

Ms. Mindel De La Torre
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Ms. De La Torre:

The National Telecommunications and Information Administration (NTIA) on behalf of the Executive Branch agencies, approves the release of the draft Executive Branch proposals for WRC-15 agenda item 1.1 (1435-1525 MHz), 1.9.2, 1.14 and 10. NTIA proposes no change to the table of allocations for agenda item 1.1 and 1.9.2. For agenda item 1.14, NTIA proposes a modification to Article 1 definition for Coordinated Universal Time and a consequential change to Article 2. Finally, NTIA proposes a future conference agenda item addressing Earth exploration-satellite service allocations at 460-470 MHz.

NTIA considered the federal agencies' input toward the development of U.S. proposals for WRC-15. NTIA forwards this package for your consideration and review by your WRC-15 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

(Original Signed December 13, 2013)

Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.1: *to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution 233 (WRC-12)*

Background Information: The ITU-R is considering the band 1 435-1 525 MHz as a potential candidate for a new mobile service allocation under the 2015 World Radiocommunication Conference agenda item 1.1. Some administrations utilize the band 1 435-1 525 MHz for flight-testing in the Americas. The band is critical for aerospace research and development, and aircraft safety standards certification. Flight testing requires real-time data for the protection of the pilot and aircrew, test aircraft, and people and property on the ground. Administrations performing such flight testing require transmission of this data in interference-free frequency bands to minimize the chance of disruption to critical safety communications. Thus, the use of the band 1 435-1 525 MHz for aeronautical mobile telemetry (AMT) systems is essential for the aerospace manufacturing industry in the Americas.

No. **5.343** provides that “[i]n Region 2, the use of the band 1 435-1 525 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.”

ITU-R compatibility studies show that co-frequency sharing of IMT with AMT systems in Region 2, in the absence of very large exclusion zones, is not practical. This result is consistent with a study performed independently for Region 1 by another administration. The two studies independently arrive at comparable, very large protection distances (e.g. over 100 km in the case of IMT to AMT interference, and over 365 km in the case of AMT to IMT interference). Therefore, Region 2 requires no change to the table of allocations.

Proposal:

NOC

USA/1.1/1

ARTICLE 5
Frequency allocations

1 300-1 525 MHz

Allocation to Services		
Region 1	Region 2	Region 3
...	1 429-1 452 FIXED MOBILE 5.343 5.338A 5.341	
...	1 452-1 492 FIXED MOBILE 5.343 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.344 5.345	
...	1 492-1 518 FIXED MOBILE 5.343 5.341 5.344	...
...	1 518-1 525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.344	...

Reasons: Based on studies submitted in ITU-R, co-frequency sharing between IMT and AMT is not practical. Due to the need for continued use of AMT within Region 2, the band 1435-1525 MHz should not be identified for IMT use in Region 2.

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.9.2: *to consider, in accordance with Resolution 758 (WRC-12) ... the possibility of allocating the bands 7 375-7 750 MHz and 8 025-8 400 MHz to the maritime-mobile satellite service and additional regulatory measures, depending on the results of appropriate studies*

Background Information: WRC-15 agenda item 1.9.2 directs consideration of allocating the bands 7 375-7 750 MHz and 8 025-8 400 MHz to the maritime mobile-satellite service (MMSS). The proposed allocation would effectively allow the entire 7 250-7 750 MHz (space-to-Earth) and 7 900-8 400 MHz (Earth-to-space) bands (subject to No. **9.21** agreement for bands 7 250-7 375 MHz and 7 900-8 025 MHz) to be accessible to the MMSS, making it identical to the existing fixed-satellite service (FSS) allocations.

The Earth exploration-satellite service (EESS) (space-to-Earth) has a worldwide primary allocation in the band 8 025-8 400 MHz. This band supports the downlink of environmental and climate data from non-geostationary orbit (NGSO) satellites, which are often in polar orbits, to earth stations that may be located at high latitudes and/or near coastal areas. The space research service (SRS) (space-to-Earth) has a worldwide primary allocation in the adjacent band 8 400-8 500 MHz, with No. **5.465** limiting the band 8 400-8 450 MHz to deep space use. There is extensive use of the band 8 400-8 450 MHz at sites around the world, including in coastal locations, by the SRS (space-to-Earth) for deep space with very large antennas and sensitive receivers that are susceptible to possible interference from out-of-band emissions.

ITU-R sharing studies demonstrate that the proposed MMSS uplinks in the 8 025-8 400 MHz bands will interfere with existing services in the band, specifically the EESS (space-to-Earth). The proposed satellite uplink transmissions will cause interference into EESS earth station receivers. Very large separation distances from shore required to mitigate this interference would make the use of MMSS impractical. ITU-R sharing studies demonstrate that the proposed MMSS uplinks in the 8 025-8 400 MHz bands will also interfere with the adjacent SRS (space-to-Earth) allocation in 8 400-8 500 MHz, specifically the 8 400-8 450 MHz sub-band limited to deep space research. Large separation distances and/or frequency separation would be required to mitigate interference.

Proposal:

NOC USA/AI 1.9.2/1

ARTICLE 5
Frequency allocations

Reasons: ITU-R studies indicate a potential for interference into existing services, both in-band and adjacent band.

SUP USA/AI 1.9.2/2

RESOLUTION 758 (WRC-12)

**Allocation to the fixed-satellite service and the maritime-
mobile satellite service in the 7/8 GHz range**

Reasons: This proposal is consequential to completion of the agenda item 1.9.2. This proposal does not reflect a position on studies under this Resolution for agenda item 1.9.1.

UNITED STATES OF AMERICA**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

Agenda Item 1.14: *to consider the feasibility of achieving a continuous reference time-scale, whether by the modification of coordinated universal time (UTC) or some other method, and take appropriate action, in accordance with Resolution 653 (WRC-12)*

Background Information: Coordinated Universal Time (UTC) is the international standard time scale for practical timekeeping in the modern world. The basic unit of measurement is the internationally accepted Système International (SI) second, which is realized in practice by atomic clocks in national laboratories throughout the world. The Bureau International des Poids et Mesures uses clock information from these laboratories to coordinate the various national realizations of UTC. This process provides time with a stability of better than a billionth of a second per day for the international infrastructure that requires accurate timing information, such as communications, computer networks, navigation, and air traffic control. The Radio Regulations define UTC in No. 1.14 through incorporation by reference of Recommendation ITU-R TF.460-6.

The International Radio Consultative Committee (CCIR) formally adopted the system for UTC in Recommendation 374 in 1963. The CCIR introduced leap seconds into the definition of UTC beginning on January 1, 1972. In its Recommendation 460, the CCIR stated that UTC is a timescale that uses the SI second. The CCIR also stated the accounting of those seconds will be adjusted, when necessary, in 1 second steps to compensate for the slowing of the Earth's rotation rate. This version of the UTC system remains in use today, defined by ITU-R (formerly CCIR) Recommendation ITU-R TF.460-6. Since their introduction, leap seconds have been inserted into UTC at irregular intervals because the slowing of the Earth's rotation rate is not uniform.

Much of our international infrastructure relies on steady, accurate timing. Many of these systems view leap seconds as disruptions of the count in the time stream. Resolution 653 (WRC-12), considering e, states "that the occasional insertion of leap seconds into UTC may create difficulties for systems and applications that depend on accurate timing." Given that our reliance on many of these systems and applications is both critical and growing with time, WRC-12 adopted agenda item 1.14 in order to consider the feasibility of achieving a continuous reference time-scale, whether by the modification of UTC or some other method.

Given the results of studies, this proposal supports the adoption of UTC without leap seconds as the most feasible means for achieving a continuous reference time-scale for dissemination by radiocommunication systems. To ensure sufficient time for legacy systems to update hardware and/or software to accommodate the elimination of leap seconds from UTC, a period of five years from the date of entry into force of the Final Acts of WRC-15 will be the effective date of application of revisions to the Radio Regulations resulting from Resolution 653 (WRC-12).

Proposal:

ARTICLE 1

Terms and definitions

MOD USA/AI 1.14/1

Section I – General terms

1.14 *Coordinated Universal Time (UTC)*: Time scale, based on the second (SI) and maintained by the Bureau International de Poids et Mesures (BIPM), that forms the basis for the coordinated dissemination of standard frequencies and time signals.

Deleted: , as defined in Recommendation ITU-R TF.460-6. (WRC-03)¶

Reasons: The modification removes the incorporation by reference of Recommendation ITU-R TF.460-6, which defines the use of leap seconds in UTC. The modification also adds a reference to the international organization responsible for the maintenance of the UTC time scale. Finally, because UTC will no longer be tied to Earth’s rotation, the modification removes the equivalence between UTC and the mean solar time at the prime meridian.

Deleted: For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT.

ARTICLE 2

Nomenclature

Section II – Dates and times

MOD USA/AI 1.14/2

2.5 Whenever a date is used in connection with Coordinated Universal Time (UTC), this date shall be that of the prime meridian, taking into account the difference between UTC and the mean solar time of the prime meridian, the prime meridian corresponding to zero degrees geographical longitude.

Deleted: at the appropriate time

Reasons: Consequential change resulting from removing the equivalence between UTC and the mean solar time at the prime meridian in the definition of UTC.

MOD USA/AI 1.14/3

CHAPTER X

Provisions for entry into force of the Radio Regulations (WRC-15)

Deleted: 2

Reasons: To update the WRC where provisions for entry into force will be recorded for the final acts of the conference.

MOD USA/AI 1.14/4

ARTICLE 59

Entry into force and provisional application of the Radio Regulations (WRC-15)

Deleted: 2

Reasons: To update the WRC in the Article where provisions for entry into force will be recorded for the final acts of the conference.

MOD USA/AI 1.14/5

59.1 These Regulations, which complement the provisions of the Constitution and Convention of the International Telecommunication Union, and as revised and contained in the Final Acts of WRC-95, WRC-97, WRC-2000, WRC-03, WRC-07, ~~WRC-12~~, and WRC-15 shall be applied, pursuant to Article 54 of the Constitution, on the following basis. (WRC-15)

Deleted: and

Deleted: 2

Reasons: To update the WRC where provisions for entry into force will be recorded for the final acts of the conference.

ADD USA/AI 1.14/6

59.AA The other provisions of these Regulations, as revised by WRC-15, shall enter into force on 1 January 2017, with the following exceptions: (WRC-15)

Reasons: To update Article 59 add provisions for entry into force for Regulations as revised by WRC-15 as well as other effective dates of application as specified in the listed Resolutions.

ADD USA/AI 1.14/7

59.BB the revised provisions for which other effective dates of application are stipulated in Resolution:

[USA/114/AAA] (WRC-15) (WRC-15)

Reasons: To update Article 59 add provisions for entry into force for Regulations as revised by WRC-15 as well as other effective dates of application as specified in the listed Resolutions.

ADD USA/AI 1.14/8

RESOLUTION [USA/114/AAA] (WRC-15)

**Provisional application of certain provisions of the Radio Regulations
as revised by WRC-15 and abrogation of certain
Resolutions and Recommendations**

The World Radiocommunication Conference (Geneva, 2015),

considering

- a) that this Conference has, in accordance with its terms of reference adopted a partial revision to the Radio Regulations (RR), which will enter into force on 1 January 2017;
- b) that some of the provisions, as amended by this Conference, need to apply provisionally before that date;
- c) that some of the provisions, as amended by this Conference, need to apply after that date;
- d) that, as a general rule, new and revised Resolutions and Recommendations enter into force at the time of the signing of the Final Acts of a Conference;
- e) that, as a general rule, Resolutions and Recommendations which a WRC has decided to suppress are abrogated at the time of the signing of the Final Acts of a Conference,

resolves

that, as of 1 January 2022, the following provisions of the RR, as revised or established by WRC-15, shall apply: Nos. **1.14, 2.5**;

Reasons: To ensure sufficient time for legacy systems to update hardware and/or software to accommodate the elimination of leap seconds, this provision is added to Resolution [USA/114/AAA] "Provisional application of certain provisions of the Radio Regulations as

revised by WRC-15 and abrogation of certain Resolutions and Recommendations” (WRC-15).
Additional provisions and abrogation for WRC-15 may be added to Resolution [USA/114/AAA].

SUP USA/AI 1.14/9

RESOLUTION 653 (WRC-12)

Future of the Coordinated Universal Time time-scale

Reasons: The required studies have been completed and this resolution is no longer needed.

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 10: *to recommend to the Council, items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC-07)*

Background Information: The 460-470 MHz band is allocated on a primary basis to the fixed and mobile services. The meteorological-satellite service currently has a secondary allocation in this band. Within this band, the Argos Data Collection System (ADCS) is used to monitor over 21,000 individual platforms around the globe for 1,900 operators in 118 countries. Critical applications of the ADCS include atmospheric & ocean monitoring/research, tropical cyclone forecasting, fishery management, oil spill tracking, fishing vessel tracking, search & rescue modeling (at sea), anti-piracy alerting, import/export & hazardous materials tracking, endangered species studies, migration mapping, and wildlife tracking and management.

RF Central Station Alarm (CSA) systems operate on the same frequency as the ADCS downlink. Due to the potential for interference to the CSA systems, the operator turned off the ADCS on the NOAA-19 satellite. To provide additional protection to existing services in the band, the next generation of ADCS transmitters will implement a direct sequence spread spectrum in the satellite downlink to reduce the power flux density (pfd) in the 460-470 MHz band to flux < -152 dBW/m²/4kHz.

To protect the recent significant investment and expansion of the ADCS systems, this proposal advocates studying sharing between the existing meteorological-satellite (space-to-Earth) service and incumbent services in the 460-470 MHz band with a view to upgrading the meteorological-satellite service to primary and potentially adopting a pfd limit on the meteorological-satellite (space-to-Earth) service to protect the incumbent services. A co-primary allocation status would protect the ADCS from any new services entering the band.

Proposal:

MOD USA/10/1

RESOLUTION 806 (WRC-15)

Agenda for the 2018 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2015),

ADD USA/10/2

X.X to review the allocations to the meteorological-satellite service in the 460-470 MHz band with a view to upgrading service to a primary allocation.

Reasons: To allow meteorological-satellite service to operate on a co-primary status with fixed and mobile.

ADD USA/10/3

RESOLUTION AAA (WRC-15)

Primary Allocation to the Meteorological Satellite Service in the 460 – 470 MHz Band

The World Radiocommunication Conference (Geneva, 2015),

considering

- a) that the Argos Data Collection System (ADCS) is used to monitor over 21,000 individual platforms around the globe for 1,900 operators in 118 countries;
- b) that the use of ADCS can provide spectrum efficiency by interrogating collection platforms prior to their transmission;
- c) that ADCS may be authorized to operate on a secondary basis with respect to the fixed and mobile services,

recognizing

- a) that technology has been developed to provide more efficient use of the spectrum;
- b) that a digital spread spectrum scheme will be used to increase mitigation of potential interference to incumbents in the band;
- c) that the satellite-to-platform down-link at 465.9875 MHz significantly improves platform and system performance, including data latency and battery life;
- d) that due to the significant investment and expansion of ADCS, future conflicts or interference issues must be avoided,

resolves

that taking into account the results of ITU-R studies, WRC-18 consider upgrading the current secondary allocation of the meteorological-satellite service (space-to-Earth) to primary in the 460-470 MHz band,

resolves to invite the ITU-R

1. to conduct in time for WRC-18, sharing studies between the meteorological-satellite service (space-to-Earth) and the fixed and mobile services in the band 460-470 MHz;
2. to complete the studies, taking into account the present use of the allocated band;
3. to determine the appropriate power flux density limit to be placed on the meteorological-satellite service (space-to-Earth) to protect the existing services in the band,

invites administrations

to participate actively in the studies and provide the technical and operational characteristics

of the systems involved by submitting contributions to the ITU-R,

instructs the Secretary General

to bring this resolution to the attention of the Space Frequency Coordination Group (SFCG) and other international and regional organizations concerned.

Reasons: A resolution will support the ITU-R studies needed under the relevant WRC-18 agenda item.

ATTACHMENT

**PROPOSAL FOR ADDITIONAL AGENDA ITEM STUDYING THE ALLOCATION OF
THE METEOROLOGICAL-SATELLITE SERVICE IN THE 460-470 MHZ BAND**

Subject: Proposed Future WRC Agenda Item for WRC-2018 studying meteorological-satellite service in the 460-470 MHz band

Origin: United States of America

Proposal: To review the services in the 460-470 MHz band with a view to upgrading the meteorological satellite service to primary status.

Background/reason:

The 460-470 MHz band is allocated on a primary basis to the fixed and mobile services. The meteorological-satellite service currently has a secondary allocation in this band. Within this band, Argos Data Collection System (ADCS) equipment on meteorological-satellites is used to monitor over 21,000 individual data collection platforms around the globe for 1,900 operators in 118 countries. Critical ADCS supported applications include atmospheric & ocean monitoring/research, tropical cyclone forecasting, fishery management, oil spill tracking, fishing vessel tracking, search & rescue modeling (at sea), anti-piracy alerting, import/export & hazardous materials tracking, endangered species studies, migration mapping, and wildlife tracking and management.

Radiocommunication services concerned: Meteorological Satellite Service, Fixed Service, Mobile Service, Earth Exploration Satellite Service

Indication of possible difficulties: None foreseen

Previous/ongoing studies on the issue: None to date

<i>Studies to be carried out by:</i> SG7	<i>with the participation of:</i>
---	-----------------------------------

ITU-R Study Groups concerned: SG5

ITU resource implications, including financial implications (refer to CV126): Minimal

Common regional proposal: Yes/No ***Multicountry proposal:*** Yes/No
Number of countries:

Remarks