



## Detection Limit Investigation of MMC Forensic Narcotic Test Kits

### Introduction:

MMC Forensic Narcotic Test is a rapid screening immunoassay based test for the qualitative detection of narcotics, and their principal analytes, including methamphetamine.

An MMC Forensic Narcotic Test kit (M.M.C International B.V, The Netherlands) was supplied for in-house laboratory verification of chemical sensitivity, or detection limit, against methamphetamine. Amongst the experiments carried out was a spiking experiment on a tile.

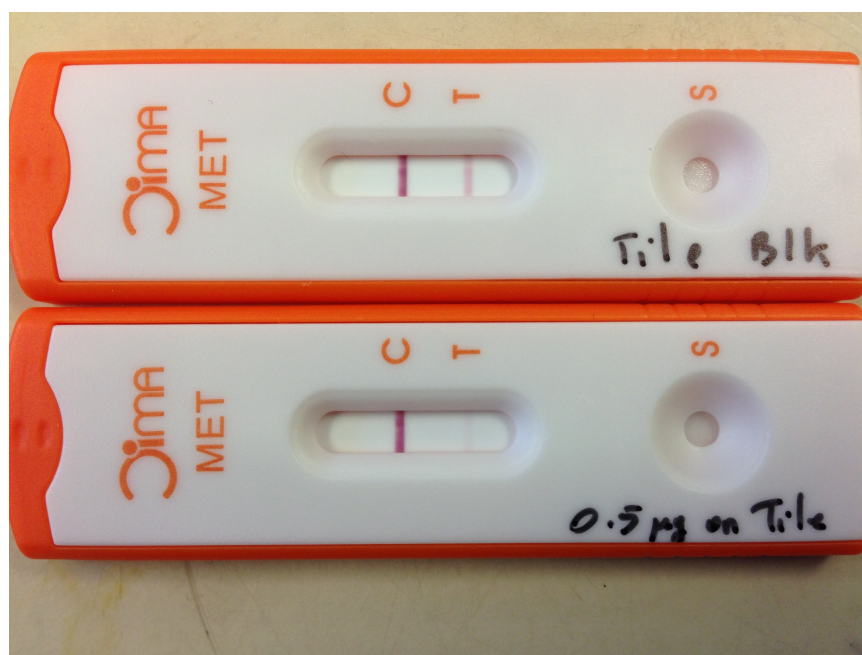
### Swabbing of a Spiked Surface:

The New Zealand Ministry of Health currently recommends that residential dwellings have surface levels of methamphetamine less than a concentration of  $0.5 \mu\text{g}/100 \text{ cm}^2$ .

To check the MMC kit test cassettes detection capabilities at this level, a  $10 \times 20 \text{ cm}$  ceramic tile was divided in two equal portions of  $10 \times 10 \text{ cm}$ . One half of the tile was swabbed and tested as a blank reference. The other half was spiked with  $50 \mu\text{L}$  of a  $10 \text{ mg/L}$  methamphetamine solution, resulting in an absolute amount of  $0.5 \mu\text{g}$  of methamphetamine on the  $10 \text{ cm}^2$  ceramic tile surface. The tile was left to dry before being swabbed and then tested as per MMC kit instructions. The ceramic tile surface was considered impermeable to liquids.

### Results

The blank showed a clear negative, while the  $0.5 \mu\text{g}$  spike test showed a positive line but with a faint 2<sup>nd</sup> line appearing on the cassette.



**Photo:** Visual results from the tile surface swabbing experiment.



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**Conclusion:**

Although visually different from the blank performed, the presence of a faint negative line could be interpreted as a negative when performed in the field without a blank to compare against.

Therefore it can be concluded that the detection limit of the MMC cassettes is equivalent to the NZ Ministry of Health guideline level of  $0.5 \mu\text{g}/100\text{cm}^2$ .