



EMI TEST REPORT

Test Report No. : 31EE0214-HO-03-D-R1

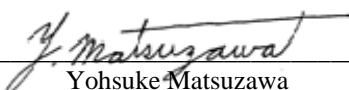
Applicant : NEC CASIO Mobile Communications, Ltd.
Type of Equipment : Digital Portable Cellular Telephone
Model No. : KMP7N4Y1-2A
FCC ID : A98-TBP4266
Test standard : FCC Part 15 Subpart B: 2010 Class B
Test Result : Complied

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7. This report is a revised version of 31EE0214-HO-03-D. 31EE0214-HO-03-D is replaced with this report.

Date of test:

January 5 and February 14, 2011

**Representative
test engineer:**


Yohsuke Matsuzawa
Engineer of WiSE Japan,
UL Verification Service

Approved by :


Go Ishiwata
Assistant Manager of WiSE Japan,
UL Verification Service

- ☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
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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 : Kazuhiro Kurihara

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

2.1 Identification of E.U.T.

Type of Equipment : Digital Portable Cellular Telephone
Model No. : KMP7N4Y1-2A
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 3.8V
Receipt Date of Sample : December 23, 2010
Country of Mass-production : Japan
Condition of EUT : Production prototype
Modification of EUT : No Modification by the test lab

2.2 Product description

Model No: KMP7N4Y1-2A, (referred to as the EUT in this report), is the Digital Portable Cellular Telephone.

Radio Specification

Bluetooth (Ver.2.1 + EDR)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Other Clock Frequency	19.2MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Connector Type	Integrated antenna

WLAN (IEEE802.11b/g/n (SISO/HT20))

Equipment Type	Transceiver
Frequency of Operation	2400-2483.5MHz
Other Clock Frequency	19.2MHz
Type of Modulation	DSSS, OFDM
Antenna Connector Type	Integrated antenna

W-CDMA

Equipment Type	Transceiver
Frequency of Operation	[Up Link] Band V: 824 – 849MHz [Down Link] Band V: 869 – 894MHz
Other Clock Frequency	19.2MHz
Type of Modulation	QPSK
Channel spacing	5MHz
Antenna Connector Type	Integrated antenna

RFID

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

GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz
Other Clock Frequency	19.2MHz
Type of Modulation	GMSK
Channel spacing	200kHz
Antenna Connector Type	Integrated antenna

GPS

Equipment Type	Receiver
Receiver Type	Direct Downconversion
Frequency of Operation	1575.42MHz
Other Clock Frequency	19.2MHz
Antenna Connector Type	Integrated antenna

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 15 Subpart B: 2010, final revised on December 6, 2010 and effective January 5, 2011

Title : FCC 47CFR Part15 Radio Frequency Device
Subpart B Unintentional Radiators

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin	Result
Conducted emission	FCC: ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Class B	N/A	[QP]15.3dB 0.20722MHz, L1 [AV]16.0dB 0.20722MHz, L1	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	7.5dB 265.902MHz,Horizontal 443.996MHz,Horizontal	Complied

*Note: UL Japan, Inc's EMI Work Procedure QPM05.

3.3 Addition to standard

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 (±)
Conducted emission (AC Mains) AMN/LISN	9kHz-150kHz	3.6 dB	3.1 dB	3.5 dB
	150kHz-30MHz	3.0 dB	2.7 dB	3.1 dB
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.3 dB	2.7 dB	3.4 dB
	30MHz-300MHz	4.7 dB	4.5 dB	4.7 dB
	300MHz-1GHz	4.5 dB	4.6 dB	4.6 dB
	1GHz-13GHz	3.9 dB	3.9 dB	4.0 dB

*1: SAC=Semi-Anechoic Chamber

*2: SR= Shielded Room is applied besides radiated emission

*3: Value of Antenna Terminal Voltage measurement is also applies to the No.5 and No.6 Shielded Room.

Conducted emission test

The data listed in this test report has enough margin, more than site margin.

Radiated emission test

The data listed in this test report has enough margin, more than site margin.

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 measuremen t distance
<input type="checkbox"/> No.1 Semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
<input type="checkbox"/> No.2 Semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
<input checked="" type="checkbox"/> No.3 Semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
<input type="checkbox"/> No.4 Full-anechoic chamber	-	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
<input type="checkbox"/> No.1 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
<input type="checkbox"/> No.2 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
<input checked="" type="checkbox"/> No.3 shielded room	-	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
<input type="checkbox"/> No.4 shielded room	-	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
<input type="checkbox"/> No.5 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
<input type="checkbox"/> No.6 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-

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

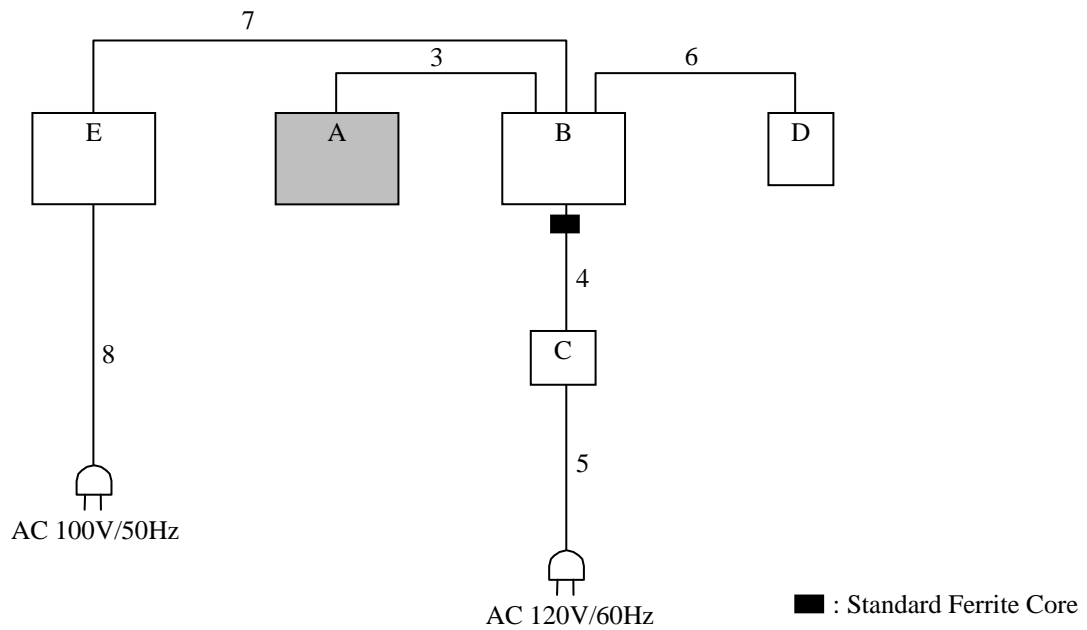
Refer to APPENDIX.

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

4.1 Operating modes

Mode	Remarks
USB Communication	*EUT copied the data that was into the Micro SD memory onto laptop PC through the USB cable.

4.2 Configuration and peripherals



*Cabling and setup were 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	Digital Portable Cellular Telephone	KMP7N4Y1-2A	004401200620355 *1) 004401200620017 *2)	NEC CASIO Mobile Communications, Ltd.	EUT
B	Laptop PC	2373-T49	L3-64H12	IBM	DoC
C	AC Adaptor	08K8208	11S08K8208Z1Z9M A5AB0U2		DoC
D	Hard Disk Drive	Rugged	1327906220105QR	LACIE	DoC
E	Printer	PM-770C	BBVK053729	EPSON	DoC

*1) Used for Conducted emission.

*2) Used for Radiated emission.

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	1.6	Shielded	Shielded	-
2	AC Cable	0.6	Unshielded	Unshielded	-
3	USB Cable	1.0	Shielded	Shielded	-
4	DC Cable	1.9	Unshielded	Unshielded	-
5	AC Cable	1.0	Unshielded	Unshielded	-
6	USB Cable	1.8	Shielded	Shielded	-
7	Printer Cable	1.5	Shielded	Shielded	-
8	AC Cable	2.0	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

5.1 Operating environment

Test place : See data
Temperature : See data
Humidity : See data

5.2 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. flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from the LISN/AMN and excess AC cable was bundled in center. I/O cables that were connected to the other peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN/AMN to the input power source. All unused 50 ohm connectors of the LISN/AMN were resistivity terminated in 50 ohm when not connected to the measuring equipment. Photographs of the set up are shown in Appendix 1.

Frequency range : 0.15 MHz-30MHz
EUT position : Table top
EUT operation mode : See Clause 4.1

5.3 Test procedure

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT within a semi anechoic chamber. The EUT was connected to a Line Impedance Stabilization Network (LISN)/ Artificial Mains network (AMN). An overview sweep with peak detection has been performed. The measurements have been performed with a quasi-peak detector and if required, with an average detector.

The conducted emission measurements were made with the following detector function of the test receiver.

Detector Type : Quasi-Peak and Average
IF Bandwidth : 9 kHz

5.4 Test result

Summary of the test results: Pass

Date: February 14, 2011

Test engineer: Takahiro Suzuki

SECTION 6: Radiated Emission

6.1 Operating environment

Test place : See data
Temperature : See data
Humidity : See data

6.2 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. 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. Photographs of the set up are shown in Appendix 1.

6.3 Test conditions

Frequency range : 30MHz-300MHz (Biconical antenna) / 300MHz-1000MHz (Logperiodic antenna)
1- 13GHz (Horn antenna)
Test distance : 3m
EUT position : Table top
EUT operation mode : See Clause 4.1

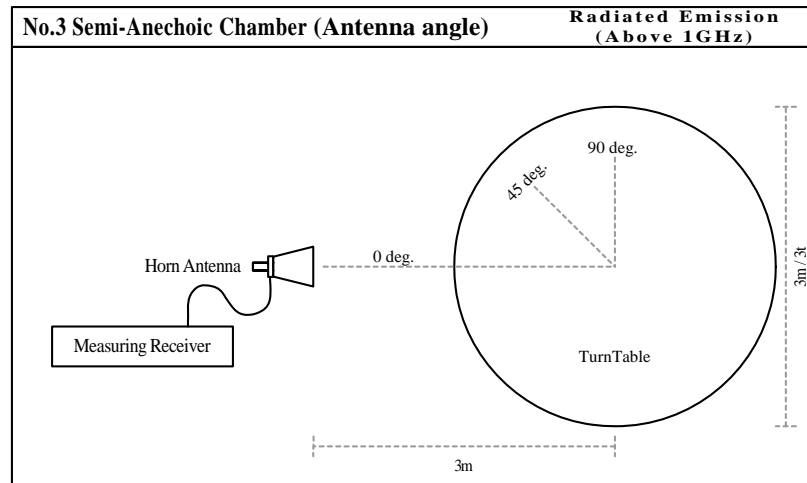
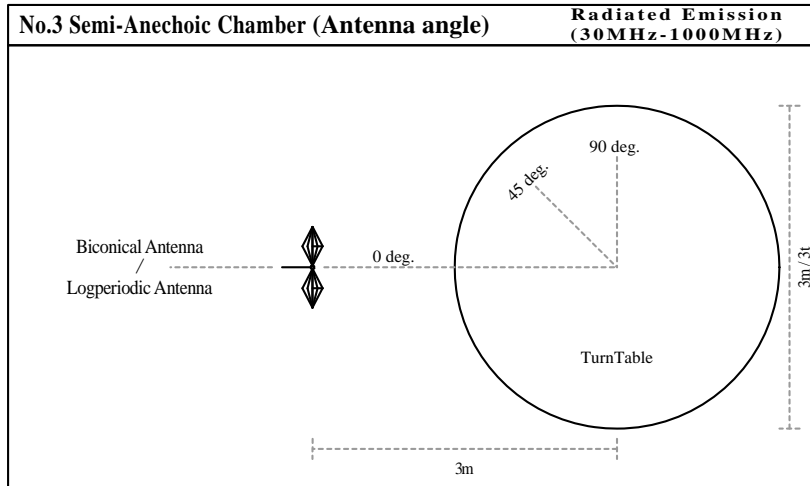
6.4 Test procedure

The height of the measuring antenna 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 with the Test Receiver, or the Spectrum Analyzer. The radiated emission measurements were made with the following detector function of the test receiver and the Spectrum analyzer.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 3MHz AV *1): RBW:1MHz/VBW:10Hz

*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

The test was made on EUT at the normal use position.



6.5 Test result

Summary of the test results: Pass

Date: January 5, 2011

Test engineer: Yohsuke Matsuzawa

APPENDIX 1: Photographs of test setup

Conducted Emission

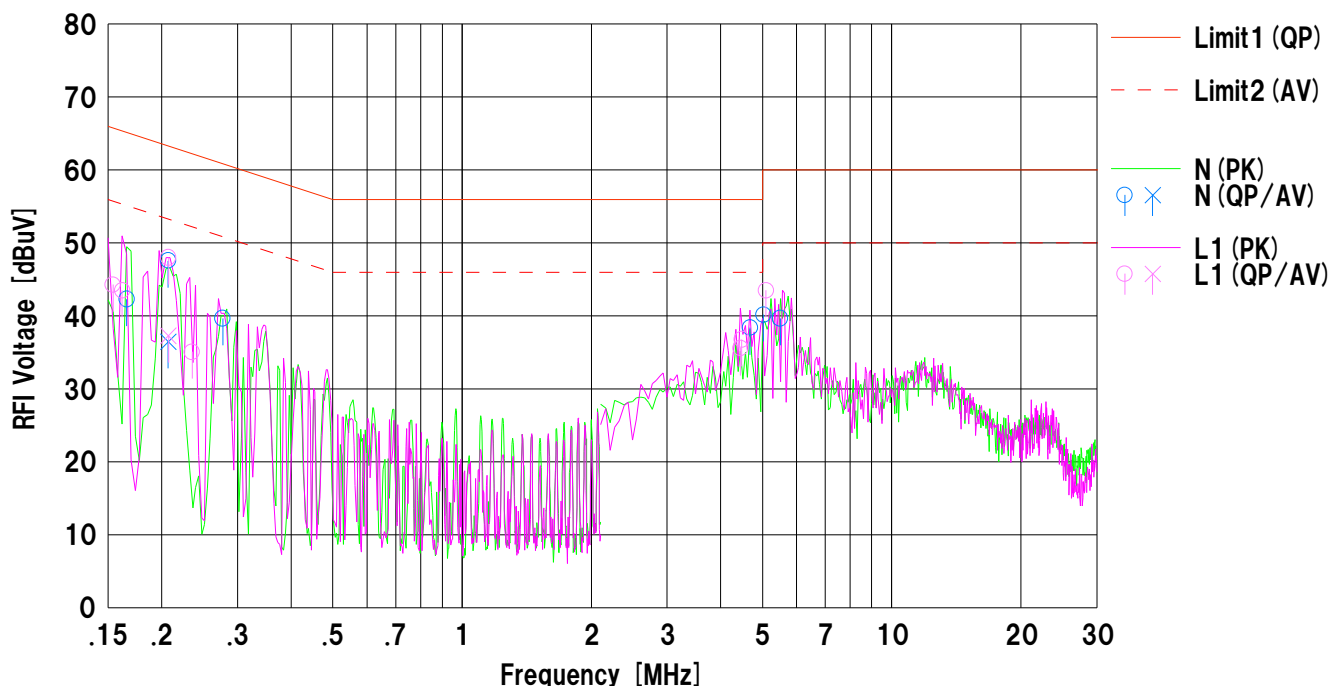
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/02/14

Company : NEC CASIO Mobile Communications, Ltd. Mode : USB Communication
Kind of EUT : Digital Portable Cellular Telephone Report No. : 31EE0214-HO-03-D-R1
Model No. : KMP7N4Y1-2A Power : AC120V/60Hz (AC adaptor)
Serial No. : 004401200620355 Temp./Humi. : 21deg.C./36%

Remarks : UE + Battery

Limit1 : FCC 15B (15.107) ClassB QP
Limit2 : FCC 15B (15.107) ClassB AV

Engineer : Takahiro Suzuki



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
		[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.16563	29.6	---	12.7	42.3	---	65.2	55.2	22.9	---	N	
2	0.20681	34.9	23.8	12.7	47.6	36.5	63.3	53.3	15.7	16.8	N	
3	0.27736	27.0	---	12.7	39.7	---	60.9	50.9	21.2	---	N	
4	4.68422	25.5	---	12.9	38.4	---	56.0	46.0	17.6	---	N	
5	5.02758	27.2	---	13.0	40.2	---	60.0	50.0	19.8	---	N	
6	5.51062	26.7	---	13.0	39.7	---	60.0	50.0	20.3	---	N	
7	0.15391	31.6	---	12.7	44.3	---	65.8	55.8	21.5	---	L1	
8	0.16172	30.8	---	12.7	43.5	---	65.4	55.4	21.9	---	L1	
9	0.20722	35.3	24.6	12.7	48.0	37.3	63.3	53.3	15.3	16.0	L1	
10	0.23538	22.4	---	12.7	35.1	---	62.3	52.3	27.2	---	L1	
11	4.44830	22.8	---	12.8	35.6	---	56.0	46.0	20.4	---	L1	
12	4.47836	23.9	---	12.9	36.8	---	56.0	46.0	19.2	---	L1	
13	5.09673	30.5	---	13.0	43.5	---	60.0	50.0	16.5	---	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+ATT+Cable) [dB]

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
Date : 2011/01/05

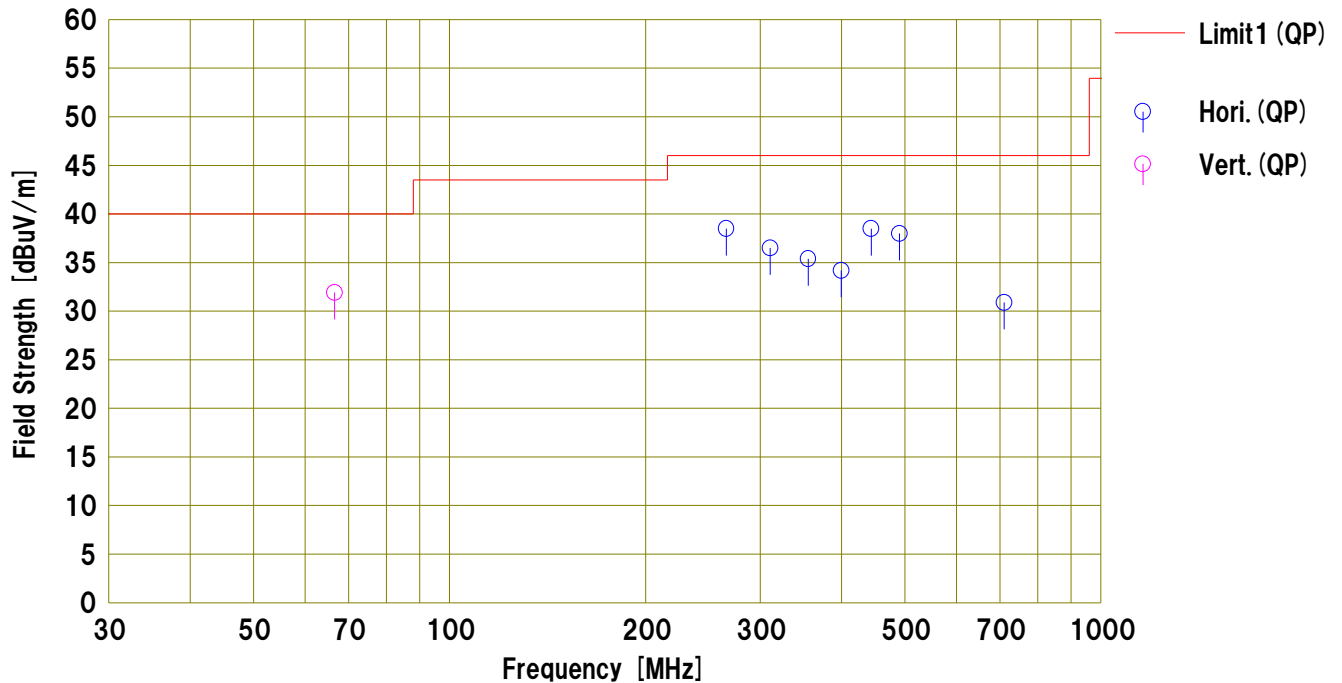
Company : NEC CASIO Mobile Communications, Ltd.
Kind of EUT : Digital Portable Cellular Telephone
Model No. : KMP7N4Y1-2A
Serial No. : 004401200620017

Mode : USB Communication
Report No. : 31EE0214-HO-03-D-R1
Power : AC120V/60Hz (AC adaptor)
Temp./Humi. : 20deg.C./23%

Remarks : UE + Battery

Limit1 : FCC 15B Class B (3m)

Engineer : Yohsuke Matsuzawa



No.	Freq. [MHz]	Reading <QP>	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result <QP>	Limit <QP>	Margin <QP>	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]				[dBuV/m]	[dBuV/m]	[dB]					
1	265.902	44.6	17.7	8.2	32.0	38.5	46.0	7.5	Hori.	120	146	BC	
2	310.790	45.7	14.2	8.5	31.9	36.5	46.0	9.5	Hori.	103	256	LP	
3	355.274	43.5	15.1	8.7	31.9	35.4	46.0	10.6	Hori.	100	184	LP	
4	399.619	41.3	15.9	8.9	31.9	34.2	46.0	11.8	Hori.	100	152	LP	
5	443.996	44.8	16.5	9.1	31.9	38.5	46.0	7.5	Hori.	100	0	LP	
6	490.782	43.5	17.1	9.3	31.9	38.0	46.0	8.0	Hori.	100	57	LP	
7	710.597	32.7	19.9	10.1	31.8	30.9	46.0	15.1	Hori.	154	358	LP	
8	66.594	50.1	7.0	6.9	32.1	31.9	40.0	8.1	Vert.	100	216	BC	

DATA OF RADIATED EMISSION TEST

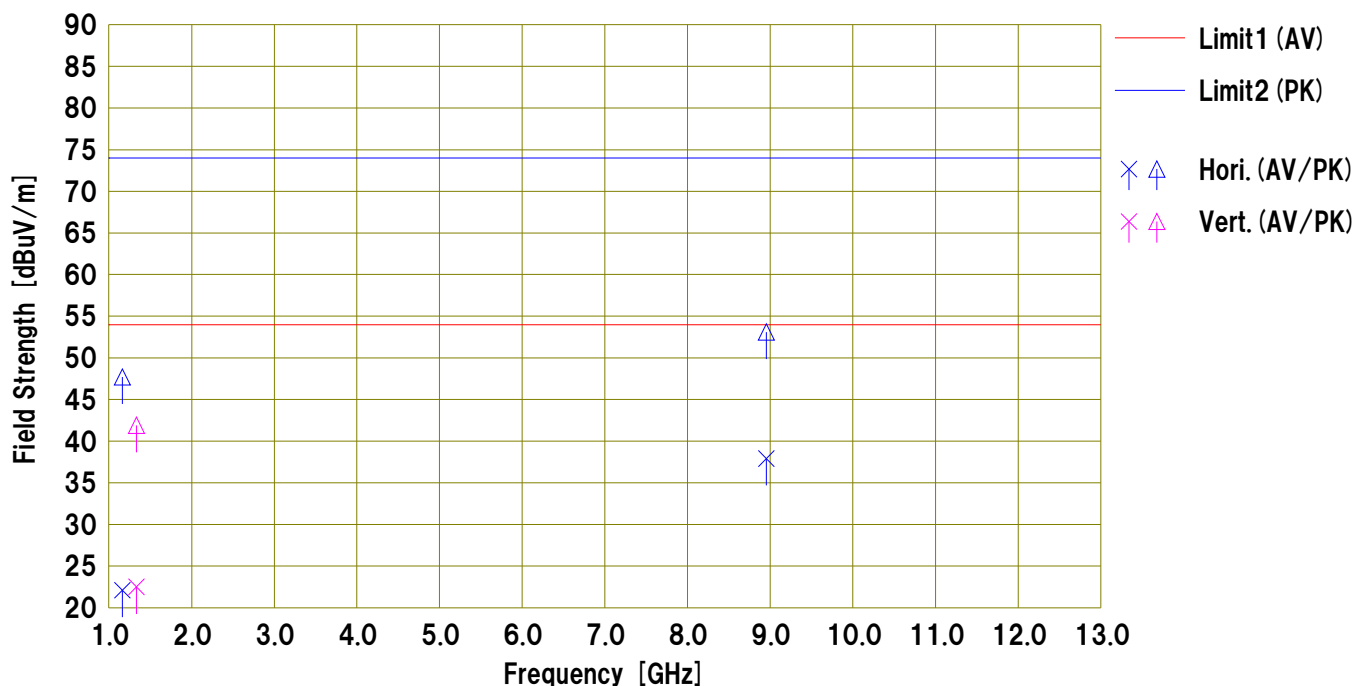
UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
Date : 2011/01/05

Company : NEC CASIO Mobile Communications, Ltd. Mode : USB Communication
Kind of EUT : Digital Portable Cellular Telephone Report No. : 31EE0214-HO-03-D-R1
Model No. : KMP7N4Y1-2A Power : DC3.8V (Battery)
Serial No. : 004401200620017 Temp./Humi. : 20deg.C./23%

Remarks : UE + Battery

Limit1 : FCC 15B Class B (3m) AV
Limit2 : FCC 15B Class B (3m) Peak

Engineer : Yohsuke Matsuzawa



No.	Freq. [MHz]	Reading		Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<AV> [dBuV]	<PK> [dBuV]				<AV> [dBuV/m]	<PK> [dBuV/m]	<AV> [dBuV/m]	<PK> [dBuV/m]	<AV> [dB]	<PK> [dB]					
1	1162.866	35.7	61.3	24.1	2.3	40.0	22.1	47.7	53.9	73.9	31.8	26.2	Hori.	100	167	SHA03	
2	8953.908	31.1	46.3	37.6	6.8	37.6	37.9	53.1	53.9	73.9	16.0	20.8	Hori.	100	0	SHA03	
3	1332.815	35.4	54.8	24.6	2.5	40.0	22.5	41.9	53.9	73.9	31.4	32.0	Vert.	100	177	SHA03	

APPENDIX 3

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2010/02/06 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2010/02/06 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2010/10/15 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2010/04/02 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2010/10/15 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
STR-03	Test Receiver	Rohde & Schwarz	ES140	100054/040	RE/CE	2010/07/21 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE/CE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2010/09/13 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE/CE	-
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2010/04/16 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2010/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2010/08/17 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2010/04/02 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE(EUT)	2010/02/19 * 12
SAT3-06	Attenuator	JFW	50HF-003N	-	CE	2010/02/06 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2010/02/17 * 12
SLS-04	LISN	Rohde & Schwarz	ENV216	100514	CE	2010/02/18 * 12
STM-05	Terminator	TME	CT-01 BP	-	CE	2011/01/07 * 12

The expiration date of the calibration is the end of the expired month .

As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with traceable calibrations . Each calibration is traceable to the national or international standards .

Test Item :

CE: Conducted emission,
RE: Radiated emission