EVO 2D scatter radiation distribution in a cephalometric exam

We hereby report the result of scatter Radiation measurement for the Villa Sistemi Medicali dental X-ray apparatus EVO 2D during a cephalometric exam.
Note on this equipment the cephalometric exam is taken using a narrow beam scanning technology.

Figure 1 illustrates the distribution of scatter radiation in the horizontal plane at the centre of rotation of the scanning unit in the area of a 3 x 3m rectangle.

The measurement was performed using as scattering element an anthropomorphic phantom complete of soft tissues simulating the head of the typical patient (in size, dimensions and tissues) of the intended use of the machine.
This phantom was placed in the same position as a patient taking a 30x22 cephalometric exam; this exam is the maximum in size among those the user can select.
C is the center of patient head; S is the x-ray source and the primary x-ray beam is also represented in figure.

The measures were taken during a cephalometric exam setting the following parameters:
86kV, 12mA, 7.5s. NOTE they are the maximum kV and mA that can be set on the equipment.
The distribution values in the table are expressed as air Kerma for mAs (µGy/mAs).

	-1.5	-1	-0.5	0	0.5	1	1.5m	
1.5	*0.00031*	*0.00034*	*0.00038*	*0.00036*	*0.00028*	*0.0006*	*0.00093*	1.5m
1(1)	*0.00012*						*0.00155*	1
0.5(1)	*0.00023*						*0.0022*	0.5
S							*0.0008*	0
-0.5(1)	*0.00022*						*0.0003*	-0.5
-1(1)	*0.00012*						*0.00021*	-1
-1.5	*0.00029*	*0.00032*	*0.00034*	*0.00033*	*0.00019*	*0.00015*	*0.00012*	-1.5
	-1.5	-1	-0.5	0	0.5	1	1.5m	

Figure 1: Distribution of scatter radiation in µGy/mAs on a 3m x 3m area from patient in a cephalometric exam.

NOTE (1) the doses reported on the source side (S) are just the head scattering term and these values doesn' take into account of tubehead leakage radiation.