



Recommendation ITU-R SA.2045-0
(12/2013)

Basic general partitioning and sharing conditions for the band 401-403 MHz for future long-term coordinated use of data collection systems on geostationary and non-geostationary MetSat and Earth exploration-satellite service systems

SA Series
Space applications and meteorology

Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

Electronic Publication
Geneva, 2014

© ITU 2014

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without written permission of ITU.

RECOMMENDATION ITU-R SA.2045-0

**Basic general partitioning and sharing conditions for the band 401-403 MHz
for future long-term coordinated use of data collection systems on
geostationary and non-geostationary MetSat and
Earth exploration-satellite service systems**

(2013)

Scope

This Recommendation provides information on the current and future usage of the non-GSO data collection systems (DCS) in the 401-403 MHz, and the portioning of the band to allow all DCS systems equal access to the spectrum.

The ITU Radiocommunication Assembly,

considering

- a) that Data Collection Systems (DCS) are operated on geostationary and non-geostationary MetSat and Earth exploration-satellite service (EESS) systems in the frequency band 401-403 MHz;
- b) that for next generation DCS systems on both geostationary and non-geostationary MetSat and EESS systems, bandwidth requirements have significantly increased;
- c) that the increased spectrum requirements for both geostationary and non-geostationary MetSat and EESS systems require all operators to respect a basic general partitioning of the band 401-403 MHz for current and future DCS systems accompanied by sharing conditions,

recommends

1 that operators of current and future DCS systems on geostationary and non-geostationary MetSat and EESS satellites plan frequency use in accordance with the basic general partitioning of the band 401-403 MHz as shown in the Annex, taking into account the sharing conditions as detailed in *recommends 2 to 7* below;

2 that the band 401.7-402.435 MHz remains available only for DCS on geostationary MetSat systems. However, within this frequency range, the non-geostationary MetSat system Meteor-3M, which is planned for use in the band 401.899-401.998 MHz, will only operate over the territory of the Russian Federation;

3 that the band 402.435-402.850 MHz is used only for DCS on geostationary MetSat systems;

4 that the band 401.1-401.4 MHz is used for DCS on geostationary MetSat systems. However, within this frequency range, the bands 401.1-401.2 MHz and 401.3-401.4 MHz can also be used for Global satellite data collection and positioning system (ARGOS) platforms under the following conditions:

- maximum e.i.r.p. of -3 dBW;
- maximum number of ARGOS active platforms to be deployed in each of the two sub-bands not to exceed 1 000 within the visibility circle of FY-2 and FYGEOSAT series satellites;
- maximum duty cycle (ratio of transmission duration over the repetition period) of each platform not to exceed 0.01 (on average 0.6 s over 60 s);

5 that the bands 401-401.1 MHz, 401.4-401.7 MHz and 402.850-403 MHz are designated to non-geostationary systems, such as ARGOS. However, the sub-band 401.5-401.7 MHz can also be used by Data collection platform (DCP) GEO systems of the Russian Federation, noting that for the sub-band 401.58-401.7 MHz these systems must be limited to operation over the Russian territory with a maximum e.i.r.p. of 16 dBW;

6 that the band 401.605-401.665 MHz is also designated for use by the Brazilian DCS NGSO over South America;

7 that the band 402.034-402.067 MHz is dedicated to the International Data Collection Systems (IDCS).

Annex

Basic general partitioning of the band 401-403 MHz for future long-term coordinated use of DCS systems on geostationary and non-geostationary MetSat and EESS

Background on data collection system

One of the EESS/MetSat usage comprises the data collection platforms gathering information activity related to the Earth, the environment and scientific application, weather and environment observation. The data which are collected by ground platforms, are sent to the corresponding satellites that retransmit the retrieved information to dedicated earth stations. The DCS is particularly useful for the collection of data from remote and inhospitable locations where it may provide the only possibility for data relay. Even so, the system has very many uses in regions with a highly developed infrastructure. The installations required for relay of the data tend to be inexpensive, unobtrusive and normally blend easily into the local environment.

There are two kinds of data collection systems: geostationary which usually operate under the MetSat radio service and the non-geostationary systems which usually operate under the EES radio service.

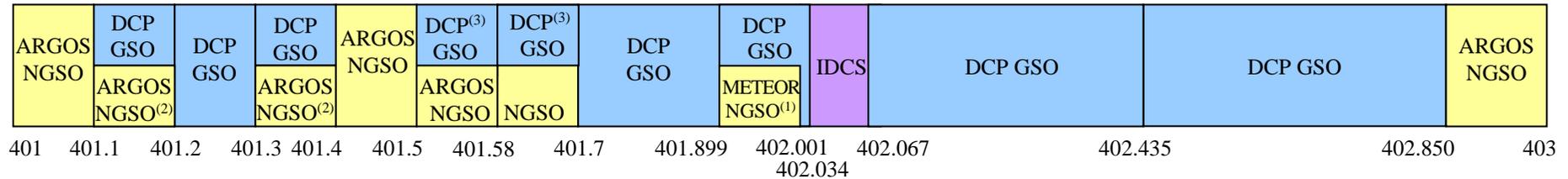
For example, geostationary satellites are traditionally operated by meteorological agencies and DCS are provided by several geostationary meteorological satellite operators, giving almost total coverage around the world with the exception of the polar regions.

For non-geostationary satellites, one example is the ARGOS satellite-based location and DCS: this system enables scientists to gather information on any platform equipped with an appropriate transmitter, anywhere in the world. ARGOS transmitters' messages are recorded by a constellation of satellites carrying ARGOS instruments, and then relayed to dedicated processing centres.

The IDCS comprises eleven channels which are reserved for DCP mounted on aircraft, ship, drifting ocean buoy or balloon, to transmit environmental data continuously. The transmissions are received by the nearest geostationary meteorological satellite, relayed to its primary ground station and then distributed to the relevant user community.

Overall usage of the band 401-403 MHz

Basic general partitioning of the band 401-403 MHz for future long-term coordinated use of DCS systems on geostationary and non-geostationary MetSat and EESS systems



- (1) The following conditions contained in *recommends* 2 are as follows: in the band 401.899-401.998 MHz the non-geostationary MetSat system Meteor-3M will only operate over the territory of the Russian Federation.
- (2) The following conditions contained in *recommends* 4 are valid for the use of the bands 401.1-401.2 MHz and 401.3-401.4 MHz by ARGOS platforms:
- maximum e.i.r.p. of –3 dBW;
 - maximum number of ARGOS active platforms to be deployed in each of the two sub-bands not to exceed 1 000 within the visibility circle of FY-2 and FYGEOSAT series satellites;
 - maximum duty cycle (ratio of transmission duration over the repetition period) of each platform not to exceed 0.01 (on average 0.6 s over 60 s).
- (3) The following conditions contained in *recommends* 5 are as follows: the band 401.5-401.7 MHz can also be used by DCP GSO systems of the Russian Federation, noting that for the sub-band 401.58-401.7 MHz, these systems must be limited to operation over the Russian territory with a maximum e.i.r.p. of 16 dBW.