Prüfbericht-Nr.: *Test Report No.:*	**10054997 001**	**Auftrags-Nr.:** *Order No.:*	114045396	Seite 1 von 28 *Page 1 of 28*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	6-Jan-2016	
Auftraggeber: *Client:*	Media Vision USA, 1078 60th Street,Oakland California United States 94608			
Prüfgegenstand: *Test item:*	Stationary Transmitter			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	MV-ALS-STFM			
Auftrags-Inhalt: *Order content:*	FCC Part 15C Test report			
Prüfgrundlage: *Test specification:*	FCC 47CFR Part 15: Subpart C Section 15.237			

Wareneingangsdatum: *Date of receipt:*	12-Jan-2016
Prüfmuster-Nr.: *Test sample No.:*	A000318671-001
Prüfzeitraum: *Testing period:*	15-Jan-2016 - 25-Aug-2016
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:*		
2016-08-26	Ryan W. T. Chen / Project Manager		2016-08-26	Rene Charton/Senior Project Manager	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*
This device includes two types of Antenna :
A. MV-ALS-AT01 (Helical Antenna).
B. MV-ALS-AT02 (Remote Dipole Antenna)

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *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 20DB BANDWIDTH
RESULT: Passed

5.1.4 SPURIOUS EMISSION
RESULT: Passed

5.2.1 CONDUCTED EMISSIONS LINE AND NEUTRAL
RESULT: Passed

Contents

1. General Remarks

1.1 Complementary Materials

These attachments are integral parts of this test report.
Appendix P: Photo Documentation
(File Name: 10054997APPENDIX P)
Appendix D: Test Result of Radiated Emissions
(File Name: 10054997APPENDIX D)

Test Specifications
The following standards were applied.

Table 1: Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart C Section 15.237 RSS-210 Issue 8, December 2010 RSS-Gen, Issue 4, November 2014 ANSI C63.10:2013

2. Test Sites

2.1 Test Laboratory

TUV Rheinland Taiwan Ltd.
Taichung Branch Office

No.9, Lane 36, Minsheng Rd., Sec. 3, Daya District,
Taichung City 428
Taiwan (R.O.C.)

2.2 Test Facility

TUV Rheinland Taiwan Ltd.
Taipei Office

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

FCC RegistrationNo.: 799772
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

2.3 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

2.4 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.

2.5 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.

2.6 Measurement Uncertainty

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

Table 3: Emission Measurement Uncertainty

Parameter	Uncertainty
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 a auditory assistance transmitter. It contains a 72MHz compatible module enabling the user to communicate data through a Wireless interface.
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	Stationary Transmitter
Type Designation	MV-ALS-STFM
FCC ID	2AHER-MVALSSTFM

Table 5: Technical Specification of EUT

Technical Specification	Value
Operating Frequency Band	72-73 MHz, 74.6-74.8 MHz ,75.2-76.0 MHz
Channel Spacing	Wide Band: 200kHz,Narrow band:50kHz
Channel number	Wide Band:17 channels ,Narrow Band:40 channels
Operation Voltage	12V
Modulation	FM

Table 6: Test Channel Frequency information

Band Modulation	Operating Frequency Band	CH	Frequency (MHz)
Wide band	72-73 MHz	A	72.1
		B	72.3
		C	72.5
		D	72.7
		E	72.9
		K	72.2
		N	72.4
		O	72.6
		P	72.8
	74.6-74.8 MHz	I	74.7
	75.2-76.0 MHz	F	75.5
		G	75.7
		H	75.9
		J	75.3
		R	75.4
		S	75.6
		T	75.8
Narrow Band	72-73 MHz	1	72.025
		2	72.075
		3	72.125
		4	72.175
		5	72.225
		6	72.275
		7	72.325
		8	72.375
		9	72.425
		10	72.475
		11	72.525
		12	72.575
		13	72.625
		14	72.675
		15	72.725
		16	72.775
		17	72.825
		18	72.875
		19	72.925
		20	72.975
	74.6-74.8 MHz	33	74.625
		34	74.675
		35	74.725
		36	74.775
	75.2-76.0 MHz	21	75.425
		22	75.475
		23	75.525
		24	75.575
		25	75.625
		26	75.675
		27	75.725
		28	75.775
		29	75.825
		30	75.875
		31	75.925
		32	75.975
		37	75.225
		38	75.275
		39	75.325
		40	75.375

3.3 Independent Operation Modes

Basic operation modes are:

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

B. Receiving
   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 control plane interface which makes it possible to control them directly.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed in section 3.3 as appropriate.

Full test was applied on all test modes, but only worst case was shown.

4.3 Special Accessories and Auxiliary Equipment

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

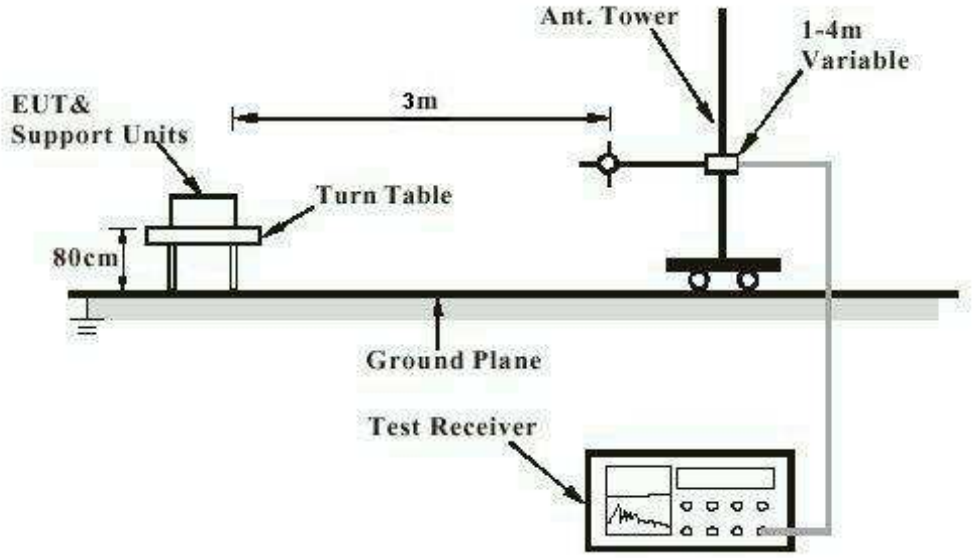
Description	Manufacturer	Model No.	Serial No.
Notebook(EMC-06)	Lenovo	TP00048A	PB-0F8B2

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.

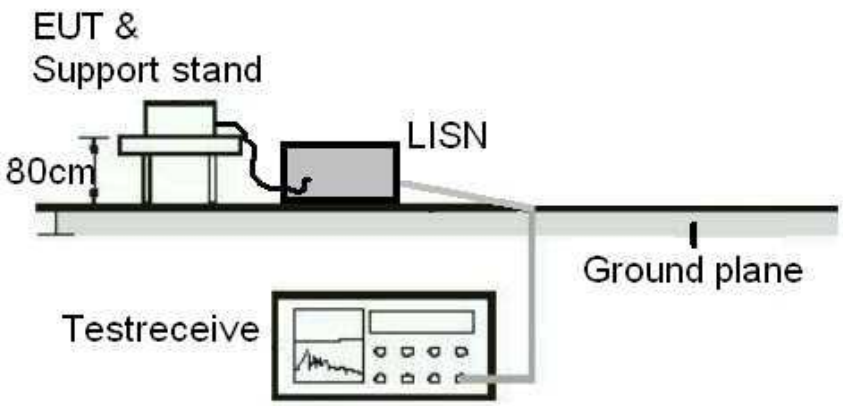
4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1 GHz are done with a table height of 1.5m

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 only allow professional person install 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	:	FCC Part 15.237(c), RSS-210 A4.1 LP0002: 3.6
Basic standard	:	ANSI C63.10:2013
Kind of test site	:	Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Atmospheric pressure	:	100-103 kPa

In the table below the maximum results found are reported.

For detailed results of all frequencies tested, please refer to Appendix D.

Table 7: Test result of Field strength of fundamental (MV-ALS-AT01 (Helical Antenna))

Channel Frequency (MHz)	Test result			
	Level (dBuV/m)	Limit (dBuV/m)	Antenna orientation	Detector
72.025	85.87	118	Horizontal	Peak
72.025	<85.87	98		Average
72.025	89.13	118	Vertical	Peak
72.025	<89.13	98		Average
74.725	83.88	118	Horizontal	Peak
74.725	<83.88	98		Average
74.725	87.42	118	Vertical	Peak
74.725	<87.42	98		Average
75.975	83.88	118	Horizontal	Peak
75.975	<83.88	98		Average
75.975	87.39	118	Vertical	Peak
75.975	<87.39	98		Average

Table 8: Test result of Field strength of fundamental (MV-ALS-AT02 (Remote Dipole Antenna))

Channel Frequency (MHz)	Test result			
	Level (dBuV/m)	Limit (dBuV/m)	Antenna orientation	Detector
72.025	93.12	118	Horizontal	Peak
72.025	93.01	98		Average
72.025	93.44	118	Vertical	Peak
72.025	93.21	98		Average
74.775	92.61	118	Horizontal	Peak
74.775	92.57	98		Average
74.775	92.93	118	Vertical	Peak
74.775	92.88	98		Average
75.975	89.69	118	Horizontal	Peak
75.975	89.65	98		Average
75.975	89.86	118	Vertical	Peak
75.975	89.85	98		Average

Remark: For details refer to Appendix D.

5.1.3 20dB Bandwidth

RESULT: **Passed**

Test standard	:	RSS-Gen,FCC part 15.237(b)
Basic standard	:	ANSI C63.10:2013
Kind of test site	:	Semi-Anechoic Chamber

Test setup

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

Ambient temperature	:	22-26 °C
Relative humidity	:	50-65 %
Atmospheric pressure	:	100-103 kPa

Table 9: Test result of 20dB Bandwidth(Wide band)

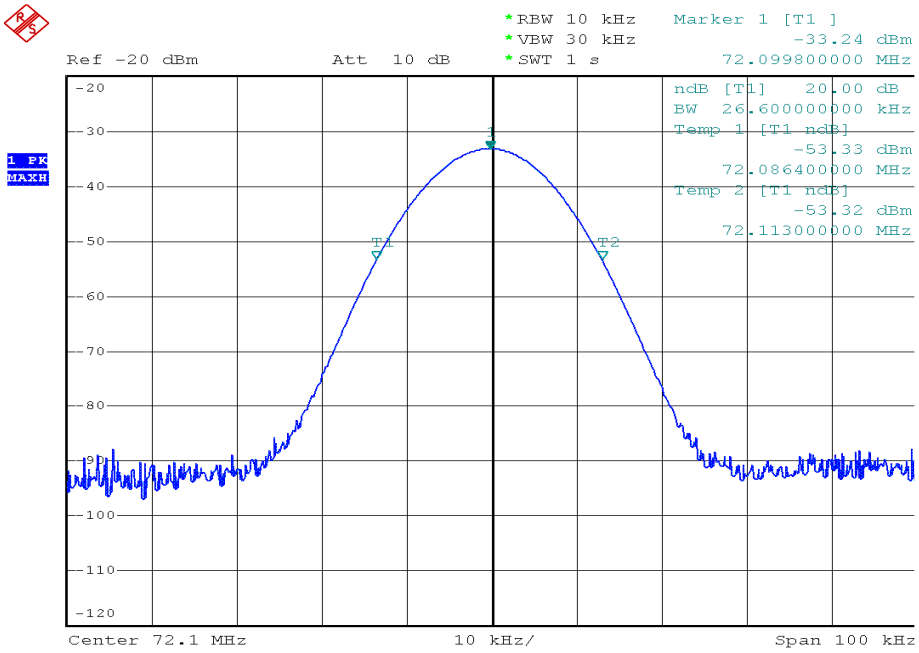
Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)
Low Channel	72.1	26.6
Mid Channel	74.7	26.6
High Channel	75.9	26.6

Table 10: Test result of 20dB Bandwidth(Narrow Band)

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)
Low Channel	72.025	26.6
Mid Channel	74.725	26.6
High Channel	75.975	26.6

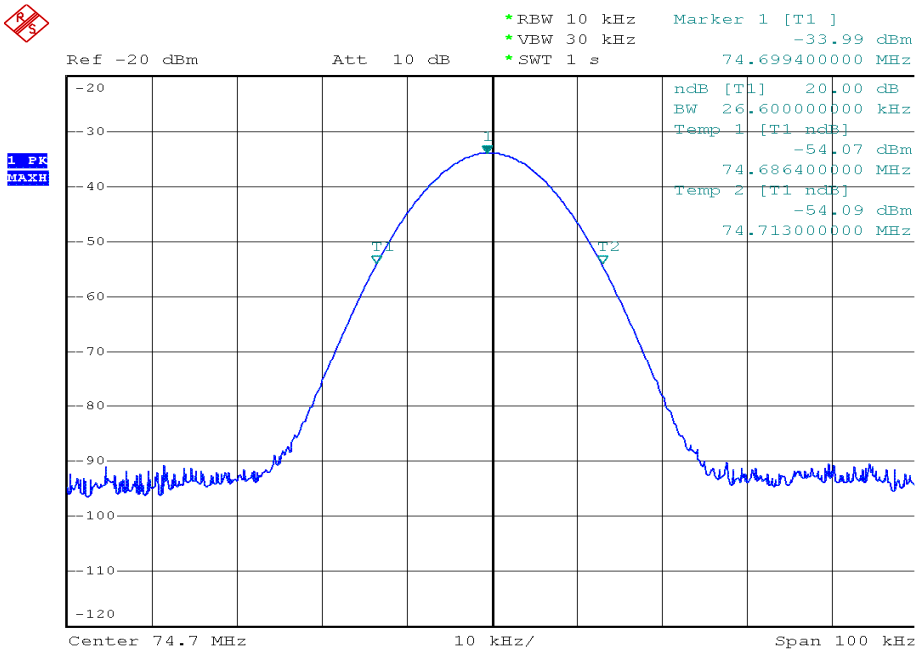
Test Plot of 20dB Bandwidth(Wide Band)

Low Channel



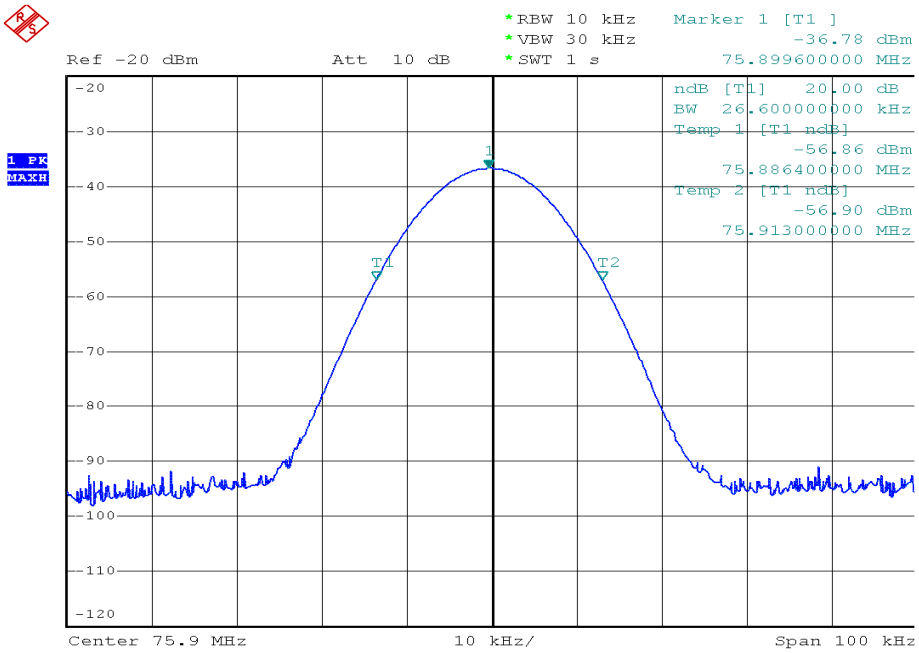
Date: 23.JUN.2016 17:35:45

Middle Channel



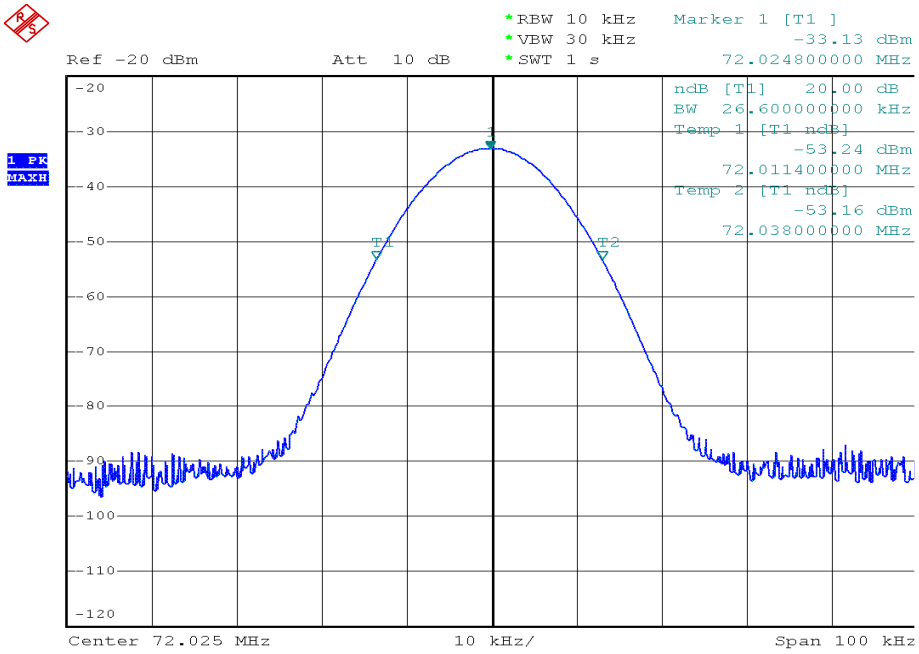
Date: 23.JUN.2016 17:36:25

High Channel

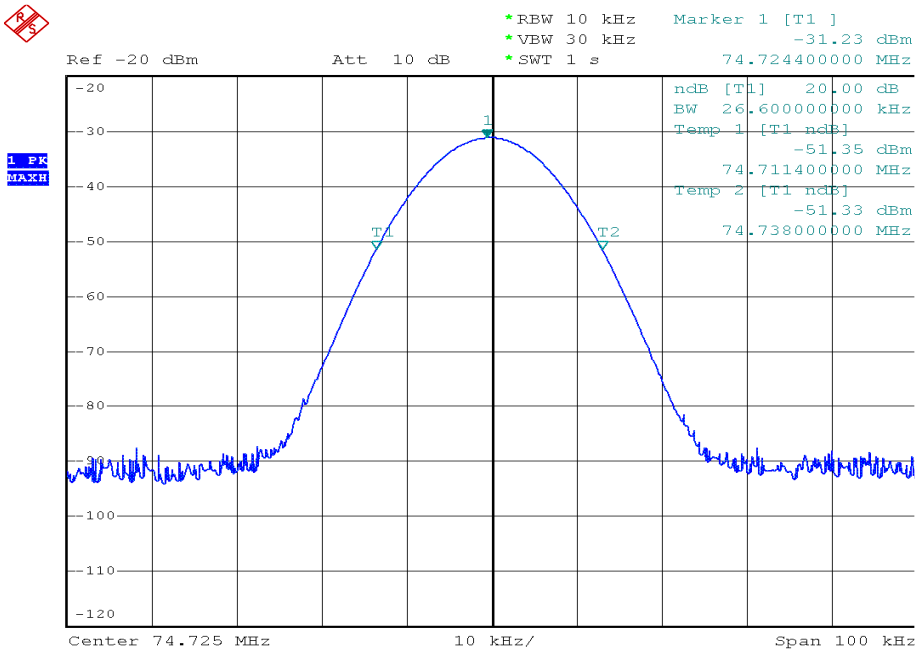


Test Plot of 20dB Bandwidth(Narrow Band)

Low Channel

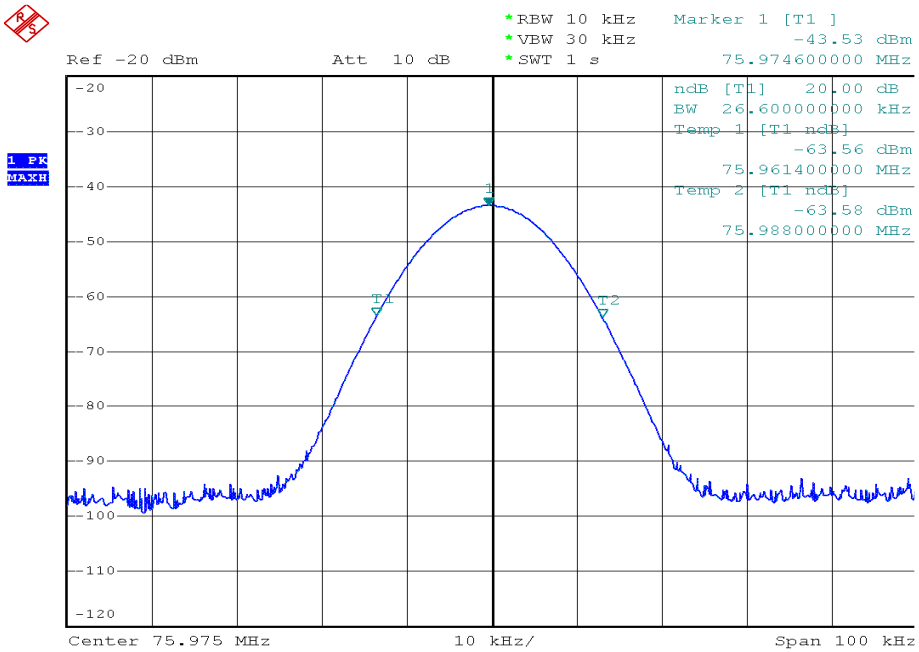


Middle Channel



Date: 23.JUN.2016 17:33:38

High Channel



Date: 23.JUN.2016 17:32:45

5.1.4 Spurious Emission

RESULT: **Passed**

Test standard	:	FCC part 15.237(c), FCC 15.205, FCC 15.209, RSS-210 2.2, RSS-210 A4.1, RSS-Gen 7.2.1 LP0002: 2.8
Basic standard	:	ANSI C63.10: 2013
Limits	:	Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must comply with the radiated emission limits specified in FCC 15.209(a). Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in FCC 15.209(a) and FCC 15.249(a).
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 30MHz to the tenth harmonic.

For details refer to Appendix D.

The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report. Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.

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 7.2.4 LP0002: 2.3
Limits	:	Mains Conducted emissions as defined in above test standards must comply with the mains conducted emission limits specified
Kind of test site	:	Shielded Room

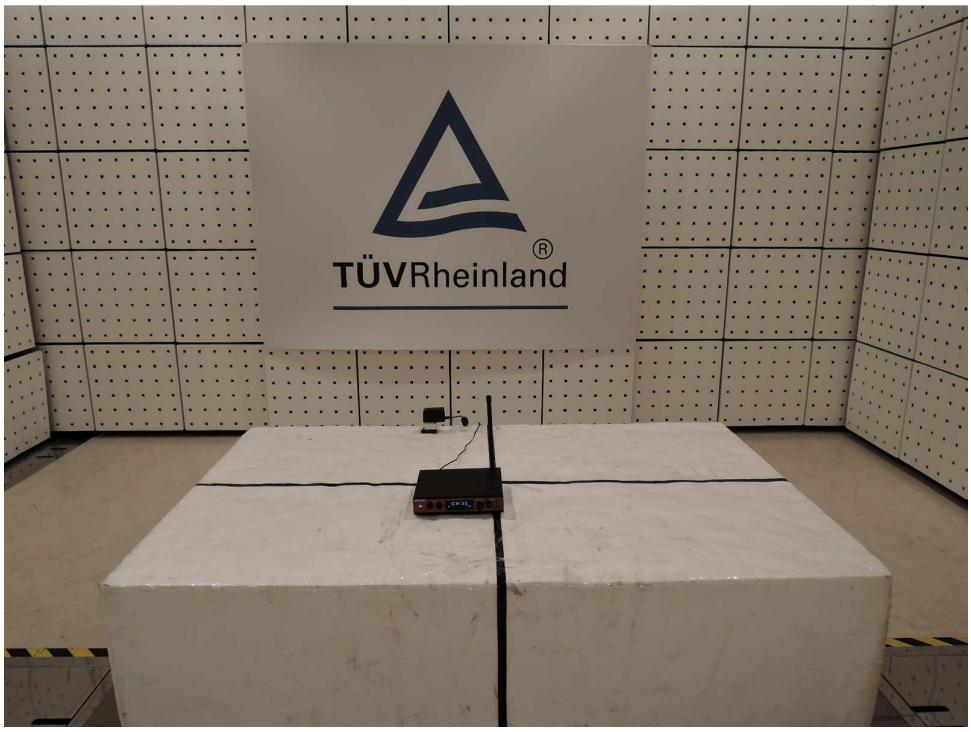
Test setup

Test Channel	:	Normal
Operation mode	:	Link

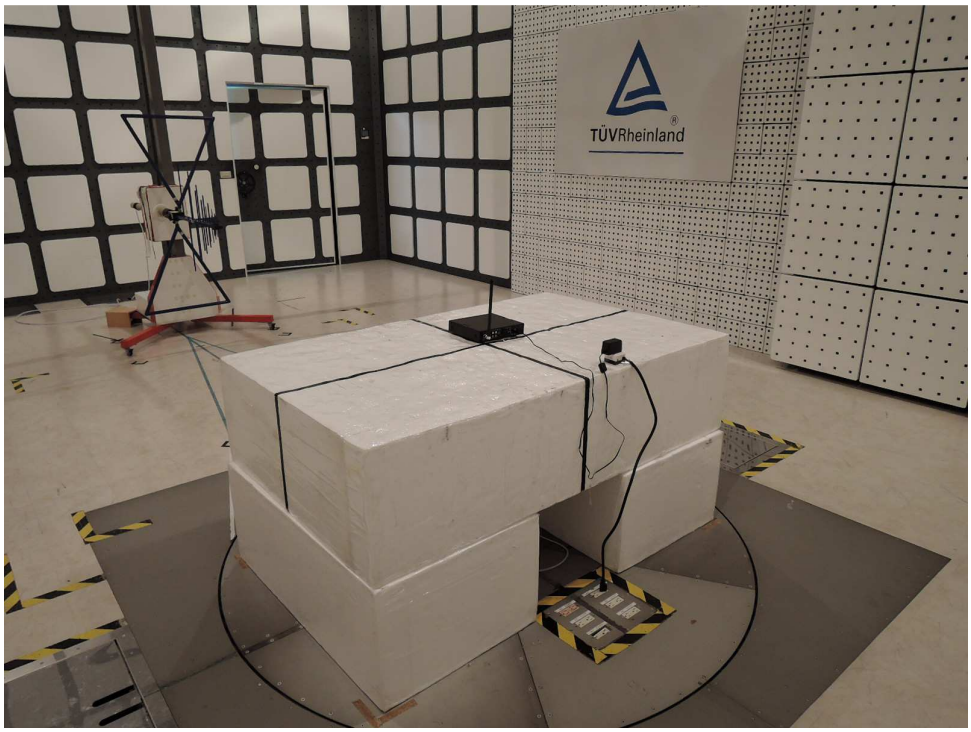
Remark: For details refer to Appendix D.

6. Photographs of the Test Set-Up

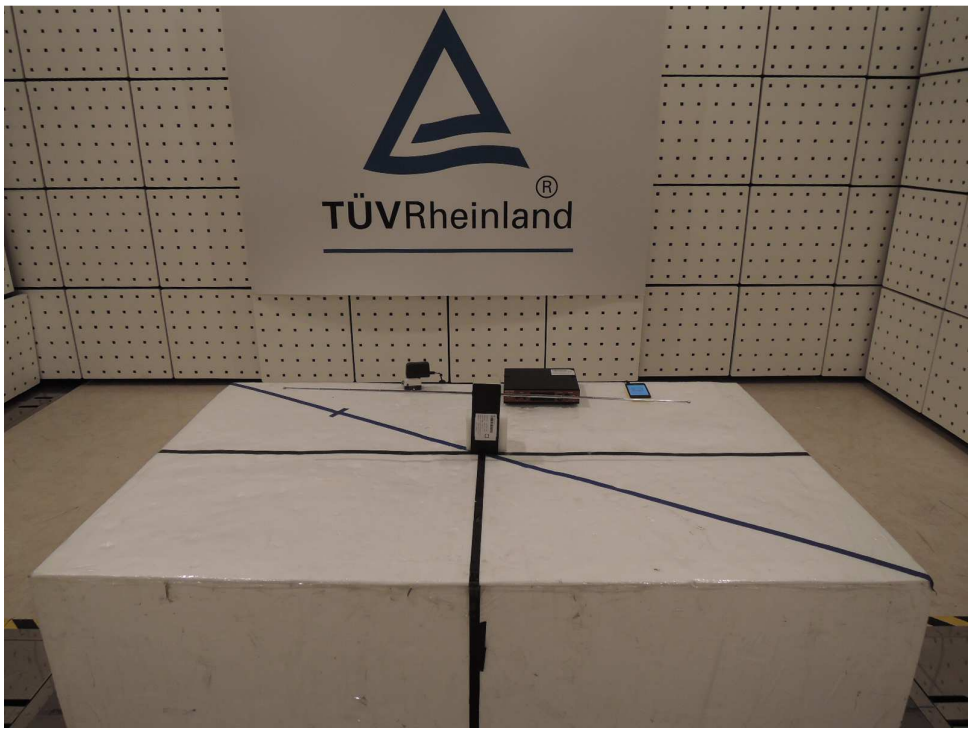
Photograph 1: Set-up for Spurious Emissions (Front View) (Antenna MV-ALS-AT01)



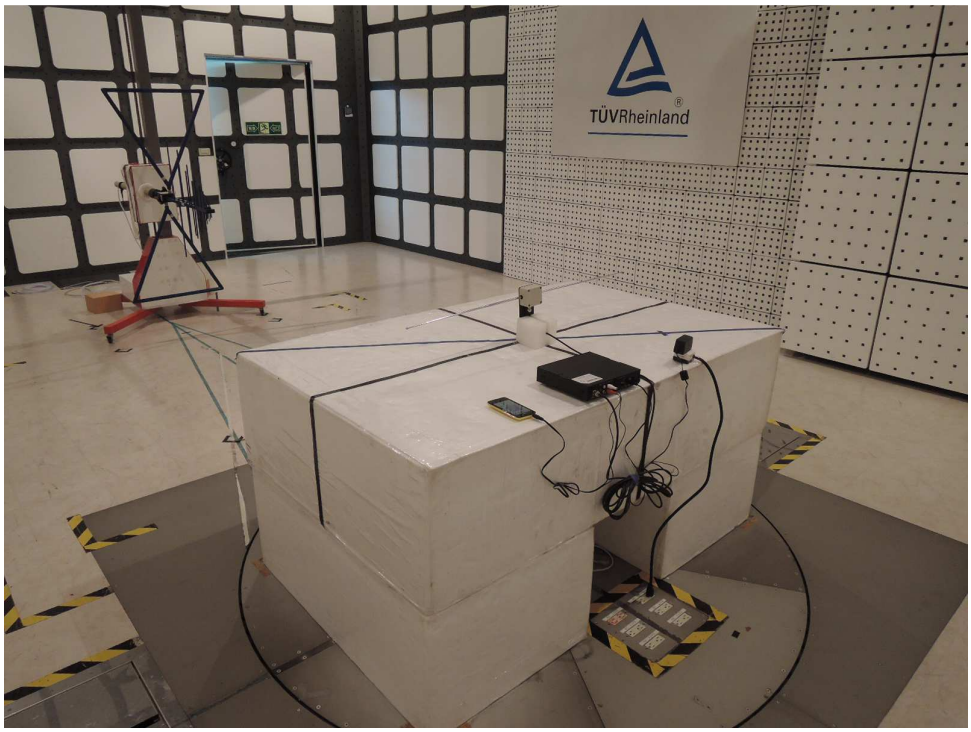
Photograph 2: Set-up for Spurious Emissions (Back View 1 TX)



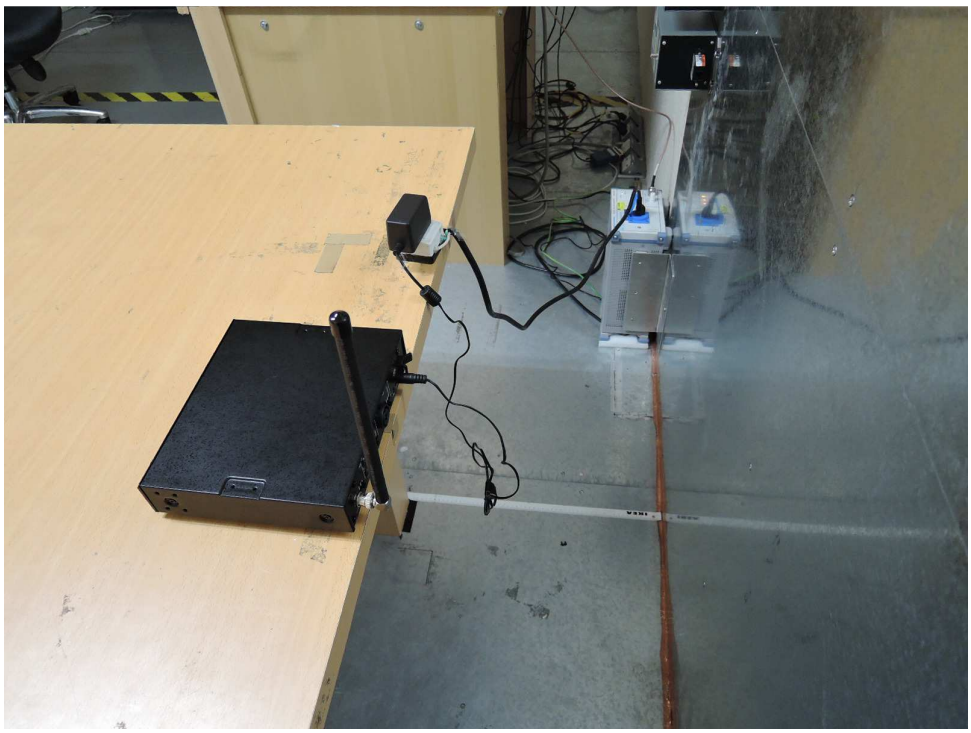
Photograph 3: Set-up for Spurious Emissions (Front View) (Antenna MV-ALS-AT02)



Photograph 4: Set-up for Spurious Emissions (Back View 1 TX)



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



Photograph 6: Set-up for for Mains Conducted testing Front

7. List of Tables

8. List of Photographs