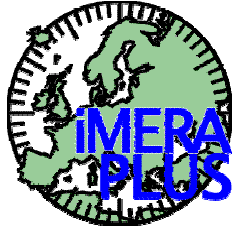

Session 5

Implementation and Measurements

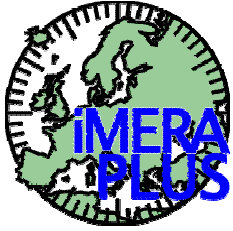


**Task 1 Modelled finite bus impedance effects on PQ parameters –
INM, NPL**

**Task 2 Develop an uncertainty analysis methodology to determine
the propagation of measurement errors through power quality
transforms – NPL, PTB**

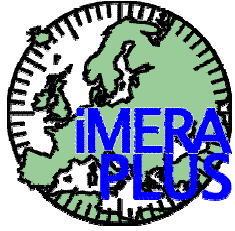
**Task 3 Harmonization of methodology and verification measurement
of PQ parameters – NPL, TRESICAL, IMN, INRIM,
CEM, METAS, LNE, MIKES, VSL, PTB, MIRS/SIQ**

**Task 4 Development of mobile reference measurement systems for
the dissemination of traceability for power loss and power quality
parameters to generation and manufacturing sites – SP, NPL**



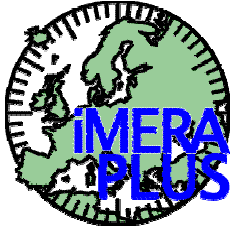
Task 1 Modelled finite bus impedance effects on PQ parameters – INM, NPL

Presentation by Ionel Urdea-Marcus, INM – “The effect of mains impedance on harmonics and flicker measurements”

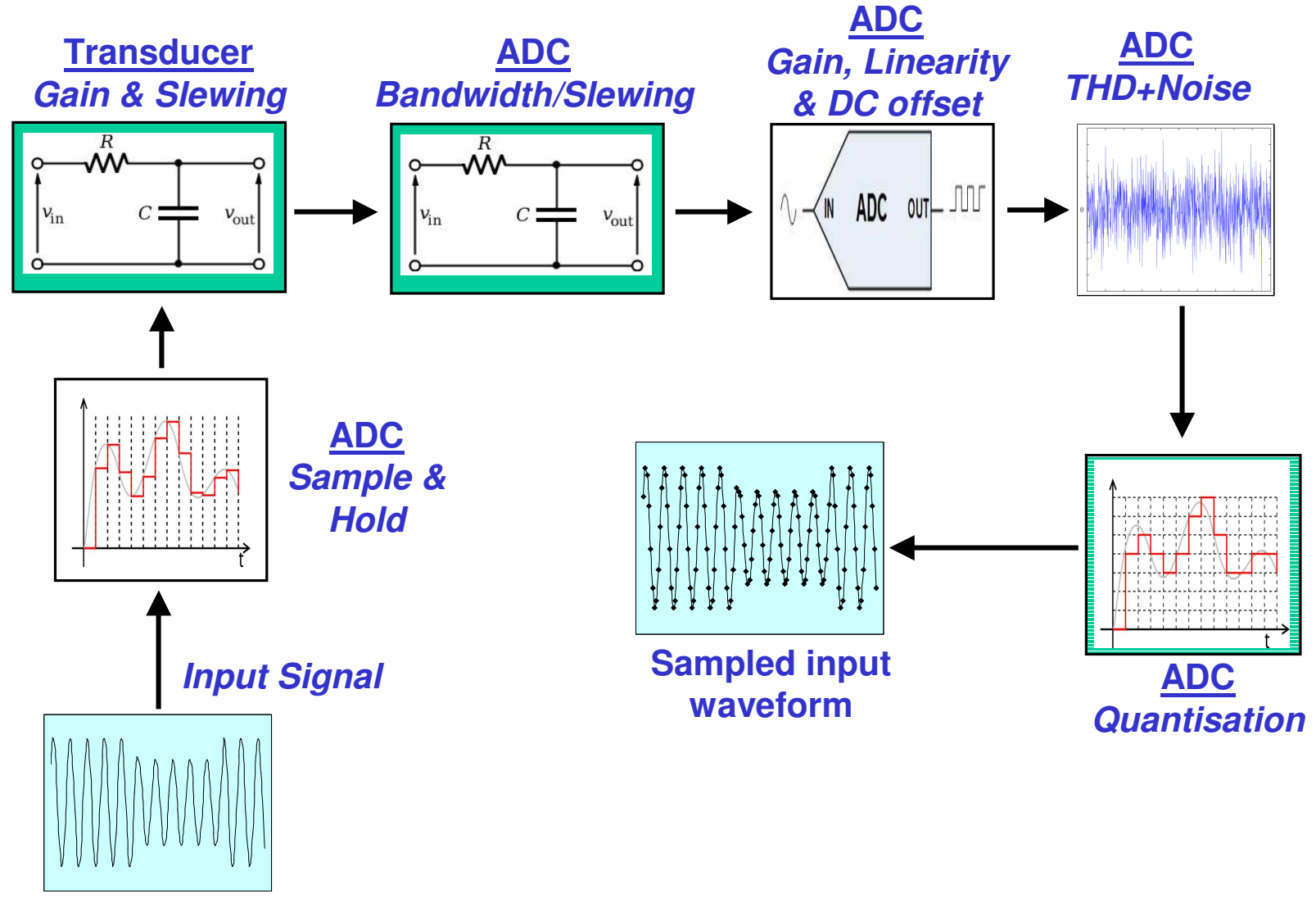


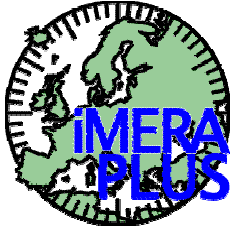
**Task 2 Develop an uncertainty analysis
methodology to determine the propagation of
measurement errors through power quality
transforms – NPL, PTB**

**Monte carlo techniques applied to uncertainty
evaluation for power quality parameters.**

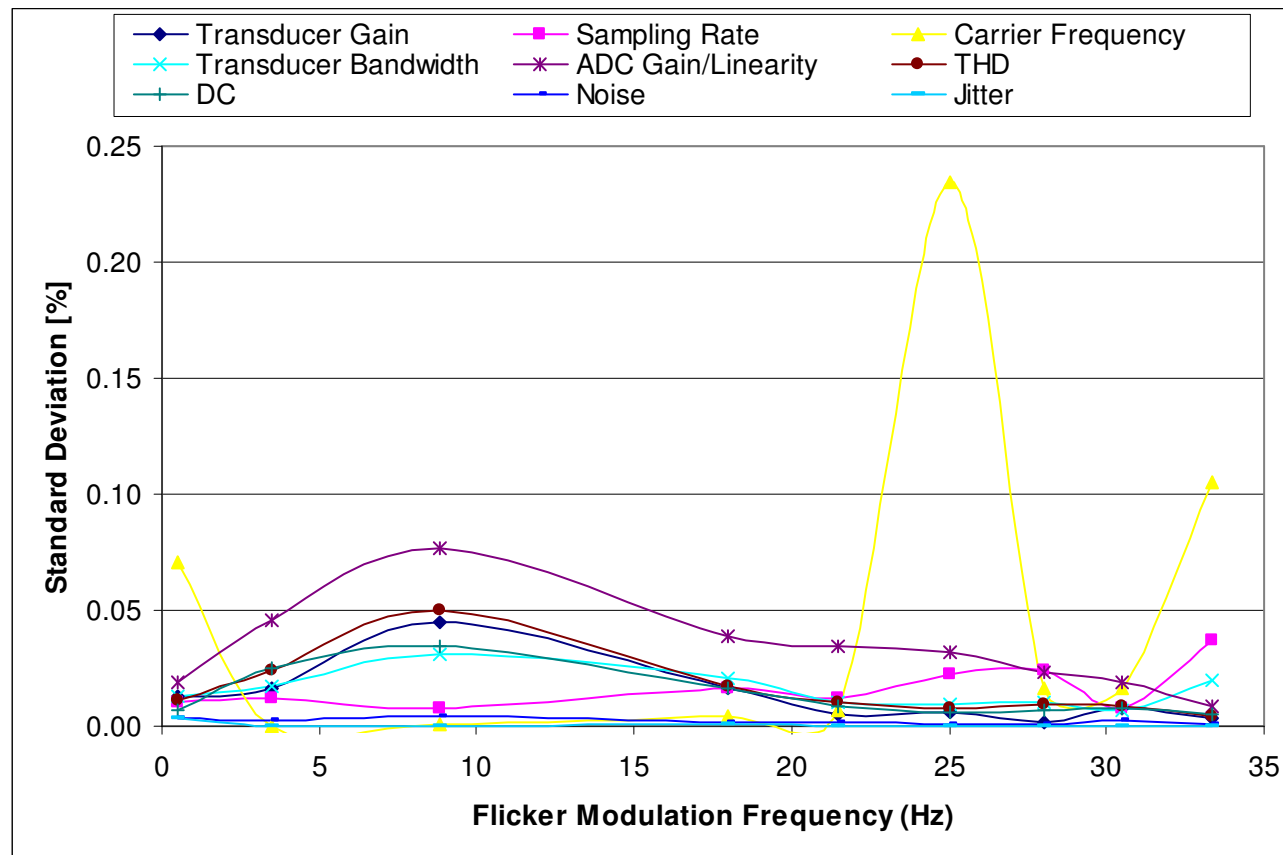


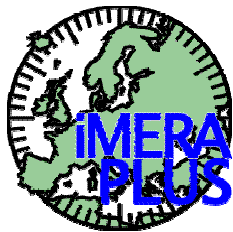
Model of the data acquisition process



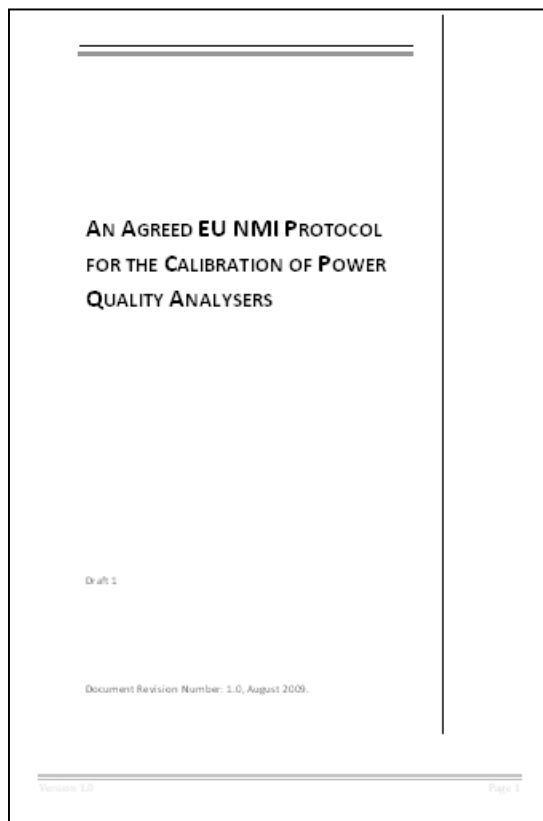


20 trials – Rectangular modulation, individual parameters, P_{st}



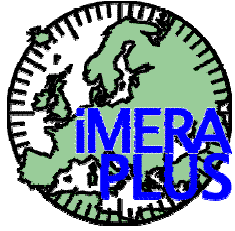


Task 3 Harmonization of methodology and verification measurement of PQ parameters – NPL, TRESICAL, IMN, INRIM, CEM, METAS, LNE, MIKES, VSL, PTB, MIRS/SIQ

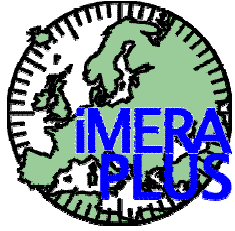


Draft prepared and circulated.

Comments now received and final document will be completed next week.



**Task 4 Development of mobile reference
measurement systems for the dissemination of
traceability for power loss and power quality
parameters to generation and manufacturing
sites – SP, NPL**



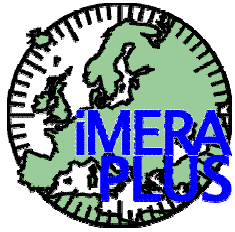
SP – Mobile Reference System.



SP have implemented a mobile system for power loss measurements on components for use on the high voltage grid, at the very low power factors typical of large power transformers.

- Phase locking system with digital control
- Optical current measuring system

Project Impact: On-site measurements of power loss at low power factor important to drive down losses and for diagnostics



NPL – On-site system integration



NPL integrated components from other work packages and tested the mobile system on-site

- Algorithms implemented in software with digitizer
- Rogowski coils purchased and electronics built
- NPL performed on-site measurements to demonstrate technology – Presentation by Paul Wright, NPL “On-site measurements of Power and Power Quality”

