

BAR CODE FORMAT REQUIREMENTS				
Europe	DVD	EDS027	Issue 2	Apr 2022

**Scope:**

This document presents the sizes of bar codes in accordance with Polish standards (PN-ISO/IEC 15420:2007) depending on the Magnification factor of a bar code, including the ability to read bar codes by Vantiva.

Scanning of the bar codes on components is the only effective method of verification the components and the only safe protection against contamination.

Specification is divided into modules by the type of bar code (EAN-8, EAN -13, UPC-A).

**Technical glossary:**

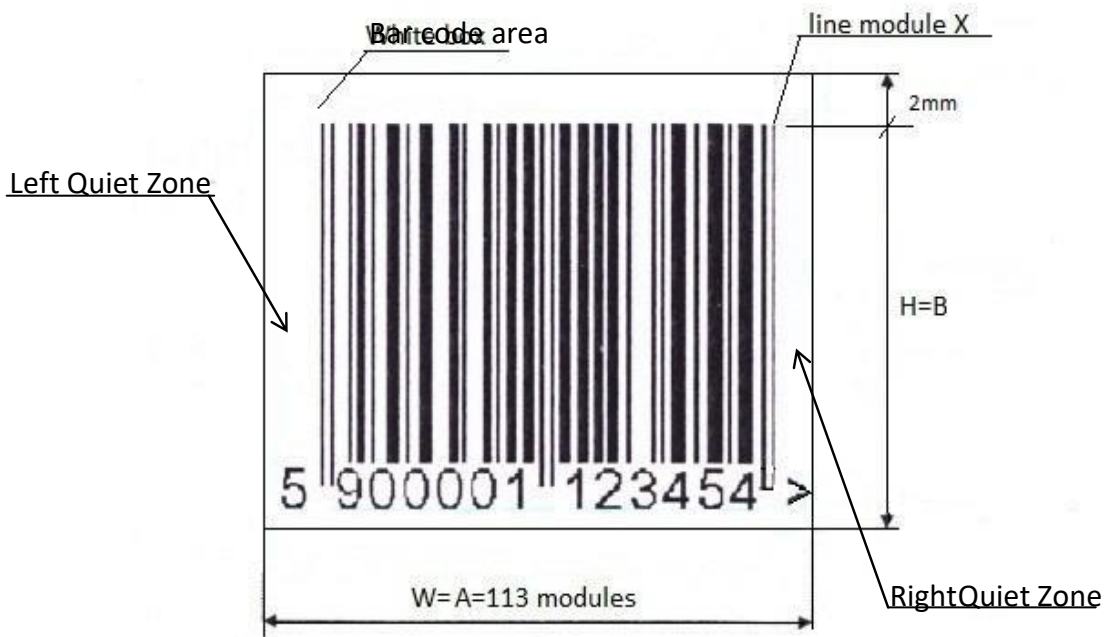


Fig.1 Example bar code

**Bar code area** – rectangle-shaped area where the bar code is placed, consists of code lines, clear zones (Quiet Zones), the human readable numbers

**Module, X** – the narrowest nominal unit of width in the sign symbol (single cell used to encode a single bit of a code word). A single line width (module) is relative to the total width of the bar code. Follow the given dimensions

**W** – width of the white box

**H** – height of the white box

**A** – total width of the bar code = 113 modules – check in tables bellow

**B** – height of the bar code – check in tables bellow

**Quiet Zone indicator** – A greater than (>) or less than (<) character, indicate Quiet Zones that are necessary for bar code scanners to work properly.

## General rules:

The customer is responsible to provide the readable bar code.

- The bar code is considered as rectangle-shaped area. The clear zones before and after the code lines are also important and they are essential for the proper detection and reading by the inline scanner.
- Bar codes are to be printed in picket fence orientation, when code lines are perpendicular to the bottom of the product. It is the recommended orientation for packaging process (especially for automatic and semi-automatic packaging).
- The nominal dimensions (Magnitude factor set to 1,00) for each barcode type are the most proper.
- Border dimensions may vary from the nominal within a Magnification factor range given in the tables for each bar code type. Excessing that range may cause the bar code unreadable by a scanner.
- The bar code area should be placed at least 5 mm away from the spine and any fold or edge of the product. The bar code must be printed on the back of the DVD/BD sleeve to allow an automatic inline detection during packaging process.
- White for background and black for code lines are the most recommended combination of colours to keep maximum contrast, which provides best reading conditions for the scanner.
- It is recommended to avoid the solid-line border around the white box. The solid border, when left and right Quiet Zones are not kept at their minimal width, may introduce errors and make the bar code unreadable for the scanner.
- Glossy surface of component may introduce distortion to detection and reading, even when the Magnitude factor is equal or near the nominal.

Technical specifications:

**EAN-13 BAR CODE**

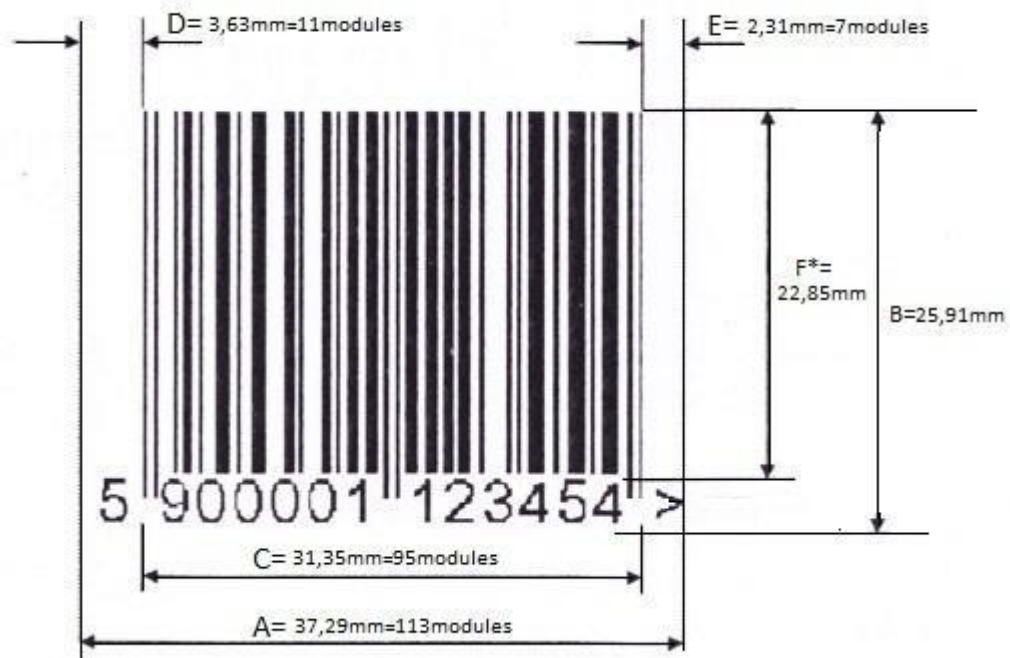


Fig 2. Nominal dimension for EAN-13 bar code (the magnification factor 1.0)

Dimension bar code EAN-13							
Magnification factor	X Module width (ideal) (mm)	A Total Width 113 modules (mm)	B Code height (mm)	C Width 95 modules (mm)	D Left quiet zone 11 modules (mm)	E Right quiet zone 7 modules (mm)	F* Line code height (mm)
0,80	0,264	29.83	20.73	25,08	2,9	1,85	18,28
0,85	0,281	31.70	22.02	26,7	3,09	1,97	19,42
0,90	0,297	33.56	23.32	28,22	3,27	2,08	20,57
0,95	0,313	35.43	24.61	29,74	3,44	2,19	21,71
<b>1,00 (nominal)</b>	<b>0,33</b>	<b>37.29</b>	<b>25.91</b>	<b>31,35</b>	<b>3,63</b>	<b>2,31</b>	<b>22,85</b>
1,05	0,346	39.15	27.21	32,87	3,81	2,42	23,99
1,10	0,363	41.02	28.50	34,49	3,99	2,54	25,14
1,15	0,379	42.88	29.80	36,01	4,17	2,65	26,28
1,20	0,396	44.75	31.09	37,62	4,36	2,77	27,42
1,25	0,412	46.61	32.39	39,14	4,53	2,88	28,56
1,30	0,429	48.48	33.68	40,76	4,72	3	29,71
1,35	0,445	50.34	34.98	42,28	4,9	3,12	30,85
1,40	0,462	52.21	36.27	43,89	5,08	3,23	31,99
1,45	0,478	54.07	37.57	45,41	5,26	3,35	33,13
1,50	0,495	55.94	38.87	47,03	5,45	3,47	34,28

Fig 3. EAN-13 acceptable dimensions accordingly to PN-ISO/IEC 15420:2007

\* - **F=13mm** is the minimal of a code line height acceptable to enable detection on the inline automated barcode scanner. Below this value, the correctness of the reading made by scanners installed on the line is not certain.

### EAN-8 BAR CODE



Fig 4. Nominal dimension bar code EAN-8 for the magnification factor 1.0

EAN-8 bar code dimensions							
Magnification factor	X Module dimension (ideal) (mm)	A Total Width 81 modules (mm)	B Code height (mm)	C Width 67 modules (mm)	D Left quiet zone 7 modules (mm)	E Right quiet zone 7 modules (mm)	F* Line code height (mm)
0,80	0,264	21.38	17.05	25,08	1,85	1,85	14,58
0,85	0,281	22.72	18.11	26,70	1,97	1,97	15,50
0,90	0,297	24.06	19.18	28,22	2,08	2,08	16,41
0,95	0,313	25.39	20.24	29,74	2,19	2,19	17,32
<b>1,00 (nominal)</b>	<b>0,330</b>	<b>26.73</b>	<b>21.31</b>	<b>31,35</b>	<b>2,31</b>	<b>2,31</b>	<b>18,23</b>
1,05	0,346	28.07	22.38	32,87	2,42	2,42	19,14
1,10	0,363	29.40	23.44	34,49	2,54	2,54	20,05
1,15	0,379	30.74	24.51	36,01	2,65	2,65	20,96
1,20	0,396	32.08	25.57	37,62	2,77	2,77	21,88
1,25	0,412	33.41	26.64	39,14	2,88	2,88	22,79
1,30	0,429	34.75	27.70	40,76	3,00	3,00	23,70
1,35	0,445	36.09	28.77	42,28	3,12	3,12	24,61
1,40	0,462	37.42	29.83	43,89	3,23	3,23	25,52
1,45	0,478	38.76	30.90	45,41	3,35	3,35	26,43
1,50	0,495	40.10	31.97	47,03	3,47	3,47	27,35

Fig 5. EAN-8 acceptable dimensions accordingly to PN-ISO/IEC 15420:2007

\* **F=13mm** is the minimal of a code line height acceptable to enable detection on the inline automated barcode scanner. Below this value, the correctness of the reading made by scanners installed on the line is not certain.

### UPC-A BAR CODE

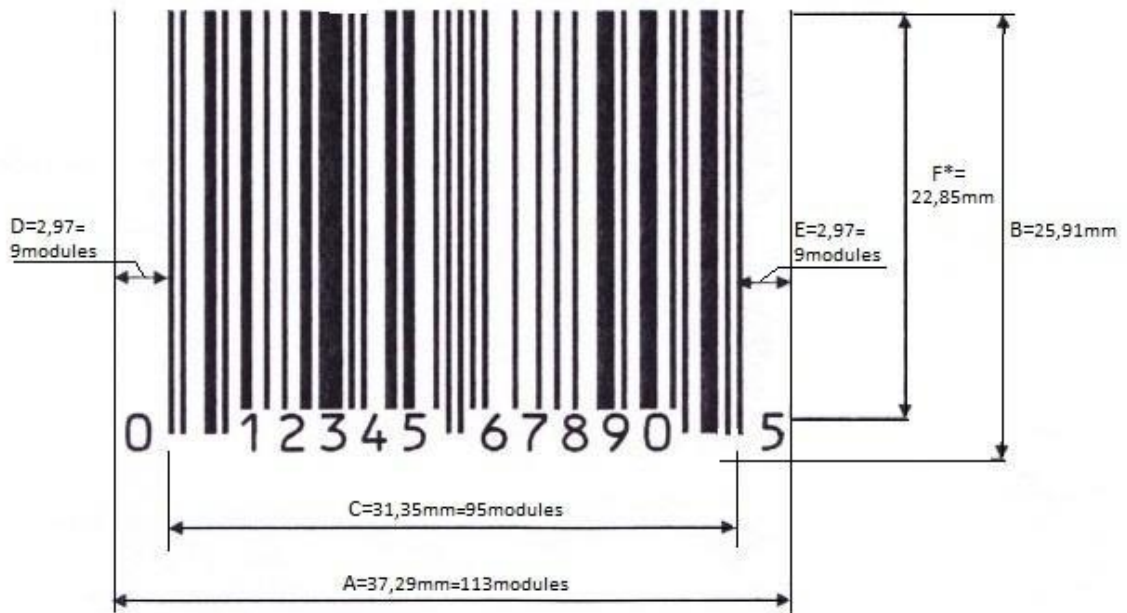


Fig 6. Nominal dimension bar code UPC-A for the magnification factor 1.0

UPC-A bar code dimensions							
Magnification factor	X Module dimension (ideal) (mm)	A Total Width 81 modules (mm)	B Code height (mm)	C Width 67 modules (mm)	D Left quiet zone 7 modules (mm)	E Right quiet zone 7 modules (mm)	F* Line code height (mm)
0,80	0,264	29.83	20.73	25,08	2,38	2,38	18,28
0,85	0,281	31.70	22.02	26,70	2,53	2,53	19,42
0,90	0,297	33.56	23.32	28,22	2,67	2,67	20,57
0,95	0,313	35.43	24.61	29,74	2,82	2,82	21,71
<b>1,00 (nominal)</b>	<b>0,330</b>	<b>37.29</b>	<b>25.91</b>	<b>31,35</b>	<b>2,97</b>	<b>2,97</b>	<b>22,85</b>
1,05	0,346	39.15	27.21	32,87	3,11	3,11	23,99
1,10	0,363	41.02	28.50	34,49	3,27	3,27	25,14
1,15	0,379	42.88	29.80	36,01	3,41	3,41	26,28
1,20	0,396	44.75	31.09	37,62	3,56	3,56	27,42
1,25	0,412	46.61	32.39	39,14	3,71	3,71	28,56
1,30	0,429	48.48	33.68	40,76	3,86	3,86	29,71
1,35	0,445	50.34	34.98	42,28	4,01	4,01	30,85
1,40	0,462	52.21	36.27	43,89	4,16	4,16	31,99
1,45	0,478	54.07	37.57	45,41	4,30	4,30	33,13
1,50	0,495	55.94	38.87	47,03	4,46	4,46	34,28

Fig 7. UPC-A acceptable dimensions accordingly to PN-ISO/IEC 15420:2007

\* **F=13mm** is the minimal of a code line height acceptable to enable detection on the inline automated barcode scanner. Below this value, the correctness of the reading made by scanners installed on the line is not certain.