Minervini A.1, Campi R.1, Raspolini M.R.2, Montagnani I.2, Mari A.1, Smaldone M.3, Uzzo R.3, Lapini A.1, Carini M.1, Kutikov A.4

1University of Florence, Careggi Hospital, Dept. of Urology, Florence, Italy, 2University of Florence, Careggi Hospital, Dept. of Pathology, Florence, Italy, 3Fox Chase Cancer Center, Division of Urologic Oncology, Philadelphia, United States of America, 4Fox Chase Cancer Center, Division of Urologic Oncology, Philadelphia, United States of America

INTRODUCTION & OBJECTIVES: Tumour excision is a fundamental step during Partial Nephrectomy (PN), yet Resection Technique (RT) is rarely reported in current Nephron Sparing Surgery (NSS) literature. We recently proposed the Surface-Intermediate-Base (SIB) Margin score as a new classification model for standardized reporting of RT during NSS. The aim of the study is to validate the SIB model from a histopathological perspective.

MATERIAL & METHODS: Data were prospectively collected from a cohort of 40 patients undergoing NSS between June and September 2014 at a single Institution. The SIB score was assigned in the operating room by the surgeon. The Score Specific Areas (SSA) were outlined on a digital picture as anatomic landmarks for histopathological analysis. Two dedicated uropathologists inked the landmark areas and measured, in a blinded fashion, the maximum, minimum and mean thickness of Healthy Renal Margin (HRM) within the SSAs (360 overall histologic measures, Fig.1). The Mann-Whitney U-test was used to assess the correlation between the SIB visual definitions of RTs and the thickness of HRM at histopathological analysis.

RESULTS: The overall RT was classified as pure enucleation, hybrid enucleation and pure enucleoresection in 28 (70%), 7 (17%), 3 (7%) patients, respectively, while as hybrid enucleoresection and resection in 1 (3%) patient each. At histopathological analysis, the maximum, minimum and mean thickness of HRM was significantly different among SSAs visually defined as enucleation (S=0: median 0,18mm (IQR 0,08-0,30), I or B = 0: median 0,20 mm (IQR 0,08-0,36)), enucleoresection (S=1: median 0,80mm (IQR 0,67-1,16), I, B = 1: median 0,88 mm (IQR 0,60-1,00)) and resection (S =1, I,B =2: median 2,95 mm (IQR 2,18-5,75) (Fig. 2) (p <0.001).

CONCLUSIONS: The SIB Margin score is the first standardized reporting system to communicate RT during NSS. Our study has proved the applicability of the model in a real-world clinical setting and provided robust histopathological validation of its utility.