

**FLUKE**

Biomedical

EC DECLARATION OF CONFORMITY [DECLARATION CE DE CONFORMITE]

Notice: The following information supersedes all other published information for this product

Apparatus Identification [Identification de l'appareil]

Fluke Biomedical 451 (RZR) - Ion Chamber Survey Meter Family [Famille Fluke Biomedical 451 (RZR)
Including Models [y compris les modèles]: 451B, 451B-DE-SI, 451P, 451P-DE-SI

Apparatus Classification [Classification de l'appareil]

Test and Measurement Equipment [Equipement de mesure et de test]

Statement of Conformity [Déclaration de conformité]

Based on sample product test results using appropriate standards, and in accordance with the following EC Directives, Fluke Biomedical hereby declares the Fluke Biomedical 451 (RZR) Family to be in conformity with:
[En se fondant sur les résultats de test du produit-témoin avec les normes appropriées, et en conformité avec les directives CE suivantes, la société Fluke Biomedical déclare par le présent document que Famille Fluke Biomedical 451 (RZR) sont conformes avec] :

**EC Directive 2004/108/EC, Electromagnetic Compatibility (EMC); and
EC Directive 2006/95/EC, Low Voltage (LVD)**

Sample Product Testing for EMC [Tests de CEM du produit-témoin]

Tested By [Testé par] Fluke Corporation
6920 Seaway Blvd., Everett, WA. 98206
United States of America

Standards Used [Normes utilisées] EN 61326-1:2013
EN 61326-2-2:2013

Report ID [ID du rapport] 451 EMC2013Sep24-0738 24Sep2013

Sample Product Testing for Safety [Tests de sécurité du produit-témoin]

Tested By [Testé par] Fluke Corporation
6920 Seaway Blvd., Everett, WA. 98206
United States of America

Standards Used [Normes utilisées] EN 61010-1:2010

Report ID [ID du rapport] 451B-451P-481_IEC61010_1H_3rd 25Sep2013

Manufacturer [Fabricant]

Fluke Biomedical
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Everett, WA 98206-9090; USA

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Document Control Number : CE-66 Rev. 007
31 March 2015 [31 Mars 2015]

Standards Used - Tri-Source Workstation

Standards used for monitoring Lab Temperature, Pressure, & Humidity

IRM No.	Description	Manufacturer Model	Traceability No.	Serial No.	Cal Due
1673	Thermo-Hygrometer	Fluke 2626H	B4B11021	A5B575	8-Nov-2015
1703	Precision Barometer	Honeywell HPB200	278134003	CL025834	8-Sep-2015

The following standards were used in the calibration of the Tri-Source Range

IRM No.	Description	Manufacturer Model	Traceability No.	Serial No.	Cal Due
1219	2 liter Ion Chamber	Exradin A7	DG 10409/99	113	7-May-2020
1234	33 cc Ion Chamber	PTW 23361	DG 10417/99	415	7-May-2020
1233	2 cc ion chamber	PTW 23331	DG 10419/99	824	7-May-2020

The following standards are used for Daily QA

IRM No.	Description	Manufacturer Model	Traceability No.	Serial No.	Cal Due
0988	Electrometer/Dosimeter	Victoreen 530	F530-234-7-31-2014	234	31-Jul-2015
1987	330cc Ion Chamber	Fluke 550-3	58355-1 58356-1	1534	6-Dec-2015

X-ray calibration stations are calibrated using NIST traceable ion chambers. Calibration points are verified daily using internal standard operating procedures

Check Source Reading	N/A
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Rate Calibration							
Source	Distance (cm)	No. of Atten	UUT Range	Units	Reference Rate	UUT Rate	% Error
20 Ci Cs-137	935.08	5	0 to 5	uSv/hr	1.8	1.795	-0.28 - Pass
20 Ci Cs-137	910.48	4	0 to 5	uSv/hr	3.6	3.633	0.92 - Pass
20 Ci Cs-137	907.00	3	0 to 50	uSv/hr	18	17.82	-1.00 - Pass
20 Ci Cs-137	886.30	2	0 to 50	uSv/hr	36	36.15	0.42 - Pass
20 Ci Cs-137	896.56	1	0 to 500	uSv/hr	180	177.1	-1.61 - Pass
20 Ci Cs-137	905.92	0	0 to 500	uSv/hr	360	359.5	-0.14 - Pass
2000 Ci Cs-137	778.48	3	0 to 5	mSv/hr	1.8	1.806	0.33 - Pass
2000 Ci Cs-137	763.17	2	0 to 5	mSv/hr	3.6	3.552	-1.33 - Pass
2000 Ci Cs-137	779.89	0	0 to 50	mSv/hr	36	36.65	1.81 - Pass

Dose Calibration					
Integration Calibration Point	UUT Range	Units	Reference Exposure	UUT Exposure	% Error
2000 Ci Cs-137, 100 sec	0 to 500	uSv	100	100	0.00 - Pass

Calibration Procedure: CAL-450-451.pdf

Calibration Description: The 451P-DE-SI-RYR has an operating range of 0 to 50 mSv/hr. The unit is exposed through the side of the detector and calibrated on all ranges. All readings were corrected for background. The % Error was calculated using Equation 1.

Environmental Constraints: The 451P-DE-SI-RYR survey meter is designed to read accurately from -20 to 50C. The unit is pressurized, therefore, requires no air density corrections.

Calibration Uncertainty: 3.6% with 2.4% associated with the uncertainty of the source.

Accuracy Requirement: 10% of Reading

Equation 1:
$$\%Error = \frac{100 * (UUT - Reference)}{Reference}$$

