

TEST REPORT

For

Mobile Phone

In conformity with

FCC Part15B (01 Oct, 2008)

Model: **F-04B**

FCC ID: **VQK-F04B**

Test Item: **Mobile Phone**

Report No: **RY1001P07R3**

Issue Date: **07 Jan, 2010**

Prepared for

Fujitsu Limited.
4-1-1, Kamikodanaka, Nakahara, Kawasaki 211-8588, Japan

Prepared by

RF Technologies Ltd.
472, Nippa-cho, Kohoku-ku, Yokohama, 223-0057, Japan
Telephone: +81+(0)45- 534-0645
FAX: +81+(0)45- 534-0646

**This report shall not be reproduced, except in full, without the written permission of
RF Technologies Ltd. The test results in this report apply only to the sample(s) tested.
RF Technologies Ltd. is managed to ISO17025 and has the necessary knowledge and test facilities
for testing according to the referenced standards.**

Table of Contents

1 General information	3
1.1 Product description	3
1.2 Test(s) performed/ Summary of test result	3
1.3 Test facility	4
1.4 Measurement uncertainty	4
1.5 Description of essencial requirements and test results.....	5
1.5.1 Test requirements (FCC Part15B).....	5
1.5.2 Normal test conditions	5
1.6 Setup of equipment under test (EUT)	6
1.6.1 Test configuration of EUT	6
1.6.2 Operating condition:	6
1.6.3 Setup diagram of tested system:.....	6
1.7 Equipment modifications	7
1.8 Deviation from the standard.....	7
2 Test procedure and result.....	8
2.1 Radiated Emissions	8
2.2 AC power line conducted emissions	11
3 Test setup photographs.....	14
4 List of utilized test equipment/ calibration	15

History

Report No.	Issue Date	Revision Contents	Issued by
RY1001P07R3	07 Jan, 2010	Initial Issue	T.Kato

1 General information

1.1 Product description

Test item : Mobile phone
Manufacturer : Fujitsu Limited
Address : 4-1-1, Kamikodanaka, Nakahara, Kawasaki 211-8588, Japan
Model : F-04B
FCC ID : VQK-F04B
Description : WCDMA850/GSM1900 Mobile Phone
Operating Frequency : 48MHz (Max)
Receipt date of EUT : 27 Nov, 2009
Nominal power voltages : 3.7VDC (Lithium-ion battery)
Serial numbers : 3531 6703 0008 973

1.2 Test(s) performed/ Summary of test result

Applicable Standard(s) : Part15 Subpart B (01 Oct,2008)
Test(s) started : 06 Jan, 2010
Test(s) completed : 07 Jan, 2010
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 in 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, 2008.

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.



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;

RF frequency : $\pm 1 \times 10^{-7}$

RF conducted level : ± 1.0 dB

AC Power line emission : ± 1.9 dB

Radiated emission (30MHz - 1000MHz) : ± 5.7 dB

Radiated emission (above 1000MHz) : ± 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	Passed
AC power line conducted emission (15.107)	2.2	Yes	Passed

1.5.2 Normal test conditions

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

Relative humidity(*) : 20 % to 75 %

Supply voltage : 3.7 VDC (Nominal)

1.6 Setup of equipment under test (EUT)

1.6.1 Test configuration of EUT

Equipment(s):

	Item	Manufacturer	Model No.	Serial No.	FCC ID/
A1	Mobile phone (Main)	Fujitsu Limited	F-04B	3531 6703 0008 973	VQK-F04B
A2	Mobile phone (Sub)	Fujitsu Limited	F-04B-S	0000 0000 0007 443	VQK-F04B-S
B1	Battery pack (Main)	Fujitsu Limited	F13	None	N/A
B2	Battery pack (Sub)	Fujitsu Limited	F14	None	N/A
C	Notebook PC	TOSHIBA	PP410J0001G1	13513107	DoC
D	AC Adapter	TOSHIBA	PA3262U-1ACA	0212A0005779G	DoC
E	Mouse	TOSHIBA	G83C0001Y110	LZE30201086	DoC

Connected cable(s):

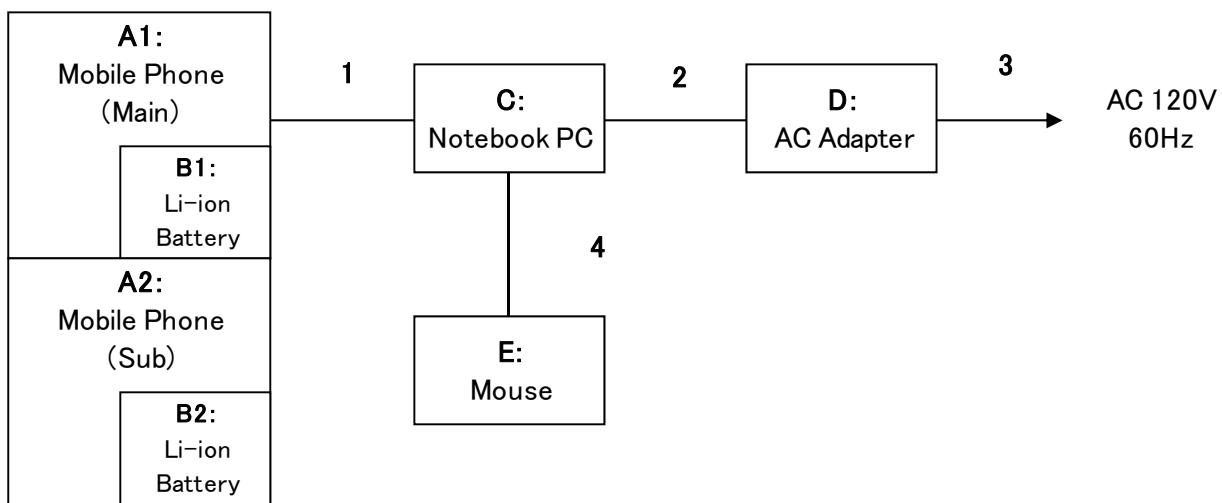
No.	Item	Identification (Manu.e.t.c)	Shielded YES / NO	Ferrite Core YES / NO	Connector Type Shielded YES / NO	Length (m)
1	USB cable	NTT DOCOMO, INC.	No	No	Yes	0.7
2	DC power cable	TOSHIBA	No	No	No	1.8
3	AC power cable	-	No	No	No	1.5
4	Mouse cable	-	No	No	No	0.8

1.6.2 Operating condition:

Mobile phone was connected to Notebook PC with USB cable.

With this condition, emission level was 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

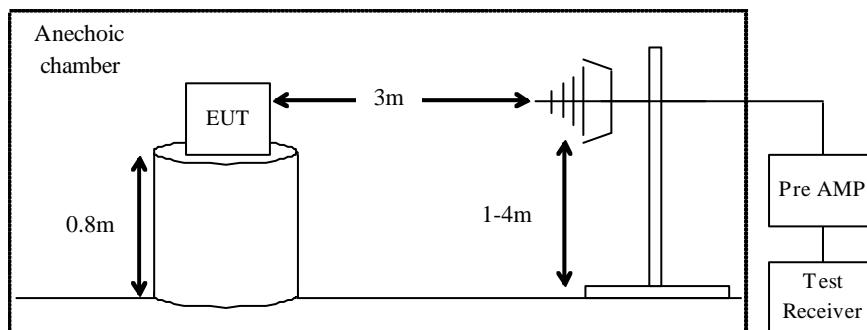
Test Conditions

Date: 06 Jan, 2010
Ambient Temperature: 13 degC
Relative humidity: 33 %
Test Voltage: 3.7 V

Test Method

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

Test Setup

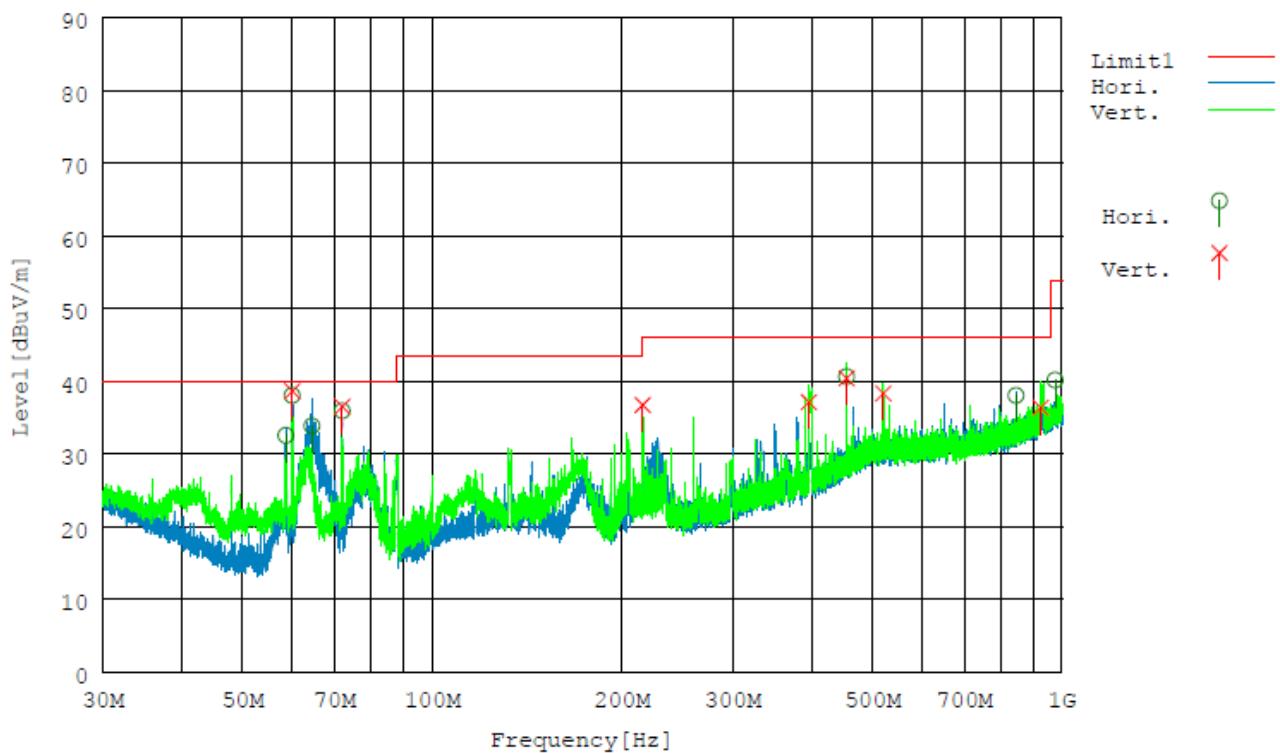


Limit

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

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
58.610	Hori.	47.6	6.8	7.7	29.6	32.5	40.0	Passed
60.000	Hori.	53.2	6.6	7.8	29.6	38.0	40.0	Passed
64.496	Hori	49.1	6.5	7.8	29.6	33.8	40.0	Passed
72.000	Hori	51.2	6.4	7.9	29.6	35.9	40.0	Passed
455.193	Hori	39.8	16.8	13.7	29.7	40.6	46.0	Passed
845.363	Hori	33.2	20.2	13.8	29.2	38.0	46.0	Passed
975.414	Hori	32.6	21.3	14.5	28.3	40.1	53.9	Passed
60.000	Vert.	53.8	6.6	7.8	29.6	38.6	40.0	Passed
72.000	Vert.	51.8	6.4	7.9	29.6	36.5	40.0	Passed
216.000	Vert	46.3	10.3	9.6	29.5	36.7	43.5	Passed
396.501	Vert	39.0	15.7	12.1	29.7	37.1	46.0	Passed
455.194	Vert	39.6	16.8	13.7	29.7	40.4	46.0	Passed
520.221	Vert	35.6	17.9	14.5	29.7	38.3	46.0	Passed
924.985	Vert	30.0	20.8	14.2	28.7	36.3	46.0	Passed



Test Equipment Used

Equipment name	RFT ID No.
RF cable	CL11
Receive Antenna	BA04
Pre AMP	PR03
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

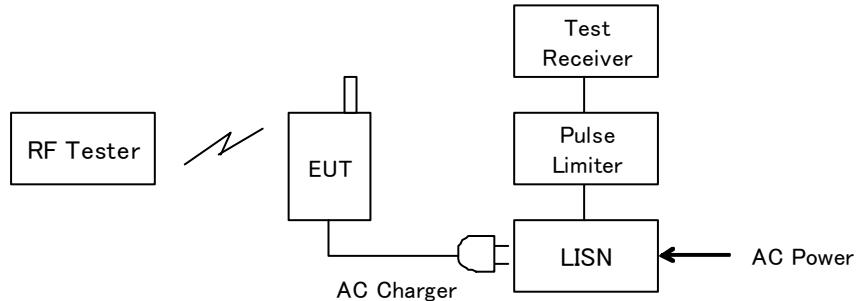
Date: 07 Jan, 20010
Ambient Temperature: 23 degC
Relative humidity: 50 %
Test Voltage: 3.7 V

Test Method

- Test data is transmitted from EUT to Notebook PC with USB cable.
- AC power is supplied to AC charger through LISN.
- AC charger is connected to EUT.
- AC Power Line emission is measured by EMI receiver.

Both Va/Vb line are measured emission level.

Test Setup



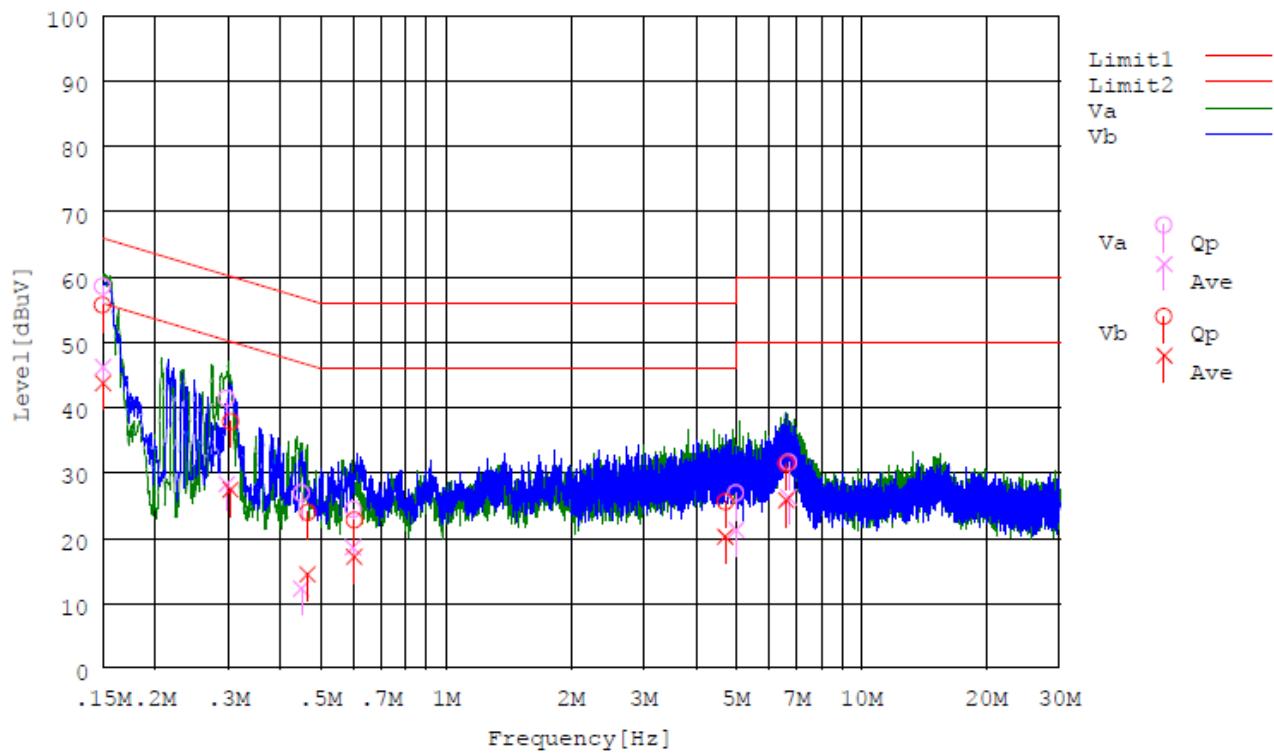
Limit

Frequency [MHz]	Limit QP [dB μ V]	Limit AV [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 [dB μ V]	AVE Reading [dB μ V]	Factor [dB]	QP Result [dB μ V]	AVE Result [dB μ V]	QP Limit [dB μ V]	AVE Limit [dB μ V]	Result
0.150	Va	58.4	46.1	0.2	58.6	46.3	66.0	56.0	Passed
0.298	Va	41.3	28.2	0.1	41.4	28.3	60.3	50.3	Passed
0.449	Va	26.9	12.3	0.0	26.9	12.3	56.9	46.9	Passed
0.600	Va	24.4	18.6	0.0	24.4	18.6	56.0	46.0	Passed
5.000	Va	26.8	21.2	0.1	26.9	21.3	56.0	46.0	Passed
6.685	Va	31.5	26.2	0.1	31.6	26.3	60.0	50.0	Passed
0.150	Vb	55.5	43.6	0.2	55.7	43.8	66.0	56.0	Passed
0.305	Vb	37.8	27.3	0.1	37.9	27.4	60.1	50.1	Passed
0.466	Vb	23.9	14.5	0.0	23.9	14.5	56.6	46.6	Passed
0.604	Vb	22.8	17.2	0.0	22.8	17.2	56.0	46.0	Passed
4.703	Vb	25.5	20.1	0.1	25.6	20.2	56.0	46.0	Passed
6.607	Vb	31.3	25.7	0.1	31.4	25.8	60.0	50.0	Passed

Graphical Data



Equipment name	RFT ID No.
EMI Receiver	TR04
LISN	LN13
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	-	2009/4/9	2010/4/30
BA04	Biological Antenna	SCHAFFNER	CA2855	2903	2009/1/6	2010/1/31
CL11	Antenna Cable for RE	RFT	-	-	2009/4/13	2010/4/30
CL18	Antenna Cable for CE	RFT	-	-	2009/5/21	2010/5/31
LN13	LISN	Kyoritsu	KNW-407F	8-2003-3	2009/7/22	2010/7/31
PR03	Pre. Amplifier	Anritsu	MH648A	M41984	2009/5/26	2010/5/31
TR04	Test Receiver (F/W : 4.32)	Rohde & Schwarz	ESCI	100447	2009/9/7	2010/9/30
TR06	Test Receiver (F/W : 3.93 SP2)	Rohde & Schwarz	ESU26	100002	2009/9/16	2010/9/30

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.