

## Fachgebiet *Resilient Cyber-Physical Systems* - Risk Assessment

|                                |                                    |
|--------------------------------|------------------------------------|
| <b>Activity being assessed</b> | <i>Use of Voltera NOVA printer</i> |
| <b>Location</b>                | <i>RP B013</i>                     |
| <b>Reference</b>               | <i>200001</i>                      |
| <b>Assessment date</b>         | <i>14. Jan 25</i>                  |
| <b>Review date</b>             |                                    |

|                                |  |
|--------------------------------|--|
| <b>Description of activity</b> | <i>Operation of Voltera NOVA printer located in RP B013 (S2 02 B013)</i> |
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| Hazards  | What harm might occur, and to whom?   | Existing control measures  | Risk rating |   |    | Additional control measures | Residual risk |   |    |
|--|---|--|-------------|---|----|-----------------------------|---------------|---|----|
|  |   |  | L           | S | RR |                             | L             | S | RR |
| Contact with moving parts                                    | Personal injury to user:- trapping and crushing   | Keep hands outside of the printer enclosure whilst it is in operation.   | 1           | 2 | 2  |                             | 1             | 2 | 2  |
| Contact with smart dispenser and precision nozzle            | Personal injury to user:- cuts and burns  | Be careful when handling precision nozzles and the complete smart dispenser. Make sure hands are clear when the smart dispenser is in use and the system is moving.  | 1           | 2 | 2  |                             | 1             | 2 | 2  |
| Contact with electrical pins of the Module Hub               | Personal injury to user:- electrical shocks   | Never touch the electrical pins on the module hub when the locking lever is engaged.   | 1           | 2 | 2  |                             | 1             | 2 | 2  |
| Danger of shrapnel on breaking of Smart Probe                | Personal injury to user and others in area whilst printer is operating:- Damage to eyes up to vision loss         | Wear eye protection, especially when using custom fixturing, printing 3D structures, or when mounting accessories.   | 2           | 3 | 6  |                             | 2             | 3 | 6  |
| Exposure to chemicals and nano particles during ink handling | Personal injury to user and others in area whilst printer is operating:- respiratory damage and chemical hazards. | Only use approved, commercially available materials. Read the safety datasheet (SDS) of every ink prior to operation. Perform appropriate measures to mitigate risks stated in the SDS. Wear protective gloves when needed | 1           | 3 | 3  |                             | 1             | 3 | 3  |
| Long exposure to loud noise                                  | Personal injury to user and others in area whilst printer is operating:- Damage to ears or hearing ability        | When NOVA pumps run above 30% duty cycle for extended periods of time, wear hearing protection   | 3           | 1 | 3  |                             | 3             | 1 | 3  |

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| <b>Assessment created by</b> | Philipp Macher |
| <b>Persons consulted</b>     | Roderich Groß  |