

## Call ID: PING-2024-2–Cannabinoids

### Title: Enhanced handheld instruments for accurate measurement of cannabinoid levels in hemp and cannabis products

**Summary:** *In the context of material identification, and in ‘border operational conditions’, PEN-CP customs partners wish to deploy a handheld analytical device (such as FTIR) capable of quickly determining whether certain legal thresholds (THC, CBD or other cannabinoids compounds) in hemp and cannabis products are exceeded. Using their existing technology/product as the basis, the Selected Supplier will extend its capabilities (adding to the reference library, fine tuning sensors or algorithms, etc.) to match customs requirements. At project conclusion, PEN-CP customs partners will assess the performance level of the enhanced technology/product – and the results can potentially help shape the future direction of further developments (this would be outside PEN-CP context, as the current project finishes 31.1.2025).*

#### Context, customs challenge and innovation opportunity

Customs are responsible for enforcing rules on imported goods at the borders of the EU Customs Union. For legal and illegal cannabis and hemp products, customs laboratories use various methods to analyze whether THC, CBD and other cannabinoids are present, and if so, at what levels. (Note: some illicit cannabis products can consist of high levels of cannabinoids other than THC/CBD.). These substances could be naturally occurring cannabinoids, or synthetic/ semisynthetic variants added to the products (e.g., HHC). Tests used include gas chromatography (GC), Raman spectroscopy, mass spectrometry (MS), and high-performance liquid chromatography (HPLC). However, a drawback of the laboratory analysis process is the significant time and cost of sending samples from border checkpoints to the laboratory.

Fortunately, FTIR (Fourier Transform Infrared Spectroscopy) and similar handheld product identification technologies have evolved to become more compact, field deployable and user-friendly for non-expert personnel. These advancements have facilitated the transition of these instruments from use in customs laboratories to border posts. As a result, many European customs deploy such instruments in their routine border control operations.

Despite their technical and operational capabilities, however, FTIR and similar technologies are infrequently used in border inspections of cannabis and hemp shipments. The extension of FTIR use to accurately measure THC, CBD and other cannabinoid levels in hemp and cannabis products, including enhancing and expanding reference libraries, could become an effective new capability for customs. This capability would allow customs agencies to evaluate whether internationally traded hemp products meet legal concentration thresholds for THC and CBD. Furthermore, such devices could also be used by

other regulatory agencies to determine the accuracy of THC, CBD and other cannabinoid levels reported in publicly available products.

#### **Innovation Grant: technical elements and expected results**

- This Innovation Grant aims to expand the use of technologies such as FTIR or other handheld technologies that are capable of determining THC, CBD and other cannabinoid levels in hemp and cannabis products at border checkpoints.
- The resulting reference data should have the capability to analyse hemp and cannabis products in various formats, including oil-based solutions, vape liquids, suspensions, capsules, drops, sprays, and powders. Both legal and illegal hemp and cannabis products should be considered.
- The reference data should also offer THC, CBD and other cannabinoid compound contents expressed in terms of weight/weight, weight/volume, or percentage concentration values.
- Adherence to standard file formats for FTIR and similar technologies are encouraged to support interoperability across different manufacturers, product generations, and product types.
- The focus of this Innovation Grant is not to develop new sensors or instruments but to broaden the application scope of FTIR and similar devices already in use by customs at the borders, including through the expansion of existing reference libraries.
- Reflections on possible cross-compound interference in measurements, including THC, CBD, HHC, and other cannabinoid types.
- Full IP rights of the developed technology will remain with the supplier.
- *Optional: Conduct a performance comparison between the handheld device and state-of-the-art benchtop models, focusing on parameters such as Limit of Detection (LOD) and Limit of Quantification (LOQ).*
- *Optional: Further research on edibles and plant materials is encouraged.*

#### **Project tasks (non-exhaustive):**

- Live kick-off and user requirement meeting with customs in Norway (Sep2024, the exact date to be confirmed as part of the contract process).
- First round of technical development, using relevant hemp and cannabis samples (access to required controlled hemp and cannabis samples will be jointly explored with customs).
- Mid-term online meeting with customs, to present technical performance so far, and agree details for the second technical development round (Oct/Nov2024).
- Second round of technical development, including performance testing.
- Presenting the technical product and technical report at the final PEN-CP live event (Switzerland, Jan2025).

## Common instructions for all PING calls

### Announcement of call for proposals

This call for proposals for PEN-CP Innovation Grants (PINGs) is published on the PEN-CP project website at [www.pen-cp.net/calls](http://www.pen-cp.net/calls) and on the European Commission portal at <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home> (the direct link to the EC call text page will not be known at the time that the call is published on the PEN-CP website).

### Eligibility of applicants

- The call is targeted for companies and research organizations (as 'legal persons'), which have a well-recognized ID such as a national registration number, a VAT number, etc.
- Proposals from individual persons or consortia are not eligible and will not be considered in the evaluation.
- Proposals from applicants with prior involvement in customs innovation projects are encouraged.

### Application process

- Step 1: To express interest, the applicant should send an email to [pen-cp@cross-border.org](mailto:pen-cp@cross-border.org) , **specifying the call identifier in the subject line**. The email should include the contact details of the applicant's designated representative, including their email address and phone number.
- Step 2: In a return email, the applicant will receive a designated applicant ID, indicating clearance to proceed with the full proposal submission.
- Step 3: The applicant should submit the full proposal by sending the three required documents to [pen-cp@cross-border.org](mailto:pen-cp@cross-border.org) AND [pen-cp-arttic@eurtd.com](mailto:pen-cp-arttic@eurtd.com)

### Required documents for full proposal submission

- Document 1 — Technology starting point, main outputs and expected results
  - Explain the starting point with the technologies you propose to use and/or develop/innovate further.
  - Provide a comprehensive outline of the project's main outputs and results. This may incorporate technical diagrams where appropriate.
  - Please ensure that the document does not exceed 3 pages.
- Document 2 — Methodology, work plan and risk management
  - Detail the methodology, work plan and risk management plan, as well as any accompanying resources such as Gantt charts, person-day allocations, etc.
  - Please ensure that this document does not exceed 3 pages.
- Document 3 — CV of the project manager and CV of a key expert
  - Submit *curricula vitae* (CVs) for the project manager and one other key expert, detailing their respective relevant experience and skills.

- While there is no page limit, we encourage you to follow the Europass standard format.
  - *Additional action: Please include in the project manager CV cover page a web link to a (national) Register of Commerce or similar institution, where the legal entity data is visible. Alternatively, please include a separate extract document on the legal entity data.*
- *Please do not include a financial bid, since the grant amount is pre-determined as described at the end of this document.*

### **Submission language**

- All documents must be in English.

### **Proposal evaluation and scoring**

- Document 1 — Technology starting point, main outputs and expected results (max 42 points, threshold 25 points)
  - Suitability of the technologies / solutions you plan to use for project execution.
  - Feasibility to achieve the planned outputs and results of the project.
  - Anticipated impacts for the broader customs community.
- Document 2 — Methodology, work plan, risk management (max 42 points, threshold 25 points)
  - Proposed approach, techniques, and methodologies for conducting the project.
  - Project timeline with tasks outlined in the work plan, considering organization, scheduling, and resource allocation for efficient project execution.
  - Summary of key project risks and related mitigation measures.
- Document 3 — CV of the project manager and a key expert (max 16 points, threshold 10 points)
  - Capability to effectively carry out technical work and all project tasks.
  - Demonstrated experience and skills relevant to the project.
  - Past involvement in customs innovation projects is viewed favorably.
- *Full proposal: total points max 100 (threshold 60 – aggregation of individual document thresholds).*

### **Evaluation and contract signing process**

- Step 1: Evaluation of all proposals through scoring and ranking.
- Step 2: Selection of the applicant (referred to as the Selected Supplier) with the highest score and initiation of the contractual process.
- Step 3: Notification of evaluation results to all other applicants.
- Step 4: Contracting with the Selected Supplier.
- Step 5: If the contract cannot be finalized with the Selected Supplier, the next highest scoring applicant may be invited for contract negotiation (then proceed with Step 4).

### Questions and Answers

- All questions should be addressed to [pen-cp@cross-border.org](mailto:pen-cp@cross-border.org) AND [pen-cp-arttic@eurtd.com](mailto:pen-cp-arttic@eurtd.com)
- ***Please specify the call identifier in the subject line of your email.***
- All questions from applicants will be published along with their respective answers at [www.pen-cp.net/calls](http://www.pen-cp.net/calls)

### Publication of evaluation results

- Results of the evaluations will be published in due course at [www.pen-cp.net/calls](http://www.pen-cp.net/calls)

### Innovation Grant Panels

- Each PEN-CP Innovation Grant (PING) has its dedicated Innovation Grant Panel, whose responsibilities will include proposal evaluation, project steering, and assessment of outputs and results.
- The Panels will comprise three PEN-CP experts, at least two of whom will be representatives of PEN-CP member customs administrations.

### Dates & deadlines

- Official call publication date: 1 March 2024
- Deadline for proposal submission: 1 June 2024 (by 5pm Brussels time)
- Proposal evaluation results available: 15 June 2024 (target date)
- Project start date: Latest by 1 September 2024 (and earliest on 1 July 2024)
- Project duration: Maximum 5 months (project must finish by 31.1.2025 latest)

### Grant amount, payments travel expenses and IP rights

- Grant amount: 59.500 EUR (fixed)
- Payment terms: The grant will be paid in two installments: 60% upon project kick-off, and the remaining 40% following the delivery and presentation of final outputs and results at the designated PEN-CP event.
- The Selected Supplier will be responsible for covering the expenses related to two trips for attendance at live project meetings, which include the kick-off and the final presentation.
- IP rights issues, including possible transfers, are explained separately in each PING call.

### Contact person for all queries

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