Prüfbericht-Nr.: *Test Report No.:*	**10047233 001**	**Auftrags-Nr.:** *Order No.:*	114020736	Seite 1 von 23 *Page 1 of 23*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	April 3, 2014	
Auftraggeber: *Client:*	N.V. Nederlandsche Apparatenfabriek "Nedap" , Parallelweg 2, NL-7141 DC, Groenlo, The Netherlands			
Prüfgegenstand: *Test item:*	EAS system			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	Dynamic line			
Auftrags-Inhalt: *Order content:*	FCC and IC Test report for the 125 kHz portion			
Prüfgrundlage: *Test specification:*	FCC 47CFR Part 15: Subpart C Section 15.209 RSS-210 (12-2010) 2.5.1 NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2011)			

Wareneingangsdatum: *Date of receipt:*	4/8/2014
Prüfmuster-Nr.: *Test sample No.:*	A000079948-001
Prüfzeitraum: *Testing period:*	19-Jun-2014 - 24-Jun-2014
Ort der Prüfung: *Place of testing:*	EMC Laboratory Taipei
Prüflaboratorium: *Testing laboratory:*	TUV Rheinland Taiwan Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von / *tested by:*			**kontrolliert von** / *reviewed by:*		
2014-07-22	Ryan W. T. Chen / Project Engineer		2014-07-22	René Charton/Senior Project Manager	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT
RESULT: Passed

5.1.2 FIELD STRENGTH OF FUNDAMENTAL
RESULT: Passed

5.1.3 SPURIOUS EMISSION
RESULT: Passed

5.2.1 CONDUCTED EMISSIONS LINE AND NEUTRAL
RESULT: Passed

Contents

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Photo Documentation
(File Name: 10047233APPENDIX P)
Appendix D: Test Result of Radiated Emissions
(File Name: 10047233APPENDIX D)

Test Specifications
The following standards were applied (in bold: product standards, otherwise: basic standards).

Table 1: Applied Standard and Test Levels

Radio
FCC CFR47 Part 15: Subpart C Section 15. 209 RSS-Gen, RSS-210 ANSI C63.4 LP0002(2011)(100年6月28日)

2. Test Sites

2.1 Test Facilities

TUV Rheinland Taiwan Ltd.

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

FCC Registration No.: 365730
TAF Accredited NCC Test Lab. No.:0759
TAF ISO17025 Certification effective periods: 2013-Jul-1st to 2016-Jun-30th

Testing Laboratory
0759

2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	R&S	ESCI 7	101062	1-Sep-14
Bilog Antenna	TESEQ	CBL6111D	29802	29-Jun-14
Spectrum Analyzer	R&S	FSV 40	100921	10-Dec-14
Horn Antenna	ETS-Lindgren	3117	138160	10-Jan-15
Horn Antenna (18GHz~40GHz)	COM-POWER	AH840	101031	29-Oct-15
Preamplifier (30MHz -1GHz)	HP	8447F	2805A03335	2-Sep-14
Preamplifier (18 GHz -40 GHz)	COM-POWER	PAM-840	461257	2-Sep-14
Pre-Amplifier (1GHz~18GHz)	EM Electronics	EM30180	60558	23-Oct-14
Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	28-Sep-14
EMI Test Receiver	R&S	ESCI	101094	29-Aug-14
LISN (1 phase)	R&S	ENV216	101243	30-May-15
LISN	Rolf Heine	NNB-2/16Z	99080	30-Aug-14

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are ±3dB.

Table 3: Emission Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-7}
RF power, conducted	± 1.5 dB
Adjacent channel power	± 3 dB
Radiated emission of transmitter, valid up to 26 GHz	± 6 dB
Radiated emission of receiver, valid up to 26 GHz	± 6 dB
Temperature	± 2 ºC
Humidity	± 10 %

3. General Product Information

3.1 Product Function and Intended Use

The EUT is an Electronic Article Surveillance System working in the 8 MHz Band. Additionally there is a metal detector that works at 125 kHz. In the Basic Configuration there is one TX Antenna with the TX module, and one RX Antenna with a Rx module. The system is powered by the NCC and the Power Inserter. This report relates to the 125kHz portion of the device.
For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Table 4: Basic Information of EUT

Item	**EUT information**
Kind of Equipment	EAS system
Type Designation	Dynamic line
Brand Name	NEDAP
FCC ID	CGDXQMK2UL IC Can ID: 1444A-XQMK2UL

Table 5: Technical Specification of EUT

Item	Value
Operating Frequencies	125 kHz
Channel number	Continuous Wave
Operation Voltage	120V
Modulation	Continuous Wave

3.3 Independent Operation Modes

Basic operation modes are:

A. Transmitting
   1. Low channel
   2. Middle channel
   3. High channel

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Setup for testing: Test samples are provided with a Data interface which makes it possible to control them through a test software installed on a notebook computer.

4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Kind of Equipment	Manufacturer	Model Name	S/N
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4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

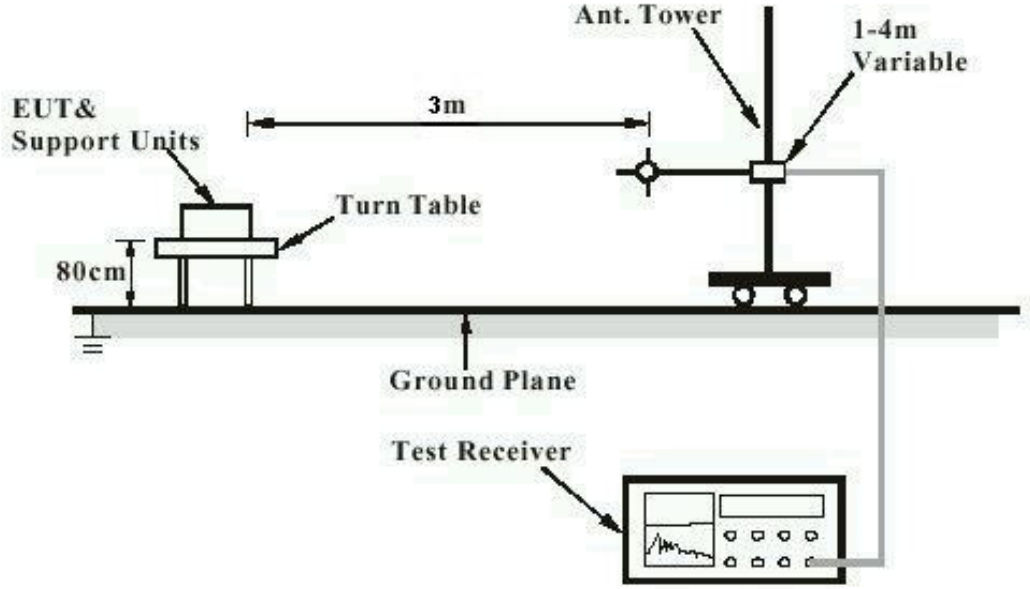
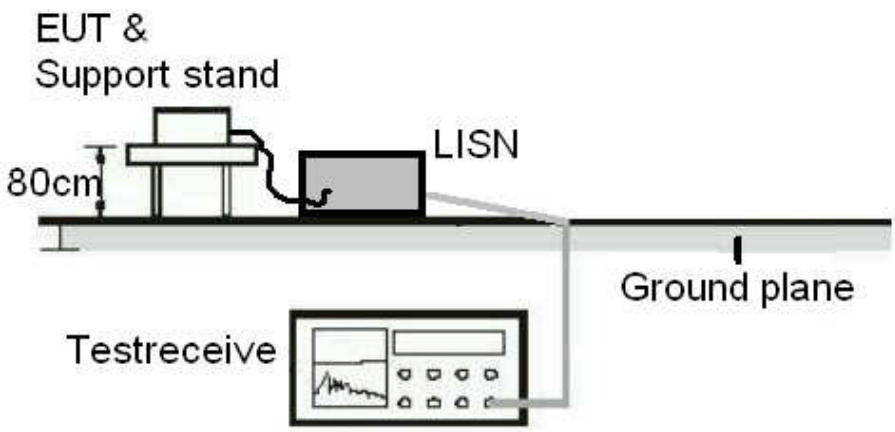


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Passed**

Standard	:	LP0002(2011): 2.2 Part 15.203 and RSS-Gen 7.1.4
Requirement	:	use of approved antennas only

The antenna and the transmitter are one assembly with no possibility of replacement with a non-approved antenna by a normal the end-user. Therefore, the EUT is considered to comply with this provision.

Refer to EUT photo for details.

5.1.2 Field strength of fundamental

RESULT: **Passed**

Test standard	:	FCC Part 15.209 RSS-210 (12-2010) 2.5.1 LP0002(2011) 3.3.1
Basic standard	:	ANSI C63.10:2009

Test setup

Test Channel	:	12
Operation Mode	:	A
Atmospheric pressure	:	100-103 kPa

Table 6: Field strength of fundamental, maximal level found

Frequency (kHz)	Level(3m) (dBuV/m)	Detector	Limit(3m) (dBuV/m)	Level(300m) (dBuV/m)	Limit(300m) (dBuV/m)	Remark	Result
125	<83.19	average	125.67	<3.19	45.67	Antenna model:PG39U	Pass
125	83.19	peak	105.67	3.19	25.67	Antenna model:PG39U	Pass

Remark: For details refer to Appendix D

5.1.3 20dB Bandwidth

RESULT: **Passed**

Test standard	:	RSS Gen
Basic standard	:	ANSI C63.10:2009,
Kind of test site	:	Semi-Anechoic Chamber

Test setup

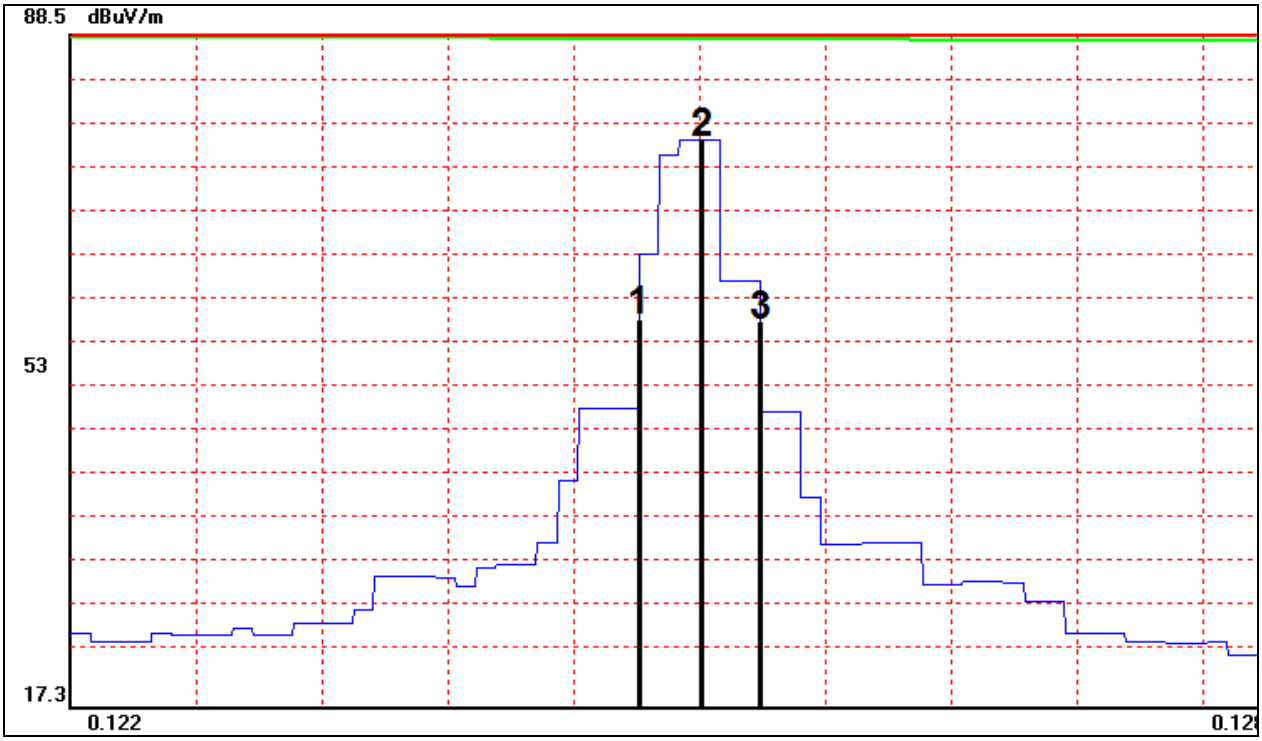
Test Channel	:	Middle
Operation Mode	:	A

Atmospheric pressure	:	100-103 kPa

Table 7: Test result of 20dB Bandwidth

Channel	Channel Frequency (kHz)	20dB Bandwidth (kHz)	
Mid Channel	125	0.6	

Test Plot of 20dB BW



Service No.:	**114020736**	**Test Distance:**	**3m**
Test Standard:		**Ant. Polarization:**	
Test item:	**Radiation Emission**	**Test Time:**	**2014/6/5**
Applicant:	**NEDAP**	**Test Rating:**	**AC 120V/60Hz**
Product:	**Dynamic Line**	**Temp.(℃)/Hum.(%):**	**25.5(℃)/53%**
Model No.:	**XQMK2UL**	**Test Engineer:**	**Freeman Wang**
Test Mode:	**TX**		
Remark:	**Antenna model:PG27U**		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (◦)	Remark
1	0.1247			57.30			peak			
2	0.1250			77.28			peak			
3	0.1253			57.30			peak			

5.1.4 Spurious Emission

RESULT: **Passed**

Test standard	:	FCC part 15.209 RSS-Gen LP0002(2011) 2.8
Basic standard	:	ANSI C63.10: 2009
Limits	:	Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) OR LP0002 must comply with the radiated emission limits specified in FCC 15.209(a) AND 2.8 Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in FCC 15.209(a) AND 2.8
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation mode	:	A

Remark: Testing was carried out within frequency range 9kHz to 1 GHz.

For details refer to Appendix D.

5.2 Mains Conducted Emissions

5.2.1 Conducted Emissions Line and Neutral

RESULT: **Passed**

Test standard	:	FCC Part 15.207 FCC Part 15.107 RSS-Gen LP0002: 2.3
Limits	:	Mains Conducted emissions as defined in LP0002: 2.3 , must comply with the mains conducted emission limits specified in LP0002: 2.3
Kind of test site	:	Shielded Room

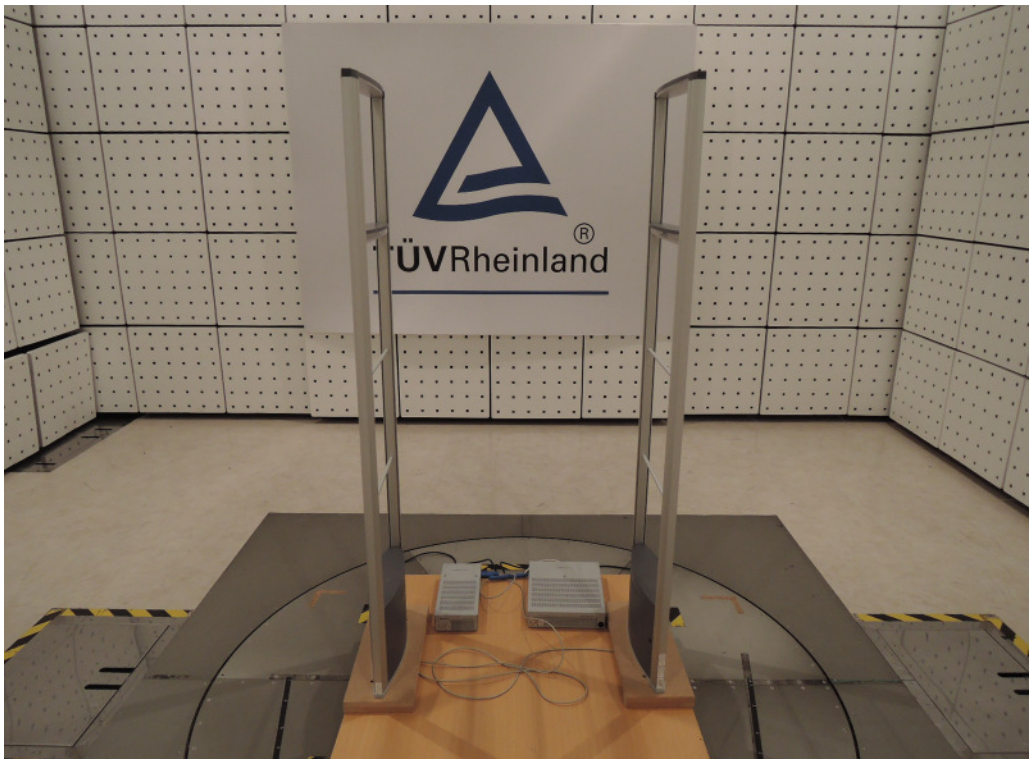
Test setup

Test Channel	:	Middle
Operation mode	:	A

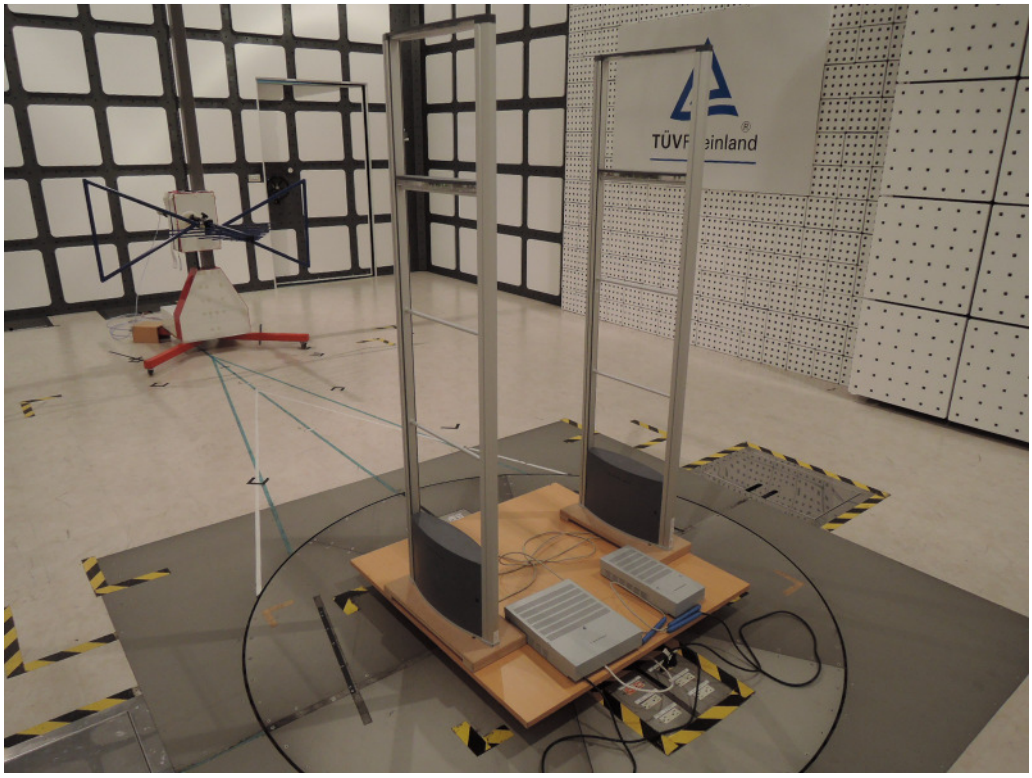
Remark: For details refer to Appendix D.

6. Photographs of the Test Set-Up

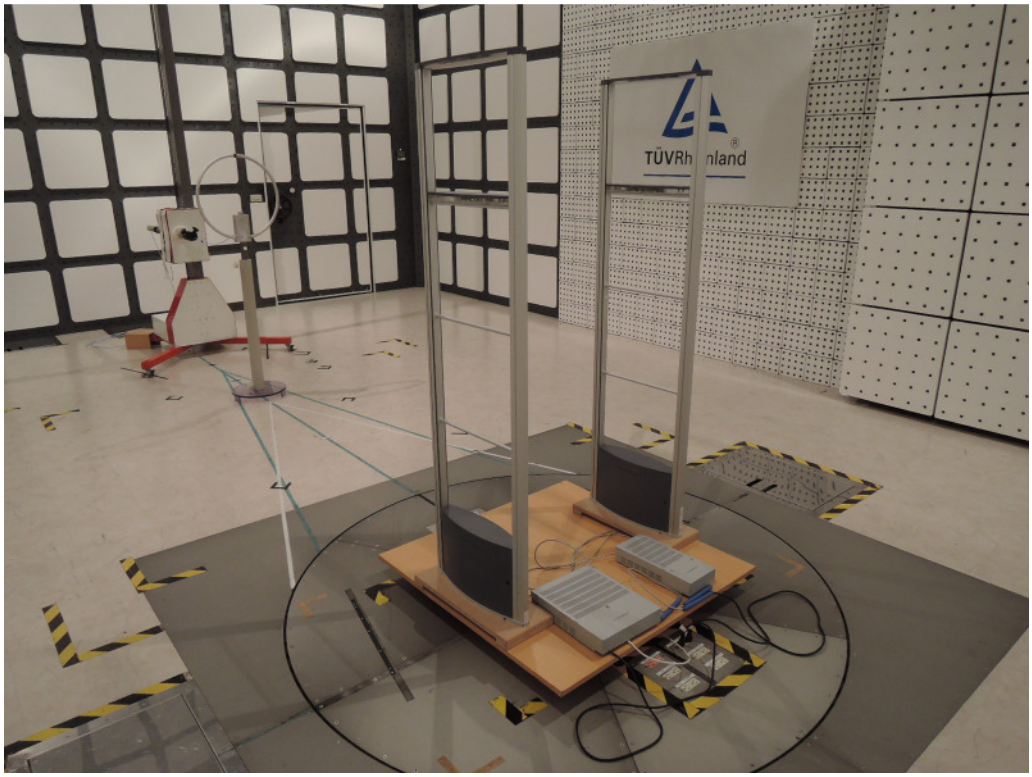
Photograph 1: Set-up for Spurious Emissions TX (Front View)



Photograph 2: Set-up for Spurious Emissions (Back View 1)



Photograph 3: Set-up for Spurious Emissions (Back View 2)



Photograph 4: Set-up for for Mains Conducted testing Back

Photograph 5: Set-up for for Mains Conducted testing Front

7. List of Tables

8. List of Photographs