Appendix II:

Call for 6G Potential Key Technologies

Technical Solution Form

Title of Technical Solution:

Direction:

Declaration Subject:

Person in Charge:

Contact Person:

Contact Number:

Email:

Submission Date:

IMT-2030(6G) Promotion Group

November 2022

Instructions

1. This technical solution is the basis for the evaluation of “Call for 6G Potential Key Technologies”, the leading institution should read the *Notice* carefully and fill out each part truthfully, in detail and completely, and the technical solution with missing items or incorrect format will not be accepted.

2. The technical solution must be in detailed, accurate, logical, focused, concise language, academically rigorous and strong in readability, avoid fiction and exaggeration, and avoid the propaganda.

3. The leading institution and the principal investigator (PI) must be responsible for the authenticity of the contents, to ensure that they have independent intellectual property rights without disputes, and have no risk of legal liability, and sign a commitment letter. If the technical solution requires proof materials, please add an attachment.

4. It can be submitted by one institution, or multiple institutions with leading proponent in charge of the preparation and submission. Please send the editable version of the technical solution form (in word format) and the scanned version (in PDF format) of the signed commitment letter to the email **(imt2030@caict.ac.cn**) by the PI or the contact member.

Commitment Letter

According to the Notice, I lead the submission of the technical solution (title: ).

The relevant commitments are as follows:

1. I (and the participating members) am responsible for the authenticity of all the information submitted, and guarantee that the technical solution and related algorithms submitted have intellectual property rights.

2. I (and the participating members) promise that the submitted content does not involve national secrets, trade secrets, personal information, intellectual property disputes, and other sensitive information, etc.

3. The text and figures filled in have been reviewed and confirmed to be correct.

4. I (and the cooperation team) am willing to cooperate actively if the IMT-2030(6G) Promotion Group requests further relevant technical materials in the follow-up technical assessment.

Signature of the participating institution:

Date:

**1．Basic Information**

|  |  |
| --- | --- |
| Title of technical scheme |  |
| Technical directions*（Multiple choice allowed）* | **1. Key fundamental research**□1.1：Fundamental research on communications□1.2：Interdisciplinary fundamental research (*e.g., computing theory, artificial intelligence (AI) theory, control theory)***2. Novel wireless technologies**□ 2.1：Air-interface evolution technologies (*e.g., physical layer technologies, advanced antenna technologies, full-duplex technologies)*□ 2.2：Integrated technologies (*e.g., wireless AI technologies, integrated sensing and communication, convergence of communication and computing)*□ 2.3：Multiple physical dimension transmission (*e.g., reconfigurable* *intelligent surfaces, holographic radio technologies, orbital angular momentum technologies*)□ 2.4：New spectrum technologies (*e.g., THz communications, visible light communications, Spectrum sharing technologies*)□ 2.5：Basic technologies or modeling (*e.g., wireless channel measurement and modeling*)□ 2.6：Low power consumption and green communication technologies**3. Novel network technologies**□ 3.1：Novel network architectures (*e.g., RAN architecture, core network architecture, distributed autonomous network architecture*)□ 3.2：Novel networking technologies (*e.g., space-air-ground integrated network, technologies for interconnection with non-terrestrial networks*)□ 3.3：Advanced network technologies (*e.g., computing-aware network, AI-native network, digital twin network, deterministic networking, green network and network energy saving technologies*)□ 3.4：Technologies for network operations, administration and management**4. Novel Security technologies**□ 4.1：Physical layer security technologies□ 4.2：Network security technologies□ 4.3：Secure data and protocols technologies□ 4.4：Application-oriented security technologies**5. Industrial technologies**□ 5.1：Basic software and hardware technologies (*e.g., Chip/integrated circuit design, hardware architecture design, basic software development*)□ 5.2：New materials and manufacturing technologies**6. Other technologies**□ Others：\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Leading institution | Name |  | Type |  |
| Address |  | Country/region |  |
| Principal investigator (PI) | Name |  | Title |  |
| Phone No. |  | E-mail |  |
| Contact member | Name |  | Tile |  |
| Phone No. |  | E-mail |  |
| Participating institution | No. | Name of institution | Type | Country/region |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| … |  |  |  |
| Participating member | No. | Name and affiliation | Title | Phone No. and E-mail |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| … |  |  |  |
| Abstract of technical scheme（within 600 words） |  |
|

**2．Technical Scheme Description**

(a) Research Background and Research Significance

*Please briefly describe the original research intention, necessity and importance of the research, the pain points solved, the value and benefits generated, etc., of the technical scheme submitted, which can be discussed in combination with the key issues that urgently need to be solved in the national economic and social development.*

(b) Technical Solution Description

*Please provide a complete and detailed introduction to the technical scheme. Subtitles can be designed independently. The content should include (but not limited to): key problems to be solved, overall architecture and basic capabilities, main principles and key technologies (and core algorithms), quantifiable main technical indicators, application scope and constraints, etc. Figures and tables can be added to describe them.*

(c) Technology Innovation Analysis

*Please analyze the potential application scenarios, deployment solutions, and business use cases of this technical scheme. Please briefly analyze the innovation of the technical scheme, which may include (but not limited to): original and fundamental progress in a key problem in a certain field, comparison of similar technology directions and its own unique advantages, demonstration of achievements (such as high-level papers, patents), etc.*

(d) Technology Maturity Analysis

*Please briefly analyze the maturity of the technical scheme, including (but not limited to): technical feasibility or achievability, complexity and cost, required engineering and industrial foundations, etc.*

**3．Simulation and/or Verification Results**

*Please provide the verification results of this technical scheme, including complete numerical analysis and simulation results (required), and it is recommended to provide prototype verification results or third-party evaluation results (not required), etc.*

**4．Challenges and Future Directions**

*Please briefly analyze the problems and challenges faced by the technology during its development (such as technology, industry, market, policy, etc.), as well as the future directions and goals, phased plans, expected results, etc.*

**5．Achievements and Platforms**

Please briefly introduce the research achievements related to this technical scheme, including high-level papers, patents, various projects (completed or under research), technical reports/white papers, etc. In addition, please briefly introduce the expert resources and teams that have been relied upon to complete the research.

**Attachments: Relevant supporting materials**

*Please provide the necessary supporting documents for the research achievements, including papers/patents/standard proposals/reports, award certificates, third-party evaluation test certificates, etc., with no limit on the number of words and pages.*