ETSI SMG9 UMTS Tdoc SMG9 UMTS 98u057
Copenhagen, Denmark
15-16 th of December 1998

Proposal for a third size UICC

Source: Nokia

This document describes alternative mechanical dimesion for a new card size. The purpose of the document is be used as basis for discussions. The final dimension are to be checked against the physical characteristics of the semiconductors to be used in the new card size.

Alternative 1
This alternative is based on the existing plugin SIM. The new card would be a cut down of the plugin card mechanical dimensions. The final dimensions are to be checked against the dimensions of the semiconductor module. This alternative would allow existing manufacturing techniques to be used. The contact positions is the same as for the existing plugin SIM. This allows for backwards compatibility. Which means that using a carrier this size of SIM can be inserted in an existing plugin reader.Figure 1 shows how the new card size is cut out of the existing ID-1 card. The size reduction is 58% compared to the ID-000.

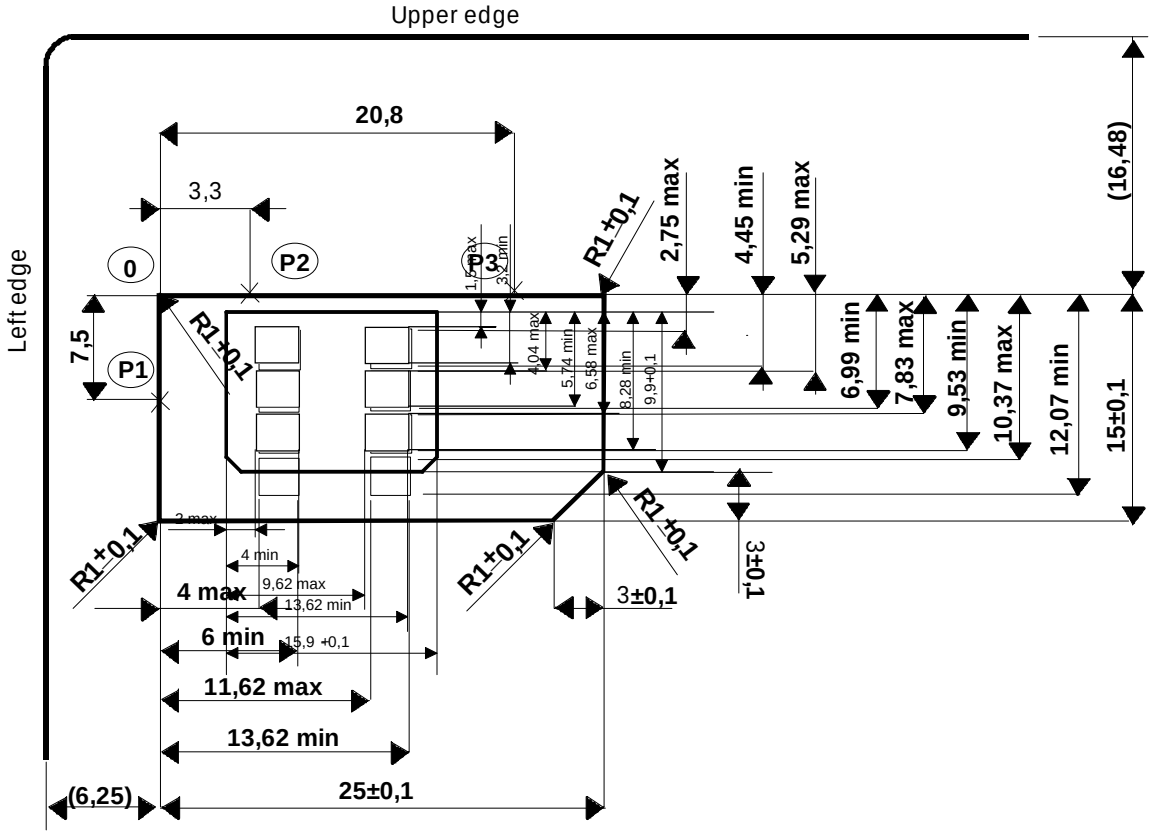

Figure 1 New plugin cut out compared to ID-000

Figure 2 shows the mechanical dimensions of Alternative 1. This alternative is intended to be the smallest mechanical dimensions possible using existing contact locations. The dimension are still to be checked against the module used for the semiconductor that is assembled into this card.

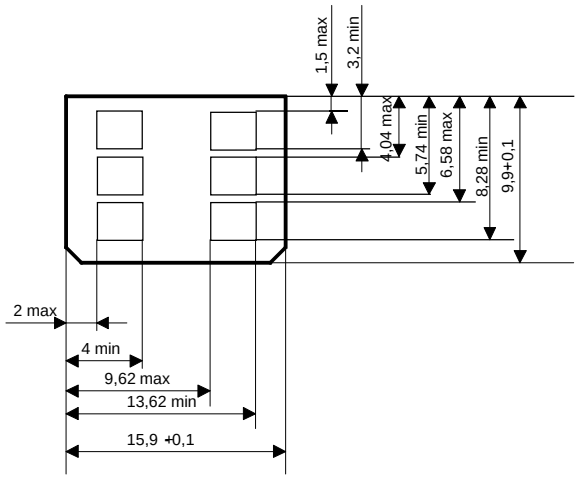

Figure 2 Mechanical dimensions of Alternative 1

Alternative 2

This alternative is similar to alternative 1 but the cut out is slightly different. The purpose of this cut out is that it may be possible to design a card reader that could take the existing ID-000 and the new card size. The feasibility for this kind of combined card reader is to be studied. Manufacturing a plugin carrier for this card size may be a bit difficult as one side of the carrier has to be open due to the cut used. The cut out is shown in Figure 3. The mechanical dimensions are shown in Figure 4. This alternative is 0,5 mm wider than alternative 1. The size reduction of this alternative is 56 % compared to the ID-000.

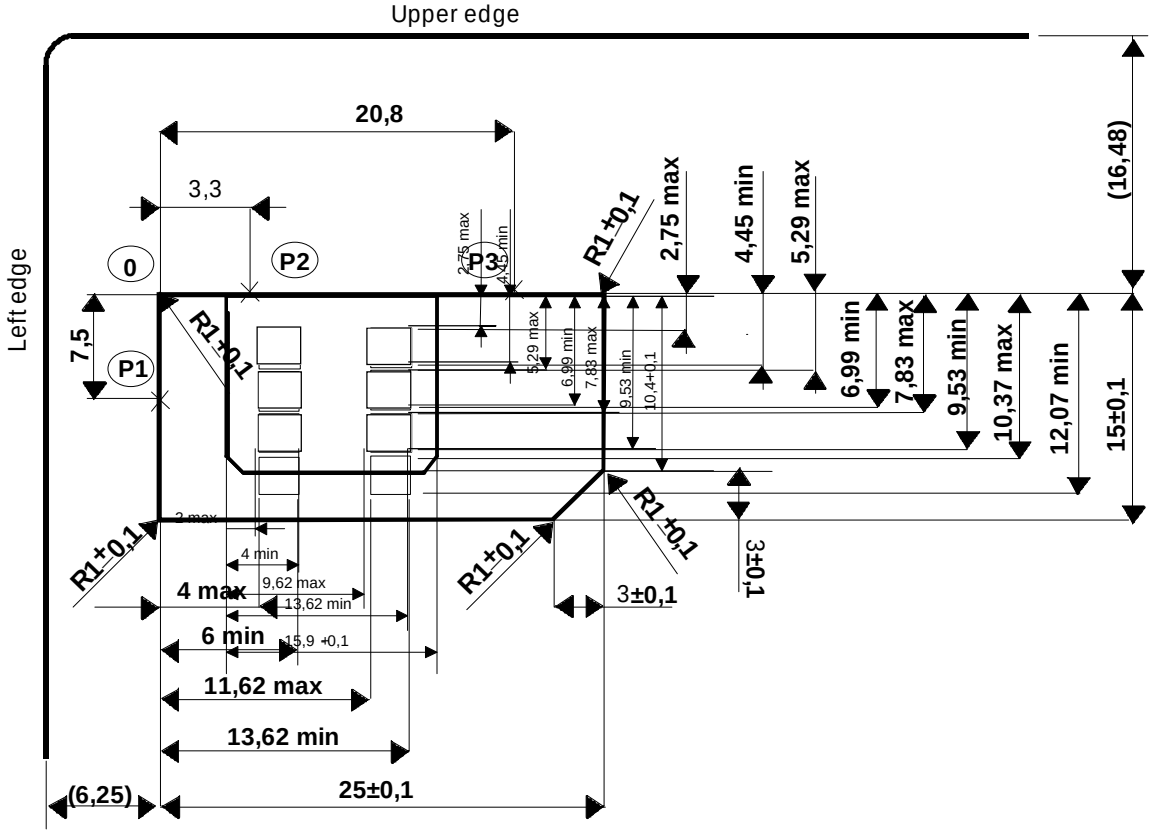

Figure 3 Cut out of Alternative 2

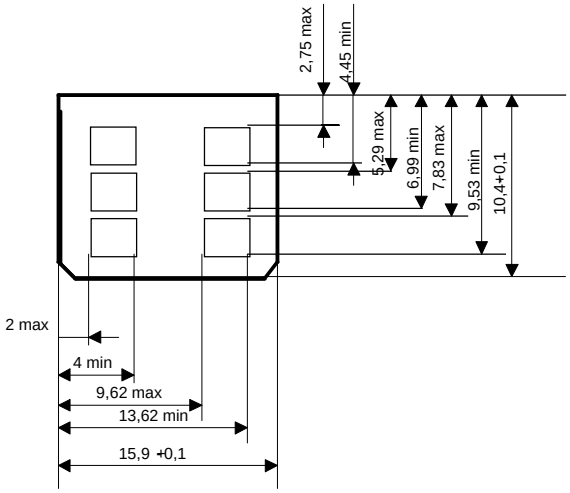

Figure 4 Mechanical dimensions for alternative 2

Alternative 3

Alternative 3 is a completely new package for the smart card. This solution is aiming to a minimum size package. The outline of the package is determined by the semiconductor size. This package is not derived from the standard smart card packaging technique. The package is used in the semiconductor industry. The mechanical dimensions and pad layout would have to be designed for this alternative. This package type would be a variant of the LBGA (Land Ball Grid Array) as used in the semiconductor industry. The mechanical dimensions are shown in Figure 6. The size reduction of alternative 3 is 83% compared to ID-000. This alternative can not be made compatible with the plugin size as the contact location is different.

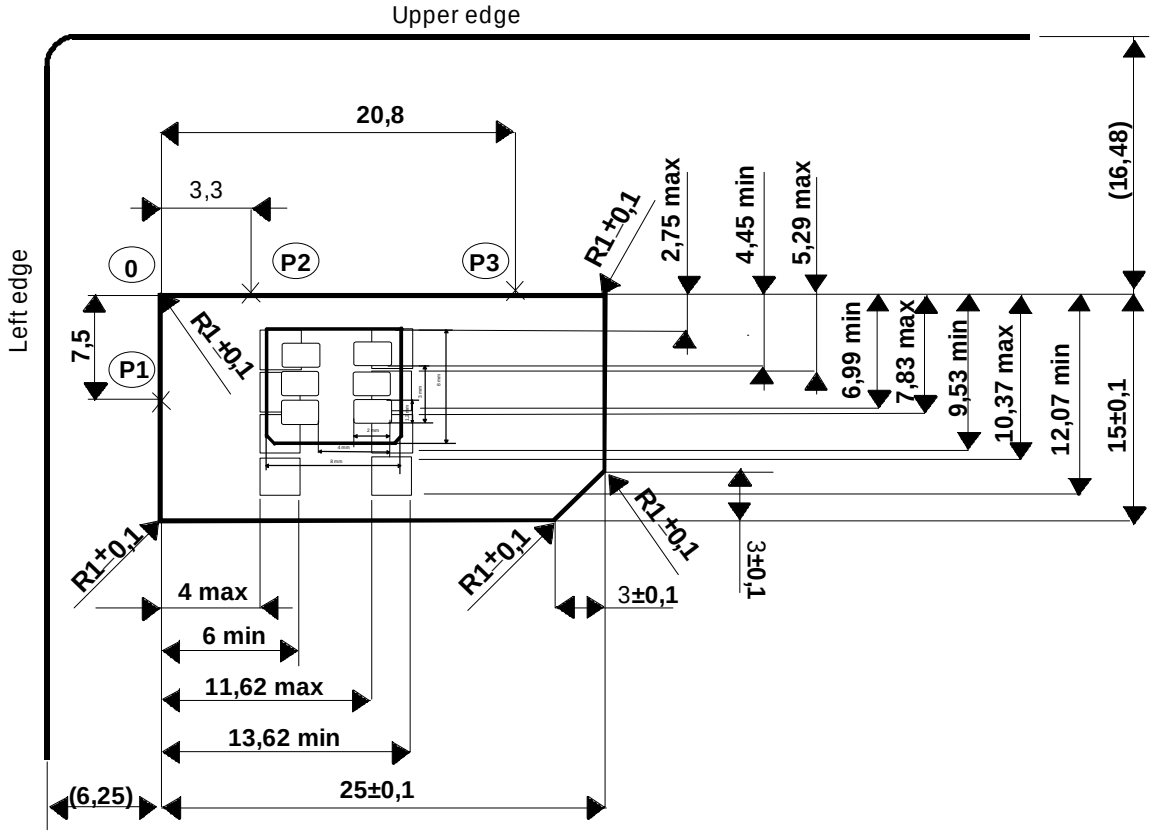

Figure 5 Size Comparsion of Alternative 3

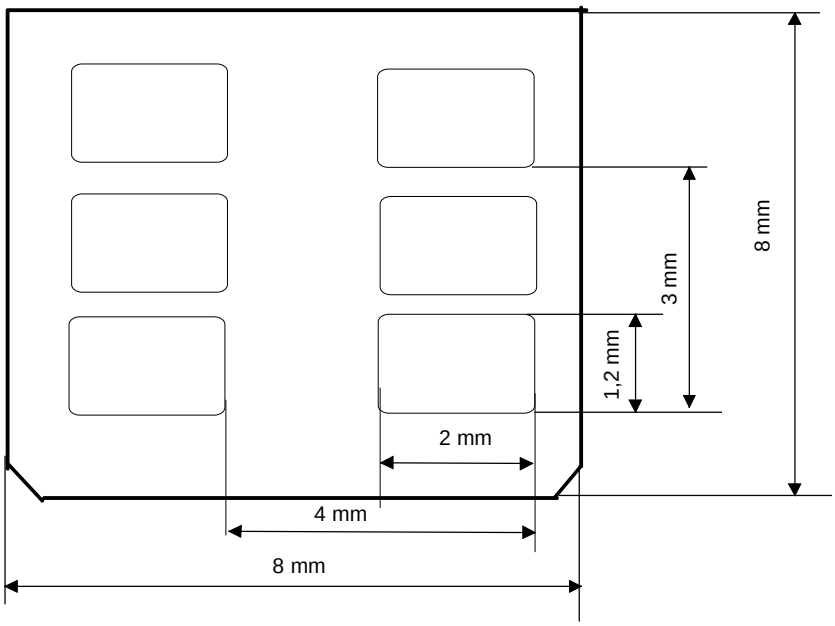

Figure 6 Mechanical Dimensions of Alternative 3