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Notes of ad-hoc Task Force on 10373-3

London, 20-21 November 2006-11-27

Attendees

Jim Riddell, Uwe Truggelmann, Yoshikazu Yorimoto, Rene Lozach, Mark Kamers, Till Winteler, Lorenzo Gaston

Steffen Drews also expressed an interest in the work but was unable to attend this meeting.

Agenda

The revision of the document 10373-3 was discussed at the previous WG4 meeting. From that discussion, it was apparent that a number of issues needed addressing:

- Role of WG1
- Addition of Class C to tests
- Addition of USB tests (7816-12)
- Updating of Standard and clause references

WG1

The Convenor of WG1, Mr Uwe Truggelmann, attended this meeting. Task Force (TF) discussed the issues and concluded that the tests were divided into mechanical, electrical and logical sub-categories. Of these it was agreed that mechanical tests would be moved into the domain of WG1 and published in 10373-1. Logical tests would remain in 10373-3 and electrical tests would be examined on a case by case basis.

WG1 have a mission to avoid duplication of tests and to centralise them wherever possible. It was noted that draft standard 24789-2 (Card Service Life) also has a 3 Wheel Test. It was agreed that the 3 Wheel Test in 10373-3 (Annex A) would be taken over by WG1.

A letter has been sent to WG4 requesting transfer of the ESD test to WG1 – the TF agrees with this intention.

As a result of this discussion, Clause 4.6.1 Apparatus to be moved to 10373-1

Clause 5 Test Methods for Physical Characteristics…to be moved to 10373-1

Addition of Class C

Clause 4.6.2 and elsewhere Addition of Class C – we started by adding a separate row to tables for Class C. After some discussion it seemed that we could, where applicable, replace all rows with a single row covering Class A, B, C:

$V_{IH,} V_{IL}$	Class A, B, C	-1 V to 6 V	± 20 mV

USB (7816-12)

A presentation was given by Lorenzo Gaston on USB testing. From the resulting discussion, it was tentatively concluded that the majority of the testing is satisfied by reference to the USB 2.0 Specification and the USB-ICC 7816-12 Class Compliance (CCID).

However, we identified certain specific items that required further testing and drafted the following outline:

10 USB-ICC Testing

10.1 Electrical testing

Reference to relevant clause of USB-ICC 7816-12 Class Compliance

USB-ICC Electrical Testing	***Reference in D1***	***Objectives/ Comment***
Inrush Current	*Section B4*	
Upstream Signal Quality	*Section B6*	
Device Framework	*Section C*	
Back Voltage	*Section F*	
Interoperability	*Section D*	

10.2 Protocol compliance

10.2.1 USB Signalling characteristics

10.2.2 End Point Behaviour

10.2.3 Timing

10.2.4 Standard Requests

10.3 ISO/IEC 7816-12 Class compliance

Enumeration including retrieval of USB-ICC descriptors (clause 7)

APDU exchange according to standard state machines (clause 8)

- *Power_on,*
- *Power_off,*
- *XFR_block,*
- *data block,*
- *Get_ICC_Status*

CONTRIBUTIONS REQUIRED

Editorial

Numerous editorial changes were made to the document. Many were trivial but a major piece of work was updating the references as 10373-3 refers to specific clauses in 7816. A summary table is provided in 10373 (Clause 4.8) but this has not yet been checked for completeness.

The following is a list of the reference changes. I would urge every expert to check these carefully as there is a high possibility of error:

Clause in 7816-3: 1997	**Clause in 7816: 2006**	**Activity**
4.2.2	6.2.4	Class B only – candidate for deletion
4.3.2	5.2.1	VCC contact
4.3.3	5.2.5	I/O contact
4.3.4	5.2.3	CLK contact
4.3.5	5.2.2	RST contact
4.3.6	5.2.4	SPU (C6) contact
5.1.3	6.2.4	Class B only – candidate for deletion
5.2	6.2.1	Cold Reset and Answer-to-Reset (ATR)
5.3.1	6.1	
5.3.2	6.2.2	Cold Reset and Answer-to-Reset (ATR)
5.3.3	6.2.3	Warm Reset
5.4	6.4	Deactivation of the contacts
6.3	7	Cold Reset and Answer-to-Reset (ATR)
6.3.1	7.1	I/O transmission timing for T=0 protocol I/O reception timing and error signaling for T=0 protocol I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol
6.3.2	7.2	I/O transmission timing for T=0 protocol I/O reception timing and error signaling for T=0 protocol I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol
6.3.3	7.3	I/O character repetition for T=0 protocol I/O reception timing and error signaling for T=0 protocol
6.5.3	8.3	I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol
8.2	10.2	I/O transmission timing for T=0 protocol I/O character repetition for T=0 protocol I/O reception timing and error signaling for T=0 protocol
9.3	11.2	I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol
9.4	11.3	I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol
9.5.2	11.4.2	I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol IFSD negotiation
9.5.3	11.4.3	I/O transmission timing for T=1 protocol I/O reception timing for T=1 protocol
9.5.3.1	11.4.3	Character Waiting Time (CWT) behavior

		card-reaction to IFD exceeding character waiting time (CWT) Block Guardtime (BGT)
9.5.3.3	11.4.3	Character Waiting Time (CWT) behavior card-reaction to IFD exceeding character waiting time (CWT) Block Guardtime (BGT)
9.7.3	11.6.3	Block sequencing by the card Reactions of the card to protocol errors Recovery of a transmission error by the card Resynchronization Abortion by the IFD

IFD tests follow a similar pattern to the card tests above.

Question for clarification – in clause 4.7.2.4 and elsewhere it states " NOTE 1 t_R and t_F are measured between 10% and 90% of V_H min and V_L max values" – should this state …10% and 90% of signal amplitude?

Question for clarification – Clause 6.5 and clause 8.6 refer to VPP testing – should we have amended these (I don't have any notes on these clauses).

I have attempted to bring all notation into line with 7816-3 – again, please check these.

Jim Riddell
4 December 2006