

ISO/IEC 18000-63:2021-11 (E)

Information technology - Radio frequency identification for item management - Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Symbols, abbreviated terms and notation	5
4.1	Symbols	5
4.2	Abbreviated terms	7
4.3	Notation	8
5	Conformance	9
5.1	Claiming conformance	9
5.2	General conformance requirements	9
5.2.1	Interrogators	9
5.2.2	Tags	10
5.3	Command structure and extensibility	10
5.3.1	General	10
5.3.2	Mandatory commands	10
5.3.3	Optional commands	10
5.3.4	Proprietary commands	10
5.3.5	Custom commands	10
5.4	Reserved for Future Use (RFU)	11
5.5	Cryptographic Suite Indicators	11
6	Protocol requirements	11
6.1	Protocol overview	11
6.1.1	Physical layer	11
6.1.2	Tag-identification layer	11
6.2	Protocol parameters	12
6.2.1	Signaling -- Physical and media access control parameters	12
6.2.2	Logical -- Operating procedure parameters	15
6.3	Description of operating procedure	15
6.3.1	Physical interface	16
6.3.2	Logical interface	37
7	Battery Assisted Passive (BAP) Interrogator Talks First systems (optional)	112
7.1	Applicability	112
7.2	General overview, definitions, and requirements of BAP	113
7.3	BAP inventoried flag and state machine behaviour modifications	114
7.3.1	Modification to ready state and power-down support for BAP Tags	114
7.3.2	Signal loss tolerance via timer (mandatory)	115
7.3.3	Modified persistence of BAP PIE inventory flags (optional)	117
7.4	BAP PIE (optional)	119
7.4.1	Flex_Query command (optional)	119
7.4.2	BAP PIE detailed operation including optional Battery Saver Mode	121
7.5	Manchester mode Battery Assisted operation protocol extensions	126

7.5.1	General	126
7.5.2	Physical layer	127
7.5.3	Manchester activation	133
7.5.4	Commands summary	148
8	Sensor support (optional)	163
8.1	Applicability	163
8.2	Overview	163
8.3	Real Time Clock (RTC)	164
8.3.1	General	164
8.3.2	Setting the RTC	164
8.3.3	BroadcastSync command (optional)	165
8.3.4	Time synchronisation	165
8.4	HandleSensor command (optional)	166
8.5	Simple Sensors	167
8.5.1	Simple Sensor implementation	167
8.6	Full Function Sensors and Sensor Directory System	169
8.6.1	General	169
8.6.2	Sensor Access -- General approach	170
8.7	Snapshot Sensors	176
8.7.1	General	176
8.7.2	Initiating Snapshot Sensor measurements	179
8.7.3	Reporting Snapshot Sensor Information	180
Annex A (normative) Extensible bit vectors (EBV)		182
Annex B (normative) State-transition tables		183
Annex C (normative) Command-response tables		240
Annex D (informative) Example slot-count (Q) selection algorithm		267
Annex E (informative) Example Tag inventory and access		268
Annex F (informative) Calculation of 5-bit and 16-bit cyclic redundancy checks		269
Annex G (normative) Multiple- and dense-Interrogator channelized signaling		271
Annex H (informative) Interrogator-to-Tag link modulation		274
Annex I (normative) Error codes		276
Annex J (normative) Slot counter		278
Annex K (informative) Example data-flow exchange		279
Annex L (informative) Optional Tag features		282
Annex M (informative) Cryptographic-Suite checklist		285
Annex N (informative) Battery Assisted Tag to Interrogator synchronization		286
Annex O (normative) Simple Sensors Data Block		289
Annex P (normative) Record structures and commands for Ported Simple Sensors		300
Annex Q (informative) Battery Assisted Passive (BAP) PIE and Manchester mode tutorial guide ...		316
Annex R (informative) Manchester mode RF power control		327
Bibliography		332