



COSPAS-SARSAT SYSTEM DATA

No.39
15 December 2013

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SUMMARY STATUS

(15 December 2013)

PARTICIPANTS

Parties to the	
Cospas-Sarsat Agreement:	4
Ground Segment Providers:	26
User States:	11
Ground Segment Operators:	2
Total number of Participants:	43

SPACE SEGMENT

LEOSAR system:	6 satellites in polar orbit
GEOSAR system:	6 satellites in geostationary orbit

GROUND SEGMENT

- 31 Mission Control Centres (MCCs)
- 56 Local User Terminals (LEOLUTs) in the LEOSAR system
- 22 Local User Terminals (GEOLUTs) in the GEOSAR system

All co-located LUTs are counted as two (with the exception of the French LEOLUTs, which operate as one LUT).

406 MHz BEACON POPULATION (end of 2012)

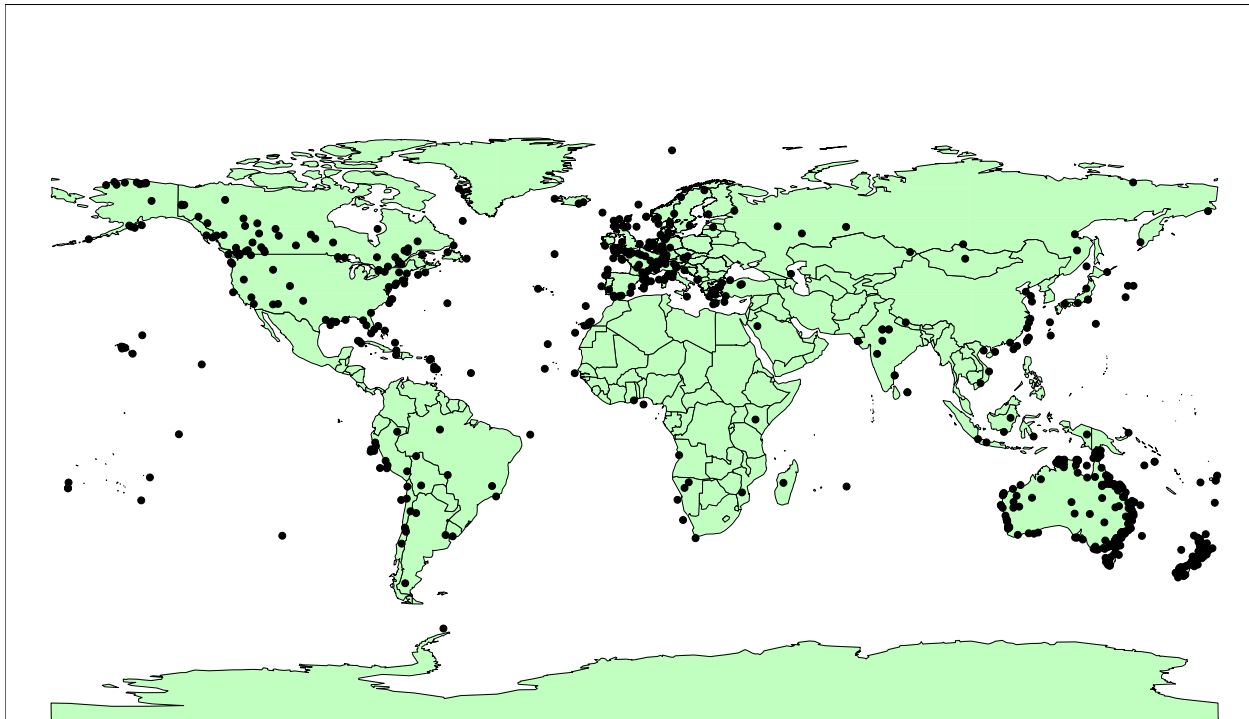
Beacon population estimated:	about 1,500,000
Beacon population registered:	over 1,170,000
Beacon population forecast (2020):	over 2,600,000

SYSTEM OPERATIONS (end of 2012)

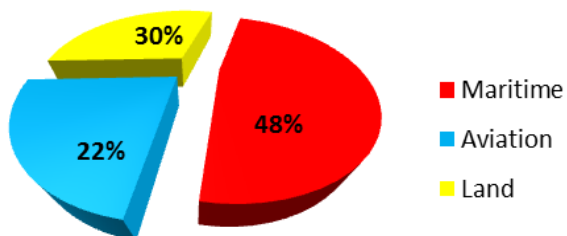
From January to December 2012 , the Cospas-Sarsat System provided assistance in rescuing 2,029 persons in 634 SAR events	Type of Distress	Persons Rescued	SAR Events
	Aviation	267	141
	Maritime	1,470	303
	Land	292	190
	Total	2,029	634

From **September 1982 to December 2012**, the Cospas-Sarsat System provided assistance in **rescuing at least 35,055 persons in 9,665 SAR events**.

**Figure 1: Geographic Distribution of Confirmed SAR Events
for which Cospas-Sarsat Data was Used (January - December 2012)**



**Figure 2: Type of SAR Events
Assisted by Cospas-Sarsat
(January - December 2012)**



**Figure 3: Persons Rescued by Type of
SAR Event Assisted by Cospas-Sarsat
(January - December 2012)**

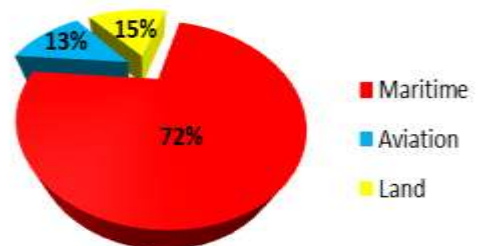


Figure 4: Number of SAR Events and Persons Rescued with the Assistance of Cospas-Sarsat Alert Data (January 1994 - December 2012)

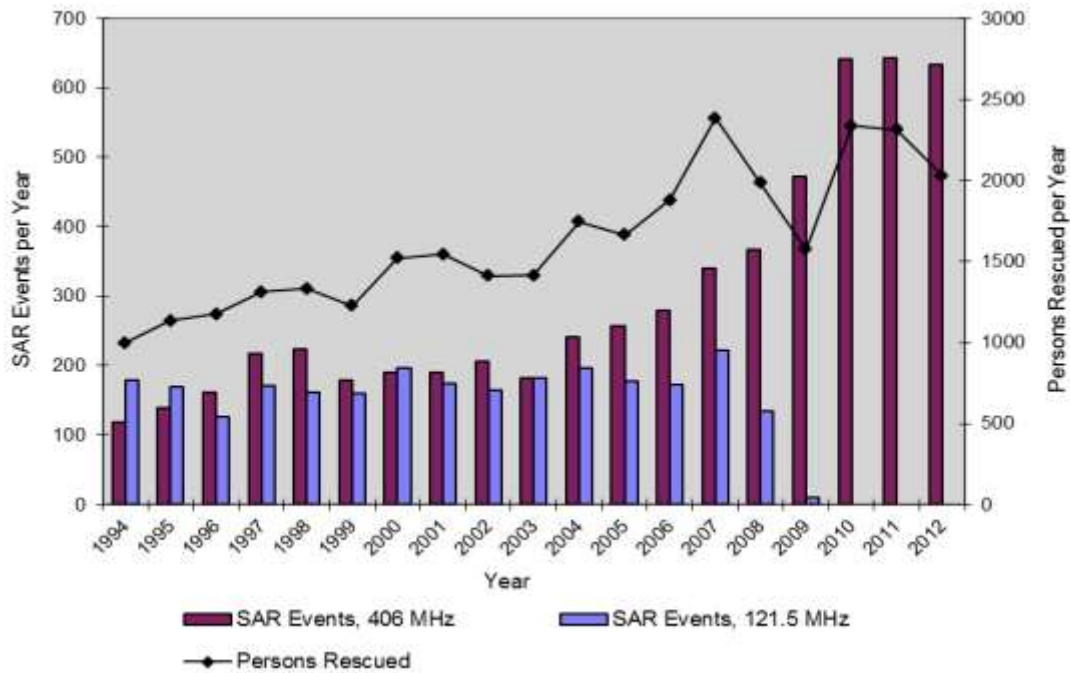


Figure 5: Number of SAR Events where Cospas-Sarsat Assisted and Number of SAR Events where Cospas-Sarsat Provided the Only Alert (January 1990 - December 2012)

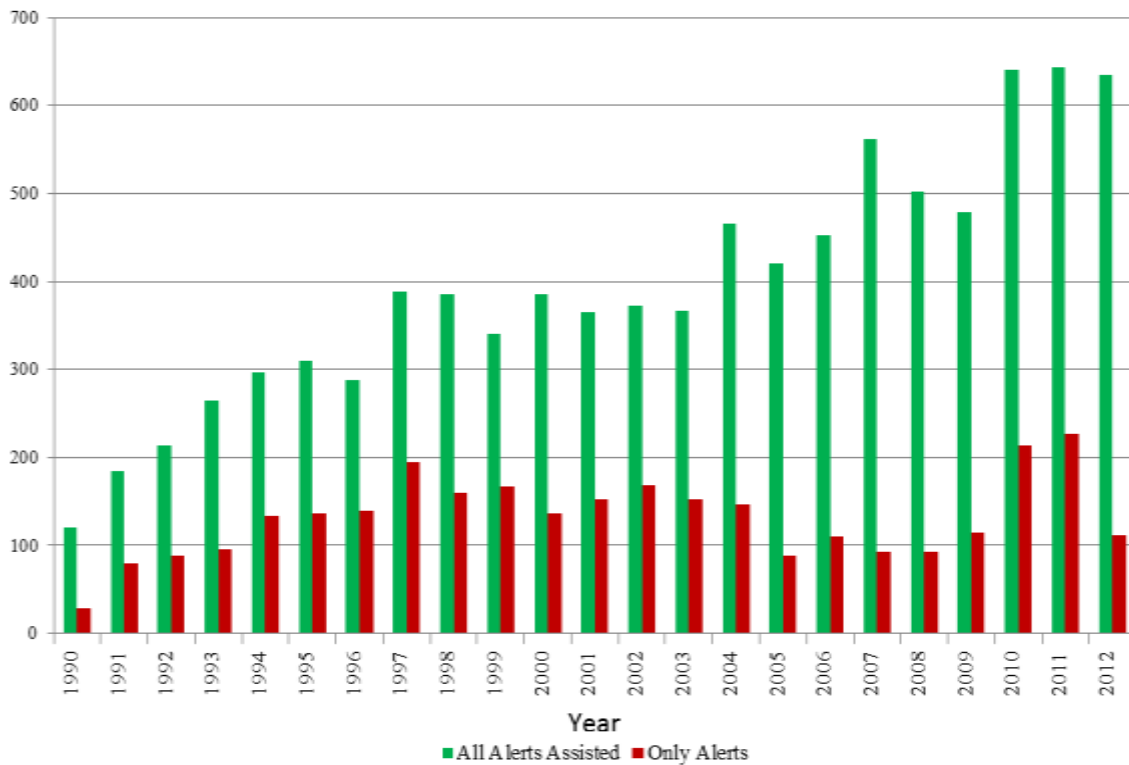


Table I - Cospas-Sarsat Participating Countries and Organisations

Participant	Agency	Status
Algeria	Ministry of National Defense, Search and Rescue Services	Ground Segment Provider
Argentina	Air Force, Communications Department	Ground Segment Provider
Australia	Australian Maritime Safety Authority (AMSA)	Ground Segment Provider
Brazil	Air Space Control Department (DECEA)	Ground Segment Provider
Canada	National Search and Rescue Secretariat (NSS)	Party-Space Segment Provider
Chile	Search and Rescue Service of the Chilean Air Force	Ground Segment Provider
China (P. R. of)	Maritime Safety Administration	Ground Segment Provider
Cyprus	Larnaca Joint Rescue Co-ordination Centre (JRCC)	User State
Denmark	Denmark Transport Authority, Aviation Department	User State
Finland	Ministry of the Interior, Finnish Border Guard	User State
France	National Centre of Space Research (CNES)	Party-Space Segment Provider
Germany	Federal Ministry of Transport, Building and Urban Development	User State
Greece	Hellenic Ministry of Shipping, Maritime Affairs and the Aegean	Ground Segment Provider
Hong Kong, China	Hong Kong Marine Department	Ground Segment Operator
India	Indian Space Research Organisation (ISRO)	Space / Ground Segment Provider
Indonesia	National SAR Agency of Indonesia (Basarnas)	Ground Segment Provider
Italy	Department of Civil Protection	Ground Segment Provider
ITDC	Chunghwa Telecom Co. Ltd. (Chinese Taipei)	Ground Segment Operator
Japan	Japan Coast Guard, Information - Communications Division	Ground Segment Provider
Korea (Rep. of)	Korea Coast Guard	Ground Segment Provider
Madagascar	Search and Rescue Co-ordination Centre	User State
Netherlands (The)	Netherlands Coastguard	User State
New Zealand	Rescue Coordination Centre New Zealand (RCCNZ)	Ground Segment Provider
Nigeria	National Emergency Management Agency (NEMA)	Ground Segment Provider
Norway	Ministry of Justice	Ground Segment Provider
Pakistan	Space and Upper Atmosphere Research Commission (SUPARCO)	Ground Segment Provider
Peru	General Directorate of Captaincies and Coastguard	Ground Segment Provider
Poland	Civil Aviation Authority	User State
Russian Federation	Federal State Unitary Enterprise Morsviazsputnik	Party-Space Segment Provider
Saudi Arabia	General Authority of Civil Aviation, Directorate of Air Traffic Services	Ground Segment Provider
Serbia	Civil Aviation Directorate of the Republic of Serbia	User State
Singapore	Civil Aviation Authority of Singapore	Ground Segment Provider
South Africa	South African Maritime Safety Authority (SAMSA)	Ground Segment Provider
Spain	National Institute of Aerospace Engineering (INTA)	Ground Segment Provider
Sweden	Swedish Civil Contingencies Agency (MSB)	User State
Switzerland	Federal Office of Civil Aviation, Safety Division	User State
Thailand	Department of Civil Aviation	Ground Segment Provider
Tunisia	Ministry of Transport (DGAC)	User State
Turkey	General Directorate of Maritime Transportation	Ground Segment Provider
UAE	Telecommunications Regulatory Authority (TRA)	Ground Segment Provider
UK	Department for Transport, Maritime and Coastguard Agency	Ground Segment Provider
USA	National Oceanic and Atmospheric Administration (NOAA)	Party-Space Segment Provider
Vietnam	Ministry of Transport, Vietnam Maritime Administration (VINAMARINE)	Ground Segment Provider

Table II - LEOSAR Spacecraft Availability (15 December 2013)

Cospas-Sarsat Payload	Spacecraft	Launch Date	Status	SAR Processor (SARP)		SAR Repeater (SARR)
				Global Mode	Local Mode	
Sarsat-7	NOAA-15	May 1998	O	O	O	O
Sarsat-8	NOAA-16	September 2000	O	O	O	O
Sarsat-10	NOAA-18	May 2005	O	O	O	O
Sarsat-11	Metop-A	October 2006	O	O	O	O
Sarsat-12	NOAA-19	February 2009	O	O	O	O
Sarsat-13	Metop-B	September 2012	O	O	O	O
Sarsat-14	Polar Free Flyer 1	Projected 2017	-	-	-	-
Cospas-13	TBD	Projected 2015	-	-	-	-
Cospas-14	TBD	Projected 2017	-	-	-	-

Notes: O Operational
 TBD To be determined

Table III - GEOSAR Spacecraft Availability (15 December 2013)

Spacecraft	Launch Date	Position	Status
GOES-13 (East)	May 2006	75° W	In operation
GOES-14	June 2009	105° W	In-orbit spare
GOES-15 (West)	March 2010	135° W	In operation
GOES-16	Projected 2015	TBD	TBD
GOES-17	Projected 2017	TBD	TBD
GOES-18	Projected 2019	TBD	TBD
GOES-19	Projected 2024	TBD	TBD
INSAT-3A	April 2003	93.5° E	In operation
INSAT-3D	July 2013	82° E	Under test
MSG-2	December 2005	9.5° E	In operation
MSG-3	July 2012	0°	In operation
MSG-4	Projected 2015	TBD	TBD
Electro-L1	January 2011	76° E	In operation
Louch-5A	December 2011	167 ° E	Under test
Electro-L2	Projected 2014	14.5° W	TBD
Louch-5V	Projected 2014	TBD	TBD

Note: TBD To be determined

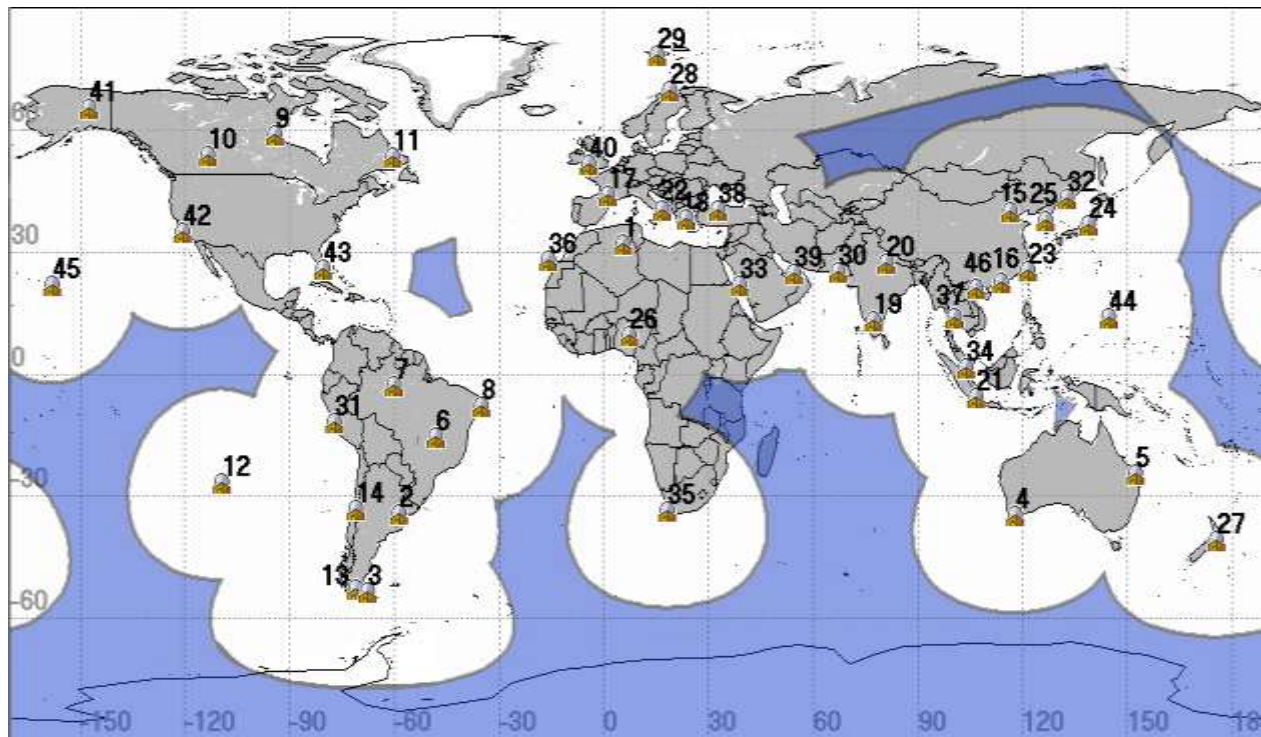
Table IV - LEOSAR Ground Segment Status (15 December 2013)

Participant	MCC			LEOLUT		
	Designator	Location	Status	Location	SARP	SARR
Algeria	ALMCC	Algiers	O	Ouargla Algiers	O N	O N
Argentina	ARMCC	El Palomar	O	El Palomar Rio Grande	O O	O O
Australia	AUMCC	Canberra	O	Albany Bundaberg	O O	O O
Brazil	BRMCC	Brasilia	O	Brasilia Manaus Recife	O O O	O O O
Canada	CMCC	Trenton	O	Churchill Edmonton Goose Bay	O O O	O O O
Chile	CHMCC	Santiago	O	Easter Island Punta Arenas Santiago	O O O	O O O
China (P. R. of)	CNMCC	Beijing	O	Beijing (1) Beijing (2)	O O	O O
France	FMCC	Toulouse	O	Toulouse (1) Toulouse (2)	O O	O O
Greece	GRMCC	Athens	O	Penteli	N**	N**
Hong Kong, China	HKMCC	Hong Kong	O	Hong Kong (1) Hong Kong (2)	O O	O O
India	INMCC	Bangalore	O	Bangalore Lucknow	O O	O O
Indonesia	IDMCC	Jakarta	O	Cengkareng	N**	N**
Italy	ITMCC	Bari	O	Bari	O	O
ITDC	TAMCC	Taipei	O	Keelung (1) Keelung (2)	O O	O O
Japan	JAMCC	Tokyo	O	Gunma	O	O
Korea (Rep. of)	KOMCC	Incheon	O	Incheon	O	O
New Zealand*	-	-	-	Wellington	O	O
Nigeria	NIMCC	Abuja	N	Abuja	O	O
Norway	NMCC	Bodoe	O	Tromsø Spitsbergen	O O	O O
Pakistan	PAMCC	Karachi	O	Karachi	O	O
Peru	PEMCC	Callao	O	Callao	O	O
Russia	CMC	Moscow	O	Moscow Nakhodka	UD O	UD O
Saudi Arabia	SAMCC	Jeddah	O	Jeddah (1) Jeddah (2)	O O	O O
Singapore	SIMCC	Singapore	O	Singapore	O	O
South Africa	ASMCC	Cape Town	O	Cape Town	O	O
Spain	SPMCC	Maspalomas	O	Maspalomas	O	O
Thailand	THMCC	Bangkok	O	Bangkok (1) Bangkok (2)	O O	O O
Turkey	TRMCC	Ankara	O	Ankara (1) Ankara (2)	O O	O O
UAE	AEMCC	Abu Dhabi	O	Abu Dhabi	O	O
UK	UKMCC	Kinloss	O	Combe Martin	O	O
USA	USMCC	Suitland	O	Alaska (1) Alaska (2) California (1) California (2) Florida (1) Florida (2) Guam (1) Guam (2) Hawaii (1) Hawaii (2)	O O O O O O O O O O	O O O O O O O O O O
Vietnam	VNMCC	Haiphong	O	Haiphong	O	O

Notes: N Not operational
O Operational
SARP SAR processor (provides the local and global mode coverage)
SARR SAR repeater (provides the local mode coverage only)
UD Under development
* The New Zealand LEOLUT is directly connected to the Australian MCC (AUMCC)
** Temporary out of service as reported at CSC-51 (October 2013)

**Figure 6: Satellite Visibility Area of Cospas-Sarsat Operational LEOLUTs
(15 December 2013)**

Note: White areas shows where the satellite/LEOLUT have mutual visibility. The LEOSAR SARP stores alerts in memory on the satellite and continuously transmits allowing each LEOLUT to receive and process data from distress beacons anywhere in the world.



LUTs:

- | | | |
|--------------------------|----------------------------|----------------------------|
| 1 Ouargla, Algeria | 17 Toulouse, France* | 33 Jeddah, Saudi Arabia* |
| 2 El Palomar, Argentina | 18 Penteli, Greece** | 34 Singapore |
| 3 Rio Grande, Argentina | 19 Bangalore, India | 35 Cape Town, South Africa |
| 4 Albany, Australia | 20 Luchnow, India | 36 Maspalomas, Spain |
| 5 Bundaberg, Australia | 21 Cengkareng, Indonesia** | 37 Bangkok, Thailand* |
| 6 Brasilia, Brazil | 22 Bari, Italy | 38 Ankara, Turkey* |
| 7 Manaus, Brazil | 23 Keelung (ITDC)* | 39 Abu Dhabi, UAE |
| 8 Recife, Brazil | 24 Gunma, Japan | 40 Combe Martin, UK |
| 9 Churchill, Canada | 25 Incheon, Korea | 41 Alaska, USA* |
| 10 Edmonton, Canada | 26 Abuja, Nigeria | 42 California, USA* |
| 11 Goose Bay, Canada | 27 Wellington, New Zealand | 43 Florida, USA* |
| 12 Eastern Island, Chile | 28 Tromsø, Norway | 44 Guam, USA* |
| 13 Punta Arenas, Chile | 29 Spitsbergen, Norway | 45 Hawaii, USA* |
| 14 Santiago, Chile | 30 Karachi, Pakistan | 46 Haiphong, Vietnam |
| 15 Beijing, China* | 31 Callao, Peru | |
| 16 Hong Kong, China* | 32 Nakhodka, Russia | |

Notes: * These LEOLUTs are dual systems

** Temporary out of service as reported at CSC-51 (October 2013)

Satellite: altitude 850 km
elevation angle 5 degrees

Table V - GEOSAR Ground Segment Status (15 December 2013)

Country	GEOLUT Name	Number on Map (Figure 6)	Geostationary Satellite	GEOLUT Status
Algeria	Algiers	1	MSG-3	In operation, commissioned
Argentina	El Palomar	2	GOES-East	In operation, commissioned
Brazil	Brasilia	3	GOES-East	In operation, commissioned
	Recife	4	GOES-East	In operation, commissioned
Canada	Edmonton	5	GOES-West	In operation, commissioned
	Ottawa	6	GOES-East	In operation, commissioned
Chile	Santiago	7	GOES-East	In operation, commissioned
France	Toulouse	8	MSG-3	In operation, commissioned
Greece	Penteli	9	MSG-2	In operation, commissioned
India	Bangalore	10	INSAT-3A	In operation, commissioned Under test with INSAT-3D
Italy	Bari	11	MSG-3	In operation, commissioned
New Zealand	Wellington (1)	12	GOES-West	In operation, commissioned
	Wellington (2)		Louch-5A	Under test with Louch-5A GOES-West used as a standby satellite when needed
Norway	Fauske	13	MSG-3	In operation, commissioned
Peru	Callao	14	GOES-West	In operation, commissioned
Russia	Moscow	15	Electro-L1	In operation, commissioned
Spain	Maspalomas (1)	16	GOES-East	In operation, commissioned
	Maspalomas (2)		MSG-3	In operation, commissioned
Turkey	Ankara	17	MSG-2	In operation, commissioned
UAE	Abu Dhabi	18	MSG-3	In operation, commissioned
UK	Combe Martin	19	MSG-3 GOES-East	In operation, commissioned GOES-East used as a standby satellite when needed
USA	Maryland (1)	20	GOES-East	In operation, commissioned
	Maryland (2)		GOES-West	In operation, commissioned

Figure 7: GEOSAR Satellite Coverage and GEOLUTs (15 December 2013)

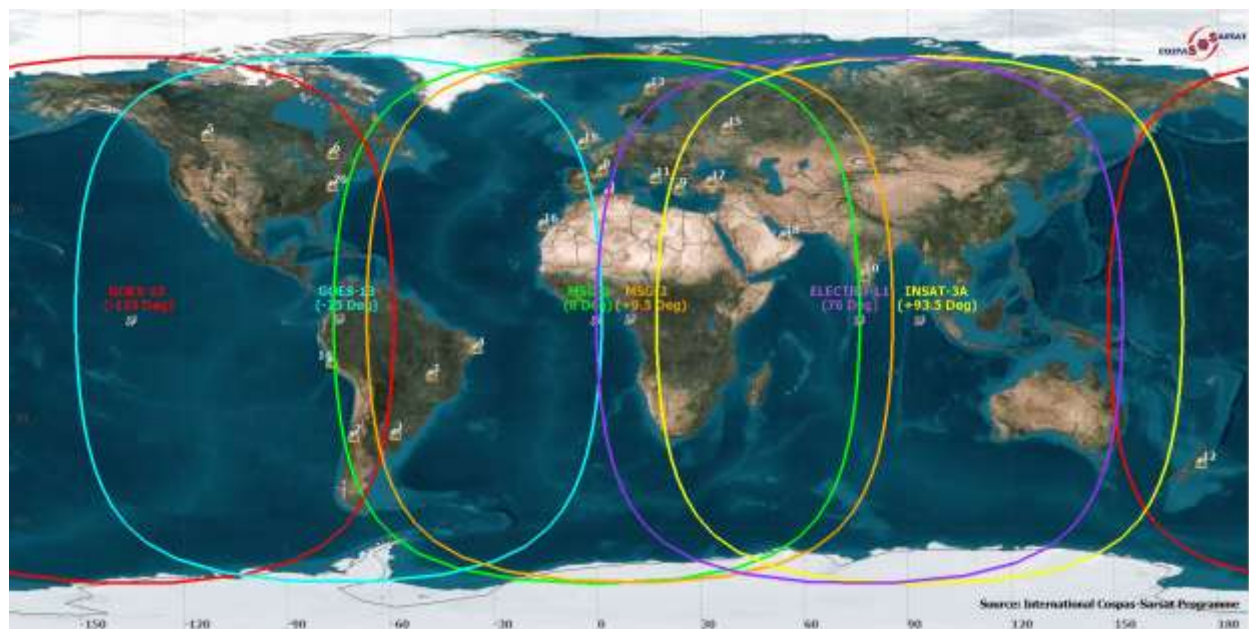


Table VI - C/S Type Approved 406 MHz Beacons

All information on Cospas-Sarsat type approved 406 MHz beacons, as well as a list of 406 MHz beacon manufacturers, is available on the Cospas-Sarsat website at www.cospas-sarsat.org.

Table VII - Cospas-Sarsat Documents 1/5
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C/S A.000 Series - Operational

Cospas-Sarsat Data Distribution Plan

C/S A.001, Issue 6 - Revision 3, October 2013

Cospas-Sarsat Mission Control Centres Standard Interface Description

C/S A.002, Issue 5 - Revision 4, October 2013

Cospas-Sarsat System Monitoring and Reporting

C/S A.003, Issue 2 - Revision 4, October 2013

Cospas-Sarsat Mission Control Centre Performance Specification and Design Guidelines

C/S A.005, Issue 3 - Revision 10, October 2013

Cospas-Sarsat Mission Control Centre Commissioning Standard

C/S A.006, Issue 3 - Revision 9, October 2013

C/S D.000 Series - IBRD

Functional Requirements for the Cospas-Sarsat International 406 MHz Beacon Registration Database

C/S D.001, Issue 2, October 2010

Cospas-Sarsat International 406 MHz Beacon Registration Database (IBRD), Software Maintenance Manual

C/S D.002, Issue 1, November 2005

Cospas-Sarsat International 406 MHz Beacon Registration Database (IBRD), System Maintenance Manual

C/S D.003, Issue 1 - Revision1, October 2013

Operations Plan for the Cospas-Sarsat International 406 MHz Beacon Registration Database

C/S D.004, Issue 1 - Revision 5, October 2013

C/S G.000 Series - General

Introduction to the Cospas-Sarsat System

C/S G.003, Issue 6 - Revision 1, October 2013

Cospas-Sarsat Glossary*

C/S G.004, Issue 1 - Revision 4, October 1999

Cospas-Sarsat Guidelines on 406 MHz Beacon Coding, Registration and Type Approval

C/S G.005, Issue 2 - Revision 6, October 2013

C/S G.000 Series - General (Cont.)

Handbook on Distress Alert Messages for Rescue Coordination Centres (RCCs), Search and Rescue Points of Contact (SPOCs) and IMO Ship Security Competent Authorities
C/S G.007, Issue 1 - Revision 5, October 2013

Operational Requirements for the Cospas-Sarsat Second Generation 406 MHz Beacons
C/S G.008, Issue 1 - Revision 2, October 2013

C/S P.000 Series - Programme

The International Cospas-Sarsat Programme Agreement
C/S P.001, 1 July 1988

Procedure for the Notification of Association with the International Cospas-Sarsat Programme by States Non-Party to the Cospas-Sarsat Agreement
C/S P.002, December 1992

Arrangement between Canada, the Republic of France, the Russian Federation and the United States of America Regarding the Headquarters of the International Cospas-Sarsat Programme
C/S P.005, 5 April 2005

Understanding between the Cospas-Sarsat Programme and the Gouvernement du Québec Concerning Exemptions, Fiscal Advantages and Courtesies Accorded to the Programme, Representatives of Member States and Officials of the Secretariat
C/S P.006, 17 May 2005

Guidelines for Participating in the Cospas-Sarsat System
C/S P.007, Issue 5, October 2009

Arrangement on Cooperation between the Cooperating Agencies of the Parties to the International Cospas-Sarsat Programme Agreement and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) on the EUMETSAT Contribution to the Cospas-Sarsat GEOSAR System
C/S P.008, 25 October 2010

Understanding between the States Parties to the International Cospas-Sarsat Programme Agreement and the Republic of India concerning the Association of the Republic of India with the Cospas-Sarsat Programme as a Provider of Geostationary Satellite Services for Search and Rescue (GEOSAR)
C/S P.009, 25 March 2007

List of States and Organizations Associated with the Cospas-Sarsat Programme
C/S P.010, October 2013

Cospas-Sarsat Programme Management Policy
C/S P.011, Issue 1 - Revision 7, October 2013

Cospas-Sarsat Secretariat Management Guide
C/S P.012, Issue 1 - Revision 1, November 2005

C/S P.000 Series - Programme (Cont.)

Declaration of Intent for Co-operation on the Development and Evaluation of the Medium Earth Orbit Search and Rescue (MEOSAR) Satellite System between the Co-operating Agencies of the International Cospas-Sarsat Programme and the Galileo Joint Undertaking
C/S P.014, 14 December 2006

Cospas-Sarsat Quality Manual
C/S P.015, Issue 1 - Revision 2, October 2010

Cospas-Sarsat Strategic Plan
C/S P.016, Issue 1 - Revision 3, October 2013

C/S R.000 Series - Reports

Cospas-Sarsat Report on System Status and Operations**
C/S R.007, No.29: January - December 2012

Summary Report of the 406 MHz Geostationary System Demonstration and Evaluation
C/S R.009, October 1999

Cospas-Sarsat Meteosat Second Generation (MSC) GEOSAR Performance Evaluation Plan
C/S R.011, Issue 1 - Revision 1, October 2003

Cospas-Sarsat 406 MHz MEOSAR Implementation Plan
C/S R.012, Issue 1 - Revision 9, October 2013

Cospas-Sarsat Meteosat Second Generation (MSG) GEOSAR Performance Evaluation Report
C/S R.013, Issue 1 - Revision 1, October 2006

Cospas-Sarsat INSAT GEOSAR Performance Evaluation Plan
C/S R.014, Issue 1, October 2009

Cospas-Sarsat INSAT GEOSAR Performance Evaluation Report
C/S R.015, Issue 1, October 2009

Cospas-Sarsat Electro-L GEOSAR Performance Evaluation Plan
C/S R.016, Issue 1 - Revision 1, October 2011

Second Generation 406 MHz Beacon Implementation Plan
C/S R.017, Issue 1 - Revision 2, October 2013

Cospas-Sarsat Demonstration and Evaluation Plan for the 406 MHz MEOSAR System
C/S R.018, Issue 2 - Revision 1, October 2013

Cospas-Sarsat Electro GEOSAR Performance Evaluation Plan
C/S R.019, Issue 1, October 2012

Cospas-Sarsat Louch GEOSAR Performance Evaluation Plan
C/S R.020, Issue 1, October 2012

C/S S.000 Series - Secretariat

Handbook of Beacon Regulations

C/S S.007, Issue 1 - Revision 4, September 2013

C/S T.000 Series - Technical

Specification for Cospas-Sarsat 406 MHz Distress Beacons

C/S T.001, Issue 3 - Revision 14, October 2013

Cospas-Sarsat LEOLUT Performance Specification and Design Guidelines

C/S T.002, Issue 4 - Revision 2, October 2012

Description of the Payloads Used in the Cospas-Sarsat LEOSAR System

C/S T.003, Issue 4 - Revision 1, October 2010

Cospas-Sarsat LEOSAR Space Segment Commissioning Standard

C/S T.004, Issue 2 - Revision 2, October 2012

Cospas-Sarsat LEOLUT Commissioning Standard

C/S T.005, Issue 3 - Revision 1, October 2009

Cospas-Sarsat Orbitography Network Specification

C/S T.006, Issue 2 - Revision 3, October 2013

Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard

C/S T.007, Issue 4 - Revision 8, October 2013

Cospas-Sarsat Acceptance of 406 MHz Beacon Type Approval Test Facilities

C/S T.008, Issue 2, November 2005

Cospas-Sarsat GEOLUT Performance Specification and Design Guidelines

C/S T.009, Issue 1 - Revision 8, October 2012

Cospas-Sarsat GEOLUT Commissioning Standard

C/S T.010, Issue 1 - Revision 7, October 2013

Description of the 406 MHz Payloads Used in the Cospas-Sarsat GEOSAR System

C/S T.011, Issue 1 - Revision 8, October 2013

Cospas-Sarsat 406 MHz Frequency Management Plan

C/S T.012, Issue 1 - Revision 9, October 2013

Cospas-Sarsat GEOSAR Space Segment Commissioning Standard

C/S T.013, Issue 1- Revision 2, October 2013

Cospas-Sarsat Frequency Requirements and Coordination Procedures

C/S T.014, Issue 2 - Revision 1, October 2010

Table VII - Cospas-Sarsat Documents 5/5
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C/S T.000 Series - Technical (Cont.)

Cospas-Sarsat Specification and Type Approval Standard for 406 MHz Ship Security Alert (SSAS) Beacons
C/S T.015, Issue 1 - Revision 1, November 2007

Description of the 406 MHz Payloads Used in the Cospas-Sarsat MEOSAR System
C/S T.016, Issue 1, October 2013

Cospas-Sarsat MEOSAR Space Segment Commissioning Standard
C/S T.017, Issue 1, October 2013

C/S IP Series - Interim Procedures

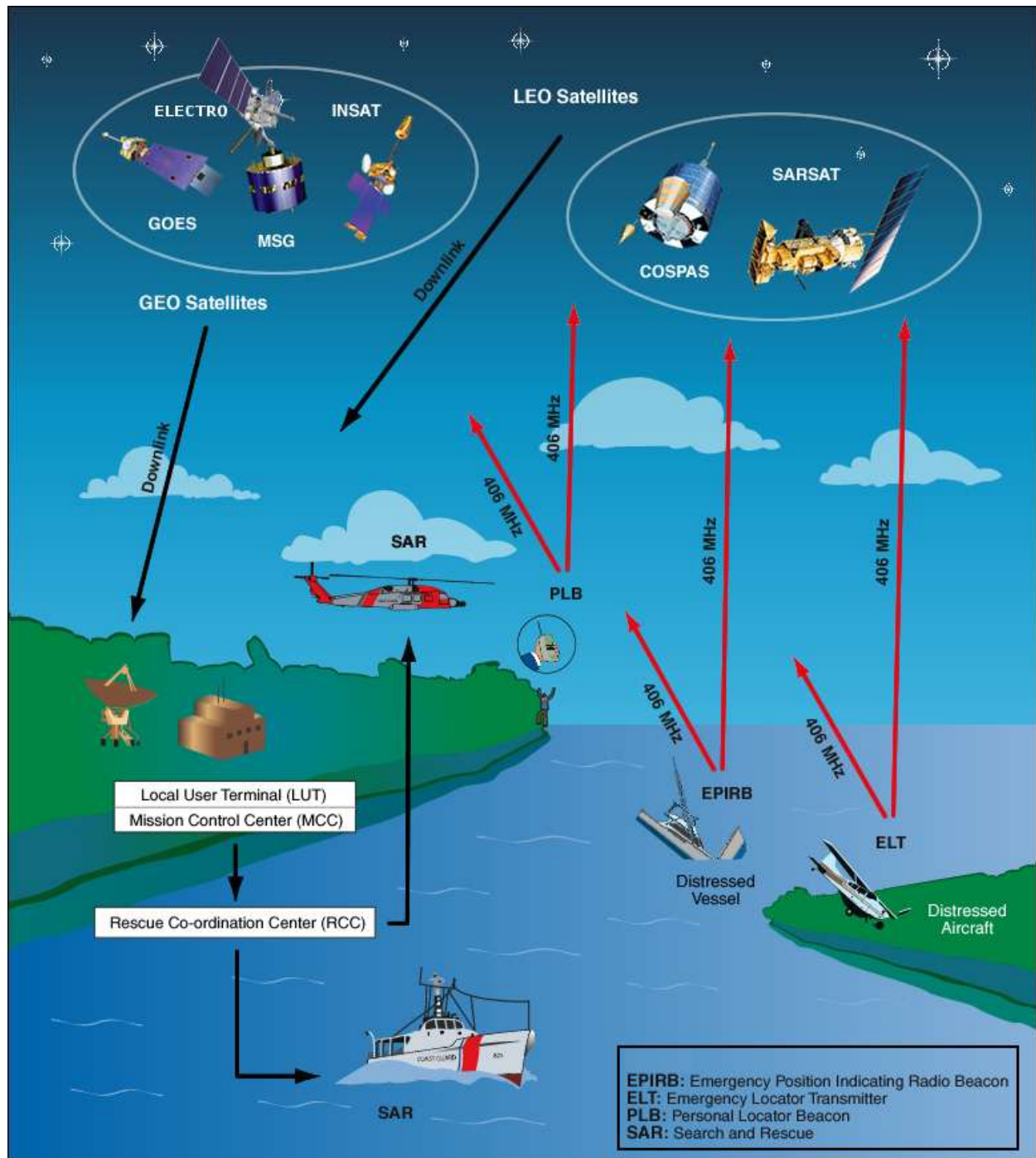
Interim Procedure for the Determination of Compliance of 406 MHz Beacons Equipped with a TCXO with
Cospas-Sarsat Type Approval Requirements
C/S IP (TCXO), Revision 5, October 2013

Interim Procedure for Type Approval of 406 MHz Beacons Equipped with Li-Ion Rechargeable Batteries
C/S IP (LIRB), Revision 3, October 2013

Notes: * All documents are available from the Cospas-Sarsat website, except for those marked with an * which could be
 ordered from the Secretariat.

 ** Only Annex C of document C/S R.007 is available on the Cospas-Sarsat website. Contact the Secretariat to get a
 soft copy of the other parts of document C/S R.007.

Figure 8: Basic Concept of the Cospas-Sarsat System



Notes:

COSPAS: Space system for the search of vessels in distress (Russia)

SARSAT: Search and rescue satellite-aided tracking system (Canada, France and USA)

LEOSAR: Low Earth Orbit satellite system for SAR

LEOLUT: Local user terminal in a LEOSAR system

GEOSAR: Geostationary satellite system for SAR

GEOLUT: Local user terminal in a GEOSAR system

GOES: Geostationary operational environmental satellite (USA)

INSAT: Indian geostationary satellite

MSG: Meteosat second generation satellite (EUMETSAT)



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