

Spectral Library of Impervious Urban Materials

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Introduction

The London Urban Micromet Data Archive (LUMA) Spectral Library of impervious Urban Materials (SLUM) is organised by material class (**Table 1**). The methodologies used during the measurements and data processing are described by Kotthaus (2013) and Kotthaus et al. (2014). Here, information on all 74 material samples are presented in form of standardised data sheets (introduced on Page 2).

For terms and conditions on the usage of all data and information provided, please refer to

<http://LondonClimate.info/LUMA/Conditions.html>

Table 1: Content of the LUMA library of impervious urban materials.

Class	Class-ID	Page
Quartzite	X	4
Stone	S	7
Granite	G	12
Asphalt	A	17
Cement/Concrete	C	27
Brick	B	34
Roofing shingle	L	48
Roofing tile	R	52
Metal	M	64
PVC	V	72

References

Kotthaus, S, 2013: Implications of the dense city centre to surface-atmosphere exchanges, PhD Thesis, King's College London, pp. 297.

Kotthaus, S, TEL Smith, MJ Wooster, and CSB Grimmond, 2014: Derivation of an urban materials spectral library through emittance and reflectance spectroscopy, *in review*.

MATERIAL CLASS_{SAMPLE-ID}

For most material samples, a
zoomed
image is shown.

Picture of the sample

Class	
Material	
Colour	
Status	
Dimension [mm]	

VNIR/SWIR reflectance spectra

- Availability provided, all samples collected in the field and in the laboratory (lab) are shown together with the average across the respective samples. The latter depicts the final result.
- Spectra measured in the field do not provide data across the atmospheric absorption windows. Hence, laboratory spectra are used in the analysis.

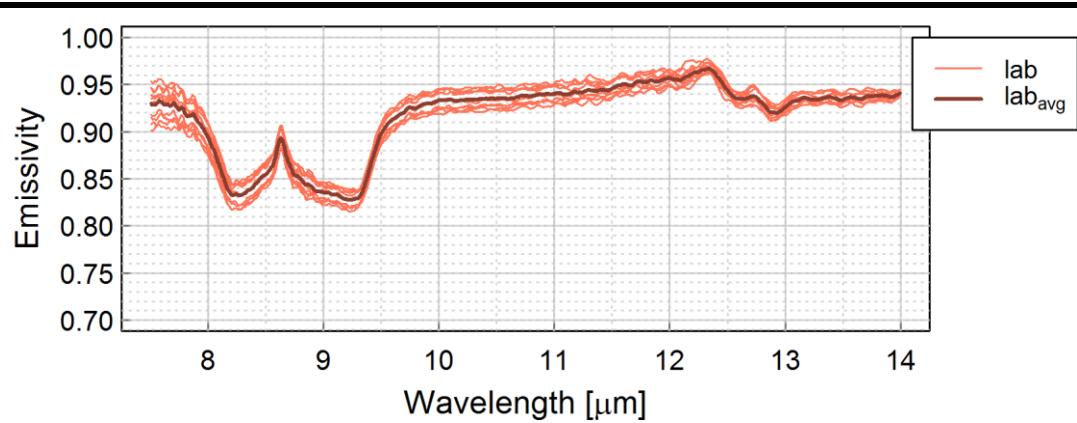
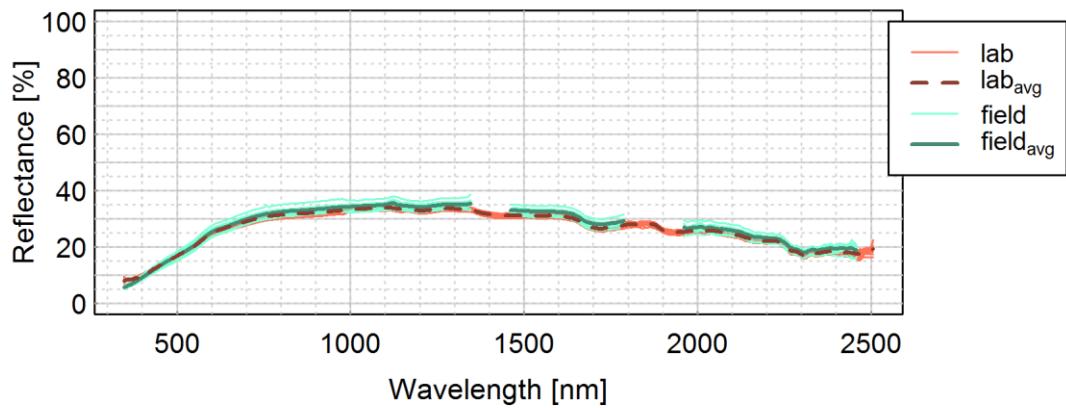
TIR emissivity spectra

- All samples collected in the laboratory (lab) are shown together with their average. The latter depicts the final result.

QUARTZITE_{x001}



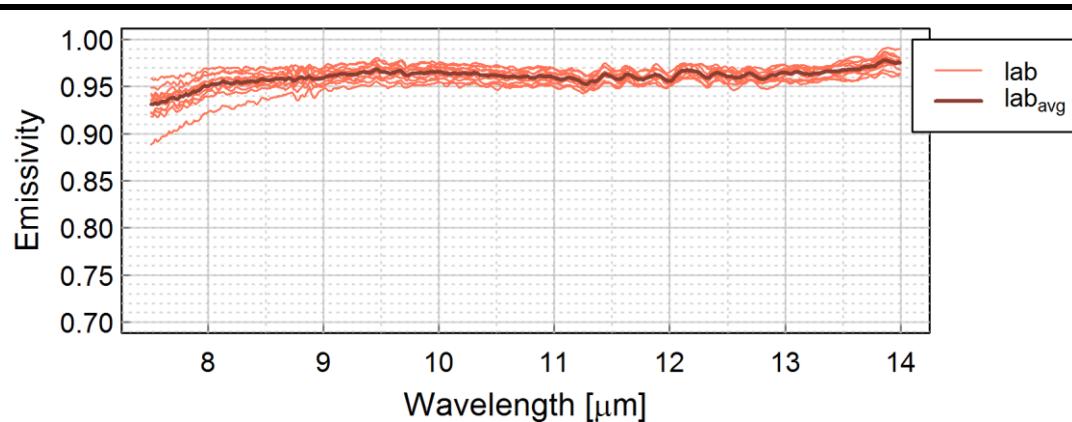
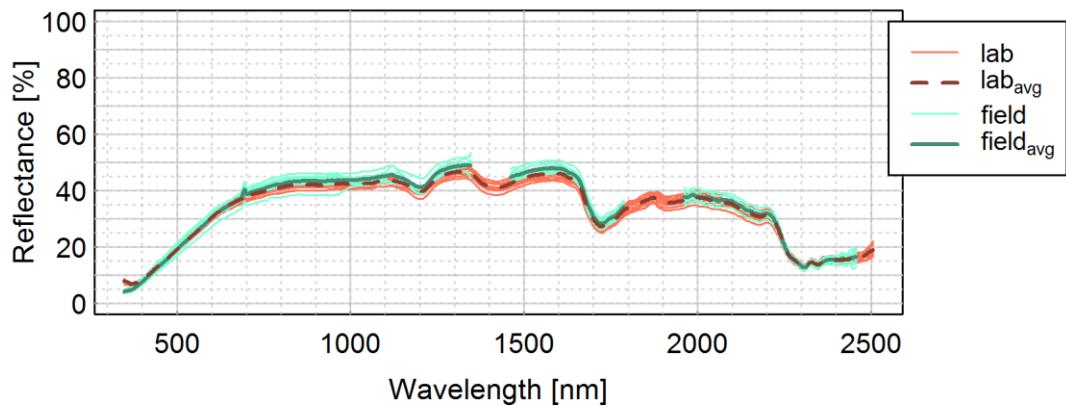
Class	Quartzite conglomerate
Material	Quartzite
Colour	Beige/brown/black/red
Status	New
Dimension [mm]	360 x 4 x 220



QUARTZITE_{x002}



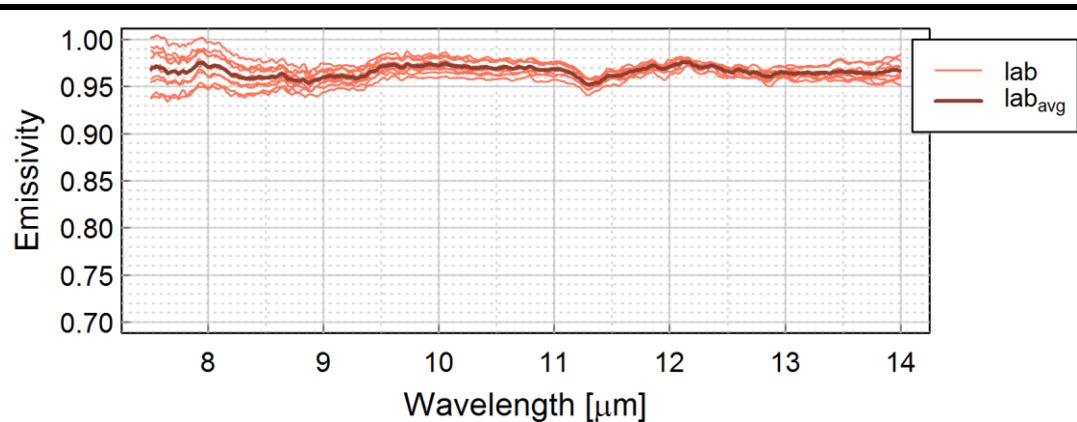
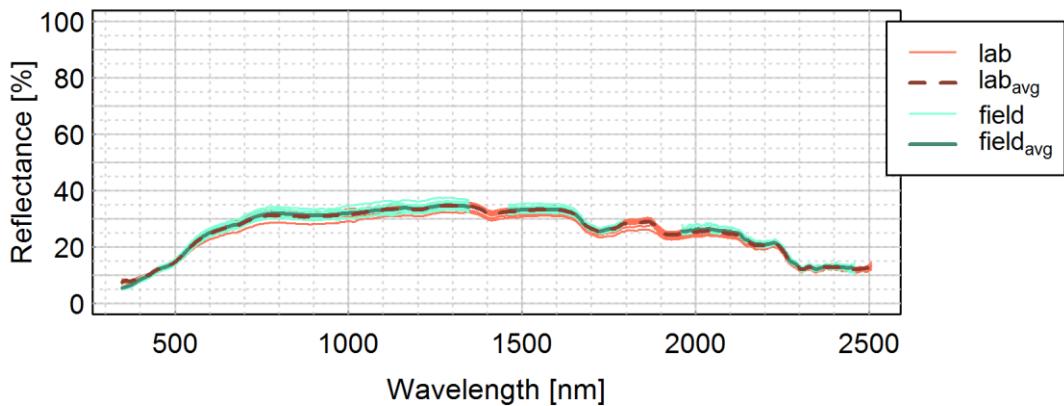
Class	Quartzite conglomerate
Material	Quartzite
Colour	Beige/brown/black
Status	New
Dimension [mm]	360 x 4 x 220



QUARTZITE_{x003}



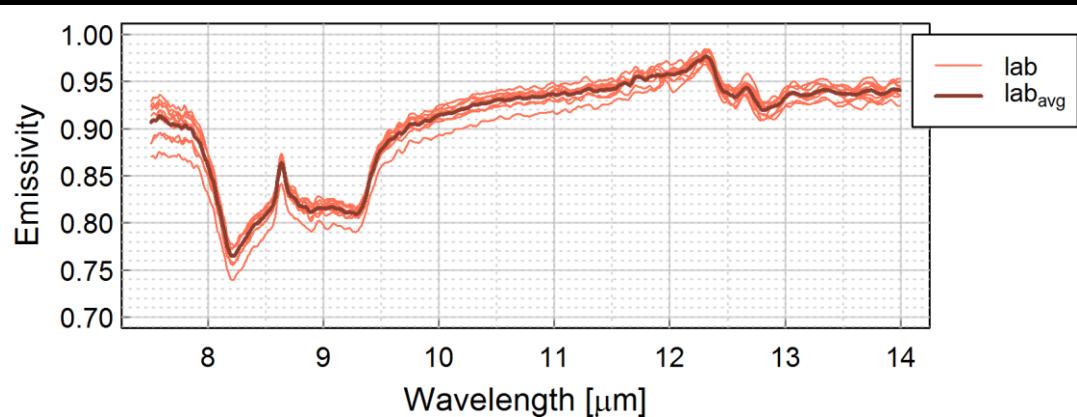
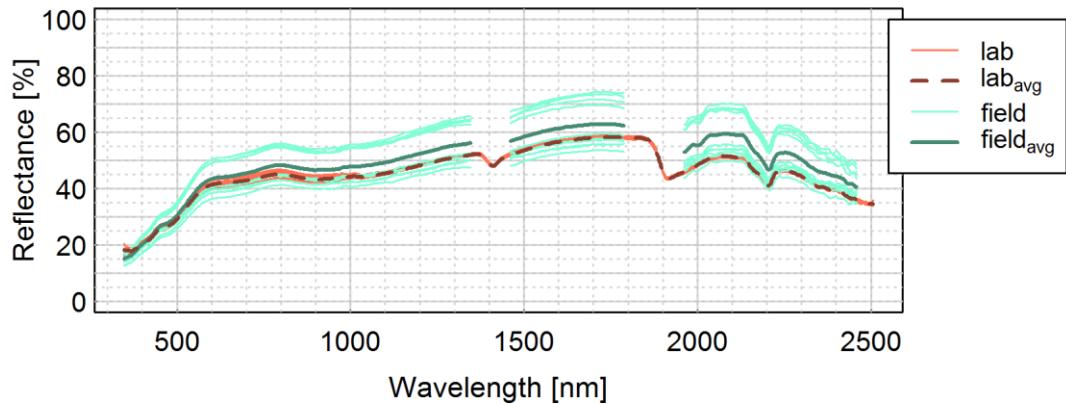
Class	Quartzite conglomerate
Material	Quartzite
Colour	Beige/brown/black/red
Status	New
Dimension [mm]	360 x 4 x 220



STONE_{S001}



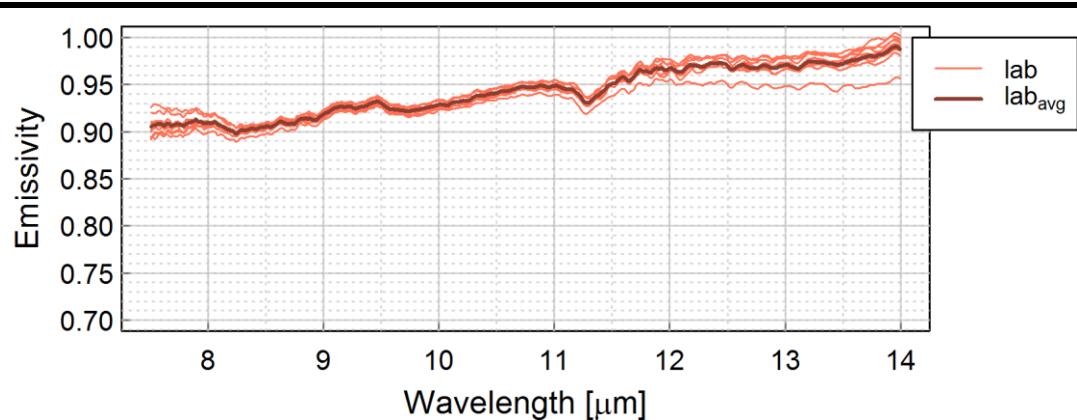
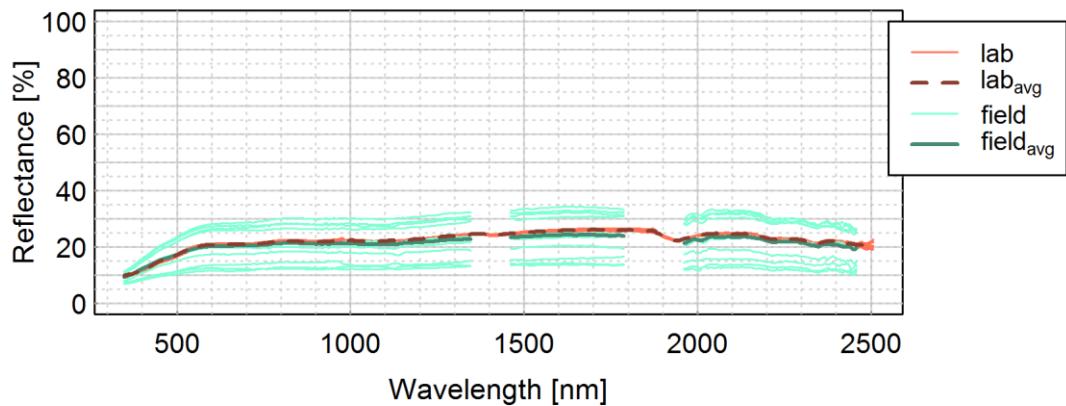
Class	Stone
Material	Sandstone
Colour	Beige
Status	Weathered
Dimension [mm]	215 x 35 x 105



STONE_{S002}



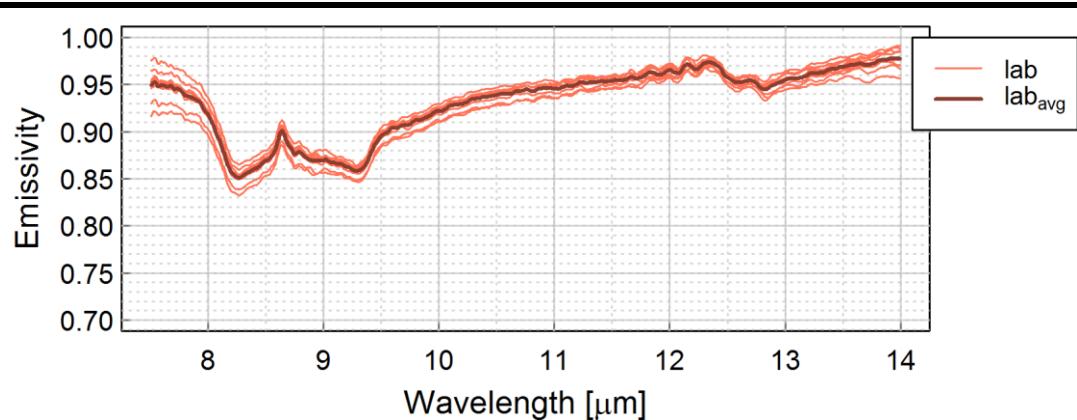
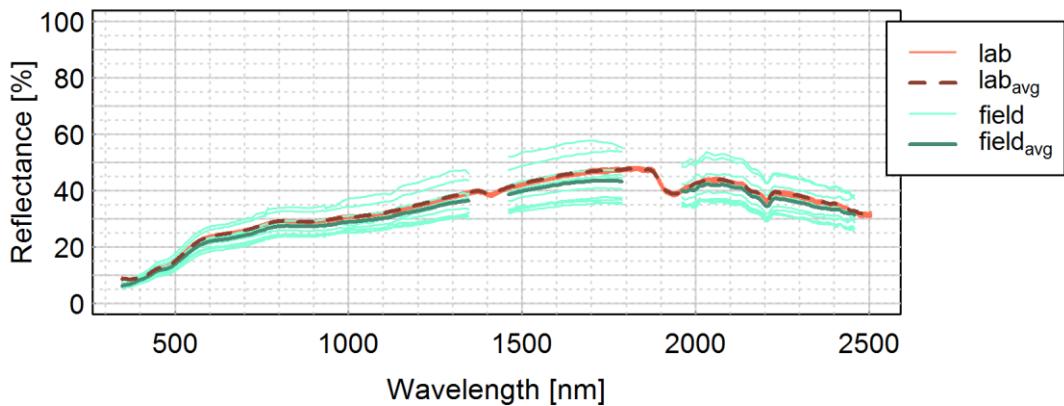
Class	Stone
Material	Carboniferous coral limestone
Colour	Grey
Status	Weathered
Dimension [mm]	210 x 19 x 90



STONE_{S003}



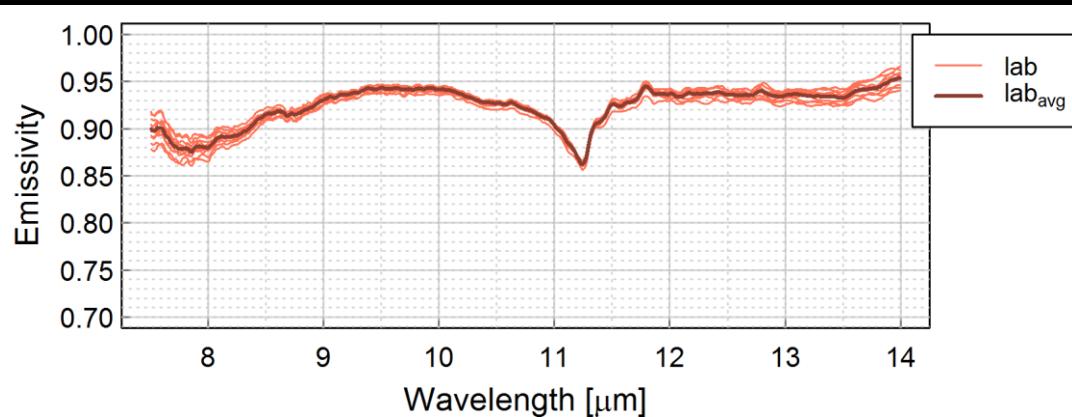
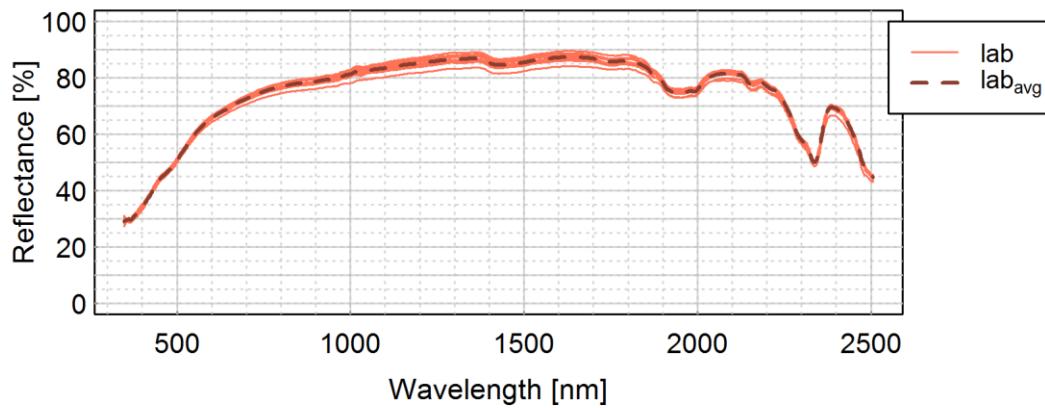
Class	Stone
Material	Sandstone
Colour	Ochre
Status	Weathered
Dimension [mm]	70 x 55 x 25



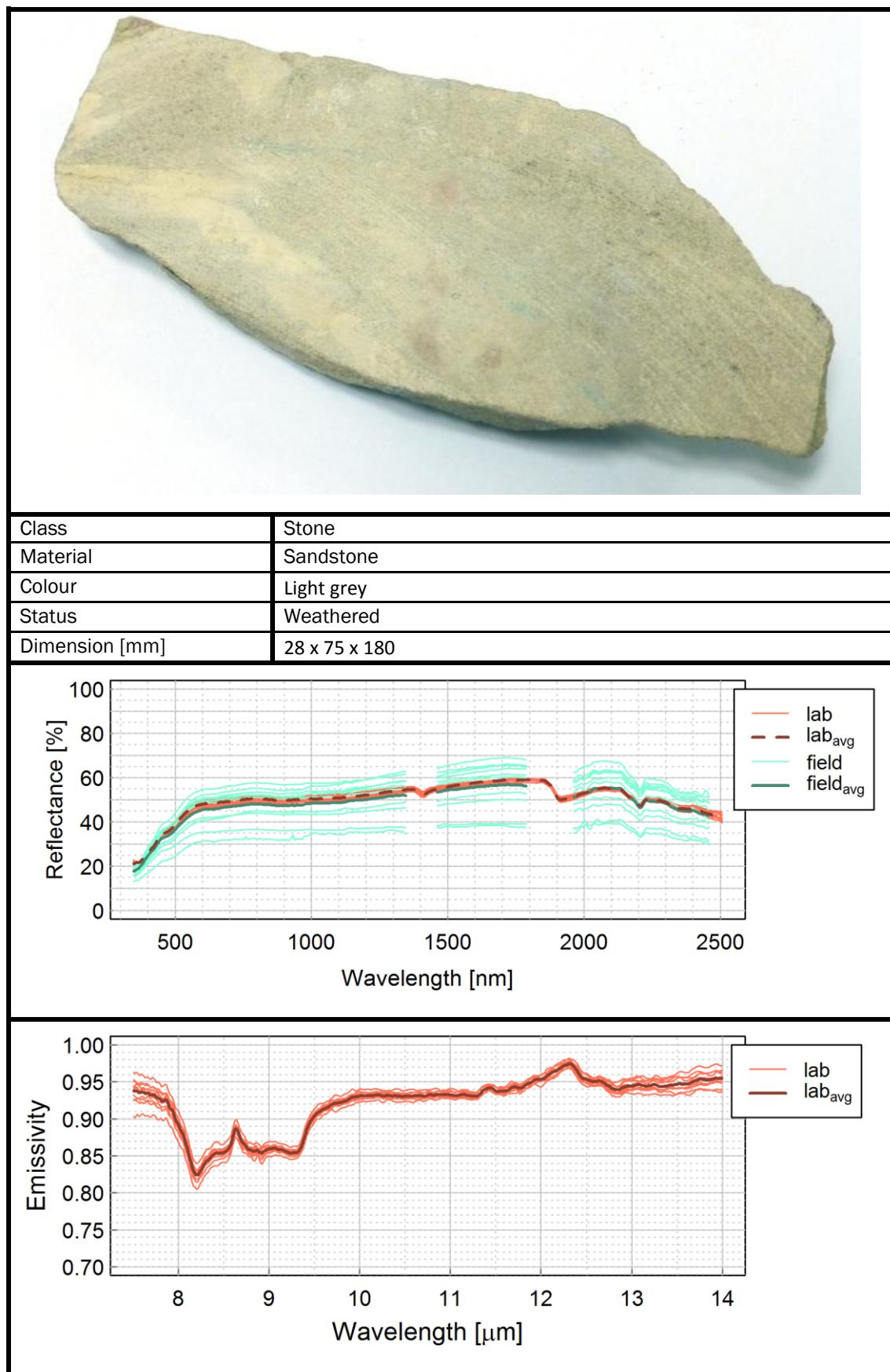
STONE_{S004}



Class	Stone
Material	Limestone
Colour	Beige
Status	Weathered
Dimension [mm]	70 x 55 x 25



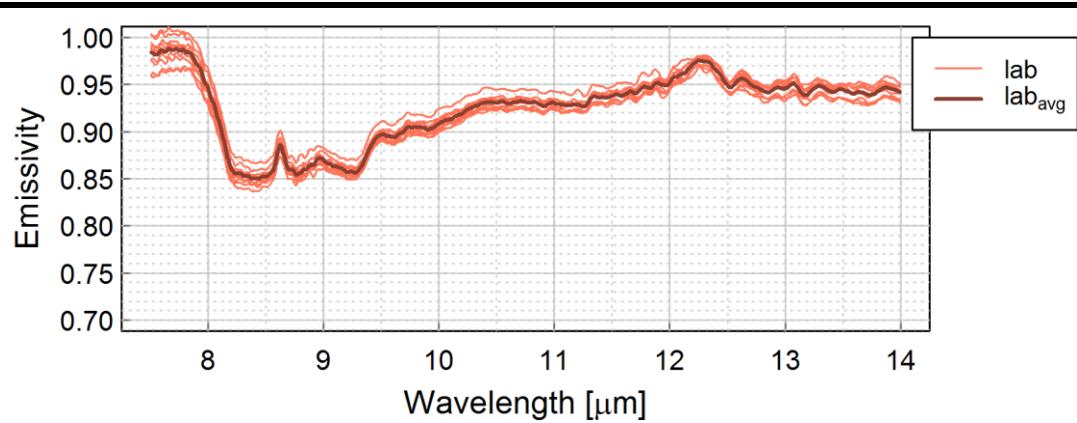
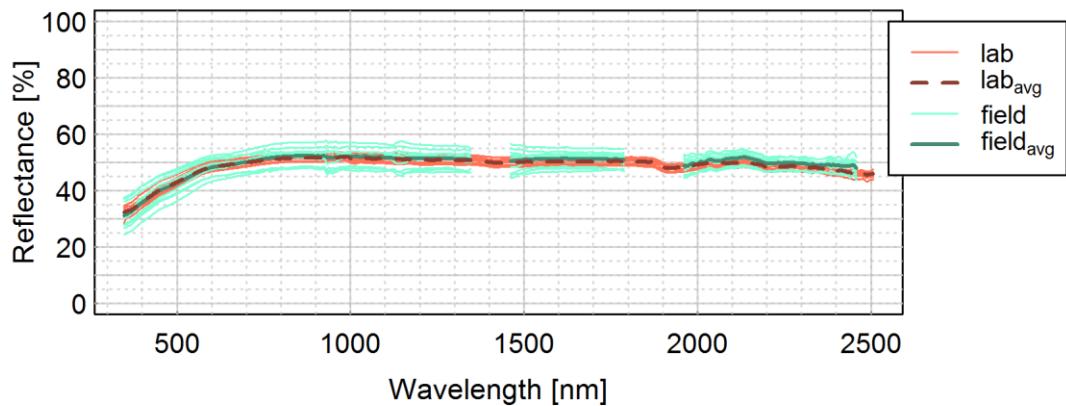
STONE_{S005}



GRANITE_{G001}



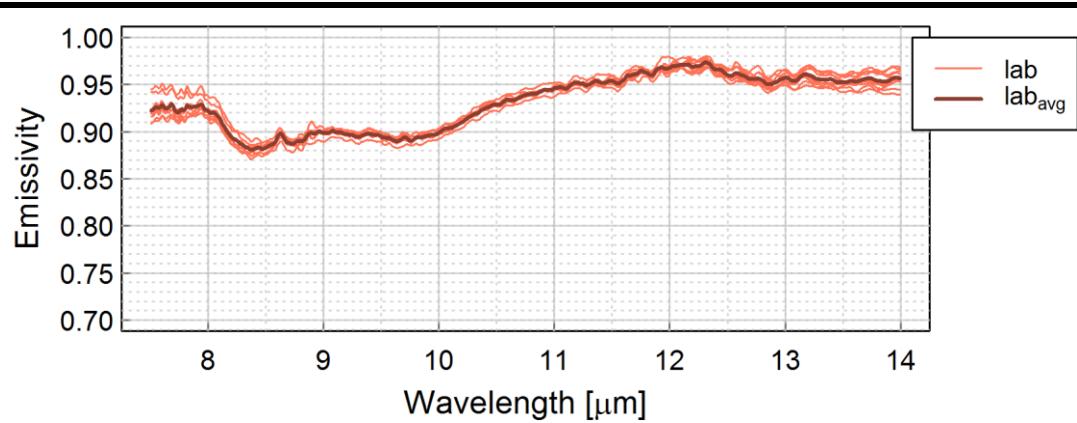
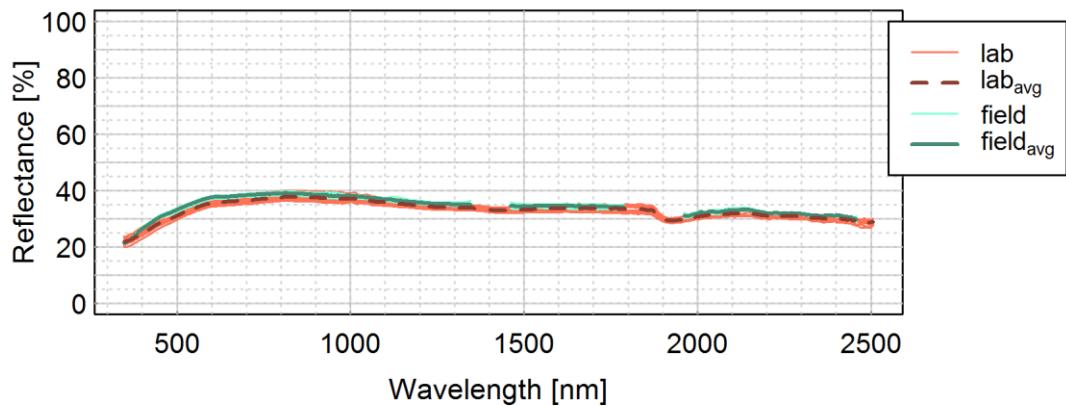
Class	Granite
Material	Granite
Colour	White/black
Status	New, rough
Dimension [mm]	142 x 56 x 52



GRANITE_{G002}



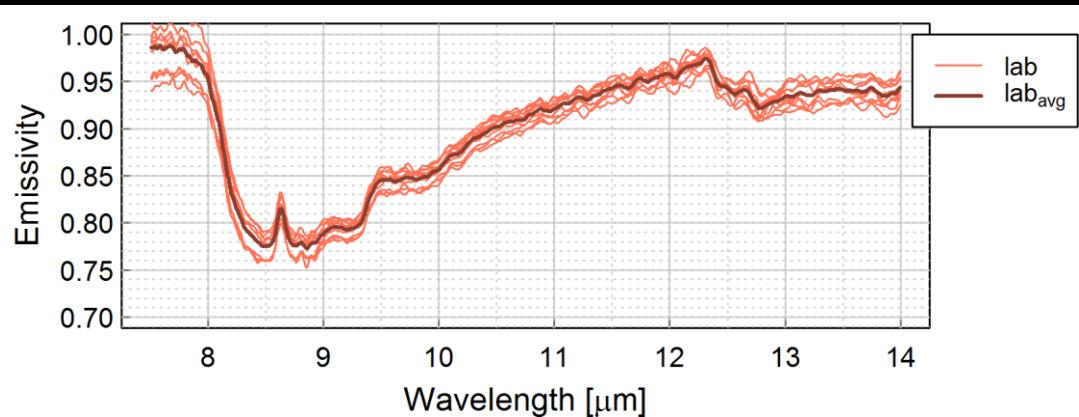
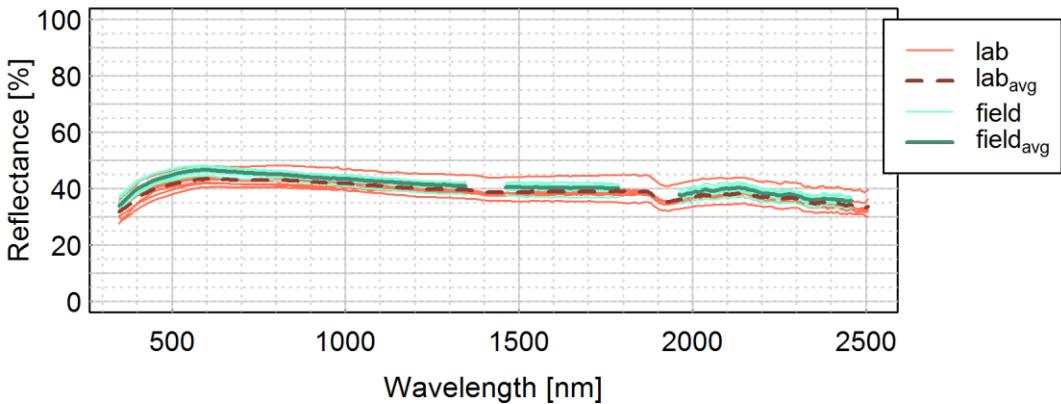
Class	Granite
Material	Granite with cement
Colour	White/red
Status	Weathered
Dimension [mm]	101 x 95 x 88



GRANITE_{G003}



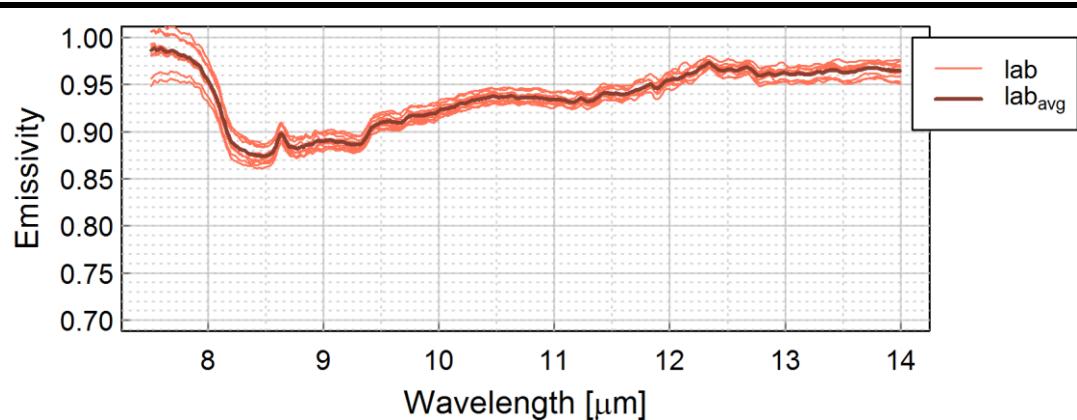
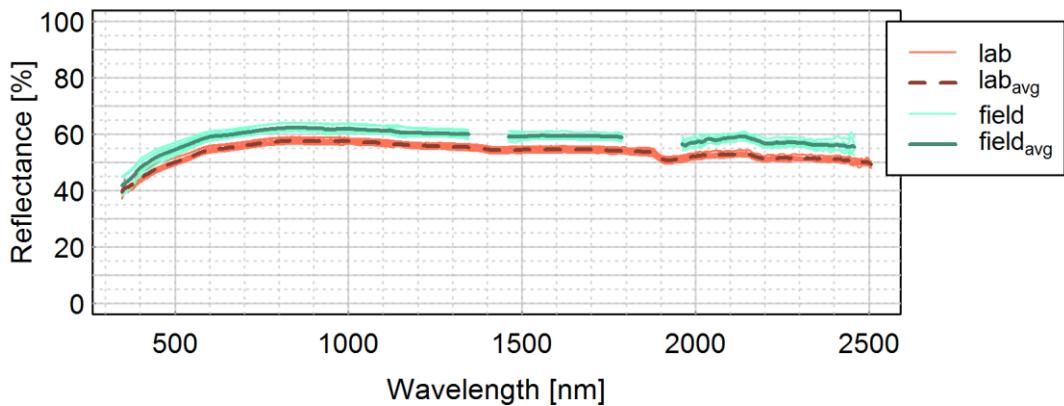
Class	Granite
Material	Granite with cement
Colour	White/black
Status	Weathered
Dimension [mm]	215 x 57 x 105



GRANITE_{G004}



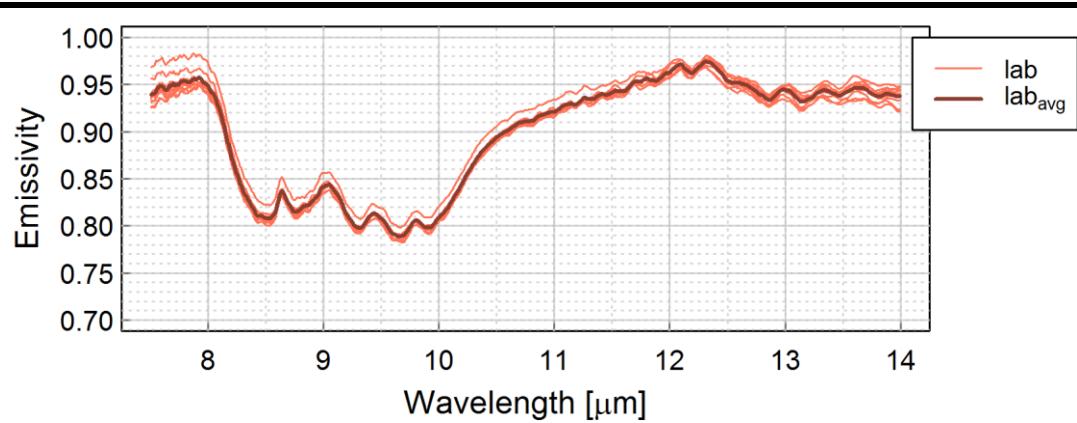
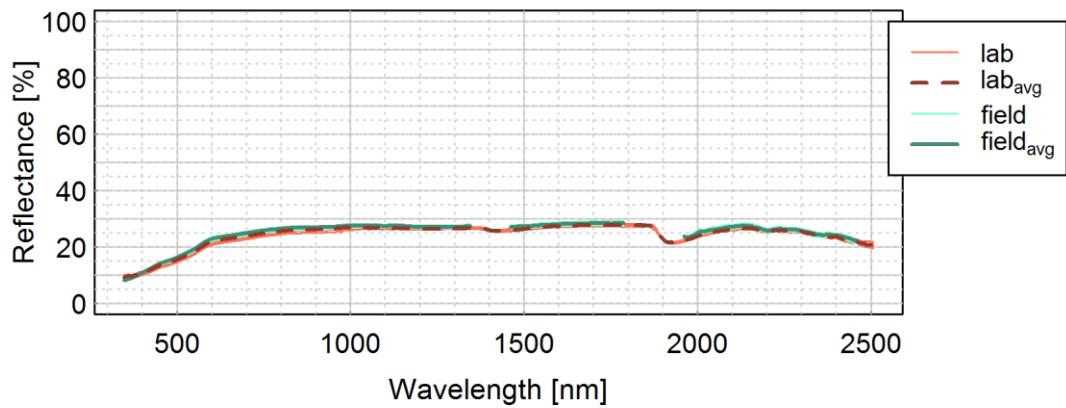
Class	Granite
Material	Granite
Colour	White/red/black
Status	New, dusty
Dimension [mm]	233 x 60 x 78



GRANITE_{G005}



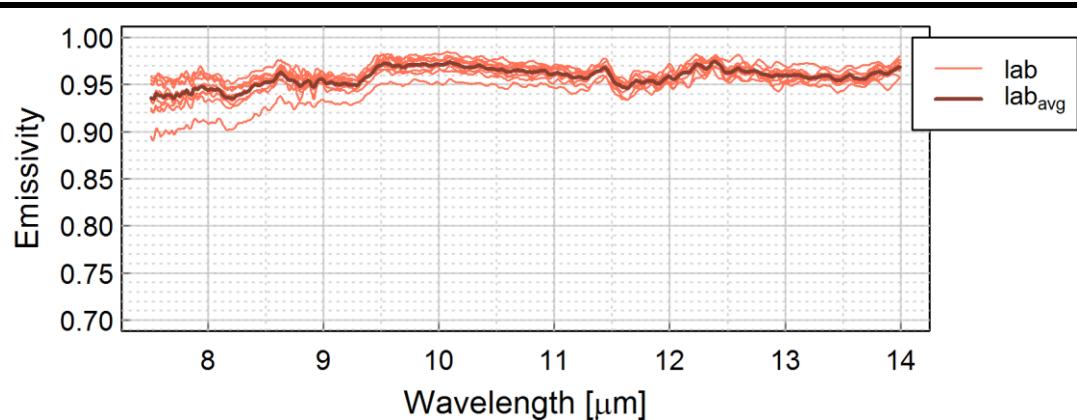
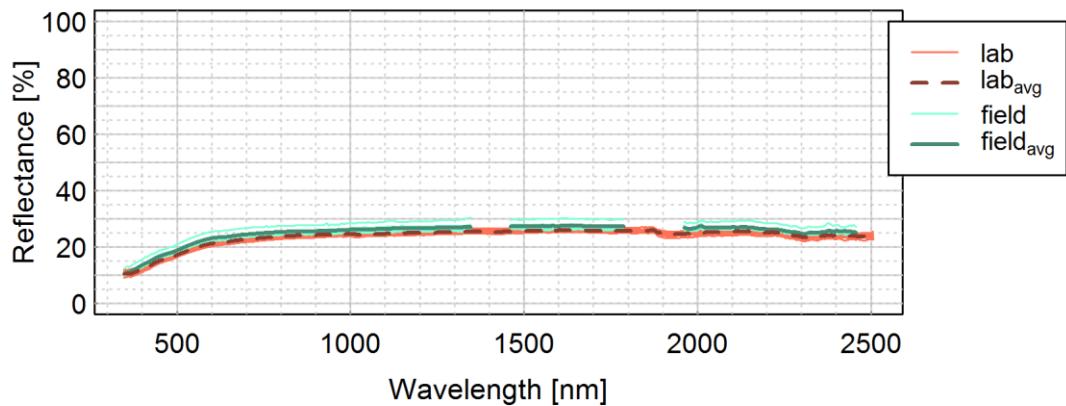
Class	Granite
Material	Granite
Colour	Red/black
Status	New
Dimension [mm]	125 x 50 x 111



ASPHALT A001



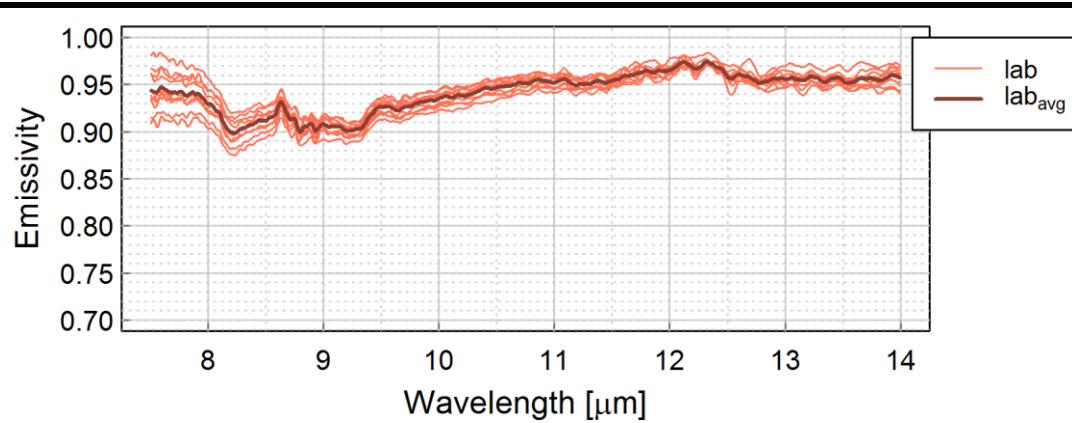
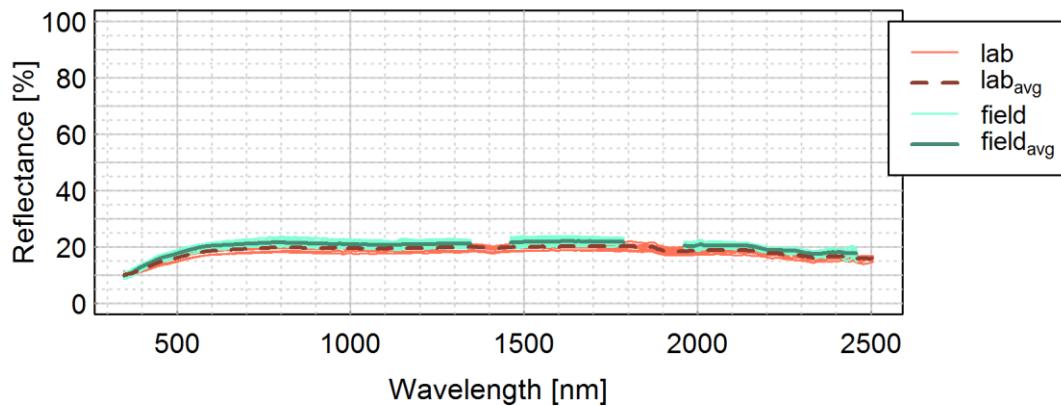
Class	Road asphalt
Material	Asphalt with stone aggregate
Colour	Black/grey
Status	Weathered
Dimension [mm]	190 x 83 x 68



ASPHALT A002



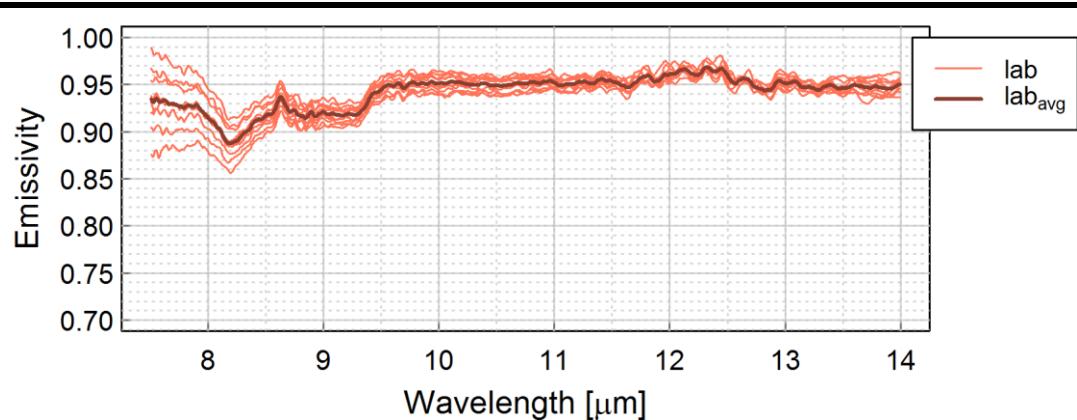
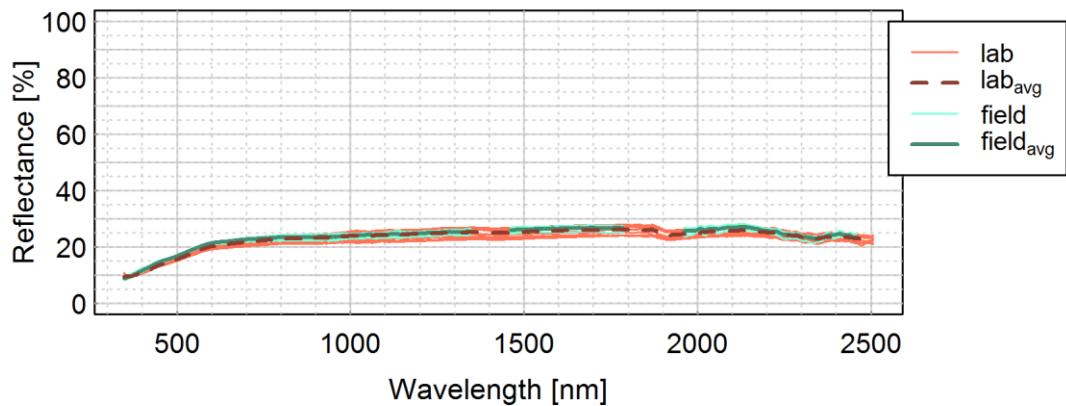
Class	Road asphalt
Material	Asphalt with stone aggregate
Colour	Black/grey
Status	Weathered
Dimension [mm]	60 x 100 x 200



ASPHALT A003



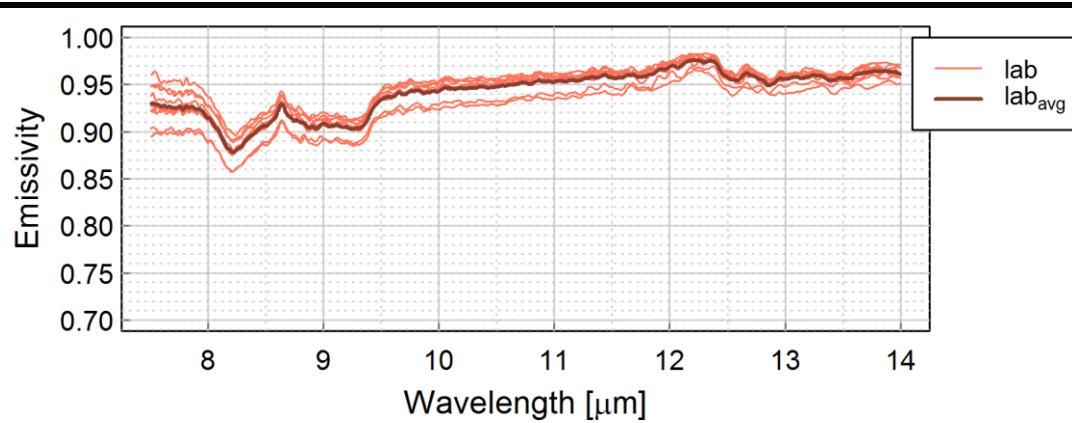
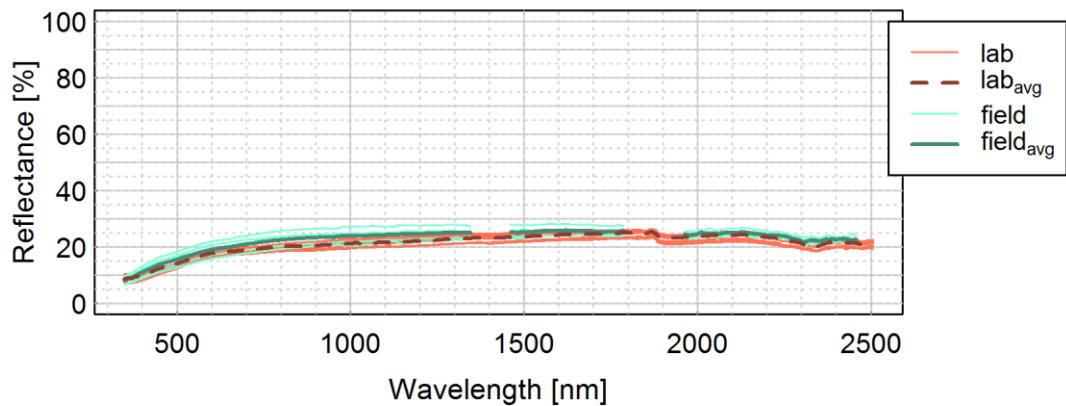
Class	Road asphalt
Material	Asphalt with stone aggregate
Colour	Black/grey
Status	Weathered
Dimension [mm]	60 x 90 x 150



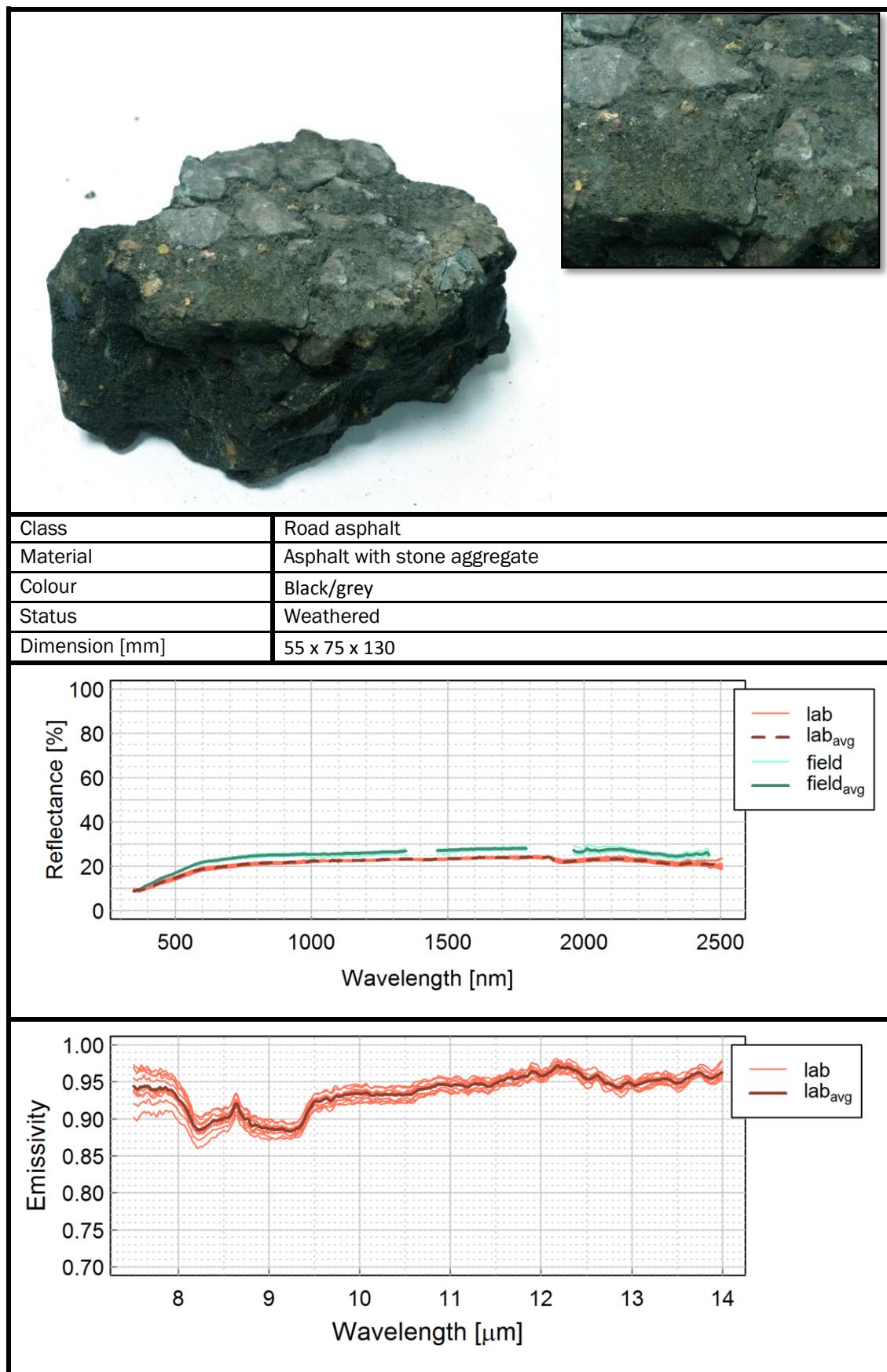
ASPHALT A004



Class	Road asphalt
Material	Asphalt with stone aggregate
Colour	Black/grey
Status	Weathered
Dimension [mm]	120 x 50 x 170



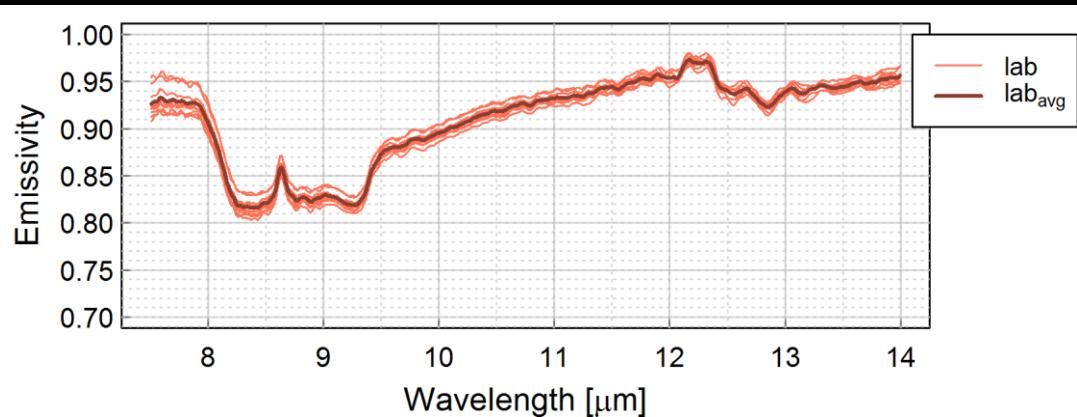
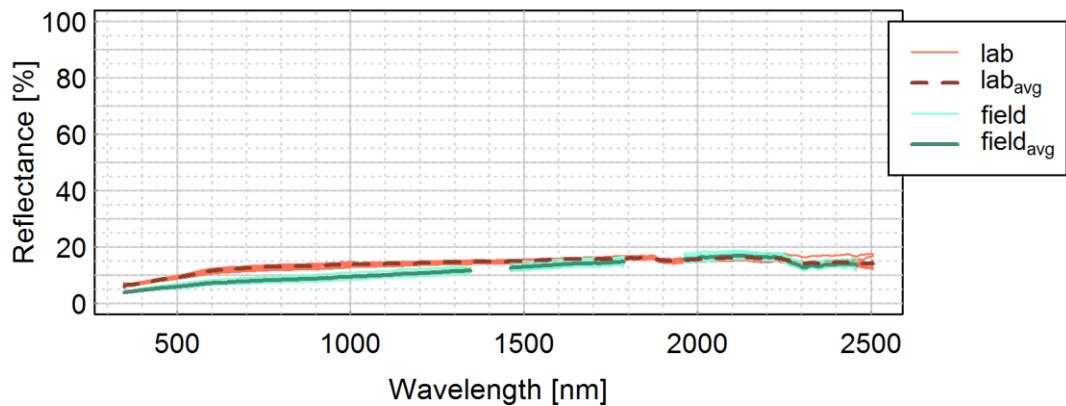
ASPHALT A005



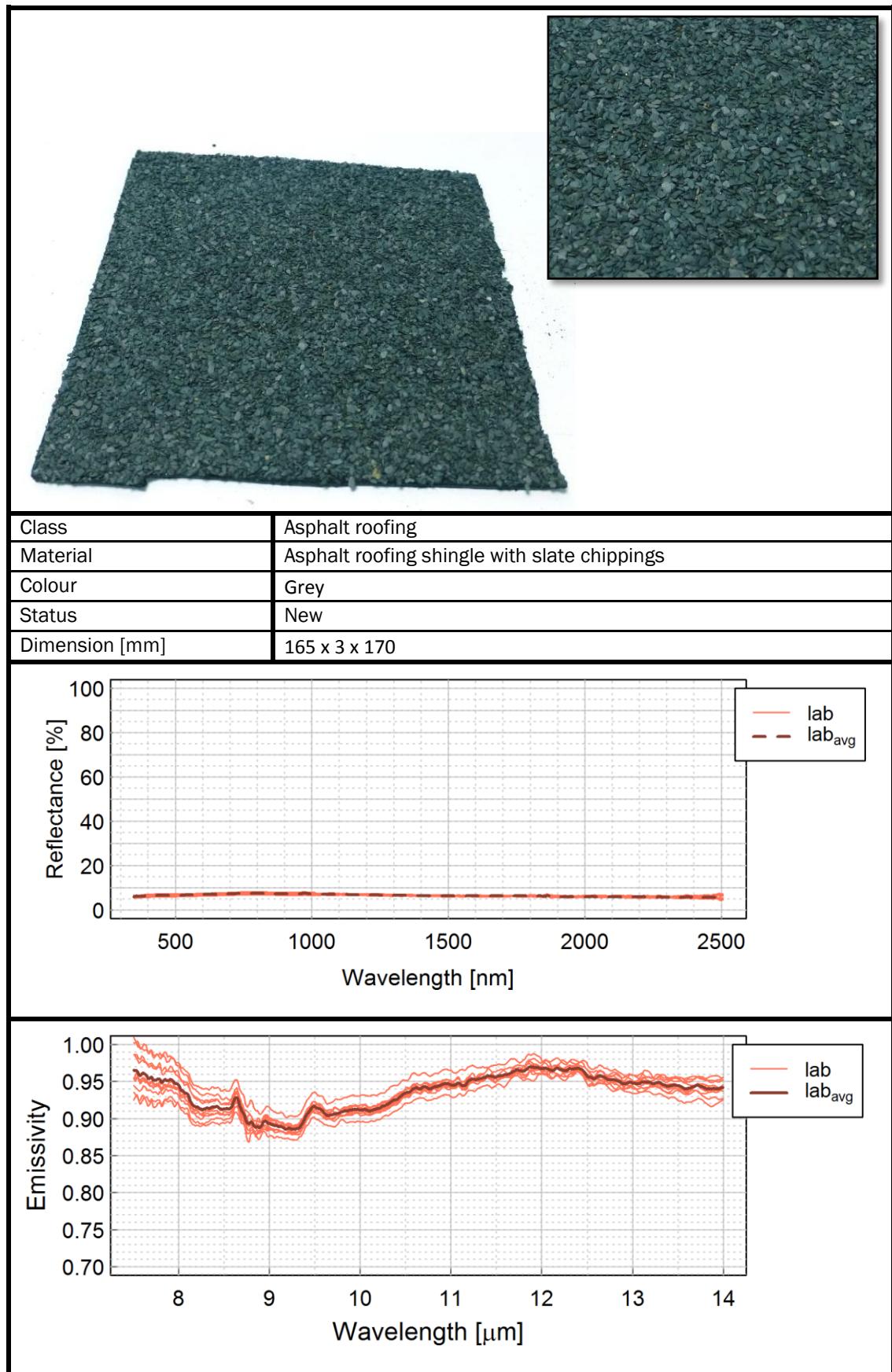
ASPHALT A006



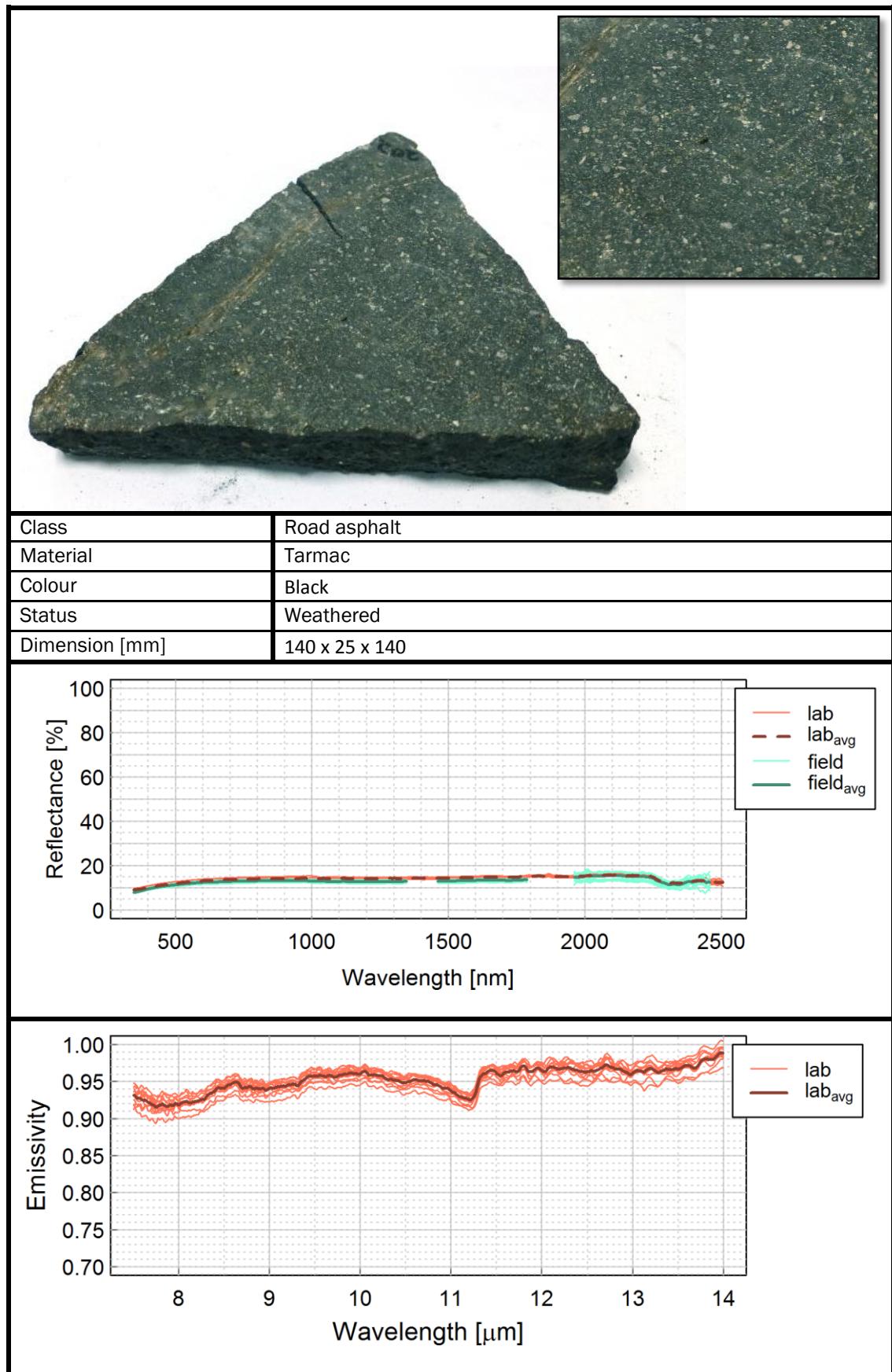
Class	Road asphalt
Material	Asphalt with stone aggregate
Colour	Black/grey
Status	Weathered
Dimension [mm]	30 x 145 x 180



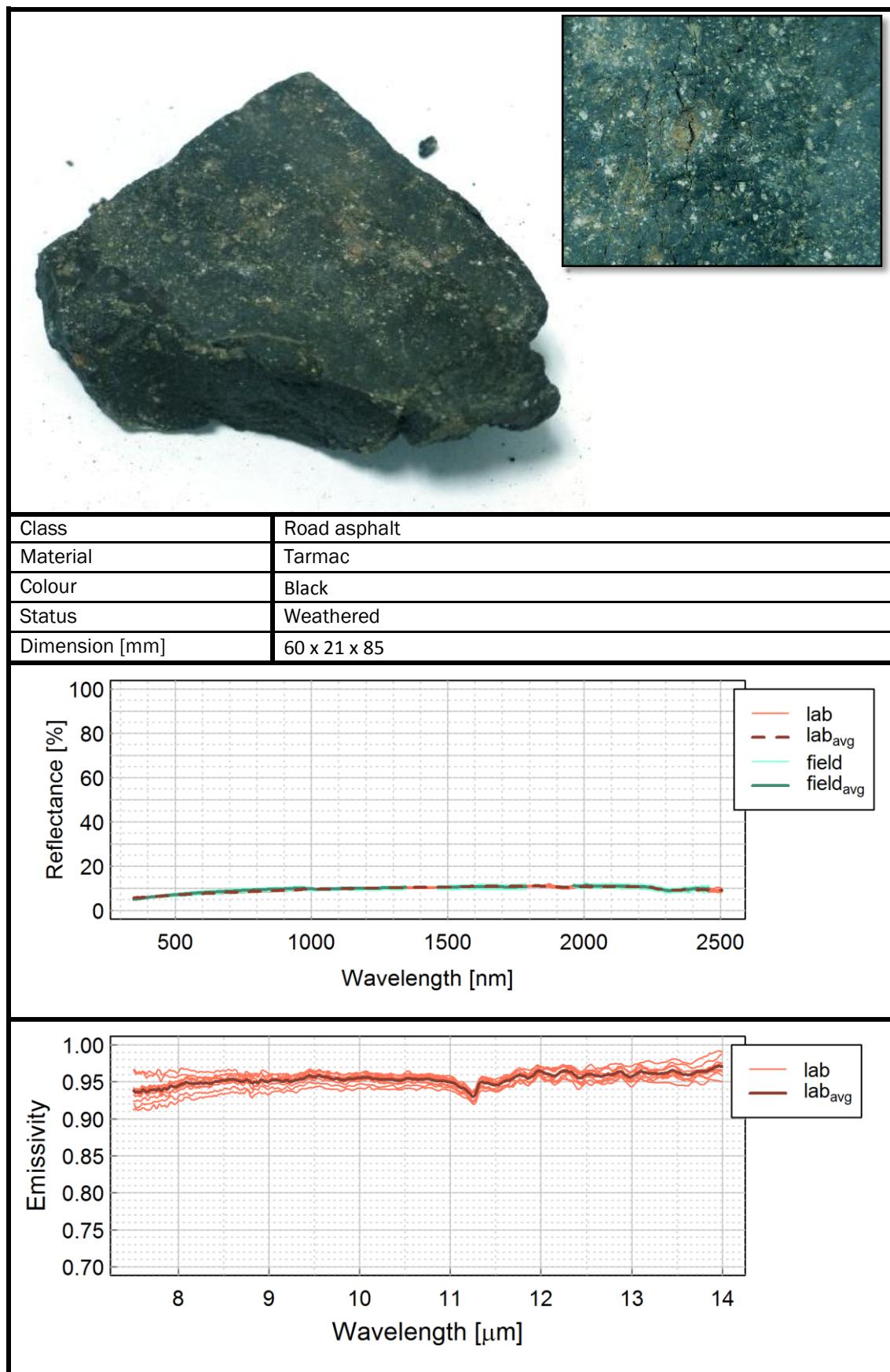
ASPHALT A007



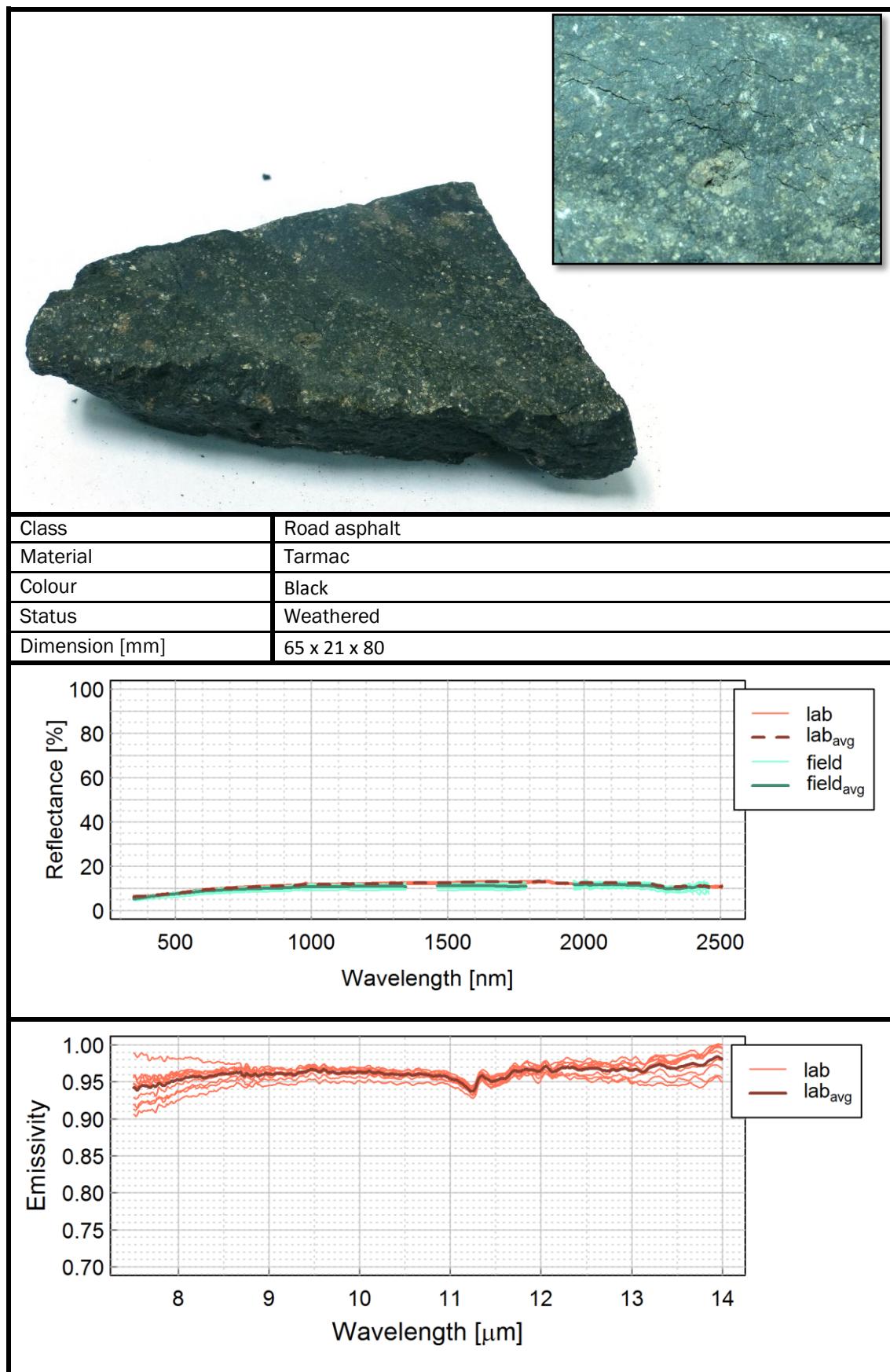
ASPHALT A008



ASPHALT A009



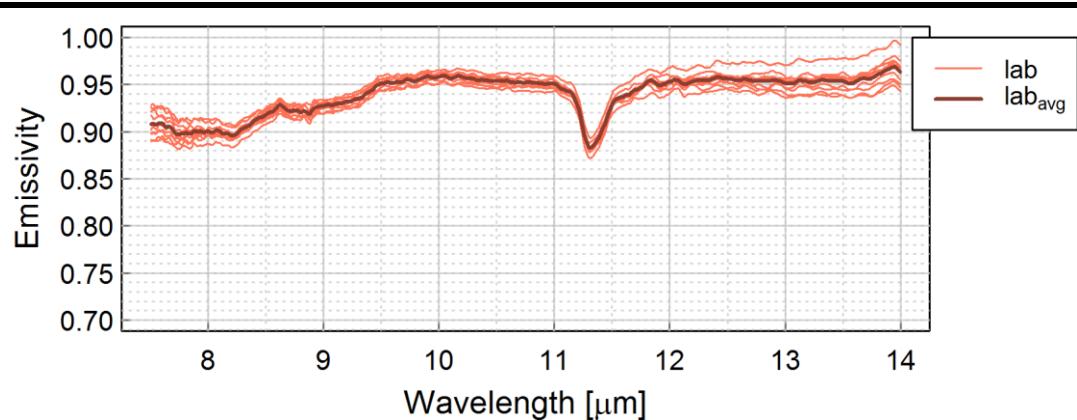
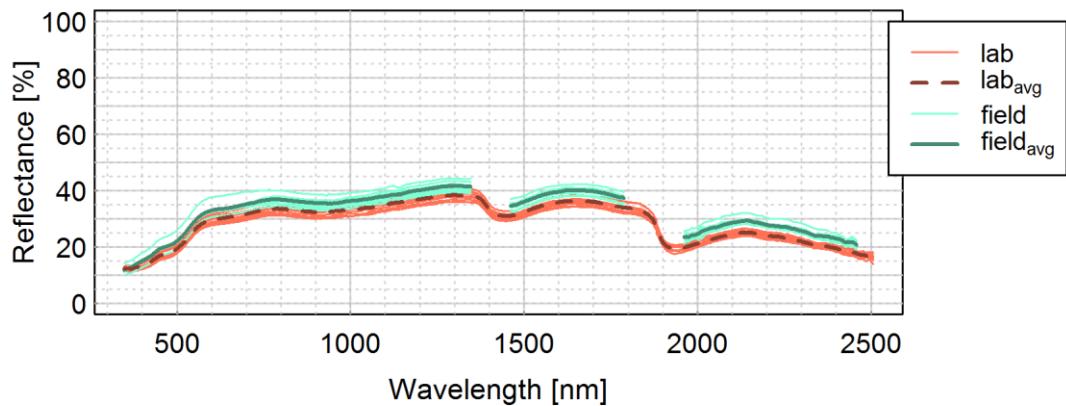
ASPHALT A010



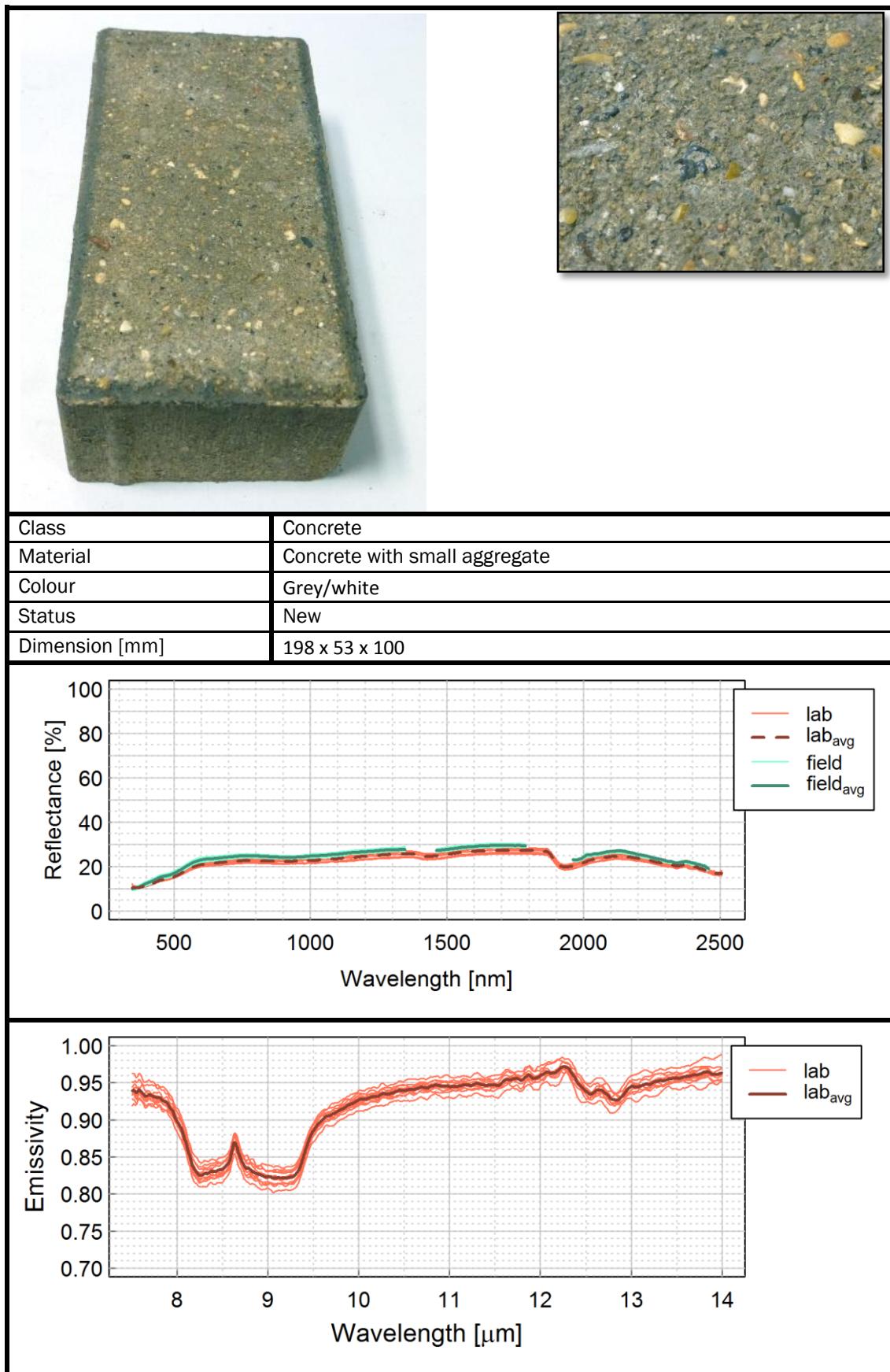
CONCRETE/CEMENT C001



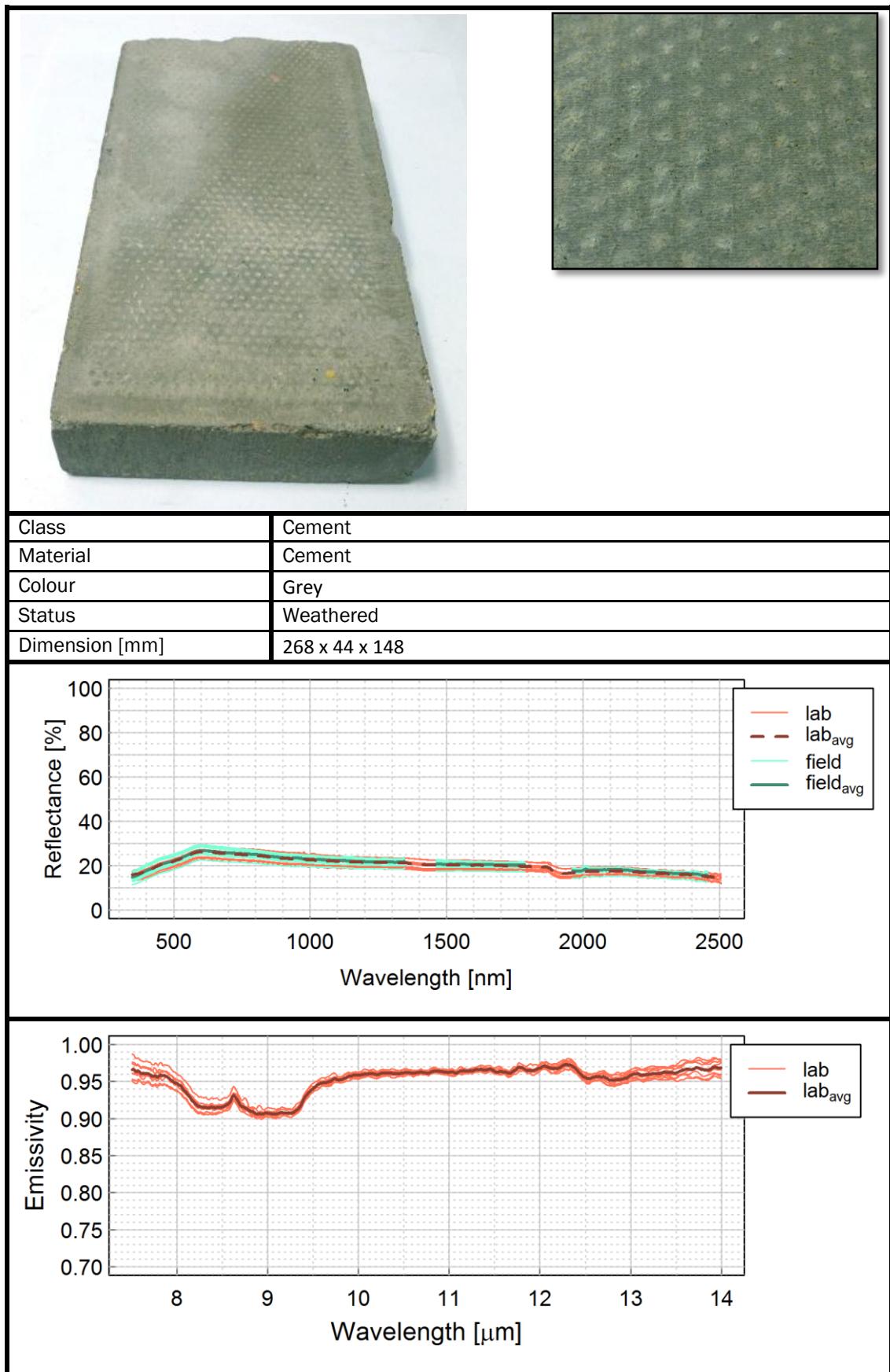
Class	Cement
Material	Cement
Colour	Grey/ochre
Status	Weathered
Dimension [mm]	367 x 60 x 140



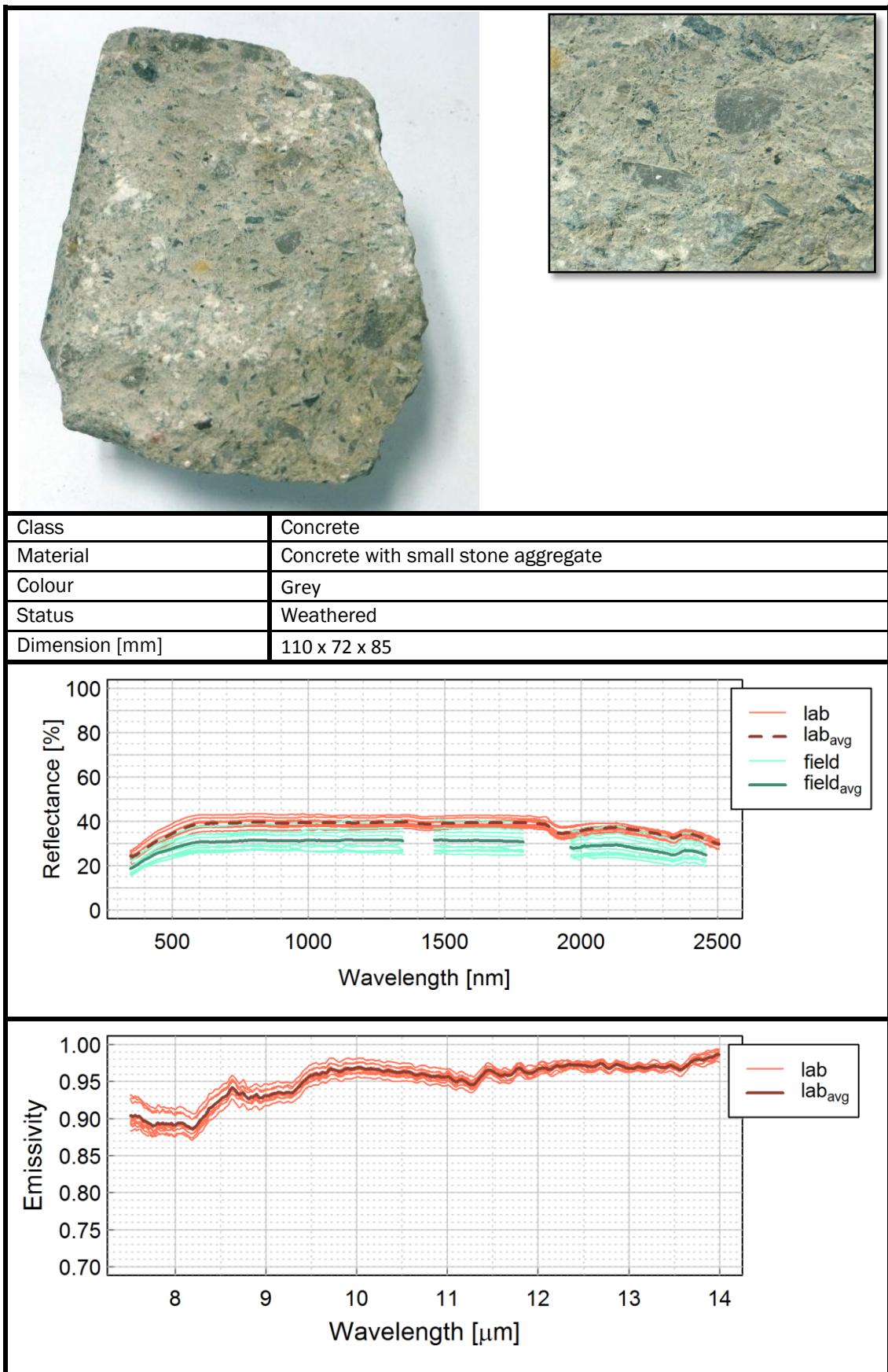
CONCRETE/CEMENT C002



CONCRETE/CEMENT C003



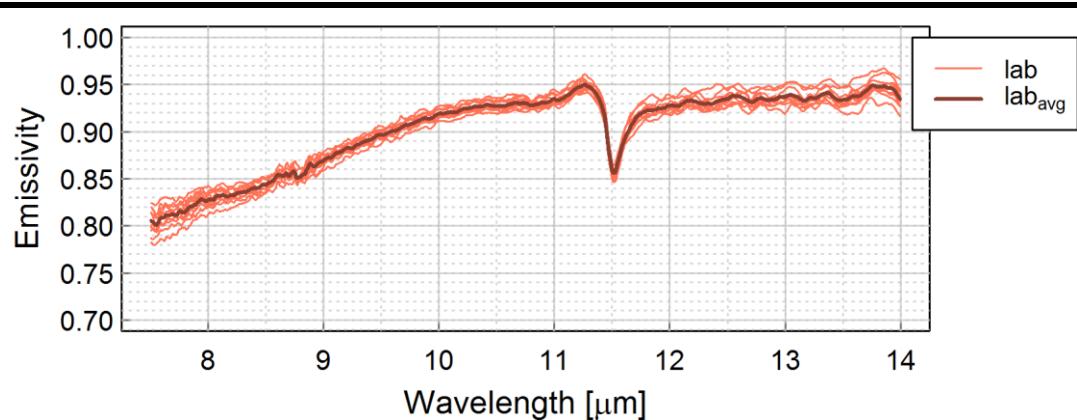
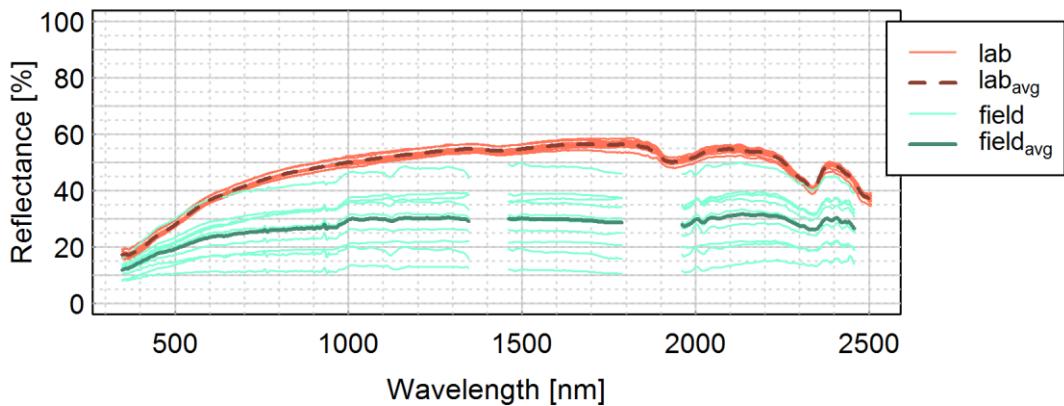
CONCRETE/CEMENT C004



CONCRETE/CEMENT C005



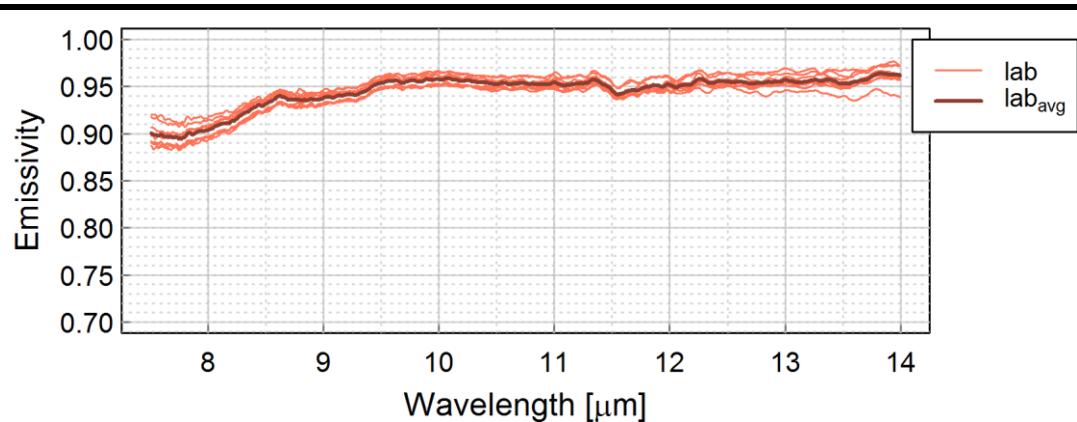
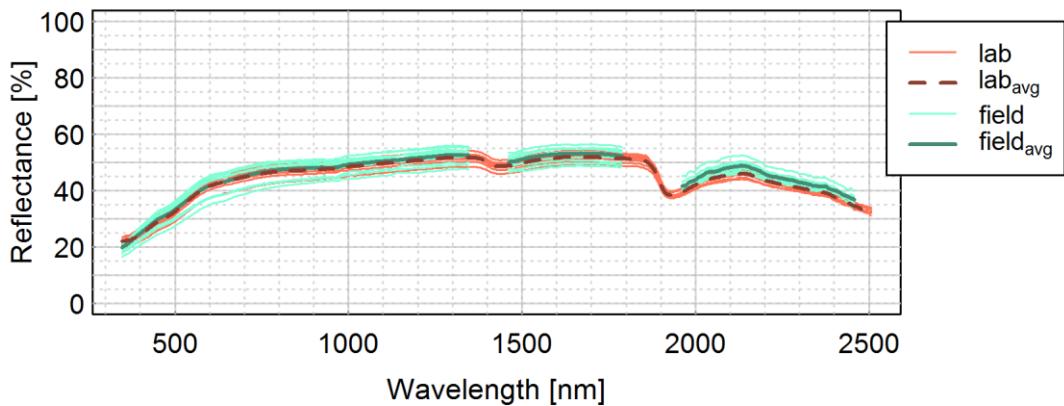
Class	Cement
Material	Cement
Colour	Grey
Status	Weathered
Dimension [mm]	80 x 45 x 115



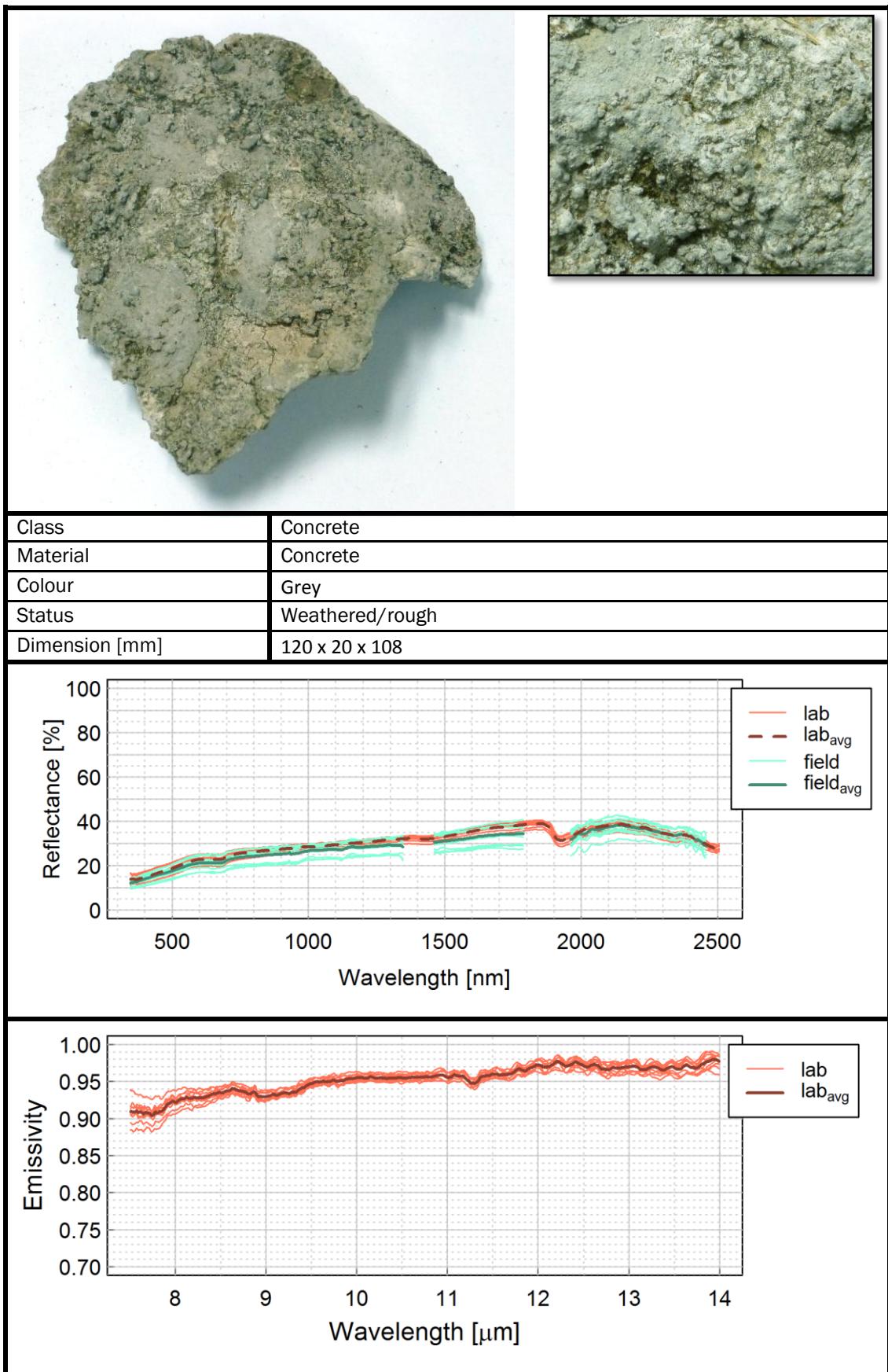
CONCRETE/CEMENT C006



Class	Concrete
Material	Concrete with small stone aggregate
Colour	White
Status	Weathered
Dimension [mm]	90 x 150 x 250



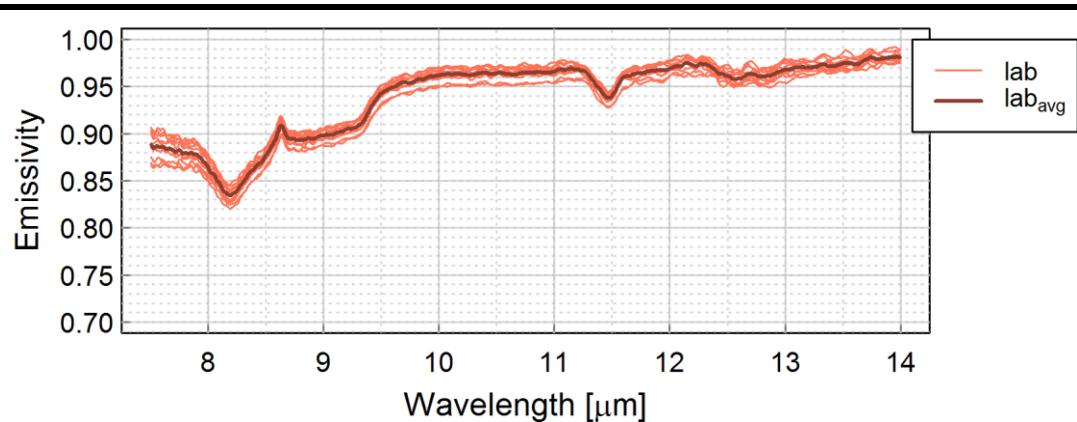
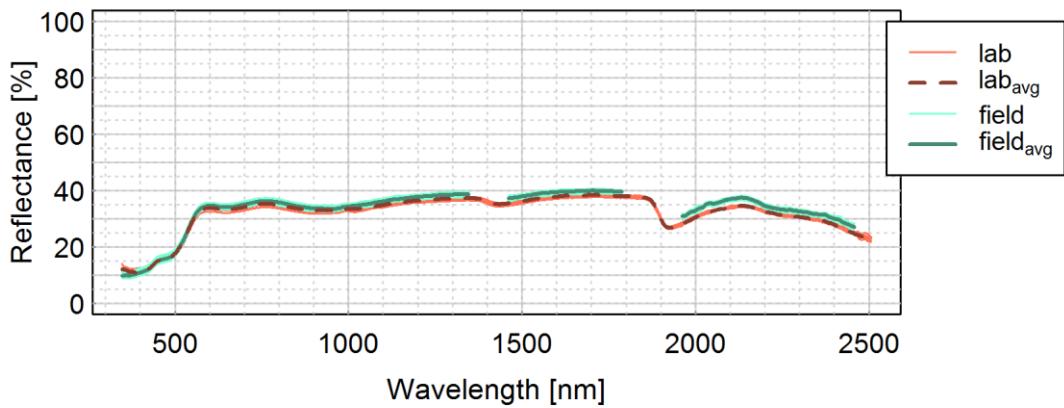
CONCRETE/CEMENT C008



BRICK_{B001}



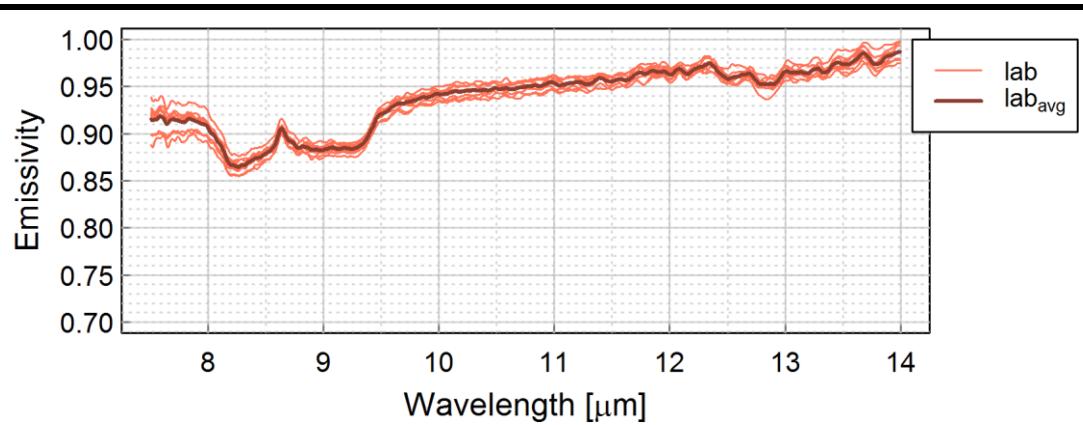
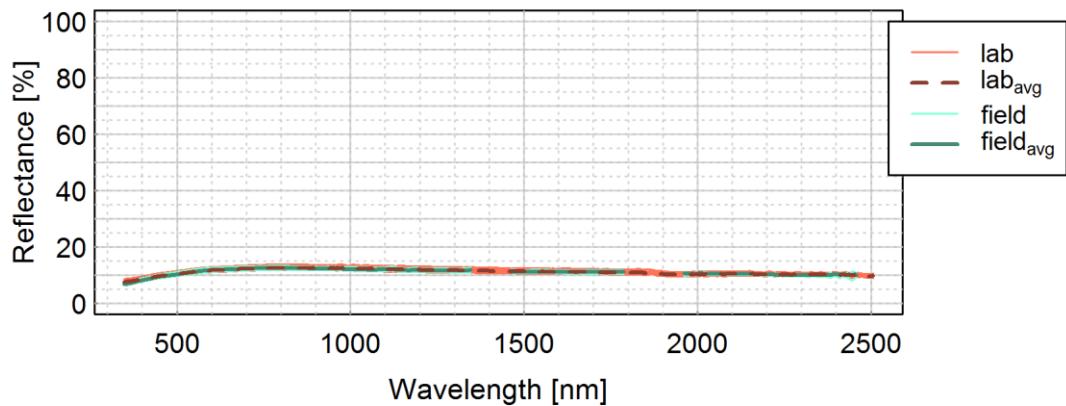
Class	Cement brick
Material	Cement
Colour	Yellow
Status	New
Dimension [mm]	200 x 60 x 100



BRICK_{B002}



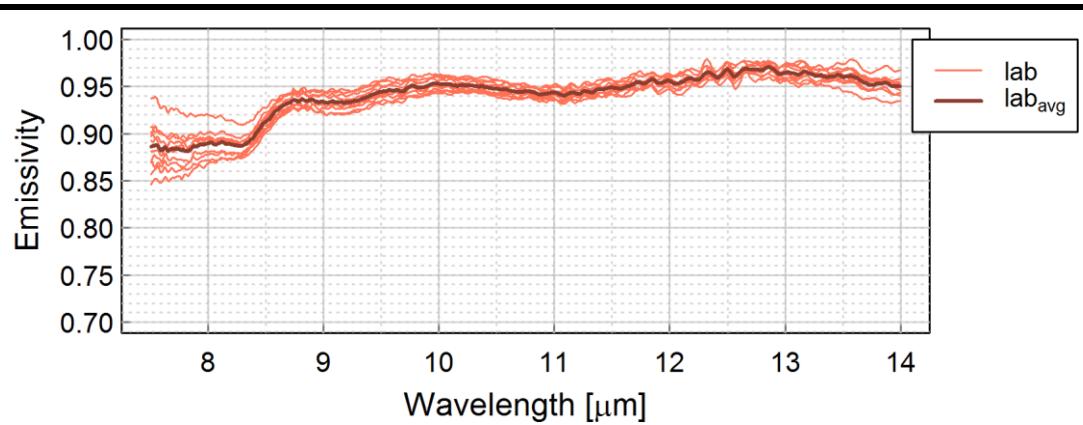
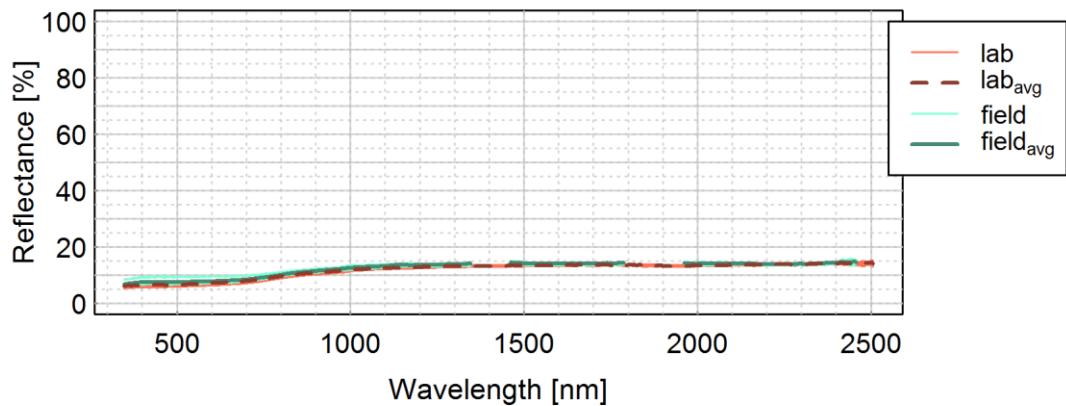
Class	Cement brick
Material	Cement
Colour	Black/light grey
Status	New, sandy
Dimension [mm]	200 x 58 x 98



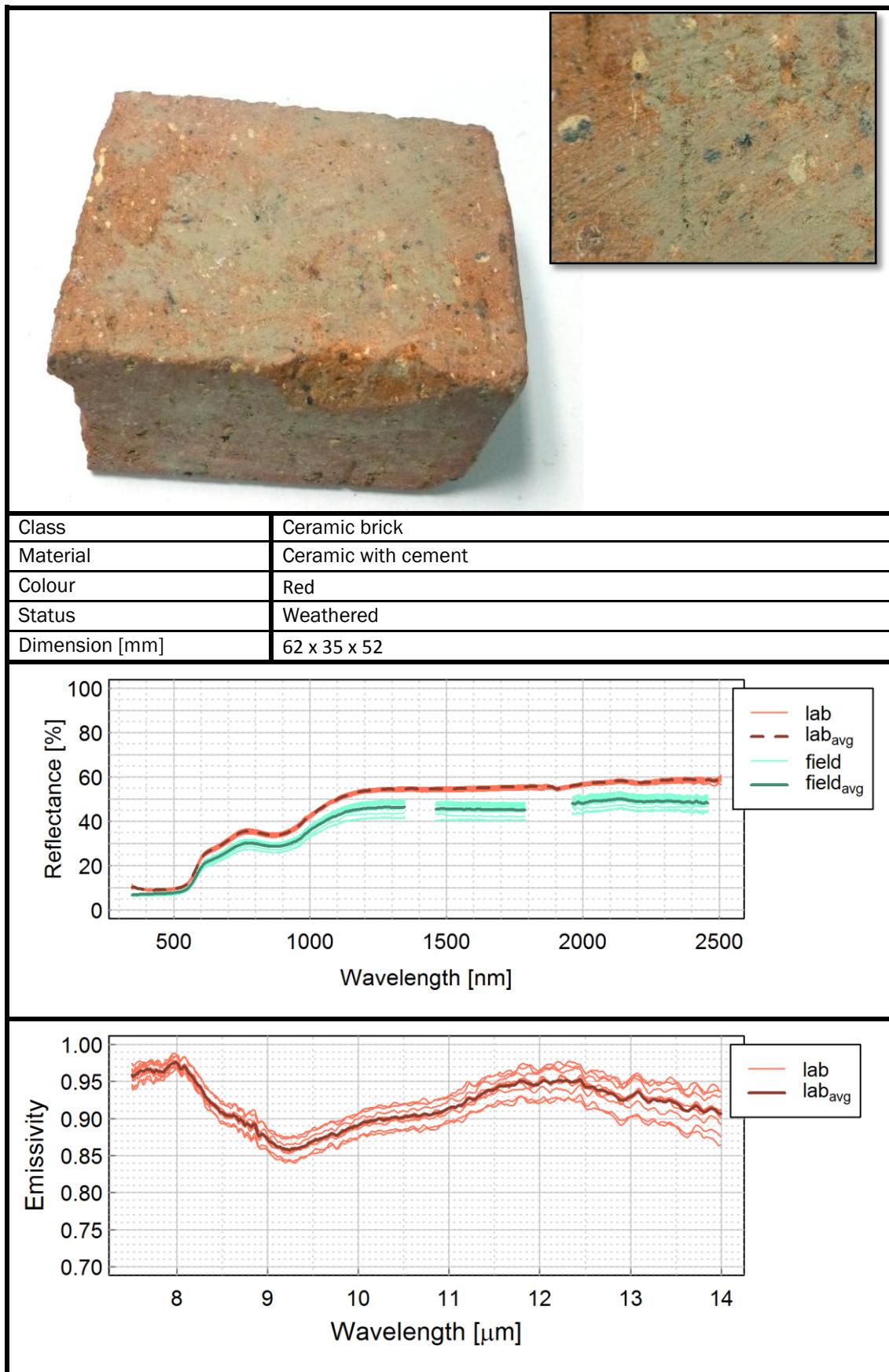
BRICK_{B003}



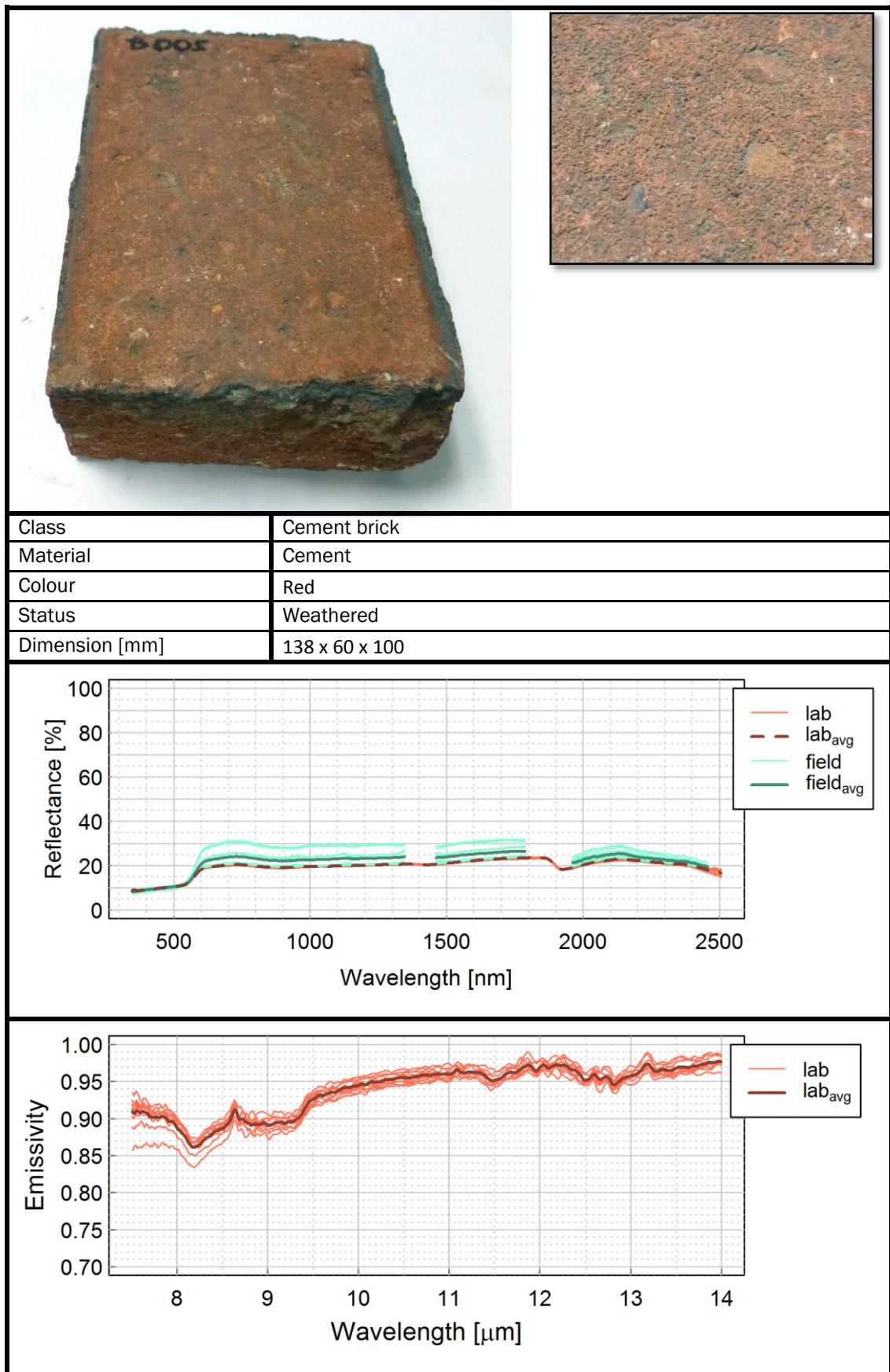
Class	Cement brick
Material	Cement
Colour	Black
Status	New
Dimension [mm]	195 x 52 x 98



BRICK_{B004}



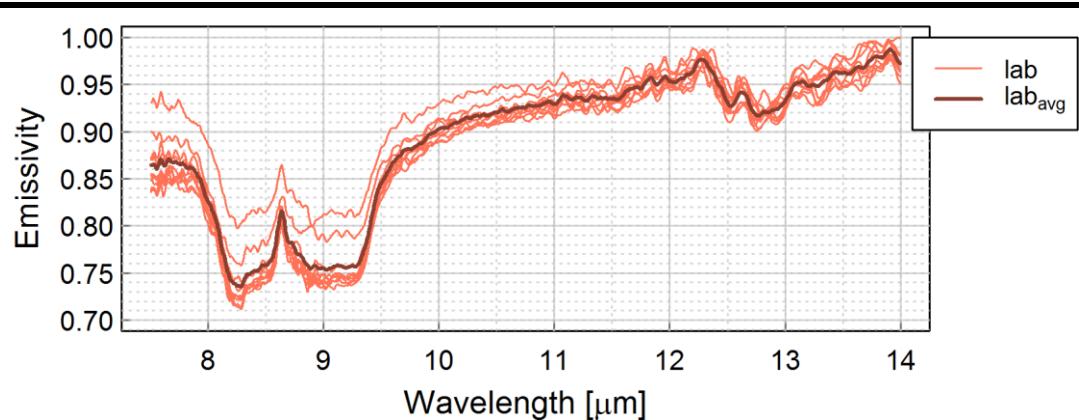
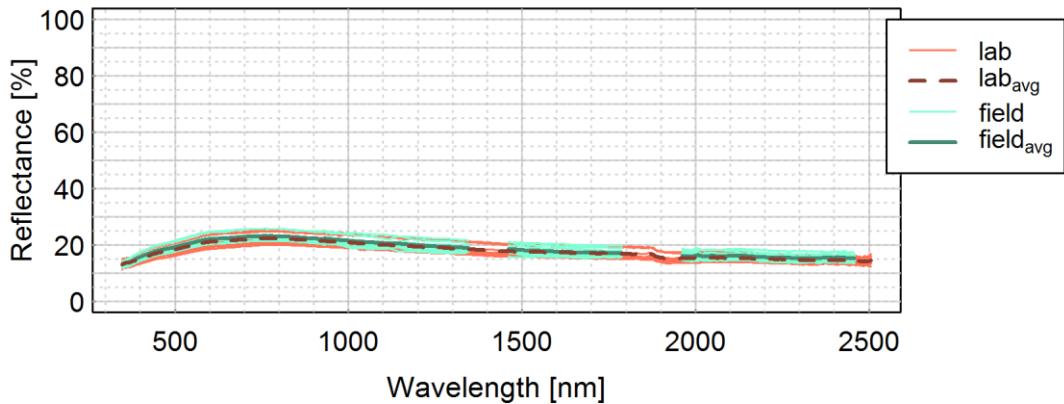
BRICK_{B005}



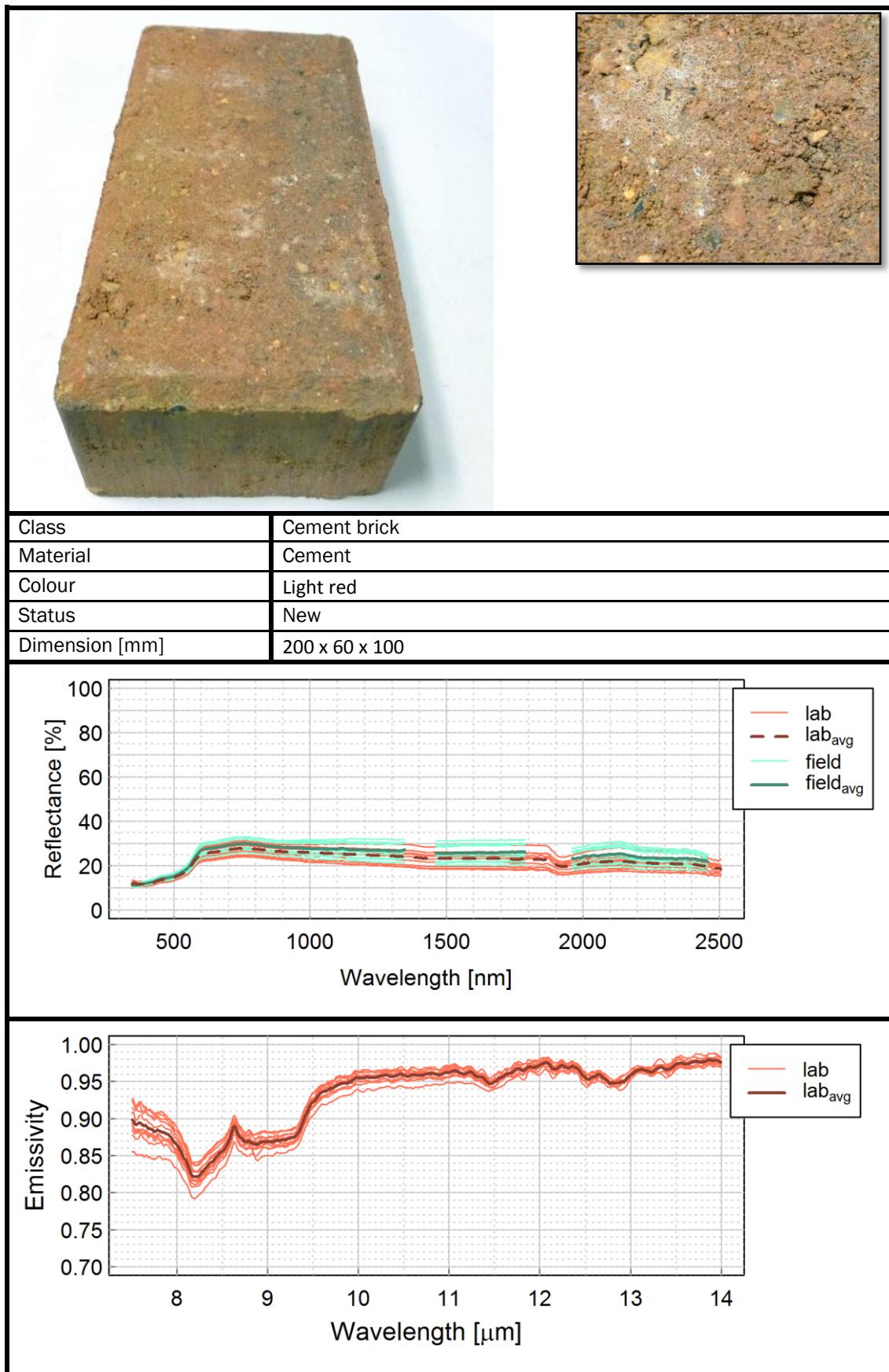
BRICK_{B006}



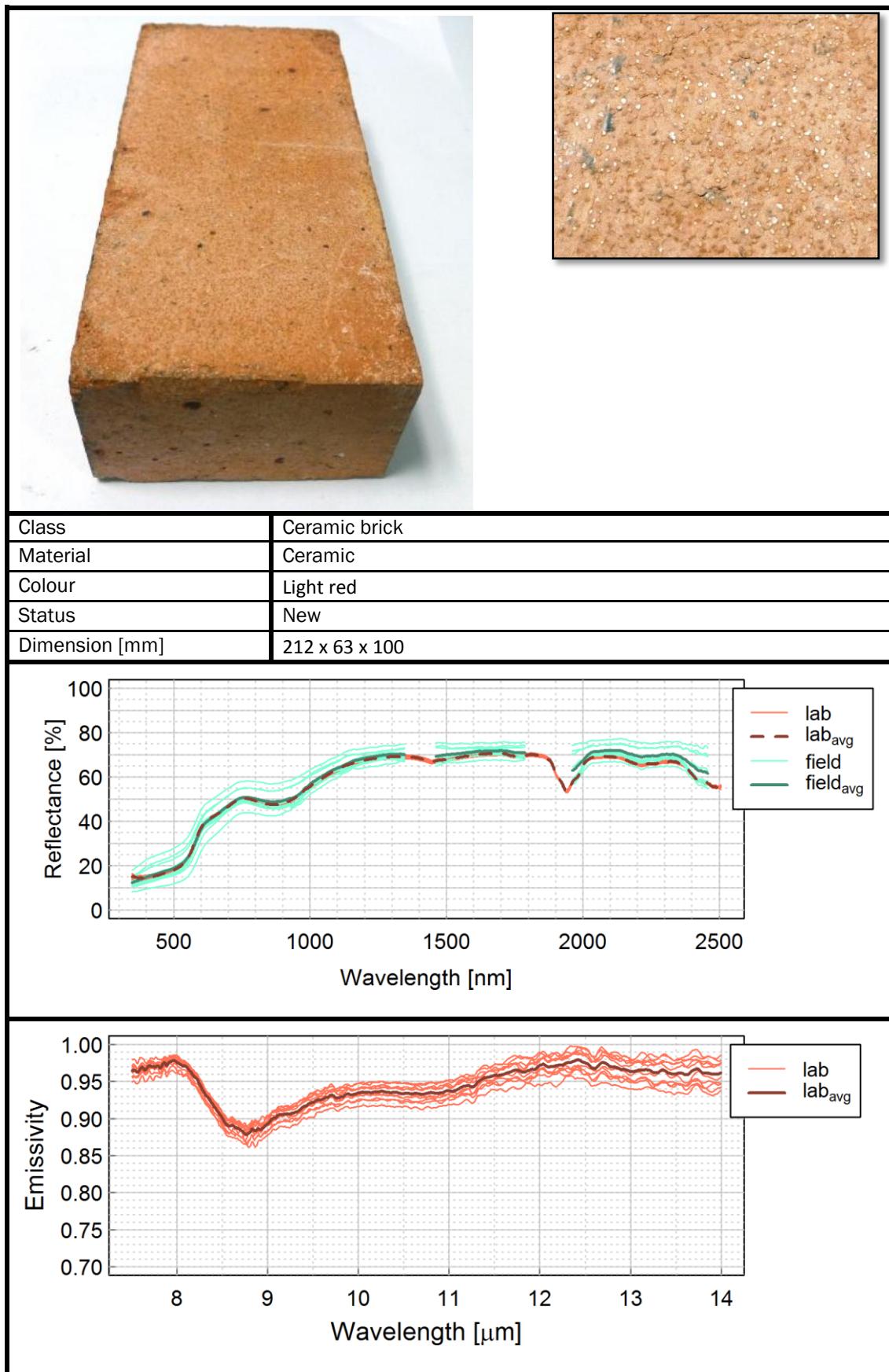
Class	Cement brick
Material	Cement
Colour	Black
Status	Sandy
Dimension [mm]	200 x 60 x 100



BRICK_{B007}



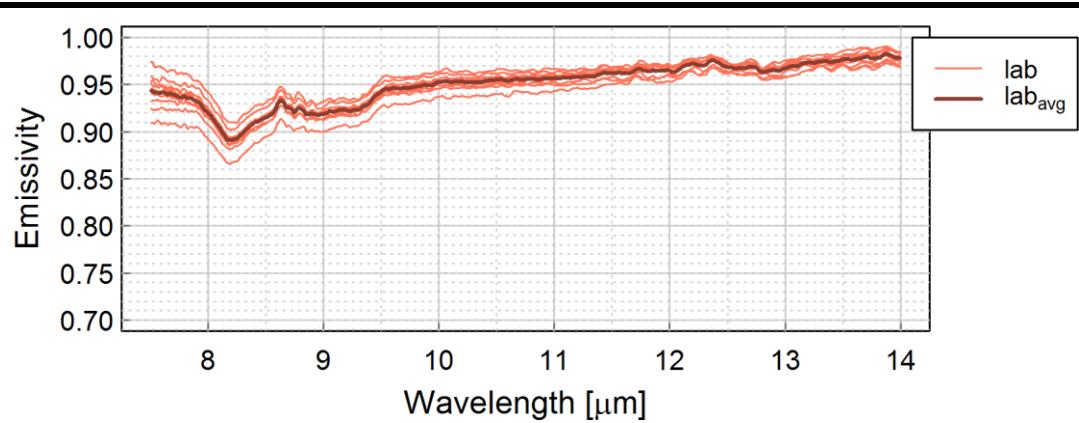
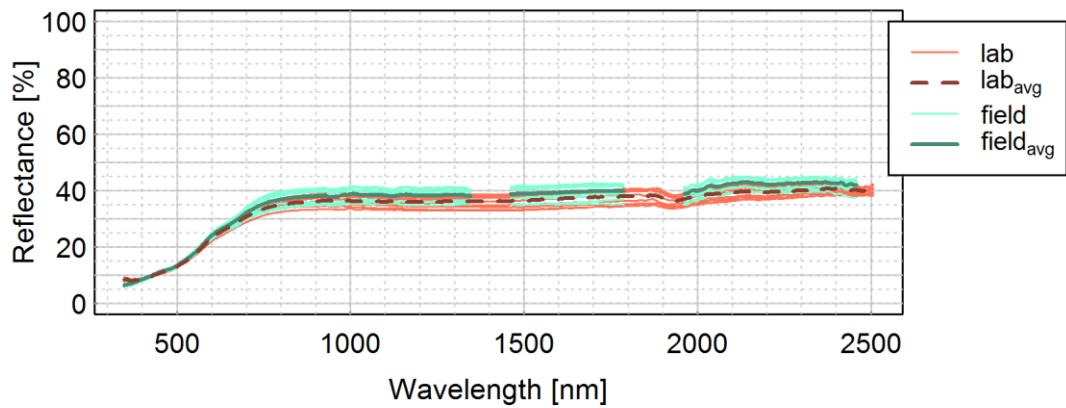
BRICK_{B008}



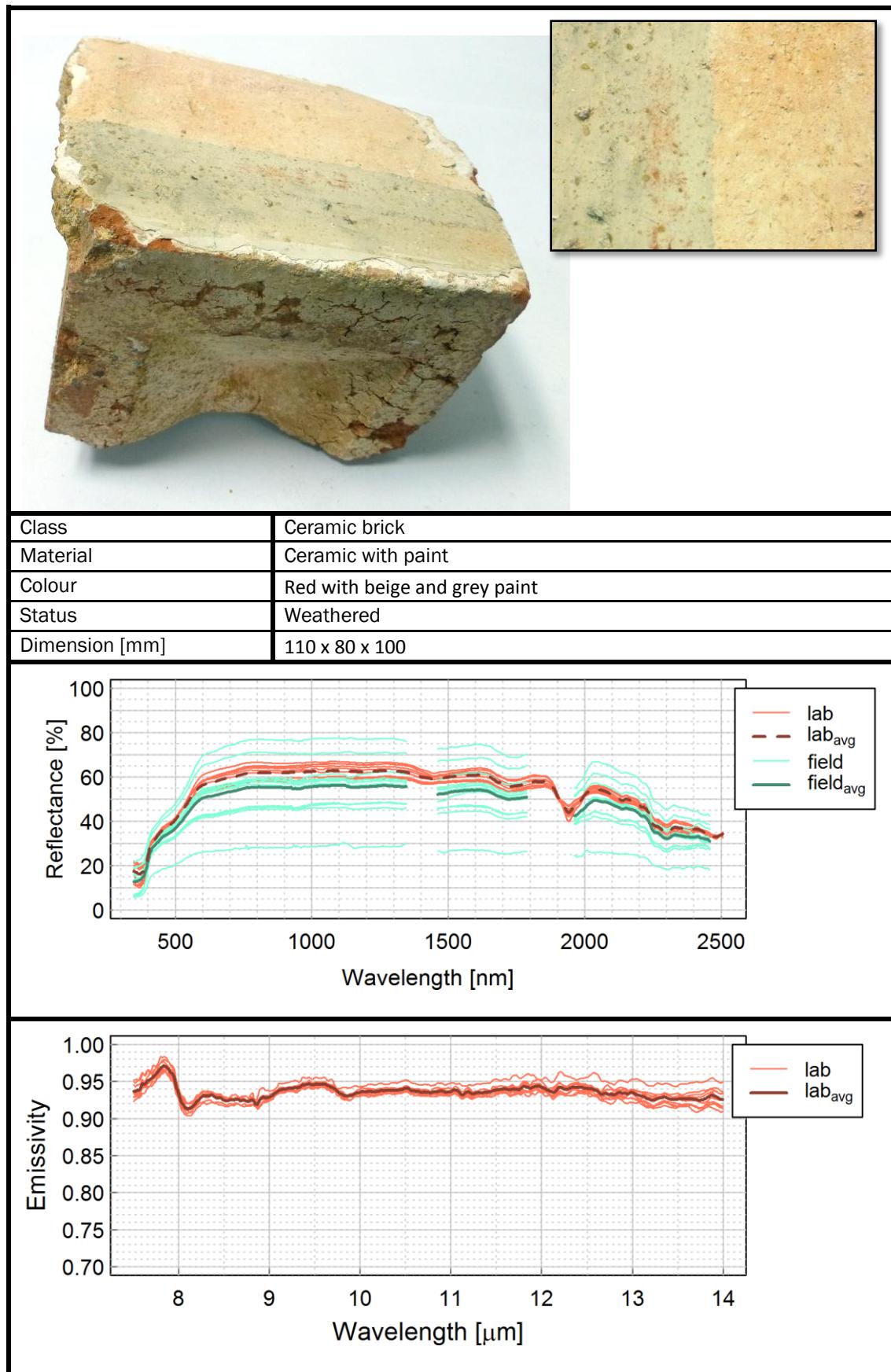
BRICK_{B009}



Class	Cement brick
Material	Cement
Colour	Red
Status	Weathered
Dimension [mm]	110 x 63 x 105



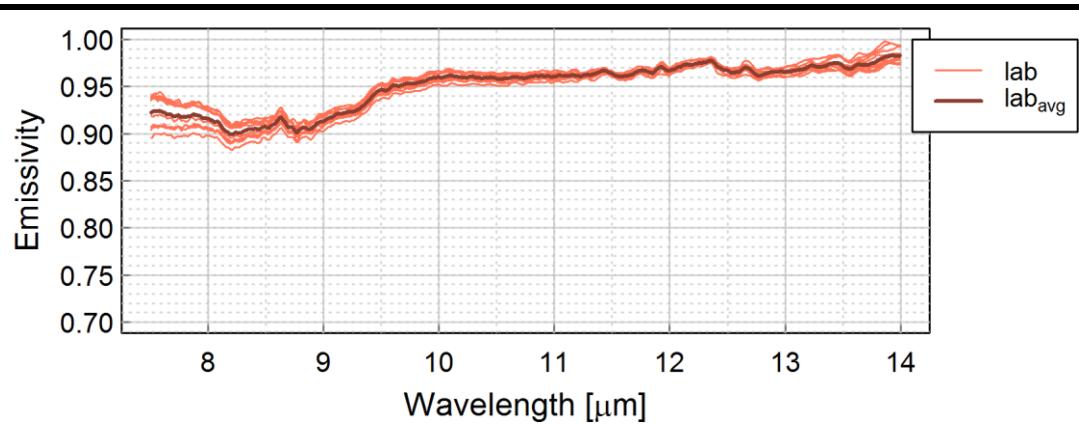
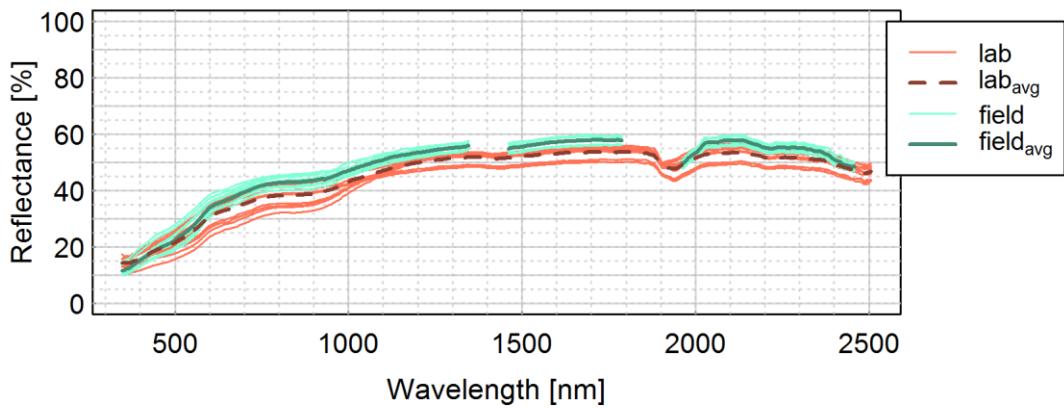
BRICK_B010



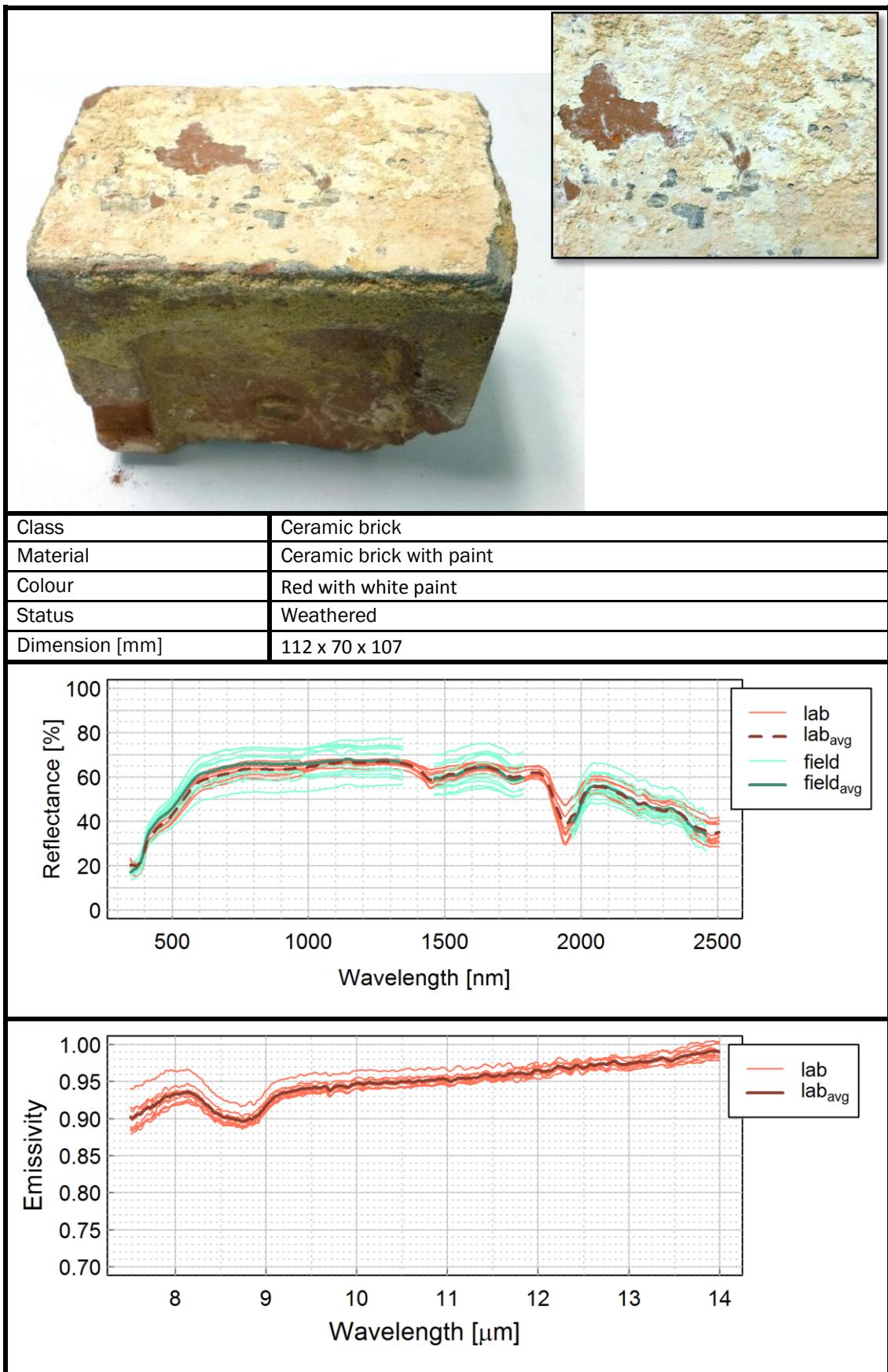
BRICK_B011



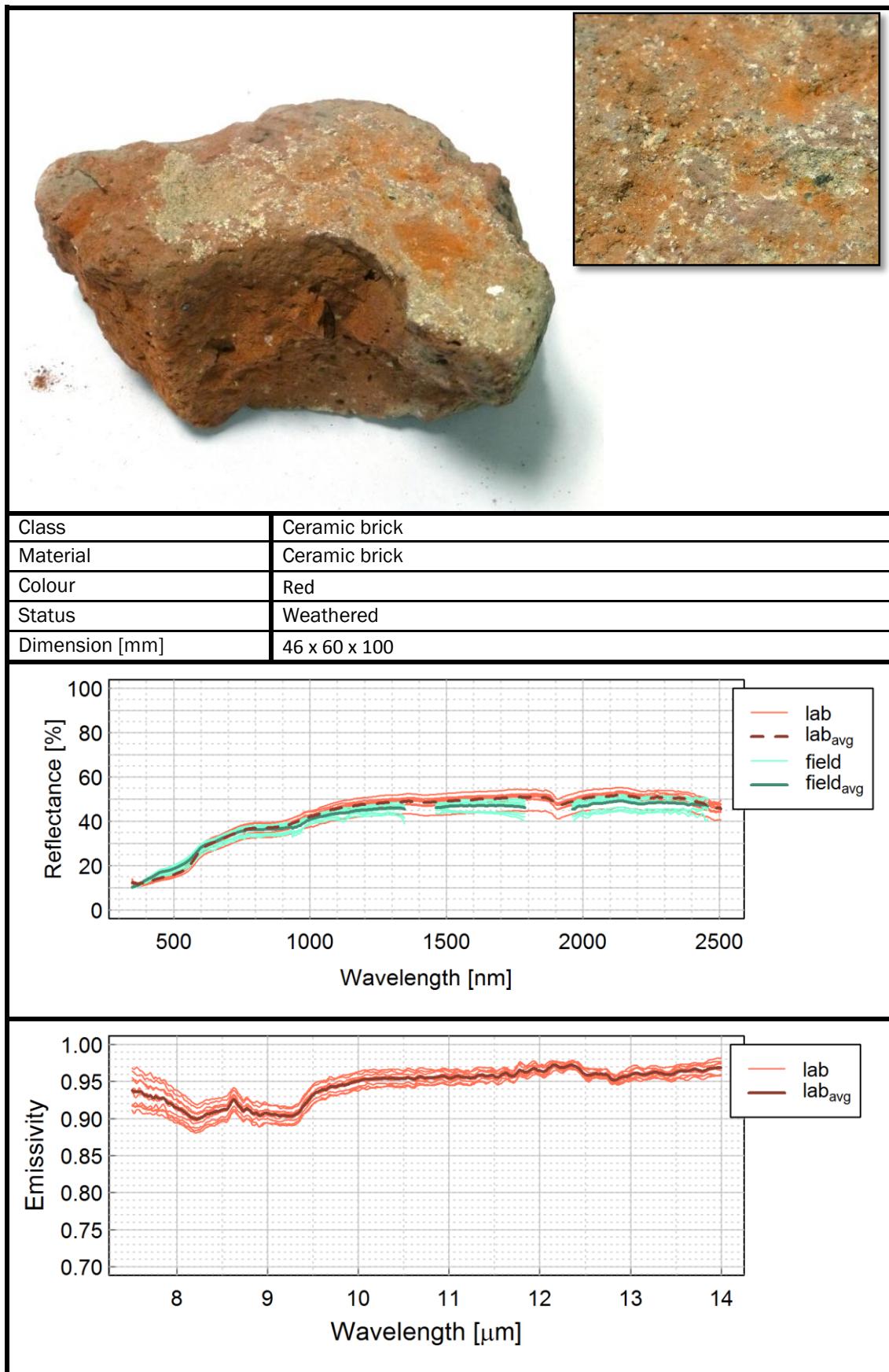
Class	Ceramic brick
Material	Ceramic brick with cement
Colour	Red/grey
Status	Weathered
Dimension [mm]	230 x 63 x 100



BRICK_{B012}



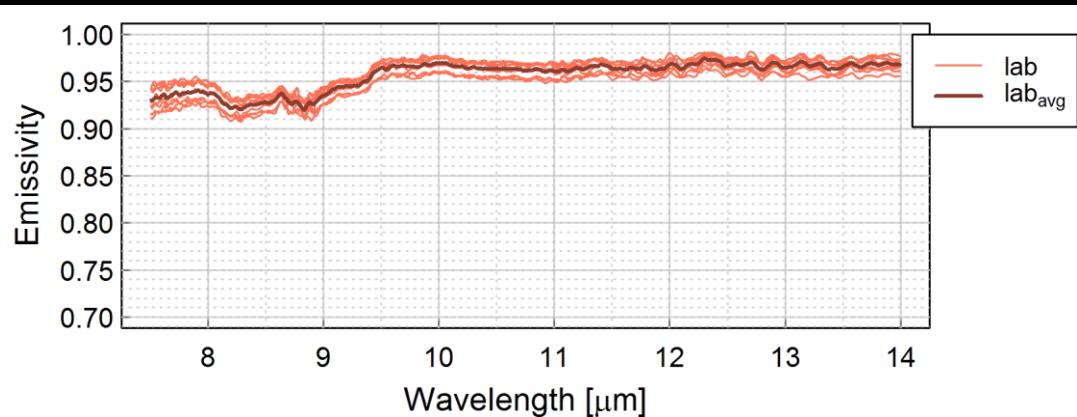
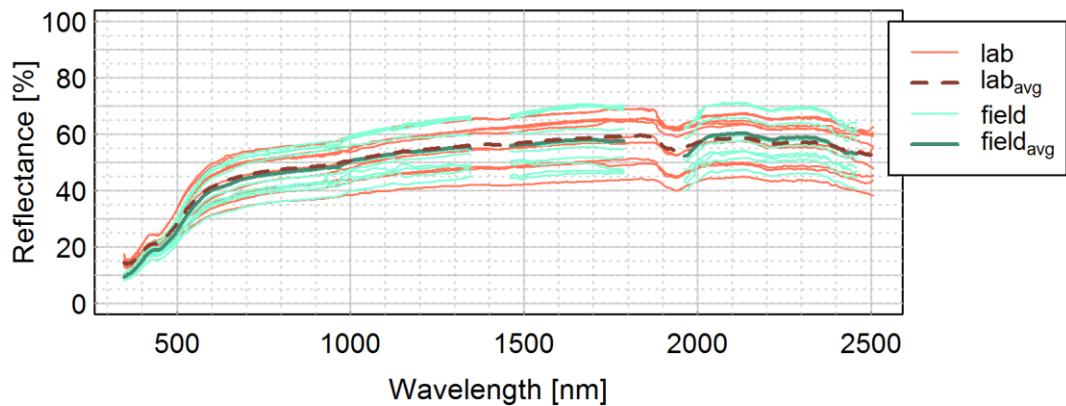
BRICK_{B013}



BRICK_{B014}



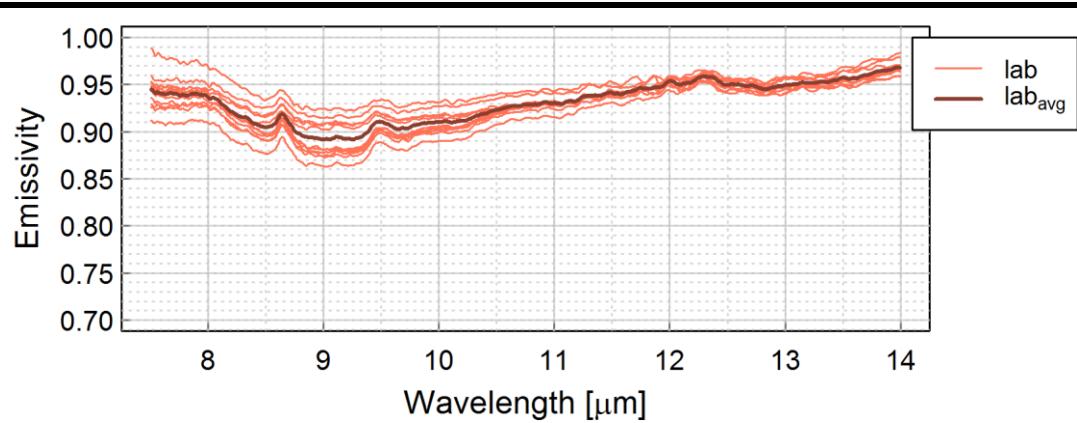
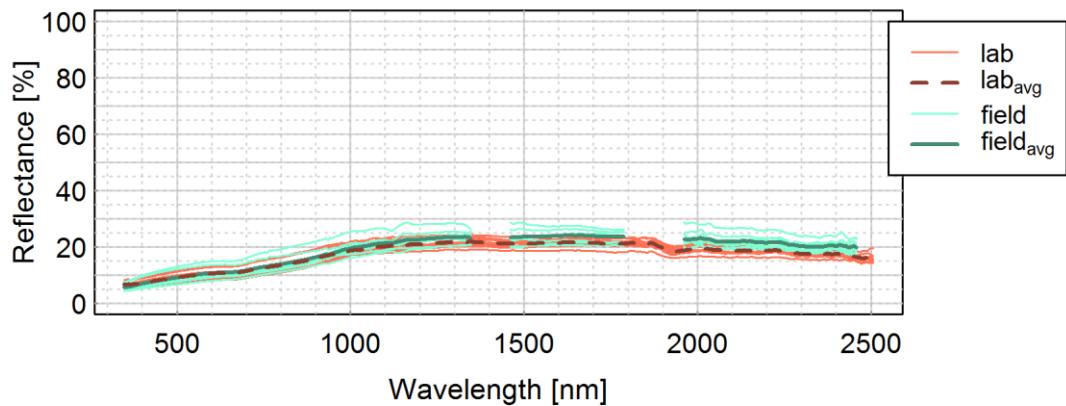
Class	Ceramic brick
Material	Ceramic brick
Colour	Yellow/grey
Status	Weathered
Dimension [mm]	130 x 68 x 90



ROOFING SHINGLE_L001u



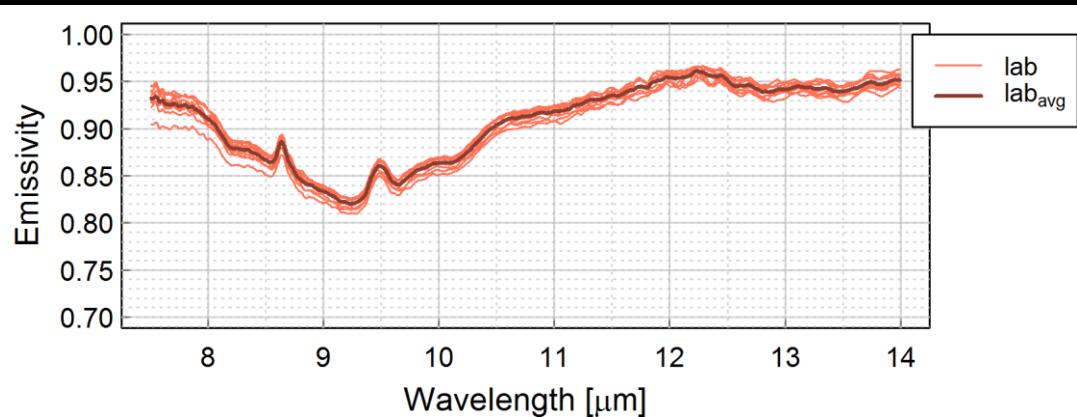
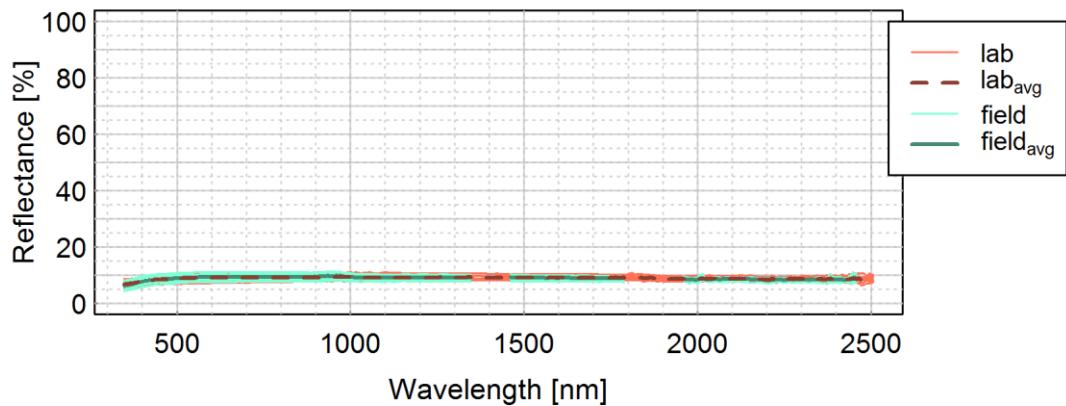
Class	Roofing shingle
Material	Slate roofing shingle
Colour	Grey
Status	Weathered
Dimension [mm]	255 x 3 x 210



ROOFING SHINGLE_L001d



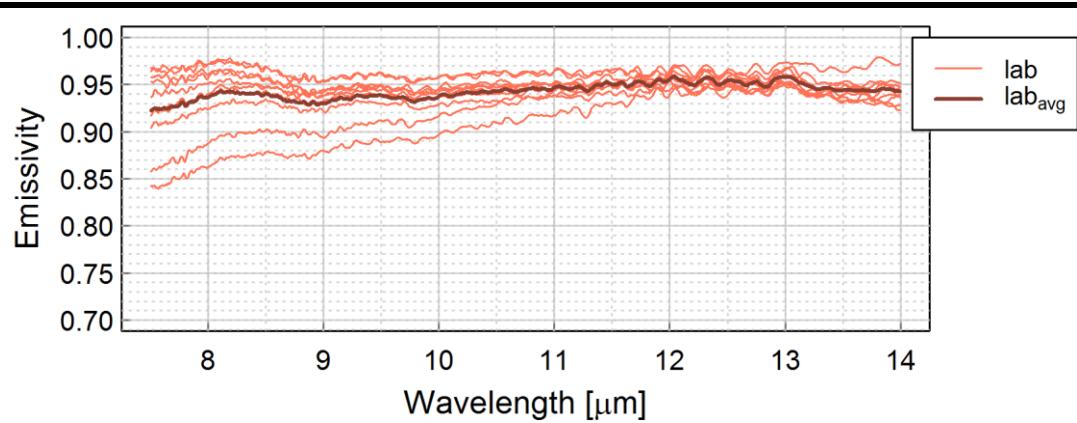
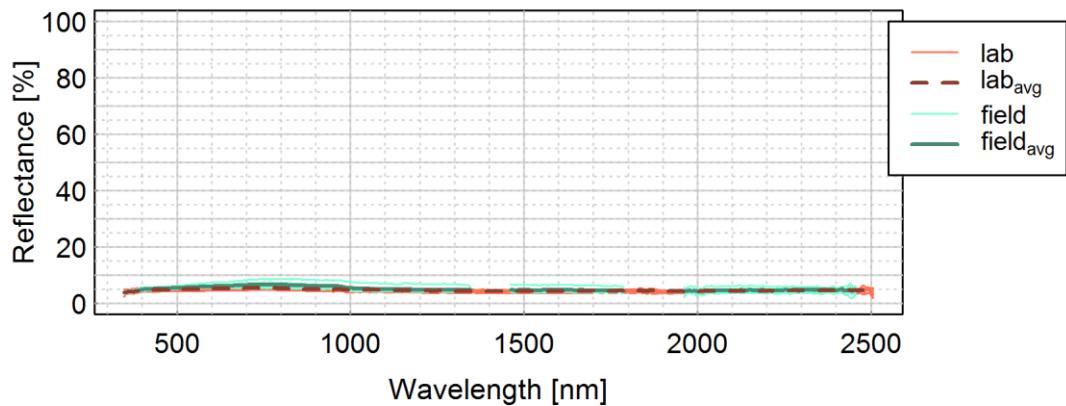
Class	Roofing shingle
Material	Slate
Colour	Grey
Status	Clear
Dimension [mm]	255 x 3 x 210



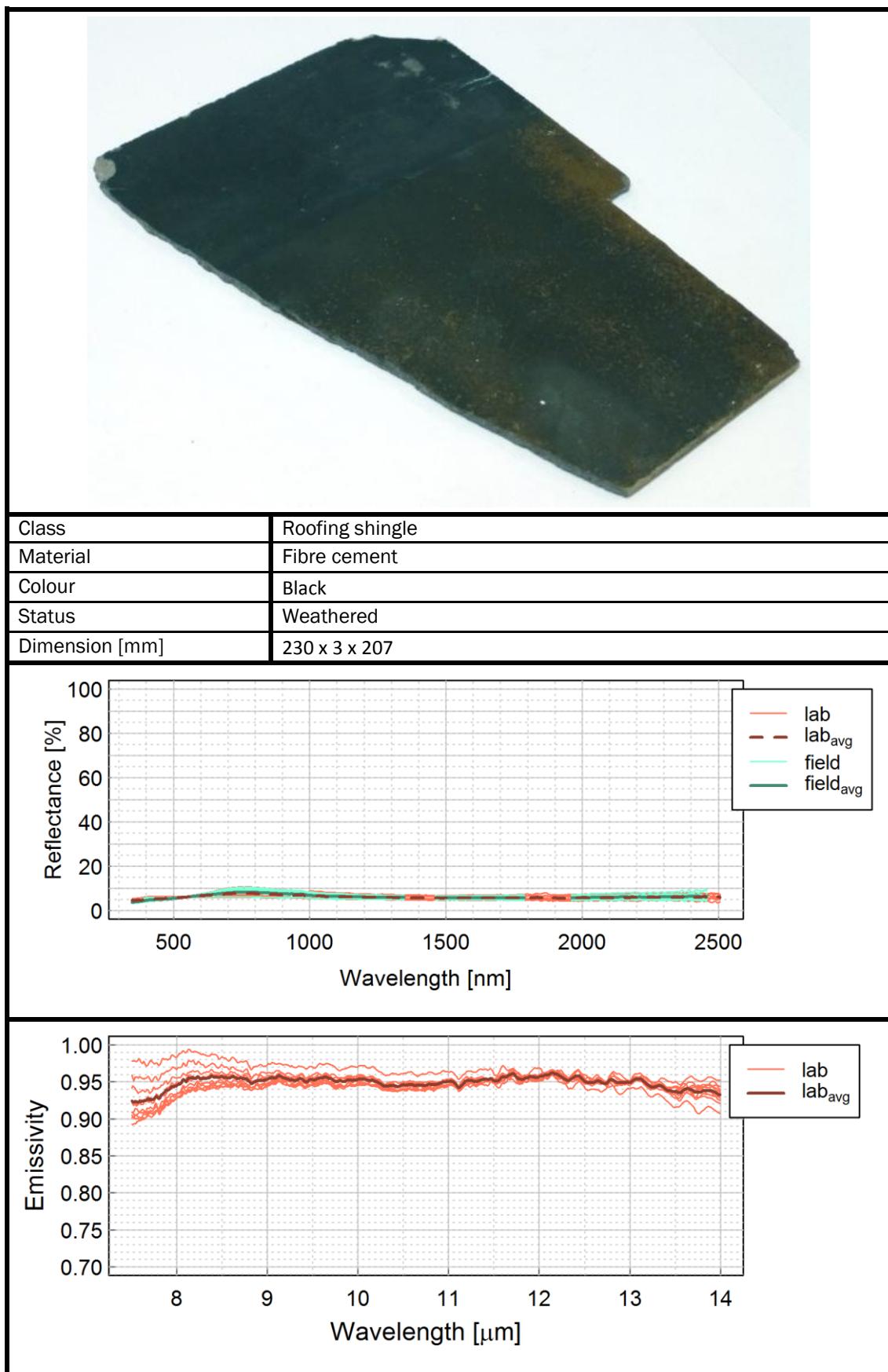
ROOFING SHINGLE_{L002}



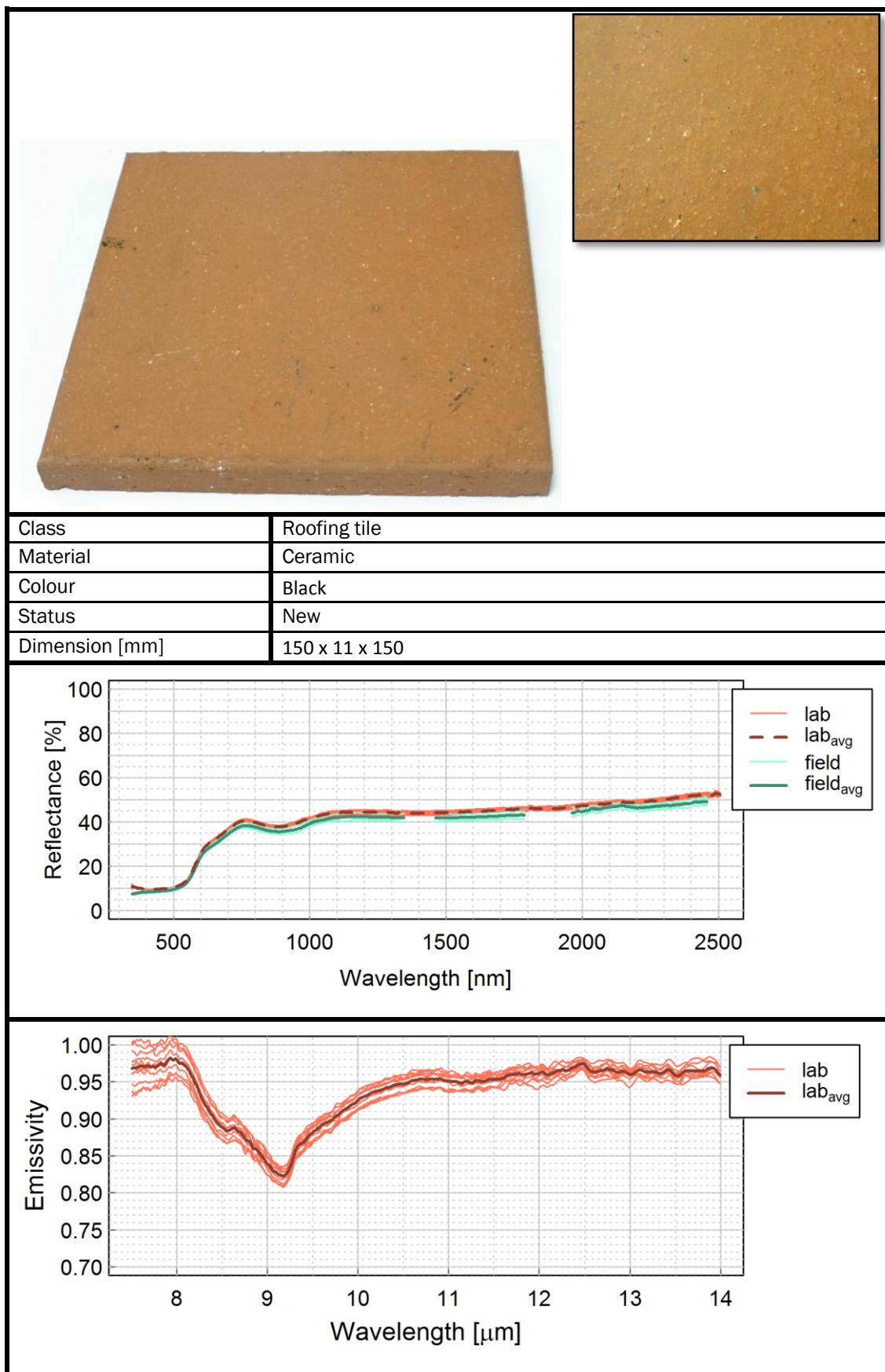
Class	Roofing shingle
Material	Fibre cement
Colour	Black
Status	Weathered
Dimension [mm]	232 x 3 x 241



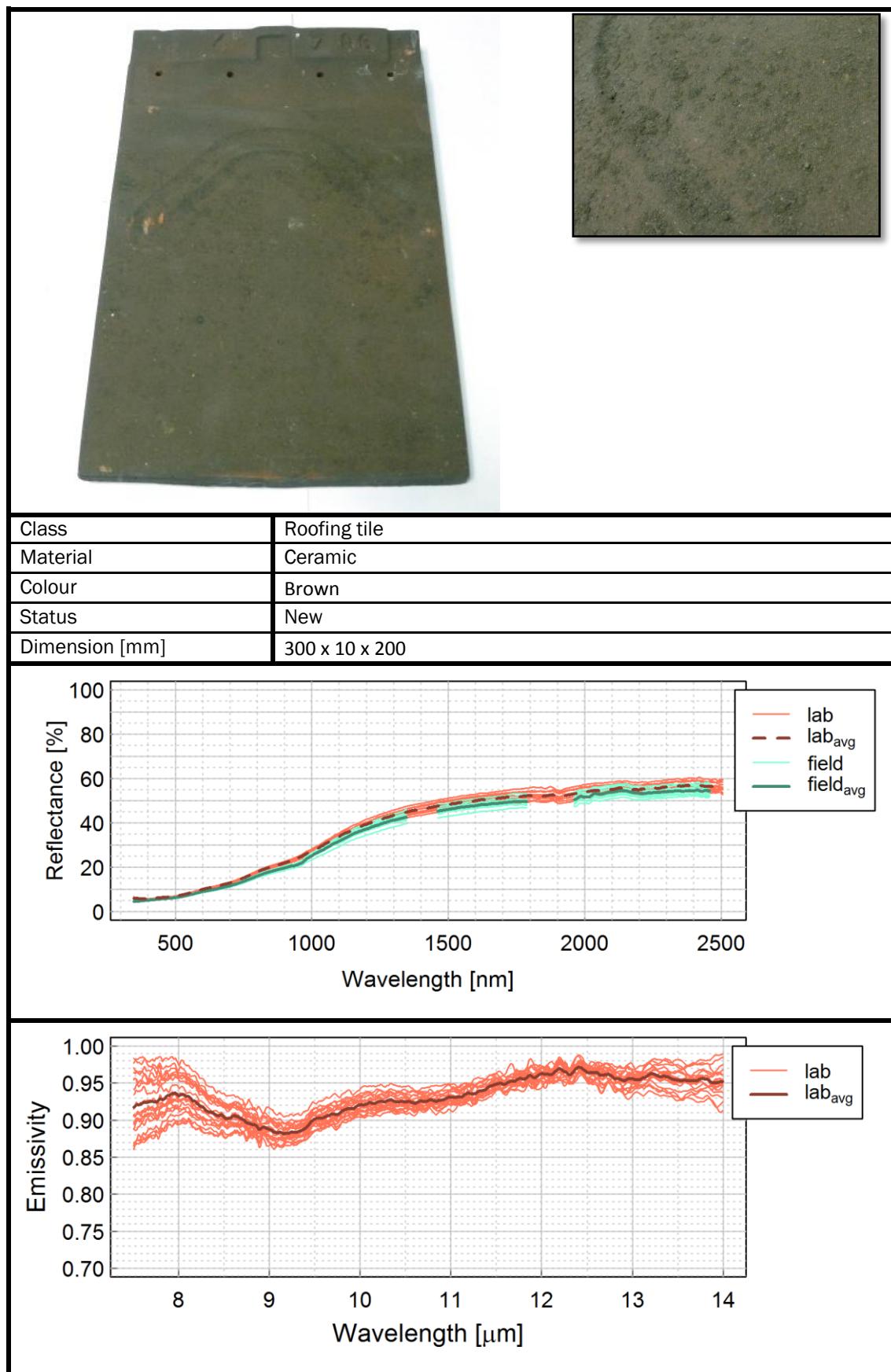
ROOFING SHINGLE L003



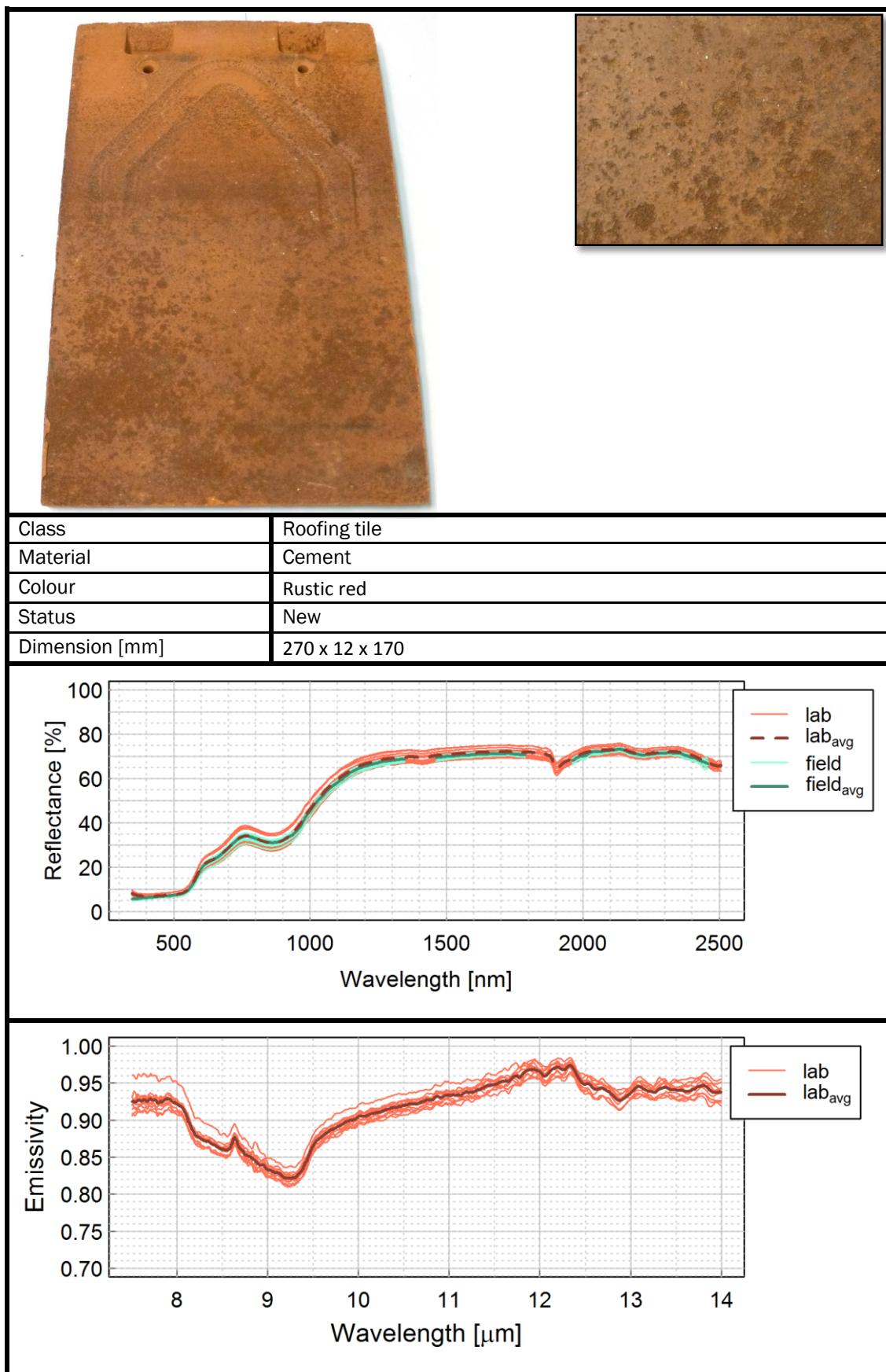
ROOFING TILE_{R001}



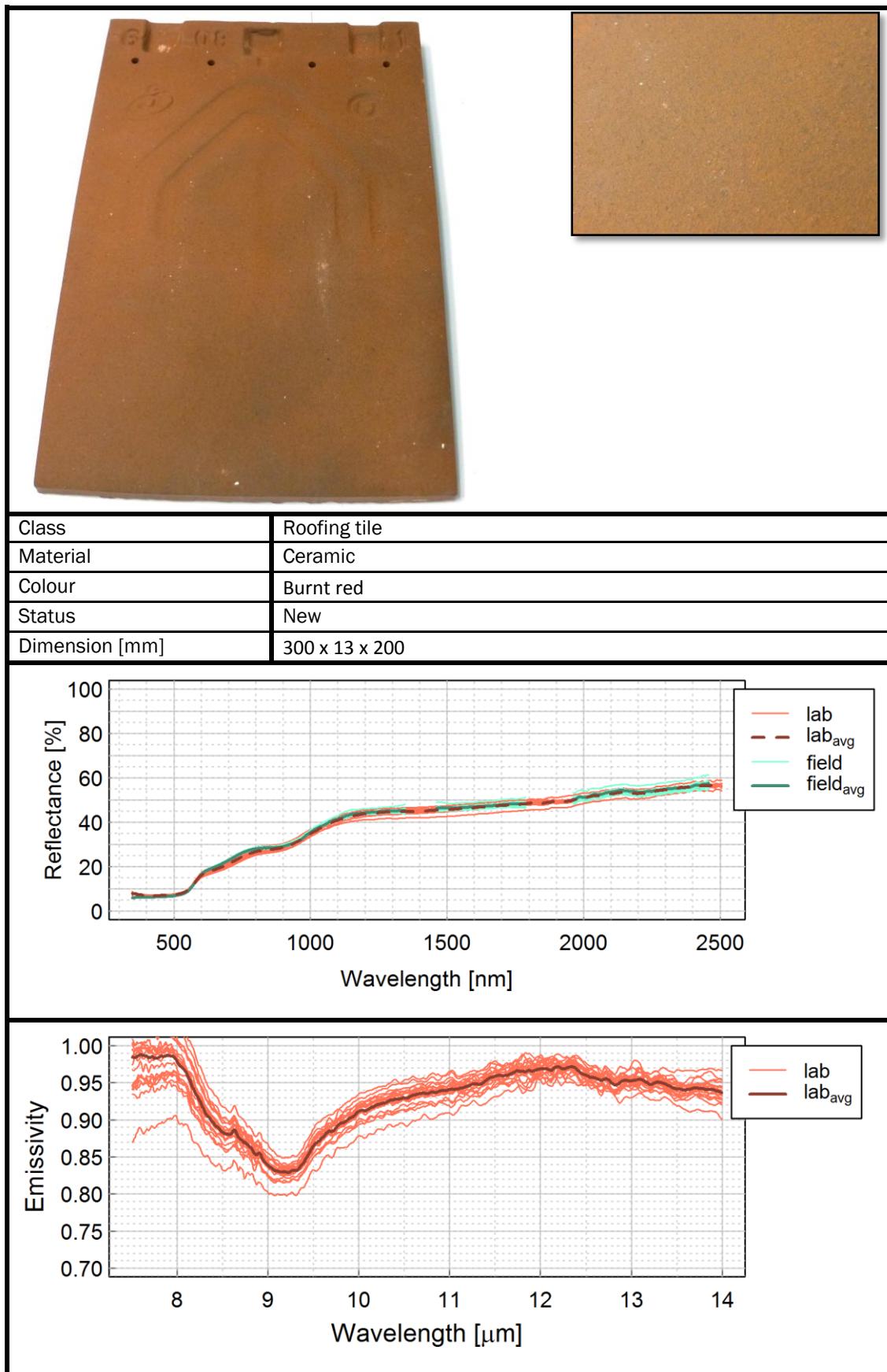
ROOFING TILE_{R002}



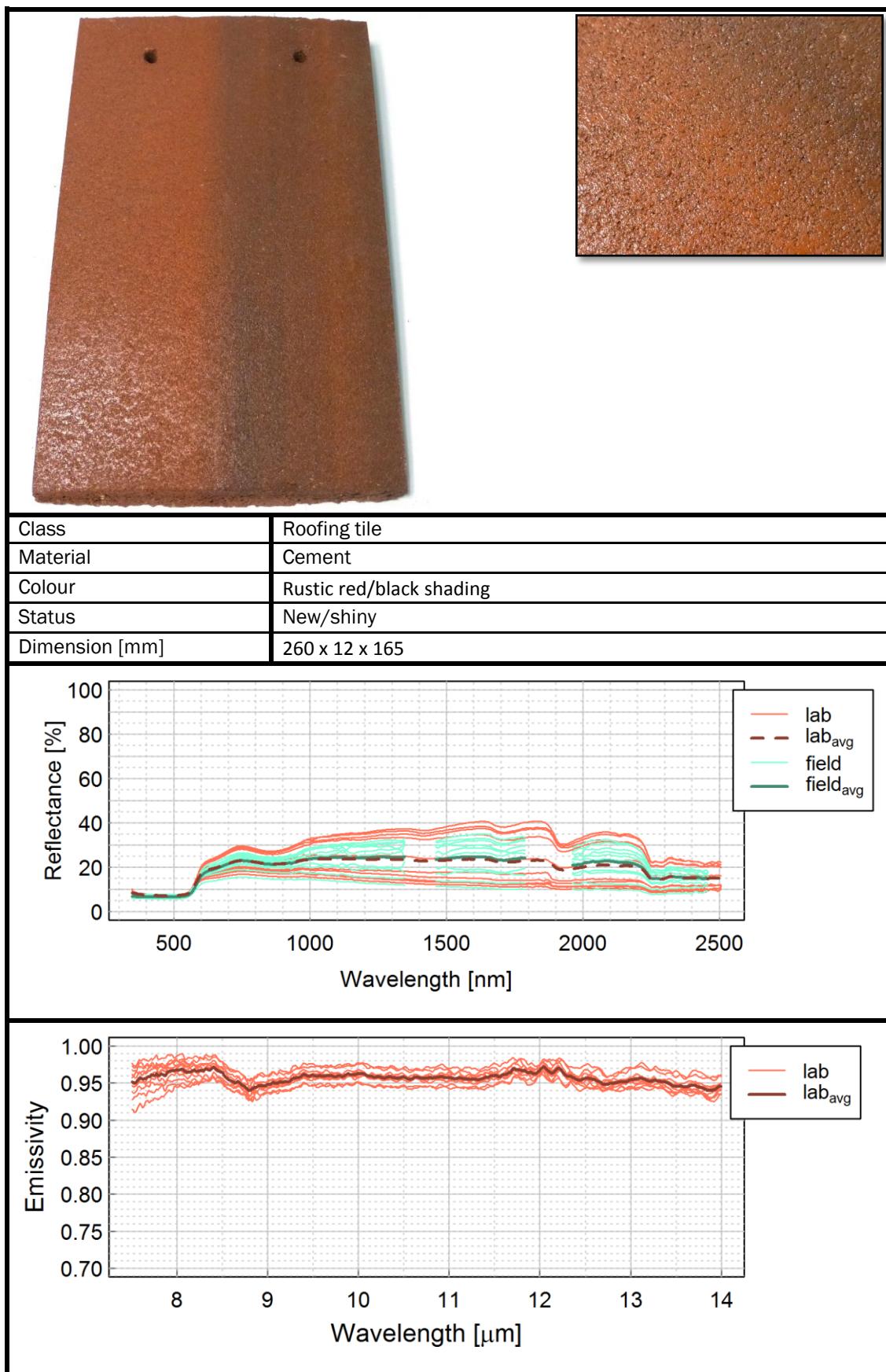
ROOFING TILE_{R003}



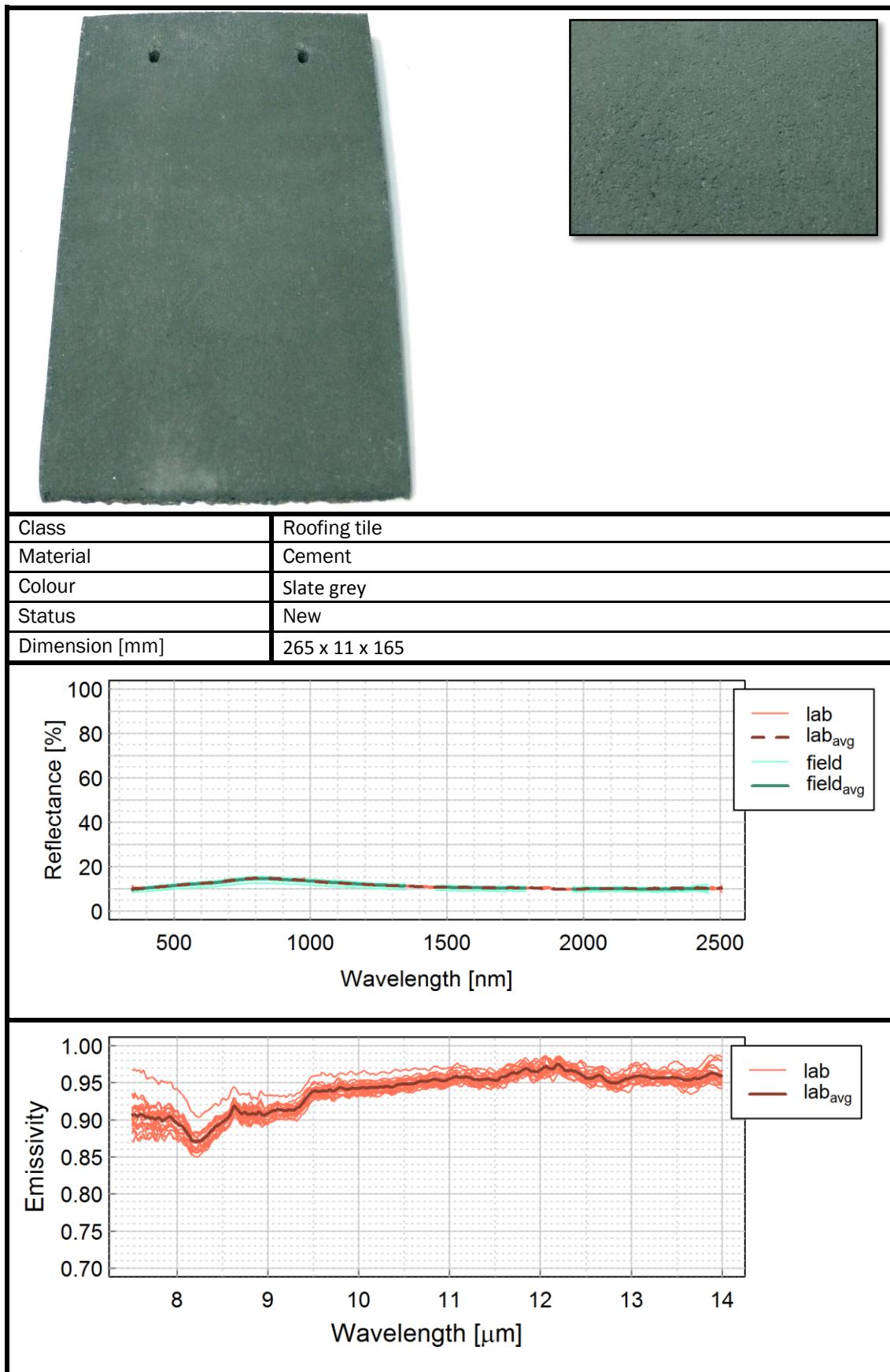
ROOFING TILE_{R004}



ROOFING TILE_{R005}



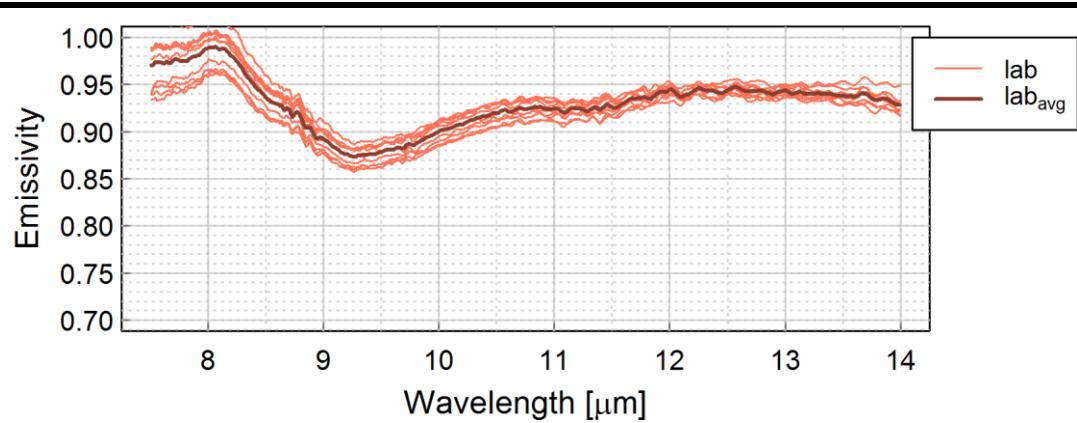
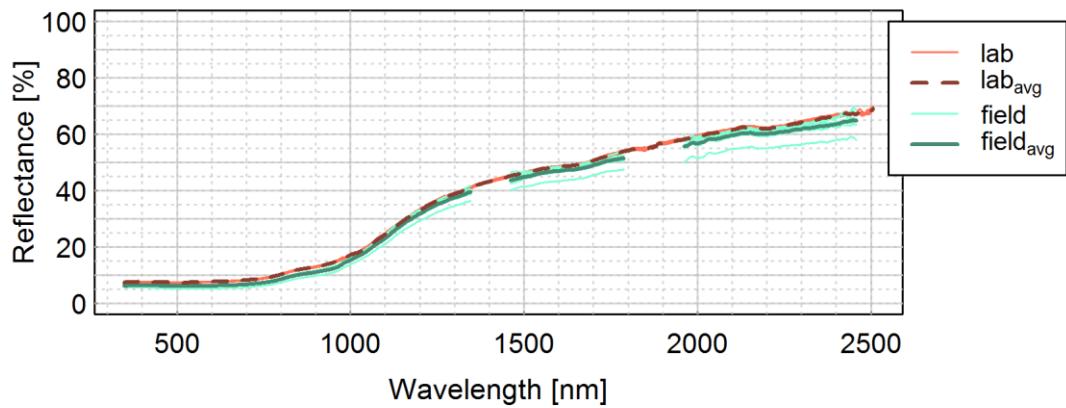
ROOFING TILE_{R006}



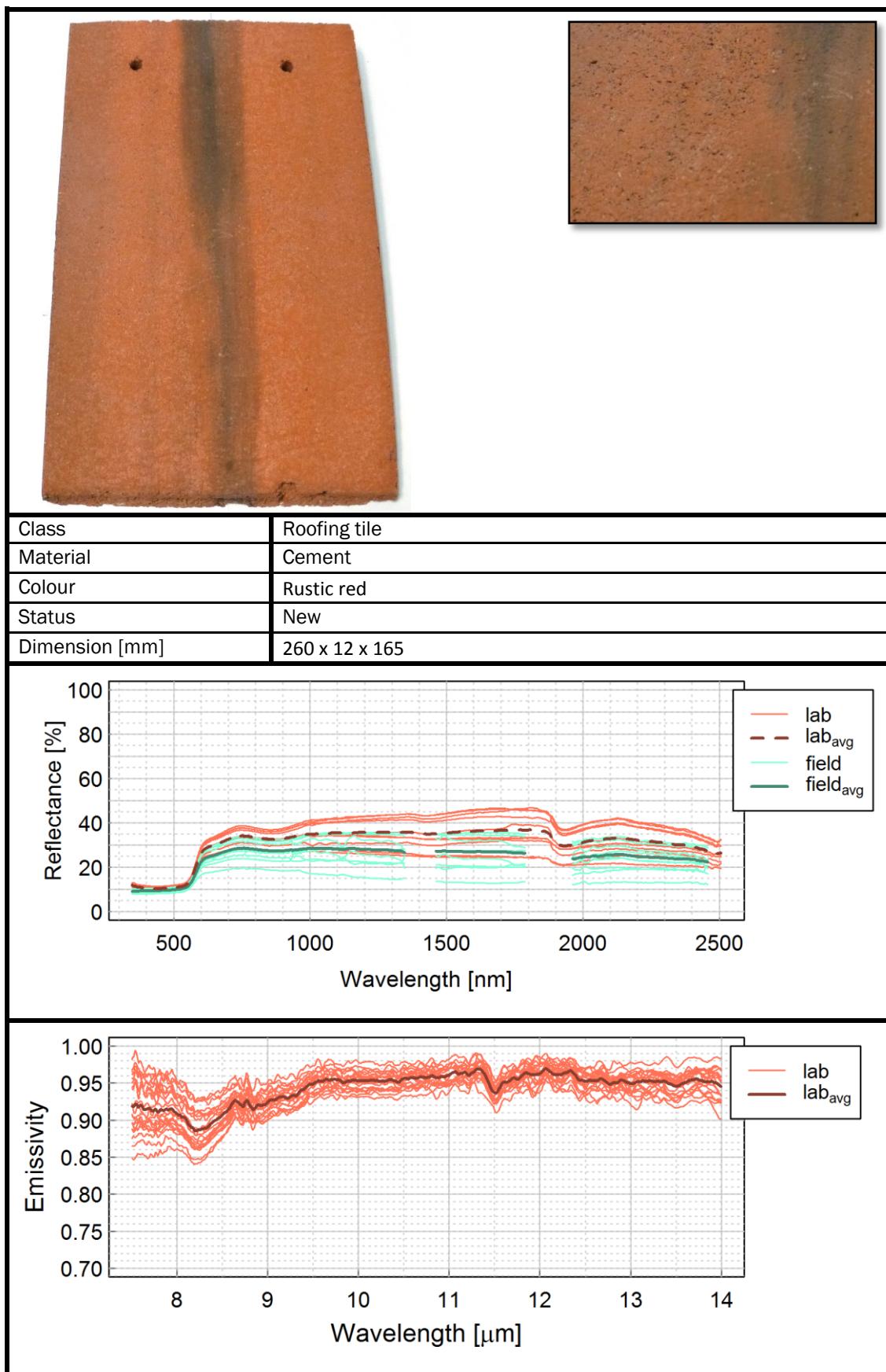
ROOFING TILE R007



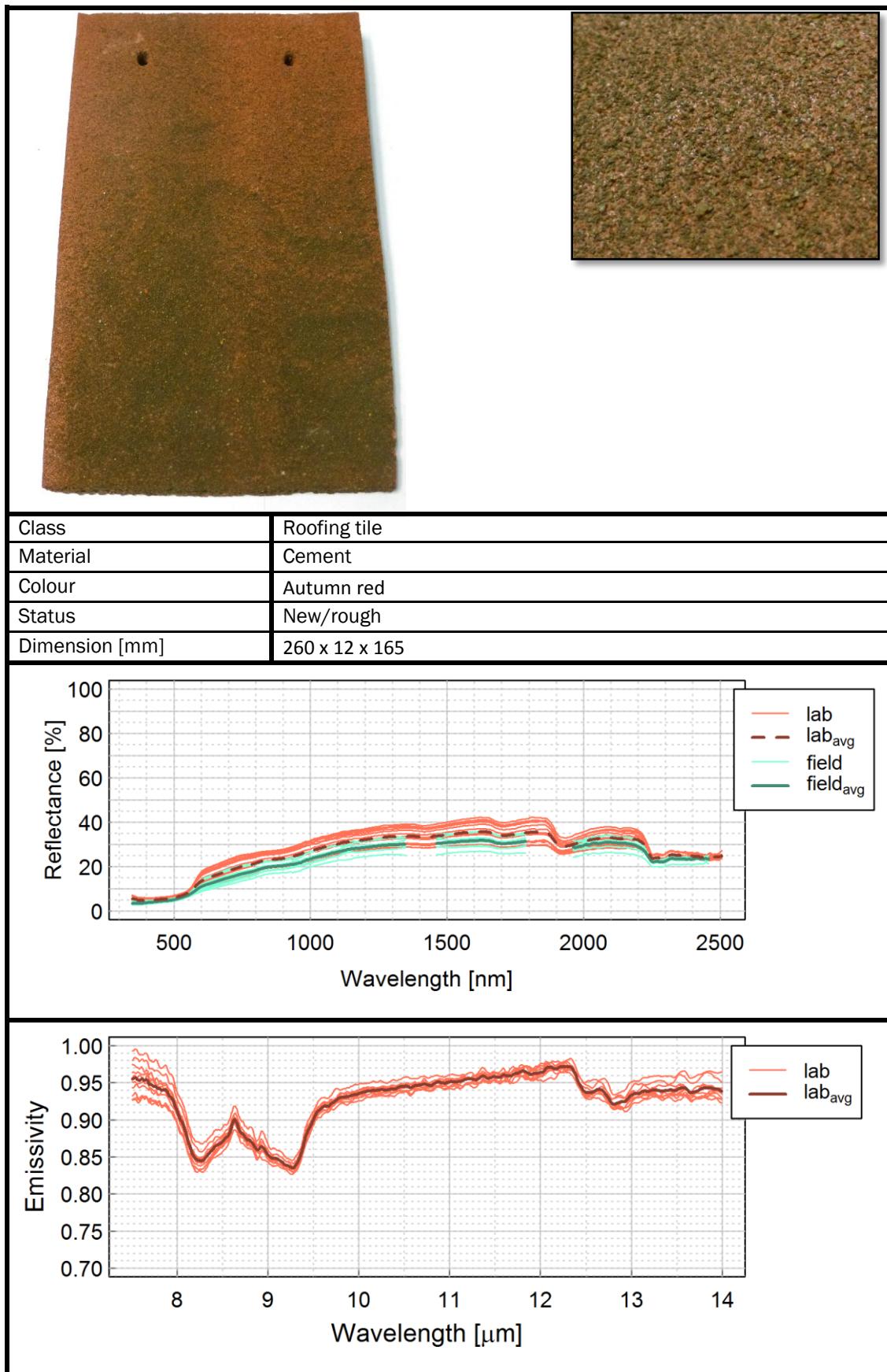
Class	Roofing tile
Material	Ceramic
Colour	Black
Status	New
Dimension [mm]	410 x 15 x 320



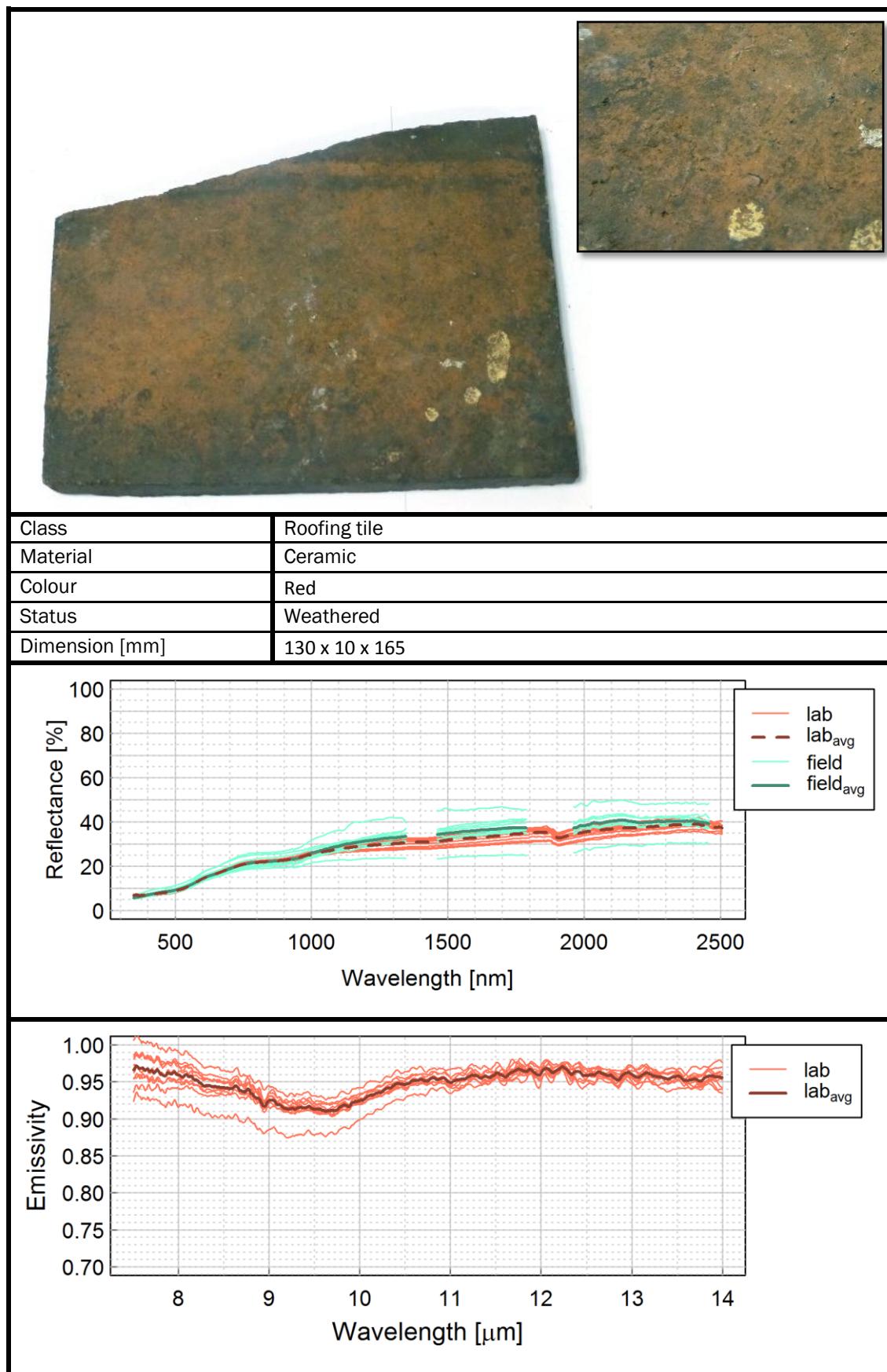
ROOFING TILE_{R008}



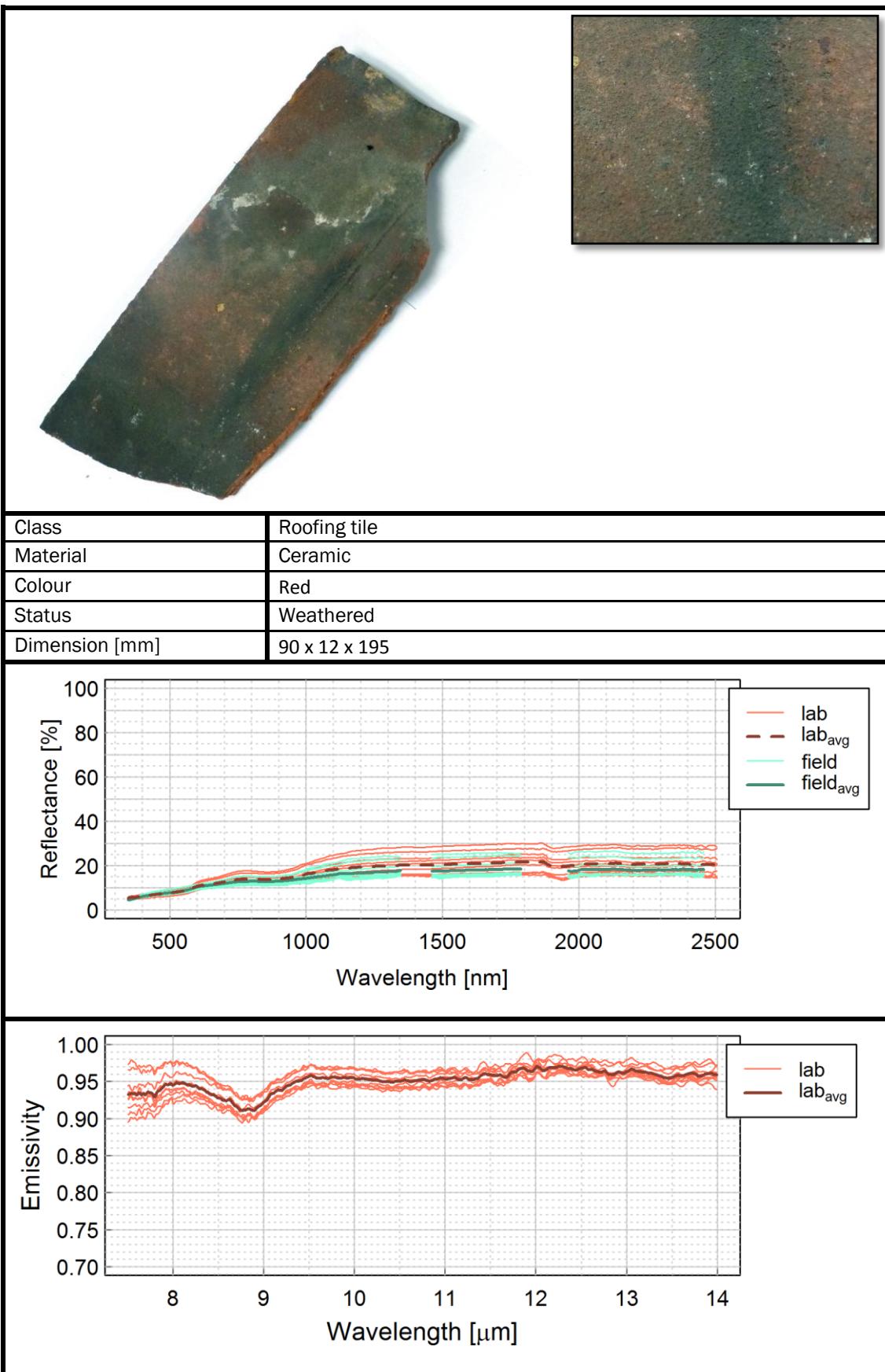
ROOFING TILE_{R009}



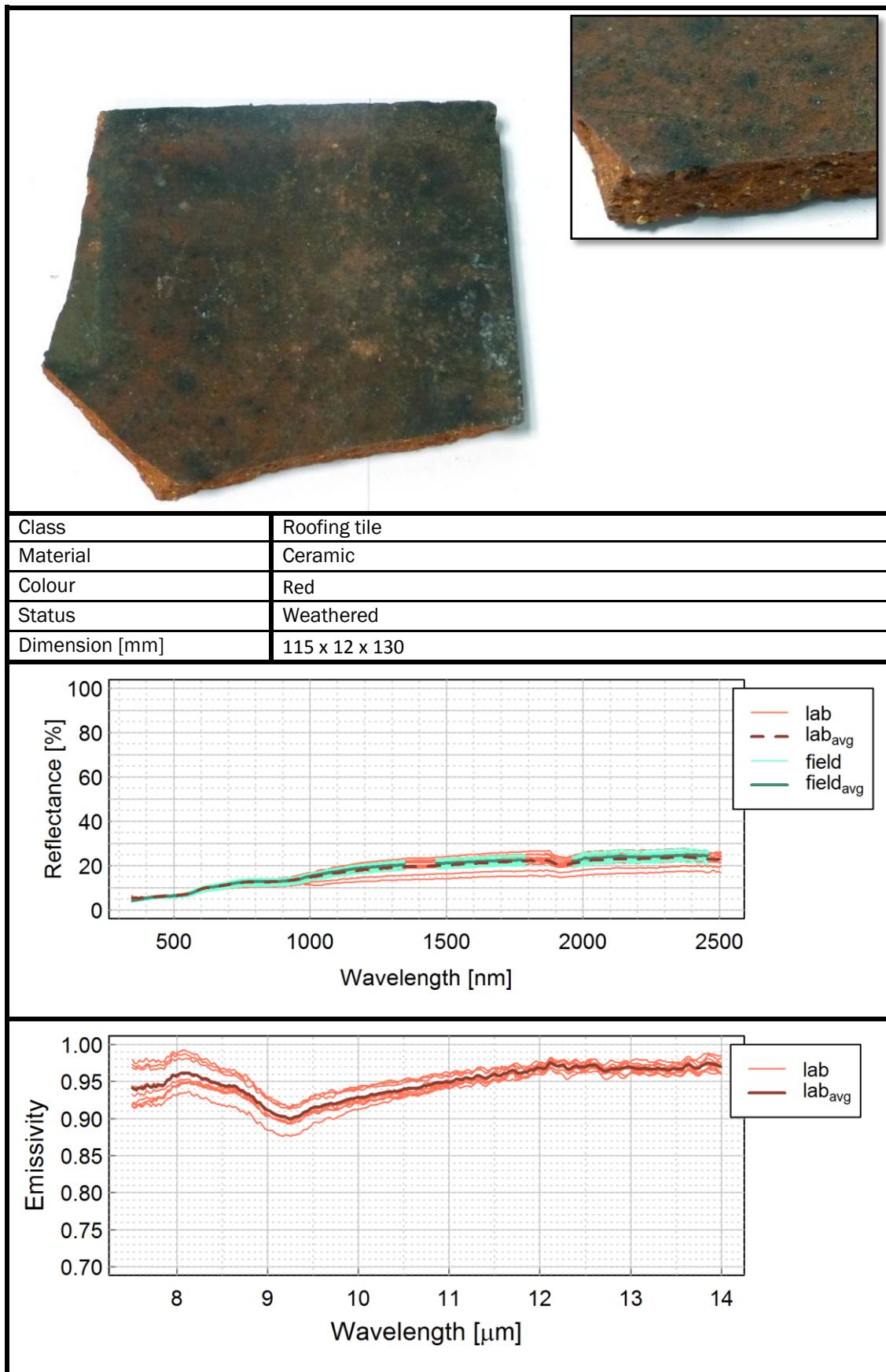
ROOFING TILE_{R010}



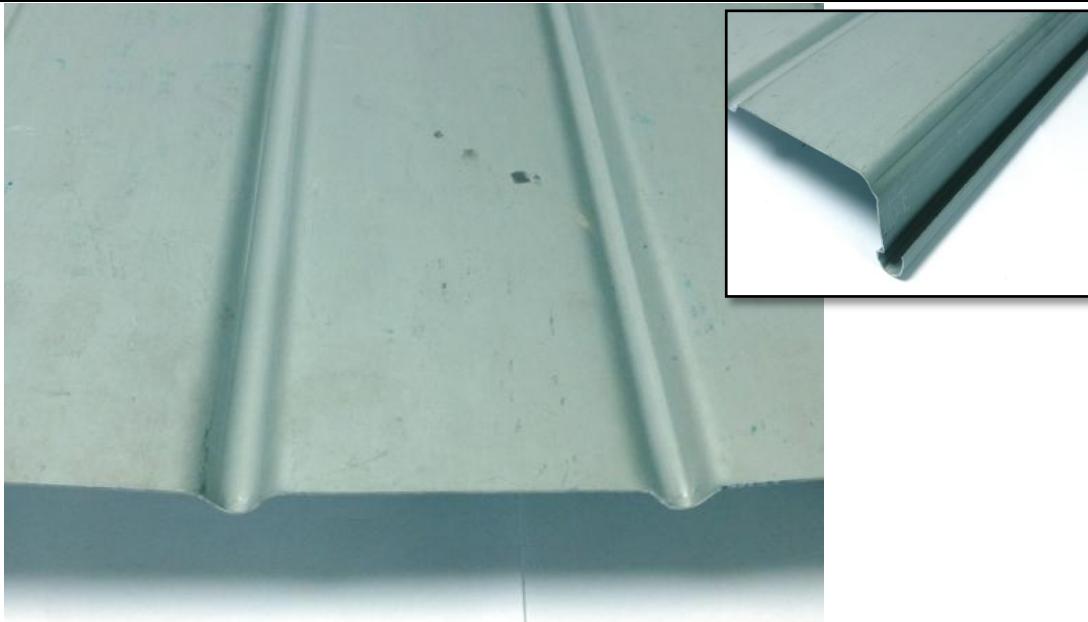
ROOFING TILE_{R012}



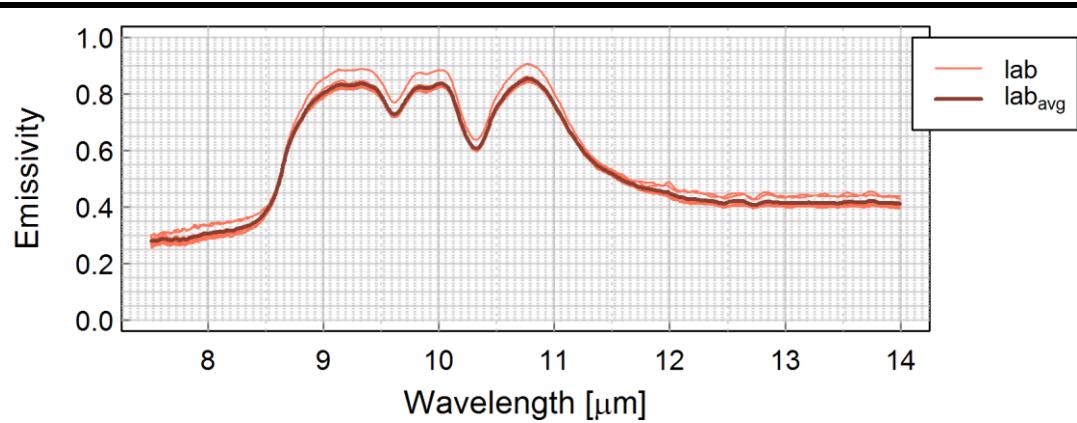
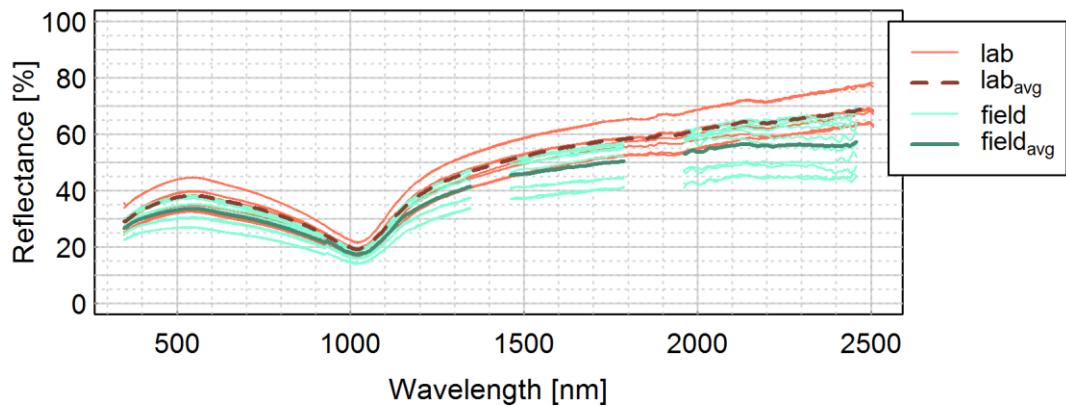
ROOFING TILE_{R013}



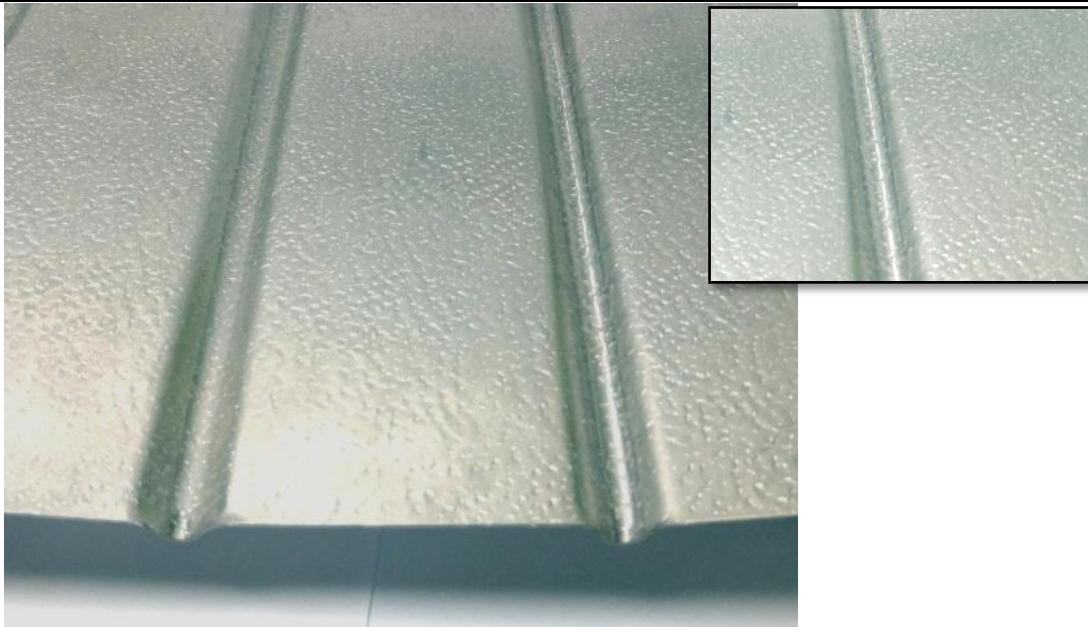
METAL_{z001}



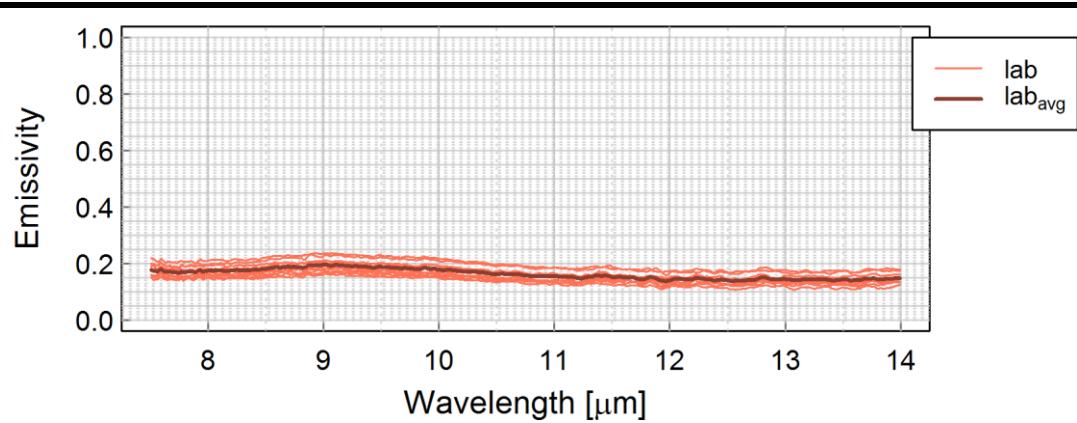
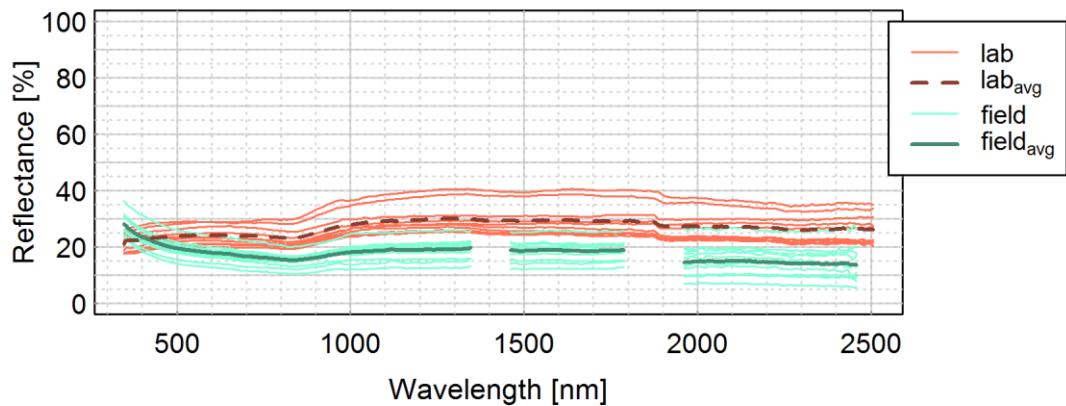
Class	Metal
Material	Aluminium plus zinc
Colour	Dull grey
Status	New
Dimension [mm]	390 x 1 x 295



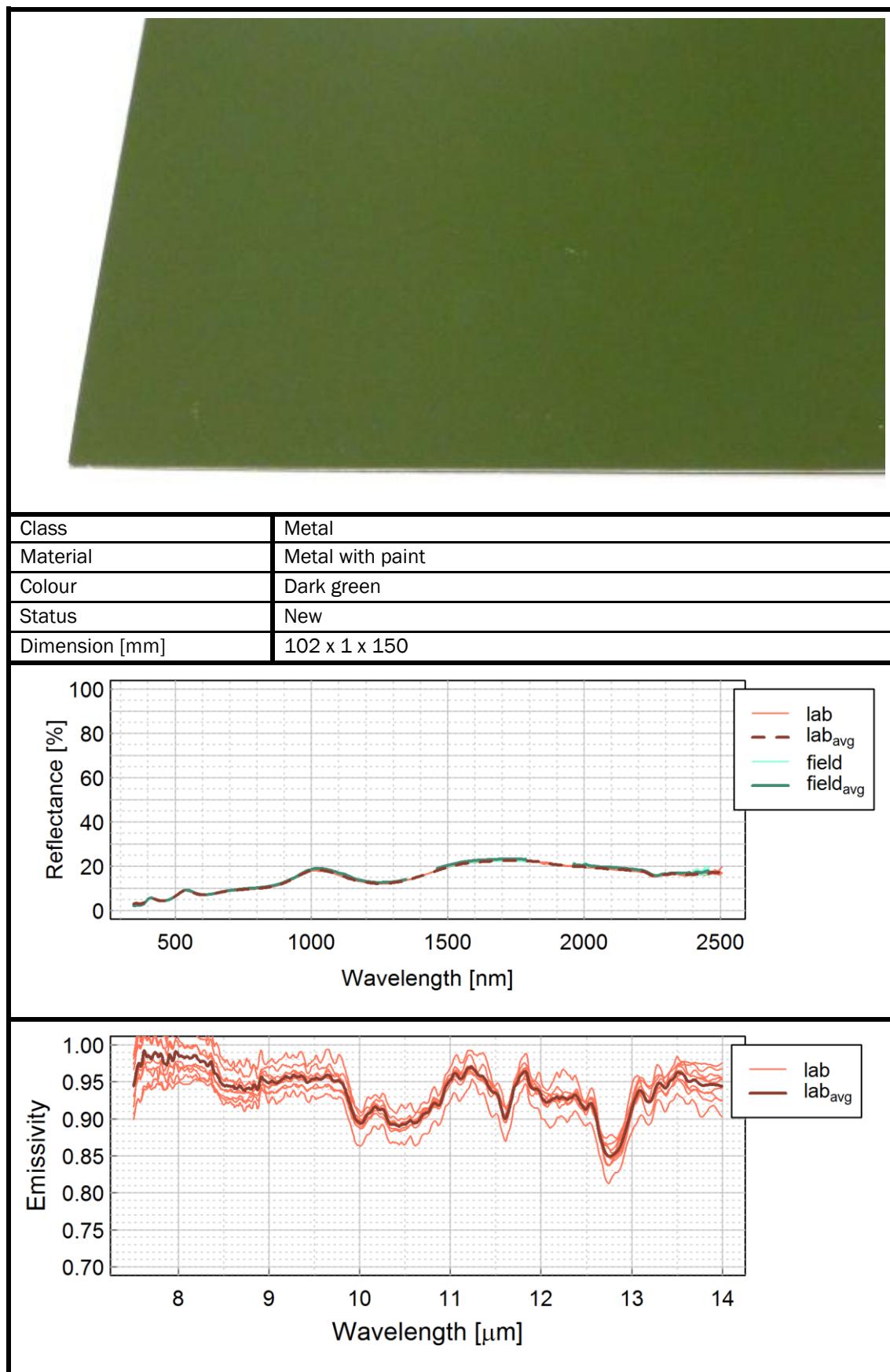
METAL_{z002}



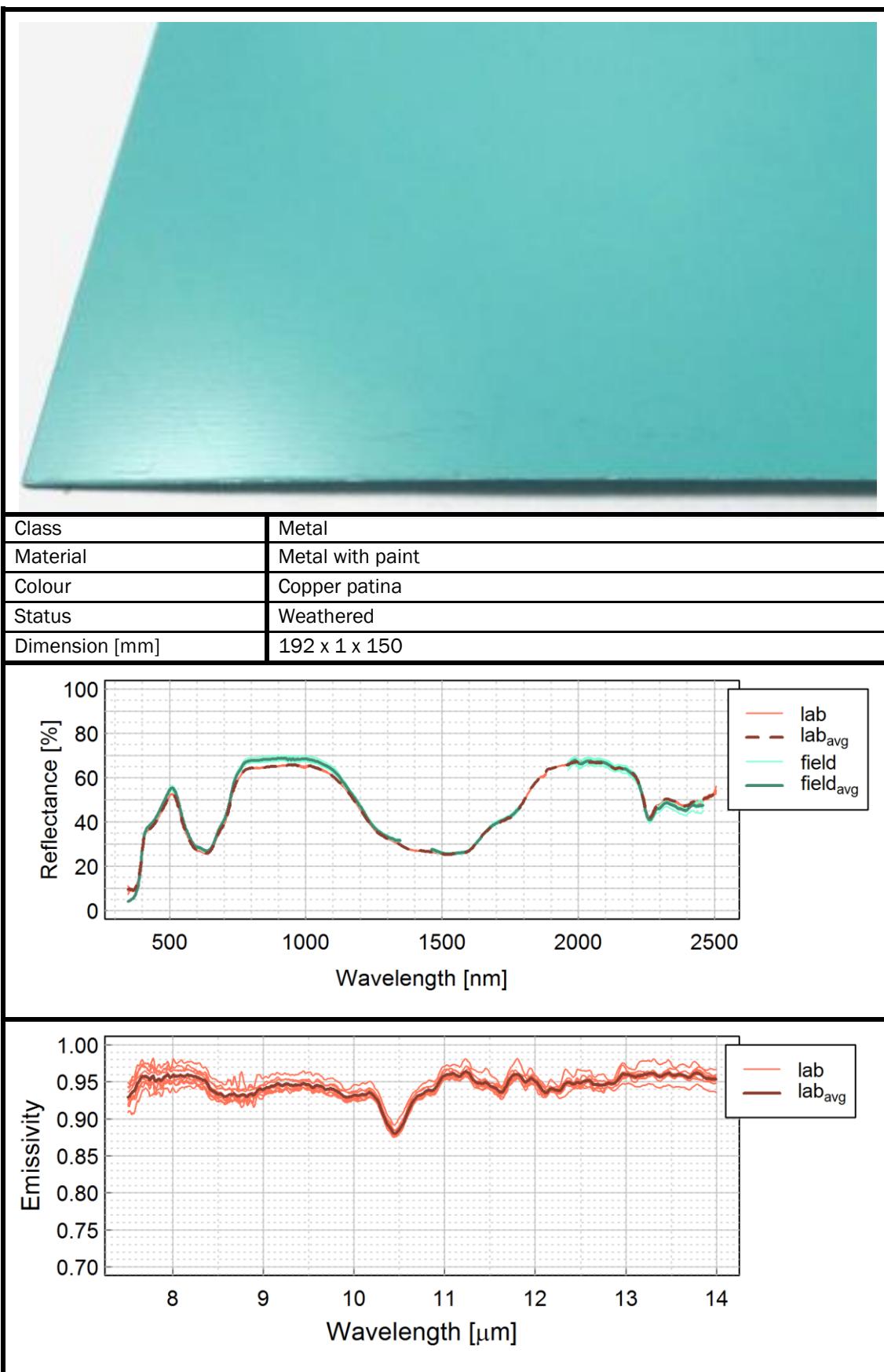
Class	Metal
Material	Aluminium, stucco
Colour	Shiny grey
Status	New
Dimension [mm]	380 x 1 x 295



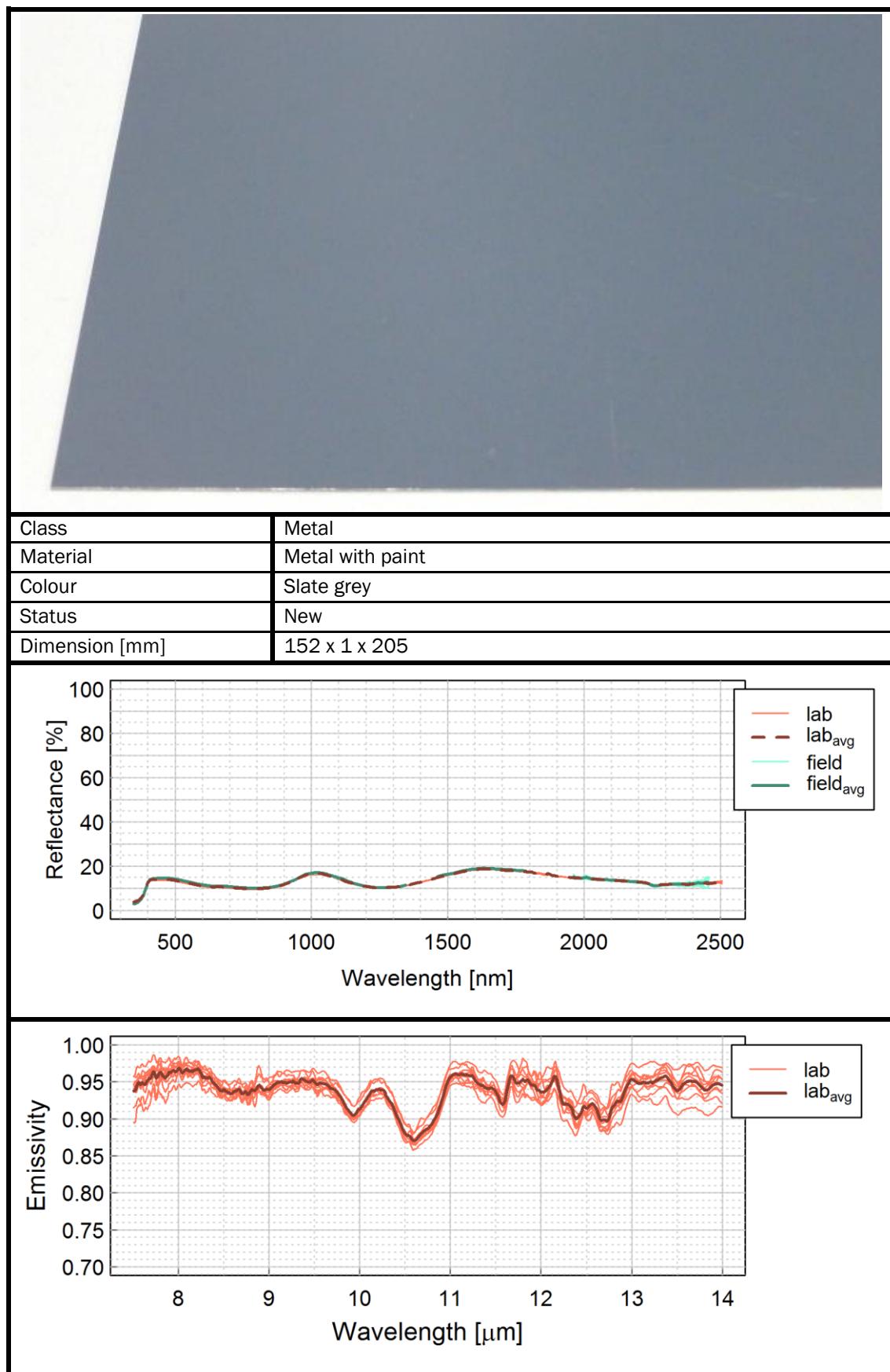
METAL_{z003}



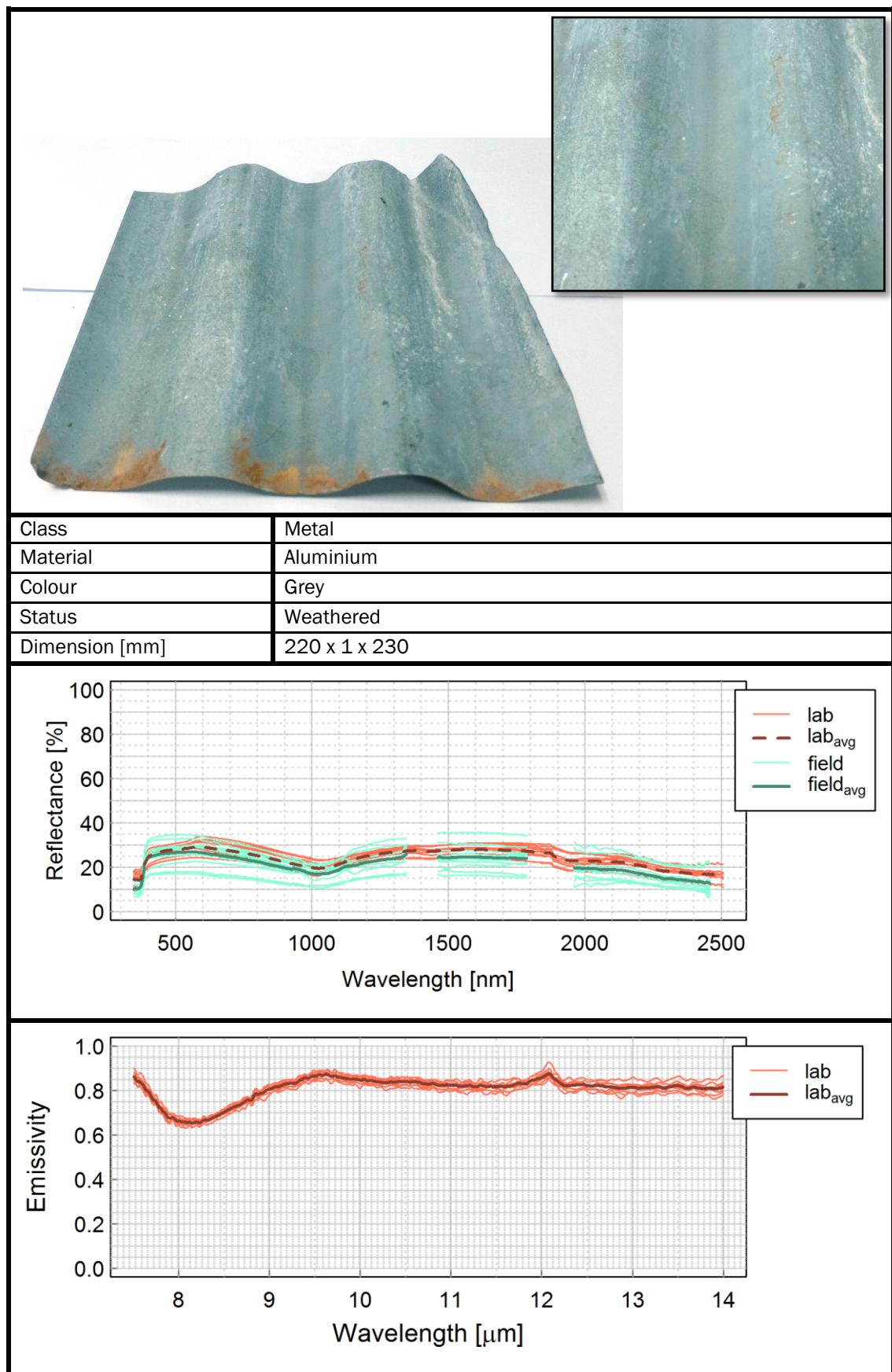
METAL_{z004}



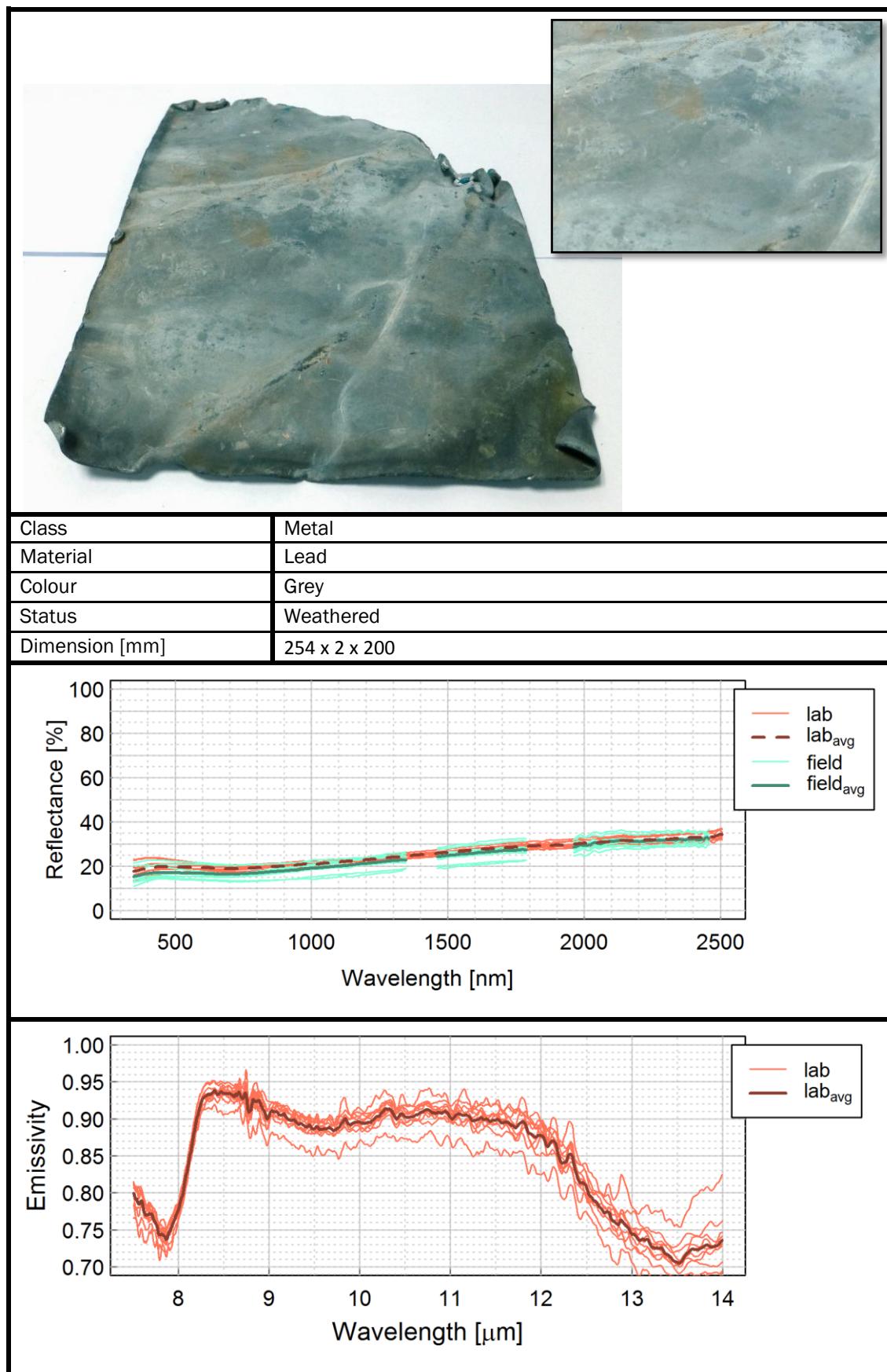
METAL_{z005}



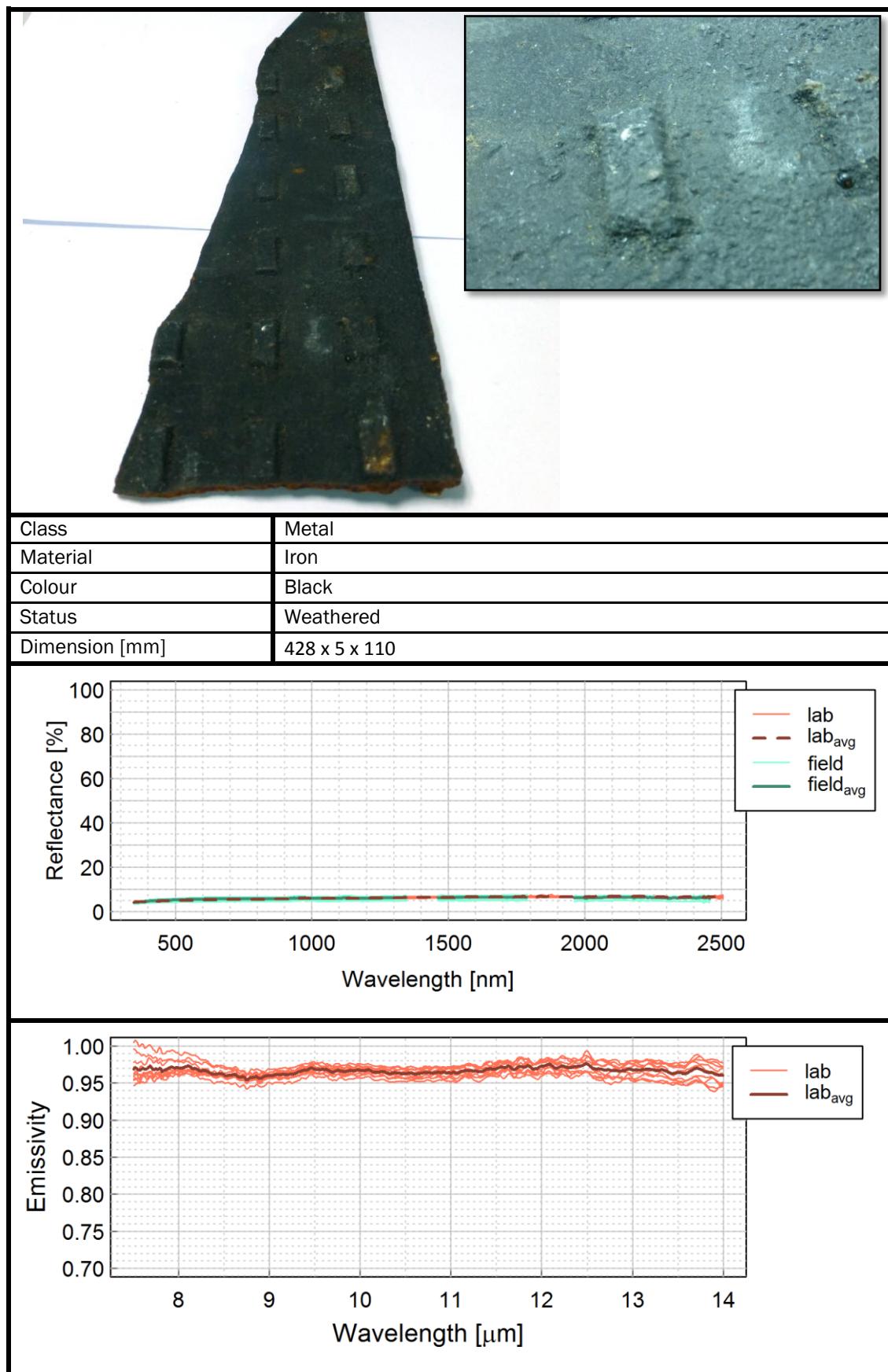
METAL_{z006}



METAL_{z007}



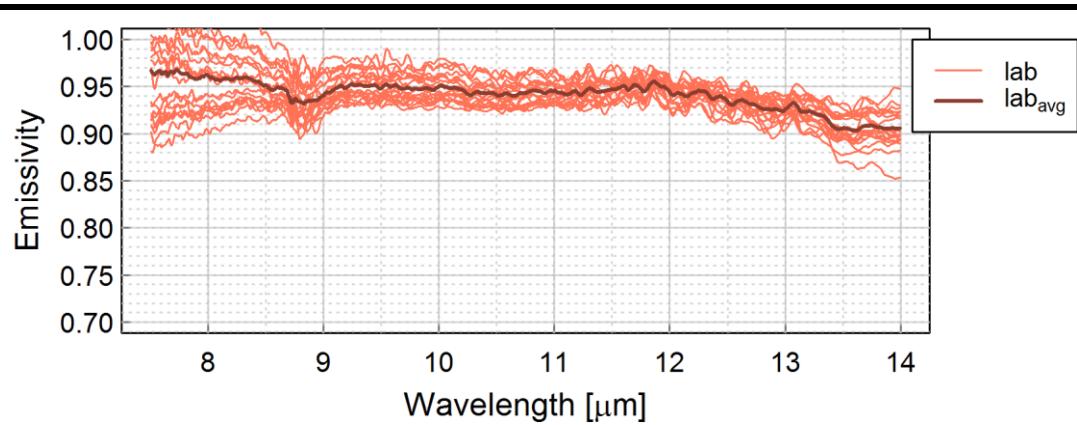
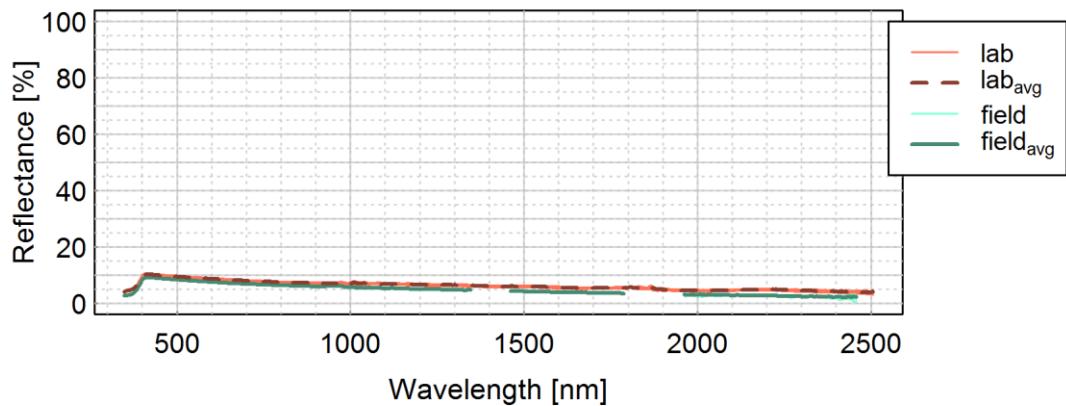
METAL_{z008}



PVCv001



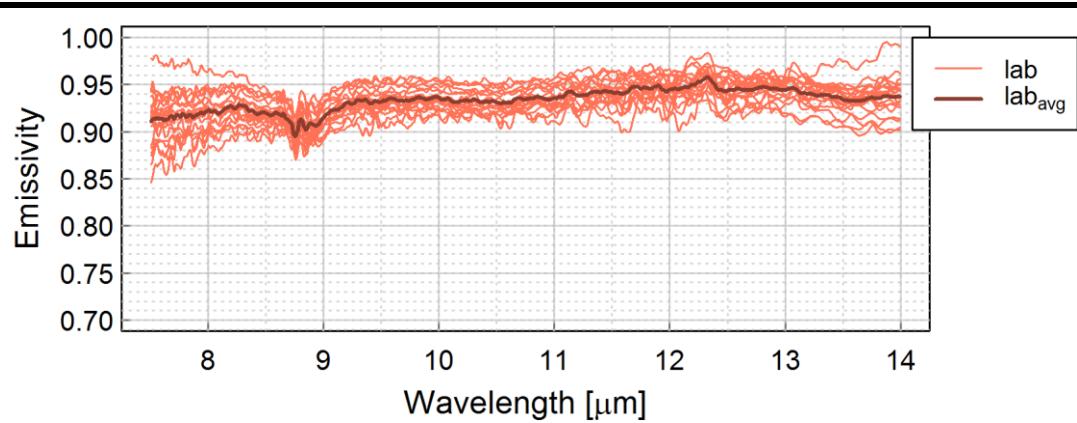
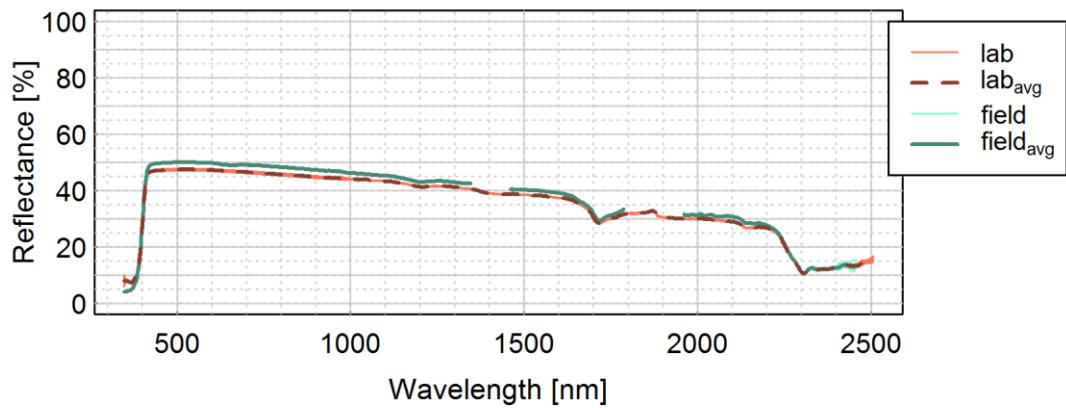
Class	PVC roofing sheet
Material	PVC
Colour	Lead grey
Status	New
Dimension [mm]	146 x 1 x 204



PVCv002



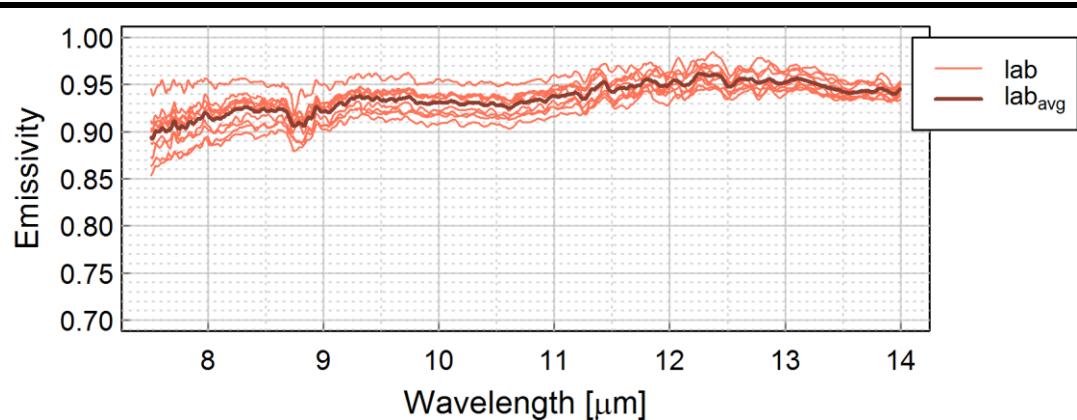
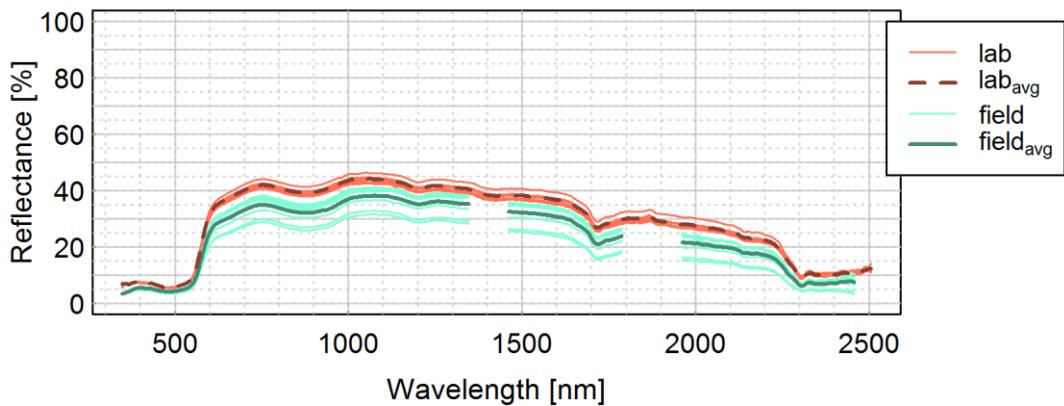
Class	PVC roofing sheet
Material	PVC
Colour	Light grey
Status	New
Dimension [mm]	146 x 1 x 204



PVCv003



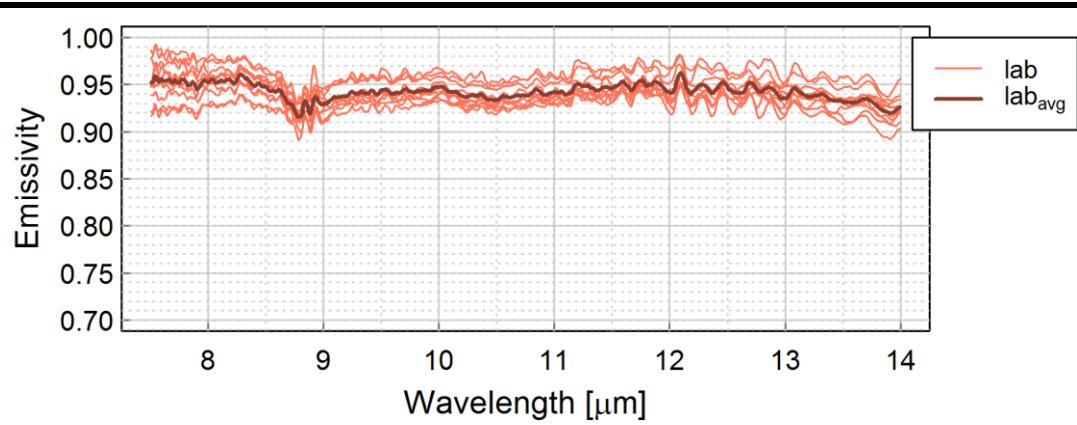
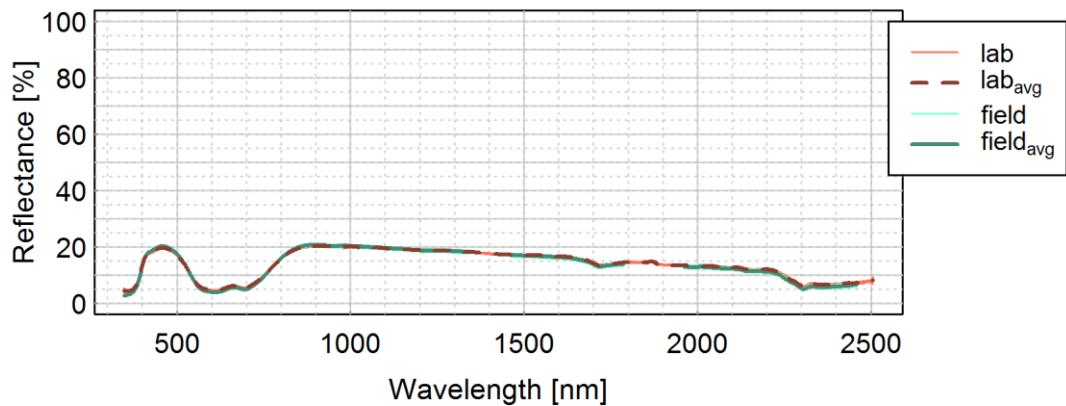
Class	PVC roofing sheet
Material	PVC
Colour	Copper
Status	New/structured
Dimension [mm]	146 x 1 x 204



PVCv004



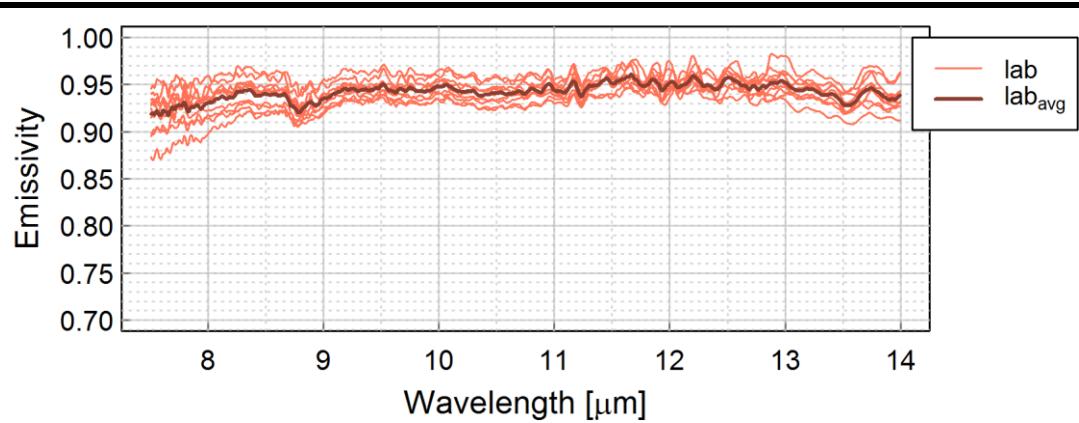
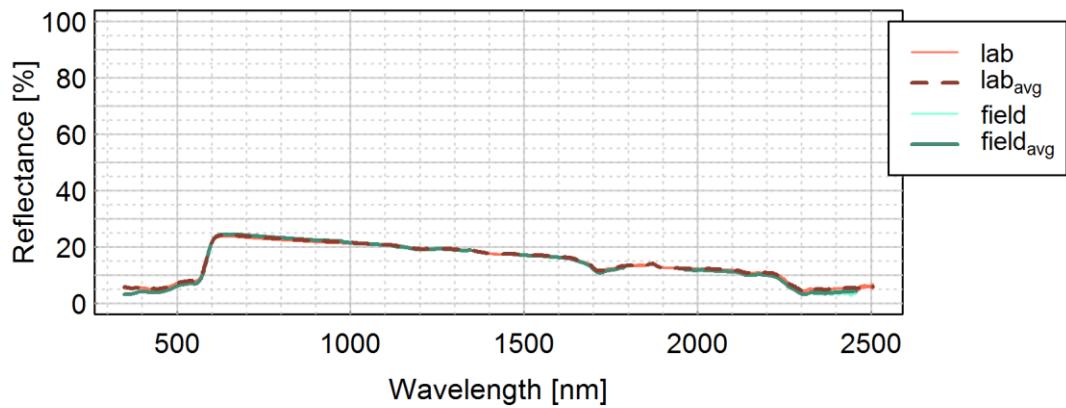
Class	PVC roofing sheet
Material	PVC
Colour	Azure blue
Status	New
Dimension [mm]	146 x 1 x 204



PVCv005



Class	PVC roofing sheet
Material	PVC
Colour	Copper brown
Status	New
Dimension [mm]	146 x 1 x 204



PVCv006



Class	PVC roofing sheet
Material	PVC
Colour	Copper patina
Status	New
Dimension [mm]	146 x 1 x 204

