

**SUMMARY OF TEST RESULT**

No.	Motor ID	Power Circuit	Power Quality	Insulation	Stator	Rotor	Air Gap	Description
1	KHV4-TC1-MGCF4 4	GOOD	OBSERVE	GOOD	GOOD	GOOD	GOOD	Motor is operating at standard condition. Total Harmonic Distortion (THD) of the whole switchgear is more than standard and gradually leads to equipment overheat. The THD of the voltage is 12% which is much higher than the standard value (5%). This situation is the same for all the motors in this switchgear. The other switchgears have better condition in terms of THD. Voltage harmonics inject high frequency currents to the motor that don't participate in creating mechanical power (torque) and just pass throughout the whole winding causing overheat, insulation degradation and deteriorate motor service life.
2	KHV4-TC1-MGCF5 5	CAUTION	OBSERVE	GOOD	CAUTION	GOOD	GOOD	Motor showed a slight winding resistance imbalance and should be monitored. The unbalance is not in Alarm threshold. This imbalance creates Uneven Magnetic Field inside the stator and pulls the rotor at an unbalanced force around the core and will be shown as mechanical vibration. The mechanical vibration which is shown on this motor is not because of mass unbalance but Uneven Magnetic Pull (UMP).
3	KHV4-TC1-MGCF9 6	GOOD	OBSERVE	GOOD	GOOD	GOOD	GOOD	Normal operating condition
4	KHV4-TC1-MGCF14 7	ALARM	OBSERVE	GOOD	ALARM	GOOD	GOOD	Winding resistance unbalance is in Alarm threshold. It led to stray current inside the winding and overheat. It also generates harmonics to inject into the power grid. This motor is not only the source of harmonics to itself but also the source of damage to the power quality of the whole power grid. We recommend changing the motor at the first overhaul.
5	KHV4-TC1-MGCF15 8	GOOD	OBSERVE	GOOD	GOOD	GOOD	CAUTION	Normal operating condition. Slight AirGap eccentricity should be monitored. This eccentricity has just passed Caution threshold and is not in Alarm zone.
6	KHV4-TC2-MGCF2 9	CAUTION	OBSERVE	GOOD	MODERATE	GOOD	GOOD	There is a loose connection in the power circuit (cables and cable terminals) which should be repaired. Cable connection from circuit breaker side and motor terminal side should be checked for loose connection, corrosion and copper-to-aluminium oxidation. Thermography is also recommended to detect connection overheat.