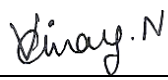


Produkte
Products

Prüfbericht - Nr.: 01200149 001		Seite 1 von 16	
<i>Test Report No.:</i>		<i>Page 1 of 16</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
Prüfort: <i>Testing location:</i>		Refer Page 4 of 16 for test facilities	
Prüfgrundlage: <i>Test specification:</i>		FCC Part 15, Subpart C ANSI C63.4-2003	
Prüfergebnis: <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: Code Management Module Contains FCC ID: CZO-CMMPHYSIO21			
Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet		Abbreviations: 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	Spurious Radiated Emissions and Restricted Bands of Operation	Pass

Note:

1. FCC subpart E Test results are covered in Test report 01200150 001
2. EUT contains approved Wi-Fi module, hence module related tests are excluded except for maximum conducted output power.
Please see FCC ID: CZO-CMMPHYSIO21

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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

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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	2400MHz – 2483.5MHz 5725MHz – 5850MHz
No. of channel	Please refer Table of Carrier Frequencies(Page 7 of 14)
Channel Spacing	5MHz for 2.4GHz band 20MHz for 5GHz band
Data Rate	802.11b: 1,2, 5.5,11 Mbps 802.11g: 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

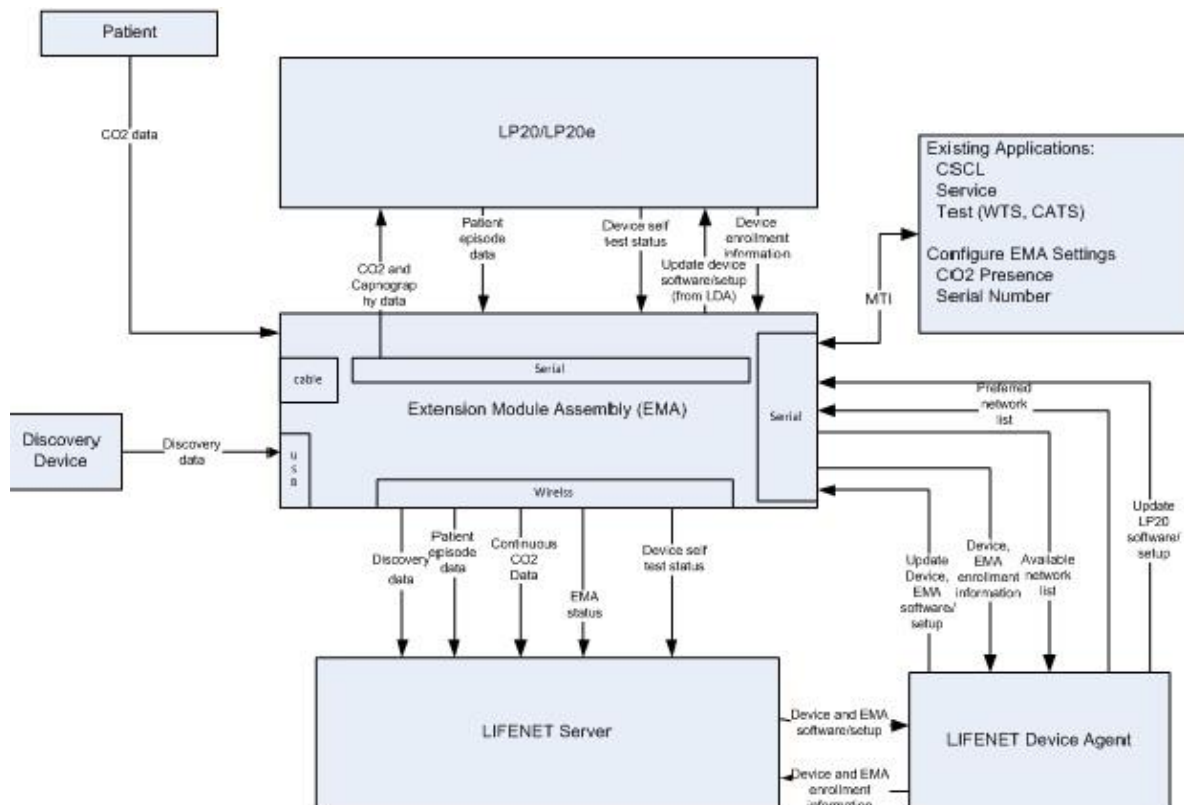
Environmental conditions: Temperature: +23 °C **RH:** 62%

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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.

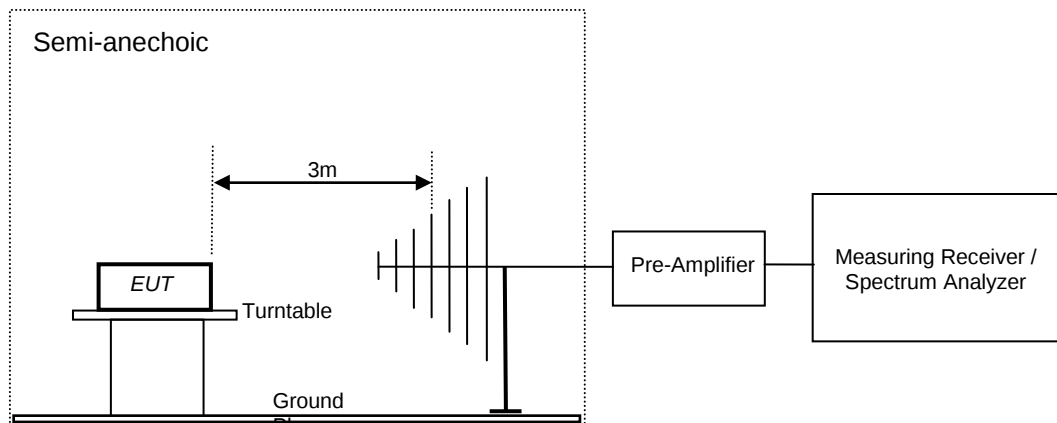
Table of carrier frequencies

Frequency Band (MHz)	Channel No.	Frequency (MHz)
2400 – 2483.5	1	2412
	2	2417
	3	2422
	4	2427
	5	2432
	6	2437
	7	2442
	8	2447
	9	2452
	10	2457
	11	2462
	12	2467
	13	2472
5725 – 5850	149	5745
	153	5765
	157	5785
	161	5805
	165	5825

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.



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Test Results

Maximum Peak Conducted Output Power

Section 15.247(b) (3)

Result

Pass

Test Specification
Requirement

FCC Part 15 Subpart C
<1 watt (30dBm).

Test Method:



Test Result: 2.4GHz Band

Data Rate (Mbps)	Channel (MHz)	Maximum Output Power (dBm)	Limit (dBm)
1	2412	11.92	30
	2442	12.04	30
	2472	11.72	30
11	2412	11.24	30
	2442	12.03	30
	2472	11.56	30
6	2412	11.22	30
	2442	10.94	30
	2472	10.52	30
24	2412	11.24	30
	2442	11.15	30
	2472	10.87	30
54	2412	10.85	30
	2442	10.96	30
	2472	10.62	30
6.5	2412	11.01	30
	2442	10.56	30
	2472	10.74	30
39	2412	11.54	30
	2442	11.23	30
	2472	11.01	30
65	2412	10.58	30
	2442	10.98	30
	2472	10.59	30

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Test Result: 5GHz Band

802.11 a mode

Channel (MHz)	Maximum Output Power (dBm)	Limit (dBm)
5745	3.20	30
5785	3.28	30
5825	3.15	30

802.11 n mode

Channel (MHz)	Maximum Output Power (dBm)	Limit (dBm)
5745	3.58	30
5785	3.62	30
5825	3.96	30

**Spurious Radiated Emissions and
Restricted Bands of Operation****Section 15.209 and 15.205****Result****Pass**

Test Specification	FCC Part Sup Part C
Test Method	ANSI C63.4-2003
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3m
Detection	QP for frequency below 1GHz, Average for frequency above 1GHz
Requirement	As per the limits mentioned in the bellow 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 test results are reported for below 1GHz

Polarization	Frequency (MHz)	Measured Field Strength(dBμV/m)	Limit (dBμV/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

Test results for above 1GHz

Mode	Data rate (Mbps)	Channel Frequency	Polarization	Frequency (MHz)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
b	1	2412	V	2390(Pk)	46.60	74.00	-27.40
				2390(Av)	34.29	54.00	-19.71
				2412(Pk)	90.26	*	-
				2412(Av)	87.39	*	-
				4824(Pk)	50.68	74.00	-23.32
				4824(Av)	36.90	54.00	-17.10
			H	2390(Pk)	48.67	74.00	-25.33
				2390(Av)	35.35	54.00	-18.65
				2412(Pk)	97.65	*	-
				2412(Av)	95.13	*	-
				4824(Pk)	49.74	74.00	-24.26
				4824(Av)	39.76	54.00	-14.24
		2472	V	2472(Pk)	87.45	*	-
				2472(Av)	84.57	*	-
				2483.5(Pk)	48.65	74.00	-25.35
				2483.5(Av)	40.24	54.00	-13.76
				4944(Pk)	50.56	74.00	-23.44
				4944(Av)	37.40	54.00	-16.60
			H	2472(PK)	96.30	*	-

				2472(Av)	93.62	*	-
				2483.5(Pk)	50.79	74.00	-23.21
				2483.5(Av)	40.35	54.00	-13.65
				4944(Pk)	49.82	74.00	-24.18
				4944(Av)	38.46	54.00	-15.54
	11	2412	V	2390(Pk)	47.44	74.00	-26.56
				2390(Av)	34.29	54.00	-19.71
				2412(Pk)	93.51	*	-
				2412(Av)	85.71	*	-
				4824(Pk)	50.01	74.00	-23.99
				4824(Av)	36.90	54.00	-17.10
			H	2390(Pk)	47.56	74.00	-26.44
				2390(Av)	35.64	54.00	-18.36
				2412(Pk)	101.76	*	-
				2412(Av)	94.00	*	-
		2472	V	4824(Pk)	49.53	74.00	-24.47
				4824(Av)	39.24	54.00	-14.76
				2472(Pk)	91.38	*	-
				2472(Av)	83.61	*	-
				2483.5(Pk)	49.11	74.00	-24.89
				2483.5(Av)	40.28	54.00	-13.72
			H	4944(Pk)	50.34	74.00	-23.66
				4944(Av)	37.44	54.00	-16.56
				2472(Pk)	100.36	*	-
				2472(Av)	92.55	*	-
g	6	2412	V	2483.5(Pk)	49.31	74.00	-24.69
				2483.5(Av)	39.87	54.00	-14.13
				4944(Pk)	50.94	74.00	-23.06
				4944(Av)	38.23	54.00	-15.77
				2390(Pk)	46.39	74.00	-27.61
				2390(Av)	35.00	54.00	-19.00
			H	2412(Pk)	91.10	*	-
				2412(Av)	81.98	*	-
				4824(Pk)	49.93	74.00	-24.07
				4824(Av)	37.08	54.00	-16.92
		2472	V	2390(Pk)	52.70	74.00	-21.30
				2390(Av)	37.31	54.00	-16.69
				2412(Pk)	99.66	*	-
				2412(Av)	90.32	*	-
				4824(Pk)	49.39	74.00	-24.61
				4824(Av)	39.12	54.00	-14.88
			V	2472(Pk)	89.29	*	-
				2472(Av)	79.82	*	-

				2483.5(Pk)	50.17	74.00	-23.83
				2483.5(Av)	40.23	54.00	-13.77
				4944(Pk)	50.39	74.00	-23.61
				4944(Av)	37.56	54.00	-16.44
				2472(Pk)	97.90	*	-
				2472(Av)	88.88	*	-
				2483.5(Pk)	58.92	74.00	-15.08
				2483.5(Av)	45.97	54.00	-8.03
				4944(Pk)	50.14	74.00	-23.86
				4944(Av)	38.20	54.00	-15.80
	54	2412	V	2390(Pk)	47.39	74.00	-26.61
				2390(Av)	35.02	54.00	-18.98
				2412(Pk)	91.74	*	-
				2412(Av)	81.81	*	-
				4824(Pk)	50.42	74.00	-23.58
				4824(Av)	36.89	54.00	-17.11
			H	2390(Pk)	54.00	74.00	-20.00
				2390(Av)	37.22	54.00	-16.78
				2412(Pk)	100.58	*	-
				2412(Av)	90.17	*	-
		2472	V	4824(Pk)	49.99	74.00	-24.01
				4824(Av)	39.25	54.00	-14.75
				2472(Pk)	90.19	*	-
				2472(Av)	79.87	*	-
				2483.5(Pk)	51.43	74.00	-22.57
				2483.5(Av)	40.35	54.00	-13.65
				4944(Pk)	49.92	74.00	-24.08
				4944(Av)	37.43	54.00	-16.57
			H	2472(Pk)	98.93	*	-
				2472(Av)	88.81	*	-
				2483.5(Pk)	57.55	74.00	-16.45
				2483.5(Av)	46.16	54.00	-7.84
n	MCS0	2412	V	4944(Pk)	50.14	74.00	-23.86
				4944(Av)	38.10	54.00	-15.90
				2390(Pk)	49.89	74.00	-24.11
				2390(Av)	36.08	54.00	-17.92
				2412(Pk)	91.59	*	-
				2412(Av)	81.74	*	-
			H	4824(Pk)	49.51	74.00	-24.49
				4824(Av)	36.94	54.00	-17.06
				2390(Pk)	55.17	74.00	-18.83
				2390(Av)	39.47	54.00	-14.53
				2412(Pk)	100.35	*	-

				2412(Av)	90.64	*	-
				4824(Pk)	49.84	74.00	-24.16
				4824(Av)	39.27	54.00	-14.73
		2472	V	2472(Pk)	89.00	*	-
				2472(Av)	79.73	*	-
				2483.5(Pk)	51.65	74.00	-22.35
				2483.5(Av)	40.18	54.00	-13.82
				4944(Pk)	49.66	74.00	-24.34
				4944(Av)	37.51	54.00	-16.49
			H	2472(Pk)	98.09	*	-
				2472(Av)	88.37	*	-
				2483.5(Pk)	58.72	74.00	-15.28
				2483.5(Av)	44.05	54.00	-9.95
				4944(Pk)	49.65	74.00	-24.35
				4944(Av)	38.34	54.00	-15.66
	MCS7	2412	V	2390(Pk)	48.91	74.00	-25.09
				2390(Av)	36.30	54.00	-17.70
				2412(Pk)	93.00	*	-
				2412(Av)	81.69	*	-
				4824(Pk)	49.79	74.00	-24.21
				4824(Av)	37.03	54.00	-16.97
			H	2390(Pk)	55.29	74.00	-18.71
				2390(Av)	40.67	54.00	-13.33
				2412(Pk)	101.40	*	-
				2412(Av)	90.31	*	-
				4824(Pk)	50.09	74.00	-23.91
				4824(Av)	39.26	54.00	-14.74
		2472	V	2472(Pk)	90.81	*	-
				2472(Av)	79.60	*	-
				2483.5(Pk)	52.88	74.00	-21.12
				2483.5(Av)	41.18	54.00	-12.82
				4944(Pk)	49.70	74.00	-24.30
				4944(Av)	37.37	54.00	-16.63
			H	2472(Pk)	100.29	*	-
				2472(Av)	88.72	*	-
				2483.5(Pk)	59.62	74.00	-14.38
				2483.5(Av)	48.43	54.00	-5.57
				4944(Pk)	49.97	74.00	-24.03
				4944(Av)	38.10	54.00	-15.90

Mode	Data rate (Mbps)	Channel Frequency	Polarization	Frequency (MHz)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
a	24	5745	V	5745(Pk)	82.99	*	-
				5745(Av)	79.35	*	-
			H	5745(Pk)	90.23	*	-
				5745(Av)	87.51	*	-
		5825	V	5825(Pk)	83.03	*	-
				5825(Av)	80.61	*	-
			H	5825(Pk)	90.18	*	-
				5825(Av)	88.62	*	-
	54	5745	V	5745(Pk)	83.83	*	-
				5745(Av)	81.24	*	-
			H	5745(Pk)	91.20	*	-
				5745(Av)	89.82	*	-
		5825	V	5825(Pk)	83.56	*	-
				5825(Av)	80.64	*	-
			H	5825(Pk)	91.12	*	-
				5825(Av)	89.62	*	-

* - Fundamental Frequency