SAR TEST REPORT

Test Report No. : 30DE0169-HO-01-A-R1

Applicant	:	**KONICA MINOLTA MEDICAL & GRAPHIC, INC.**
Type of Equipment	:	**AeroDR SYSTEM**
Model No.	:	**AeroDR P-11**
FCC ID	:	**YR7AERODRP1**
Test regulation	:	**FCC47CFR 2.1093** **FCC OET BULLETIN 65, SUPPLEMENT C**
Test Result	:	**Complied**

Max. SAR Value

IEEE802.11a(5180-5320MHz)	:	**1.28W/kg (5180MHz)**
IEEE802.11a(5745-5785MHz)	:	**0.874W/kg (5825MHz)**

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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 above regulation.
4. The test results in this 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.
6. This report is a revised version of 30DE0169-HO-01-A. 30DE0169-HO-01-A is replaced with this report.

Date of test: June 18 to 21, 2010

Tested by:

Miyo Kishimoto
Engineer of EMC Service

Approved by :

Mitsuru Fujimura
Manager of EMC Service

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NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

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SECTION 1: Customer information

Company Name	:	KONICA MINOLTA MEDICAL & GRAPHIC, INC.
Address	:	1 Sakura-Machi, Hino-Shi, Tokyo, 191-8511 Japan
Telephone Number	:	+81-42-589-8429
Facsimile Number	:	+81-42-589-8053
Contact Person	:	Masayoshi Inoue

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

2.1 Identification of E.U.T.

Type of Equipment	:	AeroDR SYSTEM
Model No.	:	AeroDR P-11
Serial No.	:	13
Rating	:	DC15V
Country of Mass-production	:	Japan
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by the test lab.
Receipt Date of Sample	:	June 16, 2010

2.2 Product Description

Model No: AeroDR P-11 (referred to as the EUT in this report) is the AeroDR SYSTEM.

The similar models of the EUT are as follows
AeroDR P-11:High image Quality
AeroDR P-12:Standard image Quality

Equipment type	:	Transceiver
Frequency of operation	:	5180-5320MHz 5745-5825MHz
Clock frequency	:	32.768kHz, 26MHz
Bandwidth & channel spacing	:	Bandwidth : 18MHz Channel spacing : 20MHz
Type of modulation	:	11a : OFDM
Antenna type	:	Planar Inverted F Antenna
Antenna gain with cable loss	:	+3.78dBi
Antenna connector type	:	U.FL
ITU code	:	D1D, G1D
Operation temperature range	:	+10 to +30 deg.C.

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.

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

Result of Max. SAR value
Max. SAR Value:

IEEE802.11a(5180-5320MHz) : 1.28W/kg (5180MHz)
IEEE802.11a(5745-5785MHz) : 0.874W/kg (5825MHz)

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
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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 6.1.

- **Output power at EMC test**
  EMC power was measured during EMC testing.(S/N:11).
  -11a(5180-5320) mode was measured the average output power as a reference data for SAR power.
  -11a(5745-5825) mode was measured the peak output power in the FCC 15.247.

- **Output power at SAR test**
  SAR power was measured before SAR testing (S/N: 13).
  -11a(5180-5320) mode was measured the average output power.
  -11a(5745-5825) mode was measured the peak output power.

3.5.2 Average power for SAR testing

Step.1 Data rate check

The data rate check was measurement all data rate in the middle frequency of each frequency band.

Reference of modulation table

11a	
Modulation	**Data rate [Mbps]**
BPSK	6
BPSK	9
QPSK	12
QPSK	18
16QAM	24
16QAM	36
64QAM	48
64QAM	54

Step.2 Decision of SAR test channel
The average output power for 802.11a was measured on all channels in each frequency band.

Mode		GHz	Channel	Turbo Channel	"Default Test Channel"			
					FCC 15.247		UNII	
					802.11b	802.11g		
802.11 b/g		2.412	1		√	Δ		
		2.437	6	6	√	Δ		
		2.462	11		√	Δ		
802.11a	UNII	5.18	36				√	
		5.20	40	42(5.21 GHz)				*
		5.22	44					*
		5.24	48	50(5.25 GHz)			√	
		5.26	52				√	
		5.28	56	58(5.29 GHz)				*
		5.30	60					*
		5.32	64				√	
		5.50	100	Unknown				*
		5.52	104				√	
		5.54	108					*
		5.56	112					*
		5.58	116				√	
		5.60	120					*
		5.62	124				√	
		5.64	128					*
		5.66	132					*
		5.68	136				√	
		5.70	140					*
	UNII or FCC 15.247	5.745	149		√		√	
		5.765	153	152(5.76 GHz)		*		*
		5.785	157		√			*
		5.805	161	160(5.80GHz)		*	√	
	FCC 15.247	5.825	165		√			

√ = "default test channels"
* = 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"

3.6 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 DASY4 system calculates the power drift by measureing the e-filed at the same location at beginning and the end of the scan measurement for each test position.

DASY4 system calucation Power drift value[dB] =20log(Ea)/(Eb)
Before SAR testing : Eb[V/m]
After SAR testing : Ea[V/m]

Limit of power drift[W] =+/-5%
X[dB]=10log[P]=10log(1.05/1)=10log(1.05)-10log(1)=0.212dB

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
XdB=10log(P)=10log(E)^2=20log(E)

From the above mentioned,
The calculated power drift of DASY4 System must be the less than +/-0.212dB.

3.7 Measurement procedure

1. IEEE 802.11a mode

As for the SAR measurement of each band in the 11a mode, it was repeated from Step1 to Step2.

Step1. The searching for the modulation
The 11a (OFDM) mode test was performed on the BPSK(6Mbps) and modulation(data rate) of maximum average power.

Step2. Channel change
This test was performed at the worst position of Step 2.

3.8 Test setup of EUT

Since this EUT is the medical device, the EUT is used under the guidance of a doctor or a qualified person and RF exposure configuration is for only patient's body. In addition only the front surface of device is touched to the patient's body. Please refer to "APPENDIX 1" for more details.

(1) Front (Main Antenna):
The test was performed in touch with front surface on the main antenna of the transmitter to the flat phantom.

(2) Front (Sub Antenna):
The test was performed in touch with front surface on the sub antenna of the transmitter to the flat phantom.

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

4.1 Operating modes for SAR testing

4.1.1 Setting of EUT

This EUT has IEEE.802.11a continuous transmitting modes.
The frequency band and the modulation used in the testing of IEEE.802.11a are shown as a following.

1. IEEE 802.11a Low/Middle band mode

Tx frequency band : 5180-5320MHz
Channel : 36ch(5180MHz),48ch(5240MHz),56ch(5280MHz),64ch(5320MHz)
Modulation : OFDM (Main/BPSK(6Mbps),16QAM(24Mbps)), (Sub/BPSK(6Mbps),BPSK(9Mbps))
Crest factor : 1 (Duty 100%)

2. IEEE 802.11a Upper band mode

Tx frequency band : 5745-5825MHz
Channel : 149ch(5745MHz),157ch(5785MHz),165ch(5825MHz)
Modulation : OFDM (Main/BPSK(6Mbps),16QAM(24Mbps)), (Sub/ BPSK(6Mbps),16QAM(24Mbps))
Crest factor : 1 (Duty 100%)

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 ± %	Probability distribution	divisor	(ci) 1g	Standard Uncertainty (1g)	vi or veff
Measurement System						
Probe calibration	±6.8	Normal	1	1	±6.8	∞
Axial isotropy of the probe	±4.7	Rectangular	√3	$(1\text{-cp})^{1/2}$	±1.9	∞
Spherical isotropy of the probe	±9.6	Rectangular	√3	$(cp)^{1/2}$	±3.9	∞
Boundary effects	±2.0	Rectangular	√3	1	±1.2	∞
Probe linearity	±4.7	Rectangular	√3	1	±2.7	∞
Detection limit	±1.0	Rectangular	√3	1	±0.6	∞
Readout electronics	±0.3	Normal	1	1	±0.3	∞
Response time	±0.8	Rectangular	√3	1	±0.5	∞
Integration time	±2.6	Rectangular	√3	1	±1.5	∞
RF ambient Noise	±3.0	Rectangular	√3	1	±1.7	∞
RF ambient Reflections	±3.0	Rectangular	√3	1	±1.7	∞
Probe Positioner	±0.8	Rectangular	√3	1	±0.5	∞
Probe positioning	±9.9	Rectangular	√3	1	±5.7	∞
Max.SAR Eval.	±4.0	Rectangular	√3	1	±2.3	∞
Test Sample Related						
Device positioning	±2.9	Normal	1	1	±2.9	
Device holder uncertainty	±3.6	Normal	1	1	±3.6	0
Power drift	±5.0	Rectangular	√3	1	±2.9	∞
Phantom and Setup						
Phantom uncertainty	±4.0	Rectangular	√3	1	±2.3	∞
Liquid conductivity (target)	±5.0	Rectangular	√3	0.64	±1.8	∞
Liquid conductivity (meas.)	±5.0	Rectangular	1	0.64	±3.2	∞
Liquid permittivity (target)	±5.0	Rectangular	√3	0.6	±1.7	∞
Liquid permittivity (meas.)	±5.0	Rectangular	1	0.6	±3.0	∞
Combined Standard Uncertainty					**±13.453**	
Expanded Uncertainty (k=2)					**±26.9**	

SECTION 6 : Confirmation before testing

6.1 Correlation of Output Power between EMC and SAR tests

6.1.1 EMC power

This data is reference data of EMC test power.

i)5180MHz –5320MHz frequency band

Refer to the FCC Part15 Subpart E (Report No.30DE0169-SH-01-B) / RSS210/GEN (Report No.30DE0169-SH-01-E)
The result is average power at antenna port power and has been used a power meter.

Main Antenna 9Mbps

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]
Low	5180.0	-0.97	3.03	9.93	11.99	15.81
Mid	5220.0	-0.84	3.03	9.94	12.13	16.33
High	5240.0	-1.29	3.00	9.94	11.65	14.62
Low	5260.0	-1.00	3.03	9.93	11.96	15.70
Mid	5300.0	-1.08	3.03	9.94	11.89	15.45
High	5320.0	-1.21	3.00	9.94	11.73	14.89

Sub Antenna 9Mbps

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]
Low	5180.0	-2.41	3.03	9.93	10.55	11.35
Mid	5220.0	-2.32	3.03	9.94	10.65	11.61
High	5240.0	-2.14	3.00	9.94	10.80	12.02
Low	5260.0	-1.98	3.03	9.93	10.98	12.53
Mid	5300.0	-2.05	3.03	9.94	10.92	12.36
High	5320.0	-1.66	3.00	9.94	11.28	13.43

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

ii)5745MHz –5825MHz frequency band

Refer to the FCC Part15 Subpart C (Report No.30DE0169-SH-01-A) / RSS210/GEN (Report No.30DE0169-SH-01-D)
The result is peak power at antenna port power and has been used a power meter.

Main Antenna 24Mbps

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]
Low	5745.0	4.40	3.03	9.93	17.36	54.45
Mid	5785.0	-	3.03	9.94	-	-
High	5825.0	-	3.00	9.94	-	-

Sub Antenna 24Mbps

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]
Low	5745.0	5.75	3.03	9.93	18.71	74.30
Mid	5785.0	4.98	3.03	9.94	17.95	62.37
High	5825.0	5.08	3.00	9.94	18.02	63.39

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

6.1.2 SAR power

i)5180MHz –5320MHz frequency band
The result is average power of worst data rate in EMC testing at antenna port power and has been used a power meter.

Main Antenna 9Mbps

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	SAR Result [dBm]	SAR Result [mW]	EMC Result [dBm]	EMC Result [mW]	Difference between SAR and EMC [dB]
Low	5180.0	0.19	1.78	10.02	11.99	15.81	11.99	15.81	0.00
Mid	5220.0	0.46	1.80	10.03	12.29	16.94	12.13	16.33	0.16
High	5240.0	-0.07	1.80	10.03	11.76	15.00	11.65	14.62	0.11
Low	5260.0	0.19	1.77	10.03	11.99	15.81	11.96	15.70	0.03
Mid	5300.0	0.16	1.75	10.03	11.94	15.63	11.89	15.45	0.05
High	5320.0	0.03	1.73	10.03	11.79	15.10	11.73	14.89	0.06

Sub Antenna 9Mbps

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	SAR Result [dBm]	SAR Result [mW]	EMC Result [dBm]	EMC Result [mW]	Difference between SAR and EMC [dB]
Low	5180.0	-1.21	1.77	10.02	10.58	11.43	10.55	11.35	0.03
Mid	5220.0	-1.13	1.78	10.03	10.68	11.69	10.65	11.61	0.03
High	5240.0	-0.89	1.78	10.03	10.92	12.36	10.80	12.02	0.12
Low	5260.0	-0.80	1.76	10.03	10.99	12.56	10.98	12.53	0.01
Mid	5300.0	-0.76	1.72	10.03	10.99	12.56	10.92	12.36	0.07
High	5320.0	-0.38	1.70	10.03	11.35	13.65	11.28	13.43	0.07

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

ii)5745MHz –5825MHz frequency band
The result is peak power at antenna port power and has been used a power meter.

Main Antenna 24Mbps

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	SAR Result [dBm]	SAR Result [mW]	EMC Result [dBm]	EMC Result [mW]	Difference between SAR and EMC [dB]
Low	5745.0	5.43	1.91	10.04	17.38	54.70	17.36	54.45	0.02
Mid	5785.0	5.12	1.90	10.04	17.06	50.82	-	-	-
High	5825.0	5.34	1.86	10.05	17.25	53.09	-	-	-

Sub Antenna 24Mbps

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	EMC Result [dBm]	EMC Result [mW]	Difference between SAR and EMC [dB]
Low	5745.0	6.77	1.91	10.04	18.72	74.47	18.71	74.30	0.01
Mid	5785.0	6.11	1.90	10.04	18.05	63.83	17.95	62.37	0.10
High	5825.0	6.12	1.86	10.05	18.03	63.53	18.02	63.39	0.01

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

6.2 Peak and Average power for SAR testing

<Power results of Main Antenna>

[IEEE802.11a 5180-5320band] Rate Check

Rate	Freq.	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
[Mbps]	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
6.0	5260	7.99	-0.13	1.77	10.03	19.79	11.67	95.28	14.69	Lower data rate
9.0	5260	7.67	0.19	1.77	10.03	19.47	11.99	88.51	15.81	
12.0	5260	7.97	-0.39	1.77	10.03	19.77	11.41	94.84	13.84	
18.0	5260	8.00	-0.32	1.77	10.03	19.80	11.48	95.50	14.06	
24.0	5260	8.07	0.20	1.77	10.03	19.87	12.00	97.05	15.85	Max.AVG power
36.0	5260	8.00	-0.35	1.77	10.03	19.80	11.45	95.50	13.96	
48.0	5260	7.80	-0.42	1.77	10.03	19.60	11.38	91.20	13.74	
54.0	5260	7.81	-0.51	1.77	10.03	19.61	11.29	91.41	13.46	

IEEE802.11a 5180-5320band 24Mbps

Ch	Frequency	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
36	5180	7.95	-0.03	1.78	10.02	19.75	11.77	94.41	15.03	
40	5200	7.72	-0.18	1.79	10.03	19.54	11.64	89.95	14.59	
44	5220*	7.78	0.19	1.80	10.03	19.61	12.02	91.41	15.92	
48	5240	7.67	-0.17	1.80	10.03	19.50	11.66	89.13	14.66	
52	5260	8.07	0.20	1.77	10.03	19.87	12.00	97.05	15.85	
56	5280	7.70	-0.03	1.76	10.03	19.49	11.76	88.92	15.00	
60	5300	7.67	-0.06	1.75	10.03	19.45	11.72	88.10	14.86	
64	5320	7.63	0.12	1.73	10.03	19.39	11.88	86.90	15.42	

[IEEE802.11a 5745-5825band] Rate Check

Rate	Freq.	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
[Mbps]	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
6.0	5785	4.90	-2.33	1.90	10.04	16.84	9.61	48.31	9.14	Lower data rate
9.0	5785	4.49	-2.33	1.90	10.04	16.43	9.61	43.95	9.14	
12.0	5785	5.07	-2.31	1.90	10.04	17.01	9.63	50.23	9.18	
18.0	5785	4.90	-2.56	1.90	10.04	16.84	9.38	48.31	8.67	
24.0	5785	5.12	-2.31	1.90	10.04	17.06	9.63	50.82	9.18	Max.AVG power
36.0	5785	5.04	-2.34	1.90	10.04	16.98	9.60	49.89	9.12	
48.0	5785	5.02	-2.31	1.90	10.04	16.96	9.63	49.66	9.18	
54.0	5785	5.06	-2.34	1.90	10.04	17.00	9.60	50.12	9.12	

IEEE802.11a 5745-5825band 24Mbps

Ch	Frequency	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
149	5745	4.96	-1.89	1.91	10.04	16.91	10.06	49.09	10.14	
153	5765	4.55	-2.80	1.91	10.04	16.50	9.15	44.67	8.22	
157	5785	4.92	-2.31	1.90	10.04	16.86	9.63	48.53	9.18	
161	5805	5.24	-2.46	1.88	10.05	17.17	9.47	52.12	8.85	
165	5825	5.34	-2.24	1.86	10.05	17.25	9.67	53.09	9.27	

Sample Calculation: Result = Reading + Cable Loss + Attenuator

: Channel of SAR testing

* : This channel was tested instead of an adjacent"default test channel".

<Power results of Sub Antenna>

[IEEE802.11a 5180-5320band] Rate Check

Rate	Freq.	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
[Mbps]	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
6.0	5260	6.36	-0.99	1.76	10.03	18.15	10.80	65.31	12.02	Lower data rate
9.0	5260	6.42	-0.80	1.76	10.03	18.21	10.99	66.22	12.56	Max.AVG power
12.0	5260	6.37	-1.36	1.76	10.03	18.16	10.43	65.46	11.04	
18.0	5260	6.50	-0.92	1.76	10.03	18.29	10.87	67.45	12.22	
24.0	5260	6.52	-0.94	1.76	10.03	18.31	10.85	67.76	12.16	
36.0	5260	6.65	-0.96	1.76	10.03	18.44	10.83	69.82	12.11	
48.0	5260	6.45	-1.00	1.76	10.03	18.24	10.79	66.68	11.99	
54.0	5260	6.31	-1.46	1.76	10.03	18.10	10.33	64.57	10.79	

IEEE802.11a 5180-5320band 9Mbps (Data rate of max. avg power)

Ch	Frequency	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
36	5180	5.68	-1.21	1.77	10.02	17.47	10.58	55.85	11.43	
40	5200	6.20	-1.37	1.78	10.03	18.01	10.44	63.24	11.07	
44	5220	5.96	-1.13	1.78	10.03	17.77	10.68	59.84	11.69	
48	5240	6.21	-0.89	1.78	10.03	18.02	10.92	63.39	12.36	
52	5260	6.42	-0.80	1.76	10.03	18.21	10.99	66.22	12.56	
56	5280	6.32	-1.04	1.74	10.03	18.09	10.73	64.42	11.83	
60	5300	6.17	-0.76	1.72	10.03	17.92	10.99	61.94	12.56	
64	5320	6.29	-0.38	1.70	10.03	18.02	11.35	63.39	13.65	

IEEE802.11a 5180-5320band 6Mbps (Data rate of SAR testing)

Ch	Frequency	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
36	5180	6.21	-1.18	1.77	10.02	18.00	10.61	63.10	11.51	
40	5200	6.42	-1.21	1.78	10.03	18.23	10.60	66.53	11.48	
44	5220	6.01	-1.34	1.78	10.03	17.82	10.47	60.53	11.14	
48	5240	6.23	-0.91	1.78	10.03	18.04	10.90	63.68	12.30	
52	5260	6.36	-0.99	1.76	10.03	18.15	10.80	65.31	12.02	
56	5280	6.12	-1.23	1.74	10.03	17.89	10.54	61.52	11.32	
60	5300	6.18	-1.12	1.72	10.03	17.93	10.63	62.09	11.56	
64	5320	6.41	-0.32	1.70	10.03	18.14	11.41	65.16	13.84	

[IEEE802.11a 5745-5825band] Rate Check

Rate	Freq.	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
[Mbps]	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
6.0	5785	5.94	-2.21	1.89	10.04	17.87	9.72	61.24	9.38	Lower data rate
9.0	5785	5.96	-2.09	1.89	10.04	17.89	9.84	61.52	9.64	
12.0	5785	6.00	-2.31	1.89	10.04	17.93	9.62	62.09	9.16	
18.0	5785	6.21	-2.01	1.89	10.04	18.14	9.92	65.16	9.82	
24.0	5785	6.11	-1.97	1.89	10.04	18.04	9.96	63.68	9.91	Max.AVG power
36.0	5785	5.98	-2.21	1.89	10.04	17.91	9.72	61.80	9.38	
48.0	5785	6.21	-1.98	1.89	10.04	18.14	9.95	65.16	9.89	
54.0	5785	6.02	-2.15	1.89	10.04	17.95	9.78	62.37	9.51	

IEEE802.11a 57450-5825 band 24Mbps

Ch	Frequency	P/M Reading [dBm]		Cable Loss	Atten.	Result [dBm]		Result [mW]		Note
	[MHz]	PK	AVG	[dB]	[dB]	PK	AVG	PK	AVG	
149	5745	5.86	-1.97	1.91	10.04	17.81	9.98	60.39	9.95	
153	5765	5.89	-2.22	1.91	10.04	17.84	9.73	60.81	9.40	
157	5785	6.11	-1.97	1.90	10.04	18.05	9.97	63.83	9.93	
161	5805	6.34	-1.99	1.88	10.05	18.27	9.94	67.14	9.86	
165	5825	6.12	-1.82	1.86	10.05	18.03	10.09	63.53	10.21	

Sample Calculation: Result = Reading + Cable Loss + Attenuator

: Channel of SAR testing

* : This channel was tested instead of an adjacent"default test channel".

SECTION 7 : Measurement results

7.1 BODY SAR 5180-5320MHz

Model : **AeroDR P-11**
Serial No. : **13**
Modulation : **OFDM**
Measured By : **Miyo Kishimoto**

Date : **June 18, 2010**
Liquid Depth (cm) : **15.0**
Parameters : **εr =46.6 σ =5.47(5200MHz)** **εr =46.6, σ =5.65(5300MHz)**
Ambient temperature(deg.c.) : **24.0**
Relative Humidity (%) : **51**

SAR MEASUREMENT									
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
MAIN ANTENA									
Step 1. Search for the worst position									
52	5260	BPSK(6Mbps)	Flat	Main	Front	0	23.0	23.0	**0.709**
52	5260	16QAM(24Mbps)	Flat	Main	Front	0	23.0	23.0	**0.795**
Step 2. Change to the channels									
36	5180	16QAM(24Mbps)	Flat	Main	Front	0	23.0	23.0	**1.28**
40	5220	16QAM(24Mbps)	Flat	Main	Front	0	23.0	23.0	**0.966**
64	5320	16QAM(24Mbps)	Flat	Main	Front	0	23.0	23.0	**0.818**
SUB ANTENNA									
Step 1. Search for the worst position									
52	5260	BPSK(6Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.899**
52	5260	BPSK(9Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.810**
Step 2. Change to the channels									
36	5180	BPSK(6Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.774**
48	5240	BPSK(6Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.814**
64	5320	BPSK(6Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.577**

Note: Calibration frequency of probe (Conversion factor)

SAR measurement frequency [MHz]	Calibration frequency [MHz] +/- validity[MHz]	Used conversion factor +/- uncertainty
5180	5200+/-50	4.41 +/- 13.1%(k=2)
5220	5200+/-50	4.41 +/- 13.1%(k=2)
5240	5200+/-50	4.41 +/- 13.1%(k=2)
5260	5300+/-50	4.22 +/- 13.1%(k=2)
5300	5300+/-50	4.22+/- 13.1%(k=2)

7.2 BODY SAR 5745-5825MHz

Model : **AeroDR P-11**
Serial No. : **13**
Modulation : **OFDM**
Measured By : **Miyo kishimoto**

Date : **June 21, 2010**
Liquid Depth (cm) : **15.0**
Parameters : **εr =46, σ =6.13**
Ambient temperature(deg.c.) : **24.5**
Relative Humidity (%) : **42**

SAR MEASUREMENT									
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Separatio [mm]	Before	After	value of multi-peak
MAIN ANTENA									
Step 1. Search for the worst position									
157	5785	BPSK(6Mbps)	Flat	Main	Front	0	23.5	23.5	**0.621**
157	5785	16QAM(24Mbps)	Flat	Main	Front	0	23.5	23.5	**0.629**
Step 2. Change to the channels									
149	5745	16QAM(24Mbps)	Flat	Main	Front	0	23.5	23.4	**0.564**
165	5825	16QAM(24Mbps)	Flat	Main	Front	0	23.4	23.2	**0.874**
SUB ANTENNA									
Step 1. Search for the worst position									
157	5785	BPSK(6Mbps)	Flat	Sub	Front	0	23.2	23.0	**0.601**
157	5785	16QAM(24Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.618**
Step 2. Change to the channels									
149	5745	16QAM(24Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.572**
165	5825	16QAM(24Mbps)	Flat	Sub	Front	0	23.0	23.0	**0.637**

Note: Calibration frequency of probe (Conversion factor)

SAR measurement frequency [MHz]	Calibration frequency [MHz] +/- validity[MHz]	Used conversion factor +/- uncertainty
5745	5800+/-100*	3.59 +/- 13.1%(k=2)
5785	5800+/-50	3.59 +/- 13.1%(k=2)
5825	5800+/-50	3.59 +/- 13.1%(k=2)

*The validity of +/-100MHz was expanded by the calibration uncertainty (k=2)< 15% according to the KDB865664 (SAR Measurement Procedures for 3-6GHz) and by the DASY v4.4 and higher according to the manufacture's request.