SAR TEST REPORT

Test Report No. : 31KE0212-SH-02-C

Applicant	:	**Sony Corporation**
Type of Equipment	:	**Digital Book Reader**
Model No.	:	**PRS-T1**
Test Standard	:	**FCC 47CFR §2.1093, Supplement C (Edition 01-01) to OET Bulletin 65**
Test Result	:	**Complied**
Maximum SAR(1g) Value	:	**0.897 W/kg** (2462MHz, IEEE 802.11b(1Mbps, DBPSK/DSSS))

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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: June 27, 2011

Test engineer: H. Naka

Hiroshi Naka
Engineer of WiSE Japan, UL Verification Service

Approved by: T. Imamura

Toyokazu Imamura
Leader of WiSE Japan, UL Verification Service

JAB Testing RTL02610

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☒ There is no testing item of "Non-accreditation".

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SECTION 1: Customer information

Company Name	Sony Corporation.
Brand Name	SONY
Address	Shinagawa INTERCITY C Tower, 2-15-3, Konan Minato-ku, Tokyo, Japan 108-6201
Telephone Number	+81-3-5769-5222
Facsimile Number	+81-3-5769-5901
Contact Person	Shinichi Maru

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Type of Equipment	Digital Book Reader
Model Number	PRS-T1
Serial Number	463
Condition of EUT	Engineering prototype (*. Not for sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	June 27, 2011 / *. No modification by the Lab.
Country of Mass-	Japan
Category Identified	Portable devic and tablet device
Feature of EUT	This EUT is a Digital Book Reader with built-in WLAN module (IEEE 802.11b/g/n(20HT)). *. The EUT has built-in re-chargeable Li-ion battery. During SAR test, the EUT was operated with full-charged battery.
Accessory of EUT	AC adaptor (for charging the rechargeable Li-ion battery)

[Battery used for SAR test]

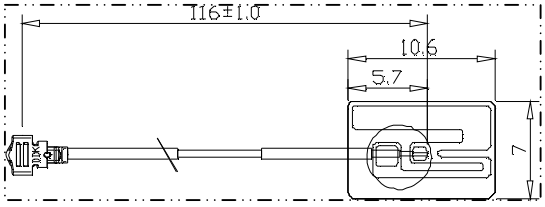
Type	Built-in rechargeable Li-ion Battery
Model name	LIS1476MHPPC(SY6)
Rating	DC4.2V/3.6Wh
Manufacturer	SONY

2.2 Product Description (Wireless LAN module)

Equipment type	Transceiver
Frequency of operation	2412-2462MHz
Channel spacing / Bandwidth	5MHz / 20MHz
ITU code	G1D(11b), D1D(11g,11n)
Type of modulation	DSSS(11b), OFDM(11g,11n)
Q'ty of Antenna	1 pc.
Antenna type / Model name	Type: PIFA (Planar Inverted F Antenna) / Model: SOYW-084C
Antenna connector type	RF module side: U.FL connector compatible/ antenna side: soldered
Antenna gain (peak)	1.07 dBi (2412MHz), 2.06 dBi (Max., 2436MHz), 1.25 dBi (2.472MHz) *.with cable loss
Transmit power	*. refers to section 6 in this report.
Power supply	DC 3.3V, DC1.8V (*.with constant voltage circuit.)
Operation temperature range	+5 to +35 deg.C

*. The EUT do not use the special transmitting technique such as "beam-forming" and "time-space code diversity."

*. Antenna outline [unit: mm];



SECTION 3: Test specification, procedures and results

3.1 Requirements for compliance testing defined by the FCC / Test specification

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.

Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01):

Supplement C (Edition 01-01) - Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions
OET Bulletin 65 (Edition 97-01) - Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

IEEE Std. 1528-2003:

IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Supplement C

In additions;

KDB 447498 D01(v04)(Nov.13, 2009): Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
KDB 248227 (rev.1.2)(May 29, 2007): SAR Measurement Procedures for 802.11a//b/g Transmitters
KDB 616217 (v01)(Nov.13, 2009): SAR Evaluation Considerations for Laptop/Notebook/Notebook and Tablet Computers

3.2 Exposure limit

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

Whole-Body (averaged over the entire body)	Partial-Body (averaged over any 1g of tissue)	Hands, Wrists, Feet and Ankles (averaged over any 10g of tissue)
0.4	8.0	20.0

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

Whole-Body (averaged over the entire body)	Partial-Body (averaged over any 1g of tissue)	Hands, Wrists, Feet and Ankles (averaged over any 10g of tissue)
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.

The limit applied in this test report is;

General population / Uncontrolled exposure, Partial-Body (averaged over any 1g of tissue) limit: 1.6 W/kg

3.3 Procedures and Results

Item	Test Procedure	Limit	Exclusion	Remarks	Result
Human exposure	FCC OET Bulletin 65, Supplement C	SAR(1g): 1.6 W/kg (FCC 47CFR §2.1093)	none	SAR measurement	**Complied** (*1)

Note: UL Japan's SAR Work Procedures No.13-EM-W0429 and 13-EM-W0430. Other than above, no addition, deviation nor exclusion has been made from standards
*1. The worst SAR(1g) of each frequency band was as follows;
0.897 W/kg (2462MHz, IEEE 802.11b, (1Mbps, DBPSK/DSSS))
The SAR(1g) was <1.2W/kg for all configuration. Therefore according to the KDB447498 D01, this EUT was approved for used in a single platform..

3.4 Test Location

No.7 shielded room (2.76(Width) × 3.76m(Depth) × 2.4m(Height)) for SAR testing.

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

3.5 Confirmation before SAR testing

3.5.1 Correlation of Output Power between EMC and SAR tests

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements).
The result is shown in Section 6.

*. **Output power at SAR test:** SAR power was measured before SAR testing (serial number: 493).
The antenna terminal conducted output power was measured by the calibrated power sensor and power meter (65MHz measurement bandwidth).
The average and the peak power of 11b, 11g and 11n(20HT) mode were measured at default channel.

*. **Output power at EMC radio test:** EMC power was measured during EMC testing. (serial number: 497).
For the EMC test, the antenna terminal conducted peak output power was measured at 11b, 11g and 11n(20HT) mode.
In addition, for the SAR test reference, the average power of 11b, 11g and 11n(20HT) modes were measured at specified condition.

3.5.2 Average power for SAR tests

Step.1 Data rate check

The average power related with the data rate was measured on one of the channel for 802.11b, 11g and 11n(20HT) modes.

11b		11g		11n(20HT)		
Modulation	Data rate [Mbps]	Modulation	Data rate [Mbps]	MCS Index	Spatial Stream	Modulation
DBPSK/DSSS	1	BPSK/OFDM	6	MCS0	1	BPSK/OFDM
DQPSK/DSSS	2	BPSK/OFDM	9	MCS1	1	QPSK/OFDM
CCK/DSSS	5.5	QPSK/OFDM	12	MCS2	1	QPSK/OFDM
CCK/DSSS	11	QPSK/OFDM	18	MCS3	1	16QAM/OFDM
		16QAM/OFDM	24	MCS4	1	16QAM/OFDM
		16QAM/OFDM	36	MCS5	1	64QAM/OFDM
		64QAM/OFDM	48	MCS6	1	64QAM/OFDM
		64QAM/OFDM	54	MCS7	1	64QAM/OFDM

Step.2 Decision of SAR test channel

For the SAR test reference, the average power was measured on default channels of 802.11b, 11g and 11n(20HT).

Mode	GHz	Channel	"Default Test Channel" FCC 15.247	
			802.11b	802.11g
802.11 b/g	2.412	1#	√	Δ
	2.437	6	√	Δ
	2.462	11#	√	Δ

√ = "default test channels" in KDB248227.
* = Possible 802.11a channels with maximum average output > the "default test channels"
Δ = Possible 802.11g channels with maximum average output ¼ dB ≥ the "default test channels"
#. Any output power was reduced for channel 1 and 11 to meet restricted band requirements. Therefore channel 1 and 11 was selected for the default channels and SAR test was applied.

3.6 Confirmation after SAR testing

It was checked that the power drift [W] is within ±5% in the evaluation procedure of SAR testing. The verification of power drift during the SAR test is that DASY4 system calculates the power drift by measuring the e-filed at the same location at beginning and the end of the scan measurement for each test position.
The result is shown in APPENDIX 2.

*. DASY4 system calculation Power drift value[dB] =20log(Ea)/(Eb) (where, Before SAR testing: Eb[V/m] / After SAR testing: Ea[V/m])

Limit of power drift[W] = ±5%
Power drift limit (X) [dB] = 10log(P_drift)=10log(1.05/1)=10log(1.05)-10log(1)=0.21dB
from E-filed relations with power.
S=E×H=E^2/η=P/(4×π×r^2) (η: Space impedance) → P=(E^2×4×π×r^2)/η
Therefore, The correlation of power and the E-filed
Power drift limit (X) dB=10log(P_drift)=10log(E_drift)^2=20log(E_drift)
From the above mentioned, the calculated power drift of DASY4 system must be the less than ±0.21dB.

3.7 Measurement procedure

Step 1	Worst position search. (at lowest data rate, at maximum average power channel)
Step 2	Change the channels.
Step 3	Change separation distance.

*. During SAR test, the radiated power is always monitored by Spectrum Analyzer.

3.8 Test setup of EUT

Antenna-to-user separation distance and SAR test condition:

#	Setup	Explanation / Propriety of the application of SAR test
1	**Tablet-held; Rear-touch**	7.2mm from Wi-Fi antenna-to-user. SAR test was applied. The rear surface of EUT was touched to the Flat phantom.
2	**Tablet edges; Primary landscape-touch**	90mm from Wi-Fi antenna-to-user. **No need SAR testing** due to the distance between antenna and this edge of the EUT is bigger than 5cm referred as the KDB447498/KDB 616217.
3	**Tablet edges; Secondary landscape-touch**	9mm from Wi-Fi antenna-to-user. SAR test was applied. The secondary landscape edge surface of EUT was touched to the Flat phantom.
4	**Tablet edges; Primary portrait-touch**	Approx. 162mm from Wi-Fi antenna-to-user. **No need SAR testing** due to the distance between antenna and this edge of the EUT is bigger than 5cm referred as the KDB447498/KDB 616217.
5	**Tablet edges; Secondary portrait-touch**	2.8mm from Wi-Fi antenna-to-user. SAR test was applied. The secondary portrait edge surface of EUT was touched to the Flat phantom.
6	**Tablet-held; 1)Front-touch 2)Front 5mm gap *. Front: LCD side**	1.2mm from Wi-Fi antenna-to-user. This surface exists in the possibility of coming in contact with the body when this EUT is maintained. Therefore, SAR test was applied. 1)Front-touch: The front surface of EUT was touched to the Flat phantom. 2)Front 5mm gap: The distance between front surface of EUT and the Flat phantom was 5mm with air gap..
7	**Tablet-held; Top-rear-touch**	Approx..2mm from Wi-Fi antenna-to-user. This surface exists in the possibility of coming in contact with the body when this EUT is maintained. Therefore, SAR test was applied. The top-rear section of EUT was touched to the Flat phantom.

*. The EUT has two fixed display orientation with one in portrait and one in landscape.
In accordance with KDB447498, SAR test is required the rear side of EUT and the antenna side located within 5cm of the tablet edge closet to the user for the applicable display orientation. (#1, #2, #4 in the above the table.)
However, SAR test was applied all surfaces near the antenna, because this included most conservative exposure condition and this was the customer's request.

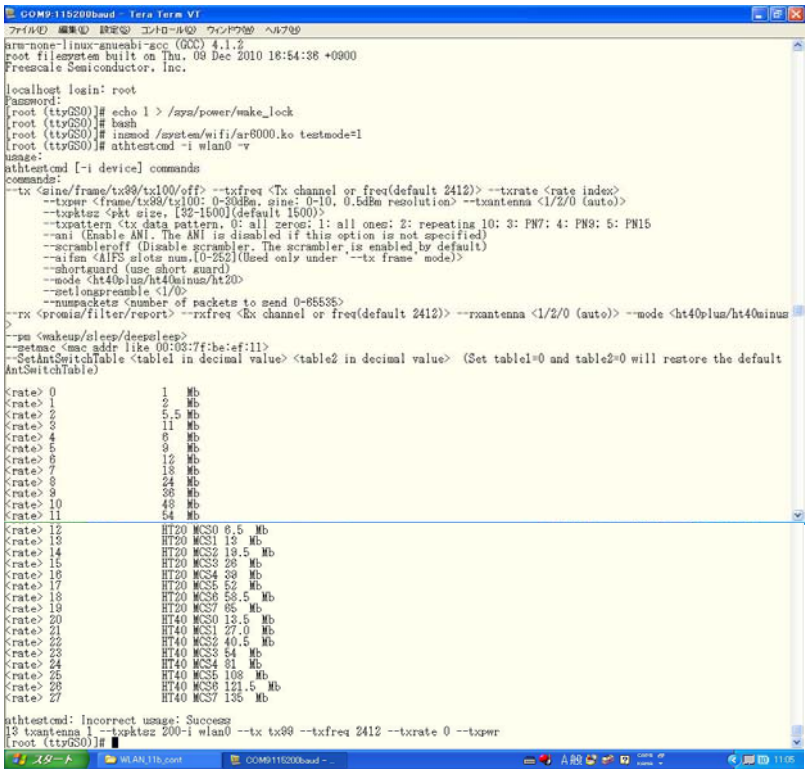
SECTION 4: Operation of EUT during testing

4.1 Operating modes for SAR testing

This EUT has IEEE.802.11b, 11g and 11n(20HT) continuous transmitting modes.
For the SAR test, the 802.11b (DSSS) mode with lowest data rate (1Mbps, DBPSK) was only operated.

*. According to KDB248227; SAR is not required for 802.11g and 11n(HT20) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.
*. According to KDB248227; SAR is not required for higher data rate when the maximum average output power is less than 1/4 dB higher than the lowest data rate.

Operation mode : IEEE 802.11b
Frequency (Channel) : 2412MHz(1ch-low), 2437MHz(6ch-middle), 2462MHz(11ch-high)
Data rate/Modulation : 1Mbps / DBPSK/DSSS
Crest factor : 1.0 (*. The duty cycle that is measured is shown in section 6.)
Controlled software : Wi-Fi Test mode
For the setting of continuous Tx operation, the EUT was connected with the host PC via USB cable. By using the soft setting screen (the example of the screen is shown in the next page), the full Tx power that the customer had set beforehand was transmitted at the selected frequency, and at the selected data rate.



SECTION 5: Uncertainty Assessment (SAR measurement)

Uncertainty of SAR measurement system	Under 3GHz	
	1g SAR	10g SAR
combined measurement uncertainty of the measurement system (k=1)	± 11.7%	± 11.4%
expanded uncertainty (k=2)	± 23.3%	± 22.8%

	Error Description	Uncertainty Value	Probability distribution	Divisor	ci (1g)	ci (10g)	ui (1g)	ui (10g)	Vi, veff
A	**Measurement System**						(std. uncertainty)	(std. uncertainty)	
1	Probe calibration	±5.9 %	Normal	1	1	1	±5.9 %	±5.9 %	∞
2	Axial isotropy	±4.7 %	Rectangular	√3	0.7	0.7	±1.9 %	±1.9 %	∞
3	Hemispherical isotropy (*flat phantom, <5°)	±2.6 %	Rectangular	√3	0.7	0.7	±1.1 %	±1.1 %	∞
4	Boundary effects	±1.0 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
5	Probe linearity	±4.7 %	Rectangular	√3	1	1	±2.7 %	±2.7 %	∞
6	System detection limit	±1.0 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
7	System readout electronics	±0.3 %	Normal	1	1	1	±0.3 %	±0.3 %	∞
8	Response time	±0.8 %	Rectangular	√3	1	1	±0.5 %	±0.5 %	∞
9	Integration time	±2.6 %	Rectangular	√3	1	1	±1.5 %	±1.5 %	∞
10	RF ambient – noise	±3.0 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
11	RF ambient – reflections	±3.0 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
12	Probe positioner mechanical tolerance	±0.4 %	Rectangular	√3	1	1	±0.2 %	±0.2 %	∞
13	Probe positioning with respect to phantom shell	±2.9 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
14	Max.SAR evaluation	±1.0 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
B	**Test Sample Related**								
15	Device positioning	±5.0 %	Normal	1	1	1	±5.0 %	±5.0 %	5
16	Device holder uncertainty	±5.0 %	Normal	1	1	1	±5.0 %	±5.0 %	5
17	Power drift	±5.0 %	Rectangular	√3	1	1	±2.9 %	±2.9 %	∞
C	**Phantom and Setup**								
18	Phantom uncertainty	±4.0 %	Rectangular	√3	1	1	±2.3 %	±2.3 %	∞
19	Liquid conductivity (target)	±5.0 %	Rectangular	√3	0.64	0.43	±1.8 %	±1.2 %	∞
20	Liquid conductivity (meas.)	±2.9 %	Normal	1	0.64	0.43	±1.9 %	±1.2 %	3
21	Liquid permittivity (target)	±5.0 %	Rectangular	√3	0.6	0.49	±1.7 %	±1.4 %	∞
22	Liquid permittivity (meas.)	±2.9 %	Normal	1	0.6	0.49	±1.7 %	±1.4 %	3
	Combined Standard Uncertainty						**±11.7** %	**±11.4** %	59
	Expanded Uncertainty (k=2)						**±23.3** %	**±22.8** %	

*. This measurement uncertainty budget is suggested by IEEE 1528 and determined by Schmid & Partner Engineering AG (DASY4 Uncertainty Budget). [6]

SECTION 6: Confirmation before testing

6.1 Assessment for the conducted power of EUT / Correction of the power at EMC test and at SAR test

6.1.1 Worst data rate & worst channel determination (SAR serial number: 463), vs. power at EMC test (EMC serial number: 467)

【Output power】 Tx mode: 11b

*.PAR=Peak(dB)-Ave(dB)[dB]

Ch.	Freq. [MHz]	D/R [Mbps]	Ant. No.	Max.Ave. pwr.:o	Modulation		P/M Reading Ave.[dBm]	P/M Reading Pk[dB]	Cable Loss [dB]	Attenuator [dB]	Power Reading Results Ave[dBm]	Power Reading Results Pk[dBm]	Ave[mW]	Pk[mW]	⊿worst ave.[dB]	PAR [dB]	Power at EMC test Ave. [dB]	⊿(sar-emc)	Pk [dB]	⊿(sar-emc)
1	2412	1	single		DBPSK	DSSS	2.46	5.03	0.50	10.02	12.98	15.55	19.86	35.89	−0.81	2.57				
6	2437	1	single		DBPSK	DSSS	2.91	5.46	0.50	10.02	13.43	15.98	22.03	39.63	−0.36	2.55				
11	2462	1	single	o	DBPSK	DSSS	3.27	5.89	0.50	10.02	13.79	16.41	23.93	43.75	0.00	2.62				
															⊿low rate			⊿ave		⊿pk
6	2437	1	single	(o)	DBPSK	DSSS	2.91	5.46	0.50	10.02	13.43	15.98	22.03	39.63	0.00	2.55	13.32	0.11	15.94	0.04
6	2437	2	single		DQPSK	DSSS	2.88	5.52	0.50	10.02	13.40	16.04	21.88	40.18	−0.03	2.64	13.35	0.05	15.98	0.06
6	2437	5.5	single		CCK/PBCC	DSSS	2.89	5.50	0.50	10.02	13.41	16.02	21.93	39.99	−0.02	2.61	13.37	0.04	16.00	0.02
6	2437	11	single		CCK/PBCC	DSSS	2.81	5.54	0.50	10.02	13.33	16.06	21.53	40.36	−0.10	2.73	13.30	0.03	16.05	0.01

*. The average antenna terminal conducted power of lowest data rate was worst. Therefore, each channel was measured at lowest data rate.

【Output power】 Tx mode: 11g

*.PAR=Peak(dB)-Ave(dB)[dB]

Ch.	Freq. [MHz]	D/R [Mbps]	Ant. No.	Max.Ave. pwr.:o	Modulation		P/M Reading Ave.[dBm]	P/M Reading Pk[dB]	Cable Loss [dB]	Attenuator [dB]	Power Reading Results Ave[dBm]	Power Reading Results Pk[dBm]	Ave[mW]	Pk[mW]	⊿worst ave.[dB]	PAR [dB]	Power at EMC test Ave. [dB]	⊿(sar-emc)	Pk [dB]	⊿(sar-emc)
1	2412	6	single		BPSK	DSSS	−2.62	7.20	0.50	10.02	7.90	17.72	6.17	59.16	−1.18	9.82	7.79	0.11	17.54	0.18
6	2437	6	single		BPSK	DSSS	−1.94	7.75	0.50	10.02	8.58	18.27	7.21	67.14	−0.50	9.69	8.47	0.11	18.27	0.00
11	2462	6	single	o	BPSK	DSSS	−1.44	8.16	0.50	10.02	9.08	18.68	8.09	73.79	0.00	9.60	9.04	0.04	18.63	0.05
															⊿low rate			⊿ave		⊿pk
6	2437	6	single	(o)	BPSK	OFDM	−1.94	7.75	0.50	10.02	8.58	18.27	7.21	67.14	0.00	9.69	8.47	0.11	18.27	0.00
6	2437	9	single		BPSK	OFDM	−1.96	7.47	0.50	10.02	8.56	17.99	7.18	62.95	−0.02	9.43	8.55	0.01	17.94	0.05
6	2437	12	single		QPSK	OFDM	−2.02	7.88	0.50	10.02	8.50	18.40	7.08	69.18	−0.08	9.90	8.50	0.00	18.22	0.18
6	2437	18	single		QPSK	OFDM	−2.01	7.21	0.50	10.02	8.51	17.73	7.10	59.29	−0.07	9.22	8.51	0.00	17.54	0.19
6	2437	24	single		16QAM	OFDM	−2.41	7.88	0.50	10.02	8.11	18.40	6.47	69.18	−0.47	10.29	8.01	0.10	18.24	0.16
6	2437	36	single		16QAM	OFDM	−2.47	7.71	0.50	10.02	8.05	18.23	6.38	66.53	−0.53	10.18	7.90	0.15	18.17	0.06
6	2437	48	single		64QAM	OFDM	−2.65	7.40	0.50	10.02	7.87	17.92	6.12	61.94	−0.71	10.05	7.68	0.19	17.92	0.00
6	2437	54	single		64QAM	OFDM	−2.69	7.40	0.50	10.02	7.83	17.92	6.07	61.94	−0.75	10.09	7.63	0.20	17.91	0.01

*. The average antenna terminal conducted power of lowest data rate was worst. Therefore, each channel was measured at lowest data rate.

【Output power】 Tx mode: 11n(20HT)

*.PAR=Peak(dB)-Ave(dB)[dB]

Ch.	Freq. [MHz]	D/R [Mbps]	Ant. No.	Max.Ave. pwr.:o	Modulation		P/M Reading Ave.[dBm]	P/M Reading Pk[dB]	Cable Loss [dB]	Attenuator [dB]	Power Reading Results Ave[dBm]	Power Reading Results Pk[dBm]	Ave[mW]	Pk[mW]	⊿worst ave.[dB]	PAR [dB]	Power at EMC test Ave. [dB]	⊿(sar-emc)	Pk [dB]	⊿(sar-emc)
1	2412	MCS0	single		BPSK	DSSS	−3.41	6.31	0.50	10.02	7.11	16.83	5.14	48.19	−1.38	9.72				
6	2437	MCS0	single		BPSK	DSSS	−2.78	6.78	0.50	10.02	7.74	17.30	5.94	53.70	−0.75	9.56				
11	2462	MCS0	single	o	BPSK	DSSS	−2.03	7.51	0.50	10.02	8.49	18.03	7.06	63.53	0.00	9.54				
															⊿low rate			⊿ave		⊿pk
6	2437	MCS0	single	(o)	BPSK	OFDM	−2.78	6.78	0.50	10.02	7.74	17.30	5.94	53.70	0.00	9.56	7.74	0.00	17.28	0.02
6	2437	MCS1	single		QPSK	OFDM	−2.97	6.34	0.50	10.02	7.55	16.86	5.69	48.53	−0.19	9.31	7.37	0.18	16.68	0.18
6	2437	MCS2	single		QPSK	OFDM	−3.22	6.58	0.50	10.02	7.30	17.10	5.37	51.29	−0.44	9.80	7.12	0.18	17.02	0.08
6	2437	MCS3	single		16QAM	OFDM	−3.04	7.24	0.50	10.02	7.48	17.76	5.60	59.70	−0.26	10.28	7.33	0.15	17.76	0.00
6	2437	MCS4	single		16QAM	OFDM	−3.98	5.76	0.50	10.02	6.54	16.28	4.51	42.46	−1.20	9.74	6.36	0.18	16.16	0.12
6	2437	MCS5	single		64QAM	OFDM	−4.09	6.48	0.50	10.02	6.43	17.00	4.40	50.12	−1.31	10.57	6.25	0.18	16.98	0.02
6	2437	MCS6	single		64QAM	OFDM	−4.10	6.91	0.50	10.02	6.42	17.43	4.39	55.34	−1.32	11.01	6.26	0.16	17.33	0.10
6	2437	MCS7	single		64QAM	OFDM	−4.14	6.02	0.50	10.02	6.38	16.54	4.35	45.08	−1.36	10.16	6.20	0.18	16.39	0.15

*. The average antenna terminal conducted power of lowest data rate was worst. Therefore, each channel was measured at lowest data rate.

*. Calculating formula: Results = ["P/M Reading"] +["Cbl.loss"(Cable loss)] + ["Att.loss"(Attenuator)] / A red figure indicates it is the maximum value in the condition.
*. The difference between the SAR reference power and the power of EMC test was not less than 0dB and not higher than 0.21dB.
SAR reference; Date tested: June 27, 2011 / Measured by: Hiroshi Naka / Place: preparation room of No. 7 shielded room. (24 deg.C / 54 %RH)
EMC test; Date tested: June 23, 2011 / Measured by: Makoto Hosaka / This reference is described in the test report of 31KE0212–SH-02-B.

6.1.2 Duty cycle (Crest factor)

Mode	Data rate	Frequency [MHz]	On time [ms]	1 cycle [ms]	Duty [%]	Crest factor
802.11b	1Mbps	2437	2.01	2.022	99.6	1 (1.01)
	2Mbps	2437	1.097	1.115	99.5	1 (1.02)
	5.5Mbps	2437	0.5236	0.5315	98.6	1 (1.02)
	11Mbps	2437	0.3581	0.3661	97.1	1 (1.02)
802.11g	6Mbps	2437	1.428	1.456	98.1	1 (1.02)
	9Mbps	2437	0.954	0.982	97.1	1 (1.03)
	12Mbps	2437	0.7172	0.7465	96.1	1 (1.04)
	18Mbps	2437	0.4885	0.5123	95.4	1 (1.05)
	24Mbps	2437	0.3675	0.39	94.2	1 (1.06)
	36Mbps	2437	0.2568	0.2776	92.5	1 (1.08)
	48Mbps	2437	0.1955	0.2159	90.6	1 (1.10)
	54Mbps	2437	0.1791	0.2	89.6	1 (1.12)

Mode	Data rate	Frequency [MHz]	On time [ms]	1 cycle [ms]	Duty [%]	Crest factor
802.11n (20HT)	MCS0	2437	2.292	2.318	98.9	1 (1.01)
	MCS1	2437	0.9804	1.011	97.0	1 (1.03)
	MCS2	2437	0.6656	0.696	95.6	1 (1.05)
	MCS3	2437	0.5077	0.5395	94.1	1 (1.06)
	MCS4	2437	0.3488	0.3816	91.4	1 (1.09)
	MCS5	2437	0.2713	0.3027	89.6	1 (1.12)
	MCS6	2442	0.2476	0.2799	88.5	1 (1.13)
	MCS7	2442	0.2278	0.2607	87.4	1 (1.14)

*. Date tested: June 27, 2011 / Measured by: Hiroshi Naka / Place: preparation room of No. 7 shielded room. (24 deg.C / 54 %RH)
*. Calculating formula: Duty[%] = {(On time) / (1 cycle)}×100, Crest factor[-]= 1 / {(On time) / (1 cycle)}

SECTION 7: Measurement results

7.1 SAR for the tablet device

Measurement date : June 27, 2011
Measurement by : Hiroshi Naka

[Liquid measurement (Body)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue				Environment		Measured Date
	Permittivity [-]	Conductivity [S/m]	Permittivity (εr) [-]	Conductivity (σ) [S/m]	Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
2450	**52.7**	**1.95**	50.28 (-4.6%)	1.969 (+1.0%)	24.1	158	24	55	June 27, 2011, before SAR test.

*. The target value is a parameter defined in OET65 Supplement C.

[SAR measurement results (Body)]

SAR measurement results											
Frequency			Modulation / Data rate [Mbps] / crest factor	EUT setup conditions			Liquid temp. [deg.C]		Power drift [dB]	SAR(1g) [W/kg]	Remarks
Mode	Ch.	[MHz]		Antenna no#	Position	Distance [mm]	Before	After			
11b	**Step 1: Worst position search**										
	11	2462	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Front-touch**	0	23.6	23.5	-0.196	**0.897**	→**Worst SAR.** (→Worst position)
	11	2462	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Top-rear-touch**	0	23.4	23.4	0.20	0.629	-
	11	2462	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Rear-touch**	0	23.3	23.3	0.086	0.529	-
	11	2462	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Secondary landscape-touch**	0	23.3	23.3	0.20	0.333	-
	11	2462	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Secondary portrait-touch**	0	23.3	23.3	0.106	0.203	-
	Step 2: Change the channels										
	1	2412	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Front-touch**	0	23.5	23.4	-0.147	0.620	-
	6	2437	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Front-touch**	0	23.4	23.4	-0.20	0.888	-
	Step 3: Change separation distance										
	11	2462	DBPSK&DSSS / 1Mbps / 1.0	(single)	**Front 5mm gap**	5	23.3	23.3	0.20	0.363	-

*. According to KDB248227; SAR is not required for 802.11g and 11n(HT20) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

Notes:

*. During test, the EUT was operated with full-charged battery and without all signal interface cables.

*. Calibration frequency of the SAR measurement probe (and used conversion factors)

SAR test frequency[MHz]	Probe calibration frequency [MHz]	Validity [MHz]	Used conversion factor	Uncertainty
2412	2450	-38MHz, within ±50 of cal.frequency	7.34	±12.0%
2450	2450	-	7.34	±12.0%
2472	2450	+22MHz, within ±50 of cal.frequency	7.34	±12.0%

*. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.