



September 24, 2015.

Dear European Cosmic Microwave Background Colleagues,

Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (ISAS, JAXA) considers its <strategic L-class missions> as the main pillar that sustains its space science activity. The strategic L-class missions are of ~30 billion JPY scale (cost estimated according to Japanese counting system not including personnel and overhead cost) and are to be launched by Japanese H-IIA/H-III vehicle. We do believe that excellent science at the cutting-edges can be performed by missions in this line and welcome international collaboration to maximize the success of the missions. Good examples are Hayabusa2 (asteroid sample & return) and ASTRO-H (X-ray astronomy).

LiteBIRD was recommended because of its strength in science by Space Science Advisory Committee of ISAS as an L-class mission candidate. ISAS took the recommendation seriously and will decide to make it proceed to the next step, namely, Phase-A study, when a set of action items issued to the LiteBIRD working group is cleared. Almost simultaneously, NASA has also decided to select the proposal of US participation to LiteBIRD (PI: Dr. Adrian Lee, UC Berkeley) for Phase-A study through its Mission of Opportunity framework. A joint and synchronized study on the mission candidate will start when the LiteBIRD working group in Japan is ready to enter Phase-A study with the assumption of launch in 2025.

Given the constraints, ISAS does care how focused the missions are. This is true even for the strategic L-class missions. ISAS finds the LiteBIRD proposal to focus on good science cases and is preparing to support its Phase-A study.

The LiteBIRD concept is centralized in what a space mission should do in comparison with various ground-based observation efforts for CMB detection.

A light-weight mission may it seem, when do realize that it is not an easy mission that can be constructed by simply following an existing path. The critical technical items we have identified so far are, (1) cooling system, (2) end-to-end validation scheme, (3) a maturity of the system-level design compared to the tough requirements for the precise measurements, (4) development schedule, and (5) mechanics under extremely low temperature. We feel it to be a quite natural, or indispensable, choice to baseline the overall design of the LiteBIRD according to the heritage of the ESA's mission Planck. This strategy would become most fruitful when Europe-Japan collaboration is set-up for a focused CMB mission similar to the one described in the LiteBIRD proposal. Some complications might be added, however, we would like to declare that ISAS is ready to support and accelerate the Phase-A study by investing its expertise and human resources to the study team.

I, as the Director General of ISAS, do care about timeliness and solid materialization of space science missions. A focused CMB mission, to be launched in 2025, fits very nicely with the ISAS space science roadmap and program, when materialized in a solid manner. I am looking forward to a nice Europe-Japan teaming-up for a reasonable size CMB mission that will fly timely.

Sincerely,

A handwritten signature in black ink, reading "Saku Tsuneta". The signature is fluid and cursive, with the first name "Saku" and last name "Tsuneta" clearly distinguishable.

Saku Tsuneta  
Director General  
Institute of Space and Astronautical Science  
Japan Aerospace Exploration Agency