

Natcast



AIDRFIC Proposers' Day

Q&A

Version: August 12, 2024

AIDRFIC Introduction

1. **Is there a difference between NSTC and Natcast membership?**
 - a. Natcast is the operator of the NSTC, and membership will be to NSTC not to Natcast.
2. **Will there be a cost to the upcoming membership?**
 - a. The NSTC membership model should be finalized mid-August 2024 with the goal of signing our first members in September 2024. We will be sharing details of membership and fees at that time. Please note that one of the guiding principles in establishing the membership model is to make it accessible to the entire ecosystem.
3. **Should proposals address the cost of fabrication?**
 - a. The proposer must budget for the cost of the MPW and accessing Process Design Kits (PDKs) as part of their submission.
4. **Could you comment if academic EDA licenses can be used for the purpose of this project or if they need to be added to the cost?**
 - a. That would depend on your license agreement with the EDA vendor. You will need to consult your contracts or legal team.
5. **Can GF 9HP be used as a comparable process instead of 8XP?**
 - a. Yes.
6. **Could you comment on the commitment to IP sharing model with NSTC members without knowing who they might be? Since the goal is to generate valuable IPs and startups, the sharing model can impact value of the IPs.**
 - a. The minimum sharing IP requirements for a performer is set forth in CFP, Section 2.5. With regard to NSTC Membership, CFP at p. 23 states that “The performer will grant to Natcast a perpetual, non-exclusive, royalty-free, sublicensable (including to future NSTC Members) license to newly developed IP for research and non-commercial purposes. This license will include, for example, newly developed software; project tools related to developed software; performance data demonstrating results, and other ancillary information related to developed software; patentable inventions; and the deliverables identified in Section 1.7.” Other research projects may have different minimum IP requirements that benefit NSTC members. All IP commitments will be transparently communicated in advance, ensuring that no one will be asked to give up their intellectual property without prior knowledge and consent.
7. **Can a proposer participate on more than one team?**
 - a. Yes.

8. **How to use AIDRFIC for novel passive analog waveguide LC ladder plus Transformer energy reservoir?** <https://labpartnering.org/patents/US11671054>
 - a. Open to consideration.
9. **Do we focus on combining AI in Wireless (for fading and multipath model) and AI in RFIC (for circuit design?)**
 - a. The focus is on circuit building blocks common to RF systems.
10. **Will the slides be available to the public?**
 - a. AIDRFIC Proposers' Day slides have been shared with registered participants. Registered participants should have received emails containing the Natcast presentation slides and available presenter slides. Please email AIDRFIC2024@natcast.org if you did not receive these emails.
11. **There was no mention in the solicitation about TRL level restrictions?**
 - a. Natcast's research focus is on the further development and maturation of promising technologies. There is no TRL level restriction, but the emphasis is on Technology Readiness Levels ranging from 3 to 5.
12. **There was not much explanation of the possible restrictions for people from certain countries of origin being able to participate as performers in this program. [Can you provide more clarity? [Separately] Are foreign students allowed to participate in these programs? And if yes. How about if they are from a China, Iran, etc.?**
 - a. Individuals do not need to be a U.S. citizen to be eligible to participate in a proposal. Teams must undergo a research security review, as described in Section 2.4 of the Call for Proposals. Please refer to Section 3.5 in the Call for Proposals for additional information on foreign collaboration. The CFP notes that "foreign individuals" can participate on an unfunded basis subject to certain limitations such as a research security review. That reference to "foreign individuals" means persons participating from a foreign location. Non-U.S. citizens whose work will occur in the U.S., and who are lawfully present and authorized to work in the U.S., are eligible to participate on a funded basis.
13. **Section 8.1.7.4.1 recommends using the "Natcast approved budget workbook available at <https://natcast.org/research-anddevelopment/AIDRFIC>," but this workbook is not yet published on the website. When will the workbook and other relevant CFP documents be available for review?**
 - a. The budget workbook will be available in the AIDRFIC OpenWater portal by Friday, August 2, 2024.
14. **Are there restrictions on the number of proposals that you can be a part of? Any restrictions on teaming, other than based on country of origin?**
 - a. No.

15. I am assuming that academic institutions can become Natcast members since that is a requirement to receive awards for AIDRFIC, is then one umbrella membership for a university sufficient to cover multiple groups working on multiple projects within NSTC going forward?
- Academic Institutions will be able to become NSTC members, which is a requirement to receive award funding.
16. Will the specifications for the first two exemplars be shared before the proposals are due so that the proposers will know whether they already have access to technologies that can be applied, or will need to get (and pay for) access to other technologies?
- No, they will not be provided prior to the proposal due date. The first two exemplars will not be fabricated. They are there to demonstrate the tool flow.
17. Will Natcast follow a work first pay later model (Firm-Fixed Price with milestone payments)? That could be problematic for Universities to hire students for the work.
- Please refer to the Payment Terms in CFP, Section 6.5. Upon signing of the award, an initial payment of 15% of the total award value will be made. Milestone payments will be made upon completion of predefined milestones. Final payment, constituting 20%, will be made upon acceptance.
18. Who should provide the teaming letter/ letter of collaboration during Executive summary and full proposal? Office of Sponsored Research (OSP)?
- See Appendix A (Proposal Narrative Template) section 8.1.7.8 for more detail. Letters must be signed by an individual with authority to legally bind the organization to its commitment.
19. Do proposers need to plan for two MPW runs? One run for the first two exemplars, and one run for the five additional exemplar RFICs? Or, will there be no physical verification of the first two, and they can just be included later on in the main MPW run?
- The first two exemplars will not be fabricated. They are there to demonstrate the tool flow. The final five exemplars will be fabricated in a single MPW run.
20. Is there any possibility that the Natcast review team can provide even some minor feedback on the executive summaries, including guidance on whether the presented approach is viable and encouraged for a full proposal or not?
- No. There is not sufficient time to review and respond with constructive feedback to all participants.
21. Can we participate in more than one team?
- Yes.

22. Can foundries outside the US be used to fabricate the designs?

- a. Yes, but domestic foundries are preferred.

23. Does the GaN PA for performing AI-based design have to be in the form of MMIC? Can it be designed and fabricated using hybrid approach, such as Pseudolithic?

- a. The Pseudolithic option would be considered.

24. Is the PA circuit topology fixed? Can we propose to use AI to design more advanced architectures, like load-modulation PAs?

- a. The PA topology is not fixed.

Panel Session - RF Design Challenges of Today and Tomorrow**25. If one of the goals of the AI tools is to bring design work back onshore, will the commercial model be that the tools are locked down to US only? Otherwise, there is nothing special about the US and we are enabling design work *everywhere* in the world.**

- a. See CFP section 2.6. Task 6 of this funding opportunity involves creating a plan to commercialize research results and is expected to result in similar information to a Commercial Viability and Domestic Production (CVDP) plan as required in other CHIPS R&D funding opportunities. Further, see Section 2.5.1 discussing Domestic Control Restrictions.

26. Do you welcome the use of other processes other than the Qorvo 250nm GaN and GF SiGe? Is semiconductor process maturity an entry requirement?

- a. Per the proposal, proposers may use comparable GaN and SiGe processes from other manufacturers.

Panel Session - Potential of RF IC Design**27. Will there be a participant/contact list?**

- a. A participant contact list has been created for those registered attendees who wished to be included. Please email AIDRFIC2024@natcast.org to request the list. Available to registered attendees only.

28. How will AI facilitate the compensation loops on RF ICs using standard components?

- a. This is to be determined by the proposer.

29. How do you envision AI models able to capture PVT variations?

- a. This is to be determined by the proposer.

30. What about using AI for device modeling to overcome deficiency of compact models?

- a. This can be an aspect of a proposal response as long as the principle asks of the CFP are addressed.

31. There are always uncertainties in predictions using ML (due to lack of sufficient training data, etc.). RFIC design, however, requires high levels of accuracy. How do you marry the two?

- a. This is to be determined by the proposer.

AIDRFIC Program Overview

32. Is there any chance of mid-program downselects (i.e., decrease in the number of performer teams) in AIDRFIC?

- a. There is a chance for a mid-program down selection based on performer performance.

33. Is a 0.2 um GaN process within scope / would be considered as an equivalent to the mentioned Qorvo 0.25 um GaN Process?

- a. Yes.

34. Does each task have a different deadline?

- a. Yes, as defined in the CFP.

35. How can datasets be shared when they include process information (for transistor models, layout layers, etc.) that are proprietary?

- a. Performer may only share proprietary data of others if it has obtained all necessary permissions, licenses, or consents from the rightful owners to share such IP. The CFP specifically discusses the sharing of non-proprietary designs and data. See CFP, Section 1.4, Task 1.

36. The productivity metrics imply that we would have to design each circuit twice (once with an experienced designer using AI tools and once with an inexperienced designer using the tools) -- is that correct?

- a. It does not have to be done for all circuits, but there should be enough data to draw conclusions.

Submission and Evaluation Process

37. If an EDA vendor develops patentable AI techniques as part of their AI toolset, would they be barred from allowing foreign countries to use those tools?

- a. An EDA vendor is not barred from allowing foreign countries to use their AI toolset, even if the tools include patentable techniques.

With respect to foreign adversaries, an EDA vendor must also comply with any applicable Domestic Control Restrictions (see CFP, Section 2.5.1) and its legal obligations under Export Administration Regulations and the International Traffic in Arms Regulations.

Natcast will be providing further clarification on Domestic Control Restrictions, as additional guidance becomes available.

Additional Questions

38. What is the recommended format for Executive Summary submissions?

- a. Please see the template in Appendix A. The executive summary components are described in section 8.1.2.

39. Where/how do we submit our Executive Summary?

- a. Please see the updated CFP, section 4.1, which points to <https://natcast.secure-platform.com/rnd>.

40. For the letters of commitment, if we do not require external resources from other parties, is it still necessary to obtain these letters? For example, we plan to collaborate with industry partners for commercialization, which typically involves meetings for technology transfer. In this case, is a letter of commitment required?

- a. No. Letters are required only if the proposal asserts that those industry partners are making formal commitments to the stated goals of the proposal.

41. As a university, we do not hold any IPs, and our designs are not expected to include IPs from foundries. Should we still include an IP management plan in our proposal?

- a. Yes. See Section 2.5.2 and Appendix A, section 8.1.6 for guidance.

42. In the CFP, it mentions "GF 8XP SiGe BiCMOS process or similar"; however, in Q&A question 10, it states that "The performer must use either SiGe or GaN." Are RF CMOS processes (such as GF22FDX, GF45RFSOI, TowerJazz 65nm, Intel 22FinFET and others) considered "similar processes"? If so, can we use these processes for all or some of the exemplary circuits?

- a. Other processes can be proposed.

43. The "Page Number" bullet under "Proposal Formatting Requirements" says "Project Proposals should not exceed 20 pages. Only the Goals and Impact, Management Plan, and Technical Plan sections should count towards the page limit". This contradicts the title of Section 8.1, which states that the "Maximum is 35 pages excluding appendices". We believe that 35 pages is sufficient page count to address the information requested in the Call for Proposals, and that 20 pages is woefully insufficient number of pages to "answer the mail". Can you please confirm that the page count limit for Goals and Impact, Management Plan, and Technical Plan sections is 35 pages, not 20 pages?

- a. 35 pages total was intended. We will amend the CFP accordingly.

44. The Call for Proposals Section 4.3 is the only reference about how the offerors/proposers are supposed to submit their proposals, stating "see the

annotated outline in the below Appendix A 8.1." However, there are not submission instructions contained in Section 8, and the AIDRFIC website (<https://natcast.org/research-and-development/aidrfic>) only hints that there will be a means coming to submit the proposals ("Application Portal and FAQs coming soon"). Can you please provide detailed instructions on how offerors/proposers can upload their proposals, as well as provide some insight into the security of the "Application Portal" or other upload site?

- a. Please see the updated CFP, section 4.1, which points to <https://natcast.secure-platform.com/rnd>. This portal is operated by a FedRAMP Authorized company. See their blog [OpenWater is FedRAMP Authorized \(getopenwater.com\)](https://getopenwater.com).

45. Bullet #5 under Task 4 requires winning bidders to "Benchmark the performance of generated designs and tools", but the CFP doesn't state how Natcast is planning to measure the productivity of the AI-based tools. At the Proposer's Day event, Mr. Gyurcsik partially answered our question when he stated "Large companies typically have a general sense of the time taken by the engineer for manual design (e.g. based on government contracts) but didn't specify what metrics Natcast will be using for this assessment. Can you provide some additional details about how Natcast intends to measure the productivity of the AI-based tools for RFIC design?"

- a. Natcast does not specify an approach to benchmarking, but it expects the proposer to outline their approach.

46. Is there a difference between a contractor and collaborator?

- a. For the purposes of the CFP, the distinction between contractor/collaborator is not relevant. Different treatment, for funding purposes, only applies to foreign organizations (excluding foreign countries/entities of concern). Such foreign organizations, regardless of whether they are participating as a contractor or collaborator, can participate in Natcast funded R&D, subject to Natcast's approval, but only on a non-funded basis. Please refer to CFP, Section 3.5.

47. Does a Table of Contents contribute to the page limit?

- a. No.

48. Reading the AIDRFIC, I read in Section 2.4 Research Security, "Proposers must provide (as a Project Narrative appendix as specified in Appendix A) a brief summary (at most one page) of proposer's current capabilities related to Research Security that addresses cybersecurity, foreign travel, research security training, and export control to protect against adversarial exfiltration." Going to the Appendix and reading what is requested in the Research Security Capabilities section 8.1.7.5, I want to confirm you are asking for our response to be no more than one page which is what is referenced in this section above?

- a. Confirmed. Appendix 8.1.7.5 is information requested for each proposal and is meant to be brief (<=1 page excluding attachments, if any). Appendix B

describes a more extensive questionnaire that will be needed if and when award negotiations begin.

49. It was mentioned in the call for proposals that we could use Qorvo Gan 0.25u or equivalent. I wanted to clarify the "equivalent" part. Can we use other pdks apart from Qorvo? Is usage of other three five semiconductor like gallium arsenide within scope?
- Other PDKs can be used. GaAs is not an option.
50. We have capabilities in mmic and a novel heterogeneous IC technology. Also, one of the uniqueness of our technology is heterogeneous integration capability. Is usage of novel glass substrates for Passive synthesis within scope?
- The CFP does not restrict the use of glass substrates for passives.
51. Is novel AI based circuit design and layout for heterogeneous integrated power amplifier within scope of the call for Proposal? Or are you only looking for mmic-based approaches?
- The performer is not limited to MMICs.
52. Are we able to submit the NSF Current and Pending Support document from SciENCv?
- No.
53. Is the AIDRFIC opportunity (NAT-RD-24-0001) a limited submission? I.e., How many applications can come from the lead institution/applicant? Is there a limit?
- There is no limit.
54. Question related to Task 1: Does calling for sharing non-proprietary designs and productivity data from training sets imply that a proposals foundational training set can be a combination of both proprietary and publicly sharable design / productivity data?
- Yes.
55. I am organizing a team to respond AIDRFIC and a quick question regarding eligibility. I see that you have a requirement on foreign entity. Since we do not have any foreign collaborator, so this should be fine. However, I wonder if this constrains any personnel that we are allowed to recruit within US university/companies for this program?
- Please refer to question #12.
56. In the CFP, it mentions "GF 8XP SiGe BiCMOS process or similar"; however, in Q&A question 10, it states that "The performer must use either SiGe or GaN." Are RF CMOS processes (such as GF22FDX, GF45RFSOI, TowerJazz 65nm, Intel 22FinFET and others) considered "similar processes"? If so, can we use these processes for all or some of the exemplary circuits?
- Yes.

57. Re: Appendix A: Project Narrative Outline (Maximum 35 pages excluding appendices). Under "Font" bullet b, it states "Times New Roma Calibri, or Aptos, at a font size of 11 points or larger." We believe this is a typo and should say "Times New Roman, Calibri, or Aptos, at a font size of 11 points or larger." Can you please confirm that Times New Roman, not "Times New Roma", is an allowed font?
- It is Times New Roman and not Times New Roma.
58. Re: IP Rights Management Plan: Can Natcast provide insight into 'What will the export regulation be for the AIDRFIC developed components (EAR50/60/99)?'
- Natcast recommends that the Proposer consult their attorney to seek advice on relevant export control regulations that may apply.
59. Re: IP Rights Management Plan: Another item for ITAR classification is, only solutions that are exclusively developed for e.g. DoD can be limited. If a solution has been developed for commercial customers in parallel, we should still be able to sell it to all commercial customers, correct?
- Natcast recommends that the Proposer consult their attorney to seek advice on relevant ITAR classification and export control regulations that may apply.
60. As we are working on our submission for tomorrow, we've had a question come up around the page count. Section 8.1.2 of the CFP specifies that the summary should be a maximum of 5 pages. Our team would like to know if the page limit applies to the main body of the document, or if we need to stay under 5 total pages (including cover page, references, etc).
- The 5-page limit applies to the main body of the document.
61. In realizing the PAs, my team is asking if heterogenous approaches are acceptable. For instance, one plan that we have incorporates a chiplet based design where supply and biasing for our MMIC is provided by a secondary IC that will be co-integrated onto a common interposer. Do solutions presented need to be monolithic, or are chiplet/HI approaches OK?
- The chiplet-based approach is acceptable, but the objectives of the program must still be met.
62. Should the cost for the MPW or dedicated run be included in the proposal or would we be sharing with other awardees?
- The fabrication cost should be included in the proposal.
63. Will Natcast assist awardees in getting access to either the SiGE process or the GaN process or both for use in this program?
- The relationship with the foundry is with the performer and not Natcast.
64. Can the cost of required commercial CAD software licenses (Cadence, ADS, etc.) for the period of performance be included in the proposal?
- Yes.

- 65. We will be having a subaward on this project. Does the subaward institution need to complete their own budget workbook as well?**
- We do not require subperformers to submit budgets to Natcast. The prime is expected to manage the subperformer's performance and compliance with flow down clauses. We do reserve the right to perform monitoring activities or conduct audits of the prime and subperformer.
- 66. Is a “super team” which does both SiGe and GaN acceptable? Keeping in mind Natcast’s prior answer: “If the “super” team is compelling then there is a possibility. Remember biggest return to the industry,” can you clarify again if a “super team” is acceptable? As an example, our “super team” is developing a unified/synergistic AI/EDA framework that can work for both SiGe and GaN, and the data generation / ML learning experience can leverage each other, thus we believe we can provide the biggest return to the program and industry.**
- A “super team” is OK. Whether both types of technologies or just one is used is up to the team, but it must be accounted for in the budget.
- 67. Will the specifications of the 2 initial exemplars be made known at the start of the period of performance?**
- Yes, they will.
- 68. Will the form/type of circuits used for the additional 5 exemplar circuits be made know at the start of the period of performance?**
- The type of circuits will be made available, but the exact specifications may not be provided until later in the program.
- 69. What toolset will Natcast use to independently verify the design performance? Will this verification include DRC, LVS, ERC, thermal?**
- We will verify through simulating the performance of your designs and compare performance results to what was reported. We will not do DRC, LVS, and ERC verification.
- 70. Will we be required to submit a CAD testbench for the exemplar circuits for the independent verification step?**
- Yes, you will need to provide your simulation testbench.
- 71. Is Natcast performing any independent rf testing of the circuits after fabrication?**
- Yes, Natcast will perform RF tests on a subset of the parts for validation purposes.
- 72. We will be submitting as a subaward with an industry. Can you please let me know who should be listed as the Prime Sponsor? I was not sure if it should be Department of Commerce, Natcast or NSTC.**
- Natcast is the Prime Sponsor.

73. We would like a clarification on the requirement for this form. Most CFPs/NOFOs generally specify that the form also include the current CFP/NOFO. An example from another NOFO: “Any application that includes investigators, researchers, and key personnel must identify all sources of current and potential funding, including this proposal.” That is not explicitly called out in this CFP, but we are assuming that we should still include it.
- a. For Natcast’s purposes, we do not require that the current CFP application be included as a source of potential funding, but it is acceptable to do so if desired.
74. I’d like to double check about the 35-page limit for the “Project Narrative”. This 35-page includes Cover Sheet, Executive Summary, Goals and Impact, Management Plan, Technical Plan, and Intellectual Property Rights Management Plan, right? Since Cover sheet will be 1 page, and Executive Summary has 5 pages, that means all the rest four sections shall be max 29 pages. Do you have any guideline how many pages for these four sections? Maybe around 25 pages for the Technical Plan?
- a. No. Proposers are able to exercise their own discretion as to the use of those 29 pages.
75. My organization submitted an Executive Summary to the 2024 AI Driven RF IC Enablement Program FOA, but I do not see a link to submit the full proposal. Where may I find this in the Natcast portal?
- a. Those who submitted an Executive Summary received an email inviting them back into the portal to submit the full proposal on Friday, August 2, 2024.
76. We are interested in exploring opportunities to support and participate in the “R&D Project Funding: Artificial Intelligence Driven RF Integrated Circuit Design Enablement (AIDRFIC)”. We have extensive experience in RF IC design for high-volume communication systems and have conducted internal research projects in AI-guided RF design. Unfortunately, we were unable to participate in the proposer day. What are our options for joining a team on this effort?
- a. Participating in the Proposers’ Day is not a requirement for participating, although teams have already submitted the required Executive Summary, the deadline for which has passed. Team composition, however, may continue to evolve during the proposal process so there is nothing to preclude you from joining a team that has already submitted an Executive Summary.
77. If our team plans to cover both SiGe and GaN, do we have to do all 10 exemplar circuits/tapeouts in Task 4? Per this program requirement, the minimum requirement is choosing one process technology, with 5 tapeouts. How about if we do 5 tapeouts in one technology (say SiGe), and for the other technology (say GaN), we show our tools can work, but only tapeout one or two exemplary circuits to

account for the limited budget? This still exceeds the minimum requirement of the program. Is this acceptable?

- a. Per the CFP, you are required to provide five of a single technology. This is independent of whether you addressed only one of the two or both.

78. For the milestone-based payment schedule, do you have any preference, e.g., monthly, bi-monthly, or quarterly milestones? Based on the Gant Chart (Figure 3 in CFP), most R&D activities will be done by Q6 and so shall be the funding allocation (i.e., right after Task 4 tapeouts). Is it possible to increase the 15% initial payment? Or we shall have more frequent early milestones to get needed funding to do R&D?

- a. Natcast has no preference as to the frequency of payment but is limited to the 15% initial payment. Proposers should suggest milestones and associated payment structures including initial advance up to 15%, keeping in mind that sufficient information must be provided when a milestone is met to substantiate the achievement.

79. Can you please confirm if the funding for this proposal should it be awarded is 100% from the Department of Commerce or will there be other sources as well?

- a. 100% from the Department of Commerce.

80. Re: the Letter of Commitment: Can you please clarify which team members or subcontractors need to provide these letters? Are all team members required to do this (including the prime)? What about organizations that are acting solely as vendors?

- a. Please refer to CFP, Section 8.1.7.8: Each partner organization and/or subgrantee (or subcontracting performer) cited by the lead applicant as providing services to support the program model and lead applicant must submit a Letter of Commitment. All Vendors, who are not subgrantees (or subcontracting performers), do not need to do so.

81. In the solicitation, it says to provide the budget justification on the "Detailed Budget" tab, but I am unable to find the tab. Can you please advise? (8.1.7.4.2 BUDGET NARRATIVE AND JUSTIFICATION. Justifications for expenditures should be outlined in detail on the "Detailed Budget" tab ...)

- a. A correction has been made to the CFP; please refer to the latest revision of the Budget Workbook that has been posted. Justifications should be included wherever requested in the Budget Workbook.

82. For subawards: We have 3 subawards on our proposal, should we only provide the name, cost, SOW and letter of commitments? Anything else needed? Is there any need for their budget and budget justification?

- a. All subawards (i.e., subcontracts) to entities conducting substantive research under the project should be included in the proposal. This should encompass, but is not limited to, the names of the entities, their costs, research security capabilities, resumes, current and pending support, and letters of commitment. A detailed budget breakdown for subawards is not

required for the initial submission but may be requested during the negotiation phase.

83. In Task 4, the “Tape-out” is expected to happen around Q6 (i.e., 1.5 years). After that, do you still expect the performers to continue improving tools? According to Fig. 3 of CFP, Task 4 “Benchmark updated tools ...” will last until the end of the program. Even after the tapeout, the tools can and shall still be improved? If so, it kind of falls in the scope of Task 2. Thus, some clarifications on this will be appreciated, so that we can budget accordingly.

- a. The performer is encouraged to continue the tool improvement post tape-out as long as there is funding available in their budget.

84. If we address both technologies (SiGe & GaN), are we required to provide five for each individual technology, thus 10 in total? Or this is the Stretch Goal, per Fig. 6.

- a. As described in CFP, Task 4, you are required to provide five in a single process technology. The choice is up to you. Doing all ten is a stretch goal and not a requirement.

85. Re: the ‘Current and Pending Support Form’ that needs to be submitted with the AIDRFIC proposal. The NIST current and pending support form states the following “Pending – any proposal that is being considered for funding from a potential funding organization (including this proposal)”. I wanted to check with you if the information about the AIDRFIC proposal should be included in the current and pending support form submitted with the AIDRFIC proposal.

- a. For Natcast’s purposes, we do not require that the current CFP application be included as a source of potential funding, but it is acceptable to do so if desired.

86. Re: 8.1.7.5 Research Security Capabilities: Is a short form description of our program sufficient at this proposal stage?

- a. Section 8.1.7.5 of Appendix A outlines the requested research security information, which is limited to three pages of information, excluding attachments.

87. Re: 8.1.7.5.1 (USC) Research Security Capabilities: Will the more detailed description of our program that will need to be submitted prior to the making of an award be considered sufficient as long as it meets the requirements and associated timelines found in the July 9 OSTP NSPM-33 memorandum?

- a. With regard to timelines, please see CFP section 2.4.2, which states “Appendix D contains a Research Security Plan questionnaire that will be requested if and when a proposal is selected for award negotiation. Award terms will specify that within ninety (90) days of award, proposers must show progress on implementing the Plan as applicable”

88. Re: 8.1.7.5.9 Technology Control Plans: What is the scope of technology control plans we will need to produce?

- a. The target research security plan should be scoped to cover any technology funded by this initiative.
- 89. For the Budget Worksheet, do we need to separate out fringe benefits and overhead? We consider this to be proprietary information and we do not generally provide this in proposals – and as such the information is not readily available outside of our finance org, if at all.**
- a. Yes, “fringe benefits” is related to headcount. Overhead may apply to more than one headcount depending on the indirect cost used. Please mark as proprietary, any proprietary information that you provide.
- 90. Notwithstanding the above question, in the workbook there are both “overhead” and “G&A” (General and Administrative), which sound like the same thing. G&A isn’t mentioned in the proposal – what is the difference?**
- a. Some companies may have both. If it doesn’t apply to your organization, you can leave it blank.
- 91. How is the “Indirect Cost Rate” on the “Cost Summary” tab related to the “Indirect cost rate” info on the “input” Tab? On the “Cost Summary” Tab, the formulas in the “Indirect Cost Rate” row (row 22) all refer to data only on that tab; they also refer to cell \$C\$22 which has nothing in it, no reference. Is this an error in the formula?**
- a. In the “Cost Summary” tab, cell C22, enter your indirect cost rate. There are multiple options in the “Input” tab and whether they apply to your organization varies. If using NICRA, it may not apply to all costs. You are able to override the formula if your rate is based on MTDC NICRA, etc.
- 92. We plan to include travel as part of our burdened labor rate (which will not change the rates we would normally charge) – please confirm this is acceptable.**
- a. No, this is not acceptable. You must include how much travel is anticipated (i.e., what amount did you add to your fringe?).
- 93. Where will the in-person meetings be held for the program?**
- a. In-person meetings will be held at a location determined by the Performer. For planning and budgeting purposes, the final review will be held at a location determined by Natcast, which will most likely be Washington, DC.
- 94. Do you anticipate any future such initiatives related to AI for RFIC?**
- a. That has yet to be determined.
- 95. Re: Equipment: The CFP states "Please note that any general use equipment (computers, etc.) charged directly to the award should be allocated to the award according to expected usage on the project." Unfortunately, this statement is somewhat vague – can you please provide additional insight or clarity into what is meant by this statement? It is our understanding that OTA contracts may allow equipment to be purchased and (ultimately) owned by a contractor and/or proposer – can Natcast please clarify if this is the case after the completion of the AIDRFIC project?**

- a. Please refer to CFP, Section 6.2.2, which discusses the acquisition and disposition of tangible property. Natcast's OTA agreement related to property follows 2 C.F.R. §§ 200.311 – 200.316.
- 96. Re: GaN: Can Natcast provide the range for the Frequency (GHz), Gain (dB), P1dB (dBm), Psat (dBm), and maximum Die Size?**
- a. Natcast will provide this information at the start of the program.
- 97. Re: Budget Narrative: The CFP paragraph states "Justifications for expenditures should be outlined in detail on the "Detailed Budget" tab, far right column marked "Justifications." All information must align with the amounts being requested for that individual line item and funding levels must be consistent with the project scope and allowable costs." However, the "Natcast AIDRFIC Cost Proposal Template" spreadsheet on the Natcast portal does not have a tab named "Detailed Budget," and only the "Equipment" tab has a column for "Justification". Can you please update the instructions to ensure that we are including the information required by Natcast for this Section?**
- a. A correction has been made to the CFP; please refer to the latest revision of the Budget Workbook that has been posted. Justifications should be included wherever requested in the Budget Workbook.
- 98. Re: Budget Narrative: Will the government require the tracking of personnel hours dashboard in the reporting mechanism?**
- a. This is a firm fixed price award payable upon achievement of milestones. Your proposal will be evaluated for cost reasonableness. The USG reserves the right to audit any award. While tracking of personnel hours is not required, you may be able use it to show reasonableness.
- 99. Re: Funding Opportunity: Natcast has indicated that the exemplar specification will be provided before the award. "Prior to the award, Natcast will provide specifications for two exemplar circuits to performers, a millimeter-wave power-amplifier circuit and a microwave power amplifier circuit." Can Natcast provide a date for relaying the information?**
- a. Natcast cannot provide a date at this time.
- 100. Re: Research Security: Can Natcast provide a more detailed definition of a "covered individual?" Is this for the Key Personnel or all individuals associated with the AIDRFIC program?**
- a. Per Appendix A, section 8.1.7.7, "A covered individual is defined as a person who contributes in a substantive, meaningful way to the scientific development or execution of a research and development project proposed." For more information, see <https://www.nist.gov/system/files/documents/2024/03/12/FAQ-CHIPS%20RD%20Research%20Security%20and%20Technology%20Protection-508C2.pdf>. Note that "NIST generally does not consider individuals who only conduct isolated tasks incidental to the research (for example, setting

up equipment or performing administrative functions) or individuals who support research by executing discrete tasks as directed as covered individuals. Consistent with guidance for implementing NSPM-33, disclosures from broader classes of individuals (e.g., certain graduate students and undergraduate students) will generally be unnecessary, except when the activities of such an individual in a specific proposal rise to the level of meeting the definition of a “covered individual” under 42 U.S.C. § 6605(d)(1). For instance, NIST views authorship of a technical or scholarly publication as evidence of a truly substantial professional contribution to the research, given an author’s participation in conceiving or evolving the project design, executing one or more significant aspects of the project, or documenting the project results in a form accessible to the scientific community.”

- 101. CFP Section 1.4 “Scope” – Task 4: Is it a mandatory requirement that the post-silicon results strictly meet the specifications provided? If so, how many Multi-Project Wafer (MPW) runs are permitted to achieve compliance?**
- It is not mandatory for the post fabrication results to match the simulated ones. It is for assessment purposes only. Each team should plan for a single fabrication run.
- 102. CFP Section 1.4 “Scope” – In Task 4, the requirement to "Benchmark the performance of generated designs and tools" is mentioned. Does this refer to benchmarking the post-silicon or pre-silicon performance of the designs**
- This refers to the comparison between simulated results with the test results for the fabricated ones.
- 103. Re: Cover Page: What do you consider “Relevant technical areas?” Can you give some examples?**
- This is a free-form entry. Relevant technical areas may include Microelectronics, Artificial Intelligence, Autonomy, and others.
- 104. Re: KPP Table: What does “AI-based tools relative to only using standard tools/flow” mean? Does the goal of 25% indicate a reduction to "the number of tools" or "number of steps" for the design flow?**
- This refers to the comparison in engineering time needed to complete the design using a standard flow and one that is AI enabled.
- 105. Re: KPP Table: To compare design time, does the time include “pre-training time of AI-enabled tools” and “non-working hours of an experienced designer” accumulated? Or are you asking from "spec given" to tapeout?**
- The comparison is between working hours to perform the same design – one with a traditional approach and the other utilizing the AIDRFIC approach.
- 106. If there is a discrepancy between information from Proposers’ Day QA vs. the formal CFP, which takes precedence? In proposal day’s Q&A, the answer to #43**

indicates to remove 20-page limitation to 3 sections in the new CFP. However, this page limitation is still present in the latest CFP. Is the 20-page still required or was it an error? Who's correct?

- a. The 20-page limit has been updated to reflect 35 pages excluding appendices.

107. **Re: Foundry: Throughout the CFP, Qorvo 0.25um GaN process is named. There's also an opportunity to use the "equivalent." Would the "equivalent" be judged equally as the "Qorvo" process or is there a preference to "Qorvo"? For example, if 2 GaN proposals are awarded, would preference be given to the ones using Qorvo or would the program be supporting 1 of each to reduce risk?**

- a. There is no preference. Please refer to Section 5.1 in the CFP for Evaluation Criteria.

108. **Re: CFP v1.2 Section 2.4.1, 2d paragraph: Considering the instructions we reference in CFP v1.2, and the format and instructions in CFP v1.2 Section 8.1.7.5 through 8.1.7.5.11, it is not physically possible to provide an adequate response to meet the mandated instructions on one (1) page. Doing so does not provide the required information to allow for a fair abidance to the instructions. Will Natcast please consider increasing the page restriction to respond to all these requirements to three (3) pages?**

- a. Yes, given that observation, we will increase the page limit to three pages but encourage proposers to be as succinct as possible.

109. **Re: the NIST Current and Pending (Other Support) Common form: The CFP states that we must use the form for each proposal and the FAQs state that we cannot use the NCBI SciENcv Common Form to fulfill this requirement. Is it intended that we submit 10 NIST instruction forms for 10 Current and Pending projects? One form for each project?**

- a. All "covered individuals" must enumerate current and pending support information for all federally funded research projects. To facilitate the submission of this information, proposers may use alternative formats, provided that they include all the information required in the NIST Current and Pending (Other) Support Common Form.