

Part 3 Annex D Appendix 3 – **Tactical Command and Control Information System** **Reliability Metrics**

The Tactical Command and Control Information System Modernization project aspires to the following reliability rates for each of the deliverables that were described in Part 3 Annex D.

Requirements	Metrics	Targets
UTN Networking Equipment Datacenter Networking Remote Video Terminals and Links to Databases. Data Center Data Processing Hardware (servers, routers, gateways)	<ul style="list-style-type: none"> • Minimum mission reliability rate • Mean Time Between Critical Failure (MTBCF) • Mean Time Between Maintenance (MTBM) • Mean time to deliver spare parts (MTTDSP) • Mean time to repair (MTTR). • Mean downtime (MDT) 	<ul style="list-style-type: none"> • 99.9% (8.76hr per year downtime) • 15,000 hours or greater • 1000 hours or greater • 36 hours • 72 hours • 72 hours
Client Hardware (VOIP terminals, data terminals)	<ul style="list-style-type: none"> • Minimum mission reliability rate • Mean Time Between Critical Failure (MTBCF) • Mean Time Between Maintenance (MTBM) • Mean time to deliver spare parts (MTTDSP) • Mean time to repair (MTTR). • Mean downtime (MDT) 	<ul style="list-style-type: none"> • 99.9% • 10,000 hours or greater • 30 days or greater • 36 hours • 72 hours • 72 hours

Simulated TacC2IS Capability and Hardware Training Aids for CAF Training	<ul style="list-style-type: none"> • Minimum mission reliability rate • Mean Time Between Critical Failure (MTBCF) • Mean Time Between Maintenance (MTBM) • Mean time to deliver spare parts (MTTDSP) • Mean time to repair (MTTR). • Mean downtime (MDT). 	<ul style="list-style-type: none"> • 99.9% • 10 000 hours or greater • 30 days or greater • 36 hours • 72 hours • 72 hours
Software packages (e.g., Core Apps, Battle Management System, etc.)	<ul style="list-style-type: none"> • Minimum mission reliability rate • Upgradability 	<ul style="list-style-type: none"> • 99.9% • During normal training activities, major or critical upgrades will need to be done within 24 to 72 hours. For systems being used on operations, the operational and technical authority will define the standards to be met, including the frequency, of upgrades to the system.

Networking Tools (Network Monitoring, EM Defence, Network Management, Network Security and Cyber Defence, etc.)	<ul style="list-style-type: none"> • Minimum mission reliability rate • Upgradability 	<ul style="list-style-type: none"> • 99.99% • During normal training activities, major or critical upgrades will need to be done within 24 to 72 hours. For systems being used on operations, the operational and technical authority will define the standards to be met, including the frequency, of upgrades to the system.
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Definitions:

- a. Mean operating time between failures (MTBF): For a stated period in the life of a functional unit, the mean value of the lengths of operating time between consecutive failures under stated conditions.
- b. Mean time between maintenance (MTBM). For a stated period in the life of a functional unit, the mean length of operating time between maintenance. MTBF only considers preventative and corrective maintenance performed by technicians, not that which is considered operator maintenance.
- c. Mean time to deliver spare parts (MTTDSP). Mean time from when order placed in DRMIS to delivery of part to appropriate maintenance organization.
- d. Mean time to repair (MTTR). The mean time to conduct a corrective maintenance action by technicians.
- e. Mean downtime (MDT). Downtime consists of all preventive and corrective servicing and repair time plus time awaiting parts or labour and other administrative delays.
Upgradability: The software of all components shall be upgraded at a time and frequency that is based on the operational situation.