Hong Kong

FCC – Test report

Report Number	: **60/760.8.119.01**	Date of Issue: 20 April 2009
Model	: **Alti-Compass DCX**	
Product Type	: Alti-Compass watch	
Applicant	: Dayton Industrial Co., Ltd.	
Address	: 2-12 Kwai Fat Road, 11-A Kwai Chung, : New Territories, Hong Kong	
Production Facility	: Kendy Enterprise Ltd.	
Address	: 2-12 Kwai Fat Road, 11-A Kwai Chung, : New Territories, Hong Kong	
Test Result	: ■ **Positive** ☐ **Negative**	
Total pages including Appendices	: 19	

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TÜV SÜD Hong Kong Ltd. reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Hong Kong Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Hong Kong Ltd. issued reports.

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1 Table of Contents

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2 Details about the Test Laboratory

Details about the Test Laboratory

Company name: TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2,
10 Science Park West Avenue,
Science Park, Shatin
HK.

Telephone: 852 2776 1323
Fax: 852 2776 1372

Company name: Emitel (Shenzhen) Limited
Building 2,
171 Meihua Road,
Futian District, 518049
Shenzhen, China

3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product:	Alti-Compass Watch
Model no.:	Alti-Compass DCX
Serial number:	NIL
Options and accessories:	NIL
Rated Voltage:	3 V DC
Rated Current:	NIL
Rated Power:	NIL
Frequency:	NIL
Description of the EUT:	NIL

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4 Summary of Test Standards and Results

Emission Tests						
Test Condition	Test Requirement	Test Method	Pages	Test Result		
				Pass	Fail	N/A
Radiated Emission (Fundamental & Spurious Emission)	FCC Part 15 Section 15.249	ANSI C63.4:2003	7-9	☒	☐	☐
Radiated Emission 30MHz – 1000MHz	FCC Part 15 Section 15.209	ANSI C63.4:2003	10-11	☒	☐	☐
Conducted Emission on AC 150kHz to 30MHz	FCC Part 15 Section 15.207	ANSI C63.4:2003	NIL	☐	☐	☒

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5 General Remarks

Remarks
NIL

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: 20 November 2008

Testing Start Date: 11 November 2008

Testing End Date: 2 December 2008

- TÜV SÜD HONG KONG LTD. -

Reviewed by:

Ivan Toa
Deputy Manager

Prepared by:

Twin Ngan
EMC Test Engineer

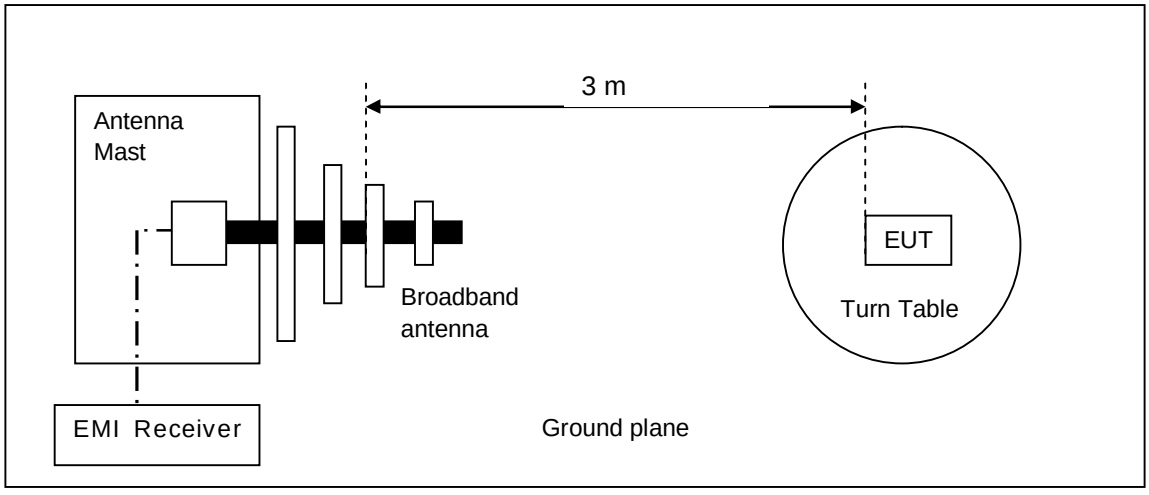
6 Emission Test Results

6.1 Radiated Emission Test (Fundamental)

Test Procedure :

The equipment under test (EUT) was placed on a test table with 0.8m high above the ground plane and the distance between the EUT and the broadband antenna is 3m. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables. The turntable was rotated to maximize the emission level and the antenna was moving along the mast from 1m up to 4m in both horizontal and vertical polarizations.

Test Setup :



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Radiated Emission Test (Fundamental)

Date of test	:	11 November 2008
Test requirement	:	FCC Part 15 Section 15.249
Test method	:	ANSI C63.4:2003
Operating mode	:	On mode
Antenna polarity	:	Vertical (Worse case, Vertical > Horizontal)
Remarks	:	Duty Cycle Correction = 20 Log (0.0025)= -52dB

Test Result
☒ Passed
☐ Not Passed

Field Strength of Fundamental Emissions in Peak Value

Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
2449.89	81.3	114.0	-32.7

Field Strength of Fundamental Emissions in Average Value

Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
2449.89	29.3	94.0	-64.7

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Radiated Emission Test (Spurious Emission)

Date of test : 11 November 2008

Test requirement : FCC Part 15 Section 15.249

Test method : ANSI C63.4:2003

Operating mode : On mode

Antenna polarity : Vertical (Worse case, Vertical > Horizontal)

Remarks : Duty Cycle Correction = 20 Log (0.0025)= -52.0dB

Test Result
☒ Passed
☐ Not Passed

Field Strength of Emissions in Peak Value

Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
4900.00	57.1	74.0	-16.9
7349.89	<30.0	74.0	<-44.0
9799.78	<30.0	74.0	<-44.0
12249.67	<30.0	74.0	<-44.0
14699.56	<30.0	74.0	<-44.0
17149.45	<30.0	74.0	<-44.0
19599.34	<30.0	74.0	<-44.0
22049.23	<30.0	74.0	<-44.0
24499.12	<30.0	74.0	<-44.0

Field Strength of Fundamental Emissions in Average Value

Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
4900.00	5.1	54.0	-48.9
7349.89	<30.0	54.0	<-24.0
9799.78	<30.0	54.0	<-24.0
12249.67	<30.0	54.0	<-24.0
14699.56	<30.0	54.0	<-24.0
17149.45	<30.0	54.0	<-24.0
19599.34	<30.0	54.0	<-24.0
22049.23	<30.0	54.0	<-24.0
24499.12	<30.0	54.0	<-24.0

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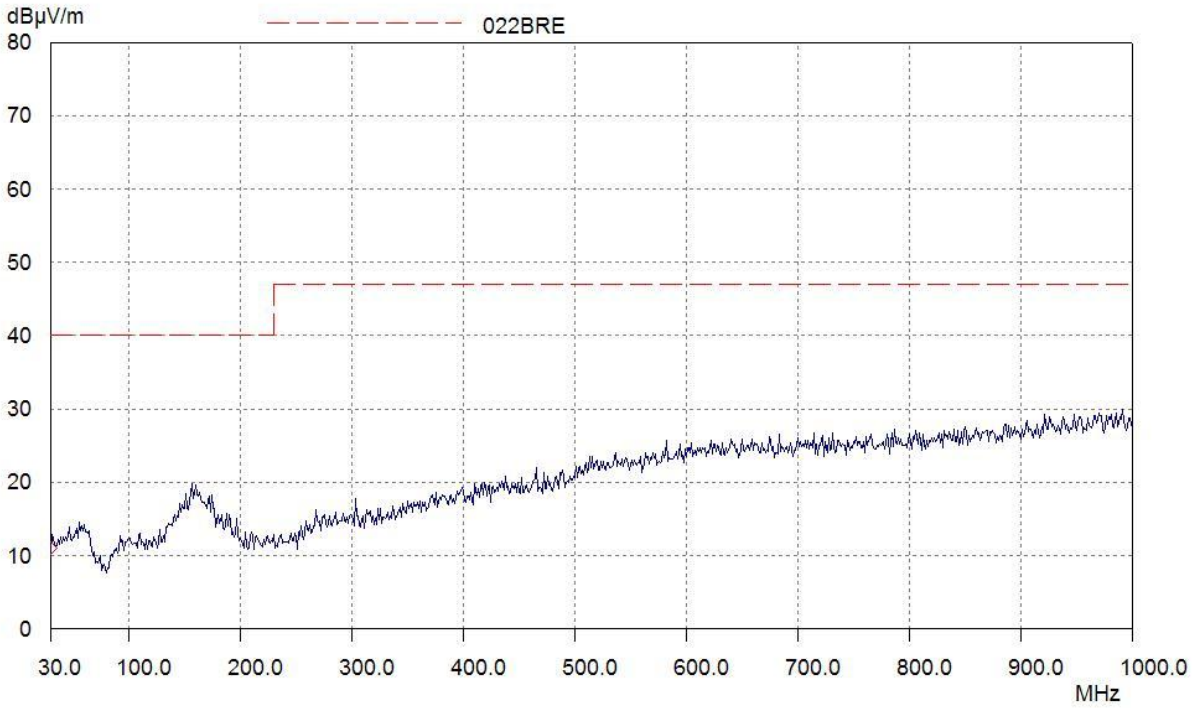
Radiated Emission Test 30MHz - 1000MHz

Date of test	:	2 December 2008
Test requirement	:	FCC Part 15 Section 15.209
Test method	:	ANSI C63.4:2003
Operating mode	:	On mode
Antenna polarity	:	Horizontal
Remarks	:	NIL

Test Result
☒ Passed
☐ Not Passed



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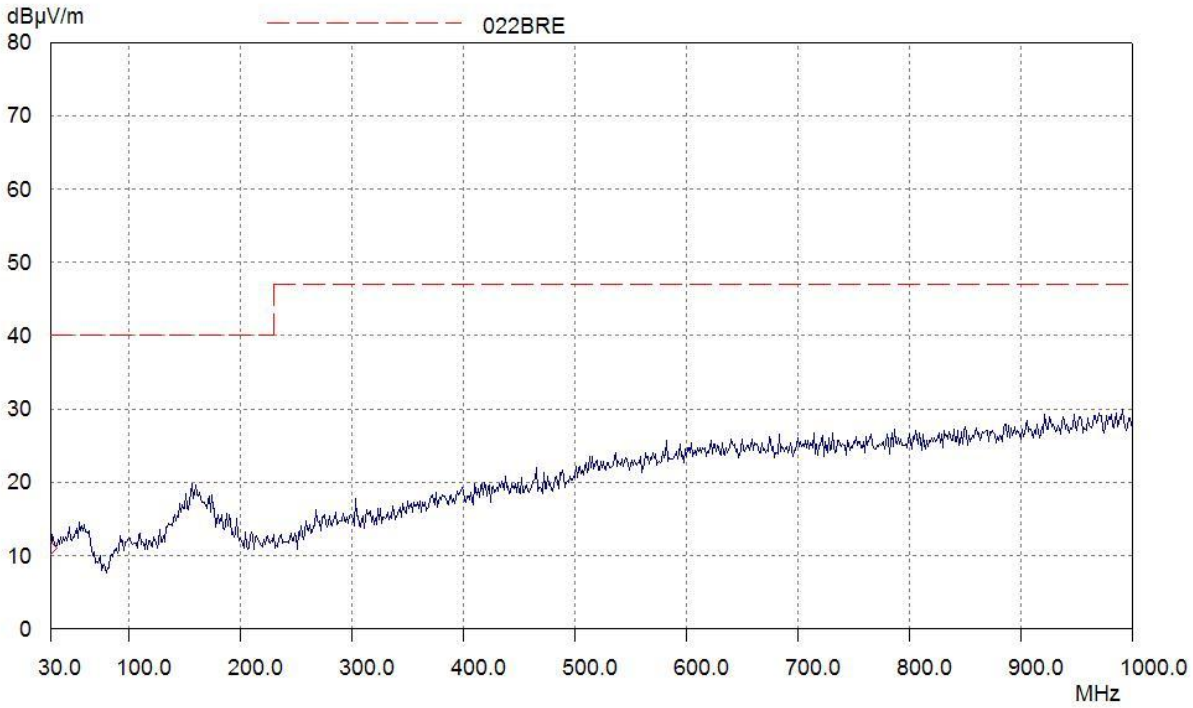
Radiated Emission Test 30MHz - 1000MHz

Date of test	:	2 December 2008
Test requirement	:	FCC Part 15 Section 15.209
Test method	:	ANSI C63.4:2003
Operating mode	:	On mode
Antenna polarity	:	Vertical
Remarks	:	NIL

Test Result
☒ Passed
☐ Not Passed



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Frequency Range of Fundamental Emission

Date of test : 13 November 2008

Test requirement : FCC Part 15 Section 15.249

Test method : ANSI C63.4:2003

Operating mode : On mode

Remarks : NIL

Test Result
☒ Passed
☐ Not Passed

Limits for Frequency Range of Fundamental Emission

Frequency MHz	Limits MHz
2449.89	2400-2483.5

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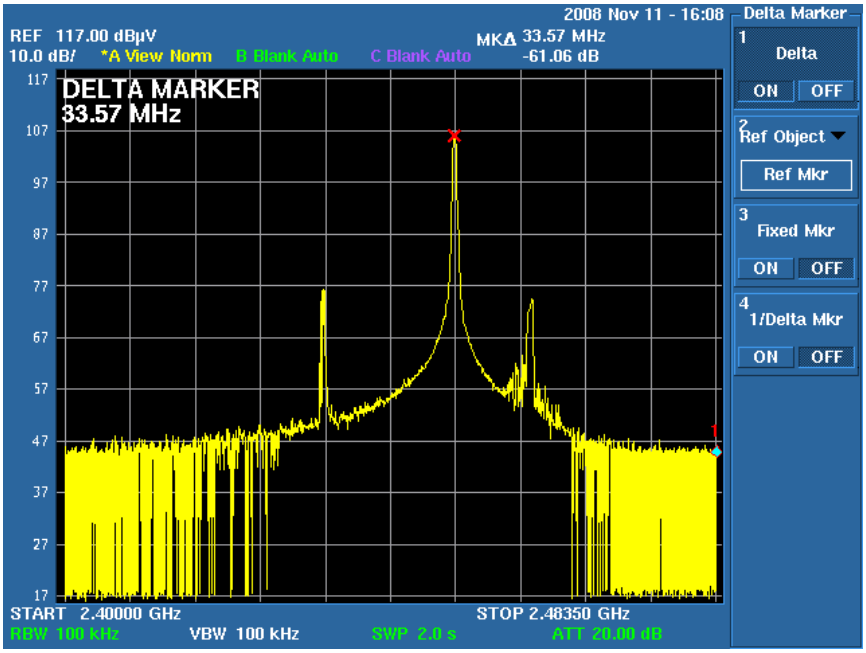
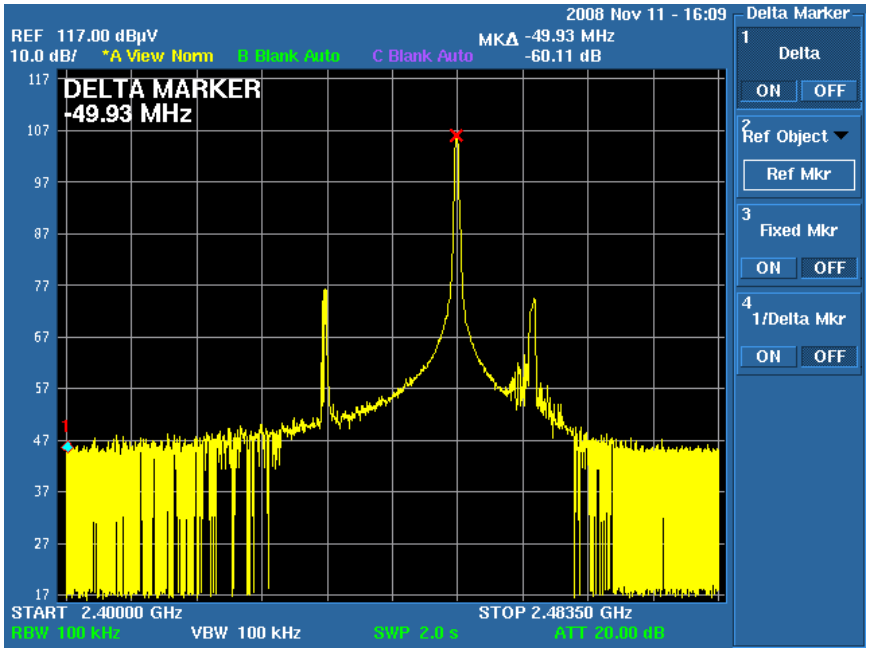
Band Edge





Band Edge (MHz)	dBc (dB)
2400.0	-60.1
2483.5	-61.1

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Band Edge

Band Edge (MHz)	Highest emission of Fundamental dBuV/m at 2449.89 MHz		dBc	Field strength dBuV/m	
	P	AV		P	AV
2400	81.3	29.3	-60.1	21.2	0
2483.5	81.3	29.3	-61.1	20.2	0

NOTE: Band edge peak value is less than average limit of 54dBuV/m.

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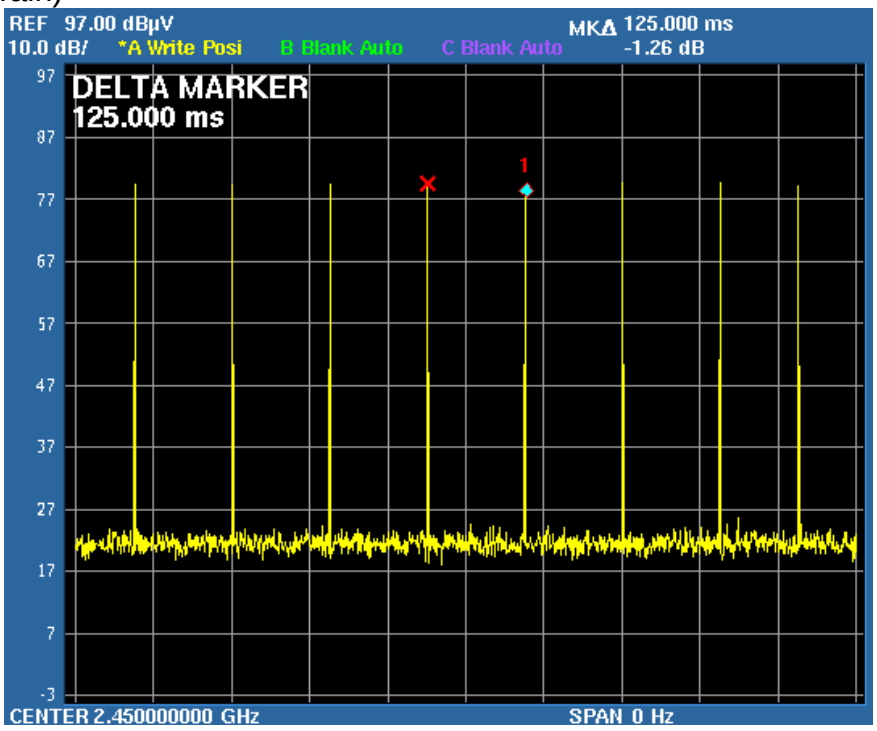
Duty Cycle Correction

Assuming any combination of short or long pulses may be obtained due to encoding the worst Case transmit duty cycle would be considered 0.25msec per 100msec = 0.25% duty cycle. Figuare A and B show the characteristics of the pulse train.

Duty Cycle Correction = 20 Log (0.0025)= -52dB

Figure A (Pulse Train)



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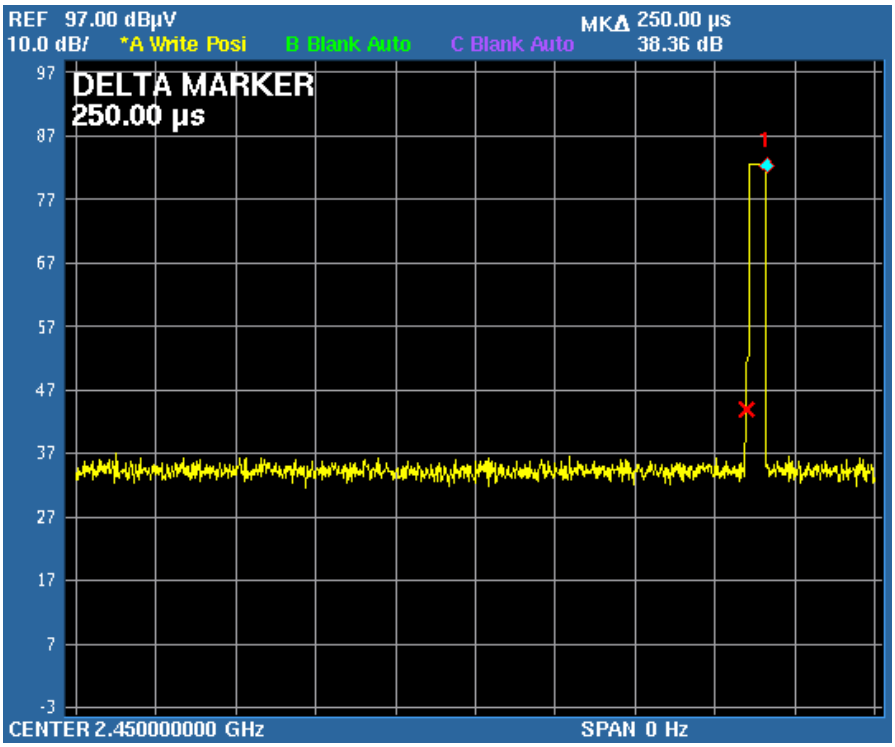
Duty Cycle Correction

Figure B (Pulse)



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Test Equipment List

Radiated Emission Test

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	DUE CAL. DATE
04-03/45-05-001	Conditional Chamber	KSON	THS-D4T-150	23-10-2009
04-02/11-08-001	Spectrum Analyzer	Advantest	U3772	18-03-2009
04-02/03-06-002	Test Receiver	Rohde & Schwarz	ESPI3	06-04-2009
04-02/24-06-001	Biconilog Antenna	EMCO	3142C	14-03-2009
04-02/24-06-002	Biconilog Antenna	EMCO	3142C	10-05-2009
01-02/24-01-008	Pyramid Horn Antenna	EMCO	3160-09	08-12-2010
04-02/24-07-001	Bouble-Ridged Waveguide Horn	ETS	3117	12-02-2009

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7 Appendix A

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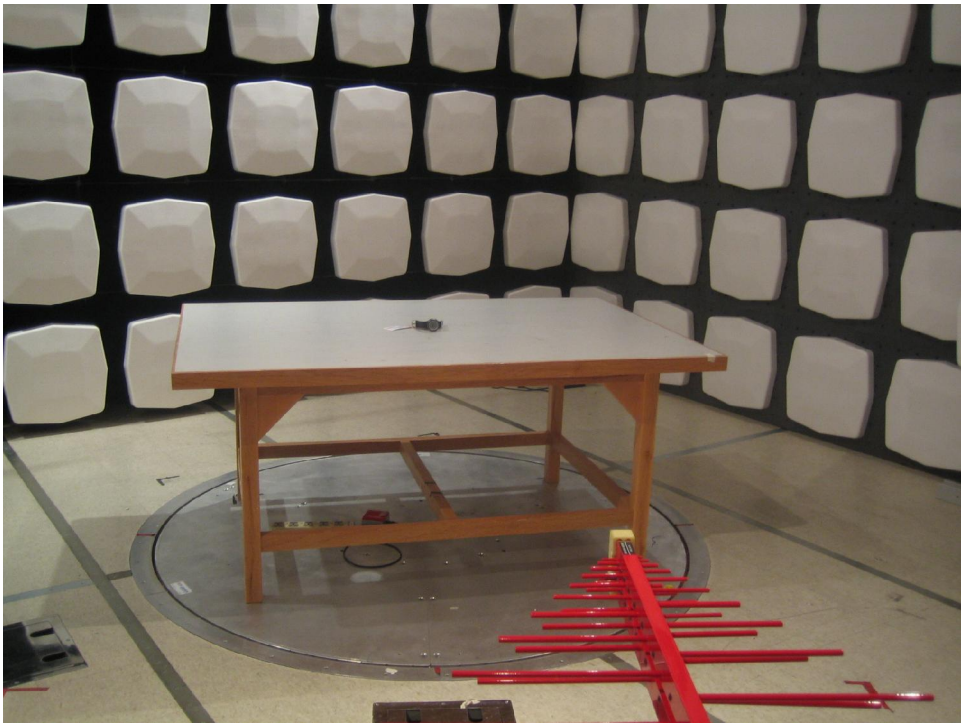
8 Appendix B

Radiated Emission Test Set Up



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