S. No.	Parameter / Characteristics	Compliance Criteria (with Requirements)	No. Samples to be evaluated for every model for initial evaluation (includes Stage 1 & 2) This shall be restricted to 3.
1	**General**		
1.1	Category of UAS	Nano / Micro / Small / Medium / Large • Nano: Less than or equal to 250 grams* • Micro: Greater than 250 grams and less than or equal to 2 kg Small: Greater than 2 kg and less than or equal to 25 kg • Medium Greater than 25 kg and less than or equal to 150 kg • Large: Greater than 150 kg *Applicable for Nano UAS intended to fly above 50 ft AGL or in controlled airspace.	1
1.2	Weight	i) Empty weight • Weight without fuel / battery and without payload. • Weight with fuel / battery but no payload.	2
		ii) Maximum all up weight • Weight with fuel / battery and with all compatible payloads (Fixed + Variable)	2
		iii) Relevant CG limits for each configuration	1
1.3	Type of UAS	i) Fixed Wing / Rotary Wing	1
		ii) Launch and Recovery type	1
1.4	Dimensions	Wing Span / Max Diagonal Length	2
1.5	Life of UAS	i) Airframe	NA
		ii) Engine	NA
		iii) Battery	Component Testing
		iv) Propeller / Rotor	NA
		v) Number of Maximum Permissible Landings	NA
1.6	Payloads	Compatible Payload Details	2
2	**Performance**		
2.1	Speeds	i) Minimum operating speed – the minimum specified operating speed of UAS at standard sea level conditions shall be at least 10% above the	2

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		actual stall speed	
		ii) Determine maximum operating speed at standard sea level conditions	
		iii) Determine that maximum kinetic energy on impact does not exceed 95 KJ at any combination of mass and speed	2
2.2	Range	Determine maximum range in still air	1
2.3	Endurance	a) Determine fuel and oil consumption (if applicable)	2
		b) Determine rate of discharge of battery (if applicable)	2
		c) Storage Battery design and installation	2
2.4	Operational altitude	Determine maximum attainable altitude above ground level (AGL)	2
2.5	Operational envelope	Determine boundaries of operational envelope within which safe flight, in normal and emergency conditions, can be demonstrated under combinations of weight, centre of gravity, altitude, temperature and airspeed	2
2.6	Ceiling height	Determine ceiling height over a range of weight, centre of gravity, altitude, temperature and airspeed	2
2.7	Propeller speed and pitch for safe operation	a) Determine propeller speed and pitch limits that ensure safe operation under normal operating conditions	2
		b) Determine integrity of propeller and its mounting at maximum rpm	1 propeller set
2.8	Stability and control	a) Determine that UAS is able to maintain a stable flight without pilot input	2
		b) Determine that pilot is able to control UAS with ease.	2
3	**Powerplant**		
3.1	Powerplant (Engine Operated)	a) Determine that fan blade can withstand ultimate load of 1.5 times the centrifugal force resulting from operation	2
		b) Determine that engine	2

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		installation is such that it prevents excessive vibration from any part	
		c) Ensure that exhaust is firmly mounted to the structure and free from any obstructions	2
		d) Determine that there is no fuel leak in the system under pressure during operational tests on ground	2
3.2	Powerplant (Battery Operated)	a) Determine that safe cell temperatures and pressures are maintained during charging / discharging cycle	2
		b) Determine that no explosive or toxic gases are emitted in normal operation	2
		c) Determine that no corrosive fluid is discharged which may damage the surrounding structures / equipment	2
		d) Ensure that motor / motor controller has overcurrent / overheating protection	2 Motor Controllers
4	**Structure**		
4.1	Strength requirements	a) Demonstrate that airframe structure shall be able to withstand flight limit loads without failure, malfunction or permanent deformation	1 Airframe
		b) Applicant has to provide analysis of the structure showing that a factor of safety of 1.5 has been used	
		c) Determine that each removable bolt, screw, nut, pin or other fastener whose loss could jeopardize the safe operation of the UAS, shall incorporate a locking device	1
		d) Determine that UAS is free from excessive vibrations under any operational speed and power condition.	1
		e) Determine that propeller blade clearance is sufficient from structure and/or components, and from ground.	
4.2	Shock	a) It must be shown that the limit	

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	absorbing mechanism of UAS, if applicable	load factors selected for design will not be exceeded.	
		b) The landing gear may not fail, but may yield, in a test showing its reserved energy absorption capacity	1
5	**Material and Construction**		
5.1	Type of material for construction	The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must: a) be established on the basis of experience or tests;	1
		The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must: b) meet approved specifications, which will ensure that strength and other properties assumed in the design data are correct;	1 from each batch
		The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must: c) take into account the effects of environmental conditions, such as temperature and humidity, expected in service.	1 from each batch
5.2	Fabrication Method	a) Methods of fabrication used must produce consistently sound structures	1
		b) In a fabrication process, such as gluing, spot welding, heat-treating, etc. requires close control, the process must be performed according to an approved process specification.	1
		c) Fabrication method must be substantiated by a test program	1
5.3	Means of protection against deterioration or loss of strength in operation due to any cause i.e. weathering, corrosion and	a) Effect of in-service wear on the loading of critical components should be determined	1
		b) Effect of temperature and moisture should be determined in computing the material design values	1

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	abrasion.		
5.4	Fire resistant identification plate on UAS for inscribing UIN	a) Determination of ID plate material which should be fire resistant	1
		b) Determine location of ID plate along with its secure fixing on UAS	1
6	**Data Link**		
6.1	Type of data link used for communication (C2 data link, frequency band etc.)	a) Determine full functioning of data link communication	1
		b) Demonstration of system to alert the remote pilot with aural and visual signal, for any loss of command and control data link	1
		c) Determine that communication range is sufficient to have a permanent connection with the UAS	1
		d) Determine that when data link is lost or in other contingencies, the UAS follows a predefined path to ensure safe end of flight within the required area restrictions	1
		e) Determine the capability of system to inform remote pilot by means of a warning signal in the event of data link loss	1
		f) A command and control data link loss strategy must be established, approved and presented in the UAS Flight Manual	1
7	**Digital Sky Platform - No Permission No Take-off (NPNT)**		
7.1	Firmware tamper avoidance	a) Protection of onboard computer firmware from tampering (software) UAS should not function if firmware is changed by any procedure other than authorized update procedure.	1
		b) Safety and security of firmware update	2
		c) Secure change of flight parameters	2
7.2	Hardware Tamper	a) Protection of onboard computer from tampering	2

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	Avoidance	(physical)	
		b) Mechanism to replace crucial hardware like radio modules, GPS and flight controller	2
7.3	NPNT	Compliance to NPNT technical specification	2
8	**Instruments / Equipment**		
8.1	a) Global Navigation SatelliteSystem (GNSS) receivers b) Flashing anti-collisionstrobe lights c) Actuators d) Servo controllers e) Other UAS components	Determine the following: i) Adequate source of electrical energy, where electrical energy is necessary for operation of UAS ii) Wiring is installed in such a manner that operation of any equipment will not adversely affect the simultaneous operation of any other equipment iii) Wiring lay out is according to the wiring diagram iv) All wiring is suitable for the current and voltage going through v) No kinks in the wiring exist vi) Wiring routing is not along the sharp edges vii) Soldering connections between cables are not there viii) All equipment are connected with adequately secured connections to prevent loosening during vibrations ix) Minimum operating current x) Maximum operating current	2
	f) Geo-fencing capability	Determine whether Geo- fencing capability has been implemented	2
	g) Autonomous	Determine whether	2

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	Flight termination System or Return Home (RH) option	Autonomous Flight Termination System or Return Home (RH) option has been implemented	
	h) SSR transponder (Mode 'C' or 'S') or ADS-B OUT equipment.	Determine whether UAS has SSR transponder (Mode 'C' or 'S') or ADS-B OUTequipment.	2
	i) Detect and Avoid capability	Determine whether Detect and Avoid capability option has been implemented	2
	j) Flight controller with flight data logging Capability	Determine whether UAS has flight controller with flight data logging capability	2
	k) Barometric equipment with capability for remote subscale setting	Determine whether UAS has Barometric equipment with Capability for remote subscale setting	2
	l) RFID and GSM Sim Card	Determine whether UAS has provision for RFID and GSM SIM Card	1
9	**Qualification Testing**		
9.1	Environmental tests	Determine that instruments and equipment withstand the following: a) Effects of voltage spikes from power source;	2
		Determine that instruments and equipment withstand the following: b) Susceptibility to HIRF;	2
		Determine that instruments and equipment withstand the following: c) Temperature and humidity variations;	2
		Determine that instruments and equipment withstand the following: d) Shock resistant, etc.	2

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		Determine that instruments and equipment withstand the following: e) Ingress Protection (IP) Certification	
9.2	EMI / EMC test	Determine that each electrical instrument and equipment is protected against EMI coming from the operational environment to ensure normal operation.	2
9.3	Software	a) Determine impact of loss of function and malfunction of UAS	2
		b) Determine that sufficient independence exists between software components with respect to both function and design	2
9.4	Hardware	a) Determination of hardware design life cycle through established quality control procedure,	2
		b) Component performance and reliability to be monitored on a continuous basis.	2
10	**Documentation**		
10.1	UAS Flight manual	UAS flight manual should contain the following information: 1) Limitations / operating conditions/ operating envelope 2) Normal Procedures, pre- flight checklist, etc. 3) Emergency procedures 4) Performance (at various combination of weight, altitude, temperature and wind conditions) 5) Any other relevant information required for safe operation of UAS	
10.2	UAS Maintenance Manual	UAS maintenance manual should consist of the following: 1) Maintenance procedures of the UAS. 2) Continuous Monitoring process for UAS components	

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10.3	UAS Log book	UAS log book should consist of the following: 1) Provision to maintain UAS Operation Logs 2) Provision to maintain UAS Maintenance Logs	
10.4	Other design documents	1. Analysis reports	
		2. Test reports	
		3. Detailed drawings	
		4. Consolidated hardware and software independently verified and validated reports	
		5. Material procurement record	
		6. Manufacturing process records	