FCC Test Report

According to

47 CFR Part 15 Subpart B

Equipment	:	**PCI Extreme**
Trade Name	:	**Wavecom**
Model Name	:	**PCIE-100**
FCC ID	:	**O9EPCIE100**
Filing Type	:	**Declaration of Conformity**
Applicant	:	**Wavecom S.A.**

3 esplanade du Foncet, Issy-les-Moulineaux,
92442 Cedex - France

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- Report Version: Rev. 01

SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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History of This Test Report

Report Issue Date: Aug. 04, 2008

Report No.	Description

Certificate No. : FD863020

CERTIFICATE OF COMPLIANCE

According to

47 CFR Part 15 Subpart B

Equipment : PCI Extreme

Trade Name : Wavecom

Model Name : PCIE-100

FCC ID : O9EPCIE100

Filing Type : Declaration of Conformity

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I **HEREBY** CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 - 2003 and the energy emitted by this equipment was *passed* FCC Part 15 B, radiated and conducted emission class B limits. Testing was carried out on Jul. 31, 2008 at SPORTON International Inc. LAB.

Roy Wu
Manager

SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1 Applicant

Wavecom S.A.

3 esplanade du Foncet, Issy-les-Moulineaux, 92442 Cedex - France

1.2 Manufacturer

Wavecom S.A.

3 esplanade du Foncet, Issy-les-Moulineaux, 92442 Cedex - France

1.3 Feature of Equipment under Test

Product Feature & Specification	
DUT Type :	PCI Extreme
Trade Name :	Wavecom
Model Name :	PCIE-100
FCC ID :	O9EPCIE100
Tx Frequency :	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz
Rx Frequency :	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz
HW Version :	V410
SW Version :	CL114192
GPRS / EGPRS Multislot class :	12
Type of Modulation :	GSM/GPRS : GMSK EDGE : 8PSK WCDMA/HSDPA/HSUPA : QPSK
DUT Stage :	Production Unit

2. Test Configuration of Equipment under Test

2.1 Test Manner

a. The EUT has been setup pursuant to ANSI C63.4-2003 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.

b. The complete test system refers to 2.2 for EMI test.

c. The following test modes were tested for radiation test:

Mode 1 : GSM850 Idle

Mode 2 : GSM1900 Idle

Mode 3 : **EDGE Idle**

Mode 4 : WCDMA Idle

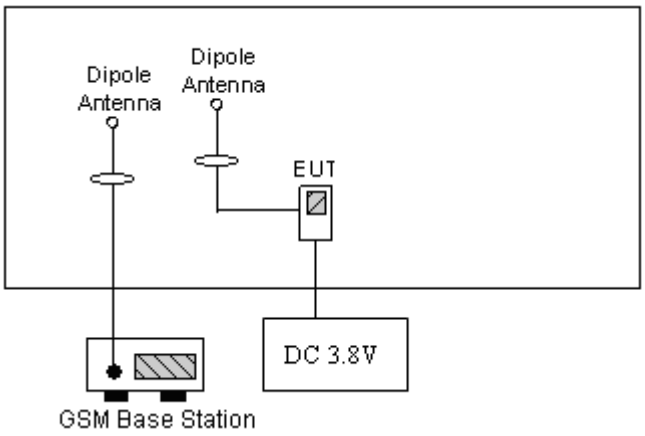
Remark: The worst case of radiation is mode 3; only the test data of it was reported.

d. Frequency range investigated: radiation 30 MHz to 13 GHz.

2.2 Description of Test System

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GSM Base Station	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW	GPC-60300	N/A	N/A	Unshielded, 1.8 m

2.3 Connection Diagram of Test System



3. Test Software

In GSM or WCDMA or EDGE idle mode, the EUT is synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

4. General Information of Test

4.1 Test Facility

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,
Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
Test Site No. : 03CH06-HY
FCC Designation No.: TW1022

4.2 Test Voltage

DC 3.8V

4.3 Standard for Methods of Measurement

ANSI C63.4-2003

4.4 Test Compliance

FCC Part 15 Subpart B

4.5 Frequency Range

a. Radiation: from 30 MHz to 13000MHz

4.6 Test Distance

The test distance of radiated emission from antenna to EUT is 3m.

5. Test of Radiated Emission

Radiated emissions from 30 MHz to 13 GHz were measured with a bandwidth of 120 kHz and 1MHz according to the methods defines in ANSI C63.4-2003. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

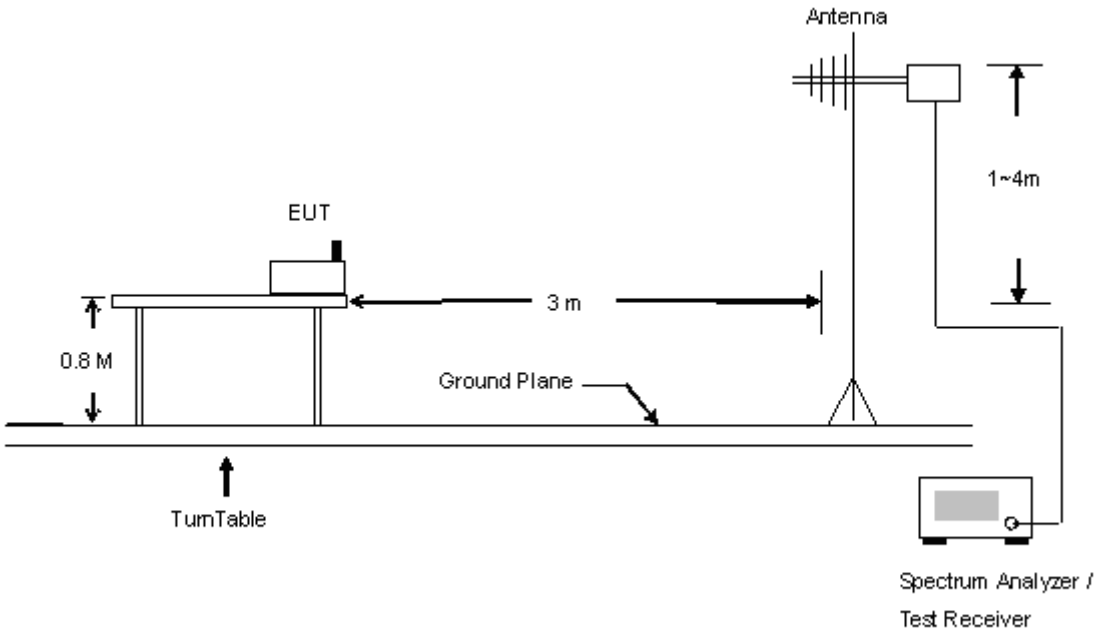
5.1 Major Measuring Instruments

As described in Chapter 6.

5.2 Test Procedures

a. The EUT was placed on a turntable with 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a Bi-Log antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both for horizontal polarization and vertical polarization of the antenna.
e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.

5.3 Typical Test Setup Layout of Radiated Emission

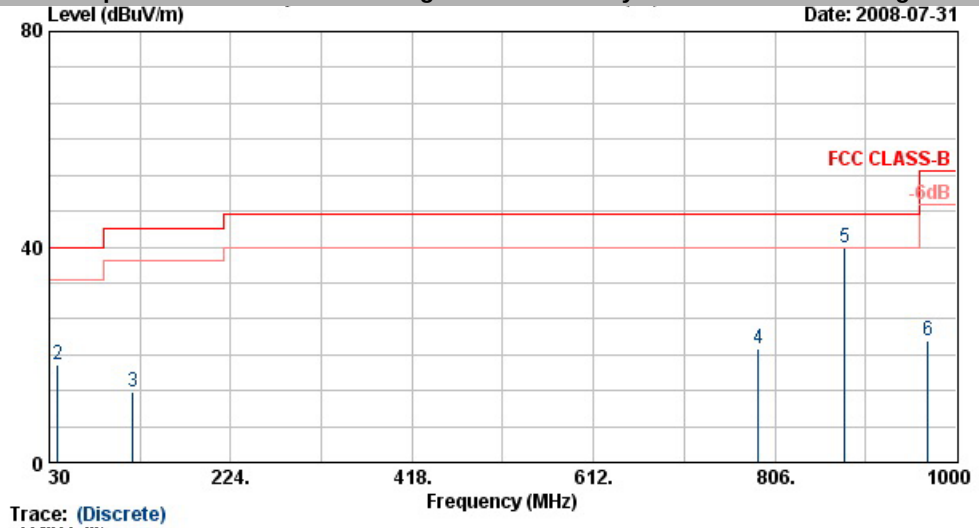


5.4 Test Result of Radiated Emission

5.4.1 Test Mode: Mode 3

- Test Distance: 3m
- Temperature: 25~26°C
- Relative Humidity: 58~59%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Test Engineer: Andrew
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

The test that passed at the minimum margin was marked by a frame in the following data



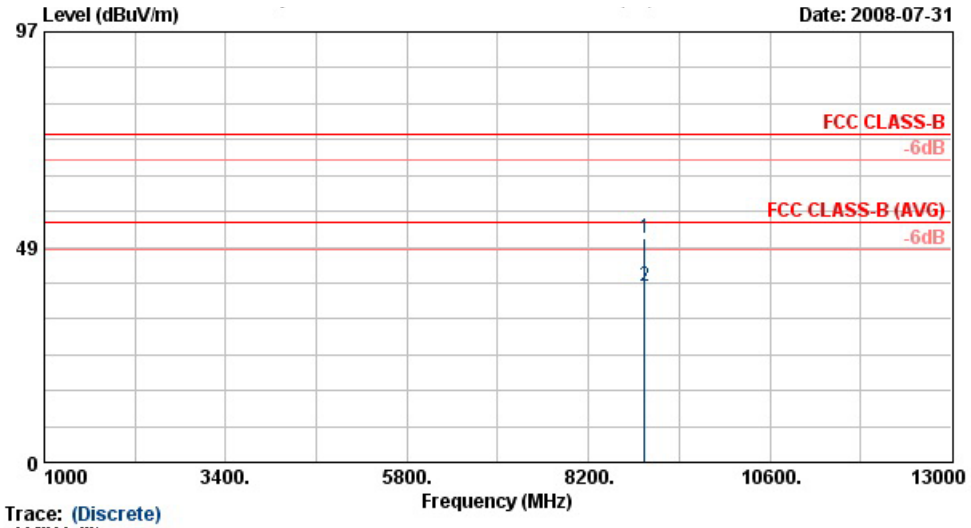
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : Module
Power : 3.8 Vdc
Model : FD 863020
Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	18.85	-21.15	40.00	30.45	19.66	0.30	31.56	100	132	Peak
2	38.64	18.05	-21.95	40.00	35.44	14.03	0.30	31.72	---	---	Peak
3	119.64	13.17	-30.33	43.50	31.91	12.50	0.50	31.74	---	---	Peak
4	787.90	21.24	-24.76	46.00	32.48	19.70	1.20	32.15	---	---	Peak
5	880.30	39.75			50.00	20.39	1.30	31.95	---	---	Peak
6	969.90	22.74	-31.26	54.00	31.56	21.03	1.30	31.15	---	---	Peak

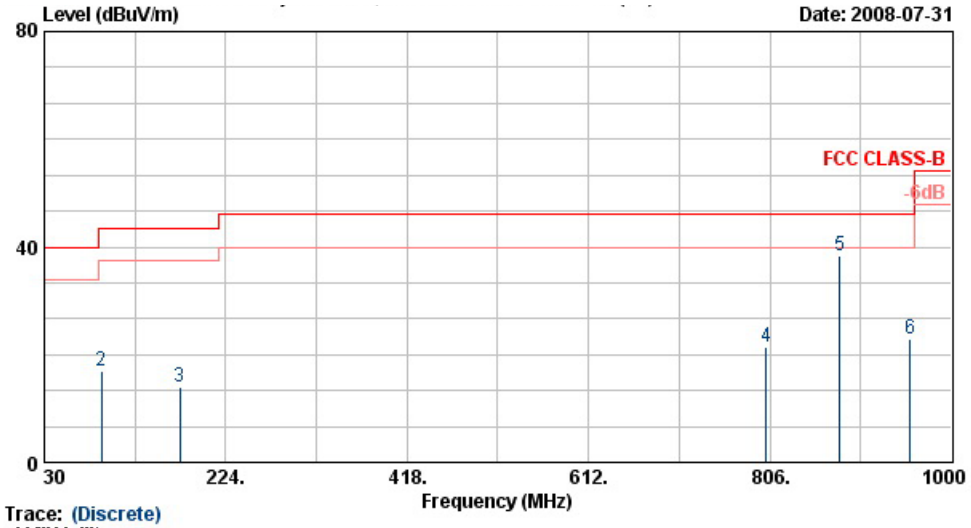
Remark:

1. #5: BS BCCH Signal.



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT(6-18)-060918 HORIZONTAL
EUT : Module
Power : 3.6 Vdc
Model : FD 863020
Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	8944.00	50.64	-23.36	74.00	43.06	36.41	7.74	36.57	100	0	Peak
2	8944.00	39.59	-14.41	54.00	32.01	36.41	7.74	36.57	100	121	Average

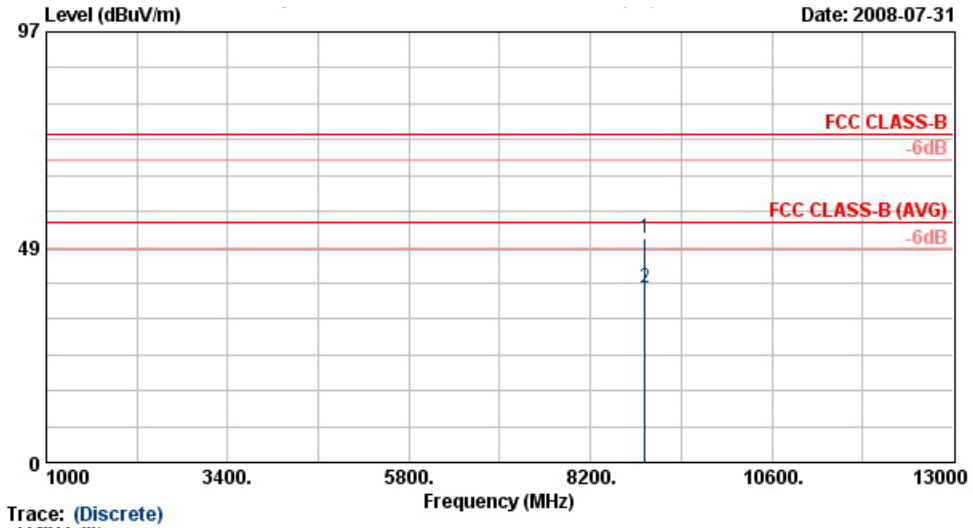


Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(9511121) VERTICAL
EUT : Module
Power : 3.6 Vdc
Model : FD 863020
Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	19.68	-20.32	40.00	31.28	19.66	0.30	31.56	100	227	Peak
2	91.29	17.01	-26.49	43.50	39.40	9.23	0.50	32.12	---	---	Peak
3	174.99	13.87	-29.63	43.50	35.44	9.82	0.60	31.98	---	---	Peak
4	801.90	21.55	-24.45	46.00	32.71	19.83	1.20	32.19	---	---	Peak
5	880.30	38.44			48.69	20.39	1.30	31.95	---	---	Peak
6	955.90	22.78	-23.22	46.00	31.93	20.93	1.26	31.34	---	---	Peak

Remark:

1. #5: BS BCCH Signal.



Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT(6-18)-060918 VERTICAL
EUT : Module
Power : 3.6 Vdc
Model : FD 863020
Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	8924.00	50.38	-23.62	74.00	42.84	36.38	7.71	36.56	100	0	Peak
2	8924.00	39.26	-14.74	54.00	31.72	36.38	7.71	36.56	100	245	Average

5.5 Photographs of Radiated Emission Test Configuration

Refer to Appendix B.

6. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00075962	1G~18G	Aug. 29, 2007	Aug. 28, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH06-HY)
Pre Amplifier	EMEC	PA303	PA303-SMA-059	100K~3GHz	Nov. 26, 2007	Nov. 25, 2008	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	103937	Third-Band	Oct. 19, 2007	Oct. 18, 2008	Radiation (03CH06-HY)

7. Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
Combined standard uncertainty Uc(y)	**1.27**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.54**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	Ci	$Ci*u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**4.72**				

8. Certification of NVLAP Accreditation

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200079-0

Sporton International, Inc. Hwa Ya EMC Laboratory
Tao Yuan Hsien 333
TAIWAN

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated 18 June 2005).

2008-01-01 through 2008-12-31
Effective dates

Sally S. Bruce
For the National Institute of Standards and Technology

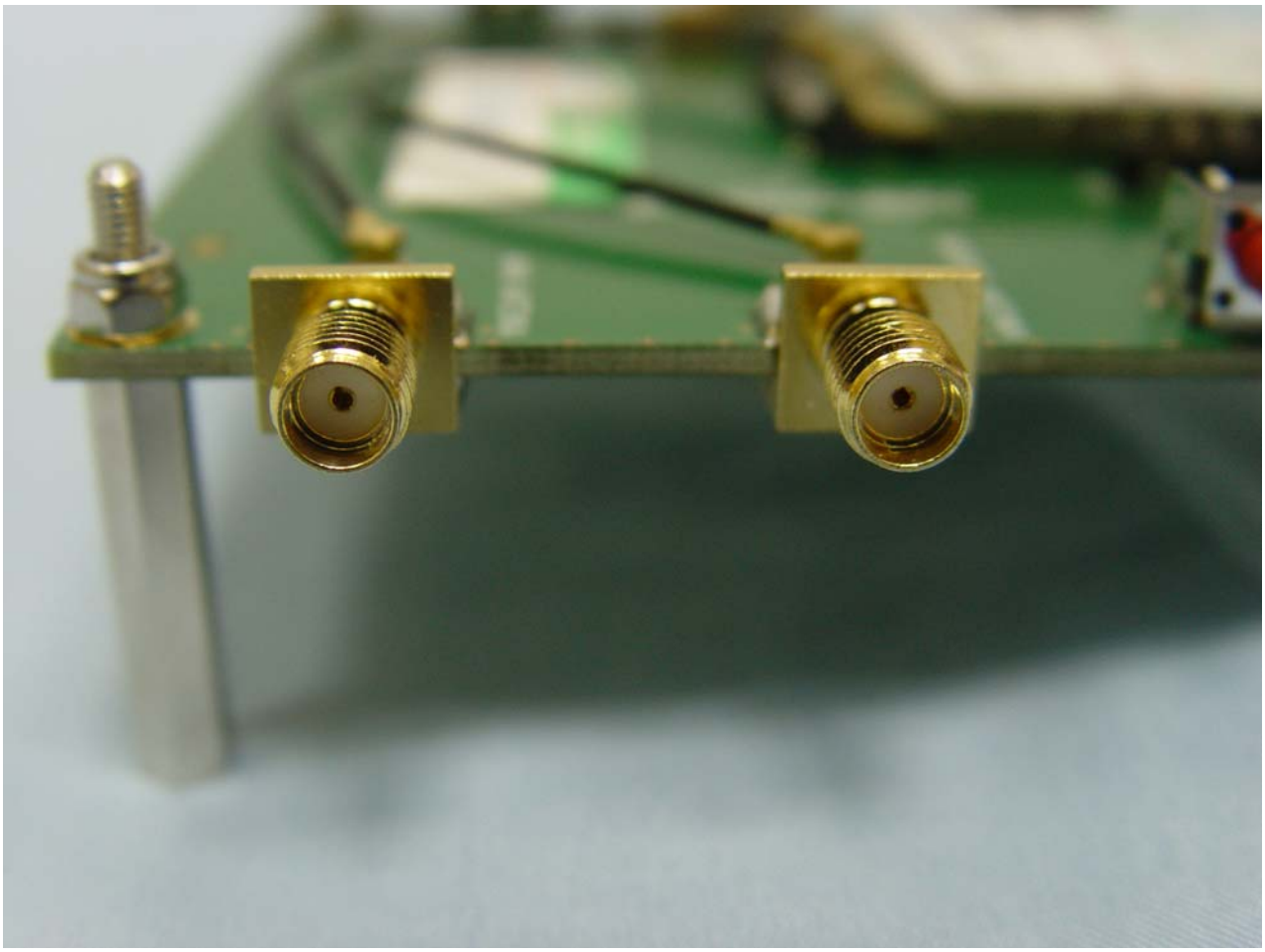
NVLAP-01C (REV. 2006-09-13)

Appendix A. Photographs of EUT

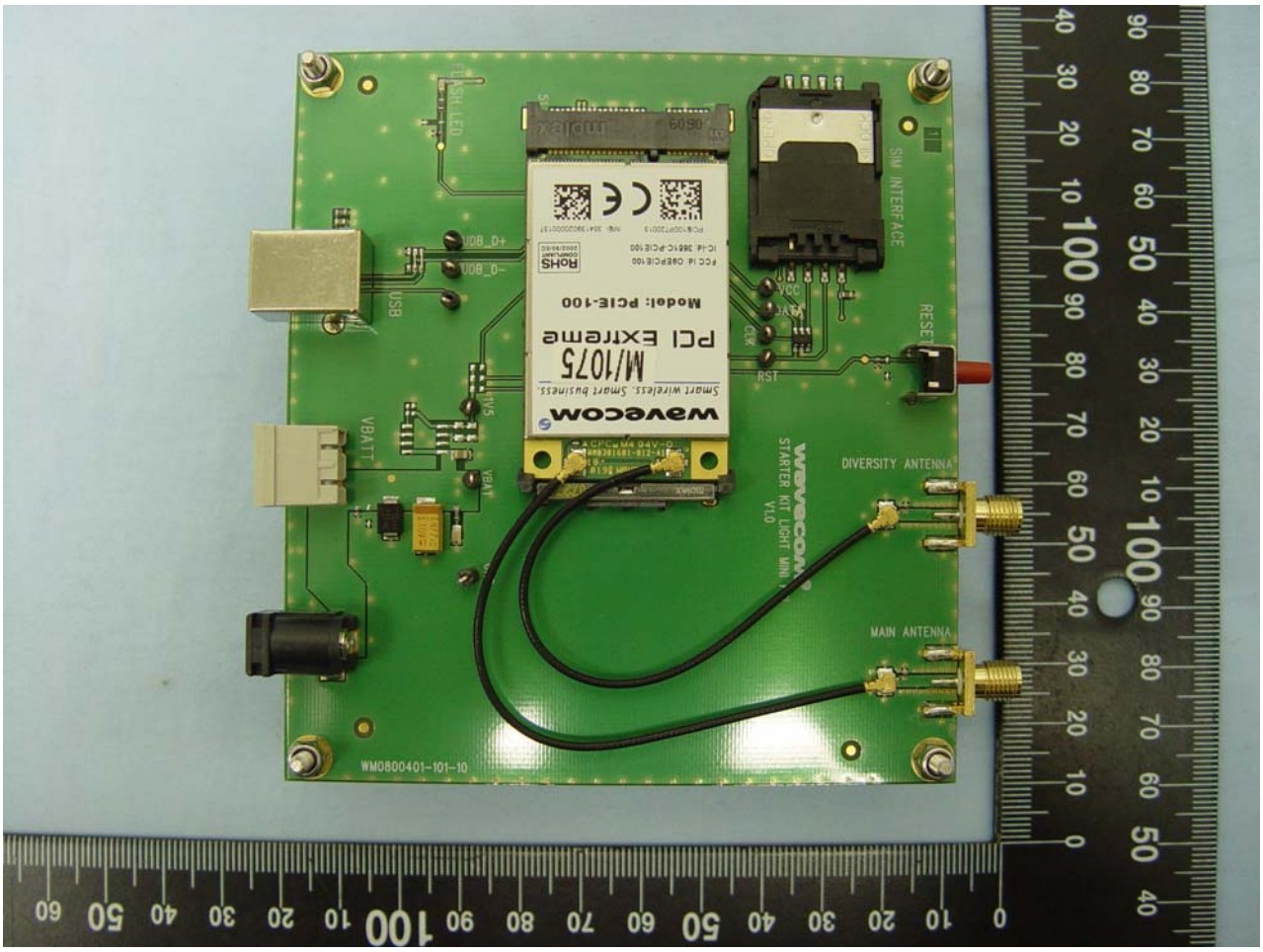
Please refer to Sporton report number EP863020 as below.

1. External Photographs of EUT

Model Name: Wavecom-PCIE100



Model Name: Wavecom-PCIE100



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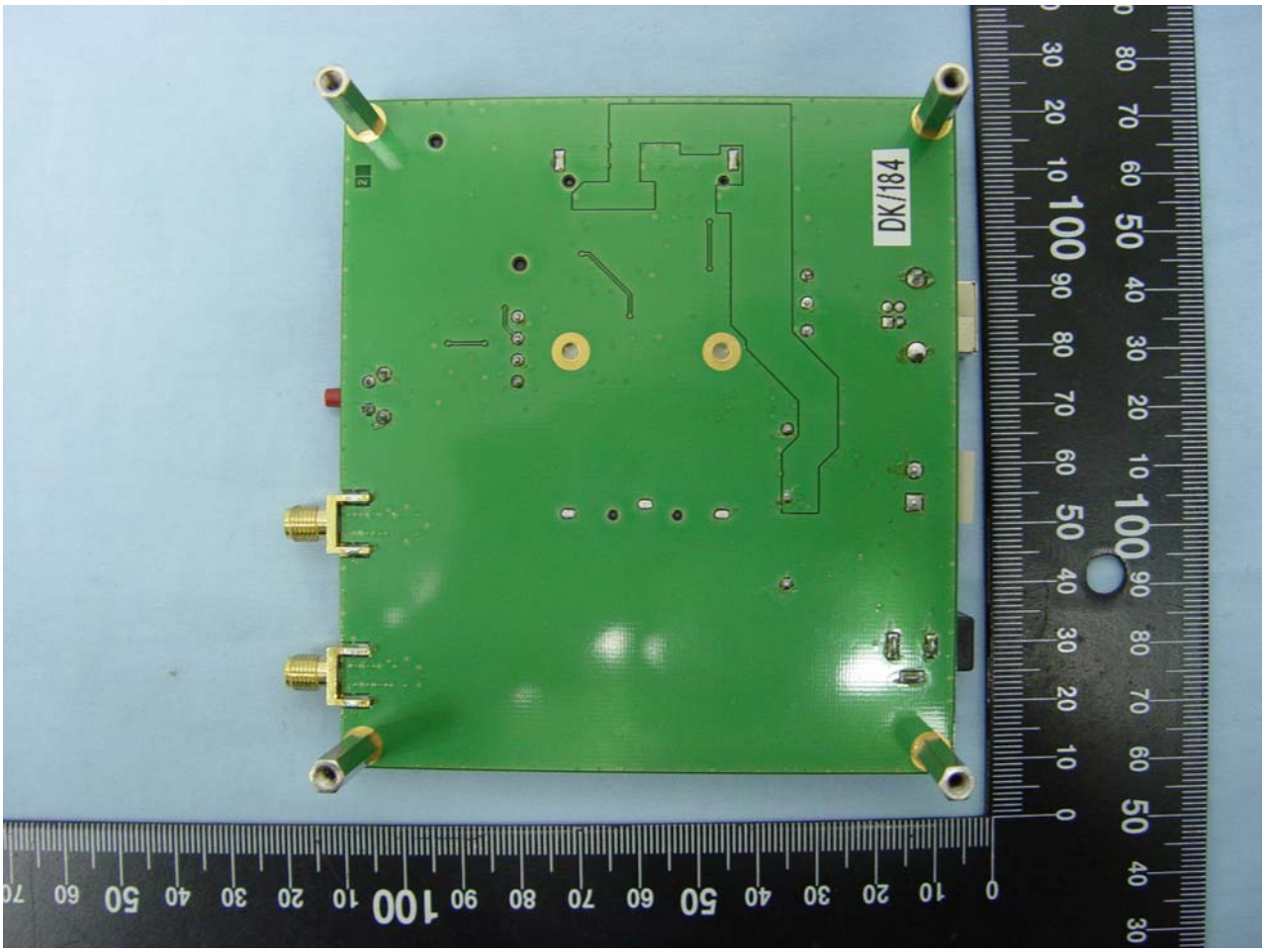
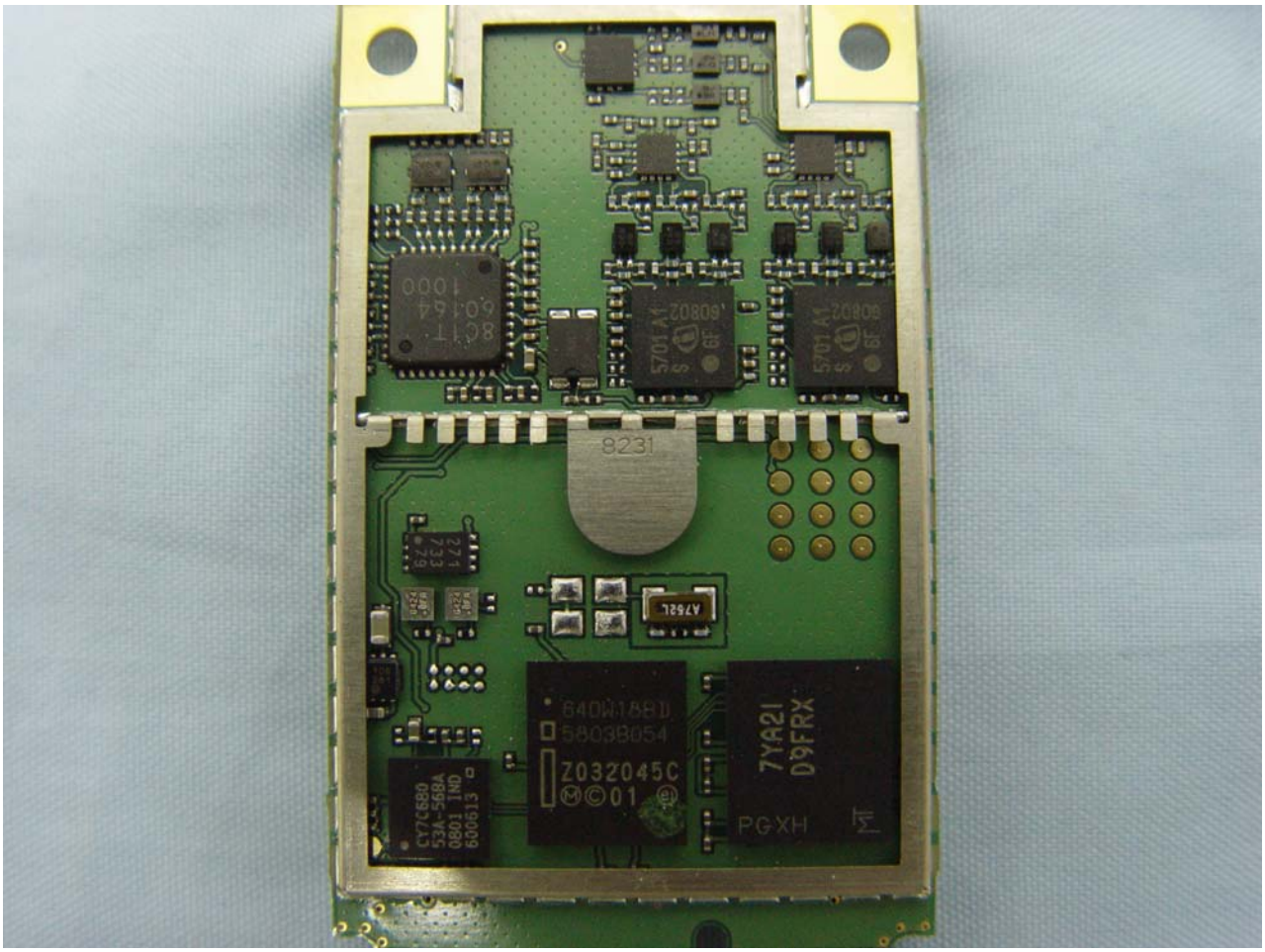
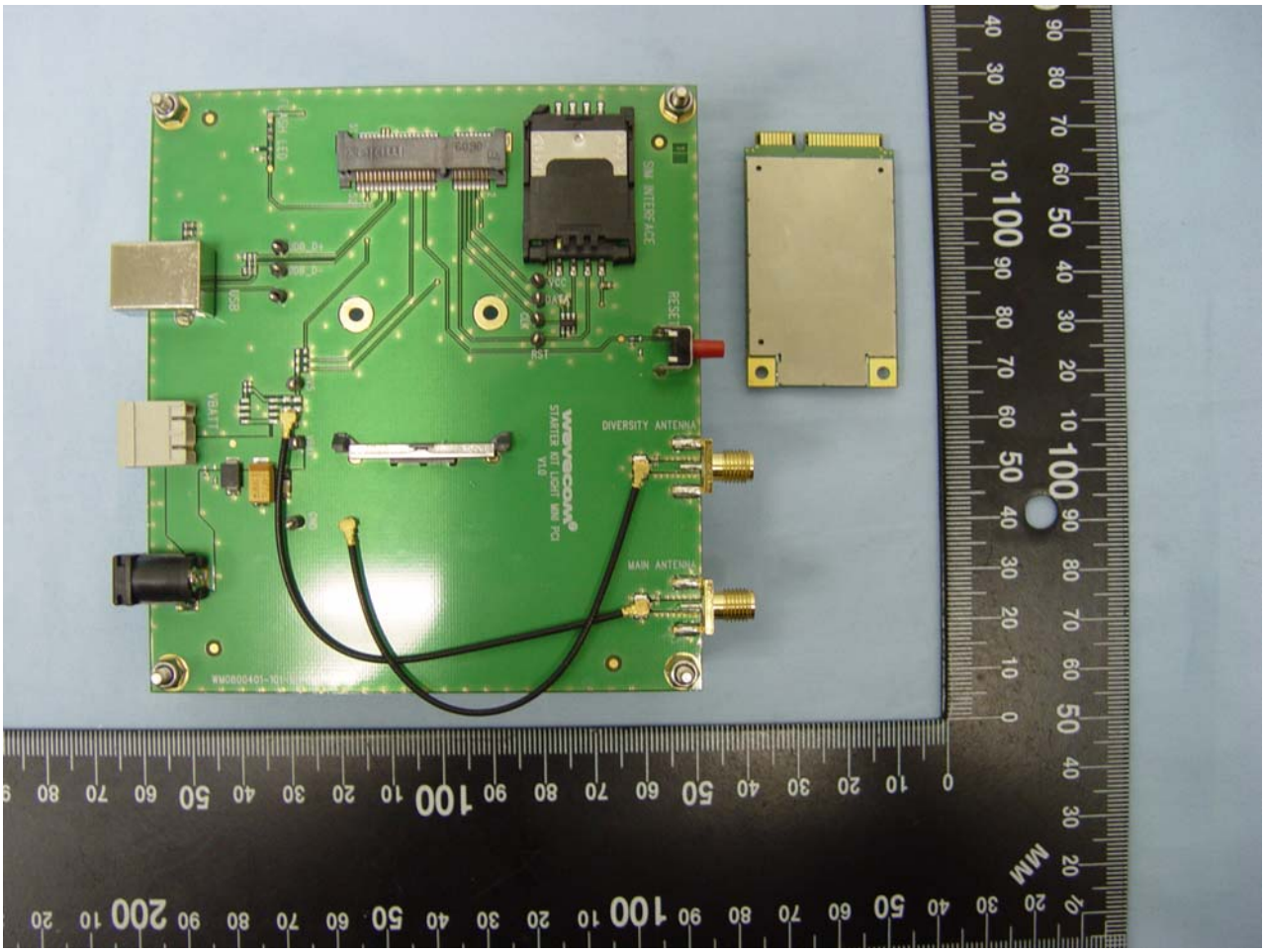


2. Internal Photographs of EUT

Model Name: Wavecom-PCIE100



Model Name: Wavecom-PCIE100



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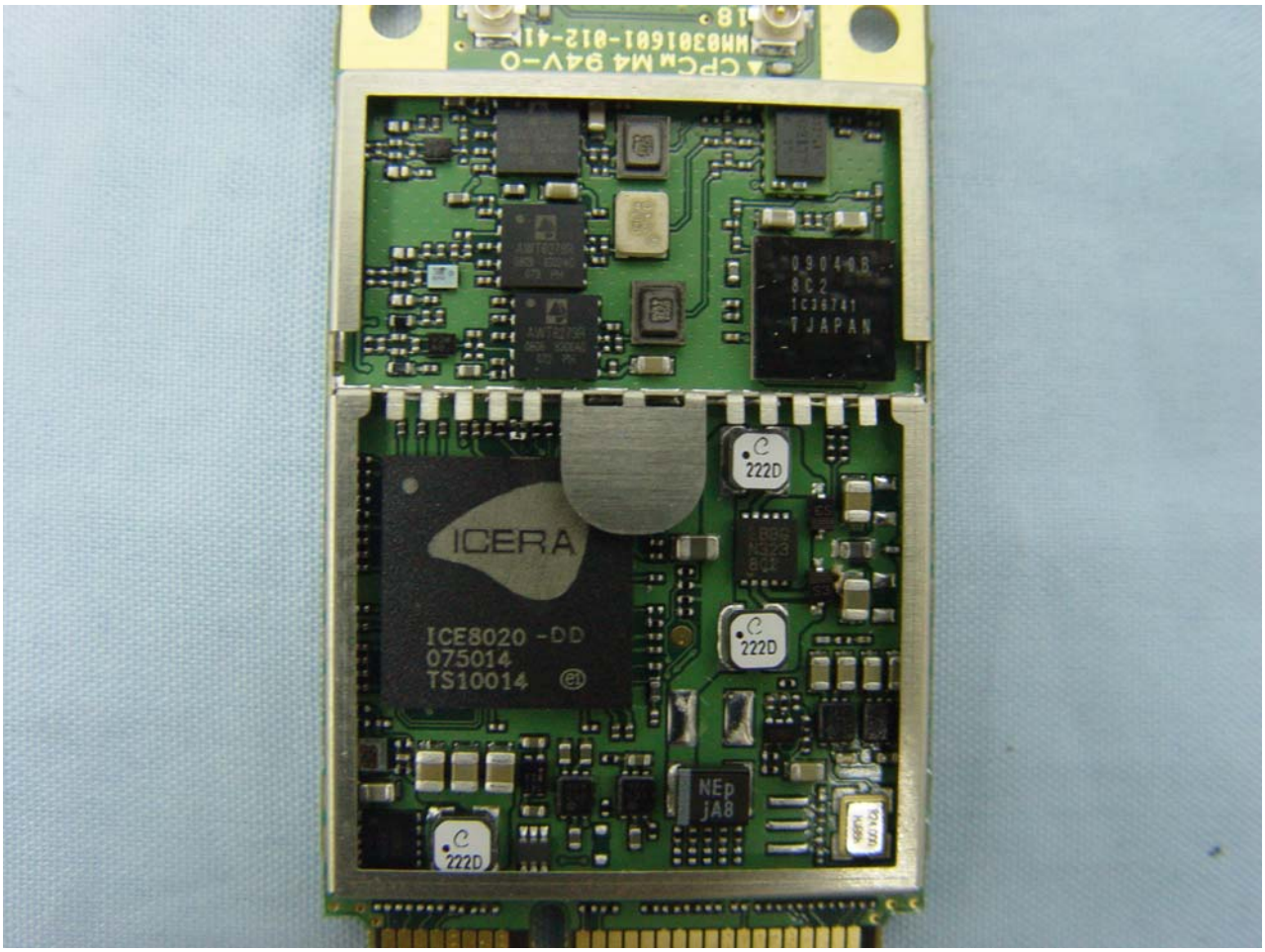
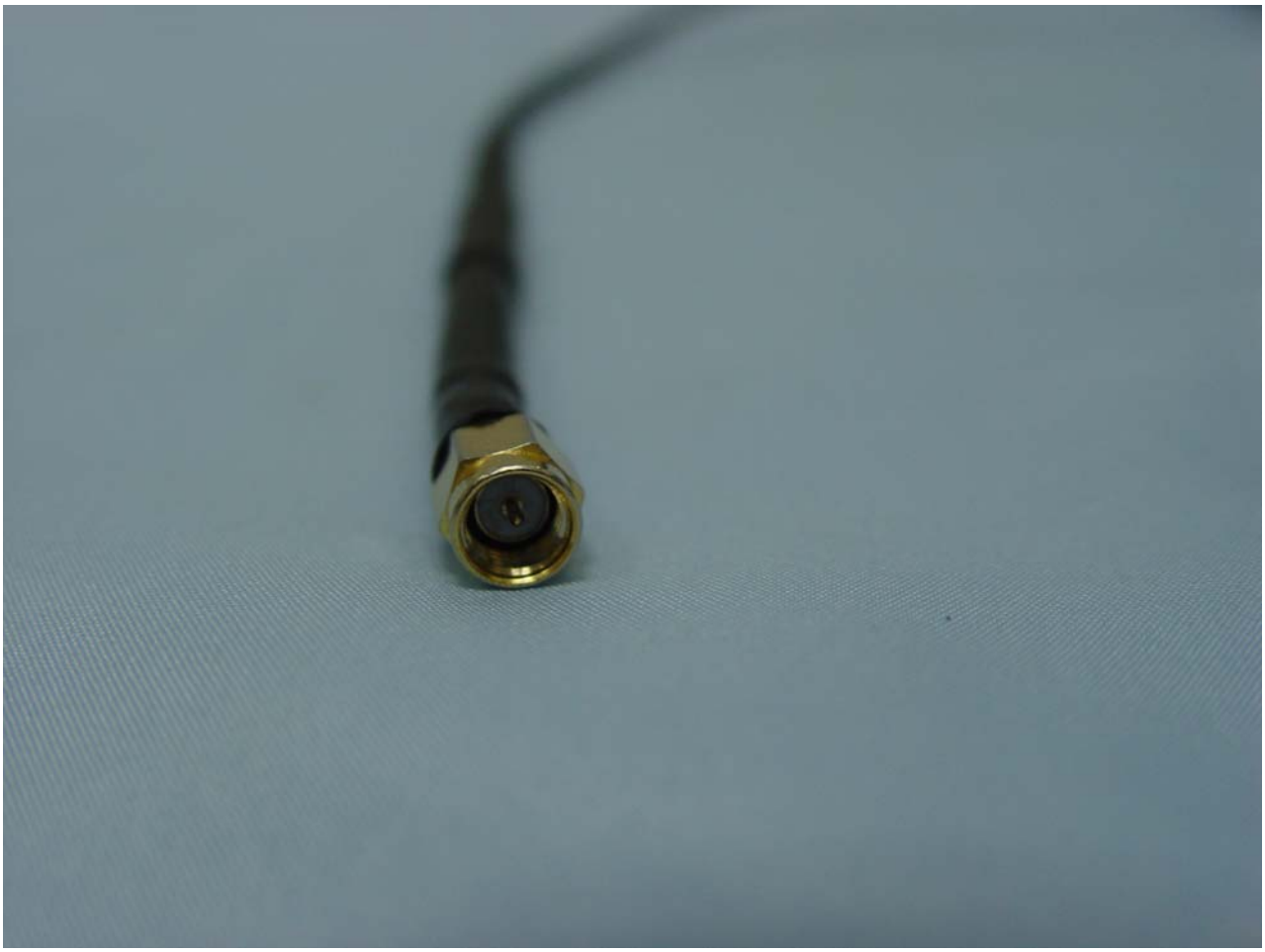
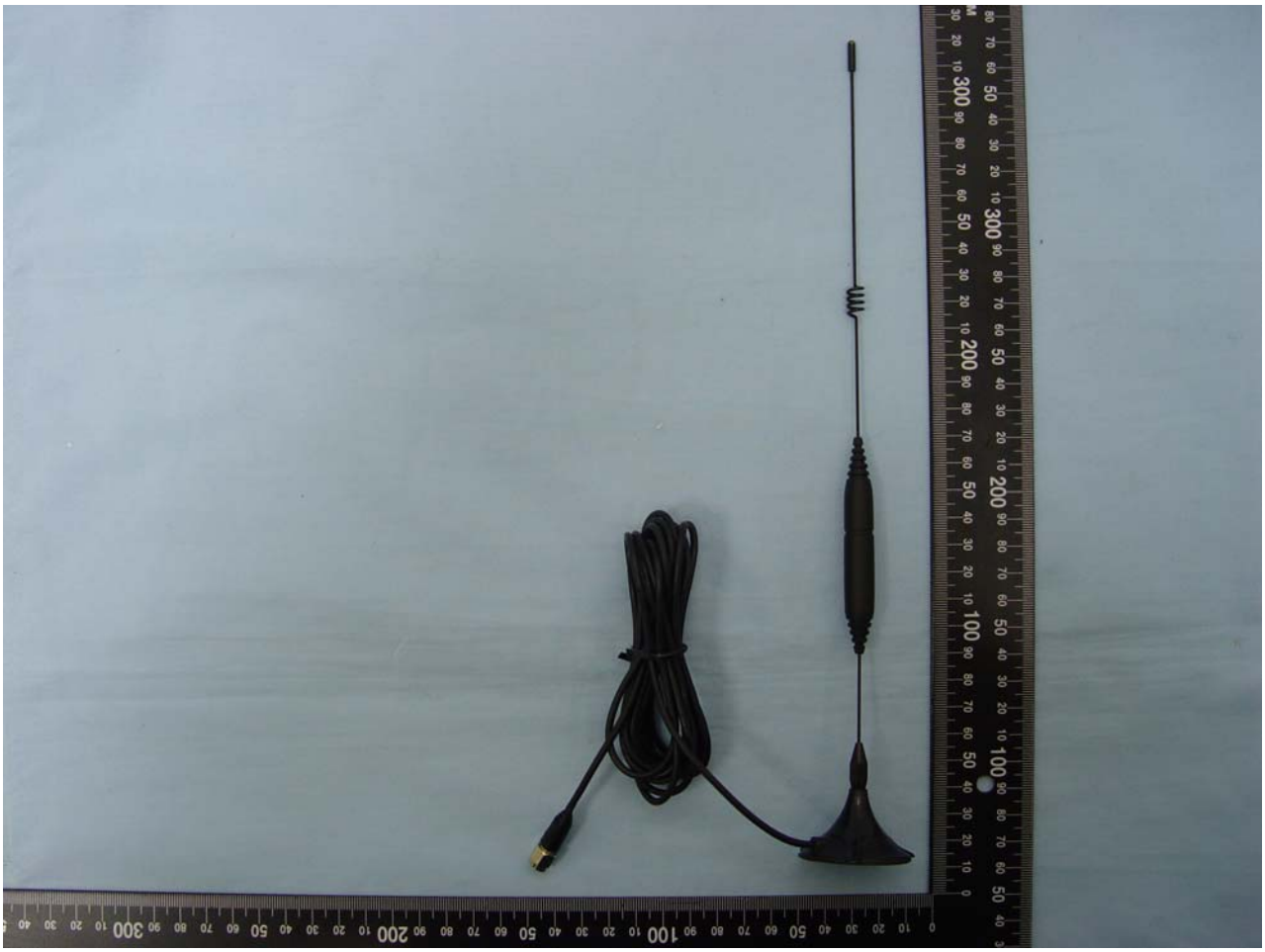


Model Name: Wavecom-PCIE100



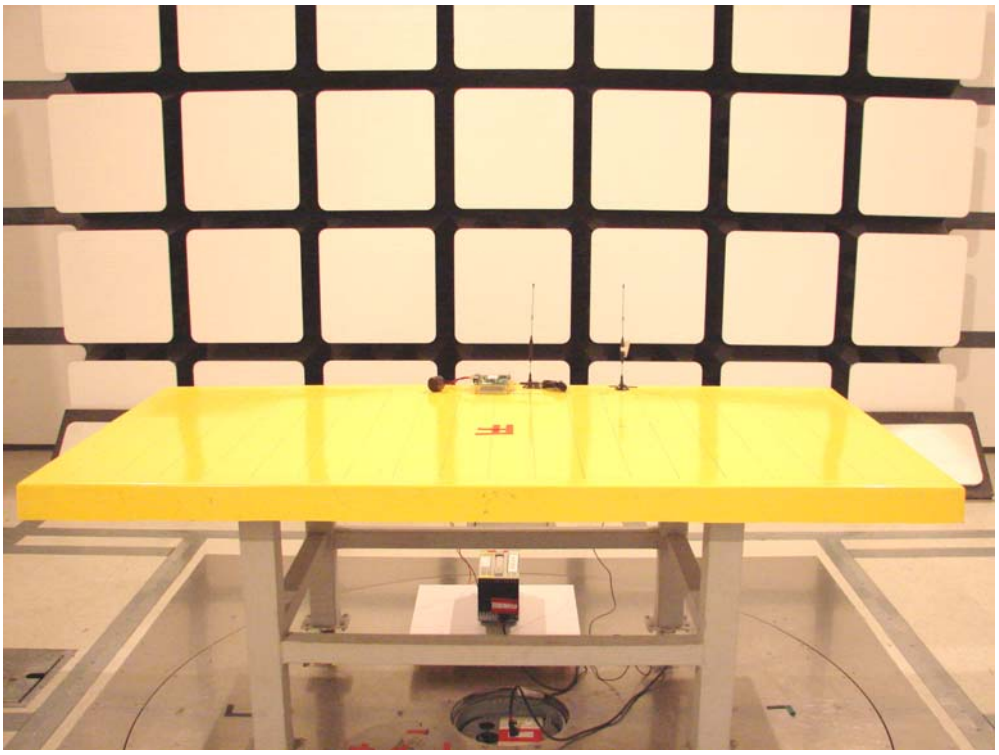
Model Name: Wavecom-PCIE100



Appendix B. Setup Photographs

Spurious Radiation
Mode 1~4

FRONT VIEW



REAR VIEW