ABB 16-12-118 C001

exida hereby confirms that the:

MT5000, MT5100, and MT5200 Series Guided Wave Radar Level Transmitters

ABB, Inc.
Québec City, Québec - CA

Has been assessed per the relevant requirements of:

IEC 61508 : 2010  Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)
Random Capability: Type B Element

SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2

PFD_{AVG} and Architecture Constraints must be verified for each application

Safety Function:
The MT5000, MT5100, and MT5200 Series Transmitter will measure Level within the stated safety accuracy.

Application Restrictions:
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.

Evaluating Assessor
Certifying Assessor
Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type B Element

SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route $2_H$

PFD$_{AVG}$ and Architecture Constraints must be verified for each application

Systematic Capability:
The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:
The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route $2_H$.

IEC 61508 Failure Rates in FIT$^1$

<table>
<thead>
<tr>
<th>Device</th>
<th>$\lambda_{SD}$</th>
<th>$\lambda_{SU}$</th>
<th>$\lambda_{DD}$</th>
<th>$\lambda_{DU}$</th>
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</thead>
<tbody>
<tr>
<td>MT5000, MT5100 and MT5200 Series Level Transmitters</td>
<td>0</td>
<td>0</td>
<td>3968</td>
<td>60</td>
</tr>
</tbody>
</table>

$^1$ FIT = 1 failure / $10^9$ hours

SIL Verification:
The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD$_{avg}$ considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

**Assessment Report:** ABB 10/02-051 R001 V3R2

**Surveillance Audit Report:** ABB 10/02-051 R001 V4R1

**Safety Manual:** SM-MT5x00-EN_B