

# ISO/IEC 18092:2013-03 (E)

## Information technology - Telecommunications and information exchange between systems - Near Field Communication - Interface and Protocol (NFCIP-1)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Conformance .....	1
3	Normative references .....	1
4	Terms and definitions .....	2
5	Conventions and notations .....	4
5.1	Representation of numbers .....	4
5.2	Names .....	4
6	Abbreviated terms .....	4
7	General .....	5
8	RF field .....	6
8.1	Values .....	6
8.2	Passive communication Mode .....	6
8.3	Active communication Mode .....	6
8.4	External RF field detection .....	6
9	RF Signal Interface .....	6
9.1	Bit duration .....	6
9.2	Active communication mode .....	7
9.2.1	Requirements for fc/128 .....	7
9.2.2	Requirements for fc/64 and fc/32 .....	7
9.3	Passive communication mode .....	8
9.3.1	Initiator to Target requirements for fc/128 .....	8
9.3.2	Target to Initiator requirements for fc/128 .....	9
9.3.3	Initiator to Target requirements for fc/64 and fc/32 .....	9
9.3.4	Target to Initiator requirements for fc/64 and fc/32 .....	9
10	General Protocol flow .....	10
11	Initialisation .....	10
11.1	RF Collision Avoidance .....	11
11.1.1	Initial RF Collision Avoidance .....	11
11.1.2	Response RF Collision Avoidance .....	12
11.2	Passive communication mode .....	13
11.2.1	Initialisation and Single Device Detection at fc/128 .....	13
11.2.2	Initialisation and SDD at fc/64 and fc/32 .....	13
11.3	Active communication mode .....	17
11.3.1	Initialisation at fc/128, fc/64, and fc/32 .....	17
11.3.2	Active communication mode RF Collision Avoidance .....	17
12	Transport Protocol .....	18

12.1	Transport Data .....	18
12.2	Passive communication mode Activation flow .....	18
12.3	Active communication mode Activation flow .....	19
12.4	Commands .....	22
12.5	Activation of the protocol .....	22
12.5.1	Attribute Request and Response Commands .....	22
12.5.2	Wakeup Request and Response Commands .....	28
12.5.3	Parameter Selection Request and Response Commands .....	30
12.6	Data Exchange Protocol .....	33
12.6.1	Data Exchange Protocol Request and Response .....	33
12.6.2	Response timeout extension .....	37
12.6.3	Attention - Target present .....	37
12.6.4	Protocol operation .....	37
12.6.5	Multi Activation .....	37
12.6.6	More information (Chaining) .....	38
12.7	Deactivation of the protocol .....	38
12.7.1	Deselect Request and Response command .....	39
12.7.2	Release Request and Response commands .....	40
Annex A (normative) CRC calculation .....		42
A.1	CRC for Active and Passive communication mode at fc/128 .....	42
A.2	Example of CRC calculation at fc/128 .....	42
A.3	CRC for Active and Passive communication mode at fc/64 and fc/32 .....	43
A.4	Example of CRC calculation at fc/64 and fc/32 .....	43
Annex B (informative) SAK .....		44