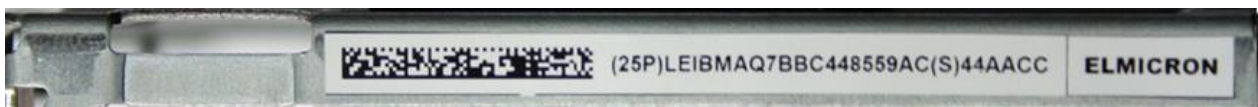


DMRE

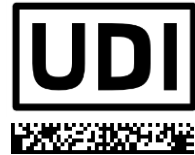
Data Matrix Rectangular Extension



Introduction to DIN 16587 DMRE
and sources for printing and reading tools
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on behalf of the joined working group DMRE
of AIM, Ehibcc, E.D.C., IFA, VDDI

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Data Matrix Rectangular Extension - DMRE solution for smallest codes with high data volume highly suitable for UDI

ISO/IEC Data Matrix supplies efficient AutoID solutions and became widely accepted in applications of industries, healthcare and distribution. Data Matrix includes 24 square formats with capacity up to 2335 alpha numeric characters but only 6 formats are rectangular with capacity of 6 to 72 characters alpha numeric. Specifically small surfaces require such rectangular formats but the choices of 6 different sizes are very limited. New requirements like UDI for medical devices or UIDs for medicinal products call for solutions even for smallest devices.

Barcode experts and software engineers agreed that a solution would be possible by extending the features of Data Matrix by additional rectangular formats. By help of expertise and sponsorship of associations like AIM-D, DIN, EHIBCC, IFA, Eurodata Council, VDDI and participating *companies the solution was completed by writing the base symbology specification DMRE as AIM standard followed by publishing DMRE as DIN 16587 Rectangular Extension of Data Matrix. Dec. 2015. Meanwhile DMRE is on the way to become ISO/IEC standard being subject to ISO/IEC JTC 1/SC 31/ WG 1 Data Carriers. Due to the available DIN specifications integration is starting rapidly by extending Data Matrix printer drivers and decoder software of image scanners and smart phones. By that DMRE is ready for use.

The features of DMRE

- o Extension of Data Matrix by 12 rectangular sizes (now 18 sizes)
- o Smallest height, e.g. 1,6mm for size 8 modules of 0,2mm (Fig. 1 – 4)
- o Interoperability with all existing sizes
- o Breaking the limits of current codes
- o Fitting to InkJet printing technologies with small print heads

Application samples for Data Matrix Rectangular Extension (DMRE)



Fig.1) Tube applied with serialized UID

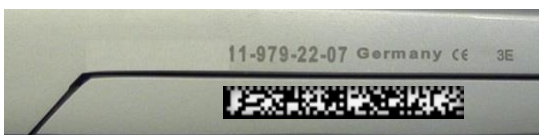


Fig. 2) Serialized Instrument (HIBC)



Fig. 3) Implant holder applied with UDI (HIBC)

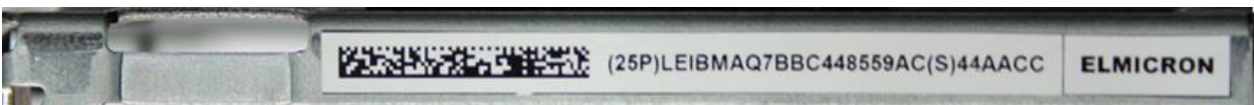


Fig. 4) Small edge applied with serialized product code (ASC)



Fig. 5) Medicinal product applied with serialized PPN

Status of the development

Start of the project initiated by EHBCC, IFA
 Research and development of the DMRE sizes
 DMRE draft for the AIM-D Technical Committee
 First integration in printer software, scanners and verifiers
 Publication as AIM-D Standard "DMRE 1.01" for common use
 Publication as DIN 16587 DMRE
 Submission to ISO/IEC

Nov. 14, 2014
 May 2014
 July 2, 2014
 Sept. 2014
 April 2015
 Dec. 2015
 Dec. 2015

Availability of DMRE tools and support

- DMRE specification
 - a) DMRE 1.01: AIM e.V. Richard-Weber-Str. 29, 68623 Lampertheim, Germany
 phone +49(0)6206/13177, email: info@aim-d.de,
www.aim-d.de/images/stories/pdfs/Arbeitskreise/Barcode/aim%20spec%20dmre214-09.pdf
 - b) DIN 16587 DMRE: DIN, 10787 Berlin, Germany, phone +49 30 2601-2320, www.din.de
- DMRE print generator (open source)
 ELMICRON Dr. Harald Oehlmann GmbH, Koesener Str. 85, 06618 Naumburg, Germany
 phone +49 3445 781120, email harald.oehlmann@elmicron.de
 Download: <http://www.eurodatacouncil.org/en/docs-downloads.html>
 → ZINT DMRE Bar Code Generator (and documentation)
- Printers, see REA (e.g. InkJet, LASER, etc.) and others
- 2D-Verifier (with DMRE)
 REA Elektronik GmbH, Teichwiesenstr. 1, 64367 Muehlal, Germany
 phone +49 (0)6154 638-204, email wweigelt@rea.de
- Scanners (selected among others)
 Code Corporation, 12393 S. Gateway Park Place, Suite 600, Draper, Utah 84020, USA phone:
 01 801 495-2200, www.codecorp.com
- DMRE App for Smart Phones, see ELMICRON

DMRE is highly adoptive to surfaces and printing technologies

The example below (fig. 6, 7) illustrates how the DMRE format of e.g. 26x64 solves two problems, it fits to the Inkjet system used for in line mass printing and supplies capacity for about 100 characters for coding Medicinal Multi-Country-Packs by help of the IFA-Coding-System.



Fig. 5) InkJet system for mass printing of medicinal products becomes powerful by DMRE

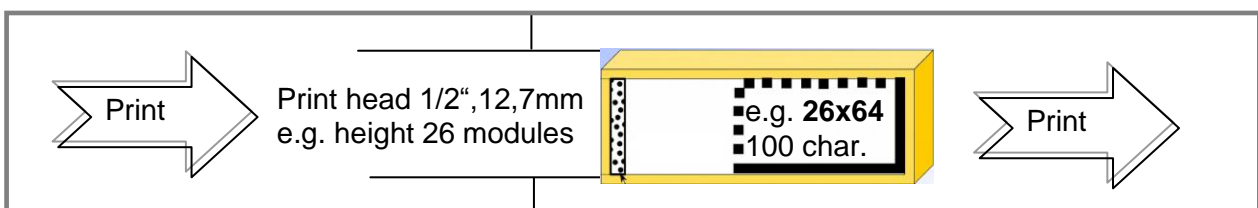






























Fig. 6) DMRE size 26x64 fits to print head size of Inkjet systems

Annex: Samples of DMRE

DMRE  the smallest high capacity code

DMRE			Coding system			
Size Capacity n/an	mm x mm X=10mil/ 0.25mm	Generic	HIBC	PPN	ASC	
1 8x48 36/25	2 x 12	 123456789012345678901234567890123456	 +HIBCMED121/\$1728/S87U	 <Macro06>9N111234567842<GS>D150617<G S>1T12345<GS>S12	 <Macro06>25PLHELMIMED12<GS>S8764J	
2 8X64 48/34	2 x 16	 12345678901234567890123456789012345678	 +HIBCMED112B1/\$L1728/S8764783	 <Macro06>9N111234567842<GS>D150617<G S>1T12345<GS>S1234	 <Macro06>25PLHELMIMED44<GS>S87641	
3 12 x 64 86/63	3 x 16	 12345678901234567890123456789012345678 90123456789012345678901234567890123456	 +HIBCMEDIX122C1/\$L172866/S87647888332 202A	 <Macro06>9N111234567842<GS>D150617<G S>1T12345ABC<GS>S1234567890	 <Macro06>25PLHELMIMEDIX122C1<GS>1T L17285<GS>S87644	
4 16 x 64 124/91	4 x 16	 12345678901234567890123456789012345678 90123456789012345678901234567890123456 7890123456789012345678901234	 +HIBCMED DIXIN28E1/\$L55486229982/S2587993468003+ S	 <Macro06>9N1112 34567842<GS>D150617<GS>1T12345ABC<G S>S1234567890	 <Macro06>25PL HHIBC800B400<GS>S400303<GS>34LHTT P://ELMICRON.DE/P2P/?S=	
5 24x32 98/72	6 x 8	 123456789012345678 90123456789012345678901234567890123456 78901234567890123456789012345678	 +HIBCMEDOX8 81/\$L6734692244/S7455896204E	 <Macro06>9N11 1234567842<GS>D150617<GS>1T12345ABC <GS>S1234567890	 <Macro06>25P LHHIBCMEDOX881<GS>1TL6734692244<G S>S87644	
6 24 x 36 110/81	6 x 9	 12345678901234567890 12345678901234567890123456789012345678 90123456789012345678901234567890	 +HIBCMEDY22 A1/\$L336648328/S64398739R	 <Macro06>9N1 11234567842<GS>D150617<GS>1T12345AB C<GS>S1234567890	 <Macro06>25 PLHHIBCMEDY22A<GS>26Q1<GS>1TL336 648328<GS>S64398739	
7 24 x 48 160/118	6 x 12	 1234567890123456 78901234567890123456789012345678901234 56789012345678901234567890123456789012 34567890123456789012345678901234567890	 +HIBCMEDA X77Y121/\$L33664800327/S7439873966455D	 <Macro06>9 N111234567842<GS>D150617<GS>1T12345A BC<GS>S1234567890	 <Macro06>25 PLHHIBC800B400<GS>S400303<GS>34L HTTP://ELMICRON.DE/P2P/?S=	

