



Request for Proposal

Small Cell RF Exposure Measurement Program

1. Introduction

As mobile devices become ever more popular global mobile data demands are increasing exponentially. This means carriers urgently need to increase network capacity. They can do this by moving to 4G, improving spectrum efficiency, Wi-Fi offload, amongst other options. However one of the most effective ways that they can increase capacity is by reusing frequency through the use of small cell sites.

'Small cells' is an umbrella term for operator-controlled, low-powered radio access nodes, including those that operate in licensed spectrum and unlicensed carrier-grade Wi-Fi. Small cells typically have a range from 10 meters to several hundred meters. Types of small cells include femtocells, picocells and microcells – broadly increasing in size from femtocells (the smallest) to microcells (the largest).

There have been a number of studies undertaken to date that have largely focused on emissions from mobile phones and macro base stations. While most of this information is applicable to small cells in a general sense, what is missing is an actual practical study of emissions from small cell access points in real world settings.

This Request for Proposals (RFP) is therefore seeking proposals from suitably qualified researchers that are willing to undertake a measurement program of small cells and to publish the results in a scientific journal for the benefit of the wider scientific community interested in the real-world exposure levels from such deployments.

The Mobile Manufacturers Forum (MMF) and the Small Cell Forum are joint funding bodies for this project and will make a total of up to £25,000 available



for the project. A competitive bidding process among scientific experts will be used to award the project. The measurement phase should be concluded by December 31 2016, with submission to a peer-reviewed scientific journal taking place in the first quarter of 2017. The MMF and Small Cell Forum will have a small technical group available to assist the researchers with any technology-related issues throughout the project.

2. Project Work Packages

The principle work package will be a program of measurements of small cell access nodes operating in real world conditions. Measurements should be undertaken in locations typically accessible by the public and include a variety of deployment sites. Ideally the project would involve measurements in more than one country, although this is not an essential requirement of the proposal. Respondents must indicate though in their proposals which country or countries they propose to undertake the measurements in and on which networks.

Comparison of the measured values with the relevant international guidelines as well as a comparison with other RF sources to inform and contrast would also form part of the work products.

3. Work Products

The principal work product will be one or more papers published in suitable peer-reviewed journals. In addition, a progress report should be provided at the end of the measurement phase and a final report is required at the end of the project. A copy of the accepted manuscript/s should be included with the final report.

4. Budget

The MMF and Small Cell Forum will make available a total budget of up to £25,000 for the entire project, payable as follows:

- 50% Upon signing of the contract.
- 25% Upon acceptance of the Progress Report following the measurement phase.
- 25% Upon acceptance of the Final report and a copy of the submitted manuscript for the project.



5. Proposal Response Format

The proposal must be submitted electronically and in the format outlined in Appendix A.

6. Method of Evaluation

The MMF and the Small Cell Forum will undertake an evaluation of proposals in accordance with the Evaluation Criteria outlined in Appendix B and reserve the right to determine, in their sole and absolute discretion, whether a response to this RFP satisfactorily meets the provided evaluation criteria.

7. Contractual and IP Issues

Nothing in this RFP document shall be construed as an offer to enter into contract with any party, and the MMF and Small Cell Forum will not pay for the information provided or obtained during this process. The MMF and Small Cell Forum may elect not to award a contract based on the responses received to this RFP.

The MMF Standard Terms and Conditions will apply to any contracts that result from this process, including coverage by the laws and courts of Belgium. A copy of the Standard Terms and Conditions can be obtained by email from: michael.milligan@mmfai.info

8. Additional Information Requests

The MMF and Small Cell Forum reserve the right to request additional information from a proponent during any phase of the proposal evaluation process. During the evaluation and selection process, we may require the presence of proponents to make presentations about their proposals. Notification of any such requirements will be given as necessary.



**Mobile Manufacturers
Forum**



SMALL CELL FORUM
Solving the HetNet puzzle

9. Instructions for Submission

All proposals must be received by 5pm Central European Time on the 7 October 2016 at the following email address: rfpresponse@mmfai.info
Proponents will be sent a confirmation of receipt by email.

Please Note: The subject line of the email must state:
Response to RFP: Small Cell Measurement Project



APPENDIX A: Format for Research Project Proposals

1. Executive Summary. An 'Executive Summary' comprising of:

- A. Proposed Project Title
- B. Name of the project leader
- C. Which work package/s are addressed
- D. Site(s) of research
- E. MMF funding period requested
- F. Amount of funding and the number of person-years
- G. Brief objective and description of the project and main deliverables
- H. Relevance for on-going international standardization work

2. Background. The background should be brief and provide necessary information to support proposed procedures only.

3. Specific objectives. Provide concise objectives in chronological order. Under each objective give a statement of the approach or methods to be used. If a specialized procedure has been previously published, attach publications containing the relevant materials and methods sections.

Example:

Specific objective 1
Approach or methods
Anticipated accomplishments

Specific objective 2
Approach or methods
Anticipated accomplishments

4. Work Products. Detail the Work Products to be provided including:

Time sequence. Include a flow chart for the proposed work. This chart should include milestones as well as submission dates for the progress report, publications, and a final report.



**Mobile Manufacturers
Forum**



SMALL CELL FORUM

Solving the HetNet puzzle

Individual or Group qualifications. Discuss the relevant experience and/or any relevant fields of study. Describe the responsibilities of each individual staff member in the team if a group will be involved. Attach resumes of the principal investigator/s. List up to ten of the most important publications supporting the proposal.

5. Funding. Include a separate document with a proposed budget denominated in GBP. If you are, or will be, applying for complementary funding from national or other sources, please indicate this in the application.



APPENDIX B: Criteria for Evaluation

The MMF and Small Cell Forum will evaluate the scientific merit of each proposal according to the following specific criteria:

- responsiveness to the call for proposals
- appropriateness and adequacy of the proposed approach and methodology
- qualifications and research experience of the principal investigator and associates, particularly (but not exclusively) in the area of the proposed research
- availability of resources to conduct the research
- proposed budgeted cost and duration in relation to the proposed research

Please note: The MMF and Small Cell Forum do not require proposals to include a general literature review and/or a general scientific background on topics relevant to RF standards and exposure. The proposals should be focused only on technical and administrative issues concerning the proposal.

If the need arises, proposals may be reviewed by an ad-hoc Scientific Review Committee (SRC) appointed by the MMF and the Small Cell Forum. In the event that this is deemed necessary, those asked to participate will be required to sign a confidentiality agreement with respect to the non-disclosure of information contained in the proposals reviewed.