



# FCC PART 15B

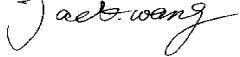
## MEASUREMENT AND TEST REPORT

For

### ADBADC MEDIA

19300 Rinaldi Street #8645, Northridge, CA 91327-8645, USA

**FCC ID: Y57ADBADC204TR01**

<b>Report Type:</b> Original Report	<b>Product Type:</b> AD BADGE Smart
<b>Test Engineer:</b> <u>Jack Wang</u> 	
<b>Report Number:</b> <u>RSZ10121781</u>	
<b>Report Date:</b> <u>2011-01-10</u>	
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, NIST, or any agency of the Federal Government.

\* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk “★” (Rev.2)

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *ADBADCHE MEDIA*'s product, model number: *AD-CM13* or the "EUT" as referred to in this report is a *AD BADGE Smart*, which measures approximately 7.0 cm (L) x 5.0 cm (W) x 1.0 cm (H). Input voltage: DC 5V from the laptop, the highest operating frequency is 48 MHz.

*\* All measurement and test data in this report was gathered from production sample serial number: 1012007 (Assigned by BACL, Shenzhen). The EUT was received on 2010-12-17.*

### Objective

This Type approval report is prepared on behalf of *ADBADCHE MEDIA* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine compliance with FCC Part 15B.

### Related Submittal(s)/Grant(s)

N/A.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

### Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

## SYSTEM TEST CONFIGURATION

### Justification

The system was configured for testing in a manufacturer testing fashion.

### EUT Exercise Software

AD\_BADGE\_AD\_Visual V2.1.9. exe

### Equipment Modifications

No modification was made to the unit tested.

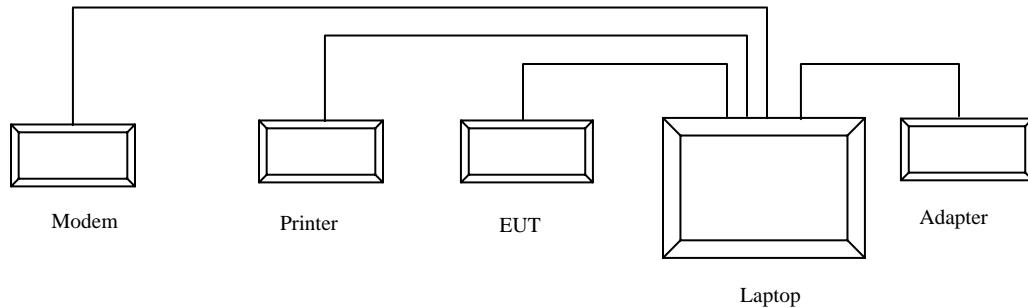
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
SAST	Modem	AEM-2100	0293	Doc
HP	Printer	C394IA	JATVOB2337	Doc
DELL	Laptop	PP01L	N/A	Doc

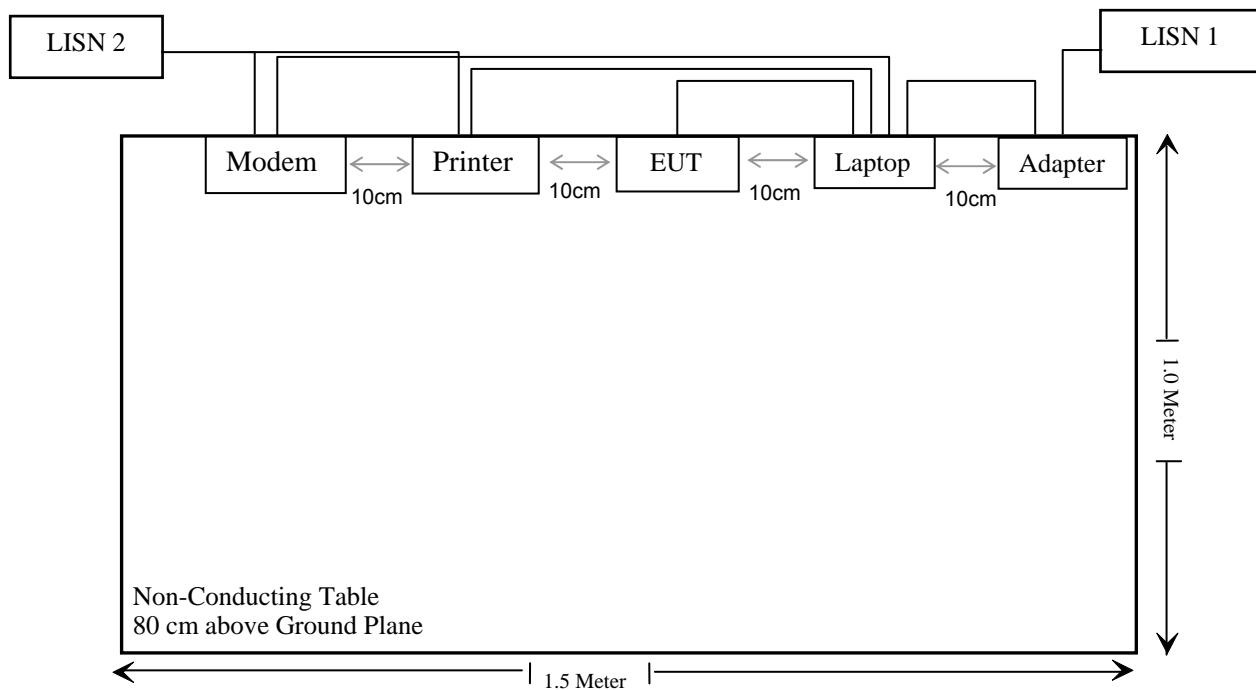
### External I/O Cable

Cable Description	Length (m)	From/Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port/Host	Printer
Shielded Detachable Serial Cable	1.2	Serial Port/Host	Modem
Unshielded Detachable USB Cable	0.8	EUT	Laptop

## Configuration of Test Setup



## Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Spurious Emissions	Compliance*

\*With measurement uncertainty!

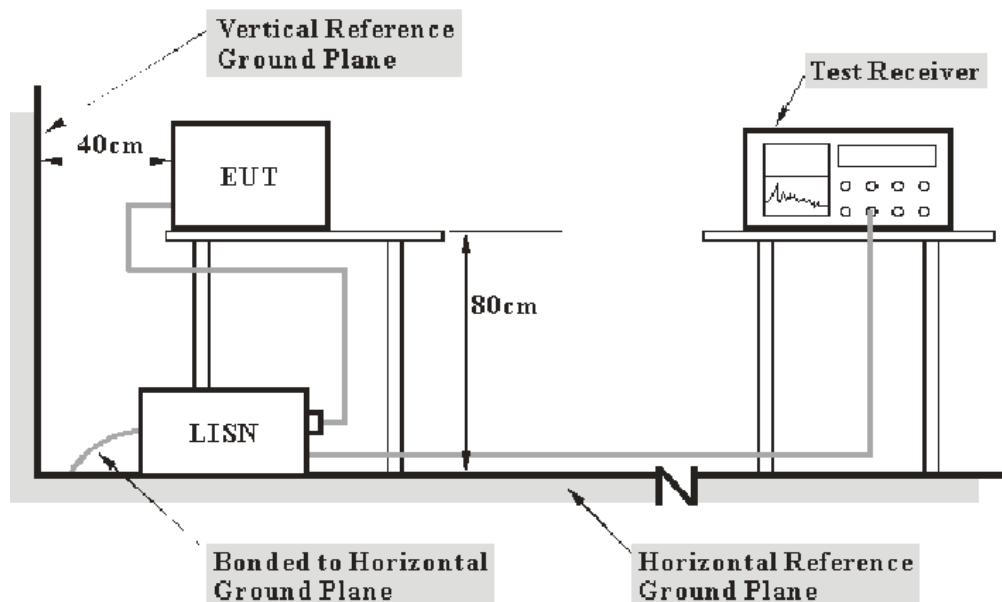
## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 2.4$  dB (k=2, 95% level of confidence).

### EUT Setup



**Note:** 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 limits.

The spacing between the peripherals was 10 cm.

The adapter of laptop was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<b><u>Frequency Range</u></b>	<b><u>IF B/W</u></b>
150 kHz – 30 MHz	9 kHz

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2010-03-03	2011-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2010-03-09	2011-03-08

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

During the conducted emission test, the adapter of laptop was connected to the outlet of the first LISN, and other equipment were connected to second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the [FCC Part 15.107](#), with the worst margin reading of:

**7.43 dB at 0.210 MHz in the Line conductor mode**

## Test Data

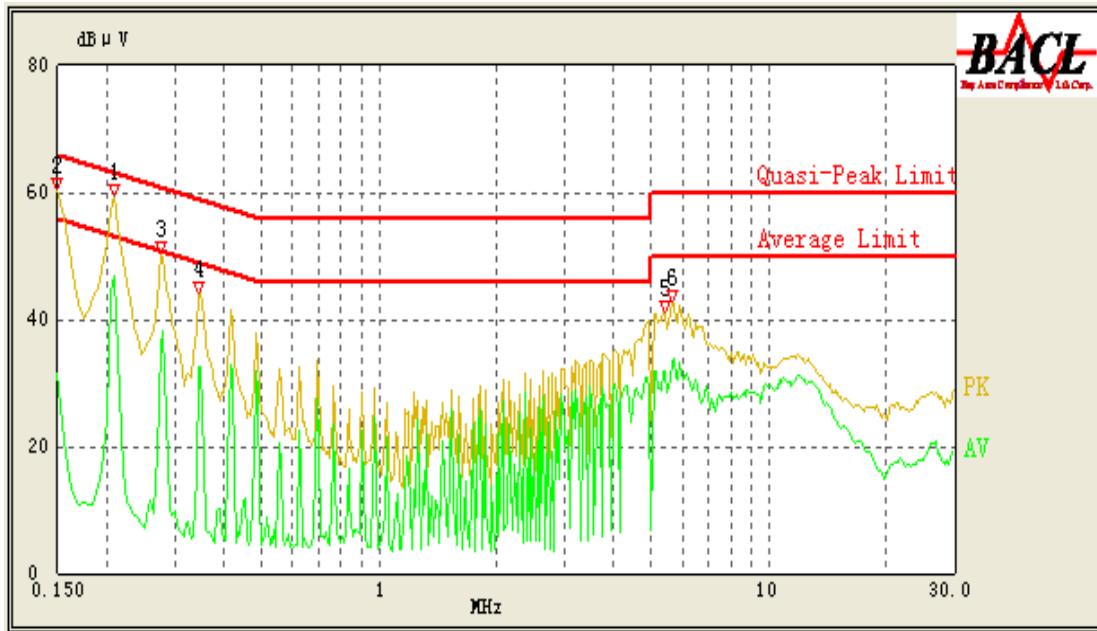
### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	48 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Jack Wang on 2011-01-05.*

*Test Mode: Running*

**120V, 60 Hz, Line:**



Conducted Emissions			FCC Part 15.107, Class B		
Frequency (MHz)	Corrected Factor (dB)	Cord. Result (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Remark (PK/QP/Ave)
0.210	46.86	10.06	54.29	7.43	Ave
0.210	56.15	10.06	64.29	8.14	QP
0.150	51.60	10.10	66.00	14.40	QP
0.275	36.00	10.02	52.43	16.43	Ave
5.635	33.18	10.10	50.00	16.82	Ave
0.345	32.57	10.05	50.43	17.86	Ave
5.425	31.84	10.10	50.00	18.16	Ave
5.635	41.50	10.10	60.00	18.50	QP
5.425	40.71	10.10	60.00	19.29	QP
0.275	42.63	10.02	62.43	19.80	QP
0.345	38.28	10.05	60.43	22.15	QP
0.150	31.54	10.10	56.00	24.46	Ave

**120 V, 60 Hz, Neutral:**



Conducted Emissions			FCC Part 15B, Class B		
Frequency (MHz)	Corrected Factor (dB)	Cord. Result (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Remark (QP/Ave)
0.210	54.38	10.06	64.29	9.91	QP
0.210	43.29	10.06	54.29	11.00	Ave
0.150	50.00	10.10	66.00	16.00	QP
0.420	31.68	10.12	48.29	16.61	Ave
0.280	45.46	10.01	62.29	16.83	QP
0.280	35.25	10.01	52.29	17.04	Ave
0.350	31.62	10.05	50.29	18.67	Ave
0.350	41.45	10.05	60.29	18.84	QP
0.420	38.07	10.12	58.29	20.22	QP
5.940	27.85	10.10	50.00	22.15	Ave
5.940	35.62	10.10	60.00	24.38	QP
0.150	27.34	10.10	56.00	28.66	Ave

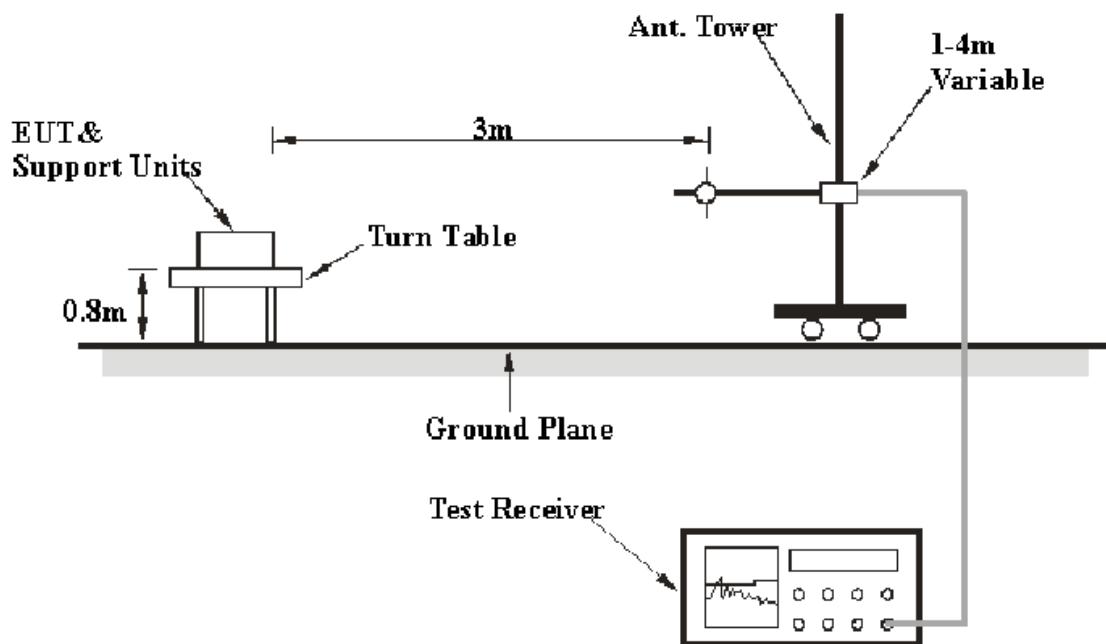
## FCC §15.109 - RADIATED SPURIOUS EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 4.0$  dB ( $k=2$ , 95% level of confidence).

### EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter of laptop was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The system was investigated from 30 MHz to 1 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency	RB/W	VB/W	IF B/W
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2010-08-02	2011-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-03-11	2011-03-11

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

During the radiated emissions test, the laptop and all other support equipment were connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode from 30 MHz to 1 GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15 Class B, with the worst margin reading of:

**2.6 dB at 336.063250 MHz** in the **Horizontal** polarization for **running** mode

## Test Data

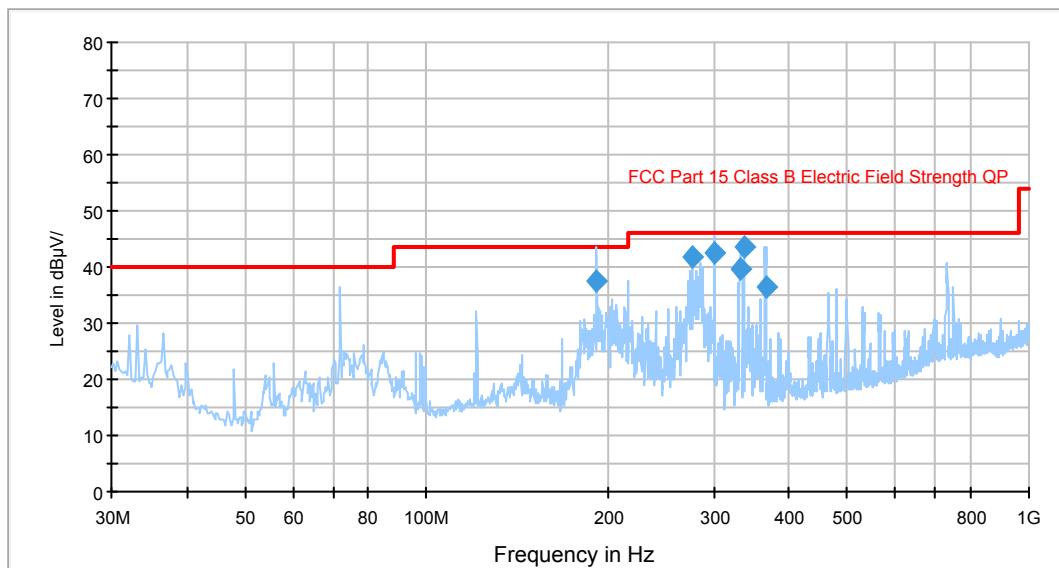
### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Jack Wang on 2010-12-29.*

*Test Mode: Running*

Auto Test(FCC 15 Class B)



Frequency (MHz)	Corrected Amplitude (dB $\mu$ V/m)	Antenna Height (cm)	Test Antenna Polarity (H/V)	Turntable Position (Degree)	Correction Factor (dB)	Limit (dB $\mu$ V/m)	Margin (dB)
336.063250	43.4	101.0	H	59.0	-11.4	46.0	2.6*
300.069250	42.4	100.0	H	262.0	-12.4	46.0	3.6*
275.997750	41.8	141.0	H	125.0	-12.9	46.0	4.2
192.007250	37.5	100.0	V	26.0	-14.7	43.5	6.0
333.105250	39.8	101.0	H	77.0	-11.5	46.0	6.2
366.399000	36.4	134.0	H	249.0	-10.7	46.0	9.6

\*With measurement uncertainty!

\*\*\*\*\* END OF REPORT \*\*\*\*\*