

ON THE STRUCTURE OF THE BARCODE OR EUROPEAN ARTICLE NUMBER (EAN CODE = BARCODE)

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Abstract

The barcode always consists of a triple six, whereby a connection to Revelation 13,16–18 is at hand:

16. And he causeth all, both small and great, rich and poor, free and bond, to receive a mark in their right hand, or in their foreheads:

17. And that no man might buy or sell, save he that had the mark, or the name of the beast, or the number of his name.

18. Here is wisdom. Let him that hath understanding count the number of the beast: for it is the number of a man; and his number [is] Six hundred threescore [and] six.

1 Introduction

The latest since 1982 the European article number (EAN) is used for trading in Germany to help the cashier with recording the price. Since 2001 there is a law, that an explicit mentioning of the bought article is needed, even if it is some consumption article like food only. By this law the trading company ALDI was forced to use the barcode, while die trading company LIDL & SCHWARZ has been one of the first ones, that have been using this code in Germany.

2 The Number Code of the Barcode

The barcode consists of two sections each of six numbers, where each of these numbers is coded by two bars, which themselves fill each six segments. There are 20 different possibilities to generate such a bar sequence, while a listing of them can be easily compared with the many available articles of a German household, because the meaning of the code often enough is mentioned below it:

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Normal		Cipher	Special left
left	right		
		0	
		1	
		2	
		3	
		4	
		5	
		6	
		7	
		8	
		9	

Starting with the middle of the barcode, each code starts by a filled segment. The possibilities to combine two bars of six segments are exhausted combinatorically by this arrangement. Another arrangement of the cases being listed here, impresses the same, while the cipher being used for the barcode is mentioned also (only elements of the left hand side are listed):

	6n		9S
	8n		2S
	7n		4S
	3n		2n
	0S		1n
	1S		7S
	5S		9n
	4n		0n
	5n		8S
	3S		6S

The cases of mirror image “7S–8S”, “3S–6S” and “4S–5S” and the semi mirror images “0S–9S” and “1S–2S” are used to code the special ciphers. A confusion of “0n–5n” or “4n–9n” is prohibited by the fact, that always the position relatively to the middle can be found out. This circumstance stresses, that the interpretation system of the ciphers to be a barcode is done very high-handed.

The thin double bar || is suitable very well to mark the borders. The interpretation of this double bar as number six is not obvious.

3 Structure Types

There are several different types of barcodes. The property they have in common only is, that three coded numbers six give the frame, even if there are only four ciphers in each segment.

The following structure types have been examined (additions to this arrangement are possible):

Preposed Number	Structure		Meaning
	S S S S	n n n n	ALDI etc.
3	S S S S S S	n n n n n n	Not European
4	S S n n n S	n n n n n n	France
7	S n S S n n	n n n n n n	Germany
8	S n S n S n	n n n n n n	Switzerland
9	S n S n n S	n n n n n n	Italy
	S n n S n S	n n n n n n	Books etc.

On the left hand side at least one special cipher must occur thus the orientation of the number can be done automatically. So far on the left hand side the first cipher always is the

special code. On the right hand side of the barcode (EAN) so far no special ciphers have been used. Thus there are also barcode (EAN) codings, that are not available because of missing unequivocalness.

The number of possibilities to sign articles unequivocally by the barcode (EAN), is counted to be

$$\begin{array}{rcl}
 62 \times 1.000.000 & \times & 1.000.000 = 62.000.000.000.000 \\
 & & 10.000 \times 10.000 = 100.000.000 \\
 & & 900.000 \times 1.000.000 = 900.000.000.000 \\
 & & \text{Total} = 62.900.100.000.000
 \end{array} \tag{1}$$

This number is named to be “62 billions 900 thousand and 100 millions” (in America: “62 quadrillions 900 trillions 100 billions”). The calculation of it is done the following:

- Each 6 or respectively 4 decimal numerals are available, thus this results in $10^6 = 1.000.000$, or $10^4 = 10.000$ possibilities.
- For combining of special numerals and normal numerals at the left hand side there are $2^6 = 64$ possibilities. From this the possibility that only normal codes occur, must be deleted, thus there remain 63 possibilities.
- For the special coding with each 4 numerals must be sure that from the midth on occur each 4 special numerals. The 5th numeral from the right hand side at the left hand side must be a special numeral. Therefore result the following possibilities to exclude a block of 4 special numerals:

(F: free choosable coding, N: normal coding, S: special coding)

FFFFFN	=	$2^5 = 32$	possibilities
FFFFNS	=	$2^4 = 16$	possibilities
FFFNSS	=	$2^3 = 8$	possibilities
FFNSSS	=	$2^2 = 4$	possibilities
FSSSSS	=	$2^1 = 2$	possibilities
Total Sum	=	62	possibilities

- If the coding is FNSSSS, then at N only is to be hindered that a number 6 is coded. Therefore result $9 \times 10^5 = 900.000$ additional possibilities at the left hand side, and $10^6 = 1.000.000$ possibilities at the right hand side.
- This yields the quantity of valid barcode numbers as shown in equation (1).

4 Function of a LASER Cash–Register

The abbreviation “LASER” stands for “Light Amplification by Stimulated Emission of Radiation”. Historically older are the so–called “MASER”s, emitting micro waves. The LASER functions analogously to an organ pipe, whereby here light is used by reflexion to stabilise the wave length of the emitted light. In physics the colour is characterised by the brightness of corresponding wave lengths. The wave length of the dark–red light of the He–Ne–LASER is found to be 632.8 nm¹.

¹1 nm = 1 nanometre = 1 milliardth (Am: billionth) part of a metre = 1 millionth millimetre

At the cash-register a LASER beam is brought in six different directions over the article (and also over the eyes of cashier and customer). If the beam would not move so fast to and fro, the glance into the beam would be the obvious way to become a blind man. If the rotating deflection mirror holds at some time, the LASER light must be switched off best quickly.

The beam being reflected at the article is interpreted by a photo diode, whereby the reflection at the barcode leads to a rush sequence of light and dark values, that can be interpreted to be a digital signal similarly to a slow CD player and then to be a number.

5 Alternative Barcodes

Meanwhile there are several further barcodes, which do not yield the same result independently of the reading direction. With these codes, besides numerals also letters can be signaled.

Examples for this can be found when developing a photo, with series numbers of computer equipment, at the textile industry and other fields. The technique of the oriented reading via LASER diode technique is not as old as the barcode (EAN), which originally has been read by a Helium-Neon LASER.

6 What so far is Mentioned in the Holy Bible only

The Lord Jesus Christ (see Revelation 1,1) proclamate, what will happen on the earth directly before his return: Two humans will reach power, which within their short life will override with evilness even Satan himself. They will organise, that all men, which are not willing to get the barcode (EAN) at their "forehead" or "fist" (important notions for Hitler!), will be excluded from worldwide trading.

One of these humans is called the false prophet, the other one "the beast", showing clearly enough, that a human also can lose his being an image of god. Both of them will be thrown even 1000 years before Satan into the lake of fire. All other humans are allowed to join doomsday. All humans that have received the sign of the beast, will reach the same in the lake of fire.

When the Lord Jesus came to the earth, he also preached yet before exactly for these two humans repentance of sin by the following words (Matthew 16,26):

26. For what is a man profited, if he shall gain the whole world, and lose his own soul? or what shall a man give in exchange for his soul?

7 Bible Cites for Comparison

Matthew 16,24-28	Revelation 1,1-3	Revelation 13,1-18
Revelation 19,1-21	Revelation 20,1-15	