

Sony Electronics comments in response to SC17 chair's document SC17N2301 addressing ISO/IEC JTC 1 N 7079 30 Day Fast Track Ballot-ECMA 340-Near Field Communication-Interface and Protocol (NFCIP-1) (December 2002)

1. Introduction:

The Near Field Communication Interface and Protocol (NFCIP-1) as defined in ECMA-340 is targeted towards the consumer electronics user and enables the use of a secure means of communication between various devices. The concept is strikingly simple: in order to make two devices communicate, bring them together or touch them to each other. This will engage the NFCIP-1 wireless devices' interfaces between the devices and configure them to link up in a peer-to-peer communication. The devices can also set up communication for longer range and faster protocols like Bluetooth or Wireless Ethernet (WiFi) once the configuration data has been exchanged using NFC.

2. The ECMA-340 Fast Track:

2.1 Regarding the submission of a fast track into JTC 1. It is ECMA, a category A liaison to JTC 1, itself that is making the fast track into JTC 1. JTC 1 procedures state "*Any P-member of JTC 1 or organization in Category A liaison with JTC 1 may propose that an existing standard (or amendment with the approval of the responsible SC) from any source be submitted without modification directly for vote as a DIS (or DAM). The criteria for proposing an existing standard for the fast-track procedure is a matter for each proposer to decide.*"

2.2 The ECMA 340 standard IS NOT a card standard, it defines communication protocols therefore, ECMA determined that JTC1 SC6 is a logical place for this work. SC6, Telecommunications and Information Exchange Between Systems, has a scope of "*Standardization in the field of telecommunications dealing with the exchange of information between open systems including system functions, procedures and parameters and equipment as well as the conditions for their use. This standardization includes both the lower layers that support the physical, data link, network and transport services, including private integrated services networking, as well as the upper layers that support the application protocols and services.*" And, since ECMA 340 is not a card standard it could be argued that it is in fact outside the scope of SC17.

2.3 Reportably, one part of the ECMA standard that appears in common with the work of SC17, and seems to cause undue concern is the use of the 13.56 MHz frequency band which is an unregulated band. This concern is out of the scope of international standards developers (SDOs) because unregulated spectrum devices must be able to tolerate interference if it operates in this band; the matter of potential interference is in the purview of regulators and, therefore, not SC17 or the US TAG B10 or B10.5. As a practical matter ISO 14443 cards will not be hindered in operation or damaged by devices using the ECMA standard since they are specified to work at a distance of 20cm. A

casual passerby will not cause a problem since it will take a deliberate attempt to place devices within the required range. Further, the protocol in ECMA-340 provides for a “listen before” talk operation to prevent interference with 14443 devices. An NFC device acting as a target will not switch on a RF field unless it receives an explicit command. A NFC device acting as an initiator will perform initial RF field detection before switching on the RF field (*‘Listen before talk’*). In both situations the NFC device will not disturb any ongoing communication. (More information can be found in the supplemental section on Protocol)

2.4 SC17N2301, the SC17 chair’s letter, discusses ECMA-340 from the point of view of the requirements of SC17 standards (test procedures, etc). However, ECMA-340 is not intended as a SC17 standard so such requirements do not apply. If test procedures, amendments, or other document changes are deemed necessary these would logically be handled in ECMA or SC6 as appropriate.

3. Position of the US delegation on the WG 8 meeting in Tokyo:

3.1 The US HOD authored and made the US a signatory to document WG8N825 at the meeting without authority from B10.5 and without consensus from the delegation present. Prior to the meeting, the HOD specifically told B10.5 that no actions would be taken on this topic by the US delegation and that the delegation position would be to listen.

3.2 Therefore, B10.5 should request removal of the US as a signatory to this document, or, furthermore, withdrawal of the document because the US delegation was not authorized by the B10.5, B10, and INCITS to make a contribution on this topic or authorized to be a signatory on any documents on this topic.

4 Recommended US positions:

4.1 B10.5 should recommend to B10 that the ECMA-340 fast track has no contradictions to the work of SC17 in ISO/IEC 14443 and therefore B10 should support the progression of the work in SC6 as the appropriate venue for this work that is not a card standard.

4.2 B10.5 should recommend to B10 the removal of US from WG8 doc WG8N825 or withdrawal of the document as the US delegation was not authorized to make a contribution on this topic or authorized to be a signatory on any documents on this topic.

Supplemental Materials

Protocol:

The interfaces operate in the unregulated RF band of 13.56 MHz. This means that no restrictions are applied and no licenses are required for the use of this RF band. Of course, each country imposes certain limitations on the electromagnetic emissions in this RF band. The limitations mean that in practice the distance at which the devices can connect to each other is restricted and this distance may vary from country to country. Generally speaking, the NFC-IP1 operating distances is 0~20 cm.

As is often the case with the devices sharing a single RF band, the communication is half-duplex. The devices implement a “listen before talk” policy – any device must first listen on the carrier and start transmitting a signal only if no other device can be detected transmitting.

NFC protocol distinguishes between the Initiator and the Target of the communication. Any device may be either an Initiator or a Target. The **Initiator**, as follows from the name, is the device that initiates and controls the exchange of data. The **Target** is the device that answers the request from the Initiator. NFC protocol also distinguishes between two modes of operation: Active mode and Passive mode. All devices support both communication modes.

The distinction is as follows:

In the **Active mode of communication** both devices generate their own RF field to carry the data.

In the **Passive mode of communication** only one device generates the RF field while the other device uses load modulation to transfer the data. The protocol specifies that the Initiator is the device responsible to generate the RF field.

The application chooses the initial communication speed from the set of 106, 212 and 424 kbit/s. Subsequently the application and/or the communication environment may require speed adaptation, which can be done during communication. NFCIP-1 uses different modulation and bit encoding schemes depending on the speed. While establishing the communication, the Initiator starts the communication in a particular mode at a particular speed. The Target determines the current speed and the associated low-level protocol automatically and answers accordingly.

The communication is terminated either on the command from the application or when devices move out of range.

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