FLASH-IQ® Datasheet

IntraOp® has designed the first and most advanced platform for delivering Ultra-High Dose Rate (UHDR) Radiotherapy with electrons. It has become the de-facto system for electron FLASH clinical trials worldwide. Current research indicates that irradiation using UHDR reduces toxicity in healthy tissue while offering an isoeffective ability to control and kill tumors.

Mode Configuration: 3 Modes

	SPECIFICATION
CONV - 6 MeV (SELECT 6 OR 9)	per IORT1003 Mobetron Product Specification
CONV - 9 MeV (SELECT 6 OR 9)	
UHDR - 6 MeV	per below
UHDR - 9 MeV	

Ultra-High Dose Rate (UHDR) Mode

PULSE WIDTH (µSEC)	0.5 - 4.0 µsec
PULSE REPETITION FREQUENCY (HZ)	10 - 120 Hz
DOSE PER PULSE (6 MeV)*	1.4 Gy (nominal)
DOSE PER PULSE (9 MeV)*	1.9 Gy (nominal)

**REFERENCE CONDITIONS: 10 CM APPLICATOR, 50 CM SSD, 4µS NOMINAL*

Beam Quality

MODE	80% DOSE DEPTH	30% DOSE DEPTH	X-RAY CONTAMINATION	MEASURING DEPTH	DOSE PER PULSE
6 UHDR*	2.0 ± 0.2 cm	< 3.0 cm	≤ 2%	1.2 cm	0.25 Gy (nominal)
9 UHDR*	3.0 ± 0.2 cm	< 4.3 cm	≤ 2%	1.8 cm	0.30 Gy (nominal)

**REFERENCE CONDITIONS: OPEN FIELD, 100 CM SSD, 4µS NOMINAL*

UHDR Stability

DOSE VARIATION, REPRODUCIBILITY*	max ±3%
DOSE VARIATION, LINEARITY*	max ±6%

**REFERENCE CONDITIONS: 10 CM APPLICATOR, 50 CM SSD.*

Beam Parameters

	6 MeV UHDR	9 MeV UHDR
SURFACE DOSE	>85%	>90%
D_{max}	1.2 cm	1.8 cm
R_{90}	1.7 cm	2.6 cm
R_{80}	2.0 cm	3.0 cm
R_{50}	2.5 cm	3.7 cm
R_P	3.0 cm	4.6 cm

Accessories

BEAM MONITORING	FLASH-IQ
APPLICATOR DIAMETER-ROUND	6, 10 cm
APPLICATOR-SSD	16 - 50 cm
APPLICATOR INSERTS-ROUND	2.5 - 10 cm
ADD-ONS	Front Pointer, Digital SSD Insert

IEC 60601-2-1: 2020 Clauses Not Implemented

201.3.256	Termination of Radiation
201.10.101.1.1.2	Dose Monitoring Systems
201.10.101.1.1.3	Radiation Detectors
201.10.101.1.1.4	Selection and Display of Dose Monitor Units
201.10.101.1.1.5	Termination of Irradiation by Dose Monitoring System
201.10.101.1.1.6	Monitoring of distribution of Absorbed Dose
201.10.101.1.12	Independent Termination System (ITS)
201.10.101.1.3	Absorbed Dose Rate

Risk Controls

COUNTER 1 COMPLETE	Termination on User Set Gun Pulse Trigger Counts
COUNTER 2 COMPLETE	Interlock on Ion Chamber Pulse Counts (+1 Pulse)
COUNTER 1 VS COUNTER 2 DIFFERENCE	Interlocks on Count 1 vs Count 2 (+11 Pulses)
MAX PULSE COUNT (ADMIN ACCESS)	Limits Maximum Number of Programmed Pulses
CONTROLLED ACCESS VIA PW, KEY	Limits Access to Console Except by IOM Trained UHDR User

*Ultra-High Dose Rate (UHDR) functionality for FLASH Radiotherapy is for investigational use only and is not cleared for sale by the US FDA.