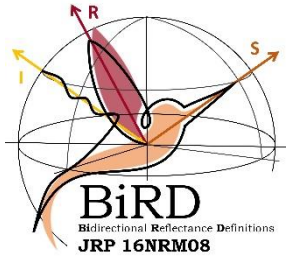
CZECH METROLOGY INSTITUTE

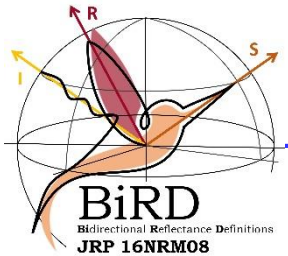
16NRM08 BiRD

Bidirectional Reflectance Definitions

WP5: Creating Impact

Marek Šmíd, Czech Metrology Institute





WP 5: Creating impact

Overview of this WP tasks:

Task 5.1 Knowledge transfer (7 activities)

Task 5.2 Training (4 activities)

Task 5.3 Uptake and exploitation (4 activities)

Task 5.1 Knowledge transfer

Activities in task 5.1:

- A5.1.1 Stakeholders Committee (SC)
- A5.1.2 Website
- A5.1.3 Presentations at meetings of standardisation and related organisations
- A5.1.4 Present papers at international conferences
- A5.1.5 Papers in peer-reviewed journals
- A5.1.6 Measurement data shared on the website
- A5.1.7 Dissemination of reports written in WP1 and WP2 to CIE TC2-85

Activity A.5.1.1 – Stakeholder Committee

Activity number	Activity description	Partners (Lead in bold)
A5.1.1	At the kick-off meeting, with input from all partners, CNAM will collate a list of potential members to be invited to the Stakeholder Committee (SC). The SC will be established in the first 6 months and will include at least 10 members from 8 organisations e.g. CIE, ISO and ASTM, spectrophotometer manufacturers and representatives of industrial need. At least 7 European countries will be represented. The aim of the stakeholder committee is to collect the needs of the various interested parties and feed these into the project. Interaction of the Stakeholder Committee will be achieved via an email mailing list. Meetings will be held at suitable events where the committee is in attendance. The SC will partially build on the SC of IND52 xDReflect and will be extended to key stakeholders in the area of accreditation, manufacturing and research. Those organisations who submitted letters of support will be contacted regarding membership of the SC. The SC will be invited to attend the public part of the progress meetings.	CNAM, all partners

Stakeholder Committee

The primary role of the **Stakeholder Committee** is to ensure fruitful interaction with stakeholders representing various interests in the photonics industry.

- Terms of Reference of the Stakeholders Committee
- List of Stakeholders?

From Document: P-CON-GUI-103 guidance for output and impact report

- "Collaborators are those organisations that have signed a Letter of Agreement (or equivalent) with the consortium. Stakeholders are a broader group of people who proactively engage with the project - these include, for example, advisory board/ committee members."

- **A stakeholder** is a company which has signed a letter of support for the project (saying that what we are doing is interesting).
- **A collaborator** is a company which has signed a letter of exchange (Agreement), that is an engagement to follow and eventually participate in the work we are doing (like providing samples or equipments, attending meetings, etc...).

Activity A.5.5.2 - Website

Activity number	Activity description	Partners
A5.1.2	A project website will be created in the first 5 months of the project and hosted by CMI, which will have both public access and a part restricted for partners only. The website will be updated at least every 3 months with information on the project e.g. news, project reports, papers published by the partners, meeting's agenda and minutes. The part of the website with restricted access will be dedicated to exchange information and reports throughout the project. It will also include a digital archive of all presentations, reports, meeting minutes and papers from the project. A clear solution to encourage visitors to give feedback and reactions will be discussed between the partners and proposed on the website.	CMI, all partners

Please send your presentations from the kick off meeting for Member Area of webpage

A5.1.3 Standardisation and related bodies

Standards Committee / Technical Committee / Working Group	Partners involved
IEC TC2-85 Recommendation on the geometrical parameters for the measurement BRDF	CNAM, CI, CSIC, CMI, Aalto, METAS, RISE, PTB
ISO TC 35/SC 14/WG 6 Paint and Varnishes, Laboratory performance test methods	PTB, KUL
DIN – Normenausschuss Farbe (FNF)	PTB
DfwG Deutsche farbwissenschaftliche Gesellschaft e.V.	PTB
ISO/TC 6 Paper, board and pulps	Innventia
SIS/TK 157 Pulp and paper	Innventia
CIPM- CCPR	CNAM
EURAMET TC_PR	CNAM

A5.1.4 International conferences

The partners plan to present at least 6 presentations at international conferences:

- CIE Session 2019, Washington DC, summer 2019
- Electronic Imaging MMRMA konference 2018, 2019,
- **other conferences**?

A5.1.5 – Publications

Activity number	Activity description	Partners (Lead in bold)
A5.1.3	The consortium will submit at least 4 publications in peer-reviewed journals. The papers will be focused on: • A1.2.7 and A1.3.9: The impact of using different illumination/detection geometries according to the type of sample (glossy, sparkling or goniochromatic) • A3.3.4: Reflectance measurements and the repeatability and reproducibility of gloss measurements • A4.3.3: Capabilities of NMIs to measure sparkle and graininess • A4.4.3: The development of a measurement scale for sparkle and graininess	CNAM, all partners

Papers/articles must acknowledge EMPIR funding:

The work reported in this paper was (partially) funded by project EMPIR 14IND13 PhotInd. This project has received funding from the EMPIR programme co-financed by the Participating States and from the European Union's Horizon 2020 research and innovation programme.

Or use the EMPIR badge:

EMPIR EURAMET
The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States

EMPIR policy on publication - reminder

The open access definition used by the Commission includes:

1. Immediate open access on publication (all final peer-reviewed scientific publications or machine-readable copies of the published version), or

2. Access no more than 6 months after publication

The first option is met by a journal that either allows immediate (free of charge) open access or offers gold open access. The second option is essentially a green open access model – **as long as** the journal's embargo period is no more than 6 months. It is up to the project partners to select an appropriate open access option for each peer-reviewed article.

The updated version of the EURAMET Repository has been designed to facilitate these options by allowing users to specify a date when the article can be made public (if it is not immediate).

Upload to the Repository on the EURAMET website:
https://www.euramet.org/get/research-publications-repository/submit-a-publication/
http://msu.euramet.org/downloads/documents/MSU_repository_instructions.pdf

A5.1.6 BRDF measurement data on webpage + A5.1.7 Dissemination of reports

Activity number	Activity description	Partners (Lead in bold)
A5.1.6	The digital imaging and computer graphics community needs real and trustable BRDF measurement data in order to test their new models of compression, rendering algorithms, or visualisation devices. For that reason, the measurements performed during the project will be made available through a dedicated space on the website. The data will be shared in the data arrangement format from Task 2.2, in order to promote its uptake among this category of end-users.	CMI, all partners
A5.1.7	CNAM will coordinate the dissemination of the following documents written in WP1 and WP2 to CIE TC2-85, as follows: • CNAM will disseminate the reports written in A1.1.3 and A1.2.7. • Aalto will disseminate the report written in A1.3.9 • CI will disseminate the report written in A1.4.5 • PTB will submit the proposal written in A1.5.4 • UA will submit the recommendation written in A2.3.6. • UA will also submit the recommendation from A2.3.6 to stakeholders.	CNAM, Aalto, CI, PTB, UA

Task 5.2 Training

Activity number	Activity description	Partners (Lead in bold)
A5.2.1	UA will create a special workshop on visual appearance of materials inside the MSc programme in Colour Technology for the automotive sector managed by the University of Alicante for promoting the work performed in the project to the automotive community. Targeted attendees are students, university collaborators and stakeholders. The target number of attendees is at least 20.	**UA**, all partners
A5.2.2	A practical workshop on gloss for stakeholders and instrument manufacturers will be given during the midterm progress meeting. It will be the opportunity to share the progress and the good practice being developed in the project and to receive feedback and adjustments. The target number of attendees is at least 20. The workshop will be advertised via the project website, the CIE TC2-85 on BRDF, TC2-xx on sparkle, TC1-xx on gloss and the CIE RF on data handling and BRDF visualisation.	**CMI,** KU Leuven, CNAM, SP
A5.2.3	A practical workshop on sparkle will be given during the progress meeting at M30, to the stakeholders and instrument manufacturers. The target number of attendees is at least 20. The workshop will be advertised via the project website, the CIE TC2-85 on BRDF, TC2-xx on sparkle, TC1-xx on gloss and the CIE RF on data handling and BRDF visualisation.	**CSIC,** PTB, UA, METAS
A5.2.4	During the CIE symposium on visual perception in Prague 2020 (see A5.3.3), CMI will organise 2 short courses on particular advanced topics in connection with this project, in order to share with CIE experts knowledge that can become the foundation for future projects and collaborations.	**CMI**, all partners

Task 5.3 Uptake and Exploitation

Activity number	Activity description	Partners (Lead in bold)
A5.3.1	A strategy plan for the uptake of the research related to this project will be created at the beginning of the project and updated at each project meeting as required.	**CMI**, all partners
A5.3.2	An exploitation plan for the intellectual property developed in this project will be created at the beginning of the project and updated at each project meeting as required.	**CMI**, all partners
A5.3.3	CMI will organise a 2 days CIE Experts Symposium on the visual appearance of surfaces at the end of the project during 2020 to promote the uptake of the work and results obtained within the project. The target number of attendees is at least 100.	**CMI**, all partners
A5.3.4	To contribute to innovation potential of SMEs, the project will post at least one business opportunity through the technology transfer programme of the Enterprise Europe Network of the EU (http://een.ec.europa.eu/content/technology-transfer). The proposal will be based on new measurements ideas will be launched during the project (on gloss or sparkle).	**CMI,** CNAM, CSIC

Examples of uptake & exploitation

Output and Impact Report – sheet UP, IP, Guidance

User uptake	Uptake of project outputs/findings by organisations in the private and public sectors, such as:
	Companies (or other organisations) implementing new devices, software, procedures, methods, protocols developed by the project to support the development or implementation of new and/or improved products, processes or services
	Companies (or other organisations) using the new measurement capabilities at NMI/DIs to test/ validate instruments, processes, methods, etc. These might be accessed via consultancy or calibration work based on the new measurement capabilities available at NMIs/DIs as a result of the project
	Invitations to present the findings of the project (privately) to companies (or other potential user organisations)
	New accredited calibration/ test services available (or soon to be available if accreditation process still in progress) at NMI/DIs or other organisations (e.g. calibration /test labs) based on the new measurement capabilities resulting from the project
	Exploitation of IP generated by the project (patents and other form of IP) e.g. licensing (or significant interest in exploiting IP)
	If there has been significant interest in uptake by potential users in any of the above categories (but uptake has not yet happened) this should also be reported
Scientific uptake and impact	Uptake and impact among the wider scientific community and among the NMI/DI community, such as:
	Actual or planned changes to the NMI/DI CMC statements and projected timescales for the changes (actual changes if they exist but this is unlikely in the lifetime of a project)
	Significant advances in the SI system
	Significant or widespread use of the project's outputs by the scientific research community (as indicated, for example, by highly cited publications, further collaborations with the scientific community)

Update of Actual exploitation and dissemination activities

First draft – Exploitation plan: End users uptake of the research

Stage 1	Stage 2	Stage 2	Stage 3	Stage 4	Stage 5
IP to be exploited	Who will exploit it and who will lead the exploitation?	How will it be exploited?	Target users/ market	Publicise (dissemination tools)	Evaluation (survey to the community)
Measurement techniques, Measurement reports Best practice guidelines, Artefacts/Tools, Models (outputs of the project)	NMI xxx	New/improved standards, New tools, artefacts/devices New technical procedures/ Improved or new CMC Offering extended calibration/measurement service to manufacturers and users Further R&D (New WG, project) Best practice guides and guidelines	Manufacturers of…. Users of …. Consortium, community	Partners, ¨ Conferences, publications NMIs Webpages? Standardisation and technical committees	Ask manufacturers for feedback,.(further collaboration). ?? No. of calibrations, No, of citations Accreditation No. of consultations with industry

Stage 3 is an important point and is related to 'Is the IP exploitable?' decision in the exploitation tree below. If the IP should be patented/licenced then the relevant partners need to consider whether the IP meets a significant demand in the market and whether the return will be large enough to cover the cost of patenting/licencing

Update of Actual exploitation and dissemination activities

First draft – Exploitation plan: End users uptake of the research

Stage 1	Stage 2	Stage 2	Stage 3	Stage 4
IP to be exploited	Who will exploit it and who will lead the exploitation?	How will it be exploited?	Target users/ market	Publicise (dissemination tools)
Recommended standard measurement parameters for BRDF measurement, incl. settings of solid angles, illuminated and measured areas, convergence of light beams and sampling strategy (D1, D2)	CNAM, CMI, CSIC, PTB, CI, Aalto	BRDF measurement normalisation, CIE	CIE TC2_85	Partners, working draft
Recommendation for BRDF data handling and visualisation, incl. data format, basic visualisation modes, parametrisation, conversion to visual appearance descriptors (D3)	UA, Aalto. CSIC, PTB	Recommendation for CIE, discussed with RF	CIE (standardization bodies), instrument manufacturers, NMIs, developers of visualisation SW, developers of augmented virtual reality games, movies,	Webpage, workshop, conference, publication
Instrumental and visual evaluation of gloss: standard terminology + optical methods (D4, D5)	KU Leuven, CNAM, RISE, Innventia	CIE normalisation	CIE TC on Gloss	Webpage, workshop, symposium, publication
Definitions of sparkle and graininess measurands (D6 + D7)	CSIC, UA, PTB, CMI, CNAM	CIE normalisation	CIE TC on sparkle and graininess	Webpage, workshop, symposium, publication
Best practice guidelines, recommendations (D8)	CNAM, Innventia, CMI, CSIC, PTB, CI, Aalto, METAS, RISE, KU Leuven	BRDF measurement normalisation	ASTM E12, ISO TC35/SC9, DIN_FNF, DfwG, ISO/TC 6 , SIS/TK 157	Partners

Deliverable No. 8

Evidence of contributions on BRDF measurement normalisation, sparkle and gloss submitted to:

- CIE TC2-85,
- ASTM E12,
- ISO TC35/SC9,
- DIN_FNF,
- DfwG,
- ISO/TC 6
- SIS/TK 157.

Delivery date: April 2020