



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Institute of Metrology METAS

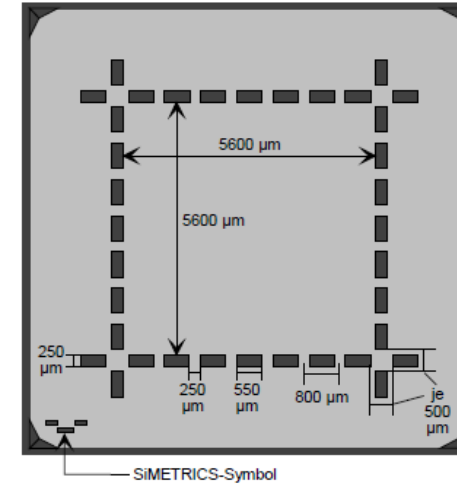


BxDiff – WP1

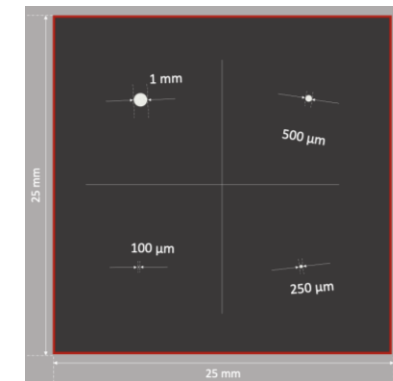
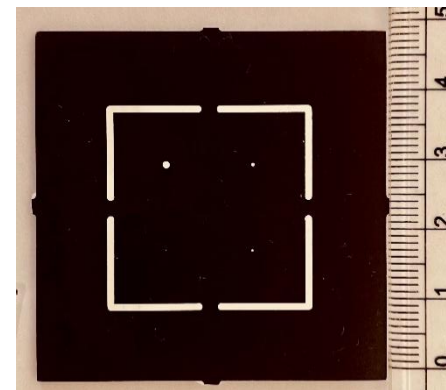
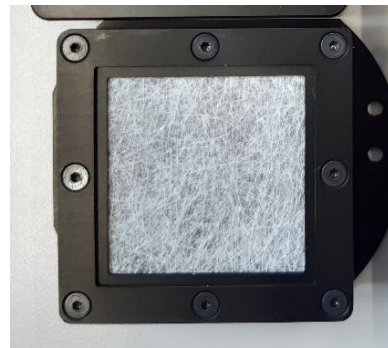
Multicsale and small size BRDF measurements at METAS

Small size area BRDF

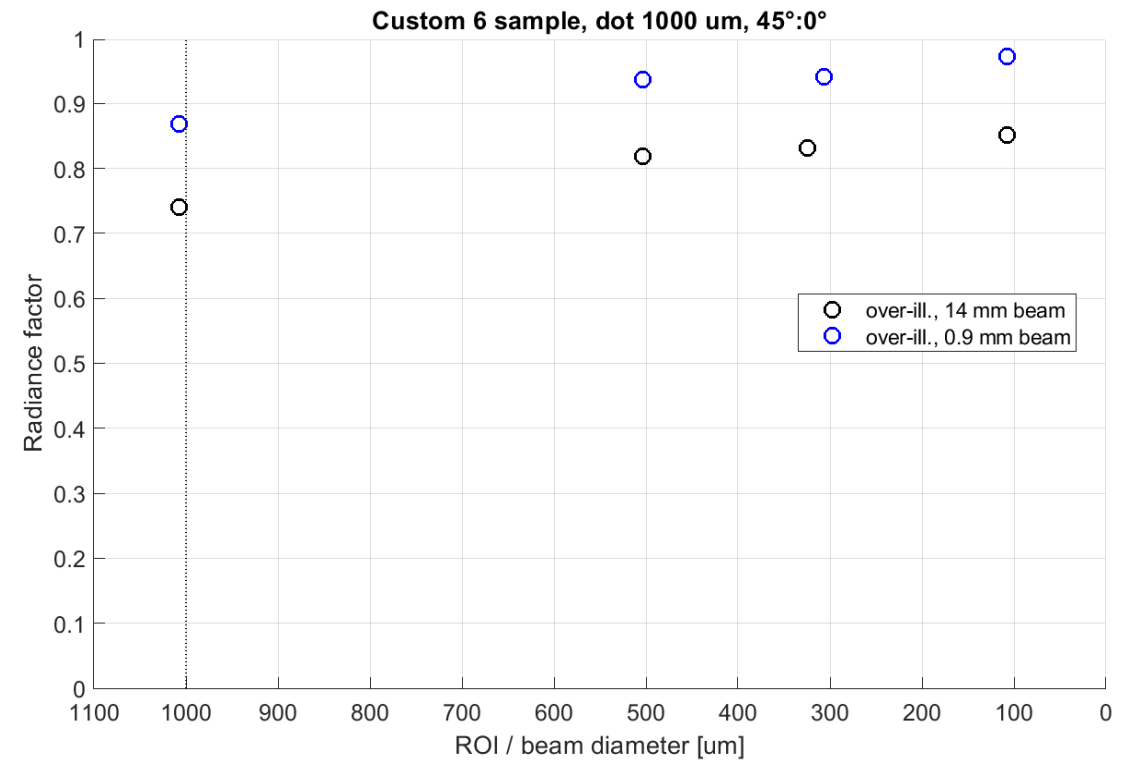
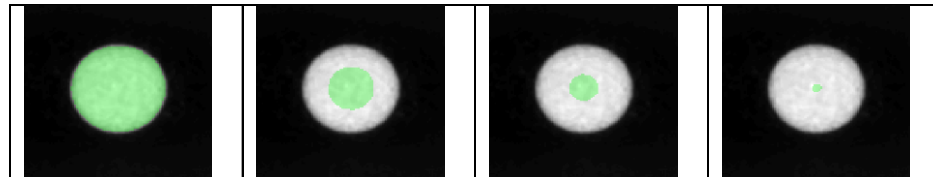
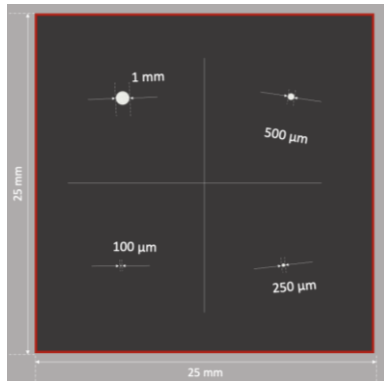
Task aim	identify and resolve specific metrological issues related to the measurement of BRDF of small areas
Measurement area	The samples should be measured at 3 measurement areas: <ul style="list-style-type: none"> • 1 mm × 1 mm • 0.5 mm × 0.5 mm • Smallest possible
Measurement geometries	45°:0° 0°:45°
Samples	red fake leather fiber sheet custom sample roughness sample



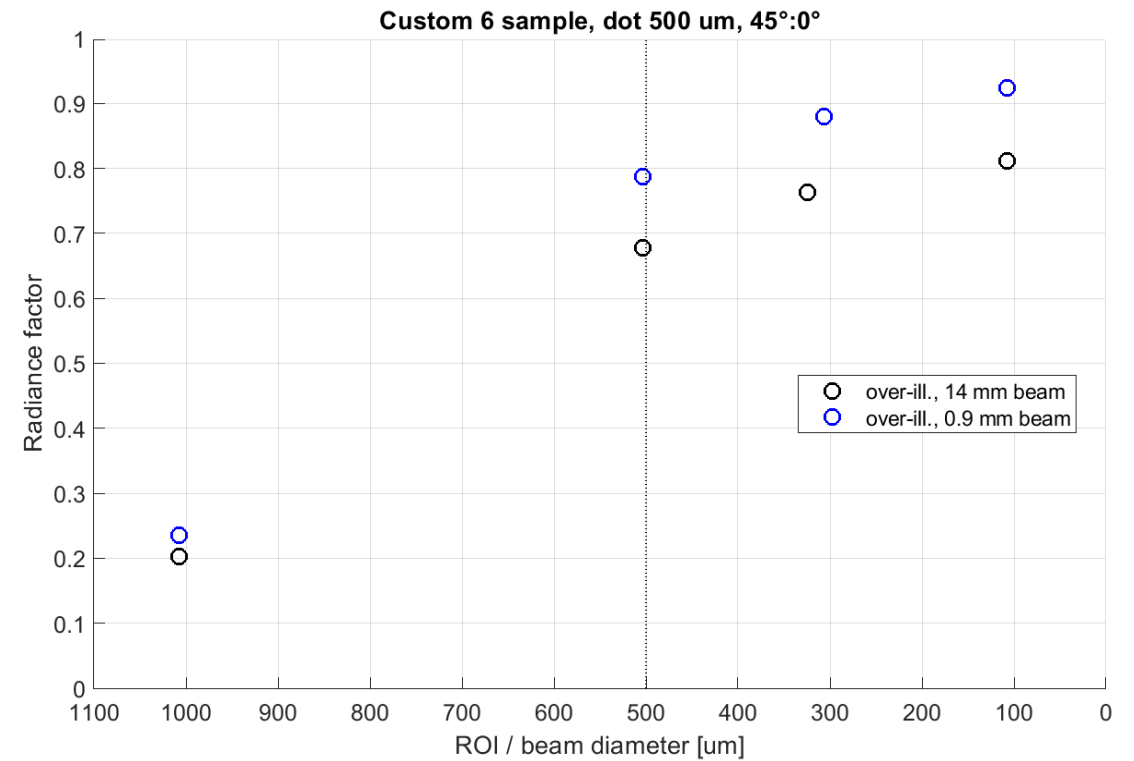
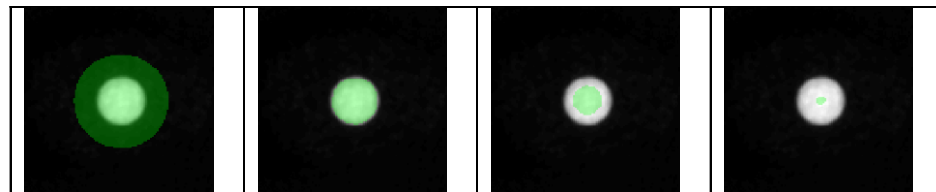
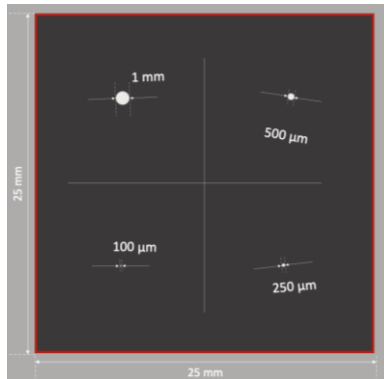
Type c (coarse)
Pattern of markers used in the case the roughness parameter S_a is > 100 nm. This pattern frames a quadratic field having an edge length of 5.6 mm according to $7 \times \lambda_c$ with $\lambda_c = 0.8$ mm.



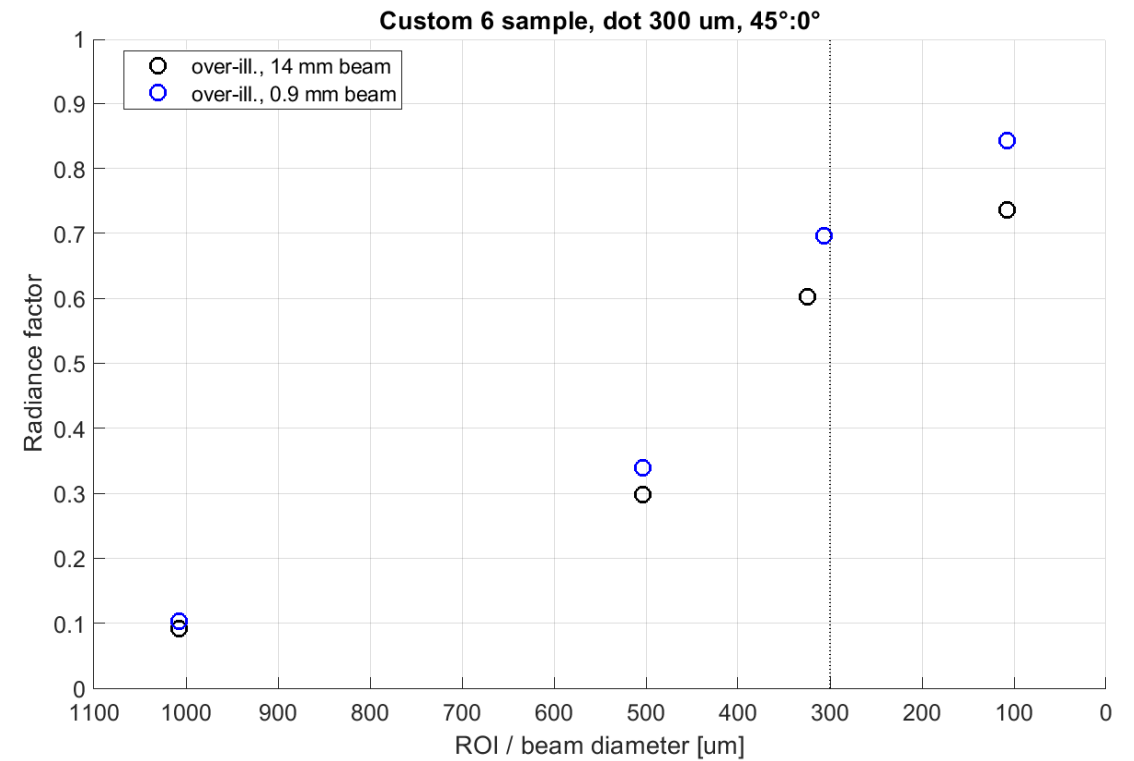
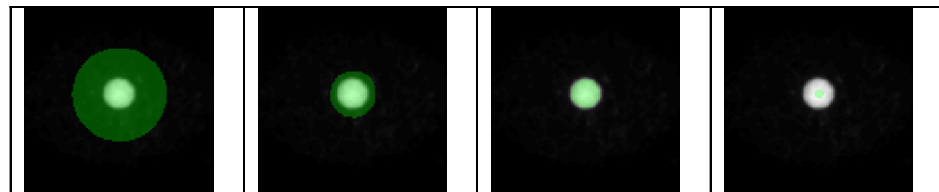
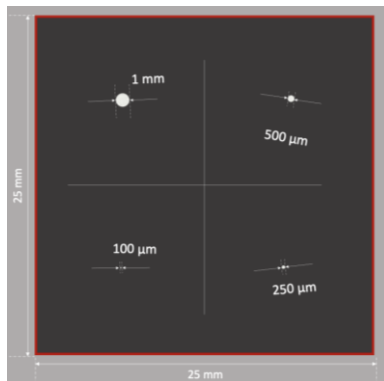
Custom 6 – dot 1000 μm



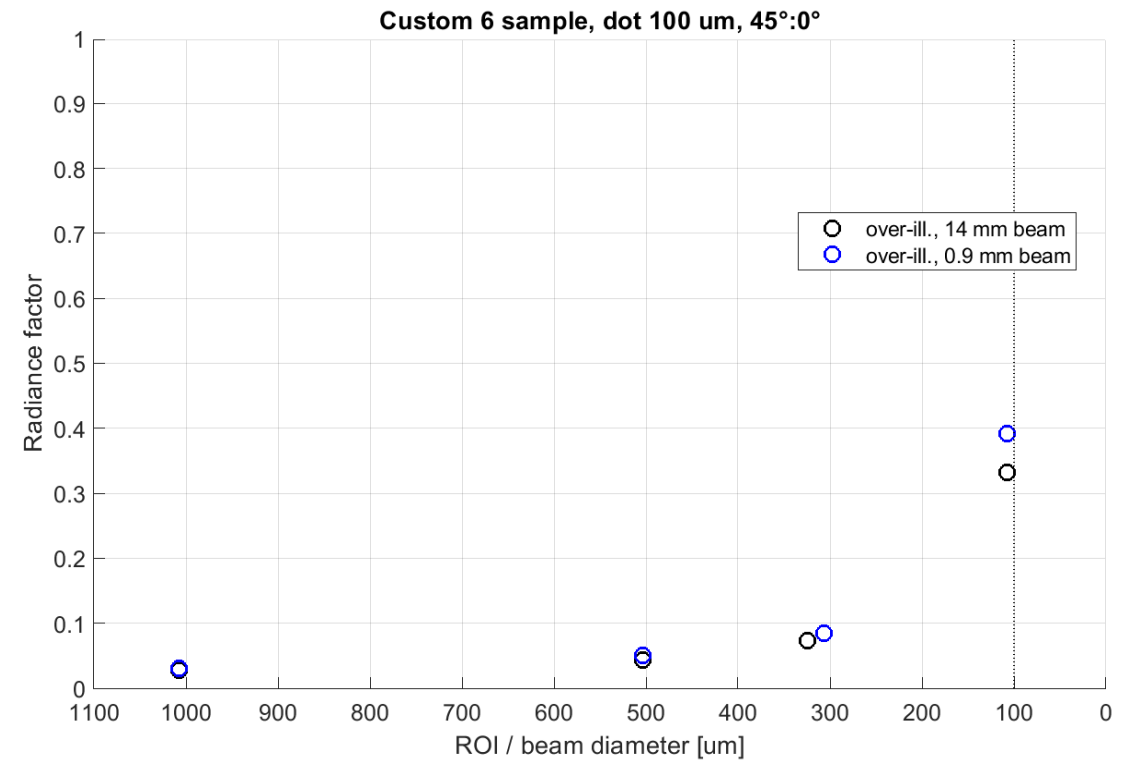
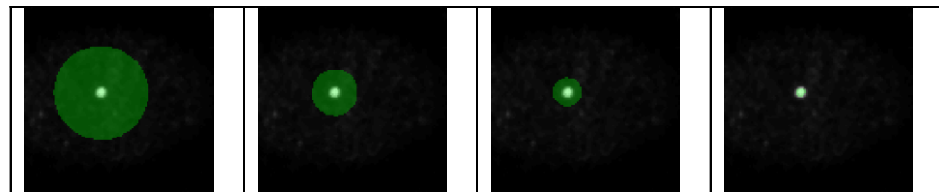
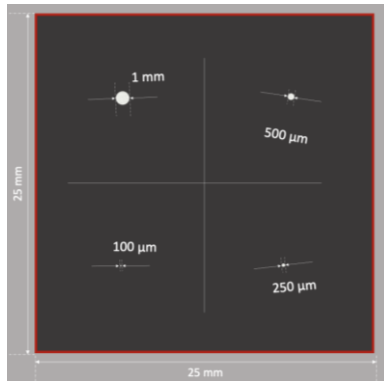
Custom 6 – dot 500 μm



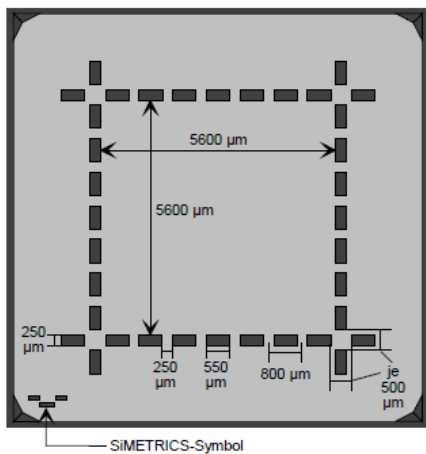
Custom 6 – dot 300 μm



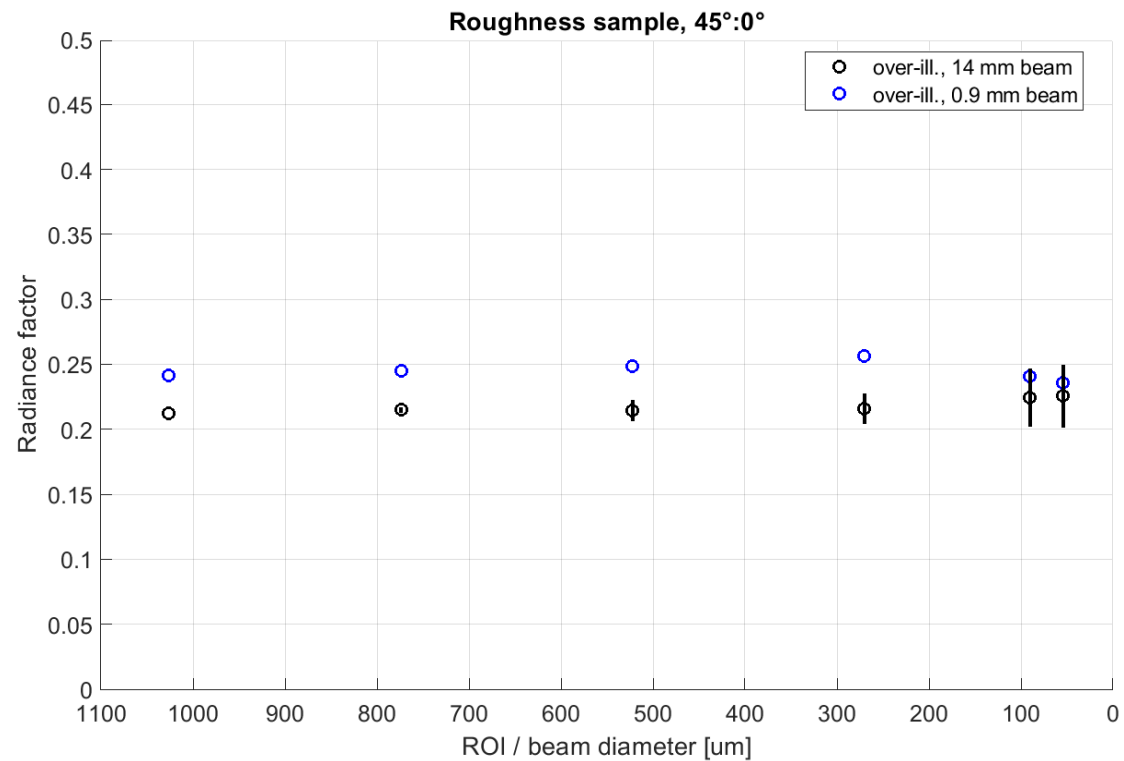
Custom 6 – dot 100 μm



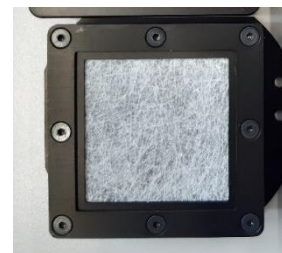
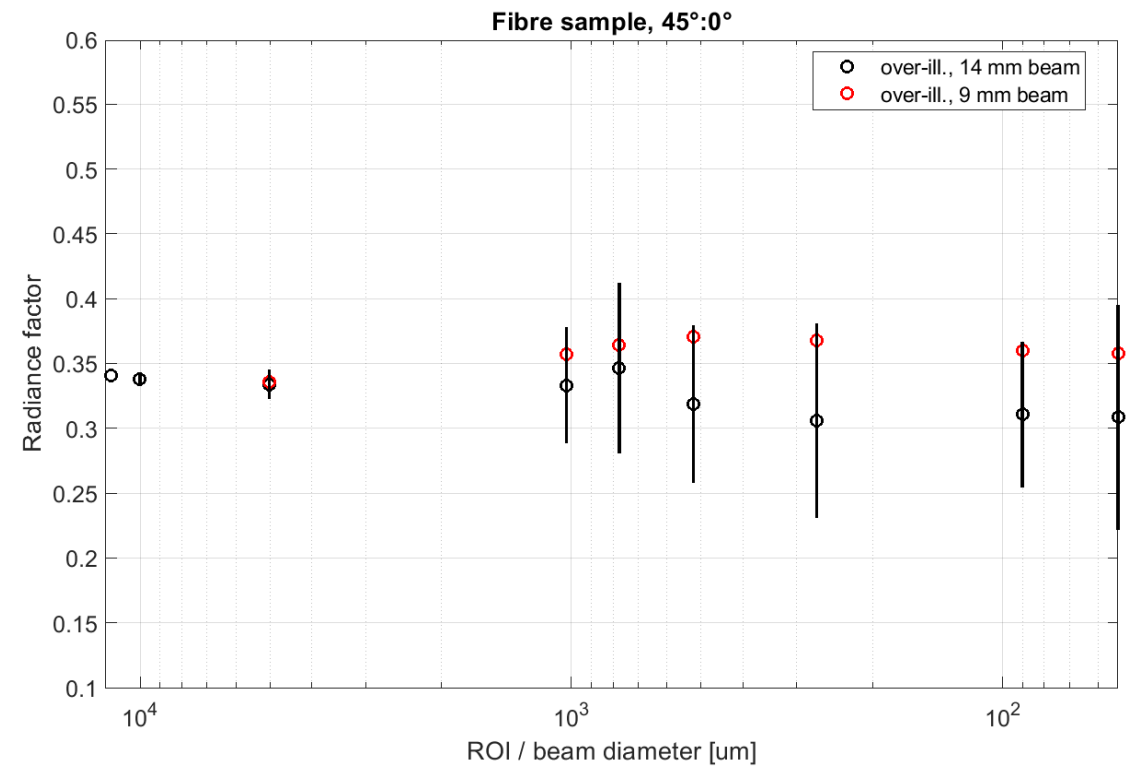
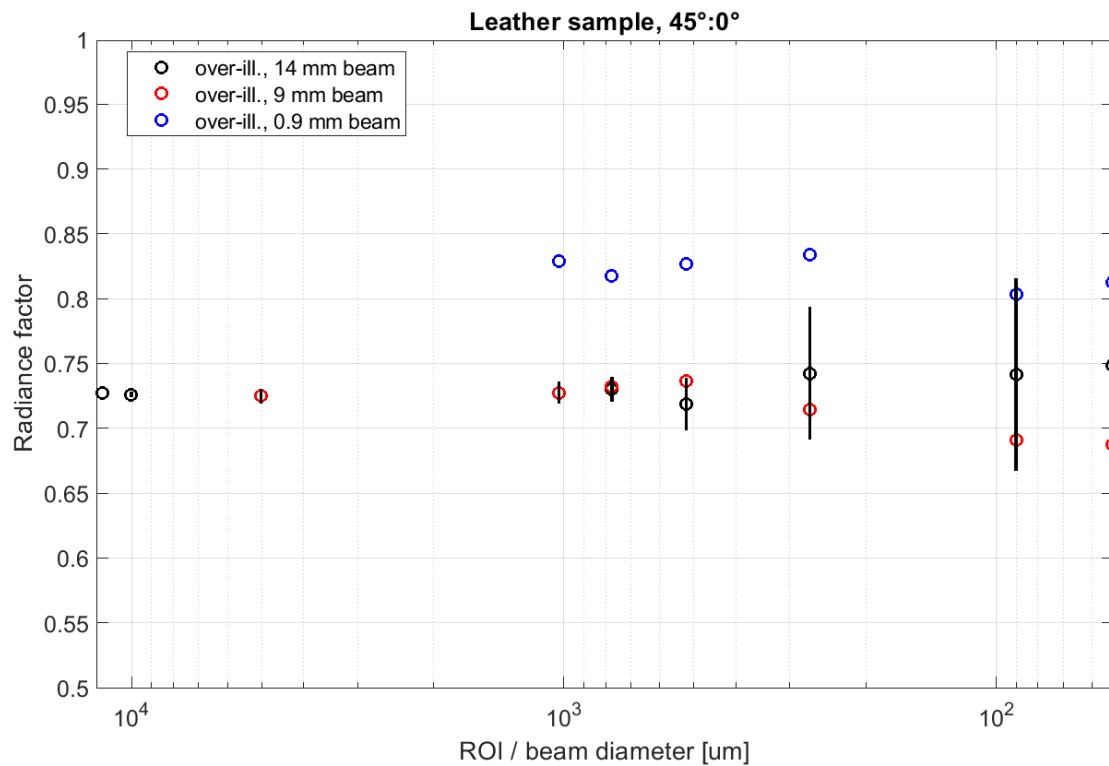
Roughness sample



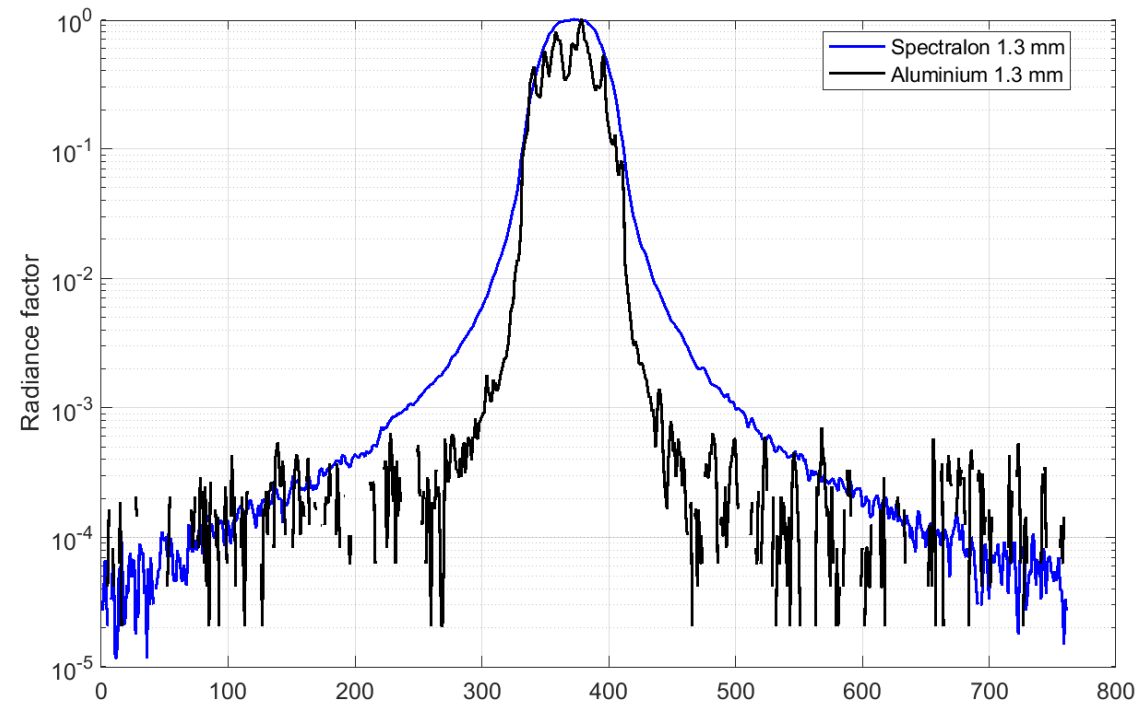
Type c (coarse)
 Pattern of markers used in the case the roughness parameter S_a is > 100 nm. This pattern frames a quadratic field having an edge length of 5.6 mm according to $7 \times \lambda_c$ with $\lambda_c = 0.8$ mm.



Leather and Fibre sample

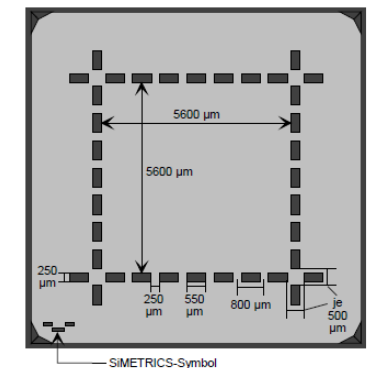
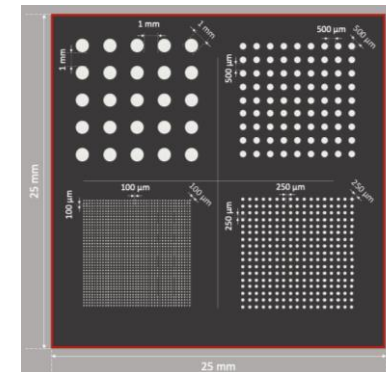
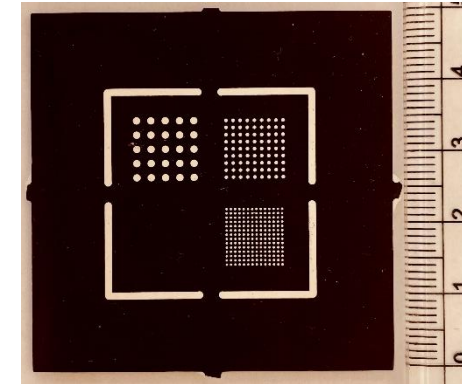


Spectralon's translucency

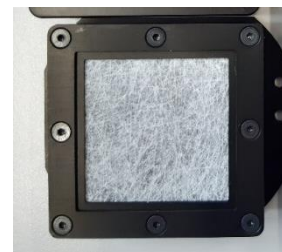
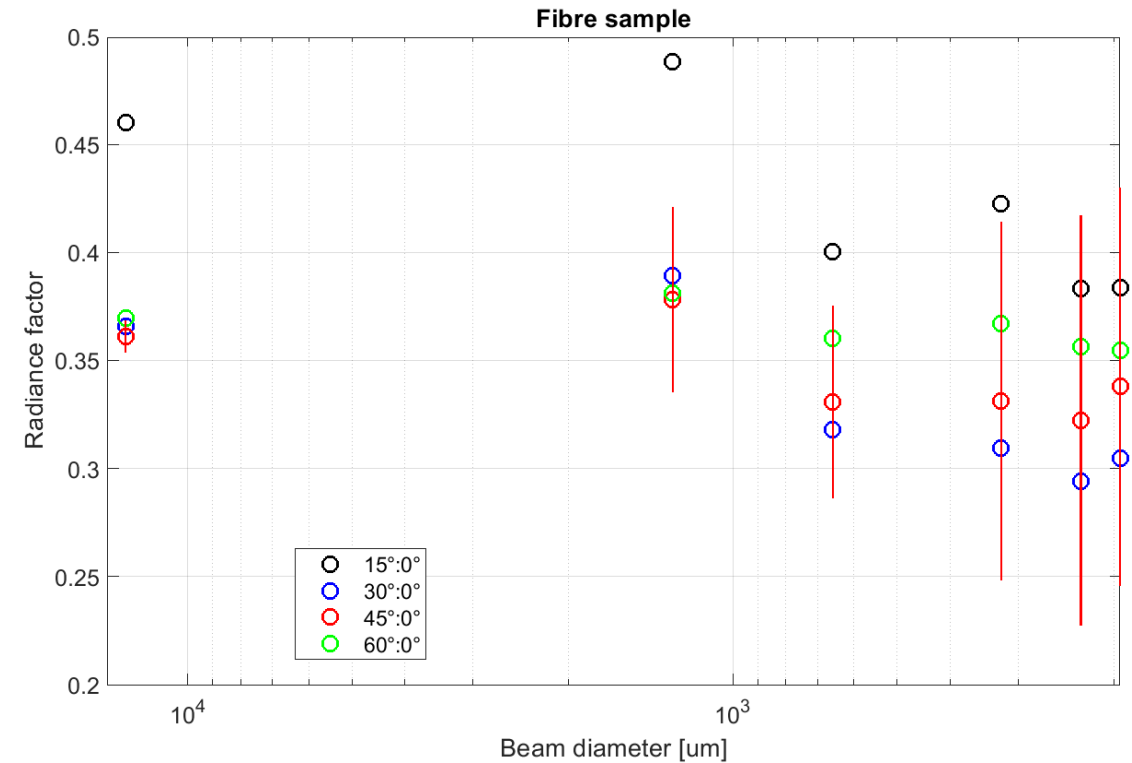
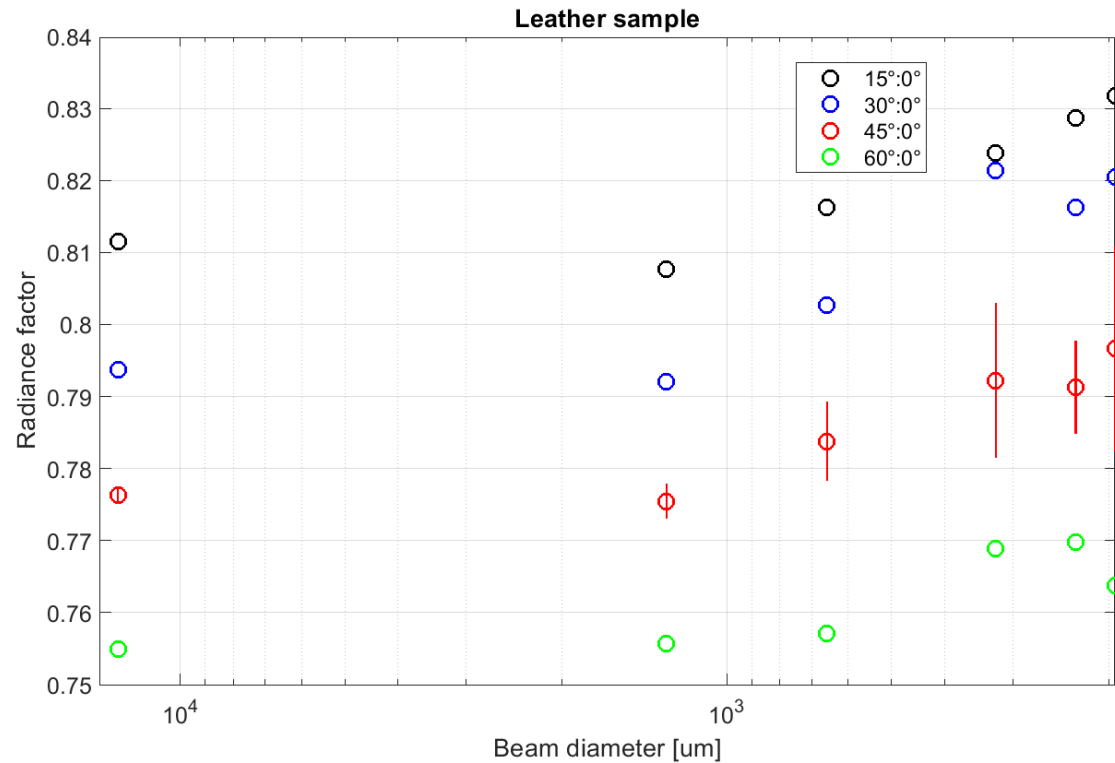


Multi-scale traceability

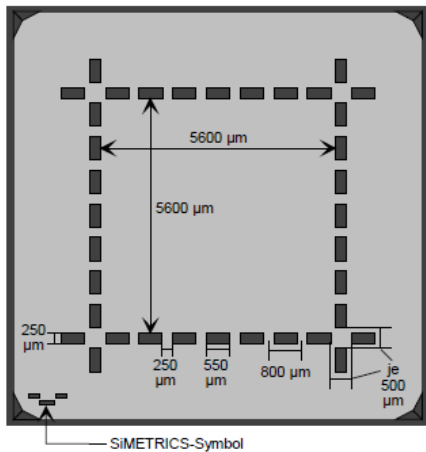
Task aim	provide multi-scale traceability of BRDF measurements, from microscopic size surfaces (μm^2) to regular size surfaces (cm^2).
Measurement area	The samples should be illuminated with a specified beam diameter, while the reported BRDF should be the average BRDF on the irradiated area. Beam diameters: <ul style="list-style-type: none"> • 20 mm • 10 mm • 1 mm • 0.5 mm • Smallest possible
Measurement geometries	15°:0° 30°:0° 45°:0° 60°:0°
Samples	red fake leather fiber sheet thread samples custom sample roughness sample



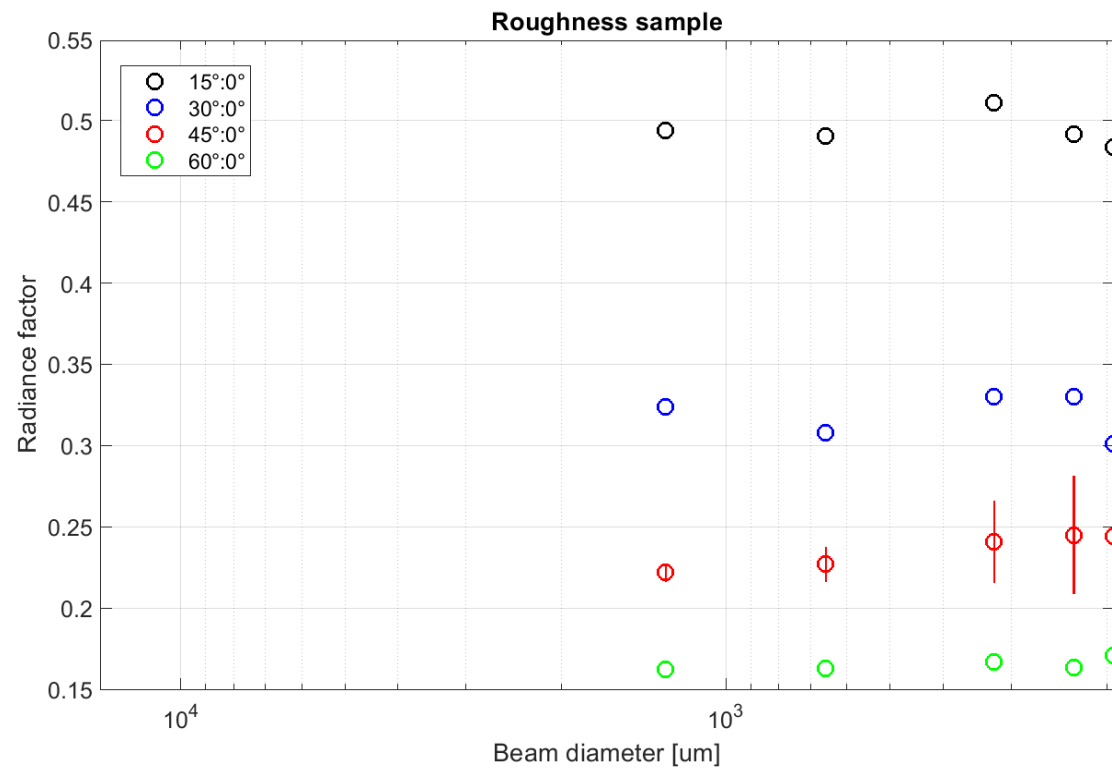
Leather and Fibre sample



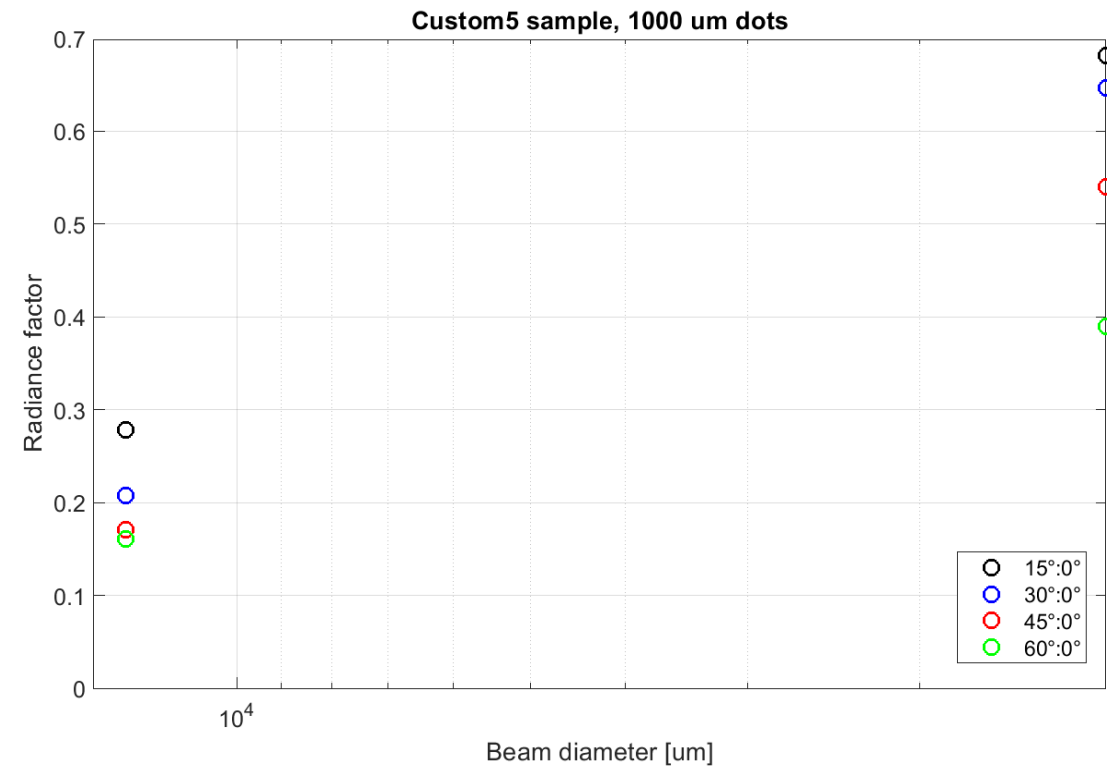
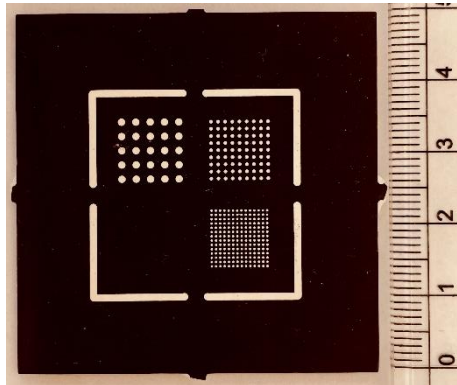
Roughness sample



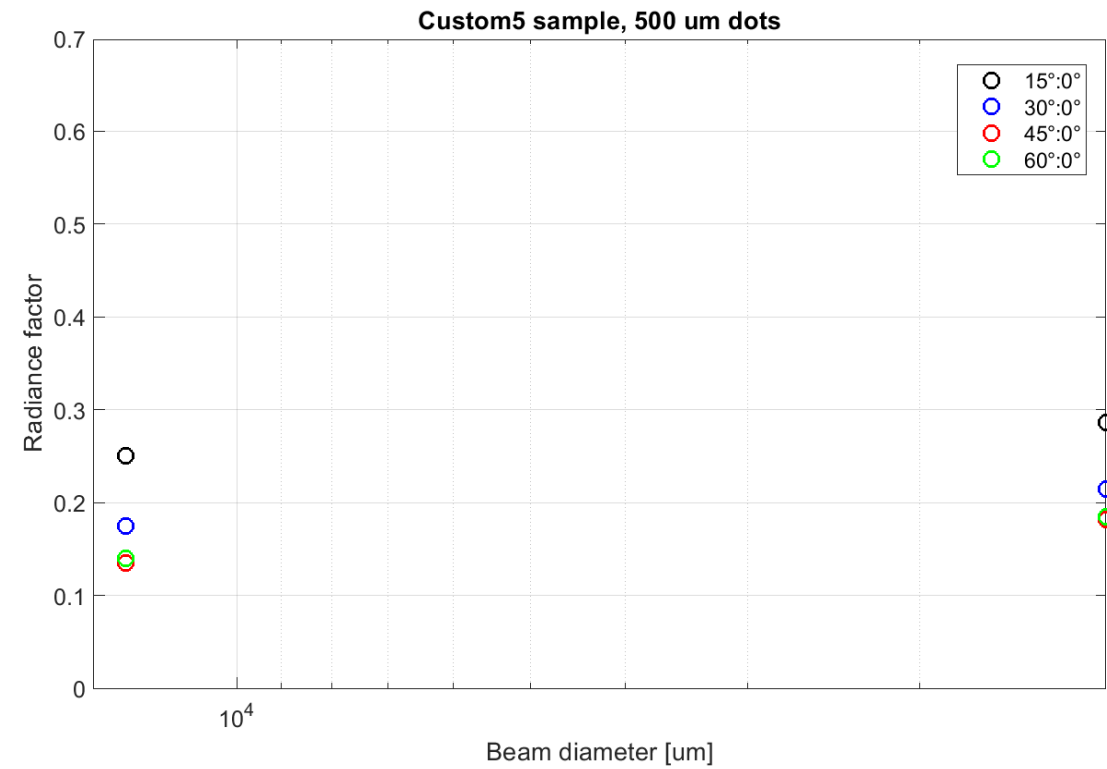
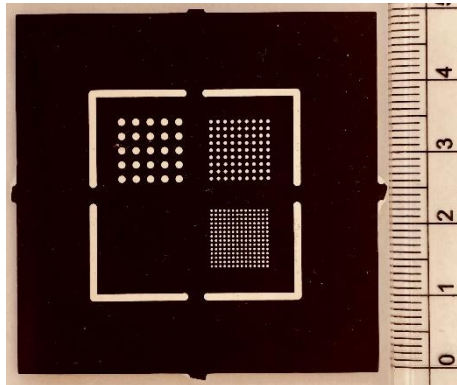
Type c (coarse)
 Pattern of markers used in the case the roughness parameter S_a is > 100 nm. This pattern frames a quadratic field having an edge length of 5.6 mm according to $7 \times \lambda_c$ with $\lambda_c = 0.8$ mm.



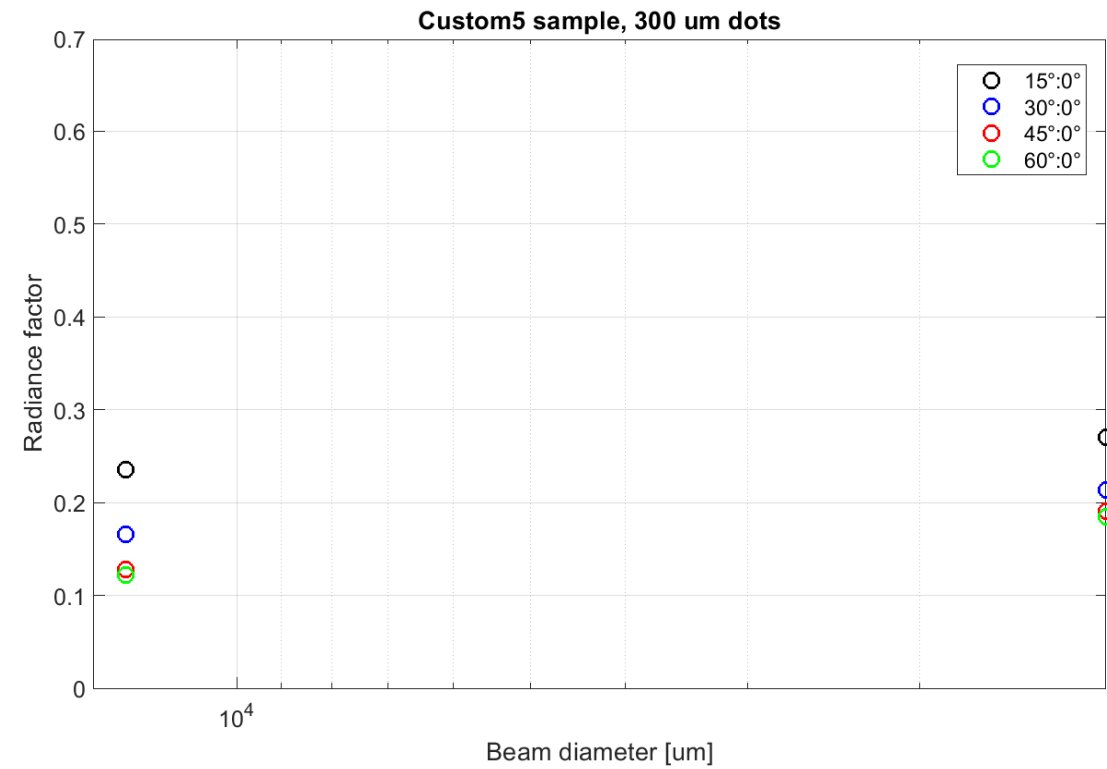
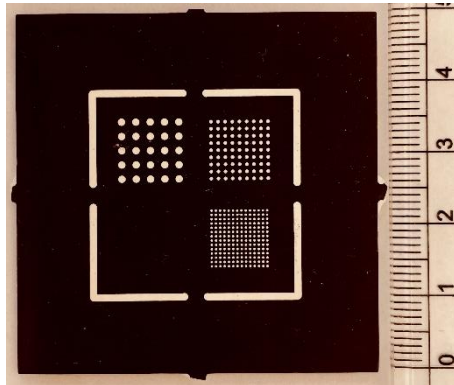
Custom 5 – 1000 μm dots



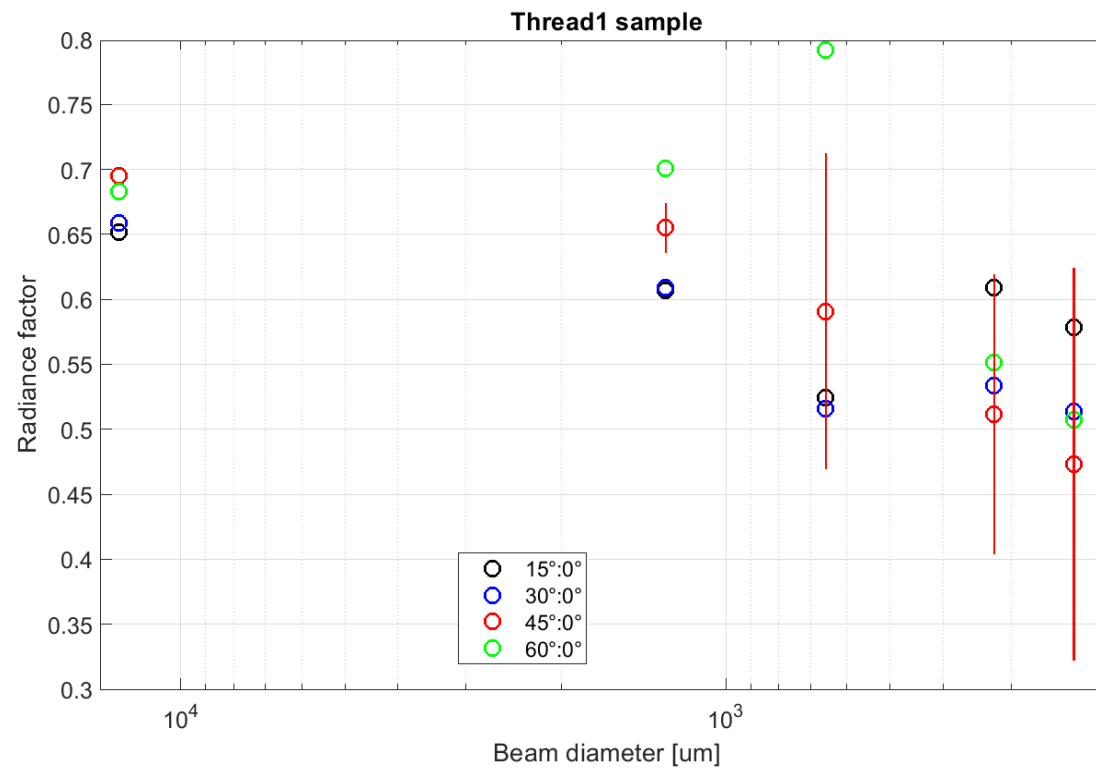
Custom 5 – 500 μm dots



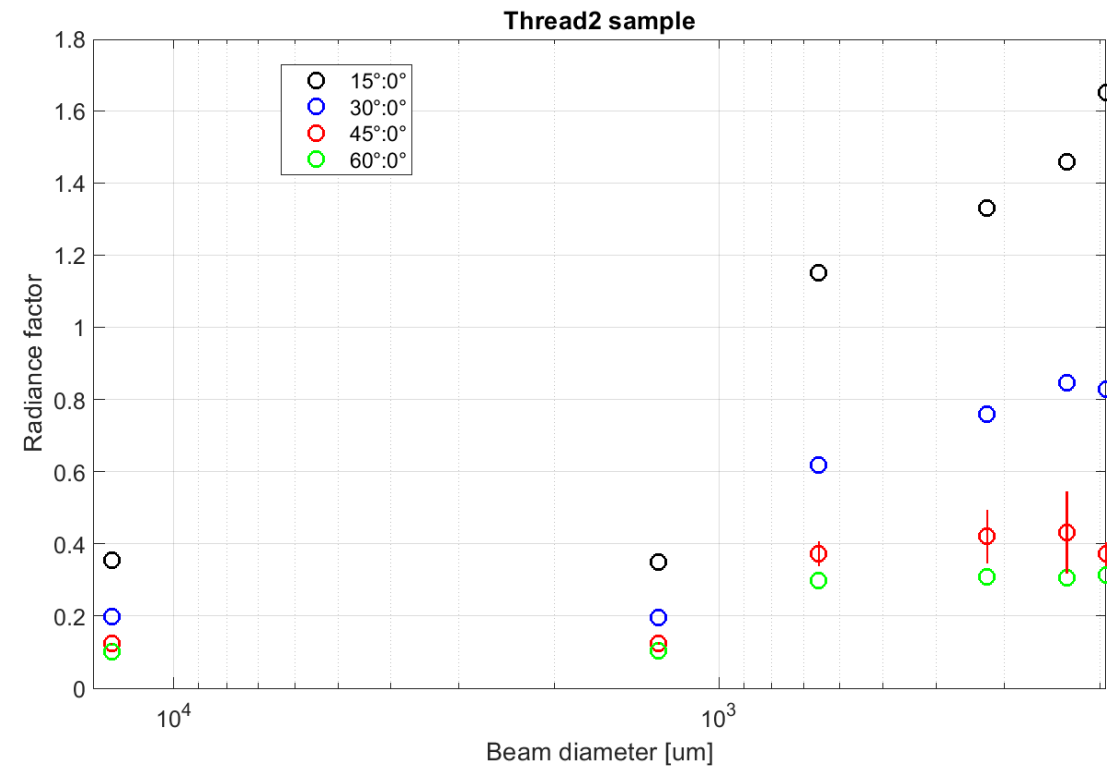
Custom 5 – 300 μm dots



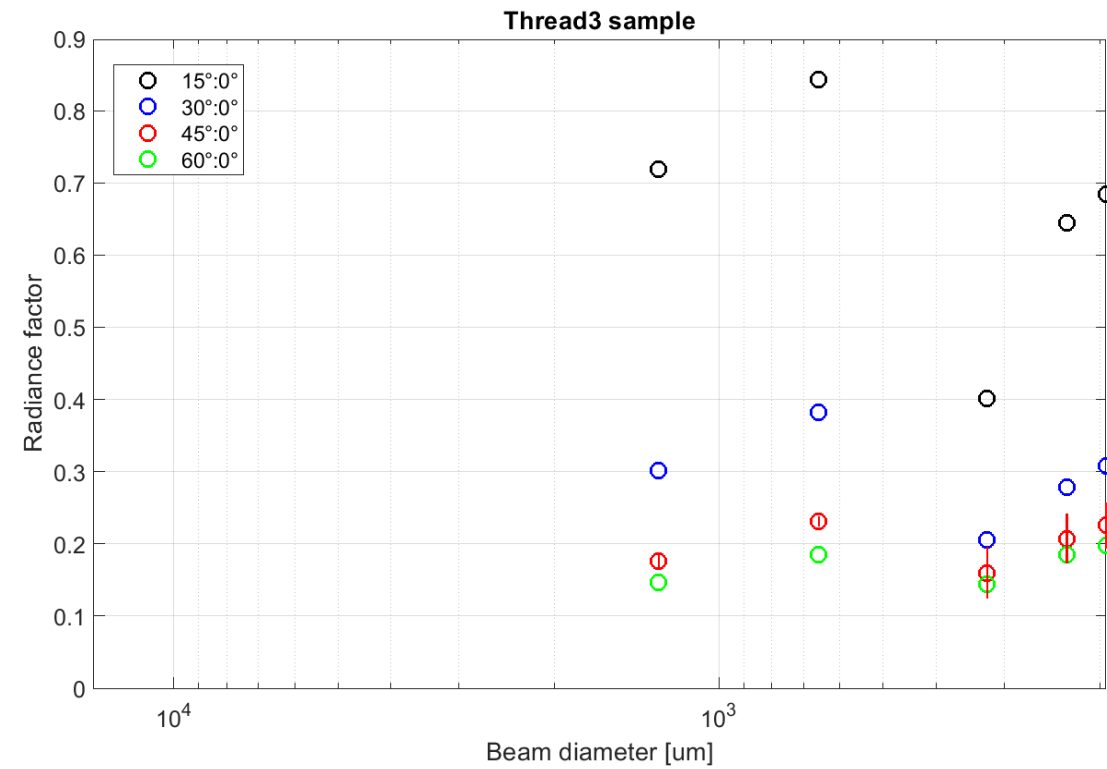
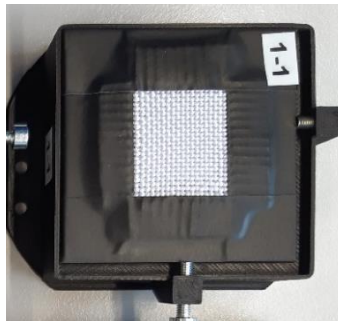
Thread 1 sample



Thread 2 sample



Thread 3 sample





Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Institute of Metrology METAS



Thank you for your attention