

LT&S (LOOP) IECC B

ECS REQUIREMENTS SPECIFICATION

Issue NS2

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1 Introduction

1.1 DOCUMENT OVERVIEW

This document defines the ECS data requirements for LT&S IECC (Loop) B. The following information is supplied for each ECS link:

- Link characteristics
- TD berths transmitted and received
- Signalling items transmitted and received (where appropriate)
- Subsystems which will be informed of changes in remote link status

1.2 ABBREVIATIONS

ARS	Automatic Routesetting Subsystem
CCF	Control Central of the Future
ECS	External Communications Subsystem
GWS	Gateway Subsystem
IDPM	IECC Data Preparation Manual
IECC	Integrated Electronic Control Centre
LGPL	London Gateway Port Ltd
LT&S	London, Tilbury and Southend
SDS	Signalling Display Subsystem
TD	Train Describer

1.3 RELATED DOCUMENTS

IECC Applications Contents Manual	NR/SP/SIG/10040 Issue 8
IDPM 1302 External Communications	SAO-IEC-HD-56 Issue 3

2 Berth Lists

The following sections have been created in order to list all berths that are known to, and are used within LT&S (Loop) IECC (B). These sections are referenced as necessary within the Remote Systems sections.

2.1 SDS1-OWNED BERTHS

The following berths are listed as being owned by SDS1.

2.1.1 Berths Controlled and Displayed by SDS1

The following list of berths are controlled and displayed by SDS1.

0616	0618	0619	0620	0621	0622	0625	0626
0627	0628	0629	0630	0631	0636	0637	0638
0639	0642	0643	0644	0645	0646	0647	0648
0649	0650	0651	0652	0653	0654	0656	0657
0658	0659	0660	0661	0662	0663	0664	0665
0666	0667	0668	0669	0670	0671	0672	0673
0674	0675	0680	0681	0684	0685	0686	0687
0688	0689	0690	0691	0692	0693	0695	0696
0698	0699	0700	0701	0702	0703	0704	0706
0707	0708	0711	0712	0713	0714	0715	0716
0717	0718	0719	0722	0723	0724	0725	0726
0727	0728	0729	0730	0731	0732	0733	0734
0806	0807	0808	0809	0810	0813	0820	0821
0822	0823	0824	0825	0826	0827	0830	0831
0832	0834	0840	0842	0867	0868	0869	0882
0883	0920	0FE3	1112	1113	1115	1118	1120
1122	1123	1124	1125	1127	1129	1130	1131
1133	1135	1138	1139	1142	1143	1145	1162
1165	1166	1176	1177	1178	1185	1186	1192
A869	A874	AP21	AP22	AP23	AP24	AP51	AP52
BAPP	B874	BRKN	DDDY	DMSD	DNFT	F874	GRSS
LDCA		LUCA	OKDN	PDUA	PFEX	PFSD	PGE1
PGE2	PITS	PUUA	R874	RSDN	SPEX	LGSD	LSLG
0885	0886	715C	RDLG				

2.1.2 Berths from LT&S (Main) IECC (A)

The following berths are used by both LT&S (Loop) IECC (B) and LT&S (Main) IECC (A). They are requested by LT&S (Loop) IECC (B) for use as one or more of the following:

- they are displayed on SDS1
- they are displayed on TD Maps
- they are required for ARS Collection Area information

0105	0106	0107	0108	0112	0113	0115	0116
0157	0159	0160	0161	0162	0167	0206	0209
0210	0211	0212	0213	0214	0216	0217	0221
0270	0272	0273	0274	0275	0276	0279	0280
0281	0324	0325	0326	0327	0330	0331	0334
0335	0336	0337	0350	0351	0352	0353	0509
0510	0511	0512	0519	0521	0523	0524	0525
0535	0537	0538	0539	0540	0542	0557	0558
0559	0560	0565	0575	0578	0583	0586	0587
0588	0590	0591	0601	0604	0605	0610	0611
0612	0617	0737	0738	0743	0804	0852	0853
0857	0858	0859	0860	0862	0863	0865	
0902	0903	0904	0907	0908	0909	0911	0915
0930	0990	0991	1031	1032	1035	1053	1055
1101	1103	A101	A103	A354	A505	A507	A576
A582	A592	A596	A851	A906	AP71	AP72	AP81
AP82	APA1	B101	B103	B354	B505	B507	B576
B582	B592	B596	B851	B906	C101	C103	C354
C505	C507	C576	C582	C596	DA21	DA33	DA34
DA51	DA63	DA64	DA65	GAPP	L913	L915	L918
L920	L921	L924	PSUS	R906			

2.1.3 Berths from Channel Tunnel Rail Link (CTRL)

The following berths are used by both LT&S (Loop) IECC (B) and CTRL. They are requested by LT&S (Loop) IECC (B) for use as one or more of the following:

- they are displayed on SDS1
- they are displayed on TD Maps
- they are required for ARS Collection Area information

095C	101C	782C	880C	P832	P834	PDCA	PDUA
PUCA	PUUA						

2.1.4 Berths from London Gateway Port Ltd Link (LGPL)

The following berths are used by both LT&S (Loop) IECC (B) and LGPL. They are requested by LT&S (Loop) IECC (B) for use as one or more of the following:

- they are displayed on SDS1
- they are displayed on TD Maps
- they are required for ARS Collection Area information

0888	LG11	LG12	LG14
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3 Miscellaneous Items

3.1 ARS STRIKE-IN BERTHS

These are remote berths on routes entering the IECC area whose contents ARS needs for train regulation. All berths from the first nominated berth (the FROM berth of steps to the ARS TD initialisation berth) up to, but not including, the first IECC berth, are considered to be on the ARS strike-in path. These berths within ECS are called “ETBFOR” berths due to an ECS code fault.

ARS strike-in berths for SDS1 are:

0157	0159	0274	0275	0276	0279	0280	0519
0521	0558	0559	0560	0565	0588	0601	0604
0605	0610	0611	0612	0737	0738	0743	0804
0853	0857	0858	0859	0860	0862	0863	0903
0904	0907	0908	0909	0911	0915	0990	0991
1031	1103	1130	1145	1166	1178	1186	1192
7842C	880C	GAPP	PSUS	R906			

3.2 EARLY TRANSMISSION BERTHS (ETBFOR)

When the contents of Early Transmission Berths change, the changes need to be transmitted to the signaller via the signalling displays.

Early Transmission Berths for SDS1 are:

0617	0734	0865	1113	AP71	AP72	AP81	AP82
APA1	PDCA	PUCA	0888	LG11	LG12	LG14	

4 ECS Standby Computer Unit

4.1 OVERVIEW

This link is duplicated, operating on ports 1 and 7. It is a link between the Master and Standby computer units with **TD** type initialisation.

4.2 LINK CHARACTERISTICS

Link Characteristics for ECS Standby Computer Unit			
Port(s)	1 and 7	Baud Rate	19200
Physical Name	P1, P7	Time-out Period (seconds)	0.1
Area	IULL	Message Retry Count	8
Protocol	BR1810	Message Retry Field Flag	Not Set

4.3 BERTHS

Changes in the contents of all berths known to ECS will be transmitted by the Master ECS computer unit to the Standby ECS computer unit and vice-versa. The list of **all berths known to ECS** comprises:

- all remote berths known to ECS;
- all berths which are controlled by the IECC, the contents of which are sent to ECS on initialisation and change (i.e. all berths listed in the INFORM statement and the BERTHS section of the GWS input file);
- all dummy berths which represent remote links. (None required for LT&S)

4.4 SIGNALLING IDENTITIES

The change in state of all signals and latches listed below will be transmitted to the Standby ECS computer unit.

The order of the signalling items transmitted are as follows:

Address 00-0F

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
LDANMNDN	LDANMNUP	LDNTHDN	LDNTHUP	LLADMND1	LLADMNU1	LLAUMND1	LLAUMNU1
LLEDMND1	LLEDMNU1	LLEUMND1	LLEUMNU1	LSDS2UPN	LSDS2UPP	LSDS3DBR	LSDS3UBR
LSHDMND1	LSHDMNU1	LSHUMND1	LSHUMNU1	LTLDNBR	LTLUPBR	LUPCDNBR	LUPCUPBR
LUPSDS2N	LUPSDS2P	LUPTFDN	LUPTFUP	LUUPMNDN	LUUPMNUP	S1002	S1004
S101	S1029	S103	S1031	S1032	S1035	S105	S1053
S1055	S106	S107	S108	S1101	S1103	S112	S113
S1145	S1146	S1147	S115	S116	-	-	-
S1183	S1185	S1186	S157	S159	S160	S161	S162
S167	S206	S209	S210	S211	S212	S213	S214
S216	S217	S221	S270	S272	S273	S274	S275

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
S276	S279	S281	S324	S325	S326	S327	S330
S331	S334	S335	S336	S337	S350	S351	S352
S353	S354	S505	S507	S509	S510	S511	S512
S519	S521	S523	S524	S525	S535	S537	S538
S539	S540	S542	S557	S558	S559	S560	S575
S576	S578	S582	S583	S586	S587	S588	S590

Address 10-1F

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
S591	S592	S596	S601	S604	S605	S610	S611
S627	S628	S629	S630	S631	S666	S667	S668
S669	S670	S671	S672	S673	S674	S675	S1157
S737	S738	S743	S813	S851	S852	S853	S865
S867	S868	S869	S874	S902	S903	S904	S906
S907	S908	S909	S920	S930	SSW3	S821	S826
S622	S807	S809	S820	S822	S824	S1131	S1133
S1138	S823	S825	S827	S830	S831	S832	S834
S840	S842	S1142	S1143	R616	R617A(M)	R617B(M)	R617C(M)
R617D(S)	R621	R622	R626A	R626B	R806	R807A(S)	R807B(S)
R807C(S)	R807D(M)	R807D(S)	R807E(M)	R807E(S)	R807F(M)	R807F(S)	R808A(M)
R808B(S)	R809A(S)	R809B(S)	R809C(S)	R809D(M)	R809D(S)	R809E(M)	R809E(S)
R809F(M)	R809F(S)	R810	R820A(S)	R820B(M)	R820C(M)	R820D(S)	R822A(S)
R822B(M)	R822C(M)	R822D(S)	R824A(S)	R824B(M)	R824C(M)	R824D(S)	R1113A
R1113B	R1113C	R1113D	R1115A	R1115B	R1115C	R1115D	R1115E
R1118A	R1118B	R1120A	R1120B	R1122A	R1122B	R1123	R1124A

Address 20-2F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
R1124B	R1125	R1127	R1129	R1130A	R1130B	R1131A	R1131B
R1131C	R1133A	R1133B	R1133C	R1135A	R1135B	R1138A	R1138B
R1138C	R1138D	R1139	R1601	R1602	R1603	R1604	RFW6A
RFW6B	S616	S617	S621	S626	S806	S808	S810
S1113	S1115	S1118	S1120	S1122	S1123	S1124	S1125
S1127	S1129	S1130	S1135	S1139	TLDA	TLDK	TLEA
TLED	TLEL	TLES	TLGA	TLGB	TLGE	TLGG	TLGK
TLGM	TLGN	TLPA	TLPC	TLPG	TLSE	TLSC	TLSD
TLSE	TLSE	TLSS	R627	R629A(S)	R629B(M)	R630	R631
R636	R639	R642	R643	R644	R813	R821A(S)	R821B(M)
R823A(M)	R823B(M)	R823C(M)	R823C(S)	R825A(M)	R825B(M)	R825C(M)	R825C(S)
R826A(M)	R826B(S)	R827A(M)	R827B(M)	R827C(M)	R827C(S)	R830A(M)	R830A(S)
R830B(M)	R830B(S)	R830C(M)	R830C(S)	R831A(S)	R831B(S)	R832A(M)	R832A(S)
R832B(M)	R832B(S)	R832C(M)	R832C(S)	R834A(M)	R834A(S)	R834B(M)	R834B(S)
R834C(M)	R834C(S)	R840A(S)	R840B(M)	R842A(S)	R842B(M)	R1142A	R1142B
R1143	R1145	R1146	R1147	R1157	S636	S639	S642

Address 30-3F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
S643	S644	-	-	-	TMDC	TMDD	TMEA
TMEE	TMEL	TMFH	TMFJ	TMFL	TMSA	TMSB	TMUD
TdRSA	T834ALZ2	LAF091Y	LAF093Y	L(F1)REL R	L(F1)RELS	L(H1)REL R	L(H1)RELS
LDNYARD(SA)R	LDNYARD(SA)S	LRPLCHDN*	LRPLCHUP*	R651	R653	R654	R656
R657A(M)	R657B(S)	R658	R659	R660	R661	R662	R664
R1161	R1162	R1163	R1165	R1166A(S)	R1166B(M)	R1176	S651

S653	S654	S656	S657	S658	S659	S660	S661
S662	S664	S1161	S1162	S1163	S1165	S1166	S1176
TNSA	TNUG	TNUH	TNUJ(LX)	TNUW	TNUY	LALRTBMF*	LEG(CLD)KR
L(TBM)(BARR)CR	R666	R667A	R667B	R668A(S)	R668B(M)	R669	R670A
R670B	R671A	R671B	R672	R673A(M)	R673B(S)	R674A	R674B
R681	R684	R687	R865A	R865B	R867(M)	R867(C)	R868
R869A	R869B	R874A	R874B	R920A	R920B	R1177	R1178
R1183A	R1183B	R1185	R1186A(M)	R1186A(C)	R1186B(M)	R1186B(C)	S681
S684	S687	S1177	S1178	-	-	-	TPBA
TPBG	TPBK	TPBN	TPDN(LX)	TPUA	TPUB	TPUD	TPUK

Address 40-47

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
TPUN(LX)	TPUR	L874TRS	LYSB(REL)	R689A(M)	R689B(S)	R690	R696
R701	R702	R703	R707	R708	R715A	R715B	R716
R717A	R717B	R882	R1192	S689	S690	S696	S701
S702	S703	S707	S708	S715	S716	S717	S882
S1192	TRSC	T(LG)TBB	L(MG)(UP)KR	LALRMGFD*	L(MG)KR	R718	R719
R722	R731	R732	R733	Rd734	S718	S719	S722
S731	S732	S733	Sd734	TSUB(LX)	TdGBB	LALRFGFD*	L(FG)(UP)KR
L(FG)KR	-	-	-	-	-	-	-

*The following defines SSI Identities which have been abbreviated in the table above to the IECC name

IECC Name	SSI Name
LRPLCHDN	LWRPLNCHORDDN-REQ
LRPLCHUP	LWRPLNCHORDUP-REQ
LALRTBMF	LALR(TBM)(FAILED)
LALRMGFD	LALR(MG)(FAILED)
LALRFGFD	LALR(FG)(FAILED)

4.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

5 LT&S (Main) IECC (A)

5.1 OVERVIEW

This link is duplicated, operating on ports 2 and 8. It is a link to LT&S (Main) IECC (A) with **TD** type initialisation.

5.2 LINK CHARACTERISTICS

Link Characteristics for LT&S (Main) IECC (A)			
Port(s)	2 and 8	Baud Rate	9600
Physical Name	P2, P8	Time-out Period (seconds)	0.1
Area	LTSM	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Not Set

5.3 BERTHS

Changes in the contents of all berths known to LT&S (Loop) IECC (B) will be transmitted to LT&S (Main) ECS.

The berths received from LT&S (Main) ECS are listed in Section 2.1.2.

5.4 SIGNALLING IDENTITIES

The change in state of all signals and latches listed below will be transmitted to LT&S (Main) ECS.

The order of the signalling items transmitted are as follows:

Address 00-07

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
S666	S667	S669	S670	S671	S672	S673	S674
S675	S865	S867	S869	S874	S920	S868	S668
S1183	S1185	S1186	LTLNBR	LTLUPBR	LSDS3DBR	LSDS3UBR	-
S627	S628	S629	S630	S631	S813	S821	S826
S1145	S1146	S1147	S1157	-	-	-	-
S622	S807	S809	S820	S822	S824	S1131	S1133
S1138	S823	S825	S827	S830	S831	S832	S834
S840	S842	S1142	S1143	-	-	-	-

The change in state of all the signals and latches listed below will be received by-LT&S (Loop) ECS from LT&S (Main) ECS.

The order of the signalling items received are as follows:

Address 00-0F

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
S101	S103	S105	S106	S107	S108	S112	S113
S115	S116	S505	S507	S509	S510	S511	S512
S1002	S1004	-	-	-	-	-	-
S1101	S1103	S601	S604	S605	S610	S902	S906
S908	S159	S521	S160	S523	S904	S907	S161
S524	S162	S909	S611	S525	S167	S157	S519
S903	LDNTHDN	LDNTHUP	LUPTFDN	TUPTFUP	-	-	-
S206	S209	S210	S211	S212	S213	S214	S216
S217	S221	S537	S538	S539	S540	S851	S852
S853	S542	S535	LDANMNDN	LDABMNUP	LUUPMNUP	LUUPMNDN	LUPSDS2N
LUPSDS2P	LSDS2UPP	LSDS2UPN	LUPCUPBR	LUPCDNBR	-	-	-
S1029	S1031	S1032	S1035	S270	S272	S273	S274
S275	S276	S279	S557	S558	S559	S560	-
S737	S738	S743	S930	S281	LLADMNE1	LLADMNU1	LLAUMNU1
LLAUMND1	LLEDMND1	LLEDMNU1	LLEUMNU1	LLEUMND1	-	-	-
S324	S325	S326	S327	S330	S331	S334	S335

Address 10-13

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
S336	S337	S576	S578	S582	S583	S586	S575
LSHDMND1	SHDMNU1	LSHUMNU1	LSHUMND1	-	-	-	-
S1053	S1055	S351	S352	S353	S354	S587	S588
S591	S592	S596	S590	SSW3	S350	-	-

5.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

6 Control Centre of the Future

6.1 OVERVIEW

This link operates on port 6. It is a link to the Control Centre of the Future (CCF) with **TD** type initialisation.

6.2 LINK CHARACTERISTICS

Link Characteristics for CCF			
Port(s)	6	Baud Rate	9600
Physical Name	P6	Time-out Period (seconds)	2
Area	CCOF	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Set

6.3 BERTHS

Changes in the contents of all berths known to LT&S (Loop) IECC (B) will be transmitted to CCF.

All berths transmitted to CCF are prefixed by "**UR**", (i.e. UR----)

e.g. 0618 is transmitted as UR0618

No berth information is transmitted by CCF to ECS.

6.4 SIGNALLING IDENTITIES

No signalling identities are transmitted to CCF.

6.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

7 LGPL Link

7.1 OVERVIEW

This link operates on port 10. It is a link to London Gateway Port Ltd Train Describer with TD type initialisation.

7.2 LINK CHARACTERISTICS

Link Characteristics for TRUST Unit 1			
Port(s)	10	Baud Rate	1200
Physical Name	PA	Time-out Period (seconds)	2
Area	LGPL	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Set

7.3 BERTHS

Changes in the contents of all berths in Section 2.1.4 will be transmitted to or received from LGPL.

The berths listed below are transmitted by ECS to LGPL.

715C 0882 0883 0885 0886 0888 LG11

The following berths require translation, where the first berth is the IECC berth name and the second (prefixed with 'U') is the external berth name.

{ 715C U715 } { 0882 U882 } { 0883 U883 } { 0885 U885 }
{ 0886 U886 } { 0888 U888 }

The berths listed below are transmitted by LGPL to ECS.

LG11 LG12 LG14 0888

The following berths require translation.

{ 0888 U888 }

7.4 SIGNALLING IDENTITIES

No signalling identities are transmitted to LGPL.

7.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

8 SPARE LINK

8.1 OVERVIEW

This ECS remote link operates from port 4, and is a spare link.

8.2 LINK CHARACTERISTICS

Link Characteristics for TRUST Unit 1			
Port(s)	4	Baud Rate	1200
Physical Name	P4	Time-out Period (seconds)	2
Area	SPA1	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Set

8.3 BERTHS

For successful compilation, the following berth is transmitted:

GAPP

No berths are received on this link

8.4 SIGNALLING IDENTITIES

No signalling identities are transmitted to this link.

8.5 LINK STATUS

No link status is available from the ECS.

9 SMART PC 1

9.1 OVERVIEW

This link operates on port 3. It is a link to SMART PC 1 with **ETB** type initialisation.

9.2 LINK CHARACTERISTICS

Link Characteristics for SMART PC 1			
Port(s)	3	Baud Rate	9600
Physical Name	P3	Time-out Period (seconds)	2
Area	SMT1	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Set

9.3 BERTHS

Changes in the contents of all berths known to LT&S (Loop) ECS will be transmitted to SMART PC 1.

No berth information is transmitted by SMART PC 1 to ECS.

9.4 SIGNALLING IDENTITIES

Changes in the status of the following signalling items are transmitted to SMART PC 1:

Address 00-0F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
R616	R617A(M)	R617B(M)	R617C(M)	R617D(S)	R621	R622	R626A
R626B	R806	R807A(S)	R807B(S)	R807C(S)	R807D(M)	R807D(S)	R807E(M)
R807E(S)	R807F(M)	R807F(S)	R808A(M)	R808B(S)	R809A(S)	R809B(S)	R809C(S)
R809D(M)	R809D(S)	R809E(M)	R809E(S)	R809F(M)	R809F(S)	R810	R820A(S)
R820B(M)	R820C(M)	R820D(S)	R822A(S)	R822B(M)	R822C(M)	R822D(S)	R824A(S)
R824B(M)	R824C(M)	R824D(S)	R1113A	R1113B	R1113C	R1113D	R1115A
R1115B	R1115C	R1115D	R1115E	R1118A	R1118B	R1120A	R1120B
R1122A	R1122B	R1123	R1124A	R1124B	R1125	R1127	R1129
R1130A	R1130B	R1131A	R1131B	R1131C	R1133A	R1133B	R1133C
R1135A	R1135B	R1138A	R1138B	R1138C	R1138D	R1139	R1601
R1602	R1603	R1604	RFW6A	RFW6B	S616	S617	S621
S622	S626	S806	S807	S808	S809	S810	S820
S822	S824	S1113	S1115	S1118	S1120	S1122	S1123
S1124	S1125	S1127	S1129	S1130	S1131	S1133	S1135
S1138	S1139	TLDA	TLDK	TLEA	TLED	TLEL	TLES
TLGA	TLGB	TLGE	TLGG	TLGK	TLGM	TLGN	TLPA

Address 10-1F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
TLPC	TLPG	TLSB	TLSC	TLSD	TLSE	TLSF	TLSS
R627	R629A(S)	R629B(M)	R630	R631	R636	R639	R642
R643	R644	R813	R821A(S)	R821B(M)	R823A(M)	R823B(M)	R823C(M)
R823C(S)	R825A(M)	R825B(M)	R825C(M)	R825C(S)	R826A(M)	R826B(S)	R827A(M)
R827B(M)	R827C(M)	R827C(S)	R830A(M)	R830A(S)	R830B(M)	R830B(S)	R830C(M)
R830C(S)	R831A(S)	R831B(S)	R832A(M)	R832A(S)	R832B(M)	R832B(S)	R832C(M)
R832C(S)	R834A(M)	R834A(S)	R834B(M)	R834B(S)	R834C(M)	R834C(S)	R840A(S)
R840B(M)	R842A(S)	R842B(M)	R1142A	R1142B	R1143	R1145	R1146
R1147	R1157	S627	S629	S630	S631	S636	S639
S642	S643	S644	S813	S821	S823	S825	S826
S827	S830	S831	S832	S834	S840	S842	S1142
S1143	S1145	S1146	S1147	S1157	TMDC	TMDD	TMEA
TMEE	TMEL	TMFH	TMFJ	TMFL	TMSA	TMSB	TMUD
TdRSA	T834ALZ2	LAF091Y	LAF093Y	L(F1)REL R	L(F1)RELS	L(H1)REL R	L(H1)RELS
LDNYARD(SA)R	LDNYARD(SA)S	LRPLCHDN*	LRPLCHUP*	R651	R653	R654	R656
R657A(M)	R657B(S)	R658	R659	R660	R661	R662	R664

Address 20-2F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
R1161	R1162	R1163	R1165	R1166A(S)	R1166B(M)	R1176	S651
S653	S654	S656	S657	S658	S659	S660	S661
S662	S664	S1161	S1162	S1163	S1165	S1166	S1176
TNSA	TNUG	TNUH	TNUJ(LX)	TNUW	TNUY	LALRTBMF*	LEG(CLD)KR
L(TBM)(BARR)CR	R666	R667A	R667B	R668A(S)	R668B(M)	R669	R670A
R670B	R671A	R671B	R672	R673A(M)	R673B(S)	R674A	R674B
R681	R684	R687	R865A	R865B	R867(M)	R867(C)	R868
R869A	R869B	R874A	R874B	R920A	R920B	R1177	R1178
R1183A	R1183B	R1185	R1186A(M)	R1186A(C)	R1186B(M)	R1186B(C)	S666
S667	S668	S669	S670	S671	S672	S673	S674
S681	S684	S687	S865	S867	S868	S869	S874
S920	S1177	S1178	S1183	S1185	S1186	TPBA	TPBG
TPBK	TPBN	TPDN(LX)	TPUA	TPUB	TPUD	TPUK	TPUN(LX)
TPUR	L874TRS	LYSB(REL)	R689A(M)	R689B(S)	R690	R696	R701
R702	R703	R707	R708	R715A	R715B	R716	R717A
R717B	R882	R1192	S689	S690	S696	S701	S702

Address 30-33

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
S703	S707	S708	S715	S716	S717	S882	S1192
TRSC	T(LG)TBB	L(MG)(UP)KR	LALRMGFD*	L(MG)KR	R718	R719	R722
R731	R732	R733	Rd734	S718	S719	S722	S731
S732	S733	Sd734	TSUB(LX)	TdGBB	LALRFGFD*	L(FG)(UP)KR	L(FG)KR

*The following defines SSI Identities which have been abbreviated in the table above to the IECC name

IECC Name	SSI Name
LRPLCHDN	LWRPLNCHORDDN-REQ
LRPLCHUP	LWRPLNCHORDUP-REQ
LALRTBMF	LALR(TBM)(FAILED)
LALRMGFD	LALR(MG)(FAILED)
LALRFGFD	LALR(FG)(FAILED)

Changes in the status of the following signalling items are received from SMART PC 1:

None

9.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

10 SMART PC 2

10.1 OVERVIEW

This link operates on port 9. It is a link to SMART PC 2 with **ETB** type initialisation.

10.2 LINK CHARACTERISTICS

Link Characteristics for SMART PC 2			
Port(s)	9	Baud Rate	9600
Physical Name	P9	Time-out Period (seconds)	2
Area	SMT2	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Set

10.3 BERTHS

Changes in the contents of all berths known to LT&S (Loop) ECS will be transmitted to SMART PC 2.

No berth information is transmitted by SMART PC 2 to ECS.

10.4 SIGNALLING IDENTITIES

Changes in the status of the following signalling items are transmitted to SMART PC 2:

Address 00-0F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
R616	R617A(M)	R617B(M)	R617C(M)	R617D(S)	R621	R622	R626A
R626B	R806	R807A(S)	R807B(S)	R807C(S)	R807D(M)	R807D(S)	R807E(M)
R807E(S)	R807F(M)	R807F(S)	R808A(M)	R808B(S)	R809A(S)	R809B(S)	R809C(S)
R809D(M)	R809D(S)	R809E(M)	R809E(S)	R809F(M)	R809F(S)	R810	R820A(S)
R820B(M)	R820C(M)	R820D(S)	R822A(S)	R822B(M)	R822C(M)	R822D(S)	R824A(S)
R824B(M)	R824C(M)	R824D(S)	R1113A	R1113B	R1113C	R1113D	R1115A
R1115B	R1115C	R1115D	R1115E	R1118A	R1118B	R1120A	R1120B
R1122A	R1122B	R1123	R1124A	R1124B	R1125	R1127	R1129
R1130A	R1130B	R1131A	R1131B	R1131C	R1133A	R1133B	R1133C
R1135A	R1135B	R1138A	R1138B	R1138C	R1138D	R1139	R1601
R1602	R1603	R1604	RFW6A	RFW6B	S616	S617	S621
S622	S626	S806	S807	S808	S809	S810	S820
S822	S824	S1113	S1115	S1118	S1120	S1122	S1123
S1124	S1125	S1127	S1129	S1130	S1131	S1133	S1135
S1138	S1139	TLDA	TLDK	TLEA	TLED	TLEL	TLES
TLGA	TLGB	TLGE	TLGG	TLGK	TLGM	TLGN	TLPA

Address 10-1F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
TLPC	TLPG	TLSB	TLSC	TLSD	TLSE	TLSF	TLSS

R627	R629A(S)	R629B(M)	R630	R631	R636	R639	R642
R643	R644	R813	R821A(S)	R821B(M)	R823A(M)	R823B(M)	R823C(M)
R823C(S)	R825A(M)	R825B(M)	R825C(M)	R825C(S)	R826A(M)	R826B(S)	R827A(M)
R827B(M)	R827C(M)	R827C(S)	R830A(M)	R830A(S)	R830B(M)	R830B(S)	R830C(M)
R830C(S)	R831A(S)	R831B(S)	R832A(M)	R832A(S)	R832B(M)	R832B(S)	R832C(M)
R832C(S)	R834A(M)	R834A(S)	R834B(M)	R834B(S)	R834C(M)	R834C(S)	R840A(S)
R840B(M)	R842A(S)	R842B(M)	R1142A	R1142B	R1143	R1145	R1146
R1147	R1157	S627	S629	S630	S631	S636	S639
S642	S643	S644	S813	S821	S823	S825	S826
S827	S830	S831	S832	S834	S840	S842	S1142
S1143	S1145	S1146	S1147	S1157	TMDC	TMDD	TMEA
TMEE	TMEL	TMFH	TMFJ	TMFL	TMSA	TMSB	TMUD
TdRSA	T834ALZ2	LAF091Y	LAF093Y	L(F1)RELR	L(F1)RELS	L(H1)RELR	L(H1)RELS
LDNYARD(SA)R	LDNYARD(SA)S	LRPLCHDN*	LRPLCHUP*	R651	R653	R654	R656
R657A(M)	R657B(S)	R658	R659	R660	R661	R662	R664

Address 20-2F

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
R1161	R1162	R1163	R1165	R1166A(S)	R1166B(M)	R1176	S651
S653	S654	S656	S657	S658	S659	S660	S661
S662	S664	S1161	S1162	S1163	S1165	S1166	S1176
TNSA	TNUG	TNUH	TNUJ(LX)	TNUW	TNUY	LALRTBMF*	LEG(CLD)KR
L(TBM)(BARR)CR	R666	R667A	R667B	R668A(S)	R668B(M)	R669	R670A
R670B	R671A	R671B	R672	R673A(M)	R673B(S)	R674A	R674B
R681	R684	R687	R865A	R865B	R867(M)	R867(C)	R868
R869A	R869B	R874A	R874B	R920A	R920B	R1177	R1178
R1183A	R1183B	R1185	R1186A(M)	R1186A(C)	R1186B(M)	R1186B(C)	S666
S667	S668	S669	S670	S671	S672	S673	S674
S681	S684	S687	S865	S867	S868	S869	S874
S920	S1177	S1178	S1183	S1185	S1186	TPBA	TPBG
TPBK	TPBN	TPDN(LX)	TPUA	TPUB	TPUD	TPUK	TPUN(LX)
TPUR	L874TRS	LYSB(REL)	R689A(M)	R689B(S)	R690	R696	R701
R702	R703	R707	R708	R715A	R715B	R716	R717A
R717B	R882	R1192	S689	S690	S696	S701	S702

Address 30-33

BIT 1	BIT 2	BIT 3	BIT 4	BIT 5	BIT 6	BIT 7	BIT 8
S703	S707	S708	S715	S716	S717	S882	S1192
TRSC	T(LG)TBB	L(MG)(UP)KR	LALRMGFD*	L(MG)KR	R718	R719	R722
R731	R732	R733	Rd734	S718	S719	S722	S731
S732	S733	Sd734	TSUB(LX)	TdGBB	LALRFGFD*	L(FG)(UP)KR	L(FG)KR

*The following defines SSI Identities which have been abbreviated in the table above to the IECC name

IECC Name	SSI Name
LRPLCHDN	LWRPLNCHORDDN-REQ
LRPLCHUP	LWRPLNCHORDUP-REQ
LALRTBMF	LALR(TBM)(FAILED)
LALRMGFD	LALR(MG)(FAILED)
LALRFGFD	LALR(FG)(FAILED)

Changes in the status of the following signalling items are received from SMART PC 2:

None

10.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

11 C2C

11.1 OVERVIEW

This link operates on port 12. It is a link to C2C with **ETB** type initialisation.

11.2 LINK CHARACTERISTICS

Link Characteristics for C2C			
Port(s)	12	Baud Rate	9600
Physical Name	PC	Time-out Period (seconds)	2
Area	LICC	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Set

11.3 BERTHS

Changes in the contents of all berths known to LT&S (Loop) ECS will be transmitted to C2C.

No berth information is transmitted by C2C to ECS.

11.4 SIGNALLING IDENTITIES

No signalling identities are transmitted to C2C.

11.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.

12 Channel Tunnel Rail Link (CTRL)

12.1 OVERVIEW

This link is duplicated, operating on ports 5 and 11. It is a link to CTRL with **TD** type initialisation.

12.2 LINK CHARACTERISTICS

Link Characteristics for CTRL			
Port(s)	5 & 11	Baud Rate	19200
Physical Name	P5	Time-out Period (seconds)	2
Area	CTRL	Message Retry Count	3
Protocol	BR1810	Message Retry Field Flag	Not Set

12.3 BERTHS

Changes in the contents of all berths in Section 2.1.3 will be transmitted to or received from CTRL.

The berths listed below are transmitted by ECS to CTRL.

0832 0834 095C 101C PDU A PUUA

The following berths require translation.

{ 0832 P832 } { 0834 P834 }

The berths listed below are transmitted by CTRL to ECS.

095C 101C 0832 0834 782C 880C PDCA PUCA

The following berths require translation.

{ 0832 P832 } { 0834 P834 }

12.4 SIGNALLING IDENTITIES

No signalling identities are transmitted to CTRL.

12.5 LINK STATUS

Changes in the status of remote links will be transmitted to SDS1.