

TEST REPORT

For

Cellular Phone

In conformity with

FCC Part15B (01 Oct, 2009)

Model: CDMA CA007

FCC ID: TYK-RAO1172

Test Item: Cellular Phone

Report No: RY1102P14R2

Issue Date: 14 Feb, 2011

Prepared for

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Prepared by

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History

Report No.	Issue Date	Revision Contents	Issued by
RY1102P14R2	14 Feb, 2011	Initial Issue	T.Kato

1 General information

1.1 Product description

Test item : Cellular phone
Manufacturer 1 : FLEXTRONICS INDUSTRIAL CO., LTD.
Address 1 : Xin Qing Science & Technology Industrial Park, Jing An, Doumen,
Zhuhai, Guangdong, P.R. China
Manufacturer 2 : TOKAI TEC CO., LTD.
Address 2 : 1410, Inada, Hitachinaka-shi, Ibaraki, Japan
Model : CDMA CA007
FCC ID : TYK-RAO1172
Description : CDMA2000 BC0 Cellular Phone
Operating Frequency : 128MHz (Max)
Receipt date of EUT : 01 Feb, 2011
Nominal power voltages : 3.7VDC (Lithium-ion battery)
Serial numbers : SCAEN000301

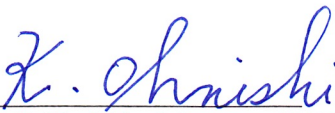
1.2 Test(s) performed/ Summary of test result

Applicable Standard(s) : Part15 Subpart B (01 Oct, 2009)
Test(s) started : 14 Feb, 2011
Test(s) completed : 14 Feb, 2011
Purpose of test(s) : Certification of FCC

Summary of test result : Complied

Note: The above judgment is only based on the measurement data and it does not include the measurement uncertainty. Accordingly, the statement below is applied to the test result. The EUT complies with the limit required in the standard in case that the margin is not less than the measurement uncertainty in the Laboratory. Compliance of the EUT is more probable than non-compliance is case that the margin is less than the measurement uncertainty in the Laboratory.

Test engineer : 
T. Kato (Engineer, EMC Testing Department)

Reviewer : 
K. Ohnishi (Manager, EMC Testing Department)

1.3 Test facility

The Federal Communications Commission has reviewed the technical characteristics of the test facilities at RF Technologies Ltd., located in 472, Nippa-cho, Kohoku-ku, Yokohama, 223-0057, Japan, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948, per 01 October, 2009.

The description of the test facilities has been filed under registration number 319924 at the Office of the Federal Communications Commission. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

The list of all public test facilities is available on the Internet at <http://www.fcc.gov>.

Registered by Voluntary Control Council for Interference by Information Technology Equipment (VCCI).

Each registered facility number is as follows;

Test site (Semi-anechoic chamber 3m) R-2393

Test site (Shielded room) C-2617

Registered by Industry Canada (IC). The registered facility number is as follows;

Test site No.1(Semi-anechoic chamber 3m) : 6974A-1

Accredited by **National Voluntary Laboratory Accreditation Program** (NVLAP) for the emission tests stated in the scope of the certificate under Certificate Number 200780-0

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.



NVLAP LAB CODE 200780-0

1.4 Measurement uncertainty

The treatment of uncertainty is based on the general matters on the definition of uncertainty in “Guide to the expression of uncertainty in measurement (GUM)” published by ISO. The Lab’s uncertainty is determined by referring UKAS Publication LAB34: 2002 “The Expression of Uncertainty in EMC Testing” and CISPR16-4-2: 2003 “Uncertainty in EMC Measurements”.

The uncertainty of the measurement result in the level of confidence of approximately 95% (k=2) is as follows;

AC Power line emission : ± 1.9 dB

Radiated emission (30MHz - 1000MHz) : ± 5.9 dB

Radiated emission (1GHz - 20GHz) : ± 5.8 dB

Temperature : ± 1 degree

Humidity : ± 5 %

1.5 Description of essential requirements and test results

An overview of test requirements, as laid out in FCC Part15B are given below.

1.5.1 Test requirements (FCC Part15B)

Test Description	Section in this report	Applicable	Result
Radiated emission (15.109)	2.1	Yes	Pass
AC power line conducted emission (15.107)	2.2	Yes	Pass

1.5.2 Normal test conditions

Temperature(*) : +15 degC to +35 degC

Relative humidity(*) : 20 % to 75 %

Supply voltage : 3.7 VDC (Nominal)

* When it is impracticable to carry out tests under these conditions, a note to this effect, stating the ambient temperature and relative humidity during the tests, must be stated separately.

1.6 Setup of equipment under test (EUT)

1.6.1 Test configuration of EUT

Equipment(s) under test:

	Item	Brand	Model No.	Serial No.
A	Cellular phone	NEC CASIO	CDMA CA007	SCAEN000301
B	Lithium-ion battery(3.7V)	NEC CASIO	CA003UAA	-
C	AC adaptor	MITSUMI ELECTRIC	0203PQA	-
D	Cradle	NEC CASIO	-	-
E	Notebook PC	Panasonic	CF-W8GWDNJR	9EKSA73340
F	Mouse	TOSHIBA	G83C0001Y110	LZE30201086

Connected cable(s):

No.	Item	Brand	Shielded Yes/No	Ferrite Core Yes/No	Connector Shielded Yes/No	Length (m)
1	Charger cable (DC)	-	No	No	No	1.5
2	USB cable	-	Yes	Yes	No	1.0
3	Mouse cable	-	No	No	No	0.8

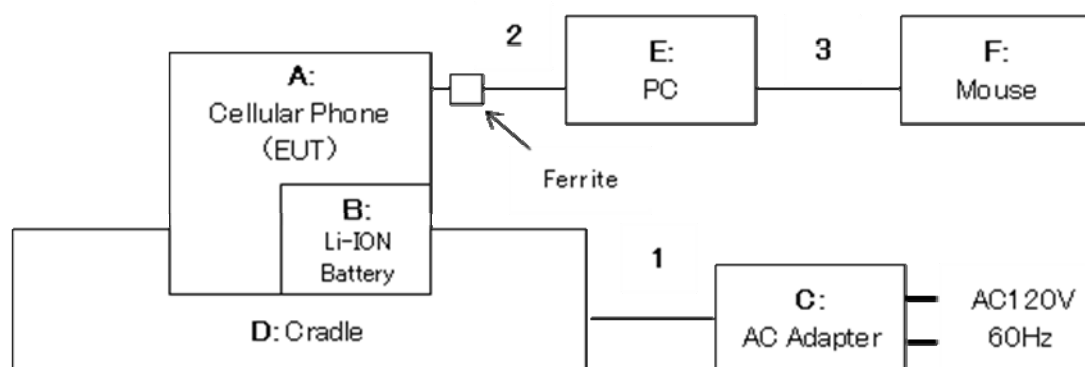
1.6.2 Operating condition:

USB connection

Cellular phone is connected to Notebook PC with USB cable.

With this condition, emission level is tested during USB data communication.

1.6.3 Setup diagram of tested system:



1.7 *Equipment modifications*

No modifications have been made to the equipment in order to achieve compliance with the applicable standards described in clause 1.2.

1.8 *Deviation from the standard*

No deviations from the standards described in clause 1.2.

2 Test procedure and result

2.1 Radiated Emissions

Reference Standard

Part15.109

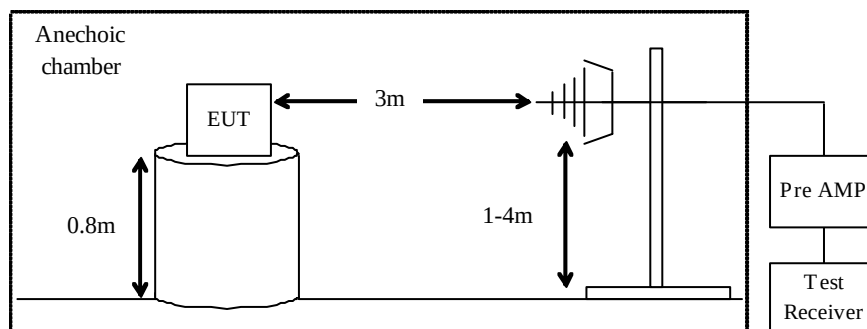
Test Conditions

Date: 14 Feb, 2011
Ambient Temperature: 15 degC
Relative humidity: 30 %
Test Voltage: 3.7 V

Test Method

- Test data is transmitted from EUT to Notebook PC with USB cable.
- Radiated spurious emission is received by receive antenna.
- Turn table is rotated 360deg.
- Maximum level of each spurious is measured by Test receiver.
- RBW of spectrum analyzer is set to 100kHz for 30 - 1000MHz, or 1MHz for above 1000MHz.
- Level is measured with QP detect for 30 - 1000MHz, or AVE detector for above 1000MHz.

Test Setup



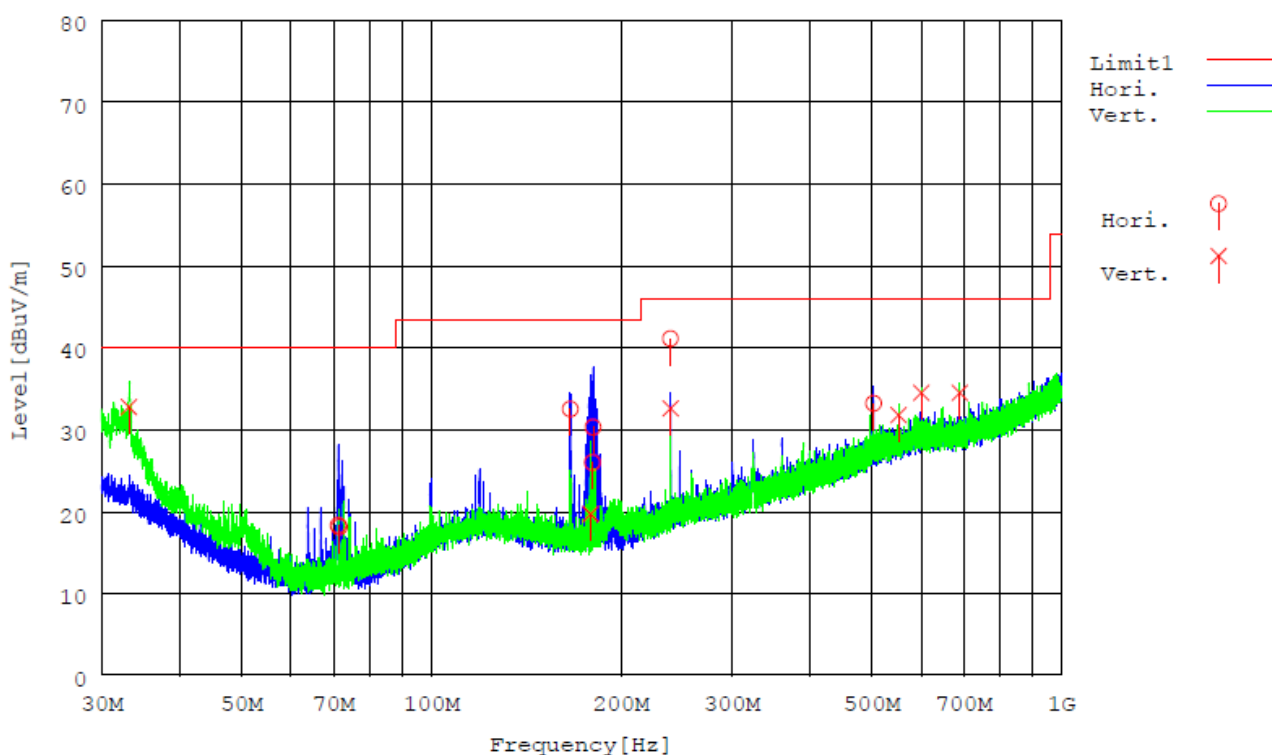
Limit

Frequency [MHz]	Distance [m]	Field strength [μ V/m]	Field strength [dB μ V/m]
30 - 88	3	100	40.0
88 - 216	3	150	43.5
216 - 960	3	200	46.0
above 960	3	500	53.9

Test Results

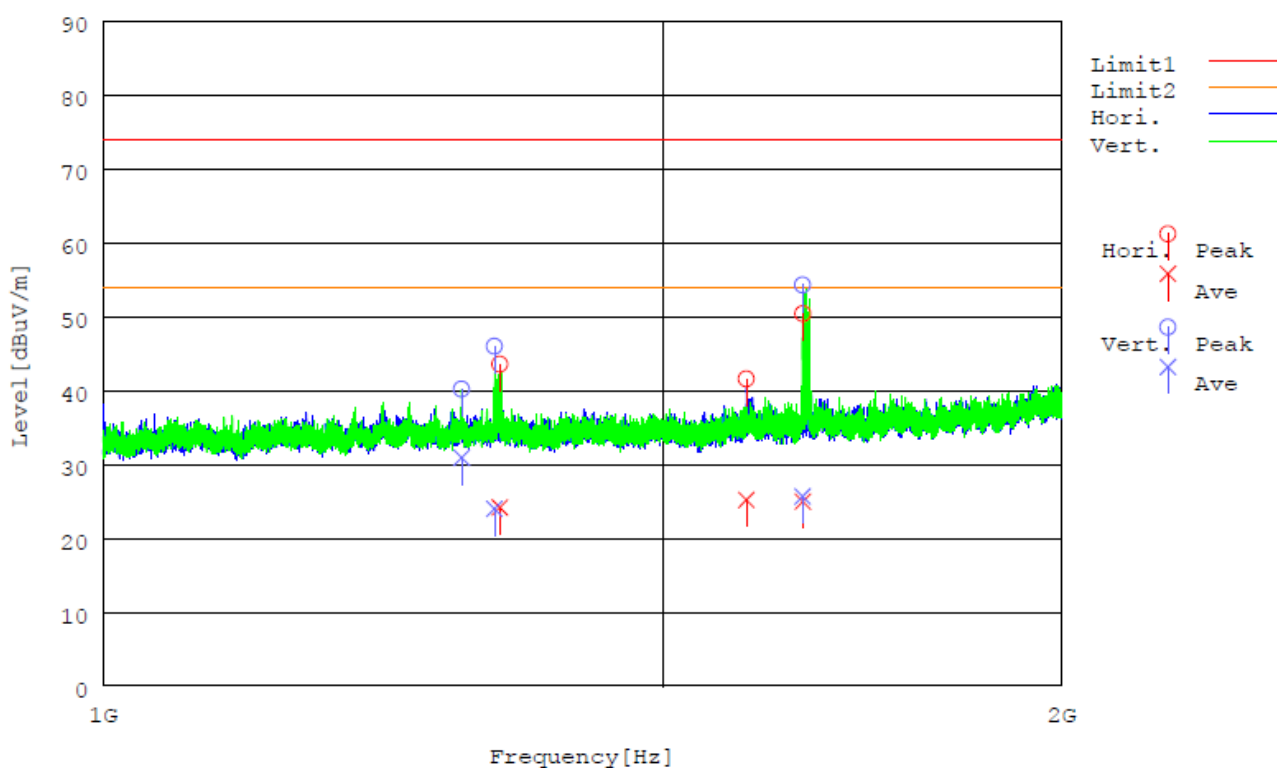
30-1000 MHz

Frequency [MHz]	Antenna	Reading [dB μ V]	Factor [dB/m]	Loss [dB]	Gain [dB]	Field strength [dB μ V/m]	Limit [dB μ V/m]	Result
71.235	Hori.	34.2	6.3	7.5	29.7	18.3	40.0	Pass
71.594	Hori.	33.9	6.4	7.5	29.7	18.1	40.0	Pass
166.426	Hori.	43.8	9.8	8.5	29.6	32.5	43.5	Pass
180.288	Hori.	37.7	9.2	8.7	29.6	26.0	43.5	Pass
180.783	Hori.	42.0	9.2	8.7	29.6	30.3	43.5	Pass
240.000	Hori.	49.5	12.0	9.2	29.6	41.1	46.0	Pass
504.000	Hori.	33.9	18.9	11.1	29.8	33.2	46.0	Pass
33.163	Vert.	38.9	16.7	6.9	29.7	32.8	40.0	Pass
179.224	Vert.	31.5	9.2	8.6	29.6	19.7	43.5	Pass
240.000	Vert.	41.0	12.0	9.2	29.6	32.6	46.0	Pass
551.989	Vert.	31.5	18.7	11.4	29.8	31.8	46.0	Pass
600.000	Vert.	33.4	19.3	11.6	29.8	34.5	46.0	Pass
689.962	Vert.	32.8	19.3	12.1	29.7	34.5	46.0	Pass



1000-2000 MHz

Freq. [MHz]	Ant.	Reading Peak [dB μ V]	Reading Ave [dB μ V]	C.Factor [dB]	Result Peak [dB μ V/m]	Result Ave [dB μ V/m]	Limit Peak [dB μ V/m]	Limit Ave [dB μ V/m]	Result
1332.383	Hori.	53.8	34.4	-10.2	43.6	24.2	73.9	53.9	Pass
1592.570	Hori.	50.6	34.2	-9.0	41.6	25.2	73.9	53.9	Pass
1658.767	Hori.	59.2	33.8	-8.8	50.4	25.0	73.9	53.9	Pass
1296.085	Vert.	50.5	41.2	-10.3	40.2	30.9	73.9	53.9	Pass
1327.134	Vert.	56.2	34.2	-10.2	46.0	24.0	73.9	53.9	Pass
1658.467	Vert.	63.1	34.5	-8.8	54.3	25.7	73.9	53.9	Pass



Test Equipment Used

Equipment name	RFT ID No.
RF cable	CL11, CL23, CL24
Receive Antenna	BA04, DH01
Pre AMP	PR03, PR12
Test Receiver	TR06

Final Result

The EUT met the requirements of the standard for this test.

2.2 AC power line conducted emissions

Reference Standard

Part15.107

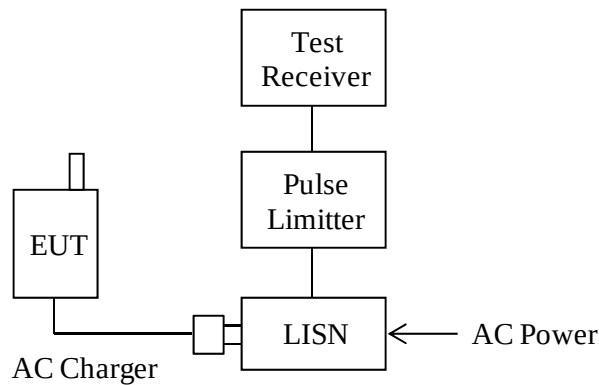
Test Conditions

Date: 14 Feb, 2011
Ambient Temperature: 19 degC
Relative humidity: 53 %
Test Voltage: 3.7 V

Test Method

- a) Test data is transmitted from EUT to Notebook PC with USB cable.
- b) AC power is supplied to AC charger through LISN.
- c) AC charger is connected to EUT.
- d) AC Power Line emission is measured by EMI receiver.
Both Va/Vb line are measured emission level.

Test Setup

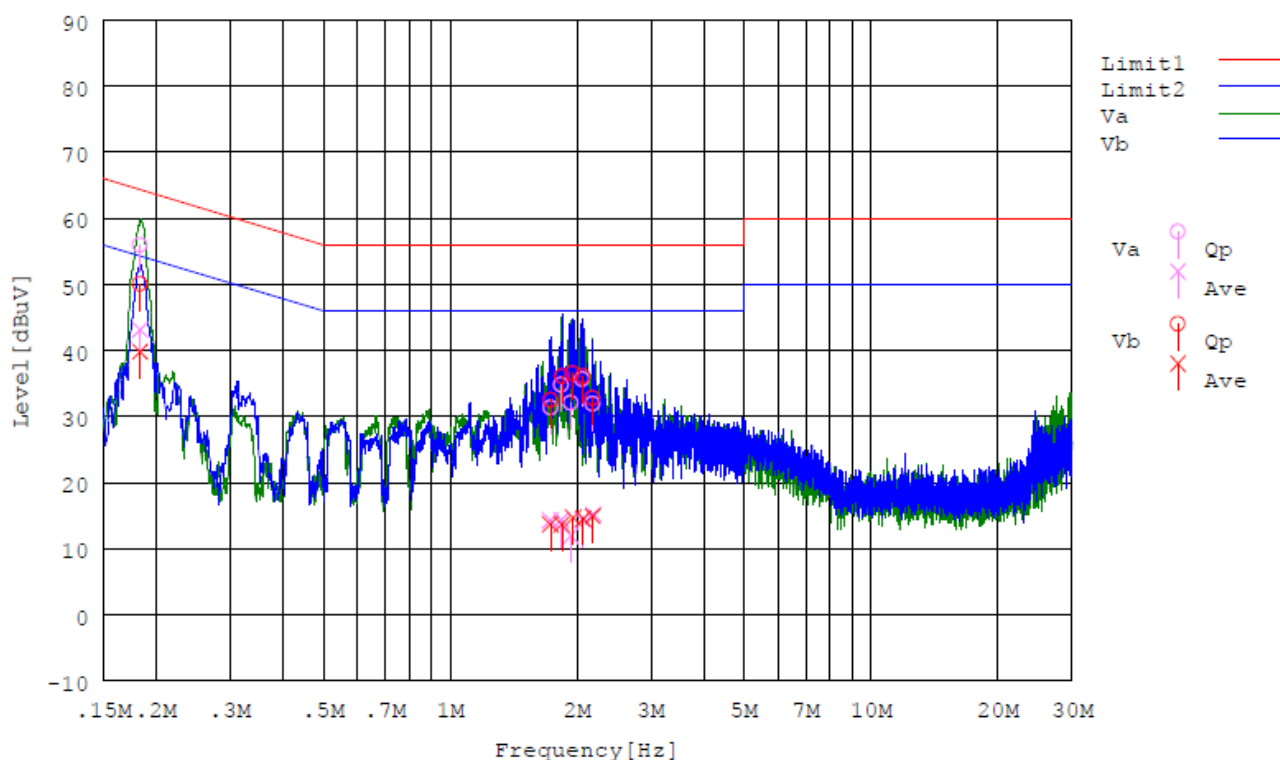


Limit

Frequency [MHz]	Limit QP [dB μ V]	Limit Ave [dB μ V]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

Test Results

Frequency [MHz]	Line [Va/Vb]	QP Reading [dBμV]	Ave Reading [dBμV]	Factor [dB]	QP Result [dBμV]	Ave Result [dBμV]	QP Limit [dBμV]	Ave Limit [dBμV]	Result
0.183	Va	45.9	33.0	10.1	56.0	43.1	64.3	54.3	Pass
1.729	Va	21.3	4.2	10.0	31.3	14.2	56.0	46.0	Pass
1.835	Va	24.8	4.3	10.0	34.8	14.3	56.0	46.0	Pass
1.932	Va	22.0	1.9	10.0	32.0	11.9	56.0	46.0	Pass
2.061	Va	25.6	4.3	10.0	35.6	14.3	56.0	46.0	Pass
2.182	Va	21.9	5.2	10.0	31.9	15.2	56.0	46.0	Pass
0.183	Vb	39.9	29.7	10.1	50.0	39.8	64.3	54.3	Pass
1.730	Vb	22.4	3.7	10.0	32.4	13.7	56.0	46.0	Pass
1.842	Vb	26.0	3.7	10.0	36.0	13.7	56.0	46.0	Pass
1.956	Vb	26.5	4.7	10.0	36.5	14.7	56.0	46.0	Pass
2.068	Vb	26.1	4.5	10.0	36.1	14.5	56.0	46.0	Pass
2.179	Vb	22.7	4.9	10.0	32.7	14.9	56.0	46.0	Pass



Test Equipment Used

Equipment name	RFT ID No.
EMI Receiver	TR04
LISN	LN05
RF cable	CL18

Final Result

The EUT met the requirements of the standard for this test

4 List of utilized test equipment/ calibration

RFT ID No.	Kind of Equipment and Precision	Manufacturer	Model No.	Serial Number	Calibration Date	Calibrated until
AC01(EM)	Anechoic Chamber (1st test room)	JSE	203397C	-	2010/4/10	2011/4/30
AC01(EG)	Anechoic Chamber (1st test room)	JSE	203397C	-	2010/11/13	2011/11/30
BA04	Biological Antenna	SCHAFFNER	CA2855	2903	2011/1/26	2012/1/31
CL11	Antenna Cable for RE	RFT	-	-	2010/10/19	2011/10/31
CL18	Antenna Cable for CE	RFT	-	-	2010/5/15	2011/5/31
CL23	RF Cable 0.5m	SUHNER	SUCOFLEX104PE	48773	2010/6/15	2011/6/30
CL24	RF Cable 5.0m	SUHNER	SUCOFLEX104PE	48775	2010/6/15	2011/6/30
DH01	DRG Horn Antenna	A.H. Systems	SAS-571	785	2010/1/20	2012/1/31
LN05	LISN	Kyoritsu	KNW-407F	8-1773-2	2010/5/21	2011/5/31
PR03	Pre. Amplifier	Anritsu	MH648A	M41984	2010/5/19	2011/5/31
PR12	Pre. Amplifier (1-26G)	Agilent Technologies	8449B	3008A02513	2011/1/18	2012/1/31
TR04	Test Receiver (F/W : 4.32)	Rohde & Schwarz	ESCI	100447	2010/9/21	2011/9/30
TR06	Test Receiver (F/W : 3.93 SP2)	Rohde & Schwarz	ESU26	100002	2010/9/2	2011/9/30

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.