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2019 TMT Segment Machining and Integration RFP

June 21, 2019

Questions and TMT Responses

The responses herein are solely provided by the TMT International Observatory LLC (hereinafter "TIO" or "TMT") to support its TMT Segment Machining and Integration RFP and no other purpose. TMT makes no warranty or representation as to the accuracy, completeness, or quality of any information provided herein. All additional exhibits or reference documentation cited in the responses below as being provided "along with this response" shall be submitted to the Qualified Respondents in a follow-up e-mail.

1. **Question 1: Will all 231 Roundels be fabricated prior to the start of machining and integration? If not, how many will be ready when the machining and integration process commences?**

    a. Response 1: No, between 100 and 150 Roundels are planned to be fabricated when the machining and integration processes commence.

2. **Question 2: What are the dimensions and weight of the crates that will be used to ship the Roundels for machining?**

    a. Response 2: Approximately 1778x1778x610 mm. The crates are planned to be shipped stacked three (3) crates high. The weight of each container is approx. 225 kg.

3. **Question 3: How many Roundel crates will the Contractor be expected to store?**

    a. Response 3: This is negotiable, but the Roundels will likely be shipped in 20' or 40' inner modal containers. Nine (9) Roundels will fit in a 20' container and eighteen (18) Roundels will fit in a 40' container. We expect the Contractor to store all Roundels delivered for hex cutting.

4. **Question 4: If TMT is shipping the Roundels to the Contractor, from what location will the Roundels (in their crates) be shipped when they are provided?**

    a. Response 4: The Roundels (in their crates) will be shipped from a warehouse in Freemont California.

5. **Question 5: What is the export control classification and confidentiality requirements of the TMT drawings that will be used in the preparation of the Proposal?**

    a. Response 5: TMT is unaware of any export control limitations on data associated with the Work.

6. **Question 6: What are the approximate replacement values for a (a) Roundel, (b) SSA, and (c) PMA?**

    a. Response 6: (a) Roundel - $200,000 U.S. Dollars, (b) SSA - $120,000 U.S. Dollars, and (c) PMA – the combined cost of $320,000 U.S. Dollars + the hexing/integration for that PMA.

7. **Question 7: Requirements for the storage environment?**

    a. Response 7: Blanks must be stored indoors. The storage environment should be a reasonable temperature and humidity (Environmentally controlled for human comfort). The storage environment should also include security and fire safety.

8. **Question 8: What are the cleanliness requirements?**

    a. Response 8: TMT handling document, TMT.OPT.TEC.065, can provide relevant guidance on this topic. TMT can provide the handling document to Respondents as a Reference Document. The handling document provides the following cleanliness requirements:

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i. Silicones shall be precluded from the manufacture of Roundels, segments, SSAs, and assemblies. Silicones, by nature, are an insidious contaminate that is difficult to mitigate and clean. Further, silicones add risk to coating and integration activities

ii. Except for silicones, Roundels do not have additional cleanliness considerations

iii. Once the segments have been machined and further integrated into assemblies, best practices mandate the use of gloved hands and shop smocks.

9. Question 9: Can the Contractor get the bonding/integration tooling from TMT?

a. Response 9: No tooling will be provided. Drawings and photographs of prototype tooling currently at TMT can be provided to the contractor selected for the integration work.

10. Question 10: Can we receive test glass for conditioning/test runs for the machining processes?

a. Response 10: Yes, Respondents may assume that one full size Roundel will be provided by TMT to demonstrate the hexing process. The Roundel will be provided with no requirement for the Contractor to accept replacement liability in the event of damage or loss to that Roundel.

11. Question 11: Clarification: "Proposals shall incorporate a limited development period from the Effective Date of the Contract until the Commencement of Fabrication in 2022." (RFP 1.2).

a. Response 11: This description refers to the preparations associated with segment production and integration (if applicable). Preparations would terminate after the successful passage of the fabrication readiness review (signaling the start of production) as described in the statement of Work.

12. Question 12: Clarification: "TMT requests that the proposed payment schedule minimizes the price of payment milestones through 4Q2021 and reserves production milestone payments until afterwards" (RFP 5.1.17).

a. Response 12: TMT may find it advantageous if the proposal amortizes the cost of facilitation and applies it over the production of segments and MSAs. Doing this is not required but it may be considered a competitive advantage. Additional costs (carrying costs) of amortizing facilitation costs should be clearly stated in the Proposal.

13. Question 13: Clarification: "Flexibility of fee schedule" (RFP 3.1).

a. Response 13: Please see Response 12.

14. Question 14: Clarification: "Respondents shall also provide a fee schedule for each labor category proposed for the performance of the Work." (RFP 5.1.17).

a. Response 14: TMT is requesting the labor rate (cost per hour) of the labor categories used in the Proposal.

15. Question 15: Clarification: "Respondents are requested to propose a work and fee schedule that best balances (1) mitigation of funding outlays by TMT through 4Q2021, (2) minimizes the overall production costs, (3) meets TMT's minimum production rate." (RFP 5.1.8.1).

a. Response 15: This statement is details what characteristics the SSB shall consider when evaluating the value to TMT of the proposed activities and deliverables.

16. Question 16: When will the details be negotiated regarding the Contractor's shipping obligations for machined segments and (if applicable) integrated PMA?

a. Response 16: **Due to the complex logistical requirements, TMT shall negotiate the shipping obligations for the Work with the Awardee once they are selected for negotiation. Given the foregoing, TMT shall not be responding at this time to specific questions about logistics that will be part of those negotiations**.

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17. Question 17: How many Roundels will be shipped at a time?

a. Response 17: 231 Roundels will be furnished by TMT. 18 Roundels may be shipped in a single intermodal container. Roundel crates shall be stacked three (3) crates high in an intermodal container. The delivery rate is negotiable.

18. Question 18: Will there be multiple shipments of Roundels?

a. Response 18: Yes.

19. Question 19: What type of shipping containers will be used to transport the Roundels?

a. Response 19: Wooden crates with internal foam padding.

20. Question 20: Will each Roundel be identified for tracking purposes (e.g. serial number)?

a. Response 20: Yes.

21. Question 21: What are the dimensions and weight for each packed/crated SSA unit?

a. Response 21: The SSA container is not yet designed but it is assumed to have the same foot print as the Roundel crate. We plan to stack three (3) crated SSA in one (1) intermodal container.

22. Question 22: Will the Roundel crates be skidded/configured for easy handling?

a. Response 22: Yes.

23. Question 23: Are there any special transport requirements (e.g. air ride or temperature control)?

a. Response 23: The transportation environment has been defined. **NOTE**: The Contractor is NOT being asked to supply transportation of assembled MSAs to the observatory site.

24. Question 24: Once Roundels are machined into hexes and beveled, will they go back into the same container? Is the Roundel container reconfigurable? Do the Roundel containers need to be shipped to another location for future Roundel shipments?

a. Response 24(a): Yes, machined segments would be return to the Roundel shipping container if they are not immediately advanced to assembly.

b. Response 24(b): The foam inserts in the Roundel containers would need to be modified to store / transport a machined segment. Appropriate modification of the foam inserts will be the responsibility of the Contractor.

c. Response 24(c): The Roundel shipping containers do not need to be shipped to another location for reuse.

25. Question 25: Will the SSA shipping container become the final PMA shipping container? Will the PMA be able to be shipped face down?

a. Response 25(a): Yes, the SSA shipping container will be the final PMA shipping container. **NOTE**: the design of the PMA shipping container is not yet available.

b. Response 25(b): Yes, the PMA will be able to be shipped face down.

26. Question 26: What will the pre-shipment inspection entail?

a. Response 26: Inspections and review of measurements will be made prior to shipment of the Deliverables to confirm that all applicable requirements associated with the Contractor's Work were met.

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27. Question 27: Will the SSA be certified as compliant with all technical requirements before it is shipped to the Contractor? Is the inspection to be a damage inspection or a complete functional inspection?

a. Response 27(a): Yes, there is an acceptance review of the SSA. If there are non-conformances, those non-conformances will be communicated to the Contractor. In the event a non-conformance is found with an SSA, it will not be shipped to the Contractor unless there is an agreement by the Parties that it will not impact the Contractor's Work. A test report will travel with the SSA.

b. Response 27(b): The acceptance review will involve both a damage and functional inspection prior to shipment.

28. Question 28: Are there templates for etching puck locations? Are the masks provided?

a. Response 28(a): No.

b. Response 28(b): No.

29. Question 29: The etch Procedure says 25 microns minimum of etch removal, drawing says 20 microns. Which is correct?

a. Response 29: The drawing takes precedence over the etch procedure. That being said 25 microns can be easily achieved by following the etch procedure which typically yields a removal of 39 microns.

30. Question 30: The etch procedure says 25 mm mask for pucks. The drawing says 30 +/-3 mm etch zone.

a. Response 30: The drawing takes precedence and it should meet 30 mm diameter. What is important is proper surface preparation to eliminate the subsurface damaged zone for long-term strength. TMT may do a future revision of the hex drawing to allow a smaller diameter mask.

31. Question 31: For etching sensor pockets, are masks and templates provided?

a. Response 31: No, it will be the responsibility of the Contractor to fabricate/procure them if needed.

32. Question 32: How is the S1 surface protected for etching?

a. Response 32: This is developed by the Contractor. The bonding procedure requires S1 to be protected. The method of protection will be reviewed/approved at the integration FRR

33. Question 33: Is the etch removal process characterization required for each bottle? How many samples? How is removal determined?

a. Response 33(a): The Contractor will need to propose the details around the requirements and present representative results at the Fabrication Readiness Review. Characterize the bottle once when first opened.

b. Response 33(b): The Contractor will need to propose the details around the requirements and present representative results at the Fabrication Readiness Review.

c. Response 33(c): A depth gauge or optical profile measurement can be used to confirm.

34. Question 34: Is rinsing etch removal accomplished with a hose? Is the water allowed to flow off of the part such that a drain or sink is required?

a. Response 34: No. **Do not use a hose**. This is clearly described in the procedure. The effluent will destroy the optical surface.

35. Question 35: If the use of Methyl Ethyl Ketone is not available, are other solvents suitable?

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a. Response 35: Acetone in combination with isopropyl alcohol shows the same strength, this deviation will need to be qualified by the Contractor and approved by TMT at the integration FRR.

36. Question 36: Is DI water required for rinsing etched surfaces?

a. Response 36: Yes.

37. Question 37: Will the bonding fixturing be provided by TMT?

a. Response 37: No tooling will be provided by TMT. Drawings and photographs of prototype tooling currently at TMT can be provided to the Contractor that is selected for the integration Work. Training on the TMT bond procedure will be provided by TMT to the Contractor that is selected for the integration Work.

38. Question 38: The bondline nominal is 0.300mm. The glass beads are 0.250. Is it verified that the 0.250mm beads will meet the specification?

a. Response 38: Yes.

39. Question 39: Can the segment with the bonded elements be moved after 24 hours after bonding, so long as none of the bonded joints are "loaded"?

a. Response 39: Yes.

40. Question 40: Is the intent of the bonding procedure to have fixturing such that all of the bonding (diaphragm, pucks, sensors) can be accomplished with one "batch or mix" of epoxy?

a. Response 40: No. The working life is 90 minutes which will suffice for the diaphragm. The other elements can be bonded in groups as required.

41. Question 41: Will the bond proof-load fixturing (for bonds on the segment) be provided by TMT?

a. Response 41: No tooling will be provided. Drawings and photographs of prototype tooling currently at TMT can be provided to the Contractor selected for the integration Work.

42. Question 42: Are the Contractor required to proof load every bond?

a. Response 42: Yes.

43. Question 43: Will the bond proof-load fixturing (for witness samples) be provided by TMT?

a. Response 43: No.

44. Question 44: In Section 3.3.3. of document TMT.OPT.TEC.19.013.DRF01, are all of the Hardware components provided by TMT?

a. Response 44: Yes, all hardware components to make an integrated PMA will be provided by TMT. The hardware list in the integration procedure assumes that bonded mirror assembly components will be provided by TMT for the integration procedure. The Contractor is expected to make a bonded mirror assembly from those components. The Glass and Bonding Pucks for the assembly will be provided by TMT.

45. Question 45: In Section 3.3.5 of document TMT.OPT.TEC.19.013.DRF01, which of the tools are provided by TMT?

a. Response 45: TMT will only provide the custom green straws that were fabricated for the flexure alignment.

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46. Question 46: Will the bond witness tensile samples be provided by TMT? Will fixturing for these be provided by TMT? Are the witness coupons etched and primed?

a. Response 46: Invar pucks that have been primed with the other assembly hardware will be provided as a part of the SSA kit. Neither the glass coupons nor the fixturing will be provided by TMT.

47. Question 47: Note 6 of M1S-001-01000: Datum Z says it is the existing polisher clocking mark. This mark is 1 – 2 mm wide. Should we use the center or one edge of the mark? *Datum Y is a series of six fiducials that define the best fit center. Is there a reference in the RFP documentation that states the size of these marks? Can you see the fiducials with a camera system?

a. Response 47(a): A roundel drawing update is in work that will define the coordinate system of the polished roundel exclusively by the 6 fiducial marks. We will not use the polishing clocking mark for orientation during hexing.

b. Response 47(b): Note 22 on the M1S-001-01001 drawing calls out that the 6 datum fiducials for the scribe coordinate system will be 3mm in diameter.

c. Response 47(c): Yes. They are imaged by a camera system as party of the Roundel polishing metrology.

48. Question 48: Notes 9 & 10 of M1S-001-01000 are to measure segment thickness at the 6 points plus the center to calculate the mean thickness to be used in calculating the center bore depth. Is this data provided to us or do we need to measure? If we need to measure would an ultrasonic thickness measurement be acceptable?

a. Response 48: The Contractor needs to make these measurements. Any method that achieves the required precision will be acceptable.

49. Question 49: If a feature is out of spec from the M1S-001-01000 drawing, is that machined segment considered a 'damaged' segment that we need to replace until the TMT decrement material review is complete?

a. Response 49: Non-compliant machined segments will need to be replaced or repaired by the Contractor unless a waiver is issued by TMT.

50. Question 50: Who will be responsible for having individual parts made for all the primary mirror manufacturing/assembly fixtures?

a. Response 50: The Contractor needs to provide all tooling to support its manufacturing approach. Drawings and photographs of prototype tooling currently at TMT can be provided to the Contractor selected for the integration Work.

51. Question 51: Who will assemble the PM manufacturing / assembly fixtures?

a. Response 51: The Contractor will perform this Work.

52. Question 52: Will the supplier responsible for the manufacturing / assembly of the PMA have any input on the design and drawings of the fixtures prior to manufacturing (i.e. adding load test, torque requirements, type of adhesives & lubricants used, etc.)?

a. Response 52: Yes, please see Response 51.

53. Question 53: During the assembly of the PMA or manufacturing process for the Primary Mirror, if modifications are needed to any of the fixtures, is there a TMT change process that must be followed?

a. Response 53: Design and use of fixturing will be the subject of the FRR documentation deliverable that will be submitted to TMT. If there are required changes that are determined subsequent to the FRR, TMT must authorize the changes in writing before they can be implemented.

54. Question 54: Will TMT need to be notified of potential changes that are required for the manufacturing/assembly of fixtures?

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a. Response 54: Design and use of fixturing will be the subject of the FRR documentation deliverable that will be submitted to TMT. If there are required changes that are determined subsequent to the FRR, TMT must authorize the changes in writing before they can be implemented.

55. Question 55: Will TMT make drawing revisions to the manufacturing/assembly fixtures?

a. Response 55: No

56. Question 56: Who will be responsible for the physical modification of the parts and/or assemblies after the fixtures are delivered to the Primary Mirror build supplier?

a. Response 56: The Contractor will be responsible for the design, modification, and maintenance of the fixturing, tooling, and test equipment.

57. Question 57: Who will be responsible for covering the cost to rework the assembly/manufacturing fixtures when needed?

a. Response 57: See Response 56.

58. Question 58: At the end of the manufacturing/assembly process of the Primary Mirror, will all fixtures be returned to TMT?

a. Response 58: Yes.

59. Question 59: Can a small quantity of TMT M1 Meniscus Segment Blanks be made available for the production of pathfinder Roundels for the development (and associated risk mitigation) of the hexing and integration process?

a. Response 59: TMT can provide one (and only one) "practice" substrate for fabrication readiness demonstrations. The practice substrate would be provided with no replacement liability being placed on the Contractor.

60. Question 60: Can a spare SSA be made available for the development (and associated risk mitigation) of integration process?

a. Response 60: Yes.

61. Question 61: Is the design of the SSA Shipping Container available for review?

a. Response 61: No. See Response 21.

62. Question 62: Regarding TMT M1 Bonded Mirror Assembly, M1S-001-0400: (a) Note 13: Is the requirement to proof test 100% of the Flexure & Sensor Pucks, a sampling or is one of each sufficient? (b) Note 16: The test coupons for the Flexure & Sensor Pucks seem straightforward as described in the bonding procedure. What is the nature of the Diaphragm Test Coupon? The requirement is for how many test coupons of each type per assembly?

a. Response 62(a): Proof testing of each and every bond (100%) is required.

b. Response 62(b): Witness coupons will only be of the axial bond configuration. Pucks for these witness coupons will be supplied in the SSA kit, but the glass disks will not. Some witness coupons will be tested to failure by the Contractor shortly after production. The remainder of the witness coupons will be held by TMT under operational loading to diagnose any long term issues. TMT expects the use of 5-7 bond witness coupons per assembly.

63. Question 63: Can a visit to TMT lab be arranged to see prototype SSA, Segments, and assembly fixtures?

a. Response 63(a): Yes, a tour of the Monrovia lab in California can be arranged. The Monrovia lab will contain prototype PMAs, shipping containers, and integration equipment. TMT will provide tours between July 15, 2019 – July 19, 2019. The tour is expected to be 2 hours. Interested Respondents must contact Pratheep Eamranond at pratheep@tmt.org to schedule their visit. Interested Respondents must provide a range of times for when they are available and a list of the Respondent's personnel who

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will be attending the tour. Once a visit is scheduled, TMT shall provide a non-disclosure agreement to the Respondent that must be completed prior to the tour. Participation in a tour is completely voluntary and is not a factor in TMT's proposal review. TMT reserves the right to add or modify additional rules and requirements regarding the Monrovia tours as deemed necessary by TMT.

64. Question 64: What is the current overall status on the progress of the Primary Mirror Production program?

a. Response 64: The Primary Mirror passed its final design review and is transitioning to full production. Project members in the USA, Japan, China, and India are setting up manufacturing flows to produce segment assemblies. Over half of the mirror blanks are produced by Ohara in Japan and these blanks are already being distributed to partners in Japan and the USA. Japan passed its FRR to polish Roundels and will soon start production hexing. The USA will soon hold their FRR for polishing and should start producing polished Roundels in late 2019.

65. Question 65: This RFP contributed to which TMT member's share?

a. Response 65: The USA.

66. Question 66: What are the payment conditions (e.g. when will the payment be made after acceptance inspection for every task) through 4Q2021 and afterwards?

a. Response 66: TMT is asking Respondents to propose a payment schedule with appropriate payment milestones. Payment milestones could be based on a variety of factors such as the completion of specific activities or the acceptance (by TMT) of hardware units. For the purposes of this RFP, "acceptance" by default shall mean that the Deliverable was inspected and determined by TMT to meet all applicable requirements for the Work.

67. Question 67: To support the procurement of appropriate insurance, what is the insurable value for each Roundel, SSA, and PMA?

a. Response 67: For the purpose of securing insurance, it is TMT's understanding that the insurable value for each Roundel, SSA, and PMA is represented by the associated replacement value. Consequently, please refer to Response 6.

68. Question 68: Is TMT requiring that the payment basis for all 231 units be compensated on a firm fixed-price basis or is there flexibility on this point? Can Respondents acknowledge that different payment approaches can be employed over the life of the Work as experience and the retirement of certain risks can create cost efficiencies and scaling opportunities?

a. Response 68: TMT requires that all proposals provide a single firm fixed-price for the entire production of 231 units. This requirement not only meets TMT's current expectations for this Work but also enables consistent review of each Respondent's proposal in terms of price. Consistent with Section 5.1.11 of the RFP, TMT requests that all first address all RFP requirements before supplementing their proposals with alternate payment approaches (which may include a scheduled price adjustments). That being said, in accordance with Section 5.1.8.1 of the RFP, TMT also encourages Respondents to supplement their proposals with alternative approaches that maximize TMT's value for the proposed Work.

69. Question 69: In the event TMT needs to terminates the Contract, how will the Contractor be compensated?

a. Response 69: TMT's termination obligations to the Contractor are defined in the Model Contract. For example, the contract provision on Termination for Convenience addresses Termination Claims by the Contractor.

70. Question 70: Is the machining segment for FRR approval included in the total number of 231 units?

a. Response 70: We can provide one and only one "practice" substrate for fabrication readiness demonstrations. The practice substrate would be provided with no replacement liability being placed on the Contractor. This "practice" substrate will not be part of the 231 production segments.

71. Question 71: What are the expected task items that should be completed no later than 4Q2021?

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a. Response 71: The setup of the production facility and the qualification of the machining process must be completed no later than 4Q2021 so that production of machined segments can commence in 1Q2022.

72. Question 72: Are the surfaces (for both S1 and S2) of a polished Roundel protected? And, if so, what is the protection method?

a. Response 72: It is important to note that the Contractor shall be responsible for any damage to the mirror during processing. That being said, S1 and S2 will likely be delivered with an adhesive-backed protective film, similar to a vinyl tape. The exact product has yet to be chosen. It is up to the Contractor to decide whether the protective film is removed or replaced during the machining process. Contractor shall demonstrate whether their determination is appropriate at the FRR.

73. Question 73: Is there any possibility of a change to an applicable drawing in the future?

a. Response 73: There are no planned drawing changes. TMT is willing to consider changes to the drawings that would improve production without degrading technical performance. In accordance with the Contract, TMT must authorize any changes to any applicable drawing (including, but not limited to the hex segment drawing) in a written Contract Amendment.

74. Question 74: Will TMT provide technical support to the Contractor on machining method?

a. Response 74: The Contractor bears the ultimate responsibility for resolving technical issues and completing the Work. Contractor's obligation is not contingent upon technical support from TMT. That being said, TMT intends to respond to Contractor's reasonable requests for data and other information to the extent that (1) such information is known by or readily available to TMT, and (2) it is legally permissible for TMT to provide such information to Contractor. In connection therewith, TMT will make its personnel available to confer with Contractor regarding the Work and any potential constraints.

75. Question 75: For the machining step defined in the RFP, do labels indicate marking and datum features that are defined by the tooling balls?

a. Response 75: Primary ABC Datums are defined by tooling balls, Other datums are defined by six (6) fiducial marks that will be on the back of the polished Roundel and features in the edge sensor pockets.

76. Question 76: Can TMT provide a photo of the Roundel crate in a shipping container?

a. Response 76: The following is a photo of three (3) Roundel crates stacked and partially-secured in an intermodal container:

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77. Question 77: What assumption should be made in how non-compliances will be viewed for acceptability and repair-ability?

a. Response 77: Assume the requirements are as stated and that non-compliances will not be waived. For the purpose of the proposal, TMT expects the cost of rejected parts to be estimated based on the application of reasonable yield assumptions grounded on experience. TMT is open to accepting non-compliant parts but reserves the right to make that determination at TMT's sole discretion. TMT cannot promise any specific result in advance.

78. Question 78: What documentation on incoming Roundels will be provided by TMT?

a. Response 78: A data pack providing evidence that incoming Roundels are compliant will be provided TMT. Any non-compliance will be discussed with the Contractor (before delivery) to assess the potential impact of any non-compliance.

79. Question 79: Will an inspection by the Contractor be needed upon delivery?

a. Response 79: An inspection by Contractor will be needed within 10 days from the receipt of the Roundels to confirm that no shipping damage occurred.

80. Question 80: Regarding the sensor location labeling procedure that is TBD on the drawing, will stamping be acceptable?

a. Response 80: Stamping using the specified epoxy ink is acceptable.

81. Question 81: Do all etch locations need to be measured for material removal depth or will the etch depth be controlled by process control?

a. Response 81: TMT does not expect all etch locations to be measured. The etch depth can be controlled with process control.

82. Question 82: Is etching needed for the axial pucks?

a. Response 82: Yes, the axial puck locations must be etched. As with all potential cost savings, TMT would like to consider suggestions from Respondents to simplify processes. TMT encourages Respondents to describe options in their proposal that may result in cost savings.

83. Question 83: How will etch locations within pockets be confirmed?

a. Response 83: TMT does not have a recommendation for the techniques used to confirm pocket etch locations. Due to the proximity of the sensor mounting feet, the location of the acid etched areas is important.

84. Question 84: What pre- and post-assembly and warping harness testing will be required?

a. Response 84: TMT suggests that only a power-up test be performed prior to assembly. Post-assembly testing will be needed to confirm functionality and to set the warping harness position in preparation for optical surface testing.

85. Question 85: Will this Work be tax exempt?

a. Response 85: TMT will cooperate with Respondents to apply for applicable local tax exemptions, if available. Any assumption of tax exemptions needs to be clearly stated in the proposal.

86. Question 86: What contents should be included in the end item data pack?

a. Response 86: TMT suggests that Respondents propose the format for the end item data pack.

87. Question 87: Can all the segments of the same type be delivered together to minimize set-up activities?

a. Response 87: TMT believes that Roundel delivery can be grouped by segment type to minimize set-up activities.

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88. Question 88: Can we identify what we think are the cost drivers to your design? And, should we describe potential cost savings that we think are possible if certain cost driving tolerances were relaxed?

a. Response 88(a): Yes, TIO would like to understand each Respondent's perspective on our design's cost drivers,

b. Response 88(b): TIO is very interested in leveraging costs savings through targeted design modifications, So, proposals should describe potential cost savings that can be achieved through tolerance relaxation. Furthermore, if a Respondent is selected for negotiation, they should be prepared to go into further detail on these proposed cost savings and their suggested tolerance modifications, if any.

89. Question 89: Do the three (3) tooling ball references on the back of the Roundels mean that the Contractor is supplying the tooling balls?

a. Response 89: The tooling balls will not be supplied by the Contractor. The tooling ball references are assembly datums.

If you submitted a question that did not receive a response or is not listed here, please notify me immediately.

Thank you for your participation in our RFP. We look forward to receiving and reviewing your proposals.

Respectfully,

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