

# TEST REPORT

For

**Mobile Phone**

In conformity with

**FCC Part15B (Oct 01,2007)**

**Model:** **F905i**

**FCC ID:** **VQK-OS-F905I**

**Test Item:** **Mobile Phone**

**Report No:** **RY0901P16R1**

**Issue Date:** **Jan. 16, 2009**

**Prepared for**

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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**

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>General information .....</b>                            | <b>3</b>  |
| 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         |
| <b>2</b> | <b>Test procedure and result.....</b>                       | <b>8</b>  |
| 2.1      | Radiated Emissions .....                                    | 8         |
| 2.2      | AC power line conducted emissions .....                     | 11        |
| <b>3</b> | <b>Test setup photographs.....</b>                          | <b>13</b> |
| <b>4</b> | <b>List of utilized test equipment/ calibration .....</b>   | <b>14</b> |

## 1 General information

### 1.1 Product description

|                        |  |
|------------------------|--|
| Test item              | : Mobile phone   |
| Manufacturer           | : Fujitsu Limited  |
| Address                | : 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan |
| Model                  | : F905i  |
| FCC ID                 | : VQK-OS-F905I   |
| Description            | : GSM1900 Mobile Phone   |
| Receipt date of EUT    | : Jan.15, 2009   |
| Nominal power voltages | : 3.7VDC (Lithium-ion battery)                                     |
| Serial numbers         | : 3599 4301 0001 806   |

### 1.2 Test(s) performed/ Summary of test result

|                        |                                     |
|------------------------|-------------------------------------|
| Applicable Standard(s) | : Part15 Subpart B(Oct 01,2007)     |
| Test(s) started        | : Jan.15, 2009                      |
| Test(s) completed      | : Jan.16, 2009                      |
| Purpose of test(s)     | : Grant for Certification of FCC/IC |
| 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  
T. Kato (EMC Testing Department)

Reviewer : T. Ikegami  
T. Ikegami (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 October 01, 2007.

The description of the test facilities has been filed under registration number 879401 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;

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

RF conducted level :  $\pm 1.0$  dB

AC Power line emission :  $\pm 1.9$  dB

Radiated emission (30MHz - 1000MHz) :  $\pm 5.7$  dB

Radiated emission (above 1000MHz) :  $\pm 5.8$  dB

Temperature :  $\pm 1$  degree

Humidity :  $\pm 5$  %

## **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/      |
|---|--------------------|-----------------|--------------|-----------------|--------------|
| A | Mobile phone (EUT) | Fujitsu Limited | F905i        | 359943010001806 | VQK-OS-F905I |
| B | Battery pack       | Fujitsu Limited | CA54310-0005 | -               | 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):

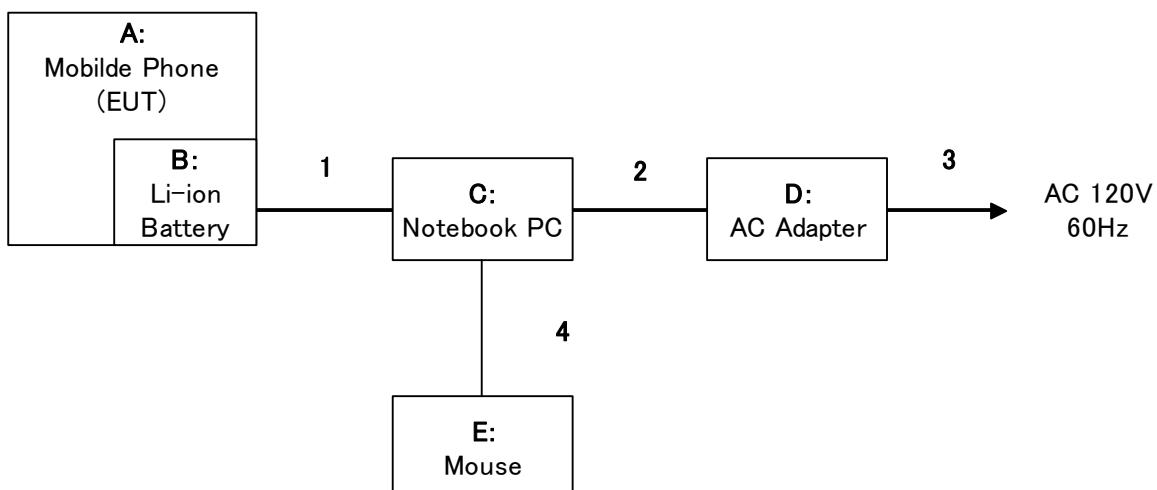
| No. | Item           | Identification<br>(Manu.e.t.c) | Shielded<br>YES / NO | Ferrite<br>Core<br>YES /<br>NO | Connector<br>Type<br>Shielded<br>YES / NO | Length<br>(m) |
|-----|----------------|--------------------------------|----------------------|--------------------------------|---|---------------|
| 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

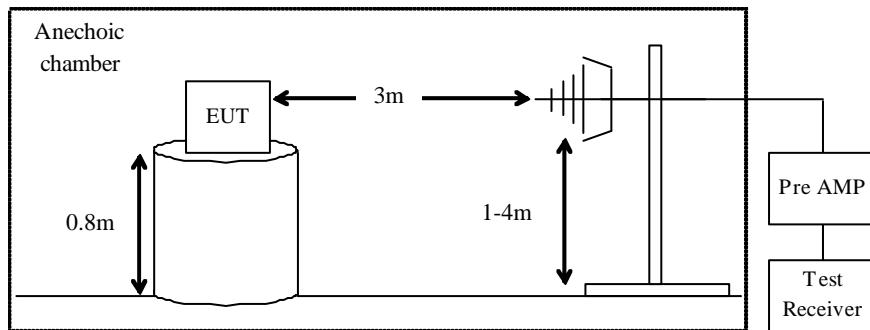
#### Test Conditions

Date: 2009/01/215  
Ambient Temperature: 20 degC  
Relative humidity: 26 %  
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.
- f) Level is measured with QP detect for 30 - 1000MHz.

#### Test Setup

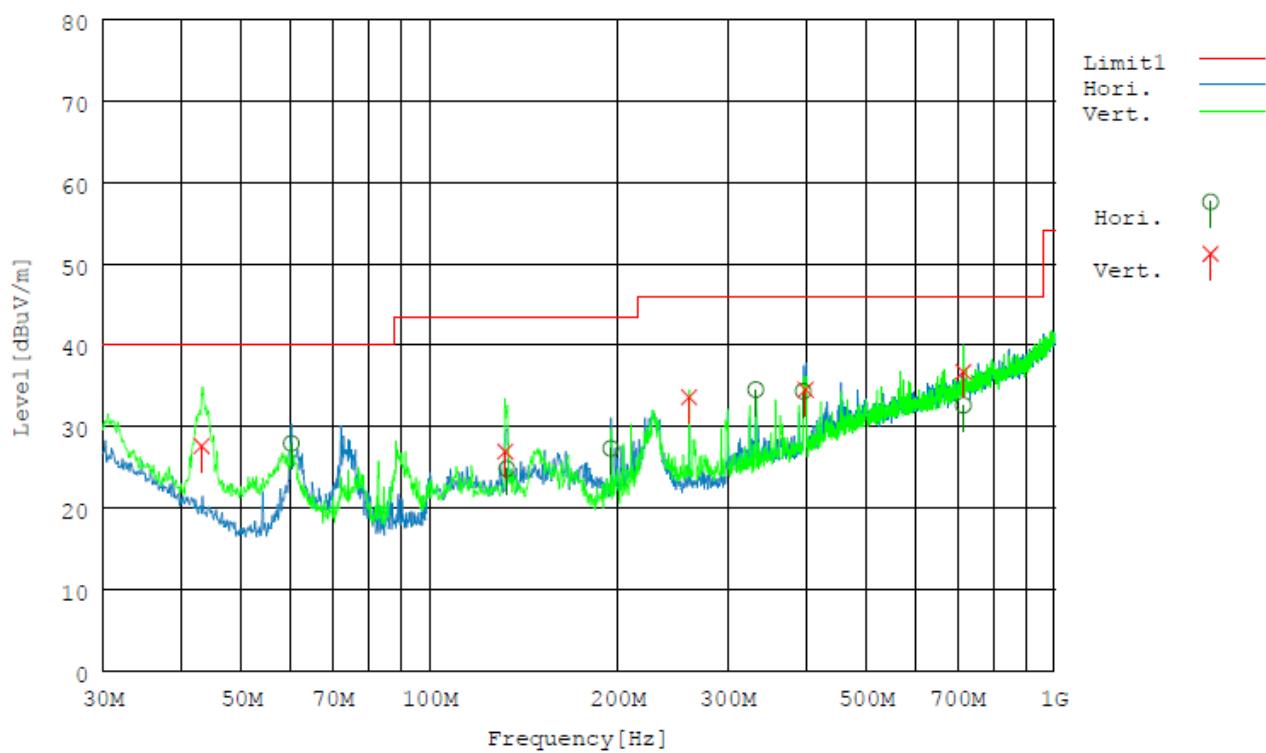


**Limit**

| Frequency (MHz) | Distance (m) | Field strength (uV/m) | Field strength (dBuV/m) |
|-----------------|--------------|-----------------------|-------------------------|
| 30 - 88         | 3            | 100                   | 40.0                    |
| 88 - 216        | 3            | 150                   | 43.5                    |
| 216 - 960       | 3            | 200                   | 46.0                    |
| above 960       | 3            | 500                   | 54.0                    |

**Test Results**

| Frequency (MHz) | Antenna | Field strength (dBuV/m) | Limit (dBuV/m) | Result |
|-----------------|---------|-------------------------|----------------|--------|
| 43.159          | Vert    | 27.6                    | 40.0           | Passed |
| 132.240         | Vert    | 26.9                    | 43.5           | Passed |
| 260.110         | Vert    | 33.6                    | 46.0           | Passed |
| 399.598         | Vert    | 34.5                    | 46.0           | Passed |
| 715.305         | Vert    | 36.7                    | 46.0           | Passed |
| 60.069          | Hori    | 27.9                    | 40.0           | Passed |
| 132.960         | Hori    | 24.8                    | 43.5           | Passed |
| 195.083         | Hori    | 27.3                    | 43.5           | Passed |
| 332.775         | Hori    | 34.5                    | 46.0           | Passed |
| 396.578         | Hori    | 34.3                    | 46.0           | Passed |
| 715.305         | Hori    | 32.6                    | 46.0           | Passed |



**Test Equipment Used**

| Equipment name  | RFT ID No. |
|-----------------|------------|
| RF cable        | CL11       |
| Receive Antenna | BA03       |
| Pre AMP         | PR03       |
| Test Receiver   | TR04       |

**Final Result**

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

## 2.2 AC power line conducted emissions

### Reference Standard

FCC : Part15.107

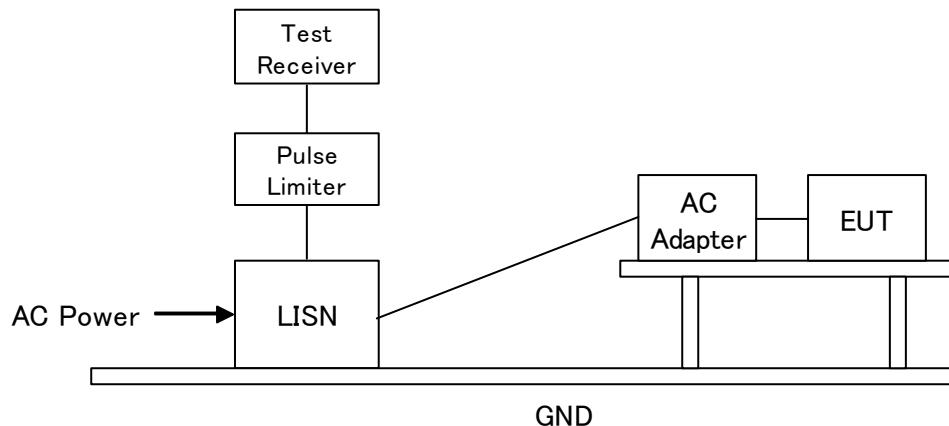
### Test Conditions

Date: 2009/01/16  
Ambient Temperature: 18 degC  
Relative humidity: 26 %  
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 Live/Neutral is measured emission level.

### Test Setup

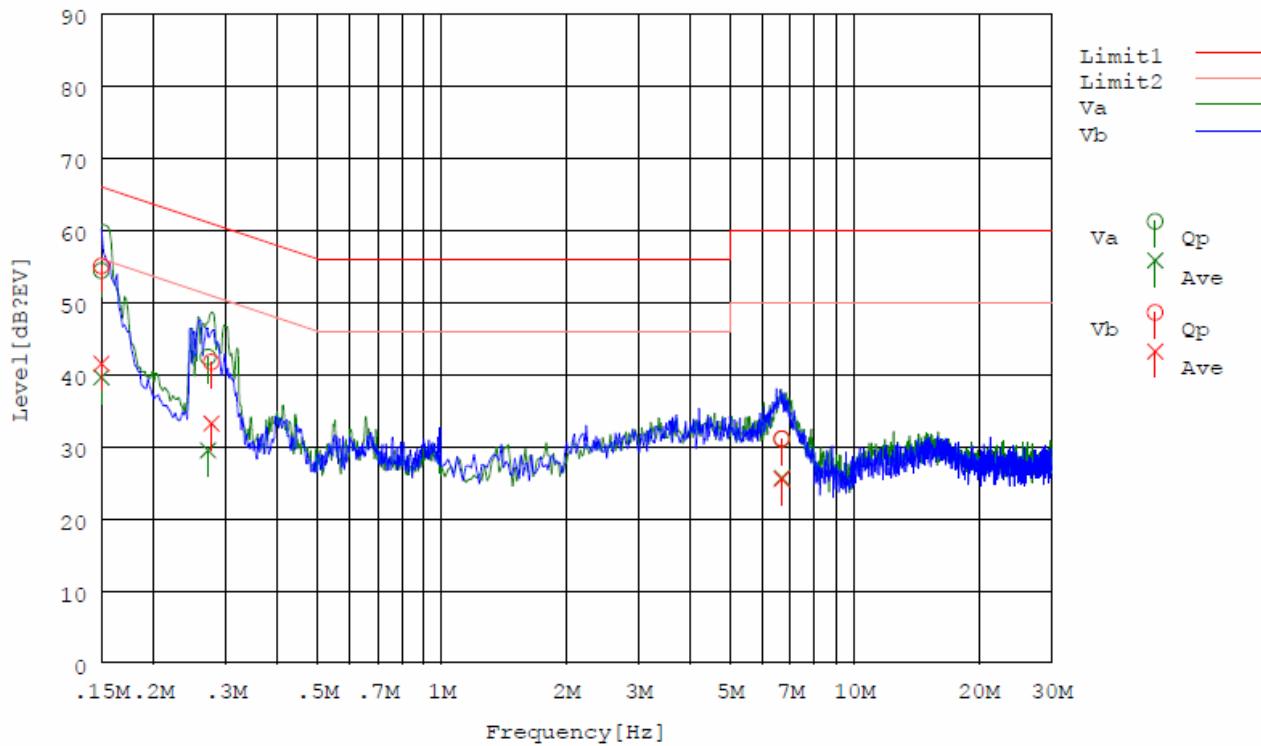


### Limit

| Frequency (MHz) | Limit QP (dBuV) | Limit AV (dBuV) |
|-----------------|-----------------|-----------------|
| 0.15 - 0.5      | 66 - 56         | 56 - 46         |
| 0.5 - 5         | 56              | 46              |
| 5 - 30          | 60              | 50              |

**Test Results**

| Frequency (MHz) | Line (Live/Neutral) | QP Level (dBuV) | AVE Level (dBuV) | QP Limit (dBuV) | AVE Limit (dBuV) | Result |
|-----------------|---------------------|-----------------|------------------|-----------------|------------------|--------|
| 0.150           | Live                | 54.4            | 39.6             | 66.0            | 56.0             | Passed |
| 0.272           | Live                | 42.4            | 29.5             | 61.1            | 51.1             | Passed |
| 6.675           | Live                | 31.1            | 25.7             | 60.0            | 50.0             | Passed |
| 0.150           | Neutral             | 55.0            | 41.5             | 66.0            | 56.0             | Passed |
| 0.277           | Neutral             | 41.7            | 33.2             | 60.9            | 50.9             | Passed |
| 6.662           | Neutral             | 31.1            | 25.5             | 60.0            | 50.0             | Passed |

**Graphical Data**

| Equipment name | RFT ID No. |
|----------------|------------|
| EMI Receiver   | TR04       |
| LISN           | LN06       |
| RF cable       | CL11       |

**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       | Anechoic Chamber (1st test room)  | JSE             | 203397C   | -             | 2008/7/4         | 2009/7/3         |
| BA03       | Biological Antenna                | CHASE           | CBL6111   | 1309          | 2008/5/7         | 2009/5/6         |
| CL11       | Antenna Cable                     | RFT             | -         | -             | 2008/6/11        | 2009/6/10        |
| LN05       | LISN                              | Kyoritsu        | KNW-407   | 8-1773-2      | 2008/5/21        | 2009/5/20        |
| LN06       | LISN                              | Kyoritsu        | KNW-407   | 8-1773-3      | 2008/5/12        | 2009/5/11        |
| PR03       | Pre. Amplifier                    | Anritsu         | MH648A    | M41984        | 2008/5/12        | 2009/5/11        |
| PR04       | Pre. Amplifier (1-26G)            | RFT             | LNP126    | 060208-01     | 2008/6/10        | 2009/6/9         |
| TR04       | Test Receiver<br>(F/W : 3.82 SP1) | Rohde & Schwarz | ESCI      | 100447        | 2008/9/16        | 2009/9/15        |
| TR06       | Test Receiver<br>(F/W : 3.93 SP2) | Rohde & Schwarz | ESU26     | 100002        | 2008/9/2         | 2009/9/1         |

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.