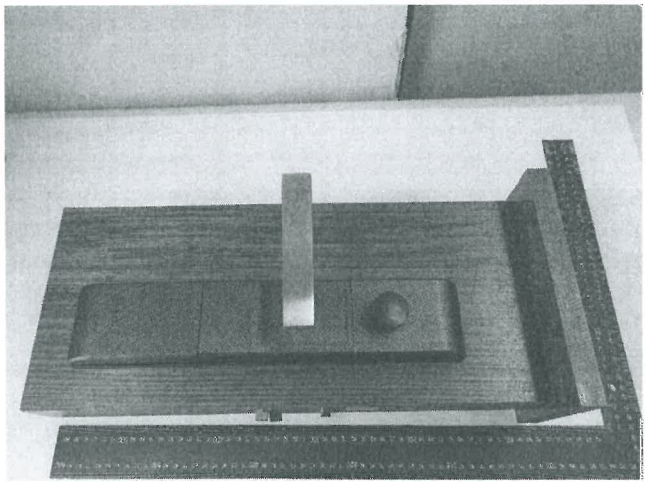


<b>Prüfbericht-Nr.:</b> Test Report No.:	<b>10054947 001</b>	<b>Auftrags-Nr.:</b> Order No.:	<b>114045559</b>	Seite 1 von 20 Page 1 of 20
<b>Kunden-Referenz-Nr.:</b> Client Reference No.:	<b>N/A</b>	<b>Auftragsdatum:</b> Order date:	<b>7-Jan-2016</b>	
<b>Auftraggeber:</b> Client:	瑋俐實業股份有限公司 / 新北市新店區民權路 42 巷 59 弄 2 號 1 樓 Weider Metal Inc. / No. 2, Alley 59, Lane 42, MinChiuan Road, TW-231 ShinDian District, New Taipei City Taiwan, R.O.C.			
<b>Prüfgegenstand:</b> Test item:	數位電子氣密防火門禁馬達鎖 (with RFID function) WEIDER WDEL-9800 Digital sound insulation fire door motor lock			
<b>Bezeichnung / Typ-Nr.:</b> Identification / Type No.:	<b>WDEL-9800</b>			
<b>Auftrags-Inhalt:</b> Order content:	<b>NCC LP0002 / FCC Part 15C Test report</b>			
<b>Prüfgrundlage:</b> Test specification:	NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2011) FCC 47CFR Part 15: Subpart C Section 15.225			
<b>Wareneingangsdatum:</b> Date of receipt:	<b>26-Jan-2016</b>			
<b>Prüfmuster-Nr.:</b> Test sample No.:	<b>A000307087-001</b>			
<b>Prüfzeitraum:</b> Testing period:	<b>28-Jan-2016 - 4-Feb-2016</b>			
<b>Ort der Prüfung:</b> Place of testing:	<b>EMC/RF Laboratory Taipei</b>			
<b>Prüflaboratorium:</b> Testing laboratory:	<b>TUV Rheinland Taiwan Ltd.</b>			
<b>Prüfergebnis*:</b> Test result*:	<b>Pass</b>			
<b>Report date / tested by:</b>		<b>kontrolliert von / reviewed by:</b>		
2016-03-15 Arvin Ho/Department Manager Datum Name / Stellung Unterschrift Date Name / Position Signature		2016-03-15 Rene Charton/Senior Project Manager Datum Name / Stellung Unterschrift Date Name / Position Signature		
<b>Sonstiges / Other:</b>				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> Condition of the test item at delivery:		<b>Prüfmuster vollständig und unbeschädigt</b> 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				
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

V04

## TEST SUMMARY

### **5.1.1 ANTENNA REQUIREMENT**

*RESULT: Passed*

### **5.1.2 FIELD STRENGTH OF FUNDAMENTAL**

*RESULT: Passed*

### **5.1.3 FREQUENCY STABILITY**

*RESULT: Passed*

### **5.1.4 SPURIOUS EMISSION**

*RESULT: Passed*

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## 1. General Remarks

### 1.1 Complementary Materials

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

**Appendix P: Photo Documentation**

(File Name: 10054947APPENDIX P)

**Appendix D: Test Result of Radiated Emissions**

(File Name: 10054947APPENDIX D)

**Test Specifications**

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

**Table 1: Applied Standard and Test Levels**

<b>Radio</b>
FCC CFR47 Part 15: Subpart C Section 15.225 ANSI C63.10:2013 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  
IC Canada Registration No.: 9465A-1  
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	Last Calibration	Next Calibration
EMI Test Receiver	R&S	ESR7	101062	10-Sep-15	19-Sep-16
Bilog Antenna	TESEQ	CBL6111D	29802	4-Jul-14	3-Jul-16
Spectrum Analyzer	R&S	FSV 40	100921	21-Dec-15	21-Dec-16
Spectrum Analyzer	Agilent	N9010A	MY53470241	1-Apr-15	30-Mar-16
Horn Antenna	ETS-Lindgren	3117	138160	12-Jan-15	11-Jan-17
Horn Antenna (18GHz~40GHz)	COM-POWER	AH840	101031	22-Oct-15	21-Oct-17
Preamplifier (30MHz -1GHz)	HP	8447F	2805A03335	31-Aug-15	31-Aug-16
Preamplifier (18 GHz -40 GHz)	COM-POWER	PAM-840	461257	26-Aug-14	26-Aug-16
Pre-Amplifier (1GHz~18GHz)	EM Electronics	EM30180	60558	4-Nov-15	3-Nov-16
Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	21-Oct-14	20-Oct-16
EMI Test Receiver	R&S	ESCI7	100797	28-Dec-15	27-Dec-16
Spectrum Analyzer	R&S	FSL3	101943	7-Sep-15	7-Sep-16
Temp. & Humid. Chamber	Giant Force	GCT-099-40-S	MAF0103-007	13-Jul-15	12-Jul-16
LISN (1 phase)	R&S	ENV216	101243	1-Jun-15	31-May-16
LISN	R&S	ENV216	101262	16-Jun-15	15-Jun-16
Power sensor	Agilent	U2021XA	MY53480013	11-Mar-15	9-Mar-16
Signal Generator	R&S	SMU200	104260	6-Sep-15	5-Sep-16

## 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 basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are  $\pm 3\text{dB}$ .

**Table 3: Emission Measurement Uncertainty**

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF power, conducted	$\pm 1.5 \text{ dB}$
Adjacent channel power	$\pm 3 \text{ dB}$
Radiated emission of transmitter, valid up to 26 GHz	$\pm 6 \text{ dB}$
Radiated emission of receiver, valid up to 26 GHz	$\pm 6 \text{ dB}$
Temperature	$\pm 2 \text{ }^{\circ}\text{C}$
Humidity	$\pm 10 \text{ \%}$

### **3. General Product Information**

#### **3.1 Product Function and Intended Use**

The EUT is a Digital sound insulation fire door lock, working at 13.56 MHz with RFID function.  
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	數位電子氣密防火門禁馬達鎖(with RFID function) WEIDER WDEL-9800 Digital sound insulation fire door motor lock
Type Designation	WDEL-9800
Brand Name	WEIDER METAL INC
FCC ID	2AHAE-WDEL-9800

**Table 5: Technical Specification of EUT**

Technical Specification	Value
Operating Frequency	13.56 MHz
Operation Voltage	6V
Extreme Voltage Range	4.4V~24V
Modulation	AM
Antenna Type	Integrated Antenna

### **3.3 Independent Operation Modes**

Basic operation modes are:

- A. Transmitting

### **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 special firmware which provides the test modes.

### **4.3 Special Accessories and Auxiliary Equipment**

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

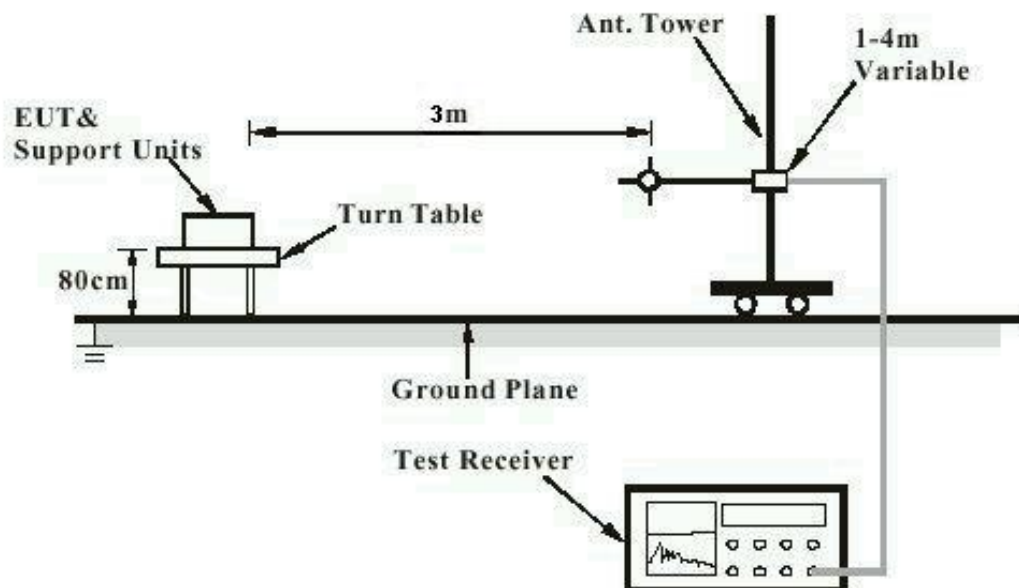
N/A

## 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



## 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 is Integrated Antenna with no possibility of replacement with a non-approved antenna by 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 : LP0002(2011) 3.2  
 FCC Part 15.225  
 RSS-210 A2.6

Basic standard : ANSI C63.10:2009

### Test setup

Test Frequency : 13.56 MHz  
 Operation Mode : A

The Emission Mask for NCC LP0002 is more strict than the emission mask for FCC Part 15.225 and RSS-210 A2.6. The device can fulfil the NCC LP0002 requirements, therefore only the emission mask for NCC LP0002 is shown in the table below.

**Table 6: Test result of Field strength of fundamental and modulation sidebands**

Frequency (MHz)	Test Result	Detector	Limits		Pass/Fail
	$\text{dB}\mu\text{V/m}$ @1.2m		$\text{dB}\mu\text{V/m}$ @1.2m	$\text{dB}\mu\text{V/m}$ @30m	
< 13.553	< 35	peak	85.44	29.54	Pass
13.560	72.50	QP	135.9	80	Pass
> 13.567	< 35	peak	85.44	29.54	Pass

**Show booth FCC and NCC plot in appendix**

For details refer to Appendix D.

### 5.1.3 Frequency Stability

**RESULT:**
**Passed**

Test standard : LP0002(2011) 3.2.1(3)  
 FCC Part 15. 225(e)  
 RSS-210 A2.6

Basic standard : ANSI C63.10:2009  
 Kind of test site : Shielded room

**Test setup**

Test Frequency : 13.56 MHz  
 Operation Mode : A

Relative humidity : 50-65 %  
 Atmospheric pressure : 100-103 kPa

**Table 7: Test result of Frequency Stability**

Fundamental frequency (MHz)	Temperature (°C)	Voltage	Measurement frequency (MHz)	Frequency Error (ppm)	Limit ±0.01%
13.56	-20	Normal	13.560266	19.62	±100ppm
	-10	Normal	13.560264	19.47	
	0	Normal	13.560266	19.62	
	10	Normal	13.560266	19.62	
	20	85%	13.560270	19.91	
	20	Normal	13.560270	19.91	
	20	115%	13.560270	19.91	
	30	Normal	13.560266	19.62	
	40	Normal	13.560266	19.62	
	50	Normal	13.560266	19.62	

### 5.1.4 Spurious Emission

**RESULT:****Passed**

Test standard	:	LP0002(2011) 3.2.1(2) FCC part 15.209 FCC part 15.225 RSS-210 A2.6
Basic standard	:	ANSI C63.10: 2009
Limits	:	The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in § 15.209. RSS-210: 30 microvolts/m (29.5 dBµV/m) at 30 m, outside the band 13.110-14.010 MHz.
Kind of test site	:	3m Semi-Anechoic Chamber

**Test setup**

Operation mode	:	A
----------------	---	---

Remark: Testing was carried out within frequency range 9kHz 30MHz to the tenth harmonic.

For details refer to Appendix D.

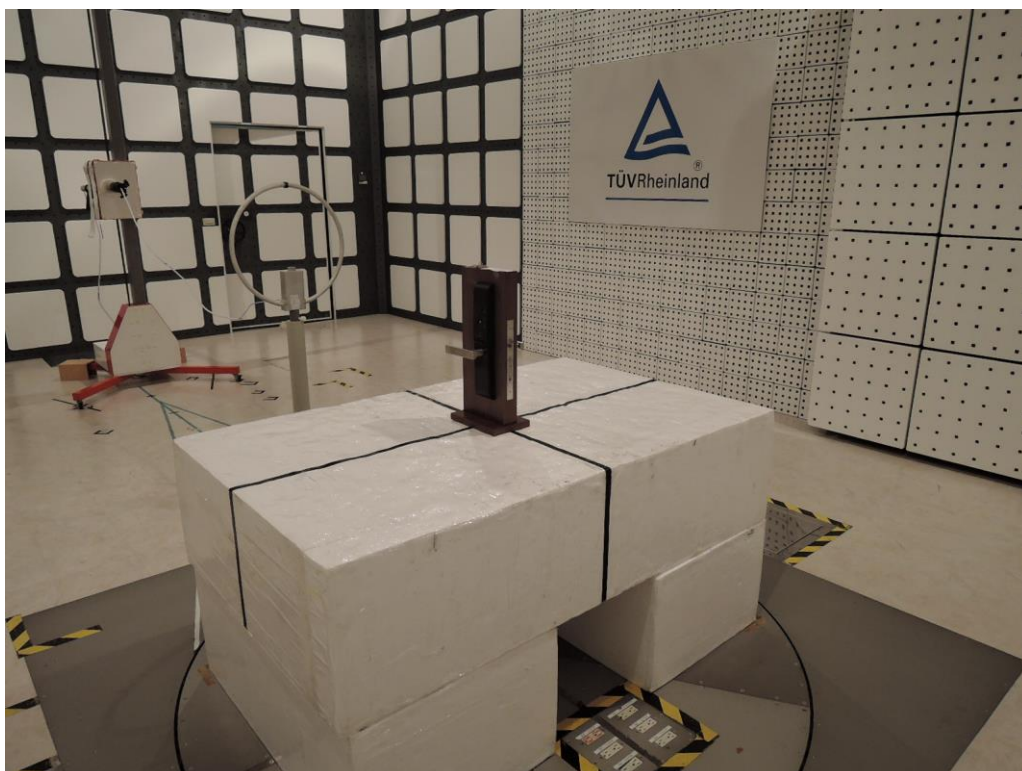


## 6. Photographs of the Test Set-Up

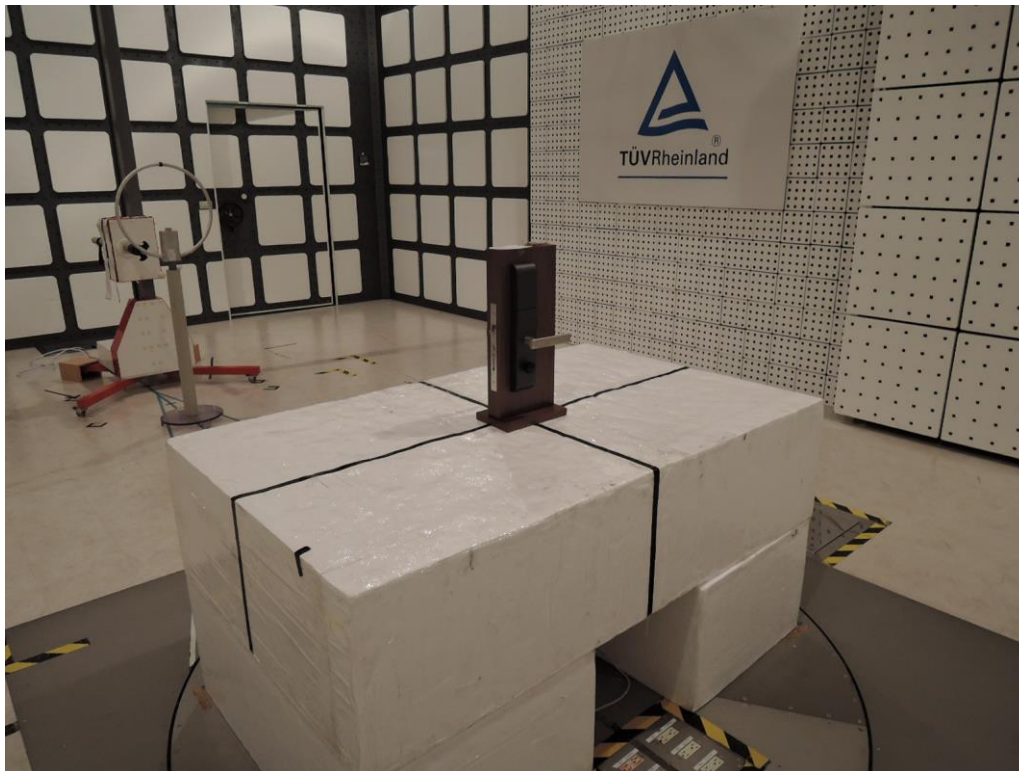
**Photograph 1: Set-up for Radiated Emissions (Front View)**



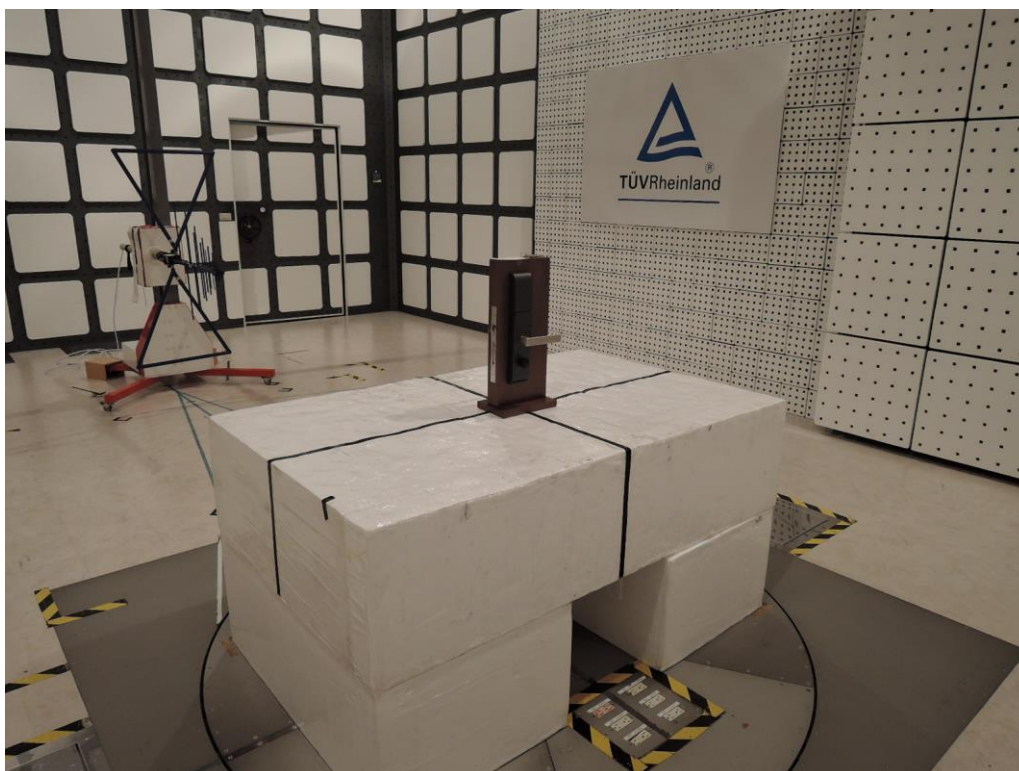
**Photograph 2: Set-up for Fundamental Emissions (Back View)**



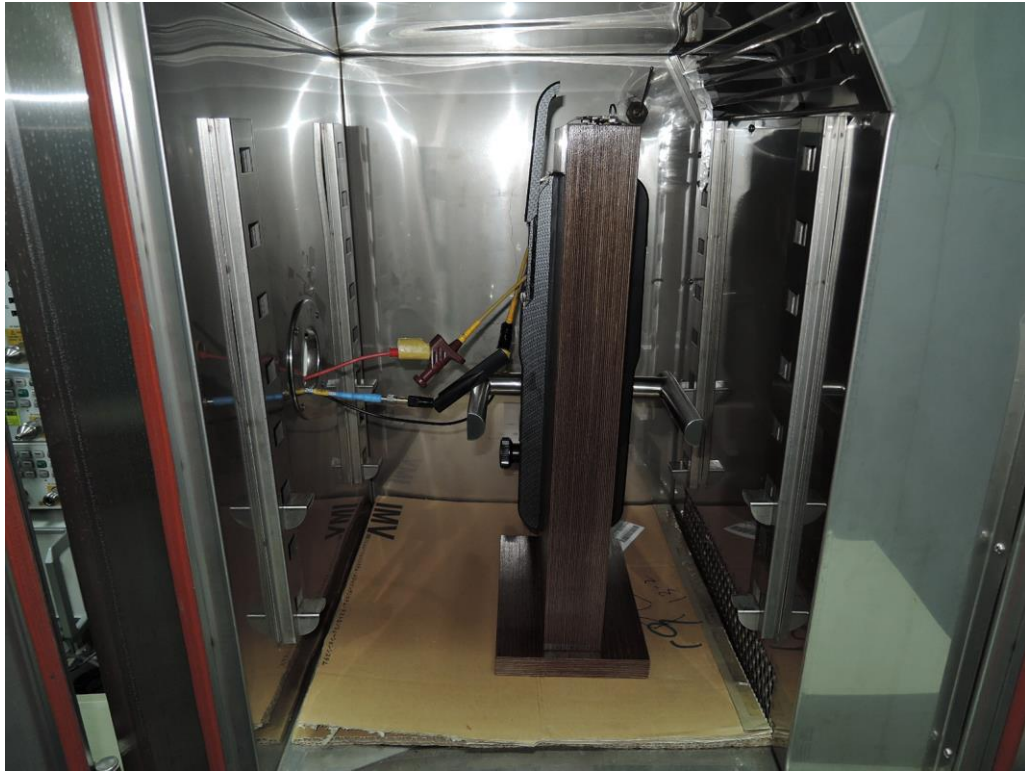
**Photograph 3: Set-up for Spurious Emissions (Back View 1)**



**Photograph 4: Set-up for Spurious Emissions (Back View 2)**



**Photograph 5: Set-up for Conducted testing**





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