An**nexure-1**

SCOPE OF WORK

For activities under A, **six** QC inspectors should be posted at LPSC Valiamala, Thiruvananthapuram and for activities under B, **one** QC inspector should be posted at CACPL, Coimbatore.

A) QC Inspection at Thiruvananthapuram based work centres and on tour at outstation work centres

Service Provider is required to carry out QC Inspection (Electronics) service in the field of aerospace quality electronics packages / sub-assemblies and Fluid control Components & Modules mostly at LPSC Valiamala or at any of the Thiruvananthapuram based industries (within 35km from the City Centre).

As and when need arises, the service provider need to depute their personnel **to outstation industries/ work centres** located at the following places (within 35 km from the respective city centres) to carry out the inspection activities on call basis.

1. Palakkad
2. Pune
3. Coimbatore
4. Hyderabad
5. Bangalore
6. Hosur
7. Ahmedabad
8. Sriharikota, Andhra Pradesh
9. Mahendragiri, Tamil Nadu

B) QC Inspection at Coimbatore based work centres

Service Provider is also required to carry out QC Inspection (Electronics) service in the field of aerospace quality electronics packages / sub-assemblies and Fluid control Components & Modules mostly at CACPL, Coimbatore or at any of the Coimbatore based industries (within 35km from the City Centre).

C) Nature of activities

The Service provider shall broadly perform the following functions in accordance with the checklist / documents supplied by LPSC adhering to all safety norms:

- Verification of job articles w.r.t the QC Inspection indent by the work centre
- Verification of previous stage QC clearance, if any.
- Verification of QC clearance certificates of PCBs, connectors and other sub-assemblies
- Verification of calibration status of tools and measuring equipment.
- Verification of storage condition of components and wired PCBs & packages
- Verification of MIL part no., screening number, screening validity and date code validity of components
- Verification of measured value of the passive components

- Verification of PIND test status of transistors
- Visual inspection of components, PCBs, connectors and other electrical parts before mounting
- Verification of 3rd party certificates of materials used, like solder, flux, IPA etc.
- Inspection of component lead tinning
- Inspection of solder joints and crimped joints
- Reporting reworks if any, on each stage, to the work centre & inspection after rework
- Verification of Component mounting, position, polarity & type against approved CC document / drawing
- Verification of the log book entry for all operations
- Verification of % of rework & repair
- Generation of Non-Conformance Reports
- Inspection after rework / repair
- Verification of mechanical clearance of all fasteners and chassis
- Verification of torque levels and torque marking on fasteners
- Inspection of Connector wiring
- Verification of wire routing and harnessing
- Issue of Stage level Clearance for powering / conformal coating / testing of wired PCBs
- Verification of electrical measurements & test results at card level and at package level.
- Verification and QC clearance of coil winding activities
- Health check and validation of measurement chains and command chains
- Inspection & testing of bought out electrical parts like winding wires, lead wires, electrical connectors etc. at manufacturer's site
- Inspection and testing of electrical parts like transducers, potentiometers, motors, micro switches, pressure switches, reed switches etc.

D) Qualification and Experience Required

The Service Provider's personnel who are deployed for QC Inspection of Electronics Systems shall have:

- 3-year Diploma in Electronics / Electrical Engineering / Electronics & Instrumentation / Electronics & Communication.
- QC Inspection course certification from any ISRO Soldering School.
- He / She should have minimum 1 year experience in aerospace quality PCB wiring / inspection

Original certificates of Qualification and Experience shall be produced for verification by LPSC on the first day of deployment of QC inspectors, if the contract is awarded. Personnel meeting the aforesaid pre-requisites, should be able to demonstrate their skills in the presence of department's representative. Personnel who are not able to successfully demonstrate their skills shall not be permitted to carryout Inspection.

Price Quotation

The price shall be quoted in the following format as per the following guidelines:

The estimated quantity of man-hours, the number of tours and the number of tour days given in the tables are approximate only. The actual quantity may slightly vary depending on the actual requirement.

Amortised **Man-hour rate** for performing QC Inspection of Electronics Systems **at Thiruvananthapurambased work centres** and **Coimbatore based work centres** (within 35 km from the respective City centre) shall be quoted separately in the respective format (Table 1 & 3). The above rate quoted shall be inclusive of all aspects like manpower, their logistics like daily travelling expenses, accommodation if any, all statutory requirements etc.

Amortised **Man-day rate foreachof the 9Outstation work centres**, shall be inclusive of all aspects like manpower, logistics like daily local travelling expenses, accommodation if any, all statutory requirements etc. (Table 2 Column G)

To & Fro **Travel charges** for inspection work **at each of the 9 outstations** (ie., for work centres outside Thiruvananthapuram) on a **per tour basis** from Thiruvananthapuram (Table 2 Column F)

Quotation Formats

a) Quotation format for the 6 QC Inspectors to be posted at Thiruvananthapuram

Description	Estimated no. of work units for 2 years	Work unit rate (in Rs)	Total Amount for Thiruvananthapuram based work for 2 years (in Rs)
	A	B	C = A x B
QC Inspection of Electronics Systems at Thiruvananthapuram based work centres for 2 years	28048		

Table : 1 For inspection at Thiruvananthapuram based work centres (excluding tour days)

WORK UNITS & COMPUTATION

One work unit is defined as one hour duration of work per person and the total quantum of work carried out will be computed on monthly basis based on the completed work unit. The Service provider shall be available for work not only during office hours but also during late office hours and on holidays if needed.

Outstation Work centre	Estimated no. of tours for 2 years	Estimated total no. of tour days for 2 years	Per tour To & Fro Travel charge quoted (in Rs)	Amortized Man-day rate for tour quoted (in Rs)	Total Amount for Outstation work for 2 years (in Rs)
	D	E	F	G	H=(DxF)+(ExG)
Palakkad	**8**	**32**			
Pune	**4**	**32**			
Coimbatore	**4**	**28**			
Hyderabad	**9**	**72**			
Bangalore	**3**	**15**			
Hosur	**1**	**5**			
Ahmedabad	**5**	**45**			
Sriharikotta	**1**	**6**			
Mahendragiri	**1**	**3**			
Total Tour days=		**238**			
Total Amount for Outstation work (K) =					

Table : 2 For inspection at outstation work centres on tour from Thiruvananthapuram

Total amount for 2 years for 6 QC inspectors to be posted at Thiruvananthapuram (C + K) = _____

b) Quotation format for 1 QC Inspector to be posted at Coimbatore

Description	Estimated work units for 2 years	Work unit rate quoted (in Rs)	Total Amount for Coimbatore based work for 2 years (in Rs)
	L	M	N = L x M
QC Inspection of Electronics Systems at Coimbatore based work centres for 2 years	4992		

Table 3 : For inspection at Coimbatore based work centres

WORK UNITS & COMPUTATION

One work unit is defined as one hour duration of work per person and the total quantum of work carried out will be computed on monthly basis based on the completed work unit. The Service provider shall be available for work not only during office hours but also during late office hours and on holidays if needed.

Total amount for 2 years for 1 QC inspector to be posted at Coimbatore (N) = _____