

ISO/IEC 17568:2013-03 (E)

Information technology - Telecommunications and information exchange between systems - Close proximity electric induction wireless communications

Contents		Page
Foreword		vi
Introduction		vii
1	Scope	1
2	Conformance	1
3	Normative references	1
4	Terms and definitions	1
5	Abbreviations and acronyms	2
6	Overview	3
6.1	Introduction	3
7	Transmit signal	4
7.1	Modulation scheme parameters	4
7.2	Transmitter functional block diagram	4
7.2.1	Supported Rate Settings and rate dependent parameters	5
7.2.2	Reed-Solomon encoder	6
7.2.3	Convolutional encoder	7
7.2.4	ECS	8
7.2.5	Spreader	9
7.2.6	Sync sequence	9
7.2.7	Scrambler	10
7.2.8	Scrambling sequence generator	11
7.2.9	Pi/2 shift BPSK mapper	12
7.2.10	Mathematical framework of the Up Converter and the Baseband Waveform Generator	13
7.2.11	Baseband waveform	13
7.3	Frame format	14
7.3.1	PPDU format	14
7.3.2	PHY Header format	15
7.4	Transmitter	17
7.4.1	Measurement points	17
7.4.2	Transmit frequency	17
7.4.3	Transmit clock rate requirement	17
7.4.4	Transmit Constellation Error (EVM)	17
8	Receiver	17
8.1	Measurement point	17
8.2	Reference sensitivity	17
8.3	Blocking	17
9	Electric Induction Field	18
10	CNL service definition	19
10.1	Overview of CNL services	19
10.1.1	Connection control service	19
10.1.2	Data service	19

10.1.3	Security service	19
10.2	CNL service access point	19
10.2.1	Initialize	22
10.2.2	Close	22
10.2.3	Connect and accept	22
10.2.4	Connection release	24
10.2.5	Power save	25
10.2.6	Data transfer	26
10.3	CPDU formats	27
10.3.1	Conventions	27
10.3.2	Acknowledgement (ACK) CPDU	28
10.3.3	CNL data CPDUs	32
10.3.4	Management CPDUs (Link control message)	34
10.4	CNL function description	42
10.4.1	Segmenting/Reassembling	42
10.4.2	Medium state sensing	43
10.4.3	CNL-Level acknowledgements	43
10.4.4	Interframe space (IFS)	48
10.4.5	Access procedure	49
10.4.6	Multirate support	51
10.4.7	UID filter	51
10.5	CNL state	51
10.5.1	Close state	52
10.5.2	Search state	52
10.5.3	Connection request state	53
10.5.4	Accept waiting state	53
10.5.5	Response waiting state	53
10.5.6	Responder response state	54
10.5.7	Initiator connected state	54
10.5.8	Responder connected state	54
10.5.9	Sub-states within the Initiator connected state or Responder connected state	55
10.6	Numerical parameters	57
Annex A (normative) UID Specification		59
A.1	UID Composition	59
A.1.1	Specifier ID	59
A.1.2	Reserved	59
A.1.3	Extension Identifier	59
Annex B (informative) Coupler		60
Annex C (informative) Coupler measurement		61
Annex D (informative) Reference Coupler		63
Annex E (informative) Sample Data Sequences		65
E.1	Reed-Solomon Encoder	65
E.2	Convolutional Encoder	65
E.3	PHY Header HCS	67
E.4	Common CNL Header HCS	67
E.5	Sub CNL Header HCS	67
E.6	Scrambling sequence generator	67
Annex F (informative) CNL frame exchange sequences		70
F.1	CNL frame exchange sequences	70
F.1.1	Connection setup procedure	70
F.1.2	CSDU exchange procedure	70
F.1.3	Connection sleep procedure	71
F.1.4	Connection wakeup procedure	72

F.1.5	Connection confirmation procedure	73
F.1.6	Connection release procedure	73
Annex G (informative) CNL service operation		74
G.1	Initialize operation	74
G.2	Close operation	74
G.3	Connect request	75
G.3.1	Connect request operation	75
G.3.2	Accept receive operation	75
G.3.3	Accept response operation	76
G.3.4	Connect release operation	76
G.3.5	Accept release operation	76
G.4	Connect accept	77
G.4.1	Request receive operation	77
G.4.2	Accept request operation	77
G.4.3	Accept acknowledge operation	78
G.4.4	Accept release operation	78
G.4.5	Connect release operation	79
G.4.6	Request crossover operation	79
G.4.7	Accept request operation	80
G.4.8	Accept release operation	80
G.5	Release	81
G.5.1	Release request receive operation	81
G.5.2	Release receive operation	81
G.6	Transfer data	82
G.6.1	Data send operation	82
G.6.2	Data receive operation	83
G.6.3	Resend timeout operation	84
G.6.4	Target wake operation	85
G.7	Power save	86
G.7.1	Power save request operation	86
G.7.2	Sleep receive operation	87
G.8	Wakeup	88
G.8.1	Wakeup request operation	88
G.8.2	Wakeup acknowledge operation	88
G.8.3	Wakeup receive operation	89
G.8.4	Data send request operation	89
G.8.5	Wakeup data send operation	89
G.8.6	Wakeup timeout operation	90
G.9	Probe	90
G.9.1	Probe send operation	91
G.10	Probe ACK receive operation	91
G.10.1	Probe receive operation	91
G.10.2	Probe timeout operation	92