

ISO/IEC 18000-61:2012-07 (E)

Information technology - Radio frequency identification for item management - Part 61: Parameters for air interface communications at 860 MHz to 960 MHz Type A

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Conformance	2
2.1	Claiming conformance	2
2.2	Interrogator conformance and obligations	2
2.3	Tag conformance and obligations	2
3	Normative references	3
4	Terms, definitions, symbols and abbreviated terms	3
4.1	Terms and definitions	3
4.2	Symbols	4
4.3	Abbreviated terms	4
5	Overview	5
5.1	Parameter tables	5
6	Type A	9
6.1	Physical layer and data coding	9
6.1.1	Interrogator power-up waveform	9
6.1.2	Interrogator power-down	10
6.1.3	Frequency hopping carrier rise and fall times	11
6.1.4	FM0 return link	12
6.1.5	PIE (Pulse interval encoding) forward link	15
6.2	Data elements	20
6.2.1	Unique identifier (Tag ID)	20
6.2.2	Sub-UID	20
6.2.3	Application family identifier	21
6.2.4	Data storage format identifier (DSFID)	21
6.3	Protocol elements	22
6.3.1	Tag memory organisation	22
6.3.2	Support of battery assisted passive (BAP) tags	22
6.3.3	Block lock status	22
6.3.4	Tag signature	23
6.4	Protocol description	23
6.4.1	Protocol concept	23
6.4.2	Command format	24
6.4.3	Command flags	25
6.4.4	Round size	26
6.4.5	Command code definition and structure	26
6.4.6	Command classes	26
6.4.7	Command codes and CRC	28
6.4.8	Response format	31
6.4.9	Tag states	33
6.4.10	Collision arbitration	34
6.4.11	General explanation of the collision arbitration mechanism	34
6.5	Timing specifications	36

6.5.1	Timing specifications general	36
6.5.2	Tag state storage	36
6.5.3	Forward link to return link handover	37
6.5.4	Return link to forward link handover	37
6.5.5	Acknowledgement time window	37
6.6	Command format examples	39
6.7	Mandatory commands	39
6.7.1	Mandatory commands general	39
6.7.2	Next_slot	39
6.7.3	Standby_round	41
6.7.4	Reset_to_ready	42
6.7.5	Init_round_all	43
6.8	Optional commands	45
6.8.1	Optional commands general	45
6.8.2	Init_round	46
6.8.3	Close_slot	47
6.8.4	New_round	48
6.8.5	Select (by SUID)	50
6.8.6	Read_blocks	51
6.8.7	Get_system_information	55
6.8.8	Begin_round	58
6.8.9	Write_single_block	60
6.8.10	Write_multiple_blocks	62
6.8.11	Lock_blocks	64
6.8.12	Write_AFI	66
6.8.13	Lock_AFI	68
6.8.14	Write_DSFD command	70
6.8.15	Lock_DSFD	72
6.8.16	Get_blocks_lock_status	74
6.8.17	Init_Fast_Slots	76
6.9	Custom commands	79
6.10	Proprietary commands	80
Annex A (informative) Calculation of 5-bit and 16-bit cyclic redundancy checks		81
A.1	Example CRC-5 encoder/decoder	81
A.2	Example CRC-16 encoder/decoder	82
Bibliography		83