



SAR TEST REPORT

Test Report No. : 28HE0115-HO-02-J

Applicant : NEC Corporation
Type of Equipment : Factory Computer as FC-NOTE Series
Model No. : FC-N22A
FCC ID : BSFFC-N22A
Test regulation : FCC47CFR 2.1093
FCC OET BULLETIN 65, SUPPLEMENT C
Test Result : Complied

<Stand alone>

Max. SAR Value : (IEEE 802.11a Low band) : 1.04W/kg (Body 5180MHz)
(IEEE 802.11a Mid band) : 0.738W/kg (Body 5320MHz)
(IEEE 802.11a Upper band) : 1.07W/kg (Body 5745MHz)

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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 NVLAP, NIST, or any agency of the Federal Government.

Date of test: April 28 to May 8, 2008

Tested by:


Miyo Kishimoto
EMC Services

Approved by :


Tetsuo Maeno
SiteManager of EMC Services



NVLAP LAB CODE: 200572-0

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SECTION 1: Customer information

Company Name	:	NEC Corporation
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Facsimile Number	:	+81-42-333-1054
Contact Person	:	Tomomi Nakano

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

2.1 Identification of E.U.T.

Type of Equipment	:	Factory Computer as FC-NOTE Series
Model No.	:	FC-N22A
Serial No.	:	PP-091
Rating	:	AC100-240V / 1.1A-0.5A
Normal Battery(Standard)	:	Type : Li-ion Battery Model name : Y00-00645 Rating : DC11.1V/5.2Ah
Option1 Battery(Stamina)	:	Type : Li-ion Battery Model name : Y00-00647 Rating : DC11.1V/6.0Ah
Option2 Battery (Wide Range Temperature)	:	Type : Li-ion Battery Model name : Y00-00646 Rating : DC11.1V/7.8Ah
Receipt Date of Sample	:	April 21, 2008
Country of Mass-production	:	Japan
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

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2.2 Product Description

Model No: FC-N22A (referred to as the EUT in this report) is the Factory Computer as FC-NOTE Series.
Feature of EUT: EUT is the Factory Computer as FC-NOTE Series which has IEEE802.11b, IEEE802.11g, IEEE802.11a functions and approved Bluetooth module (FCC ID: CWTUGPZ6-C3).

	IEEE802.11b	IEEE802.11g	IEEE802.11a	Bluetooth
Frequency band	2412 - 2462MHz		5180-5240MHz (Lower band) 5260-5320MHz (Middle band) 5745-5825MHz (Upper band)	2402-2480MHz
Clock frequencies in the system (radio part)	CPU: 1.05GHz			
Channel spacing	5MHz		20MHz	1MHz
Type of Modulation	DSSS	OFDM		FHSS
Antenna Type	PIFA			
Antenna Connector Type	U.FL-LP-088			
Antenna Gain	Main: L=570mm Gain w/cable loss 2400-2500MHz: 0.36 dBi (peak) ----- Aux: L=385mm Gain w/cable loss 2400-2500MHz: -2.28 dBi (peak)		Main: L=570mm Gain w/cable loss 5150-5350MHz: 0.69 dBi (peak) 5470-5725MHz: 1.27 dBi (peak) 5725-5850MHz: 0.32 dBi (peak) ----- Aux: L=385mm Gain w/cable loss 5150-5350MHz: 4.32 dBi (peak) 5470-5725MHz: 4.42 dBi (peak) 5725-5850MHz: 1.84 dBi (peak)	-3.0dBi
Power Supply (radio part)	DC 3.3V			

SECTION 3 : Test standard information

3.1 Requirements for compliance testing defined by the FCC

The US Federal Communications Commission has released the report and order "Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g for an uncontrolled environment and 8.0 mW/g for an occupational/controlled environment as recommended by the ANSI/IEEE standard C95.1-1992. According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at

maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

1 Specific Absorption Rate (SAR) is a measure of the rate of energy absorption due to exposure to an RF transmitting source (wireless portable device).

2 IEEE/ANSI Std. C95.1-1992 limits are used to determine compliance with FCC ET Docket 93-62.

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3.2 Procedure and result

No.	Item	Test Procedure	Limit	Remarks	Exclusion	Result
1	Human Exposure	FCC OET BULLETIN 65, SUPPLEMENT C	FCC47CFR 2.1093	SAR Measurement	N/A	Complied Max.SAR = 0.517 W/kg

Note: UL Japan, Inc. 's SAR Work Procedures QPM46 and QPM47

<Stand alone>

Max. SAR Value

(IEEE 802.11a Low band) : 1.04W/kg (Body 5180MHz)
(IEEE 802.11a Mid band) : 0.738W/kg (Body 5320MHz)
(IEEE 802.11a Upper band) : 1.07W/kg (Body 5745MHz)

< Simultaneous transmission >

This EUT has the Bluetooth unlicensed transmitter

The simultaneous transmission SAR is not required for the following simultaneous transmission conditions, according to the FCC document 447498 D01 3)b)ii)(1)

(1) The closest antenna separation distance is ≥ 5 cm for the simultaneous transmitting antennas (Bluetooth antenna) within the EUT. Refer to the configuration of EUT to Appendix 1.

(2) The Output power of Bluetooth power is $< 60/f$ mW. Refer to the configuration of EUT to Section 6.3.
Therefore the stand-alone SAR evaluation of Bluetooth is not required.

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3.3 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

**NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE
SPATIAL PEAK(averaged over any 1g of tissue) LIMIT
1.6 W/kg**

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3.4 Test Location

*Shielded room for SAR testings

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3.5 Confirmation before SAR testing

Correlation of Output Power between EMC and SAR tests (WLAN IEEE802.11a)

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)
The result is shown in Section 6.1.

- Peak power at EMC test
EMC power was measured when EMC was tested. (Test date: April 21 to 22, 2008).
- Peak power at SAR test
SAR power was measured for SAR was tested. (Test date: April 28, 2008).

Crest factor determining

Crest factor was calculated by the duty factor measured at each data rate.
The duty factor was calculated according to the following equation:

Duty factor = on time / 1 cycle (on+off time)

The result of duty factor is shown in section 6.3.

3.6 Confirmation after SAR testing

It was checked that the power drift is within $\pm 5\%$ in the evaluation procedure of SAR testing.
The result is shown in APPENDIX 2.

3.7 Measurement procedure

The tests from Step1 to Step8 were performed with Main antenna and AUX antenna respectively

1. IEEE 802.11a Low band

Step1. The searching for the worst modulation

The data rate BPSK of the highest average power* and 64QAM of the highest data rate were compared.

Step2. The searching for the worst condition by battery change

This test was performed at the worst modulation of Step1, and only Main antenna.

Step3. The searching for the worst position

This test was performed at the worst condition of Step1 and 2.

Step4. The changing to the Low and High channels

This test was performed at the worst conditions of Step 3.

2. IEEE 802.11a Mid band

Step5. The changing to the Low, Mid and High channels

This test was performed at the worst conditions of Step 3.

3. IEEE 802.11a Upper band

The tests from Step6 to Step9 were performed with worst battery in the 11a Low band mode's test.

Step6. The searching for the worst modulation

The data rate BPSK of the highest average power* and 64QAM of the highest data rate were compared.

Step7. The searching for the worst position

This test was performed at the worst modulation of Step6.

Step8. The changing to the Low and High channels

This test was performed at the worst conditions of Step 7.

* Refer to the average power data to Section 6.2.

Change distance between EUT and SAM Twin Phantom

Step9. Change separation

The measurement was performed with the distance, 5mm, 10mm and 15mm to check if the shortest distance may not have the worst value at the conditions of the highest SAR value.

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3.8 Test setup of EUT

We performed the test positions at the following, according to the FCC document 447498 D01 4)

The EUT has multiple display orientations supporting both portrait and landscape configurations.

The test position is required for the tablet edge closet to the user within 5cm of each antenna located for the applicable display orientation.

For the tablet edge ≥ 5 cm from each antenna located, the test positions were excluded. (Refer to the Appendix 1)

(1) Top (Tablet mode/Main ant.):

The test was performed in touch with Top edge of the EUT to the flat section of SAM Twin phantom.

(2) Side (Tablet mode/AUX ant.) :

The test was performed in touch with right side edge of the EUT to the flat section of SAM Twin phantom.

(3) Bottom (Tablet mode/Main ant.& AUX ant.):

The test was performed in touch with bottom surface of the EUT with tablet mode to the flat section of SAM Twin phantom.

(4) Bottom (Laptop mode/Main ant.& AUX ant.):

The test was performed in touch with bottom surface of the EUT with Laptop mode to the flat section of SAM Twin phantom.

(5) Top 5mm(Tablet mode/Main ant.) :

The measurement opened 5mm distance between the EUT and flat section of SAM Twin Phantom.

(6) Top 10mm(Tablet mode/Main ant.) :

The measurement opened 10mm distance between the EUT and flat section of SAM Twin Phantom.

(7) Top 15mm(Tablet mode/Main ant.) ::

The measurement opened 15mm distance between the EUT and flat section of SAM Twin Phantom.

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

4.1 Operating modes for SAR testing

The frequency band and the modulation used in the testing of IEEE.802.11a are shown as a following.

1. IEEE 802.11a Low band mode
Tx frequency band : 5180 -5240MHz
Channel : 36ch(5180MHz),44ch(5220MHz),48ch(5240MHz)
Modulation : OFDM
Crest factor* : 1.1(6Mbps),1.2(12Mbps),1.4(24Mbps).1.7(48Mbps)

2. IEEE 802.11a Mid band mode
Tx frequency band : 5260 -5320MHz
Channel : 52ch(5260MHz),60ch(5300MHz),64ch(5320MHz)
Modulation : OFDM
Crest factor* : 1.1(6Mbps)

3. IEEE 802.11a Upper band mode
Tx frequency band : 5745 -5825MHz
Channel : 149ch(5745MHz),157ch(5785MHz),165ch(5825MHz)
Modulation : OFDM
Crest factor* : 1.1(6Mbps),1.2(12Mbps),1.4(24Mbps).1.7(48Mbps)

* Refer to the Section 6.4.

SECTION 5 : Test surrounding

5.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY4 measurement system according to the SPEAG documents[6][7] and is given in the following Table.

Error Description	Uncertainty value $\pm$ %	Probability distribution	divisor	(ci) 1g	Standard Uncertainty (1g)	vi or veff
Measurement System						
Probe calibration	± 4.8	Normal	1	1	± 4.8	∞
Axial isotropy of the probe	± 4.7	Rectangular	$\sqrt{3}$	$(1-cp)^{1/2}$	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	$\sqrt{3}$	$(cp)^{1/2}$	± 3.9	∞
Boundary effects	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Probe linearity	± 4.7	Rectangular	$\sqrt{3}$	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Readout electronics	± 1.0	Normal	1	1	± 1.0	∞
Response time	± 0.8	Rectangular	$\sqrt{3}$	1	± 0.5	∞
Integration time	± 2.6	Rectangular	$\sqrt{3}$	1	± 1.5	∞
RF ambient Noise	± 3.0	Rectangular	$\sqrt{3}$	1	± 1.7	∞
RF ambient Reflections	± 3.0	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Probe Positioner	± 0.4	Rectangular	$\sqrt{3}$	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Max.SAR Eval.	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Test Sample Related						
Device positioning	± 2.9	Normal	1	1	± 2.9	9
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	7
Power drift	± 5.0	Rectangular	$\sqrt{3}$	1	± 5.8	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	$\sqrt{3}$	1	± 2.3	∞
Liquid conductivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.64	± 1.8	∞
Liquid conductivity (meas.)	± 5.0	Rectangular	1	0.64	± 3.2	∞
Liquid permittivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Liquid permittivity (meas.)	± 5.0	Rectangular	1	0.6	± 3.0	∞
Combined Standard Uncertainty					± 12.17	
Expanded Uncertainty (k=2)					± 24.34	

SECTION 6 : Confirmation before/after testing

6.1 Conducted power before

6.1.1 Correlation of EMC power and SAR power

EMC power

This data is reference data of EMC test. (Report No.28HE0115-HO-02-A, 28HE0115-HO-02-B)

Date of test: April 21 to 22, 2008

<Peak Power> FCC Section 15.407

[IEEE802.11a Low & Mid band] 6Mbps (Worst), ANT: MAIN(Worst)					
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
36	5180.0	2.10	1.90	10.30	14.30
44	5220.0	2.13	1.90	10.30	14.33
48	5240.0	1.68	1.90	10.30	13.88
52	5260.0	0.85	1.90	10.30	13.05
60	5300.0	0.85	1.90	10.30	13.05
64	5320.0	1.17	1.90	10.30	13.37

Sample Calculation: Result = Reading + Cable Loss + Attenuator Loss

*The test result is round off to one or two decimal places, so some differences might be observed.

[IEEE802.11a Upper band] 6Mbps (Worst), ANT: AUX(Worst)					
Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
Low	5745.0	9.74	3.03	10.32	23.09
Mid	5785.0	9.77	3.03	10.32	23.12
High	5825.0	9.66	3.03	10.32	23.01

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SAR power

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)

Date of test: April 28, 2008

<Peak Power>

[IEEE802.11a Low &Mid band] 6Mbps(Worst) ANT: MAIN					
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
36	5180.0	2.19	1.90	10.30	14.39
44	5220.0	2.14	1.90	10.30	14.34
48	5240.0	1.71	1.90	10.30	13.91
52	5260.0	0.88	1.90	10.30	13.08
60	5300.0	0.91	1.90	10.30	13.11
64	5320.0	1.17	1.90	10.30	13.37

[IEEE802.11a Low & Mid band] 6Mbps (Worst), ANT: AUX					
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
36	5180.0	-0.38	1.90	10.30	11.82
44	5220.0	0.12	1.90	10.30	12.32
48	5240.0	0.48	1.90	10.30	12.68
52	5260.0	0.59	1.90	10.30	12.79
60	5300.0	0.79	1.90	10.30	12.99
64	5320.0	1.61	1.90	10.30	13.81

[IEEE802.11a Upper band] 6Mbps (Worst), ANT: MAIN					
Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
Low	5745.0	9.62	3.03	10.32	22.97
Mid	5785.0	9.69	3.03	10.32	23.04
High	5825.0	9.41	3.03	10.32	22.76

[IEEE802.11a Upper band] 6Mbps (Worst), ANT: AUX					
Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
Low	5745.0	9.78	3.03	10.32	23.13
Mid	5785.0	9.78	3.03	10.32	23.13
High	5825.0	9.71	3.03	10.32	23.06

Sample Calculation: Result = Reading + Cable Loss + Attenuator Loss

*The test result is round off to one or two decimal places, so some differences might be observed.

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6.2 Decision of DATA rate for SAR test

Date of test: April 21 to 22, 2008

11a Low band (Main Antenna)					
Data rate	Freq.	P/M(AVG)	Cable	Atten.	Result
[MHz]	[MHz]	Reading [dBm]	Loss [dB]	Loss [dB]	[dBm]
6	5220.0	2.13	1.90	10.30	14.33
9	5220.0	1.89	1.90	10.30	14.09
12	5220.0	2.09	1.90	10.30	14.29
18	5220.0	1.84	1.90	10.30	14.04
24	5220.0	1.91	1.90	10.30	14.11
36	5220.0	1.91	1.90	10.30	14.11
48	5220.0	-0.97	1.90	10.30	11.23
54	5220.0	-1.91	1.90	10.30	10.29

11a Low band (AUX Antenna)					
Data rate	Freq.	P/M(AVG)	Cable	Atten.	Result
[MHz]	[MHz]	Reading [dBm]	Loss [dB]	Loss [dB]	[dBm]
6	5220.0	-0.06	1.90	10.30	12.14
9	5220.0	-0.24	1.90	10.30	11.96
12	5220.0	-0.13	1.90	10.30	12.07
18	5220.0	-0.22	1.90	10.30	11.98
24	5220.0	-0.09	1.90	10.30	12.11
36	5220.0	-0.23	1.90	10.30	11.97
48	5220.0	-2.60	1.90	10.30	9.60
54	5220.0	-3.37	1.90	10.30	8.83

11a Mid band (Main Antenna)					
Data rate	Freq.	P/M(AVG)	Cable	Atten.	Result
[MHz]	[MHz]	Reading [dBm]	Loss [dB]	Loss [dB]	[dBm]
6	5300.0	0.85	1.90	10.30	13.05
9	5300.0	0.46	1.90	10.30	12.66
12	5300.0	0.20	1.90	10.30	12.40
18	5300.0	0.09	1.90	10.30	12.29
24	5300.0	-0.89	1.90	10.30	11.31
36	5300.0	-1.11	1.90	10.30	11.09
48	5300.0	-1.59	1.90	10.30	10.61
54	5300.0	-2.16	1.90	10.30	10.04

11a Mid band (AUX Antenna)					
Data rate	Freq.	P/M(AVG)	Cable	Atten.	Result
[MHz]	[MHz]	Reading [dBm]	Loss [dB]	Loss [dB]	[dBm]
6	5300.0	0.60	1.90	10.30	12.80
9	5300.0	0.52	1.90	10.30	12.72
12	5300.0	0.58	1.90	10.30	12.78
18	5300.0	0.60	1.90	10.30	12.80
24	5300.0	-0.06	1.90	10.30	12.14
36	5300.0	-0.94	1.90	10.30	11.26
48	5300.0	-1.82	1.90	10.30	10.38
54	5300.0	-2.91	1.90	10.30	9.29

11a Upper band (Main Antenna)					
Data rate	Freq.	P/M(AVG)	Cable	Atten.	Result
[MHz]	[MHz]	Reading [dBm]	Loss [dB]	Loss [dB]	[dBm]
6	5785.0	0.58	3.03	10.32	13.93
9	5785.0	0.33	3.03	10.32	13.68
12	5785.0	-0.02	3.03	10.32	13.33
18	5785.0	-0.24	3.03	10.32	13.11
24	5785.0	-0.67	3.03	10.32	12.68
36	5785.0	-0.92	3.03	10.32	12.43
48	5785.0	-3.11	3.03	10.32	10.24
54	5785.0	-4.39	3.03	10.32	8.96

11a Upper band (AUX Antenna)					
Data rate	Freq.	P/M(AVG)	Cable	Atten.	Result
[MHz]	[MHz]	Reading [dBm]	Loss [dB]	Loss [dB]	[dBm]
6	5785.0	0.60	3.03	10.32	13.95
9	5785.0	0.34	3.03	10.32	13.69
12	5785.0	0.02	3.03	10.32	13.37
18	5785.0	-0.21	3.03	10.32	13.14
24	5785.0	-0.56	3.03	10.32	12.79
36	5785.0	-0.78	3.03	10.32	12.57
48	5785.0	-3.65	3.03	10.32	9.70
54	5785.0	-4.76	3.03	10.32	8.59

Sample Calculation: Result = Reading + Cable Loss + Attenuator Loss

*The test result is round off to one or two decimal places, so some differences might be observed.

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6.3 Conducted power before (Bluetooth)

EMC power

This data is reference data of EMC test. (Report No.28DE0007-YK-01-A)

Date of test: November 09,2007

<Peak Power>FCC Part15 Subpart C

DH5				
CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]
Low	2402.00	0.38	2.16	2.54
Mid	2441.00	-0.02	2.41	2.39
High	2480.00	-0.57	2.33	1.76

3DH5				
CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]
Low	2402.00	2.29	2.16	4.45
Mid	2441.00	1.74	2.41	4.15
High	2480.00	0.91	2.33	3.24

Sample Calculation: Result = Reading + Cable Loss + Attenuator Loss

*The test result is round off to one or two decimal places, so some differences might be observed.

SAR power

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)

Date of test: May 13, 2008

DH5				
CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]
Low	2402.00	1.81	0.78	2.59
Mid	2441.00	1.63	0.78	2.41
High	2480.00	1.02	0.78	1.80

3DH5				
CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]
Low	2402.00	3.71	0.78	4.49
Mid	2441.00	3.43	0.78	4.21
High	2480.00	2.60	0.78	3.38

Sample Calculation: Result = Reading + Cable Loss + Attenuator Loss

*The test result is round off to one or two decimal places, so some differences might be observed.

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6.4 Result of Duty factor verifications

The maximum duty factor of test mode was checked. The results are in the table below.
When the user uses EUT, the duty factor is not exceeded from the duty factor of the test mode.

11a(Low / Mid / Upper Band)		
DATA rate [Mbps]	Duty [%]	Crest factor for SAR
BPSK (6Mbps)	91	1.1
BPSK (9Mbps)	87	N/A*
QPSK (12Mbps)	84	1.2
QPSK (18Mbps)	78	N/A*
16QAM (24Mbps)	73	1.4
16QAM (36Mbps)	64	N/A*
64QAM (48Mbps)	58	1.7
64QAM (54Mbps)	55	N/A*

*Reference: SAR test was not performed at the data rate.

SECTION 7 : Measurement results

7.1 Body SAR 5GHz (11a Low & Mid band / Main Antenna)

Liquid Depth (cm) : 15.0
Parameters : $\epsilon_r = 46.9$, $\sigma = 5.52$
Ambient temperature(deg.c.) : 24.5
Relative Humidity (%) : 43
Date : April 28, 2008

Model : FC-N22A
Serial No. : PP-091
Modulation : OFDM
Crest factor : See to the Section 4.1
Measured By : Miyo Kishimoto

SAR MEASUREMENT RESULT(MAIN ANTENNA)											
Frequency			Modulation	Phantom Section	EUT Set-up Conditions				Liquid Temp.[deg.c]		SAR(1g) [W/kg]
	Ch	[MHz]			Antenna	Position	Separation [mm]	Battery	Before	After	Maximum value of multi-peak
11a Low band	Step 1. Search for the worst modulation										
	40	5220	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Normal	23.5	23.5	0.795
	40	5220	QPSK(12Mbps)	Flat	Main	Top (Tablet)	0	Normal	23.5	23.5	0.721
	40	5220	16QAM(24Mbps)	Flat	Main	Top (Tablet)	0	Normal	23.5	23.7	0.721
	40	5220	64QAM(48Mbps)	Flat	Main	Top (Tablet)	0	Normal	23.7	23.7	0.293
	Step 2. Search for the worst battery										
	40	5220	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.7	23.7	0.800
	40	5220	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 2	23.7	23.8	0.704
	Step 3. Search for the worst position										
	40	5220	BPSK(6Mbps)	Flat	Main	Bottom (Tablet)	0	Option 1	23.8	23.8	0.025
	40	5220	BPSK(6Mbps)	Flat	Main	Bottom (Laptop)	0	Option 1	23.8	23.8	0.00185
	Step 4. Change to the channels										
	36	5180	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.8	24.0	1.04
	48	5240	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	24.0	24.0	0.911
11a Mid band	Step 5. Change to the channels										
	52	5260	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	24.0	24.0	0.534
	60	5300	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	24.0	24.0	0.663
	64	5320	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	24.0	24.0	0.738

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7.2 Body SAR 5GHz (11a Low & Mid band / AUX Antenna)

Liquid Depth (cm) : 15.0 Model : FC-N22A
Parameters : $\epsilon_r = 46.7, \sigma = 5.52$ Serial No. : PP-091
Ambient temperature(deg.c.) : 24.5 Modulation : OFDM
Relative Humidity (%) : 41 Crest factor : See to the Section 4.1
Date : April 29, 2008 Measured By : Miyo Kishimoto

SAR MEASUREMENT RESULT(AUX ANTENNA)											
Frequency			Modulation	Phantom Section	EUT Set-up Conditions				Liquid Temp.[deg.c]		SAR(1g) [W/kg]
	Ch	[MHz]			Antenna	Position	Separation [mm]	Battery	Before	After	Maximum value of multi-peak
11a Low band	Step 1. Search for the worst modulation										
	40	5220	BPSK(6Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.731
	40	5220	QPSK(12MBPS)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.681
	40	5220	16QAM(24Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.582
	40	5220	64QAM(48MBPS)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.250
	Step 3. Search for the worst position										
	40	5220	BPSK(6Mbps)	Flat	AUX	Bottom (Tablet)	0	Option 1	23.5	23.5	0.021
	40	5220	BPSK(6Mbps)	Flat	AUX	Bottom (Laptop)	0	Option 1	23.5	23.5	0.0125
	Step 4. Change to the channels										
	36	5180	BPSK(6Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.636
	48	5240	BPSK(6Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.700
11a Mid band	Step 5. Change to the channels										
	52	5260	BPSK(6Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.5	0.697
	60	5300	BPSK(6Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.5	23.7	0.614
	64	5320	BPSK(6Mbps)	Flat	AUX	Right side(Tablet)	0	Option 1	23.7	23.7	0.686

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7.3 Body SAR 5GHz (11a Upper band / Main Antenna)

Liquid Depth (cm) : 15.0 Model : FC-N22A
Parameters : $\epsilon_r = 45.9, \sigma = 6.27$ Serial No. : PP-091
Ambient temperature(deg.c.) : 24.5 Modulation : OFDM
Relative Humidity (%) : 39 Crest factor : See to the Section 4.1
Date : May 7, 2008 Measured By : Miyo Kishimoto

SAR MEASUREMENT RESULT(MAIN ANTENNA)											
Frequency			Modulation	Phantom Section	EUT Set-up Conditions				Liquid Temp.[deg.c]		SAR(1g) [W/kg]
	Ch	[MHz]				Antenna	Position	Separation [mm]	Battery	Before	After
11a Upper band	Step 1. Search for the worst modulation										
	157	5785	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.5	23.6	1.01
	157	5785	QPSK(12Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.6	23.5	0.949
	157	5785	16QAM(24Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.5	23.5	0.820
	157	5785	64QAM(48Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.5	23.5	0.408
	Step 3. Search for the worst position										
	157	5785	BPSK(6Mbps)	Flat	Main	Bottom (Tablet)	0	Option 1	23.5	23.7	0.025
	157	5785	BPSK(6Mbps)	Flat	Main	Bottom (Laptop)	0	Option 1	23.7	23.8	0.008
	Step 4. Change to the channels										
	149	5745	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	23.8	24.0	1.07
	161	5825	BPSK(6Mbps)	Flat	Main	Top (Tablet)	0	Option 1	24.0	24.0	0.955

7.4 Body SAR 5GHz (11a Upper band / AUX Antenna)

Liquid Depth (cm) : 15.0 Model : FC-N22A
Parameters : $\epsilon_r = 45.8$, $\sigma = 6.21$ Serial No. : PP-091
Ambient temperature(deg.c.) : 24.5 Modulation : DSSS,OFDM
Relative Humidity (%) : 39 Crest factor : See to the Section 4.1
Date : May 8, 2008 Measured By : Miyo Kishimoto

SAR MEASUREMENT RESULT(MAIN ANTENNA)											
Frequency			Modulation	Phantom Section	EUT Set-up Conditions				Liquid Temp.[deg.c]		SAR(1g) [W/kg]
	Ch	[MHz]			Antenna	Position	Separation [mm]	Battery	Before	After	Maximum value of multi-peak
11a Upper band	Step 1. Search for the worst modulation										
	157	5785	BPSK(6Mbps)	Flat	AUX	Right side (Tablet)	0	Option 1	23.5	23.5	0.744
	157	5785	QPSK(12Mbps)	Flat	AUX	Right side (Tablet)	0	Option 1	23.5	23.5	0.681
	157	5785	16QAM(24Mbps)	Flat	AUX	Right side (Tablet)	0	Option 1	23.5	23.5	0.591
	157	5785	64QAM(48Mbps)	Flat	AUX	Right side (Tablet)	0	Option 1	23.5	23.5	0.260
	Step 3. Search for the worst position										
	157	5785	BPSK(6Mbps)	Flat	AUX	Bottom (Tablet)	0	Option 1	23.5	23.5	0.021
	157	5785	BPSK(6Mbps)	Flat	AUX	Bottom (Laptop)	0	Option 1	23.5	23.5	0.026
	Step 4. Change to the channels										
	149	5745	BPSK(6Mbps)	Flat	AUX	Right side (Tablet)	0	Option 1	23.5	23.5	0.767
161	5825	BPSK(6Mbps)	Flat	AUX	Right side (Tablet)	0	Option 1	23.5	23.5	0.755	

SAR MEASUREMENT RESULT(AUX ANTENNA)											
Frequency			Modulation	Phantom Section	EUT Set-up Conditions				Liquid Temp.[deg.c]		SAR(1g) [W/kg]
	Ch	[MHz]			Antenna	Position	Separation [mm]	Battery	Before	After	Maximum value of multi-peak
11a Upper band											
	149	5745	BPSK(6Mbps)	Flat	Main	Top (Tablet)	5	Option 1	23.5	23.5	0.336
	149	5745	BPSK(7Mbps)	Flat	Main	Top (Tablet)	10	Option 1	23.5	23.5	0.260
	149	5745	BPSK(8Mbps)	Flat	Main	Top (Tablet)	15	Option 1	23.5	23.5	0.210

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