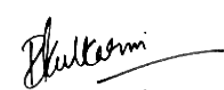


Produkte
Products

Prüfbericht - Nr.: 01200150 001		Seite 1 von 13	
<i>Test Report No.:</i>		<i>Page 1 of 13</i>	
Auftraggeber: <i>Client:</i>		Physio Control Inc., 11811, Willows Road Northeast Redmond, WA (425) 867-4000	
Gegenstand der Prüfung: <i>Test item:</i>		Code Management Module	
Bezeichnung: <i>Identification:</i>	LIFEPAK® 20/20e DEFIBRILLATOR MONITOR	Serien-Nr.: <i>Serial No.</i>	Engineering Sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	1403022835	Eingangsdatum: <i>Date of receipt:</i>	14.12.2012
Prüfart: <i>Testing location:</i>		Refer Page 4 of 13 for test facilities	
Prüfgrundlage: <i>Test specification:</i>		FCC Part 15, Subpart E ANSI C63.4-2003	
Prüfresultat: <i>Test Result:</i>		Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The test items passed the test specification(s).</i>	
Prüflaboratorium: <i>Testing Laboratory:</i>		TÜV Rheinland (India) Pvt. Ltd. 82/A, 3rd Main, West Wing, Electronic City Phase 1 Hosur Road, Bangalore – 560 100. India	
geprüft / tested by:		kontrolliert / reviewed by:	
04.03.2013 Vinay.N Engineer 		05.03.2013 Raghavendra Kulkarni Manager 	
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	
Sonstiges / Other Aspects: LIFEPAK® 20/20e DEFIBRILLATOR MONITOR Contains FCC ID: CZO-CMMPHYSIO21			
Abkürzungen:		Abbreviations:	
P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet		P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

Test Result Summary

Clause	Test Item	Result
FCC 15.205/15.209/15.407	Spurious Radiated Emissions and Restricted Bands of Operation	Pass

Note:

1. FCC subpart C Test results are covered in Test report 01200149 001
2. EUT contains approved Wi-Fi module, hence module related tests are excluded. Please refer test report Nos. 02423392 001, 02422603 001 & 02422602 001 by TÜV Rheinland India Pvt. Ltd

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List of Type and Measurement Instruments

TÜV Rheinland (India) Pvt. Ltd, Bangalore

Equipment	Manufacturer	Model	S/N	Calibration Due Date
EMI Test Receiver	Rohde &Schwarz	ESU 40	100288	21.07.2013
EMI Test Receiver	Rohde &Schwarz	ESCI	100661	17.03.2013
Hybrid Log Periodic antenna	ETS Lindgren	3142D	00081354	26.07.2013
Broadband Horn Antenna	Frankonia	HAX-18	HAX18-802	23.03.2013
Double-Ridged Waveguide Horn Antenna	ETS Lindgren	116794	00133356	01-09-2013
Emission Horn Antenna	ETS Lindgren	116706	00107323	24-08-2013
Active Loop Antenna	Frankonia	LAX-10	LAX-10-800	11-04-2013
Spectrum Analyser	Agilent Technologies	E4407B	US41192772	17.03.2013

Testing Facilities

- 1) TÜV Rheinland (India) Private Limited
No. 108, West Wing
Electronic city Phase I
Bangalore – 560100
India

General Product Information

Product Function and Intended Use

Code Management Module is an accessory to the LP20/20e Device. It is intended to address the enhancement needs of the LP20/20e Device by providing wireless connectivity, capnography (optional), and post procedure interface to the TrueCPR device. The wireless connectivity and capnography (optional) features will be integrated into the Code Management Module.

Ratings and System Details

Operating Frequency	5150MHz - 5725MHz
No. of channel	Please refer Table of Carrier Frequencies(Page 7 of 11)
Channel Spacing	20MHz
Data Rate	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps
Antenna Type	Omni-directional
Number of antenna	1
Antenna Gain	1 dBi max
Supply Voltage	100-120 VAC (nominal) 50/60 Hz; 220-240 VAC (nominal) 50/60 Hz
Dimensions	9.9 x 10.1 x 5.6 in (LxWxH)
Environmental	Operating : 0-45°C Storage : -20-60°C

Test Conditions: Voltage: 100-120 VAC (nominal) 50/60 Hz; 220-240 VAC (nominal) 50/60 Hz

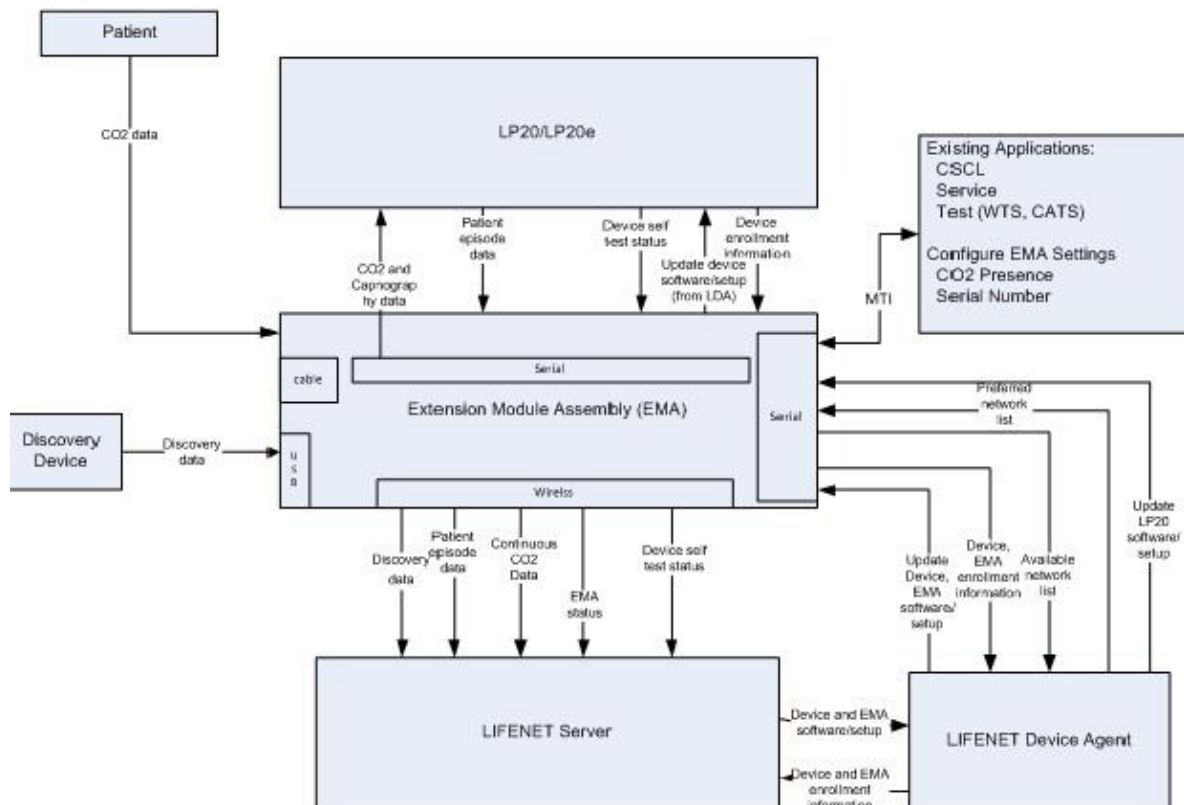
Environmental conditions: Temperature: +23 °C **RH:** 62%

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Operation Descriptions

1. Communicate with the LDA(Lifenet Device Agent) over a RS-232 serial interface.
2. Extract patient data from the LP20/20e Device over a RS-232 serial interface
3. Provide CO2 data to the LP20/20e Device during procedure.
4. Extract Post-event data from the TrueCPR Device via the USB interface
5. Send the patient data, post event data, event log, etc. to the LIFENET Server using the Wi-Fi Interface on the Code Management Module.

Block Diagram



Test Set-up and Operation Mode

Principle of Configuration Selection

Transmission was enabled with highest possible duty cycle on low and high channel to obtain maximum emissions for tests in this report.

Test Operation and Test Software

Continuous transmission, channel & data rate selection was enabled through test software.

Special Accessories and Auxiliary Equipment

- None

Countermeasures to achieve EMC Compliance

- None

Test Modes – Data Rates and Modulations

For Radiated spurious emissions, the tests were performed for all data rates and only worst results are reported in this report.

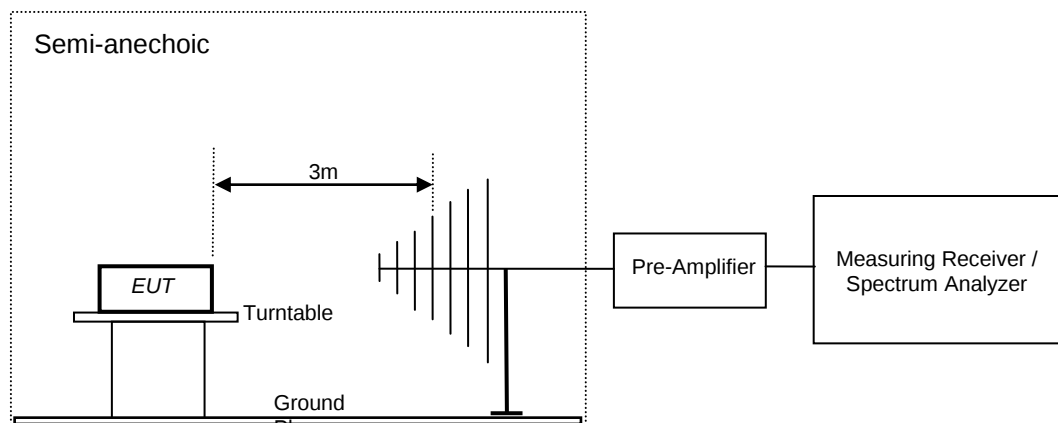
Table of carrier frequencies

Frequency Band	Channel No.	Frequency (MHz)
5150 – 5250 MHz	36	5180
	40	5200
	44	5220
	48	5240
5250 – 5350 MHz	52	5260
	56	5280
	60	5300
	64	5320
5470 – 5725 MHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620
	128	5640
	132	5660
	136	5680
	140	5700

Test Methodology

Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.4-2003. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000MHz was performed by horn antenna. The measurement below 30MHz was performed by loop antenna. The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded.



Test Results

Conducted Peak Output Power

Section 15.407 (a)

Result

Pass

Test Specification

FCC Part 15 Section 15.407

Measurement Bandwidth (RBW)

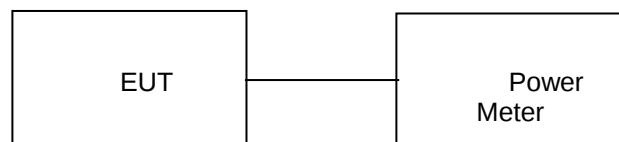
1 MHz

Requirement

For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26- dB emission bandwidth in MHz

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz.

Test Method:



Test Result:

Modulation: 802.11a

Channel No.	Frequency (MHz)	Total Output power (dBm)	Limit (dBm)
36	5180	9.54	17.00
40	5200	9.28	17.00
48	5240	9.30	17.00
52	5260	9.12	24.00
60	5300	8.94	24.00
64	5320	8.89	24.00
100	5500	8.20	24.00
120	5600	8.12	24.00
140	5700	4.15	24.00

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Modulation: 802.11n

Channel No.	Frequency (MHz)	Total Output power (dBm)	Limit (dBm)
36	5180	9.12	17.00
40	5200	9.34	17.00
48	5240	8.97	17.00
52	5260	9.02	24.00
60	5300	8.95	24.00
64	5320	8.82	24.00
100	5500	8.65	24.00
120	5600	6.74	24.00
140	5700	5.82	24.00

Spurious Radiated Emissions and Restricted Bands of Operation

Section 15.205/15.209 /15.407(b) (6)

Result

Pass

Test Specification	FCC Part 15 Subpart E
Test Method	ANSI C63.4-2003
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3m
Detection	QP for frequency below 1GHz, Peak for frequency above 1GHz
Requirement	Should Comply with the limits stated in the below table.

Limit for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength (dB $\mu\text{V/m}$)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * the limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 88,50 – 53.80, 53.80 – 43.00 and 49.5dB $\mu\text{V/m}$ at 3m range by extrapolation calculation and The measurement of loop antenna

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

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Test Results

Worst case are reported for below 1GHz

Polarization	Frequency (MHz)	Measured Field Strength(dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
H	208.18	30.57	43.5	-12.93
	212	33.44	43.5	-10.06
	272	38.74	46	-7.26
	432.05	36.2	46	-9.8
V	212.26	26.47	43.5	-17.03
	219	28.98	46	-17.02
	269.29	31.54	46	-14.46
	322.76	38.93	46	-7.07
	431.96	37.59	46	-8.41
	485.99	38.04	46	-7.96
	518.68	38.44	46	-7.56

Frequencies above 1 GHz

Mode	Data rate (Mbps)	Channel Frequency	Polarization	Frequency (MHz)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
a	24	5180	V	5150	59.15	68.23	-9.08
				5180	86.12	*	-
			H	5150	58.75	68.23	-9.48
				5180	91.96	*	-
		5320	V	5320	84.58	*	-
				5350	60.40	68.23	-7.83
			H	5320	90.97	*	-
				5350	60.34	68.23	-7.89
	54	5180	V	5150	59.51	68.23	-8.72
				5180	87.54	*	-
			H	5150	59.86	68.23	-8.37
				5180	92.28	*	-
		5320	V	5320	85.39	*	-
				5350	60.23	68.23	-8.00
			H	5320	91.47	*	-
				5350	59.53	68.23	-8.7
n	MCS0	5500	V	5470	60.16	68.23	-8.07
				5500	85.94	*	-
			H	5470	60.20	68.23	-8.03
				5500	91.95	*	-
		5600	V	5600	84.80	*	-
			H	5600	90.37	*	-
		5700	V	5700	83.30	*	-
			H	5700	90.60	*	-
	MCS7	5500	V	5470	61.37	68.23	-6.86
				5500	86.85	*	-
			H	5470	60.55	68.23	-7.68
				5500	92.79	*	-
		5600	V	5600	85.80	*	-
			H	5600	92.57	*	-
		5700	V	5700	84.70	*	-
			H	5700	92.51	*	-

* -> Fundamental frequency