सत्यमेव जयते

GOVERNMENT OF INDIA
(भारत सरकार)
MINISTRY OF RAILWAYS
(रेल मंत्रालय)

Annexure – A3

Stationary KAVACH Configurable Parameters

Issued by

SIGNAL & TELECOM DIRECTORATE
RESEARCH, DESIGNS & STANDARDS ORGANISATION
MINISTRY OF RAILWAYS
MANAK NAGAR
LUCKNOW – 226 011

Amdt	Date of issue	Amendment
--	1st	• Annexure A is separated with Annexure A1, A2 and A3 with their requirement of configuration parameter.

A3.1 Introduction

This annexure describes the stationary KAVACH configuration parameter requirement that characterises its implementation.

A3.2 Scope

This document defines the stationary configuration parameter requirement data related with stationary sub system.

A3.3 Stationary KAVACH Configurable Parameters

The configuration parameters mentioned in this annexure are indicative only. Software development may consider these parameters.

A3.4 Stationary KAVACH Configurable Parameters

S.No	Parameter	Description	Default	Min	Max	Units
1.	Version No	Source version No of S-KAVACH, IBS, LC gate	1	0	7	Number
2.	Stationary KAVACH ID	Stationary KAVACH _ILC/_IBS/_ID	SD[1]	00001	65535	Number
3.	Number of directions		6	1	6	Number
4.	Station Name		SD			20 Char
5.	Station Traffic capacity	No of KAVACH equipped loco that can be handled by S-KAVACH	SD	1	44 (UHF)	Number
5.1.	**Stationary KAVACH 1 Parameter**					
5.1.1.	Station Boundary 1(UP Limit)	Station boundaries (in meters) should be configured based on the radio communication requirement.	SD	100	10000	meter
5.1.2.	Station Boundary 1 (DN Limit)	Station boundaries (in meters) should be configured based on the radio communication requirement.	SD	100	10000	meter
5.1.3.	Absolute Location	Center of station absolute location kilometre	SD	0000000	8388606	meter
5.1.4.	Type of block	Auto or Abs or Virtual				
5.1.5.	Shunt Direction 1	Shunt direction (Invalid, Nominal, Reverse)	SD			
5.1.6.	Shunt Limit TIN	Shunt limit point TIN number to be entered.	SD			

[1] SD means station dependent

S.No	Parameter	Description	Default	Min	Max	Units
5.1.7.	Shunt Limit	Absolute Location (in meters) of Shunt Limit point.	SD	100	10000	meter
5.1.8.	IP address and Port1 Number					
5.1.9.	IP address and Port2 Number					
5.2.	**Stationary KAVACH 2 Parameter**					
5.2.1.	Station Boundary-2(Up Limit)		SD	100	10000	meter
5.2.2.	Station Boundary-2(Dn Limit)		SD	100	10000	meter
5.2.3.	Absolute Location	Center of station absolute location kilometre	SD	0000000	8388606	meter
5.2.4.	Type of Block	Auto or ABS	SD			
5.2.5.	Shunt Direction 2	Shunt Direction (Invalid, Nominal, Reverse)	SD			
5.2.6.	Shunt Limit TIN	Shunt Limit point TIN number to be entered	SD			
5.2.7.	Shunt Limit	Absolute Location(in meters) of Shunt Limit point	SD	100	10000	meter
5.2.8.	IP address and Port 1 Number					
5.2.9.	IP address and Port 2 Number					
5.3.	**Stationary KAVACH 3 Parameter**					
5.3.1.	Station Boundary-3(Up Limit)		SD	100	10000	meter
5.3.2.	Station Boundary-3(Dn Limit)		SD	100	10000	meter
5.3.3.	Absolute Location	Center of station absolute location kilometre	SD	0000000	8388606	meter
5.3.4.	Type of Block	Auto or ABS	SD			
5.3.5.	Shunt Direction 3	Shunt Direction (Invalid, Nominal, Reverse)	SD			
5.3.6.	Shunt Limit TIN	Shunt Limit point TIN number to be entered	SD			
5.3.7.	Shunt Limit	Absolute Location(in meters) of Shunt Limit point	SD	100	10000	meter

S.No	Parameter	Description	Default	Min	Max	Units
5.3.8.	IP address and Port1 Number					
5.3.9.	IP address and Port2 Number					
5.4.	**Stationary KAVACH 4 Parameter**					
5.4.1.	Station Boundary-4(Up Limit)		SD	100	10000	meter
5.4.2.	Station Boundary-4(Dn Limit)		SD	100	10000	meter
5.4.3.	Absolute Location	Center of station absolute location kilometre	SD	0000000	8388606	meter
5.4.4.	Type of block	Auto or Abs	SD			
5.4.5.	Shunt Direction 4	Shunt direction (Invalid, Nominal, Reverse)	SD			
5.4.6.	Shunt Limit TIN	Shunt limit point TIN number to be entered.	SD			
5.4.7.	Shunt Limit	Absolute Location(in meters) of Shunt Limit point.	SD	100	10000	meter
5.4.8.	IP address and Port1 Number					
5.4.9.	IP address and Port2 Number					
5.5.	**Stationary KAVACH 5 Parameter**					
5.5.1.	Station Boundary-5(Up Limit)		SD	100	10000	meter
5.5.2.	Station Boundary-5(Dn Limit)		SD	100	10000	meter
5.5.3.	Absolute Location	Center of station absolute location kilometre	SD	0000000	8388606	meter
5.5.4.	Type of block	Auto or Abs	SD			
5.5.5.	Shunt Direction 5	Shunt direction (Invalid, Nominal, Reverse)	SD			
5.5.6.	Shunt Limit TIN	Shunt limit point TIN number to be entered.	SD			
5.5.7.	Shunt Limit	Absolute Location(in meters) of Shunt Limit point.	SD	100	10000	meter
5.5.8.	IP address and Port1 Number					

S.No	Parameter	Description	Default	Min	Max	Units
5.5.9.	IP address and Port2 Number					
5.6.	**Stationary KAVACH 6 Parameter**					
5.6.1.	Station Boundary-6(Up Limit)		SD	100	10000	meter
5.6.2.	Station Boundary-6(Dn Limit)		SD	100	10000	meter
5.6.3.	Absolute Location	Center of station absolute location kilometre	SD	0000000	8388606	meter
5.6.4.	Type of block	Auto or Abs	SD			
5.6.5.	Shunt Direction6	Shunt direction (Invalid, Nominal, Reverse)	SD			
5.6.6.	Shunt Limit TIN	Shunt limit point TIN number to be entered.	SD			
5.6.7.	Shunt Limit	Absolute Location(in meters) of Shunt Limit point.	SD	100	10000	meter
5.6.8.	IP address and Port1 Number					
5.6.9.	IP address and Port2 Number					
6.	**Time period for data logging**					
6.1.	Event logger logging time	Detail Data logging	72	24	240	hours
6.2.	Event logger logging time	Maintenance data logging	15	5	90	days
6.3.	Event logger logging time	Critical data	90	10	180	days
7.	**Radio MODEM transmission switching from Radio MODEM 1 to Radio MODEM 2 & Viceversa**					
7.1.	Movement Authority transmission	Alternate cycle	Alternate	1	5	cycle
7.2.	Track Profile	Alternate	Alternate	1	5	cycle
8.	**Train Length Measurement**					
8.1.	Time Correction	Time correction offset for train length measurement	100	10	200	millisecond
8.2.	Track circuit failure declaration	Typically, in case of failure of AT & BT track circuits	180	30	300	second

S.No	Parameter	Description	Default	Min	Max	Units
	time	declaration time				
8.3.	Train length location logging resolution	Resolution to compensate for delay, if any, in clear / occupied status of track sections due to track repeater relays for train length measurement.	200	10	500	millisecond
8.4.	TLM detection fail time (in seconds)	This is the time to identify the AT & BT track failure to halt the Train Length measurement by station KAVACH	8	2	10	seconds
9.	Rear End Collision Margin	Min allowed separation between the two trains travelling in the same direction & on the same track.	300	50	2000	meter
10.	Location Accuracy	The resolution with which the tags are placed accurately	1	1	10	meter
11.	L_DOUBTOVER in meter	This is the over-reading amount plus the 5 m location accuracy of RFID Tag	5	2	10	meter
12.	L_DOUBT UNDER in meter	This is the under -reading amount plus the 5 m location accuracy of RFID Tag	5	2	10	meter
13.	L_DOUBTOVER in reading	Odometery error	5	2	10	%
14.	L_DOUBTUNDER in reading	Odometery error	5	2	10	%
15.	**Onsight Mode**					
15.1.	Onsight Speed limit	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.	SD	5	200	kmph
15.2.	Onsight Signal Linking distance	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.	100	50	2500	meter
15.3.	Extended On Sight	Extended On Sight	240	60	600	Second

S.No	Parameter	Description	Default	Min	Max	Units
	Movement Authority time out	Movement Authority time permitted to cross signal at ON after override.				
16.	**Radio MODEM**					
16.1.	Power		10	1	20	watt
16.2.	Frequency Resolution		KHz	Hz	MHz	Hz
16.3.	Number of frequencies		2	3	16	number
16.4.	f0 freq	Centre frequency Tx & Rx	427.625	100	999	MHZ
16.5.	Base Frequency	Base Frequency	406	100	999	MHz
16.6.	Channel Bandwidth	Channel Bandwidth	25	25	100	KHz
16.7.	Channel No	Channel No for TX F1	SD	1	2560	Number
16.8.	Channel No	Channel No for RX F1	SD	1	2560	Number
16.9.	Channel No	Channel No for TX F2	SD	1	2560	Number
16.10.	Channel No	Channel No for RX F2	SD	1	2560	Number
17.	**Time slot Management**					
17.1.	Frame cycle		2	0.5	2	second
17.2.	Number of slots in centre Frequency	No of slot in f0 frequency	16	1	100	number
17.3.	Time slot for access authority packet	4 time slot are catered	P57, P58, P69 & P70	P53	P70	---
17.4.	Time slot for additional emergency Packet	4 time slot to cater	P53, P54, P65 ,P66	P47	P70	
17.5.	Max no of slot in a frame		70	5	100	Number
17.6.	No of slot in pair freq		44	5	100	number
18.	**GSM APN and other IP address Parameter**					
18.1.	GSM 1 APN Name					
18.2.	GSM 2 APN Name					

S.No	Parameter	Description	Default	Min	Max	Units
18.3.	IP port number of KMS		54143	50000	54999	Num
18.4.	IP address and port number of NMS					
18.5.	IP address and port1 number of TSRMS					
18.6.	IP address and port2 number of TSRMS					
18.7.	Number of associated LES	Applicable for LTE only	1	0	3	Number
18.8.	IP address and port1 number of LES 1	Applicable for LTE only				
18.9.	IP address and port2 number of LES 1	Applicable for LTE only				
18.10.	IP address and port1 number of LES 2	Applicable for LTE only				
18.11.	IP address and port2 number of LES 2	Applicable for LTE only				
18.12.	IP address and port1 number of LES 3	Applicable for LTE only				
18.13.	IP address and port2 number of LES 3	Applicable for LTE only				
19.	**IP Address of KAVACH Entity**					
			Adjacent Stationary TCAS – ID	Adjacent Stationary TCAS – IP Address	IPv4 or IPv6	
		Example 503 in Hex format	500 (01.24	172.16.01.244/60		

S.No	Parameter	Description	Default	Min	Max	Units
		= 0x01F7. Host part of station IP address derived from station ID = 01.247 [0x01 .0xF7] Primary station IP address - xxx.yyy.aaa.bbb/ppppp aaa:bbb – Station ID (0xAABB) as example	4) 501 (01.245)	000 172.16.01.245/60001		
19.1.	1st octet in IP Address for NMS communication		127	1	255	Number
19.2.	2nd octet in IP Address for NMS communication		168	0	255	Number
19.3.	Port Number for communication with NMS		60901	60900	60999	Number
19.4.	1st octet of IP address (Station KAVACH)		127	1	255	Number
19.5.	2nd octet of IP address (Station KAVACH)		168	0	255	Number
19.6.	Port-1 of stationary KAVACH		60000	60000	60899	Number
19.7.	Port-2 of stationary KAVACH		60001	60000	60899	Number
19.8.	1st octet of IP address (TSRMS)		172	1	255	Number
19.9.	2nd octet of IP address (TSRMS)		168	0	255	Number
19.10.	Port-1 of TSRMS		40000	40000	49999	Number
19.11.	Port-2 of TSRMS		40001	40000	49999	
19.12.	Port-2 of stationary KAVACH		55001	55000	55999	Number
19.13.	Port -1 Station KAVACH to		50000	50000	54999	Number

S.No	Parameter	Description	Default	Min	Max	Units
	Onboard KAVACH					
19.14.	Port-2 Station KAVACH to Onboard KAVACH		50001	50000	54999	Number
20.	Length of station name	Number of character in station size				
21.	Max. Traffic Capacity	Loco Time Slot Number of Locos and Time Slots shall be as per RDSO or concerned railways approved document.				
22.	No of Profiles	Number of profiles depends on the station type.	SD	1	31	
23.	Shunt mode speed	Max Shunt mode speed to be configured	15	10	60	
24.	**Communication Parameter (RaSTA)**					
24.1.	Tmax	A message shall be received within T max after sending (Max Channel Delay).	1800	100	3000	milli-second
24.2.	**Th**	T h is the heartbeat interval.	300	100	1000	millisecond
24.3.	**Nsendmax**	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.	20	10	100	millisecond
24.4.	**Tseq**	T seq defines the amount of time a message, received off the channels sequence, is stored (DeferTime).	100	10	500	ms
24.5.	**N Diagnose**	N Diagnose defines the Redundancy layers diagnose message window	200	100	500	number
24.6.	**Ndefer Queue Size**	N defer Queue Size defines the maximum number of	4	1	20	number

S.No	Parameter	Description	Default	Min	Max	Units
		entries in the defer Queue.				
25.	**Time out**					
25.1.	Time for OS MA in day time	Time for OS MA from stationary KAVACH during day time.	1	0	7	Minute
25.2.	Time for OS MA in Night time	Time for OS MA from stationary KAVACH during Night time.	2	0	7	Minute
25.3.	Time out for terminating of Communication.	Time out for terminating of Communication by stationary KAVACH.	120	10	300	second
25.4.	Time out for Same state comparison in two input channel.	Time out for comparison of the two input channels	6	1	10	second
25.5.	Signal flickering time out (MA holding time)	The signal aspects read shall be held for this duration (Slow to release)	6000	2000	10000	msec
25.6.	Communication time out	The Radio communication failure time which is to be tolerated.				
		Absolute Block Section	30	6	120	second
		Automatic Block Section	10	6	120	second
25.7.	De- Registration Timeout	Absolute section	120	5	240	second
25.8.	De- Registration Timeout	Automatic section	30	10	180	second
25.9.	Random number time out	Resetting the secure communication after communication failure	30	6	120	second