

Tesla Coil Risk Assessment:

The tesla coil system composes of a power source, extension cables, a power supply and a tesla coil. Exposed voltage of up to 1 MV are present and special considerations must be taken to ensure safety of observers. This document aims to make the reader aware of such hazards, their safety implications and provides a recommended system of avoiding the risks.

Hazard	Risk	Risk Probability (0-10)	Risk Severity (0-10)	Description / Cause	Action
Electrocution	Electrocution from the torroid (highest voltage section, very low current)	2	6	Would require someone deliberately approaching operating coil.	Supervised coil operation with defined safety perimeter.
	Indirect electrocution from the torroid	3	6	The objects struck by the streamers may reach high voltages if not earthed.	Make sure all arc strike locations are earthed properly.
	Earth disconnect related electrocution.	1	6	If the buildings earth is not connected to the buildings earth rod the earth potential may become dangerous.	Building regulations forbid this condition occurring, however, attempt to connect to the earth close to the earth rod where possible.
	Electrocution from the power supply	1	10	Would require someone to deliberately try to touch the power supply output by defeating safety connector.	Power supply has insulated safety terminals that are not energised unless coil is operating.
	Electrocution from nearby metal objects	3	1	Ungrounded large metal objects within 5m of the coil can develop a charged state during coil operation.	Earth identified objects
Interference	Interference of nearby communication equipment	8	1	Communication devices often suffer minor crackling during coil operation.	Inform people of the risk and limit coil duty cycle to intervals to avoid permanent communication impairment.

Interference (cont.)	Harmful interference to other electronics.	6		The operation of devices such as automatic doors and other devices may occur close to the coil.	Ensure adequate distance to such devices and either disconnect affected devices or discontinue coil operation.
Fire	The risk of fire from the device	1		The high temperatures of the streamers and arcs may ignite combustible material.	Operate away from all combustible material. Ensure a CO ₂ fire extinguisher is on hand.
Health	Photo-sensitive epilepsy	1	5	The device may trigger fits in affected individuals.	Make sure warnings are in place. Normally, 'own risk' scenario applies.
	Tinnitus (temporary hearing damage)	3	3	Close proximity to the operating coil will cause hearing discomfort.	Adequate warnings and optional hearing protection provided in the form of 'ear plug' type devices.
Power interruption	The coil may trigger a power failure of the buildings local circuits requiring re-setting.	2		If the coil power supply fails it may blow the main RCD or thermal trip point.	Make sure location of the box is known and building complies with normal power outage regulations (emergency lighting etc), access to the power switches should be arranged if there are keys etc that need to be procured.

Signed by safety officer:.....

Date:.....