**Form B – Details of Performance Indicators Values (Past 6 months)**

|  |
| --- |
| Equipment Availability |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | Numbers of days in the month |  |  |  |  |  |  | | Maximum possible hours per day (hr) |  |  |  |  |  |  | | Sum of hours on repairs in the month (hr) |  |  |  |  |  |  | | **Equipment Availability (%)** |  |  |  |  |  |  | |
| Faults per Equipment |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | Total Number of Faults |  |  |  |  |  |  | | **Faults per Equipment** |  |  |  |  |  |  | |
| Technical Faults per Equipment |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | Total Number of Technical Faults |  |  |  |  |  |  | | **Technical Faults per Equipment** |  |  |  |  |  |  | |

|  |
| --- |
| **First Time Fix Rate** |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | **First Time Fix Rate (%)** |  |  |  |  |  |  | |
| **Mean Time To Repair** |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | Total Number of Technical Faults |  |  |  |  |  |  | | Total Downtime of Technical Faults |  |  |  |  |  |  | | **Mean Time To Repair** |  |  |  |  |  |  | |
| **Prediction Accuracy (%)** |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | Number of Cases marked as True (T) |  |  |  |  |  |  | | Total Number of Intervention Case |  |  |  |  |  |  | | **Prediction Accuracy (%)** |  |  |  |  |  |  | |
| **Device Availability (%)** |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Month** |  |  |  |  |  |  | | Number of days in months |  |  |  |  |  |  | | Sum of daily offline units in month |  |  |  |  |  |  | | Sum of daily online units in month |  |  |  |  |  |  | | **Device Accuracy (%)** |  |  |  |  |  |  | |

**Explanatory Notes**

1. Below is the list of RM&D indicators:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | Type of Indicators | Abbreviation | Formula | Units |
| 1 | Technical Faults per Equipment | TFPE |  | Technical Faults per lift per month |
| 2 | Faults per Equipment | FPE |  | Faults per lift per month |
| 3 | First Time Fix Rate | FTTR |  | % (per lift per month) |
| 4 | Mean Time To Repair | MTTR |  | Hours/failure (per lift per month) |
| 5 | Average Monthly Uptime | UT |  | % (per lift per month) |
| 6 | Diagnostics Accuracy | DiA |  | % (per month) |
| 7 | RM&D Device Availability | DA |  | % (per lift per month) |

*NOTE (1) A list of technical faults is given in Explanatory Note (2).*

*NOTE (2) Faults is sum of technical faults and non-technical faults. A list of non-technical faults is given in Explanatory Note (2).*

*NOTE (3) Technical faults that happen within the next 30 days after they have been rectified are to be considered for the calculations.*

*NOTE (4) MTTR exclude the following: (1) major repair/overhaul that takes more than 1 day (refer to the list of exclusion cases below for more details); (2) waiting time for spare parts arrival; and (3) additional time needed to do hot-testing.*

*NOTE (5) Total downtime of technical faults is the sum of all time spent to rectify all technical faults in hours.*

*NOTE (6) Maximum possible running hours is the number of days in the month multiplied by 24 hours for each lift.*

*NOTE (7) A True (T) Intervention Case is when the RM&D prediction matches diagnosis/faulty component on site.*

*NOTE (8) Intervention cases are defined as cases prompted by RM&D system whereby a visit to lift by maintenance personnel is required.*

**List of Exclusion Cases**

|  |  |
| --- | --- |
| **S/N** | **Examples of MTTR Exclusion Cases (non-exhaustive)** |
| 1 | Hoisting motor replacement/repair |
| 2 | Ropes replacement |
| 3 | Main/Diverting sheave replacement/repair |
| 4 | Major lift components, e.g. governor, safety gear |
| 5 | Total failure of Frequency Inverter |
| 6 | Water ingress situation |
| 7 | Building power failure |

1. List of Technical Faults and Non-Technical Faults

|  |  |  |
| --- | --- | --- |
| **S/N** | **Technical Faults** | **Non-Technical Faults** |
| 1 | Motor [Thermal/Voltage/Current] | Noise |
| 2 | Machine brake [Brake Switch] | Display Indicators/LCD |
| 3 | Electrical Components [Switches/Contactors/Relays/PCBs] | Faulty buttons [Car/Landing] |
| 4 | Main Drive Unit/Frequency Inverter | Card reader |
| 5 | Landing Doors | External Element Blocking Doors [Object/Human] |
| 6 | Car Door | Car Interior [False Ceiling/Cladding] |
| 7 | Buffers | Fire Homing/Power Failure Mode |
| 8 | Speed Control System [Shaft/Motor Encoder] | Natural Disaster/Incident leading to component failure [Water ingress] |
| 9 | Overspeed Governor & Governor Rope | Oil Pots Leakage |
| 10 | Levelling Accuracy |  |
| 11 | ACOP/UCMP/Rope gripper |
| 12 | Batteries Failure [ARD/EBOPS] |
| 13 | Suspension Ropes [Elongation Switch/Sensor] |
| 14 | Bearings Worn-out |
| 15 | Load Measuring Devices [Overload Signal] |
| 16 | Compensation Devices [Chain/Rope] – [Elongation Switch/Sensor] |