



J.A.M.E.S

# FundAMEntals: Conductive Gluing

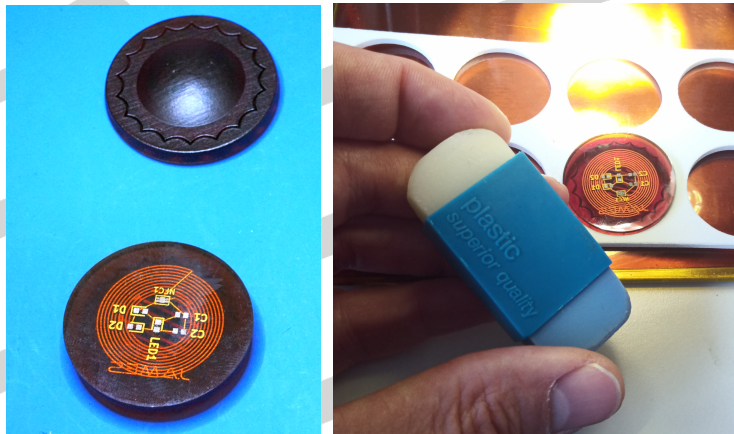
Step-by-Step HowTo  
NNDM DragonFly IV

In this FundAMENTal document, we will give a step-by-step explanation on how the gluing process is done using a drying oven and conductive glue H20E. The used equipment, materials and temperature profiles are presented in the corresponding datasheet, which can be found on the Library of the J.A.M.E.S FrAMeWork.

The following workflow is applied and verified by the J.A.M.E.S engineering team:

## 1. Cleaning the pads

In order to clean the pads or remove some oxidated silver use a simple rubber eraser. Since the silver pads of the NNDM DragonFly IV AMEs might be very sensitive, it is important to proceed here with caution. As an alternative to the rubber eraser, also a fiberglass pen might be used.



*Figure 1: JAMES Coin with cleaning conductive pads*

The following pictures show the difference of pads before and after cleaning:



*Figure 2: JAMES Coin before and after cleaning*

## 2. Dispense conductive glue paste on pads

Depending on the size of the pads and the viscosity of the conductive paste, either a manual dispenser can be used, or alternatively the material can also be applied by a small needle. The result will look like this:



Figure 3: Use of a manual dispenser for placing H20E paste (here on the Pads of NFC Tag component)



Figure 4: Manual dispensing of H20E paste

### 3. Manually Pick & Place components

After the H20E paste is applied, the next step consists in placing the components. In the case of the J.A.M.E.S Coin, this will be two capacitors, two diodes, one LED and of course the NFC chip. The result is shown in the following pictures:

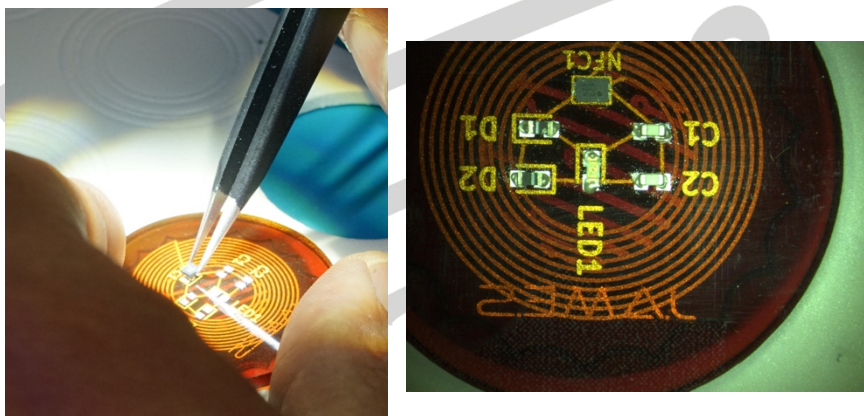


Figure 5: Manually steps to apply H20E paste to the pads of the JAMES Coin

#### 4. Put AME in oven and start drying sequence

To harden the conductive glue, you should put the populated samples into an oven for about 2-4 hours at 100°C.

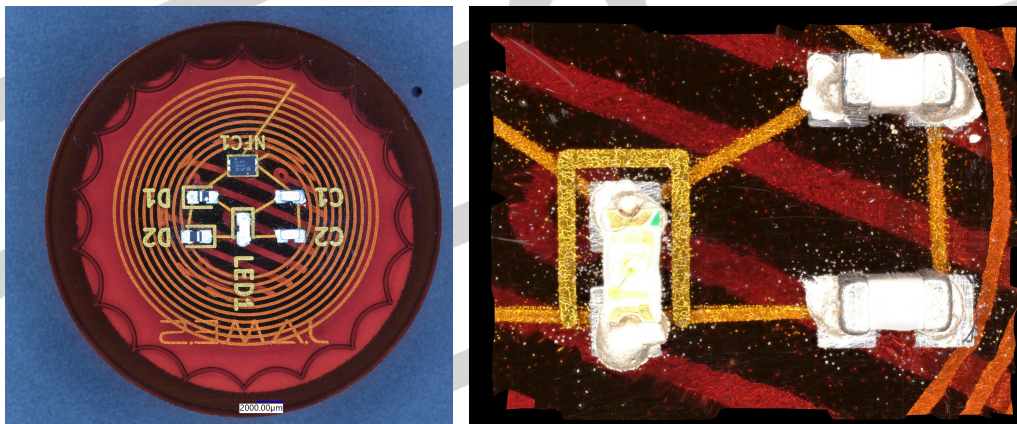
We are using a small temper oven from Nabertherm to provide a proper drying.



*Figure 6: Nabertherm NA15\_65 for postprocessing of conductive glue*

#### 5. Check glued contacts

Afterwards do a quick visual check if all glued pads are connected and looking proper.



*Figure 7: Placed components after glued process*