[1]CCITT Recommendation _wLogic procedures for incoming Signalling System R2,w Vol. VI, Rec. Q.616.

[2]CCITT Recommendation _wMiscellaneous procedures,w Vol. VI, Rec. Q.480.

[3]CCITT Recommendation _wUse of group B signals,w Vol. VI, Rec. Q.474.

[4]CCITT Recommendation _wLogic procedures for outgoing Signalling System R2,w Vol. VI, Rec. Q.626.

) For definition, see Recommendation Q.1101.

FIGURE B-3/Q.1102 (Sheet 2 of 2)

Interworking of the INMARSAT Standard A signalling system to Signalling System R2

FIGURE B-3/Q.1102 (sheet 1 of 2)

Interworking of the INMARSAT Standard A signalling system to Signalling System R2

(to Recommendation Q.1102)

Logic procedures for interworking of the INMARSAT Standard A signalling system to Signalling System R2

FIGURE B-1/Q.1102

State overview diagram for interworking of the INMARSAT Standard A signalling system to Signalling system R2

FIGURE B-2/Q.1102

Notes to interworking of the INMARSAT Standard A signalling system to Signalling System R2

FIGURE A-3/Q.1102

Interworking of Signalling System R2
to the INMARSAT Standard A signalling system

FIGURE A-1/Q.1102

State overview diagram for interworking of Signalling System R2 to the INMARSAT Standard A signalling system

FIGURE A-2/Q.1102

(Reserved for future notes)

The signals A-3, A-5 and A-14 may be received at any time during interregister signalling sequence.

If the signal A-11 is received from the ISC, the MSSC should send:

- I-14 to indicate that an incoming half-echo suppressor is required, or
- I-12 where the MSSC has already inserted an incoming half-echo suppressor.

If the signal A-12 is received, the next signal shall be the discriminating digit (I-10).

The MSSC should be capable of responding to signal A-13 with the signal A-14 in order to indicate that a satellite link is included (see Recommendation Q.480 [2]).

3.4The end of pulsing signal I-15 should be sent by the MSSC, if required and requested, if the equivalent end-of-pulsing signal is received from the ship earth station.

3.5The tones sent by the MSSC to the ship earth station in response to Group B signals received from the terrestrial network should comply with Recommendation Q.474 [3]. The characteristics of the tones are given in Recommendation Q.1101.

3.6Time-out supervision on the answer signal at the MSSC should comply with the provisions given in Recommendation Q.118, § 4.3.1.

3.7If the MSSC receives a clear-back signal from the terrestrial network, the time-out of Recommendation Q.118, § 4.3.2 shall be started. The satellite and terrestrial links will be cleared either by the ship earth station or by expiry of the 1-2 minute time-out.

3.8When the MSSC detects a release condition on the satellite link, the terrestrial connection should be cleared forward as soon as possible.

3.9For the SDL description of outgoing System R2, see Recommendation Q.626 [4].

3.10The SDL description of the interworking between incoming INMARSAT Standard A signalling system and outgoing System R2 is given in Annex B.

3.11For the SDL description of incoming INMARSAT Standard A signalling system, see Annex B to Recommendation Q.1101.

ANNEX A

(to Recommendation Q.1102)

Logic procedures for interworking of Signalling System R2 to the INMARSAT Standard A signalling system

the terrestrial link until the satellite link is idle.

2.7The MSSC should send the clear-back signal into the terrestrial network when clear-back is detected on the satellite link. The satellite link will be released so that the provisions of Recommendation Q.118 do not apply for this part of the connection.

2.8For the SDL description of incoming Signalling System R2, see Recommendation Q.616 [1].

2.9For the SDL description of interworking between incoming Signalling System R2 and the outgoing INMARSAT signalling system see Annex A.

2.10For SDL description of outgoing INMARSAT signalling system, see Annex C to Recommendation Q.1101.

3Calls from the maritime satellite system to Signalling System R2 (see figure 2/Q.1102)

FIGURE 2/Q.1102)

3.1The MSSC should not seize a terrestrial circuit before each of the following conditions have been met:

- the satellite channel has been assigned;
- the continuity of the satellite channel has been verified;
- all digits necessary for routing decisions by the MSSC have been received.

3.2The first register signal to be sent by the MSSC is:

- the discriminating digit I-10 if the call is destined for a country whose ISC has direct connections to the MSSC;
- the country code indicator I-14 if the call is destined for another country and the incoming half-echo suppressor is to be inserted at a later ISC;
- the country code indicator I-12 if the call is destined for another country and the incoming half-echo suppressor can only be inserted at the MSSC.

3.3The MSSC must respond to Group A or Group B signals in accordance with current Signalling System R2 specifications.

The following special requirements should however be taken into account:

- If the signal A-14 is received from the ISC, the MSSC must either forward I-14 in order to indicate that an incoming half-echo suppressor is required, or forward the next address signal where the MSSC has already inserted an incoming half-echo suppressor.
- If the signal A-3 or A-5 is received from the ISC, the MSSC should send the II-7 signal (for the time being no other category signal would be required).

- a radio carrier but no continuity tone is received from the ship earth station within 10 seconds.

The MSSC sends the pulsed A-3 signal followed by B-2 or B-8 respectively after recognition of the forward Group II signal.

2.5When the MSSC detects the answer signal from the ship earth station, the MSSC must send the answer signal as soon as possible to the ISC.

2.6When the MSSC detects the clear forward from the terrestrial network, the terrestrial circuit and the satellite link will clear down according to their respective specifications. If, however,

(Group II signal). The Group II signal is acknowledged at the MSSC by A-1. The ISC continues to send the country code digits and further address signals which are acknowledged in compelled cycles with A-1 at the MSSC.

2.1.3Any numerical (or address) signal of the above sequences may be acknowledged by the signals A–3 or A-4:

- A-4 if congestion or abnormal release occurs in the MSSC;
- A-3 may, for example, be used in order to indicate to the ISC barring of unauthorized group calls. Such calls are identified from the first digit following the discriminating digit. The appropriate Group B signal would in this case be B-2.

  This use of A-3 is only possible if analysis of the discriminating (or language) digit and the first digit of the subscriber number takes place before the whole number has been received by the MSSC. If this is not the case, the procedure of § 2.2 should be followed.

2.2When the last address signal has been received at the MSSC, and number analysis has been completed, one of the following events leading to unsuccessful call completion may occur:

- The called ship earth station is excluded from participating in the system, the number of the called terminal has been changed or the received number is an unauthorized group call number (see also § 2.1.3 above). In these cases the MSSC shall send the A-3 signal followed by B-2 after the Group II signal has been received from the ISC.
- The NCS/MSSC is out of service. In this case the A-4 signal is sent, or the A-3 signal followed by B-4 after receipt of the Group II signal.
- The received number does not belong to any ship earth station. In this case the A-3 signal is sent followed by B-5 after receipt of the Group II signal.

2.3If the received number is valid, the MSSC sends A-1 as an acknowledgement to the last digit (or the end-of-pulsing signal I-15) in order to suspend the compelled signalling.

2.4The MSSC sends a _wRequest-for-Assignmentw message to the Network Coordination Station (NCS) in order to obtain a satellite channel (see Annex A to Recommendation Q.1101).

"If no reply to this request is received within 4 seconds (or 8 seconds if the request is repeated by the MSSC) or, if a congestion message is received from the NCS, the MSSC sends the pulsed A-4 signal or the A-3 signal followed by B-4 after receipt of the Group II signal."

If a _wShip busyw message is received, the MSSC sends the pulsed A-3 signal followed by the B-3 signal after recognition of the forward Group II signal.

If an _wAssignmentw message is received from the NCS, the MSSC connects the continuity tone on the assigned satellite channel. If a continuity tone is received from the ship earth station within 10 seconds, the MSSC sends the pulsed A-3 signal followed by the B-6 signal after recognition of the forward Group II signal.

The continuity check may fail in two ways:

- no radio carrier is received from the ship earth station within 10 seconds (e.g. the ship is outside the satellite cover-

- Signal I-11 when the MSSC has to insert an outgoing half-echo suppressor;
- Signal I-14 when an outgoing half-echo suppressor has been inserted.

INTERWORKING BETWEEN SIGNALLING SYSTEM R2 AND INMARSAT STANDARD A SYSTEM

1Introduction

It is necessary to specify the interworking of Signalling System R2 and the signalling systems used in the INMARSAT Standard A system. This is because:

a) it may be desirable that a Maritime Satellite Switching Centre (MSSC) 1) be connected to an international switching centre (ISC) by employing System R2 on the circuits between the MSSC and the ISC;

b) the signalling system used in the Maritime Mobile-Satellite Service will be different from System R2. Therefore it would be necessary to establish rules by which signalling events in one system may be related to corresponding events in the other system.

It is desirable that the interworking be such that the full capability of both System R2 and the maritime satellite signalling system be utilized.

This Recommendation considers only automatic interworking between the MSSC and an ISC utilizing either the analogue or digital versions of System R2 signalling.

For description of the INMARSAT Standard A signalling system, see annex A to Recommendation Q.1101.

2Calls from Signalling System R2 to the maritime satellite system (see figure 1/Q.1102)

FIGURE 1/Q.1102

2.1The ISC sends the seizing signal followed by either of the following sequences of address signals:

2.1.1Signal I-10 or a language digit when the country code 87S is not required for routing in the MSSC. At the MSSC this signal should be acknowledged by the signal A-5 in order to obtain the calling subscriber's category (Group II signal). The Group II signal is acknowledged at the MSSC by A-1. The ISC then continues to send further address signals which are acknowledged in compelled cycles with A–1 at the MSSC.

2.1.2The country code indicator when the country code 87S is required for routing in the MSSC.