

**STATION KAVACH PARAMETERS BASED ON KAVACH VERSION 4.0
FROM ANNEXURE-C & ANNEXURE-A3**

S.NO	DEFINED NAME	VALUE	REMARK
Access Request Packet			
1.	PKT_TYPE_SIZE	4	It is a length of 4 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
2.	PKT_STN_ONBOARD_REGU	9	Station to Onboard Regular Packet, It is a length of 4 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
3.	PKT_ACCESS_AUTH	11	Access Authority Packet, It is a length of 4 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
4.	PKT_ADTL_EMG_MSG	12	Additional Emergency Packet, It is a length of 4 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
5.	PKT_LENGTH_SIZE	7	Packet Length is in terms of bytes, It is a length of 7 bits, Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
6.	PKT_LENGTH	111	It is a length of 7 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
7.	PKT_LENGTH_MAX	127	It is a length of 7 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
8.	PKT_LENGTH_MIN	0	It is a length of 7 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
9.	FRAME_NUM_SIZE	17	1 to 86400 ((hr * 3600 + mm * 60 + ss) + 1), It is a length of 17 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
10.	FRAME_NUM	111	It is a length of 17 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
11.	FRAME_NUM_MAX	86399	It is a length of 17 bits. Example: 00:00:00 – Frame No 1 00:00:02 – Frame No. 3 23:59:58 – Frame No 86399, Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
12.	FRAME_NUM_MIN	1	It is a length of 17 bits. Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6

13.	HOURS_MAX	23	Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
14.	HOURS_MIN	0	Reference: Annexure-C-Specification of Kavach, page no: 31, C.4.8
15.	MINUTES_MAX	59	Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
16.	MINUTES_MIN	0	Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
17.	SECONDS_MAX	59	Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
18.	SECONDS_MIN	0	Reference: Annexure-C-Specification of Kavach, page no: 64, C.5.6
19.	EMERGENCY_STATUS_SIZE	3	It is a length of 3 bits. Reference: Annexure-C-Specification of Kavach, page no: 65, C.5.6
20.	EMERGENCY_STATUS	0	It is a length of 3 bits. Reference: Annexure-C-Specification of Kavach, page no: 65, C.5.6
21.	NO_EMERGENCY_STATUS	0	It is a length of 3 bits. No Emergency – Regular Packet, Reference: Annexure-C-Specification of Kavach, page no: 65, C.5.6
22.	EMERGENCY_STATUS_SOS	2	It is a length of 3 bits.SOS, Reference: Annexure-C-Specification of Kavach, page no: 65, C.5.6
23.	EMERGENCY_STATUS_PARTING_SOS	6	It is a length of 3 bits. Parting SOS Reference: Annexure-C-Specification of Kavach, page no: 65, C.5.6
24.	EMERGENCY_STATUS_SPARE	7	It is a length of 3 bits. Spare. Reference: Annexure-C-Specification of Kavach, page no: 65, C.5.6
Access Authority Packet			
25.	SRC_STN_ILC_IBS_ID_SIZE	16	It is a length of 16 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
26.	SRC_STN_ILC_IBS_ID	111	It is a length of 16 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
27.	SRC_STN_ILC_IBS_ID_MAX	65535	It is a length of 16 bits. Unique code. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
28.	SRC_STN_ILC_IBS_ID_MIN	1	It is a length of 16 bits. Unique code. Reference: Annexure- C-Specification of KAVACH,

			page no:-61, C.5.4.
29.	SRC_STN_ILC_IBS_VERSION_SIZE	3	It is a length of 3 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
30.	SRC_STN_ILC_IBS_VERSION	2	It is a length of 3 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
31.	SRC_STN_ILC_IBS_VERSION_NOT_USE	0	It is a length of 3 bits. Not used. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
32.	SRC_STN_ILC_IBS_VERSION_3_2	1	It is a length of 3 bits. KAVACH specification 3.2 Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
33.	SRC_STN_ILC_IBS_VERSION_4_0	2	It is a length of 3 bits. KAVACH specification 4.0 Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
34.	SRC_STN_ILC_IBS_VERSION_MIN	1	It is a length of 3 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
35.	SRC_STN_ILC_IBS_VERSION_MAX	7	It is a length of 3 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
36.	STN_ILC_IBS_LOC	111	It is a length of 23 bits. Absolute location in meters. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
37.	STN_ILC_IBS_LOC_SIZE	23	It is a length of 23 bits. Absolute location in meters. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
38.	STN_ILC_IBS_LOC_MIN	0	It is a length of 23 bits. Absolute location in meters. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
39.	STN_ILC_IBS_LOC_MAX	8388607	It is a length of 23 bits. Absolute location in meters. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
40.	ALOTD_DWN_LINK_FREQ_SIZE	12	It is a length of 12 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
41.	ALOTD_DWN_LINK_FREQ	111	It is a length of 12 bits. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.

42.	ALOTD_DWN_LINK_FREQ_FDMA_NOT_USE	0	It is a length of 12 bits. FDMA Not used. Reference: Annexure- C-Specification of KAVACH, page no:-61, C.5.4.
43.	ALOTD_DWN_LINK_FREQ_MAX	4095	It is a length of 12 bits. Base Frequency: 406 MHz Allotted Channel Frequencies at 25kHz space Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
44.	ALOTD_DWN_LINK_FREQ_MIN	0	It is a length of 12 bits. Base Frequency: 406 MHz Allotted Channel Frequencies at 25kHz space Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
45.	ALOTD_DWN_LINK_FREQ_FUTURE_USE		It is a length of 12 bits. Reserved for future use. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
46.	ALOTD_DWN_LINK_FREQ_RAD_COM_SYS	4094	It is a length of 12 bits. Other Radio Communication systems used like Wi-Fi/LTE/4G/5G Networks. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
47.	ALOTD_DWN_LINK_FREQ_NOT_USED	4095	It is a length of 12 bits. Not to be used. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
48.	ALOTD_TDMA_TIMSLOT_SIZE	7	It is a length of 7 bits. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
49.	ALOTD_TDMA_TIMSLOT	11	It is a length of 7 bits. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
50.	ALOTD_TDMA_TIMSLOT_NOT_NOM	0	It is a length of 7 bits. NOT nominated. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
51.	ALOTD_TDMA_TIM_SLOT_MAX	127	It is a length of 7 bits. Exact Time slot shall be sent by stationary KAVACH excluding reserved slot in Frame. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
52.	ALOTD_TDMA_TIM_SLOT_MIN	0	It is a length of 7 bits. Exact Time slot shall be sent by stationary KAVACH excluding reserved slot in Frame. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.

53.	STN_RND_NUM_RS_SIZE	16	It is a length of 16 bits. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
54.	STN_RND_NUM_RS	111	It is a length of 16 bits. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
55.	STN_RND_NUM_RS_MIN	0	It is a length of 16 bits. On reception of Access Request Packet from Onboard KAVACH Unit, Stationary KAVACH unit generates its own Random Number (RS). Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
56.	STN_RND_NUM_RS_MAX	65535	It is a length of 16 bits. On reception of Access Request Packet from Onboard KAVACH Unit, Stationary KAVACH unit generates its own Random Number (RS). Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
57.	STN_TDMA_SIZE	7	It is a length of 7 bits. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
58.	STN_TDMA	111	It is a length of 7 bits. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
59.	STN_TDMA_MAX	127	It is a length of 7 bits. Station TDMA slot time in p-markers to capture RSSI. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
60.	STN_TDMA_MIN	0	It is a length of 7 bits. Station TDMA slot time in p-markers to capture RSSI. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
61.	STN_TDMA_FUTURE_USE		It is a length of 7 bits. Reserved for future use. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
62.	STN_TDMA_RAD_COM_SYS	126	It is a length of 7 bits. Other Radio Communication systems used like Wi-Fi/LTE/4G/5G Networks. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.
63.	STN_TDMA_NOT_USED	127	It is a length of 7 bits. Not to be used. Reference: Annexure- C-Specification of KAVACH, page no:-62, C.5.4.

Additional Emergency Packet

64.	GEN_SOS_CALL_SIZE	1	It is a length of 1 bits. Reference: Annexure- C-Specification of KAVACH, page no:-53, C.5.5
65.	GEN_SOS_CALL	1	It is a length of 1 bits. Reference: Annexure- C-Specification of KAVACH, page no:-53, C.5.5
66.	NO_GEN_SOS_CALL	0	It is a length of 1 bits. No Station Manual SoS Reference: Annexure- C-Specification of KAVACH, page no:-53, C.5.5.
67.	GEN_SOS_CALL_BY_STN	1	It is a length of 1 bits. General SoS Call generated by Stationary unit Conditions: Manual operation of SOS buttons provided on SOIP. Reference: Annexure- C-Specification of KAVACH, page no:-53, C.5.5.

Gradient Profile

68.	SUB_PKT_LENGTH_GRAD_SIZE	7	It is a length of 7 bits. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
69.	SUB_PKT_LENGTH_GRAD	111	It is a length of 7 bits. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
70.	SUB_PKT_LENGTH_GRAD_MIN	1	It is a length of 7 bits. Length in bytes. Max 128 bytes (1024 bits). Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
71.	SUB_PKT_LENGTH_GRAD_MAX	128	It is a length of 7 bits. Length in bytes. Max 128 bytes (1024 bits). Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
72.	LM_GDIR_SIZE	1	It is a length of 1 bits. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
73.	LM_GDIR	1	It is a length of 1 bits. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
74.	LM_GDIR_MIN	0	It is a length of 1 bits. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
75.	LM_GDIR_MAX	1	It is a length of 1 bits. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.

76.	LM_DOWNHILL_GDIR	0	It is a length of 1 bits. 0 = downhill. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
77.	LM_UPHILL_GDIR	1	It is a length of 1 bits. 1 = uphill. Reference: Annexure- C-Specification of KAVACH, page no:-45, C.5.2.
78.	LM_GRADIENT_VALUE_SIZE	5	It is a length of 5 bits. Reference: Annexure- C-Specification of KAVACH, page no:-46, C.5.2.
79.	LM_GRADIENT_VALUE	11	It is a length of 5 bits. This is the absolute value of the average gradient between two defined position as described in Annexure-I. Values lie between 0 to 30. Value 31: reserved. n : Gradient from “1 in (1000/n)” to not steeper than “1 in {1000/(n+1)}”. Reference: Annexure- C-Specification of KAVACH, page no:-46, C.5.2.
80.	LM_GRADIENT_VALUE_MIN	0	It is a length of 5 bits. 0: Gradient not steeper than “1 in 1000”. Includes Level Gradient. n : Gradient from “1 in (1000/n)” to not steeper than “1 in {1000/(n+1)}”. Reference: Annexure- C-Specification of KAVACH, page no:-46, C.5.2.
81.	LM_GRADIENT_VALUE_MAX	31	It is a length of 5 bits. 30: Gradient steeper than “1 in 33”. 31: Reserved. Reference: Annexure- C-Specification of KAVACH, page no:-46, C.5.2.

Movement Authority Packet

82.	SUB_PKT_LENGTH_MA_SIZE	7	It is a length of 7 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
83.	SUB_PKT_LENGTH_MA	111	It is a length of 7 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
84.	SUB_PKT_LENGTH_MA_MAX	128	It is a length of 7 bits. Length in bytes. Max 128 bytes. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
85.	SUB_PKT_LENGTH_MA_MIN	1	It is a length of 7 bits. Length in bytes. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2

86.	FRAME_OFFSET_SIZE	4	It is a length of 4 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
87.	FRAME_OFFSET	11	It is a length of 4 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
88.	FRAME_OFFSET_MAX	14	It is a length of 4 bits. Frame offset = (Stationary Kavach frame number - last received Onboard Kavach frame number)/2 Cyclic subtraction to be ensured at 00:00 hours. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
89.	FRAME_OFFSET_MIN	1	It is a length of 4 bits. Frame offset = (Stationary Kavach frame number - last received Onboard Kavach frame number)/2 Cyclic subtraction to be ensured at 00:00 hours. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
90.	STN_GEN_DEST_LOCO_SOS	8	It is a length of 4 bits. Station General SoS. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
91.	TRAIN_SEC_TYPE_SIZE	2	It is a length of 2 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
92.	TRAIN_SEC_TYPE	1	It is a length of 2 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
93.	TRAIN_SEC_TYPE_STN_SEC	0	It is a length of 2 bits. Station Section. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
94.	TRAIN_SEC_TYPE_MAX	3	It is a length of 2 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
95.	TRAIN_SEC_TYPE_MIN	0	It is a length of 2 bits. Reference: Annexure-C-Specification of KAVACH, page no:37,C.5.2
96.	REF_FRAME_NUM_TLM_SIZE	17	It is a length of 17 bits. Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
97.	REF_FRAME_NUM_TLM	111	It is a length of 17 bits. 1 to 86400 ((hr * 3600 + mm * 60 + ss) + 1) Example : 00:00:00 - Frame No 1 00:00:02 - Frame No. 3

			23:59:58 - Frame No 86399 Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
98.	REF_FRAME_NUM_TLM_MAX	86400	It is a length of 17 bits. Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
99.	REF_FRAME_NUM_TLM_MIN	1	It is a length of 17 bits. Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
100.	REF_OFFSET_INT_TLM_SIZE	8	It is a length of 8 bits. Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
101.	REF_OFFSET_INT_TLM	111	It is a length of 8 bits. 0 to 200 (10ms resolution) Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
102.	REF_OFFSET_INT_TLM_MAX	200	It is a length of 8 bits. Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
103.	REF_OFFSET_INT_TLM_MIN	0	It is a length of 8 bits. Reference: Annexure-C-Specification of KAVACH, page no:43,C.5.2
STATIONARY KAVACH CONFIGURABLE PARAMETERS			
104.	STN_KAVACH_ID	SD	UNITS IN NUMBER Stationary KAVACH _ILC/_IBS/_ID. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
105.	STN_KAVACH_ID_MAX	65535	UNITS IN NUMBER Stationary KAVACH _ILC/_IBS/_ID. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
106.	STN_KAVACH_ID_MIN	1	UNITS IN NUMBER Stationary KAVACH _ILC/_IBS/_ID. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
107.	NO_OF_DIR	6	UNITS IN NUMBER Number of directions. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
108.	NO_OF_DIR_MAX	6	UNITS IN NUMBER Number of directions. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
109.	NO_OF_DIR_MIN	1	UNITS IN NUMBER Number of directions. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4

110.	STN_TRAF_CAP	3	UNITS IN NUMBER No of KAVACH equipped loco that can be handled by S-KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
111.	STN_TRAF_CAP_MAX	44	UNITS IN NUMBER No of KAVACH equipped loco that can be handled by S-KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
112.	STN_TRAF_CAP_MIN	1	UNITS IN NUMBER No of KAVACH equipped loco that can be handled by S-KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
113.	STN_NAME	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
STATIONARY KAVACH PARAMETER 1			
114.	STN_BOUND_UPLMT_1	SD	UNITS IN METERS Station boundaries (in meters) should be configured based on the radio communication requirement. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
115.	STN_BOUND_UPLMT_1_MAX	10000	UNITS IN METERS Station boundaries (in meters) should be configured based on the radio communication requirement. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
116.	STN_BOUND_UPLMT_1_MIN	100	UNITS IN METERS Station boundaries (in meters) should be configured based on the radio communication requirement. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
117.	STN_BOUND_DWNLMT_1	SD	UNITS IN METERS Station boundaries (in meters) should be configured based on the radio communication requirement. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
118.	STN_BOUND_DWNLMT_1_MAX	10000	UNITS IN METERS Station boundaries (in meters) should be configured based on the radio communication requirement. Reference: Annexure-A3-Specification of KAVACH,

			Page no: 3, A3.4
119.	STN_BOUND_DWNLMT_1_MIN	100	UNITS IN METERS Station boundaries (in meters) should be configured based on the radio communication requirement. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
120.	ABS_LOC	SD	UNITS IN METERS Center of station absolute location kilometer. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
121.	ABS_LOC_MAX	8388606	UNITS IN METERS Center of station absolute location kilometer. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
122.	ABS_LOC_MIN	0	UNITS IN METERS Center of station absolute location kilometer. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
123.	SHUNT_DIR_1_INVALID	SD	Shunt direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
124.	SHUNT_DIR_1_NOMINAL	SD	Shunt direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4
125.	SHUNT_DIR_1_REV	SD	Shunt direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4.
126.	SHUNT_LMT_TIN	SD	Shunt limit point TIN number to be entered. Reference: Annexure-A3-Specification of KAVACH, Page no: 3, A3.4.
127.	SHUNT_LMT_ABS_LOC	SD	UNITS IN METERS Absolute Location (in meters) of Shunt Limit point. Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
128.	SHUNT_LMT_ABS_LOC_MAX	10000	UNITS IN METERS Absolute Location (in meters) of Shunt Limit point. Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
129.	SHUNT_LMT_ABS_LOC_MIN	100	UNITS IN METERS Absolute Location (in meters) of Shunt Limit point. Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.

STATIONARY KAVACH 2 PARAMETER			
130.	STN_BOUND_UPLMT_2	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
131.	STN_BOUND_UPLMT_2_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
132.	STN_BOUND_UPLMT_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
133.	STN_DWNLMT_2	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
134.	STN_DWNLMT_2_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
135.	STN_DWNLMT_2_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
136.	SHUNT_DIR_2_INVALID	SD	Shunt Direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
137.	SHUNT_DIR_2_NOMINAL	SD	Shunt Direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
138.	SHUNT_DIR_2_REV	SD	Shunt Direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
STATIONARY KAVACH 3 PARAMETER			
139.	STN_BOUND_UPLMT_3	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
140.	STN_BOUND_UPLMT_3_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
141.	STN_BOUND_UPLMT_3_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
142.	STN_BOUND_DWNLMT_3	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
143.	STN_BOUND_DWNLMT_3_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
144.	STN_BOUND_DWNLMT_3_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.

145.	SHUNT_DIR_3_INVALID	SD	Shunt Direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
146.	SHUNT_DIR_3_NOMINAL	SD	Shunt Direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
147.	SHUNT_DIR_3_REV	SD	Shunt Direction (Invalid, Nominal, Reverse). Reference: Annexure-A3-Specification of KAVACH, Page no: 4, A3.4.
STATIONARY KAVACH 4 PARAMETER			
148.	STN_BOUND_UPLMT_4	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
149.	STN_BOUND_UPLMT_4_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
150.	STN_BOUND_UPLMT_4_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
151.	STN_BOUND_DWNLMT_4	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
152.	STN_BOUND_DWNLMT_4_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
153.	STN_BOUND_DWNLMT_4_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
154.	SHUNT_DIR_4_INVALID	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
155.	SHUNT_DIR_4_NOMINAL	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
156.	SHUNT_DIR_4_REV	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
STATIONARY KAVACH 5 PARAMETER			
157.	STN_BOUND_UPLMT_5	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
158.	STN_BOUND_UPLMT_5_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
159.	STN_BOUND_UPLMT_5_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.

160.	STN_BOUND_DWNLMT_5	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
161.	STN_BOUND_DWNLMT_5_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
162.	STN_BOUND_DWNLMT_5_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
163.	SHUNT_DIR_5_INVALID	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
164.	SHUNT_DIR_5_NOMINAL	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
165.	SHUNT_DIR_5_REV	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 5, A3.4.
STATIONARY KAVACH 6 PARAMETER			
166.	STN_BOUND_UPLMT_6	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
167.	STN_BOUND_UPLMT_6_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
168.	STN_BOUND_UPLMT_6_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
169.	STN_BOUND_DWNLMT_6	SD	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
170.	STN_BOUND_DWNLMT_6_MAX	10000	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
171.	STN_BOUND_DWNLMT_6_MIN	100	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
172.	SHUNT_DIR_6_INVALID	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.

173.	SHUNT_DIR_6_NOMINAL	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
174.	SHUNT_DIRE_6_REV	SD	Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
TIME PERIOD FOR DATA LOGGING			
175.	DETAIL_EVENTLOGGER_LOGING_TIME	72	UNITS IN HOURS ,Detail Data logging. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
176.	DETAIL_EVENTLOGGER_LOGING_TIME_MAX	240	UNITS IN HOURS , Detail Data logging. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
177.	DETAIL_EVENTLOGGER_LOGING_TIME_MIN	24	UNITS IN HOURS , Detail Data logging. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
178.	MAINTANCE_EVENTLOGGER_LOGING_TIME	15	UNITS IN DAYS , Maintenance data logging. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
179.	MAINTANCE_EVENTLOGGER_LOGING_TIME_MAX	90	UNITS IN DAYS , Maintenance data logging. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
180.	MAINTANCE_EVENTLOGGER_LOGING_TIME_MIN	5	UNITS IN DAYS , Maintenance data logging. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
181.	CRITICAL_EVENTLOGGER_LOGING_TIME	90	UNITS IN DAYS , Critical data. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
182.	CRITICAL_EVENTLOGGER_LOGING_TIME_MAX	180	UNITS IN DAYS , Critical data. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
183.	CRITICAL_EVENTLOGGER_LOGING_TIME_MIN	10	UNITS IN DAYS , Critical data. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
RADIO MODEM TRANSMISSION SWITCHING FROM RADIO MODEM 1 TO RADIO MODEM 2 & VICEVERSA			
184.	MA_TRANSMISSION	ALTERNATE	UNITS IN CYCLE , Alternate cycle. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
185.	MA_TRANSMISSION_MAX	5	UNITS IN CYCLE , Alternate cycle. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
186.	MA_TRANSMISSION_MIN	1	UNITS IN CYCLE Alternate cycle. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.

187.	TRACK_PROF	ALTERNATE	UNITS IN CYCLE Alternate. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
188.	TRACK_PROF_MAX	5	UNITS IN CYCLE Alternate. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
189.	TRACK_PROF_MIN	1	UNITS IN CYCLE Alternate. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4.
TRAIN LENGTH MEASUREMENT			
190.	TIME_CORRECTION	100	UNITS IN MILLISECOND Time correction offset for train length measurement. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4
191.	TIME_CORRECTION_MAX	200	UNITS IN MILLISECOND Time correction offset for train length measurement. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4
192.	TIME_CORRECTION_MIN	10	UNITS IN MILLISECOND Time correction offset for train length measurement. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4
193.	TRACK_CKT_FAIL_DECLAR_TIME	180	UNITS IN SECOND Typically, in case of failure of AT & BT track circuits. Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4
194.	TRACK_CKT_FAIL_DECLAR_TIME_MAX	300	UNITS IN SECOND Typically, in case of failure of AT & BT track circuits Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4
195.	TRACK_CKT_FAIL_DECLAR_TIME_MIN	30	UNITS IN SECOND Typically, in case of failure of AT & BT track circuits Reference: Annexure-A3-Specification of KAVACH, Page no: 6, A3.4
196.	TRAIN_LENGTH_LOC_LOGING_RESOL	200	UNITS IN MILLISECOND Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
197.	TRAIN_LENGTH_LOC_LOGING_RESOL_MAX	500	UNITS IN MILLISECOND Resolution to compensate for delay, if any, in clear / occupied status of track sections due to track repeater relays for train length measurement. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4

198.	TRAIN_LENGTH_LOC_LOGING_RESOL_MIN	10	UNITS IN MILLISECOND Resolution to compensate for delay, if any, in clear / occupied status of track sections due to track repeater relays for train length measurement. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
199.	TLM_DET_FAIL_TIME	8	UNITS IN SECONDS This is the time to identify the AT & BT track failure to halt the Train Length measurement by station KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
200.	TLM_DET_FAIL_TIME_MAX	10	UNITS IN SECONDS This is the time to identify the AT & BT track failure to halt the Train Length measurement by station KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
201.	TLM_DET_FAIL_TIME_MIN	2	UNITS IN SECONDS This is the time to identify the AT & BT track failure to halt the Train Length measurement by station KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
202.	REAREND_COLL_MARGIN	300	UNITS IN METERS Min allowed separation between the two trains travelling in the same direction & on the same track. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
203.	REAREND_COLL_MARGIN_MAX	2000	UNITS IN METERS Min allowed separation between the two trains travelling in the same direction & on the same track. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
204.	REAREND_COLL_MARGIN_MIN	50	UNITS IN METERS Min allowed separation between the two trains travelling in the same direction & on the same track. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
205.	LOC_ACCURACY	1	UNITS IN METERS The resolution with which the tags are placed accurately. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4

206.	LOC_ACCURACY_MAX	10	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
207.	LOC_ACCURACY_MIN	1	UNITS IN METERS The resolution with which the tags are placed accurately. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
208.	L_DOUBTOVER_MTR	5	UNITS IN METERS This is the over-reading amount plus the 5 m location accuracy of RFID Tag. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
209.	L_DOUBTOVER_MTR_MAX	10	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
210.	L_DOUBTOVER_MTR_MIN	2	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
211.	L_DOUBTUNDER_MTR	5	UNITS IN METERS This is the under -reading amount plus the 5 m location accuracy of RFID Tag. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
212.	L_DOUBTUNDER_MTR_MAX	10	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
213.	L_DOUBTUNDER_MTR_MIN	2	UNITS IN METERS Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
214.	L_DOUBTOVER_READING	5	UNITS IN % Odometry error. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
215.	L_DOUBTOVER_READING_MAX	10	UNITS IN % Odometry error. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
216.	L_DOUBTOVER_READING_MIN	2	UNITS IN % Odometry error. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
217.	L_DOUBTUNDER_READING	5	UNITS IN % Odometry error. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
218.	L_DOUBTUNDER_READING_MAX	10	UNITS IN %

			<p>Odometry error.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
219.	L_DOUBTUNDER_READING_MIN	2	<p>UNITS IN %</p> <p>Odometry error.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
ONSIGHT MODE			
220.	ONSIGHT_SPD_LMT	SD	<p>UNITS IN METERS</p> <p>This speed limit will be sent by Stationary KAVACH based on Table of Control in case of entry to OS mode is due to selection of Override.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
221.	ONSIGHT_SPD_LMT_MAX	200	<p>UNITS IN METERS</p> <p>This speed limit will be sent by Stationary KAVACH based on Table of Control in case of entry to OS mode is due to selection of Override.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
222.	ONSIGHT_SPD_LMT_MIN	5	<p>UNITS IN METERS</p> <p>This speed limit will be sent by Stationary KAVACH based on Table of Control in case of entry to OS mode is due to selection of Override.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
223.	ONSIGHT_SIG_LINK_DIST	100	<p>UNITS IN METERS</p> <p>Target distance for availing Signal info e.g. Signal aspect, marker, description in OS mode in case of entry to OS mode is due to selection of Override.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
224.	ONSIGHT_SIG_LINK_DIST_MAX	2500	<p>UNITS IN METERS</p> <p>Target distance for availing Signal info e.g. Signal aspect, marker, description in OS mode in case of entry to OS mode is due to selection of Override.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
225.	ONSIGHT_SIG_LINK_DIST_MIN	50	<p>UNITS IN METERS</p> <p>Target distance for availing Signal info e.g. Signal aspect, marker, description in OS mode in case of entry to OS mode is due to selection of Override.</p> <p>Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4</p>
226.	EXTND_ONSIGHT_MA_TIMEOUT	240	<p>UNITS IN SECOND</p> <p>Extended On Sight Movement Authority time permitted to cross signal at ON after override.</p>

			Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
227.	EXTND_ONSIGHT_MA_TIMEOUT_MAX	600	UNITS IN SECOND Extended On Sight Movement Authority time permitted to cross signal at ON after override. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
228.	EXTND_ONSIGHT_MA_TIMEOUT_MIN	60	UNITS IN SECOND Extended On Sight Movement Authority time permitted to cross signal at ON after override. Reference: Annexure-A3-Specification of KAVACH, Page no: 7, A3.4
RADIO MODEM			
229.	POWER	10	UNITS IN WATT Reference: Annexure-A3-Specification of KAVACH, Page no: , A3.4
230.	POWER_MAX	20	UNITS IN WATT Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
231.	POWER_MIN	1	UNITS IN WATT Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
232.	FREQ_RESOL	1000	UNITS IN Hz Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
233.	FREQ_RESOL_MAX	1000000	UNITS IN Hz Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
234.	FREQ_RESOL_MIN	1	UNITS IN Hz Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
235.	NO_OF_FREQ	2	UNITS IN NUMBERS Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
236.	NO_OF_FREQ_MAX	16	UNITS IN NUMBERS Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
237.	NO_OF_FREQ_MIN	3	UNITS IN NUMBERS Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
238.	FO_FREQ	427.625	UNITS IN MHz Centre frequency Tx & Rx. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4

239.	F0_FREQ_MAX	999	UNITS IN MHz Centre frequency Tx & Rx. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
240.	F0_FREQ_MIN	100	UNITS IN MHz Centre frequency Tx & Rx. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
241.	BASE_FREQ	406	UNITS IN MHz Base Frequency. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
242.	BASE_FREQ_MAX	999	UNITS IN MHz Base Frequency. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
243.	BASE_FREQ_MIN	100	UNITS IN MHz Base Frequency. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
244.	CHANNEL_BAND_WIDTH	25	UNITS IN KHz Channel Bandwidth. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
245.	CHANNEL_BAND_WIDTH_MAX	100	UNITS IN KHz Channel Bandwidth. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
246.	CHANNEL_BAND_WIDTH_MIN	25	UNITS IN KHz Channel Bandwidth. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
247.	CHANNEL_NO_TX_F1	SD	UNITS IN NUMBER Channel No for TX F1. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
248.	CHANNEL_NO_TX_F1_MAX	2560	UNITS IN NUMBER Channel No for TX F1. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
249.	CHANNEL_NO_TX_F1_MIN	1	UNITS IN NUMBER Channel No for TX F1. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4

250.	CHANNEL_NO_RX_F1	SD	UNITS IN NUMBER Channel No for RX F1. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
251.	CHANNEL_NO_RX_F1_MAX	2560	UNITS IN NUMBER Channel No for RX F1. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
252.	CHANNEL_NO_RX_F1_MIN	1	UNITS IN NUMBER Channel No for RX F1. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
253.	CHANNEL_NO_TX_F2	SD	UNITS IN NUMBER Channel No for TX F2. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
254.	CHANNEL_NO_TX_F2_MAX	2560	UNITS IN NUMBER Channel No for TX F2. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
255.	CHANNEL_NO_TX_F2_MIN	1	UNITS IN NUMBER Channel No for TX F2. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
256.	CHANNEL_NO_RX_F2	SD	UNITS IN NUMBER Channel No for RX F2. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
257.	CHANNEL_NO_RX_F2_MAX	2560	UNITS IN NUMBER Channel No for RX F2. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
258.	CHANNEL_NO_RX_F2_MIN	1	UNITS IN NUMBER Channel No for RX F2. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
TIME SLOT MANAGEMENT			
259.	FRAME_CYCLE	2	UNITS IN SECOND Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
260.	FRAME_CYCLE_MAX	2	UNITS IN SECOND Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
261.	FRAME_CYCLE_MIN	0.5	UNITS IN SECOND ,Reference: Annexure-A3- Specification of KAVACH, Page no: 8, A3.4

262.	NO_OF_SLOT_IN_CENTRE_FREQ	16	UNITS IN NUMBER No of slot in f0 frequency. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
263.	NO_OF_SLOT_IN_CENTRE_FREQ_MAX	100	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
264.	NO_OF_SLOT_IN_CENTRE_FREQ_MIN	1	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
265.	TIME_SLOT_ACCESS_AUTH_PKT	P58	4 time slot are catered. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
266.	TIME_SLOT_ACCESS_AUTH_PKT_MAX	P70	4 time slot are catered. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
267.	TIME_SLOT_ACCESS_AUTH_PKT_MIN	P53	4 time slot are catered. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
268.	TIME_SLOT_ADD_EMERG_PKT	P53	4 time slot to cater. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
269.	TIME_SLOT_ADD_EMERG_PKT_MAX	P70	4 time slot to cater. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
270.	TIME_SLOT_ADD_EMERG_PKT_MIN	P47	4 time slot to cater. Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
271.	MAX_NO_OF_SLOT_IN_FRAME	70	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
272.	MAX_NO_OF_SLOT_IN_FRAME_MAX	100	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
273.	MAX_NO_OF_SLOT_IN_FRAME_MIN	5	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
274.	NO_OF_SLOT_IN_PAIR_FREQ	44	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
275.	NO_OF_SLOT_IN_PAIR_FREQ_MAX	100	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4
276.	NO_OF_SLOT_IN_PAIR_FREQ_MIN	5	UNITS IN NUMBER , Reference: Annexure-A3-Specification of KAVACH, Page no: 8, A3.4

GSM APN AND OTHER IP ADDRESS PARAMETER			
277.	IP_PORT_NO_OF_KMS	54143	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 9, A3.4
278.	IP_PORT_NO_OF_KMS_MAX	54999	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 9, A3.4
279.	IP_PORT_NO_OF_KMS_MIN	50000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 9, A3.4
280.	NO_OF_ASSOCIATED_LES	1	UNITS IN NUMBER Applicable for LTE only. Reference: Annexure-A3-Specification of KAVACH, Page no: 9, A3.4
281.	NO_OF_ASSOCIATED_LES_MAX	3	UNITS IN NUMBER Applicable for LTE only. Reference: Annexure-A3-Specification of KAVACH, Page no: 9, A3.4
282.	NO_OF_ASSOCIATED_LES_MIN	0	UNITS IN NUMBER Applicable for LTE only. Reference: Annexure-A3-Specification of KAVACH, Page no: 9, A3.4
IP ADDRESS OF KAVACH ENTITY			
283.	NMS_OCTET_IP_ADDRESS_1	127	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
284.	NMS_OCTET_IP_ADDRESS_1_MAX	255	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
285.	NMS_OCTET_IP_ADDRESS_1_MIN	1	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
286.	NMS_OCTET_IP_ADDRESS_2	168	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
287.	NMS_OCTET_IP_ADDRESS_2_MAX	255	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
288.	NMS_OCTET_IP_ADDRESS_2_MIN	0	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
289.	PORT_NO_FOR_COMM_WITH_NMS	60901	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
290.	PORT_NO_FOR_COMM_WITH_	60999	UNITS IN NUMBER

	NMS_MAX		Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
291.	PORT_NO_FOR_COMM_WITH_ NMS_MIN	60900	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
292.	STN_KAVACH_OCTET_IP_ADDRESS_1	127	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
293.	STN_KAVACH_OCTET_IP_ADDRESS_1_ MAX	255	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
294.	STN_KAVACH_OCTET_IP_ADDRESS_1_ MIN	1	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
295.	STN_KAVACH_OCTET_IP_ADDRESS_2	168	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
296.	STN_KAVACH_OCTET_IP_ADDRESS_2_ MAX	255	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
297.	STN_KAVACH_OCTET_IP_ADDRESS_2_ MIN	0	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
298.	STN_KAVACH_PORT_1	60000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
299.	STN_KAVACH_PORT_1_MAX	60899	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
300.	STN_KAVACH_PORT_1_MIN	60000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
301.	STN_KAVACH_PORT_2	60000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
302.	STN_KAVACH_PORT_2_MAX	60899	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
303.	STN_KAVACH_PORT_2_MIN	60000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
304.	TSRMS_OCTET_IP_ADDRESS_1	172	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
305.	TSRMS_OCTET_IP_ADDRESS_1_MAX	255	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4

306.	TSRMS_OCTET_IP_ADDRESS_1_MIN	1	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
307.	TSRMS_OCTET_IP_ADDRESS_2	168	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
308.	TSRMS_OCTET_IP_ADDRESS_2_MAX	255	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
309.	TSRMS_OCTET_IP_ADDRESS_2_MIN	0	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
310.	TSRMS_PORT_1	40000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
311.	TSRMS_PORT_1_MAX	49999	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
312.	TSRMS_PORT_1_MIN	40000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
313.	TSRMS_PORT_2	40001	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
314.	TSRMS_PORT_2_MAX	49999	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
315.	TSRMS_PORT_2_MIN	40000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
316.	STN_KAVACH_PART2	55001	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
317.	STN_KAVACH_PART2_MAX	55999	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
318.	STN_KAVACH_PART2_MIN	55000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
319.	STN_KAVACH_PORT1_TO_ONBOARD_ KAVACH	50000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
320.	STN_KAVACH_PORT1_TO_ONBOARD_ KAVACH_MAX	54999	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 10, A3.4
321.	STN_KAVACH_PORT1_TO_ONBOARD_ KAVACH_MIN	50000	UNITS IN NUMBER, Reference: Annexure-A3- Specification of KAVACH, Page no: 10, A3.4

322.	STN_KAVACH_PORT2_TO_ONBOARD_KAVACH	50001	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
323.	STN_KAVACH_PORT2_TO_ONBOARD_KAVACH_MAX	54999	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
324.	STN_KAVACH_PORT2_TO_ONBOARD_KAVACH_MIN	50000	UNITS IN NUMBER Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
325.	NO_OF_PROFILE	SD	UNITS IN NUMBER Number of profiles depends on the station type. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
326.	NO_OF_PROFILE_MAX	31	UNITS IN NUMBER Number of profiles depends on the station type. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
327.	NO_OF_PROFILE_MIN	1	UNITS IN NUMBER Number of profiles depends on the station type. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
328.	SHUNT_MODE_SPD	15	UNITS IN NUMBER Max Shunt mode speed to be configured. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
329.	SHUNT_MODE_SPD_MAX	60	UNITS IN NUMBER Max Shunt mode speed to be configured. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
330.	SHUNT_MODE_SPD_MIN	10	UNITS IN NUMBER Max Shunt mode speed to be configured. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
COMMUNICATION PARAMETER (RaSTA)			
331.	TMAX	1800	UNITS IN MILLISECOND A message shall be received within T max after sending (Max Channel Delay). Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
332.	TMAX_MAX	3000	UNITS IN MILLISECOND A message shall be received within T max after sending (Max Channel Delay). Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4

333.	TMAX_MIN	100	UNITS IN MILLISECOND A message shall be received within T max after sending (Max Channel Delay). Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
334.	TH	300	UNITS IN MILLISECOND T h is the heartbeat interval. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
335.	TH_MAX	1000	UNITS IN MILLISECOND T h is the heartbeat interval. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
336.	TH_MIN	100	UNITS IN MILLISECOND T h is the heartbeat interval. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
337.	N_SENDDMAX	20	UNITS IN MILLISECOND A communication partner shall not send more than N sendmax messages without an acknowledgement received (Receive Buffer Size). This value is exchanged among communication partners during initialisation and can be interpreted as receive buffer minimum size. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
338.	N_SENDDMAX_MAX	100	UNITS IN MILLISECOND A communication partner shall not send more than N sendmax messages without an acknowledgement received (Receive Buffer Size). This value is exchanged among communication partners during initialisation and can be interpreted as receive buffer minimum size. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
339.	N_SENDDMAX_MIN	10	UNITS IN MILLISECOND A communication partner shall not send more than N sendmax messages without an acknowledgement received (Receive Buffer Size). This value is exchanged among communication partners during initialisation and can be interpreted as receive buffer minimum size. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
340.	T_SEQ	100	UNITS IN MILLISECOND T seq defines the amount of time a message,

			received off the channels sequence, is stored (Defer Time). Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
341.	T_SEQ_MAX	500	UNITS IN MILLISECOND T seq defines the amount of time a message, received off the channels sequence, is stored (Defer Time). Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
342.	T_SEQ_MIN	10	UNITS IN MILLISECOND T seq defines the amount of time a message, received off the channels sequence, is stored (Defer Time). Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
343.	N_DIAGNOSE	200	UNITS IN NUMBER N Diagnose defines the Redundancy layers diagnose message window. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
344.	N_DIAGNOSE_MAX	500	UNITS IN NUMBER N Diagnose defines the Redundancy layers diagnose message window. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
345.	N_DIAGNOSE_MIN	100	UNITS IN NUMBER N Diagnose defines the Redundancy layers diagnose message window. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
346.	N_DEFER_QUEUE_SIZE	4	UNITS IN NUMBER N defer Queue Size defines the maximum number of entries in the defer Queue. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
347.	N_DEFER_QUEUE_SIZE_MAX	20	UNITS IN NUMBER N defer Queue Size defines the maximum number of entries in the defer Queue. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4
348.	N_DEFER_QUEUE_SIZE_MIN	1	UNITS IN NUMBER N defer Queue Size defines the maximum number of entries in the defer Queue. Reference: Annexure-A3-Specification of KAVACH, Page no: 11, A3.4

TIME OUT			
349.	TIME_OS_MA_IN_DAY_TIME	1	UNITS IN MINUTE Time for OS MA from stationary KAVACH during day time. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
350.	TIME_OS_MA_IN_DAY_TIME_MAX	7	UNITS IN MINUTE Time for OS MA from stationary KAVACH during day time. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
351.	TIME_OS_MA_IN_DAY_TIME_MIN	0	UNITS IN MINUTE Time for OS MA from stationary KAVACH during day time. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
352.	TIME_OS_MA_IN_NIGHT_TIME	2	UNITS IN MINUTE Time for OS MA from stationary KAVACH during Night time. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
353.	TIME_OS_MA_IN_NIGHT_TIME_MAX	7	UNITS IN MINUTE Time for OS MA from stationary KAVACH during Night time. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
354.	TIME_OS_MA_IN_NIGHT_TIME_MIN	0	UNITS IN MINUTE Time for OS MA from stationary KAVACH during Night time. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
355.	TIMOUT_FOR_TERM_COMM	120	UNITS IN SECOND Time out for terminating of Communication by stationary KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
356.	TIMOUT_FOR_TERM_COMM_MAX	300	UNITS IN SECOND Time out for terminating of Communication by stationary KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
357.	TIMOUT_FOR_TERM_COMM_MIN	10	UNITS IN SECOND Time out for terminating of Communication by stationary KAVACH. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4

358.	TIMOUT_FOR_SAME_STATE_COMP_ TWO_INPUT_CHANNEL	6	UNITS IN SECOND Time out for comparison of the two input channels. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
359.	TIMOUT_FOR_SAME_STATE_COMP_ TWO_INPUT_CHANNEL_MAX	10	UNITS IN SECOND Time out for comparison of the two input channels. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
360.	TIMOUT_FOR_SAME_STATE_COMP_ TWO_INPUT_CHANNEL_MIN	1	UNITS IN SECOND Time out for comparison of the two input channels. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
361.	SIG_FLICKER_TIMEOUT	6000	UNITS IN MILLISECOND Signal flickering time out (MA holding time). The signal aspects read shall be held for this duration (Slow to release). Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
362.	SIG_FLICKER_TIMEOUT_MAX	10000	UNITS IN MILLISECOND Signal flickering time out (MA holding time). The signal aspects read shall be held for this duration (Slow to release). Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
363.	SIG_FLICKER_TIMEOUT_MIN	2000	UNITS IN MILLISECOND Signal flickering time out (MA holding time). The signal aspects read shall be held for this duration (Slow to release). Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
364.	ABS_COMM_TIMEOUT	30	UNITS IN SECOND The Radio communication failure time which is to be tolerated. Absolute Block Section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
365.	ABS_COMM_TIMEOUT_MAX	120	UNITS IN SECOND The Radio communication failure time which is to be tolerated. Absolute Block Section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4

366.	ABS_COMM_TIMEOUT_MIN	6	UNITS IN SECOND The Radio communication failure time which is to be tolerated. Absolute Block Section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
367.	AUTOMATIC_BLK_SEC_COMM_TIMEOUT	10	UNITS IN SECOND The Radio communication failure time which is to be tolerated. Automatic Block Section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
368.	AUTOMATIC_BLK_SEC_COMM_TIMEOUT_MAX	120	UNITS IN SECOND The Radio communication failure time which is to be tolerated. Automatic Block Section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
369.	AUTOMATIC_BLK_SEC_COMM_TIMEOUT_MIN	6	UNITS IN SECOND The Radio communication failure time which is to be tolerated. Automatic Block Section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
370.	ABS_DE_REGIST_TIMEOUT	120	UNITS IN SECOND Absolute section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
371.	ABS_DE_REGIST_TIMEOUT_MAX	240	UNITS IN SECOND Absolute section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
372.	ABS_DE_REGIST_TIMEOUT_MIN	5	UNITS IN SECOND Absolute section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
373.	AUTOMATIC_BLK_SEC_DE_REGIST_TIMEOUT	30	UNITS IN SECOND Automatic section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
374.	AUTOMATIC_BLK_SEC_DE_REGIST_TIMEOUT_MAX	180	UNITS IN SECOND Automatic section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
375.	AUTOMATIC_BLK_SEC_DE_REGIST_TIMEOUT_MIN	10	UNITS IN SECOND, Automatic section. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4

376.	RAND_NUM_TIMEOUT	30	UNITS IN SECOND Resetting the secure communication after communication failure. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
377.	RAND_NUM_TIMEOUT_MAX	120	UNITS IN SECOND Resetting the secure communication after communication failure. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4
378.	RAND_NUM_TIMEOUT_MIN	6	UNITS IN SECOND Resetting the secure communication after communication failure. Reference: Annexure-A3-Specification of KAVACH, Page no: 12, A3.4