



Hong Kong

FCC – Test report

Report Number : **60/760.11.245.01** Date of Issue: 25 November 2011

Model : **PM90**

Product Type : Digital HRM 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 : 28

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1 Table of Contents

1	Table of Contents.....	2
2	Details about the Test Laboratory.....	3
3	Description of the Equipment Under Test.....	4
4	Summary of Test Standards/ Results.....	5
5	General Remarks.....	6
6	Emission Test Results.....	7
6.1	Radiated Emission Test.....	7
6.2	Conduct Emission Test.....	12
7	Appendix A.....	15
	Photographs of EUT	
8	Appendix B.....	23
	Photographs of Test Set Up	
9	Appendix C.....	28
	Product Information	



Hong Kong

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: CMA Industrial Development Foundations Limited
1302, Yang Hing Centre,
9-13 Wong Chuk Yueng Street
Fo Tan, Shatin, N.T.
Hong Kong

FCC Registered Test Site Number 552221



3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product:	Digital HRM Watch
Model no.:	PM90
Serial number:	NIL
Options and accessories:	NIL
Rated Voltage:	3 VDC
Rated Current:	NIL
Rated Power:	NIL
Frequency:	NIL
Description of the EUT:	Operate by 3 V battery (1 x 3 VDC "CR2032"battery) 2.4 GHz Receiver with PC connect function.
FCC ID:	O4GPM90R2



4 Summary of Test Standards and Results

Emission Tests						
Test Condition	Test Requirement	Test Method	Pages	Test Result		
				Pass	Fail	N/A
Radiated Emission	FCC Part 15	ANSI C63.4:2003	7-11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emission on AC	FCC Part 15	ANSI C63.4:2003	12-14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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5 General Remarks

Remarks

Kind	Co.	Model	FCC ID	S/N
PC	Dell 745	DCSM	DOC	G7K832X
USB Mouse	Dell	MO56UOA	DOC	FQJ000BS
USB Keyboard	Dell	L100	DOC	CNORH6596589085C00U7
LCD monitor	Dell	E177FPc	DOC	CNOFJ179-64180-6AG-1WNS
Modem	ACEEX	DM-1414V	IFAXDm1414	0603002131
Printer	SII	DPU-414	DOC	3018507 B

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: 19 October 2011

Testing Start Date: 19 October 2011

Testing End Date: 14 November 2011

- TÜV SÜD HONG KONG LTD. -

Reviewed by:

Prepared by:



Edmond FUNG
EMC Test Engineer

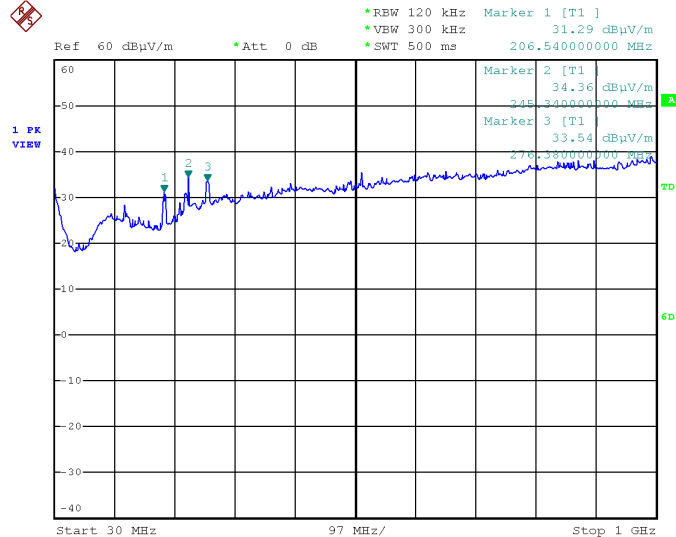
Cheng Kin Yeung
EMC Test Engineer

6 Emission Test Results

6.1 Radiated Emission Test 30MHz – 1000MHz

Date of test : 24 October 2011
 Test requirement : FCC Part 15 Section 15.109
 Test method : ANSI C63.4:2003
 Operating mode : PC Connect
 Antenna Polarity : Horizontal
 Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Freq. (MHz)	Ant.Pol. H/V	Reading	Ant./CF CF(dB)	Act.	Limit	Note
		QP (dBuV/m)		QP (dBuV/m)	QP (dBuV/m)	
206.54	H	18.97	12.32	31.29	43.50	X/F
245.34	H	22.28	12.08	34.36	43.50	X/F
276.38	H	21.63	11.91	33.54	46.00	X/F

Remark: The EUT was placed on the top of the turntable in test site area.
 The resolution bandwidth setting on the test receiver was 120 KHz , Detector function peak (30 MHz~ 1000MHz).
 The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~26.5GHz).
 The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
 For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.
 The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.
 Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.
 Adjust the emission and slightly height of the antenna to locate the position with maximum reading.
 If the peak scan value lower limit more than 20dB, then this signal data does not show in graph.

Radiated Emission Test 1000MHz – 26500MHz

Date of test : 24 October 2011

Test requirement : FCC Part 15 Section 15.109

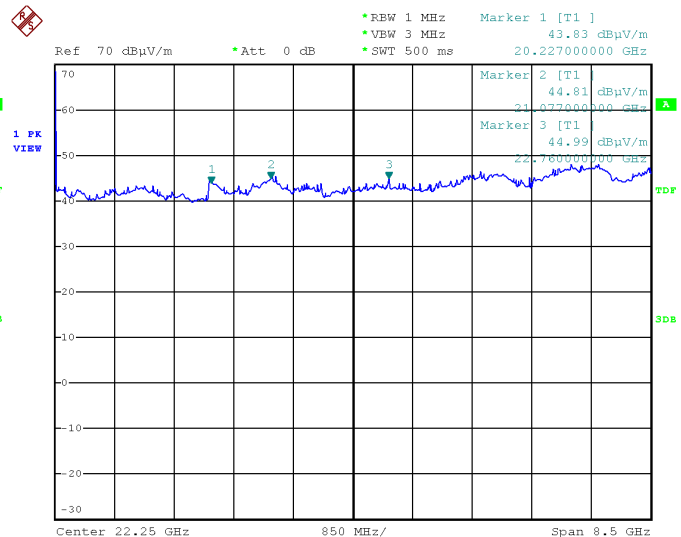
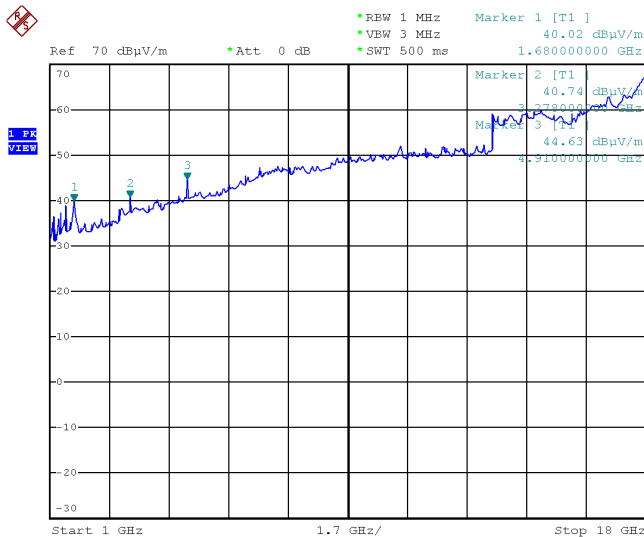
Test method : ANSI C63.4:2003

Operating mode : PC Connect

Antenna Polarity : Horizontal

Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



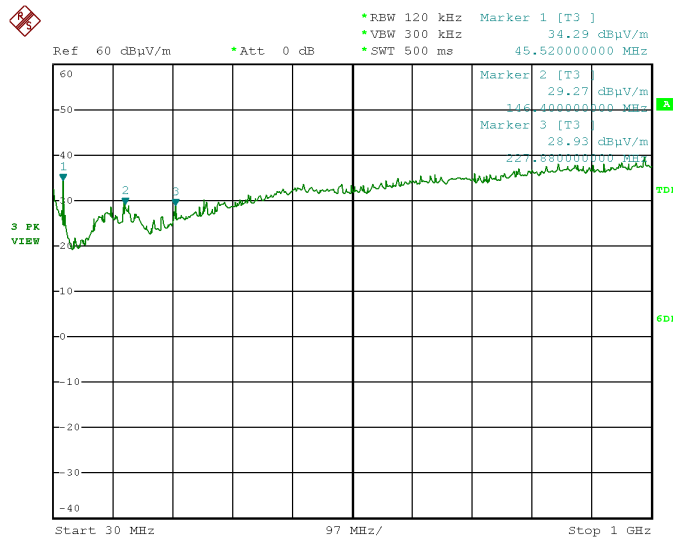
Freq. (MHz)	Ant. Pol. H/V	Reading (dBμV/m)	Ant./CF CF(dB)	Act. (dBμV/m)	Limit (dBμV/m)	Note
1680.00	H	0.02	40.00	40.02	74.00	Peak
3278.00	H	0.42	40.32	40.74	74.00	Peak
4910.00	H	0.21	44.42	44.63	74.00	Peak
20227.00	H	0.33	43.50	43.83	74.00	Peak
21077.00	H	0.31	44.50	44.81	74.00	Peak
22760.00	H	0.99	44.00	44.99	74.00	Peak

Remark: The EUT was placed on the top of the turntable in test site area.
 The resolution bandwidth setting on the test receiver was 120 KHz , Detector function peak (30 MHz~ 1000MHz).
 The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~26.5GHz).
 The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
 For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.
 The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.
 Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.
 Adjust the emission and slightly height of the antenna to locate the position with maximum reading.
 If the peak scan value lower limit more than 20dB, then this signal data does not show in graph.

Radiated Emission Test 30MHz – 1000MHz

Date of test : 24 October 2011
 Test requirement : FCC Part 15 Section 15.109
 Test method : ANSI C63.4:2003
 Operating mode : PC Connect
 Antenna Polarity : Vertical
 Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



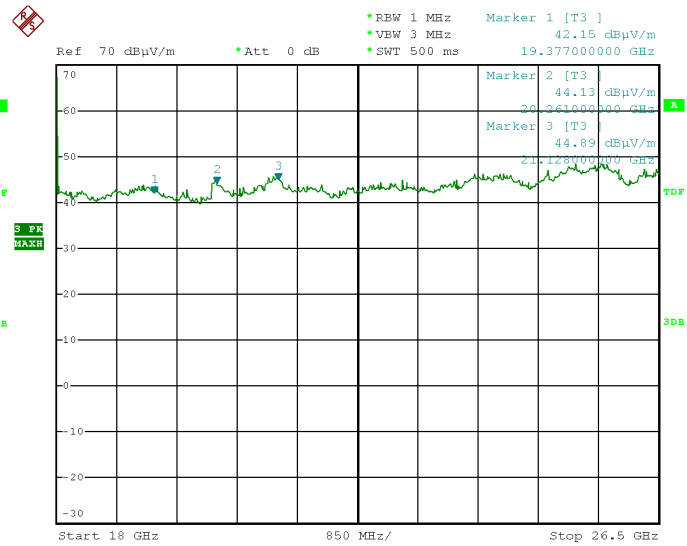
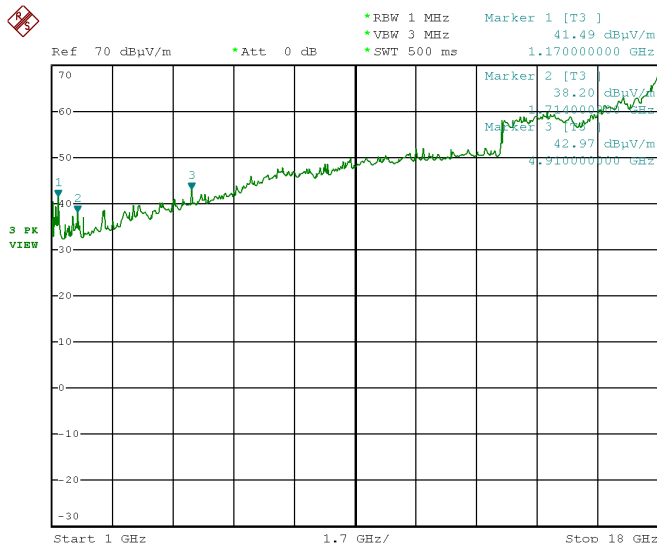
Freq. (MHz)	Ant.Pol. H/V	Reading	Ant./CF CF(dB)	Act.	Limit	Note
		QP (dBuV/m)		QP (dBuV/m)	QP (dBuV/m)	
45.52	V	25.94	8.35	34.29	40.00	X/F
146.40	V	16.95	12.32	29.27	43.50	X/F
227.88	V	16.85	12.08	28.93	46.00	X/F

Remark: The EUT was placed on the top of the turntable in test site area.
 The resolution bandwidth setting on the test receiver was 120 KHz , Detector function peak (30 MHz~ 1000MHz).
 The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~26.5GHz).
 The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
 For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.
 The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.
 Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.
 Adjust the emission and slightly height of the antenna to locate the position with maximum reading.
 If the peak scan value lower limit more than 20dB, then this signal data does not show in graph.

Radiated Emission Test 1000MHz – 26500MHz

Date of test : 24 October 2011
 Test requirement : FCC Part 15 Section 15.109
 Test method : ANSI C63.4:2003
 Operating mode : PC Connect
 Antenna Polarity : Vertical
 Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Freq. (MHz)	Ant. Pol. H/V	Reading (dBμV/m)	Ant./CF CF(dB)	Act. (dBμV/m)	Limit (dBμV/m)	Note
1170.00	V	11.93	29.56	41.49	74.00	Peak
1714.00	V	0.10	38.10	38.20	74.00	Peak
4910.00	V	0.17	42.80	42.97	74.00	Peak
19377.00	V	0.65	41.50	42.15	74.00	Peak
20261.00	V	0.63	43.50	44.13	74.00	Peak
21128.00	V	0.89	44.00	44.89	74.00	Peak

Remark: The EUT was placed on the top of the turntable in test site area.
 The resolution bandwidth setting on the test receiver was 120 KHz , Detector function peak (30 MHz~1000MHz).
 The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~26.5GHz).
 The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
 For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.
 The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.
 Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.
 Adjust the emission and slightly height of the antenna to locate the position with maximum reading.
 If the peak scan value lower limit more than 20dB, then this signal data does not show in graph.

Test Equipment List

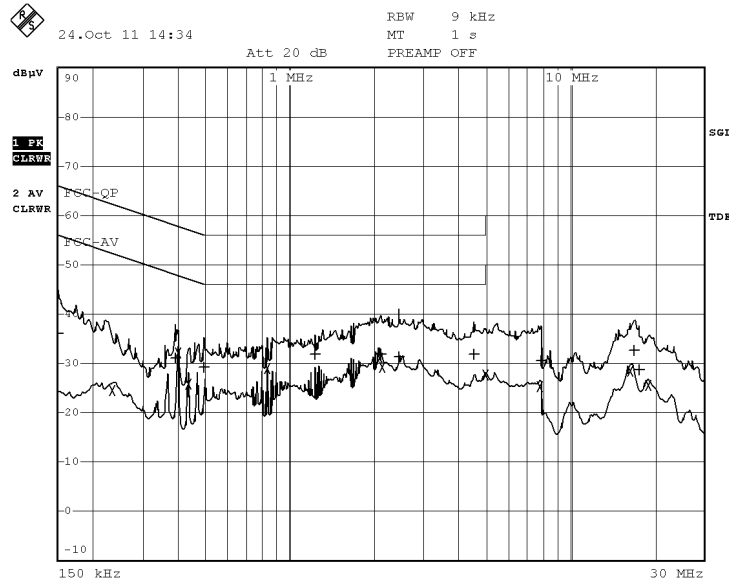
Radiated Emission Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
Antenna	EMCO	3142C	00066462	Jun .08.2012
Antenna	EMCO	3142C	00066464	Jun .08.2012
Amplifier	Agilent	8447D	2944A11203	Nov.26.2011
Amplifier	Agilent	8447D	2944A11204	Nov.26.2011
Spectrum Analyzer	Agilent	E4443A	MY48250370	Nov.26.2011
RF Pre-selector	Agilent	N9039A	MY46520201	Nov.26.2011
Test Cable	N/A	Cable_5m_8m_15m	N/A	Feb.04.2012
Test Cable	N/A	Cable_5m_11m_15m	N/A	Feb.04.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2011
RF Pre-selector	Agilent	N9039A	MY46520214	Nov.26.2011
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2011
Signal Generator	R&S	SMR 40	3008A02274	May.26.2012
Signal Generator	HP	8648A	3636A02964	May.26.2012
Amplifier	Agilent	8447D	2944A11203	May.26.2012
Amplifier	Agilent	8449B	3008A02274	May.26.2012
Double Ridged Guide Antenna	ETS-LINDGREN	3115	00075846	May.27.2012
Antenna	SCHWARZBECK	VULB 9160	9160-3231	Jun .08.2012
Test Cable	N/A	CL-CB02-001	N/A	Dec.06.2011
Test Cable	N/A	CL-CB02-004	N/A	Dec.06.2011
Test Cable	N/A	CL-CB02-006	N/A	Dec.06.2011
Controller	CT	SC100	N/A	N/A
Wireband Power sensor	Agilent	N1921A	MY45240824	May.26.2012
DC power supply	GW Instek	GPC-30300N	EK880675	Oct.18.2012
Horn Antenna	Schwarzbeck	VULB9160	9160-3232	May.26.2012
Broad-Band Horn Antenna	ETS	3115	00075789	May,12.2012
Triple Loop Antenna	R&S	HFH2-Z2	830749/020	May.27.2012

6.2 Conducted Emission Test 150kHz – 30MHz

Date of test : 24 October 2011
 Test requirement : FCC Part 15 Section 15.107
 Test method : ANSI C63.4:2003
 Operating mode : PC connect
 Tested on : AC Mains, Live
 Remarks : IF bandwidth 9kHz, RBW, 9kHz, VBW, 9kHz

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



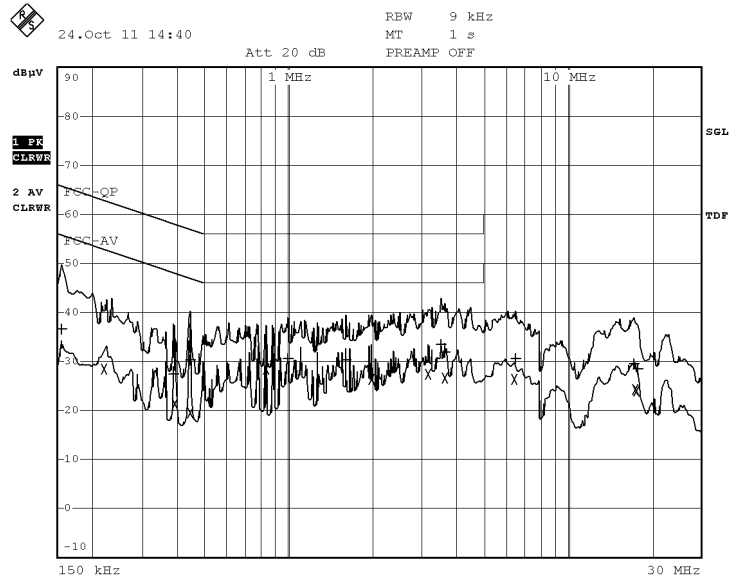
EDIT PEAK LIST (Final Measurement Results)

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	150 kHz	35.99	-30.00
2 Average	235.5 kHz	24.53	-27.71
1 Quasi Peak	388.5 kHz	31.12	-26.97
2 Average	397.5 kHz	32.22	-15.68
2 Average	433.5 kHz	25.83	-21.35
1 Quasi Peak	492 kHz	29.36	-26.76
2 Average	829.5 kHz	29.01	-16.98
1 Quasi Peak	1.2295 MHz	31.93	-24.06
2 Average	2.098 MHz	31.05	-14.94
1 Quasi Peak	2.107 MHz	31.79	-24.20
2 Average	2.1295 MHz	29.34	-16.65
1 Quasi Peak	2.449 MHz	31.44	-24.55
1 Quasi Peak	4.528 MHz	31.92	-24.07
2 Average	4.9915 MHz	27.78	-18.21
2 Average	7.813 MHz	25.42	-24.57
1 Quasi Peak	7.8715 MHz	30.47	-29.52
2 Average	16.408 MHz	28.56	-21.43
1 Quasi Peak	17.0065 MHz	32.55	-27.44
1 Quasi Peak	17.677 MHz	28.78	-31.21
2 Average	18.964 MHz	25.43	-24.56

Conducted Emission Test 150kHz – 30MHz

Date of test : 24 October 2011
 Test requirement : FCC Part 15 Section 15.107
 Test method : ANSI C63.4:2003
 Operating mode : PC connect
 Tested on : AC Mains; Neutral
 Remarks : IF bandwidth 9kHz, RBW, 9kHz, VBW, 9kHz

Test Result
 Passed
 Not Passed



EDIT PEAK LIST (Final Measurement Results)

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
Trace1:	FCC-QP		
Trace2:	FCC-AV		
Trace3:	---		
1 Quasi Peak	154.5 kHz	36.60	-29.15
2 Average	222 kHz	28.34	-24.39
1 Quasi Peak	384 kHz	27.52	-30.67
2 Average	388.5 kHz	21.45	-26.63
1 Quasi Peak	442.5 kHz	30.38	-26.63
2 Average	442.5 kHz	19.42	-27.58
2 Average	829.5 kHz	28.50	-17.49
1 Quasi Peak	1 MHz	30.45	-25.54
1 Quasi Peak	1.6075 MHz	30.35	-25.64
2 Average	1.9945 MHz	26.44	-19.55
2 Average	3.16 MHz	27.51	-18.48
1 Quasi Peak	3.5245 MHz	33.32	-22.67
1 Quasi Peak	3.646 MHz	31.96	-24.03
2 Average	3.646 MHz	26.60	-19.39
2 Average	6.4315 MHz	26.23	-23.76
1 Quasi Peak	6.544 MHz	30.58	-29.41
1 Quasi Peak	17.344 MHz	29.53	-30.46
2 Average	17.47 MHz	24.36	-25.63
2 Average	17.668 MHz	23.96	-26.03
1 Quasi Peak	17.821 MHz	28.33	-31.66



Hong Kong

Test Equipment List

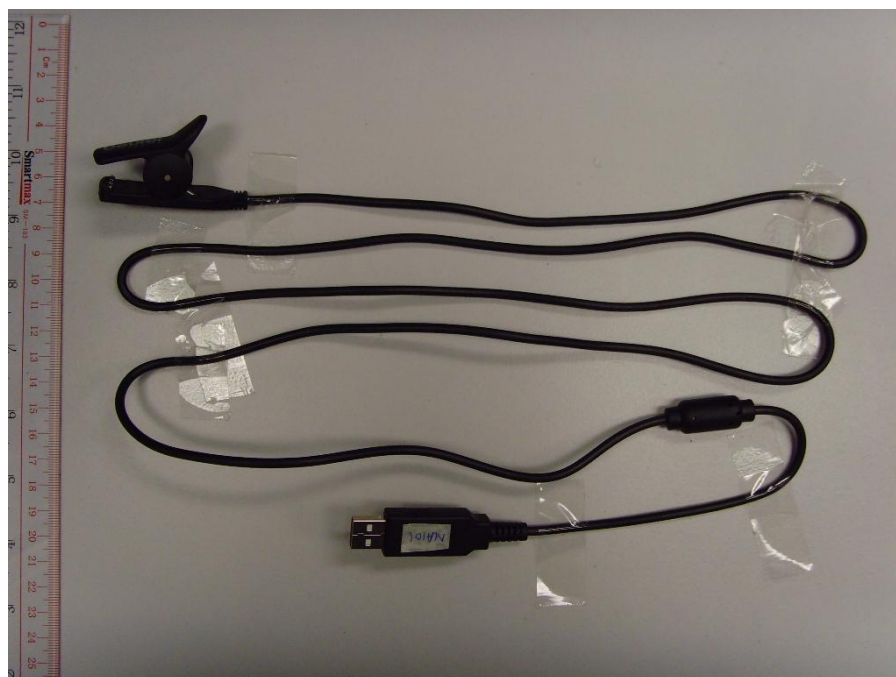
Conducted Emission Test

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL.DUE DATE
60-7/63-06-006	EMI Test Receiver	Rohde & Schwarz	ESCI	100427	29-Mar-11	29-Mar-12
60-7/65-08-014	Coaxial Cable	N/A	N/A	N/A	15-Jun-11	15-Jun-12
60-7/60-08-002	LISN	Rohde & Schwarz	ENV 216	100432	25-Mar-11	25-Mar-12

7 Appendix A



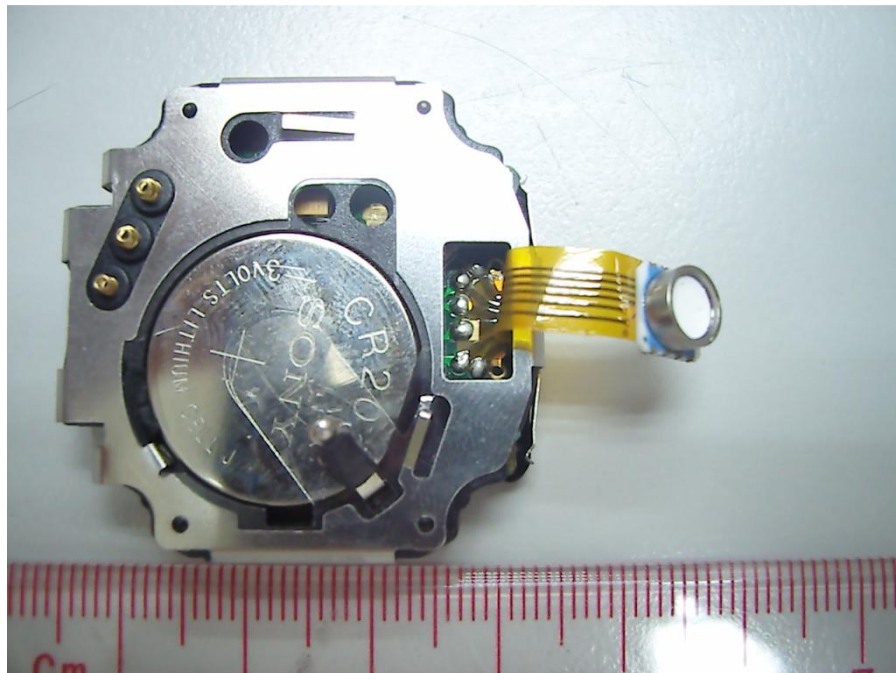
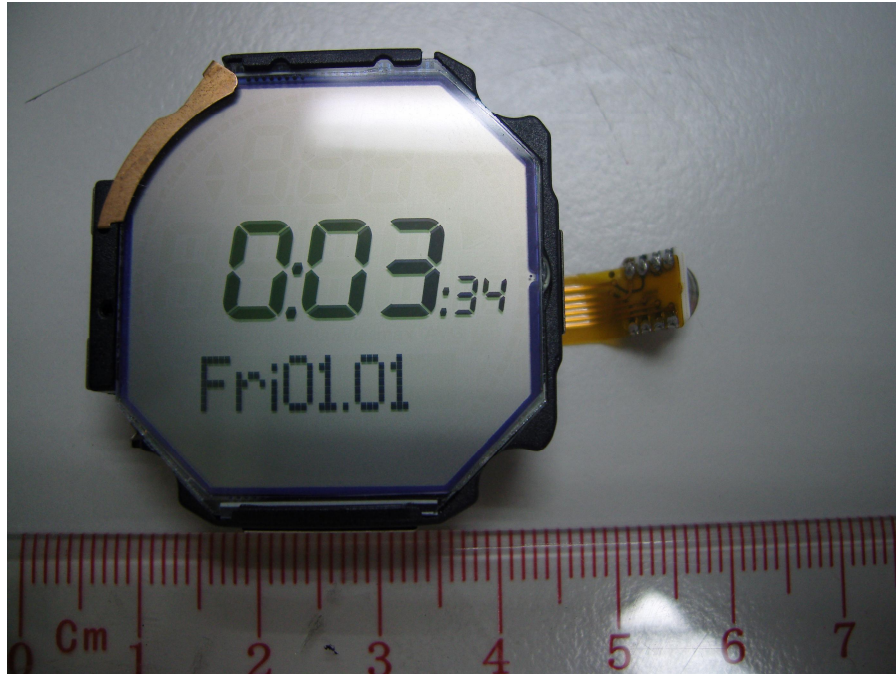
Appendix A



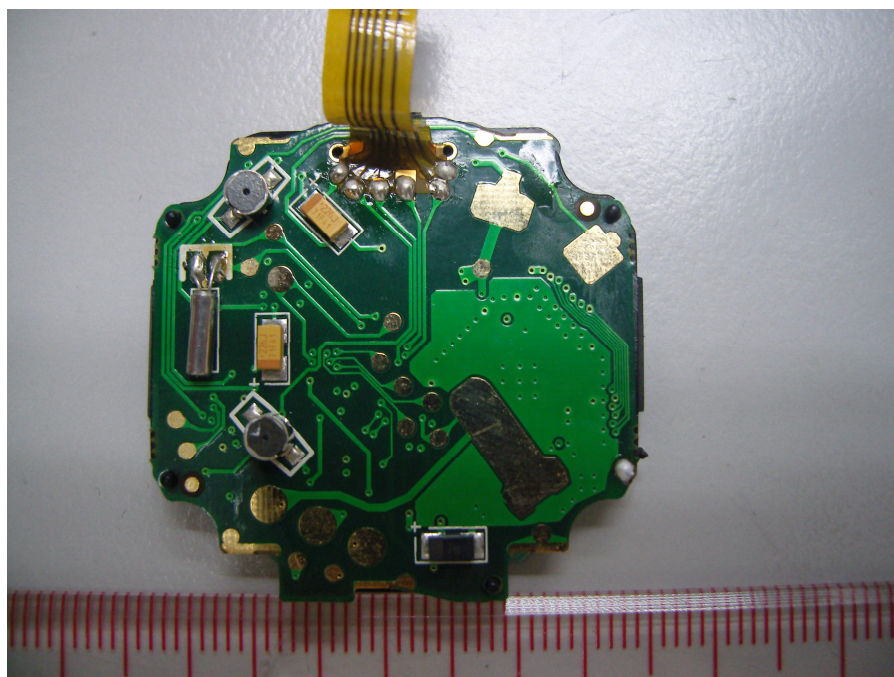
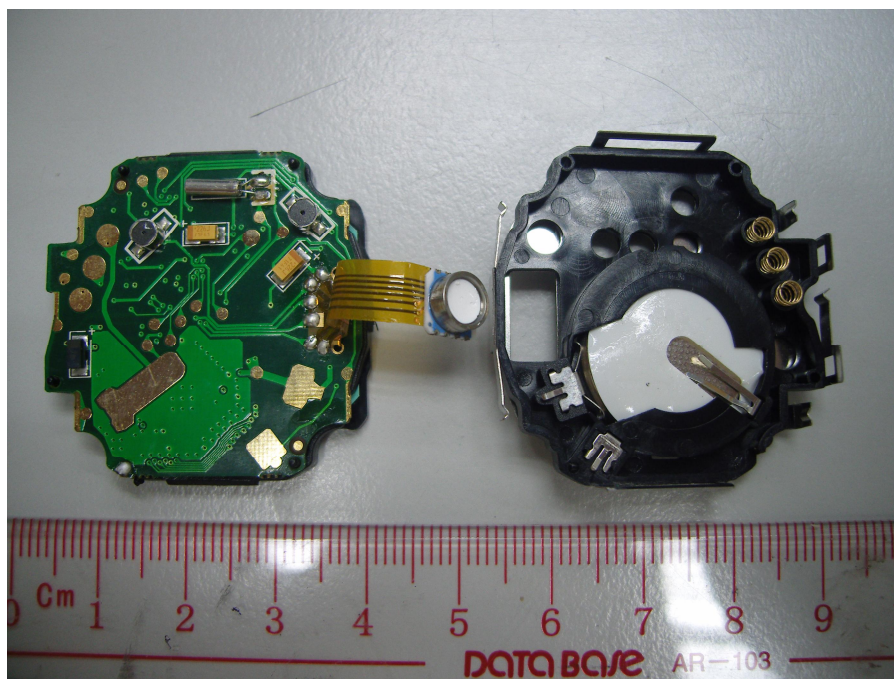
Appendix A



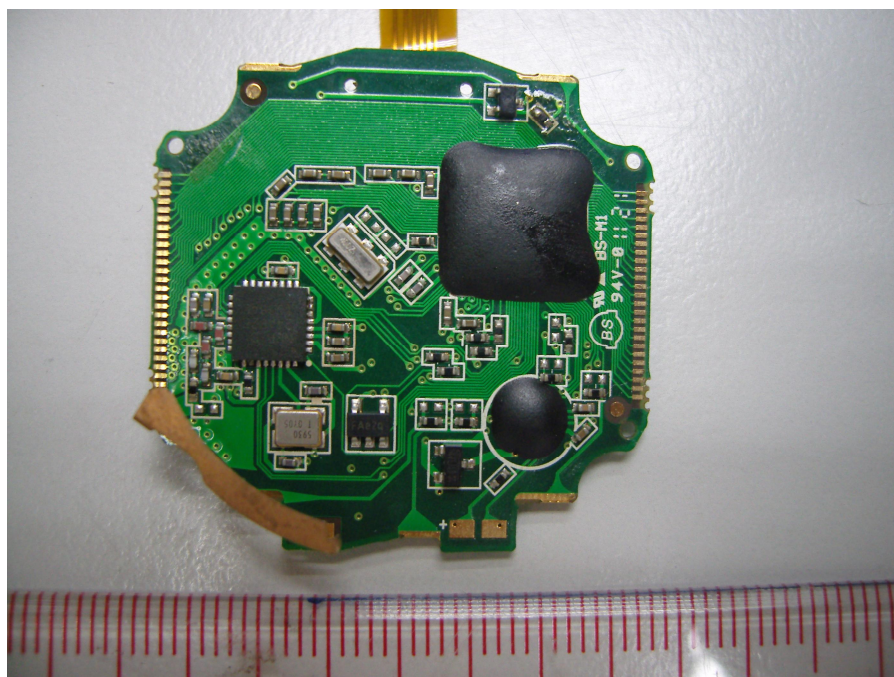
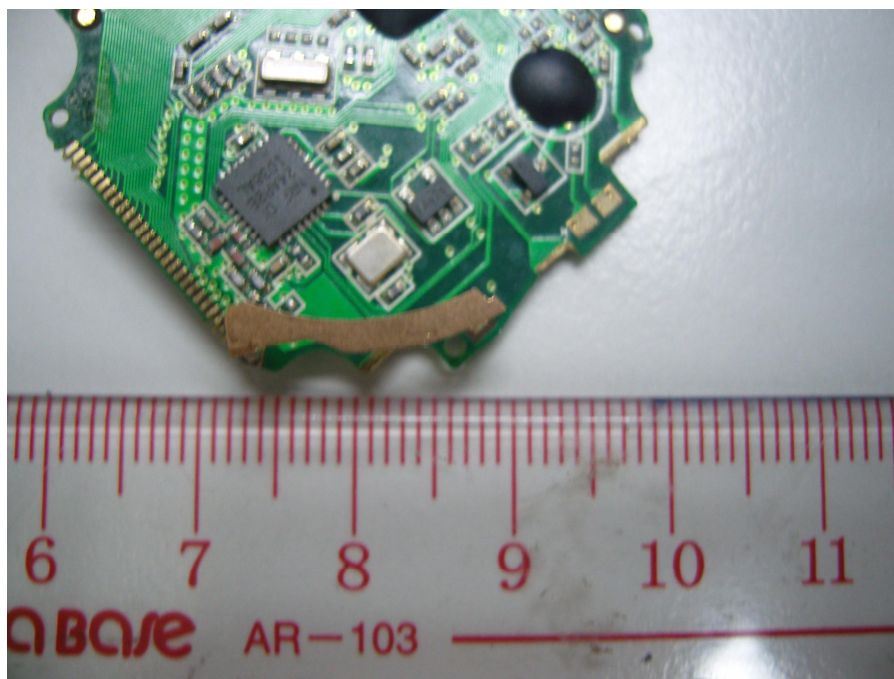
Appendix A



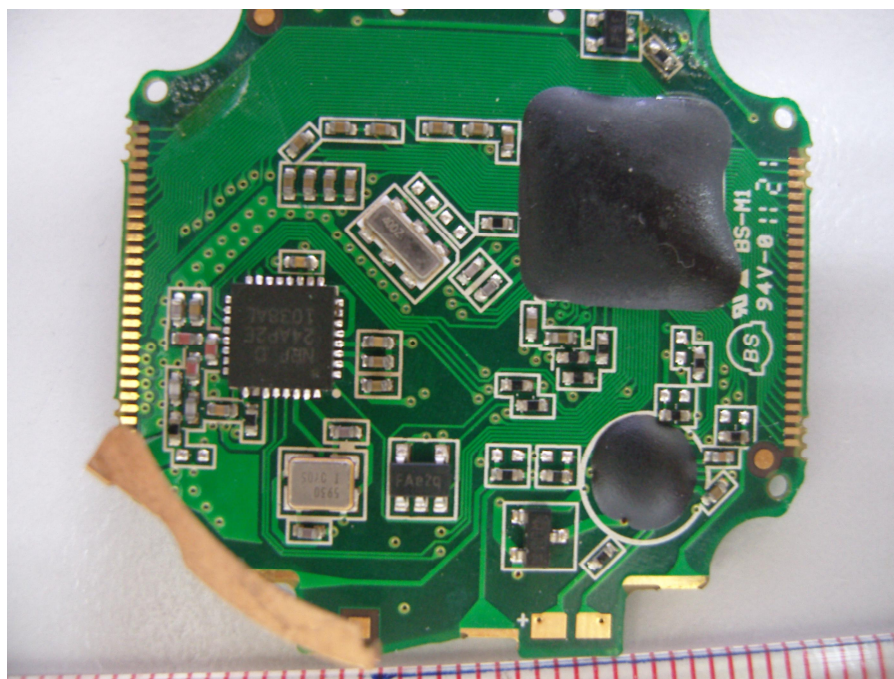
Appendix A



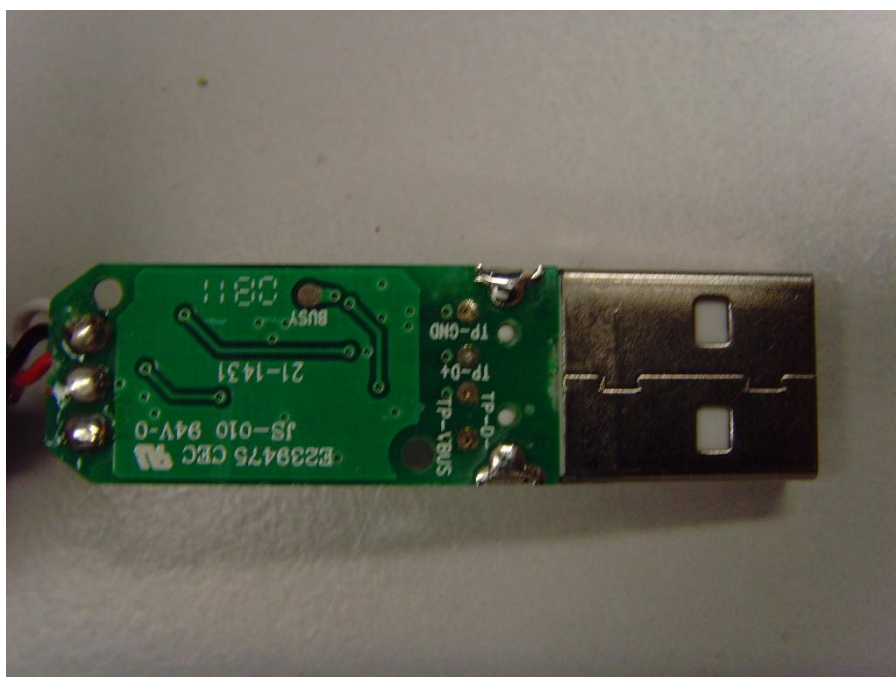
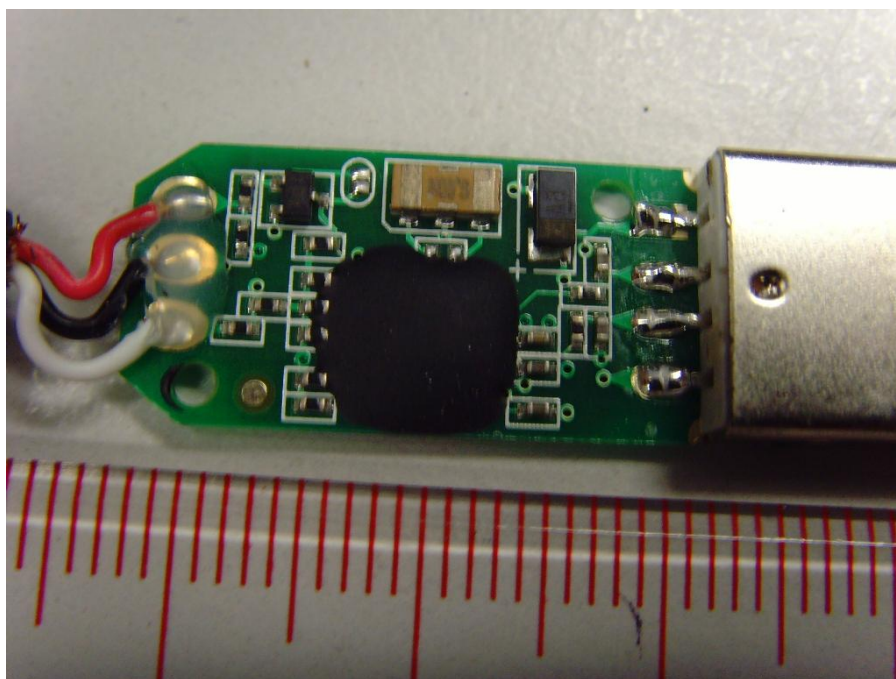
Appendix A



Appendix A



Appendix A



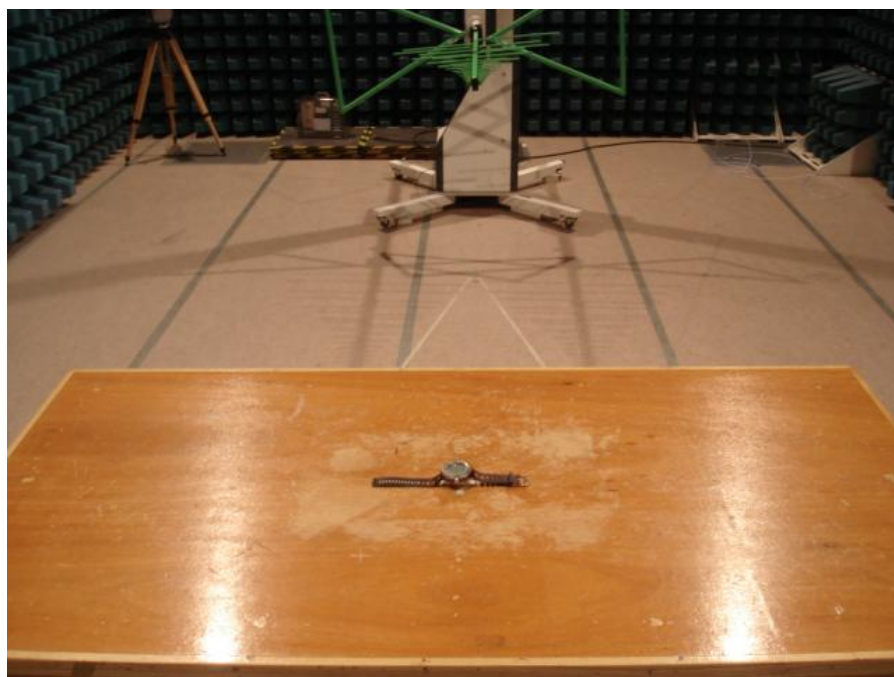
8 Appendix B

Radiated Emission Test Set Up



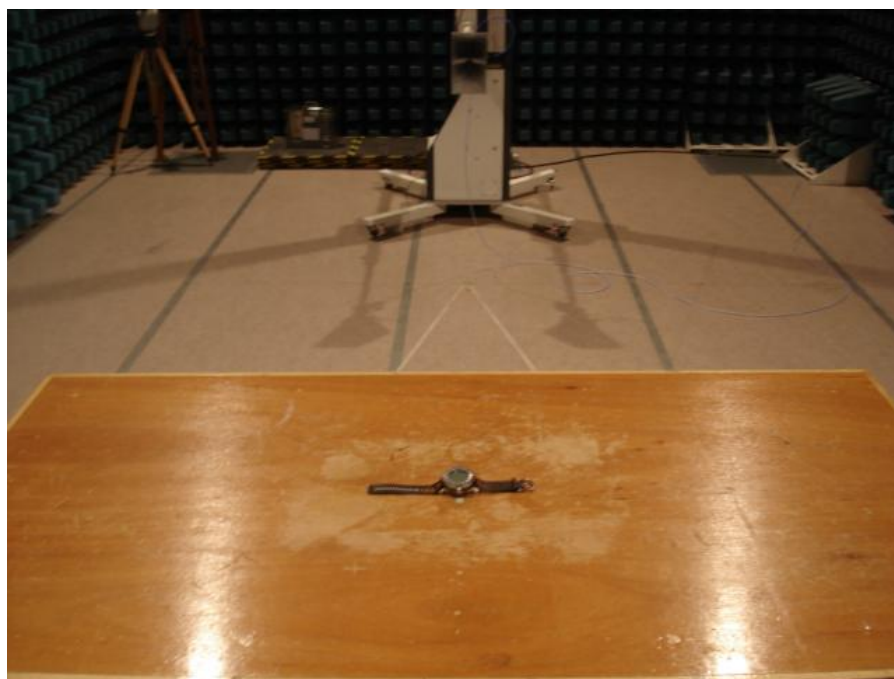
9kHz-30MHz

Appendix B



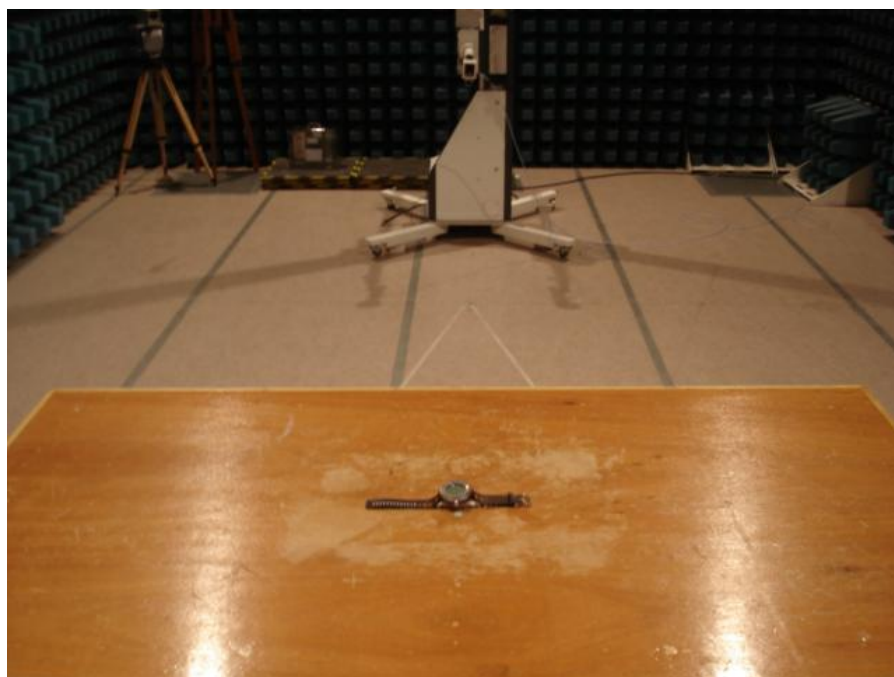
30MHz-1GHz

Appendix B



1GHz -18GHz

Appendix B



18GHz above

Appendix B

Conduct Emission Test Set Up



9 Appendix C

