result dBμV	QP Limit dBμV	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 dBμV	AV Limit dBμV	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



# 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	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	QP Test result dBμV	QP Limit dBμV	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 dBμV	AV Limit dBμV	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



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## 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 $\mu$ V/m)	U=4.60dB (30MHz-25GHz)
CE	Disturbance Voltage (dB $\mu$ V)	U=3.50dB(150KHz-30MHz)