

Experiences with electronic identification in the companion animal market in Europe



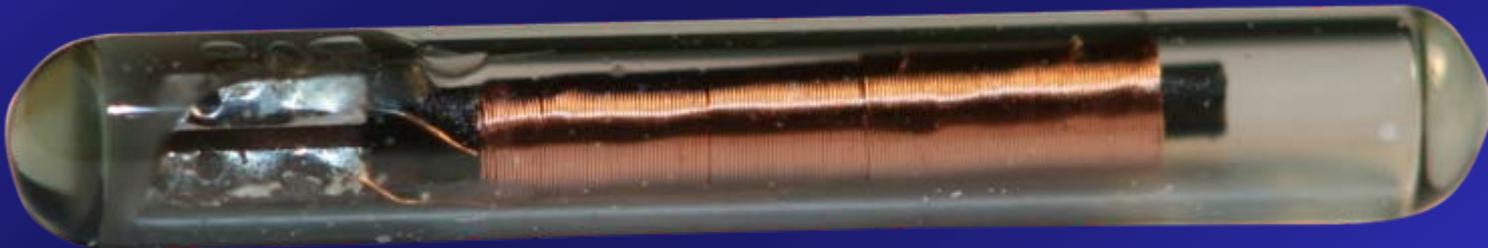
PLANET ID[®]

ICAR Conference 28th of May to the 1st of June in
CORK, Ireland

Presented by Dr. med. vet. Sven Hüther

Terminology, avoiding misunderstandings

1. Microchip = Silicon = Intelligence
2. Antenna =
 - a) Ferrite core
 - b) Air coil
3. Surrounding material: here BIOGLASS (class 8625)



A transponder is a product, which is built by the 3 components microchip with antenna and surrounding material.



Silicon or Microchip

1. Laser programmed

At the time of the creating of the ISO standard and of the EC regulations there was only laser programmed silicon. The ISO 11784 code was already unchangeably programmed in the chip on wafer level.

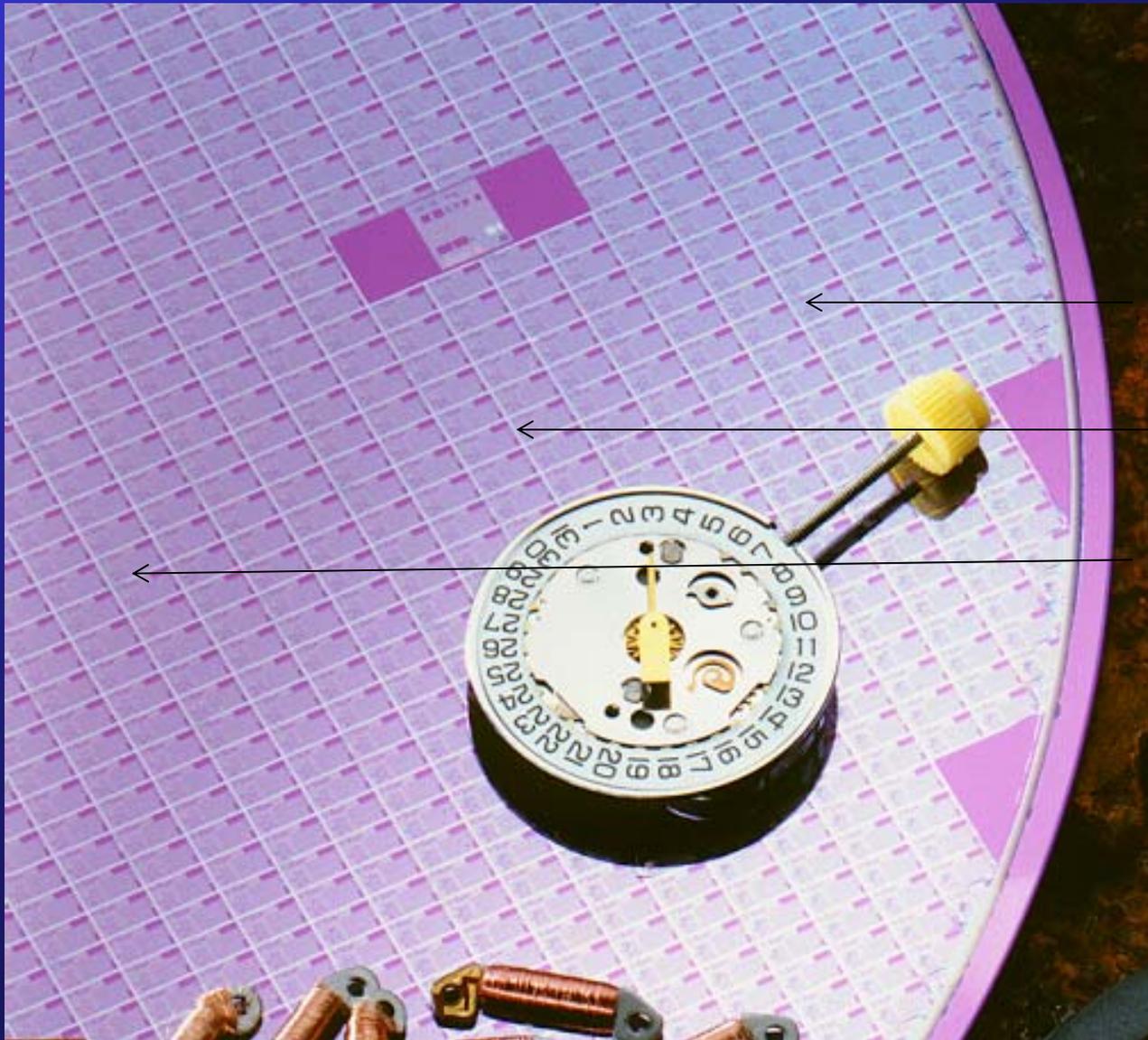
2. OTP (one time programmable)

Today the majority of transponders are made of OTP silicon. The transponder is being built without programming the chip according to ISO 11784. The code shall be programmed at any desired time of manufacturing.

3. An important point to watch are the silicon clones. (technically identical copies)



Wafer



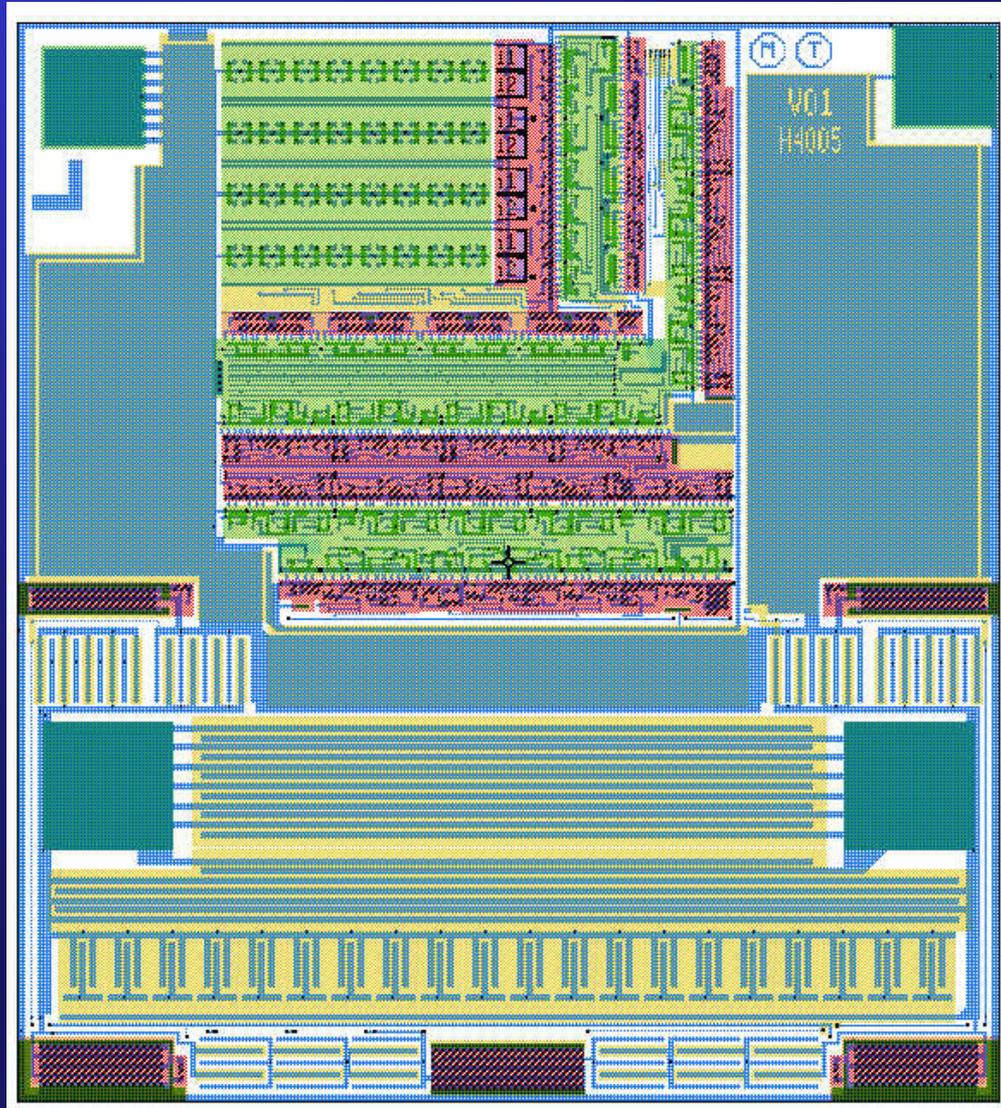
Microchip

Silicon

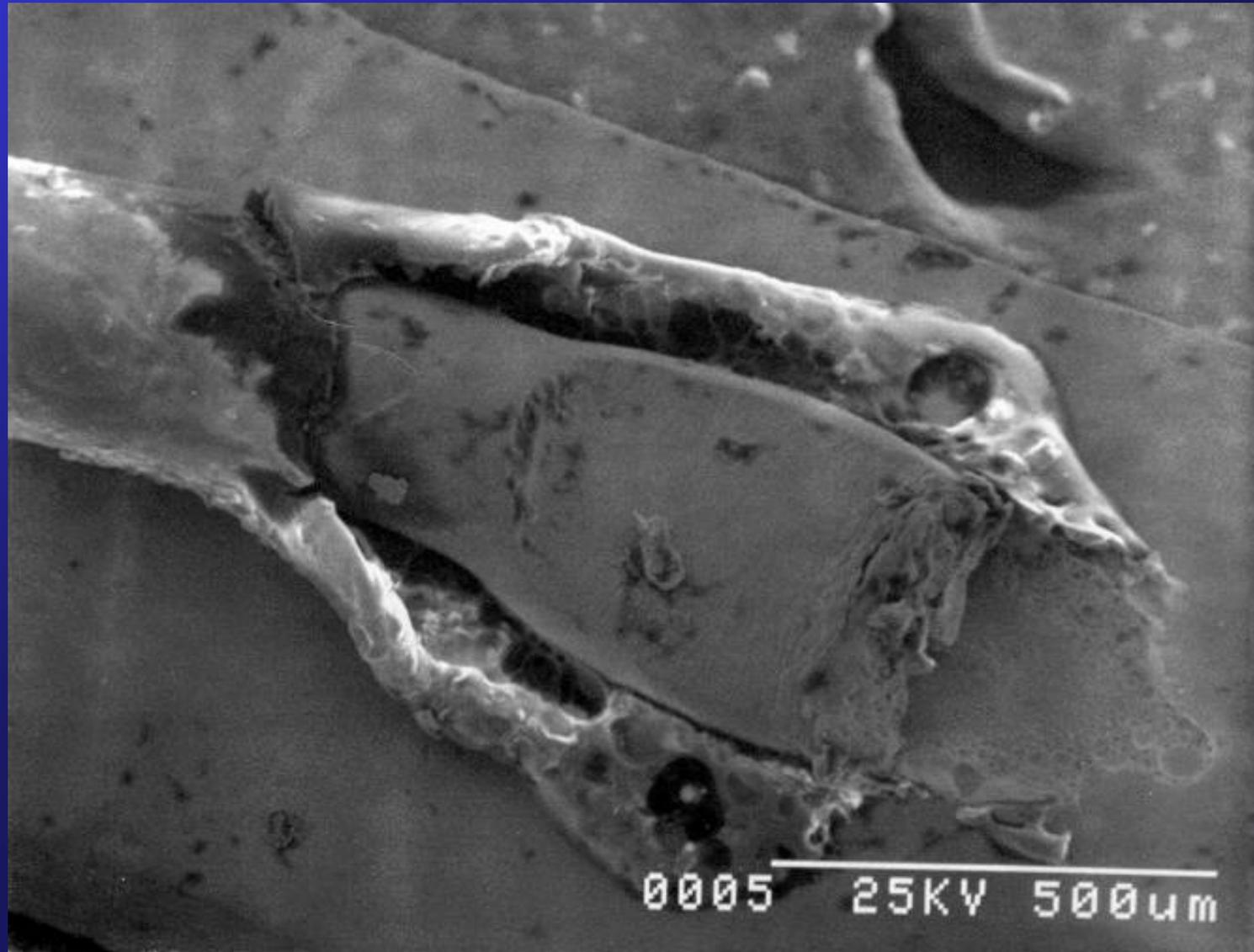
Intelligence



Laser programmed IC for animal identification



Bonding – Conjunction of microchip with antenna



ISO 11784 Coding of the transponder

ISO 11784 - Since the 15. August 1996 - Second Edition

Bit coding (11784 type)	Mathematics type	Destination	Quantity of unique codes
Bit 1	Bit 63	0 (non animal)	0 or 1 (animal)
Bit 2 - 15	Bit 62 - 47	Reserved part (not to be used)	14 bit = 16384
Bit 16	Bit 48	0 (no additional data will follow)	0 or 1
Bit 17 - 26	Bit 47 - 38	Manufacturer/Country Code (ISO 3166) *	10 bit = 1024 codes
Bit 27 - 64	Bit 37 -0	Unique identification code	38 bit = 274.877.906.944

* Planet ID = 972
Germany = DEU or 276



Particularities for the use of ISO 11784

The first bit read, the bit 63 (according to ISO 11784 **bit 1**) has to be set (1), to program an animal transponder; in Germany the garbage industry uses as well the structure of the ISO 11784 for the identification of the trash container with the difference that bit 63 (**resp. 1**) is not set (0). This has consequences for displaying the code in the reader.

The amendment 1 regulates the use of the reserved bits **2-4** (retagging counter) and **5-9** (user information field) and is not of relevance for companion animals.

The amendment 2 regulates the use of bit **15**; the bit has to be set for the communication of the reader with an advanced ISO 14223 transponder.



Structure of the displayed ISO 11784 code

Structure of the codification for ISO 11784																
15 digits world wide unique Code																
3 digits				12 digits												
MC or CC				Animal ID or National ID												
POSITION	1	2	3		4	5	6	7	8	9	10	11	12	13	14	15
MC= manufacturer	9	X	X		2	7	4	8	7	7	9	0	6	9	4	3
CC = ISO 3166 (IRL)	3	7	2		2	7	4	8	7	7	9	0	6	9	4	3
XX = from 87 to 34 or 00				total amount of codes = 2 ³⁸ Bit												
987 to 934 are full manufacturer codes with 274.877.906.944 numbers																
900 is a shared manufacturer code with 1.000.000 numbers																
+3digit allocation code	9	0	0		Z	Z	Z	0	0	0	9	9	9	9	9	9



120 Manufacturers:
 54 with FULL manufacturer code
 66 with shared manufacturer code



Responsibilities for a manufacturer

- ICAR certification of the manufacturer with the first product to be tested – **MC code** + product code
- Conformance test for each single tag – **ISO 24631-1**
- Signing the Code of Conduct – respecting all ISO rules
- Maintaining an internal database to guarantee each single production step (no Excel list) for the traceability of all manufactured transponder codes! There is no definition how this data base has to look like.
- **Guaranteed** uniqueness of the number
- If using OTP silicon (One Time Programmable) the 11784 code must be stored in a database inseparably together with the UID of the silicon. This is the only way to guarantee uniqueness.



Wrong animal transponder codes

All problems of wrong transponders are becoming major problems for the animal and the owner!!!

The experiences over the years have shown the following:

- Wrong animal bit (having been sold into the animal market)
- Missing product code (each product must be registered)
- Double codes (the same transponder number in 2 different animals)
- Misuse of the country code (intention to fraud)
- unauthorized use of the country code (marketing advantage)
- Senseless codes (no existing country code according to ISO 3166)
- Wrong allocation code in the shared manufacturer code 900 (no distinguishing between producers possible)

THIS IS A LACK OF HARMONISED REGULATION AND COORDINATION!



Antrag
zur kostenlosen Registrierung meines Tieres

TASSO e.V.

Bitte in Druckbuchstaben und mit dunklem Stift ausfüllen

Angaben zu meinem Tier

Tierart Hund Katze andere: _____

Geschlecht männlich weiblich kastriert sterilisiert

Rufname TRAVIS Rasse Gump. Kurahaar

Geburtsjahr ca 04 12008 Farbe rot-weiß getigert

bes. Kennzeichen bernsteinfarbene Augen

Transponder-Nr.  276098100248091

Tätowierungs-Nr. (wenn vorhanden) _____

ALTERNATIV: Wenn vorhanden, bitte Strichcode-Aufkleber hier aufbringen (diesen haben Sie von Ihrem Tierarzt, Tierheim oder Züchter erhalten)

Original für TASSO

Antrag
zur kostenlosen Registrierung meines Tieres

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Bitte in Druckbuchstaben und mit dunklem Stift ausfüllen.

Angaben zu meinem Tier

Tierart Hund Katze andere: verurteilt und ausge

Geschlecht männlich weiblich kastriert sterilisiert

Rufname FILVU Rasse EHK

Geburtsjahr 2009 Farbe rot-getigert

bes. Kennzeichen _____

Transponder-Nr.  276098100248091

Tätowierungs-Nr. (wenn vorhanden) _____

ALTERNATIV: Wenn vorhanden, bitte Strichcode-Aufkleber hier aufbringen (diesen haben Sie von Ihrem Tierarzt, Tierheim oder Züchter erhalten)

Double transponder number and uncontrolled use of the country code; identification of 2 different animals with the identical transponder code.

Responsibility: The country!!!



Guarantee of the uniqueness only with the UID

11784 Code	UID
972 1000000000005	3A24DDC4
233 093400980111	160A9141
233 093400980111	3A24E124
233 0965000000011	200E7F5C
900 1000000000345	160B6A10
900 0000000000008	160B72F2
999 0972000000000	3A24D93B
276 274877906943	3A24D8AF
528 219006006006	3A24D86F

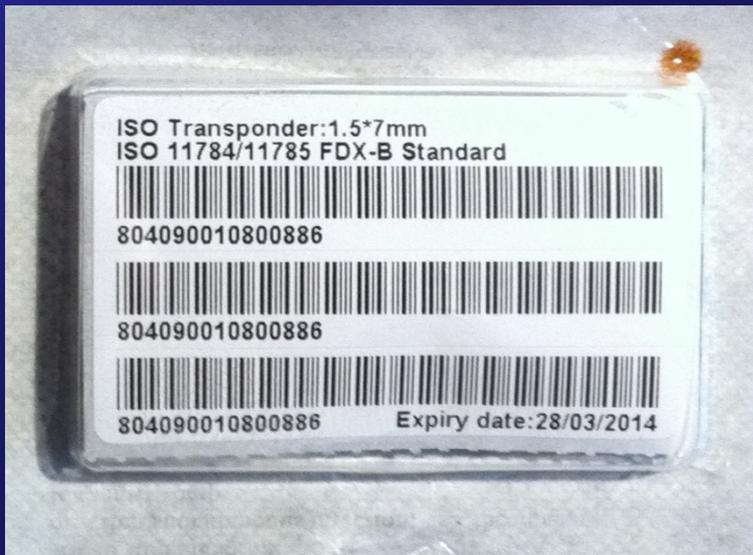
Both transponder numbers according to ISO 11784 are identical and vary only with the UID

The UID varies according to the silicon manufacturer, here it is EM



Wrong programming of the country code under uncontrolled conditions

The manufacturer has a „shared“ manufacturer code, which means that with the manufacturer code **900** he has been allocated 1 million numbers. To distinguish to the other manufacturers with a shared code, a 3 digit code in the animal ID has to be used; here this code is **108**! The million numbers for this manufacturer are in the range of: **900 108.000.000.000 – 900 108.000.999.999**



This is an unauthorized use of the Ukrainian (804) country code, which ends in a wrong code.

The transponder has an ISO 11784 conform structure, but is **not** a valid animal transponder.



In Tasso registered 900 codes

shared code	identification	manufacturer allocated ID code to distinguish the 900 manufacturer	Product	owner of the product code of the code in column B	Product	Database registered
900	006	HanMac ENG. Inc	2,12			13
900	007	not existng		ENSID Technologies Limited	???	47
900	009	not existng		Geissler Technologies Corporation	ET	12
900	012	Ornthana Intertrade	2,12	Beijing Protection Science & Technology Co., Ltd	2,12	67
900	023	not existng		Asian Information Technology Co., Ltd.	2,12	24
900	026	Advanced ID Asia Engineering CO. Ltd	2,12	DT Japan Inc.	Disk	76
900	032	WUXI FOFIA Technology Co., Ltd	2,12	Dalton I.D. Systems	OM	865
900	038	Beijing Hi-Dragon Technology Co, Ltd	2,12	Tierchip Dasmann	2,12	7
900	046	Uno Roestvaststaal BV	2,12	ENSID Technologies Limited	2,12	382
900	062	Prionics Italia S.r.l.	2,12	Royal Tag	Bol	2061
900	072	Tierchip Dasmann	2,12	Maun Industries Limited	OM	18450
900	074	A1 ID SYSTEMS Ltd.	2,12	Bartronics India Ltd	OM	8
900	088	ENSID Technologies Limited	2,12	Insprovet S.L.	Bol	99
900	108	Soartech Electronics Inc.	2,12	not existing		78
900	164	Doowa Technology Co. Ltd.	2,12	not existing		46
900	176	Insprovet S.L.	2,12	not existing		570
900	182	Schippers Europe BV	2,12	not existing		525
900	200	Peddymark Licencing Ltd.	2,12	not existing		131
900	720	not existng		not existing		7
						23468



Registered codes in Tasso Germany (biggest pet and owner database)

Senseless respectively wrong codes

049 is a senseless code
not according to ISO 3166



Codes with 276 0900 xxx xxx xxx –
xxx – completely wrong, no traceability at all

Transponder codes according to VVVO

Horses: 276 02x xxx xxx xxx



Cattle: 276 00x xxx xxx xxx



EC 998/2003 (1)

The EC 998/2003 regulates the travelling with pets for non commercial reasons in the European community.

The animal has to be accompanied by a EU Animal Passport which is linked to the transponder. There is no common way of printing, issuing and monitoring in the member states. The best one comes from Switzerland.

There is no common use of a transponder code structure nor is the use of the country code specified in detail for a harmonised use across Europe at least.

How can effective control and disease prevention happen, if the system is not understandable for those who are using it daily? Border control, customs etc.



National regulation of the country code use (UK, CH)

England:

the use of the country code for pets is strictly forbidden by DEFRA, only transponders with manufacturer code (Department for Environment, Food and Rural Affairs)

Switzerland:

in the national code the first position is 0 and on the following 3 positions the ICAR manufacturer code

CC = ISO 3166	7	5	6		0	9	7	2	0	0	0	0	1	2	3	4
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National regulation of the country code use (DK, NL, FR)

Denmark and Netherlands:

the first position in the national code is a 2*

the figures 2 and 3 are the result of the subtract of 991 – the ICAR manufacturer code; for Planet ID i. E. 991 – 972 = 19, Planet ID Code für NL und DK = 219.

CC = ISO 3166	5	2	8	2	1	9	0	0	0	0	0	1	2	3	4
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2* = The responsibility for the uniqueness of the codes are given to the manufacturer

France:

NOR: AGRG0101247A, regulates, that all dogs, cats and ferrets born in France have to be identified by a transponder with French country code.



National regulation of the country code use (FR, DE)

Structure of the French country, species and homologation code																
POSITION	1	2	3		4	5	6	7	8	9	10	11	12	13	14	15
Country code FRA	2	5	0		2	6	8	6	1	2	3	4	5	6	7	8
Country code FRA	2	5	0		2	5	8	6	1	2	3	4	5	6	7	8
Country code FRA	2	5	0		2	2	8	6	1	2	3	4	5	6	7	8

France: 250 (FR, FRA)

The positions 4 and 5 of the total code, resp. 1 and 2 of the National Code represent the species, 26 = dogs, cats, ferrets; 25 = horses; 22 = wild animals.

The positions 6 and 7, respective 3 and 4 stand for the French homologation code



Use of the country code (DE)

Registered codes with country code in Germany																
Senseless Code	0	4	9		0	4	3	2	1	2	5	0	5	6	6	6
Pets with	2	7	6		0	9	8	1	1	2	3	4	5	6	7	8
manufacturer code	2	7	6		0	9	7	2	1	2	3	4	5	6	7	8
in the animal code	2	7	6		0	9	6	1	1	2	3	4	5	6	7	8
Problem with cattle	2	7	6		0	0	0	0	1	2	3	4	5	6	7	8
wrong Code	2	7	6		0	9	0	0	0	7	2	0	1	2	3	4
PID with BMVEL	2	7	6		1	0	0	0	1	2	3	4	5	6	7	8
Cattle ID	2	7	6		0	0	a	c	c	o	r	d	i	n	g	
Sheep ID	2	7	6		0	1		t	o		v	v	v	o		
Horse ID	2	7	6		0	2										

In Germany there is no regulation and no monitoring of the country code use for companion animals.



Conclusion

The market of the electronic identification is still relatively young and not yet sufficiently organised.

The technical developments are by far faster than the adjustment of the administrative responsibilities can be realised.

In case an effective disease eradication and prevention will lack on the most important basic part, the proper animal identification.

In countries where not all animal species are under the responsibility of one Ministry, National coordination for the code structure is of essential need.

A committee of experts, which coordinates all needed technical adjustments with the responsible Ministries for all animal species is the mean of choice.



Thank you for your attention

You are welcome to ask your questions



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