RADIO TEST REPORT

Test Report No. : 32EE0298-SH-A

Applicant	:	**NEC Corporation of America**
Type of Equipment	:	**Tablet Device**
Model No.	:	**KMP7R4C1-1A**
Test standard	:	**FCC Part 15 Subpart C: 2011**
FCC ID	:	**A98-CUL7580**
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 the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test: January 11, 2012

Representative test engineer:

Kenichi Adachi
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Go Ishiwata
Manager of WiSE Japan,
UL Verification Service

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

JAB Testing RTL02610

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka Hiratsuka-shi Kanagawa-ken 259-1220 JAPAN
telephone: +81 463 50 6400 / facsimile: +81 463 50 6401

CONTENTS **PAGE**

SECTION 1: Customer information

Company Name	:	NEC CASIO Mobile Communications, Ltd.
Address	:	1753 Shimonumabe, Nakahara-ku, Kawasaki, Kanagawa 211-8666 Japan
Telephone Number	:	+81-44-455-8045
Facsimile Number	:	+81-44-455-8025
Contact Person	:	Noriko Kawahigashi

* NEC CASIO Mobile Communications, Ltd. is on behalf of the applicant NEC Corporation of America.

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

2.1 Identification of E.U.T.

Type of Equipment	:	Tablet Device
Model No.	:	KMP7R4C1-1A
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 3.8V
Receipt Date of Sample	:	January 11, 2011
Country of Mass-production	:	Japan
Condition of EUT	:	Engineering prototype
Modification of EUT	:	No Modification by the test lab

2.2 Product description

Model No: KMP7R4C1-1A, (referred to as the EUT in this report), is the Tablet Device.

General Specification

Clock frequency(ies) in the system : RFID part: 27.12MHz

Radio Specification

RFID

Equipment Type	Transceiver
Frequency of Operation	13.56MHz
Type of Modulation	ASK
Antenna Type	Integrated antenna

*This test report applies for RFID.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart C: 2011, final revised on November 21, 2011 and effective December 21, 2011
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.209 Radiated emission limits, general requirements Section 15.215 Additional provisions to the general radiated emission limitations Section 15.225 : Operation within the band 13.110-14.010MHz

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted emission	ANSI C63.4:2003 7. AC power line conducted emission measurements	Section 15.207	N/A	N/A	*1)
Electric field strength of Fundamental emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.225(a)	67.5dB 13.56MHz, QP, Vertical.	Complied	Radiated
Spectrum mask	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.225(b)(c)	See data	Complied	Radiated
20dB bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.215(c)	See data	-	Radiated
Electric field strength of Spurious emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.209, Section 15.225 (d)	0.9dB 149.16MHz, QP, Horizontal	Complied	Radiated
Frequency tolerance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.225(e)	See data	Complied	Radiated
*1) The test is not applicable since the EUT is designed to stop transmission when the AC adaptor is connected. Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422					

FCC 15.31 (e)
This EUT provides stable voltage (DC2.8V) constantly to RF Part regardless of input voltage. Therefore, this 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.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Occupied Bandwidth (99%)	ANSI C63.4:2003 13. Measurement of intentional radiators RSS-Gen 4.6.1	RSS-Gen 4.6.1	N/A	-	Radiated

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

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

Item	Frequency range	No.1 SAC*1/SR*2 (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.9 dB	5.1 dB	5.0 dB
	300MHz-1GHz	5.0 dB	5.2 dB	5.0 dB

*1: SAC=Semi-Anechoic Chamber
*2: SR= Shielded Room is applied besides radiated emission

Radiated emission test

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

Frequency tolerance

Frequency Measurement uncertainty for this test was: (±) 5.5%

3.5 Test location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN
Telephone number : +81 463 50 6400
Facsimile number : +81 463 50 6401
JAB Accreditation No. : RTL02610

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 Semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 Semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 Semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 Full-anechoic chamber	-	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.3 shielded room	-	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 shielded room	-	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.6 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-

3.6 Test set up, Data of test, and Test instruments

Refer to APPENDIX.1 to 3.

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

4.1 Operating modes

The mode is used:

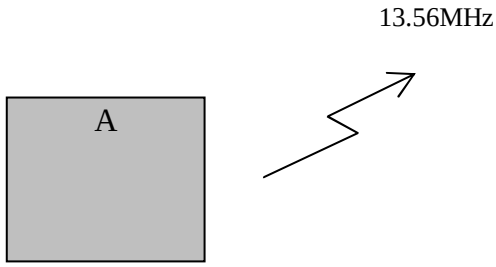
Mode	Remarks
Transmitting (13.56MHz)	Continuous transmitting 13.56MHz (modulated)

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

Frequency Tolerance:

Temperature : -20deg.C to +50deg.C Step 10deg.C
Voltage : Normal Voltage DC 3.8V
*This EUT provides stable voltage constantly to RF Part regardless of input voltage.

4.2 Configuration and peripherals



* Setup was taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Tablet Device	KMP7R4C1-1A	004401200800213	NEC CASIO Mobile Communications, Ltd.	EUT

SECTION 5: Radiated emission (Fundamental, Spurious emission and Spectrum mask)

Test configuration
EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

Test conditions
Frequency range : 9kHz - 1GHz
Test distance : 3m

Test procedure
The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m.

Frequency: From 9kHz to 30MHz
The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for vertical polarization (antenna angle: 0deg.to 360deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

Frequency: From 30MHz to 1GHz
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.

Measurements were performed with QP, PK, and AV detector.
The radiated emission measurements were made with the following detector function of the test receiver.

	9kHz to 90kHz & 110kHz to 150kHz	90kHz to 110kHz	150kHz to 490kHz	490kHz to 30MHz	30MHz to 1GHz
Detector type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz
Measuring antenna type	Loop				Biconical (30-299.99MHz) Logperiodic (300MHz-1GHz)

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

* FCC Part 15 Section 15.31 (f)(2)

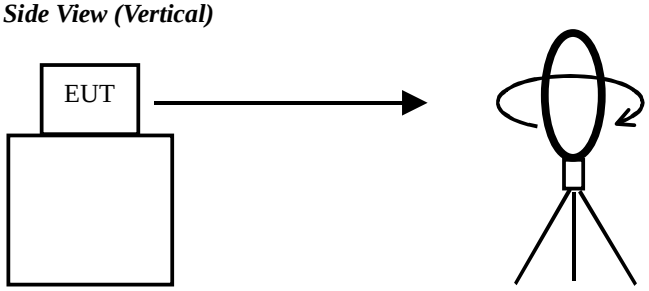
$$9\text{kHz} - 490\text{kHz}\,[\text{Limit at 3m}] = [\text{Limit at 300m}] - 40\log\left(\frac{3}{300}\right)$$

$$490\text{kHz} - 30\text{MHz}[\text{Limit at 3m}] = [\text{Limit at 30m}] - 40\log\left(\frac{3}{30}\right)$$

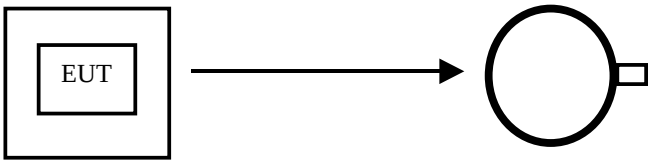
Test result
Pass (Refer to the APPENDIX.)

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

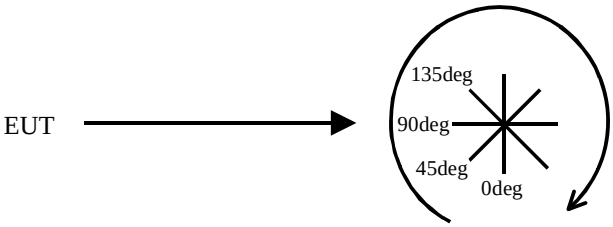


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

SECTION 6: Other test

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
20dB Bandwidth	100kHz	1kHz	3kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Frequency Tolerance	300Hz	10Hz	100Hz	Auto	Peak	Clear / Write	Spectrum Analyzer

Test result
Pass (Refer to the APPENDIX.1)