




## RADIO TEST REPORT

Test Report No. : 28EE0022-HO-01-A-R2

Applicant : Tokai Rika Co., Ltd.  
Type of Equipment : RKE Transmitter  
Model No. : F01TG  
Test standard : FCC Part 15 Subpart C Section 15.231:2007  
FCC ID : MOZF01TG  
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with above regulation.
4. The test results in this report are traceable to the national or international standards.
5. Original test report number of this report is 28EE0022-HO-01-A.

Date of test : December 23, 2007 and February 2, 2008

Tested by :   
Makoto Kosaka  
EMC Services

Approved by :   
Mitsuru Fujimura  
Assistant Manager of EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.  
\*As for the range of Accreditation in NVLAP, you may refer to the WEB address, <http://uljapan.co.jp/emc/nvlap.htm>

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## **SECTION 1: Customer information**

Company Name : Tokai Rika Co., Ltd.  
Address : 3-260 Toyota, Oguchi-cho, Niwa-gun, Aichi-ken, 480-0195 Japan  
Telephone Number : +81-587-95-0093  
Facsimile Number : +81-587-95-5471  
Contact Person : Toshihito Kunii

## **SECTION 2: Equipment under test (E.U.T.)**

### **2.1 Identification of E.U.T.**

Type of Equipment : RKE Transmitter  
Model No. : F01TG  
Serial No. : 2  
Rating : DC3.0V (Lithium Battery CR1616)  
Country of Manufacture : Japan  
Receipt Date of Sample : December 20, 2007  
Condition of EUT : Production model  
Modification of EUT : No modification by the test lab.

### **2.2 Product Description**

Model No: F01TG (referred to as the EUT in this report) is the RKE Transmitter.

Equipment Type : Transmitter  
Frequency of Operation : 312.15MHz  
Type of modulation : FSK  
Power Control : No  
Mode of Operation : Simplex  
ITU code : F1D  
Antenna Type : Pattern Antenna

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### **SECTION 3: Test specification, procedures & results**

#### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart C : 2007  
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.231 Periodic operation in the band 40.66 - 40.70MHz  
and above 70MHz

#### **FCC 15.31 (e)**

This test was performed with the New Battery (DC 3.0V). Therefore, the EUT complies with the requirement.

#### **FCC Part 15.203 Antenna requirement**

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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### 3.2 Procedures and results

No.	Item	Test Procedure	Specification	Deviation	Worst margin	Results
1	Automatically Deactivate	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> -	<FCC> Section 15.231(a)(1) <IC> RSS-210 A1.1.1	N/A	-	Complied
2	Electric Field Strength of Fundamental Emission	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> RSS-Gen 4.8	<FCC> Section 15.231(b) <IC> RSS-210 A1.1.2	N/A	16.9dB 312.15MHz Horizontal, QP	Complied
3	Electric Field Strength of Spurious Emission	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> RSS-Gen 4.9	<FCC> Section 15.205 Section 15.209 Section 15.231(b) <IC> RSS-210 A1.1.2, 2.6, 2.7	N/A	2.9dB 312.50MHz Vertical, AV	Complied
4	-20dB Bandwidth	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> -	<FCC> Section 15.231(c) <IC> Reference data	N/A	-	Complied
5	Conducted emission	<FCC> ANSI C63.4:2003 7. AC powerline conducted emission measurements <IC> RSS-Gen 7.2.2	<FCC> Section 15.207 <IC> RSS-Gen 7.2.2	-	N/A*1)	N/A

Note: UL Japan, Inc.'s EMI Work procedures No. QPM05 and QPM15

\*1) The test is not applicable since the EUT does not have AC Mains.

### 3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	<IC> RSS-Gen 4.6.1	<IC> RSS-210 A1.1.3	Conducted	N/A	N/A	N/A

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### 3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test room	Conducted emission	Radiated emission (10m*)			Radiated emission (3m*)			Radiated emission (3m*)	
	150kHz-30MHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	1GHz-18GHz	18GHz-40GHz
No.1 semi-anechoic Chamber (±)	3.7dB	3.1dB	4.7dB	4.4dB	3.2dB	3.7dB	4.4dB	5.9dB	6.1dB
No.2 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.3dB	3.9dB	5.9dB	6.1dB
No.3 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.2dB	4.4dB	5.9dB	6.1dB
No.4 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.2dB	4.4dB	5.9dB	6.1dB

\*10m/3m = Measurement distance

#### Radiated emission test(3m and/or 10m)

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

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### 3.5 Test Location

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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	IC4247-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.75 x 5.4 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	-	8.0 x 4.5 x 2.8m	N/A	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

\* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

### 3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

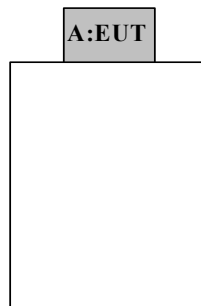
## **SECTION 4: Operation of E.U.T. during testing**

### **4.1 Operating Modes**

The mode is used :       1. Normal Use mode for Automatically deactivate test  
                              2. Transmitting mode for all other tests

Justification       :       The system was configured in typical fashion (as a customer would normally use it)  
                              for testing.

### **4.2 Configuration and peripherals**



\* Test data was taken under worse case conditions.

#### **Description of EUT**

No	Item	Model number	Serial number	Manufacturer	Remarks
A	RKE Transmitter	F01TG	2	Tokai Rika Co., Ltd.	-

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## **SECTION 5: Radiated emission (Fundamental and Spurious Emission)**

### **5.1 Operating environment**

Test place : No.3 and 4 semi anechoic chamber  
Temperature : See data  
Humidity : See data

### **5.2 Test configuration**

EUT was placed on a urethane platform of nominal size, 1.0m by 0.5m, raised 80cm above the conducting ground plane. The EUT was set on the center of the tabletop.  
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. A drawing of the set up is shown in the photos of APPENDIX 1.

### **5.3 Test conditions**

Frequency range : 30MHz-3200MHz  
Test distance : 3m  
EUT position : Top of Polyurethane table  
EUT operation mode : See Clause 4.1

### **5.4 Test procedure**

The Radiated Electric Field Strength intensity has been measured on No.3 and 4 semi anechoic chamber with a ground plane and at a distance of 3m.  
The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.  
The measurements were performed for both vertical and horizontal antenna polarization.  
The radiated emission measurements were made with the following detector function of the test receiver/spectrum analyzer.

	Below or equal to 1GHz	Above 1GHz (Other emissions)
Detector Type	QP	Peak and AV (PK Detect)
IF Bandwidth	120kHz	PK: S/A:RBW 1MHz, VBW:1MHz AV: S/A:RBW 1MHz, VBW:10Hz

- The carrier level (or, noise levels) was (or were) measured at each position of all three axes X, Y and Z, and the position that has the maximum noise was determined.  
With the position, the noise levels of all the frequencies was measured.

### **5.5 Results**

Summary of the test results: Pass