Inmarsat C EGC SafetyNET Status

IHO Commission on Promulgation of Radio Navigational Warnings (CPRNW), 10th meeting
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Rio de Janeiro
Brazil

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Inmarsat Maritime Safety Services
Inmarsat C and Inmarsat mini-C maritime terminals (with Distress capability)

Above deck equipment:
- Antenna
- Distress button (if service is supported by the model)
- Messaging unit

Below deck equipment:
- Transceiver (with GPS) 1.3 Kg
- Antenna
- Transceiver, GPS (single unit for some models)
- Distress button (if service is supported by the model)
- Messaging unit (laptop)
- Junction box
- Printer (required for SOLAS compliant vessels)

Some mini-C models are approved for GMDSS
Inmarsat C and Inmarsat Mini-C characteristics and services

- Global coverage (between 76° North and 76° South)
- Store and Forward communication system (ship-to-shore, shore-to-ship and ship-to-ship)
  - messages delivered to telex, fax (text, one way only), PSDN/PSTN, another mobile, SAC, Internet (e-mail)
- Non-stabilised omnidirectional antenna, small size and weight
- Low power consumption, compatible with national alphabets
- Some mini-C models are approved for GMDSS and support Distress Calling and EGC functions
- More than 80,000 Maritime Inmarsat C and 33,000 Inmarsat mini-C SESs
- Main part of the GMDSS satellite equipment (supports 5 communication functions out of 9 defined by SOLAS) – required by SOLAS Convention, Chapter IV
  - Distress Calling - distress alerting and distress priority messaging – ship-to-shore and shore-to-ship
  - Enhanced Group Calling (EGC) EGC SafetyNET and EGC FleetNET
  - SAR Coordination
  - General communications
  - Ship Security Alerting service (SSAS)
  - Data reporting and polling service (position monitoring, tracking, LRIT)

Can be used for MSI monitoring, BUT…
# Number of EGC SafetyNET messages & size per ocean region

(Aug’07-Jul’08)

<table>
<thead>
<tr>
<th>Month</th>
<th>AOR-E Number</th>
<th>AOR-E Size</th>
<th>AOR-W Number</th>
<th>AOR-W Size</th>
<th>IOR Number</th>
<th>IOR Size</th>
<th>POR Number</th>
<th>POR Size</th>
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<td>Jul’08</td>
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<td>171250 – 41%</td>
<td>4869 - 23%</td>
<td>278376 – 62%</td>
<td>9939</td>
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On average **760-930** EGC SafetyNET messages of all service types are broadcast in all ocean regions per day, including repeated messages, of which:
- **AOR-E**: 112 - 165 messages per day;
- **AOR-W**: 79 – 160 messages per day;
- **IOR**: 262 – 356 messages per day; and
- **POR**: 246 – 336 messages per day.

(Size is given in number of units of 32 bytes/characters)

**July’s increase is caused by more messages of C2=31 (MET NAVAREA wngs or MET f/cast) and its size.**
Number and size of EGC SafetyNET messages per ocean region

**Number of EGC SafetyNET messages per month**

- AOR-E
- AOR-W
- IOR
- POR
- All regions

**Size (in number of 32-byte units) of EGC SafetyNET messages per month**

- AOR-E
- AOR-W
- IOR
- POR
- All regions
## Definition of EGC SafetyNET Service Codes

(as in the SafetyNET Manual)

<table>
<thead>
<tr>
<th>SafetyNET Code</th>
<th>Navigational information</th>
<th>Meteorological information</th>
<th>Search and Rescue</th>
<th>Piracy countermeasures broadcast</th>
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<tr>
<td>00</td>
<td></td>
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<td>All ships call</td>
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<td>04</td>
<td>Nav warnings to rectangular area*</td>
<td>Met warnings or forecasts to rectangular area*</td>
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<td>Nav warnings to rectangular area</td>
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<td>Coastal warnings</td>
<td>Met warnings or forecasts to coastal area</td>
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<td>Shore-to-ship distress alerts to circular area</td>
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<td>24</td>
<td>???</td>
<td>Met warnings to circular area</td>
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<td>NAVAREA warnings</td>
<td>Met warnings or forecasts to METAREA</td>
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<td>SAR coordination to rectangular area</td>
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<td>44</td>
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<td></td>
<td>SAR coordination to circular area</td>
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<td>73**</td>
<td>Chart correction service to fixed areas</td>
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<tr>
<td>21***</td>
<td></td>
<td>Weather graphical service (charts)</td>
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</table>

* proposed (temporary) solution for Arctic areas for Navigational and Meteorological information

** service code is defined in the Inmarsat C SDM but not used

*** service code is reserved for future use
QoS

- All 16 areas are covered with MSI plus western part of Russian Arctic waters with Met information.

- No major complaints to Inmarsat from mariners about quality of information.

- Some questions to Inmarsat are about either “lack” of some MSI or “unwanted” MSI and investigation shows that mariners:
  - use a wrong satellite (login) to receive MSI for the area concerned (if navigate in overlap areas) or
  - do not update position information on their terminals and it is mainly educating and training issue.

- More countries provide Coastal warning service but some ships’ crews (and Administrations) may not be aware about it and how to set up MESs using B1 and B2 codes.
  - Circular letter to remind how to set up the service (reception on ships is not available if the MES is not set up correctly) and Inmarsat can draft it for the next COMSAR if the meeting so decides.
Action items from previous CPRNW meetings

CPRNW 8, 3.4.1.3 – “Inmarsat is requested to provide an information as to the percentage of Inmarsat MESs in use that can only access Navareas 1 – 16 as opposed to 0 – 99”

- more than 80,000 Inm-C maritime MESs (all with EGC SafetyNET function)
  - only 30-35% have access to up to 99 IDs
  - many of existing MESs can not be modified, only to be replaced
- more than 33,000 Inm Mini-C maritime MESs (~70% with EGC SafetyNET function)
  - all have access to 99 IDs
  - If MSI provides decides to use mini-C for monitoring, it shall be the model supporting EGC SafetyNET function
Action items from previous CPRNW meetings

CPRNW 9, 3.2.1 – “Advice required as to whether Inmarsat primary satellite contingency tests are required at regular intervals e.g. annually?”

- Inmarsat performs quarterly satellite contingency tests, last was on 16 July’08 with POR satellite, next will be in Q2 2009 due real life scenario of satellite moves
- It involves primary satellite “failure”, moving services to a contingency satellite(s) and restoration of all services
- First restored service is Inmarsat C – EGC SafetyNET services and distress calls, usually done within one hour
- Each exercise has its own OP, which gives detailed procedure and timing of all actions to follow to restore services.
- Major LESs, of not all participate in the exercise
- Exercises are always attended by IMSO staff, Inmarsat top managers and maritime safety services staff
- Follow-up meeting after each exercise to analyse it and learn lessons
- IMSO regularly reports of contingency satellite exercises to IMO
EGC SafetyNET for MSI for ECDIS???

- Already done for NAVTEX by Transas – “Navtex Manager”
- Also possible/feasible for EGC SafetyNET
  - do we need it???
  - if so, need an action item from the meeting
  - Inmarsat can check with Transas, as software developer, what and how it can be done, probably in the same or similar way as for Navtex ….
Existing NAV/METAREA boundaries
as in the Inmarsat-C System Definition Manual (without Arctic areas)

Shaded areas are with overlap reception from the adjacent NAV/METAREAs
To: All ships in the Arctic area to the North of 71 deg.

The IMO International SafetyNET Panel is planning to enhance EGC services via the Inmarsat C system and include new Arctic areas to broadcast navigational and meteorological information. To define possible new Arctic areas, it is important to know the practical limits of Inmarsat coverage where future maritime safety information may be made available. This message is to ask all ships navigating in high latitudes, close to the Inmarsat satellite coverage limit, to report to Inmarsat Maritime Safety Services the following information:

1. ship’s name
2. position (lat and long) above 71 deg North
3. date/time of position
4. maximum known latitude from your current or previous voyages where Inmarsat reception is constantly available

Inmarsat will treat your position information as confidential and will not disclose it to third parties.

Purpose of the trial:
To check service availability for new areas using existing MESs and software and geographical boundaries.
NAVAREA XIX (Arctic)

Test message nr 1.

This is a test message from Inmarsat to all ships in NAVAREA XIX (above 71 degrees North and between 35 degrees West recently defined and approved by International Maritime Organisation and purpose of the test is to check performance of the system. Please reply back to e-mail vladimir.maksimov@inmarsat.com to confirm reception. Information on your position would also be appreciated and treated as confidential.

Kind Regards and have a good voyage,

Vladimir Maksimov
Inmarsat Maritime Safety Services Department

NAVAREA XX (Arctic)

Test message nr 1.

This is a test message from Inmarsat to all ships in NAVAREA XX (Arctic area between 30 degrees and 126 degrees East). NAVAREA XX was recently defined and approved by International Maritime Organisation, as well as NAVAREA XVI, XVII, XIX and XXI, and purpose of the test is to check performance of the system. Please reply back to e-mail vladimir.maksimov@inmarsat.com to confirm reception. Information on your position would also be appreciated and treated as confidential.

Kind Regards and have a good voyage,

Vladimir Maksimov
Inmarsat Maritime Safety Services Department
<table>
<thead>
<tr>
<th>Filename</th>
<th>LES</th>
<th>Service</th>
<th>Priority</th>
<th>Bits</th>
<th>Date &amp; Time</th>
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<th>Ref. No.</th>
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<td>08-02-24 17:15</td>
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<td>Prm+Men</td>
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LES 104 - MSG 2943 - NavWarn Safety Call to Area: 71°9 N 35°56 W - FosOK

Eik LES 25- FEB-2006 11:12:49 110096

NAVARREA XIX (Arctic)

Test message nr 1.

This is a test message from Inmarsat to all ships in NAVAREA XIX (above 71 degrees North and between 35 degrees West and 31 degrees East). NAVAREA XIX, as well as NAVAREA XX, XXI, XX and XXIII was recently defined and approved by International Maritime Organisation and purpose of the test is to check performance of the system.

Please reply back to e-mail: vladimir_maksimov@inmarsat.com to confirm reception. Information on your position would also be appreciated and treated as confidential.
Position info from vessels:
71.15N 24.40E (AOR-E)
71.20N 02.61E (AOR-E)
74.30N 20.34E (IOR)
74.36N 16.24E (AOR-E)
75.18N 15.48E (AOR-E)
77.50N 14.00E (AOR-E)
78.00N 13.00E (AOR-E)
78.00N 35.00E (IOR)
78.15N 15.32E (AOR-E)
79.30N 09.15E (AOR-E)

General overview:
Inmarsat service is available up to 79° North (not 24 hrs)
EGC SafetyNET setup

MES can be setup to receive EGC messages only and will not be able to transmit/receive Inm-C messages.

To receive MSI for additional area during the voyage.

Coastal Warnings Coverage Areas - B1 [A…Z]

Type of message character – B2

Up to 5 Fixed Positions to receive MSI addressed to geographical areas

Should always be “ON” on maritime MESs to be able to receive MSI

Area to setup reception of optional Coastal Warnings

Click OK to save EGC setup
IMO “requirements” for the availability of the EGC receive facility

IMO “requirement” – “the EGC receiver should normally be available for reception of MSI for at least 98% of time…”
- the MES is available for other communication for 20 minutes a day

“Requirement” is of 1988 or 1989 – before Inmarsat C services started

Is it possible to control this “requirement”?
- It may be possible to control ship-to-shore traffic and avoid sending messages during MSI broadcast peak hours, if they are known to the crew.
  - Is anyone doing it?

- It is not possible in shore-to-ship traffic since shore customers are not aware of this “requirement” and are (may be) sending messages to ships at ANY time.
  - No control is possible.

Class 2 Inmarsat C/mini-C SES with EGC capability – common receiver for S&F and EGC messages
(majority of existing SESs are Class 2)

Class 3 Inmarsat C/mini-C SES with EGC capability – dedicated receiver for EGC messages
(Class 3 SESs are not available on the market)

My recommendation is to delete Annex or modify.
NAV/METAREA I new boundary and “possible new addressing arrangement”
Thank you for your attention

Vladimir Maksimov
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