



COST

COST Action MP1307

Stable Next Generation Photovoltaics: Unraveling Degradation Mechanisms of Organic Solar Cells by Complementary Characterization Techniques.

2nd MC Meeting and 1st WG Meeting

Yulia Galagan

WP2: Cells and Modules

Hotel Condes de Barcelona, Barcelona, Spain. 8th -9th October, 2014



Sample information

- Samples are divided as
Industrial (I), Modules (M), Cells (C) and Films (F)
- Please fill in the template with ALL the requested information
- Provide photos of the device, top and bottom, Including a ruler
- Please be aware that all information provided/obtained is NOT CONFIDENTIAL and can be published

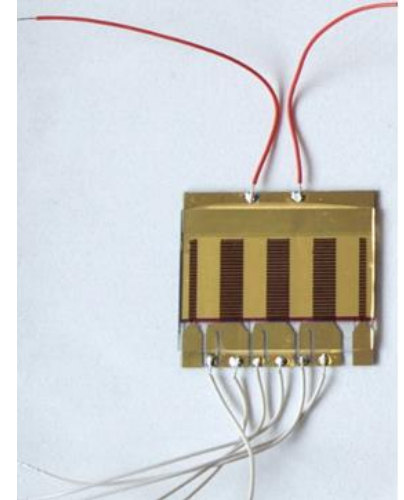


Requirements to the sample

- Only well reproducible samples can be selected
- All samples should be delivered with cable contacts or microcontacts
- Sufficient quantity of the samples
- Set of the samples with variable parameters (e.g. different photoactive materials, different interlayers, electrodes, etc.)

Delivery of the samples

- All samples should be **labeled**
- All samples should be delivered with cable **contacts** or microcontacts
- The owner of the samples should perform **IV** curves and **IPCE** analysis of all devices before delivery
- A **pdf** file should be prepared and included with the samples showing all the IV curves and IPCE spectra
- A table with the photovoltaic **data** should be provided





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Available Samples:
Result of Survey

Institution Name	Country	Name	Can you supply complete OPV samples?	Can you supply partial cells/components like electrodes, bilayers, ITO replacement?	Can you supply modules?	Can you supply barrier materials?
SOLVAY	BE	Patrick Francoisse		Yes		
Instituto de Telecomunicações	PT	Ana Maria de Matos Charas	Yes			
CLARET, Bangor University (*)	UK	Jeff Kettle	Yes	Yes		
Heliatek (*)	DE	Martin Hermenau	Yes		Yes	
UCC - Tyndall National Institute (*?)	IE	Richard Winfield		Yes		Yes
University of Rome Tor Vergata	IT	Francesca Brunetti	Yes	Yes	Yes	
Selcuk University (*)	TK	Mahmut	Yes	Yes	Yes	
IAPP, TU Dresden	DE	Lars Müller-Meskamp	Yes	Yes		
ECN	NL	Sjoerd Veenstra	Yes	Yes	Yes	Yes
TÜBİTAK	TK	Elif Alturk Parlak	Yes			
Wroclaw Research Centre EIT +	PL	Filip Granek	Yes	Yes		Yes
Vrije Universiteit Amsterdam	NL	Elizabeth von Hauff	Yes	Yes		
TEI of Crete	GR	Emmanuel Kymakis	Yes	Yes		
Technical University of Denmark	DK	Frederik C. Krebs		Yes	Yes	
DTU Energy Conversion and Storage (*)	DK	Nieves Espinosa	Yes	Yes	Yes	Yes
Holst Centre	NL	Yulia Galagan	Yes	Yes	Yes	
DisaSolar	FR	Arrivé	Yes	Yes	Yes	

List of potential samples producers for a first round

Institution		Responsible
Instituto de Telecomunicações	PT	Ana Charas
Heliatek	DE	Martin Hermenau
Solliance	NL	Yulia Galagan
CLARET, Bangor University	UK	Jeffrey Paul Kettle
Tübitak	TK	Elif Alturk Parlak
Wroclaw R. Center EIT	PL	Filip Granek
TU-Ilmenau	DE	Harald Hoppe
DTU	DK	Nieves Espinosa



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Sample TYPE:
Industrial

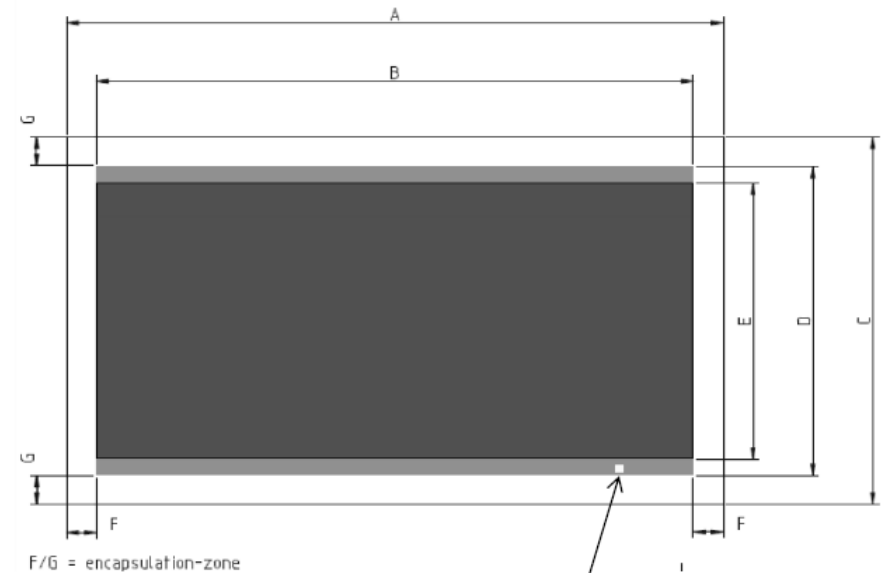
Samples: Heliatek (DE)

Sample ID:

Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	PET		
Transparent Electrode	ITO	110 nm	
Transport Layer			E
Active Layer			E
Transport Layer			E
Metal electrode	Aluminum		E
Encapsulation	Flexible, high barrier		
Contacts (4 point, 2 point)	2 point		

Number of samples to deliver: 50

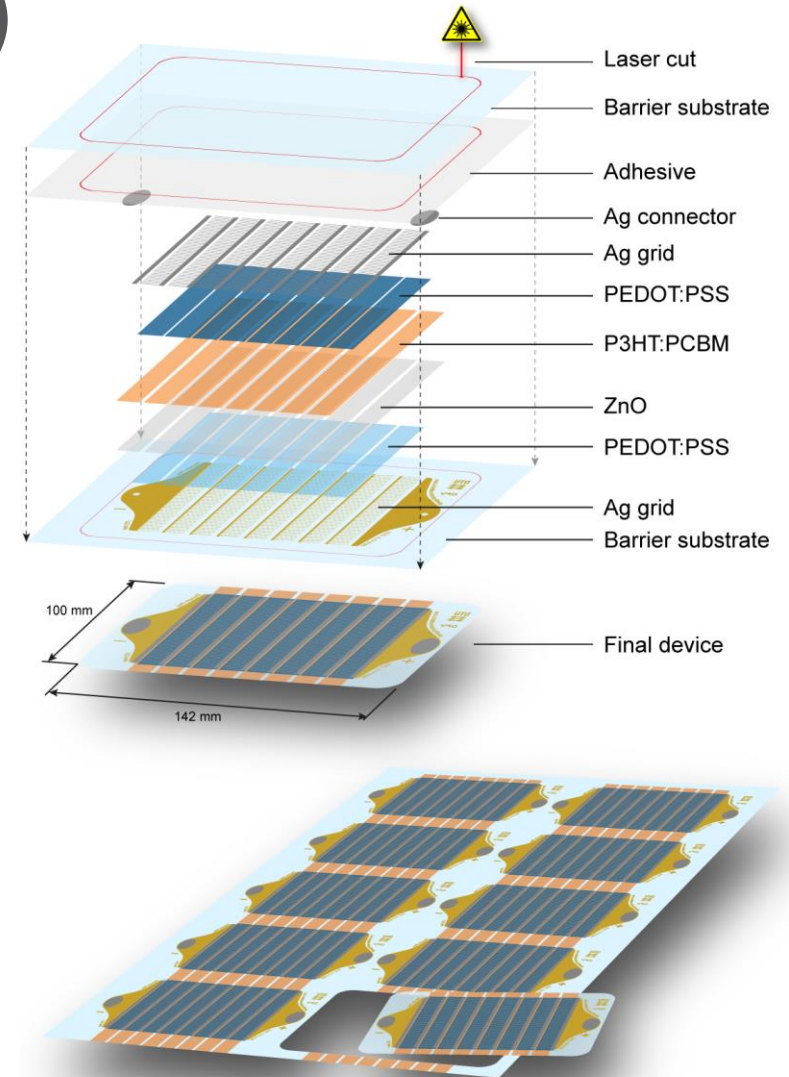
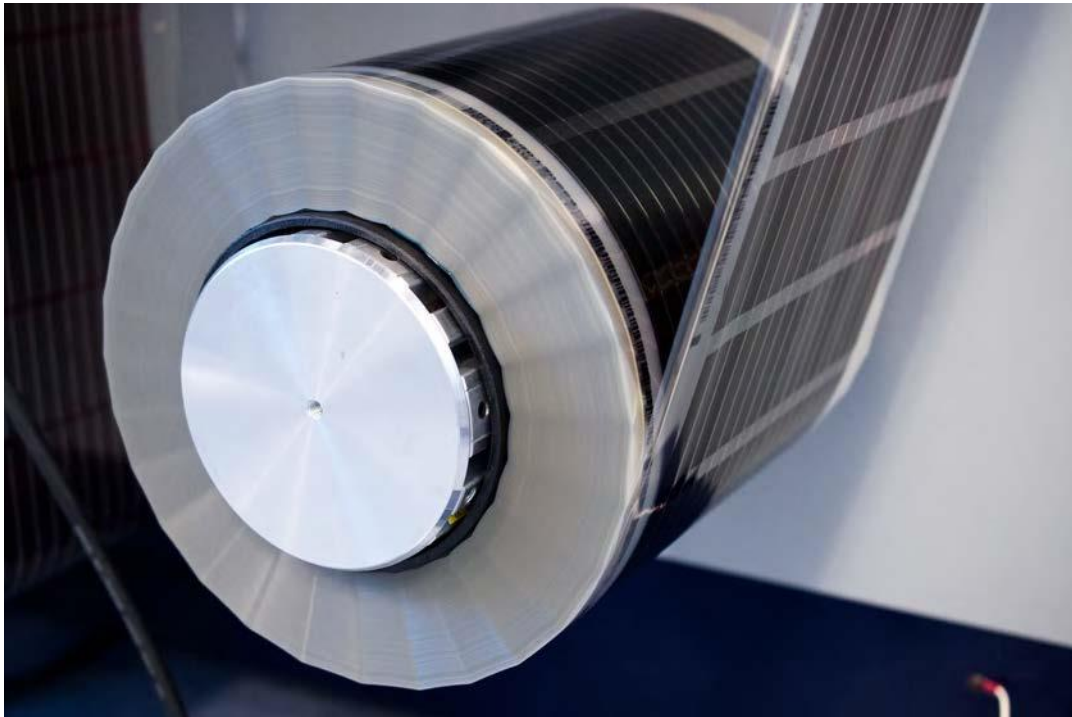
technical drawing front view



A	film length	300 mm
B	device length	250 mm
C	film width	322 mm
D	device width	272 mm



Samples: DTU (DK)



Number of samples to deliver:



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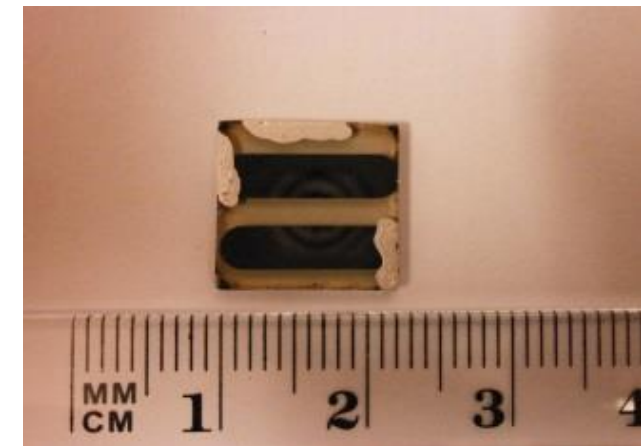
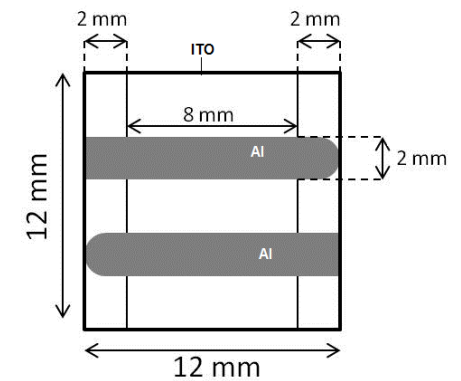
Sample TYPE:

Cell



Samples: Instituto de Telecomunicações (PT)

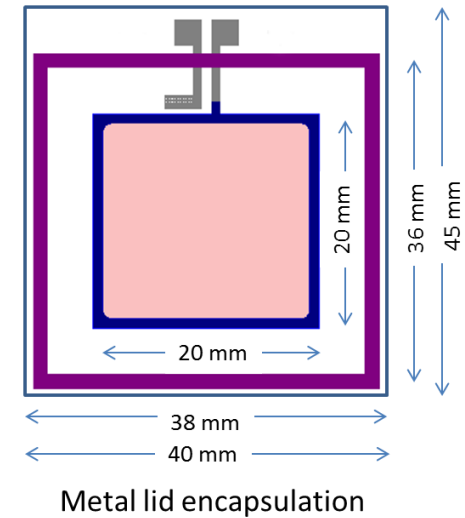
Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	glass	1 mm	-
Transparent Electrode	ITO	150 nm	
Transport Layer	PEDOT:PSS	40 nm	Spin coated
Active Layer	F8T2*:PC60BM	ca. 100 nm	Spin coated
Transport Layer	no	-	
Metal electrode	LiF/Al	LiF-1.5 nm; Al-60-100 nm	E
Encapsulation	none		
Contacts (4 point, 2 point)	2		



Number of samples to deliver: 8

Samples: Solliance (NL)

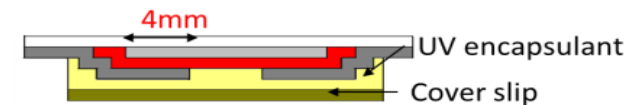
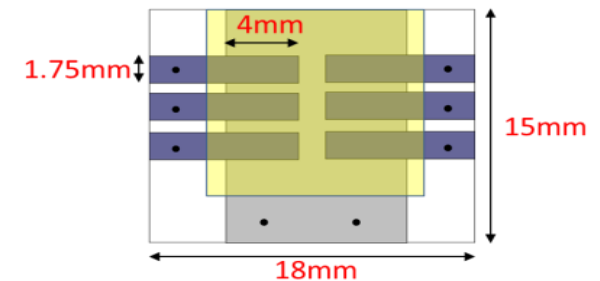
Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	glass	0.7 cm	
Transparent Electrode	ITO	120	
Transport Layer	ZnO	~30	P
Active Layer	P3HT:PCBM PCDTBT:PC(70)BM	~220	P
Transport Layer	PEDOT:PSS	~100	P
Metal electrode	Ag	100	E
Encapsulation	Metal lid		
Contacts (4 point, 2 point)	2-point		



Number of samples to deliver: ± 20

Samples: CLARET, School of Electronics, Bangor University (UK)

Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	Glass	3mm	n/a
Transparent Electrode	ITO	80nm	E
Transport Layer	ZnO	45nm	E
Active Layer	PTB7:PC ₇₁ BM +ODT	110nm	P
Transport Layer	MoO ₃	8nm	E
Metal electrode	Ag	100nm	E
Encapsulation	Epoxy/glass	1mm	P
Contacts (4 point, 2 point)	2 point		

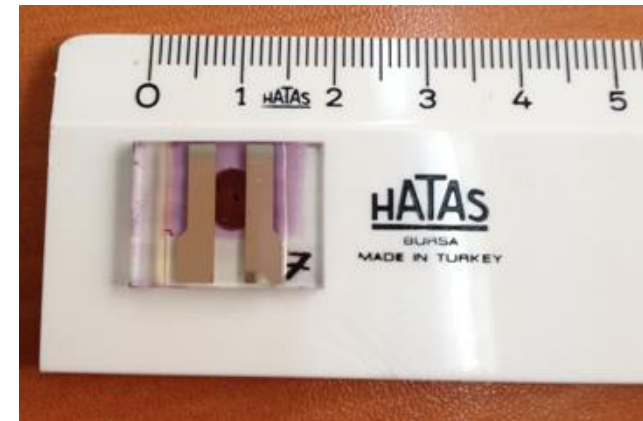
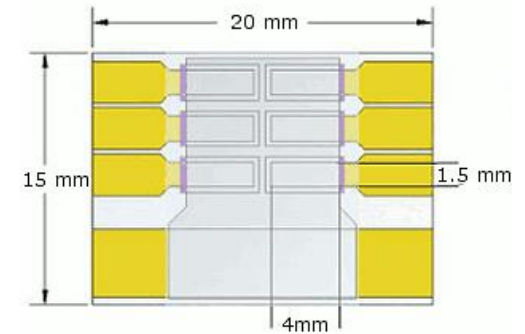


Indium soldered wire to be used for devices

Number of samples to deliver: 5

Samples: Tübitak (TK)

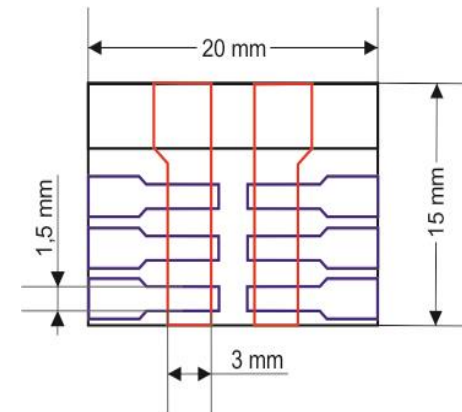
Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	Glass	10 ⁶	
Transparent Electrode	ITO	120	
Transport Layer	PEDOT:PSS	45	
Active Layer	P3HT:PCBM		
Transport Layer	Ca	10	
Metal electrode	Al	100	
Encapsulation	Ossila		
Contacts (4 point, 2 point)	2		



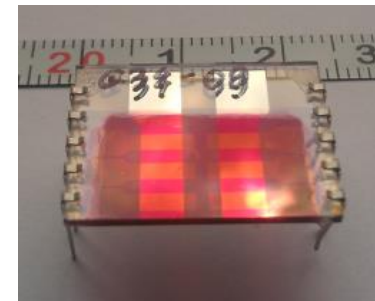
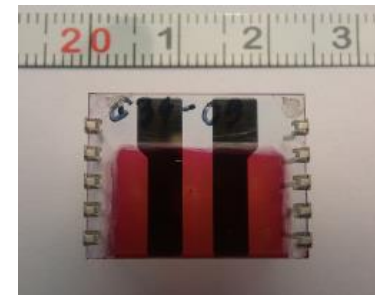
Number of samples to deliver: 10

Samples: Wroclaw Research Centre EIT+ (PL)

Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	Glass	1100000	B
Transparent Electrode	ITO	100	B
Transport Layer	ZnO	~50-60	S
Active Layer	P3HT:PCBM	~65-300	S
Transport Layer	MoO ₃	~12	E
Metal electrode	Ag	~200	E
Encapsulation	None/UV-curable epoxy		
Contacts (4 point, 2 point)	2 point		



— cathode
— anode
active area
4.5 mm²
(1.5x3 mm)

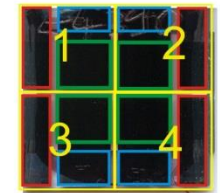
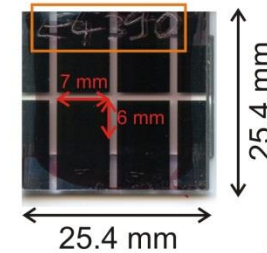


Number of samples to deliver: ?

Samples: TU Ilmenau (DE)

Layer	Material	Thickness (nm)	Printed (P) Or Evaporated (E)
Substrate	Float glass	1,000,000	
Transparent Electrode	ITO	150	
Transport Layer	PEDOT:PSS	50	P
Active Layer	PCDTBT:PCBM	80	P
Transport Layer	TiOx	10	P
Metal electrode	Aluminum	300	E
Encapsulation	Glass	1,000,000	
Contacts (4 point, 2 point)	2-point		

unique ID, scratched
on each sample



4 cells on each substrate
with 0.42 cm² active area
plus contacts
minus contacts

Number of samples to deliver: 30

The logo for eccc coast features a stylized 'e' on the left, composed of a grey outline with a horizontal bar on its left side. This bar is divided into four colored segments: dark blue, purple, black, and orange. To the right of the 'e' is the text 'ccc coast' in a grey, blocky, sans-serif font.

eccc coast
