



Test report No. : 32BE0278-HO-H-R2
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FCC ID : A3LSWDSC02D
Issued date : November 12, 2011
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SAR TEST REPORT

Test Report No. : 32BE0278-HO-H-R2

Applicant : SAMSUNG ELECTRONICS CO., LTD.
Type of Equipment : Cellular/PCS GSM/GPRS/EDGE, Tablet with 802.11abgn, BT3.0
Model No. : SC-02D
FCC ID : A3LSWDSC02D
Test regulation : FCC47CFR 2.1093
FCC OET Bulletin 65, Supplement C (Edition 01-01)

Test Result : **Complied**
FCC Part 22H Body : 0.983W/kg
FCC Part 24E Body: : 0.765W/kg

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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.
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6. This report is a revised version of 32BE0278-HO-H. 32BE0278-HO-H is replaced with this report.

Date of test: September 30 to November 8 , 2011

Representative test engineer:

Miyo Kishimoto
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Mitsuru Fujimura
Leader of WiSE Japan
UL Verification Service



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UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

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13-EM-F0429

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SECTION 1: Customer information

Company Name	SAMSUNG ELECTRONICS CO., LTD.
Address	416, MAETAN 3-DONG, YEONGTONG-GU SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

SECTION 2: Equipment under test (E.U.T.)**2.1 Identification of E.U.T.**

Type of EUT	Cellular/PCS GSM/GPRS/EDGE, Tablet with 802.11abgn, BT3.0
Model No.	SC-02D
Serial No.	358857/04/000843/6 358857/04/000846/9
Rating	DC 4.0V
Option Battery	N/A
Receipt Date of Sample	September 27, 2011
Modification of EUT	No Modification by the test lab
Device category	Portable
Antenna to antenna separation distance	108.2mm from WWAN antenna to WLAN antenna 57.35mm from WWAN antenna to BT antenna 138mm from WLAN antenna to Bluetooth antenna
Simultaneous transmission	WWAN can transmit simultaneously with WLAN WWAN can transmit simultaneously with Bluetooth WLAN can transmit simultaneously with Bluetooth
Size of EUT	19.36cm x 12.235cm (Diagonal dimension :22cm)

UL Japan, Inc.
Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

2.2 Product description

Radio Specification

Bluetooth

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Type	PIFA
Antenna Gain	-0.63 dBi

WLAN (IEEE802.11a/b/g/n-20)

Equipment Type	Transceiver	
Frequency of Operation	2412-2462MHz	5180-5240MHz 5260-5320MHz 5500-5700MHz 5745-5825MHz
Type of Modulation	DSSS, OFDM	OFDM
Bandwidth & Channel spacing	20MHz & 5MHz	20MHz & 20MHz
Antenna Type	SEMI-PIFA	
Antenna Gain	2.4G: -0.4dBi	5G: -3.8dBi

WLAN (IEEE802.11n-40)

Equipment Type	Transceiver
Frequency of Operation	5190-5230MHz 5270-5310MHz 5510-5670MHz 5755-5795MHz
Type of Modulation	OFDM
Bandwidth & Channel spacing	40MHz & 40MHz
Antenna Type	SEMI-PIFA
Antenna Gain	-3.8dBi

GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz
Type of Modulation	GMSK , 8PSK
Antenna Type	PIFA
Antenna Gain	GSM850: -5.0dBi PCS: -1.5dBi

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SECTION 3 : Test standard information

3.1 Test Specification

Title : **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;

KDB447498D01(v04): Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
KDB648474D01: SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas
KDB941225D01(v02): SAR Measurement Procedures for 3G Devices
KDB941225D02(v02v01): 3GPP R6 HSPA and R7 HSPA+ SAR Guidance
KDB941225D03(v01): Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE
KDB941225D04(v01): Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode
KDB94122506(v01): SAR test procedures for devices incorporating SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities (Hot Spot SAR)
KDB248227(rev.1.2): SAR Measurement Procedures for 802.11a/b/g Transmitters
KDB865664: SAR Measurement Requirements for 3 to 6 GHz

Reference

- [1]ANSI, ANSI/IEEE C95.1-1992: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992.
[2]SPEAG uncertainty document (AN 15-7/AN19-17) for DASY 5 System from SPEAG (Shimid & Partner Engineering AG).

3.2 Procedure

Transmitter	WWAN	WLAN	Bluetooth
Test Procedure	FCC OET BULLETIN 65, SUPPLEMENT C	FCC OET BULLETIN 65, SUPPLEMENT C	Exemption (Power < 12mW)
	SAR	SAR	
Category	FCC47CFR 2.1093	FCC47CFR 2.1093	FCC47CFR 2.1093
Note: UL Japan, Inc. 's SAR Work Procedures 13-EM-W0429 and 13-EM-W0430			

Bluetooth mode is excluded from SAR test since power was $1/2 * 60/f_{[GHz]}[mW]$.

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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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**

3.4 Test Location

*Shielded room for SAR testings
UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

SECTION 4 : Test result

4.1 Stand-alone SAR result

No.	Capable Tx configurations		Head SAR	Body SAR	Hot Spot SAR* ¹	Note
1	WWAN	GSM/GPRS/EGPRS 850 MHz	-	Yes	Reference only	Not supported voice mode
2		GSM/GPRS/EGPRS 1900 MHz	-	Yes	Reference only	
3	WLAN	WLAN 2.4G	-	Yes	Reference only	
4		WLAN 5G	-	Yes	-	
5	Bluetooth	Bluetooth BDR/EDR	-	Exemption	Exemption	

Note*¹: Although the hotspot mode is supported, the test was performed for reference only because the diagonal dimension of EUT exceeds 20cm.

Mode	1g BodySAR [W/kg]
GSM850	0.983
PCS1900	0.765
WLAN 11b/g/n(2.4G)	0.698
WLAN 11a/n(5G) 15.247	0.310
WLAN 11a/n(5G) 15.407	0.982
Bluetooth	Exemption

4.2 Simultaneous transmission SAR result

<Simultaneous Procedure>

This EUT has the unlicensed transmitter such as WLAN (802.11b/g/n) & Bluetooth devices besides licensed transmitter WWAN (GSM), and the following simultaneous transmission is possible.

No.	Capable Tx configurations		BodySAR	Hot Spot SAR* ²	Note
6	WWAN+WLAN	GSM + WLAN2.4G	Yes	-	-
7		GPRS/EGPRS + WLAN2.4G	Yes	Exemption	-
8		GSM + WLAN 5G	Yes	-	-
9		GPRS/EGPRS + WLAN 5G	Yes	-	-
10	WWAN+Bluetooth		Exemption	Exemption	-
11	WLAN+Bluetooth		Exemption	Exemption	-

Note*²: Although the hotspot mode is supported, the test was performed for reference only because the diagonal dimension of EUT exceeds 20cm and the simultaneous transmission condition was covered by the body SAR testing.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

<WWAN + WLAN >

Simultaneous transmitter evaluation based on the KDB648474. Refer to the Section 8.

Step1	WWAN antenna is >5cm from Wireless LAN antenna	
Step2	WLAN power > 2Pref (=60/f _[GHz]).	
Step3	Stand-alone SAR for WLAN	
Step4	Simultaneous transmission is possible (WWAN + WLAN)	
Step5	$\sum 1g \text{ SAR (WWAN + WLAN)} < 1.6W/kg$	$\sum 1g \text{ SAR(WWAN + WLAN)} > 1.6W/kg$ Max. SAR Measured (WWAN + WLAN) : 1.731 W/kg
Step6	No simultaneous transmission.	Antenna pair SAR to peak SAR separation ratio < 0.3 $\sum 1g \text{ SAR(WWAN + WLAN)} / 13.06 \text{ cm} : 0.147$
Step7	No simultaneous transmission SAR	

<WWAN + Bluetooth >

Simultaneous transmitter evaluation based on the KDB648474.

Step1	WWAN antenna is >5cm from Bluetooth antenna	
Step2	Bluetooth power < 2Pref (=60/f _[GHz]). Refer to the FCC 15.247 test report	
Step3	No stand-alone SAR for Bluetooth	
Step4	No simultaneous transmission SAR	

<WLAN + Bluetooth >

Simultaneous transmitter evaluation based on the KDB648474.

Step1	WLAN antenna is >5cm from Bluetooth antenna	
Step2	Bluetooth power < 2Pref (=60/f _[GHz]). Refer to the FCC 15.247 test report	
Step3	No stand-alone SAR for Bluetooth	
Step4	No simultaneous transmission SAR	

SECTION 5 : Description of the operating mode

5.1 SAR testing operating modes

The operating mode for SAR testing was decided by the output power

5.2 Output power operating modes

Band	Duty cycle or Multi class(GSM)	Test Frequency	Mode
GSM850	Multi class 33	824.2MHz (128ch) 836.6MHz(190ch) 848.8MHz(251ch)	GSM GPRS (CS-1) EGPRS (MCS1/MCS5)
PCS1900	Multi class 33	1850.2MHz(512ch) 1880.0MHz(661ch) 1909.8MHz(810ch)	
WWAN			
The communication link was set up with the Wireless Communications Test Set (Agilent). The EUT was command to operate at maximum transmit power. GSM850 :PCL 5 PCS1900 :PCL 0			

5.3 Power reduction implementation

This EUT has two grip sensors for power reduction.

The measurements for output power were performed in normal power mode and power reduction mode. Power reduction values are those values implemented when a grip sensor are triggered. Power reduction values are same in two sensors.

Mode	Nominal		With power reduction		Power reduction	
	Target [dBm]	Tolerance [dB]	Target [dBm]	Tolerance [dB]	Target [dBm]	Tolerance [dB]
GSM850 GSM/GPRS/EGPRS	32.5	-1.5 ~ +0.5	23.5	-1.5 ~ +0.5	9	-2.0 ~ +2.0
PCS1900 GSM/GPRS/EGPRS	29.5	-1.5 ~ +0.5	24	-1.5 ~ +0.5	5.5	-2.0 ~ +2.0
WLAN 11b/g/n	Power reduction is not implemented for WLAN					
WLAN 11a/n						

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

5.4 Output power measurement results

Output power measurement for GSM

[GSM]

*Connection Type > AUTO

*Power control level > 5(GSM850),0(PCS1900)

[GPRS]

*Connection Type > Type B

*Power control level > 5(GSM850),0(PCS1900)

*Coding Scheme > CS-1

[EGPRS]

*Connection Type > Type B

*Power control level > 5(GSM850),0(PCS1900)

*Coding Scheme > MCS-1 & MCS-5

SAR measurement for GSM

1) GSM850 (Normal mode)

1. The GPRS 3up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 3up mode.

GSM850 SAR Power (normal)											
Mode	Crest Factor (typical)	Ch	Frequency [MHz]	Time-based AVG				Slotted-AVG			
				P/M Reading [dBm] Time-AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] Time-AVG	Agilent Reading [dBm] slotted AVG	Cable Loss [dB]	Result [dBm] Slotted AVG	
GSM	1slot	8.3	128	824.2	-1.04	23.38	0.17	22.51	32.15	0.17	32.32
			190	836.6	-1.07	23.39	0.17	22.49	32.20	0.17	32.37
			251	848.8	-0.96	23.39	0.17	22.60	32.21	0.17	32.38
GPRS (CS1)	1slot	8.3	128	824.2	-1.22	23.38	0.17	22.33	32.15	0.17	32.32
			190	836.6	-1.26	23.39	0.17	22.30	32.19	0.17	32.36
			251	848.8	-1.25	23.39	0.17	22.31	32.21	0.17	32.38
	2slots	4.2	128	824.2	-0.51	23.38	0.17	23.04	29.80	0.17	29.97
			190	836.6	-0.54	23.39	0.17	23.02	29.82	0.17	29.99
			251	848.8	-0.58	23.39	0.17	22.98	29.82	0.17	29.99
	3slots	2.8	128	824.2	-0.17	23.38	0.17	23.38	28.33	0.17	28.50
			190	836.6	-0.18	23.39	0.17	23.38	28.35	0.17	28.52
			251	848.8	-0.18	23.39	0.17	23.38	28.35	0.17	28.52
	4slots	2.1	128	824.2	-0.36	23.38	0.17	23.19	26.84	0.17	27.01
			190	836.6	-0.35	23.39	0.17	23.21	26.89	0.17	27.06
			251	848.8	-0.38	23.39	0.17	23.18	26.88	0.17	27.05
EGPRS (MCS1)	1slot	8.3	512	824.2	-1.23	23.38	0.17	22.32	32.13	0.17	32.30
			661	836.6	-1.26	23.39	0.17	22.30	32.16	0.17	32.33
			810	848.8	-1.22	23.39	0.17	22.34	32.20	0.17	32.37
	2slots	4.2	512	824.2	-0.55	23.38	0.17	23.00	29.81	0.17	29.98
			661	836.6	-0.60	23.39	0.17	22.96	29.84	0.17	30.01
			810	848.8	-0.62	23.39	0.17	22.94	29.84	0.17	30.01
	3slots	2.8	512	824.2	-0.21	23.38	0.17	23.34	28.36	0.17	28.53
			661	836.6	-0.25	23.39	0.17	23.31	28.39	0.17	28.56
			810	848.8	-0.25	23.39	0.17	23.31	28.36	0.17	28.53
	4slots	2.1	512	824.2	-0.41	23.38	0.17	23.14	26.84	0.17	27.01
			661	836.6	-0.39	23.39	0.17	23.17	26.89	0.17	27.06
			810	848.8	-0.38	23.39	0.17	23.18	26.88	0.17	27.05
EGPRS (MCS5)	1slot	8.3	512	824.2	-5.32	23.38	0.17	18.23	26.65	0.17	26.82
			661	836.6	-5.24	23.39	0.17	18.32	26.67	0.17	26.84
			810	848.8	-5.38	23.39	0.17	18.18	26.66	0.17	26.83
	2slots	4.2	512	824.2	-3.41	23.38	0.17	20.14	26.82	0.17	26.99
			661	836.6	-3.44	23.39	0.17	20.12	26.86	0.17	27.03
			810	848.8	-3.44	23.39	0.17	20.12	26.88	0.17	27.05
	3slots	2.8	512	824.2	-1.79	23.38	0.17	21.76	26.88	0.17	27.05
			661	836.6	-1.80	23.39	0.17	21.76	26.89	0.17	27.06
			810	848.8	-1.73	23.39	0.17	21.83	26.90	0.17	27.07
	4slots	2.1	512	824.2	-3.35	23.38	0.17	20.20	23.90	0.17	24.07
			661	836.6	-3.49	23.39	0.17	20.07	23.91	0.17	24.08
			810	848.8	-3.48	23.39	0.17	20.08	23.90	0.17	24.07

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss

Slotted AVG Results = Agilent Reading + Cable Loss

 :Maximum time based AVG power mode

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

2) GSM850 (Power reduction mode)

1. The GPRS 3up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 3up mode.

GSM850 SAR Power (power reduction)											
Mode		Crest Factor (typical)	Ch	Frequency [MHz]	Time-based AVG				Slotted-AVG		
					P/M Reading [dBm] Time-AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] Time-AVG	Agilent Reading [dBm] slotted AVG	Cable Loss [dB]	Result [dBm] Slotted AVG
GSM	1slot	8.3	128	824.2	-9.77	23.38	0.17	13.78	23.39	0.17	23.56
			190	836.6	-9.79	23.39	0.17	13.77	23.41	0.17	23.58
			251	848.8	-9.70	23.39	0.17	13.86	23.33	0.17	23.50
GPRS (CS1)	1slot	8.3	128	824.2	-9.82	23.38	0.17	13.73	23.38	0.17	23.55
			190	836.6	-9.80	23.39	0.17	13.76	23.41	0.17	23.58
			251	848.8	-9.90	23.39	0.17	13.66	23.33	0.17	23.50
	2slots	4.2	128	824.2	-9.33	23.38	0.17	14.22	20.91	0.17	21.08
			190	836.6	-9.29	23.39	0.17	14.27	20.95	0.17	21.12
			251	848.8	-9.32	23.39	0.17	14.24	20.88	0.17	21.05
	3slots	2.8	128	824.2	-9.00	23.38	0.17	14.55	19.55	0.17	19.72
			190	836.6	-8.93	23.39	0.17	14.63	19.52	0.17	19.69
			251	848.8	-8.99	23.39	0.17	14.57	19.48	0.17	19.65
	4slots	2.1	128	824.2	-9.26	23.38	0.17	14.29	18.01	0.17	18.18
			190	836.6	-9.14	23.39	0.17	14.42	18.02	0.17	18.19
			251	848.8	-9.19	23.39	0.17	14.37	17.94	0.17	18.11
EGPRS (MCS1)	1slot	8.3	128	824.2	-9.94	23.38	0.17	13.61	23.36	0.17	23.53
			190	836.6	-9.88	23.39	0.17	13.68	23.41	0.17	23.58
			251	848.8	-9.90	23.39	0.17	13.66	23.33	0.17	23.50
	2slots	4.2	128	824.2	-9.34	23.38	0.17	14.21	20.90	0.17	21.07
			190	836.6	-9.30	23.39	0.17	14.26	20.93	0.17	21.10
			251	848.8	-9.37	23.39	0.17	14.19	20.87	0.17	21.04
	3slots	2.8	128	824.2	-9.01	23.38	0.17	14.54	19.54	0.17	19.71
			190	836.6	-8.99	23.39	0.17	14.57	19.51	0.17	19.68
			251	848.8	-9.01	23.39	0.17	14.55	19.48	0.17	19.65
	4slots	2.1	128	824.2	-9.27	23.38	0.17	14.28	18.01	0.17	18.18
			190	836.6	-9.21	23.39	0.17	14.35	18.00	0.17	18.17
			251	848.8	-9.20	23.39	0.17	14.36	17.94	0.17	18.11
EGPRS (MCS5)	1slot	8.3	128	824.2	-11.70	23.38	0.17	11.85	21.40	0.17	21.57
			190	836.6	-11.67	23.39	0.17	11.89	21.35	0.17	21.52
			251	848.8	-11.69	23.39	0.17	11.87	21.29	0.17	21.46
	2slots	4.2	128	824.2	-10.39	23.38	0.17	13.16	20.00	0.17	20.17
			190	836.6	-10.37	23.39	0.17	13.19	20.00	0.17	20.17
			251	848.8	-10.39	23.39	0.17	13.17	19.95	0.17	20.12
	3slots	2.8	128	824.2	-10.10	23.38	0.17	13.45	18.60	0.17	18.77
			190	836.6	-10.14	23.39	0.17	13.42	18.57	0.17	18.74
			251	848.8	-10.16	23.39	0.17	13.40	18.51	0.17	18.68
	4slots	2.1	128	824.2	-10.25	23.38	0.17	13.30	17.16	0.17	17.33
			190	836.6	-10.26	23.39	0.17	13.30	17.14	0.17	17.31
			251	848.8	-10.31	23.39	0.17	13.25	17.11	0.17	17.28

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss

Slotted AVG Results = Agilent Reading + Cable Loss

 :Maximum time based AVG power mode

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

3) PCS1900 (Normal mode)

1. The GPRS 3up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 3up mode.

PCS1900 SAR Power (Normal)											
Mode	Crest Factor (typical)	Ch	Frequency [MHz]	Time-based AVG				Slotted-AVG			
				P/M Reading [dBm] Time-AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] Time-AVG	Agilent Reading [dBm] slotted AVG	Cable Loss [dB]	Result [dBm] Slotted AVG	
GSM	1slot	8.3	512	1850.2	-3.55	23.39	0.26	20.10	29.41	0.26	29.67
			661	1880.0	-3.64	23.38	0.26	20.00	29.45	0.26	29.71
			810	1909.8	-3.52	23.37	0.26	20.11	29.50	0.26	29.76
GPRS (CS1)	1slot	8.3	512	1850.2	-3.68	23.39	0.26	19.97	29.41	0.26	29.67
			661	1880.0	-3.79	23.38	0.26	19.85	29.43	0.26	29.69
			810	1909.8	-3.72	23.37	0.26	19.91	29.48	0.26	29.74
	2slots	4.2	512	1850.2	-3.06	23.39	0.26	20.59	26.95	0.26	27.21
			661	1880.0	-3.05	23.38	0.26	20.59	27.01	0.26	27.27
			810	1909.8	-3.04	23.37	0.26	20.59	27.06	0.26	27.32
	3slots	2.8	512	1850.2	-2.79	23.39	0.26	20.86	25.48	0.26	25.74
			661	1880.0	-2.72	23.38	0.26	20.92	25.52	0.26	25.78
			810	1909.8	-2.74	23.37	0.26	20.89	25.60	0.26	25.86
	4slots	2.1	512	1850.2	-2.95	23.39	0.26	20.70	24.03	0.26	24.29
			661	1880.0	-2.93	23.38	0.26	20.71	24.07	0.26	24.33
			810	1909.8	-2.96	23.37	0.26	20.67	24.11	0.26	24.37
EGPRS (MCS1)	1slot	8.3	512	1850.2	-3.65	23.39	0.26	20.00	29.40	0.26	29.66
			661	1880.0	-3.67	23.38	0.26	19.97	29.44	0.26	29.70
			810	1909.8	-3.73	23.37	0.26	19.90	29.48	0.26	29.74
	2slots	4.2	512	1850.2	-3.03	23.39	0.26	20.62	26.97	0.26	27.23
			661	1880.0	-3.05	23.38	0.26	20.59	27.01	0.26	27.27
			810	1909.8	-3.06	23.37	0.26	20.57	27.06	0.26	27.32
	3slots	2.8	512	1850.2	-2.83	23.39	0.26	20.82	25.51	0.26	25.77
			661	1880.0	-2.78	23.38	0.26	20.86	25.54	0.26	25.80
			810	1909.8	-2.79	23.37	0.26	20.84	25.61	0.26	25.87
	4slots	2.1	512	1850.2	-3.02	23.39	0.26	20.63	24.08	0.26	24.34
			661	1880.0	-3.00	23.38	0.26	20.64	24.10	0.26	24.36
			810	1909.8	-3.02	23.37	0.26	20.61	24.15	0.26	24.41
EGPRS (MCS5)	1slot	8.3	512	1850.2	-6.81	23.39	0.26	16.84	25.33	0.26	25.59
			661	1880.0	-6.83	23.38	0.26	16.81	25.36	0.26	25.62
			810	1909.8	-6.93	23.37	0.26	16.70	25.39	0.26	25.65
	2slots	4.2	512	1850.2	-4.59	23.39	0.26	19.06	25.50	0.26	25.76
			661	1880.0	-4.58	23.38	0.26	19.06	25.53	0.26	25.79
			810	1909.8	-4.65	23.37	0.26	18.98	25.54	0.26	25.80
	3slots	2.8	512	1850.2	-2.85	23.39	0.26	20.80	25.51	0.26	25.77
			661	1880.0	-2.92	23.38	0.26	20.72	25.52	0.26	25.78
			810	1909.8	-2.93	23.37	0.26	20.70	25.55	0.26	25.81
	4slots	2.1	512	1850.2	-4.57	23.39	0.26	19.08	22.55	0.26	22.81
			661	1880.0	-4.52	23.38	0.26	19.12	22.56	0.26	22.82
			810	1909.8	-4.58	23.37	0.26	19.05	22.59	0.26	22.85

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss

Slotted AVG Results = Agilent Reading + Cable Loss

Maximum time based AVG power mode

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

4) PCS1900 (Power reduction mode)

1. The GPRS 3up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 3up mode.

PCS1900 SAR Power (power reduction)											
Mode		CF (Crest Factor)	Ch	Frequency [MHz]	Time-based AVG				Slotted-AVG		
					P/M Reading [dBm] Time-AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] Time-AVG	Agilent Reading [dBm] slotted AVG	Cable Loss [dB]	Result [dBm] Slotted AVG
GSM	1slot	8.3	512	1850.2	-8.87	23.41	0.26	14.80	23.97	0.26	24.23
			661	1880.0	-8.89	23.40	0.26	14.77	24.02	0.26	24.28
			810	1909.8	-8.88	23.39	0.26	14.77	24.08	0.26	24.34
GPRS (CS1)	1slot	8.3	512	1850.2	-9.07	23.41	0.26	14.60	23.96	0.26	24.22
			661	1880.0	-9.08	23.40	0.26	14.58	24.02	0.26	24.28
			810	1909.8	-9.03	23.39	0.26	14.62	24.07	0.26	24.33
	2slots	4.2	512	1850.2	-8.50	23.41	0.26	15.17	21.51	0.26	21.77
			661	1880.0	-8.49	23.40	0.26	15.17	21.60	0.26	21.86
			810	1909.8	-8.55	23.39	0.26	15.10	21.61	0.26	21.87
	3slots	2.8	512	1850.2	-8.26	23.41	0.26	15.41	20.00	0.26	20.26
			661	1880.0	-8.30	23.40	0.26	15.36	20.06	0.26	20.32
			810	1909.8	-8.32	23.39	0.26	15.33	20.08	0.26	20.34
	4slots	2.1	512	1850.2	-8.46	23.41	0.26	15.21	18.54	0.26	18.80
			661	1880.0	-8.50	23.40	0.26	15.16	18.58	0.26	18.84
			810	1909.8	-8.49	23.39	0.26	15.16	18.60	0.26	18.86
EGPRS (MCS1)	1slot	8.3	512	1850.2	-9.09	23.41	0.26	14.58	23.94	0.26	24.20
			661	1880.0	-9.08	23.40	0.26	14.58	24.01	0.26	24.27
			810	1909.8	-9.07	23.39	0.26	14.58	24.05	0.26	24.31
	2slots	4.2	512	1850.2	-8.59	23.41	0.26	15.08	21.49	0.26	21.75
			661	1880.0	-8.52	23.40	0.26	15.14	21.56	0.26	21.82
			810	1909.8	-8.64	23.39	0.26	15.01	21.57	0.26	21.83
	3slots	2.8	512	1850.2	-8.27	23.41	0.26	15.40	19.99	0.26	20.25
			661	1880.0	-8.32	23.40	0.26	15.34	20.05	0.26	20.31
			810	1909.8	-8.33	23.39	0.26	15.32	20.06	0.26	20.32
	4slots	2.1	512	1850.2	-8.47	23.41	0.26	15.20	18.51	0.26	18.77
			661	1880.0	-8.59	23.40	0.26	15.07	18.55	0.26	18.81
			810	1909.8	-8.51	23.39	0.26	15.14	18.58	0.26	18.84
EGPRS (MCS5)	1slot	8.3	512	1850.2	-11.52	23.41	0.26	12.15	20.75	0.26	21.01
			661	1880.0	-11.67	23.40	0.26	11.99	20.80	0.26	21.06
			810	1909.8	-11.55	23.39	0.26	12.10	20.85	0.26	21.11
	2slots	4.2	512	1850.2	-11.30	23.41	0.26	12.37	18.37	0.26	18.63
			661	1880.0	-11.43	23.40	0.26	12.23	18.47	0.26	18.73
			810	1909.8	-11.45	23.39	0.26	12.20	18.48	0.26	18.74
	3slots	2.8	512	1850.2	-11.37	23.41	0.26	12.30	16.94	0.26	17.20
			661	1880.0	-11.38	23.40	0.26	12.28	17.01	0.26	17.27
			810	1909.8	-11.15	23.39	0.26	12.50	17.02	0.26	17.28
	4slots	2.1	512	1850.2	-11.53	23.41	0.26	12.14	15.42	0.26	15.68
			661	1880.0	-11.63	23.40	0.26	12.03	15.44	0.26	15.70
			810	1909.8	-11.65	23.39	0.26	12.00	15.45	0.26	15.71

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss

Slotted AVG Results = Agilent Reading + Cable Loss

Maximum time based AVG power mode

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

5) Power reduction results for each mode

Mode	Average power reduction results	Tolerance
	[dB]	[dB]
GSM850 GSM/GPRS	8.85	9 +/-2
GSM850 EGPRS	6.82	
PCS1900 GSM/GPRS	5.45	5.5 +/-2
PCS1900 EGPRS	6.83	
WLAN 11b/g/n	Power reduction is not implemented for WLAN	
WLAN 11a/n		

5.3 Confirmation before SAR testing**Correlation of Output Power between EMC and SAR tests**

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

5.4 Confirmation after SAR testing

It was checked that the power drift [W] is within +/-5%. The verification of power drift during the SAR test is that DASY5 system calculates the power drift by measuring the E-field at the same location at beginning and the end of the scan measurement for each test position.

DASY5 system calculation Power drift value[dB] = $20\log(E_a)/(E_b)$

Before SAR testing : E_b [V/m]

After SAR testing : E_a [V/m]

Limit of power drift[W] = +/-5%

$X[\text{dB}] = 10\log[P] = 10\log(1.05/1) = 10\log(1.05) - 10\log(1) = 0.212\text{dB}$

from E-field relations with power.

$p = E^2/\eta = E^2/$

Therefore, The correlation of power and the E-field

$X[\text{dB}] = 10\log(P) = 10\log(E^2) = 20\log(E)$

Therefore,

The calculated power drift of DASY5 System must be the less than +/-0.212dB.

SECTION6 : Description of the Body setup

6.1 Specification of sensor

This EUT has two grip sensors for power reduction. These sensors detect the human skin within 7mm from the rear case and 3mm from top edge of EUT.

Sensor specification			
Position	Yes/No	Type	Distance detected
Front	No	-	-
Rear	Yes	Grip	7mm
Left edge	No	-	-
Right edge	No	-	-
Top edge	Yes	Grip	3mm
Bottom edge	No	-	-

6.3 Description of the Body setup

i) Procedure for SAR testing

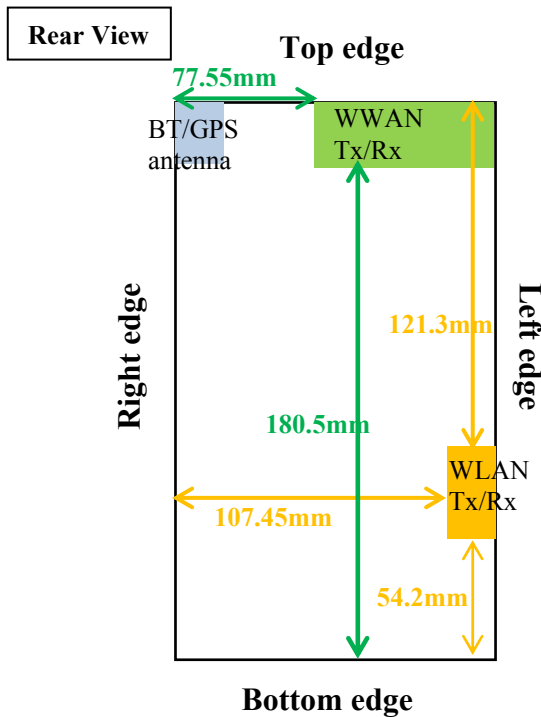
-The tested distance were performed according to the KDB447498D01 (Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies)

-<Reference procedure>The tested distance were performed according to the KDB941225 D06 v01 (SAR Evaluation Procedures for portable Devices with Wireless Router Capabilities) (Device dimensions : 193.6 mm x 122.35mm) (Diagonal dimension:220mm)

ii) Test mode

GSM850/PCS1900	Data transmission mode (GPRS)
WLAN	Data transmission mode

iii) Test Position

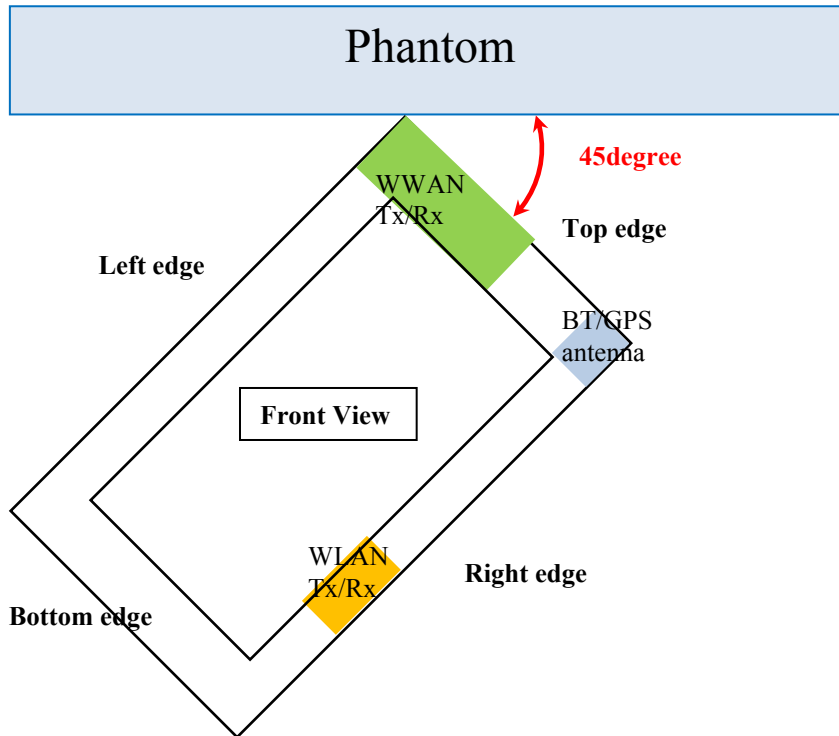


Position	WWAN	WLAN
Front (Hotspot)	Tested for reference	Tested for reference (2.4G only)
Rear	Tested	Tested
Right edge	Not required	Not required
Left edge	Tested	Tested
Top edge	Tested	Not required
Bottom edge	Not required	Not required
Top 45degree	Tested	Not required

NOTE1: Test position is required to the edge within 5cm from antenna according to the KDB 447498D1.

NOTE2: Although front position for hotspot mode is not required test was performed as a reference.

Top 45degree Position



iv) Test configurations

EUT checked to the condition with or without headset. As the result, all tests were performed in the EUT without headset as worst condition.

<WWAN>

(1) Rear (10mm) :

The measurement separated 10mm distance between the rear surface of EUT with normal power to the flat Phantom. This condition is reference data for a hotspot mode procedure.

(2) Rear (7mm) :

The measurement separated 7mm distance between the rear surface of EUT with normal power to the flat Phantom.

(3) Rear (0mm) :

The measurement touched to the rear surface of EUT with power reduction to the flat Phantom.

(4) Top (3mm) :

The measurement separated 3mm distance between the top edge of EUT with normal power to the flat Phantom.

(5) Top (0mm) :

The measurement touched to the top edge of EUT with power reduction to the flat Phantom.

(6) Left edge (0mm) :

The measurement touched to the left edge of EUT to the flat Phantom.

(7) Front (10mm) :

The measurement separated 10mm distance between the front surface of EUT with normal power to the flat Phantom. This condition is reference data for a hotspot mode procedure.

(8) Top 45 degree :

The measurement leaned a top edge of EUT to 45 degrees from the vertex touched to flat phantom.

The condition of power was a normal power. The vertex position was the corner where the WWAN antenna is the closest.

<WLAN>

(1) Rear (10mm) :

The measurement separated 10mm distance between the rear surface of EUT to the flat Phantom. This condition is reference data for a hotspot mode procedure.

(2) Rear (7mm) :

The measurement separated 7mm distance between the rear surface of EUT to the flat Phantom. This condition is for evaluation of simultaneous transmission

(3) Rear (0mm) :

The measurement touched to the rear surface of EUT to the flat Phantom.

(4) Left edge (0mm) :

The measurement touched to the left edge of EUT to the flat Phantom.

(5) Front (10mm) :

The measurement separated 10mm distance between the front surface of EUT to the flat Phantom. This condition is reference data for a hotspot mode procedure.

<Antenna position>

The antennas use for WWAN and WLAN are both separate in a single fixed position. The antennas are integral part of the device.

SECTION 7 : Test surrounding

7.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents[2] and is given in the following Table.

<WWAN>

Error Description	Uncertainty value \pm %	Probability distribution	divisor	(ci) 1g	Standard Uncertainty (1g)	vi or veff
Measurement System						
Probe calibration	± 5.5	Normal	1	1	± 5.5	∞
Axial isotropy of the probe	± 4.7	Rectangular	$\sqrt{3}$	0.7	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	$\sqrt{3}$	0.7	± 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	± 0.3	Normal	1	1	± 0.3	∞
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	19
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	7
Power drift	± 5.0	Rectangular	$\sqrt{3}$	1	± 2.9	∞
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.)	± 3.3	Rectangular	1	0.64	± 2.1	∞
Liquid permittivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Liquid permittivity (meas.)	-4.9	Rectangular	1	0.6	± 2.9	∞
Combined Standard Uncertainty					± 11.078	
Expanded Uncertainty (k=2)					± 22.2	

SECTION 8 : Measurement results

8.1 GSM 850MHz Body SAR

(1) Method of measurement

Step1. The searching for the worst position
The test was performed in middle channel.

Step2. The changing to the channels (Low,High)
The test at the worst condition of Step1.
The other channels were performed in a position of 0.8W/kg or more.

Step3. Vertex position
The measurement leaned EUT to 45 degrees from the vertex of WWAN antenna touched to flat phantom

Note:

1) The GPRS 3up mode was maximum based time average power. The power of other mode was lower than GPRS 3up mode.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
30-Sep	24	52	MSL 900	24.5	835	ϵ_r	55.2	53.4	-3.3	+/-5
						σ [mho/m]	0.97	0.94	-3.1	+/-5
13-Oct	24	50	MSL 900	23.5	825	ϵ_r	55.2	53.7	-2.7	+/-5
						σ [mho/m]	0.97	0.95	-2.1	+/-5
13-Oct	24	50	MSL 900	23.5	835	ϵ_r	55.2	53.6	-2.9	+/-5
						σ [mho/m]	0.97	0.96	-1.0	+/-5
13-Oct	24	50	MSL 900	23.5	850	ϵ_r	55.2	53.5	-3.1	+/-5
						σ [mho/m]	0.97	0.97	0.0	+/-5
8-Nov	24	51	MSL 900	23.5	835	ϵ_r	55.2	53.3	-3.4	+/-5
						σ [mho/m]	0.97	1.00	3.1	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

(3)Result of Body SAR

BODY SAR MEASUREMENT RESULTS								
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			SAR(1g) [W/kg]	Note
Channel	[MHz]			Antenna	Position	Separation [mm]	Maximum value of multi-peak	
Step.1 Position searching								
190	836.6	GPRS 3slots	Flat	Fixed	Rear	10	0.727	*1,*3
190	836.6	GPRS 3slots	Flat	Fixed	Rear	7	0.983	*1
190	836.6	GPRS 3slots	Flat	Fixed	Rear	0	0.301	*2
190	836.6	GPRS 3slots	Flat	Fixed	Top	3	0.831	*1
190	836.6	GPRS 3slots	Flat	Fixed	Top	0	0.133	*2
190	836.6	GPRS 3slots	Flat	Fixed	Left edge	0	0.608	*1
190	836.6	GPRS 3slots	Flat	Fixed	Front	10	0.641	*1,*3
Step.2 Channel change (SAR level in Step.1 > 0.8 w/kg)								
128	824.2	GPRS 3slots	Flat	Fixed	Rear	7	0.936	*1
251	848.8	GPRS 3slots	Flat	Fixed	Rear	7	0.980	*1
128	824.2	GPRS 3slots	Flat	Fixed	Top	3	0.843	*1
251	848.8	GPRS 3slots	Flat	Fixed	Top	3	0.822	*1
Step.3 Vertex position								
190	836.6	GPRS 3slots	Flat	Fixed	Top	45degree	0.100	*1

Note

*1 This measurement condition is normal power (maximum power) without a power reduction function.

*2 This measurement condition has a power reduction function with distance detected.

*3 This measurement condition is reference data for hotspot mode.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

8.2 PCS1900MHz Body SAR**(1) Method of measurement**

Step1. The searching for the worst position
The test was performed in middle channel.

Step2. Vertex position
The measurement leaned EUT to 45 degrees from the vertex of WWAN antenna touched to flat phantom

Note:

- 1) The GPRS 3up mode was maximum based time average power. The power of other mode was lower than GPRS 3up mode.
- 2) The other channel was not required since middle channel SAR value is less than 0.8W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
3-Oct	22	45	MSL 1800	22.5	1880	ϵ_r	53.3	51.8	-2.8	+/-5
						σ [mho/m]	1.52	1.57	3.3	+/-5
14-Oct	24	59	MSL 1800	24.3	1880	ϵ_r	53.3	50.7	-4.9	+/-5
						σ [mho/m]	1.52	1.57	3.3	+/-5
8-Nov	24	51	MSL 1800	23.5	1880	ϵ_r	53.3	51.5	-3.4	+/-5
						σ [mho/m]	1.52	1.56	2.6	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Body SAR

BODY SAR MEASUREMENT RESULTS								
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			SAR(1g) [W/kg]	Note
Channel	[MHz]			Antenna	Position	Separation [mm]	Maximum value of multi-peak	
Step.1 Position searching								
661	1880	GPRS 3slots	Flat	Fixed	Rear	10	0.447	*1,*3
661	1880	GPRS 3slots	Flat	Fixed	Rear	7	0.669	*1
661	1880	GPRS 3slots	Flat	Fixed	Rear	0	0.749	*2
661	1880	GPRS 3slots	Flat	Fixed	Top	3	0.469	*1
661	1880	GPRS 3slots	Flat	Fixed	Top	0	0.225	*2
661	1880	GPRS 3slots	Flat	Fixed	Left edge	0	0.765	*1
661	1880	GPRS 3slots	Flat	Fixed	Front	10	0.360	*1,*3
Step.2 Vertex position								
661	1880	GPRS 3slots	Flat	Fixed	Top	45degree	0.352	*1

Note

*1 This measurement condition is normal power (maximum power) without a power reduction function.

*2 This measurement condition has a power reduction function with distance detected.

*3 This measurement condition is reference data for hotspot mode.

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Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

8.3 Simultaneous transmission evaluation**Result of SUM Σ SAR1g**

SUM Σ SAR1g (GSM850 +WLAN(2.4G/5G))						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		GSM850 Band	WLAN 2.4G	WLAN 5G	WWAN + WLAN(2.4G)	WWAN + WLAN(5G)
Rear (Reference)	10	0.727	0.060	-*2	0.787	-
Rear	7	0.983	0.127	0.231	1.110	1.214
Rear	0	0.301	0.698	0.982	0.999	1.283
Top	3	0.843	- *1	- *1	-	-
Top	0	0.133	- *1	- *1	-	-
Left edge	0	0.608	0.075	0.232	0.683	0.840
Front (Reference)	10	0.641	0.022	- *2	0.663	-
Top	45degree	0.100	- *1	- *1	-	-

: SUM Σ SAR1g > 1.6W/kg

SUM Σ SAR1g (PCS1900 +WLAN(2.4G/5G))						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		PCS1900 Band	WLAN 2.4G	WLAN 5G	WWAN + WLAN(2.4G)	WWAN + WLAN(5G)
Rear (Reference)	10	0.447	0.060	-*2	0.507	-
Rear	7	0.669	0.127	0.231	0.796	0.900
Rear	0	0.749	0.698	0.982	1.447	1.731
Top	3	0.469	- *1	- *1	-	-
Top	0	0.225	- *1	- *1	-	-
Left edge	0	0.765	0.075	0.232	0.840	0.997
Front (Reference)	10	0.365	0.022	- *2	0.387	-
Top	45degree	0.352	- *1	- *1	-	-

: SUM Σ SAR1g > 1.6W/kg: Highest SUM Σ SAR1g Body Simultaneous transmissions (in SUM Σ SAR1g < 1.6W/kg)

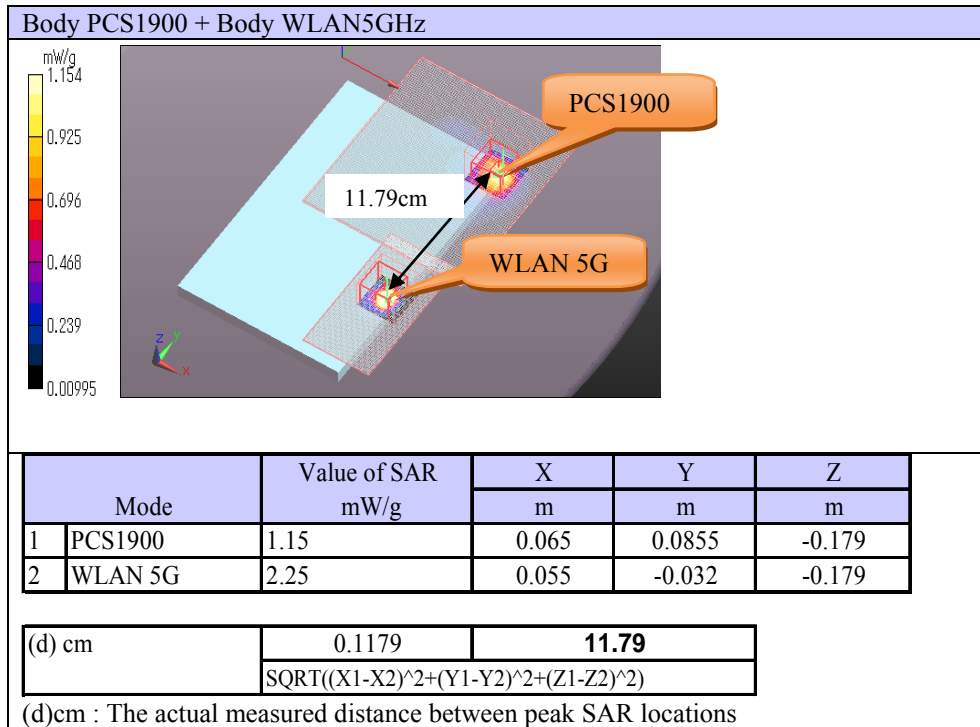
*1 This position is not required in WLAN SAR mode since distance from antenna is over 5cm.

*2 This position is not required since WLAN 5GHz has not hotspot mode.

SAR to Peak Location Separation Ratio

SUM \sum 1-g SAR > 1.6 W/kg

\sum SAR 1g > 1.6W/kg Condition	\sum 1-g SAR (W/kg)	3D distance (cm)	SAR to peak location separation ratio
Body PCS1900 + Body WLAN5GHz	1.731	11.79	0.147



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Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

SECTION 9 Test instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	Power Measurement	2011/09/13 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	Power Measurement	2011/09/13 * 12
MAT-24	Attenuator(10dB)(above 1 GHz)	Agilent	8493C	71389	Power Measurement	2011/06/23 * 12
MAT-25	Attenuator(10dB)(above 1 GHz)	Agilent	8493C	71642	Power Measurement	2011/06/23 * 12
MPSC-01	Power splitters/Combiners	Mini-Circuit	ZFSC-2-2500	0124	Power Measurement	2011/09/27 * 12
MCC-91	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	30812/2	Power Measurement	2011/05/27 * 12
MPM-01	Power Meter	Agilent	E4417A	GB41290639	SAR	2011/02/01 * 12
MPSE-01	Power Sensor	Agilent	E9300B	US40010300	SAR	2011/01/28 * 12
MPSE-03	Power sensor	Agilent	E9327A	US40440576	SAR	2011/02/02 * 12
MAT-15	Attenuator(30dB)	Agilent	8498A	US40010300	SAR	2011/02/16 * 12
MSG-10	Signal Generator	Agilent	N5181A	MY47421098	SAR	2011/09/22 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	SAR	2011/03/10 * 12
MHDC-11	Dual Directional Coupler	Hewlett Packard	778D	16605	SAR	Pre Check
MHDC-12	Dual Directional Coupler	Hewlett Packard	772D	2839A0016	SAR	Pre Check
MNA-01	Network Analyzer	Agilent/HP	E8358A	US41080381	SAR	2011/08/22 * 12
MDPK-01	Dielectric probe kit	Agilent	85070D	702	SAR	2010/10/25 * 36
MNCK-01	Type N Calibration Kit	Agilent	85032F	MY41495257	SAR	2011/08/12 * 12
MPB-03	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV3	3507	SAR	2011/03/16 * 12
MRENT-82	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3540	SAR	2011/07/21 * 12
MDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	509	SAR	2011/07/20 * 12
COTS-MSAR-03	Dasy5	Schmid&Partner Engineering AG	DASY52.6.1.408	-	SAR	-
COTS-MSAR-02	S-Parameter Network Analyzer	Agilent	-	-	SAR	-
MDA-05	Dipole Antenna	Schmid&Partner Engineering AG	D900V2	155	SAR	2010/12/06 * 12
MDA-06	Dipole Antenna	Schmid&Partner Engineering AG	D1800V2	2d040	SAR	2010/12/09 * 12
MPF-02	2mmOval Flat Phantom ERI 4.0	Schmid&Partner Engineering AG	QD VA 001B (ERI4.0)	1045	SAR	2011/04/01 * 12
MDH-01	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MOS-26	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q29	SAR	2011/05/26 * 12
MOS-10	Digital thermometer	HANNA	Checktemp-2	MOS-10	SAR	2011/08/22 * 12
MBM-13	Barometer	Sunoh	SBR121	837	SAR	2011/03/14 * 36
MSL900					Daily check	Target value \pm 5%
MSL1800					Daily check	Target value \pm 5%
SAR room					Daily check	Ambient Noise < 0.012W/kg

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.

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