

FCC ID: DV8DS7100Test report No. : 24CE0150-YKPage: 1 of 52Issued date: November 20, 2003

EMI TEST REPORT

Test Report No.: 24CE0150-YK

Applicant:	Fukuda Denshi Co., Ltd
Type of Equipment:	Patient Monitor
Model No.:	DS-7100 (type 7141)
FCC ID:	DV8DS7100
Test standard:	FCC Part 15 Subpart C, Section 15.207 FCC Part 95 Subpart H, Section 95.1115 (Except FCC 95.1115 (e) Frequency Stability) FCC Part 2 Subpart J, Section 2.1049 and 2.1051

Test Result:

1. This test report shall not be reproduced except in full or partial, without the written approval of UL Apex Co., Ltd.

Complied

2. The results in this report apply only to the sample tested.

Date of test:

EMI: <u>November 12 -14, 2003</u>

Tested by: EMI:

Toyokazu Imamura

Approved by:

Osamu Watatani Site Manager of Yamakita EMC Lab.

UL Apex Co., Ltd. YAMAKITA EMC LAB.

907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

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MF060b(23.04.02)

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 Issued date
 :
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1 GENERAL INFORMATION

Company Name	:	Fukuda Denshi Co., Ltd.
Brand Name	:	FUKUDA DENSHI
Address	:	3-39-4 Hongo, Bunkyo-ku, Tokyo, 113-8433 JAPAN
Telephone Number	:	+81 3 5684 1329
Facsimile Number	:	+81 3 5684 1321
Contact Person	:	Hideki Miyoshi and Yoshiharu Ezashi
Type of Equipment	:	Patient Monitor
Model Number	:	DS-7100 (type 7141)
Serial Number	:	0309-6197
Rating	:	AC100-240V 50/60Hz (RF module:3.3VDC)
Condition of EUT	:	Production prototype
Country of Manufacture	:	Japan
Receipt Date of Sample	:	November 11, 2003
Regulation(s)	:	FCC Part15 Subpart C ,Section 15.207 FCC Part95 Subpart H ,Section 95.1115 (Except FCC 95.1115(e) Frequency stability) FCC Part2 Subpart J, Section 2.1049 and 2.1051
Test Site	:	UL Apex Yamakita EMC Lab. No.1 Anechoic Chamber and No.4 Shielded Room

1.1 Tested Methodology

The measurement was performed according to the procedures in ANSI C63.4 (2001) and ANSI/TIA/EIA-603-A-2001.

1.2 Test Facility

This site has been fully described in a report submitted to FCC office, and accepted on November 8, 2002.(No.1 Anechoic Chamber Registration No.: 95967)NVLAP Lab. code:200441-0

2 PRODUCT DESCRIPTION

Fukuda Denshi Co., Ltd , Model: DS-7100 (type 7141) (referred to as the EUT in this report) is an Patient Monitor. The clock frequencies used in EUT : 32MHz (CPU BUS), 40MHz (LCD),128MHz (CPU)

Frequency Characteristics	: 608.0125MHz through 613.9875MHz
Reference for Carrier Frequency	: 608-614MHz
Reference For Carrier Frequency Fixed Crystal Oscillator TCXO	: 14.4MHz
No. of Channels and channel Spacing	: 445 channels/ 12.5kHz channel spacing
Modulation	: Digital Frequency Shift Keying
Antenna Type	: λ/4 Monopole Antenna
Antenna connector type	: SML011
Antenna Gain	: 2.14dBi (max)
Mode of Operation	: Simplex
Temperature Range	: 10 to 40 deg. C.
RF Module Power supply	: DC 3.3V DC
ITU Emission Code(s)	: 8K50F1DAN

3 SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured in typical fashion (as a customer would normally use it) for testing.

Test mode: Transmitting mode	
Low channel	: 608.0125MHz
Middle channel	: 611.0000MHz
High channel	: 613.9875MHz

The EUT transmits under constant modulation.

3.2 Configuration of Tested System

Front View

■ : Ferrite core



Top View



*Cabling was taken into consideration and test data was taken under worse case conditions.

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DUSC	Description of EOT and support equipment					
No.	Item	Model number	Serial number	Manufacturer	Remark	FCC ID
Α	Patient monitor	DS-7100	0309-6197	FUKUDA DENSHI	EUT.	DV8DS7100
		(type 7141)				
В	Pressure simulator	041550-100	-	COBE	-	-

Description of EUT and support equipment

List of cables used

No.	Name	Model number	Length (m)	Shield	Backshell material
1	AC power cable	CS-34	3	Unshielded	Polyvinyl chloride
2	LAN cable	CJ-530C	10	Unshielded	Polyvinyl chloride
3	RS232C cable	CJ-325	4	Shielded	Polyvinyl chloride
4	Status cable	CJ-331	2	Shielded	Polyvinyl chloride
5	ECG relay cable	CI-700D-5	3	Shielded	Polyvinyl chloride
6	ECG lead cable	3380.0612.17	1.5	Shielded	Polyvinyl chloride
7	IBP relay cable	CJ-7546	0.4	Shielded	Polyvinyl chloride
8	IBP cable	COBE CDX III	3	Shielded	Polyvinyl chloride
9	IBP cable	COBE CDX III	3	Shielded	Polyvinyl chloride
10	Adult cuff	CUF-7102A	0.5	Air tube	Nylon
11	Air hose	OA-7109A	1.5	Air tube	Nylon
12	Temperature sensor cable	401J	3	Shielded	Polyvinyl chloride
13	SpO2 sensor cable	DOC-10	3.5	Shielded	Polyvinyl chloride
14	SpO ₂ sensor	DS-100A	0.5	Shielded	Polyvinyl chloride
15	EtCO ₂ cable	XS-04620	3	Air tube	Nylon

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4 MEASUREMENT UNCERTAINTY

Conducted emission test

The measurement uncertainty (with a 95% confidence level) for this test was ± 1.3 dB.

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

Radiated emission test

The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is ± 4.8 dB. The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is ± 5.2 dB. The measurement uncertainty (with 95% confidence level) for this test using Horn antenna is ± 6.6 dB.

The result is within Yamakita EMC lab's uncertainty.

5 SUMMARY OF TESTS

5.1 §15.207 Conducted Emissions (Limits by CISPR Pub.22 Class B)

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripheral was aligned and flushed with rear of tabletop.

All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN, and excess AC cable was bundled in center. I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at 40cm height to the ground plane.

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements have been performed with a CISPR quasi-peak detector (IF BW 9kHz).

(Measurement range: 150kHz to 30MHz)

: APPENDIX Page 16 to 24
: Page 14
: Pass
: KCC-A1/A3, KLS-01, KSA-04, KTR-01

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5.2 § 95.1115 (a) Filed Strength (Radiated)

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

The Radiated Electric Field Strength intensity has been measured on an anechoic chamber with a ground plane and at a distance of 3m.

The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

EUT emission levels were compared when the EUT antenna position was vertical polarization and horizontal polarization.

Maximum Filed Strength (Radiated)

The Radiated Electric Field Strength intensity has been measured on an anechoic chamber with a ground plane and at a distance of 3m.

Measurement range: CISPR QP Detector, IF BW 120kHz

Test data	: APPENDIX Page25 to 27
Photographs of test setu	ip: Page 15
Test result	: Pass
Test instruments	: KCC-A1/A3, KLA-03, KAF-05, KAT6-02, KTR-01, KAEC-01

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5.3 § 95.1115 (b) Out of Band Emissions (Radiated)

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

The Radiated Electric Field Strength intensity has been measured on an anechoic chamber with a ground plane and at a distance of 3m.

The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

EUT emission levels were compared when the EUT antenna position was vertical polarization and horizontal polarization.

Radiated Spurious emissions

The result was also satisfied the general limits specified in Sec.95.1115 (b).

To determine the level of band-edge spurious, we use the following procedure:

Set the resolution bandwidth to 1kHz in the peak detector mode. Measure the maximum level of the in-band channel closest to the band edge and the maximum level of the out-of-band emissions close to the same band edge. Determine the ratio of the in-band signal to the out-of-band emissions. Then, measure the level of the in-band channel in CISPR quasi-peak mode with 120kHz bandwidth. Using the ratio obtained, we calculate the equivalent level of the out-of-band emissions to determine compliance with the limits.

The emission tests, except for the band edge, were performed with the quasi-peak mode of the test receiver. (Bandwidth: 120kHz)

Measurement range: 30MHz to 1000MHz CISPR QP Detector, IF BW 120kHz : 1GHz to 7GHz AV Detector

Test data	: APPENDIX	X Page 28 to 32 (30 –1000MHz)
	: APPENDE	X Page 33 to 39 (1 – 7GHz)
	: APPENDE	X Page 40 to 43 (Band Edges: 608MHz/614MHz, Restricted band Charts)
Photograph	s of test setup	: Page 15
Test result	-	: Pass
Test instrum	nents	: KCC-A1/A3, KCC-D11/D12, KBA-03, KLA-03, KHA-01,KSA-04,
		KAF-05, KAF-02, KAT10-S1, KAT6-02, KFL-01, KTR-01, KAEC-01

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5.4 § 2.1049 Bandwidth (Antenna Port Conducted)

Test Procedure

The minimum 26dB bandwidth was measured with a spectrum analyzer connected to the antenna port. The measurement was performed according to the procedures in ANSI C63.4-13.1.7 (2001).

Occupied Bandwidth (99%)

1. 608.0125MHz (Low): 7.7154kHz 2. 611.00MHz (Mid) : 7.6754kHz 3. 613.9875MHz (High): 7.6754kHz

20dB Bandwidth

1. 608.0125MHz (Low): 9.7996kHz 2. 611.00MHz (Mid) : 9.7395kHz 3. 613.9875MHz (High): 9.7094kHz

Test data: APPENDIX Page 44 to 45Test instruments: KTR-01

5.5 § 2.1051 Out of Band Emissions (Antenna Port Conducted)

Test Procedure

The Out of Band Emissions (Conducted) was measured with a spectrum analyzer connected to the antenna port.

Test data: APPENDIX Page 46 to 51Test result: PassTest instruments: KTR-01

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APPENDIX 1: Photographs of test setup

1.Page 14	:	Conducted emission
2.Page 15	:	Radiated emission

APPENDIX 2: Test Data

1.Page 16 - 24:	Conducted emission
2.Page 25 - 27:	Filed Strength (Radiated)
3.Page 28 - 39:	Out of Band Emissions (Radiated)
4.Page 40 - 43:	Band edges (Radiated)
5.Page 44 :	Occupied Bandwidth (Antenna Port Conducted)
6.Page 45 :	20dB Bandwidth (Antenna Port Conducted)
7.Page 46 - 51:	Out Band Emissions (Antenna Port Conducted)

APPENDIX 3: Test instruments

Page 52 : Test instruments

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Conducted emission



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Radiated emission



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DATA OF CONDUCTION TEST

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Appl Kind Seri Powe Rema Date Phas Temp Humi Regu	icant l of Equip al No. al No. er er wrks ee erature dity lation	: F F : C : A : T : S : S : S : S : C : C : C : C : C : C : C : C : C : C	Tukuda Patient DS-7100 0309-61 00120V/ Transmi 1/13/2 013/2 013/2 00% 015PR P	Densh Moni 97 '60Hz tting 003 Phase Wub. 22	i Co., tor 7141) (608.01 CLASS	Ltd 25MHz) B	Eng	ineer		oyokaz	u Imam	ura	_	
No.	FREQ. [MHz]	READI QP [dB	NG (N) AV uV]	READI QP [dB	NG (L1) AV uV]	LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN	. RES QP [dBu	ULT AV V]	LIM QP [dBu	ITS AV V]	MAR QP [d	GIN AV B]
1. 2. 3. 4. 5. 6. 7. 8. 9.	$\begin{array}{c} 1.\ 2359\\ 7.\ 5724\\ 8.\ 5010\\ 8.\ 9658\\ 9.\ 4286\\ 9.\ 5836\\ 9.\ 5836\\ 9.\ 8073\\ 10.\ 0466\\ 21.\ 3965 \end{array}$	$\begin{array}{c} 33.5\\41.9\\48.0\\50.3\\50.3\\49.2\\55.5\\48.9\\46.1 \end{array}$	$\begin{array}{c} 32.\ 7\\ 39.\ 4\\ 45.\ 8\\ 47.\ 1\\ 47.\ 3\\ 46.\ 5\\ 42.\ 0\\ 46.\ 3\\ 34.\ 7\end{array}$	34. 7 45. 8 48. 2 49. 2 49. 6 48. 9 55. 7 48. 7 46. 3	$\begin{array}{c} 31.\ 7\\ 40.\ 8\\ 45.\ 9\\ 46.\ 7\\ 47.\ 0\\ 46.\ 4\\ 41.\ 6\\ 46.\ 1\\ 34.\ 1\end{array}$	$\begin{array}{c} 0.1\\ 0.3\\ 0.3\\ 0.4\\ 0.4\\ 0.4\\ 0.4\\ 0.4\\ 1.0 \end{array}$	$\begin{array}{c} 0. \ 1 \\ 0. \ 3 \\ 0. \ 3 \\ 0. \ 3 \\ 0. \ 3 \\ 0. \ 3 \\ 0. \ 3 \\ 0. \ 3 \\ 0. \ 4 \end{array}$	$\begin{array}{c} 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \end{array}$	$\begin{array}{r} 34. \ 9 \\ 46. \ 4 \\ 48. \ 8 \\ 51. \ 0 \\ 51. \ 0 \\ 49. \ 9 \\ 56. \ 4 \\ 49. \ 6 \\ 47. \ 7 \end{array}$	$\begin{array}{c} 32.9\\ 41.4\\ 46.5\\ 47.8\\ 48.0\\ 47.2\\ 42.7\\ 47.0\\ 36.1 \end{array}$	56. 0 60. 0 60. 0 60. 0 60. 0 60. 0 60. 0 60. 0 60. 0	46. 0 50. 0 50. 0 50. 0 50. 0 50. 0 50. 0 50. 0 50. 0 50. 0	$\begin{array}{c} 21.1\\ 13.6\\ 11.2\\ 9.0\\ 9.0\\ 10.1\\ 3.6\\ 10.4\\ 12.3 \end{array}$	13. 1 8. 6 3. 5 2. 2 2. 0 2. 8 7. 3 3. 0 13. 9

CALCULATION: READING[dB μ V] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].

LISN :KLS-01 (NSLK8126) COAXIAL CABLE:KCC-A1/A3 ENI RECEIVER:KTR-01 (ESI40)

DATA OF CONDUCTION TEST

UL Apex Co., Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Applicant : Kind of Equipment : Model No. : Serial No.	Fukuda Denshi Co., Ltd Patient Monitor DS-7100(Type7141) 0200-6107	
Power ·		
Nede .	AUTZUV/OUNZ	
Mode :	Iransmitting (608, 0125MHz)	
Remarks :	_	
Date ·	11/13/2002	
Phase		
	Single Phase	
lemperature :	24 °C	Engineer Toyokazu Imemura
Humidity :	50 %	
Regulation		
	UTOPR PUD. 22 CLASS B	



DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Applicant Kind of Equipment Model No. Serial No. Power Mode Remarks Date Phase Temperature Humidity Regulation 1		Fukuda Denshi Co., Ltd Patient Monitor DS-7100 (Type7141) 0309-6197 AC120V/60Hz Transmitting (608.0125MHz) - 11/13/2003 Single Phase 24 °C 50 % CISPR Pub 22 CLASS B
Regulation 1 Regulation 2	:	CISPR Pub. 22 CLASS B None

Engineer : Toyokazu Imamura



DATA OF CONDUCTION TEST

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No. : 24CE0150-YK

Kind of Equip Model No. Serial No. Power Mode Remarks Date Phase Temperature Humidity Regulation No. FREQ.		ment	Fukuda Denshi Co., Ltd Patient Monitor DS-7100 (Type7141) 0309-6197 AC120V/60Hz Transmitting(611MHz) - 11/13/2003 Single Phase 24 °C 50 % CISPR Pub. 22 CLASS B						Engineer : Toyokazu Imamura					
No.	FREQ.	READI	NG (N)	READI	NG(L1)	LISN	CABLE	ATTEN	. RES	ULT	LIM	ITS	MAR	GIN
	[MHz]	dB	AV [uV]	QP [dB	AV uV]	FACTOR [dB]	LOSS [dB]	[dB]	QP [dBu	AV IV]	QP [dBu	AV [V]	QP [d	AV B]
1.	1. 2359	33.0	32.7	31.7	31. 1	0.1	0.1	0.0	33.2	32.9	56.0	46.0	22.8	13.1
2. 3	7.575Z	42.5	40.0	42.6	39.7	0.3	0.3	0.0	43.2	40.6	60.0	50.0	16.8	9.4
3. 1	8 9658	40.1 10.1	40.1	48.0	40.1	0.3	0.3	0.0	49.3	46.7	60.0	50.0	10.7	3.3
5	9 4288	49.4	47.0	49.0	41.3	0.4	0.3	0.0	50.1	48.0	60.0	50.0	9.9	2.0
6.	9.5851	50 0	46.9	49.0 10 5	41.2	0.4	0.3	0.0	50.4	48.0	60.0	50.0	9.6	2.0
7.	9.8073	55.2	41 2	55.2	40.7	0.4	0.3	0.0	50.7	40.9	60.0	50. 0	9.3	3.1
8.	10.0472	49.4	46.6	49.0	46 4	0.4	0.3	0.0	50.9	41.9	00.0 60.0	50.0	4.1	8.1
9.	21. 3751	46.4	34.4	46.5	33.5	1.0	0.4	0.0	47.9	47. 3 35. 8	60. 0 60. 0	50. 0 50. 0	9.9 12.1	$\frac{2.7}{14.2}$

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CALCULATION: READING [dB μ V] + LISN FACTOR [dB] + CABLE LOSS [dB] + ATTEN [dB].

■LISN :KLS-01 (NSLK8126) ■COAXIAL CABLE:KCC-A1/A3 ■ENI RECEIVER:KTR-01 (ESI40)

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK



Frequency [MHz]

DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Applicant	:	Fukuda Denshi Co., Ltd
Kind of Equipment	:	Patient Monitor
Model No.	1	DS-7100 (Tyne7141)
Serial No.	:	0309-6197
Power	2	AC120V/60Hz
Mode	:	Transmitting (611MHz)
Remarks	:	-
Date	:	11/13/2003
Phase	1	Single Phase
Temperature	1	24 °C
Humidity	:	50 %
Regulation 1	-	CLSPR Pub 22 CLASS R
Regulation 2	:	None

Engineer : Toyokazu Imamura



DATA OF CONDUCTION TEST

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Appl Kind Mode Seri Powe Mode Rema Date Phas Temp Humi Regu	icant of Equip I No. al No. r rks e erature dity lation	ment	FP D D C A T T S S C	ukuda atient S-7100 309-61 C120V/ ransmi 1/13/2 ingle 4 C 0 % ISPR P	Denshi Monit (Type) 97 60Hz tting 003 Phase ub. 22	Co., 141) (613.98) CLASS	Ltd 75MHz) B	Eng	ineer	. 1	oyokaz	u Imam	ura	
No.	FREQ.	READI	NG (N)	READI	NG (L1)	LISN	CABLE	ATTEN.	. RES	ULT	LIM	ITS	MAR	GIN
	[MHz]	QP [dB	AV uV]	QP [dB	AV uV]	FACTOR [dB]	LOSS [dB]	[dB]	QP [dBu	AV V]	QP [dBu	AV V]	QP [d	AV B]
1.	1.2360	32.9	32.6	31.5	31.0	0.1	0.1	0.0	33.1	32.8	56.0	46.0	22.9	13.2
2.	7.5729	42.7	40.0	42.9	40.2	0.3	0.3	0.0	43.5	40.8	60.0	50.0	16.5	9.2
3.	8.5015	48.2	46.2	48.1	46.2	0.3	0.3	0.0	48.8	46.8	60.0	50.0	11.2	3.2
4.	8.9661	49.5	47.4	49.4	47.4	0.4	0.3	0.0	50.2	48.1	60.0	50.0	9.8	1.9
5. C	9.4294	49.8	47.4	49.6	47.3	0.4	0.3	0.0	-50.5	48.1	60.0	50.0	9.5	1.9
0. 7	9.083/	50.2 EE 9	41.0	49.0	40.8	0.4	0.3	0.0	50.9	47.7	60.0	50.0	9.1	2.3
0	9.0074	00.2 40.1	41.2	00.3 40.0	41.2	0.4	0.3	0.0	50. U	41.9	60.0	50.0	4.0	8.1
9.	21. 3716	49.1	34.6	49.0	40. 5 35. 2	1.0	0.3	0.0	49.8 47.9	47.4 36.6	60. 0 60. 0	50. 0 50. 0	10.2 12.1	2.6 13.4

CALCULATION: READING[dB μ V] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].

■LISN :KLS-01 (NSLK8126) ■COAXIAL CABLE:KCC-A1/A3 ■EMI RECEIVER:KTR-01 (ESI40)

DATA OF CONDUCTION TEST UL Apex Co.,Ltd.

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Applicant	: Fukuda Denshi Co., Ltd		
Kind of Equipment	: Patient Monitor		
Model No.	: DS-7100 (Type7141)		
Serial No.	: 0309-6197		
Power	: AC120V/60Hz		
Mode	Transmitting (613, 9875MHz)		
Remarks	: -		
Date	: 11/13/2003		
Phase	: Single Phase		
Temperature	: 24 °C	Engineer	: Tovokazu Imamura
Humidity	: 50 %		
Regulation	CISPR Pub. 22 CLASS B		



DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd. Yamakita No.2 Shielded Room Report No.: 24CE0150-YK

Regulation 1 : CISPR Pub. 22 CLASS B Regulation 2 : None	Date : 11/13/2003 Phase : Single Phase Temperature : 24 °C	Power : AC120V/60Hz Mode : Transmitting(613.9875MH Remarks : -	Applicant: Fukuda Denshi Co., LtdKind of Equipment: Patient MonitorModel No.: DS-7100(Type7141)Serial No.: 0309-6197	Applicant Kind of Equipment Model No. Serial No. Power Mode Remarks Date Phase Temperature Humidity Regulation 1 Regulation 2		Fukuda Denshi Co., Ltd Patient Monitor DS-7100(Type7141) 0309-6197 AC120V/60Hz Transmitting(613.9875MHz - 11/13/2003 Single Phase 24 °C 50 % CISPR Pub.22 CLASS B None
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Engineer : Toyokazu Imamura



UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No.: 24CE0150-YK

Appli Kind Nodel Seria Power Mode Remar Date Test Tempe Humid Regul	cant of Equ No. I No. ks Distan rature ity ation	i pmen	t	: Fuk Pat DS- 030 AC1 Tra 11/ 3 m 21 65 FCC	uda Den ient Mo 7100(Ty 9-6197 20V/60H nsmitti 13/2003 °C % Part95	shi Cd nitor pe714 z ng(604	o., Ltd 1) 8.0125M 5.1115(d (a)	Engineer		: Toyoka	zu Imai	nura	
No.	FREQ.	ANT	READ	ING	ANT	AMP	CABLE	ATTEN.	RESU	LT	LIMITS	MAF	GIN	
	[MHz]	11f£	ΠΟΚ [dB μ	VER V]	[dB/m]	[dB]	LUSS [dB]	[dB]	HOR [dB µ V,	VER /m] [$dB \mu V/m]$	HOR [d	VER B]	
1.	608.01	BB	95.1	93. 0	19.9	29. 3	2.7	6.1	94. 5	92.4	106.0	11.5	13.6	

CALCULATION: READING [dB μ V] + ANT. FACTOR [dB/m] + CABLE LOSS [dB] - AMP. GAIN [dB] + ATTEN [dB].

ANTENNA: KBA-03 (BBA9106) 30-299. 99MHz/KLA-03 (USLP9143) 300-1000MHz CABLE: KCC-A1/A3 PREAMP: KAF-0 (8447D) EMI RECEIVER: KTR-01 (ES140)

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

App1 Kind Mode Seri Powe Mode Rema Date Test Temp Humi Regu	icant of Equipm I No. al No. r rks Distance erature dity lation	ient	Fuke Pat DS- 030 AC1 Trai - 11/ 3 m 21 65 FCC	uda Den ient Mc 7100(Ty 9-6197 20V/60H nsmitti 13/2003 °C % Part95	nshi C nitor npe714 lz ng(61 H §9	o., Lto 1) 1MHz) 5.1115((a)	Engineer	: Toyoka	zu Imamura	
No.	FREQ. ANI TYP	r REA PE HOR	DING VER	ANT FACTOR	AMP GAIN	CABLE LOSS	ATTEN.	RESUL HOR	T LIMITS VER	MARGIN HOR VER	
	[MHZ]	[dB	μV]	[dB/m]	[dB]	[dB]	[dB]	$LdB \mu V/I$	mj [dBµV/m] 	[dB]	
1.	611.00 BE	3 95.3	92.5	19.9	29.3	2.7	6. 1	94.7	91.9 106.0	11.3 14.1	

CALCULATION: READING[dB μ V] + ANT. FACTOR[dB/m] + CABLE LOSS[dB] - AMP. GAIN[dB] + ATTEN[dB].

ANTENNA: KBA-03 (BBA9106) 30-299. 99MHz/KLA-03 (USLP9143) 300-1000MHz CABLE: KCC-A1/A3 PREAMP: KAF-0 (8447D) EMI RECEIVER: KTR-01 (ES140)

UL Apex Co.,Ltd. Yamakita No. 1 Anechoic Chamber Report No. : 24CE0150-YK

Appl Kind Mode Seri Powe Rema Date Test Tempi Humid Regu	icant of Equi l No. al No. r rks Distanc erature dity lation	pmen e	ıt	: Fuk : Pat : DS- : 030 : AC1 : Tra : - : 11/ : 3 m : 21 : 65 : FCC	tuda Der ient Mc 7100(Ty 99-6197 20V/60H nsmitti 13/2003 % Part95	nshi C pnitor pe714 Iz ng(61 S	o., Ltd 1) 3.9875M 5.1115(Hz) (a)	Engineer	· ·	Toyoka	zu Ima	mura
No.	FREQ. A	ANT FYPE	REAI HOR	DING VER	ANT FACTOR	AMP GAIN	CABLE	ATTEN.	RESULT	[/FP	LIMITS	MAI	RGIN
	[MHz]		[dB]	μV]	[dB/m]	[dB]	[dB]	[dB]	$[dB \mu V/n]$	n] [d	lBμV/m]		B]
1.	613.99	BB	95.2	91.3	19.9	29.3	2.7	6. 1	94.6 9	90.7	106.0	11.4	15.3
										··			

CALCULATION: READING [dB μ V] + ANT. FACTOR [dB/m] + CABLE LOSS [dB] - AMP. GAIN [dB] + ATTEN [dB].

■ ANTENNA: KBA-03 (BBA9106) 30-299. 99MHz/KLA-03 (USLP9143) 300-1000MHz ■ CABLE: KCC-A1/A3 ■ PREAMP: KAF-0 (8447D) ■ EMI RECEIVER: KTR-01 (ES140)

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No.: 24CE0150-YK

Appl Kind Mode Seri Powe Mode Rema Date Test Temp Humi Regu	icant of Equ I No. al No. r rks Distan erature dity lation	ce	ıt	: Fuk Pat DS- 030 AC1 Tra 11/ 3 m 21 65 FCC	uda Der ient Mc 7100(Ty 9-6197 20V/60H nsmitti 13/2003 °C % Part95	nshi Co onitor ype714 lz ng(604	o., Lto 1) 8.0125M 5.1115(j (Hz) (b) (1)	Enginee	۶r	: Toyoka	izu Ima	mura
No.	FREQ.	ANT TYPF	READ HOR		ANT	AMP	CABLE	ATTEN.	RES	ULT	LIMITS	MA	RGIN
	[MHz]		[dB µ	ι V]	[dB/m]	[dB]	[dB]	[dB]	$[dB \mu]$	VER V/m] [dBµV/m]	HOR [/	VER dB]
1.	105.01	BB	50.3	44.6	11.0	28.3	1.1	6.1	40.2	34.5	46.0	5.8	11.5
∠. ૧	110.00	BB BB	47.0	44.5	12.7	28.3	1.1	6.1	38.6	36.1	46.0	7.4	9.9
4	141 43	RR	44.7 AA 7	40.4	13.5	28.3	1.1	b. 1	37.1	38.8	46.0	8.9	7.2
5	153 73	BB	49 3	40 1	14.0	20.2	1.2	0.1	38.4 96.6	35.9	46.0	7.6	10.1
6.	239.97	BB	38.3	37 5	17.0	20.1	1.0	0.1	30.0 95.9	34.7	46.0	9.4	11.3
7.	246.50	BB	41.9	34 4	17.1	27.7	1.0	6.1	30.3 20.0	34.5	46.0	10.7	11.5
8.	320.00	Β̈́Β	44.7	43.4	14 9	27 7	1.0	6 1	39.0	31.0 20 G	40.0	1.0	14.5
9.	360.00	BB	41.4	42.2	16.0	28.1	2.0	6 1	37 4	38.9	40.0	0,1	(,4 70
10.	480.00	BB	40.7	44.9	18.4	28.9	2.4	61	38 7	42 0	46.0	7 2	1.0
11.	512.00	BB	35.1	41.5	18.8	29.1	2.5	6.1	33.4	39.8	46.0	19.6	0.1 6 9
1 2.	608.00	BB	41.2	37.6	19.9	29.3	$\frac{1}{2}, \frac{3}{7}$	6.1	40.6	37 0	46.0	5 1	0.2
13.	622.40	BB	40.5	37.4	20.0	29.2	2.8	6, 1	40.2	37.1	46.0	5.8	9.0 8 0
14.	639, 99	BB	42.2	41.1	20.2	$29.\overline{1}$	2.8	6, 1	42.2	41.1	46.0	3.8	49
15.	767.98	BB	39.6	37.4	21.4	29.1	3.1	6.1	41.1	38.9	46.0	4.9	7.1
16.	832.00	BB	34.9	33.6	21.9	28.9	3.2	6.1	37.2	35.9	46.0	8.8	10.1

CALCULATION: READING [dB μ V] + ANT. FACTOR [dB/m] + CABLE LOSS [dB] - AMP. GAIN [dB] + ATTEN [dB].

■ ANTENNA: KBA-03 (BBA9106) 30-299. 99MHz/KLA-03 (USLP9143) 300-1000MHz ■ CABLE: KCC-A1/A3 ■ PREAMP: KAF-0 (8447D) ■ ENI RECEIVER: KTR-01 (ES140)

UL Apex Co., Ltd. Yamakita No. 1 Anechoic Chamber Report No. : 24CE0150-YK

Applicant	: Fukuda Denshi Co., Ltd		
Kind of Equipment	: Patient Monitor		
Model No.	: DS-7100 (Type7141)		
Serial No.	: 0309-6197		
Power	: AC120V/60Hz		
Mode	: Transmitting (608 0125MHz)		
Remarks	: -		
Date	: 11/13/2003		
Test Distance	: 3 m		
Temperature	÷ 21 °C	Engineer	· Toyokazu Imamura
Humidity	: 65 %	Ling meet	· Toyokazu Tilianura
Regulation	: FCC Part95H § 95. 1115 (b) (1)		



UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No.: 24CE0150-YK

Appl Kind Node Seri Powe Mode Rema Date Test Temp Humi Regu	icant of Equ I No. al No. r rks Distan erature dity lation	ipmen ce	t	: Fuk : Pat : DS- : 030 : AC1 : Tra : 11/ : 3 m : 21 : 63 : FCC	uda Der ient Mc 7100(Ty 9-6197 20V/60H nsmitti 13/2003 °C % Part95	nshi Co onitor pe714 lz ng(611 Mg(611	5., Ltd) MHz) 5.1115(Ъ) (1)	Enginee	r	: Toyoka	zu Ima	mura
No.	FREQ.	ANT TYPE	READ HOR	ING VER	ANT FACTOR	AMP GAIN	CABLE	ATTEN.	RES HOR	ULT VER	LIMITS	MAI HOR	RGIN VER
	[MHz]		[dB µ	ιV]	[dB/m]	[dB]	[dB]	[dB]	[dB µ	V/m] [dBμV/m]	[0	iB]
1.	105.00	BB	46.6	43.5	11.0	28.3	1.1	6.1	36.5	33.4	46.0	9.5	12.6
2.	115.00	BB BB	43.7 46 E	41.2	12.7	28.3	1.1	6.1	35.3	32.8	46.0	10.7	13.2
э. Л	141 42	00 99	40.0 19 0	40.0	13.5	28.3	1.1	6. I	38.9	37.9	46.0	7.1	8.1
т. 5	153 73	RR	40.0 /1 5	40.7	14.0	20.2	1.2	0.1	37,0 25,0	37.4	40.0	8.0	8.6
6.	239 98	BB	37.8	40.2	17.0	20.1	1.5	6 1	31.8	34.0 37.6	40.0	10.2	11.0
7.	246.85	BB	39.3	34.6	17.1	27.7	1.6	6.1	36.4	31.0	46.0	9 6	14 3
8.	320.00	BB	43.4	40.5	14.9	27.7	1.9	6.1	38.6	35.7	46.0	7.4	10.3
9.	360.00	BB	39.4	41.8	16.0	28.1	2.0	6.1	35.4	37.8	46.0	10.6	8.2
10.	480.00	BB	42.3	42.9	18.4	28.9	2.4	6.1	40.3	40.9	46.0	5.7	5.1
11.	512.00	BB	34.6	42.2	18.8	29.1	2.5	6.1	32.9	40.5	46.0	13.1	5.5
12.	625.39	BB	39.5	35.5	20.1	29.2	2.8	6.1	39.3	35.3	46.0	6.7	10.7
13.	640.00	BB	41.4	38.4	20.2	29.1	2.8	6.1	41.4	38.4	46.0	4.6	7.6
14. 15	768.00	BB	38.0 34 1	37.1 34 5	21.4	29.1	$\frac{3.1}{2.2}$	6.1	39.5	38.6	46.0	6.5	7.4
····			J'I, 1 	04.0 	41.9 	20.9 	ა.	U. I	JU. 4	JU. 8	40, 0	9.0	9. Z

CALCULATION: READING [dB μ V] + ANT. FACTOR [dB/m] + CABLE LOSS [dB] - AMP. GAIN [dB] + ATTEN [dB].

■ ANTENNA: KBA-03 (BBA9106) 30-299. 99MHz/KLA-03 (USLP9143) 300-1000MHz ■ CABLE: KCC-A1/A3 ■ PREAMP: KAF-0 (8447D) ■ EM1 RECEIVER: KTR-01 (ES140)

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

Applicant	: Fukuda Denshi Co., Ltd		
Kind of Equipment	: Patient Monitor		
Model No.	: DS-7100 (Type7141)		
Serial No.	: 0309-6197		
Power	: AC120V/60Hz		
Node	: Transmitting(611MHz)		
Remarks	: -		
Date	: 11/13/2003		
Test Distance	: 3 m		
Temperature	: 21 °C	Engineer	: Tovokazu Imamura
Humidity	: 63 %		royonaza manara
Regulation	: FCC Part95H § 95.1115(b)(1)		



UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

Appl Kind Mode Seri: Powe Rema Date Test Tempo Humic Regu	icant of Equ I No. al No. r rks Distan erature dity lation	i pmer ce	rt.	: Fuk : Pat : DS- : 030 : AC1 : Tra : 11/ : 3 m : 21 : 63 : FCC	uda Der ient Mc 7100(Ty 9-6197 20V/60H nsmitti 13/2003 °C % Part95	nshi G phitor pe714 lz ng(61: }	5., Ltd 1) 3.9875N 5.1115(i IHz) (b) (1)	Enginee	r	: Toyoka	zu Ima	imura	
No.	FREQ.	ANT TYPE	REAL HOR	DING VER	ANT FACTOR	AMP GAIN	CABLE LOSS	ATTEN.	RES HOR	ULT VER	LIMITS	MA HOR	RGIN VER	
····	[MHz]		[dB]	μV]	[dB/m]	[dB]	[dB]	[dB]	[dB µ	V/m] [0	$dB \mu V/m$]	[/	dB]	
1.	105.00	BB	47.2	43.6	11.0	28.3	1.1	6, 1	37.1	33.5	46.0	8.9	12.5	
2. 2	115.00	BB	44.9	41.5	12.7	28.3	1.1	6.1	36.5	33.1	46.0	9.5	12.9	
э. Л	141 43	DD	40.0	44.1	13.5	28.3	1.1	6.1	38.9	37.1	46.0	7.1	8.9	
5	153 73	RR	41.9	40.1	14.0	20, 2	1.Z	0.1	37.4	37.4	46.0	8.6	8.6	
6	239 99	BR	37.8	40.2	17.0	20.1	1.0	0.1	- JD, D 24 0	34.5	46.0	10.5	11.5	
7.	246.81	RB	39.6	34 0	17.0	27.1	1.0	6 1	36 7	30. U 91 1	46.0	11.2	8.0	
8.	320,00	BB	43.1	43.2	14 9	27.7	1 0	6 1	20.1	38 4	40.0	9.0	14.9	
9.	360.00	BB	39.6	41.3	16.0	28.1	2 0	6 1	35.6	37 3	46.0	10 /	7.0 8.7	
10.	480.00	BB	41.3	43.1	18.4	28.9	2.4	6.1	39.3	41 1	46.0	67	<i>A</i> Q	
11.	512.00	BB	33.4	40.8	18.8	29.1	2.5	6.1	31.7	39.1	46 0	14.3	6.9	
12.	614.00	BB	4 1. 2	37.6	19.9	29.3	2.7	6.1	40.6	37.0	46.0	5.4	9.0	
13.	628, 39	BB	40.0	34.6	20.1	29.2	2.8	6.1	39.8	34.4	46.0	6.2	11.6	
14.	640.00	BB	41.4	39.8	20.2	29.1	2.8	6, 1	41.4	39.8	46.0	4.6	6.2	
15.	767.98	BB	38.3	37.1	21.4	29.1	3.1	6.1	39. 8	38.6	46.0	6.2	7.4	
16.	832.00	BB	34.8	33.6	21.9	28.9	3.2	6.1	37.1	35.9	46.0	8, 9	10.1	

CALCULATION: READING[dB μ V] + ANT. FACTOR[dB/m] + CABLE LOSS[dB] - AMP. GAIN[dB] + ATTEN[dB].

■ ANTENNA: KBA-03 (BBA9106) 30-299. 99MHz/KLA-03 (USLP9143) 300-1000MHz ■ CABLE: KCC-A1/A3 ■ PREAMP: KAF-0 (8447D) ■ EMI RECEIVER: KTR-01 (ES140)

Page:

UL Apex Co., Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

Applicant	Fukuda Denshi Co., Ltd		
Kind of Equipment :	Patient Monitor		
Model No.	DS-7100 (Type7141)		
Serial No.	0309-6197		
Power	AC120V/60Hz		
Mode :	Transmitting(613,9875MHz)		
Remarks :			
Date :	11/13/2003		
Test Distance :	3 m		
Temperature :	21 °C	Fngineer	· Toyokazu Imomura
Humidity :	63 %	LIGINOU	i ioyokazu manura
Regulation :	FCC Part95H § 95. 1115(b) (1)		



UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No.: 24CE0150-YK

App Kind Ser Powe Mode Rem Date Tes Tem Hum Reg	licant d of Equ el No. er e arks e t Distan perature idity ulation	ipmer ce	rt	: Fuki Pat DS- 0300 AC1 Trai 11/ 3 m 21 65 : FCC	uda Den ient Mc 7100(Ty 9-6197 20V/60H nsmitti 12/2003 °C % Part95	ishi Co pitor pe7141 lz ng(608	o., Ltd) 8.0125M 5.1115(Hz) b) (2)	Enginee	r :	Toyoka	zu Ima	mura
No.	FREQ.	ANT TYPE	REAI HOR [dB	DING VER µV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	REST HOR [dB µ]	ULT VER V/m] [d	LIMITS BµV/m]	MAI HOR [d	RGIN VER dB]
1.	1216.03	BB	36.3	37.1	25.8	38.0	3.7	10 0	37.8	38.6	53.9	16 1	15.3
2.	1824.04	BB	33.6	33.6	29.1	37.1	4.7	10.0	40.3	40.3	53.9	13.6	13.6
3.	2432.05	BB	38.5	33.9	30.6	36.9	5.4	10.0	47.6	43.0	53.9	6.3	10.9
4.	3040.06	BB	38. 9	38.0	30.8	37.0	6.2	10.0	48.9	48.0	53.9	5.0	5.9
5.	3648, 08	BB	46.9	46.7	32.3	36.7	6, 9	0.9	50.3	50.1	53.9	3.6	3.8
6.	4256.09	BB	45.5	38.6	33.7	35.8	7.5	0.7	51.6	44.7	53.9	2.3	9.2
7.	4864.10	BB	35.1	34.1	35.5	35.2	8.0	0.6	44.0	43.0	53.9	9.9	10.9
8. 9	5472.11	BB	31.8	31.9	35.9	36.3 36.4	8.5	0.9	40.8	40.9	53.9	13.1	13.0
					UI. 4		0.9	0.0	40,4	43.4	00.9	10. 9	G.UL

CALCULATION: READING [dB μ V] + ANT. FACTOR [dB/m] + CABLE LOSS [dB] - AMP. GAIN [dB] + ATTEN [dB].

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz ■CABLE:KCC-D11/D12■PREAMP:KAF-02 (8449B) ■ENI RECEIVER:KTR-01 (ESI40)

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

Applicant Kind of Equipment	: Fukuda Denshi Co., Ltd : Patient Monitor			
Model No.	DS-7100 (Type7141)			
Serial No.	: 0309-6197			
Power	AC120V/60Hz			
Mode	: Transmitting(608.0125MHz)			
Remarks				
Date	: 11/12/2003			
Test Distance	: 3 m			
Temperature	: 21 ℃	Engineer	Tovokazu	Imamura
Humidity	: 65 %		, en au	
Regulation	: FCC Part95H §95.1115(b)(2)			



UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

App Kind Ser Powe Mode Rem Date Tes Tem Hum Reg	licant d of Equ el No. ial No. er e arks e t Distan perature idity ulation	ipmer ce	ıt	: Fuk Pat DS- : 0300 : AC1 : Trai : - : 11/ : 3 m : 21 : 65 : FCC	uda Der ient Mc 7100(Ty 9-6197 20V/60H nsmitti 12/2003 °C % Part95	nshi Co onitor ype7141 lz ing(611 3 5H §95	o., Ltd) MHz) 5.1115(b) (2)	Engineer	r :	Toyoka	zu Ima	mura
No.	FREQ.	ANT TYPE	REAL HOR [db	DING VER µV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESU HOR [dBμV	JLT VER //m] [d	LIMITS BµV/m]	MAI HOR	RGIN VER 1B]
1.	1222.00	BB	33.5	34.2	25.9	38.0	3.7	10.0	35.1	35.8	53.9	18.8	18 1
2.	1833.00	BB	33.6	33.5	29.2	37.1	4.7	10.0	40.4	40.3	53.9	13.5	13.6
3.	2444.00	BB	37.1	32.2	30.6	36.9	5.4	10.0	46.2	41.3	53.9	7.7	12.6
4.	3055.00	BB	39.6	39.6	30.8	37.0	6.2	10.0	49.6	49.6	53.9	4.3	4.3
5.	3666.00	BB	44.6	45.8	32.4	36.7	7.0	0.9	48.2	49.4	53.9	5.7	4.5
6.	4277.00	BB	42.6	39.2	33.7	35.7	7.5	0.7	48.8	45.4	53.9	5.1	8, 5
7.	4888.00	BB	31.9	33.3	35.6	35.2	8.1	0.6	41.0	42.4	53.9	12.9	11.5
୪. G	5499.00 6110.00	BB	32.1	32.2	35.9	36.3	8,5	0.9	41.1	41.2	53.9	12.8	12.7
9. 	0110.00		აა, 2		31.2	ა ი. 4	0.9	0.4	43.3	43.3	ə ə. 9	10.6	10.6

CALCULATION: READING[dB μ V] + ANT. FACTOR[dB/m] + CABLE LOSS[dB] - AMP. GAIN[dB] + ATTEN[dB].

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz ■CABLE:KCC-D11/D12■PREAMP:KAF-02 (8449B) ■EMI RECEIVER:KTR-01 (ESI40)

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No.: 24CE0150-YK

Applicant	: Fukuda Denshi Co., Ltd		
Kind of Equipment	: Patient Monitor		
Model No.	: DS-7100(Type7141)		
Serial No.	: 0309-6197		
Power	AC120V/60Hz		
Mode	Transmitting(611MHz)		
Remarks	: -		
Date	: 11/12/2003		
Test Distance	: 3 m		
Temperature	: 21 ℃	Engineer	: Tovokazu Imamura
Humidity	65 %	U	
Regulation	: FCC Part95H §95.1115(b)(2)		



UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

Appl Kind Node Seri Powe Rema Date Test Temp Humi Regu	icant l of Equ al No. al No. er arks c Distan perature dity llation	ipmen ce	t	: Fuk : Pat : DS- : 030 : AC1 : Tra : 11/ : 3 m : 21 : 65 : FCC	Patient Monitor DS-7100 (Type7141) 0309-6197 AC120V/60Hz Transmitting (613. 9875MHz) - 11/12/2003 3 m 21 °C Engineer : Toyokazu Imamura 65 % FCC Part95H § 95. 1115 (b) (2)								mura
No.	FREQ. [MHz]	ANT TYPE	READ HOR [dB µ	ING VER ¿V]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESU HOR [dB µ V	JLT VER //m]	LIMITS [dBµV/m]	MA HOR	RGIN VER dB]
1.	1227.98	BB	35.6	37.5	25, 9	38.0	3.7	10.0	37.2	39.3	t 53.9	16.7	14.8
2.	1841.96	BB	33.6	33.5	29.2	37.1	4.7	0.0	30.4	30.3	3 53.9	23.5	23.6
3.	2455.95	BB	36.1	33.4	30.6	36.9	5.4	10.0	45.2	42.8	5 53.9	8.7	11.4
4.	3069.94	BB	40.4	39.1	30, 8	37.0	6.3	10.0	50.5	49. 2	2 53.9	3.4	4.7
5.	3683.93	BB	42.5	44.8	32.4	36.6	7.0	0.9	46.2	48.5	5 53, 9	7.7	5.4
6.	4297.91	BB	40.8	37.6	33.7	35.7	7.5	0.7	47.0	43, 8	3 53.9	6.9	10.1
7.	4911.90	BB	31.7	33.1	35.8	35.2	8.1	0, 5	40.9	42. 3	3 53.9	13.0	11.6
8.	5525.89	BB	34.0	33.4	36.0	36.3	8.6	0.9	43.2	42.6	5 53,9	10.7	11.3
9.	6139.88	BB	33.3	33.3	37.2	36.4	8.9	0.4	43.4	43.4	4 53.9	10.5	10.5

CALCULATION: READING[dB μ V] + ANT. FACTOR[dB/m] + CABLE LOSS[dB] - AMP. GAIN[dB] + ATTEN[dB].

ANTENNA: KHA-01 (SAS-200 571) 1-18GHz

CABLE: KCC-D11/D12 PREAMP: KAF-02 (8449B) EMI RECEIVER: KTR-01 (ESI40)

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber Report No. : 24CE0150-YK

Applicant	: Fukuda Denshi Co., Ltd		
Kind of Equipment	: Patient Monitor		
Model No.	: DS-7100 (Type7141)		
Serial No.	: 0309-6197		
Power	AC120V/60Hz		
Mode	Transmitting(613,9875MHz)		
Remarks	: -		
Date	: 11/12/2003		
Test Distance	: 3 m		
Temperature	: 21 ℃	Engineer	: Tovokazu Imamura
Humidity	: 65 %		
Regulation	: FCC Part95H §95.1115(b)(2)		



Restricted band edges: FCC 95.1115(b)

608.00MHz

1. Horizontal/PK

7. Imamma



2. Vertical/PK

FCC ID: DV8DS7100 Job No: 24CE0150-YK

T. America



Restricted band edges: FCC 95.1115(b)

<u>614.00MHz</u>

1. Horizontal/PK

FCC ID: DV8DS7100 Job No: 24CE0150-YK

T. Amamma



Restricted band edges: FCC 95.1115(b)

2. Vertical/PK

Job No: 24CE0150-YK

N. Amamma



FCC ID: DV8DS7100 Job No: 24CE0150-YK

1. ch: 608.0125MHz



2. ch: 611.00MHz





3. ch: 613.9875MHz



FCC ID: DV8DS7100 Job No: 24CE0150-YK

1. ch: 608.0125MHz



3. ch: 613.9875MHz

60

Center 611 MHz

2. ch: 611.00MHz



1.5 kHz/

Span 15 kHz

45 of 52

Out of Band Emissions (Conducted): FCC 2.1051

Ch 608.0125MHz

1.







FCC ID: DV8DS7100 Job No: 24CE0150-YK

1. Amamma

2.

FCC ID: DV8DS7100 Job No: 24CE0150-YK

N. Imamna







5.

4.

Out of Band Emissions (Conducted): FCC 2.1051

Ch 611.0000MHz

1.







FCC ID: DV8DS7100 Job No: 24CE0150-YK

N. Amamina

2.

FCC ID: DV8DS7100 Job No: 24CE0150-YK

Y. Amamma





l0 kliz 30 kHz 50 s RBW VBW SWT Ref Lvl 110 dBMV RF Att 30 dB Unit dBay 110 A 10 D1 87.09 dB INI 1MA IVIEN -Alres Start 5 GHz 200 MHz/ Stop 7 GHz Date: 14.NOV.2003 09:25:45

5.



Out of Band Emissions (Conducted): FCC 2.1051

<u>Ch 613.9875MHz</u> 1.

FCC ID: DV8DS7100 Job No: 24CE0150-YK

N. Amamma







2.

FCC ID: DV8DS7100 Job No: 24CE0150-YK









5.

4.

Test Report No : 24CE0150-YK

APPENDIX 3 Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date *
KCC-A1/A3	Coaxial Cable	Fujikura	5D-2W	CE/RE	2003/07/25 * 12
KLS-01	LISN(AMN)	Schwarzbeck	NSLK8126	CE	2003/07/25 * 12
KSA-04	Spectrum Analyzer	Advantest	R3271A	CE/RE	2003/09/17 * 12
KTR-01	Test Receiver	Rohde & Schwarz	ESI40	CE/RE/AT	2003/07/25 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2003/02/06 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE	2003/06/12 * 12
KAT6-02	Attenuator	INMET	18N-6dB	RE	2003/05/12 * 12
KAEC-01(NSA)	Anechoic Chamber	JSE	Semi 3m	RE	2003/09/07 * 12
KCC-D11/D12	Coaxial cable	Suhner/storm	SCOFLEX103/ 90-388-020	RE	2003/10/20 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2003/02/06 * 12
KHA-01	Horn Antenna	A.H.Systems	SAS-200/571	RE	2003/08/11 + 12
KAF-02	Pre Amplifier	Hewlett Packard	8449B	RE	2003/05/08 * 12
KAT10-S1	Attenuator	Agilent	8449D 010	RE	2003/04/18 * 12
KFL-01	Highpass Filter	Hewlett Packard	84300 80038	RE	2003/04/18 * 12
					······································

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

Test Item: CE: Conducted emission, RE: Radiated emission,

AT: Antenna terminal.