

**MANAGEMENT AGREEMENT
CONCERNING OPERATIONS
OF THE
ATACAMA LARGE
MILLIMETER/SUBMILLIMETER ARRAY

(ALMA)**

BETWEEN

**ASSOCIATED UNIVERSITIES Inc. of THE UNITED STATES
as the NSF Executive,**

**THE NATIONAL ASTRONOMICAL OBSERVATORY of JAPAN
as the NINS Executive**

and

**THE EUROPEAN ORGANISATION for ASTRONOMICAL RESEARCH in the SOUTHERN
HEMISPHERE
as the ESO Executive**

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Preamble

Whereas

- On December 15, 2015, the National Science Foundation (NSF), the National Institutes of Natural Sciences of Japan (NINS) and the European Organisation for Astronomical Research in the Southern Hemisphere (ESO) have entered into the “Agreement Concerning the Operation of the Atacama Large Millimeter/submillimeter Array (ALMA)”, and
- Pursuant to the ALMA Agreement, ESO, NINS and NSF have each designated an Executive to perform specific tasks required to operate and further develop ALMA on behalf of their respective Party. ESO, NINS and NSF have designated their respective Executives to be ESO, the National Astronomical Observatory of Japan (NAOJ) and Associated Universities, Inc.(AUI) in its capacity as the managing organization of the National Radio Astronomy Observatory, and
- The Executives have signed various agreements with Chilean authorities enabling them to conduct ALMA activities within the Republic of Chile, and
- The ALMA Agreement, among other matters, requires:
 - the Joint ALMA Observatory (JAO), staffed by the Executives and headed by the ALMA Director, to provide the unified leadership and management of Operations;
 - the ALMA Director to report to the Board, which includes representatives for the Executives;
 - the scientific and technical interactions and support of the respective regional user communities with ALMA to occur through the Regional ALMA Support Centers operated and managed by the respective Executives;
 - the Board to utilize an ALMA Science Advisory Committee (ASAC), a Personnel Committee, a Budget Committee and an International Visiting Committee as advisory bodies, which are supported by the JAO and the Executives; and
 - the Parties to have their Executives jointly complete, implement, and maintain a Management Agreement setting out the manner in which the Executives shall work together concerning all ALMA matters as set out in the ALMA Agreement.

Therefore, ESO, NAOJ and AUI hereby reaffirm that they will perform their respective roles as Executives as identified in the ALMA Agreement and will interact with one another as prescribed in this Agreement.

Article 1. Definitions

“This Agreement” means the Articles, and any Annexes and/or Amendments comprising this document which is titled “Management Agreement concerning the Operations of the Atacama Large Millimeter/submillimeter Array (ALMA).”

“ALMA”, as defined in the ALMA Agreement, means the Atacama Large Millimeter/submillimeter Array.

“ALMA Agreement” means the “Agreement Concerning the Operations of the Atacama Large Millimeter/submillimeter Array (ALMA)” which entered into force on 15 December 2015, and any annexes and/or amendments approved thereafter.

“ALMA Director”, as defined by the ALMA Agreement, means the Director of the Joint ALMA Observatory.

“ALMA Management Team” or **“AMT”** means the group established pursuant to Article 6 of this Agreement which is the body that discusses and resolves operational and management issues requiring coordination and agreement among the JAO and the Executives as further expressed in its terms of reference.

“ALMA Operations”, and **“Operations”** as defined by the ALMA Agreement, means the activities related to the use of ALMA and includes development, maintenance and modifications.

“ALMA Project”, as defined by the ALMA Agreement, means the collaborative projects of the Parties to construct and operate ALMA.

“ALMA Safety Advisory Group” or **“ASAG”** means the group established by the Director’s Council pursuant to Article 9 of this Agreement and further described in Article 15 of this Agreement to provide advice to the ALMA Project on safety, security, health and environmental matters in accordance with its terms of reference as approved by the Director’s Council.

“ALMA Site”, as defined by the ALMA Agreement, means the Operations Support Facility (OSF) and the Array Operations Site (AOS) including the roads connecting the two sites and the road connecting the OSF with the local Chilean highway, as well as the Santiago Central Office (SCO).

“ASC Budget” means the fraction of the Budget that details the estimate of income, commitment and expenditure on Offsite Operations Activities carried out by each Regional ALMA Support Center within a specified financial year, which may be described not only by the financial costs, but also in other forms such as the number of personnel or efforts as performed by each Regional ASC in support of ALMA.

“Board” or **“ALMA Board”** means the governing body of the ALMA Project as established by the ALMA Agreement.

“Budget”, as defined by the ALMA Agreement, means a detailed estimate of income, commitment and expenditure on ALMA Operations within a specified financial year.

“Concesionaria Proyecto Radioastronomy Chajnantor Limitada” or **“RCL”** means the Chilean company which owns the concession on which the Array Operations Site is located.

“Development Principles” means the principles for the ALMA development program as approved by the Board according to Article 17.2 of the ALMA Agreement.

“Director’s Council” means the body established by the ALMA Agreement which supports the ALMA Director to ensure that ALMA Operations are carried out in accordance with the obligations of the Parties, the rules applicable to the Executives and the policies set forth by the Board.

“Equipment”, as defined by the ALMA Agreement, means all components of the ALMA Project, including hardware and software, contributed by or on behalf of the Parties, which have been made available to the ALMA Project and accepted by the ALMA Director, including any maintenance tools and software designated for the ALMA Project located at the Parties or their Executives.

“Executives” means the entities designated by the Parties under Article 3.3 of the ALMA Agreement, to perform specific duties described in Article 8 of the ALMA Agreement.

“Executive Directors” means the ESO Director General, the NAOJ Director General and the NRAO Director.

“Heads of Administration Advisory Group” or **“HAAG”** means the group established by the Director’s Council pursuant to Article 9 of this Agreement to advise the ALMA Project on budgetary, procurement and other administrative matters, in accordance with its terms of reference as approved by the Director’s Council.

“Human Resources Advisory Group” or **“HRAG”** means the group established by the Director’s Council pursuant to Article 9 of this Agreement to advise the ALMA Project on human resources matters in accordance with its terms of reference as approved by the Director’s Council.

“Infrastructure”, as defined in the ALMA Agreement, means the basic facilities and installations on the ALMA Site which are firmly attached to the ground, contributed by or on behalf of the Parties, and accepted by the ALMA Director.

“Intellectual Property”, as defined by the ALMA Agreement, means intellectual and industrial property which is capable of protection by patents, trademarks or copyright, and industrial design, technical data or expressions of knowledge or expertise, which are capable of being licensed, but excluding data taken through scientific observations with ALMA.

“International Staff” or **“ISM”**, as defined by the ALMA Agreement, means all employees, other than Local Staff, employed by one of the three Executives under contractual terms and conditions established by the relevant Executive, assigned to work for the JAO in Chile.

“Joint ALMA Observatory” or **“JAO”**, as defined by the ALMA Agreement, means the international astronomy observatory set up jointly by the Parties in Chile for the purpose of constructing and operating ALMA.

“JAO Budget” means the funding which covers the Onsite Operations Activities carried out by the Joint ALMA Observatory.

“JAO Staff” means the International and Local Staff employed by the Executives and assigned to work at the JAO, as described in Article 10 of this Agreement.

“Key Personnel” means an individual staff member of the JAO designated as such by the Board pursuant to Article 12 of the ALMA Agreement.

“Local Staff” or “LSM”, as defined by the ALMA Agreement, means all employees recruited and employed to work for the Joint ALMA Observatory under Chilean contracts of employment, but not those employees hired by one of the Executives under Chilean contracts of employment to perform functions exclusively for one of the Executives, such as, but not limited to, contracting and procurement, accounting and legal matters, etc.

“Long Term Budget Plan” means a multi-year financial planning document prepared by the ALMA Director in consultation with the Executives and recommended by the Director’s Council to the Board for adoption.

“Maintenance Principles” means the Board-approved policy guidance which is used to develop a comprehensive maintenance plan the objective of which is to meet the needs of ensuring the long-term Operations of ALMA.

“Offsite Operations Activities”, as defined by the ALMA Agreement, means support services, including maintenance and development, performed outside the JAO and organizing and maintaining the interface between the corresponding regional user community and the JAO, including user support services and public outreach and education activities.

“Onsite Operations Activities” means activities in Chile which are both carried out and managed by the JAO.

“Operations Principles” means the Board-approved principles which serve as a basis for the documents describing the details of the management and organizational structure for Operations, including Onsite and Offsite Operations Activities, the implementation plans for each department, and the groups and teams forming the ALMA Project.

“Party”, as defined by the ALMA Agreement, means any signatory to the ALMA Agreement.

“Personnel Committee”, as defined by the ALMA Agreement, means the committee set up by the Board to advise and assist the Board in personnel and appointment matters.

“Regional ALMA Support Center(s)” or “Regional ASC”, as defined by the ALMA Agreement, means the regional organisations established, operated and managed by the respective Executives to carry out Offsite Operations Activities.

“Shares of Contributions” means the proportion of costs and contributions which are identified in Article 4 of the ALMA Agreement.

“Trilateral Oversight Group”, as defined by the ALMA Agreement, means the oversight group which will ensure that all roles, responsibilities and authorities assigned by the ALMA Agreement are executed and discharged effectively.

Article 2. Scope and Purpose of this Management Agreement

- 2.1** The general objective of this Agreement is to ensure that NAOJ, ESO and AUI share a common understanding of the terms and conditions under which they will interact with one another in implementing their respective responsibilities as Executives.
- 2.2** This Agreement covers (1) Onsite Operations Activities which are both carried out and managed by JAO in accordance with the Executives' delegation of authority to the ALMA Director cited in Article 5 of this Agreement, (2) Offsite Operations Activities which are both carried out and managed by the Regional ALMA Support Centers, (3) the manner and methods of cooperation between and among the JAO and the Regional ALMA Support Centers which are headed by the Executives' respective representatives of the ALMA Management Team (AMT), and (4) the manner and methods of cooperation between and among the Executives on legal and management matters.
- 2.3** Guided by their shared mission to make ALMA a world-class scientific endeavor capable of enabling and sustaining transformational science, the Executives hereby commit to work with each other and with the JAO in a collegial manner characterized by commitments to professional excellence, transparency, and efficient Operations.

Article 3. Responsibilities of the Executives

- 3.1** The Executives are the organizations tasked by their respective Parties as being legally and ultimately responsible for the execution of Operations. Pursuant to Article 8.2 of the ALMA Agreement, specific tasks of the Executives are described in detail below, which shall include, *inter alia*, to:
 - (a)** receive, track, and maintain records of financial contributions from the respective Party;
 - (b)** forward such necessary records with appropriate evaluations to the ALMA Director to enable him/her to fulfil all reporting requirements under this Agreement or the ALMA Agreement;
 - (c)** ensure that all Equipment and Infrastructure can be examined by the Parties upon reasonable request, including at times before it has been made available to the ALMA Project and accepted by the ALMA Director;
 - (d)** carry out decisions of the Board or the Director's Council;
 - (e)** employ, or arrange for the employment of, and administrate all staff assigned to the JAO, including the ALMA Director;
 - (f)** issue contracts for goods and services upon request of the ALMA Director;
 - (g)** report regularly to the Board at all times when in the judgment of the Executives such reporting is warranted; and
 - (h)** establish, manage and operate the Regional ALMA Support Centers.
- 3.2** The Executives, in particular when fulfilling the above listed responsibilities or when leadership and responsibility for a task are assigned to a particular Executive, have

the duty to inform the other Executives and the JAO of matters related to the ALMA Project and this Agreement which could affect them, and shall work in a cooperative manner with each other and, as appropriate, with the JAO.

- 3.3** The Executives guarantee each other's employees free access to the ALMA Site, including the use of all existing and future Equipment and Infrastructure, for the purpose of the ALMA Project.
- 3.4** The Executives shall not make arrangements with third parties inconsistent with the ALMA Agreement, this Agreement or the principles and policies approved by the Board.
- 3.5** The Executives shall not make any commitments or enter into any arrangement which binds any of the other Executives, except as provided for in this Agreement or unless approved and signed by duly accredited representatives of all Executives concerned.

Article 4. Obligations to Support ALMA Operations

- 4.1** The Executives shall support ALMA Operations, subject to the funding provided by the respective Parties, in the following manner:
 - (a)** The Executives shall provide funding for all Onsite Operations Activities, subject to the reconciliation process identified in Article 13 of this Agreement, in the same percentages identified in the Shares of Contributions of the Parties appointing such Executives.
 - (b)** The Executives shall provide funding for antenna maintenance costs and modifications to Equipment and Infrastructure as agreed by the Parties pursuant to Articles 16.1 and 17.3, respectively of the ALMA Agreement.
 - (c)** The Executives shall provide funding for AOS/OSF decommissioning and site restoration/remediation activities as required by the environmental impact statement.
 - (d)** The Executives shall undertake development studies and projects in accordance with decisions made pursuant to the Development Principles.
 - (e)** The Executives shall provide their respective communities with user services consistent with the Operations Principles.
 - (f)** The Executives shall perform the tasks assigned to it pursuant to the Maintenance Principles and corresponding maintenance plans. The Executives agree that decisions about the proposed distribution of tasks should be optimized based on considerations such as technical expertise, facilities, workload capacities, cost effectiveness, long-term strategic interests and funding constraints.
 - (g)** The Executives shall provide warranties for their deliverables consistent with the Board-approved warranty policy.
- 4.2** An Executive may choose to provide services to its user communities beyond those identified in 4.1 (e) above, and shall keep the other Executives and the JAO informed of the nature and scope of the services.

- 4.3 An Executive may, subject to Director's Council approval, provide in-kind contributions in lieu of funding to the JAO Budget. The value of in-kind contributions must be agreed by all Executives and shall be reported to the Board.

Article 5. Delegation of Authority by the Executives to the ALMA Director

- 5.1 Because the ALMA Director is responsible for the centralized decision-making and direction required to successfully manage ALMA activities carried out by the JAO on behalf of the Executives, the Executives shall provide the ALMA Director with written delegations of authority that outline the terms and conditions under which the authority is granted. Each Executive's delegations, within their respective legal constraints, shall be similar in nature and shall provide the ALMA Director with wide discretion in making decisions as to how to optimize and execute his/her responsibilities described in the ALMA Agreement.
- 5.2 While the delegations of authority provide the ALMA Director with the authority to manage the JAO Staff, such delegations will not cover activities which pertain to the Executives themselves, will not constitute legal powers of attorney and, as such, will not empower the ALMA Director to make legally-binding commitments on behalf of the Executives.
- 5.3 The Executives agree that any reference to the action of the JAO in this Agreement shall be understood to be an action taken either by the ALMA Director or a person who has been designated by the ALMA Director. In either case, the ultimate responsibility resides with the ALMA Director.
- 5.4 Because the governance, legal, technical, financial, safety or reputational risks of the ALMA Project are ultimately borne by each Executive, there may arise instances when an Executive cannot accept a decision of the ALMA Director. In these cases, the Executive will collaborate with the JAO, and as required, with the other Executives, to seek an acceptable alternative course of action. Each Executive agrees not to impose unnecessarily its right to require an alternative course of action and shall do so only in cases where it judges the risk of the original course of action to be unacceptably large.

Article 6. The ALMA Management Team (AMT) – Structure and Functions

- 6.1 The ALMA Management Team is the body that discusses and resolves operational and management issues requiring coordination and agreement among the JAO and the Executives as further expressed in its terms of reference. The AMT may establish integrated sub teams to address specific ALMA Operations activities. The AMT will coordinate its activities, as necessary, with the advisory groups established pursuant to Article 9 of this Agreement.
- 6.2 The Executives and the ALMA Director, in accordance with the Operations Principles, shall each appoint to the AMT one member who has direct Operations responsibilities within its organization. In conducting AMT activities, the AMT members continue to report solely to their respective management organizations, and shall seek advice within their respective organizations, as necessary.

- 6.3 The terms of reference for the AMT are subject to the approval of the Executive Directors and the ALMA Director.

Article 7. Regional ALMA Support Centers

- 7.1 The Executives each operate and manage a Regional ALMA Support Center in their respective regions to carry out Offsite Operations Activities. In conducting these activities, the Executives agree to collaborate with the JAO in following the Operations, Maintenance and Development Principles documents.
- 7.2 The internal organization and management of each Regional ALMA Support Center is determined by its Executive. The Executives shall utilize regional science advisory groups to advise them on interactions with their respective user communities.
- 7.3 The Executives agree that the Regional ALMA Support Centers will provide technical support services, maintenance and development, performed outside the JAO, and user support to their respective user communities in line with the Board-approved Operations Principles.
- 7.4 The Executives, through the ALMA Management Team, shall work with the ALMA Director to harmonize Offsite Operations Activities across the partnership to the mutual benefit of the ALMA Project and the regional user communities. Such areas of harmonization include, but are not limited to, proposal submission and review, offsite maintenance, development activities and establishment of technical standards.

Article 8. ALMA Board and Director's Council

- 8.1 The Executives shall work together in a collaborative manner in carrying out decisions by the Board and the Director's Council.

ALMA Board

- 8.2 The Executives shall interact with the Board and its advisory bodies whenever necessary and shall support the Board upon request in discharging its responsibilities as identified in the ALMA Agreement.
- 8.3 The Executives agree that matters of mutual interest that they put before the Board or any of its advisory bodies, shall be generally developed jointly, in consultation with the ALMA Director, and wherever reasonably possible will be jointly supported.

Director's Council

- 8.4 The Executives shall address in the Director's Council any issues where the treaties, laws, contracts, regulations, etc. applicable to them might have an impact on operational activities and shall work within the Director's Council to meet the requirements of the ALMA Project.
- 8.5 Each Executive, with the approval of the Party which designated such Executive, shall assign to the Director's Council a representative who has the necessary authorities to represent and commit the respective Executive on all matters tasked to the Director's Council.

Article 9. Advisory and Coordination Groups

- 9.1** The Executives agree to collaborate with one another, and with the JAO as appropriate, in the functioning of (i) advisory groups established by the Director's Council pursuant to the ALMA Agreement and (ii) any coordination groups established by the Executives pursuant to Article 9.3 below.
- 9.2** At the date of entry into force of this Agreement, the advisory groups established by the Director's Council consist of the following:
- ALMA Human Resources Advisory Group (HRAG);
 - ALMA Heads of Administration Advisory Group (HAAG); and
 - ALMA Safety Advisory Group (ASAG).
- 9.3** Notwithstanding the authority of the Director's Council to establish advisory groups to the Director's Council, the Executives may form other groups to coordinate the activities among themselves, the terms of reference of which will be developed and approved by the Executives, and as appropriate, by the JAO.
- 9.4** The Executives agree that the groups described in this Article shall be coordination and advisory forums. As such, these groups do not make collective decisions on behalf of the JAO, the Executives or the Director's Council, unless explicitly authorized in this Agreement or the approved terms of reference. The approved terms of reference for these groups do not alter the management reporting structure within their respective organizations.
- 9.5** The Executives shall ensure that their respective representative(s) possess the necessary expertise to allow the groups described in this Article to discharge their responsibilities, and that their representative(s) views and recommendations are consistent with their respective management's positions.

Article 10. Joint ALMA Observatory Staff

Provisions common to both ISM and LSM

- 10.1** The Executives shall work with the ALMA Director in achieving the goal of a diverse work force reflecting the international nature of the ALMA partnership and the regional communities.
- 10.2** The Executives shall jointly work with the ALMA Director to establish JAO staffing categories which shall include job profiles, grades and professional expertise.
- 10.3** The recruitment process for JAO Staff, including Key Personnel, shall aim to provide a broad pool of qualified candidates who can help ALMA achieve the goal as described in Article 10.1 above. All JAO Staff positions shall be designated as either an ISM position or an LSM position, in accordance with the criteria developed jointly by the Executives in coordination with the JAO.
- 10.4** All JAO Staff, including the ALMA Director, shall be employed by one of the Executives. Employment contracts for all JAO Staff shall include a statement to the

effect that they shall work in the best interest of the ALMA Project, independent of the employer, provided, however, that such statement is not intended to create, infer, or be construed as establishing any employment relationship whatsoever between the JAO Staff and the non-employing Executives.

- 10.5** The Executives agree that the ALMA Director is responsible for managing and directing all JAO Staff regardless of their employer, and is the primary point of contact for representatives of the JAO Staff and their employer in all labor matters.
- 10.6** Notwithstanding Article 10.5 above, each Executive remains solely legally responsible for its own employees and for any administrative decisions affecting its employees, in particular regarding career development, disciplinary actions, dispute settlements, employment termination, and all legal matters. In making such decisions, the Executives shall consult with the ALMA Director in advance and take into consideration the requests or recommendations made by the ALMA Director.

Provisions applicable only to ISM

- 10.7** The Executives agree to jointly carry out expedited recruitment processes for ISM aimed at achieving a fair balance of representation among the Executives.
- 10.8** The Executives shall collaborate with the JAO to jointly establish a customized recruitment plan for each non-Key Personnel ISM position. Prior to the initiation of the recruitment process, written detailed job descriptions, vacancy notices, recruitment strategy, the panel review process, selection criteria and milestones shall be coordinated with the HRAG by the JAO Head of Human Resources, and approved by all Executives and the ALMA Director.
- 10.9** The Executives shall each present the candidate selected for an ISM position, including a Key Personnel position, with summaries of the general employment terms and conditions, including benefits and allowances. The selected candidate shall then choose the Executive(s) from which to request an employment offer. The Executive(s) shall, on an expedited basis, present the candidate with employment offer(s) which include the details of salary, benefits and allowances. The Executives, taking into consideration the fact that the cost of employment may be different among the employers, shall work with the ALMA Director in order to ensure that the financial impact of any offer is consistent with the Budget.
- 10.10** Performance appraisals for ISM, other than Key Personnel, will be conducted by JAO in close coordination with the employing Executive, utilizing performance measures agreed to in advance by the ALMA Director and the respective Executive, in consultation with the other Executives as appropriate. The format of the appraisals will be the same as is utilized by the employing Executive. Decisions regarding salary and advancement shall be made solely by the employing Executive, who shall factor in the results and any recommendations from the performance appraisals conducted by JAO described above.
- 10.11** All ISM, including Key Personnel, shall be offered unpaid appointments from the Executives which are not their legal employer. Such unpaid appointments do not alter the labor relationship with their legal employer. The terms and conditions of

these appointments will form part of, and will be attached to, the employment contracts. Unpaid appointments shall be reported by the Executives to the HRAG.

- 10.12** The ALMA Director's proposed extension, termination or change to a non-Key Personnel ISM's assignment to the JAO, shall require the employing Executive's concurrence after consultation with the other Executives.
- 10.13** Under special circumstances, an Executive may assign members of its staff to the JAO subject to the approval of the ALMA Director and prior agreement among all Executives as to the source of funds to support the staff cost as well as to any special employment terms and conditions. Special circumstances may include, but are not limited to, situations in which there is a temporary need for a position, when an individual has a specialized technical, scientific or managerial skill that may be extremely difficult to find, and/or when there is an urgent need to fill a position.

Provisions applicable only to LSM and AUI's role as employer of LSM

- 10.14** Subject to Article 11.4 of the ALMA Agreement, AUI in its role as the NSF Executive is the sole employer of LSM and hereby agrees to execute its LSM employment responsibilities in a transparent and inclusive manner in close cooperation with ESO, NAOJ and the JAO. Nothing in this arrangement is intended to create or infer, and shall not be construed as establishing any employment relationship whatsoever between the LSM and ESO and NAOJ.
- 10.15** The recruitment procedures, the grade structure, salary tables, and benefits for LSM shall be developed and implemented jointly by the JAO and AUI and coordinated with the other Executives. LSM shall be employed consistent with the approved grade structure, salary tables and benefits, and the JAO Budget.
- 10.16** The cost of LSM will be shared among the Executives and shall be included in the JAO Budget. Such costs for the employment of Local Staff shall be those costs normally incurred by an employer in Chile in connection with the employment of Local Staff, plus any administrative cost incurred by AUI. These costs items shall be reviewed periodically by the Executives and the JAO. AUI shall present to the ALMA Director and the other Executives complete accounts of all the costs of employing LSM according to a schedule agreed upon by the Executives.
- 10.17** AUI, as the sole employer of LSM shall:
- (a) Comply with and conform to the requirements of Chilean labor legislation, rules and regulations concerning the employment of LSM;
 - (b) Be solely responsible for providing all notices and interactions with Chilean authorities on issues related to or arising from contracts of employment of the LSM and shall coordinate all such interactions with the ALMA Director and the other Executives;
 - (c) Provide regular reports to all Parties, Executives and the ALMA Director regarding significant developments concerning LSM. The content and frequency of the reports shall be agreed upon by the Executives;

- (d) Pay all taxes, duties, social security contributions, and fees imposed by regulations of Chile, pay all remuneration and benefits under the LSM contracts of employment, or make other payments which arise by virtue of their employment; and
 - (e) Establish and amend jointly with the JAO, LSM employment policies, including Local Staff rules and regulations, in consultation with the other Executives, and work with the JAO to implement such policies.
- 10.18** AUI shall honor written requests by the ALMA Director justifying that an LSM be removed from the JAO Staff.
- 10.19** A decision by AUI to terminate an LSM employment contract and the manner in which this shall be carried out shall be done consistent with Chilean labor legislation, rules and regulations. AUI shall inform the JAO of decisions to terminate an LSM employment contract.

Collective Bargaining

- 10.20** According to the ALMA Agreement, collective bargaining with LSM unions shall be conducted through a process led by the ALMA Director working in close coordination with AUI as the employer and the other Executives.
- 10.21** In preparation for the collective bargaining process, the Executives and the ALMA Director shall agree upon a written comprehensive negotiation plan in advance of the beginning of face-to-face negotiations with an LSM union. The negotiation plan will be developed by a strategy team appointed by the Executive Directors, which shall be composed of members of the JAO and all Executives with expertise in human resources, administration, budgeting, legal, operational activities and other relevant areas. In developing a negotiation plan, the following items shall be considered:
- The Budget and the Long Term Budget Plan;
 - A detailed preparation timeline;
 - Negotiation goals and comprehensive negotiating strategy including milestones, deliverables and negotiating parameters (including, but not be limited to, compensation, benefits, and non-monetary matters such as working conditions);
 - A communications plan;
 - A contingency plan; and
 - Market/benchmark data for salaries and benefits.
- 10.22** Face-to-face negotiations with an LSM union will be conducted solely by a negotiations team appointed by AUI after consultation with the JAO and the other Executives. The negotiations team which shall be composed of negotiators and, if appropriate, advisors, shall have the requisite expertise in Local Staff human resources management, budgeting, legal matters and any other areas necessary to support effective negotiations. In deciding upon the composition of the negotiating team, AUI shall consider appointing Local Staff and International Staff as well as other staff from the Executives. The negotiations team shall represent the interest of the ALMA Project as well as the interests of the Executives providing the

funding for Local Staff. Negotiations shall be conducted within the boundary conditions established in the negotiation plan. Any deviations from the approved negotiations plan shall require approval by the Executives and the ALMA Director.

- 10.23** The financial impact of any agreement between AUI and an LSM union must be consistent with the JAO Budget, the corresponding portion of the Long Term Budget Plan and the negotiation plan, including any approved deviations thereto.

Provisions applicable to ISM and LSM Key Personnel

- 10.24** The Executives agree to work with one another, and in coordination with the ALMA Director, to select Key Personnel in a manner approved by the Board.

- 10.25** Prior to the initiation of the recruitment process for a Key Personnel position, the Executives shall jointly work with the ALMA Director to develop a written recruitment plan, which, if required, shall be submitted to the Board for approval. Such plan shall, as a minimum, consists of the following documents:

- Detailed job description;
- Vacancy notice;
- A description of the methods to be used to solicit applications;
- A description of the selection process, including the composition of the selection panel; and
- Milestones and dates for selection activities.

- 10.26** The performance and continued appointment of Key Personnel shall be reviewed periodically by the Board in consultation with the ALMA Director and all Executives. The Executive employing such Key Personnel agree to honor these assessments in making decisions about compensation, career advancement and continued assignment to the JAO.

Article 11. Budget and Long Term Budget Plan

- 11.1** ALMA is operated through Onsite Operations Activities carried out by the JAO, and Offsite Operations Activities carried out by the Executives. The Onsite Operations Activities are covered in the JAO Budget, whereas the Offsite Operations Activities are covered in the ASC Budgets. The Budget as addressed in the ALMA Agreement consists of the JAO Budget and the ASC Budgets. The ASC Budgets shall not include activities covered under Article 4.2 of this Agreement, and certain activities mutually agreed by the Executives, in consultation with the ALMA Director.

- 11.2** The Executives shall define and periodically update as necessary the procedures to prepare, execute and review the Budget and the Long Term Budget Plan in a document prepared jointly by the Heads of Administration Advisory Group and the ALMA Management Team and approved by the Director's Council. This document shall include, as a minimum,

- (a) a schedule and process to be followed for the preparation of the Budget, including the involvement of the ALMA Management Team;

- (b) a process for implementing any subsequent changes to the Budget; and
- (c) the review process ensuring the efficient use of the Budget.

Preparation of the Budget and the Long Term Budget Plan

- 11.3 The Executives acknowledge that it is the responsibility of the ALMA Director to prepare the Budget and the Long Term Budget Plan and to present it to the Board for approval and adoption, respectively. They shall jointly support the ALMA Director in preparing both the Budget and the Long Term Budget Plan.
- 11.4 While the preparation of the respective ASC Budget is the responsibility of each Executive, they shall each provide to the ALMA Director the necessary and timely budgetary input regarding those portions of their respective ASC Budget relevant for the ALMA Director's preparation of the Long Term Budget Plan and the Budget for the forthcoming year.
- 11.5 The Executives will prepare their input to the JAO Budget in a Board-approved currency which, at the effective date of this Agreement, is Chilean Pesos. The Executives, after consulting with the ALMA Director may propose to change the currency of the JAO Budget to the Board for approval. The ASC Budgets will utilize the respective Executives' local currencies.

Execution of the Budget

- 11.6 The Executives shall support the ALMA Director in the execution of the JAO Budget.
- 11.7 Each Executive shall ensure that the tasks assigned to it are executed:
 - (a) in accordance with the Budget and Long Term Budget Plan;
 - (b) in a most cost-effective manner in order to maximize the use of the Budget for the benefit of the entire ALMA Project, and
 - (c) in a transparent manner among the Executives and the JAO.

Article 12. Financial and Business Matters

Maintenance of Financial Records and Reporting

- 12.1 The Executives shall support the ALMA Director in the tracking and maintenance of the JAO's financial records.
- 12.2 Each Executive will be responsible for the maintenance of its financial records and will maintain their normal internal financial cycles, currency recording practices and external audit activities. The Executives shall also receive, track and maintain records of financial contributions from their respective Party.
- 12.3 The Executives shall each send periodic expenditure reports to the ALMA Director, or designee, who shall consolidate the information into reports which shall be distributed to the Heads of Administration Advisory Group and the AMT. These reports shall be used to assess the distribution and progress of tasks assigned to the

Executives. The frequency, content and format of these reports shall be agreed among the Executives in consultation with the ALMA Director.

- 12.4 The Executives will provide to the ALMA Director the financial information and reports relevant for the ALMA Director's reports to the Board according to the ALMA Agreement.
- 12.5 Each Executive agrees to assign costs to the ALMA Project, including costs for work done on behalf of another Executive pursuant to Article 14.7 of this Agreement, in the manner as it assigns costs to its non-ALMA activities.
- 12.6 Any currency conversion for expenditures under this Agreement shall be determined in accordance with the respective Executive's normal financial policy.

Executives' Audits

- 12.7 Each Executive shall make available to the other Executives and the ALMA Director the recommendations and findings of its external financial audits and internal audits in so far as they pertain to ALMA. The Executives shall work together to implement the audit recommendations considering the internal rules and regulations of the Executives and the needs of ALMA Operations.

JAO Internal Operational Audits

- 12.8 The Executives shall support the Director's Council in fulfilling its responsibility under Article 7.2 (e) of the ALMA Agreement to develop a joint internal audit function for the JAO. These internal operational audits shall focus on the compliance of Onsite Operations Activities with the applicable rules and procedures and the effectiveness and efficiency of these activities, including the JAO risk management.
- 12.9 In conducting internal operational audits, each Executive shall allow the internal auditors access to all relevant documentation and data pertaining to Onsite Operations Activities, and provide them with all necessary support in the discharge of their functions. Each Executive shall bear its own costs for these audits.
- 12.10 JAO internal operational audit reports including any recommendations shall be made available to the Director's Council.

Article 13. Reconciliation and Balancing

- 13.1 The Executives, through the Heads of Administration Advisory Group, shall jointly develop and implement a documented reconciliation process for Onsite Operations Activities expenses, which will include provisions ensuring that all such expenses, without exception, are reconciled on the basis of the ALMA financial year as established by Article 13.2 of the ALMA Agreement, and also include requirements for interim quarterly reconciliations and advance payments. The reconciliation process shall be structured to mitigate the impact of exchange rate and currency conversions.

Quarterly reconciliation shall be concluded within 30 days after the end of a quarter, and final reconciliation shall conclude no later than the end of the first quarter following the end of the ALMA financial year, with any subsequent payments made as soon as possible after these dates.

- 13.2** The Executives, through the AMT, shall strive to balance Offsite Operations Activities among the Executives, excluding those activities identified in Article 4.2 of this Agreement and those activities mutually agreed by the Executives to be not included in the Budget according to Article 11.1 of this Agreement, both within an ALMA financial year and over a period of years, by assigning tasks in an equitable manner consistent with the Shares of Contributions of the Party appointing such Executive, and utilizing agreed upon metrics such as, but not limited to, costs, staffing levels or assigned values for individual activities depending on the nature of the activity.
- (a) As part of the effort to balance Offsite Operations Activities within an ALMA financial year, the Executives may reallocate activities within an Executive's Regional ASC or redistribute assigned task among the Executives. Any of these measures shall be agreed and implemented by the respective Executive within the offsite budgetary authority.
 - (b) As part of the effort to balance the Offsite Operations Activities over a period of years, the AMT shall conduct periodic assessments to determine if, despite the efforts mentioned under Article 13.2 (a) above, the assignment of tasks has resulted in a significant imbalance of Offsite Operations Activities among the Executives, and, if so, shall develop and implement a remedial balancing plan. Measures which may be taken to reestablish balance include the adjustment of contributions of one or more Executives to the JAO Budget with a countervailing adjustment to their portion of the ASC Budget, and/or a transfer of funds provided by their respective Party specifically for this purpose.
- 13.3** The reconciliation and balancing processes identified in Articles 13.1 and 13.2, above respectively, shall be based on the principles of fairness and equitable sharing of resources and risks. The Executives shall jointly approve the results of the reconciliation process and the remedial balancing plan. The remedial balancing plan as provided in Article 13.2 (b) above shall also require the approval of the Board and shall be reflected in the Budget accordingly.

Article 14. Contracts and Procurement

- 14.1** The acquisition of materials, goods and services required for ALMA Operations shall be made by the Executives according to the applicable rules and regulations of the respective Executive and within the Budget. The Executives shall remain solely responsible for any commercial and legal aspects. The Executives shall work with the JAO making their best efforts to keep the costs to a minimum by using competition and other means.
- 14.2** The Executives shall work with the JAO through the HAAG to develop annually a procurement plan to distribute contracts and procurements for the acquisition of

materials, goods and services among the Executives in a manner which (a) minimizes costs, (b) mitigates the need for exchanges of funds during the financial reconciliation process; and (c) allows acquisition of the materials, goods and services in a timeframe that meets JAO delivery requirements.

14.3 The Executives agree to the following general process regarding acquisitions made for the JAO:

- (a) Acquisition of materials, goods and services will be initiated by the JAO through a corresponding request to the Executive identified in the annual procurement plan identified in Article 14.2 above, containing the necessary statement of work, technical specifications and schedule to be included in the contract or purchase order;
- (b) The Executive procuring the materials, goods or services shall decide, in consultation with the JAO, on the procurement strategy and shall draw up the terms and conditions of the tender, the contract and/or purchase order according to its own relevant rules and regulations, supplemented if necessary by special conditions agreed upon with the JAO;
- (c) Staff from the Executive procuring the materials, goods or services have the option of participating in the JAO's technical evaluation of bids and offers. When permitted by the procuring Executive's internal rules and procedures, the other Executives may attend the technical evaluation of bids and offers;
- (d) The ultimate responsibility for selecting the vendor rests with the corresponding Executive. Any negotiations with potential vendors shall be done by the Executive in close cooperation with the JAO. The JAO's concurrence shall be required prior to the Executive's acquisition of materials, goods or services, considering the procuring Executive's internal rules and procedures; and
- (e) Participation of Executive staff in reviews and testing, in particular regarding acceptance of delivered materials, goods and services shall follow the same principles as for technical evaluations in Article 14.3 (c) above.

14.4 The Executives shall, subject to their respective internal rules and procedures, delegate to the JAO Staff the necessary authority to perform the tasks of the JAO in the acquisition process, in particular the ability to interface directly with the contractor for the purpose of controlling the technical, schedule and managerial performance of the contractor, and for providing day-to-day oversight to ensure that the contractor is performing work in accordance with the contract. The details of such authority shall be agreed between the Executives and the ALMA Director in writing. In so far as is practicable, the delegation authority will be the same for all Executives.

14.5 Prior to an Executive's early termination of a contract, the Executive shall consult with the ALMA Director.

- 14.6** In situations where the acquisition of materials, goods and services under an ASC Budget directly affects Onsite Operations Activities, the Executive shall consult with the ALMA Director, or designee, as appropriate.
- 14.7** The Executives may agree to provide goods and services to each other regarding ALMA. Such arrangements will be subject to separate agreements, contracts, or arrangements between the respective Executives. Work under such arrangements shall not commence until both Executives sign a written agreement containing a statement of work, delivery schedule, pricing information, payment schedules and the usual business terms and conditions, including the currency in which payment shall be made. The Executives involved shall inform the AMT about any such arrangements.
- 14.8** The Executives agree to cooperate with one another and with the JAO in disposing of obsolete Equipment in accordance with the provisions of the ALMA Agreement.

Article 15. Health, Safety, Security and Environmental Matters

- 15.1** The Executives, bearing the ultimate legal responsibility and authority for compliance with health, safety, security and environmental (HSS&E) laws and regulations, shall jointly approve all JAO HSS&E policies and procedures, which shall at least meet the minimum HSS&E standards applicable to any one of the Executives and under Chilean legislation.
- 15.2** The Executives shall:
- (a) Require the ALMA Director to implement JAO HSS&E policies and procedures which have been approved by the Executives;
 - (b) Authorize the ALMA Director to exercise stop work authority over all persons working at the ALMA Site when necessary to protect life, to prevent injury, and to avoid severe property and/or environmental damage; and
 - (c) Work together to minimize the environmental impact of the ALMA Project and to comply with all environmental obligations applicable to the ALMA Project including those arising out of Chilean legislation or official environmental impact assessments (Resoluciones de Calificación Ambiental) which shall be obtained and/or amended by the Executives as necessary.
- 15.3** The Executives reserve their respective rights to individually issue stop work orders themselves, which shall be directly applicable to all persons working on the ALMA Site. An Executive will only exercise this right when the JAO has not issued a stop work order, and when an Executive believes there exists an imminent threat to life, of injury of severe property damage and/or environmental damage. The Executives agree to develop, in consultation with the ALMA Director, clearly defined communications protocols to ensure that JAO Staff properly respond to a stop work order issued by an Executive.

- 15.4** The Executives shall, together with the JAO, utilize the ALMA Safety Advisory Group to, inter alia, provide advice to Executives and the JAO on all HSS&E matters, and to conduct compliance reviews on JAO activities.

Article 16. ALMA Education & Public Outreach

- 16.1** The Executives shall develop an agreed upon framework to coordinate planning for ALMA education and public outreach activities worldwide, including visits to the ALMA Site.
- 16.2** For ALMA education and public outreach activities, the Executives shall take the lead in their respective regions, and the JAO shall take the lead in Chile.

Article 17. Relations with Chilean Authorities and Local Resident Communities

- 17.1** The Executives agree to work jointly in Chile, each operating under its own legal regime.
- 17.2** The formal points of contact for interactions with Chilean authorities shall be each Executive's designated legal representative in Chile. The Executives' legal representatives in Chile shall meet periodically with the ALMA Director to discuss matters of common interest. The Executives shall coordinate all approaches to Chilean authorities involving ALMA matters with each other and with the ALMA Director.
- 17.3** The Executives shall represent themselves separately or jointly as necessary to the Chilean authorities on all interactions with Chilean authorities on matters related to the ALMA Project which include but shall not be limited to:
- (a)** the right to conduct the ALMA Project in Chile, including accreditation of foreign personnel and implementation of their rights and privileges;
 - (b)** compliance with laws and regulations, if applicable, pertaining to labor, taxes, land, environment, health, safety, radio frequency interference protection, building codes, and other similar issues;
 - (c)** courts and all other forums involving dispute resolution;
 - (d)** all matters regarding:
 - Concesionaria Proyecto Radioastronomy Chajnantor Limitada (RCL);
 - Agreement(s) between the Executive(s) and CONICYT;
 - the Region II Agreement; and
 - Ownership of land in Chile.
- 17.4** The Executives shall, in coordination with the JAO, develop procedures or protocols to be followed when Chilean authorities request access to the ALMA Site. The Executives owning the AOS concessionary company, the OSF and the SCO shall make the ultimate decision regarding allowing Chilean authorities access to those locations.

- 17.5** The Executives agree that the ALMA Director shall be the primary point of contact with the local resident communities near the ALMA Site on all ALMA matters, and, on behalf of the Executives, may implement commitments made under various agreements between the Executives and these communities. However, the Executives will be jointly and integrally involved in any such community matters having legal implications. The Executives shall also inform and coordinate with the JAO interactions with the local resident communities on matters not directly associated with ALMA.

Article 18. Concession

- 18.1** The sole purpose of the company, Concesionaria Proyecto Radioastronomy Chajnantor Limitada (RCL), is to act as concessionaire for the land delivered to it for ALMA by the Chilean Government.
- 18.2** The ownership percentage of RCL by the Executives should be in the same proportion as the Shares of Contributions of the Parties appointing such Executives.
- 18.3** The Executives shall work with the JAO to ensure that the JAO Budget supports any ongoing operating cost incurred by RCL.

Article 19. Non-ALMA Projects on the OSF and AOS

- 19.1** The Executives may jointly allow other scientific projects access to or passage through the OSF and/or AOS, and/or the use of ALMA facilities in Chile to conduct non-ALMA activities subject to the following minimum conditions:
- A determination by the ALMA Director of the extent to which these activities could affect ALMA Operations and, if any, could benefit ALMA scientific and technical activities,
 - A positive recommendation by the Board,
 - The Executives and the legal entity responsible for the non-ALMA activity executing a written site use agreement which sets out the legal, financial and general operational terms and conditions governing the activity on the OSF and/or the AOS. Such agreements shall generally provide for full cost reimbursement of all expenses incurred by the JAO, RCL and the Executives, and shall provide the Executives with full and unconditional indemnification for any damages sought by any person or organization resulting from the activity.
- 19.2** The Executives shall, in coordination with the JAO, develop written criteria which shall be considered in making decisions about whether access should be granted to the OSF and/or the AOS and the associated right of ways and about allowing the use of ALMA facilities in Chile.
- 19.3** The Executives shall develop a written guidance which will be used as the basis for developing site use agreements with the legal entities responsible for the non-ALMA activities.

Article 20. ALMA Santiago Central Office

- 20.1** ESO is the owner of the Vitacura site and all buildings located thereupon, including the SCO, which are under the authority of the ESO Director General. AUI and NAOJ acknowledge that ESO is the sole authority to interact with the Chilean Government and any other Chilean authorities in all matters related with the Vitacura site and buildings located thereon. Prior to initiating interactions with, or responding to, the Chilean Government and any other Chilean authorities, ESO agrees to consult with the other Executives on matters that could affect the Executives' access to the Vitacura site.
- 20.2** The use of the SCO must comply with the agreements concluded between ESO and the Chilean Government, and may not be used for any other purpose than those related to ALMA without the prior written approval of ESO.
- 20.3** The Executives and the JAO shall comply with ESO health, safety, security and environmental rules applicable to the Vitacura site. ESO will provide the JAO and the other Executives with these rules which will be incorporated in the relevant ALMA regulations.
- 20.4** The costs related to the use of the SCO itself, plus a prorated share of the costs for ESO support facilities and services at the Vitacura site utilized for the ALMA Project will be shared among the Executives and shall be included in the JAO Budget. The Executives shall work with the ALMA Director to define the details of these costs.

Article 21. Intellectual Property

- 21.1** The Executives shall comply with Article 20 "Intellectual Property" of the ALMA Agreement and, among other things, shall make sure that licenses for Intellectual Property can be provided and obtained in compliance with those provisions.
- 21.2** Notwithstanding the foregoing, in the event that an Executive, despite its best efforts within good faith negotiations, is not able to obtain unlimited use of Intellectual Property from a third party as addressed in Article 20.3 of the ALMA Agreement, the Executive shall inform the other Executives about these limitations. The Executives shall work together to assess the consequences of those limitations and agree on the measures to mitigate them, which may include choosing a different vendor.
- 21.3** To enable the ALMA Director to fulfill his/her obligations to identify and report Intellectual Property as described in Article 20.4 of the ALMA Agreement, each Executive shall, on an annual basis, provide the ALMA Director with sufficient information regarding newly created Intellectual Property.

Article 22. Confidentiality

- 22.1** The Executives agree to provide each other with information necessary to facilitate the effective functioning of the ALMA Project. In providing such information, general non-disclosure agreements will not be required from the other Executives or their employees.
- 22.2** An Executive may, in compliance with the conditions as defined in Article 21.1 of the ALMA Agreement, provide to another Executive information identified as being proprietary and/or commercially sensitive. In such case, the Executives shall jointly determine the conditions according to which that information will be shared within the ALMA Project.
- 22.3** The Executives shall clearly inform their respective employees, contractors, agents and consultants about the restrictions regarding proprietary or commercially sensitive information and shall require them to abide by such restrictions:
- (a)** When staff employed by the Executives are required to work with proprietary confidential and commercially sensitive material concerning ALMA, the non-disclosure rules of the employing Executive, including any special conditions as agreed according to Article 22.2 above, shall be applied and be enforced, independent of the source of the information. Separate individual non-disclosure agreements for specific activities shall not be required from the staff of other Executives, unless there is an explicit agreement between the Executives.
 - (b)** Before disclosing proprietary and commercially sensitive information to a third party, other than the Executives' employees, the Executive shall first require the third party to sign a non-disclosure agreement as agreed by the Executives.
- 22.4** Nothing in this section shall prevent the Executives from asking their own employees to sign non-disclosure agreements.

Article 23. Liability and Insurance Matters

- 23.1** The Executives recognize that the complex nature of ALMA activities may result in difficulties in discerning which and to what extent Executives are legally responsible for damages caused by Executives' employees, contractors, consultants, any visitors or agents, or visitors to the ALMA Site. In keeping with the collaborative nature of the ALMA Project, the Executives hereby agree to share the costs arising out of all liabilities related to Onsite Operations Activities and Offsite Operations Activities of the Executives if those are performed on the ALMA Site, including all reasonable costs to defend against alleged or actual liabilities.
- 23.2** The following items shall not be included in the cost-sharing arrangement:
- (a)** Costs arising out of liabilities associated with activities conducted at the Regional ALMA Support Centers;

- (b) Costs arising out of liabilities associated with Offsite Operations Activities conducted outside the ALMA site, unless otherwise agreed in writing by the Executives;
 - (c) Any cost to repair or replace any Infrastructure or Equipment prior to use and/or acceptance by the JAO, unless caused by actions or failures of Executive's employees, contractors, consultants, agents or visitors to the ALMA Site as part of Offsite Operations Activities performed on the ALMA Site;
 - (d) Loss of profit or business or consequential loss or damage of any kind;
 - (e) Punitive damages; and
 - (f) Willful misconduct or gross negligence by any Executive or their employees, contractors, consultants, visitors or agents.
- 23.3** The Executives, in consultation with the JAO, shall annually review the types and levels of risk associated with the activities for which liabilities are shared according to this Article, and shall agree in consultation with the JAO on the appropriate types and levels of insurance, including the associated deductibles, and the types of risks which shall be uninsured.
- 23.4** The Executives shall work with the JAO to ensure that the JAO Budget supports the costs of insurance premiums, deductibles and uninsured risks associated with the activities described by Article 23.1 above.
- 23.5** When an Executive enters into an insurance arrangement for itself and on behalf of the other Executives covering shared expenses, the resulting policy shall specifically name each ALMA Executive as a "named insured" or equivalent. Should such an insurance arrangement also cover non-shared ALMA expenses, and/or non-ALMA activities, the Executives shall agree on a methodology for allocating premiums and associated deductibles.
- 23.6** An Executive may choose to take out additional insurances beyond those agreed according to Article 23.3 above, in which case that Executive shall bear the entire cost of the associated insurance premiums and deductibles, unless otherwise agreed in writing with the other Executives.
- 23.7** The Executives acknowledge that the cost sharing arrangement described in this Article is not intended to prejudice any cost sharing arrangement between the Parties as described in the ALMA Agreement.
- 23.8** Items described in Article 23.2 (a) to (d) above shall be the responsibility of and borne by the Executive incurring the cost or suffering the loss. No Executive shall claim any compensation for those costs from the other Executives or their respective Parties.
- 23.9** Items described in Article. 23.2 (f) above caused by acts or omissions of an Executive's employee, contractor, consultant, visitor or agent, including those situations as described in Article 23.2 (a) to (c) above, but excluding any loss suffered according to Article 23.2 (d) above, shall be the responsibility of and borne by the respective Executive. Compensation for such items shall not be

claimed from another Executive other than through the process defined in Article 25 of this Agreement, which in such cases may also be utilized to consider compensation for costs as defined in Article. 23.2 (e) above.

Article 24. Default

- 24.1** The Executive which is, or expects to be, in default, shall undertake all reasonable efforts to cure the default as quickly as possible.
- 24.2** An Executive which is, or expects to be, in default of a substantial obligation under this Agreement, or a default which affects another Executive or Onsite Operations Activities, shall immediately inform its respective Party, the other Executives and the ALMA Director.
- 24.3** Following the notification according to Article 24.2 above, the Executives and the ALMA Director shall jointly conduct an evaluation of the actual or likely consequences of a default, including determining and agreeing upon the necessary actions, and cost estimates thereof, to avoid or minimize the impact upon Operations. The Executive(s), in coordination with the ALMA Director, and/or the JAO shall undertake the agreed-upon actions within an agreed timeframe. Unless otherwise agreed in writing, all costs of remedial actions taken shall be the sole financial responsibility of the defaulting Executive.
- 24.4** If an Executive or the JAO fails to implement the agreed-upon actions according to Article 24.3 above, the other Executive(s) may undertake all actions necessary to protect their respective interests or in coordination with the ALMA Director to protect Operations. Any additional costs incurred by such failure shall be borne by the respective Executive or the JAO unless otherwise agreed in writing.
- 24.5** Acts or omissions of an Executive's employee, contractor, consultant, visitor or agent resulting in liabilities for which the costs are shared according to Article 23 of this Agreement shall not be considered as default under this Article.

Article 25. Dispute Resolution

- 25.1** The Executives understand that situations may arise in which they disagree with the interpretation or implementation of this Agreement, and hereby commit to resolve such disagreements through good faith negotiations. All reasonable attempts shall be made to resolve such disagreements at the working level. Decisions to escalate the dispute resolution process within the Executives respective organizations shall be done in consultation with one another.
- 25.2** Failing such negotiation, the matter in dispute shall be put to the AUI President, the Director General of ESO and the Director General of NAOJ for resolution, who shall ultimately resolve the dispute in consideration of this Agreement and the ALMA Agreement. Upon mutual agreement, the Executives may jointly decide to request the assistance of the Trilateral Oversight Group to facilitate the dispute resolution process.

- 25.3** All decisions on matters pertaining to the responsibilities of the Executives as identified in the ALMA Agreement or this Agreement shall be made only by the Executives.

Article 26. Amendments and Exceptions

- 26.1** This Agreement may be amended in writing at any time by mutual agreement among the Executives. Any amendment to this Agreement shall explicitly state the intention to amend this Agreement and shall be signed by authorized representatives of the Executives.
- 26.2** Exception to the provisions of this Agreement shall only be made by written agreement, specifically referencing this exception provision, and signed by authorized representatives of the Executives. Exceptions shall only be used for a specific situation in which the application of a provision of this Agreement would not be in the best interest of the ALMA Project. The use of an exception shall not be construed to apply to any similar circumstances, and shall be consistent with the ALMA Agreement.

Article 27. Duration

- 27.1** This Agreement becomes effective upon signature of all the Executives.
- 27.2** This Agreement shall terminate upon the following:
- (a)** The expiration or early termination of the ALMA Agreement;
 - (b)** The execution of an agreement that replaces this Agreement;
 - (c)** When ESO, NAOJ or AUI ceases to be an Executive pursuant to the process identified in Article 3.3 of the ALMA Agreement.
- 27.3** Following a notification by a Party that it intends to change its Executive pursuant to Article 3.3 of the ALMA Agreement, the Executive to be replaced will work with its successor Executive and the other Executives to ensure that the change does not impede Operations and to facilitate an efficient and effective transfer of responsibilities.

Article 28. Legal Matters

Precedence

- 28.1** This Agreement is subordinate to the legal and contractual parameters which govern the existence and activities of each Executive.
- 28.2** This Agreement is also subordinate to the following agreements including all amendments thereto: the ALMA Agreement, and/or any agreements between the Executive(s) and Chilean authorities, CONICYT and Region II.

Executives' Legal Regimes

- 28.3** AUI and NAOJ agree and accept that ESO is bound by its Convention Establishing a European Organisation for Astronomical Research in the Southern Hemisphere signed on 5 October 1962 and its annexed Financial Protocol, the Protocol on ESO's Privileges and Immunities and the Agreements of 1963, 1995, and 2002 with the Republic of Chile, and ESO's other agreements, statutes, and rules and regulations.
- 28.4** ESO and NAOJ agree and accept that AUI is bound by its by-laws, its agreements with NSF and the University of Chile, the laws of the United States and Chile, and its own rules and regulations.
- 28.5** ESO and AUI agree and accept that NAOJ is bound by its by-laws, its agreements with Chile, the laws of Japan and Chile and its own rules and regulations.

Article 29. Transitional Provisions

- 29.1** From its date of entry into force, this Agreement shall replace and take precedence over all prior agreements, arrangements and other binding documents related to the management of ALMA signed by ESO, AUI and NAOJ, particularly the following:
- (a) Management Agreement concerning the Construction and Early Operations of ALMA of 2006, between AUI and ESO;
 - (b) Interim Management Procedures for the Construction and Early Operations of ALMA of 2009, between AUI, ESO and NAOJ, including annexes;
 - (c) Any existing contractual agreements/arrangements between the signatories of this Agreement related to site access, use and expenses; and
 - (d) Any existing contractual agreements/arrangements between the signatories of this Agreement related to the local staff management.

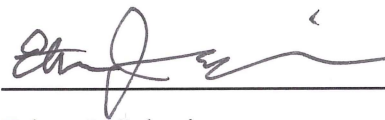
The provisions of the latter agreements, arrangements and contracts exclusively dealing with the ALMA concession, construction, commissioning and early operations as defined therein and any other provision that is not incompatible with this Agreement shall remain applicable for any such activities still ongoing until the end of those activities or until they are specifically revised by the signatories of this Agreement.

- 29.2** Any existing or previous delegation of authority provided to the respective Executives' International Staff that is not incompatible with the provisions of this Agreement shall remain applicable until revised or replaced by the signatories of this Agreement.
- 29.3** Any pre-existing agreements among the Executives, any other contracts or arrangements concerning the ALMA Project and any internal ALMA regulations, policies or procedures shall be interpreted to best comply with its purpose and intention of this Agreement. Any provision non-compliant with the provisions of this Agreement or in conflict with its purpose or intention shall be deemed replaced by a provision that comes closest to expressing the purpose and intention of this

Agreement. To the extent these provisions rely on the agreement of third parties, the Executives will make best efforts to conform to this paragraph.

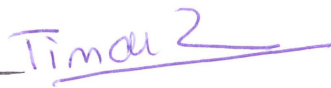
- 29.4** Provisions in any agreement, contract or arrangement between the Executives or in any internal ALMA regulation, policy or procedure which link the termination or duration of any of the said documents to the termination or duration of the Management Agreement between ESO and AUI and the agreements, arrangements or contracts between ESO, AUI and NAOJ shall be replaced by a provision which keeps the respective document in force until this Agreement is terminated, unless explicitly agreed otherwise by the Executives.

For Associated Universities,
Inc.



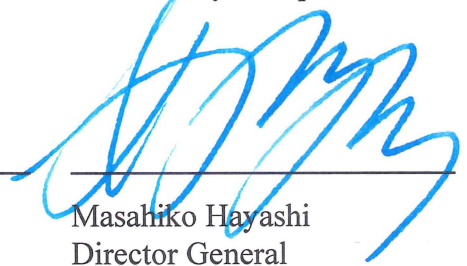
Ethan J. Schreier
President

For the European Organisation
for Astronomical Research in
the Southern Hemisphere



Tim de Zeeuw
Director General

For the National Astronomical
Observatory of Japan



Masahiko Hayashi
Director General

17 NOVEMBER 2016

Date

SANTIAGO

Place

17 november 2016

Date

Santiago de Chile

Place

Nov 17, 2016

Date

Santiago

Place